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New grids of stellar models from 0.8 to 120 $M_\odot$ at $Z = 0.020$ and $Z = 0.001$

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Abstract. — New grids of stellar evolutionary models covering the range of 0.8 to 120 $M_\odot$ have been computed for metallicities $Z = 0.020$ and $Z = 0.001$. The models use the new opacities by Rogers & Iglesias (1991) and by Kurucz (1991) at low T. The consequent changes in the solar helium content, in the mixing length ratio and in the overshooting parameter are taken into account after careful calibrations. Important physical ingredients as the nuclear reaction rates and the neutrino loss rates have been updated. The ionization of the main heavy elements is calculated in details. An improved treatment of the optically thick envelope of WR stars is made on the basis of the CAK theory (cf. Kudritzki *et al.* 1989). Results of the models are given in a compact way at corresponding evolutionary stages in each model. In addition to the tables, we shortly present some general results on the tracks in the HR diagrams, the lifetimes in the H-, He-, C-burning phases and on massive and WR stars.

Key words: stars: evolution — mass loss — supergiants — Wolf Rayet

1. Introduction.

Extensive and accurate grids of stellar models at various metallicities Z are a basic tool for several astrophysical objectives: studies of star clusters, population synthesis, stellar nucleosynthesis and chemical evolution, etc... For such purposes, grids covering a wide range of masses are needed, with data given at corresponding evolutionary stages in order to permit reliable interpolations for population synthesis and other purposes.

Several grids of stellar models were made previously by others and us. However within the last few years, a number of improvements have occurred, which lead us to calculate new grids for stellar evolution. We list here all the modifications with respect to our previous works (cf. Maeder & Meynet 1989).

1) New radiative opacities by Rogers & Iglesias (1991) have been included for the available range of X, Y, Z. The changes with respect to the Los Alamos 1977 opacities are quite large: they typically amount to a factor of 3 at 300000 K for solar metallicity. Most outputs of stellar evolution are significantly modified by these opacity changes, in particular surface parameters (L, R, $T_{\rm eff}$), envelope structure and pulsation properties. These various effects were well presented by W. Däppen *et al.* in the report of IAU Comm. 35 of the 1991 IAU General Assembly (cf. Bergeron 1992). Several astrophysical effects were suggesting over recent years that the opacity should sizeably increase.
2) At low T, i.e. below 6000 K, radiative opacities by Kurucz (1991) also including the main molecular lines have been accounted for.
3) The change of opacities leads us to revise the initial He- content of the Sun to $Y = 0.229$ for $Z = 0.0188$.
4) The average relative ratio $\Delta Y/\Delta Z$ of helium to metal enrichment consistent with the above solar values is about 3, which is in agreement with values recently found by Pagel (1992) and implies a revision of the He-content of all Z models.
5) Changes in nuclear cross-sections have been made. Of major importance is the choice of the rate for the $^{12}C(\alpha,\gamma)^{16}O$ reaction which greatly affects the He-burning phase, in particular the extension of the blue loops. In this work we took the rate as given by Caughlan *et al.* (1985), compatible with the recent theoretical computation of Descouvemont (1989). Other changes have also been taken into account (cf. Landré *et al.* 1990; Caughlan *et al.* 1988).
6) New rates for neutrino losses have been included (cf. Itoh *et al.* 1989).
7) Convection parameters $l/H_{\rm p}$ and the overshooting distance change as a result of the increased opacities (cf. also Stothers & Chin 1991a).
8) We have also included the detailed treatment of the partial ionization for the main heavy elements in the

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code and we calculate all the corresponding thermodynamic quantities.

9) Changes in the algorithms used for the computation of chemical changes have been brought about in order to treat more accurately convective cores, particularly when overshooting is significant. This leads to a reduction of some timescales with respect to Maeder & Meynet (1989) as mentioned in Sect. 4 below and we apologize for the resulting changes. Interestingly enough, this re-examination enabled us to put the finger on several critical points which influence the timescales. They will be discussed in a further paper.

10) The optically thick wind of WR stars is treated in the framework of the modified Castor, Abbott and Klein theory (cf. Castor *et al.* 1975; Kudritzki *et al.* 1989). This enables us to satisfactorily calculate the $T_{\rm eff}$ and radii of WR stars, in view of investigating their mass - luminosity - mass loss rate - $T_{\rm eff}$ - He content - C/O ratio relations.

Apart from the changes mentioned above there were a number of other improvements brought about in recent years (cf. Maeder & Meynet 1989), regarding the equation of state, the metallicity dependence of the mass loss rates $\dot{M}$, the values of $\dot{M}$ for WR stars, etc... Sect. 2 gives more information on the physical ingredients. Section 3 presents the contents of the tables, while a few global results are given in Sect. 4.

The present grids at $Z = 0.020$ and $Z = 0.001$ will be followed by further grids at other metallicities, in particular at $Z = 0.040$ and 0.008 with the normally associated helium contents.

2. Physical ingredients of the models

2.1. Opacity

The radiative opacity tables of Rogers & Iglesias (1991) from $Z = 0.0001$ to $Z = 0.03$ for $X = 0.7$, 0.35 and 0.0 have been included. This is major change for the models, particularly around $\log T = 5.5$, where the differences with respect to previous opacities at $Z = 0.02$ amount to about a factor of 3. For metallicities higher than $Z = 0.03$, which occur in the core during the He-burning phase, we use the tables of Huebner *et al.* (1977). We have completed the tables of Rogers & Iglesias (1991) at low temperatures from 6000 K to 2100 K with the atomic and molecular opacities of Kurucz (1991).

Following Rogers & Iglesias (1991), all the tables are organized differently from what was made in previous works. Instead of rows and columns of constant temperature and density, we use temperature and a variable R, where $R = \rho/T_6^3$, (let us recall that R would be constant for a polytrope with $n = 3$, or in other words for a star with a constant ratio of radiation to gas pressure). The use of R and T_6 as interpolation variables minimizes the interpolation errors. Rogers & Iglesias (1991) also show that the quadratic interpolation scheme gives the minimal interpolation errors in most situations. Therefore we use a quadratic interpolation in R, T_6, X and Z in all cases except for $Z > 0.03$ where we proceed linearly.

2.2. Helium abundances

The opacities critically influence the determination of the helium mass fraction Y in the Sun. With the low opacity data by Cox & Stewart (1970), the Y value required to account for the solar L at the solar age of 4.57×10^9 y was 0.25 (cf. Bahcall *et al.* 1982). With the slightly larger opacities from the Los Alamos Opacities Program (cf. Huebner *et al.* 1977), the He content of the Sun was found to be $Y = 0.28$ (cf. Lebreton & Maeder 1986). Now, the larger opacities by Rogers & Iglesias (1991) and by Kurucz (1991) at low T again lead to an increase in Y. The physical reason is that if the opacities of heavy elements increase for a fixed amount Z, one has to dilute these heavy elements into a mixture containing more helium and less hydrogen (since helium is less opaque than hydrogen) in order to be able to satisfy the requirements about solar age and luminosity. Test models made with $Z = 0.0188$, the metallicity of the Sun (cf. Anders & Grevesse 1989), have been performed and values of $X = 0.6822, Y = 0.299$ have been found to perfectly match the solar luminosity. This higher He-value is consistent with the expected trend. It is also quite in agreement with recent results by Guenther (1992).

Interestingly enough, if we consider a cosmological helium $Y_{\rm p} = 0.24$ (cf. Audouze 1987), we see that the present Y value of about 0.30 for the Sun is consistent with a relatively high ratio $\Delta Y/\Delta Z \simeq 3$ of helium to metal enrichment during galactic evolution (cf. Pagel 1982). In summary, for various opacity sources, the solar requirements imply different solar helium content $Y_\odot$, to which different solar $\Delta Y/\Delta Z$ ratios are associated:

Cox & Stewart (1970)	$Y_\odot = 0.25$	$(\Delta Y/\Delta Z)_\odot = 0.53$
Los Alamos (1977))	$Y_\odot = 0.279$	$(\Delta Y/\Delta Z)_\odot = 2.1$
Rogers & Iglesias, Kurucz (1991)	$Y_\odot = 0.299$	$(\Delta Y/\Delta Z)_\odot = 3.1$

Thus, for our sequence with a typical metallicity $Z = 0.020$, it seems advisable to use a helium content of $Y = 0.30$ rather than the former value of 0.28 or 0.25 and this introduces some changes in the models. For other metallicities Z, the initial helium content is fixed by taking $Y = Y_{\rm p} + (\Delta Y/\Delta Z)Z$ with a $\Delta Y/\Delta Z$ ratio of 3. In order to be consistent, we have taken for the heavy elements the relative ratios (cf. Anders & Grevesse 1989) used in the opacity tables by Rogers & Iglesias (1991).

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2.3. NUCLEAR REACTIONS, SCREENING, NEUTRINOS.

For hydrogen burning, the pp chains and CNO tricycle are calculated in details and the evolution of the main nuclear species is followed explicitly (see Maeder 1983). For helium burning the same reaction network as in Maeder & Meynet (1987) was used supplemented with the $^{17}O(\alpha,n)^{20}Ne$ reaction which is active at the beginning of this nuclear phase and is responsible for the transformation of the quasi totality of ^{17}O left by the hydrogen burning into ^{20}Ne. For the carbon burning phase we took into account the following reactions: $^{12}C(^{12}C,\alpha)^{20}Ne$, $^{12}C(^{12}C,p)^{23}Na$, $^{12}C\ (\alpha,\gamma)^{16}O$, $^{16}O(\alpha,\gamma)^{20}Ne$, $^{20}Ne(\alpha,\gamma)^{24}Mg$ and $^{23}Na(p,\alpha)^{20}Ne$. There the abundances of the protons and alpha particles are supposed to have reached equilibrium.

With the exception of three reactions (see below), all the reaction rates are taken from Caughlan & Fowler (1988). For the $^{12}C(\alpha,\gamma)^{16}O$ reaction, we took the rate from Caughlan *et al.* (1985) which is enhanced by about a factor 3 with respect to the older value (cf. Fowler *et al.* 1975). Even if in their last compilation, Cauhglan & Fowler (1988) give a rate very close to the low 1975 value, the use of the enhanced rate appears justified by the following facts:

1) Recent experimental determinations by Redder *et al.* (1987), Plaga *et al.* (1987), Kremer *et al.* (1988), essentially confirm the high cross section first found by Kettner *et al.* (1982).
2) Theoretical computations performed by Descouvemont (1989) also predict an enhanced rate compatible with the one given by Caughlan *et al.* (1985).
3) The comparison of the abundance observations of supernova 1987A with computations of explosive nucleosynthesis shows (cf. Thielemann *et al.* 1990) that the 1975 and 1988 values of the cross section of $^{12}C(\alpha,\gamma)^{16}O$ by the Fowler group are clearly too low.

For these reasons, we choose in this work the enhanced rate as given by Caughlan *et al.* (1985). For the two reactions $^{17}O(p,\gamma)^{18}F$ and $^{17}O(p,\alpha)^{14}N$ we took the more recent rates given Landré *et al.* (1990), which are found to be substantially larger than previously thought, indicating a much larger destruction of ^{17}O during hydrogen burning. For all these reactions, when the cross-sections are uncertain (factor 0-1 in Caughlan & Fowler 1988, or 0.2-1 in Landré *et al.* 1990) we take, as recommended, the intermediate factor 0.1, 0.5 respectively. The screening factors are computed according to Graboske *et al.* (1973). In radioactive weak interactions such as beta decays and electron capture the neutrino energy losses are computed according to the rule given by Fowler *et al.* (1975). The neutrino energy loss rates due to pair, photo and plasma processes are taken from Itoh *et al.* (1989). The neutrino pair bremsstrahlung from degenerate electron gas is taken into account (Festa & Ruderman 1969) allowing for correction factor of Dicus *et al.* (1976) to take into account neutral current effects.

The way chemical changes due to secular evolution are computed in an evolutionary code plays a crucial role for the correct determination of basic physical characteristics as the duration of the different nuclear burning phases. In this work, modifications have been brought to the algorithm which computes the changes of chemical composition with the aim to obtain a better consistency between the physical and chemical structure of the models. At this point it is worth describing very briefly the procedure followed. The composition changes are computed in an implicit manner. Let us start from the situation where we have for the model at the time t^n, the correct structure S^n (profiles of the pressure, temperature etc...) and chemical composition C^n. To compute these same quantities for the time $t^{n+1} = t^n + \delta t$, firstly an initial estimate of the chemical composition C_0^{n+1} is made, then the approximate solution for the structure is improved during the first iteration (use of the Henyey method), giving S_1^{n+1}. These better profiles of pressure and density are then used to compute a new chemical composition C_1^{n+1}. The same scheme is iterated as long as necessary to obtain the desired accuracy. The main point here is the fact that the nuclear reaction network is resolved at each iteration in contrast with the usual procedures where chemical composition is adjusted only once, either at the beginning or at the end of the iterations resolving the structure. The procedure proposed here maintains a higher level of consistency between the structure and chemical composition at each iteration. In this way changes of the chemical composition immediately interact on the structure through the quantity of energy released by the nuclear reactions. The structure in turn directly influences the changes of the abundances through the nuclear reaction rates and the size of the convective core. This consistency between the chemical and physical structure is particularly important during the phases when the location of the border of the convective core is very sensitive to small physical changes. Even if this method is expensive in computing time it does not appear to be prohibitive for not too extended reaction networks, especially in regards of the improvements brought to the internal consistency of the models. Let us mention here that the use of an insufficient numerical scheme had as a consequence that the models of 1.3 to $2M_\odot$ computed with overshooting by Maeder & Meynet (1989), although their structure was correct, had a wrong scale of time.

2.4. IONIZATION.

Partial recombination for H, He, C, O, Ne and Mg is treated in the equation of state, which is important for WR stages. This is done by iteratively solving the Saha equation as described in Cox & Giuli (1968). Only the

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ground state contribution to the partition function has been included (Sparks & Fischel 1971) neglecting excited states, which is known to be a good approximation according to Unsöld (1955) and Sackmann & Boothroyd (1985). Note that the dominant effect of partial ionization lies in the opacity, which already takes partial ionization of all elements including excited states into account.

2.5. Convection parameters.

The value of $\alpha_p = l/H_p$, the ratio of the mixing length to the pressure scale height is also very sensitive to the opacities. The adjustement of α_p can be made on the T_{eff} of the red giants and on the T_{eff} of the Sun. For red giants, we use the average locations of the red giant branch of more than 75 clusters, as summarized in Figure 2 by Maeder & Meynet (1989). We have made test models for 15 $M_\odot$, 5 $M_\odot$, 3 $M_\odot$ and 1.5 $M_\odot$ and different values of α_p. The best fit is obtained for $\alpha_p = 1.6 \pm 0.1$, which remarkably well reproduces the red giant branch for a wide range of clusters, from old ones like $M67$ to young stellar associations, i.e. over a range of 5 decades in luminosities.

Very interestingly, the value of $\alpha_p = 1.6$ also very well reproduces the solar temperature for the assumed solar composition $X = 0.6822$, $Z = 0.188$. It is noticeable that the mixing length theory, despite its great simplicity, is able with a single parameter to account for the stellar radii over such large range of different physical conditions. Also we may mention that a value of $\alpha_p = 1.6$ has been found by Guenther (1992) when at low T the Kurucz opacities are used, as we do here for complementing Rogers & Iglesias opacities.

For red supergiants with luminosities brighter than about $M_{bol} = -8.5$ (i.e. $M > 25$ $M_\odot$), the structure of the outer convective envelope is complex. It consists of thin outer gaseous layers floating upon a radiatively supported zone as shown by many authors (cf. Underhill 1949; Mihalas 1969; Kutter 1970; Bisnovatyi-Kogan & Nadyoshin 1972; Stothers & Chin 1973; Maeder 1987, 1992). We follow here the treatment by Maeder (1987) which includes turbulent pressure, acoustic flux and a density scale height (cf. Stothers & Chin 1990). Indeed, the acoustic flux seems to be the dominant mode of energy transport in the very outer convective zone. Attempts are now being made by Meynet to treat the complex hydrodynamic situation of red supergiant envelopes with a hydrodynamic code.

The question could be raised whether the overshooting parameter, which so critically influences all outputs of stellar evolution, is not an artefact of past insufficiencies in the opacities. The question has recently been adressed by Stothers & Chin (1991a), who show that the overshooting distance for convection is likely not larger than 0.2 H_p.

We recall that some authors have supported values as large as 1-2 pressure scale heights. Here we follow our preferred approach. On the basis of 65 clusters and associations of all ages and well discussed for membership, reddening, distance, binarity and pecularities, we established the location of the upper enveloppe of the main sequence and examined which value of the overshooting distance gives the best fit (cf. Maeder 1976; Mermilliod & Maeder 1986). With previous opacities, an overshooting distance of $(0.25 - 0.30)$ H_p was found to fit several observational constraints. With the new opacities a value of $d_{over}/H_p = 0.2$ was shown to give the best fit over the range from 1.25 to 25 $M_\odot$. The situation is illustrated in Figure 3. These results confirm that the new opacities lead to a slight reduction of the overshooting parameter (cf. Stothers & Chin 1991ab). We do not find that differences due to opacities are such as to reduce the overshooting distance to zero, but we confirm (once more) that this phenomenon is likely moderate.

2.6. Mass loss rates.

Here we follow the general procedure described by Maeder (1990). Namely, we take the mass loss rates $\dot{M}$ given by de Jager et al. (1988; cf. also Nieuwenhuijzen & de Jager 1990) for stars throughout the HR diagram except the WR stars. We adopt a scaling of mass loss rates with metallicity as given by the models of Kudritzki et al. (1989), i.e. $\dot{M} \sim Z^{0.5}$. For WR stars, there is no indication yet about a dependence of $\dot{M}$-values on initial Z. However, we adopt the $\dot{M}$ vs. mass relation found by Langer (1989) for WNE and WC stars, i.e. respectively $\dot{M} = (0.60 - 1.00) \times 10^{-7}(M/M_\odot)^{2.5}$ in solar mass per year. For WNL, the average mass loss rate of 4×10^{-5} is adopted (cf. Conti 1988). There is no evidence for WNL stars about a dependence of $\dot{M}$ on luminosity or mass, although such a relation would not be so surprising.

Most outputs of massive star evolution critically depend on the mass loss rates, as is well known. In order to broaden the comparison basis and to illustrate the effects of different mass loss rates, we have computed a second set of models with masses 120, 85, 60, 40, 25, and 20 $M_\odot$ at $Z = 0.020$ (Tabs 1A to 6A) and mass loss rates increased by a factor of 2 in post MS stages. For these masses the mass loss rates are the largest and most uncertain and also have the largest effects. The resulting changes in tracks and lifetimes are discussed in Sect. 4.2.

2.7. Extended atmospheres.

Different possible definitions of radii and effective temperatures in stars with extended atmospheres have recently been reviewed by Baschek et al. (1991). To account for the non-negligible optical thickness of the winds of Wolf-Rayet stars a simple correction-scheme to determine an effective temperature was adopted (Langer 1989; Maeder 1990), assuming the standard velocity law

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$$v(r) = v_\infty \left(1 - \frac{R}{r}\right)^\beta .$$

So far these corrections have been applied considering pure electron scattering opacity in the wind. The effective temperature $T_{\rm eff}$ is defined by the Stefan-Boltzmann law through the luminosity and an effective radius $R_{\rm eff}$, which is defined as the optical-depth radius with $\tau(R_{\rm eff}) = 2/3$. Instead of taking only $\sigma_{\rm e}$ we take a *flux weighted mean opacity* $\bar{\kappa}$ which contains both electron scattering and line opacities in this work. Here we essentially follow the scheme of the modified Castor, Abbott and Klein theory (Castor *et al.* 1975; Pauldrach *et al.* 1986; Kudritzki *et al.* 1989) and refer to them for the notation.

The flux weighted mean opacity we adopt can be obtained from the radiation-driven wind theory as $\bar{\kappa} = \sigma_{\rm e}[1+M]$, where M is the so-called force-multiplier, which gives the radiative acceleration due to the lines in units of $g_{\rm Eddington}$. According to Kudritzki *et al.* (1989) the force multiplier can be written as

$$M\left(\rho,\ v,\ \frac{{\rm d}v}{{\rm d}r},\ r,\ n_{\rm e}\right) = k\left(\frac{\sigma_{\rm e}\rho v_{\rm th}}{{\rm d}v/{\rm d}r}\right)^{-\alpha}\left(\frac{n_{\rm e}}{W(r)}\right)^{\delta} CF\left(r,\ v,\ \frac{{\rm d}v}{{\rm d}r}\right)$$

where $n_{\rm e}$ is the electron density, $v_{\rm th}$ the thermal velocity of protons, W the dilution factor and CF is the correction factor resulting from nonradial streaming photons. The choice of the parameters k, α and δ will be discussed below. The correction factor CF and $\frac{n_{\rm e}}{W(r)}$ are computed according to the "cooking recipe" of Kudritzki *et al.* (1989) while $\sigma_{\rm e}$ is evaluated consistently with the ionization obtained in the outermost layers of the model.

The optical depth is given by

$$\tau(r) = \int_r^\infty \bar{\kappa}\rho{\rm d}r = \int_r^\infty \sigma_{\rm e}\rho{\rm d}r + \int_r^\infty \sigma_{\rm e}M\rho{\rm d}r \equiv \tau_{\rm e} + \tau_{\rm lines}.$$

With the velocity law given above an analytic expression for $\tau_{\rm e}$ can be found (e.g. Baschek *et al.* 1991). The same holds for $\tau_{\rm lines}$ in the case of $CF = 1$, $\delta = 0$ for which

$$\tau_{\rm lines}(r) = k\ \sigma_{\rm e}^{1-\alpha} v_{\rm th}^{-\alpha}\left(\frac{|\dot{M}|}{4\pi}\right)^{1-\alpha} v_\infty^{2\alpha-1} R^{\alpha-1}\beta^\alpha \frac{1}{\gamma}\left[1 - \left(1 - \frac{R}{r}\right)^\gamma\right]$$

where $\gamma = 2\alpha\beta - \alpha - \beta + 1$. These expressions can be used to estimate the contribution $\tau_{\rm lines}$ to the optical depth τ. Finally the effective radius is obtained from the optical-depth radius $\tau(R_{\rm eff}) = 2/3$ and this gives the desired effective temperature through the Stefan-Boltzmann law.

We adopted the following line force parameters: $k = 0.124$, $\alpha = 0.64$, $\delta = 0.07$ taken for $T = 50000$ K from Pauldrach *et al.* (1986) and $v_\infty = 2000$ km s^{-1}, $\beta = 2$. Although the radiation-driven wind theory does not predict enough force to explain the strong mass-loss of WR stars, the opacities obtained with this procedure are more realistic than the use of only electron scattering opacity and thus give better estimations of the extensions of WR atmospheres.

The correction-scheme described above was applied to the WR phases. The resulting effective temperature is given in the tables in column 4 on the first line of each model. For the WR stars the uncorrected temperature ("core temperature") is also given in the tables in column 2 on the second line of each model.

The effective temperatures obtained with such a correction (cf. Maeder 1990; Schaerer 1990) cover the domain of observed WNL, WNE and WC stars. The well-defined tracks in the HR diagram (cf. Figs. 5, 6 and 7) followed by WNE and WC stars, independently of their initial mass, result from the $T_{\rm eff}$ correction. It is explained by the mass-luminosity relation (cf. Maeder 1983; Langer 1989) and the $\dot{M}$ vs. M relation. Thus the higher L the larger is $\dot{M}$, which gives a large correction in $T_{\rm eff}$ and shifts the star rightwards in the HR diagram. Together with relations for the luminosity, radius and surface compositions this gives raise to an important number of correlations for WNE and WC stars which will be studied in the near future.

3. Content of the tables.

Tables 1 to 44 contain the data of the models in the range of initial masses from 120 to 0.80 $M_\odot$ with metallicities $Z = 0.020$ and $Z = 0.001$. Each table is labelled by the initial stellar mass considered and the value of Z. For 1.25 $M_\odot$ we give one table computed with overshooting (Tab. 18 at $Z = 0.02$ and 40 at $Z = 0.001$) and one without overshooting (Tab. 19 at $Z = 0.02$ and 41 at $Z = 0.001$). The differences are about $20 - 25\%$ for the MS lifetimes. If a choice has to be made, the values from models without overshooting can be taken. Tables 1A to 6A contain the models data for 120, 85, 60, 40, 25 and 20 $M_\odot$ at $Z = 0.020$ with a mass loss rate doubled in post-MS phases (cf. Sect. 2.6).

For each initial mass, 51 models (out of about 1000 to 2000) have been selected to describe the tracks with a sufficient number of points in order to allow significant and accurate interpolations between the tracks. For massive stars ($M > 7\ M_\odot$), the evolution has been followed up to the end of the C-burning phase. For intermediate mass stars ($5 \geq M/M_\odot \geq 2$) the evolution is followed up to the end of the early asymptotic giant branch (E-AGB). For low mass stars ($M \leq 1.7\ M_\odot$), the evolution is calculated up to the He-flash. As far as possible, corresponding evolutionary stages have the same number in the first column of Tables 1-44. Typically, one has for the following model numbers:

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1) Beginning of the H-burning phase.

2-10) Central H-content, in mass fraction, $X_c \simeq 0.62$, 0.54, 0.46, 0.38, 0.30, 0.22, 0.16, 0.10, 0.06 respectively.

11) Point with the lowest $T_{\rm eff}$ on the main sequence evolution (except when surface abundances are modified).

13) End of core hydrogen burning.

15-20) First crossing of the HR diagram from blue to red, when present. Otherwise transition towards the beginning of the He-burning phase. Point 20 generally corresponds to a local minimum of the luminosity.

21) Near the beginning of the He-burning phase with typically a central He-content of $Y_c = 0.978$. In the low mass star range ($M \leq 1.7\ M_\odot$) points 21 to 51 describe the ascent of the red giant branch, points are listed for approximatively each 0.05 change in log $L/L_\odot$.

22-30) $Y_c \simeq 0.95, 0.90, 0.85, 0.80, 0.75, 0.70, 0.65, 0.60, 0.55$

31-40) $Y_c \simeq 0.50, 0.45, 0.40, 0.35, 0.30, 0.25, 0.20, 0.15, 0.10, 0.05$

Some points have been selected outside these values of Y_c when loops occur during the He-burning phase in order to well describe the shape of the loops in the HR diagram

41-42) $Y_c = 0.03, 0.01$

43) End of central He-burning

44-45) Typically log $(T_c) = 8.70, 8.80$ where T_c is the central temperature.

46) Central C-burning has just started by consuming an amount of about 0.002 of central ^{12}C.

51) Central C-exhaustion or very near ($X\,(^{12}\mathrm{C}) < 10^{-3}$).

For each model the relevant data is given on two lines. On the first line, the model number as defined above, the age, the actual mass, log $L/L_\odot$, log $T_{\rm eff}$ and the surface abundances (in mass fraction) of the indicated elements, namely H, ^{4}He, ^{12}C, ^{13}C, ^{14}N, ^{16}O, ^{17}O, ^{18}O, ^{20}Ne, ^{22}Ne. The second line of each model gives QCC, the core mass fraction (overshooting included), the uncorrected value of $T_{\rm eff}$ (for WR stars only), the value of log $\left(-\dot{M}\right)$, where $\dot{M}$ is the mass loss rate, log (central density), log (central temperature), and the central abundances (in mass fraction) of the above elements.

Let us note that the values of $T_{\rm eff}$ have been corrected for the effects of stellar winds as discussed in Sect. 2.7 for stars in WR stage and log $T_{\rm eff} \gtrsim 4.1$ (below this temperature the corrections are generally negligible).

4. Short discussion of the main results.

4.1. HR DIAGRAM AND LIFETIMES.

In this paragraph we present some global properties of the HR diagram as they appear from these new stellar models. More specific points concerning the massive stars will be discussed in Sect. 4.2. Detailed discussions of the effects of overshooting and mass loss in the HR diagram can be found in Chiosi & Maeder (1986 and see references therein), Maeder & Meynet (1987, 1989).

Let us compare Figures 1 and 2 where we can see the changes due to a decrease of the initial metallicity by a factor 20. The main differences between the two sets of models are the following ones:

1) the ZAMS at low Z is shifted to the blue with respect to its position at solar metallicity by an amount comprised between $0.04 - 0.10$ dex in log $T_{\rm eff}$. The maximum of deviation occurs at about log $L/L_\odot = 2$. At the extremities of the range of luminosities spanned by the present models, due to opacity effects, the differences become smaller (see Sect. 4.2).
2) For low mass stars, the point on the ZAMS at low Z is at a much higher effective temperature and luminosity than at solar metallicity. As a numerical example, the differences of the positions for the 1.5 $M_\odot$ model amount to 0.13 in log $T_{\rm eff}$ and to 0.24 in log $L/L_\odot$, thus the luminosity of this model during the H-burning phase in enhanced by about a factor of 2 as compared to the evolutionary track computed at $Z = 0.020$. This will explain the large differences in the timescales of the two sets (see below). When the initial mass increases, the differences become less important.
3) When metallicity decreases from 0.020 to 0.001, the width of the MS is generally reduced. The differences of the widths between the two sets of models amounts to $(0.2-0.5)M_{\rm bol}$ in the range of initial masses comprised between 1.5 and 25 $M_\odot$. These differences tend to decrease when one moves to the upper part of the MS. In the low mass range on the contrary, the width of the MS increases when metallicity decreases. For the one solar mass model, the width of the MS passes from the value of 0.75 to 1.00 in $M_{\rm bol}$ when Z decreases from 0.020 to 0.001.
4) Lower Z content produces more extended blue loops, the effect being particularly important in the lower part of the mass range where the blue loops occur (for initial masses between 2 and 5 $M_\odot$). Let us mention that Alongi *et al.* (1991) have found a reduction of the length of the loops when Z is decreased from the solar value to 0.008 (cf. their models with a mild core overshoot). In order to reproduce the observed length, they had to introduce a new free parameter, the distance of envelope overshoot, whose role is to extend the outer convective envelope towards the interior. Here, without the adjunction of any new parameter, extended blue loops are obtained for a metallicity $Z = 0.001$.
5) Finally let us briefly mention that when Z decreases from 0.020 to 0.001, the positions of the red giant branch (RGB), asymptotic giant branch (AGB) and of the red supergiants are shifted to the blue, the He-flash generally occurs at lower luminosity and the convective

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core in the 1.25 $M_\odot$ computed without overshooting disappears before the end of the H-burning phase.

Let us also compare the present models for solar metallicity with the grid computed by Maeder & Meynet (1989). The following differences can be observed:

1) The positions of the ZAMS are slightly different. For stellar masses greater than 2.5 $M_\odot$, the new ZAMS is redder by about 0.015 dex in log $T_{\rm eff}$ (see Fig. 3). For lower mass stars, a displacement of the ZAMS in the opposite direction is observed. It amounts to 0.020 dex in log $T_{\rm eff}$ for $M_{\rm bol} = +4$.
2) In Figure 3, the ZAMS and the envelopes of the main sequences for the two sets of models are represented. The widths of the MS are in very good agreement at the exception of the upper part of the HR diagram where the prominent "paunch" which was present in the interval of 25 to 60 $M_\odot$ models in the old set is reinforced, narrowed and displaced towards higher mass models (40 $M_\odot \leq M \leq 85$ $M_\odot$) in the new grid (see also Sect. 4.2). The fact that in general the same width for the MS was obtained in the two sets of models is not surprising since, in both case, the overshooting parameter was chosen in order to reproduce the observed location of the top of the MS, feature which is very sensitive to the value of this parameter. The use of the new opacity tables has slightly reduced the overshooting parameter from the value of 0.25, obtained with the Los Alamos opacity tables, to 0.20 as discussed in section 2.5.
3) The blueward extensions of the loops occuring during the helium burning phase for stars with initial masses between 2 and 12 $M_\odot$ are a little shorter for the new models. This is the expected behaviour if the opacities are increased. The differences are particularly important for the 5 $M_\odot$ model for which the extension has been reduced by a factor of two. The luminosities of the loops are also smaller by an amount of about one fourth of a magnitude at the bluest point.
4) The positions of the RGB and AGB present no great discrepancies compared to those obtained in previous models. The positions where He-flash occurs are bluer in the new grid by about 0.04 – 0.07 dex in log $T_{\rm eff}$. The effective temperatures of the red supergiants are greater in the new grid by a non negligible amount: for the 15 $M_\odot$ model the RSG branch is moved towards the blue by about 0.04 dex in log $T_{\rm eff}$, the trend being reinforced when one passes from the 15 $M_\odot$ to the 25 $M_\odot$ model.

To sum up we can say that the differences between the two grids, as they appear from the comparison of the theoretical HR diagrams, are modest. This implies a great similarity of the internal structures between the two sets of models. Some other features may however be different. For instance due to the many improvements brought to the models, the ratios of the mass fractions of ^{12}C to ^{16}O at the end of the He-burning phase are significantly reduced with respect to those obtained in the old models. In this work, less ^{16}O is produced and more ^{12}C is available for the carbon-burning phase and the ratios ^{12}C/^{16}O have values between 0.13 to 0.46. These values are well above the range of values obtained in the previous grid of models, where ^{12}C/^{16}O = 0.015 – 0.14. This result has of course strong implications on the stellar yields as derived from these new models.

The lifetimes in the various nuclear phases are given in Table 45 for $Z = 0.02$, in Table 46 for $Z = 0.001$ and Table 47 for the complementary case at $Z = 0.02$ with increased mass loss rates in post MS. Figure 4 shows nicely the behaviour of the lifetimes in the H and He-burning phases. The H-burning phase is counted from the zero-age sequence (point 1 in Tabs. 1-44) to central H-exhaustion (point 13). The He-burning phase is counted from the stage when two thousands of helium in mass fraction has been burnt to central He-exhaustion (point 43) and the C-burning phase from point 43 to 51. Care must be taken in these definitions. If other ones are desired, the values may be derived from Tables 1-44.

We notice great differences in the MS lifetimes between models with $Z = 0.020$ and $Z = 0.001$. For $M > 9$ $M_\odot$, the MS lifetimes at $Z = 0.020$ are smaller by 8 to 13% with respect to models with $Z = 0.001$. The main reason is the higher luminosities of the former, which result from their smaller electron scattering opacities due to their lower hydrogen content. The differences in the core mass fraction are not large enough to make significant effects. For $M < 7$ $M_\odot$, the effect is the opposite one. Due to their much larger opacities and lower luminosities, the models at $Z = 0.020$ have much larger lifetimes than the models at $Z = 0.001$. The difference is 21% at 3 $M_\odot$, 30% at 2 $M_\odot$, 46% at 1.5 $M_\odot$ and 59% at 1 $M_\odot$! We may also notice that the lifetimes in the H-burning phase at $Z = 0.020$ for $M = 1.25$ to 2 $M_\odot$ are much smaller, for reasons given in Sect. 2, compared to the values given by Maeder & Meynet (1989).

In Tables 45-47, the ratios $t_{\rm He}/t_{\rm H}$ of the He- and H-lifetimes are also given. For masses between 7 and 40 $M_\odot$, the ratio $t_{\rm He}/t_{\rm H}$ is about 10% at $Z = 0.020$ and about 8-10% at $Z = 0.001$. For larger masses, the $t_{\rm He}/t_{\rm H}$ ratio becomes larger if the mass loss rates are larger, because in this case there is a sizeable decrease of the luminosity. This is why the values of $t_{\rm He}/t_{\rm H}$ are very large (about 20% and up to 34% at 120 $M_\odot$) for massive stars with increased $\dot{M}$-rates in post-MS phases (cf. Tab. 47). For standard $\dot{M}$-rates at $Z = 0.020$, they raise up to 16%, while at $Z = 0.001$ due to the very low $\dot{M}$-rates they keep close to 10% even at 120 $M_\odot$. It is worth to mention here that the present $t_{\rm He}/t_{\rm H}$ are quite consistent with those by Stothers & Chin (1991b), and match the observational data collected by these authors well. For $M \leq 5$ $M_\odot$, due to considerable energy supply from the H-burning shell,

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the t_{He}/t_H ratios are again larger. The ratio of C-burning phase to the duration of the MS phase increases with the initial mass. This phase represents typically 1×10^{-3} to 4×10^{-3} of the MS phase. Attention must be paid here to the fact that the lifetime of the effective C-burning period is very short. Most of the so-called C-phase is spent in the contraction phase following central He-exhaustion.

4.2. Massive stars evolution and WR stars.

Figure 5 shows the HR diagram of massive stars for $Z = 0.02$ and standard mass loss rates $\dot{M}$ as described in Sect. 2.6, while Figure 6 shows the same but with $\dot{M}$-rates increased by a factor 2 in post-MS stages (cf. Tabs. 1A to 6A). Figure 7 presents the case $Z = 0.001$. Without entering in all the details about the structure and evolution, we just mention here a few main results and data.

Main sequence: For massive stars, the zero-age sequence of models with $Z = 0.001$ is shifted to the blue by $0.04 - 0.05$ in log $T_{\rm eff}$ with respect to the case $Z = 0.020$. This change is much smaller than for low stellar masses (cf. Sect. 4.1) for the following reason. Models with $Z = 0.001$, $Y = 0.243$ have lower bound-free (b-f) and line opacities, but higher electron scattering opacities compared to the models with $Z = 0.02$ and $Y = 0.30$. In massive stars, the relative importance of b-f and line opacities is not as high as in low mass stars and thus the shifts in $T_{\rm eff}$ and L due to b-f and line opacity sources are nearly compensated by the opposite changes due to electron scattering, when one is going from one set of models to the other. Thus the effect is smaller in massive stars.

In Figures 5 and 6 the upper envelope of the main sequence band undergoes about the same shift as the zero age sequence for $M \leq 25\ M_\odot$. Thus, the widths of the MS band are similar. For $Z = 0.020$, the MS width is very similar to that of the models by Maeder & Meynet (1989) as a result of the choice of the overshooting parameter (cf. Sect. 2.5). However, there is a major difference between Figures 5 and 6: for $M \geq 40\ M_\odot$, at $Z = 0.020$, the MS band widely extends over the HR diagram, while there is no such extension at $Z = 0.001$. This interesting behaviour was already found by Stothers & Chin (1977, 1985) who have shown that an increase of the opacities in the outer layers of massive stars may produce a MS band covering all the HR diagram. We may thus wonder whether some LBV (luminous blue variables) and blue supergiants are still in the MS band. This would particularly be possible at higher Z, where the MS extension is likely larger.

Supergiants: At $Z = 0.001$, the helium burning phase is mostly spent in the blue supergiant region, as shown by the indications about the central helium content Y_c in Figure 6 (cf. Stothers & Chin 1976). At $Z = 0.020$ and for $M \leq 40\ M_\odot$, helium is mainly burnt in red or yellow supergiants. Such effects are well known and the physical reasons for the redwards and bluewards motions of the massive stars have been studied elsewhere (cf. Stothers & Chin 1979; Maeder 1981). The increase of $\dot{M}$ at $Z = 0.020$ (cf. Fig. 7) does not significantly modify this situation, but it favours an early bluewards departure towards the WR stage.

Red supergiants should be rarer at $Z = 0.001$ compared to the case $Z = 0.020$; their $T_{\rm eff}$ is also higher due to the much lower opacities. The frequency of red supergiants in galaxies at low Z constitutes an interesting test. Possible differences between models and observations could be assigned either to the $\dot{M}$ vs. Z relation or may be to mixing processes.

Another difference between Figures 5 and 6 is that the blue and yellow supergiants with $Z = 0.001$ are much brighter than those with $Z = 0.020$ for a given initial mass. This is especially visible for 15 $M_\odot$ where the difference amounts to about 0.5 mag. This is due to opacities, but also to the fact that helium burning is more advanced in the blue supergiants at low Z.

At $Z = 0.020$, models with $M \geq 60\ M_\odot$ make excursions in the region of *LBV*. Paradoxically, the mass loss rates in this area of the HR diagram are so high that (within a certain range) their exact values are not critical. Indeed, the main consequence of this huge mass loss is to remove the original stellar envelope and to lead to WR stars. However, at rates of 10^{-3} to $10^{-4}\ M_\odot$/yr this lasts only for a very small fraction of the helium burning phase. Thus, whether the *LBV* phase represents a few thousands or a few hundreds of the He-burning phase does not significantly influence the further evolution in the WR stages.

WR stars: The locations of WNL, WNE and WC stars in the HR diagram with account for the optically thick winds treated with the modified Castor, Abbott & Klein theory (cf. Castor *et al.* 1975; Kudritzki *et al.* 1989) are shown in Figures 5-7. A star is considered to be a WNL when its hydrogen surface abundance $X_s \lesssim 0.4$ with a blue location in the HR diagram (log $T_{\rm eff} \gtrsim 4.0$), WNE stars have no hydrogen and do not yet show the products of He-burning, while WC stars show these products.

In the WNL stage, the tracks are nearly horizontal, descending slightly more when the $\dot{M}$-rates are larger (cf. Fig. 7). WNE stars occupy a band in the HR diagram located to the left of the long WC band. For each mass, the WNE phase occupy a luminosity range just below the termination of the WNL phase. At the beginning of the WNE phase, the $T_{\rm eff}$ strongly decreases due to higher mass loss rates and the consequently thick envelopes.

At the end of the WNE stage, the star is shifted to the WC band due to the higher $\dot{M}$-rates, cf. Sect. 2.6, where it goes down as the mass further decreases. We know that WR stars obey a mass-luminosity relation (cf. Maeder 1983), but Figures 5 and 7 also show that there are L vs. $T_{\rm eff}$ relations for WNE and WC stars. The explanation is that as the stellar mass is declining in the

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WR stage, the $\dot{M}$-rate also decreases and so does the thickness of the expanding atmosphere, which makes the $T_{\rm eff}$ to increase. Simultaneously, the surface composition is changing as deeper layers are revealed. Thus, there are $M - L - \dot{M} - T_{\rm eff}$ – composition relations to be expected for WR stars without hydrogen. For now, they have not been well defined observationaly even if some trends are present (cf. Smith & Maeder 1989).

At $Z = 0.001$ (cf. Fig. 6), WR stars only occur for models of 85 and 120 $M_\odot$ and they are only WNL stars. The further WNE and WC phases are never entered as a result of the large remaining masses. At $Z = 0.020$ (cf. Fig. 5), the 3 WR phases are present. We see that with the larger $\dot{M}$-rates (cf. Fig. 7), the downwards motion of WR stars is much more important and luminosities as low as $\log L/L_\odot \simeq 4$ can be reached. Interestingly, after the He-exhaustion the large energy releases due to the core contraction and the He-burning shell lead the stellar luminosity to go up again.

A few WR stars with luminosities in the range of $\log L/L_\odot = 4$ to 5 have been found (cf. Koesterke *et al.* 1991). This favours the models with larger $\dot{M}$-rates rather than the standard ones. This suggests that the true mass loss rates for massive stars are on average certainly as large or even larger (within about a factor of 2) than the standard values of the mass loss rates (cf. de Jager *et al.* 1988). In particular we could also suspect that at some stages (may be WNL or the supergiants stages) the $\dot{M}$-rates are larger in order to also produce some WNE stars with low luminosities. Table 48 shows the lifetimes in the WR (total), WN and WC phases. In agreement with previous works (cf. Maeder 1991), we notice a strong increase of the WR lifetimes with metallicity and $\dot{M}$-rates. For each Z-value in Table 48, the last mass value indicates the approximate value of the lower mass limit for forming WR stars. Very interestingly, the lifetimes at $Z = 0.020$ with increased $\dot{M}$-rates, which also better fit the lower value of the observed luminosities, have values such as to also well account for the observed WR/O ratios (cf. Maeder 1991). Work is now in progress, where the various relations $M - L - \dot{M} - T_{\rm eff}$ – composition are established for WR stars, and by comparison with the observations, these relations will be used to better constrain the basic parameters of Wolf-Rayet stars.

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TABLE 1.

STELLAR MODEL : 120 M , Z = 0.020

NB	AGE / QCC	MASS / MDOT	LOGL / RHOC	LOGTE / LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	7.2005476E+03	119.9626	6.252	4.727	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.8673	-5.470	0.171	7.638	0.678438	0.300903	0.000117	0.000036	0.006691	0.010424	0.000009	0.000000	0.001420	0.000114
2	3.1890345E+05	118.4764	6.265	4.713	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.8339	-5.242	0.138	7.629	0.621265	0.358801	0.000190	0.000059	0.011554	0.004745	0.000005	0.000000	0.001420	0.000114
3	7.2330180E+05	115.5329	6.282	4.698	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7934	-5.046	0.139	7.630	0.539570	0.440825	0.000227	0.000071	0.013750	0.002173	0.000002	0.000000	0.001420	0.000114
4	1.0811425E+06	111.4817	6.295	4.678	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7671	-4.854	0.154	7.634	0.459125	0.521400	0.000245	0.000077	0.014602	0.001169	0.000001	0.000000	0.001420	0.000114
5	1.3993211E+06	105.8690	6.306	4.651	0.671574	0.307921	0.000133	0.000040	0.007719	0.009223	0.000008	0.000000	0.001420	0.000114
	0.7534	-4.670	0.177	7.640	0.380408	0.600175	0.000256	0.000080	0.014978	0.000721	0.000001	0.000000	0.001420	0.000114
6	1.6933555E+06	98.9620	6.316	4.642	0.598277	0.381919	0.000204	0.000064	0.012418	0.003733	0.000004	0.000000	0.001420	0.000114
	0.7489	-4.596	0.208	7.648	0.300421	0.680190	0.000266	0.000083	0.015155	0.000503	0.000000	0.000000	0.001420	0.000114
7	1.9586602E+06	91.7285	6.326	4.635	0.515084	0.465362	0.000234	0.000073	0.014087	0.001777	0.000002	0.000000	0.001420	0.000114
	0.7489	-4.536	0.247	7.658	0.220829	0.759798	0.000275	0.000086	0.015235	0.000395	0.000000	0.000000	0.001420	0.000114
8	2.1405835E+06	86.2386	6.335	4.634	0.443671	0.536868	0.000247	0.000077	0.014701	0.001053	0.000001	0.000000	0.001420	0.000114
	0.7510	-4.507	0.284	7.668	0.161031	0.819603	0.000283	0.000088	0.015263	0.000350	0.000000	0.000000	0.001420	0.000114
9	2.2479182E+06	82.8262	6.341	4.389	0.397856	0.582717	0.000253	0.000079	0.014918	0.000794	0.000001	0.000000	0.001420	0.000114
	0.7532 4.633	-4.398	0.313	7.676	0.123381	0.857256	0.000288	0.000090	0.015274	0.000329	0.000000	0.000000	0.001420	0.000114
10	2.4251403E+06	75.7371	6.350	4.405	0.300927	0.679685	0.000265	0.000083	0.015154	0.000504	0.000000	0.000000	0.001420	0.000114
	0.7667 4.646	-4.398	0.394	7.699	0.056239	0.924406	0.000306	0.000096	0.015273	0.000299	0.000000	0.000000	0.001420	0.000114
11	2.5218473E+06	71.8688	6.358	4.425	0.244334	0.736289	0.000272	0.000085	0.015218	0.000420	0.000000	0.000000	0.001420	0.000114
	0.7722 4.670	-4.398	0.503	7.733	0.016518	0.964135	0.000341	0.000106	0.015237	0.000281	0.000000	0.000000	0.001420	0.000114
12	2.5544160E+06	70.5660	6.364	4.445	0.225964	0.754662	0.000274	0.000086	0.015232	0.000400	0.000000	0.000000	0.001420	0.000114
	0.7784 4.700	-4.398	0.659	7.784	0.002614	0.978051	0.000394	0.000122	0.015166	0.000271	0.000000	0.000000	0.001420	0.000114
13	2.5614354E+06	70.2852	6.387	4.517	0.222062	0.758564	0.000274	0.000086	0.015235	0.000396	0.000000	0.000000	0.001420	0.000114
	0.7133 4.814	-4.398	1.319	8.003	0.000000	0.980682	0.000480	0.000146	0.015044	0.000267	0.000000	0.000000	0.001420	0.000114
14	2.5626562E+06	70.2364	6.405	4.549	0.221351	0.759276	0.000274	0.000086	0.015235	0.000396	0.000000	0.000000	0.001420	0.000114
	0.6681 4.864	-4.398	1.772	8.152	0.000000	0.980669	0.000480	0.000106	0.015043	0.000317	0.000000	0.000001	0.001420	0.000114
15	2.5635718E+06	70.1998	6.415	4.520	0.220832	0.759794	0.000274	0.000086	0.015236	0.000395	0.000000	0.000000	0.001420	0.000114
	0.6321 4.812	-4.398	1.945	8.207	0.000000	0.980617	0.000480	0.000001	0.014974	0.000445	0.000000	0.000089	0.001420	0.000114
16	2.5641822E+06	70.1754	6.426	4.478	0.220472	0.760155	0.000274	0.000086	0.015236	0.000395	0.000000	0.000000	0.001420	0.000114
	0.6390 4.740	-4.398	2.038	8.236	0.000000	0.980429	0.000486	0.000000	0.014340	0.000447	0.000000	0.000904	0.001420	0.000114
17	2.5647926E+06	70.1509	6.433	4.430	0.219766	0.760861	0.000275	0.000086	0.015236	0.000394	0.000000	0.000000	0.001420	0.000114
	0.6560 4.660	-4.398	2.091	8.252	0.000000	0.979805	0.000505	0.000000	0.012223	0.000447	0.000000	0.003624	0.001420	0.000117
18	2.5650978E+06	70.1387	6.436	4.405	0.219351	0.761276	0.000275	0.000086	0.015237	0.000394	0.000000	0.000000	0.001420	0.000114
	0.6635 4.618	-4.398	2.106	8.257	0.000000	0.979353	0.000521	0.000000	0.010701	0.000447	0.000000	0.005578	0.001420	0.000121
19	2.5657082E+06	70.0777	6.450	4.322	0.197014	0.783615	0.000277	0.000087	0.015249	0.000375	0.000000	0.000000	0.001420	0.000114
	0.6755 4.628	-4.000	2.121	8.262	0.000000	0.978948	0.000561	0.000000	0.009444	0.000447	0.000000	0.007169	0.001420	0.000152
20	2.5669290E+06	69.9556	6.460	4.285	0.196196	0.784434	0.000277	0.000087	0.015250	0.000374	0.000000	0.000000	0.001420	0.000114
	0.6867 4.563	-4.000	2.140	8.268	0.000000	0.978108	0.000670	0.000000	0.006950	0.000447	0.000000	0.010293	0.001420	0.000253
21	2.5684549E+06	69.8030	6.465	4.250	0.190979	0.789651	0.000278	0.000087	0.015253	0.000370	0.000000	0.000000	0.001420	0.000114
	0.6932 4.504	-4.000	2.159	8.274	0.000000	0.977156	0.000867	0.000000	0.004443	0.000447	0.000000	0.013341	0.001420	0.000466
22	2.5837147E+06	68.2770	6.478	4.288	0.154962	0.825672	0.000280	0.000089	0.015268	0.000348	0.000000	0.000000	0.001420	0.000114
	0.7271 4.560	-4.000	2.308	8.324	0.000000	0.952480	0.020857	0.000000	0.000004	0.000744	0.000000	0.005020	0.001420	0.017594
23	2.5951656E+06	67.1678	6.484	4.511	0.107129	0.873512	0.000300	0.000094	0.015261	0.000323	0.000000	0.000000	0.001420	0.000114
	0.7559 4.768	-4.398	2.343	8.337	0.000000	0.901268	0.069042	0.000000	0.000001	0.002651	0.000000	0.000055	0.001420	0.023582
24	2.6058252E+06	66.7414	6.483	4.542	0.106686	0.873955	0.000299	0.000095	0.015261	0.000322	0.000000	0.000000	0.001420	0.000114
	0.7739 4.819	-4.398	2.349	8.340	0.000000	0.851236	0.114961	0.000000	0.000001	0.006741	0.000000	0.000036	0.001420	0.023501
25	2.6166822E+06	66.3071	6.479	4.569	0.106191	0.874447	0.000282	0.000092	0.015284	0.000322	0.000000	0.000000	0.001420	0.000114
	0.7925 4.865	-4.398	2.354	8.343	0.000000	0.802079	0.157672	0.000000	0.000001	0.013164	0.000000	0.000030	0.001420	0.023390
26	2.6285380E+06	65.8329	6.473	4.598	0.105735	0.874893	0.000227	0.000073	0.015369	0.000322	0.000000	0.000000	0.001420	0.000114
	0.8129 4.917	-4.398	2.361	8.347	0.000000	0.750238	0.199781	0.000000	0.000001	0.022867	0.000000	0.000021	0.001419	0.023254
27	2.6405078E+06	65.3541	6.464	4.626	0.104555	0.876074	0.000241	0.000075	0.015351	0.000322	0.000000	0.000000	0.001420	0.000114
	0.8333 4.966	-4.398	2.369	8.350	0.000000	0.700474	0.236966	0.000000	0.000001	0.035414	0.000000	0.000018	0.001394	0.023088
28	2.6532757E+06	64.8433	6.454	4.654	0.097434	0.883201	0.000273	0.000084	0.015304	0.000322	0.000000	0.000000	0.001420	0.000114
	0.8546 5.018	-4.398	2.377	8.354	0.000000	0.649908	0.271042	0.000000	0.000004	0.051870	0.000000	0.000039	0.001369	0.022841
29	2.6660435E+06	64.3326	6.448	4.692	0.067887	0.912755	0.000303	0.000093	0.015269	0.000311	0.000000	0.000000	0.001420	0.000114
	0.8764 5.081	-4.398	2.386	8.357	0.000000	0.601483	0.299742	0.000000	0.000000	0.071545	0.000000	0.000026	0.001347	0.022629
30	2.6788113E+06	63.8219	6.443	4.731	0.012828	0.967825	0.000335	0.000104	0.015245	0.000282	0.000000	0.000000	0.001420	0.000114
	0.8998 5.145	-4.398	2.398	8.362	0.000000	0.549246	0.327268	0.000000	0.000000	0.096194	0.000000	0.000000	0.001348	0.022366
31	2.6902944E+06	62.3871	6.427	4.102	0.000000	0.505383	0.346471	0.000000	0.000003	0.120803	0.000000	0.000010	0.001348	0.022059
	0.8660 5.177	-2.502	2.378	8.354	0.000000	0.502802	0.347681	0.000000	0.000000	0.122168	0.000000	0.000000	0.001348	0.022052
32	2.7155262E+06	30.7862	6.022	4.325	0.000000	0.467556	0.360440	0.000000	0.000000	0.144625	0.000000	0.000000	0.001348	0.021886
	0.8321 5.163	-3.273	2.547	8.344	0.000000	0.450145	0.367200	0.000000	0.000000	0.155261	0.000000	0.000000	0.001348	0.021809
33	2.7359653E+06	23.1689	5.847	4.402	0.000000	0.428632	0.375256	0.000000	0.000000	0.168701	0.000000	0.000000	0.001348	0.021717
	0.8140 5.155	-3.571	2.627	8.343	0.000000	0.398656	0.385375	0.000000	0.000000	0.188535	0.000000	0.000000	0.001349	0.021587
34	2.7564044E+06	18.9900	5.722	4.455	0.000000	0.391915	0.387468	0.000000	0.000000	0.193177	0.000000	0.000000	0.001349	0.021557
	0.7982 5.149	-3.791	2.688	8.343	0.000000	0.349376	0.398769	0.000000	0.000000	0.224379	0.000000	0.000000	0.001349	0.021362
35	2.7782061E+06	16.1583	5.617	4.496	0.000000	0.355790	0.397297	0.000000	0.000000	0.219443	0.000000	0.000000	0.001349	0.021392
	0.7795 5.144	-3.969	2.742	8.345	0.000000	0.300117	0.406749	0.000000	0.000000	0.265612	0.000000	0.000000	0.001350	0.021107
36	2.8027331E+06	13.9893	5.523	4.531	0.000000	0.318181	0.404554	0.000000	0.000000	0.249760	0.000000	0.000000	0.001349	0.021205
	0.7616 5.140	-4.128	2.797	8.348	0.000000	0.248931	0.407387	0.000000	0.000000	0.316100	0.000000	0.000000	0.001350	0.020785
37	2.8286226E+06	12.3548	5.443	4.560	0.000000	0.282311	0.407972	0.000000	0.000000	0.282175	0.000000	0.000000	0.001350	0.021003
	0.7438 5.137	-4.264	2.851	8.353	0.000000	0.199707	0.398102	0.000000	0.000000	0.374532	0.000000	0.000000	0.001352	0.020376
38	2.8570739E+06	11.0166	5.368	4.585	0.000000	0.246702	0.407198	0.000000	0.000000	0.318515	0.000000	0.000000	0.001350	0.020769
	0.7268 5.135	-4.384	2.910	8.360	0.000000	0.151589	0.375441	0.000000	0.000000	0.445202	0.000000	0.000000	0.001355	0.019796
39	2.8917931E+06	9.7961	5.292	4.612	0.000000	0.206653	0.400119	0.000000	0.000000	0.365582	0.000000	0.000000	0.001352	0.020442
	0.7060 5.135	-4.513	2.985	8.372	0.000000	0.100200	0.330725	0.000000	0.000000	0.541109	0.000000	0.000000	0.001366	0.018762
40	2.9323345E+06	8.7329	5.220	4.642	0.000000	0.169124	0.385515	0.000000	0.000000	0.417639	0.000000	0.000000	0.001354	0.020036
	0.6820 5.140	-4.641	3.089	8.395	0.000000	0.049541	0.254834	0.000000	0.000000	0.667197	0.000000	0.000000	0.001427	0.016557
41	2.9496408E+06	8.3611	5.195	4.654	0.000000	0.154999	0.377566	0.000000	0.000000	0.439678	0.000000	0.000000	0.001355	0.019846
	0.6709 5.145	-4.689	3.150	8.410	0.000000	0.030701	0.214777	0.000000	0.000000	0.725670	0.000000	0.000000	0.001541	0.014872
42	2.9697322E+06	7.9769	5.175	4.673	0.000000	0.135523	0.364110	0.000000	0.000000	0.472551	0.000000	0.000000	0.001357	0.019537
	0.6559 5.159	-4.743	3.260	8.441	0.000000	0.010343	0.163263	0.000000	0.000000	0.796241	0.000000	0.000000	0.002220	0.011514
43	2.9813868E+06	7.7738	5.203	4.708	0.000000	0.127637	0.357738	0.000000	0.000000	0.486781	0.000000	0.000000	0.001359	0.019392
	0.0000 5.203	-4.773	3.553	8.534	0.000000	0.000000	0.136966	0.000000	0.000000	0.828264	0.000000	0.000000	0.006133	0.008151
44	2.9860891E+06	7.6956	5.277	4.759	0.000000	0.124728	0.355232	0.000000	0.000000	0.492185	0.000000	0.000000	0.001359	0.019334
	0.0000 5.278	-4.784	4.086	8.699	0.000000	0.000000	0.136964	0.000000	0.000000	0.828271	0.000000	0.000000	0.006128	0.008151
45	2.9898226E+06	7.6348	5.330	4.776	0.000000	0.120368	0.351331	0.000000	0.000000	0.500429	0.000000	0.000000	0.001360	0.019245
	0.0000 5.292	-4.793	4.555	8.800	0.000000	0.000000	0.136903	0.000000	0.000000	0.828231	0.000000	0.000000	0.006228	0.008151
46	2.9906798E+06	7.6211	5.363	4.780	0.000000	0.119934	0.350940	0.000000	0.000000	0.501253	0.000000	0.000000	0.001360	0.019236
	0.0000 5.289	-4.795	4.929	8.855	0.000000	0.000000	0.134945	0.000000	0.000000	0.826931	0.000000	0.000000	0.009481	0.008151
47	2.9908293E+06	7.6187	5.377	4.783	0.000000	0.119891	0.350902	0.000000	0.000000	0.501333	0.000000	0.000000	0.001360	0.019235
	0.0000 5.291	-4.795	5.199	8.910	0.000000	0.000000	0.108538	0.000000	0.000000	0.809509	0.000000	0.000000	0.053065	0.008151
48	2.9908468E+06	7.6184	5.380	4.785	0.000000	0.119886	0.350897	0.000000	0.000000	0.501343	0.000000	0.000000	0.001360	0.019235
	0.0000 5.292	-4.795	5.259	8.931	0.000000	0.000000	0.077353	0.000000	0.000000	0.789226	0.000000	0.000000	0.103795	0.008151
49	2.9908590E+06	7.6182	5.383	4.785	0.000000	0.119883	0.350894	0.000000	0.000000	0.501349	0.000000	0.000000	0.001360	0.019235
	0.0000 5.293	-4.795	5.322	8.946	0.000000	0.000000	0.043819	0.000000	0.000000	0.767799	0.000000	0.000000	0.157382	0.008151
50	2.9908711E+06	7.6180	5.386	4.787	0.000000	0.119880	0.350891	0.000000	0.000000	0.501356	0.000000	0.000000	0.001360	0.019235
	0.0000 5.295	-4.795	5.439	8.958	0.000000	0.000000	0.019761	0.000000	0.000000	0.752696	0.000000	0.000000	0.195149	0.008151
51	2.9908848E+06	7.6178	5.404	4.793	0.000000	0.119788	0.350773	0.000000	0.000000	0.501564	0.000000	0.000000	0.001361	0.019230
	0.0000 5.299	-4.795	5.898	9.032	0.000000	0.000000	0.000779	0.000000	0.000000	0.741029	0.000000	0.000000	0.224320	0.008151

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TABLE 2.

STELLAR MODEL : 85 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.0001521E+04	84.9687	6.006	4.705	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.8220	-6.389	0.233	7.621	0.668319	0.311257	0.000147	0.000046	0.008249	0.008593	0.000007	0.000000	0.001420	0.000114
2	3.1967431E+05	84.5653	6.024	4.696	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7798	-5.806	0.214	7.617	0.621624	0.358430	0.000182	0.000057	0.011490	0.004831	0.000005	0.000000	0.001420	0.000114
3	7.8258450E+05	83.6364	6.051	4.682	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7420	-5.600	0.212	7.619	0.540620	0.439760	0.000218	0.000068	0.013670	0.002279	0.000002	0.000000	0.001420	0.000114
4	1.1849196E+06	82.3445	6.075	4.665	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7100	-5.398	0.221	7.623	0.461378	0.519134	0.000236	0.000074	0.014540	0.001255	0.000001	0.000000	0.001420	0.000114
5	1.5491638E+06	80.4603	6.096	4.642	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6817	-5.184	0.239	7.630	0.381247	0.599327	0.000248	0.000077	0.014946	0.000772	0.000001	0.000000	0.001420	0.000114
6	1.8812688E+06	77.6108	6.114	4.603	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6598	-4.957	0.266	7.638	0.299414	0.681192	0.000257	0.000080	0.015141	0.000533	0.000000	0.000000	0.001420	0.000114
7	2.1714858E+06	73.5285	6.129	4.540	0.680000	0.300000	0.004465	0.000073	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6491	-4.767	0.302	7.649	0.220254	0.760369	0.000270	0.000084	0.015224	0.000417	0.000000	0.000000	0.001420	0.000114
8	2.3709630E+06	69.8029	6.142	4.475	0.676664	0.302714	0.000113	0.000035	0.006956	0.010126	0.000010	0.000000	0.001420	0.000114
	0.6479	-4.706	0.339	7.659	0.160375	0.820256	0.000278	0.000087	0.015255	0.000367	0.000000	0.000000	0.001420	0.000114
9	2.5546920E+06	66.1133	6.157	4.438	0.616673	0.363411	0.000184	0.000058	0.011694	0.004594	0.000005	0.000000	0.001420	0.000114
	0.6467	-4.691	0.387	7.673	0.100062	0.880576	0.000290	0.000091	0.015268	0.000332	0.000000	0.000000	0.001420	0.000114
10	2.6663205E+06	63.8211	6.168	4.417	0.569431	0.410867	0.000207	0.000065	0.013123	0.002923	0.000003	0.000000	0.001420	0.000114
	0.6456	-4.684	0.435	7.688	0.060380	0.920262	0.000301	0.000094	0.015267	0.000313	0.000000	0.000000	0.001420	0.000114
11	2.7752850E+06	61.5851	6.181	4.382	0.524858	0.455557	0.000220	0.000070	0.013905	0.002006	0.000002	0.000000	0.001420	0.000114
	0.6445	-4.687	0.537	7.721	0.018815	0.961836	0.000332	0.000103	0.015240	0.000293	0.000000	0.000000	0.001420	0.000114
12	2.8221125E+06	60.5859	6.199	4.446	0.501114	0.479344	0.000226	0.000071	0.014192	0.001670	0.000002	0.000000	0.001420	0.000114
	0.6308	-4.623	0.949	7.857	0.000114	0.980561	0.000451	0.000139	0.015077	0.000277	0.000000	0.000000	0.001420	0.000114
13	2.8227912E+06	60.5692	6.206	4.478	0.500782	0.479676	0.000226	0.000071	0.014196	0.001665	0.000002	0.000000	0.001420	0.000114
	0.5874	-4.596	1.181	7.933	0.000000	0.980679	0.000472	0.000143	0.015047	0.000277	0.000000	0.000000	0.001420	0.000114
14	2.8238665E+06	60.5412	6.217	4.524	0.500233	0.480226	0.000226	0.000071	0.014202	0.001658	0.000002	0.000000	0.001420	0.000114
	0.5501	-4.580	1.592	8.067	0.000000	0.980679	0.000472	0.000143	0.015047	0.000278	0.000000	0.000000	0.001420	0.000114
15	2.8254492E+06	60.4992	6.217	4.454	0.499320	0.481140	0.000226	0.000071	0.014211	0.001647	0.000002	0.000000	0.001420	0.000114
	0.4047	-4.589	1.864	8.150	0.000000	0.980664	0.000472	0.000097	0.015047	0.000335	0.000000	0.000001	0.001420	0.000114
16	2.8259818E+06	60.4863	6.219	4.371	0.499046	0.481415	0.000226	0.000071	0.014214	0.001644	0.000002	0.000000	0.001420	0.000114
	0.3879	-4.645	1.958	8.179	0.000000	0.980640	0.000472	0.000025	0.015041	0.000423	0.000000	0.000008	0.001420	0.000114
17	2.8263545E+06	60.4782	6.222	4.287	0.498874	0.481588	0.000226	0.000071	0.014216	0.001642	0.000002	0.000000	0.001420	0.000114
	0.4598	-4.657	2.022	8.199	0.000000	0.980626	0.000472	0.000002	0.015015	0.000451	0.000000	0.000041	0.001420	0.000114
18	2.8266742E+06	60.4701	6.224	4.182	0.498302	0.482160	0.000226	0.000071	0.014222	0.001635	0.000002	0.000000	0.001420	0.000114
	0.4352	-4.537	2.077	8.216	0.000000	0.980595	0.000473	0.000000	0.014916	0.000454	0.000000	0.000169	0.001420	0.000114
19	2.8296035E+06	51.9462	6.271	4.253	0.267233	0.713377	0.000267	0.000084	0.015139	0.000518	0.000000	0.000000	0.001420	0.000114
	0.6431 4.377	-4.398	2.231	8.265	0.000000	0.977685	0.000678	0.000002	0.005502	0.000452	0.000000	0.012198	0.001420	0.000205
20	2.8334900E+06	51.7907	6.290	4.014	0.259951	0.720660	0.000269	0.000085	0.015147	0.000506	0.000000	0.000000	0.001420	0.000114
	0.6525	-4.398	2.316	8.293	0.000000	0.974226	0.002400	0.000001	0.000639	0.000457	0.000000	0.016907	0.001420	0.002091
21	2.8346665E+06	51.6040	6.295	4.365	0.179368	0.801263	0.000298	0.000093	0.015200	0.000395	0.000000	0.000000	0.001420	0.000114
	0.6543 4.579	-4.398	2.353	8.305	0.000000	0.972220	0.003873	0.000000	0.000040	0.000464	0.000000	0.016077	0.001420	0.004046
22	2.8418275E+06	51.3175	6.297	4.338	0.178947	0.801684	0.000300	0.000094	0.015199	0.000395	0.000000	0.000000	0.001420	0.000114
	0.6696 4.537	-4.398	2.391	8.319	0.000000	0.950368	0.022781	0.000000	0.000000	0.000675	0.000000	0.003889	0.001420	0.018993
23	2.8539760E+06	50.8316	6.297	4.344	0.178284	0.802348	0.000300	0.000094	0.015199	0.000394	0.000000	0.000000	0.001420	0.000114
	0.6859 4.545	-4.398	2.412	8.327	0.000000	0.900441	0.070128	0.000000	0.000000	0.002404	0.000000	0.000107	0.001420	0.023556
24	2.8654852E+06	50.3712	6.297	4.349	0.178028	0.802603	0.000298	0.000093	0.015202	0.000394	0.000000	0.000000	0.001420	0.000114
	0.7003 4.552	-4.398	2.418	8.330	0.000000	0.850679	0.116220	0.000000	0.000001	0.006044	0.000000	0.000029	0.001420	0.023577
25	2.8776335E+06	49.8853	6.296	4.364	0.177908	0.802723	0.000296	0.000092	0.015205	0.000394	0.000000	0.000000	0.001420	0.000114
	0.7160 4.578	-4.398	2.424	8.333	0.000000	0.799324	0.161532	0.000000	0.000002	0.012071	0.000000	0.000026	0.001420	0.023494
26	2.8897820E+06	49.3993	6.294	4.378	0.177803	0.802827	0.000293	0.000092	0.015209	0.000394	0.000000	0.000000	0.001420	0.000114
	0.7316 4.600	-4.398	2.431	8.336	0.000000	0.750438	0.202146	0.000000	0.000000	0.020329	0.000000	0.000048	0.001420	0.023371
27	2.9025700E+06	48.8878	6.293	4.402	0.176333	0.804297	0.000289	0.000090	0.015217	0.000392	0.000000	0.000000	0.001420	0.000114
	0.7486 4.640	-4.398	2.439	8.340	0.000000	0.699010	0.242063	0.000000	0.000001	0.031810	0.000000	0.000015	0.001420	0.023290
28	2.9153580E+06	48.3763	6.289	4.428	0.175779	0.804849	0.000280	0.000088	0.015231	0.000391	0.000000	0.000000	0.001420	0.000114
	0.7657 4.682	-4.398	2.446	8.343	0.000000	0.649544	0.277211	0.000000	0.000001	0.046104	0.000000	0.000018	0.001420	0.023147
29	2.9288460E+06	47.8367	6.284	4.456	0.174606	0.806019	0.000261	0.000084	0.015258	0.000390	0.000000	0.000000	0.001420	0.000114
	0.7835 4.729	-4.398	2.455	8.347	0.000000	0.600414	0.308318	0.000000	0.000000	0.064094	0.000000	0.000015	0.001421	0.022985
30	2.9426952E+06	47.2828	6.278	4.485	0.173044	0.807571	0.000210	0.000069	0.015335	0.000389	0.000000	0.000000	0.001420	0.000114
	0.8029 4.778	-4.398	2.465	8.351	0.000000	0.550242	0.336158	0.000000	0.000001	0.086386	0.000000	0.000009	0.001421	0.022784
31	2.9576985E+06	46.6826	6.268	4.522	0.171248	0.809367	0.000206	0.000064	0.015344	0.000389	0.000001	0.000000	0.001420	0.000114
	0.8230 4.842	-4.398	2.476	8.355	0.000000	0.500914	0.357968	0.000000	0.000000	0.113858	0.000000	0.000022	0.001421	0.022512
32	2.9738560E+06	46.0363	6.260	4.564	0.157748	0.822874	0.000244	0.000075	0.015294	0.000383	0.000000	0.000000	0.001420	0.000114
	0.8461 4.913	-4.398	2.488	8.360	0.000000	0.450770	0.374015	0.000000	0.000000	0.147894	0.000000	0.000033	0.001410	0.022164
33	2.9921645E+06	45.3039	6.261	4.675	0.041390	0.939256	0.000317	0.000098	0.015253	0.000305	0.000000	0.000000	0.001420	0.000114
	0.8791 5.099	-4.398	2.504	8.367	0.000000	0.399763	0.382109	0.000000	0.000000	0.190712	0.000000	0.000005	0.001391	0.021748
34	3.0050890E+06	44.1537	6.241	4.316	0.000000	0.359763	0.386736	0.000000	0.000005	0.226016	0.000000	0.000024	0.001393	0.021342
	0.8723 5.171	-3.101	2.507	8.367	0.000000	0.356689	0.387791	0.000000	0.000000	0.228023	0.000000	0.000000	0.001393	0.021323
35	3.0308955E+06	26.4546	5.943	4.373	0.000000	0.316864	0.388237	0.000000	0.000000	0.267337	0.000000	0.000000	0.001394	0.020967
	0.8240 5.159	-3.426	2.629	8.359	0.000000	0.300665	0.388100	0.000000	0.000000	0.283646	0.000000	0.000000	0.001394	0.020822
36	3.0535968E+06	20.4545	5.784	4.447	0.000000	0.283614	0.387424	0.000000	0.000000	0.301344	0.000000	0.000000	0.001395	0.020665
	0.8050 5.157	-3.711	2.710	8.360	0.000000	0.250196	0.383953	0.000000	0.000000	0.338170	0.000000	0.000000	0.001397	0.020335
37	3.0774330E+06	16.8743	5.663	4.497	0.000000	0.247744	0.383565	0.000000	0.000000	0.341006	0.000000	0.000000	0.001397	0.020310
	0.7830 5.152	-3.923	2.779	8.364	0.000000	0.200669	0.371557	0.000000	0.000000	0.399985	0.000000	0.000000	0.001400	0.019752
38	3.1046748E+06	14.2711	5.557	4.538	0.000000	0.209760	0.374622	0.000000	0.000000	0.387850	0.000000	0.000000	0.001399	0.019871
	0.7613 5.149	-4.107	2.852	8.371	0.000000	0.149516	0.345752	0.000000	0.000000	0.476783	0.000000	0.000000	0.001408	0.018921
39	3.1350038E+06	12.3181	5.464	4.574	0.000000	0.173066	0.359615	0.000000	0.000000	0.439452	0.000000	0.000000	0.001404	0.019344
	0.7395 5.150	-4.267	2.933	8.383	0.000000	0.099520	0.301391	0.000000	0.000000	0.570878	0.000000	0.000000	0.001430	0.017608
40	3.1693395E+06	10.7642	5.381	4.608	0.000000	0.135413	0.335510	0.000000	0.000000	0.501069	0.000000	0.000000	0.001412	0.018620
	0.7160 5.155	-4.415	3.039	8.404	0.000000	0.051496	0.230721	0.000000	0.000000	0.688996	0.000000	0.000000	0.001539	0.015053
41	3.1869880E+06	10.1382	5.346	4.625	0.000000	0.117809	0.320372	0.000000	0.000000	0.533724	0.000000	0.000000	0.001418	0.018177
	0.7010 5.160	-4.480	3.110	8.421	0.000000	0.030032	0.186133	0.000000	0.000000	0.754370	0.000000	0.000000	0.001797	0.012763
42	3.2043415E+06	9.6049	5.320	4.645	0.000000	0.102486	0.304720	0.000000	0.000000	0.564605	0.000000	0.000000	0.001427	0.017709
	0.6835 5.174	-4.540	3.221	8.452	0.000000	0.010651	0.137809	0.000000	0.000000	0.820012	0.000000	0.000000	0.003156	0.009047
43	3.2215560E+06	9.1414	5.341	4.693	0.000000	0.088403	0.287945	0.000000	0.000000	0.595354	0.000000	0.000000	0.001441	0.017184
	0.0000 5.231	-4.597	3.618	8.577	0.000000	0.000000	0.111567	0.000000	0.000000	0.850185	0.000000	0.000000	0.009020	0.005963
44	3.2247538E+06	9.0614	5.393	4.729	0.000000	0.086057	0.284911	0.000000	0.000000	0.600713	0.000000	0.000000	0.001443	0.017086
	0.0000 5.287	-4.607	4.010	8.700	0.000000	0.000000	0.111567	0.000000	0.000000	0.850185	0.000000	0.000000	0.009020	0.005963
45	3.2273860E+06	8.9969	5.426	4.753	0.000000	0.084165	0.282410	0.000000	0.000000	0.605088	0.000000	0.000000	0.001446	0.017004
	0.0000 5.323	-4.615	4.418	8.799	0.000000	0.000000	0.111548	0.000000	0.000000	0.850172	0.000000	0.000000	0.009052	0.005963
46	3.2281950E+06	8.9773	5.455	4.762	0.000000	0.083616	0.281679	0.000000	0.000000	0.606363	0.000000	0.000000	0.001447	0.016979
	0.0000 5.336	-4.617	4.884	8.871	0.000000	0.000000	0.109591	0.000000	0.000000	0.848873	0.000000	0.000000	0.012302	0.005963
47	3.2282692E+06	8.9755	5.471	4.769	0.000000	0.083567	0.281614	0.000000	0.000000	0.606476	0.000000	0.000000	0.001447	0.016977
	0.0000 5.346	-4.617	5.169	8.929	0.000000	0.000000	0.086448	0.000000	0.000000	0.833591	0.000000	0.000000	0.050526	0.005963
48	3.2282760E+06	8.9754	5.474	4.772	0.000000	0.083563	0.281608	0.000000	0.000000	0.606487	0.000000	0.000000	0.001447	0.016977
	0.0000 5.348	-4.617	5.231	8.948	0.000000	0.000000	0.064155	0.000000	0.000000	0.819032	0.000000	0.000000	0.086938	0.005963
49	3.2282798E+06	8.9753	5.476	4.772	0.000000	0.083561	0.281605	0.000000	0.000000	0.606492	0.000000	0.000000	0.001447	0.016977
	0.0000 5.350	-4.617	5.277	8.961	0.000000	0.000000	0.044429	0.000000	0.000000	0.806312	0.000000	0.000000	0.118745	0.005963
50	3.2282842E+06	8.9752	5.479	4.774	0.000000	0.083558	0.281601	0.000000	0.000000	0.606499	0.000000	0.000000	0.001447	0.016977
	0.0000 5.353	-4.617	5.369	8.976	0.000000	0.000000	0.021027	0.000000	0.000000	0.791439	0.000000	0.000000	0.155937	0.005963
51	3.2282902E+06	8.9750	5.506	4.779	0.000000	0.083414	0.281361	0.000000	0.000000	0.606862	0.000000	0.000000	0.001464	0.016959
	0.0000 5.355	-4.617	5.764	9.041	0.000000	0.000000	0.001177	0.000000	0.000000	0.779090	0.000000	0.000000	0.186815	0.005963

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TABLE 3.

STELLAR MODEL : 60 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	3.0002281E+04	59.9806	5.728	4.683	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7464	-6.563	0.332	7.611	0.677590	0.301766	0.000108	0.000034	0.006821	0.010289	0.000011	0.000000	0.001420	0.000114
2	4.8163662E+05	59.7622	5.754	4.671	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.7207	-6.243	0.297	7.603	0.619529	0.360514	0.000178	0.000055	0.011420	0.004918	0.000005	0.000000	0.001420	0.000114
3	1.0419832E+06	59.3675	5.789	4.659	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6866	-6.068	0.293	7.605	0.539385	0.440979	0.000214	0.000067	0.013570	0.002401	0.000002	0.000000	0.001420	0.000114
4	1.5312086E+06	58.8459	5.821	4.644	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6562	-5.876	0.300	7.611	0.459968	0.520532	0.000233	0.000072	0.014467	0.001345	0.000001	0.000000	0.001420	0.000114
5	1.9658422E+06	58.1114	5.849	4.623	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6261	-5.675	0.315	7.618	0.380014	0.600552	0.000245	0.000076	0.014895	0.000835	0.000001	0.000000	0.001420	0.000114
6	2.3532332E+06	57.0588	5.876	4.594	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5987	-5.466	0.338	7.627	0.299285	0.681314	0.000253	0.000079	0.015108	0.000579	0.000001	0.000000	0.001420	0.000114
7	2.6933812E+06	55.5756	5.900	4.553	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5748	-5.266	0.371	7.637	0.219259	0.761359	0.000262	0.000082	0.015208	0.000448	0.000000	0.000000	0.001420	0.000114
8	2.9171232E+06	54.1263	5.916	4.498	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5613	-5.127	0.405	7.647	0.160943	0.819683	0.000270	0.000084	0.015246	0.000392	0.000000	0.000000	0.001420	0.000114
9	3.1303062E+06	52.3345	5.933	4.410	0.680000	0.300000	0.004465	0.000073	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5491	-5.039	0.454	7.662	0.100289	0.880344	0.000282	0.000088	0.015263	0.000352	0.000000	0.000000	0.001420	0.000114
10	3.2569370E+06	51.1348	5.945	4.316	0.680000	0.300000	0.004464	0.000074	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5417	-5.007	0.501	7.677	0.061379	0.919259	0.000291	0.000091	0.015267	0.000331	0.000000	0.000000	0.001420	0.000114
11	3.4405020E+06	48.1880	5.968	4.028	0.679998	0.300002	0.004448	0.000092	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5427	-4.408	0.806	7.775	0.001738	0.978921	0.000377	0.000117	0.015170	0.000295	0.000000	0.000000	0.001420	0.000114
12	3.4457690E+06	47.9954	5.976	4.049	0.679998	0.300003	0.004445	0.000095	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5345	-4.480	0.992	7.836	0.000167	0.980502	0.000430	0.000132	0.015094	0.000292	0.000000	0.000000	0.001420	0.000114
13	3.4469270E+06	47.9597	5.987	4.078	0.679998	0.300003	0.004444	0.000096	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4596	-4.558	1.300	7.937	0.000000	0.980674	0.000457	0.000139	0.015056	0.000292	0.000000	0.000000	0.001420	0.000114
14	3.4477908E+06	47.9398	5.993	4.141	0.679998	0.300003	0.004444	0.000096	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4202	-4.731	1.585	8.029	0.000000	0.980674	0.000457	0.000139	0.015056	0.000292	0.000000	0.000000	0.001420	0.000114
15	3.4489025E+06	47.9173	5.991	4.098	0.679998	0.300003	0.004444	0.000097	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3484	-4.620	1.776	8.085	0.000000	0.980673	0.000457	0.000136	0.015056	0.000295	0.000000	0.000000	0.001420	0.000114
16	3.4495380E+06	47.8979	5.987	4.038	0.679998	0.300003	0.004443	0.000097	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3515	-4.420	1.880	8.116	0.000000	0.980670	0.000457	0.000126	0.015056	0.000307	0.000000	0.000000	0.001420	0.000114
17	3.4499085E+06	47.8794	5.982	3.984	0.679998	0.300003	0.004443	0.000098	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3131	-4.201	1.942	8.135	0.000000	0.980664	0.000457	0.000105	0.015056	0.000333	0.000000	0.000000	0.001420	0.000114
18	3.4501205E+06	47.8601	5.980	3.924	0.679998	0.300003	0.004443	0.000098	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3035	-3.974	1.978	8.146	0.000000	0.980657	0.000457	0.000084	0.015056	0.000359	0.000000	0.000001	0.001420	0.000114
19	3.4503850E+06	47.8043	5.975	3.856	0.679998	0.300003	0.004442	0.000098	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3172	-3.639	2.023	8.160	0.000000	0.980646	0.000457	0.000049	0.015054	0.000403	0.000000	0.000003	0.001420	0.000114
20	3.4518280E+06	47.2205	5.972	3.804	0.669024	0.310702	0.001679	0.000104	0.005735	0.009342	0.000009	0.000008	0.001420	0.000114
	0.3631	-3.323	2.249	8.230	0.000000	0.980401	0.000469	0.000001	0.014290	0.000462	0.000000	0.000985	0.001420	0.000114
21	3.4537020E+06	45.5766	6.052	3.781	0.563566	0.416584	0.000470	0.000076	0.011479	0.004435	0.000005	0.000002	0.001420	0.000114
	0.4553	-2.923	2.327	8.256	0.000000	0.978005	0.000631	0.000000	0.006494	0.000463	0.000000	0.010984	0.001420	0.000144
22	3.4639655E+06	34.5348	6.087	4.284	0.204426	0.776194	0.000276	0.000086	0.015180	0.000457	0.000000	0.000000	0.001420	0.000114
	0.6393 4.449	-4.398	2.470	8.305	0.000000	0.954676	0.019406	0.000002	0.000249	0.000596	0.000000	0.007159	0.001420	0.014628
23	3.4795510E+06	33.9114	6.081	4.306	0.203105	0.777516	0.000284	0.000089	0.015169	0.000455	0.000000	0.000000	0.001420	0.000114
	0.6757 4.495	-4.398	2.492	8.314	0.000000	0.901033	0.069838	0.000000	0.000000	0.002155	0.000000	0.000385	0.001406	0.023259
24	3.4925668E+06	33.3908	6.078	4.311	0.201673	0.778948	0.000283	0.000088	0.015172	0.000454	0.000000	0.000000	0.001420	0.000114
	0.6956 4.538	-4.398	2.499	8.317	0.000000	0.851450	0.116145	0.000000	0.000000	0.005343	0.000000	0.000033	0.001406	0.023642
25	3.5064610E+06	32.8350	6.073	4.356	0.200834	0.779787	0.000283	0.000088	0.015173	0.000453	0.000000	0.000000	0.001420	0.000114
	0.7184 4.614	-4.398	2.504	8.321	0.000000	0.799665	0.162512	0.000000	0.000000	0.010748	0.000000	0.000022	0.001406	0.023597
26	3.5203955E+06	32.2776	6.064	4.411	0.200693	0.779928	0.000281	0.000088	0.015177	0.000452	0.000000	0.000000	0.001420	0.000114
	0.7422 4.706	-4.398	2.510	8.324	0.000000	0.749237	0.205319	0.000000	0.000002	0.018361	0.000000	0.000036	0.001406	0.023510
27	3.5351498E+06	31.6874	6.050	4.464	0.200230	0.780390	0.000278	0.000087	0.015180	0.000452	0.000000	0.000000	0.001420	0.000114
	0.7678 4.798	-4.398	2.517	8.327	0.000000	0.699764	0.244580	0.000000	0.000000	0.028564	0.000000	0.000066	0.001406	0.023396
28	3.5507238E+06	31.0644	6.026	4.522	0.199605	0.781013	0.000264	0.000085	0.015201	0.000451	0.000000	0.000000	0.001420	0.000114
	0.7984 4.906	-4.398	2.521	8.330	0.000000	0.649877	0.281104	0.000000	0.000011	0.041921	0.000000	0.000093	0.001406	0.023250
29	3.5662975E+06	30.4415	5.998	4.565	0.198783	0.781819	0.000182	0.000058	0.015326	0.000450	0.000001	0.000000	0.001420	0.000114
	0.8275 4.992	-4.398	2.536	8.335	0.000000	0.599756	0.314778	0.000000	0.000001	0.058325	0.000000	0.000020	0.001406	0.023240
30	3.5818715E+06	29.8185	5.989	4.585	0.186052	0.794555	0.000200	0.000064	0.015307	0.000440	0.000001	0.000000	0.001420	0.000114
	0.8505 5.031	-4.398	2.549	8.339	0.000000	0.550061	0.344793	0.000000	0.000000	0.077976	0.000000	0.000003	0.001407	0.023126
31	3.5974452E+06	29.1955	5.986	4.648	0.032748	0.947881	0.000226	0.000072	0.015387	0.000304	0.000000	0.000000	0.001420	0.000114
	0.8673 5.121	-4.398	2.563	8.343	0.000000	0.499369	0.371783	0.000000	0.000000	0.101646	0.000000	0.000000	0.001407	0.022963
32	3.6050192E+06	28.8015	5.977	4.424	0.000047	0.980609	0.000341	0.000107	0.015246	0.000270	0.000000	0.000000	0.001420	0.000114
	0.8639 5.132	-3.671	2.568	8.344	0.000000	0.475439	0.382922	0.000000	0.000000	0.114420	0.000000	0.000000	0.001407	0.022872
33	3.6207570E+06	25.7933	5.909	4.381	0.000000	0.474527	0.383141	0.000000	0.000012	0.115121	0.000000	0.000003	0.001407	0.022845
	0.8253 5.157	-3.486	2.595	8.343	0.000000	0.429989	0.400792	0.000000	0.000000	0.141967	0.000000	0.000000	0.001407	0.022685
34	3.6526942E+06	18.8476	5.713	4.464	0.000000	0.405541	0.408656	0.000000	0.000000	0.158532	0.000000	0.000000	0.001407	0.022581
	0.7982 5.147	-3.825	2.688	8.342	0.000000	0.351560	0.422277	0.000000	0.000000	0.198846	0.000000	0.000000	0.001407	0.022337
35	3.6753148E+06	16.1042	5.612	4.503	0.000000	0.369126	0.418515	0.000000	0.000000	0.185057	0.000000	0.000000	0.001407	0.022419
	0.7802 5.142	-3.998	2.742	8.344	0.000000	0.300610	0.428972	0.000000	0.000000	0.243052	0.000000	0.000000	0.001408	0.022070
36	3.6999918E+06	14.0366	5.524	4.536	0.000000	0.330799	0.425814	0.000000	0.000000	0.216052	0.000000	0.000000	0.001408	0.022233
	0.7629 5.138	-4.148	2.795	8.347	0.000000	0.249310	0.427767	0.000000	0.000000	0.295497	0.000000	0.000000	0.001409	0.021741
37	3.7259025E+06	12.4624	5.446	4.563	0.000000	0.296207	0.429214	0.000000	0.000000	0.247208	0.000000	0.000000	0.001408	0.022045
	0.7461 5.134	-4.278	2.848	8.353	0.000000	0.200224	0.416591	0.000000	0.000000	0.355681	0.000000	0.000000	0.001410	0.021323
38	3.7556485E+06	11.1127	5.372	4.590	0.000000	0.260986	0.428867	0.000000	0.000000	0.282737	0.000000	0.000000	0.001408	0.021823
	0.7281 5.133	-4.403	2.907	8.360	0.000000	0.149754	0.390921	0.000000	0.000000	0.431705	0.000000	0.000000	0.001413	0.020700
39	3.7892398E+06	9.9617	5.302	4.615	0.000000	0.222990	0.423192	0.000000	0.000000	0.326353	0.000000	0.000000	0.001409	0.021533
	0.7084 5.134	-4.522	2.979	8.373	0.000000	0.099753	0.345245	0.000000	0.000000	0.527183	0.000000	0.000000	0.001423	0.019664
40	3.8284422E+06	8.9394	5.236	4.643	0.000000	0.184794	0.410482	0.000000	0.000000	0.377191	0.000000	0.000000	0.001411	0.021160
	0.6864 5.138	-4.641	3.079	8.394	0.000000	0.050156	0.269364	0.000000	0.000000	0.652211	0.000000	0.000000	0.001477	0.017490
41	3.8464525E+06	8.5514	5.211	4.656	0.000000	0.168409	0.402392	0.000000	0.000000	0.401629	0.000000	0.000000	0.001412	0.020963
	0.6755 5.144	-4.690	3.142	8.410	0.000000	0.030215	0.226480	0.000000	0.000000	0.714601	0.000000	0.000000	0.001586	0.015705
42	3.8657110E+06	8.1806	5.192	4.674	0.000000	0.151377	0.392021	0.000000	0.000000	0.428986	0.000000	0.000000	0.001413	0.020724
	0.6615 5.158	-4.739	3.247	8.440	0.000000	0.010455	0.175991	0.000000	0.000000	0.783655	0.000000	0.000000	0.002177	0.012441
43	3.8769972E+06	7.9813	5.222	4.709	0.000000	0.142672	0.385860	0.000000	0.000000	0.443826	0.000000	0.000000	0.001414	0.020586
	0.0000 5.203	-4.767	3.557	8.539	0.000000	0.000000	0.149221	0.000000	0.000000	0.816558	0.000000	0.000000	0.005784	0.008992
44	3.8814675E+06	7.9058	5.295	4.758	0.000000	0.140200	0.383999	0.000000	0.000000	0.448151	0.000000	0.000000	0.001414	0.020545
	0.0000 5.275	-4.777	4.072	8.699	0.000000	0.000000	0.149221	0.000000	0.000000	0.816558	0.000000	0.000000	0.005784	0.008992
45	3.8850770E+06	7.8461	5.333	4.775	0.000000	0.136529	0.381132	0.000000	0.000000	0.454677	0.000000	0.000000	0.001415	0.020481
	0.0000 5.293	-4.786	4.532	8.799	0.000000	0.000000	0.149162	0.000000	0.000000	0.816519	0.000000	0.000000	0.005882	0.008992
46	3.8859495E+06	7.8318	5.361	4.780	0.000000	0.135861	0.380602	0.000000	0.000000	0.455873	0.000000	0.000000	0.001415	0.020469
	0.0000 5.291	-4.788	4.920	8.856	0.000000	0.000000	0.147073	0.000000	0.000000	0.815132	0.000000	0.000000	0.009354	0.008992
47	3.8860818E+06	7.8296	5.370	4.783	0.000000	0.135781	0.380537	0.000000	0.000000	0.456018	0.000000	0.000000	0.001415	0.020468
	0.0000 5.296	-4.788	5.172	8.910	0.000000	0.000000	0.121323	0.000000	0.000000	0.798137	0.000000	0.000000	0.051873	0.008992
48	3.8860978E+06	7.8294	5.372	4.784	0.000000	0.135771	0.380530	0.000000	0.000000	0.456035	0.000000	0.000000	0.001415	0.020468
	0.0000 5.298	-4.788	5.222	8.929	0.000000	0.000000	0.090249	0.000000	0.000000	0.777927	0.000000	0.000000	0.102424	0.008992
49	3.8861075E+06	7.8292	5.373	4.785	0.000000	0.135765	0.380525	0.000000	0.000000	0.456046	0.000000	0.000000	0.001415	0.020468
	0.0000 5.299	-4.788	5.263	8.941	0.000000	0.000000	0.060375	0.000000	0.000000	0.758826	0.000000	0.000000	0.150195	0.008992
50	3.8861198E+06	7.8290	5.375	4.786	0.000000	0.135758	0.380519	0.000000	0.000000	0.456059	0.000000	0.000000	0.001415	0.020468
	0.0000 5.301	-4.788	5.352	8.951	0.000000	0.000000	0.030593	0.000000	0.000000	0.740117	0.000000	0.000000	0.196981	0.008992
51	3.8861408E+06	7.8287	5.384	4.794	0.000000	0.135744	0.380508	0.000000	0.000000	0.456083	0.000000	0.000000	0.001415	0.020467
	0.0000 5.314	-4.788	6.051	9.061	0.000000	0.000000	0.000143	0.000000	0.000000	0.721484	0.000000	0.000000	0.243574	0.008992

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TABLE 4.

STELLAR MODEL : 40 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.0001521E+04	39.9904	5.373	4.640	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6638	-6.982	0.429	7.589	0.673090	0.306372	0.000123	0.000039	0.007515	0.009470	0.000009	0.000000	0.001420	0.000114
2	5.8074419E+05	39.8718	5.401	4.632	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6401	-6.626	0.404	7.584	0.619846	0.360171	0.000165	0.000052	0.011281	0.005097	0.000006	0.000000	0.001420	0.000114
3	1.3154212E+06	39.6668	5.442	4.622	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.6118	-6.487	0.399	7.587	0.540421	0.439917	0.000199	0.000062	0.013428	0.002589	0.000003	0.000000	0.001420	0.000114
4	1.9558020E+06	39.4203	5.481	4.610	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5821	-6.345	0.404	7.593	0.460416	0.520064	0.000217	0.000068	0.014374	0.001479	0.000002	0.000000	0.001420	0.000114
5	2.5071630E+06	39.1229	5.517	4.593	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5541	-6.192	0.416	7.601	0.380983	0.599568	0.000230	0.000072	0.014832	0.000933	0.000001	0.000000	0.001420	0.000114
6	2.9925515E+06	38.7400	5.551	4.571	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5256	-6.022	0.436	7.610	0.300461	0.680128	0.000240	0.000075	0.015068	0.000647	0.000001	0.000000	0.001420	0.000114
7	3.4125598E+06	38.2482	5.583	4.539	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4998	-5.844	0.466	7.621	0.220296	0.760314	0.000251	0.000078	0.015184	0.000495	0.000000	0.000000	0.001420	0.000114
8	3.6888635E+06	37.7922	5.605	4.508	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4801	-5.722	0.497	7.632	0.160737	0.819883	0.000259	0.000081	0.015230	0.000428	0.000000	0.000000	0.001420	0.000114
9	3.9439132E+06	37.2267	5.627	4.462	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4623	-5.598	0.544	7.647	0.099484	0.881144	0.000271	0.000085	0.015254	0.000380	0.000000	0.000000	0.001420	0.000114
10	4.0917092E+06	36.8183	5.641	4.424	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4504	-5.526	0.591	7.661	0.060731	0.919902	0.000286	0.000089	0.015254	0.000356	0.000000	0.000000	0.001420	0.000114
11	4.2732375E+06	36.2252	5.662	4.369	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4334	-5.449	0.755	7.714	0.009043	0.971604	0.000332	0.000103	0.015215	0.000322	0.000000	0.000000	0.001420	0.000114
12	4.3007570E+06	36.1267	5.676	4.393	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4239	-5.444	0.992	7.792	0.000499	0.980162	0.000400	0.000123	0.015122	0.000313	0.000000	0.000000	0.001420	0.000114
13	4.3031910E+06	36.1179	5.694	4.423	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3384	-5.435	1.334	7.901	0.000000	0.980669	0.000443	0.000135	0.015059	0.000312	0.000000	0.000000	0.001420	0.000114
14	4.3043440E+06	36.1136	5.700	4.439	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2485	-5.441	1.611	7.986	0.000000	0.980669	0.000443	0.000135	0.015059	0.000312	0.000000	0.000000	0.001420	0.000114
15	4.3068120E+06	36.1041	5.710	4.359	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1633	-5.367	1.978	8.090	0.000000	0.980667	0.000443	0.000128	0.015059	0.000320	0.000000	0.000000	0.001420	0.000114
16	4.3080170E+06	36.0985	5.718	4.258	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1664	-5.285	2.163	8.146	0.000000	0.980638	0.000443	0.000035	0.015058	0.000434	0.000000	0.000002	0.001420	0.000114
17	4.3087400E+06	36.0942	5.720	4.176	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1221	-5.175	2.276	8.181	0.000000	0.980616	0.000445	0.000000	0.015023	0.000477	0.000000	0.000047	0.001420	0.000114
18	4.3094630E+06	36.0879	5.721	4.062	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2014	-4.936	2.376	8.212	0.000000	0.980509	0.000453	0.000001	0.014678	0.000476	0.000000	0.000491	0.001420	0.000114
19	4.3098650E+06	36.0809	5.722	3.960	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2060	-4.623	2.416	8.225	0.000000	0.980282	0.000471	0.000000	0.013946	0.000477	0.000000	0.001432	0.001420	0.000114
20	4.3103350E+06	36.0624	5.726	3.896	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2743	-4.520	2.440	8.234	0.000000	0.979923	0.000503	0.000006	0.012794	0.000470	0.000000	0.002912	0.001420	0.000116
21	4.3120855E+06	35.9319	5.733	3.794	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3177	-4.044	2.473	8.246	0.000000	0.977968	0.000724	0.000000	0.006751	0.000477	0.000000	0.010659	0.001420	0.000142
22	4.3251565E+06	34.2749	5.761	3.766	0.676328	0.303674	0.004312	0.000084	0.001737	0.010412	0.000007	0.000023	0.001420	0.000114
	0.3612	-3.876	2.597	8.288	0.000000	0.950135	0.024430	0.000000	0.000000	0.000650	0.000000	0.010230	0.001420	0.011273
23	4.3436735E+06	31.8531	5.759	3.771	0.662760	0.317257	0.003898	0.000096	0.002754	0.009790	0.000007	0.000021	0.001420	0.000114
	0.3932	-3.894	2.610	8.294	0.000000	0.900080	0.071387	0.000000	0.000000	0.001984	0.000000	0.002303	0.001420	0.020945
24	4.3607480E+06	29.7406	5.758	3.780	0.633065	0.346992	0.003182	0.000105	0.004637	0.008585	0.000006	0.000017	0.001420	0.000114
	0.4256	-3.921	2.618	8.298	0.000000	0.849863	0.118372	0.000000	0.000001	0.004788	0.000000	0.000390	0.001420	0.023258
25	4.3779345E+06	27.8970	5.754	3.801	0.493561	0.486698	0.001158	0.000109	0.010623	0.004451	0.000004	0.000006	0.001420	0.000114
	0.4587	-4.010	2.624	8.301	0.000000	0.799679	0.163980	0.000000	0.000001	0.009290	0.000000	0.000085	0.001420	0.023599
26	4.3951025E+06	26.4345	5.750	3.834	0.423053	0.557274	0.000577	0.000094	0.012443	0.003170	0.000003	0.000002	0.001420	0.000114
	0.4888	-4.129	2.631	8.305	0.000000	0.750305	0.206994	0.000000	0.000000	0.015635	0.000000	0.000049	0.001420	0.023609
27	4.4132500E+06	25.1865	5.741	3.843	0.391866	0.588465	0.000238	0.000075	0.013268	0.002705	0.000002	0.000000	0.001420	0.000114
	0.5190	-4.184	2.638	8.308	0.000000	0.699398	0.249067	0.000000	0.000001	0.024462	0.000000	0.000053	0.001420	0.023559
28	4.4310340E+06	24.0449	5.733	3.841	0.390411	0.589922	0.000228	0.000072	0.013316	0.002667	0.000002	0.000000	0.001420	0.000114
	0.5496	-4.194	2.645	8.312	0.000000	0.650473	0.287017	0.000000	0.000000	0.035425	0.000000	0.000043	0.001420	0.023523
29	4.4490500E+06	22.9134	5.726	3.839	0.385437	0.594909	0.000214	0.000067	0.013442	0.002547	0.000003	0.000000	0.001420	0.000114
	0.5828	-4.206	2.653	8.316	0.000000	0.601655	0.322133	0.000000	0.000000	0.049122	0.000000	0.000072	0.001420	0.023426
30	4.4678650E+06	21.7739	5.718	3.839	0.384986	0.595359	0.000205	0.000064	0.013464	0.002537	0.000003	0.000000	0.001420	0.000114
	0.6200	-4.228	2.662	8.320	0.000000	0.549525	0.356548	0.000000	0.000000	0.066810	0.000000	0.000016	0.001420	0.023416
31	4.4866800E+06	20.7030	5.708	3.842	0.384986	0.595359	0.000205	0.000064	0.013464	0.002537	0.000003	0.000000	0.001420	0.000114
	0.6594	-4.263	2.673	8.325	0.000000	0.501065	0.384281	0.000000	0.000000	0.087520	0.000000	0.000017	0.001420	0.023321
32	4.5077090E+06	19.6312	5.695	3.851	0.384985	0.595360	0.000203	0.000064	0.013466	0.002537	0.000003	0.000000	0.001420	0.000114
	0.7049	-4.323	2.685	8.330	0.000000	0.450524	0.407921	0.000000	0.000000	0.114399	0.000000	0.000027	0.001421	0.023182
33	4.5283555E+06	18.7220	5.677	4.299	0.384569	0.595765	0.000146	0.000046	0.013555	0.002531	0.000006	0.000000	0.001420	0.000114
	0.7471 4.626	-4.398	2.698	8.335	0.000000	0.401911	0.425436	0.000000	0.000000	0.145467	0.000000	0.000017	0.001421	0.023037
34	4.5559980E+06	17.5921	5.666	4.538	0.000346	0.980303	0.000323	0.000101	0.015252	0.000295	0.000000	0.000000	0.001420	0.000114
	0.8172 5.112	-4.206	2.709	8.340	0.000000	0.358271	0.426898	0.000000	0.000000	0.187597	0.000000	0.000004	0.001421	0.022819
35	4.5810605E+06	16.1930	5.618	4.559	0.000000	0.980658	0.000386	0.000119	0.015143	0.000312	0.000000	0.000000	0.001420	0.000114
	0.7940 5.115	-4.296	2.746	8.345	0.000000	0.299488	0.436179	0.000000	0.000000	0.237043	0.000000	0.000000	0.001421	0.022525
36	4.6006750E+06	15.2755	5.583	4.579	0.000000	0.891055	0.062470	0.000108	0.012902	0.026595	0.000000	0.000021	0.001420	0.003422
	0.7809 5.120	-4.360	2.775	8.350	0.000000	0.256157	0.435315	0.000000	0.000000	0.281184	0.000000	0.000000	0.001422	0.022234
37	4.6290065E+06	13.2154	5.490	4.554	0.000000	0.290247	0.436590	0.000000	0.000000	0.245863	0.000000	0.000000	0.001422	0.022469
	0.7529 5.139	-4.214	2.833	8.354	0.000000	0.200727	0.422179	0.000000	0.000000	0.349658	0.000000	0.000000	0.001424	0.021738
38	4.6584280E+06	11.6862	5.411	4.583	0.000000	0.239144	0.432770	0.000000	0.000000	0.300717	0.000000	0.000000	0.001423	0.022098
	0.7357 5.138	-4.349	2.894	8.362	0.000000	0.150049	0.394866	0.000000	0.000000	0.427524	0.000000	0.000000	0.001427	0.021070
39	4.6911515E+06	10.4224	5.338	4.610	0.000000	0.202452	0.422829	0.000000	0.000000	0.347286	0.000000	0.000000	0.001424	0.021756
	0.7153 5.138	-4.473	2.966	8.374	0.000000	0.100597	0.348407	0.000000	0.000000	0.523227	0.000000	0.000000	0.001438	0.019991
40	4.7306275E+06	9.2803	5.267	4.639	0.000000	0.162979	0.403460	0.000000	0.000000	0.406038	0.000000	0.000000	0.001426	0.021269
	0.6923 5.144	-4.600	3.070	8.396	0.000000	0.049737	0.269500	0.000000	0.000000	0.652507	0.000000	0.000000	0.001498	0.017653
41	4.7477155E+06	8.8761	5.242	4.652	0.000000	0.145847	0.391782	0.000000	0.000000	0.434797	0.000000	0.000000	0.001428	0.020999
	0.6823 5.149	-4.649	3.132	8.411	0.000000	0.030184	0.227304	0.000000	0.000000	0.713806	0.000000	0.000000	0.001615	0.015826
42	4.7664030E+06	8.4813	5.222	4.671	0.000000	0.131586	0.380262	0.000000	0.000000	0.460528	0.000000	0.000000	0.001430	0.020737
	0.6650 5.162	-4.699	3.239	8.442	0.000000	0.010232	0.176299	0.000000	0.000000	0.783476	0.000000	0.000000	0.002269	0.012404
43	4.7768360E+06	8.2795	5.250	4.704	0.000000	0.123205	0.372597	0.000000	0.000000	0.476541	0.000000	0.000000	0.001431	0.020562
	0.0015 5.205	-4.727	3.525	8.533	0.000000	0.000000	0.150269	0.000000	0.000000	0.815243	0.000000	0.000000	0.006042	0.008948
44	4.7813785E+06	8.1955	5.324	4.755	0.000000	0.118438	0.367949	0.000000	0.000000	0.485935	0.000000	0.000000	0.001432	0.020455
	0.0000 5.280	-4.738	4.061	8.700	0.000000	0.000000	0.150269	0.000000	0.000000	0.815243	0.000000	0.000000	0.006042	0.008948
45	4.7847755E+06	8.1340	5.367	4.773	0.000000	0.115825	0.365301	0.000000	0.000000	0.491184	0.000000	0.000000	0.001433	0.020393
	0.0000 5.299	-4.746	4.510	8.800	0.000000	0.000000	0.149983	0.000000	0.000000	0.815053	0.000000	0.000000	0.006518	0.008948
46	4.7853580E+06	8.1236	5.388	4.776	0.000000	0.115398	0.364861	0.000000	0.000000	0.492049	0.000000	0.000000	0.001433	0.020383
	0.0000 5.299	-4.748	4.707	8.829	0.000000	0.000000	0.148106	0.000000	0.000000	0.813809	0.000000	0.000000	0.009634	0.008948
47	4.7856745E+06	8.1179	5.405	4.779	0.000000	0.115172	0.364628	0.000000	0.000000	0.492507	0.000000	0.000000	0.001433	0.020378
	0.0000 5.298	-4.749	4.980	8.870	0.000000	0.000000	0.128183	0.000000	0.000000	0.800656	0.000000	0.000000	0.042545	0.008948
48	4.7857285E+06	8.1169	5.411	4.781	0.000000	0.115134	0.364588	0.000000	0.000000	0.492584	0.000000	0.000000	0.001433	0.020377
	0.0000 5.299	-4.749	5.103	8.893	0.000000	0.000000	0.096727	0.000000	0.000000	0.780153	0.000000	0.000000	0.093837	0.008948
49	4.7857495E+06	8.1166	5.415	4.782	0.000000	0.115119	0.364573	0.000000	0.000000	0.492614	0.000000	0.000000	0.001433	0.020376
	0.0000 5.301	-4.749	5.185	8.909	0.000000	0.000000	0.066847	0.000000	0.000000	0.760980	0.000000	0.000000	0.141792	0.008948
50	4.7857650E+06	8.1163	5.419	4.783	0.000000	0.115108	0.364562	0.000000	0.000000	0.492636	0.000000	0.000000	0.001433	0.020376
	0.0000 5.303	-4.749	5.285	8.928	0.000000	0.000000	0.034609	0.000000	0.000000	0.740635	0.000000	0.000000	0.192672	0.008948
51	4.7857825E+06	8.1160	5.434	4.806	0.000000	0.115096	0.364549	0.000000	0.000000	0.492661	0.000000	0.000000	0.001433	0.020376
	0.0000 5.316	-4.749	5.739	9.018	0.000000	0.000000	0.000660	0.000000	0.000000	0.719706	0.000000	0.000000	0.245004	0.008948

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TABLE 5.

STELLAR MODEL : 25 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	4.0003043E+04	24.9967	4.897	4.579	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5546	-7.102	0.577	7.564	0.675408	0.303988	0.000098	0.000031	0.007128	0.009951	0.000014	0.000000	0.001420	0.000114
2	9.3257094E+05	24.9187	4.930	4.571	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5374	-7.025	0.548	7.559	0.620544	0.359429	0.000147	0.000046	0.011024	0.005420	0.000009	0.000000	0.001420	0.000114
3	2.0666572E+06	24.7995	4.977	4.562	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5118	-6.933	0.540	7.562	0.540547	0.439753	0.000179	0.000056	0.013221	0.002859	0.000004	0.000000	0.001420	0.000114
4	3.0344312E+06	24.6734	5.022	4.552	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4862	-6.837	0.543	7.568	0.460500	0.519950	0.000197	0.000062	0.014220	0.001688	0.000002	0.000000	0.001420	0.000114
5	3.8579205E+06	24.5383	5.064	4.539	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4609	-6.733	0.554	7.576	0.380879	0.599648	0.000209	0.000065	0.014729	0.001086	0.000001	0.000000	0.001420	0.000114
6	4.5708000E+06	24.3891	5.105	4.521	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4347	-6.624	0.572	7.586	0.300068	0.680503	0.000219	0.000068	0.015004	0.000755	0.000001	0.000000	0.001420	0.000114
7	5.1771875E+06	24.2236	5.144	4.497	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4083	-6.505	0.600	7.598	0.219323	0.761273	0.000229	0.000072	0.015149	0.000572	0.000001	0.000000	0.001420	0.000114
8	5.5653895E+06	24.0888	5.171	4.475	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3898	-6.416	0.629	7.609	0.159924	0.820685	0.000239	0.000075	0.015207	0.000489	0.000001	0.000000	0.001420	0.000114
9	5.9125955E+06	23.9405	5.198	4.447	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3705	-6.326	0.673	7.624	0.100227	0.880391	0.000251	0.000078	0.015241	0.000430	0.000000	0.000000	0.001420	0.000114
10	6.1276550E+06	23.8309	5.216	4.424	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3565	-6.262	0.721	7.639	0.059293	0.921331	0.000264	0.000082	0.015250	0.000398	0.000000	0.000000	0.001420	0.000114
11	6.3304370E+06	23.7117	5.236	4.404	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3419	-6.203	0.826	7.674	0.017183	0.963452	0.000294	0.000092	0.015232	0.000366	0.000000	0.000000	0.001420	0.000114
12	6.4010170E+06	23.6668	5.254	4.425	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3312	-6.196	1.039	7.743	0.001279	0.979369	0.000353	0.000110	0.015159	0.000349	0.000000	0.000000	0.001420	0.000114
13	6.4077445E+06	23.6625	5.290	4.462	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1328	-6.187	1.546	7.897	0.000000	0.980660	0.000420	0.000128	0.015063	0.000347	0.000000	0.000000	0.001420	0.000114
14	6.4098160E+06	23.6612	5.283	4.448	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0510	-6.174	1.804	7.961	0.000000	0.980660	0.000420	0.000128	0.015063	0.000347	0.000000	0.000000	0.001420	0.000114
15	6.4133670E+06	23.6583	5.312	4.345	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.012	2.235	8.079	0.000000	0.980632	0.000420	0.000035	0.015063	0.000461	0.000000	0.000000	0.001420	0.000114
16	6.4157345E+06	23.6557	5.325	4.252	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0126	-5.897	2.508	8.161	0.000000	0.980573	0.000430	0.000000	0.014927	0.000504	0.000000	0.000175	0.001420	0.000114
17	6.4174950E+06	23.6530	5.329	4.164	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1131	-5.771	2.656	8.211	0.000000	0.980082	0.000506	0.000000	0.013478	0.000504	0.000000	0.002038	0.001420	0.000114
18	6.4187455E+06	23.6505	5.335	4.087	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1710	-5.622	2.680	8.223	0.000000	0.979149	0.000659	0.000000	0.010748	0.000504	0.000000	0.005545	0.001420	0.000118
19	6.4199955E+06	23.6467	5.344	4.008	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2002	-5.432	2.686	8.228	0.000000	0.978129	0.000862	0.000000	0.007896	0.000504	0.000000	0.009205	0.001420	0.000127
20	6.4214960E+06	23.6393	5.353	3.925	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2116	-5.226	2.698	8.233	0.000000	0.976815	0.001212	0.000000	0.004541	0.000504	0.000000	0.013498	0.001420	0.000152
21	6.4243715E+06	23.6158	5.357	3.829	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2123	-5.022	2.761	8.255	0.000000	0.973514	0.003197	0.000000	0.000134	0.000507	0.000000	0.018918	0.001420	0.000453
22	6.4376740E+06	23.4423	5.356	3.694	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2360	-4.865	2.776	8.263	0.000000	0.949965	0.025728	0.000000	0.000000	0.000660	0.000000	0.015370	0.001420	0.004999
23	6.4655415E+06	23.0683	5.339	3.654	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2431	-4.910	2.780	8.266	0.000000	0.899804	0.073287	0.000000	0.000000	0.001851	0.000000	0.009021	0.001420	0.012754
24	6.4913155E+06	22.7520	5.341	3.641	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2515	-4.913	2.785	8.270	0.000000	0.850303	0.119461	0.000000	0.000000	0.004222	0.000000	0.004726	0.001420	0.017996
25	6.5178290E+06	22.4288	5.341	3.639	0.679999	0.300000	0.004465	0.000073	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2592	-4.914	2.790	8.274	0.000000	0.799397	0.165870	0.000000	0.000000	0.008143	0.000000	0.002148	0.001420	0.021136
26	6.5442410E+06	22.1074	5.342	3.637	0.679999	0.300000	0.004464	0.000074	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2672	-4.915	2.795	8.278	0.000000	0.750100	0.209388	0.000000	0.000001	0.013650	0.000000	0.000932	0.001420	0.022606
27	6.5700645E+06	21.7924	5.343	3.636	0.679999	0.300001	0.004463	0.000076	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2752	-4.913	2.800	8.282	0.000000	0.700842	0.251218	0.000000	0.000004	0.020957	0.000000	0.000399	0.001420	0.023236
28	6.5971890E+06	21.4597	5.344	3.636	0.679999	0.300001	0.004460	0.000078	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2837	-4.911	2.807	8.286	0.000000	0.650769	0.291600	0.000000	0.000001	0.030594	0.000000	0.000181	0.001420	0.023484
29	6.6257575E+06	21.1066	5.346	3.636	0.679998	0.300001	0.004457	0.000082	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2927	-4.906	2.813	8.290	0.000000	0.600664	0.329158	0.000000	0.000000	0.043141	0.000000	0.000204	0.001420	0.023428
30	6.6515600E+06	20.7850	5.347	3.637	0.679998	0.300002	0.004453	0.000085	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3016	-4.902	2.821	8.294	0.000000	0.550746	0.364512	0.000000	0.000000	0.057667	0.000000	0.000062	0.001420	0.023568
31	6.6819440E+06	20.4031	5.348	3.637	0.679543	0.300456	0.004421	0.000094	0.001451	0.010580	0.000007	0.000024	0.001420	0.000114
	0.3119	-4.899	2.829	8.299	0.000000	0.499587	0.396002	0.000000	0.000000	0.077330	0.000000	0.000075	0.001420	0.023505
32	6.7104680E+06	20.0419	5.350	3.637	0.675918	0.304078	0.004224	0.000118	0.001833	0.010378	0.000007	0.000023	0.001420	0.000114
	0.3228	-4.896	2.839	8.304	0.000000	0.449358	0.423397	0.000000	0.000000	0.100150	0.000000	0.000057	0.001420	0.023469
33	6.7201425E+06	19.9190	5.350	3.637	0.674620	0.305375	0.004154	0.000126	0.001969	0.010306	0.000007	0.000023	0.001420	0.000114
	0.3262	-4.897	2.841	8.306	0.000000	0.437695	0.427590	0.000000	0.000000	0.107622	0.000000	0.000083	0.001420	0.023419
34	6.7730950E+06	19.2417	5.351	3.637	0.666346	0.313647	0.003808	0.000162	0.002675	0.009918	0.000007	0.000021	0.001420	0.000114
	0.3477	-4.890	2.863	8.317	0.000000	0.350801	0.459231	0.000000	0.000000	0.162831	0.000000	0.000020	0.001419	0.023337
35	6.8065960E+06	18.8097	5.352	3.638	0.661037	0.318956	0.003616	0.000181	0.003079	0.009691	0.000007	0.000020	0.001420	0.000114
	0.3617	-4.888	2.878	8.324	0.000000	0.300492	0.466595	0.000000	0.000000	0.205748	0.000000	0.000017	0.001411	0.023192
36	6.8444190E+06	18.3192	5.352	3.639	0.649607	0.330393	0.003342	0.000197	0.003720	0.009304	0.000007	0.000019	0.001420	0.000114
	0.3775	-4.888	2.897	8.332	0.000000	0.250180	0.461294	0.000000	0.000000	0.261314	0.000000	0.000007	0.001412	0.022974
37	6.8811620E+06	17.8442	5.352	3.638	0.634496	0.345517	0.003036	0.000209	0.004477	0.008835	0.000007	0.000017	0.001420	0.000114
	0.3936	-4.890	2.921	8.342	0.000000	0.200440	0.445659	0.000000	0.000000	0.326626	0.000000	0.000003	0.001413	0.022640
38	6.9200660E+06	17.3448	5.349	3.635	0.604822	0.375221	0.002575	0.000208	0.005733	0.008018	0.000007	0.000015	0.001420	0.000114
	0.4105	-4.899	2.951	8.354	0.000000	0.150486	0.413528	0.000000	0.000000	0.408603	0.000000	0.000000	0.001415	0.022070
39	6.9632925E+06	16.8085	5.344	3.632	0.557638	0.422444	0.001882	0.000185	0.007617	0.006821	0.000006	0.000010	0.001420	0.000114
	0.4275	-4.913	2.997	8.371	0.000000	0.100147	0.357012	0.000000	0.000000	0.515247	0.000000	0.000000	0.001424	0.020963
40	7.0037085E+06	16.3193	5.343	3.629	0.529998	0.450095	0.001435	0.000158	0.008754	0.006155	0.000006	0.000008	0.001420	0.000114
	0.4371	-4.919	3.070	8.397	0.000000	0.050083	0.279761	0.000000	0.000000	0.642082	0.000000	0.000000	0.001479	0.018643
41	7.0215915E+06	16.1036	5.344	3.628	0.520625	0.459470	0.001276	0.000146	0.009152	0.005928	0.000005	0.000007	0.001420	0.000114
	0.4349	-4.917	3.122	8.415	0.000000	0.029812	0.235564	0.000000	0.000000	0.706051	0.000000	0.000000	0.001609	0.016623
42	7.0394945E+06	15.8851	5.349	3.626	0.511314	0.468783	0.001116	0.000132	0.009552	0.005701	0.000005	0.000006	0.001420	0.000114
	0.4243	-4.908	3.216	8.446	0.000000	0.010272	0.185308	0.000000	0.000000	0.774450	0.000000	0.000000	0.002335	0.013004
43	7.0497115E+06	15.7565	5.359	3.623	0.501117	0.478983	0.000940	0.000118	0.009992	0.005453	0.000005	0.000005	0.001420	0.000114
	0.0013	-4.888	3.498	8.538	0.000000	0.000000	0.159353	0.000000	0.000000	0.805910	0.000000	0.000000	0.006345	0.009388
44	7.0543080E+06	15.6829	5.424	3.627	0.493089	0.487012	0.000798	0.000105	0.010342	0.005257	0.000006	0.000004	0.001420	0.000114
	0.0000	-4.713	4.025	8.700	0.000000	0.000000	0.159355	0.000000	0.000000	0.805912	0.000000	0.000000	0.006340	0.009388
45	7.0581640E+06	15.6039	5.457	3.630	0.491676	0.488425	0.000775	0.000103	0.010403	0.005222	0.000006	0.000004	0.001420	0.000114
	0.0000	-4.620	4.492	8.801	0.000000	0.000000	0.159295	0.000000	0.000000	0.805872	0.000000	0.000000	0.006440	0.009388
46	7.0589200E+06	15.5850	5.470	3.632	0.489078	0.491028	0.000748	0.000101	0.010499	0.005151	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.584	4.858	8.855	0.000000	0.000000	0.157473	0.000000	0.000000	0.804664	0.000000	0.000000	0.009465	0.009388
47	7.0590530E+06	15.5815	5.472	3.632	0.488019	0.492089	0.000738	0.000100	0.010537	0.005122	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.579	5.139	8.916	0.000000	0.000000	0.126030	0.000000	0.000000	0.783943	0.000000	0.000000	0.061305	0.009388
48	7.0590645E+06	15.5812	5.472	3.632	0.488019	0.492089	0.000738	0.000100	0.010537	0.005122	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.578	5.185	8.934	0.000000	0.000000	0.095129	0.000000	0.000000	0.763895	0.000000	0.000000	0.111449	0.009388
49	7.0590720E+06	15.5810	5.470	3.632	0.487418	0.492691	0.000733	0.000099	0.010558	0.005105	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.581	5.225	8.946	0.000000	0.000000	0.064303	0.000000	0.000000	0.744253	0.000000	0.000000	0.160575	0.009388
50	7.0590820E+06	15.5807	5.469	3.632	0.486305	0.493806	0.000723	0.000099	0.010597	0.005074	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.584	5.318	8.957	0.000000	0.000000	0.031257	0.000000	0.000000	0.723632	0.000000	0.000000	0.212144	0.009388
51	7.0590965E+06	15.5804	5.469	3.633	0.484671	0.495443	0.000709	0.000098	0.010655	0.005029	0.000006	0.000003	0.001420	0.000114
	0.0000	-4.583	5.778	9.027	0.000000	0.000000	0.001516	0.000000	0.000000	0.705583	0.000000	0.000000	0.257275	0.009388

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TABLE 6.

STELLAR MODEL : 20 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.0040764E+05	19.9955	4.650	4.544	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.5081	-7.361	0.653	7.550	0.674793	0.304604	0.000093	0.000029	0.007153	0.009929	0.000017	0.000000	0.001420	0.000114
2	1.2478869E+06	19.9418	4.684	4.536	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4904	-7.302	0.624	7.545	0.620100	0.359854	0.000139	0.000044	0.010916	0.005555	0.000010	0.000000	0.001420	0.000114
3	2.6924880E+06	19.8622	4.732	4.528	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4658	-7.218	0.615	7.548	0.540912	0.439366	0.000170	0.000053	0.013095	0.003017	0.000005	0.000000	0.001420	0.000114
4	3.9330722E+06	19.7794	4.779	4.519	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4407	-7.134	0.617	7.555	0.460744	0.519689	0.000188	0.000059	0.014125	0.001811	0.000003	0.000000	0.001420	0.000114
5	4.9925580E+06	19.6930	4.824	4.506	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4157	-7.044	0.627	7.563	0.379771	0.600745	0.000201	0.000063	0.014667	0.001170	0.000002	0.000000	0.001420	0.000114
6	5.8797405E+06	19.6039	4.867	4.490	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3910	-6.952	0.644	7.573	0.299698	0.680863	0.000211	0.000066	0.014958	0.000821	0.000001	0.000000	0.001420	0.000114
7	6.6359595E+06	19.5096	4.908	4.469	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3650	-6.857	0.671	7.585	0.219205	0.761383	0.000222	0.000069	0.015117	0.000621	0.000001	0.000000	0.001420	0.000114
8	7.1083965E+06	19.4382	4.936	4.450	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3462	-6.786	0.699	7.595	0.161025	0.819576	0.000231	0.000072	0.015183	0.000530	0.000001	0.000000	0.001420	0.000114
9	7.5437475E+06	19.3602	4.965	4.426	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3271	-6.709	0.743	7.611	0.100118	0.880495	0.000243	0.000076	0.015225	0.000462	0.000000	0.000000	0.001420	0.000114
10	7.7985730E+06	19.3073	4.984	4.408	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3141	-6.658	0.789	7.626	0.060262	0.920357	0.000255	0.000079	0.015238	0.000427	0.000000	0.000000	0.001420	0.000114
11	8.0336625E+06	19.2525	5.004	4.394	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3002	-6.608	0.884	7.657	0.019560	0.961068	0.000279	0.000087	0.015232	0.000392	0.000000	0.000000	0.001420	0.000114
12	8.1354565E+06	19.2268	5.030	4.423	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2861	-6.589	1.145	7.742	0.000789	0.979856	0.000354	0.000109	0.015139	0.000371	0.000000	0.000000	0.001420	0.000114
13	8.1409328E+06	19.2254	5.061	4.446	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1201	-6.563	1.477	7.841	0.000000	0.980654	0.000404	0.000123	0.015068	0.000369	0.000000	0.000000	0.001420	0.000114
14	8.1439125E+06	19.2246	5.055	4.441	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.567	1.826	7.922	0.000000	0.980654	0.000404	0.000123	0.015068	0.000369	0.000000	0.000000	0.001420	0.000114
15	8.1480845E+06	19.2233	5.078	4.366	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.448	2.253	8.030	0.000000	0.980650	0.000404	0.000107	0.015068	0.000388	0.000000	0.000000	0.001420	0.000114
16	8.1510045E+06	19.2221	5.094	4.297	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.355	2.526	8.106	0.000000	0.980614	0.000404	0.000000	0.015063	0.000520	0.000000	0.000007	0.001420	0.000114
17	8.1526825E+06	19.2213	5.101	4.251	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.293	2.671	8.150	0.000000	0.980492	0.000437	0.000000	0.014749	0.000520	0.000000	0.000411	0.001420	0.000114
18	8.1557275E+06	19.2195	5.105	4.148	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1091	-6.144	2.820	8.211	0.000000	0.979510	0.000659	0.000000	0.012089	0.000520	0.000000	0.003830	0.001420	0.000115
19	8.1577295E+06	19.2177	5.118	4.072	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1569	-5.978	2.820	8.218	0.000000	0.978084	0.001028	0.000000	0.008397	0.000520	0.000000	0.008570	0.001204	0.000106
20	8.1604975E+06	19.2140	5.133	4.000	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1704	-5.799	2.830	8.225	0.000000	0.976105	0.001765	0.000000	0.004072	0.000521	0.000000	0.014104	0.001071	0.000128
21	8.1616840E+06	19.2120	5.136	3.982	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1695	-5.753	2.840	8.229	0.000000	0.975072	0.002277	0.000000	0.002274	0.000522	0.000000	0.016390	0.001071	0.000159
22	8.1799920E+06	19.1687	5.143	3.911	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1859	-5.587	2.882	8.247	0.000000	0.950374	0.025721	0.000000	0.000006	0.000665	0.000000	0.017221	0.001023	0.002704
23	8.2142340E+06	19.0645	5.141	3.837	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1906	-5.453	2.884	8.251	0.000000	0.900944	0.073139	0.000000	0.000000	0.001747	0.000000	0.013052	0.001004	0.007805
24	8.2505150E+06	18.9172	5.138	3.749	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1963	-5.345	2.885	8.254	0.000000	0.850054	0.120798	0.000000	0.000011	0.004135	0.000000	0.009236	0.001016	0.012451
25	8.2782495E+06	18.7961	5.105	3.577	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2014	-5.497	2.888	8.258	0.000000	0.808969	0.158426	0.000000	0.000001	0.006999	0.000000	0.006600	0.001019	0.015684
26	8.3192170E+06	18.6683	5.113	3.568	0.679999	0.300000	0.004464	0.000074	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2078	-5.504	2.891	8.262	0.000000	0.750567	0.210245	0.000000	0.000000	0.012934	0.000000	0.003691	0.001029	0.019233
27	8.3553250E+06	18.5546	5.115	3.567	0.679999	0.300001	0.004463	0.000075	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2132	-5.501	2.895	8.266	0.000000	0.700432	0.252861	0.000000	0.000000	0.020093	0.000000	0.002080	0.001039	0.021193
28	8.3887720E+06	18.4485	5.118	3.567	0.679998	0.300001	0.004461	0.000077	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2182	-5.497	2.901	8.271	0.000000	0.649561	0.294558	0.000000	0.000000	0.029015	0.000000	0.000961	0.001042	0.022547
29	8.4241870E+06	18.3353	5.120	3.566	0.679998	0.300001	0.004460	0.000079	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2234	-5.493	2.906	8.275	0.000000	0.600118	0.332471	0.000000	0.000000	0.040434	0.000000	0.000476	0.001050	0.023122
30	8.4583370E+06	18.2251	5.123	3.566	0.679998	0.300001	0.004458	0.000081	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2283	-5.490	2.913	8.280	0.000000	0.549272	0.369192	0.000000	0.000000	0.054495	0.000000	0.000208	0.001054	0.023429
31	8.4950170E+06	18.1057	5.125	3.566	0.679998	0.300001	0.004455	0.000083	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2341	-5.486	2.920	8.284	0.000000	0.499430	0.401375	0.000000	0.000000	0.072128	0.000000	0.000119	0.001062	0.023509
32	8.5342260E+06	17.9770	5.128	3.565	0.679997	0.300002	0.004452	0.000087	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2405	-5.481	2.928	8.290	0.000000	0.449701	0.428800	0.000000	0.000000	0.094423	0.000000	0.000103	0.001070	0.023491
33	8.5709060E+06	17.8554	5.131	3.565	0.679997	0.300002	0.004447	0.000091	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2459	-5.478	2.936	8.295	0.000000	0.399138	0.453315	0.000000	0.000000	0.120451	0.000000	0.000058	0.001075	0.023498
34	8.6113800E+06	17.7200	5.134	3.564	0.679996	0.300003	0.004441	0.000097	0.001400	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2535	-5.473	2.949	8.302	0.000000	0.350514	0.469481	0.000000	0.000000	0.152891	0.000000	0.000034	0.001082	0.023461
35	8.6556480E+06	17.5705	5.137	3.564	0.679946	0.300052	0.004431	0.000105	0.001405	0.010605	0.000007	0.000024	0.001420	0.000114
	0.2605	-5.469	2.963	8.309	0.000000	0.300311	0.477526	0.000000	0.000000	0.195024	0.000000	0.000015	0.001090	0.023383
36	8.6958950E+06	17.4333	5.140	3.563	0.679770	0.300228	0.004415	0.000115	0.001419	0.010600	0.000007	0.000024	0.001420	0.000114
	0.2674	-5.466	2.981	8.318	0.000000	0.250585	0.479604	0.000000	0.000000	0.242647	0.000000	0.000020	0.001094	0.023240
37	8.7433380E+06	17.2703	5.142	3.563	0.677805	0.302189	0.004325	0.000134	0.001557	0.010538	0.000007	0.000024	0.001420	0.000114
	0.2744	-5.463	3.003	8.328	0.000000	0.200755	0.466001	0.000000	0.000000	0.306035	0.000000	0.000007	0.001101	0.023028
38	8.7972650E+06	17.0844	5.144	3.561	0.674539	0.305448	0.004182	0.000162	0.001785	0.010434	0.000007	0.000023	0.001420	0.000114
	0.2811	-5.462	3.033	8.340	0.000000	0.149765	0.429705	0.000000	0.000000	0.393237	0.000000	0.000000	0.001109	0.022598
39	8.8409720E+06	16.9338	5.146	3.559	0.671822	0.308159	0.004064	0.000184	0.001975	0.010348	0.000007	0.000023	0.001420	0.000114
	0.2869	-5.463	3.075	8.356	0.000000	0.100610	0.387491	0.000000	0.000000	0.484481	0.000000	0.000000	0.001113	0.021930
40	8.8891380E+06	16.7690	5.145	3.556	0.657280	0.322706	0.003728	0.000208	0.002728	0.009907	0.000007	0.000021	0.001420	0.000114
	0.2879	-5.474	3.145	8.381	0.000000	0.050910	0.313472	0.000000	0.000000	0.607892	0.000000	0.000000	0.001132	0.020348
41	8.9104460E+06	16.6979	5.144	3.554	0.638824	0.341177	0.003384	0.000206	0.003616	0.009356	0.000007	0.000019	0.001420	0.000114
	0.2843	-5.480	3.193	8.398	0.000000	0.030846	0.270393	0.000000	0.000000	0.670737	0.000000	0.000000	0.001175	0.018948
42	8.9335050E+06	16.6219	5.146	3.552	0.615112	0.364900	0.002939	0.000186	0.004732	0.008701	0.000007	0.000017	0.001420	0.000114
	0.2749	-5.481	3.289	8.430	0.000000	0.010160	0.216877	0.000000	0.000000	0.744148	0.000000	0.000000	0.001444	0.016096
43	8.9462080E+06	16.5797	5.157	3.549	0.592826	0.387195	0.002521	0.000166	0.005777	0.008091	0.000006	0.000014	0.001420	0.000114
	0.0016	-5.469	3.575	8.523	0.000000	0.000000	0.189614	0.000000	0.000000	0.779189	0.000000	0.000000	0.003219	0.012940
44	8.9488430E+06	16.5703	5.191	3.546	0.581139	0.398887	0.002301	0.000156	0.006326	0.007771	0.000006	0.000013	0.001420	0.000114
	0.0000	-5.409	3.835	8.602	0.000000	0.000000	0.189614	0.000000	0.000000	0.779189	0.000000	0.000000	0.003219	0.012940
45	8.9546060E+06	16.5467	5.203	3.546	0.579664	0.400362	0.002273	0.000154	0.006396	0.007731	0.000006	0.000013	0.001420	0.000114
	0.0000	-5.389	4.231	8.702	0.000000	0.000000	0.189614	0.000000	0.000000	0.779189	0.000000	0.000000	0.003219	0.012940
46	8.9596260E+06	16.5220	5.273	3.548	0.575744	0.404284	0.002199	0.000150	0.006581	0.007623	0.000007	0.000012	0.001420	0.000114
	0.0000	-5.230	4.872	8.822	0.000000	0.000000	0.188705	0.000000	0.000000	0.778586	0.000000	0.000000	0.004731	0.012940
47	8.9602360E+06	16.5183	5.282	3.547	0.575467	0.404561	0.002195	0.000150	0.006593	0.007615	0.000007	0.000012	0.001420	0.000114
	0.0050	-5.216	5.235	8.914	0.000000	0.000000	0.147805	0.000000	0.000000	0.751692	0.000000	0.000000	0.072037	0.012940
48	8.9602840E+06	16.5180	5.282	3.547	0.575467	0.404561	0.002195	0.000150	0.006593	0.007615	0.000007	0.000012	0.001420	0.000114
	0.0145	-5.216	5.262	8.937	0.000000	0.000000	0.113244	0.000000	0.000000	0.729539	0.000000	0.000000	0.127458	0.012940
49	8.9603140E+06	16.5178	5.282	3.547	0.575467	0.404561	0.002195	0.000150	0.006593	0.007615	0.000007	0.000012	0.001420	0.000114
	0.0166	-5.216	5.301	8.952	0.000000	0.000000	0.075314	0.000000	0.000000	0.705708	0.000000	0.000000	0.187063	0.012940
50	8.9603360E+06	16.5177	5.282	3.547	0.575467	0.404561	0.002195	0.000150	0.006593	0.007615	0.000007	0.000012	0.001420	0.000114
	0.0084	-5.216	5.386	8.965	0.000000	0.000000	0.037876	0.000000	0.000000	0.682634	0.000000	0.000000	0.244769	0.012940
51	8.9603880E+06	16.5174	5.281	3.547	0.575421	0.404607	0.002194	0.000150	0.006595	0.007614	0.000007	0.000012	0.001420	0.000114
	0.0000	-5.220	5.986	9.006	0.000000	0.000000	0.000995	0.000000	0.000000	0.660539	0.000000	0.000000	0.300019	0.012940

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TABLE 7.

STELLAR MODEL : 15 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.5201156E+05	14.9981	4.303	4.492	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4463	-7.916	0.762	7.529	0.674755	0.304636	0.000087	0.000027	0.007124	0.009968	0.000022	0.000000	0.001420	0.000114
2	1.8383958E+06	14.9761	4.339	4.485	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4300	-7.856	0.733	7.525	0.619814	0.360113	0.000129	0.000040	0.010759	0.005750	0.000013	0.000000	0.001420	0.000114
3	3.9740422E+06	14.9430	4.392	4.477	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4071	-7.762	0.723	7.529	0.539026	0.441227	0.000157	0.000049	0.012960	0.003191	0.000007	0.000000	0.001420	0.000114
4	5.7395100E+06	14.9092	4.441	4.469	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3830	-7.675	0.723	7.536	0.459143	0.521268	0.000175	0.000055	0.014005	0.001970	0.000004	0.000000	0.001420	0.000114
5	7.2201045E+06	14.8745	4.489	4.458	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3588	-7.590	0.731	7.544	0.379515	0.600981	0.000187	0.000058	0.014569	0.001306	0.000002	0.000000	0.001420	0.000114
6	8.4603440E+06	14.8394	4.533	4.444	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3366	-7.508	0.747	7.554	0.300330	0.680216	0.000198	0.000062	0.014885	0.000927	0.000002	0.000000	0.001420	0.000114
7	9.5216860E+06	14.8031	4.576	4.426	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3121	-7.426	0.772	7.566	0.219525	0.761051	0.000209	0.000065	0.015069	0.000699	0.000001	0.000000	0.001420	0.000114
8	1.0193737E+07	14.7761	4.606	4.409	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2925	-7.366	0.801	7.577	0.159653	0.820939	0.000218	0.000068	0.015150	0.000591	0.000001	0.000000	0.001420	0.000114
9	1.0785641E+07	14.7487	4.636	4.389	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2726	-7.304	0.843	7.593	0.099073	0.881530	0.000229	0.000071	0.015202	0.000512	0.000001	0.000000	0.001420	0.000114
10	1.1123600E+07	14.7311	4.655	4.375	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2608	-7.263	0.887	7.607	0.060059	0.920552	0.000240	0.000075	0.015221	0.000471	0.000000	0.000000	0.001420	0.000114
11	1.1409873E+07	14.7147	4.674	4.367	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2490	-7.222	0.965	7.633	0.023819	0.956800	0.000262	0.000081	0.015220	0.000436	0.000000	0.000000	0.001420	0.000114
12	1.1572564E+07	14.7045	4.702	4.392	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2356	-7.176	1.189	7.706	0.001488	0.979146	0.000323	0.000100	0.015153	0.000409	0.000000	0.000000	0.001420	0.000114
13	1.1584150E+07	14.7037	4.737	4.417	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0252	-7.116	1.583	7.812	0.000000	0.980647	0.000389	0.000118	0.015059	0.000406	0.000000	0.000000	0.001420	0.000114
14	1.1588106E+07	14.7034	4.720	4.401	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.142	1.922	7.873	0.000000	0.980647	0.000389	0.000118	0.015059	0.000406	0.000000	0.000000	0.001420	0.000114
15	1.1598587E+07	14.7025	4.757	4.263	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.984	2.626	8.041	0.000000	0.980627	0.000389	0.000052	0.015059	0.000487	0.000000	0.000000	0.001420	0.000114
16	1.1604362E+07	14.7018	4.749	4.131	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.827	2.950	8.140	0.000000	0.980398	0.000483	0.000000	0.014648	0.000551	0.000000	0.000528	0.001420	0.000114
17	1.1607981E+07	14.7011	4.723	3.991	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0751	-6.594	3.036	8.195	0.000000	0.979695	0.000733	0.000000	0.013062	0.000551	0.000000	0.002567	0.001313	0.000106
18	1.1610201E+07	14.7004	4.700	3.858	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1118	-6.346	3.017	8.201	0.000000	0.978596	0.001139	0.000000	0.010636	0.000551	0.000000	0.005684	0.001016	0.000085
19	1.1611770E+07	14.6995	4.652	3.718	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1202	-6.194	3.008	8.202	0.000000	0.977831	0.001446	0.000000	0.009037	0.000552	0.000000	0.007737	0.000938	0.000082
20	1.1613525E+07	14.6984	4.524	3.587	0.679999	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1313	-6.271	3.000	8.203	0.000000	0.977309	0.001683	0.000000	0.008043	0.000552	0.000000	0.009012	0.000908	0.000083
21	1.1617648E+07	14.6950	4.760	3.559	0.637042	0.342921	0.003104	0.000183	0.004040	0.009273	0.000008	0.000018	0.001420	0.000114
	0.1271	-6.012	3.005	8.208	0.000000	0.975060	0.002818	0.000000	0.004159	0.000553	0.000000	0.013988	0.000908	0.000104
22	1.1643017E+07	14.6707	4.745	3.559	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1370	-6.028	3.036	8.225	0.000000	0.953777	0.022657	0.000000	0.000005	0.000659	0.000000	0.018650	0.000909	0.000935
23	1.1699126E+07	14.6203	4.719	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1461	-6.056	3.026	8.230	0.000000	0.899709	0.075121	0.000000	0.000003	0.001780	0.000000	0.016486	0.000906	0.003582
24	1.1750771E+07	14.5747	4.722	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1494	-6.052	3.025	8.233	0.000000	0.850383	0.121741	0.000000	0.000002	0.004005	0.000000	0.014319	0.000880	0.006227
25	1.1800636E+07	14.5302	4.727	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1524	-6.047	3.027	8.237	0.000000	0.799825	0.168318	0.000000	0.000003	0.007473	0.000000	0.012012	0.000876	0.009044
26	1.1854062E+07	14.4820	4.730	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1560	-6.043	3.029	8.241	0.000000	0.749497	0.213035	0.000000	0.000000	0.012560	0.000000	0.009666	0.000854	0.011912
27	1.1903927E+07	14.4367	4.733	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1595	-6.040	3.032	8.245	0.000000	0.699222	0.256289	0.000000	0.000000	0.019071	0.000000	0.007374	0.000859	0.014709
28	1.1955572E+07	14.3895	4.736	3.561	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1629	-6.037	3.035	8.249	0.000000	0.650719	0.295992	0.000000	0.000000	0.027411	0.000000	0.005309	0.000868	0.017229
29	1.2005437E+07	14.3435	4.739	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1660	-6.034	3.038	8.252	0.000000	0.600556	0.335343	0.000000	0.000000	0.037810	0.000000	0.003451	0.000859	0.019491
30	1.2060359E+07	14.2926	4.742	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1700	-6.031	3.045	8.258	0.000000	0.548846	0.372957	0.000000	0.000000	0.051573	0.000000	0.001961	0.000849	0.021300
31	1.2115067E+07	14.2414	4.746	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1739	-6.027	3.051	8.263	0.000000	0.498859	0.406022	0.000000	0.000000	0.068284	0.000000	0.001027	0.000862	0.022427
32	1.2165217E+07	14.1941	4.748	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1770	-6.024	3.056	8.267	0.000000	0.448383	0.436992	0.000000	0.000000	0.087652	0.000000	0.000422	0.000868	0.023148
33	1.2219926E+07	14.1422	4.752	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1819	-6.021	3.067	8.274	0.000000	0.401081	0.460498	0.000000	0.000000	0.111393	0.000000	0.000202	0.000873	0.023391
34	1.2283752E+07	14.0810	4.756	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1863	-6.016	3.077	8.281	0.000000	0.349158	0.479182	0.000000	0.000000	0.144626	0.000000	0.000208	0.000849	0.023341
35	1.2333902E+07	14.0325	4.759	3.560	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1903	-6.013	3.090	8.288	0.000000	0.300150	0.494486	0.000000	0.000000	0.178287	0.000000	0.000049	0.000842	0.023487
36	1.2397728E+07	13.9701	4.764	3.559	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1942	-6.008	3.105	8.296	0.000000	0.252085	0.495298	0.000000	0.000000	0.225526	0.000000	0.000050	0.000823	0.023404
37	1.2452437E+07	13.9160	4.769	3.559	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1979	-6.002	3.127	8.306	0.000000	0.201536	0.492864	0.000000	0.000000	0.278479	0.000000	0.000012	0.000827	0.023341
38	1.2527935E+07	13.8401	4.776	3.559	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.2012	-5.994	3.155	8.318	0.000000	0.150982	0.461437	0.000000	0.000000	0.360413	0.000000	0.000002	0.000841	0.023120
39	1.2586290E+07	13.7802	4.786	3.559	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.2029	-5.984	3.197	8.334	0.000000	0.099696	0.426169	0.000000	0.000000	0.446900	0.000000	0.000000	0.000842	0.022761
40	1.2650638E+07	13.7122	4.801	3.558	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.2002	-5.967	3.264	8.359	0.000000	0.050047	0.357464	0.000000	0.000000	0.565091	0.000000	0.000000	0.000847	0.021890
41	1.2679678E+07	13.6805	4.812	3.558	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1954	-5.955	3.311	8.375	0.000000	0.030136	0.315547	0.000000	0.000000	0.626765	0.000000	0.000000	0.000856	0.021094
42	1.2710602E+07	13.6453	4.832	3.557	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.1896	-5.932	3.401	8.405	0.000000	0.010135	0.263608	0.000000	0.000000	0.698351	0.000000	0.000000	0.000909	0.019441
43	1.2727513E+07	13.6247	4.875	3.555	0.637025	0.342938	0.003104	0.000183	0.004041	0.009272	0.000008	0.000018	0.001420	0.000114
	0.0000	-5.883	3.699	8.498	0.000000	0.000000	0.235172	0.000000	0.000000	0.736009	0.000000	0.000000	0.001410	0.017259
44	1.2736282E+07	13.6125	4.890	3.554	0.635330	0.344635	0.003076	0.000182	0.004114	0.009227	0.000008	0.000018	0.001420	0.000114
	0.0000	-5.865	4.135	8.599	0.000000	0.000000	0.235172	0.000000	0.000000	0.736009	0.000000	0.000000	0.001410	0.017259
45	1.2746285E+07	13.5993	4.925	3.536	0.626288	0.353683	0.002930	0.000176	0.004504	0.008984	0.000008	0.000017	0.001420	0.000114
	0.0000	-5.854	4.598	8.698	0.000000	0.000000	0.235171	0.000000	0.000000	0.736008	0.000000	0.000000	0.001410	0.017259
46	1.2752805E+07	13.5894	4.981	3.535	0.623363	0.356611	0.002882	0.000174	0.004632	0.008905	0.000008	0.000017	0.001420	0.000114
	0.0000	-5.787	5.180	8.799	0.000000	0.000000	0.234240	0.000000	0.000000	0.735392	0.000000	0.000000	0.002957	0.017259
47	1.2754298E+07	13.5869	4.987	3.534	0.623099	0.356875	0.002878	0.000174	0.004643	0.008898	0.000008	0.000017	0.001420	0.000114
	0.0218	-5.781	5.373	8.896	0.000000	0.000000	0.186080	0.000000	0.000000	0.703975	0.000000	0.000000	0.081609	0.017259
48	1.2754693E+07	13.5862	4.987	3.534	0.623007	0.356967	0.002876	0.000174	0.004647	0.008895	0.000008	0.000017	0.001420	0.000114
	0.0349	-5.780	5.353	8.909	0.000000	0.000000	0.138946	0.000000	0.000000	0.674214	0.000000	0.000000	0.156075	0.017259
49	1.2754916E+07	13.5859	4.988	3.534	0.622932	0.357042	0.002875	0.000174	0.004651	0.008893	0.000008	0.000017	0.001420	0.000114
	0.0301	-5.778	5.394	8.922	0.000000	0.000000	0.093393	0.000000	0.000000	0.645979	0.000000	0.000000	0.226714	0.017259
50	1.2755070E+07	13.5856	4.989	3.534	0.622868	0.357107	0.002874	0.000174	0.004653	0.008892	0.000008	0.000017	0.001420	0.000114
	0.0152	-5.777	5.491	8.940	0.000000	0.000000	0.046640	0.000000	0.000000	0.617801	0.000000	0.000000	0.297194	0.017259
51	1.2755441E+07	13.5850	4.992	3.534	0.622767	0.357207	0.002873	0.000173	0.004658	0.008889	0.000008	0.000017	0.001420	0.000114
	0.0000	-5.773	6.233	8.974	0.000000	0.000000	0.001003	0.000000	0.000000	0.591152	0.000000	0.000000	0.363832	0.017259

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TABLE 8.

STELLAR MODEL : 12 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.0000761E+05	11.9997	4.013	4.448	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.4084	-8.590	0.858	7.513	0.677526	0.301812	0.000080	0.000025	0.006784	0.010364	0.000028	0.000000	0.001420	0.000114
2	2.6122500E+06	11.9927	4.051	4.440	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3914	-8.515	0.826	7.508	0.619928	0.359974	0.000120	0.000038	0.010608	0.005933	0.000017	0.000000	0.001420	0.000114
3	5.5551050E+06	11.9824	4.104	4.433	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3681	-8.403	0.814	7.512	0.540906	0.439317	0.000147	0.000046	0.012775	0.003418	0.000009	0.000000	0.001420	0.000114
4	8.0461230E+06	11.9712	4.156	4.425	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3443	-8.296	0.814	7.519	0.460508	0.519878	0.000163	0.000051	0.013868	0.002145	0.000005	0.000000	0.001420	0.000114
5	1.0102171E+07	11.9595	4.205	4.415	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3217	-8.197	0.821	7.528	0.380659	0.599818	0.000176	0.000055	0.014468	0.001440	0.000003	0.000000	0.001420	0.000114
6	1.1829136E+07	11.9473	4.252	4.402	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2977	-8.105	0.835	7.538	0.300074	0.680457	0.000187	0.000058	0.014817	0.001024	0.000002	0.000000	0.001420	0.000114
7	1.3269885E+07	11.9348	4.296	4.386	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2744	-8.017	0.860	7.550	0.219243	0.761322	0.000197	0.000062	0.015021	0.000773	0.000001	0.000000	0.001420	0.000114
8	1.4171446E+07	11.9255	4.327	4.371	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2571	-7.955	0.887	7.561	0.159761	0.820821	0.000206	0.000064	0.015114	0.000652	0.000001	0.000000	0.001420	0.000114
9	1.4941304E+07	11.9164	4.356	4.354	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2371	-7.897	0.928	7.576	0.100660	0.879934	0.000217	0.000068	0.015175	0.000564	0.000001	0.000000	0.001420	0.000114
10	1.5409817E+07	11.9101	4.376	4.342	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2250	-7.854	0.973	7.591	0.059996	0.920607	0.000228	0.000071	0.015200	0.000515	0.000001	0.000000	0.001420	0.000114
11	1.5714928E+07	11.9057	4.391	4.336	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2155	-7.821	1.028	7.610	0.030810	0.949800	0.000243	0.000076	0.015207	0.000483	0.000000	0.000000	0.001420	0.000114
12	1.5999326E+07	11.9011	4.425	4.362	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2004	-7.743	1.264	7.686	0.001654	0.978972	0.000306	0.000094	0.015147	0.000445	0.000000	0.000000	0.001420	0.000114
13	1.6017585E+07	11.9008	4.462	4.388	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.656	1.645	7.781	0.000000	0.980638	0.000363	0.000110	0.015066	0.000442	0.000000	0.000000	0.001420	0.000114
14	1.6022597E+07	11.9007	4.433	4.369	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.724	1.958	7.817	0.000000	0.980638	0.000363	0.000110	0.015066	0.000442	0.000000	0.000000	0.001420	0.000114
15	1.6033695E+07	11.9004	4.462	4.270	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.642	2.479	7.919	0.000000	0.980637	0.000363	0.000110	0.015066	0.000442	0.000000	0.000000	0.001420	0.000114
16	1.6043361E+07	11.9002	4.455	4.134	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.506	2.849	8.020	0.000000	0.980620	0.000363	0.000052	0.015066	0.000514	0.000000	0.000000	0.001420	0.000114
17	1.6048659E+07	11.9000	4.418	4.001	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.317	3.033	8.076	0.000000	0.980601	0.000365	0.000000	0.015063	0.000578	0.000000	0.000004	0.001420	0.000114
18	1.6051849E+07	11.8998	4.362	3.860	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.076	3.138	8.110	0.000000	0.980536	0.000407	0.000000	0.014984	0.000578	0.000000	0.000106	0.001420	0.000114
19	1.6053589E+07	11.8996	4.282	3.726	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.875	3.179	8.126	0.000000	0.980303	0.000551	0.000000	0.014673	0.000578	0.000000	0.000505	0.001420	0.000114
20	1.6055455E+07	11.8993	4.112	3.599	0.679997	0.300001	0.004461	0.000077	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-6.833	3.193	8.141	0.000000	0.979480	0.001038	0.000000	0.013498	0.000578	0.000000	0.002015	0.001420	0.000114
21	1.6056729E+07	11.8987	4.542	3.563	0.648199	0.331720	0.003012	0.000183	0.003958	0.009489	0.000009	0.000018	0.001420	0.000114
	0.0000	-6.227	3.183	8.154	0.000000	0.978085	0.001838	0.000000	0.011420	0.000579	0.000000	0.004686	0.001420	0.000116
22	1.6115004E+07	11.8593	4.599	3.555	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1075	-6.183	3.180	8.205	0.000000	0.951666	0.024802	0.000000	0.000029	0.000705	0.000000	0.019007	0.000299	0.000425
23	1.6195381E+07	11.8119	4.504	3.559	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1174	-6.276	3.156	8.212	0.000000	0.901353	0.073843	0.000000	0.000011	0.001752	0.000000	0.018050	0.000276	0.001622
24	1.6277144E+07	11.7730	4.423	3.563	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1244	-6.360	3.143	8.217	0.000000	0.850083	0.122515	0.000000	0.000007	0.004070	0.000000	0.016805	0.000258	0.003150
25	1.6347969E+07	11.7437	4.390	3.568	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1292	-6.400	3.139	8.220	0.000000	0.801225	0.167685	0.000000	0.000011	0.007453	0.000000	0.015423	0.000253	0.004832
26	1.6422966E+07	11.7144	4.386	3.575	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1326	-6.413	3.138	8.224	0.000000	0.750388	0.213168	0.000000	0.000005	0.012441	0.000000	0.013794	0.000256	0.006832
27	1.6467932E+07	11.6963	4.478	3.596	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1339	-6.333	3.139	8.227	0.000000	0.717961	0.241412	0.000000	0.000000	0.016371	0.000000	0.012673	0.000264	0.008210
28	1.6472437E+07	11.6942	4.539	3.729	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1336	-6.412	3.139	8.227	0.000000	0.714539	0.244366	0.000000	0.000000	0.016812	0.000000	0.012552	0.000264	0.008358
29	1.6478782E+07	11.6926	4.557	3.894	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1332	-6.728	3.140	8.227	0.000000	0.709722	0.248512	0.000000	0.000000	0.017445	0.000000	0.012381	0.000264	0.008567
30	1.6489567E+07	11.6913	4.554	4.011	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1334	-7.024	3.141	8.228	0.000000	0.701528	0.255525	0.000000	0.000000	0.018561	0.000000	0.012088	0.000264	0.008925
31	1.6566566E+07	11.6856	4.556	4.074	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1365	-7.154	3.141	8.232	0.000000	0.650080	0.297841	0.000000	0.000002	0.027250	0.000000	0.010091	0.000292	0.011363
32	1.6636607E+07	11.6807	4.563	4.087	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1394	-7.163	3.144	8.237	0.000000	0.600382	0.336886	0.000000	0.000004	0.037455	0.000000	0.008080	0.000306	0.013816
33	1.6712035E+07	11.6756	4.569	4.101	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1422	-7.177	3.147	8.241	0.000000	0.550385	0.373368	0.000000	0.000002	0.050507	0.000000	0.006005	0.000332	0.016353
34	1.6858636E+07	11.6655	4.575	4.090	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1479	-7.141	3.157	8.252	0.000000	0.451198	0.437193	0.000000	0.000004	0.085072	0.000000	0.002437	0.000360	0.020696
35	1.7024248E+07	11.6530	4.581	4.076	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1548	-7.099	3.173	8.264	0.000000	0.351563	0.481561	0.000000	0.000000	0.139921	0.000000	0.000616	0.000384	0.022893
36	1.7181926E+07	11.6397	4.586	4.058	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1610	-7.049	3.201	8.280	0.000000	0.250568	0.503648	0.000000	0.000001	0.218692	0.000000	0.000077	0.000375	0.023472
37	1.7348624E+07	11.6234	4.589	4.022	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1659	-6.964	3.246	8.302	0.000000	0.151618	0.479896	0.000000	0.000000	0.341338	0.000000	0.000018	0.000405	0.023364
38	1.7518410E+07	11.6000	4.577	3.906	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1657	-6.713	3.350	8.342	0.000000	0.051835	0.377095	0.000000	0.000000	0.543775	0.000000	0.000000	0.000413	0.022589
39	1.7558430E+07	11.5904	4.560	3.809	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1622	-6.524	3.396	8.358	0.000000	0.030975	0.334652	0.000000	0.000000	0.606979	0.000000	0.000000	0.000417	0.022055
40	1.7579834E+07	11.5822	4.489	3.610	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1589	-6.331	3.432	8.370	0.000000	0.020465	0.309057	0.000000	0.000000	0.642995	0.000000	0.000000	0.000421	0.021604
41	1.7584740E+07	11.5801	4.398	3.576	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1596	-6.408	3.442	8.374	0.000000	0.018081	0.302858	0.000000	0.000000	0.651553	0.000000	0.000000	0.000423	0.021472
42	1.7597268E+07	11.5741	4.479	3.559	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.1559	-6.301	3.474	8.384	0.000000	0.011988	0.286346	0.000000	0.000000	0.674075	0.000000	0.000000	0.000432	0.021058
43	1.7625624E+07	11.5594	4.533	3.553	0.641653	0.338274	0.002907	0.000177	0.004264	0.009287	0.000009	0.000018	0.001420	0.000114
	0.0000	-6.247	3.810	8.486	0.000000	0.000000	0.252208	0.000000	0.000000	0.719695	0.000000	0.000000	0.000622	0.019354
44	1.7649588E+07	11.5441	4.673	3.543	0.641643	0.338276	0.002850	0.000185	0.004323	0.009287	0.000009	0.000017	0.001420	0.000114
	0.0000	-6.116	4.543	8.617	0.000000	0.000000	0.252208	0.000000	0.000000	0.719695	0.000000	0.000000	0.000622	0.019354
45	1.7661208E+07	11.5344	4.741	3.537	0.641580	0.338332	0.002803	0.000182	0.004385	0.009281	0.000009	0.000017	0.001420	0.000114
	0.0000	-6.057	4.950	8.698	0.000000	0.000000	0.252207	0.000000	0.000000	0.719695	0.000000	0.000000	0.000623	0.019354
46	1.7670130E+07	11.5262	4.777	3.535	0.641477	0.338435	0.002793	0.000182	0.004405	0.009273	0.000009	0.000017	0.001420	0.000114
	0.0314	-6.024	5.517	8.867	0.000000	0.000000	0.241552	0.000000	0.000000	0.712616	0.000000	0.000000	0.018347	0.019360
47	1.7671304E+07	11.5251	4.782	3.535	0.641444	0.338468	0.002791	0.000181	0.004409	0.009271	0.000009	0.000017	0.001420	0.000114
	0.0498	-6.020	5.451	8.880	0.000000	0.000000	0.199585	0.000000	0.000000	0.685281	0.000000	0.000000	0.086785	0.019361
48	1.7673138E+07	11.5233	4.796	3.534	0.641364	0.338548	0.002788	0.000181	0.004417	0.009265	0.000009	0.000017	0.001420	0.000114
	0.0723	-6.007	5.424	8.893	0.000000	0.000000	0.150481	0.000000	0.000000	0.654436	0.000000	0.000000	0.163981	0.019362
49	1.7674088E+07	11.5224	4.803	3.534	0.641306	0.338606	0.002786	0.000181	0.004422	0.009262	0.000009	0.000017	0.001420	0.000114
	0.0764	-6.000	5.466	8.909	0.000000	0.000000	0.100990	0.000000	0.000000	0.623995	0.000000	0.000000	0.240149	0.019362
50	1.7674612E+07	11.5218	4.806	3.534	0.641279	0.338633	0.002785	0.000181	0.004425	0.009260	0.000009	0.000017	0.001420	0.000114
	0.0288	-5.997	5.578	8.933	0.000000	0.000000	0.045756	0.000000	0.000000	0.591076	0.000000	0.000000	0.322491	0.019362
51	1.7674934E+07	11.5215	4.808	3.534	0.641257	0.338655	0.002785	0.000181	0.004426	0.009259	0.000009	0.000017	0.001420	0.000114
	0.0000	-5.995	6.156	8.931	0.000000	0.000000	0.001023	0.000000	0.000000	0.565278	0.000000	0.000000	0.387005	0.019362

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TABLE 9.

STELLAR MODEL : 9 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.2899565E+05	9.0000	3.617	4.383	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3670	-9.836	0.988	7.488	0.676972	0.302368	0.000073	0.000023	0.006823	0.010318	0.000041	0.000000	0.001420	0.000114
2	4.3928645E+06	8.9993	3.654	4.376	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3510	-9.730	0.958	7.485	0.620432	0.359432	0.000108	0.000034	0.010379	0.006207	0.000026	0.000000	0.001420	0.000114
3	9.4280025E+06	8.9981	3.708	4.369	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3271	-9.573	0.945	7.489	0.539755	0.440433	0.000133	0.000042	0.012575	0.003666	0.000014	0.000000	0.001420	0.000114
4	1.3523448E+07	8.9969	3.760	4.361	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3046	-9.430	0.943	7.496	0.460058	0.520296	0.000149	0.000047	0.013683	0.002378	0.000008	0.000000	0.001420	0.000114
5	1.6939020E+07	8.9954	3.810	4.352	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2809	-9.296	0.949	7.504	0.379314	0.601137	0.000161	0.000050	0.014326	0.001626	0.000005	0.000000	0.001420	0.000114
6	1.9716776E+07	8.9937	3.857	4.339	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2579	-9.178	0.962	7.514	0.299725	0.680784	0.000171	0.000054	0.014705	0.001177	0.000003	0.000000	0.001420	0.000114
7	2.1988034E+07	8.9920	3.899	4.324	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2354	-9.071	0.984	7.526	0.220862	0.759684	0.000181	0.000057	0.014935	0.000898	0.000002	0.000000	0.001420	0.000114
8	2.3466911E+07	8.9907	3.931	4.310	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2183	-8.995	1.011	7.538	0.160185	0.820380	0.000190	0.000059	0.015049	0.000752	0.000001	0.000000	0.001420	0.000114
9	2.4735862E+07	8.9893	3.961	4.294	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1985	-8.920	1.052	7.553	0.099489	0.881092	0.000201	0.000063	0.015128	0.000645	0.000001	0.000000	0.001420	0.000114
10	2.5438439E+07	8.9884	3.979	4.285	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1865	-8.871	1.094	7.567	0.060584	0.920006	0.000211	0.000066	0.015161	0.000589	0.000001	0.000000	0.001420	0.000114
11	2.5937632E+07	8.9877	3.995	4.281	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1774	-8.827	1.151	7.587	0.030022	0.950576	0.000227	0.000070	0.015174	0.000549	0.000001	0.000000	0.001420	0.000114
12	2.6353197E+07	8.9870	4.030	4.306	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1628	-8.726	1.358	7.653	0.002260	0.978353	0.000277	0.000086	0.015134	0.000507	0.000000	0.000000	0.001420	0.000114
13	2.6388646E+07	8.9869	4.063	4.328	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.596	1.785	7.736	0.000000	0.980626	0.000343	0.000103	0.015044	0.000502	0.000000	0.000000	0.001420	0.000114
14	2.6397641E+07	8.9869	4.031	4.297	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.724	2.100	7.750	0.000000	0.980626	0.000343	0.000103	0.015044	0.000502	0.000000	0.000000	0.001420	0.000114
15	2.6419830E+07	8.9868	4.081	4.186	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.551	2.611	7.837	0.000000	0.980626	0.000343	0.000103	0.015044	0.000502	0.000000	0.000000	0.001420	0.000114
16	2.6435422E+07	8.9868	4.065	4.075	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.413	2.893	7.909	0.000000	0.980626	0.000343	0.000103	0.015044	0.000502	0.000000	0.000000	0.001420	0.000114
17	2.6444897E+07	8.9867	4.022	3.964	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.240	3.053	7.957	0.000000	0.980624	0.000343	0.000095	0.015044	0.000512	0.000000	0.000000	0.001420	0.000114
18	2.6451212E+07	8.9867	3.961	3.841	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.985	3.158	7.990	0.000000	0.980612	0.000343	0.000056	0.015044	0.000560	0.000000	0.000000	0.001420	0.000114
19	2.6454612E+07	8.9866	3.892	3.727	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.699	3.213	8.008	0.000000	0.980600	0.000343	0.000017	0.015043	0.000608	0.000000	0.000000	0.001420	0.000114
20	2.6458012E+07	8.9865	3.727	3.624	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-7.539	3.268	8.027	0.000000	0.980594	0.000343	0.000001	0.015043	0.000629	0.000000	0.000000	0.001420	0.000114
21	2.6501901E+07	8.9748	4.280	3.556	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0749	-6.490	3.418	8.164	0.000000	0.975172	0.004234	0.000000	0.009758	0.000632	0.000000	0.006806	0.000695	0.000062
22	2.6602925E+07	8.9427	4.268	3.557	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0815	-6.505	3.387	8.177	0.000000	0.949314	0.027229	0.000000	0.000408	0.000793	0.000000	0.018692	0.000644	0.000225
23	2.6755618E+07	8.8977	4.225	3.562	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0903	-6.560	3.351	8.185	0.000000	0.900458	0.074806	0.000000	0.000035	0.001876	0.000000	0.018771	0.000586	0.000712
24	2.6908311E+07	8.8590	4.167	3.566	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0972	-6.632	3.328	8.191	0.000000	0.849613	0.123157	0.000000	0.000042	0.004253	0.000000	0.018237	0.000603	0.001357
25	2.7040183E+07	8.8307	4.115	3.570	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1016	-6.704	3.315	8.196	0.000000	0.801839	0.167354	0.000000	0.000053	0.007698	0.000000	0.017623	0.000578	0.002088
26	2.7165114E+07	8.8079	4.074	3.574	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1055	-6.768	3.309	8.200	0.000000	0.750996	0.213153	0.000000	0.000018	0.012567	0.000000	0.016920	0.000592	0.003004
27	2.7293654E+07	8.7874	4.042	3.578	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1084	-6.821	3.305	8.205	0.000000	0.699791	0.257536	0.000000	0.000001	0.019180	0.000000	0.016028	0.000615	0.004123
28	2.7426913E+07	8.7681	4.021	3.580	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1111	-6.857	3.302	8.209	0.000000	0.649085	0.299231	0.000000	0.000002	0.027943	0.000000	0.014912	0.000643	0.005487
29	2.7533521E+07	8.7536	4.012	3.582	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1130	-6.875	3.303	8.213	0.000000	0.599846	0.338692	0.000000	0.000001	0.037457	0.000000	0.013728	0.000646	0.006936
30	2.7644571E+07	8.7391	4.009	3.584	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1149	-6.887	3.306	8.218	0.000000	0.550286	0.376000	0.000000	0.000001	0.049394	0.000000	0.012317	0.000653	0.008660
31	2.7768946E+07	8.7231	4.017	3.588	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1165	-6.893	3.309	8.223	0.000000	0.500520	0.409794	0.000000	0.000001	0.064979	0.000000	0.010590	0.000669	0.010773
32	2.7879996E+07	8.7085	4.121	3.627	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1185	-6.897	3.314	8.228	0.000000	0.450603	0.441783	0.000000	0.000000	0.082493	0.000000	0.008732	0.000665	0.013041
33	2.8014391E+07	8.7041	4.180	3.928	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1211	-7.714	3.320	8.233	0.000000	0.400124	0.468159	0.000000	0.000003	0.106099	0.000000	0.006498	0.000651	0.015762
34	2.8132963E+07	8.7020	4.189	3.954	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1215	-7.766	3.317	8.237	0.000000	0.377915	0.470067	0.000000	0.000004	0.126069	0.000000	0.005040	0.000693	0.017545
35	2.8504733E+07	8.6941	4.191	3.903	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1296	-7.609	3.347	8.258	0.000000	0.244221	0.496828	0.000000	0.000000	0.232100	0.000000	0.001063	0.000694	0.022360
36	2.8583538E+07	8.6922	4.192	3.895	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1306	-7.582	3.362	8.265	0.000000	0.206154	0.502042	0.000000	0.000000	0.264776	0.000000	0.000289	0.000694	0.023282
37	2.8627669E+07	8.6910	4.191	3.885	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1315	-7.554	3.372	8.269	0.000000	0.185033	0.502076	0.000000	0.000000	0.285819	0.000000	0.000103	0.000694	0.023492
38	2.8703322E+07	8.6887	4.189	3.865	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1330	-7.497	3.391	8.278	0.000000	0.150547	0.496369	0.000000	0.000000	0.325983	0.000000	0.000010	0.000694	0.023565
39	2.8810497E+07	8.6848	4.182	3.821	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1341	-7.378	3.424	8.291	0.000000	0.104982	0.473915	0.000000	0.000000	0.393984	0.000000	0.000000	0.000695	0.023483
40	2.8923976E+07	8.6780	4.152	3.687	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1332	-7.031	3.474	8.310	0.000000	0.060760	0.427291	0.000000	0.000000	0.484793	0.000000	0.000000	0.000695	0.023283
41	2.8942889E+07	8.6756	4.125	3.627	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1304	-6.848	3.485	8.314	0.000000	0.053950	0.416933	0.000000	0.000000	0.501950	0.000000	0.000000	0.000695	0.023230
42	2.8961802E+07	8.6730	4.054	3.590	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.1324	-6.854	3.496	8.319	0.000000	0.047407	0.405954	0.000000	0.000000	0.519462	0.000000	0.000000	0.000695	0.023170
43	2.9112351E+07	8.6471	4.149	3.568	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0000	-6.664	3.947	8.446	0.000000	0.000000	0.291653	0.000000	0.000000	0.680801	0.000000	0.000000	0.000747	0.021480
44	2.9145289E+07	8.6393	4.233	3.561	0.657886	0.321994	0.002988	0.000174	0.003796	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0000	-6.549	4.471	8.500	0.000000	0.000000	0.291645	0.000000	0.000000	0.680818	0.000000	0.000000	0.000738	0.021494
45	2.9188731E+07	8.6236	4.383	3.547	0.657878	0.321996	0.002941	0.000179	0.003845	0.009715	0.000010	0.000018	0.001420	0.000114
	0.0000	-6.380	5.024	8.600	0.000000	0.000000	0.291645	0.000000	0.000000	0.680818	0.000000	0.000000	0.000739	0.021494
46	2.9217158E+07	8.6108	4.457	3.543	0.657811	0.322057	0.002900	0.000177	0.003900	0.009710	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.310	5.757	8.691	0.000000	0.000000	0.289460	0.000000	0.000000	0.679417	0.000000	0.000000	0.004320	0.021494
47	2.9222757E+07	8.6080	4.468	3.542	0.657715	0.322152	0.002891	0.000177	0.003918	0.009702	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.300	6.170	8.742	0.000000	0.000000	0.235187	0.000000	0.000000	0.645086	0.000000	0.000000	0.090962	0.021494
48	2.9223682E+07	8.6076	4.468	3.542	0.657700	0.322167	0.002890	0.000177	0.003920	0.009701	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.300	6.271	8.759	0.000000	0.000000	0.167778	0.000000	0.000000	0.604789	0.000000	0.000000	0.192194	0.021494
49	2.9224103E+07	8.6073	4.484	3.549	0.657624	0.322244	0.002887	0.000176	0.003929	0.009696	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.291	6.322	8.768	0.000000	0.000000	0.114845	0.000000	0.000000	0.574855	0.000000	0.000000	0.267256	0.021494
50	2.9228732E+07	8.6050	4.499	3.548	0.656127	0.323744	0.002871	0.000176	0.003986	0.009652	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.276	6.643	8.782	0.000000	0.000000	0.057506	0.000000	0.000000	0.544183	0.000000	0.000000	0.344078	0.021494
51	2.9229415E+07	8.6046	4.482	3.549	0.656069	0.323802	0.002871	0.000176	0.003987	0.009651	0.000011	0.000018	0.001420	0.000114
	0.0000	-6.292	7.007	8.820	0.000000	0.000000	0.001033	0.000000	0.000000	0.514657	0.000000	0.000000	0.417941	0.021494

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TABLE 10.

STELLAR MODEL : 7 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	8.9998288E+05	7.0000	3.257	4.321	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3415	-11.229	1.104	7.464	0.668098	0.311358	0.000075	0.000023	0.007633	0.009375	0.000057	0.000000	0.001420	0.000114
2	6.8558695E+06	7.0000	3.289	4.315	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3264	-11.107	1.082	7.462	0.619581	0.360257	0.000098	0.000031	0.010240	0.006370	0.000040	0.000000	0.001420	0.000114
3	1.5096353E+07	6.9999	3.341	4.307	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3028	-10.912	1.069	7.466	0.540774	0.439376	0.000121	0.000038	0.012349	0.003937	0.000023	0.000000	0.001420	0.000114
4	2.1988868E+07	6.9998	3.391	4.299	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2784	-10.732	1.067	7.473	0.460482	0.519838	0.000136	0.000042	0.013493	0.002614	0.000013	0.000000	0.001420	0.000114
5	2.7731366E+07	6.9996	3.441	4.289	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2557	-10.559	1.072	7.482	0.379059	0.601364	0.000147	0.000046	0.014175	0.001819	0.000008	0.000000	0.001420	0.000114
6	3.2272592E+07	6.9995	3.485	4.277	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2327	-10.410	1.084	7.492	0.300428	0.680057	0.000157	0.000049	0.014582	0.001340	0.000005	0.000000	0.001420	0.000114
7	3.6076608E+07	6.9993	3.527	4.261	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2102	-10.269	1.106	7.504	0.220313	0.760214	0.000167	0.000052	0.014844	0.001025	0.000003	0.000000	0.001420	0.000114
8	3.8451816E+07	6.9992	3.556	4.248	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1934	-10.172	1.131	7.515	0.160583	0.819966	0.000175	0.000055	0.014975	0.000862	0.000002	0.000000	0.001420	0.000114
9	4.0526844E+07	6.9990	3.584	4.233	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1749	-10.075	1.170	7.530	0.099519	0.881048	0.000185	0.000058	0.015070	0.000737	0.000002	0.000000	0.001420	0.000114
10	4.1698116E+07	6.9989	3.603	4.224	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1642	-10.012	1.213	7.545	0.059867	0.920711	0.000195	0.000061	0.015114	0.000670	0.000001	0.000000	0.001420	0.000114
11	4.2460672E+07	6.9988	3.619	4.220	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1515	-9.959	1.267	7.563	0.030473	0.950113	0.000209	0.000065	0.015134	0.000624	0.000001	0.000000	0.001420	0.000114
12	4.3098248E+07	6.9988	3.650	4.241	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1398	-9.865	1.430	7.616	0.003816	0.976783	0.000249	0.000077	0.015114	0.000579	0.000001	0.000000	0.001420	0.000114
13	4.3187996E+07	6.9987	3.684	4.266	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.724	1.938	7.687	0.000000	0.980612	0.000313	0.000095	0.015028	0.000570	0.000000	0.000000	0.001420	0.000114
14	4.3196200E+07	6.9987	3.667	4.249	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.827	2.098	7.683	0.000000	0.980610	0.000309	0.000095	0.015033	0.000570	0.000000	0.000000	0.001420	0.000114
15	4.3229080E+07	6.9987	3.711	4.179	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.633	2.514	7.722	0.000000	0.980610	0.000309	0.000095	0.015033	0.000570	0.000000	0.000000	0.001420	0.000114
16	4.3273280E+07	6.9987	3.712	4.073	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.443	2.897	7.799	0.000000	0.980610	0.000309	0.000095	0.015033	0.000570	0.000000	0.000000	0.001420	0.000114
17	4.3301168E+07	6.9987	3.670	3.965	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.246	3.115	7.861	0.000000	0.980610	0.000309	0.000095	0.015033	0.000570	0.000000	0.000000	0.001420	0.000114
18	4.3317272E+07	6.9987	3.611	3.860	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.989	3.241	7.901	0.000000	0.980610	0.000309	0.000094	0.015033	0.000571	0.000000	0.000000	0.001420	0.000114
19	4.3326884E+07	6.9987	3.545	3.756	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.642	3.317	7.926	0.000000	0.980609	0.000309	0.000090	0.015033	0.000576	0.000000	0.000000	0.001420	0.000114
20	4.3338808E+07	6.9986	3.386	3.638	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-8.222	3.411	7.959	0.000000	0.980601	0.000309	0.000064	0.015033	0.000607	0.000000	0.000000	0.001420	0.000114
21	4.3430376E+07	6.9911	3.930	3.572	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0606	-6.932	3.660	8.142	0.000000	0.976151	0.004036	0.000000	0.012598	0.000690	0.000000	0.003133	0.001155	0.000096
22	4.3618536E+07	6.9699	3.916	3.573	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0665	-6.961	3.590	8.150	0.000000	0.951939	0.025400	0.000000	0.003192	0.000832	0.000000	0.015142	0.001083	0.000193
23	4.3939088E+07	6.9377	3.864	3.576	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0742	-7.046	3.539	8.161	0.000000	0.900241	0.075042	0.000000	0.000231	0.001968	0.000000	0.018622	0.001034	0.000590
24	4.4203000E+07	6.9171	3.791	3.582	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0802	-7.176	3.512	8.167	0.000000	0.851318	0.121638	0.000000	0.000060	0.004166	0.000000	0.018508	0.000968	0.000992
25	4.4461840E+07	6.9028	3.718	3.590	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0833	-7.333	3.495	8.172	0.000000	0.800374	0.168898	0.000000	0.000033	0.007755	0.000000	0.018166	0.000990	0.001459
26	4.4676112E+07	6.8941	3.672	3.596	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0864	-7.438	3.487	8.177	0.000000	0.751074	0.213536	0.000000	0.000024	0.012325	0.000000	0.017777	0.000995	0.001950
27	4.5317480E+07	6.8751	3.617	3.606	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0916	-7.592	3.478	8.190	0.000000	0.600139	0.340506	0.000000	0.000003	0.035921	0.000000	0.016194	0.001018	0.003923
28	4.5511040E+07	6.8702	3.627	3.610	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0924	-7.604	3.479	8.194	0.000000	0.550218	0.378874	0.000000	0.000005	0.047312	0.000000	0.015463	0.001021	0.004813
29	4.5676948E+07	6.8660	3.682	3.620	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0933	-7.572	3.480	8.198	0.000000	0.515086	0.403363	0.000000	0.000000	0.057807	0.000000	0.014815	0.001031	0.005616
30	4.5725340E+07	6.8647	3.736	3.656	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0933	-7.671	3.481	8.199	0.000000	0.501461	0.413112	0.000000	0.000000	0.061628	0.000000	0.014566	0.001031	0.005920
31	4.5773728E+07	6.8641	3.763	3.749	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0938	-8.089	3.482	8.200	0.000000	0.488765	0.421743	0.000000	0.000003	0.065638	0.000000	0.014314	0.001031	0.006224
32	4.5925812E+07	6.8634	3.795	3.840	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0957	-8.411	3.484	8.204	0.000000	0.451504	0.445331	0.000000	0.000000	0.079123	0.000000	0.013479	0.001035	0.007249
33	4.6181032E+07	6.8625	3.805	3.857	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0987	-8.453	3.485	8.210	0.000000	0.400970	0.471085	0.000000	0.000001	0.103552	0.000000	0.011911	0.001049	0.009166
34	4.6395120E+07	6.8616	3.805	3.839	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1013	-8.379	3.490	8.216	0.000000	0.351264	0.494425	0.000000	0.000000	0.129522	0.000000	0.010138	0.001055	0.011333
35	4.6920520E+07	6.8592	3.814	3.821	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1068	-8.281	3.505	8.232	0.000000	0.250639	0.515828	0.000000	0.000000	0.207575	0.000000	0.004925	0.001021	0.017693
36	4.7411080E+07	6.8560	3.810	3.769	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1115	-8.067	3.541	8.253	0.000000	0.151863	0.501595	0.000000	0.000000	0.319615	0.000000	0.000623	0.001035	0.022897
37	4.7636740E+07	6.8534	3.794	3.698	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1129	-7.773	3.576	8.269	0.000000	0.101857	0.475733	0.000000	0.000000	0.395348	0.000000	0.000066	0.001020	0.023347
38	4.7693448E+07	6.8522	3.782	3.665	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1131	-7.637	3.588	8.274	0.000000	0.088609	0.465997	0.000000	0.000000	0.418316	0.000000	0.000016	0.001020	0.023385
39	4.7749080E+07	6.8507	3.757	3.633	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1133	-7.518	3.601	8.279	0.000000	0.076064	0.454430	0.000000	0.000000	0.442420	0.000000	0.000003	0.001020	0.023372
40	4.7871744E+07	6.8464	3.699	3.600	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1116	-7.422	3.636	8.292	0.000000	0.051212	0.421419	0.000000	0.000000	0.500265	0.000000	0.000000	0.001018	0.023271
41	4.7972712E+07	6.8425	3.702	3.597	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1074	-7.397	3.678	8.307	0.000000	0.031209	0.385446	0.000000	0.000000	0.556216	0.000000	0.000000	0.001019	0.023136
42	4.8078488E+07	6.8380	3.717	3.593	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.1000	-7.350	3.758	8.333	0.000000	0.011411	0.337465	0.000000	0.000000	0.623941	0.000000	0.000000	0.001020	0.022840
43	4.8140992E+07	6.8349	3.776	3.587	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-7.236	4.041	8.400	0.000000	0.000000	0.304593	0.000000	0.000000	0.668105	0.000000	0.000000	0.001028	0.022293
44	4.8198824E+07	6.8314	3.823	3.583	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-7.135	4.540	8.421	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
45	4.8222572E+07	6.8294	3.880	3.578	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-7.032	4.673	8.436	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
46	4.8254856E+07	6.8260	3.938	3.572	0.658646	0.321220	0.002983	0.000170	0.003758	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-6.928	4.835	8.458	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
47	4.8294392E+07	6.8207	3.997	3.565	0.658646	0.321220	0.002982	0.000171	0.003759	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-6.826	5.036	8.487	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
48	4.8328360E+07	6.8150	4.050	3.560	0.658644	0.321220	0.002971	0.000175	0.003768	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-6.741	5.230	8.518	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
49	4.8356184E+07	6.8093	4.107	3.553	0.658638	0.321222	0.002942	0.000175	0.003802	0.009767	0.000012	0.000018	0.001420	0.000114
	0.0000	-6.653	5.447	8.552	0.000000	0.000000	0.304590	0.000000	0.000000	0.668110	0.000000	0.000000	0.001028	0.022302
50	4.8379780E+07	6.8034	4.175	3.547	0.658617	0.321239	0.002918	0.000173	0.003832	0.009766	0.000013	0.000018	0.001420	0.000114
	0.0000	-6.574	5.747	8.592	0.000000	0.000000	0.304589	0.000000	0.000000	0.668110	0.000000	0.000000	0.001029	0.022302
51	4.8391576E+07	6.8000	4.223	3.548	0.658465	0.321390	0.002902	0.000172	0.003862	0.009754	0.000013	0.000018	0.001420	0.000114
	0.0000	-6.514	6.010	8.619	0.000000	0.000000	0.304577	0.000000	0.000000	0.668103	0.000000	0.000000	0.001047	0.022302

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TABLE 11.

STELLAR MODEL : 5 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	9.9998100E+05	5.0000	2.740	4.235	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3136	0.000	1.290	7.433	0.676819	0.302501	0.000060	0.000019	0.006753	0.010361	0.000106	0.000000	0.001420	0.000114
2	1.5884686E+07	5.0000	2.773	4.227	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2997	0.000	1.263	7.430	0.621144	0.358628	0.000086	0.000027	0.009826	0.006823	0.000083	0.000000	0.001420	0.000114
3	3.4010524E+07	5.0000	2.822	4.218	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2752	0.000	1.250	7.435	0.540633	0.439457	0.000106	0.000033	0.011981	0.004359	0.000048	0.000000	0.001420	0.000114
4	4.8864752E+07	5.0000	2.870	4.209	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2516	0.000	1.247	7.441	0.460165	0.520102	0.000119	0.000037	0.013169	0.002997	0.000029	0.000000	0.001420	0.000114
5	6.1036244E+07	5.0000	2.915	4.197	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2292	0.000	1.251	7.450	0.379778	0.600598	0.000130	0.000041	0.013899	0.002156	0.000017	0.000000	0.001420	0.000114
6	7.1008200E+07	5.0000	2.956	4.184	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2069	0.000	1.263	7.460	0.299606	0.680841	0.000139	0.000044	0.014367	0.001611	0.000011	0.000000	0.001420	0.000114
7	7.9177048E+07	5.0000	2.993	4.167	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1845	0.000	1.284	7.471	0.219414	0.761082	0.000149	0.000046	0.014675	0.001246	0.000007	0.000000	0.001420	0.000114
8	8.4286992E+07	5.0000	3.018	4.152	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1685	0.000	1.309	7.482	0.159629	0.820892	0.000156	0.000049	0.014836	0.001051	0.000005	0.000000	0.001420	0.000114
9	8.8713784E+07	5.0000	3.041	4.136	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1514	0.000	1.346	7.497	0.099428	0.881115	0.000165	0.000052	0.014956	0.000900	0.000003	0.000000	0.001420	0.000114
10	9.1219664E+07	5.0000	3.057	4.127	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1410	0.000	1.387	7.511	0.060431	0.920123	0.000175	0.000054	0.015015	0.000818	0.000002	0.000000	0.001420	0.000114
11	9.2935680E+07	5.0000	3.071	4.124	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1315	0.000	1.439	7.529	0.030414	0.950150	0.000187	0.000058	0.015049	0.000759	0.000002	0.000000	0.001420	0.000114
12	9.4270864E+07	5.0000	3.110	4.148	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1136	0.000	1.601	7.581	0.003747	0.976832	0.000223	0.000069	0.015044	0.000704	0.000001	0.000000	0.001420	0.000114
13	9.4459120E+07	5.0000	3.152	4.179	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.060	7.626	0.000000	0.980589	0.000275	0.000084	0.014977	0.000693	0.000001	0.000000	0.001420	0.000114
14	9.4470480E+07	5.0000	3.119	4.168	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.172	7.612	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
15	9.4573544E+07	5.0000	3.178	4.095	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.648	7.629	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
16	9.4711488E+07	5.0000	3.170	4.010	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.015	7.692	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
17	9.4797704E+07	5.0000	3.124	3.923	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.235	7.754	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
18	9.4846976E+07	5.0000	3.064	3.837	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.367	7.797	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
19	9.4877416E+07	5.0000	2.994	3.754	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.452	7.826	0.000000	0.980589	0.000275	0.000084	0.014976	0.000693	0.000001	0.000000	0.001420	0.000114
20	9.4921760E+07	5.0000	2.852	3.667	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.579	7.871	0.000000	0.980589	0.000275	0.000083	0.014976	0.000694	0.000001	0.000000	0.001420	0.000114
21	9.5210832E+07	4.9979	3.444	3.594	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0547	-7.898	3.960	8.112	0.000000	0.975809	0.004725	0.000000	0.014034	0.000798	0.000001	0.001244	0.001408	0.000115
22	9.5701448E+07	4.9920	3.411	3.596	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0555	-7.952	3.869	8.118	0.000000	0.950532	0.028205	0.000000	0.008587	0.001023	0.000000	0.008177	0.001408	0.000200
23	9.6502864E+07	4.9843	3.323	3.603	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0620	-8.096	3.805	8.128	0.000000	0.900580	0.074848	0.000000	0.002260	0.002445	0.000000	0.015980	0.001409	0.000612
24	9.7205640E+07	4.9798	3.206	3.617	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0655	-8.299	3.773	8.135	0.000000	0.848958	0.122984	0.000000	0.000601	0.005356	0.000000	0.017679	0.001408	0.001146
25	9.7765680E+07	4.9774	3.126	3.625	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0684	-8.434	3.757	8.140	0.000000	0.800853	0.166927	0.000000	0.000163	0.009301	0.000000	0.017838	0.001350	0.001618
26	9.8372376E+07	4.9755	3.073	3.634	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0703	-8.531	3.745	8.144	0.000000	0.750369	0.211437	0.000000	0.000087	0.015156	0.000000	0.017512	0.001291	0.002133
27	9.8877960E+07	4.9741	3.054	3.640	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0717	-8.574	3.739	8.148	0.000000	0.700856	0.253879	0.000000	0.000029	0.022119	0.000000	0.017174	0.001282	0.002638
28	9.9383544E+07	4.9727	3.052	3.645	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0728	-8.585	3.735	8.152	0.000000	0.650866	0.294932	0.000000	0.000029	0.030961	0.000000	0.016751	0.001269	0.003155
29	9.9872544E+07	4.9714	3.073	3.650	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0735	-8.564	3.733	8.157	0.000000	0.599970	0.334863	0.000000	0.000021	0.041825	0.000000	0.016318	0.001260	0.003696
30	1.0044666E+08	4.9697	3.147	3.670	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0743	-8.492	3.730	8.161	0.000000	0.549489	0.370939	0.000000	0.000004	0.056118	0.000000	0.015873	0.001218	0.004267
31	1.0088754E+08	4.9683	3.159	3.675	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0752	-8.484	3.732	8.165	0.000000	0.500481	0.405213	0.000000	0.000006	0.070748	0.000000	0.015397	0.001218	0.004846
32	1.0145091E+08	4.9664	3.156	3.669	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0783	-8.478	3.731	8.170	0.000000	0.450385	0.435265	0.000000	0.000022	0.090670	0.000000	0.014822	0.001223	0.005526
33	1.0207256E+08	4.9643	3.165	3.670	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0808	-8.465	3.731	8.176	0.000000	0.399954	0.460904	0.000000	0.000011	0.115311	0.000000	0.014183	0.001230	0.006328
34	1.0277191E+08	4.9619	3.174	3.670	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0843	-8.450	3.731	8.183	0.000000	0.349165	0.480243	0.000000	0.000005	0.146570	0.000000	0.013350	0.001239	0.007358
35	1.0348758E+08	4.9593	3.179	3.667	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0866	-8.438	3.732	8.190	0.000000	0.300310	0.491498	0.000000	0.000000	0.183920	0.000000	0.012253	0.001248	0.008710
36	1.0409603E+08	4.9571	3.181	3.664	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0906	-8.428	3.739	8.198	0.000000	0.250020	0.501389	0.000000	0.000003	0.224012	0.000000	0.010875	0.001252	0.010389
37	1.0480533E+08	4.9544	3.177	3.658	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0947	-8.423	3.748	8.207	0.000000	0.200189	0.498863	0.000000	0.000001	0.275911	0.000000	0.008837	0.001258	0.012882
38	1.0595478E+08	4.9500	3.170	3.650	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0877	-8.416	3.756	8.220	0.000000	0.150431	0.463702	0.000000	0.000000	0.360010	0.000000	0.005195	0.001276	0.017328
39	1.0643067E+08	4.9482	3.154	3.643	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0907	-8.429	3.790	8.235	0.000000	0.099934	0.447163	0.000000	0.000000	0.426411	0.000000	0.002353	0.001276	0.020781
40	1.0698626E+08	4.9461	3.142	3.636	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0894	-8.430	3.851	8.259	0.000000	0.049468	0.398744	0.000000	0.000000	0.524800	0.000000	0.000172	0.001277	0.023384
41	1.0720759E+08	4.9453	3.146	3.632	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0871	-8.416	3.893	8.274	0.000000	0.030082	0.366449	0.000000	0.000000	0.576434	0.000000	0.000010	0.001277	0.023522
42	1.0744399E+08	4.9443	3.166	3.627	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0807	-8.376	3.973	8.300	0.000000	0.010907	0.321769	0.000000	0.000000	0.640262	0.000000	0.000000	0.001277	0.023400
43	1.0759705E+08	4.9436	3.254	3.614	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-8.217	4.277	8.374	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
44	1.0778588E+08	4.9424	3.323	3.603	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-8.092	4.857	8.355	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
45	1.0792261E+08	4.9410	3.411	3.597	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-7.949	5.047	8.361	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
46	1.0805632E+08	4.9392	3.494	3.590	0.659132	0.320703	0.002990	0.000166	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-7.811	5.213	8.377	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
47	1.0816575E+08	4.9372	3.578	3.581	0.659132	0.320704	0.002989	0.000167	0.003679	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-7.667	5.366	8.399	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
48	1.0825798E+08	4.9348	3.665	3.574	0.659130	0.320704	0.002980	0.000169	0.003688	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-7.521	5.526	8.422	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
49	1.0832411E+08	4.9324	3.740	3.567	0.659124	0.320707	0.002957	0.000168	0.003716	0.009852	0.000014	0.000018	0.001420	0.000114
	0.0000	-7.395	5.671	8.438	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
50	1.0839501E+08	4.9289	3.830	3.557	0.659090	0.320738	0.002941	0.000168	0.003737	0.009849	0.000015	0.000018	0.001420	0.000114
	0.0000	-7.239	5.865	8.448	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156
51	1.0845377E+08	4.9247	3.915	3.547	0.658655	0.321174	0.002927	0.000167	0.003771	0.009829	0.000015	0.000018	0.001420	0.000114
	0.0000	-7.091	6.071	8.438	0.000000	0.000000	0.290456	0.000000	0.000000	0.682426	0.000000	0.000000	0.001278	0.023156

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TABLE 12.

STELLAR MODEL : 4 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	9.9998100E+05	4.0000	2.385	4.173	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2936	0.000	1.412	7.410	0.678339	0.300965	0.000054	0.000017	0.006640	0.010526	0.000077	0.000000	0.001420	0.000114
2	2.8150090E+07	4.0000	2.416	4.164	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2807	0.000	1.388	7.408	0.619187	0.360549	0.000078	0.000024	0.009627	0.007007	0.000145	0.000000	0.001420	0.000114
3	5.8648568E+07	4.0000	2.462	4.155	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2600	0.000	1.377	7.412	0.540651	0.439390	0.000093	0.000029	0.011689	0.004678	0.000088	0.000000	0.001420	0.000114
4	8.4561928E+07	4.0000	2.507	4.144	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2387	0.000	1.374	7.419	0.460143	0.520079	0.000106	0.000033	0.012907	0.003296	0.000053	0.000000	0.001420	0.000114
5	1.0602908E+08	4.0000	2.550	4.132	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2168	0.000	1.379	7.427	0.379120	0.601218	0.000116	0.000037	0.013682	0.002413	0.000032	0.000000	0.001420	0.000114
6	1.2339204E+08	4.0000	2.588	4.117	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1959	0.000	1.391	7.437	0.299435	0.680980	0.000125	0.000039	0.014187	0.001833	0.000019	0.000000	0.001420	0.000114
7	1.3777333E+08	4.0000	2.621	4.099	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1733	0.000	1.412	7.448	0.219399	0.761070	0.000134	0.000042	0.014531	0.001431	0.000012	0.000000	0.001420	0.000114
8	1.4671264E+08	4.0000	2.643	4.084	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1573	0.000	1.435	7.459	0.160277	0.820220	0.000141	0.000044	0.014713	0.001214	0.000008	0.000000	0.001420	0.000114
9	1.5455309E+08	4.0000	2.663	4.067	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1407	0.000	1.473	7.473	0.099771	0.880750	0.000150	0.000047	0.014856	0.001039	0.000005	0.000000	0.001420	0.000114
10	1.5910866E+08	4.0000	2.677	4.056	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1291	0.000	1.513	7.487	0.059325	0.921210	0.000159	0.000050	0.014930	0.000940	0.000004	0.000000	0.001420	0.000114
11	1.6204314E+08	4.0000	2.690	4.053	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1211	0.000	1.563	7.505	0.030423	0.950123	0.000170	0.000053	0.014972	0.000875	0.000003	0.000000	0.001420	0.000114
12	1.6437749E+08	4.0000	2.731	4.077	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1018	0.000	1.712	7.554	0.004127	0.976434	0.000204	0.000063	0.014977	0.000812	0.000001	0.000000	0.001420	0.000114
13	1.6473443E+08	4.0000	2.776	4.110	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.195	7.586	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
14	1.6476542E+08	4.0000	2.735	4.091	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.340	7.571	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
15	1.6491613E+08	4.0000	2.798	4.041	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.679	7.572	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
16	1.6520290E+08	4.0000	2.790	3.968	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.032	7.617	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
17	1.6538906E+08	4.0000	2.749	3.898	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.243	7.669	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
18	1.6550477E+08	4.0000	2.689	3.825	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.385	7.712	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
19	1.6558024E+08	4.0000	2.618	3.754	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.482	7.744	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
20	1.6570098E+08	4.0000	2.465	3.683	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-9.450	3.647	7.802	0.000000	0.980572	0.000253	0.000077	0.014917	0.000799	0.000001	0.000000	0.001420	0.000114
21	1.6636243E+08	3.9984	3.128	3.606	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0545	-8.300	4.186	8.092	0.000000	0.976767	0.003901	0.000000	0.014597	0.000892	0.000001	0.000453	0.001220	0.000099
22	1.6729688E+08	3.9942	3.072	3.613	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0510	-8.397	4.062	8.097	0.000000	0.951291	0.028215	0.000000	0.011527	0.001166	0.000001	0.004348	0.001220	0.000164
23	1.6887699E+08	3.9896	2.878	3.629	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0568	-8.719	3.984	8.108	0.000000	0.900489	0.075532	0.000000	0.005732	0.002918	0.000000	0.011473	0.001232	0.000567
24	1.7007778E+08	3.9880	2.729	3.645	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0594	-8.975	3.958	8.113	0.000000	0.851019	0.120827	0.000000	0.002270	0.005996	0.000000	0.015448	0.001203	0.001147
25	1.7129142E+08	3.9869	2.655	3.654	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0615	-9.103	3.942	8.118	0.000000	0.800041	0.166372	0.000000	0.000780	0.010874	0.000000	0.016791	0.001157	0.001845
26	1.7237952E+08	3.9861	2.634	3.661	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0633	-9.148	3.933	8.122	0.000000	0.749928	0.209827	0.000000	0.000278	0.017261	0.000000	0.016866	0.001162	0.002544
27	1.7350946E+08	3.9853	2.641	3.667	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0642	-9.150	3.925	8.126	0.000000	0.700573	0.250628	0.000000	0.000197	0.025664	0.000000	0.016410	0.001171	0.003232
28	1.7447202E+08	3.9846	2.651	3.670	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0652	-9.139	3.922	8.129	0.000000	0.650796	0.290536	0.000000	0.000046	0.035369	0.000000	0.016060	0.001172	0.003897
29	1.7543454E+08	3.9839	2.655	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0652	-9.132	3.922	8.133	0.000000	0.600825	0.328547	0.000000	0.000024	0.047202	0.000000	0.015546	0.001173	0.004560
30	1.7640882E+08	3.9832	2.661	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0665	-9.122	3.921	8.137	0.000000	0.550167	0.364669	0.000000	0.000043	0.061621	0.000000	0.014977	0.001175	0.005227
31	1.7758610E+08	3.9823	2.670	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0666	-9.111	3.918	8.141	0.000000	0.501653	0.394381	0.000000	0.000144	0.080332	0.000000	0.014315	0.001184	0.005879
32	1.7873187E+08	3.9814	2.678	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0709	-9.099	3.917	8.146	0.000000	0.450734	0.423455	0.000000	0.000064	0.102029	0.000000	0.013863	0.001190	0.006560
33	1.8013886E+08	3.9802	2.688	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0734	-9.084	3.914	8.152	0.000000	0.399963	0.446389	0.000000	0.000034	0.129725	0.000000	0.013325	0.001201	0.007268
34	1.8160544E+08	3.9790	2.697	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0773	-9.070	3.911	8.158	0.000000	0.351632	0.462534	0.000000	0.000013	0.161771	0.000000	0.012761	0.001212	0.007994
35	1.8318202E+08	3.9776	2.706	3.669	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0626	-9.055	3.894	8.164	0.000000	0.300374	0.474232	0.000000	0.000003	0.201169	0.000000	0.012075	0.001224	0.008852
36	1.8543467E+08	3.9756	2.717	3.667	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0774	-9.036	3.904	8.174	0.000000	0.251052	0.469851	0.000000	0.000000	0.254668	0.000000	0.011192	0.001244	0.009940
37	1.8646728E+08	3.9746	2.721	3.666	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0778	-9.027	3.909	8.180	0.000000	0.201522	0.477212	0.000000	0.000000	0.296631	0.000000	0.010263	0.001244	0.011073
38	1.8933114E+08	3.9719	2.729	3.663	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0751	-9.007	3.916	8.196	0.000000	0.151690	0.431995	0.000000	0.000000	0.391161	0.000000	0.007951	0.001268	0.013895
39	1.9025370E+08	3.9710	2.730	3.660	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0776	-9.000	3.948	8.210	0.000000	0.101322	0.417780	0.000000	0.000000	0.455254	0.000000	0.005758	0.001268	0.016566
40	1.9126755E+08	3.9699	2.735	3.655	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0806	-8.983	4.005	8.232	0.000000	0.051046	0.375552	0.000000	0.000000	0.546944	0.000000	0.002122	0.001268	0.020982
41	1.9171408E+08	3.9694	2.744	3.652	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0788	-8.965	4.048	8.247	0.000000	0.031199	0.345151	0.000000	0.000000	0.596861	0.000000	0.000657	0.001268	0.022742
42	1.9219818E+08	3.9689	2.771	3.647	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0720	-8.913	4.135	8.273	0.000000	0.011163	0.301256	0.000000	0.000000	0.660636	0.000000	0.000020	0.001269	0.023445
43	1.9249725E+08	3.9685	2.881	3.632	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0009	-8.719	4.447	8.345	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
44	1.9314829E+08	3.9670	2.998	3.621	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0000	-8.519	5.123	8.288	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
45	1.9353235E+08	3.9655	3.135	3.607	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0000	-8.286	5.309	8.302	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
46	1.9373018E+08	3.9642	3.261	3.597	0.657540	0.322265	0.002977	0.000164	0.003675	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0000	-8.076	5.438	8.326	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
47	1.9394315E+08	3.9619	3.395	3.586	0.657539	0.322266	0.002968	0.000166	0.003682	0.009873	0.000018	0.000018	0.001420	0.000114
	0.0000	-7.854	5.605	8.347	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
48	1.9407619E+08	3.9594	3.527	3.571	0.657530	0.322272	0.002946	0.000165	0.003710	0.009873	0.000019	0.000018	0.001420	0.000114
	0.0000	-7.626	5.757	8.364	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
49	1.9417294E+08	3.9563	3.665	3.556	0.657474	0.322326	0.002933	0.000164	0.003728	0.009870	0.000019	0.000018	0.001420	0.000114
	0.0000	-7.393	5.918	8.374	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
50	1.9423403E+08	3.9531	3.791	3.543	0.657247	0.322554	0.002926	0.000164	0.003745	0.009859	0.000020	0.000018	0.001420	0.000114
	0.0000	-7.174	6.067	8.374	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326
51	1.9428392E+08	3.9487	3.923	3.535	0.656165	0.323637	0.002919	0.000164	0.003773	0.009837	0.000020	0.000018	0.001420	0.000114
	0.0000	-6.941	6.234	8.359	0.000000	0.000000	0.269552	0.000000	0.000000	0.703462	0.000000	0.000000	0.001269	0.023326

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TABLE 13.

STELLAR MODEL : 3 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.3599550E+06	3.0000	1.909	4.088	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2620	0.000	1.570	7.377	0.677920	0.301379	0.000048	0.000015	0.006642	0.010512	0.000099	0.000000	0.001420	0.000114
2	5.7312912E+07	3.0000	1.939	4.079	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2547	0.000	1.552	7.377	0.619604	0.360041	0.000066	0.000021	0.009107	0.007440	0.000338	0.000000	0.001420	0.000114
3	1.2134219E+08	3.0000	1.981	4.068	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2372	0.000	1.543	7.382	0.541058	0.438894	0.000082	0.000026	0.011153	0.005192	0.000213	0.000000	0.001420	0.000114
4	1.7648635E+08	3.0000	2.021	4.057	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2177	0.000	1.543	7.388	0.460738	0.519406	0.000094	0.000029	0.012430	0.003789	0.000131	0.000000	0.001420	0.000114
5	2.2260126E+08	3.0000	2.058	4.043	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1988	0.000	1.549	7.396	0.380445	0.599827	0.000103	0.000032	0.013275	0.002855	0.000080	0.000000	0.001420	0.000114
6	2.6133182E+08	3.0000	2.090	4.026	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1795	0.000	1.564	7.406	0.299493	0.680865	0.000100	0.000031	0.013874	0.002202	0.000053	0.000000	0.001420	0.000114
7	2.9232874E+08	3.0000	2.116	4.007	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1603	0.000	1.587	7.417	0.220439	0.759981	0.000107	0.000034	0.014277	0.001747	0.000032	0.000000	0.001420	0.000114
8	3.1209843E+08	3.0000	2.133	3.990	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1452	0.000	1.612	7.427	0.160835	0.819621	0.000113	0.000036	0.014504	0.001488	0.000022	0.000000	0.001420	0.000114
9	3.2927686E+08	3.0000	2.146	3.972	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1298	0.000	1.649	7.440	0.101114	0.879370	0.000121	0.000038	0.014682	0.001278	0.000014	0.000000	0.001420	0.000114
10	3.3975424E+08	3.0000	2.156	3.960	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1189	0.000	1.690	7.455	0.059435	0.921068	0.000129	0.000041	0.014783	0.001154	0.000010	0.000000	0.001420	0.000114
11	3.4623971E+08	3.0000	2.168	3.957	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1112	0.000	1.738	7.472	0.030799	0.949716	0.000137	0.000043	0.014842	0.001074	0.000007	0.000000	0.001420	0.000114
12	3.5169894E+08	3.0000	2.215	3.981	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0930	0.000	1.879	7.520	0.004145	0.976388	0.000177	0.000055	0.014855	0.000997	0.000003	0.000000	0.001420	0.000114
13	3.5250307E+08	3.0000	2.263	4.015	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.386	7.537	0.000000	0.980543	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
14	3.5255898E+08	3.0000	2.229	3.999	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.494	7.525	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
15	3.5279219E+08	3.0000	2.277	3.965	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.735	7.518	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
16	3.5338163E+08	3.0000	2.276	3.911	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.035	7.534	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
17	3.5389082E+08	3.0000	2.246	3.859	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.239	7.569	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
18	3.5425453E+08	3.0000	2.197	3.803	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.389	7.606	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
19	3.5454550E+08	3.0000	2.123	3.753	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.518	7.644	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
20	3.5501834E+08	3.0000	1.951	3.700	0.679999	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-10.129	3.748	7.719	0.000000	0.980544	0.000225	0.000069	0.014799	0.000981	0.000001	0.000000	0.001420	0.000114
21	3.5730950E+08	2.9986	2.734	3.621	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0569	-8.797	4.453	8.066	0.000000	0.976793	0.003879	0.000000	0.014708	0.001062	0.000001	0.000170	0.001061	0.000086
22	3.5977018E+08	2.9959	2.498	3.640	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0476	-9.184	4.314	8.070	0.000000	0.950805	0.029097	0.000000	0.013383	0.001444	0.000001	0.001836	0.001061	0.000133
23	3.6345731E+08	2.9948	2.148	3.673	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0516	-9.779	4.256	8.078	0.000000	0.899994	0.076662	0.000000	0.010237	0.003733	0.000001	0.005620	0.001062	0.000451
24	3.6688035E+08	2.9943	2.082	3.683	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0531	-9.896	4.234	8.082	0.000000	0.851023	0.120452	0.000000	0.007356	0.007984	0.000000	0.008840	0.001062	0.001043
25	3.6993539E+08	2.9939	2.090	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0530	-9.883	4.227	8.085	0.000000	0.800394	0.164052	0.000000	0.004862	0.014153	0.000000	0.011388	0.001062	0.001848
26	3.7282355E+08	2.9935	2.095	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0539	-9.876	4.222	8.088	0.000000	0.751816	0.203990	0.000000	0.003047	0.022106	0.000000	0.012957	0.001062	0.002782
27	3.7593469E+08	2.9931	2.101	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0550	-9.866	4.215	8.092	0.000000	0.699938	0.244389	0.000000	0.001717	0.033003	0.000000	0.013760	0.001062	0.003891
28	3.7951466E+08	2.9926	2.108	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0566	-9.856	4.205	8.096	0.000000	0.651366	0.278631	0.000000	0.001139	0.046958	0.000000	0.013563	0.001062	0.005039
29	3.8234534E+08	2.9922	2.113	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0572	-9.848	4.201	8.099	0.000000	0.599848	0.314608	0.000000	0.000464	0.062107	0.000000	0.013531	0.001062	0.006139
30	3.8517606E+08	2.9918	2.119	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0589	-9.840	4.197	8.103	0.000000	0.551402	0.345513	0.000000	0.000244	0.079397	0.000000	0.012968	0.001062	0.007173
31	3.8886275E+08	2.9913	2.126	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0587	-9.828	4.189	8.108	0.000000	0.501601	0.371456	0.000000	0.000369	0.103100	0.000000	0.011947	0.001062	0.008224
32	3.9287536E+08	2.9907	2.135	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0638	-9.815	4.180	8.113	0.000000	0.451182	0.393674	0.000000	0.000177	0.131066	0.000000	0.011401	0.000996	0.009131
33	3.9727686E+08	2.9900	2.144	3.682	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0692	-9.800	4.169	8.119	0.000000	0.401310	0.411128	0.000000	0.000110	0.163296	0.000000	0.010748	0.000946	0.009998
34	4.0367843E+08	2.9889	2.159	3.681	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0682	-9.777	4.150	8.127	0.000000	0.351806	0.416739	0.000000	0.000032	0.207009	0.000000	0.010174	0.000903	0.010840
35	4.0770150E+08	2.9883	2.169	3.681	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0677	-9.761	4.144	8.133	0.000000	0.301405	0.428850	0.000000	0.000014	0.245136	0.000000	0.009488	0.000911	0.011708
36	4.1419174E+08	2.9871	2.183	3.680	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0667	-9.737	4.130	8.142	0.000000	0.250117	0.421775	0.000000	0.000003	0.303356	0.000000	0.008899	0.000981	0.012465
37	4.1688016E+08	2.9866	2.190	3.679	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0640	-9.726	4.129	8.147	0.000000	0.200977	0.426517	0.000000	0.000000	0.347593	0.000000	0.008184	0.000981	0.013341
38	4.2050218E+08	2.9859	2.200	3.678	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0700	-9.709	4.150	8.162	0.000000	0.150909	0.419266	0.000000	0.000000	0.404736	0.000000	0.007388	0.000982	0.014310
39	4.2649110E+08	2.9847	2.218	3.676	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0665	-9.676	4.167	8.178	0.000000	0.099996	0.367599	0.000000	0.000000	0.507050	0.000000	0.006206	0.001017	0.015755
40	4.2888576E+08	2.9842	2.237	3.672	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0701	-9.641	4.225	8.200	0.000000	0.050882	0.329222	0.000000	0.000000	0.594141	0.000000	0.004416	0.001017	0.017930
41	4.3005075E+08	2.9839	2.256	3.669	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0712	-9.607	4.274	8.216	0.000000	0.028976	0.297361	0.000000	0.000000	0.647558	0.000000	0.002858	0.001017	0.019819
42	4.3267123E+08	2.9832	2.296	3.665	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0653	-9.536	4.343	8.242	0.000000	0.011726	0.234325	0.000000	0.000000	0.727314	0.000000	0.000521	0.001018	0.022616
43	4.3343168E+08	2.9830	2.449	3.648	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0010	-9.275	4.660	8.307	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
44	4.3641696E+08	2.9811	2.593	3.637	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0000	-9.036	5.362	8.193	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
45	4.3739827E+08	2.9798	2.739	3.623	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0000	-8.789	5.488	8.197	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
46	4.3816042E+08	2.9781	2.898	3.611	0.655902	0.323834	0.002953	0.000160	0.003636	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0000	-8.527	5.620	8.200	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
47	4.3869030E+08	2.9759	3.048	3.596	0.655901	0.323835	0.002950	0.000162	0.003638	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0000	-8.273	5.740	8.196	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
48	4.3915398E+08	2.9724	3.200	3.584	0.655896	0.323838	0.002935	0.000162	0.003656	0.009945	0.000027	0.000018	0.001420	0.000114
	0.0000	-8.018	5.866	8.177	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
49	4.3955274E+08	2.9669	3.366	3.566	0.655884	0.323850	0.002926	0.000161	0.003668	0.009944	0.000027	0.000018	0.001420	0.000114
	0.0000	-7.732	6.013	8.150	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
50	4.3988054E+08	2.9585	3.506	3.551	0.655856	0.323877	0.002922	0.000161	0.003674	0.009943	0.000028	0.000018	0.001420	0.000114
	0.0000	-7.491	6.150	8.104	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159
51	4.4053613E+08	2.9292	3.678	3.537	0.655846	0.323887	0.002921	0.000161	0.003675	0.009942	0.000028	0.000018	0.001420	0.000114
	0.0000	-7.220	6.374	7.989	0.000000	0.000000	0.202356	0.000000	0.000000	0.770867	0.000000	0.000003	0.001018	0.023159

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TABLE 14.

STELLAR MODEL : 2.5 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	6.9998670E+06	2.5000	1.600	4.031	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2350	0.000	1.669	7.355	0.676645	0.302649	0.000045	0.000014	0.006649	0.010463	0.000151	0.000000	0.001420	0.000114
2	9.3394224E+07	2.5000	1.625	4.023	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2321	0.000	1.656	7.357	0.619421	0.360128	0.000058	0.000018	0.008586	0.007795	0.000609	0.000000	0.001420	0.000114
3	1.9632707E+08	2.5000	1.662	4.012	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2153	0.000	1.651	7.361	0.540545	0.439318	0.000073	0.000023	0.010641	0.005614	0.000402	0.000000	0.001420	0.000114
4	2.8492512E+08	2.5000	1.698	4.000	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2001	0.000	1.652	7.368	0.460408	0.519660	0.000084	0.000026	0.011984	0.004200	0.000254	0.000000	0.001420	0.000114
5	3.6113232E+08	2.5000	1.731	3.985	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1856	0.000	1.661	7.375	0.379986	0.600225	0.000093	0.000029	0.012907	0.003220	0.000158	0.000000	0.001420	0.000114
6	4.2506410E+08	2.5000	1.759	3.968	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1676	0.000	1.675	7.384	0.300491	0.679819	0.000101	0.000032	0.013553	0.002525	0.000097	0.000000	0.001420	0.000114
7	4.7945690E+08	2.5000	1.782	3.947	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1503	0.000	1.699	7.395	0.220837	0.759545	0.000109	0.000034	0.014020	0.002015	0.000059	0.000000	0.001420	0.000114
8	5.1504931E+08	2.5000	1.794	3.929	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1363	0.000	1.727	7.405	0.160103	0.820319	0.000103	0.000032	0.014304	0.001716	0.000041	0.000000	0.001420	0.000114
9	5.4511053E+08	2.5000	1.803	3.910	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1206	0.000	1.766	7.419	0.099320	0.881136	0.000111	0.000035	0.014518	0.001473	0.000026	0.000000	0.001420	0.000114
10	5.6249658E+08	2.5000	1.810	3.898	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1111	0.000	1.806	7.433	0.059532	0.920944	0.000117	0.000037	0.014635	0.001335	0.000018	0.000000	0.001420	0.000114
11	5.7433741E+08	2.5000	1.821	3.894	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1037	0.000	1.857	7.450	0.029638	0.950853	0.000126	0.000040	0.014711	0.001239	0.000012	0.000000	0.001420	0.000114
12	5.8355085E+08	2.5000	1.874	3.920	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0930	0.000	1.994	7.498	0.003896	0.976615	0.000166	0.000052	0.014734	0.001152	0.000004	0.000000	0.001420	0.000114
13	5.8491552E+08	2.5000	1.924	3.955	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.505	7.507	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
14	5.8499917E+08	2.5000	1.893	3.941	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.595	7.497	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
15	5.8531341E+08	2.5000	1.931	3.915	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.789	7.487	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
16	5.8616531E+08	2.5000	1.934	3.873	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.044	7.490	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
17	5.8709018E+08	2.5000	1.911	3.831	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.236	7.512	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
18	5.8781504E+08	2.5000	1.872	3.790	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.382	7.541	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
19	5.8872960E+08	2.5000	1.769	3.749	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.577	7.593	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
20	5.8978566E+08	2.5000	1.609	3.708	0.679994	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.827	7.670	0.000000	0.980521	0.000207	0.000064	0.014689	0.001135	0.000002	0.000000	0.001420	0.000114
21	5.9547552E+08	2.4982	2.506	3.628	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0720	-9.073	4.644	8.052	0.000000	0.975868	0.004774	0.000000	0.014644	0.001212	0.000002	0.000113	0.001225	0.000099
22	6.0016806E+08	2.4968	1.943	3.673	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0454	-10.010	4.495	8.051	0.000000	0.949675	0.030217	0.000000	0.013908	0.001744	0.000002	0.001025	0.001226	0.000141
23	6.0735590E+08	2.4963	1.789	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0463	-10.270	4.457	8.056	0.000000	0.900637	0.075783	0.000000	0.012239	0.004692	0.000001	0.002953	0.001226	0.000406
24	6.1485632E+08	2.4959	1.797	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0482	-10.256	4.440	8.060	0.000000	0.849077	0.120841	0.000000	0.010402	0.010568	0.000000	0.004867	0.001227	0.000954
25	6.2223296E+08	2.4955	1.804	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0493	-10.246	4.424	8.064	0.000000	0.800489	0.160404	0.000000	0.008645	0.018952	0.000000	0.006498	0.001227	0.001722
26	6.2892954E+08	2.4951	1.810	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0514	-10.236	4.410	8.067	0.000000	0.750110	0.199369	0.000000	0.006852	0.029680	0.000000	0.008025	0.001227	0.002674
27	6.3672314E+08	2.4947	1.818	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0528	-10.223	4.394	8.071	0.000000	0.699856	0.234453	0.000000	0.005164	0.044148	0.000000	0.009205	0.001227	0.003883
28	6.4268006E+08	2.4943	1.824	3.689	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0544	-10.214	4.384	8.075	0.000000	0.650321	0.268150	0.000000	0.003648	0.059337	0.000000	0.010175	0.001227	0.005080
29	6.5059040E+08	2.4938	1.833	3.688	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0558	-10.201	4.368	8.080	0.000000	0.600079	0.297019	0.000000	0.002464	0.080108	0.000000	0.010513	0.001227	0.006528
30	6.5627123E+08	2.4934	1.839	3.688	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0582	-10.192	4.361	8.084	0.000000	0.549760	0.326323	0.000000	0.001418	0.100585	0.000000	0.010785	0.001227	0.007839
31	6.6231782E+08	2.4931	1.846	3.688	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0593	-10.181	4.351	8.088	0.000000	0.500859	0.350907	0.000000	0.000789	0.124483	0.000000	0.010518	0.001227	0.009154
32	6.7288486E+08	2.4923	1.858	3.688	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0642	-10.162	4.330	8.095	0.000000	0.449534	0.365522	0.000000	0.000607	0.160885	0.000000	0.009598	0.001227	0.010564
33	6.8281293E+08	2.4916	1.871	3.687	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0694	-10.140	4.310	8.102	0.000000	0.399196	0.377116	0.000000	0.000379	0.199350	0.000000	0.008933	0.001227	0.011734
34	6.9121882E+08	2.4910	1.883	3.687	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0680	-10.122	4.295	8.109	0.000000	0.350335	0.386835	0.000000	0.000163	0.238247	0.000000	0.008398	0.001240	0.012731
35	6.9941971E+08	2.4904	1.893	3.686	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0665	-10.106	4.276	8.117	0.000000	0.299608	0.392155	0.000000	0.000048	0.283451	0.000000	0.007793	0.001251	0.013654
36	7.0446195E+08	2.4900	1.901	3.686	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0693	-10.094	4.276	8.124	0.000000	0.250299	0.401935	0.000000	0.000012	0.322803	0.000000	0.007094	0.001251	0.014564
37	7.1023501E+08	2.4895	1.910	3.685	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0700	-10.079	4.274	8.133	0.000000	0.199700	0.405258	0.000000	0.000000	0.369913	0.000000	0.006374	0.001251	0.015460
38	7.1656589E+08	2.4890	1.923	3.684	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0691	-10.058	4.280	8.144	0.000000	0.149809	0.387023	0.000000	0.000001	0.437886	0.000000	0.005695	0.001194	0.016188
39	7.2429997E+08	2.4883	1.941	3.682	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0736	-10.026	4.297	8.159	0.000000	0.100740	0.362207	0.000000	0.000002	0.511599	0.000000	0.004923	0.001182	0.017074
40	7.3119302E+08	2.4876	1.973	3.679	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0701	-9.970	4.343	8.183	0.000000	0.049489	0.297836	0.000000	0.000000	0.626946	0.000000	0.003704	0.001156	0.018539
41	7.3717709E+08	2.4869	2.006	3.675	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0655	-9.915	4.382	8.201	0.000000	0.030250	0.229802	0.000000	0.000000	0.713966	0.000000	0.002587	0.001134	0.019733
42	7.3956218E+08	2.4866	2.059	3.670	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0620	-9.824	4.468	8.227	0.000000	0.010954	0.189105	0.000000	0.000000	0.773599	0.000000	0.001000	0.001135	0.021638
43	7.4071731E+08	2.4864	2.243	3.653	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-9.514	4.783	8.284	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
44	7.4082182E+08	2.4864	2.318	3.646	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-9.386	4.911	8.278	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
45	7.4691667E+08	2.4839	2.414	3.639	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-9.232	5.501	8.139	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
46	7.4762611E+08	2.4834	2.496	3.632	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-9.091	5.536	8.128	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
47	7.4967776E+08	2.4813	2.587	3.622	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-8.935	5.600	8.076	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
48	7.5514912E+08	2.4734	2.680	3.617	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-8.785	5.694	8.009	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
49	7.5660173E+08	2.4708	2.776	3.610	0.657863	0.321795	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-8.637	5.850	8.060	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
50	7.5687411E+08	2.4700	2.872	3.600	0.657863	0.321796	0.002954	0.000160	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-8.464	5.909	8.072	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751
51	7.5705568E+08	2.4692	2.955	3.594	0.657863	0.321796	0.002954	0.000161	0.003511	0.010075	0.000039	0.000018	0.001420	0.000114
	0.0000	-8.325	5.950	8.075	0.000000	0.000000	0.160005	0.000000	0.000000	0.813414	0.000000	0.000032	0.001135	0.022751

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TABLE 15.

STELLAR MODEL : 2 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.0999791E+07	2.0000	1.209	3.958	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2083	0.000	1.780	7.323	0.676965	0.302328	0.000040	0.000012	0.006648	0.010528	0.000092	0.000000	0.001420	0.000114
2	1.7048922E+08	2.0000	1.233	3.953	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2094	0.000	1.780	7.329	0.620791	0.358583	0.000046	0.000014	0.007591	0.008513	0.001075	0.000000	0.001420	0.000114
3	3.6815462E+08	2.0000	1.268	3.942	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1968	0.000	1.779	7.335	0.540645	0.439024	0.000059	0.000019	0.009538	0.006423	0.000907	0.000000	0.001420	0.000114
4	5.3661498E+08	2.0000	1.301	3.929	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1821	0.000	1.784	7.342	0.460379	0.519529	0.000071	0.000022	0.011044	0.004962	0.000610	0.000000	0.001420	0.000114
5	6.7783104E+08	2.0000	1.329	3.914	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1663	0.000	1.794	7.349	0.381024	0.599057	0.000080	0.000025	0.012138	0.003901	0.000392	0.000000	0.001420	0.000114
6	8.0103494E+08	2.0000	1.353	3.897	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1523	0.000	1.813	7.359	0.299686	0.680525	0.000088	0.000028	0.012964	0.003084	0.000242	0.000000	0.001420	0.000114
7	9.0494765E+08	2.0000	1.369	3.875	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1355	0.000	1.837	7.369	0.219888	0.760418	0.000096	0.000030	0.013563	0.002477	0.000146	0.000000	0.001420	0.000114
8	9.7259827E+08	2.0000	1.377	3.857	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1245	0.000	1.864	7.379	0.160339	0.820022	0.000102	0.000032	0.013908	0.002118	0.000096	0.000000	0.001420	0.000114
9	1.0342874E+09	2.0000	1.382	3.837	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1112	0.000	1.904	7.392	0.099438	0.880969	0.000109	0.000034	0.014193	0.001816	0.000059	0.000000	0.001420	0.000114
10	1.0703721E+09	2.0000	1.386	3.827	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1025	0.000	1.944	7.405	0.060099	0.920334	0.000116	0.000036	0.014348	0.001646	0.000039	0.000000	0.001420	0.000114
11	1.0940772E+09	2.0000	1.398	3.824	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0963	0.000	1.996	7.422	0.030248	0.950202	0.000111	0.000035	0.014470	0.001525	0.000026	0.000000	0.001420	0.000114
12	1.1138001E+09	2.0000	1.464	3.853	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0845	0.000	2.152	7.477	0.002895	0.977580	0.000153	0.000047	0.014526	0.001410	0.000007	0.000000	0.001420	0.000114
13	1.1159428E+09	2.0000	1.508	3.882	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.656	7.471	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
14	1.1161076E+09	2.0000	1.485	3.870	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.739	7.462	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
15	1.1165101E+09	2.0000	1.513	3.853	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.865	7.452	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
16	1.1177400E+09	2.0000	1.522	3.824	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.061	7.443	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
17	1.1200952E+09	2.0000	1.506	3.795	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.266	7.451	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
18	1.1237185E+09	2.0000	1.446	3.765	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.526	7.494	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
19	1.1265637E+09	2.0000	1.321	3.736	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.759	7.556	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
20	1.1291244E+09	2.0000	1.233	3.709	0.679939	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.045	3.988	7.624	0.000000	0.980484	0.000186	0.000058	0.014493	0.001394	0.000004	0.000000	0.001420	0.000114
21	1.1481036E+09	1.9972	2.322	3.627	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-9.241	5.134	7.913	0.000000	0.980461	0.000192	0.000000	0.014492	0.001465	0.000004	0.000001	0.001420	0.000114
22	1.1609587E+09	1.9958	1.599	3.681	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0421	-10.441	4.722	8.027	0.000000	0.951462	0.028369	0.000000	0.014106	0.002103	0.000003	0.000533	0.000974	0.000115
23	1.1792851E+09	1.9951	1.600	3.682	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0448	-10.440	4.673	8.033	0.000000	0.900821	0.074237	0.000000	0.013238	0.006581	0.000002	0.001442	0.000976	0.000368
24	1.1954199E+09	1.9945	1.603	3.682	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0472	-10.436	4.633	8.039	0.000000	0.851412	0.115467	0.000000	0.012239	0.014395	0.000001	0.002364	0.000977	0.000810
25	1.2108532E+09	1.9939	1.608	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0493	-10.430	4.599	8.044	0.000000	0.801438	0.153855	0.000000	0.011062	0.025527	0.000001	0.003355	0.000978	0.001450
26	1.2264838E+09	1.9934	1.615	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0517	-10.421	4.566	8.050	0.000000	0.750746	0.189233	0.000000	0.009681	0.040289	0.000000	0.004419	0.000978	0.002320
27	1.2379904E+09	1.9929	1.621	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0535	-10.412	4.546	8.054	0.000000	0.701849	0.221955	0.000000	0.008283	0.055894	0.000000	0.005450	0.000978	0.003256
28	1.2521021E+09	1.9924	1.628	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0559	-10.401	4.520	8.059	0.000000	0.650572	0.251802	0.000000	0.006647	0.076627	0.000000	0.006521	0.000978	0.004518
29	1.2629562E+09	1.9919	1.635	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0582	-10.391	4.503	8.064	0.000000	0.601530	0.279148	0.000000	0.005131	0.097658	0.000000	0.007430	0.000978	0.005789
30	1.2749673E+09	1.9914	1.641	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0602	-10.380	4.485	8.069	0.000000	0.551932	0.302827	0.000000	0.003626	0.122878	0.000000	0.008148	0.000978	0.007276
31	1.2847654E+09	1.9910	1.648	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0621	-10.371	4.473	8.074	0.000000	0.501819	0.325649	0.000000	0.002346	0.149533	0.000000	0.008578	0.000978	0.008762
32	1.3009748E+09	1.9903	1.659	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0689	-10.352	4.445	8.081	0.000000	0.451345	0.338397	0.000000	0.001356	0.186652	0.000000	0.008395	0.000978	0.010541
33	1.3160797E+09	1.9896	1.669	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0716	-10.339	4.416	8.088	0.000000	0.400672	0.349557	0.000000	0.000692	0.225693	0.000000	0.007979	0.000978	0.012092
34	1.3317857E+09	1.9889	1.682	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0770	-10.319	4.392	8.097	0.000000	0.350128	0.357404	0.000000	0.000252	0.268023	0.000000	0.007458	0.000978	0.013419
35	1.3402533E+09	1.9885	1.687	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0697	-10.313	4.374	8.104	0.000000	0.301921	0.369180	0.000000	0.000070	0.304205	0.000000	0.006806	0.000978	0.014502
36	1.3492713E+09	1.9880	1.696	3.683	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0740	-10.298	4.369	8.111	0.000000	0.251377	0.374055	0.000000	0.000068	0.349684	0.000000	0.005957	0.000978	0.015542
37	1.3556390E+09	1.9877	1.702	3.682	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0733	-10.288	4.363	8.121	0.000000	0.201036	0.376045	0.000000	0.000001	0.397842	0.000000	0.005259	0.000978	0.016499
38	1.3646886E+09	1.9872	1.717	3.682	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0747	-10.264	4.367	8.132	0.000000	0.150729	0.366814	0.000000	0.000000	0.457215	0.000000	0.004522	0.000979	0.017399
39	1.3740183E+09	1.9867	1.737	3.680	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0680	-10.230	4.375	8.147	0.000000	0.100169	0.340249	0.000000	0.000000	0.534181	0.000000	0.003814	0.000979	0.018261
40	1.3799401E+09	1.9863	1.771	3.678	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0754	-10.174	4.429	8.167	0.000000	0.051634	0.297967	0.000000	0.000000	0.624818	0.000000	0.003009	0.000979	0.019237
41	1.3835462E+09	1.9861	1.801	3.675	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0783	-10.126	4.469	8.181	0.000000	0.031631	0.266045	0.000000	0.000000	0.676632	0.000000	0.002516	0.000979	0.019831
42	1.3912157E+09	1.9855	1.874	3.669	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0655	-10.002	4.538	8.211	0.000000	0.011694	0.194772	0.000000	0.000000	0.767597	0.000000	0.001442	0.000979	0.021110
43	1.3929452E+09	1.9853	2.085	3.651	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-9.649	4.854	8.255	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
44	1.3949151E+09	1.9847	2.184	3.642	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-9.483	5.149	8.165	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
45	1.3962450E+09	1.9842	2.281	3.635	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-9.321	5.256	8.171	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
46	1.4053953E+09	1.9794	2.389	3.626	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-9.142	5.620	8.062	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
47	1.4075496E+09	1.9775	2.483	3.619	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-8.988	5.704	8.046	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
48	1.4093449E+09	1.9751	2.591	3.611	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-8.812	5.783	8.026	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
49	1.4101797E+09	1.9736	2.689	3.603	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-8.653	5.831	8.019	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
50	1.4107923E+09	1.9718	2.800	3.593	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-8.458	5.879	8.015	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525
51	1.4112474E+09	1.9699	2.891	3.586	0.661839	0.317682	0.002999	0.000160	0.003254	0.010292	0.000057	0.000019	0.001420	0.000114
	0.0000	-8.308	5.917	8.010	0.000000	0.000000	0.163807	0.000000	0.000000	0.809971	0.000000	0.000247	0.000980	0.022525

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TABLE 16.

STELLAR MODEL : 1.7 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.2999753E+07	1.7000	0.916	3.901	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1856	0.000	1.851	7.295	0.677750	0.301543	0.000035	0.000011	0.006654	0.010582	0.000035	0.000000	0.001420	0.000114
2	2.8151824E+08	1.7000	0.943	3.897	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1888	0.000	1.860	7.304	0.619575	0.359704	0.000038	0.000012	0.006969	0.009222	0.001091	0.000000	0.001420	0.000114
3	5.9992442E+08	1.7000	0.978	3.889	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1814	0.000	1.870	7.313	0.540545	0.438901	0.000047	0.000015	0.008237	0.007447	0.001421	0.000001	0.001420	0.000114
4	8.7510093E+08	1.7000	1.008	3.877	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1696	0.000	1.879	7.321	0.460490	0.519195	0.000058	0.000018	0.009759	0.005941	0.001154	0.000001	0.001420	0.000114
5	1.1114058E+09	1.7000	1.035	3.863	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1574	0.000	1.892	7.330	0.379914	0.599988	0.000068	0.000021	0.011094	0.004734	0.000797	0.000000	0.001420	0.000114
6	1.3097103E+09	1.7000	1.055	3.846	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1435	0.000	1.912	7.339	0.300448	0.679625	0.000077	0.000024	0.012137	0.003794	0.000513	0.000000	0.001420	0.000114
7	1.4806833E+09	1.7000	1.069	3.828	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1273	0.000	1.939	7.350	0.219800	0.760404	0.000085	0.000027	0.012949	0.003043	0.000310	0.000000	0.001420	0.000114
8	1.5909709E+09	1.7000	1.074	3.816	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1148	0.000	1.965	7.360	0.159891	0.820390	0.000092	0.000029	0.013420	0.002593	0.000204	0.000000	0.001420	0.000114
9	1.6894002E+09	1.7000	1.077	3.805	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1046	0.000	2.006	7.372	0.099979	0.880364	0.000099	0.000031	0.013804	0.002217	0.000124	0.000000	0.001420	0.000114
10	1.7491706E+09	1.7000	1.080	3.799	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0972	0.000	2.046	7.385	0.060230	0.920149	0.000106	0.000033	0.014020	0.001999	0.000081	0.000000	0.001420	0.000114
11	1.7904090E+09	1.7000	1.089	3.796	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0920	0.000	2.095	7.401	0.030848	0.949557	0.000113	0.000035	0.014165	0.001849	0.000050	0.000000	0.001420	0.000114
12	1.8213359E+09	1.7000	1.140	3.807	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0841	0.000	2.218	7.444	0.004986	0.975446	0.000134	0.000042	0.014278	0.001714	0.000018	0.000000	0.001420	0.000114
13	1.8273112E+09	1.7000	1.196	3.828	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.786	7.440	0.000000	0.980444	0.000169	0.000052	0.014263	0.001683	0.000007	0.000000	0.001420	0.000114
14	1.8274996E+09	1.7000	1.190	3.823	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.835	7.434	0.000000	0.980444	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
15	1.8285298E+09	1.7000	1.218	3.809	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.991	7.418	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
16	1.8335474E+09	1.7000	1.216	3.788	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.256	7.405	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
17	1.8426502E+09	1.7000	1.177	3.767	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.523	7.433	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
18	1.8478780E+09	1.7000	1.123	3.750	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.695	7.471	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
19	1.8527791E+09	1.7000	1.040	3.733	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.879	7.519	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
20	1.8581050E+09	1.7000	0.989	3.716	0.679874	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.358	4.087	7.575	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
21	1.8633720E+09	1.7000	1.045	3.704	0.678760	0.300733	0.004428	0.000108	0.001404	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.249	4.271	7.619	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
22	1.8666852E+09	1.6999	1.113	3.700	0.676985	0.302449	0.004018	0.000207	0.001777	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.138	4.373	7.640	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
23	1.8689492E+09	1.6999	1.162	3.697	0.675510	0.303899	0.003693	0.000192	0.002172	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-11.057	4.436	7.653	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
24	1.8721684E+09	1.6999	1.233	3.690	0.673298	0.306093	0.003408	0.000178	0.002522	0.010607	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.940	4.520	7.669	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
25	1.8741729E+09	1.6999	1.280	3.687	0.672275	0.307111	0.003318	0.000173	0.002632	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.861	4.568	7.677	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
26	1.8770459E+09	1.6998	1.348	3.683	0.670961	0.308419	0.003225	0.000168	0.002746	0.010605	0.000009	0.000020	0.001420	0.000114
	0.0000	-10.751	4.633	7.688	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
27	1.8794714E+09	1.6998	1.403	3.680	0.670361	0.309017	0.003191	0.000167	0.002787	0.010604	0.000011	0.000020	0.001420	0.000114
	0.0000	-10.662	4.685	7.697	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
28	1.8827052E+09	1.6997	1.476	3.676	0.668875	0.310502	0.003150	0.000165	0.002847	0.010580	0.000026	0.000019	0.001420	0.000114
	0.0000	-10.545	4.751	7.707	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
29	1.8851306E+09	1.6996	1.533	3.673	0.667000	0.312378	0.003118	0.000163	0.002908	0.010542	0.000040	0.000019	0.001420	0.000114
	0.0000	-10.450	4.798	7.714	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
30	1.8875558E+09	1.6995	1.589	3.669	0.666382	0.312996	0.003109	0.000163	0.002927	0.010529	0.000043	0.000019	0.001420	0.000114
	0.0000	-10.364	4.843	7.721	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
31	1.8899813E+09	1.6994	1.642	3.666	0.665765	0.313614	0.003100	0.000162	0.002946	0.010517	0.000047	0.000019	0.001420	0.000114
	0.0000	-10.276	4.888	7.728	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
32	1.8924067E+09	1.6992	1.702	3.662	0.665026	0.314354	0.003091	0.000162	0.002967	0.010502	0.000050	0.000019	0.001420	0.000114
	0.0000	-10.176	4.932	7.735	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
33	1.8948321E+09	1.6991	1.759	3.658	0.664984	0.314397	0.003091	0.000162	0.002968	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-10.082	4.977	7.742	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
34	1.8980660E+09	1.6987	1.838	3.653	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.955	5.036	7.753	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
35	1.8996829E+09	1.6985	1.887	3.648	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.880	5.068	7.760	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
36	1.9021083E+09	1.6982	1.949	3.644	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.773	5.114	7.770	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
37	1.9046630E+09	1.6977	2.009	3.639	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.668	5.164	7.780	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
38	1.9188929E+09	1.6953	2.071	3.636	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.560	5.372	7.788	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
39	1.9207064E+09	1.6948	2.129	3.631	0.664981	0.314399	0.003091	0.000162	0.002969	0.010501	0.000050	0.000019	0.001420	0.000114
	0.0000	-9.477	5.397	7.787	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
40	1.9239008E+09	1.6939	2.189	3.627	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-9.376	5.422	7.783	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
41	1.9255706E+09	1.6931	2.250	3.622	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-9.277	5.445	7.784	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
42	1.9271163E+09	1.6922	2.311	3.618	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-9.175	5.468	7.787	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
43	1.9285647E+09	1.6911	2.373	3.615	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-9.075	5.491	7.791	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
44	1.9299067E+09	1.6898	2.436	3.611	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.972	5.514	7.794	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
45	1.9310784E+09	1.6884	2.498	3.607	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.865	5.536	7.799	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
46	1.9321755E+09	1.6868	2.559	3.601	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.768	5.558	7.805	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
47	1.9331478E+09	1.6849	2.620	3.595	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.657	5.580	7.811	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
48	1.9340780E+09	1.6826	2.682	3.591	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.562	5.603	7.819	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
49	1.9349074E+09	1.6800	2.744	3.586	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.459	5.626	7.827	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
50	1.9356776E+09	1.6770	2.806	3.580	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.353	5.650	7.836	0.000000	0.980445	0.000169	0.000052	0.014264	0.001683	0.000007	0.000000	0.001420	0.000114
51	1.9363722E+09	1.6735	2.868	3.573	0.664583	0.314797	0.003080	0.000161	0.002986	0.010495	0.000051	0.000019	0.001420	0.000114
	0.0000	-8.244	5.673	7.846	0.000000	0.980429	0.000169	0.000001	0.014264	0.001746	0.000007	0.000000	0.001420	0.000114

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TABLE 17.

STELLAR MODEL : 1.5 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	4.1909204E+07	1.5000	0.676	3.852	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1726	0.000	1.881	7.265	0.674554	0.304731	0.000031	0.000010	0.006659	0.010563	0.000056	0.000000	0.001420	0.000114
2	4.1256986E+08	1.5000	0.710	3.853	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1666	0.000	1.909	7.279	0.621146	0.358114	0.000034	0.000010	0.006713	0.009895	0.000696	0.000000	0.001420	0.000114
3	8.8072474E+08	1.5000	0.747	3.849	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1621	0.000	1.932	7.292	0.541580	0.437718	0.000038	0.000012	0.007240	0.008592	0.001431	0.000001	0.001420	0.000114
4	1.2878963E+09	1.5000	0.780	3.841	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1560	0.000	1.951	7.304	0.460805	0.518651	0.000046	0.000014	0.008372	0.007141	0.001583	0.000001	0.001420	0.000114
5	1.6285825E+09	1.5000	0.805	3.832	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1467	0.000	1.967	7.314	0.381346	0.598328	0.000056	0.000018	0.009746	0.005815	0.001307	0.000001	0.001420	0.000114
6	1.9214319E+09	1.5000	0.825	3.821	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1353	0.000	1.988	7.324	0.301415	0.678474	0.000066	0.000021	0.011047	0.004680	0.000915	0.000000	0.001420	0.000114
7	2.1767759E+09	1.5000	0.837	3.809	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1221	0.000	2.017	7.335	0.220214	0.759855	0.000076	0.000024	0.012137	0.003740	0.000573	0.000000	0.001420	0.000114
8	2.3120428E+09	1.5000	0.841	3.801	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1130	0.000	2.039	7.343	0.171262	0.808896	0.000082	0.000025	0.012674	0.003267	0.000412	0.000000	0.001420	0.000114
9	2.4181087E+09	1.5000	0.843	3.795	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1039	0.000	2.063	7.351	0.129249	0.850975	0.000087	0.000027	0.013071	0.002911	0.000299	0.000000	0.001420	0.000114
10	2.5594947E+09	1.5000	0.844	3.787	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0935	0.000	2.114	7.368	0.066826	0.913480	0.000096	0.000030	0.013568	0.002454	0.000163	0.000000	0.001420	0.000114
11	2.6325210E+09	1.5000	0.855	3.784	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0881	0.000	2.172	7.386	0.031679	0.948670	0.000105	0.000033	0.013812	0.002225	0.000095	0.000000	0.001420	0.000114
12	2.6903898E+09	1.5000	1.006	3.811	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0440	0.000	2.552	7.478	0.000254	0.980142	0.000140	0.000044	0.014007	0.002015	0.000016	0.000000	0.001420	0.000114
13	2.6946506E+09	1.5000	0.991	3.792	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.080	7.394	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
14	2.6995210E+09	1.5000	0.991	3.783	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.238	7.377	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
15	2.7045755E+09	1.5000	0.987	3.778	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.325	7.374	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
16	2.7096297E+09	1.5000	0.983	3.774	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.392	7.376	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
17	2.7202235E+09	1.5000	0.969	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.529	7.391	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
18	2.7275018E+09	1.5000	0.948	3.758	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.636	7.410	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
19	2.7376914E+09	1.5000	0.899	3.744	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.816	7.451	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
20	2.7474150E+09	1.5000	0.835	3.730	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.012	7.499	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
21	2.7567311E+09	1.5000	0.807	3.715	0.679770	0.300003	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.200	7.543	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
22	2.7697738E+09	1.5000	0.876	3.701	0.677808	0.301513	0.004404	0.000125	0.001412	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.418	7.584	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
23	2.7834499E+09	1.4999	1.008	3.695	0.672816	0.306465	0.003667	0.000186	0.002209	0.010607	0.000007	0.000022	0.001420	0.000114
	0.0000	-11.231	4.592	7.605	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
24	2.7914990E+09	1.4999	1.085	3.690	0.669980	0.309292	0.003437	0.000175	0.002491	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-11.105	4.677	7.612	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
25	2.7995482E+09	1.4998	1.164	3.685	0.667859	0.311409	0.003318	0.000169	0.002636	0.010606	0.000008	0.000020	0.001420	0.000114
	0.0000	-10.978	4.753	7.617	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
26	2.8062559E+09	1.4997	1.228	3.682	0.666665	0.312601	0.003264	0.000166	0.002703	0.010606	0.000009	0.000020	0.001420	0.000114
	0.0000	-10.875	4.810	7.620	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
27	2.8155123E+09	1.4996	1.308	3.678	0.665659	0.313607	0.003223	0.000164	0.002753	0.010605	0.000009	0.000020	0.001420	0.000114
	0.0000	-10.751	4.884	7.624	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
28	2.8245811E+09	1.4994	1.388	3.673	0.665475	0.313791	0.003216	0.000164	0.002761	0.010605	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.614	4.953	7.629	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
29	2.8313825E+09	1.4992	1.461	3.668	0.665246	0.314020	0.003208	0.000163	0.002771	0.010605	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.494	5.006	7.635	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
30	2.8393178E+09	1.4989	1.526	3.665	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.393	5.066	7.642	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
31	2.8472527E+09	1.4985	1.598	3.661	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.277	5.126	7.650	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
32	2.8581663E+09	1.4979	1.675	3.656	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.152	5.204	7.659	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
33	2.8740270E+09	1.4966	1.754	3.650	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-10.025	5.307	7.662	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
34	2.8784156E+09	1.4962	1.823	3.646	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.910	5.334	7.662	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
35	2.8827850E+09	1.4955	1.899	3.641	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.781	5.361	7.663	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
36	2.8864916E+09	1.4948	1.971	3.636	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.666	5.387	7.666	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
37	2.8899410E+09	1.4940	2.046	3.629	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.541	5.413	7.670	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
38	2.8929933E+09	1.4930	2.122	3.624	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.415	5.439	7.676	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
39	2.8955584E+09	1.4918	2.196	3.619	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.294	5.463	7.683	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
40	2.8977718E+09	1.4905	2.270	3.614	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.174	5.487	7.692	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
41	2.8997640E+09	1.4890	2.345	3.610	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-9.053	5.512	7.701	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
42	2.9015240E+09	1.4872	2.419	3.605	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.931	5.537	7.712	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
43	2.9031255E+09	1.4850	2.496	3.597	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.803	5.561	7.723	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
44	2.9044941E+09	1.4825	2.568	3.592	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.680	5.586	7.735	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
45	2.9057275E+09	1.4795	2.643	3.586	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.554	5.612	7.747	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
46	2.9067817E+09	1.4761	2.717	3.580	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.436	5.637	7.760	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
47	2.9078108E+09	1.4717	2.792	3.572	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.303	5.665	7.774	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
48	2.9086764E+09	1.4667	2.867	3.565	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.174	5.692	7.788	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
49	2.9094367E+09	1.4608	2.941	3.558	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-8.047	5.720	7.804	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
50	2.9101366E+09	1.4535	3.016	3.550	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-7.915	5.750	7.820	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114
51	2.9107597E+09	1.4447	3.090	3.543	0.665105	0.314161	0.003203	0.000163	0.002777	0.010604	0.000010	0.000020	0.001420	0.000114
	0.0000	-7.788	5.780	7.837	0.000000	0.980395	0.000135	0.000042	0.014018	0.002013	0.000015	0.000000	0.001420	0.000114

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TABLE 18.

STELLAR MODEL : 1.25 M , Z = 0.020 , WITH OVERSHOOTING

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	3.5195736E+07	1.2500	0.317	3.805	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1408	0.000	1.909	7.213	0.677422	0.301853	0.000038	0.000014	0.006640	0.010605	0.000009	0.000011	0.001420	0.000114
2	7.2829542E+08	1.2500	0.352	3.807	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1312	0.000	1.948	7.229	0.619330	0.359942	0.000027	0.000008	0.006662	0.010450	0.000180	0.000000	0.001420	0.000114
3	1.5601137E+09	1.2500	0.395	3.808	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1292	0.000	1.991	7.249	0.540770	0.438490	0.000030	0.000009	0.006683	0.010050	0.000575	0.000000	0.001420	0.000114
4	2.3203031E+09	1.2500	0.434	3.805	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1305	0.000	2.030	7.267	0.459337	0.519921	0.000033	0.000010	0.006866	0.009295	0.001149	0.000000	0.001420	0.000114
5	2.9566438E+09	1.2500	0.466	3.802	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1265	0.000	2.067	7.285	0.380389	0.598929	0.000038	0.000012	0.007448	0.008178	0.001618	0.000001	0.001420	0.000114
6	3.4999291E+09	1.2500	0.488	3.795	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1211	0.000	2.097	7.299	0.300959	0.678525	0.000047	0.000015	0.008586	0.006818	0.001666	0.000001	0.001420	0.000114
7	3.9679150E+09	1.2500	0.502	3.786	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1121	0.000	2.130	7.312	0.220887	0.758832	0.000058	0.000018	0.010046	0.005469	0.001306	0.000001	0.001420	0.000114
8	4.2764989E+09	1.2500	0.507	3.778	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1031	0.000	2.159	7.323	0.159819	0.820081	0.000067	0.000021	0.011126	0.004565	0.000939	0.000000	0.001420	0.000114
9	4.5420677E+09	1.2500	0.509	3.770	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0939	0.000	2.198	7.336	0.100220	0.879835	0.000076	0.000024	0.012047	0.003812	0.000604	0.000000	0.001420	0.000114
10	4.7031997E+09	1.2500	0.512	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0864	0.000	2.237	7.349	0.059801	0.920347	0.000084	0.000026	0.012591	0.003369	0.000401	0.000000	0.001420	0.000114
11	4.8999557E+09	1.2500	0.589	3.777	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0690	0.000	2.447	7.414	0.003167	0.977113	0.000111	0.000035	0.013305	0.002804	0.000083	0.000000	0.001420	0.000114
12	4.9101117E+09	1.2500	0.677	3.789	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0094	0.000	2.769	7.440	0.000092	0.980203	0.000132	0.000041	0.013337	0.002769	0.000044	0.000000	0.001420	0.000114
13	4.9126303E+09	1.2500	0.656	3.783	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.041	7.374	0.000000	0.980295	0.000133	0.000042	0.013337	0.002768	0.000043	0.000000	0.001420	0.000114
14	4.9338281E+09	1.2500	0.671	3.772	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.291	7.333	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
15	4.9958948E+09	1.2500	0.670	3.763	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.545	7.347	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
16	5.0342625E+09	1.2500	0.652	3.752	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.753	7.374	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
17	5.0691379E+09	1.2500	0.615	3.738	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.989	7.415	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
18	5.0960164E+09	1.2500	0.582	3.725	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.180	7.450	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
19	5.1148308E+09	1.2500	0.569	3.717	0.679960	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.855	4.304	7.469	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
20	5.1422469E+09	1.2500	0.574	3.708	0.679504	0.300020	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.830	4.452	7.482	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
21	5.1897242E+09	1.2499	0.622	3.700	0.678089	0.300981	0.004462	0.000077	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.742	4.631	7.478	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
22	5.2443167E+09	1.2498	0.702	3.695	0.674969	0.304087	0.004352	0.000154	0.001443	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.612	4.757	7.459	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
23	5.2895227E+09	1.2496	0.775	3.692	0.671444	0.307623	0.004035	0.000192	0.001772	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.499	4.833	7.449	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
24	5.3322598E+09	1.2495	0.855	3.689	0.668086	0.310978	0.003782	0.000181	0.002079	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-11.368	4.896	7.447	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
25	5.3688940E+09	1.2493	0.934	3.685	0.665461	0.313602	0.003641	0.000175	0.002252	0.010607	0.000007	0.000022	0.001420	0.000114
	0.0000	-11.244	4.946	7.451	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
26	5.3988040E+09	1.2491	1.010	3.682	0.663809	0.315253	0.003569	0.000171	0.002340	0.010607	0.000007	0.000022	0.001420	0.000114
	0.0000	-11.123	4.989	7.457	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
27	5.4244429E+09	1.2489	1.088	3.679	0.662604	0.316458	0.003521	0.000169	0.002398	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-11.000	5.028	7.465	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
28	5.4464481E+09	1.2486	1.167	3.675	0.661949	0.317114	0.003497	0.000168	0.002428	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.877	5.064	7.474	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
29	5.4654336E+09	1.2483	1.246	3.671	0.661534	0.317529	0.003482	0.000167	0.002446	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.746	5.099	7.485	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
30	5.4809723E+09	1.2480	1.325	3.666	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.618	5.131	7.495	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
31	5.4943703E+09	1.2476	1.403	3.663	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.490	5.161	7.506	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
32	5.5059543E+09	1.2472	1.481	3.659	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.369	5.192	7.518	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
33	5.5161933E+09	1.2467	1.559	3.654	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.242	5.222	7.530	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
34	5.5277711E+09	1.2459	1.637	3.648	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-10.114	5.262	7.548	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
35	5.5457777E+09	1.2444	1.716	3.642	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.983	5.327	7.572	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
36	5.5521331E+09	1.2437	1.794	3.638	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.857	5.352	7.579	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
37	5.5578522E+09	1.2428	1.874	3.632	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.722	5.377	7.588	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
38	5.5626271E+09	1.2417	1.951	3.627	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.599	5.401	7.597	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
39	5.5667640E+09	1.2405	2.030	3.622	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.470	5.426	7.608	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
40	5.5702047E+09	1.2391	2.108	3.616	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.344	5.449	7.619	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
41	5.5733028E+09	1.2375	2.186	3.611	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.219	5.474	7.631	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
42	5.5759764E+09	1.2356	2.265	3.606	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-9.084	5.498	7.644	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
43	5.5782938E+09	1.2334	2.343	3.600	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.953	5.523	7.658	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
44	5.5803433E+09	1.2307	2.422	3.592	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.818	5.548	7.672	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
45	5.5820728E+09	1.2277	2.501	3.587	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.689	5.573	7.686	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
46	5.5835761E+09	1.2241	2.578	3.581	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.560	5.598	7.701	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
47	5.5849359E+09	1.2197	2.657	3.573	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.421	5.625	7.717	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
48	5.5861192E+09	1.2145	2.737	3.565	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.282	5.652	7.733	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
49	5.5871652E+09	1.2082	2.814	3.559	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.156	5.679	7.749	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
50	5.5880934E+09	1.2007	2.892	3.551	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-8.020	5.708	7.766	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114
51	5.5889193E+09	1.1914	2.971	3.543	0.661413	0.317650	0.003478	0.000167	0.002451	0.010607	0.000007	0.000021	0.001420	0.000114
	0.0000	-7.882	5.738	7.784	0.000000	0.980296	0.000133	0.000042	0.013338	0.002768	0.000043	0.000000	0.001420	0.000114

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TABLE 19.

STELLAR MODEL : 1.25 M , Z = 0.020, WITHOUT OVERSHOOTING

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	8.3373416E+07	1.2500	0.325	3.808	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0310	0.000	1.928	7.213	0.670036	0.309245	0.000027	0.000008	0.006666	0.010579	0.000038	0.000000	0.001420	0.000114
2	4.4336656E+08	1.2500	0.344	3.809	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0310	0.000	1.957	7.224	0.621149	0.358122	0.000028	0.000009	0.006662	0.010362	0.000272	0.000000	0.001420	0.000114
3	9.8010637E+08	1.2500	0.372	3.809	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0309	0.000	2.002	7.239	0.541102	0.438153	0.000030	0.000009	0.006720	0.009814	0.000779	0.000000	0.001420	0.000114
4	1.4561972E+09	1.2500	0.397	3.809	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0316	0.000	2.046	7.254	0.461186	0.518079	0.000033	0.000010	0.006982	0.008979	0.001343	0.000001	0.001420	0.000114
5	1.9719625E+09	1.2500	0.423	3.807	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0420	0.000	2.087	7.270	0.381764	0.597572	0.000038	0.000012	0.007591	0.007965	0.001673	0.000001	0.001420	0.000114
6	2.4737096E+09	1.2500	0.444	3.804	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0509	0.000	2.126	7.287	0.300282	0.679208	0.000046	0.000014	0.008636	0.006740	0.001690	0.000001	0.001420	0.000114
7	2.9236155E+09	1.2500	0.459	3.798	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0580	0.000	2.162	7.303	0.221925	0.757770	0.000055	0.000017	0.009905	0.005577	0.001368	0.000001	0.001420	0.000114
8	3.1699924E+09	1.2500	0.464	3.794	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0570	0.000	2.194	7.314	0.161094	0.818764	0.000064	0.000020	0.010906	0.004679	0.001091	0.000000	0.001420	0.000114
9	3.3974093E+09	1.2500	0.469	3.790	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0553	0.000	2.236	7.328	0.100147	0.879870	0.000073	0.000023	0.011852	0.003903	0.000749	0.000000	0.001420	0.000114
10	3.5310313E+09	1.2500	0.476	3.788	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0528	0.000	2.275	7.340	0.061565	0.918546	0.000080	0.000025	0.012397	0.003475	0.000530	0.000000	0.001420	0.000114
11	3.6970240E+09	1.2500	0.531	3.795	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0308	0.000	2.443	7.381	0.007171	0.973073	0.000100	0.000031	0.013127	0.002930	0.000186	0.000000	0.001420	0.000114
12	3.7208937E+09	1.2500	0.586	3.802	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.780	7.326	0.000543	0.979717	0.000095	0.000030	0.013233	0.002863	0.000137	0.000000	0.001420	0.000114
13	3.9481638E+09	1.2500	0.607	3.796	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.934	7.291	0.000000	0.980257	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
14	4.2200796E+09	1.2500	0.634	3.789	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.028	7.300	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
15	4.4447319E+09	1.2500	0.660	3.780	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.204	7.310	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
16	4.5541550E+09	1.2500	0.670	3.773	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.358	7.318	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
17	4.6314081E+09	1.2500	0.669	3.765	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.520	7.330	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
18	4.7048637E+09	1.2500	0.648	3.751	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.762	7.357	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
19	4.7544064E+09	1.2500	0.612	3.737	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.991	7.394	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
20	4.8194570E+09	1.2500	0.568	3.717	0.679934	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.315	7.445	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
21	4.8620180E+09	1.2500	0.583	3.706	0.679252	0.300096	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.812	4.481	7.456	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
22	4.9130921E+09	1.2499	0.632	3.698	0.677708	0.301437	0.004456	0.000082	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.722	4.622	7.452	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
23	4.9748060E+09	1.2497	0.712	3.693	0.674499	0.304667	0.004300	0.000173	0.001483	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.594	4.740	7.442	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
24	5.0854661E+09	1.2494	0.879	3.688	0.666536	0.312604	0.003668	0.000176	0.002219	0.010607	0.000007	0.000022	0.001420	0.000114
	0.0000	-11.328	4.889	7.439	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
25	5.1344118E+09	1.2491	0.966	3.684	0.664068	0.315068	0.003557	0.000171	0.002355	0.010607	0.000007	0.000022	0.001420	0.000114
	0.0000	-11.192	4.946	7.444	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
26	5.1769728E+09	1.2488	1.049	3.681	0.662109	0.317026	0.003484	0.000167	0.002444	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-11.063	4.994	7.451	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
27	5.2174065E+09	1.2483	1.138	3.677	0.661210	0.317924	0.003454	0.000166	0.002481	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.921	5.039	7.458	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
28	5.2514555E+09	1.2479	1.218	3.673	0.660633	0.318501	0.003436	0.000165	0.002503	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.790	5.078	7.466	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
29	5.2855045E+09	1.2472	1.305	3.669	0.660556	0.318578	0.003433	0.000165	0.002506	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.652	5.118	7.475	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
30	5.3174257E+09	1.2464	1.392	3.663	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.511	5.155	7.484	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
31	5.3472189E+09	1.2453	1.478	3.660	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.375	5.191	7.492	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
32	5.3770117E+09	1.2438	1.563	3.654	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.236	5.227	7.501	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
33	5.4286177E+09	1.2402	1.645	3.649	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-10.101	5.313	7.532	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
34	5.4440463E+09	1.2387	1.731	3.644	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.962	5.342	7.537	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
35	5.4589425E+09	1.2368	1.816	3.637	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.821	5.370	7.543	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
36	5.4727752E+09	1.2343	1.900	3.633	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.685	5.397	7.550	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
37	5.4860754E+09	1.2311	1.983	3.627	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.547	5.424	7.557	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
38	5.4993761E+09	1.2265	2.068	3.619	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.403	5.452	7.565	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
39	5.5052283E+09	1.2238	2.152	3.615	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.267	5.476	7.577	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
40	5.5104819E+09	1.2205	2.237	3.608	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-9.125	5.501	7.592	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
41	5.5154028E+09	1.2161	2.322	3.600	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.979	5.528	7.609	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
42	5.5199918E+09	1.2104	2.408	3.594	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.837	5.555	7.625	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
43	5.5243807E+09	1.2028	2.493	3.585	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.689	5.583	7.640	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
44	5.5285038E+09	1.1928	2.577	3.579	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.546	5.610	7.655	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
45	5.5325604E+09	1.1790	2.661	3.572	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.401	5.639	7.669	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
46	5.5366170E+09	1.1596	2.747	3.561	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.243	5.670	7.682	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
47	5.5397760E+09	1.1387	2.831	3.553	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-8.067	5.694	7.692	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
48	5.5419827E+09	1.1179	2.916	3.544	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-7.940	5.732	7.711	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
49	5.5437425E+09	1.0937	3.001	3.536	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-7.787	5.764	7.729	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
50	5.5454428E+09	1.0602	3.086	3.528	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-7.631	5.798	7.748	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114
51	5.5471626E+09	1.0112	3.171	3.520	0.660523	0.318610	0.003432	0.000165	0.002507	0.010606	0.000008	0.000021	0.001420	0.000114
	0.0000	-7.466	5.835	7.768	0.000000	0.980258	0.000084	0.000026	0.013250	0.002859	0.000141	0.000000	0.001420	0.000114

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TABLE 20.

STELLAR MODEL : 1 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.2799568E+07	1.0000	-.163	3.751	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0423	0.000	1.891	7.134	0.678593	0.301035	0.002035	0.000774	0.003483	0.010607	0.000007	0.000022	0.001420	0.000114
2	9.6808742E+08	1.0000	-.125	3.755	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0012	0.000	1.953	7.143	0.620745	0.358518	0.000021	0.000007	0.006675	0.010591	0.000026	0.000000	0.001420	0.000114
3	2.0291040E+09	1.0000	-.097	3.758	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.007	7.156	0.540564	0.438706	0.000023	0.000007	0.006669	0.010528	0.000097	0.000000	0.001420	0.000114
4	3.0439895E+09	1.0000	-.067	3.760	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.065	7.170	0.461519	0.517752	0.000024	0.000008	0.006664	0.010410	0.000225	0.000000	0.001420	0.000114
5	4.0358093E+09	1.0000	-.034	3.763	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.129	7.186	0.380954	0.598311	0.000026	0.000008	0.006671	0.010177	0.000461	0.000000	0.001420	0.000114
6	4.9584323E+09	1.0000	-.003	3.765	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.196	7.202	0.301935	0.677321	0.000028	0.000009	0.006732	0.009739	0.000848	0.000000	0.001420	0.000114
7	5.8579896E+09	1.0000	0.029	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.271	7.220	0.220117	0.759151	0.000032	0.000010	0.007006	0.008898	0.001402	0.000001	0.001420	0.000114
8	6.4807603E+09	1.0000	0.053	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.330	7.235	0.160092	0.819234	0.000036	0.000011	0.007543	0.007931	0.001769	0.000001	0.001420	0.000114
9	7.0484040E+09	1.0000	0.074	3.767	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.391	7.250	0.101094	0.878364	0.000044	0.000014	0.008485	0.006734	0.001884	0.000001	0.001420	0.000114
10	7.4220667E+09	1.0000	0.088	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.437	7.260	0.060240	0.919346	0.000050	0.000016	0.009315	0.005880	0.001771	0.000001	0.001420	0.000114
11	7.7209964E+09	1.0000	0.100	3.766	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.477	7.266	0.031641	0.948041	0.000055	0.000017	0.009915	0.005325	0.001624	0.000001	0.001420	0.000114
12	9.4203740E+09	1.0000	0.192	3.765	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.758	7.272	0.000016	0.979768	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
13	9.8445670E+09	1.0000	0.220	3.763	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.852	7.274	0.000000	0.979784	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
14	1.0807122E+10	1.0000	0.293	3.755	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.179	7.289	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
15	1.1179443E+10	1.0000	0.322	3.745	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.455	7.301	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
16	1.1385956E+10	1.0000	0.329	3.732	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.728	7.322	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
17	1.1493185E+10	1.0000	0.327	3.721	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.941	7.346	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
18	1.1592013E+10	1.0000	0.335	3.708	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.166	7.374	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
19	1.1635798E+10	1.0000	0.349	3.703	0.679711	0.300004	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.265	7.385	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
20	1.1679583E+10	1.0000	0.372	3.698	0.679002	0.300141	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-12.015	4.357	7.393	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
21	1.1729673E+10	0.9999	0.407	3.694	0.678064	0.300797	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.953	4.450	7.399	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
22	1.1814441E+10	0.9998	0.489	3.689	0.675172	0.303609	0.004456	0.000082	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.821	4.585	7.407	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
23	1.1888612E+10	0.9997	0.577	3.685	0.670729	0.308087	0.004370	0.000141	0.001436	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.681	4.688	7.414	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
24	1.1952188E+10	0.9995	0.673	3.683	0.666883	0.311944	0.004200	0.000172	0.001601	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	-11.537	4.770	7.423	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
25	1.2000929E+10	0.9994	0.764	3.680	0.663420	0.315408	0.004036	0.000169	0.001796	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-11.415	4.837	7.436	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
26	1.2036532E+10	0.9992	0.844	3.678	0.661513	0.317315	0.003960	0.000166	0.001888	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-11.237	4.888	7.446	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
27	1.2067048E+10	0.9990	0.931	3.675	0.659557	0.319272	0.003891	0.000163	0.001971	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-11.128	4.936	7.457	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
28	1.2097564E+10	0.9987	1.026	3.670	0.659183	0.319646	0.003880	0.000163	0.001986	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.977	4.987	7.468	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
29	1.2121214E+10	0.9984	1.119	3.665	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.832	5.031	7.480	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
30	1.2139128E+10	0.9981	1.202	3.661	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.695	5.068	7.491	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
31	1.2157042E+10	0.9977	1.295	3.658	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.550	5.109	7.503	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
32	1.2171660E+10	0.9972	1.384	3.652	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.404	5.147	7.517	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
33	1.2187938E+10	0.9964	1.474	3.647	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.258	5.198	7.536	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
34	1.2214524E+10	0.9949	1.566	3.641	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-10.107	5.281	7.560	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
35	1.2223100E+10	0.9941	1.654	3.637	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.968	5.310	7.566	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
36	1.2230837E+10	0.9931	1.749	3.630	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.810	5.340	7.575	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
37	1.2236948E+10	0.9919	1.835	3.623	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.667	5.367	7.584	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
38	1.2242449E+10	0.9905	1.926	3.618	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.518	5.395	7.596	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
39	1.2247000E+10	0.9889	2.017	3.612	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.370	5.423	7.609	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
40	1.2250808E+10	0.9869	2.107	3.605	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.222	5.450	7.622	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
41	1.2254145E+10	0.9845	2.198	3.599	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-9.070	5.478	7.637	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
42	1.2256947E+10	0.9817	2.287	3.591	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.921	5.506	7.652	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
43	1.2259356E+10	0.9783	2.378	3.585	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.770	5.534	7.668	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
44	1.2261407E+10	0.9741	2.468	3.578	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.620	5.562	7.684	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
45	1.2263198E+10	0.9689	2.561	3.565	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.445	5.592	7.701	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
46	1.2264723E+10	0.9626	2.649	3.560	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.307	5.622	7.719	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
47	1.2266024E+10	0.9549	2.739	3.552	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-8.154	5.653	7.737	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
48	1.2267154E+10	0.9454	2.829	3.542	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-7.992	5.684	7.756	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
49	1.2268167E+10	0.9330	2.920	3.535	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-7.838	5.718	7.776	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
50	1.2269038E+10	0.9178	3.012	3.527	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-7.679	5.752	7.796	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114
51	1.2269812E+10	0.8982	3.101	3.519	0.658610	0.320220	0.003861	0.000162	0.002008	0.010607	0.000007	0.000023	0.001420	0.000114
	0.0000	-7.517	5.789	7.819	0.000000	0.979785	0.000061	0.000019	0.010541	0.004773	0.001439	0.000001	0.001420	0.000114

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TABLE 21.

STELLAR MODEL : 0.9 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.0466551E+07	0.9000	-.394	3.724	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0557	0.000	1.906	7.114	0.679524	0.300365	0.003851	0.000564	0.001590	0.010607	0.000007	0.000024	0.001420	0.000114
2	1.2325217E+09	0.9000	-.349	3.725	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	1.941	7.104	0.620569	0.358668	0.000018	0.000006	0.006680	0.010602	0.000013	0.000001	0.001420	0.000114
3	2.8884915E+09	0.9000	-.319	3.729	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	1.997	7.117	0.540667	0.438588	0.000019	0.000006	0.006678	0.010589	0.000028	0.000000	0.001420	0.000114
4	4.5030620E+09	0.9000	-.286	3.733	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.058	7.132	0.461748	0.517519	0.000020	0.000006	0.006674	0.010563	0.000058	0.000000	0.001420	0.000114
5	6.1176325E+09	0.9000	-.249	3.737	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.128	7.149	0.381384	0.597891	0.000022	0.000007	0.006668	0.010506	0.000123	0.000000	0.001420	0.000114
6	7.6908037E+09	0.9000	-.211	3.740	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.205	7.167	0.301115	0.678160	0.000024	0.000007	0.006664	0.010370	0.000268	0.000000	0.001420	0.000114
7	9.2225751E+09	0.9000	-.170	3.743	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.292	7.188	0.220824	0.758441	0.000026	0.000008	0.006682	0.010045	0.000588	0.000000	0.001420	0.000114
8	1.0340355E+10	0.9000	-.137	3.745	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.365	7.205	0.161603	0.817655	0.000029	0.000009	0.006782	0.009528	0.001011	0.000000	0.001420	0.000114
9	1.1499534E+10	0.9000	-.101	3.747	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.451	7.225	0.100820	0.878466	0.000033	0.000010	0.007186	0.008525	0.001577	0.000001	0.001420	0.000114
10	1.2257968E+10	0.9000	-.076	3.747	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.514	7.241	0.060254	0.919108	0.000039	0.000012	0.007817	0.007541	0.001846	0.000001	0.001420	0.000114
11	1.2814622E+10	0.9000	-.056	3.748	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.565	7.252	0.030812	0.948644	0.000044	0.000014	0.008466	0.006757	0.001881	0.000001	0.001420	0.000114
12	1.4039193E+10	0.9000	-.006	3.749	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.713	7.261	0.001338	0.978229	0.000051	0.000016	0.009191	0.006011	0.001783	0.000001	0.001420	0.000114
13	1.5500304E+10	0.9000	0.071	3.747	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.963	7.266	0.000000	0.979572	0.000052	0.000016	0.009222	0.005978	0.001776	0.000001	0.001420	0.000114
14	1.5671465E+10	0.9000	0.082	3.747	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.003	7.268	0.000000	0.979573	0.000052	0.000016	0.009222	0.005978	0.001776	0.000001	0.001420	0.000114
15	1.6514723E+10	0.9000	0.137	3.741	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.263	7.280	0.000000	0.979573	0.000052	0.000016	0.009222	0.005978	0.001776	0.000001	0.001420	0.000114
16	1.7174835E+10	0.9000	0.183	3.723	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.724	7.308	0.000000	0.979573	0.000052	0.000016	0.009222	0.005978	0.001776	0.000001	0.001420	0.000114
17	1.7440086E+10	0.9000	0.210	3.704	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	4.088	7.346	0.000000	0.979573	0.000052	0.000016	0.009222	0.005978	0.001776	0.000001	0.001420	0.000114

TABLE 22.

STELLAR MODEL : 0.8 M , Z = 0.020

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	8.9928128E+07	0.8000	-.612	3.687	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	1.894	7.065	0.677007	0.302735	0.003033	0.000843	0.002244	0.010607	0.000007	0.000023	0.001420	0.000114
2	1.8530373E+09	0.8000	-.595	3.688	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	1.926	7.064	0.620892	0.358293	0.000016	0.000005	0.006677	0.010606	0.000008	0.000008	0.001420	0.000114
3	4.4747873E+09	0.8000	-.564	3.693	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	1.984	7.076	0.540388	0.438831	0.000016	0.000005	0.006683	0.010604	0.000011	0.000001	0.001420	0.000114
4	7.0965376E+09	0.8000	-.529	3.698	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.049	7.091	0.460162	0.519082	0.000017	0.000005	0.006682	0.010599	0.000017	0.000000	0.001420	0.000114
5	9.6527442E+09	0.8000	-.491	3.703	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.121	7.107	0.381947	0.597317	0.000018	0.000006	0.006679	0.010588	0.000029	0.000000	0.001420	0.000114
6	1.2274494E+10	0.8000	-.446	3.708	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.205	7.128	0.301321	0.677956	0.000020	0.000006	0.006674	0.010559	0.000063	0.000000	0.001420	0.000114
7	1.4896245E+10	0.8000	-.396	3.714	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.303	7.151	0.220292	0.758990	0.000022	0.000007	0.006666	0.010471	0.000162	0.000000	0.001420	0.000114
8	1.6862557E+10	0.8000	-.355	3.718	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.389	7.172	0.160006	0.819270	0.000025	0.000008	0.006665	0.010287	0.000355	0.000000	0.001420	0.000114
9	1.8828870E+10	0.8000	-.306	3.722	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.492	7.195	0.101908	0.877354	0.000028	0.000009	0.006719	0.009806	0.000794	0.000000	0.001420	0.000114
10	2.0270834E+10	0.8000	-.267	3.725	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.579	7.215	0.061842	0.917424	0.000031	0.000010	0.006943	0.009056	0.001312	0.000001	0.001420	0.000114
11	2.1359514E+10	0.8000	-.235	3.727	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.652	7.233	0.031826	0.947483	0.000036	0.000011	0.007388	0.008185	0.001688	0.000001	0.001420	0.000114
12	2.2819666E+10	0.8000	-.187	3.729	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	2.777	7.249	0.003601	0.975796	0.000042	0.000013	0.008051	0.007259	0.001856	0.000001	0.001420	0.000114
13	2.5027879E+10	0.8000	-.091	3.729	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.0000	0.000	3.084	7.257	0.000000	0.979411	0.000045	0.000014	0.008145	0.007142	0.001862	0.000001	0.001420	0.000114

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TABLE 23.

STELLAR MODEL : 120 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	5.2003955E+03	119.9989	6.220	4.773	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.8529	-6.876	0.376	7.702	0.754976	0.244054	0.000009	0.000003	0.000469	0.000363	0.000000	0.000000	0.000071	0.000006
2	7.0999969E+05	119.8034	6.264	4.756	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7906	-6.399	0.350	7.699	0.623955	0.375120	0.000014	0.000004	0.000768	0.000013	0.000000	0.000000	0.000071	0.000006
3	1.0847282E+06	119.6068	6.290	4.746	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7544	-6.173	0.361	7.705	0.542986	0.456090	0.000014	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
4	1.4237684E+06	119.2915	6.314	4.730	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7194	-5.892	0.375	7.712	0.461400	0.537675	0.000015	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
5	1.7201608E+06	118.7438	6.336	4.707	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6858	-5.599	0.393	7.720	0.382286	0.616790	0.000015	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
6	1.9947832E+06	117.7375	6.357	4.676	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6545	-5.305	0.418	7.729	0.300973	0.698103	0.000015	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
7	2.2404982E+06	116.0192	6.376	4.631	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6251	-5.037	0.454	7.740	0.219959	0.779116	0.000016	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
8	2.3994902E+06	114.2861	6.389	4.584	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6065	-4.911	0.489	7.750	0.162268	0.836807	0.000016	0.000005	0.000766	0.000011	0.000000	0.000000	0.000071	0.000006
9	2.5584820E+06	112.2225	6.404	4.501	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5869	-4.897	0.542	7.766	0.099281	0.899796	0.000017	0.000005	0.000766	0.000011	0.000000	0.000000	0.000071	0.000006
10	2.6452050E+06	111.2560	6.413	4.417	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5743	-5.002	0.590	7.781	0.062021	0.937055	0.000018	0.000006	0.000765	0.000010	0.000000	0.000000	0.000071	0.000006
11	2.7775370E+06	110.1337	6.434	4.219	0.755924	0.243076	0.000223	0.000004	0.000072	0.000530	0.000000	0.000001	0.000071	0.000006
	0.5440	-5.018	0.983	7.908	0.000789	0.998289	0.000025	0.000008	0.000757	0.000008	0.000000	0.000000	0.000071	0.000006
12	2.7793732E+06	110.1162	6.437	4.227	0.755924	0.243076	0.000223	0.000004	0.000072	0.000530	0.000000	0.000001	0.000071	0.000006
	0.5299	-5.032	1.187	7.975	0.000046	0.999033	0.000030	0.000009	0.000750	0.000007	0.000000	0.000000	0.000071	0.000006
13	2.7798105E+06	110.1122	6.439	4.237	0.755924	0.243076	0.000223	0.000004	0.000072	0.000530	0.000000	0.000001	0.000071	0.000006
	0.5028	-5.047	1.354	8.030	0.000000	0.999079	0.000031	0.000010	0.000747	0.000007	0.000000	0.000000	0.000071	0.000006
14	2.7811608E+06	110.1005	6.444	4.258	0.755924	0.243076	0.000223	0.000004	0.000072	0.000530	0.000000	0.000001	0.000071	0.000006
	0.4780	-5.068	1.792	8.173	0.000000	0.999078	0.000031	0.000005	0.000747	0.000013	0.000000	0.000000	0.000071	0.000006
15	2.7848420E+06	110.0486	6.441	4.043	0.755679	0.243322	0.000221	0.000004	0.000077	0.000526	0.000000	0.000001	0.000071	0.000006
	0.4397	-4.230	2.266	8.320	0.000000	0.997194	0.001667	0.000000	0.000001	0.000021	0.000000	0.000816	0.000071	0.000181
16	2.7854890E+06	109.5989	6.445	3.887	0.755679	0.243322	0.000221	0.000004	0.000077	0.000526	0.000000	0.000001	0.000071	0.000006
	0.4376	-2.683	2.290	8.327	0.000000	0.995161	0.003655	0.000000	0.000001	0.000026	0.000000	0.000635	0.000071	0.000401
17	2.7861360E+06	106.9254	6.448	3.840	0.727544	0.271492	0.000120	0.000004	0.000408	0.000282	0.000000	0.000001	0.000071	0.000006
	0.4804	-2.223	2.303	8.331	0.000000	0.993632	0.006134	0.000000	0.000000	0.000037	0.000000	0.000462	0.000071	0.000615
18	2.7870255E+06	99.2643	6.462	3.821	0.604029	0.395043	0.000022	0.000004	0.000739	0.000036	0.000000	0.000000	0.000071	0.000006
	0.5334	-2.028	2.309	8.333	0.000000	0.988754	0.009947	0.000000	0.000003	0.000063	0.000000	0.000280	0.000071	0.000833
19	2.7874300E+06	95.2565	6.476	4.131	0.520462	0.478612	0.000015	0.000004	0.000761	0.000020	0.000000	0.000000	0.000071	0.000006
	0.5523	-4.845	2.311	8.333	0.000000	0.986799	0.011870	0.000000	0.000000	0.000080	0.000000	0.000218	0.000071	0.000913
20	2.7881675E+06	95.2306	6.479	4.067	0.520462	0.478612	0.000015	0.000004	0.000761	0.000020	0.000000	0.000000	0.000071	0.000006
	0.5550	-4.352	2.314	8.335	0.000000	0.983033	0.015576	0.000000	0.000000	0.000119	0.000000	0.000129	0.000071	0.001021
21	2.7891185E+06	95.0820	6.480	3.969	0.519816	0.479258	0.000015	0.000004	0.000761	0.000020	0.000000	0.000000	0.000071	0.000006
	0.5612	-3.255	2.315	8.335	0.000000	0.978101	0.020425	0.000000	0.000000	0.000188	0.000000	0.000065	0.000071	0.001098
22	2.7946978E+06	92.9551	6.487	4.160	0.441808	0.557266	0.000014	0.000004	0.000765	0.000016	0.000000	0.000000	0.000071	0.000006
	0.5821 4.229	-4.398	2.319	8.337	0.000000	0.949318	0.048419	0.000000	0.000000	0.000963	0.000000	0.000002	0.000071	0.001173
23	2.8042090E+06	92.5746	6.488	4.180	0.427499	0.571575	0.000014	0.000004	0.000765	0.000016	0.000000	0.000000	0.000071	0.000006
	0.5888 4.254	-4.398	2.325	8.339	0.000000	0.900952	0.093898	0.000000	0.000000	0.003849	0.000000	0.000000	0.000071	0.001171
24	2.8141425E+06	92.1773	6.488	4.175	0.424982	0.574093	0.000014	0.000004	0.000765	0.000016	0.000000	0.000000	0.000071	0.000006
	0.5948 4.247	-4.398	2.332	8.342	0.000000	0.851823	0.137939	0.000000	0.000000	0.008936	0.000000	0.000002	0.000071	0.001164
25	2.8248705E+06	91.7482	6.492	4.280	0.395124	0.603950	0.000015	0.000005	0.000765	0.000015	0.000000	0.000000	0.000071	0.000006
	0.6007 4.400	-4.398	2.339	8.345	0.000000	0.799141	0.182542	0.000000	0.000000	0.017013	0.000000	0.000000	0.000071	0.001159
26	2.8353880E+06	91.3275	6.519	4.353	0.304230	0.694846	0.000015	0.000005	0.000766	0.000013	0.000000	0.000000	0.000071	0.000006
	0.6072 4.518	-4.398	2.348	8.349	0.000000	0.749719	0.221499	0.000000	0.000000	0.027477	0.000000	0.000000	0.000071	0.001151
27	2.8463262E+06	90.8899	6.519	4.358	0.302460	0.696615	0.000016	0.000005	0.000766	0.000013	0.000000	0.000000	0.000071	0.000006
	0.6115 4.527	-4.398	2.355	8.352	0.000000	0.698051	0.259185	0.000000	0.000000	0.041457	0.000000	0.000000	0.000071	0.001142
28	2.8567388E+06	90.4734	6.519	4.359	0.300919	0.698156	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.6170 4.527	-4.398	2.364	8.355	0.000000	0.651808	0.289426	0.000000	0.000000	0.057458	0.000000	0.000000	0.000071	0.001133
29	2.8680978E+06	90.0190	6.518	4.357	0.299146	0.699929	0.000016	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
	0.6227 4.525	-4.398	2.373	8.358	0.000000	0.601800	0.318530	0.000000	0.000000	0.078359	0.000000	0.000000	0.000071	0.001121
30	2.8804032E+06	89.5268	6.518	4.355	0.297136	0.701940	0.000016	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
	0.6289 4.521	-4.398	2.385	8.362	0.000000	0.550386	0.343577	0.000000	0.000000	0.104722	0.000000	0.000000	0.000072	0.001106
31	2.8917622E+06	89.0724	6.518	4.352	0.295231	0.703845	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6344 4.517	-4.398	2.396	8.366	0.000000	0.503810	0.361855	0.000000	0.000000	0.133017	0.000000	0.000000	0.000073	0.001090
32	2.9050145E+06	88.5423	6.518	4.347	0.292981	0.706095	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6411 4.508	-4.398	2.409	8.371	0.000000	0.452874	0.375649	0.000000	0.000000	0.170154	0.000000	0.000000	0.000074	0.001068
33	2.9201410E+06	87.9373	6.519	4.335	0.290378	0.708698	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6485 4.489	-4.398	2.425	8.377	0.000000	0.398420	0.382007	0.000000	0.000000	0.218241	0.000000	0.000000	0.000077	0.001037
34	2.9350308E+06	87.3417	6.520	4.332	0.287834	0.711241	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6562 4.466	-4.398	2.443	8.383	0.000000	0.345300	0.380561	0.000000	0.000000	0.272793	0.000000	0.000000	0.000083	0.000999
35	2.9487750E+06	86.7919	6.520	4.326	0.285510	0.713566	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6628 4.449	-4.398	2.460	8.390	0.000000	0.301296	0.370005	0.000000	0.000000	0.327334	0.000000	0.000000	0.000094	0.000956
36	2.9648102E+06	86.1505	6.523	4.288	0.282854	0.716222	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6691 4.388	-4.398	2.483	8.397	0.000000	0.250185	0.349362	0.000000	0.000000	0.399047	0.000000	0.000000	0.000123	0.000891
37	2.9819908E+06	85.4632	6.523	4.270	0.279982	0.719094	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6788 4.361	-4.398	2.513	8.408	0.000000	0.201627	0.315086	0.000000	0.000000	0.481791	0.000000	0.000000	0.000196	0.000801
38	3.0014620E+06	84.6844	6.505	4.386	0.277037	0.722039	0.000016	0.000005	0.000767	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6857 4.582	-4.398	2.552	8.421	0.000000	0.148283	0.263522	0.000000	0.000000	0.586419	0.000000	0.000000	0.000449	0.000658
39	3.0232240E+06	83.8139	6.502	4.371	0.276288	0.722788	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6954 4.559	-4.398	2.612	8.441	0.000000	0.099994	0.190582	0.000000	0.000000	0.706457	0.000000	0.000000	0.001586	0.000437
40	3.0438405E+06	82.9892	6.502	4.343	0.276288	0.722788	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.7018 4.504	-4.398	2.704	8.471	0.000000	0.051037	0.108591	0.000000	0.000000	0.828931	0.000000	0.000000	0.009651	0.000155
41	3.0530035E+06	82.6227	6.501	4.328	0.276288	0.722788	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.7021 4.453	-4.398	2.760	8.490	0.000000	0.030850	0.072358	0.000000	0.000000	0.867280	0.000000	0.000000	0.025788	0.000057
42	3.0625445E+06	82.2410	6.500	4.277	0.276288	0.722788	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.6966 4.374	-4.398	2.830	8.513	0.000000	0.010085	0.045049	0.000000	0.000000	0.869331	0.000000	0.000000	0.062825	0.000012
43	3.0684350E+06	82.0054	6.500	4.209	0.276275	0.722801	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.5357 4.272	-4.398	3.071	8.592	0.000000	0.000000	0.038771	0.000000	0.000000	0.851708	0.000000	0.000000	0.088128	0.000006
44	3.0698068E+06	81.9505	6.498	4.122	0.276257	0.722819	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000 4.146	-4.398	3.396	8.699	0.000000	0.000000	0.038771	0.000000	0.000000	0.851706	0.000000	0.000000	0.088131	0.000006
45	3.0710558E+06	81.6279	6.488	3.922	0.275774	0.723301	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.968	3.728	8.799	0.000000	0.000000	0.038771	0.000000	0.000000	0.851705	0.000000	0.000000	0.088131	0.000006
46	3.0713232E+06	81.1454	6.484	3.893	0.274929	0.724147	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.670	4.189	8.902	0.000000	0.000000	0.038740	0.000000	0.000000	0.851685	0.000000	0.000000	0.088181	0.000006
47	3.0713305E+06	81.1299	6.486	3.893	0.274882	0.724193	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.665	4.446	8.959	0.000000	0.000000	0.038515	0.000000	0.000000	0.851539	0.000000	0.000000	0.088547	0.000006
48	3.0713335E+06	81.1232	6.485	3.893	0.274882	0.724193	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.696	4.343	8.953	0.000000	0.000000	0.022245	0.000000	0.000000	0.841105	0.000000	0.000000	0.114602	0.000006
49	3.0713352E+06	81.1195	6.471	3.895	0.274882	0.724193	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.713	5.013	9.113	0.000000	0.000000	0.013063	0.000000	0.000000	0.835395	0.000000	0.000000	0.128880	0.000006
50	3.0713352E+06	81.1195	6.471	3.895	0.274882	0.724193	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.750	5.027	9.116	0.000000	0.000000	0.007346	0.000000	0.000000	0.832048	0.000000	0.000000	0.137247	0.000006
51	3.0713352E+06	81.1195	6.471	3.895	0.274882	0.724193	0.000015	0.000005	0.000768	0.000011	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.752	5.059	9.124	0.000000	0.000000	0.003750	0.000000	0.000000	0.829976	0.000000	0.000000	0.142430	0.000006

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TABLE 24.

STELLAR MODEL : 85 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.0001521E+04	84.9981	5.975	4.745	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.8156	-8.011	0.420	7.679	0.730869	0.268206	0.000016	0.000005	0.000765	0.000014	0.000000	0.000000	0.000071	0.000006
2	7.1845462E+05	84.9367	6.022	4.736	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7472	-6.931	0.427	7.687	0.621102	0.377974	0.000014	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
3	1.1504875E+06	84.8707	6.053	4.727	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7136	-6.710	0.436	7.693	0.541292	0.457783	0.000014	0.000004	0.000768	0.000013	0.000000	0.000000	0.000071	0.000006
4	1.5393171E+06	84.7704	6.082	4.714	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6800	-6.477	0.449	7.700	0.460490	0.538585	0.000014	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
5	1.8849432E+06	84.6120	6.109	4.696	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6469	-6.206	0.466	7.709	0.379738	0.619338	0.000015	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
6	2.1841620E+06	84.3482	6.134	4.671	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6150	-5.924	0.489	7.718	0.301356	0.697719	0.000015	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
7	2.4570990E+06	83.8860	6.158	4.637	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5829	-5.646	0.522	7.729	0.221245	0.777831	0.000016	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
8	2.6390568E+06	83.3624	6.175	4.603	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5609	-5.457	0.556	7.740	0.161996	0.837080	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
9	2.8128590E+06	82.6266	6.192	4.556	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5373	-5.308	0.606	7.755	0.099952	0.899124	0.000017	0.000005	0.000765	0.000011	0.000000	0.000000	0.000071	0.000006
10	2.9171922E+06	82.0731	6.203	4.513	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5228	-5.251	0.657	7.771	0.060328	0.938749	0.000018	0.000006	0.000765	0.000010	0.000000	0.000000	0.000071	0.000006
11	3.0537315E+06	81.2932	6.222	4.435	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5000	-5.245	0.908	7.851	0.003824	0.995253	0.000022	0.000007	0.000760	0.000008	0.000000	0.000000	0.000071	0.000006
12	3.0621302E+06	81.2448	6.228	4.448	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4881	-5.227	1.173	7.938	0.000155	0.998924	0.000027	0.000009	0.000753	0.000008	0.000000	0.000000	0.000071	0.000006
13	3.0629828E+06	81.2396	6.233	4.466	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4459	-5.207	1.415	8.017	0.000000	0.999079	0.000031	0.000010	0.000748	0.000008	0.000000	0.000000	0.000071	0.000006
14	3.0644650E+06	81.2301	6.238	4.486	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3973	-5.190	1.820	8.147	0.000000	0.999078	0.000031	0.000007	0.000748	0.000010	0.000000	0.000000	0.000071	0.000006
15	3.0673608E+06	81.2122	6.250	4.383	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3549	-5.246	2.221	8.268	0.000000	0.998913	0.000117	0.000000	0.000482	0.000019	0.000000	0.000341	0.000071	0.000007
16	3.0684890E+06	81.2061	6.256	4.289	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3804	-5.272	2.336	8.305	0.000000	0.997701	0.001193	0.000000	0.000055	0.000020	0.000000	0.000831	0.000071	0.000079
17	3.0695265E+06	81.1996	6.262	4.183	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4035	-5.135	2.378	8.318	0.000000	0.994416	0.004410	0.000000	0.000003	0.000029	0.000000	0.000692	0.000071	0.000331
18	3.0701765E+06	81.1924	6.266	4.103	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4127	-4.896	2.385	8.320	0.000000	0.991800	0.006984	0.000000	0.000002	0.000041	0.000000	0.000560	0.000071	0.000493
19	3.0708260E+06	81.1717	6.269	4.005	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4204	-4.375	2.388	8.321	0.000000	0.989116	0.009626	0.000000	0.000002	0.000058	0.000000	0.000450	0.000071	0.000627
20	3.0714758E+06	81.0484	6.273	3.909	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4246	-3.555	2.390	8.322	0.000000	0.986219	0.012478	0.000000	0.000000	0.000081	0.000000	0.000355	0.000071	0.000745
21	3.0743995E+06	77.8839	6.282	3.825	0.751737	0.247266	0.000214	0.000004	0.000099	0.000511	0.000000	0.000001	0.000071	0.000006
	0.4505	-2.866	2.394	8.324	0.000000	0.973062	0.025404	0.000000	0.000000	0.000258	0.000000	0.000118	0.000071	0.001036
22	3.0795975E+06	71.7485	6.286	3.839	0.651214	0.347830	0.000096	0.000005	0.000472	0.000240	0.000000	0.000000	0.000071	0.000006
	0.4921	-2.983	2.397	8.325	0.000000	0.949327	0.048500	0.000000	0.000000	0.000875	0.000000	0.000016	0.000071	0.001159
23	3.0904498E+06	69.7365	6.288	4.240	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5097	-5.204	2.403	8.328	0.000000	0.899802	0.095427	0.000000	0.000000	0.003468	0.000000	0.000001	0.000071	0.001174
24	3.1017712E+06	69.6649	6.289	4.232	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5128	-5.194	2.410	8.330	0.000000	0.849284	0.141289	0.000000	0.000000	0.008124	0.000000	0.000000	0.000071	0.001171
25	3.1130392E+06	69.5916	6.289	4.223	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5156	-5.180	2.418	8.333	0.000000	0.799595	0.184214	0.000000	0.000000	0.014887	0.000000	0.000000	0.000071	0.001167
26	3.1243765E+06	69.5152	6.290	4.213	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5182	-5.163	2.425	8.336	0.000000	0.751302	0.223526	0.000000	0.000000	0.023867	0.000000	0.000000	0.000071	0.001162
27	3.1362685E+06	69.4312	6.290	4.201	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5210	-5.140	2.434	8.340	0.000000	0.701036	0.261688	0.000000	0.000000	0.035970	0.000000	0.000000	0.000071	0.001156
28	3.1490098E+06	69.3358	6.291	4.189	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5235	-5.114	2.443	8.343	0.000000	0.649846	0.297050	0.000000	0.000000	0.051797	0.000000	0.000000	0.000071	0.001149
29	3.1608425E+06	69.2418	6.291	4.179	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5263	-5.089	2.452	8.347	0.000000	0.601998	0.327008	0.000000	0.000000	0.069685	0.000000	0.000000	0.000071	0.001142
30	3.1742038E+06	69.1270	6.291	4.163	0.559133	0.439922	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5288	-5.045	2.463	8.351	0.000000	0.549862	0.355288	0.000000	0.000000	0.093540	0.000000	0.000000	0.000071	0.001131
31	3.1875652E+06	68.9981	6.292	4.144	0.558861	0.440194	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5322	-4.986	2.475	8.355	0.000000	0.501209	0.376554	0.000000	0.000000	0.120924	0.000000	0.000000	0.000072	0.001119
32	3.2019545E+06	68.8315	6.292	4.117	0.558219	0.440836	0.000065	0.000005	0.000580	0.000159	0.000000	0.000000	0.000071	0.000006
	0.5358	-4.882	2.488	8.360	0.000000	0.449309	0.393994	0.000000	0.000000	0.155380	0.000000	0.000000	0.000072	0.001103
33	3.2163440E+06	68.6221	6.293	4.096	0.556829	0.442226	0.000064	0.000005	0.000581	0.000158	0.000000	0.000000	0.000071	0.000006
	0.5398	-4.799	2.502	8.365	0.000000	0.401290	0.403290	0.000000	0.000000	0.194098	0.000000	0.000000	0.000073	0.001085
34	3.2321720E+06	68.3370	6.294	4.077	0.553050	0.446005	0.000063	0.000005	0.000585	0.000155	0.000000	0.000000	0.000071	0.000006
	0.5440	-4.708	2.517	8.371	0.000000	0.349775	0.406051	0.000000	0.000000	0.242845	0.000000	0.000000	0.000075	0.001058
35	3.2483395E+06	68.0118	6.294	4.078	0.540745	0.458312	0.000061	0.000005	0.000595	0.000148	0.000000	0.000000	0.000071	0.000006
	0.5500	-4.711	2.538	8.378	0.000000	0.301791	0.398892	0.000000	0.000000	0.297978	0.000000	0.000000	0.000079	0.001025
36	3.2657505E+06	67.6215	6.295	4.047	0.532199	0.466858	0.000059	0.000005	0.000602	0.000142	0.000000	0.000000	0.000071	0.000006
	0.5559	-4.557	2.560	8.386	0.000000	0.251194	0.381911	0.000000	0.000000	0.365536	0.000000	0.000000	0.000090	0.000977
37	3.2849028E+06	66.9522	6.296	4.019	0.526951	0.472107	0.000057	0.000005	0.000607	0.000139	0.000000	0.000000	0.000071	0.000006
	0.5641	-4.403	2.588	8.395	0.000000	0.201971	0.350199	0.000000	0.000000	0.446427	0.000000	0.000000	0.000120	0.000908
38	3.3059700E+06	65.9676	6.296	4.016	0.515544	0.483515	0.000054	0.000005	0.000616	0.000131	0.000000	0.000000	0.000071	0.000006
	0.5757	-4.363	2.627	8.409	0.000000	0.149897	0.301625	0.000000	0.000000	0.546952	0.000000	0.000000	0.000223	0.000797
39	3.3285422E+06	65.0831	6.297	4.010	0.497134	0.501926	0.000050	0.000005	0.000632	0.000120	0.000000	0.000000	0.000071	0.000006
	0.5850	-4.295	2.679	8.426	0.000000	0.101239	0.233594	0.000000	0.000000	0.663181	0.000000	0.000000	0.000647	0.000618
40	3.3526192E+06	63.5759	6.298	3.996	0.495767	0.503294	0.000050	0.000005	0.000633	0.000119	0.000000	0.000000	0.000071	0.000006
	0.5977	-4.216	2.772	8.457	0.000000	0.050081	0.143315	0.000000	0.000000	0.801082	0.000000	0.000000	0.004052	0.000308
41	3.3609108E+06	63.1059	6.299	4.185	0.428216	0.570851	0.000033	0.000005	0.000690	0.000075	0.000000	0.000000	0.000071	0.000006
	0.5988	-4.282	2.819	8.473	0.000000	0.033822	0.109074	0.000000	0.000000	0.845806	0.000000	0.000000	0.009517	0.000181
42	3.3737402E+06	62.5927	6.316	4.198	0.314712	0.684364	0.000016	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
	0.5935 4.295	-4.398	2.916	8.505	0.000000	0.010037	0.064146	0.000000	0.000000	0.883031	0.000000	0.000000	0.037004	0.000045
43	3.3810805E+06	62.2991	6.316	4.186	0.313900	0.685176	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.4605 4.277	-4.398	3.160	8.585	0.000000	0.000000	0.054026	0.000000	0.000000	0.873736	0.000000	0.000000	0.060959	0.000022
44	3.3823148E+06	62.2498	6.312	4.076	0.313899	0.685177	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000 4.099	-4.398	3.422	8.672	0.000000	0.000000	0.054026	0.000000	0.000000	0.873736	0.000000	0.000000	0.060959	0.000022
45	3.3842112E+06	61.9931	6.290	3.850	0.313897	0.685179	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-3.062	3.897	8.812	0.000000	0.000000	0.054025	0.000000	0.000000	0.873735	0.000000	0.000000	0.060961	0.000022
46	3.3844440E+06	61.7854	6.284	3.837	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.970	4.609	8.959	0.000000	0.000000	0.052729	0.000000	0.000000	0.872887	0.000000	0.000000	0.063081	0.000022
47	3.3844455E+06	61.7840	6.262	3.839	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-3.465	4.846	9.015	0.000000	0.000000	0.043316	0.000000	0.000000	0.866773	0.000000	0.000000	0.078370	0.000022
48	3.3844455E+06	61.7836	6.209	3.841	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-3.042	5.014	9.058	0.000000	0.000000	0.020563	0.000000	0.000000	0.852262	0.000000	0.000000	0.114657	0.000022
49	3.3844455E+06	61.7836	6.279	3.837	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.886	5.007	9.056	0.000000	0.000000	0.019749	0.000000	0.000000	0.851781	0.000000	0.000000	0.115859	0.000022
50	3.3844458E+06	61.7835	6.318	3.835	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.776	5.112	9.080	0.000000	0.000000	0.007828	0.000000	0.000000	0.844414	0.000000	0.000000	0.134279	0.000022
51	3.3844458E+06	61.7834	6.328	3.835	0.313886	0.685190	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
	0.0000	-2.765	5.298	9.122	0.000000	0.000000	0.001224	0.000000	0.000000	0.840463	0.000000	0.000000	0.144158	0.000022

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TABLE 25.

STELLAR MODEL : 60 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.0001521E+04	59.9992	5.694	4.718	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.7515	-8.162	0.504	7.662	0.739742	0.259332	0.000015	0.000005	0.000757	0.000024	0.000000	0.000000	0.000071	0.000006
2	9.2607044E+05	59.9650	5.751	4.711	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6928	-7.315	0.510	7.672	0.624265	0.374810	0.000013	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
3	1.4553108E+06	59.9335	5.787	4.703	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6618	-7.143	0.518	7.679	0.543644	0.455431	0.000013	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
4	1.9320189E+06	59.8895	5.822	4.691	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6295	-6.929	0.530	7.687	0.460817	0.538258	0.000014	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
5	2.3448262E+06	59.8249	5.855	4.675	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5982	-6.693	0.547	7.695	0.379293	0.619783	0.000014	0.000004	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
6	2.6941250E+06	59.7309	5.885	4.655	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5688	-6.456	0.569	7.705	0.300987	0.698089	0.000015	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
7	3.0116690E+06	59.5796	5.914	4.627	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5371	-6.195	0.600	7.717	0.220159	0.778916	0.000015	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
8	3.2180728E+06	59.4126	5.934	4.598	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5147	-6.009	0.633	7.727	0.161314	0.837762	0.000015	0.000005	0.000767	0.000012	0.000000	0.000000	0.000071	0.000006
9	3.4182445E+06	59.1647	5.955	4.562	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4917	-5.827	0.680	7.743	0.100233	0.898843	0.000017	0.000005	0.000766	0.000011	0.000000	0.000000	0.000071	0.000006
10	3.5393725E+06	58.9610	5.968	4.532	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4770	-5.730	0.730	7.758	0.060700	0.938376	0.000017	0.000005	0.000765	0.000011	0.000000	0.000000	0.000071	0.000006
11	3.6837185E+06	58.6609	5.986	4.497	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4579	-5.644	0.889	7.809	0.010640	0.988437	0.000020	0.000006	0.000762	0.000009	0.000000	0.000000	0.000071	0.000006
12	3.7133190E+06	58.5935	5.998	4.521	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4203	-5.652	1.205	7.913	0.000257	0.998821	0.000026	0.000008	0.000754	0.000008	0.000000	0.000000	0.000071	0.000006
13	3.7147685E+06	58.5903	6.006	4.540	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3890	-5.669	1.477	8.001	0.000000	0.999078	0.000030	0.000009	0.000749	0.000008	0.000000	0.000000	0.000071	0.000006
14	3.7162988E+06	58.5871	6.013	4.556	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2812	-5.691	1.819	8.108	0.000000	0.999079	0.000030	0.000009	0.000749	0.000009	0.000000	0.000000	0.000071	0.000006
15	3.7188725E+06	58.5811	6.029	4.492	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2438	-5.561	2.190	8.218	0.000000	0.999067	0.000035	0.000000	0.000734	0.000019	0.000000	0.000019	0.000071	0.000006
16	3.7199945E+06	58.5779	6.036	4.433	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2748	-5.529	2.342	8.265	0.000000	0.998806	0.000190	0.000000	0.000367	0.000019	0.000000	0.000490	0.000071	0.000007
17	3.7211910E+06	58.5743	6.045	4.356	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3239	-5.526	2.450	8.299	0.000000	0.997054	0.001824	0.000000	0.000010	0.000021	0.000000	0.000886	0.000071	0.000084
18	3.7221482E+06	58.5714	6.052	4.291	0.755000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3514	-5.509	2.473	8.306	0.000000	0.994025	0.004815	0.000000	0.000001	0.000028	0.000000	0.000766	0.000071	0.000245
19	3.7234048E+06	58.5671	6.062	4.215	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3684	-5.434	2.478	8.308	0.000000	0.989482	0.009301	0.000000	0.000001	0.000048	0.000000	0.000598	0.000071	0.000449
20	3.7249125E+06	58.5605	6.069	4.151	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3738	-5.301	2.480	8.309	0.000000	0.983774	0.014929	0.000000	0.000000	0.000092	0.000000	0.000438	0.000071	0.000647
21	3.7262802E+06	58.5526	6.073	4.118	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3763	-5.202	2.481	8.309	0.000000	0.978378	0.020242	0.000000	0.000000	0.000149	0.000000	0.000323	0.000071	0.000788
22	3.7335350E+06	58.4983	6.076	4.087	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3801	-5.104	2.484	8.311	0.000000	0.949857	0.048101	0.000000	0.000000	0.000753	0.000000	0.000065	0.000071	0.001102
23	3.7460965E+06	58.3945	6.076	4.076	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3833	-5.062	2.491	8.314	0.000000	0.900426	0.095244	0.000000	0.000000	0.003027	0.000000	0.000004	0.000071	0.001174
24	3.7592820E+06	58.2722	6.076	4.061	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3862	-5.002	2.497	8.317	0.000000	0.849533	0.141993	0.000000	0.000000	0.007170	0.000000	0.000001	0.000071	0.001176
25	3.7719862E+06	58.1344	6.077	4.043	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3889	-4.929	2.504	8.320	0.000000	0.800699	0.184937	0.000000	0.000000	0.013060	0.000000	0.000000	0.000071	0.001174
26	3.7858830E+06	57.9519	6.077	4.020	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3922	-4.826	2.512	8.323	0.000000	0.749574	0.227510	0.000000	0.000000	0.021610	0.000000	0.000001	0.000071	0.001169
27	3.7990482E+06	57.7261	6.078	3.996	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3956	-4.709	2.520	8.326	0.000000	0.700573	0.266017	0.000000	0.000000	0.032104	0.000000	0.000001	0.000071	0.001166
28	3.8136762E+06	57.3800	6.078	3.962	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4000	-4.537	2.529	8.330	0.000000	0.649539	0.302872	0.000000	0.000000	0.046283	0.000000	0.000003	0.000071	0.001159
29	3.8275730E+06	56.8386	6.078	3.923	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4059	-4.280	2.538	8.334	0.000000	0.599751	0.335997	0.000000	0.000000	0.062944	0.000000	0.000000	0.000071	0.001157
30	3.8419540E+06	55.8890	6.078	3.884	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4146	-4.091	2.547	8.337	0.000000	0.550279	0.365106	0.000000	0.000000	0.083306	0.000000	0.000000	0.000071	0.001150
31	3.8572750E+06	54.5630	6.077	3.880	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4272	-4.063	2.560	8.342	0.000000	0.500992	0.389331	0.000000	0.000000	0.108368	0.000000	0.000000	0.000071	0.001142
32	3.8747432E+06	53.2749	6.077	3.914	0.735289	0.263724	0.000188	0.000007	0.000170	0.000461	0.000000	0.000001	0.000071	0.000006
	0.4403	-4.278	2.572	8.347	0.000000	0.449122	0.408373	0.000000	0.000000	0.141193	0.000000	0.000002	0.000072	0.001128
33	3.8911522E+06	52.6077	6.078	3.951	0.711805	0.287220	0.000153	0.000009	0.000270	0.000391	0.000000	0.000001	0.000071	0.000006
	0.4489	-4.478	2.587	8.352	0.000000	0.399100	0.421869	0.000000	0.000000	0.177716	0.000000	0.000000	0.000072	0.001118
34	3.9087950E+06	51.9867	6.078	3.951	0.702933	0.296096	0.000144	0.000009	0.000296	0.000372	0.000000	0.000001	0.000071	0.000006
	0.4571	-4.469	2.602	8.358	0.000000	0.351008	0.426348	0.000000	0.000000	0.221325	0.000000	0.000000	0.000072	0.001101
35	3.9274178E+06	51.4372	6.079	3.963	0.693821	0.305209	0.000138	0.000010	0.000316	0.000357	0.000000	0.000001	0.000071	0.000006
	0.4650	-4.543	2.621	8.365	0.000000	0.300516	0.423673	0.000000	0.000000	0.274485	0.000000	0.000000	0.000074	0.001076
36	3.9480010E+06	50.9979	6.080	3.988	0.673037	0.325998	0.000124	0.000009	0.000360	0.000326	0.000000	0.000001	0.000071	0.000006
	0.4719	-4.666	2.643	8.373	0.000000	0.250140	0.408796	0.000000	0.000000	0.339728	0.000000	0.000000	0.000079	0.001042
37	3.9689320E+06	50.5581	6.080	3.992	0.658833	0.340204	0.000116	0.000009	0.000386	0.000306	0.000000	0.000001	0.000071	0.000006
	0.4779	-4.689	2.669	8.382	0.000000	0.199975	0.382888	0.000000	0.000000	0.415779	0.000000	0.000000	0.000090	0.000993
38	3.9916250E+06	49.9872	6.082	3.962	0.649876	0.349163	0.000111	0.000009	0.000402	0.000295	0.000000	0.000001	0.000071	0.000006
	0.4867	-4.536	2.705	8.395	0.000000	0.151272	0.339406	0.000000	0.000000	0.507914	0.000000	0.000000	0.000127	0.000914
39	4.0164790E+06	49.4100	6.083	3.981	0.622206	0.376838	0.000098	0.000009	0.000445	0.000263	0.000000	0.000001	0.000071	0.000006
	0.4919	-4.626	2.752	8.411	0.000000	0.100789	0.275818	0.000000	0.000000	0.621810	0.000000	0.000000	0.000276	0.000777
40	4.0498800E+06	48.3664	6.084	3.936	0.602855	0.396191	0.000090	0.000009	0.000471	0.000245	0.000000	0.000000	0.000071	0.000006
	0.4989	-4.350	2.845	8.443	0.000000	0.051661	0.167210	0.000000	0.000000	0.778000	0.000000	0.000000	0.001748	0.000463
41	4.0617165E+06	47.7241	6.084	3.906	0.595179	0.403868	0.000087	0.000008	0.000482	0.000237	0.000000	0.000000	0.000071	0.000006
	0.5018	-4.227	2.908	8.464	0.000000	0.030377	0.121526	0.000000	0.000000	0.841254	0.000000	0.000000	0.005333	0.000274
42	4.0757285E+06	47.0323	6.085	3.918	0.558893	0.440158	0.000072	0.000008	0.000529	0.000204	0.000000	0.000000	0.000071	0.000006
	0.4977	-4.151	3.030	8.504	0.000000	0.006631	0.071687	0.000000	0.000000	0.890314	0.000000	0.000000	0.027704	0.000072
43	4.0813988E+06	46.8132	6.085	3.890	0.557417	0.441635	0.000072	0.000008	0.000531	0.000202	0.000000	0.000000	0.000071	0.000006
	0.4485	-4.183	3.158	8.545	0.000000	0.000362	0.063902	0.000000	0.000000	0.887674	0.000000	0.000000	0.041962	0.000046

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TABLE 26.

STELLAR MODEL : 40 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.7501330E+04	39.9995	5.331	4.679	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6593	-8.083	0.624	7.645	0.751512	0.247545	0.000012	0.000004	0.000647	0.000155	0.000000	0.000000	0.000071	0.000006
2	1.3826051E+06	39.9698	5.401	4.671	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.6156	-7.580	0.617	7.652	0.622548	0.376527	0.000012	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
3	2.0654196E+06	39.9489	5.442	4.664	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5873	-7.451	0.624	7.660	0.543155	0.455920	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
4	2.6832040E+06	39.9227	5.482	4.654	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5582	-7.301	0.635	7.668	0.460128	0.538947	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
5	3.2034435E+06	39.8908	5.520	4.641	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5300	-7.129	0.650	7.677	0.379262	0.619813	0.000013	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
6	3.6261382E+06	39.8517	5.554	4.624	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5037	-6.954	0.671	7.687	0.303756	0.695319	0.000014	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
7	4.0325755E+06	39.7931	5.589	4.601	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4741	-6.749	0.702	7.699	0.220423	0.778652	0.000014	0.000004	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
8	4.2849730E+06	39.7387	5.612	4.580	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4521	-6.597	0.732	7.710	0.162274	0.836801	0.000015	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
9	4.5320065E+06	39.6624	5.637	4.551	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4303	-6.439	0.780	7.726	0.100619	0.898456	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
10	4.6769150E+06	39.6026	5.653	4.531	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4157	-6.339	0.828	7.742	0.060980	0.938096	0.000016	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
11	4.8474995E+06	39.5149	5.673	4.510	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3971	-6.253	0.974	7.789	0.012075	0.987001	0.000019	0.000006	0.000763	0.000010	0.000000	0.000000	0.000071	0.000006
12	4.8871975E+06	39.4929	5.686	4.532	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3848	-6.281	1.237	7.875	0.000572	0.998506	0.000024	0.000007	0.000757	0.000009	0.000000	0.000000	0.000071	0.000006
13	4.8909010E+06	39.4910	5.704	4.562	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2644	-6.345	1.681	8.015	0.000000	0.999078	0.000028	0.000009	0.000751	0.000008	0.000000	0.000000	0.000071	0.000006
14	4.8921050E+06	39.4905	5.707	4.564	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2032	-6.344	1.856	8.064	0.000000	0.999078	0.000028	0.000008	0.000751	0.000009	0.000000	0.000000	0.000071	0.000006
15	4.8941910E+06	39.4894	5.721	4.531	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1512	-6.213	2.116	8.137	0.000000	0.999076	0.000028	0.000003	0.000751	0.000016	0.000000	0.000000	0.000071	0.000006
16	4.8953160E+06	39.4886	5.737	4.498	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1335	-6.107	2.288	8.190	0.000000	0.999071	0.000031	0.000000	0.000746	0.000019	0.000000	0.000007	0.000071	0.000006
17	4.8964410E+06	39.4876	5.746	4.463	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1501	-6.036	2.430	8.233	0.000000	0.998960	0.000103	0.000000	0.000611	0.000019	0.000000	0.000180	0.000071	0.000006
18	4.8975660E+06	39.4865	5.754	4.423	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2098	-5.986	2.543	8.269	0.000000	0.998130	0.000795	0.000000	0.000136	0.000019	0.000000	0.000783	0.000071	0.000016
19	4.8984660E+06	39.4855	5.759	4.392	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2490	-5.957	2.586	8.283	0.000000	0.996411	0.002474	0.000000	0.000030	0.000021	0.000000	0.000884	0.000071	0.000059
20	4.8998160E+06	39.4840	5.769	4.355	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2819	-5.923	2.601	8.289	0.000000	0.992810	0.006041	0.000000	0.000005	0.000030	0.000000	0.000834	0.000071	0.000159
21	4.9047390E+06	39.4777	5.781	4.318	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3036	-5.887	2.602	8.291	0.000000	0.977910	0.020770	0.000000	0.000000	0.000138	0.000000	0.000560	0.000071	0.000501
22	4.9136490E+06	39.4661	5.782	4.318	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3075	-5.885	2.605	8.292	0.000000	0.950704	0.047405	0.000000	0.000000	0.000642	0.000000	0.000262	0.000071	0.000865
23	4.9297400E+06	39.4451	5.783	4.315	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3103	-5.883	2.610	8.295	0.000000	0.901268	0.094822	0.000000	0.000000	0.002616	0.000000	0.000058	0.000071	0.001114
24	4.9466765E+06	39.4227	5.784	4.307	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3130	-5.877	2.616	8.298	0.000000	0.850140	0.142314	0.000000	0.000000	0.006241	0.000000	0.000012	0.000071	0.001169
25	4.9635125E+06	39.4002	5.785	4.302	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3157	-5.872	2.623	8.301	0.000000	0.800845	0.186338	0.000000	0.000001	0.011512	0.000000	0.000008	0.000071	0.001170
26	4.9803485E+06	39.3775	5.786	4.298	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3180	-5.869	2.630	8.304	0.000000	0.750033	0.229902	0.000000	0.000000	0.018758	0.000000	0.000002	0.000071	0.001178
27	4.9977940E+06	39.3538	5.787	4.293	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3204	-5.864	2.637	8.308	0.000000	0.700926	0.269566	0.000000	0.000001	0.028201	0.000000	0.000006	0.000071	0.001170
28	5.0153790E+06	39.3296	5.788	4.287	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3230	-5.859	2.645	8.312	0.000000	0.649365	0.308958	0.000000	0.000000	0.040368	0.000000	0.000001	0.000071	0.001174
29	5.0339405E+06	39.3038	5.788	4.280	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3258	-5.853	2.654	8.315	0.000000	0.599103	0.343915	0.000000	0.000000	0.055673	0.000000	0.000002	0.000071	0.001170
30	5.0516720E+06	39.2788	5.789	4.275	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3283	-5.848	2.664	8.320	0.000000	0.549261	0.375775	0.000000	0.000000	0.073654	0.000000	0.000001	0.000071	0.001168
31	5.0710590E+06	39.2511	5.790	4.269	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3307	-5.842	2.674	8.324	0.000000	0.499413	0.402910	0.000000	0.000000	0.096367	0.000000	0.000001	0.000071	0.001163
32	5.0893695E+06	39.2246	5.791	4.262	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3338	-5.835	2.686	8.329	0.000000	0.451450	0.425291	0.000000	0.000000	0.121947	0.000000	0.000001	0.000071	0.001158
33	5.1116245E+06	39.1916	5.792	4.252	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3368	-5.825	2.699	8.335	0.000000	0.398986	0.442667	0.000000	0.000000	0.157033	0.000000	0.000000	0.000071	0.001150
34	5.1318115E+06	39.1609	5.793	4.241	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3401	-5.812	2.714	8.340	0.000000	0.350618	0.453096	0.000000	0.000000	0.194970	0.000000	0.000000	0.000072	0.001140
35	5.1555605E+06	39.1236	5.795	4.227	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3433	-5.796	2.732	8.347	0.000000	0.300836	0.453363	0.000000	0.000000	0.244481	0.000000	0.000000	0.000072	0.001125
36	5.1793100E+06	39.0848	5.796	4.213	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3466	-5.776	2.754	8.356	0.000000	0.249237	0.445680	0.000000	0.000000	0.303758	0.000000	0.000000	0.000073	0.001104
37	5.2066220E+06	39.0374	5.797	4.191	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3500	-5.744	2.780	8.365	0.000000	0.199344	0.420375	0.000000	0.000000	0.378947	0.000000	0.000000	0.000077	0.001072
38	5.2327465E+06	38.9881	5.799	4.168	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3530	-5.706	2.813	8.377	0.000000	0.149616	0.384065	0.000000	0.000000	0.464966	0.000000	0.000000	0.000087	0.001022
39	5.2624330E+06	38.9249	5.801	4.136	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3536	-5.642	2.853	8.391	0.000000	0.100673	0.325906	0.000000	0.000000	0.572014	0.000000	0.000000	0.000125	0.000935
40	5.2997050E+06	38.8217	5.803	4.062	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3535	-5.453	2.944	8.422	0.000000	0.049686	0.224447	0.000000	0.000000	0.724061	0.000000	0.000000	0.000482	0.000712
41	5.3125650E+06	38.7674	5.804	4.012	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3513	-5.300	2.996	8.440	0.000000	0.030764	0.181465	0.000000	0.000000	0.785197	0.000000	0.000000	0.001217	0.000565
42	5.3271400E+06	38.6526	5.805	3.905	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3428	-4.906	3.098	8.474	0.000000	0.010432	0.129131	0.000000	0.000000	0.853308	0.000000	0.000000	0.005623	0.000321
43	5.3354020E+06	38.5001	5.800	3.826	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0018	-4.615	3.370	8.563	0.000000	0.000000	0.106941	0.000000	0.000000	0.871907	0.000000	0.000000	0.018890	0.000176
44	5.3380240E+06	38.4281	5.791	3.790	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.509	3.791	8.699	0.000000	0.000000	0.106941	0.000000	0.000000	0.871907	0.000000	0.000000	0.018890	0.000176
45	5.3399960E+06	38.3650	5.788	3.782	0.753232	0.245770	0.000216	0.000005	0.000083	0.000523	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.491	4.164	8.800	0.000000	0.000000	0.106934	0.000000	0.000000	0.871903	0.000000	0.000000	0.018901	0.000176
46	5.3406275E+06	38.3446	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.495	4.757	8.899	0.000000	0.000000	0.104782	0.000000	0.000000	0.870478	0.000000	0.000000	0.022465	0.000176
47	5.3406470E+06	38.3440	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.494	5.032	8.958	0.000000	0.000000	0.080829	0.000000	0.000000	0.854719	0.000000	0.000000	0.061879	0.000176
48	5.3406490E+06	38.3439	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.494	5.097	8.976	0.000000	0.000000	0.060533	0.000000	0.000000	0.841538	0.000000	0.000000	0.094841	0.000176
49	5.3406500E+06	38.3439	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.494	5.156	8.991	0.000000	0.000000	0.039870	0.000000	0.000000	0.828308	0.000000	0.000000	0.127926	0.000176
50	5.3406510E+06	38.3439	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.494	5.243	9.009	0.000000	0.000000	0.019345	0.000000	0.000000	0.815380	0.000000	0.000000	0.160252	0.000176
51	5.3406525E+06	38.3438	5.785	3.780	0.751912	0.247092	0.000213	0.000006	0.000090	0.000520	0.000000	0.000001	0.000071	0.000006
	0.0000	-4.495	5.599	9.075	0.000000	0.000000	0.001083	0.000000	0.000000	0.804182	0.000000	0.000000	0.188251	0.000176

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TABLE 27.

STELLAR MODEL : 25 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	4.0003043E+04	24.9995	4.859	4.618	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5545	-7.942	0.769	7.617	0.748675	0.250383	0.000010	0.000003	0.000657	0.000147	0.000000	0.000000	0.000071	0.000006
2	2.0598816E+06	24.9726	4.935	4.611	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5163	-7.819	0.761	7.625	0.623405	0.375669	0.000011	0.000004	0.000768	0.000017	0.000000	0.000000	0.000071	0.000006
3	3.1231375E+06	24.9549	4.981	4.606	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4914	-7.737	0.766	7.633	0.542118	0.456956	0.000012	0.000004	0.000768	0.000016	0.000000	0.000000	0.000071	0.000006
4	4.0477078E+06	24.9359	5.027	4.598	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4651	-7.641	0.775	7.642	0.458873	0.540201	0.000012	0.000004	0.000768	0.000016	0.000000	0.000000	0.000071	0.000006
5	4.8044685E+06	24.9164	5.069	4.587	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4403	-7.538	0.788	7.651	0.379884	0.619190	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
6	5.4613760E+06	24.8947	5.109	4.573	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4141	-7.425	0.808	7.662	0.300063	0.699011	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
7	6.0276750E+06	24.8699	5.148	4.553	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3881	-7.296	0.838	7.674	0.219443	0.779632	0.000013	0.000004	0.000768	0.000014	0.000000	0.000000	0.000071	0.000006
8	6.3940710E+06	24.8491	5.176	4.536	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3682	-7.199	0.868	7.686	0.159717	0.839359	0.000014	0.000004	0.000767	0.000014	0.000000	0.000000	0.000071	0.000006
9	6.7194665E+06	24.8259	5.203	4.516	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3494	-7.098	0.913	7.702	0.100664	0.898412	0.000015	0.000005	0.000767	0.000013	0.000000	0.000000	0.000071	0.000006
10	6.9204460E+06	24.8086	5.221	4.501	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3357	-7.032	0.962	7.718	0.060217	0.938859	0.000015	0.000005	0.000766	0.000012	0.000000	0.000000	0.000071	0.000006
11	7.0973080E+06	24.7909	5.239	4.489	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3225	-6.976	1.053	7.748	0.021508	0.977568	0.000017	0.000005	0.000765	0.000011	0.000000	0.000000	0.000071	0.000006
12	7.1827530E+06	24.7818	5.256	4.508	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3105	-6.988	1.281	7.822	0.001503	0.997574	0.000021	0.000007	0.000760	0.000010	0.000000	0.000000	0.000071	0.000006
13	7.1904625E+06	24.7811	5.282	4.534	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1611	-7.017	1.690	7.947	0.000000	0.999078	0.000027	0.000008	0.000752	0.000009	0.000000	0.000000	0.000071	0.000006
14	7.1913940E+06	24.7810	5.285	4.538	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0936	-7.022	1.823	7.983	0.000000	0.999078	0.000027	0.000008	0.000752	0.000009	0.000000	0.000000	0.000071	0.000006
15	7.1955800E+06	24.7806	5.295	4.509	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0011	-6.925	2.264	8.096	0.000000	0.999076	0.000027	0.000000	0.000752	0.000019	0.000000	0.000000	0.000071	0.000006
16	7.1970515E+06	24.7804	5.304	4.486	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.857	2.420	8.140	0.000000	0.999069	0.000032	0.000000	0.000748	0.000019	0.000000	0.000005	0.000071	0.000006
17	7.1988090E+06	24.7801	5.314	4.453	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0126	-6.783	2.592	8.190	0.000000	0.998962	0.000119	0.000000	0.000677	0.000019	0.000000	0.000097	0.000071	0.000006
18	7.2003270E+06	24.7798	5.322	4.422	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0778	-6.724	2.719	8.231	0.000000	0.998489	0.000515	0.000000	0.000405	0.000019	0.000000	0.000446	0.000071	0.000006
19	7.2017400E+06	24.7795	5.331	4.392	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1358	-6.674	2.779	8.253	0.000000	0.996900	0.002014	0.000000	0.000100	0.000021	0.000000	0.000830	0.000071	0.000016
20	7.2034965E+06	24.7791	5.345	4.361	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1830	-6.619	2.790	8.260	0.000000	0.993880	0.005002	0.000000	0.000026	0.000026	0.000000	0.000901	0.000071	0.000044
21	7.2117050E+06	24.7769	5.370	4.327	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2112	-6.545	2.783	8.262	0.000000	0.978053	0.020700	0.000000	0.000003	0.000121	0.000000	0.000810	0.000063	0.000192
22	7.2261560E+06	24.7728	5.371	4.327	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2160	-6.544	2.782	8.264	0.000000	0.949911	0.048332	0.000000	0.000004	0.000589	0.000000	0.000621	0.000064	0.000422
23	7.2507225E+06	24.7657	5.373	4.322	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2196	-6.537	2.786	8.267	0.000000	0.900864	0.095613	0.000000	0.000000	0.002298	0.000000	0.000371	0.000064	0.000733
24	7.2767340E+06	24.7581	5.374	4.318	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2225	-6.529	2.790	8.270	0.000000	0.849447	0.143829	0.000000	0.000000	0.005459	0.000000	0.000196	0.000064	0.000947
25	7.3027460E+06	24.7503	5.376	4.314	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2258	-6.523	2.794	8.274	0.000000	0.799727	0.188932	0.000000	0.000000	0.010055	0.000000	0.000096	0.000064	0.001068
26	7.3273125E+06	24.7429	5.378	4.311	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2290	-6.518	2.799	8.277	0.000000	0.751930	0.230772	0.000000	0.000000	0.016000	0.000000	0.000045	0.000064	0.001130
27	7.3547690E+06	24.7345	5.379	4.308	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2324	-6.512	2.804	8.281	0.000000	0.701076	0.273239	0.000000	0.000000	0.024381	0.000000	0.000020	0.000064	0.001159
28	7.3822255E+06	24.7260	5.381	4.304	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2355	-6.505	2.809	8.285	0.000000	0.648626	0.314823	0.000000	0.000000	0.035244	0.000000	0.000009	0.000064	0.001172
29	7.4096825E+06	24.7173	5.383	4.299	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2396	-6.497	2.816	8.289	0.000000	0.599962	0.350532	0.000000	0.000000	0.048198	0.000000	0.000006	0.000064	0.001174
30	7.4362430E+06	24.7088	5.385	4.295	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2422	-6.491	2.822	8.293	0.000000	0.550521	0.384345	0.000000	0.000000	0.063826	0.000000	0.000004	0.000064	0.001175
31	7.4665140E+06	24.6989	5.387	4.290	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2469	-6.483	2.832	8.298	0.000000	0.499276	0.415007	0.000000	0.000000	0.084408	0.000000	0.000003	0.000064	0.001174
32	7.4983785E+06	24.6883	5.389	4.284	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2510	-6.474	2.842	8.304	0.000000	0.448811	0.439880	0.000000	0.000000	0.109999	0.000000	0.000005	0.000065	0.001169
33	7.5270560E+06	24.6786	5.390	4.278	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2553	-6.465	2.853	8.309	0.000000	0.399227	0.461071	0.000000	0.000000	0.138392	0.000000	0.000002	0.000065	0.001169
34	7.5589205E+06	24.6675	5.392	4.270	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2595	-6.453	2.866	8.315	0.000000	0.350779	0.474070	0.000000	0.000000	0.173839	0.000000	0.000001	0.000065	0.001165
35	7.5955640E+06	24.6544	5.394	4.260	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2638	-6.440	2.881	8.323	0.000000	0.299874	0.477652	0.000000	0.000000	0.221160	0.000000	0.000002	0.000065	0.001157
36	7.6290215E+06	24.6420	5.396	4.251	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2686	-6.426	2.901	8.331	0.000000	0.248945	0.475310	0.000000	0.000000	0.274428	0.000000	0.000001	0.000066	0.001148
37	7.6672545E+06	24.6274	5.399	4.238	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2727	-6.407	2.923	8.341	0.000000	0.201108	0.456085	0.000000	0.000000	0.341486	0.000000	0.000000	0.000067	0.001132
38	7.7060770E+06	24.6117	5.401	4.221	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2755	-6.383	2.947	8.351	0.000000	0.150471	0.424144	0.000000	0.000000	0.424057	0.000000	0.000000	0.000069	0.001105
39	7.7523050E+06	24.5917	5.404	4.194	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2807	-6.342	3.000	8.370	0.000000	0.099971	0.361332	0.000000	0.000000	0.537350	0.000000	0.000000	0.000078	0.001048
40	7.7955450E+06	24.5707	5.407	4.157	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2814	-6.281	3.073	8.396	0.000000	0.050860	0.278802	0.000000	0.000000	0.668908	0.000000	0.000000	0.000138	0.000930
41	7.8145610E+06	24.5601	5.408	4.127	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2785	-6.227	3.128	8.414	0.000000	0.030014	0.232249	0.000000	0.000000	0.736140	0.000000	0.000000	0.000286	0.000824
42	7.8341855E+06	24.5470	5.409	4.071	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2702	-6.116	3.228	8.448	0.000000	0.009767	0.178037	0.000000	0.000000	0.809620	0.000000	0.000000	0.001222	0.000626
43	7.8450775E+06	24.5365	5.403	3.957	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0013	-5.861	3.528	8.546	0.000000	0.000000	0.152117	0.000000	0.000000	0.840378	0.000000	0.000000	0.006009	0.000443
44	7.8499165E+06	24.5249	5.373	3.709	0.755999	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-5.479	4.040	8.700	0.000000	0.000000	0.152117	0.000000	0.000000	0.840378	0.000000	0.000000	0.006009	0.000443
45	7.8539155E+06	24.5108	5.373	3.695	0.720169	0.278845	0.000160	0.000010	0.000190	0.000470	0.000000	0.000001	0.000071	0.000006
	0.0000	-5.472	4.511	8.801	0.000000	0.000000	0.152059	0.000000	0.000000	0.840339	0.000000	0.000000	0.006106	0.000443
46	7.8546730E+06	24.5077	5.466	3.702	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.249	4.868	8.854	0.000000	0.000000	0.150315	0.000000	0.000000	0.839181	0.000000	0.000000	0.009003	0.000443
47	7.8548185E+06	24.5069	5.467	3.703	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.245	5.159	8.916	0.000000	0.000000	0.119388	0.000000	0.000000	0.818788	0.000000	0.000000	0.060021	0.000443
48	7.8548310E+06	24.5068	5.468	3.703	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.245	5.207	8.934	0.000000	0.000000	0.088288	0.000000	0.000000	0.798591	0.000000	0.000000	0.110538	0.000443
49	7.8548385E+06	24.5068	5.467	3.702	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.247	5.247	8.945	0.000000	0.000000	0.059998	0.000000	0.000000	0.780524	0.000000	0.000000	0.155725	0.000443
50	7.8548485E+06	24.5067	5.467	3.702	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.246	5.338	8.956	0.000000	0.000000	0.029723	0.000000	0.000000	0.761524	0.000000	0.000000	0.203238	0.000443
51	7.8548635E+06	24.5066	5.467	3.702	0.574040	0.425006	0.000078	0.000007	0.000503	0.000227	0.000000	0.000000	0.000071	0.000006
	0.0000	-5.245	5.876	9.041	0.000000	0.000000	0.000645	0.000000	0.000000	0.743744	0.000000	0.000000	0.247695	0.000443

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TABLE 28.

STELLAR MODEL : 20 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	6.3444824E+04	19.9995	4.611	4.587	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.5096	-8.130	0.860	7.605	0.753248	0.245795	0.000009	0.000003	0.000558	0.000262	0.000000	0.000000	0.000071	0.000006
2	2.8690255E+06	19.9755	4.694	4.579	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4721	-8.011	0.837	7.610	0.621006	0.378069	0.000012	0.000004	0.000768	0.000018	0.000000	0.000000	0.000071	0.000006
3	4.2545960E+06	19.9608	4.742	4.573	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4474	-7.937	0.841	7.619	0.539390	0.459685	0.000012	0.000004	0.000768	0.000017	0.000000	0.000000	0.000071	0.000006
4	5.4006085E+06	19.9464	4.787	4.566	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4232	-7.860	0.849	7.627	0.460125	0.538949	0.000012	0.000004	0.000767	0.000017	0.000000	0.000000	0.000071	0.000006
5	6.3879480E+06	19.9313	4.831	4.556	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3985	-7.776	0.862	7.637	0.379997	0.619078	0.000013	0.000004	0.000767	0.000016	0.000000	0.000000	0.000071	0.000006
6	7.2204675E+06	19.9159	4.872	4.542	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3733	-7.687	0.881	7.647	0.300532	0.698543	0.000013	0.000004	0.000767	0.000016	0.000000	0.000000	0.000071	0.000006
7	7.9372450E+06	19.8994	4.912	4.525	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3487	-7.589	0.909	7.660	0.220190	0.778885	0.000014	0.000004	0.000767	0.000015	0.000000	0.000000	0.000071	0.000006
8	8.4081210E+06	19.8861	4.941	4.509	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3292	-7.513	0.940	7.672	0.159146	0.839929	0.000014	0.000004	0.000767	0.000014	0.000000	0.000000	0.000071	0.000006
9	8.8093070E+06	19.8726	4.969	4.491	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3103	-7.437	0.985	7.688	0.100072	0.899003	0.000015	0.000005	0.000766	0.000014	0.000000	0.000000	0.000071	0.000006
10	9.0508660E+06	19.8632	4.987	4.478	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2978	-7.386	1.032	7.704	0.060532	0.938544	0.000015	0.000005	0.000766	0.000013	0.000000	0.000000	0.000071	0.000006
11	9.2212290E+06	19.8559	5.002	4.470	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2880	-7.350	1.094	7.724	0.030181	0.968895	0.000016	0.000005	0.000765	0.000012	0.000000	0.000000	0.000071	0.000006
12	9.3749490E+06	19.8488	5.026	4.490	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2715	-7.339	1.355	7.809	0.001420	0.997657	0.000021	0.000007	0.000760	0.000010	0.000000	0.000000	0.000071	0.000006
13	9.3841130E+06	19.8484	5.053	4.514	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0996	-7.342	1.724	7.919	0.000000	0.999078	0.000026	0.000008	0.000753	0.000010	0.000000	0.000000	0.000071	0.000006
14	9.3876990E+06	19.8482	5.051	4.510	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.337	2.079	8.000	0.000000	0.999078	0.000026	0.000008	0.000753	0.000010	0.000000	0.000000	0.000071	0.000006
15	9.3890480E+06	19.8482	5.054	4.499	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.311	2.204	8.031	0.000000	0.999078	0.000026	0.000007	0.000753	0.000011	0.000000	0.000000	0.000071	0.000006
16	9.3923200E+06	19.8480	5.071	4.465	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.224	2.485	8.103	0.000000	0.999075	0.000027	0.000000	0.000753	0.000019	0.000000	0.000000	0.000071	0.000006
17	9.3947760E+06	19.8476	5.083	4.432	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.686	2.683	8.158	0.000000	0.999001	0.000091	0.000000	0.000721	0.000019	0.000000	0.000041	0.000071	0.000006
18	9.3970180E+06	19.8471	5.094	4.398	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0333	-6.629	2.840	8.209	0.000000	0.998672	0.000381	0.000000	0.000582	0.000020	0.000000	0.000219	0.000071	0.000006
19	9.3991540E+06	19.8466	5.105	4.364	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1068	-6.576	2.904	8.238	0.000000	0.996824	0.002102	0.000000	0.000144	0.000021	0.000000	0.000780	0.000062	0.000009
20	9.4128060E+06	19.8420	5.148	4.311	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1704	-6.449	2.890	8.246	0.000000	0.977046	0.021718	0.000000	0.000002	0.000123	0.000000	0.000883	0.000063	0.000107
21	9.4139910E+06	19.8416	5.148	4.312	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1711	-6.449	2.890	8.246	0.000000	0.975223	0.023521	0.000000	0.000001	0.000141	0.000000	0.000877	0.000063	0.000116
22	9.4316320E+06	19.8353	5.149	4.313	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1749	-6.449	2.888	8.248	0.000000	0.948728	0.049552	0.000000	0.000000	0.000582	0.000000	0.000771	0.000063	0.000246
23	9.4674950E+06	19.8224	5.152	4.306	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1787	-6.437	2.889	8.251	0.000000	0.899533	0.096582	0.000000	0.000001	0.002710	0.000000	0.000604	0.000063	0.000449
24	9.5047920E+06	19.8086	5.154	4.301	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1820	-6.428	2.891	8.255	0.000000	0.849108	0.143502	0.000000	0.000005	0.006181	0.000000	0.000443	0.000064	0.000639
25	9.5392200E+06	19.7956	5.157	4.298	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1857	-6.420	2.892	8.258	0.000000	0.800350	0.187546	0.000000	0.000001	0.010866	0.000000	0.000318	0.000064	0.000798
26	9.5779520E+06	19.7807	5.159	4.294	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1901	-6.412	2.895	8.262	0.000000	0.749355	0.231714	0.000000	0.000001	0.017668	0.000000	0.000212	0.000064	0.000928
27	9.6174870E+06	19.7652	5.162	4.290	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1939	-6.403	2.897	8.266	0.000000	0.699392	0.272757	0.000000	0.000005	0.026573	0.000000	0.000133	0.000064	0.001017
28	9.6534350E+06	19.7509	5.164	4.286	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1983	-6.395	2.902	8.270	0.000000	0.649756	0.311903	0.000000	0.000002	0.037048	0.000000	0.000079	0.000064	0.001088
29	9.6937380E+06	19.7345	5.167	4.282	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2021	-6.385	2.907	8.274	0.000000	0.599739	0.348098	0.000000	0.000001	0.050863	0.000000	0.000048	0.000064	0.001127
30	9.7352010E+06	19.7172	5.170	4.277	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2065	-6.375	2.912	8.279	0.000000	0.549783	0.381132	0.000000	0.000000	0.067780	0.000000	0.000032	0.000064	0.001147
31	9.7688900E+06	19.7029	5.172	4.272	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2108	-6.367	2.919	8.284	0.000000	0.500753	0.412858	0.000000	0.000000	0.085079	0.000000	0.000010	0.000064	0.001172
32	9.8077630E+06	19.6859	5.174	4.266	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2157	-6.356	2.927	8.289	0.000000	0.450405	0.440464	0.000000	0.000000	0.107819	0.000000	0.000005	0.000065	0.001177
33	9.8491330E+06	19.6674	5.177	4.259	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2205	-6.344	2.937	8.295	0.000000	0.399618	0.462559	0.000000	0.000000	0.136510	0.000000	0.000003	0.000065	0.001176
34	9.8922090E+06	19.6476	5.179	4.251	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2252	-6.330	2.947	8.302	0.000000	0.350352	0.476573	0.000000	0.000000	0.171762	0.000000	0.000004	0.000065	0.001172
35	9.9306260E+06	19.6293	5.182	4.243	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2304	-6.316	2.962	8.309	0.000000	0.299742	0.487540	0.000000	0.000000	0.211403	0.000000	0.000002	0.000065	0.001170
36	9.9767250E+06	19.6066	5.185	4.232	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2354	-6.297	2.979	8.318	0.000000	0.249671	0.484485	0.000000	0.000000	0.264527	0.000000	0.000001	0.000066	0.001164
37	1.0027506E+07	19.5803	5.188	4.217	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2404	-6.273	3.001	8.328	0.000000	0.199148	0.465643	0.000000	0.000000	0.333890	0.000000	0.000000	0.000066	0.001152
38	1.0073050E+07	19.5551	5.191	4.200	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2437	-6.244	3.027	8.339	0.000000	0.148922	0.437348	0.000000	0.000000	0.412405	0.000000	0.000000	0.000067	0.001132
39	1.0125898E+07	19.5234	5.194	4.173	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2487	-6.199	3.075	8.357	0.000000	0.100491	0.381669	0.000000	0.000000	0.516505	0.000000	0.000000	0.000071	0.001093
40	1.0175356E+07	19.4895	5.198	4.132	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2490	-6.125	3.146	8.383	0.000000	0.050562	0.304637	0.000000	0.000000	0.643426	0.000000	0.000000	0.000095	0.001009
41	1.0197406E+07	19.4717	5.200	4.101	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2474	-6.064	3.196	8.400	0.000000	0.030221	0.259996	0.000000	0.000000	0.708338	0.000000	0.000000	0.000151	0.000932
42	1.0219543E+07	19.4500	5.201	4.041	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2390	-5.941	3.286	8.430	0.000000	0.010825	0.208479	0.000000	0.000000	0.778916	0.000000	0.000000	0.000459	0.000788
43	1.0234027E+07	19.4285	5.191	3.903	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0012	-5.659	3.601	8.532	0.000000	0.000000	0.178030	0.000000	0.000000	0.817822	0.000000	0.000000	0.002760	0.000607
44	1.0237745E+07	19.4180	5.125	3.674	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-5.528	3.939	8.633	0.000000	0.000000	0.178030	0.000000	0.000000	0.817822	0.000000	0.000000	0.002760	0.000607
45	1.0244084E+07	19.3955	5.195	3.633	0.691151	0.307869	0.000127	0.000010	0.000274	0.000419	0.000000	0.000001	0.000071	0.000006
	0.0000	-5.422	4.372	8.735	0.000000	0.000000	0.178030	0.000000	0.000000	0.817821	0.000000	0.000000	0.002761	0.000607
46	1.0247534E+07	19.3785	5.273	3.632	0.660732	0.338295	0.000110	0.000009	0.000344	0.000364	0.000000	0.000001	0.000071	0.000006
	0.0000	-5.245	4.972	8.836	0.000000	0.000000	0.176235	0.000000	0.000000	0.816630	0.000000	0.000000	0.005744	0.000607
47	1.0247871E+07	19.3773	5.280	3.632	0.658319	0.340709	0.000109	0.000009	0.000348	0.000360	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.211	5.234	8.894	0.000000	0.000000	0.139595	0.000000	0.000000	0.792506	0.000000	0.000000	0.066108	0.000607
48	1.0247904E+07	19.3773	5.282	3.632	0.658185	0.340842	0.000109	0.000009	0.000348	0.000360	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.202	5.265	8.912	0.000000	0.000000	0.105030	0.000000	0.000000	0.770149	0.000000	0.000000	0.122038	0.000607
49	1.0247927E+07	19.3773	5.283	3.632	0.658160	0.340868	0.000109	0.000009	0.000348	0.000360	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.198	5.295	8.921	0.000000	0.000000	0.071100	0.000000	0.000000	0.748593	0.000000	0.000000	0.175954	0.000607
50	1.0247971E+07	19.3772	5.285	3.632	0.658134	0.340894	0.000109	0.000009	0.000348	0.000360	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.195	5.405	8.924	0.000000	0.000000	0.034958	0.000000	0.000000	0.726078	0.000000	0.000000	0.232260	0.000607
51	1.0248038E+07	19.3772	5.286	3.632	0.658103	0.340925	0.000109	0.000009	0.000348	0.000360	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.194	5.967	9.011	0.000000	0.000000	0.001326	0.000000	0.000000	0.705620	0.000000	0.000000	0.283415	0.000607

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TABLE 29.

STELLAR MODEL : 15 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.0538721E+05	14.9997	4.273	4.540	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4551	-8.582	0.973	7.584	0.753087	0.245956	0.000008	0.000002	0.000557	0.000264	0.000000	0.000000	0.000071	0.000006
2	4.1939312E+06	14.9872	4.358	4.532	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4165	-8.447	0.948	7.590	0.619487	0.379587	0.000011	0.000003	0.000768	0.000019	0.000000	0.000000	0.000071	0.000006
3	6.1087760E+06	14.9797	4.407	4.527	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3934	-8.371	0.951	7.598	0.540609	0.458465	0.000011	0.000003	0.000768	0.000018	0.000000	0.000000	0.000071	0.000006
4	7.7696320E+06	14.9720	4.454	4.520	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3699	-8.295	0.958	7.607	0.459547	0.539527	0.000012	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
5	9.1291300E+06	14.9645	4.498	4.511	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3462	-8.223	0.969	7.616	0.381032	0.618042	0.000012	0.000004	0.000767	0.000017	0.000000	0.000000	0.000071	0.000006
6	1.0309952E+07	14.9568	4.541	4.499	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3217	-8.151	0.987	7.627	0.300155	0.698920	0.000012	0.000004	0.000767	0.000017	0.000000	0.000000	0.000071	0.000006
7	1.1288824E+07	14.9493	4.581	4.484	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2987	-8.078	1.014	7.640	0.220661	0.778414	0.000013	0.000004	0.000767	0.000016	0.000000	0.000000	0.000071	0.000006
8	1.1936769E+07	14.9435	4.611	4.469	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2802	-8.022	1.044	7.652	0.159628	0.839447	0.000013	0.000004	0.000767	0.000015	0.000000	0.000000	0.000071	0.000006
9	1.2487031E+07	14.9379	4.638	4.453	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2629	-7.967	1.088	7.668	0.100500	0.898575	0.000014	0.000004	0.000767	0.000015	0.000000	0.000000	0.000071	0.000006
10	1.2824936E+07	14.9341	4.657	4.442	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2501	-7.930	1.135	7.684	0.059805	0.939270	0.000015	0.000005	0.000766	0.000014	0.000000	0.000000	0.000071	0.000006
11	1.3050206E+07	14.9314	4.672	4.436	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2414	-7.901	1.196	7.704	0.030093	0.968982	0.000015	0.000005	0.000766	0.000013	0.000000	0.000000	0.000071	0.000006
12	1.3252139E+07	14.9287	4.696	4.457	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2259	-7.865	1.431	7.781	0.001836	0.997240	0.000020	0.000006	0.000761	0.000011	0.000000	0.000000	0.000071	0.000006
13	1.3267400E+07	14.9285	4.727	4.481	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.828	1.810	7.886	0.000000	0.999078	0.000025	0.000008	0.000754	0.000010	0.000000	0.000000	0.000071	0.000006
14	1.3272930E+07	14.9284	4.716	4.467	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.838	2.207	7.955	0.000000	0.999078	0.000025	0.000008	0.000754	0.000010	0.000000	0.000000	0.000071	0.000006
15	1.3277454E+07	14.9284	4.732	4.437	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.791	2.486	8.016	0.000000	0.999077	0.000025	0.000006	0.000754	0.000012	0.000000	0.000000	0.000071	0.000006
16	1.3283039E+07	14.9283	4.754	4.388	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.725	2.791	8.094	0.000000	0.999073	0.000027	0.000000	0.000754	0.000020	0.000000	0.000000	0.000071	0.000006
17	1.3287507E+07	14.9282	4.769	4.342	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-7.671	3.010	8.159	0.000000	0.998541	0.000527	0.000000	0.000643	0.000020	0.000000	0.000143	0.000071	0.000006
18	1.3291496E+07	14.9281	4.779	4.295	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0653	-7.619	3.101	8.212	0.000000	0.997487	0.001519	0.000000	0.000427	0.000020	0.000000	0.000421	0.000049	0.000005
19	1.3294847E+07	14.9280	4.796	4.258	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1017	-7.550	3.085	8.220	0.000000	0.994358	0.004553	0.000000	0.000112	0.000024	0.000000	0.000823	0.000055	0.000009
20	1.3301384E+07	14.9278	4.826	4.223	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1187	-7.450	3.063	8.221	0.000000	0.988594	0.010270	0.000000	0.000015	0.000041	0.000000	0.000941	0.000057	0.000019
21	1.3315123E+07	14.9273	4.840	4.234	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1256	-7.435	3.051	8.222	0.000000	0.975538	0.023230	0.000000	0.000002	0.000129	0.000000	0.000937	0.000058	0.000044
22	1.3343743E+07	14.9263	4.839	4.255	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1311	-7.460	3.042	8.225	0.000000	0.948919	0.049431	0.000000	0.000002	0.000536	0.000000	0.000892	0.000058	0.000099
23	1.3398363E+07	14.9244	4.843	4.249	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1351	-7.445	3.038	8.229	0.000000	0.899793	0.096622	0.000000	0.000003	0.002452	0.000000	0.000802	0.000059	0.000208
24	1.3454348E+07	14.9223	4.847	4.240	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1385	-7.427	3.037	8.232	0.000000	0.850327	0.142897	0.000000	0.000002	0.005620	0.000000	0.000705	0.000059	0.000326
25	1.3512703E+07	14.9201	4.852	4.236	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1421	-7.412	3.036	8.236	0.000000	0.799637	0.188816	0.000000	0.000006	0.010369	0.000000	0.000595	0.000059	0.000455
26	1.3571104E+07	14.9178	4.856	4.231	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1465	-7.398	3.035	8.240	0.000000	0.749803	0.232249	0.000000	0.000006	0.016747	0.000000	0.000488	0.000060	0.000586
27	1.3625493E+07	14.9156	4.861	4.227	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1504	-7.384	3.035	8.244	0.000000	0.699773	0.274310	0.000000	0.000003	0.024690	0.000000	0.000387	0.000060	0.000716
28	1.3685465E+07	14.9130	4.865	4.222	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1550	-7.369	3.036	8.249	0.000000	0.649394	0.314127	0.000000	0.000003	0.035230	0.000000	0.000286	0.000060	0.000839
29	1.3743262E+07	14.9105	4.869	4.217	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1591	-7.354	3.038	8.254	0.000000	0.600364	0.350675	0.000000	0.000000	0.047691	0.000000	0.000199	0.000060	0.000948
30	1.3798842E+07	14.9080	4.873	4.212	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1636	-7.340	3.041	8.259	0.000000	0.549661	0.386904	0.000000	0.000000	0.062146	0.000000	0.000112	0.000061	0.001054
31	1.3854101E+07	14.9055	4.877	4.206	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1678	-7.325	3.045	8.264	0.000000	0.499632	0.419387	0.000000	0.000000	0.079679	0.000000	0.000056	0.000061	0.001122
32	1.3911466E+07	14.9027	4.881	4.200	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1721	-7.309	3.050	8.269	0.000000	0.449785	0.447571	0.000000	0.000000	0.101335	0.000000	0.000026	0.000061	0.001158
33	1.3973064E+07	14.8996	4.885	4.192	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1774	-7.290	3.057	8.276	0.000000	0.398732	0.470825	0.000000	0.000000	0.129130	0.000000	0.000015	0.000062	0.001171
34	1.4034617E+07	14.8964	4.888	4.184	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1820	-7.271	3.066	8.283	0.000000	0.349169	0.486932	0.000000	0.000000	0.162585	0.000000	0.000011	0.000062	0.001173
35	1.4087863E+07	14.8935	4.892	4.176	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1859	-7.252	3.076	8.289	0.000000	0.299754	0.499794	0.000000	0.000000	0.199136	0.000000	0.000004	0.000062	0.001180
36	1.4151495E+07	14.8898	4.896	4.165	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1914	-7.227	3.093	8.298	0.000000	0.250289	0.500057	0.000000	0.000000	0.248337	0.000000	0.000002	0.000062	0.001177
37	1.4217186E+07	14.8857	4.900	4.150	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1955	-7.196	3.113	8.309	0.000000	0.200238	0.488251	0.000000	0.000000	0.310191	0.000000	0.000001	0.000063	0.001172
38	1.4291291E+07	14.8808	4.904	4.130	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1999	-7.152	3.140	8.322	0.000000	0.149253	0.454839	0.000000	0.000000	0.394586	0.000000	0.000000	0.000064	0.001159
39	1.4349979E+07	14.8764	4.908	4.104	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2022	-7.097	3.180	8.338	0.000000	0.100188	0.414976	0.000000	0.000000	0.483508	0.000000	0.000000	0.000065	0.001139
40	1.4413830E+07	14.8706	4.912	4.054	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2008	-6.990	3.248	8.362	0.000000	0.050360	0.343536	0.000000	0.000000	0.604761	0.000000	0.000000	0.000071	0.001089
41	1.4442261E+07	14.8674	4.914	4.012	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1979	-6.897	3.296	8.379	0.000000	0.030319	0.300667	0.000000	0.000000	0.667649	0.000000	0.000000	0.000085	0.001042
42	1.4471934E+07	14.8627	4.914	3.914	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1893	-6.685	3.386	8.409	0.000000	0.010417	0.248242	0.000000	0.000000	0.739879	0.000000	0.000000	0.000163	0.000948
43	1.4489899E+07	14.8575	4.842	3.658	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0012	-6.495	3.681	8.503	0.000000	0.000000	0.218002	0.000000	0.000000	0.779775	0.000000	0.000000	0.000890	0.000819
44	1.4497739E+07	14.8543	4.939	3.634	0.753851	0.245151	0.000160	0.000011	0.000143	0.000524	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.349	4.093	8.601	0.000000	0.000000	0.218002	0.000000	0.000000	0.779775	0.000000	0.000000	0.000890	0.000819
45	1.4506910E+07	14.8504	4.938	3.632	0.743731	0.255274	0.000143	0.000010	0.000183	0.000502	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.358	4.542	8.698	0.000000	0.000000	0.218002	0.000000	0.000000	0.779774	0.000000	0.000000	0.000891	0.000819
46	1.4513050E+07	14.8471	5.021	3.627	0.698297	0.300718	0.000117	0.000008	0.000277	0.000431	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.221	5.092	8.797	0.000000	0.000000	0.217071	0.000000	0.000000	0.779158	0.000000	0.000000	0.002438	0.000819
47	1.4514587E+07	14.8462	5.030	3.627	0.697165	0.301851	0.000117	0.000008	0.000279	0.000429	0.000001	0.000001	0.000071	0.000006
	0.0176	-6.205	5.362	8.900	0.000000	0.000000	0.172835	0.000000	0.000000	0.750222	0.000000	0.000000	0.074899	0.000819
48	1.4514857E+07	14.8460	5.031	3.627	0.697156	0.301860	0.000117	0.000008	0.000279	0.000429	0.000001	0.000001	0.000071	0.000006
	0.0293	-6.203	5.347	8.914	0.000000	0.000000	0.130607	0.000000	0.000000	0.723357	0.000000	0.000000	0.142124	0.000819
49	1.4515026E+07	14.8459	5.031	3.627	0.696986	0.302029	0.000117	0.000008	0.000280	0.000428	0.000001	0.000001	0.000071	0.000006
	0.0281	-6.204	5.393	8.928	0.000000	0.000000	0.085083	0.000000	0.000000	0.694863	0.000000	0.000000	0.213405	0.000819
50	1.4515135E+07	14.8458	5.032	3.627	0.696981	0.302034	0.000117	0.000008	0.000280	0.000428	0.000001	0.000001	0.000071	0.000006
	0.0089	-6.202	5.494	8.944	0.000000	0.000000	0.040411	0.000000	0.000000	0.667603	0.000000	0.000000	0.281583	0.000819
51	1.4515406E+07	14.8457	5.034	3.627	0.696803	0.302213	0.000117	0.000008	0.000280	0.000428	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.199	6.160	8.974	0.000000	0.000000	0.001470	0.000000	0.000000	0.644476	0.000000	0.000000	0.339414	0.000819

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TABLE 30.

STELLAR MODEL : 12 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.1512235E+05	11.9999	3.995	4.501	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.4203	-9.172	1.075	7.569	0.753891	0.245145	0.000007	0.000002	0.000510	0.000319	0.000000	0.000000	0.000071	0.000006
2	5.7604475E+06	11.9953	4.080	4.492	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3812	-9.007	1.042	7.572	0.621859	0.377215	0.000010	0.000003	0.000767	0.000020	0.000000	0.000000	0.000071	0.000006
3	8.4630310E+06	11.9924	4.129	4.488	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3583	-8.912	1.044	7.581	0.541528	0.457545	0.000011	0.000003	0.000767	0.000020	0.000000	0.000000	0.000071	0.000006
4	1.0747607E+07	11.9893	4.177	4.481	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3339	-8.824	1.050	7.590	0.460313	0.538761	0.000011	0.000003	0.000767	0.000019	0.000000	0.000000	0.000071	0.000006
5	1.2594013E+07	11.9862	4.221	4.472	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3111	-8.746	1.060	7.599	0.382041	0.617033	0.000011	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
6	1.4202530E+07	11.9831	4.265	4.461	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2876	-8.671	1.078	7.610	0.300742	0.698333	0.000012	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
7	1.5520034E+07	11.9800	4.306	4.447	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2644	-8.602	1.103	7.623	0.221276	0.777799	0.000012	0.000004	0.000767	0.000017	0.000000	0.000000	0.000071	0.000006
8	1.6372095E+07	11.9778	4.336	4.434	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2474	-8.551	1.132	7.635	0.160981	0.838094	0.000013	0.000004	0.000767	0.000016	0.000000	0.000000	0.000071	0.000006
9	1.7103368E+07	11.9756	4.364	4.420	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2300	-8.502	1.176	7.651	0.101029	0.898046	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
10	1.7543896E+07	11.9741	4.383	4.411	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2180	-8.467	1.222	7.668	0.060141	0.938934	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
11	1.7829848E+07	11.9731	4.397	4.407	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2102	-8.440	1.280	7.687	0.031060	0.968015	0.000014	0.000004	0.000767	0.000014	0.000000	0.000000	0.000071	0.000006
12	1.8092634E+07	11.9721	4.422	4.427	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1954	-8.380	1.499	7.758	0.002211	0.996866	0.000018	0.000006	0.000763	0.000012	0.000000	0.000000	0.000071	0.000006
13	1.8116348E+07	11.9720	4.454	4.450	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.310	1.883	7.856	0.000000	0.999077	0.000024	0.000007	0.000755	0.000011	0.000000	0.000000	0.000071	0.000006
14	1.8120620E+07	11.9720	4.437	4.443	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.345	2.124	7.882	0.000000	0.999077	0.000024	0.000007	0.000755	0.000011	0.000000	0.000000	0.000071	0.000006
15	1.8148464E+07	11.9719	4.496	4.251	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.203	3.150	8.112	0.000000	0.999010	0.000088	0.000000	0.000750	0.000020	0.000000	0.000007	0.000071	0.000006
16	1.8161996E+07	11.9717	4.512	4.032	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0883	-7.815	3.244	8.199	0.000000	0.994368	0.004586	0.000000	0.000269	0.000024	0.000000	0.000626	0.000063	0.000006
17	1.8170028E+07	11.9715	4.535	3.860	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0923	-7.343	3.216	8.200	0.000000	0.989861	0.009031	0.000000	0.000097	0.000036	0.000000	0.000845	0.000064	0.000009
18	1.8174258E+07	11.9713	4.540	3.787	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1011	-7.169	3.210	8.200	0.000000	0.987488	0.011381	0.000000	0.000052	0.000046	0.000000	0.000901	0.000064	0.000011
19	1.8180600E+07	11.9708	4.539	3.710	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0977	-7.029	3.203	8.201	0.000000	0.984225	0.014619	0.000000	0.000027	0.000063	0.000000	0.000932	0.000064	0.000014
20	1.8185896E+07	11.9702	4.530	3.678	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0992	-6.999	3.200	8.201	0.000000	0.981044	0.017776	0.000000	0.000010	0.000082	0.000000	0.000952	0.000064	0.000017
21	1.8197844E+07	11.9690	4.516	3.651	0.755998	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1019	-6.989	3.193	8.203	0.000000	0.973704	0.025051	0.000000	0.000001	0.000143	0.000000	0.000957	0.000064	0.000023
22	1.8208170E+07	11.9679	4.529	3.650	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1037	-6.966	3.188	8.204	0.000000	0.967484	0.031200	0.000000	0.000001	0.000212	0.000000	0.000953	0.000064	0.000029
23	1.8223422E+07	11.9662	4.597	3.691	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1052	-6.901	3.183	8.205	0.000000	0.958072	0.040475	0.000000	0.000001	0.000347	0.000000	0.000945	0.000064	0.000038
24	1.8230884E+07	11.9656	4.600	3.881	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1054	-7.256	3.181	8.205	0.000000	0.953380	0.045087	0.000000	0.000000	0.000427	0.000000	0.000942	0.000064	0.000043
25	1.8320214E+07	11.9637	4.592	4.126	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1138	-7.822	3.160	8.211	0.000000	0.899956	0.096841	0.000000	0.000002	0.002086	0.000000	0.000890	0.000064	0.000105
26	1.8397836E+07	11.9626	4.596	4.173	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1202	-7.885	3.148	8.216	0.000000	0.850465	0.143576	0.000000	0.000001	0.004828	0.000000	0.000833	0.000062	0.000176
27	1.8550720E+07	11.9606	4.604	4.172	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1278	-7.865	3.141	8.224	0.000000	0.749943	0.234323	0.000000	0.000000	0.014569	0.000000	0.000682	0.000062	0.000362
28	1.8694832E+07	11.9586	4.613	4.166	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1345	-7.838	3.140	8.233	0.000000	0.649862	0.318196	0.000000	0.000000	0.030735	0.000000	0.000494	0.000063	0.000592
29	1.8771318E+07	11.9574	4.617	4.164	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1383	-7.825	3.140	8.238	0.000000	0.599905	0.356539	0.000000	0.000000	0.042326	0.000000	0.000388	0.000063	0.000721
30	1.8840180E+07	11.9564	4.620	4.162	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1412	-7.813	3.141	8.242	0.000000	0.549772	0.393208	0.000000	0.000000	0.055765	0.000000	0.000284	0.000063	0.000847
31	1.8918706E+07	11.9552	4.624	4.159	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1456	-7.800	3.145	8.248	0.000000	0.499212	0.426100	0.000000	0.000000	0.073411	0.000000	0.000185	0.000063	0.000969
32	1.8994828E+07	11.9539	4.628	4.156	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1497	-7.786	3.148	8.254	0.000000	0.450016	0.454576	0.000000	0.000000	0.094114	0.000000	0.000106	0.000062	0.001054
33	1.9074542E+07	11.9526	4.632	4.152	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1542	-7.771	3.154	8.260	0.000000	0.400296	0.478556	0.000000	0.000000	0.119842	0.000000	0.000052	0.000060	0.001113
34	1.9154528E+07	11.9512	4.636	4.147	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1581	-7.755	3.162	8.267	0.000000	0.349439	0.498010	0.000000	0.000000	0.151237	0.000000	0.000021	0.000059	0.001150
35	1.9236874E+07	11.9498	4.640	4.142	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1625	-7.737	3.171	8.274	0.000000	0.299946	0.509081	0.000000	0.000000	0.189656	0.000000	0.000010	0.000059	0.001163
36	1.9320388E+07	11.9482	4.644	4.134	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1667	-7.716	3.185	8.283	0.000000	0.250708	0.511230	0.000000	0.000000	0.236744	0.000000	0.000005	0.000058	0.001167
37	1.9412136E+07	11.9464	4.648	4.123	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1706	-7.687	3.203	8.293	0.000000	0.200702	0.499808	0.000000	0.000000	0.298170	0.000000	0.000001	0.000058	0.001167
38	1.9493432E+07	11.9446	4.652	4.108	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1741	-7.651	3.230	8.306	0.000000	0.149505	0.479197	0.000000	0.000000	0.369977	0.000000	0.000001	0.000059	0.001160
39	1.9664724E+07	11.9402	4.660	4.035	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1739	-7.484	3.333	8.346	0.000000	0.050977	0.367048	0.000000	0.000000	0.580641	0.000000	0.000000	0.000062	0.001117
40	1.9738386E+07	11.9368	4.659	3.884	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1629	-7.136	3.464	8.391	0.000000	0.010951	0.274518	0.000000	0.000000	0.713153	0.000000	0.000000	0.000091	0.001027
41	1.9755926E+07	11.9350	4.622	3.687	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1499	-6.859	3.575	8.427	0.000000	0.002316	0.249308	0.000000	0.000000	0.746905	0.000000	0.000000	0.000172	0.000969
42	1.9759016E+07	11.9346	4.583	3.652	0.755996	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1406	-6.888	3.626	8.443	0.000000	0.000963	0.245299	0.000000	0.000000	0.752207	0.000000	0.000000	0.000229	0.000952
43	1.9762700E+07	11.9341	4.652	3.636	0.755972	0.243026	0.000185	0.000012	0.000106	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0011	-6.777	3.767	8.485	0.000000	0.000000	0.242528	0.000000	0.000000	0.755794	0.000000	0.000000	0.000362	0.000935
44	1.9780228E+07	11.9308	4.678	3.634	0.755902	0.243096	0.000155	0.000010	0.000144	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-6.742	4.376	8.599	0.000000	0.000000	0.242528	0.000000	0.000000	0.755794	0.000000	0.000000	0.000362	0.000935
45	1.9794096E+07	11.9278	4.781	3.627	0.734384	0.264621	0.000126	0.000008	0.000227	0.000476	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.591	4.890	8.703	0.000000	0.000000	0.242528	0.000000	0.000000	0.755794	0.000000	0.000000	0.000364	0.000935
46	1.9801124E+07	11.9259	4.819	3.625	0.725756	0.273252	0.000122	0.000008	0.000245	0.000461	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.537	5.451	8.781	0.000000	0.000000	0.241468	0.000000	0.000000	0.755093	0.000000	0.000000	0.002124	0.000935
47	1.9802908E+07	11.9253	4.826	3.625	0.723600	0.275409	0.000121	0.000008	0.000250	0.000457	0.000001	0.000001	0.000071	0.000006
	0.0301	-6.528	5.503	8.887	0.000000	0.000000	0.190400	0.000000	0.000000	0.721753	0.000000	0.000000	0.085600	0.000935
48	1.9803712E+07	11.9251	4.828	3.625	0.723070	0.275939	0.000120	0.000008	0.000251	0.000456	0.000001	0.000001	0.000071	0.000006
	0.0426	-6.527	5.449	8.894	0.000000	0.000000	0.144457	0.000000	0.000000	0.692799	0.000000	0.000000	0.158053	0.000935
49	1.9804300E+07	11.9249	4.832	3.624	0.722577	0.276431	0.000120	0.000008	0.000252	0.000456	0.000001	0.000001	0.000071	0.000006
	0.0397	-6.519	5.481	8.907	0.000000	0.000000	0.097162	0.000000	0.000000	0.663511	0.000000	0.000000	0.231331	0.000935
50	1.9805136E+07	11.9247	4.839	3.624	0.721940	0.277069	0.000120	0.000008	0.000253	0.000454	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.508	6.020	8.872	0.000000	0.000000	0.001995	0.000000	0.000000	0.606917	0.000000	0.000000	0.372875	0.000935
51	1.9805564E+07	11.9245	4.840	3.624	0.721617	0.277392	0.000120	0.000008	0.000254	0.000454	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.507	6.330	8.914	0.000000	0.000000	0.001598	0.000000	0.000000	0.606689	0.000000	0.000000	0.373444	0.000935

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TABLE 31.

STELLAR MODEL : 9 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.4827019E+05	9.0000	3.620	4.448	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3862	-10.314	1.213	7.546	0.754399	0.244630	0.000006	0.000002	0.000471	0.000366	0.000001	0.000000	0.000071	0.000006
2	9.4055140E+06	8.9994	3.706	4.437	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3434	-10.080	1.174	7.548	0.620698	0.378375	0.000009	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
3	1.3694489E+07	8.9990	3.755	4.433	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3201	-9.950	1.175	7.557	0.540848	0.458225	0.000010	0.000003	0.000767	0.000021	0.000000	0.000000	0.000071	0.000006
4	1.7293750E+07	8.9985	3.801	4.426	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2963	-9.833	1.180	7.566	0.460236	0.538838	0.000010	0.000003	0.000767	0.000021	0.000000	0.000000	0.000071	0.000006
5	2.0244832E+07	8.9980	3.846	4.418	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2740	-9.729	1.190	7.576	0.381030	0.618044	0.000010	0.000003	0.000767	0.000020	0.000000	0.000000	0.000071	0.000006
6	2.2725712E+07	8.9975	3.889	4.407	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2509	-9.634	1.206	7.587	0.300920	0.698154	0.000011	0.000003	0.000767	0.000019	0.000000	0.000000	0.000071	0.000006
7	2.4796828E+07	8.9970	3.929	4.394	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2281	-9.550	1.231	7.600	0.220356	0.778718	0.000011	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
8	2.6089212E+07	8.9966	3.957	4.382	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2114	-9.494	1.258	7.611	0.160923	0.838152	0.000012	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
9	2.7229902E+07	8.9962	3.986	4.369	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1945	-9.437	1.301	7.628	0.099944	0.899130	0.000012	0.000004	0.000768	0.000017	0.000000	0.000000	0.000071	0.000006
10	2.7881848E+07	8.9960	4.004	4.361	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1846	-9.399	1.346	7.644	0.059895	0.939180	0.000012	0.000004	0.000768	0.000016	0.000000	0.000000	0.000071	0.000006
11	2.8307452E+07	8.9958	4.018	4.359	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1763	-9.366	1.401	7.662	0.031282	0.967792	0.000013	0.000004	0.000768	0.000015	0.000000	0.000000	0.000071	0.000006
12	2.8709868E+07	8.9956	4.043	4.379	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1622	-9.277	1.605	7.728	0.002589	0.996486	0.000017	0.000005	0.000764	0.000013	0.000000	0.000000	0.000071	0.000006
13	2.8751400E+07	8.9956	4.074	4.402	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.170	1.997	7.812	0.000000	0.999076	0.000022	0.000007	0.000757	0.000012	0.000000	0.000000	0.000071	0.000006
14	2.8762172E+07	8.9956	4.039	4.376	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.292	2.343	7.826	0.000000	0.999077	0.000022	0.000007	0.000757	0.000012	0.000000	0.000000	0.000071	0.000006
15	2.8784504E+07	8.9956	4.105	4.301	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.177	2.806	7.904	0.000000	0.999077	0.000022	0.000007	0.000757	0.000012	0.000000	0.000000	0.000071	0.000006
16	2.8812580E+07	8.9955	4.136	4.177	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.040	3.247	8.019	0.000000	0.999075	0.000022	0.000000	0.000757	0.000020	0.000000	0.000000	0.000071	0.000006
17	2.8828064E+07	8.9955	4.134	4.055	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.829	3.465	8.089	0.000000	0.998979	0.000117	0.000000	0.000754	0.000020	0.000000	0.000004	0.000071	0.000006
18	2.8836640E+07	8.9955	4.119	3.933	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0087	-8.539	3.556	8.141	0.000000	0.998369	0.000719	0.000000	0.000728	0.000020	0.000000	0.000037	0.000056	0.000004
19	2.8841674E+07	8.9955	4.093	3.807	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0399	-8.195	3.541	8.166	0.000000	0.997366	0.001704	0.000000	0.000673	0.000021	0.000000	0.000110	0.000067	0.000005
20	2.8846032E+07	8.9954	3.997	3.676	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0564	-7.936	3.499	8.171	0.000000	0.996636	0.002416	0.000000	0.000616	0.000021	0.000000	0.000184	0.000069	0.000006
21	2.8915356E+07	8.9929	4.213	3.642	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0770	-7.437	3.414	8.173	0.000000	0.976048	0.022738	0.000000	0.000049	0.000124	0.000000	0.000909	0.000069	0.000011
22	2.9004944E+07	8.9897	4.201	3.644	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0828	-7.459	3.386	8.178	0.000000	0.950797	0.047592	0.000000	0.000020	0.000511	0.000000	0.000937	0.000069	0.000022
23	2.9311484E+07	8.9798	4.176	3.649	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0954	-7.516	3.335	8.190	0.000000	0.850563	0.143438	0.000000	0.000002	0.004883	0.000000	0.000915	0.000069	0.000079
24	2.9478364E+07	8.9748	4.228	3.683	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1000	-7.513	3.319	8.196	0.000000	0.793939	0.195176	0.000000	0.000002	0.009760	0.000000	0.000879	0.000069	0.000122
25	2.9492042E+07	8.9745	4.245	3.802	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1000	-7.836	3.319	8.196	0.000000	0.788121	0.200444	0.000000	0.000000	0.010310	0.000000	0.000878	0.000069	0.000127
26	2.9587904E+07	8.9739	4.243	3.950	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1033	-8.269	3.313	8.200	0.000000	0.750208	0.234137	0.000000	0.000001	0.014524	0.000000	0.000848	0.000069	0.000162
27	2.9725708E+07	8.9732	4.252	4.004	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1077	-8.393	3.303	8.205	0.000000	0.699332	0.277534	0.000000	0.000001	0.021992	0.000000	0.000801	0.000069	0.000219
28	2.9852532E+07	8.9728	4.258	4.039	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1113	-8.464	3.297	8.210	0.000000	0.650469	0.317409	0.000000	0.000000	0.030967	0.000000	0.000746	0.000070	0.000288
29	2.9983436E+07	8.9723	4.263	4.066	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1153	-8.512	3.292	8.216	0.000000	0.598682	0.357460	0.000000	0.000000	0.042687	0.000000	0.000674	0.000070	0.000376
30	3.0104310E+07	8.9720	4.268	4.087	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1185	-8.543	3.289	8.221	0.000000	0.549284	0.393236	0.000000	0.000000	0.056290	0.000000	0.000591	0.000070	0.000478
31	3.0226392E+07	8.9716	4.272	4.103	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1220	-8.564	3.288	8.226	0.000000	0.499261	0.426524	0.000000	0.000000	0.073003	0.000000	0.000491	0.000070	0.000600
32	3.0349200E+07	8.9713	4.276	4.117	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1261	-8.579	3.289	8.232	0.000000	0.450124	0.455496	0.000000	0.000000	0.093142	0.000000	0.000380	0.000070	0.000736
33	3.0476778E+07	8.9710	4.280	4.129	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1305	-8.588	3.291	8.238	0.000000	0.400392	0.480304	0.000000	0.000000	0.118041	0.000000	0.000261	0.000070	0.000881
34	3.0615404E+07	8.9706	4.285	4.138	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1345	-8.593	3.295	8.245	0.000000	0.350269	0.498432	0.000000	0.000000	0.150010	0.000000	0.000148	0.000070	0.001019
35	3.0739920E+07	8.9703	4.288	4.144	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1385	-8.593	3.303	8.253	0.000000	0.300578	0.511986	0.000000	0.000000	0.186129	0.000000	0.000069	0.000070	0.001114
36	3.0865800E+07	8.9700	4.292	4.149	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1423	-8.590	3.314	8.262	0.000000	0.250632	0.517635	0.000000	0.000000	0.230416	0.000000	0.000024	0.000070	0.001168
37	3.1000360E+07	8.9696	4.296	4.150	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1459	-8.581	3.331	8.272	0.000000	0.199057	0.511735	0.000000	0.000000	0.287887	0.000000	0.000007	0.000070	0.001187
38	3.1133056E+07	8.9693	4.300	4.147	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1492	-8.567	3.354	8.284	0.000000	0.150842	0.490481	0.000000	0.000000	0.357353	0.000000	0.000002	0.000070	0.001188
39	3.1255270E+07	8.9689	4.304	4.138	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1509	-8.543	3.391	8.300	0.000000	0.100513	0.456362	0.000000	0.000000	0.441799	0.000000	0.000000	0.000071	0.001183
40	3.1404978E+07	8.9685	4.309	4.113	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1470	-8.487	3.456	8.325	0.000000	0.049705	0.378634	0.000000	0.000000	0.570330	0.000000	0.000000	0.000072	0.001163
41	3.1456970E+07	8.9683	4.310	4.091	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1428	-8.443	3.500	8.341	0.000000	0.030376	0.340530	0.000000	0.000000	0.627759	0.000000	0.000000	0.000073	0.001146
42	3.1513716E+07	8.9681	4.310	4.039	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1346	-8.328	3.586	8.369	0.000000	0.010632	0.290405	0.000000	0.000000	0.697615	0.000000	0.000000	0.000080	0.001109
43	3.1549168E+07	8.9679	4.276	3.886	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.000	3.883	8.458	0.000000	0.000000	0.259297	0.000000	0.000000	0.739265	0.000000	0.000000	0.000151	0.001051
44	3.1568544E+07	8.9673	4.249	3.646	0.755870	0.243120	0.000147	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.392	4.305	8.506	0.000000	0.000000	0.259297	0.000000	0.000000	0.739265	0.000000	0.000000	0.000151	0.001051
45	3.1618068E+07	8.9633	4.515	3.627	0.747797	0.251200	0.000127	0.000008	0.000214	0.000489	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.964	5.238	8.661	0.000000	0.000000	0.259295	0.000000	0.000000	0.739264	0.000000	0.000000	0.000154	0.001051
46	3.1629324E+07	8.9620	4.551	3.625	0.745641	0.253357	0.000125	0.000008	0.000223	0.000482	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.912	5.820	8.733	0.000000	0.000000	0.258410	0.000000	0.000000	0.738683	0.000000	0.000000	0.001619	0.001051
47	3.1631924E+07	8.9617	4.557	3.624	0.745238	0.253760	0.000124	0.000008	0.000224	0.000481	0.000001	0.000001	0.000071	0.000006
	0.0399	-6.903	5.832	8.874	0.000000	0.000000	0.206872	0.000000	0.000000	0.705240	0.000000	0.000000	0.085405	0.001051
48	3.1633660E+07	8.9615	4.571	3.623	0.744500	0.254499	0.000124	0.000008	0.000227	0.000479	0.000001	0.000001	0.000071	0.000006
	0.0572	-6.884	5.673	8.873	0.000000	0.000000	0.154286	0.000000	0.000000	0.672228	0.000000	0.000000	0.168031	0.001051
49	3.1635276E+07	8.9613	4.593	3.623	0.743706	0.255293	0.000123	0.000008	0.000229	0.000477	0.000001	0.000001	0.000071	0.000006
	0.0582	-6.855	5.695	8.886	0.000000	0.000000	0.101867	0.000000	0.000000	0.640185	0.000000	0.000000	0.248217	0.001051
50	3.1636466E+07	8.9611	4.599	3.622	0.743538	0.255461	0.000123	0.000008	0.000230	0.000476	0.000001	0.000001	0.000071	0.000006
	0.0500	-6.845	5.771	8.906	0.000000	0.000000	0.051794	0.000000	0.000000	0.610441	0.000000	0.000000	0.322624	0.001051
51	3.1637500E+07	8.9609	4.598	3.622	0.743485	0.255514	0.000123	0.000008	0.000230	0.000476	0.000001	0.000001	0.000071	0.000006
	0.0000	-6.847	6.241	8.883	0.000000	0.000000	0.001838	0.000000	0.000000	0.581624	0.000000	0.000000	0.394687	0.001051

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TABLE 32.

STELLAR MODEL : 7 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	3.8499269E+05	7.0000	3.282	4.396	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3613	-11.682	1.329	7.520	0.752753	0.246286	0.000006	0.000002	0.000538	0.000288	0.000001	0.000000	0.000071	0.000006
2	1.4860521E+07	7.0000	3.365	4.387	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3189	-11.365	1.298	7.526	0.621077	0.377996	0.000009	0.000003	0.000766	0.000024	0.000000	0.000000	0.000071	0.000006
3	2.1678766E+07	6.9999	3.413	4.382	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2940	-11.194	1.299	7.534	0.540546	0.458526	0.000009	0.000003	0.000767	0.000023	0.000000	0.000000	0.000071	0.000006
4	2.7262428E+07	6.9999	3.458	4.375	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2702	-11.042	1.303	7.543	0.460859	0.538214	0.000009	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
5	3.1939630E+07	6.9998	3.502	4.367	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2482	-10.903	1.312	7.553	0.380398	0.618675	0.000010	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
6	3.5723960E+07	6.9998	3.542	4.357	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2262	-10.782	1.328	7.564	0.301891	0.697182	0.000010	0.000003	0.000767	0.000021	0.000000	0.000000	0.000071	0.000006
7	3.8972784E+07	6.9997	3.582	4.343	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2032	-10.669	1.352	7.577	0.220195	0.778878	0.000010	0.000003	0.000767	0.000020	0.000000	0.000000	0.000071	0.000006
8	4.0972896E+07	6.9997	3.610	4.332	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1874	-10.592	1.379	7.589	0.160334	0.838740	0.000011	0.000003	0.000767	0.000019	0.000000	0.000000	0.000071	0.000006
9	4.2706096E+07	6.9996	3.637	4.320	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1708	-10.521	1.419	7.605	0.099893	0.899181	0.000011	0.000004	0.000767	0.000018	0.000000	0.000000	0.000071	0.000006
10	4.3684296E+07	6.9996	3.654	4.313	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1606	-10.474	1.461	7.620	0.061148	0.937926	0.000012	0.000004	0.000767	0.000017	0.000000	0.000000	0.000071	0.000006
11	4.4363060E+07	6.9996	3.667	4.311	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1525	-10.433	1.516	7.639	0.031762	0.967312	0.000013	0.000004	0.000767	0.000016	0.000000	0.000000	0.000071	0.000006
12	4.4974624E+07	6.9995	3.692	4.330	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1389	-10.334	1.700	7.698	0.003298	0.995777	0.000016	0.000005	0.000765	0.000014	0.000000	0.000000	0.000071	0.000006
13	4.5053292E+07	6.9995	3.722	4.353	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.211	2.116	7.769	0.000001	0.999076	0.000021	0.000006	0.000758	0.000013	0.000000	0.000000	0.000071	0.000006
14	4.5071564E+07	6.9995	3.694	4.323	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.335	2.454	7.766	0.000000	0.999076	0.000021	0.000006	0.000758	0.000013	0.000000	0.000000	0.000071	0.000006
15	4.5114024E+07	6.9995	3.768	4.259	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.146	2.893	7.825	0.000000	0.999076	0.000021	0.000006	0.000758	0.000013	0.000000	0.000000	0.000071	0.000006
16	4.5175216E+07	6.9995	3.796	4.146	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.982	3.354	7.940	0.000000	0.999076	0.000021	0.000005	0.000758	0.000014	0.000000	0.000000	0.000071	0.000006
17	4.5209212E+07	6.9995	3.790	4.030	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.748	3.592	8.017	0.000000	0.999074	0.000021	0.000000	0.000758	0.000021	0.000000	0.000000	0.000071	0.000006
18	4.5226696E+07	6.9995	3.772	3.919	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.438	3.713	8.059	0.000000	0.999026	0.000069	0.000000	0.000758	0.000021	0.000000	0.000001	0.000071	0.000006
19	4.5237184E+07	6.9995	3.741	3.803	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.044	3.779	8.089	0.000000	0.998457	0.000636	0.000000	0.000749	0.000021	0.000000	0.000011	0.000071	0.000006
20	4.5248504E+07	6.9995	3.643	3.675	0.755998	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0370	-8.637	3.779	8.137	0.000000	0.998357	0.000731	0.000000	0.000744	0.000020	0.000000	0.000021	0.000060	0.000005
21	4.5414504E+07	6.9981	3.864	3.654	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0650	-8.078	3.616	8.149	0.000000	0.974760	0.024002	0.000000	0.000311	0.000220	0.000000	0.000575	0.000064	0.000010
22	4.5599240E+07	6.9966	3.852	3.655	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0700	-8.107	3.580	8.154	0.000000	0.949807	0.048278	0.000000	0.000161	0.000853	0.000000	0.000762	0.000064	0.000019
23	4.5934124E+07	6.9941	3.836	3.658	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0772	-8.152	3.536	8.162	0.000000	0.898648	0.097085	0.000000	0.000046	0.003168	0.000000	0.000892	0.000065	0.000040
24	4.6224180E+07	6.9921	3.830	3.662	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0816	-8.183	3.510	8.168	0.000000	0.850041	0.142288	0.000000	0.000019	0.006561	0.000000	0.000910	0.000065	0.000062
25	4.6491712E+07	6.9905	3.890	3.739	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0854	-8.381	3.493	8.173	0.000000	0.799717	0.187916	0.000000	0.000003	0.011247	0.000000	0.000910	0.000065	0.000086
26	4.6739012E+07	6.9901	3.905	3.891	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0890	-8.963	3.479	8.178	0.000000	0.749584	0.232371	0.000000	0.000002	0.016920	0.000000	0.000892	0.000066	0.000111
27	4.6975560E+07	6.9899	3.917	3.943	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0920	-9.112	3.466	8.183	0.000000	0.700043	0.274524	0.000000	0.000001	0.024302	0.000000	0.000868	0.000066	0.000141
28	4.7186368E+07	6.9897	3.926	3.978	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0951	-9.200	3.456	8.188	0.000000	0.649364	0.316218	0.000000	0.000000	0.033280	0.000000	0.000840	0.000066	0.000176
29	4.7403984E+07	6.9896	3.934	4.006	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0986	-9.262	3.449	8.194	0.000000	0.599577	0.354786	0.000000	0.000001	0.044492	0.000000	0.000805	0.000066	0.000219
30	4.7616112E+07	6.9895	3.941	4.028	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1011	-9.302	3.443	8.199	0.000000	0.550032	0.390592	0.000000	0.000000	0.058222	0.000000	0.000762	0.000066	0.000273
31	4.7806008E+07	6.9894	3.946	4.043	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1036	-9.328	3.440	8.204	0.000000	0.499164	0.425527	0.000000	0.000000	0.074142	0.000000	0.000708	0.000066	0.000338
32	4.8019576E+07	6.9893	3.952	4.058	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1078	-9.345	3.438	8.210	0.000000	0.449780	0.454734	0.000000	0.000000	0.094303	0.000000	0.000636	0.000066	0.000426
33	4.8240776E+07	6.9892	3.958	4.070	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1123	-9.357	3.437	8.217	0.000000	0.400070	0.479644	0.000000	0.000000	0.119083	0.000000	0.000542	0.000067	0.000541
34	4.8452308E+07	6.9891	3.963	4.079	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1160	-9.363	3.439	8.224	0.000000	0.350825	0.499847	0.000000	0.000000	0.148099	0.000000	0.000429	0.000067	0.000678
35	4.8698200E+07	6.9890	3.969	4.087	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1200	-9.362	3.442	8.232	0.000000	0.299262	0.511819	0.000000	0.000000	0.187657	0.000000	0.000284	0.000067	0.000856
36	4.8878644E+07	6.9889	3.974	4.090	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1231	-9.357	3.449	8.239	0.000000	0.249147	0.522802	0.000000	0.000000	0.226763	0.000000	0.000165	0.000067	0.001001
37	4.9127928E+07	6.9888	3.979	4.093	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1267	-9.347	3.463	8.250	0.000000	0.200759	0.512259	0.000000	0.000000	0.285669	0.000000	0.000058	0.000067	0.001130
38	4.9311532E+07	6.9887	3.984	4.089	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1299	-9.327	3.485	8.262	0.000000	0.150734	0.501751	0.000000	0.000000	0.346192	0.000000	0.000012	0.000068	0.001185
39	4.9525168E+07	6.9886	3.989	4.079	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1307	-9.290	3.520	8.279	0.000000	0.099691	0.466148	0.000000	0.000000	0.432834	0.000000	0.000001	0.000068	0.001194
40	4.9712836E+07	6.9885	3.994	4.053	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1283	-9.216	3.581	8.302	0.000000	0.050670	0.410521	0.000000	0.000000	0.537479	0.000000	0.000000	0.000068	0.001185
41	4.9798732E+07	6.9884	3.995	4.029	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1243	-9.151	3.625	8.318	0.000000	0.030574	0.372464	0.000000	0.000000	0.595631	0.000000	0.000000	0.000069	0.001176
42	4.9888824E+07	6.9884	3.994	3.970	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1158	-8.987	3.709	8.346	0.000000	0.010642	0.322538	0.000000	0.000000	0.665483	0.000000	0.000000	0.000071	0.001155
43	4.9943840E+07	6.9883	3.939	3.767	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.408	3.996	8.426	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001121
44	4.9950432E+07	6.9882	3.878	3.677	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.162	4.110	8.430	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
45	4.9957344E+07	6.9882	3.930	3.659	0.755807	0.243172	0.000153	0.000009	0.000146	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.976	4.197	8.429	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
46	5.0023480E+07	6.9871	4.086	3.640	0.755768	0.243211	0.000147	0.000009	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.634	4.774	8.494	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
47	5.0048900E+07	6.9865	4.139	3.637	0.755694	0.243286	0.000138	0.000009	0.000164	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.539	4.959	8.522	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
48	5.0076400E+07	6.9856	4.190	3.633	0.755004	0.243978	0.000133	0.000008	0.000182	0.000517	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.448	5.193	8.556	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
49	5.0099832E+07	6.9847	4.239	3.631	0.753090	0.245895	0.000130	0.000008	0.000198	0.000504	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.367	5.466	8.592	0.000000	0.000000	0.291450	0.000000	0.000000	0.707183	0.000000	0.000000	0.000086	0.001122
50	5.0119356E+07	6.9837	4.291	3.628	0.750855	0.248131	0.000128	0.000008	0.000209	0.000495	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.283	5.855	8.635	0.000000	0.000000	0.291449	0.000000	0.000000	0.707183	0.000000	0.000000	0.000087	0.001122
51	5.0138532E+07	6.9826	4.328	3.626	0.744859	0.254130	0.000124	0.000008	0.000225	0.000481	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.225	6.801	8.586	0.000000	0.000000	0.291228	0.000000	0.000000	0.707044	0.000000	0.000000	0.000447	0.001122

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TABLE 33.

STELLAR MODEL : 5 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.1699778E+06	5.0000	2.817	4.325	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3373	0.000	1.504	7.488	0.752354	0.246683	0.000005	0.000002	0.000531	0.000297	0.000001	0.000000	0.000071	0.000006
2	3.0189410E+07	5.0000	2.897	4.315	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2976	0.000	1.474	7.493	0.619964	0.379108	0.000008	0.000002	0.000765	0.000027	0.000000	0.000000	0.000071	0.000006
3	4.3636008E+07	5.0000	2.944	4.310	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2721	0.000	1.474	7.503	0.539653	0.459419	0.000008	0.000002	0.000766	0.000026	0.000000	0.000000	0.000071	0.000006
4	5.4511736E+07	5.0000	2.988	4.304	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2479	0.000	1.478	7.512	0.460269	0.538803	0.000008	0.000003	0.000766	0.000025	0.000000	0.000000	0.000071	0.000006
5	6.3544288E+07	5.0000	3.029	4.295	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2247	0.000	1.488	7.522	0.379688	0.619385	0.000008	0.000003	0.000767	0.000024	0.000000	0.000000	0.000071	0.000006
6	7.0926064E+07	5.0000	3.068	4.284	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2020	0.000	1.503	7.533	0.299402	0.699671	0.000009	0.000003	0.000767	0.000023	0.000000	0.000000	0.000071	0.000006
7	7.6892688E+07	5.0000	3.104	4.271	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1805	0.000	1.526	7.546	0.220431	0.778642	0.000009	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
8	8.0678344E+07	5.0000	3.129	4.260	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1650	0.000	1.551	7.558	0.160827	0.838246	0.000010	0.000003	0.000767	0.000021	0.000000	0.000000	0.000071	0.000006
9	8.3988872E+07	5.0000	3.155	4.248	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1495	0.000	1.592	7.573	0.099843	0.899231	0.000010	0.000003	0.000768	0.000020	0.000000	0.000000	0.000071	0.000006
10	8.5925536E+07	5.0000	3.172	4.241	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1385	0.000	1.635	7.589	0.058902	0.940171	0.000011	0.000003	0.000768	0.000019	0.000000	0.000000	0.000071	0.000006
11	8.7154568E+07	5.0000	3.184	4.239	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1310	0.000	1.689	7.608	0.029994	0.969080	0.000011	0.000004	0.000768	0.000018	0.000000	0.000000	0.000071	0.000006
12	8.8160144E+07	5.0000	3.211	4.262	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0959	0.000	1.877	7.668	0.002889	0.996186	0.000013	0.000004	0.000767	0.000015	0.000000	0.000000	0.000071	0.000006
13	8.8276344E+07	5.0000	3.235	4.280	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.310	7.709	0.000000	0.999076	0.000019	0.000006	0.000760	0.000014	0.000000	0.000000	0.000071	0.000006
14	8.8295520E+07	5.0000	3.207	4.265	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.486	7.692	0.000000	0.999076	0.000018	0.000006	0.000760	0.000014	0.000000	0.000000	0.000071	0.000006
15	8.8451288E+07	5.0000	3.299	4.185	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.106	7.745	0.000000	0.999076	0.000018	0.000006	0.000760	0.000014	0.000000	0.000000	0.000071	0.000006
16	8.8616616E+07	5.0000	3.315	4.088	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.534	7.852	0.000000	0.999076	0.000018	0.000006	0.000760	0.000014	0.000000	0.000000	0.000071	0.000006
17	8.8701760E+07	5.0000	3.303	3.989	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.756	7.926	0.000000	0.999075	0.000018	0.000003	0.000760	0.000017	0.000000	0.000000	0.000071	0.000006
18	8.8745720E+07	5.0000	3.278	3.893	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.874	7.969	0.000000	0.999074	0.000019	0.000000	0.000760	0.000021	0.000000	0.000000	0.000071	0.000006
19	8.8772800E+07	5.0000	3.243	3.793	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.947	7.996	0.000000	0.999073	0.000020	0.000000	0.000760	0.000021	0.000000	0.000000	0.000071	0.000006
20	8.8801160E+07	5.0000	3.151	3.699	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.024	8.025	0.000000	0.999047	0.000046	0.000000	0.000760	0.000021	0.000000	0.000000	0.000071	0.000006
21	8.8937856E+07	4.9998	3.405	3.664	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0541	-8.746	3.948	8.113	0.000000	0.992773	0.006287	0.000000	0.000695	0.000030	0.000000	0.000089	0.000062	0.000005
22	8.9701168E+07	4.9985	3.373	3.667	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0615	-8.801	3.847	8.123	0.000000	0.950136	0.048168	0.000000	0.000277	0.000665	0.000000	0.000618	0.000063	0.000016
23	9.0458912E+07	4.9974	3.357	3.671	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0670	-8.832	3.794	8.131	0.000000	0.899202	0.097023	0.000000	0.000067	0.002679	0.000000	0.000869	0.000064	0.000040
24	9.1120168E+07	4.9964	3.348	3.674	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0713	-8.851	3.761	8.137	0.000000	0.850051	0.142858	0.000000	0.000019	0.005977	0.000000	0.000909	0.000064	0.000066
25	9.1727296E+07	4.9956	3.348	3.679	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0742	-8.861	3.737	8.143	0.000000	0.801202	0.186973	0.000000	0.000016	0.010704	0.000000	0.000894	0.000064	0.000091
26	9.2266896E+07	4.9948	3.367	3.687	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0776	-8.850	3.721	8.148	0.000000	0.750725	0.231299	0.000000	0.000006	0.016848	0.000000	0.000886	0.000065	0.000116
27	9.2815480E+07	4.9941	3.416	3.756	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0798	-8.914	3.706	8.153	0.000000	0.699724	0.274205	0.000000	0.000002	0.024938	0.000000	0.000869	0.000065	0.000141
28	9.3279360E+07	4.9936	3.435	3.818	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0822	-9.009	3.694	8.158	0.000000	0.651151	0.313566	0.000000	0.000003	0.034145	0.000000	0.000848	0.000065	0.000166
29	9.3801216E+07	4.9931	3.451	3.866	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0850	-9.081	3.681	8.164	0.000000	0.599193	0.353033	0.000000	0.000001	0.046631	0.000000	0.000828	0.000065	0.000194
30	9.4307232E+07	4.9927	3.464	3.900	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0874	-9.129	3.670	8.169	0.000000	0.549703	0.387681	0.000000	0.000001	0.061467	0.000000	0.000804	0.000065	0.000223
31	9.4698624E+07	4.9924	3.473	3.922	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0897	-9.159	3.665	8.175	0.000000	0.499905	0.421892	0.000000	0.000001	0.077048	0.000000	0.000778	0.000064	0.000253
32	9.5219184E+07	4.9921	3.484	3.945	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0944	-9.189	3.656	8.181	0.000000	0.450720	0.449194	0.000000	0.000001	0.098924	0.000000	0.000744	0.000062	0.000293
33	9.5727152E+07	4.9918	3.493	3.963	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0989	-9.211	3.649	8.188	0.000000	0.400094	0.474038	0.000000	0.000001	0.124695	0.000000	0.000702	0.000062	0.000346
34	9.6234432E+07	4.9915	3.502	3.977	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1038	-9.227	3.644	8.195	0.000000	0.351180	0.492778	0.000000	0.000000	0.154858	0.000000	0.000647	0.000063	0.000414
35	9.6823592E+07	4.9911	3.512	3.991	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1072	-9.238	3.640	8.203	0.000000	0.299948	0.503438	0.000000	0.000000	0.195411	0.000000	0.000560	0.000063	0.000520
36	9.7244128E+07	4.9909	3.517	3.994	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1238	-9.238	3.651	8.213	0.000000	0.249841	0.514627	0.000000	0.000000	0.234308	0.000000	0.000467	0.000063	0.000634
37	9.7991632E+07	4.9904	3.529	4.003	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1114	-9.237	3.646	8.223	0.000000	0.199261	0.499988	0.000000	0.000000	0.299488	0.000000	0.000295	0.000062	0.000845
38	9.8361936E+07	4.9902	3.534	4.000	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1132	-9.223	3.664	8.235	0.000000	0.150247	0.495292	0.000000	0.000000	0.353167	0.000000	0.000160	0.000062	0.001009
39	9.9067296E+07	4.9898	3.544	3.992	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1099	-9.193	3.687	8.252	0.000000	0.100891	0.435672	0.000000	0.000000	0.462113	0.000000	0.000019	0.000063	0.001177
40	9.9382760E+07	4.9896	3.548	3.961	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1098	-9.126	3.747	8.275	0.000000	0.051257	0.391068	0.000000	0.000000	0.556345	0.000000	0.000000	0.000064	0.001195
41	9.9532936E+07	4.9895	3.548	3.933	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1071	-9.068	3.791	8.291	0.000000	0.030492	0.356479	0.000000	0.000000	0.611698	0.000000	0.000000	0.000064	0.001191
42	9.9773944E+07	4.9892	3.501	3.721	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0827	-8.714	4.022	8.362	0.000000	0.001224	0.282444	0.000000	0.000000	0.714993	0.000000	0.000000	0.000066	0.001165
43	9.9791216E+07	4.9891	3.434	3.686	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0557	-8.746	4.175	8.395	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
44	9.9796888E+07	4.9891	3.415	3.677	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.757	4.257	8.407	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
45	9.9911000E+07	4.9888	3.595	3.657	0.755589	0.243362	0.000156	0.000009	0.000143	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.446	4.789	8.408	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
46	9.9987848E+07	4.9885	3.686	3.650	0.755552	0.243399	0.000153	0.000009	0.000147	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.296	5.007	8.427	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
47	1.0005829E+08	4.9880	3.777	3.644	0.755334	0.243621	0.000140	0.000008	0.000163	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.148	5.215	8.457	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
48	1.0011593E+08	4.9875	3.867	3.638	0.754784	0.244174	0.000134	0.000008	0.000177	0.000521	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.000	5.428	8.490	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
49	1.0015819E+08	4.9870	3.950	3.632	0.752916	0.246045	0.000131	0.000008	0.000192	0.000509	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.864	5.645	8.519	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
50	1.0019201E+08	4.9865	4.035	3.626	0.751106	0.247856	0.000129	0.000008	0.000200	0.000502	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.724	5.894	8.542	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000068	0.001160
51	1.0021865E+08	4.9859	4.124	3.621	0.749046	0.249918	0.000128	0.000008	0.000207	0.000496	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.580	6.191	8.548	0.000000	0.000000	0.278808	0.000000	0.000000	0.719841	0.000000	0.000000	0.000069	0.001160

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TABLE 34.

STELLAR MODEL : 4 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	9.9998100E+05	4.0000	2.492	4.276	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.3187	0.000	1.630	7.467	0.754218	0.244805	0.000004	0.000001	0.000437	0.000406	0.000003	0.000000	0.000071	0.000006
2	4.9286312E+07	4.0000	2.573	4.264	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2818	0.000	1.592	7.470	0.620297	0.378774	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
3	7.1173312E+07	4.0000	2.619	4.259	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2593	0.000	1.594	7.480	0.541075	0.457997	0.000007	0.000002	0.000765	0.000028	0.000000	0.000000	0.000071	0.000006
4	8.9202000E+07	4.0000	2.662	4.252	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2365	0.000	1.600	7.489	0.461045	0.538027	0.000008	0.000002	0.000765	0.000027	0.000000	0.000000	0.000071	0.000006
5	1.0404840E+08	4.0000	2.703	4.244	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2139	0.000	1.610	7.500	0.380398	0.618674	0.000008	0.000002	0.000766	0.000026	0.000000	0.000000	0.000071	0.000006
6	1.1599106E+08	4.0000	2.742	4.233	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1917	0.000	1.624	7.511	0.300710	0.698362	0.000008	0.000003	0.000766	0.000025	0.000000	0.000000	0.000071	0.000006
7	1.2587734E+08	4.0000	2.777	4.219	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1699	0.000	1.648	7.524	0.219416	0.779657	0.000009	0.000003	0.000767	0.000024	0.000000	0.000000	0.000071	0.000006
8	1.3199888E+08	4.0000	2.802	4.208	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1540	0.000	1.674	7.536	0.158967	0.840106	0.000009	0.000003	0.000767	0.000023	0.000000	0.000000	0.000071	0.000006
9	1.3699587E+08	4.0000	2.824	4.196	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1405	0.000	1.711	7.551	0.101231	0.897842	0.000009	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
10	1.4011786E+08	4.0000	2.840	4.189	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1297	0.000	1.754	7.566	0.060208	0.938866	0.000010	0.000003	0.000767	0.000021	0.000000	0.000000	0.000071	0.000006
11	1.4216186E+08	4.0000	2.853	4.188	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1216	0.000	1.809	7.585	0.030003	0.969071	0.000011	0.000003	0.000767	0.000019	0.000000	0.000000	0.000071	0.000006
12	1.4369936E+08	4.0000	2.873	4.203	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1117	0.000	1.943	7.629	0.005380	0.993694	0.000013	0.000004	0.000766	0.000017	0.000000	0.000000	0.000071	0.000006
13	1.4406814E+08	4.0000	2.898	4.228	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.444	7.667	0.000000	0.999075	0.000017	0.000005	0.000761	0.000016	0.000000	0.000000	0.000071	0.000006
14	1.4409136E+08	4.0000	2.876	4.217	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.568	7.652	0.000000	0.999075	0.000017	0.000005	0.000761	0.000016	0.000000	0.000000	0.000071	0.000006
15	1.4439790E+08	4.0000	2.966	4.144	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.186	7.684	0.000000	0.999075	0.000017	0.000005	0.000761	0.000016	0.000000	0.000000	0.000071	0.000006
16	1.4473062E+08	4.0000	2.979	4.057	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.600	7.783	0.000000	0.999075	0.000017	0.000005	0.000761	0.000016	0.000000	0.000000	0.000071	0.000006
17	1.4489658E+08	4.0000	2.966	3.970	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.816	7.855	0.000000	0.999075	0.000017	0.000005	0.000761	0.000016	0.000000	0.000000	0.000071	0.000006
18	1.4498862E+08	4.0000	2.937	3.880	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.943	7.901	0.000000	0.999075	0.000017	0.000004	0.000761	0.000018	0.000000	0.000000	0.000071	0.000006
19	1.4504070E+08	4.0000	2.902	3.796	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.016	7.928	0.000000	0.999074	0.000017	0.000001	0.000761	0.000021	0.000000	0.000000	0.000071	0.000006
20	1.4510986E+08	4.0000	2.810	3.707	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.628	4.115	7.964	0.000000	0.999074	0.000017	0.000000	0.000761	0.000022	0.000000	0.000000	0.000071	0.000006
21	1.4607955E+08	3.9993	3.073	3.676	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0536	-9.170	4.078	8.096	0.000000	0.975204	0.023661	0.000000	0.000622	0.000202	0.000000	0.000182	0.000058	0.000007
22	1.4686723E+08	3.9988	3.058	3.678	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0579	-9.196	4.025	8.102	0.000000	0.951403	0.046876	0.000000	0.000468	0.000743	0.000000	0.000375	0.000054	0.000013
23	1.4832010E+08	3.9979	3.036	3.680	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0637	-9.235	3.961	8.112	0.000000	0.901128	0.094770	0.000000	0.000214	0.003047	0.000000	0.000682	0.000056	0.000038
24	1.4955886E+08	3.9972	3.023	3.682	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0685	-9.259	3.922	8.119	0.000000	0.849301	0.142661	0.000000	0.000077	0.006938	0.000000	0.000832	0.000057	0.000070
25	1.5063907E+08	3.9967	3.016	3.685	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0714	-9.275	3.895	8.124	0.000000	0.801266	0.185469	0.000000	0.000035	0.012146	0.000000	0.000861	0.000058	0.000102
26	1.5162493E+08	3.9961	3.017	3.689	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0743	-9.281	3.875	8.129	0.000000	0.749877	0.229914	0.000000	0.000012	0.019079	0.000000	0.000863	0.000058	0.000134
27	1.5258355E+08	3.9956	3.031	3.696	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0774	-9.273	3.858	8.134	0.000000	0.700391	0.270751	0.000000	0.000006	0.027720	0.000000	0.000847	0.000059	0.000164
28	1.5340858E+08	3.9952	3.070	3.715	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0793	-9.253	3.848	8.139	0.000000	0.650085	0.310866	0.000000	0.000004	0.037905	0.000000	0.000824	0.000059	0.000194
29	1.5431918E+08	3.9947	3.100	3.758	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0809	-9.293	3.834	8.144	0.000000	0.599914	0.347933	0.000000	0.000002	0.051004	0.000000	0.000804	0.000059	0.000224
30	1.5504459E+08	3.9943	3.118	3.799	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0836	-9.349	3.825	8.149	0.000000	0.551442	0.382563	0.000000	0.000002	0.064840	0.000000	0.000780	0.000059	0.000252
31	1.5594410E+08	3.9940	3.134	3.837	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0851	-9.400	3.813	8.155	0.000000	0.501260	0.413613	0.000000	0.000002	0.083966	0.000000	0.000755	0.000060	0.000282
32	1.5695794E+08	3.9936	3.151	3.870	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0897	-9.442	3.800	8.162	0.000000	0.450816	0.439764	0.000000	0.000000	0.108253	0.000000	0.000731	0.000061	0.000315
33	1.5779206E+08	3.9933	3.163	3.892	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0962	-9.468	3.792	8.168	0.000000	0.400778	0.464494	0.000000	0.000000	0.133555	0.000000	0.000702	0.000061	0.000350
34	1.5886291E+08	3.9929	3.176	3.913	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0999	-9.489	3.780	8.176	0.000000	0.351017	0.479656	0.000000	0.000000	0.168146	0.000000	0.000665	0.000062	0.000396
35	1.6022626E+08	3.9925	3.192	3.932	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1002	-9.504	3.766	8.185	0.000000	0.300843	0.484834	0.000000	0.000000	0.213130	0.000000	0.000613	0.000057	0.000459
36	1.6083226E+08	3.9923	3.198	3.938	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1068	-9.506	3.771	8.193	0.000000	0.250841	0.500115	0.000000	0.000000	0.247838	0.000000	0.000558	0.000057	0.000525
37	1.6186445E+08	3.9920	3.209	3.944	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1037	-9.502	3.771	8.204	0.000000	0.201321	0.492819	0.000000	0.000000	0.304632	0.000000	0.000458	0.000058	0.000647
38	1.6260246E+08	3.9918	3.216	3.942	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1035	-9.489	3.787	8.216	0.000000	0.150075	0.485430	0.000000	0.000000	0.363239	0.000000	0.000329	0.000058	0.000805
39	1.6393453E+08	3.9913	3.227	3.934	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1018	-9.454	3.806	8.234	0.000000	0.100573	0.418584	0.000000	0.000000	0.479534	0.000000	0.000094	0.000060	0.001089
40	1.6443370E+08	3.9911	3.229	3.900	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1029	-9.385	3.867	8.257	0.000000	0.049953	0.376548	0.000000	0.000000	0.572170	0.000000	0.000008	0.000060	0.001191
41	1.6465258E+08	3.9910	3.229	3.871	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.1013	-9.327	3.909	8.272	0.000000	0.030592	0.345983	0.000000	0.000000	0.622094	0.000000	0.000001	0.000060	0.001198
42	1.6491296E+08	3.9909	3.217	3.790	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0946	-9.183	3.997	8.301	0.000000	0.010077	0.299102	0.000000	0.000000	0.689488	0.000000	0.000000	0.000061	0.001191
43	1.6506421E+08	3.9908	3.121	3.685	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.118	4.300	8.372	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
44	1.6508899E+08	3.9908	3.223	3.670	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.930	4.469	8.377	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
45	1.6534683E+08	3.9904	3.337	3.660	0.755098	0.243825	0.000149	0.000009	0.000151	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.742	5.003	8.366	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
46	1.6549163E+08	3.9901	3.451	3.654	0.755062	0.243861	0.000148	0.000009	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.561	5.202	8.386	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
47	1.6561187E+08	3.9897	3.568	3.647	0.754723	0.244204	0.000138	0.000008	0.000165	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.371	5.391	8.412	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
48	1.6571710E+08	3.9891	3.699	3.637	0.753849	0.245082	0.000134	0.000008	0.000179	0.000520	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.156	5.614	8.443	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
49	1.6577722E+08	3.9885	3.809	3.628	0.752739	0.246194	0.000132	0.000008	0.000187	0.000513	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.920	5.804	8.462	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
50	1.6582232E+08	3.9879	3.913	3.622	0.751581	0.247353	0.000131	0.000008	0.000193	0.000509	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.802	5.997	8.470	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178
51	1.6586141E+08	3.9872	4.024	3.614	0.749243	0.249693	0.000130	0.000008	0.000198	0.000504	0.000001	0.000001	0.000071	0.000006
	0.0000	-7.618	6.218	8.456	0.000000	0.000000	0.270034	0.000000	0.000000	0.728620	0.000000	0.000000	0.000062	0.001178

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TABLE 35.

STELLAR MODEL : 3 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.1854175E+06	3.0000	2.057	4.207	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2888	0.000	1.787	7.435	0.754893	0.244120	0.000003	0.000001	0.000378	0.000472	0.000005	0.000000	0.000071	0.000006
2	1.0086870E+08	3.0000	2.136	4.193	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2604	0.000	1.742	7.436	0.619825	0.379245	0.000006	0.000002	0.000762	0.000033	0.000000	0.000000	0.000071	0.000006
3	1.4662579E+08	3.0000	2.183	4.189	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2409	0.000	1.749	7.447	0.539066	0.460005	0.000007	0.000002	0.000763	0.000032	0.000000	0.000000	0.000071	0.000006
4	1.8242915E+08	3.0000	2.225	4.182	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2206	0.000	1.757	7.457	0.460786	0.538286	0.000007	0.000002	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
5	2.1191944E+08	3.0000	2.266	4.173	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2009	0.000	1.769	7.468	0.381124	0.617947	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
6	2.3594800E+08	3.0000	2.304	4.162	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1797	0.000	1.786	7.480	0.300466	0.698606	0.000007	0.000002	0.000765	0.000028	0.000000	0.000000	0.000071	0.000006
7	2.5520981E+08	3.0000	2.338	4.148	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1592	0.000	1.810	7.493	0.220532	0.778540	0.000008	0.000002	0.000765	0.000027	0.000000	0.000000	0.000071	0.000006
8	2.6710336E+08	3.0000	2.360	4.137	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1440	0.000	1.836	7.505	0.160696	0.838376	0.000008	0.000003	0.000766	0.000026	0.000000	0.000000	0.000071	0.000006
9	2.7748704E+08	3.0000	2.382	4.124	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1293	0.000	1.876	7.521	0.099043	0.900030	0.000009	0.000003	0.000766	0.000024	0.000000	0.000000	0.000071	0.000006
10	2.8300912E+08	3.0000	2.396	4.117	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1193	0.000	1.915	7.535	0.061105	0.937968	0.000009	0.000003	0.000767	0.000023	0.000000	0.000000	0.000071	0.000006
11	2.8699878E+08	3.0000	2.409	4.116	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1114	0.000	1.968	7.554	0.030561	0.968513	0.000010	0.000003	0.000767	0.000022	0.000000	0.000000	0.000071	0.000006
12	2.9000224E+08	3.0000	2.431	4.131	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1026	0.000	2.093	7.594	0.005925	0.993149	0.000012	0.000004	0.000766	0.000020	0.000000	0.000000	0.000071	0.000006
13	2.9079754E+08	3.0000	2.450	4.155	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.632	7.615	0.000000	0.999074	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
14	2.9083571E+08	3.0000	2.439	4.146	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.722	7.605	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
15	2.9155750E+08	3.0000	2.523	4.084	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.282	7.610	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
16	2.9245152E+08	3.0000	2.532	4.011	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.673	7.693	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
17	2.9288067E+08	3.0000	2.515	3.936	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.884	7.762	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
18	2.9309814E+08	3.0000	2.486	3.865	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.001	7.803	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
19	2.9323955E+08	3.0000	2.448	3.792	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.080	7.832	0.000000	0.999075	0.000015	0.000005	0.000763	0.000018	0.000000	0.000000	0.000071	0.000006
20	2.9346838E+08	3.0000	2.350	3.719	0.755998	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.212	7.881	0.000000	0.999074	0.000015	0.000003	0.000763	0.000020	0.000000	0.000000	0.000071	0.000006
21	2.9436218E+08	2.9999	2.738	3.680	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0430	-9.549	4.519	8.067	0.000000	0.997065	0.002018	0.000000	0.000763	0.000024	0.000000	0.000004	0.000054	0.000004
22	2.9807818E+08	2.9990	2.645	3.687	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0572	-9.711	4.256	8.077	0.000000	0.951323	0.046798	0.000000	0.000628	0.000947	0.000000	0.000173	0.000043	0.000010
23	3.0120934E+08	2.9985	2.613	3.691	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0618	-9.767	4.186	8.087	0.000000	0.900811	0.094411	0.000000	0.000443	0.003789	0.000000	0.000394	0.000044	0.000031
24	3.0396086E+08	2.9980	2.589	3.694	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0656	-9.808	4.140	8.094	0.000000	0.849379	0.140989	0.000000	0.000270	0.008586	0.000000	0.000589	0.000045	0.000065
25	3.0637558E+08	2.9977	2.574	3.697	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0693	-9.837	4.107	8.099	0.000000	0.799328	0.184525	0.000000	0.000144	0.015058	0.000000	0.000716	0.000045	0.000106
26	3.0860115E+08	2.9973	2.568	3.700	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0733	-9.852	4.083	8.105	0.000000	0.751010	0.224707	0.000000	0.000071	0.023166	0.000000	0.000775	0.000042	0.000147
27	3.1084790E+08	2.9970	2.571	3.703	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0747	-9.852	4.061	8.110	0.000000	0.700293	0.264714	0.000000	0.000035	0.033857	0.000000	0.000783	0.000040	0.000193
28	3.1267850E+08	2.9968	2.585	3.707	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0788	-9.840	4.048	8.115	0.000000	0.649686	0.303369	0.000000	0.000015	0.045795	0.000000	0.000774	0.000040	0.000236
29	3.1472678E+08	2.9965	2.612	3.715	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0798	-9.815	4.032	8.120	0.000000	0.598568	0.339107	0.000000	0.000009	0.061166	0.000000	0.000747	0.000042	0.000278
30	3.1620870E+08	2.9962	2.641	3.728	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0824	-9.796	4.024	8.125	0.000000	0.550667	0.371915	0.000000	0.000004	0.076251	0.000000	0.000724	0.000042	0.000315
31	3.1826054E+08	2.9959	2.671	3.743	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0830	-9.783	4.009	8.131	0.000000	0.499479	0.401344	0.000000	0.000004	0.098003	0.000000	0.000692	0.000043	0.000354
32	3.2030672E+08	2.9956	2.694	3.771	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0901	-9.803	3.995	8.137	0.000000	0.450518	0.425735	0.000000	0.000002	0.122566	0.000000	0.000666	0.000040	0.000382
33	3.2405757E+08	2.9950	2.728	3.816	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0895	-9.844	3.963	8.146	0.000000	0.399785	0.435221	0.000000	0.000000	0.163806	0.000000	0.000639	0.000041	0.000418
34	3.2534262E+08	2.9948	2.737	3.829	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0885	-9.855	3.955	8.150	0.000000	0.349906	0.458957	0.000000	0.000000	0.189942	0.000000	0.000610	0.000041	0.000454
35	3.2759059E+08	2.9945	2.753	3.846	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0956	-9.866	3.948	8.160	0.000000	0.300121	0.469138	0.000000	0.000000	0.229541	0.000000	0.000578	0.000042	0.000493
36	3.3043130E+08	2.9941	2.770	3.859	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0967	-9.866	3.935	8.170	0.000000	0.250361	0.464605	0.000000	0.000000	0.283825	0.000000	0.000541	0.000043	0.000539
37	3.3160627E+08	2.9940	2.777	3.861	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.1053	-9.859	3.943	8.179	0.000000	0.201314	0.471702	0.000000	0.000000	0.325765	0.000000	0.000498	0.000043	0.000591
38	3.3313469E+08	2.9937	2.784	3.859	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.1049	-9.844	3.954	8.191	0.000000	0.151252	0.465931	0.000000	0.000000	0.381584	0.000000	0.000433	0.000043	0.000670
39	3.3459354E+08	2.9935	2.790	3.847	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.1002	-9.811	3.979	8.205	0.000000	0.101376	0.441417	0.000000	0.000000	0.455949	0.000000	0.000325	0.000042	0.000793
40	3.3844365E+08	2.9929	2.803	3.807	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0954	-9.713	4.020	8.233	0.000000	0.051380	0.325514	0.000000	0.000000	0.621791	0.000000	0.000067	0.000043	0.001104
41	3.3885299E+08	2.9928	2.797	3.770	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0945	-9.647	4.069	8.248	0.000000	0.030387	0.297433	0.000000	0.000000	0.670853	0.000000	0.000017	0.000043	0.001164
42	3.3928067E+08	2.9927	2.775	3.725	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0895	-9.590	4.155	8.274	0.000000	0.011182	0.257305	0.000000	0.000000	0.730181	0.000000	0.000000	0.000044	0.001180
43	3.3959533E+08	2.9926	2.737	3.689	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.575	4.467	8.343	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
44	3.4021437E+08	2.9924	2.881	3.677	0.752744	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.336	5.081	8.297	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
45	3.4044294E+08	2.9923	3.032	3.665	0.752743	0.246125	0.000136	0.000008	0.000168	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.084	5.237	8.323	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
46	3.4072864E+08	2.9919	3.197	3.655	0.752743	0.246129	0.000135	0.000008	0.000169	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.818	5.427	8.340	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
47	3.4092221E+08	2.9915	3.344	3.646	0.752738	0.246138	0.000132	0.000008	0.000173	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.577	5.587	8.355	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
48	3.4108733E+08	2.9909	3.515	3.633	0.752715	0.246163	0.000129	0.000008	0.000176	0.000529	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.296	5.783	8.371	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
49	3.4118022E+08	2.9903	3.665	3.622	0.752255	0.246626	0.000128	0.000008	0.000181	0.000525	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.050	5.951	8.376	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
50	3.4124733E+08	2.9895	3.811	3.612	0.751589	0.247292	0.000128	0.000008	0.000184	0.000523	0.000002	0.000001	0.000071	0.000006
	0.0000	-7.812	6.123	8.369	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172
51	3.4130192E+08	2.9883	3.965	3.603	0.750646	0.248235	0.000127	0.000008	0.000186	0.000521	0.000002	0.000001	0.000071	0.000006
	0.0000	-7.560	6.315	8.336	0.000000	0.000000	0.225862	0.000000	0.000000	0.772793	0.000000	0.000000	0.000044	0.001172

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TABLE 36.

STELLAR MODEL : 2.5 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.4799719E+07	2.5000	1.773	4.151	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2669	0.000	1.840	7.400	0.746620	0.252412	0.000004	0.000001	0.000514	0.000313	0.000008	0.000000	0.000071	0.000006
2	1.6762882E+08	2.5000	1.846	4.144	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2448	0.000	1.830	7.410	0.623302	0.375766	0.000006	0.000002	0.000759	0.000037	0.000001	0.000000	0.000071	0.000006
3	2.4432982E+08	2.5000	1.892	4.141	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2266	0.000	1.842	7.422	0.543219	0.455851	0.000006	0.000002	0.000760	0.000035	0.000001	0.000000	0.000071	0.000006
4	3.0647443E+08	2.5000	1.936	4.135	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2105	0.000	1.854	7.434	0.462215	0.536856	0.000006	0.000002	0.000762	0.000033	0.000000	0.000000	0.000071	0.000006
5	3.5533354E+08	2.5000	1.976	4.127	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1914	0.000	1.870	7.446	0.382669	0.616402	0.000007	0.000002	0.000763	0.000032	0.000000	0.000000	0.000071	0.000006
6	3.9413395E+08	2.5000	2.013	4.116	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1714	0.000	1.888	7.459	0.303324	0.695748	0.000007	0.000002	0.000763	0.000030	0.000000	0.000000	0.000071	0.000006
7	4.2582675E+08	2.5000	2.047	4.102	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1521	0.000	1.914	7.473	0.221441	0.777630	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
8	4.4503549E+08	2.5000	2.070	4.091	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1386	0.000	1.941	7.485	0.161186	0.837886	0.000008	0.000002	0.000765	0.000028	0.000000	0.000000	0.000071	0.000006
9	4.6055843E+08	2.5000	2.089	4.078	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1251	0.000	1.978	7.499	0.103391	0.895682	0.000008	0.000003	0.000765	0.000026	0.000000	0.000000	0.000071	0.000006
10	4.6989344E+08	2.5000	2.103	4.071	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1146	0.000	2.016	7.514	0.063366	0.935706	0.000008	0.000003	0.000766	0.000025	0.000000	0.000000	0.000071	0.000006
11	4.7653453E+08	2.5000	2.116	4.069	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1071	0.000	2.071	7.533	0.031314	0.967759	0.000009	0.000003	0.000766	0.000023	0.000000	0.000000	0.000071	0.000006
12	4.8118330E+08	2.5000	2.140	4.085	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0978	0.000	2.201	7.575	0.005635	0.993438	0.000011	0.000003	0.000766	0.000021	0.000000	0.000000	0.000071	0.000006
13	4.8233226E+08	2.5000	2.158	4.108	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.748	7.585	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
14	4.8238150E+08	2.5000	2.152	4.101	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.818	7.577	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
15	4.8358403E+08	2.5000	2.230	4.047	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.330	7.567	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
16	4.8528890E+08	2.5000	2.240	3.982	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.707	7.639	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
17	4.8606822E+08	2.5000	2.227	3.918	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.904	7.700	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
18	4.8651830E+08	2.5000	2.199	3.852	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.031	7.743	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
19	4.8678192E+08	2.5000	2.163	3.792	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.109	7.771	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
20	4.8725418E+08	2.5000	2.046	3.728	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.612	4.255	7.824	0.000000	0.999074	0.000014	0.000004	0.000763	0.000019	0.000000	0.000000	0.000071	0.000006
21	4.8957606E+08	2.4998	2.548	3.682	0.745687	0.253130	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0312	-9.766	4.771	8.042	0.000000	0.998237	0.000846	0.000000	0.000766	0.000024	0.000000	0.000001	0.000068	0.000005
22	4.9640992E+08	2.4991	2.368	3.696	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0568	-10.065	4.398	8.062	0.000000	0.949620	0.048194	0.000000	0.000681	0.001268	0.000000	0.000106	0.000069	0.000011
23	5.0169683E+08	2.4987	2.310	3.701	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0628	-10.161	4.326	8.072	0.000000	0.900221	0.094185	0.000000	0.000556	0.004637	0.000000	0.000252	0.000069	0.000029
24	5.0655133E+08	2.4984	2.267	3.705	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0659	-10.233	4.278	8.079	0.000000	0.850210	0.138560	0.000000	0.000416	0.010228	0.000000	0.000406	0.000069	0.000061
25	5.1042918E+08	2.4982	2.246	3.709	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0695	-10.275	4.250	8.084	0.000000	0.799121	0.182199	0.000000	0.000285	0.017632	0.000000	0.000541	0.000069	0.000102
26	5.1407098E+08	2.4980	2.241	3.714	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0721	-10.291	4.228	8.089	0.000000	0.750617	0.221478	0.000000	0.000181	0.026818	0.000000	0.000636	0.000069	0.000149
27	5.1751702E+08	2.4978	2.258	3.720	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0713	-10.276	4.208	8.093	0.000000	0.700140	0.260338	0.000000	0.000103	0.038404	0.000000	0.000692	0.000069	0.000203
28	5.2187174E+08	2.4975	2.309	3.731	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0748	-10.221	4.185	8.099	0.000000	0.649446	0.295537	0.000000	0.000051	0.053873	0.000000	0.000709	0.000065	0.000263
29	5.2465933E+08	2.4974	2.346	3.742	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0786	-10.190	4.174	8.103	0.000000	0.599037	0.330729	0.000000	0.000021	0.069072	0.000000	0.000706	0.000065	0.000315
30	5.2744694E+08	2.4972	2.376	3.759	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0819	-10.177	4.163	8.108	0.000000	0.549499	0.362619	0.000000	0.000009	0.086708	0.000000	0.000679	0.000065	0.000365
31	5.3103101E+08	2.4970	2.408	3.795	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0825	-10.201	4.145	8.114	0.000000	0.499318	0.388987	0.000000	0.000009	0.110512	0.000000	0.000639	0.000065	0.000415
32	5.3733427E+08	2.4966	2.439	3.816	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0832	-10.198	4.109	8.122	0.000000	0.449443	0.401628	0.000000	0.000003	0.147736	0.000000	0.000609	0.000063	0.000460
33	5.3980806E+08	2.4964	2.448	3.817	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0933	-10.186	4.102	8.128	0.000000	0.400074	0.426102	0.000000	0.000002	0.172623	0.000000	0.000576	0.000063	0.000501
34	5.4328800E+08	2.4962	2.462	3.818	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0871	-10.168	4.084	8.135	0.000000	0.349125	0.444215	0.000000	0.000001	0.205451	0.000000	0.000545	0.000063	0.000542
35	5.4723853E+08	2.4959	2.476	3.817	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0919	-10.146	4.072	8.143	0.000000	0.299556	0.448304	0.000000	0.000000	0.250925	0.000000	0.000516	0.000064	0.000578
36	5.4966810E+08	2.4957	2.484	3.816	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0943	-10.130	4.071	8.151	0.000000	0.249876	0.459468	0.000000	0.000000	0.289434	0.000000	0.000483	0.000064	0.000618
37	5.5197037E+08	2.4955	2.491	3.811	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0951	-10.109	4.072	8.160	0.000000	0.200105	0.464333	0.000000	0.000000	0.334331	0.000000	0.000447	0.000064	0.000662
38	5.5687776E+08	2.4951	2.506	3.799	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0916	-10.062	4.073	8.174	0.000000	0.149782	0.427465	0.000000	0.000000	0.421511	0.000000	0.000395	0.000062	0.000725
39	5.5943821E+08	2.4949	2.511	3.781	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0915	-10.021	4.095	8.188	0.000000	0.100605	0.405741	0.000000	0.000000	0.492397	0.000000	0.000327	0.000062	0.000809
40	5.6119213E+08	2.4947	2.506	3.750	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0963	-9.964	4.154	8.210	0.000000	0.050436	0.364290	0.000000	0.000000	0.583991	0.000000	0.000209	0.000062	0.000951
41	5.6198317E+08	2.4946	2.497	3.735	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0947	-9.948	4.199	8.225	0.000000	0.029981	0.333403	0.000000	0.000000	0.635312	0.000000	0.000123	0.000062	0.001056
42	5.6283750E+08	2.4945	2.466	3.717	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0913	-9.959	4.285	8.251	0.000000	0.010550	0.290606	0.000000	0.000000	0.697518	0.000000	0.000025	0.000063	0.001174
43	5.6873338E+08	2.4939	2.510	3.694	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.846	4.591	8.332	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
44	5.6939872E+08	2.4937	2.621	3.684	0.745685	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.660	5.126	8.282	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
45	5.6983475E+08	2.4936	2.751	3.675	0.745684	0.253132	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.453	5.338	8.305	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
46	5.7000915E+08	2.4935	2.879	3.666	0.745683	0.253133	0.000130	0.000008	0.000191	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.235	5.430	8.314	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
47	5.7022714E+08	2.4934	3.009	3.658	0.745681	0.253142	0.000130	0.000008	0.000192	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.027	5.540	8.315	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
48	5.7044518E+08	2.4931	3.140	3.651	0.745670	0.253157	0.000126	0.000008	0.000196	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.817	5.668	8.315	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
49	5.7059776E+08	2.4928	3.269	3.642	0.745652	0.253177	0.000125	0.000008	0.000198	0.000511	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.640	5.796	8.319	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
50	5.7072858E+08	2.4923	3.410	3.628	0.745604	0.253226	0.000124	0.000008	0.000200	0.000510	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.323	5.941	8.317	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175
51	5.7082099E+08	2.4918	3.526	3.621	0.745525	0.253307	0.000123	0.000008	0.000202	0.000508	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.174	6.072	8.304	0.000000	0.000000	0.143903	0.000000	0.000000	0.854750	0.000000	0.000000	0.000058	0.001175

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TABLE 37.

STELLAR MODEL : 2 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.8999640E+07	2.0000	1.411	4.086	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2344	0.000	1.934	7.363	0.748962	0.250047	0.000003	0.000001	0.000378	0.000452	0.000028	0.000000	0.000071	0.000006
2	2.7996947E+08	2.0000	1.485	4.081	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2190	0.000	1.940	7.379	0.619632	0.379434	0.000005	0.000002	0.000745	0.000052	0.000002	0.000000	0.000071	0.000006
3	4.0856262E+08	2.0000	1.530	4.078	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2061	0.000	1.957	7.392	0.539637	0.459431	0.000006	0.000002	0.000756	0.000040	0.000001	0.000000	0.000071	0.000006
4	5.1719920E+08	2.0000	1.571	4.071	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1914	0.000	1.962	7.401	0.459791	0.539279	0.000006	0.000002	0.000759	0.000037	0.000001	0.000000	0.000071	0.000006
5	6.1563085E+08	2.0000	1.610	4.064	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1761	0.000	1.985	7.415	0.380656	0.618414	0.000006	0.000002	0.000760	0.000036	0.000001	0.000000	0.000071	0.000006
6	6.9273562E+08	2.0000	1.647	4.055	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1592	0.000	2.011	7.430	0.300969	0.698102	0.000006	0.000002	0.000761	0.000034	0.000000	0.000000	0.000071	0.000006
7	7.5266573E+08	2.0000	1.680	4.043	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1430	0.000	2.044	7.446	0.219999	0.779073	0.000006	0.000002	0.000763	0.000032	0.000000	0.000000	0.000071	0.000006
8	7.8795462E+08	2.0000	1.701	4.031	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1296	0.000	2.072	7.459	0.160177	0.838894	0.000007	0.000002	0.000763	0.000030	0.000000	0.000000	0.000071	0.000006
9	8.1701190E+08	2.0000	1.721	4.019	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1166	0.000	2.112	7.474	0.100568	0.898504	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
10	8.3357715E+08	2.0000	1.734	4.013	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1077	0.000	2.152	7.489	0.060975	0.938098	0.000008	0.000002	0.000765	0.000027	0.000000	0.000000	0.000071	0.000006
11	8.4501747E+08	2.0000	1.747	4.011	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1010	0.000	2.206	7.508	0.030183	0.968889	0.000008	0.000003	0.000766	0.000026	0.000000	0.000000	0.000071	0.000006
12	8.5325677E+08	2.0000	1.771	4.026	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0935	0.000	2.324	7.546	0.006177	0.992896	0.000010	0.000003	0.000766	0.000023	0.000000	0.000000	0.000071	0.000006
13	8.5563379E+08	2.0000	1.794	4.050	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.899	7.550	0.000000	0.999073	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
14	8.5567667E+08	2.0000	1.792	4.046	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.931	7.546	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
15	8.5813261E+08	2.0000	1.865	3.999	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.415	7.518	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
16	8.6217024E+08	2.0000	1.876	3.945	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.757	7.573	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
17	8.6403379E+08	2.0000	1.866	3.892	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.944	7.627	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
18	8.6506912E+08	2.0000	1.846	3.841	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.063	7.666	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
19	8.6590771E+08	2.0000	1.807	3.786	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.165	7.699	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
20	8.6727744E+08	2.0000	1.688	3.737	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.339	7.758	0.000000	0.999074	0.000012	0.000004	0.000763	0.000021	0.000000	0.000000	0.000071	0.000006
21	8.7773389E+08	1.9994	2.471	3.678	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0352	-9.774	5.154	8.007	0.000000	0.998649	0.000434	0.000000	0.000766	0.000026	0.000000	0.000000	0.000070	0.000006
22	8.8871590E+08	1.9991	1.890	3.714	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0541	-10.721	4.589	8.042	0.000000	0.950200	0.047313	0.000000	0.000720	0.001580	0.000000	0.000056	0.000070	0.000010
23	8.9786432E+08	1.9989	1.807	3.724	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0574	-10.869	4.536	8.048	0.000000	0.908628	0.085290	0.000000	0.000664	0.005157	0.000000	0.000118	0.000070	0.000022
24	9.0810202E+08	1.9988	1.850	3.736	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0608	-10.821	4.495	8.054	0.000000	0.857137	0.129712	0.000000	0.000582	0.012199	0.000000	0.000202	0.000070	0.000048
25	9.1667610E+08	1.9987	1.867	3.735	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0618	-10.797	4.471	8.058	0.000000	0.806755	0.170704	0.000000	0.000496	0.021557	0.000000	0.000284	0.000070	0.000084
26	9.2657466E+08	1.9985	1.893	3.736	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0667	-10.760	4.446	8.064	0.000000	0.758725	0.206132	0.000000	0.000406	0.034124	0.000000	0.000359	0.000070	0.000134
27	9.3397139E+08	1.9984	1.913	3.737	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0690	-10.732	4.427	8.068	0.000000	0.708779	0.242225	0.000000	0.000315	0.047942	0.000000	0.000432	0.000070	0.000187
28	9.4506650E+08	1.9981	1.943	3.738	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0703	-10.688	4.395	8.075	0.000000	0.649750	0.279751	0.000000	0.000207	0.069399	0.000000	0.000505	0.000070	0.000267
29	9.5061408E+08	1.9980	1.959	3.738	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0744	-10.665	4.383	8.079	0.000000	0.605072	0.308210	0.000000	0.000142	0.085589	0.000000	0.000543	0.000070	0.000324
30	9.5560685E+08	1.9979	1.970	3.738	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0677	-10.639	4.370	8.082	0.000000	0.561489	0.333836	0.000000	0.000090	0.103521	0.000000	0.000562	0.000070	0.000383
31	9.6409466E+08	1.9977	1.995	3.739	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0821	-10.614	4.350	8.089	0.000000	0.505642	0.359966	0.000000	0.000050	0.133212	0.000000	0.000546	0.000070	0.000464
32	9.6943878E+08	1.9976	2.010	3.739	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0725	-10.592	4.332	8.094	0.000000	0.450663	0.386292	0.000000	0.000017	0.161843	0.000000	0.000531	0.000070	0.000535
33	9.8012704E+08	1.9973	2.041	3.741	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0859	-10.548	4.298	8.104	0.000000	0.393825	0.400330	0.000000	0.000008	0.204628	0.000000	0.000488	0.000070	0.000602
34	9.8279917E+08	1.9972	2.047	3.741	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0770	-10.536	4.288	8.107	0.000000	0.359736	0.412809	0.000000	0.000002	0.226229	0.000000	0.000465	0.000070	0.000638
35	9.8814330E+08	1.9970	2.060	3.740	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0928	-10.517	4.278	8.112	0.000000	0.309492	0.424725	0.000000	0.000000	0.264547	0.000000	0.000421	0.000071	0.000695
36	9.9615949E+08	1.9968	2.080	3.740	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0837	-10.485	4.254	8.127	0.000000	0.247805	0.430124	0.000000	0.000000	0.320827	0.000000	0.000387	0.000071	0.000737
37	9.9883155E+08	1.9967	2.085	3.740	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0875	-10.470	4.256	8.133	0.000000	0.204311	0.433241	0.000000	0.000000	0.361197	0.000000	0.000355	0.000071	0.000776
38	1.0068411E+09	1.9964	2.103	3.738	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0790	-10.444	4.250	8.145	0.000000	0.161277	0.415218	0.000000	0.000000	0.422246	0.000000	0.000327	0.000071	0.000811
39	1.0102196E+09	1.9963	2.100	3.734	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0815	-10.444	4.263	8.160	0.000000	0.105037	0.397263	0.000000	0.000000	0.496432	0.000000	0.000281	0.000071	0.000866
40	1.0135981E+09	1.9962	2.093	3.727	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.442	0.000	0.000	0.000000	0.056987	0.358483	0.000000	0.000000	0.583250	0.000000	0.000228	0.000071	0.000931
41	1.0157676E+09	1.9961	2.086	3.723	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0867	-10.446	4.344	8.193	0.000000	0.036446	0.326773	0.000000	0.000000	0.635491	0.000000	0.000186	0.000071	0.000982
42	1.0175111E+09	1.9960	2.078	3.716	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0848	-10.448	4.440	8.221	0.000000	0.011350	0.277243	0.000000	0.000000	0.710096	0.000000	0.000090	0.000071	0.001098
43	1.0183829E+09	1.9960	2.141	3.704	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.330	4.723	8.264	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000008	0.000071	0.001195
44	1.0186009E+09	1.9960	2.257	3.696	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.126	4.944	8.267	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
45	1.0243864E+09	1.9955	2.362	3.686	0.735154	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.965	5.496	8.143	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
46	1.0256606E+09	1.9954	2.495	3.679	0.735153	0.263566	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.745	5.628	8.146	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
47	1.0263887E+09	1.9952	2.620	3.671	0.735152	0.263568	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.469	5.749	8.148	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
48	1.0268893E+09	1.9950	2.723	3.665	0.735151	0.263574	0.000130	0.000007	0.000195	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.374	5.840	8.135	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
49	1.0273216E+09	1.9948	2.836	3.658	0.735145	0.263584	0.000128	0.000008	0.000197	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.188	5.924	8.112	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
50	1.0276582E+09	1.9945	2.955	3.650	0.735137	0.263594	0.000127	0.000007	0.000198	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.996	5.989	8.088	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193
51	1.0279507E+09	1.9941	3.078	3.642	0.735130	0.263602	0.000127	0.000007	0.000199	0.000507	0.000002	0.000001	0.000071	0.000006
	0.0000	-8.793	6.045	8.064	0.000000	0.000000	0.245634	0.000000	0.000000	0.753026	0.000000	0.000010	0.000071	0.001193

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TABLE 38.

STELLAR MODEL : 1.7 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.1699778E+07	1.7000	1.136	4.029	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.2106	0.000	1.969	7.323	0.753347	0.245654	0.000002	0.000001	0.000333	0.000522	0.000009	0.000000	0.000071	0.000006
2	4.2474941E+08	1.7000	1.211	4.029	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1980	0.000	2.002	7.348	0.620474	0.378579	0.000004	0.000001	0.000668	0.000131	0.000013	0.000000	0.000071	0.000006
3	6.2599795E+08	1.7000	1.256	4.028	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1891	0.000	2.026	7.363	0.540515	0.458550	0.000005	0.000002	0.000738	0.000059	0.000004	0.000000	0.000071	0.000006
4	7.9580365E+08	1.7000	1.298	4.024	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1770	0.000	2.051	7.379	0.460226	0.538843	0.000005	0.000002	0.000753	0.000043	0.000002	0.000000	0.000071	0.000006
5	9.3654586E+08	1.7000	1.338	4.019	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1647	0.000	2.077	7.394	0.380889	0.618181	0.000006	0.000002	0.000757	0.000039	0.000001	0.000000	0.000071	0.000006
6	1.0612595E+09	1.7000	1.371	4.007	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1500	0.000	2.094	7.406	0.301103	0.697967	0.000006	0.000002	0.000759	0.000037	0.000001	0.000000	0.000071	0.000006
7	1.1648247E+09	1.7000	1.405	3.997	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1353	0.000	2.133	7.424	0.220151	0.778920	0.000006	0.000002	0.000761	0.000035	0.000001	0.000000	0.000071	0.000006
8	1.2227933E+09	1.7000	1.426	3.987	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1229	0.000	2.165	7.438	0.160857	0.838215	0.000006	0.000002	0.000762	0.000033	0.000000	0.000000	0.000071	0.000006
9	1.2700652E+09	1.7000	1.445	3.975	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1114	0.000	2.208	7.454	0.101303	0.897769	0.000007	0.000002	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
10	1.2965103E+09	1.7000	1.458	3.969	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1034	0.000	2.249	7.469	0.061428	0.937644	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
11	1.3153157E+09	1.7000	1.472	3.968	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0969	0.000	2.306	7.488	0.029558	0.969515	0.000008	0.000002	0.000765	0.000027	0.000000	0.000000	0.000071	0.000006
12	1.3275864E+09	1.7000	1.495	3.982	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0901	0.000	2.414	7.523	0.006913	0.992159	0.000009	0.000003	0.000765	0.000025	0.000000	0.000000	0.000071	0.000006
13	1.3317971E+09	1.7000	1.527	4.005	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.013	7.523	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
14	1.3321791E+09	1.7000	1.555	3.994	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.136	7.508	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
15	1.3365290E+09	1.7000	1.593	3.963	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.474	7.480	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
16	1.3449103E+09	1.7000	1.607	3.917	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.794	7.527	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
17	1.3486954E+09	1.7000	1.603	3.871	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.977	7.576	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
18	1.3509962E+09	1.7000	1.586	3.823	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.105	7.613	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
19	1.3528357E+09	1.7000	1.551	3.783	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.214	7.647	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
20	1.3563397E+09	1.7000	1.437	3.738	0.755978	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.428	7.712	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
21	1.3574609E+09	1.7000	1.461	3.730	0.755565	0.243045	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.489	7.728	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
22	1.3591414E+09	1.7000	1.508	3.721	0.754762	0.243684	0.000223	0.000005	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.235	4.570	7.746	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
23	1.3603566E+09	1.7000	1.548	3.718	0.753724	0.244722	0.000216	0.000009	0.000073	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.170	4.623	7.756	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
24	1.3615717E+09	1.7000	1.588	3.716	0.752414	0.246060	0.000199	0.000011	0.000091	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.106	4.672	7.764	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
25	1.3627869E+09	1.7000	1.626	3.712	0.750508	0.248002	0.000180	0.000010	0.000114	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.043	4.718	7.772	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
26	1.3640020E+09	1.7000	1.666	3.711	0.748507	0.250029	0.000168	0.000009	0.000129	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.981	4.761	7.778	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
27	1.3648122E+09	1.6999	1.692	3.710	0.746851	0.251701	0.000161	0.000009	0.000138	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.941	4.789	7.783	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
28	1.3661083E+09	1.6999	1.733	3.708	0.744696	0.253872	0.000154	0.000008	0.000147	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.874	4.831	7.788	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
29	1.3676637E+09	1.6999	1.780	3.705	0.742857	0.255722	0.000149	0.000008	0.000152	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.797	4.879	7.794	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
30	1.3688303E+09	1.6999	1.815	3.704	0.741609	0.256976	0.000146	0.000008	0.000155	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.742	4.913	7.799	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
31	1.3699968E+09	1.6999	1.848	3.703	0.740553	0.258038	0.000144	0.000008	0.000158	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.691	4.946	7.803	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
32	1.3714550E+09	1.6998	1.893	3.702	0.739431	0.259165	0.000142	0.000008	0.000160	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.634	4.987	7.808	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
33	1.3726216E+09	1.6998	1.931	3.700	0.738652	0.259947	0.000141	0.000008	0.000162	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.560	5.019	7.813	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
34	1.3737882E+09	1.6998	1.964	3.698	0.738069	0.260532	0.000140	0.000008	0.000163	0.000530	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.506	5.050	7.817	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
35	1.3751530E+09	1.6997	2.004	3.695	0.737563	0.261040	0.000140	0.000008	0.000164	0.000530	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.442	5.086	7.822	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
36	1.3764596E+09	1.6997	2.045	3.691	0.736987	0.261618	0.000139	0.000008	0.000165	0.000529	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.370	5.120	7.826	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
37	1.3775795E+09	1.6996	2.079	3.689	0.736695	0.261910	0.000139	0.000008	0.000166	0.000529	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.317	5.148	7.830	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
38	1.3790717E+09	1.6995	2.122	3.687	0.736430	0.262177	0.000138	0.000008	0.000166	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.231	5.185	7.835	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
39	1.3801505E+09	1.6995	2.157	3.685	0.736278	0.262328	0.000138	0.000008	0.000166	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.190	5.212	7.839	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
40	1.3814586E+09	1.6994	2.195	3.682	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.129	5.244	7.843	0.000000	0.999073	0.000011	0.000004	0.000763	0.000023	0.000000	0.000000	0.000071	0.000006
41	1.3827424E+09	1.6993	2.234	3.680	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-10.066	5.276	7.848	0.000000	0.999072	0.000011	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
42	1.3839398E+09	1.6992	2.276	3.679	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.998	5.306	7.852	0.000000	0.999072	0.000011	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
43	1.3853055E+09	1.6990	2.314	3.677	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.938	5.340	7.858	0.000000	0.999072	0.000011	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
44	1.3864424E+09	1.6989	2.353	3.675	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.878	5.368	7.863	0.000000	0.999072	0.000012	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
45	1.3879453E+09	1.6987	2.390	3.673	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.818	5.407	7.869	0.000000	0.999072	0.000012	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
46	1.3894967E+09	1.6984	2.427	3.671	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.759	5.446	7.876	0.000000	0.999071	0.000013	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
47	1.3957879E+09	1.6974	2.466	3.669	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.696	5.583	7.883	0.000000	0.999052	0.000031	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
48	1.3965868E+09	1.6972	2.505	3.667	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.634	5.599	7.882	0.000000	0.999049	0.000034	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
49	1.3974525E+09	1.6970	2.543	3.665	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.567	5.617	7.882	0.000000	0.999045	0.000038	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
50	1.3982467E+09	1.6968	2.583	3.662	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.507	5.634	7.883	0.000000	0.999041	0.000042	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
51	1.3990351E+09	1.6965	2.621	3.659	0.736204	0.262403	0.000138	0.000008	0.000167	0.000528	0.000002	0.000001	0.000071	0.000006
	0.0000	-9.443	5.652	7.884	0.000000	0.999036	0.000047	0.000000	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006

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TABLE 39.

STELLAR MODEL : 1.5 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	2.3769548E+07	1.5000	0.916	3.981	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1958	0.000	1.983	7.290	0.751374	0.247623	0.000002	0.000001	0.000333	0.000525	0.000007	0.000000	0.000071	0.000006
2	5.7757837E+08	1.5000	0.995	3.987	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1791	0.000	2.044	7.321	0.620493	0.378532	0.000003	0.000001	0.000506	0.000280	0.000055	0.000000	0.000071	0.000006
3	8.4818125E+08	1.5000	1.041	3.987	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1721	0.000	2.076	7.339	0.540959	0.458092	0.000004	0.000001	0.000658	0.000139	0.000018	0.000000	0.000071	0.000006
4	1.0800881E+09	1.5000	1.084	3.985	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1614	0.000	2.108	7.357	0.460307	0.538757	0.000005	0.000002	0.000732	0.000065	0.000005	0.000000	0.000071	0.000006
5	1.2744532E+09	1.5000	1.124	3.981	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1517	0.000	2.142	7.374	0.380401	0.618668	0.000005	0.000002	0.000752	0.000044	0.000002	0.000000	0.000071	0.000006
6	1.4386801E+09	1.5000	1.158	3.973	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1406	0.000	2.175	7.391	0.300246	0.698824	0.000006	0.000002	0.000756	0.000039	0.000001	0.000000	0.000071	0.000006
7	1.5790275E+09	1.5000	1.186	3.960	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1279	0.000	2.196	7.404	0.221797	0.777273	0.000006	0.000002	0.000759	0.000037	0.000001	0.000000	0.000071	0.000006
8	1.6753798E+09	1.5000	1.209	3.951	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1181	0.000	2.237	7.420	0.160575	0.838496	0.000006	0.000002	0.000760	0.000035	0.000001	0.000000	0.000071	0.000006
9	1.7477789E+09	1.5000	1.228	3.941	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1069	0.000	2.281	7.438	0.101609	0.897462	0.000006	0.000002	0.000762	0.000033	0.000000	0.000000	0.000071	0.000006
10	1.7881859E+09	1.5000	1.241	3.935	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0994	0.000	2.324	7.453	0.061415	0.937657	0.000007	0.000002	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
11	1.8162724E+09	1.5000	1.254	3.934	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0930	0.000	2.378	7.472	0.030603	0.968469	0.000007	0.000002	0.000764	0.000029	0.000000	0.000000	0.000071	0.000006
12	1.8367875E+09	1.5000	1.283	3.949	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0860	0.000	2.500	7.509	0.006184	0.992889	0.000009	0.000003	0.000764	0.000027	0.000000	0.000000	0.000071	0.000006
13	1.8427354E+09	1.5000	1.324	3.969	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.102	7.501	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
14	1.8430397E+09	1.5000	1.338	3.964	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.171	7.491	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
15	1.8447747E+09	1.5000	1.366	3.950	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.343	7.466	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
16	1.8608020E+09	1.5000	1.393	3.912	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.703	7.469	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
17	1.8706685E+09	1.5000	1.400	3.873	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.926	7.515	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
18	1.8760503E+09	1.5000	1.393	3.832	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.077	7.553	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
19	1.8801315E+09	1.5000	1.373	3.795	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.204	7.588	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
20	1.8898008E+09	1.5000	1.251	3.740	0.755966	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.512	7.670	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
21	1.8937564E+09	1.5000	1.285	3.733	0.755182	0.243217	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.612	7.688	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
22	1.8994876E+09	1.5000	1.351	3.723	0.753481	0.244829	0.000220	0.000006	0.000071	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.730	7.700	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
23	1.9039671E+09	1.5000	1.409	3.718	0.750988	0.247379	0.000200	0.000010	0.000090	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.806	7.705	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
24	1.9090840E+09	1.5000	1.473	3.714	0.747146	0.251277	0.000176	0.000009	0.000119	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.882	7.707	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
25	1.9134619E+09	1.5000	1.526	3.713	0.744219	0.254231	0.000166	0.000009	0.000132	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.940	7.708	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
26	1.9182150E+09	1.5000	1.584	3.710	0.741365	0.257105	0.000158	0.000008	0.000141	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.998	7.709	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
27	1.9234684E+09	1.5000	1.644	3.707	0.739010	0.259473	0.000154	0.000008	0.000147	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	0.000	5.057	7.710	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
28	1.9285341E+09	1.5000	1.706	3.705	0.737238	0.261253	0.000151	0.000008	0.000150	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	0.000	5.111	7.711	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
29	1.9338592E+09	1.5000	1.768	3.702	0.735974	0.262523	0.000149	0.000008	0.000153	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	0.000	5.166	7.713	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
30	1.9395420E+09	1.4999	1.826	3.699	0.735380	0.263120	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.626	5.223	7.715	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
31	1.9443185E+09	1.4998	1.888	3.696	0.735203	0.263298	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.526	5.269	7.717	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
32	1.9489164E+09	1.4997	1.947	3.691	0.735149	0.263352	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.428	5.313	7.720	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
33	1.9528275E+09	1.4995	2.006	3.687	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.331	5.351	7.722	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
34	1.9566230E+09	1.4993	2.069	3.683	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.229	5.388	7.726	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
35	1.9594237E+09	1.4991	2.128	3.680	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.138	5.417	7.730	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
36	1.9618682E+09	1.4989	2.186	3.677	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.042	5.444	7.734	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
37	1.9642964E+09	1.4987	2.246	3.674	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.945	5.472	7.740	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
38	1.9670103E+09	1.4983	2.307	3.671	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.846	5.507	7.748	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
39	1.9732219E+09	1.4974	2.368	3.668	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.750	5.585	7.765	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
40	1.9750097E+09	1.4971	2.427	3.664	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.652	5.609	7.769	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
41	1.9766691E+09	1.4967	2.488	3.661	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.555	5.633	7.774	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
42	1.9781466E+09	1.4962	2.549	3.658	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.458	5.657	7.779	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
43	1.9795410E+09	1.4957	2.608	3.654	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.360	5.681	7.786	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
44	1.9807311E+09	1.4951	2.668	3.650	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.262	5.705	7.792	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
45	1.9818304E+09	1.4944	2.729	3.646	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.163	5.728	7.800	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
46	1.9828781E+09	1.4936	2.789	3.643	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.067	5.753	7.810	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
47	1.9838107E+09	1.4927	2.849	3.639	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.967	5.778	7.819	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
48	1.9846141E+09	1.4917	2.910	3.632	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.855	5.802	7.829	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
49	1.9853961E+09	1.4905	2.970	3.628	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.763	5.828	7.839	0.000000	0.999073	0.000011	0.000003	0.000763	0.000025	0.000000	0.000000	0.000071	0.000006
50	1.9861158E+09	1.4891	3.030	3.624	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.665	5.855	7.850	0.000000	0.999072	0.000011	0.000000	0.000763	0.000029	0.000000	0.000000	0.000071	0.000006
51	1.9867359E+09	1.4876	3.090	3.620	0.734891	0.263610	0.000148	0.000008	0.000154	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.568	5.882	7.860	0.000000	0.999071	0.000012	0.000000	0.000763	0.000029	0.000000	0.000000	0.000071	0.000006

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TABLE 40.

STELLAR MODEL : 1.25 M , Z = 0.001 ,WITH OVERSHOOTING

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	6.8147705E+06	1.2500	0.576	3.906	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1809	0.000	1.988	7.235	0.755217	0.243769	0.000002	0.000001	0.000332	0.000531	0.000000	0.000001	0.000071	0.000006
2	9.6675942E+08	1.2500	0.658	3.914	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1539	0.000	2.065	7.269	0.621001	0.377994	0.000002	0.000001	0.000340	0.000477	0.000049	0.000000	0.000071	0.000006
3	1.4533199E+09	1.2500	0.708	3.918	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1469	0.000	2.114	7.291	0.539001	0.460003	0.000002	0.000001	0.000383	0.000396	0.000082	0.000000	0.000071	0.000006
4	1.8565619E+09	1.2500	0.755	3.919	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1393	0.000	2.163	7.313	0.459306	0.539721	0.000003	0.000001	0.000512	0.000267	0.000062	0.000000	0.000071	0.000006
5	2.2028416E+09	1.2500	0.798	3.918	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1318	0.000	2.209	7.335	0.379618	0.619436	0.000004	0.000001	0.000664	0.000131	0.000019	0.000000	0.000071	0.000006
6	2.5010163E+09	1.2500	0.837	3.915	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1243	0.000	2.257	7.356	0.299940	0.699127	0.000005	0.000002	0.000738	0.000058	0.000005	0.000000	0.000071	0.000006
7	2.7543639E+09	1.2500	0.871	3.907	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1147	0.000	2.306	7.378	0.219258	0.779812	0.000005	0.000002	0.000754	0.000042	0.000002	0.000000	0.000071	0.000006
8	2.9078121E+09	1.2500	0.892	3.899	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.1074	0.000	2.344	7.394	0.160314	0.838756	0.000006	0.000002	0.000757	0.000039	0.000001	0.000000	0.000071	0.000006
9	3.0429975E+09	1.2500	0.911	3.889	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0988	0.000	2.391	7.412	0.099059	0.900011	0.000005	0.000002	0.000760	0.000036	0.000001	0.000000	0.000071	0.000006
10	3.1155141E+09	1.2500	0.925	3.885	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0923	0.000	2.439	7.430	0.059842	0.939229	0.000006	0.000002	0.000761	0.000034	0.000001	0.000000	0.000071	0.000006
11	3.2009375E+09	1.2500	0.979	3.905	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0745	0.000	2.650	7.491	0.004085	0.994987	0.000008	0.000002	0.000763	0.000029	0.000000	0.000000	0.000071	0.000006
12	3.2077302E+09	1.2500	1.033	3.925	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0101	0.000	3.014	7.511	0.000095	0.998978	0.000010	0.000003	0.000762	0.000027	0.000000	0.000000	0.000071	0.000006
13	3.2095726E+09	1.2500	1.041	3.911	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.281	7.446	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
14	3.2143465E+09	1.2500	1.056	3.900	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.427	7.413	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
15	3.2612165E+09	1.2500	1.086	3.873	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.704	7.417	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
16	3.2880776E+09	1.2500	1.099	3.847	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.887	7.442	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
17	3.3059474E+09	1.2500	1.103	3.819	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.044	7.471	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
18	3.3211840E+09	1.2500	1.095	3.795	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.201	7.504	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
19	3.3367506E+09	1.2500	1.057	3.770	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.372	7.540	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
20	3.3573197E+09	1.2500	1.000	3.743	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.578	7.574	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
21	3.3927442E+09	1.2500	1.074	3.725	0.754148	0.243939	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.762	4.806	7.573	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
22	3.4155620E+09	1.2499	1.145	3.720	0.752151	0.245954	0.000221	0.000006	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.646	4.905	7.566	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
23	3.4362404E+09	1.2499	1.219	3.717	0.749028	0.249144	0.000210	0.000010	0.000080	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.529	4.980	7.561	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
24	3.4541975E+09	1.2498	1.291	3.714	0.745449	0.252771	0.000193	0.000010	0.000100	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.415	5.039	7.560	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
25	3.4699771E+09	1.2497	1.363	3.711	0.741802	0.256452	0.000181	0.000009	0.000114	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.301	5.089	7.562	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
26	3.4833764E+09	1.2496	1.434	3.708	0.738990	0.259285	0.000174	0.000009	0.000122	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.189	5.132	7.567	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
27	3.4956972E+09	1.2496	1.508	3.704	0.737032	0.261256	0.000170	0.000008	0.000127	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.070	5.173	7.574	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
28	3.5060695E+09	1.2495	1.581	3.702	0.735374	0.262923	0.000167	0.000008	0.000130	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.956	5.210	7.582	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
29	3.5172429E+09	1.2493	1.653	3.697	0.735204	0.263093	0.000168	0.000008	0.000130	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.838	5.242	7.596	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
30	3.5248760E+09	1.2492	1.724	3.693	0.734708	0.263591	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.732	5.276	7.606	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
31	3.5318554E+09	1.2490	1.800	3.689	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.602	5.309	7.617	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
32	3.5382976E+09	1.2489	1.879	3.683	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.471	5.343	7.629	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
33	3.5433979E+09	1.2487	1.952	3.680	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.356	5.375	7.642	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
34	3.5479941E+09	1.2484	2.027	3.677	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.242	5.406	7.655	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
35	3.5522967E+09	1.2481	2.098	3.673	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.123	5.439	7.669	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
36	3.5625687E+09	1.2472	2.172	3.669	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.004	5.528	7.705	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
37	3.5657746E+09	1.2469	2.247	3.665	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.882	5.556	7.713	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
38	3.5686098E+09	1.2464	2.322	3.661	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.761	5.584	7.722	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
39	3.5709637E+09	1.2460	2.397	3.656	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.639	5.610	7.730	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
40	3.5731474E+09	1.2454	2.471	3.652	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.520	5.637	7.740	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
41	3.5751780E+09	1.2447	2.547	3.647	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.397	5.666	7.752	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
42	3.5768515E+09	1.2439	2.622	3.643	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.275	5.694	7.764	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
43	3.5783962E+09	1.2430	2.696	3.638	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.153	5.723	7.777	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
44	3.5797061E+09	1.2419	2.771	3.630	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.025	5.752	7.790	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
45	3.5808799E+09	1.2406	2.845	3.626	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.906	5.781	7.804	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
46	3.5819331E+09	1.2391	2.920	3.621	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.782	5.812	7.820	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
47	3.5828644E+09	1.2373	2.995	3.618	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.663	5.843	7.836	0.000000	0.999072	0.000009	0.000003	0.000763	0.000027	0.000000	0.000000	0.000071	0.000006
48	3.5836828E+09	1.2353	3.070	3.612	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.538	5.874	7.852	0.000000	0.999071	0.000009	0.000000	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
49	3.5844403E+09	1.2328	3.145	3.605	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.410	5.908	7.868	0.000000	0.999069	0.000012	0.000000	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
50	3.5851231E+09	1.2297	3.220	3.601	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.290	5.944	7.883	0.000000	0.999056	0.000024	0.000000	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006
51	3.5857482E+09	1.2260	3.297	3.598	0.734619	0.263681	0.000167	0.000008	0.000131	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.159	5.981	7.904	0.000000	0.998962	0.000118	0.000000	0.000763	0.000031	0.000000	0.000000	0.000071	0.000006

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TABLE 41.

STELLAR MODEL : 1.25 M , Z = 0.001, WITHOUT OVERSHOOTING

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	6.1338835E+06	1.2500	0.583	3.908	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0508	0.000	2.000	7.234	0.754899	0.244092	0.000001	0.000000	0.000333	0.000531	0.000001	0.000000	0.000071	0.000006
2	6.2752269E+08	1.2500	0.637	3.913	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0337	0.000	2.078	7.259	0.620075	0.378922	0.000002	0.000001	0.000348	0.000453	0.000065	0.000000	0.000071	0.000006
3	9.3507744E+08	1.2500	0.668	3.917	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0252	0.000	2.128	7.276	0.539122	0.459887	0.000002	0.000001	0.000409	0.000359	0.000090	0.000000	0.000071	0.000006
4	1.1928376E+09	1.2500	0.696	3.919	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0203	0.000	2.179	7.292	0.460774	0.538256	0.000003	0.000001	0.000532	0.000238	0.000067	0.000000	0.000071	0.000006
5	1.4266012E+09	1.2500	0.724	3.921	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0167	0.000	2.235	7.308	0.379216	0.619838	0.000004	0.000001	0.000667	0.000122	0.000026	0.000000	0.000071	0.000006
6	1.6241172E+09	1.2500	0.749	3.923	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0138	0.000	2.294	7.325	0.300552	0.698513	0.000005	0.000001	0.000732	0.000062	0.000008	0.000000	0.000071	0.000006
7	1.7972374E+09	1.2500	0.773	3.924	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0111	0.000	2.358	7.342	0.220822	0.778246	0.000005	0.000002	0.000750	0.000045	0.000004	0.000000	0.000071	0.000006
8	1.9126883E+09	1.2500	0.789	3.924	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0105	0.000	2.408	7.355	0.160827	0.838242	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
9	2.0212637E+09	1.2500	0.805	3.924	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0081	0.000	2.468	7.369	0.099041	0.900029	0.000006	0.000002	0.000755	0.000040	0.000002	0.000000	0.000071	0.000006
10	2.0843077E+09	1.2500	0.817	3.925	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0038	0.000	2.520	7.375	0.060951	0.938120	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
11	2.1359686E+09	1.2500	0.829	3.926	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.586	7.369	0.030047	0.969024	0.000006	0.000002	0.000758	0.000037	0.000001	0.000000	0.000071	0.000006
12	2.4624202E+09	1.2500	0.900	3.927	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.809	7.362	0.000184	0.998886	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
13	2.6687660E+09	1.2500	0.957	3.924	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.980	7.368	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
14	2.8604511E+09	1.2500	1.026	3.913	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.229	7.381	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
15	2.9551642E+09	1.2500	1.070	3.895	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.461	7.395	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
16	3.0183700E+09	1.2500	1.106	3.863	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.743	7.421	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
17	3.0465682E+09	1.2500	1.118	3.829	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.946	7.452	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
18	3.0633462E+09	1.2500	1.116	3.802	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.104	7.484	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
19	3.0825057E+09	1.2500	1.082	3.771	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.317	7.531	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
20	3.1030241E+09	1.2500	1.025	3.743	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.539	7.573	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
21	3.1279260E+09	1.2500	1.081	3.726	0.754612	0.243591	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.754	4.732	7.582	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
22	3.1454405E+09	1.2499	1.144	3.722	0.752943	0.245253	0.000222	0.000005	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.651	4.830	7.579	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
23	3.1600010E+09	1.2499	1.203	3.718	0.750330	0.247912	0.000213	0.000009	0.000076	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.540	4.900	7.577	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
24	3.1726269E+09	1.2499	1.260	3.716	0.747281	0.251000	0.000197	0.000010	0.000095	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.466	4.954	7.576	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
25	3.1842253E+09	1.2498	1.316	3.715	0.744328	0.253981	0.000185	0.000009	0.000109	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.378	5.002	7.576	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
26	3.1952599E+09	1.2498	1.374	3.712	0.741335	0.256996	0.000177	0.000009	0.000119	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.287	5.046	7.578	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
27	3.2058803E+09	1.2497	1.436	3.708	0.738381	0.259968	0.000170	0.000008	0.000127	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.178	5.088	7.582	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
28	3.2146614E+09	1.2496	1.492	3.706	0.736452	0.261907	0.000167	0.000008	0.000132	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.103	5.123	7.586	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
29	3.2227466E+09	1.2496	1.550	3.704	0.734614	0.263754	0.000164	0.000008	0.000135	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.007	5.157	7.592	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
30	3.2303171E+09	1.2495	1.609	3.701	0.733504	0.264868	0.000162	0.000008	0.000137	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.905	5.190	7.598	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
31	3.2371740E+09	1.2494	1.669	3.699	0.732742	0.265633	0.000161	0.000008	0.000138	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.810	5.221	7.605	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
32	3.2430692E+09	1.2493	1.726	3.696	0.732135	0.266243	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.726	5.250	7.613	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
33	3.2484209E+09	1.2492	1.783	3.692	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.634	5.278	7.621	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
34	3.2534584E+09	1.2490	1.842	3.688	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.536	5.307	7.629	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
35	3.2579643E+09	1.2489	1.901	3.684	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.441	5.334	7.638	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
36	3.2620142E+09	1.2487	1.961	3.681	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.344	5.361	7.647	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
37	3.2656678E+09	1.2485	2.019	3.678	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.253	5.388	7.657	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
38	3.2690890E+09	1.2483	2.076	3.675	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.160	5.415	7.667	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
39	3.2723351E+09	1.2481	2.135	3.672	0.732036	0.266342	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-10.064	5.443	7.678	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
40	3.2840617E+09	1.2472	2.195	3.670	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.969	5.529	7.723	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
41	3.2863672E+09	1.2469	2.253	3.666	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.875	5.550	7.729	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
42	3.2887084E+09	1.2465	2.315	3.663	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.776	5.573	7.736	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
43	3.2907543E+09	1.2462	2.374	3.659	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.680	5.596	7.744	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
44	3.2925783E+09	1.2457	2.433	3.655	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.584	5.618	7.752	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
45	3.2941243E+09	1.2453	2.492	3.652	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.496	5.638	7.759	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
46	3.2956905E+09	1.2447	2.552	3.649	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.394	5.661	7.769	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
47	3.2970998E+09	1.2441	2.612	3.645	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.295	5.685	7.779	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
48	3.2983002E+09	1.2434	2.672	3.642	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.198	5.706	7.789	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
49	3.2994468E+09	1.2426	2.731	3.638	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-9.099	5.730	7.801	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
50	3.3004403E+09	1.2417	2.791	3.632	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.998	5.752	7.812	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006
51	3.3014042E+09	1.2406	2.851	3.628	0.732105	0.266274	0.000160	0.000008	0.000139	0.000531	0.000001	0.000001	0.000071	0.000006
	0.0000	-8.903	5.793	7.835	0.000000	0.999070	0.000006	0.000002	0.000757	0.000038	0.000001	0.000000	0.000071	0.000006

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TABLE 42.

STELLAR MODEL : 1 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	9.2647936E+07	1.0000	0.150	3.827	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0329	0.000	1.993	7.161	0.746877	0.252087	0.000001	0.000000	0.000334	0.000531	0.000001	0.000000	0.000071	0.000006
2	1.2224844E+09	1.0000	0.195	3.831	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0029	0.000	2.072	7.181	0.621005	0.377981	0.000001	0.000000	0.000333	0.000525	0.000007	0.000000	0.000071	0.000006
3	1.7706569E+09	1.0000	0.222	3.833	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.125	7.194	0.541009	0.457983	0.000001	0.000000	0.000334	0.000511	0.000022	0.000000	0.000071	0.000006
4	2.2997243E+09	1.0000	0.251	3.835	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.182	7.207	0.460916	0.538081	0.000001	0.000000	0.000337	0.000486	0.000044	0.000000	0.000071	0.000006
5	2.8155651E+09	1.0000	0.282	3.837	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.244	7.222	0.380870	0.618131	0.000002	0.000001	0.000352	0.000442	0.000072	0.000000	0.000071	0.000006
6	3.3314058E+09	1.0000	0.316	3.839	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.316	7.238	0.300496	0.698513	0.000002	0.000001	0.000399	0.000367	0.000094	0.000000	0.000071	0.000006
7	3.8736996E+09	1.0000	0.356	3.842	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.404	7.257	0.220019	0.779010	0.000003	0.000001	0.000515	0.000247	0.000079	0.000000	0.000071	0.000006
8	4.3071380E+09	1.0000	0.393	3.844	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.484	7.273	0.160994	0.838056	0.000004	0.000001	0.000637	0.000142	0.000041	0.000000	0.000071	0.000006
9	4.7712625E+09	1.0000	0.436	3.846	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.580	7.295	0.100365	0.898699	0.000005	0.000001	0.000725	0.000067	0.000013	0.000000	0.000071	0.000006
10	5.0593398E+09	1.0000	0.465	3.847	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.644	7.313	0.060883	0.938184	0.000005	0.000002	0.000744	0.000049	0.000006	0.000000	0.000071	0.000006
11	5.2890143E+09	1.0000	0.490	3.848	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.702	7.327	0.029642	0.969427	0.000005	0.000002	0.000750	0.000045	0.000004	0.000000	0.000071	0.000006
12	5.8209070E+09	1.0000	0.560	3.848	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.889	7.339	0.000665	0.998405	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
13	6.2635884E+09	1.0000	0.638	3.843	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.122	7.347	0.000000	0.999069	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
14	6.6016660E+09	1.0000	0.719	3.829	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.430	7.364	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
15	6.7205898E+09	1.0000	0.756	3.814	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.636	7.379	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
16	6.7840681E+09	1.0000	0.775	3.802	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.801	7.394	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
17	6.8358661E+09	1.0000	0.784	3.786	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.983	7.417	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
18	6.8607493E+09	1.0000	0.779	3.775	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.093	7.434	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
19	6.8898632E+09	1.0000	0.762	3.760	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.234	7.457	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
20	6.9177324E+09	1.0000	0.750	3.746	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.372	7.478	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
21	6.9854152E+09	1.0000	0.834	3.724	0.754516	0.243538	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-12.023	4.637	7.497	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
22	7.0237957E+09	0.9999	0.914	3.719	0.752773	0.245186	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.894	4.752	7.503	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
23	7.0564746E+09	0.9999	0.993	3.716	0.750053	0.247931	0.000222	0.000005	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.771	4.838	7.508	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
24	7.0871501E+09	0.9998	1.077	3.712	0.746293	0.251736	0.000215	0.000008	0.000075	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.635	4.915	7.515	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
25	7.1127163E+09	0.9997	1.157	3.708	0.742843	0.255218	0.000204	0.000009	0.000087	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.507	4.978	7.523	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
26	7.1356022E+09	0.9997	1.242	3.704	0.739719	0.258366	0.000196	0.000009	0.000097	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.363	5.036	7.532	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
27	7.1543747E+09	0.9996	1.322	3.702	0.737381	0.260720	0.000191	0.000008	0.000103	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.248	5.085	7.541	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
28	7.1704596E+09	0.9995	1.402	3.699	0.735542	0.262569	0.000187	0.000008	0.000107	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.122	5.130	7.551	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
29	7.1847439E+09	0.9993	1.483	3.696	0.734502	0.263615	0.000186	0.000008	0.000109	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.993	5.173	7.561	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
30	7.1973048E+09	0.9992	1.566	3.692	0.734264	0.263854	0.000185	0.000008	0.000110	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.860	5.215	7.573	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
31	7.2080051E+09	0.9990	1.648	3.687	0.734244	0.263874	0.000185	0.000008	0.000110	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.730	5.255	7.585	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
32	7.2172170E+09	0.9988	1.729	3.680	0.734244	0.263874	0.000185	0.000008	0.000110	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.594	5.293	7.598	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
33	7.2252908E+09	0.9986	1.811	3.676	0.734244	0.263874	0.000185	0.000008	0.000110	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.457	5.331	7.611	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
34	7.2322171E+09	0.9983	1.892	3.673	0.734244	0.263874	0.000185	0.000008	0.000110	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.336	5.367	7.625	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
35	7.2419676E+09	0.9980	1.974	3.668	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.201	5.402	7.648	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
36	7.2557885E+09	0.9970	2.059	3.665	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.067	5.495	7.680	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
37	7.2598866E+09	0.9966	2.141	3.660	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.933	5.523	7.687	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
38	7.2637901E+09	0.9961	2.227	3.654	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.793	5.555	7.695	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
39	7.2669706E+09	0.9955	2.308	3.651	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.665	5.584	7.705	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
40	7.2698404E+09	0.9947	2.392	3.645	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.528	5.614	7.717	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
41	7.2723932E+09	0.9939	2.475	3.641	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.393	5.646	7.730	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
42	7.2745098E+09	0.9929	2.559	3.634	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.253	5.676	7.743	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
43	7.2764298E+09	0.9916	2.643	3.627	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.113	5.708	7.758	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
44	7.2779981E+09	0.9902	2.726	3.622	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.977	5.739	7.772	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
45	7.2794209E+09	0.9884	2.811	3.618	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.841	5.771	7.788	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
46	7.2806886E+09	0.9863	2.894	3.612	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.704	5.805	7.806	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
47	7.2817459E+09	0.9838	2.978	3.604	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.561	5.839	7.824	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
48	7.2827069E+09	0.9807	3.063	3.600	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.414	5.875	7.842	0.000000	0.999070	0.000006	0.000002	0.000753	0.000042	0.000003	0.000000	0.000071	0.000006
49	7.2835430E+09	0.9771	3.145	3.595	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.285	5.911	7.861	0.000000	0.999068	0.000007	0.000000	0.000753	0.000044	0.000003	0.000000	0.000071	0.000006
50	7.2843336E+09	0.9723	3.229	3.588	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.149	5.953	7.882	0.000000	0.999057	0.000018	0.000000	0.000753	0.000044	0.000003	0.000000	0.000071	0.000006
51	7.2850243E+09	0.9665	3.313	3.584	0.735017	0.263097	0.000187	0.000008	0.000108	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.012	5.993	7.908	0.000000	0.998917	0.000158	0.000000	0.000753	0.000044	0.000003	0.000000	0.000071	0.000006

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TABLE 43.

STELLAR MODEL : 0.9 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	5.2405372E+07	0.9000	-.067	3.800	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0251	0.000	1.982	7.126	0.752228	0.246713	0.000022	0.000009	0.000299	0.000531	0.000000	0.000001	0.000071	0.000006
2	1.6307608E+09	0.9000	-.026	3.803	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.061	7.141	0.621818	0.377154	0.000001	0.000000	0.000334	0.000529	0.000003	0.000000	0.000071	0.000006
3	2.4803712E+09	0.9000	0.002	3.805	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.116	7.154	0.541599	0.457383	0.000001	0.000000	0.000334	0.000526	0.000006	0.000000	0.000071	0.000006
4	3.3102231E+09	0.9000	0.034	3.808	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.176	7.169	0.461990	0.537000	0.000001	0.000000	0.000333	0.000520	0.000012	0.000000	0.000071	0.000006
5	4.1400750E+09	0.9000	0.069	3.811	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.243	7.185	0.380803	0.618193	0.000001	0.000000	0.000334	0.000508	0.000025	0.000000	0.000071	0.000006
6	4.9501686E+09	0.9000	0.107	3.813	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.319	7.203	0.300446	0.698554	0.000001	0.000000	0.000338	0.000482	0.000047	0.000000	0.000071	0.000006
7	5.7800207E+09	0.9000	0.152	3.815	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.409	7.223	0.220217	0.778789	0.000002	0.000001	0.000362	0.000423	0.000081	0.000000	0.000071	0.000006
8	6.4658340E+09	0.9000	0.194	3.817	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.496	7.241	0.160657	0.838359	0.000002	0.000001	0.000427	0.000334	0.000095	0.000000	0.000071	0.000006
9	7.2743905E+09	0.9000	0.252	3.820	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.614	7.266	0.100914	0.898128	0.000003	0.000001	0.000590	0.000181	0.000057	0.000000	0.000071	0.000006
10	7.8240271E+09	0.9000	0.297	3.822	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.704	7.288	0.061865	0.937196	0.000004	0.000001	0.000701	0.000087	0.000020	0.000000	0.000071	0.000006
11	8.5805629E+09	0.9000	0.367	3.823	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.858	7.325	0.006910	0.992159	0.000005	0.000002	0.000749	0.000046	0.000004	0.000000	0.000071	0.000006
12	9.0493604E+09	0.9000	0.424	3.822	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.010	7.329	0.000201	0.998868	0.000005	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
13	9.4523484E+09	0.9000	0.484	3.818	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.194	7.336	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
14	9.5539988E+09	0.9000	0.502	3.817	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.254	7.339	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
15	9.7062717E+09	0.9000	0.530	3.814	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.354	7.345	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
16	9.9201731E+09	0.9000	0.578	3.804	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.562	7.359	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
17	9.9906345E+09	0.9000	0.595	3.798	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.661	7.366	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
18	1.0071162E+10	0.9000	0.615	3.790	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.804	7.378	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
19	1.0139610E+10	0.9000	0.627	3.778	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.963	7.396	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
20	1.0193161E+10	0.9000	0.626	3.764	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.122	7.417	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
21	1.0230647E+10	0.9000	0.618	3.752	0.756000	0.243000	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	4.245	7.434	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
22	1.0296937E+10	0.9000	0.644	3.736	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-12.288	4.454	7.457	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
23	1.0366384E+10	0.8999	0.735	3.720	0.754235	0.243797	0.000223	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-12.120	4.632	7.470	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
24	1.0424467E+10	0.8999	0.834	3.717	0.752211	0.245719	0.000223	-0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.963	4.756	7.479	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
25	1.0485075E+10	0.8998	0.952	3.711	0.748172	0.249776	0.000222	0.000005	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.775	4.872	7.491	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
26	1.0528258E+10	0.8997	1.059	3.707	0.744580	0.253398	0.000216	0.000008	0.000074	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.632	4.956	7.506	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
27	1.0561258E+10	0.8996	1.164	3.702	0.741344	0.256659	0.000209	0.000009	0.000082	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.440	5.025	7.520	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
28	1.0582132E+10	0.8995	1.243	3.700	0.739792	0.258221	0.000205	0.000009	0.000086	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.315	5.072	7.530	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
29	1.0607683E+10	0.8994	1.358	3.697	0.738109	0.259915	0.000202	0.000008	0.000090	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-11.111	5.135	7.544	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
30	1.0625677E+10	0.8992	1.451	3.691	0.737476	0.260551	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.986	5.185	7.558	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
31	1.0636407E+10	0.8991	1.518	3.688	0.737401	0.260626	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.887	5.216	7.566	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
32	1.0651332E+10	0.8988	1.620	3.682	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.718	5.266	7.581	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
33	1.0661364E+10	0.8986	1.708	3.677	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.556	5.304	7.594	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
34	1.0668155E+10	0.8984	1.771	3.674	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.477	5.333	7.605	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
35	1.0677823E+10	0.8980	1.872	3.668	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.310	5.380	7.622	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
36	1.0694728E+10	0.8971	1.972	3.663	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-10.158	5.472	7.653	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
37	1.0700400E+10	0.8966	2.068	3.658	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.979	5.506	7.661	0.000000	-0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
38	1.0704842E+10	0.8961	2.147	3.654	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.866	5.536	7.670	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
39	1.0708722E+10	0.8954	2.238	3.649	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.706	5.566	7.680	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
40	1.0711989E+10	0.8947	2.319	3.645	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.590	5.595	7.691	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
41	1.0714881E+10	0.8938	2.405	3.639	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.457	5.625	7.704	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
42	1.0717564E+10	0.8927	2.495	3.632	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.304	5.658	7.719	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
43	1.0719720E+10	0.8914	2.585	3.625	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.136	5.690	7.734	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
44	1.0721527E+10	0.8900	2.665	3.621	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-9.016	5.721	7.749	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
45	1.0723184E+10	0.8881	2.756	3.615	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.862	5.755	7.765	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
46	1.0724564E+10	0.8859	2.840	3.606	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.733	5.788	7.781	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
47	1.0725796E+10	0.8832	2.924	3.603	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.593	5.823	7.799	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
48	1.0726839E+10	0.8801	3.011	3.598	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.449	5.858	7.818	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
49	1.0727786E+10	0.8761	3.097	3.591	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.306	5.897	7.837	0.000000	0.999069	0.000006	0.000002	0.000750	0.000044	0.000004	0.000000	0.000071	0.000006
50	1.0728645E+10	0.8711	3.188	3.586	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.151	5.938	7.857	0.000000	0.999068	0.000007	0.000000	0.000750	0.000047	0.000004	0.000000	0.000071	0.000006
51	1.0729371E+10	0.8652	3.273	3.581	0.737393	0.260634	0.000200	0.000008	0.000092	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	-8.009	5.979	7.877	0.000000	0.999060	0.000014	0.000000	0.000750	0.000047	0.000004	0.000000	0.000071	0.000006

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TABLE 44.

STELLAR MODEL : 0.8 M , Z = 0.001

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
1	1.1407569E+08	0.8000	-.309	3.768	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0185	0.000	1.972	7.087	0.750387	0.248515	0.000078	0.000032	0.000209	0.000531	0.000000	0.000001	0.000071	0.000006
2	2.3581760E+09	0.8000	-.276	3.771	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.048	7.098	0.620215	0.378726	0.000001	0.000000	0.000334	0.000531	0.000001	0.000000	0.000071	0.000006
3	3.7209620E+09	0.8000	-.246	3.774	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.104	7.111	0.540551	0.458409	0.000001	0.000000	0.000334	0.000530	0.000001	0.000000	0.000071	0.000006
4	5.0837478E+09	0.8000	-.212	3.778	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.167	7.126	0.460535	0.538441	0.000001	0.000000	0.000334	0.000529	0.000003	0.000000	0.000071	0.000006
5	6.4465341E+09	0.8000	-.173	3.782	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.238	7.143	0.379802	0.619186	0.000001	0.000000	0.000334	0.000527	0.000005	0.000000	0.000071	0.000006
6	7.7752504E+09	0.8000	-.130	3.785	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.317	7.163	0.300273	0.698723	0.000001	0.000000	0.000333	0.000520	0.000012	0.000000	0.000071	0.000006
7	9.1380357E+09	0.8000	-.079	3.790	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.413	7.186	0.219056	0.779946	0.000001	0.000000	0.000334	0.000504	0.000029	0.000000	0.000071	0.000006
8	1.0194195E+10	0.8000	-.035	3.793	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.500	7.205	0.159935	0.839069	0.000001	0.000000	0.000341	0.000471	0.000055	0.000000	0.000071	0.000006
9	1.1504173E+10	0.8000	0.030	3.796	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.629	7.231	0.099241	0.899769	0.000002	0.000001	0.000391	0.000376	0.000093	0.000000	0.000071	0.000006
10	1.2570646E+10	0.8000	0.094	3.799	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.754	7.257	0.060559	0.938473	0.000003	0.000001	0.000533	0.000230	0.000075	0.000000	0.000071	0.000006
11	1.3369600E+10	0.8000	0.149	3.801	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	2.855	7.288	0.030834	0.968224	0.000004	0.000001	0.000684	0.000103	0.000025	0.000000	0.000071	0.000006
12	1.4277941E+10	0.8000	0.225	3.802	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.025	7.316	0.001138	0.997929	0.000005	0.000002	0.000741	0.000053	0.000006	0.000000	0.000071	0.000006
13	1.5029531E+10	0.8000	0.311	3.799	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.274	7.324	0.000000	0.999067	0.000005	0.000002	0.000741	0.000052	0.000006	0.000000	0.000071	0.000006
14	1.5242352E+10	0.8000	0.340	3.796	0.756000	0.243000	0.000224	0.000004	0.000070	0.000531	0.000000	0.000001	0.000071	0.000006
	0.0000	0.000	3.374	7.329	0.000000	0.999068	0.000005	0.000002	0.000741	0.000052	0.000006	0.000000	0.000071	0.000006

TABLE 45. *Lifetimes in nuclear phases (in unit of* 10^6 yr) *for* $Z = 0.02$.

Initial mass	H-burning phase	He-burning phase	C-burning phase	$\frac{t_{He}}{t_H}$
$120 M_\odot$	2.5614	0.4145	0.009498	0.1618
85	2.8228	0.3923	0.006734	0.1390
60	3.4469	0.4233	0.009144	0.1228
40	4.3032	0.4648	0.008947	0.1080
25	6.4077	0.6297	0.009385	0.09827
20	8.1409	0.7885	0.01418	0.09686
15	11.5842	1.1160	0.02793	0.09634
12	16.0176	1.5689	0.04931	0.09795
9	26.3886	2.6233	0.11706	0.09941
7	43.1880	4.7260	—	0.1094
5	94.4591	12.4288	—	0.1316
4	164.734	26.1720	—	0.1589
3	352.503	86.1926	—	0.2445
2.5	584.916	145.365	—	0.2485
2	1115.94	240.930	—	0.2159
1.7	1827.31	—	—	—
1.5	2694.65	—	—	—
1.25 $\alpha = 0.2$	4912.63	—	—	—
1.25 $\alpha = 0.0$	3948.16	—	—	—
1	9961.73	—	—	—
0.9	15500.30	—	—	
0.8	25027.88	—	—	

TABLE 46. *Lifetimes in nuclear phases (in unit of* 10^6 yr) *for* $Z = 0.01$.

Initial mass	H-burning phase	He-burning phase	C-burning phase	$\frac{t_{He}}{t_H}$
$120 M_\odot$	2.7798	0.2836	0.002900	0.1020
85	3.0630	0.3124	0.003365	0.1020
60	3.7148	0.3602	—	0.09697
40	4.8909	0.4372	0.005251	0.08938
25	7.1905	0.6433	0.009786	0.08947
20	9.3841	0.8350	0.01401	0.08899
15	13.2674	1.1979	0.02551	0.09029
12	18.1163	1.6049	0.04286	0.08859
9	28.7514	2.7045	0.08833	0.09406
7	45.0533	4.6874	—	0.1040
5	88.2763	10.9212	—	0.1237
4	144.068	19.7350	—	0.1370
3	290.798	45.2332	—	0.1555
2.5	482.332	79.0886	—	0.1640
2	855.634	140.594	—	0.1643
1.7	1331.80	—	—	—
1.5	1842.74	—	—	—
1.25 $\alpha = 0.2$	3209.57	—	—	—
1.25 $\alpha = 0.0$	2668.77	—	—	—
1	6263.59	—	—	—
0.9	9452.35	—	—	—
0.8	15029.5	—	—	—

TABLE 47. *Lifetimes in nuclear phases (in unit of* 10^6 yr) *for* $2 \times \dot{M}$ *and* $Z = 0.02$.

Initial mass	H-burning phase	He-burning phase	C-burning phase	$\frac{t_{He}}{t_H}$
$120 M_\odot$	2.5743	0.8728	0.06941	0.3390
85	2.8228	0.5751	0.03021	0.2037
60	3.4469	0.6760	0.04279	0.1961
40	4.3032	0.6005	0.02932	0.1395
25	6.4077	0.6360	0.009416	0.09926
20	8.1409	0.7924	0.01413	0.09734

TABLE 48. *WR lifetimes (in unit of* 10^5 yr).

Masse	t(WR)	t(WN)	t(WC)
$Z = 0.020$	($\dot{M}$ standard)		
120	7.430	4.422	3.008
85	4.008	1.776	2.232
60	4.222	1.568	2.654
40	2.575	0.724	1.851
32:	0.000	0.000	0.000
$Z = 0.020$	($\dot{M} \times 2$ in post-MS stages)		
120	12.717	3.644	9.073
85	6.072	1.132	4.940
60	7.063	0.857	6.206
40	4.980	0.682	4.298
25:	0.000	0.000	0.000
$Z = 0.001$			
120	2.772	2.772	0.000
85	0.204	0.204	0.000
80:	0.000	0.000	0.000

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TABLE 1A.

STELLAR MODEL : 120 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
9	2.2479182E+06	82.6321	6.340	4.326	0.396371	0.584203	0.000254	0.000079	0.014923	0.000787	0.000001	0.000000	0.001420	0.000114
	0.7547 4.644	-4.097	0.313	7.676	0.123384	0.857254	0.000288	0.000090	0.015274	0.000329	0.000000	0.000000	0.001420	0.000114
10	2.4183075E+06	69.0007	6.326	4.388	0.203196	0.777433	0.000277	0.000087	0.015246	0.000380	0.000000	0.000000	0.001420	0.000114
	0.8267 4.730	-4.097	0.405	7.696	0.060314	0.920330	0.000304	0.000095	0.015274	0.000301	0.000000	0.000000	0.001420	0.000114
11	2.5368312E+06	59.5186	6.300	4.438	0.072171	0.908471	0.000300	0.000094	0.015276	0.000306	0.000000	0.000000	0.001420	0.000114
	0.8692 4.804	-4.097	0.548	7.734	0.014599	0.966055	0.000342	0.000107	0.015235	0.000280	0.000000	0.000000	0.001420	0.000114
12	2.5699685E+06	56.8676	6.294	4.463	0.044877	0.935770	0.000315	0.000098	0.015263	0.000295	0.000000	0.000000	0.001420	0.000114
	0.8717 4.845	-4.097	0.750	7.798	0.001418	0.979248	0.000400	0.000125	0.015157	0.000270	0.000000	0.000000	0.001420	0.000114
13	2.5743070E+06	56.5205	6.317	4.524	0.041366	0.939282	0.000318	0.000099	0.015260	0.000293	0.000000	0.000000	0.001420	0.000114
	0.8146 4.950	-4.097	1.341	7.994	0.000000	0.980680	0.000473	0.000145	0.015052	0.000268	0.000000	0.000000	0.001420	0.000114
14	2.5748278E+06	56.4788	6.327	4.547	0.040924	0.939724	0.000318	0.000099	0.015260	0.000293	0.000000	0.000000	0.001420	0.000114
	0.8042 4.991	-4.097	1.579	8.074	0.000000	0.980680	0.000473	0.000144	0.015052	0.000269	0.000000	0.000000	0.001420	0.000114
15	2.5753485E+06	56.4372	6.335	4.566	0.040480	0.940168	0.000318	0.000099	0.015260	0.000293	0.000000	0.000000	0.001420	0.000114
	0.7954 5.026	-4.097	1.783	8.141	0.000000	0.980670	0.000473	0.000111	0.015051	0.000310	0.000000	0.000001	0.001420	0.000114
16	2.5758690E+06	56.3955	6.340	4.583	0.040050	0.940598	0.000318	0.000099	0.015260	0.000293	0.000000	0.000000	0.001420	0.000114
	0.7814 5.058	-4.097	1.960	8.200	0.000000	0.980623	0.000474	0.000011	0.014997	0.000433	0.000000	0.000071	0.001420	0.000114
17	2.5763898E+06	56.3539	6.344	4.594	0.039635	0.941013	0.000318	0.000099	0.015260	0.000293	0.000000	0.000000	0.001420	0.000114
	0.8082 5.080	-4.097	2.081	8.241	0.000000	0.980309	0.000484	0.000000	0.013946	0.000446	0.000000	0.001421	0.001420	0.000115
18	2.5769105E+06	56.3122	6.344	4.599	0.039268	0.941379	0.000317	0.000099	0.015261	0.000292	0.000000	0.000000	0.001420	0.000114
	0.8405 5.089	-4.097	2.130	8.257	0.000000	0.979531	0.000512	0.000000	0.011327	0.000446	0.000000	0.004783	0.001420	0.000121
19	2.5774310E+06	56.2706	6.344	4.601	0.038914	0.941734	0.000316	0.000100	0.015263	0.000292	0.000000	0.000000	0.001420	0.000114
	0.8574 5.094	-4.097	2.152	8.264	0.000000	0.978587	0.000558	0.000000	0.008196	0.000446	0.000000	0.008790	0.001420	0.000144
20	2.5784722E+06	56.1873	6.344	4.606	0.038251	0.942396	0.000312	0.000099	0.015268	0.000292	0.000000	0.000000	0.001420	0.000114
	0.8637 5.103	-4.097	2.198	8.280	0.000000	0.976742	0.000746	0.000000	0.002520	0.000447	0.000000	0.015933	0.001420	0.000334
21	2.5795135E+06	56.1040	6.351	4.611	0.037609	0.943037	0.000304	0.000098	0.015279	0.000292	0.000000	0.000000	0.001420	0.000114
	0.8534 5.113	-4.097	2.275	8.305	0.000000	0.974968	0.001558	0.000000	0.000109	0.000448	0.000000	0.017808	0.001420	0.001829
22	2.5873235E+06	55.4792	6.344	4.620	0.032005	0.948629	0.000243	0.000076	0.015375	0.000290	0.000000	0.000000	0.001420	0.000114
	0.8747 5.133	-4.097	2.346	8.328	0.000000	0.950631	0.022071	0.000000	0.000000	0.000650	0.000000	0.001802	0.001420	0.021545
23	2.5987060E+06	54.5685	6.333	4.626	0.019134	0.961503	0.000254	0.000080	0.015361	0.000286	0.000000	0.000000	0.001420	0.000114
	0.8921 5.144	-4.097	2.367	8.334	0.000000	0.899540	0.070815	0.000000	0.000000	0.002584	0.000000	0.000015	0.001420	0.023649
24	2.6107472E+06	53.6052	6.326	4.079	0.000637	0.979555	0.000343	0.000110	0.015238	0.000272	0.000000	0.000000	0.001420	0.000114
	0.9042 5.138	-2.598	2.378	8.337	0.000000	0.845091	0.120774	0.000000	0.000000	0.007053	0.000000	0.000000	0.001420	0.023566
25	2.6123210E+06	49.7577	6.273	4.013	0.000000	0.844335	0.121448	0.000000	0.000000	0.007135	0.000000	0.000001	0.001420	0.023564
	0.8279 5.147	-2.446	2.324	8.312	0.000000	0.841952	0.123537	0.000000	0.000000	0.007427	0.000000	0.000000	0.001420	0.023561
26	2.6410035E+06	19.4587	5.680	4.299	0.000000	0.812265	0.149700	0.000000	0.000000	0.010946	0.000000	0.000000	0.001420	0.023532
	0.7730 5.122	-3.460	2.583	8.302	0.000000	0.787876	0.171158	0.000000	0.000000	0.013873	0.000000	0.000000	0.001420	0.023513
27	2.6758175E+06	12.6071	5.368	4.403	0.000000	0.762325	0.193319	0.000000	0.000000	0.017261	0.000000	0.000000	0.001420	0.023495
	0.7207 5.099	-3.931	2.705	8.293	0.000000	0.708696	0.238565	0.000000	0.000000	0.025637	0.000000	0.000000	0.001420	0.023461
28	2.7034080E+06	10.1825	5.204	4.448	0.000000	0.727085	0.223251	0.000000	0.000000	0.022565	0.000000	0.000000	0.001420	0.023472
	0.6885 5.085	-4.165	2.770	8.289	0.000000	0.652023	0.284272	0.000000	0.000000	0.036597	0.000000	0.000000	0.001420	0.023429
29	2.7298712E+06	8.7201	5.083	4.478	0.000000	0.697219	0.248008	0.000000	0.000000	0.027670	0.000000	0.000000	0.001420	0.023454
	0.6648 5.074	-4.336	2.820	8.286	0.000000	0.602441	0.322226	0.000000	0.000000	0.048220	0.000000	0.000000	0.001420	0.023402
30	2.7606092E+06	7.5538	4.968	4.504	0.000000	0.667688	0.271872	0.000000	0.000000	0.033334	0.000000	0.000000	0.001420	0.023438
	0.6422 5.064	-4.493	2.870	8.284	0.000000	0.549830	0.360102	0.000000	0.000000	0.062951	0.000000	0.000000	0.001420	0.023373
31	2.7921820E+06	6.6932	4.870	4.524	0.000000	0.636314	0.296517	0.000000	0.000000	0.040060	0.000000	0.000000	0.001420	0.023420
	0.6234 5.055	-4.625	2.914	8.283	0.000000	0.500595	0.392925	0.000000	0.000000	0.079358	0.000000	0.000000	0.001420	0.023344
32	2.8282972E+06	5.9617	4.775	4.542	0.000000	0.606113	0.319487	0.000000	0.000000	0.047288	0.000000	0.000000	0.001420	0.023404
	0.6029 5.046	-4.752	2.960	8.283	0.000000	0.448915	0.424197	0.000000	0.000000	0.099759	0.000000	0.000000	0.001420	0.023312
33	2.8663155E+06	5.3767	4.688	4.557	0.000000	0.574640	0.342571	0.000000	0.000000	0.055674	0.000000	0.000000	0.001420	0.023386
	0.5836 5.038	-4.865	3.002	8.283	0.000000	0.399353	0.450522	0.000000	0.000000	0.122990	0.000000	0.000000	0.001420	0.023278
34	2.9070492E+06	4.8883	4.607	4.571	0.000000	0.546364	0.362499	0.000000	0.000000	0.064019	0.000000	0.000000	0.001420	0.023371
	0.5661 5.030	-4.970	3.044	8.284	0.000000	0.350803	0.472113	0.000000	0.000000	0.149942	0.000000	0.000000	0.001421	0.023240
35	2.9532142E+06	4.4515	4.527	4.584	0.000000	0.515544	0.383247	0.000000	0.000000	0.074088	0.000000	0.000000	0.001420	0.023353
	0.5469 5.023	-5.072	3.089	8.286	0.000000	0.300827	0.488929	0.000000	0.000000	0.183094	0.000000	0.000000	0.001421	0.023194
36	3.0048102E+06	4.0643	4.448	4.595	0.000000	0.486036	0.402092	0.000000	0.000000	0.084748	0.000000	0.000000	0.001420	0.023336
	0.5289 5.016	-5.172	3.136	8.289	0.000000	0.250560	0.498761	0.000000	0.000000	0.223518	0.000000	0.000000	0.001421	0.023135
37	3.0619462E+06	3.7212	4.372	4.605	0.000000	0.456394	0.419898	0.000000	0.000000	0.096580	0.000000	0.000000	0.001420	0.023317
	0.5110 5.009	-5.265	3.187	8.293	0.000000	0.201248	0.499048	0.000000	0.000000	0.272530	0.000000	0.000000	0.001421	0.023059
38	3.1275738E+06	3.4050	4.295	4.617	0.000000	0.422576	0.438671	0.000000	0.000000	0.111621	0.000000	0.000000	0.001420	0.023295
	0.4936 5.003	-5.362	3.244	8.299	0.000000	0.151772	0.486438	0.000000	0.000000	0.334596	0.000000	0.000000	0.001421	0.022951
39	3.2108702E+06	3.0873	4.209	4.631	0.000000	0.386775	0.456548	0.000000	0.000000	0.129540	0.000000	0.000000	0.001420	0.023269
	0.4726 4.998	-5.468	3.320	8.310	0.000000	0.098791	0.451428	0.000000	0.000000	0.422550	0.000000	0.000000	0.001421	0.022753
40	3.3074940E+06	2.7988	4.124	4.646	0.000000	0.347245	0.473505	0.000000	0.000000	0.152108	0.000000	0.000000	0.001421	0.023237
	0.4507 4.997	-5.575	3.416	8.327	0.000000	0.051556	0.387117	0.000000	0.000000	0.534025	0.000000	0.000000	0.001422	0.022368
41	3.3599042E+06	2.6684	4.085	4.656	0.000000	0.327525	0.480701	0.000000	0.000000	0.164628	0.000000	0.000000	0.001421	0.023220
	0.4397 5.000	-5.628	3.480	8.341	0.000000	0.030482	0.343627	0.000000	0.000000	0.598522	0.000000	0.000000	0.001424	0.022006
42	3.4179585E+06	2.5408	4.052	4.672	0.000000	0.309665	0.486402	0.000000	0.000000	0.176784	0.000000	0.000000	0.001421	0.023203
	0.4220 5.010	-5.683	3.590	8.369	0.000000	0.009811	0.289973	0.000000	0.000000	0.672706	0.000000	0.000000	0.001430	0.021267
43	3.4502110E+06	2.4763	4.105	4.712	0.000000	0.298696	0.489499	0.000000	0.000000	0.184654	0.000000	0.000000	0.001421	0.023192
	0.0000 5.057	-5.713	3.897	8.454	0.000000	0.000000	0.261477	0.000000	0.000000	0.710750	0.000000	0.000000	0.001496	0.020246
44	3.4834420E+06	2.4141	4.361	4.772	0.000000	0.289854	0.491746	0.000000	0.000000	0.191248	0.000000	0.000000	0.001421	0.023182
	0.0000 5.088	-5.741	4.643	8.582	0.000000	0.000000	0.261477	0.000000	0.000000	0.710750	0.000000	0.000000	0.001496	0.020246
45	3.5079730E+06	2.3706	4.568	4.776	0.000000	0.281327	0.493682	0.000000	0.000000	0.197837	0.000000	0.000000	0.001421	0.023173
	0.0000 5.040	-5.762	5.310	8.699	0.000000	0.000000	0.261472	0.000000	0.000000	0.710746	0.000000	0.000000	0.001505	0.020246
46	3.5137520E+06	2.3607	4.638	4.748	0.000000	0.279427	0.494090	0.000000	0.000000	0.199329	0.000000	0.000000	0.001421	0.023171
	0.0000 4.979	-5.766	5.772	8.761	0.000000	0.000000	0.260447	0.000000	0.000000	0.710071	0.000000	0.000000	0.003204	0.020246
47	3.5153462E+06	2.3579	4.658	4.727	0.000000	0.278884	0.494201	0.000000	0.000000	0.199760	0.000000	0.000000	0.001421	0.023170
	0.1577 4.938	-5.768	5.692	8.876	0.000000	0.000000	0.218290	0.000000	0.000000	0.682609	0.000000	0.000000	0.072049	0.020259
48	3.5169555E+06	2.3552	4.696	4.704	0.000000	0.278364	0.494307	0.000000	0.000000	0.200173	0.000000	0.000000	0.001421	0.023169
	0.2235 4.892	-5.769	5.579	8.881	0.000000	0.000000	0.153041	0.000000	0.000000	0.641616	0.000000	0.000000	0.174695	0.020272
49	3.5181300E+06	2.3532	4.707	4.699	0.000000	0.277972	0.494386	0.000000	0.000000	0.200486	0.000000	0.000000	0.001421	0.023169
	0.2321 4.882	-5.770	5.606	8.896	0.000000	0.000000	0.099844	0.000000	0.000000	0.609295	0.000000	0.000000	0.255574	0.020273
50	3.5189448E+06	2.3518	4.709	4.698	0.000000	0.277709	0.494439	0.000000	0.000000	0.200696	0.000000	0.000000	0.001421	0.023169
	0.1592 4.879	-5.770	5.700	8.919	0.000000	0.000000	0.046045	0.000000	0.000000	0.577548	0.000000	0.000000	0.334991	0.020273
51	3.5196202E+06	2.3507	4.709	4.691	0.000000	0.277497	0.494482	0.000000	0.000000	0.200866	0.000000	0.000000	0.001421	0.023168
	0.0000 4.868	-5.771	6.190	8.879	0.000000	0.000000	0.001600	0.000000	0.000000	0.552119	0.000000	0.000000	0.398581	0.020273

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TABLE 2A.

STELLAR MODEL : 85 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
21	2.8337968E+06	51.6853	6.299	4.281	0.183702	0.796928	0.000294	0.000092	0.015203	0.000400	0.000000	0.000000	0.001420	0.000114
	0.6539 4.553	-4.097	2.328	8.297	0.000000	0.973775	0.002677	0.000000	0.000270	0.000459	0.000000	0.017079	0.001420	0.002461
22	2.8417432E+06	51.0496	6.295	4.269	0.179626	0.801005	0.000298	0.000093	0.015200	0.000395	0.000000	0.000000	0.001420	0.000114
	0.6734 4.535	-4.097	2.391	8.318	0.000000	0.950421	0.022757	0.000000	0.000000	0.000678	0.000000	0.004037	0.001420	0.018812
23	2.8544218E+06	50.0353	6.293	4.279	0.178082	0.802549	0.000299	0.000093	0.015200	0.000394	0.000000	0.000000	0.001420	0.000114
	0.6982 4.551	-4.097	2.413	8.327	0.000000	0.898543	0.071903	0.000000	0.000001	0.002527	0.000000	0.000109	0.001420	0.023550
24	2.8656085E+06	49.1403	6.289	4.301	0.177855	0.802775	0.000295	0.000092	0.015207	0.000394	0.000000	0.000000	0.001420	0.000114
	0.7194 4.577	-4.097	2.418	8.330	0.000000	0.850563	0.116285	0.000000	0.000002	0.006096	0.000000	0.000035	0.001420	0.023570
25	2.8775410E+06	48.1857	6.284	4.328	0.176158	0.804471	0.000287	0.000090	0.015220	0.000392	0.000000	0.000000	0.001420	0.000114
	0.7432 4.635	-4.097	2.425	8.333	0.000000	0.801418	0.159624	0.000000	0.000000	0.011890	0.000000	0.000055	0.001420	0.023464
26	2.8902195E+06	47.1714	6.276	4.368	0.174851	0.805774	0.000264	0.000083	0.015255	0.000391	0.000000	0.000000	0.001420	0.000114
	0.7705 4.704	-4.097	2.432	8.336	0.000000	0.749709	0.202678	0.000000	0.000001	0.020521	0.000000	0.000024	0.001420	0.023398
27	2.9033920E+06	46.1176	6.260	4.424	0.173659	0.806958	0.000218	0.000072	0.015320	0.000390	0.000000	0.000000	0.001420	0.000114
	0.8010 4.805	-4.097	2.439	8.339	0.000000	0.699444	0.241478	0.000000	0.000001	0.031963	0.000000	0.000028	0.001420	0.023275
28	2.9173700E+06	44.9993	6.236	4.489	0.169768	0.810848	0.000215	0.000067	0.015331	0.000389	0.000001	0.000000	0.001420	0.000114
	0.8369 4.929	-4.097	2.448	8.343	0.000000	0.649351	0.276727	0.000000	0.000001	0.046781	0.000000	0.000026	0.001420	0.023135
29	2.9395702E+06	43.2233	6.218	4.155	0.000968	0.979686	0.000330	0.000104	0.015268	0.000261	0.000000	0.000000	0.001420	0.000114
	0.8890 5.144	-2.832	2.466	8.348	0.000000	0.573571	0.323097	0.000000	0.000000	0.076134	0.000000	0.000000	0.001421	0.022901
30	2.9408035E+06	41.2964	6.183	4.099	0.000000	0.579472	0.318148	0.000001	0.000161	0.075295	0.000000	0.000109	0.001421	0.022529
	0.8421 5.161	-2.647	2.431	8.333	0.000000	0.570639	0.324693	0.000000	0.000000	0.077468	0.000000	0.000000	0.001421	0.022891
31	2.9760528E+06	16.7035	5.612	4.363	0.000000	0.528295	0.348203	0.000000	0.000000	0.096285	0.000000	0.000000	0.001421	0.022795
	0.7725 5.134	-3.621	2.670	8.320	0.000000	0.500216	0.364088	0.000000	0.000000	0.108468	0.000000	0.000000	0.001421	0.022742
32	2.9996755E+06	12.7846	5.423	4.430	0.000000	0.495446	0.366736	0.000000	0.000000	0.110590	0.000000	0.000000	0.001421	0.022733
	0.7400 5.120	-3.918	2.748	8.316	0.000000	0.449686	0.391037	0.000000	0.000000	0.132033	0.000000	0.000000	0.001421	0.022652
33	3.0246878E+06	10.4778	5.277	4.474	0.000000	0.464162	0.383595	0.000000	0.000000	0.125003	0.000000	0.000000	0.001421	0.022677
	0.7107 5.109	-4.138	2.812	8.314	0.000000	0.400388	0.414275	0.000000	0.000000	0.158078	0.000000	0.000000	0.001421	0.022565
34	3.0524792E+06	8.8613	5.150	4.507	0.000000	0.432377	0.399592	0.000000	0.000000	0.140782	0.000000	0.000000	0.001421	0.022621
	0.6840 5.098	-4.322	2.869	8.313	0.000000	0.350555	0.433673	0.000000	0.000000	0.188494	0.000000	0.000000	0.001421	0.022472
35	3.0830498E+06	7.6613	5.038	4.534	0.000000	0.400388	0.414275	0.000000	0.000000	0.158078	0.000000	0.000000	0.001421	0.022565
	0.6580 5.089	-4.482	2.925	8.314	0.000000	0.300946	0.447715	0.000000	0.000000	0.224043	0.000000	0.000000	0.001421	0.022368
36	3.1170805E+06	6.7145	4.935	4.556	0.000000	0.368900	0.427080	0.000000	0.000000	0.176750	0.000000	0.000000	0.001421	0.022507
	0.6341 5.081	-4.622	2.980	8.316	0.000000	0.251593	0.454674	0.000000	0.000000	0.266414	0.000000	0.000000	0.001421	0.022243
37	3.1570030E+06	5.9121	4.835	4.578	0.000000	0.337082	0.438062	0.000000	0.000000	0.197574	0.000000	0.000000	0.001421	0.022445
	0.6112 5.073	-4.762	3.040	8.319	0.000000	0.200524	0.452240	0.000000	0.000000	0.319887	0.000000	0.000000	0.001421	0.022077
38	3.2029372E+06	5.2361	4.738	4.597	0.000000	0.302960	0.447265	0.000000	0.000000	0.222479	0.000000	0.000000	0.001421	0.022372
	0.5810 5.066	-4.894	3.107	8.326	0.000000	0.149058	0.435892	0.000000	0.000000	0.387656	0.000000	0.000000	0.001422	0.021835
39	3.2540848E+06	4.6751	4.649	4.616	0.000000	0.271340	0.452847	0.000000	0.000000	0.248503	0.000000	0.000000	0.001421	0.022296
	0.5572 5.061	-5.018	3.181	8.335	0.000000	0.100303	0.401108	0.000000	0.000000	0.471126	0.000000	0.000000	0.001423	0.021458
40	3.3196390E+06	4.1398	4.554	4.638	0.000000	0.234868	0.455091	0.000000	0.000000	0.282714	0.000000	0.000000	0.001421	0.022194
	0.5301 5.061	-5.152	3.289	8.355	0.000000	0.049303	0.331961	0.000000	0.000000	0.591113	0.000000	0.000000	0.001427	0.020610
41	3.3496435E+06	3.9420	4.519	4.650	0.000000	0.217595	0.454336	0.000000	0.000000	0.300731	0.000000	0.000000	0.001421	0.022138
	0.5173 5.064	-5.206	3.351	8.368	0.000000	0.029769	0.291743	0.000000	0.000000	0.650734	0.000000	0.000000	0.001435	0.019928
42	3.3828795E+06	3.7487	4.488	4.666	0.000000	0.201375	0.452373	0.000000	0.000000	0.318904	0.000000	0.000000	0.001421	0.022080
	0.5006 5.075	-5.261	3.455	8.396	0.000000	0.010395	0.242086	0.000000	0.000000	0.719484	0.000000	0.000000	0.001471	0.018586
43	3.4043645E+06	3.6360	4.534	4.709	0.000000	0.194520	0.451151	0.000000	0.000000	0.326975	0.000000	0.000000	0.001421	0.022053
	0.0000 5.124	-5.297	3.774	8.493	0.000000	0.000000	0.212720	0.000000	0.000000	0.758543	0.000000	0.000000	0.001816	0.016708
44	3.4118078E+06	3.5989	4.599	4.749	0.000000	0.191936	0.450622	0.000000	0.000000	0.330086	0.000000	0.000000	0.001422	0.022043
	0.0000 5.176	-5.308	4.186	8.600	0.000000	0.000000	0.212720	0.000000	0.000000	0.758543	0.000000	0.000000	0.001816	0.016708
45	3.4251540E+06	3.5348	4.779	4.772	0.000000	0.186855	0.449482	0.000000	0.000000	0.336304	0.000000	0.000000	0.001422	0.022022
	0.0000 5.160	-5.327	4.716	8.701	0.000000	0.000000	0.212719	0.000000	0.000000	0.758543	0.000000	0.000000	0.001817	0.016708
46	3.4316350E+06	3.5046	4.882	4.767	0.000000	0.184408	0.448881	0.000000	0.000000	0.339350	0.000000	0.000000	0.001422	0.022012
	0.0000 5.121	-5.337	5.254	8.794	0.000000	0.000000	0.211821	0.000000	0.000000	0.757947	0.000000	0.000000	0.003310	0.016708
47	3.4332895E+06	3.4970	4.914	4.755	0.000000	0.183388	0.448610	0.000000	0.000000	0.340640	0.000000	0.000000	0.001422	0.022007
	0.0817 5.092	-5.340	5.456	8.898	0.000000	0.000000	0.165610	0.000000	0.000000	0.727780	0.000000	0.000000	0.078822	0.016708
48	3.4337010E+06	3.4952	4.920	4.749	0.000000	0.183145	0.448545	0.000000	0.000000	0.340948	0.000000	0.000000	0.001422	0.022006
	0.1339 5.080	-5.340	5.414	8.909	0.000000	0.000000	0.120022	0.000000	0.000000	0.698833	0.000000	0.000000	0.151243	0.016708
49	3.4339340E+06	3.4941	4.927	4.745	0.000000	0.183009	0.448509	0.000000	0.000000	0.341119	0.000000	0.000000	0.001422	0.022006
	0.1250 5.072	-5.341	5.453	8.921	0.000000	0.000000	0.082161	0.000000	0.000000	0.675212	0.000000	0.000000	0.210333	0.016708
50	3.4340905E+06	3.4934	4.932	4.743	0.000000	0.182919	0.448485	0.000000	0.000000	0.341233	0.000000	0.000000	0.001422	0.022005
	0.0479 5.068	-5.341	5.538	8.936	0.000000	0.000000	0.043133	0.000000	0.000000	0.651386	0.000000	0.000000	0.269925	0.016708
51	3.4345708E+06	3.4912	4.951	4.738	0.000000	0.182646	0.448412	0.000000	0.000000	0.341579	0.000000	0.000000	0.001422	0.022004
	0.0000 5.055	-5.342	6.239	8.956	0.000000	0.000000	0.001984	0.000000	0.000000	0.626880	0.000000	0.000000	0.331204	0.016708

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TABLE 3A.

STELLAR MODEL : 60 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE / QCC	MASS / MDOT	LOGL / RHOC	LOGTE / LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
22	3.4653045E+06	34.4274	6.081	4.213	0.204384	0.776235	0.000277	0.000087	0.015178	0.000457	0.000000	0.000000	0.001420	0.000114
	0.6534 4.481	-4.097	2.474	8.306	0.000000	0.950269	0.023327	0.000000	0.000000	0.000653	0.000000	0.005858	0.001420	0.016608
23	3.4791385E+06	33.3207	6.075	4.247	0.201443	0.779178	0.000282	0.000088	0.015173	0.000453	0.000000	0.000000	0.001420	0.000114
	0.6886 4.530	-4.097	2.492	8.314	0.000000	0.900327	0.070536	0.000000	0.000000	0.002136	0.000000	0.000270	0.001420	0.023400
24	3.4926510E+06	32.2396	6.063	4.306	0.200684	0.779936	0.000281	0.000088	0.015177	0.000452	0.000000	0.000000	0.001420	0.000114
	0.7249 4.650	-4.097	2.495	8.316	0.000000	0.850672	0.116898	0.000000	0.000015	0.005399	0.000000	0.000131	0.001405	0.023497
25	3.5068372E+06	31.1047	6.037	4.402	0.199692	0.780927	0.000273	0.000086	0.015188	0.000451	0.000000	0.000000	0.001420	0.000114
	0.7667 4.827	-4.097	2.501	8.319	0.000000	0.800502	0.161716	0.000000	0.000015	0.010741	0.000000	0.000135	0.001406	0.023436
26	3.5223132E+06	29.8666	5.975	4.484	0.198134	0.782471	0.000194	0.000061	0.015308	0.000450	0.000001	0.000000	0.001420	0.000114
	0.8193 5.006	-4.097	2.512	8.323	0.000000	0.748901	0.205369	0.000000	0.000001	0.018656	0.000000	0.000081	0.001406	0.023455
27	3.5410135E+06	28.3706	5.948	4.279	0.000552	0.980098	0.000312	0.000099	0.015290	0.000267	0.000000	0.000000	0.001420	0.000114
	0.8531 5.131	-3.289	2.530	8.327	0.000000	0.684741	0.256471	0.000000	0.000000	0.031678	0.000000	0.000000	0.001406	0.023456
28	3.5501315E+06	24.3357	5.842	4.252	0.000000	0.685338	0.255990	0.000000	0.000000	0.031561	0.000000	0.000000	0.001406	0.023457
	0.8051 5.139	-3.221	2.549	8.318	0.000000	0.660119	0.274843	0.000000	0.000000	0.037920	0.000000	0.000000	0.001406	0.023418
29	3.5761310E+06	15.6143	5.543	4.372	0.000000	0.637443	0.291310	0.000000	0.000000	0.044125	0.000000	0.000000	0.001406	0.023388
	0.7585 5.121	-3.709	2.667	8.309	0.000000	0.600264	0.317831	0.000000	0.000000	0.054775	0.000000	0.000000	0.001406	0.023344
30	3.5993450E+06	12.2515	5.371	4.425	0.000000	0.604466	0.314875	0.000000	0.000000	0.053528	0.000000	0.000000	0.001406	0.023349
	0.7277 5.108	-3.961	2.738	8.305	0.000000	0.549914	0.351984	0.000000	0.000000	0.070961	0.000000	0.000000	0.001406	0.023289
31	3.6234878E+06	10.2014	5.234	4.465	0.000000	0.577583	0.333494	0.000000	0.000000	0.061787	0.000000	0.000000	0.001406	0.023319
	0.7024 5.097	-4.164	2.795	8.302	0.000000	0.501756	0.382403	0.000000	0.000000	0.088692	0.000000	0.000000	0.001406	0.023239
32	3.6513445E+06	8.6714	5.110	4.497	0.000000	0.543113	0.356422	0.000000	0.000000	0.073323	0.000000	0.000000	0.001406	0.023282
	0.6777 5.087	-4.343	2.850	8.300	0.000000	0.450891	0.411599	0.000000	0.000000	0.110349	0.000000	0.000000	0.001406	0.023185
33	3.6810585E+06	7.5532	5.001	4.522	0.000000	0.513024	0.375505	0.000000	0.000000	0.084323	0.000000	0.000000	0.001406	0.023251
	0.6539 5.078	-4.495	2.899	8.300	0.000000	0.401574	0.436389	0.000000	0.000000	0.134868	0.000000	0.000000	0.001406	0.023130
34	3.7144868E+06	6.6517	4.900	4.544	0.000000	0.483470	0.393278	0.000000	0.000000	0.096098	0.000000	0.000000	0.001406	0.023220
	0.6325 5.069	-4.635	2.949	8.300	0.000000	0.351194	0.457307	0.000000	0.000000	0.164318	0.000000	0.000000	0.001406	0.023067
35	3.7516292E+06	5.9149	4.805	4.562	0.000000	0.450891	0.411599	0.000000	0.000000	0.110349	0.000000	0.000000	0.001406	0.023185
	0.6061 5.060	-4.763	2.999	8.301	0.000000	0.300588	0.472703	0.000000	0.000000	0.199514	0.000000	0.000000	0.001406	0.022993
36	3.7917615E+06	5.3137	4.717	4.579	0.000000	0.422589	0.426295	0.000000	0.000000	0.123951	0.000000	0.000000	0.001406	0.023154
	0.5846 5.052	-4.879	3.049	8.304	0.000000	0.251145	0.480689	0.000000	0.000000	0.240954	0.000000	0.000000	0.001406	0.022905
37	3.8389510E+06	4.7733	4.629	4.595	0.000000	0.389289	0.441935	0.000000	0.000000	0.141603	0.000000	0.000000	0.001406	0.023115
	0.5624 5.044	-4.997	3.105	8.308	0.000000	0.199462	0.479137	0.000000	0.000000	0.294167	0.000000	0.000000	0.001407	0.022782
38	3.8906350E+06	4.3172	4.546	4.610	0.000000	0.357930	0.454798	0.000000	0.000000	0.160092	0.000000	0.000000	0.001406	0.023076
	0.5412 5.038	-5.107	3.165	8.314	0.000000	0.150063	0.464412	0.000000	0.000000	0.358261	0.000000	0.000000	0.001407	0.022612
39	3.9513970E+06	3.9008	4.463	4.625	0.000000	0.324403	0.466247	0.000000	0.000000	0.182162	0.000000	0.000000	0.001406	0.023030
	0.5203 5.034	-5.216	3.237	8.324	0.000000	0.100588	0.430292	0.000000	0.000000	0.441804	0.000000	0.000000	0.001408	0.022331
40	4.0295105E+06	3.4900	4.373	4.645	0.000000	0.288832	0.475311	0.000000	0.000000	0.208659	0.000000	0.000000	0.001406	0.022974
	0.4958 5.033	-5.336	3.342	8.343	0.000000	0.049282	0.360944	0.000000	0.000000	0.562342	0.000000	0.000000	0.001410	0.021711
41	4.0647488E+06	3.3375	4.339	4.654	0.000000	0.273980	0.477991	0.000000	0.000000	0.220826	0.000000	0.000000	0.001406	0.022948
	0.4842 5.036	-5.385	3.402	8.357	0.000000	0.030062	0.321195	0.000000	0.000000	0.621217	0.000000	0.000000	0.001413	0.021212
42	4.1057038E+06	3.1797	4.309	4.670	0.000000	0.258451	0.480023	0.000000	0.000000	0.234318	0.000000	0.000000	0.001406	0.022919
	0.4667 5.047	-5.439	3.508	8.384	0.000000	0.010007	0.269360	0.000000	0.000000	0.692898	0.000000	0.000000	0.001430	0.020155
43	4.1296618E+06	3.0959	4.355	4.709	0.000000	0.249002	0.480844	0.000000	0.000000	0.242942	0.000000	0.000000	0.001406	0.022900
	0.0949 5.093	-5.471	3.800	8.472	0.000000	0.000000	0.240682	0.000000	0.000000	0.731149	0.000000	0.000000	0.001591	0.018721
44	4.1463842E+06	3.0407	4.512	4.760	0.000000	0.242483	0.481210	0.000000	0.000000	0.249092	0.000000	0.000000	0.001406	0.022887
	0.0000 5.136	-5.491	4.412	8.600	0.000000	0.000000	0.240678	0.000000	0.000000	0.731156	0.000000	0.000000	0.001588	0.018724
45	4.1608745E+06	2.9948	4.681	4.776	0.000000	0.235446	0.481430	0.000000	0.000000	0.255906	0.000000	0.000000	0.001406	0.022871
	0.0000 5.114	-5.507	4.908	8.699	0.000000	0.000000	0.240670	0.000000	0.000000	0.731151	0.000000	0.000000	0.001602	0.018724
46	4.1678915E+06	2.9732	4.777	4.761	0.000000	0.233192	0.481457	0.000000	0.000000	0.258133	0.000000	0.000000	0.001406	0.022866
	0.0000 5.064	-5.516	5.440	8.776	0.000000	0.000000	0.239707	0.000000	0.000000	0.730514	0.000000	0.000000	0.003200	0.018724
47	4.1697212E+06	2.9677	4.804	4.744	0.000000	0.232499	0.481458	0.000000	0.000000	0.258824	0.000000	0.000000	0.001406	0.022865
	0.1110 5.029	-5.518	5.520	8.886	0.000000	0.000000	0.195524	0.000000	0.000000	0.701622	0.000000	0.000000	0.075554	0.018726
48	4.1704805E+06	2.9654	4.819	4.733	0.000000	0.232242	0.481459	0.000000	0.000000	0.259081	0.000000	0.000000	0.001406	0.022864
	0.1728 5.007	-5.519	5.451	8.893	0.000000	0.000000	0.148345	0.000000	0.000000	0.671831	0.000000	0.000000	0.150140	0.018733
49	4.1711562E+06	2.9633	4.837	4.723	0.000000	0.232027	0.481459	0.000000	0.000000	0.259296	0.000000	0.000000	0.001406	0.022864
	0.1804 4.987	-5.519	5.479	8.908	0.000000	0.000000	0.098194	0.000000	0.000000	0.640873	0.000000	0.000000	0.227601	0.018734
50	4.1715265E+06	2.9622	4.845	4.719	0.000000	0.231900	0.481459	0.000000	0.000000	0.259422	0.000000	0.000000	0.001406	0.022863
	0.0759 4.978	-5.520	5.573	8.927	0.000000	0.000000	0.048334	0.000000	0.000000	0.610894	0.000000	0.000000	0.302587	0.018734
51	4.1724522E+06	2.9594	4.858	4.708	0.000000	0.231602	0.481460	0.000000	0.000000	0.259719	0.000000	0.000000	0.001406	0.022863
	0.0000 4.955	-5.521	6.445	8.936	0.000000	0.000000	0.000295	0.000000	0.000000	0.582894	0.000000	0.000000	0.372606	0.018734

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TABLE 4A.

STELLAR MODEL : 40 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
21	4.3136060E+06	35.7747	5.742	3.774	0.680000	0.300000	0.004465	0.000073	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.3273	-3.655	2.512	8.259	0.000000	0.976148	0.001134	0.000000	0.001883	0.000478	0.000000	0.016831	0.001420	0.000249
22	4.3252975E+06	32.7823	5.759	3.769	0.671337	0.308670	0.004144	0.000090	0.002138	0.010171	0.000007	0.000022	0.001420	0.000114
	0.3777	-3.590	2.597	8.288	0.000000	0.949853	0.024701	0.000000	0.000000	0.000657	0.000000	0.010209	0.001420	0.011299
23	4.3436455E+06	28.4868	5.752	3.796	0.517677	0.462547	0.001313	0.000111	0.010023	0.004928	0.000004	0.000007	0.001420	0.000114
	0.4400	-3.698	2.610	8.294	0.000000	0.900288	0.071190	0.000000	0.000000	0.001976	0.000000	0.002313	0.001420	0.020932
24	4.3608325E+06	25.9722	5.745	4.041	0.392229	0.588103	0.000249	0.000076	0.013246	0.002714	0.000002	0.000000	0.001420	0.000114
	0.4879	-4.540	2.618	8.298	0.000000	0.849954	0.118282	0.000000	0.000000	0.004788	0.000000	0.000404	0.001420	0.023241
25	4.3781110E+06	25.4270	5.741	4.019	0.391959	0.588372	0.000240	0.000075	0.013262	0.002707	0.000002	0.000000	0.001420	0.000114
	0.5036	-4.479	2.625	8.301	0.000000	0.799652	0.163958	0.000000	0.000000	0.009341	0.000000	0.000098	0.001420	0.023585
26	4.3954025E+06	24.8139	5.735	3.979	0.391706	0.588625	0.000236	0.000074	0.013275	0.002701	0.000002	0.000000	0.001420	0.000114
	0.5216	-4.347	2.631	8.305	0.000000	0.750256	0.206950	0.000000	0.000001	0.015730	0.000000	0.000059	0.001420	0.023596
27	4.4130310E+06	23.6557	5.727	3.870	0.389191	0.591145	0.000222	0.000070	0.013351	0.002636	0.000002	0.000000	0.001420	0.000114
	0.5534	-4.013	2.637	8.308	0.000000	0.701235	0.247424	0.000000	0.000001	0.024270	0.000000	0.000060	0.001420	0.023553
28	4.4295570E+06	21.9650	5.715	3.862	0.387193	0.593144	0.000200	0.000063	0.013425	0.002590	0.000003	0.000000	0.001420	0.000114
	0.6027	-4.013	2.644	8.312	0.000000	0.656515	0.282195	0.000000	0.000001	0.034208	0.000000	0.000048	0.001420	0.023521
29	4.4548975E+06	20.1268	5.698	4.054	0.387193	0.593144	0.000200	0.000063	0.013425	0.002590	0.000003	0.000000	0.001420	0.000114
	0.6681 4.303	-4.097	2.656	8.317	0.000000	0.588576	0.330672	0.000000	0.000001	0.053649	0.000000	0.000028	0.001420	0.023460
30	4.4871955E+06	17.5430	5.643	4.499	0.003060	0.977585	0.000303	0.000094	0.015278	0.000299	0.000000	0.000000	0.001420	0.000114
	0.7911 5.106	-4.097	2.668	8.322	0.000000	0.515299	0.373473	0.000000	0.000000	0.084124	0.000000	0.000135	0.001420	0.023197
31	4.4891840E+06	17.3113	5.632	4.403	0.000000	0.980655	0.000347	0.000107	0.015230	0.000280	0.000000	0.000000	0.001420	0.000114
	0.7893 5.107	-3.815	2.669	8.322	0.000000	0.510314	0.376299	0.000000	0.000000	0.086268	0.000000	0.000077	0.001420	0.023258
32	4.5130480E+06	14.3781	5.508	4.404	0.000000	0.512481	0.375078	0.000000	0.000000	0.085328	0.000000	0.000099	0.001420	0.023236
	0.7615 5.128	-3.793	2.719	8.320	0.000000	0.454344	0.405644	0.000000	0.000000	0.112856	0.000000	0.000000	0.001421	0.023244
33	4.5401685E+06	11.2151	5.331	4.460	0.000000	0.452596	0.406477	0.000000	0.000000	0.113771	0.000000	0.000000	0.001421	0.023240
	0.7214 5.114	-4.059	2.794	8.316	0.000000	0.399969	0.429542	0.000000	0.000000	0.143314	0.000000	0.000000	0.001421	0.023137
34	4.5673515E+06	9.3630	5.196	4.498	0.000000	0.422918	0.419970	0.000000	0.000000	0.129945	0.000000	0.000000	0.001421	0.023182
	0.6931 5.104	-4.259	2.854	8.315	0.000000	0.350529	0.447145	0.000000	0.000000	0.175133	0.000000	0.000000	0.001421	0.023035
35	4.5981585E+06	7.9927	5.075	4.528	0.000000	0.389689	0.433562	0.000000	0.000000	0.149570	0.000000	0.000000	0.001421	0.023116
	0.6666 5.093	-4.433	2.913	8.316	0.000000	0.299887	0.459781	0.000000	0.000000	0.213117	0.000000	0.000000	0.001421	0.022919
36	4.6325895E+06	6.9414	4.964	4.553	0.000000	0.356860	0.445150	0.000000	0.000000	0.170798	0.000000	0.000000	0.001421	0.023048
	0.6394 5.084	-4.588	2.971	8.317	0.000000	0.249351	0.465250	0.000000	0.000000	0.258159	0.000000	0.000000	0.001421	0.022781
37	4.6697575E+06	6.1282	4.867	4.574	0.000000	0.325991	0.454042	0.000000	0.000000	0.192763	0.000000	0.000000	0.001421	0.022981
	0.6180 5.077	-4.723	3.029	8.321	0.000000	0.200808	0.461455	0.000000	0.000000	0.310465	0.000000	0.000000	0.001421	0.022612
38	4.7136120E+06	5.4234	4.772	4.595	0.000000	0.294802	0.460686	0.000000	0.000000	0.217295	0.000000	0.000000	0.001421	0.022906
	0.5889 5.070	-4.857	3.094	8.327	0.000000	0.150693	0.444411	0.000000	0.000000	0.377579	0.000000	0.000000	0.001422	0.022364
39	4.7662375E+06	4.8009	4.675	4.616	0.000000	0.259563	0.464824	0.000000	0.000000	0.248378	0.000000	0.000000	0.001421	0.022811
	0.5635 5.065	-4.991	3.173	8.337	0.000000	0.099530	0.406712	0.000000	0.000000	0.466364	0.000000	0.000000	0.001423	0.021948
40	4.8276345E+06	4.2638	4.583	4.637	0.000000	0.225910	0.464711	0.000000	0.000000	0.282124	0.000000	0.000000	0.001421	0.022705
	0.5358 5.064	-5.120	3.275	8.355	0.000000	0.050868	0.339923	0.000000	0.000000	0.581659	0.000000	0.000000	0.001427	0.021114
41	4.8583325E+06	4.0469	4.544	4.649	0.000000	0.209407	0.462912	0.000000	0.000000	0.300416	0.000000	0.000000	0.001421	0.022645
	0.5224 5.067	-5.177	3.340	8.369	0.000000	0.030427	0.297975	0.000000	0.000000	0.643909	0.000000	0.000000	0.001434	0.020391
42	4.8919470E+06	3.8388	4.512	4.665	0.000000	0.193558	0.459909	0.000000	0.000000	0.319256	0.000000	0.000000	0.001421	0.022581
	0.5057 5.078	-5.237	3.446	8.397	0.000000	0.010434	0.246708	0.000000	0.000000	0.714876	0.000000	0.000000	0.001471	0.018989
43	4.9125600E+06	3.7240	4.552	4.706	0.000000	0.183483	0.457275	0.000000	0.000000	0.331957	0.000000	0.000000	0.001421	0.022537
	0.0000 5.124	-5.271	3.746	8.488	0.000000	0.000000	0.217232	0.000000	0.000000	0.754077	0.000000	0.000000	0.001818	0.017072
44	4.9197885E+06	3.6858	4.622	4.748	0.000000	0.180359	0.456361	0.000000	0.000000	0.335992	0.000000	0.000000	0.001421	0.022522
	0.0000 5.179	-5.282	4.167	8.600	0.000000	0.000000	0.217232	0.000000	0.000000	0.754077	0.000000	0.000000	0.001818	0.017072
45	4.9325560E+06	3.6207	4.793	4.771	0.000000	0.176331	0.455074	0.000000	0.000000	0.341304	0.000000	0.000000	0.001421	0.022503
	0.0000 5.167	-5.302	4.687	8.701	0.000000	0.000000	0.217231	0.000000	0.000000	0.754077	0.000000	0.000000	0.001819	0.017072
46	4.9393585E+06	3.5871	4.906	4.766	0.000000	0.173773	0.454206	0.000000	0.000000	0.344727	0.000000	0.000000	0.001421	0.022491
	0.0000 5.125	-5.312	5.283	8.804	0.000000	0.000000	0.215268	0.000000	0.000000	0.752776	0.000000	0.000000	0.005080	0.017072
47	4.9406185E+06	3.5810	4.931	4.754	0.000000	0.173316	0.454048	0.000000	0.000000	0.345341	0.000000	0.000000	0.001421	0.022488
	0.0706 5.097	-5.314	5.440	8.895	0.000000	0.000000	0.174746	0.000000	0.000000	0.726287	0.000000	0.000000	0.071389	0.017072
48	4.9409305E+06	3.5795	4.936	4.750	0.000000	0.173206	0.454010	0.000000	0.000000	0.345489	0.000000	0.000000	0.001421	0.022488
	0.1226 5.089	-5.314	5.394	8.905	0.000000	0.000000	0.139747	0.000000	0.000000	0.703957	0.000000	0.000000	0.127256	0.017072
49	4.9412420E+06	3.5780	4.944	4.746	0.000000	0.173088	0.453968	0.000000	0.000000	0.345649	0.000000	0.000000	0.001421	0.022487
	0.1288 5.080	-5.315	5.426	8.919	0.000000	0.000000	0.092611	0.000000	0.000000	0.674441	0.000000	0.000000	0.201099	0.017072
50	4.9414215E+06	3.5771	4.950	4.745	0.000000	0.173019	0.453944	0.000000	0.000000	0.345743	0.000000	0.000000	0.001421	0.022487
	0.0533 5.076	-5.315	5.513	8.935	0.000000	0.000000	0.046976	0.000000	0.000000	0.646562	0.000000	0.000000	0.270828	0.017072
51	4.9418805E+06	3.5749	4.971	4.742	0.000000	0.172844	0.453881	0.000000	0.000000	0.345981	0.000000	0.000000	0.001421	0.022486
	0.0000 5.067	-5.316	6.269	8.966	0.000000	0.000000	0.000445	0.000000	0.000000	0.618976	0.000000	0.000000	0.339810	0.017072

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TABLE 5A.

STELLAR MODEL : 25 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
22	6.4372940E+06	23.2968	5.354	3.693	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2369	-4.567	2.775	8.262	0.000000	0.951432	0.024334	0.000000	0.000012	0.000656	0.000000	0.015649	0.001420	0.004638
23	6.4648395E+06	22.5825	5.338	3.644	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2494	-4.617	2.780	8.266	0.000000	0.900670	0.072476	0.000000	0.000002	0.001838	0.000000	0.009210	0.001420	0.012521
24	6.4926965E+06	21.9151	5.337	3.640	0.679999	0.300000	0.004464	0.000074	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2613	-4.624	2.785	8.270	0.000000	0.849848	0.119816	0.000000	0.000001	0.004357	0.000000	0.004886	0.001420	0.017800
25	6.5186325E+06	21.2982	5.337	3.639	0.679999	0.300001	0.004462	0.000077	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2732	-4.623	2.790	8.274	0.000000	0.800547	0.164713	0.000000	0.000003	0.008193	0.000000	0.002335	0.001420	0.020905
26	6.5455000E+06	20.6591	5.337	3.639	0.679998	0.300001	0.004456	0.000082	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2860	-4.622	2.795	8.278	0.000000	0.750820	0.208591	0.000000	0.000001	0.013746	0.000000	0.001018	0.001420	0.022501
27	6.5740940E+06	19.9751	5.338	3.641	0.679710	0.300289	0.004429	0.000094	0.001433	0.010589	0.000007	0.000024	0.001420	0.000114
	0.3003	-4.620	2.800	8.282	0.000000	0.699983	0.251481	0.000000	0.000000	0.021591	0.000000	0.000576	0.001420	0.023024
28	6.6092490E+06	19.1150	5.340	3.702	0.674406	0.305588	0.004139	0.000130	0.001992	0.010294	0.000007	0.000023	0.001420	0.000114
	0.3166	-4.602	2.802	8.285	0.000000	0.650201	0.290151	0.000000	0.000010	0.032737	0.000000	0.000723	0.001420	0.022804
29	6.6298340E+06	18.7315	5.346	3.841	0.674406	0.305588	0.004139	0.000130	0.001992	0.010294	0.000007	0.000023	0.001420	0.000114
	0.3295	-4.760	2.811	8.289	0.000000	0.609405	0.321501	0.000000	0.000000	0.042055	0.000000	0.000197	0.001420	0.023441
30	6.6574535E+06	18.2593	5.346	3.843	0.674406	0.305588	0.004139	0.000130	0.001992	0.010294	0.000007	0.000023	0.001420	0.000114
	0.3432	-4.771	2.820	8.294	0.000000	0.554590	0.360985	0.000000	0.000000	0.057341	0.000000	0.000024	0.001420	0.023617
31	6.6840995E+06	17.8023	5.347	3.847	0.674406	0.305588	0.004139	0.000130	0.001992	0.010294	0.000007	0.000023	0.001420	0.000114
	0.3572	-4.780	2.828	8.299	0.000000	0.503397	0.394211	0.000000	0.000001	0.075300	0.000000	0.000023	0.001420	0.023574
32	6.7146125E+06	17.2818	5.347	3.848	0.648934	0.331053	0.003040	0.000246	0.004223	0.009073	0.000007	0.000018	0.001420	0.000114
	0.3744	-4.780	2.838	8.304	0.000000	0.452157	0.421806	0.000000	0.000001	0.098942	0.000000	0.000055	0.001420	0.023474
33	6.7474140E+06	16.7247	5.347	3.852	0.628311	0.351683	0.002405	0.000299	0.005616	0.008267	0.000007	0.000015	0.001420	0.000114
	0.3938	-4.771	2.849	8.310	0.000000	0.400440	0.443646	0.000000	0.000001	0.128799	0.000000	0.000036	0.001421	0.023419
34	6.7866095E+06	16.0684	5.346	3.853	0.576526	0.403528	0.001748	0.000273	0.007565	0.006951	0.000006	0.000011	0.001420	0.000114
	0.4148	-4.786	2.861	8.317	0.000000	0.351792	0.453185	0.000000	0.000000	0.167884	0.000000	0.000031	0.001411	0.023307
35	6.8151830E+06	15.5863	5.345	3.843	0.561585	0.418487	0.001589	0.000261	0.008079	0.006593	0.000006	0.000009	0.001420	0.000114
	0.4370	-4.767	2.878	8.324	0.000000	0.299937	0.465984	0.000000	0.000000	0.206908	0.000000	0.000000	0.001411	0.023210
36	6.8495750E+06	15.0036	5.343	3.847	0.478541	0.501640	0.000813	0.000172	0.010752	0.004689	0.000005	0.000004	0.001420	0.000114
	0.4614	-4.776	2.897	8.332	0.000000	0.250136	0.463791	0.000000	0.000000	0.258863	0.000000	0.000004	0.001412	0.022992
37	6.8861010E+06	14.3962	5.340	3.848	0.466626	0.513524	0.000493	0.000139	0.011314	0.004514	0.000005	0.000002	0.001420	0.000114
	0.4882	-4.782	2.920	8.342	0.000000	0.200652	0.448165	0.000000	0.000000	0.323911	0.000000	0.000003	0.001413	0.022656
38	6.9256120E+06	13.7481	5.338	3.848	0.457745	0.522383	0.000299	0.000098	0.011674	0.004414	0.000005	0.000001	0.001420	0.000114
	0.5180	-4.787	2.951	8.354	0.000000	0.150819	0.415352	0.000000	0.000000	0.406450	0.000000	0.000002	0.001415	0.022088
39	6.9688275E+06	13.0458	5.336	3.848	0.457165	0.522951	0.000220	0.000072	0.011810	0.004396	0.000004	0.000000	0.001420	0.000114
	0.5501	-4.790	2.996	8.371	0.000000	0.101099	0.358673	0.000000	0.000000	0.512641	0.000000	0.000000	0.001423	0.020999
40	7.0099735E+06	12.3494	5.337	3.837	0.456570	0.523540	0.000180	0.000057	0.011894	0.004372	0.000005	0.000000	0.001420	0.000114
	0.5757	-4.766	3.070	8.397	0.000000	0.050086	0.280517	0.000000	0.000000	0.641329	0.000000	0.000000	0.001478	0.018667
41	7.0271475E+06	12.0541	5.340	3.837	0.456495	0.523614	0.000173	0.000055	0.011907	0.004369	0.000005	0.000000	0.001420	0.000114
	0.5791	-4.763	3.120	8.414	0.000000	0.030640	0.238169	0.000000	0.000000	0.702654	0.000000	0.000000	0.001598	0.016758
42	7.0455595E+06	11.7316	5.345	3.836	0.456469	0.523640	0.000170	0.000054	0.011912	0.004368	0.000005	0.000000	0.001420	0.000114
	0.5733	-4.749	3.214	8.445	0.000000	0.010558	0.186610	0.000000	0.000000	0.772909	0.000000	0.000000	0.002308	0.013112
43	7.0560040E+06	11.5418	5.362	3.835	0.456466	0.523643	0.000169	0.000054	0.011913	0.004368	0.000005	0.000000	0.001420	0.000114
	0.0012	-4.712	3.497	8.537	0.000000	0.000000	0.159872	0.000000	0.000000	0.805388	0.000000	0.000000	0.006351	0.009421
44	7.0605885E+06	11.4381	5.418	3.834	0.456455	0.523653	0.000161	0.000052	0.011925	0.004368	0.000006	0.000000	0.001420	0.000114
	0.0000	-4.564	4.023	8.700	0.000000	0.000000	0.159872	0.000000	0.000000	0.805388	0.000000	0.000000	0.006351	0.009421
45	7.0643870E+06	11.3347	5.453	3.821	0.456232	0.523876	0.000155	0.000050	0.011938	0.004361	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.496	4.475	8.799	0.000000	0.000000	0.159818	0.000000	0.000000	0.805352	0.000000	0.000000	0.006441	0.009421
46	7.0652315E+06	11.3067	5.467	3.821	0.455675	0.524434	0.000155	0.000050	0.011954	0.004343	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.466	4.847	8.854	0.000000	0.000000	0.157808	0.000000	0.000000	0.804018	0.000000	0.000000	0.009779	0.009421
47	7.0653760E+06	11.3017	5.469	3.821	0.455470	0.524640	0.000155	0.000050	0.011960	0.004337	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.463	5.140	8.916	0.000000	0.000000	0.124597	0.000000	0.000000	0.782146	0.000000	0.000000	0.064498	0.009421
48	7.0653880E+06	11.3013	5.468	3.821	0.455404	0.524706	0.000155	0.000050	0.011962	0.004335	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.464	5.189	8.934	0.000000	0.000000	0.092899	0.000000	0.000000	0.761613	0.000000	0.000000	0.115858	0.009421
49	7.0653960E+06	11.3010	5.469	3.821	0.455394	0.524717	0.000155	0.000050	0.011962	0.004334	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.463	5.232	8.946	0.000000	0.000000	0.061337	0.000000	0.000000	0.741554	0.000000	0.000000	0.166026	0.009421
50	7.0654070E+06	11.3006	5.469	3.821	0.455302	0.524809	0.000155	0.000050	0.011965	0.004331	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.463	5.348	8.960	0.000000	0.000000	0.026238	0.000000	0.000000	0.719715	0.000000	0.000000	0.220638	0.009421
51	7.0654200E+06	11.3002	5.469	3.821	0.455302	0.524809	0.000155	0.000050	0.011965	0.004331	0.000007	0.000000	0.001420	0.000114
	0.0000	-4.463	5.883	9.047	0.000000	0.000000	0.000604	0.000000	0.000000	0.704236	0.000000	0.000000	0.259344	0.009421

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TABLE 6A.

STELLAR MODEL : 20 M , Z = 0.020 , MDOT x 2 IN POST-MS

NB	AGE QCC	MASS MDOT	LOGL RHOC	LOGTE LOGTC	X	Y	C12	C13	N14	O16	O17	O18	NE20	NE22
22	8.1797445E+06	19.1278	5.142	3.908	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1865	-5.282	2.882	8.247	0.000000	0.950935	0.025179	0.000000	0.000016	0.000662	0.000000	0.017263	0.001023	0.002636
23	8.2152495E+06	18.9021	5.137	3.811	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1924	-5.116	2.884	8.251	0.000000	0.900034	0.073992	0.000000	0.000002	0.001792	0.000000	0.012998	0.001005	0.007868
24	8.2505480E+06	18.6017	5.107	3.588	0.680000	0.300000	0.004466	0.000072	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.1995	-5.174	2.886	8.254	0.000000	0.850753	0.120142	0.000000	0.000000	0.004104	0.000000	0.009316	0.001016	0.012370
25	8.2853060E+06	18.3877	5.108	3.568	0.679999	0.300000	0.004464	0.000075	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2070	-5.211	2.888	8.258	0.000000	0.799741	0.166724	0.000000	0.000003	0.007819	0.000000	0.006096	0.001005	0.016294
26	8.3202050E+06	18.1723	5.110	3.567	0.679998	0.300001	0.004462	0.000077	0.001397	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2133	-5.208	2.892	8.262	0.000000	0.750240	0.210484	0.000000	0.000001	0.013028	0.000000	0.003716	0.000983	0.019198
27	8.3564465E+06	17.9474	5.112	3.567	0.679998	0.300001	0.004459	0.000079	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2202	-5.206	2.895	8.266	0.000000	0.700556	0.252662	0.000000	0.000000	0.020178	0.000000	0.002124	0.000958	0.021131
28	8.3900040E+06	17.7375	5.115	3.566	0.679998	0.300001	0.004457	0.000082	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2268	-5.202	2.901	8.270	0.000000	0.649912	0.294140	0.000000	0.000000	0.029090	0.000000	0.000997	0.000962	0.022496
29	8.4257560E+06	17.5121	5.117	3.566	0.679997	0.300002	0.004453	0.000086	0.001398	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2336	-5.198	2.906	8.275	0.000000	0.600702	0.331826	0.000000	0.000000	0.040501	0.000000	0.000498	0.000972	0.023089
30	8.4603930E+06	17.2918	5.120	3.566	0.679997	0.300002	0.004448	0.000091	0.001399	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2405	-5.195	2.913	8.279	0.000000	0.549621	0.368676	0.000000	0.000000	0.054665	0.000000	0.000218	0.000976	0.023409
31	8.4975850E+06	17.0531	5.123	3.565	0.679996	0.300003	0.004440	0.000098	0.001400	0.010607	0.000007	0.000024	0.001420	0.000114
	0.2484	-5.191	2.920	8.284	0.000000	0.499529	0.400946	0.000000	0.000000	0.072461	0.000000	0.000127	0.000985	0.023493
32	8.5378960E+06	16.7917	5.126	3.565	0.679975	0.300023	0.004431	0.000107	0.001403	0.010606	0.000007	0.000024	0.001420	0.000114
	0.2572	-5.186	2.928	8.290	0.000000	0.448745	0.428846	0.000000	0.000000	0.095333	0.000000	0.000107	0.000996	0.023480
33	8.5736740E+06	16.5575	5.128	3.565	0.679825	0.300173	0.004416	0.000116	0.001415	0.010602	0.000007	0.000024	0.001420	0.000114
	0.2658	-5.182	2.938	8.295	0.000000	0.399951	0.452334	0.000000	0.000001	0.120623	0.000000	0.000074	0.001001	0.023472
34	8.6152210E+06	16.2833	5.130	3.564	0.678863	0.301132	0.004365	0.000132	0.001484	0.010571	0.000007	0.000024	0.001420	0.000114
	0.2755	-5.179	2.950	8.302	0.000000	0.349950	0.469116	0.000000	0.000000	0.153819	0.000000	0.000033	0.001010	0.023455
35	8.6568020E+06	16.0072	5.133	3.563	0.676048	0.303942	0.004241	0.000155	0.001681	0.010482	0.000007	0.000023	0.001420	0.000114
	0.2856	-5.177	2.964	8.309	0.000000	0.300472	0.478376	0.000000	0.000000	0.194016	0.000000	0.000023	0.001017	0.023371
36	8.6996270E+06	15.7219	5.135	3.562	0.672929	0.307054	0.004105	0.000181	0.001899	0.010383	0.000007	0.000023	0.001420	0.000114
	0.2961	-5.176	2.981	8.317	0.000000	0.250778	0.478640	0.000000	0.000000	0.243419	0.000000	0.000017	0.001024	0.023237
37	8.7467700E+06	15.4061	5.137	3.562	0.670014	0.309963	0.003979	0.000205	0.002102	0.010291	0.000007	0.000023	0.001420	0.000114
	0.3071	-5.172	3.002	8.327	0.000000	0.199002	0.465929	0.000000	0.000000	0.307859	0.000000	0.000003	0.001031	0.023023
38	8.7944330E+06	15.0862	5.139	3.560	0.667149	0.312822	0.003854	0.000229	0.002302	0.010200	0.000007	0.000022	0.001420	0.000114
	0.3179	-5.172	3.029	8.338	0.000000	0.149681	0.437279	0.000000	0.000000	0.385758	0.000000	0.000000	0.001037	0.022648
39	8.8447600E+06	14.7488	5.138	3.557	0.649127	0.330855	0.003477	0.000245	0.003202	0.009656	0.000007	0.000020	0.001420	0.000114
	0.3292	-5.182	3.076	8.356	0.000000	0.100231	0.386159	0.000000	0.000000	0.486192	0.000000	0.000002	0.001035	0.021850
40	8.8940190E+06	14.4294	5.137	3.554	0.614813	0.365197	0.002856	0.000229	0.004836	0.008641	0.000007	0.000017	0.001420	0.000114
	0.3334	-5.192	3.148	8.382	0.000000	0.049915	0.310430	0.000000	0.000000	0.611918	0.000000	0.000000	0.001054	0.020221
41	8.9156930E+06	14.2909	5.138	3.552	0.597876	0.382142	0.002548	0.000210	0.005620	0.008181	0.000007	0.000015	0.001420	0.000114
	0.3312	-5.194	3.198	8.399	0.000000	0.029633	0.266396	0.000000	0.000000	0.675919	0.000000	0.000000	0.001102	0.018755
42	8.9367870E+06	14.1562	5.142	3.550	0.581303	0.398722	0.002249	0.000191	0.006383	0.007733	0.000006	0.000013	0.001420	0.000114
	0.3222	-5.193	3.286	8.429	0.000000	0.010699	0.217223	0.000000	0.000000	0.743294	0.000000	0.000000	0.001353	0.016117
43	8.9501390E+06	14.0692	5.155	3.548	0.561577	0.418457	0.001888	0.000167	0.007297	0.007201	0.000006	0.000011	0.001420	0.000114
	0.0018	-5.177	3.576	8.523	0.000000	0.000000	0.188481	0.000000	0.000000	0.780303	0.000000	0.000000	0.003157	0.012852
44	8.9529720E+06	14.0491	5.191	3.547	0.549327	0.430711	0.001663	0.000152	0.007867	0.006870	0.000006	0.000009	0.001420	0.000114
	0.0000	-5.111	3.852	8.606	0.000000	0.000000	0.188481	0.000000	0.000000	0.780303	0.000000	0.000000	0.003157	0.012852
45	8.9584900E+06	14.0043	5.200	3.546	0.547984	0.432055	0.001638	0.000150	0.007929	0.006833	0.000006	0.000009	0.001420	0.000114
	0.0000	-5.095	4.225	8.700	0.000000	0.000000	0.188481	0.000000	0.000000	0.780303	0.000000	0.000000	0.003158	0.012852
46	8.9636890E+06	13.9532	5.276	3.548	0.544085	0.435956	0.001566	0.000145	0.008112	0.006728	0.000006	0.000009	0.001420	0.000114
	0.0000	-4.926	4.952	8.832	0.000000	0.000000	0.187274	0.000000	0.000000	0.779501	0.000000	0.000000	0.005165	0.012852
47	8.9640760E+06	13.9486	5.282	3.548	0.543858	0.436182	0.001563	0.000145	0.008121	0.006721	0.000006	0.000009	0.001420	0.000114
	0.0000	-4.911	5.223	8.890	0.000000	0.000000	0.150190	0.000000	0.000000	0.755111	0.000000	0.000000	0.066204	0.012852
48	8.9641160E+06	13.9481	5.283	3.548	0.543855	0.436186	0.001563	0.000145	0.008122	0.006721	0.000006	0.000009	0.001420	0.000114
	0.0000	-4.910	5.256	8.910	0.000000	0.000000	0.111359	0.000000	0.000000	0.730073	0.000000	0.000000	0.128843	0.012852
49	8.9641420E+06	13.9477	5.282	3.548	0.543808	0.436233	0.001562	0.000145	0.008124	0.006720	0.000006	0.000009	0.001420	0.000114
	0.0000	-4.912	5.286	8.920	0.000000	0.000000	0.074718	0.000000	0.000000	0.706933	0.000000	0.000000	0.186723	0.012852
50	8.9641890E+06	13.9472	5.283	3.548	0.543804	0.436236	0.001562	0.000145	0.008124	0.006720	0.000006	0.000009	0.001420	0.000114
	0.0000	-4.910	5.391	8.921	0.000000	0.000000	0.037882	0.000000	0.000000	0.684168	0.000000	0.000000	0.243659	0.012852
51	8.9642680E+06	13.9462	5.274	3.547	0.543804	0.436236	0.001562	0.000145	0.008124	0.006720	0.000006	0.000009	0.001420	0.000114
	0.0000	-6.228	5.965	9.012	0.000000	0.000000	0.001208	0.000000	0.000000	0.662092	0.000000	0.000000	0.298860	0.012852

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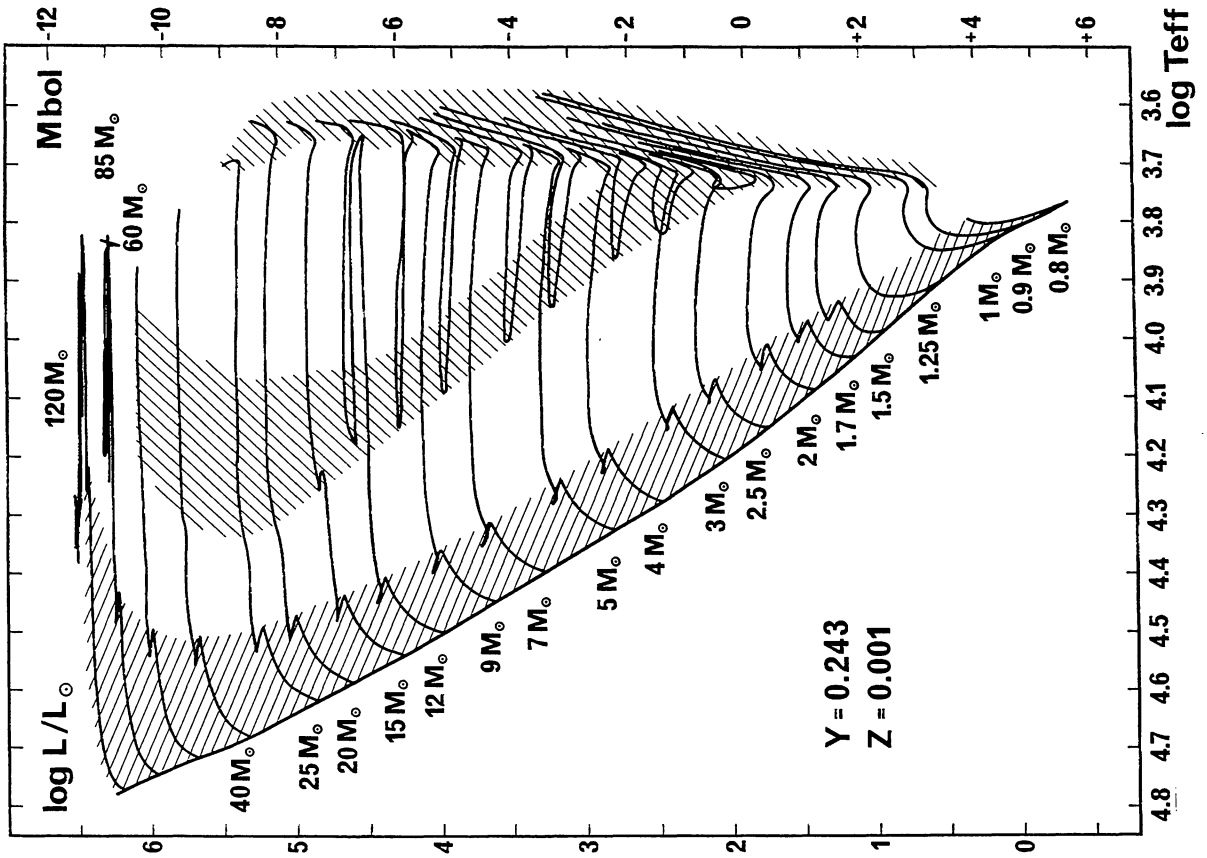

FIGURE 2. Same as in Figure 1 for an initial metallicity $Z = 0.001$.

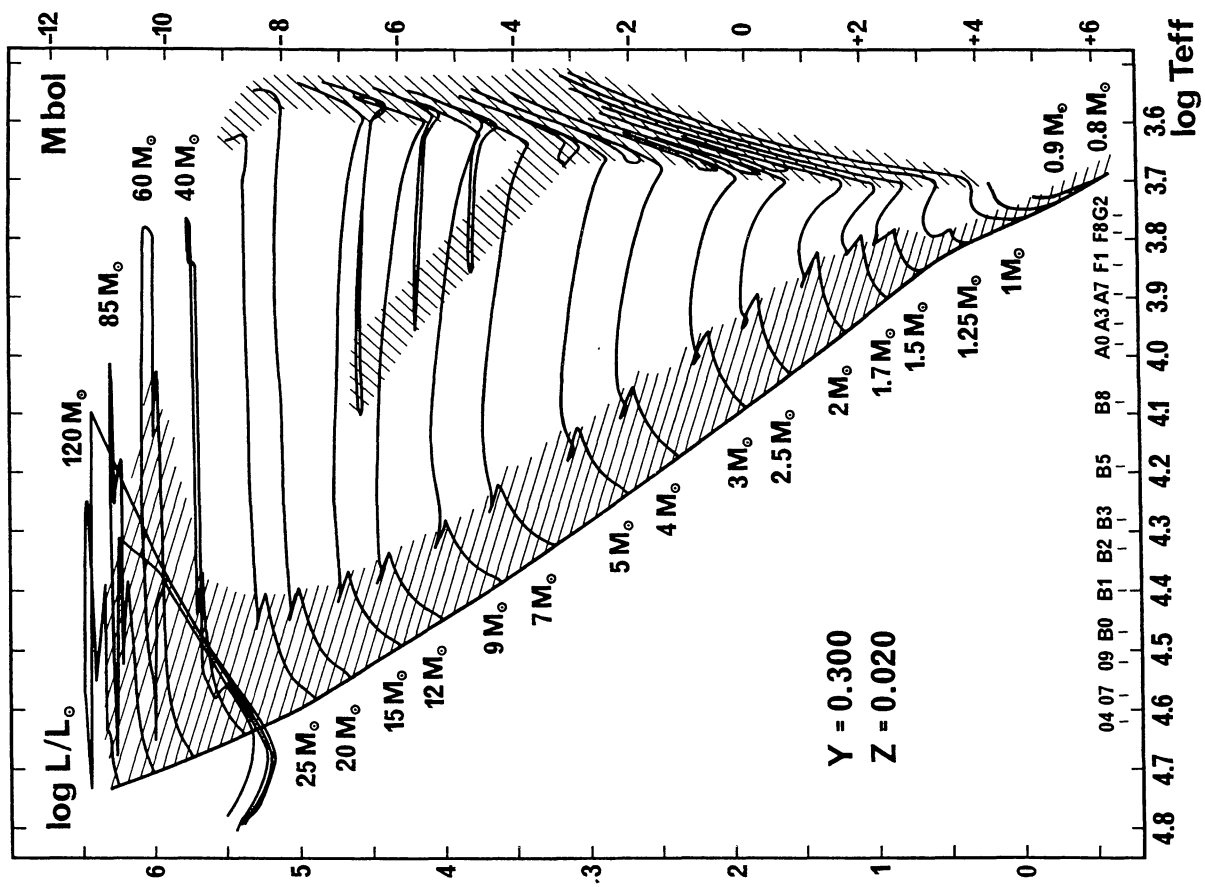

FIGURE 1. Theoretical HR diagram for the ensemble of the calculated models for solar metallicity with an overshooting parameter $\alpha_{over} = d_{over}/H_p = 0.20$. The slow phases of nuclear burning are indicated by hatched areas. At 1.25 $M_\odot$, the model shown in the figure is the one without overshooting. The spectral types are taken from Kudritzki & Hummer (1986) and from Böhm-Vitense (1981).

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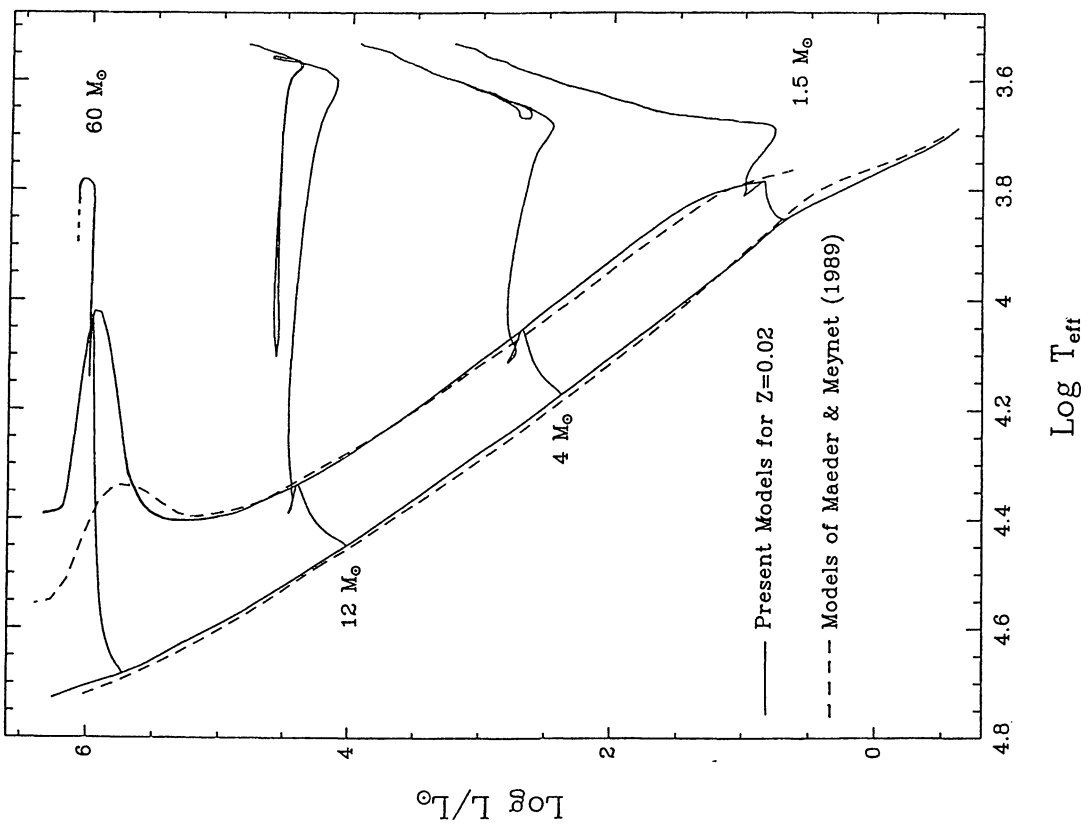

FIGURE 3. ZAMS and envelopes of the main sequences for the present set of models at solar metallicity and for the models computed by Maeder & Meynet (1989) are indicated in the theoretical HR diagram. A few evolutionary tracks from the present grid of models are also represented, for purpose of clarity, only the first part of the evolutionary track for the $60M_\odot$ has been drawn.

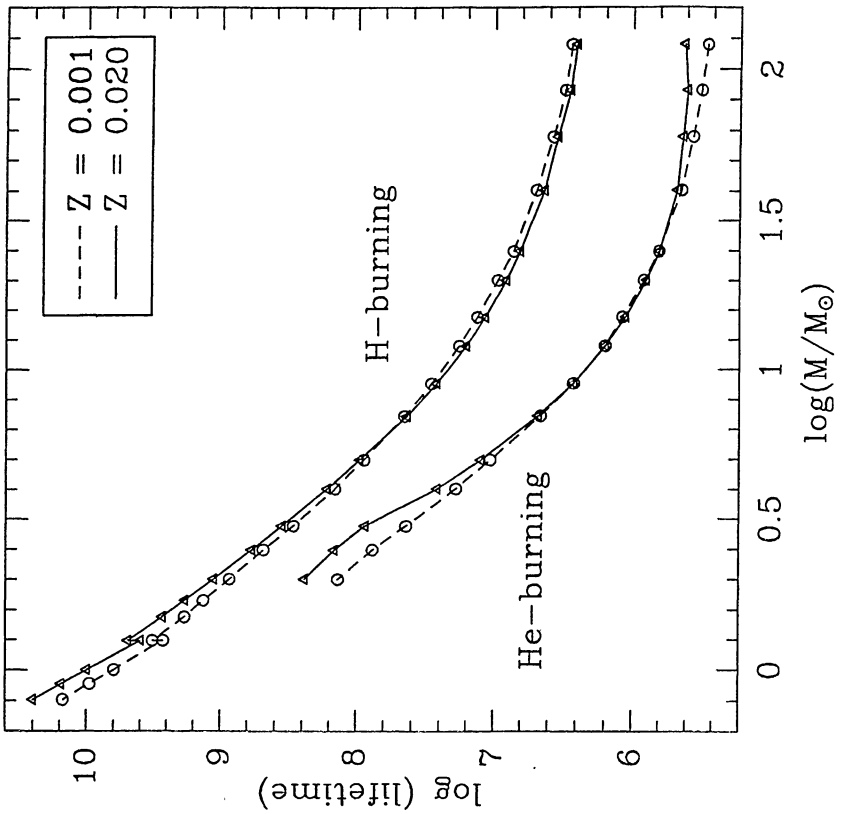

FIGURE 4. The logarithm of the lifetimes in years for the H and He-burning phases are represented in function of the logarithm of the initial mass expressed in solar units, for the two sets of models at $Z = 0.020$ and $Z = 0.001$. At $1.25M_\odot$, the lifetimes for the models with and without overshooting are shown.

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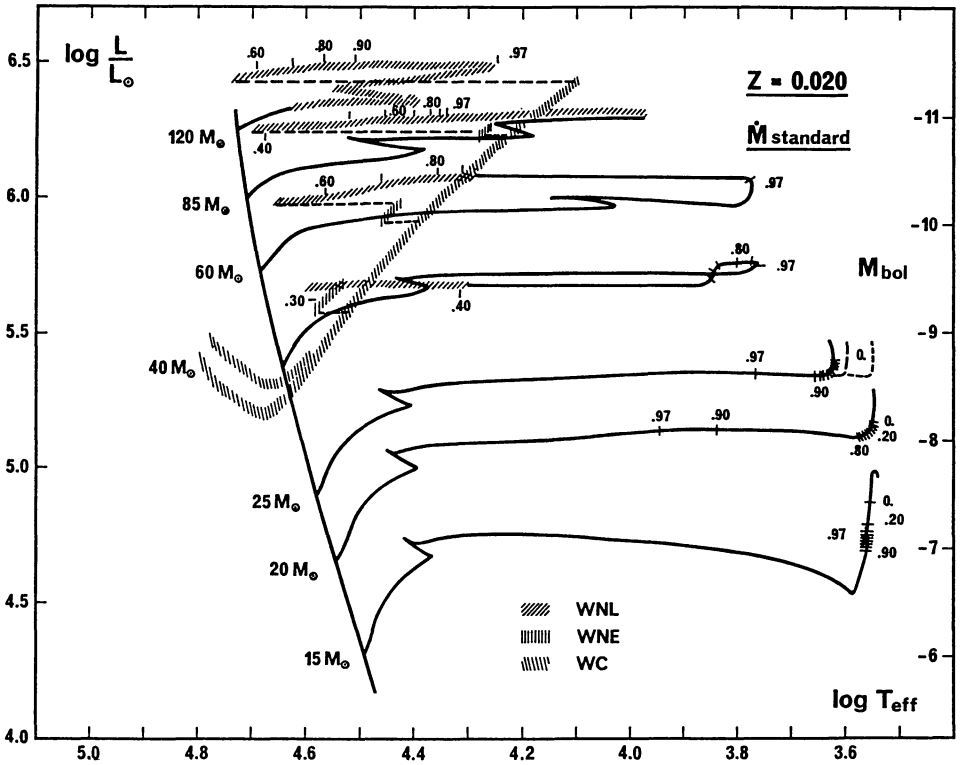

FIGURE 5. The HR diagram for massive stars with $Z = 0.020$ and standard mass loss rates. The locations of WNL, WNE and WC stars are indicated, as the well as the values of central helium content Y_c during the He-burning phase; the values 0.97, 0.90, 0.80, 0.70, 0.60, ..., 0.10, 0 are generally indicated by a small bar on the track.

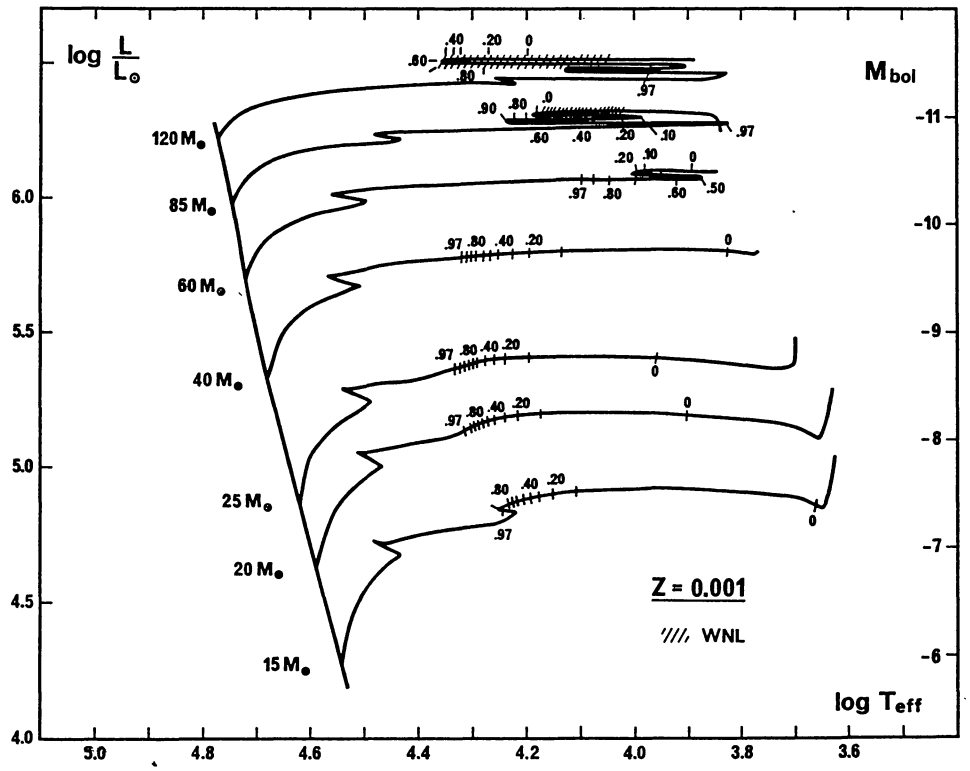

FIGURE 6. The HR diagram for massive stars with $Z = 0.001$. Same remarks as for Figure 5.

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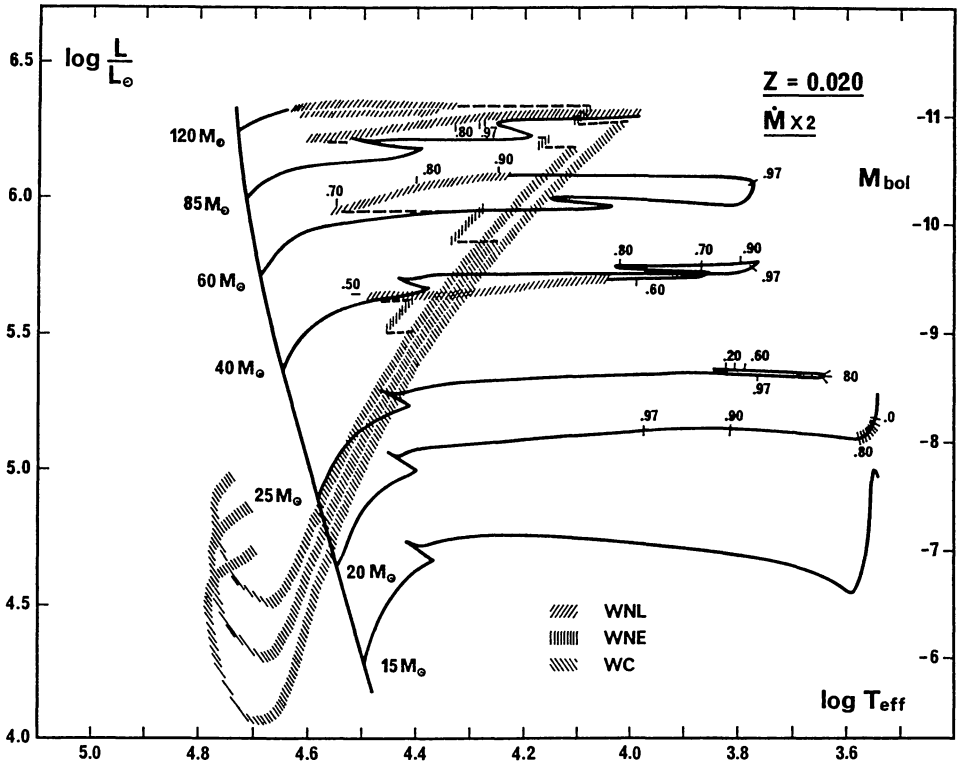

FIGURE 7. the HR diagram for massive stars with $Z = 0.020$ and mass loss rates increased by a factor of 2 in post-MS phases. Same remarks as for Figure 5.

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