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IUE ULTRAVIOLET SPECTRAL ATLAS

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IUE O STARS SPECTRAL ATLAS

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IUE ULTRAVIOLET SPECTRAL ATLAS

78-012A-01H

This data set consists of 3 magnetic tapes. These tapes are 6250 bpi, 9 track, are written in mixed mode (EBCDIC and BINARY). The first tape contains 190 files, second 198 files and the third 50 files. These tapes were created on an IBM 3081 computer. The D and C numbers are as follows:

D#	C#
D-61541	C-23970
D-83156	C-28049
D-83157	C-28050

Processing of these data is not possible with only the information contained in this documentation. Persons having no prior experience with the processing of IUE Spectra should request a copy of the International Ultraviolet Explorer Image Processing Information Manual from the NSSDC or WDC-A.

I. INTRODUCTION

The first edition of *The IUE Ultraviolet Spectral Atlas* was published by Wu *et al.* (1983) in printed and magnetic tape versions and it has been widely used by the astronomical community for research and teaching purposes. It was recognized then that numerous spectral type-luminosity class combinations were not available in the atlas, but the authors decided that it was important to provide the atlas to the community early, and to attempt a more complete spectral type-luminosity class coverage at a later date. During the period between May 1985 and February 1989, high quality trailed and pseudo-trailed spectra were obtained for 142 stars by D. Burstein, C.-C. Wu, and R. W. O'Connell (IUE observing programs CSHDB, LDIDB, LDJDB, and LDKDB) and by C.-C. Wu, A. V. Holm, R. Arquilla, D. M. Crenshaw, and C. R. Shrader (IUE observing programs SAJCW and SAKCW).

Burstein, Wu, and O'Connell observed F, G, and K dwarf and giant stars near the main sequence turnoff of old stellar populations. They measured the strength or magnitude of spectral features and breaks in an attempt to calibrate the effects of temperature, metallicity, and gravity on these stars. The first results are given in Fanelli *et al.* (1987, 1990). Wu, Holm, Arquilla, Crenshaw, and Shrader proposed to augment the 1983 Atlas. Their goals are to provide as complete a coverage of the spectral type-luminosity class combination as possible, to provide more than one star per combination to guard against variability and peculiarity, and to allow for a finite range of temperature, metallicity, and gravity in a given combination. In this addendum, we present the spectra obtained in programs CSHDB, LDIDB, LDJDB, LDKDB, SAJCW and SAKCW. The spectra from SALCW and SAMCW will be given in the second addendum when the IUE thirteenth observing episode is concluded.

II. OBSERVATIONS AND REDUCTIONS

Observations were made with the Short Wavelength Prime (SWP) and Long Wavelength Prime (LWP) cameras on board the IUE. In this atlas, the 1150-1975 Å region is covered by the SWP, and the 1975-3200 Å region is covered by the LWP. In low-dispersion mode, IUE has a spectral resolution of about 6 Å . The IUE scientific instrument and its performance were first discussed in Boggess *et al.* (1978a, b). For recent updates, the readers should consult Sonneborn *et al.* (1987), Harris and Sonneborn (1987), and Grady and Taylor (1989).

In order to increase the signal-to-noise ratio of the data, with a few exceptions essentially all spectra were obtained by trail and pseudo-trail techniques. These techniques move the target star along the major axis of the large aperture, which is nearly perpendicular to the dispersion direction. In a trailed exposure, the star moves at a constant rate through the large aperture. The method is used when the total exposure time is less than 10 minutes and the star is 100 degrees or less away from the Sun (beta angle of 80 degrees or higher). When a star is more than 100 degrees from the Sun or the exposure time for trailing is more than 10 minutes, the pseudo-trail technique is used. This technique places the star at several discrete locations (generally 3) along the major axis. An exposure is taken at each location while the spacecraft is stabilized by locking to a guide star. The widened spectra obtained by these techniques improve the signal-to-noise ratio not only by collecting a larger number of photons, but also by recording the spectra on a larger number of pixels. The use of a larger number of pixels improves the chance of averaging out the fixed-pattern noise, and also allows blemishes on the spectra to be reliably removed.

The data were processed by the IUESIPS production software in use on the date of processing; the IUESIPS merged spectra were used for this atlas. Detailed discussion on the IUE image processing system is given in Turnrose and Thompson (1984), Harris and

Sonneborn (1987), and Grady and Taylor (1989). The absolute calibration for the SWP is adopted from Bohlin and Holm (1980) as discussed in more detail by Holm *et al.* (1982). The Cassatella and Harris (1983) calibration was used for LWP data obtained through 21 December 1987. Starting 22 December 1987, the Cassatella, Lloyd, and Gonzalez Riestra (1987) calibration was adopted for the LWP data. Further data reduction was performed using the standard software at the IUE Regional Data Analysis Facility (RDAF) in the Laboratory for Astronomy and Solar Physics at Goddard Space Flight Center (GSFC).

Corrections were applied to the spectra for exposure time and temperature effects, as discussed in the next section. The fluxes of the small aperture spectra for a given star were scaled by a constant so that they matched the large aperture fluxes for that star in regions unaffected by bad data. A weighted average spectrum was then computed for each star with more than one spectrum; data affected by reseaux or saturation were excluded from the averages. The spectra were then binned to 2 Å intervals for tabulation.

Data for the wavelength regions that are affected by reseaux, including the region in LWP spectra that contains Mg I at 2852 Å , are not included in this atlas. In principle, the data in these regions can be recovered by merging those lines in the line-by-line (spatially resolved) file that are not affected by reseaux. In practice it is difficult to recover these data in an automatic fashion, because in many cases the effects of a reseau can be seen in lines outside of the area flagged by the current IUESIPS software. It is anticipated that the new processing techniques developed for the final archive reprocessing effort will produce merged spectra that are unaffected by reseaux. Therefore in this addendum of the atlas we simply leave blank the spectral regions obliterated by the reseaux. We will defer the reconstruction of the Mg I λ2852 line to a later version of the atlas. For those few LWP images which also have unsaturated small aperture data, the spectral regions affected by the reseaux have been replaced by the small aperture data.

III. THE ATLAS

This addendum contains spectra for 142 stars from O5 to M5. Stars earlier than F0 have both SWP and LWP data, while only LWP spectra were taken for stars later than F0. The stars included in this addendum are listed in Table I. Columns (1) and (2) give the HD numbers and names of the stars, respectively. Column (3) gives the spectral types as published in the references provided in Column (4). These spectral type references are listed at the end of Table I. Right ascension and declination (1950 epoch) are presented in Columns (5) and (6). Columns (7) and (9) give V and B–V, respectively. The photometric data are mostly taken from Nicolet (1978), with the remaining obtained from Blanco *et al.* (1970), Feinstein, Marraco, and Muzzio (1973), Walborn (1973b), and Klare and Neckel (1977). In Column (8), "A" indicates that the star has a close neighbor along the line of sight, and the V magnitude is only for the brighter component. On the other hand, "AB" in Column (8) indicates that the V magnitude is the combined brightness of both components. Column (10) gives E(B–V), which is derived by subtracting the intrinsic B–V of FitzGerald (1970) from the observed B–V given in Column (9). For higher luminosity O stars, the intrinsic B–V for main sequence stars of the same spectral type are used. For those spectral types and luminosity classes which have no intrinsic B–V in FitzGerald, interpolated values are used.

The IUE image numbers are given in Column (11). Column (12) indicates the aperture in which the spectrum was taken: "L" is the large aperture and "S" is the small aperture. Column (13) shows how the data were obtained: "T" means trailed, a value of 3 or 4 means the pseudo-trail technique was used with 3 or 4 spectra side-by-side in the large aperture, and a value of 1 indicates that only a single spectrum was obtained. The total exposure time in seconds is given in Column (14). For the single and multiple (pseudo-trail) exposures, if the exposure time for the individual spectrum is 60 seconds or less, corrections have been

applied for two factors which can lead to errors in the exposure time of 0.5 percent or higher. First, the IUE exposure time is controlled by the on-board computer in discrete steps of 0.4096 seconds each; second, it takes 0.120 ± 0.015 seconds for the high voltage to rise after it is turned on (Schiffer 1980; Crenshaw 1986). Therefore, the actual exposure time is:

$$\text{Actual Exposure Time} = [\text{Integer}(t_c/0.4096) \times 0.4096] - 0.120,$$

where t_c is the commanded exposure time in seconds, which is specified on the IUE observing script. The actual exposure time, calculated by using the above equation and multiplying by the number of exposures, is given in Column (14). For trailed spectra, the exposure time is equal to the trail length in arcsec divided by the trail rate in arcsec per sec. The actual trail length is 21.4 and 20.5 arcsec for the short and long wavelength spectrographs, respectively (Panek 1982). The trail rate is specified on the observing script. The actual exposure time, calculated by using the above actual trail length and multiplying by the number of passes (in most cases, it is one), is given in Column (14). The exposure time given on the observing script and in the IUE image header is based on a trail length of 20 arcsec, which is not quite as accurate. Column (15) records the temperature of the camera head amplifier during the exposure. This value was used to correct for the slight dependence of camera sensitivity on temperature (Garhart and Teays 1989).

The data number (DN) indicating the exposure level is given in Column (16). The DN ranges from 0 to 255. At a DN value of 255, the spectrum has at least one overexposed pixel. For more severe cases, the estimated level of overexposure is indicated; for example, 3x means approximately 3 times overexposed. Three DN values are given in Column (16) to report the maximum exposure level: the first is for the strongest emission line, the second is for the continuum, and the third is for the background in regions of the detector immediately adjacent to the spectrum. These DN levels are measured by the Telescope Operator during

the quick-look analysis of the images. They are intended as a rough indicator of the quality and utility of the data. Sometimes the emission component of a P-Cygni profile or the Mg II line at 2800 Å may not be picked up as an emission feature, or a relatively less-absorbed region in a heavily absorbed spectrum of a late type star may be misidentified as an emission line.

In this addendum, the averaged SWP and LWP spectra for each star are plotted to the same scale as in the 1983 Atlas (Wu *et al.* 1983). In addition, average fluxes in 2 Å wavelength bins are tabulated in a table printed on the page facing the spectrum. In the spectral plots, the regions with bad data (reseaux and blemishes that cannot be repaired) are left blank, but saturated data are plotted as crosses. In the flux tables, the bad and saturated data are left out. In spectral regions where the signal-to-noise ratio is low (e.g. the short wavelength end of LWP spectra), negative fluxes can appear in the tables.

The merged and line-by-line files for the individual spectra in this addendum have been written in IUE GO format to magnetic tapes at 6250 bpi. The tapes have been sent to the IUE RDAF and the National Space Science Data Center (NSSDC) at GSFC. If you are interested in receiving a copy of the data, requests should be sent to the IUE Observatory or the NSSDC.

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Table I. Atlas Stars and Images

HD	NAME	SPECTRAL TYPE	R	RA	DEC	V	AB	(B-V)	E(B-V)	IMAGE	AP	N	EXP	THDA	DN
93843		O5 III (f) var	4	10 46 40.2	-59 57 32	7.33		-0.05	0.27	SWP 33672	L	T	48.15	9.2	---/ 200/ 23
										LWP 13334	L	T	30.75	9.5	---/ 190/ 38
210839	LAM CEP	O6 I(n)fp	4	22 09 48.6	+59 10 02	5.04		0.25	0.57	SWP 31259	L	T	21.40	10.8	---/ 180/ 20
										LWP 11101	L	T	10.25	10.2	---/ 200/ 35
152723		O6.5 III(f)	5	16 53 26.1	-40 26 03	7.31		0.10	0.42	SWP 31626	L	T	80.25	6.1	---/ 190/ 38
										LWP 11466	L	T	46.13	6.1	---/ 204/ 45
151515		O7 II(f)	5	16 46 17.1	-41 54 57	7.16		0.16	0.48	SWP 31625	L	T	123.05	6.1	---/ 236/ 27
										LWP 11465	L	T	82.00	6.1	---/1.5x/ 48
										LWP 11467	L	T	41.00	6.5	---/ 185/ 40
167659		O7 II(f)	4	18 14 01.9	-18 59 12	7.39		0.21	0.53	SWP 31623	L	T	128.40	6.1	---/ 197/ 25
										LWP 11463	L	T	107.62	6.1	---/1.5x/ 40
203064	68 CYG	O7.5 III:n((f))	5	21 16 35.1	+43 44 05	5.00		-0.01	0.30	SWP 36315	L	T	5.08	9.8	---/ 180/ 18
										LWP 15564	L	T	4.77	8.5	---/ 214/ 32
209975	19 CEP	O9.5 Ib	5	22 03 36.2	+62 02 10	5.11		0.08	0.35	SWP 32916	L	T	13.38	9.2	---/ 195/ 17
										LWP 12662	L	T	6.15	10.2	---/ 198/ 36
149038	MU NOR	O9.7 Iab	5	16 30 31.3	-43 56 28	4.98		0.02	0.29	SWP 31624	L	T	8.02	6.1	---/ 180/ 19
										LWP 11464	L	T	6.15	6.1	---/ 225/ 40
218376	1 CAS	B0.5 III	6	23 04 29.5	+59 08 57	4.85		-0.03	0.25	SWP 31260	L	T	6.42	10.8	---/ 207/ 18
										LWP 11102	L	T	5.13	10.5	---/ 235/ 39
166197		B1 V	7	18 07 36.8	-33 48 39	6.16		-0.14	0.12	SWP 33202	L	T	12.84	9.2	---/ 205/ 18
										LWP 12981	L	T	12.30	9.5	---/ 220/ 38
215733		B1 II	9	22 44 35.2	+16 58 09	7.34		-0.13	0.11	SWP 34697	L	T	58.85	8.5	---/ 210/ 17
										LWP 15560	L	T	32.80	10.2	---/ 210/ 35
13854		B1 Iab	6	02 13 20.9	+56 49 26	6.49		0.28	0.47	SWP 34867	L	3	112.69	8.5	---/ 219/ 20
										LWP 14595	L	3	37.73	9.5	---/1.5x/ 35
										LWP 14597	L	3	25.44	9.5	---/ 213/ 38
											S	1	100.00	9.2	---/5.0x/ 35
225094		B3 Iab	6	00 00 50.7	+63 21 46	6.24		0.33	0.46	SWP 31262	L	T	224.70	10.8	---/ 215/ 21
										LWP 11103	L	T	51.25	10.5	---/ 205/ 35
75112		B4 V	7	08 44 50.0	-34 26 19	6.37		-0.13	0.05	SWP 36317	L	T	37.45	9.8	---/ 218/ 17
										LWP 15566	L	T	21.53	9.5	---/ 202/ 34
48879	42 CAM	B4 IV	6	06 45 44.9	+67 37 48	5.14		-0.17	0.01	SWP 32997	L	T	8.56	10.5	---/ 198/ 25
										LWP 12755	L	T	6.87	10.8	---/ 230/ 45
209419		B5 III	6	22 00 00.4	+52 38 26	5.78		-0.11	0.05	SWP 33851	L	T	27.82	10.5	---/ 207/ 35
										LWP 13555	L	T	13.33	11.5	---/ 209/ 43
222173	IOT AND	B8 V	13	23 35 40.6	+42 59 28	4.29		-0.10	0.01	SWP 33853	L	T	9.63	10.8	---/ 190/ 32
										LWP 13557	L	T	6.15	11.2	---/ 221/ 43
26571		B9 III	13	04 09 53.1	+22 17 11	8.09		0.19	0.27	SWP 32996	L	T	187.24	10.2	---/ 198/ 23
										LWP 12753	L	T	61.50	11.8	---/ 215/ 38
212593	4 LAC	B9 Iab	13	22 22 29.0	+49 13 20	4.57		0.09	0.09	SWP 33852	L	T	34.24	10.8	---/ 188/ 42
										LWP 13556	L	T	12.30	11.5	---/ 230/ 54
149212	15 DRA	A0 III	13	16 28 04.2	+68 52 34	5.00		-0.06	-0.03	SWP 32914	L	T	26.75	9.5	---/ 168/ 14
										LWP 12658	L	T	17.43	8.5	---/ 203/ 32
210418	THE PEG	A3 Vn	10	22 07 40.6	+05 57 04	3.53		0.08	0.00	SWP 36316	L	T	20.33	9.5	---/ 204/ 17
										LWP 15565	L	T	7.18	9.2	---/ 202/ 32

HD	NAME	SPECTRAL TYPE	R	RA	DEC	V	AB	(B-V)	E(B-V)	IMAGE	AP	N	EXP	THDA	DN
79439	18 UMA	A5 V	10	09 12 36.2	+54 13 47	4.83		0.19	0.04	SWP 32779	L	4	47.03	12.5	---/ 139/ 19
										SWP 32780	L	4	142.06	10.5	---/2.0x/ 22
										LWP 12564	L	4	14.27	11.8	---/ 166/ 35
97534		A6 Ia	13	11 10 26.8	-60 02 43	4.60		0.55	0.35	SWP 33673	L	1	900.00	9.2	---/5.0x/ 30
										LWP 13335	L	T	123.00	9.5	---/ 240/ 38
203280	ALP CEP	A7 IV - V	2	21 17 23.2	+62 22 23	2.44		0.22	0.00	SWP 32915	L	T	18.19	8.8	---/ 205/ 12
										LWP 12660	L	T	4.31	9.2	---/ 214/ 35
85123	UPS CAR	A7 II Vb	13	09 45 51.8	-64 50 24	2.97	A	0.27	0.13	SWP 33670	L	T	53.50	8.8	---/ 245/ 25
										LWP 13331	L	T	10.25	9.5	---/ 195/ 38
164259	ZET SER	F3 V	2	17 57 50.4	-03 41 19	4.62		0.38	-0.03	LWP 12707	L	T	30.75	8.5	---/ 212/ 40
										LWP 15556	L	3	18.07	10.2	---/ 218/ 37
											S	1	120.00	10.2	---/ 10x/ 33
214470	31 CEP	F3 III - IV	13	22 34 32.0	+73 23 00	5.08		0.39	0.00	LWP 12756	L	T	82.00	10.8	---/ 240/ 45
8799	OME AND	F4 IV	13	01 24 39.2	+45 08 57	4.83		0.42	0.00	LWP 14596	L	3	35.28	9.5	---/2.0x/ 35
										LWP 14598	L	3	20.53	9.2	---/ 200/ 38
											S	1	80.00	9.2	---/5.0x/ 38
27561		F5 V	13	04 18 45.2	+14 17 33	6.61		0.41	-0.04	LWP 10007	L	T	184.56	11.5	---/ 200/ 39
106516		F5 V	13	12 12 36.0	-10 01 14	6.11		0.46	0.01	LWP 9607	L	T	82.00	11.5	---/ 180/ 35
134083	45 BOO	F5 V	13	15 05 06.2	+25 03 46	4.93		0.43	-0.02	LWP 11178	L	T	15.38	9.2	---/ 120/ 35
										LWP 11181	L	T	61.50	9.5	---/1.5x/ 39
210027	IOT PEG	F5 V	2	22 04 40.8	+25 06 01	3.76		0.44	-0.01	LWP 11109	L	T	14.35	11.8	---/ 205/ 38
108177		F5 VI	13	12 23 01.5	+01 34 02	9.66		0.44	0.00	LWP 14966	L	3	1620.00	8.5	---/1.5x/ 39
30652	PI 3 ORI	F6 V	1	04 47 07.4	+06 52 32	3.19		0.45	-0.03	LWP 12506	L	3	7.01	9.2	---/1.5x/ 33
43318		F6 V	13	06 13 01.6	-00 29 31	5.65		0.50	0.02	LWP 12507	L	3	64.77	9.2	---/ 235/ 34
69897	CHI CNC	F6 V	13	08 17 01.8	+27 22 52	5.14		0.47	-0.01	LWP 12708	L	T	56.37	8.8	---/ 232/ 41
142860	GAM SER	F6 V	2	15 54 08.5	+15 49 25	3.85		0.48	0.00	LWP 11179	L	T	19.48	9.2	---/ 235/ 38
153597	19 DRA	F6 V	13	16 55 44.8	+65 12 39	4.89		0.48	0.00	LWP 12331	L	T	46.13	7.2	---/ 216/ 35
207978	15 PEG	F6 IV	13	21 50 15.8	+28 33 31	5.53		0.42	-0.04	LWP 8446	L	T	73.80	9.8	---/ 222/ 36
82328	THE UMA	F6 IV	13	09 29 31.5	+51 54 23	3.17	A	0.46	0.00	LWP 12330	L	T	10.25	7.2	---/ 222/ 42
89449	40 LEO	F6 IV	2	10 17 01.0	+19 43 31	4.79		0.45	-0.01	LWP 12329	L	T	41.00	7.2	---/ 222/ 51
120136	TAU BOO	F7 V	2	13 44 53.1	+17 42 19	4.50		0.48	-0.02	LWP 14965	L	3	29.13	8.5	---/2.5x/ 35
										LWP 14967	L	3	14.39	8.5	---/ 182/ 32
165908	99 HER	F7 V	2	18 05 07.5	+30 33 13	5.04	AB	0.52	0.02	LWP 12705	L	T	56.37	8.5	---/ 206/ 38
										LWP 15558	L	3	25.44	10.2	---/ 197/ 38
											S	1	180.00	10.2	---/ 10x/ 34
170153	CHI DRA	F7 V	2	18 21 57.5	+72 42 42	3.57		0.49	-0.01	LWP 15016	L	T	12.92	12.5	---/ 223/ 33
215648	XI PEG	F7 V	2	22 44 11.6	+11 54 57	4.19		0.50	0.00	LWP 11107	L	T	15.38	12.8	---/ 150/ 35
222368	IOT PSC	F7 V	2	23 37 22.6	+05 21 19	4.13		0.51	0.01	LWP 11111	L	T	28.70	10.8	---/ 235/ 35
216385	SIG PEG	F7 IV	13	22 49 51.9	+09 34 09	5.16		0.48	-0.02	LWP 11110	L	T	66.63	11.5	---/ 225/ 38
187691	OMI AQL	F8 V	13	19 48 37.9	+10 17 21	5.11		0.55	0.02	LWP 11175	L	T	92.25	9.8	---/ 235/ 38
193901		F8 V	13	20 20 38.8	-21 31 05	8.65		0.55	0.02	LWP 12976	L	3	900.00	9.2	---/ 231/ 46
											S	1	300.00	9.2	---/ 139/ 42
217877		F8 V	13	23 01 21.0	-05 03 55	6.68		0.58	0.05	LWP 8812	L	3	195.00	11	---/ 240/ 59
136202	S SER	F8 IV - V	2	15 16 45.4	+01 57 12	5.06		0.54	0.03	LWP 12510	L	3	43.88	8.5	---/ 230/ 38
201891		F8 IV - V	13	21 09 40.0	+17 32 04	7.38		0.51	-0.01	LWP 15559	L	3	255.00	10.5	---/ 226/ 34
208906		F8 IV - V	13	21 56 27.8	+29 34 43	6.94		0.51	-0.01	LWP 15557	L	3	164.30	9.8	---/ 225/ 43
											S	1	1100.00	9.8	---/ 10x/ 41
220657	UPS PEG	F8 IV	2	23 22 52.8	+23 07 43	4.40		0.61	0.08	LWP 14389	L	T	61.50	8.8	---/ 245/ 50

HD	NAME	SPECTRAL TYPE	R	RA	DEC	V	AB	(B-V)	E(B-V)	IMAGE	AP	N	EXP	THDA	DN
22879		F9 V	13	03 37 49.2	-03 22 29	6.68		0.55	-0.01	LWP 10008	L	3	112.69	11.5	---/ 205/ 38
										LWP 12327	L	T	205.00	7.5	---/ 198/ 40
90508		F9- V	12	10 24 59.3	+49 03 09	6.44		0.60	0.04	LWP 9609	L	3	180.00	11.8	---/1.2x/ 34
										LWP 10010	L	3	149.55	11.2	---/ 230/ 35
114762		F9 V	13	13 09 54.5	+17 46 55	7.31		0.54	-0.02	LWP 14968	L	3	210.00	8.8	---/ 205/ 34
142373	CHI HER	F9 V	2	15 50 56.7	+42 35 26	4.62		0.56	0.00	LWP 11180	L	T	49.20	9.2	---/ 235/ 42
157089		F9 V	13	17 18 35.5	+01 29 16	6.95		0.60	0.04	LWP 12706	L	3	179.04	8.5	---/ 213/ 35
200580		F9 V	13	21 01 36.9	+02 48 01	7.32		0.54	-0.02	LWP 9605	L	3	300.00	10.5	---/1.2x/ 35
										LWP 11176	L	3	240.00	9.8	---/ 200/ 35
4307	18 CET	G0 V	13	00 42 58.0	-13 09 04	6.15		0.61	0.01	LWP 8442	L	T	276.75	8.8	---/1.2x/ 37
										LWP 8443	L	1	49.85	9.5	---/ 225/ 36
4614	ETA CAS	G0 V	2	00 46 03.6	+57 33 03	3.44		0.57	-0.03	LWP 15018	L	T	16.20	12.8	---/ 220/ 34
48682	PSI 5 AUR	G0 V	13	06 43 08.2	+43 37 46	5.25		0.56	-0.04	LWP 10011	L	T	56.38	11.2	---/ 185/ 38
55575		G0 V	13	07 12 07.6	+47 19 51	5.58		0.58	-0.02	LWP 9610	L	T	82.00	11.8	---/ 185/ 35
110897	10 CVN	G0 V	13	12 42 37.7	+39 33 01	5.95		0.55	-0.05	LWP 12332	L	T	143.50	7.2	---/ 225/ 36
114710	BET COM	G0 V	1	13 09 32.4	+28 07 52	4.26		0.57	-0.03	LWP 13414	L	T	38.95	11.2	---/ 225/ 34
152792		G0 V	13	16 51 57.4	+42 54 36	6.81		0.65	0.05	LWP 8447	L	T	425.37	9.8	---/ 220/ 40
157214	72 HER	G0 V	2	17 18 47.2	+32 31 51	5.39		0.62	0.02	LWP 12512	L	3	70.91	8.8	---/ 225/ 33
187923		G0 V	13	19 49 43.0	+11 30 13	6.13		0.65	0.05	LWP 8810	L	T	266.50	10	---/ 225/ 51
1461		G0 IV	13	00 16 07.4	-08 19 43	4.46		0.68	0.05	LWP 8444	L	T	440.76	9.8	---/ 238/ 40
205153		G0 IV	13	21 31 13.9	-28 07 24	8.21		0.55	-0.08	LWP 14536	L	3	750.00	10.3	---/ 238/ 41
73593	34 LYN	G0 IV	13	08 37 34.2	+46 00 39	5.37		0.99	0.36	LWP 7259	L	T	184.52	11.5	---/ 121/ 41
14802	KAP FOR	G1 V	13	02 26 15.2	-24 02 34	5.20		0.60	-0.02	LWP 11112	L	T	102.50	10.7	---/ 225/ 38
28068		G1 V	13	04 23 32.0	+16 44 29	8.06		0.63	0.01	LWP 12704	L	3	660.00	8.7	---/ 210/ 39
115043		G1 Va	11	13 11 34.4	+56 58 22	6.83		0.60	-0.02	LWP 13415	L	3	225.00	11.2	---/ 239/ 34
190406	15 SGE	G1 V	13	20 01 51.3	+16 56 00	5.80		0.61	-0.01	LWP 12933	L	T	194.76	11.2	---/1.5x/ 36
13043		G2 V	13	02 05 01.8	-00 51 00	6.91		0.61	-0.02	LWP 9654	L	3	240.00	9.8	---/ 198/ 35
28344		G2 V	13	04 25 55.1	+17 10 34	7.85		0.61	-0.02	LWP 10006	L	3	600.00	11.5	---/ 240/ 38
30455		G2 V	13	04 45 46.3	+18 37 40	6.97		0.62	-0.01	LWP 10005	L	3	255.00	11	---/ 230/ 35
111721		G2 V	13	12 48 49.0	-13 12 54	7.97		0.81	0.18	LWP 15612	L	3	900.00	10.8	---/ 245/116
143761	RHO CRB	G2 V	13	15 59 07.8	+33 27 12	5.41		0.60	-0.03	LWP 12511	L	3	64.77	8.5	---/ 230/ 33
186408	16 CYG	G2 V	2	19 40 29.1	+50 24 30	5.96	A	0.64	0.01	LWP 15357	L	3	179.04	10.8	252/ 220/ 23
186427	16 CYG	G2 V	2	19 40 32.0	+50 24 03	6.20	B	0.66	-0.02	LWP 15358	L	3	219.00	10.5	1.5x/ 227/ 32
224930	85 PEG	G2 V	2	23 59 33.2	+26 49 03	5.75	AB	0.67	0.04	LWP 8445	L	T	133.25	9.8	---/ 195/ 35
86728	20 LMI	G3 Va Hδ 1	12	09 58 08.8	+32 10 14	5.36		0.66	0.01	LWP 12508	L	3	89.34	8.8	---/ 225/ 44
74006	BET PYX	G4 III	13	08 38 08.6	-35 07 47	3.97		0.94	0.06	LWP 15568	L	1	75.00	10.8	---/3.0x/ 31
											S	1	59.68	10.8	---/1.5x/ 31
										LWP 15613	L	3	74.60	10.8	---/ 253/ 41
											S	1	300.00	10.8	---/6.0x/ --
71369	MI UMA	G4 II - III	13	08 26 07.6	+60 53 14	3.36		0.84	-0.03	LWP 12567	L	T	43.05	10.5	---/ 215/ 35
20630	KAP CET	G5 V	2	03 15 44.1	+03 11 17	4.83		0.68	0.00	LWP 10009	L	T	66.63	11.5	---/ 200/ 38
117176	70 VIR	G5 V	2	13 25 59.0	+14 02 43	4.98		0.71	0.03	LWP 11114	L	T	123.00	10.5	---/ 225/ 38
197076		G5 V+	13	20 38 29.4	+19 45 09	6.45		0.63	-0.05	LWP 8811	L	3	195.00	10.5	---/ 250/ 50
										LWP 15611	L	3	195.00	11.4	---/1.5x/ 53
											S	1	900.00	11.4	---/7.0x/ --
115617	61 VIR	G6 V	2	13 15 47.1	-18 02 01	4.74		0.71	-0.01	LWP 8809	L	T	82.00	9.8	---/ 212/ 39

HD	NAME	SPECTRAL TYPE	R	RA	DEC	V	AB	(B-V)	E(B-V)	IMAGE	AP	N	EXP	THDA	DN
13783		G8 V	13	02 12 59.0	+64 43 32	8.29		0.66	-0.08	LWP 14538	L	3	750.00	10.5	---/ 196/ 40
										LWP 15017	L	3	600.00	12.8	---/ 154/ 35
										LWP 15019	L	3	1440.00	12.8	---/2.0x/ 51
64606		G8 V	13	07 52 02.6	-01 16 47	7.44		0.73	-0.01	LWP 9611	L	3	990.00	11.5	---/1.8x/ 40
75732	RHO 1 CNC	G8 V	13	08 49 37.4	+28 31 23	5.95		0.87	0.13	LWP 9649	L	3	249.00	9.8	---/ 180/ 34
101501	61 UMA	G8 V	2	11 38 25.3	+34 29 03	5.33		0.72	-0.02	LWP 11113	L	T	128.13	10.2	---/ 200/ 35
103095		G8 Vp	2	11 50 06.2	+38 04 39	6.45		0.75	0.01	LWP 13413	L	3	252.00	11.2	---/ 240/ 35
211038		G8 V	13	22 11 55.9	-16 03 45	6.54		0.90	0.16	LWP 9606	L	3	360.00	11.2	---/ 170/ 35
67767	PSI CNC	G8 IV	13	08 07 26.7	+25 39 38	5.73		0.81	-0.01	LWP 9608	L	3	225.00	11.5	---/1.2x/ 35
										LWP 9650	L	3	204.00	9.8	---/ 235/ 36
182572	31 AQL	G8 IV Hδ 1	11	19 22 35.1	+11 50 09	5.16		0.77	-0.05	LWP 11174	L	T	151.69	9.8	---/ 200/ 35
37160	PHI 2 ORI	G8 IIIb	1	05 34 09.4	+09 15 55	4.09		0.95	0.00	LWP 7028	L	T	164.00	8.8	---/ 230/ 33
150997	ETA HER	G8 IIIb CN-1	11	16 41 10.8	+39 00 58	3.53		0.92	-0.03	LWP 11104	L	T	73.80	11.2	---/ 235/ 35
216131	MU PEG	G8 III+	1	22 47 35.2	+24 20 13	3.48		0.93	-0.02	LWP 14385	L	T	87.13	10.2	---/ 227/ 36
180711	DEL DRA	G9 III	1	19 12 32.8	+67 34 25	3.07		1.00	0.02	LWP 12659	L	T	71.75	8.8	---/ 215/ 30
10780		K0 V	13	01 44 06.4	+63 36 24	5.63		0.81	0.00	LWP 9652	L	3	420.00	9.8	---/1.5x/ 43
										LWP 9653	L	3	285.00	9.8	---/1.2x/ 40
										LWP 11177	L	3	210.00	9.2	---/ 255/ 37
134439		K0 V	13	15 07 28.5	-16 08 27	9.06		0.78	-0.03	LWP 12934	L	3	4500.00	10.2	1.5x/1.5x/ 48
										LWP 12936	L	3	1800.00	10.2	---/ 185/ 38
185144	SIG DRA	K0 V	1	19 32 27.6	+69 34 34	4.68		0.79	-0.02	LWP 13412	L	T	153.75	11.2	---/
192310		K0 V	13	20 12 10.4	-27 11 01	5.73		0.88	0.07	LWP 12935	L	T	215.25	10.5	---/ 130/ 35
										LWP 12937	L	1	240.00	10.2	---/1.5x/ 38
										LWP 15353	L	T	307.50	8.5	---/ 157/ 32
										LWP 15555	1	3	360.00	10.2	---/1.5x/ 32
6203	25 CET	K0 III - IV	13	01 00 30.8	-05 06 13	5.43		1.11	0.10	LWP 7536	L	T	492.00	7.8	---/ 128/ 40
										LWP 7537	L	3	420.00	8.2	---/ 165/ 35
19476	KAP PER	K0 III	13	03 06 06.8	+44 40 10	3.80		0.98	-0.03	LWP 7026	L	T	176.27	9.8	---/ 255/ 35
49293	18 MON	K0 III Ba 0.1	11	06 45 15.2	+02 28 06	4.47		1.11	0.10	LWP 5904	L	1	120.00	9.8	---/ 230/ 40
95272	ALP CRT	K0+ III	11	10 57 20.1	-18 01 56	4.08		1.09	0.08	LWP 5900	L	T	307.50	9.2	---/ 220/ 50
216228	IOT CEP	K0- III	1	22 47 53.6	+65 56 13	3.52		1.05	0.04	LWP 13553	L	T	143.50	10.5	---/ 209/ 37
221861		K0 Ib	11	23 32 48.0	+71 21 56	5.84		1.80	0.62	LWP 12661	L	3	3600.00	9.5	244/ 210/ 63
											S	1	480.00	9.5	95/ 95/ 60
132142		K1 V	13	14 53 45.6	+53 52 30	7.73		0.79	-0.07	LWP 13416	L	3	750.00	11.2	---/ 178/ 35
26965	OMI 2 ERI	K1- V	12	04 12 58.2	-07 43 46	4.43		0.82	-0.04	LWP 12326	L	T	71.75	7.5	---/ 165/ 34
										LWP 12328	L	T	123.00	7.5	---/ 244/ 51
142091	KAP CRB	K1 IVa	1	15 49 20.8	+35 48 41	4.82		1.00	0.01	LWP 7261	L	3	180.00	11.1	---/ 196/ 45
142980	PHI SER	K1 IV	13	15 54 56.0	+14 33 23	5.54		1.14	0.15	LWP 7617	L	3	315.00	12.2	---/ 147/ 82
										LWP 7619	L	3	720.00	12.5	---/ 198/ 68
145148		K1+ IV	12	16 06 43.3	+06 31 12	5.97		1.00	0.01	LWP 7616	L	3	900.00	12	---/1.5x/ 82
										LWP 7618	L	1	210.00	12.5	---/ 183/ 65
145328	TAU CRB	K1- III - IV	11	16 07 08.5	+36 37 01	4.76	A	1.01	-0.08	LWP 7263	L	1	70.00	11.5	---/ 205/ 33
166620		K2 V	2	18 07 58.0	+38 27 12	6.40		0.87	-0.05	LWP 13411	L	3	210.00	11.4	---/ 127/ 35
										LWP 13417	L	3	630.00	11.2	---/1.5x/ 36
51440	62 AUR	K2 III	13	06 55 38.5	+38 07 23	6.00		1.23	0.07	LWP 7029	L	3	2520.00	8.5	204/ 225/ 72
54719	TAU GEM	K2- III	11	07 07 57.5	+30 19 45	4.41		1.26	0.10	LWP 5905	L	3	576.00	10.2	---/ 210/ 36
66141		K2 III	13	07 59 39.9	+02 28 24	4.39		1.25	0.09	LWP 5902	L	T	738.07	9.5	---/ 193/ 72
72184		K2 III	13	08 29 40.3	+38 11 22	5.90		1.11	-0.05	LWP 7258	L	1	480.00	11.2	---/ 225/ 35

HD	NAME	SPECTRAL TYPE	R	RA	DEC	V	AB	(B-V)	E(B-V)	IMAGE	AP	N	EXP	THDA	DN
73471	SIG HYA	K2 III	13	08 36 08.7	+03 31 05	4.44		1.21	0.05	LWP 5901	L	T	615.00	9.2	---/ 195/ 59
144872		K3 V	13	16 04 41.9	+38 46 22	8.61		0.96	0.01	LWP 15015	L	3	3600.00	11.9	146/ 178/ 41
219134		K3 V	2	23 10 51.9	+56 53 31	5.56		1.01	0.06	LWP 14537	L	3	255.00	10.5	---/ 143/ 40
										LWP 14539	L	3	600.00	10.5	---/1.5x/ 37
10380	NU PSC	K3- IIIb Ba 0.1	11	01 38 49.6	+05 14 07	4.44		1.36	0.10	LWP 7534	L	3	630.00	7.8	166/ 125/ 37
										LWP 7535	L	3	1260.00	7.8	255/ 205/ 40
35620	PHI AUR	K3 III CN+2	11	05 24 19.8	+34 26 07	5.07		1.40	0.14	LWP 7027	L	3	1080.00	9.1	---/ 121/ 35
										LWP 7533	L	3	1980.00	8.5	210/ 177/ 37
125560	20 BOO	K3 III	13	14 17 23.1	+16 32 06	4.86		1.23	-0.03	LWP 7260	L	1	600.00	10.8	---/2.0x/ 84
										LWP 7262	L	1	360.00	11.2	---/ 212/ 41
132345	18 LIB	K3- III CN2	11	14 56 11.1	-10 56 39	5.87	A	1.26	0.00	LWP 7615	L	1	960.00	11.8	---/ 210/ 59
89388		K3 IIa	13	10 14 49.1	-63 39 51	3.40		1.54	0.14	LWP 13330	L	T	143.50	9.5	111/ 82/ 35
										LWP 13332	L	3	450.00	9.5	2.0x/ 210/ 39
70272	31 LYN	K7 III	1	08 19 25.2	+43 21 00	4.25		1.55	0.02	LWP 7030	L	3	1710.00	8.5	2.0x/ 180/ 50
52877	SIG CMA	K7 Ib	1	06 59 43.6	-27 51 43	3.43		1.72	0.19	LWP 12977	L	1	120.00	9.5	1.5x/ 127/ 36
6860	BET AND	M0 IIIa	1	01 06 55.5	+35 21 21	2.06		1.58	0.01	LWP 14600	L	3	360.00	9.1	2.0x/ 190/ 36
											S	1	70.00	8.8	175/ 66/ 35
9053	GAM PHE	M0- IIIa	11	01 26 11.8	-43 34 25	3.41		1.57	0.00	LWP 15614	L	3	525.00	10.8	3.0x/ 180/ 37
											S	1	130.00	10.8	1.5x/ 83/ --
146051	DEL OPH	M0.5 III	1	16 11 43.3	-03 34 01	2.74		1.58	0.11	LWP 11105	L	T	341.67	11.2	1.2x/ 102/ 34
										LWP 11462	L	T	205.00	5.8	195/ 75/ 35
95735		M2 V	2	10 00 36.6	+36 18 20	7.49	A	1.51	0.04	LWP 12974	L	1	1200.00	9.8	99/ 66/ 35
										LWP 12975	L	3	9000.00	9.8	226/ 161/ 85
219734	8 AND	M2 III	1	23 15 25.1	+48 44 30	4.85		1.67	0.07	LWP 13558	L	2	240.00	11.2	112/ 58/ 34
										LWP 14391	L	3	900.00	7.9	199/ 81/ 35
206936	MU CEP	M2 Ia	1	21 41 58.5	+58 33 00	4.08		2.35	0.70	LWP 13554	L	1	3600.00	11.2	1.5x/ 215/104
224427	PSI PEG	M3 III	1	23 55 12.4	+24 51 48	4.66		1.59	-0.01	LWP 14388	L	3	684.00	8.8	238/ 205/ 69
132813		M5 III	1	14 56 46.8	+66 07 52	4.60		1.59	-0.01	LWP 12565	L	3	1440.00	12	5.0x/ 209/114
										LWP 12566	L	3	270.00	11.5	242/ 64/ 38

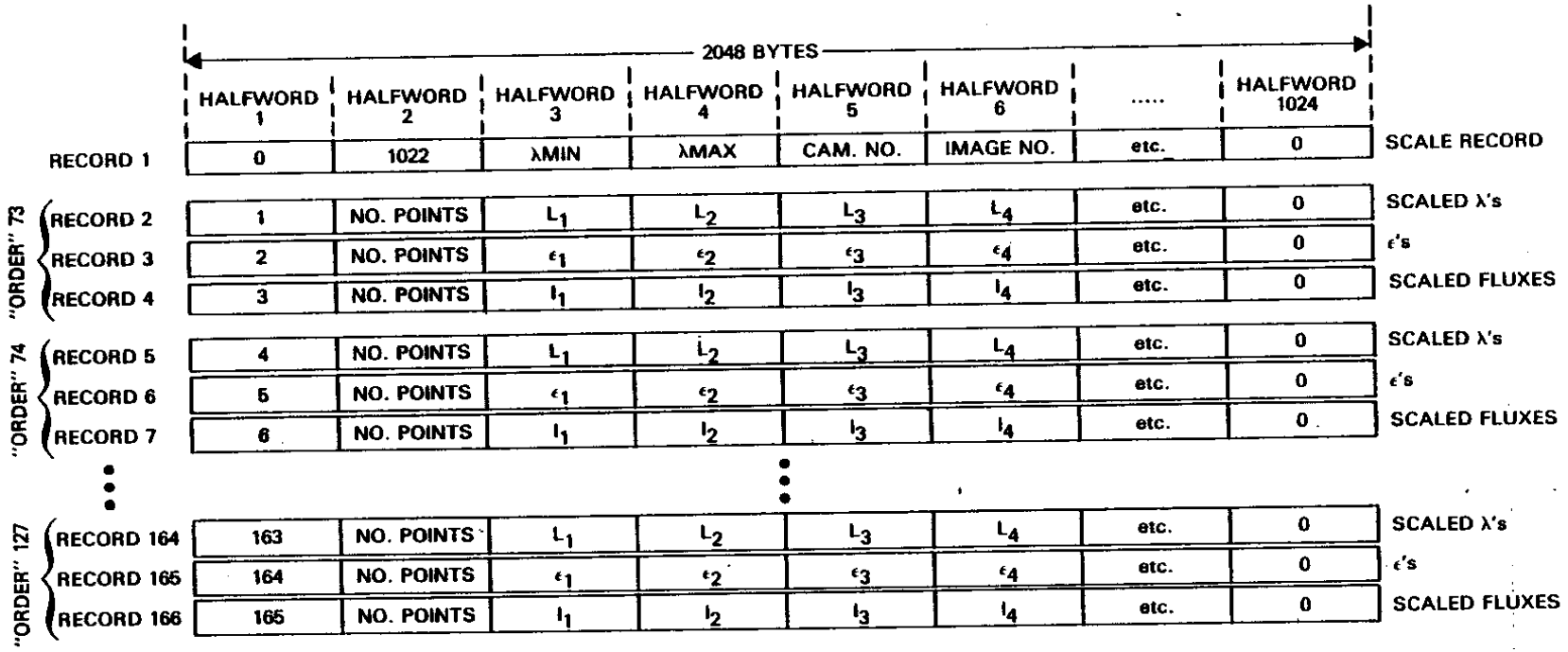
References for spectral type

(1) Morgan and Keenan 1973.
(2) Johnson and Morgan 1953.
(3) Walborn 1982.
(4) Walborn 1973a.
(5) Walborn 1972.
(6) Lesh 1968.
(7) Lesh 1972.
(8) Garrison, Hiltner, and Schild 1977.
(9) Morgan, Code, and Whitford 1955.
(10) Cowley, Cowley, Jaschek, and Jaschek 1969.
(11) Keenan and Pitts 1980.
(12) Keenan and Pitts 1981.
(13) Jaschek 1980.
(14) Buscombe 1984.

8.2.2.2 Extracted-Spectral Files

The extracted spectral data are presented in a scaled-integer form. The number of records depends on the dispersion and file type (LBLS, MELO, MEHI), although the overall format is common to all three file types.

- All records are 2048 bytes long. Each entry is a two-byte or 16-bit halfword integer (range ± 32767, with negatives in two's complement form), and there are thus 1024 entries per record. The first entry of each record is a data-record sequence number which begins with 0 for the first physical record; the second entry is a count of the number of filled entries for that record.
- The first record (record sequence number 0) is a scale-factor record containing data pertinent to all following records. The contents and explanation of this record are given in Table 8-2.
- The remaining records contain the actual extracted spectral data in scaled form, arranged in groups of logically associated records. There is one such group of records associated with every extracted order (or pseudo-order in the case of low dispersion LBLS data).
- The records within each logical grouping contain the wavelength, quality flag (epsilon) and flux data for the order in question, on a point-by-point basis. In every case there is a record giving the scaled wavelengths L_i (see below) of each extracted point, followed by a record giving the epsilon values of each extracted point, followed by a record (or records) giving the scaled fluxes I_i of each extracted point.
- For LBLS data there is only one scaled flux record per group, representing the gross line-by-line flux for one pseudo-order; see Figure 8-6. Hence there are three records per group, and 55 groups.



NOTE:
- THE 55 PSEUDO-ORDERS ARE "ORDERS" 73–127 HERE. EACH IS ONE SCAN.
- WITHIN EACH "ORDER", THE L_i, ϵ_i, I_i, & NO. POINTS REFER TO DATA FOR THAT "ORDER". (NOTE THAT FOR ANY POINT i, THE L_i VALUES ARE THE SAME FOR ALL "ORDERS").
- WITHIN EACH "ORDER", THE CORRESPONDING L_i, ϵ_i, I_i VALUES ARE FOUND IN THE SAME HALFWORD OF SUCCESSIVE RECORDS.

Figure 8-6. Data Record Structure for Spatially Resolved Low Dispersion Spectral File (LBLS)

Table 8-2. Format of Scale Factor Record
(Record Sequence Number Zero)

Item (16-bit halfword)		Quantity
1	*	Zero (for record 0)
2	*	1022 (Maximum number of halfword entries in remainder of record 0)
3	*	Minimum wavelength (truncated to nearest Å)
4	*	Maximum wavelength (rounded to nearest Å)
5	*	Number of orders present
6	*	Camera number
7	*	Image number
8	*	Number of records per group (i.e. per order)
9		Year ⎫
10		Day Number ⎬ of midpoint of
11		Hour ⎬ observation (GMT)
12		Min ⎭
13-16		Date as above for time of image processing (GMT)
17		Target aperture (1 = large, 2 = small)
18		Total line shift (pixels × 1000)
19		Total sample shift (pixels × 1000)
20	***	THDA × 10 (°C) used for reseau correction (normally at the time of read)
21	*	Scaled minimum flux for Gross
22	*	Scaled maximum flux for Gross
23	*	J for Gross ⎫ where actual FN ≡ data on
24	*	K for Gross ⎭ tape × J × 2^{-K}
25-28	*	as in 21-24 for Background
29-32	*	as in 21-24 for Net
33-36	*	as in 21-24 for Absolute Net (Low) or Ripple Corrected Net (High)
37-41	*	Spares
42-44		Min, sec, ms of exp in target aperture (not implemented)
45		Hours ⎫
46		Minutes ⎬ Right ascension of target
47		Seconds × 10 ⎭
48		Degrees ⎫
49		Arc Minutes ⎬ Declination of target
50		Arc Seconds ⎭
51-53	**	V_x (earth), V_y (earth), V_z (earth) Velocity of earth in celestial coordinates (km s^{-1} × 10)

* Existing quantity under old software.
** High dispersion only
*** Currently not used to correct reseau positions for the LWR or LWP cameras

Table 8-2. (2 of 2)

Item (16-bit halfword)		Quantity
54-56	**	V_x (IUE), V_y (IUE), V_z (IUE) - same as 51-53 for IUE with respect to earth, at midpoint of exposure
57	**	Net velocity correction applied (km s^{-1} × 10)
58		Omega angle (degrees × 10) - (zero in high dispersion)
59		Wavelength scaling factor (=5 for low dispersion, = 500 for high dispersion where actual λ = (λ on tape)/(scale factor) + λ∘
60		Background slit height } Low dispersion only (pixels × 100).
61		Background distance from dispersion line } Low dispersion only (pixels × 100).
62		Dispersion constant shift mode (0 = no shift, 1 = auto shift, 2 = manual shift)
63		Bright spot removal threshold DN, for weak, long exposures (not implemented)
64		THDA × 10 for dispersion constant correction (normally at the time of the end of exposure)
65-70	*	Spares
71-102	*	For use of IUE Regional Data Analysis Facilities
103-202	*	λ∘, offset wavelengths for each order
203-302	*	m, order number for each order
303-402	*	Number of extracted data points in each order
403-502		Slit height for each extracted order (pixels × 100)
503		Sign and first 4 digits after decimal of dispersion constant A1
504		Sign and second set of 4 digits after decimal of dispersion constant A1
505		Sign and third 4 digits after decimal of dispersion constant A1
506		Exponent (including sign) of dispersion constant A1 where: A1 = [item(503)×10^{-4} + item(504)×10^{-8} + item(505)×10^{-12}]×10**(item(506))
507-538		As above, for dispersion constants A2 through A9
539-574		As above, for dispersion constants B1 through B9
575-1024		Spares

* Existing Quantity
** High dispersion only

- For MELO data there are four scaled flux records per group, representing the gross, background, net, and absolutely calibrated net fluxes, respectively; see Figure 8-7. Hence there are six records per group, and there is only one group.

- For MEHI data there are four scaled flux records per group, representing the gross, interorder, net, and ripple-corrected net fluxes, respectively, for one echelle order; see Figure 8-8. Hence there are six records per group. There are 60 groups for SWP, 54 groups for LWR and LWP.

- The scaled-integer fluxes I_i must be converted to actual floating-point FN values according to the expression

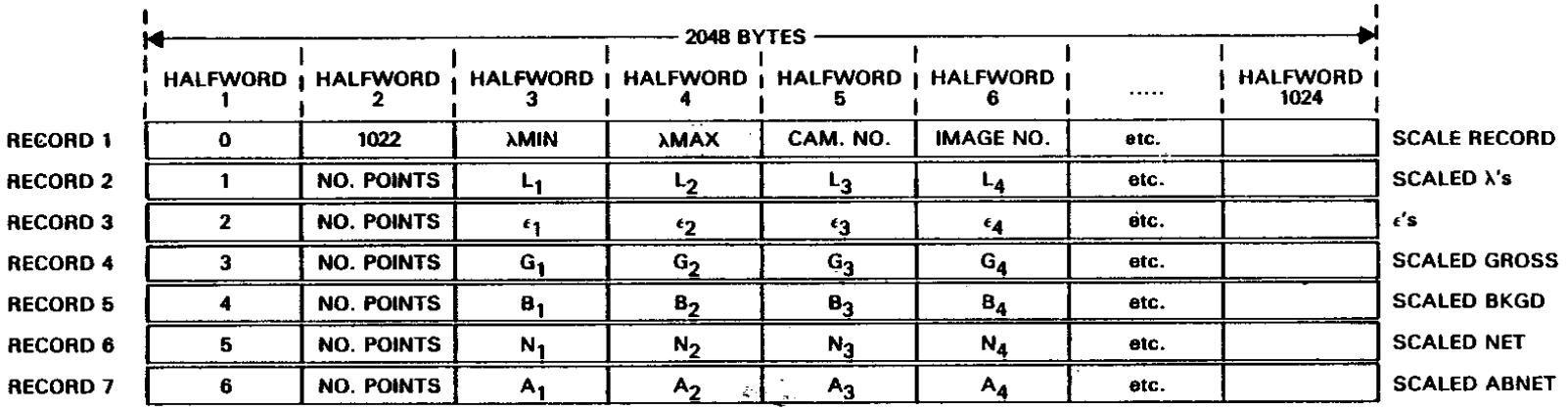
$$FN_i = I_i \times J \times 2^{-K} \qquad (8\text{-}1)$$

where FN_i is the floating-point FN value for the i^{th} extracted point, I_i is the corresponding scaled-integer flux for the i^{th} point, and J and K are scaling constants obtained from the scale-factor record described in Table 8-2. Note that each flux type (gross, background, net and absolute or ripple-corrected net) is scaled separately, although the scaling for each type spans all orders. The flux minima and maxima stored in the scale-factor record along with each J and K set are themselves scaled in the same way as the I_i values on tape.

- The scaled wavelengths L_i must be converted to actual floating-point wavelengths in angstroms (Å), according to the expression

$$\lambda_i = \lambda_o + UNIT \times L_i \qquad (8\text{-}2)$$

where λ_i is the floating-point wavelength (Å) for the i^{th} extracted point, L_i is the corresponding scaled-integer wavelength for the i^{th} point, UNIT is a scaling factor (0.2 Å in low dispersion, 0.002 Å in high dispersion), and λ_o is an order-dependent offset wavelength specified in entries 103-202



NOTE:
- G_i = i^{th} SCALED GROSS FLUX
- B_i = i^{th} SCALED BACKGROUND FLUX (BKGD)
- N_i = i^{th} SCALED NET FLUX
- A_i = i^{th} SCALED ABSOLUTELY CALIBRATED NET FLUX (ABNET)

Figure 8-7. Data Record Structure for Merged Low Dispersion Spectral File (MELO)

McCranshaw

Spectra
Master Tape #1
mlist1.lis

Tape Contents Listing

```
 * File  1  *  LWP  9605  *  LBLS   file                                    1  C
                          1   1 3312048   1 1 0111 9605                     2  CCC
  7143*   5*IUESOC  *   *   *   300*      *  *  * * * * * * *    *          3  CCCC
LWP 9605, HD 200580, 3 X 100 SEC EXPO, LO DISP, LG APER                     4  CCC
OFFSET REF. PTS. USED:     -31,-208    -16,-208     -1,-208                  5  C

 * File  2  *  LWP  9605  *  MELO   file
                          1   1   72048   1 1 0111 9605                     1  C
  7143*   5*IUESOC  *   *   *   300*      *  *  * * * * * * *    *          2  CCC
LWP 9605, HD 200580, 3 X 100 SEC EXPO, LO DISP, LG APER                     3  CCCC
OFFSET REF. PTS. USED:     -31,-208    -16,-208     -1,-208                  4  CCC
                                                                            5  C

 * File  3  *  LWP  9607  *  LBLS   file
                          1   1 3312048   1 1 0111 9607                     1  C
  7143*   7*IUESOC  *   *   *   267*      *  *  * * * * * * *    *          2  CCC
LWP 9607, HD 106516, 80 SEC TRAIL, LO DISP                                  3  CCCC
TRAIL RATE = 0.250 ARCSEC/SEC,    1 PASS                                    4  CCC
                                                                            5  C

 * File  4  *  LWP  9607  *  MELO   file
                          1   1   72048   1 1 0111 9607                     1  C
  7143*   7*IUESOC  *   *   *   267*      *  *  * * * * * * *    *          2  CCC
LWP 9607, HD 106516, 80 SEC TRAIL, LO DISP                                  3  CCCC
TRAIL RATE = 0.250 ARCSEC/SEC,    1 PASS                                    4  CCC
                                                                            5  C

 * File  5  *  LWP  9609  *  LBLS   file
                          1   1 3312048   1 1 0111 9609                     1  C
  7143*  10*IUESOC  *   *   *   179*      *  *  * * * * * * *    *          2  CCC
LWP 9609, HD 55575, 3 X 60 SEC EXPO, LO DISP, LG APERTURE                   3  CCCC
OFFSET REF. PTS. USED:     -31,-208    -16,-208     -1,-208                  4  CCC
                                                                            5  C

 * File  6  *  LWP  9609  *  MELO   file
                          1   1   72048   1 1 0111 9609                     1  C
  7143*  10*IUESOC  *   *   *   179*      *  *  * * * * * * *    *          2  CCC
LWP 9609, HD 55575, 3 X 60 SEC EXPO, LO DISP, LG APERTURE                   3  CCCC
OFFSET REF. PTS. USED:     -31,-208    -16,-208     -1,-208                  4  CCC
                                                                            5  C

 * File  7  *  LWP 10008  *  LBLS   file
                          1   1 3312048   1 2 011110008                    1  C
  7228*   5*IUESOC  *   *   *   113*      *  *  * * * * * * *    *          2  CCC
LWP 10008, HD 22879, 3 * 38 SEC EXPO, LO DISP, LARGE APER                   3  CCCC
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                           4  CCC
                                                                            5  C

 * File  8  *  LWP 10008  *  MELO   file
                          1   1   72048   1 2 011110008                    1  C
  7228*   5*IUESOC  *   *   *   113*      *  *  * * * * * * *    *          2  CCC
LWP 10008, HD 22879, 3 * 38 SEC EXPO, LO DISP, LARGE APER                   3  CCCC
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                           4  CCC
                                                                            5  C

 * File  9  *  LWP 10010  *  LBLS   file
                          1   1 3312048   1 2 011110010                    1  C
  7228*   7*IUESOC  *   *   *   150*      *  *  * * * * * * *    *          2  CCC
LWP 10010, HD 90508, 3 * 50 SEC EXPO, LO DISP, LARGE APER                   3  CCCC
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                           4  CCC
                                                                            5  C

 * File 10  *  LWP 10010  *  MELO   file
                          1   1   72048   1 2 011110010                    1  C
  7228*   7*IUESOC  *   *   *   150*      *  *  * * * * * * *    *          2  CCC
LWP 10010, HD 90508, 3 * 50 SEC EXPO, LO DISP, LARGE APER                   3  CCCC
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                           4  CCC
                                                                            5  C

 * File 11  *  LWP 10011  *  LBLS   file
                          1   1 3312048   1 1 011110011                    1  C
```

```
  7228*   8*IUESOC  *   *   *   215*       *   *  * * * * * * *      *  2  C
LWP 10011, HD 48682, 55 SEC TRAIL, LO DISP, LARGE APER                    3  C
TRAIL RATE= 0.363636 ARCSEC/SEC, 1 PASS                                   4  C
EX= 2, EY= -2 AT R.P. AFTER TRAIL                                         5  C

 * File 12  *  LWP 10011  *  MELO   file
                          1   1   72048   1 1 011110011                   1  C
  7228*   8*IUESOC  *   *   *   215*       *   *  * * * * * * *      *  2  C
LWP 10011, HD 48682, 55 SEC TRAIL, LO DISP, LARGE APER                    3  C
TRAIL RATE= 0.363636 ARCSEC/SEC, 1 PASS                                   4  C
EX= 2, EY= -2 AT R.P. AFTER TRAIL                                         5  C

 * File 13  *  LWP 10007  *  LBLS   file
                          1   1 3312048   1 1 011110007                   1  C
  7228*   4*IUESOC  *   *   *   637*       *   *  * * * * * * *      *  2  C
LWP 10007, HD 27561, 180.06 SEC TRAIL, LO DISP, LARGE APER                3  C
TRAIL RATE= 0.33322 ARCSEC/SEC, 3 PASSES                                  4  C
EX= -2, EY= 3 AFTER SECOND PASS, EX= 1, EY= -2 AT END                     5  C

 * File 14  *  LWP 10007  *  MELO   file
                          1   1   72048   1 1 011110007                   1  C
  7228*   4*IUESOC  *   *   *   637*       *   *  * * * * * * *      *  2  C
LWP 10007, HD 27561, 180.06 SEC TRAIL, LO DISP, LARGE APER                3  C
TRAIL RATE= 0.33322 ARCSEC/SEC, 3 PASSES                                  4  C
EX= -2, EY= 3 AFTER SECOND PASS, EX= 1, EY= -2 AT END                     5  C

 * File 15  *  LWP  8442  *  LBLS   file
                          1   1 3312048   1 2 0111 8442                  1  C
  6867*   4*IUESOC  *   *   *   732*       *   *  * * * * * * *      *  2  C
LWP 8442, HD 4307, 270 SEC TRAIL EXPO, LO DISP, LG APERTURE               3  C
3 PASSES AT 0.22222 ARCSEC/SEC                                            4  C
                                                                          5  C

 * File 16  *  LWP  8442  *  MELO   file
                          1   1   72048   1 2 0111 8442                  1  C
  6867*   4*IUESOC  *   *   *   732*       *   *  * * * * * * *      *  2  C
LWP 8442, HD 4307, 270 SEC TRAIL EXPO, LO DISP, LG APERTURE               3  C
3 PASSES AT 0.22222 ARCSEC/SEC                                            4  C
                                                                          5  C

 * File 17  *  LWP  8443  *  LBLS   file
                          1   1 3312048   1 1 0111 8443                  1  C
  6867*   5*IUESOC  *   *   *    50*       *   *  * * * * * * *      *  2  C
LWP 8443, HD 4307, 50 SEC EXPO, LO DISP, LG APERTURE                      3  C
                                                                          4  C
                                                                          5  C

 * File 18  *  LWP  8443  *  MELO   file
                          1   1   72048   1 1 0111 8443                  1  C
  6867*   5*IUESOC  *   *   *    50*       *   *  * * * * * * *      *  2  C
LWP 8443, HD 4307, 50 SEC EXPO, LO DISP, LG APERTURE                      3  C
                                                                          4  C
                                                                          5  C

 * File 19  *  LWP  8446  *  LBLS   file
                          1   1 3312048   1 2 0111 8446                  1  C
  6867*   8*IUESOC  *   *   *   250*       *   *  * * * * * * *      *  2  C
LWP 8446, HD 207978, 72 SEC TRAIL EXPO, LO DISP, LG APER                  3  C
1 PASS AT 0.27778 ARCSEC/SEC                                              4  C
                                                                          5  C

 * File 20  *  LWP  8446  *  MELO   file
                          1   1   72048   1 2 0111 8446                  1  C
  6867*   8*IUESOC  *   *   *   250*       *   *  * * * * * * *      *  2  C
LWP 8446, HD 207978, 72 SEC TRAIL EXPO, LO DISP, LG APER                  3  C
1 PASS AT 0.27778 ARCSEC/SEC                                              4  C
                                                                          5  C

 * File 21  *  LWP  8812  *  LBLS   file
                    0001000103312048   1 2 0111 8812                     1  C
  6948*   3*IUESOC  *   *   *   194*       *   *  * * * * * * *      *  2  C
LWP 8812, HD 217877, 3*65 SEC EXPO, LO DISP, LG APERTURE                  3  C
OFFSET R.P. USED: (-31,-208), (-16,-208), (-1,-208)                       4  C
                                                                          5  C
```

```
 * File 22  *  LWP  8812  *  MELO   file                                    1  C
                    0001000100072048   1 2 0111 8812                       2  CCC
  6948*   3*IUESOC  *   *   *   194*      *  *  * * * * * * *      *        3  CCCC
LWP 8812, HD 217877, 3*65 SEC EXPO, LO DISP, LG APERTURE                    4  CCC
OFFSET R.P. USED: (-31,-208), (-16,-208), (-1,-208)                         5  C

 * File 23  *  LWP  9610  *  LBLS   file                                    1  C
                  1   1 3312048   1 2 0111 9610                            2  CCC
  7143*  11*IUESOC  *   *   *   350*      *  *  * * * * * * *      *        3  CCCCC
LWP 9610, HD 55575, 80 SEC TRAIL, LO DISP                                   4  CCC
TRAIL RATE = 0.250 ARCSEC/SEC,      1 PASS                                  5  C

 * File 24  *  LWP  9610  *  MELO   file                                    1  C
                  1   1   72048   1 2 0111 9610                            2  CCC
  7143*  11*IUESOC  *   *   *   350*      *  *  * * * * * * *      *        3  CCCCC
LWP 9610, HD 55575, 80 SEC TRAIL, LO DISP                                   4  CCC
TRAIL RATE = 0.250 ARCSEC/SEC,      1 PASS                                  5  C

 * File 25  *  LWP 11175  *  LBLS   file                                    1  C
                  1   1 3312048   1 1 011111175                            2  CCC
  7530*   2*IUESOC  *   *   *   288*      *  *  * * * * * * *      *        3  CCCC
LWP 11175, HD 187691, 90 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 0.22222 ARCSEC/SEC                                             5  C

 * File 26  *  LWP 11175  *  MELO   file                                    1  C
                  1   1   72048   1 1 011111175                            2  CCC
  7530*   2*IUESOC  *   *   *   288*      *  *  * * * * * * *      *        3  CCCC
LWP 11175, HD 187691, 90 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 0.22222 ARCSEC/SEC                                             5  C

 * File 27  *  LWP 11176  *  LBLS   file                                    1  C
                  1   1 3312048   1 2 011111176                            2  CCC
  7530*   3*IUESOC  *   *   *   239*      *  *  * * * * * * *      *        3  CCCC
LWP 11176, HD 200580, 3 X 80 SEC EXPO, LO DISP, LG APER                     4  CCC
OFSETAT REF PTS.   -31,-208   -16,-208    -1,-208                           5  C
SYSTEM HITS AT ILA = 513,   2 MF MISSING

 * File 28  *  LWP 11176  *  MELO   file                                    1  C
                  1   1   72048   1 2 011111176                            2  CCC
  7530*   3*IUESOC  *   *   *   239*      *  *  * * * * * * *      *        3  CCCC
LWP 11176, HD 200580, 3 X 80 SEC EXPO, LO DISP, LG APER                     4  CCC
OFSETAT REF PTS.   -31,-208   -16,-208    -1,-208                           5  C
SYSTEM HITS AT ILA = 513,   2 MF MISSING

 * File 29  *  LWP 11178  *  LBLS   file                                    1  C
                  1   1 3312048   1 2 011111178                            2  CCC
  7530*   5*IUESOC  *   *   *   174*      *  *  * * * * * * *      *        3  CCCCC
LWP 11178, HD 134083, 15 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 1.3333 ARCSEC/SEC                                              5  C

 * File 30  *  LWP 11178  *  MELO   file                                    1  C
                  1   1   72048   1 2 011111178                            2  CCC
  7530*   5*IUESOC  *   *   *   174*      *  *  * * * * * * *      *        3  CCCCC
LWP 11178, HD 134083, 15 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 1.3333 ARCSEC/SEC                                              5  C

 * File 31  *  LWP 11179  *  LBLS   file                                    1  C
                  1   1 3312048   1 1 011111179                            2  CCC
  7530*   6*IUESOC  *   *   *   334*      *  *  * * * * * * *      *        3  CCCCC
LWP 11178, HD 134083, 15 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 1.3333 ARCSEC/SEC                                              5  C

 * File 32  *  LWP 11179  *  MELO   file                                    1  C
                  1   1   72048   1 1 011111179                            2  CCC
  7530*   6*IUESOC  *   *   *   334*      *  *  * * * * * * *      *        3  CCCC
LWP 11178, HD 134083, 15 SEC TRAIL, LO DISP                                 4  CCC
TRAIL RATE = 1.3333 ARCSEC/SEC
```

```
                                                                        5  C

 * File 33  *  LWP 11180  *  LBLS   file
                          1   1 3312048   1 2 011111180                 1  C
  7530*   7*IUESOC  *   *   *   195*       *  *  * * * * * * *     *   2  C
LWP 11180, HD 142373, 48 SEC TRAIL, LO DISP                             3  C
TRAIL RATE = 0.41667 ARCSEC/SEC                                         4  C
                                                                        5  C

 * File 34  *  LWP 11180  *  MELO   file
                          1   1   72048   1 2 011111180                 1  C
  7530*   7*IUESOC  *   *   *   195*       *  *  * * * * * * *     *   2  C
LWP 11180, HD 142373, 48 SEC TRAIL, LO DISP                             3  C
TRAIL RATE = 0.41667 ARCSEC/SEC                                         4  C
                                                                        5  C

 * File 35  *  SWP 31259  *  LBLS   file
                          1   1 3312048   1 1 013131259                 1  C
  7509*   4*IUESOC  *   *   *   130*       *  *  * * * * * * *     *   2  C
SWP 31259, HD 210839, 20 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= 0, EY= -2 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 1.0000 ARCSEC/SEC, 1 PASS                                   5  C

 * File 36  *  SWP 31259  *  MELO   file
                          1   1   72048   1 1 013131259                 1  C
  7509*   4*IUESOC  *   *   *   130*       *  *  * * * * * * *     *   2  C
SWP 31259, HD 210839, 20 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= 0, EY= -2 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 1.0000 ARCSEC/SEC, 1 PASS                                   5  C

 * File 37  *  LWP 11101  *  LBLS   file
                          1   1 3312048   1 1 011111101                 1  C
  7509*   5*IUESOC  *   *   *   134*       *  *  * * * * * * *     *   2  C
LWP 11101, HD 210839, 10 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= -1, EY= -2 AT R.P. AFTER TRAIL                                      4  C
TRAIL RATE= 2.0000 ARCSEC/SEC, 1 PASS                                   5  C

 * File 38  *  LWP 11101  *  MELO   file
                          1   1   72048   1 1 011111101                 1  C
  7509*   5*IUESOC  *   *   *   134*       *  *  * * * * * * *     *   2  C
LWP 11101, HD 210839, 10 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= -1, EY= -2 AT R.P. AFTER TRAIL                                      4  C
TRAIL RATE= 2.0000 ARCSEC/SEC, 1 PASS                                   5  C

 * File 39  *  SWP 31260  *  LBLS   file
                          1   1 3312048   1 2 013131260                 1  C
  7509*   6*IUESOC  *   *   *   116*       *  *  * * * * * * *     *   2  C
SWP 31260, HD 218376, 6 SEC TRAIL, LO DISP, LARGE APER                  3  C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 3.3333 ARCSEC/SEC, 1 PASS                                   5  C

 * File 40  *  SWP 31260  *  MELO   file
                          1   1   72048   1 2 013131260                 1  C
  7509*   6*IUESOC  *   *   *   116*       *  *  * * * * * * *     *   2  C
SWP 31260, HD 218376, 6 SEC TRAIL, LO DISP, LARGE APER                  3  C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 3.3333 ARCSEC/SEC, 1 PASS                                   5  C

 * File 41  *  LWP 11102  *  LBLS   file
                          1   1 3312048   1 2 011111102                 1  C
  7509*   7*IUESOC  *   *   *   117*       *  *  * * * * * * *     *   2  C
LWP 11102, HD 218376, 5 SEC TRAIL, LO DISP, LARGE APER                  3  C
EX= -1, EY= -1 AT R.P. AFTER TRAIL                                      4  C
TRAIL RATE= 4.0 ARCSEC/SEC, 1 PASS                                      5  C

 * File 42  *  LWP 11102  *  MELO   file
                          1   1   72048   1 2 011111102                 1  C
  7509*   7*IUESOC  *   *   *   117*       *  *  * * * * * * *     *   2  C
LWP 11102, HD 218376, 5 SEC TRAIL, LO DISP, LARGE APER                  3  C
EX= -1, EY= -1 AT R.P. AFTER TRAIL                                      4  C
TRAIL RATE= 4.0 ARCSEC/SEC, 1 PASS                                      5  C

 * File 43  *  SWP 31262  *  LBLS   file
                          1   1 3312048   1 2 013131262                 1  C
  7510*   3*IUESOC  *   *   *   533*       *  *  * * * * * * *     *   2  C
```

```
SWP 31262, HD 225094, 210 SEC TRAIL, LO DISP, LARGE APER                3 C
EX= -2, EY= 0 AT R.P. AFTER TRAIL                                       4 C
TRAIL RATE= 0.09524 ARCSEC/SEC, 1 PASS                                  5 C

 * File 44  *  SWP 31262  *  MELO   file
                          1   1   72048   1 2 013131262                  1 C
  7510*   3*IUESOC  *   *   *   533*       *  * * * * * * *     *       2 C
SWP 31262, HD 225094, 210 SEC TRAIL, LO DISP, LARGE APER                3 C
EX= -2, EY= 0 AT R.P. AFTER TRAIL                                       4 C
TRAIL RATE= 0.09524 ARCSEC/SEC, 1 PASS                                  5 C

 * File 45  *  LWP 11103  *  LBLS   file
                          1   1 3312048   1 1 011111103                 1 C
  7510*   4*IUESOC  *   *   *   207*       *  * * * * * * *     *       2 C
LWP 11103, HD 225094, 50 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -1, EY= -1 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 0.40 ARCSEC/SEC, 1 PASS                                     5 C

 * File 46  *  LWP 11103  *  MELO   file
                          1   1   72048   1 1 011111103                 1 C
  7510*   4*IUESOC  *   *   *   207*       *  * * * * * * *     *       2 C
LWP 11103, HD 225094, 50 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -1, EY= -1 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 0.40 ARCSEC/SEC, 1 PASS                                     5 C

 * File 47  *  LWP 11107  *  LBLS   file
                          1   1 3312048   1 1 011111107                 1 C
  7511*   3*IUESOC  *   *   *   137*       *  * * * * * * *     *       2 C
LWP 11107, HD 215648, 15 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= 4, EY= 0 AT R.P. AFTER TRAIL                                        4 C
TRAIL RATE= 1.3333 ARCSEC/SEC, 1 PASS                                   5 C

 * File 48  *  LWP 11107  *  MELO   file
                          1   1   72048   1 1 011111107                 1 C
  7511*   3*IUESOC  *   *   *   137*       *  * * * * * * *     *       2 C
LWP 11107, HD 215648, 15 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= 4, EY= 0 AT R.P. AFTER TRAIL                                        4 C
TRAIL RATE= 1.3333 ARCSEC/SEC, 1 PASS                                   5 C

 * File 49  *  LWP 11109  *  LBLS   file
                          1   1 3312048   1 1 011111109                 1 C
  7511*   5*IUESOC  *   *   *   130*       *  * * * * * * *     *       2 C
LWP 11109, HD 210027, 14 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -2, EY= -2 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 1.42857 ARCSEC/SEC, 1 PASS                                  5 C

 * File 50  *  LWP 11109  *  MELO   file
                          1   1   72048   1 1 011111109                 1 C
  7511*   5*IUESOC  *   *   *   130*       *  * * * * * * *     *       2 C
LWP 11109, HD 210027, 14 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -2, EY= -2 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 1.42857 ARCSEC/SEC, 1 PASS                                  5 C

 * File 51  *  LWP 11110  *  LBLS   file
                          1   1 3312048   1 2 011111110                 1 C
  7511*   6*IUESOC  *   *   *   251*       *  * * * * * * *     *       2 C
LWP 11110, HD 216385, 65 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                       4 C
TRAIL RATE= 0.30769 ARCSEC/SEC, 1 PASS                                  5 C

 * File 52  *  LWP 11110  *  MELO   file
                          1   1   72048   1 2 011111110                 1 C
  7511*   6*IUESOC  *   *   *   251*       *  * * * * * * *     *       2 C
LWP 11110, HD 216385, 65 SEC TRAIL, LO DISP, LARGE APER                 3 C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                       4 C
TRAIL RATE= 0.30769 ARCSEC/SEC, 1 PASS                                  5 C

 * File 53  *  LWP 11181  *  LBLS   file
                          1   1 3312048   1 1 011111181                 1 C
  7530*   9*IUESOC  *   *   *   217*       *  * * * * * * *     *       2 C
LWP 11181, HD 134083, 60 SEC TRAIL, LO DISP                             3 C
TRAIL RATE = 0.33333 ARCSEC/SEC                                         4 C
                                                                        5 C

 * File 54  *  LWP 11181  *  MELO   file
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                          1   1   72048   1 1 011111181                  *   1  C
  7530*   9*IUESOC  *   *   *   217*       *   *  * * * * * * *       *   2  CCC
LWP 11181, HD 134083, 60 SEC TRAIL, LO DISP                               3  CCC
TRAIL RATE = 0.33333 ARCSEC/SEC                                           4  CC
                                                                          5  C

* File 55  *  LWP 11111  *  LBLS   file
                          1   1 3312048   1 1 011111111                  *   1  C
  7511*   7*IUESOC  *   *   *   162*       *   *  * * * * * * *       *   2  CCC
LWP 11111, HD 222368, 28 SEC TRAIL, LO DISP, LARGE APER                   3  CCC
EX= 0, EY= 0 AT R.P. AFTER TRAIL                                          4  CCC
TRAIL RATE= 0.71429 ARCSEC/SEC, 1 PASS                                    5  C

 * File 56  *  LWP 11111  *  MELO   file
                          1   1   72048   1 1 011111111                  *   1  C
  7511*   7*IUESOC  *   *   *   162*       *   *  * * * * * * *       *   2  CCC
LWP 11111, HD 222368, 28 SEC TRAIL, LO DISP, LARGE APER                   3  CCC
EX= 0, EY= 0 AT R.P. AFTER TRAIL                                          4  CCC
TRAIL RATE= 0.71429 ARCSEC/SEC, 1 PASS                                    5  C

* File 57  *  SWP 31623  *  LBLS   file
                          1   1 3312048   1 1 013131623                  *   1  C
  7619*   7*IUESOC  *   *   *   362*       *   *  * * * * * * *       *   2  CCC
SWP 31623, HD 167659, 120 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= 3, EY= 4 AT R.P. AFTER TRAILL                                         4  CC
TRAIL RATE= 0.16667 ARCSEC/SEC, 1 PASS                                    5  C

 * File 58  *  SWP 31623  *  MELO   file
                          1   1   72048   1 1 013131623                  *   1  C
  7619*   7*IUESOC  *   *   *   362*       *   *  * * * * * * *       *   2  CCC
SWP 31623, HD 167659, 120 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= 3, EY= 4 AT R.P. AFTER TRAILL                                         4  CC
TRAIL RATE= 0.16667 ARCSEC/SEC, 1 PASS                                    5  C

* File 59  *  LWP 11463  *  LBLS   file
                          1   1 3312048   1 1 011111463                  *   1  C
  7619*   8*IUESOC  *   *   *   816*       *   *  * * * * * * *       *   2  CCC
LWP 11463, HD 167659, 105 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= 4, EY= 4 AT R.P. AFTER TRAIL                                          4  CCC
TRAIL RATE= 0.19048 ARCSEC/SEC, 1 PASS                                    5  C

 * File 60  *  LWP 11463  *  MELO   file
                          1   1   72048   1 1 011111463                  *   1  C
  7619*   8*IUESOC  *   *   *   816*       *   *  * * * * * * *       *   2  CCC
LWP 11463, HD 167659, 105 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= 4, EY= 4 AT R.P. AFTER TRAIL                                          4  CCC
TRAIL RATE= 0.19048 ARCSEC/SEC, 1 PASS                                    5  C

* File 61  *  SWP 31624  *  LBLS   file
                          1   1 3312048   1 2 013131624                  *   1  C
  7619*   9*IUESOC  *   *   *   129*       *   *  * * * * * * *       *   2  CCC
SWP 31624, HD 149038, 7.5 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= -1, EY= -3 AT R.P. TRAIL                                              4  CC
TRAIL RATE= 2.6667 ARCSEC/SEC, 1 PASS                                     5  C

 * File 62  *  SWP 31624  *  MELO   file
                          1   1   72048   1 2 013131624                  *   1  C
  7619*   9*IUESOC  *   *   *   129*       *   *  * * * * * * *       *   2  CCC
SWP 31624, HD 149038, 7.5 SEC TRAIL, LO DISP, LARGE APER                  3  CCC
EX= -1, EY= -3 AT R.P. TRAIL                                              4  CC
TRAIL RATE= 2.6667 ARCSEC/SEC, 1 PASS                                     5  C

* File 63  *  LWP 11464  *  LBLS   file
                          1   1 3312048   1 2 011111464                  *   1  C
  7619*  10*IUESOC  *   *   *   124*       *   *  * * * * * * *       *   2  CCC
LWP 11464, HD 149038, 6 SEC TRAIL, LO DISP, LARGE APER                    3  CCC
EX= -2, EY= -2 AT R.P. AFTER TRAIL                                        4  CCC
TRAIL RATE= 3.3333 ARCSEC/SEC, 1 PASS                                     5  C

 * File 64  *  LWP 11464  *  MELO   file
                          1   1   72048   1 2 011111464                  *   1  C
  7619*  10*IUESOC  *   *   *   124*       *   *  * * * * * * *       *   2  CCC
LWP 11464, HD 149038, 6 SEC TRAIL, LO DISP, LARGE APER                    3  CCC
EX= -2, EY= -2 AT R.P. AFTER TRAIL                                        4  CCC
TRAIL RATE= 3.3333 ARCSEC/SEC, 1 PASS                                     5  C
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 * File 65  *  SWP 31625  *  LBLS   file
                             1    1 3312048    1 1 013131625                 1  C
  7619*   11*IUESOC  *    *    *    348*      *   *  * * * * * *   *          2  C
SWP 31625, HD 151515, 115 SEC TRAIL, LO DISP, LARGE APER                      3  C
EX= -2, EY= -4 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.17391 ARCSEC/SEC, 1 PASS                                       5  C

 * File 66  *  SWP 31625  *  MELO   file
                             1    1    72048    1 1 013131625                1  C
  7619*   11*IUESOC  *    *    *    348*      *   *  * * * * * *   *          2  C
SWP 31625, HD 151515, 115 SEC TRAIL, LO DISP, LARGE APER                      3  C
EX= -2, EY= -4 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.17391 ARCSEC/SEC, 1 PASS                                       5  C

 * File 67  *  LWP 11465  *  LBLS   file
                             1    1 3312048    1 1 011111465                 1  C
  7619*   12*IUESOC  *    *    *    265*      *   *  * * * * * *   *          2  C
LWP 11465, HD 151515, 80 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -2, EY= -3 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.25 ARCSEC/SEC, 1 PASS                                          5  C

 * File 68  *  LWP 11465  *  MELO   file
                             1    1    72048    1 1 011111465                1  C
  7619*   12*IUESOC  *    *    *    265*      *   *  * * * * * *   *          2  C
LWP 11465, HD 151515, 80 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -2, EY= -3 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.25 ARCSEC/SEC, 1 PASS                                          5  C

 * File 69  *  SWP 31626  *  LBLS   file
                             1    1 3312048    1 2 013131626                 1  C
  7619*   15*IUESOC  *    *    *    265*      *   *  * * * * * *   *          2  C
SWP 31626, HD 152723, 75 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -4, EY= -1 AFTER TRAIL                                                   4  C
TRAIL RATE= 0.26667 ARCSEC/SEC, 1 PASS                                       5  C

 * File 70  *  SWP 31626  *  MELO   file
                             1    1    72048    1 2 013131626                1  C
  7619*   15*IUESOC  *    *    *    265*      *   *  * * * * * *   *          2  C
SWP 31626, HD 152723, 75 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -4, EY= -1 AFTER TRAIL                                                   4  C
TRAIL RATE= 0.26667 ARCSEC/SEC, 1 PASS                                       5  C

 * File 71  *  LWP 11467  *  LBLS   file
                             1    1 3312048    1 1 011111467                 1  C
  7619*   14*IUESOC  *    *    *    370*      *   *  * * * * * *   *          2  C
LWP 11467, HD 151515, 40 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -4, EY= 0 AT R.P. AFTER TRAILL                                           4  C
TRAIL RATE= 0.50 ARCSEC/SEC, 1 PASS                                          5  C

 * File 72  *  LWP 11467  *  MELO   file
                             1    1    72048    1 1 011111467                1  C
  7619*   14*IUESOC  *    *    *    370*      *   *  * * * * * *   *          2  C
LWP 11467, HD 151515, 40 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -4, EY= 0 AT R.P. AFTER TRAILL                                           4  C
TRAIL RATE= 0.50 ARCSEC/SEC, 1 PASS                                          5  C

 * File 73  *  LWP 11466  *  LBLS   file
                             1    1 3312048    1 2 011111466                 1  C
  7619*   13*IUESOC  *    *    *    187*      *   *  * * * * * *   *          2  C
LWP 11466, HD 152723, 45 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -3, EY= -3 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.44444 ARCSEC/SEC, 1 PASS                                       5  C

 * File 74  *  LWP 11466  *  MELO   file
                             1    1    72048    1 2 011111466                1  C
  7619*   13*IUESOC  *    *    *    187*      *   *  * * * * * *   *          2  C
LWP 11466, HD 152723, 45 SEC TRAIL, LO DISP, LARGE APER                       3  C
EX= -3, EY= -3 AT R.P. AFTER TRAIL                                           4  C
TRAIL RATE= 0.44444 ARCSEC/SEC, 1 PASS                                       5  C

 * File 75  *  LWP 12330  *  LBLS   file
                             1    1 3312048    1 2 011112330                 1  C
  7796*    5*IUESOC  *    *    *    138*      *   *  * * * * * *   *          2  C
LWP 12330, HD 82328, 10 SEC TRAIL, LOW DISP, LARGE APERTURE                   3  C
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TRAIL RATE: 2.0000 ARCSEC/SEC                                          4  C
EX = 0, EY = 0 AT REF PNT AFTER TRAIL                                  5  C

 * File 76  *  LWP 12330  *  MELO   file
                          1   1   72048   1 2 011112330                 1  C
  7796*   5*IUESOC  *   *   *   138*      *   * * * * * * * *    *     2  CCC
LWP 12330, HD 82328, 10 SEC TRAIL, LOW DISP, LARGE APERTURE            3  CCCC
TRAIL RATE: 2.0000 ARCSEC/SEC                                          4  CCC
EX = 0, EY = 0 AT REF PNT AFTER TRAIL                                  5  CC

 * File 77  *  LWP 12331  *  LBLS   file
                          1   1 3312048   1 1 011112331                1  C
  7796*   6*IUESOC  *   *   *   196*      *   * * * * * * * *    *     2  CCC
LWP 12331, HD 153597, 45 SEC TRAIL, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.44444 ARCSEC/SEC                                         4  CCC
EX = 0, EY = -2 AT REF PNT AFTER TRAIL                                 5  CC

 * File 78  *  LWP 12331  *  MELO   file
                          1   1   72048   1 1 011112331                 1  C
  7796*   6*IUESOC  *   *   *   196*      *   * * * * * * * *    *     2  CCC
LWP 12331, HD 153597, 45 SEC TRAIL, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.44444 ARCSEC/SEC                                         4  CCC
EX = 0, EY = -2 AT REF PNT AFTER TRAIL                                 5  CC

 * File 79  *  LWP 12332  *  LBLS   file
                          1   1 3312048   1 2 011112332                1  C
  7796*   7*IUESOC  *   *   *   383*      *   * * * * * * * *    *     2  CCC
LWP 12332, HD 110897, 140 SEC EXPO, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.14286 ARCSEC/SEC                                         4  CCC
EX = -2, EY = 0 AT REF PNT AFTER TRAIL                                 5  CC

 * File 80  *  LWP 12332  *  MELO   file
                          1   1   72048   1 2 011112332                 1  C
  7796*   7*IUESOC  *   *   *   383*      *   * * * * * * * *    *     2  CCC
LWP 12332, HD 110897, 140 SEC EXPO, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.14286 ARCSEC/SEC                                         4  CCC
EX = -2, EY = 0 AT REF PNT AFTER TRAIL                                 5  CC

 * File 81  *  LWP 12327  *  LBLS   file
                          1   1 3312048   1 1 011112327                1  C
  7796*   2*IUESOC  *   *   *   566*      *   * * * * * * * *    *     2  CCC
LWP 12327, HD 22879, 200 SEC TRAIL, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.3000 ARCSEC/SEC                                          4  CCC
EX = -1, EY = -4 AT REF PNT AFTER EXPO                                 5  CC

 * File 82  *  LWP 12327  *  MELO   file
                          1   1   72048   1 1 011112327                 1  C
  7796*   2*IUESOC  *   *   *   566*      *   * * * * * * * *    *     2  CCC
LWP 12327, HD 22879, 200 SEC TRAIL, LOW DISPERSION, LG APER             3  CCCC
TRAIL RATE: 0.3000 ARCSEC/SEC                                          4  CCC
EX = -1, EY = -4 AT REF PNT AFTER EXPO                                 5  CC

 * File 83  *  LWP 12329  *  LBLS   file
                          1   1 3312048   1 1 011112329                1  C
  7796*   4*IUESOC  *   *   *   186*      *   * * * * * * * *    *     2  CCC
LWP 12329, HD 89449, 40 SEC TRAIL, LOW DISP, LARGE APERTURE             3  CCCC
TRAIL RATE: 0.50000 ARCSEC/SEC                                         4  CCC
EX = 1, EY = -4 AT REF PNT AFTER TRAIL                                 5  CC

 * File 84  *  LWP 12329  *  MELO   file
                          1   1   72048   1 1 011112329                 1  C
  7796*   4*IUESOC  *   *   *   186*      *   * * * * * * * *    *     2  CCC
LWP 12329, HD 89449, 40 SEC TRAIL, LOW DISP, LARGE APERTURE             3  CCCC
TRAIL RATE: 0.50000 ARCSEC/SEC                                         4  CCC
EX = 1, EY = -4 AT REF PNT AFTER TRAIL                                 5  CC

 * File 85  *  SWP 32914  *  LBLS   file
                        895 89503312048   1 2 013132914                1  C
  7880*   3*IUESOC  *   *   *   157*      *   * * * * * * * *    *     2  CCC
SWP 32914, HD 149212, 25 SEC TRAIL, LOW DISPERSION, LG APER             3  CCCC
EX = 0, EY = 3 AT REF PNT AFTER TRAIL                                  4  CCC
                                                                       5  CC

 * File 86  *  SWP 32914  *  MELO   file
                        895 89500072048   1 2 013132914                1  C
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  7880*   3*IUESOC  *   *   *   157*       *   *  * * * * * *      *  2  C
SWP 32914, HD 149212, 25 SEC TRAIL, LOW DISPERSION, LG APER            3  C
EX = 0, EY = 3 AT REF PNT AFTER TRAIL                                  4  C
                                                                       5  C

 * File 87  *  LWP 12660  *  LBLS   file
                          895 89503312048   1 2 011112660             1  C
  7881*   4*IUESOC  *   *   *   113*       *   *  * * * * * *      *  2  C
LWP 12660, HD 203280, 4.20 SEC TRAIL, LOW DISP, LG APERTURE            3  C
EX = -1, EY = -1 AT REF PNT AFTER TRAIL                                4  C
                                                                       5  C

 * File 88  *  LWP 12660  *  MELO   file
                          895 89500072048   1 2 011112660             1  C
  7881*   4*IUESOC  *   *   *   113*       *   *  * * * * * *      *  2  C
LWP 12660, HD 203280, 4.20 SEC TRAIL, LOW DISP, LG APERTURE            3  C
EX = -1, EY = -1 AT REF PNT AFTER TRAIL                                4  C
                                                                       5  C

 * File 89  *  SWP 32915  *  LBLS   file
                          895 89503312048   1 1 013132915             1  C
  7881*   5*IUESOC  *   *   *   302*       *   *  * * * * * *      *  2  C
SWP 32915, HD 203280, 17 SEC TRAIL, LOW DISPERSION, LG APER            3  C
EX = -1, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 90  *  SWP 32915  *  MELO   file
                          895 89500072048   1 1 013132915             1  C
  7881*   5*IUESOC  *   *   *   302*       *   *  * * * * * *      *  2  C
SWP 32915, HD 203280, 17 SEC TRAIL, LOW DISPERSION, LG APER            3  C
EX = -1, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 91  *  LWP 12662  *  LBLS   file
                          895 89503312048   1 2 011112662             1  C
  7881*   7*IUESOC  *   *   *   116*       *   *  * * * * * *      *  2  C
LWP 12662, HD 209975, 6 SEC TRAIL, LOW DISP, LARGE APERTURE            3  C
EX = -2, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 92  *  LWP 12662  *  MELO   file
                          895 89500072048   1 2 011112662             1  C
  7881*   7*IUESOC  *   *   *   116*       *   *  * * * * * *      *  2  C
LWP 12662, HD 209975, 6 SEC TRAIL, LOW DISP, LARGE APERTURE            3  C
EX = -2, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 93  *  SWP 32916  *  LBLS   file
                          895 89503312048   1 2 013132916             1  C
  7881*   8*IUESOC  *   *   *   134*       *   *  * * * * * *      *  2  C
SWP 32916, HD 209975, 12.5 SEC TRAIL, LOW DISP, LG APERTURE            3  C
EX = -3, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 94  *  SWP 32916  *  MELO   file
                          895 89500072048   1 2 013132916             1  C
  7881*   8*IUESOC  *   *   *   134*       *   *  * * * * * *      *  2  C
SWP 32916, HD 209975, 12.5 SEC TRAIL, LOW DISP, LG APERTURE            3  C
EX = -3, EY = 0 AT REF PNT AFTER TRAIL                                 4  C
                                                                       5  C

 * File 95  *  SWP 32780  *  LBLS   file
                            1   1 3312048   1 2 013132780             1  C
  7849*   9*IUESOC  *   *   *   142*       *   *  * * * * * *      *  2  C
SWP 32780, HD 79439, 4 X 36 SEC EXPOS, LO DISP, LARGE APER             3  C
OFFSET R/P: (-37,-208), (-23,-208), (-9,-208), (+5,-208)                4  C
                                                                       5  C

 * File 96  *  SWP 32780  *  MELO   file
                            1   1   72048   1 2 013132780             1  C
  7849*   9*IUESOC  *   *   *   142*       *   *  * * * * * *      *  2  C
SWP 32780, HD 79439, 4 X 36 SEC EXPOS, LO DISP, LARGE APER             3  C
OFFSET R/P: (-37,-208), (-23,-208), (-9,-208), (+5,-208)                4  C
                                                                       5  C
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* File 97   *  SWP 32779  *  LBLS   file
                          1    1 3312048     1 1 013132779
  7849*    6*IUESOC  *   *   *    47*     *   *  *  *  *  *  *  *  *        *  1  C
SWP 32779, HD 79439, 4 X 12 SEC EXPOS, LO DISP, LARGE APER                      2  C
OFFSET R/P: (-37,-208), (-23,-208), (-9,-208), (+5,-208)                         3  C
                                                                                 4  C
                                                                                 5  C

* File 98   *  SWP 32779  *  MELO   file
                          1    1   72048     1 1 013132779
  7849*    6*IUESOC  *   *   *    47*     *   *  *  *  *  *  *  *  *        *  1  C
SWP 32779, HD 79439, 4 X 12 SEC EXPOS, LO DISP, LARGE APER                      2  C
OFFSET R/P: (-37,-208), (-23,-208), (-9,-208), (+5,-208)                         3  C
                                                                                 4  C
                                                                                 5  C

* File 99   *  LWP 12564  *  LBLS   file
                          1    1 3312048     1 2 011112564
  7849*    5*IUESOC  *   *   *    14*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12564, HD 79439, 4 X 4 SEC EXPOS, LO DISP, LARGE APER                       2  C
OFFSET R/P: (+5,-208), (-9,-208), (-23,-208), (-37,-208)                         3  C
                                                                                 4  C
                                                                                 5  C

* File100   *  LWP 12564  *  MELO   file
                          1    1   72048     1 2 011112564
  7849*    5*IUESOC  *   *   *    14*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12564, HD 79439, 4 X 4 SEC EXPOS, LO DISP, LARGE APER                       2  C
OFFSET R/P: (+5,-208), (-9,-208), (-23,-208), (-37,-208)                         3  C
                                                                                 4  C
                                                                                 5  C

* File101   *  LWP 12755  *  LBLS   file
                        895 89503312048     1 1 011112755
  7896*    7*IUESOC  *   *   *   126*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12755, HD 48879, 6.7 SEC TRAIL, LO DISP, LG APERTURE                        2  C
EX = 2, EY = -3, AT REF POINT AFTER EXPOSURE                                     3  C
                                                                                 4  C
                                                                                 5  C

* File102   *  LWP 12755  *  MELO   file
                        895 89500072048     1 1 011112755
  7896*    7*IUESOC  *   *   *   126*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12755, HD 48879, 6.7 SEC TRAIL, LO DISP, LG APERTURE                        2  C
EX = 2, EY = -3, AT REF POINT AFTER EXPOSURE                                     3  C
                                                                                 4  C
                                                                                 5  C

* File103   *  LWP 12753  *  LBLS   file
                        895 89503312048     1 1 011112753
  7896*    4*IUESOC  *   *   *   246*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12753, HD 26571, 60 SEC TRAIL, LO DISP, LG APERTURE                         2  C
EX = -1, EY = 0, AT REF POINT AFTER TRAIL                                        3  C
                                                                                 4  C
                                                                                 5  C

* File104   *  LWP 12753  *  MELO   file
                        895 89500072048     1 1 011112753
  7896*    4*IUESOC  *   *   *   246*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12753, HD 26571, 60 SEC TRAIL, LO DISP, LG APERTURE                         2  C
EX = -1, EY = 0, AT REF POINT AFTER TRAIL                                        3  C
                                                                                 4  C
                                                                                 5  C

* File105   *  SWP 32997  *  LBLS   file
                        895 89503312048     1 1 013132997
  7896*    6*IUESOC  *   *   *   129*     *   *  *  *  *  *  *  *  *        *  1  C
SWP 32997, HD 48879, 8 SEC TRAIL, LO DISP, LG APERTURE                          2  C
EX = 4, EY = -8, AT REF POINT AFTER TRAIL                                        3  C
                                                                                 4  C
                                                                                 5  C

* File106   *  SWP 32997  *  MELO   file
                        895 89500072048     1 1 013132997
  7896*    6*IUESOC  *   *   *   129*     *   *  *  *  *  *  *  *  *        *  1  C
SWP 32997, HD 48879, 8 SEC TRAIL, LO DISP, LG APERTURE                          2  C
EX = 4, EY = -8, AT REF POINT AFTER TRAIL                                        3  C
                                                                                 4  C
                                                                                 5  C

* File107   *  LWP 12756  *  LBLS   file
                        895 89503312048     1 2 011112756
  7896*    8*IUESOC  *   *   *   256*     *   *  *  *  *  *  *  *  *        *  1  C
LWP 12756, HD 214470, 80 SEC TRAIL, LO DISP, LG APERTURE                        2  C
EX = -2, EY = -4, AT REF POINT AFTER TRAIL                                       3  C
                                                                                 4  C
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                                                                        5  C

 * File108  *  LWP 12756  *  MELO   file
                          895 89500072048   1 2 011112756                1  C
  7896*   8*IUESOC  *   *   *    256*      *   * * * * * * * *     *    2  C
LWP 12756, HD 214470, 80 SEC TRAIL, LO DISP, LG APERTURE                3  C
EX = -2, EY = -4, AT REF POINT AFTER TRAIL                              4  C
                                                                        5  C

 * File109  *  LWP 12976  *  LBLS   file
                          895 89503312048   1 2 011112976                1  C
  7952*   4*IUESOC  *   *   *   1199*      *   * * * * * * * *     *    2  C
LWP 12976, HD 193901, 3 X 5 M LGAP, 5 M SMAP EXPOS, LO DISP             3  C
OFFSET R/P FOR LGAP: (-16,-208), (-1,-208), (-31,-208)                  4  C
                                                                        5  C

 * File110  *  LWP 12976  *  MELO   file
                          895 89500072048   1 2 011112976                1  C
  7952*   4*IUESOC  *   *   *   1199*      *   * * * * * * * *     *    2  C
LWP 12976, HD 193901, 3 X 5 M LGAP, 5 M SMAP EXPOS, LO DISP             3  C
OFFSET R/P FOR LGAP: (-16,-208), (-1,-208), (-31,-208)                  4  C
                                                                        5  C

 * File111  *  LWP 12976  *  LBLS   file
                          895 89503312048   1 2 011112976                1  C
  7952*   4*IUESOC  *   *   *   1199*      *   * * * * * * * *     *    2  C
LWP 12976, HD 193901, 3 X 5 M LGAP, 5 M SMAP EXPOS, LO DISP             3  C
OFFSET R/P FOR LGAP: (-16,-208), (-1,-208), (-31,-208)                  4  C
                                                                        5  C

 * File112  *  LWP 12976  *  MELO   file
                          895 89500072048   1 2 011112976                1  C
  7952*   4*IUESOC  *   *   *   1199*      *   * * * * * * * *     *    2  C
LWP 12976, HD 193901, 3 X 5 M LGAP, 5 M SMAP EXPOS, LO DISP             3  C
OFFSET R/P FOR LGAP: (-16,-208), (-1,-208), (-31,-208)                  4  C
                                                                        5  C

 * File113  *  LWP 12706  *  LBLS   file
                          895 89503312048   1 2 011112706                1  C
  7888*   5*IUESOC  *   *   *    179*      *   * * * * * * * *     *    2  C
LWP 12706, HD 157089, 3 X 60 SEC EXPOS, LO DISP, LARGE APER              3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                           4  C
                                                                        5  C

 * File114  *  LWP 12706  *  MELO   file
                          895 89500072048   1 2 011112706                1  C
  7888*   5*IUESOC  *   *   *    179*      *   * * * * * * * *     *    2  C
LWP 12706, HD 157089, 3 X 60 SEC EXPOS, LO DISP, LARGE APER              3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                           4  C
                                                                        5  C

 * File115  *  LWP 12705  *  LBLS   file
                          895 89503312048   1 1 011112705                1  C
  7888*   4*IUESOC  *   *   *    233*      *   * * * * * * * *     *    2  C
LWP 12705, HD 165908, 55 SEC TRAIL, LO DISP, LARGE APERTURE              3  C
TRAIL RATE = 0.36364"/SEC                                               4  C
EX = 2, EY = -1 AT R/P AFTER EXPO                                       5  C

 * File116  *  LWP 12705  *  MELO   file
                          895 89500072048   1 1 011112705                1  C
  7888*   4*IUESOC  *   *   *    233*      *   * * * * * * * *     *    2  C
LWP 12705, HD 165908, 55 SEC TRAIL, LO DISP, LARGE APERTURE              3  C
TRAIL RATE = 0.36364"/SEC                                               4  C
EX = 2, EY = -1 AT R/P AFTER EXPO                                       5  C

 * File117  *  LWP 12707  *  LBLS   file
                          895 89503312048   1 1 011112707                1  C
  7888*   6*IUESOC  *   *   *    189*      *   * * * * * * * *     *    2  C
LWP 12707, HD 164259, 30 SEC TRAIL, LO DISP, LARGE APER                  3  C
EX = -11, EY = 0 AT R/P AFTER EXPO                                      4  C
TRAIL RATE = 0.66667"/SEC                                               5  C

 * File118  *  LWP 12707  *  MELO   file
                          895 89500072048   1 1 011112707                1  C
  7888*   6*IUESOC  *   *   *    189*      *   * * * * * * * *     *    2  C
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LWP 12707, HD 164259, 30 SEC TRAIL, LO DISP, LARGE APER                3 C
EX = -11, EY = 0 AT R/P AFTER EXPO                                     4 C
TRAIL RATE = 0.66667"/SEC                                              5 C

 * File119  *  LWP 12510  *  LBLS   file
                         0001000103312048   1 2 011112510             1 C
  7840*    7*IUESOC  *   *   *    44*      *  *  * * * * * * *    *   2 C
LWP 12510, HD 136202, 3 X 15 SEC EXPO, LOW DISP, LARGE APER           3 C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)              4 C
ERRORS AFTER EXPOS (EX,EY):   (0,-3)  (0,-2)  (-3,-4)                 5 C

 * File120  *  LWP 12510  *  MELO   file
                         0001000100072048   1 2 011112510             1 C
  7840*    7*IUESOC  *   *   *    44*      *  *  * * * * * * *    *   2 C
LWP 12510, HD 136202, 3 X 15 SEC EXPO, LOW DISP, LARGE APER           3 C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)              4 C
ERRORS AFTER EXPOS (EX,EY):   (0,-3)  (0,-2)  (-3,-4)                 5 C

 * File121  *  SWP 33202  *  LBLS   file
                         895 89503312048   1 2 013133202              1 C
  7952*    9*IUESOC  *   *   *    138*     *  *  * * * * * * *    *   2 C
SWP 33202, HD 166197, 12 SEC TRAIL, LO DISP, LARGE APER               3 C
EX= 0, EY= 1 AT R.P. AFTER EXPO                                       4 C
TRAIL RATE= 1.6667 ARCSEC/SEC, 1 PASS                                 5 C

 * File122  *  SWP 33202  *  MELO   file
                         895 89500072048   1 2 013133202              1 C
  7952*    9*IUESOC  *   *   *    138*     *  *  * * * * * * *    *   2 C
SWP 33202, HD 166197, 12 SEC TRAIL, LO DISP, LARGE APER               3 C
EX= 0, EY= 1 AT R.P. AFTER EXPO                                       4 C
TRAIL RATE= 1.6667 ARCSEC/SEC, 1 PASS                                 5 C

 * File123  *  LWP 12981  *  LBLS   file
                         895 89503312048   1 1 011112981              1 C
  7952*   10*IUESOC  *   *   *    145*     *  *  * * * * * * *    *   2 C
LWP 12981, HD 166197, 12 SEC TRAIL, LO DISP, LARGE APER               3 C
EX= 3, EY= 3 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 1.6667 ARCSEC/SEC, 1 PASS                                 5 C

 * File124  *  LWP 12981  *  MELO   file
                         895 89500072048   1 1 011112981              1 C
  7952*   10*IUESOC  *   *   *    145*     *  *  * * * * * * *    *   2 C
LWP 12981, HD 166197, 12 SEC TRAIL, LO DISP, LARGE APER               3 C
EX= 3, EY= 3 AT R.P. AFTER TRAIL                                      4 C
TRAIL RATE= 1.6667 ARCSEC/SEC, 1 PASS                                 5 C

 * File125  *  LWP 13331  *  LBLS   file
                         895 89503312048   1 1 011113331              1 C
  8042*    7*IUESOC  *   *   *    149*     *  *  * * * * * * *    *   2 C
LWP 13331, HD 85123, 10 SEC TRAIL, LO DISP, LARGE APER                3 C
TRAIL RATE= 2.0 ARCSEC/SEC, 1 PASS                                    4 C
EX= 0, EY= -2 AT R.P. AFTER TRAIL                                     5 C

 * File126  *  LWP 13331  *  MELO   file
                         895 89500072048   1 1 011113331              1 C
  8042*    7*IUESOC  *   *   *    149*     *  *  * * * * * * *    *   2 C
LWP 13331, HD 85123, 10 SEC TRAIL, LO DISP, LARGE APER                3 C
TRAIL RATE= 2.0 ARCSEC/SEC, 1 PASS                                    4 C
EX= 0, EY= -2 AT R.P. AFTER TRAIL                                     5 C

 * File127  *  SWP 33673  *  LBLS   file
                         895 89503312048   1 1 013133673              1 C
  8043*    3*IUESOC  *   *   *    900*     *  *  * * * * * * *    *   2 C
SWP 33673, HD 97534, 15 MIN EXPO, LO DISP, LARGE APER                 3 C
                                                                      4 C
                                                                      5 C

 * File128  *  SWP 33673  *  MELO   file
                         895 89500072048   1 1 013133673              1 C
  8043*    3*IUESOC  *   *   *    900*     *  *  * * * * * * *    *   2 C
SWP 33673, HD 97534, 15 MIN EXPO, LO DISP, LARGE APER                 3 C
                                                                      4 C
                                                                      5 C

 * File129  *  SWP 33670  *  LBLS   file
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                        895 89503312048   1 2 013133670                 1  C
  8042*   8*IUESOC  *   *   *   200*      *   *  * * * * * * *     *  2  CC
SWP 33670, HD 85123, 50 SEC TRAIL, LO DISP, LARGE APER                  3  CC
TRAIL RATE= 0.4 ARCSEC/SEC, 1 PASS                                      4  CC
EX= -1, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File130  *  SWP 33670  *  MELO   file
                        895 89500072048   1 2 013133670                 1  C
  8042*   8*IUESOC  *   *   *   200*      *   *  * * * * * * *     *  2  CC
SWP 33670, HD 85123, 50 SEC TRAIL, LO DISP, LARGE APER                  3  CC
TRAIL RATE= 0.4 ARCSEC/SEC, 1 PASS                                      4  CC
EX= -1, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File131  *  LWP 12658  *  LBLS   file
                        895 89503312048   1 2 011112658                 1  C
  7881*   2*IUESOC  *   *   *   138*      *   *  * * * * * * *     *  2  CC
LWP 12658, HD 149212, 17 SEC TRAIL, LOW DISPERSION, LG APER             3  CC
EX = 0, EY = 5 AT REF PNT AFTER TRAIL                                   4  CC
                                                                        5  C

 * File132  *  LWP 12658  *  MELO   file
                        895 89500072048   1 2 011112658                 1  C
  7881*   2*IUESOC  *   *   *   138*      *   *  * * * * * * *     *  2  CC
LWP 12658, HD 149212, 17 SEC TRAIL, LOW DISPERSION, LG APER             3  CC
EX = 0, EY = 5 AT REF PNT AFTER TRAIL                                   4  CC
                                                                        5  C

 * File133  *  SWP 32996  *  LBLS   file
                        895 89503312048   1 2 013132996                 1  C
  7896*   3*IUESOC  *   *   *   469*      *   *  * * * * * * *     *  2  CC
SWP 32996, HD 26571, 175 SEC TRAIL, LO DISP, LG APERTURE                3  CC
EX = 0, EY = 0, AT REF POINT AFTER TRAIL                                4  CC
                                                                        5  C

 * File134  *  SWP 32996  *  MELO   file
                        895 89500072048   1 2 013132996                 1  C
  7896*   3*IUESOC  *   *   *   469*      *   *  * * * * * * *     *  2  CC
SWP 32996, HD 26571, 175 SEC TRAIL, LO DISP, LG APERTURE                3  CC
EX = 0, EY = 0, AT REF POINT AFTER TRAIL                                4  CC
                                                                        5  C

 * File135  *  LWP 13334  *  LBLS   file
                        895 89503312048   1 2 011113334                 1  C
  8042*  12*IUESOC  *   *   *   171*      *   *  * * * * * * *     *  2  CC
LWP 13334, HD 93843, 30 SEC EXPO, LO DISP, LARGE APER                   3  CC
TRAIL RATE= 0.66667 ARCSEC/SEC, 1 PASS                                  4  CC
EX= -2, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File136  *  LWP 13334  *  MELO   file
                        895 89500072048   1 2 011113334                 1  C
  8042*  12*IUESOC  *   *   *   171*      *   *  * * * * * * *     *  2  CC
LWP 13334, HD 93843, 30 SEC EXPO, LO DISP, LARGE APER                   3  CC
TRAIL RATE= 0.66667 ARCSEC/SEC, 1 PASS                                  4  CC
EX= -2, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File137  *  SWP 33672  *  LBLS   file
                        895 89503312048   1 2 013133672                 1  C
  8042*  13*IUESOC  *   *   *   198*      *   *  * * * * * * *     *  2  CC
SWP 33672, HD 93843, 45 SEC TRAIL, LO DISP, LARGE APER                  3  CC
TRAIL RATE= 0.44444 ARCSEC/SEC, 1 PASS                                  4  CC
EX= -3, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File138  *  SWP 33672  *  MELO   file
                        895 89500072048   1 2 013133672                 1  C
  8042*  13*IUESOC  *   *   *   198*      *   *  * * * * * * *     *  2  CC
SWP 33672, HD 93843, 45 SEC TRAIL, LO DISP, LARGE APER                  3  CC
TRAIL RATE= 0.44444 ARCSEC/SEC, 1 PASS                                  4  CC
EX= -3, EY= -3 AT R.P. AFTER TRAIL                                      5  C

 * File139  *  LWP 13335  *  LBLS   file
                        895 89503312048   1 1 011113335                 1  C
  8043*   2*IUESOC  *   *   *   348*      *   *  * * * * * * *     *  2  CC
LWP 13335, HD 97534, 120 SEC TRAIL, LO DISP, LARGE APER                 3  CC
TRAIL RATE= 0.166667 ARCSEC/SEC, 1 PASS                                 4  CC
EX= 0, EY= 1 AT R.P. AFTER TRAIL                                        5  C
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* File140   *  LWP 13335  *  MELO   file
                          895 89500072048   1 1 011113335                     1  C
 8043*   2*IUESOC  *    *   *     348*       *   *  * * * * * *         *  2  C
LWP 13335, HD 97534, 120 SEC TRAIL, LO DISP, LARGE APER                    3  C
TRAIL RATE= 0.166667 ARCSEC/SEC, 1 PASS                                    4  C
EX= 0, EY= 1 AT R.P. AFTER TRAIL                                           5  C

* File141   *  LWP 13414  *  LBLS   file
                          895 89503312048   1 2 011113414                     1  C
 8060*   7*IUESOC  *    *   *     177*       *   *  * * * * * *         *  2  C
LWO 13414, HD 114710, 38 SEC TRAIL, LO DISP, LARGE APERTURE                3  C
TRAIL RATE = 0.52632 "/SEC                                                 4  C
EX = -3, EY = 0 AT R/P AFTER EXPO                                          5  C

* File142   *  LWP 13414  *  MELO   file
                          895 89500072048   1 2 011113414                     1  C
 8060*   7*IUESOC  *    *   *     177*       *   *  * * * * * *         *  2  C
LWO 13414, HD 114710, 38 SEC TRAIL, LO DISP, LARGE APERTURE                3  C
TRAIL RATE = 0.52632 "/SEC                                                 4  C
EX = -3, EY = 0 AT R/P AFTER EXPO                                          5  C

* File143   *  LWP 13556  *  LBLS   file
                          895 89503312048   1 2 011113556                     1  C
 8089*   5*IUESOC  *    *   *     133*       *   *  * * * * * *         *  2  C
LWP 13556, HD 212593, 12 SEC TRAIL, LO DISP ,LG APERTURE                   3  C
TRAIL ERRORS:  EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                    4  C
                                                                           5  C

* File144   *  LWP 13556  *  MELO   file
                          895 89500072048   1 2 011113556                     1  C
 8089*   5*IUESOC  *    *   *     133*       *   *  * * * * * *         *  2  C
LWP 13556, HD 212593, 12 SEC TRAIL, LO DISP ,LG APERTURE                   3  C
TRAIL ERRORS:  EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                    4  C
                                                                           5  C

* File145   *  LWP 13555  *  LBLS   file
                          895 89503312048   1 1 011113555                     1  C
 8089*   3*IUESOC  *    *   *     138*       *   *  * * * * * *         *  2  C
LWP 13555, HD 209419, 13 SEC TRAIL, LO DISP, LG APERTURE                   3  C
TRAIL RATE = 1.53846 "/SEC,  1  ITERATION                                  4  C
TRAIL ERRORS:  EX = 0,  EY = 0,  AT R/P AFTER EXPOSURE                     5  C

* File146   *  LWP 13555  *  MELO   file
                          895 89500072048   1 1 011113555                     1  C
 8089*   3*IUESOC  *    *   *     138*       *   *  * * * * * *         *  2  C
LWP 13555, HD 209419, 13 SEC TRAIL, LO DISP, LG APERTURE                   3  C
TRAIL RATE = 1.53846 "/SEC,  1  ITERATION                                  4  C
TRAIL ERRORS:  EX = 0,  EY = 0,  AT R/P AFTER EXPOSURE                     5  C

* File147   *  SWP 33853  *  LBLS   file
                          895 89503312048   1 1 013133853                     1  C
 8089*   7*IUESOC  *    *   *     133*       *   *  * * * * * *         *  2  C
SWP 33853, HD 222173, 9 SEC TRAIL, LO DISP, LG APER                        3  C
TRAIL RATE = 2.22222 "/SEC,  1 ITERATION                                   4  C
TRAIL ERRORS: EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                     5  C

* File148   *  SWP 33853  *  MELO   file
                          895 89500072048   1 1 013133853                     1  C
 8089*   7*IUESOC  *    *   *     133*       *   *  * * * * * *         *  2  C
SWP 33853, HD 222173, 9 SEC TRAIL, LO DISP, LG APER                        3  C
TRAIL RATE = 2.22222 "/SEC,  1 ITERATION                                   4  C
TRAIL ERRORS: EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                     5  C

* File149   *  SWP 33852  *  LBLS   file
                          895 89503312048   1 2 013133852                     1  C
 8089*   6*IUESOC  *    *   *     184*       *   *  * * * * * *         *  2  C
SWP 33852, HD 212593, 32 SEC TRAIL, LO DISP, LG APERTURE                   3  C
TRAIL RATE = 0.62500 "/SEC,  1 ITERATION                                   4  C
TRAIL ERRORS:  EX = -4,  EY = 1,  AT R/P AFTER EXPOSURE                    5  C

* File150   *  SWP 33852  *  MELO   file
                          895 89500072048   1 2 013133852                     1  C
 8089*   6*IUESOC  *    *   *     184*       *   *  * * * * * *         *  2  C
SWP 33852, HD 212593, 32 SEC TRAIL, LO DISP, LG APERTURE                   3  C
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TRAIL RATE = 0.62500 "/SEC,  1 ITERATION                                  4  C
TRAIL ERRORS:  EX = -4,  EY = 1,  AT R/P AFTER EXPOSURE                   5  C

 * File151  *  SWP 33851  *  LBLS   file
                        895 89503312048   1 1 013133851                   1  C
  8089*   4*IUESOC  *   *   *    161*      *   *  * * * * * *     *       2  C
SWP 33851, HD 209419, 26 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL RATE = 0.76923 "/SEC,  1 ITERATION                                  4  C
TRAIL ERRORS:  EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                   5  C

 * File152  *  SWP 33851  *  MELO   file
                        895 89500072048   1 1 013133851                   1  C
  8089*   4*IUESOC  *   *   *    161*      *   *  * * * * * *     *       2  C
SWP 33851, HD 209419, 26 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL RATE = 0.76923 "/SEC,  1 ITERATION                                  4  C
TRAIL ERRORS:  EX = -3,  EY = 0,  AT R/P AFTER EXPOSURE                   5  C

 * File153  *  LWP 13557  *  LBLS   file
                        895 89503312048   1 1 011113557                   1  C
  8089*   8*IUESOC  *   *   *    138*      *   *  * * * * * *     *       2  C
LWP 13557, HD 222173, 6 SEC TRAIL, LO DISP, LG APERTURE                   3  C
TRAIL RATE = 3.33333 "/SEC,  1 ITERATION                                  4  C
TRAIL ERRORS:  EX = -3,  EY = -1,  AT R/P AFTER EXPOSURE                  5  C

 * File154  *  LWP 13557  *  MELO   file
                        895 89500072048   1 1 011113557                   1  C
  8089*   8*IUESOC  *   *   *    138*      *   *  * * * * * *     *       2  C
LWP 13557, HD 222173, 6 SEC TRAIL, LO DISP, LG APERTURE                   3  C
TRAIL RATE = 3.33333 "/SEC,  1 ITERATION                                  4  C
TRAIL ERRORS:  EX = -3,  EY = -1,  AT R/P AFTER EXPOSURE                  5  C

 * File155  *  SWP 34697  *  LBLS   file
                        895 89503312048   1 1 013134697   #101            1  C
  8266*   4*IUESOC  *   *   *    229*      *   *  * * * * * *     *       2  C
SWP 34697, HD 215733, 55 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL EXPOSURE TIME = 54.9994 SECONDS                                     4  C
                                                                          5  C

 * File156  *  SWP 34697  *  MELO   file
                        895 89500072048   1 1 013134697   #101            1  C
  8266*   4*IUESOC  *   *   *    229*      *   *  * * * * * *     *       2  C
SWP 34697, HD 215733, 55 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL EXPOSURE TIME = 54.9994 SECONDS                                     4  C
                                                                          5  C

 * File157  *  LWP 14389  *  LBLS   file
                        895 89503312048   1 1 011114389   #101            1  C
  8266*   8*IUESOC  *   *   *    235*      *   *  * * * * * *     *       2  C
LWP 14389, HD 220657, 60 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL PROC EXPOSURE TIME = 60.0006 SECONDS                                4  C
                                                                          5  C

 * File158  *  LWP 14389  *  MELO   file
                        895 89500072048   1 1 011114389   #101            1  C
  8266*   8*IUESOC  *   *   *    235*      *   *  * * * * * *     *       2  C
LWP 14389, HD 220657, 60 SEC TRAIL, LO DISP, LG APERTURE                  3  C
TRAIL PROC EXPOSURE TIME = 60.0006 SECONDS                                4  C
                                                                          5  C

 * File159  *  SWP 34867  *  LBLS   file
                        895 89503312048   1 1 013134867   #101            1  C
  8306*   3*IUESOC  *   *   *    113*      *   *  * * * * * *     *       2  C
SWP 34867, HD 13854, 3 X 38 SEC EXPO, LO DISP, LG APERTURE                3  C
OFFSET REF POINTS USED: (-16,-208)  (-1,-208) & (-31,-208)                 4  C
                                                                          5  C

 * File160  *  SWP 34867  *  MELO   file
                        895 89500072048   1 1 013134867   #101            1  C
  8306*   3*IUESOC  *   *   *    113*      *   *  * * * * * *     *       2  C
SWP 34867, HD 13854, 3 X 38 SEC EXPO, LO DISP, LG APERTURE                3  C
OFFSET REF POINTS USED: (-16,-208)  (-1,-208) & (-31,-208)                 4  C
                                                                          5  C

 * File161  *  LWP 14595  *  LBLS   file
                        895 89503312048   1 1 011114595   #101            1  C
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  8306*   4*IUESOC  *   *   *    38*       *   * * * * * * *      *  2  C
LWP 14595, HD 13854, 3 X 13 SEC EXPO, LO DISP, LG APERTURE              3
OFFSET REF POINTS USED:  (-16,-208)  (-1,-208) & (-31,-208)             4
                                                                        5  C

 * File162  *  LWP 14595  *  MELO   file
                        895 89500072048   1 1 011114595   #101       1  C
  8306*   4*IUESOC  *   *   *    38*       *   * * * * * * *      *  2  C
LWP 14595, HD 13854, 3 X 13 SEC EXPO, LO DISP, LG APERTURE              3
OFFSET REF POINTS USED:  (-16,-208)  (-1,-208) & (-31,-208)             4
                                                                        5  C

 * File163  *  LWP 14596  *  LBLS   file
                        895 89503312048   1 2 011114596   #101       1  C
  8306*   5*IUESOC  *   *   *    35*       *   * * * * * * *      *  2  C
LWP 14596, HD 8799, 3 X 12 SEC EXPOSURE, LO DISP, LG APER               3
OFFSET REF POINTS USED:  (-16,-208)  (-1,-208) & (-31,-208)             4
                                                                        5  C

 * File164  *  LWP 14596  *  MELO   file
                        895 89500072048   1 2 011114596   #101       1  C
  8306*   5*IUESOC  *   *   *    35*       *   * * * * * * *      *  2  C
LWP 14596, HD 8799, 3 X 12 SEC EXPOSURE, LO DISP, LG APER               3
OFFSET REF POINTS USED:  (-16,-208)  (-1,-208) & (-31,-208)             4
                                                                        5  C

 * File165  *  LWP 14597  *  LBLS   file
                        895 89503312048   1 1 011114597   #101       1  C
  8306*   6*IUESOC  *   *   *   126*       *   * * * * * * *      *  2  C
LWP 14597, HD 13854, 3 X 9 SEC EXPOSURE, LO DISP, LG APER                3
LWP 14597, HD 13854, 100 SEC EXPOSURE, LO DISP, SM APERTURE              4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURES:  (-16,-208)               5  C

 * File166  *  LWP 14597  *  MELO   file
                        895 89500072048   1 1 011114597   #101       1  C
  8306*   6*IUESOC  *   *   *   126*       *   * * * * * * *      *  2  C
LWP 14597, HD 13854, 3 X 9 SEC EXPOSURE, LO DISP, LG APER                3
LWP 14597, HD 13854, 100 SEC EXPOSURE, LO DISP, SM APERTURE              4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURES:  (-16,-208)               5  C

 * File167  *  LWP 14597  *  LBLS   file
                        895 89503312048   1 1 011114597   #101       1  C
  8306*   6*IUESOC  *   *   *   126*       *   * * * * * * *      *  2  C
LWP 14597, HD 13854, 3 X 9 SEC EXPOSURE, LO DISP, LG APER                3
LWP 14597, HD 13854, 100 SEC EXPOSURE, LO DISP, SM APERTURE              4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURES:  (-16,-208)               5  C

 * File168  *  LWP 14597  *  MELO   file
                        895 89500072048   1 1 011114597   #101       1  C
  8306*   6*IUESOC  *   *   *   126*       *   * * * * * * *      *  2  C
LWP 14597, HD 13854, 3 X 9 SEC EXPOSURE, LO DISP, LG APER                3
LWP 14597, HD 13854, 100 SEC EXPOSURE, LO DISP, SM APERTURE              4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURES:  (-16,-208)               5  C

 * File169  *  LWP 14598  *  LBLS   file
                        895 89503312048   1 2 011114598   #101       1  C
  8306*   7*IUESOC  *   *   *   101*       *   * * * * * * *      *  2  C
LWP 14598, HD 8799, 3 X 7 SEC EXPOSURE, LO DISP, LG APER                 3
LWP 14598, HD 8799, 80 SEC EXPOSURE, LO DISP, SM APERTURE                4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURE:  (-16,-208)                5  C

 * File170  *  LWP 14598  *  MELO   file
                        895 89500072048   1 2 011114598   #101       1  C
  8306*   7*IUESOC  *   *   *   101*       *   * * * * * * *      *  2  C
LWP 14598, HD 8799, 3 X 7 SEC EXPOSURE, LO DISP, LG APER                 3
LWP 14598, HD 8799, 80 SEC EXPOSURE, LO DISP, SM APERTURE                4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURE:  (-16,-208)                5  C

 * File171  *  LWP 14598  *  LBLS   file
                        895 89503312048   1 2 011114598   #101       1  C
  8306*   7*IUESOC  *   *   *   101*       *   * * * * * * *      *  2  C
LWP 14598, HD 8799, 3 X 7 SEC EXPOSURE, LO DISP, LG APER                 3
LWP 14598, HD 8799, 80 SEC EXPOSURE, LO DISP, SM APERTURE                4
OFFSET REF POINTS USED FOR THE LGAP EXPOSURE:  (-16,-208)                5  C
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 * File172  *  LWP 14598  *  MELO   file
                          895 89500072048   1 2 011114598   #101      1  C
  8306*   7*IUESOC  *    *    *    101*        *   *  * * * * * *  *   2  CCC
LWP 14598, HD 8799, 3 X 7 SEC EXPOSURE, LO DISP, LG APER              3  CCC
LWP 14598, HD 8799, 80 SEC EXPOSURE, LO DISP, SM APERTURE             4  CC
OFFSET REF POINTS USED FOR THE LGAP EXPOSURE:  (-16,-208)             5  C

 * File173  *  LWP 14967  *  LBLS   file
                          895 89503312048   1 1 011114967   #101      1  C
  8413*   3*IUESOC  *    *    *     15*        *   *  * * * * * *  *   2  CCC
LWP 14967, HD 120136, 3 X 5 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET REFERENCE POINTS USED: (-31,-208), (-16,-208), AND              4  CC
(-1,-208)                                                             5  C

 * File174  *  LWP 14967  *  MELO   file
                          895 89500072048   1 1 011114967   #101      1  C
  8413*   3*IUESOC  *    *    *     15*        *   *  * * * * * *  *   2  CCC
LWP 14967, HD 120136, 3 X 5 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET REFERENCE POINTS USED: (-31,-208), (-16,-208), AND              4  CC
(-1,-208)                                                             5  C

 * File175  *  LWP 14968  *  LBLS   file
                          895 89503312048   1 2 011114968   #101      1  C
  8413*   4*IUESOC  *    *    *    209*        *   *  * * * * * *  *   2  CCC
LWP 14968, HD 114762, 3 X 70 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET  REFERENCE POINTS USED: (-31,-208), (-16,-208) AND               4  CC
(-1,-208)                                                             5  C

 * File176  *  LWP 14968  *  MELO   file
                          895 89500072048   1 2 011114968   #101      1  C
  8413*   4*IUESOC  *    *    *    209*        *   *  * * * * * *  *   2  CCC
LWP 14968, HD 114762, 3 X 70 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET  REFERENCE POINTS USED: (-31,-208), (-16,-208) AND               4  CC
(-1,-208)                                                             5  C

 * File177  *  LWP 14965  *  LBLS   file
                          895 89503312048   1 1 011114965   #101      1  C
  8412*   2*IUESOC  *    *    *     29*        *   *  * * * * * *  *   2  CCC
LWP 14965, HD 120136, 3 X 10 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET REFERENCE POINTS USED AT: (-31,-208),(-16,-208) AND              4  CC
(-1,-208). ERRORS AFTER EXPOSURE, RESPECTIVELY:                       5  C

 * File178  *  LWP 14965  *  MELO   file
                          895 89500072048   1 1 011114965   #101      1  C
  8412*   2*IUESOC  *    *    *     29*        *   *  * * * * * *  *   2  CCC
LWP 14965, HD 120136, 3 X 10 SEC EXPO, LO DISP, LARGE APER             3  CCC
OFFSET REFERENCE POINTS USED AT: (-31,-208),(-16,-208) AND              4  CC
(-1,-208). ERRORS AFTER EXPOSURE, RESPECTIVELY:                       5  C

 * File179  *  LWP 14966  *  LBLS   file
                          895 89503312048   1 2 011114966   #101      1  C
  8413*   2*IUESOC  *    *    *   1619*        *   *  * * * * * *  *   2  CCC
LWP 14966, HD 108177, 3 X 9 MIN EXPO, LO DISP, LARGE APER              3  CCC
OFFSET REFERENCE POINTS USED AT: (-31,-208), (-16,-208),                4  CC
AND (-1,-208)                                                         5  C

 * File180  *  LWP 14966  *  MELO   file
                          895 89500072048   1 2 011114966   #101      1  C
  8413*   2*IUESOC  *    *    *   1619*        *   *  * * * * * *  *   2  CCC
LWP 14966, HD 108177, 3 X 9 MIN EXPO, LO DISP, LARGE APER              3  CCC
OFFSET REFERENCE POINTS USED AT: (-31,-208), (-16,-208),                4  CC
AND (-1,-208)                                                         5  C

 * File181  *  LWP 12708  *  LBLS   file
                          895 89503312048   1 2 011112708   #101      1  C
  7888*   7*IUESOC  *    *    *    238*        *   *  * * * * * *  *   2  CCC
LWP 12708, HD 69897, 55 SEC TRAIL, LO DISP, LARGE APERTURE              3  CCC
TRAIL RATE = 0.36364"/SEC                                               4  CC
EX = 4, EY = -4 AT R/P AFTER EXPO                                     5  C

 * File182  *  LWP 12708  *  MELO   file
                          895 89500072048   1 2 011112708   #101      1  C
  7888*   7*IUESOC  *    *    *    238*        *   *  * * * * * *  *   2  CCC
LWP 12708, HD 69897, 55 SEC TRAIL, LO DISP, LARGE APERTURE              3  CCC
TRAIL RATE = 0.36364"/SEC                                               4  C
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```
EX = 4, EY = -4 AT R/P AFTER EXPO                                    5  C

 * File183  *  LWP 12506  *  LBLS   file
                        895 89503312048   1 2 011112506   #101      1  C
  7840*   3*IUESOC  *   *    *      7*       *   *  * * * * * *  *   2  C
LWP 12506, HD 30652, 3 X 2.47 SEC EXPO, LOW DISP, LG APER            3  C
USED OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)           4  C
ERRORS AFTER EACH EXPO  (EX,EY):  (1,3)  (0,3)  (-1,5)               5  C

 * File184  *  LWP 12506  *  MELO   file
                        895 89500072048   1 2 011112506   #101      1  C
  7840*   3*IUESOC  *   *    *      7*       *   *  * * * * * *  *   2  C
LWP 12506, HD 30652, 3 X 2.47 SEC EXPO, LOW DISP, LG APER            3  C
USED OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)           4  C
ERRORS AFTER EACH EXPO  (EX,EY):  (1,3)  (0,3)  (-1,5)               5  C

 * File185  *  LWP 12507  *  LBLS   file
                        895 89503312048   1 1 011112507   #101      1  C
  7840*   4*IUESOC  *   *    *     65*       *   *  * * * * * *  *   2  C
LWP 12507, HD 43318, 3 X 22 SEC EXPO, LOW DISP, LARGE APER            3  C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)              4  C
ERRORS (EX,EY) AFTER EXPOS:  (1,4)  (0,4)  (0,4)                      5  C

 * File186  *  LWP 12507  *  MELO   file
                        895 89500072048   1 1 011112507   #101      1  C
  7840*   4*IUESOC  *   *    *     65*       *   *  * * * * * *  *   2  C
LWP 12507, HD 43318, 3 X 22 SEC EXPO, LOW DISP, LARGE APER            3  C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)              4  C
ERRORS (EX,EY) AFTER EXPOS:  (1,4)  (0,4)  (0,4)                      5  C

 * File187  *  LWP 15558  *  LBLS   file
                        895 89503312048   1 2 011115558   #101      1  C
  8579*   3*IUESOC  *   *    *    206*       *   *  * * * * * *  *   2  C
LWP 15558, HD 165908, 3 X 9 SEC LGAP + 180 SEC SMAP, LODISP           3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)           4  C
EX, EY AFTER EACH LGAP EXPO:  (2,0)  (2,1)  (1,2)                     5  C

 * File188  *  LWP 15558  *  MELO   file
                        895 89500072048   1 2 011115558   #101      1  C
  8579*   3*IUESOC  *   *    *    206*       *   *  * * * * * *  *   2  C
LWP 15558, HD 165908, 3 X 9 SEC LGAP + 180 SEC SMAP, LODISP           3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)           4  C
EX, EY AFTER EACH LGAP EXPO:  (2,0)  (2,1)  (1,2)                     5  C

 * File189  *  LWP 15558  *  LBLS   file
                        895 89503312048   1 2 011115558   #101      1  C
  8579*   3*IUESOC  *   *    *    206*       *   *  * * * * * *  *   2  C
LWP 15558, HD 165908, 3 X 9 SEC LGAP + 180 SEC SMAP, LODISP           3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)           4  C
EX, EY AFTER EACH LGAP EXPO:  (2,0)  (2,1)  (1,2)                     5  C

 * File190  *  LWP 15558  *  MELO   file
                        895 89500072048   1 2 011115558   #101      1  C
  8579*   3*IUESOC  *   *    *    206*       *   *  * * * * * *  *   2  C
LWP 15558, HD 165908, 3 X 9 SEC LGAP + 180 SEC SMAP, LODISP           3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)           4  C
EX, EY AFTER EACH LGAP EXPO:  (2,0)  (2,1)  (1,2)                     5  C
```

M. Crenshaw

Spec
Master Tape 2

mlist2.lis

Tape Contents Listing

```
 * File  1  *  SWP 36315  *  LBLS   file
                          895 89503312048   1 1 013136315   #101      *  1  C
  8580*   3*IUESOC  *   *   *   117*        *  *  *  *  *  *  *  *  *  2
SWP 36315, HD 203064, 4.75 SEC TRAIL, LOW DISP, LARGE APER              3
TRAIL RATE = 4.21053 ARCSEC/SEC                                         4  C
EX = 10, EY = -2 AT REF PNT AFTER TRAIL                                 5  C

 * File  2  *  SWP 36315  *  MELO   file
                          895 89500072048   1 1 013136315   #101      *  1  C
  8580*   3*IUESOC  *   *   *   117*        *  *  *  *  *  *  *  *  *  2
SWP 36315, HD 203064, 4.75 SEC TRAIL, LOW DISP, LARGE APER              3
TRAIL RATE = 4.21053 ARCSEC/SEC                                         4  C
EX = 10, EY = -2 AT REF PNT AFTER TRAIL                                 5  C

 * File  3  *  SWP 36315  *  LBLS   file
                          895 89503312048   1 1 013136315   #101      *  1  C
  8580*   3*IUESOC  *   *   *   117*        *  *  *  *  *  *  *  *  *  2
SWP 36315, HD 203064, 4.75 SEC TRAIL, LOW DISP, LARGE APER              3
TRAIL RATE = 4.21053 ARCSEC/SEC                                         4  C
EX = 10, EY = -2 AT REF PNT AFTER TRAIL                                 5  C

 * File  4  *  SWP 36315  *  MELO   file
                          895 89500072048   1 1 013136315   #101      *  1  C
  8580*   3*IUESOC  *   *   *   117*        *  *  *  *  *  *  *  *  *  2
SWP 36315, HD 203064, 4.75 SEC TRAIL, LOW DISP, LARGE APER              3
TRAIL RATE = 4.21053 ARCSEC/SEC                                         4  C
EX = 10, EY = -2 AT REF PNT AFTER TRAIL                                 5  C

 * File  5  *  LWP 15566  *  LBLS   file
                          895 89503312048   1 2 011115566   #101      *  1  C
  8580*   7*IUESOC  *   *   *   148*        *  *  *  *  *  *  *  *  *  2
LWP 15566, HD 75112, 21 SEC TRAIL, LOW DISP, LARGE APERTURE              3
TRAIL RATE = 0.95238 ARCSEC/SEC                                         4  C
EX = 0, EY = 1 AT REF PNT AFTER TRAIL                                   5  C

 * File  6  *  LWP 15566  *  MELO   file
                          895 89500072048   1 2 011115566   #101      *  1  C
  8580*   7*IUESOC  *   *   *   148*        *  *  *  *  *  *  *  *  *  2
LWP 15566, HD 75112, 21 SEC TRAIL, LOW DISP, LARGE APERTURE              3
TRAIL RATE = 0.95238 ARCSEC/SEC                                         4  C
EX = 0, EY = 1 AT REF PNT AFTER TRAIL                                   5  C

 * File  7  *  SWP 36317  *  LBLS   file
                          895 89503312048   1 1 013136317   #101      *  1  C
  8580*   8*IUESOC  *   *   *   168*        *  *  *  *  *  *  *  *  *  2
SWP 36317, HD 75112, 35 SEC TRAIL, LOW DISP, LARGE APERTURE              3
TRAIL RATE = 0.57143 ARCSEC/SEC                                         4  C
EX = 0, EY = 0 AT REF PNT AFTER TRAIL                                   5  C

 * File  8  *  SWP 36317  *  MELO   file
                          895 89500072048   1 1 013136317   #101      *  1  C
  8580*   8*IUESOC  *   *   *   168*        *  *  *  *  *  *  *  *  *  2
SWP 36317, HD 75112, 35 SEC TRAIL, LOW DISP, LARGE APERTURE              3
TRAIL RATE = 0.57143 ARCSEC/SEC                                         4  C
EX = 0, EY = 0 AT REF PNT AFTER TRAIL                                   5  C

 * File  9  *  LWP 15556  *  LBLS   file
                          895 89503312048   1 2 011115556   #101      *  1  C
  8578*   9*IUESOC  *   *   *   138*        *  *  *  *  *  *  *  *  *  2
LWP 15556, HD 164259, 3 X 6.5 SEC LGAP + 2 MIN SMAP, LODISP              3
OFSET REF PNTS FOR LGAP:  (-31,-208)  (-16,-208)  (-1,-208)              4
EX, EY FOR LGAP EXPOS:  (1,0)  (-1,2)  (-2,4), & SMAP (0,0)             5  C

 * File 10  *  LWP 15556  *  MELO   file
                          895 89500072048   1 2 011115556   #101      *  1  C
  8578*   9*IUESOC  *   *   *   138*        *  *  *  *  *  *  *  *  *  2
LWP 15556, HD 164259, 3 X 6.5 SEC LGAP + 2 MIN SMAP, LODISP              3
OFSET REF PNTS FOR LGAP:  (-31,-208)  (-16,-208)  (-1,-208)              4
EX, EY FOR LGAP EXPOS:  (1,0)  (-1,2)  (-2,4), & SMAP (0,0)             5  C

 * File 11  *  LWP 15556  *  LBLS   file
                          895 89503312048   1 2 011115556   #101      1  C
```

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  8578*   9*IUESOC  *   *   *   138*      *   *  * * * * * *      *  2  C
LWP 15556, HD 164259, 3 X 6.5 SEC LGAP + 2 MIN SMAP, LODISP              3  C
OFSET REF PNTS FOR LGAP:  (-31,-208)  (-16,-208)  (-1,-208)              4  C
EX, EY FOR LGAP EXPOS:  (1,0)  (-1,2)  (-2,4), & SMAP (0,0)             5  C

 * File 12  *  LWP 15556  *  MELO   file
                        895 89500072048   1 2 011115556   #101         1  C
  8578*   9*IUESOC  *   *   *   138*      *   *  * * * * * *      *  2  C
LWP 15556, HD 164259, 3 X 6.5 SEC LGAP + 2 MIN SMAP, LODISP              3  C
OFSET REF PNTS FOR LGAP:  (-31,-208)  (-16,-208)  (-1,-208)              4  C
EX, EY FOR LGAP EXPOS:  (1,0)  (-1,2)  (-2,4), & SMAP (0,0)             5  C

 * File 13  *  LWP 15559  *  LBLS   file
                        895 89503312048   1 1 011115559   #101         1  C
  8579*   4*IUESOC  *   *   *   254*      *   *  * * * * * *      *  2  C
LWP 15559, HD 201891, 3 X 85 SEC EXPO, LOW DISP, LARGE APER               3  C
USED OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)                4  C
EX, EY AT OFFSET RP AFTER EACH EXPO:  (0,1)  (0,1)  (-2,1)               5  C

 * File 14  *  LWP 15559  *  MELO   file
                        895 89500072048   1 1 011115559   #101         1  C
  8579*   4*IUESOC  *   *   *   254*      *   *  * * * * * *      *  2  C
LWP 15559, HD 201891, 3 X 85 SEC EXPO, LOW DISP, LARGE APER               3  C
USED OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)                4  C
EX, EY AT OFFSET RP AFTER EACH EXPO:  (0,1)  (0,1)  (-2,1)               5  C

 * File 15  *  LWP 15557  *  LBLS   file
                        895 89503312048   1 1 011115557   #101         1  C
  8579*   2*IUESOC  *   *   *   1100*     *   *  * * * * * *      *  2  C
LWP 15557, HD 208906, 3 X 55 SEC LGAP + 1100 SEC SMAP, LOW                3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)               4  C
EX, EY AFTER LGAP EXPOS:  (-2,-1)  (-2,0)  (-4,-2)                       5  C

 * File 16  *  LWP 15557  *  MELO   file
                        895 89500072048   1 1 011115557   #101         1  C
  8579*   2*IUESOC  *   *   *   1100*     *   *  * * * * * *      *  2  C
LWP 15557, HD 208906, 3 X 55 SEC LGAP + 1100 SEC SMAP, LOW                3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)               4  C
EX, EY AFTER LGAP EXPOS:  (-2,-1)  (-2,0)  (-4,-2)                       5  C

 * File 17  *  LWP 15557  *  LBLS   file
                        895 89503312048   1 1 011115557   #101         1  C
  8579*   2*IUESOC  *   *   *   1100*     *   *  * * * * * *      *  2  C
LWP 15557, HD 208906, 3 X 55 SEC LGAP + 1100 SEC SMAP, LOW                3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)               4  C
EX, EY AFTER LGAP EXPOS:  (-2,-1)  (-2,0)  (-4,-2)                       5  C

 * File 18  *  LWP 15557  *  MELO   file
                        895 89500072048   1 1 011115557   #101         1  C
  8579*   2*IUESOC  *   *   *   1100*     *   *  * * * * * *      *  2  C
LWP 15557, HD 208906, 3 X 55 SEC LGAP + 1100 SEC SMAP, LOW                3  C
OFFSET REF PNTS FOR LGAP: (-31,-208)  (-16,-208)  (-1,-208)               4  C
EX, EY AFTER LGAP EXPOS:  (-2,-1)  (-2,0)  (-4,-2)                       5  C

 * File 19  *  LWP 15560  *  LBLS   file
                        895 89503312048   1 2 011115560   #101         1  C
  8579*   5*IUESOC  *   *   *   171*      *   *  * * * * * *      *  2  C
LWP 15560, HD 215733, 32 SEC TRAIL, LOW DISP, LARGE APER                  3  C
TRAIL RATE = 0.62500 ARCSEC/SEC                                           4  C
EX = 3, EY = -3 AT REF PNT AFTER TRAIL                                    5  C

 * File 20  *  LWP 15560  *  MELO   file
                        895 89500072048   1 2 011115560   #101         1  C
  8579*   5*IUESOC  *   *   *   171*      *   *  * * * * * *      *  2  C
LWP 15560, HD 215733, 32 SEC TRAIL, LOW DISP, LARGE APER                  3  C
TRAIL RATE = 0.62500 ARCSEC/SEC                                           4  C
EX = 3, EY = -3 AT REF PNT AFTER TRAIL                                    5  C

 * File 21  *  LWP 15565  *  LBLS   file
                        895 89503312048   1 1 011115565   #101         1  C
  8580*   5*IUESOC  *   *   *   124*      *   *  * * * * * *      *  2  C
LWP 15565, HD 210418, 7 SEC TRAIL, LOW DISP, LARGE APERTURE               3  C
TRAIL RATE = 2.85714 ARCSEC/SEC                                           4  C
EX = -5, EY = 0 AT REF PNT AFTER TRAIL                                    5  C
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 * File 22  *  LWP 15565  *  MELO   file
                        895 89500072048   1 1 011115565   #101      1  C
  8580*   5*IUESOC  *   *   *    124*       *   *  * * * * * * *    *  2  C
LWP 15565, HD 210418, 7 SEC TRAIL, LOW DISP, LARGE APERTURE            3  C
TRAIL RATE = 2.85714 ARCSEC/SEC                                        4  C
EX = -5, EY = 0 AT REF PNT AFTER TRAIL                                 5  C

 * File 23  *  SWP 36316  *  LBLS   file
                        895 89503312048   1 2 013136316   #101      1  C
  8580*   6*IUESOC  *   *   *    138*       *   *  * * * * * * *    *  2  C
SWP 36316, HD 210418, 19 SEC TRAIL, LO DISP, LARGE APERTURE            3  C
TRAIL RATE = 1.05263 ARCSEC/SEC                                        4  C
EX = -3, EY = 0 AT REF PNT AFTER EXPO                                  5  C

 * File 24  *  SWP 36316  *  MELO   file
                        895 89500072048   1 2 013136316   #101      1  C
  8580*   6*IUESOC  *   *   *    138*       *   *  * * * * * * *    *  2  C
SWP 36316, HD 210418, 19 SEC TRAIL, LO DISP, LARGE APERTURE            3  C
TRAIL RATE = 1.05263 ARCSEC/SEC                                        4  C
EX = -3, EY = 0 AT REF PNT AFTER EXPO                                  5  C

 * File 25  *  LWP  9606  *  LBLS   file
                          1   1 3312048   1 2 0111 9606               1  C
  7143*   6*IUESOC  *   *   *    359*       *   *  * * * * * * *    *  2  C
LWP 9606, HD 211038, 3 X 120 SEC EXPO, LO DISP, LG APER                3  C
                                                                       4  C
                                                                       5  C

 * File 26  *  LWP  9606  *  MELO   file
                          1   1   72048   1 2 0111 9606               1  C
  7143*   6*IUESOC  *   *   *    359*       *   *  * * * * * * *    *  2  C
LWP 9606, HD 211038, 3 X 120 SEC EXPO, LO DISP, LG APER                3  C
                                                                       4  C
                                                                       5  C

 * File 27  *  LWP  9608  *  LBLS   file
                          1   1 3312048   1 2 0111 9608               1  C
  7143*   9*IUESOC  *   *   *    225*       *   *  * * * * * * *    *  2  C
LWP 9608, HD 67767, 3 X 75 SEC EXPO, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED:   -31,-208    -16,-208    -1,-208               4  C
                                                                       5  C

 * File 28  *  LWP  9608  *  MELO   file
                          1   1   72048   1 2 0111 9608               1  C
  7143*   9*IUESOC  *   *   *    225*       *   *  * * * * * * *    *  2  C
LWP 9608, HD 67767, 3 X 75 SEC EXPO, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED:   -31,-208    -16,-208    -1,-208               4  C
                                                                       5  C

 * File 29  *  LWP 10009  *  LBLS   file
                          1   1 3312048   1 1 011110009               1  C
  7228*   6*IUESOC  *   *   *    245*       *   *  * * * * * * *    *  2  C
LWP 10009, HD 20630, 65 SEC TRAIL, LO DISP, LARGE APER                 3  C
TRAIL RATE= 0.30769 ARCSEC/SEC, 1 PASS                                 4  C
EX= 2, EY= 1 AT R.P. AFTER TRAIL                                       5  C

 * File 30  *  LWP 10009  *  MELO   file
                          1   1   72048   1 1 011110009               1  C
  7228*   6*IUESOC  *   *   *    245*       *   *  * * * * * * *    *  2  C
LWP 10009, HD 20630, 65 SEC TRAIL, LO DISP, LARGE APER                 3  C
TRAIL RATE= 0.30769 ARCSEC/SEC, 1 PASS                                 4  C
EX= 2, EY= 1 AT R.P. AFTER TRAIL                                       5  C

 * File 31  *  LWP 10005  *  LBLS   file
                          1   1 3312048   1 1 011110005               1  C
  7228*   2*IUESOC  *   *   *    254*       *   *  * * * * * * *    *  2  C
LWP 10005, HD 30455, 3 * 85 SEC EXPO, LO DISP, LARGE APER              3  C
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                       4  C
                                                                       5  C

 * File 32  *  LWP 10005  *  MELO   file
                          1   1   72048   1 1 011110005               1  C
  7228*   2*IUESOC  *   *   *    254*       *   *  * * * * * * *    *  2  C
LWP 10005, HD 30455, 3 * 85 SEC EXPO, LO DISP, LARGE APER              3  C
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                       4  C
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                                                                        5  C

* File 33  *  LWP 10006  *  LBLS   file
                          1   1 3312048   1 2 011110006                 1  C
  7228*   3*IUESOC  *   *   *   599*       *   *  * * * * * * *     *  2  C
LWP 10006, HD 28344, 3 * 200 SEC EXPO, LO DISP, LARGE APER             3  C
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                       4  C
                                                                        5  C

 * File 34  *  LWP 10006  *  MELO   file
                          1   1   72048   1 2 011110006                 1  C
  7228*   3*IUESOC  *   *   *   599*       *   *  * * * * * * *     *  2  C
LWP 10006, HD 28344, 3 * 200 SEC EXPO, LO DISP, LARGE APER             3  C
OFFSET R.P. USED: (-31,-208) (-16,-208) (-1,-208)                       4  C
                                                                        5  C

* File 35  *  LWP  5901  *  LBLS   file
                          1   1 1662048   1 1 0111 5901                1  C
  6196*   3*IUESOC  *   *   *  1550*       *   *  * * * * * * *     *  2  C
LWP 5901, HD 73471, 600 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN THREE PASSES AT A TRAIL RATE OF 0.1000 ARCSEC/SEC.                  4  C
MF MISSING: 2                                                           5  C

 * File 36  *  LWP  5901  *  MELO   file
                          1   1   72048   1 1 0111 5901                1  C
  6196*   3*IUESOC  *   *   *  1550*       *   *  * * * * * * *     *  2  C
LWP 5901, HD 73471, 600 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN THREE PASSES AT A TRAIL RATE OF 0.1000 ARCSEC/SEC.                  4  C
MF MISSING: 2                                                           5  C

* File 37  *  LWP  5902  *  LBLS   file
                          1   1 1662048   1 2 0111 5902                1  C
  6197*   2*IUESOC  *   *   *     0*       *   *  * * * * * * *     *  2  C
LWP 5902, HD 66141, 720 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN FOUR PASSES AT A TRAIL RATE OF 0.1111 ARCSEC/SEC.                   4  C
                                                                        5  C

 * File 38  *  LWP  5902  *  MELO   file
                          1   1   72048   1 2 0111 5902                1  C
  6197*   2*IUESOC  *   *   *     0*       *   *  * * * * * * *     *  2  C
LWP 5902, HD 66141, 720 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN FOUR PASSES AT A TRAIL RATE OF 0.1111 ARCSEC/SEC.                   4  C
                                                                        5  C

* File 39  *  LWP  5900  *  LBLS   file
                          1   1 1662048   1 2 0111 5900                1  C
  6196*   2*IUESOC  *   *   *   865*       *   *  * * * * * * *     *  2  C
LWP 5900, HD 95272, 300 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN THREE PASSES AT A TRAIL RATE OF 0.2000 ARCSEC/SEC.                  4  C
                                                                        5  C

 * File 40  *  LWP  5900  *  MELO   file
                          1   1   72048   1 2 0111 5900                1  C
  6196*   2*IUESOC  *   *   *   865*       *   *  * * * * * * *     *  2  C
LWP 5900, HD 95272, 300 SEC TRAIL, LOW DISP, LG APERTURE                3  C
RAN THREE PASSES AT A TRAIL RATE OF 0.2000 ARCSEC/SEC.                  4  C
                                                                        5  C

* File 41  *  LWP  5904  *  LBLS   file
                          1   1 1662048   1 2 0111 5904                1  C
  6197*   4*IUESOC  *   *   *   120*       *   *  * * * * * * *     *  2  C
LWP 5904, HD 49293, 120 SEC EXPOSURE, LOW DISP, LG APERTURE             3  C
                                                                        4  C
                                                                        5  C

 * File 42  *  LWP  5904  *  MELO   file
                          1   1   72048   1 2 0111 5904                1  C
  6197*   4*IUESOC  *   *   *   120*       *   *  * * * * * * *     *  2  C
LWP 5904, HD 49293, 120 SEC EXPOSURE, LOW DISP, LG APERTURE             3  C
                                                                        4  C
                                                                        5  C

* File 43  *  LWP  5905  *  LBLS   file
                          1   1 1662048   1 1 0111 5905                1  C
  6197*   5*IUESOC  *   *   *   575*       *   *  * * * * * * *     *  2  C
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LWP 5905, HD 54719, 9.6 MIN EXPOSURE, LOW DISP, LG APERTURE                3 C
EXPOSURE CONDUCTED IN 3 SEGMENTS OF 3.2 MINUTES EACH USING                 4 CC
THE OFFSET REFERENCE POINTS (X= -31, -16, -01   Y= -208)                   5 C

 * File 44  *  LWP  5905  *  MELO   file
                          1   1   72048   1 1 0111 5905                    1 C
  6197*   5*IUESOC  *   *   *   575*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 5905, HD 54719, 9.6 MIN EXPOSURE, LOW DISP, LG APERTURE                3 CCCC
EXPOSURE CONDUCTED IN 3 SEGMENTS OF 3.2 MINUTES EACH USING                 4 CCC
THE OFFSET REFERENCE POINTS (X= -31, -16, -01   Y= -208)                   5 C

/* File 45  *  LWP  7026  *  LBLS   file
                          1   1 3312048   1 2 0111 7026                    1 C
  6490*   4*IUESOC  *   *   *   460*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7026, HD 19476, 172 SEC TRAIL, LO DISP, LG APERTURE                    3 CCCC
TRAIL RATE = 0.1163 ARCSEC/SEC, 1 PASS                                     4 CCC
                                                                           5 C

 * File 46  *  LWP  7026  *  MELO   file
                          1   1   72048   1 2 0111 7026                    1 C
  6490*   4*IUESOC  *   *   *   460*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7026, HD 19476, 172 SEC TRAIL, LO DISP, LG APERTURE                    3 CCCC
TRAIL RATE = 0.1163 ARCSEC/SEC, 1 PASS                                     4 CCC
                                                                           5 C

/* File 47  *  LWP  7027  *  LBLS   file
                          1   1 3312048   1 1 0111 7027                    1 C
  6490*   5*IUESOC  *   *   *   1079*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7027, HD 35620, 3 X 6 MIN EXPO, LO DISP, LG APERTURE                   3 CCCC
OFFSET REF. PT.S: (-31,-208), (-16,-208), (-1,-208)                        4 CCC
                                                                           5 C

 * File 48  *  LWP  7027  *  MELO   file
                          1   1   72048   1 1 0111 7027                    1 C
  6490*   5*IUESOC  *   *   *   1079*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7027, HD 35620, 3 X 6 MIN EXPO, LO DISP, LG APERTURE                   3 CCCC
OFFSET REF. PT.S: (-31,-208), (-16,-208), (-1,-208)                        4 CCC
                                                                           5 C

/* File 49  *  LWP  7028  *  LBLS   file
                          1   1 3312048   1 2 0111 7028                    1 C
  6490*   6*IUESOC  *   *   *   465*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7028, HD 37160, 160 SEC TRAIL, LO DISP, LG APERTURE                    3 CCCC
TRAIL RATE = 0.1250 ARCSEC/SEC, 1 PASS                                     4 CCC
                                                                           5 C

 * File 50  *  LWP  7028  *  MELO   file
                          1   1   72048   1 2 0111 7028                    1 C
  6490*   6*IUESOC  *   *   *   465*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7028, HD 37160, 160 SEC TRAIL, LO DISP, LG APERTURE                    3 CCCC
TRAIL RATE = 0.1250 ARCSEC/SEC, 1 PASS                                     4 CCC
                                                                           5 C

/* File 51  *  LWP  7029  *  LBLS   file
                          1   1 3312048   1 1 0111 7029                    1 C
  6490*   7*IUESOC  *   *   *   2519*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7029, HD 51440, 42 MIN EXPOSURE, LOW DISP, LG APERTURE                 3 CCCC
EXPOSED FOR 14 MIN EACH USING THREE OFFSET REFERENCE POINTS                4 CCC
AT (-31,-208), (-16,-208), AND (-1, -208).                                 5 C

 * File 52  *  LWP  7029  *  MELO   file
                          1   1   72048   1 1 0111 7029                    1 C
  6490*   7*IUESOC  *   *   *   2519*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7029, HD 51440, 42 MIN EXPOSURE, LOW DISP, LG APERTURE                 3 CCCC
EXPOSED FOR 14 MIN EACH USING THREE OFFSET REFERENCE POINTS                4 CCC
AT (-31,-208), (-16,-208), AND (-1, -208).                                 5 C

/* File 53  *  LWP  7030  *  LBLS   file
                          1   1 3312048   1 2 0111 7030                    1 C
  6490*   8*IUESOC  *   *   *   1709*       *   *  *  *  *  *  *  *  *     * 2 CCC
LWP 7030, HD 70272, 28.5 MIN EXPOSURE, LOW DISP, LG APER                   3 CCCC
EXPOSED FOR 9.5 MIN EACH USING 3 OFFSET REFERENCE POINTS AT                4 CCC
(-31,-208), (-16,-208), AND (-1,-208)                                      5 C

 * File 54  *  LWP  7030  *  MELO   file
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* File 65 * LWP 7263 * LBLS file
                              1    1 3312048    1 1 0111 7263               1 C
 6548*   9*IUESOC  *   *   *    70*        *   *  * * * * * *      *       2 C
LWP 7263, HD 145328, 1 MIN 10 SEC EXPO, LO DISP, LG APER                    3 C
                                                                             4 C
                                                                             5 C

* File 66 * LWP 7263 * MELO file
                              1    1   72048    1 1 0111 7263               1 C
 6548*   9*IUESOC  *   *   *    70*        *   *  * * * * * *      *       2 C
LWP 7263, HD 145328, 1 MIN 10 SEC EXPO, LO DISP, LG APER                    3 C
                                                                             4 C
                                                                             5 C

* File 67 * LWP 7534 * LBLS file
                              1    1 3312048    1 2 0111 7534               1 C
 6618*   4*IUESOC  *   *   *   629*        *   *  * * * * * *      *       2 C
LWP 7534, HD 10380, 3 X 3.5 MIN EXPO, LOW DISP, LGAP                        3 C
OFFSET REF PTS (-31,-208),(-16,-208) + (-1,-208)                            4 C
                                                                             5 C

* File 68 * LWP 7534 * MELO file
                              1    1   72048    1 2 0111 7534               1 C
 6618*   4*IUESOC  *   *   *   629*        *   *  * * * * * *      *       2 C
LWP 7534, HD 10380, 3 X 3.5 MIN EXPO, LOW DISP, LGAP                        3 C
OFFSET REF PTS (-31,-208),(-16,-208) + (-1,-208)                            4 C
                                                                             5 C

* File 69 * LWP 7535 * LBLS file
                              1    1 3312048    1 1 0111 7535               1 C
 6618*   5*IUESOC  *   *   *  1259*        *   *  * * * * * *      *       2 C
LWP 7535, HD 10380, 3 X 7 MIN EXPO, LOW DISP, LGAP                          3 C
OFFSET REF PTS (-31,-208), (-16,-208) + (-1,-208)                           4 C
                                                                             5 C

* File 70 * LWP 7535 * MELO file
                              1    1   72048    1 1 0111 7535               1 C
 6618*   5*IUESOC  *   *   *  1259*        *   *  * * * * * *      *       2 C
LWP 7535, HD 10380, 3 X 7 MIN EXPO, LOW DISP, LGAP                          3 C
OFFSET REF PTS (-31,-208), (-16,-208) + (-1,-208)                           4 C
                                                                             5 C

* File 71 * LWP 7536 * LBLS file
                              1    1 3312048    1 2 0111 7536               1 C
 6618*   6*IUESOC  *   *   *  1443*        *   *  * * * * * *      *       2 C
LWP 7536, HD 6203, 8 MIN TRAILED EXPO, LOW DISP, LGAP                       3 C
TRAIL RATE OF 0.1250 ARCSEC/SEC FOR 3 PASSES                                4 C
                                                                             5 C

* File 72 * LWP 7536 * MELO file
                              1    1   72048    1 2 0111 7536               1 C
 6618*   6*IUESOC  *   *   *  1443*        *   *  * * * * * *      *       2 C
LWP 7536, HD 6203, 8 MIN TRAILED EXPO, LOW DISP, LGAP                       3 C
TRAIL RATE OF 0.1250 ARCSEC/SEC FOR 3 PASSES                                4 C
                                                                             5 C

* File 73 * LWP 7537 * LBLS file
                              1    1 3312048    1 1 0111 7537               1 C
 6618*   7*IUESOC  *   *   *   419*        *   *  * * * * * *      *       2 C
LWP 7537, HD 6203, 3 X 2 MIN 20 SEC EXPO, LOW DISP, LGAP                    3 C
OFFSET REF PTS (-31,-208), (-16,-208) + (-1,-208)                           4 C
                                                                             5 C

* File 74 * LWP 7537 * MELO file
                              1    1   72048    1 1 0111 7537               1 C
 6618*   7*IUESOC  *   *   *   419*        *   *  * * * * * *      *       2 C
LWP 7537, HD 6203, 3 X 2 MIN 20 SEC EXPO, LOW DISP, LGAP                    3 C
OFFSET REF PTS (-31,-208), (-16,-208) + (-1,-208)                           4 C
                                                                             5 C

* File 75 * LWP 7615 * LBLS file
                              1    1 3312048    1 1 0111 7615               1 C
 6640*   5*IUESOC  *   *   *   960*        *   *  * * * * * *      *       2 C
LWP 7615, HD 132345, 16 MIN EXPO, LO DISP, LG APERTURE                      3 C
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                                                                        4  C
                                                                        5  C

 * File 76  *  LWP  7615  *  MELO   file
                          1   1   72048   1 1 0111 7615                  1  C
  6640*   5*IUESOC  *   *   *   960*       *  * * * * * * *     *       2  CCC
LWP 7615, HD 132345, 16 MIN EXPO, LO DISP, LG APERTURE                  3  CCC
                                                                        4  CCC
                                                                        5  C

 * File 77  *  LWP  7616  *  LBLS   file
                          1   1 3312048   1 2 0111 7616                  1  C
  6640*   6*IUESOC  *   *   *   899*       *  * * * * * * *     *       2  CCC
LWP 7616, HD 145148, 3 EXPO 5 MIN EACH, LO DISP, LGAP                   3  CCC
INITIAL  RPNTS AT -16,-208; -31,-208; AND -1,-208                        4  CCC
                                                                        5  C

 * File 78  *  LWP  7616  *  MELO   file
                          1   1   72048   1 2 0111 7616                  1  C
  6640*   6*IUESOC  *   *   *   899*       *  * * * * * * *     *       2  CCC
LWP 7616, HD 145148, 3 EXPO 5 MIN EACH, LO DISP, LGAP                   3  CCC
INITIAL  RPNTS AT -16,-208; -31,-208; AND -1,-208                        4  CCC
                                                                        5  C

 * File 79  *  LWP  7617  *  LBLS   file
                          1   1 3312048   1 1 0111 7617                  1  C
  6640*   7*IUESOC  *   *   *   314*       *  * * * * * * *     *       2  CCC
LWP 7617, HD 142980, 3 EXPO 105 SEC EACH, LO DISP, LGAP                 3  CCC
OFFSET RPNTS AT -16 -208, -31 -208, -1 -208                              4  CCC
                                                                        5  C

 * File 80  *  LWP  7617  *  MELO   file
                          1   1   72048   1 1 0111 7617                  1  C
  6640*   7*IUESOC  *   *   *   314*       *  * * * * * * *     *       2  CCC
LWP 7617, HD 142980, 3 EXPO 105 SEC EACH, LO DISP, LGAP                 3  CCC
OFFSET RPNTS AT -16 -208, -31 -208, -1 -208                              4  CCC
                                                                        5  C

 * File 81  *  LWP  7618  *  LBLS   file
                          1   1 3312048   1 2 0111 7618                  1  C
  6640*   8*IUESOC  *   *   *   210*       *  * * * * * * *     *       2  CCC
LWP 7618, HD 145148, 3 MIN 30 SEC EXPO, LO DISP, LGAP                   3  CCC
                                                                        4  CCC
                                                                        5  C

 * File 82  *  LWP  7618  *  MELO   file
                          1   1   72048   1 2 0111 7618                  1  C
  6640*   8*IUESOC  *   *   *   210*       *  * * * * * * *     *       2  CCC
LWP 7618, HD 145148, 3 MIN 30 SEC EXPO, LO DISP, LGAP                   3  CCC
                                                                        4  CCC
                                                                        5  C

 * File 83  *  LWP  7619  *  LBLS   file
                          1   1 3312048   1 1 0111 7619                  1  C
  6640*   9*IUESOC  *   *   *   719*       *  * * * * * * *     *       2  CCC
LWP 7619, HD 142980, 3 EXPO  4 MIN EACH, LO DISP, LGAP                  3  CCC
OFFSET RPNTS AT -16 -208, -31 -208, -1 -208                              4  CCC
                                                                        5  C

 * File 84  *  LWP  7619  *  MELO   file
                          1   1   72048   1 1 0111 7619                  1  C
  6640*   9*IUESOC  *   *   *   719*       *  * * * * * * *     *       2  CCC
LWP 7619, HD 142980, 3 EXPO  4 MIN EACH, LO DISP, LGAP                  3  CCC
OFFSET RPNTS AT -16 -208, -31 -208, -1 -208                              4  CCC
                                                                        5  C

 * File 85  *  LWP  8444  *  LBLS   file
                          1   1 3312048   1 2 0111 8444                  1  C
  6867*   6*IUESOC  *   *   *     0*       *  * * * * * * *     *       2  CCC
LWP 8444, HD 1461, 430 SEC TRAIL EXPO, LO DISP, LG APERTURE              3  CCC
3 PASSES AT 0.13953 ARCSEC/SEC                                           4  CCC
                                                                        5  C

 * File 86  *  LWP  8444  *  MELO   file
                          1   1   72048   1 2 0111 8444                  1  C
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  6867*   6*IUESOC  *    *    *      0*        *    *  * * * * * *      *  2  C
LWP 8444, HD 1461, 430 SEC TRAIL EXPO, LO DISP, LG APERTURE                  3  CC
3 PASSES AT 0.13953 ARCSEC/SEC                                               4  CC
                                                                             5  C

 * File 87  *  LWP  8445  *  LBLS   file
                          1   1 3312048   1 1 0111 8445
  6867*   7*IUESOC  *    *    *    371*        *    *  * * * * * *      *  1  C
LWP 8445, HD 224930, 130 SEC TRAIL EXPO, LO DISP, LG APER                    2  CCC
1 PASS AT  0.15385 ARCSEC/SEC                                                3  C
                                                                             4  CC
                                                                             5  C

 * File 88  *  LWP  8445  *  MELO   file
                          1   1   72048   1 1 0111 8445
  6867*   7*IUESOC  *    *    *    371*        *    *  * * * * * *      *  1  C
LWP 8445, HD 224930, 130 SEC TRAIL EXPO, LO DISP, LG APER                    2  CCC
1 PASS AT  0.15385 ARCSEC/SEC                                                3  C
                                                                             4  CC
                                                                             5  C

 * File 89  *  LWP  8447  *  LBLS   file
                          1   1 3312048   1 1 0111 8447
  6867*   9*IUESOC  *    *    *   1022*        *    *  * * * * * *      *  1  C
LWP 8447, HD 152792, 415 SEC TRAIL EXPO, LO DISP, LG APER                    2  CCC
3 PASSES AT 0.14458 ARCSEC/SEC                                               3  CC
                                                                             4  CC
                                                                             5  C

 * File 90  *  LWP  8447  *  MELO   file
                          1   1   72048   1 1 0111 8447
  6867*   9*IUESOC  *    *    *   1022*        *    *  * * * * * *      *  1  C
LWP 8447, HD 152792, 415 SEC TRAIL EXPO, LO DISP, LG APER                    2  CCC
3 PASSES AT 0.14458 ARCSEC/SEC                                               3  CC
                                                                             4  CC
                                                                             5  C

 * File 91  *  LWP  7533  *  LBLS   file
                          1   1 3312048   1 1 0111 7533
  6618*   3*IUESOC  *    *    *   1979*        *    *  * * * * * *      *  1  C
LWP 7533, HD 35620, 3 X 11 MIN EXPO, LOW DISP, LGAP                          2  CCC
OFFSET REF PTS USED (-31,-208), (-16,-208), (-1,-208)                        3  CCC
TWO  MINOR FRAMES MISSING IN RECONSTRUCTION                                  4  CC
                                                                             5  C

 * File 92  *  LWP  7533  *  MELO   file
                          1   1   72048   1 1 0111 7533
  6618*   3*IUESOC  *    *    *   1979*        *    *  * * * * * *      *  1  C
LWP 7533, HD 35620, 3 X 11 MIN EXPO, LOW DISP, LGAP                          2  CCC
OFFSET REF PTS USED (-31,-208), (-16,-208), (-1,-208)                        3  CCC
TWO  MINOR FRAMES MISSING IN RECONSTRUCTION                                  4  CC
                                                                             5  C

 * File 93  *  LWP  8809  *  LBLS   file
                          1   1 3312048   1 1 0111 8809
  6947*   8*IUESOC  *    *    *    260*        *    *  * * * * * *      *  1  C
LWP 8809, HD 115617, 80 SEC TRAIL, LO DISP, LG APERTURE                      2  CCC
TRAIL RATE = 0.25000 ARCSEC/SEC,  1  PASS                                    3  CCC
                                                                             4  CC
                                                                             5  C

 * File 94  *  LWP  8809  *  MELO   file
                          1   1   72048   1 1 0111 8809
  6947*   8*IUESOC  *    *    *    260*        *    *  * * * * * *      *  1  C
LWP 8809, HD 115617, 80 SEC TRAIL, LO DISP, LG APERTURE                      2  CCC
TRAIL RATE = 0.25000 ARCSEC/SEC,  1  PASS                                    3  CCC
                                                                             4  CC
                                                                             5  C

 * File 95  *  LWP  8811  *  LBLS   file
                     0001000103312048   1 1 0111 8811
  6948*   2*IUESOC  *    *    *    194*        *    *  * * * * * *      *  1  C
LWP 8811, HD 197076, 3*65 SEC EXPO, LO DISP, LG APERTURE                     2  CCC
OFFSET R.P. USED: (-31,-208), (-16,-208), (-1,-208)                          3  CCC
                                                                             4  CC
                                                                             5  C

 * File 96  *  LWP  8811  *  MELO   file
                     0001000100072048   1 1 0111 8811
  6948*   2*IUESOC  *    *    *    194*        *    *  * * * * * *      *  1  C
LWP 8811, HD 197076, 3*65 SEC EXPO, LO DISP, LG APERTURE                     2  CCC
OFFSET R.P. USED: (-31,-208), (-16,-208), (-1,-208)                          3  CCC
                                                                             4  CC
                                                                             5  C
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 * File 97  *  LWP  8810  *  LBLS   file                                    1  C
                    1   1 3312048   1 2 0111 8810                          2
  6947*   9*IUESOC  *   *   *   773*      *   *   * * * * * * *     *      3  CCC
LWP 8810, HD 187923, 260 SEC EXPO, LO DISP, LG APERTURE                     4  CCC
TRAIL RATE = 0.23077 ARCSEC/SEC, 3 PASSES                                   5  C
TRAIL DONE IN TWO SEGMENTS OF 1 PASS + 2 PASSES

 * File 98  *  LWP  8810  *  MELO   file                                    1  C
                    1   1   72048   1 2 0111 8810                          2
  6947*   9*IUESOC  *   *   *   773*      *   *   * * * * * * *     *      3  CCC
LWP 8810, HD 187923, 260 SEC EXPO, LO DISP, LG APERTURE                     4  CCC
TRAIL RATE = 0.23077 ARCSEC/SEC, 3 PASSES                                   5  C
TRAIL DONE IN TWO SEGMENTS OF 1 PASS + 2 PASSES

 * File 99  *  LWP  9649  *  LBLS   file                                    1  C
                    1   1 3312048   1 1 0111 9649                          2
  7155*   4*IUESOC  *   *   *   248*      *   *   * * * * * * *     *      3  CCC
LWP 9649, HD 75732, 3 EXPOS 83 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED   (-31,-208)  (-16,-208)  (-1,-208)                      5  C

 * File100  *  LWP  9649  *  MELO   file                                    1  C
                    1   1   72048   1 1 0111 9649                          2
  7155*   4*IUESOC  *   *   *   248*      *   *   * * * * * * *     *      3  CCC
LWP 9649, HD 75732, 3 EXPOS 83 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED   (-31,-208)  (-16,-208)  (-1,-208)                      5  C

 * File101  *  LWP  9650  *  LBLS   file                                    1  C
                    1   1 3312048   1 2 0111 9650                          2
  7155*   5*IUESOC  *   *   *   204*      *   *   * * * * * * *     *      3  CCC
LWP 9650, HD 67767, 3 EXPOS 68 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED  (-31,-208)  (-16,-208)   (-1,-208)                      5  C

 * File102  *  LWP  9650  *  MELO   file                                    1  C
                    1   1   72048   1 2 0111 9650                          2
  7155*   5*IUESOC  *   *   *   204*      *   *   * * * * * * *     *      3  CCC
LWP 9650, HD 67767, 3 EXPOS 68 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED  (-31,-208)  (-16,-208)   (-1,-208)                      5  C

 * File103  *  LWP  9652  *  LBLS   file                                    1  C
                    1   1 3312048   1 2 0111 9652                          2
  7155*   7*IUESOC  *   *   *   419*      *   *   * * * * * * *     *      3  CCC
LWP 9652, HD 10780, 3 EXPOS 140 SEC EACH, LO DISP, LG APER                  4  CCC
OFFSET R/PNTS USED (-31,-208)  (-16,-208)  (-1,-208)                       5  C
SYSTEM HITS NEAR ILA 530   2 MF MISSING

 * File104  *  LWP  9652  *  MELO   file                                    1  C
                    1   1   72048   1 2 0111 9652                          2
  7155*   7*IUESOC  *   *   *   419*      *   *   * * * * * * *     *      3  CCC
LWP 9652, HD 10780, 3 EXPOS 140 SEC EACH, LO DISP, LG APER                  4  CCC
OFFSET R/PNTS USED (-31,-208)  (-16,-208)  (-1,-208)                       5  C
SYSTEM HITS NEAR ILA 530   2 MF MISSING

 * File105  *  LWP  9653  *  LBLS   file                                    1  C
                    1   1 3312048   1 1 0111 9653                          2
  7155*   8*IUESOC  *   *   *   284*      *   *   * * * * * * *     *      3  CCC
LWP 9653, HD 10780, 3 EXPOS 95 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED (-1,-208)  (-16,-208)  (-31,-208)                       5  C

 * File106  *  LWP  9653  *  MELO   file                                    1  C
                    1   1   72048   1 1 0111 9653                          2
  7155*   8*IUESOC  *   *   *   284*      *   *   * * * * * * *     *      3  CCC
LWP 9653, HD 10780, 3 EXPOS 95 SEC EACH, LO DISP, LG APER                   4  CCC
OFFSET R/PNTS USED (-1,-208)  (-16,-208)  (-31,-208)                       5  C

 * File107  *  LWP  9654  *  LBLS   file                                    1  C
                    1   1 3312048   1 2 0111 9654                          2
  7155*   9*IUESOC  *   *   *   239*      *   *   * * * * * * *     *      3  CCC
LWP 9654, HD 13043, 3 EXPOS 80 SEC EACH, LO DISP, LG APER                   4  CC
OFFSET R/PNTS (-31,-208) (-16,-208)  (-1,-208)
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                                                                        5  C

 * File108  *  LWP  9654  *  MELO   file
                          1   1   72048   1 2 0111 9654                  1  C
  7155*   9*IUESOC  *   *   *   239*       *   *  *  *  *  *  *     *   2  C
LWP 9654, HD 13043, 3 EXPOS 80 SEC EACH, LO DISP, LG APER               3  C
OFFSET R/PNTS (-31,-208) (-16,-208)  (-1,-208)                          4  C
                                                                        5  C

 * File109  *  LWP  9611  *  LBLS   file
                          1   1 3312048   1 1 0111 9611                  1  C
  7143*  12*IUESOC  *   *   *   989*       *   *  *  *  *  *  *     *   2  C
LWP 9611, HD 64606, 3 X 330 SEC EXPO, LO DISP, LG APER                  3  C
                                                                        4  C
                                                                        5  C

 * File110  *  LWP  9611  *  MELO   file
                          1   1   72048   1 1 0111 9611                  1  C
  7143*  12*IUESOC  *   *   *   989*       *   *  *  *  *  *  *     *   2  C
LWP 9611, HD 64606, 3 X 330 SEC EXPO, LO DISP, LG APER                  3  C
                                                                        4  C
                                                                        5  C

 * File111  *  LWP 11174  *  LBLS   file
                          1   1 3312048   1 2 011111174                 1  C
  7529*  11*IUESOC  *   *   *   411*       *   *  *  *  *  *  *     *   2  C
LWP 11174, HD 182572, 148 SEC TRAIL, LO DISP                            3  C
TRAIL RATE = 0.13514 ARCSEC/SEC                                         4  C
                                                                        5  C

 * File112  *  LWP 11174  *  MELO   file
                          1   1   72048   1 2 011111174                 1  C
  7529*  11*IUESOC  *   *   *   411*       *   *  *  *  *  *  *     *   2  C
LWP 11174, HD 182572, 148 SEC TRAIL, LO DISP                            3  C
TRAIL RATE = 0.13514 ARCSEC/SEC                                         4  C
                                                                        5  C

 * File113  *  LWP 11177  *  LBLS   file
                          1   1 3312048   1 1 011111177                 1  C
  7530*   4*IUESOC  *   *   *   209*       *   *  *  *  *  *  *     *   2  C
LWP 11177, HD 10780, 3 X 70 SEC EXPO, LO DISP, LG APER                  3  C
OFFSET REF. PTS.   -31,-208    -16,-208    -1,-208                      4  C
RFI HIT AT ILA = 650. 1 MF MISSING                                      5  C

 * File114  *  LWP 11177  *  MELO   file
                          1   1   72048   1 1 011111177                 1  C
  7530*   4*IUESOC  *   *   *   209*       *   *  *  *  *  *  *     *   2  C
LWP 11177, HD 10780, 3 X 70 SEC EXPO, LO DISP, LG APER                  3  C
OFFSET REF. PTS.   -31,-208    -16,-208    -1,-208                      4  C
RFI HIT AT ILA = 650. 1 MF MISSING                                      5  C

 * File115  *  LWP 11104  *  LBLS   file
                          1   1 3312048   1 2 011111104                 1  C
  7510*   5*IUESOC  *   *   *   251*       *   *  *  *  *  *  *     *   2  C
LWP 11104, HD 150997, 72 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= 2, EY= -2 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 0.27778 ARCSEC/SEC, 1 PASS                                  5  C

 * File116  *  LWP 11104  *  MELO   file
                          1   1   72048   1 2 011111104                 1  C
  7510*   5*IUESOC  *   *   *   251*       *   *  *  *  *  *  *     *   2  C
LWP 11104, HD 150997, 72 SEC TRAIL, LO DISP, LARGE APER                 3  C
EX= 2, EY= -2 AT R.P. AFTER TRAIL                                       4  C
TRAIL RATE= 0.27778 ARCSEC/SEC, 1 PASS                                  5  C

 * File117  *  LWP 11105  *  LBLS   file
                          1   1 3312048   1 1 011111105                 1  C
  7510*   6*IUESOC  *   *   *   776*       *   *  *  *  *  *  *     *   2  C
LWP 11105, HD 146051, 333.333 SEC TRAIL, LO DISP, LARGE AP              3  C
EX= 4, EY= 0 AT R.P. AFTER TRAIL                                        4  C
TRAIL RATE= 0.06 ARCSEC/SEC, 1 PASS                                     5  C

 * File118  *  LWP 11105  *  MELO   file
                          1   1   72048   1 1 011111105                 1  C
  7510*   6*IUESOC  *   *   *   776*       *   *  *  *  *  *  *     *   2  C
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WP 11105, HD 146051, 333.333 SEC TRAIL, LO DISP, LARGE AP
EX= 4, EY= 0 AT R.P. AFTER TRAIL
TRAIL RATE= 0.06 ARCSEC/SEC, 1 PASS

* File119  *  LWP 11112  *  LBLS   file
                          1   1 3312048   1 2 011111112
  7511*   8*IUESOC  *   *   *   303*       *  *  * * * * * * *     * 2
LWP 11112, HD 14802, 100 SEC TRAIL, LO DISP, LARGE APER
EX= 1, EY= 1 AT R.P. AFTER TRAIL
TRAIL RATE= 0.2 ARCSEC/SEC, 1 PASS

 * File120  *  LWP 11112  *  MELO   file
                          1   1   72048   1 2 011111112
  7511*   8*IUESOC  *   *   *   303*       *  *  * * * * * * *     * 2
LWP 11112, HD 14802, 100 SEC TRAIL, LO DISP, LARGE APER
EX= 1, EY= 1 AT R.P. AFTER TRAIL
TRAIL RATE= 0.2 ARCSEC/SEC, 1 PASS

 * File121  *  LWP 11113  *  LBLS   file
                          1   1 3312048   1 1 011111113
  7511*   9*IUESOC  *   *   *   369*       *  *  * * * * * * *     * 2
LWP 11113, HD 101501, 125 SEC TRAIL, LO DISP, LARGE APER
EX= 6, EY= -2 AT R.P. AFTER TRAIL
TRAIL RATE= 0.16 ARCSEC/SEC, 1 PASS

 * File122  *  LWP 11113  *  MELO   file
                          1   1   72048   1 1 011111113
  7511*   9*IUESOC  *   *   *   369*       *  *  * * * * * * *     * 2
LWP 11113, HD 101501, 125 SEC TRAIL, LO DISP, LARGE APER
EX= 6, EY= -2 AT R.P. AFTER TRAIL
TRAIL RATE= 0.16 ARCSEC/SEC, 1 PASS

* File123  *  LWP 11114  *  LBLS   file
                          1   1 3312048   1 2 011111114
  7511*  10*IUESOC  *   *   *   346*       *  *  * * * * * * *     * 2
LWP 11114, HD 117176, 120 SEC TRAIL, LO DISP, LARGE APER
EX= -1, EY= -2 AT R.P. AFTER TRAIL
TRAIL RATE= 0.16667 ARCSEC/SEC, 1 PASS

 * File124  *  LWP 11114  *  MELO   file
                          1   1   72048   1 2 011111114
  7511*  10*IUESOC  *   *   *   346*       *  *  * * * * * * *     * 2
LWP 11114, HD 117176, 120 SEC TRAIL, LO DISP, LARGE APER
EX= -1, EY= -2 AT R.P. AFTER TRAIL
TRAIL RATE= 0.16667 ARCSEC/SEC, 1 PASS

* File125  *  LWP 11462  *  LBLS   file
                          1   1 3312048   1 2 011111462
  7619*   6*IUESOC  *   *   *   498*       *  *  * * * * * * *     * 2
LWP 11462, HD 146051, 200 SEC TRAIL, LO DISP, LARGE APER
EX= 4, EY= -4 AT R.P. AFTER TRAIL
TRAIL RATE= 0.10 ARCSEC/SEC, 1 PASS

 * File126  *  LWP 11462  *  MELO   file
                          1   1   72048   1 2 011111462
  7619*   6*IUESOC  *   *   *   498*       *  *  * * * * * * *     * 2
LWP 11462, HD 146051, 200 SEC TRAIL, LO DISP, LARGE APER
EX= 4, EY= -4 AT R.P. AFTER TRAIL
TRAIL RATE= 0.10 ARCSEC/SEC, 1 PASS

* File127  *  LWP 12326  *  LBLS   file
                          1   1 3312048   1 2 011112326
  7795*   9*IUESOC  *   *   *   245*       *  *  * * * * * * *     * 2
LWP 12326, HD 26965, 70 SEC TRAIL, LOW DISP, LARGE APERTURE
EX = 1, EY = 1 AT REF PNT AFTER TRAIL
TRAIL RATE:  0.28571 ARCSEC/SEC

 * File128  *  LWP 12326  *  MELO   file
                          1   1   72048   1 2 011112326
  7795*   9*IUESOC  *   *   *   245*       *  *  * * * * * * *     * 2
LWP 12326, HD 26965, 70 SEC TRAIL, LOW DISP, LARGE APERTURE
EX = 1, EY = 1 AT REF PNT AFTER TRAIL
TRAIL RATE:  0.28571 ARCSEC/SEC

* File129  *  LWP 12328  *  LBLS   file
```

```
                                    1   1 3312048   1 2 011112328
  7796*   3*IUESOC  *   *   *   350*        *  *  * * * * * *        *  2  C
LWP 12328, HD 26965, 120 SEC TRAIL, LOW DISPERSION, LG APER             3  C
EX = -1, EY = -2 AT REF PNT AFTER EXPO                                  4  C
                                                                        5  C

 * File130  *  LWP 12328  *  MELO   file
                                    1   1   72048   1 2 011112328           1  C
  7796*   3*IUESOC  *   *   *   350*        *  *  * * * * * *        *  2  C
LWP 12328, HD 26965, 120 SEC TRAIL, LOW DISPERSION, LG APER             3  C
EX = -1, EY = -2 AT REF PNT AFTER EXPO                                  4  C
                                                                        5  C

 * File131  *  LWP 12659  *  LBLS   file
                              895 89503312048   1 1 011112659           1  C
  7881*   3*IUESOC  *   *   *   249*        *  *  * * * * * *        *  2  C
LWP 12659, HD 180711, 70 SEC TRAIL, LOW DISPERSION, LG APER             3  C
EX = -1, EY = 2 AT REF PNT AFTER EXPO                                   4  C
                                                                        5  C

 * File132  *  LWP 12659  *  MELO   file
                              895 89500072048   1 1 011112659           1  C
  7881*   3*IUESOC  *   *   *   249*        *  *  * * * * * *        *  2  C
LWP 12659, HD 180711, 70 SEC TRAIL, LOW DISPERSION, LG APER             3  C
EX = -1, EY = 2 AT REF PNT AFTER EXPO                                   4  C
                                                                        5  C

 * File133  *  LWP 12566  *  LBLS   file
                                    1   1 3312048   1 2 011112566           1  C
  7849*   8*IUESOC  *   *   *   269*        *  *  * * * * * *        *  2  C
LWP 12566, HD 132813, 3 X 90 SEC EXPOS, LO DISP, LARGE APER             3  C
OFFSET R/P: (-31,-208), (-16,-208), (-1,-208)                           4  C
                                                                        5  C

 * File134  *  LWP 12566  *  MELO   file
                                    1   1   72048   1 2 011112566           1  C
  7849*   8*IUESOC  *   *   *   269*        *  *  * * * * * *        *  2  C
LWP 12566, HD 132813, 3 X 90 SEC EXPOS, LO DISP, LARGE APER             3  C
OFFSET R/P: (-31,-208), (-16,-208), (-1,-208)                           4  C
                                                                        5  C

 * File135  *  LWP 12567  *  LBLS   file
                                    1   1 3312048   1 1 011112567           1  C
  7849*  10*IUESOC  *   *   *   191*        *  *  * * * * * *        *  2  C
LWP 12567, HD 71369, 42 SEC TRAIL, LO DISP, LARGE APERTURE              3  C
TRAIL RATE = 0.47619, EX = 0, EY = 4 AT R/P AFTER EXPO                  4  C
                                                                        5  C

 * File136  *  LWP 12567  *  MELO   file
                                    1   1   72048   1 1 011112567           1  C
  7849*  10*IUESOC  *   *   *   191*        *  *  * * * * * *        *  2  C
LWP 12567, HD 71369, 42 SEC TRAIL, LO DISP, LARGE APERTURE              3  C
TRAIL RATE = 0.47619, EX = 0, EY = 4 AT R/P AFTER EXPO                  4  C
                                                                        5  C

 * File137  *  LWP 12565  *  LBLS   file
                                    1   1 3312048   1 1 011112565           1  C
  7849*   7*IUESOC  *   *   *  1439*        *  *  * * * * * *        *  2  C
LWP 12565, HD 132813, 3 X 8 MIN EXPOS, LO DISP, LARGE APER              3  C
OFFSET R/P: (-31,-208), (-16,-208), (-1,-208)                           4  C
                                                                        5  C

 * File138  *  LWP 12565  *  MELO   file
                                    1   1   72048   1 1 011112565           1  C
  7849*   7*IUESOC  *   *   *  1439*        *  *  * * * * * *        *  2  C
LWP 12565, HD 132813, 3 X 8 MIN EXPOS, LO DISP, LARGE APER              3  C
OFFSET R/P: (-31,-208), (-16,-208), (-1,-208)                           4  C
                                                                        5  C

 * File139  *  LWP 12974  *  LBLS   file
                              895 89503312048   1 2 011112974           1  C
  7952*   2*IUESOC  *   *   *  1200*        *  *  * * * * * *        *  2  C
LWP 12974, HD 95735, 20 MIN EXPO, LO DISP, LARGE APERTURE               3  C
                                                                        4  C
                                                                        5  C
```

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 * File140  *  LWP 12974  *  MELO   file
                          895 89500072048   1 2 011112974                    *  1  C
  7952*   2*IUESOC  *    *    *  1200*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12974, HD 95735, 20 MIN EXPO, LO DISP, LARGE APERTURE                        3  CCC
                                                                                 4  CCC
                                                                                 5  C


 * File141  *  LWP 12975  *  LBLS   file
                          895 89503312048   1 1 011112975                    *  1  C
  7952*   3*IUESOC  *    *    *  9000*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12975, HD 95735, 3 X 50 MIN EXPOS, LO DISP, LARGE APER                       3  CCC
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                    4  CC
2 MF BAD QUALITY DATA                                                            5  C

 * File142  *  LWP 12975  *  MELO   file
                          895 89500072048   1 1 011112975                    *  1  C
  7952*   3*IUESOC  *    *    *  9000*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12975, HD 95735, 3 X 50 MIN EXPOS, LO DISP, LARGE APER                       3  CCC
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                    4  CC
2 MF BAD QUALITY DATA                                                            5  C

 * File143  *  LWP 12934  *  LBLS   file
                          895 89503312048   1 2 011112934                    *  1  C
  7943*   3*IUESOC  *    *    *  4500*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12934, HD 134439, 3 X 25 MIN EXPO, LOW DISP, LARGE APER                      3  CCC
USED OFFSET REF PNTS:  (-31,-208)   (-16,-208)   (-1,-208)                       4  CC
                                                                                 5  C

 * File144  *  LWP 12934  *  MELO   file
                          895 89500072048   1 2 011112934                    *  1  C
  7943*   3*IUESOC  *    *    *  4500*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12934, HD 134439, 3 X 25 MIN EXPO, LOW DISP, LARGE APER                      3  CCC
USED OFFSET REF PNTS:  (-31,-208)   (-16,-208)   (-1,-208)                       4  CC
                                                                                 5  C

 * File145  *  LWP 12933  *  LBLS   file
                          895 89503312048   1 1 011112933                    *  1  C
  7943*   2*IUESOC  *    *    *   483*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12933, HD 190406, 190 SEC TRAIL, LOW DISP, LARGE APER                        3  CCC
EX = -2, EY = -3 AT REF PNT AFTER TRAIL                                          4  CC
                                                                                 5  C

 * File146  *  LWP 12933  *  MELO   file
                          895 89500072048   1 1 011112933                    *  1  C
  7943*   2*IUESOC  *    *    *   483*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12933, HD 190406, 190 SEC TRAIL, LOW DISP, LARGE APER                        3  CCC
EX = -2, EY = -3 AT REF PNT AFTER TRAIL                                          4  CC
                                                                                 5  C

 * File147  *  LWP 12937  *  LBLS   file
                          895 89503312048   1 1 011112937                    *  1  C
  7943*   6*IUESOC  *    *    *   240*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12937, HD 192310, 4 MIN EXPO, LOW DISP, LARGE APERTURE                       3  CCC
EX = -7, EY = 3 AT REF PNT AFTER EXPO                                            4  CC
                                                                                 5  C

 * File148  *  LWP 12937  *  MELO   file
                          895 89500072048   1 1 011112937                    *  1  C
  7943*   6*IUESOC  *    *    *   240*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12937, HD 192310, 4 MIN EXPO, LOW DISP, LARGE APERTURE                       3  CCC
EX = -7, EY = 3 AT REF PNT AFTER EXPO                                            4  CC
                                                                                 5  C

 * File149  *  LWP 12935  *  LBLS   file
                          895 89503312048   1 1 011112935                    *  1  C
  7943*   4*IUESOC  *    *    *   526*          *  *  *  *  *  *  *  *       *  2  CCC
LWP 12935, HD 192310, 210 SEC TRAIL, LOW DISP, LARGE APER                        3  CCC
EX = -5, EY = 0 AT REF PNT AFTER TRAIL                                           4  CC
                                                                                 5  C

 * File150  *  LWP 12935  *  MELO   file
                          895 89500072048   1 1 011112935                    *  1  C
  7943*   4*IUESOC  *    *    *   526*          *  *  *  *  *  *  *  *       *  2  CC
LWP 12935, HD 192310, 210 SEC TRAIL, LOW DISP, LARGE APER                        3  C
```

X = -5, EY = 0 AT REF PNT AFTER TRAIL 4 C
5 C

* File151 * LWP 12936 * LBLS file
895 89503312048 1 2 011112936 1 C
7943* 5*IUESOC * * * 1799* * * * * * * * * * * 2 C
LWP 12936, HD 134439, 3 X 10 MIN EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
5 C

* File152 * LWP 12936 * MELO file
895 89500072048 1 2 011112936 1 C
7943* 5*IUESOC * * * 1799* * * * * * * * * * * 2 C
LWP 12936, HD 134439, 3 X 10 MIN EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
5 C

* File153 * LWP 12704 * LBLS file
895 89503312048 1 2 011112704 1 C
7888* 3*IUESOC * * *21,959* * * * * * * * * * 2 C
LWP 12704, HD 28068, 3 X 220 SEC EXPOS, LO DISP, LARGE APER 3 C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208) 4 C
5 C

* File154 * LWP 12704 * MELO file
895 89500072048 1 2 011112704 1 C
7888* 3*IUESOC * * *21,959* * * * * * * * * * 2 C
LWP 12704, HD 28068, 3 X 220 SEC EXPOS, LO DISP, LARGE APER 3 C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208) 4 C
5 C

* File155 * LWP 12511 * LBLS file
1 1 3312048 1 1 011112511 1 C
7840* 8*IUESOC * * * 65* * * * * * * * * * 2 C
LWP 12511, HD 143761, 3 X 22 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPOS (EX,EY): (-1,-2) (0,-2) (-1,-2) 5 C

* File156 * LWP 12511 * MELO file
1 1 72048 1 1 011112511 1 C
7840* 8*IUESOC * * * 65* * * * * * * * * * 2 C
LWP 12511, HD 143761, 3 X 22 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPOS (EX,EY): (-1,-2) (0,-2) (-1,-2) 5 C

* File157 * LWP 12512 * LBLS file
1 1 3312048 1 1 011112512 1 C
7840* 9*IUESOC * * * 71* * * * * * * * * * 2 C
LWP 12512, HD 157214, 3 X 24 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPOS (EX,EY): (0,-2) (0,-2) (-1,-2) 5 C

* File158 * LWP 12512 * MELO file
1 1 72048 1 1 011112512 1 C
7840* 9*IUESOC * * * 71* * * * * * * * * * 2 C
LWP 12512, HD 157214, 3 X 24 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPOS (EX,EY): (0,-2) (0,-2) (-1,-2) 5 C

* File159 * LWP 12977 * LBLS file
895 89503312048 1 1 011112977 1 C
7952* 5*IUESOC * * * 120* * * * * * * * * * 2 C
3 C
LWP 12977, HD 52877, 2 MIN EXPO, LO DISP, LARGE APERTURE 4 C
5 C

* File160 * LWP 12977 * MELO file
895 89500072048 1 1 011112977 1 C
7952* 5*IUESOC * * * 120* * * * * * * * * * 2 C
3 C
LWP 12977, HD 52877, 2 MIN EXPO, LO DISP, LARGE APERTURE 4 C
5 C

* File161 * LWP 13330 * LBLS file
895 89503312048 1 2 011113330 1 C

```
  8042*   6*IUESOC  *    *    *    383*        *    *  * * * * * * *      *  2  C
LWP 13330, HD 89388, 140 SEC TRAIL, LO DISP, LARGE APER                        3  C
TRAIL RATE= 0.14286 ARCSEC/SEC, 1 PASS                                         4  C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                              5  C

 * File162  *  LWP 13330  *  MELO   file
                          895 89500072048   1 2 011113330                     1  C
  8042*   6*IUESOC  *    *    *    383*        *    *  * * * * * * *      *  2  C
LWP 13330, HD 89388, 140 SEC TRAIL, LO DISP, LARGE APER                        3  C
TRAIL RATE= 0.14286 ARCSEC/SEC, 1 PASS                                         4  C
EX= -1, EY= 0 AT R.P. AFTER TRAIL                                              5  C

 * File163  *  LWP 13332  *  LBLS   file
                          895 89503312048   1 2 011113332                     1  C
  8042*   9*IUESOC  *    *    *    450*        *    *  * * * * * * *      *  2  C
LWP 13332, HD 89388, 3 * 150 SEC EXPO, LO DISP, LARGE APER                     3  C
OFFSET R.P. USED: (-31,-208)  (-16,-208)  (-1,-208)                            4  C
                                                                               5  C

 * File164  *  LWP 13332  *  MELO   file
                          895 89500072048   1 2 011113332                     1  C
  8042*   9*IUESOC  *    *    *    450*        *    *  * * * * * * *      *  2  C
LWP 13332, HD 89388, 3 * 150 SEC EXPO, LO DISP, LARGE APER                     3  C
OFFSET R.P. USED: (-31,-208)  (-16,-208)  (-1,-208)                            4  C
                                                                               5  C

 * File165  *  LWP 12661  *  LBLS   file
                          895 89503312048   1 1 011112661                     1  C
  7881*   6*IUESOC  *    *    *    4079*       *    *  * * * * * * *      *  2  C
LWP 12661, HD 221861, 3 X 20 MIN LGAP + 8 MIN SMAP, LO DISP                    3  C
LGAP EXPOS TAKEN WITH OFFSET REF PNTS:                                         4  C
(-16,-208)  (-31,-208)  (-1,-208).                                             5  C

 * File166  *  LWP 12661  *  MELO   file
                          895 89500072048   1 1 011112661                     1  C
  7881*   6*IUESOC  *    *    *    4079*       *    *  * * * * * * *      *  2  C
LWP 12661, HD 221861, 3 X 20 MIN LGAP + 8 MIN SMAP, LO DISP                    3  C
LGAP EXPOS TAKEN WITH OFFSET REF PNTS:                                         4  C
(-16,-208)  (-31,-208)  (-1,-208).                                             5  C

 * File167  *  LWP 12661  *  LBLS   file
                          895 89503312048   1 1 011112661                     1  C
  7881*   6*IUESOC  *    *    *    4079*       *    *  * * * * * * *      *  2  C
LWP 12661, HD 221861, 3 X 20 MIN LGAP + 8 MIN SMAP, LO DISP                    3  C
LGAP EXPOS TAKEN WITH OFFSET REF PNTS:                                         4  C
(-16,-208)  (-31,-208)  (-1,-208).                                             5  C

 * File168  *  LWP 12661  *  MELO   file
                          895 89500072048   1 1 011112661                     1  C
  7881*   6*IUESOC  *    *    *    4079*       *    *  * * * * * * *      *  2  C
LWP 12661, HD 221861, 3 X 20 MIN LGAP + 8 MIN SMAP, LO DISP                    3  C
LGAP EXPOS TAKEN WITH OFFSET REF PNTS:                                         4  C
(-16,-208)  (-31,-208)  (-1,-208).                                             5  C

 * File169  *  LWP 13416  *  LBLS   file
                          895 89503312048   1 2 011113416                     1  C
  8060*   9*IUESOC  *    *    *    749*        *    *  * * * * * * *      *  2  C
LWP 13416, HD 132142, 3 X 250 SEC EXPOS, LO DISP, LG APER                      3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                  4  C
                                                                               5  C

 * File170  *  LWP 13416  *  MELO   file
                          895 89500072048   1 2 011113416                     1  C
  8060*   9*IUESOC  *    *    *    749*        *    *  * * * * * * *      *  2  C
LWP 13416, HD 132142, 3 X 250 SEC EXPOS, LO DISP, LG APER                      3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                  4  C
                                                                               5  C

 * File171  *  LWP 13415  *  LBLS   file
                          895 89503312048   1 1 011113415                     1  C
  8060*   8*IUESOC  *    *    *    225*        *    *  * * * * * * *      *  2  C
LWP 13415, HD 115043, 3 X 75 SEC EXPOS, LO DISP, LARGE APER                    3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                  4  C
                                                                               5  C
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 * File172  *  LWP 13415  *  MELO   file
                            895 89500072048    1 1 011113415                    1  C
  8060*    8*IUESOC  *    *   *    225*      *  *  * * * * * *          *   2  C
LWP 13415, HD 115043, 3 X 75 SEC EXPOS, LO DISP, LARGE APER                  3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File173  *  LWP 13411  *  LBLS   file
                            895 89503312048    1 1 011113411                    1  C
  8060*    4*IUESOC  *    *   *    209*      *  *  * * * * * *          *   2  C
LWP 13411, HD 166620, 3 X 70 SEC EXPOS, LO DISP, LARGE APER                  3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File174  *  LWP 13411  *  MELO   file
                            895 89500072048    1 1 011113411                    1  C
  8060*    4*IUESOC  *    *   *    209*      *  *  * * * * * *          *   2  C
LWP 13411, HD 166620, 3 X 70 SEC EXPOS, LO DISP, LARGE APER                  3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File175  *  LWP 13413  *  LBLS   file
                            895 89503312048    1 1 011113413                    1  C
  8060*    6*IUESOC  *    *   *    252*      *  *  * * * * * *          *   2  C
LWP 13413, HD 103095, 3 X 84 SEC EXPOS, LO DISP, LARGE APER                  3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File176  *  LWP 13413  *  MELO   file
                            895 89500072048    1 1 011113413                    1  C
  8060*    6*IUESOC  *    *   *    252*      *  *  * * * * * *          *   2  C
LWP 13413, HD 103095, 3 X 84 SEC EXPOS, LO DISP, LARGE APER                  3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File177  *  LWP 13417  *  LBLS   file
                            895 89503312048    1 1 011113417                    1  C
  8060*   10*IUESOC  *    *   *    629*      *  *  * * * * * *          *   2  C
LWP 13417, HD 166620, 3 X 210 SEC EXPOS, LO DISP, LG APER                    3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File178  *  LWP 13417  *  MELO   file
                            895 89500072048    1 1 011113417                    1  C
  8060*   10*IUESOC  *    *   *    629*      *  *  * * * * * *          *   2  C
LWP 13417, HD 166620, 3 X 210 SEC EXPOS, LO DISP, LG APER                    3  C
OFFSET R/P: (-16,-208), (-1,-208), (-31,-208)                                 4  C
                                                                              5  C

 * File179  *  LWP 13553  *  LBLS   file
                            895 89503312048    1 1 011113553                    1  C
  8088*    4*IUESOC  *    *   *    362*      *  *  * * * * * *          *   2  C
LWP 13553, HD 216228, 140 SEC TRAIL, LO DISP, LG APERTURE                    3  C
TRAIL RATE = 0.14286 "/SEC,  1  ITERATION                                    4  C
TRAIL ERRORS:  EX = -2,  EY = 4,  AT R/P AFTER EXPOSURE                      5  C

 * File180  *  LWP 13553  *  MELO   file
                            895 89500072048    1 1 011113553                    1  C
  8088*    4*IUESOC  *    *   *    362*      *  *  * * * * * *          *   2  C
LWP 13553, HD 216228, 140 SEC TRAIL, LO DISP, LG APERTURE                    3  C
TRAIL RATE = 0.14286 "/SEC,  1  ITERATION                                    4  C
TRAIL ERRORS:  EX = -2,  EY = 4,  AT R/P AFTER EXPOSURE                      5  C

 * File181  *  LWP 13554  *  LBLS   file
                            895 89503312048    1 2 011113554                    1  C
  8089*    2*IUESOC  *    *   *   3600*      *  *  * * * * * *          *   2  C
LWP 13554, HD 206936, 60 MIN EXP, LO DISP, LG APERTURE                       3  C
                                                                              4  C
                                                                              5  C

 * File182  *  LWP 13554  *  MELO   file
                            895 89500072048    1 2 011113554                    1  C
  8089*    2*IUESOC  *    *   *   3600*      *  *  * * * * * *          *   2  C
LWP 13554, HD 206936, 60 MIN EXP, LO DISP, LG APERTURE                       3  C
                                                                              4  C
```

5 C

* File183 * LWP 13558 * LBLS file
895 89503312048 1 2 011113558 1 C
8089* 9*IUESOC * * * 377* * * * * * * * * * 2 C
LWP 13557, HD 219734, 2 X 2 MIN EXP, LO DISP, LG APERTURE 3 C
OFFSET REF. POINTS: (-31,-208), (-16,-208) 4 C
5 C

* File184 * LWP 13558 * MELO file
895 89500072048 1 2 011113558 1 C
8089* 9*IUESOC * * * 377* * * * * * * * * * 2 C
LWP 13557, HD 219734, 2 X 2 MIN EXP, LO DISP, LG APERTURE 3 C
OFFSET REF. POINTS: (-31,-208), (-16,-208) 4 C
5 C

* File185 * LWP 13412 * LBLS file
895 89503312048 1 2 011113412 1 C
8060* 5*IUESOC * * * 399* * * * * * * * * * 2 C
LWP 13412, HD 185144, 150 SEC TRAIL, LO DISP, LARGE APER 3 C
TRAIL RATE = 0.13333 "/SEC 4 C
EX = -3, EY = 0 AT R/P AFTER EXPO 5 C

* File186 * LWP 13412 * MELO file
895 89500072048 1 2 011113412 1 C
8060* 5*IUESOC * * * 399* * * * * * * * * * 2 C
LWP 13412, HD 185144, 150 SEC TRAIL, LO DISP, LARGE APER 3 C
TRAIL RATE = 0.13333 "/SEC 4 C
EX = -3, EY = 0 AT R/P AFTER EXPO 5 C

* File187 * LWP 14388 * LBLS file
895 89503312048 1 2 011114388 #101 1 C
8266* 7*IUESOC * * * 683* * * * * * * * * * 2 C
LWP 14388, HD 224427, 3 X 3.8 MIN EXPO, LO DISP, LG APER 3 C
OFFSET REF POINTS USED: (-16,-208) (-31,-208) & (-1,-208) 4 C
SYSTEM HIT, 2 MF MISSING 5 C

* File188 * LWP 14388 * MELO file
895 89500072048 1 2 011114388 #101 1 C
8266* 7*IUESOC * * * 683* * * * * * * * * * 2 C
LWP 14388, HD 224427, 3 X 3.8 MIN EXPO, LO DISP, LG APER 3 C
OFFSET REF POINTS USED: (-16,-208) (-31,-208) & (-1,-208) 4 C
SYSTEM HIT, 2 MF MISSING 5 C

* File189 * LWP 14385 * LBLS file
895 89503312048 1 1 011114385 #101 1 C
8266* 3*IUESOC * * * 291* * * * * * * * * * 2 C
LWP 14385, HD 216131, 85 SEC TRAIL, LO DISP, LG APERTURE 3 C
4 C
5 C

* File190 * LWP 14385 * MELO file
895 89500072048 1 1 011114385 #101 1 C
8266* 3*IUESOC * * * 291* * * * * * * * * * 2 C
LWP 14385, HD 216131, 85 SEC TRAIL, LO DISP, LG APERTURE 3 C
4 C
5 C

* File191 * LWP 14391 * LBLS file
895 89503312048 1 1 011114391 #101 1 C
8266* 10*IUESOC * * * 899* * * * * * * * * * 2 C
LWP 14391, HD 219734, 3 X 5 MIN EXPO, LO DISP, LG APERTURE 3 C
OFFSET REF POINTS USED: (-16,-208) (-1,-208) & (-31,-208) 4 C
5 C

* File192 * LWP 14391 * MELO file
895 89500072048 1 1 011114391 #101 1 C
8266* 10*IUESOC * * * 899* * * * * * * * * * 2 C
LWP 14391, HD 219734, 3 X 5 MIN EXPO, LO DISP, LG APERTURE 3 C
OFFSET REF POINTS USED: (-16,-208) (-1,-208) & (-31,-208) 4 C
5 C

* File193 * LWP 14600 * LBLS file
895 89503312048 1 2 011114600 #101 1 C
8307* 3*IUESOC * * * 428* * * * * * * * * * 2 C

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 WP 14600, HD 6860, 3 X 2 MIN EXPO, LO DISP, LG APERTURE                3  C
LWP 14600, HD 6860, 70 SEC EXPOSURE, LO DISP, SM APERTURE               4  C
OFFSET REF POINTS USED FOR LGAP EXPOSURES: (-16,-208)                   5  C

 * File194  *  LWP 14600  *  MELO   file
                        895 89500072048   1 2 011114600   #101        1  C
  8307*   3*IUESOC  *   *   *   428*      *   *  * * * * * *     *   2  C
LWP 14600, HD 6860, 3 X 2 MIN EXPO, LO DISP, LG APERTURE                3  C
LWP 14600, HD 6860, 70 SEC EXPOSURE, LO DISP, SM APERTURE               4  C
OFFSET REF POINTS USED FOR LGAP EXPOSURES: (-16,-208)                   5  C

 * File195  *  LWP 14600  *  LBLS   file
                        895 89503312048   1 2 011114600   #101        1  C
  8307*   3*IUESOC  *   *   *   428*      *   *  * * * * * *     *   2  C
LWP 14600, HD 6860, 3 X 2 MIN EXPO, LO DISP, LG APERTURE                3  C
LWP 14600, HD 6860, 70 SEC EXPOSURE, LO DISP, SM APERTURE               4  C
OFFSET REF POINTS USED FOR LGAP EXPOSURES: (-16,-208)                   5  C

 * File196  *  LWP 14600  *  MELO   file
                        895 89500072048   1 2 011114600   #101        1  C
  8307*   3*IUESOC  *   *   *   428*      *   *  * * * * * *     *   2  C
LWP 14600, HD 6860, 3 X 2 MIN EXPO, LO DISP, LG APERTURE                3  C
LWP 14600, HD 6860, 70 SEC EXPOSURE, LO DISP, SM APERTURE               4  C
OFFSET REF POINTS USED FOR LGAP EXPOSURES: (-16,-208)                   5  C

 * File197  *  LWP 15015  *  LBLS   file
                        895 89503312048   1 1 011115015   #101        1  C
  8422*   5*IUESOC  *   *   *   3599*     *   *  * * * * * *     *   2  C
LWP 15015, HD 144872, 3 X 20 MIN EXP, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED: (-31,-208), (-16,-208), (-1,-208)                4  C
                                                                        5  C

 * File198  *  LWP 15015  *  MELO   file
                        895 89500072048   1 1 011115015   #101        1  C
  8422*   5*IUESOC  *   *   *   3599*     *   *  * * * * * *     *   2  C
LWP 15015, HD 144872, 3 X 20 MIN EXP, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED: (-31,-208), (-16,-208), (-1,-208)                4  C
                                                                        5  C
```

M. Crenshaw

Master Tape 3
mlist3.lis

Tape Contents Listing

* File 1 * LWP 12508 * LBLS file
895 89503312048 1 2 011112508 #101 1 C
7840* 5*IUESOC * * * 90* * * * * * * * * * 2 C
LWP 12508, HD 86728, 3 X 30 SEC EXPO, LOW DISP, LG APERTURE 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPO (EX,EY): (2,-1) (3,-4) (2,-1) 5 C

* File 2 * LWP 12508 * MELO file
895 89500072048 1 2 011112508 #101 1 C
7840* 5*IUESOC * * * 90* * * * * * * * * * 2 C
LWP 12508, HD 86728, 3 X 30 SEC EXPO, LOW DISP, LG APERTURE 3 C
USED OFFSET REF PNTS: (-31,-208) (-16,-208) (-1,-208) 4 C
ERRORS AFTER EXPO (EX,EY): (2,-1) (3,-4) (2,-1) 5 C

* File 3 * LWP 15358 * LBLS file
895 89503312048 1 2 011115358 #101 1 C
8524* 6*IUESOC * * * 219* * * * * * * * * * 2 C
LWP 15358, HD 186427, 3 X 73 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS (+5,-208) (-16,-208) (-37,-208) 4 C
EX, EY AT REF PNT AFTER EXPOS: (-2,0) (-2,0) (-2,0) 5 C

* File 4 * LWP 15358 * MELO file
895 89500072048 1 2 011115358 #101 1 C
8524* 6*IUESOC * * * 219* * * * * * * * * * 2 C
LWP 15358, HD 186427, 3 X 73 SEC EXPO, LOW DISP, LARGE APER 3 C
USED OFFSET REF PNTS (+5,-208) (-16,-208) (-37,-208) 4 C
EX, EY AT REF PNT AFTER EXPOS: (-2,0) (-2,0) (-2,0) 5 C

* File 5 * LWP 15353 * LBLS file
895 89503312048 1 1 011115353 #101 1 C
8522* 3*IUESOC * * * 698* * * * * * * * * * 2 C
LWP 15353, HD 192310, 300 SEC TRAILED EXPO, LO DISP, LG AP 3 C
ERRORS AT REFERENCE POINT AFTER EXPO: EX= 5, EY= 1 4 C
TRAIL RATE= 0.066667 ARCSEC/SEC, ONE ITERATION 5 C

* File 6 * LWP 15353 * MELO file
895 89500072048 1 1 011115353 #101 1 C
8522* 3*IUESOC * * * 698* * * * * * * * * * 2 C
LWP 15353, HD 192310, 300 SEC TRAILED EXPO, LO DISP, LG AP 3 C
ERRORS AT REFERENCE POINT AFTER EXPO: EX= 5, EY= 1 4 C
TRAIL RATE= 0.066667 ARCSEC/SEC, ONE ITERATION 5 C

* File 7 * LWP 15611 * LBLS file
895 89503312048 1 1 011115611 #101 1 C
8588* 6*IUESOC * * * 1094* * * * * * * * * * 2 C
LWP 15611, HD 114946, 3 X 65 SEC LGAP, 15 MIN SMAP, LO DISP 3 C
OFFSET REF PTS. USED IN LGAP EXPOSURES: 4 C
(-16,-208), (-31,-208), (-1, -208) 5 C

* File 8 * LWP 15611 * MELO file
895 89500072048 1 1 011115611 #101 1 C
8588* 6*IUESOC * * * 1094* * * * * * * * * * 2 C
LWP 15611, HD 114946, 3 X 65 SEC LGAP, 15 MIN SMAP, LO DISP 3 C
OFFSET REF PTS. USED IN LGAP EXPOSURES: 4 C
(-16,-208), (-31,-208), (-1, -208) 5 C

* File 9 * LWP 15611 * LBLS file
895 89503312048 1 1 011115611 #101 1 C
8588* 6*IUESOC * * * 1094* * * * * * * * * * 2 C
LWP 15611, HD 114946, 3 X 65 SEC LGAP, 15 MIN SMAP, LO DISP 3 C
OFFSET REF PTS. USED IN LGAP EXPOSURES: 4 C
(-16,-208), (-31,-208), (-1, -208) 5 C

* File 10 * LWP 15611 * MELO file
895 89500072048 1 1 011115611 #101 1 C
8588* 6*IUESOC * * * 1094* * * * * * * * * * 2 C
LWP 15611, HD 114946, 3 X 65 SEC LGAP, 15 MIN SMAP, LO DISP 3 C
OFFSET REF PTS. USED IN LGAP EXPOSURES: 4 C
(-16,-208), (-31,-208), (-1, -208) 5 C

* File 11 * LWP 15612 * LBLS file
895 89503312048 1 2 011115612 #101 1 C

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  8588*   7*IUESOC  *   *   *   899*       *   * * * * * * *     * 2 C
LWP 15612, HD 111721, 3 X 5 SEC EXP, LO DISP, LG APERTURE           3 C
OFFSET REF. PTS. USED:  (-16,-208), (-31,-208), (-1,-208)           4 C
                                                                    5 C

 * File 12  *  LWP 15612  *  MELO   file
                        895 89500072048   1 2 011115612   #101    * 1 C
  8588*   7*IUESOC  *   *   *   899*       *   * * * * * * *     * 2 C
LWP 15612, HD 111721, 3 X 5 SEC EXP, LO DISP, LG APERTURE           3 C
OFFSET REF. PTS. USED:  (-16,-208), (-31,-208), (-1,-208)           4 C
                                                                    5 C

 * File 13  *  LWP 15614  *  LBLS   file
                        895 89503312048   1 2 011115614   #101    * 1 C
  8588*   9*IUESOC  *   *   *   654*       *   * * * * * * *     * 2 C
LWP 15614, HD 9053, 3 X 175 SEC LGAP, 130 SEC SMAP, LO DISP          3 C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4 C
(-16,-208), (-31,-208), (-1,-208)                                   5 C

 * File 14  *  LWP 15614  *  MELO   file
                        895 89500072048   1 2 011115614   #101    * 1 C
  8588*   9*IUESOC  *   *   *   654*       *   * * * * * * *     * 2 C
LWP 15614, HD 9053, 3 X 175 SEC LGAP, 130 SEC SMAP, LO DISP          3 C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4 C
(-16,-208), (-31,-208), (-1,-208)                                   5 C

 * File 15  *  LWP 15614  *  LBLS   file
                        895 89503312048   1 2 011115614   #101    * 1 C
  8588*   9*IUESOC  *   *   *   654*       *   * * * * * * *     * 2 C
LWP 15614, HD 9053, 3 X 175 SEC LGAP, 130 SEC SMAP, LO DISP          3 C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4 C
(-16,-208), (-31,-208), (-1,-208)                                   5 C

 * File 16  *  LWP 15614  *  MELO   file
                        895 89500072048   1 2 011115614   #101    * 1 C
  8588*   9*IUESOC  *   *   *   654*       *   * * * * * * *     * 2 C
LWP 15614, HD 9053, 3 X 175 SEC LGAP, 130 SEC SMAP, LO DISP          3 C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4 C
(-16,-208), (-31,-208), (-1,-208)                                   5 C

 * File 17  *  LWP 15615  *  LBLS   file
                        895 89503312048   1 1 011115615   #103    * 1 C
  8588*  10*IUESOC  *   *   *  3299*       *   * * * * * * *     * 2 C
LWP 15615, HD 86663, 2 X 20 & 1 X 15 MIN EXP, LO DISP, LGAP         3 C
OFFSET REF. PTS. USED: (-16,-208), (-31,-208), (-1,-208)            4 C
                                                                    5 C

 * File 18  *  LWP 15615  *  MELO   file
                        895 89500072048   1 1 011115615   #103    * 1 C
  8588*  10*IUESOC  *   *   *  3299*       *   * * * * * * *     * 2 C
LWP 15615, HD 86663, 2 X 20 & 1 X 15 MIN EXP, LO DISP, LGAP          3 C
OFFSET REF. PTS. USED: (-16,-208), (-31,-208), (-1,-208)            4 C
                                                                    5 C

 * File 19  *  LWP 15567  *  LBLS   file
                        895 89503312048   1 1 011115567   #101    * 1 C
  8580*   9*IUESOC  *   *   *  6119*       *   * * * * * * *     * 2 C
LWP 15567, HD 86663, 3 X 30 MIN LGAP + 12 MIN SMAP, LO DISP          3 C
LGAP OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)           4 C
                                                                    5 C

 * File 20  *  LWP 15567  *  MELO   file
                        895 89500072048   1 1 011115567   #101    * 1 C
  8580*   9*IUESOC  *   *   *  6119*       *   * * * * * * *     * 2 C
LWP 15567, HD 86663, 3 X 30 MIN LGAP + 12 MIN SMAP, LO DISP          3 C
LGAP OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)           4 C
                                                                    5 C

 * File 21  *  LWP 15567  *  LBLS   file
                        895 89503312048   1 1 011115567   #101    * 1 C
  8580*   9*IUESOC  *   *   *  6119*       *   * * * * * * *     * 2 C
LWP 15567, HD 86663, 3 X 30 MIN LGAP + 12 MIN SMAP, LO DISP          3 C
LGAP OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)           4 C
                                                                    5 C
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* File 22  *  LWP 15567  *  MELO   file
                             895 89500072048   1 1 011115567  #101      1  C
 8580*   9*IUESOC  *   *   *   6119*          * * * * * * * * *    *    2  C
LWP 15567, HD 86663, 3 X 30 MIN LGAP + 12 MIN SMAP, LO DISP             3  C
LGAP OFFSET REF POINTS:  (-31,-208)  (-16,-208)  (-1,-208)              4  C
                                                                        5  C

* File 23  *  LWP 15568  *  LBLS   file
                             895 89503312048   1 2 011115568  #101      1  C
 8580*  10*IUESOC  *   *   *   135*           * * * * * * * * *    *    2  C
LWP 15568, HD 74006, 75 SEC LGAP + 60 SEC SMAP, LOW DISP                3  C
EX, EY = (-4,0) FOR LGAP, AND (-3,-1) FOR SMAP                          4  C
                                                                        5  C

* File 24  *  LWP 15568  *  MELO   file
                             895 89500072048   1 2 011115568  #101      1  C
 8580*  10*IUESOC  *   *   *   135*           * * * * * * * * *    *    2  C
LWP 15568, HD 74006, 75 SEC LGAP + 60 SEC SMAP, LOW DISP                3  C
EX, EY = (-4,0) FOR LGAP, AND (-3,-1) FOR SMAP                          4  C
                                                                        5  C

* File 25  *  LWP 15568  *  LBLS   file
                             895 89503312048   1 2 011115568  #101      1  C
 8580*  10*IUESOC  *   *   *   135*           * * * * * * * * *    *    2  C
LWP 15568, HD 74006, 75 SEC LGAP + 60 SEC SMAP, LOW DISP                3  C
EX, EY = (-4,0) FOR LGAP, AND (-3,-1) FOR SMAP                          4  C
                                                                        5  C

* File 26  *  LWP 15568  *  MELO   file
                             895 89500072048   1 2 011115568  #101      1  C
 8580*  10*IUESOC  *   *   *   135*           * * * * * * * * *    *    2  C
LWP 15568, HD 74006, 75 SEC LGAP + 60 SEC SMAP, LOW DISP                3  C
EX, EY = (-4,0) FOR LGAP, AND (-3,-1) FOR SMAP                          4  C
                                                                        5  C

* File 27  *  LWP 15555  *  LBLS   file
                             895 89503312048   1 1 011115555  #101      1  C
 8578*   8*IUESOC  *   *   *   359*           * * * * * * * * *    *    2  C
LWP 15555, HD 192310, 3 X 120 SEC EXPO, LOW DISP, LARGE AP              3  C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)                4  C
EX, EY AT OFFSET RP FOR EACH EXPO:  (0,0)  (1,0)  (0,0)                 5  C

* File 28  *  LWP 15555  *  MELO   file
                             895 89500072048   1 1 011115555  #101      1  C
 8578*   8*IUESOC  *   *   *   359*           * * * * * * * * *    *    2  C
LWP 15555, HD 192310, 3 X 120 SEC EXPO, LOW DISP, LARGE AP              3  C
USED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)                4  C
EX, EY AT OFFSET RP FOR EACH EXPO:  (0,0)  (1,0)  (0,0)                 5  C

* File 29  *  LWP 15018  *  LBLS   file
                         0001000103312048   1 2 011115018  #102         1  C
 8422*   8*IUESOC  *   *   *   141*           * * * * * * * * *    *    2  C
LWP 15018, HD 4614, 15.8 SEC TRAIL, LO DISP, LG APERTURE                3  C
TRAIL RATE = 1.26582 "/SEC, 1 ITERATION                                 4  C
ERRORS AT REF. PT. AFTER TRAIL:  EX = 0,  EY = 0                        5  C

* File 30  *  LWP 15018  *  MELO   file
                         0001000100072048   1 2 011115018  #102         1  C
 8422*   8*IUESOC  *   *   *   141*           * * * * * * * * *    *    2  C
LWP 15018, HD 4614, 15.8 SEC TRAIL, LO DISP, LG APERTURE                3  C
TRAIL RATE = 1.26582 "/SEC, 1 ITERATION                                 4  C
ERRORS AT REF. PT. AFTER TRAIL:  EX = 0,  EY = 0                        5  C

* File 31  *  LWP 15017  *  LBLS   file
                         0001000103312048   1 1 011115017  #102         1  C
 8422*   7*IUESOC  *   *   *   599*           * * * * * * * * *    *    2  C
LWP 15017, HD 13783, 3 X 200 SEC EXP, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED:  (-31,-208), (-16,-208), (-1, -208)              4  C
                                                                        5  C

* File 32  *  LWP 15017  *  MELO   file
                         0001000100072048   1 1 011115017  #102         1  C
 8422*   7*IUESOC  *   *   *   599*           * * * * * * * * *    *    2  C
LWP 15017, HD 13783, 3 X 200 SEC EXP, LO DISP, LG APERTURE              3  C
OFFSET REF. PTS. USED:  (-31,-208), (-16,-208), (-1, -208)              4  C
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                                                                    5  C

 * File 33  *  LWP 15019  *  LBLS   file
                        0001000103312048   1 1 011115019   #102     1  C
  8422*   9*IUESOC  *   *   *   1439*       *   *  * * * * * *  *   2  C
LWP 15019, HD 13783, 3 X 8 MIN EXP, LO DISP, LG APERTURE            3  C
OFFSET REF. PTS. USED:  (-31,-208), (-16,-208), (-1,-208)           4  C
                                                                    5  C

 * File 34  *  LWP 15019  *  MELO   file
                        0001000100072048   1 1 011115019   #102     1  C
  8422*   9*IUESOC  *   *   *   1439*       *   *  * * * * * *  *   2  C
LWP 15019, HD 13783, 3 X 8 MIN EXP, LO DISP, LG APERTURE            3  C
OFFSET REF. PTS. USED:  (-31,-208), (-16,-208), (-1,-208)           4  C
                                                                    5  C

 * File 35  *  LWP 15016  *  LBLS   file
                        0001000103312048   1 2 011115016   #102     1  C
  8422*   6*IUESOC  *   *   *   127*        *   *  * * * * * *  *   2  C
LWP 15016, HD 170153, 12.6 SEC TRAIL, LO DISP, LG APERTURE          3  C
TRAIL RATE = 1.58730 "/SEC, 1 ITERATION                             4  C
ERRORS AT REF. PT. AFTER TRAIL:  EX = -1,  EY = 0                   5  C

 * File 36  *  LWP 15016  *  MELO   file
                        0001000100072048   1 2 011115016   #102     1  C
  8422*   6*IUESOC  *   *   *   127*        *   *  * * * * * *  *   2  C
LWP 15016, HD 170153, 12.6 SEC TRAIL, LO DISP, LG APERTURE          3  C
TRAIL RATE = 1.58730 "/SEC, 1 ITERATION                             4  C
ERRORS AT REF. PT. AFTER TRAIL:  EX = -1,  EY = 0                   5  C

 * File 37  *  LWP 15613  *  LBLS   file
                        895 89503312048   1 1 011115613   #101     1  C
  8588*   8*IUESOC  *   *   *   375*        *   *  * * * * * *  *   2  C
LWP 15613, HD 74006, 3 X 25 SEC LGAP, 5 MIN SMAP, LO DISP           3  C
)FFSET REF. PTS. USED IN LGAP EXPOSURES:                            4  C
(-16,-208), (-31,-208), (-1,-208)                                   5  C

 * File 38  *  LWP 15613  *  MELO   file
                        895 89500072048   1 1 011115613   #101     1  C
  8588*   8*IUESOC  *   *   *   375*        *   *  * * * * * *  *   2  C
LWP 15613, HD 74006, 3 X 25 SEC LGAP, 5 MIN SMAP, LO DISP           3  C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4  C
(-16,-208), (-31,-208), (-1,-208)                                   5  C

 * File 39  *  LWP 15613  *  LBLS   file
                        895 89503312048   1 1 011115613   #101     1  C
  8588*   8*IUESOC  *   *   *   375*        *   *  * * * * * *  *   2  C
LWP 15613, HD 74006, 3 X 25 SEC LGAP, 5 MIN SMAP, LO DISP           3  C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4  C
(-16,-208), (-31,-208), (-1,-208)                                   5  C

 * File 40  *  LWP 15613  *  MELO   file
                        895 89500072048   1 1 011115613   #101     1  C
  8588*   8*IUESOC  *   *   *   375*        *   *  * * * * * *  *   2  C
LWP 15613, HD 74006, 3 X 25 SEC LGAP, 5 MIN SMAP, LO DISP           3  C
OFFSET REF. PTS. USED IN LGAP EXPOSURES:                            4  C
(-16,-208), (-31,-208), (-1,-208)                                   5  C

 * File 41  *  LWP 15564  *  LBLS   file
                        895 89503312048   1 2 011115564   #101     1  C
  8580*   4*IUESOC  *   *   *   113*        *   *  * * * * * *  *   2  C
LWP 15564, HD 203064, 4.65 SEC TRAIL, LOW DISP, LARGE APER          3  C
TRAIL RATE = 4.30108 ARCSEC/SEC                                     4  C
EX = -1, EY = 1 AT REF PNT AFTER TRAIL                              5  C

 * File 42  *  LWP 15564  *  MELO   file
                        895 89500072048   1 2 011115564   #101     1  C
  8580*   4*IUESOC  *   *   *   113*        *   *  * * * * * *  *   2  C
LWP 15564, HD 203064, 4.65 SEC TRAIL, LOW DISP, LARGE APER          3  C
TRAIL RATE = 4.30108 ARCSEC/SEC                                     4  C
EX = -1, EY = 1 AT REF PNT AFTER TRAIL                              5  C

 * File 43  *  LWP 15357  *  LBLS   file
                        895 89503312048   1 1 011115357   #101     1  C
  8524*   5*IUESOC  *   *   *   179*        *   *  * * * * * *  *   2  C
```

```
LWP 15357, HD 186408, 3 X 60 SEC EXPO, LOW DISP, LARGE APER                3 C
USED OFFSET REF PNTS:  (-37,-208)  (-16,-208)  (+5,-208)                   4 CC
EX, EY FOR EACH SEGMENT:  (-1,-1)  (1,0)  (-1,-2)                          5 C

 * File 44  *  LWP 15357  *  MELO   file                                   1 C
                          895 89500072048   1 1 011115357   #101     *     2 CC
  8524*   5*IUESOC  *    *    *    179*        *  *  * * * * * * *         3 CC
LWP 15357, HD 186408, 3 X 60 SEC EXPO, LOW DISP, LARGE APER                4 CC
USED OFFSET REF PNTS:  (-37,-208)  (-16,-208)  (+5,-208)                   5 C
EX, EY FOR EACH SEGMENT:  (-1,-1)  (1,0)  (-1,-2)

 * File 45  *  LWP 14538  *  LBLS   file                                   1 C
                          895 89503312048   1 2 011114538   #101     *     2 CC
  8295*   9*IUESOC  *    *    *    749*        *  *  * * * * * * *         3 CC
LWP 14538, HD 13783, 3 X 250 SEC EXPOS, LO DISP, LARGE APER                4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C

 * File 46  *  LWP 14538  *  MELO   file                                   1 C
                          895 89500072048   1 2 011114538   #101     *     2 CC
  8295*   9*IUESOC  *    *    *    749*        *  *  * * * * * * *         3 CC
LWP 14538, HD 13783, 3 X 250 SEC EXPOS, LO DISP, LARGE APER                4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C

 * File 47  *  LWP 14537  *  LBLS   file                                   1 C
                          895 89503312048   1 1 011114537   #101     *     2 CC
  8295*   8*IUESOC  *    *    *    254*        *  *  * * * * * * *         3 CC
LWP 14537, HD 219134, 3 X 85 SEC EXPOS, LO DISP, LARGE APER                4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C

 * File 48  *  LWP 14537  *  MELO   file                                   1 C
                          895 89500072048   1 1 011114537   #101     *     2 CC
  8295*   8*IUESOC  *    *    *    254*        *  *  * * * * * * *         3 CC
LWP 14537, HD 219134, 3 X 85 SEC EXPOS, LO DISP, LARGE APER                4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C

 * File 49  *  LWP 14539  *  LBLS   file                                   1 C
                          895 89503312048   1 1 011114539   #101     *     2 CC
  8295*  10*IUESOC  *    *    *    599*        *  *  * * * * * * *         3 CC
LWP 14539, HD 219134, 3 X 200 MIN EXPOS, LO DISP, LG APER                  4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C

 * File 50  *  LWP 14539  *  MELO   file                                   1 C
                          895 89500072048   1 1 011114539   #101     *     2 CC
  8295*  10*IUESOC  *    *    *    599*        *  *  * * * * * * *         3 CC
LWP 14539, HD 219134, 3 X 200 MIN EXPOS, LO DISP, LG APER                  4 CC
OFFSET R/P: (-16,-208), (-31,-208), (-1,-208)                              5 C
```

```
                          1   1   72048   1 2 0111 7030                  * 1 C
  6490*   8*IUESOC  *   *   *   1709*       *   *   * * * * * * *       * 2 CC
LWP 7030, HD 70272, 28.5 MIN EXPOSURE, LOW DISP, LG APER                  3 CCC
EXPOSED FOR 9.5 MIN EACH USING 3 OFFSET REFERENCE POINTS AT               4 CC
(-31,-208), (-16,-208), AND (-1,-208)                                     5 C

 * File 55  *  LWP  7258  *  LBLS   file
                          1   1 3312048   1 2 0111 7258                  * 1 C
  6548*   4*IUESOC  *   *   *   480*       *   *   * * * * * * *       * 2 CC
LWP 7258, HD 72184, 8 MIN EXPO, LO DISP, LG APERTURE                      3 CCC
                                                                          4 CC
                                                                          5 C

 * File 56  *  LWP  7258  *  MELO   file
                          1   1   72048   1 2 0111 7258                  * 1 C
  6548*   4*IUESOC  *   *   *   480*       *   *   * * * * * * *       * 2 CC
LWP 7258, HD 72184, 8 MIN EXPO, LO DISP, LG APERTURE                      3 CCC
                                                                          4 CC
                                                                          5 C

 * File 57  *  LWP  7259  *  LBLS   file
                          1   1 3312048   1 1 0111 7259                  * 1 C
  6548*   5*IUESOC  *   *   *   460*       *   *   * * * * * * *       * 2 CC
LWP 7259, HD 73593, 180 SEC TRAIL, LO DISP, LG APERTURE                   3 CCC
TRAIL RATE = 0.1111 ARCSEC/SEC, 1 PASS                                    4 CC
                                                                          5 C

 * File 58  *  LWP  7259  *  MELO   file
                          1   1   72048   1 1 0111 7259                  * 1 C
  6548*   5*IUESOC  *   *   *   460*       *   *   * * * * * * *       * 2 CC
LWP 7259, HD 73593, 180 SEC TRAIL, LO DISP, LG APERTURE                   3 CCC
TRAIL RATE = 0.1111 ARCSEC/SEC, 1 PASS                                    4 CC
                                                                          5 C

 * File 59  *  LWP  7260  *  LBLS   file
                          1   1 3312048   1 2 0111 7260                  * 1 C
  6548*   6*IUESOC  *   *   *   600*       *   *   * * * * * * *       * 2 CC
LWP 7260, HD 125560, 10 MIN EXPO, LO DISP, LG APERTURE                    3 CCC
                                                                          4 CC
                                                                          5 C

 * File 60  *  LWP  7260  *  MELO   file
                          1   1   72048   1 2 0111 7260                  * 1 C
  6548*   6*IUESOC  *   *   *   600*       *   *   * * * * * * *       * 2 CC
LWP 7260, HD 125560, 10 MIN EXPO, LO DISP, LG APERTURE                    3 CCC
                                                                          4 CC
                                                                          5 C

 * File 61  *  LWP  7261  *  LBLS   file
                          1   1 3312048   1 1 0111 7261                  * 1 C
  6548*   7*IUESOC  *   *   *   179*       *   *   * * * * * * *       * 2 CC
LWP 7261, HD 142091, 3*1 MIN EXPO, LO DISP, LG APERTURE                   3 CCC
OFFSET R. P.: (-16,-208), (-31,-208), (-1,-208)                           4 CC
                                                                          5 C

 * File 62  *  LWP  7261  *  MELO   file
                          1   1   72048   1 1 0111 7261                  * 1 C
  6548*   7*IUESOC  *   *   *   179*       *   *   * * * * * * *       * 2 CC
LWP 7261, HD 142091, 3*1 MIN EXPO, LO DISP, LG APERTURE                   3 CCC
OFFSET R. P.: (-16,-208), (-31,-208), (-1,-208)                           4 CC
                                                                          5 C

 * File 63  *  LWP  7262  *  LBLS   file
                          1   1 3312048   1 2 0111 7262                  * 1 C
  6548*   8*IUESOC  *   *   *   360*       *   *   * * * * * * *       * 2 CC
LWP 7262, HD 125560, 6 MIN EXPO, LO DISP, LG APERTURE                     3 CCC
                                                                          4 CC
                                                                          5 C

 * File 64  *  LWP  7262  *  MELO   file
                          1   1   72048   1 2 0111 7262                  * 1 C
  6548*   8*IUESOC  *   *   *   360*       *   *   * * * * * * *       * 2 CC
LWP 7262, HD 125560, 6 MIN EXPO, LO DISP, LG APERTURE                     3 CCC
                                                                          4 CC
                                                                          5 C
```

78-012A-01J

REQ. AGENT	ACQ. AGENT
CMW	MEV

IUE

O STARS SPECTRAL ATLAS

78-012A-01J

This data set consists of 1 magnetic tape. The tape is 6250 bpi, 9 track, written in EBCDIC format, with 2 files. This tape was created on an IBM 3081 computer. The D and C numbers are as follows:

D#	C#
D-82893	C-29426

STX-T-1-3002-3104-87

INTERNATIONAL ULTRAVIOLET EXPLORER ATLAS OF O-TYPE SPECTRA FROM 1200 TO 1900 Å (Walborn *et al.* 1985)

Documentation for the Machine-Readable Version

May 1987

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Contract NAS 5-28752

Prepared for

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Greenbelt, MD 20771

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Abstract

This document describes the computer-readable version of the *International Ultraviolet Explorer Atlas of O-Type Spectra From 1200 to 1900 Å* (Walborn *et al.* 1985) distributed by the Astronomical Data Center, NASA Goddard Space Flight Center. This catalog contains normalized fluxes, normalized flux quality factors, and splice points for 101 spectrograms of 98 O-type stars. Also included in the header for each set of spectrogram data are identification(s), spectral type, SWP number, and name of the principal investigator. The catalog is in two files, one containing the fluxes and quality flags, the other containing the splice points.

The present document describes the structure of the files overall and the individual data fields in detail.

Table of Contents

List of Illustrations

1.0 Introduction

A copy of this document should be distributed with every copy of the machine-readable catalog.

1.1 Description

The *International Ultraviolet Explorer Atlas of O-Type Spectra From 1200 to 1900 Å* (IUEAOS; Walborn *et al.* 1985) lists normalized fluxes and flux quality factors, splice points, and identifying information on 101 spectrograms of 98 O-type stars. The catalog is presented in two files: the first containing the flux data, the second listing the splice points. Header records, which are identical in both files, list the object identification, spectral type, SWP number, principal investigator, and pages in the published atlas where the spectrogram(s) can be found. The procedures followed in processing the raw data to produce the final spectrograms are briefly described in Appendix A: "Data Preparation."

1.2 Reference

Walborn, N. R., Nichols-Bohlin, J., and Panek, R. J. 1985, *International Ultraviolet Explorer Atlas of O-Type Spectra From 1200 to 1900 Å* (NASA Reference Publication 1155).

2.0 Structure

2.1 Each File as a Whole

The IUEAOS consists of two files. Figure 1 gives the tape-file attributes that are the same no matter what computer the catalog is copied for. All records are of fixed length. The first file contains the flux data (Figure 3) and the second file lists splice points (Figure 4). Detailed descriptions of each file are given in the following sections.

Quotations in any of the following descriptions come from Walborn *et al.* (1985) unless otherwise noted.

International Ultraviolet Explorer Atlas of
O-Type Spectra From 1200 to 1900 Angstroms (IUEAOS)

File	Contents	Record Format	Logical Record Length	Total Number of Logical Records
1	Fluxes	FB	96	80901
2	Splices	FB	96	1010

FB = Fixed-Block Format

Figure 1. Summary Description of Catalog Files

There are also attributes that will change from computer to computer. You will probably have to know these in order to use your copy of the catalog; therefore, they should have been supplied with your tape. These attributes are as follows:

- Number of tracks
- Density in bytes per inch
- Block size in bytes
- Number of records in a block
- Number of blocks
- Character code (ASCII or EBCDIC)

You may wish to write down the values for your tape in the list above.

2.2 *Header Records*

Header records are used to separate the data from successive spectrograms in the catalog files. These records contain descriptive information about the object observed, and follow the same format in both files.

Bytes	FORTRAN Format	Data Name
1-12	A12	Identification
13-14	2X	Blank
15-26	A12	Name
27-28	2X	Blank
29-44	A16	Spectral type
45	1X	Blank
46-50	I5	SWP number
51-52	2X	Blank
53-63	A11	Principal investigator
64	1X	Blank
65-69	A5	Atlas pages 1
70	1X	Blank
71-75	A5	Atlas pages 2
76	1X	Blank
77-81	A5	Atlas pages 3
82-96	15X	Blank

Figure 2. Header Record Format (Both Files)

Identification HD or HDE number of the star. Two stars have no HD/HDE number; in one case this field contains the BD number, and in the other the Sanduleak number is listed. [bytes 1-12, format A12]

Name Bayer-Flamsteed designation of the star, if any, or (in three cases) an indication that the star is in the Large or Small Magellanic Cloud [bytes 15-26, format A12]

Spectral type Optical spectral classification by Walborn (1972, 1973) [bytes 29-44, format A16]

SWP number Short Wavelength Prime (SWP) camera sequence number of the observation [bytes 46-50, format I5]

Principal investigator IUE principal investigator [bytes 53-63, format A11]

Atlas pages 1 Location in the printed atlas of the first spectrogram for this object. Spectrograms extend over two pages so this field will always contain a value such as *39-40*. This field and the following two fields can alternately be read with the FORTRAN format "I2, A1, I2." [bytes 65-69, format A5]

Atlas pages 2 Location of the second spectrogram, if any, in the printed atlas [bytes 71-75, format A5]

Atlas pages 3 Location of the third spectrogram, if any, in the printed atlas [bytes 77-81, format A5]

2.3 *Fluxes (File 1 of 2)*

This file lists pairs of normalized fluxes and the corresponding normalized flux quality factors for the 101 spectrograms of the IUEAOS. The values are listed four pairs to a line spaced in intervals of 0.25 Å in the range 1150.0 to 1949.75 Å. The wavelength of any pair can be determined by applying the following formula:

$$\lambda_{n_{ij}} = 1149.0 + i + 0.25\,(j - 1)$$

where i = row number
j = pair number

There are one header line and 800 data lines in this file for each spectrogram.

Bytes	FORTRAN Format	Data Name	
1-12	E12.5	Norm. flux	1
13-24	E12.5	Norm. quality factor	1
25-36	E12.5	Norm. flux	2
37-48	E12.5	Norm. quality factor	2
49-60	E12.5	Norm. flux	3
61-72	E12.5	Norm. quality factor	3
73-84	E12.5	Norm. flux	4
85-96	E12.5	Norm. quality factor	4

Figure 3. Flux File Data Record Format

Norm. flux Normalized flux. See Appendix A: "Data Preparation" for a brief description of how this value was calculated. [bytes 1-12, 25-36, 49-60, and 73-84, all format E12.5]

Norm. quality factor Normalized quality factor. See Appendix A: "Data Preparation" for a brief description of how this number was calculated. [bytes 13-24, 37-48, 61-72, and 85-90, all format E12.5]

2.4 *Splices (File 2 of 2)*

This file lists pairs of wavelength values indicating the points of overlap where successive orders of the IUE spectrum have been spliced together. There are 52 pairs for most spectrograms (nine of the spectrograms have only 50 pairs), listed six pairs per record. Each spectrogram has one header record and nine splice point data records in this file.

Bytes	FORTRAN Format	Data Name		Units
1- 8	F8.1	Beginning wavelength	1	Angstroms
9-16	F8.1	Ending wavelength	1	Angstroms
17-24	F8.1	Beginning wavelength	2	Angstroms
25-32	F8.1	Ending wavelength	2	Angstroms
33-40	F8.1	Beginning wavelength	3	Angstroms
41-48	F8.1	Ending wavelength	3	Angstroms
49-56	F8.1	Beginning wavelength	4	Angstroms
57-64	F8.1	Ending wavelength	4	Angstroms
65-72	F8.1	Beginning wavelength	5	Angstroms
73-80	F8.1	Ending wavelength	5	Angstroms
81-88	F8.1	Beginning wavelength	6	Angstroms
89-96	F8.1	End wavelength	6	Angstroms

Figure 4. Splice Data Record Format

Beginning wavelength Wavelength of the beginning of the next (higher) order [bytes 1-8, 17-24, 33-40, 49-56, 65-72, and 81-88, all format F8.1]

Ending wavelength Wavelength of the end of the previous (lower) order [bytes 9-16, 25-32, 41-48, 57-64, 73-80, and 89-96, all format F8.1]

3.0 History

3.1 Remarks and Modifications

The *International Ultraviolet Explorer Atlas of O-Type Spectra From 1200 to 1900 Å* (IUEAOS) was received by the Astronomical Data Center (ADC), NASA Goddard Space Flight Center, from J. Nichols-Bohlin in May 1987. The original data came in the form of 202 separate files: two files for each spectrogram, one containing the normalized fluxes and flux quality factors, the other listing the splice points. These files were resident on the Interactive Astronomical Data Analysis Facility (IADAF) VAX 11/750. A Forth program was run to concatenate all files into a single file, which was then copied to tape. This tape file was copied to disk on the NASA Space and Earth Science Computing Center (NSESCC) IBM 3081. FORTRAN programs were run to separate the fluxes and splice points into two separate files and to reorganise these files into the format described in the previous sections. Working from a copy of Walborn *et al.* 1985, ADC personnel keyed the header information for each object into a third file. A FORTRAN program was then run to insert these header records into both files.

A final FORTRAN program was run to check the validity of each field according to its data type and value.

3.2 References to the Documentation

Nichols-Bohlin, J. 1987, private communication.

Walborn, N. R. 1972, *Astron. J.*, **77**, 312.

Walborn, N. R. 1973, *Astron. J.*, **78**, 1067.

Walborn, N. R., Nichols-Bohlin, J., and Panek, R. J. 1985, *International Ultraviolet Explorer Atlas of O-Type Spectra From 1200 to 1900 Å* (NASA Reference Publication 1155).

Appendix A. Data Preparation

This section briefly describes the steps involved in selecting and processing the data comprising this atlas. The following description was extracted from an edited version of Walborn *et al.* (1985) kindly supplied by J. Nichols-Bohlin.

A.1 Selection

Approximately 200 O stars have short-wavelength, high-resolution data in the IUE archive. 120 of these were examined for possible inclusion in the IUEAOS. "The primary selection criterion was the availability of homogeneous optical spectral classifications by Walborn (1972, 1973). In general, known interacting binaries and very rapid rotators were avoided, but a number of peculiar objects and categories which have been well described optically were specifically included."

A.2 Processing

The IUE Spectral Image Processing System (IUESIPS) data were retrieved from the IUE data archive. Each gross spectrum included "samples of the observed signal along each echelle order, integrated along a pseudo-slit; and a corresponding sample of the interorder background." Sample wavelength and a data quality indicator were also included. Processing then proceeded through the following steps:

1. The background was smoothed and subtracted from the on-order signal to yield the net spectrum.

2. A "ripple" correction was applied to adjust for systematic variation along each order caused by the varying sensitivity of the echelle grating. "Overlap among adjacent orders [was] discarded beyond the wavelengths at which which the sensitivities [were] equal." These points of overlap are listed in the second file.

   The spectrum was then resampled to 0.25 Å resolution:

   > Each original sample was considered an estimate of the flux averaged over a bin whose width was equal to the spacing between the adjacent points. Each new sample was computed as a weighted average of the original samples; the weight of each original sample is equal to the fraction of its bin which falls within the 0.25 Å window centered on the new wavelength point. However, the weight is zero for any original point for which the IUESIPS quality factor indicated contamination by a camera reseau, saturation of the vidicon camera, or a particle radiation hit. The new sample points were spaced evenly at 0.25 Å intervals from 1150 Å to 1950 Å. For each new sample point, a quality factor was computed as the sum of the weights for the original samples contributing to the new point. This quality factor ranges from about 6 at 1200 Å (where there is no effect of a reseau, etc.) to about 4 at 1800 Å for IUESIPS processing at GSFC before November 1981. With the newer version of IUESIPS, this factor is roughly doubled due to the finer wavelength sampling of the spectrum.

3. The resampled spectrum was then rescaled in order to locate the stellar continuum at an approximately uniform level:

   > This ... was performed interactively ... by identifying about a dozen "continuum" points spaced along the interval 1150-1950 Å. Then, the flux was divided by a cubic spline interpolated

through these points. The intention here was not to precisely define a stellar continuum; it was simply to place the spectrum onto a convenient scale for plotting over the full spectral range. The renormalization function usually showed a broad hump between 1400 and 1600 Å. It is unclear whether this represents a rise in the instrument sensitivity near 1500 Å or an effect of blended spectral absorption features near 1400 and 1600 Å. Similarly, the data quality factor was normalized to remove the effect of the decreasing spectral dispersion toward longer wavelengths, which causes the number of original samples within a 0.25 Å window to decrease.

Narrow positive spikes in the flux data due to particle radiation hits and the geocoronal Lyman alpha emission were eliminated manually.

The normalized fluxes and corresponding normalized quality factors are listed in the first file.

In addition, the catalog authors note the following:

Small deviations from unity in the data quality factor occur where a few of the original sample points in the 0.25 Å resample window were contaminated by a reseau. Large deviations from unity occur where most or all of the points were affected by a reseau. In many cases, no effect of the reseau is apparent in the stellar spectrum; this occurs when the reseau falls close to but not precisely onto the stellar spectrum, and the interorder background is weak.

Appendix B. Sample Listings

This section lists the first 100 records of each computer-readable IUEAOS file. The rows of numerals along the top edge of the listing designate column numbers when read vertically.

The column numbers are not present in the computer-readable file, which contains only data records.

The listings start on the next page.

IUE Atlas of O-Type Spectra - Spectra
(IUEAOS - Spectra)

First 100 records of file.

Logical record length is 96 bytes.
Each record is printed in one line of 96 characters.

```
         111111111122222222223333333333444444444455555555556666666666777777777788888888889999999
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
 69464                          06.5 Ib(f)        10158  Westerlund   5- 6
 0.84273E+00 0.96550E+00 0.16295E+00 0.10175E+01 -.41392E+00 0.98736E+00 -.10029E+01 0.10032E+01
 -.54008E+00 0.10177E+01 -.53886E-01 0.98817E+00 -.13060E+00 0.10217E+01 0.56321E+00 0.97040E+00
 0.60828E+00 0.10224E+01 0.48475E+01 0.22154E+00 0.99433E+00 0.73516E+00 0.57138E+00 0.10230E+01
 0.33752E+00 0.99584E+00 0.32643E+00 0.10234E+01 0.13027E+01 0.97557E+00 -.48793E+00 0.10273E+01
 0.11649E+01 0.99667E+00 -.15186E+00 0.83654E+00 -.47195E+00 0.94388E+00 0.14377E+01 0.10184E+01
 0.19166E+01 0.97807E+00 0.53168E+00 0.98437E+00 0.20575E+01 0.10081E+01 -.87205E-03 0.95255E+00
 0.97635E+00 0.10086E+01 0.12523E+01 0.97909E+00 0.49996E+00 0.98902E+00 0.19629E-01 0.10088E+01
 0.84105E+00 0.96077E+00 0.79000E+00 0.10096E+01 0.24427E+00 0.95211E+00 0.19885E+01 0.10100E+01
 0.37811E+00 0.96115E+00 0.96219E-01 0.10105E+01 0.22381E+01 0.99456E+00 0.32770E+01 0.98428E+00
 0.38405E+01 0.10178E+01 0.12748E+01 0.96603E+00 0.16467E+01 0.10115E+01 0.51158E+00 0.10028E+01
 0.25937E+01 0.98551E+00 0.53514E+00 0.10188E+01 0.68657E+00 0.96705E+00 0.52139E+00 0.10193E+01
 0.26004E+00 0.10003E+01 0.11944E+01 0.98970E+00 0.17360E+01 0.10199E+01 0.34397E+01 0.87798E+00
 -.69937E+00 0.10227E-02 0.11802E+01 0.79098E+00 0.72548E+00 0.10091E+01 0.78343E+00 0.10244E+01
 0.56586E+01 0.99435E+00 0.22971E+01 0.10415E+01 0.28471E+00 0.99476E+00 0.20189E+01 0.96948E+00
 0.93366E+00 0.98549E+00 0.11627E+01 0.95263E+00 0.13149E+00 0.10022E+01 0.13961E+01 0.98482E+00
 0.11663E+01 0.97681E+00 0.38913E-01 0.10061E+01 0.10147E+01 0.95700E+00 0.36582E+00 0.10033E+01
 0.22920E+01 0.96079E+00 0.13762E+01 0.10072E+01 0.36871E+00 0.98965E+00 0.13398E+01 0.98153E+00
 0.71062E+00 0.10290E+01 0.74784E+00 0.97866E+00 -.97936E+00 0.99071E+00 0.91117E-01 0.10115E+01
 -.12252E+01 0.95903E+00 -.22810E+00 0.10190E+01 0.68426E+00 0.98611E+00 0.60806E+00 0.99539E+00
 0.14175E+01 0.10128E+01 0.35831E+00 0.92826E+00 -.18461E+01 0.10187E-02 -.11248E+00 0.75036E+00
 -.51959E-01 0.10203E+01 0.14606E-01 0.98737E+00 0.98464E+00 0.10008E+01 0.38015E+00 0.10212E+01
 0.39244E+00 0.97218E+00 0.70039E+00 0.10216E+01 -.23651E+00 0.10016E+01 0.19586E+01 0.99177E+00
 0.15935E+01 0.10223E+01 0.91502E+00 0.97278E+00 0.16798E-02 0.10227E+01 0.25597E+01 0.10066E+01
 0.13744E+01 0.99283E+00 -.41957E+00 0.10233E+01 0.11271E+01 0.96330E+00 0.44792E+00 0.93327E+00
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 0.39928E+00 0.96421E+00 0.89286E+00 0.10149E+01 0.68509E+00 0.12289E+00 0.14412E+00 0.10397E+01
 0.78962E+00 0.98622E+00 0.62657E+00 0.10017E+01 0.13369E+01 0.10192E+01 0.63293E+00 0.96607E+00
 0.94859E+00 0.10197E+01 0.91471E+00 0.10060E+01 0.13684E+01 0.98748E+00 0.20389E+01 0.10419E+01
 0.25548E+01 0.99434E+00 0.28723E+00 0.10069E+01 -.15676E+00 0.10243E+01 -.64226E+00 0.97114E+00
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IUE Atlas of O-Type Spectra - Splice Points
(IUEAOS - Splices)

First 100 records of file.

Logical record length is 96 bytes.
Each record is printed in one line of 96 characters.

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 69464                        06.5 Ib(f)          10158  Westerlund    5- 6
  1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.8  1193.8  1193.9  1204.2  1204.2
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  1442.0  1442.1  1457.2  1457.3  1472.7  1472.8  1488.6  1488.7  1504.8  1504.9  1521.4  1521.5
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  1611.0  1611.1  1630.4  1630.4  1650.1  1650.2  1670.4  1670.4  1691.2  1691.2  1712.4  1712.5
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  1879.2  1879.3  1905.8  1905.9  1931.7  1933.6  1958.1  1962.0
 36861          Lam Ori        O8 III((f))         10611  Bates        17-18 35-36
  1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.8  1193.8  1193.9  1204.2  1204.2
  1214.7  1214.7  1225.4  1225.4  1236.2  1236.3  1247.3  1247.4  1258.6  1258.7  1270.1  1270.2
  1281.9  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.0  1331.1  1343.9  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
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  1610.3  1610.3  1629.3  1629.3  1648.9  1649.0  1669.2  1669.2  1690.0  1690.0  1711.2  1711.3
  1733.2  1733.2  1755.6  1755.6  1778.7  1778.8  1802.5  1802.5  1826.8  1826.9  1852.0  1852.0
  1877.8  1877.9  1904.6  1904.6  1930.5  1932.2  1956.9  1960.6
 14947                        O5 If+              10724  Conti        23-24
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  1281.8  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.0  1331.1  1344.0  1344.0
  1357.2  1357.2  1370.5  1370.6  1384.3  1384.3  1398.3  1398.3  1412.6  1412.6  1427.1  1427.2
  1442.0  1442.0  1457.2  1457.2  1472.7  1472.8  1488.6  1488.7  1504.9  1504.9  1521.4  1521.5
  1538.5  1538.5  1556.0  1556.0  1538.5  1538.5  1556.0  1556.0  1573.9  1574.0  1592.2  1592.3
  1611.1  1611.1  1630.4  1630.4  1650.1  1650.1  1670.4  1670.4  1691.1  1691.1  1712.5  1712.5
  1734.4  1734.4  1756.8  1756.8  1779.9  1780.0  1803.7  1803.7  1828.2  1828.2  1853.3  1853.3
  1879.3  1879.3  1905.7  1906.1  1931.6  1933.6  1958.0  1962.1
 15629                        O5 V((f))           10754  Conti        9-10
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  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.0  1457.2  1457.3  1472.7  1472.8  1488.6  1488.7  1504.8  1504.9  1521.4  1521.5
  1538.5  1538.5  1556.0  1556.0  1538.5  1538.5  1556.0  1556.0  1573.9  1574.0  1592.3  1592.3
  1611.1  1611.1  1630.4  1630.4  1650.1  1650.1  1670.3  1670.4  1691.1  1691.2  1712.4  1712.4
  1734.3  1734.3  1756.8  1756.8  1779.9  1779.9  1803.7  1803.7  1828.1  1828.1  1853.3  1853.3
  1879.2  1879.2  1905.8  1906.0  1931.6  1933.5  1958.1  1962.0
269810          (LMC)        O3 III(f*)          10755  Conti        15-16
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  1214.7  1214.7  1225.4  1225.4  1236.3  1236.3  1247.3  1247.4  1258.6  1258.7  1270.1  1270.2
  1281.9  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.1  1331.1  1343.9  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.3  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.1  1457.2  1457.3  1472.8  1472.8  1488.6  1488.6  1504.8  1504.9  1521.4  1521.4
  1538.4  1538.5  1556.0  1556.0  1538.4  1538.5  1556.0  1556.0  1573.9  1573.9  1592.3  1592.3
  1611.0  1611.1  1630.4  1630.4  1650.1  1650.1  1670.3  1670.3  1691.1  1691.1  1712.4  1712.5
  1734.3  1734.4  1756.8  1756.9  1779.9  1780.0  1803.7  1803.7  1828.1  1828.1  1853.4  1853.4
  1879.3  1879.3  1905.8  1906.0  1931.6  1933.5  1958.1  1962.1
 46223                        O4 V((f))           10757  Conti        1- 2
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  1214.7  1214.7  1225.4  1225.4  1236.3  1236.3  1247.4  1247.4  1258.6  1258.7  1270.1  1270.2
  1281.9  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.1  1331.1  1344.0  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.1  1457.2  1457.3  1472.8  1472.8  1488.6  1488.6  1504.8  1504.9  1521.4  1521.5
  1538.5  1538.5  1556.0  1556.0  1573.9  1574.0  1592.3  1592.3  1611.1  1611.1  1630.4  1630.4
  1650.1  1650.1  1670.3  1670.4  1691.1  1691.2  1712.4  1712.4  1734.4  1734.4  1756.8  1756.8
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  1779.9  1780.0  1803.7  1803.7  1828.1  1828.1  1853.3  1853.3  1879.3  1879.3  1905.8  1906.0
  1931.6  1933.5  1958.1  1962.1
 46150                    05 V((f))       10758  Conti       1- 2
  1154.2  1154.2  1163.9  1164.0  1173.7  1173.8  1183.7  1183.7  1193.8  1193.9  1204.2  1204.2
  1214.7  1214.7  1225.4  1225.4  1236.3  1236.3  1247.4  1247.4  1258.6  1258.7  1270.1  1270.2
  1281.9  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.1  1331.1  1344.0  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.1  1457.2  1457.3  1472.7  1472.8  1488.6  1488.7  1504.8  1504.9  1521.4  1521.5
  1538.5  1538.5  1556.0  1556.0  1573.9  1574.0  1592.3  1592.3  1611.1  1611.1  1630.4  1630.4
  1650.1  1650.1  1670.3  1670.4  1691.1  1691.2  1712.4  1712.4  1734.3  1734.3  1756.8  1756.8
  1779.9  1780.0  1803.7  1803.7  1828.1  1828.1  1853.3  1853.3  1879.3  1879.3  1905.8  1906.0
  1931.6  1933.5  1958.1  1962.1
190864                    06.5 III(f)     10851  Shull       5- 6
  1154.2  1154.2  1163.9  1164.0  1173.7  1173.8  1183.7  1183.7  1193.8  1193.9  1204.2  1204.2
  1214.7  1214.7  1225.3  1225.4  1236.3  1236.3  1247.3  1247.4  1258.6  1258.7  1270.2  1270.2
  1281.9  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.1  1331.1  1343.9  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.3  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.1  1457.2  1457.2  1472.8  1472.8  1488.6  1488.6  1504.8  1504.9  1521.4  1521.5
  1538.4  1538.4  1555.7  1555.8  1538.3  1538.4  1555.7  1555.8  1573.5  1573.5  1591.7  1591.7
  1610.2  1610.3  1629.3  1629.3  1648.9  1648.9  1669.2  1669.2  1689.9  1689.9  1711.3  1711.3
  1733.1  1733.1  1755.6  1755.7  1778.6  1778.7  1802.4  1802.4  1826.8  1826.9  1852.0  1852.0
  1877.9  1877.9  1904.6  1904.6  1930.4  1932.2  1956.8  1960.7
 93146                    06.5 V((f))     11136  Hesser      5- 6
  1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.8  1193.8  1193.9  1204.1  1204.2
  1214.7  1214.7  1225.4  1225.4  1236.3  1236.3  1247.3  1247.4  1258.6  1258.7  1270.2  1270.2
  1281.8  1281.9  1293.8  1293.9  1306.0  1306.0  1318.4  1318.4  1331.0  1331.1  1344.0  1344.0
  1357.2  1357.2  1370.5  1370.6  1384.3  1384.3  1398.3  1398.3  1412.6  1412.6  1427.1  1427.2
  1442.0  1442.0  1457.2  1457.2  1472.7  1472.8  1488.6  1488.7  1504.9  1504.9  1521.4  1521.4
  1538.5  1538.5  1556.0  1556.0  1538.5  1538.5  1556.0  1556.0  1573.9  1573.9  1592.2  1592.3
  1611.1  1611.1  1630.4  1630.4  1650.1  1650.1  1670.3  1670.4  1691.1  1691.1  1712.5  1712.5
  1734.4  1734.4  1756.8  1756.8  1779.9  1780.0  1803.7  1803.7  1828.1  1828.2  1853.3  1853.3
  1879.3  1879.3  1905.7  1906.0  1931.6  1933.6  1958.0  1962.1
 37043        Iot Ori      09 III          11164  Snow       17-18
  1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.7  1193.8  1193.9  1204.1  1204.2
  1214.7  1214.7  1225.4  1225.4  1236.3  1236.3  1247.4  1247.4  1258.6  1258.7  1270.1  1270.2
  1281.8  1281.9  1293.8  1293.9  1306.0  1306.1  1318.4  1318.4  1331.0  1331.1  1344.0  1344.0
  1357.1  1357.2  1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
  1442.0  1442.0  1457.2  1457.3  1472.7  1472.8  1488.6  1488.7  1504.8  1504.9  1521.4  1521.5
  1538.4  1538.4  1555.7  1555.8  1538.3  1538.4  1555.7  1555.8  1573.5  1573.5  1591.7  1591.7
  1610.2  1610.3  1629.3  1629.4  1648.9  1648.9  1669.2  1669.2  1689.9  1689.9  1711.2  1711.2
  1733.1  1733.1  1755.6  1755.6  1778.6  1778.7  1802.4  1802.4  1826.8  1826.8  1852.0  1852.0
  1877.9  1877.9  1904.6  1904.6  1930.4  1932.2  1956.8  1960.6
```

```
$NOP
$NOP
$NOP ********** GAILCUT2 **********
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=5 1 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   36
                           895 895033120J8   1 1 013136315   #101      1  C  8580*   3*IUESOC  *   *
 *   117*       *   *   * * * * * *     * 2  CSWP 36315, HD 203064, 4.75 SEC TRAIL, LOW DISP, LARGE
APER            3  CTRAIL RATE = 4.21 53 ARCSEC/SEC                                          4  CEX = 10.
EY = -2 AT REF PNT AFTER TRAIL                                  5  C

 TAPE NO.   1              FILE NO.   1
 RECORD   2                LENGTH   36

                                                                                 6  COBSERVER: WL       ID: SAKCW
      21 MAY 1989       DAY 141              7  C
            8  C                                                                          9  C891411605
23* 1.   * 218 *CPS2PR11*1524 1 MODE SWL                    * 10  C

 TAPE NO.   1              FILE NO.   1
 RECORD   3                LENGTH   36
16 1516 X 6  Y 76 G1 82 HT 105   *152434 MODE LWL                    * 11  C160551
     *1533 6 TRAIL 3  .421 53E  1      * 12  C16 614                                  *153443 FES CTS 21 86
  1792   * 13  C 72657 FESIMAGE 3  113          *15352  TARGET IN SWLA                  * 14  C073927 MO
DE SWH                  *153740 EXPOBC 3 25 0   MAXG NOL * 15  C

 TAPE NO.   1              FILE NO.   1
 RECORD   4                LENGTH   36
74316 FES CTS 34   256      *153942 MODTIME 3  0  0              * 16  C074350 TARGET IN SWLA
     *154011 FIN 3 T 116 S 97 U 109   * 17  C074628 GDE R/S X 228  Y 886      *154118 TARGET FROM SW
LA          * 18  C074813 EXPOBC 3 42.  1   MAXG NOL *154159 ITER 1 TIME  .475 00E 01 * 19  C075017 TL
M,LWFRCM                *154826 TRAIL 1  .43 1E8E 01      * 2  C

 TAPE NO.   1              FILE NO.   1
 RECORD   5                LENGTH   36
751 8 MODE LWH                  *154956 FES CTS 20686 0  0 1792   * 21  C075335 XSEREP 1
     *155633 TARGET IN LWLA          * 22  C082728 TLM,FES2RCM                      *155251 EXPOBC 1 25 0
  MAXG NOL * 23  C144810 FIN 3 T 25199 S 97 U 109 *155449 MODTIME 1 0 0                  * 24  C144855 TA
RGET FROM SWLA          *155523 FIN 1 T 113 S 97 U 108   * 25  C

***** JOB DONE.
$WEO LPS

$$
$ASS IN HT
$EXE TPOUPC BS
```

D-83156

D-83157

```
$NOP
$NOP
$NOP ****************** GAILOUT3 *********************
$EXE TPLIST BS

INPUT PARAMETERS ARE:  ED SR=1=5 1 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   36
                           895 895 13312048   1 2 011112508   #101     1  C  7840*   5*IUESOC   *    *
 *   S *     *    *    * * * * * *      *  2  CLWP 12508, HD 86728, 3 X 30 SEC EXPC, LOW DISP, LG APE
RTURE         3  CUSED OFFSET REF PNTS:  (-31,-208)  (-16,-208)  (-1,-208)            4  CERRORS AF
TER EXPO (EX,EY):  (2,-1)  (3,-4)  (2,-1)                          5  C

 TAPE NO.   1              FILE NO.   1
 RECORD   2                LENGTH   36
                                                                    6  COBSERVER:  WU     ID:  LDJD
B    16-17 JAN 1988  DAY 016-017        7  C
             8  C                                                                 9  C88 17J232
29* 1   * 218 *CFS2PR 9* 10323 FIN 1 T 65 S 97 U 108     * 1   C

 TAPE NO.   1              FILE NO.   1
 RECORD   3                LENGTH   36
 22329 FIN 1 T 65 S 97 U 108    * 1 4 7 TARGET FROM LWLA          * 11  C022417 TARGET FROM LWLA
     * 11  3 S/C READY FOR MANEUVER    * 12  C 23131 S/C READY FOR MANEUVER   *011028 TLM,LWPROM
            * 13  C023158 TLM,LWPROM              *011059 READPREP 1 IMAGE 12507    * 14  C023229 RE
ADPREP 1 IMAGE 12508    *J11134 SCAN READLO SS 1 G3 47    * 15  C

 TAPE NO.   1              FILE NO.   1
 RECORD   4                LENGTH   36
 23308 SCAN READLO SS 1 G3 47    *011151 X 53 Y 71 G1 97 HT 106    * 16  C023329 X 53 Y 71 G1 97 HT 1
 6    * 11646 S/C MANEUVERING          * 17  C023850 S/C MANEUVERING          *013722 TLM,FES2ROM
            * 18  C 23327                         * 15015 FESIMAGE    81          * 19  C023848
                       * 2 938 FES CTS 14996     2560    * 20  C

 TAPE NO.   1              FILE NO.   1
 RECORD   5                LENGTH   36
  5  6 TARGET IN LWLA             * 21 2  TARGET IN LWLA           * 21  C 15122 EXPOBC 1  0 22   MAXG
 NOL * 21141 EXPOBC 1   3    MAXG NOL * 22  C 52 4 FIN 1 T 21 S 97 U 108    * 21221 FIN 1 T 29 S 9
7 U 108     * 23  C005253 TARGET FROM LWLA        *021304 TARGET FROM LWLA         * 24  C005505 FE
S CTS 13947 0 0 2560    *J21526 FES CTS 16424 0 0 2560    * 25  C

***** JOB DONE.
$WEO LPS

$$
```

FAST ANALYSIS OF TAPE AND RECOVERY -- FATAR VER 4.3.5 -- INNOVATION DATA PROCESSING AUTHORIZED 2/10/93 PAGE 1

FATS070 CONTROL CARD TABLE SIZE IS 4096 BYTES

FATAR CONTROL CARDS

```
   1--   ANALYZE                                                    00110096
   2--   PRINT LF=ALL,B=1,L=9600,CHAR                               00130097
```

D-P.P93

FATS071 TAPE BUFFER SIZE IS 65535 BYTES

FATS040 TAPEIN IS NOT LABELED - LABELS=NO ASSUMED

CHARACTERISTICS OF THE TAPE TO BE ANALYZED

UNIT	SERIAL	DEN	TRTCH
5B5	CMWS08	38000	

FATAR DETAIL REPORT

```
BLOCK  LNGTH/  MESSAGE/                  1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
NUMBER DISPL   BLOCK TYPE                 (COLUMN GRID IS VALID ONLY FOR CHARACTER FORMATTED DATA)

* * * * * *  START FILE       1

     1 32736  PRINT REQUESTED           69464                          06.5 Ib(f)       10158  Westerlund   5- 6
      +00080                                                0.84273E+00 0.96550E+00 0.16295E+00 0.10175E+01 -.41392E+00 0.9
      +00160                          8736E+00 -.10029E+01 0.10032E+01 -.54008E+00 0.10177E+01 -.53886E-01 0.98817E+00
      +00240                           -.13060E+00 0.10217E+01 0.56321E+00 0.97040E+00 0.60828E+00 0.10224E+01 0.48475
      +00320                          E+01 0.22154E+00 0.99433E+00 0.73516E+00 0.57138E+00 0.10230E+01 0.33752E+00 0.9
      +00400                          9584E+00 0.32643E+00 0.10234E+01 0.13027E+01 0.97557E+00 -.48793E+00 0.10273E+01
      +00480                           0.11649E+01 0.99667E+00 -.15186E+00 0.83654E+00 -.47195E+00 0.94388E+00 0.14377
      +00560                          E+01 0.10184E+01 0.19166E+01 0.97807E+00 0.53168E+00 0.98437E+00 0.20575E+01 0.1
      +00640                          0081E+01 -.87205E-03 0.95255E+00 0.97635E+00 0.10086E+01 0.12523E+01 0.97909E+00
      +00720                           0.49996E+00 0.98902E+00 0.19629E-01 0.10088E+01 0.84105E+00 0.96077E+00 0.79000
      +00800                          E+00 0.10096E+01 0.24427E+00 0.95211E+00 0.19885E+01 0.10100E+01 0.37811E+00 0.9
      +00880                          6115E+00 0.96219E-01 0.10105E+01 0.22381E+01 0.99456E+00 0.32770E+01 0.98428E+00
      +00960                           0.38405E+01 0.10178E+01 0.12748E+01 0.96603E+00 0.16467E+01 0.10115E+01 0.51158
      +01040                          E+00 0.10028E+01 0.25937E+01 0.98551E+00 0.53514E+00 0.10188E+01 0.68657E+00 0.9
      +01120                          6705E+00 0.52139E+00 0.10193E+01 0.26004E+00 0.10003E+01 0.11944E+01 0.98970E+00
      +01200                           0.17360E+01 0.10199E+01 0.34397E+01 0.87798E+00 -.69937E+00 0.10227E-02 0.11802
      +01280                          E+01 0.79098E+00 0.72548E+00 0.10091E+01 0.78343E+00 0.10244E+01 0.56586E+01 0.9
      +01360                          9435E+00 0.22971E+01 0.10415E+01 0.28471E+00 0.99476E+00 0.20189E+01 0.96948E+00
      +01440                           0.93366E+00 0.98549E+00 0.11627E+01 0.95263E+00 0.13149E+00 0.10022E+01 0.13961
      +01520                          E+01 0.98482E+00 0.11663E+01 0.97681E+00 0.58913E-01 0.10061E+01 0.10147E+01 0.9
      +01600                          5700E+00 0.36582E+00 0.10033E+01 0.22920E+01 0.96079E+00 0.13762E+01 0.10072E+01
      +01680                           0.36871E+00 0.98965E+00 0.13398E+01 0.98153E+00 0.71062E+00 0.10290E+01 0.74784
      +01760                          E+00 0.97866E+00 -.97936E+00 0.99071E+00 0.91117E-01 0.10115E+01 -.12252E+01 0.9
      +01840                          5903E+00 -.22810E+00 0.10190E+01 0.68426E+00 0.98611E+00 0.60806E+00 0.99539E+00
      +01920                           0.14175E+01 0.10128E+01 0.35831E+00 0.92826E+00 -.18461E+01 0.10187E-02 -.11248
      +02000                          E+00 0.75036E+00 -.51959E-01 0.10203E+01 0.14606E-01 0.98737E+00 0.98464E+00 0.1
      +02080                          0008E+01 0.38015E+00 0.10212E+01 0.39244E+00 0.97218E+00 0.70039E+00 0.10216E+01
      +02160                           -.23651E+00 0.10016E+01 0.19586E+01 0.99177E+00 0.15935E+01 0.10223E+01 0.91502
      +02240                          E+00 0.97278E+00 0.16798E-02 0.10227E+01 0.25597E+01 0.10066E+01 0.13744E+01 0.9
      +02320                          9283E+00 -.41957E+00 0.10233E+01 0.11271E+01 0.96330E+00 0.44792E+00 0.93327E+00
      +02400                           0.92425E+00 0.10004E+01 0.82667E+00 0.98897E+00 0.62813E+00 0.97529E+00 0.51309
      +02480                          E+00 0.10198E+01 0.52817E+00 0.97570E+00 0.16757E-01 0.98981E+00 0.34626E+00 0.1
      +02560                          0049E+01 0.74446E+00 0.95817E+00 0.10507E+00 0.10056E+01 0.64547E+00 0.95900E+00
      +02640                           0.10419E+01 0.10090E+01 0.87887E+00 0.98750E+00 0.12363E+01 0.34203E+00 0.13140
      +02720                          E+01 0.62682E+00 0.11396E+01 0.98084E+00 0.94684E+00 0.99214E+00 0.86322E+00 0.1
```

FATAR DETAIL REPORT

BLOCK NUMBER	LNGTH/ DISPL	MESSAGE/ BLOCK TYPE	1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80 (COLUMN GRID IS VALID ONLY FOR CHARACTER FORMATTED DATA)
	+02800		0105E+01 0.46909E+00 0.96022E+00 0.10204E+01 0.10142E+01 0.57954E+00 0.99682E+00
	+02880		0.39928E+00 0.96421E+00 0.89286E+00 0.10149E+01 0.68509E+00 0.12289E+00 0.14412
	+02960		E+00 0.10397E+01 0.78962E+00 0.98622E+00 0.62657E+00 0.10017E+01 0.13369E+01 0.1
	+03040		0192E+01 0.63293E+00 0.96607E+00 0.94859E+00 0.10197E+01 0.91471E+00 0.10060E+01
	+03120		0.13684E+01 0.98748E+00 0.20389E+01 0.10419E+01 0.25548E+01 0.99434E+00 0.28723
	+03200		E+00 0.10069E+01 -.15676E+00 0.10243E+01 -.64226E+00 0.97114E+00 0.96446E+00 0.1
	+03280		0252E+01 0.67466E+00 0.99856E+00 0.23280E+00 0.95102E+00 0.83380E+00 0.94127E+00
	+03360		0.16732E+01 0.95122E+00 0.76707E+00 0.10028E+01 0.71032E+00 0.95204E+00 -.21017
	+03440		E+00 0.10062E+01 0.27762E+00 0.98363E+00 0.25272E+00 0.95595E+00 0.46563E+00 0.1
	+03520		0071E+01 0.63245E+00 0.98779E+00 0.76694E+00 0.97560E+00 0.58306E+00 0.10256E+01
	+03600		0.86353E+00 0.94889E+00 0.69354E+00 0.10263E+01 0.10426E+01 0.11204E+01 0.2482[illegible]
	+03680		E+00 0.98830E-03 0.11251E+01 0.59338E+00 0.88320E+00 0.96133E+00 0.10424E+01 0.9
	+03760		9728E+00 0.88097E+00 0.10125E+01 0.95911E+00 0.96216E+00 0.59890E+00 0.10129E+01
	+03840		0.70906E+00 0.96258E+00 0.62879E+00 0.10166E+01 0.10074E+01 0.99857E+00 0.67332
	+03920		E+00 0.96299E+00 0.91753E+00 0.10177E+01 0.13274E+00 0.99877E+00 0.12511E+00 0.9
	+04000		8893E+00 0.92449E+00 0.10416E+01 0.61362E+00 0.98917E+00 0.25150E+00 0.10073E+01
	+04080		0.38640E+00 0.10186E+01 0.36724E+00 0.97162E+00 0.86205E+00 0.10227E+01 0.24726
	+04160		E+01 0.10005E+01 0.21107E+01 0.99354E+00 0.38498E+00 0.10434E+01 0.20741E+00 0.9
	+04240		9397E+00 0.31133E+00 0.[illegible]E+01 0.85006E-01 0.10243E+01 0.89349E+00 0.10322E+01
	+04320		0.42649E+00 0.96998E+00 0.63125E+00 0.10213E+01 0.52342E+00 0.95003E+00 0.76912
	+04400		E+00 0.10019E+01 0.91054E+00 0.41551E+00 0.69398E+00 0.15459E+00 0.50927E+00 0.1
	+04480		0092E+01 0.49315E+00 0.98555E+00 0.46008E+00 0.95472E+00 0.26845E+00 0.10098E+01
	+04560		0.40329E+00 0.95493E+00 0.48551E+00 0.10069E+01 0.27693E+00 0.99034E+00 -.89763
	+04640		E-03 0.95905E+00 0.36416E+00 0.10109E+01 0.39383E+00 0.99451E+00 0.45111E+00 0.9
	+04720		5967E+00 0.50368E+00 0.10148E+01 0.32981E+00 0.96029E+00 0.60046E+00 0.10152E+01
	+04800		0.48480E+00 0.99916E+00 0.28603E+00 0.98663E+00 0.21666E+00 0.10336E+01 0.70872
	+04880		E+00 0.99981E+00 0.33057E+00 0.98747E+00 0.10534E+00 0.10342E+01 -.19314E+00 0.9
	+04960		8467E+00 -.28392E+00 0.10045E+01 -.19780E-01 0.10205E+01 -.86065E-02 0.96926E+00
	+05040		0.26086E+00 0.10358E+01 0.29176E+00 0.99204E+00 0.36220E+00 0.10054E+01 0.30774
	+05120		E+00 0.10218E+01 0.41301E+00 0.96989E+00 0.18737E+00 0.10062E+01 0.44785E+00 0.1
	+05200		0255E+01 0.50620E+00 0.97453E+00 0.33173E-01 0.10227E+01 -.61230E-01 0.10105E+01
	+05280		-.82175E-01 0.10166E+01 0.27480E+00 0.98200E+00 -.40213E+00 0.95182E+00 -.33478
	+05360		E+00 0.10044E+01 -.26743E+00 0.95203E+00 -.20009E+00 0.98652E+00 -.13274E+00 0.5
	+05440		8651E+00 0.24732E+00 0.45435E+00 -.12989E+00 0.10238E+01 0.11086E+00 0.98760E+00
	+05520		-.53066E-01 0.97760E+00 -.19144E+00 0.10247E+01 0.61121E-01 0.98803E+00 -.26833
	+05600		E-01 0.98122E+00 0.23578E+00 0.10256E+01 -.16833E+00 0.95777E+00 -.64379E-01 0.1
	+05680		0136E+01 0.60424E-01 0.99633E+00 0.12922E+00 0.95820E+00 0.20803E+00 0.10142E+01
	+05760		0.82465E-01 0.99699E+00 0.31822E-01 0.96581E+00 -.64807E-01 0.10115E+01 -.12054
	+05840		E-01 0.99764E+00 -.73788E-01 0.99786E+00 0.91515E-02 0.10156E+01 -.10374E+00 0.9
	+05920		6687E+00 0.21557E+00 0.99852E+00 -.34332E+00 0.10194E+01 -.20993E+00 0.97083E+00
	+06000		-.84013E-01 0.10029E+01 -.31102E+00 0.10203E+01 -.11790E+00 0.97147E+00 0.27319
	+06080		E-01 0.10034E+01 0.22352E+00 0.10208E+01 -.36771E-01 0.97232E+00 -.71218E-01 0.1
	+06160		0247E+01 -.11775E+00 0.97275E+00 -.15419E+00 0.10083E+01 -.11753E+00 0.10254E+01
	+06240		-.97853E-01 0.97675E+00 -.38147E+00 0.38630E-01 0.90947E-01 0.29869E+00 0.21673
	+06320		E+00 0.95054E+00 -.20522E+00 0.98099E+00 -.16242E+00 0.10038E+01 -.11961E+00 0.9
	+06400		5436E+00 -.76807E-01 0.10175E+01 -.34001E-01 0.98549E+00 0.88037E-02 0.95480E+00
	+06480		0.51609E-01 0.10018E+01 0.94414E-01 0.98592E+00 -.17750E-01 0.95886E+00 0.14761
	+06560		E+00 0.10056E+01 0.76749E-01 0.95585E+00 0.17135E+00 0.99045E+00 0.10766E+00 0.1
	+06640		0272E+01 0.15867E+00 0.98177E+00 0.12430E+00 0.99111E+00 0.18600E-01 0.10356E+01
	+06720		0.14577E+00 0.95712E+00 0.11441E+00 0.10107E+01 -.26217E-01 0.99524E+00 0.24596
	+06800		E-02 0.96465E+00 0.41353E+00 0.99590E+00 -.23342E-01 0.10114E+01 -.14340E+00 0.9
	+06880		6509E+00 -.18499E+00 0.10186E+01 0.18682E+00 0.96572E+00 0.51403E-01 0.10005E+01

FATAR DETAIL REPORT

```
BLOCK  LNGTH/  MESSAGE/                  1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
NUMBER DISPL   BLOCK TYPE                      (COLUMN GRID IS VALID ONLY FOR CHARACTER FORMATTED DATA)

       +06960                            -.30228E-01 0.10381E+01 0.16442E+00 0.98780E+00 0.42766E+00 0.10014E+01 0.43090
       +07040                           E+00 0.10388E+01 0.28760E+00 0.35853E+00 -.67030E-01 0.71384E+00 0.22512E+00 0.1
       +07120                           0395E+01 0.92682E-01 0.96744E+00 0.30836E+00 0.10243E+01 0.25259E+00 0.10065E+01
       +07200                            0.12560E+00 0.97159E+00 -.16288E-01 0.10282E+01 0.20797E+00 0.10107E+01 0.18809
       +07280                           E+00 0.97556E+00 0.20879E+00 0.52311E+00 0.52950E+00 0.63729E+00 0.51737E+00 0.1
       +07360                           0035E+01 0.15113E+00 0.95304E+00 -.23937E+00 0.98717E+00 -.98243E-01 0.10195E+01
       +07440                            0.37127E+00 0.95387E+00 0.71072E+00 0.10046E+01 0.27542E+00 0.98805E+00 0.95043
       +07520                           E-01 0.95450E+00 0.31758E+00 0.98828E+00 0.29714E+00 0.10250E+01 0.25273E+00 0.9
       +07600                           5514E+00 0.22604E+00 0.10090E+01 0.24017E+00 0.98916E+00 0.27669E+00 0.95898E+00
       +07680                            0.58053E-01 0.99324E+00 0.18144E+00 0.10132E+01 0.14396E+00 0.95962E+00 0.50427
       +07760                           E-01 0.10303E+01 -.36735E-02 0.99391E+00 -.88779E-01 0.96693E+00 -.18802E+00 0.1
       +07840                           0144E+01 -.28055E-01 0.99825E+00 0.82892E-01 0.96090E+00 -.11708E-01 0.10182E+01
       +07920                            0.98870E-01 0.96456E+00 0.11508E+00 0.99568E+00 0.26869E+00 0.10363E+01 0.20715
       +08000                           E+00 0.99959E+00 0.18481E+00 0.96888E+00 0.52411E-01 0.10227E+01 0.78812E-01 0.1
       +08080                           0040E+01 0.17211E+00 0.89312E+00 -.12437E+00 0.10226E-02 -.51526E-02 0.45996E+00
       +08160                            -.59101E-01 0.10082E+01 0.20200E+00 0.10424E+01 0.19137E+00 0.99268E+00 -.24574
       +08240                           E-02 0.10055E+01 -.10930E-01 0.10507E+01 0.48725E+00 0.10058E+01 0.18168E+00 0.9
       +08320                           7829E+00 0.18606E+00 0.10257E+01 -.13474E-02 0.97851E+00 0.65761E-01 0.91242E+00
       +08400                            -.24954E-02 0.98228E+00 0.28044E+00 0.95272E+00 0.17209E+00 0.98629E+00 0.96107
       +08480                           E-01 0.10223E+01 0.19938E+00 0.95337E+00 0.21936E+00 0.99055E+00 0.23186E+00 0.1
       +08560                           0053E+01 0.50737E+00 0.95736E+00 0.30723E+00 0.10234E+01 0.14890E+00 0.99144E+00
       +08640                            0.55282E-01 0.95801E+00 0.35493E+00 0.99189E+00 0.50345E+00 0.10282E+01 0.57535
       +08720                           E+00 0.95338E+00 0.11393E+00 0.10285E+01 0.51209E+00 0.99278E+00 0.38150E+00 0.9
       +08800                           6269E+00 0.68205E+00 0.99664E+00 0.53079E+00 0.10294E+01 0.57924E+00 0.96314E+00
       +08880                            0.61314E+00 0.10148E+01 0.69552E+00 0.99754E+00 0.64826E+00 0.24323E+00 0.88407
       +08960                           E+00 0.69403E-01 0.10574E+01 0.10347E+01 0.11031E+01 0.96167E+00 0.87168E+00 0.1
       +09040                           0351E+01 0.88209E+00 0.10023E+01 0.11602E+01 0.97176E+00 0.14000E+01 0.10028E+01
       +09120                            0.12880E+01 0.10202E+01 0.12868E+01 0.96917E+00 0.12434E+01 0.10035E+01 0.12551
       +09200                           E+01 0.10405E+01 0.13178E+01 0.97307E+00 0.13942E+01 0.10214E+01 0.11836E+01 0.1
       +09280                           0079E+01 0.11770E+01 0.97373E+00 0.11106E+01 0.10083E+01 0.98440E+00 0.10419E+01
       +09360                            0.96871E+00 0.10127E+01 0.10890E+01 0.99769E+00 0.95779E+00 0.10506E+01 0.93446
       +09440                           E+00 0.97162E+00 0.71761E+00 0.95904E+00 0.64909E+00 0.98560E+00 0.88867E+00 0.1
       +09520                           0210E+01 0.10248E+01 0.98939E+00 0.11180E+01 0.95344E+00 0.94459E+00 0.10055E+01

* * * * * * *  END OF FILE      1  -- FILE CONTAINED     238 BLOCKS

* * * * * * *  START FILE       2

     1 32736   PRINT REQUESTED          69464                                  06.5 Ib(f)          10158  Westerlund    5- 6
      +00080                                        1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.8
      +00160                1193.8  1193.9  1204.2  1204.2  1214.7  1214.7  1225.4  1225.4  1236.2  1236.3
      +00240                1247.3  1247.4  1258.6  1258.7  1270.2  1270.2  1281.9  1281.9  1293.8  1293.9
      +00320                1306.0  1306.0  1318.4  1318.4  1331.1  1331.1  1343.9  1344.0  1357.1  1357.2
      +00400                1370.6  1370.6  1384.3  1384.3  1398.2  1398.3  1412.5  1412.6  1427.1  1427.2
      +00480                1442.0  1442.1  1457.2  1457.3  1472.7  1472.8  1488.6  1488.7  1504.8  1504.9
      +00560                1521.4  1521.5  1538.5  1538.5  1556.0  1556.0  1538.5  1538.5  1556.0  1556.0
      +00640                1574.0  1574.0  1592.3  1592.3  1611.0  1611.1  1630.4  1630.4  1650.1  1650.2
      +00720                1670.4  1670.4  1691.2  1691.2  1712.4  1712.5  1734.3  1734.3  1756.9  1756.9
      +00800                1779.9  1779.9  1803.7  1803.7  1828.1  1828.2  1853.4  1853.4  1879.2  1879.3
      +00880                1905.8  1905.9  1931.7  1933.6  1958.1  1962.0
      +00960               36861          Lam Ori          08 III((f))          10611  Bates         17-18 35-36
      +01040                                        1154.2  1154.3  1163.9  1164.0  1173.7  1173.8  1183.7  1183.8
```

FATAR DETAIL REPORT

BLOCK NUMBER	LNGTH/ DISPL	MESSAGE/ BLOCK TYPE	1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80 (COLUMN GRID IS VALID ONLY FOR CHARACTER FORMATTED DATA)
	+09440		1778.6 1778.7 1802.4 1802.4 1826.8 1826.8 1852.0 1852.0 1877.9 1877.9
	+09520		1904.6 1904.6 1930.4 1932.2 1956.8 1960.6
* * * * * * *		END OF FILE 2 -- FILE CONTAINED 3 BLOCKS	
* * * * * * *		START FILE 3	
* * * * * * *		END OF FILE 3 -- FILE CONTAINED 0 BLOCKS	

FATS020 ANALYSIS TERMINATED AT TAPEMARK SEQUENCE

FINAL TOTALS

FILES READ	BLOCKS READ	BYTES READ	FEET READ	TEMP ERRS	PERM ERRS	FILES WRITTEN	BLOCKS WRITTEN
2	241	7863456	19	0	0	0	0

FATAR TAPE SUMMARY FOR TAPE VOLUME -CMWS08- AT DENSITY 38000 BPI 2/10/93

PHYS FILE	DATASET NAME (LAST 17 CHARS)	FILE SERIAL	FIL# VOL#	CRDATE	EXPDATE	REC-FM	LRECL BLKSZ	CREATING JOB&STEP	SEC	BLOCKS READ	BYTES READ	PERM TEMP	---BLOCKSIZES---- MIN	AVG	MAX	EST. FEET
1	ZMC0WFD2.R0001626									238	7766K	0 0	8064	32632	32736	19
2	ZMC0WFD2.R0001626									3	97K	0 0	31488	32320	32736	0
3	ZMC0WFD2.R0001626									0	0	0 0	0	0	0	0
	HIGHEST EXPIRATION ====>							TOTALS ====>		241	7863K	0				19