Section 2.10

Identification Charts and Tables

2.10.1. Identification Charts

Introduction

Although the Hipparcos mission was dedicated to the astrometry of primarily the brightest stars of the sky, a significant fraction of fainter stars of astrophysical interest were included in the observing programme. Frequently, these stars were originally discovered on objective prism plates, or by blinking plates for proper motion or variability detection. The poor accuracy of many of the original positions sometimes made the candidate identification for the Hipparcos Input Catalogue compilation quite difficult. Frequently it was necessary to investigate individual ESO and Palomar plates, or to use the Astrographic Catalogue and subsequently the Guide Star Catalog (GSC; B.M. Lasker *et al.*, 1990, *Astron. J.*, 99, 2019) in order to verify or obtain suitable positions for the identifications and for the satellite observations.

A complete scientific evaluation of the Hipparcos results will require complementary information on photometry, spectroscopy, and radial velocities. The brightness of most Hipparcos stars allows these observations to be undertaken with small- to medium-sized telescopes. However, the pointing accuracy of such instruments is not always precise enough to ensure an unambiguous identification from accurate coordinates alone, at least for faint stars or stars in crowded areas.

In order to avoid a duplication of identification work by future observers, it was considered useful to produce identification charts for the fainter and more ‘complex’ stars in the Hipparcos Catalogue. The recent availability of the GSC provided an attractive opportunity to produce a compilation of charts with a rather well-defined limiting magnitude and, moreover, a density of faint background stars sufficient to make stellar patterns easy to recognise even in areas of low star density. A few stars in the Hipparcos Catalogue may have been misidentified during the compilation of the Hipparcos Input Catalogue, and therefore will not correspond to the objects considered to have been submitted by the original proposer. The identification charts, and the corresponding positions listed in the main catalogue, will also indicate which stars were actually observed by the satellite.

The identification charts have therefore been constructed on the basis of the positions obtained from the satellite observations accounting, where appropriate, for the object’s proper motion between the catalogue epoch and the epoch of the material used for the identification charts. The charts therefore always identify the object actually observed by the satellite, irrespective of any possible confusion between the position included in the Hipparcos observing programme, and the intended scientific target.

The process of constructing the identification charts also proved to be a useful way of validating certain results of the mission—all targets, for example, were tested to lie within 10 arcsec of their expected position, and within 1 mag of their expected magnitude once V_J from the Hipparcos or ground-based observations was transformed into the V or J magnitudes corresponding to the identification material. For this purpose, the correspondence between the photographic magnitudes and the B and V magnitudes used the following relationships:

$$\begin{aligned} J \text{ plate}: &\quad m = V + 0.72\,(B - V) \\ V \text{ plate}: &\quad m = V - 0.12\,(B - V) \\ E \text{ plate}: &\quad m = V - 0.75\,(B - V) \end{aligned} \qquad [2.10.1]$$

It was consequently straightforward to check coordinate inaccuracies, or the presence of disturbing companions or galaxies, possibly affecting the astrometry or the photometry. It was also a valuable check of the detection and processing of double and multiple stars, and of the presence of nebulosity and veiling-glare effects. Targets confirmed as missed are noted in the catalogue, and no chart was produced for such stars.

In summary, the charts have two goals: to assist the identification of the object at telescope on the one hand, and to provide an indication of the 'cleanliness' in the vicinity of the most complex Hipparcos targets (such as double systems, crowded fields, or objects with surrounding nebulosity) on the other.

Star Selection

Volume 13 contains identification charts for a subset of the objects (a little more than 10 000) contained in the Hipparcos Catalogue: primarily faint objects, and those where there was considered to be some possibility of misidentification. The identification charts have been updated with respect to those presented in the Hipparcos Input Catalogue, ESA SP–1136, Volume 7, in particular by accounting for improved magnitudes provided by the Hipparcos mission, and also by adjusting the limiting magnitude criteria for the chart selection.

The choice of stars needing a chart was guided by the probability of confusing objects of similar magnitudes in an area of about a quarter of a square degree. At high galactic latitudes, stars as faint as 11–12 mag may be located without ambiguity, whereas in the galactic plane stars as bright as 9 mag may require an identification chart if the field is crowded. In order to retain only those stars for which a chart is really useful, a limiting magnitude depending on the galactic latitude was selected. Exceptions were made for stars in open clusters and in the Magellanic Clouds, and for variable stars if these are fainter than the Hipparcos limiting magnitude at minimum luminosity. The threshold adopted for the visual magnitude is given by:

$$V_{\rm lim} = 9.2 + 1.65\,|\sin b\,| \qquad [2.10.2]$$

where b is the galactic latitude (a value of 8.9 rather than 9.2 was adopted in the case of the Hipparcos Input Catalogue identification charts). At galactic latitudes higher than 42° a constant limiting magnitude of $V = 10.5$ mag was adopted (these values were 58° and 10.3 mag respectively in the case of the Hipparcos Input Catalogue).

Material used for the Charts

The charts are all based on material made available by the Space Telescope Science Institute (STScI). The STScI digitized Schmidt survey plates covering the entire sky to obtain the image data necessary for the construction of the Guide Star Catalog (GSC). It subsequently released the digitized plate material on a series of 101 CD-ROMs.

The southern hemisphere material (plate centres $\delta \leq 0°$) was constructed largely from the SERC Southern Sky Survey and the SERC J equatorial extension. These are deep (3600 s) IIIa-J exposures obtained through a GG 395 filter, except for 94 short (1200 s) V-band exposures mostly at low galactic latitudes ($|b| \leq 15°$), two plates covering the Large Magellanic Cloud, and two very short (300 s) V-band exposures each centred on one of the Magellanic Clouds. The northern hemisphere material (plate centres $\delta \geq 6°$) were constructed from the 1950–55 epoch Palomar Sky Survey for the Digitized Sky Survey, and from the Palomar 'Quick V' survey for the Guide Star Catalog.

As indicated by the flag in Field H69 of the main Hipparcos Catalogue, there are two types of chart:

Section D: charts produced directly from the STScI Digitized Sky Survey (DSS);
Section G: charts produced from the Guide Star Catalog (GSC).

It was inappropriate to derive all charts entirely from the DSS, or entirely from the GSC. Thus in crowded regions, or for double systems, the GSC is incomplete, or may include spurious objects arising from the object detection/classification algorithms, or entries added from other sources in order to improve on the GSC completeness. Similarly, the large scale size adopted for the DSS charts (5 arcmin field) is appropriate for the identification of objects in crowded regions, while the smaller scale size adopted for the GSC charts (15 arcmin field) is necessary for the unambiguous identification of objects in less crowded regions.

In practice, GSC charts were initially produced for all candidate identification charts, and superseded by the DSS charts only when necessary. For complex fields the DSS charts were normally preferred while, in cases of a clean stellar vicinity, the chart showing the best stellar pattern allowing a secure identification was retained. For large open clusters, for example, the GSC charts were almost always preferred.

Identification charts were retained for stars located in crowded areas or in front of bright nebulae. In many cases the target star was the secondary component (B, p or C, etc.) close to a bright A component. Since configuration charts are already provided for double and multiple systems (Volume 10), no chart has been given here for faint components when the primary is brighter than the adopted magnitude threshold.

Sections D and G are each ordered according to increasing HIP number, except for the catalogue entries with HIP >120000, which were inserted according to their right ascension. When ranked strictly according to right ascension, HIP numbers are inverted in 54 cases, although the differences in α are always less than 1^s.

Section D: Charts produced directly from the STScI Digitized Sky Survey

The size of each D chart is 5×5 arcmin^2, with north at the top and east to the left. The charts include the HIP number, the (sexagesimal) position identifier (epoch J1991.25, reference system ICRS), and the plate colour.

Each field is centred on the star's position at the Hipparcos catalogue mean epoch, J1991.25, indicated by an open circle of 15.6 arcsec. The star is identified by an open cross at its predicted position at the epoch of the plate, based on the Hipparcos position and proper motion—the reasons for some small discrepancies between the position of the object and the position of the cross are noted below.

Displacements between the crosses and circles thus immediately indicate those cases where the proper motion was significant—with 40 years of epoch difference large proper motions result in non-negligible displacements. However, the range of plate epochs must be taken into account when using visual criteria to establish high proper motion objects.

Identification charts in this category generally apply to the more 'complex' systems, including:

- cluster stars in crowded areas;
- stars in the Large and Small Magellanic Clouds;
- variable stars faint at minimum;
- stars in nebulae;
- multiple systems.

In order to construct the charts, the 101 CD-ROMs of the Digitized Sky Survey were compressed from the original 16 bits (64k intensity levels) to 4 bits, which retains rather satisfactorily the object configuration (whilst, however, strongly degrading any photometric information). The charts were rotated such that north is at the top of each chart.

A mean background over the region corresponding to the (28×28) sub-plates was subtracted, but a low background level was added to the final charts for visual contrast. The background subtraction amplified the contrast between the stars and the background. Uniform contrast was generally achieved, for example, even in areas of high Hα emissivity. Small-scale features are also preserved, such as small bright clouds (e.g. HIP 139), planetary nebula (e.g. HIP 3678, 19395) or more extended nebulae (e.g. HIP 17465).

The plate colour is given at the bottom right of each plate. The original Palomar 'E' plates from the years 1950–55 were used for the northern part of the DSS (nominally for field centres with $\delta \geq 6°$, but with a southern limit oscillating somewhat along the equator). For the southern sky (for both the DSS and the GSC) the V or J plates were used.

The knowledge of the plate epoch was necessary to establish the position of large proper motion stars at the relevant epoch. A mean plate epoch 1952.5 was adopted for the Palomar 'E' Sky Survey. For the southern part, the positions of the relevant plates are given in the GSC, and the epoch of the plates used to produce each individual 'D' chart is given in Table 2.10.1. These epochs allow extrapolation of the position of large proper motion stars from J1991.25 to the epoch of future observations.

Section G: Charts from the Guide Star Catalog (GSC)

The size of each G chart is 15×15 arcmin^2, with north at the top and east to the left. The charts include the HIP number, the (sexagesimal) position identifier (epoch J1991.25, reference system ICRS), and the plate colour.

Stars were selected from the GSC files according to their coordinates given in the Hipparcos Catalogue, and stars within the chart area were retained with information on their coordinates, magnitudes, and plate colour and number. The limiting magnitude of the background stars is around 14.5 mag, but often brighter in the galactic plane.

In case of overlapping plates, and thus multiple entries in the GSC, the data set from the earliest epoch was retained. The spherical coordinates were then transformed into rectangular x, y in units of 0.3 arcsec (to reduce storage requirements). The GSC star having a position closest to the Hipparcos Catalogue object was initially selected by default, and retained only if its position coincided with that of the Hipparcos Catalogue entry. A marker was positioned on the target object, each marker being edited to avoid superposition on field stars thus enhancing readability.

The corresponding epoch of the star positions given in the GSC was also retained for the identification charts. Certain objects were missing from the original GSC, and in these cases the STScI compilation included positions and colours of missing objects from the literature (for example, from the SIMBAD data base). Sometimes the epoch of these additional positions was not available, and not included in the GSC file—if unknown the epoch of the positions of these additional objects was set to 1980.00 for the production of the GSC identification charts. In a few cases, the missing targets had known proper motions, and positions were provided at epoch J2000.0 (for 15 stars in the GSC section, this epoch was given in the GSC as 00 JAN 00).

Similarly, the magnitude of an object in the Guide Star Catalog (which is also included in the GSC file) may not have been derived from the GSC scans. Thus the magnitude of the Hipparcos Catalogue object (or one or more other objects in the area of the chart) may not correspond to the magnitude in the passband of the other objects in the field; this complication has been ignored, and each identification chart lists simply the colour of the plate material used for the basic scan.

Table 2.10.1. Epochs of plates for the DSS charts: epoch = year – 1900

HIP	Epoch	HIP	Epoch	HIP	Epoch	HIP	Epoch
000139	52.50	009429	78.82	022658	52.50	031300	79.97
000172	52.50	009607	52.50	022758	87.07	031361	52.50
000344	52.50	009711	76.66	022794	87.07	031365	52.50
000390	52.50	009867	52.50	022852	52.50	031408	52.50
000523	77.87	010332	52.50	023113	52.50	031481	78.04
000561	52.50	010617	78.82	023177	87.07	031561	52.50
000703	76.66	010687	52.50	023342	79.19	031734	52.50
000731	52.50	010812	79.64	023512	83.85	032159	79.00
000738	77.56	011188	52.50	023519	83.04	032270	84.18
000911	77.84	011350	82.66	023527	79.19	032417	79.90
001006	52.50	011582	79.94	023692	52.50	032592	52.50
001041	52.50	011650	52.50	023894	52.50	032825	76.99
001068	52.50	011792	52.50	023904	52.50	032928	84.18
001182	77.69	011807	52.50	024069	52.50	032940	81.17
001295	52.50	011809	83.69	024347	87.07	033390	78.04
001405	52.50	012101	76.90	024472	84.90	033403	80.20
001511	52.50	012142	52.50	024645	52.50	033963	83.10
001901	52.50	012261	75.69	024728	52.50	033972	83.05
002347	52.50	012456	52.50	024907	87.07	034104	75.00
002354	52.50	012621	52.50	025097	79.19	034115	52.50
002382	52.50	012668	82.78	025101	76.89	034302	82.95
002458	82.85	012695	52.50	025224	52.50	034316	83.10
002499	75.82	012806	52.50	025448	79.19	034541	81.17
003256	52.50	012992	52.50	025578	52.50	034962	80.21
003446	83.85	013198	52.50	025593	52.50	034991	80.21
003460	52.50	013572	83.78	025599	52.50	035023	82.94
003678	82.87	013816	81.76	025615	87.07	035088	81.18
003945	85.96	013948	83.98	025633	52.50	035281	82.98
004004	85.96	014543	52.50	025673	84.90	035305	81.18
004126	85.96	014813	77.78	025815	87.07	035366	81.18
004153	85.96	015312	77.95	026081	82.89	035378	81.18
004189	76.89	015401	52.50	026125	78.09	035755	52.50
004341	85.96	015667	52.50	026135	87.07	035812	52.50
004768	85.96	015726	52.50	026218	87.07	035940	80.21
005267	85.96	015803	77.78	026222	87.07	036369	52.50
005353	52.50	016090	52.50	026322	52.50	036423	75.94
005397	85.96	016227	82.94	026337	52.50	036558	77.94
005658	52.50	016566	77.73	026338	87.07	036596	80.21
005970	52.50	016647	83.70	026675	52.50	036617	83.95
006170	52.50	017278	52.50	026745	79.19	036621	81.18
006171	52.50	017465	52.50	026857	52.50	037018	83.02
006231	52.50	017468	52.50	027286	76.90	037062	83.02
006239	52.50	017648	52.50	027309	83.85	037083	83.02
006818	52.50	018076	52.50	027655	79.19	037217	83.95
007238	52.50	018180	80.94	027784	52.50	037417	79.00
007416	52.50	018253	52.50	027819	79.19	037418	79.00
007454	52.50	018338	52.50	027868	79.19	037433	79.00
007878	52.50	018623	52.50	027894	79.00	037464	83.02
007936	52.50	019245	52.50	028008	76.90	037480	83.02
008125	52.50	019276	52.50	028041	52.50	037507	83.02
008154	52.50	019395	52.50	028116	76.01	037738	80.26
008239	52.50	019532	52.50	028227	82.90	037771	80.26
008305	52.50	019560	52.50	028618	75.03	037780	80.26
008325	52.50	019813	52.50	028754	78.03	037876	77.07
008487	52.50	019833	52.50	029022	52.50	038336	80.06
008691	84.60	019852	52.50	029096	80.04	038384	79.00
008709	52.50	020338	79.00	029121	52.50	038430	80.26
008939	52.50	020777	52.50	029127	52.50	038432	79.00
008946	52.50	021334	52.50	029483	79.00	038441	83.95
009125	52.50	021384	52.50	029861	78.10	038461	79.00
009196	52.50	021492	52.50	029988	52.50	038483	80.26
009221	52.50	022182	52.50	030783	79.08	038534	75.94
009224	52.50	022256	86.97	030992	82.88	038561	52.50
009291	52.50	022466	83.01	030997	52.50	038655	78.03
009410	52.50	022627	52.50	031214	77.05	038683	78.03

Table 2.10.1. (cont.) Epochs of plates for the DSS charts: epoch = year – 1900

HIP	Epoch	HIP	Epoch	HIP	Epoch	HIP	Epoch
038703	80.26	048422	52.50	058987	76.26	067823	75.50
038716	78.03	049139	76.26	058999	87.26	067849	75.50
038721	79.00	049314	77.05	059026	87.26	067906	75.50
038772	76.99	050230	87.19	059069	87.26	068422	80.00
038788	79.00	050610	78.17	059101	87.26	069005	76.27
038798	87.25	050697	81.17	059551	75.00	069084	52.50
038820	76.25	050702	75.00	060488	87.07	069163	74.47
038854	87.25	050704	77.06	060737	87.26	069285	74.47
038915	83.04	050717	75.00	060751	87.07	069292	74.46
038956	52.50	051595	80.07	060814	87.26	069445	87.40
039750	79.24	051612	81.17	060857	87.26	069860	52.50
039987	79.97	051719	78.17	060863	87.07	070079	76.33
040186	82.88	051773	87.19	060875	87.07	070417	75.44
040272	79.97	051857	75.00	060967	76.30	070423	76.19
040351	52.50	051866	87.19	060971	87.26	070730	76.19
040379	76.97	052171	87.19	060974	87.26	070733	76.19
040679	87.25	052444	87.05	061440	76.25	070832	76.19
040717	77.21	052488	87.05	061713	52.50	070870	76.19
040721	77.21	052651	87.08	061874	76.30	070911	76.19
040723	87.25	052839	87.08	061978	87.07	070925	76.19
040730	77.21	052854	80.20	061997	87.26	070975	83.35
040748	87.25	052887	87.08	062115	87.26	071195	80.21
040764	77.21	052988	77.06	062135	76.30	071228	76.19
040769	78.11	053150	79.15	062181	52.50	071389	52.50
041076	52.50	053213	79.31	062374	52.50	071922	75.36
041503	79.99	053491	87.05	062913	75.00	072115	52.50
041661	52.50	053630	75.36	062918	75.00	072287	52.50
041697	76.26	053853	87.08	062931	75.00	072300	52.50
041824	52.50	053867	87.19	062937	75.00	072424	78.35
041936	52.50	053873	78.20	062949	87.07	072444	87.40
042115	84.03	054226	76.26	063040	87.46	072460	78.35
042714	77.28	054365	76.08	063303	52.50	072511	83.29
042787	79.00	054621	87.19	063399	79.16	072605	88.47
042964	52.50	054668	87.05	063488	78.13	072625	52.50
042979	87.19	054744	76.25	063835	87.07	072916	52.50
043465	52.50	054865	79.31	063882	52.50	073205	77.43
043491	52.50	054948	87.19	064438	83.19	073391	78.35
043650	87.19	055031	79.31	064763	75.41	073711	78.35
044232	87.19	055325	78.19	065307	76.25	073732	78.35
044243	87.19	055715	76.33	065344	83.36	073782	78.35
044263	52.50	055753	75.19	065362	83.36	073903	74.46
044605	52.50	055775	77.22	065597	76.25	074397	74.46
044848	77.22	055947	75.19	065618	76.25	074583	75.20
044949	76.08	055955	83.35	065655	76.25	074660	87.65
044968	75.27	056244	77.07	065669	76.41	074721	75.30
045050	76.31	056272	84.39	065782	76.25	074726	87.40
045069	52.50	056432	77.22	065786	76.25	074739	52.50
045205	75.27	056477	52.50	065809	76.49	075155	74.46
045292	83.20	056586	87.19	065818	76.25	075193	52.50
045570	76.31	056592	87.19	066027	76.25	075225	52.50
045880	52.50	056897	80.00	066028	76.25	075745	75.20
046488	84.18	056934	87.51	066054	76.25	075813	76.24
046502	76.31	057009	75.19	066732	77.15	076059	82.55
046610	76.31	057130	87.26	066993	75.27	076172	82.48
046624	79.22	057252	77.07	067164	82.30	076640	76.48
047066	83.13	057294	76.25	067204	76.25	076881	75.52
047085	79.99	057642	77.07	067207	75.50	076896	87.31
047307	52.50	057656	75.41	067227	78.33	076978	88.30
047539	83.36	058107	87.26	067232	75.00	077005	88.43
047626	77.07	058170	78.33	067286	75.19	077157	74.47
047680	77.05	058360	75.41	067626	79.19	077456	76.40
047890	77.05	058411	87.26	067757	76.33	077460	52.50
048159	79.99	058432	87.26	067761	82.52	077663	83.52
048270	52.50	058870	52.50	067798	75.19	077788	52.50
048338	76.31	058909	87.26	067820	75.50	077798	52.50

Table 2.10.1. (cont.) Epochs of plates for the DSS charts: epoch = year – 1900

HIP	Epoch	HIP	Epoch	HIP	Epoch	HIP	Epoch
078053	75.42	088079	52.50	097202	76.34	105261	81.57
078227	76.40	088118	76.33	097673	52.50	105485	52.50
078257	52.50	088333	87.71	097764	52.50	105622	52.50
078307	52.50	088446	76.25	097772	52.50	105638	77.70
078317	75.42	088495	76.34	097785	52.50	105701	52.50
078567	83.52	088786	87.71	097806	52.50	106172	52.50
078771	88.43	088802	76.33	098147	83.68	106175	52.50
078786	80.00	089018	52.50	098265	79.71	106210	52.50
078940	76.24	089278	87.56	098411	52.50	106290	52.50
079440	87.30	089324	76.34	098447	75.66	106417	52.50
079466	88.43	089483	87.56	098793	52.50	106565	82.56
079623	76.24	089535	87.38	098797	52.50	106649	76.66
079743	79.62	089653	86.66	098811	79.71	106905	52.50
079844	75.42	089681	75.00	098884	79.71	107408	52.50
079850	76.24	089743	86.66	098906	52.50	107968	52.50
079891	87.30	089750	86.66	099389	52.50	107983	52.50
079973	87.39	089831	87.56	099438	77.60	108052	52.50
080229	88.45	089842	86.66	099492	83.68	108457	52.50
080290	78.58	089903	76.33	099599	52.50	108523	78.81
080365	87.39	090199	52.50	099635	52.50	108594	75.60
080402	82.54	090249	52.50	099890	82.63	108706	52.50
080817	83.50	090273	52.50	099898	52.50	108768	76.66
080825	75.00	090392	52.50	100137	75.37	108890	77.78
080931	87.30	090658	75.68	100198	52.50	109010	52.50
081182	88.39	090707	83.68	100289	52.50	109020	52.50
081258	76.33	090711	87.38	100818	79.62	109603	52.50
081309	87.30	090983	78.57	101063	78.73	109715	80.48
081463	76.25	091197	78.57	101356	82.63	109756	52.50
082084	76.33	091419	52.50	101453	82.63	110160	78.82
082097	76.33	091420	78.57	101461	79.62	110213	52.50
082318	76.24	091437	52.50	101519	52.50	110280	52.50
082348	87.30	091443	76.63	101527	52.50	110292	82.62
082676	88.29	092009	86.66	101540	52.50	110736	80.77
082691	88.29	092059	87.63	101566	52.50	110964	52.50
082706	75.00	092221	52.50	101574	76.63	111094	52.50
082819	88.29	092486	52.50	101743	52.50	111858	52.50
082876	75.00	092548	52.50	101856	52.50	111932	52.50
082899	76.63	092716	86.67	102190	52.50	111976	52.50
082904	76.63	092811	80.61	102606	52.50	112334	52.50
083008	76.33	092903	52.50	102679	82.56	112558	52.50
083012	76.33	092945	78.58	102682	77.53	112887	52.50
083573	88.29	093030	52.50	102732	52.50	113373	52.50
083582	84.25	093047	52.50	103106	52.50	113652	77.78
083762	52.50	093293	87.59	103180	77.53	113894	52.50
083869	76.24	093477	77.53	103185	52.50	114253	52.50
083944	76.63	093791	76.41	103364	52.50	114469	52.50
084369	76.25	093932	52.50	103393	82.64	114490	52.50
084708	76.26	093987	52.50	103441	52.50	114552	52.50
084752	52.50	094289	52.50	103839	77.53	114791	52.50
084901	87.70	094312	74.56	103992	82.70	114995	52.50
084986	87.70	094419	76.41	104013	52.50	115521	52.50
085245	87.70	095032	52.50	104023	80.52	115566	52.50
085429	52.50	095071	82.56	104078	52.50	116497	52.50
085473	76.26	095444	76.71	104093	52.50	116684	52.50
086011	87.31	095649	52.50	104137	52.50	117728	80.54
086562	78.58	095672	80.53	104170	52.50	118059	52.50
086616	52.50	095676	78.68	104270	52.50	118066	52.50
086714	52.50	095702	52.50	104384	52.50	118163	52.50
086836	77.63	095856	83.68	104623	52.50	118172	52.50
086895	76.25	096515	76.34	104645	76.71	118174	52.50
086897	82.62	096532	52.50	104709	52.50	118188	52.50
087388	87.34	096538	52.50	104777	79.62	118196	52.50
087487	52.50	096581	79.69	104888	52.50	120121	75.34
087938	52.50	096974	75.66	104921	52.50	120132	87.71

2.10.2. Identification Tables

The second part of Volume 13 contains 6 cross-identification tables, organised as follows:

Table 1. HIP Numbers Inconsistent with the HIC Cross-Identifiers

Table 1 gives the HIP number of stars for which the satellite was significantly mispointed because of particularly inaccurate *a priori* coordinates, or for which the identification was erroneous and the star observed by the satellite does not correspond to the identifier(s) or to the component(s) given in the Hipparcos Input Catalogue. Some identification errors (reflected in the Hipparcos Input Catalogue compilation) originated from the literature, where a given variable or high proper motion star was associated with a particular HD or DM number, while the Hipparcos observations showed that the star observed is not variable, or not a high proper motion star.

These inconsistencies are listed for appropriate entries in the corresponding notes of the Hipparcos Catalogue. Resulting corrections to the associated cross-identifications are also reflected in Tables 2 and 5, in Fields H71–74 of the machine-readable version of the Hipparcos Catalogue, and in the updated version of the Hipparcos Input Catalogue included in *Celestia 2000*.

Stars for which a discrepancy was found between the Hipparcos results and the *a priori* information given in the Hipparcos Input Catalogue, but for which a misidentification was not fully evident, are indicated in the corresponding catalogue notes but are not given in this table.

Table 2. HD (Henry Draper) Catalogue Numbers

Table 2 allows the HIP number corresponding to a given HD number to be located. It is ordered according to the running number in the HD Catalogue. Since one HIP number may, in the case of multiple systems, relate to more than one HD number, the same HIP number may be found twice (or, possibly, three times) corresponding to different HD numbers.

Corrections to the cross-identification between HIP and HD numbers, especially (but not only) for multiple systems, for variable stars and for high proper motion stars, have been compiled since the publication of the Hipparcos Input Catalogue. In particular, the lists of errata published by Dommanget & Nys (*Bull. Inf. CDS*, 1995, 46, 13; *Bull. Inf. CDS*, 1996, 48, 19), and identification errors and missed targets indicated in the notes of the Hipparcos Catalogue, have been taken into account. In addition, errors and additions collected when incorporating the HIC identifier into SIMBAD have also been accounted for.

Table 3. HR (Bright Star) Catalogue Numbers

Table 3 allows the HIP number corresponding to a given HR number to be located. It is ordered according to the running number in the HR (Bright Star) Catalogue.

Table 4. Bayer and Flamsteed Names

Table 4 gives the HIP number for stars known under a Bayer and/or Flamsteed name. Constellations are sorted by their full name (not the abbreviated form, thus Cam, Cnc, CVn, CMa, CMi, Cap, Car, etc.). Within each constellation names are sorted either alphabetically (Bayer) or by increasing numbers (Flamsteed), as follows:

- Bayer (Greek letters)
- Bayer (lower case letters)
- Bayer (upper case letters)
- Flamsteed (numbers)

For the machine readable version of Table 4, the equivalence between the phonetic equivalent (and inclusion of the underscore syntax linking the two parts of the star name) follows the convention described under Field P17 of the Variable Star Annex (Section 2.4). A component identification may be given after the star name, thus 59_And_A.

Table 5. Variable Star Names

Table 5 gives the variable star names (i.e. those of the type RR Lyr or V500 Lyr) for all Hipparcos stars properly identified with a variable star name. The table includes stars that were subsequently found to be constant (as indicated in the literature or as found from the Hipparcos data) but excludes those stars that were found to be misidentified in the Hipparcos Input Catalogue (see Table 1). When stars were found to be variable, the variable star name also appears in either Field P17 or Field U17 of Section 2.4. These also include the stars newly discovered as variable from the analysis of Hipparcos epoch photometry, where newly-assigned variable star names were allocated, under the authority of the IAU, by N.N. Samus and colleagues (Moscow).

Variable star names are ordered according to the full name of the constellation (not the abbreviated form, thus Cam, Cnc, CVn, CMa, CMi, Cap, Car, etc.). Within each constellation, they are ordered as follows: Bayer names (Greek letters), Bayer names (lower case), Bayer names (upper case), R, S, ..., Z, RR, RS, ..., ZZ, AA, ..., QZ, V335, V336, ...

For the machine readable version of Table 5, the equivalence between the phonetic equivalent (and inclusion of the underscore syntax linking the two parts of the star name) follows the convention described under Field P17 of the Variable Star Annex (Section 2.4).

Table 6. Common Star Names

Table 6 gives the HIP identifier for a number of stars known under other common or historical designations. The HIP number of the quasar 3C273 is also included.