

NUMBER HISTORY

Project #'s

QTY 2222	Unique project #'s			
	2100 thru 2199	4 Meter	158	
	2150.260	4 Meter	158	PRIMARY MIRROR CELL ASSY

Ref. File #'s

QTY 2002	Unique Ref File #'s			
4M - KPNO Tele	SECTION A - STELLAR	158	1151 - 1499	
	1151	TELESCOPE ASSY		
	1171	PRIMARY MIRROR CELL ASSY		

Numbering systems	example 1	example 2	~ era
####	5000-9000		1955-1960's
####.A#	2024.E1		mid 1960's
####.VA#	2024.VE1		mid 1960's
####.KA#	2024.KE1		mid 1960's
####.# A#	2024.1 E1		
####.## A#	2024.01 E1		mid 1960's
####.### A#	2024.001 E1	2024.920 E1	mid 1970's
####.#####A	2024.0008992C	2024.9809999D	1987 > late 1990's
XXX.####.####	158.4005.0001	WYN.4005.5005	late 90's - early 2000
XXX-AA-##-####	NFM-ME-01-0001		current
XXXX-AA-##-####	TRNT-EL-04-0001		current
####-AA-###-####	2100-ME-255-0001		current
An array of Vendor #'s			
from 1 to 12 characters			

LEGEND	
# =	Strictly a number
A =	Alpha character
X =	Can be Alpha or number
V =	is a fixed character of the number
K =	is a fixed character of the number

Standard names to replace all "." and spaces with a "-"

2024-001-E1

XXXX	-	XX	-	XXX	-	XXXX	-	X	-	XXX	
Designator											
Tele / Inst	-	Category	-	Sub-Division	-	Document Number	-	Type	-	Serial No.	
				001 Operational Concepts (OCDD)	-	0001-XXXX....		P Prototype	-	Serial No.	
				002 Functional Performance (FPRD)	-	0001-XXXX....			-	for EL dwg	
				003 Test & Integration Plan	-	0001-XXXX....		N Non-Prototype	-	only, if req.	
				004 Quality Assurance Plan	-	0001-XXXX....					
				005 Risk Management Plan	-	0001-XXXX....					
1000		AD Administrative		006 Users Manual	-	0001-XXXX....					
2000				007 Presentations	-	0001-XXXX....					
2036				008 Other Important Data (traceable information)	-	0001-XXXX....					
2100				009 Forms & templates	-	0001-XXXX....					
2200				010 Doc Control	-	0001-XXXX....					
2205				011 Published Binders & eBinders	-	0001-XXXX....					
2210				012 System configuration	-	0001-XXXX....					
2500				013 Product specification (datasheet, requirements, specifications)	-	0001-XXXX....					
3000				014 Interfact Control Diagrams (IDC)	-	0001-XXXX....					
3075				015 Procedures	-	0001-XXXX....					
3500			AN Analysis		001 Optical	-	0001-XXXX....				
4000					002 Structural	-	0001-XXXX....				
4005					003 Thermal	-	0001-XXXX....				
4010					004 Design	-	0001-XXXX....				
4900			EL Electronics		010 Block Diagrams	-	0001-XXXX....				
5000				020 Mechanical Assemblies electronics chassis & boxes assemblies	-	0001-XXXX....					
6000				021 Mechanical details electronics chss & boxes	-	0001-XXXX....					
7000				022 Mech - details of altered OEM items	-	0001-XXXX....					
COS				023 Tools, (HW& SW), Fixtures, ETCs for elect stuff	-	0001-XXXX....					
KOS				030 Cabling Drawings & Lists	-	0001-XXXX....					
M1U				040 Card Layouts - card assembly	-	0001-XXXX....					
MNSN				041 Card detail (fabrication)	-	0001-XXXX....					
NFM				042 Card schematics	-	0001-XXXX....					
TRNT				043 Card artwork	-	0001-XXXX....					
				044 Card BOMs (parts lists)	-	0001-XXXX....					
				045 Board Description Document	-	0001-XXXX....					
				050 Interconnect & Wire Diagrams, Wire lists	-	0001-XXXX....					
				060 Firmware	-	0001-XXXX....					
				070 ASSEMBLY RECORDS	-	0001-XXXX....					
			071 Board ASSEMBLY RECORD TAG	-	0001-XXXX....						
			072 Chassis ASSEMBLY RECORD TAG	-	0001-XXXX....						
			073 System ASSEMBLY RECORD TAG	-	0001-XXXX....						
			080 Functional Test Record (reports)	-	0001-XXXX....						
			090 OEM manuals and data	-	0001-XXXX....						
			100	-	0001-XXXX....						

Tele / Inst Designator*

1000	=	Global Organization Documents
2000	=	2.1 Meter
2036	=	.9 meter (36")
2100	=	4 Meter
2200	=	Vacuum Chamber
2205	=	4 Meter Aluminizing Facility
2210	=	2 Meter Aluminizing Facility
2500	=	KP Site Monitoring Suite (KPSMS)
3000	=	Solar
3075	=	Vacuum- Solis
3500	=	WIYN
4000	=	Std telescope instruments & their adaptors
4005	=	note univ dewars
4010	=	CCD Camera
4900	=	Misc Instruments
5000	=	Mountain
6000	=	Tucson
7000	=	Optics (if ot for specific designator)
COS	=	COSMOS
KOS	=	KOSMOS
M1U	=	Mosaic Upgrade 1.1
MNSN	=	MONSOON
NFM	=	NEWFIRM
TRNT	=	TORRENT

XXXX	-	XX	-	XXX	-	XXXX	-	X	-	XXX
Designator										
Tele / Inst	-	Category	-	Sub-Division	-	Document Number	-	Type	-	Serial No.
				000 Building & Dome Structure	-	0001-XXXX....	-			
				005 Civil (Site Plan)	-	0001-XXXX....	-			
				010 Architectural (building, plot, floor plans, pier & foundation, observing room)	-	0001-XXXX....	-			
				020 Mechanical (plumbing, hvac, glycol)	-	0001-XXXX....	-			
				025 Fire Protection	-	0001-XXXX....	-			
				030 Dome Systems	-	0001-XXXX....	-			
				031 Drives	-	0001-XXXX....	-	1000	=	Global Organization Documents
1000				032 Shutter & Wind Scrn	-	0001-XXXX....	-	2000	=	2.1 Meter
2000				033 Crane	-	0001-XXXX....	-	2036	=	.9 meter (36")
2036				040 Elevator & Platform	-	0001-XXXX....	-	2100	=	4 Meter
2100				050 Building Electrical	-	0001-XXXX....	-	2200	=	Vacuum Chamber
2200				060 Structural	-	0001-XXXX....	-	2205	=	4 Meter Aluminizing Facility
2205				100 General Assemblies & Misc	-	0001-XXXX....	-	2210	=	2 Meter Aluminizing Facility
2210				105 Base Frame	-	0001-XXXX....	-	2500	=	KP Site Monitoring Suite (KPSMS)
2500				110 Polar Axis-Azimuth	-	0001-XXXX....	-	3000	=	Solar
3000				115 Cable Wrap Up	-	0001-XXXX....	-	3075	=	Vacuum- Solis
3075				125 Tube-OSS	-	0001-XXXX....	-	3500	=	WIYN
3500				130 Center Section	-	0001-XXXX....	-	4000	=	Std telescope instruments & their adaptors
4000				135 Counterweights	-	0001-XXXX....	-	4005	=	note univ dewars
4005				140 Top End Assembly	-	0001-XXXX....	-	4010	=	CCD Camera
4010				Optical Systems (mechanical perspective)	-	0001-XXXX....	-	4900	=	Misc Instruments
4900				200 (Cells, Accessories, support details & assemblies)	-	0001-XXXX....	-	5000	=	Mountain
5000				210 Primary	-	0001-XXXX....	-	6000	=	Tucson
6000				220 Secondary	-	0001-XXXX....	-	7000	=	Optics (if ot for specific designator)
7000				230 Tertiary	-	0001-XXXX....	-	COS	=	COSMOS
COS				240 Layout	-	0001-XXXX....	-	KOS	=	KOSMOS
KOS				300 Telescope Systems	-	0001-XXXX....	-	M1U	=	Mosaic Upgrade 1.1
M1U				310 Drive Systems	-	0001-XXXX....	-	MNSN	=	MONSOON
MNSN				311 R.A. Drive	-	0001-XXXX....	-	NFM	=	NEWFIRM
NFM				312 Dec. Drive	-	0001-XXXX....	-	TRNT	=	TORRENT
TRNT				313 Altitude	-	0001-XXXX....	-			
				314 Azimuth	-	0001-XXXX....	-			
				320 Prime Focus systems	-	0001-XXXX....	-			
				321 Corrector	-	0001-XXXX....	-			
				330 Telescope Service Systems	-	0001-XXXX....	-			
				331 Oil System	-	0001-XXXX....	-			
				332 Compressed Air Sys	-	0001-XXXX....	-			
				333 Helium Sys	-	0001-XXXX....	-			
				334 Chiller Sys (telescope)	-	0001-XXXX....	-			
				335 Vacuum System (telescope)	-	0001-XXXX....	-			
				350 Control Systems	-	0001-XXXX....	-			

XXXX	-	XX	-	XXX	-	XXXX	-	X	-	XXX	
Designator											
Tele / Inst	-	Category	-	Sub-Division	-	Document Number	-	Type	-	Serial No.	
1000	-	ME Mechanical	-	351 Main Console	-	0001-XXXX....	-	1000	=	Global Organization Documents	
2000	-		-	352 Console Control (Standard Equip)	-	0001-XXXX....	-	2000	=	2.1 Meter (84")	
2036	-		-	353 Hand Paddle	-	0001-XXXX....	-	2036	=	.9 meter (36")	
2100	-		-	400 <u>Cass Systems</u>	-	0001-XXXX....	-	2100	=	4 Meter	
2200	-		-	405 Calibration Source Assembly	-	0001-XXXX....	-	2200	=	Vacuum Chamber	
2205	-		-	415 Cass Guider	-	0001-XXXX....	-	2205	=	4 Meter Aluminizing Facility	
2210	-		-	420 Dewar Mount	-	0001-XXXX....	-	2210	=	2 Meter Aluminizing Facility	
	-		-	450 Adapters (universal type)	-	0001-XXXX....	-	2500	=	KP Site Monitoring Suite (KPSMS)	
	-		-	460 Cass Rotator	-	0001-XXXX....	-	3000	=	Solar	
	-		-	600 <u>Handling Equipment</u>	-	0001-XXXX....	-	3075	=	Vacuum- Solis	
2500	-		-	655 Mirror Handling Equipment	-	0001-XXXX....	-	3500	=	WIYN	
3000	-		-	660 Handling Carts	-	0001-XXXX....	-	4000	=	Std telescope instruments & their adaptors	
3075	-		-	700 <u>Test Equipment</u>	-	0001-XXXX....	-	4005	=	note univ dewars	
3500	-		-	705 Collimation Equipment	-	0001-XXXX....	-	4010	=	CCD Camera	
4000	-	OP Optical elements & Design	-	710 Instrumentation Test Equipment	-	0001-XXXX....	-	4900	=	Misc Instruments	
4005	-		-	715 Calibration & screen (white spot)	-	0001-XXXX....	-	5000	=	Mountain	
4010	-		-	000 <u>Optics & Optical Systems</u>	-	0001-XXXX....	-	6000	=	Tucson	
4900	-		-	001 Spot Diagrams	-	0001-XXXX....	-	7000	=	Optics (if ot for specific designator)	
5000	-		-	002 Clear Apertures	-	0001-XXXX....	-	COS	=	COSMOS	
6000	-		-	003 Ray Traces	-	0001-XXXX....	-	KOS	=	KOSMOS	
7000	-		-	004 Misc.	-	0001-XXXX....	-	M1U	=	Mosaic Upgrade 1.1	
COS	-		-	010 Mirrors	-	0001-XXXX....	-	MNSN	=	MONSOON	
KOS	-		-	020 Lens	-	0001-XXXX....	-	NFM	=	NEWFIRM	
M1U	-		-	030 Filters	-	0001-XXXX....	-	TRNT	=	TORRENT	
MNSN	-		-	040 Windows	-	0001-XXXX....	-		=		
NFM	-		SW Software	-	001 Block Diagrams	-	0001-XXXX....	-		=	
TRNT	-			-	002 Source Code	-	0001-XXXX....	-		=	

XXX - XX - XX - XXXX

PROJECT	CATEGORY	SUB-DIVISION	DOC. NUMBER
	01 ADMINISTRATIVE AD	01 ICDs	0001-9999
		02 SDNs	0001-9999
		03 Operational Concepts (OCDD)	0001-9999
		04 Functional Performance (FPRD)	0001-9999
		05 Test & Integration Plan	0001-9999
		06 Quality Assurance Plan	0001-9999
		07 Risk Management Plan	0001-9999
	02 ANALYSIS AN	01 OPTICAL	0001-9999
		02 STRUCTURAL	0001-9999
		03 THERMAL	0001-9999
	03 ELECTRONICS DWGS EL	01 BLOCK DIAGRAMS	0001-9999
		02 SCHEMATICS	0001-9999
		03 CARD LAYOUT	0001-9999
		04 WIRE LIST	0001-9999
		05 ARTWORK	0001-9999
		06 PARTS LIST	0001-9999
		07 WIRING DIAGRAMS	0001-9999
		08 CABLING DIAGRAMS	0001-9999
	04 MECHANICAL DWGS MD	01 INSTRUMENT DRAWINGS	0001-0999 ASSEMBLIES
			1001-9999 DETAILS
		02 HANDLING FIXTURES	0001-0999 ASSEMBLIES
			1001-9999 DETAILS
		03 TEST FIXTURES	0001-0999 ASSEMBLIES
		1001-9999 DETAILS	
	04 PROCESS CTRL SPECS	0001-9999	
	05 RAY TRACES	0001-9999	
	05 OPTICAL DESIGN OP	01 SPOT DIAGRAMS	0001-9999
		02 CLEAR APERTURES	0001-9999
		03 RAY TRACES	0001-9999
		04 MISC	0001-9999
	06 PROTOTYPING PR	01	0001-9999
		02	0001-9999
03		0001-9999	
04		0001-9999	
05		0001-9999	
07 SOFTWARE SW	01	0001-9999	
	02	0001-9999	
	03	0001-9999	
	04	0001-9999	
	05	0001-9999	
08 TESTING TS	01	0001-9999	
	02	0001-9999	
	03	0001-9999	
	04	0001-9999	
	05	0001-9999	

EXAMPLES:

NFM-MD-01-0005
WYN-04-01-1023

DRAWING NUMBERING SYSTEM
150" Telescope Project

2150.000	150" Mounting (general)	2150.000
2150.100	" Telescope Frame	MIR...
.200	" " Mounting	
.300	" " R.A. Drive	
.400	" " Declination Drive	
.500	" " Prime Focus & Secondary Mountings	
.600	" " Cassegrain Cage	
.700	" " Optical Diagram & Details HYDRAULIC	
.800	" " Hydraulic System Tools	
.900		
2151.000	150" Telescope Dome (general)	
.100	Dome Structure (includes insulation)	
.200	Shutter (both)	
.300	Wind Screen	
.400	Dome drive & trucks	
.500		
.600	Cranes	
.700	Air Conditioning	
.800	Utility Power & Control	
.900	Instrument Power & Control	
2152.000	150" Telescope Building (general)	
.100	Building structure	
.200	Pier	
.300	Utility power & lighting	
.400	Instrument power	
.500	Plumbing (H.P. Air, Water, Sewer)	
.600	Communications	
.700	Elevators	
.800	Air Conditioning	
.900	Foundations	
2153.000	150" Telescope Power House	
.100	Structure	
.200	Powerplant	
.300	Switch Gear & Transformers	
.400	Plumbing	
.500	Air exhaust	
.600	Wiring	
.700	Air Conditioning equipment	
.800		
.900		

Drawing Numbering System
150" Telescope Project
6-16-66

2154.000	150" Telescope Access, Site Preparation & Landscaping
.100	Access Road
.200	Site excavation
.300	Power feed
.400	Water, sewer
.500	Landscaping
.600	
.700	
.800	
.900	
2155.000	150" Telescope Grinding Machine
.100	Grinding machine, tool & band (C.W. Jones)
.200	Tool drive
.300	Table drive
.400	Electric power & control
.500	Hydraulic Piping & control
.600	Wooden Platform Structure
2156.000	150" Telescope Test Optics & Apparatus
.100	100" Aluminum test sphere & grinding tool
.200	Test apparatus
.300	Mirror Handling Facilities
2157.000	150" Telescope Aluminizing Tank (buy-out)
2158.000	(4M) 150" Telescope Coude' Spectrograph
.100	Frame fabrication
.200	Optical Diagram & Details
.300	#1 Camera
.400	#2 Camera
.500	#3 Camera
.600	Slit Plate & Apparatus
.700	#5 Coude' Mirror
.800	Collimator
.900	Grating Mounting & Storage
2159.000	Miscellaneous General
.100	Pert Charts
.200	4M Telescope F/163 Narrow Beam Coude' System
.201	Optical Diagram & Details
.202	Secondary Mirror Assembly
.203	No. 3 Mirror Assembly
.204	No. 4 Mirror Assembly
8150.00	ERL Printed Circuit Cards

Drawing Numbering System
150" Telescope Project
6-16-66

As an example we propose to use the before-mentioned numbers
as follows:

2150.100 E1 Frame Assembly
 E2
 E3 etc
2150.100 D1 etc

2150.110 E1 etc Rear frame section
2150.110 D1 etc

2150.120 E1 etc Front frame section
2150.120 D1 etc

2150.200 E1 etc Mounting assembly
 D1 etc

.210 E1 etc Yoke Assembly & details
.210 D1 etc



STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 1 of 6
Issued 9-17-68
Re-issued 5-1-70
8-16-71

NUMBERING SYSTEM FOR KPNO DRAWINGS

1. Numbering Procedure

- a. The first number of the 4 digit drawing number will indicate the main division or category. See Table 1 below.

TABLE 1

2	Stellar Division
3	Solar Division
4	Planetary Sciences
5	Mountain Facilities
6	City Facilities
7	Optical Tools, Machines and Testing Equipment
8	Electronics (for drawings of electrical arrangements which are not an integral part of an instrument or a unit of equipment)
9	Misc. General (pertains to equipment, instruments, etc., not directly related to any <u>one</u> category above)

- b. The second, third and fourth numbers, together with the first number, denote the project number. The project number will be the same on all drawings for one project. See examples following.
- c. A dash line shall follow the project number, after which the drawing sheet size shall be indicated. See Table 2 and examples following.

TABLE 2

-A	8½" x 11" sheet size
-B	11" x 17" sheet size
-C	17" x 22" sheet size
-D	22" x 34" sheet size
-E	34" x 44" sheet size
-R	34" or 36" wide ROLL drawings (greater than 48" long)
-KA	} Indicates sketch type drawings of a reference or temporary nature and are not an actual formal drawing used for manufacture or building, but rather they are preliminary and study layouts for projects.
-KB	
-KC	
-KD	
-KE	
-KR	



STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 2 of 6
Issued 9-17-68
Re-issued 5-1-70

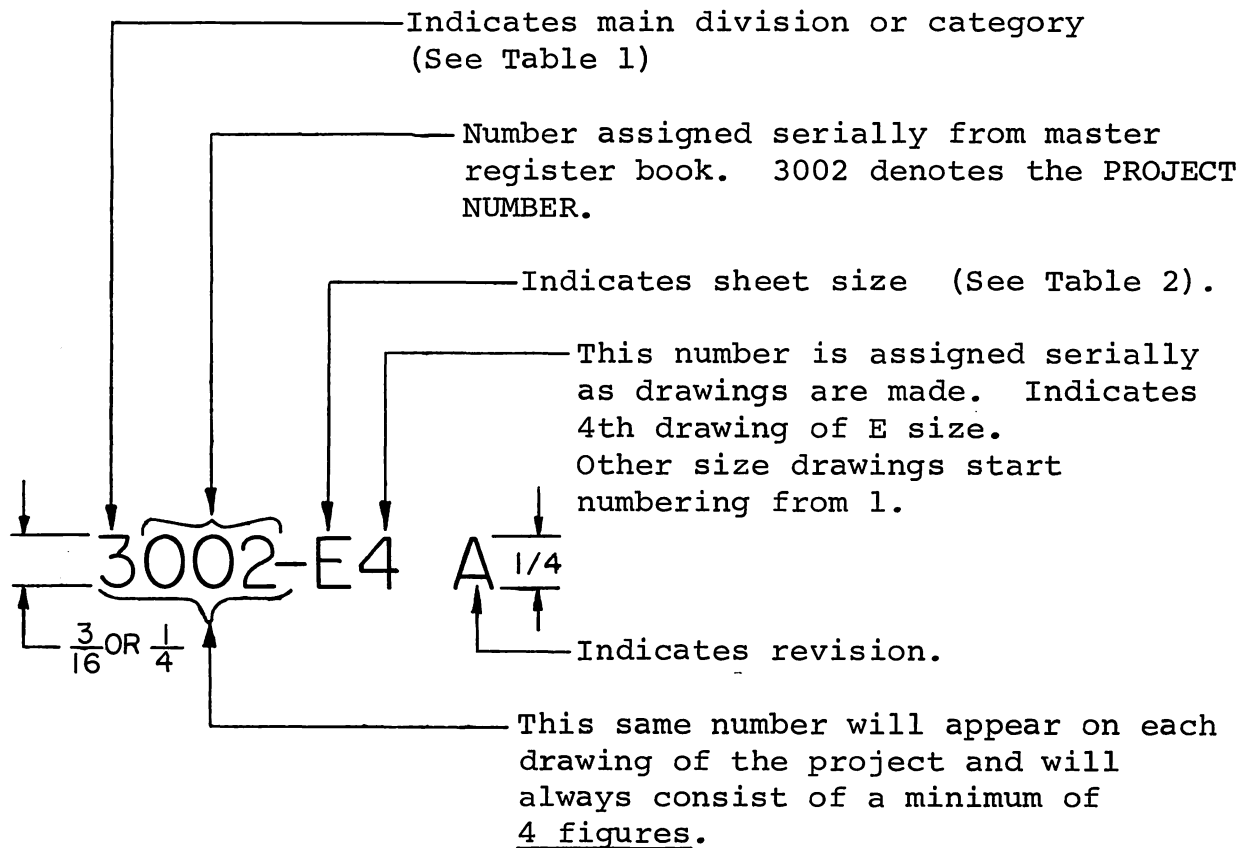
NUMBERING SYSTEM FOR KPNO DRAWINGS

-VA }
-VB } Indicates vendors' originals (made by others)
-VC } which are kept in our files.
-VD }
-VE }
-VR }

- d. The number following the sheet size designation is the sheet number of the project which is assigned numerically as the drawings are made. See examples following:

EXAMPLES

Drawing number.





STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 3 of 6
Issued 9-17-68
Re-issued 5-1-70

NUMBERING SYSTEM FOR KPNO DRAWINGS

Drawing number for large projects (such as 84" Spectrograph).

2028.05-D6

Indicates 5th MAJOR ASSEMBLY of total project. (Example: "Cass. Image Tube Mounting Equip." for 84" Tel.)

Note: Use the above only on large projects all of which will be drawn together as a unit. 2028 is the project number and D6 indicated the 6th D size drawing made. 3 digits after the decimal can be used on very large projects (such as 150" Telescope).

Item number of a part of sub-assembly.

Indicates 3rd item of the 4th D size drawing.

D4-3

This number is not included when referring to the drawing number.

2. Item Numbers

- a. The item numbers are used to identify details, purchased parts and sub-assemblies. The item numbers and sub-assembly numbers will be written the same in 3 places (under detail to the left of the title, in the bill of material, and under sub-assembly views) and also wherever they are referenced.

3. Using Components from Other Projects

- a. In cases where an item from another project is to be used, a reproducible copy shall be made. The previous drawing number shall be eradicated and the proper drawing number applied. Parts of the drawing which do not pertain shall be cross-hatched out. This may not always be practical, so please consult the Drafting Supervisor for a final decision. See also DP-12.



STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 4 of 6
Issued 9-17-68
Re-issued 5-1-70

NUMBERING SYSTEM FOR KPNO DRAWINGS

4. Revisions

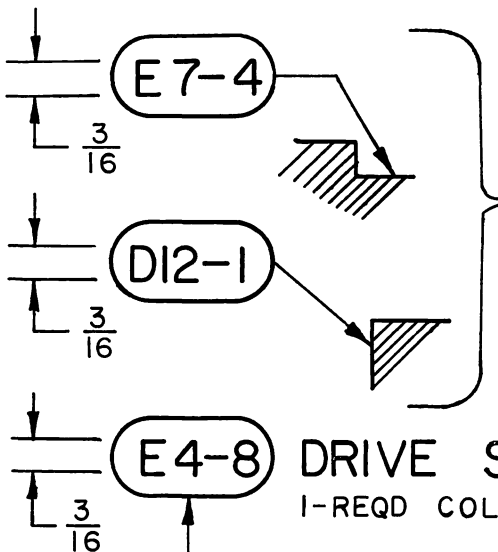
- a. When a drawing is revised, the revision letter shall be applied as noted in examples on sheet 2. Use all letters of the alphabet except I, O, Q, & X. Only the drawing being revised shall have the revision letter applied. When the item number is used, or referred to, it need not indicate the revision letter. The revision letter shall also be placed at the vicinity of the revision in a hexagon, thusly:

In cases where many revisions are made under one letter, subscripts may be used to assist location of revision as

described, such as:

The revision shall be described very briefly in the appropriate block at the bottom of the drawing. Please refer to GDP-9 for complete revision instructions.

5. Item and Sub-Assembly Numbers -- Proportions



Use on assembly and sub-assembly drawings to indicate where parts are. If an assembly or sub-assembly is referenced, it should carry the entire number.

E4-8 DRIVE SHAFT
1-REQD COLD ROLLED STEEL

Alloy callout required only if specific alloy is required. See M-1.

Use template provided to make the enclosure. The enclosure is not used in the bill of material.



STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 5 of 6
Issued 9-17-68
Re-Issued 5-1-70
8-16-71

NUMBERING SYSTEM FOR KPNO DRAWINGS

6. Selection of Sheet Numbers

- a. Plan to use the next available sheet number of a project for the main assembly drawings. If a new project, the numbers will be E1, D1, etc. Then, for sub-assemblies, use the next succeeding numbers, thusly: -E2, -E3, or -D2, -D3. Detail drawings will follow these assemblies in a logical order. In cases where drawings will be added to a project previously drawn up, use the next available number, even though it may be for an assembly. Make the letters and numbers clearly.

7. Assignment of Numbers

- a. A Drawing Register Book is provided to take out Project Numbers and Drawing Sheet Numbers. If the project is new, the first step is to take out a PROJECT NO. (in front of book), giving the information requested in the book. At this time a reference file number will also be assigned. This number is to be shown in the appropriate location on all drawings. Ref Standard GDP-3, 2 of 2.
- b. The second step is to enter on the drawing assignment sheet (the sheets following the project numbers) the sheet numbers and their titles as they are noted on the drawing. Follow the procedure as requested in the book.
- c. When taking out a Project Number, always check to see if a Project Number might have been previously taken for the same unit of equipment or project and, if so, use the same Project Number, but assign the next available sheet number. This will keep all drawings together for one project in the drawing files.

8. Indicate Total Number of Sheets for Project

- a. The total number of sheets for a complete project shall be noted on the main assembly drawing only above the title block.

EXAMPLE

PROJECT DRAWINGS

Sheet E1 thru E2
Sheet D1 thru D10
Sheet C1 thru C5



STANDARD DRAFTING PRACTICE

KITT PEAK NATIONAL OBSERVATORY

Standard No. GDP-6
Sheet 6 of 6
Issued 9-17-68
Re-issued 5-1-70

NUMBERING SYSTEM FOR KPNO DRAWINGS

- b. If a drawing is added or deleted from the project at a later date, the above notation MUST BE ALTERED.

IMPORTANT: Be sure to cross reference detail drawings by noting over the title block FOR ASSEMBLY SEE XXXX-XX.

9. a. "K" series numbers are considered as a separate series and should be indicated in their own size group and in consecutive numbers. Do not insert numerical "K" numbers with regular drawing numbers. (See attached sample) It is necessary to relocate the dash (-) when using the "K" series. The dash is to come before the "K".

