

MSFC No. III-5-509-4

IBM No. 66-966-0006

TECHNICAL MANUAL

**SATURN IB/V INSTRUMENT UNIT  
SYSTEM DESCRIPTION  
AND  
COMPONENT DATA**

**(S-IU-201-212/501-515)**

Prepared under Contract

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by

International Business Machines Corporation

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**1 June 1966**

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# LIST OF EFFECTIVE PAGES

Page	Issue	Page	Issue
*Title	1 Jun 67	*111	1 Jun 67
*A	1 Jun 67	112	Original
1 thru 11	1 Dec 66	113 thru 116	1 Dec 66
1 thru 3	1 Dec 66	117 thru 119	Original
*4 thru 44	1 Jun 67	120 Blank	Original
*44A thru 44B Added	1 Jun 67	121	Original
*45 thru 46	1 Jun 67	122	1 Dec 66
46A thru 46C	1 Dec 66	*123	1 Jun 67
46D Blank	1 Dec 66	124	1 Dec 66
*47 thru 52	1 Jun 67	*125 thru 126	1 Jun 67
53 thru 56A	1 Dec 66	127 thru 131	Original
56B Blank	1 Dec 66	132	1 Dec 66
57	Original	133 thru 134	Original
*58	1 Jun 67	*135 thru 136	1 Jun 67
59 thru 60	Original	137 thru 140	Original
*60A	1 Jun 67	141	1 Dec 66
60B Blank Added	1 Dec 66	142	Original
61 thru 62	Original	*143	1 Jun 67
*62A Added	1 Jun 67	144 thru 146	Original
*62B Blank Added	1 Jun 67	147	1 Dec 66
63 thru 68	Original	148	Original
*68A Added	1 Jun 67	149	1 Dec 66
*68B Blank Added	1 Jun 67	*150 thru 151	1 Jun 67
69	Original	152 thru 153	Original
*70	1 Jun 67	*154 thru 158	1 Jun 67
71	Original	159 thru 160	1 Dec 66
*72	1 Jun 67	*161	1 Jun 67
72A thru 72H Added	1 Dec 66	162	1 Dec 66
73 thru 75	Original	*163	1 Jun 67
*76	1 Jun 67	164 thru 168	1 Dec 66
77 thru 78	Original	169 thru 176	Original
*79	1 Jun 67	*177 thru 178	1 Jun 67
80 thru 82	Original	*178A thru 178D Added	1 Jun 67
83	1 Dec 66	179	Original
84 thru 85	Original	*180 thru 182	1 Jun 67
86 Blank	Original	183	Original
87 thru 88	1 Dec 66	*184 thru 186	1 Jun 67
88A Added	1 Dec 66	187	1 Dec 66
*88B	1 Jun 67	188	Original
89	1 Dec 66	*189 thru 190	1 Jun 67
90	Original	191	Original
91	1 Dec 66	*192	1 Jun 67
92 thru 93	Original	193 thru 200	Original
*94	1 Jun 67	*201	1 Jun 67
95 thru 98	Original	202 thru 208	Original
99	1 Dec 66	*210	1 Jun 67
100	Original	211 thru 217	Original
100A thru 100B Added	1 Dec 66	*218	1 Jun 67
*101	1 Jun 67	219 thru 229	Original
102	1 Dec 66	230 Blank	Original
*102A thru 102B Added	1 Jun 67		
103	Original		
104 thru 108	1 Dec 66		
109	Original		
110	1 Dec 66		

\*The asterisk indicates pages changed, added, or deleted by the current change.

Original	Revision	Change No. 1	Change No. 2				
1 Mar 1966	1 Jun 1966	1 Dec 1966	1 Jun 1967				

Table 1. Instrument Unit Component Alphabetical List

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Accelerometer Signal Conditioner	50M22107-003	603A21	20	104	201-204 & 501	109
	50M22107-005	603A21	20	104	205-206 502	109
	50M22107-009	603A21	20	104	207-212 503-515	109
Access Door	Ref. Page 72D	--	8	42A	201-212 501-515	72D
Auxiliary Power Distributor	40M37213-001	601A33	1	4	201	75
	40M37214-001	602A34	9	51	201	
	40M37220-001	602A33	1	4	202	
	40M37221-001	602A34	9	51	202	
	40M37227-001	601A33	1	4	203	
	40M37228-001	602A34	9	51	203	
	40Z37234-001	601A33	1	4	204	
	40Z37235-001	602A34	9	51	204	
	7910420-001	601A33	1	4	205	
	7910421-001	602A34	9	51	205	
	7910420-003	601A33	1	4	206	
	7910421-003	602A34	9	51	206	
	7910420-005	601A33	1	4	207	
	7910421-005	602A34	9	51	207	
	7910420-007	601A33	1	4	208	
	7910421-007	602A34	9	51	208	
	7910420-009	601A33	1	4	209	
	7910421-009	602A34	9	51	209	
	7910420-011	601A33	1	4	210	
	7910421-011	602A34	9	51	210	
	7910420-013	601A33	1	4	211	
	7910421-013	602A34	9	51	211	
	7910420-015	601A33	1	4	212	
	7910421-015	602A34	9	51	212	
	7910420-021	601A33	1	4	501	
	7910421-021	602A34	9	51	501	
	7910420-023	601A33	1	4	502	
	7910421-023	602A34	9	51	502	
	7910420-025	601A33	1	4	503	
	7910421-025	602A34	9	51	503	
7910420-027	601A33	1	4	504		
7910421-027	602A34	9	51	504		
7910420-029	601A33	1	4	505		

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Auxiliary Power Distributor	7910421-029	602A34	9	51	505	75
	7910420-031	601A33	1	4	506	
	7910421-031	602A34	9	51	506	
	7910420-033	601A33	1	4	507	
	7910421-033	602A34	9	51	507	
	7910420-035	601A33	1	4	508	
	7910421-035	602A34	9	51	508	
	7910420-037	601A33	1	4	509	
	7910421-037	602A34	9	51	509	
	7910420-039	601A33	1	4	510	
	7910421-039	602A34	9	51	510	
	7910420-041	601A33	1	4	511	
	7910421-041	602A34	9	51	511	
	7910420-043	601A33	1	4	512	
	7910421-043	602A34	9	51	512	
	7910420-045	601A33	1	4	513	
	7910421-045	602A34	9	51	513	
	7910420-047	601A33	1	4	514	
	7910421-047	602A34	9	51	514	
	7910420-049	601A33	1	4	515	
7910421-049	602A34	9	51	515		
Azusa Antenna Mod 711	50Z12333-001	601A428	See Fig. 2		201-208 501-505	--
Azusa RI Filter Assembly	50M12267-001	603A426	23	109	201-208 501-505	156
Azusa Transponder Type C	50M12266-001	603A427	23	110	201-208 501-505	157
Battery D10	40M20780-001	601A7	5	26	201-203	76
Battery D10	40Z20780-001	601A7	5	26	204-212 501-515	
Battery D20	40M20780-003	601A8	5	32	201-203	76
Battery D20	40Z20780-001	601A8	5	32	204-205 207-208 501-503	
Battery D30	40M20780-005	601A9	4	27	201-203	



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page	
Battery D30	40Z20780-001	601A9	4	27	204-212 501-515		
Battery D40	40M20780-007	601A10	4	28	201-203	76	
Battery D40	40Z20780-001	601A10	4	28	204-212 501-515		
Cable Tray	10Z22257-001	--	--	--	201-212 501-515	72E	
Camera Control Unit (GEC)	50M12521	603A650	24	10	202	158	
Camera Control Unit (GEC)	50M12521	603A613	24	19	203		
Camera Control Unit (Kintel)	50M12520	603A612	24	20	203		
C-Band Antenna Mod 708	50M10347	603A435	See Fig. 2		201-202	--	
C-Band Antenna Mod 713	50M12504	603A577	See Fig. 2		203	--	
	50Z12504-001	603A577			204-212	--	
	50Z12504-001	602A618			204-212 501-515	--	
C-Band Transponder	50M12261-001	603A434	23	108	201-202	159	
	50Z12261	603A434	23	108	203		
	50Z12574-001	602A619	12	71	204		
		603A653	23	108	204		
		602A634	23	108	205 & 501		
		602A635	12	71	205 & 501		
		50Z12574-003	602A635	12	71		206-208
		or			502-504		
		50Z12574-005					
		50Z12574-003	602A634	23	108		206-208
		or			502-504		
	50Z12574-005						
	50Z12574-005	602Z634	23	108	209-212 505-515		

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
C-Band Transponder	50Z12574-005	602A635	12	71	209-212 505-515	159
CCS Coaxial Switch Mod 612	50M13016-001	603A629	24	25	501-503	160
CCS Coaxial Switch Mod 612	50Z13016-001	603A629	24	25	504-515	160
CCS Directional Antenna Mod 609	50M13018	601A32	See Fig. 2		501-503	--
CCS Directional Antenna Mod 609	50Z13018-001	601A32	See Fig. 2		504-515	--
CCS Hybrid Ring Mod 608	50M13015	603A631	17	93	501-503	161
CCS Hybrid Ring Mod 608	50Z13015-001	603A631	17	93	504	161
CCS Power Amplifier	50M12673	603A637	24	22	501-503	162
CCS Power Amplifier	50Z12673-001	603A637	24	22	504-515	162
CCS Power Divider Mod 607	50M12527	603A626	17	94	501-503	163
	50Z12527-001	603A626		94	504-515	
	50Z12527-001	603A691		90G	505-515	
CCS Receiving Antenna Mod 610	50M13019	602A627	See Fig. 2		501	--
	50M13019	603A628			501	--
	50M13019-001	602A627			502-503	--
	50M13019-001	603A628			502-503	--
	50Z13019-001	602A627			504-515	--
	50Z13019-001	603A628			504-515	--
CCS Transponder	50M13017-003	603A636	24	21	501-503	164

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
CCS Transponder	50Z13017-003	603A636	24	21	504-515	164
Coaxial Switch	50M12357	601A563	4	31	201-203	130
Coaxial Switch	50Z12357-001	601A563	4	31	204-212 501-515	130
Coaxial Termination	50M12358	601A569	4	30	201-203	131
Coaxial Termination	50Z12358-001	601A569	4	30	204-212 501-515	131
Command Antenna Mod 309	50M10484	602A423	See Fig. 2		201	--
Command Antenna Mod 309	50M10484	602A433	See Fig. 2		201	--
Command Antenna Mod 313	50M12321	602A423			203	--
	50M12321	602A433			203	--
	50Z12321-001	602A578			204-212	--
	50Z12321-001	601A579			204-212	--
Command Decoder	50M12264	603A450	18	105	203-205	165
	50Z12705-001			105	206-207 504	
	50Z12705-003					
	50Z12705-003			107	208-212 505-515	
Command Directional Coupler	50M12382	603A562	17	89	201 & 203 204	166
	50Z12382-001					
	50Z12382-003					
Command Power Divider	50Z12382-003				205-212	
	50M10485	603A451	17	90	201	167
	50M12173				203	
	50Z12173-001				204	
	50Z12173-003				205-212	

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Command Receiver	50M10697	603A449	18	98	201 &	168
	50M10697 or 50Z10697-001 50Z10697-001				203-205 206-210 211-212	
Control Accelerometer (Pitch)	50M35022	601A25	2	15	201-208	110
Control Accelerometer (Pitch)	50Z35022-001	601A25	2	15	209-212	110
Control Accelerometer (Yaw)	50M35023	603A26	21	112	201-208	110
Control Accelerometer (Yaw)	50Z35023-001	603A26	21	112	209-212	110
Control Distributor	40M37210-001	603A2	18	97	201	77
	40M37217-001				202	
	40M37224-001				203	
	40Z37231-001				204	
	7910417-001				205	
	7910417-003				206	
	7910417-005				207	
	7910417-007				208	
	7910417-009				209	
	7910417-011				210	
	7910417-013				211	
	7910417-015				212	
	7910417-021				501	
	7910417-023				502	
	7910417-025				503	
	7910417-027				504	
	7910417-029				505	
7910417-031	506					
7910417-033	507					

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page	
Control Distributor	7910417-035	603A2	18	97	508	77	
	7910417-037				509		
	7910417-039				510		
	7910417-041				511		
	7910417-043				512		
	7910417-045				513		
	7910417-047				514		
	7910417-049				515		
Control-EDS Rate Gyros	50M35021	602A23	15	82 †	201-204	111	
	50Z35021-001	602A23	15	82 †	205-212		
	50M35021	602A23	15	90D †	501-503		
	50Z35021-001	602A23	15	90D †	504-515		
Control Signal Processor	50M35500-007	602A24	15	83	201-204	112	
	50Z35500-009				501-503		
	or				205-206		
	50Z35500-011				208-212		
	50Z35500-011				504-515		
	or				207		
50Z35500-009							
Coolant Pump	20M42001-001	601A37	6	35	201-203	91	
	20M42001-001				204 & 501		
	or						
	20Z42001-001						
	20Z42001-001						
	20Z42001-001				44A		205 & 502
							206-211
	7914878-001						502-505
	20Z42001-001						212 & 506
or		507-515					
7914878-001							

† Physical location varies between vehicles, refer to Figure 1.



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Coolant Pump	20M42001-001	601A62	6	44B	206 & 502	91
	20Z42001-001				207-210	
	7914878-001				503-506	
	20Z42001-001				211-212	
	7914878-001				507-515	
CPI Multiplexer Assembly Mod 270	50M12212-003	602A567	10	49 †	201	135
	50M12212-011				202	
	50M12212-015				203	
	50M12212-019				204	
	50Z12212-001	602A575	9	52 †	205	
	50Z13002-009				206	
	50Z13002-015				207-212	
	50Z13002-003	602A592			501-503	
	50Z13002-009	602A593	10	49 †	504-515	
	DDAS/Computer Interface Unit	50M12216-001	603A447	17	92	
50Z13007-001		603A447	17	92	205-212	
50Z13007-001		603A605	17	92	501-515	
DPI Multiplexer Assembly Mod 270	50M12212-001	602A446	9	52 †	201	135
	50M12212-009				202	
	50M12212-013				203	
	50M12212-017				204	
	50Z12212-003		10	49 †	205	
	50Z13002-019				206	
	50Z13002-013				207-212	
	50Z13002-001	602A593			501	
	50Z13002-005	602A593			502-503	
	50Z13002-021	602A592	9	52 †	504-505	
	50Z13002-017	602A592	9	52 †	507-515	
EDS Distributor	40M37211-001	602A5	14	66	201	78
	40M37218-001				202	
	40M37225-001				203	
	40Z37232-001				204	
	7910418-001				205	
	7910418-003				206	
	7910418-005				207	

† Physical location varies between vehicles, refer to Figure 1.



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
EDS Distributor	7910418-007	602A5	14	66	208	78
	7910418-009				209	
	7910418-011				210	
	7910418-013				211	
	7910418-015				212	
	7910418-021				501	
	7910418-023				502	
	7910418-025				503	
	7910418-027				504	
	7910418-029				505	
	7910418-031				506	
	7910418-033				507	
	7910418-035				508	
	7910418-037				509	
	7910418-039				510	
	7910418-041				511	
	7910418-043				512	
7910418-045	513					
7910418-047	514					
7910418-049	515					
EDS Timer No. 1 (40 Second Timer)	40M37452-001	603A56	17	88	201 & 203	79
	7914540-001				205,207,& 209-212	
(30 Second Timer)	40Z37452-001				204	
	7915671-001				501-502 503-515	
EDS Timer No. 2 (20 Second Timer)	40Z37575-001	603A58	17	87	204 & 206 501-503	
EDS Timer No. 3 (60 Second Timer)	40Z37615-001	603A56	17	88	202, 206, & 208	
Electronic Controller Assembly	20Z42007-003	601A40	2	14	201-212 501-515	101
Environmental Conditioning Duct (Y Purge)	--	--	All	3	201-212 501-515	92
	20Z42100-001	--	--	--	--	--

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Environmental Conditioning Duct (Flex Tubing)	20Z42101-003	--	--	--	--	--
	-005	--	--	--	--	--
	-007	--	--	--	--	--
	-009	--	--	--	--	--
	-011	--	--	--	--	--
Exciter Unit (Bottom)	50M12675	603A671	24	17	203	169
Exciter Unit (Top)	50M12675	603A672	24	17	203	169
First Stage Pressure Regulator	20Z42013	601A42	6	33	201-203	93
	20Z42013-003	601A42	6	33	204-212 501-515	93
Flight Control Computer (IB)	50M32550-001	602A27	16	86	201-203 & 205	113
	50Z32550-007				204 & 208	
	50Z32550-003				206	
	50Z32550-005				207	
	50Z32550-001				209-212	
Flight Control Computer (V)	50M35300-009	602A27	16	86	501	113
	50M35300-007				502	
	50M35300-011				503	
	50Z35300-001				504-515	
Force Balance Accelerometer	50M12390-001	603A464	21	113	201-204	124
	50M12370-001	603A463			501	
	50Z12390-001	603A464			201-204	
	50Z12370-001	603A463			501	
	50M12391-001	603A465			205-212	
	50M12391-001	603A466			502-515	
	50Z12391-001	603A465			205-212	
	50Z12391-001	603A466			502-515	
50Z12391-001	603A466	501				
50Z12391-001	603A466	501				
50Z12391-001	603A465	502-503				
50Z12391-001	603A466	502-503				

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
F1 RF Transmitter Assembly Mod I	50M12205-001	602A438	12	69	201-204	141
F1 RF Transmitter Assembly Mod II	50Z13011-001	602A643	12	69	205-212	141
F1 RF Transmitter Assembly Mod II	50Z13011-001	602A589	12	69	501-515	141
F1 Telemeter Assembly Mod B1	50M12206-001	602A439	12	73	201	133
	50M12206-005				202	
	50M12206-007				203	
	50M12206-009				204	
	50Z13000-005				205-212	
	50Z13000-001	602A588			501-503	
	50Z13000-007	602A588			504-515	
F2 RF Transmitter Assembly Mod I	50M12205-003	602A444	9	54	201-204	141
F2 RF Transmitter Assembly Mod II	50Z13011-003	602A591	9	54	501-503	141
F2 Telemeter Assembly Mod A3	50M12207-001	602A443	10	56	201	134
	50M12207-005				202	
	50M12207-007				203	
	50M12207-009				204	
	50Z13001-001	602A590			501-503	

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Gas Bearing Heat Exchanger   —	20M42048	--	22	111 †	201-202	94
	20M42048-001	--	21	121 †	203	
	20M42048-001	--	21	124 †	204	
	20Z42048-001	--	21	124 †	205 & 501	
	7912296-001	--	21	123A †	206-212 502-515	
Gas Bearing Pressure Regulator   —	20Z42012	--	22	115	201-203	95
	20Z42012	--			205-212	
	or 20Z42012-003				204 & 501	
	20242012-003	--	—	—	502-515	—
Gas Bearing Solenoid Valve	20Z42079	603A43	22	118 †	201-203	96
Gas Bearing Solenoid Valve   —	20Z42079-003	603A43	22	125 †	204-205	96
	20Z42079-005				501	
	or 20Z42079-003				206-207	
	20Z42079-005	—	—	—	208-212 502-515	—
Hazardous Gas Manifold	--	601A57	7	42	201-203	97
Heat Exchanger Assembly	20Z42159-001	--	6	38	201-212 501-515	98
Lateral Accelerometer Slosh, Pitch, and Yaw	50M12552	603A555	23	119	203	125
Launch Vehicle Data Adapter	50M35011	603A29	19	96	201-212 501-515	114
Launch Vehicle Digital Computer	50M35010	603A28	19	101	201-212 501-515	115
† Physical location varies between vehicles, refer to Figure 1.						

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Longitudinal Accelerometer Orbital LH <sub>2</sub> Venting	50M12573	603A663	23	120	203	125
Low Pressure Switch	20M42131	603A44	22	116	201-203	99
	20Z42016-001				204-205	
	7912340-001				501	
	20Z42016-005				206-208 502-503 209-212 504-515	
Manual Shutoff Valve	20M42155-001	--	7	41	201-202	100A
Manual Shutoff Valve	20Z42155-001	--	7	41	203-212 501-515	100A
Measuring Distributor	40M37208-001	602A3	10	48	201	80
	40M37209-001	602A4	13	67	201	
	40M37215-001	602A3	10	48	202	
	40M37216-001	602A4	13	67	202	
	40M37222-001	602A3	10	48	203	
	40M37223-001	602A4	13	67	203	
	40Z37229-001	602A3	10	48	204	
	40Z37230-001	602A4	13	67	204	
	7910416-001	602A3	10	48	205	
	7910415-001	602A4	13	67	205	
	7910416-003	602A3	10	48	206	
	7910415-003	602A4	13	67	206	
	7910416-005	602A3	10	48	207	
	7910416-007				208	
	7910416-009				209	
	7910416-011				210	
	7910416-013				211	
	7910416-015				212	
	7910416-021				501	
	7910415-021	602A4	13	67	501	
	7910416-023	602A3	10	48	502	
7910415-023	602A4	13	67	502		
7910416-025	602A3	10	48	503		
7910415-025	602A4	13	67	503		
7910416-027	602A3	10	48	504		



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Measuring Distributor	7910416-029	602A3	10	48	505	80
	7910416-031				506	
	7910416-033				507	
	7910416-035				508	
	7910416-037				509	
	7910416-039				510	
	7910416-041				511	
	7910416-043				512	
	7910416-045				513	
	7910416-047				514	
	7910416-049				515	
Measuring Rack A401	50M12271-001	601A401	2	1 †	201	126
	50M12271-007				202	
	50M12271-009				203	
	50Z12271-011				204	
	50Z12271-013				205	
	50Z12271-015				206	
	50Z12271-017				207	
	50Z12271-019				208	
	50Z12271-021				209	
	50Z12271-023				210	
	50Z12271-025				211	
	50Z12271-027				212	
	50M12271-005				501	
	50Z12271-029				502	
	50Z12271-031				503	
	50Z12271-033				504	
	50Z12271-035				505	
	50Z12271-037				506	
	50Z12271-039				507	
	50Z12271-041				508	
	50Z12271-043				509	
	50Z12271-045				510	
	50Z12271-047				511	
	50Z12271-049				512	
	50Z12271-051				513	
	50Z12271-053				514	
	50Z12271-055				515	

† Physical location varies between vehicles, refer to Figure 1.



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page	
Measuring Rack A402	50M12525-003	601A402	1	5 †	201	126	
	50M12272-007				202		
	50M12272-009				203		
	50Z12272-011	—	—	—	204		
	50Z12272-013	602A402	9	50 †	205		
	50Z12272-015				206		
	50Z12272-017				207		
	50Z12272-019				208		
	50Z12272-021				209		
	50Z12272-023				210		
	50Z12272-025				211		
	50Z12272-027	—	—	—	212		
	50M12272-005	601A402	1	5 †	501		
	50Z12272-029				502		
	50Z12272-031	—	—	—	503		
	50Z12272-033	602A402	9	50 †	504		
	50Z12272-035				505		
	50Z12272-037				506		
	50Z12272-039				507		
	50Z12272-041				508		
	50Z12272-043				509		
	50Z12272-045				510		
	50Z12272-047				511		
	50Z12272-049				512		
	50Z12272-051				513		
	50Z12272-053				514		
	50Z12272-055	—	—	—	515		
	Measuring Rack A403	50M12273-001	602A403	11	47 †		201
		50M12273-007					202
		50M12273-009					203
50Z12273-011					204		
50Z12273-013					205		
50Z12273-015			15	85 †	206		
50Z12273-017					207		
50Z12273-019					208		
50Z12273-021					209		
50Z12273-023					210		
50Z12273-025					211		
50Z12273-027		—	—	—	212		

† Physical location varies between vehicles, refer to Figure 1.

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Measuring Rack A 403	50M12273-005	602A403	11	47 †	501	126
	50Z12273-029		—	—	502	
	50Z12273-031		—	—	503	
	50Z12273-033		15	90C †	504	
	50Z12273-035		—	—	505	
	50Z12273-037		—	—	506	
	50Z12273-039		—	—	507	
	50Z12273-041		—	—	508	
	50Z12273-043		—	—	509	
	50Z12273-045		—	—	510	
	50Z12273-047		—	—	511	
	50Z12273-049		—	—	512	
	50Z12273-051		—	—	513	
	50Z12273-053		—	—	514	
	50Z12273-055		—	—	515	
Measuring Rack A404	50M12274-001	602A404	13	68 †	201	126
	50M12274-007		—	—	202	
	50M12274-009		—	—	203	
	50Z12274-011		—	—	204	
	50Z12274-013		—	—	205	
	50Z12274-015		15	84 †	206	
	50Z12274-017		—	—	207	
	50Z12274-019		—	—	208	
	50Z12274-021		—	—	209	
	50Z12274-023		—	—	210	
	50Z12274-025		—	—	211	
	50Z12274-027		—	—	212	
	50M12274-005		13	68 †	501	
	50Z12274-029		—	—	502	
	50Z12274-031		—	—	503	
	50Z12274-033		—	84	504	
	50Z12274-035		—	—	505	
	50Z12274-037		—	—	506	
	50Z12274-039		—	—	507	
	50Z12274-041		—	—	508	
	50Z12274-043		—	—	509	
	50Z12274-045		—	—	510	
	50Z12274-047		—	—	511	
	50Z12274-049		—	—	512	
	50Z12274-051		—	—	513	
	50Z12274-053		—	—	514	
	50Z12274-055		—	—	515	

† Physical location varies between vehicles, refer to Figure 1.

Table 1. Instrument Unit Component Alphabetical List (Continued)





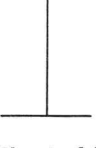
Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Measuring Rack A405 	50M12275-001	602A405	9	50	201	126
	50M12275-007				202	
	50M12275-009				203	
	50Z12275-011		—	—	204	
	50Z12275-015		13	68 †	206	
	50M12275-005		9	50	501	
	50Z12275-029				502	
	50Z12275-031	—	—	—	503	
Measuring Rack A406 	50M12276-001	602A406	15	85 †	201	
	50M12276-007				202	
	50M12276-009				203	
	50M12276-011		—	—	204	
	50Z12276-015		13	78 B †	206	
	50M12276-005		15	90 C †	501	
	50Z12276-029				502	
	50Z12276-031	—	—	—	503	
Measuring Rack A407 	50M12277-001	602A407	14	78	201	
	50M12277-007				202	
	50M12277-009				203	
	50Z12277-011				204	
	50M12277-005				501	
	50Z12277-029				502	
	50Z12277-031	—	—	—	503	
	Measuring Rack A408 	50M12278-001	602A408	14	77	
50M12278-007					202	
50M12278-009					203	
50Z12278-011					204	
50M12278-005					501	
50Z12278-029					502	
50Z12278-031		—	—	—	503	
Measuring Rack A409 		50M12279-001	602A409	15	84	201
	50M12279-007				202	
	50M12279-009				203	
	50Z12279-011				204	
	50M12279-005				501	
	50Z12279-029				502	
	50Z12279-031	—	—	—	503	
	† Physical location varies between vehicles, refer to Figure 1.					

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Measuring Rack A669   —	50M12667-005	603A669	23	122	501	126
	50Z12667-029				502	
	50Z12667-031	—	—	—	503	—
Measuring Rack Selector	50M12270-001	601A400	1	12	201-203 501	128
Measuring Rack Selector	50Z12270-001	601A400	1	12	204-212 502-515	128
Methanol-Water Accumulator	20Z42040-001	--	6	24	201-204	100
	7914398-001	--	6	34	205-212 501-515	100
Modulating Flow Control Valve	20Z42007-001	601A39	6	39	201-212 501-515	101
Mounting and Thermal Conditioning Panels	20Z42000-001	--	--	--	201-212 501-515	100B
PCM Transmitting Antenna Mod 609	50M13018-001	601A633	See Fig. 2		501-503	--
PCM Transmitting Antenna Mod 609	50Z13018-001	601A633	See Fig. 2		504	--
PCM/CCS Transmitting Antenna Mod 613   —	50M12664-001	602A585	See Fig. 2		501-503	--
	50Z12664-001	602A585			504-515	--
	50M12664-001	603A625			501-503	--
	50Z12664-001	603A625	—		504-515	--
PCM Coaxial Switch Mod 612	50M13016-001	603A630	24	24	501-503	136
PCM Coaxial Switch Mod 612	50Z13016-001	603A630	24	24	504	136

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
PCM/DDAS Telemeter Assembly Mod 301	50M12210-001	602A420	12	70	201	137
	50M12210-005				202	
	50M12210-007				203	
	50M12210-009				204	
	50Z13005-005				205-209	
	50Z13005-007				210-212	
	50Z13005-001	602A595			501-503	
	50Z13005-007	602A595			504-515	
Plug Type J-Box Assembly	40M33012-001	603A54	20	102	201	81
	40M33032-001				202	
	40M33052-001				203	
	40Z33072-001				204-212	
					501-515	
Power Distributor	40M37212-001	601A1	2	2	201	82
	40M37219-001				202	
	40M37226-001				203	
	40Z37233-001				204	
	7910419-001				205	
	7910419-003				206	
	7910419-005				207	
	7910419-007				208	
	7910419-009				209	
	7910419-011				210	
	7910419-013				211	
	7910419-015				212	
	7910419-021				501	
	7910419-023				502	
	7910419-025				503	
	7910419-027				504	
	7910419-029				505	
	7910419-031				506	
	7910419-033				507	
	7910419-035				508	
	7910419-037				509	
	7910419-039				510	
	7910419-041				511	
	7910419-043				512	
	7910419-045				513	
	7910419-047				514	
	7910419-049				515	



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
P1 PCM/RF Transmitter Assembly CT-19B	50M12211-001	602A421	13	74	201-202	138
P1 PCM/RF Transmitter Assembly Mod II	50M12421-001	602A571	13	79 †	203-204	138
	50Z13012-001	602A571	11	62 †	205-212	
	50Z13012-001	602A600	13	79 †	501-503	
	50Z13012-003	602A600	13	79 †	504-515	
Remote Digital Multiplexer Mod 410	50M12214-001	603A455	18	100	201	139
	50M12214-005				202	
	50M12214-007				203	
	50M12214-009				204	
Remote Digital Multiplexer J Mod D 410	50Z13006-005	602A615	11	59	205-207	
	50Z13006-007	602A615	11	59	208-212	
	50Z13006-001	603A599	17	91 †	501-503	
	50Z13006-007	603A599	11	59 †	504-515	
Remote Digital Multiplexer K Mod 410	50Z13006-003	603A455	18	100	205-212	
Remote Digital Multiplexer K Mod 410	50Z13006-003	603A594	18	106	501-515	
Remote Digital Submultiplexer	50M12213-001	603A431	17	81	201-204	140
Retroreflector Assembly	50M22108-001	--	See Fig. 2		202-205 501	116
Retroreflector Assembly	50Z122108	--			206-212 502-515	116
S-Band Power Amplifier	50M12676	603A673	24	16	203	170
S-Band Power Amplifier	50M12676	603A674	24	18	203	170
† Physical location varies between vehicles, refer to Figure 1.						



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Secure Range Safety Decoder	50M10698	603A568	18	99	201	171
Segment (Access Door)	30Z13101-001	Unit 601	--	--	201-212 501-515	72F
Segment (ST-124M)	30Z13102-001	Unit 603	--	--	201-212 501-515	72F
Segment	30Z13103-001	Unit 602	--	--	201-212 501-515	72F
Slow Speed Multiplexer Assembly Mod 245   -----	50M12208-001	602A442	11	45	201	142
	50M12208-005				202	
	50M12208-007			203		
	50M12208-009			204		
	50Z13003-005	602A598	11	45	501-503	
Source Follower	50M12413-001	601A472	1	13	201-204 501-503	143
Splice Plates	Ref. Page 72G	--	See Fig. 2		501-515	72G
ST-124M-3 Inertial Platform Assembly   -----	50M22100-005	603A19	21	114	201-206	117
	50M22100-007				501-502	
	50M22100-009			207		
	50M22100-015			503		
	50M22100-013			208-209 211-212 210		
ST-124M-3 Platform AC Power Supply   -----	50M22106-001	603A13	20	103	201	118
	50M22106-005				202-204	
	50M22106-007			501		
	50M22106-009			205-206 502-503 207-212 504-515		

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
ST-124M-3 Platform Electronic Assembly	50M22102-005	603A20	20	95	201	119
	50M22102-007				202-204	
	50M22102-011				501	
	50M22102-013				205-206	
	50M22102-015				502	
	50M22102-017				503	
	50M22102-019				207 & 211-212	
					505-515 208-209 210 & 504	
Switch Selector Mod I	50M64008	603A17	17	80	201	83
Switch Selector Mod II	50M67864-005	603A17	17	80	202-212 501-515	83
S1 RF Trans- mitter Assembly Mod I	50M12205-005	602A441	11	57	201-204	141
S1 RF Trans- mitter Assembly Mod II	50Z13011-005	602A597	11	57	501-503	141
S1 Telemeter Assembly	50Z12209-001	602A440	11	58	201-203	144
S1 Telemeter Assembly Mod 601	50M13004-001	602A440	11	58	204	144
S1 Telemeter Assembly Mod 601	50Z13004-001	602A596	11	58	501-503	144
Tape Recorder (Airborne)	50M12410-001	602A419	11	46	201-204	145
Tape Recorder (Airborne)	50Z13010-001	602A604	11	46	501-503	145
Telemetry Antenna Mod 219	50M12284	602A452	See Fig. 2		201-202	--

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Telemetry Antenna Mod 219	50M12284	603A453	See Fig. 2		201-202	--
Telemetry Antenna Mod 223	50M12500	602A580	See Fig. 2		203	--
	50M12500	602A581			203	--
	50Z12500-001	602A580			204-212	--
	50Z12500-001	602A581			501-515	--
	50Z12500-001	602A581			204-212	--
	50Z12500-001	602A581			501-515	--
Telemetry Calibrator	50M12416-001	602A437	13	76 †	201-204	146
	50Z13008-001	602A602	13	76 †	501-503	
	50Z13008-003	602A644	11	64 †	205-212	
	50Z13008-003	602A644	11	64 †	504-515	
Telemetry Calibrator Power and Control Assembly	50M12404-001	602A566	13	75 †	201-204	
	50Z13009-001	602A566	11	63 †	205-212	
	50Z13009-001	602A603	13	75 †	501-515	
Telemetry Directional Coupler Mod 226	50M12586	602A668	10	65	205	147
Telemetry Directional Coupler Mod 226	50Z12586-001	602A668	10	65	206-212	147
	50Z12586-001	602A668	10	65	504-515	147
Telemetry Power Divider	50M12495	601A436	4	29	201-203	148
	50Z12495-001	601A436	4	29	204	
	50Z12495-003	601A436	4	29	205-212	
	50Z12495-003	601A436	4	29	501-515	
Telemetry RF Coupler	50M12497-001	602A445	9	53	201-203	149
Telemetry RF Coupler Mod 451	50Z12497-001	602A445	9	60	204-212	149
	50Z12497-001	602A445	9	60	501-515	149
Temperature Sensor	20Z42007-005	--	--	--	201-212	101
	20Z42007-005	--	--	--	501-515	101

† Physical location varies between vehicles, refer to Figure 1.

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Thermal Conditioning Panel Heaters	40M37641-001 or 40Z37641-001	601A66	1	20A	205 & 207-208 501-503	102A
		601A67	1	20B	205 & 207-208 501-503	
		601A68	2	15B	205 & 207-208	
		601A69	2	15A	205 & 207-208	
		601A68	2	15B	501-503	
		601A69	2	20C	501-503	
		602A70	9	60A	205 & 207-208	
		602A71	10	61A	205 & 207-208	
		602A72	12	78A	205 & 207-208	
		602A73	14	78C	205 & 207-208	
		602A74	14	78D	205 & 207-208	
		603A75	17	90B	205 & 207-208	
		603A76	17	90A	205 & 207-208	
		603A75	17	90E	501-503	
		603A76	17	90F	501-503	
		603A77	23	123C	205 & 207-208	
603A77	23	123B	501-503			
Thermal Expansion Chamber	20Z42163-001	--	7	32A	201-212 501-515	102
Thermal Radiation Shrouds	7914395-001	--	5, 21	--	204	102B
	7914396-001	--	1, 2, 14, 15 17, 21	--	204	
	7914395-001	--	5, 19, 21	--	205 & 207	
	7914396-001	--	1, 2	--	205 & 207	

Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
Thermal Radiation Shrouds			9, 14			102B
	7914395-001	--	15, 17	--	501-503	
	7914396-001	--	18, 20	--	501-503	
			5, 19			
			21			
			1, 2			
			9, 13			
			14, 15			
			17, 18			
			20			
TV Antenna	50M12411	601A646	See Fig. 2		202	--
TV Antenna	50M12411	601A647	See Fig. 2		202	--
TV Antenna Mod 613	50M12664	601A614	See Fig. 2		203	--
TV Antenna Mod 613	50M12664-001	601A617	See Fig. 2		203	--
TV Camera	50M12575	*	*	--	202	172
	50M12583	*	*	--	203	
	50M12584	*	*	--	203	
TV Junction Box	50M12352	603A652	24	6	202	173
TV Power Amplifier	50M12571	603A649	24	8	202	174
TV Power Divider	50M12408	603A651	24	7	202	175
TV Transmitter Assembly	50M12570	602A648	24	9	202	176
Two-Cubic-Foot Sphere	20Z32013-001	603A525	22	117	201-212 501-515	103
UHF/RF Filter	50M12668	603A670	23	123	502-503	150
* On vehicle 202, this component is located on payload. On vehicle 203, this component is located on S-IVB LH <sub>2</sub> tank.						



Table 1. Instrument Unit Component Alphabetical List (Continued)

Nomenclature	Part Number	Reference Designation	Loc. on Panel	Fig. 1 Loc. No.	Vehicle Effectivity	Page
UHF/RF Transmitter Assembly	50M13013-001	603A601	24	23	501 & 504	151
UHF/RF Transmitter Assembly	50M12799-001	603A601	24	23	502-503	151
Umbilical Door	30Z13008-001	--	7	--	201-202 501-515	72H
Umbilical Plate Assembly	11Z00055-001	--		41A	201-212	
	11Z00014-005	--			501-504	
	11Z00014-007	--			505-506	
	11Z00014-009	--			507-515	
VSWR Measuring Assembly Mod 220	50M10683	602A448	10	55	201-202	152
VSWR Measuring Assembly Mod 225	50Z12555-001	602A642	10	61	203-204 501-503	152
Water Accumulator Assembly	20Z42196-001	--	3	37	201-205 501-502	104
Water Accumulator Assembly	20Z42196-001	--	6	27A	206-212 503-515	104
Water Solenoid Valve	20Z42034-001	601A41	6 6 3	36 43 27B	201-202 203-205 501-502 206-212 503-515	105
5 Volt Measuring Voltage Supply	40Z20964	602A16	12	72	201-212 501-515	84
50-Cubic-Inch Spheres	20Z42039-001	--	6	40	201-205	106
56 Volt Power Supply	40Z20807-003	601A15	1	11	201-212 501-515	85
165-Cubic-Inch Sphere	7910120-003	--	6	44	206-212 501-515	106



Table 2. Instrument Unit Component Numerical Listing

Part Number	Nomenclature	Page
10Z22257-001	Cable Tray	72E
11Z00014-001 -005 -007 -009	Umbilical Plate Assembly	72H       
11Z00055-001		 
20M32013	Two-Cubic-Foot Sphere	104
20M42001-001	Coolant Pump	91
20M42048	Gas Bearing Heat Exchanger	94 
20M42048-001	Gas Bearing Heat Exchanger	 
20M42155-001	Manual Shutoff Valve	100A
20Z42000-001	Mounting and Thermal Conditioning Panels	100B
20Z42001-001	Coolant Pump	91
20Z42007-001	Modulating Flow Control Valve	101
20Z42007-003	Electronic Controller Assembly	   
20Z42007-005	Temperature Sensor	 
20Z42012-003	Gas Bearing Pressure Regulator	95
20Z42013 -003	First Stage Pressure Regulator	93
20Z42016-001 -005	Low Pressure Switch	99
20Z42034-001	Water Solenoid Valve	105
20Z42039-001	50-Cubic-Inch Spheres	106
20Z42040-001	Methanol-Water Accumulator	100
20Z42048-001	Gas Bearing Heat Exchanger	94

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
20Z42079-003	Gas Bearing Solenoid Valve	96
-005		
20Z42100-001	Y Purge	92
20Z42101-003	Flex Tubing	92
-005		
-007		
-009		
-011		
20Z42155-001	Manual Shutoff Valve	100A
20Z42159-001	Heat Exchanger Assembly	98
20Z42163-001	Thermal Expansion Chamber	102
20Z42170-001	Methanol-Water Accumulator	100
20Z42196-001	Water Accumulator Assembly	104
30Z13008-001	Umbilical Door	72H
30Z13101-001	Segment (Unit 601)	72F
30Z13102-001	Segment (Unit 603)	72F
30Z13103-001	Segment (Unit 602)	72F
40M20780-001	Battery D10, D20, D30, D40	76
-003		
-005		
-007		
40M33012-001	Plug Type J-Box	81
40M33032-001	Plug Type J-Box	
40M33052-001	Plug Type J-Box	
40M33072-001	Plug Type J-Box	
40M37208-001	Measuring Distributor	80
40M37209-001	Measuring Distributor	
40M37210-001	Control Distributor	77

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
40M37211-001	EDS Distributor	78
40M37212-001	Power Distributor	82
40M37213-001	Auxiliary Power Distributor	75
40M37214-001	Auxiliary Power Distributor	75
40M37215-001	Measuring Distributor	80
40M37216-001	Measuring Distributor	
40M37217-001	Control Distributor	77
40M37218-001	EDS Distributor	78
40M37219-001	Power Distributor	82
40M37220-001	Auxiliary Power Distributor	75
40M37221-001	Auxiliary Power Distributor	
40M37222-001	Measuring Distributor	80
40M37223-001	Measuring Distributor	
40M37224-001	Control Distributor	77
40M37225-001	EDS Distributor	78
40M37226-001	Power Distributor	82
40M37227-001	Auxiliary Power Distributor	75
40M37228-001	Auxiliary Power Distributor	
40M37452-001	EDS Timer No. 1 (40 Second Timer)	79
40M37615-001	EDS Timer No. 3 (60 Second Timer)	
40Z20780-001	Battery D10, D20, D30, D40	76
40Z20807-003	56 Volt Power Supply	85

Table 2. Instrument Unit Component Numerical List (Continued)

Part Number	Nomenclature	Page
40Z20964	5 Volt Measuring Voltage Supply	84
40Z37229-001	Measuring Distributor	80
40Z37230-001	Measuring Distributor	
40Z37231-001	Control Distributor	77
40Z37232-001	EDS Distributor	78
40Z37233-001	Power Distributor	82
40Z37234-001	Auxiliary Power Distributor	75
40Z37235-001	Auxiliary Power Distributor	
40Z37452-001	EDS Timer No. 1 (40 Second Timer)	79
40Z37575-001	EDS Timer No. 2 (20 Second Timer)	
40Z37615-001	EDS Timer No. 3 (60 Second Timer)	
50M10224	Lights (TV) (4)	--
50M10347	C-Band Antenna Mod 708	--
50M10484	Command Antenna Mod 309	--
50M10485	Command Power Divider	167
50M10683	VSWR Measuring Assembly Mod 220	152
50M10697	Command Receiver	168
50M10698	Secure Range Safety Decoder	171
50M12173	Command Power Divider	167
50M12205-001	F1 RF Transmitter Assembly Mod I	141
50M12205-003	F2 RF Transmitter Assembly Mod I	
50M12205-005	S1 RF Transmitter Assembly Mod I	

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M12206-001 -005 -007 -009	F1 Telemeter Assembly Mod B1	133
50M12207-001 -005 -007 -009	F2 Telemeter Assembly Mod A3	134
50M12208-001 -005 -007 -009	Slow Speed Multiplexer Mod 245	142
50M12209-001	S1 Telemeter Assembly	144
50M12210-001 -005 -007 -009	PCM/DDAS Telemeter Assembly Mod 301	137
50M12211-001	P1 PCM/RF Transmitter Assembly CT-19B	138
50M12212-001 -009 -013 -017	DP1 Multiplexer Assembly Mod 270	135
50M12212-003 -011 -015 -019	CP1 Multiplexer Assembly Mod 270	135
50M12213-001	Remote Digital Submultiplexer	140
50M12214-001 -005 -007 -009	Remote Digital Multiplexer Mod 410	139
50M12216-001	DDAS/Computer Interface Unit	132
50M12261-001	C-Band Transponder	159



Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M12264	Command Decoder	165
50M12266-001	Azusa Transponder Type C	157
50M12267-001	Azusa RI Filter Assembly	156
50M12270-001	Measuring Rack Selector	128
50M12271-001 -005 -007 -009	Measuring Rack A401	126
50M12272-005 -007 -009	Measuring Rack A402	
50M12273-001 -005 -007 -009	Measuring Rack A403	
50M12274-001 -005 -007 -009	Measuring Rack A404	
50M12275-001 -005 -007 -009	Measuring Rack A405	
50M12276-001 -005 -007 -009	Measuring Rack A406	
50M12277-001 -005 -007 -009	Measuring Rack A407	

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M12278-001 -005 -007 -009	Measuring Rack A408	126
50M12279-001 -005 -007 -009	Measuring Rack A409	
50M12284	Telemetry Antenna Mod 219	--
50M12321	Command Antenna Mod 313	--
50M12333-001	Azusa Antenna	--
50M12352	Junction Box (TV)	173
50M12357	Coaxial Switch	130
50M12358	Coaxial Termination	131
50M12370-001	Force Balance Accelerometer	124
50M12382	Command Directional Coupler	166
50M12390-001	Force Balance Accelerometer	124
50M12391-001	Force Balance Accelerometer	124
50M12404-001	Telemeter Calibrator Power and Control Assembly	146
50M12408	TV Power Divider	175
50M12410-001	Tape Recorder (Airborne)	145
50M12411	TV Antenna	--
50M12413-001	Source Follower	143
50M12416-001	Telemetry Calibrator	146
50M12421-001	P1 PCM/RF Transmitter Assembly	138

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M12495	Telemetry Power Divider	148
50M12497-001	Telemetry RF Coupler	149
50M12500	Telemetry Antenna Mod 223	--
50M12501	PCM/CCS Antenna	--
50M12504	C-Band Antenna Mod 713	--
50M12504-001	C-Band Antenna Mod 713	--
50M12520	Camera Control Unit (Kintel)	158
50M12521	Camera Control Unit (GEC)	
50M12525-003	Measuring Rack A402	126
50M12527	CCS Power Divider	163
50M12552	Lateral Accelerometer Slosh, Pitch, and Yaw	125
50M12555	VSWR Measuring Assembly Mod 225	152
50M12570	TV Transmitter Assembly	176
50M12571	TV Power Amplifier	174
50M12573	Longitudinal Accelerometer Orbital LH <sub>2</sub> Venting	125
50M12575	TV Camera	172
50M12583	TV Camera	
50M12584	TV Camera	
50M12586	Telemetry Directional Coupler	147
50M12664-001	PCM/CCS Antenna	--
50M12664	TV Antenna Mod 613	--
50M12668	UHF/RF Filter	150

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M12673	CCS Power Amplifier	162
50M12675	Exciter Unit	169
50M12676	TV Power Amplifier	174
50M12799-001	UHF/RF Transmitter Assembly	151
50M13004-001	S1 Telemeter Assembly Mod 601	144
50M13015	CCS Hybrid Ring	161
50M13016-001	PCM Coaxial Switch	136
50M13016-001	CCS Coaxial Switch	160
50M13017-001	CCS Transponder	164
-003		
50M13018	CCS Directional Antenna Mod 609	--
50M13018-001	PCM Transmitting Antenna Mod 609	--
50M13019	CCS Receiving Antenna Mod 610	--
50M13022	Telemetry RF Coupler Mod 451	149
50M22100-005	ST-124M-3 Inertial Platform Assembly	117
-007		
-009		
-015		
50M22102-005	ST-124M-3 Platform Electronic Assembly	119
-007		
-011		
-013		
-015		
-017		
-019		

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M22106-005 -007	ST-124M-3 Platform AC Power Supply	118
50M22107-003 -005 -009	Accelerometer Signal Conditioner	109   —
50M22108-001	Retroreflector Assembly	116
50M32550-001	Flight Control Computer IB	113
50M35010	Launch Vehicle Digital Computer	115
50M35011	Launch Vehicle Data Adapter	114
50M35021	Control-EDS Rate Gyros	111
50M35022	Control Accelerometer (pitch)	110 
50M35023	Control Accelerometer (yaw)	 —
50M35300-009	Flight Control Computer V	113
50M35500-007	Control Signal Processor	112
50M64008	Switch Selector Mod I	83



Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50M67864-005	Switch Selector Mod II	83
50Z10697-001	Command Receiver	168
50Z12173-001	Command Power Divider	167
50Z12206-001	F1 Telemeter Assembly Mod B1	133
50Z12212-001	CPI Multiplexer Assembly Mod 270	135
50Z12212-003	DPI Multiplexer Assembly Mod 270	
50Z12261	C-Band Transponder	159
50Z12270-001	Measuring Rack Selector	128
50Z12271-011	Measuring Rack A401	126
-013		
-015		
-017		
-019		
-021		
-023		
-025		
-027		
-029		
-031		
-033		
-035		
-037		
-039		
-041		
-043		
-045		
-047		
-049		
-051		
-053		
-055		
50Z12272-011	Measuring Rack A402	
-013		
-015		
-017		
-019		

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50Z12272-021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049 -051 -053 -055	Measuring Rack A402	126
50Z12273-011 -013 -015 -017 -019 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049 -051 -053 -055	Measuring Rack A403	126
50Z12274-011 -013 -015	Measuring Rack A404	126

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50Z12274-017 -019 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049 -051 -053 -055	Measuring Rack A404	126
50Z12275-011 -015 -029 -031	Measuring Rack A405	
50Z12276-011 -015 -029 -031	Measuring Rack A406	
50Z12277-011 -029 -031	Measuring Rack A407	
50Z12278-011 -029 -031	Measuring Rack A408	
50Z12279-011 -029 -031	Measuring Rack A409	
50Z12321-001	Command Antenna Mod 313	--

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50Z12357-001	Coaxial Switch	130
50Z12358-001	Coaxial Termination	131
50Z12370-001	Force Balance Accelerometer	124
50Z12382-001 -003	Command Directional Coupler	166
50Z12390-001	Force Balance Accelerometer	124
50Z12404-001	Telemetry Calibrator Power and Control Assembly	146
50Z12495-001 -003	Telemetry Power Divider	148
50Z12497-001	Telemetry RF Coupler	149
50Z12500-001	Telemetry Antenna Mod 223	--
50Z12504-001	C-Band Antenna Mod 713	--
50Z12527-001	CCS Power Divider	163
50Z12555-001	VSWR Measuring Assembly Mod 225	152
50Z12574-001 -003	C-Band Transponder	159
50Z12586-001	Telemetry Directional Coupler	147
50Z12664-001	PCM/CCS Antenna	--
50Z12667-005 -029 -031	Measuring Rack A410	126   └─
50Z12668	UHF/RF Filter	150
50Z12673-001	CCS Power Amplifier	162
50Z12705-001 -003	Command Decoder	165

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50Z12754-001 -003 -005	C-Band Transponder	159   —
50Z13000-001 -003 -005 -007	F1 Telemeter Assembly Mod B1	133   —
50Z13001-001	F2 Telemeter Assembly Mod A3	134
50Z13002-003 -009 -015	CP1 Multiplexer Assembly Mod 270	135   —
50Z13002-001 -005 -013 -017 -019 -021	DP1 Multiplexer Assembly Mod 270	 —
50Z13003-005	Slow Speed Multiplexer Mod 245	142
50Z13004-001	S1 Telemeter Assembly Mod 601	144
50Z13005-001 -005 -007	PCM/DDAS Telemeter Assembly Mod 301	137   —
50Z13006-001 -005 -007	Remote Digital Multiplexer J Mod 410	139   —
50Z13006-003	Remote Digital Multiplexer K Mod 410	 —
50Z13007-001	DDAS/Computer Interface Unit	132
50Z13008-001 -003	Telemetry Calibrator	146   —
50Z13009-001	Telemetry Calibrator Power and Control Assembly	 —
50Z13010-001	Tape Recorder (Airborne)	145



Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
50Z13011-001	F1 RF Transmitter Assembly Mod II	141
50Z13011-003	F2 RF Transmitter Assembly Mod II	
50Z13011-005	S1 RF Transmitter Assembly Mod II	
50Z13012-001 -003	P1 PCM/RF Transmitter Assembly Mod II	138
50Z13015-001	CCS Hybrid Ring	161
50Z13016-001	PCM Coaxial Switch	136
50Z13016-001	CCS Coaxial Switch	160
50Z13017-001 -003	CCS Transponder	164
50Z13018-001	PCM Transmitting Antenna Mod 609	--
50Z13018-001	CCS Directional Antenna Mod 609	--
50Z13019-001	CCS Receiving Mod 610	--
50Z22108	Retroreflector Assembly	116
50Z32550-001 -003 -005 -007	Flight Control Computer (IB)	113
50Z35021-001	Control-EDS Rate Gyros	111
50Z35022-001	Control Accelerometer (pitch)	110
50Z35023-001	Control Accelerometer (yaw)	
50Z35300-001	Flight Control Computer (V)	113
50Z35500-009 -011	Control Signal Processor	112
7910120-003	165-Cubic-Inch Sphere	106A
7910415-001 -003 -021 -023 -025	Measuring Distributor	80

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
7910416-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049	Measuring Distributor	80
7910417-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045	Control Distributor	77

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
7910417-047 -049	Control Distributor	77
7910418-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049	EDS Distributor	78
7910419-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031 -033 -035 -037	Power Distributor	82

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
7910419-039 -041 -043 -045 -047 -049	Power Distributor	82
7910420-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031 -033 -035 -037 -039 -041 -043 -045 -047 -049	Auxiliary Power Distributor	75
7910421-001 -003 -005 -007 -009 -011 -013 -015 -021 -023 -025 -027 -029 -031	Auxiliary Power Distributor	

Table 2. Instrument Unit Component Numerical Listing (Continued)

Part Number	Nomenclature	Page
7910421-033 -035 -037 -039 -041 -043 -045 -047 -049	Auxiliary Power Distributor	75
7912340	Low Pressure Switch	99
7914398	Methanol-Water Accumulator	100
7914540-001	EDS Timer No. 1 (40 Second Timer)	79
7914878-001	Coolant Pump	91
7915671-001	EDS Timer No. 1 (30 Second Timer)	79



## FIGURE 1 COMPONENT NOMENCLATURE BY CALLOUT NUMBER

1. Measuring Rack A401
2. Power Distributor
3. Environmental Conditioning Duct
4. Auxiliary Power Distributor
5. Measuring Rack A401 or A402
6. TV Junction Box
7. TV Power Divider
8. TV Power Amplifier
9. TV Transmitter Assembly
10. Camera Control Unit (GEC)
11. 56 Volt Power Supply
12. Measuring Rack Selector
13. Source Follower
14. Electronic Controller Assembly
15. Control Accelerometer (Pitch)
16. S-Band Power Amplifier
17. Exciter Units
18. S-Band Power Amplifier
19. Camera Control Unit (GEC)
20. Camera Control Unit (Kintel)
- 20A. Thermal Conditioning Panel Heater
- 20B. Thermal Conditioning Panel Heater
21. CCS Transponder
22. CCS Power Amplifier
23. UHF/RF Transmitter Assembly
24. PCM Coaxial Switch
25. CCS Coaxial Switch
- 25A. Thermal Conditioning Panel Heater
- 25B. Thermal Conditioning Panel Heater
- 25C. Thermal Conditioning Panel Heater
26. Battery D10
27. Battery D30
- 27A. Water Accumulator Assembly
- 27B. Water Solenoid Valve
28. Battery D40
29. Telemetry Power Divider
30. Coaxial Termination
31. Coaxial Switch
32. Battery D20
- 32A. Thermal Expansion Chamber
33. First Stage Pressure Regulator

REFER TO TABLE 1 FOR COMPONENT EFFECTIVITIES

FIGURE 1 COMPONENT NOMENCLATURE BY CALLOUT NUMBER (Continued)

- |   |   |
|---|---|
| 34. Methanol-Water Accumulator                        | 51. Auxiliary Power Distributor                     |
| 35. Coolant Pump                                      | 52. CP1 or DP1 Multiplexer Assembly                 |
| 36. Water Solenoid Valve                              | 53. Telemetry RF Coupler                            |
| 37. Water Accumulator                                 | 54. F2 RF Transmitter Assembly Model II             |
| 38. Heat Exchanger Assembly                           | 55. VSWR Measuring Assembly Model 220               |
| 39. Modulating Flow Control Valve                     | 56. F2 Telemeter Assembly                           |
| 40. 50-Cubic-Inch Spheres                             | 57. S1 RF Transmitter Assembly Model II             |
| 41. Valve, Shutoff Methanol-Water (Manually Operated) | 58. S1 Telemeter Assembly                           |
| 41A. Umbilical Plate                                  | 59. Remote Digital Multiplexer J                    |
| 42. Hazardous Gas Manifold                            | 60. Telemetry RF Coupler Model 451                  |
| 42A. Access Door                                      | 60A. Thermal Conditioning Panel Heater              |
| 43. Water Solenoid Valve                              | 61. VSWR Measuring Assembly Model 225               |
| 44. 165-Cubic-Inch Sphere                             | 61A. Thermal Conditioning Panel Heater              |
| 44A. Coolant Pump (Primary)                           | 62. P1 PCM/RF Transmitter Assembly Model II         |
| 44B. Coolant Pump (Secondary)                         | 63. Telemetry Calibrator Power and Control Assembly |
| 45. Slow Speed Multiplexer Assembly                   | 64. Telemetry Calibrator                            |
| 46. Tape Recorder (Airborne)                          | 65. Telemetry Directional Coupler Model 226         |
| 47. Measuring Rack A403                               |   |
| 48. Measuring Distributor                             |   |
| 49. CP1 or DP1 Multiplexer Assembly                   |   |
| 50. Measuring Rack A402 or A405                       |   |

REFER TO TABLE 1 FOR COMPONENT EFFECTIVITIES

FIGURE 1 COMPONENT NOMENCLATURE BY CALLOUT NUMBER (Continued)

- |   |   |
|---|---|
| 66. EDS Distributor                                 | 80. Switch Selector                                   |
| 67. Measuring Distributor                           | 81. Remote Digital Submultiplexer                     |
| 68. Measuring Rack A404                             | 82. Control-EDS Rate Gyros                            |
| 69. F1 RF Transmitter Assembly                      | 83. Control Signal Processor                          |
| 70. PCM/DDAS Telemeter Assembly                     | 84. Measuring Rack A404 or A409                       |
| 71. C-Band Transponder                              | 85. Measuring Rack A403 or A406                       |
| 72. 5-Volt Measuring Voltage Supply                 | 86. Flight Control Computer                           |
| 73. F1 Telemeter                                    | 87. EDS Timer No. 2 (20 Second Timer)                 |
| 74. P1 PCM/RF Transmitter Assembly CT-19B           | 88. EDS Timer No. 1 or 3 (30, 40, or 60 Second Timer) |
| 75. Telemetry Calibrator Power and Control Assembly | 89. Command Directional Coupler                       |
| 76. Telemetry Calibrator                            | 90. Command Power Divider                             |
| 77. Measuring Rack A408                             | 90A. Thermal Conditioning Panel Heater                |
| 78. Measuring Rack A407                             | 90B. Thermal Conditioning Panel Heater                |
| 78A. Thermal Conditioning Panel Heater              | 90C. Measuring Rack A403 or A406                      |
| 78B. Measuring Rack A406                            | 90D. Control-EDS Rate Gyros                           |
| 78C. Thermal Conditioning Panel Heater              | 90E. Thermal Conditioning Panel Heater                |
| 78D. Thermal Conditioning Panel Heater              | 90F. Thermal Conditioning Panel Heater                |
| 79. P1 PCM/RF Transmitter Assembly Model II         | 90G. CCS Power Divider                                |

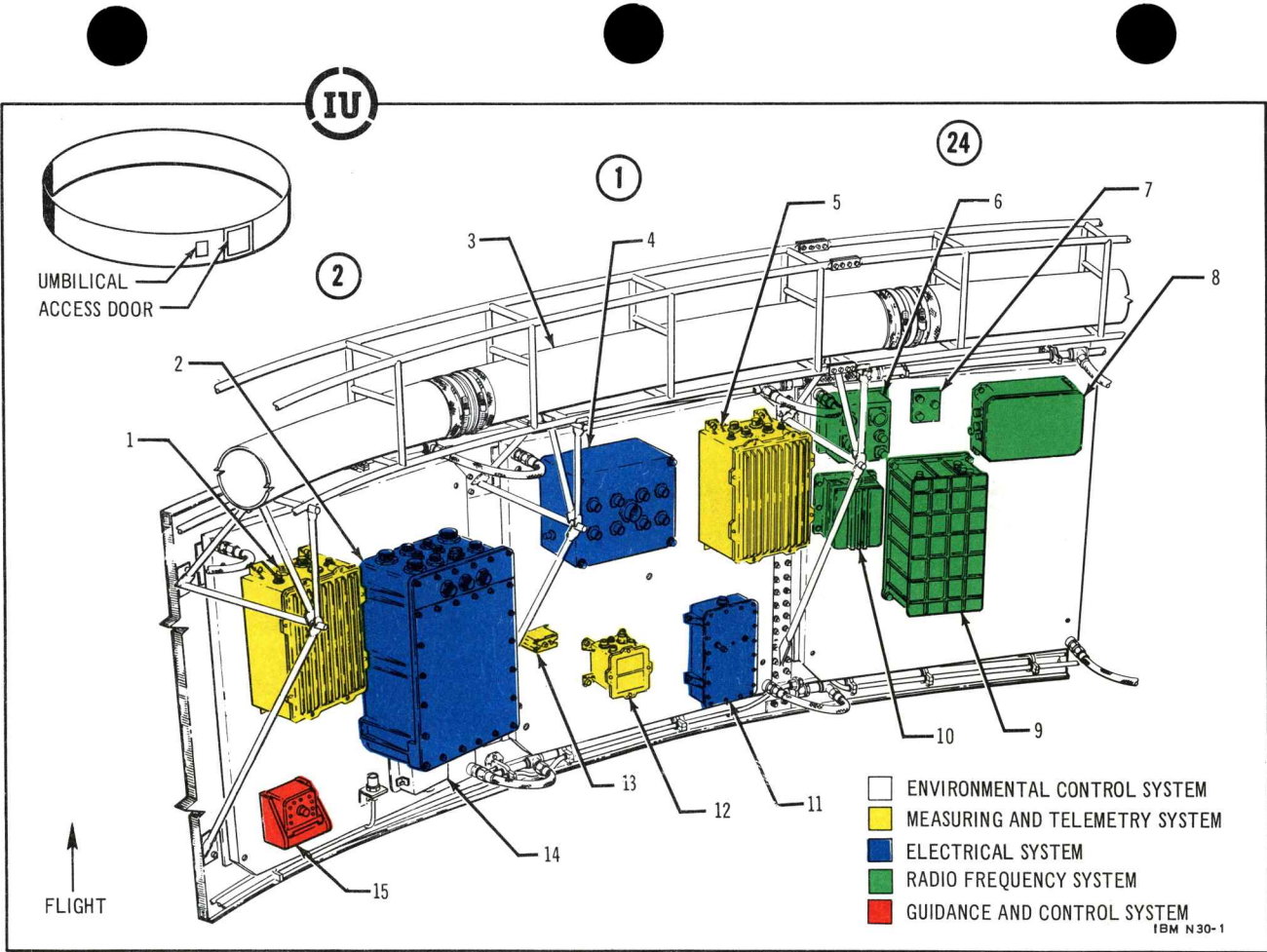
REFER TO TABLE 1 FOR COMPONENT EFFECTIVITIES

FIGURE 1 COMPONENT NOMENCLATURE BY CALLOUT NUMBER (Continued)

91. Remote Digital Multiplexer J	111. Gas Bearing Heat Exchanger
92. DDAS/Computer Interface Unit	112. Control Accelerometer (Yaw)
93. CCS Hybrid Ring	113. Force Balance Accelerometers
94. CCS Power Divider	114. ST-124M Inertial Platform Assembly
95. ST-124M Platform Electronic Assembly	115. Gas Bearing Pressure Regulator
96. Launch Vehicle Data Adapter	116. Low Pressure Switch
97. Control Distributor	117. Two-Cubic-Foot Sphere
98. Command Receiver	118. Gas Bearing Solenoid Valve
99. Secure Range Safety Decoder	119. Lateral Accelerometer Slosh, Pitch, and Yaw
100. Remote Digital Multiplexer K	120. Longitudinal Accelerometer Orbital LH <sub>2</sub> Venting
101. Launch Vehicle Digital Computer	121. Gas Bearing Heat Exchanger
102. Plug Type J-Box Assembly	122. Measuring Rack A669
103. ST-124M Platform AC Power Supply	123. UHF/RF Filter
104. Accelerometer Signal Conditioner	123A. Gas Bearing Heat Exchanger
105. Command Decoder	123B. Thermal Conditioning Panel Heater
106. Remote Digital Multiplexer K	123C. Thermal Conditioning Panel Heater
107. Command Decoder	124. Gas Bearing Heat Exchanger
108. C-Band Transponder	125. Gas Bearing Solenoid Valve
109. Azusa RI Filter Assembly	
110. Azusa Transponder	

REFER TO TABLE 1 FOR COMPONENT EFFECTIVITIES

Figure 1. Instrument Unit Component Locations (sheet 1 of 19)





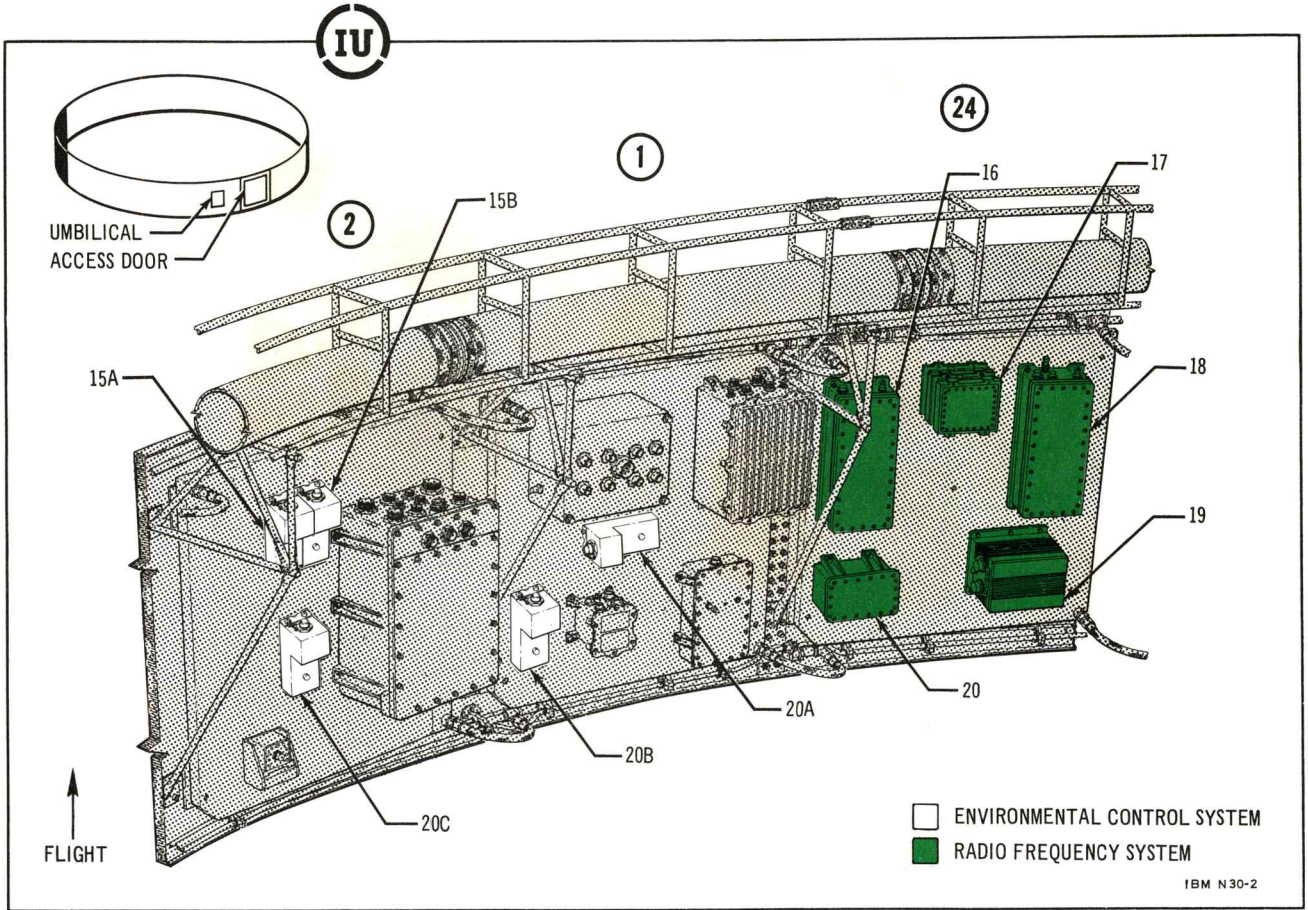
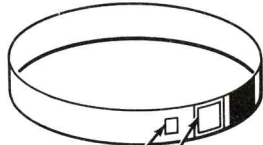


Figure 1. Instrument Unit Component Locations (sheet 2 of 19)

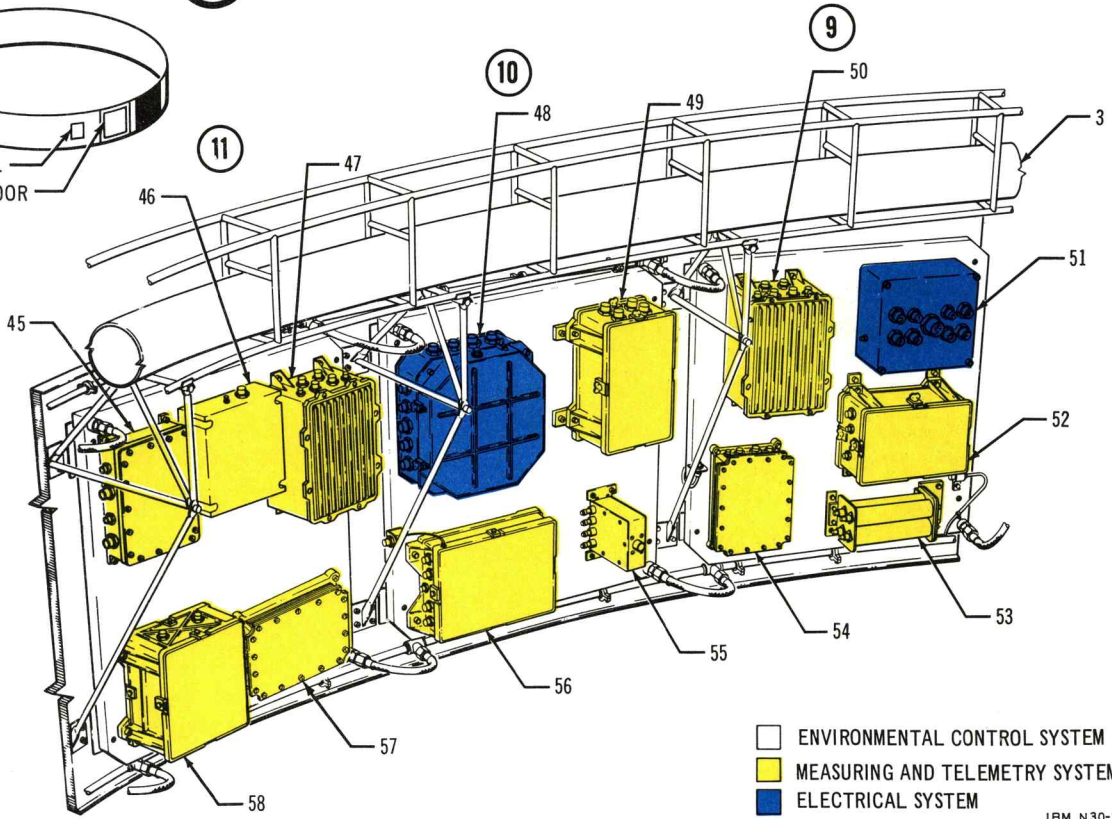





IU



UMBILICAL  
ACCESS DOOR

↑  
FLIGHT



-  ENVIRONMENTAL CONTROL SYSTEM
-  MEASURING AND TELEMETRY SYSTEM
-  ELECTRICAL SYSTEM

IBM N30-7

Figure 1. Instrument Unit Component Locations (sheet 7 of 19)

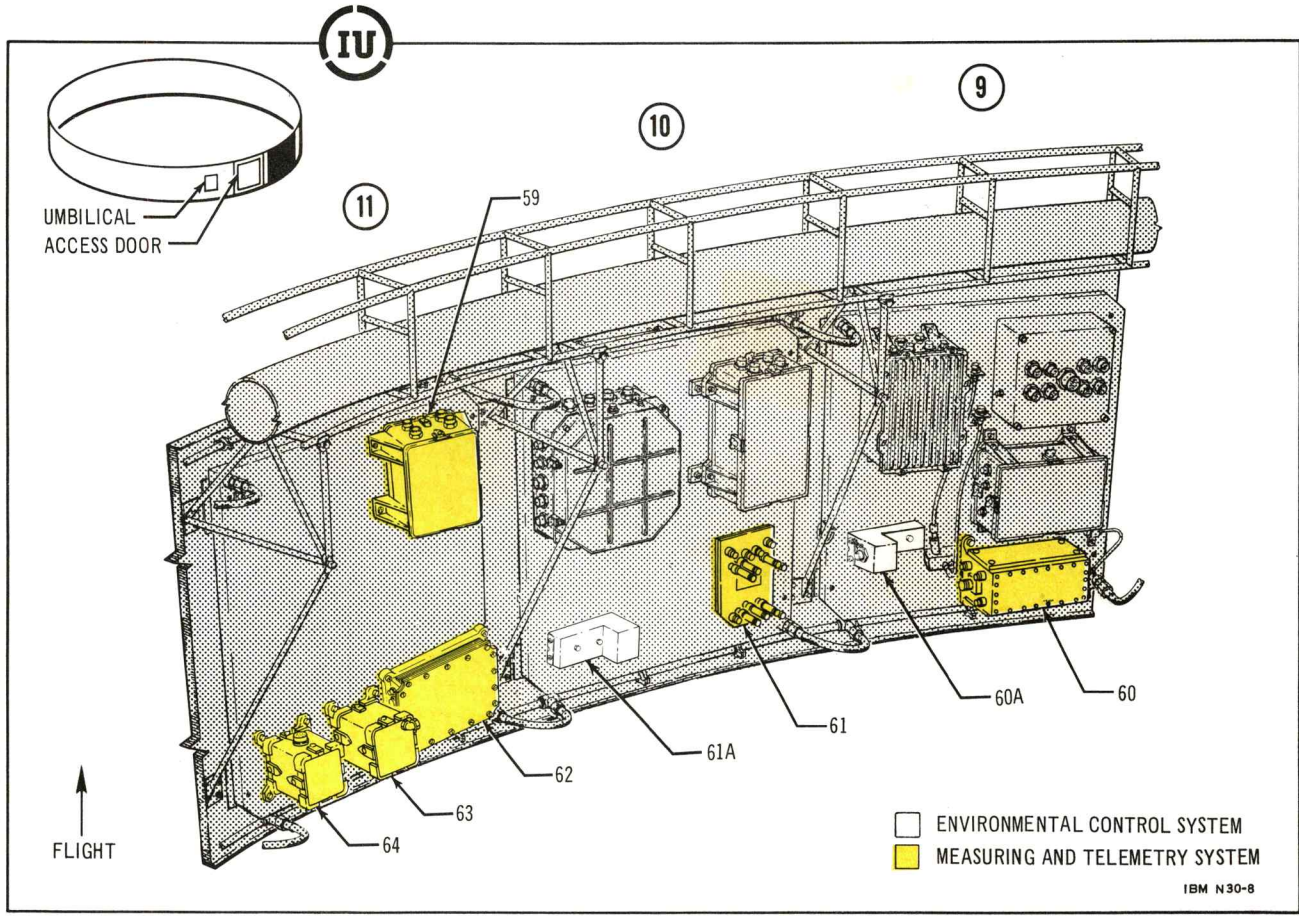


Figure 1. Instrument Unit Component Locations (Sheet 8 of 19)



Figure 1. Instrument Unit Component Locations (sheet 10A of 19)

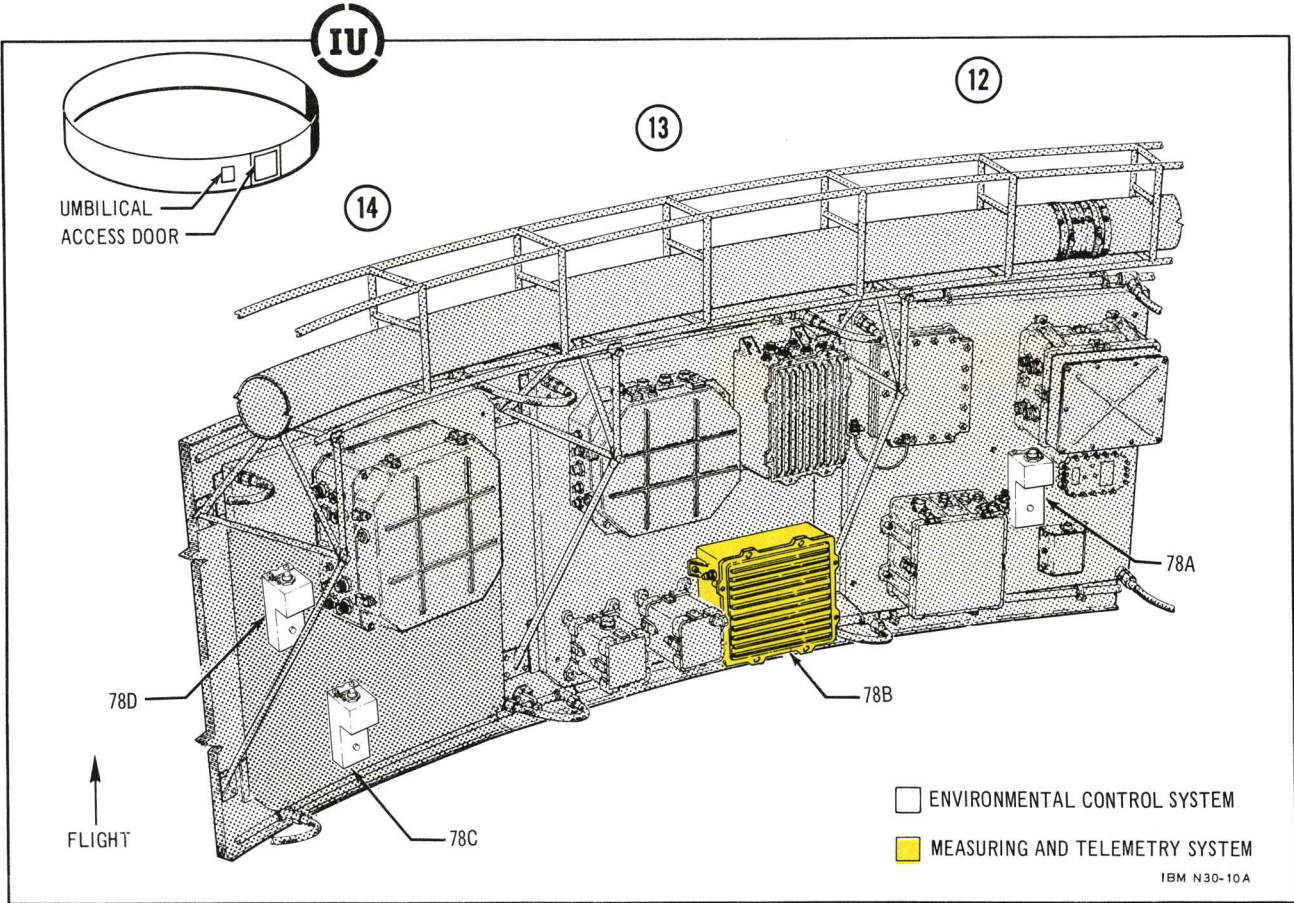
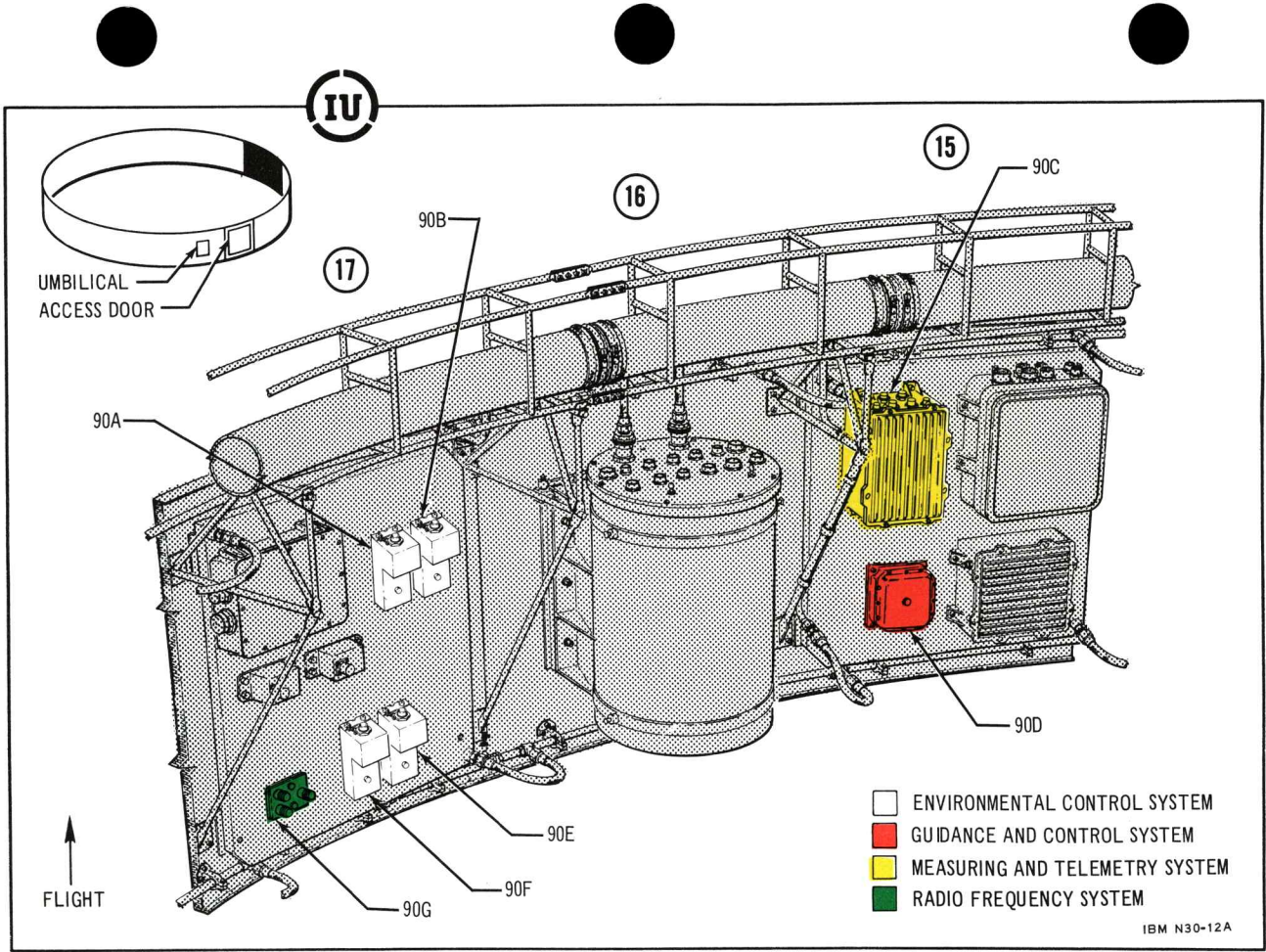




Figure 1. Instrument Unit Component Locations (Sheet 12A of 19)



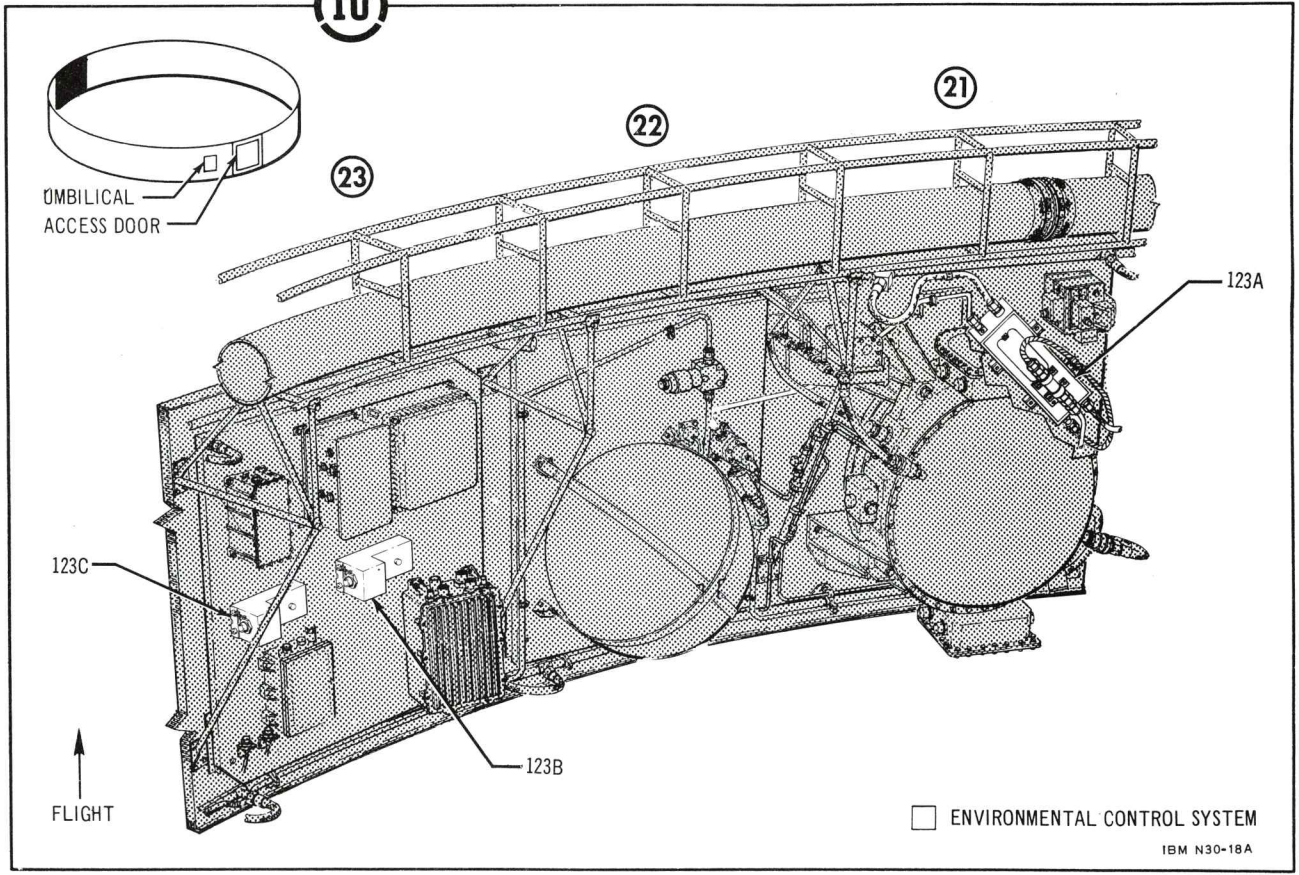


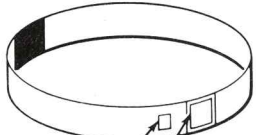
Figure 1. Instrument Unit Component Locations (sheet 18A of 19)

Added 1 June 1967

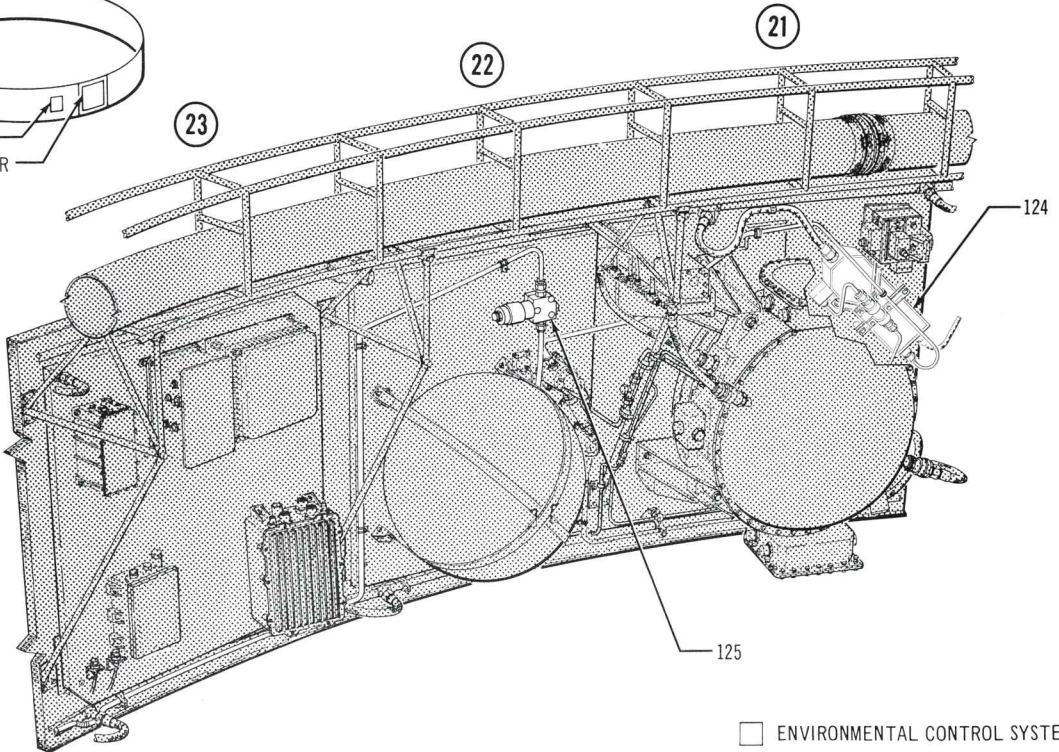
68A/68B



IU



UMBILICAL  
ACCESS DOOR



ENVIRONMENTAL CONTROL SYSTEM

FLIGHT

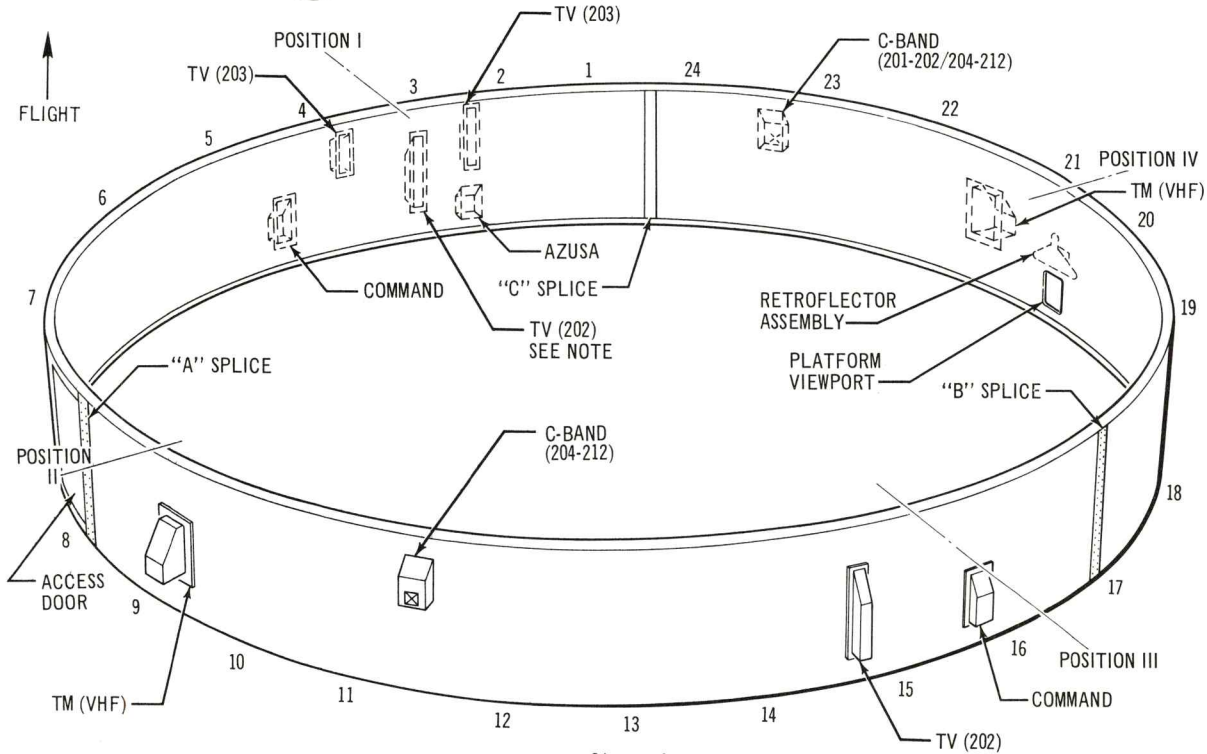
Figure 1. Instrument Unit Component Locations (sheet 19 of 19)

IBM N 30-19





Figure 2. Instrument Unit Antenna Locations and Photographs (sheet 1 of 3)



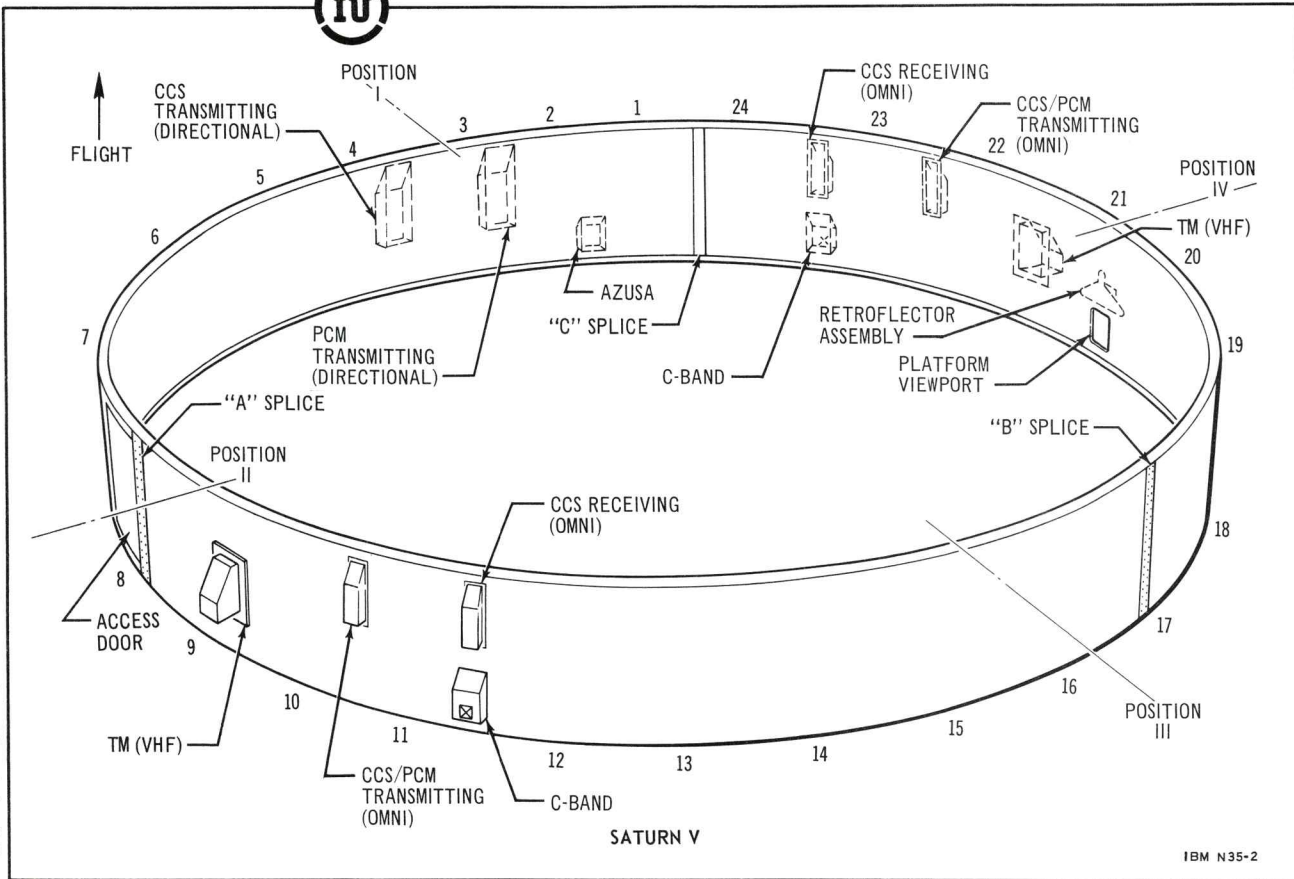
NOTE: C-BAND ANTENNA FOR IU-203 IS LOCATED AT THIS POSITION

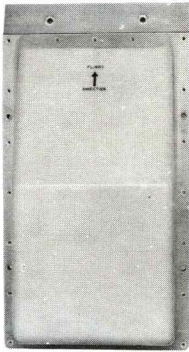
SATURN IB

IBM N35-1



Figure 2. Instrument Unit Antenna Locations and Photographs (sheet 2 of 3)

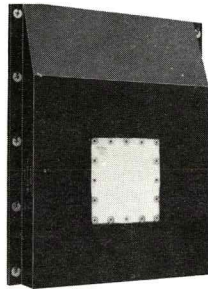




COMMAND



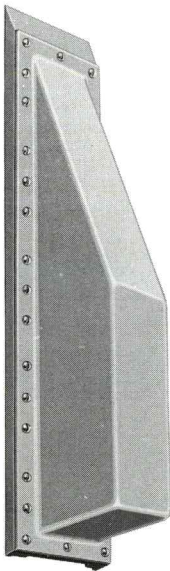
AZUSA



C-BAND



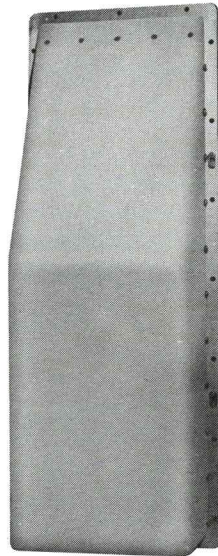
CCS RECEIVING (OMNI)  
CCS/PCM TRANSMITTING (OMNI)  
TV ANTENNA (203)



TV ANTENNA  
(202)



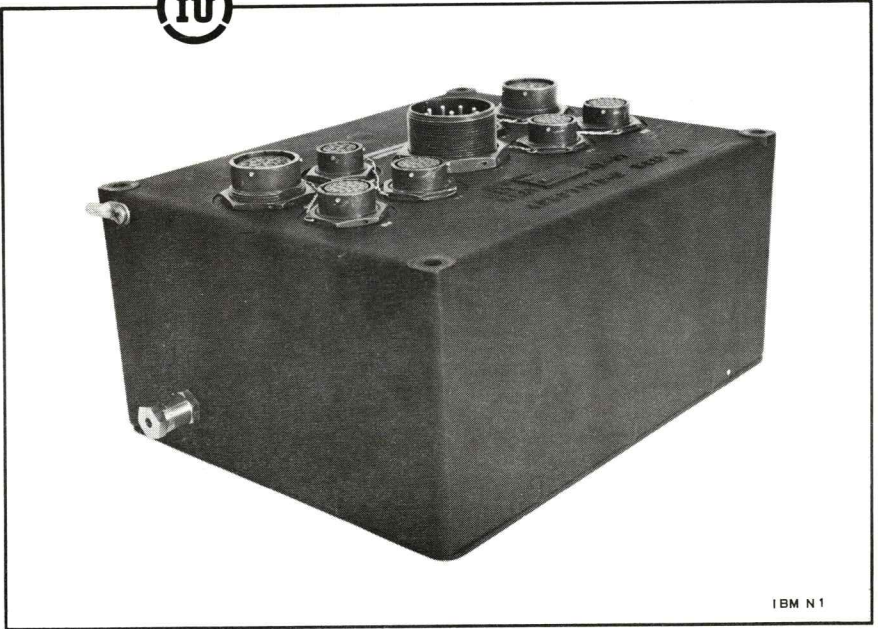
TELEMETRY  
(VHF)



CCS OR PCM  
TRANSMITTING (DIRECTIONAL)

IBM N35-3

Figure 2. Instrument Unit Antenna Locations and Photographs (sheet 3 of 3)



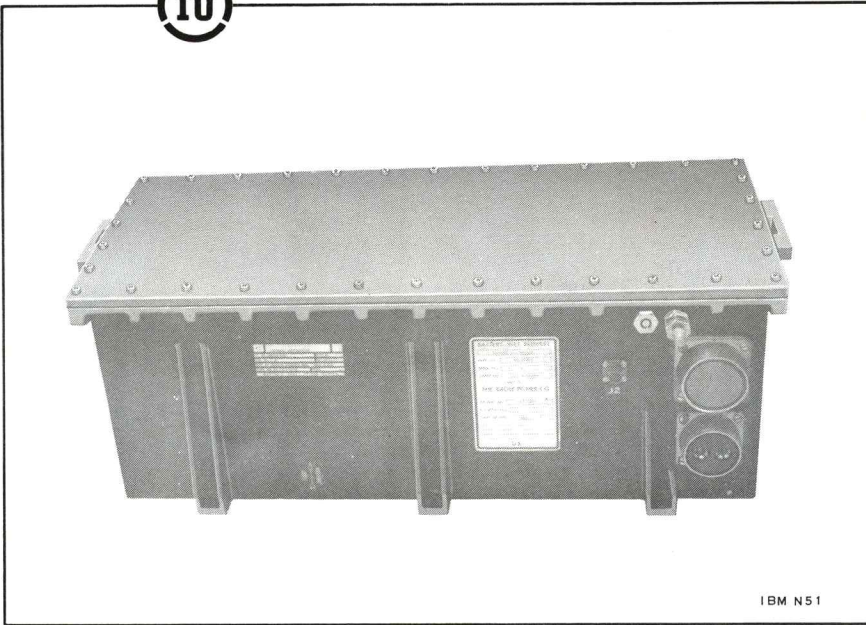
IBM N1

The two Auxiliary Power Distributors supply 28 Vdc power to small current loads. Both Auxiliary Power Distributors receive 28 Vdc from each of the battery buses in the Power Distributor so that current loads on each of the batteries may be evenly distributed. Relays in the Auxiliary Power Distributors provide power ON/OFF control for IU components during prelaunch checkout and also while in flight. These relays are controlled by the Electrical Support Equipment (ESE) and the Switch Selector.

Effectivity: All (Refer to note in Introduction)  
Specification No. 40M39524  
Figure 1 Location: Panels 1 and 9 Callouts 4 and 51

## ELECTRICAL SYSTEM

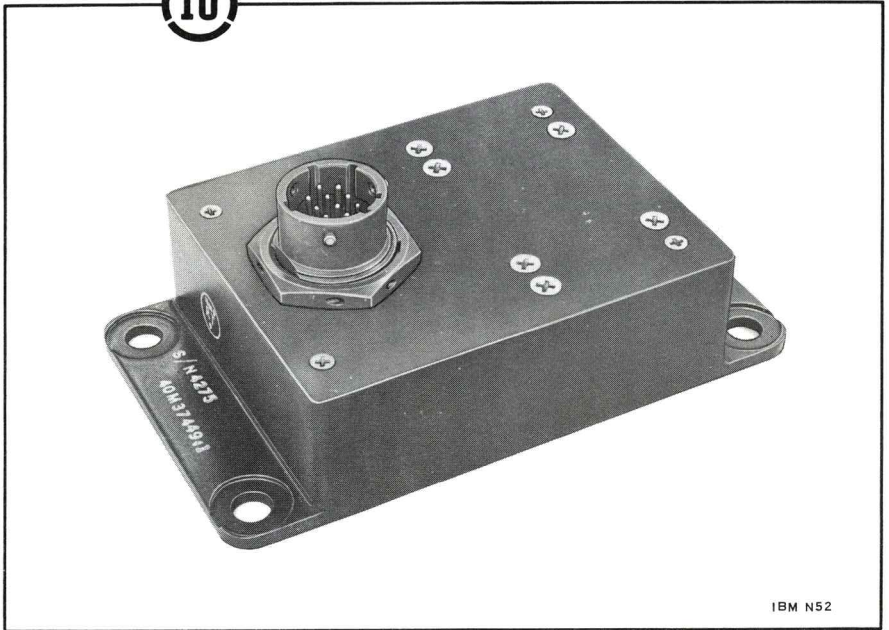
### Batteries



Inflight power for the entire IU is furnished by a maximum of four 28-Vdc batteries. The batteries are silver-zinc dry-charged, capable of supplying 28 Vdc at 35 amperes for a period of 10 hours. All batteries have the same manufacturer's part number and are interchangeable with respect to installation and performance.

Effectivity:	All (Refer to note in Introduction)
Specification No.	40Z20793
Figure 1 Location:	Panels 4 and 5 Callouts 26, 27, 28, and 32





IBM N52

EDS Timer No. 1 An electronic timing device used as a backup for one channel of the Switch Selector. The timer is actuated at lift-off and produces an output 30 or 40 seconds after being actuated. The output from the timer will energize relays in the EDS Distributor that allow multiple engine cutoff. During the first 30 or 40 seconds of flight, engine cutoff is prevented in order to keep the launch vehicle from falling within the safety fallback area.

EDS Timer No. 2 An electronic timing device used as a backup for one channel of the Switch Selector. The timer is actuated at lift-off and produces an output 20 seconds after being actuated. The output from the timer will energize relays in the EDS Distributor that make an inflight change to EDS angular overrate limits; from 3 degrees during the first 20 seconds of flight to 5 degrees thereafter.

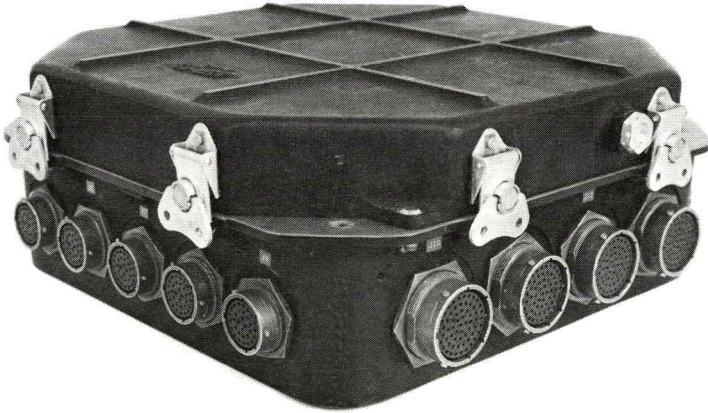
EDS Timer No. 3 Performs the same functions as timer No. 1 except that it produces an output 60 seconds after lift-off.

Effectivity:	No. 1 40 seconds 201, 203, 204, 205, 207, & 209-212/501-502 30 seconds 503-515
	No. 2 204-212/501-515
	No. 3 202, 206, & 208
Specification No.	40Z39536
Figure 1 Location:	No. 1 Panel 17 Callout 88
	No. 2 Panel 17 Callout 87
	No. 3 Panel 17 Callout 88



## ELECTRICAL SYSTEM

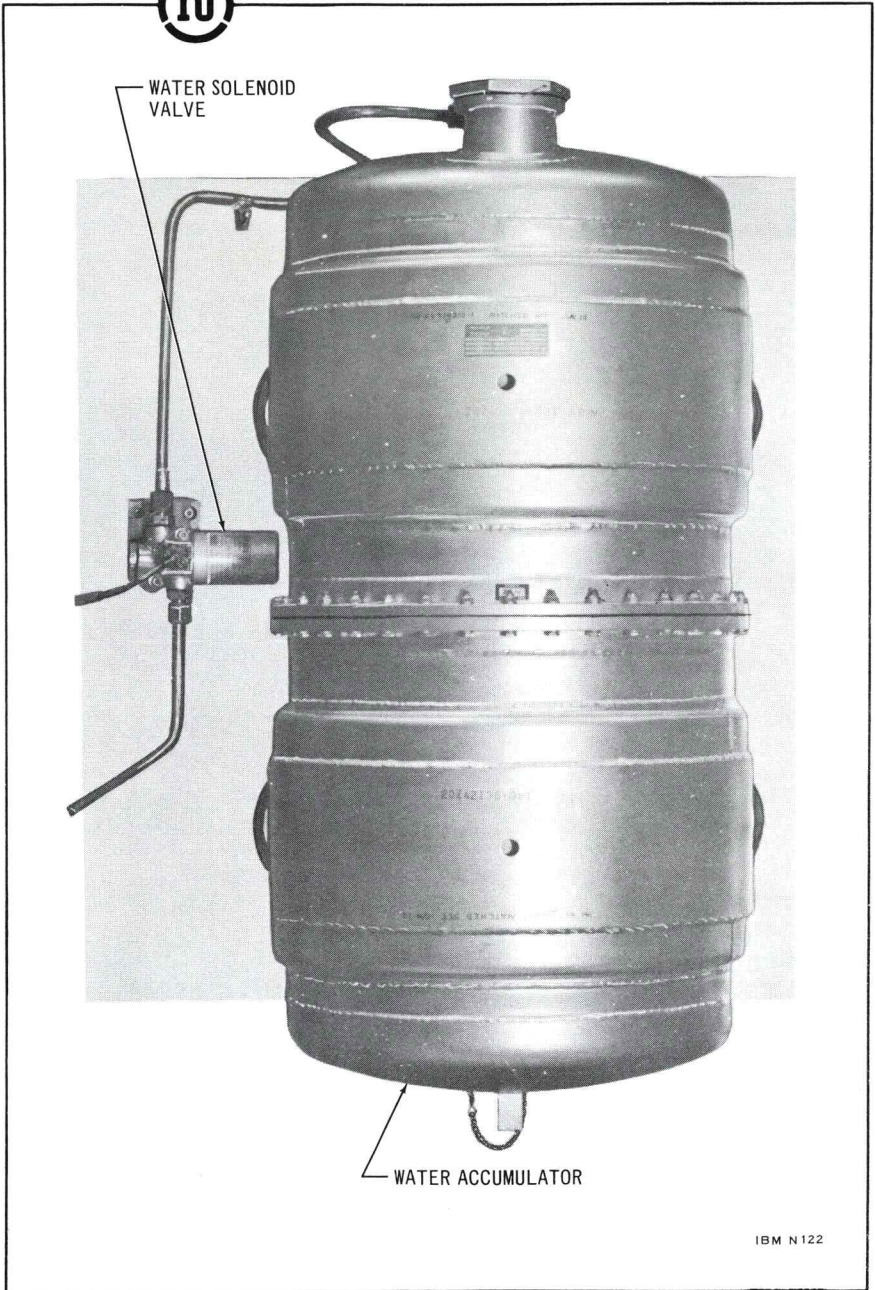
### Measuring Distributors



IBM N4

The primary function of the Measuring Distributors is to collect all measurements that are transmitted by the IU telemetry system, and to direct them to their proper telemetry channels. These measurements are obtained from instrumentation transducers, functional components, and various signal and control lines. Also, the Measuring Distributors distribute the 5-volt output from the 5 Volt Measuring Voltage Supply throughout the measuring system.

Effectivity: All (Refer to note in Introduction)  
Specification No. 40M39514  
Figure 1 Location: Panels 10 and 13 Callouts 48 and 67



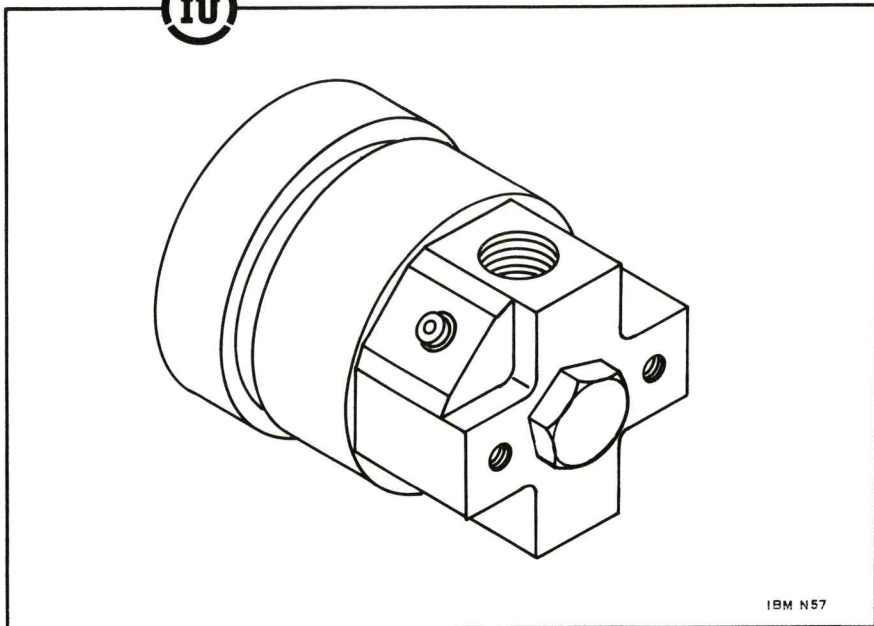
IBM N122

Environmental Control System Panel 3 (Typical 206-212/502-515)



ENVIRONMENTAL CONTROL SYSTEM  
First Stage Pressure Regulator

IU



IBM N57

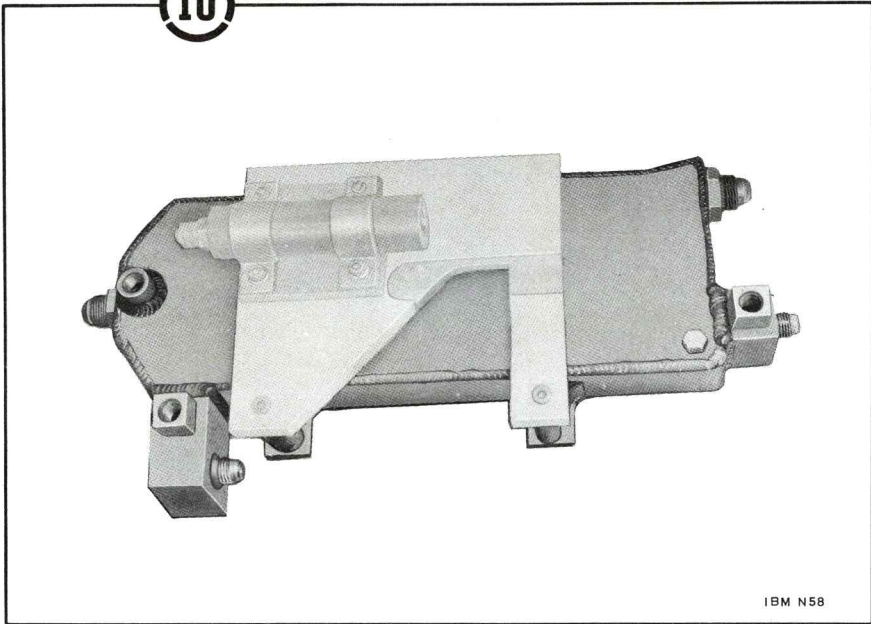
The methanol-water accumulator and water accumulator are pressurized with GN<sub>2</sub> that is stored at 3000 psig in the two 50-cubic-inch or the 165-cubic-inch storage spheres. The GN<sub>2</sub> is reduced to approximately 15 psia by the First Stage Pressure Regulator, and then applied to the methanol-water accumulator. After being further reduced to 5 psia by the orifice regulator, the GN<sub>2</sub> is applied to the water accumulator.

Effectivity: All (Refer to note in Introduction)  
Specification No. 20Z42013  
Figure 1 Location: Panel 6 Callout 33



# ENVIRONMENTAL CONTROL SYSTEM

## Gas Bearing Heat Exchanger



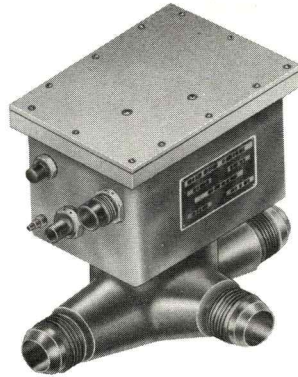
IBM N58

The gaseous nitrogen ( $\text{GN}_2$ ) used to lubricate the ST-124M-3 platform gas bearings is cooled or heated, as required, as it passes through the Gas Bearing Heat Exchanger.

Effectivity: All (Refer to note in Introduction)

Specification No. 20Z42004

Figure 1 Location: Panels 21 and 22 Callouts 111, 121, 123A, and 124

ELECTRONIC CONTROLLER  
ASSEMBLYMODULATING FLOW  
CONTROL VALVE

THERMISTOR

IBM N54

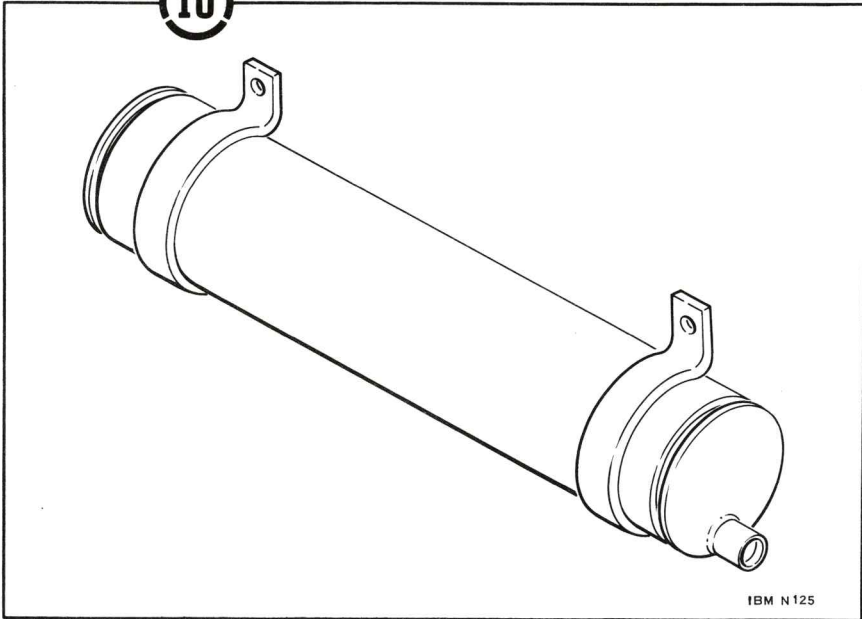
The Temperature Control Assembly is made up of three separate components; the Electronic Controller Assembly, the Modulating Flow Control Valve, and a temperature sensing thermistor. The thermistor is located down stream from the Coolant Pump and applies a signal to the Electronic Controller Assembly that is proportional to the methanol-water coolant temperature. The Electronic Controller Assembly in turn applies a signal to the Modulating Flow Control Valve which diverts varying amounts of coolant through the Heat Exchanger Assembly if the coolant requires cooling. However, if no cooling is required, the coolant is bypassed around the heat exchanger by the Modulating Flow Control Valve.

Effectivity:	All (Refer to note in Introduction)
Specification No.	20Z42007
Figure 1 Location:	Electronic Controller Assembly, Panel 2 Callout 14 Modulating Flow Control Valve, Panel 6 Callout 39



# ENVIRONMENTAL CONTROL SYSTEM

## Thermal Expansion Chamber

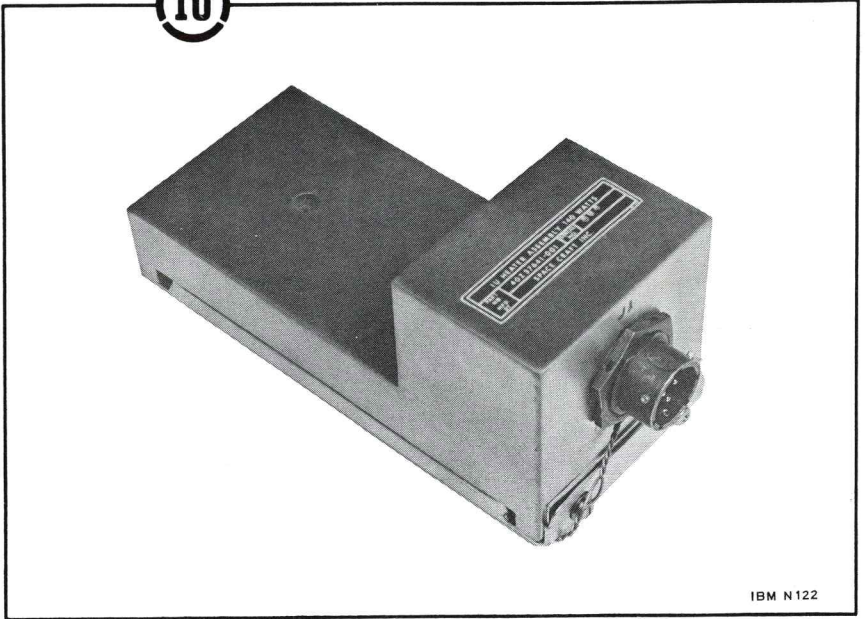


IBM N125

Some of the methanol-water coolant, which is circulated by Ground Support Equipment during preflight operations, is trapped between the umbilical quick disconnects and the preflight heat exchanger at the time of umbilical separation. The Thermal Expansion Chamber, connected into the preflight heat exchanger inlet line, provides for thermal expansion of this trapped coolant during flight.

Effectivity:	All (Refer to note in Introduction)
Specification No.	Not available
Figure 1 Location:	Panel 7 Callout 32A

ENVIRONMENTAL CONTROL SYSTEM  
Thermal Conditioning Panel Heaters

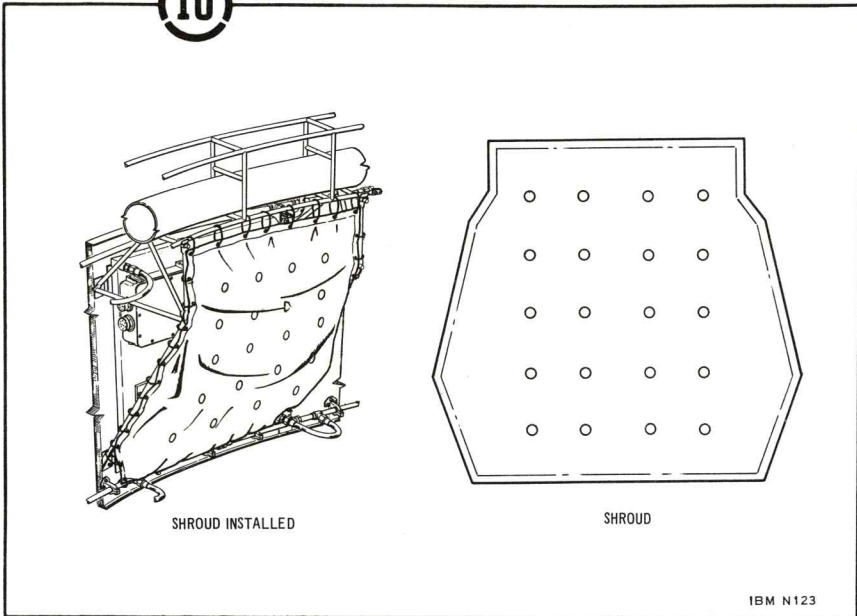


IBM N122

To improve Environmental Control System heat balance, 140-watt Thermal Conditioning Panel Heaters are mounted directly to the Mounting and Thermal Conditioning Panels. The heaters are turned on at power transfer and remain on during flight. The quantity and location of the heaters vary from vehicle to vehicle.

Effectivity:	205 & 207/501-503
Specification No.	40Z3952
Figure 1 Location:	Panel 1 Callouts 20A and 20B, Panel 2 Callouts 15A, 15B, and 20C, Panel 9 Callout 60A, Panel 10 Callout 61A, Panel 12 Callout 78A, Panel 14 Callouts 78C and 78D, Panel 17 Callouts 90A, 90B, 90E, and 90F, Panel 23 Callouts 123B and 123C.

ENVIRONMENTAL CONTROL SYSTEM  
Thermal Radiation Shrouds

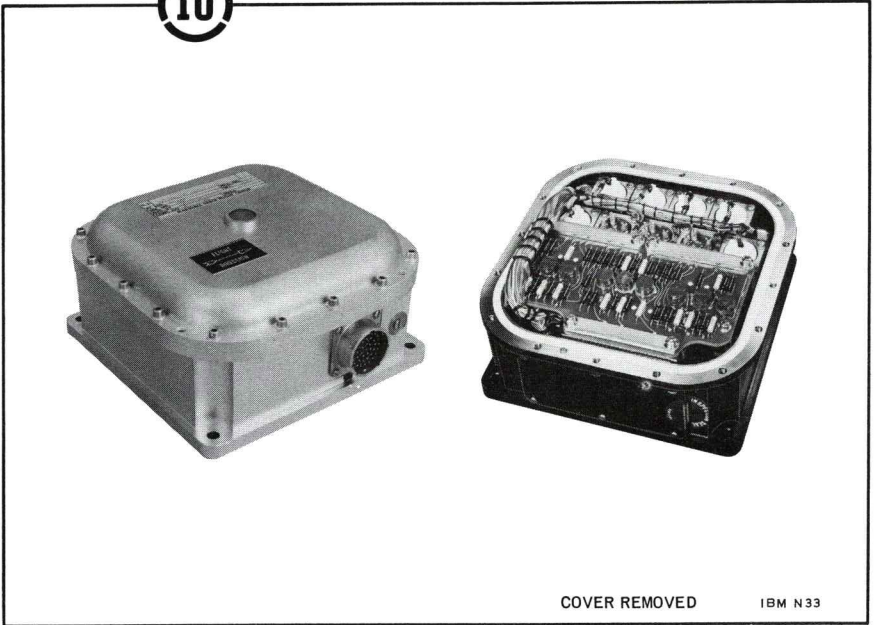


To improve Environmental Control System heat balance, Thermal Radiation Shrouds cover the inboard surfaces of the Thermal Conditioning Panels and Components. They are attached to the Cable Tray at the top, to the Cable Tray supports at the sides, and to the coolant return manifolds at the bottom. Air/ $\text{GN}_2$  purge gas from the Environmental Conditioning Duct is vented through open areas at the top and bottom of the shrouds and through holes in the shrouds.

The shrouds are fabricated from sheets of aluminized, low-thermal-emissivity mylar and bound with aluminum tape. The tape is used to reinforce the shrouds at the edges and around the vent holes. The shrouds are installed at KSC in the required locations for each vehicle effectivity.

In those locations where RF interference would result from the use of a shroud-type shield, a low-emissivity, pressure-sensitive tape is used. The tape is applied to accessible exposed surface areas of components and/or Thermal Conditioning Panels.

Effectivity: 204-207/501-503  
Specification No. 7915318 (Low-Emissivity Tape)  
Figure 1 Location: Not shown



COVER REMOVED

IBM N 33

The Control-EDS Rate Gyros provide nine 400 Hz voltage output signals that are analogs of the rates of vehicle rotation about the yaw, pitch, and roll axes. These signals are sent to the Control Signal Processor, which provides outputs to the Flight Control Computer and the Emergency Detection System (EDS). The nine Control-EDS Rate Gyros are arranged in groups of three for triple redundancy. Each group, consisting of pitch, yaw, and roll rate gyros, is completely isolated electrically from the others.

Effectivity: All (Refer to note in Introduction)

Specification No. 6009086

Figure 1 Location: Panel 15 Callouts 82 and 90D

# GUIDANCE AND CONTROL SYSTEM

## Control Signal Processor



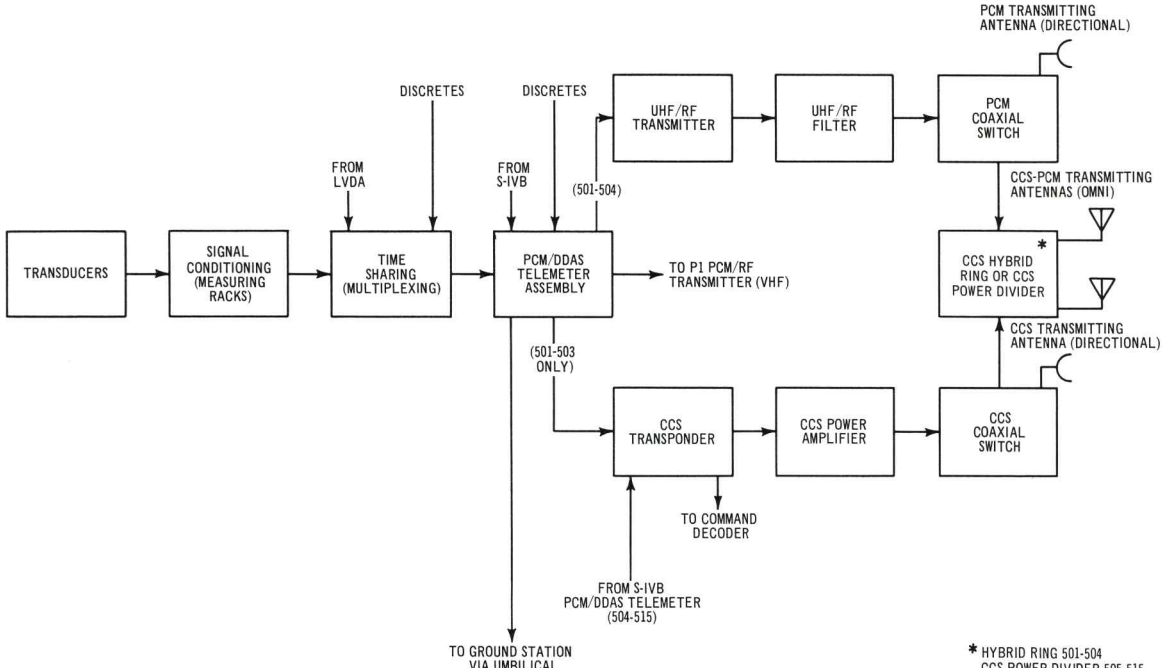
The Control Signal Processor provides power to and receives inputs from the nine Control-EDS Rate Gyros. These inputs are processed by two separate sets of circuits. One set of circuits provide outputs to the Emergency Detection System Distributor, and the other set processes and provides rate signals to the Flight Control Computer.

Effectivity: All (Refer to note in Introduction)  
Specification No. 7907068  
Figure 1 Location: Panel 15 Callout 83



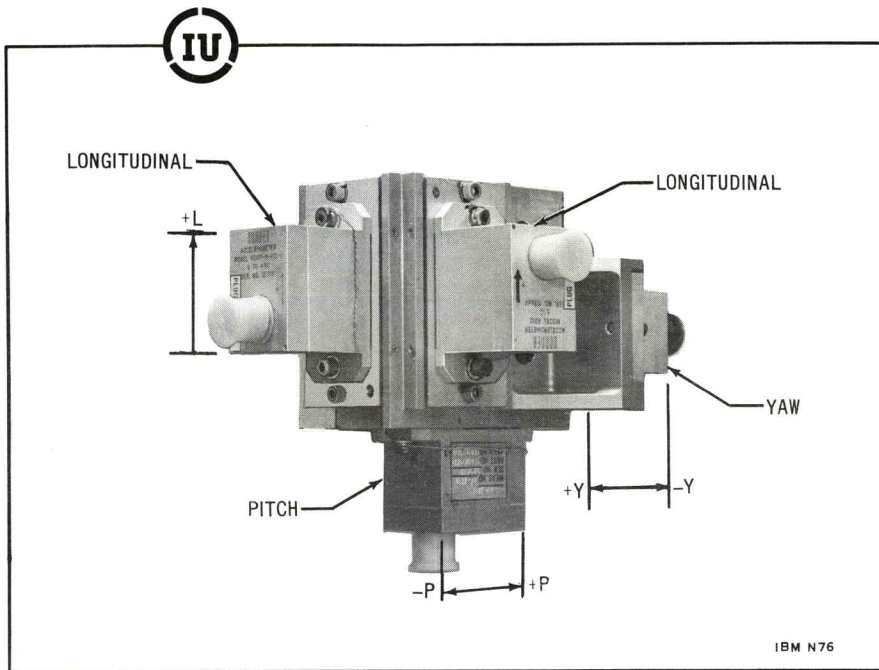


UHF Measuring and Telemetry System Block Diagram



# MEASURING SYSTEM

## Force Balance Accelerometers

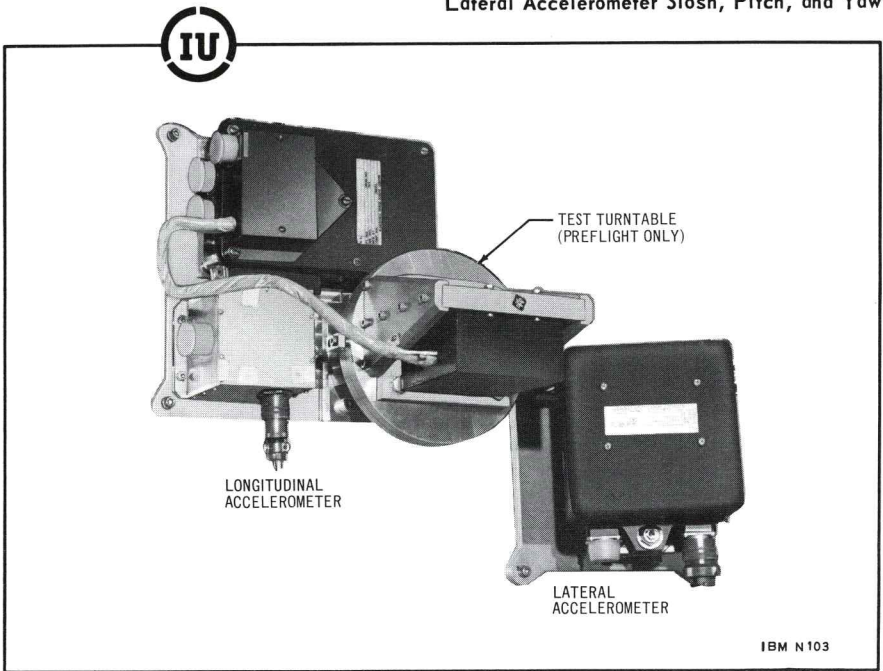


The accelerometers are used to measure longitudinal, yaw, and pitch g forces in the IU. Only the longitudinal accelerometers are used onboard the Saturn IB vehicles. The longitudinal, pitch, and yaw accelerometers are used onboard the Saturn V. The longitudinal accelerometer shown at the left in the above illustration measures zero to 4.5 g on all Saturn IB vehicles. However, the accelerometer in this position on Saturn V vehicles measures either zero to 4.5 g or zero to 5.0 g. The measurement signals are applied to Measuring Racks to be signal conditioned prior to transmission to the ground by the telemetry system.

Effectivity:	All (Refer to note in Introduction)
Specification No.	±0.5 g 50M60277 201-203/501
	0-4.5 g 50M60267 201-203/501
	±0.5 g 50Z60277 204-206/502
	0-4.5 g 50Z60267 204-206/502
	±0.5 g 7907556 207/503-515
	0-5.0 g 7907542 503-515

Figure 1 Location: Panel 21 Callout 113

MEASURING SYSTEM  
Longitudinal Accelerometer Orbital LH<sub>2</sub> Venting  
Lateral Accelerometer Slosh, Pitch, and Yaw



These two assemblies have been placed onboard S-IU-203 to monitor the effects of near-zero acceleration forces (low G experiment) on the IU and S-IVB Stage. The measurements taken will be those for longitudinal acceleration and the forces induced by propellant sloshing.

The Longitudinal Accelerometer consists of an accelerometer, counter, electronic box, and mounting plate. The accelerometer provides an analog output to the electronic box and the counter. The electronic box signal conditions the accelerometer analog output providing two 0 to 5-volt levels that indicate positive or negative acceleration. The counter converts the accelerometer analog output to a 14-bit digital output indicating a value from 0 to 0.0001 g. The output from the counter and either a positive or negative indication from the electronic box are required to provide a complete measurement.

The Lateral Accelerometer consists of an accelerometer and mounting plate. This accelerometer measures forces along the pitch and yaw axes and supplies two 0 to 5-volt outputs which indicate values from minus 0.0001 g to plus 0.0001 g for each axis.

The three measurements from the Longitudinal Accelerometer and the two measurements from the Lateral Accelerometer are applied directly to the PCM Telemeter Assembly for subsequent transmission to the ground.

Effectivity:	203
Specification No.	Longitudinal Accelerometer (Not available) Lateral Accelerometer 50M60332
Figure 1 Location:	Lateral Accelerometer, Panel 23 Callout 119 Longitudinal Accelerometer, Panel 23 Callout 120

## MEASURING SYSTEM

### Measuring Rack



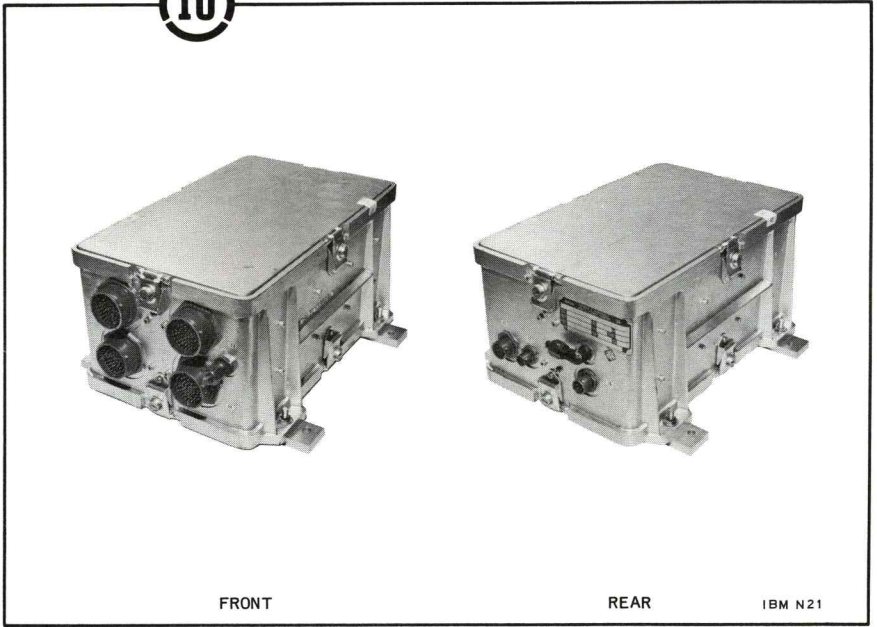
Measuring Racks contain plug-in type signal conditioning modules that adapt the outputs of transducers and some electrical circuits to the electrical input requirements to the telemetry system. The quantity of racks and the quantity of modules within each rack vary from vehicle to vehicle dependent upon the mission requirements, however, each rack is capable of containing 20 signal conditioning modules. In addition to the signal conditioning modules, the racks contain one or two channel selector modules. The channel selector modules operate in conjunction with the Measuring Rack Selector to determine measuring equipment accuracy. The signal conditioning modules provide flexibility and ease of maintenance. They accept output signals from the transducers or electrical pickoffs and convert the signals to a proportional 0 to 5-volt range. Several types of signal conditioning modules are available for use in the racks; one type of module is illustrated on the following page. The types of signal conditioning modules used in the Measuring Racks are as follows:

- AC Amplifiers
- DC Amplifiers
- Servo-Accelerometers
- Frequency-to-DC Converters
- Frequency Measuring Adapters

Effectivity: All (Refer to note in Introduction)

Specification No. Not available

Figure 1 Location: Measuring Rack A401, Panels 2 and 1 Callouts 1 and 5, A402, Panels 1 and 9 Callouts 5 and 50, A403, Panels 11 and 15 Callouts 47, 85, and 90C, A404, Panels 13 and 15 Callouts 68 and 84, A405, Panel 9 and 13 Callouts 50 and 68, A406, Panel 13 and 15 Callouts 78A, 85 and 90C, A407, Panel 14 Callout 78, A408, Panel 14 Callout 77, A409, Panel 15 Callout 84, and A669, Panel 23 Callout 122



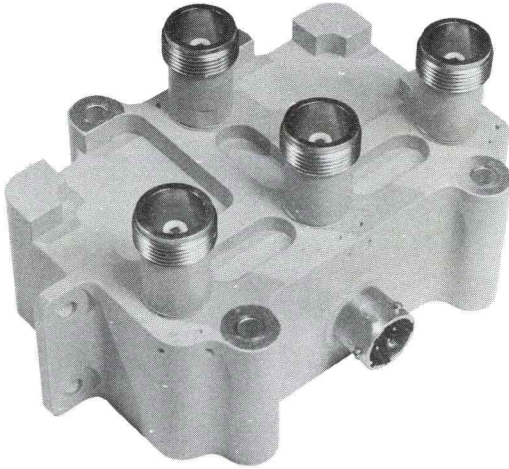
These Multiplexer Assemblies are Model 270 multiplexers. The Model 270 multiplexer is a two-stage multiplexer that sequentially monitors many input signals, and produces two parallel pulse trains, with each pulse a sample of an input signal. The input signals must be preconditioned to a range of 0 to 5 Vdc. The sampling rate is either 12 or 120 samples per second.

Effectivity:	CP1, 201-212/501-515 DP1, 201-212/501-515
Specification No.	50M60061
Figure 1 Location:	CP1, Panels 9 and 10 Callouts 52 and 49 DP1, Panels 9 and 10 Callouts 49 and 52



# TELEMETRY SYSTEM

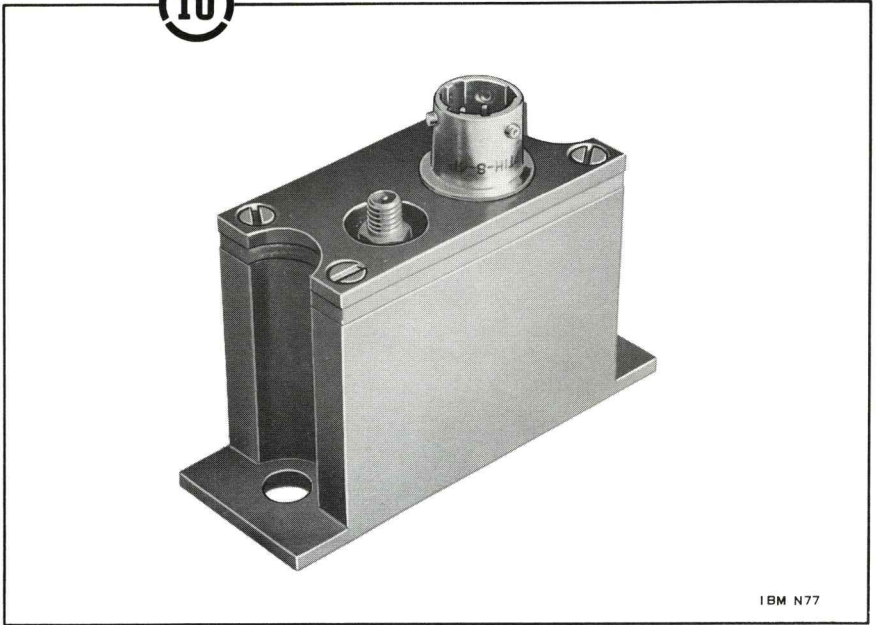
## PCM Coaxial Switch



IBM N114

The PCM Coaxial Switch routes the UHF/RF Transmitter Assembly output signal to either the CCS Hybrid Ring or the PCM directional transmitting antenna. When in the normally closed position, the coaxial switch routes the signal to the hybrid ring which in turn applies the signal to the CCS/PCM omnidirectional antennas. The coaxial switch has two other positions; both positions route the signal to the PCM directional antenna. One of these positions applies the signal to the high gain input, while the other applies the signal to the low gain input of the PCM directional antenna. Inflight switching of the coaxial switch is controlled by the Switch Selector.

Effectivity:	501-504
Specification No.	Not available
Technical Manual:	None
Figure 1 Location:	Panel 24 Callout 24

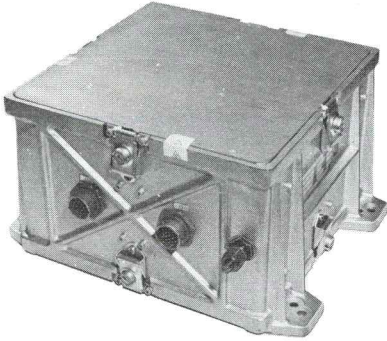


IBM N77

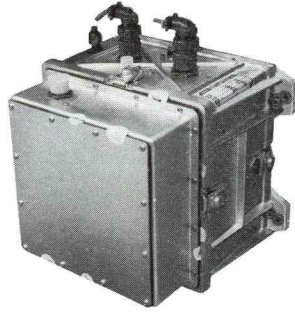
The Source Follower electrically isolates and increases the current of the microphone (acoustic transducer) output. The Source Follower receives operating power from a Measuring Rack, and its output is routed to an ac amplifier signal conditioning module. Prior to launch, the Source Follower and subsequent components can be calibrated by application of a 400 Hz calibration signal.

Effectivity:	201-204/501-503
Specification No.	Not available
Figure 1 Location:	Panel 1 Callout 13

TELEMETRY SYSTEM  
S1 Telemeter Assembly



SATURN IB



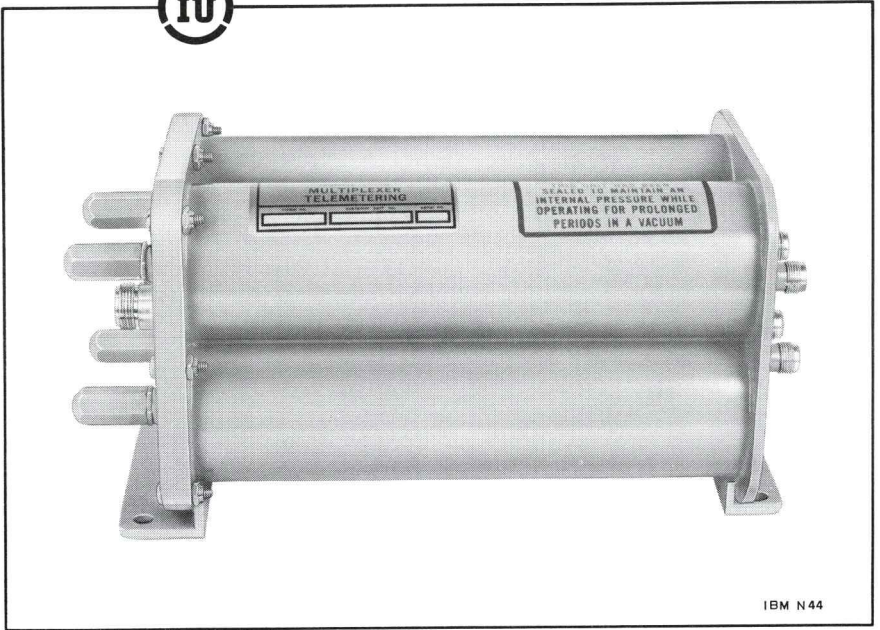
SATURN V

IBM N26

The S1 Telemeter Assembly provides 17 modulation channels of wide-frequency-band data to an FM transmitter. Measurement data is sent through 15 of these bands while the other 2 bands are used for synchronizing signals. The channels are spaced in a manner to produce a nominal bandwidth to the transmitter while retaining high accuracy. The single sideband modulation method is used in the telemeter assembly to improve the measurement handling capacity of the transmitter.

A top deck assembly is added to the S1 Telemeter Assembly onboard Saturn V vehicles. This top deck assembly contains a dc-to-dc converter for isolation of power and a mixer amplifier for output isolation and impedance matching.

Effectivity: 201-204/501-503  
Specification No. 50M60002  
Figure 1 Location: Panel 11 Callout 58



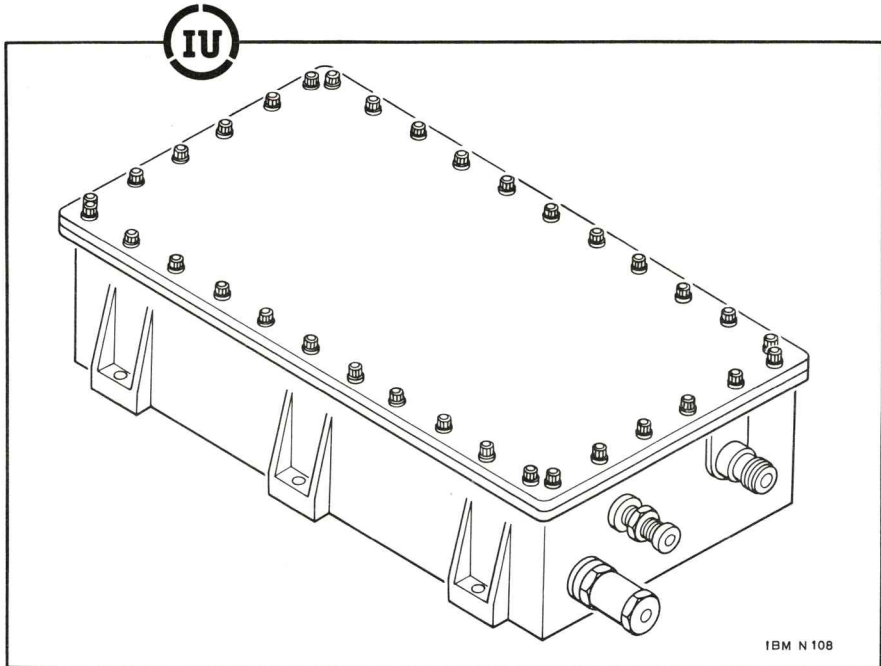
IBM N44

The Telemetry RF Coupler uses tuned cavities to selectively pass signals from the telemetry RF transmitters to the Coaxial Switch. Each carrier input passes through a resonant cavity that is tuned to  $1/4$  wavelength of the carrier center frequency. The carriers are then capacitively coupled together and routed to the Coaxial Switch. Since each cavity is tuned to a different center frequency, only the selected carrier frequency may pass.

Effectivity:	All (Refer to note in Introduction)
Specification No.	50M60278
Figure 1 Location:	Panel 9 Callout 53

# TELEMETRY SYSTEM

## UHF/RF Filter

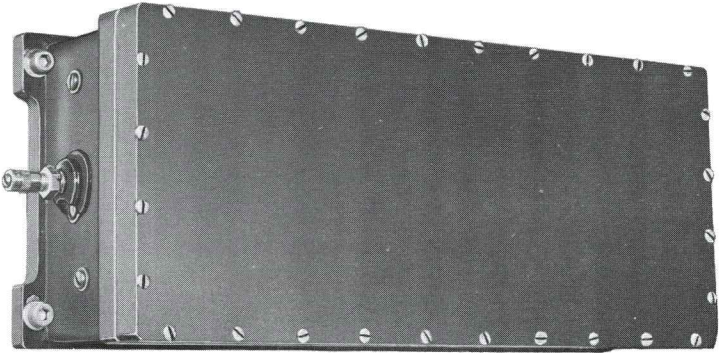


The UHF/RF Filter serves as a bandpass filter for the output of the UHF/RF Transmitter Assembly. The filter ensures that noise generated by the UHF/RF Transmitter is not radiated by the UHF transmitting antennas (PCM directional and the CCS/PCM omnidirectional) thereby overlapping the signal received by the CCS receiving antennas. The RF noise spectrum of the UHF Transmitter overlaps the signal received by the CCS Transponder. The UHF/RF Filter prevents interference problems.

Effectivity: 502-503  
Specification No. Not available  
Figure 1 Location: Panel 23 Callout 123



IU

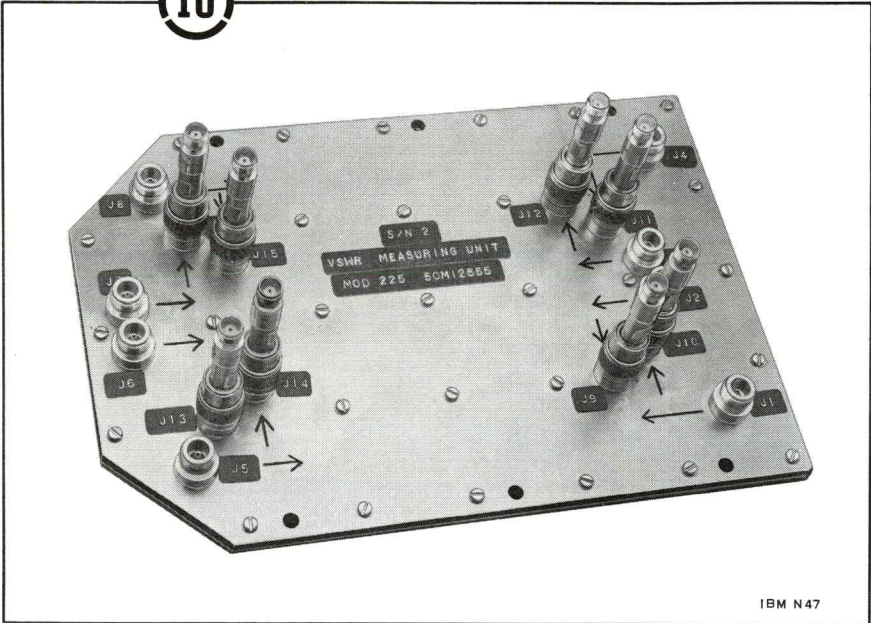


IBM N78

The UHF/RF Transmitter Assembly uses the PCM pulse train from the PCM/DDAS Telemeter Assembly as modulation for a UHF carrier. The UHF/RF Transmitter Assembly operates in parallel with the P1 PCM/RF Transmitter Assembly. The unit uses a combination of solid-state devices and vacuum tubes to transmit through the RF transmission components.

Effectivity:	501-504
Specification No.	Not available
Figure 1 Location:	Panel 24 Callout 23

TELEMETRY SYSTEM  
VSWR Measuring Assembly



IBM N47

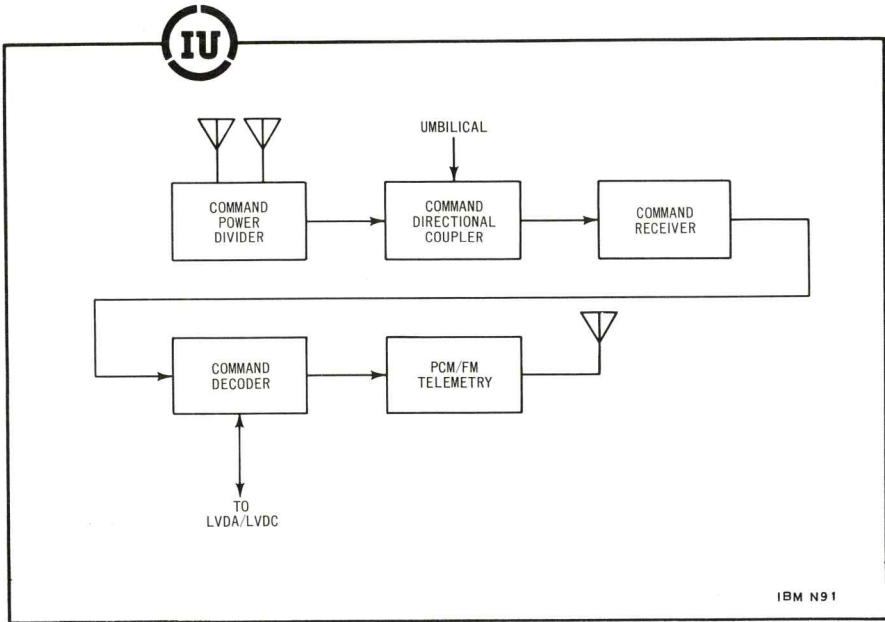
The VSWR Measuring Assembly contains four coupler assemblies, each of which measures the transmitted and reflected power of a telemetry transmitter. Each of the eight output signals from the assembly is low-level dc and is fed to a dc amplifier signal conditioning module.

Effectivity:            Model 220 201-202  
                             Model 225 203-204/501-503  
Specification No.    50M60259  
Figure 1 Location: Panel 10 Callout 55

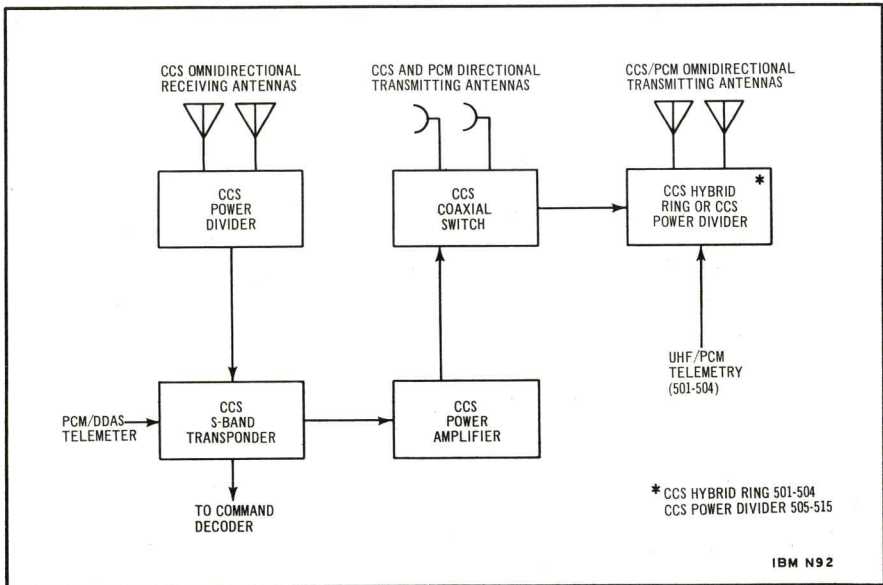
## RADIO FREQUENCY SYSTEM

The Radio Frequency (RF) System is available as required for various missions to provide tracking and command. The onboard equipment is connected through RF links with the corresponding ground equipment. The RF System provides a means of receiving digital data or commands from a ground station as well as tracking the vehicle. The principal functions of the RF System are:

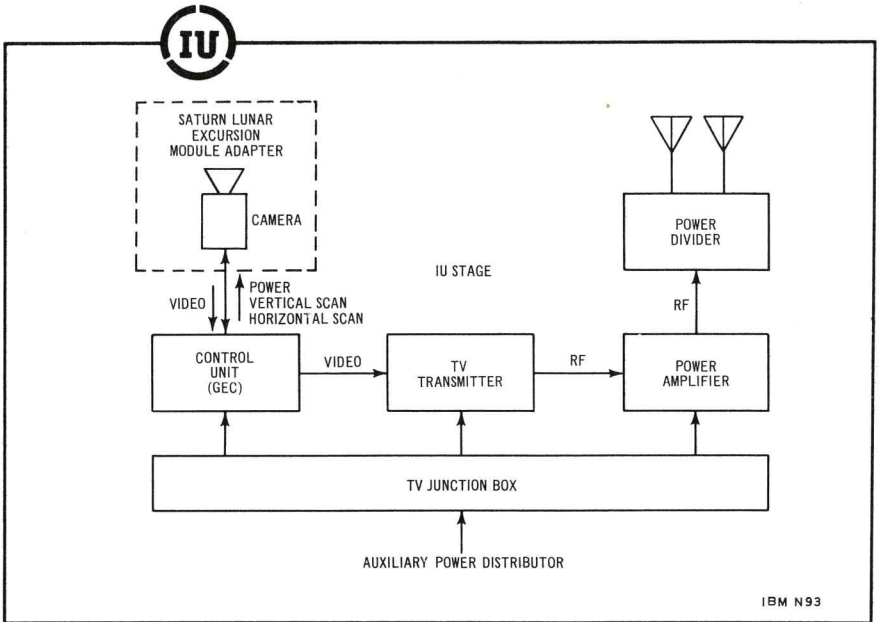
- Tracking of the vehicle to supply range safety parameters.
- Tracking of the vehicle to supply orbital plotting information and orbital tracking.
- Providing a path for supplying data and commands from ground equipment to the onboard Guidance and Control System.



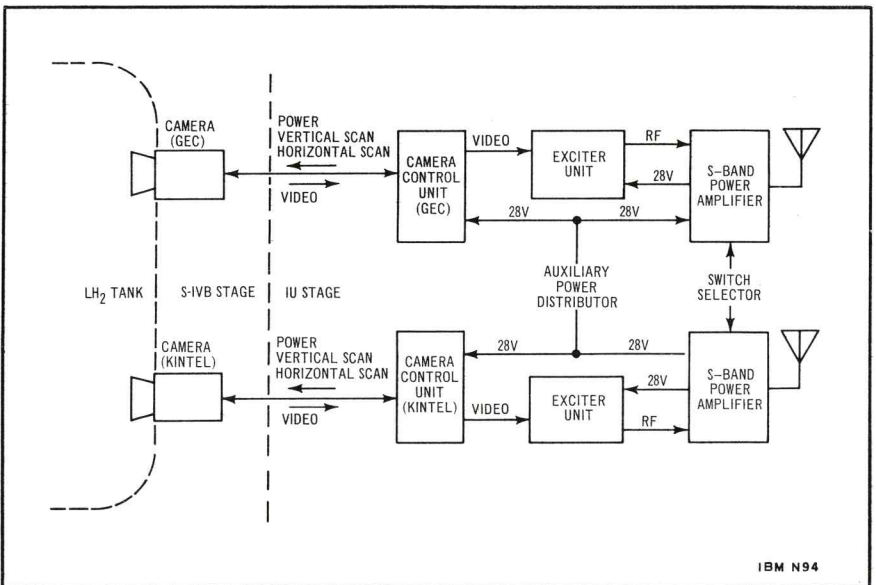
Saturn IB Instrument Unit Command System Block Diagram



Saturn V Instrument Unit Command and Communications System (CCS) Block Diagram



Television System Block Diagram for S-IU-202

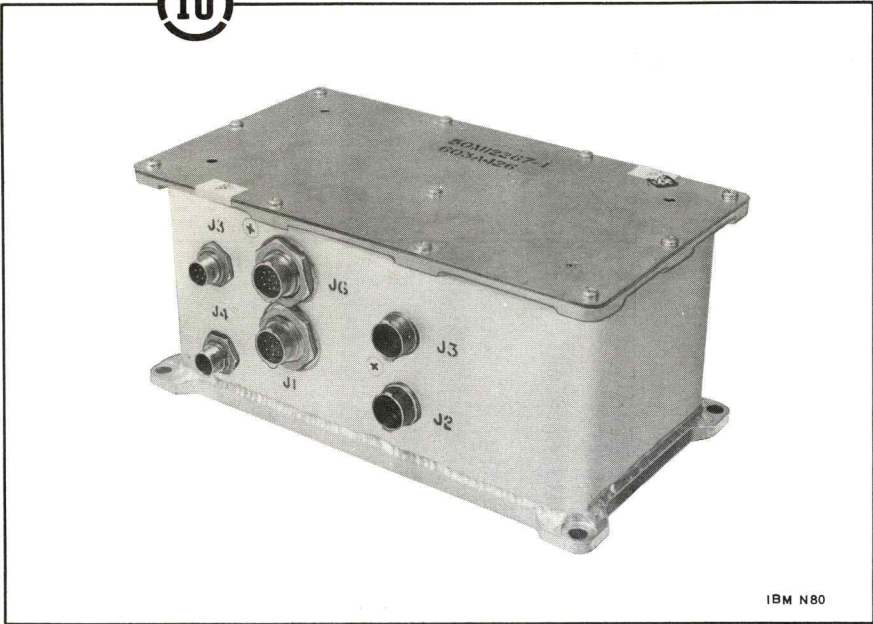


Television System Block Diagram for S-IU-203



## RADIO FREQUENCY SYSTEM

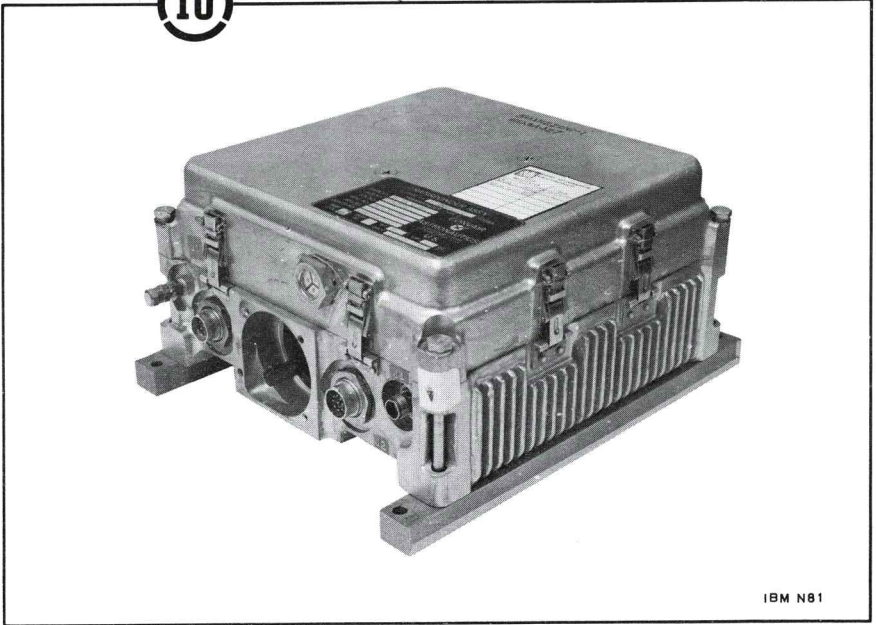
### Azusa RI Filter Assembly



The Azusa RI Filter Assembly performs three functions in the Azusa system:

- Isolates the Azusa Transponder from 28-Vdc power line interference.
- Attenuates conducted interference from the transponder blower motor to the 28 Vdc power source during bench tests.
- Isolates the telemetry network.

Effectivity: 201-208/501-505  
Specification No. Not available  
Figure 1 Location: Panel 23 Callout 109



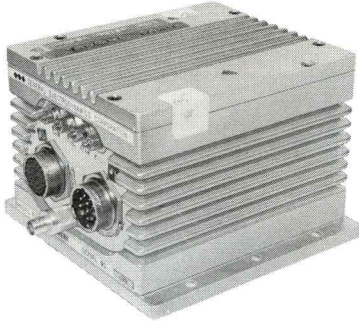
IBM N81

The Azusa Transponder receives a cw C-Band carrier, frequency modulated by range signals, from a ground-based Azusa tracking station. The transponder simultaneously retransmits an offset carrier frequency modulated by the range signals to the ground tracking station. Range measurement is accomplished by measuring the phase delay between the received and transmitted modulation frequencies at the ground station. The remaining measurements, to determine position, are obtained by measuring the phase delay between the received and transmitted carrier frequency.

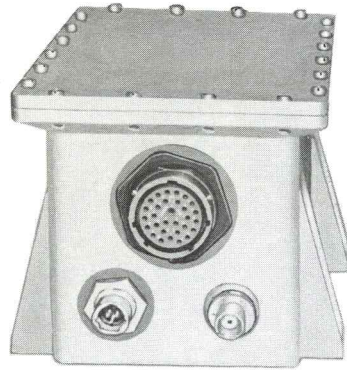
Effectivity: 201-208/501-505  
Specification No. Not available  
Figure 1 Location: Panel 23 Callout 110

# RADIO FREQUENCY SYSTEM

## Camera Control Units



GEC



KINTEL

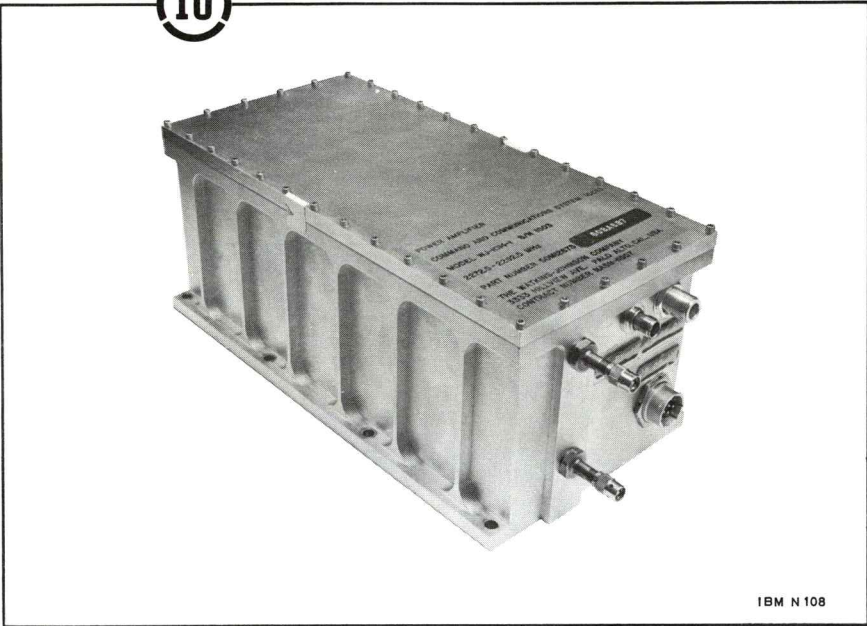
IBM N31

Two types of Camera Control Units are used in the Saturn IB TV system. Both control units are functionally the same but are manufactured by different companies. These control units provide the power, vertical and horizontal scan frequencies, and all the electronics required to operate the TV cameras, with the exception of the vidicon tubes and yoke assemblies and a preamplifier that are contained in the cameras. Each control unit is connected to its associated camera by a cable over which the operating voltages are transferred from the control unit to the camera, and also over which the video signal is transferred from the camera to the control unit. The video signal output of the control unit is applied to the input of its associated transmitter or exciter for subsequent modulation of an FM carrier.

Effectivity:	202-203
Specification No.	Not available
Figure 1 Location:	GEC, Panel 24 Callouts 10 and 19 Kintel, Panel 24 Callout 20



RADIO FREQUENCY SYSTEM  
CCS Power Amplifier



IBM N 108

The CCS Power Amplifier accepts an approximate 500-milliwatt output from the CCS Transponder and amplifies it to approximately a 20 watts output. The power amplifier output is applied to the CCS Coaxial Switch for transmission to the ground by way of one of two antenna arrangements.

Effectivity:	501-515
Specification No.	501-503 50M60289
	504-515 50Z60289
Figure 1 Location:	Panel 24 Callout 22



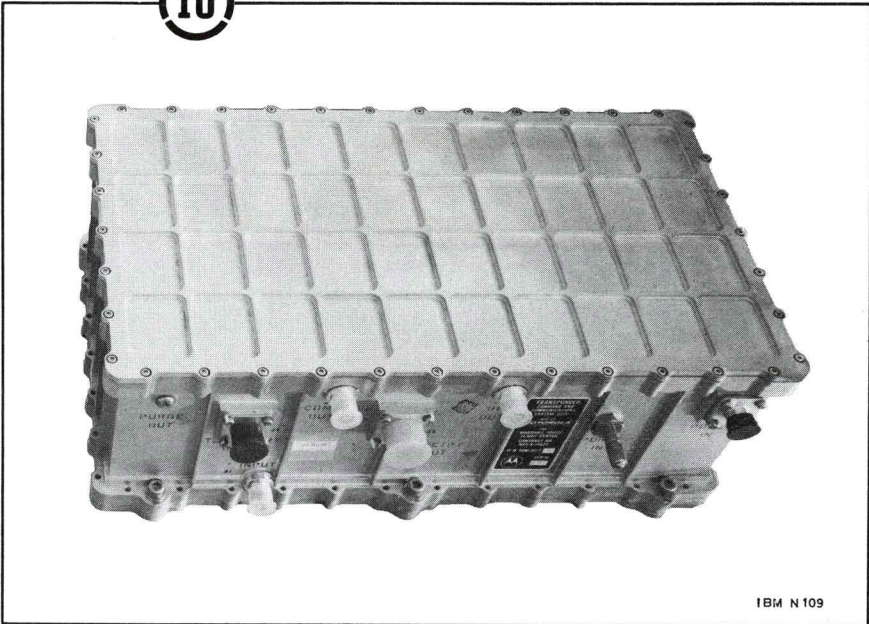


Two CCS Power Dividers are used in the IU. One of the power dividers is used on IU 501 through 515 and accepts inputs from the two CCS Omni-directional Receiving Antennas, couples the input signals, routes them to the CCS Transponder, and provides impedance matching. The second CCS Power Divider is used on IU 505 through 515 to provide impedance matching and couple the output signal from the CCS Coaxial Switch to the CCS Omni-directional Transmitting Antennas.

Effectivity:	501-515
	505-515
Specification No.	501-503 50M60289
	504-515 50Z60289
Figure 1 Location:	Panel 17 Callouts 90G and 94

# RADIO FREQUENCY SYSTEM

## CCS Transponder



The CCS Transponder receives a phase modulated carrier input from the CCS Power Divider. This input carrier is modulated by a Pseudo Random Noise (PRN) ranging code for use in tracking, and by a command subcarrier which is frequency modulated with up-link command data. The transponder consists of a double conversion, phase-coherent receiver, and a continuous wave (cw) transmitter that are integrally related in both frequency and phase. Demodulation of the input carrier produces two outputs; one output containing up-link data is applied to the Command Decoder, while the other output containing the PRN ranging code is connected to an amplifier for subsequent modulation of a down-link carrier.

Effectivity:	501-515
Specification No.	501-503 50M60227
	504-515 50Z60227
Figure 1 Location:	Panel 24 Callout 21

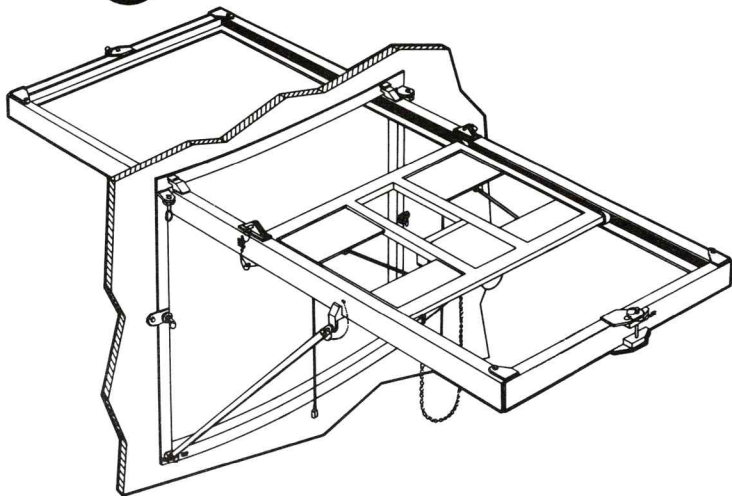
## COMPONENT REMOVAL AND REPLACEMENT DATA

The following pages furnish pertinent information regarding removal and replacement of electronic components mounted on the mounting and thermal conditioning panels of the Instrument Unit. This information is not intended to be used as a procedure, but as a reference to find such things as mounting hardware, tools, Component Handling Equipment (CHE), etc, necessary to remove or replace a component. Also, only those common tools peculiar to the removal or replacement of a specific component are included. For example, it is assumed that a ratchet will also be required when a 7/16-inch socket is specified as tools required.

Description and procedures for use of the CHE can be found in the Component Handling Equipment Descriptions and Procedures manual (IBM 66-966-0005). Illustrations of the various pieces of CHE appear on the following pages.

Component weights are procurement specification maximum weights or, approximate weights and therefore should be used for information only. If the weights included affect your decisions, please check their validity.

IV

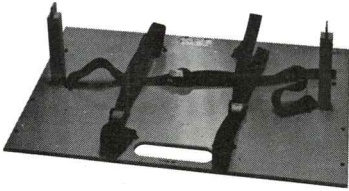


HOIST AND TRACK ASSEMBLY

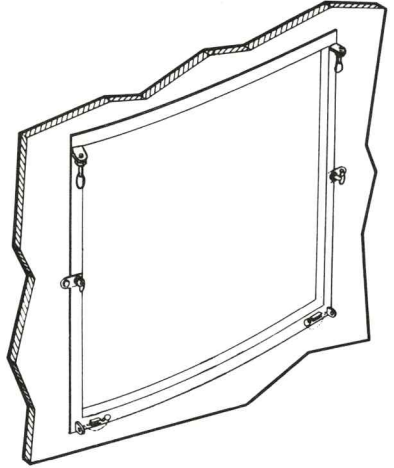


TRANSPORTER AND ADAPTER ASSEMBLY

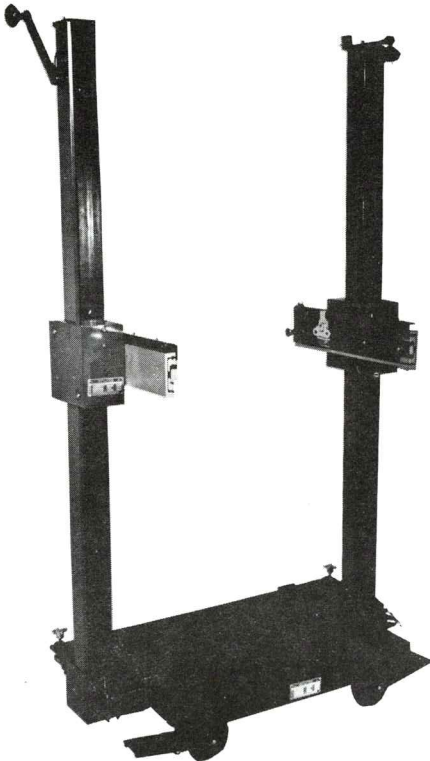
IBM N 124-1



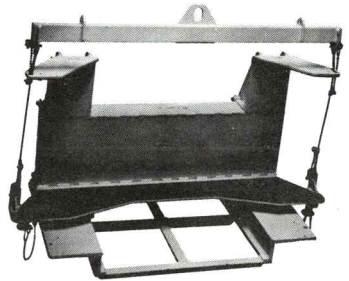
LEM BATTERY FIXTURE ASSEMBLY



DOOR FRAME ASSEMBLY



CART ASSEMBLY



LVDC FIXTURE ASSEMBLY



ST-124M-3 PLATFORM ELECTRONIC  
FIXTURE ASSEMBLY

IBM N124-2

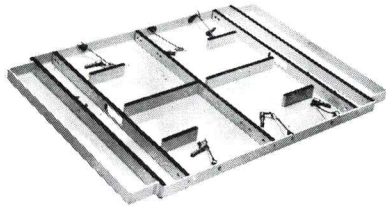




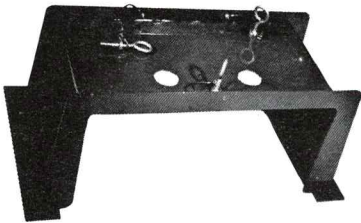
IU BATTERY FIXTURE ASSEMBLY



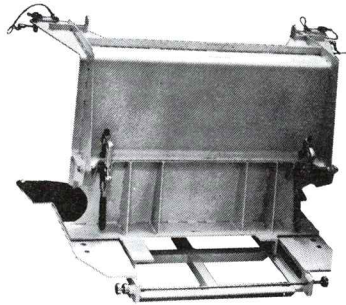
S-IVB BATTERY FIXTURE ASSEMBLY



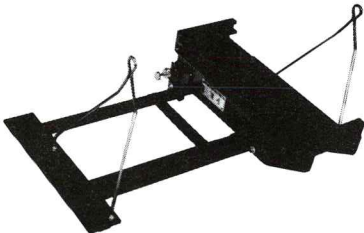
BATTERY TRANSPORTATION BED



FLIGHT CONTROL COMPUTER  
FIXTURE ASSEMBLY



LVDA FIXTURE ASSEMBLY

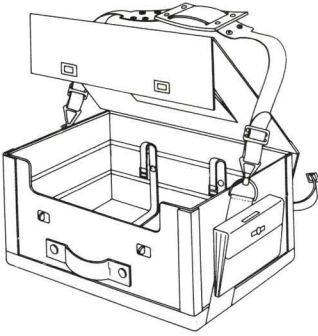


POWER DISTRIBUTOR  
FIXTURE ASSEMBLY

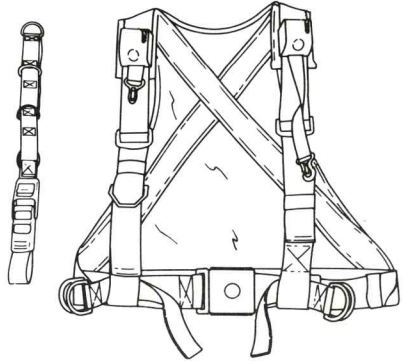


ST-124M-3 INERTIAL PLATFORM  
FIXTURE ASSEMBLY

IBM N124-3



TRANSPORTER BAG



RESTRAINT HARNESS AND  
BELT ASSEMBLY

IBM N124-4

Component Handling Equipment (Sheet 4)

## AUXILIARY POWER DISTRIBUTOR

Figure 1 Location: Panel 1 Callout 4

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 5-5/16 Screws, AN4-56A  
4 Washers, AN960-416L

Tools Required: 7/16-inch socket  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 12.5 pounds  
Weight of mounting hardware: 0.1268 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

---

## MEASURING RACK A402

Figure 1 Location: Panel 1 Callout 5

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 21 pounds, with all module slots filled  
Weight of mounting hardware: 0.1128 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

## 56 VOLT POWER SUPPLY

Figure 1 Location: Panel 1 Callout 11

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416L

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 9.5 pounds  
Weight of mounting hardware: 0.108 pounds

CHE Required: None

Pressurization Required: (Not applicable)

---

## MEASURING RACK SELECTOR

Figure 1 Location: Panel 1 Callout 12

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 3.0 pounds  
Weight of mounting hardware: 0.1128 pounds

CHE Required: None

Pressurization Required: (Not applicable)

## SOURCE FOLLOWER

Figure 1 Location: Panel 1 Callout 13

Manpower: 1 Technician

Mounting Hardware: Two 1/4-28 by 1-1/4 Screws, MS16998-46  
2 Washers, NAS620-416L

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 0.2 pounds  
Weight of mounting hardware: 0.0474 pounds

CHE Required: None

Pressurization Required: (Not applicable)

---

## MEASURING RACK A401

Figure 1 Location: Panel 2 Callout 1

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 21 pounds, with all module slots filled  
Weight of mounting hardware: 0.1128 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)



## POWER DISTRIBUTOR

Figure 1 Location: Panel 2 Callout 2

Manpower: 4 Technicians

Mounting Hardware: Six 1/4-28 by 1-3/4 Screws, MS16998-48  
6 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 39 pounds  
Weight of mounting hardware: 0.1260 pounds

CHE Required: Door Frame Assembly, P/N 7902257  
Top Channel Assembly, P/N 7902255  
Cart Assembly, P/N 7902170  
Hoist and Track Assembly, P/N 7902259  
2 Tube Assemblies, P/N 7902256  
Transporter and Adapter Assembly, P/N 7904080  
Power Distributor Fixture Assembly, P/N 7904066

Pressurization Required: (Not applicable)

---

## ELECTRONIC CONTROLLER ASSEMBLY

Figure 1 Location: Panel 2 Callout 14

Manpower: 1 Technician

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 2.0 pounds  
Weight of mounting hardware: 0.1128 pounds

CHE Required: None

Pressurization Required: (Not applicable)

## CONTROL ACCELEROMETER (PITCH)

Figure 1 Location: Panel 2 Callout 15

Manpower: 1 Technician

Mounting Hardware: Four # 8-32 by 3/4 Screws, MS16997-34  
4 Washers, NAS620-8

Tools Required: 9/64-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 5.0 pounds  
Weight of mounting hardware: (Not available)

CHE Required: None

Pressurization Required: (Not applicable)

---

## BATTERIES D30 AND D40

Figure 1 Location: Panel 4 Callouts 27 and 28

Manpower: 4 Technicians

Mounting Hardware: Two 1/4-28 by 5/8 Screw, MS16998-42  
Eight 1/4-28 by 1-3/4 Screw, MS16998-48  
Three 1/4-28 by 3/4 Screws, MS16998-43  
13 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 165 pounds  
Weight of mounting hardware: 0.1031 pounds

CHE Required: Door Frame Assembly, P/N 7902257  
Top Channel Assembly, P/N 7902255  
Cart Assembly, P/N 7902170  
Hoist and Track Assembly, P/N 7902259  
2 Tube Assemblies, P/N 7902256  
Transporter and Adapter Assembly, P/N 7904080  
Battery Fixture, P/N 7904000

Pressurization Required: (Not applicable)

## TELEMETRY POWER DIVIDER

Figure 1 Location: Panel 4 Callout 29

Manpower: 1 Technician

Mounting Hardware: Six 1/4-28 by 1 Screws, MS16998-45  
6 Washers, NAS620-416  
12 Washers, NAS549F416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 40-45 inch pounds

Weight of component: (maximum) 1.0 pounds  
Weight of mounting hardware: (Not available)

CHE Required: None

Pressurization Required: (Not applicable)

---

## COAXIAL TERMINATION

Figure 1 Location: Panel 4 Callout 30

Manpower: 1 Technician

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 4.75 pounds  
Weight of mounting hardware: 0.1128 pounds

CHE Required: None

Pressurization Required: (Not applicable)

## COAXIAL SWITCH

Figure 1 Location: Panel 4 Callout 31

Manpower: 1 Technician

Mounting Hardware: Four #10-28 by 2 Screws, MS16998-35  
8 Washers, NAS549F10  
8 Washers, NAS620-10L  
4 Self-Locking Nuts, MS20364-1032

Tools Required: 5/32-inch Allen wrench  
3/8-inch socket

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 1.0 pounds  
Weight of mounting hardware: 0.1912 pounds

CHE Required: None

Pressurization Required: (Not applicable)

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## BATTERIES D10 AND D20

Figure 1 Location: Panel 5 Callouts 26 and 32

Manpower: 4 Technicians

Mounting Hardware: Two 1/4-28 by 5/8 Screw, MS16998-42  
Eight 1/4-28 by 1-3/4 Screw, MS16998-48  
Three 1/4-28 by 3/4 Screws, MS16998-43  
13 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 165 pounds  
Weight of mounting hardware: 0.1031 pounds

CHE Required: Door Frame Assembly, P/N 7902257  
Top Channel Assembly, P/N 7902255  
Cart Assembly, P/N 7902170  
Hoist and Track Assembly, P/N 7902259  
2 Tube Assemblies, P/N 7902256  
Transporter and Adapter Assembly, P/N 7904080  
Battery Fixture, P/N 7904000

Pressurization Required: (Not applicable)

## MEASURING RACK A405

Figure 1 Location: Panel 9 Callout 50

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 21 pounds, with all module slots filled  
Weight of mounting hardware: 0.1128 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

---

## AUXILIARY POWER DISTRIBUTOR

Figure 1 Location: Panel 9 Callout 51

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 5-5/16 Screws, AN4-56A  
4 Washers, AN960-416L

Tools Required: 7/16-inch socket  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 12.5 pounds  
Weight of mounting hardware: 0.1268 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)



## CP1 MULTIPLEXER ASSEMBLY

Figure 1 Location: Panel 9 Callout 52

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 21 pounds  
Weight of mounting hardware: 0.1128 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

---

## DP1 MULTIPLEXER ASSEMBLY

Figure 1 Location: Panel 9 Callout 52

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 21 pounds  
Weight of mounting hardware: 0.1212 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

## MEASURING DISTRIBUTOR

Figure 1 Location: Panel 10 Callout 48

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 3-5/16 Screws, AN4-36A  
4 Washers, AN960-416

Tools Required: 7/16-inch socket  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 20 pounds  
Weight of mounting hardware: 0.0932 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-1

Pressurization Required: (Not applicable)

---

## DP1 MULTIPLEXER ASSEMBLY

Figure 1 Location: Panel 10 Callout 49

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 21 pounds  
Weight of mounting hardware: 0.1212 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

## CP1 MULTIPLEXER ASSEMBLY

Figure 1 Location: Panel 10 Callout 49

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 21 pounds  
Weight of mounting hardware: 0.1212 pounds

CHE Required: Restraint Harness, P/N 7904043  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

---

## VSWR MEASURING ASSEMBLY

Figure 1 Location: Panel 10 Callout 61

Manpower: 1 Technician

Mounting Hardware: Six 1/4-28 by 1-1/2 Screws, MS16998-47  
6 Washers, NAS620-416L

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 40-45 inch pounds

Weight of component: (maximum) 6 pounds  
Weight of mounting hardware: 0.108 pounds

CHE Required: None

Pressurization Required: (Not applicable)

## TELEMETRY DIRECTIONAL COUPLER

Figure 1 Location: Panel 10 Callout 65

Manpower: 1 Technician

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416L

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 40-45 inch pounds

Weight of component: (maximum) 1 pound  
Weight of mounting hardware: 0.1764 pounds

CHE Required: None

Pressurization Required: (Not applicable)

---

## F2 TELEMETER ASSEMBLY

Figure 1 Location: Panel 10 Callout 56

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
3-inch extension  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 14 pounds  
Weight of mounting hardware: 0.126 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: 5.3 psig

## SLOW SPEED MULTIPLEXER ASSEMBLY

Figure 1 Location: Panel 11 Callout 45

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 12.5 pounds  
Weight of mounting hardware: 0.1260 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

---

## TAPE RECORDER (AIRBORNE)

Figure 1 Location: Panel 11 Callout 46

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS602-416L

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 9 pounds  
Weight of mounting hardware: 0.108 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-2

Pressurization Required: 5.3 psig



## EDS DISTRIBUTOR

Figure 1 Location: Panel 14 Callout 66

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 5-7/16 Screws, AN4-57A  
4 Washers, AN960-416L

Tools Required: 7/16-inch socket  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 31 pounds  
Weight of mounting hardware: 0.1316 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-1

Pressurization Required: (Not applicable)

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## MEASURING RACK A408

Figure 1 Location: Panel 14 Callout 77

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-1/2 Screws, MS16998-47  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value of mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 21 pounds, with all module slots filled  
Weight of mounting hardware: 0.1128 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

## TELEMETRY CALIBRATOR

Figure 1 Location: Panel 13 Callout 76

Manpower: 1 Technician

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 5.3 pounds  
Weight of mounting hardware: 0.1260 pounds

CHE Required: None

Pressurization Required: (Not applicable)

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## P1 PCM/RF TRANSMITTER ASSEMBLY

Figure 1 Location: Panel 13 Callout 79

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 15 pounds  
Weight of mounting hardware: 0.1260 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: 5.3 psig

## REMOTE DIGITAL MULTIPLEXER (J)

Figure 1 Location: Panel 17 Callout 91

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 13 pounds  
Weight of mounting hardware: 0.1212 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-3

Pressurization Required: (Not applicable)

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## CCS HYBRID RING

Figure 1 Location: Panel 17 Callout 93

Manpower: 1 Technician

Mounting Hardware: Four 1/4-28 by 1-3/4 Screws, MS16998-48  
4 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 40-45 inch pounds

Weight of component: (approximate) 1 pound  
Weight of mounting hardware: 0.1212 pounds

CHE Required: None

Pressurization Required: (Not applicable)

## CCS POWER DIVIDER

Figure 1 Location: Panel 17 Callout 94

Manpower: 1 Technician

Mounting Hardware: Two 1/4-28 by 1-3/4 Screws, MS16998-48  
2 Washers, NAS620-416

Tools Required: 3/16-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 40-45 inch pounds

Weight of component: (approximate) 0.5 pounds  
Weight of mounting hardware: 0.0606 pounds

CHE Required: None

Pressurization Required: (Not applicable)

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## CONTROL DISTRIBUTOR

Figure 1 Location: Panel 18 Callout 97

Manpower: 2 Technicians

Mounting Hardware: Four 1/4-28 by 5-7/16 Screws, AN4-57A  
4 Washers, AN960-416L

Tools Required: 7/16-inch socket  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (approximate) 32 pounds  
Weight of mounting hardware: 0.1316 pounds

CHE Required: Restraint Harness, P/N 7904049  
Belt Assembly, P/N 7904070-1

Pressurization Required: (Not applicable)

## CONTROL ACCELEROMETER (YAW)

Figure 1 Location: Panel 21 Callout 112

Manpower: 1 Technician

Mounting Hardware: Four #8-32 by 3/4 Screws, MS16997-34  
4 Washers, NAS620-8

Tools Required: 9/64-inch Allen wrench  
Guide pins

Torque value for mounting hardware: 85-90 inch pounds

Weight of component: (maximum) 5 pounds  
Weight of mounting hardware: (Not available)

CHE Required: None

Pressurization Required: (Not applicable)

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## FORCE BALANCE ACCELEROMETERS

Figure 1 Location: Panel 21 Callout 113

Manpower: 2 Technicians

Mounting Hardware: Eight #10-32 by 5/8 Screws, MS16998-28  
8 Washers, NAS620-10L

Tools Required: 5/32-inch Allen wrench  
Guide pins

Torque value for mounting hardware: (Not available)

Weight of component: (Not available)  
Weight of mounting hardware: (Not available)

CHE Required: None

Pressurization Required: (Not applicable)

ST-124M-3 INERTIAL PLATFORM ASSEMBLY

Figure 1 Location: Panel 21 Callout 114

Manpower: 4 Technicians

Mounting Hardware: To mount brackets

Five 1/4-28 by 3/4 Bolts, MS20004-4

5 Washers, 7915407-1

To mount platform to brackets

Two 1/2-20 by 15/16 Bolts, NAS1308-3H

Three 1/2-20 by 2-27/64 Bolts, NAS1308-27H

5 Washers, MS20002C8

5 Washers, 7914509-001

Tools Required: 3/16-inch Allen wrench

3/4-inch socket

Guide pins

Torque value for mounting hardware: 5 Bolts (MS20004-4), 85-90 inch pounds

2 Bolts (NAS1308), 100-150 inch pounds

3 Bolts (NAS1308-27H), 650-700 inch  
pounds

Weight of component: (approximate) 107 pounds

Weight of mounting hardware: (Not available)

CHE Required: Door Frame Assembly, P/N 7902257

Top Channel Assembly, P/N 7902255

Cart Assembly, P/N 7902170

Hoist and Track Assembly, P/N 7902259

2 Tube Assemblies, P/N 7902256

Transporter and Adapter Assembly, P/N 7904080

ST-124M-3 Inertial Platform Assembly Fixture Assembly,  
P/N 7904022

Pressurization Required: (Not applicable)

Drain and Fill Procedure: Refer to Critical Components Drain and Fill  
Procedure 6-ILLIUB-260 or equivalent.



## IU TECHNICAL MANUAL AND RELATED DOCUMENTS LIST

TITLE	NUMBER	SOURCE *
<b>INSTRUMENT UNIT</b>		
COMPONENT HANDLING EQUIPMENT DESCRIPTION AND OPERATING INSTRUCTIONS	66-966-0005	1
Instrument Unit General Test Plan	67-257-0001	5
System Equipment Functional Block Diagrams, Saturn IB/V Instrument Unit Apollo Saturn AS-200 and AS-500 Series System Functional Interconnection Diagram	66-256-0003	5
AS-201	65-208-0002H	5
AS-202	65-256-0001H	5
AS-203	65-256-0003H	5
AS-204	65-256-0006H	5
AS-205	66-256-0004	5
AS-206	66-256-0005	5
AS-207	66-256-0006	5
AS-208	66-256-0010	5
AS-501	66-256-0002H	5
AS-502	66-256-0008	5
AS-503	66-256-0007	5
AS-504	66-256-0009	5
<b>APOLLO-SATURN VEHICLES</b>		
ASTRONICS SYSTEM HANDBOOK, SATURN LAUNCH VEHICLES	----	1
EMERGENCY DETECTION SYSTEM DESCRIPTION (200 SERIES)	66-966-0010	1
EMERGENCY DETECTION SYSTEM DESCRIPTION (500 SERIES)	66-966-0022	1
EDS Q-BALL SENSOR ASSEMBLY (50Z12580)	66-966-0027	1
<b>STRUCTURAL SYSTEM</b>		
STRUCTURE REPAIR MANUAL	66-966-0011	1
UMBILICAL SATURN IB	67-966-0004	1
UMBILICAL SATURN V	67-966-0005	1
<b>ELECTRICAL SYSTEM</b>		
AUXILIARY POWER DISTRIBUTORS	66-966-0013H	1
Auxiliary Power Distributor Qualification Test Report	66-226-0019	5
BATTERY (S-IU-201 THRU 212/501 THRU 515)	66-966-0024	1
CONTROL DISTRIBUTOR	65-966-0016H	1
Control Distributor Qualification Test Report	66-226-0017	5
EMERGENCY DETECTION SYSTEM DISTRIBUTOR	65-966-0015H	1
EDS Distributor Qualification Test Report	66-226-0018	5
J-Box Assembly Qualification Test Report	66-226-0011	5
MEASURING DISTRIBUTORS	65-966-0017H	1

TITLE	NUMBER	SOURCE *
Measuring Distributor Qualification Test Report POWER DISTRIBUTOR Power Distributor Qualification Test Report Network Cables Qualification Test Report S-IU-501 Batteries Qualification Test Report Switch Selector Mod I SWITCH SELECTOR MOD II Switch Selector Mod II, Worst Case Analysis 5 VOLT MEASURING VOLTAGE SUPPLY 5-Volt Measuring Voltage Supply Qualification Test Report 40-Second Timer Qualification Test Report 56 VOLT POWER SUPPLY 56-Volt Power Supply Qualification Test Report	66-226-0020 65-966-0014H 66-226-0016 66-226-0013 67-F01-0001 50M04008 66-966-0001 65-294-0001H 65-966-0019H 66-226-0014 66-226-0012 65-966-0018H 66-226-0015	5 1 5 5 5 3 1 5 1 5 5 5 1 5
<b>ENVIRONMENTAL CONTROL SYSTEM</b>		
ENVIRONMENTAL CONTROL SYSTEM DESCRIPTION Flexible Hose Assemblies Qualification Test Report Gas Bearing Heat Exchanger Qualification Test Report IU Heaters Qualification Test Report Machined Methanol/Water Accumulator Qualification Test Report Quick Disconnect Coupling Qualification Test Report Water/Methanol Accumulator Qualification Test Report 20-Micron Filter Qualification Test Report 165-Cubic-Inch Sphere Qualification Test Report	66-966-0009 67-966-0006 67-K83-0002 67-F02-0001 67-K83-0003 66-226-0024 66-K83-0001 67-K83-0001 66-226-0032	1 5 5 5 5 5 5 5 5
<b>GUIDANCE CONTROL SYSTEM</b>		
CONTROL ACCELEROMETER Control Active Filter Synthesis and Worst Case Analysis, Saturn V Control Computer 12MA Servo Magnetic Amplifier, Noise Investigation CONTROL-EDS RATE GYRO PACKAGE CONTROL SIGNAL PROCESSOR FLIGHT CONTROL COMPUTER (AS-203) FLIGHT CONTROL COMPUTER (200 SERIES) FLIGHT CONTROL COMPUTER (500 SERIES) Final Flight Simulation Report for AS-205 Flight Control Computer No. 0101 Launch Vehicle Data Adapter, Volumes I and II	66-966-0012 66-280-0002 66-280-0001 66-966-0013 66-966-0014 66-966-0015 66-966-0021 66-966-0025 Not Avail. NASA No. 50M35011 IBM No. 66112050, 6112070, 6139200, 6139800, 6139400	1 5 5 1 1 1 1 1 1 1 1



TITLE	NUMBER	SOURCE *
Launch Vehicle Digital Computer, Volumes I and II	NASA No. 50M35010 IBM No. 6112050, 6112070, 6139200, 6139800	1
LVDA, LVDC Vibration Isolation Qualification Test Report NAVIGATION, GUIDANCE, AND CONTROL SYSTEM DESCRIPTION	67-K80-0001 66-966-0003	5 1
Passive Filter Network Analyses Worst Case, Saturn 501	66-280-0003	5
Retroreflector Assembly Qualification Test Report	66-210-0002	5
ST-124M Inertial Platform System, NASA Technical Note	NASA TND-2983	2
ST-124M/LVDA Resolver System, Error Analysis of	65-208-0074	5
ST-124M Mounting Frame Qualification Test Report	66-K80-0009	5
TEST REFERENCE MANUAL, SATURN IB/V REFERENCE MANUAL Volume I - Control System Volume II - Guidance System Volume III - ST-124M-3 Inertial Stabilizer System	66-966-0004	1
Worst Case Analysis of 45-Volt DC Amplifier	66-280-0006	5
50 Ma Servo Amplifier Interface Study & Worst Case Analysis	67-280-0001	5
<b>MEASURING AND TELEMETRY SYSTEM</b>		
Computer Interface Unit Mod 501 Maintenance and Instruction Manual	50M66520	3
Instrumentation Program and Components Lists		
S-IU-201	50M12020	3
S-IU-202	50M12030	3
S-IU-203	50M12393	3
S-IU-204	50M12394	3
S-IU-205	6009039	3
S-IU-206	6009040	3
S-IU-207	6009041	3
S-IU-208	6009042	3
S-IU-209	6009043	3
S-IU-210	6009044	3
S-IU-211	6009045	3
S-IU-212	6009046	3
S-IU-501	50M10670	3
S-IU-502	6009047	3
S-IU-503	6009048	3
S-IU-504	6009049	3
S-IU-505	6009050	3
S-IU-506	6009051	3

TITLE	NUMBER	SOURCE *
Instrumentation Program and Components Lists (Cont.)		
S-IU-507	6009052	3
S-IU-508	6009053	3
S-IU-509	6009054	3
S-IU-510	6009055	3
S-IU-511	6009056	3
S-IU-512	6009057	3
S-IU-513	6009058	3
S-IU-514	6009059	3
S-IU-515	6009060	3
Instrumentation Systems Description, Saturn IB SA-201 thru 205	60C0975	3
Inter-Range Instrumentation Group (IRIG) Telemetry Standards	106-65	4
MEASURING AND TELEMETRY SYSTEM DESCRIPTION	67-966-0008	1
MEASURING RACK AND MEASURING RACK SELECTOR	66-966-0017	1
Multiplexer Mod 245, Maintenance Instructions	50M66509	3
PCM/RF Assembly Mod CT-19B, Maintenance Instructions	50M66514	3
PCM/DDAS Model 301, Subsystem Assembly Maintenance Instructions	50M66512	3
Remote Digital Multiplexer Mod 410 Maintenance and Instruction Manual	50M66519	3
Remote Digital Submultiplexer, Maintenance Instructions	50M66513	3
Radio Frequency Assembly Mod I, Maintenance and Instruction Manual	50M66505	3
RF Assembly (Analog) Mod II Maintenance and Instruction Manual	50M66515	3
RF Assembly (Digital) Mod II Maintenance and Instruction Manual	50M66516	3
Saturn Telemetry Post-Flight Analysis Report	Not Avail.	
SS/FM Telemetry Assembly, Maintenance and Instruction Manual	50M66510	3
SS/FM Top Deck Assembly Maintenance Instructions	50M66511	3
Tape Recorder Mod 101	50M66517	3
Tape Recorder Mod 101 Maintenance and Instruction Manual	50M66504	3
Telemetry Calibrator Mod II, Maintenance and Instruction Manual	50M66508	3
Telemetry Calibrator Power and Control Assembly	50M66521	3
Telemetry Oscillator Assembly Models A1, A2, and A3, Maintenance and Instruction Manual	50M66501	3
Telemetry Oscillator Assembly Mod B1 Maintenance and Instruction Manual	50M66503	3
Telemetry Power Divider Qualification Test Report	67-235-0007	5
Time Division Multiplexer Mod 270 Maintenance Instructions	50M66506	3
TM Antenna Qualification Test Report	67-235-0006	5
VSWR Measuring Assembly Qualification Test Report	67-235-0008	5



TITLE	NUMBER	SOURCE *
<b>RADIO FREQUENCY SYSTEM</b>		
Antenna Systems (SA-202)	60C0958	3
Azusa Antenna Qualification Test Report	67-235-0004	5
Azusa Type C Transponder Assembly Model 26-52	----	3
Maintenance and Instruction Manual		
C-Band Antenna Qualification Test Report	67-235-0005	5
C-BAND RADAR TRANSPONDER SET SST-135C	66-966-0008	1
C-BAND RADAR TRANSPONDER SET SST-135C (S-IU-204	66-966-0020	1
THRU 212/501 THRU 515)		
C-Band Transponder Qualification Test Report	67-235-0010	5
CCS POWER AMPLIFIER	67-966-0002	1
CCS TRANSPONDER	67-966-0003	1
Command Antenna Qualification Test Report	67-235-0003	5
COMMAND DECODER (S-IU-204 THRU 212/501 THRU 515)	66-966-0019	1
Command Decoder Qualification Test Report	67-235-0009	5
Command Directional Coupler Qualification Test Report	67-235-0002	5
Command Power Divider Qualification Test Report	67-235-0001	5
Command Receiver Checkout Manual	50M60161	3
COMMAND SYSTEM DESCRIPTION	67-966-0007	1
Math Model Program for Predicting Interference Frequencies	Not Avail.	5
and their Amplitude		
Radio Frequency System Manual	60C09036A	3
Range Safety Decoder Checkout Manual	50M60157-A	3
Unified S-Band Telecommunications Techniques for Apollo,	NASA	2
Volume 1 - Functional Descriptions, NASA Technical Note	TND-2208	
Unified S-Band Technical Conference, Proceedings of	NASA SP-87	2

\* Details on the availability of these documents may be obtained from the following sources:

1. See Note 1  
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2. See Note 2  
Scientific and Technical Information Division  
National Aeronautics and Space Administration  
Washington, D. C., 20546
  
3. Marshall Space Flight Center  
Technical Documentation Repository Branch  
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4. See Note 2  
Armed Services Technical Information Agency  
Arlington Hall Station  
Arlington 12, Virginia
  
5. Library  
IBM Corporation  
Federal Systems Division  
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The enclosed pages change, delete, or add information to your IU System Description and Component Data manual IBM No. 66-966-0006. Insert the changed and added pages (see page A, "List of Effective Pages" included in the change package), and remove and destroy the superseded pages. The change date for each page is located on the lower inside corner of each page; original pages are not dated. When updating your manual retain the existing tabs.

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1. Remove and and replace title page and A page.
2. Remove and replace Tables 1 and 2, pages 3 through 46.
3. Remove and replace pages 47 through 52.
4. Remove and replace pages 57 and 58.
5. Remove and replace page 60A/60B.
6. Insert new page 62A.
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8. Remove and replace pages 69 through 72.
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