

51RV-4()/5()

VOR/ILS Navigation Receiver

Component Maintenance Manual

34-35-10

Volume 2

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL VOLUME 2
51RV-4()/5() VOR/ILS NAVIGATION RECEIVER, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing Title Page, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Below the last part number entry of 51RV-5D 822-0762-XXX, add the sentence that follows:

Refer to Figure 1 of Volume 1 for part number coverage.

 **Rockwell** Avionics & Communications

Collins

51RV-4()/5()

VOR/ILS Navigation Receiver

Component Maintenance Manual

Volume 2

This manual includes coverage of the following equipment:

	<i>Model No</i>	<i>Collins Part No</i>
<i>VOR/ILS Navigation Receiver</i>	<i>51RV-4</i>	<i>622-3255-XXX</i>
	<i>51RV-4B</i>	<i>622-3257-XXX</i>
	<i>51RV-4D</i>	<i>622-3259-XXX</i>
<i>VOR/ILS Navigation Receiver</i>	<i>51RV-5</i>	<i>822-0760-XXX</i>
	<i>51RV-5B</i>	<i>822-0761-XXX</i>
	<i>51RV-5D</i>	<i>822-0762-XXX</i>

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COMPONENT MAINTENANCE MANUAL Volume 2
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RECORD OF TEMPORARY REVISIONS

TEMPORARY REV NO	PAGE NUMBER	DATE ISSUED	BY	DATE REMOVED	BY
1	Introduction page 1	Apr 3/96	Rockwell Collins	Jun 28/05	Rockwell Collins
1	198.56	Apr 3/96	Rockwell Collins	Jun 28/05	Rockwell Collins
1	198.59/198.60	Apr 3/96	Rockwell Collins	Jun 28/05	Rockwell Collins
2	198.70	Nov 27/96	Rockwell Collins		
2	198.115/198.116	Nov 27/96	Rockwell Collins		
2	198.117/198.118	Nov 27/96	Rockwell Collins		
3	198.51/198.52	Nov 30/98	Rockwell Collins	Jan 21/99	Rockwell Collins
3	198.58	Nov 30/98	Rockwell Collins	Jan 21/99	Rockwell Collins
3	198.67/198.68	Nov 30/98	Rockwell Collins	Jan 21/99	Rockwell Collins
4	198.51/198.52	Jan 21/99	Rockwell Collins	Jun 28/05	Rockwell Collins
4	198.58	Jan 21/99	Rockwell Collins	Jun 28/05	Rockwell Collins
4	198.67/198.68	Jan 21/99	Rockwell Collins	Jun 28/05	Rockwell Collins
5	Following pages 145/146	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
5	147	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
5	148	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
5	149/150	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
5	152	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
5	153/154	Oct 4/99	Rockwell Collins	Nov 12/99	Rockwell Collins
6	Following pages 145/146	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins
6	147	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins

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COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

RECORD OF TEMPORARY REVISIONS

TEMPORARY REV NO	PAGE NUMBER	DATE ISSUED	BY	DATE REMOVED	BY
6	148	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins
6	149/150	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins
6	152	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins
6	153/154	Nov 12/99	Rockwell Collins	Mar 20/01	Rockwell Collins
7	198.178	Sep 8/00	Rockwell Collins	Oct 18/00	Rockwell Collins
7	198.184	Sep 8/00	Rockwell Collins	Oct 18/00	Rockwell Collins
7	198.253/198.254	Sep 8/00	Rockwell Collins	Oct 18/00	Rockwell Collins
8	198.178	Oct 18/00	Rockwell Collins		
8	198.184	Oct 18/00	Rockwell Collins		
8	198.195/198.196	Oct 18/00	Rockwell Collins		
8	198.253/198.254	Oct 18/00	Rockwell Collins		
9	Following pages 145/146	Mar 20/01	Rockwell Collins		
9	147	Mar 20/01	Rockwell Collins		
9	148	Mar 20/01	Rockwell Collins		
9	149/150	Mar 20/01	Rockwell Collins		
9	152	Mar 20/01	Rockwell Collins		
9	153/154	Mar 20/01	Rockwell Collins		
10	Introduction page 3	Nov 6/01	Rockwell Collins		
10	Introduction page 11	Nov 6/01	Rockwell Collins		
11	Title Page	Jun 28/05	Rockwell Collins		
11	Introduction page 1	Jun 28/05	Rockwell Collins		
11	198.51/198.52	Jun 28/05	Rockwell Collins		

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, volume 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

LIST OF EFFECTIVE PAGES

<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>	<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>
Cover		Jul 15/95		111	Blank
				F 112	Jul 15/95
Title		Jul 15/95		113	Blank
				F 114	Jul 15/95
Record of Revisions				F 115/116	Jul 15/95
	1/2	Jul 15/95		F 117/118	Jul 15/95
				119/120	Jul 15/95
Record of Temporary Revisions				121	Jul 15/95
	1/2	Jul 15/95		122	Jul 15/95
				123	Jul 15/95
Service Bulletin List				124	Jul 15/95
	1/2	Jul 15/95		125	Blank
				F 126	Jul 15/95
List of Effective Pages				F 127/128	Jul 15/95
	1	Jul 15/95		F 129/130	Jul 15/95
	2	Jul 15/95		F 131/132	Jul 15/95
	3	Jul 15/95		133/134	Jul 15/95
	4	Jul 15/95		135	Blank
				136	Jul 15/95
Introduction				137	Blank
	1	Jul 15/95		F 138	Jul 15/95
	2	Jul 15/95		F 139/140	Jul 15/95
	3	Jul 15/95		F 141/142	Jul 15/95
	4	Jul 15/95		F 143/144	Jul 15/95
	5	Jul 15/95		F 145/146	Jul 15/95
	6	Jul 15/95		147	Jul 15/95
	7	Jul 15/95		148	Jul 15/95
	8	Jul 15/95		149/150	Jul 15/95
	9	Jul 15/95		151	Blank
	10	Jul 15/95		F 152	Jul 15/95
	11	Jul 15/95		F 153/154	Jul 15/95
	12	Jul 15/95		155	Jul 15/95
	13/14	Jul 15/95		156	Jul 15/95
				157	Jul 15/95
Testing and Fault Isolation				158	Jul 15/95
	F 101/102	Jul 15/95		159	Blank
	103	Jul 15/95		F 160	Jul 15/95
	104	Jul 15/95		161	Blank
	105	Jul 15/95		F 162	Jul 15/95
	106	Jul 15/95		F 163/164	Jul 15/95
	107	Jul 15/95		165	Jul 15/95
	108	Jul 15/95		166	Jul 15/95
	109	Blank		167	Jul 15/95
	110	Jul 15/95			

*The asterisk indicates pages changed, added, or deleted by the current change. F=Foldout page

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, volume 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

LIST OF EFFECTIVE PAGES

<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>	<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>
	168	Jul 15/95		198.35	Jul 15/95
	169	Jul 15/95		198.36	Jul 15/95
	170	Jul 15/95		198.37	Blank
	171/172	Jul 15/95		F 198.38	Jul 15/95
	173	Blank		F 198.39/198.40	Jul 15/95
	F 174	Jul 15/95		F 198.41/198.42	Jul 15/95
	175	Blank		F 198.43/198.44	Jul 15/95
	F 176	Jul 15/95		F 198.45/198.46	Jul 15/95
	177	Blank		198.47	Jul 15/95
	F 178	Jul 15/95		198.48	Jul 15/95
	179	Blank		198.49	Jul 15/95
	F 180	Jul 15/95		198.50	Jul 15/95
	181	Blank		198.51/198.52	Jul 15/95
	F 182	Jul 15/95		F 198.53	Jul 15/95
	F 183/184	Jul 15/95		F 198.54	Jul 15/95
	F 185/186	Jul 15/95		198.55	Blank
	F 187/188	Jul 15/95		F 198.56	Jul 15/95
	F 189/190	Jul 15/95		198.57	Blank
	F 191/192	Jul 15/95		F 198.58	Jul 15/95
	F 193/194	Jul 15/95		F 198.59/198.60	Jul 15/95
	F 195/196	Jul 15/95		F 198.61/198.62	Jul 15/95
	F 197/198	Jul 15/95		F 198.63/198.64	Jul 15/95
	F 198.1/198.2	Jul 15/95		F 198.65/198.66	Jul 15/95
	F 198.3/198.4	Jul 15/95		F 198.67/198.68	Jul 15/95
	F 198.5/198.6	Jul 15/95		198.69	Jul 15/95
	F 198.7/198.8	Jul 15/95		198.70	Jul 15/95
	F 198.9/198.10	Jul 15/95		198.71/198.72	Jul 15/95
	198.11	Jul 15/95		198.73	Blank
	198.12	Jul 15/95		F 198.74	Jul 15/95
	198.13	Blank		198.75	Blank
	F 198.14	Jul 15/95		F 198.76	Jul 15/95
	F 198.15/198.16	Jul 15/95		198.77	Blank
	F 198.17/198.18	Jul 15/95		F 198.78	Jul 15/95
	F 198.19/198.20	Jul 15/95		F 198.79/198.80	Jul 15/95
	F 198.21/198.22	Jul 15/95		F 198.81/198.82	Jul 15/95
	198.23	Jul 15/95		198.83	Jul 15/95
	198.24	Jul 15/95		198.84	Jul 15/95
	198.25	Blank		198.85	Blank
	F 198.26	Jul 15/95		F 198.86	Jul 15/95
	F 198.27/198.28	Jul 15/95		F 198.87/198.88	Jul 15/95
	F 198.29/198.30	Jul 15/95		198.89	Jul 15/95
	F 198.31/198.32	Jul 15/95		198.90	Jul 15/95
	F 198.33/198.34	Jul 15/95		198.91	Blank

*The asterisk indicates pages changed, added, or deleted by the current change F=Foldout page

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

LIST OF EFFECTIVE PAGES

<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>	<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>
	F 198.92	Jul 15/95		F 198.146	Jul 15/95
	198.93	Blank		F 198.147/198.148	Jul 15/95
	F 198.94	Jul 15/95		F 198.149/198.150	Jul 15/95
	F 198.95/198.96	Jul 15/95		F 198.151/198.152	Jul 15/95
	198.97	Jul 15/95		198.153	Jul 15/95
	198.98	Jul 15/95		F 198.154	Jul 15/95
	198.99	Blank		F 198.155/198.156	Jul 15/95
	F 198.100	Jul 15/95		F 198.157/198.158	Jul 15/95
	198.101	Blank		198.159	Jul 15/95
	F 198.102	Jul 15/95		F 198.160	Jul 15/95
	198.103	Blank		F 198.161/198.162	Jul 15/95
	F 198.104	Jul 15/95		F 198.163/198.164	Jul 15/95
	F 198.105/198.106	Jul 15/95		198.165	Jul 15/95
	F 198.107/198.108	Jul 15/95		198.166	Jul 15/95
	F 198.109/198.110	Jul 15/95		198.167/198.168	Jul 15/95
	198.111	Jul 15/95		198.169	Jul 15/95
	198.112	Jul 15/95		198.170	Jul 15/95
	198.113	Blank		198.171/198.172	Jul 15/95
	F 198.114	Jul 15/95		198.173	Jul 15/95
	F 198.115/198.116	Jul 15/95		198.174	Jul 15/95
	F 198.117/198.118	Jul 15/95		198.175	Jul 15/95
	F 198.119/198.120	Jul 15/95		198.176	Jul 15/95
	198.121	Jul 15/95		198.177	Blank
	198.122	Jul 15/95		F 198.178	Jul 15/95
	198.123	Jul 15/95		198.179	Blank
	198.124	Jul 15/95		F 198.180	Jul 15/95
	198.125	Blank		198.181	Blank
	F 198.126	Jul 15/95		F 198.182	Jul 15/95
	198.127	Blank		198.183	Blank
	F 198.128	Jul 15/95		F 198.184	Jul 15/95
	198.129	Blank		F 198.185/198.186	Jul 15/95
	F 198.130	Jul 15/95		F 198.187/198.188	Jul 15/95
	F 198.131/198.132	Jul 15/95		F 198.189/198.190	Jul 15/95
	F 198.133/198.134	Jul 15/95		F 198.191/198.192	Jul 15/95
	F 198.135/198.136	Jul 15/95		198.193/198.194	Jul 15/95
	198.137	Jul 15/95		F 198.195/198.196	Jul 15/95
	198.138	Jul 15/95		198.197	Jul 15/95
	198.139	Jul 15/95		198.198	Jul 15/95
	198.140	Jul 15/95		198.199	Blank
	198.141/198.142	Jul 15/95		F 198.200	Jul 15/95
	F 198.143	Jul 15/95		F 198.201/198.202	Jul 15/95
	F 198.144	Jul 15/95		F 198.203/198.204	Jul 15/95
	198.145	Blank		F 198.205/198.206	Jul 15/95

*The asterisk indicates pages changed, added, or deleted by the current change F=Foldout page

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

LIST OF EFFECTIVE PAGES

<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>	<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>
F 198.207/198.208		Jul 15/95			
	198.209	Jul 15/95			
	198.210	Jul 15/95			
	198.211	Blank			
F 198.212		Jul 15/95			
F 198.213/198.214		Jul 15/95			
	198.215/198.216	Jul 15/95			
	198.217/198.218	Jul 15/95			
	198.219	Blank			
	198.220	Jul 15/95			
F 198.221/198.222		Jul 15/95			
	198.223	Jul 15/95			
	198.224	Jul 15/95			
	198.225	Blank			
F 198.226		Jul 15/95			
F 198.227/198.228		Jul 15/95			
	198.229/198.230	Jul 15/95			
	198.231	Jul 15/95			
	198.232	Jul 15/95			
	198.233	Blank			
	198.234	Jul 15/95			
	198.235	Blank			
	198.236	Jul 15/95			
	198.237	Blank			
	198.238	Jul 15/95			
F 198.239/198.240		Jul 15/95			
	198.241/198.242	Jul 15/95			
	198.243	Blank			
	198.244	Jul 15/95			
	198.245	Blank			
	198.246	Jul 15/95			
F 198.247/198.248		Jul 15/95			
F 198.249/198.250		Jul 15/95			
	198.251	Jul 15/95			
	198.252	Jul 15/95			
	198.253/198.254	Jul 15/95			
	198.255	Jul 15/95			
	198.256	Jul 15/95			
F 198.257/198.258		Jul 15/95			

*The asterisk indicates pages changed, added, or deleted by the current change F=Foldout page

TEMPORARY REVISION NO. 34-35-10-11

Insert facing Introduction page 1, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01

This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Replace the last two sentences of the waveforms paragraph with the following note.

NOTE: Waveforms shown in this CMM were created using a digital oscilloscope. The waveforms are representative of those that should be obtained from a properly functioning unit. Refer to the special tools, fixtures, and equipment section in volume 1 of this manual for recommended test equipment. Equivalent substitutes may be used.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

INTRODUCTION

1. General

This manual is volume 2 of the 51RV-4()/5() VOR/ILS Navigation Receiver. Volume 2 includes schematic changes pages, maintenance aid diagrams, and schematic diagrams prepared in accordance with ATA Specification No 100 for Manufacturers' Technical Data. The information in this manual is to be used after it has been determined that there is a fault in the 51RV-4()/5(). The following diagrams apply to both the 51RV-4() and 51RV-5() and are provided to aid the technician in troubleshooting to a faulty circuit card or subassembly.

A. Schematic Changes Page

The schematic changes page provides information on schematic changes to the cards/assemblies necessitated by production changes or service bulletin modifications.

B. Maintenance Aid Diagram

Maintenance aid diagrams aid in locating component location and identification, and any subassemblies mounted to it. The maintenance aid diagram precedes the schematic for that individual card or assembly.

C. Schematic Diagram

Schematic diagrams are provided as an aid to signal tracing and fault isolation.

D. Waveforms

Waveforms can be used to fault isolate to a defective stage. Waveforms are located on the maintenance aid diagrams and keyed to the proper test points, or located on a separate sheet of the maintenance aid diagram and referenced to a specific test point. With each waveform shown, oscilloscope settings are listed to enable the technician to reconstruct the conditions required to obtain the proper measurement. The waveforms were obtained with a digitizing oscilloscope using varying vector and persistence settings, and may be slightly different if compared to waveforms obtained with a conventional oscilloscope. Refer to the test equipment figure in volume 1 of this manual for the specific oscilloscope used.

Refer to the 51RV-4()/5() VOR/ILS Navigation Receiver, component maintenance manual, volume 1, for theory of operation, testing, fault isolation, disassembly, assembly, cleaning, check, repair, and special tools, fixtures, and equipment for the 51RV-4()/5().

CAUTION: THE MATERIAL IN THIS MANUAL IS SUBJECT TO CHANGE. BEFORE ATTEMPTING ANY MAINTENANCE OPERATION ON THE EQUIPMENT COVERED IN THIS MANUAL, VERIFY THAT YOU HAVE COMPLETE UP-TO-DATE PUBLICATIONS BY REFERRING TO THE APPLICABLE PUBLICATIONS AND SERVICE BULLETIN INDEXES.

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

We welcome your comments concerning this manual. Although every effort has been made to keep it free from errors, some may occur. When reporting a specific problem, please describe it briefly and include the manual part number, the paragraph or figure number, and the page number.

Send your comments to: Publications Department
Collins Air Transport Division
Rockwell International Corporation
Cedar Rapids, Iowa 52498

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

**51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)**

TEMPORARY REVISION NO. 34-35-10-10

Insert facing Introduction page 3 , 34-35-10

Subject: VOR/LOC Receiver A1

For the VOR/LOC Receiver A1 assembly, add the following Collins Part Number after the existing part numbers:

828-0161-003

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

2. Assemblies Covered

<u>ASSEMBLY</u>	<u>COLLINS PART NUMBER</u>	
Chassis	NA	635-5575-XXX
VOR/LOC Receiver	A1	601-4301-001, -004 642-4201-001, -002 676-7201-001 828-0161-002
Glide Slope Receiver	A2	601-4302-001 642-4202-001
RMI/Power Supply/Audio	A3	601-4203-001, -003 642-4203-001, -002, -003, -004 646-8203-004, -005, -006
Digital Instrumentation	A4	601-4204-001, -003 642-4204-001
Glide Slope Instrumentation	A5	601-4205-001, -003 642-4205-001, -002, -003
VOR/ILS Self-Test	A6	601-4206-001, -002, -003 642-4206-001
Expanded ILS Monitor	A7	601-4207-001 642-4207-001 642-4227-001
VOR/LOC Instrumentation	A8	601-4208-001 642-4208-001, -002
Expanded VOR Monitor	A9	601-4209-001, -003, -004
Digital Bearing Output	A10	601-4210-001, -003
Programmable Bearing Filter	A11	601-4211-001, -003
RMI Servo Amplifier	A12	601-4212-001
2 x 5 Monitor	A13	601-4313-001
Receiver Interconnect	A14	601-4214-001, -002, -003 642-4214-001, -002, -003, -004, -005
Instrumentation Interconnect	A15	601-4215-001, -003 642-4215-001, -002, -003, -004

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

<u>ASSEMBLY</u>		<u>COLLINS PART NUMBER</u>
VOR/LOC Synthesizer	A18	642-4218-001, -002
Glide Slope Synthesizer	A19	642-4219-001
Serial Tune	A22	638-7622-001, -002 642-4222-001
RMI Power Monitor	A25	642-0571-001, -002 642-4225-001, -002
Heads Up Display Driver	A26	828-0173-001
RMI Suppression Filter	A30	828-0262-001

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

3. List of Illustrations

<u>FIGURE</u>	<u>PAGE</u>
1	11
101	101
102	103
103	110
103	112
103	114
104	115
105	121
106	126
107	127
108	133
109	136
110	139
111	147
112	152
113	153
114	155
115	160
116	163
117	165
118	174
118	176
118	178
118	180
118	182
119	183
120	191
121	198.3
122	198.11
123	198.14
124	198.15
125	198.23
126	198.26
127	198.27
128	198.35
129	198.38
130	198.39
131	198.47
132	198.53

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

<u>FIGURE</u>	<u>PAGE</u>
133	Digital Instrumentation A4 (CPN 601-4204-001, -003), Maintenance Aid Diagram 198.56
133	Digital Instrumentation A4 (CPN 642-4204-001), Maintenance Aid Diagram ... 198.58
134	Digital Instrumentation A4, Schematic Diagram 198.59
135	Glide Slope Instrumentation A5, Schematic Changes 198.69
136	Glide Slope Instrumentation A5 (CPN 601-4205-001, -003), Waveforms 198.74
136	Glide Slope Instrumentation A5 (CPN 601-4205-001, -003), Maintenance Aid Diagram 198.76
136	Glide Slope Instrumentation A5 (CPN 642-4205-001, -002, -003), Maintenance Aid Diagram 198.78
137	Glide Slope Instrumentation A5, Schematic Diagram 198.79
138	VOR/ILS Self-Test A6 (CPN 601-4206-001, -002), Schematic Changes 198.83
139	VOR/ILS Self-Test A6 (CPN 601-4206-001, -002), Maintenance Aid Diagram . 198.86
140	VOR/ILS Self-Test A6 (CPN 601-4206-001, -002), Schematic Diagram 198.87
141	VOR/ILS Self-Test A6 (CPN 601-4206-003 and 642-4206-001), Schematic Changes 198.89
142	VOR/ILS Self-Test A6 (CPN 601-4206-003), Maintenance Aid Diagram 198.92
142	VOR/ILS Self-Test A6 (CPN 642-4206-001), Maintenance Aid Diagram 198.94
143	VOR/ILS Self-Test A6 (CPN 601-4206-003 and 642-4206-001), Schematic Diagram 198.95
144	Expanded ILS Monitor A7 (CPN 601-4207-001 and 642-4207-001), Schematic Changes 198.97
145	Expanded ILS Monitor A7 (CPN 601-4207-001), Waveforms 198.100
145	Expanded ILS Monitor A7 (CPN 601-4207-001), Maintenance Aid Diagram ... 198.102
145	Expanded ILS Monitor A7 (CPN 642-4207-001), Maintenance Aid Diagram ... 198.104
146	Expanded ILS Monitor A7 (CPN 601-4207-001 and 642-4207-001), Schematic Diagram 198.105
147	Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Changes 198.111
148	Expanded ILS Monitor A7 (CPN 642-4227-001), Maintenance Aid Diagram ... 198.114
149	Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram 198.115
150	VOR/LOC Instrumentation A8, Schematic Changes 198.121
151	VOR/LOC Instrumentation A8 (CPN 601-4208-001, -004), Waveforms, 198.126
151	VOR/LOC Instrumentation A8 (CPN 601-4208-001, -004), Maintenance Aid Diagram 198.128
151	VOR/LOC Instrumentation A8 (CPN 642-4208-001, -002), Maintenance Aid Diagram 198.130
152	VOR/LOC Instrumentation A8, Schematic Diagram 198.131
153	Expanded VOR Monitor A9, Schematic Changes 198.137
154	Expanded VOR Monitor A9, Waveforms 198.143
155	Expanded VOR Monitor A9, Maintenance Aid Diagram 198.146
156	Expanded VOR Monitor A9, Schematic Diagram 198.147
157	Digital Bearing A10, Schematic Changes 198.153
158	Digital Bearing A10, Maintenance Aid Diagram 198.154
159	Digital Bearing A10 (CPN 601-4210-001), Schematic Diagram 198.155
160	Digital Bearing A10 (CPN 601-4210-003), Schematic Diagram 198.157
161	Programmable Bearing Filter A11, Schematic Changes 198.159
162	Programmable Bearing Filter A11, Maintenance Aid Diagram 198.160
163	Programmable Bearing Filter A11 (CPN 601-4211-001), Schematic Diagram .. 198.161
164	Programmable Bearing Filter A11 (CPN 601-4211-003), Schematic Diagram .. 198.163
165	RMI Servo Amplifier A12, Schematic Changes 198.165

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

<u>FIGURE</u>		<u>PAGE</u>
166	RMI Servo Amplifier A12, Maintenance Aid Diagram	198.166
167	RMI Servo Amplifier A12, Schematic Diagram	198.167
168	2 x 5 Monitor A13, Schematic Changes	198.169
169	2 x 5 Monitor A13, Maintenance Aid Diagram	198.170
170	2 x 5 Monitor A13, Schematic Diagram	198.171
171	Receiver Interconnect A14, Schematic Changes	198.173
172	Receiver Interconnect A14 (CPN 601-4214-001), Maintenance Aid Diagram ..	198.178
172	Receiver Interconnect A14 (CPN 601-4214-002, -003), Maintenance Aid Diagram	198.180
172	Receiver Interconnect A14 (CPN 642-4214-001, -002, -003, -004), Maintenance Aid Diagram	198.182
172	Receiver Interconnect A14 (CPN 642-4214-005), Maintenance Aid Diagram ..	198.184
173	Receiver Interconnect A14, Schematic Diagram	198.185
174	Instrumentation Interconnect A15, Schematic Changes	198.197
175	Instrumentation Interconnect A15, Maintenance Aid Diagram	198.200
176	Instrumentation Interconnect A15 (CPN 601-4215-001, -002, -003 and 642-4215-001, -002, -003) Schematic Diagram	198.201
177	Instrumentation Interconnect A15 (CPN 642-4215-004), Schematic Diagram ..	198.205
178	VOR/LOC Synthesizer A18 (CPN 635-5701-001), Schematic Changes	198.209
179	VOR/LOC Synthesizer A18 (CPN 635-5701-001), Maintenance Aid Diagram ..	198.212
180	VOR/LOC Synthesizer A18 (CPN 635-5701-001), Schematic Diagram	198.213
181	VOR/LOC Synthesizer A18 (CPN 628-8479-004), Schematic Changes	198.217
182	VOR/LOC Synthesizer A18 (CPN 628-8479-004), Maintenance Aid Diagram ..	198.220
183	VOR/LOC Synthesizer A18 (CPN 628-8479-004), Schematic Diagram	198.221
184	Glide Slope Synthesizer A19, Schematic Changes	198.223
185	Glide Slope Synthesizer A19, Maintenance Aid Diagram	198.226
186	Glide Slope Synthesizer A19, Schematic Diagram	198.227
187	Serial Tune A22, Schematic Changes	198.231
188	Serial Tune A22 (CPN 638-7622-001), Maintenance Aid Diagram	198.234
188	Serial Tune A22 (CPN 638-7622-002), Maintenance Aid Diagram	198.236
188	Serial Tune A22 (CPN 642-4222-001), Maintenance Aid Diagram	198.238
189	Serial Tune A22, Schematic Diagram	198.239
190	RMI Power Monitor A25, Schematic Changes	198.241
191	RMI Power Monitor A25 (CPN 642-0571-001, -002), Maintenance Aid Diagram	198.244
191	RMI Power Monitor A25 (CPN 642-4225-001, -002), Maintenance Aid Diagram	198.246
192	RMI Power Monitor A25 (CPN 642-0571-001, -002 and 642-4225-001, -002), Schematic Diagram	198.247
193	Heads Up Display Driver A26, Schematic Changes	198.251
194	Heads Up Display Driver A26, Maintenance Aid Diagram	198.252
195	Heads Up Display Driver A26, Schematic Diagram	198.253
196	EMI Suppression Filter A30, Schematic Changes	198.255
197	EMI Suppression Filter A30, Maintenance Aid Diagram	198.256
198	EMI Suppression Filter A30, Schematic Diagram	198.257

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

4. Related Publications

37P-2/3/4/5 Glide Slope Antenna Installation Manual

ATA Number: None

CPN: 523-0755810

313N-() Control

ATA Number: None

CPN: Various

Flight Director Indicator

ATA Number: None

CPN: Various

Course Indicator

ATA Number: None

CPN: Various

332C-8 RMHI (Radio Magnetic Heading Indicator)

ATA Number: None

CPN: 523-0762859

390R-18/19/20 Assembly Instructions

ATA Number: None

CPN: 523-0764521

51RV-4()/5() VOR/ILS Navigation Receiver, Component Maintenance Manual, Volume 1

ATA Number: 34-35-10

CPN: 523-0767436

51RV-4/4()/5/5() VOR/ILS Navigation Receiver, Illustrated Parts Catalog

ATA Number: 34-35-10

CPN: 523-0768832

Collins Integrated Circuit Descriptions Reference Manual

ATA Number: None

CPN: 523-0775443

Collins Avionics Standard Shop Practices Manual

ATA Number: None

CPN: 523-0768039

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

5. Advisories

WARNING: THIS COMPONENT EXHIBITS A HIGH DEGREE OF FUNCTIONAL RELIABILITY. NEVERTHELESS USERS MUST KNOW THAT IT IS NOT PRACTICAL TO MONITOR FOR ALL CONCEIVABLE SYSTEM FAILURES AND THAT, HOWEVER UNLIKELY, IT IS POSSIBLE THAT ERRONEOUS OPERATION COULD OCCUR WITHOUT A FAULT INDICATION. THE PILOT HAS THE RESPONSIBILITY TO FIND SUCH AN OCCURRENCE BY MEANS OF CROSS-CHECKS WITH REDUNDANT OR CORRELATED DATA AVAILABLE IN THE COCKPIT.

WARNING: SERVICE PERSONNEL ARE TO OBEY STANDARD SAFETY PRECAUTIONS, SUCH AS WEARING SAFETY GLASSES, TO PREVENT PERSONAL INJURY WHILE INSTALLING OR DOING MAINTENANCE ON THIS COMPONENT.

WARNING: THIS COMPONENT MAY HAVE PIECE PARTS THAT CONTAIN MATERIALS (SUCH AS BERYLLIUM OXIDE, ACIDS, LITHIUM, RADIOACTIVE MATERIAL, MERCURY, ETC) THAT CAN BE HAZARDOUS TO YOUR HEALTH. IF THE PIECE PART ENCLOSURE IS BROKEN, HANDLE THE PIECE PART IN ACCORDANCE WITH OSHA REQUIREMENTS 29CFR 1910.1000 OR SUPERSEDING DOCUMENTS TO PREVENT PERSONAL CONTACT WITH OR INHALATION OF HAZARDOUS MATERIALS. SINCE IT IS VIRTUALLY IMPOSSIBLE TO DETERMINE WHICH PIECE PARTS DO OR DO NOT CONTAIN SUCH HAZARDOUS MATERIALS, DO NOT OPEN OR DISASSEMBLE PIECE PARTS FOR ANY REASON.

CAUTION: TURN OFF POWER BEFORE DISCONNECTING ANY COMPONENT FROM WIRING. DISCONNECTING THE COMPONENT WITHOUT TURNING POWER OFF MAY CAUSE VOLTAGE TRANSIENTS THAT CAN DAMAGE THE COMPONENT.



CAUTION: ESDS ARE SUBJECT TO DAMAGE BY EXCESSIVE LEVELS OF VOLTAGE AND/OR CURRENT, JUST AS ARE MORE CONVENTIONAL SEMICONDUCTOR DEVICES. HOWEVER, THE PRECAUTIONS NORMALLY USED TO PROTECT SEMICONDUCTORS ARE NOT SUFFICIENT FOR THE PROTECTION OF ESDS DEVICES BECAUSE OF THEIR VERY HIGH ELECTRICAL RESISTANCE. THE LOW-ENERGY SOURCE THAT MOST COMMONLY DESTROYS ESDS DEVICES IS THE HUMAN BODY WHICH, IN CONJUNCTION WITH NONCONDUCTIVE GARMENTS AND FLOOR COVERINGS, GENERATES AND RETAINS STATIC ELECTRICITY. IN ORDER TO ADEQUATELY PROTECT ESDS DEVICES, THE DEVICE AND EVERYTHING THAT CONTACTS IT MUST BE BROUGHT TO GROUND POTENTIAL BY PROVIDING A CONDUCTIVE SURFACE AND DISCHARGE PATHS. THE FOLLOWING PRECAUTIONS MUST BE FOLLOWED:

- A. DEENERGIZE OR DISCONNECT ALL POWER AND SIGNAL SOURCES AND LOADS.
- B. PLACE THE COMPONENT ON GROUNDED CONDUCTIVE SURFACE.
- C. GROUND THE REPAIR OPERATOR THROUGH A CONDUCTIVE WRIST STRAP OR OTHER DEVICE USING A 470-KILOHM OR 1- MEGOHM SERIES RESISTOR TO PROTECT THE OPERATOR.
- D. GROUND ANY TOOLS, SUCH AS SOLDERING EQUIPMENT, THAT WILL CONTACT THE COMPONENT. CONTACT WITH THE OPERATOR'S HAND PROVIDES A SUFFICIENT GROUND FOR TOOLS THAT ARE OTHERWISE ELECTRICALLY ISOLATED.
- E. WHEN ESDS DEVICES AND ASSEMBLIES ARE NOT IN THE COMPONENT, THEY SHOULD BE ON THE CONDUCTIVE WORK SURFACE OR IN CONDUCTIVE CONTAINERS. WHEN A DEVICE OR ASSEMBLY IS INSERTED OR REMOVED FROM A CONTAINER, THE OPERATOR SHOULD MAINTAIN CONTACT WITH THE CONDUCTIVE PORTION OF THE CONTAINER. DO NOT USE PLASTIC BAGS UNLESS THEY HAVE BEEN IMPREGNATED WITH A CONDUCTIVE MATERIAL.
- F. DO NOT HANDLE ESDS DEVICES UNNECESSARILY OR REMOVE THEM FROM THEIR PACKAGES UNTIL ACTUALLY USED OR TESTED.
- G. TO PREVENT DAMAGE BY TRANSIENT VOLTAGES, ONLY SOLDERING IRONS HAVING ZERO VOLTAGE AT THE TIP SHOULD BE USED.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

6. Schematics

A. General

A schematic changes page precedes each schematic and maintenance aid diagram. The schematic changes page provides a description of each change, a reason for the change, the service bulletin number (if applicable) that modifies the unit, and the production cut-in effectivity for the change. Each change is identified by a revision identification (REV IDENT) code. The code identifies which revision of the manual identified the change, and the number of the change within that manual revision. For example, A1 identifies the first change in the first revision of the manual for a particular schematic. The schematic changes page also identifies which sheet of the schematic diagram the change occurs.

B. Configuration Effectivity

Figure 1 lists the units or subassemblies of the 51RV-4()/5() that are covered by the schematic diagrams, and the revision level of the unit or subassembly.

The following method is used by Collins Air Transport Division for identifying the configuration status of a unit or subassembly.

A 2-character maximum alphabetic identifier will be preceded by the letters REV (revision) and will start with a - (dash) if no changes have been processed. The first change will be identified as A, the second as B, continuing through Z to AA, AB, and ultimately to ZZ.

Incorporation of design changes in a unit or subassembly that has been returned to Collins Air Transport Division for repair by a customer or that has been removed from the company's finished goods inventory is defined as rework. At the time of rework, the unit or subassembly will be marked again to reflect the design level to which it is being upgraded. This is done by leaving the original marking on the unit or subassembly and adding the letters RWK (rework) followed by the alphabetic identifier of the latest change incorporated in the rework. For example, unit one is marked REV B - RWK F, and unit two is marked REV F. This indicates that both units are at the same design level of revision F, but unit one is reworked and they may not look exactly the same.

NOTE: A reworked unit may not contain all design changes made to the reworked identifier, but does contain all changes required to make unit operation identical to a newly manufactured unit with the same identifier. Therefore, a unit reworked to a specific identifier may physically appear different from a newly manufactured unit with the same alphabetic identifier.

Only alphabetic identifiers that result in schematic changes are covered in this manual. If a unit or subassembly has an identifier that alphabetically falls between identifiers on the schematic changes page, or after the last identifier on the schematic changes page up to and including the latest effectivity listed, the electrical configuration is represented by the earlier identifier listed on the schematic changes page.

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-10

Insert facing Introduction page 11, 34-35-10

Subject: VOR/LOC Receiver A1

Add the following immediately after the last entry for VOR/LOC Receiver A1:

SUBASSEMBLIES/UNITS	M. A. D. FIGURE	SCHEMATIC FIGURE	BOARD PART NUMBER	BOARD REVISION LEVEL
	Figure 110B	Figure 110C	828-0161-003	B

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SUBASSEMBLIES/UNITS	M. A. D. FIGURE	SCHEMATIC FIGURE	BOARD PART NUMBER	BOARD REVISION LEVEL
Chassis Assembly	101	NA	635-5575-XXX	AV
VOR/LOC Receiver A1	103	104	601-4301-001	AH
	103	104	601-4301-004	AH
	103	104	642-4201-001	AT
	103	104	642-4201-002	AT
	106	107	676-7201-051	P
	109	110	828-0161-002	F
	Glide Slope Receiver A2	112	113	601-4302-001
115		116	642-4202-051	P
RMI/Power Supply/Audio A3	118	119	601-4203-001	AL
	118	120	601-4203-003	AL
	118	120	642-4203-001	AC
	118	120	642-4203-002	AC
	118	121	642-4203-003	AC
	118	120	642-4203-004	AD
	123	124	646-8203-004	K
	126	127	646-8203-005	B
	129	130	646-8203-006	B
Digital Instrumentation A4	133	134	601-4204-001	AG
	133	134	601-4204-003	AK
	133	134	642-4204-001	AC
Glide Slope Instrumentation A5	136	137	601-4205-001	T
	136	137	601-4205-003	T
	136	137	642-4205-001	T
	136	137	642-4205-002	T
	136	137	642-4205-003	T
VOR/ILS Self-Test A6	139	140	601-4206-001	U
	139	140	601-4206-002	T
	142	143	601-4206-003	AC
	142	143	642-4206-001	H
Expanded ILS Monitor A7	145	146	601-4207-001	AE
	145	146	642-4207-001	G
	148	149	642-4227-001	T

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2**

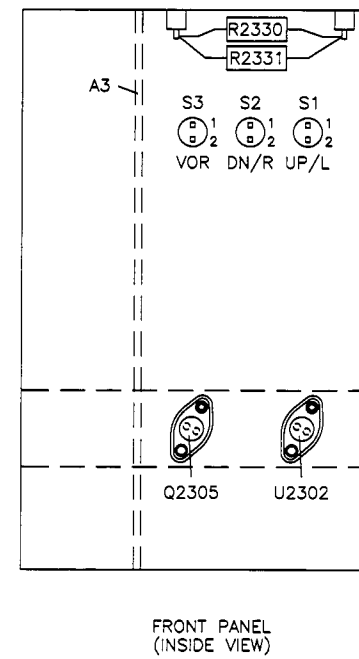
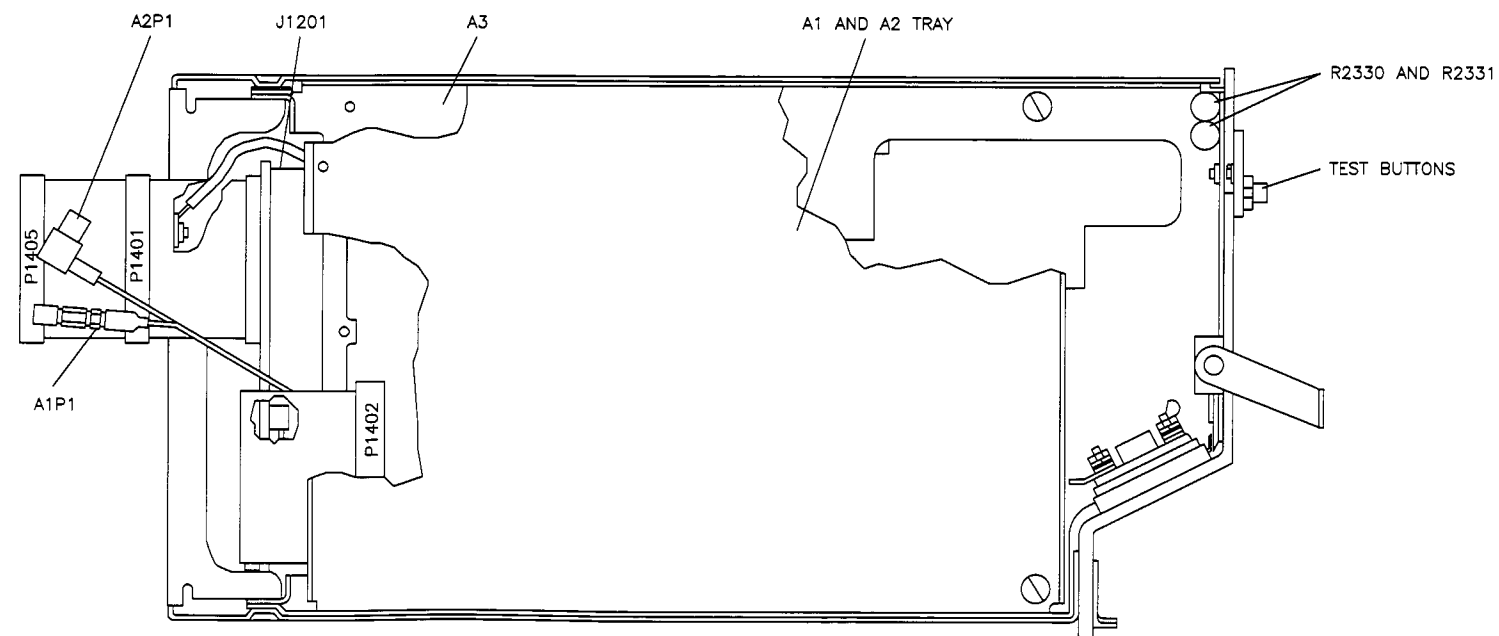
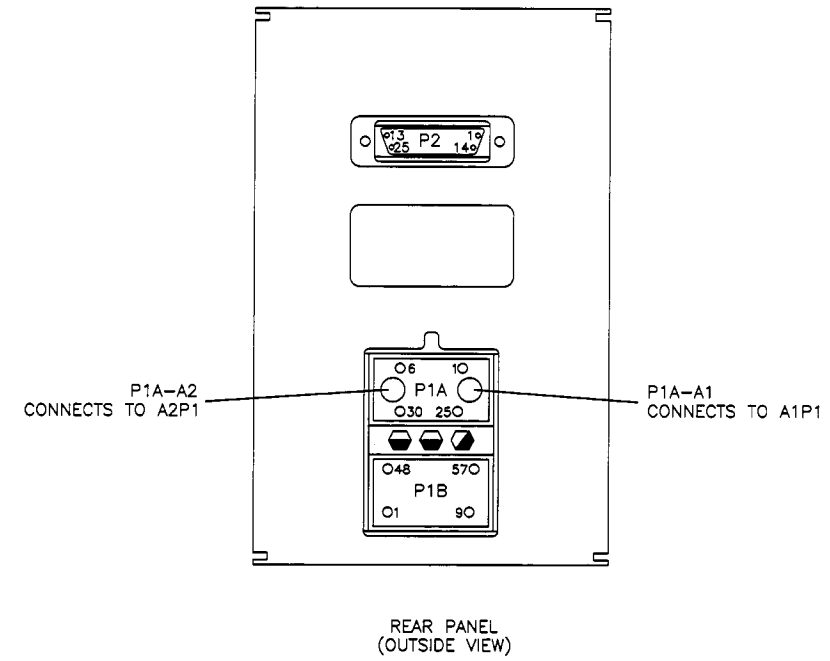
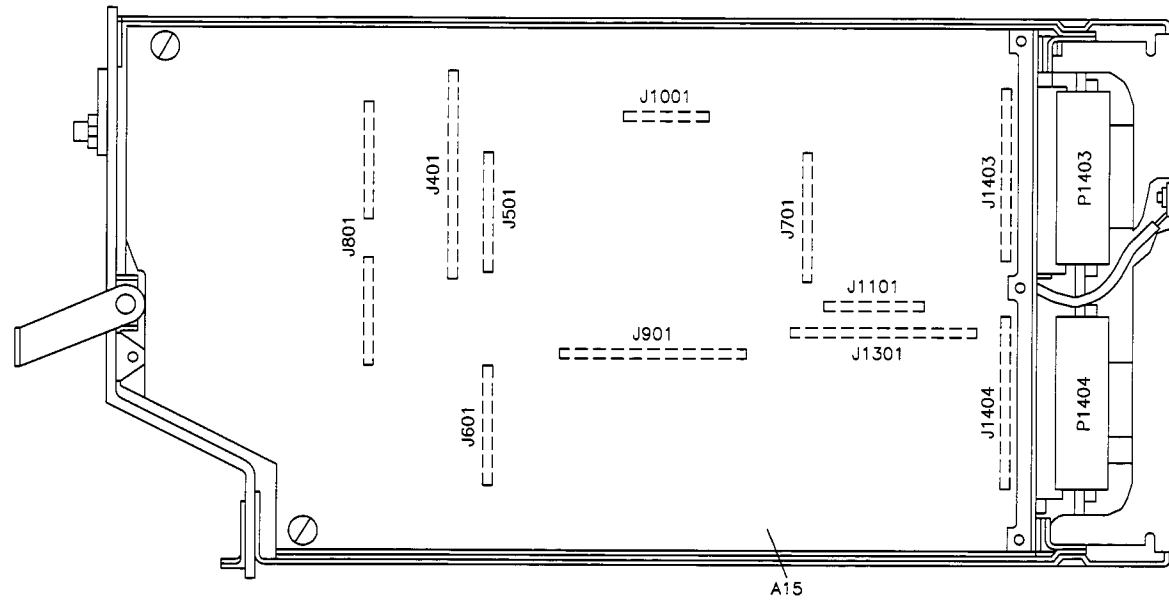
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SUBASSEMBLIES/UNITS	M. A. D. FIGURE	SCHEMATIC FIGURE	BOARD PART NUMBER	BOARD REVISION LEVEL
VOR/LOC Instrumentation A8	151	152	601-4208-001	none
	151	152	601-4208-004	none
	151	152	642-4208-001	U
	151	152	642-4208-002	U
Expanded VOR Monitor A9	155	156	601-4209-001	AD
	155	156	601-4209-003	BF
	155	156	601-4209-004	BF
Digital Bearing Output A10	158	159	601-4210-001	P
	158	160	601-4210-003	B
Programmable Bearing Filter A11	162	163	601-4211-001	R
	162	164	601-4211-003	R
RMI Servo Amplifier A12	166	167	601-4212-001	D
2 x 5 Monitor A13	169	170	601-4313-001	J
Receiver Interconnect A14	172	173	601-4214-001	AG
	172	173	601-4214-002	AG
	172	173	601-4214-003	AG
	172	173	642-4214-001	M
	172	173	642-4214-002	M
	172	173	642-4214-003	M
	172	173	642-4214-004	M
	172	173	642-4214-005	P
Instrumentation Interconnect A15	175	176	601-4215-001	N
	175	176	601-4215-003	N
	175	176	642-4215-001	C
	175	176	642-4215-002	C
	175	176	642-4215-003	C
	175	177	642-4215-004	E
VOR/LOC Synthesizer A18	179	180	642-4218-001	K
	182	183	642-4218-002	E
Glide Slope Synthesizer A19	185	186	642-4219-001	H
Serial Tune A22	188	189	638-7622-001	N
	188	189	638-7622-002	N
	188	189	642-4222-001	G

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SUBASSEMBLIES/UNITS	M. A. D. FIGURE	SCHEMATIC FIGURE	BOARD PART NUMBER	BOARD REVISION LEVEL
RMI Power Monitor A25	191	192	642-0571-001	J
	191	192	642-0571-002	J
	191	192	642-4225-001	E
	191	192	642-4225-002	E
Heads Up Display Driver A26	194	195	828-0173-001	B
RMI Suppression Filter A30	197	198	828-0262-001	B

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



635-5575-XXXAR
AD-4161-01-

Chassis Maintenance Aid Diagram
Figure 101

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: B1 – sheet 1
EFFECTIVITY: REV S
DESCRIPTION/REASON: Changed C14 from 2.2 to 10 μ F and R25 from 1000 to 330 Ω to decrease VOR loop bandwidth to remove residual FM.

REV IDENT and SHEET: C1 – sheet 1
EFFECTIVITY: REV H (CPN 601-4316-001)
SERVICE BULLETIN: 8
DESCRIPTION/REASON: Changed R1605 from 680 to 270 Ω .

REV IDENT and SHEET: C2 – sheet 1
EFFECTIVITY: REV T
SERVICE BULLETIN: 3
DESCRIPTION/REASON: Added C93 (1000 pF), CR19 (1N5767), and R115 (390 Ω), moved L14 adjacent to L5, and changed 300 Hz to 300 kHz. Eliminates receiving 107.9-MHz FM signal in self-test.

REV IDENT and SHEET: C3 – sheet 1
EFFECTIVITY: REV Y
DESCRIPTION/REASON: Changed R29 (40.2 k Ω) to a test select. Allows unit to be adjusted to specified limits.

REV IDENT and SHEET: C4 – sheet 2
EFFECTIVITY: All models
DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: C5 – sheet 1
EFFECTIVITY: REV F (CPN 601-4317-001)

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
642-4201-001, -002), Schematic Changes
Figure 102 (Sheet A)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Changed C1707 from 56 to 22 μ F. Improves modulation of self-test signal.

REV IDENT and SHEET: C6 – sheet 1

EFFECTIVITY: REV AB

SERVICE BULLETIN: 9

DESCRIPTION/REASON: Deleted VR5 (1N962B), changed R30 (25.5 k Ω) to test select. Increases bandwidth of VOR/LOC receiver.

REV IDENT and SHEET: C7 – sheet 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed CR18 designation to VR1 to correct schematic error.

REV IDENT and SHEET: C8 – sheet 2

EFFECTIVITY: REV G (CPN 601-4316-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Changed U1601 from 54LS93 to 5493.

REV IDENT and SHEET: D1 – sheets 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 3 to show R92 is 1 k Ω for 601-4301-004.

REV IDENT and SHEET: D2 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 4 and circuit detail A to show the difference of audio switch for 601-4301-004 and 642-4201-002.

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
642-4201-001, -002), Schematic Changes
Figure 102 (Sheet B)

34-35-10

Page 104
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: D3 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 5. C2 and C5 are applicable to 642-4201-001, -002.

REV IDENT and SHEET: F1 – sheets 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 7. C4 is 22 μ F on 642-4201-001, -002.

REV IDENT and SHEET: F2 – sheets 1 and 2

EFFECTIVITY: MOD 3 CPN 601-4301-001, -004; MOD 1 CPN 642-4201-001, -002

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S1 replaced by jumper wires for switch on (closed) applications, and jumper is omitted for switch off applications.

REV IDENT and SHEET: F3 – sheet 1

EFFECTIVITY: REV H (CPN 601-4317-001)

DESCRIPTION/REASON: Capacitor C1705 changed from 2 to 1.8 pF for increased reliability.

REV IDENT and SHEET: F4 – sheet 1

EFFECTIVITY: REV H (CPN 601-4317-001)

DESCRIPTION/REASON: Capacitor C1704 changed from 43 to 47 pF for increased reliability.

REV IDENT and SHEET: G1 – sheet 1

EFFECTIVITY: MOD 4 CPN 601-4301-001, -004; MOD 2 CPN 642-4201-001, -002

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
642-4201-001, -002), Schematic Changes
Figure 102 (Sheet C)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SERVICE BULLETIN: 24

DESCRIPTION/REASON: Added transistor Q11 (2N2222A), R123 (680 Ω), R120 (1 k Ω), R119 (47 Ω), R121 (2.2 k Ω), R122 (10 Ω), C94 (1000pF), and CR21 (1N5767).

REV IDENT and SHEET: G2 – sheet 1

EFFECTIVITY: MOD 4 CPN 601-4301-001, -004; MOD 2 CPN 642-4201-001, -002

SERVICE BULLETIN: 24

DESCRIPTION/REASON: Changed value of R115 from 390 to 680 Ω .

REV IDENT and SHEET: G3 – sheet 1

EFFECTIVITY: MOD 1 CPN 601-4317-001, -002

SERVICE BULLETIN: 24

DESCRIPTION/REASON: Added L1703 (0.18 μ H).

REV IDENT and SHEET: G4 – sheets 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed C14 from 10 to 202 pF, R25 from 330 Ω to 1 k Ω , C12 from 1 to 0.1 pF, CR16 from N5767 to 1N5767, and IF LUL ADJ to IF LVL ADJ to correct schematic errors.

REV IDENT and SHEET: G5 – sheet 1

EFFECTIVITY: REV L (CPN 601-4316-001)

DESCRIPTION/REASON: Changed Q1602 from 2N5179 to 2N2369A and R1606 from 1 k Ω to 470 Ω .

REV IDENT and SHEET: G6 – sheet 1

EFFECTIVITY: REV L (CPN 601-4316-001)

DESCRIPTION/REASON: Deleted R1607 and replaced it with diode CR1601 (1N4454).

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
642-4201-001, -002), Schematic Changes
Figure 102 (Sheet D)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: J1 – sheets 1 and 2
EFFECTIVITY: REV AA (CPN 642-4201-001, -002)
DESCRIPTION/REASON: Replaced obsolete parts 3N140 (Q2, 3, 4 and 6) and 3N141 (Q5 and 7) with preferred part BFR 84.

REV IDENT and SHEET: J2 – sheets 1 and 2
EFFECTIVITY: REV AB (CPN 642-4201-002)
DESCRIPTION/REASON: Deleted C75 and L9 and replaced them with L29 (0.33 μ H) and R290 (100 k Ω), respectively, for improved spurious response. Added note 9 and detail B.

REV IDENT and SHEET: J3 – sheets 1 and 2
EFFECTIVITY: All models
DESCRIPTION/REASON: Changed the value of C1711 from 27 to 47 pF and added various capacitor reference designators and note 8 to correct schematic errors.

REV IDENT and SHEET: J4 – sheets 1 and 2
EFFECTIVITY: REV AD (CPN 642-4201-001, -002)
DESCRIPTION/REASON: Added ferrite beads Z1 thru Z9 to transistors Q1, 2, 3, 4, and 6 to eliminate oscillations of transistors.

REV IDENT and SHEET: J5 – sheet 1
EFFECTIVITY: REV M (CPN 601-4317-001)
DESCRIPTION/REASON: Changed C1711 from 47 pF to a test select for improved RF level adjustment range.

REV IDENT and SHEET: NA – sheet 3
EFFECTIVITY: All models

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
642-4201-001, -002), Schematic Changes
Figure 102 (Sheet E)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Changed detail B to detail AA (SB 24 configuration) to eliminate duplication of partial schematic view titles.

REV IDENT and SHEET: K1 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed R31 from 19.6 to 15 k Ω to replace obsolete component.

REV IDENT and SHEET: K2 – sheet 1

EFFECTIVITY: REV AN (CPN 642-4201-001, -002)

DESCRIPTION/REASON: Added ferrite bead Z10 to transistor Q4 to eliminate oscillations.

REV IDENT and SHEET: K3 – sheet 1

EFFECTIVITY: REV AR (CPN 642-4201-001, -002)

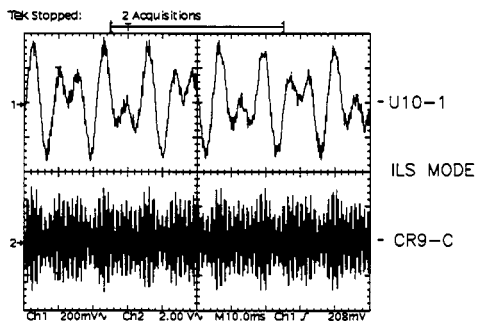
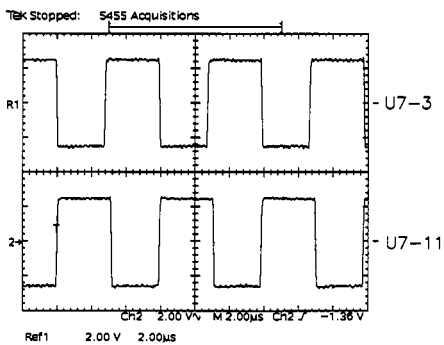
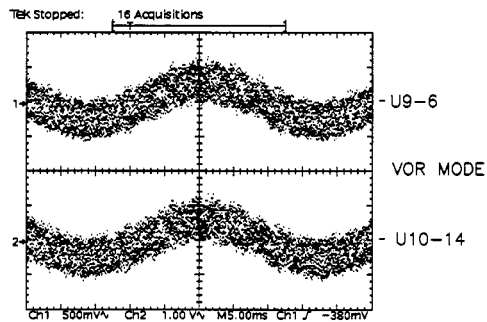
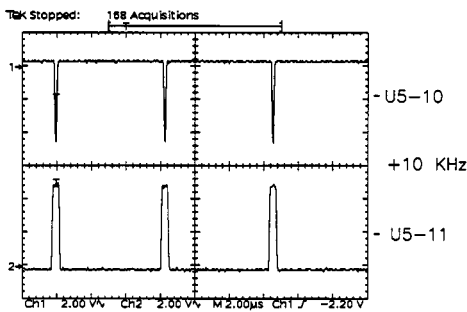
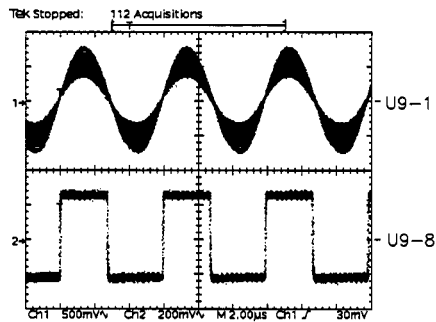
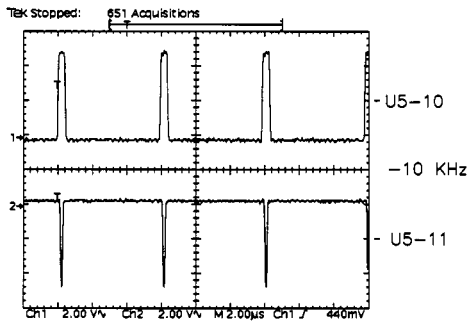
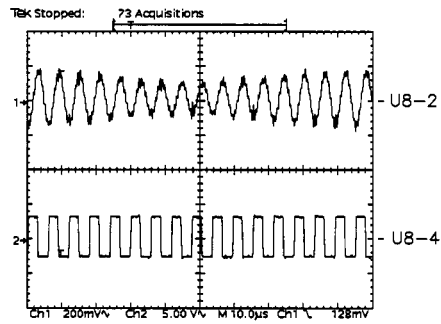
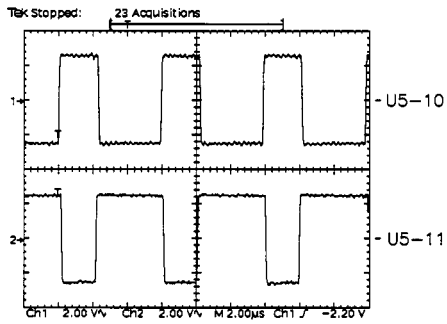
DESCRIPTION/REASON: Added ferrite bead Z11 to transistor Q5 to eliminate oscillations.

REV IDENT and SHEET: K4 – sheet 2

EFFECTIVITY: REV AT (CPN 642-4201-002)

DESCRIPTION/REASON: Changed value of L290 from 0.33 to 0.15 μ H to improve spurious response.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



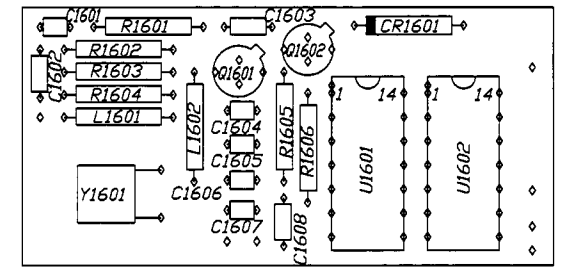
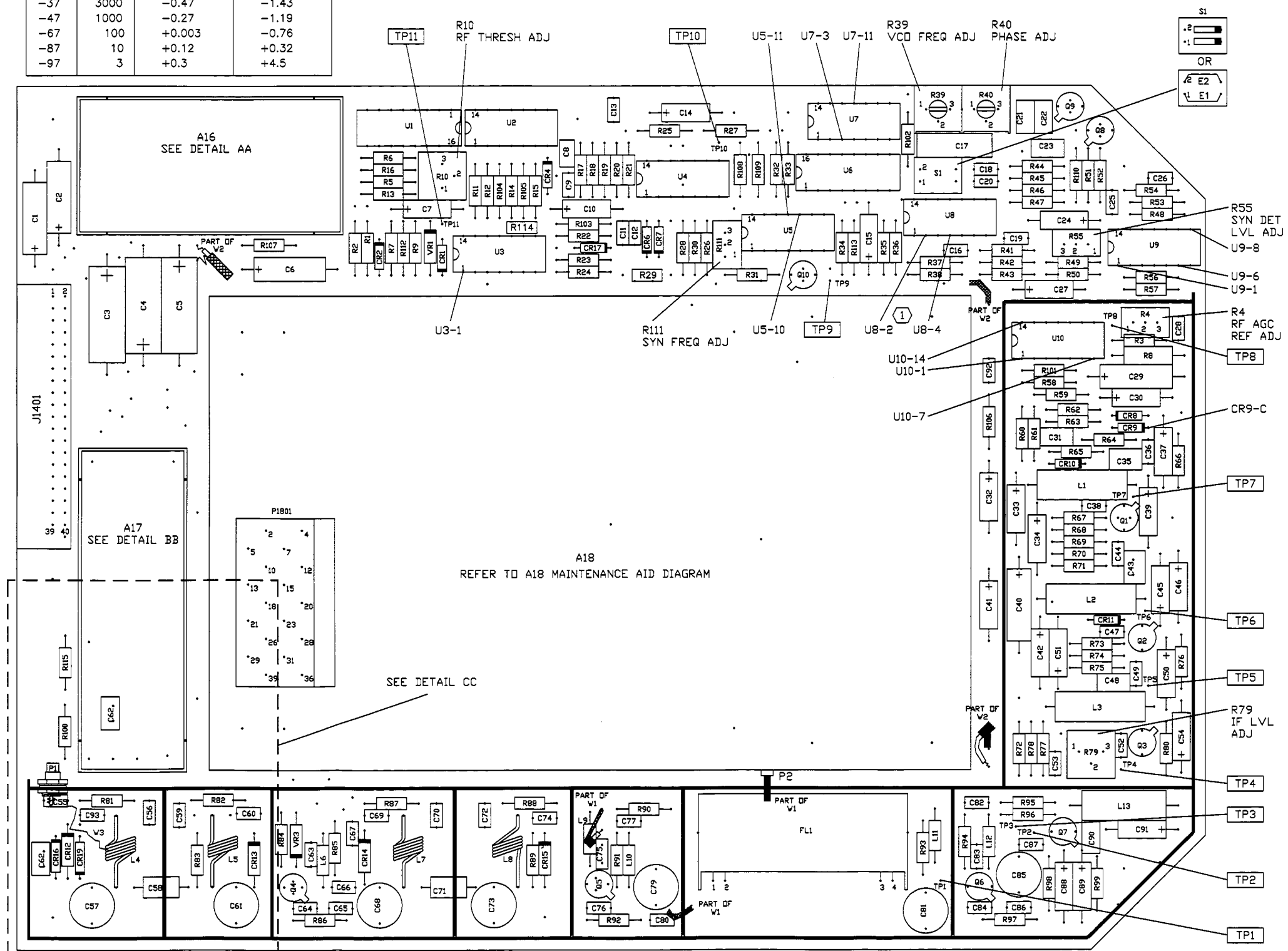
AD-4696-03A (1)

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
 642-4201-001, -002), Waveforms
 Figure 103 (Sheet 1 of 3)

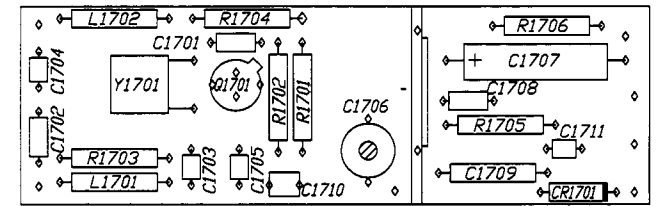
34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

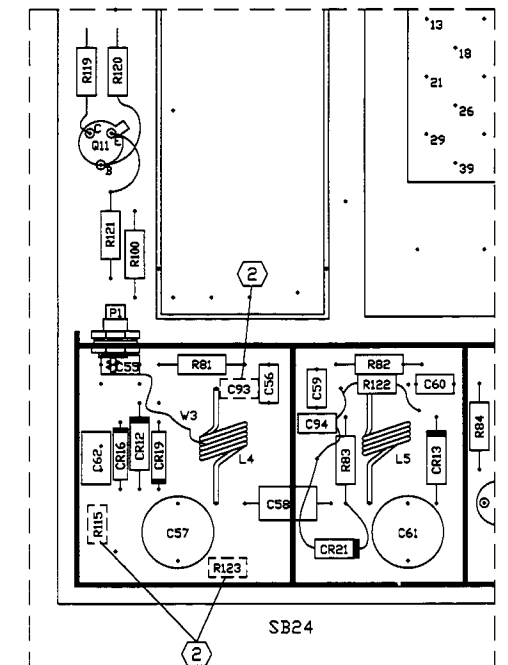
dBm	μV	IF AGC (V DC) (U10-7)	RF AGC (V DC) (U3-1)
-17	30,000	-1.07	-2.09
-37	3000	-0.47	-1.43
-47	1000	-0.27	-1.19
-67	100	+0.003	-0.76
-87	10	+0.12	+0.32
-97	3	+0.3	+4.5



DETAIL AA



DETAIL BB



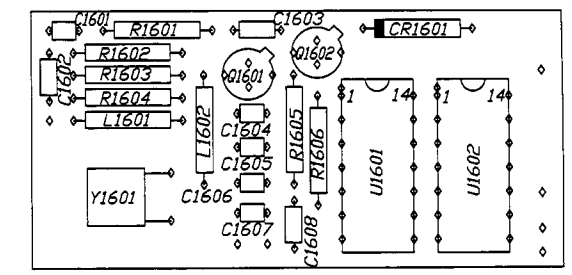
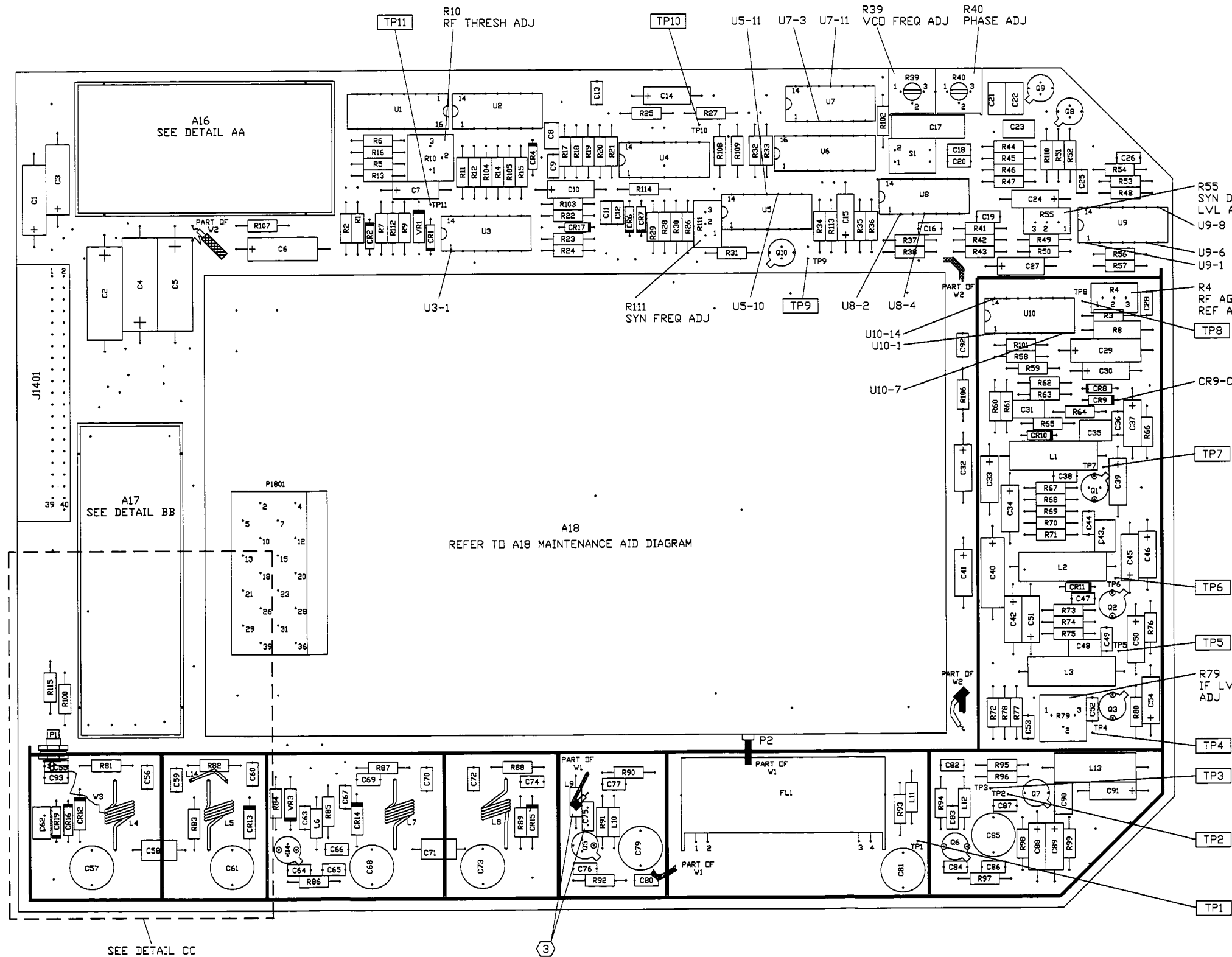
DETAIL CC

- NOTES:**
- ① U5 MAY BE EITHER A DIP OR CAN PACKAGE.
 - ② MOUNTED ON BOTTOM SIDE OF CARD.
 - ③ REFER TO SHEET 1 FOR WAVEFORMS.

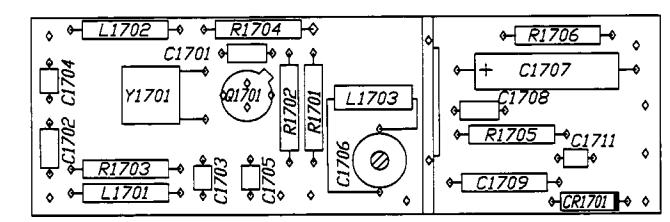
601-4316-001
601-4317-001
601-4301-004AH
AD-4696-03A (2)

VOR/LOC Receiver A1 (CPN 601-4301-001, -004),
Maintenance Aid Diagram
Figure 103 (Sheet 2)

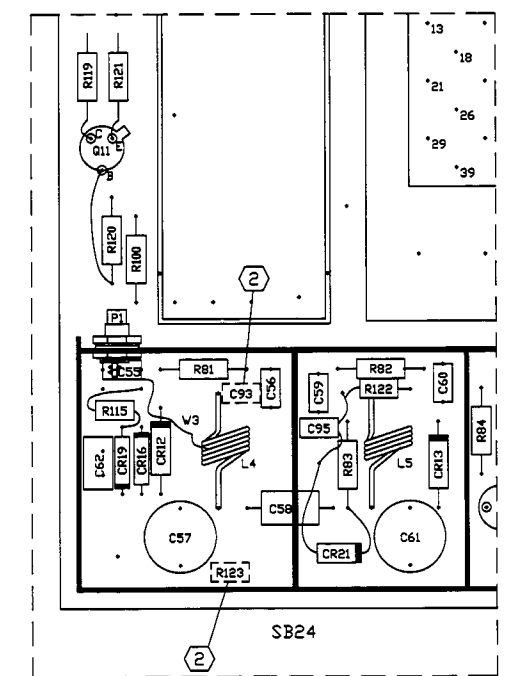
34-35-10



DETAIL AA



DETAIL BB



DETAIL CC

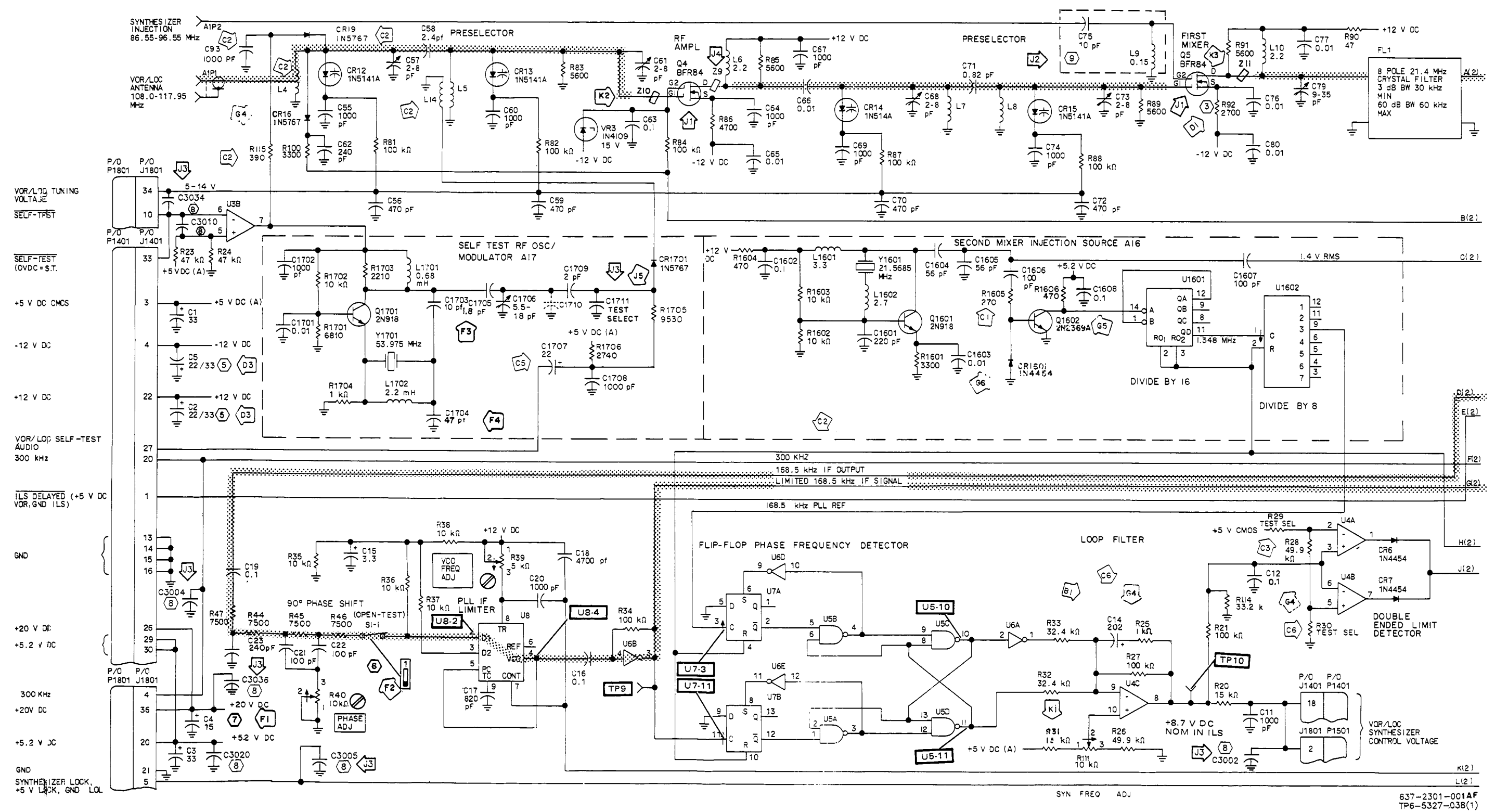
- NOTES:
- ① REFER TO SHEET 2 FOR AGC CHART AND SHEET 1 FOR WAVEFORMS.
 - ② MOUNTED ON BOTTOM SIDE OF CARD.
 - ③ L9 AND C75 ARE REPLACED WITH R290 AND L29 RESPECTIVELY ON CPN 642-4201-002 ONLY.

601-4316-001N
 601-4317-001P
 642-4201-001A1, -002A1
 AD-4696-03A (3)

VOR/LOC Receiver A1 (CPN 642-4201-001, -002),
 Maintenance Aid Diagram
 Figure 103 (Sheet 3)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



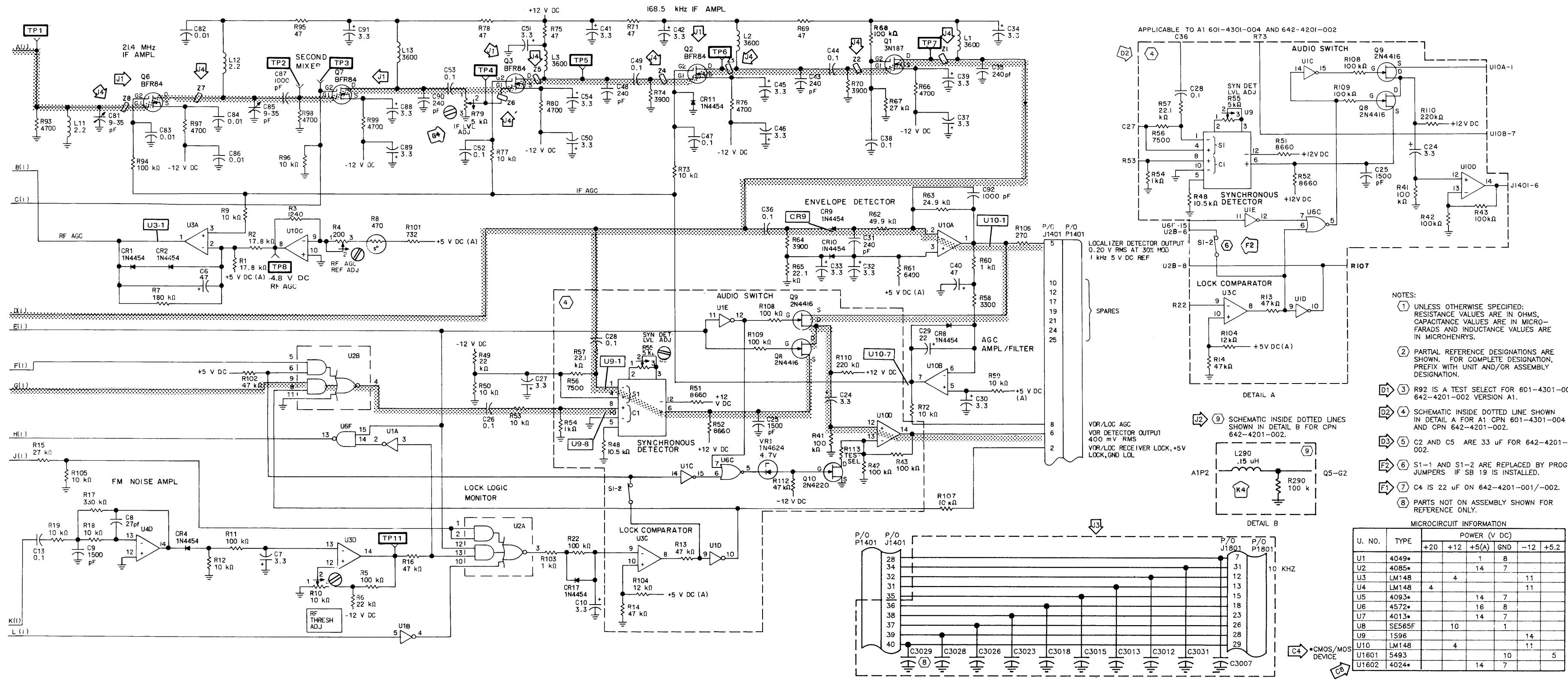
VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and 642-4201-001, -002), Schematic Diagram
 Figure 104 (Sheet 1 of 3)

34-35-10

Pages 115/116
 Jul 15/95

637-2301-001AF
 TP6-5327-038(1)

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



- NOTES:
- UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICRO-FARADS AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - R92 IS A TEST SELECT FOR 601-4301-004/642-4201-002 VERSION A1.
 - SCHEMATIC INSIDE DOTTED LINE SHOWN IN DETAIL A FOR A1 CPN 601-4301-004 AND CPN 642-4201-002.
 - C2 AND C5 ARE 33 uF FOR 642-4201-001/002.
 - S1-1 AND S1-2 ARE REPLACED BY PROGRAM JUMPERS IF SB 19 IS INSTALLED.
 - C4 IS 22 uF ON 642-4201-001/-002.
 - PARTS NOT ON ASSEMBLY SHOWN FOR REFERENCE ONLY.

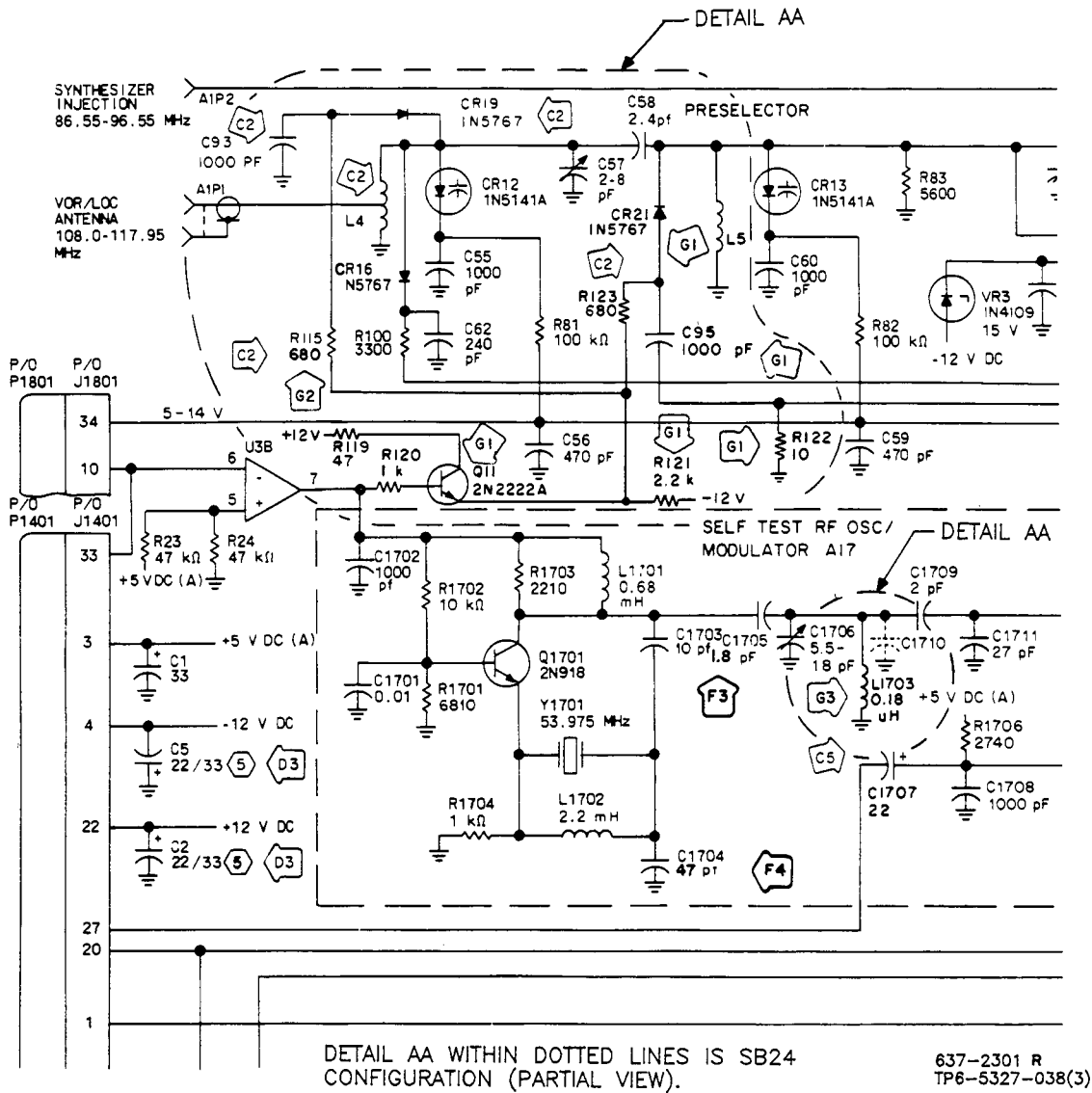
MICROCIRCUIT INFORMATION

U. NO.	TYPE	POWER (V DC)					
		+20	+12	+5(A)	GND	-12	+5.2
U1	4049*			1	8		
U2	4085*			14	7		
U3	LM148		4				11
U4	LM148		4				11
U5	4093*			14	7		
U6	4572*			16	8		
U7	4013*			14	7		
U8	SE565F		10		1		
U9	1596						14
U10	LM148		4				11
U1601	5493				10		5
U1602	4024*			14	7		

VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and 642-4201-001, -002), Schematic Diagram Figure 104 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



VOR/LOC Receiver A1 (CPN 601-4301-001, -004 and
 642-4201-001, -002), Schematic Diagram
 Figure 104 (Sheet 3)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: NA

EFFECTIVITY: REV C (MOD 1 CPN 676-7201-051)

SERVICE BULLETIN: 26

DESCRIPTION/REASON: Replaced two metal washers with plastic washers on the bottom side of board.

REV IDENT and SHEET: K1 – sheets 1 and 3

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed schematic references for self-test oscillator A17 and second mixer injection A16.

REV IDENT and SHEET: K2 – sheet 1

EFFECTIVITY: REV G (CPN 676-7201-051)

DESCRIPTION/REASON: Changed R31 from 19.6 to 15 k Ω to replace obsolete component.

REV IDENT and SHEET: K3 – sheets 1 and 2

EFFECTIVITY: REV J (CPN 676-7201-051)

DESCRIPTION/REASON: Changed the value of C57, 61, 68, and 73 from 2–8 to 2.5–10 pF; and C79, 81, and 85 from 9–35 to 7.5–50 pF. These components were changed to a semi-sealed component for improved reliability.

REV IDENT and SHEET: K4 – sheets 1 and 2

EFFECTIVITY: REV K (CPN 676-7201-051)

DESCRIPTION/REASON: Changed the value of C57, 61, 68, and 73 from 2.5–10 to 2–8 pF; and C79, 81, and 85 from 7.5–50 to 9–35 pF for better signal-to-noise ratio.

REV IDENT and SHEET: K5 – sheet 1

EFFECTIVITY: REV N (CPN 676-7201-051)

VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Changes
Figure 105 (Sheet A)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: Added a ferrite bead to Q4 and Q5 to improve spurious response.

REV IDENT and SHEET: K6 – sheet 3

EFFECTIVITY: REV N (CPN 601-4316-001)

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

RESISTOR	CARBON	METAL FILM
R1601	3.3 kΩ	3.32 kΩ
R1602	10 kΩ	10 kΩ
R1603	10 kΩ	10 kΩ
R1604	470 Ω	475 Ω
R1605	270 Ω	274 Ω
R1606	470 Ω	475 Ω

REV IDENT and SHEET: K7 – sheets 1 and 2

EFFECTIVITY: REV P (CPN 676-7201-051)

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R20	15 kΩ	15 kΩ
R23	47 kΩ	47.5 kΩ
R24	47 kΩ	47.5 kΩ
R25	1.0 kΩ	1.0 kΩ
R34	100 kΩ	100 kΩ
R35	10 kΩ	10 kΩ
R36	10 kΩ	10 kΩ
R37	10 kΩ	10 kΩ
R38	10 kΩ	10 kΩ
R81	100 kΩ	100 kΩ
R82	100 kΩ	100 kΩ
R83	5.6 kΩ	5.62 kΩ
R85	5.6 kΩ	5.62 kΩ

(Cont)

VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Changes
 Figure 105 (Sheet B)

34-35-10

Page 122
 Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Sheet 1 cont)

RESISTOR	CARBON	METAL FILM
R86	4.7 kΩ	4.75 kΩ
R87	100 kΩ	100 kΩ
R88	100 kΩ	100 kΩ
R89	5.6 kΩ	5.62 kΩ
R90	47.0 Ω	47.5 Ω
R91	5.6 kΩ	5.62 kΩ
R92	2.7 kΩ	2.74 kΩ
R108	3.3 kΩ	3.32 kΩ
R115	680 Ω	681 Ω
R119	47.0 Ω	47.5 Ω
R120	1.0 kΩ	1.0 kΩ
R121	2.2 kΩ	2.21 kΩ
R122	10.0 Ω	10.0 Ω
R123	680 Ω	681 Ω

Sheet 2

RESISTOR	CARBON	METAL FILM
R5	100 kΩ	100 kΩ
R6	22 kΩ	22.1 kΩ
R7	180 kΩ	182 kΩ
R9	10 kΩ	10 kΩ
R11	100 kΩ	100 kΩ
R12	10 kΩ	10 kΩ
R13	47 kΩ	47.5 kΩ
R14	47 kΩ	47.5 kΩ
R15	27 kΩ	27.4 kΩ
R16	47 kΩ	47.5 kΩ
R17	330 kΩ	332 kΩ
R18	10 kΩ	10 kΩ
R19	10 kΩ	10 kΩ
R22	100 kΩ	100 kΩ
R41	100 kΩ	100 kΩ
R49	22 kΩ	22.1 kΩ
R50	10 kΩ	10 kΩ
R53	10 kΩ	10 kΩ
R54	1.0 kΩ	1.0 kΩ
R58	3.3 kΩ	3.32 kΩ
R59	10 kΩ	10 kΩ
R60	1.0 kΩ	1.0 kΩ
R64	3.9 kΩ	3.92 kΩ

(Cont)

VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Changes
 Figure 105 (Sheet C)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Sheet 2 cont)

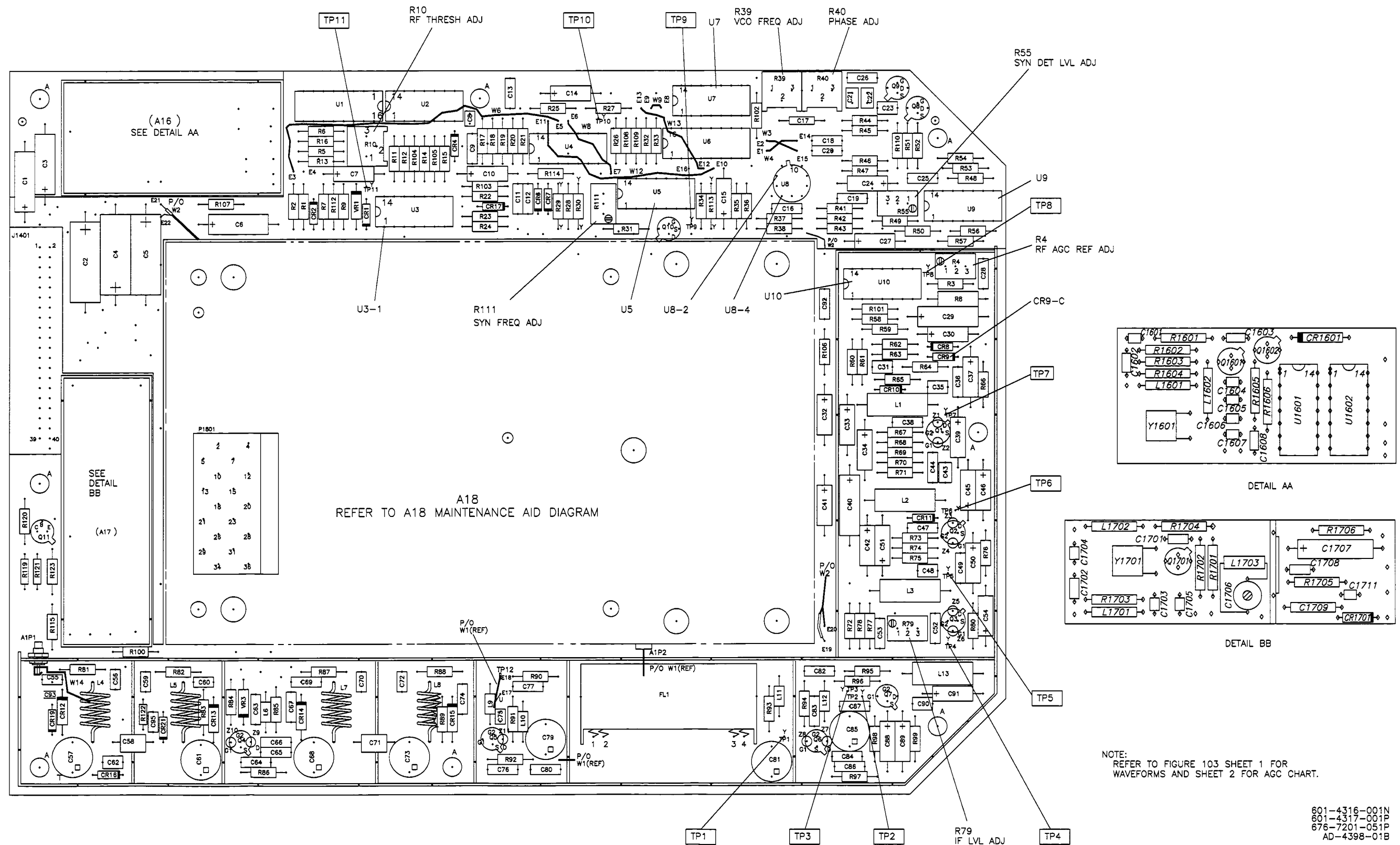
RESISTOR	CARBON	METAL FILM
R66	4.7 kΩ	4.75 kΩ
R67	27 kΩ	27.4 kΩ
R68	100 kΩ	100 kΩ
R69	47.0 Ω	47.5 Ω
R70	3.9 kΩ	3.92 kΩ
R71	47 Ω	47.5 Ω
R72	10 kΩ	10 kΩ
R73	10 kΩ	10 kΩ
R74	3.9 kΩ	3.92 kΩ
R75	47 Ω	47.5 Ω
R76	4.7 kΩ	4.75 kΩ
R77	10 kΩ	10 kΩ
R78	47 Ω	47.5 Ω
R80	4.7 kΩ	4.75 kΩ
R93	4.7 kΩ	4.75 kΩ
R94	100 kΩ	100 kΩ
R95	47 Ω	47.5 Ω
R96	10 kΩ	10 kΩ
R97	4.7 kΩ	4.75 kΩ
R98	4.7 kΩ	4.75 kΩ
R99	4.7 kΩ	4.75 kΩ
R102	47 kΩ	47.5 kΩ
R103	1.0 kΩ	1.0 kΩ
R104	12 kΩ	12.1 kΩ
R105	10 kΩ	10 kΩ
R106	270 Ω	274 Ω
R107	10 kΩ	10 kΩ
R108	100 kΩ	100 kΩ
R109	100 kΩ	100 kΩ
R110	220 kΩ	221 kΩ
R112	47 kΩ	47.5 kΩ

VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Changes
 Figure 105 (Sheet D)

34-35-10

Page 124
 Jul 15/95

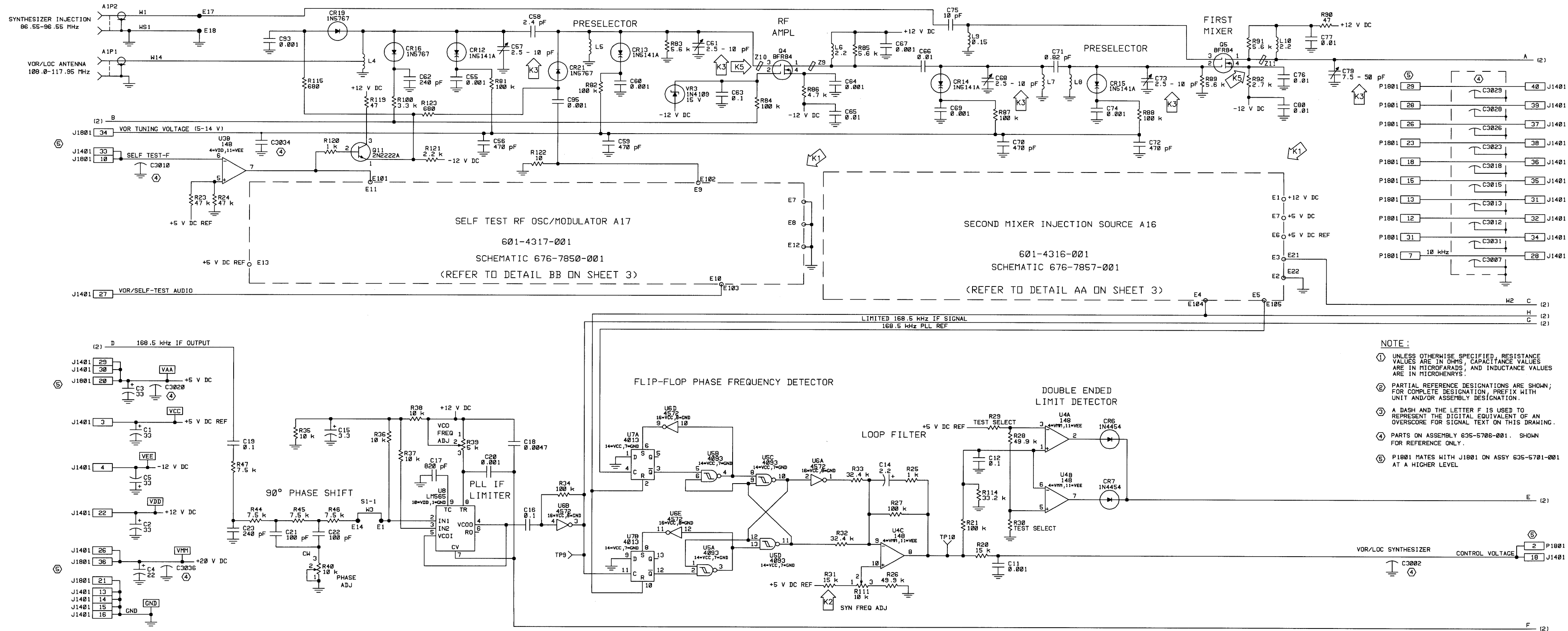
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



VOR/LOC Receiver A1 (CPN 676-7201-001), Maintenance Aid Diagram
 Figure 106

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



- NOTE:**
- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - ③ A DASH AND THE LETTER F IS USED TO REPRESENT THE DIGITAL EQUIVALENT OF AN OVERSCORE FOR SIGNAL TEXT ON THIS DRAWING.
 - ④ PARTS ON ASSEMBLY 635-5706-001, SHOWN FOR REFERENCE ONLY.
 - ⑤ P1801 MATES WITH J1801 ON ASSY 635-5701-001 AT A HIGHER LEVEL.

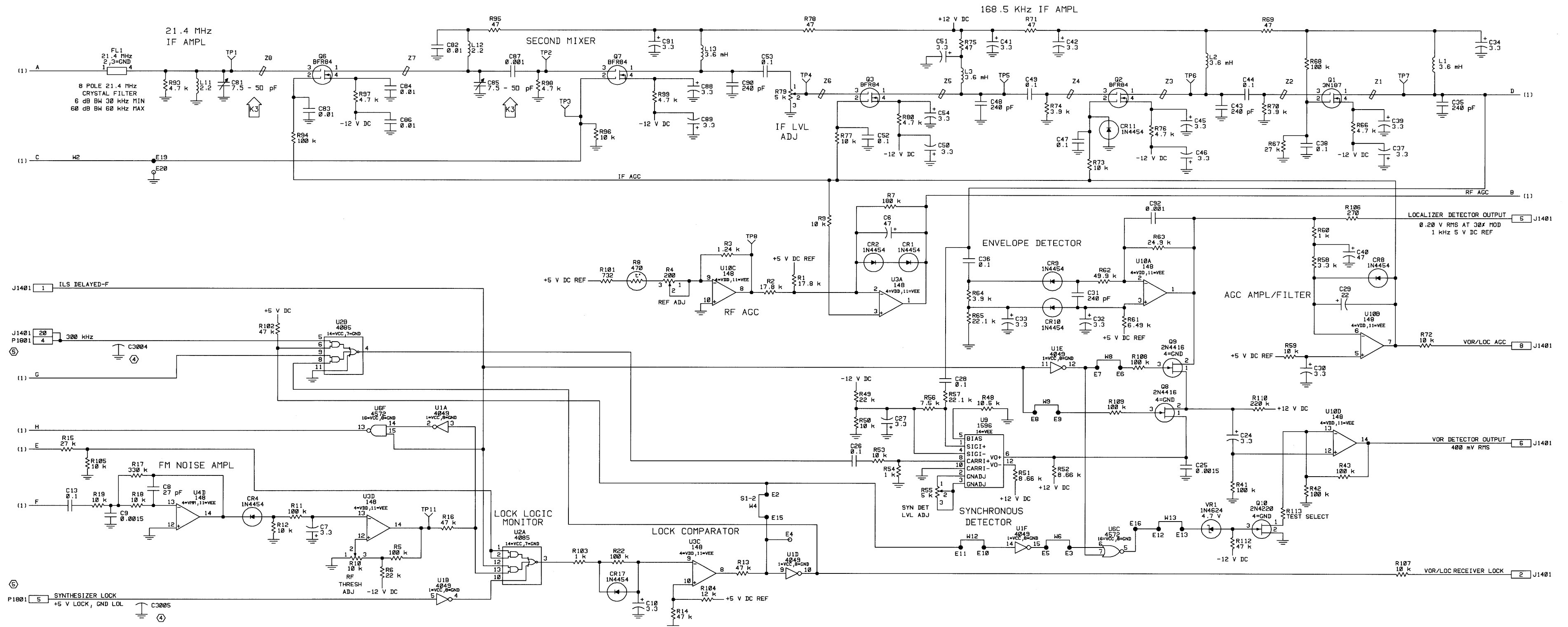
K7 NOTE: SOME RESISTOR VALUES ARE DIFFERENT FROM THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K7 FOR A COMPLETE LIST.

676-7921-001J
 AD-3170-03C (1)

VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Diagram
 Figure 107 (Sheet 1 of 3)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



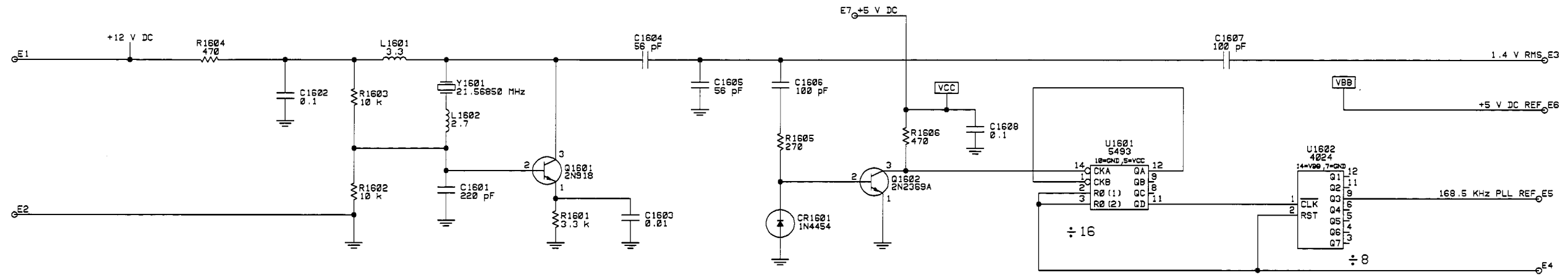
NOTE: SOME RESISTOR VALUES ARE DIFFERENT FROM THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K7 FOR A COMPLETE LIST.

676-7921-001J
 AD-3170-03B (2)

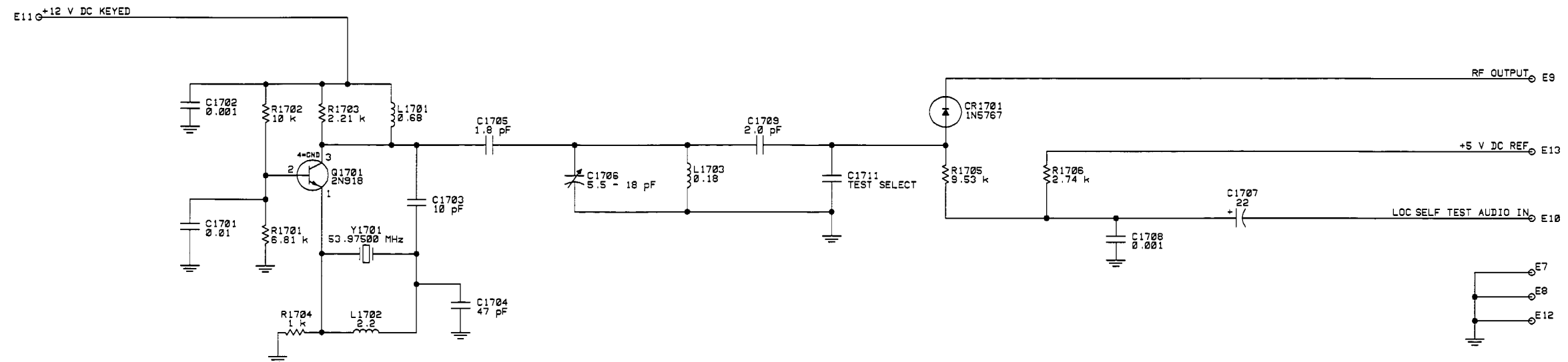
VOR/LOC Receiver A1 (CPN 676-7201-001), Schematic Diagram
 Figure 107 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



DETAIL AA
 (A16 CPN 601-4316-001)



DETAIL BB
 (A17 CPN 601-4317-001)



676-7850-001-
 676-7857-001A
 AD-3170-03B (3)

K6 NOTE: SOME RESISTOR VALUES ARE DIFFERENT FROM THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K6 FOR A COMPLETE LIST.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: K1 – sheet 2

EFFECTIVITY: REV C (CPN 828-0161-002)

DESCRIPTION/REASON: Changed R39 from 33.2 to 30.1 k Ω to correct VOR detector level output.

REV IDENT and SHEET: K2 – sheets 2 and 3

EFFECTIVITY: REV D (CPN 828-0161-002 MOD 1)

SERVICE BULLETIN: 33

DESCRIPTION/REASON: Changed capacitors C78, C79, C80, and C81 from 0.0012 μ F to 560 pF; C85 from 0.001 μ F to 430 pF; and inductors L11, L12, L13, and L14 from 820 to 390 μ H. Replaced card A16 CPN 601-4316-001 with new card A16 CPN 828-0247-001 and included maintenance aid and schematic diagrams.

These changes increase the A16 output reference frequency from 168.5 to 339.68 kHz and increases the unit's signal capture range from ± 7.5 kHz to ± 12.5 kHz.

REV IDENT and SHEET: K3 – All models

EFFECTIVITY: REV E (CPN 828-0161-002)

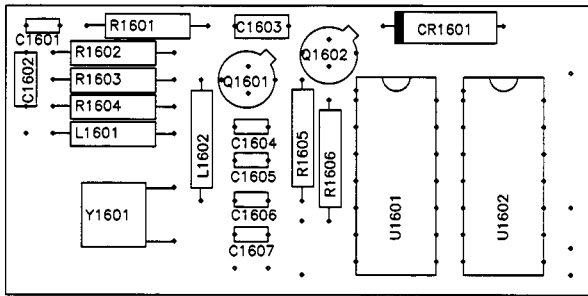
DESCRIPTION/REASON: Changed card A16 from CPN 828-0247-001 to CPN 828-0247-002 to correct documentation.

REV IDENT and SHEET: K4 – sheet 2

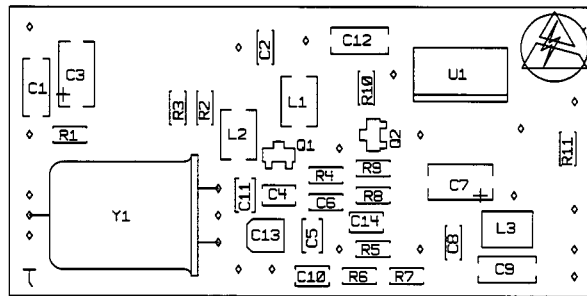
EFFECTIVITY: REV F (CPN 828-0161-002)

DESCRIPTION/REASON: Changed R35 from 7.5 to 6.49 k Ω and R39 from 30.1 to 26.1 k Ω to optimize detector output and deviation adjustment range.

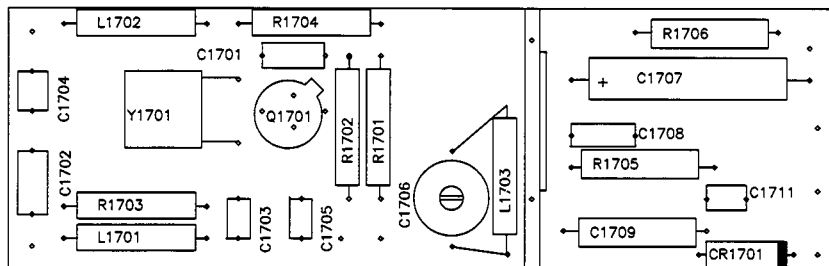
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



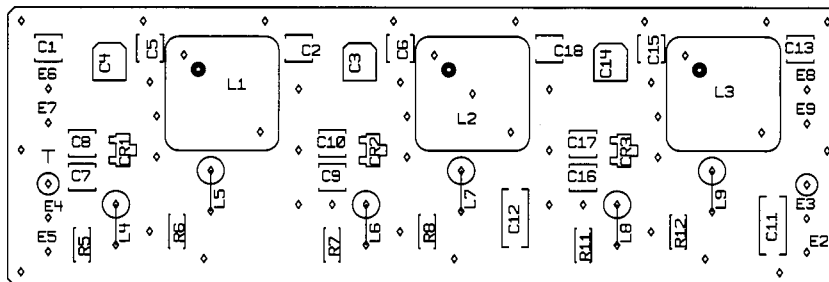
A16 (CPN 601-4316-001N)



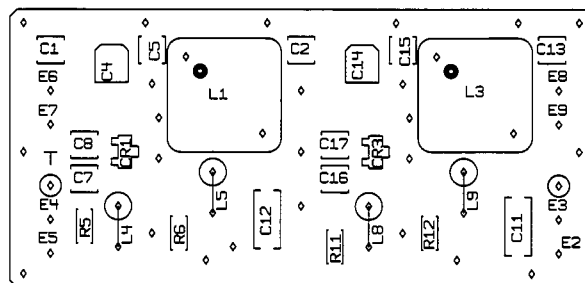
A16 (CPN 828-0247-002-)



A17 (CPN 601-4317-003-)



A23 (CPN 828-2710-001B)



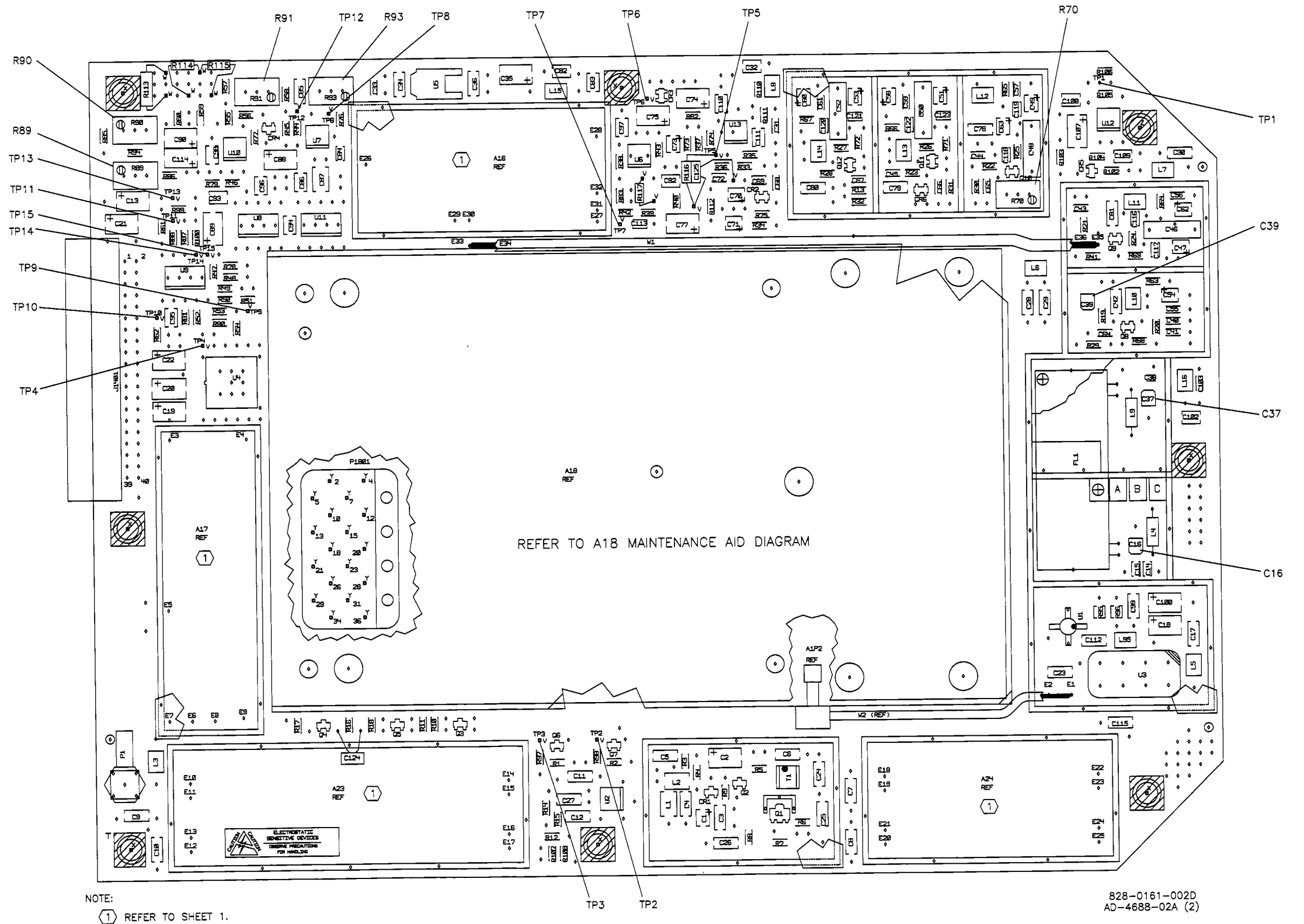
A24 (CPN 828-2709-001C)

AD-4688-02A (1)

VOR/LOC Receiver A1 (CPN 828-0161-002), Maintenance Aid Diagram
 Figure 109 (Sheet 1 of 2)

34-35-10

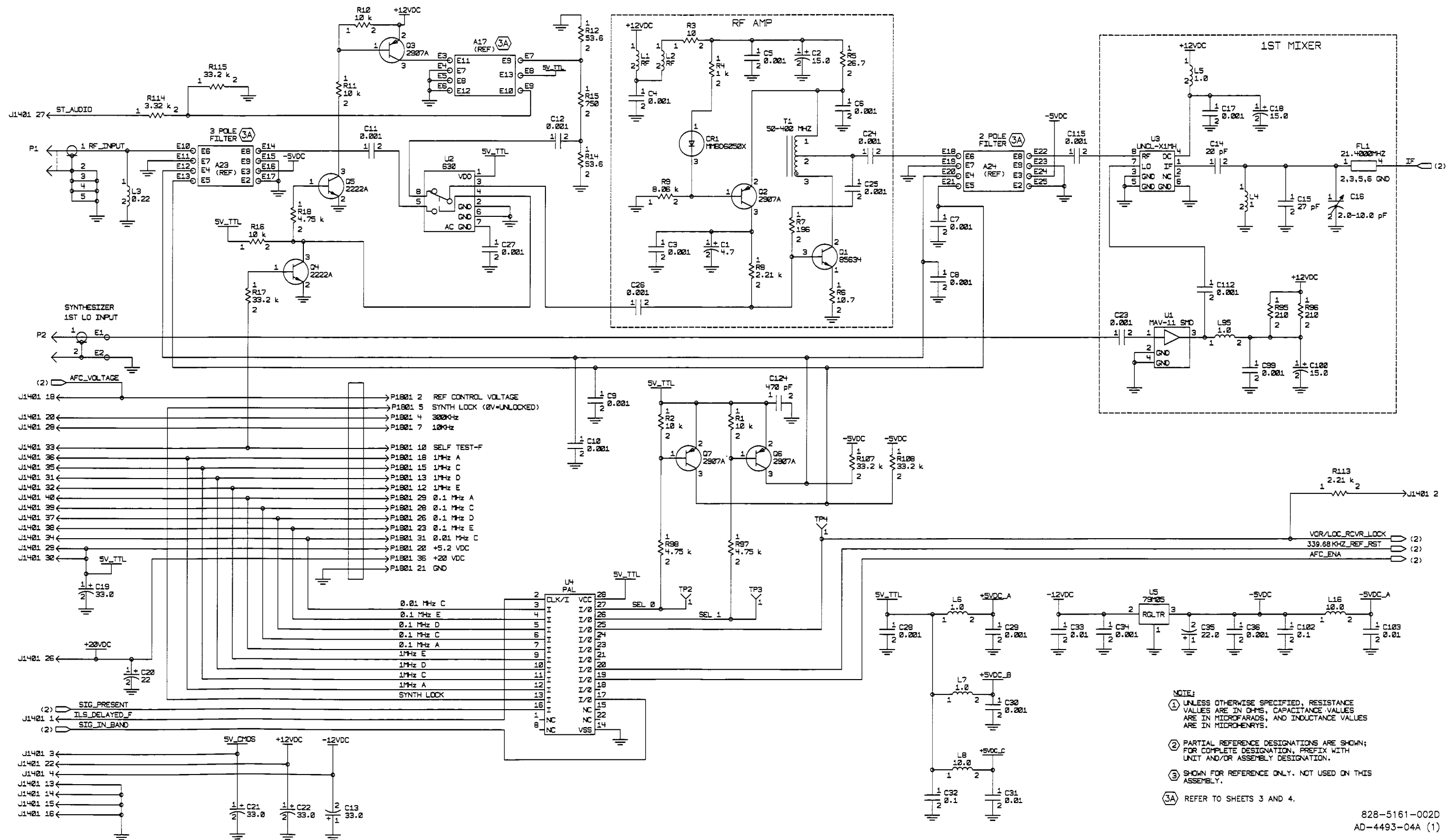
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



VOR/LOC Receiver A1 (CPN 828-0161-002), Maintenance Aid Diagram
 Figure 109 (Sheet 2)

34-35-10

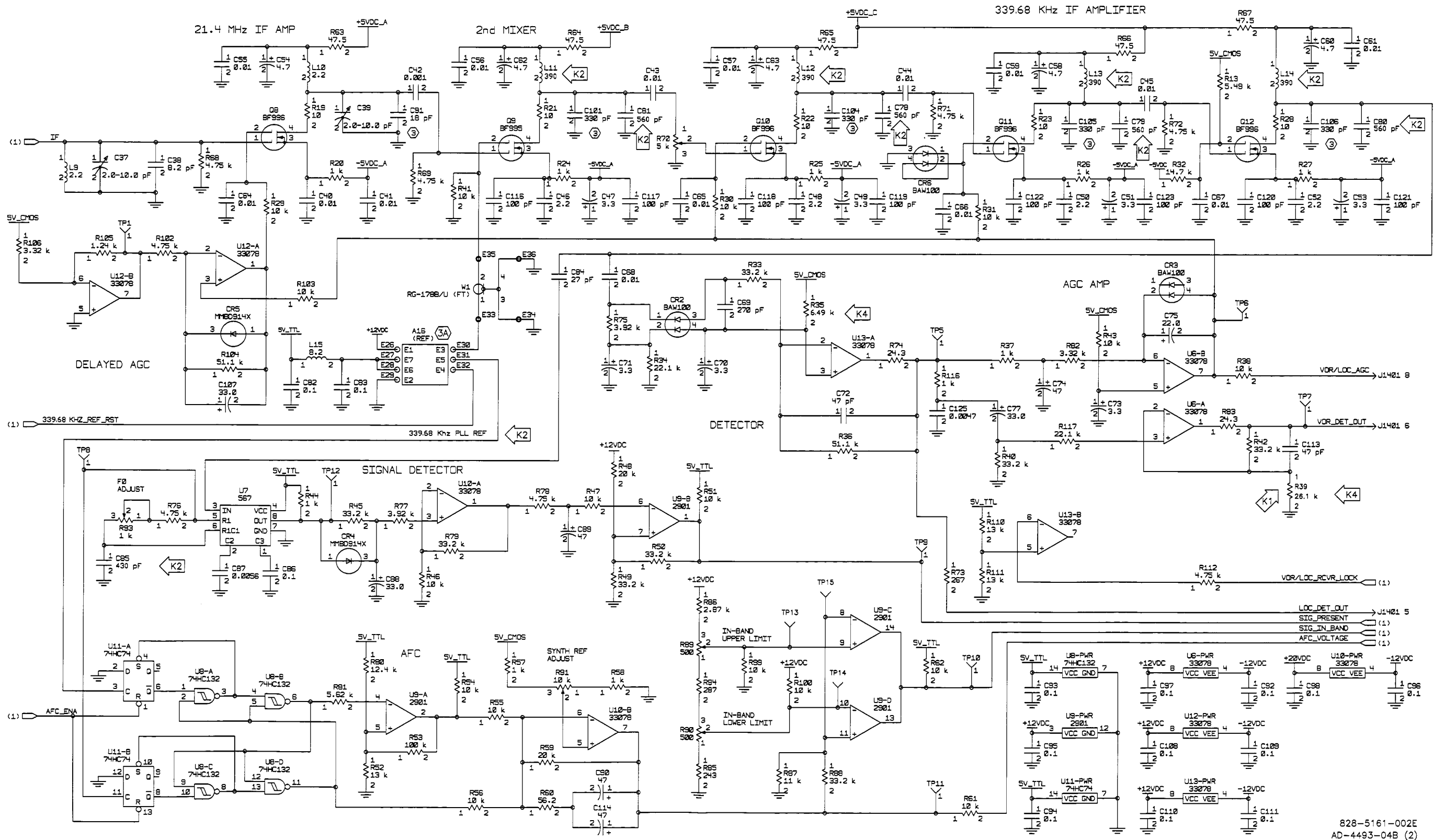
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



VOR/LOC Receiver A1 (CPN 828-0161-002), Schematic Diagram
 Figure 110 (Sheet 1 of 4)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

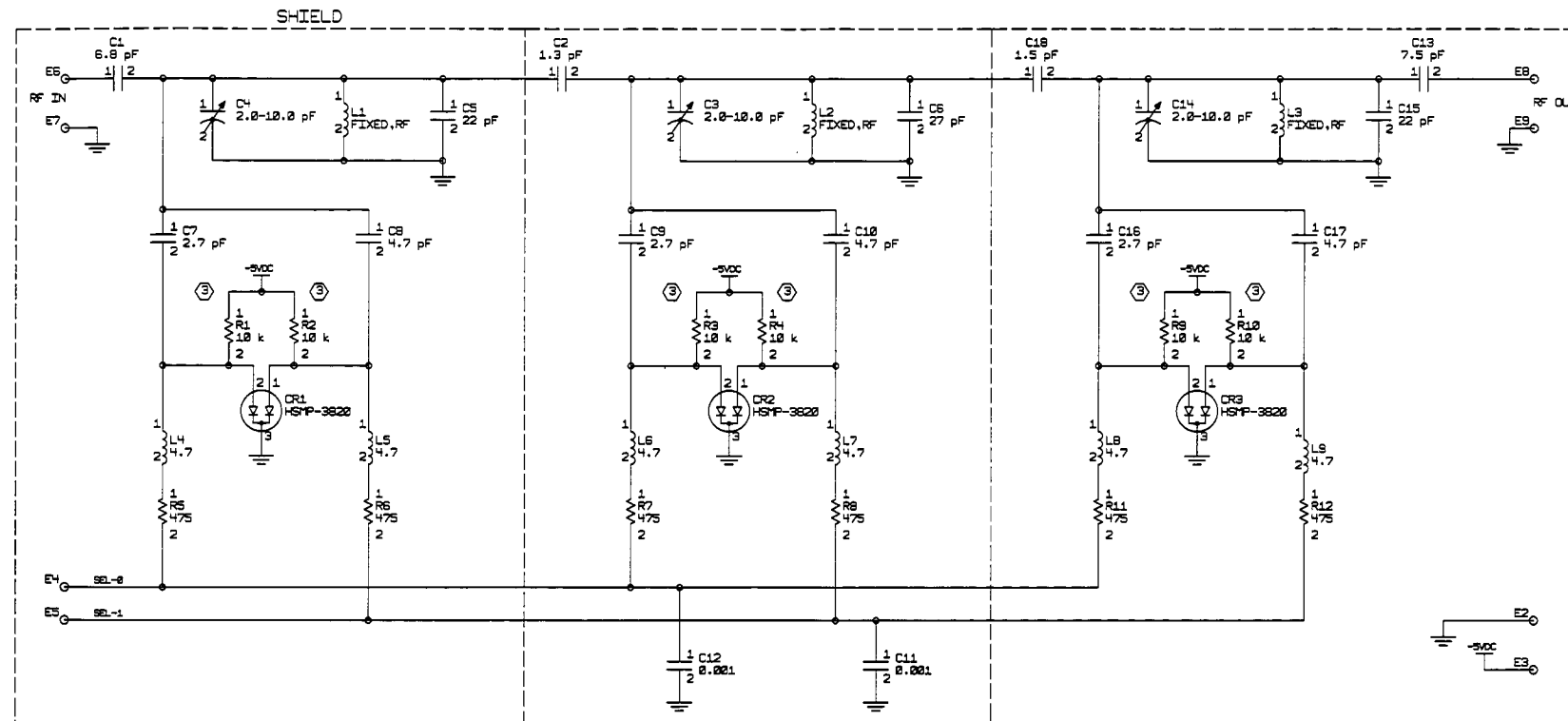


828-5161-002E
 AD-4493-04B (2)

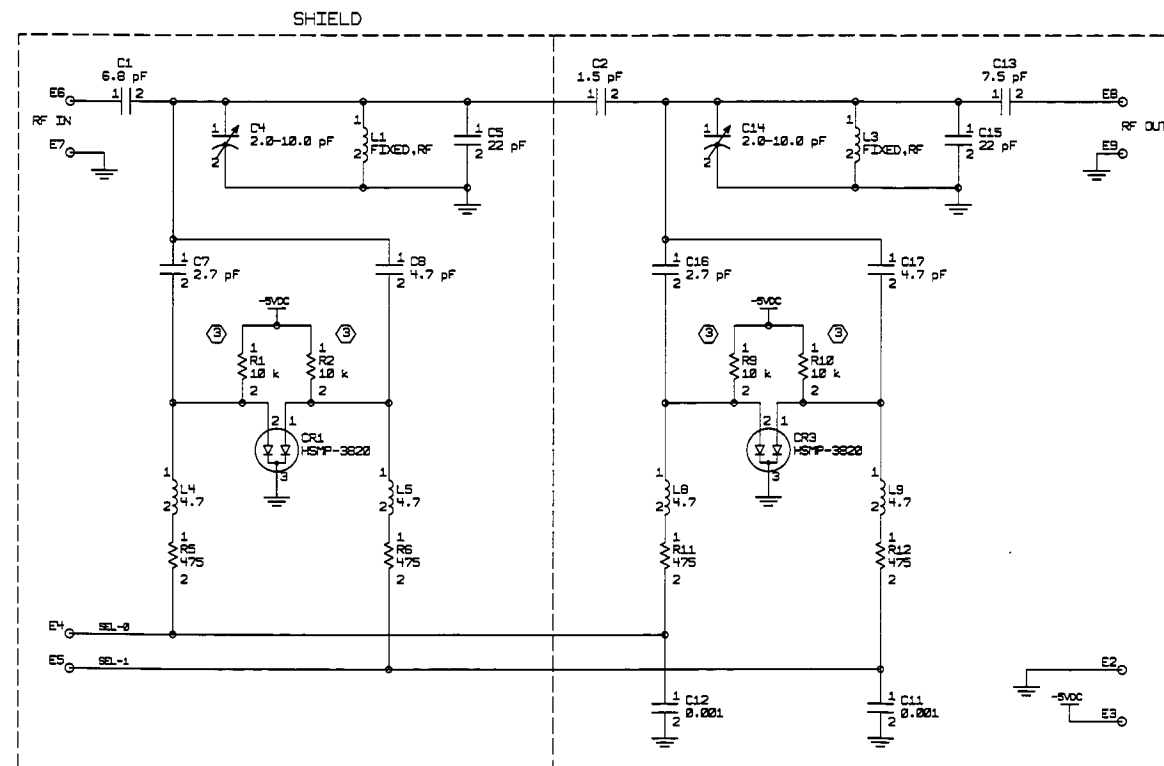
VOR/LOC Receiver A1 (CPN 828-0161-002), Schematic Diagram
 Figure 110 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

- NOTE:
- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - ③ REFERENCE ONLY.



A23 SCHEMATIC



A24 SCHEMATIC

828-8078-001B
 828-8077-001C
 AD-4493-04A (4)

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL, VOLUME 2 (523-0777753)

TEMPORARY REVISION NO. 34-35-10-09

Insert following pages 145/146, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

Add the content of pages 2 through 8 of this temporary revision immediately following pages 145/146.

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

REV IDENT and SHEET:

EFFECTIVITY:

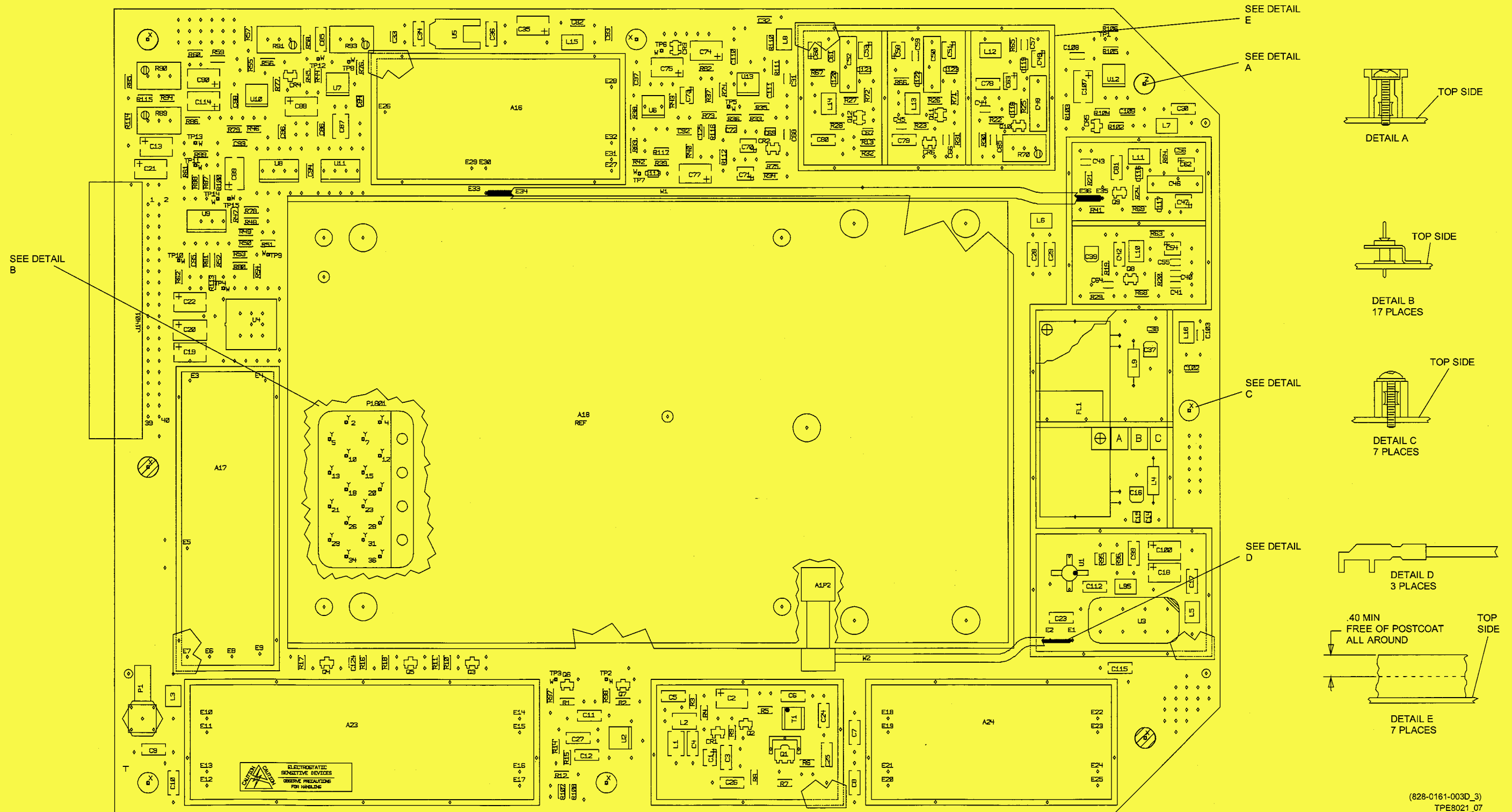
SERVICE BULLETIN:

DESCRIPTION/REASON:

(Schematic changes will be shown in this figure.)

VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Changes
Figure 110A

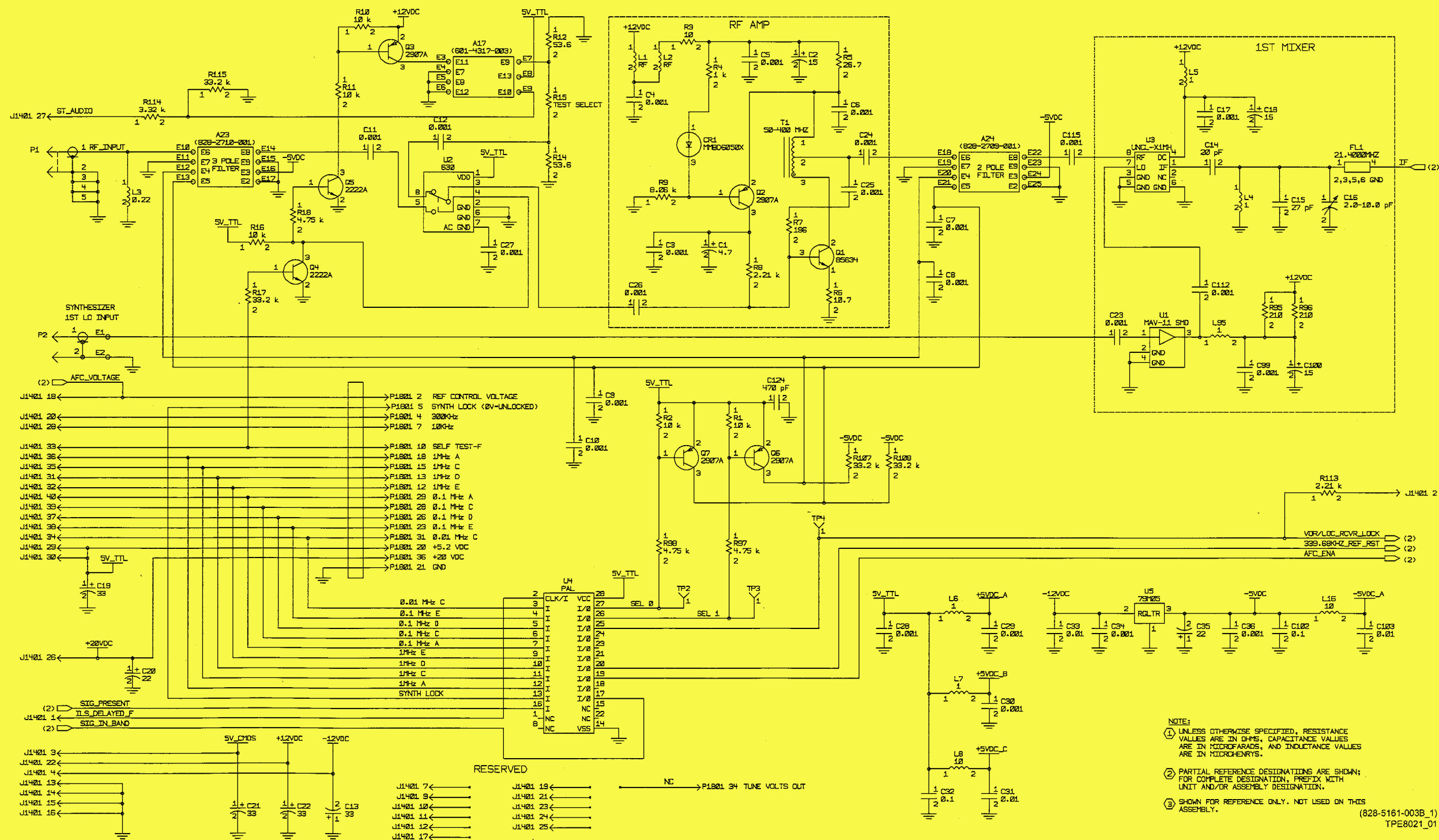
ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



VOR/LOC Receiver A1 (CPN 828-0161-003), Maintenance Aid Diagram
 Figure 110B (Sheet 2)

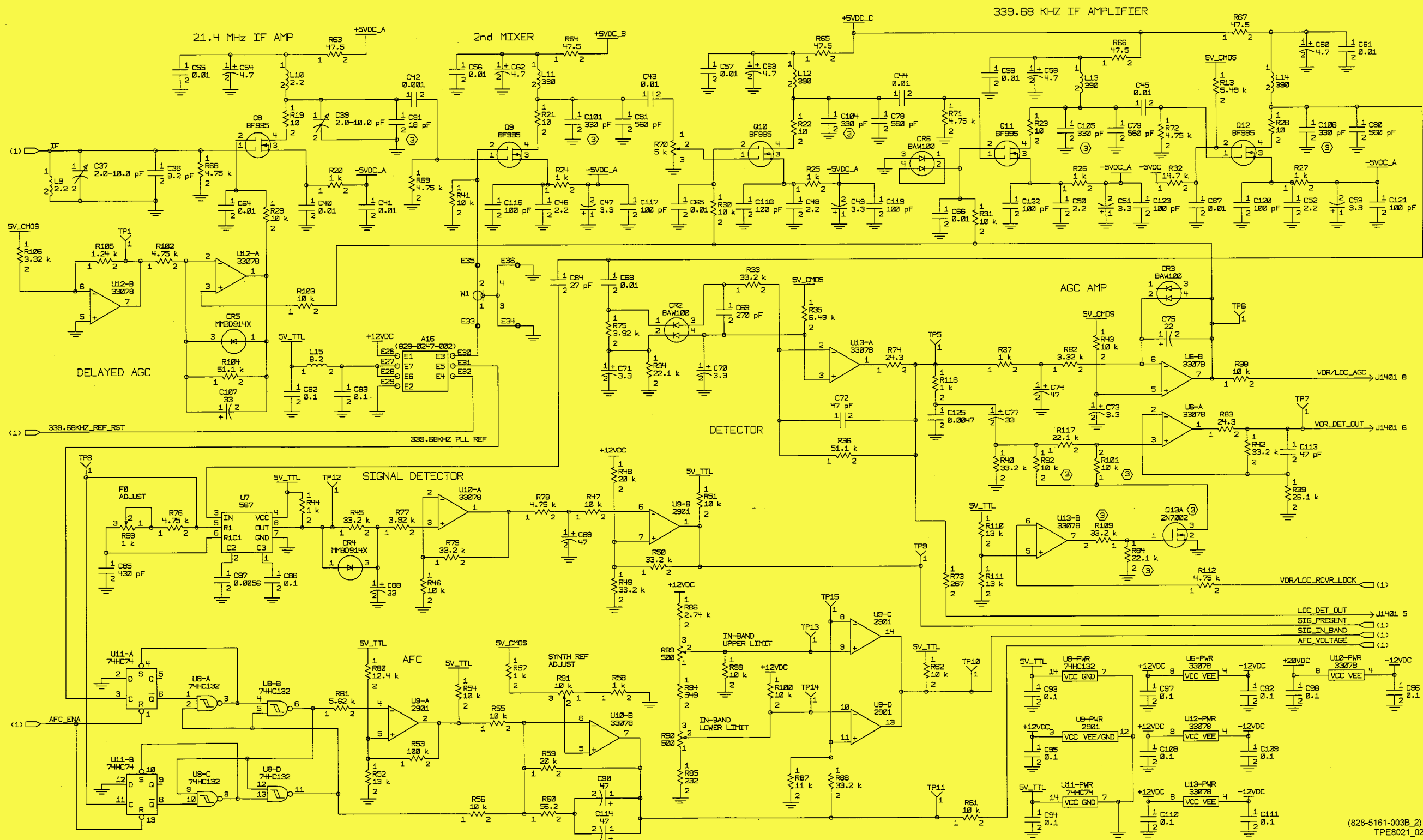
(828-0161-003D_3)
 TPE8021_07

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**



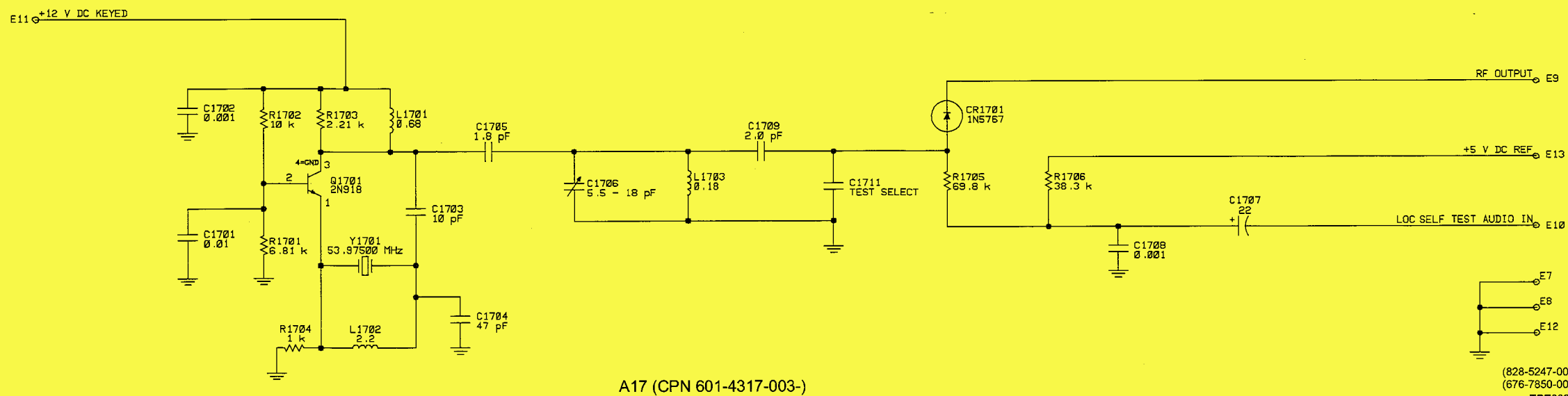
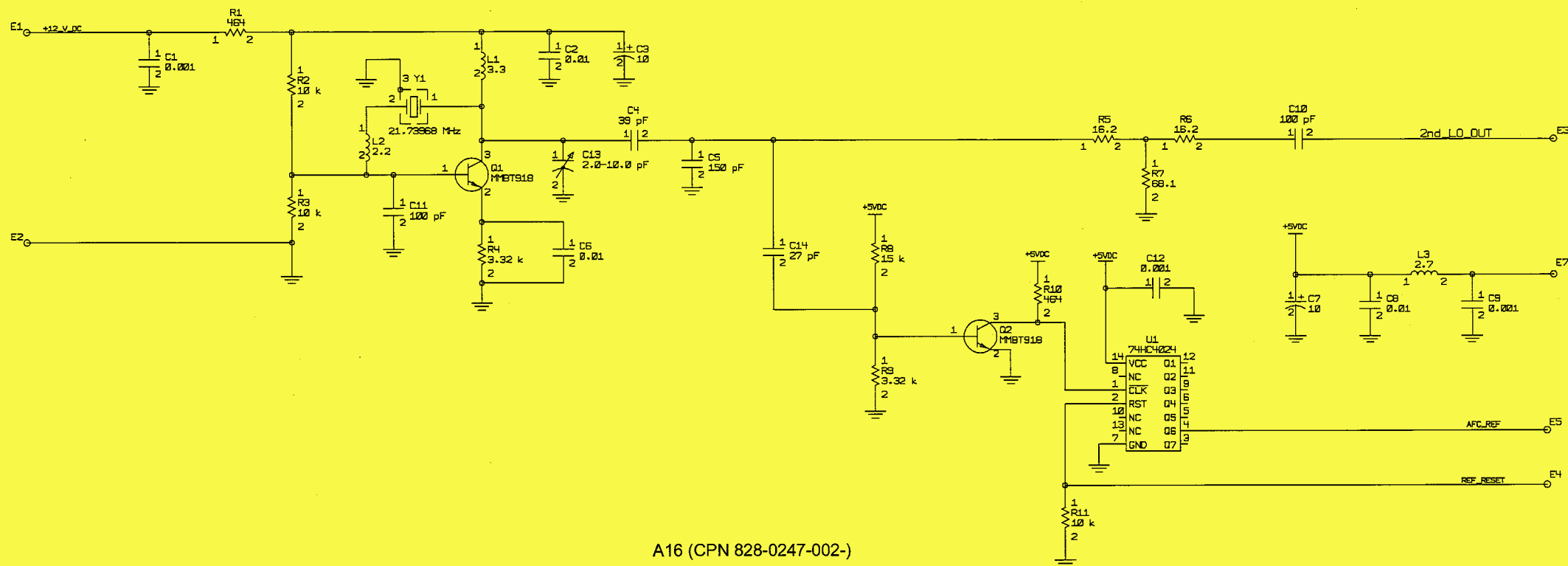
VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Diagram
Figure 110C (Sheet 1 of 5)

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



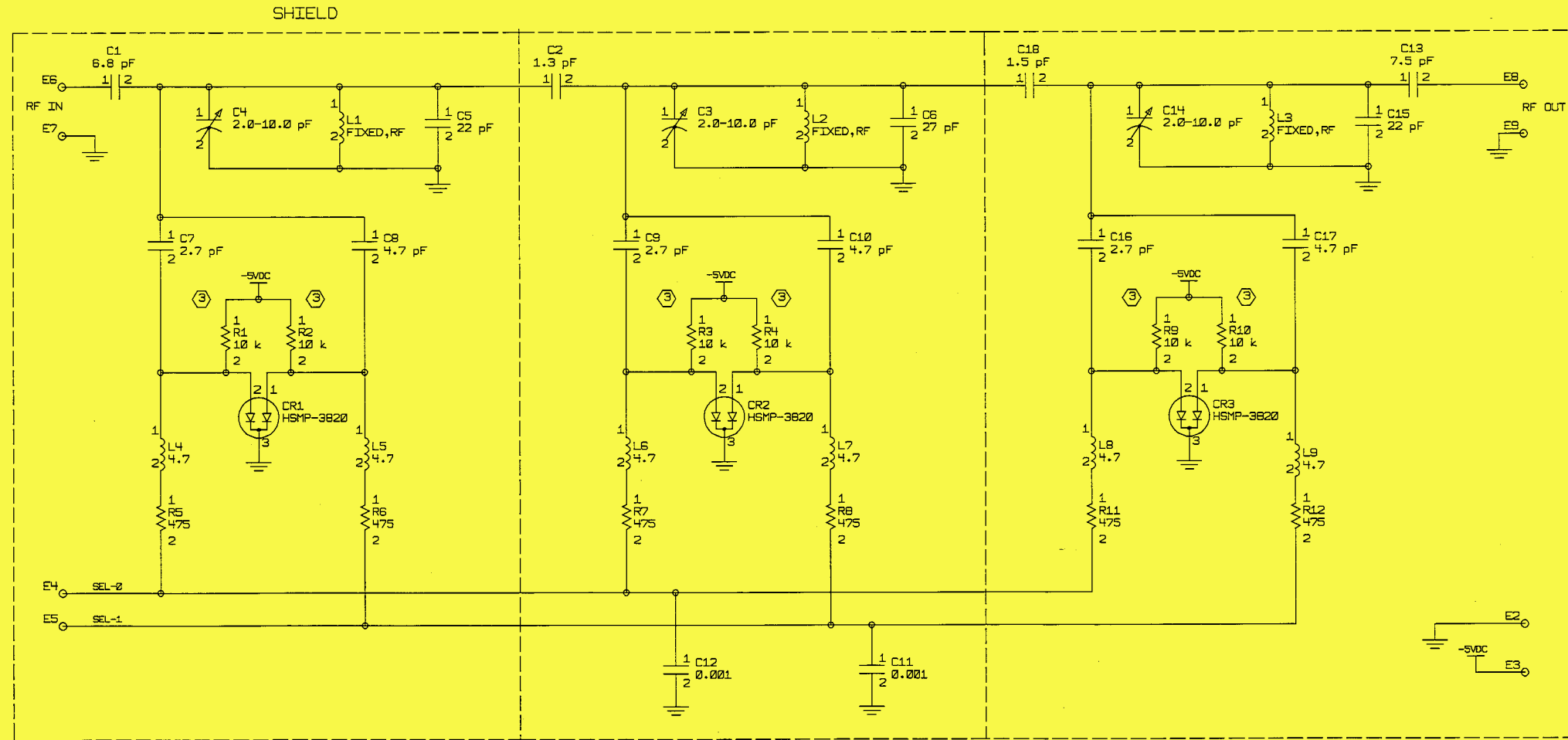
VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Diagram
 Figure 110C (Sheet 2)

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Diagram
 Figure 110C (Sheet 3)

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

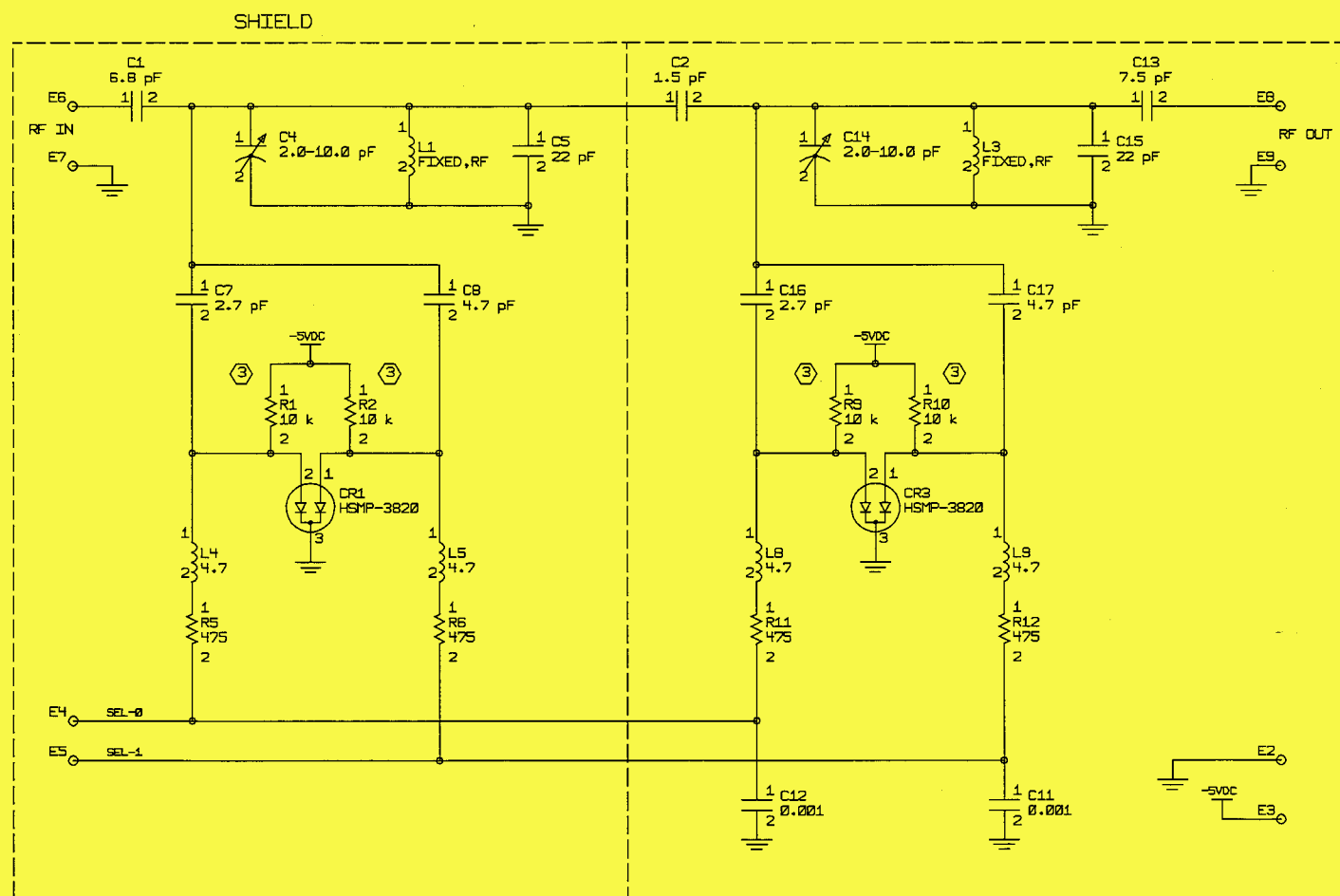


A23 (CPN 828-2710-001D)

(828-8078-001B_1)
 TPE8021-04

VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Diagram
 Figure 110C (Sheet 4)

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



A24 (CPN 828-2709-001F)

(828-8077-001C_1)
 TPE8021_05

VOR/LOC Receiver A1 (CPN 828-0161-003), Schematic Diagram
 Figure 110C (Sheet 5)

REV IDENT and SHEET: C1 - NA
EFFECTIVITY: Rev M
SERVICE BULLETIN: None
DESCRIPTION/REASON: The type of diodes CR202, CR203 is changed from 1N4454 to 1N5711. The value of resistor R207 is changed from 3830 to 3480 Ω . Changes made to improve the envelope detector.

REV IDENT and SHEET: C2 - NA
EFFECTIVITY: All models
SERVICE BULLETIN: None
DESCRIPTION/REASON: The signal name at pin P1405-23 is changed from GS RCVR to GS SYNT LOCK. Change made to correct an error in the schematic.

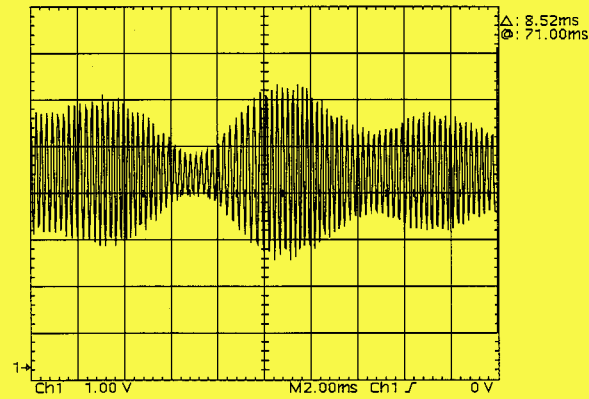
REV IDENT and SHEET: C3 - NA
EFFECTIVITY: Rev F (601-4521-001)
SERVICE BULLETIN: SB 8
DESCRIPTION/REASON: The value of capacitor C2107 is changed from 56 to 22 μ F. Change made to improve the modulation of the self-test signal.

REV IDENT and SHEET: D1 - NA
EFFECTIVITY: REV H (601-4521-001)
SERVICE BULLETIN: None
DESCRIPTION/REASON: The value of variable capacitor C2106 is changed from 9-35 to 5.5-18 μ F. Change made for circuit improvement and ease of testing.

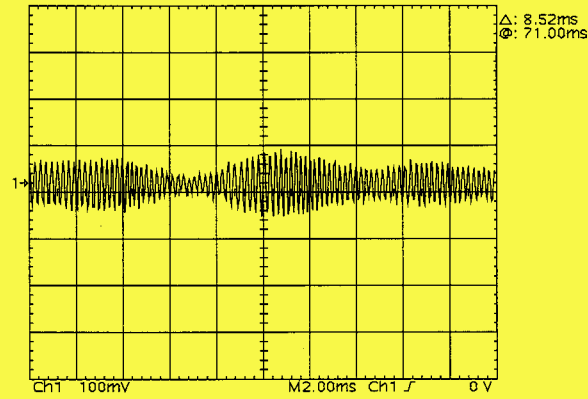
REV IDENT and SHEET: D2 - NA
EFFECTIVITY: REV AD
SERVICE BULLETIN: None
DESCRIPTION/REASON: The value of resistor R218 is changed from 270 to 274 Ω ; added diode CR205. Changes made to improve the response time of the AGC amplifier/filter.

Glide Slope Receiver A2 (CPN 601-4302-001 to REV AD), Schematic Changes
Figure 110D

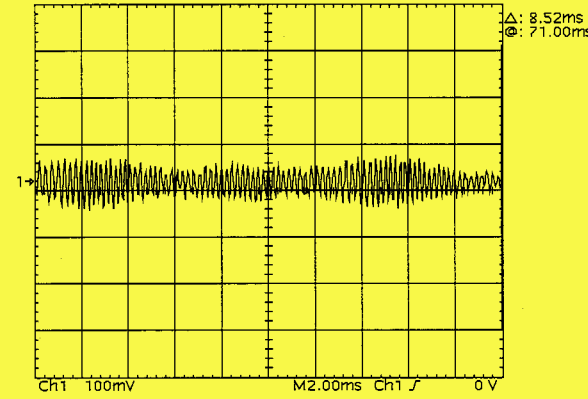
ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



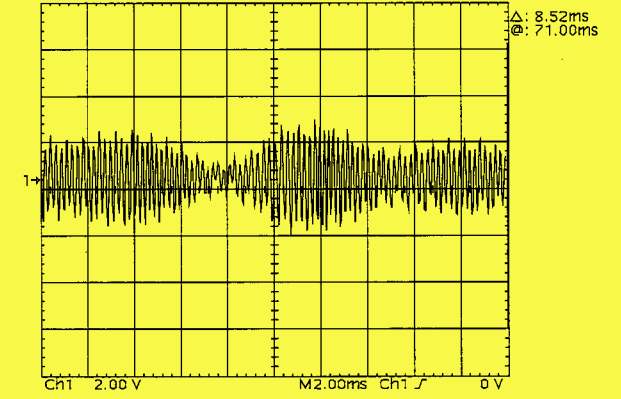
A2CR202 CATHODE



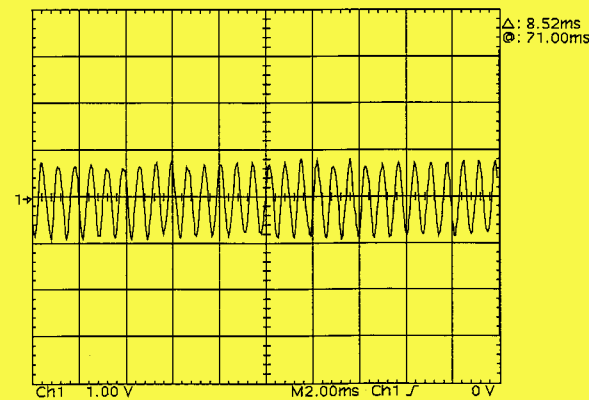
A2Q201-G1



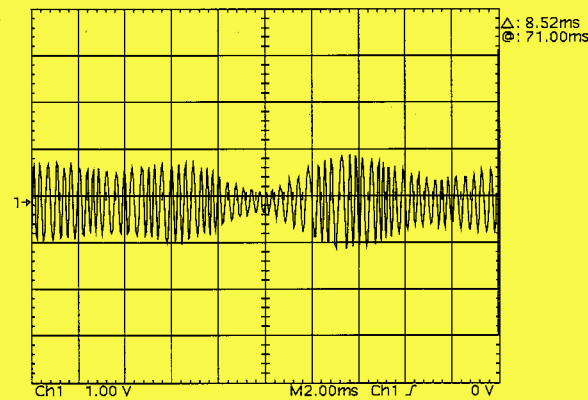
A2Q202-G1



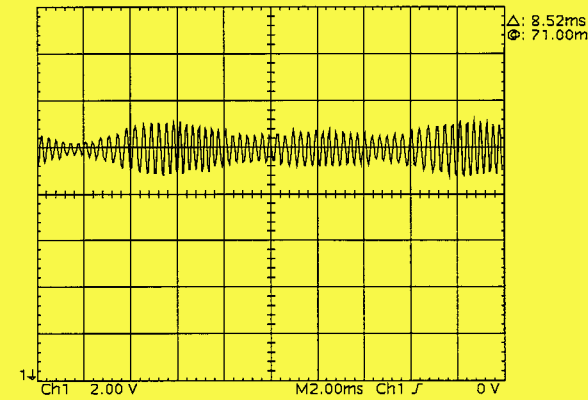
A2Q203-G1



A2Q204-G2



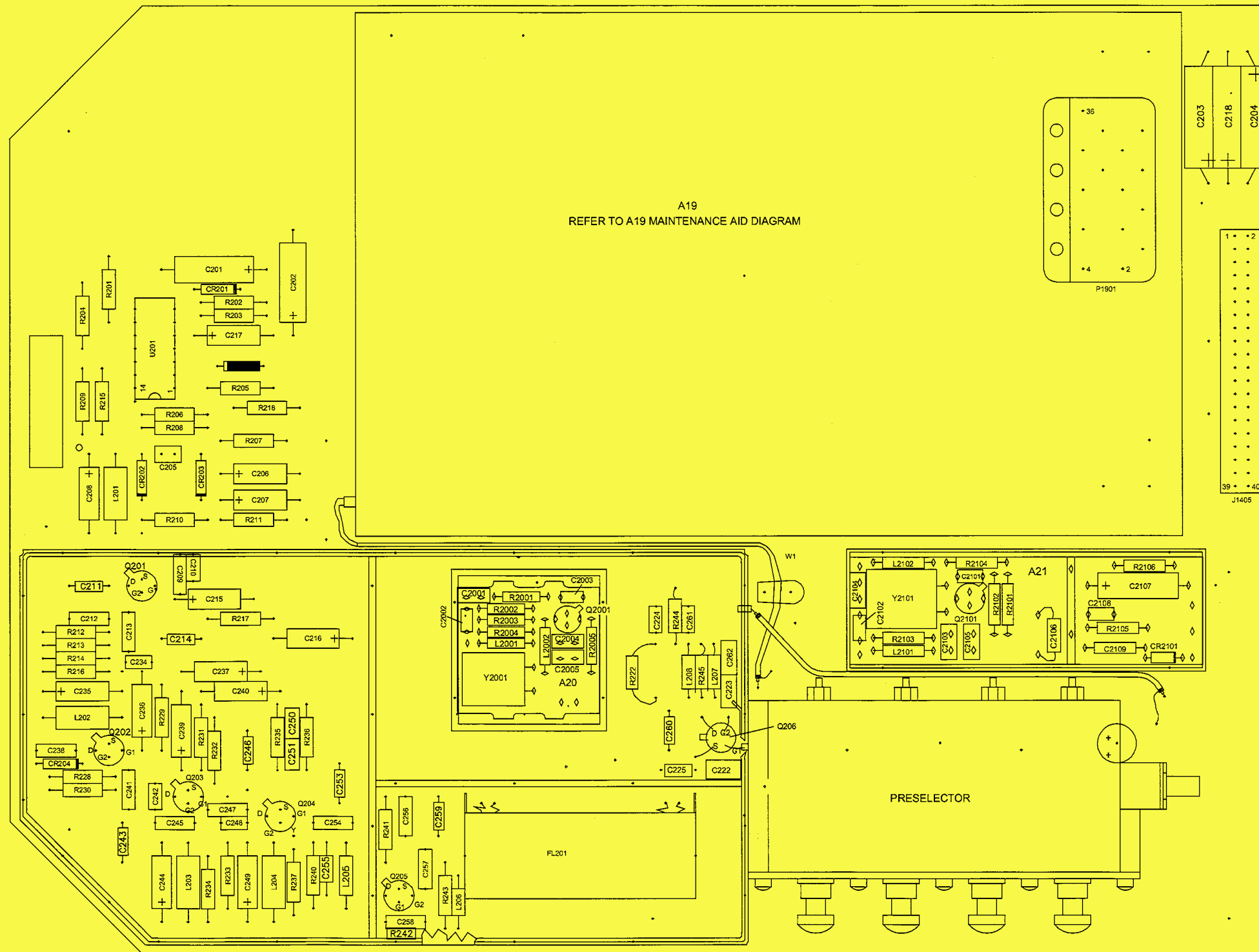
A2Q205-G1



A2Q206-G2

AE103601-

Glide Slope Receiver A2 (CPN 601-4302-001 to REV AD), Maintenance Aid Diagram
 Figure 110E (Sheet 1 of 2)



TEST POINT	NO SIGNAL	WITH SIGNAL
Q201-S	+0.26 V DC	+0.26 V DC
Q202-S	+0.006 V DC	-0.43 V DC
Q203-S	+0.007 V DC	-1.67 V DC
Q204-S	-0.12 V DC	-0.10 V DC
Q205-S	-0.04 V DC	-1.67 V DC
Q206-S	-0.5 V DC	-0.5 V DC
U201A-1	+5.0 V DC	
U201A-2	+4.41 V DC	
U201A-3	+4.41 V DC	

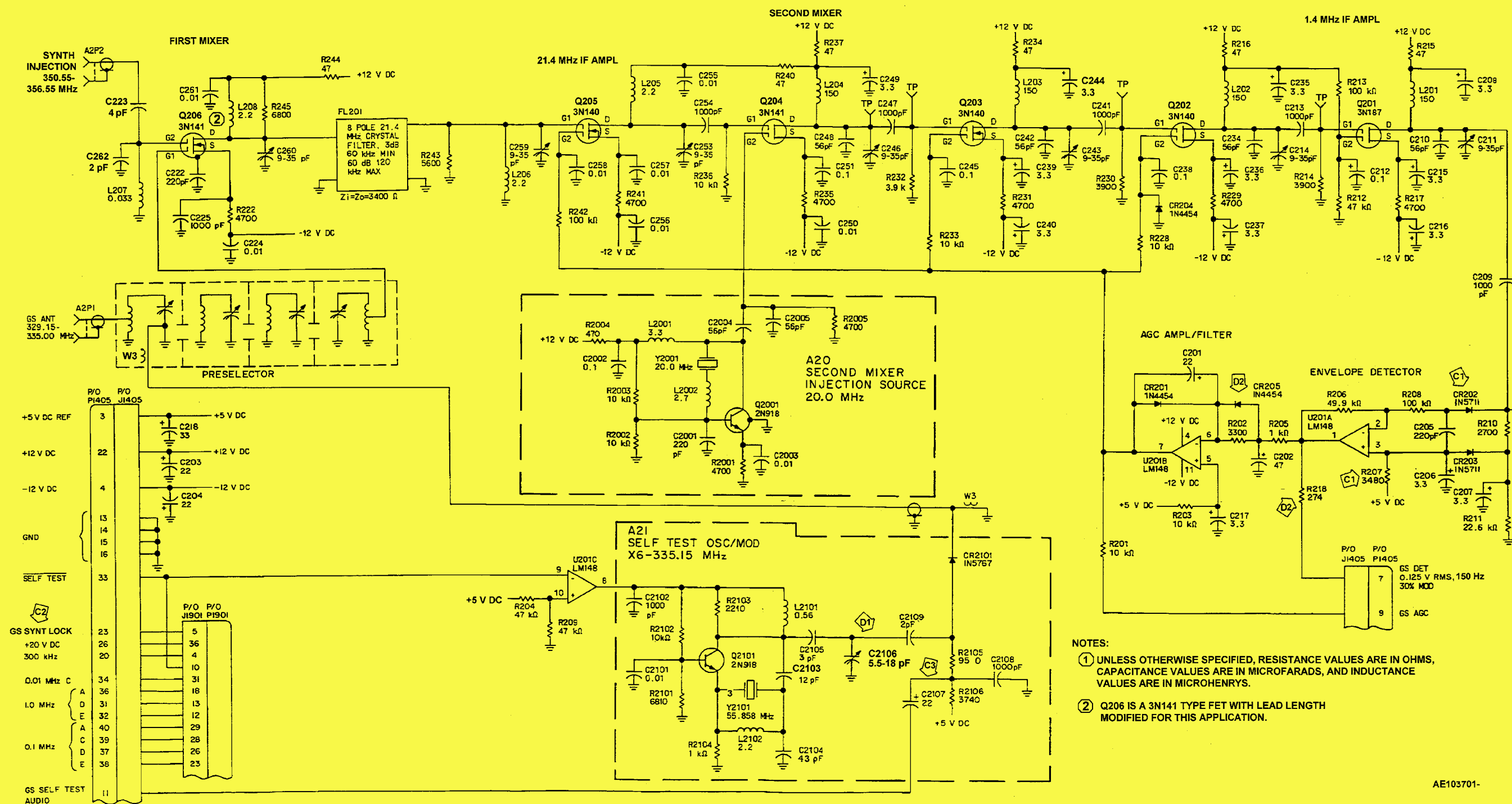
U201-7

DBM	μ V	AGC-V DC
-17	30,000	-5.2
-37	3,000	-2.3
-47	1,000	-1.5
-67	100	-0.5
-87	10	-0.03
-97	3	+0.14

REFERENCE
 601-4520-001D
 601-4521-001K
 601-4302-001AC
 AE103602-

Glide Slope Receiver A2 (CPN 601-4302-001 to REV AD), Maintenance Aid Diagram
 Figure 110E (Sheet 2)

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



- NOTES:
- UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - Q206 IS A 3N141 TYPE FET WITH LEAD LENGTH MODIFIED FOR THIS APPLICATION.

AE103701-

Glide Slope Receiver A2 (CPN 601-4302-001 to REV AD), Schematic Diagram
 Figure 110F

TEMPORARY REVISION NO. 34-35-10-09

Insert facing page 147, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

■ Insert pages 9 through 12 of this temporary revision before figure 111.

Delete all data above **REV IDENT AND SHEET F1 -NA**

Change the figure title to read as shown below:

Glide Slope Receiver A2 (CPN 601-4302-001), REV AE and after), Schematic Changes

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – NA
EFFECTIVITY: REV M
DESCRIPTION/REASON: Changed CR202, CR203 (1N4454) to 1N5711. Changed R207 from 3830 to 3480 Ω . Improves envelope detector.

REV IDENT and SHEET: C2 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Changed P1405-23 (GS RCVR MON) to GS SYNT LOCK. Corrects error in schematic.

REV IDENT and SHEET: C3 – NA
EFFECTIVITY: REV F (601-4521-001)
SERVICE BULLETIN: SB 8
DESCRIPTION/REASON: Changed C2107 (56 μ F) to 22 μ F. Improves modulation of self-test signal.

REV IDENT and SHEET: D1 – NA
EFFECTIVITY: REV H (601-4521-001)
DESCRIPTION/REASON: Changed C2106 (9-35 pF) to 5.5-18 pF for circuit improvement and ease of testing.

REV IDENT and SHEET: F1 – NA
EFFECTIVITY: REV AE (601-4302-001)
DESCRIPTION/REASON: Changed C223 (4 pF) to 3.9 pF to improve reliability.

REV IDENT and SHEET: F2 – NA
EFFECTIVITY: REV AE (601-4302-001)
DESCRIPTION/REASON: Changed C262 (2 pF) to 1.8 pF to improve reliability

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: F3 – NA
EFFECTIVITY: REV K (601-4521-001)
DESCRIPTION/REASON: Changed C2103 (12 pF) to 10 pF to improve reliability.

REV IDENT and SHEET: F4 – NA
EFFECTIVITY: REV K (601-4521-001)
DESCRIPTION/REASON: Changed C2104 (43 pF) to 47 pF to improve reliability.

REV IDENT and SHEET: F5 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Added connections from: J1901-2 to P1405-1, J1901-1 to ground, and J1901-20 to P1405-29, -30 to correct omission.

REV IDENT and SHEET: G1 – NA
EFFECTIVITY: REV M (601-4521-001)
DESCRIPTION/REASON: Changed C2103 (10 pF) to 12 pF on card A21.

REV IDENT and SHEET: G2 – NA
EFFECTIVITY: REV N (601-4521-001)
DESCRIPTION/REASON: Changed C2103 (12 pF) to test select on card A21.

REV IDENT and SHEET: J1 – NA
EFFECTIVITY: REV P (601-4521-001)
DESCRIPTION/REASON: Added L2103 (0.033 μ F) for improved adjustment range of self-test RF level.

REV IDENT and SHEET: J2 – NA
EFFECTIVITY: REV R (601-4521-001)

Glide Slope Receiver A2 (CPN 601-4302-001), Schematic Changes
Figure 111 (Sheet B)

34-35-10

Page 148
Jul 15/95

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL, VOLUME 2 (523-0777753)

TEMPORARY REVISION NO. 34-35-10-09

Insert facing page 148, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

Change the figure title to read as shown below:

Glide Slope Receiver A2 (CPN 601-4302-001), REV AE and after), Schematic Changes

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL, VOLUME 2 (523-0777753)

TEMPORARY REVISION NO. 34-35-10-09

Insert facing pages 149/150, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

Change the figure title to read as shown below:

Glide Slope Receiver A2 (CPN 601-4302-001), REV AE and after), Schematic Changes

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Added C2110 (12 pF) for improved adjustment range of self-test RF level.

REV IDENT and SHEET: J3 – NA

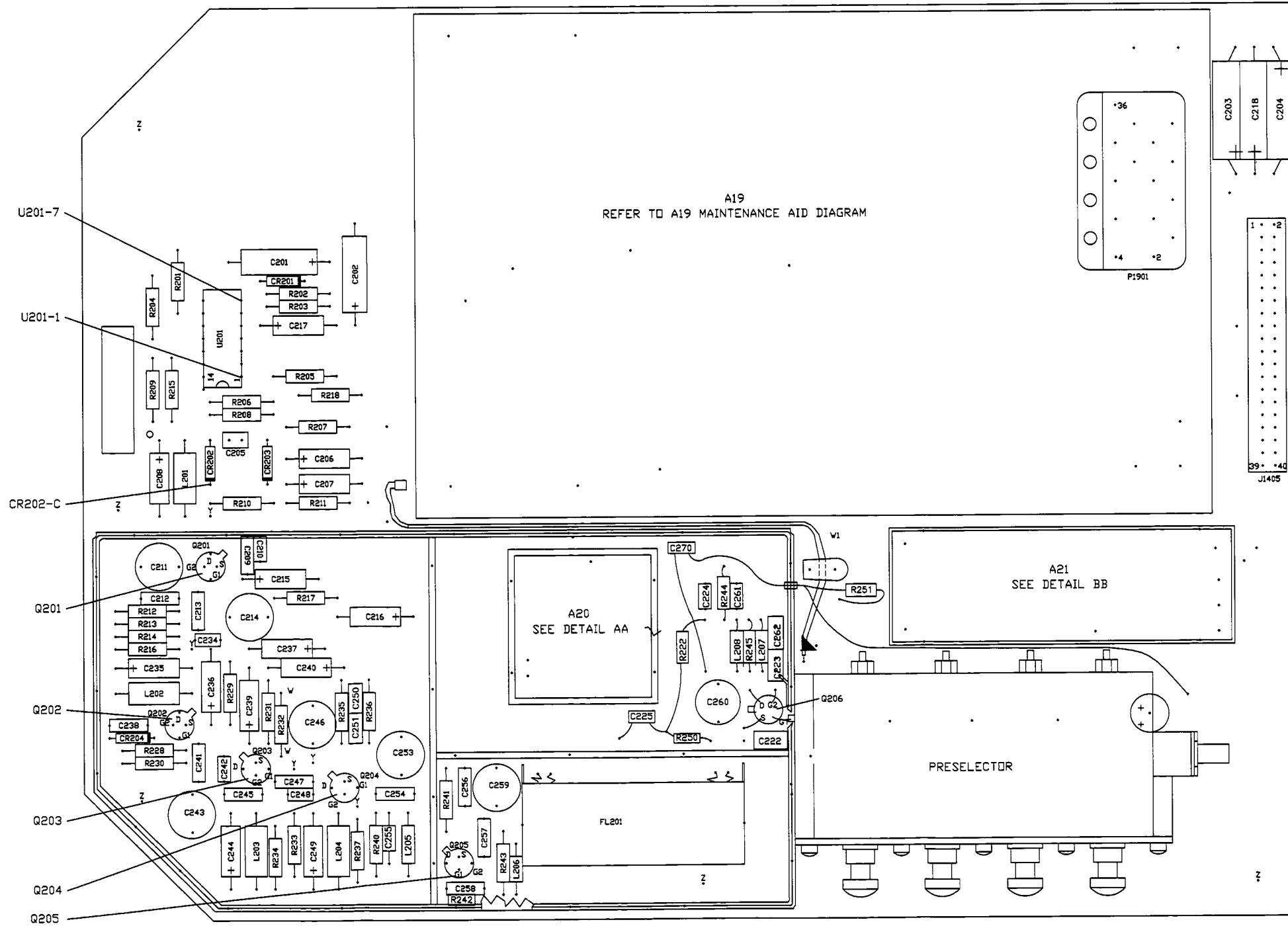
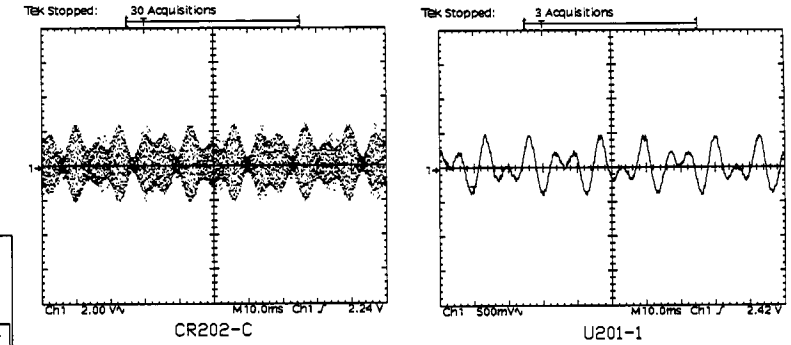
EFFECTIVITY: REV T (601-4521-001)

DESCRIPTION/REASON: Deleted C2110 to compensate for low output of self-test RF level.

REV IDENT and SHEET: J4 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Added various test points, note 3, capacitor references of J1901, and revised the labeling of P1405-7 to correct schematic errors.

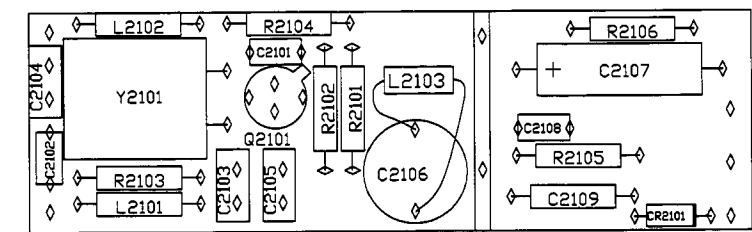
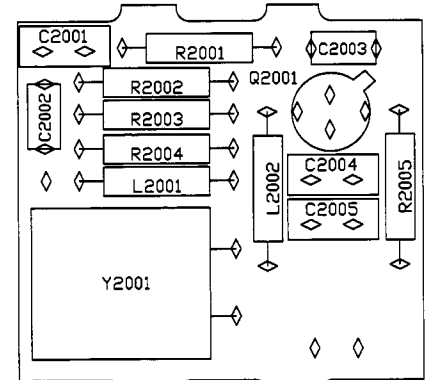


DBM	μ V	AGC-V DC
-17	30,000	-5.2
-37	3,000	-2.3
-47	1,000	-1.5
-67	100	-0.5
-87	10	-0.03
-97	3	+0.14

TEST POINT IS U201-7

TEST POINT	NO SIGNAL	WITH SIGNAL
Q201-S	+0.26 V DC	+0.26 V DC
Q202-S	+0.006 V DC	-0.43 V DC
Q203-S	+0.007 V DC	-1.67 V DC
Q204-S	-0.12 V DC	-0.10 V DC
Q205-S	-0.04 V DC	-1.67 V DC
Q206-S	-0.5 V DC	-0.5 V DC
U201A-1	+5.0 V DC	
U201A-2	+4.41 V DC	
U201A-3	+4.41 V DC	

NOTE: Q201-Q206 SOURCE IS THE CASE



601-4520-001E
 601-4521-001U
 601-4302-001AE
 AD-4766-01-

Glide Slope Receiver A2 (CPN 601-4302-001), Maintenance Aid Diagram
 Figure 112

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL, VOLUME 2 (523-0777753)

TEMPORARY REVISION NO. 34-35-10-09

Insert facing page 152, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

Change the figure title to read as shown below:

Glide Slope Receiver A2 (CPN 601-4302-001), REV AE and after), Maintenance Aid Diagram

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL, VOLUME 2 (523-0777753)

TEMPORARY REVISION NO. 34-35-10-09

Insert facing pages 153/154, 34-35-10

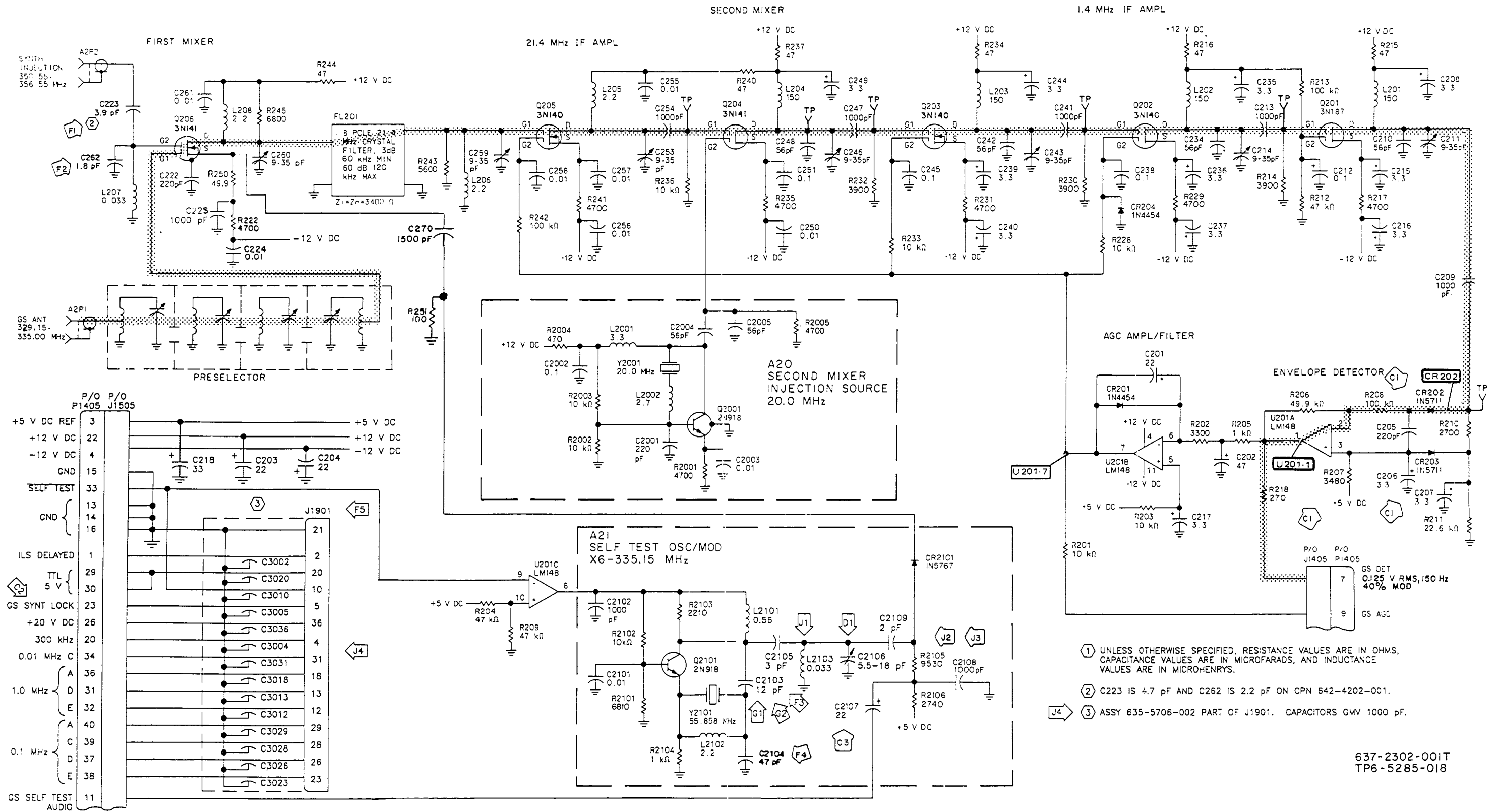
This temporary revision supersedes Temporary Revision 34-35-10-06

Subject: Addition of Assemblies

Change the figure title to read as shown below:

Glide Slope Receiver A2 (CPN 601-4302-001), REV AE and after), Schematic Diagram

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255



- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- ② C223 IS 4.7 pF AND C252 IS 2.2 pF ON CPN 642-4202-001.
- ③ ASSY 635-5706-002 PART OF J1901. CAPACITORS GWV 1000 pF.

637-2302-001T
 TP6-5285-018

Glide Slope Receiver A2 (CPN 601-4302-001), Schematic Diagram
 Figure 113

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: G1 – NA

EFFECTIVITY: REV M (601-4521-001)

DESCRIPTION/REASON: Changed C2103 (10 pF) to 12 pF on card A21.

REV IDENT and SHEET: G2 – NA

EFFECTIVITY: REV N (601-4521-001)

DESCRIPTION/REASON: Changed C2103 (12 pF) to test select on card A21.

REV IDENT and SHEET: J1 – NA

EFFECTIVITY: REV P (601-4521-001)

DESCRIPTION/REASON: Added L2103 (0.033 μ F) for improved adjustment range of self-test RF level.

REV IDENT and SHEET: J2 – NA

EFFECTIVITY: REV R (601-4521-001)

DESCRIPTION/REASON: Added C2110 (12 pF) for improved adjustment range of self-test RF level.

REV IDENT and SHEET: J3 – NA

EFFECTIVITY: REV T (601-4521-001)

DESCRIPTION/REASON: Deleted C2110 to compensate for low output of self-test RF level.

REV IDENT and SHEET: J4 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Added various test points, note 3, capacitor references of J1901, and revised the labeling of P1405-7 to correct schematic errors.

REV IDENT and SHEET: J5 – NA

EFFECTIVITY: REV F (642-4202-051)

Glide Slope Receiver A2 (CPN 642-4202-001), Schematic Changes
Figure 114 (Sheet A)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Replaced obsolete parts 3N140 (Q202, 203, and 205) and 3N141 (Q204 and 206) with preferred part BFR84.

REV IDENT and SHEET: K1 – NA

EFFECTIVITY: REV G (642-4202-051)

DESCRIPTION/REASON: Added ferrite beads Z1 through Z8 to transistors Q201, 202, 203, and 205 to increase sensitivity and reduce oscillations.

REV IDENT and SHEET: K2 – NA

EFFECTIVITY: REV J (642-4202-051)

DESCRIPTION/REASON: Changed the value of C211, 214, 243, 246, 253, 259, and 260 from 9-35 to 7.5-50 pF. These components were changed to a semi-sealed component for improved reliability.

REV IDENT and SHEET: K3 – NA

EFFECTIVITY: REV K (642-4202-051)

DESCRIPTION/REASON: Changed the value of C223 from 4.7 to 3.9 pF and C262 from 2.2 to 1.8 pF for better signal-to-noise ratio.

REV IDENT and SHEET: K4 – NA

EFFECTIVITY: REV L (642-4202-051)

DESCRIPTION/REASON: Added ferrite bead Z9 to Q6 for improved signal-to-noise ratio.

REV IDENT and SHEET: K5 – NA

EFFECTIVITY: REV M (642-4202-051)

DESCRIPTION/REASON: Added the following components for better antenna isolation during self-test. These components and related circuitry are shown inside dashed line. The self-test output was previously connected to the first preselector, and Q206-S was connected to E23.

(Cont)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Cont)

R250	49.9 Ω
R251	Test select
R293	1.0 kΩ
R294	47 Ω
R295	2.2 kΩ
R296	680 Ω
Q207	2N2222
C270	1500 pF
C293	1000 pF
CR207	1N5767

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV M (642-4202-051)

DESCRIPTION/REASON: Added sheet 2 to the maintenance aid diagram to show changes of REV M and later to CPN 642-4202-051.

REV IDENT and SHEET: K6 – NA

EFFECTIVITY: REV F (CPN 601-4520-001)

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

RESISTOR	CARBON	METAL FILM
R2001	4700 Ω	4.64 kΩ
R2002	10 kΩ	10 kΩ
R2003	10 kΩ	10 kΩ
R2004	470 Ω	475 Ω
R2005	4700 Ω	4.64 kΩ

REV IDENT and SHEET: K7 – NA

EFFECTIVITY: REV N (642-4202-051)

DESCRIPTION/REASON: Changed Q206 from BFR84 to 68784 to improve test yield.

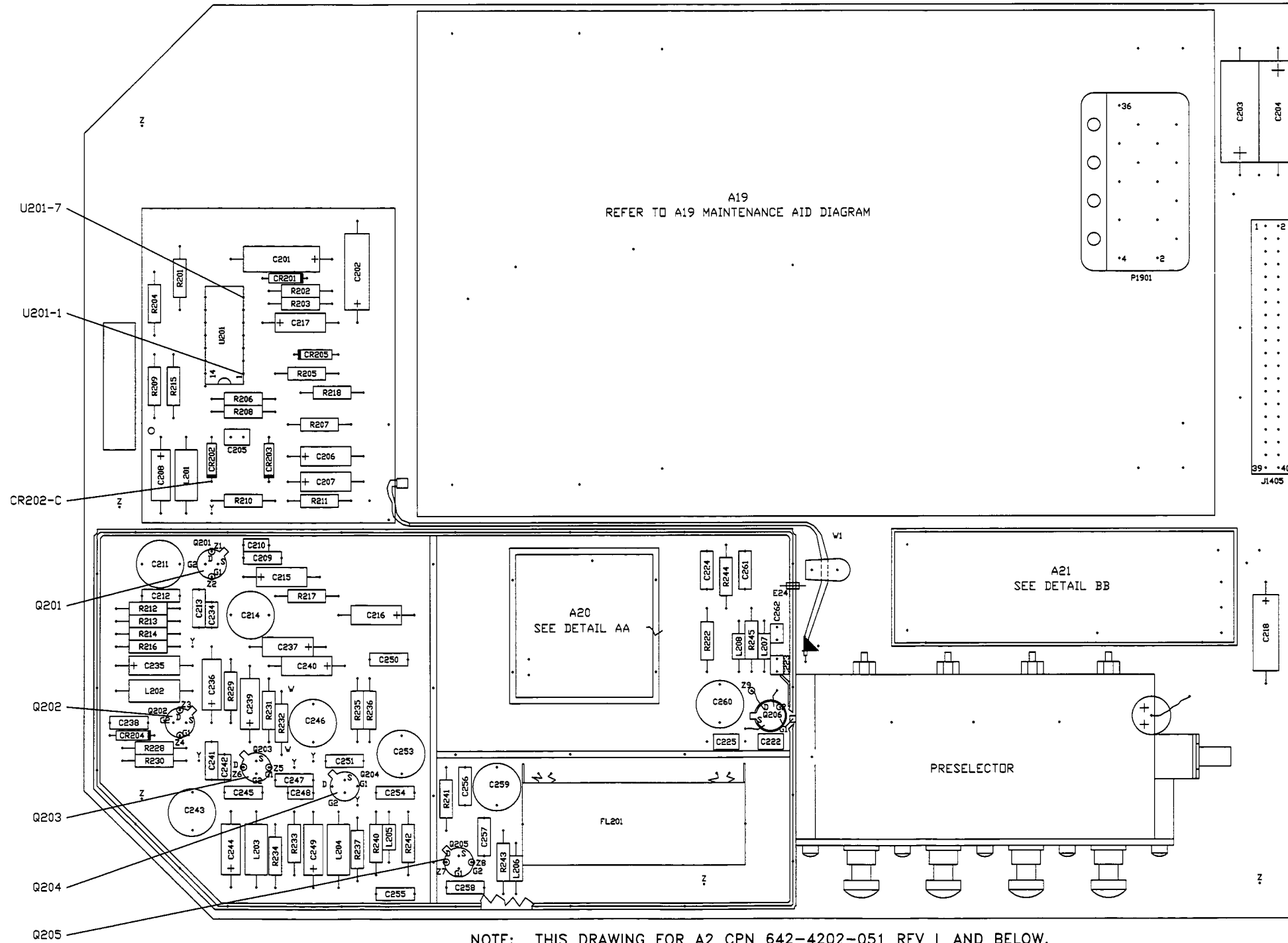
REV IDENT and SHEET: K8 – NA

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

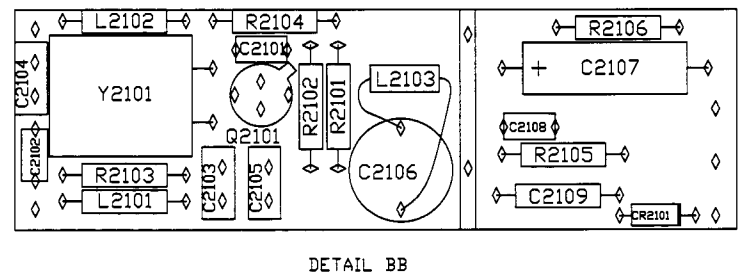
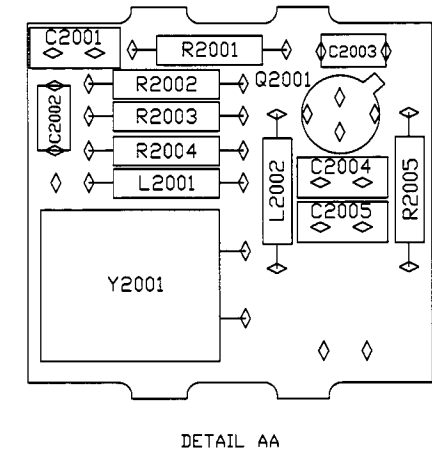
EFFECTIVITY: REV P (642-4202-051)

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

RESISTOR	CARBON	METAL FILM
R201	10 kΩ	10 kΩ
R202	3300 Ω	3.32 kΩ
R203	10 kΩ	10 kΩ
R204	47 kΩ	47.5 kΩ
R205	1.0 kΩ	1.0 kΩ
R209	47 kΩ	47.5 kΩ
R210	2700 Ω	2.74 kΩ
R212	47 kΩ	47.5 kΩ
R213	100 kΩ	100 kΩ
R214	3900 Ω	3.92 kΩ
R215	47 Ω	47.5 Ω
R216	47 Ω	47.5 kΩ
R217	4700 Ω	4.64 kΩ
R222	4700 Ω	4.64 kΩ
R228	10 kΩ	10 kΩ
R229	4700 Ω	4.64 kΩ
R230	3900 Ω	3.92 kΩ
R231	4700 Ω	4.64 kΩ
R233	10 kΩ	10 kΩ
R234	47 Ω	47.5 kΩ
R235	4700 Ω	4.64 kΩ
R236	10 kΩ	10 kΩ
R237	47 Ω	47.5 kΩ
R240	47 Ω	47.5 kΩ
R241	4700 Ω	4.64 kΩ
R242	100 kΩ	100 kΩ
R243	5600 Ω	5.62 kΩ
R244	47 Ω	47.5 kΩ
R245	6800 Ω	6.81 kΩ

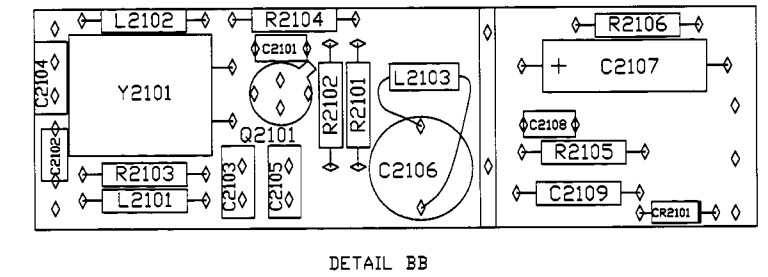
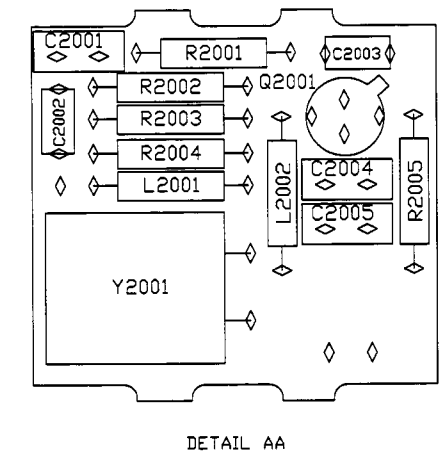
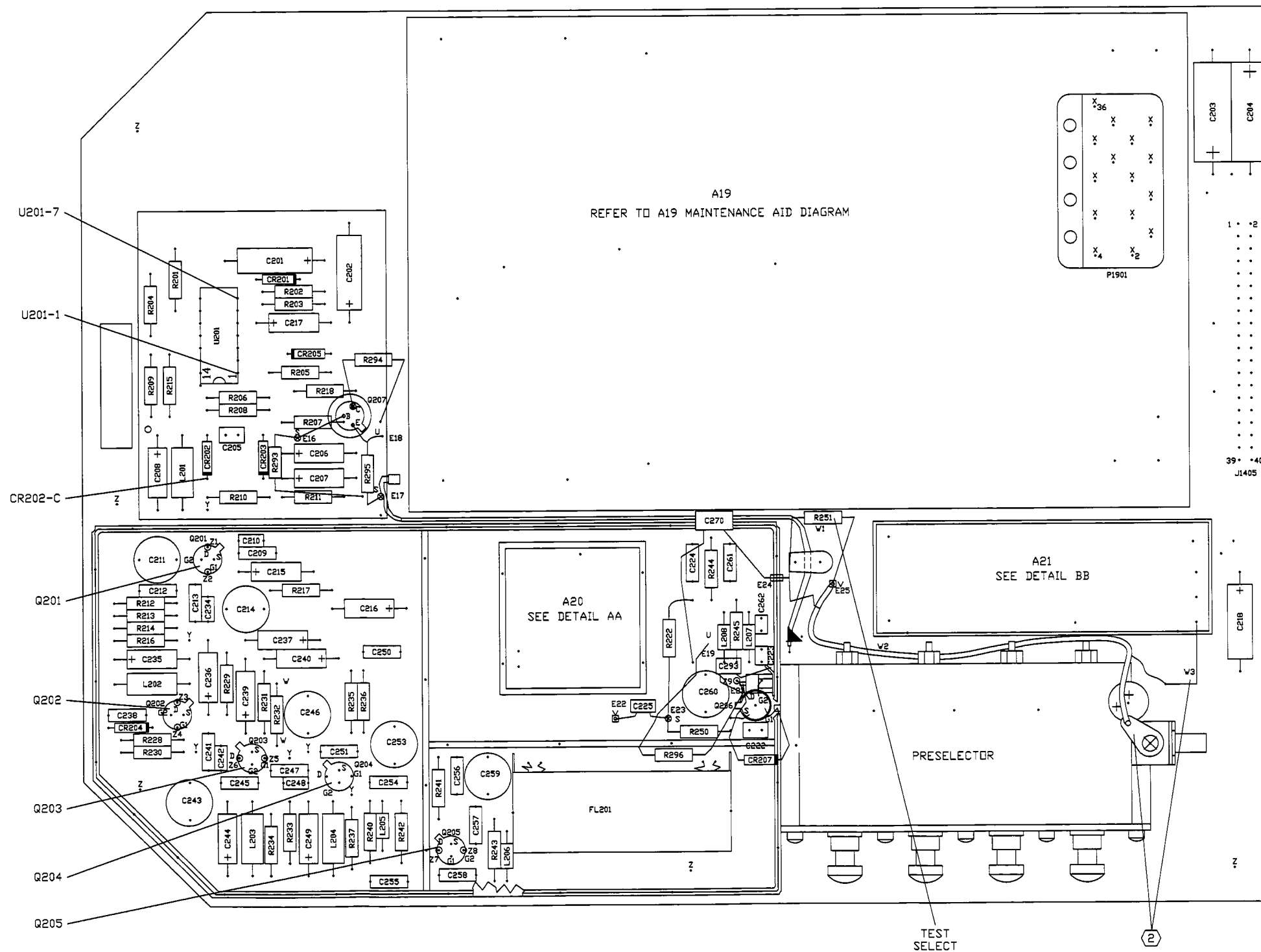


NOTE: THIS DRAWING FOR A2 CPN 642-4202-051 REV L AND BELOW.



NOTE: REFER TO FIGURE 112 FOR SIGNAL VOLTAGES AND WAVEFORMS.

601-4520-001E
 601-4521-001U
 642-4202-051L
 AD-4695-02A (1)



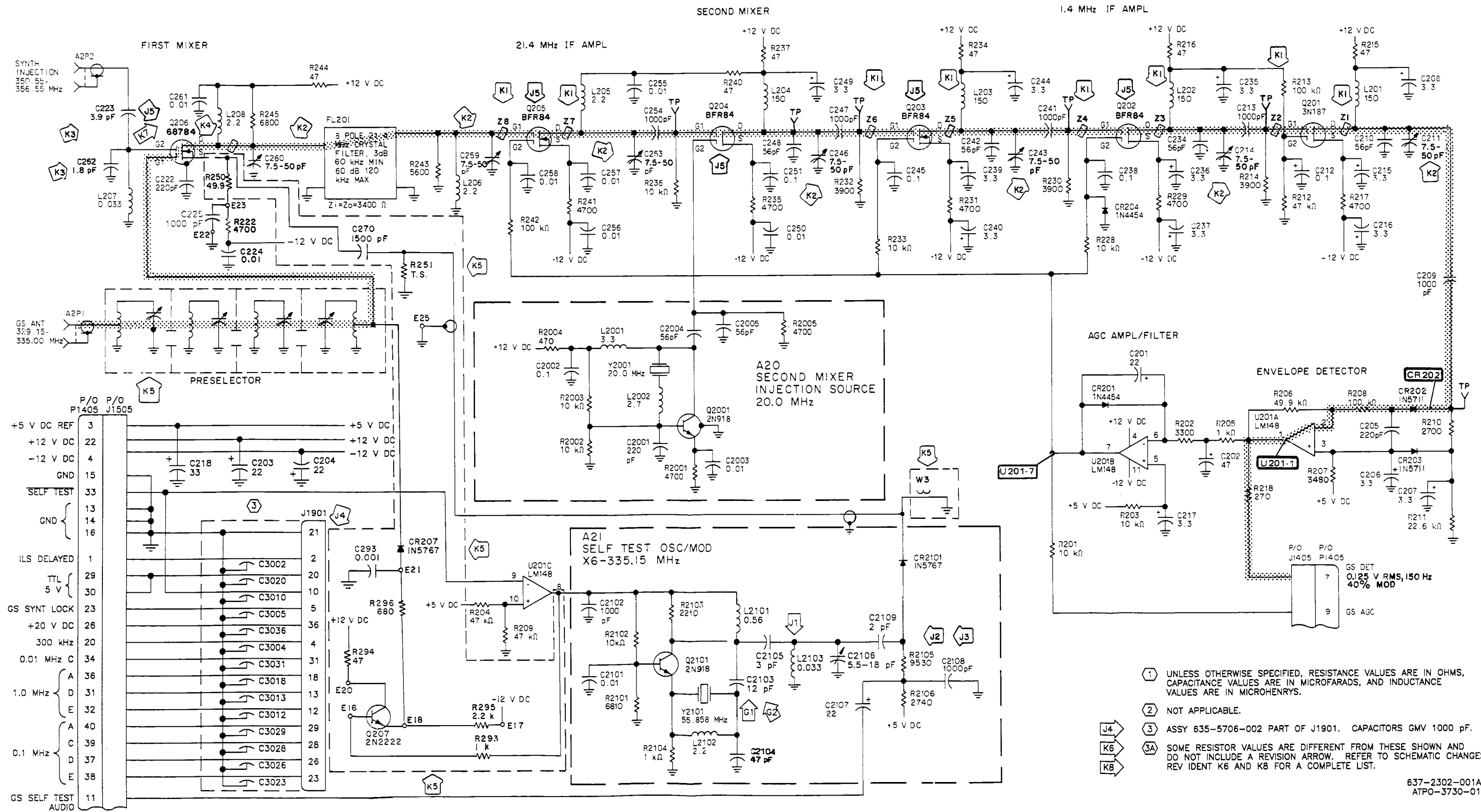
NOTE:
 ① REFER TO FIGURE 112 FOR SIGNAL VOLTAGES AND WAVEFORMS.
 ② LOCATED ON BACKSIDE OF BOARD.

NOTE: THIS DRAWING IS FOR A2 CPN 642-4202-051 REV M AND ABOVE.

601-4520-001F
 601-4521-001U
 642-4202-051P
 AD-4695-02A (2)

Glide Slope Receiver A2 (CPN 642-4202-001), Maintenance Aid Diagram
 Figure 115 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- ② NOT APPLICABLE.
- ③ ASSY 635-5706-002 PART OF J1901. CAPACITORS GMV 1000 pF.
- ③A SOME RESISTOR VALUES ARE DIFFERENT FROM THESE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K6 AND K8 FOR A COMPLETE LIST.

637-2302-001AE
 ATPO-3730-018

Glide Slope Receiver A2 (CPN 642-4202-001), Schematic Diagram
 Figure 116

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: B1 – sheet 4, fig 119
EFFECTIVITY: REV W (601-4203-001)
SERVICE BULLETIN: 8
DESCRIPTION/REASON: R2307 changed from 590 to 348 ohms, R2308 changed from 1190 to 1170 ohms, and R2309 changed from 1000 to 50 ohms to increase resolution of +5 volt adjust.

REV IDENT and SHEET: C1 – sheet 3, fig 119
EFFECTIVITY: REV U (601-4203-001)
SERVICE BULLETIN: 2
DESCRIPTION/REASON: Changed A3U301-3 from ground to A3R321 and changed A3U301-2 from A3R321 to ground.

REV IDENT and SHEET: C2 – sheet 4, fig 119 and sheet 4, fig 120
EFFECTIVITY: All models
DESCRIPTION/REASON: Changed J1402-26 from LOC/VOR +10 V dc to LOC/VOR -10 V dc. Changed J1402-33 from LOC/VOR -10 V dc to LOC/VOR +10 V dc. Reversed polarity of CR2305, CR2306, C2317, and C2318. Corrected errors in schematic.

REV IDENT and SHEET: C3 – sheet 1, fig 119
EFFECTIVITY: REV K (601-4203-001)
DESCRIPTION/REASON: Added C319 thru C323 (0.1 μ F). Corrected schematic and list of material.

REV IDENT and SHEET: C4 – sheet 3, fig 119
EFFECTIVITY: REV M (601-4203-001)
DESCRIPTION/REASON: Changed C2403 (3.3) to 15 μ F. Corrected error in schematic

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet A)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

- REV IDENT and SHEET:** C5 – sheet 4, fig 119
- EFFECTIVITY: REV N (601-4203-001)
- DESCRIPTION/REASON: Added C2326 (0.01) to reduce noise from switch into LOC/VOR receiver.
-
- REV IDENT and SHEET:** C6 – sheets 1 and 3, fig 119
- EFFECTIVITY: REV V (601-4203-001)
- SERVICE BULLETIN: 8
- DESCRIPTION/REASON: Changed C2404 (0.01) to 0.047 μ F. Changed R390 (680 Ω) to 100 Ω . Improves performance.
-
- REV IDENT and SHEET:** C7 – sheets 1 and 4, fig 119 and sheets 1 and 4, fig 120
- EFFECTIVITY: All models
- DESCRIPTION/REASON: Updated and corrected IC chart. Disconnected R2301 from input to U2303, connected to +12 V dc. On U331B, changed D3, D2, D1, D0 designation to D7, D6, D5, D4.
- Added TP35, TP36 designation to U340 pins 5 and 6. Added TP34 designation to U329-12. Updated schematic to include latest information.
-
- REV IDENT and SHEET:** C8 – sheet 1, fig 119
- EFFECTIVITY: REV Y (601-4203-001)
- DESCRIPTION/REASON: Added C325 (0.01 μ F). Decreases GS noise due to A3.
-
- REV IDENT and SHEET:** C9 – sheets 2 and 4, fig 120
- EFFECTIVITY: REV AB (601-4203-001)
- SERVICE BULLETIN: 5 (601-4203-001)

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet B)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Added A25 card, hard wired in using SB 5 to 601-4203-001, (A25 card not installed at factory, see SB 5 for schematic details).

Connector J2501 added to 601-4203-003 to accommodate A25 plug-in card.

REV IDENT and SHEET: C10 – sheet 1, fig 119

EFFECTIVITY: REV AC (601-4203-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Disconnected the line from R391 and Y301 to U329-7, ground U329-7. Improves CPU circuit.

REV IDENT and SHEET: C11 – sheet 3, fig 119

EFFECTIVITY: REV AG (601-4203-001, -003)

DESCRIPTION/REASON: Changed R317 (1210 Ω) to 1100 Ω to improve performance.

REV IDENT and SHEET: C12 – sheet 1 and 2, fig 120

EFFECTIVITY: REV AH (601-4203-003)

SERVICE BULLETIN: 10

NOTE: SB 10 COMPONENTS INSTALLED ONLY IN THE FIELD FOR 601-4203-001.

DESCRIPTION/REASON: Added U304C Circuitry: C324 (1.0) CR305, CR306 (1N4454), C325 (0.1), R3009 (100 k Ω), R3010 (10 k Ω), R3011 (20 k Ω), R3012 (50 k Ω), R3013 (40 k Ω).

Changed S301 (6-position) to 4-position switch and rewired to U335.

Replaced U339 PROM (638-3049-001) with (638-3049-002).

Added U341A, U341B and the following circuitry: R3001 (0.1 Ω), R3002 (30.1 k Ω), R3003 (30.1 k Ω), R3004 (10 k Ω), R3005 (10 k Ω), R3006 (1 k Ω), R3007 (15 k Ω), R3008 (1 k Ω). Prevents excess ac current when RMI needles are not pointing to the station.

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003, and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet C)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: (U324 revision applicable only to 601-4203-003)

Changed U324N designation to R3020. Changed U324M designation to R3021. Changed U324F designation to R3014. Changed U324E designation to R3018. Changed U324D designation to R3016. Changed U324C designation to R3015. Changed U324A designation to R3019. Changed U324G designation to R3017. U324B deleted.

REV IDENT and SHEET: D1 – sheets 1, 2, and 4, fig 119 and sheets 1 and 2, fig 120

EFFECTIVITY: All models

DESCRIPTION/REASON: Corrected schematic errors. Added schematic for A3 CPN 601-4203-001, sheets 1 thru 4.

Added figure 120, sheets 1 thru 4, for A3 CPN 601-4203-003 and 642-4203-001.

REV IDENT and SHEET: F1 – sheet 1 and 4, fig 119 and 120

EFFECTIVITY: MOD 5 CPN 601-4203-001; MOD 2 CPN 642-4203-001, -002; MOD 3 CPN 642-4203-003

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Added note 5 in figure 119 and note 6 in figure 120, and switch S301 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: F2 – sheet 3, fig 119 and 120

EFFECTIVITY: MOD 6 CPN 601-4203-001; MOD 4 CPN 601-4203-003; MOD 3 CPN 642-4203-001, -002

SERVICE BULLETIN: 20

NOTE: SB 20 components installed only in the field for CPN 601-4203-001, -003.

DESCRIPTION/REASON: Added zener diodes VR2303 and VR2304 to improve reliability of RNAV sin/cos opamps.

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet D)

34-35-10

Page 168
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: F3 – sheet 4, fig 119 and 120

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed note 4 to show U322 and U324 as 14-pin dip resistor networks instead of 16-pin devices.

REV IDENT and SHEET: F4 – sheet 4, fig 120

EFFECTIVITY: REV U CPN 641-4203-001, -002

DESCRIPTION/REASON: An alternate device type 4558 is added for U341 and U2401. (Do not use for U306.)

REV IDENT and SHEET: F5 – sheet 2, fig 120

EFFECTIVITY: All CPN 642-4203-002

DESCRIPTION/REASON: Jumper from C311 to U329F-11 added for CPN 642-4203-002 only.

REV IDENT and SHEET: F6 – sheet 4, fig 119 and 120

EFFECTIVITY: All models

DESCRIPTION/REASON: Symbol for Q2301 revised to show correct emitter-collector location.

REV IDENT and SHEET: G1 – sheet 2, fig 120

EFFECTIVITY: MOD 4 CPN 601-4203-001; MOD 2 CPN 601-4203-003; MOD 1 CPN 642-4203-001

SERVICE BULLETIN: 16

DESCRIPTION/REASON: Value of resistors R3004 and R3005 changed from 10 to 4.99 k Ω to correct SB 10. Field change only.

REV IDENT and SHEET: G2 – sheet 2, fig 120

EFFECTIVITY: MOD 4 CPN 601-4203-001; MOD 2 CPN 601-4203-003; MOD 1 CPN 642-4203-001

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet E)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

SERVICE BULLETIN: 16

DESCRIPTION/REASON: Value of resistor R3007 changed from 15 to 30.9 k Ω on CPN 601-4203-003 or to 34 k Ω pm C[M 642-4203-001, -002 to correct SB 10. Added note 7.

REV IDENT and SHEET: G3 – sheet 3, fig 119, 120, and 121

EFFECTIVITY: All models

DESCRIPTION/REASON: Reversed polarity of diode VR2304 (1N4106) to correct schematic error.

REV IDENT and SHEET: G4 – sheet 2, fig 121

EFFECTIVITY: CPN 642-4203-003

DESCRIPTION/REASON: Changed R3004 and R3005 from 10 k Ω to 4.99 k Ω , and R3007 from 15 k Ω to 34 k Ω to correct schematic errors.

REV IDENT and SHEET: NA – sheet 3, fig 118 and 121

EFFECTIVITY: REV AA CPN 642-4203-003

SERVICE BULLETIN: J

DESCRIPTION/REASON: Added 642-4203-003 to figure 118 title. Added figure 121, sheets 1 thru 4, for card A3 CPN 642-4203-003. Created A3 CPN 642-4203-003 to cover 51RV-4B/5B CPN 622-3257-101/822-0761-101. Refer to SB J.

REV IDENT and SHEET: G5 – sheet 4, fig 119 and 120

EFFECTIVITY: CPN 601-4203-001 MOD J, 601-4203-003 MOD J, 642-4203-003 MOD J

SERVICE BULLETIN: J

DESCRIPTION/REASON: Cut circuit between U2306B-4 and U2306D-8. Moved R2318 (47 k Ω) from U2306C-10 to U2306B-4. Added R3023 (47 k Ω) to U2306C-10. Added R3022 (47 k Ω) and C2405 (47 k Ω) to U2306D-8. All modifications made to convert 51RV-4B/5B CPN 622-3257-001/822-0761-001 to 622-3257-101/822-0761-101. Field change only.

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet F)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: K1 – sheet 4, fig 120 and 121

EFFECTIVITY: REV AC (CPN 642-4203-001, -002, -003)

DESCRIPTION/REASON: Removed connection between +20 V dc and U2302 pin 2 and added R2330 and R2331 (6.8 Ω), changed U2301 and U2302 from 117 to LT1083, changed connection of U2303 pin 1 from +20 to +12 V dc, and changed C2301 and C2302 from 1.5 to 15 μ F. These changes are for higher current capabilities. (U2302, R2330 and R2331 are located on the chassis.)

REV IDENT and SHEET: K2 – added sheet 5, fig 120

EFFECTIVITY: REV AD (CPN 642-4203-004)

DESCRIPTION/REASON: Created card A3 CPN 642-4203-004 status for the HUD version of the LRU (CPN 622-3257-201). Added sheet 5 to existing schematic figure 120, and sheet 5 to existing maintenance aid diagram figure 118.

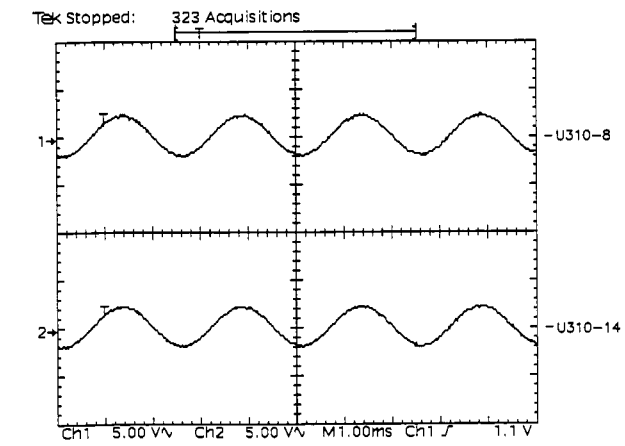
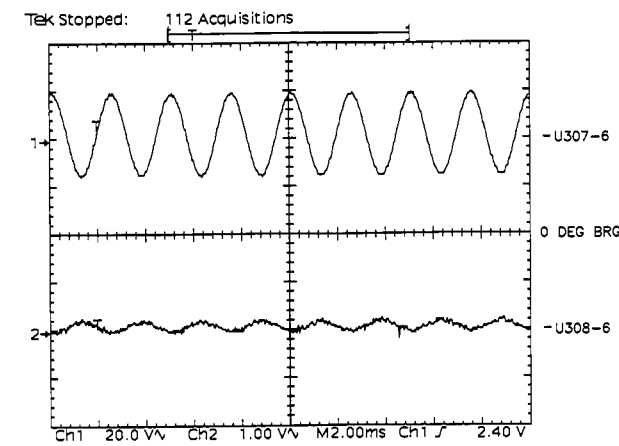
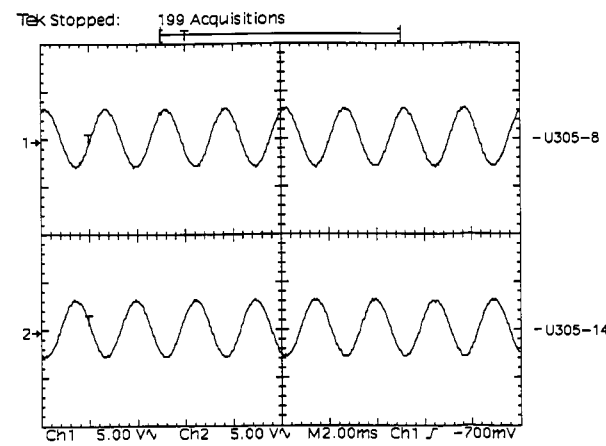
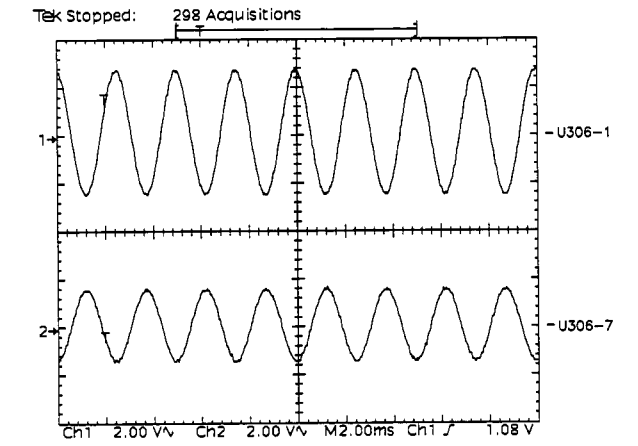
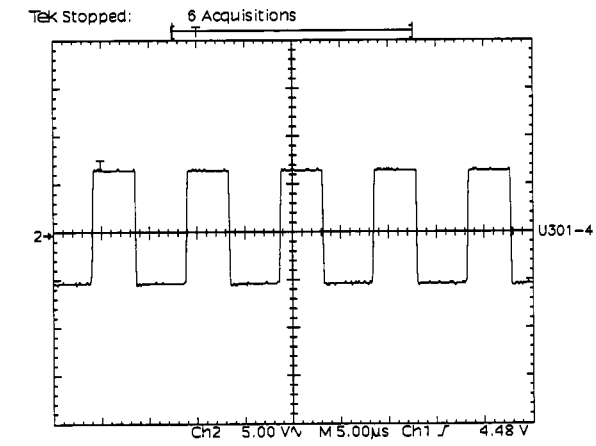
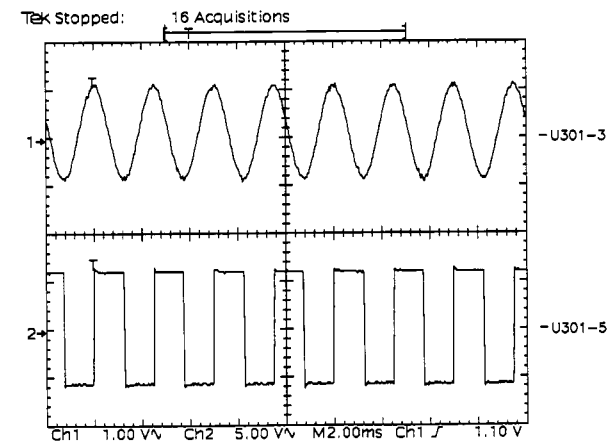
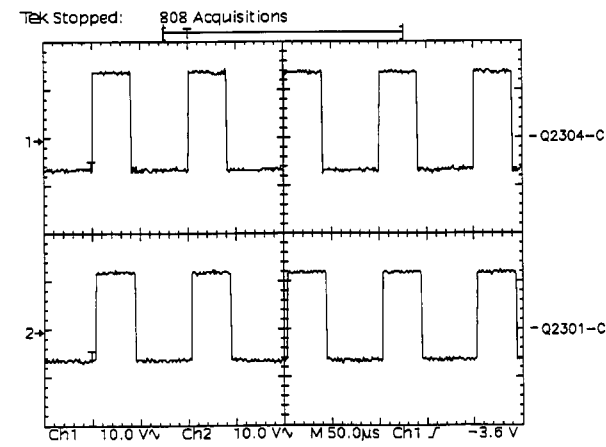
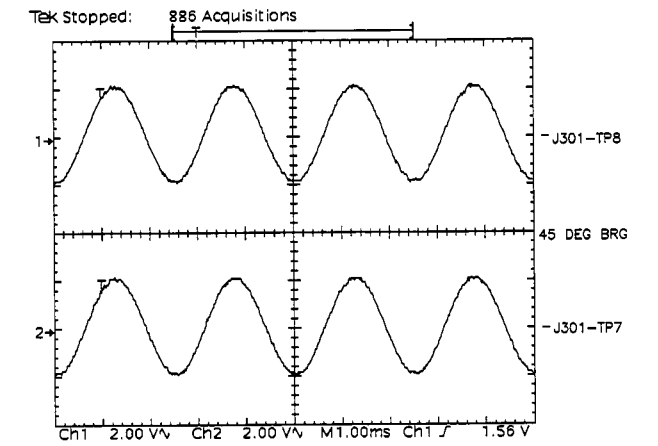
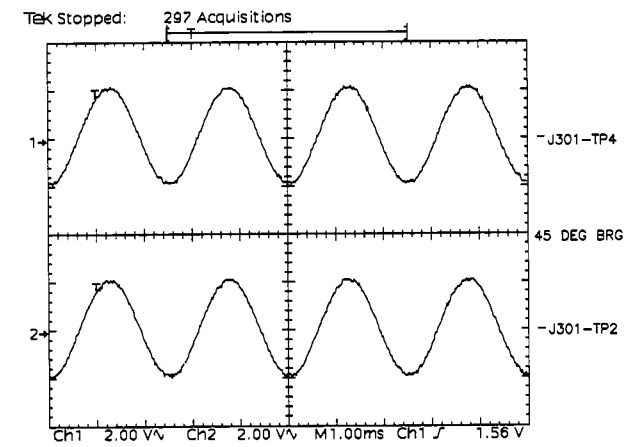
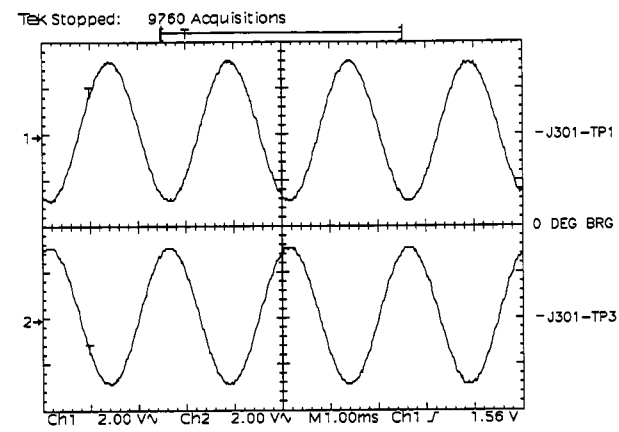
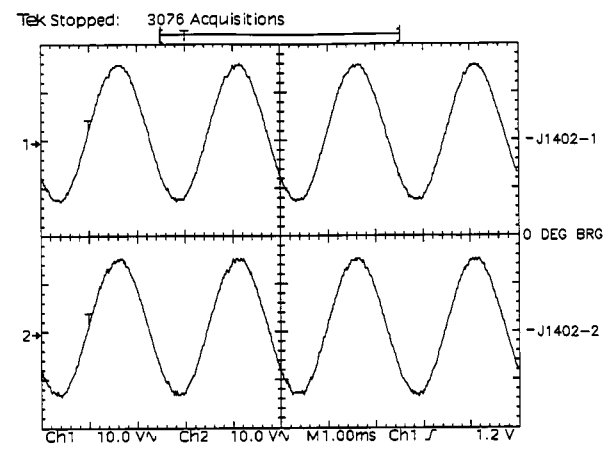
Changes include changing Q2304 from 2N2907A to 2N4033; breaking connection at junction of R236/C2307 and reconnect to +28 V dc; changed connection of C2312 from T2302 blue lead to red lead; added VR2302 and VR2303 across C2318 and C2317, respectively; changed the value of C2317 and C2318 from 3.3 to 1.0 μ F; and VOR/LOC outputs changed from plus and minus 10 to plus and minus 27 V dc.

RMI/Power Supply/Audio A3 (CPN 601-4203-001, -003,
and 642-4203-001, -002, -003, -004), Schematic Changes
Figure 117 (Sheet G)

34-35-10

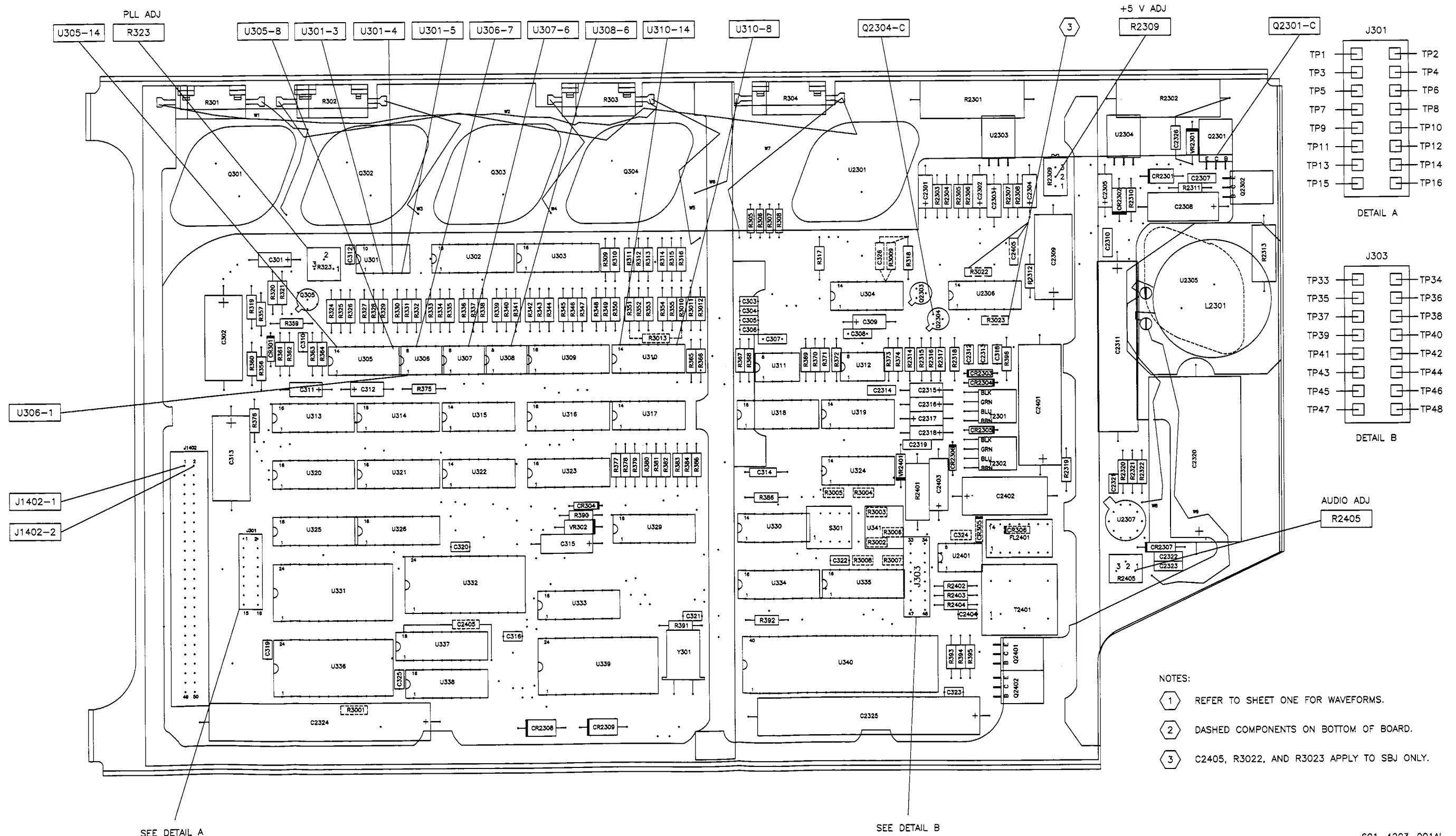
Pages 171/172
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



AD-4716-02- (1)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



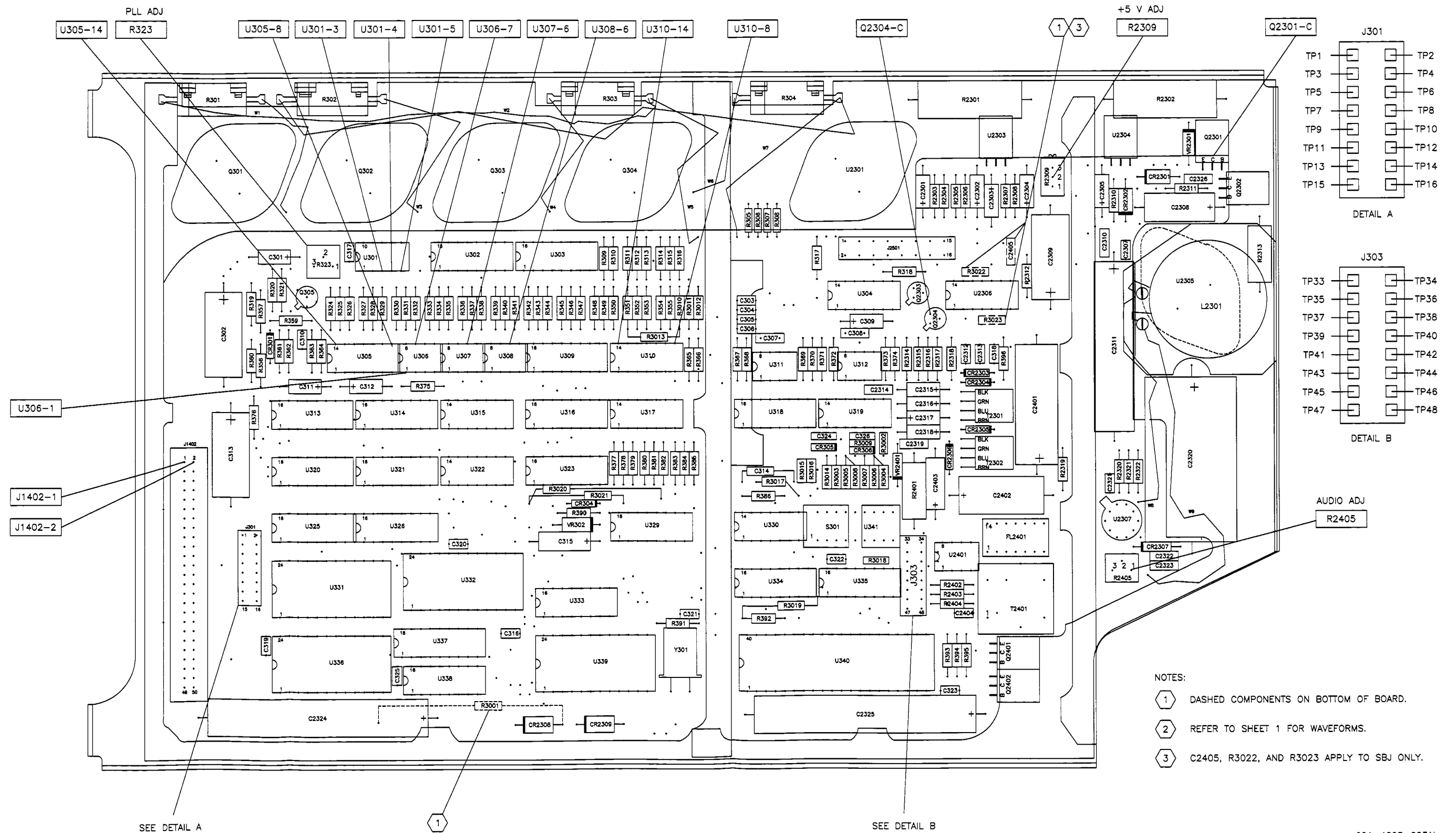
- NOTES:
- 1 REFER TO SHEET ONE FOR WAVEFORMS.
 - 2 DASHED COMPONENTS ON BOTTOM OF BOARD.
 - 3 C2405, R3022, AND R3023 APPLY TO SBJ ONLY.

601-4203-001AL
 AD-4716-02- (2)

RMI/Power Supply/Audio A3 (CPN 601-4203-001), Maintenance Aid Diagram
 Figure 118 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

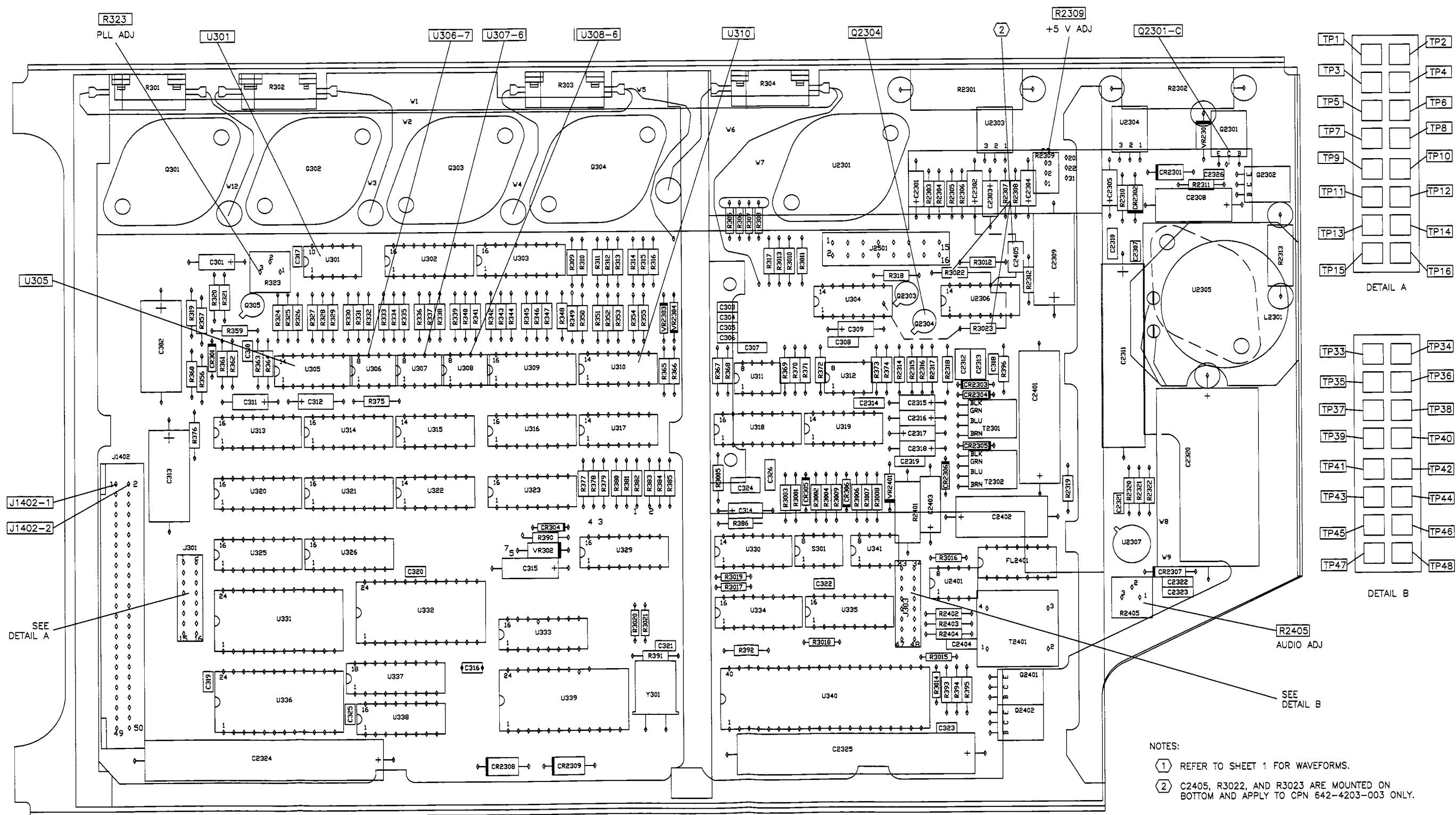


601-4203-003AL
 AD-4522-01-

RMI/Power Supply/Audio A3 (CPN 601-4203-003), Maintenance Aid Diagram
 Figure 118 (Sheet 3)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



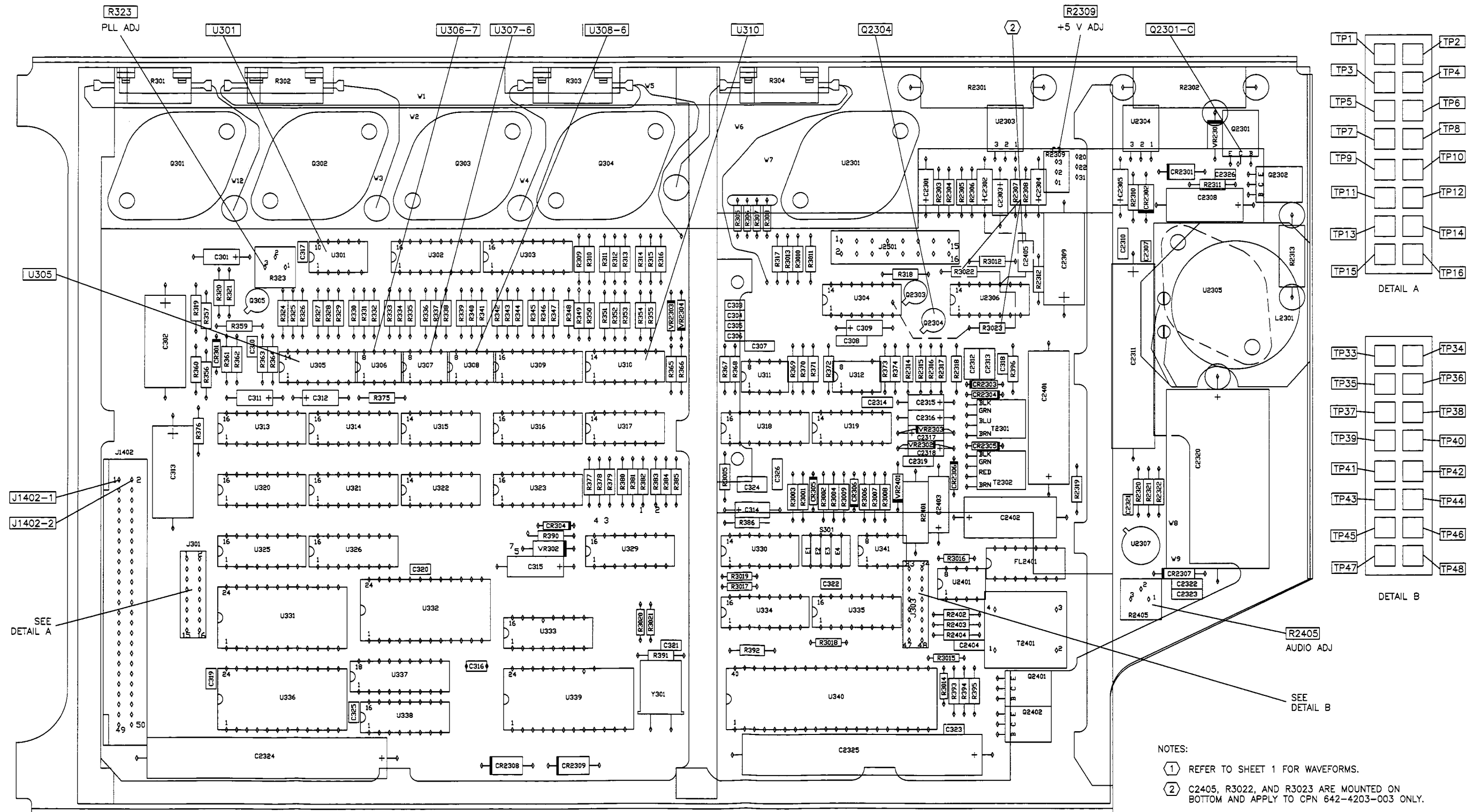
- NOTES:
- ① REFER TO SHEET 1 FOR WAVEFORMS.
 - ② C2405, R3022, AND R3023 ARE MOUNTED ON BOTTOM AND APPLY TO CPN 642-4203-003 ONLY.

642-4203-003AC
 AD-4704-01A

RMI/Power Supply/Audio A3 (CPN 642-4203-001, -002, -003),
 Maintenance Aid Diagram
 Figure 118 (Sheet 4)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



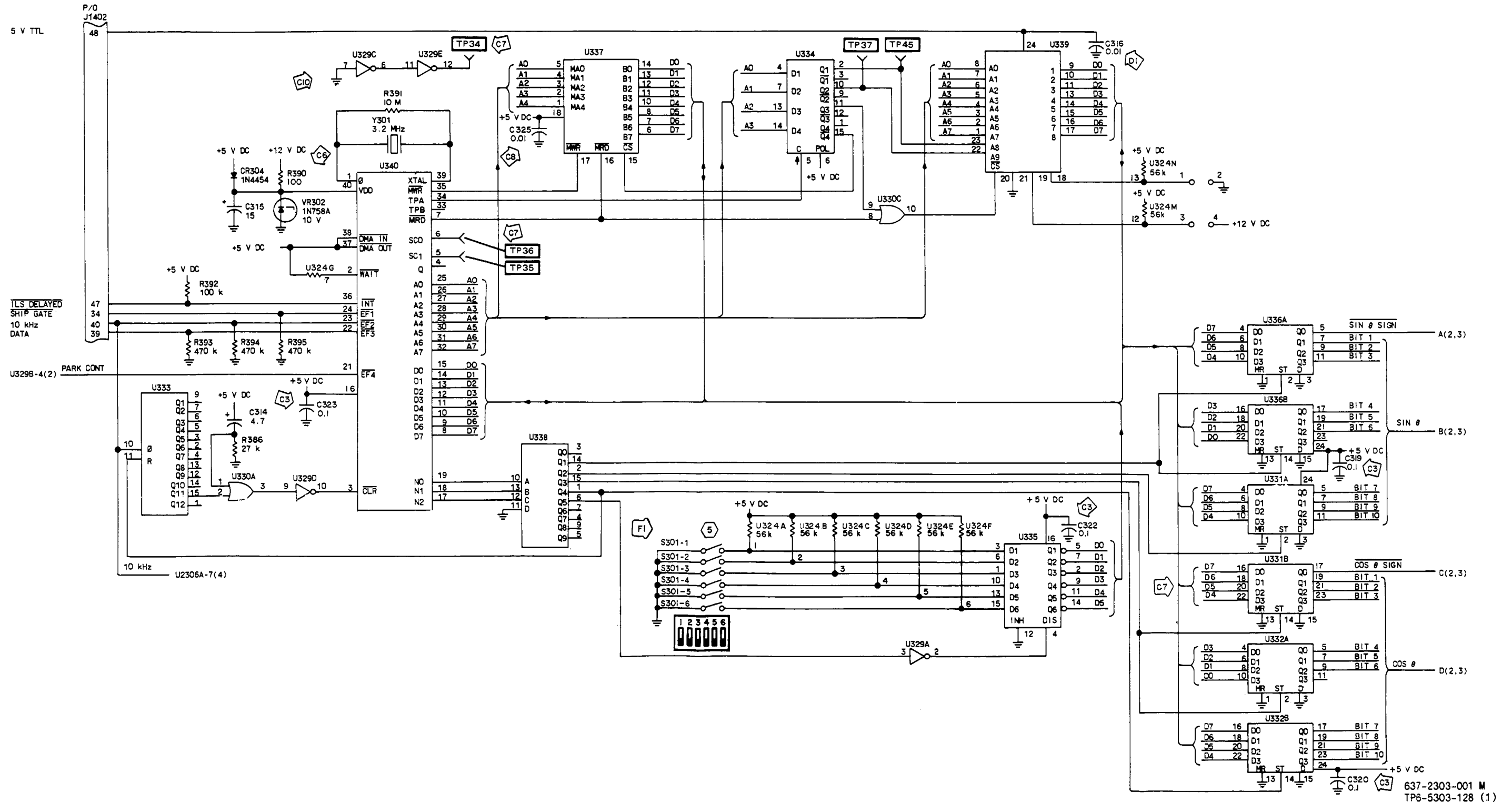
- NOTES:
- ① REFER TO SHEET 1 FOR WAVEFORMS.
 - ② C2405, R3022, AND R3023 ARE MOUNTED ON BOTTOM AND APPLY TO CPN 642-4203-003 ONLY.

642-4203-004AD
 AD-5317-01-

RMI/Power Supply/Audio A3 (CPN 642-4203-004),
 Maintenance Aid Diagram
 Figure 118 (Sheet 5)

34-35-10

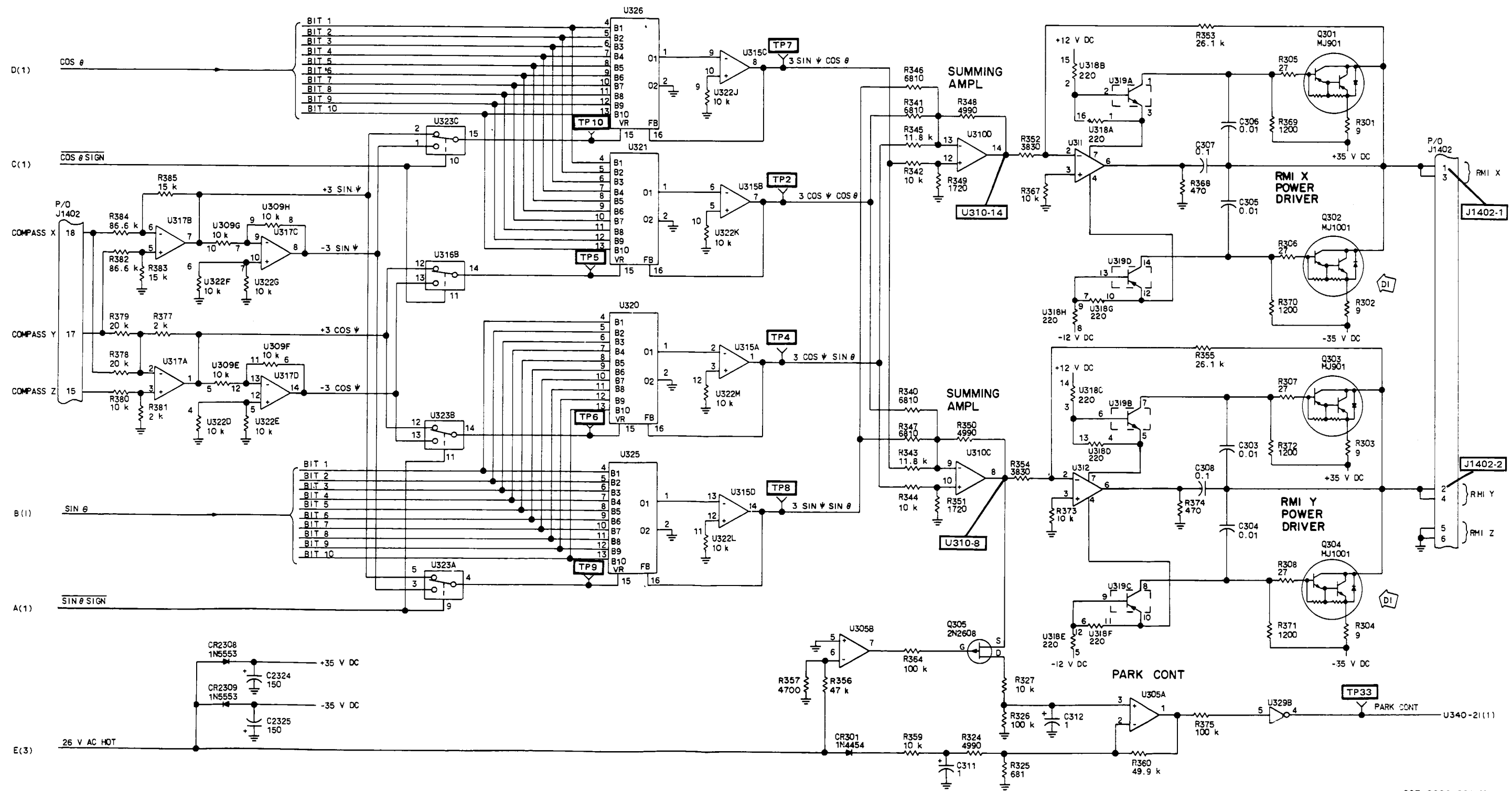
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



637-2303-001 M
 TP6-5303-128 (1)

RMI/Power Supply/Audio A3 (CPN 601-4203-001), Schematic Diagram
 Figure 119 (Sheet 1 of 4)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

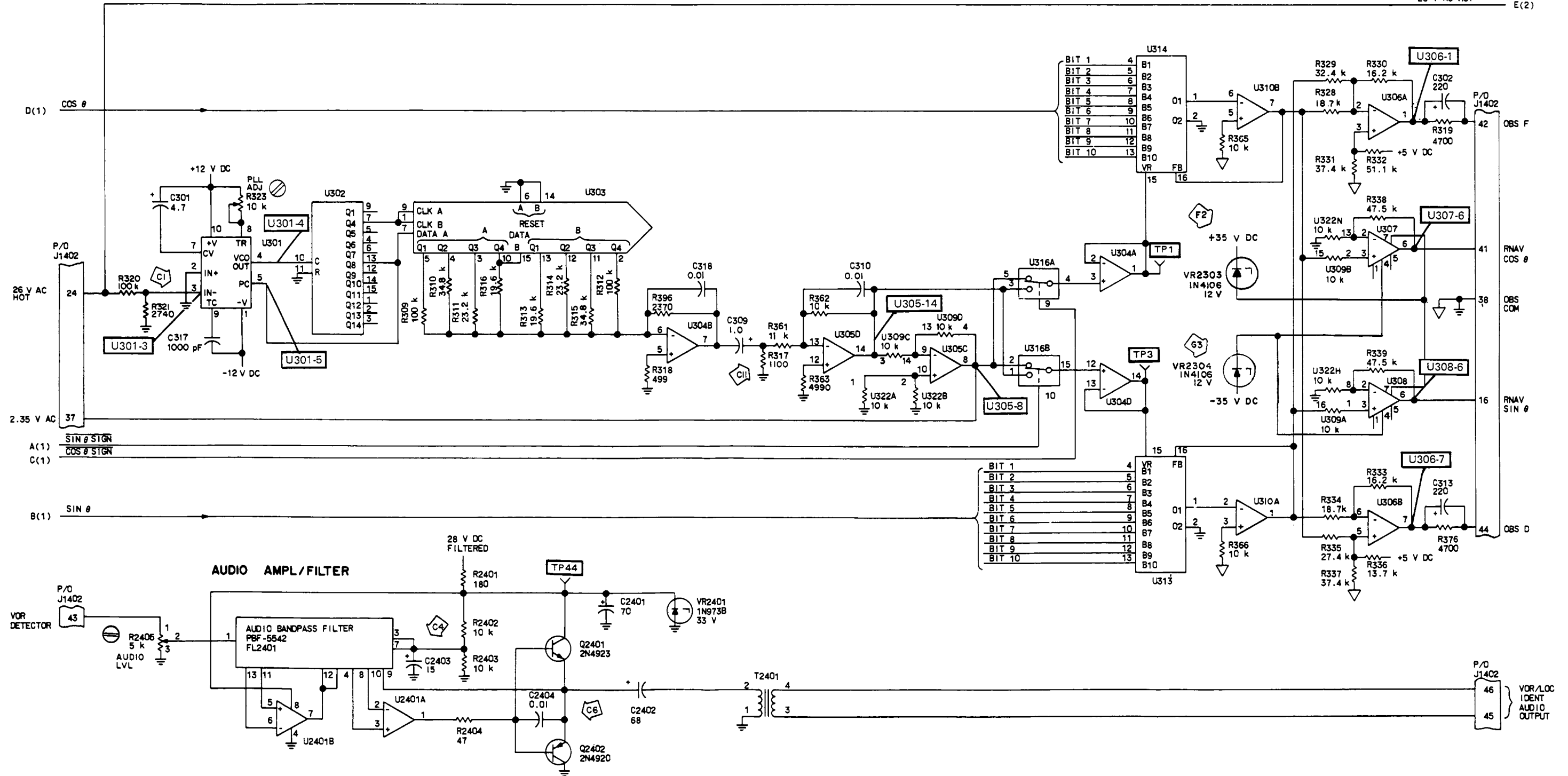


637-2303-001 M
 TP6-5303-128 (2)

RMI/Power Supply/Audio A3 (CPN 601-4203-001), Schematic Diagram
 Figure 119 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

26 V AC HOT E(2)



RMI/Power Supply/Audio A3 (CPN 601-4203-001), Schematic Diagram
 Figure 119 (Sheet 3)

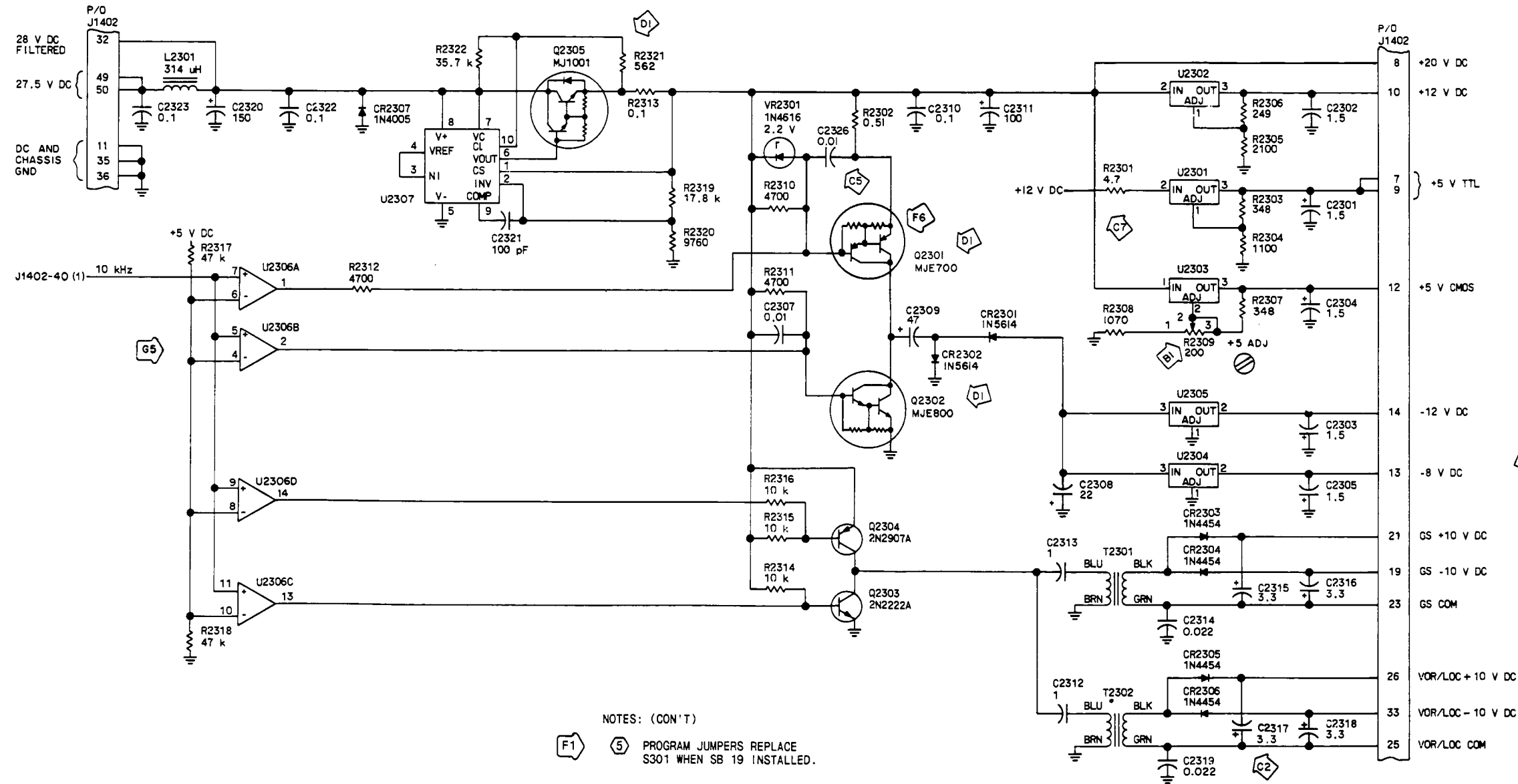
34-35-10

Pages 187/188
 Jul 15/95

637-2303-001 M
 TP6-5303-128 (3)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

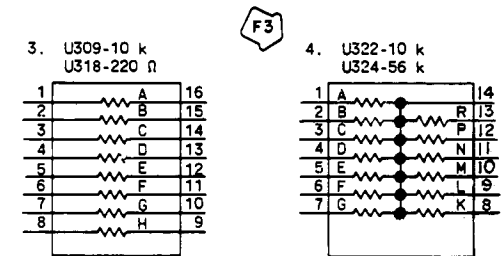
POWER SUPPLY



NOTES: (CON'T)
 (F1) (5) PROGRAM JUMPERS REPLACE S301 WHEN S6 19 INSTALLED.

NOTES:

- UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
- PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

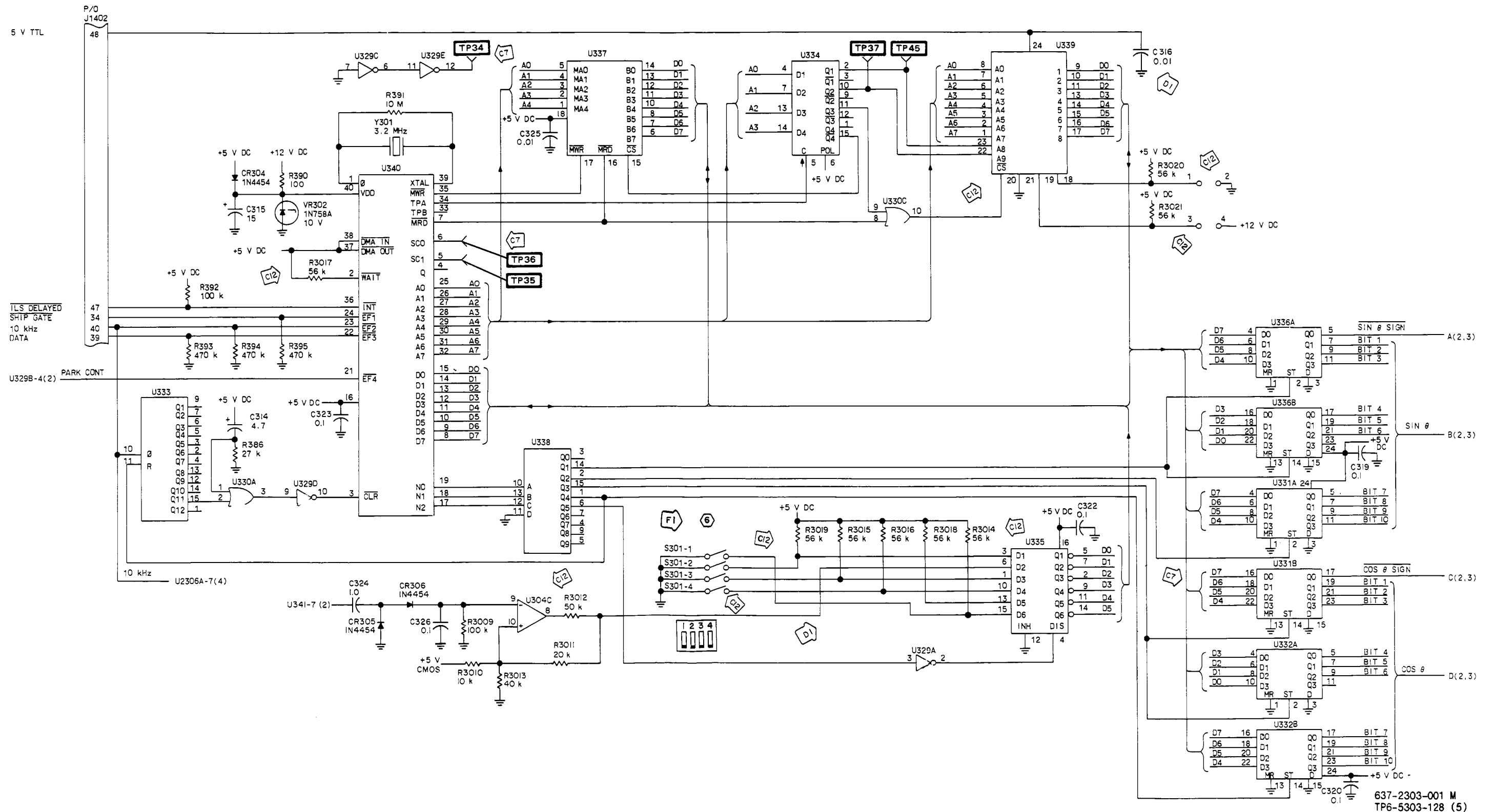


MICROCIRCUIT CHART

U NO	TYPE	PWR (V DC)						
		+5	GND	+12	-12	+35	-35	-8
U301	565			10	1			
U302	4020 *	8	16					
U303	4015 *	8	16					
U304	LM148*		4	11				
U305	LM148		4					11
U306	MC1558		8	4				
U307	LM143					7	4	
U308	LM143					7	4	
U309	NOTE 3							
U310	LM148		4	11				
U311	LM741							
U312	LM741							
U313	7530 *	14	3					
U314	7530 *	14	3					
U315	LM148		4	11				
U316	4053 *	16	8					
U317	LM148		4					11
U318	NOTE 3							
U319	Q6001							
U320	7530 *	14	3					
U321	7530 *	14	3					
U322	NOTE 4							
U323	4053 *	16	8					
U324	NOTE 4							
U325	7530 *	14	3					
U326	7530 *	14	3					
U327	SPARE							
U328	SPARE							
U329	4049 *	1	8					
U330	4071 *	14	7					
U331	4508 *	24	12					
U332	4508 *	24	12					
U333	4040 *	16	8					
U334	4042 *							
U335	4502 *	16	8					
U336	4508 *	24	12					
U337	1824 *							
U338	4028 *	16	8					
U339	2708 *	24	12					
U340	1802 *							
U2301	LM117							
U2302	LM117							
U2303	LM117							
U2304	LM120							
U2305	LM120							
U2306	3302	12	3					
U2307	uA723							
U2401	MC1558	4						

*CMOS/MOS DEVICE

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

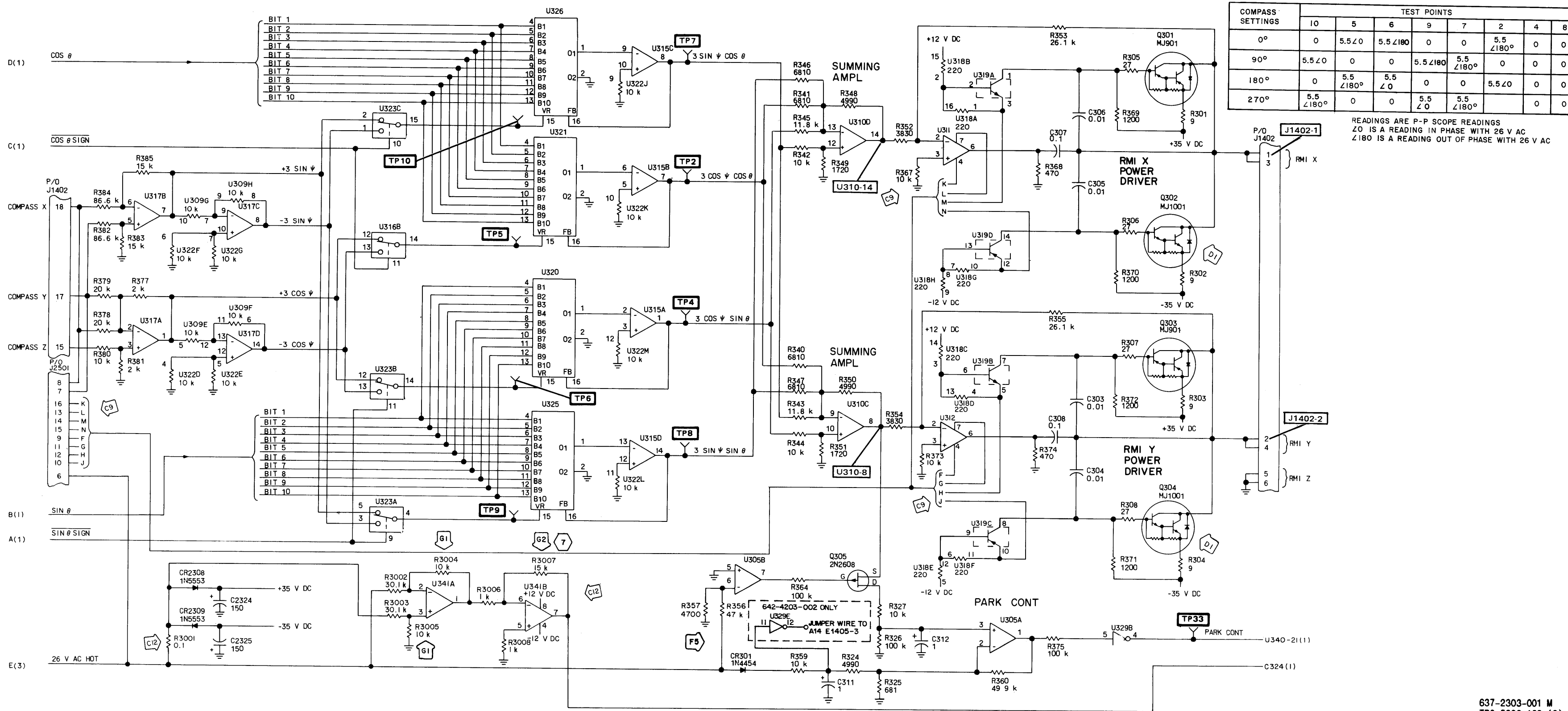


RMI/Power Supply/Audio A3 (CPN 601-4203-003 and 642-4203-001, -002, -004), Schematic Diagram
 Figure 120 (Sheet 1 of 5)

34-35-10

637-2303-001 M
 TP6-5303-128 (5)

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

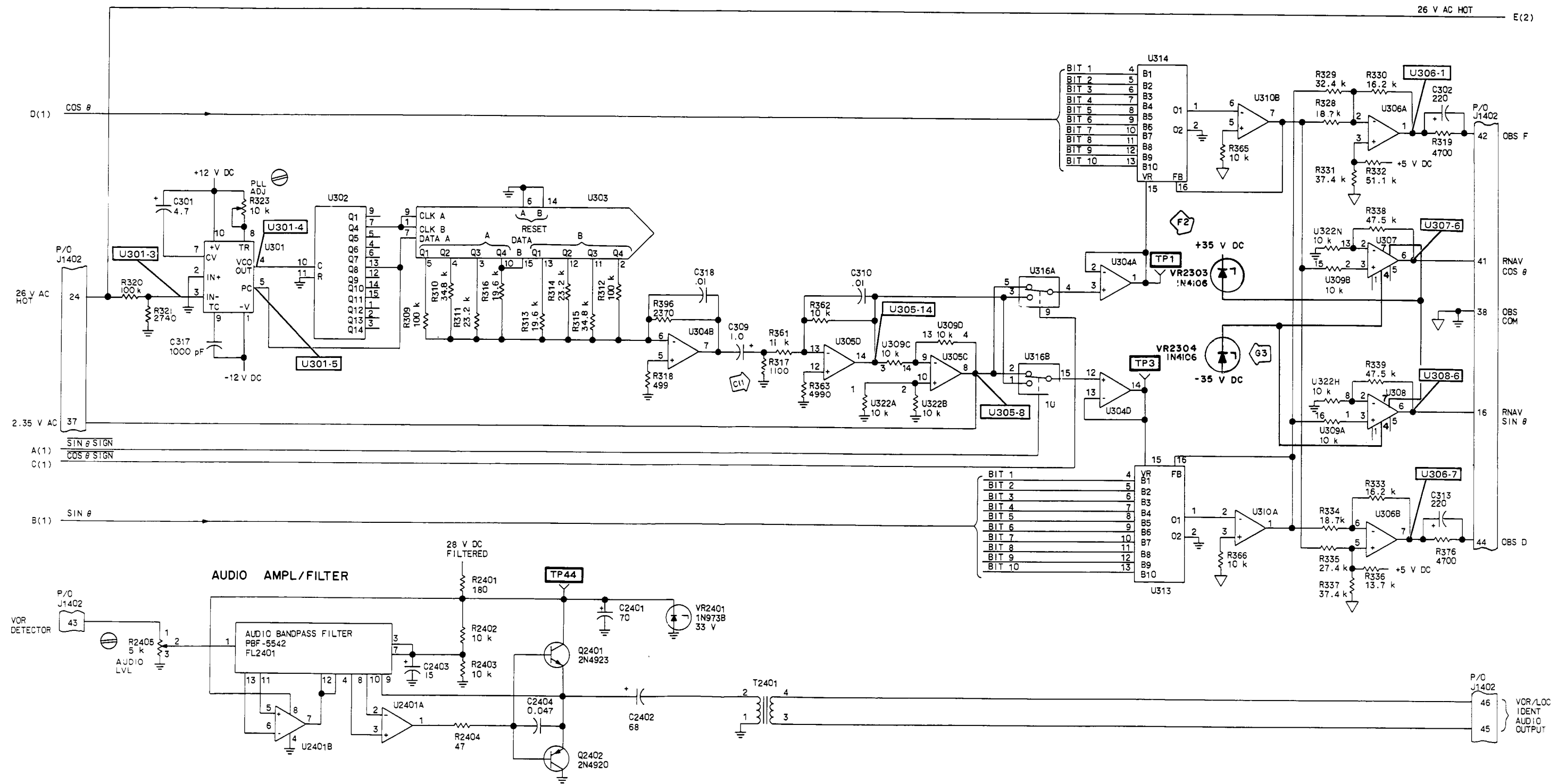


RMI/Power Supply/Audio A3 (CPN 601-4203-003 and 642-4203-001, -002, -004), Schematic Diagram Figure 120 (Sheet 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

26 V AC HOT E(2)



RMI/Power Supply/Audio A3 (CPN 601-4203-003 and 642-4203-001, -002, -004), Schematic Diagram Figure 120 (Sheet 3)

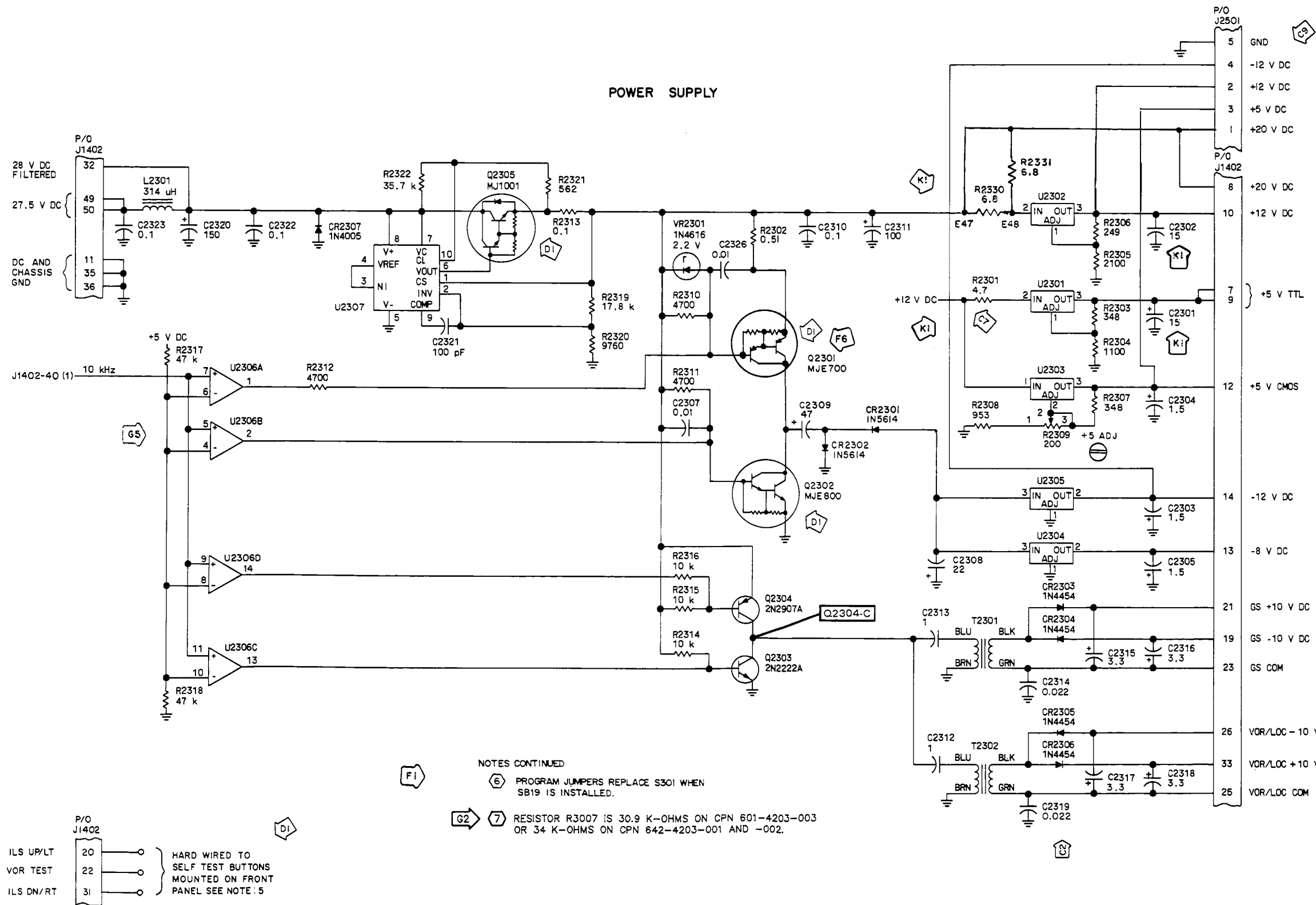
34-35-10

Pages 195/196
Jul 15/95

637-2303-001 M
TP6-5303-128 (7)

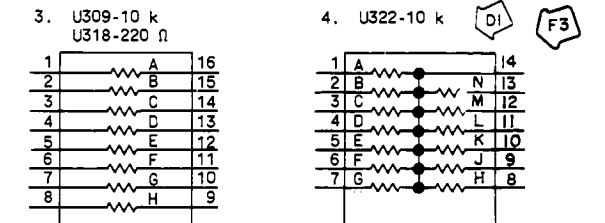
**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

POWER SUPPLY



NOTES:

- UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
- PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

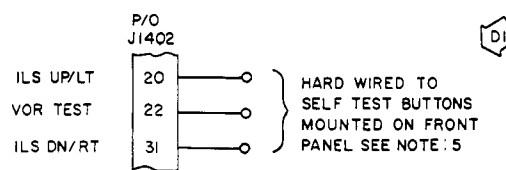


- U309-10 k U318-220 Ω
- U322-10 k

MICROCIRCUIT CHART

U NO	TYPE	+5	GND	+12	-12	+35	-35	-8
U301	565			10	1			
U302	4020 *	8		16				
U303	4015 *	8		16				
U304	LM148			4	11			
U305	LM148			4				11
U306	MC1558			8	4			
U307	LM143					7	4	
U308	LM143					7	4	
U309	NOTE 3							
U310	LM148			4	11			
U311	LM741							
U312	LM741							
U313	7530 *	14	3					
U314	7530 *	14	3					
U315	LM148			4	11			
U316	4053 *	16	8					
U317	LM148			4				11
U318	NOTE 3							
U319	Q6001							
U320	7530 *	14	3					
U321	7530 *	14	3					
U322	NOTE 4							
U323	4053 *	16	8					
U324	SPARE							
U325	7530 *	14	3					
U326	7530 *	14	3					
U327	SPARE							
U328	SPARE							
U329	4049 *	1	8					
U330	4071 *	14	7					
U331	4508 *	24	12					
U332	4508 *	24	12					
U333	4040 *	16	8					
U334	4042 *	16	8					
U335	4502 *	16	8					
U336	4508 *	24	12					
U337	1824 *		18					
U338	4028 *	16	8					
U339	2708 *	24	12					
U340	1802 *	16	20					
U341	1558/4558		8	4				
U2301	LT1083							
U2302	LT1083							
U2303	LM117							
U2304	LM120							
U2305	LM120							
U2306	3302	12	3					
U2307	uA723							
U2401	1558/4558	4						

* CMOS/MOS DEVICE



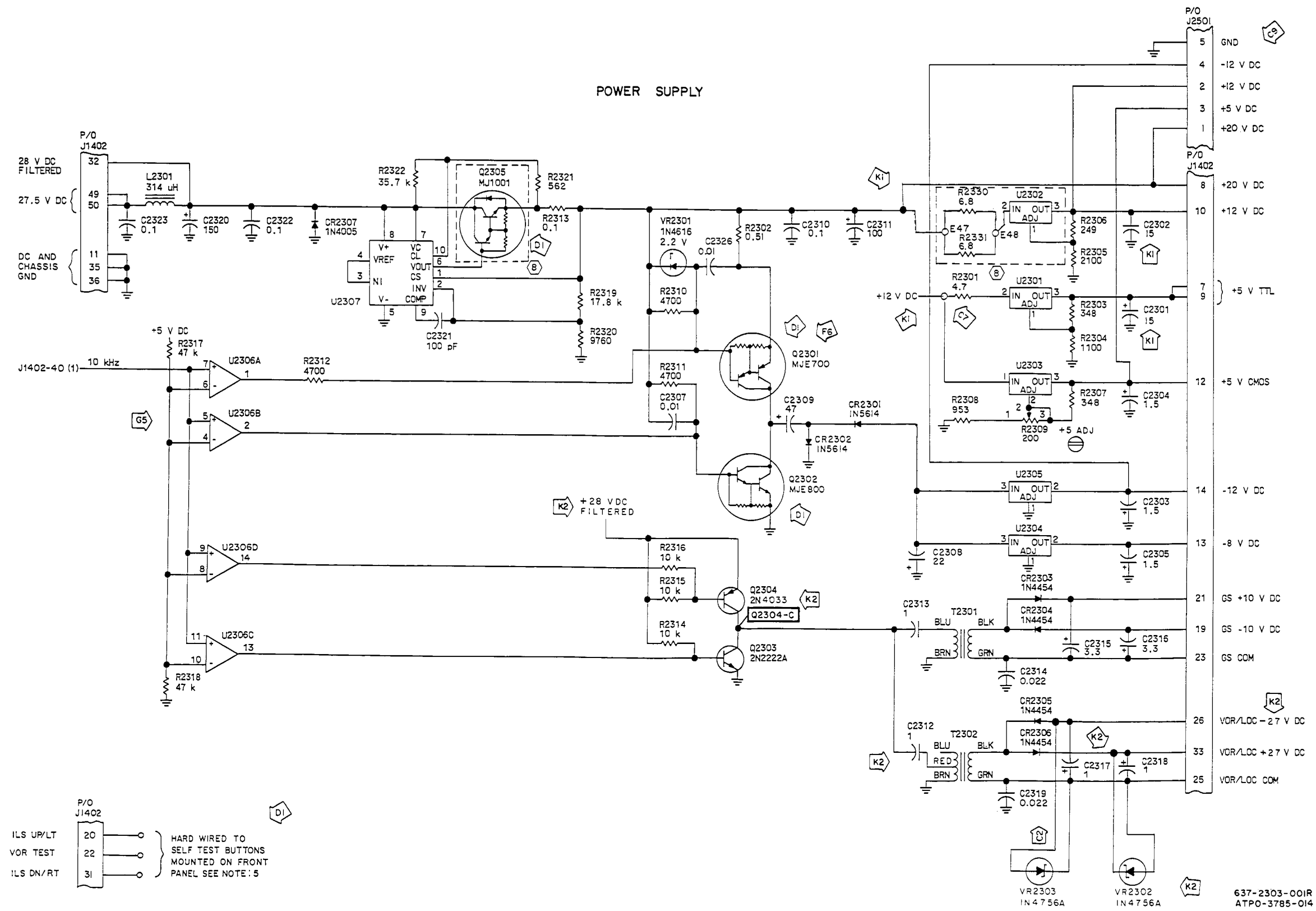
NOTES CONTINUED

- PROGRAM JUMPERS REPLACE S301 WHEN SB19 IS INSTALLED.
- RESISTOR R3007 IS 30.9 K-OHMS ON CPN 601-4203-003 OR 34 K-OHMS ON CPN 642-4203-001 AND -002.

RMI/Power Supply/Audio A3 (CPN 601-4203-003 and 642-4203-001, -002), Schematic Diagram Figure 120 (Sheet 4)

34-35-10

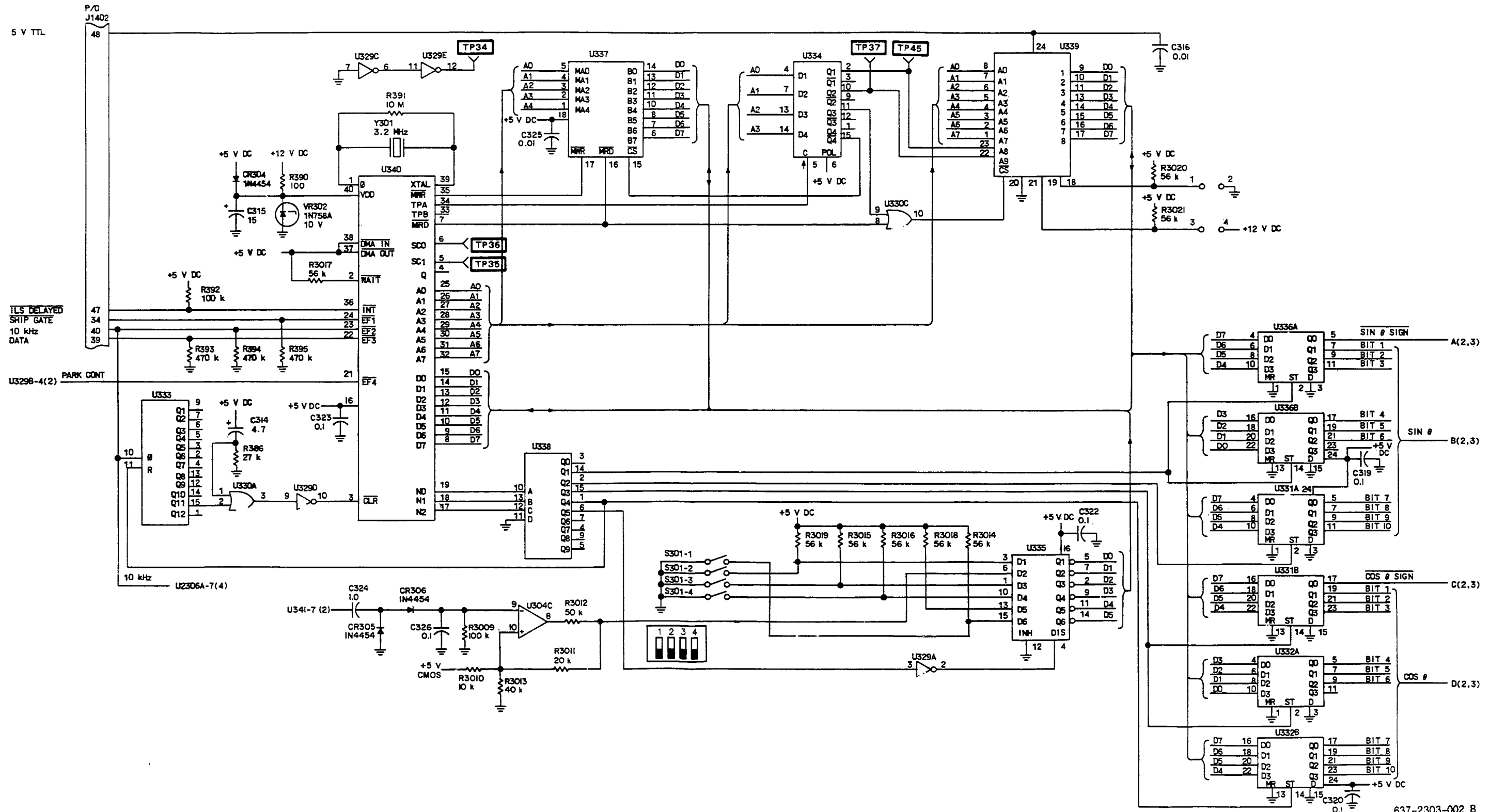
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



RMI/Power Supply/Audio A3 (CPN 642-4203-004), Schematic Diagram
 Figure 120 (Sheet 5)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

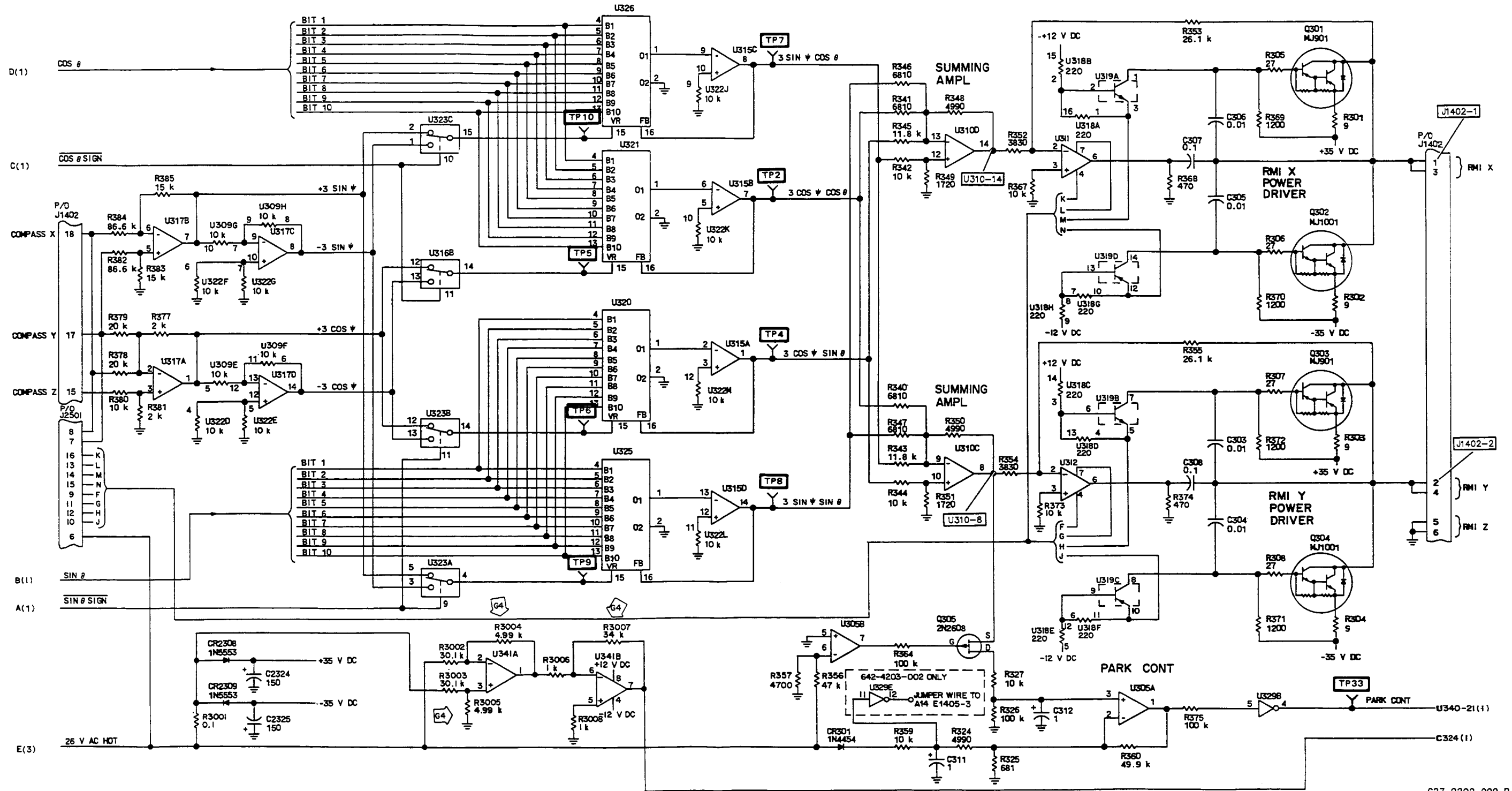


637-2303-002 B
 TP6-5303-128 (9)

RMI/Power Supply/Audio A3 (CPN 642-4203-003), Schematic Diagram
 Figure 121 (Sheet 1 of 4)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/LS Navigation Receiver
 PART NO 622-3255

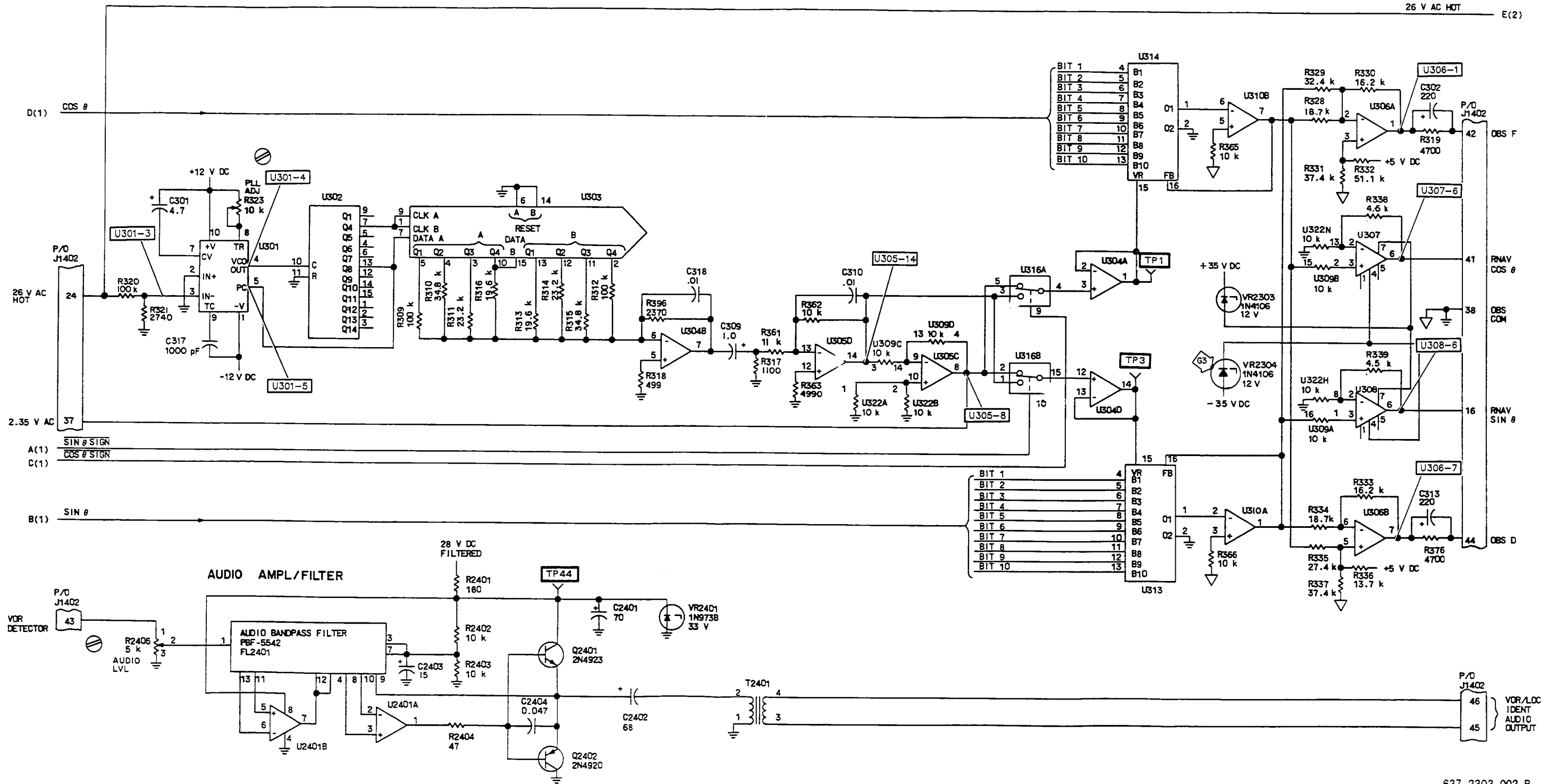


637-2303-002 B
 TP6-5303-128 (10)

RMI/Power Supply/Audio A3 (CPN 642-4203-003), Schematic Diagram
 Figure 121 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

26 V AC HOT E(2)



637-2303-002 B
 TP6-5303-128 (11)

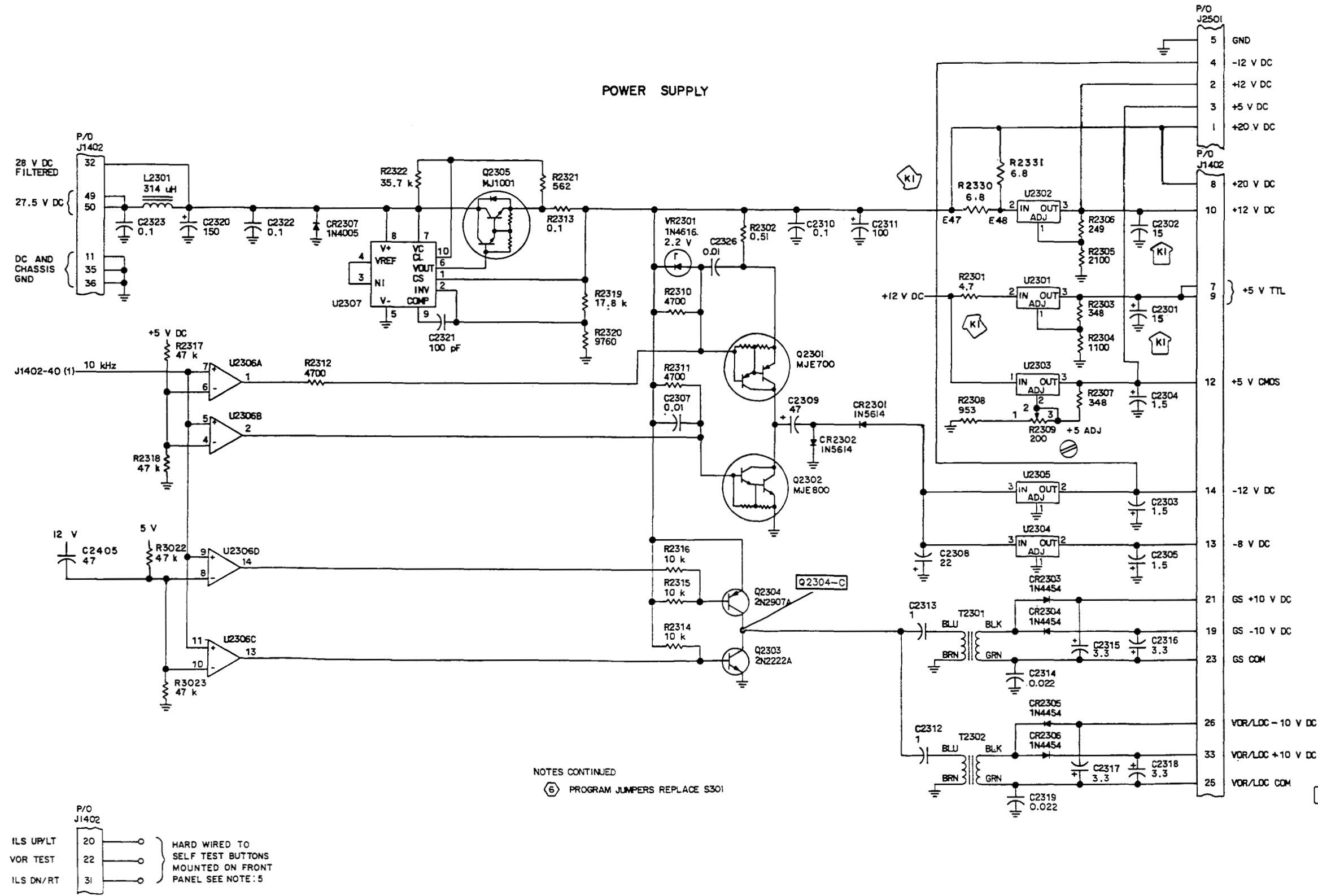
RMI/Power Supply/Audio A3 (CPN 642-4203-003), Schematic Diagram
 Figure 121 (Sheet 3)

34-35-10

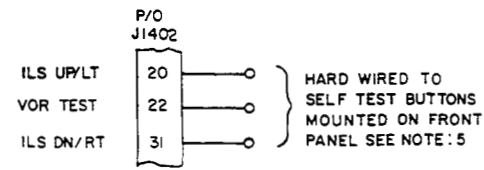
Pages 198.7/198.8
 Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

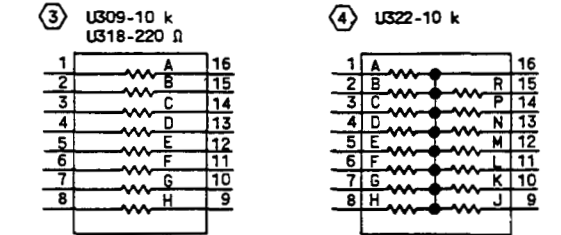
POWER SUPPLY



NOTES CONTINUED
 (6) PROGRAM JUMPERS REPLACE S301



- NOTES:
- (1) UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
 - (2) PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.



(5) J1402 PINS 20, 22, AND 31 CONNECTED ON 642-4203-001 BOARD ONLY.

MICROCIRCUIT CHART

U NO	TYPE	PWR (V DC)						
		+5	GND	+12	-12	+35	-35	-8
U301	555			10	1			
U302	4020 *	8	16					
U303	4015 *	8	16					
U304	LM148	4	11					
U305	LM148	4						11
U306	MC1558	8	4					
U307	LM143							
U308	LM143							
U309	NOTE 3							
U310	LM148	4	11					
U311	LM741							
U312	LM741							
U313	7530 *	14	3					
U314	7530 *	14	3					
U315	LM148	4	11					
U316	4053 *	16	8	4				
U317	LM148	4						11
U318	NOTE 3							
U319	Q6001							
U320	7530 *	14	3					
U321	7530 *	14	3					
U322	NOTE 4							
U323	4053 *	16	8					
U324	SPARE							
U325	7530 *	14	3					
U326	7530 *	14	3					
U327	SPARE							
U328	SPARE							
U329	4049 *	1	8					
U330	4071 *	14	7					
U331	4508 *	24	12					
U332	4508 *	24	12					
U333	4040 *	16	8					
U334	4042 *	16	8					
U335	4502 *	16	8					
U336	4508 *	24	12					
U337	1824 *	18						
U338	4028 *	16	8					
U339	2708 *	24	12					
U340	1802 *	16	20					
U341	1558/4558	8	4					
U2301	LT1083							
U2302	LT1083							
U2303	LM117							
U2304	LM120							
U2305	LM120							
U2306	3302	12	3					
U2307	uA723							
U2401	1558/4558	4						

* CMOS/MOS DEVICE

637-2303-002D
 TP6-5303-128 (12)

RMI/Power Supply/Audio A3 (CPN 642-4203-003), Schematic Diagram
 Figure 121 (Sheet 4)

34-35-10

Pages 198.9/198.10
 Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

REV IDENT and SHEET: K1 – sheet 4

EFFECTIVITY: REV G

DESCRIPTION/REASON: Removed connection between +20 V dc and U2302 pin 2 and added R2330 and R2331 (6.8 Ω), changed U2301 and U2302 from 117 to LT1083, and changed connection of U2303 pin 1 from +20 to +12 V dc. These changes are for higher current capabilities. (U2302, R2330 and R2331 are located on the chassis.)

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV H

DESCRIPTION/REASON: Corrected documentation error.

REV IDENT and SHEET: K2 – sheets 1, 2, 3, and 4

EFFECTIVITY: REV K

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R386	27 kΩ	27.4 kΩ
R390	100 Ω	100 Ω
R392	100 kΩ	100 kΩ
R393	470 kΩ	475 kΩ
R394	470 kΩ	475 kΩ
R395	470 kΩ	475 kΩ
R3014	56 kΩ	56.2 kΩ
R3015	56 kΩ	56.2 kΩ
R3016	56 kΩ	56.2 kΩ
R3017	56 kΩ	56.2 kΩ
R3018	56 kΩ	56.2 kΩ
R3019	56 kΩ	56.2 kΩ
R3020	56 kΩ	56.2 kΩ
R3021	56 kΩ	56.2 kΩ

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Cont)

Sheet 2

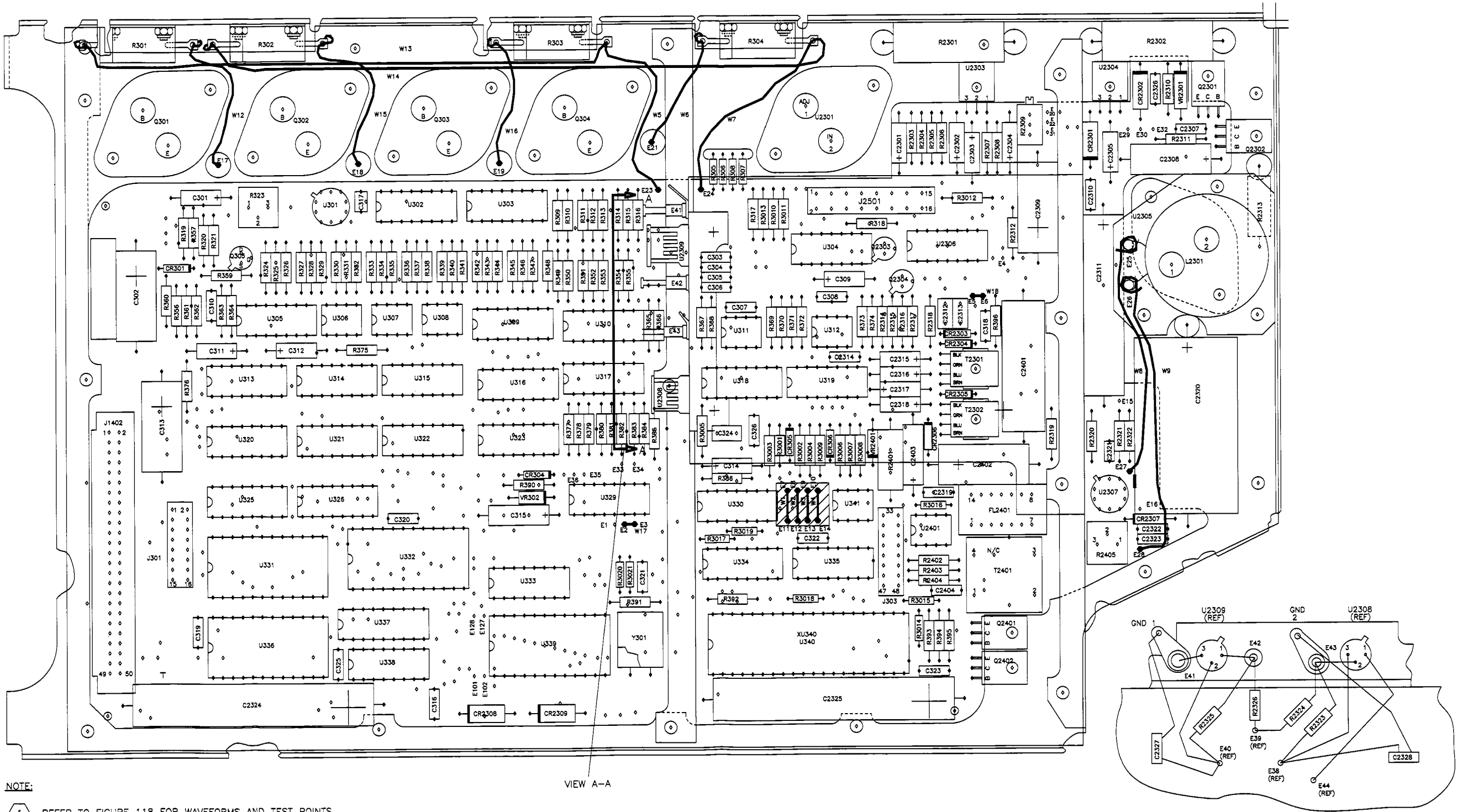
RESISTOR	CARBON	METAL FILM
R305	27 Ω	27.4 Ω
R306	27 Ω	27.4 Ω
R307	27 Ω	27.4 Ω
R308	27 Ω	27.4 Ω
R356	4.7 kΩ	4.75 kΩ
R357	4.7 kΩ	4.75 kΩ
R364	100 kΩ	100 kΩ
R368	470 Ω	475 Ω
R369	1.2 kΩ	1.21 kΩ
R370	1.2 kΩ	1.21 kΩ
R371	1.2 kΩ	1.21 kΩ
R372	1.2 kΩ	1.21 kΩ
R374	470 Ω	475 Ω
R375	100 kΩ	100 kΩ

Sheet 3

RESISTOR	CARBON	METAL FILM
R319	4.7 kΩ	4.75 kΩ
R376	4.7 kΩ	4.75 kΩ
R2404	47 Ω	47.5 Ω

Sheet 4

RESISTOR	CARBON	METAL FILM
R2310	4.7 kΩ	4.75 kΩ
R2311	4.7 kΩ	4.75 kΩ
R2312	4.7 kΩ	4.75 kΩ
R2314	10 kΩ	10 kΩ
R2315	10 kΩ	10 kΩ
R2316	10 kΩ	10 kΩ
R2317	47 kΩ	47.5 kΩ
R2318	47 kΩ	47.5 kΩ



- NOTE:
- 1 REFER TO FIGURE 118 FOR WAVEFORMS AND TEST POINTS.
 - 2 REFER TO FIGURE 101 FOR CHASSIS MOUNTED COMPONENTS—Q2305, U2302, R2330, AND R2331.

VIEW A-A

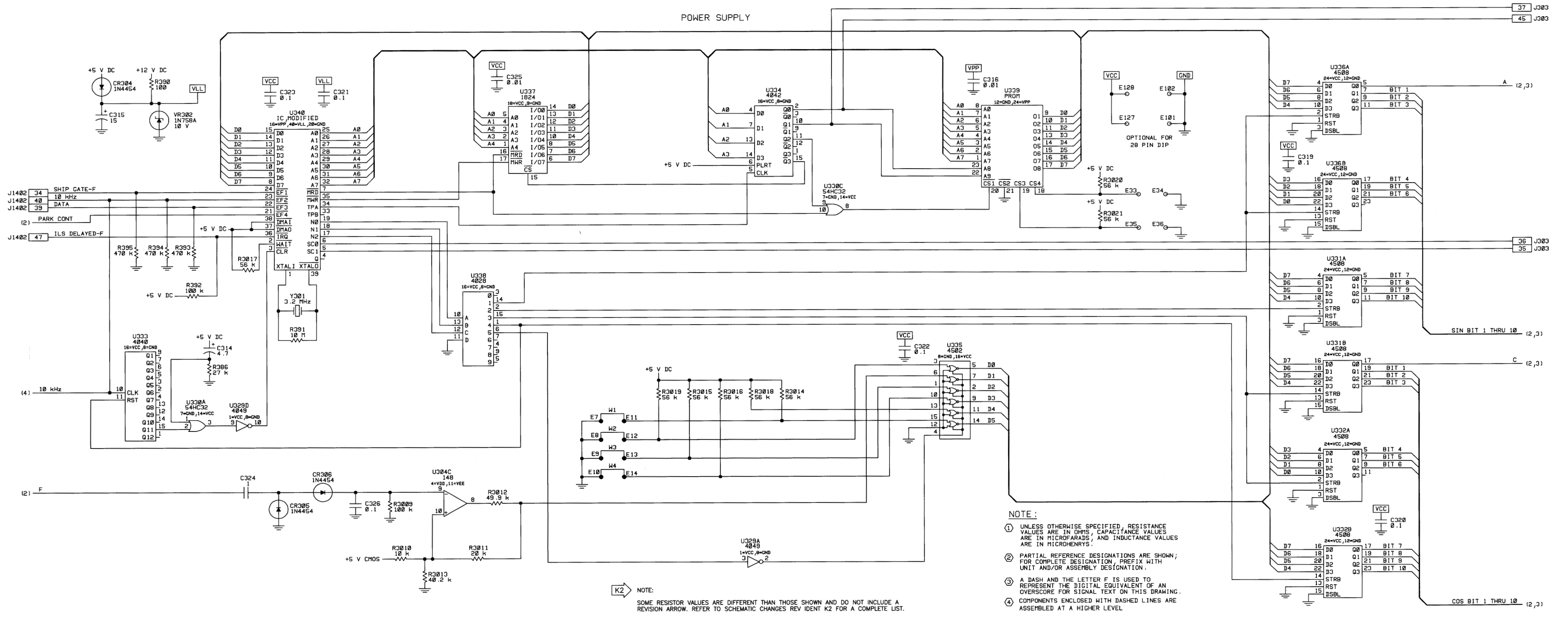
VIEW A-A

646-8203-004K
 AD-3411-01C

RMI/Power Supply/Audio A3 (CPN 646-8203-004), Maintenance Aid Diagram
 Figure 123

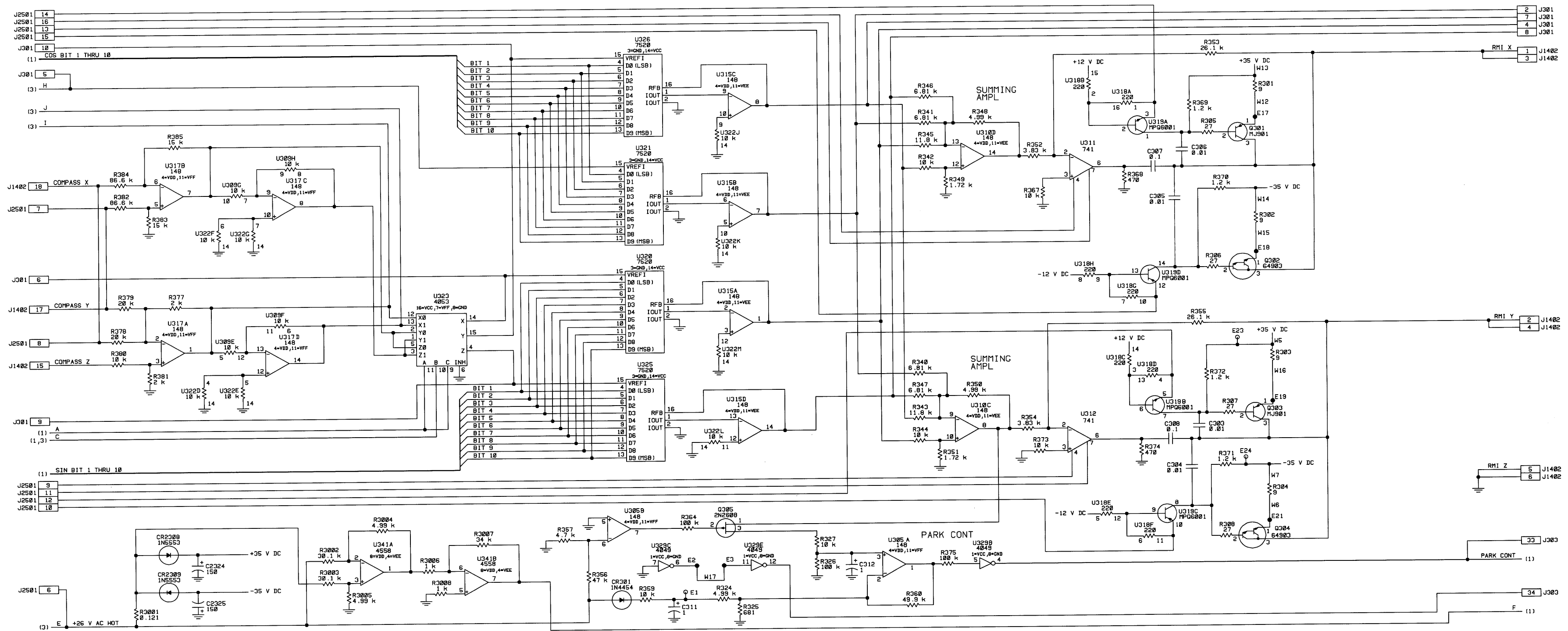
34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



RMI/Power Supply/Audio A3 (CPN 646-8203-004), Schematic Diagram
 Figure 124 (Sheet 1 of 4)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

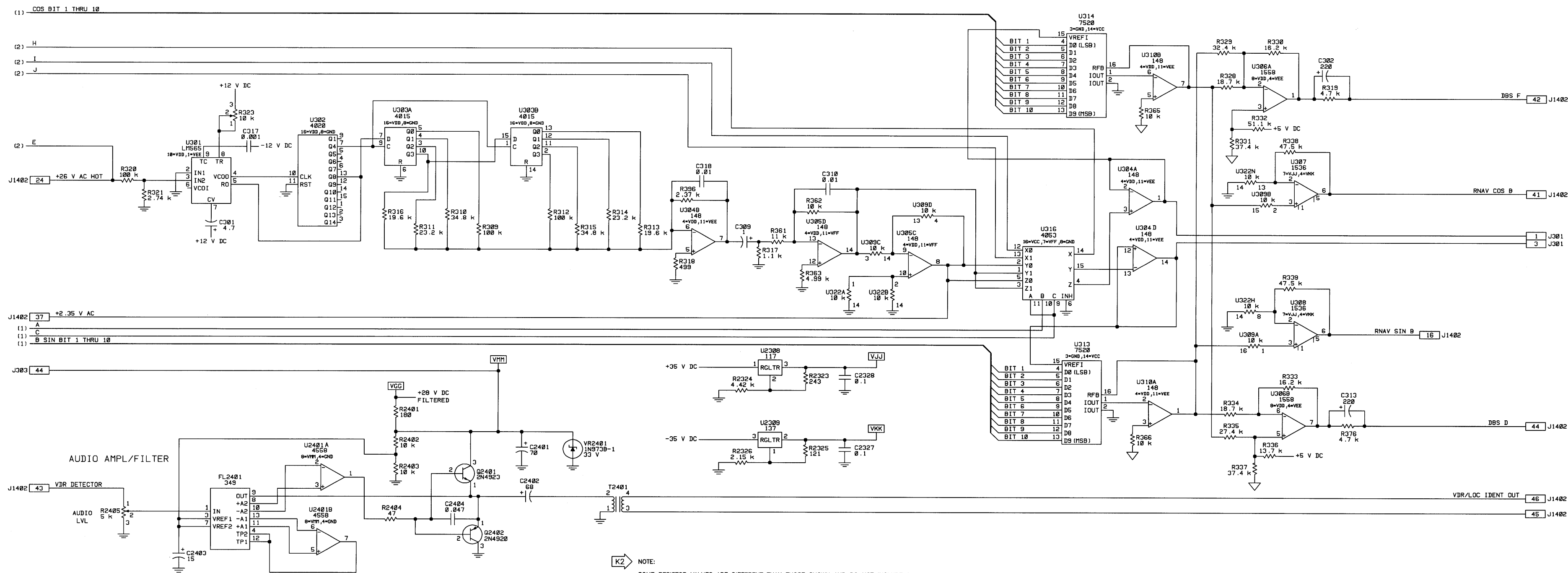


NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

AD-4882-04- (2)
 659-1733-004D (2)

RMI/Power Supply/Audio A3 (CPN 646-8203-004), Schematic Diagram
 Figure 124 (Sheet 2)

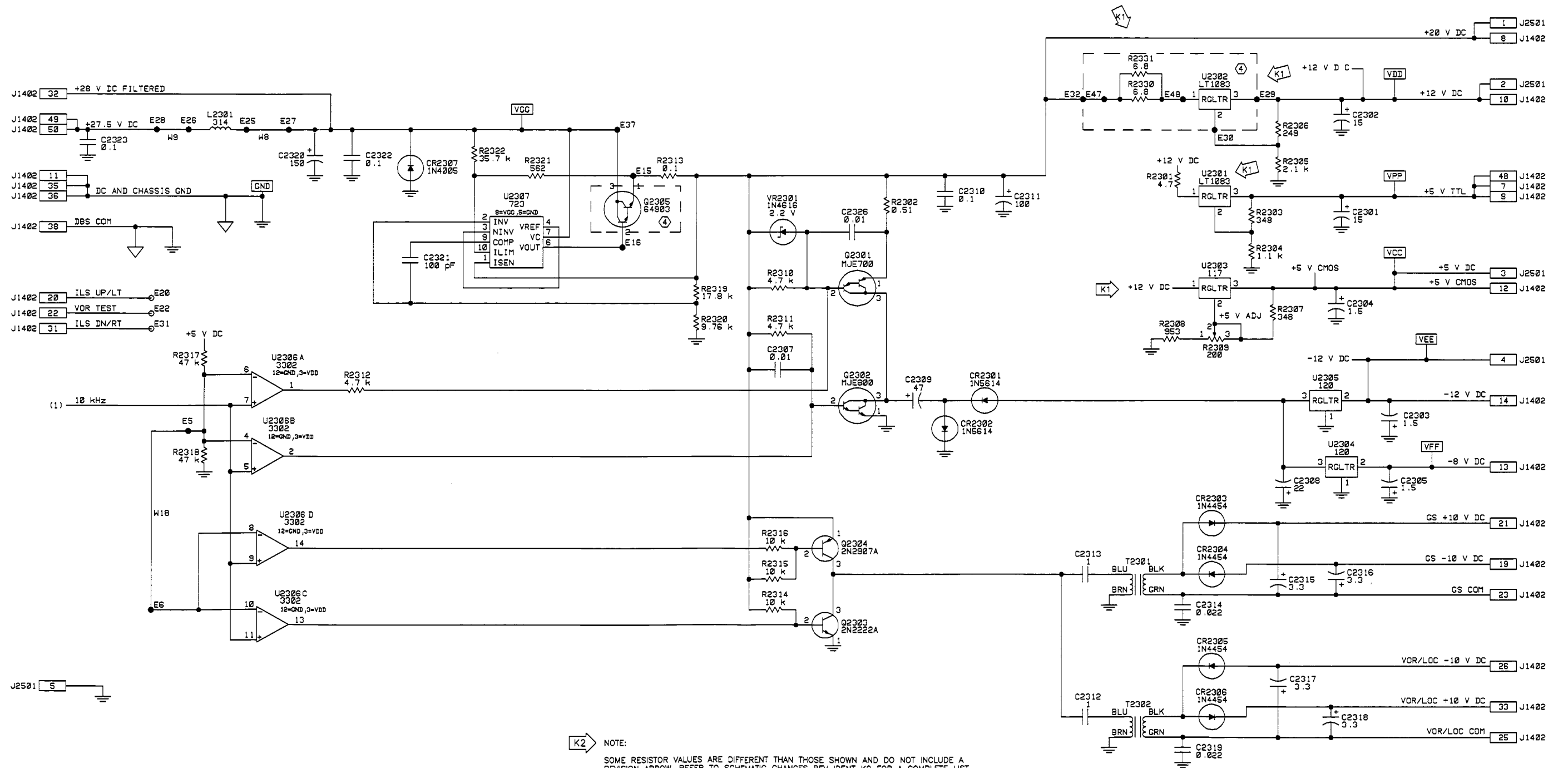
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

AD-4882-04- (3)
 659-1733-004D (3)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



AD-4882-04- (4)
 659-1733-004D (4)

RMI/Power Supply/Audio A3 (CPN 646-8203-004), Schematic Diagram
 Figure 124 (Sheet 4)

34-35-10

Pages 198.21/198.22
 Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

REV IDENT and SHEET: K1 – sheets 1, 2, 3, and 4

EFFECTIVITY: REV B

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R386	27 kΩ	27.4 kΩ
R390	100 Ω	100 Ω
R392	100 kΩ	100 kΩ
R393	470 kΩ	475 kΩ
R394	470 kΩ	475 kΩ
R395	470 kΩ	475 kΩ
R3014	56 kΩ	56.2 kΩ
R3015	56 kΩ	56.2 kΩ
R3016	56 kΩ	56.2 kΩ
R3017	56 kΩ	56.2 kΩ
R3018	56 kΩ	56.2 kΩ
R3019	56 kΩ	56.2 kΩ
R3020	56 kΩ	56.2 kΩ
R3021	56 kΩ	56.2 kΩ

Sheet 2

RESISTOR	CARBON	METAL FILM
R305	27 Ω	27.4 Ω
R306	27 Ω	27.4 Ω
R307	27 Ω	27.4 Ω
R308	27 Ω	27.4 Ω
R356	4.7 kΩ	4.75 kΩ
R357	4.7 kΩ	4.75 kΩ
R364	100 kΩ	100 kΩ
R368	470 Ω	475 Ω
R369	1.2 kΩ	1.21 kΩ
R370	1.2 kΩ	1.21 kΩ
R371	1.2 kΩ	1.21 kΩ
R372	1.2 kΩ	1.21 kΩ
R374	470 Ω	475 Ω
R375	100 kΩ	100 kΩ

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

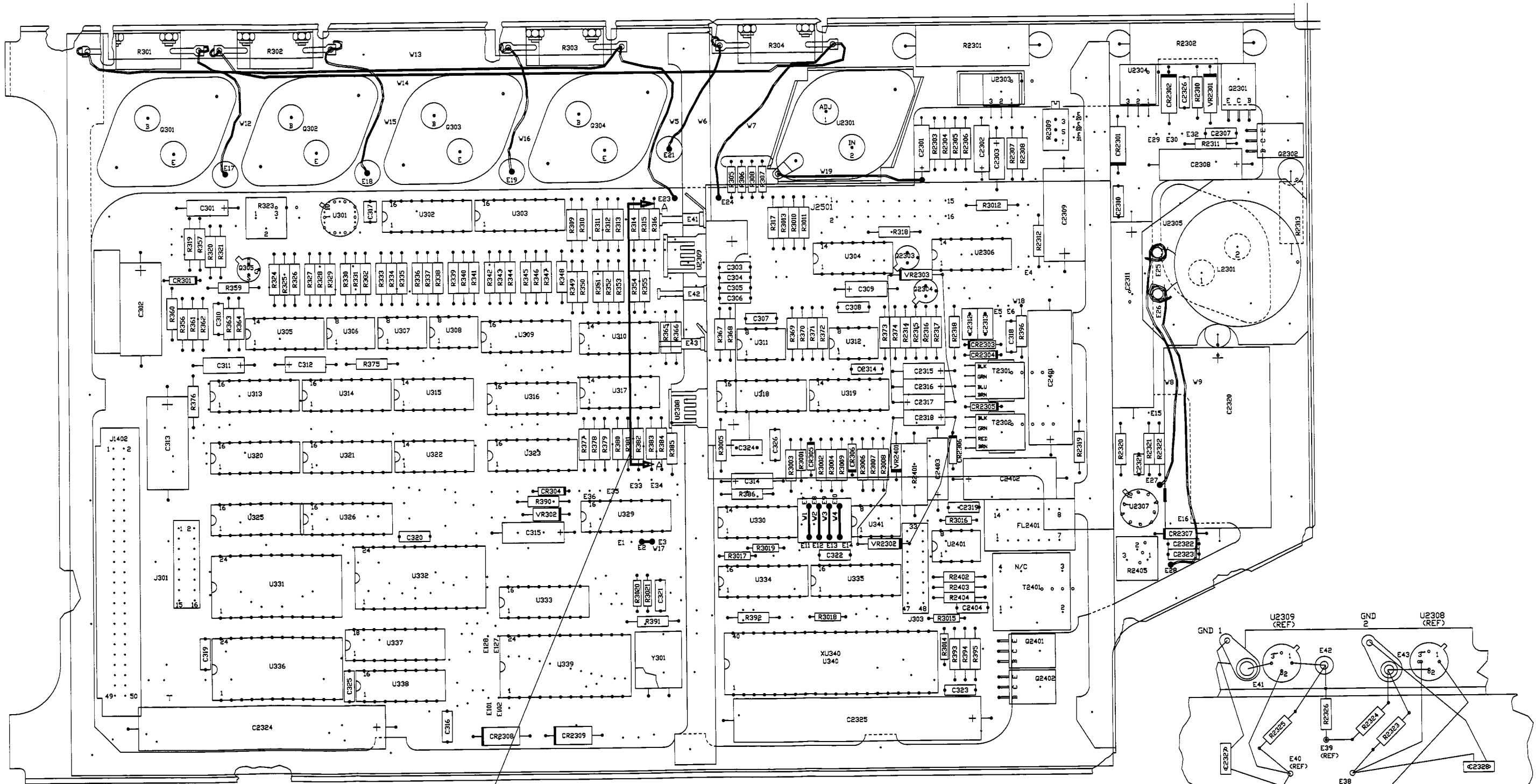
DESCRIPTION/REASON: Sheet 3

RESISTOR	CARBON	METAL FILM
R319	4.7 k Ω	4.75 k Ω
R376	4.7 k Ω	4.75 k Ω
R2404	47 Ω	47.5 Ω

Sheet 4

RESISTOR	CARBON	METAL FILM
R2310	4.7 k Ω	4.75 k Ω
R2311	4.7 k Ω	4.75 k Ω
R2312	4.7 k Ω	4.75 k Ω
R2314	10 k Ω	10 k Ω
R2315	10 k Ω	10 k Ω
R2316	10 k Ω	10 k Ω
R2317	47 k Ω	47.5 k Ω
R2318	47 k Ω	47.5 k Ω

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



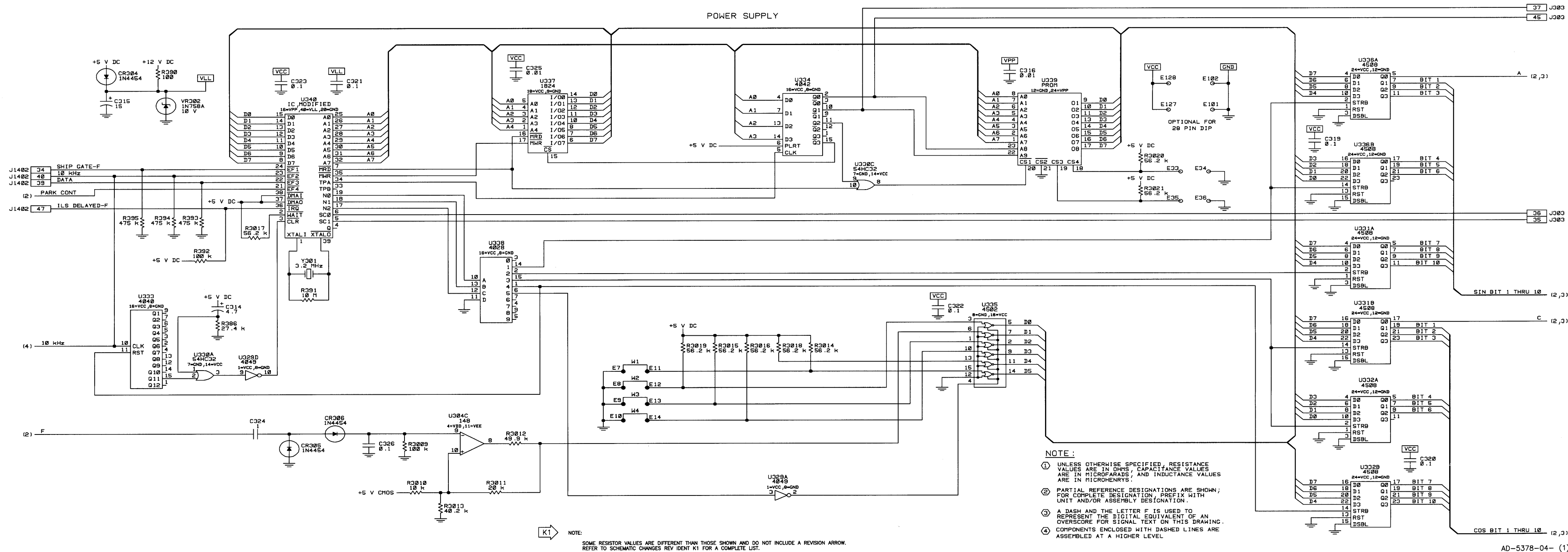
NOTES:

- 1 REFER TO FIGURE 118 FOR WAVEFORMS AND TEST POINTS.
- 2 REFER TO FIGURE 101 FOR CHASSIS MOUNTED COMPONENTS—Q2305, U2302, R2330, AND R2331.

646-8203-005B
 AD-5382-01-

RMI/Power Supply/Audio A3 (CPN 646-8203-005), Maintenance Aid Diagram
 Figure 126

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

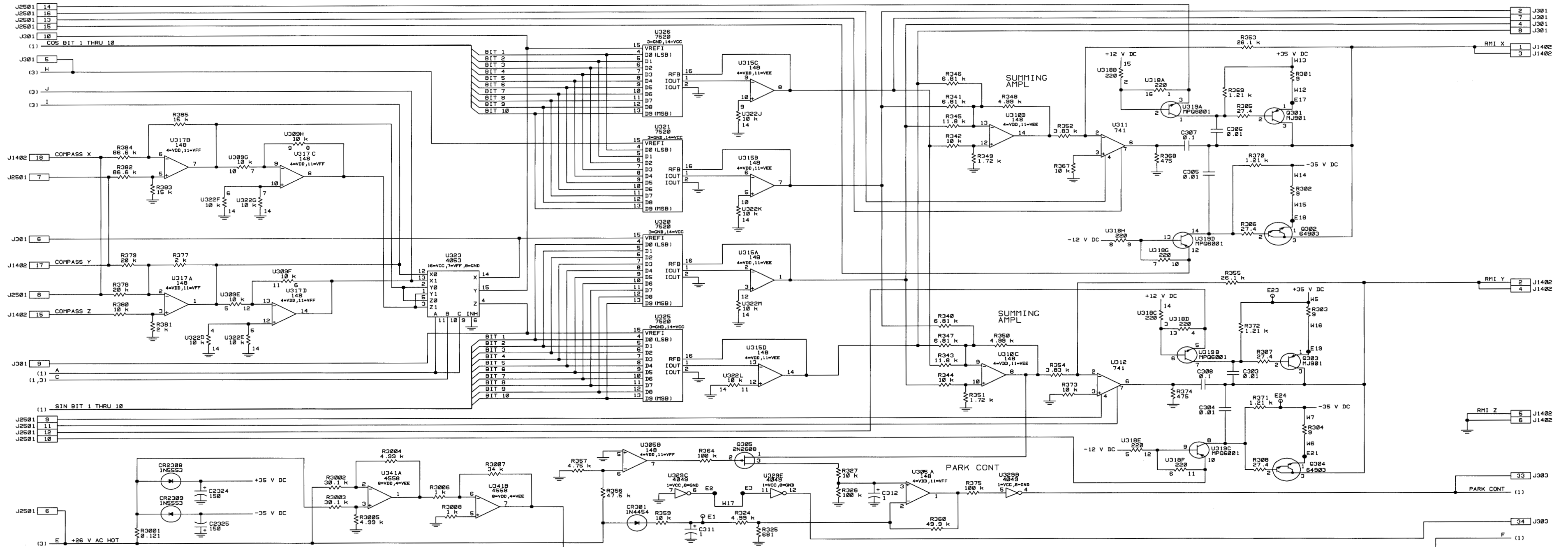


- NOTE :
- ① UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS; CAPACITANCE VALUES ARE IN MICROFARADS; AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - ③ A DASH AND THE LETTER F IS USED TO REPRESENT THE DIGITAL EQUIVALENT OF AN OVERSCORE FOR SIGNAL TEXT ON THIS DRAWING.
 - ④ COMPONENTS ENCLOSED WITH DASHED LINES ARE ASSEMBLED AT A HIGHER LEVEL.

NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K1 FOR A COMPLETE LIST.

RMI/Power Supply/Audio A3 (CPN 646-8203-005), Schematic Diagram
 Figure 127 (Sheet 1 of 4)

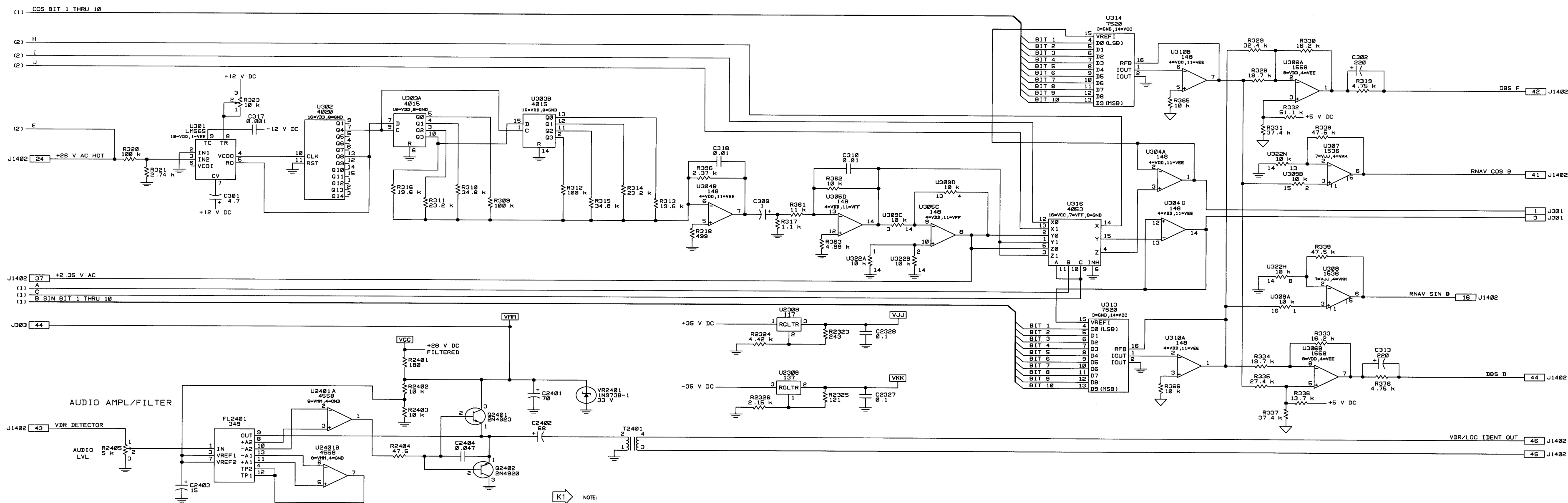
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K1 FOR A COMPLETE LIST.

AD-5378-04- (2)
 659-1733-005B (2)

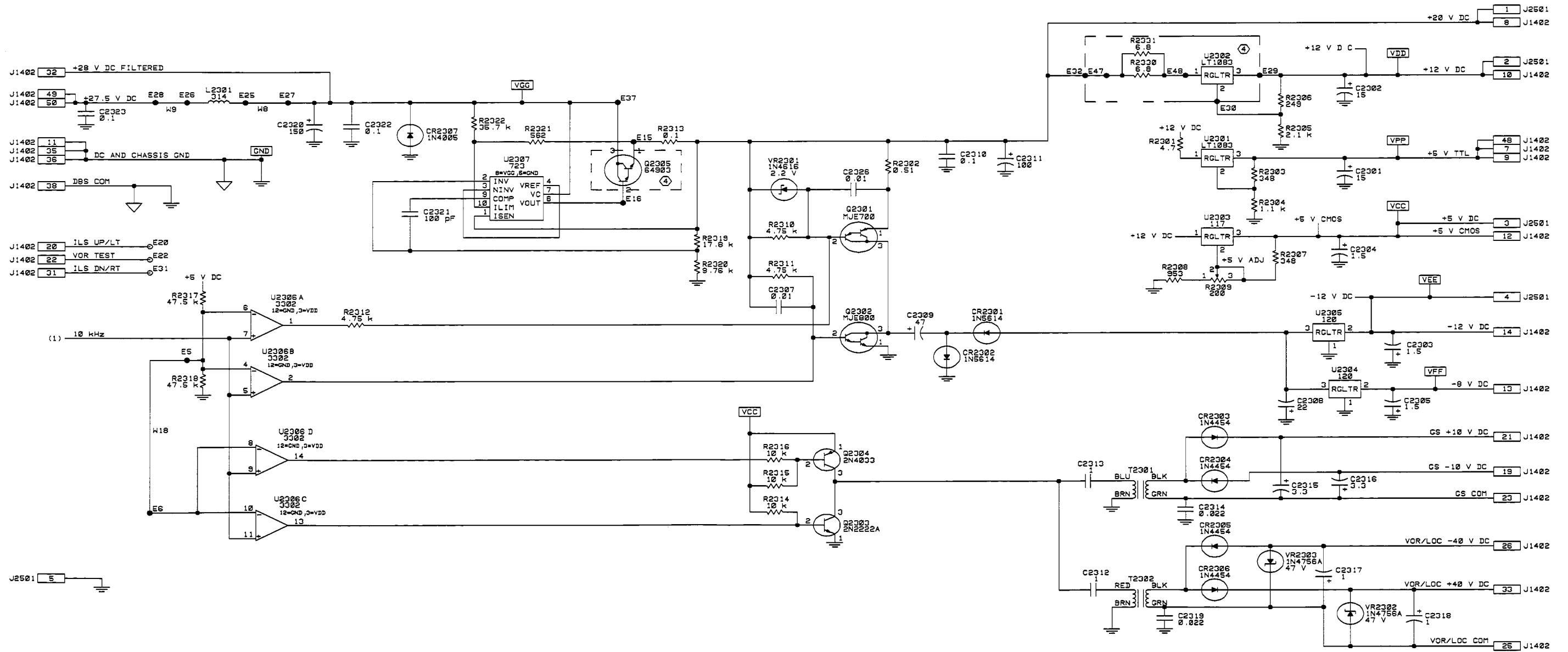
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



RMI/Power Supply/Audio A3 (CPN 646-8203-005), Schematic Diagram
 Figure 127 (Sheet 3)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K1 FOR A COMPLETE LIST.

AD-5378-04- (4)
 659-1733-005B (4)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

REV IDENT and SHEET: K1 – sheet 4

EFFECTIVITY: REV A

DESCRIPTION/REASON: Changed U2301 and U2302 from 117 to LT1083, and C2301 and C2302 from 1.5 to 15.0 μ F to increase current capability.

REV IDENT and SHEET: K2 – sheets 1, 2, 3, and 4

EFFECTIVITY: REV B

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R386	27 k Ω	27.4 k Ω
R390	100 Ω	100 Ω
R392	100 k Ω	100 k Ω
R393	470 k Ω	475 k Ω
R394	470 k Ω	475 k Ω
R395	470 k Ω	475 k Ω
R3014	56 k Ω	56.2 k Ω
R3015	56 k Ω	56.2 k Ω
R3016	56 k Ω	56.2 k Ω
R3017	56 k Ω	56.2 k Ω
R3018	56 k Ω	56.2 k Ω
R3019	56 k Ω	56.2 k Ω
R3020	56 k Ω	56.2 k Ω
R3021	56 k Ω	56.2 k Ω

Sheet 2

RESISTOR	CARBON	METAL FILM
R305	27 Ω	27.4 Ω
R306	27 Ω	27.4 Ω
R307	27 Ω	27.4 Ω
R308	27 Ω	27.4 Ω
R356	4.7 k Ω	4.75 k Ω
R357	4.7 k Ω	4.75 k Ω
R364	100 k Ω	100 k Ω
(Cont)		

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Sheet 2 (Cont)

RESISTOR	CARBON	METAL FILM
R368	470 Ω	475 Ω
R369	1.2 k Ω	1.21 k Ω
R370	1.2 k Ω	1.21 k Ω
R371	1.2 k Ω	1.21 k Ω
R372	1.2 k Ω	1.21 k Ω
R374	470 Ω	475 Ω
R375	100 k Ω	100 k Ω

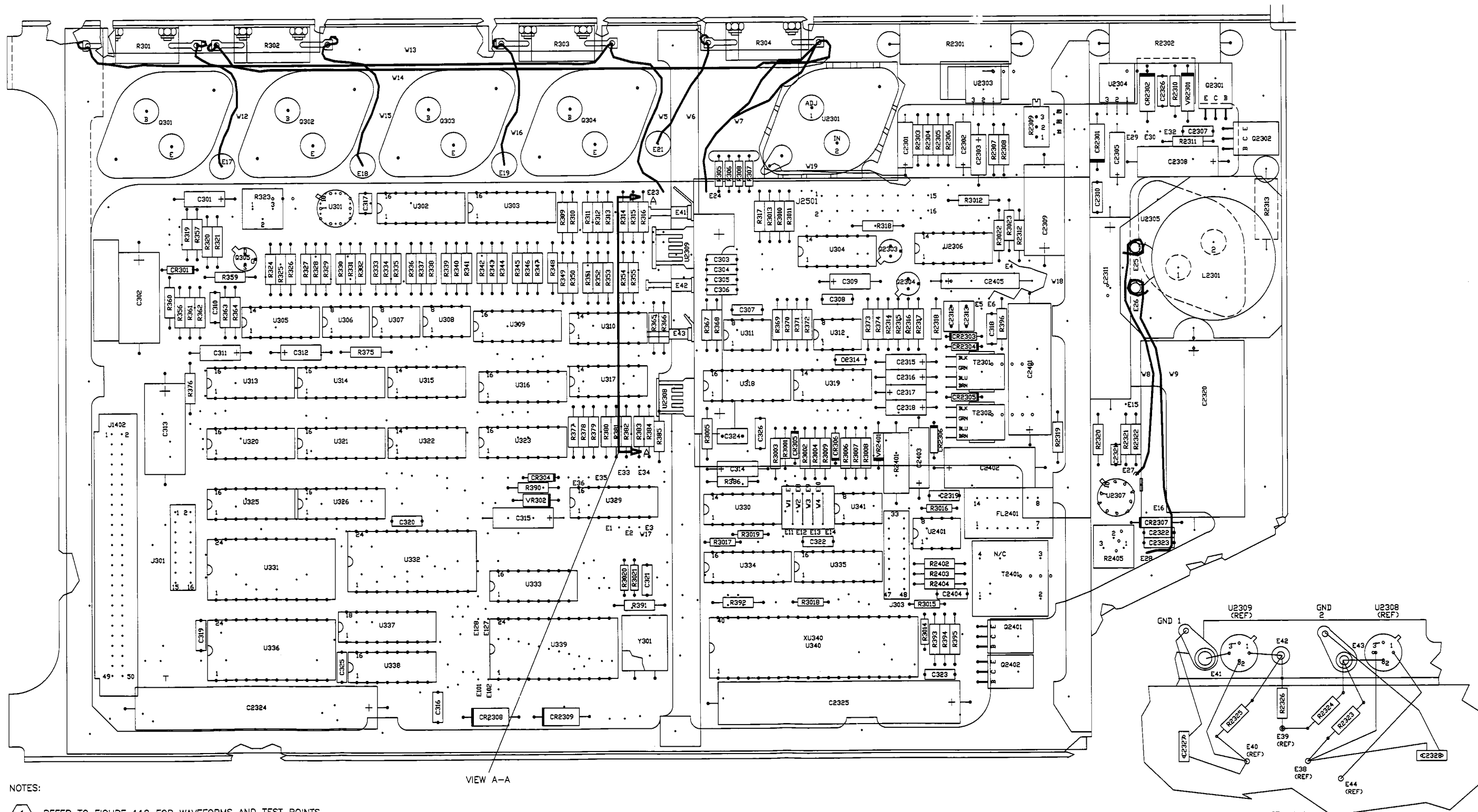
Sheet 3

RESISTOR	CARBON	METAL FILM
R319	4.7 k Ω	4.75 k Ω
R376	4.7 k Ω	4.75 k Ω
R2404	47 Ω	47.5 Ω

Sheet 4

RESISTOR	CARBON	METAL FILM
R2310	4.7 k Ω	4.75 k Ω
R2311	4.7 k Ω	4.75 k Ω
R2312	4.7 k Ω	4.75 k Ω
R2314	10 k Ω	10 k Ω
R2315	10 k Ω	10 k Ω
R2316	10 k Ω	10 k Ω
R2317	47 k Ω	47.5 k Ω
R2318	47 k Ω	47.5 k Ω
R3022	47 k Ω	47.5 k Ω
R3023	47 k Ω	47.5 k Ω

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



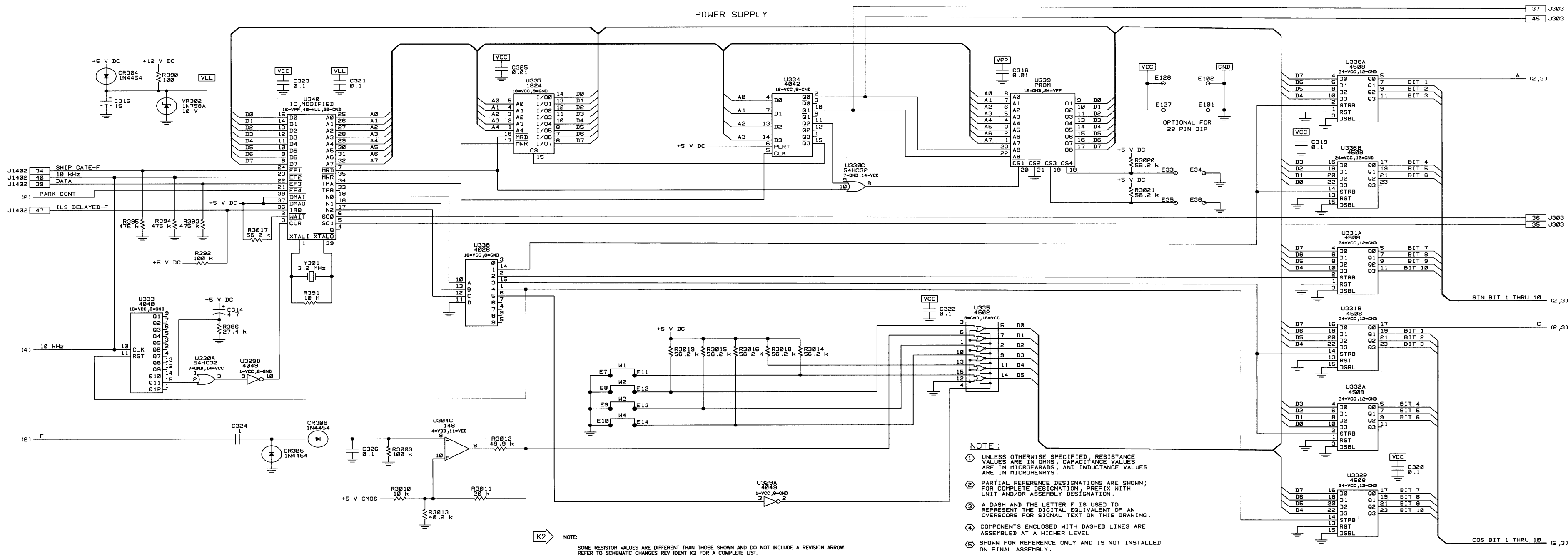
- NOTES:
- 1 REFER TO FIGURE 118 FOR WAVEFORMS AND TEST POINTS.
 - 2 REFER TO FIGURE 101 FOR CHASSIS MOUNTED COMPONENTS-Q2305, U2302, R2330, AND R2331.

646-8203-006B
 AD-5383-01-

RMI/Power Supply/Audio A3 (CPN 646-8203-006), Maintenance Aid Diagram
 Figure 129

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



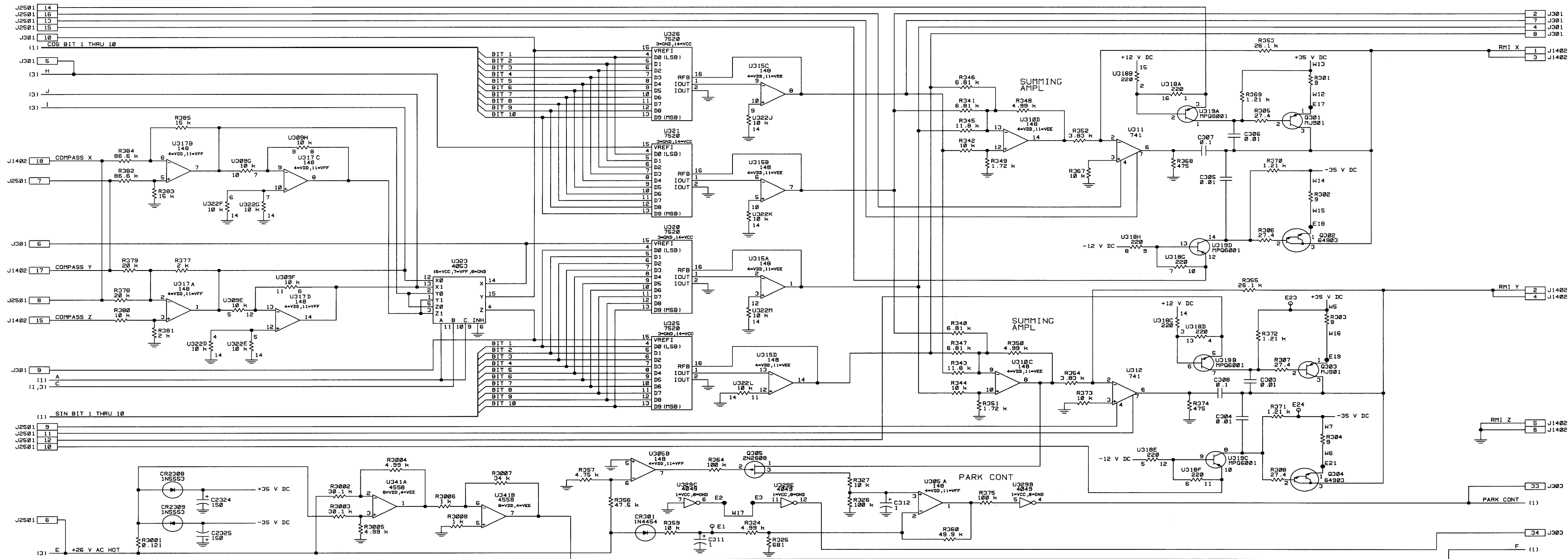
NOTE:

- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS; CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
- ③ A DASH AND THE LETTER F IS USED TO REPRESENT THE DIGITAL EQUIVALENT OF AN OVERSCORE FOR SIGNAL TEXT ON THIS DRAWING.
- ④ COMPONENTS ENCLOSED WITH DASHED LINES ARE ASSEMBLED AT A HIGHER LEVEL.
- ⑤ SHOWN FOR REFERENCE ONLY AND IS NOT INSTALLED ON FINAL ASSEMBLY.

K2: SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

RMI/Power Supply/Audio A3 (CPN 646-8203-006), Schematic Diagram
 Figure 130 (Sheet 1 of 4)

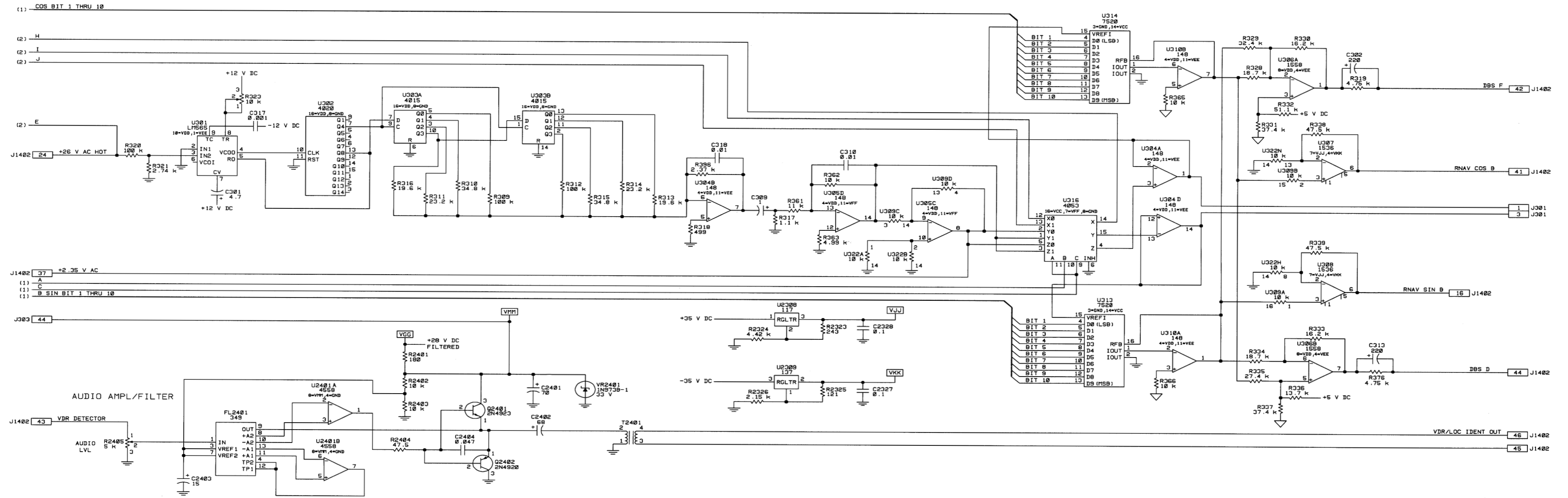
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

AD-5377-04- (2)
 659-1733-006B (2)

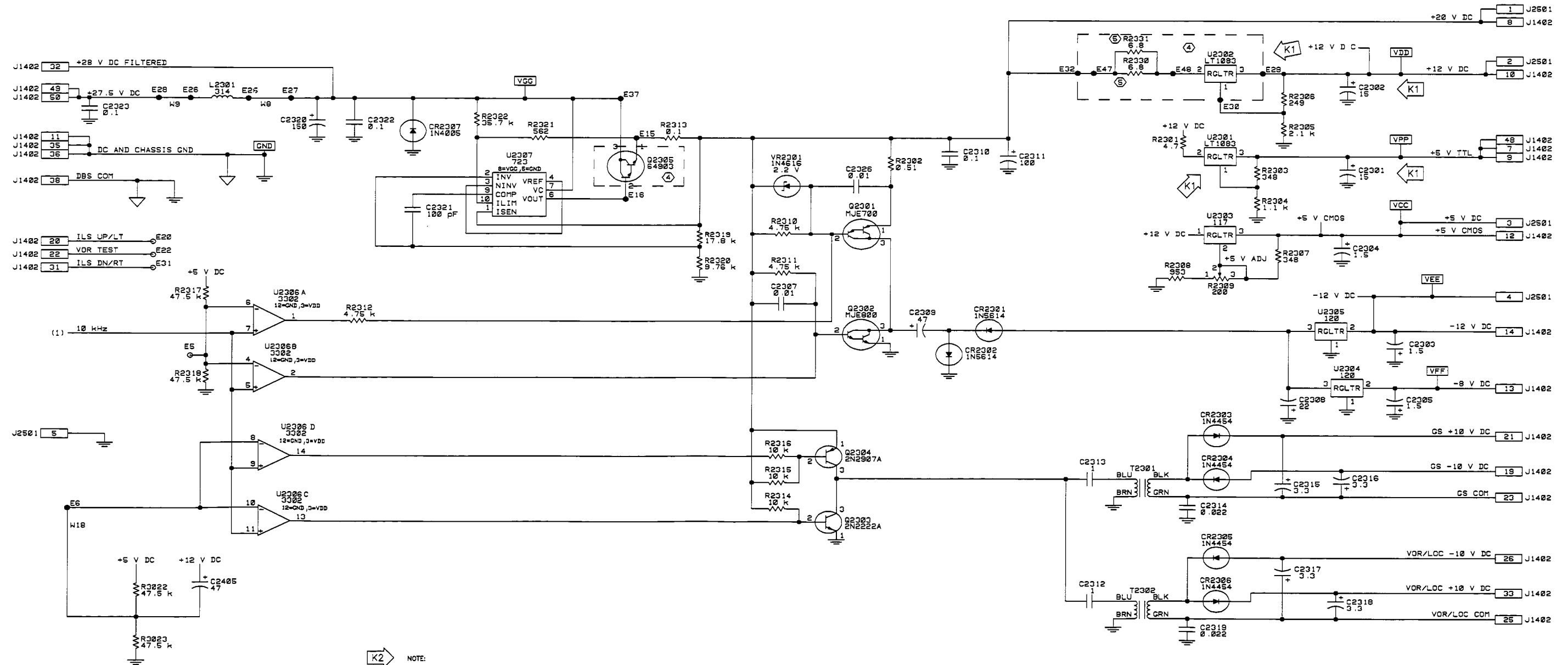
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

AD-5377-04- (3)
 659-1733-006B (3)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



NOTE:
 SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW.
 REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

AD-5377-04- (4)
 659-1733-006B (4)

RMI/Power Supply/Audio A3 (CPN 646-8203-006), Schematic Diagram
 Figure 130 (Sheet 4)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: B1 – sheet 2

EFFECTIVITY: REV V

DESCRIPTION/REASON: Added U403 to AM and FM clean up currents to improve signal inversion characteristics.

REV IDENT and SHEET: C1 – sheet 4

EFFECTIVITY: All models

DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: C2 – sheet 1

EFFECTIVITY: REV W (601-4204-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Deleted CR405 (1N4454). Changed R444 (40.2 k Ω) to 6.19 k Ω . Changed R464 (200 k Ω) to 31.6 k Ω . Changed R465 (1 k Ω) to 562 Ω . Corrected PLL problems.

REV IDENT and SHEET: C3 – sheet 1

EFFECTIVITY: REV Y (601-4204-001)

DESCRIPTION/REASON: Changed R443 (20.5 k Ω) to 10.5 k Ω . Disconnected CR406-A from U434-1, connected CR406-A to +5 V dc. Aided production by centering VOR zero adjustment.

REV IDENT and SHEET: C4 – sheet 1

EFFECTIVITY: REV AE (601-4204-001). REV AD (601-4202-003).

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Deleted CR408. Added CR415 (1N4454) between CR406 and +5 V dc. Added R478 (27 k Ω) and R479 (27 k Ω). Changed R467 (56 k Ω) to 27 k Ω . (For the 601-4204-001 only: R477 was deleted. R499 (47 k Ω) was added between U436-1 and 6 by REV G. R499 moved to U436-1 and 7 by REV P and changed to 47.5 k Ω by REV U.) Corrects prior omissions and eliminated +5-V dc bootstrap problem.

Digital Instrumentation A4, Schematic Changes
Figure 131 (Sheet A)

34-35-10

Page 198.47
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C5 – sheet 4

EFFECTIVITY: REV AC (601-4204-001, -003)

DESCRIPTION/REASON: Added note 4. Changed R421 (10 k Ω) to 100 k Ω to correct schematic.

REV IDENT and SHEET: D1 – sheet 1

EFFECTIVITY: REV AJ (601-4204-003)

SERVICE BULLETIN: 14

DESCRIPTION/REASON: Changed R461 (10 k Ω) to 1 k Ω , changed R464 (31.6 k Ω) to 7.15 k Ω . Changed R476 (3010 Ω) to 5.62 k Ω . Deleted R477 (47.5 k Ω).

NOTE: The above changes to 601-4204-001 are accomplished only in the field by SB 14. R477 may be designated R499 on some documentation.

Improves VOR FM demodulation.

REV IDENT and SHEET: D2 – sheets 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Correct errors in schematic.

REV IDENT and SHEET: F1 – sheet 1

EFFECTIVITY: REV K CPN 642-4204-001

DESCRIPTION/REASON: Changed C429 (400 pF) to 390 pF to improve reliability.

REV IDENT and SHEET: F2 – sheets 1, 3 and 4

EFFECTIVITY: MOD 1 CPN 601-4204-001; MOD 2 CPN 642-4204-001

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S401 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: F3 – sheet 4

EFFECTIVITY: REV L CPN 642-4204-001

DESCRIPTION/REASON: An alternate device type 4558 is added for U434.

REV IDENT and SHEET: J1 – sheet 4

EFFECTIVITY: REV N CPN 642-4204-001

DESCRIPTION/REASON: Replaced U433 and U435 (LM148) with preferred part (OP-11) to improve deviation consistency during testing.

REV IDENT and SHEET: J2 – sheet 1

EFFECTIVITY: REV P CPN 642-4204-001

DESCRIPTION/REASON: Deleted CR404 and CR414 and replaced CR403 and CR413 with resistors R490 and R491 (100 k Ω), respectively, to improve deviation consistency during testing.

REV IDENT and SHEET: K1 – sheet 1

EFFECTIVITY: REV T CPN 642-4204-001 (MOD 3)

SERVICE BULLETIN: A25

DESCRIPTION/REASON: Deleted R490 and R491 and replaced them with CR403 and CR413 respectively. Added CR404 and CR414. These changes were made to correct RMI stability.

REV IDENT and SHEET: K2 – sheets 1 and 4

EFFECTIVITY: REV V CPN 642-4204-001

SERVICE BULLETIN: 27

DESCRIPTION/REASON: Replaced obsolete U431 with a separate circuit card A27 CPN 676-7466-001. Changed R435 and R452 from 80.6 to 8.06 k Ω and R476 from 5620 Ω to 3.83 k Ω . These changes add more margin to the VOR bearing indication circuit. Added note A.

(Cont)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Cont)

The above changes apply to circuit card 601-4204-001, -003 by service bulletin 27 only. Refer to sheet 5 of schematic for added A27 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: K3 – sheets 1 and 5

EFFECTIVITY: REV V CPN 642-4204-001

DESCRIPTION/REASON: Added schematic on sheet 5 for the addition of A27 circuit card.

REV IDENT and SHEET: K4 – sheet 1

EFFECTIVITY: REV Y CPN 642-4204-001

SERVICE BULLETIN: 27

DESCRIPTION/REASON: Changed the value of R435 and R452 from 8.06 to 8.87 k Ω , and added C440 (22 μ F) to improve centering of the 30 Hz signal and remove DC bias of the monitor circuit. Refer to note A.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV AA CPN 642-4204-001 (MOD 4)

DESCRIPTION/REASON: Incorporate modification markings.

REV IDENT and SHEET: K5 – sheets 1, 2, 3, and 4

EFFECTIVITY: REV AB CPN 642-4204-001

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R407	22 k Ω	22.1 k Ω
R410	22 k Ω	22.1 k Ω

(Cont)

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.51/198.52, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Add the following text to figure 131, sheet E immediately after the last entry.

REV IDENT and SHEET: L1 -sheet 5

DESCRIPTION/REASON: Replaced 300- Ω carbon composition resistors R1 and R2 with 301 - Ω metal film resistors.

SERVICE BULLETIN: None

EFFECTIVITY: CPN 676-7466-001 REV E

REV IDENT and SHEET: L2 -sheet 5

DESCRIPTION/REASON: Added the following resistors to provide DC level compensation.
R3, R4 10 M Ω fixed resistor
R5, R6 0-to-20 k Ω potentiometer

SERVICE BULLETIN: None

EFFECTIVITY: CPN 676-7466-001 REV F

REV IDENT and SHEET: L3 -sheet 6

DESCRIPTION/REASON: Added sheet 6 for the addition of the new A27 circuit card.
CPN 828-0868-002

SERVICE BULLETIN: None

EFFECTIVITY: CPN 642-4204-001 REV AH

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Sheet 1 cont)

RESISTOR	CARBON	METAL FILM
R419	56 kΩ	56.2 kΩ
R420	56 kΩ	56.2 kΩ
R429	47 kΩ	47.5 kΩ
R442	68 kΩ	68.1 kΩ
R448	4700 Ω	4.75 kΩ
R449	10 kΩ	10 kΩ
R456	47 kΩ	47.5 kΩ
R467	27 kΩ	27.4 kΩ
R468	56 kΩ	56.2 kΩ
R469	22 kΩ	22.1 kΩ
R470	56 kΩ	56.2 kΩ
R471	56 kΩ	56.2 kΩ
R472	56 kΩ	56.2 kΩ
R478	27 kΩ	27.4 kΩ
R479	27 kΩ	27.4 kΩ

Sheet 2

RESISTOR	CARBON	METAL FILM
R411	56 kΩ	56.2 kΩ
R412	10 kΩ	10 kΩ
R421	100 kΩ	100 kΩ
R422	56 kΩ	56.2 kΩ
R423	56 kΩ	56.2 kΩ

Sheet 3

RESISTOR	CARBON	METAL FILM
R402	56 kΩ	56.2 kΩ
R403	56 kΩ	56.2 kΩ
R405	56 kΩ	56.2 kΩ
R406	56 kΩ	56.2 kΩ
R413	56 kΩ	56.2 kΩ

Sheet 4

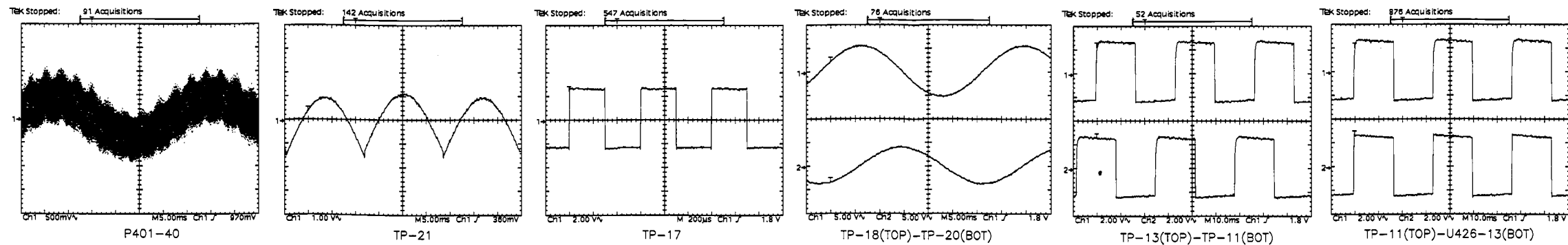
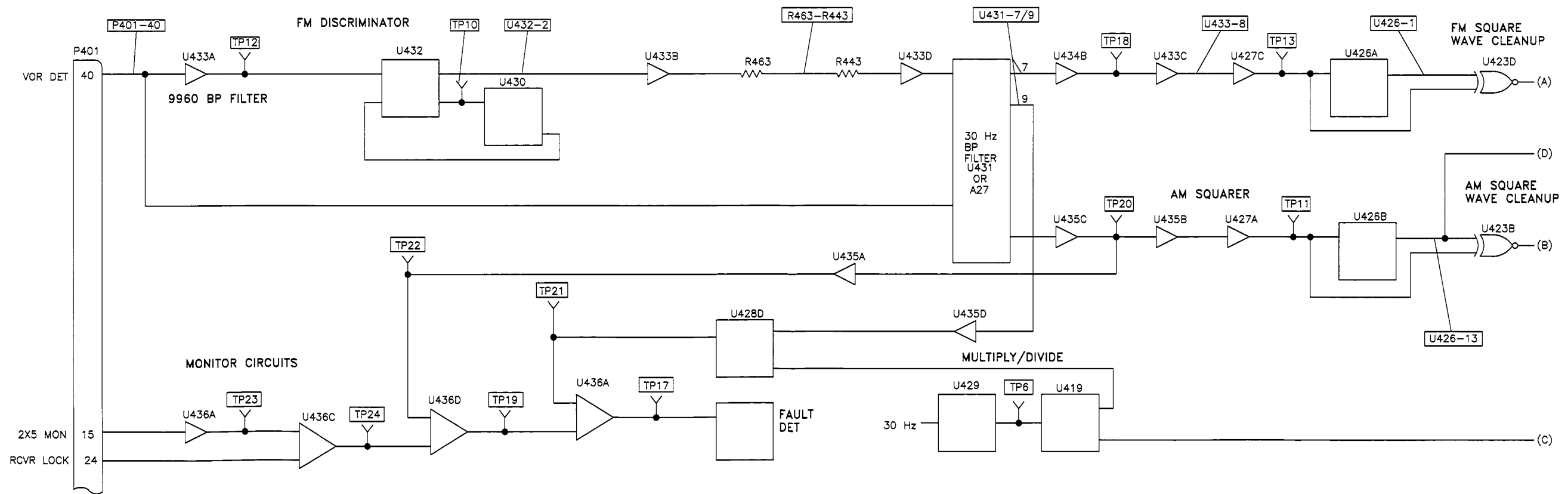
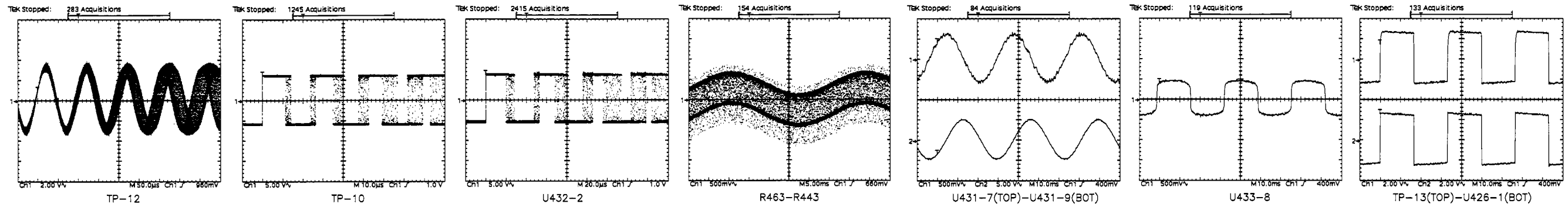
RESISTOR	CARBON	METAL FILM
R404	10 kΩ	10 kΩ
R414	56 kΩ	56.2 kΩ
R415	56 kΩ	56.2 kΩ
R440	10.0 Ω	10.0 Ω

Digital Instrumentation A4, Schematic Changes
 Figure 131 (Sheet E)

34-35-10

Pages 198.51/198.52
 Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

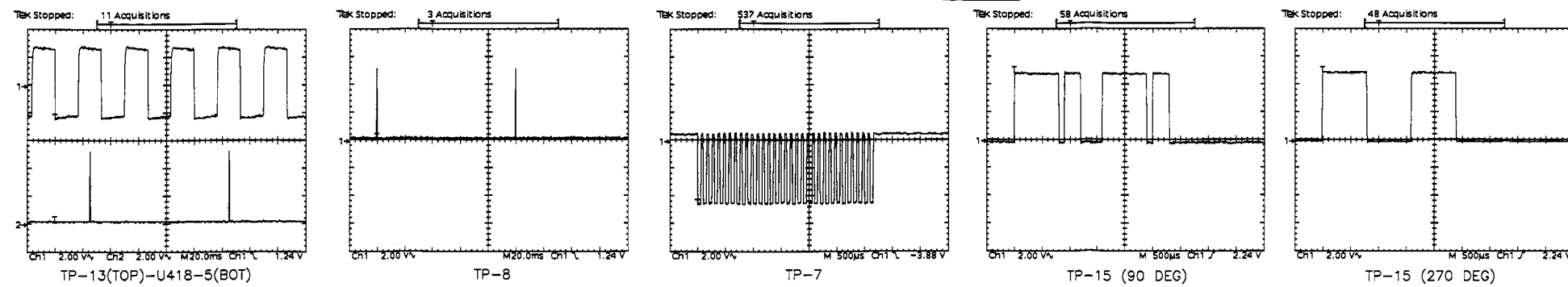
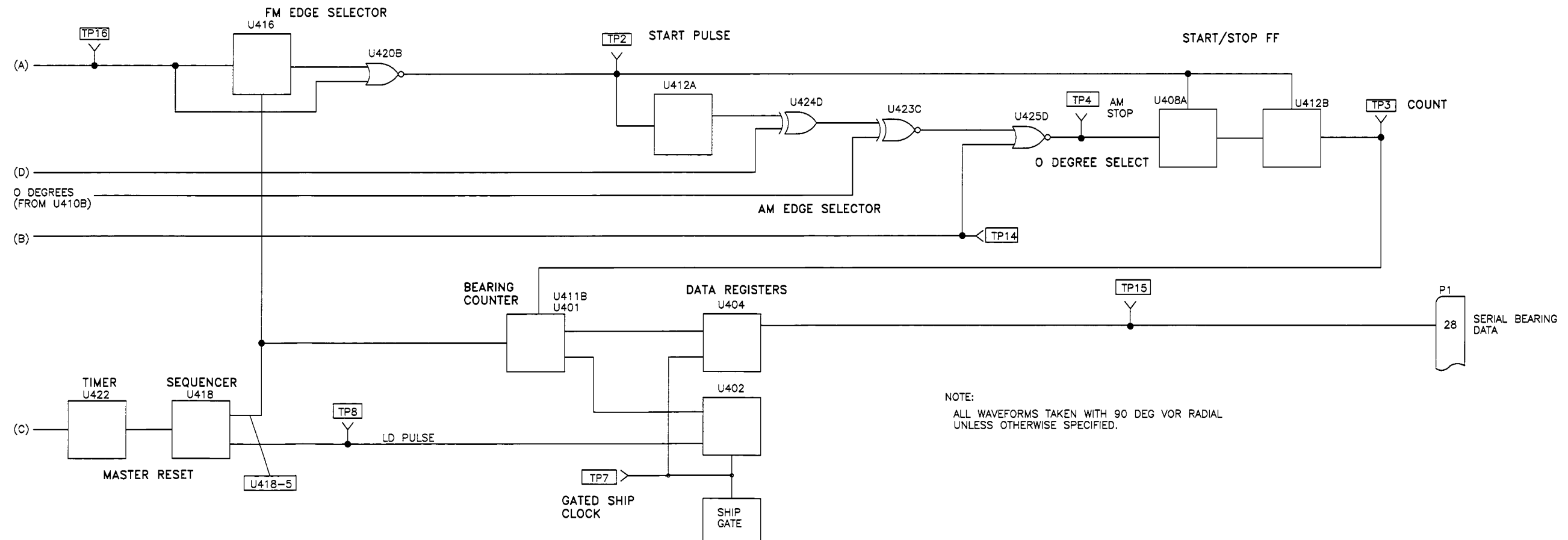
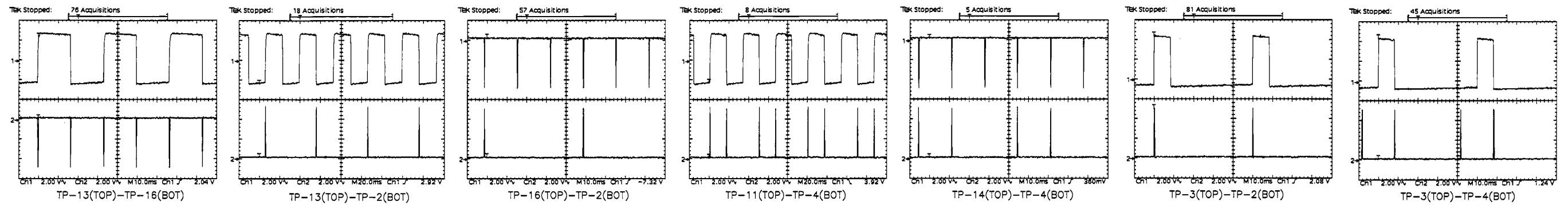


AD-4699-02-(1)

Digital Instrumentation A4, Waveforms
Figure 132 (Sheet 1 of 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

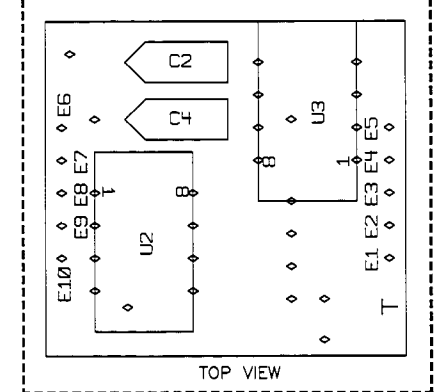
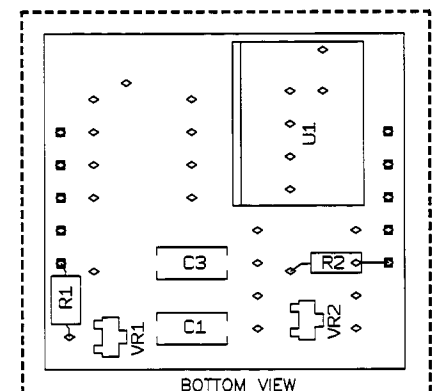
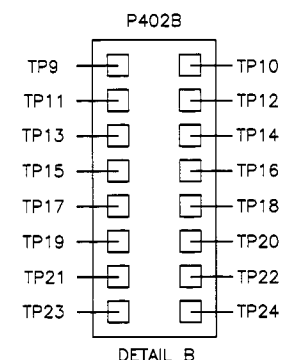
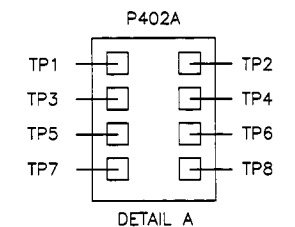
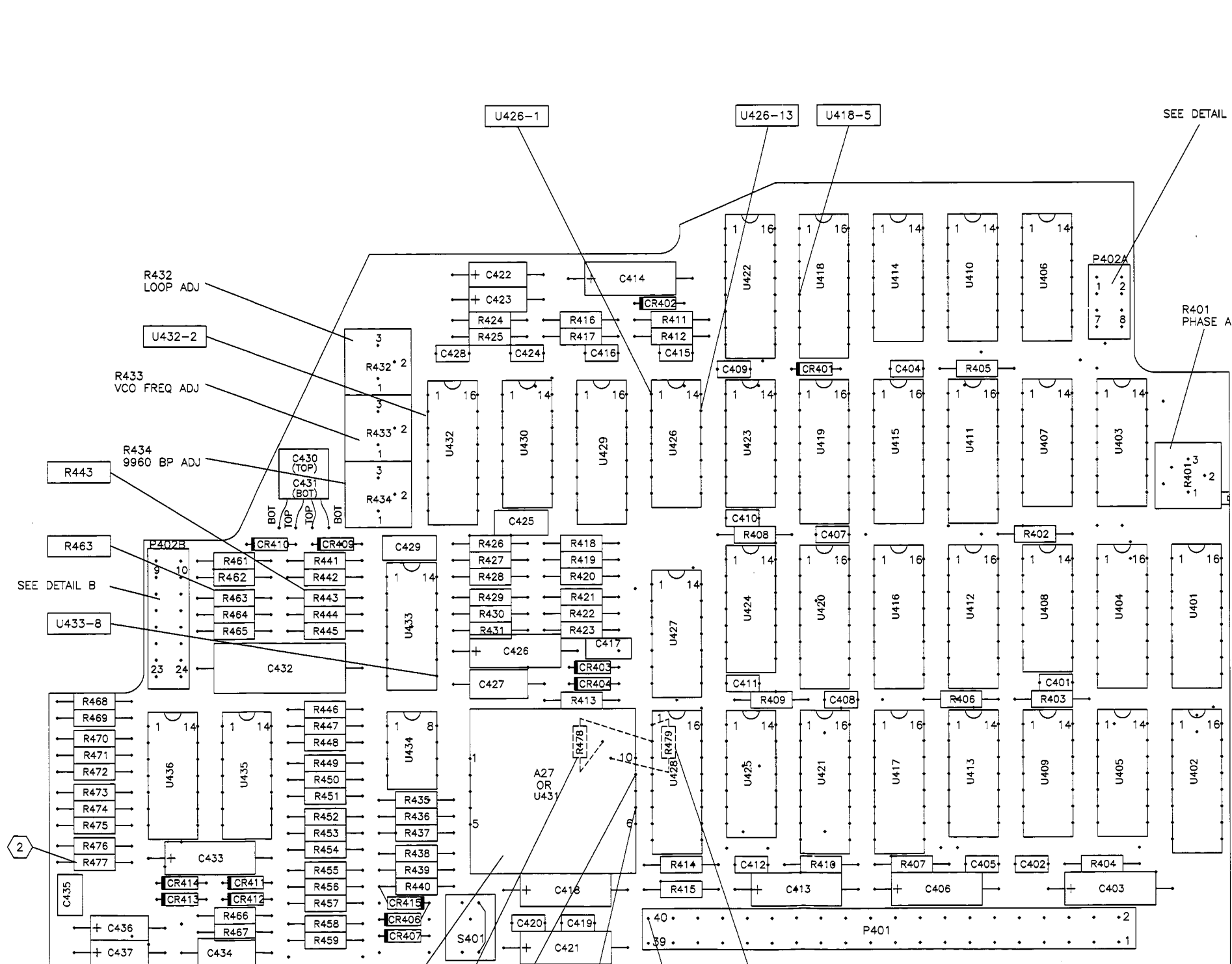


AD-4699-02-(2)

Digital Instrumentation A4, Waveforms
Figure 132 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



DETAIL AA
 A27 CPN 676-7466-001
 FOR A4 WITH SB 27 INSTALLED

- NOTES:
- ① DASHED COMPONENTS LOCATED ON BACKSIDE OF CARD.
 - ② R477 IS DELETED ON 601-4204-003 REV J.

SEE DETAIL AA ① U431-9 U431-7 P401-40 ①

676-7466-001C
 601-4204-001AG, -003AK
 AD-4656-01-

Digital Instrumentation A4 (CPN 601-4204-001, -003), Maintenance Aid Diagram
 Figure 133 (Sheet 1 of 2)

34-35-10

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

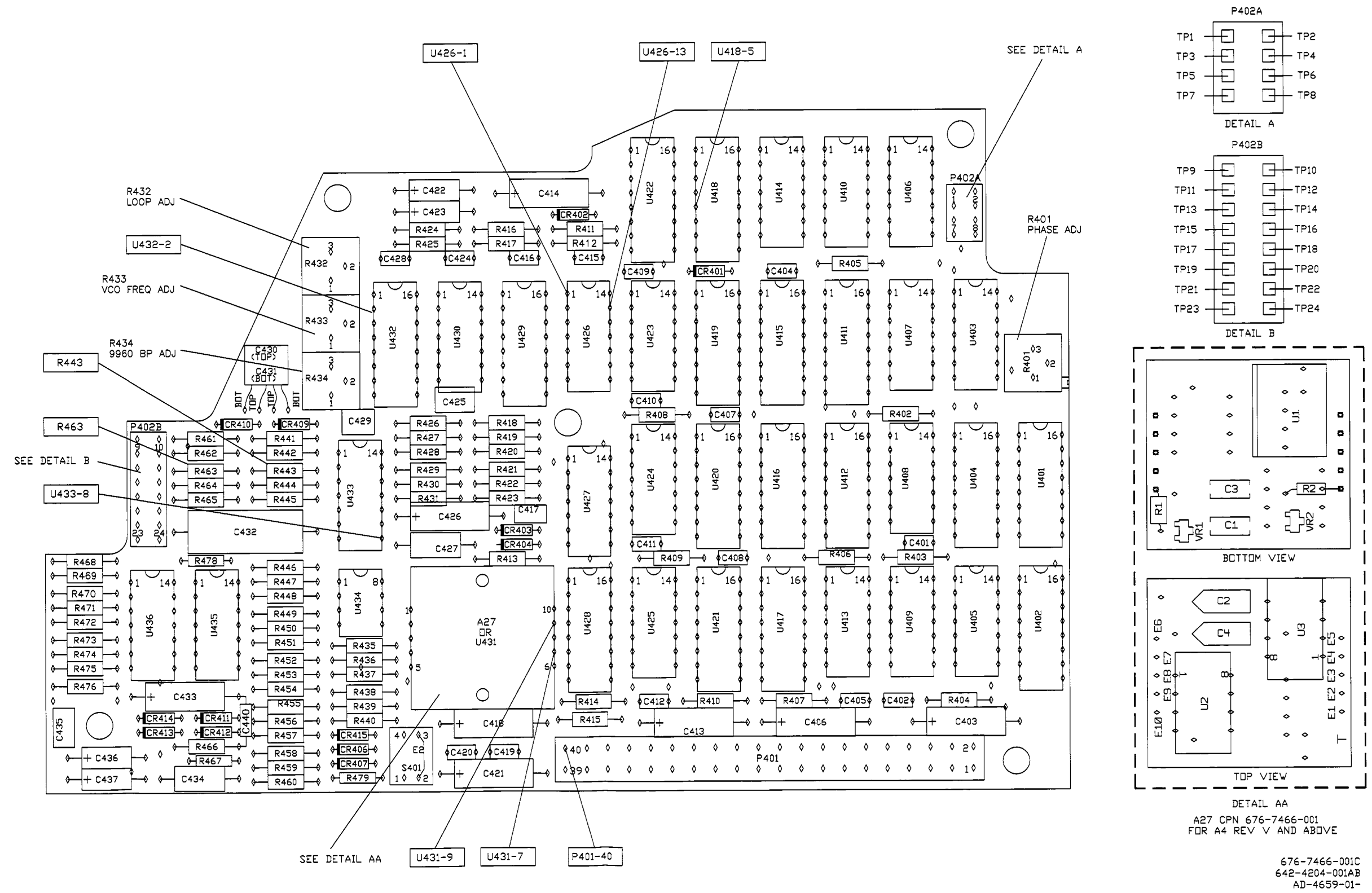
Insert facing page 198.56, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

In the lower left portion of the diagram, add resistor R460 to the empty thru holes located directly below R459.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Digital Instrumentation A4 (CPN 642-4204-001), Maintenance Aid Diagram
 Figure 133 (Sheet 2)

34-35-10

676-7466-001C
 642-4204-001AB
 AD-4659-01-

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

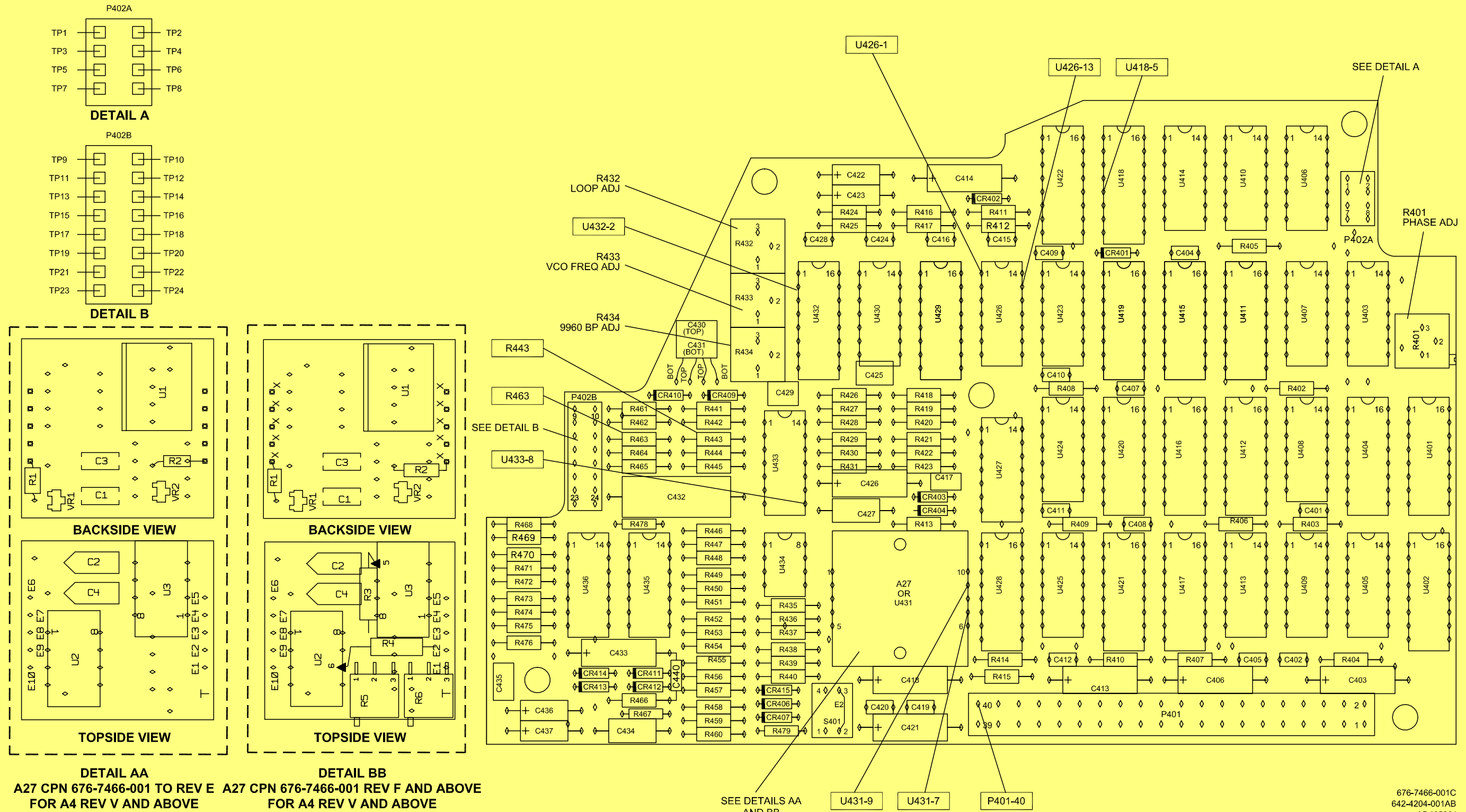
TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.58, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

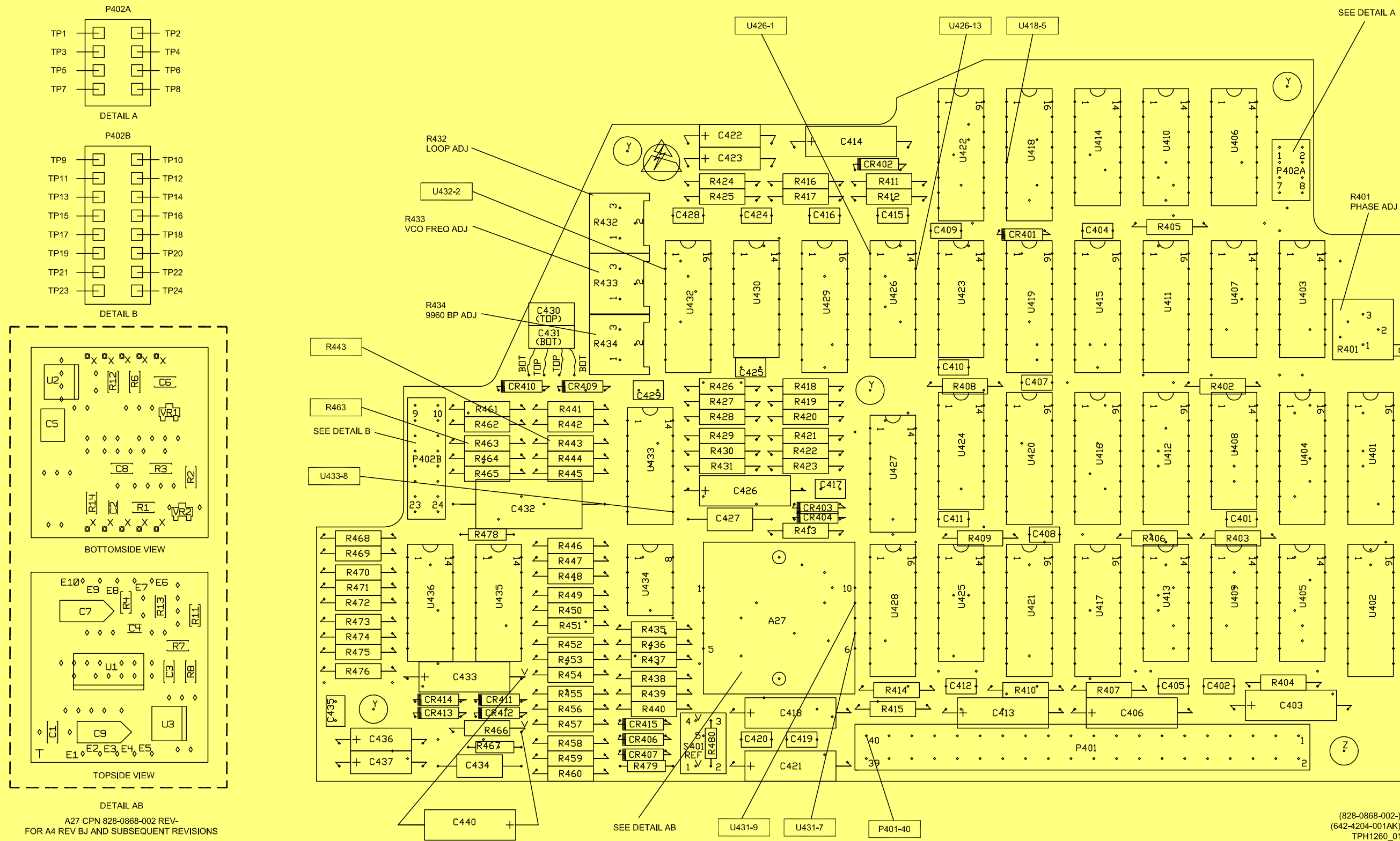
- Replace Figure 133 (Sheet 2), illustration with the illustration shown on page 6 of this temporary revision.
- After Figure 133 (Sheet 2), add Figure 133 (Sheet 3), shown on page 7 of this temporary revision.



676-7466-001C
 642-4204-001AB
 AD465901

Figure 133 (Sheet 2). Digital Instrumentation A4 (CPN 642-4204-001), Maintenance Aid Diagram

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



DETAIL AB
 A27 CPN 828-0868-002 REV-
 FOR A4 REV BJ AND SUBSEQUENT REVISIONS

Figure 133 (Sheet 3). Digital Instrumentation A4 (CPN 642-4204-001), Maintenance Aid Diagram

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.59/198.60, 34-35-10

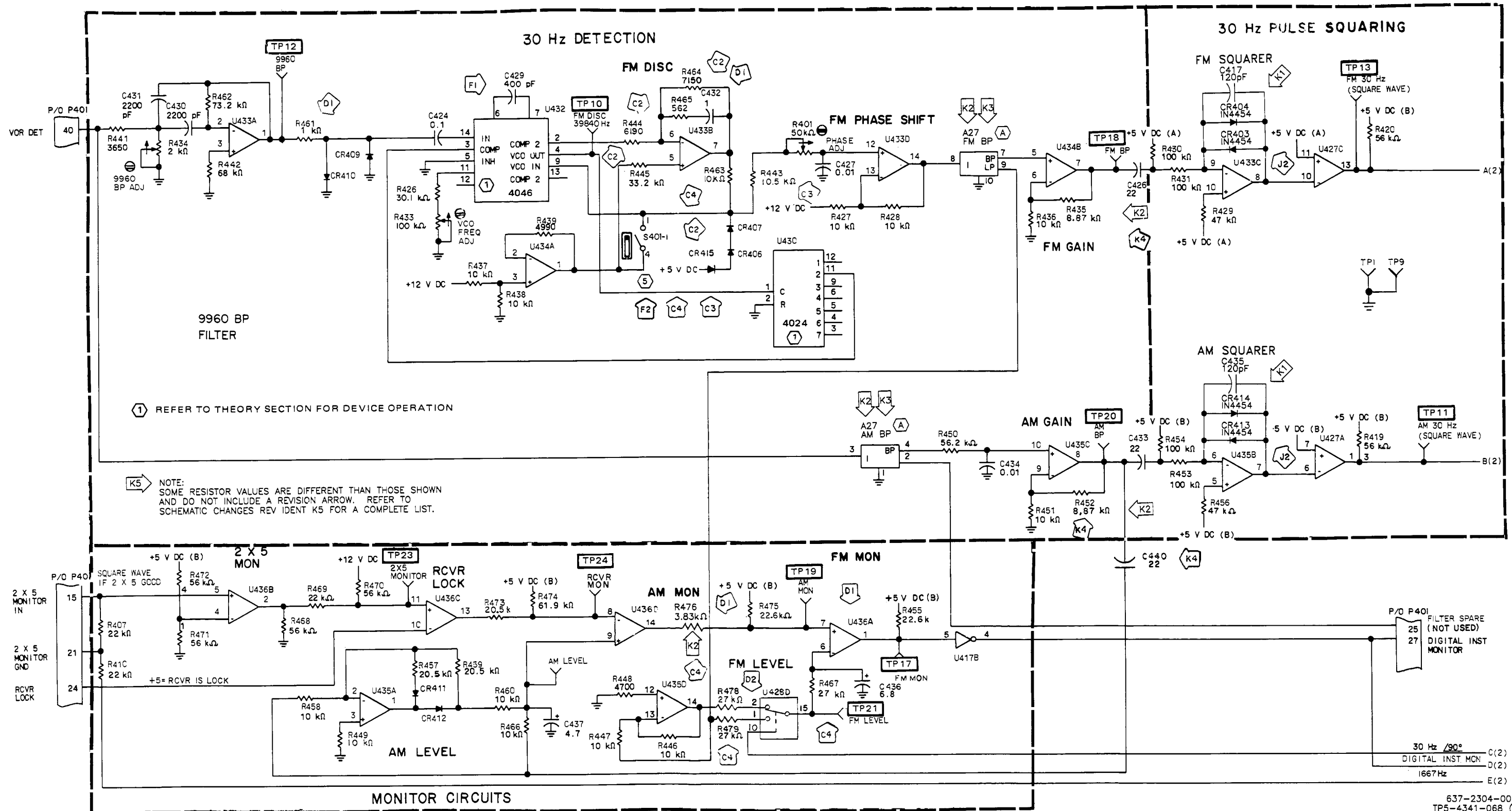
This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

In the lower left portion of the schematic, add the text TP22 to the test point with AM LEVEL by it (pin 9 of U436).

■ In the figure title, change “Figure 134 (Sheet 1 of 5)” to “Figure 134 (Sheet 1 of 6).”

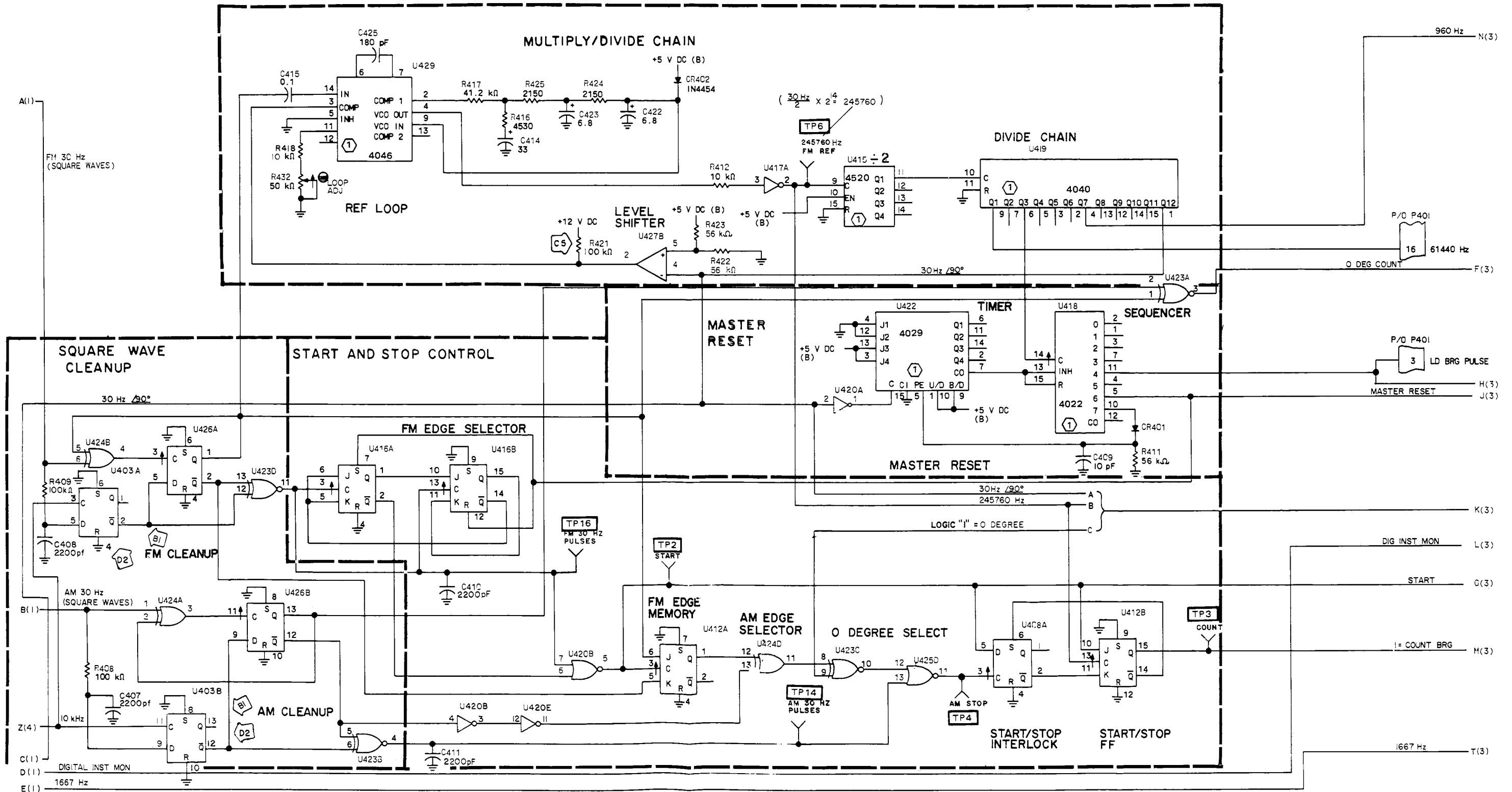
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Digital Instrumentation A4, Schematic Diagram
 Figure 134 (Sheet 1 of 5)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



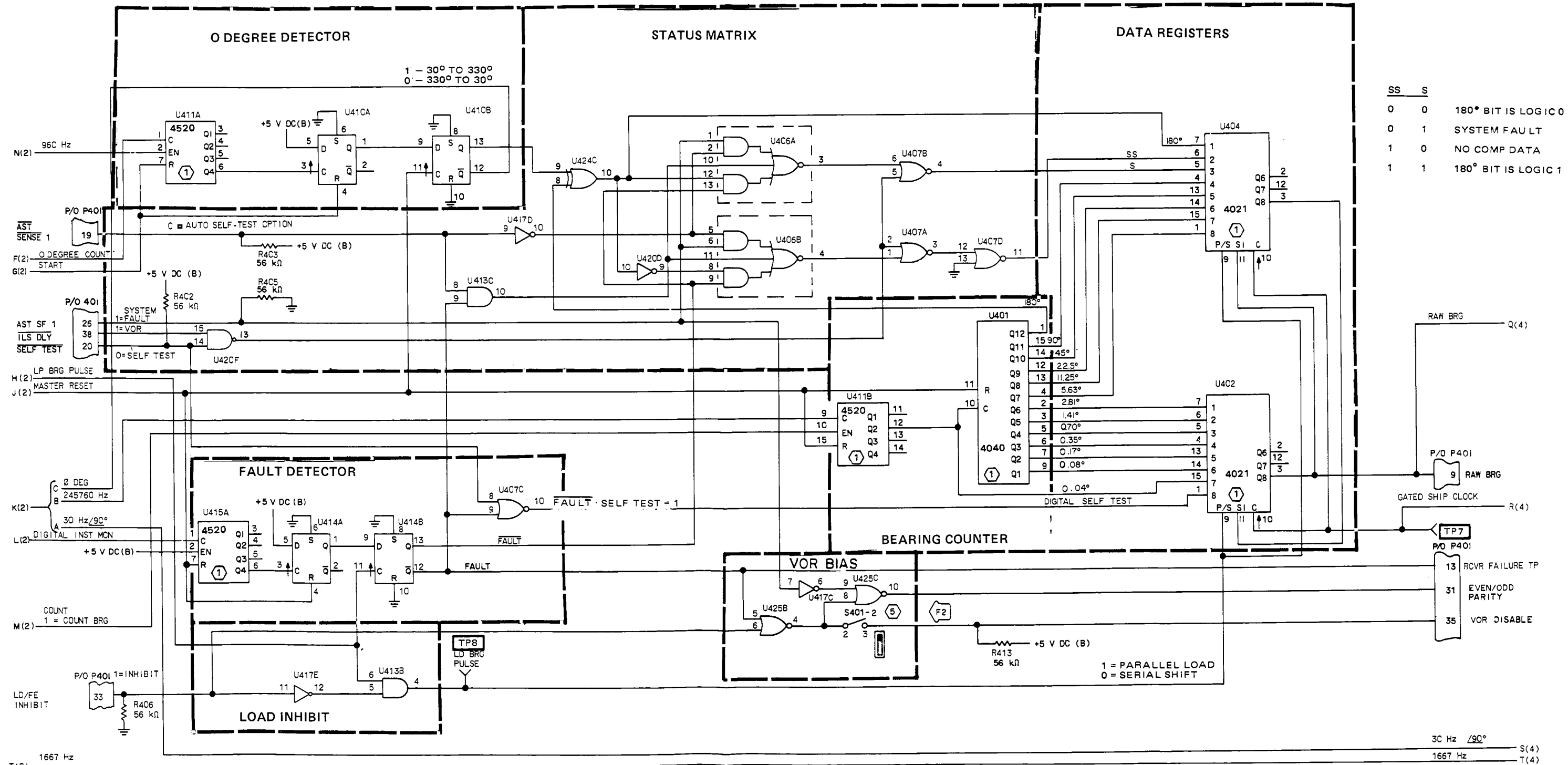
K5 NOTE: SOME RESISTOR VALUES ARE DIFFERENT FROM THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K5 FOR A COMPLETE LIST.

637-2304-001T
 TP5-4341-068 (2)

Digital Instrumentation A4, Schematic Diagram
 Figure 134 (Sheet 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



NOTE: SOME RESISTOR VALUES ARE DIFFERENT FROM THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K5 FOR A COMPLETE LIST.

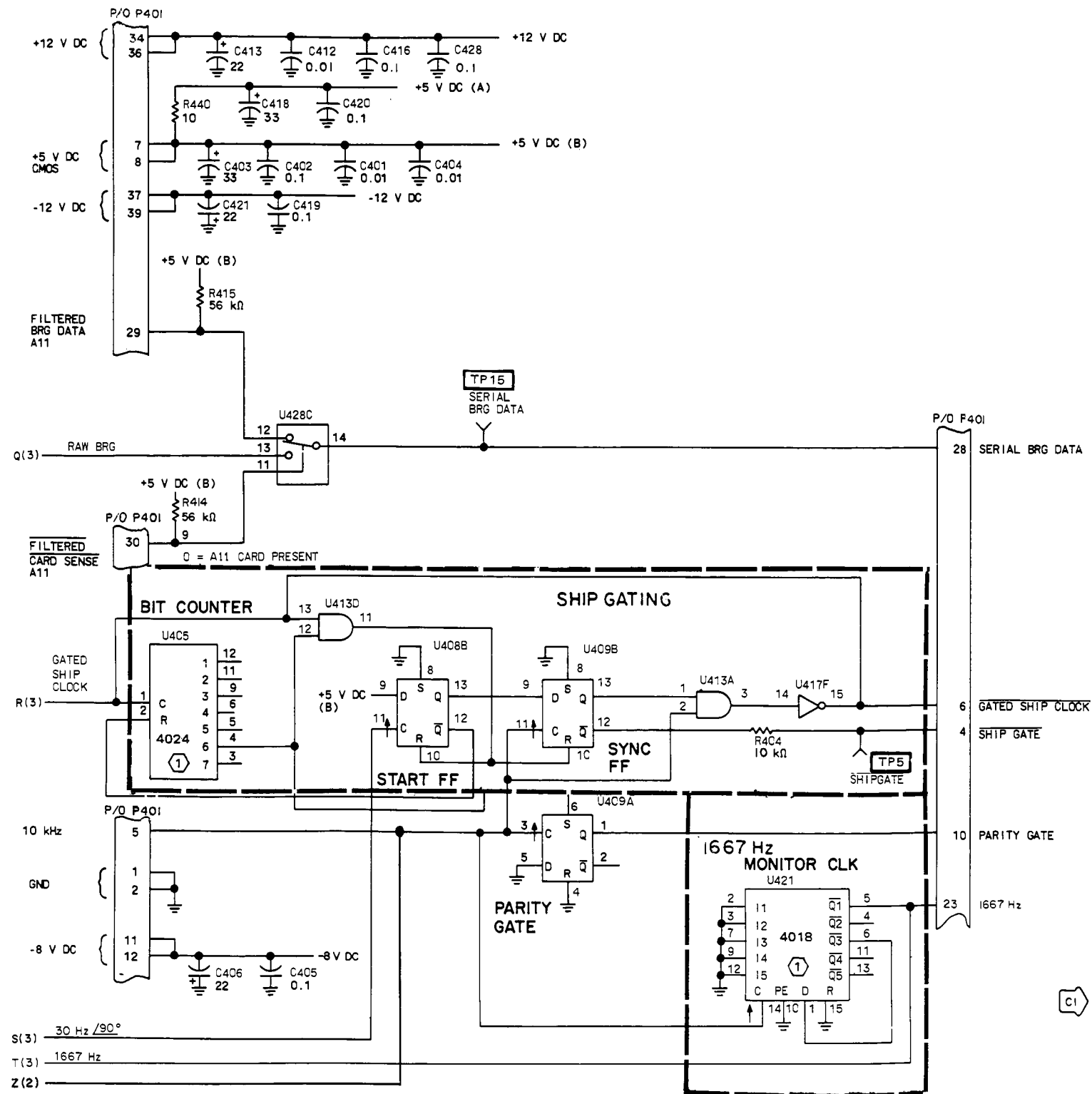
637-2304-001T
TP5-4341-068 (3)

Digital Instrumentation A4, Schematic Diagram
Figure 134 (Sheet 3)

34-35-10

Pages 198.63/198.64
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



K5 NOTE:
SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN
AND DO NOT INCLUDE A REVISION ARROW. REFER TO
SCHEMATIC CHANGES REV IDENT K5 FOR A COMPLETE LIST.

NOTES:

- ① UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS. ALL DIODES ARE 1N4454.
- ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
- ③ POWER AND GROUND CONNECTIONS
- ④ U427 IS LM339 FOR 601-4204-003
- ⑤ PROGRAM JUMPER REPLACES S401 WHEN SB19 IS INSTALLED.
- ⑥ APPLICABLE TO CPN 642-4204-001 ONLY.

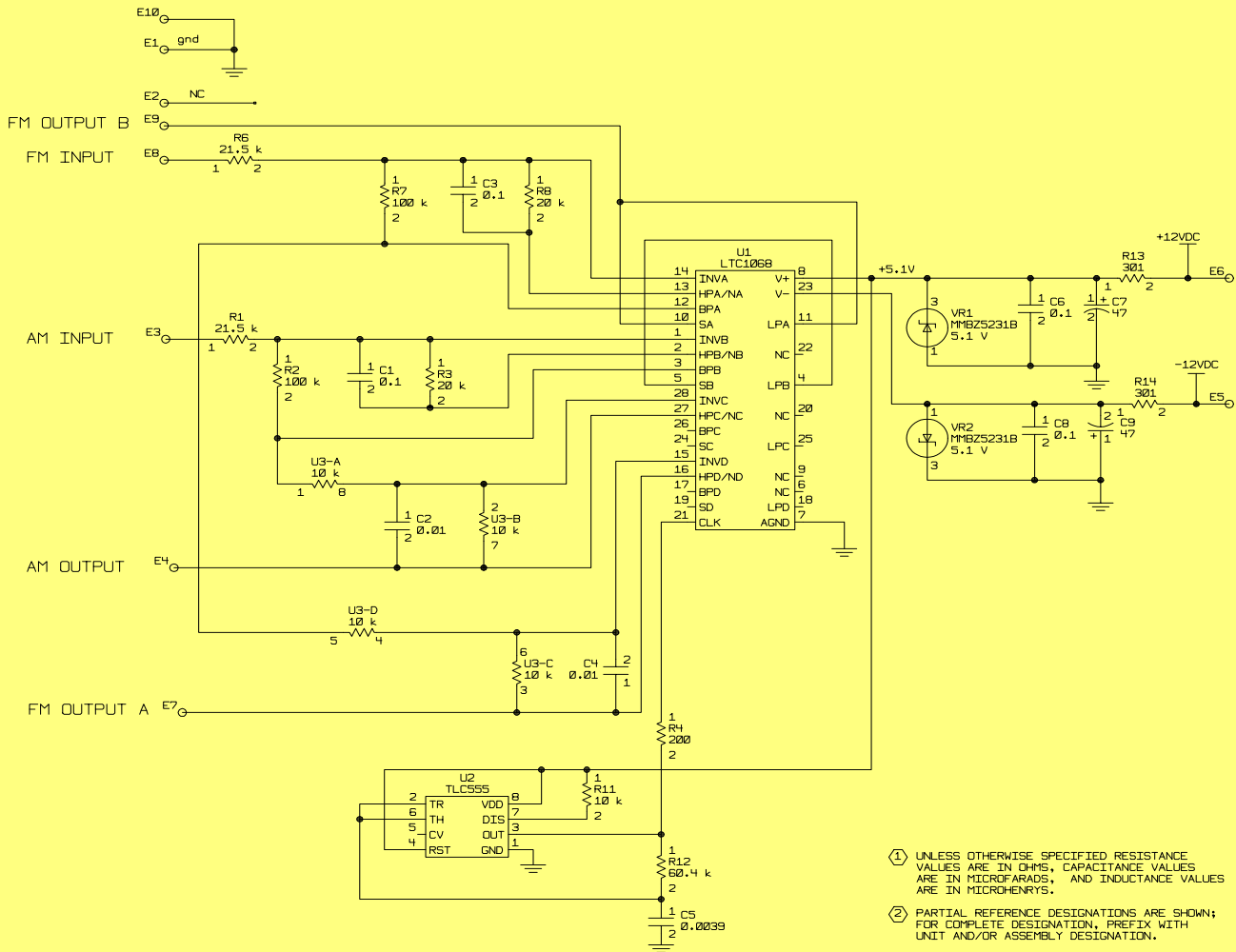
U NO.	TYPE	POWER (V DC)				
		+12	+5	GND	-12	-8
U401	CD4040 *		16	8		
U402	CD4021 *		16	8		
U404	CD4021 *		16	8		
U405	CD4024 *		14	7		
U406	CD4085 *		14	7		
U407	CD4001 *		14	7		
U408	CD4013 *		14	7		
U409	CD4013 *		14	7		
U410	CD4013 *		14	7		
U411	4520 *		16	8		
U412	CD4027 *		16	8		
U413	CD4081 *		14	7		
U414	CD4013 *		14	7		
U415	4520 *		16	8		
U416	CD4027 *		16	8		
U417	CD4049 *		1	8		
U418	CD4C22 *		16	8		
U419	CD4C40 *		16	8		
U420	MC14572 *		16	8		
U421	CD4018 *		16	8		
U422	CD4C29 *		16	8		
U423	CD4C77 *		14	7		
U424	CD4C70 *		14	7		
U425	CD4001 *		14	7		
U426	CD4C13 *		14	7		
U427	LM33C2	3		12		
U428	CD4C53 *		16	8		7
U429	CD4046 *	16		8		
U430	CD4024 *	14		7		
U431	VCR5555	6			5	
U432	CD4046 *	16		8		
U433	OP-II	4			11	
U434	MC1558/4558	8			4	
U435	OP-II	4			11	
U436	LM33C2	3		12		
U403	CD4013 *		14	7		

① * CMOS/MOS DEVICE
② J1
③ F3

Digital Instrumentation A4, Schematic Diagram
Figure 134 (Sheet 4)

34-35-10

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



- ① UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

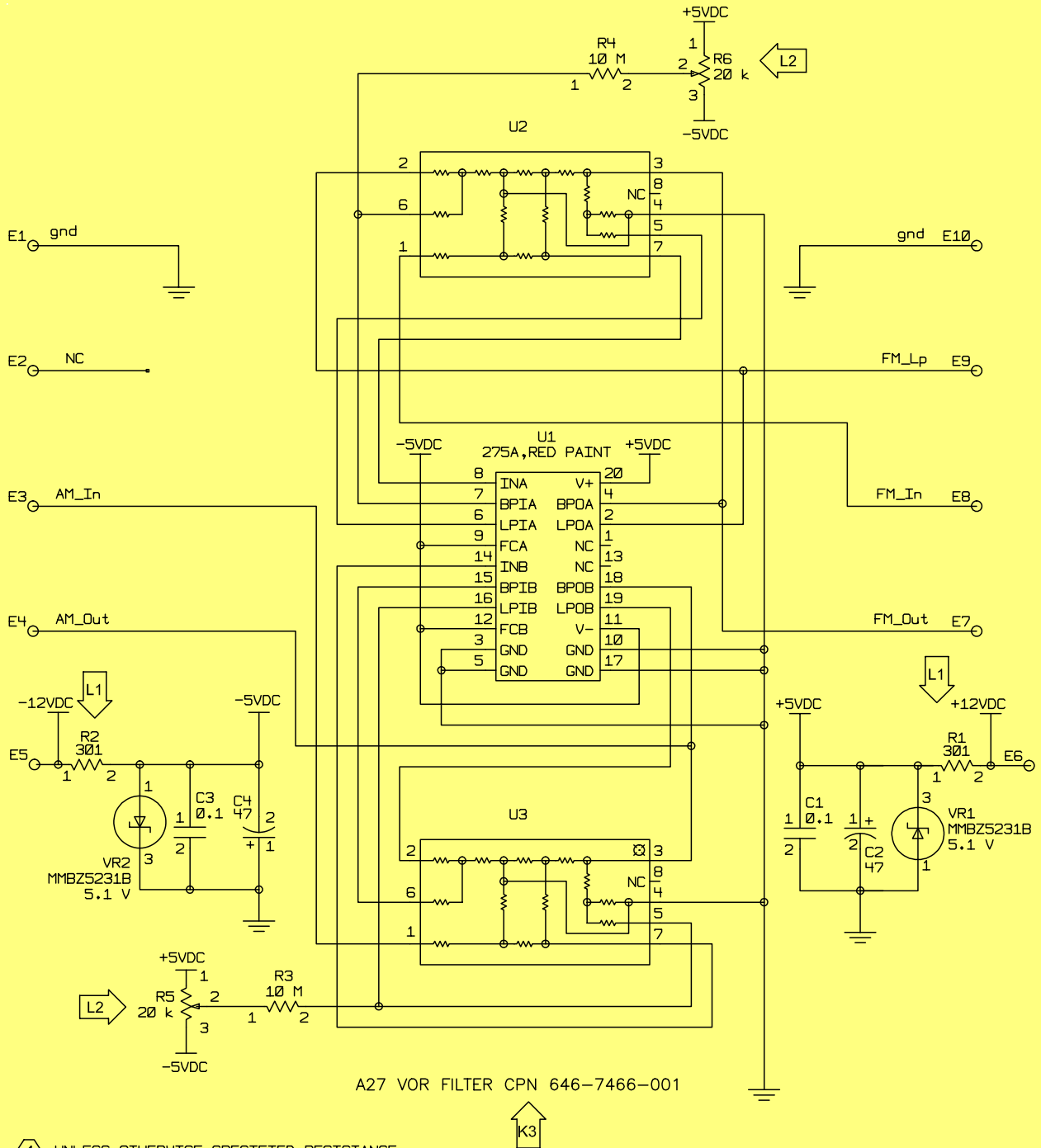
A27 VOR FILTER CPN 828-0868-002



(828-5868-002-)
TPH1241_01

Digital Instrumentation A4, (CPN 637-2304-001), Schematic Diagram
 Figure 134 (Sheet 6)

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



① UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.

② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

AD339501B

Figure 134 (Sheet 5). Digital Instrumentation A4, (CPN 676-7666-001) Schematic Diagram

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.67/198.68, 34-35-10

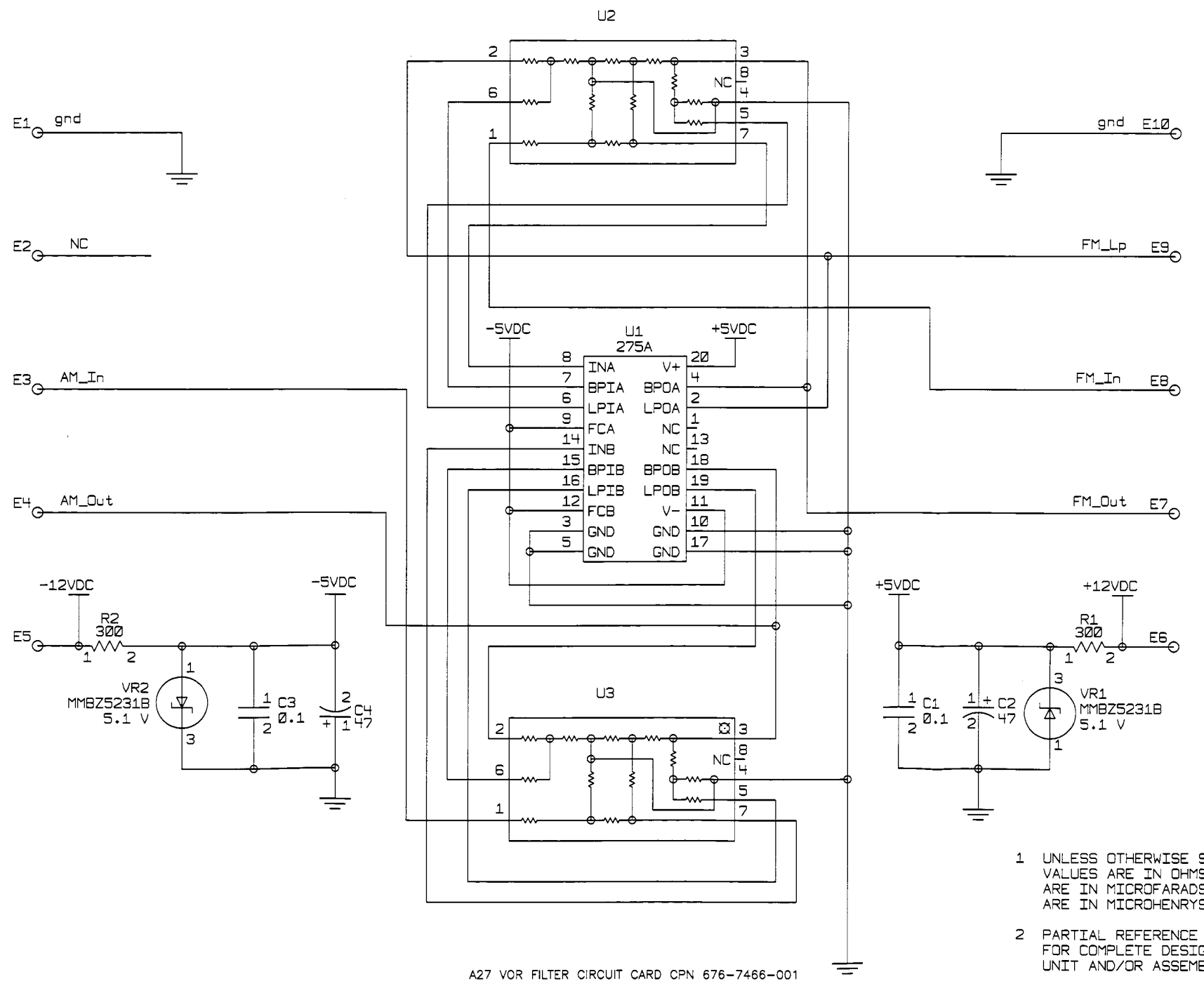
This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Replace Figure 134, (Sheet 5) illustration with the illustration shown on page 10 of this temporary revision.

Add Figure 134 (Sheet 6), as shown on page 9 of this temporary revision.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



A27 VOR FILTER CIRCUIT CARD CPN 676-7466-001

- 1 UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- 2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

676-7666-001B
 AD-3395-01A

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart. On output of U508B, change STATE to STABLE STATE. On U506-15, change 1 = FIV to 0 = FIV. Corrects errors.

REV IDENT and SHEET: C2 – NA

EFFECTIVITY: REV P (601-4205-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Added R555 (100 Ω). Changed R523 (820 k Ω) to 10 k Ω . Changed R533 (820 k Ω) to 10 k Ω . Increased current protection.

REV IDENT and SHEET: D1 – NA

EFFECTIVITY: REV A (642-4205-001)

DESCRIPTION/REASON: Add R556 47 k Ω from +5 V dc to U516-4. Connected U511-5 to S501-8. Connected S501-9 to U516-4. Disconnected U506-9 from ground. Connected U516-3 to U506-9. Improves circuit operation.

REV IDENT and SHEET: F1 – NA

EFFECTIVITY: MOD 1 CPN 601-4205-001, -003; MOD 1 CPN 642-4205-001, -002

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S501 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: F2 – NA

EFFECTIVITY: All CPN 642-4205-002, -003

DESCRIPTION/REASON: Added notes 7 and 8.

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

REV IDENT and SHEET: F3 – NA

EFFECTIVITY: REV F CPN 642-4205-001, -002, -003

DESCRIPTION/REASON: Changed U509 (741) device type to OP-20 for increased reliability.

REV IDENT and SHEET: K1 – sheet 2

EFFECTIVITY: REV N CPN 642-4205-001, -002, -003

DESCRIPTION/REASON: Added schematic on sheet 2 for the addition of A28 circuit card.

REV IDENT and SHEET: K2 – sheet 1

EFFECTIVITY: REV N CPN 642-4205-001, -002, -003

SERVICE BULLETIN: 29

DESCRIPTION/REASON: Replaced obsolete U515 with a separate circuit card A28 CPN 676-7468-001 and added 2 jumper wires from A28 pins 25 and 27 to U513 pins 11 and 4, respectively, to allow more margin in the deviation circuits.

The above changes apply to circuit card 601-4205-001, -003 by service bulletin 29 only. Refer to sheet 2 of schematic for added A28 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV P CPN 642-4205-001, -002, -003 (MOD 3)

DESCRIPTION/REASON: Incorporate modification markings.

REV IDENT and SHEET: K3 – sheet 1

EFFECTIVITY: REV AB CPN 642-4204-001

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

(Cont)

Glide Slope Instrumentation A5, Schematic Changes
Figure 135 (Sheet B)

34-35-10

Page 198.70
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5()VOR/ILS Navigation Receiver
PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver

COMPONENT MAINTENANCE MANUAL VOLUME 2 (523-0777753)

TEMPORARY REVISION NO 34-35-10-02

Insert facing page 198.70, 34-35-10

Subject: Glide Slope Instrumentation A5, Schematic Changes
Figure 135 (Sheet B)

Substitute the following paragraph for the second paragraph under REV IDENT K2,
DESCRIPTION/REASON.

The above changes apply to glide slope instrumentation A5 assemblies with CPNs listed below. In glide slope instrumentation A5 assemblies with CPNs 642-4205-XXX, REV N and subsequent, this modification was installed at the factory before delivery.

601-4205-XXX

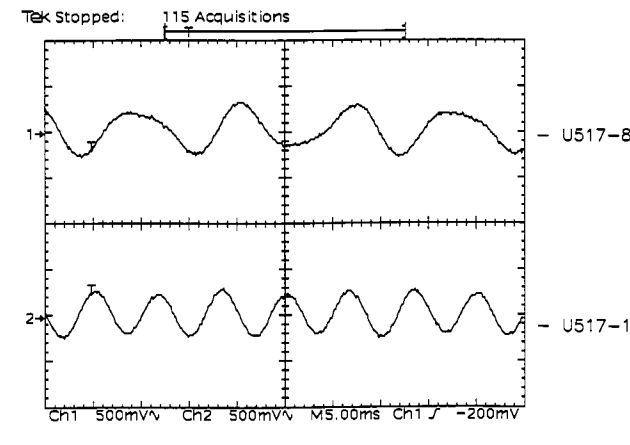
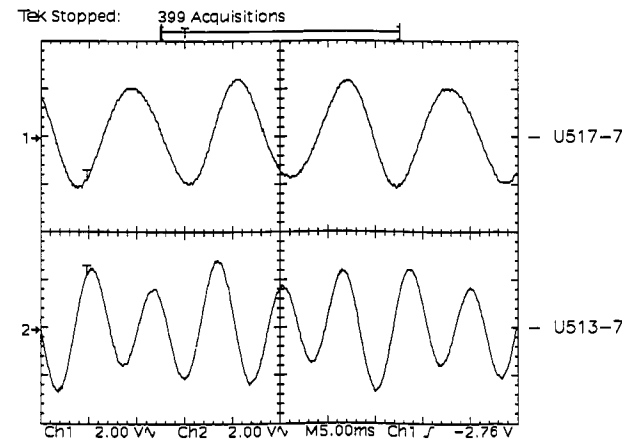
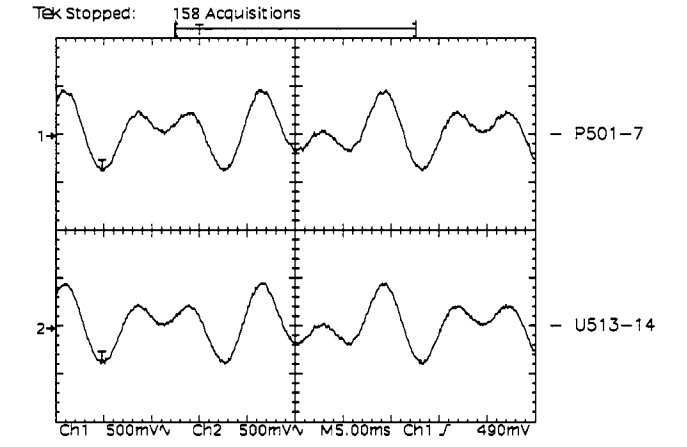
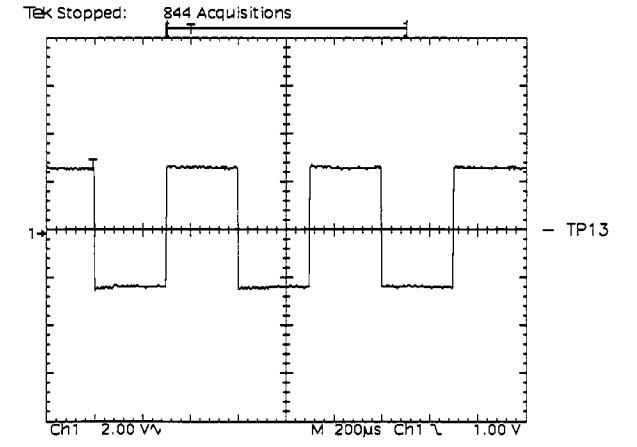
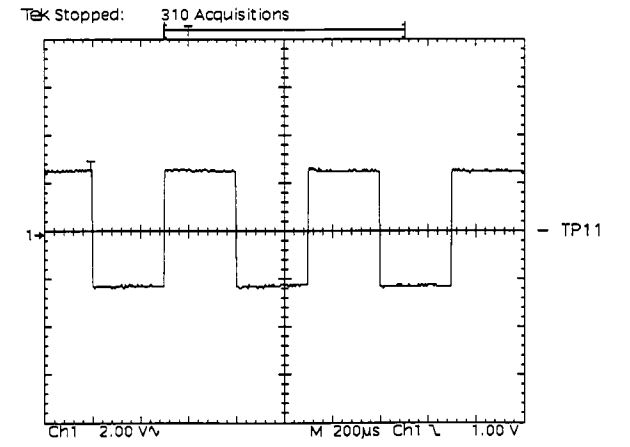
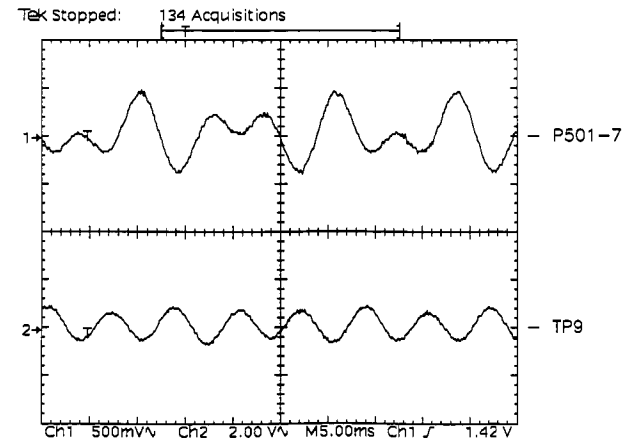
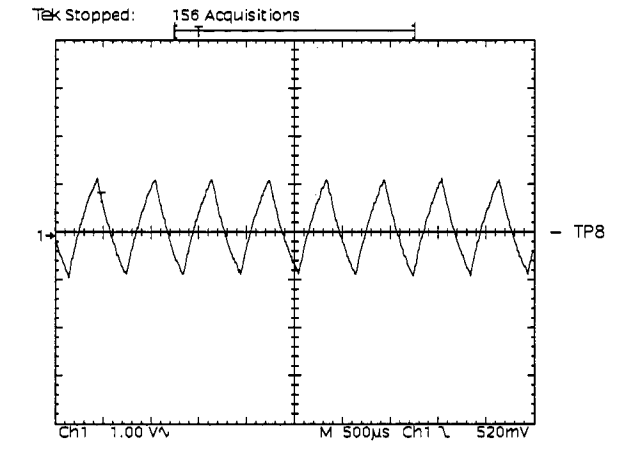
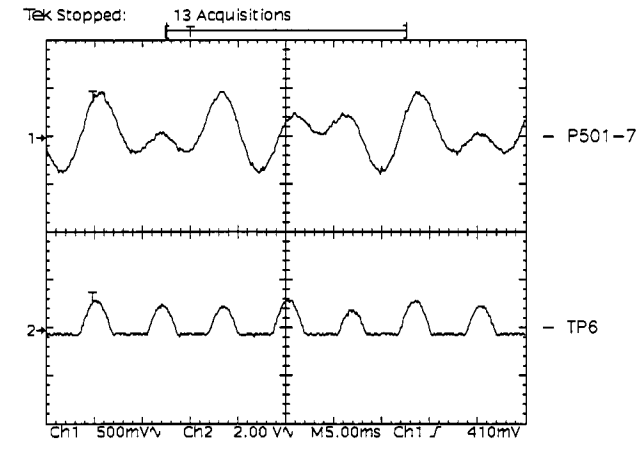
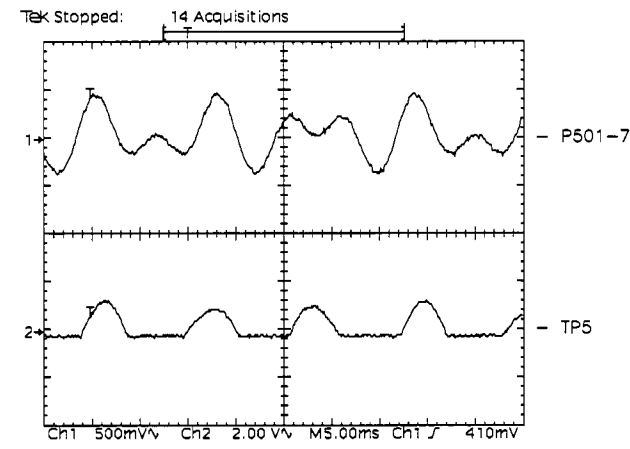
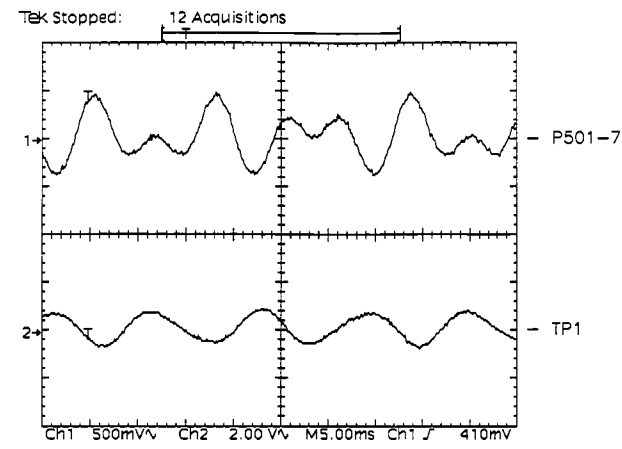
642-4205-XXX thru REV M

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Cont)

RESISTOR	CARBON	METAL FILM
R509	100 Ω	100 Ω
R514	1.0 kΩ	1.0 kΩ
R520	33 kΩ	33.2 kΩ
R521	22 kΩ	22.1 kΩ
R523	10 kΩ	10 kΩ
R524	6.8 kΩ	6.81 kΩ
R525	220 kΩ	221 kΩ
R526	39 kΩ	39.2 kΩ
R527	10 kΩ	10 kΩ
R528	6.8 kΩ	6.81 kΩ
R529	22 kΩ	22.1 kΩ
R530	22 kΩ	22.1 kΩ
R531	2.7 kΩ	2.74 kΩ
R532	2.7 kΩ	2.74 kΩ
R533	10 kΩ	10 kΩ
R534	10 kΩ	10 kΩ
R535	1.0 kΩ	1.0 kΩ
R536	10 kΩ	10 kΩ
R537	100 kΩ	100 kΩ
R538	100 kΩ	100 kΩ
R539	100 kΩ	100 kΩ
R542	22 kΩ	22.1 kΩ
R543	22 kΩ	22.1 kΩ
R544	100 kΩ	100 kΩ
R545	100 kΩ	100 kΩ
R546	100 kΩ	100 kΩ
R547	100 kΩ	100 kΩ
R548	100 kΩ	100 kΩ
R549	47 kΩ	47.5 kΩ
R550	47 kΩ	47.5 kΩ
R551	75 kΩ	75 kΩ
R552	100 kΩ	100 kΩ
R553	100 kΩ	100 kΩ
R554	33 kΩ	33.2 kΩ
R555	100 Ω	100 Ω
R556	47 kΩ	47.5 kΩ

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

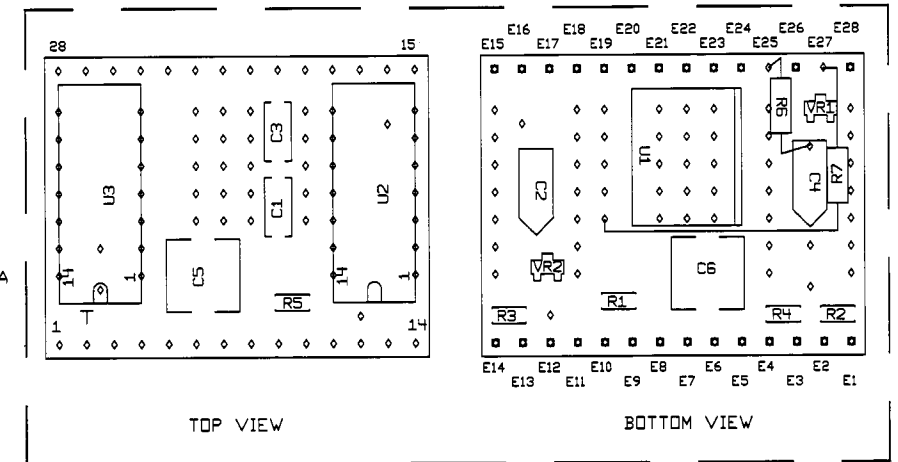
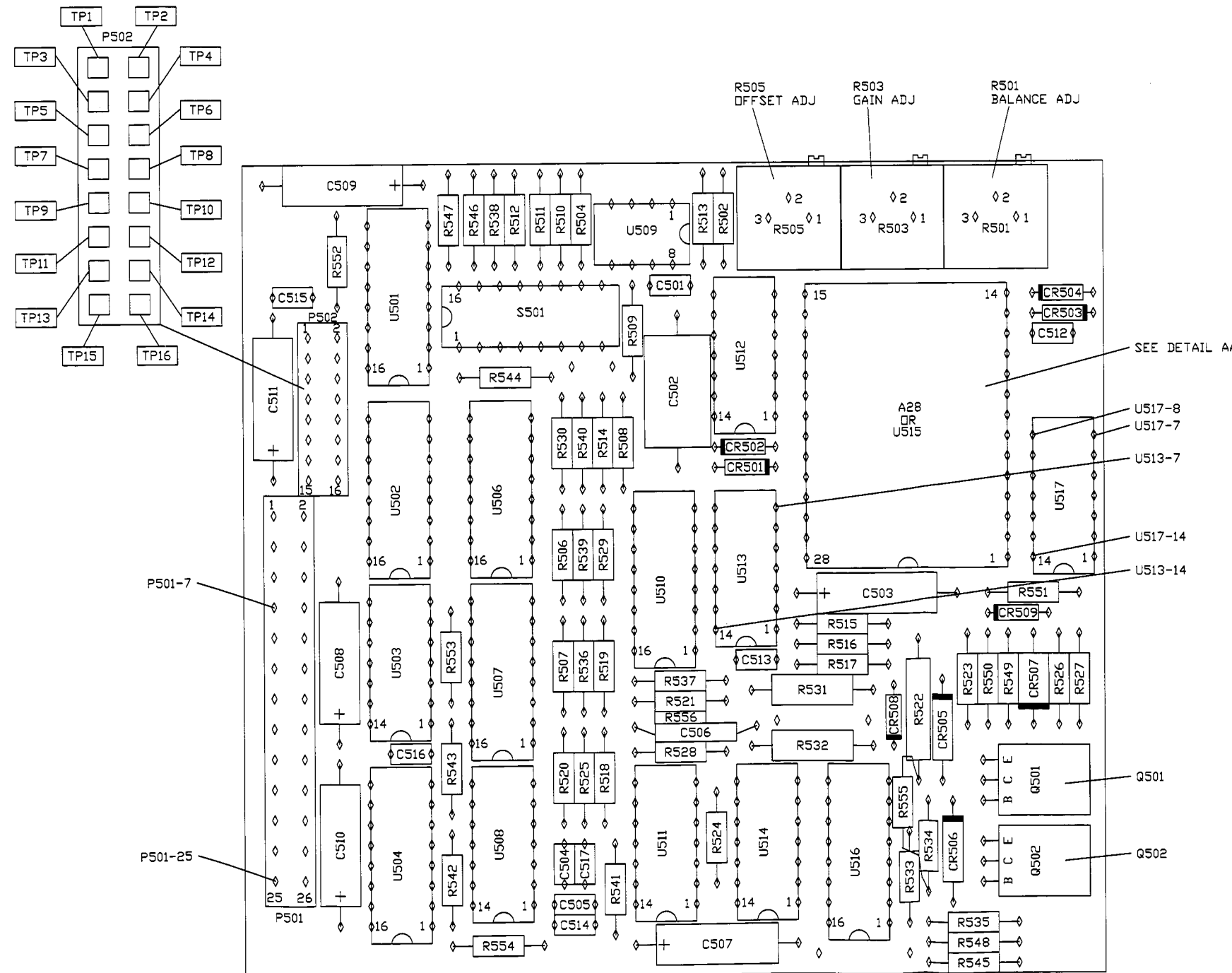


AD-4481-02- (1)

Glide Slope Instrumentation A5 (CPN 601-4205-001, -003),
 Waveforms
 Figure 136 (Sheet 1 of 3)

34-35-10

Page 198.74
 Jul 15/95



DETAIL AA
 A28 CPN 676-7468-001
 FOR A5 WITH SB 29 INSTALLED.

NOTES:

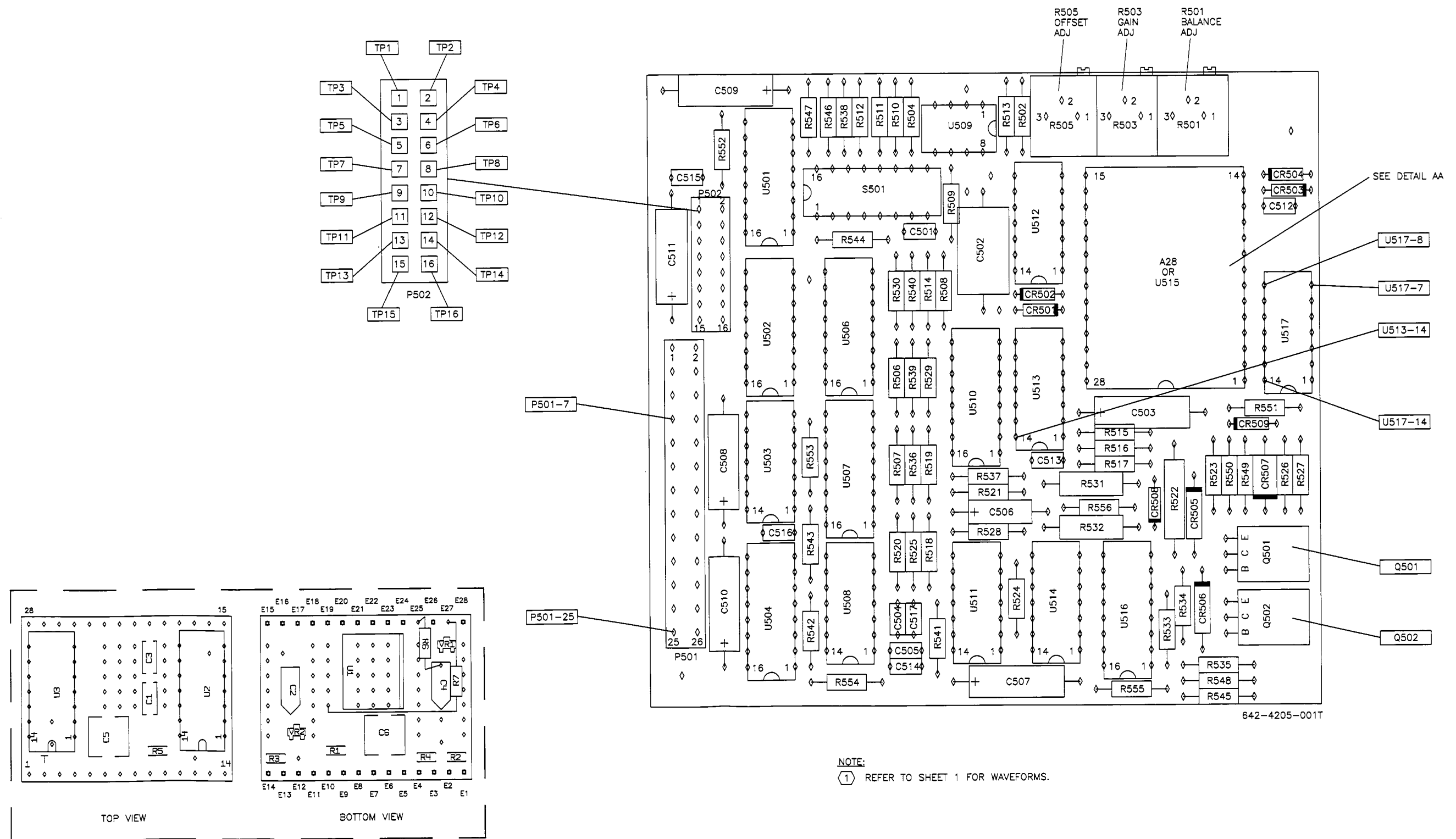
- ① SEE SHEET ONE FOR WAVEFORMS.
- ② WAVEFORMS TAKEN WITH STANDARD GLIDESLOPE DEVIATION.

676-7468-001A
 601-4205-001, -003T
 AD-4481-02- (2)

Glide Slope Instrumentation A5 (CPN 601-4205-001, -003),
 Maintenance Aid Diagram
 Figure 136 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



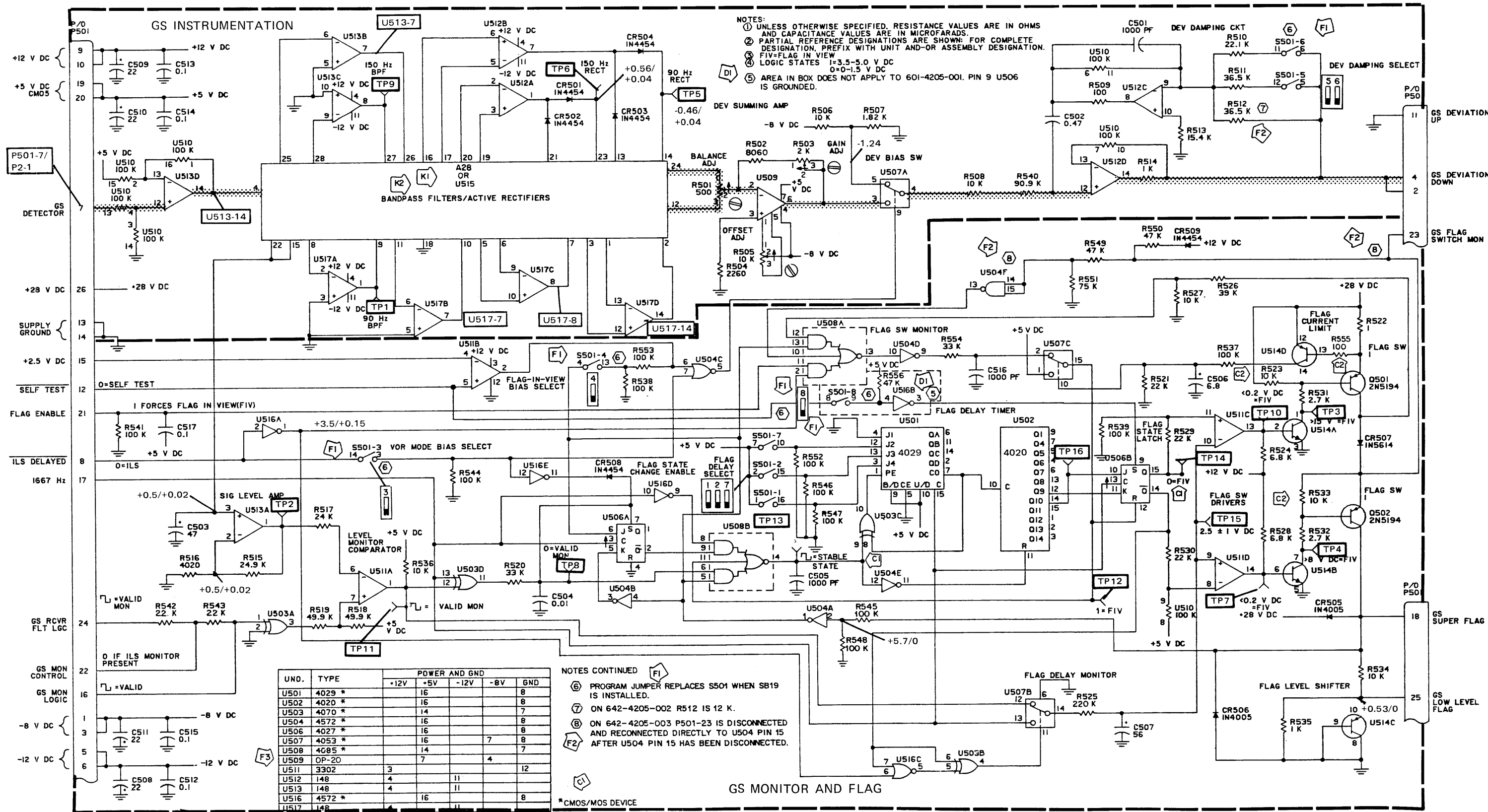
DETAIL AA
 A28 CPN 676-7468-001
 FOR A5 REV N AND ABOVE.

676-7468-001A
 642-4205-001T
 AD-4480-01A

Glide Slope Instrumentation A5 (CPN 642-4205-001, -002, -003),
 Maintenance Aid Diagram
 Figure 136 (Sheet 3)

34-35-10

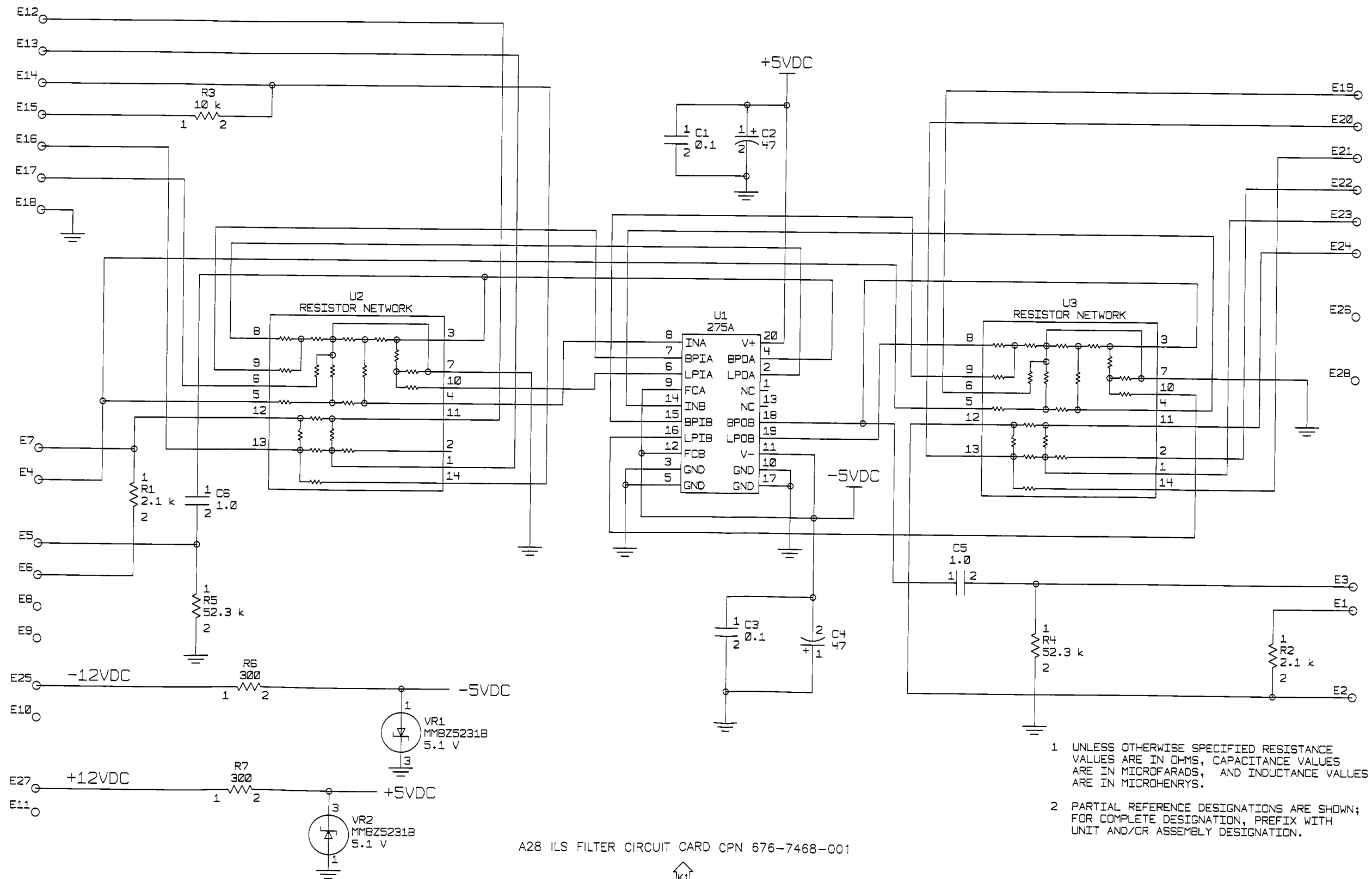
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Glide Slope Instrumentation A5, Schematic Diagram
 Figure 137 (Sheet 1 of 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



AD-676-7668-001A
AD-4264-01-

Glide Slope Instrumentation A5, Schematic Diagram
Figure 137 (Sheet 2)

34-35-10

Pages 198.81/198.82
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1
EFFECTIVITY: REV M (601-4206-001)
SERVICE BULLETIN: 8
DESCRIPTION/REASON: Changed C609 (100 pF) to 0.1 μ F. Changed R605 (10 k Ω) to 2 k Ω .

REV IDENT and SHEET: C1
EFFECTIVITY: REV P (601-4206-002)
DESCRIPTION/REASON: Changed R605 (10 k Ω) to 2 k Ω . Improves PLL operation.

REV IDENT and SHEET: C2
EFFECTIVITY: REV R (601-4206-001, -002)
DESCRIPTION/REASON: Changed R609 (22 k Ω) to 24.9 k Ω . Changed R610 (15 k Ω) to 20 k Ω . Corrects schematic.

REV IDENT and SHEET: C3
EFFECTIVITY: REV U (601-4206-001)
SERVICE BULLETIN: 8
DESCRIPTION/REASON: Disconnected U610-2 from U616-3. Connected U609-4 to U610-2. Cleans up signal from U607, which caused erroneous readings.

REV IDENT and SHEET: C4
EFFECTIVITY: REV T (601-4206-002)
DESCRIPTION/REASON: Changed U604 (351-8406-020) and U605 (351-8406-010) to 351-8406-030. Corrected parts list.

REV IDENT and SHEET: C5
EFFECTIVITY: All models

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Added CMOS/MOS device designation to IC chart.

REV IDENT and SHEET: D2

EFFECTIVITY: REV J (601-4206-002)

DESCRIPTION/REASON: Show jumper from R620 to U601-3, creating 601-4206-002 from 601-4206-001. Corrects schematic.

REV IDENT and SHEET: D4

EFFECTIVITY: All models

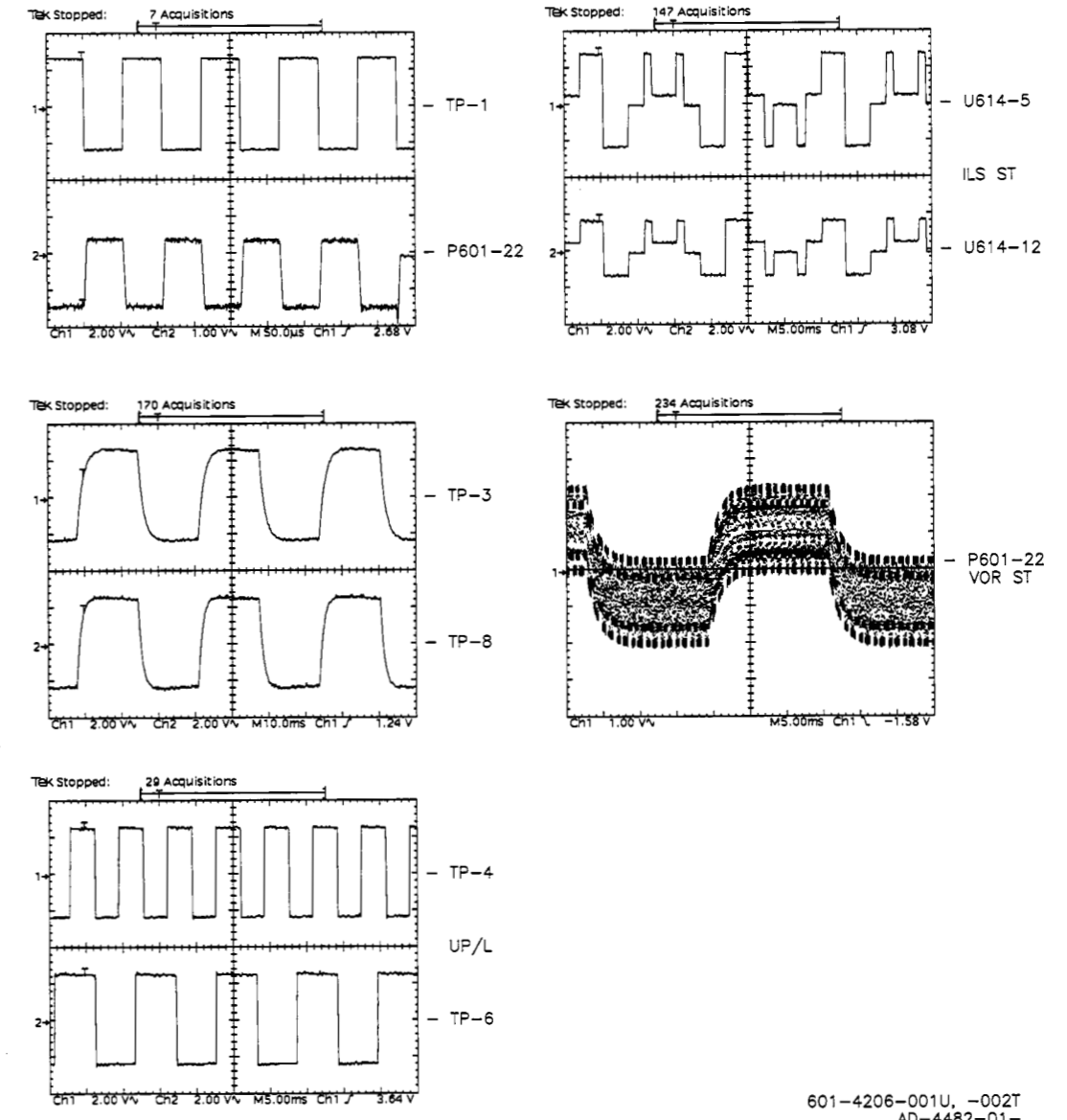
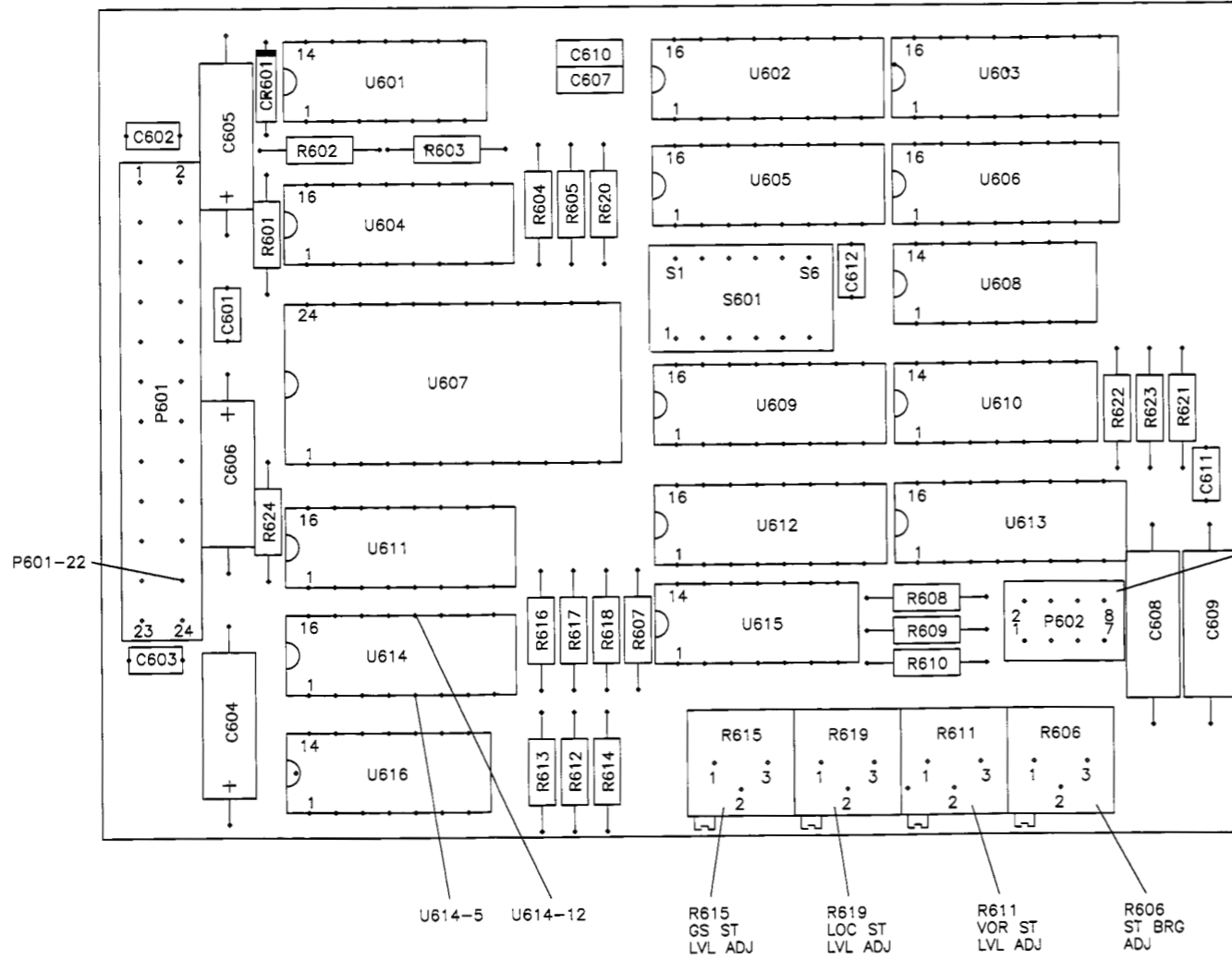
DESCRIPTION/REASON: Changed delay designation S601-4 (3S), -5 (5S), -6 (0S) on 601-4206-001/002. Added delay designation to S601-4, -5, -6. Added S601-5 function to chart. Added ROM, PROM designation to IC chart. Corrects schematics.

REV IDENT and SHEET: F1

EFFECTIVITY: MOD 4 CPN 601-4206-001, -002, -003; MOD 2 CPN 642-4206-001, -002

SERVICE BULLETIN: 19

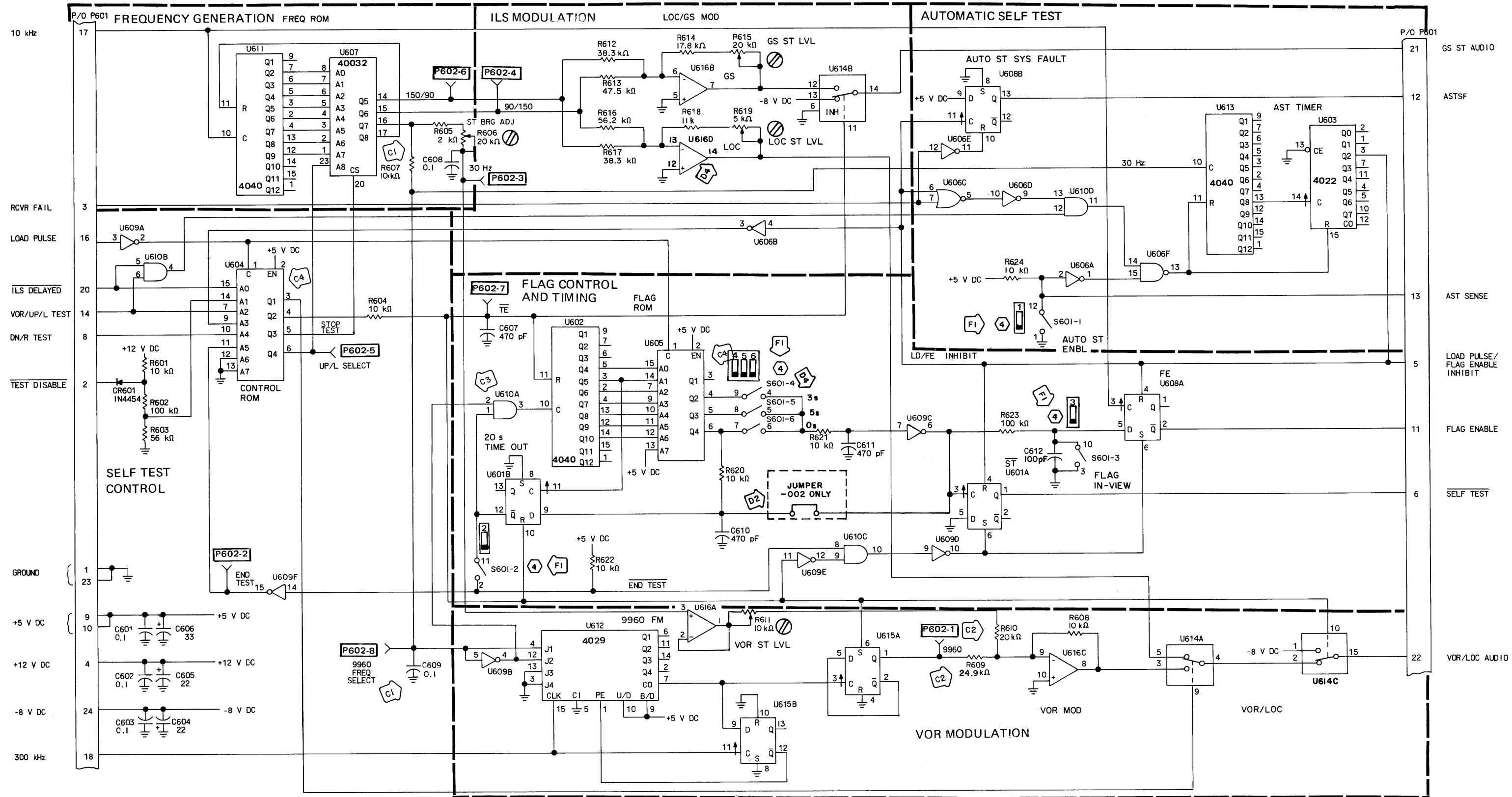
DESCRIPTION/REASON: Switch S601 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).



601-4206-001U, -002T
 AD-4482-01-

VOR/ILS Self-Test A6 (CPN 601-4206-001, -002), Maintenance Aid Diagram
 Figure 139

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



- NOTES:
- ① UNLESS OTHERWISE SPECIFIED; RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - ③ ST IS A NONSTANDARD ABBREVIATION FOR SELF TEST.

MICROCIRCUIT INFORMATION

U NO.	TYPE	POWER (VDC)			
		+5	GND	+12	-8
U601	4013 *	14	7		
U602	4040 *	16	8		
U603	4022 *	16	8		
U604	ROM *	16	8		
U605	ROM *	16	8		
U606	4572 *	16	8		
U607	CD40032D *	24	12		
U608	4013 *	14	7		
U609	4049 *	1	8		
U610	4081 *	14	7		
U611	4040 *	16	8		
U612	4029 *	16	8		
U613	4040 *	16	8		
U614	4053 *	16	8		7
U615	4013 *	14	7		
U616	148			4	11

- ④ * CMOS/MOS DEVICE
- ⑤ PROGRAM JUMPERS REPLACE S601 WHEN SB19 IS INSTALLED.

VOR/ILS Self-Test A6 (CPN 601-4206-001, -002), Schematic Diagram
Figure 140

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: D1

EFFECTIVITY: REV AB (601-4206-003)

SERVICE BULLETIN: 13

DESCRIPTION/REASON: Connected U615-1 to U615-7. Corrects manufacturing error.

REV IDENT and SHEET: D2

EFFECTIVITY: REV AC (601-4206-003). REV A (642-4206-001)

SERVICE BULLETIN: 15

DESCRIPTION/REASON: Changed U601 (351-8406-030) to 351-8406-040 on A6 601-4206-001, -002 in field only by SB 15.

Changed U601 and U605 (351-8206-030) on A6 601-4206-003/642-4206-001. Enables self-test operation function the same with any control head.

REV IDENT and SHEET: D4

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed delay designation S601-4 (3S), -5 (5S), -6 (0S) on 601-4206-001/002. Added delay designation to S601-4, -5, -6. Added S601-5 function to chart. Added ROM, PROM designation to IC chart. Corrects schematics.

REV IDENT and SHEET: F1

EFFECTIVITY: MOD 4 CPN 601-4206-001, -002, -003; MOD 2 CPN 642-4206-001, -002

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S601 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: J1

EFFECTIVITY: REV G CPN 642-4206-001

VOR/ILS Self-Test A6 (CPN 601-4206-003 and 642-4206-001), Schematic Changes
Figure 141 (Sheet A)

34-35-10

Page 198.89
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

DESCRIPTION/REASON: Changed R638 from 1.2 to 1.21 kΩ and R639 from 12 to 12.1 kΩ to improve performance.

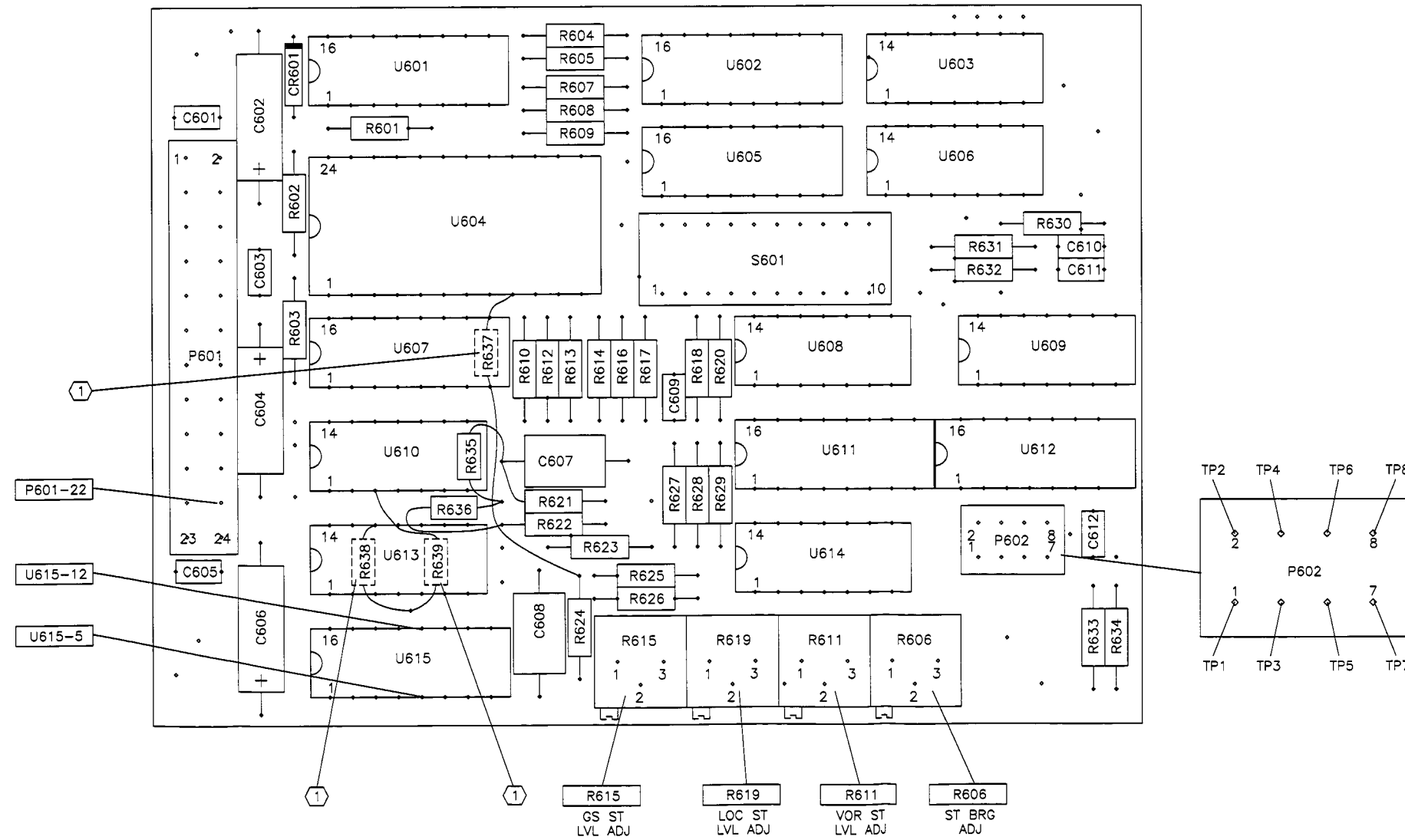
REV IDENT and SHEET: K1

EFFECTIVITY: REV AC CPN 601-4206-003 and REV H CPN 642-4206-001

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

RESISTOR	CARBON	METAL FILM
R601	10 kΩ	10 kΩ
R602	100 kΩ	100 kΩ
R603	56 kΩ	56.2 kΩ
R604	10 kΩ	10 kΩ
R618	10 kΩ	10 kΩ
R620	10 kΩ	10 kΩ
R622	10 kΩ	10 kΩ
R627	10 kΩ	10 kΩ
R628	10 kΩ	10 kΩ
R629	10 kΩ	10 kΩ
R630	10 kΩ	10 kΩ
R631	10 kΩ	10 kΩ
R632	10 kΩ	10 kΩ
R633	10 kΩ	10 kΩ
R634	10 kΩ	10 kΩ
R635	10 kΩ	10 kΩ
R636	220 kΩ	221 kΩ
R637	100 kΩ	100 kΩ

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



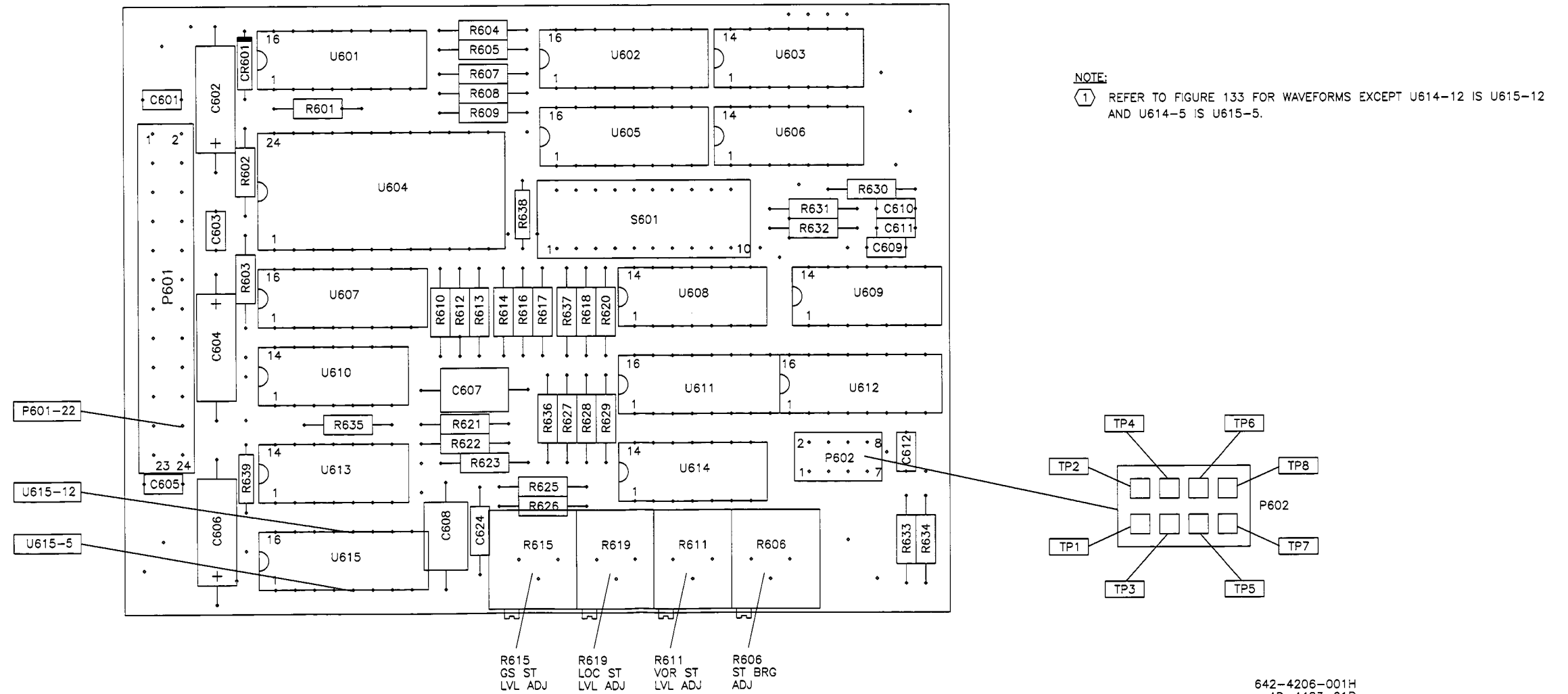
WAVEFORM INDEX (USE 601-4206-001 AS WAVEFORM SOURCE)	
601-4206-001 WAVEFORMS	601-4206-003 TEST POINTS
P601-22	P601-22
U614-12	U615-12
U614-5	U615-5
A6TP4	P602-4
A6TP6	P602-6
A6TP8	P602-8
A6TP3	P602-3
A6TP1	P602-1

- NOTES:
- ① LOCATED ON BACKSIDE OF CARD.
 - ② REFER TO FIGURE 133 FOR WAVEFORMS EXCEPT U614-12 IS U615-12 AND U614-5 IS U615-5.

601-4206-003AC
 AD-4691-01A

VOR/ILS Self-Test A6 (CPN 601-4206-003), Maintenance Aid Diagram
 Figure 142 (Sheet 1 of 2)

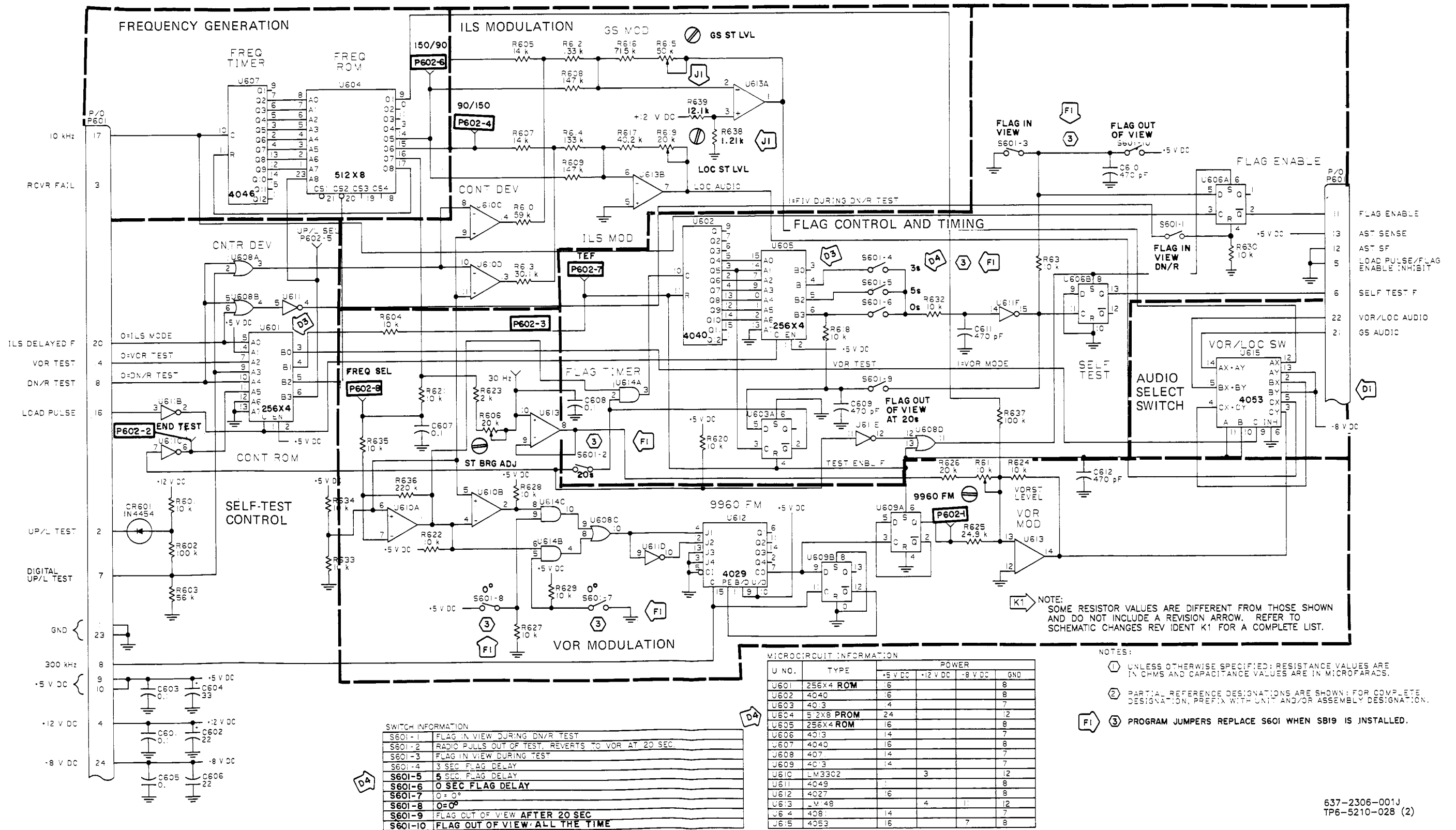
34-35-10



VOR/ILS Self-Test A6 (CPN 642-4206-001), Maintenance Aid Diagram
 Figure 142 (Sheet 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



VOR/ILS Self-Test A6 (CPN 601-4206-003 and 642-4206-001), Schematic Diagram

Figure 143

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

REV IDENT and SHEET: F1 – sheets 1 and 2

EFFECTIVITY: MOD 1 CPN 601-4207-001; MOD 1 CPN 642-4207-001

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S701 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: F2 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Reversed the plus (+) and minus (-) signs for U713D-12 and -13 to correct error.

REV IDENT and SHEET: F3 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed R746 from 100 to 10 kΩ to correct error.

REV IDENT and SHEET: F4 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Reversed pin numbers 3 and 14 on U705 to correct error.

REV IDENT and SHEET: F5 – sheet 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed microcircuit information chart as follows to correct errors:

<u>AT</u>	<u>WAS</u>	<u>IS</u>
-12 V DC	U701-6	U701-4
-12 V DC	U708-6	U708-4
+12 V DC	U712-3	_____
+5 V DC	_____	U712-1

Expanded ILS Monitor A7 (CPN 601-4207-001 and 642-4207-001),
 Schematic Changes
 Figure 144 (Sheet A)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2**
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: J2 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Switched the labeling of U706 pins 4 and 13 to correct schematic error.

REV IDENT and SHEET: K1 – sheets 1 and 2

EFFECTIVITY: All models

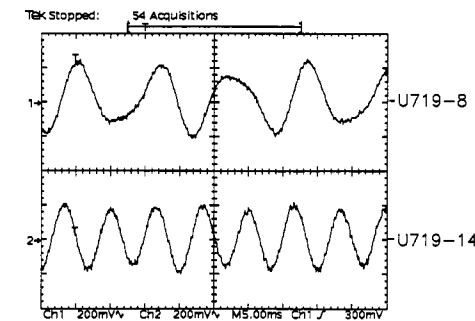
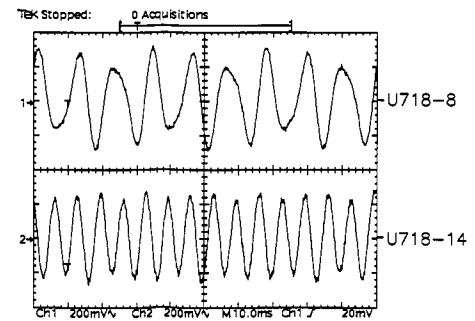
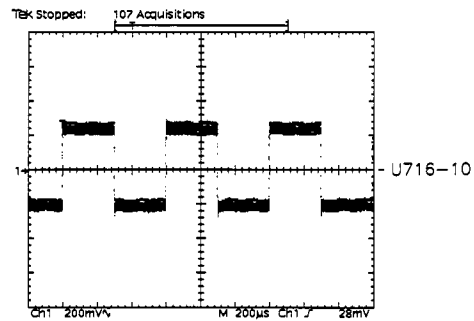
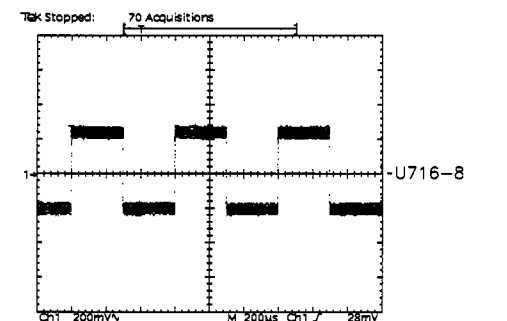
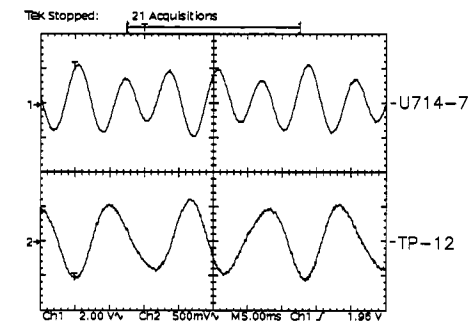
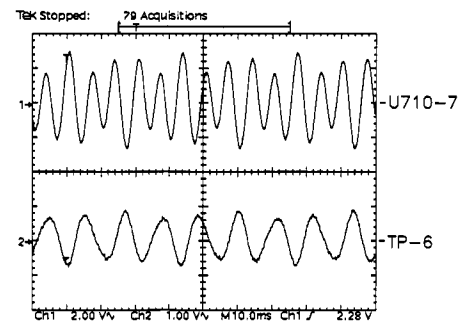
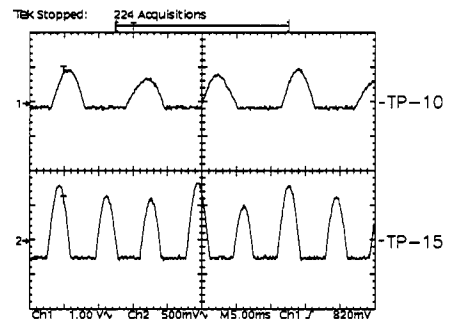
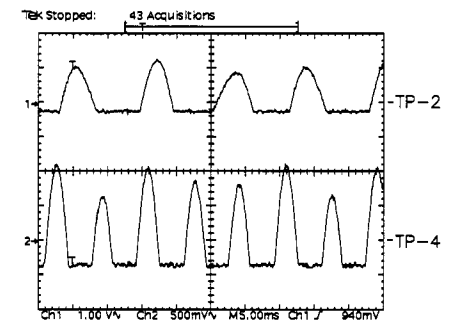
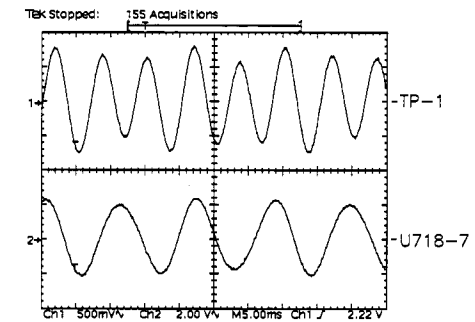
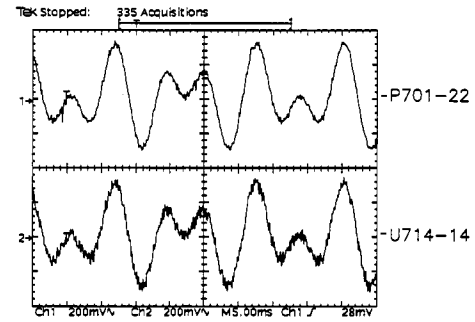
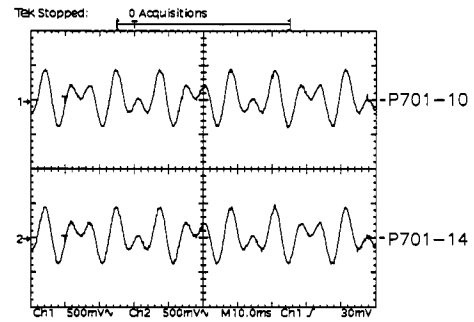
DESCRIPTION/REASON: Changed U704A pin 11 label from +5 to -12 V dc. Changed power reference from +5 to -12 V dc on U704, 708, 709, 710, 713, 714, 718, and 719 in the power and ground connections table to correct schematic.

REV IDENT and SHEET: NA – sheet 2

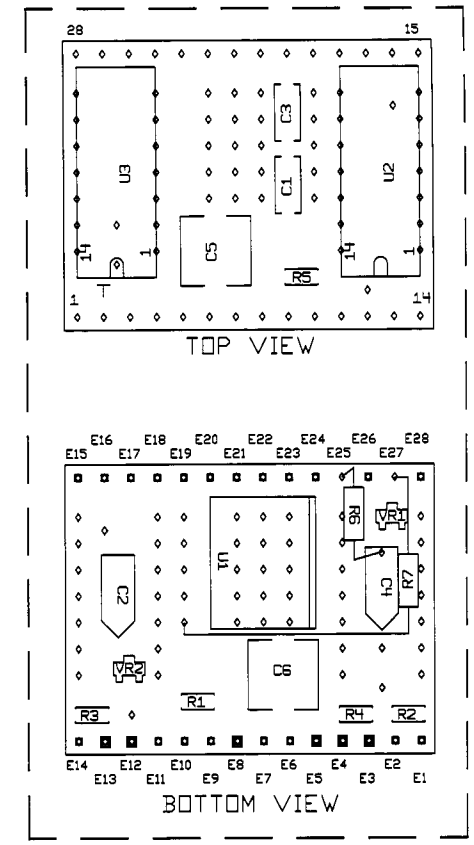
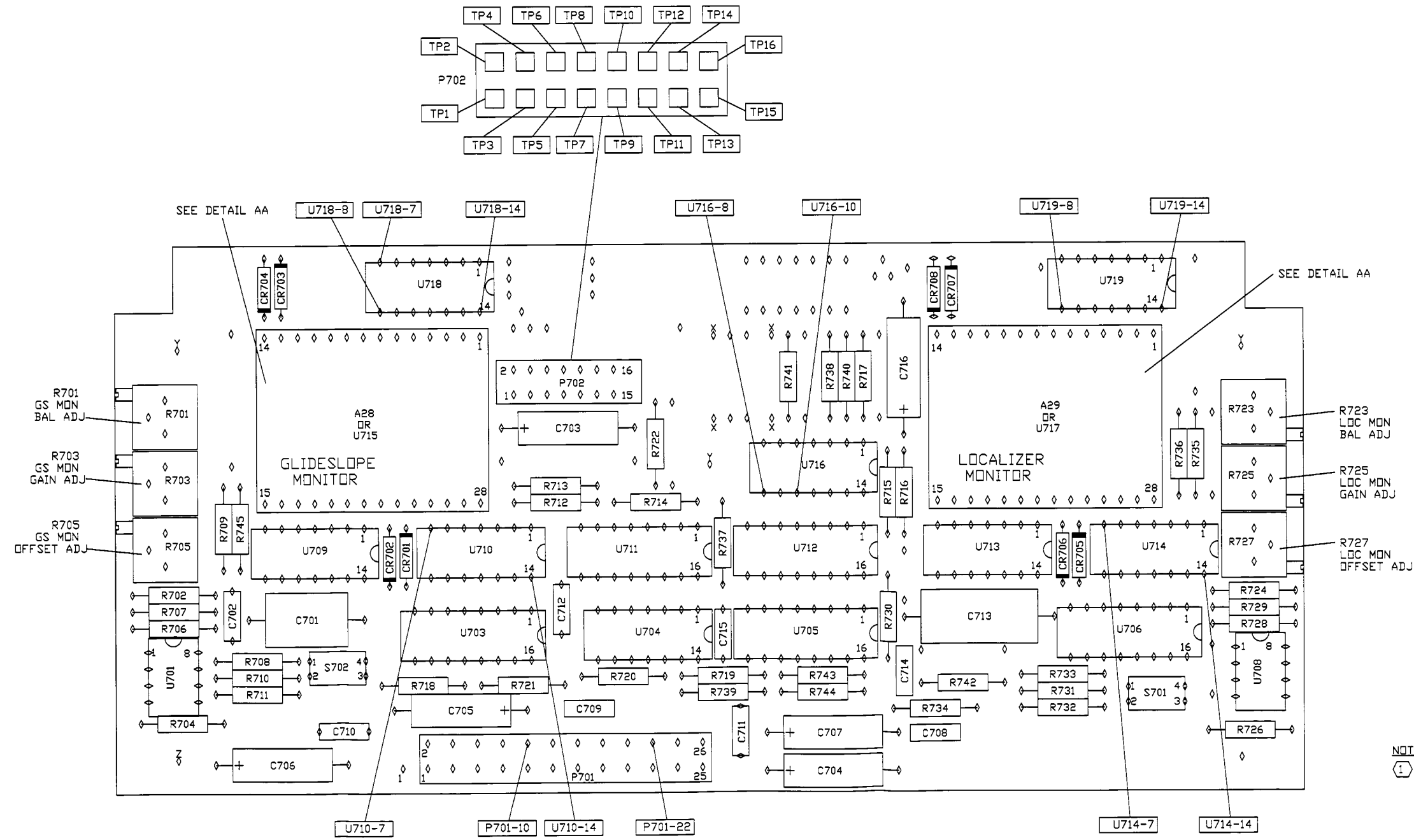
EFFECTIVITY: All models

DESCRIPTION/REASON: Added reference designator U701 to the GS MON SUMMING AMP opamp to correct schematic.

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



AD-4473-03A (1)



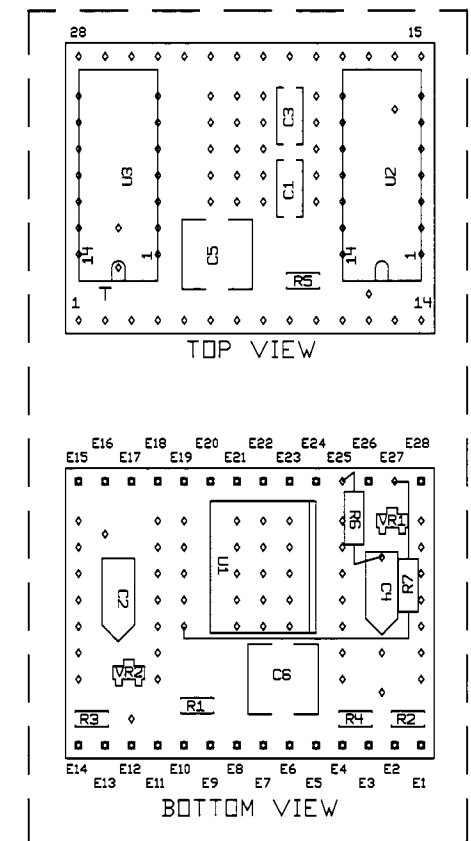
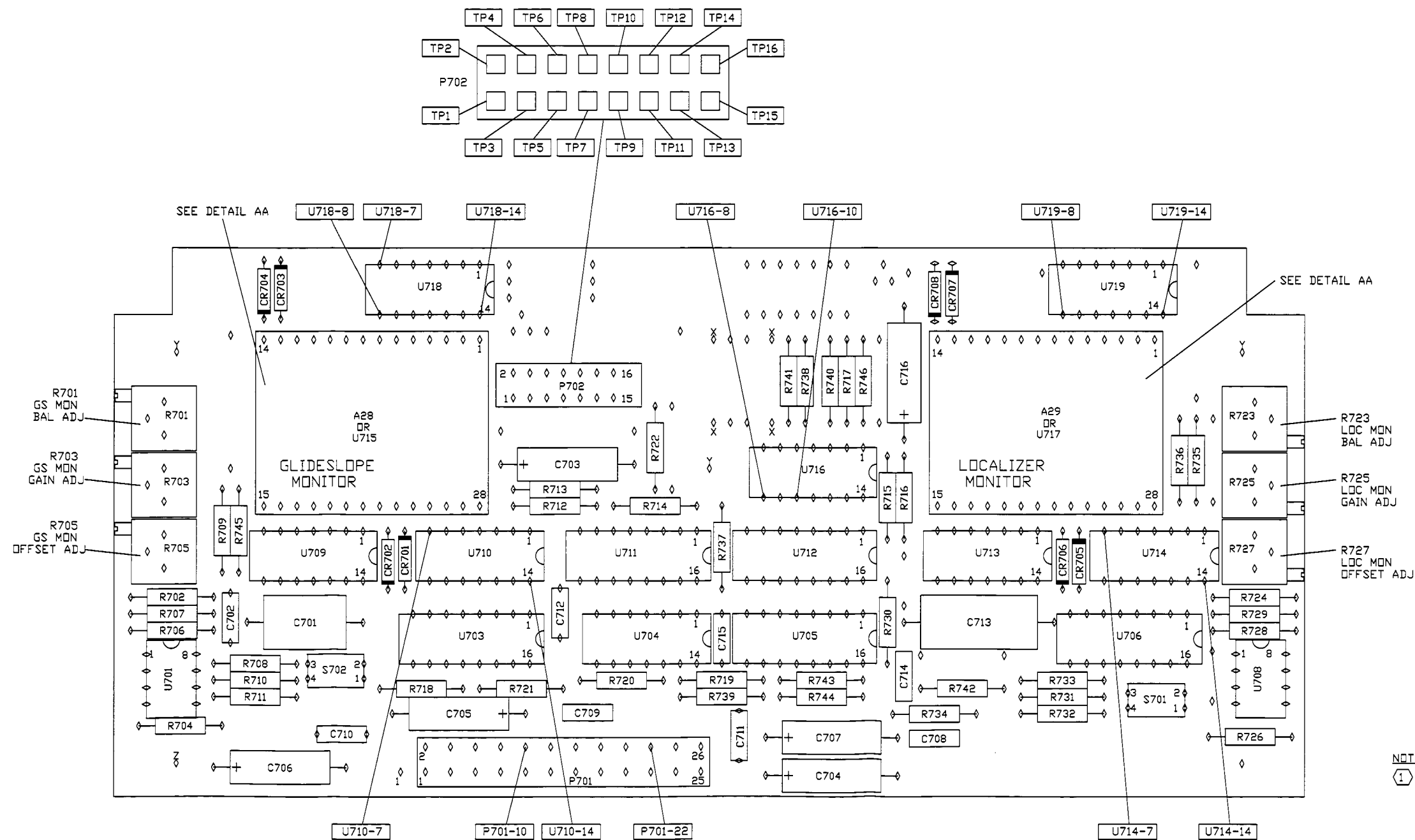
DETAIL AA
 A28 AND A29 CPN 676-7468-001
 FOR A7 WITH SB30 AND 31 INSTALLED.

NOTE:
 (1) REFER TO SHEET 1 FOR WAVEFORM INFORMATION.
 676-7468-001A
 601-4207-001
 AD-4473-03- (2)

Expanded ILS Monitor A7 (CPN 601-4207-001), Maintenance Aid Diagram
 Figure 145 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

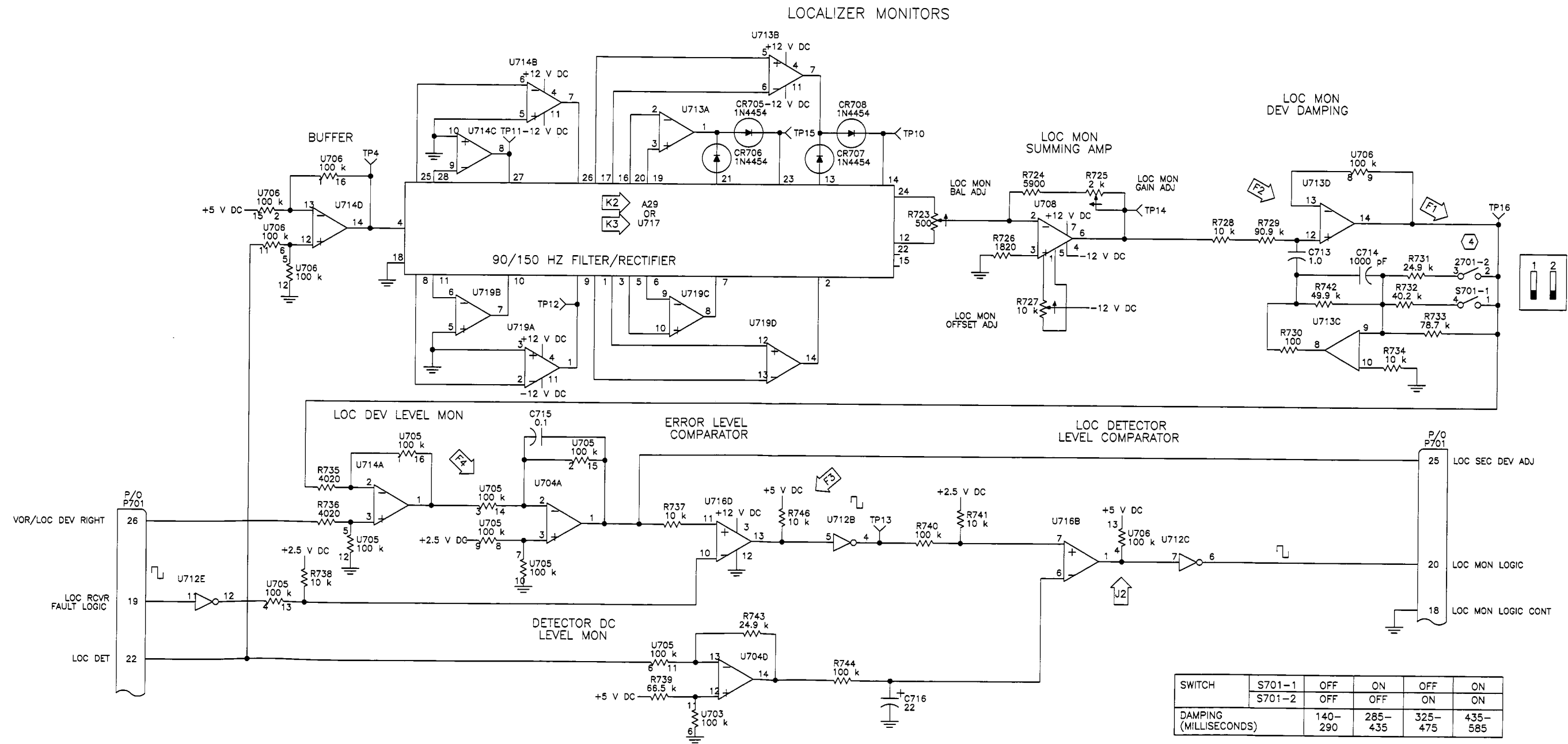


DETAIL AA
 A28 AND A29 CPN 676-7468-001
 FOR A7 WITH SB30 AND 31 INSTALLED.

NOTE:
 (1) REFER TO SHEET 1 FOR WAVEFORM INFORMATION.
 676-7468-001A
 642-4207-001G
 AD-4473-03- (3)

Expanded ILS Monitor A7 (CPN 642-4207-001), Maintenance Aid Diagram
 Figure 145 (Sheet 3)

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



637-2307-001E
AD-4471-02- (1)

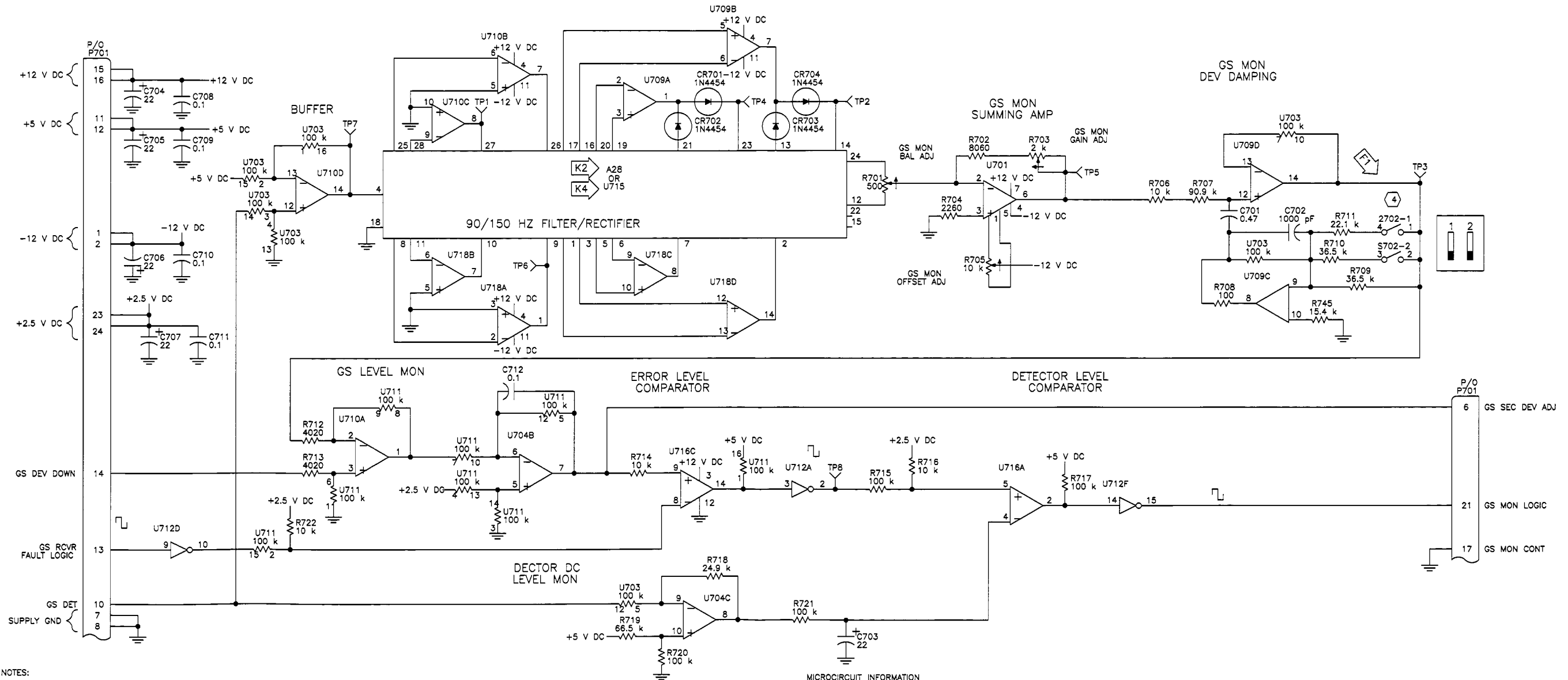
Expanded ILS Monitor A7 (CPN 601-4207-001 and 642-4207-001), Schematic Diagram
Figure 146 (Sheet 1 of 3)

34-35-10

Pages 198.105/198.106
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

GLIDE SLOPE MONITORS



- NOTES:
- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - ③ POWER AND GROUND CONNECTIONS.
 - ④ PROGRAM JUMPERS REPLACE S701 AND S702 WHEN SB19 IS INSTALLED.

MICROCIRCUIT INFORMATION

U NO.	TYPE	POWER			
		+12 V DC	-12 V DC	+5 V DC	GND
U701	LM741	7	4		
U703	RES ARRAY				
U704	MC148	4	11		
U705	RES ARRAY				
U706	RES ARRAY				
U707	SW ARRAY				
U708	LM741	7	4		
U709	MC148	4	11		
U710	MC148	4	11		
U711	RES ARRAY				
U712	CD4049			1	8
U713	MC148	4	11		
U714	MC148	4	11		
U715	ILS5515				
U716	MC3302	3			12
U717	ILS5515				
U718	MC148	4	11		
U719	MC148	4	11		

SWITCH	S702-1	OFF	OFF	ON	ON
	S702-2	OFF	ON	OFF	ON
DAMPING (MILLISECONDS)		140-290	285-435	325-475	435-585

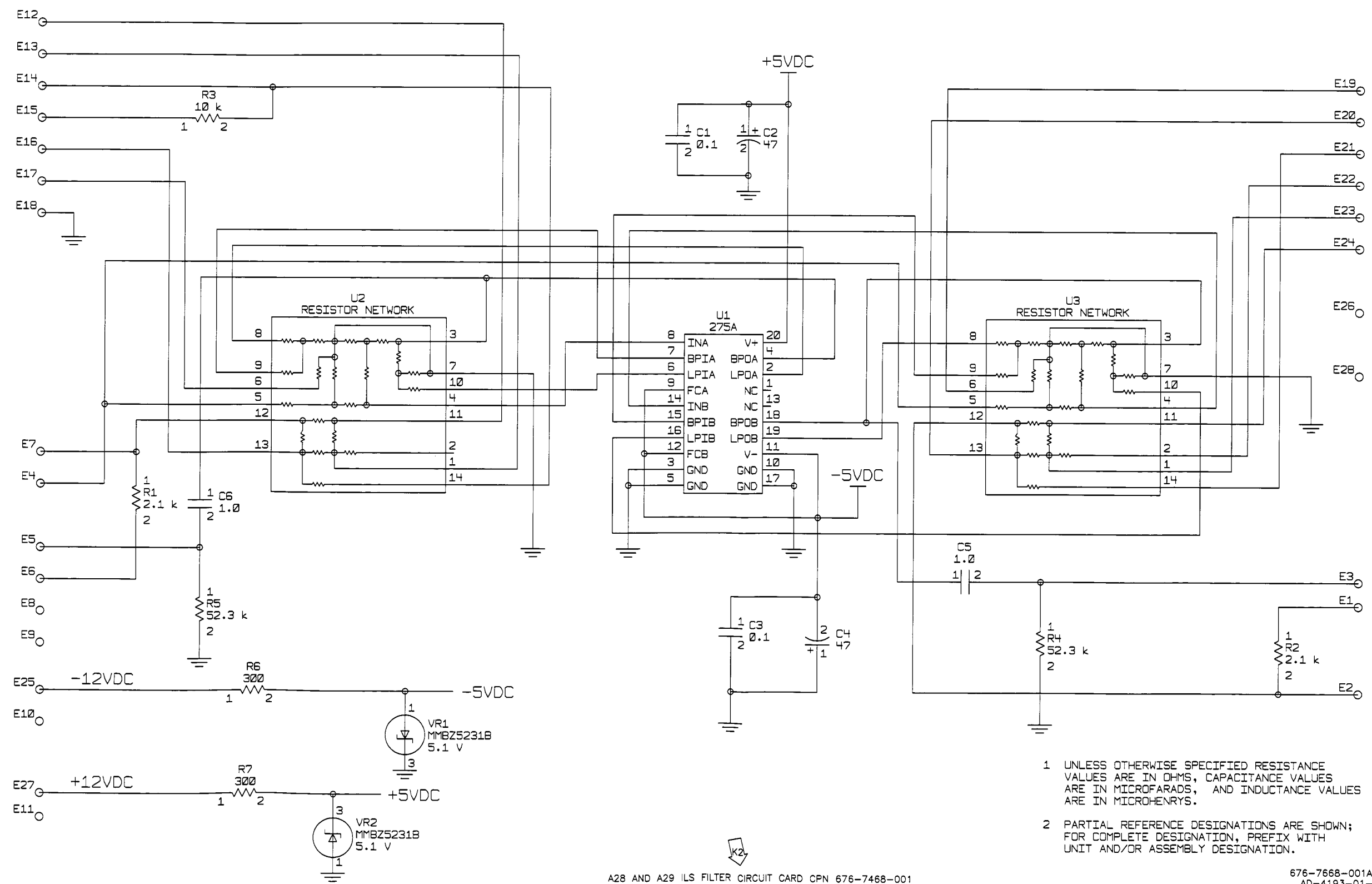
637-2307-001E
AD-4471-02- (2)

Expanded ILS Monitor A7 (CPN 601-4207-001 and
642-4207-001), Schematic Diagram
Figure 146 (Sheet 2)

34-35-10

Pages 198.107/198.108
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



- 1 UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- 2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

A28 AND A29 ILS FILTER CIRCUIT CARD CPN 676-7468-001

676-7668-001A
AD-4193-01-

Expanded ILS Monitor A7 (CPN 601-4207-001 and 642-4207-001), Schematic Diagram
Figure 146 (Sheet 3)

34-35-10

Pages 198.109/198.110
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: J1 – sheet 1 and 2
EFFECTIVITY: REV L
DESCRIPTION/REASON: Replaced U704 (LM148) with preferred part 35074 to reduce possible high frequency oscillation.

REV IDENT and SHEET: K1 – sheets 1 and 2
EFFECTIVITY: All models
DESCRIPTION/REASON: Changed U704A pin 11 label from +5 to -12 V dc. Changed power reference from +5 to -12 V dc on U704, 708, 709, 710, 713, 714, 718, and 719 in the power and ground connections table to correct schematic.

REV IDENT and SHEET: K2 – sheet 3
EFFECTIVITY: REV N
DESCRIPTION/REASON: Added schematic on sheet 3 for the addition of A28 and A29 circuit card.

REV IDENT and SHEET: K3 – sheet 1
EFFECTIVITY: REV N
SERVICE BULLETIN: 31
DESCRIPTION/REASON: Replaced obsolete U717 with a separate circuit card A29 CPN 676-7468-001 and added 2 jumper wires from A29 pins 25 and 27 to U714 pins 11 and 4, respectively, to allow more margin in the deviation circuits.

The above changes apply to circuit cards 601-4207-001 and 642-4207-001 by service bulletin 31 only. Refer to sheet 3 of schematic for added A29 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: K4 – sheet 2
EFFECTIVITY: REV N
SERVICE BULLETIN: 30

Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Changes
Figure 147 (Sheet A)

34-35-10

Page 198.111
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

DESCRIPTION/REASON: Replaced obsolete U715 with a separate circuit card A28 CPN 676-7468-001 and added 2 jumper wires from A28 pins 25 and 27 to U710 pins 11 and 4, respectively, to allow more margin in the deviation circuits.

The above changes apply to circuit cards 601-4207-001 and 642-4207-001 by service bulletin 30 only. Refer to sheet 3 of schematic for added A28 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV P (MOD 2 and 3)

DESCRIPTION/REASON: Incorporate modification markings.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV R

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

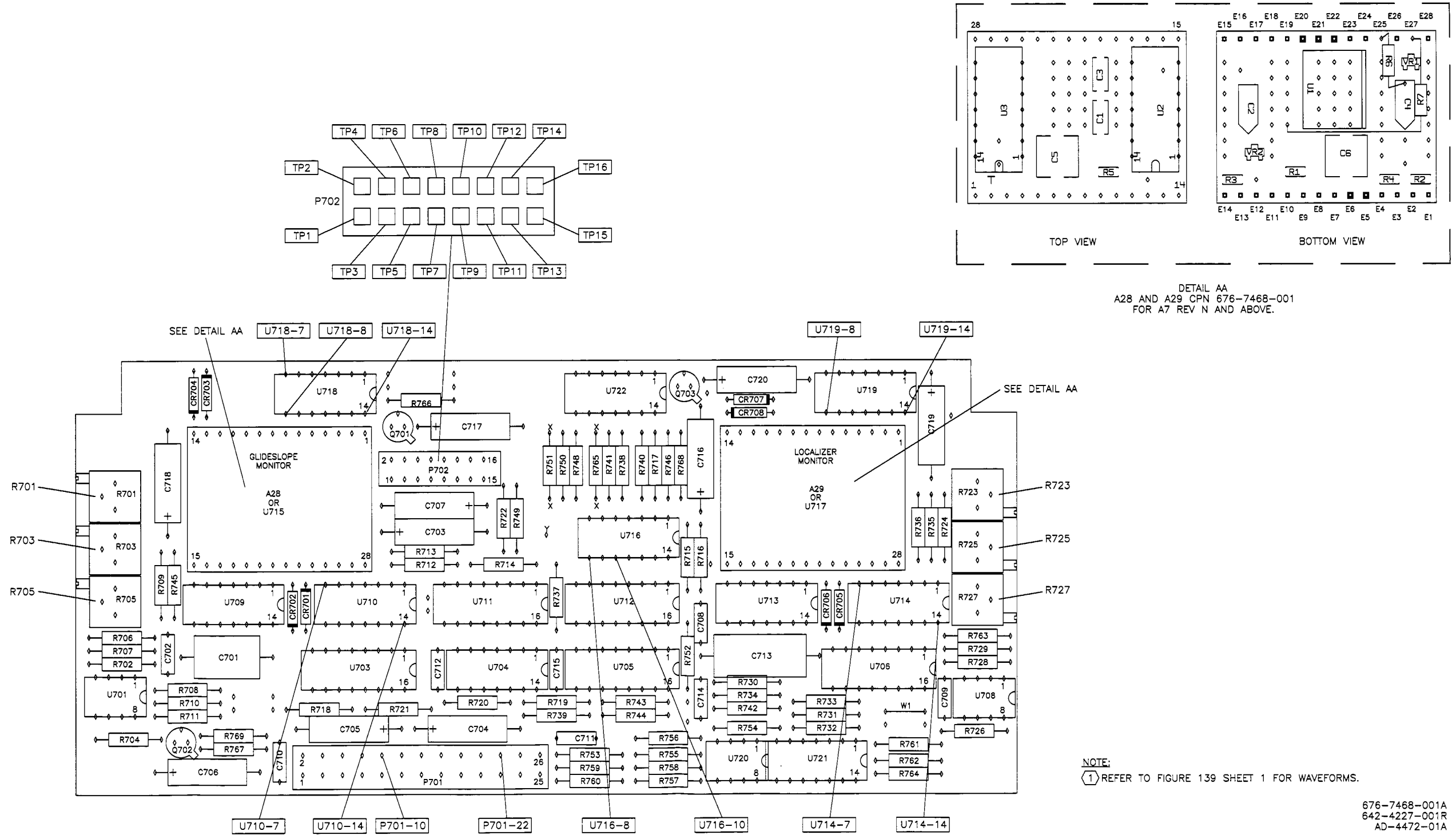
RESISTOR	CARBON	METAL FILM
R708	100 Ω	100 Ω
R714	10 kΩ	10 kΩ
R717	100 kΩ	100 kΩ
R721	100 kΩ	100 kΩ
R730	100 Ω	100 Ω
R737	10 kΩ	10 kΩ
R744	100 kΩ	100 kΩ
R746	10 kΩ	10 kΩ

REV IDENT and SHEET: K5 – sheets 1 and 2

EFFECTIVITY: REV T

DESCRIPTION/REASON: Replaced obsolete U704 (35074) with preferred part OP413.

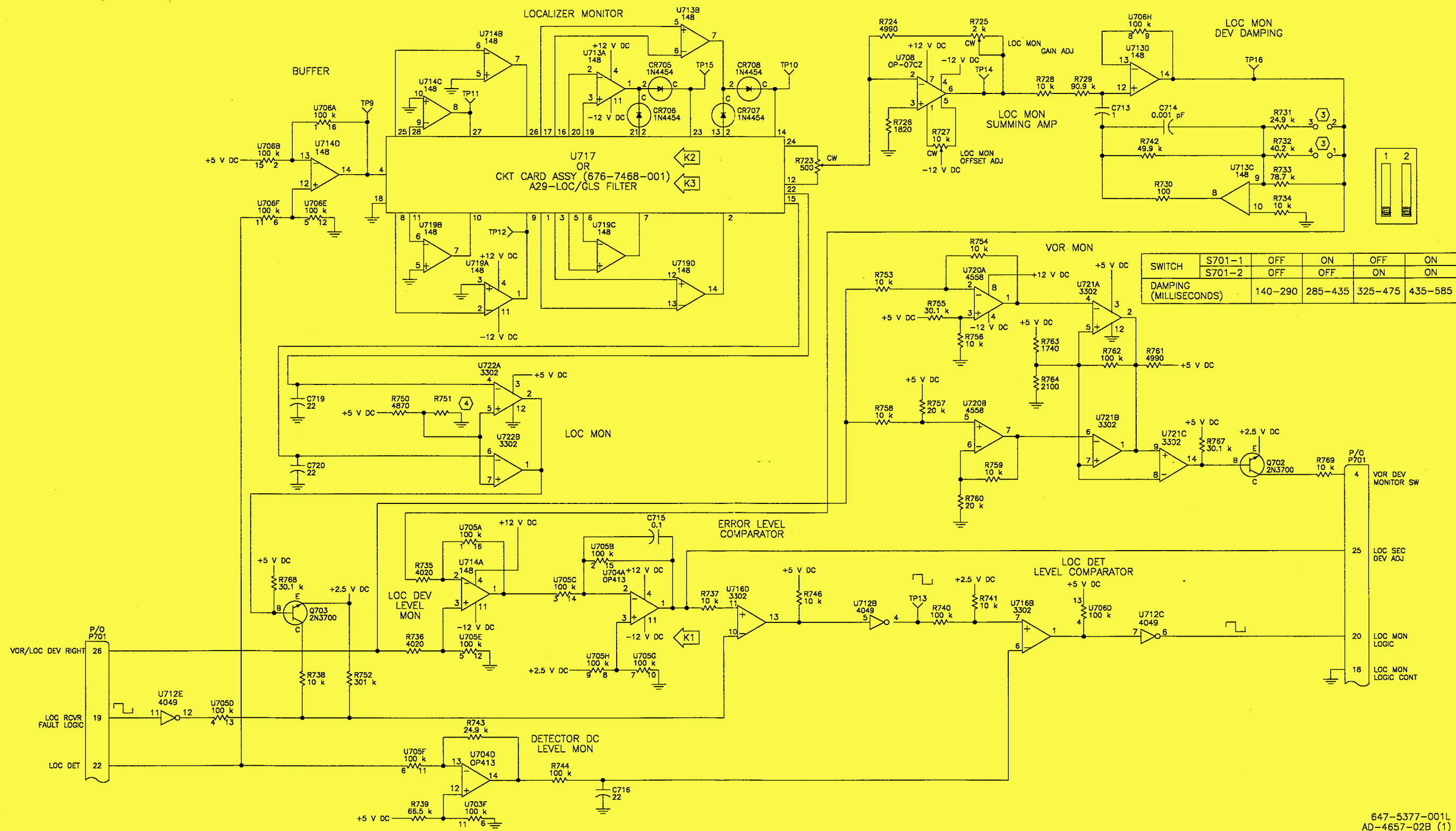
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Expanded ILS Monitor A7 (CPN 642-4227-001), Maintenance Aid Diagram
 Figure 148

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5()VOR/ILS Navigation Receiver
 PART NO 622-3255



647-5377-001L
 AD-4657-02B (1)

51RV-4()/5() VOR/ILS Navigation Receiver

COMPONENT MAINTENANCE MANUAL VOLUME 2 (523-0777753)

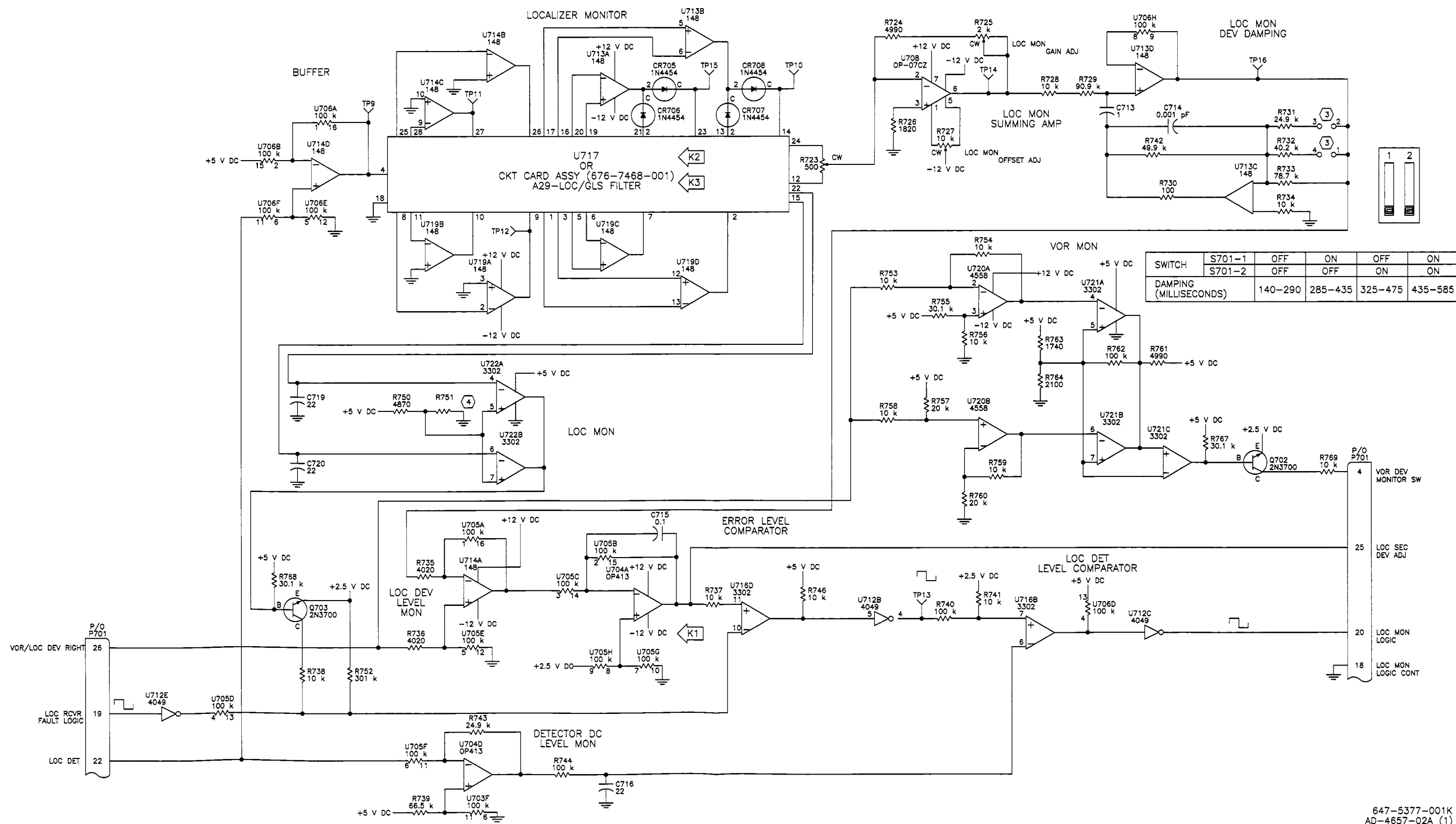
TEMPORARY REVISION NO 34-35-10-02

Insert facing pages 198.115/198.116, 34-35-10

Subject: Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram
Figure 149 (Sheet 1 of 3)

Replace the illustration in Figure 149 (Sheet 1 of 3) with the illustration on the previous page.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



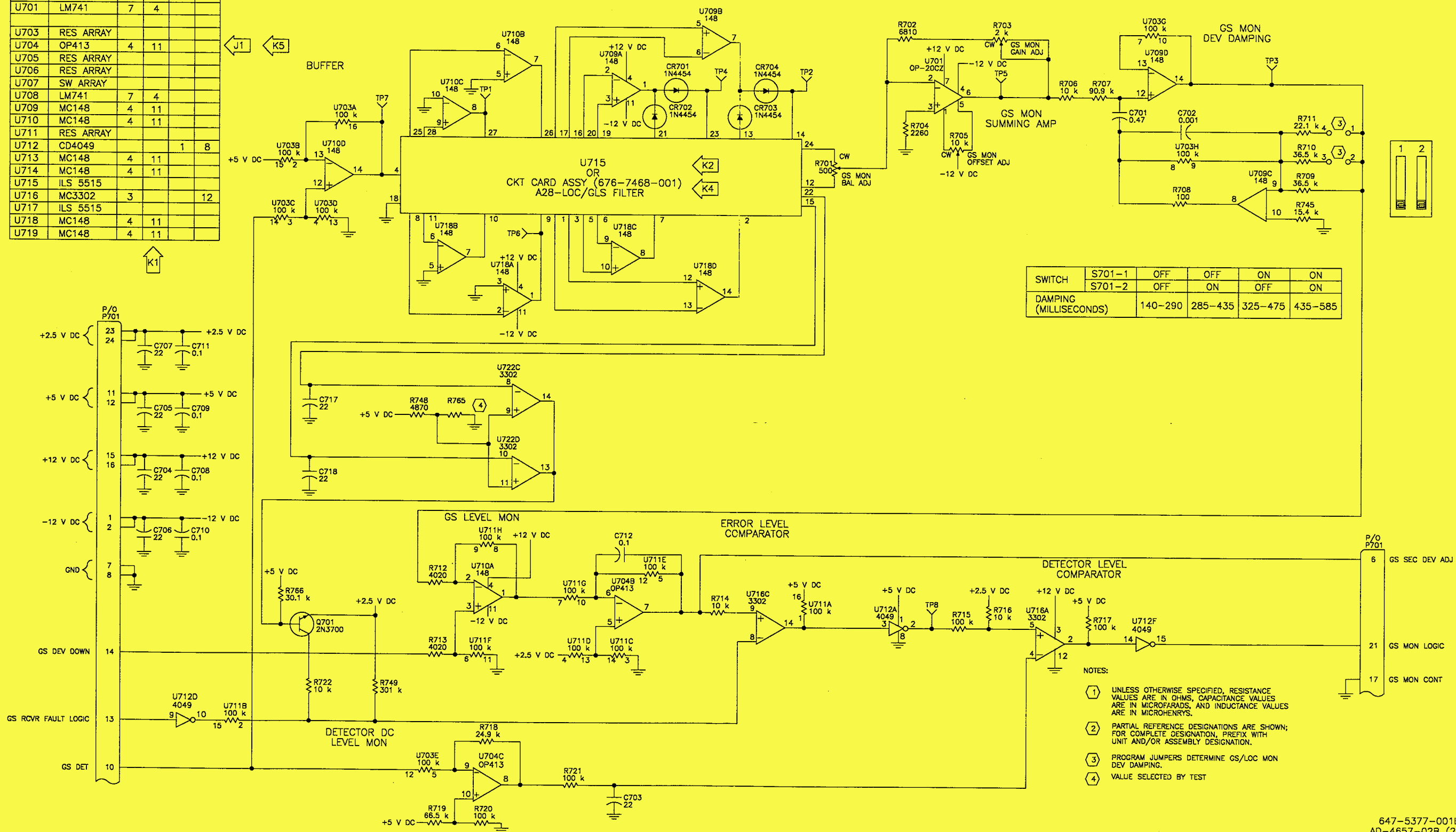
Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram
 Figure 149 (Sheet 1 of 3)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5()VOR/ILS Navigation Receiver
PART NO 622-3255**

POWER AND GROUND CONNECTIONS

U NO.	TYPE	POWER (VDC)			
		+12	-12	+5	GND
U701	LM741	7	4		
U703	RES ARRAY				
U704	OP413	4	11		
U705	RES ARRAY				
U706	RES ARRAY				
U707	SW ARRAY				
U708	LM741	7	4		
U709	MC148	4	11		
U710	MC148	4	11		
U711	RES ARRAY				
U712	CD4049			1	8
U713	MC148	4	11		
U714	MC148	4	11		
U715	ILS 5515				
U716	MC3302	3			12
U717	ILS 5515				
U718	MC148	4	11		
U719	MC148	4	11		



SWITCH	S701-1	OFF	OFF	ON	ON
DAMPING (MILLISECONDS)		140-290	285-435	325-475	435-585

- NOTES:
- (1) UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - (2) PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
 - (3) PROGRAM JUMPERS DETERMINE GS/LOC MON DEV DAMPING.
 - (4) VALUE SELECTED BY TEST

647-5377-001L
AD-4657-02B (2)

51RV-4()/5() VOR/ILS Navigation Receiver

COMPONENT MAINTENANCE MANUAL VOLUME 2 (523-0777753)

TEMPORARY REVISION NO 34-35-10-02

Insert facing page 198.117/198.118, 34-35-10

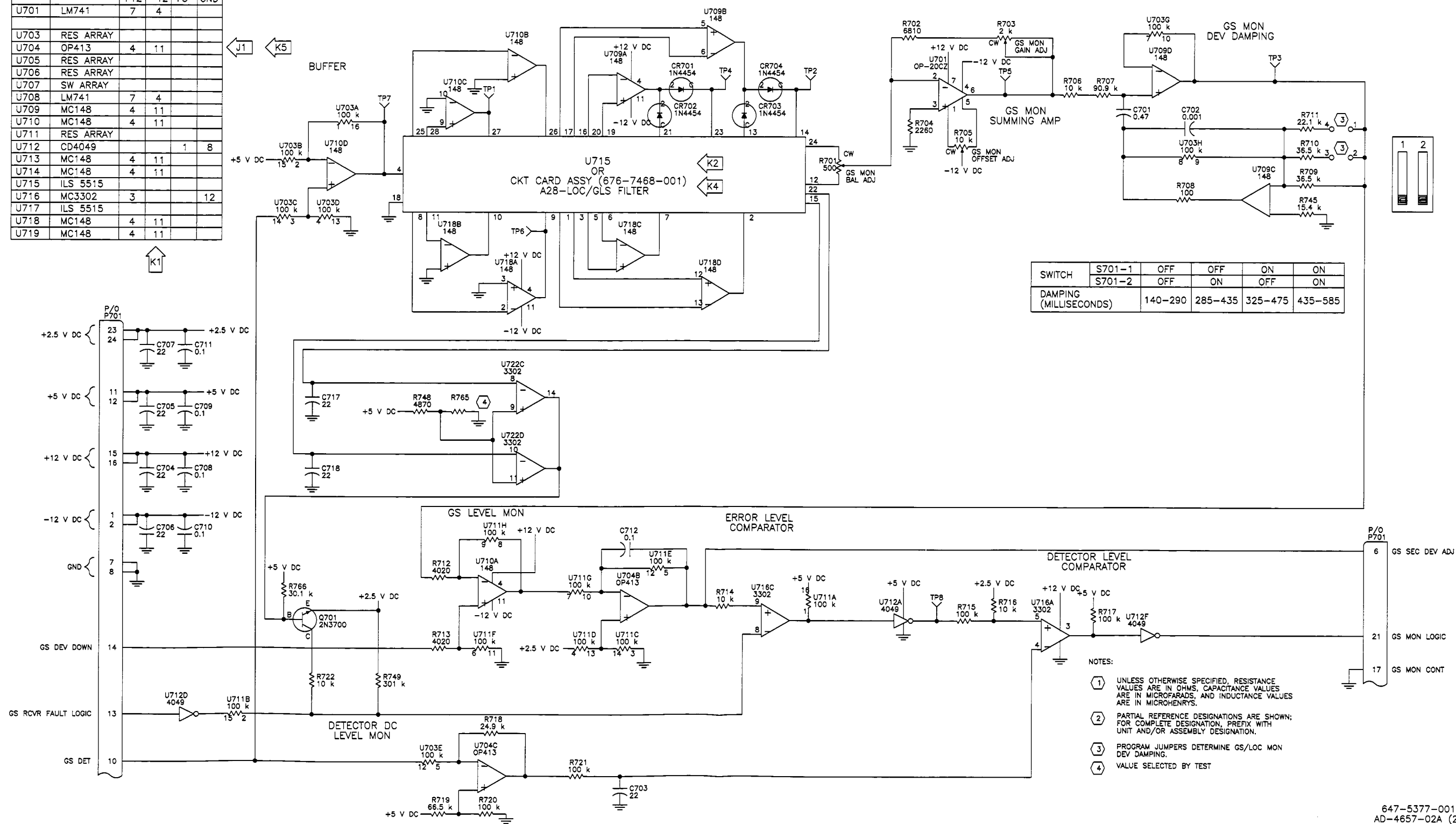
Subject: Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram
Figure 149 (Sheet 2 of 3)

Replace the illustration in Figure 149 (Sheet 2 of 3) with the illustration on the previous page.

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

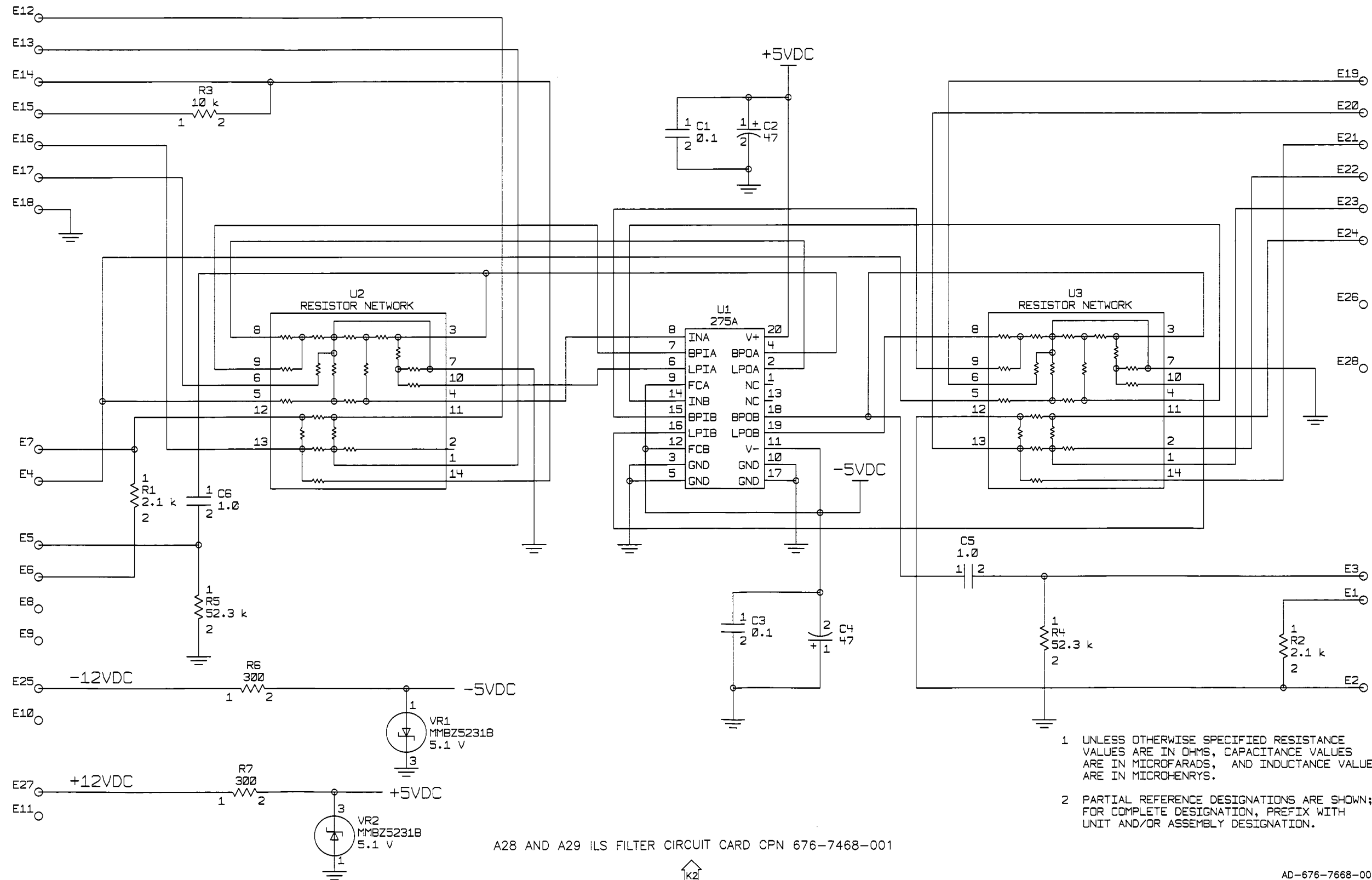
POWER AND GROUND CONNECTIONS

U NO.	TYPE	POWER (VDC)			
		+12	-12	+5	GND
U701	LM741	7	4		
U703	RES ARRAY				
U704	OP413	4	11		
U705	RES ARRAY				
U706	RES ARRAY				
U707	SW ARRAY				
U708	LM741	7	4		
U709	MC148	4	11		
U710	MC148	4	11		
U711	RES ARRAY				
U712	CD4049			1	8
U713	MC148	4	11		
U714	MC148	4	11		
U715	ILS 5515				
U716	MC3302	3			12
U717	ILS 5515				
U718	MC148	4	11		
U719	MC148	4	11		



Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram
Figure 149 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



- 1 UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- 2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

A28 AND A29 ILS FILTER CIRCUIT CARD CPN 676-7468-001



AD-676-7668-001A
 AD-4263-01-

Expanded ILS Monitor A7 (CPN 642-4227-001), Schematic Diagram
 Figure 149 (Sheet 3)

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

REV IDENT and SHEET: B1 – sheet 1

EFFECTIVITY: REV K (601-4208-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: R821 changed from 2000 to 3920 ohms and R822 changed from 10 k to 500 ohms to increase resolution of VOR gain adjust.

REV IDENT and SHEET: C1 – sheet 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart. Changed P801-17 (26-V ac 400-Hz high) to 400-Hz PLL designation. Changed P801-9 (GS RCVR lock) to GS SYNT lock designation. Changed U806-15 (1 = VALID FLAG) to 0 = FIV designation. Disconnected U820-12 from U820-13. Updates/corrects schematic.

REV IDENT and SHEET: C2 – sheet 1

EFFECTIVITY: REV J (601-4208-001)

DESCRIPTION/REASON: Changed R810 (100 Ω) to 1 k Ω . Eases testing on VOR/LOC monitor.

REV IDENT and SHEET: C3 – sheet 1

EFFECTIVITY: REV P (601-4208-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Remove connection from P801-14 to U818-4. Changed U818 designation to U811. Added R829 (100 Ω). Changed R859, R866 (820 k Ω) to 10 k Ω . Disconnected +12 V dc from R866; connected R866 to P801-16. Increases current protection.

REV IDENT and SHEET: C4 – sheet 1

EFFECTIVITY: REV R (601-4208-001)

SERVICE BULLETIN: 11

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Added R885 (12 k Ω), CR815, CR816 (1N4454). Changed R876 (100) to 150 Ω , R877 (10 Ω) to 27.4 Ω . Disconnected R836 from U813-8, connected to junction of CR816-A, CR815-A, R885. Connected CR816-C to U813-8, CR815-C to U813-5, R885 to +5 V dc. Increases TO/FROM flag current above ARINC system.

REV IDENT and SHEET: D1 – sheet 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added pin 11 designation to U820. Added TP15. Changed CR816 to CR815, CR815 to CR816. Changed U811 to U818. Added drawing of U818, U801, U805 spare circuits. Added R880, connected to U801-2, U803-6 and S801-6.

REV IDENT and SHEET: F1 – sheet 1 and 2

EFFECTIVITY: MOD 2 CPN 601-4208-001; MOD 1 CPN 642-4208-001, -002

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S801 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: F2 – sheet 1 and 2

EFFECTIVITY: All CPN 642-4208-002

DESCRIPTION/REASON: Added note 6 and U801/U805 circuit for CPN 642-4208-002 only.

REV IDENT and SHEET: F3 – sheet 2

EFFECTIVITY: REV F CPN 642-4208-001, -002

DESCRIPTION/REASON: Changed type number of U823 from 741 to OP-20.

REV IDENT and SHEET: K1 – sheet 3

EFFECTIVITY: REV R CPN 642-4208-001, -002

DESCRIPTION/REASON: Added schematic on sheet 3 for the addition of A28 circuit card.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

REV IDENT and SHEET: K2 – sheet 1

EFFECTIVITY: REV R CPN 642-4208-001, -002

SERVICE BULLETIN: 32

DESCRIPTION/REASON: Replaced obsolete U808 with a separate circuit card A28 CPN 676-7468-001 and added 2 jumper wires from A28 pins 25 and 27 to U816 pins 11 and 4, respectively, to allow more margin in the deviation circuits.

The above changes apply to circuit card 601-4208-001, -004 by service bulletin 32 only. Refer to sheet 3 of schematic for added A28 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV T CPN 642-4208-001, -002 (MOD 3)

DESCRIPTION/REASON: Incorporate modification markings.

REV IDENT and SHEET: K3 – sheets 1 and 2

EFFECTIVITY: REV U

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R810	1.0 kΩ	1.0 kΩ
R812	100 Ω	100 Ω
R825	820 kΩ	825 kΩ
R828	100 kΩ	100 kΩ
R831	10 kΩ	10 kΩ
R832	47 kΩ	47.5 kΩ
R833	47 kΩ	47.5 kΩ
R834	10 kΩ	10 kΩ
R836	1.0 kΩ	1.0 kΩ
R837	100 kΩ	100 kΩ
R837	100 kΩ	100 kΩ

(Cont)

VOR/LOC Instrumentation A8, Schematic Changes
 Figure 150 (Sheet C)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

DESCRIPTION/REASON: (Sheet 1 cont)

RESISTOR	CARBON	METAL FILM
R837	100 kΩ	100 kΩ
R840	100 Ω	100 Ω
R842	10 kΩ	10 kΩ
R874	1.0 kΩ	1.0 kΩ
R875	1.0 kΩ	1.0 kΩ
R885	12 kΩ	12.1 kΩ

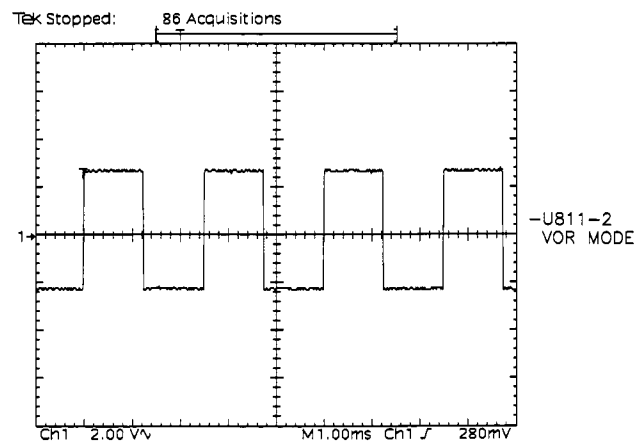
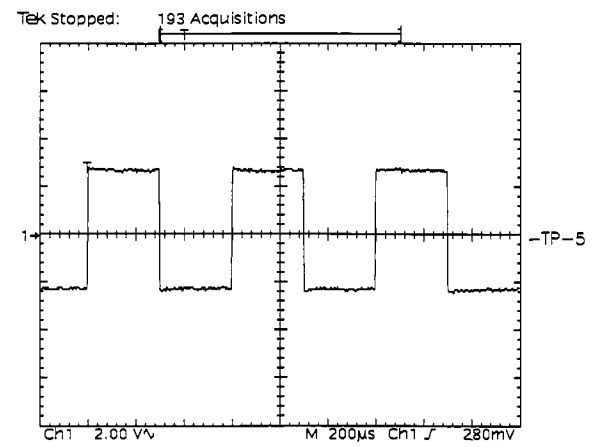
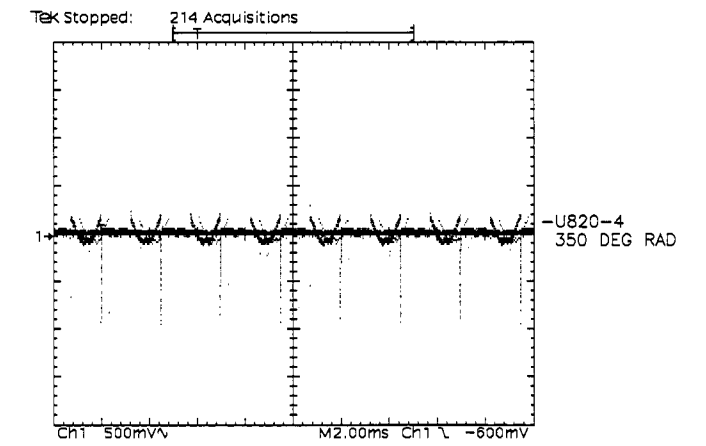
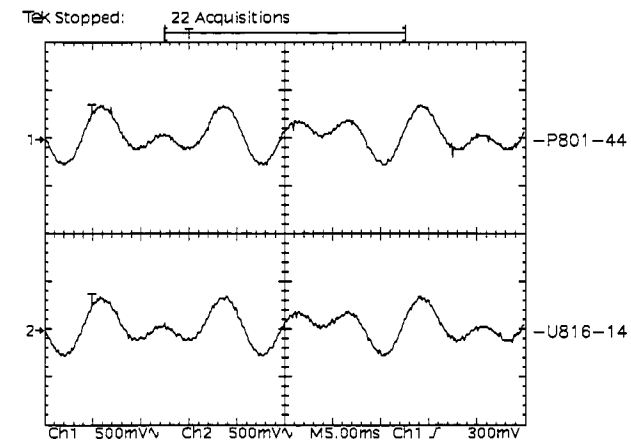
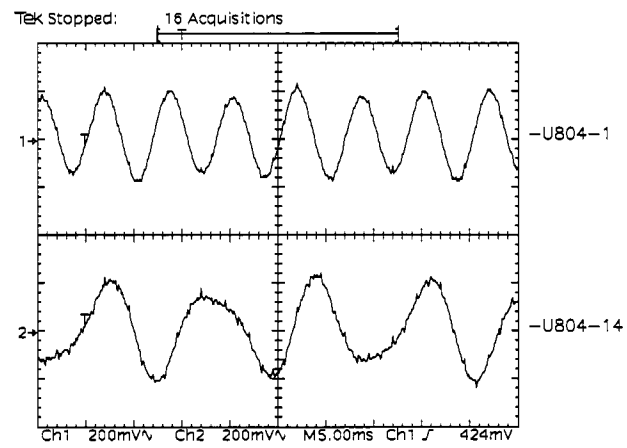
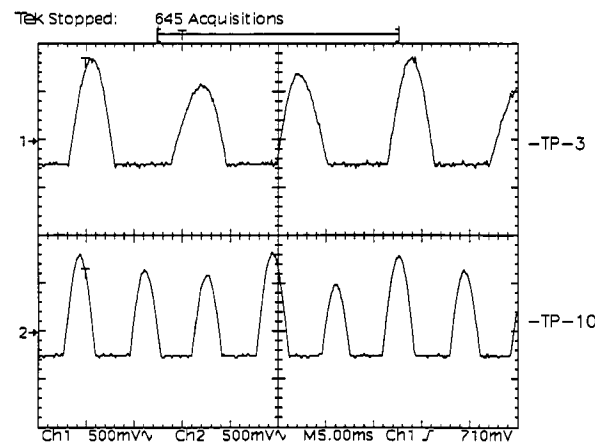
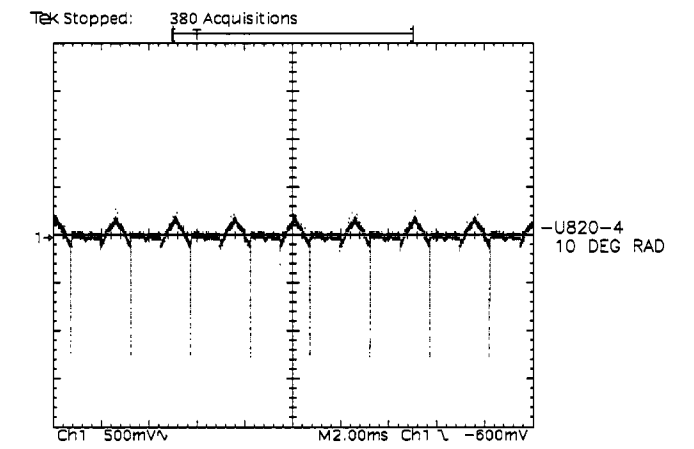
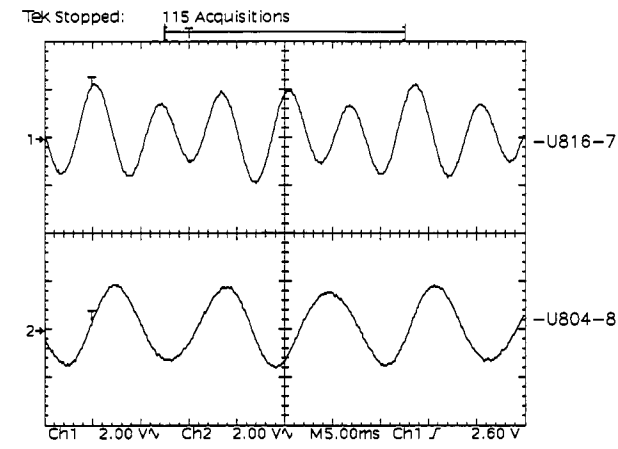
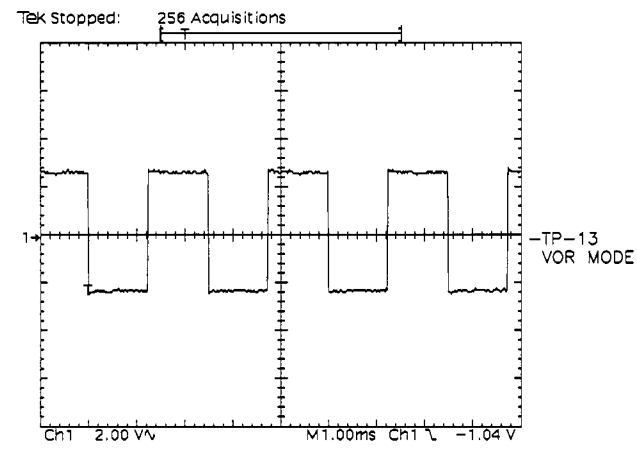
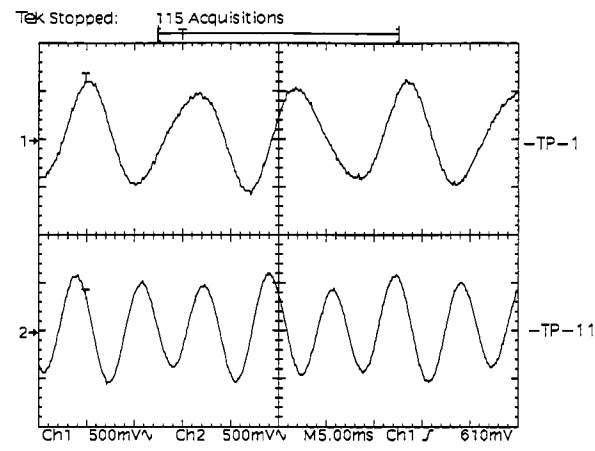
Sheet 2

RESISTOR	CARBON	METAL FILM
R829	100 Ω	100 Ω
R843	47 kΩ	47.5 kΩ
R846	100 kΩ	100 kΩ
R847	33 kΩ	33.2 kΩ
R848	33 kΩ	33.2 kΩ
R849	75 kΩ	75 kΩ
R850	47 kΩ	47.5 kΩ
R851	100 kΩ	100 kΩ
R852	100 kΩ	100 kΩ
R853	100 kΩ	100 kΩ
R854	39 kΩ	39.2 kΩ
R855	10 kΩ	10 kΩ
R856	100 kΩ	100 kΩ
R857	22 kΩ	22.1 kΩ
R859	10 kΩ	10 kΩ
R860	2700 Ω	2.74 kΩ
R861	6800 Ω	6.81 kΩ
R862	22 kΩ	22.1 kΩ
R863	22 kΩ	22.1 kΩ
R864	47 kΩ	47.5 kΩ
R865	100 kΩ	100 kΩ
R866	10 kΩ	10 kΩ
R867	47 kΩ	47.5 kΩ
R868	2700 Ω	2.74 kΩ
R869	6800 Ω	6.81 kΩ
R870	10 kΩ	10 kΩ
R871	1.0 kΩ	1.0 kΩ
R872	22 kΩ	22.1 kΩ
R873	22 kΩ	22.1 kΩ
R878	22 kΩ	22.1 kΩ
R879	22 kΩ	22.1 kΩ
R880	47 kΩ	47.5 kΩ

VOR/LOC Instrumentation A8, Schematic Changes
 Figure 150 (Sheet D)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

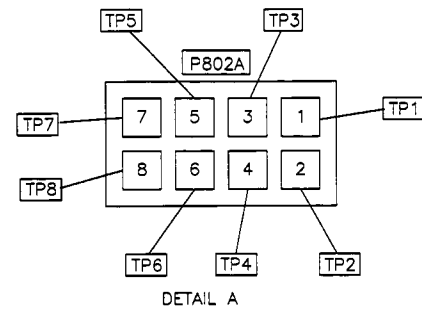


AD-4694-02- (1)

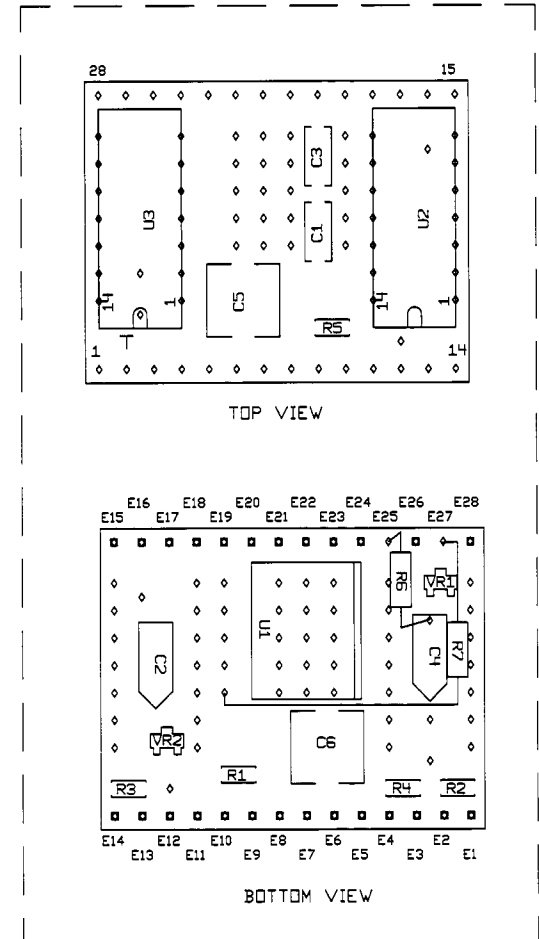
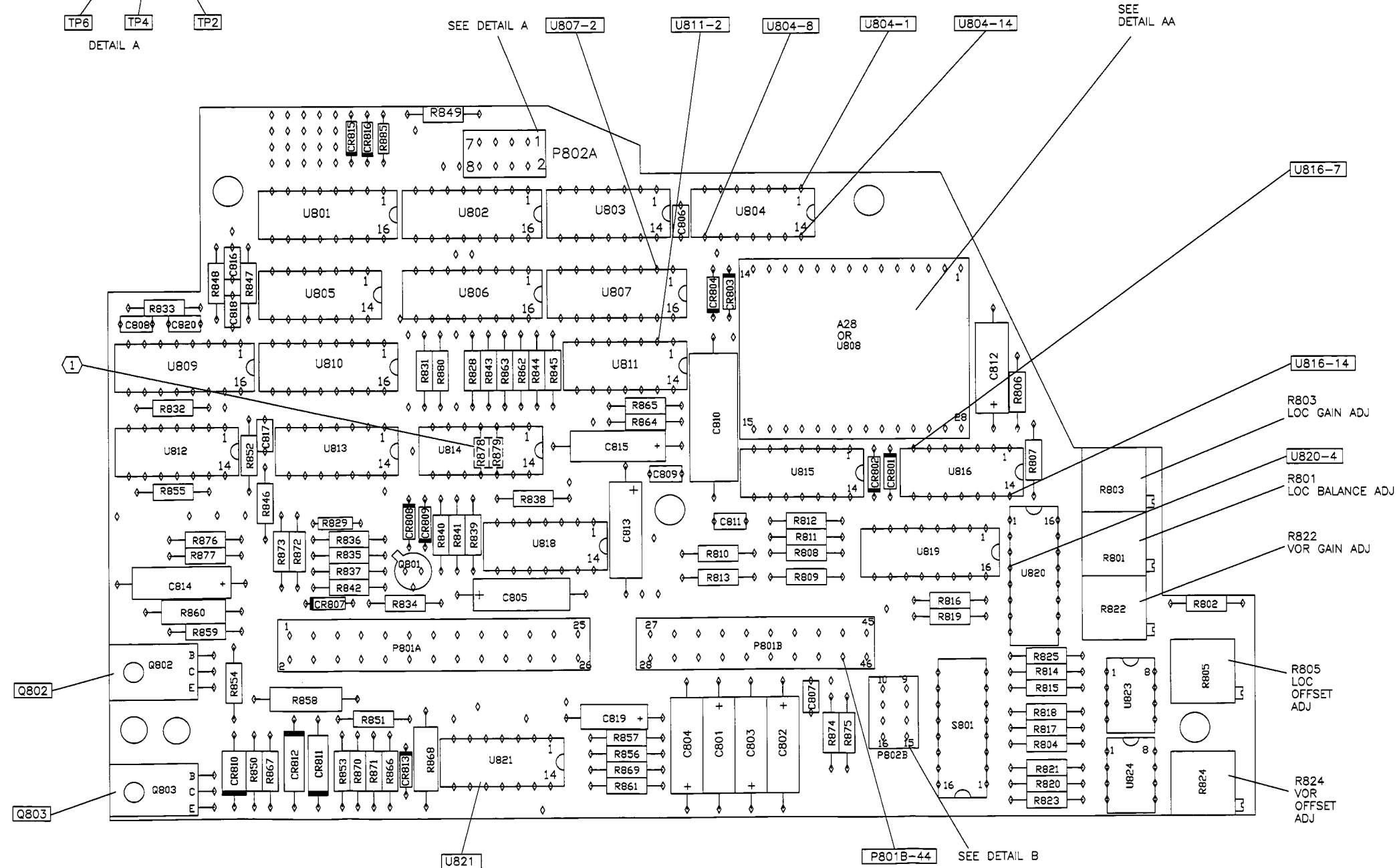
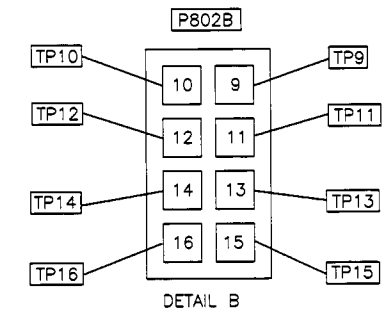
VOR/LOC Instrumentation A8 (CPN 601-4208-001, -004), Waveforms
 Figure 151 (Sheet 1 of 3)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 (1) LOCATED ON BACKSIDE OF CARD.



DETAIL AA
 A28 CPN 676-7468-001
 FOR A8 WITH SB 32 INSTALLED

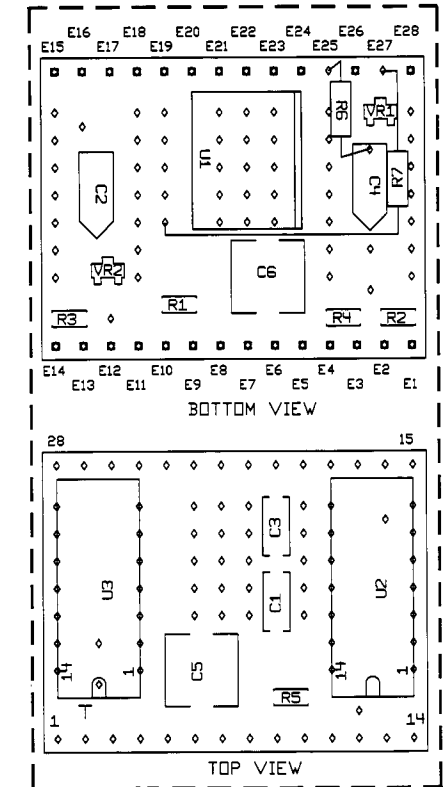
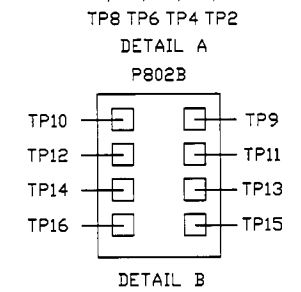
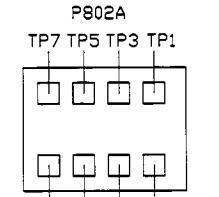
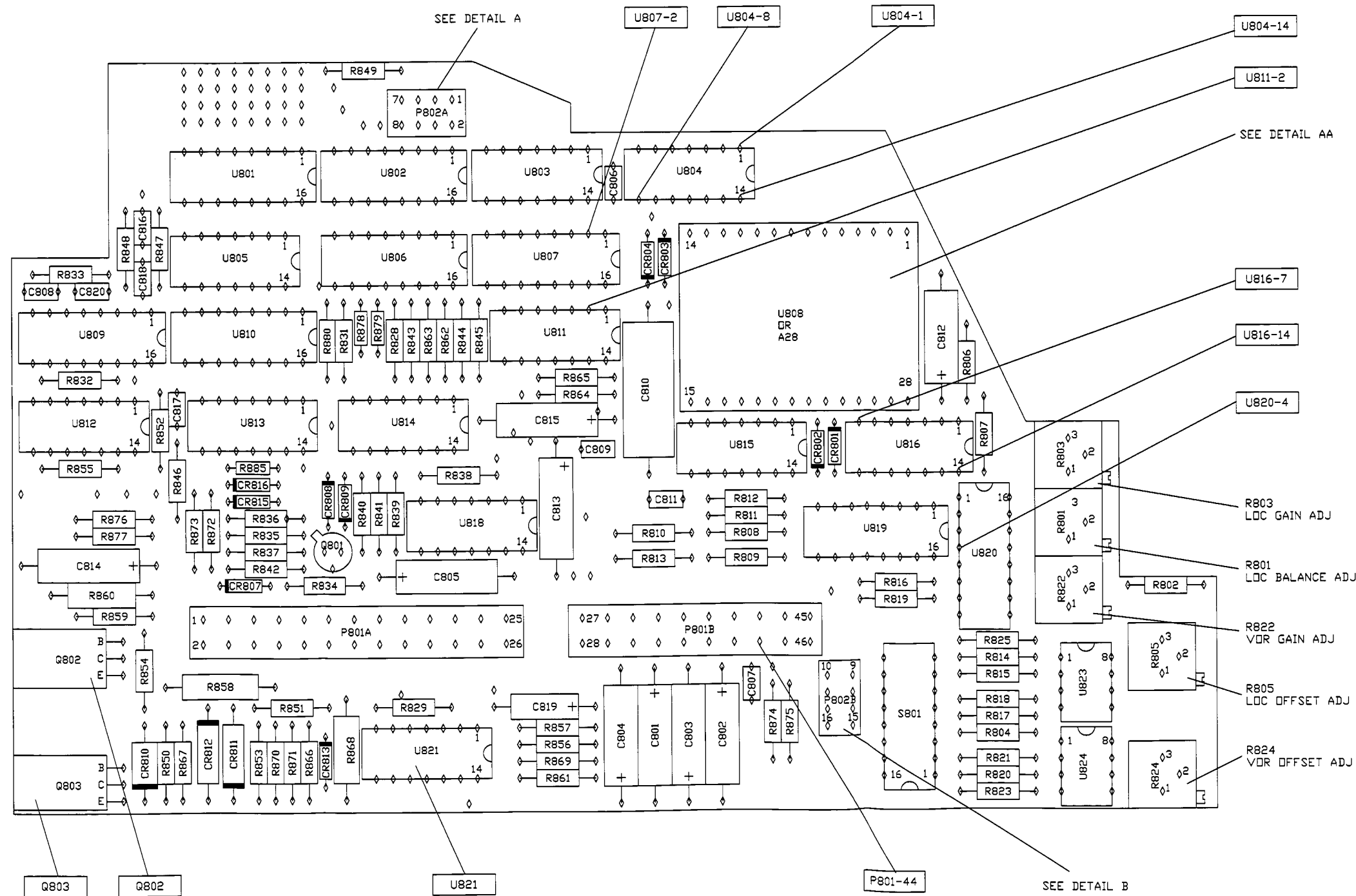
676-7468-001A
 601-4208-001, -004
 AD-4694-02- (2)

VOR/LOC Instrumentation A8 (CPN 601-4208-001, -004),
 Maintenance Aid Diagram
 Figure 151 (Sheet 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

NOTE: REFER TO SHEET 1 FOR WAVEFORMS.



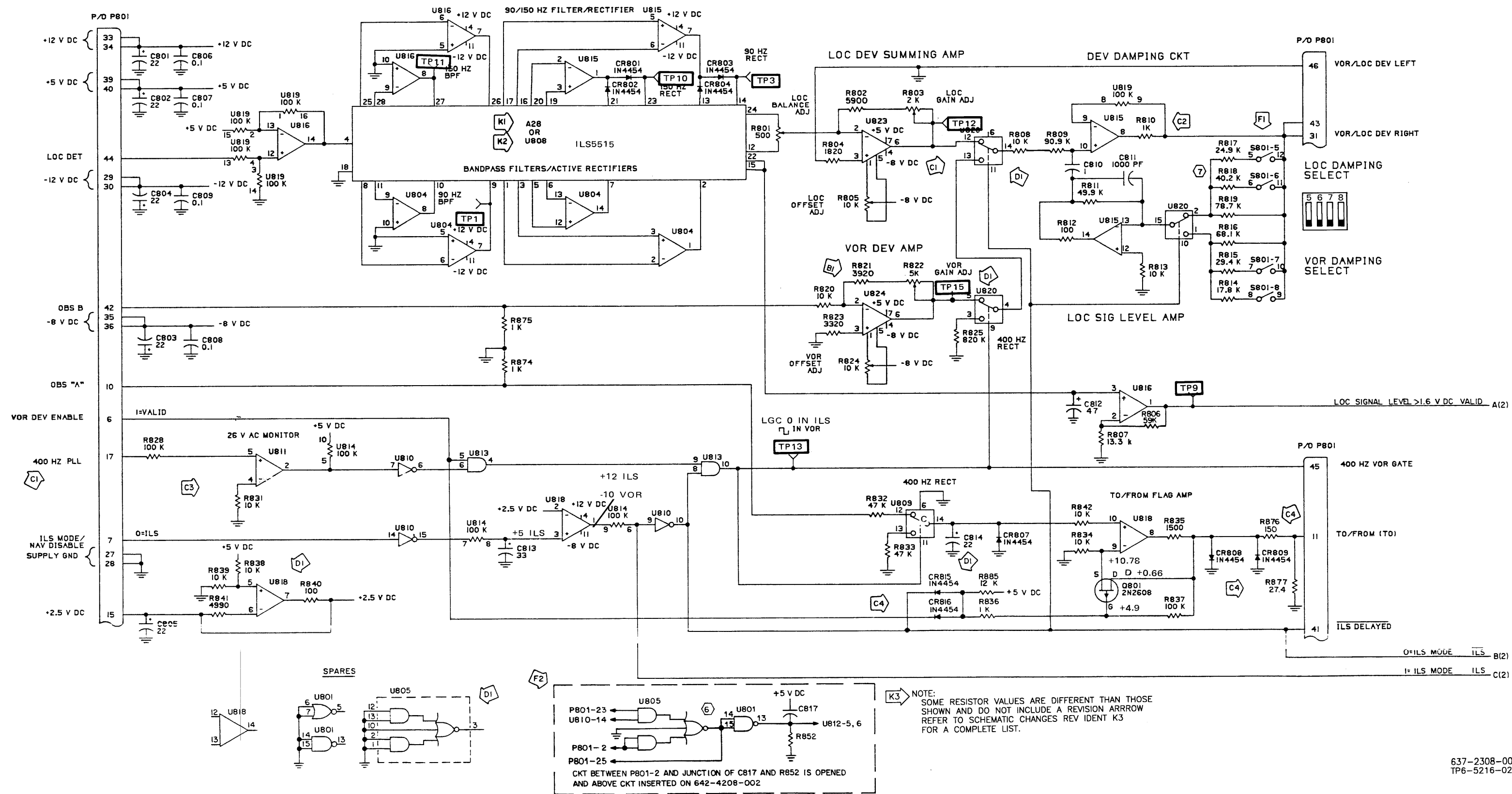
DETAIL AA
 A28 CPN 676-7468-001
 FOR A8 WITH S832 INSTALLED.

642-4208-001U,-002U
 AD-4658-01-

VOR/LOC Instrumentation A8 (CPN 642-4208-001, -002),
 Maintenance Aid Diagram
 Figure 151 (Sheet 3)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



637-2308-001L
TP6-5216-028 (1)

VOR/LOC Instrumentation A8, Schematic Diagram
Figure 152 (Sheet 1 of 3)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

U NO.	TYPE	POWER (V DC)				
		+12 V	+5 V	-12 V	-8 V	GND
U801	4572 *	16	16			8
U802	4020 *	16				8
U803	4070 *	14				7
U804	148	4		11		
U805	4085 *	14				7
U806	4027 *	16				8
U807	4029 *	16				8
U809	4053 *	16			7	8
U810	4049 *	1				8
U811	3302	3				12
U812	4085 *	14				7
U813	4081 *	14				7
U815	148	4		11		

U NO.	TYPE	POWER (V DC)				
		+12 V	+5 V	-12 V	-8 V	GND
U816	148	4		11		
U818	148	4		11		
U820	4053 *	16			7	8
U823	OP-20	7			4	
U824	UA741	7			4	
U808	ILS5515					
U814	RESISTOR ARRAY					
U819	RESISTOR ARRAY					
U821	MPQ 6001					

* CMOS/MOS DEVICE

NOTES: ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.

② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

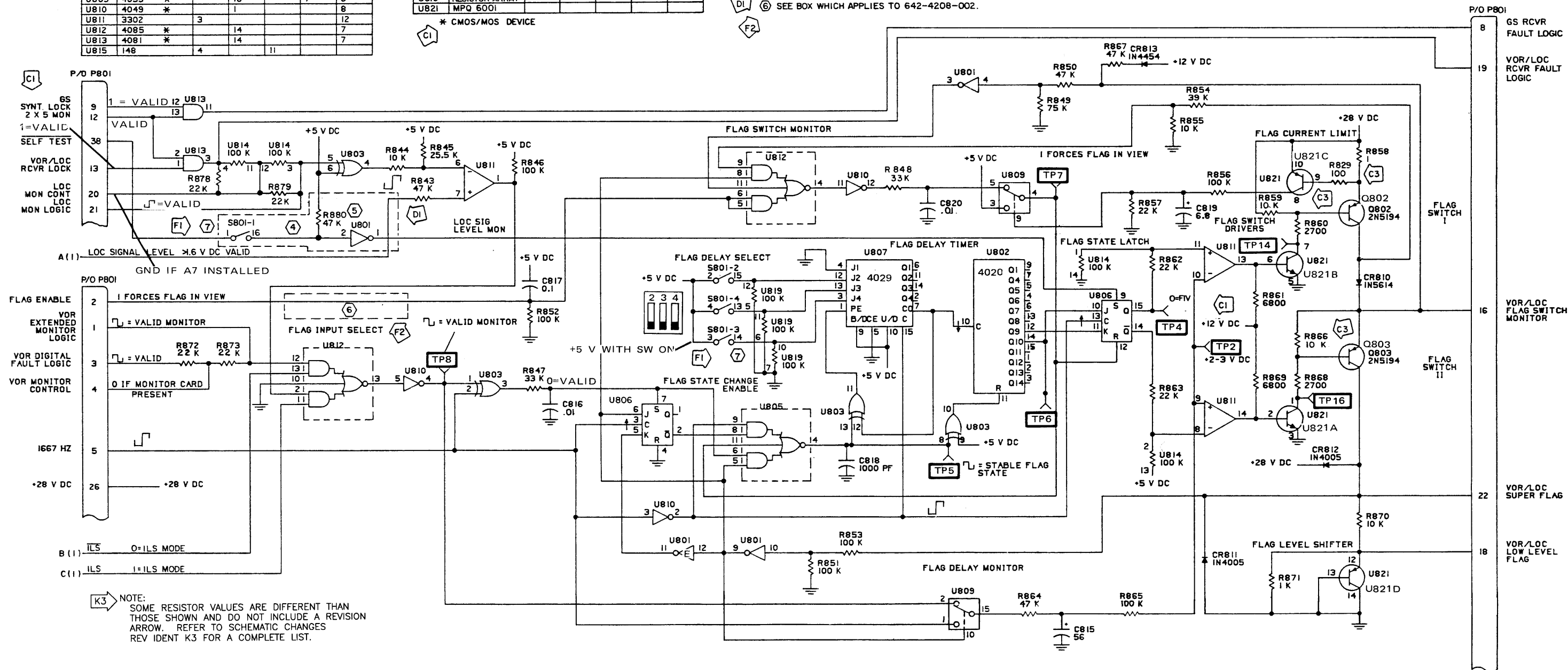
③ LOGIC STATES: 1 = +3.5 TO +5.0 V DC
0 = 0 TO +1.5 V DC

④ AREA IN BOX DOES NOT APPLY TO 601-4208-001 WHICH REQUIRES U806-9 TO BE GROUNDED.

⑤ R880 NOT USED ON 601-4208-001.

⑥ SEE BOX WHICH APPLIES TO 642-4208-002.

F1 ⑦ PROGRAM JUMPERS REPLACE S801 WHEN SB19 IS INSTALLED.



NOTES

FIV=FLAG IN VIEW

VOLTAGES MEASURED WITH AVERAGING DIGITAL VOLTMETER.

ALL VOLTAGES ARE DC.

1ST VOLTAGES GIVEN IS WITH STANDARD LOC DEVIATION 150 90 Hz SIGNAL APPLIED; 2ND VOLTAGE TAKEN WITH DEVIATION SIGNAL REMOVED.

TRANSISTORS	VOR/LOC FLAG OUT-OF-VIEW			VOR/LOC FLAG IN-VIEW		
	E	B	C	E	B	C
Q803	+26.1	+25.4	+26.0	0	+10.9	0
Q802	+26.9	+26.2	+26.8	+27.4	+26.9	0
U821A	0	+0.7	+0.04	0	+0.09	+10.9
U821B	0	+0.7	+0.05	0	+0.08	+26.9
U821C	+27.1	+26.9	0	+27.4	+27.4	0
U821D	0.53	0	0	0	0	0

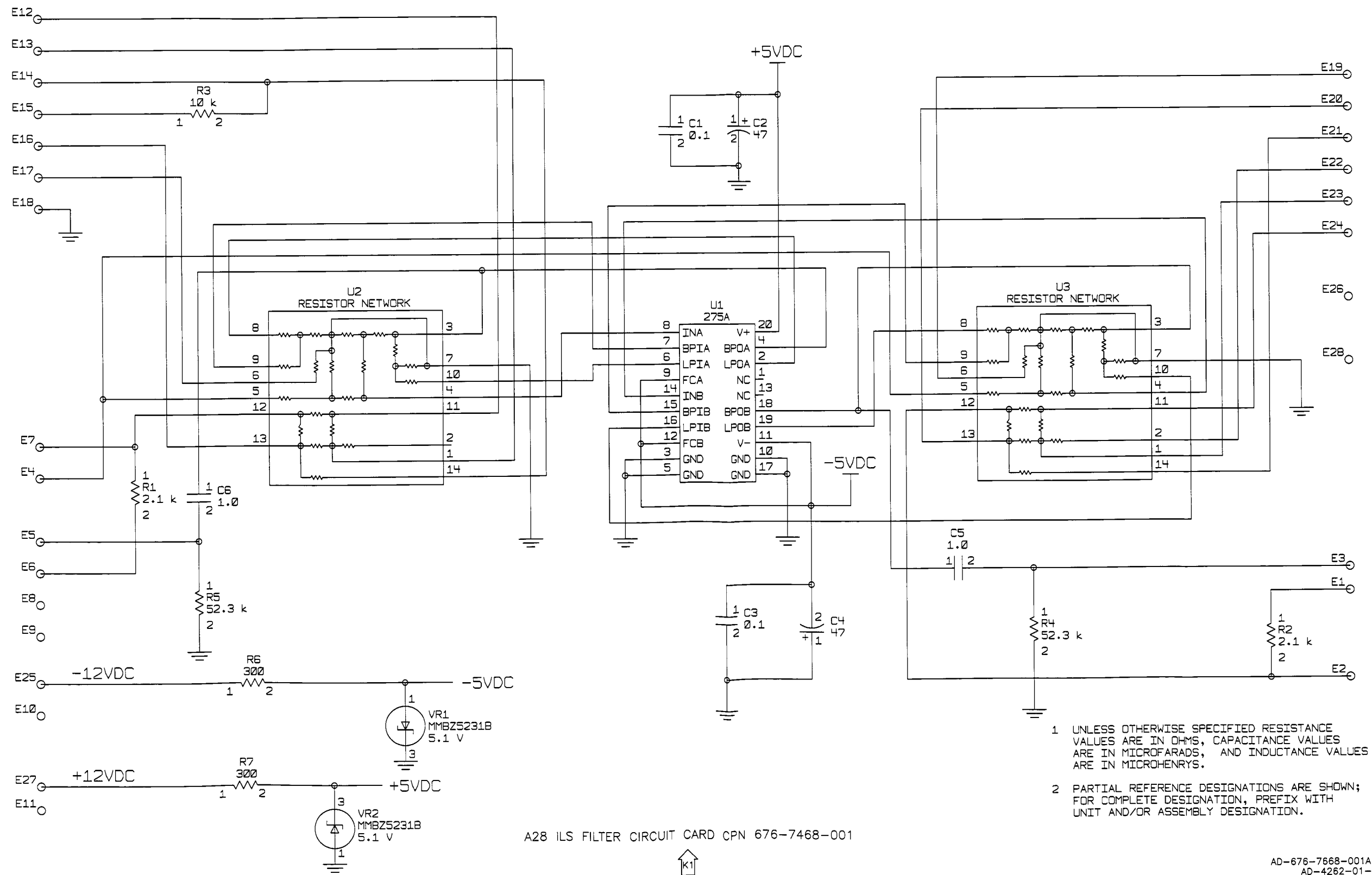
SWITCH DAMPING				
S801-5	OFF	ON	OFF	ON
S801-6	OFF	OFF	ON	ON
MILLI-SECONDS	140-290	285-435	325-475	435-585

VOR/LOC Instrumentation A8, Schematic Diagram
Figure 152 (Sheet 2)

34-35-10

Pages 198.133/198.134
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4() / 5() VOR/ILS Navigation Receiver
PART NO 622-3255**



- 1 UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- 2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

A28 ILS FILTER CIRCUIT CARD CPN 676-7468-001

AD-676-7668-001A
AD-4262-01-

VOR/LOC Instrumentation A8, Schematic Diagram
Figure 152 (Sheet 3)

34-35-10

Pages 198.135/198.136
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: B1 – sheet 2

EFFECTIVITY: REV N

SERVICE BULLETIN: 1

DESCRIPTION/REASON: C927, C928, C929 changed from 33 μ F, 10 V to 15 μ F, 20 V to reduce chance of failure.

REV IDENT and SHEET: B2 – sheet 2

EFFECTIVITY: REV P

DESCRIPTION/REASON: R948 changed from 2000 to 3920 ohms and R951 changed from 10 k Ω to 5000 ohms to increase resolution of VOR gain adjust.

REV IDENT and SHEET: C1 – sheet 2

EFFECTIVITY: REV R

DESCRIPTION/REASON: Changed C933 (0.1) to 1.0 μ F to improve the performance of the equipment.

REV IDENT and SHEET: C2 – sheet 1

EFFECTIVITY: REV T

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Changed R907 (40.2 k Ω) to 6.19 k Ω , R912 (200 k Ω) to 31.6 k Ω , R913 (1 k Ω) to 562 Ω . Deleted CR908 and CR906. Disconnected anode of CR905 from S901-5. Connected CR905-A to +5 V dc to correct PLL problems.

REV IDENT and SHEET: C3 – sheet 2

EFFECTIVITY: REV AC (601-4209-003). REV AD (601-4209-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Changed R948 (3920 Ω) to 7.50 k Ω . Changed R951 (5 k Ω) to 1 k Ω to increase resolution of R951.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C4 – sheet 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Interchanged U919, pins 12 and 13; deleted line between U918-3 and 4; moved R990 from U918-4 to U918-3 to correct schematic errors.

REV IDENT and SHEET: C5 – sheet 2

EFFECTIVITY: REV AE (601-4209-003)

DESCRIPTION/REASON: Added C934 (0.1 μ F) to make 601-4209-003 like 601-4209-001.

REV IDENT and SHEET: C6 – sheet 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: D1 – sheet 2

EFFECTIVITY: REV AG (601-4209-003)

DESCRIPTION/REASON: Changed C934 (0.1 μ F) designation to C935. Corrects schematic.

REV IDENT and SHEET: D2 – sheet 1

EFFECTIVITY: REV AH (601-4209-003)

DESCRIPTION/REASON: Changed R940 (50 Ω pot) to 10 k Ω . Improves performance.

REV IDENT and SHEET: F1 – sheet 1 and 2

EFFECTIVITY: MOD 2 CPN 601-4209-001; MOD 2 CPN 601-4209-003, -004

SERVICE BULLETIN: 19

DESCRIPTION/REASON: Switch S901 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

- REV IDENT and SHEET:** F2 – sheet 1
- EFFECTIVITY:** REV AW CPN 601-4209-003, -004
- DESCRIPTION/REASON:** Capacitors C905 and C919 changed from 400 to 390 pF to improve reliability.
-
- REV IDENT and SHEET:** F3 – sheet 2
- EFFECTIVITY:** All models
- DESCRIPTION/REASON:** On card A9 CPN 601-4209-001 and 642-4209-003, R972 is 10 kΩ. On card A9 CPN 601-4209-004, R972 is 301 kΩ and a jumper is added from the junction of R972 and R981 to P901-22.
-
- REV IDENT and SHEET:** F4 – sheet 2
- EFFECTIVITY:** REV AY CPN 601-4209-003, -004
- DESCRIPTION/REASON:** The type number for U902, U904, and U922 is changed from 1558 to 1558/4558 to provide alternate component selection.
-
- REV IDENT and SHEET:** F5 – sheet 2
- EFFECTIVITY:** REV G CPN 601-4209-003, -004
- DESCRIPTION/REASON:** The type number for U917 is changed from 741 to UA741 for reliability.
-
- REV IDENT and SHEET:** G1 – sheet 1
- EFFECTIVITY:** All models
- DESCRIPTION/REASON:** Reversed pin number 7 and 11 on U911G; pin 7 now connects to U901B-8. Corrects schematic error.
-
- REV IDENT and SHEET:** G2 – sheet 2
- EFFECTIVITY:** All models
- DESCRIPTION/REASON:** In power and ground matrix at U902 and U904, moved entry (4) from the -8 column to the -12 column to correct schematic error.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: H1 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed pin numbers on U911F and U911G. Corrects schematic error.

REV IDENT and SHEET: K1 – sheets 1 and 2

EFFECTIVITY: REV BC CPN 601-4209-003, -004

SERVICE BULLETIN: 28

DESCRIPTION/REASON: Replaced obsolete U901 with a separate circuit card A27 CPN 676-7466-001. Changed R910 and R933 from 80.6 to 8.06 kΩ. These changes add more margin to the bearing indication circuit.

The above changes apply to circuit card 601-4209-001 by service bulletin 28 only. Refer to sheet 3 of schematic for added A27 schematic, and to service bulletin for card modification.

REV IDENT and SHEET: K2 – sheets 1 and 3

EFFECTIVITY: REV BC CPN 601-4209-003, -004

DESCRIPTION/REASON: Added schematic on sheet 3 for the addition of A27 circuit card.

REV IDENT and SHEET: Not applicable

EFFECTIVITY: REV BE CPN 601-4209-003, -004 (MOD 4)

DESCRIPTION/REASON: Incorporate modification markings.

REV IDENT and SHEET: K3 – sheets 1 and 2

EFFECTIVITY: REV BF

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

(Cont)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.141/198.142, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Add the following text to figure 153, sheet E immediately after the last entry.

REV IDENT and SHEET: L1 -sheet 4

DESCRIPTION/REASON: Added sheet 4 for the addition of new A27 circuit card CPN 828-0868-002.

SERVICE BULLETIN: None

EFFECTIVITY: CPN 601-4209-003, -004 REV BJ

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

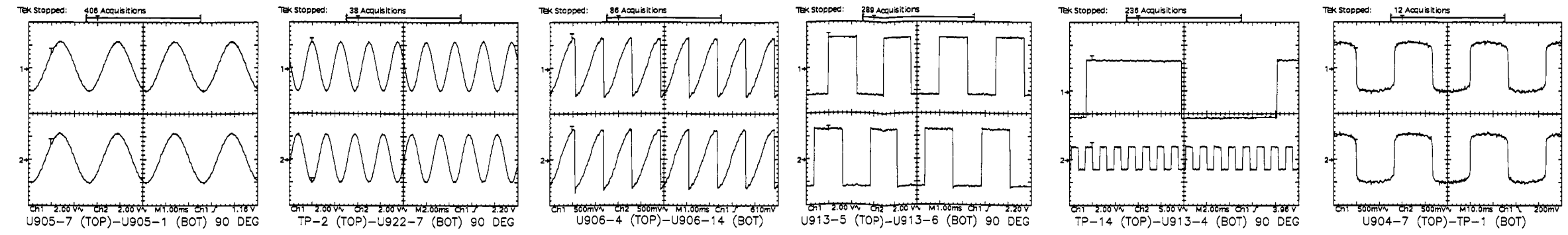
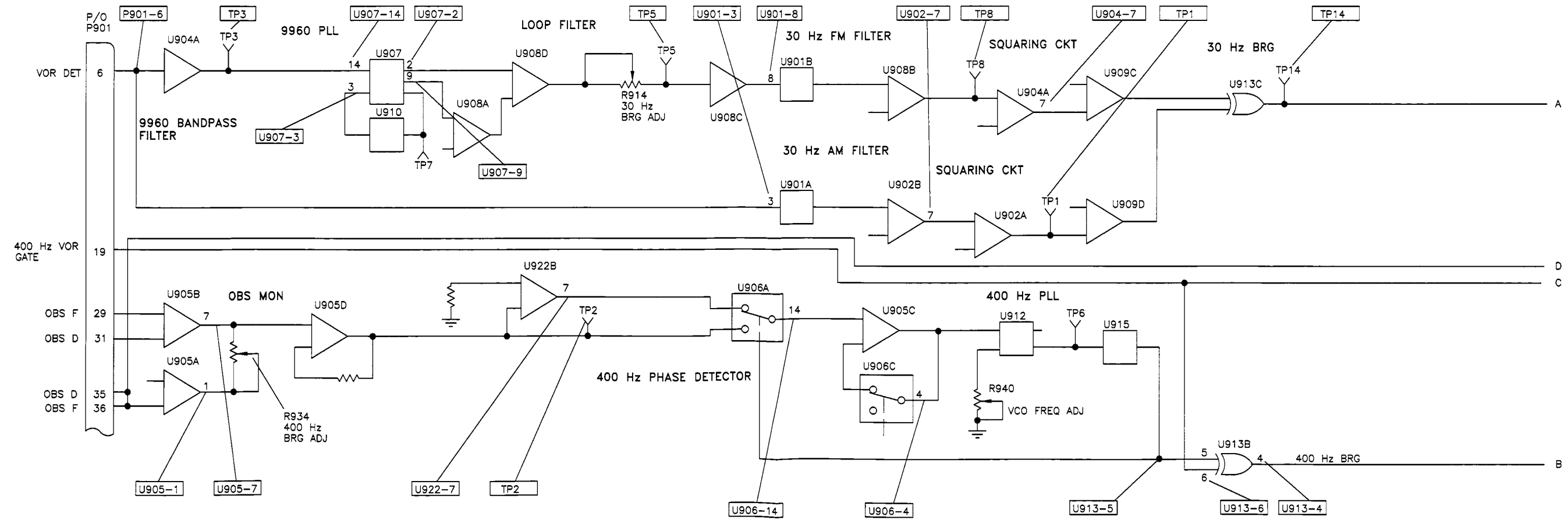
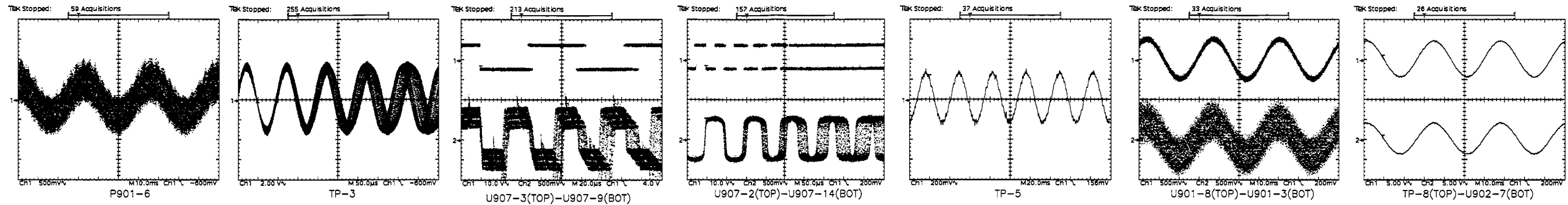
DESCRIPTION/REASON: (Cont) Sheet 1

RESISTOR	CARBON	METAL FILM
R904	10 k Ω	10 k Ω
R908	10 k Ω	10 k Ω
R937	1.0 k Ω	1.0 k Ω
R939	330 k Ω	332 k Ω
R942	47 k Ω	47.5 k Ω
R943	47 k Ω	47.5 k Ω

Sheet 2

RESISTOR	CARBON	METAL FILM
R969	47 k Ω	47.5 k Ω
R970	47 k Ω	47.5 k Ω
R971	47 k Ω	47.5 k Ω
R974	10 k Ω	10 k Ω
R975	10 k Ω	10 k Ω
R980	100 k Ω	100 k Ω
R990	820 k Ω	825 k Ω

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

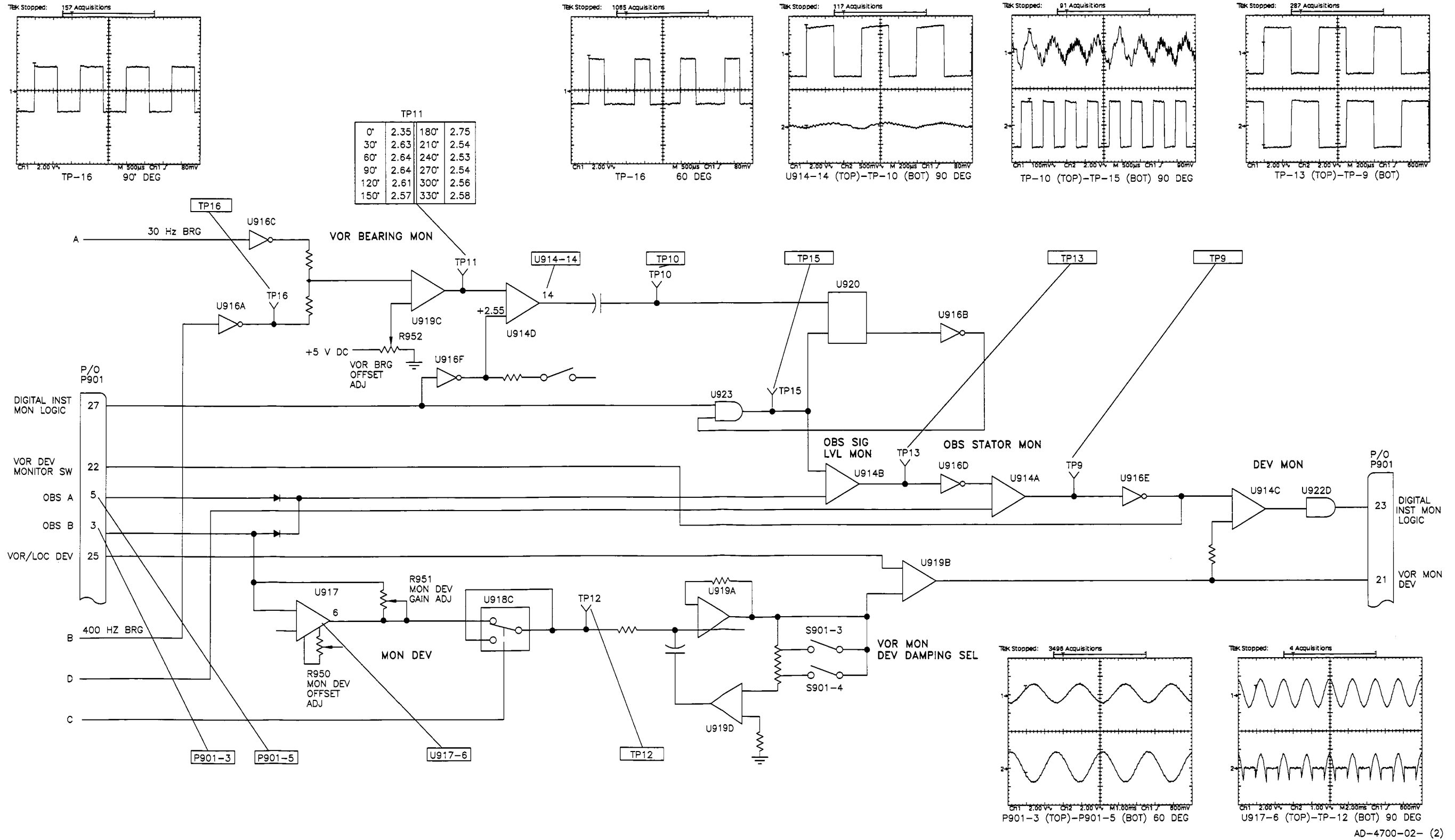


AD-4700-02- (1)

Expanded VOR Monitor A9, Waveforms
Figure 154 (Sheet 1 of 2)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

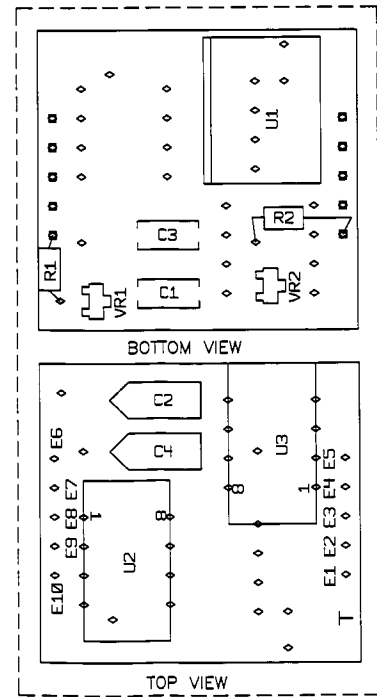


Expanded VOR Monitor A9, Waveforms
Figure 154 (Sheet 2)

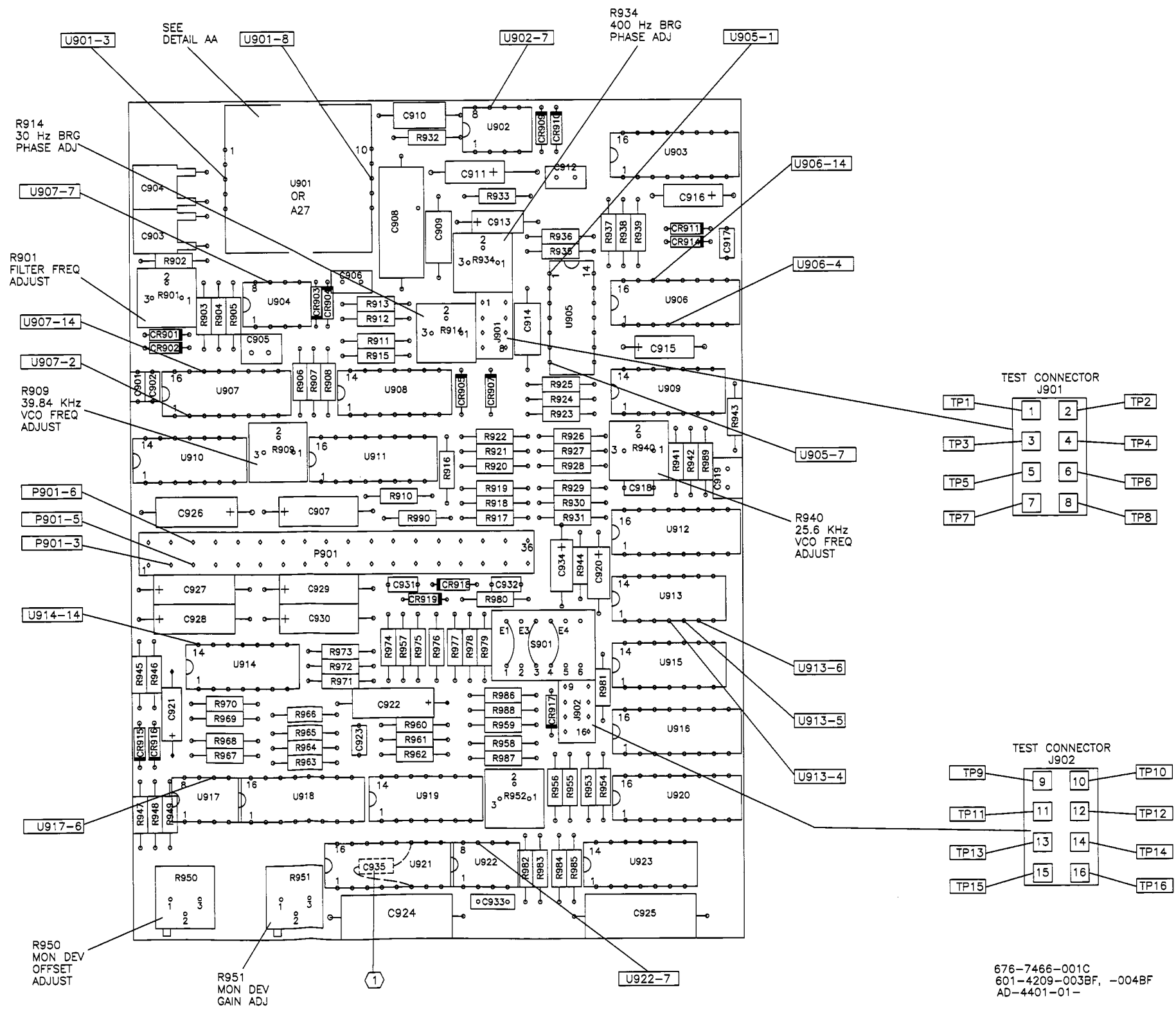
34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

- NOTES:
- ① MOUNTED ON BOTTOM SIDE OF BOARD FOR CPN 601-4209-003.
 - ② APPLICABLE TO CPN 601-4209-003 AND -004 REV BC AND ABOVE, AND TO 601-4209-001 BY SB28 ONLY.



DETAIL AA ②
 A27 CPN 676-7466-001
 FOR A9 WITH SB28 INSTALLED.



676-7466-001C
 601-4209-003BF, -004BF
 AD-4401-01-

Expanded VOR Monitor A9, Maintenance Aid Diagram
 Figure 155

34-35-10

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.146, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

In Figure title, change "Figure 155" to "Figure 155 (Sheet 1 of 2).

After Figure 155 (Sheet 1 of 2), add Figure 155 (Sheet 2), as shown on page 14 of this temporary revision.

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

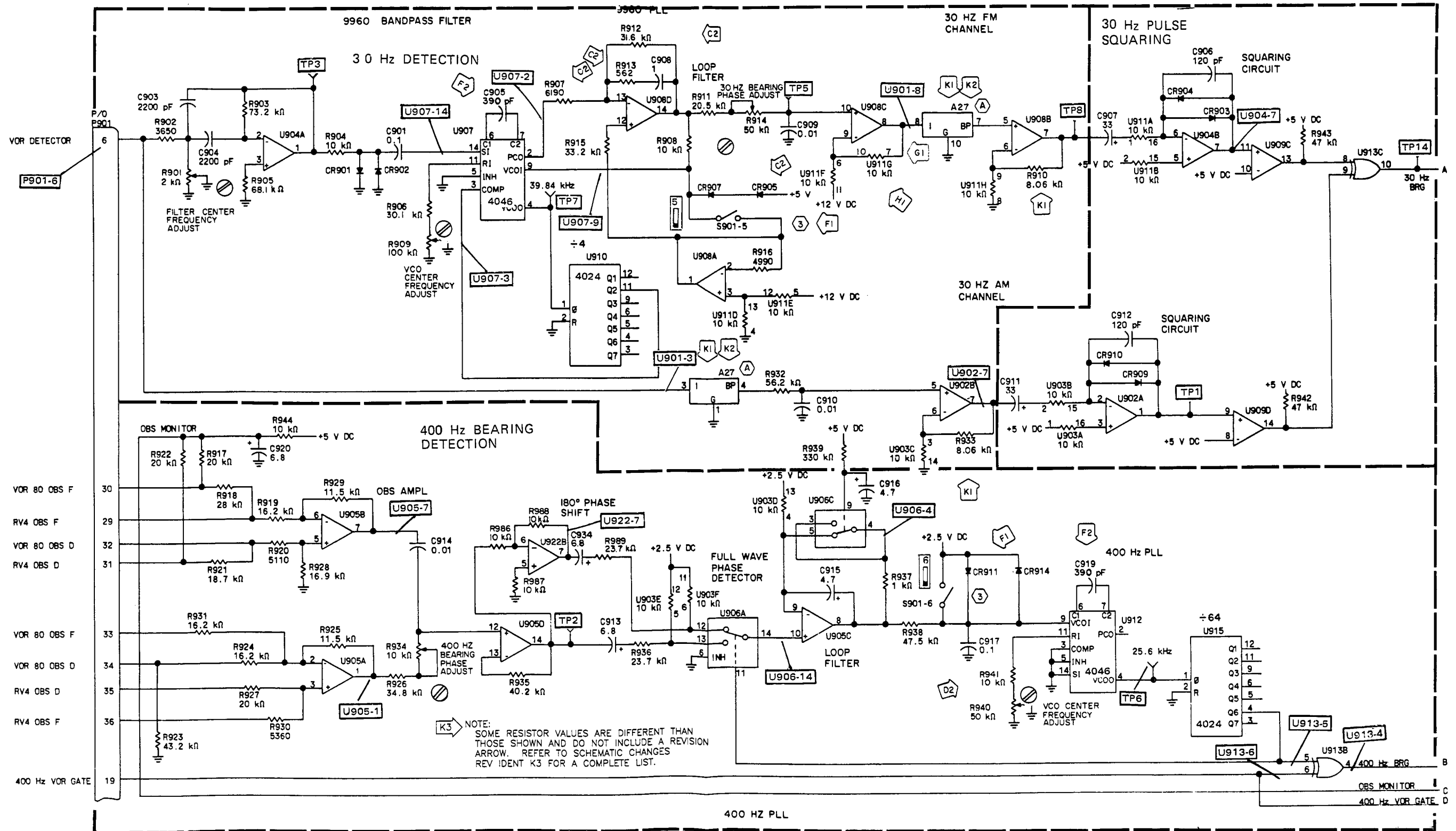
Insert facing page 198.147/198.148, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

In Figure title, change "Figure 156 (Sheet 1 of 3)" to "Figure 156 (Sheet 1 of 4)."

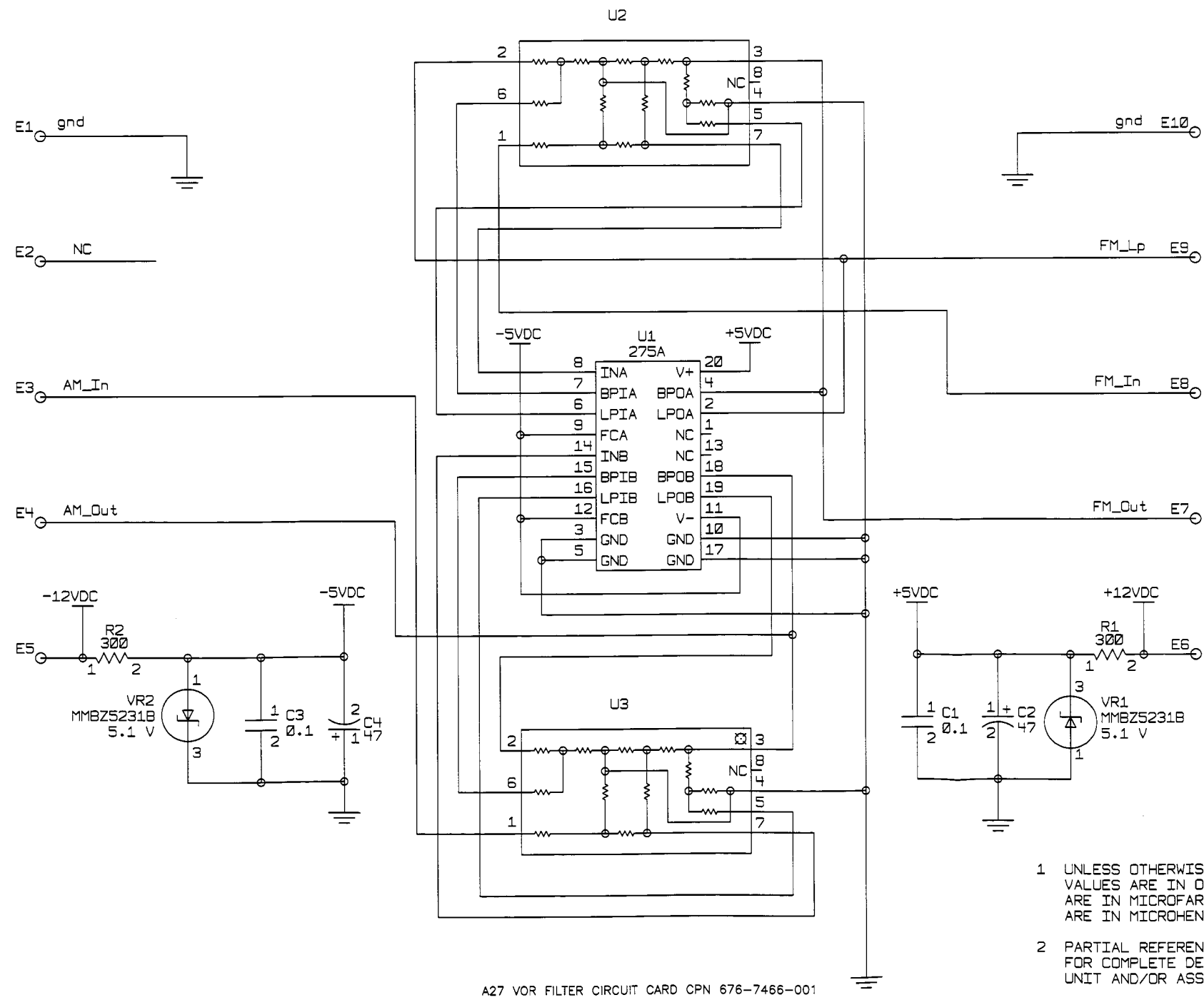
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



637-2309-001R
 TP6-5229-028 (1)

Expanded VOR Monitor A9, Schematic Diagram
 Figure 156 (Sheet 1 of 3)
34-35-10 Pages 198.147/198.148
 Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4() / 5() VOR/ILS Navigation Receiver
PART NO 622-3255**



- 1 UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- 2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

A27 VOR FILTER CIRCUIT CARD CPN 676-7466-001



676-7666-001B
AD-3394-01A

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

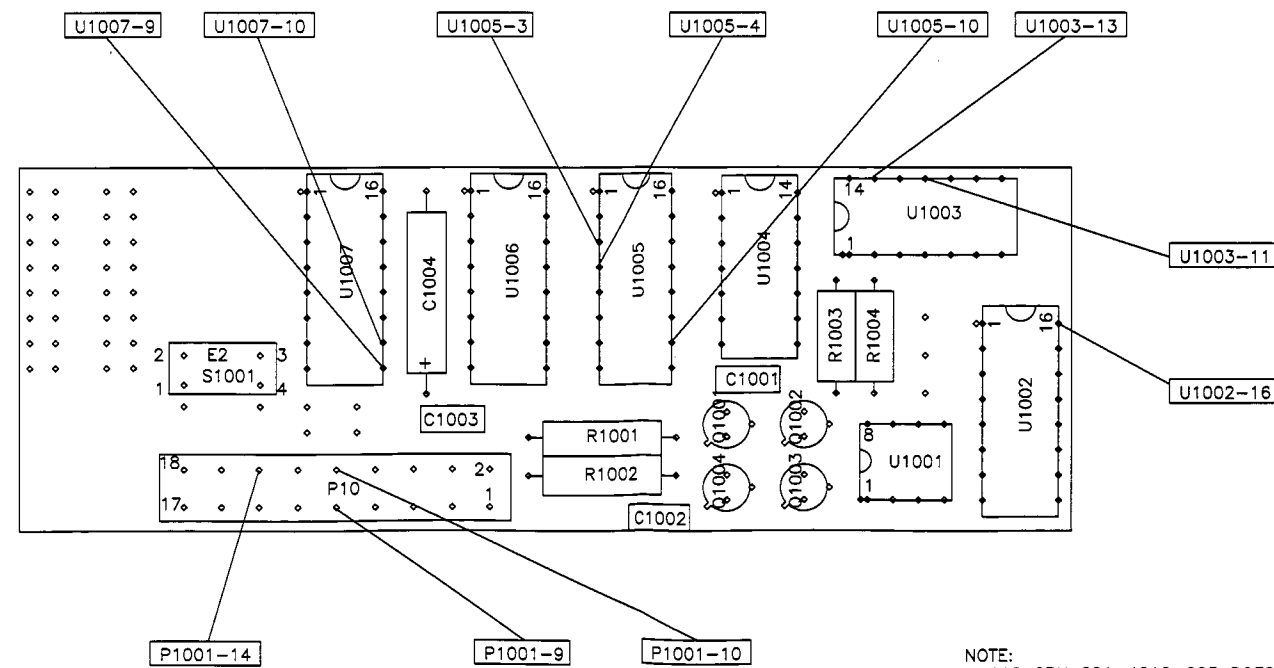
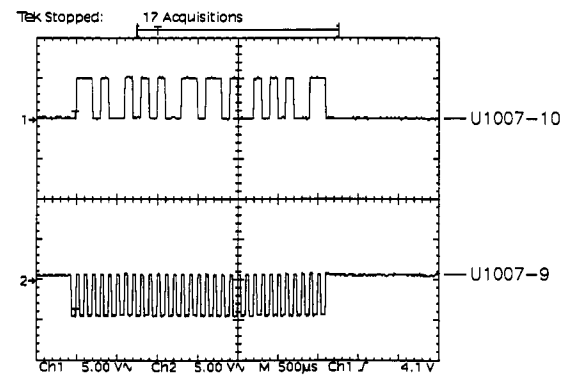
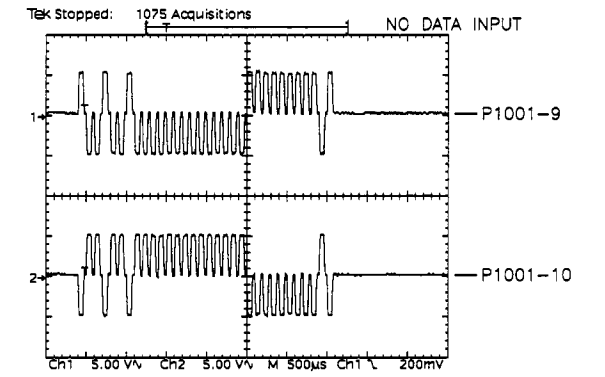
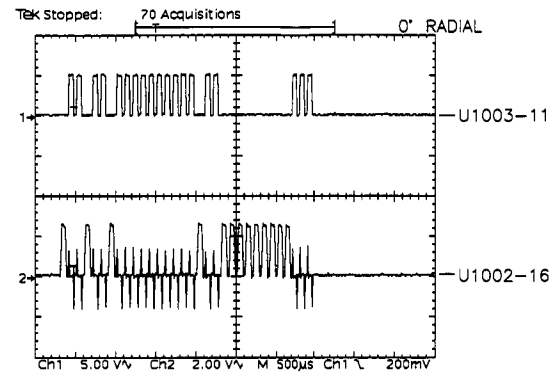
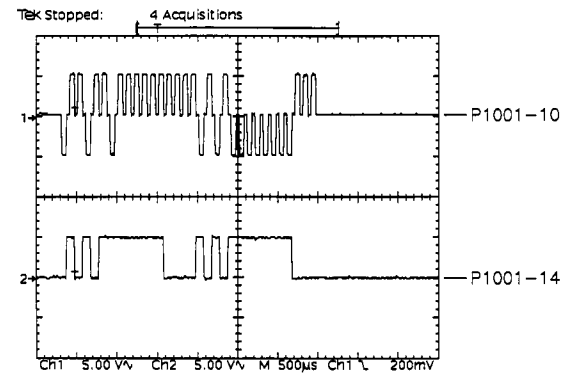
REV IDENT and SHEET: C1 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: D1 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Added S1001, changed P1001-15 to -18, added P1001-17 (FILTERED SERIAL BRG DATA), changed pin designations for U1002 resistor array. Changed P1001-10 to -9. Corrects schematic .

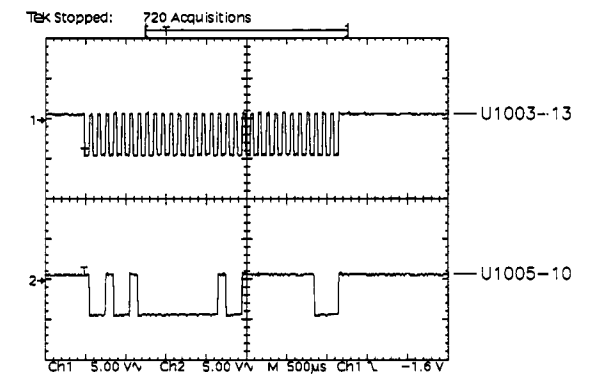
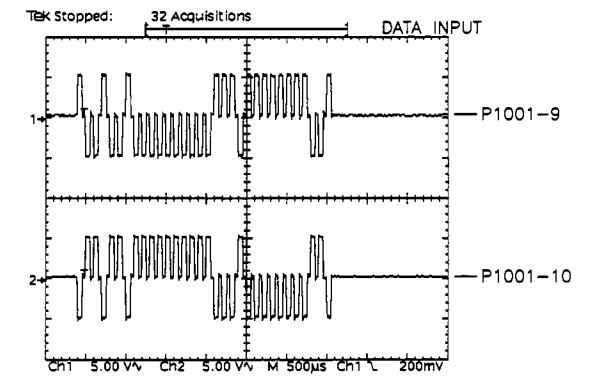
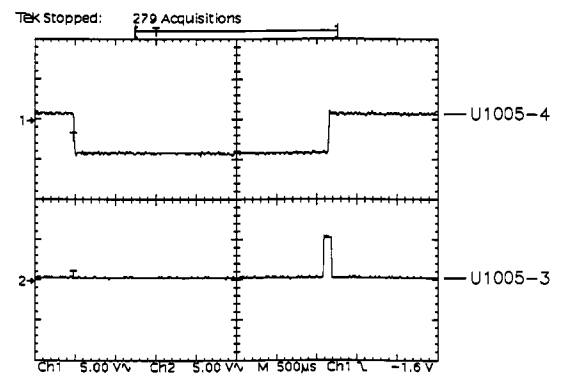
REV IDENT and SHEET: F1 – NA
EFFECTIVITY: MOD 1 CPN 601-4210-001
SERVICE BULLETIN: 19
DESCRIPTION/REASON: Switch S1001 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

REV IDENT and SHEET: NA
EFFECTIVITY: REV A CPN 601-4210-003
DESCRIPTION/REASON: Revised figure 158 and added figure 160 for CPN 601-4210-003.

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



NOTE:
A10 CPN 601-4210-003 DOES NOT
USE U1004 AND U1005.

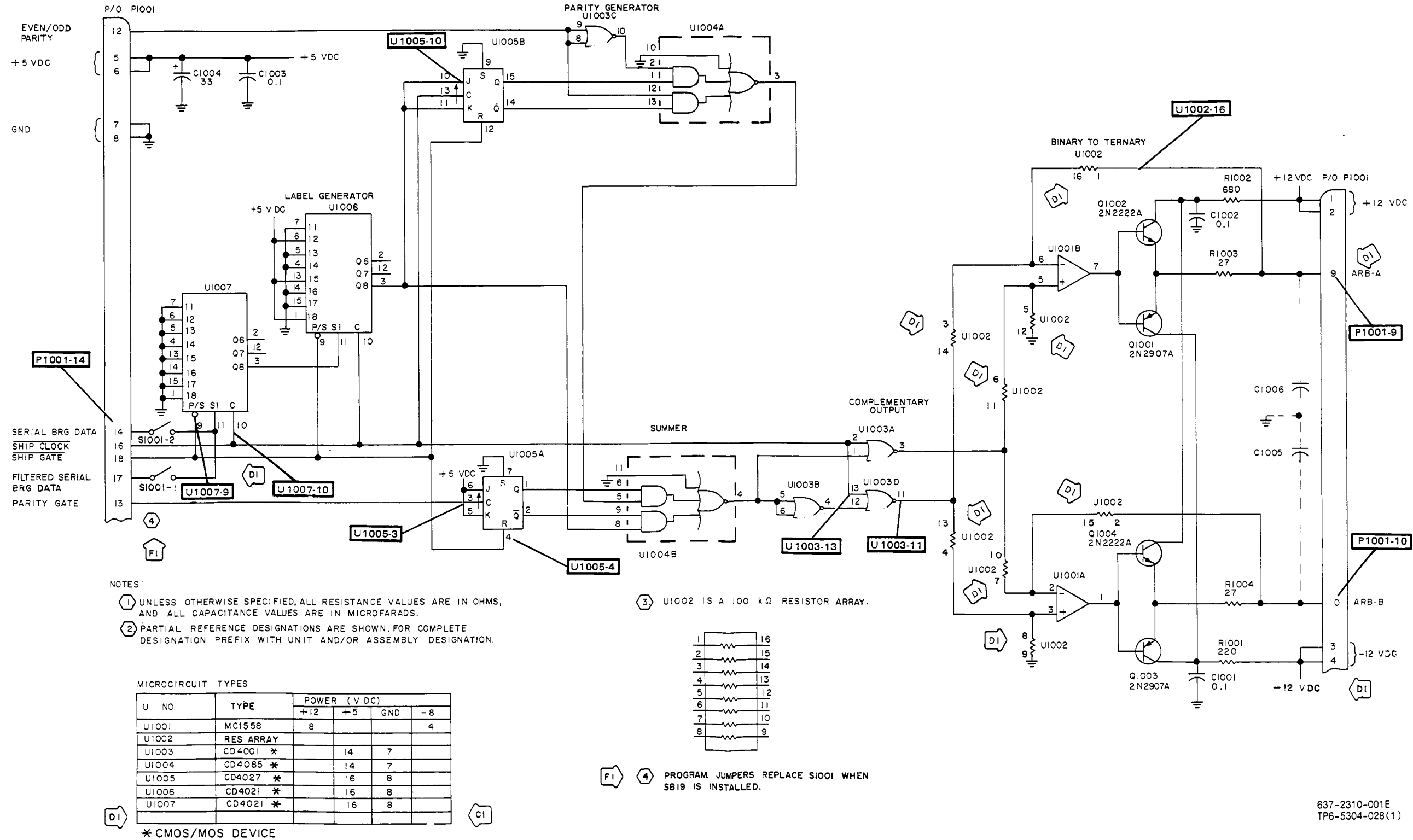


601-4210-001P -003B
AD-4402-01A

Digital Bearing A10, Maintenance Aid Diagram
Figure 158

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



Digital Bearing A10 (CPN 601-4210-001), Schematic Diagram
Figure 159

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

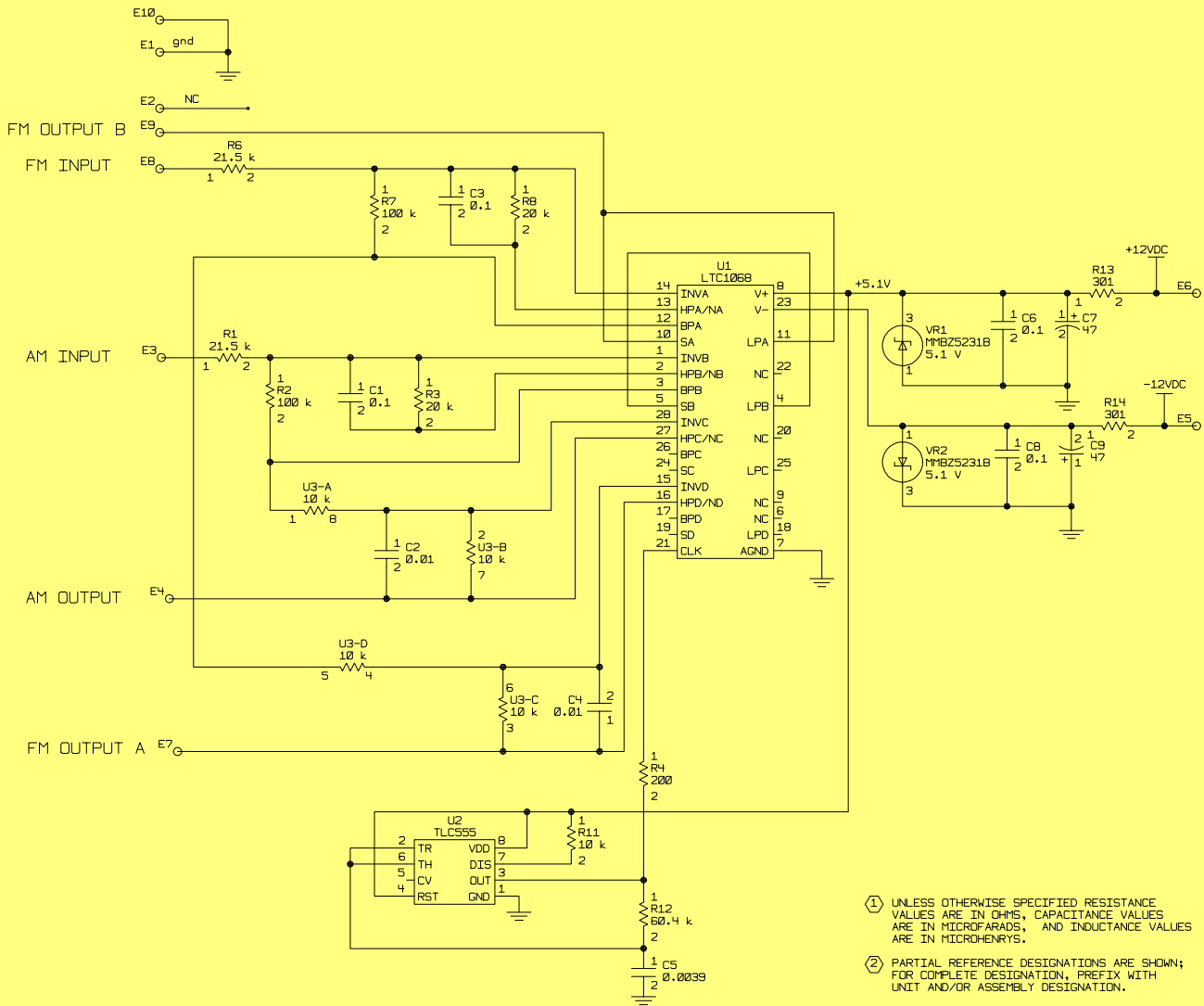
Insert following page 198.151/198.152, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

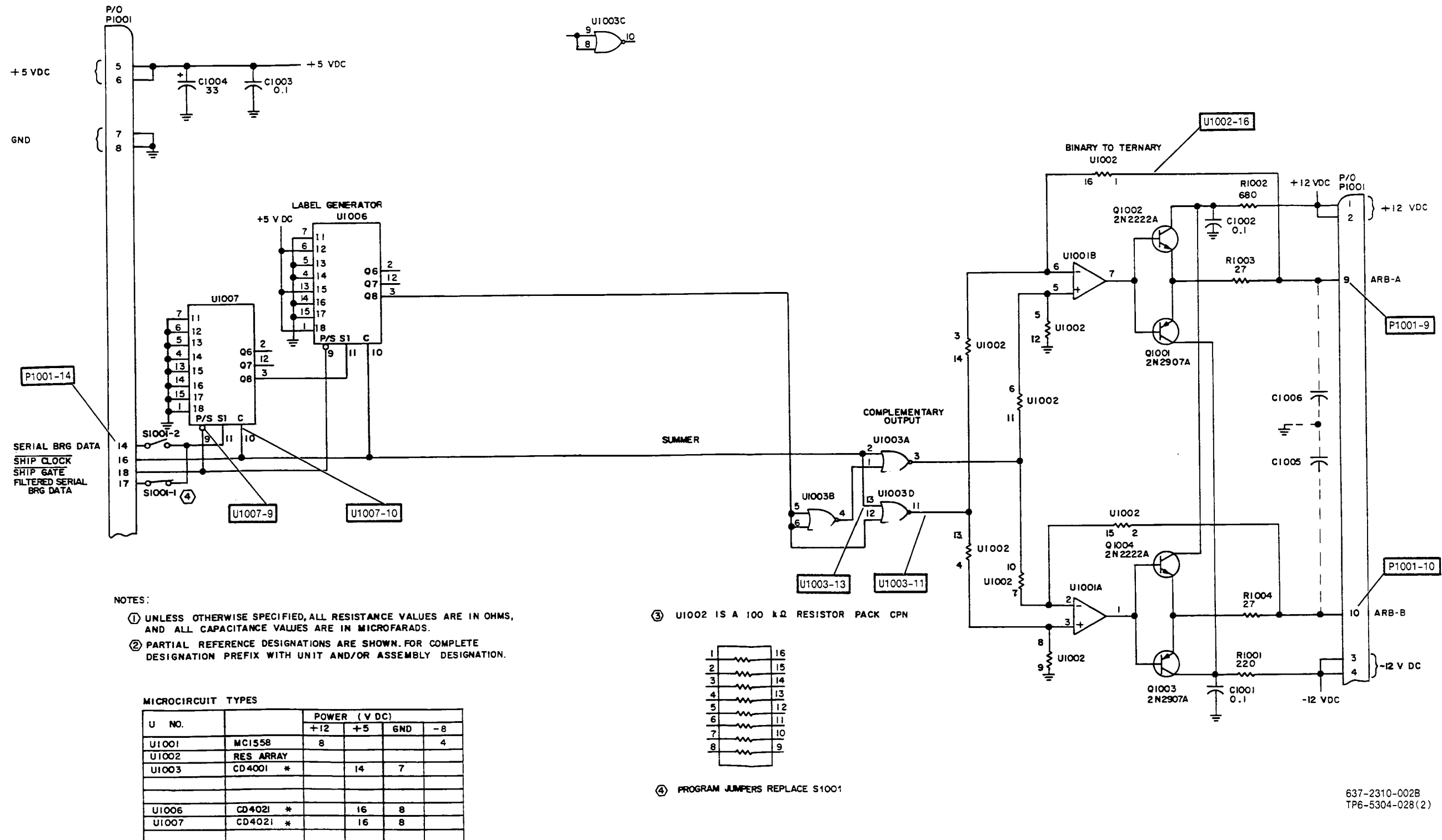
After Figure 156 (Sheet 3), add Figure 156 (Sheet 4), shown on page 17 of this temporary revision.

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



Expanded VOR Monitor A9, (CPN 637-2309-001), Schematic Diagram
 Figure 156 (Sheet 4)

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



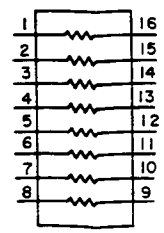
- NOTES:
- ① UNLESS OTHERWISE SPECIFIED, ALL RESISTANCE VALUES ARE IN OHMS, AND ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

MICROCIRCUIT TYPES

U NO.		POWER (V DC)			
		+12	+5	GND	-8
U1001	MC1558	8			4
U1002	RES ARRAY				
U1003	CD4001 *		14	7	
U1006	CD4021 *		16	8	
U1007	CD4021 *		16	8	

● CMOS/MOS DEVICE

③ U1002 IS A 100 kΩ RESISTOR PACK CPN



④ PROGRAM JUMPERS REPLACE S1001

637-2310-002B
TP6-5304-028(2)

Digital Bearing A10 (CPN 601-4210-003), Schematic Diagram
Figure 160

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: F1 – NA
EFFECTIVITY: MOD 1 CPN 601-4211-001
SERVICE BULLETIN: 19
DESCRIPTION/REASON: Switch S1101 replaced by jumper wires for switch on (closed) applications (jumper is omitted for switch off applications).

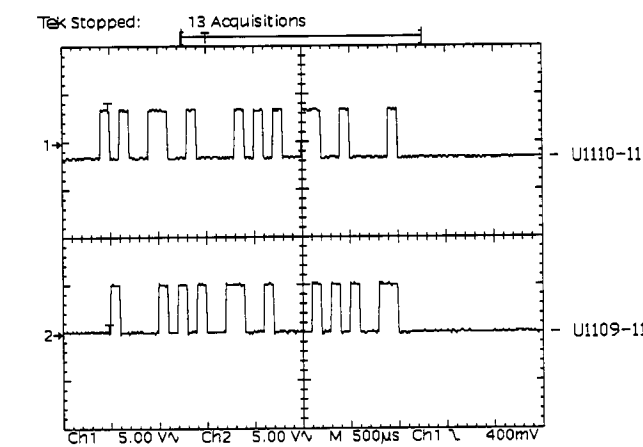
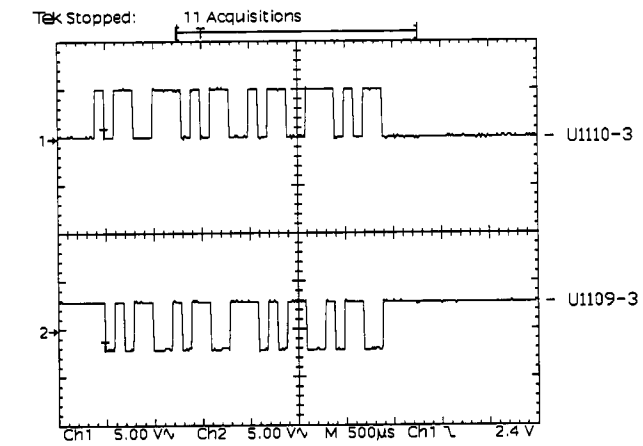
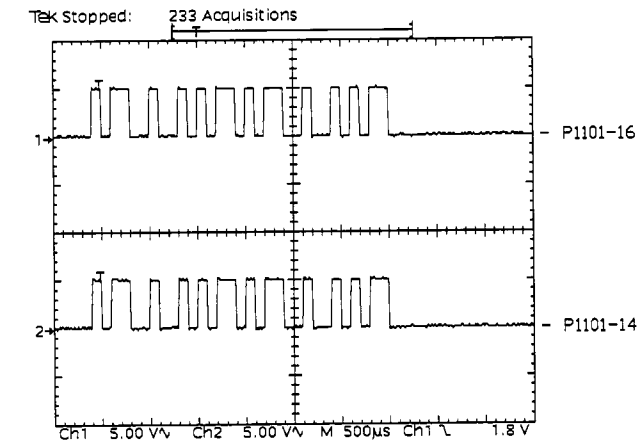
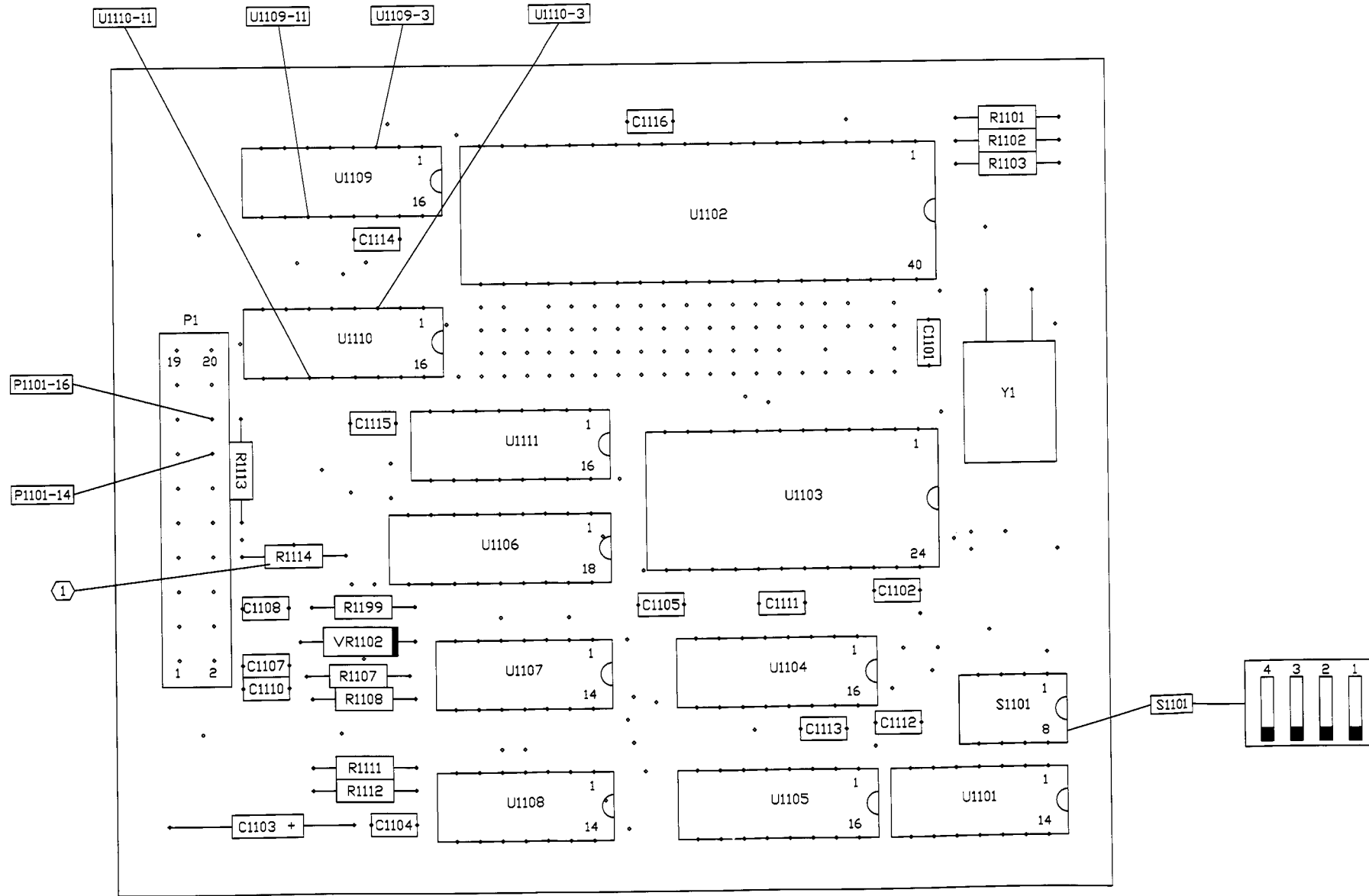
REV IDENT and SHEET: F2 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Deleted connections from : U1102-4 to P1101-12, U1108B-4 to R1111, U1108B to R1199, and U1105-3 to U1108B-2. Added connections from: U1108B-5 to U1108B-4 to ground, U1105-3 to ground, and P1101-16 to P1101-12. Changes made to correct schematic diagram.

REV IDENT and SHEET: G1 – figure 163
EFFECTIVITY: REV N CPN 601-4211-001
DESCRIPTION/REASON: Changed U1103 from HM7644 to 2715. Added NOTE 1 to Maintenance Aid Diagram.

REV IDENT and SHEET: NA
DESCRIPTION/REASON: Added figure 164 for CPN 601-4211-003.

REV IDENT and SHEET: G2 – figure 164
EFFECTIVITY: REV P CPN 601-4211-003
DESCRIPTION/REASON: Deleted R114 to correct schematic error.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



601-4211-001R, -003R
 AD-4429-01-

Programmable Bearing Filter A11, Maintenance Aid Diagram
 Figure 162

34-35-10

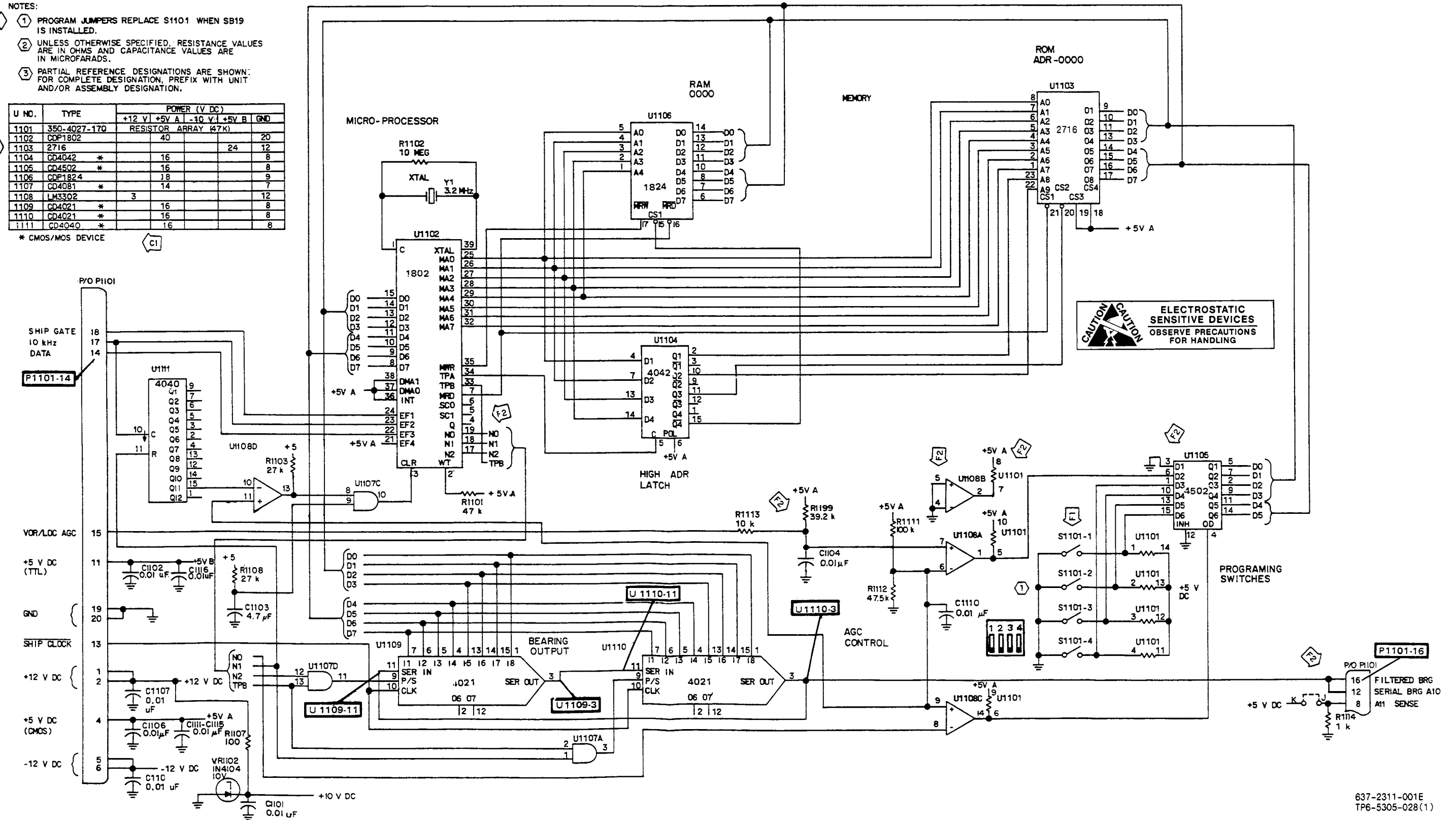
**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

NOTES:

- F1 ① PROGRAM JUMPERS REPLACE S1101 WHEN SB19 IS INSTALLED.
- ② UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
- ③ PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

U NO.	TYPE	POWER (V DC)			
		+12 V	+5V A	-10 V	+5V B
1101	350-4027-170				
1102	CDP1802		40		20
1103	2716				24
1104	CD4042	*	16		8
1105	CD4502	*	16		8
1106	CDP1824		18		9
1107	CD4081	*	14		7
1108	LM3302		3		12
1109	CD4021	*	16		8
1110	CD4021	*	16		8
1111	CD4040	*	16		8

* CMOS/MOS DEVICE



Programmable Bearing Filter A11 (CPN 601-4211-001), Schematic Diagram

Figure 163

34-35-10

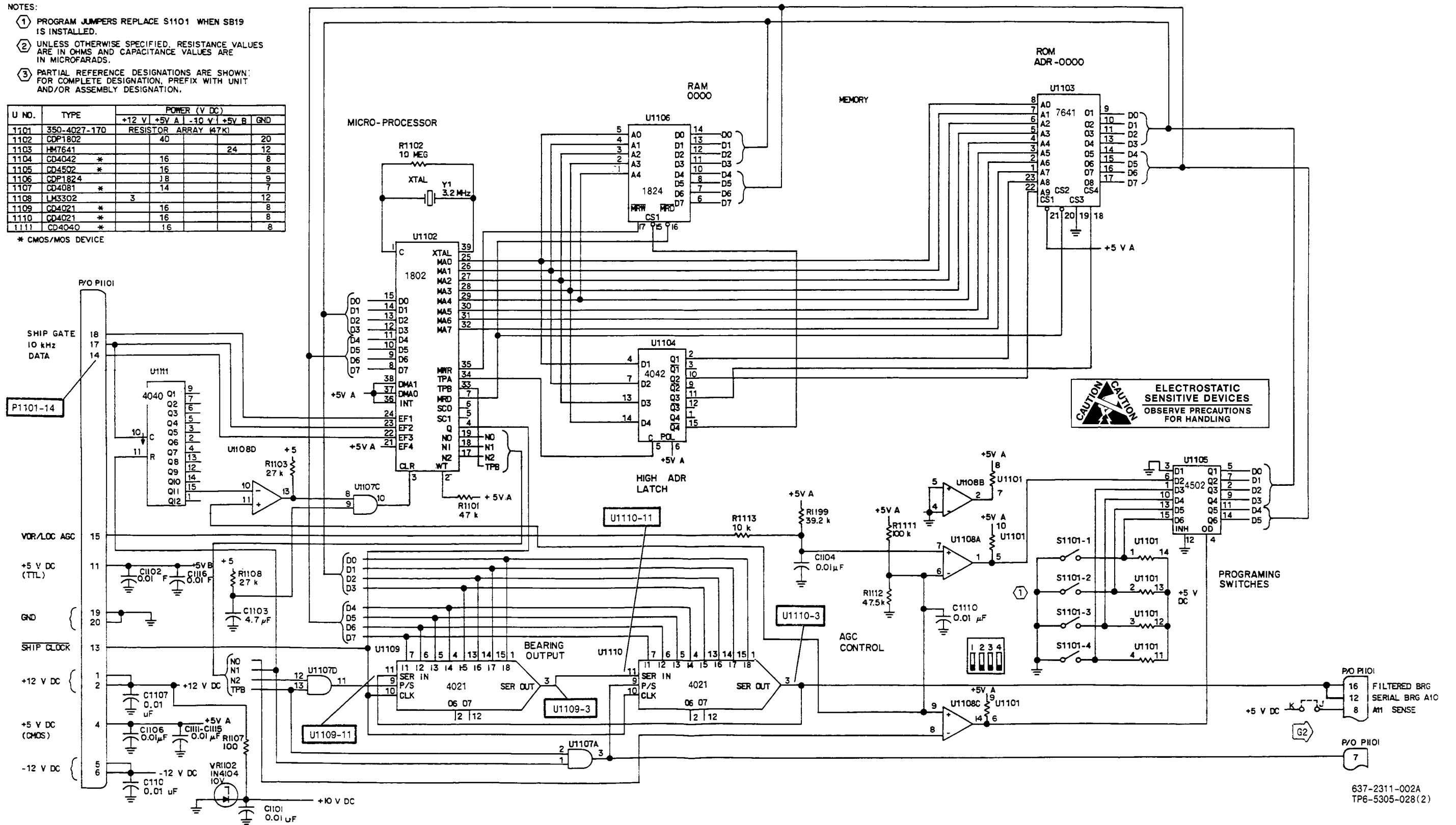
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

NOTES:

- ① PROGRAM JUMPERS REPLACE S1101 WHEN SB19 IS INSTALLED.
- ② UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
- ③ PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.

U NO.	TYPE	POWER (V DC)				
		+12 V	+5V A	-10 V	+5V B	GND
1101	350-4027-170	RESISTOR ARRAY (47K)				
1102	CDP1802	40				20
1103	HM7641				24	12
1104	CD4042 *	16				8
1105	CD4502 *	16				8
1106	CDP1824	18				9
1107	CD4081 *	14				7
1108	LM3302	3				12
1109	CD4021 *	16				8
1110	CD4021 *	16				8
1111	CD4040 *	16				8

* CMOS/MOS DEVICE



CAUTION CAUTION
 ELECTROSTATIC SENSITIVE DEVICES
 OBSERVE PRECAUTIONS FOR HANDLING

Programmable Bearing Filter A11 (CPN 601-4211-003), Schematic Diagram
 Figure 164

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

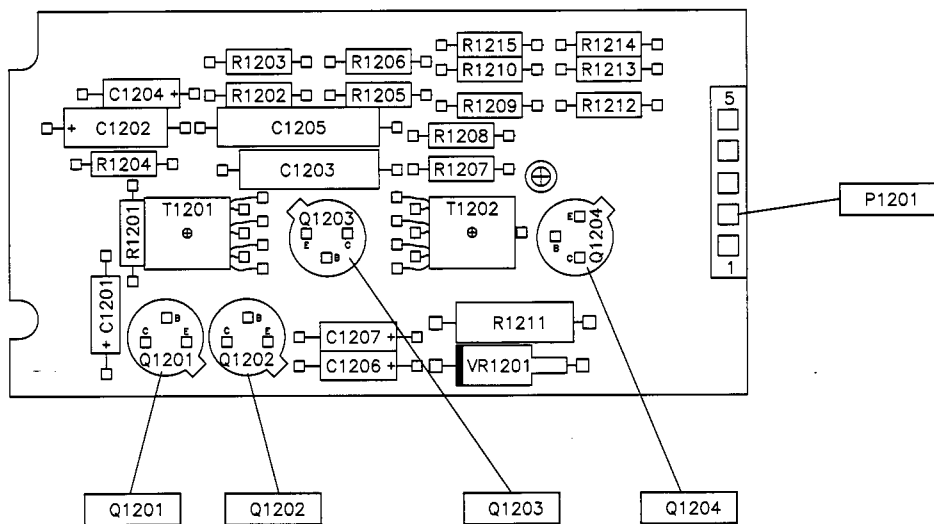
REV IDENT and SHEET: C1 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Added phasing dots to T1202 to clarify schematic.

REV IDENT and SHEET: F1 – NA
EFFECTIVITY: All models
DESCRIPTION/REASON: Resistor R1205 changed from 4700 Ω to 417 kΩ to correct schematic diagram.

REV IDENT and SHEET: K1
EFFECTIVITY: REV D
DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

RESISTOR	CARBON	METAL FILM
R1201	15 Ω	15 Ω
R1202	10 Ω	10 Ω
R1203	10 Ω	10 Ω
R1204	15 Ω	15 Ω
R1205	4.7 kΩ	4.75 kΩ
R1206	270 Ω	274 Ω
R1207	3300 Ω	3.32 kΩ
R1208	4700 kΩ	4.75 kΩ
R1209	4700 kΩ	4.75 kΩ
R1210	3300 Ω	3.32 kΩ
R1212	390 Ω	392 Ω
R1213	68 Ω	68.1 Ω
R1214	1800 Ω	1.82 kΩ
R1215	68 Ω	68.1 Ω

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

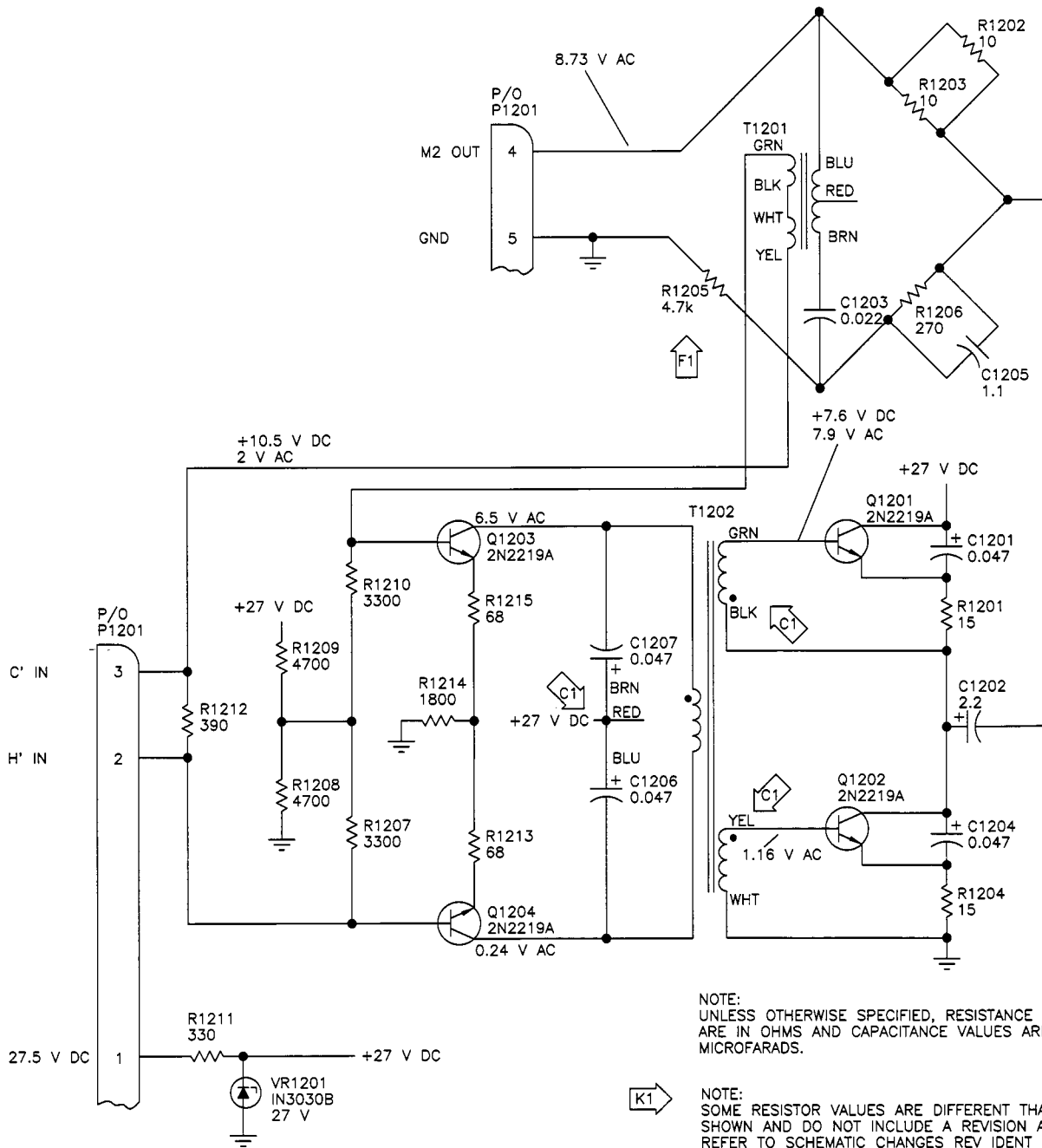


642-4212-001D
 AD-4390-01A

RMI Servo Amplifier A12, Maintenance Aid Diagram
 Figure 166

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



637-2312-001C
 AD-4710-01A

RMI Servo Amplifier A12, Schematic Diagram
 Figure 167

34-35-10

Pages 198.167/198.168
 Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

REV IDENT and SHEET: C1 – NA

EFFECTIVITY: All models

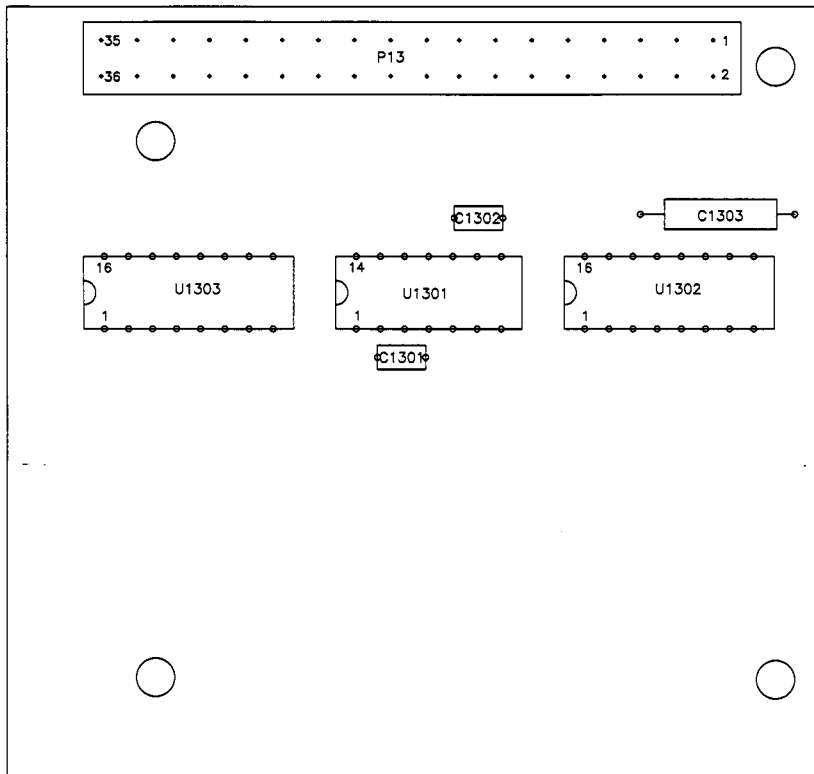
DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart. Changed main connector designation pin 2 to 1, pin 3 to 2. Changed designation to +5 V dc CMOS, to correct schematic error.

REV IDENT and SHEET: D1 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed U1302 and U1303 (351-8406-030) to 351-8406-040. Reduces inventory due to common usage with A6 card.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

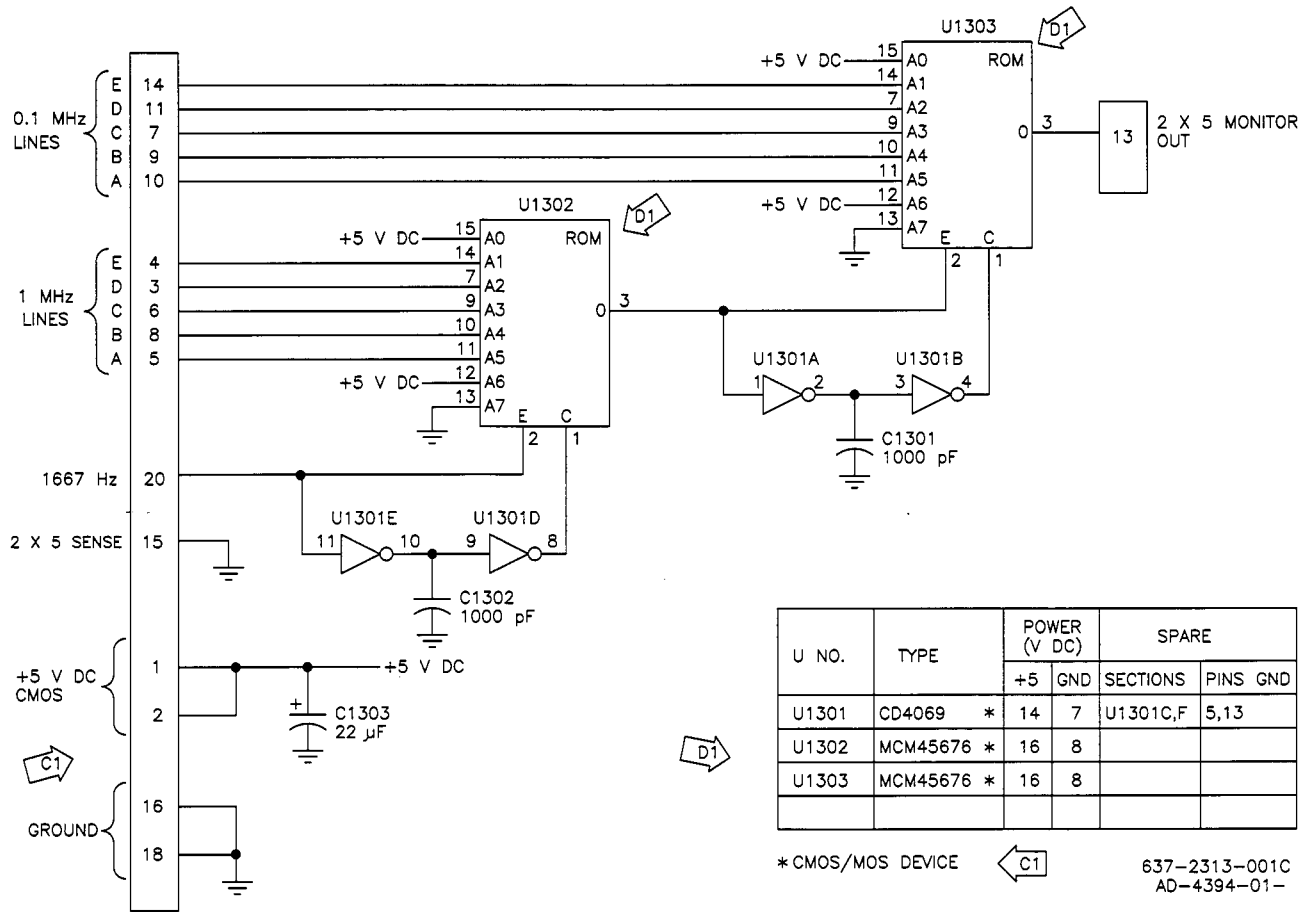


601-4313-001J
AD-4449-01-

2 x 5 Monitor A13, Maintenance Aid Diagram
Figure 169

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



2 x 5 Monitor A13, Schematic Diagram
 Figure 170

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – sheet 1

EFFECTIVITY: REV R (601-4214-001)

SERVICE BULLETIN: 8

DESCRIPTION/REASON: Added CR1419 (1N4454), C1413 (6.8 μ F), R1405 (1 k Ω) to correct ROM lockup.

REV IDENT and SHEET: C2 – sheet 5

EFFECTIVITY: REV V (601-4214-001, -002)

DESCRIPTION/REASON: Changed U1402 and U1403 (0.022 μ F) to 0.01 μ F for standardization.

REV IDENT and SHEET: C3 – sheet 3 and 4

EFFECTIVITY: REV W (601-4214-002)

DESCRIPTION/REASON: Cut circuit line from E1403-5 to P2-9, and from E1403-9 to P2-10. Added R1406 (100 k Ω) from U1411-3 to P2-9 and R1407 (100 k Ω) from U1410-3 to P2-10. Removed ground connection from U1411-15 and U1410-15. Improves the performance.

REV IDENT and SHEET: C4 – sheet 1

EFFECTIVITY: REV AB (601-4214-002)

SERVICE BULLETIN: 4 (601-4214-001)

DESCRIPTION/REASON: Removed CR1413 (1N4454), anode was connected to U1405-13, cathode was connected to P1B-54. Added jumper from P1B-54 to E1404-8. Provides a self-test on-course indication when both up/left and down/right switches are activated together.

REV IDENT and SHEET: C5 – sheet 3

EFFECTIVITY: REV AC (601-4214-002)

DESCRIPTION/REASON: Added C1414 (0.047 μ F) from P2-9 to ground, C1415 (0.047 μ F) from P2-10 to ground to eliminate 1667 Hz on the deviation lines.

Receiver Interconnect A14, Schematic Changes
Figure 171 (Sheet A)

34-35-10

Page 198.173
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C6 – sheet 3 and 4

EFFECTIVITY: REV AD (601-4214-002)

DESCRIPTION/REASON: Deleted C1414, C1415 (0.047 μ F). Deleted R1406; R1407 (100 k Ω). Reconnected E1403-5 to P2-9 and E1403-9 to P2-10. Reduces excess 10 kHz and 1667 Hz on deviation lines.

REV IDENT and SHEET: C7 – sheet 4

EFFECTIVITY: REV AE (601-4214-003)

DESCRIPTION/REASON: Deleted R1404 (10 k Ω) for 601-4214-003 only. Added jumpers W1, W2, W3, W4. Creates -003 of 601-4214 for new T/L requirements.

REV IDENT and SHEET: C8 – sheet 1

EFFECTIVITY: REV R (635-5575-001, -002, -003)

SERVICE BULLETIN: 6

DESCRIPTION/REASON: Added S1, S2, S3 self-test switches to front panel connected to CR1412-C, CR1414-C, and P1B-54. Provides initiation of self-test of the VOR, up/left and down/right functions from the 51RV-4()/5() front panel.

REV IDENT and SHEET: C9 – sheet 4

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed GS DEVN LOW (UP) to GS DEVN + UP for P1A-8. Changed GS DEVN HIGH (DOWN) to GS DEVN + DN for P1A-9. Changed to correlate with ARINC standards.

REV IDENT and SHEET: D1 – sheet 1, 2 and 4

EFFECTIVITY: All models

DESCRIPTION/REASON: Connected front panel test switches to P1402-20, -31 and -22; E1402-1; E1406-20 and -22. Changed K1401 pin designations. Connected E1402-2 to P1402-32. Changed U1440-5, -12 to U1410-5, -12. Corrects schematic.

Receiver Interconnect A14, Schematic Changes
Figure 171 (Sheet B)

34-35-10

Page 198.174
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: D2 – sheet 1 and 5

EFFECTIVITY: See SB 17

SERVICE BULLETIN: 17

DESCRIPTION/REASON: Added CR1413 between U1405-13 and P1B-54, cut line between P1B-54 and E1404-8. These changes are accomplished only in the field in order to replace a 601-4214-001 with a 601-4214-002/003 or 642-4214-001/002.

REV IDENT and SHEET: F1 – sheet 3 and 5

EFFECTIVITY: All CPN 642-4214-003

DESCRIPTION/REASON: Added note 21 to add coverage of 642-4214-003.

REV IDENT and SHEET: G1 – sheet 4

EFFECTIVITY: REV G 642-4214-001, -002, -003, -004. See SB A22

SERVICE BULLETIN: A22 and 23

DESCRIPTION/REASON: Changed C1401, C1402, C1405, and C1406 (33 pF) to 150 pF. Removes excess ripple on deviation output.

REV IDENT and SHEET: G2 – sheet 1, 2, and 5

EFFECTIVITY: REV F 642-4214-004

DESCRIPTION/REASON: Added note 22.

REV IDENT and SHEET: G3 – sheet 1

EFFECTIVITY: All models

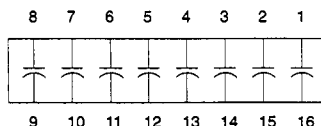
DESCRIPTION/REASON: Added jumper between E1404 and P1404-28 to correct schematic error.

REV IDENT and SHEET: J1 – sheet 1 and 5

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

EFFECTIVITY: REV AG CPN 601-4214-001, -002, -003. REV J CPN 642-4214-001, -002, -003, -004

DESCRIPTION/REASON: Replaced obsolete integrated circuit U1402 and U1403 with individual capacitors (0.01 μ F). U1402 and U1403 connections were as follows:



REV IDENT and SHEET: K1 – sheets 1 and 2

EFFECTIVITY: REV M CPN 642-4214-001, -002, -003, -004

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R1405	1.0 k Ω	1.0 k Ω

Sheet 2

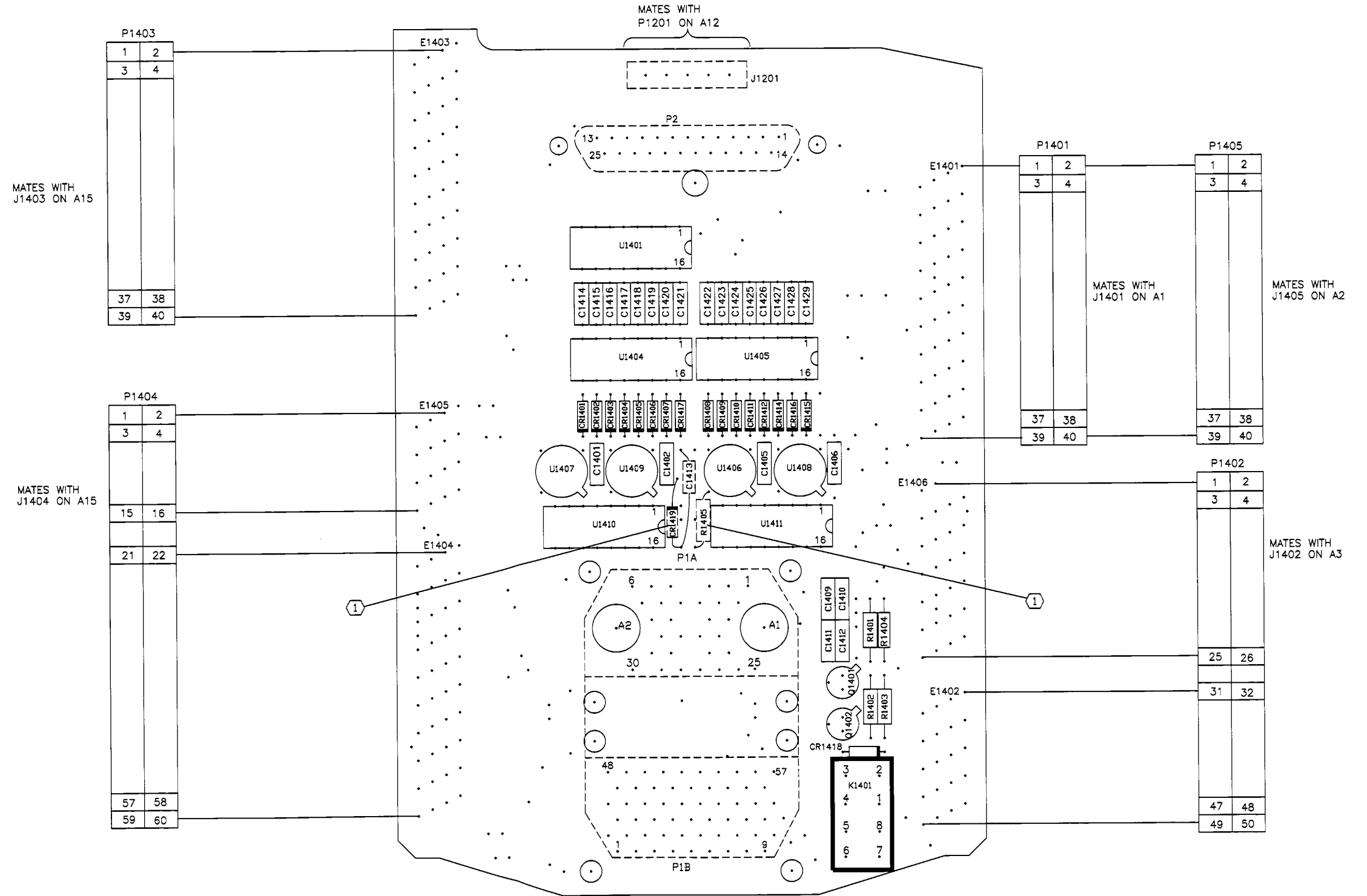
RESISTOR	CARBON	METAL FILM
R1401	5600 Ω	5.62 k Ω
R1402	15 k Ω	15 k Ω
R1403	22 k Ω	22.1 k Ω

REV IDENT and SHEET: K2 – added sheet 6

EFFECTIVITY: REV N CPN 642-4214-005

DESCRIPTION/REASON: Created card A14 CPN 642-4214-005 status for the HUD version of the LRU (CPN 622-3257-201). Added sheet 6 to existing schematic, and sheet 4 to existing maintenance aid diagram.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



NOTES:
 (1) R1405 AND CR1419 MOUNTED ON BOTTOM OF BOARD.

601-4214-001AG
 AD-4687-03- (1)

Receiver Interconnect A14 (CPN 601-4214-001),
 Maintenance Aid Diagram
 Figure 172 (Sheet 1 of 4)

34-35-10

**ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255**

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-08

Insert facing page 198.178, 34-35-10

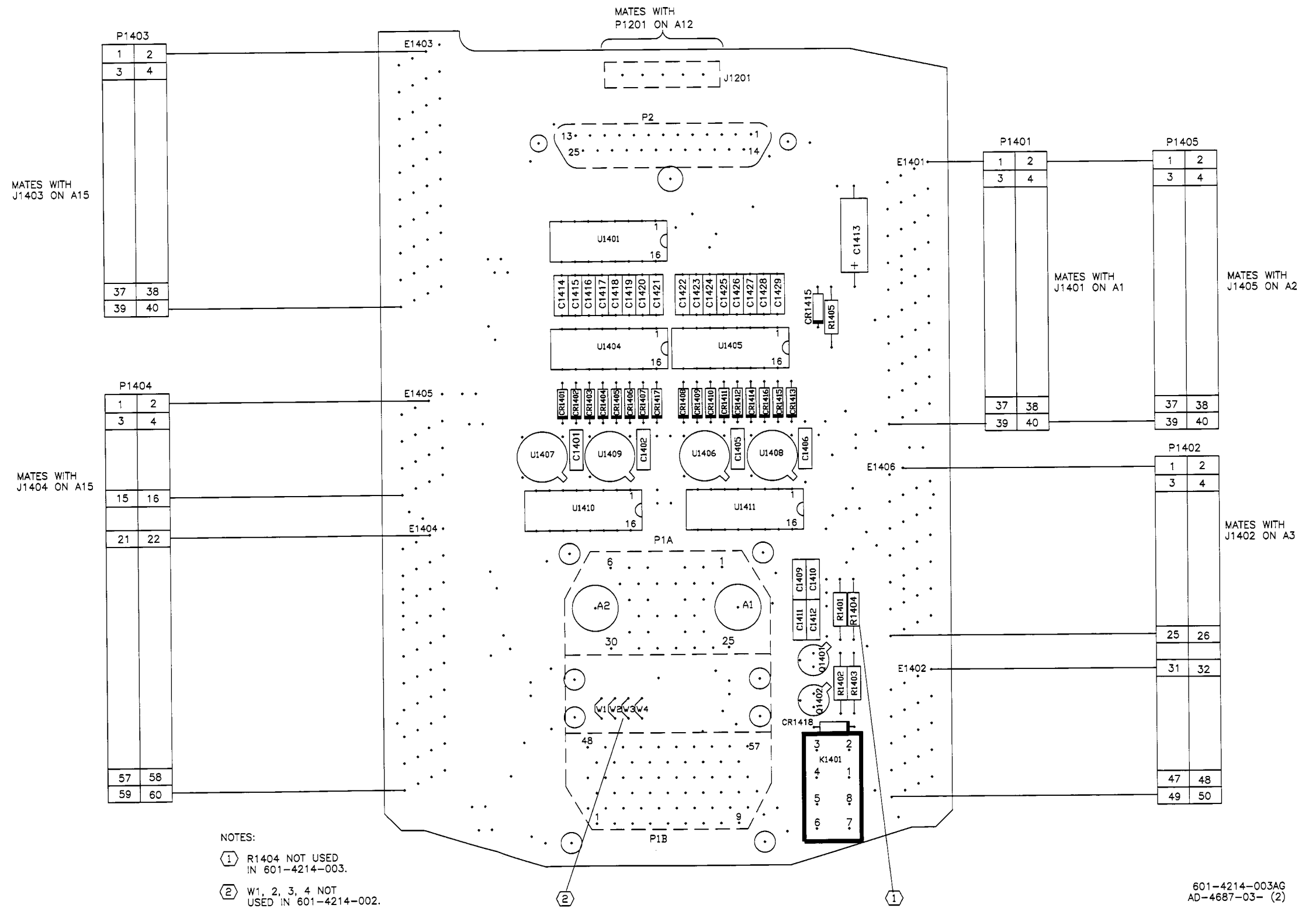
This temporary revision supersedes Temporary Revision 34-35-10-07

Subject: Correct Schematics

Revise the title of figure 172 to read as follows:

Receiver Interconnect A14 (CPN 601-4214-001),
Maintenance Aid Diagram
Figure 172 (Sheet 1 of 5)

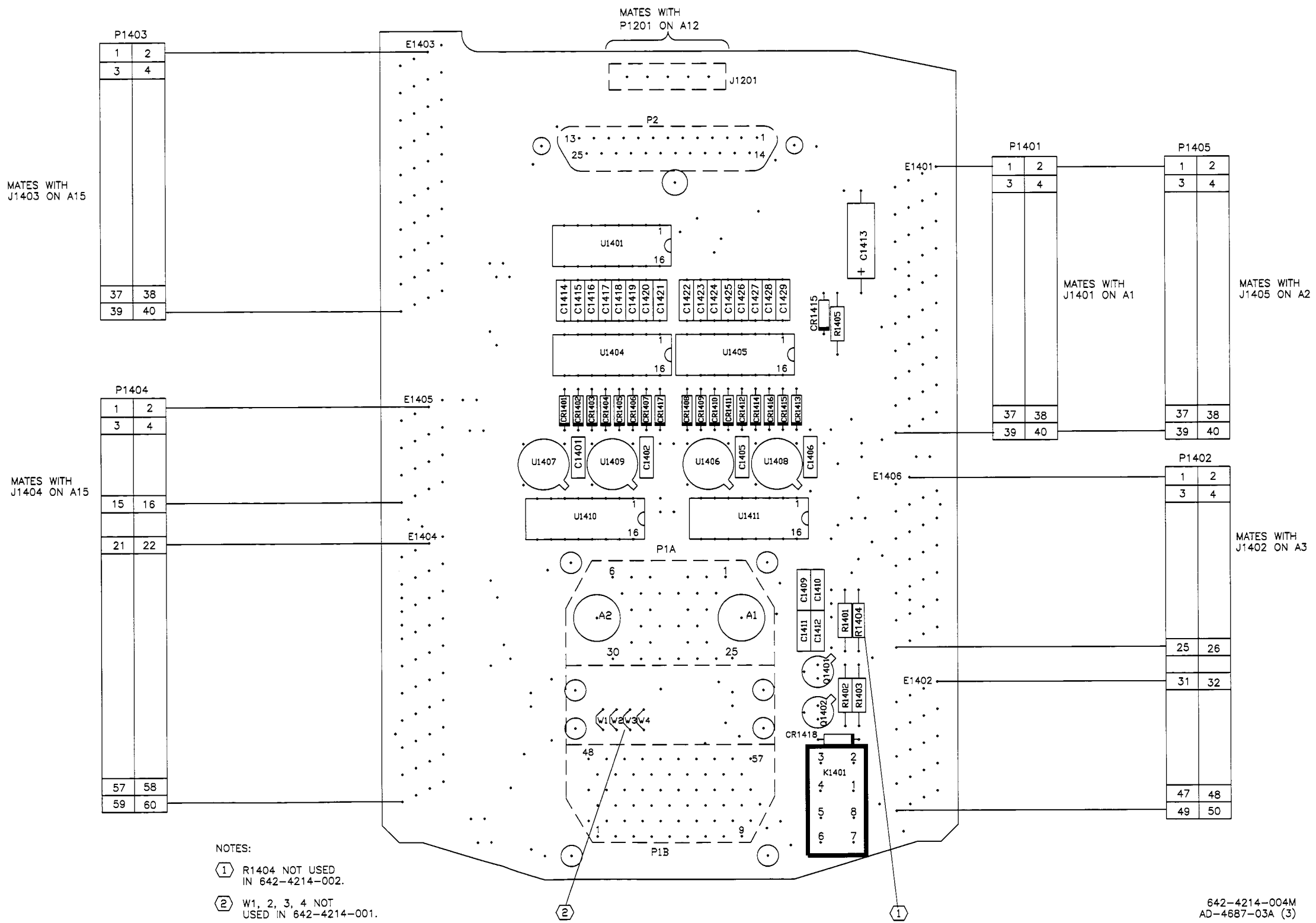
**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



Receiver Interconnect A14 (CPN 601-4214-002, -003),
 Maintenance Aid Diagram
 Figure 172 (Sheet 2)

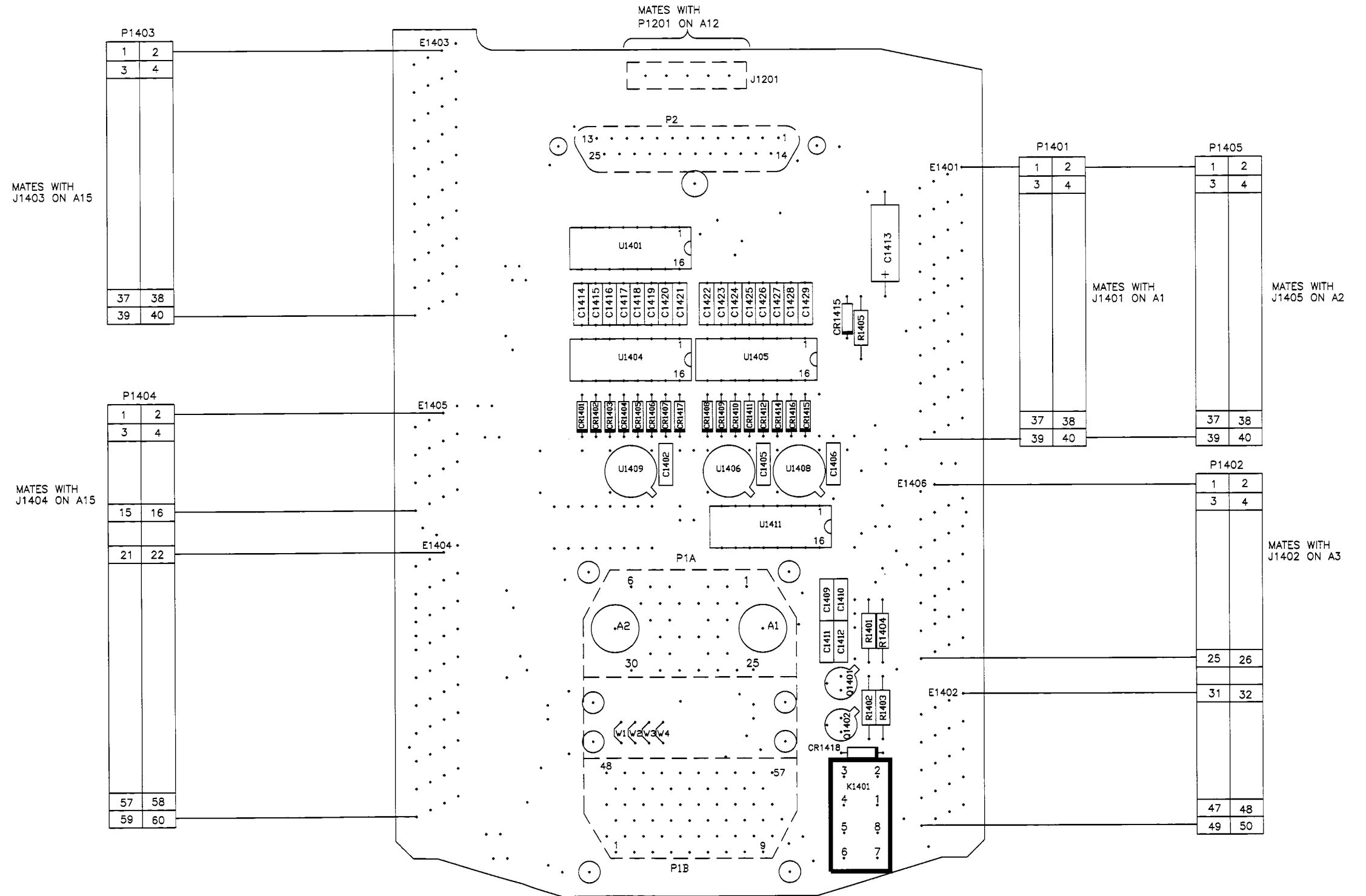
34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Receiver Interconnect A14 (CPN 642-4214-001, -002, -003, -004),
 Maintenance Aid Diagram
 Figure 172 (Sheet 3)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4() / 5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



642-4214-005P
 AD-5316-01-

Receiver Interconnect A14 (CPN 642-4214-005),
 Maintenance Aid Diagram
 Figure 172 (Sheet 4)

34-35-10

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-08

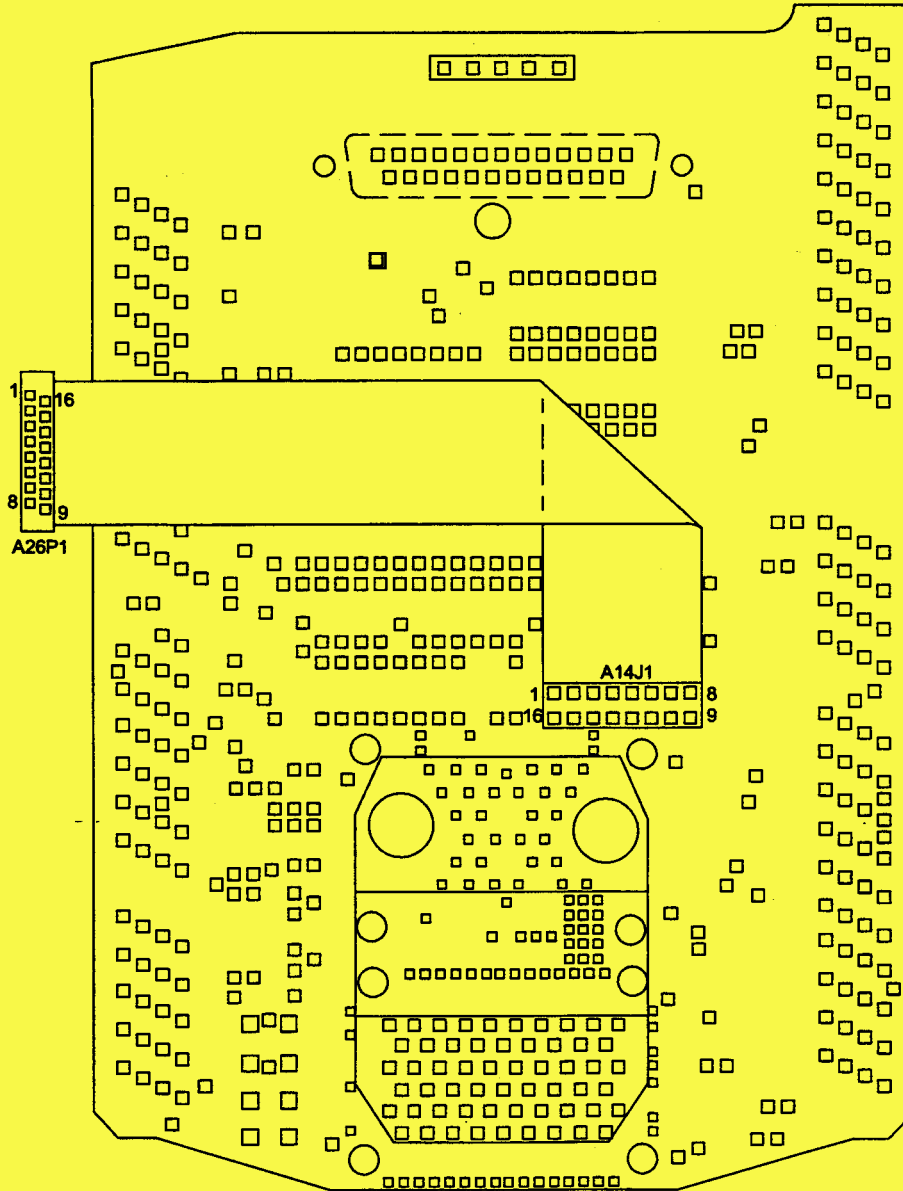
Insert facing page 198.184, 34-35-10

This temporary revision supersedes Temporary Revision 34-35-10-07

Subject: Correct Schematics

Add the diagram shown on page 3 of this temporary revision.

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



(642-4214-005P)
TPE4287_02

Receiver Interconnect A14 (CPN 642-4214-005),
Maintenance Aid Diagram
Figure 172 (Sheet 5)

ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-11

Insert facing page 198.185/198.186, 34-35-10

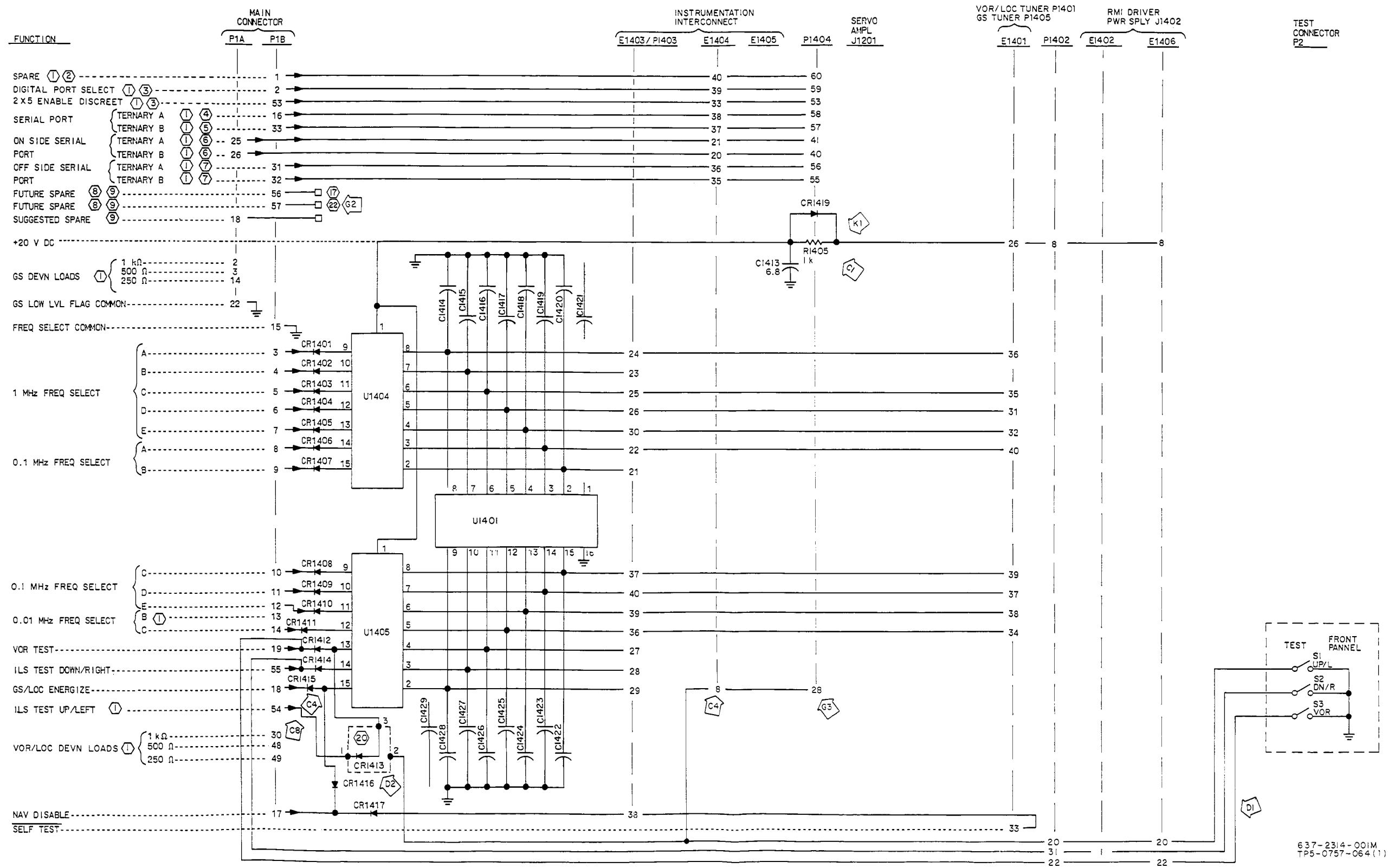
This temporary revision supersedes Temporary Revision 34-35-10-01
This temporary revision supersedes Temporary Revision 34-35-10-04

Subject: Update Component Maintenance Manual

Replace Receiver Interconnect A14, Schematic Diagram Figure 173 (Sheet 1 of 6) with the figure shown on page 17 of this temporary revision.

Changed positions of Pins 2 and 3 at ref arrow D2 on CR1413.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



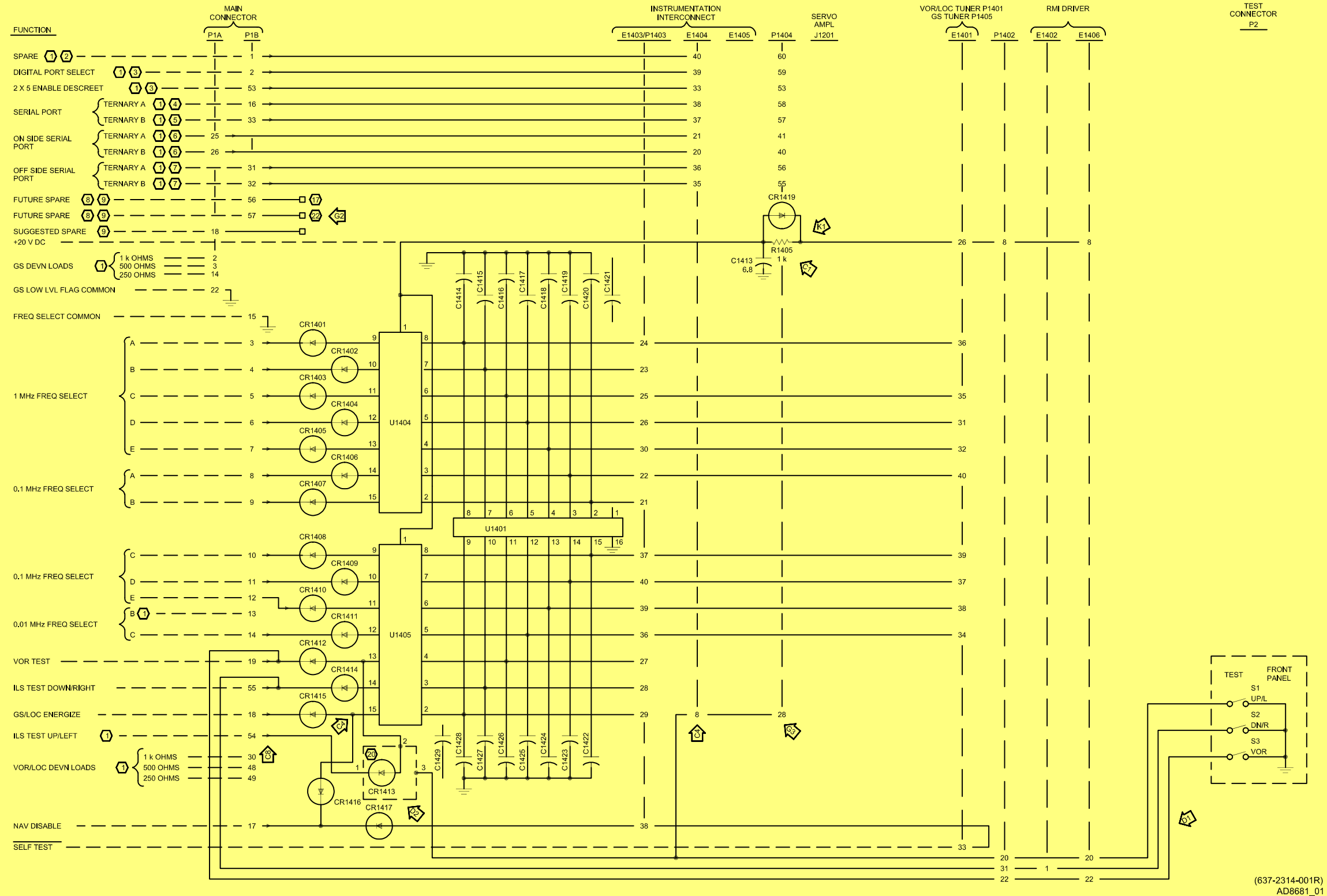
Receiver Interconnect A14, Schematic Diagram
 Figure 173 (Sheet 1 of 6)

34-35-10

Pages 198.185/198.186
 Jul 15/95

637-2314-001M
 TP5-0757-064 (1)

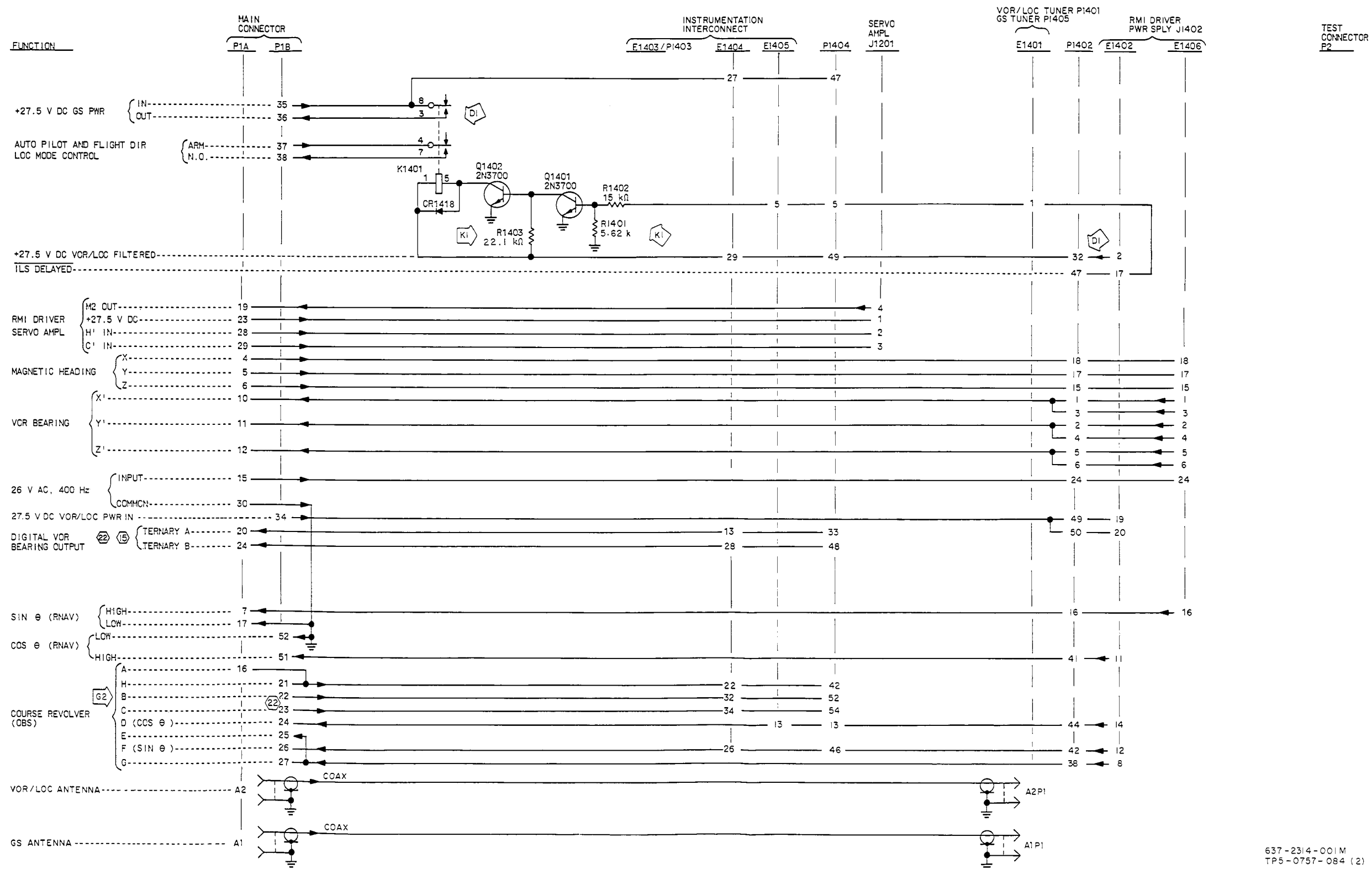
ROCKWELL COLLINS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



(637-2314-001R)
AD8681_01

Figure 173 (Sheet 1 of 6). Receiver Interconnect A14, (CPN 637-2314-001), Schematic Diagram

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

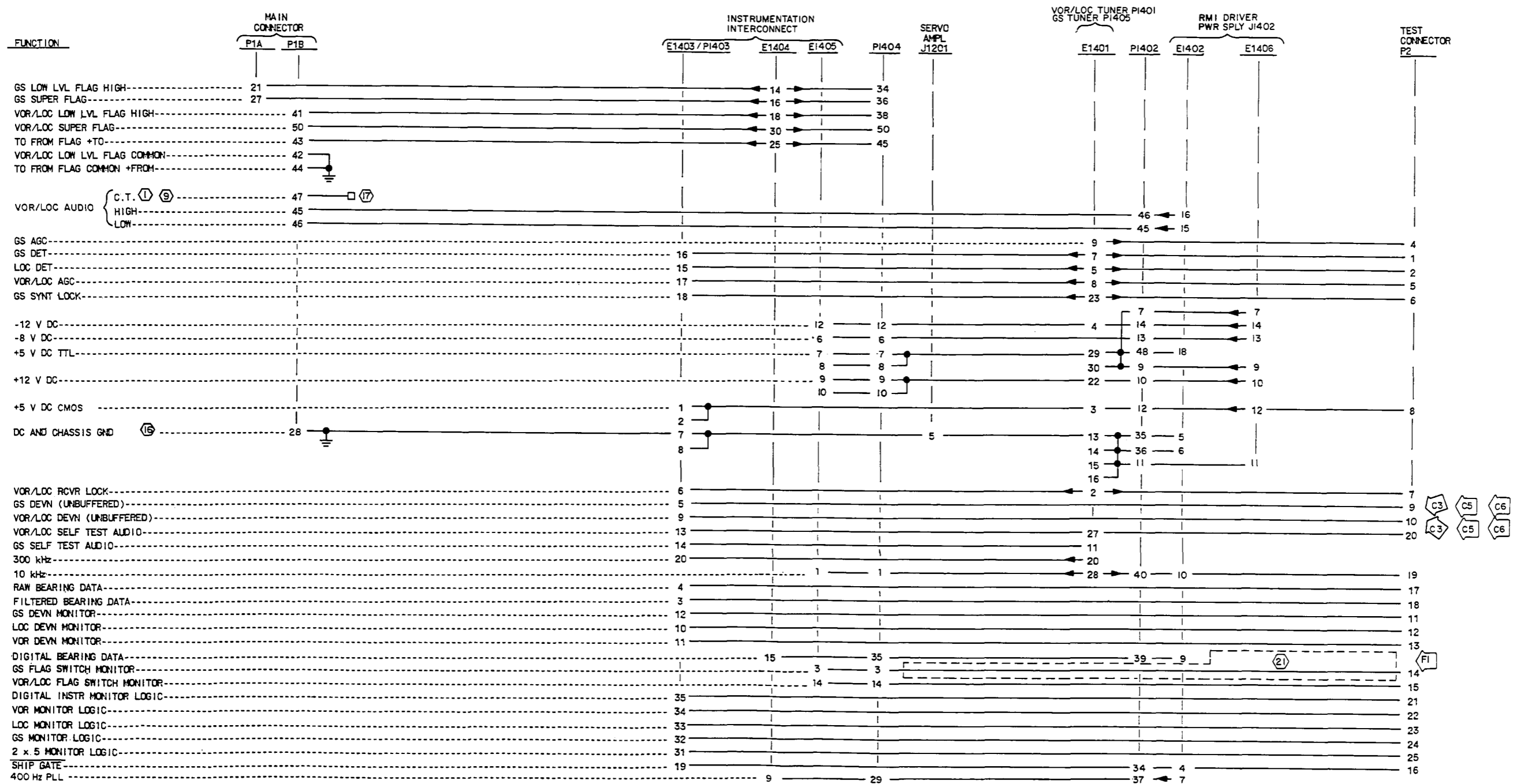


637-2314-001M
 TP5-0757-084 (2)

Receiver Interconnect A14, Schematic Diagram
 Figure 173 (Sheet 2)

34-35-10

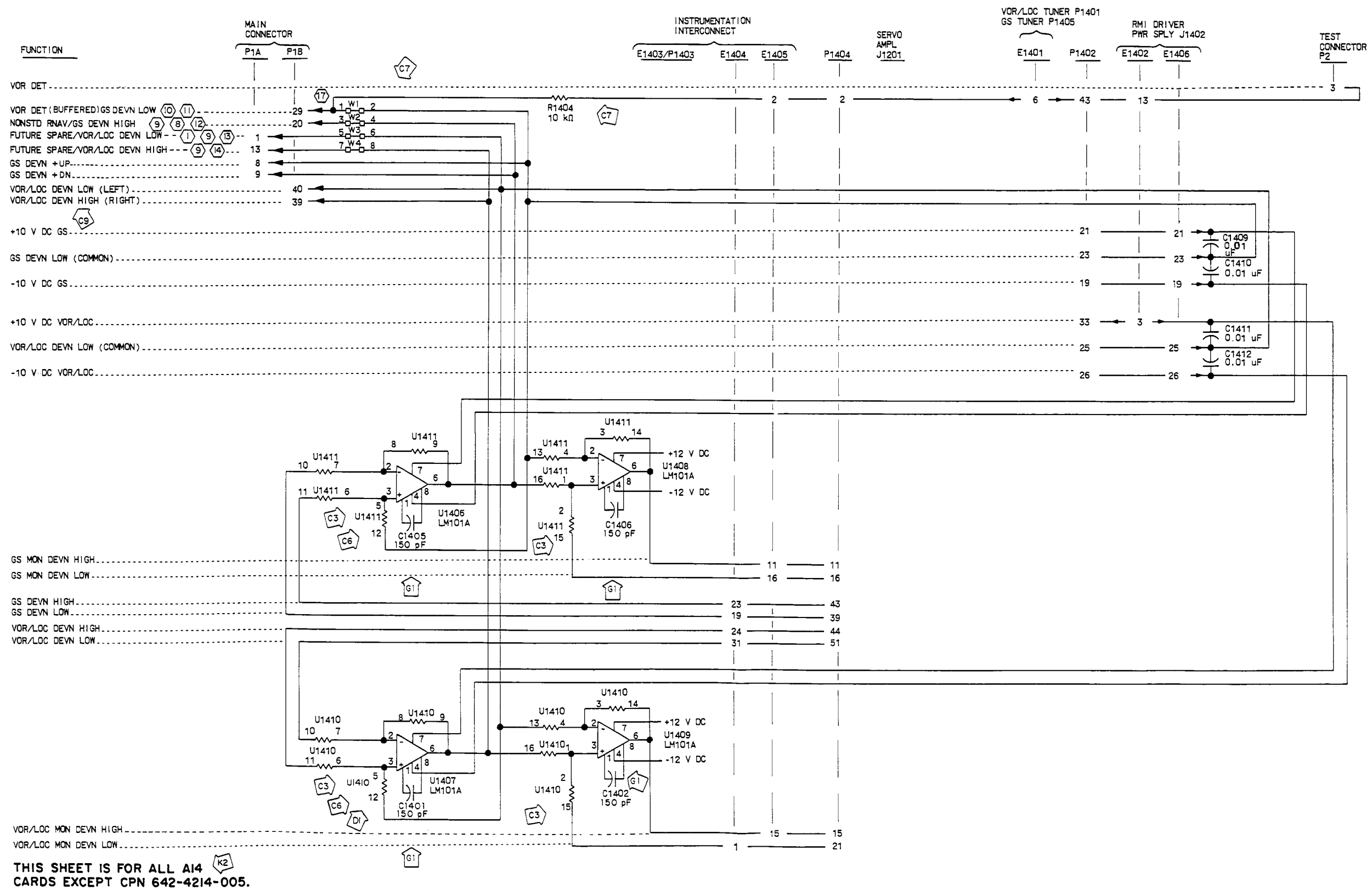
**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



Receiver Interconnect A14, Schematic Diagram
 Figure 173 (Sheet 3)

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



THIS SHEET IS FOR ALL A14 CARDS EXCEPT CPN 642-4214-005.

637-2314-001P
TP5-0757-064 (4)

Receiver Interconnect A14, Schematic Diagram
Figure 173 (Sheet 4)

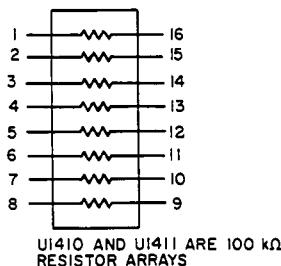
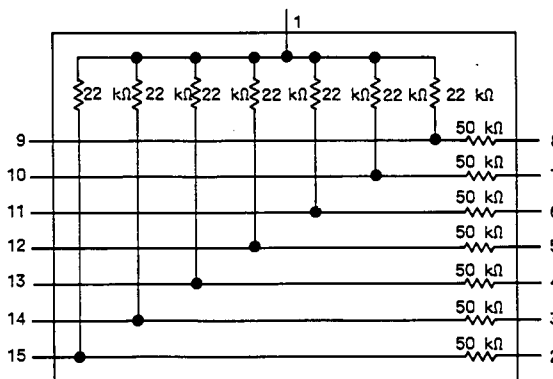
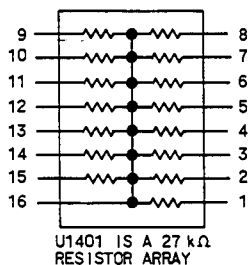
34-35-10

Pages 198.191/198.192
Jul 15/95

COLLINS AIR TRANSPORT DIVISION COMPONENT MAINTENANCE MANUAL, VOLUME 2 51RV-4()/5() VOR/ILS Navigation Receiver PART NO 622-3255

NOTES:

- ① NOT REQUIRED FOR RETROFIT INSTALLATIONS. STD ARINC 547 CONNECTIONS WILL NOT INTERFERE WITH 51RV-4 () OPERATION.
- ② PRESENT ARINC DEFINITION IS 10 MHz FREQ SELECT LINES.
- ③ PRIORITY DISCRETE FOR SELECTING 2X5 OR SERIAL TUNE. PRESENT ARINC DEFINITION IS FUTURE SPARE.
- ④ SERIAL PORT FOR NEW INSTALLATIONS. PRESENT ARINC DEFINITION IS TUNE IN PROCESS.
- ⑤ SERIAL PORT FOR NEW INSTALLATIONS. PRESENT ARINC DEFINITION IS TO-FROM FLAG LOAD.
- ⑥ SERIAL PORTS FOR NEW INSTALLATIONS. PRESENT ARINC DEFINITION IS GS FLAG LOADS.
- ⑦ SERIAL PORTS FOR NEW INSTALLATIONS. PRESENT ARINC DEFINITION IS VOR/LOC FLAG LOADS.
- ⑧ USED FOR RNAV PURPOSES IN SOME 51RV-1 INSTALLATIONS. NOT USED IN THE 51RV-4. (SEE 51RV-1 SERVICE BULLETINS 24 AND 31).
- ⑨ ACCESSIBLE SPARE IN ALL 51RV-4 ()'S.
- ⑩ COMPOSITE 9960 Hz/30 Hz AVAILABLE FOR RNAV PURPOSES WHEN WIRED AS SHOWN.
- ⑪ TO PROVIDE GS DEVN (LOW) OUTPUT (51RV-2B -006 AND -106 STATUSES) REMOVE RESISTOR R1404 AND CONNECT PADS 1 AND 2.
- ⑫ TO PROVIDE GS DEVN (HIGH) OUTPUT (51RV-2B -006 AND -106 STATUSES) CONNECT PADS 3 AND 4.
- ⑬ TO PROVIDE LOC DEVN (LOW) OUTPUT (51RV-2B -006 AND -106 STATUSES) CONNECT PADS 5 AND 6. THIS PIN IS USED IN 51RV-1 INSTALLATIONS FOR GS INTERLOCK.
- ⑭ TO PROVIDE LOC DEVN (HIGH) OUTPUT (51RV-2B -006 AND -106 STATUSES) CONNECT PADS 7 AND 8.
- ⑮ DIGITAL OMNIBEARING OUTPUT PER ARINC 579. PRESENT ARINC 547 DEFINITION IS FUTURE SPARE.
- ⑯ ALL CONNECTOR SHELLS AND FRAME CONNECTIONS ARE TIED TO THE CHASSIS GROUND PIN BY MEANS OF A GROUND PLANE.
- ⑰ PAD TO BE USED FOR FIELD/FACTORY MODIFICATION.
- ⑱ SCHEMATIC REPRESENTATIONS OF MICROCIRCUITS:
- ⑲ ARROWS INDICATE ORIGIN OF SIGNAL.
- ⑳ CIRCUITRY INSIDE BOXED AREA IS ELECTRICALLY A 60I-4214-001 OR 60I-4214-002/003, 642-4214-001/002 BOARD WITH SBI7 INSTALLED. 60I-4214-002/003 AND 642-4214-001/002 BOARDS ARE DELIVERED FROM THE FACTORY WITHOUT CRI413 INSTALLED, A JUMPER IS CONNECTED FROM TERMINAL 1 TO TERMINAL 2, AND TERMINAL 3 IS OPEN.
- D2 ㉑ ON 642-4214-003 THERE IS NO CONNECTION BETWEEN P1404-3 AND P2-14.
- F1 ㉒ ON 642-4214-004, BP22 AND BP57 ARE BUSSED TOGETHER.
- G2



JI

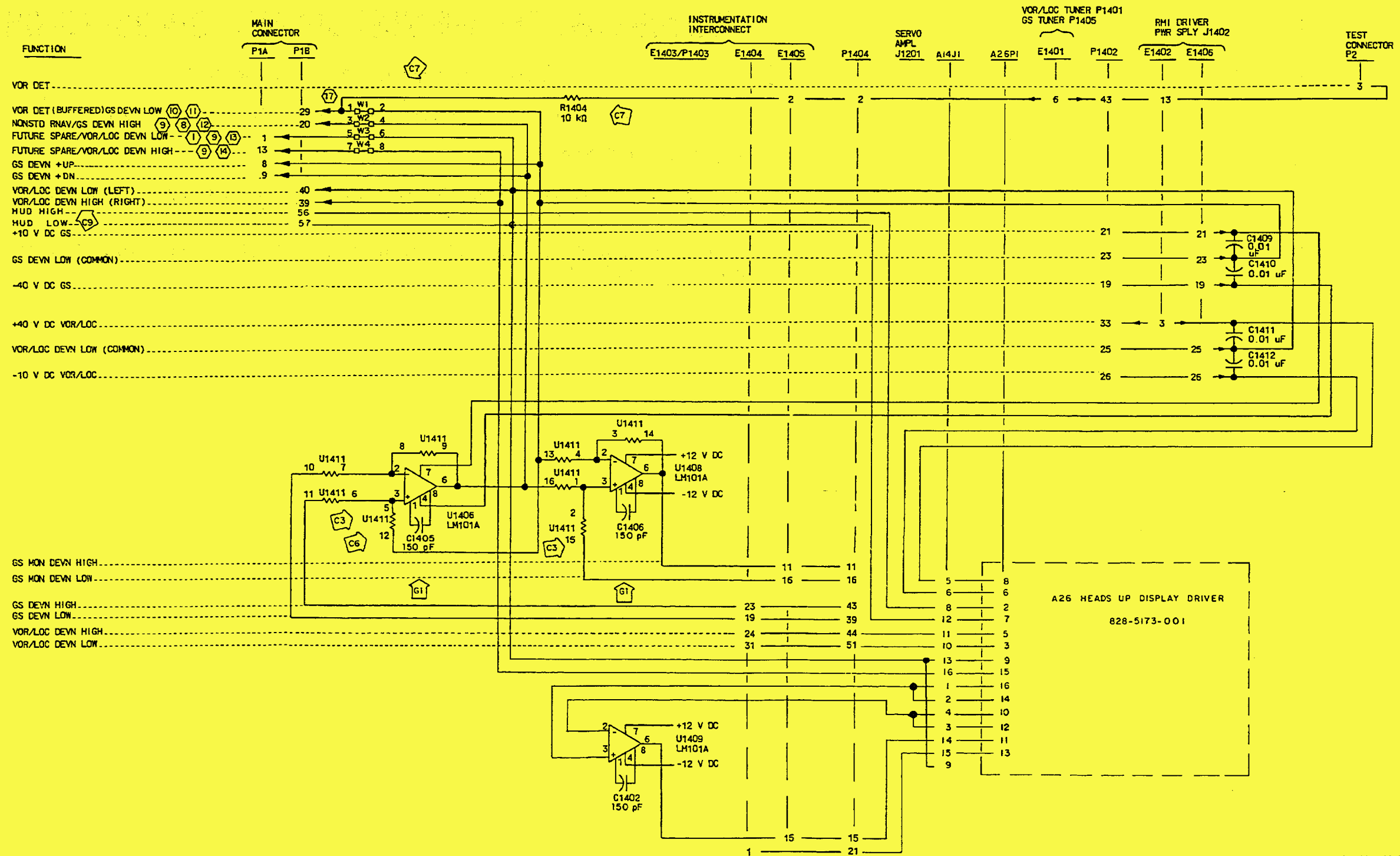
637-2314-001L
TP5-0757-084 (5)

Receiver Interconnect A14, Schematic Diagram
Figure 173 (Sheet 5)

34-35-10

Pages 198.193/198.194
Jul 15/95

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
 COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



634-2314-001P9
 TPE4287_03

Receiver Interconnect A14, Schematic Diagram
 Figure 173 (Sheet 6)

TEMPORARY REVISION NO. 34-35-10-08

Insert facing pages 198.195/198.196, 34-35-10

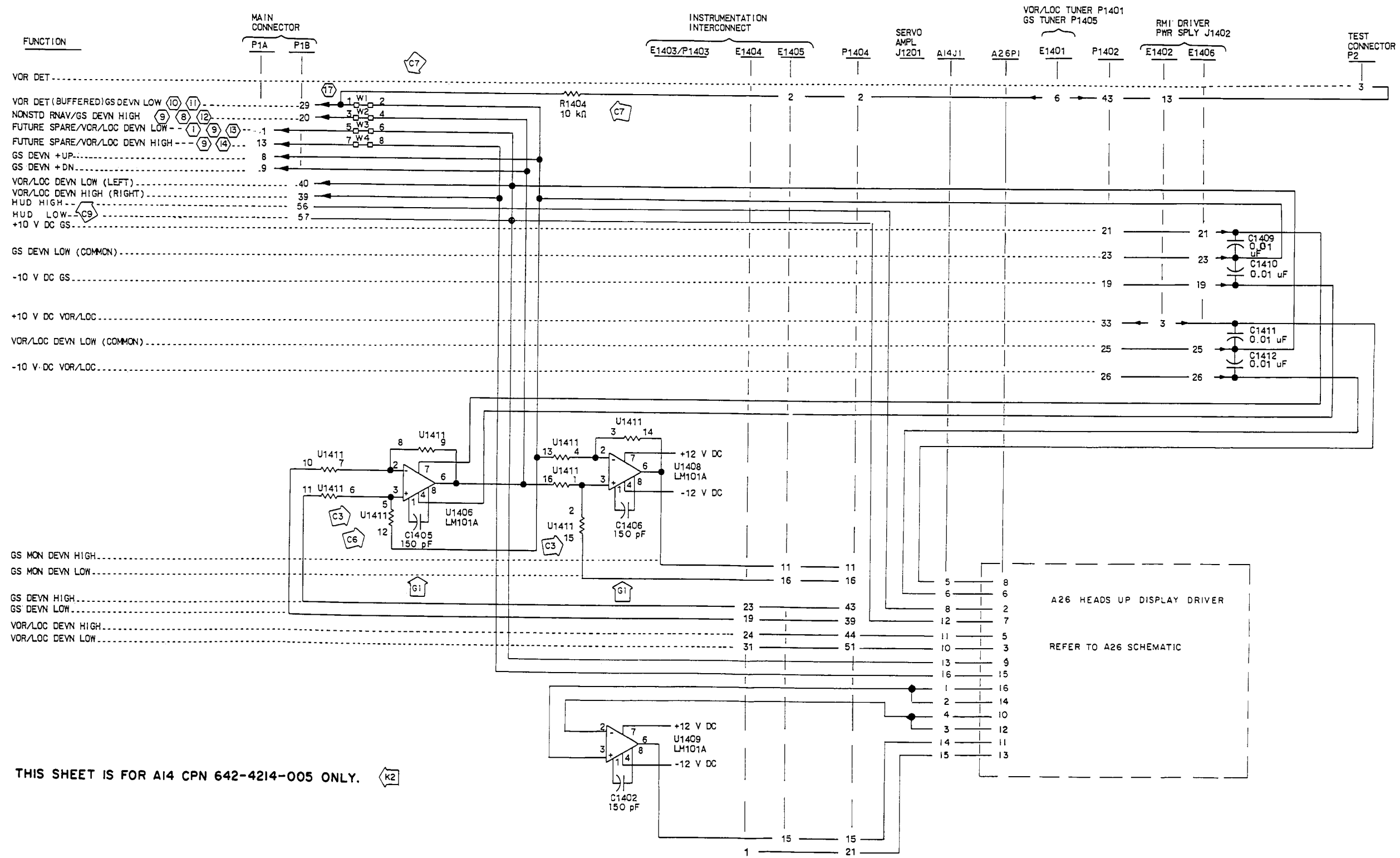
This temporary revision supersedes Temporary Revision 34-35-10-07

Subject: Correct Schematics

Replace Receiver Interconnect A14, Schematic Diagram, Figure 173 (Sheet 6) with the figure shown on page 4 of this temporary revision.

Changed voltage inputs +10 V DC VOR/LOC and -10 V DC VOR/LOC to read +40 V DC VOR/LOC and -40 V DC VOR/LOC.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



THIS SHEET IS FOR A14 CPN 642-4214-005 ONLY. K2

Receiver Interconnect A14, Schematic Diagram
 Figure 173 (Sheet 6)

34-35-10

Pages 198.195/198.196
 Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – sheet 1 and 2

EFFECTIVITY: REV H

DESCRIPTION/REASON: Added jumpers from J801-43 to J801-31, and from J501-2 to J501-4 to correct A5 and A8 MON test problem.

REV IDENT and SHEET: C2 – sheet 2

EFFECTIVITY: REV J

SERVICE BULLETIN: 4

DESCRIPTION/REASON: Added jumpers from J1404-28 to J601-2, and J1404-21 to J701-8, and J1404-16 to J701-7. Provides self-test indication when both up/left and down/right switches are activated together.

REV IDENT and SHEET: C3 – sheet 1

EFFECTIVITY: All models

DESCRIPTION/REASON: Added J801-38 designation to correct error in schematic.

REV IDENT and SHEET: C4 – sheet 1 and 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 1, J1301 mates with either P1301 or P2201. Removes confusion from J1301 interconnect.

REV IDENT and SHEET: D1 – sheet 2

EFFECTIVITY: REV K (601-4215-001)

DESCRIPTION/REASON: Added jumper wire from J1301-31 to J601-7. Allows serial tune self-test.

REV IDENT and SHEET: D2 – sheet 2

EFFECTIVITY: All models

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: Connected J1404-21 to J1404-16. Deleted connection to J701-26. Added J701-5 designation. Connected J701-8 to J901-20. Connected J801-28 to J901-17. All the above are corrections to the schematic.

REV IDENT and SHEET: D3 – sheet 1 and 2

EFFECTIVITY: REV M (601-4215-003). REV A (642-4215-002)

DESCRIPTION/REASON: Added note 2 in regard to 601-4215-003 and 642-4215-002 uniqueness.

REV IDENT and SHEET: F1 – sheet 2

EFFECTIVITY: REV C (642-4215-001)

DESCRIPTION/REASON: Added connection from J701-4 to J901-22.

REV IDENT and SHEET: F2 – sheets 1 and 2

EFFECTIVITY: All CPN 642-4215-003

DESCRIPTION/REASON: Added note 3.

REV IDENT and SHEET: NA – figure 177

EFFECTIVITY: REV E (642-4215-004)

DESCRIPTION/REASON: Added schematic for A15 CPN 642-4215-004.

REV IDENT and SHEET: G1 – sheets 1 and 2, figure 176

EFFECTIVITY: MOD J (601-4215-001, -002, -003, 642-4215-001, -002, -003)

SERVICE BULLETIN: J

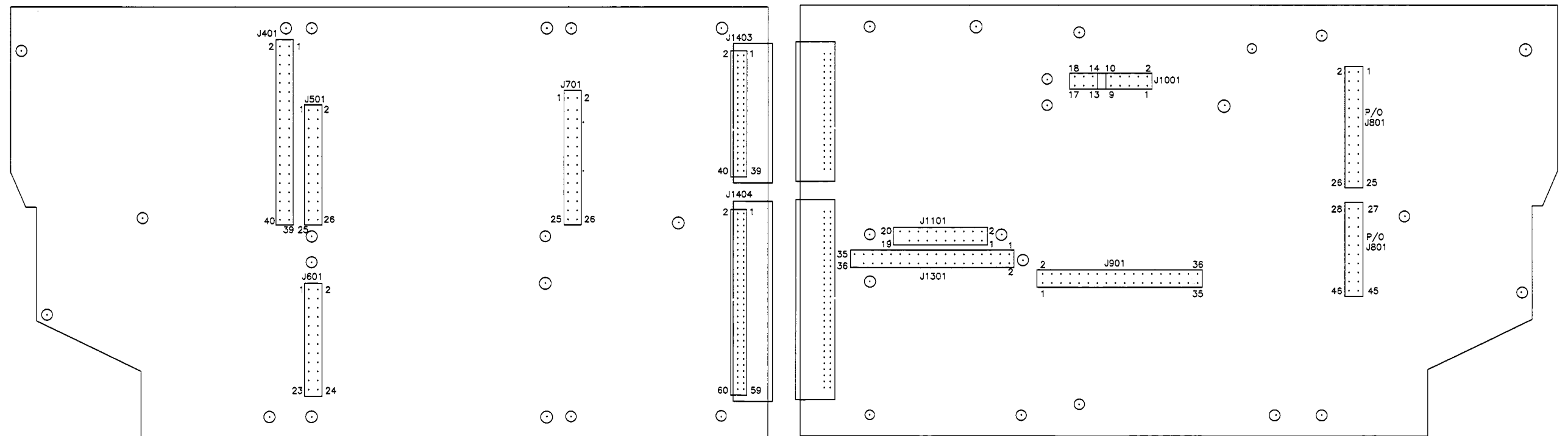
DESCRIPTION/REASON: Added note 4 in regard to SB J which converts 51RV-4B/5B CPN 622-3257-001/822-0761-001 to 622-3257-101 by changing A15 642-4215-001 into 642-4215-004 (MOD J) or A15 601-4215-001 into MOD J. SB J field conversion only.

Instrumentation Interconnect A15, Schematic Changes
Figure 174 (Sheet B)

34-35-10

Page 198.198
Jul 15/95

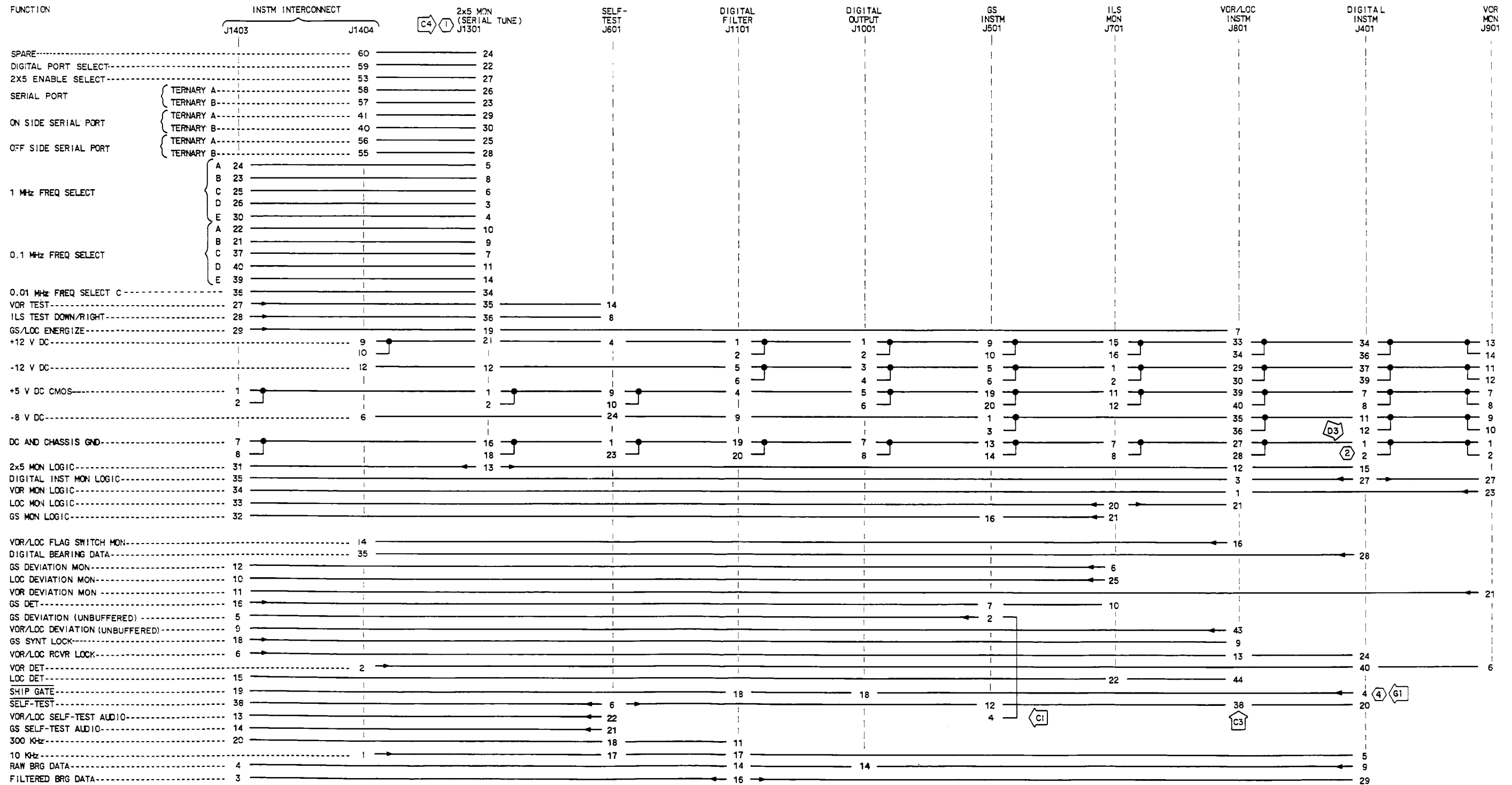
COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 ① J301 ACCOMODATES EITHER A13 P1301 OR A22 P2201.

642-4215-001C,-002C,-003C,-004E
 AD-4523-01-

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



NOTES:

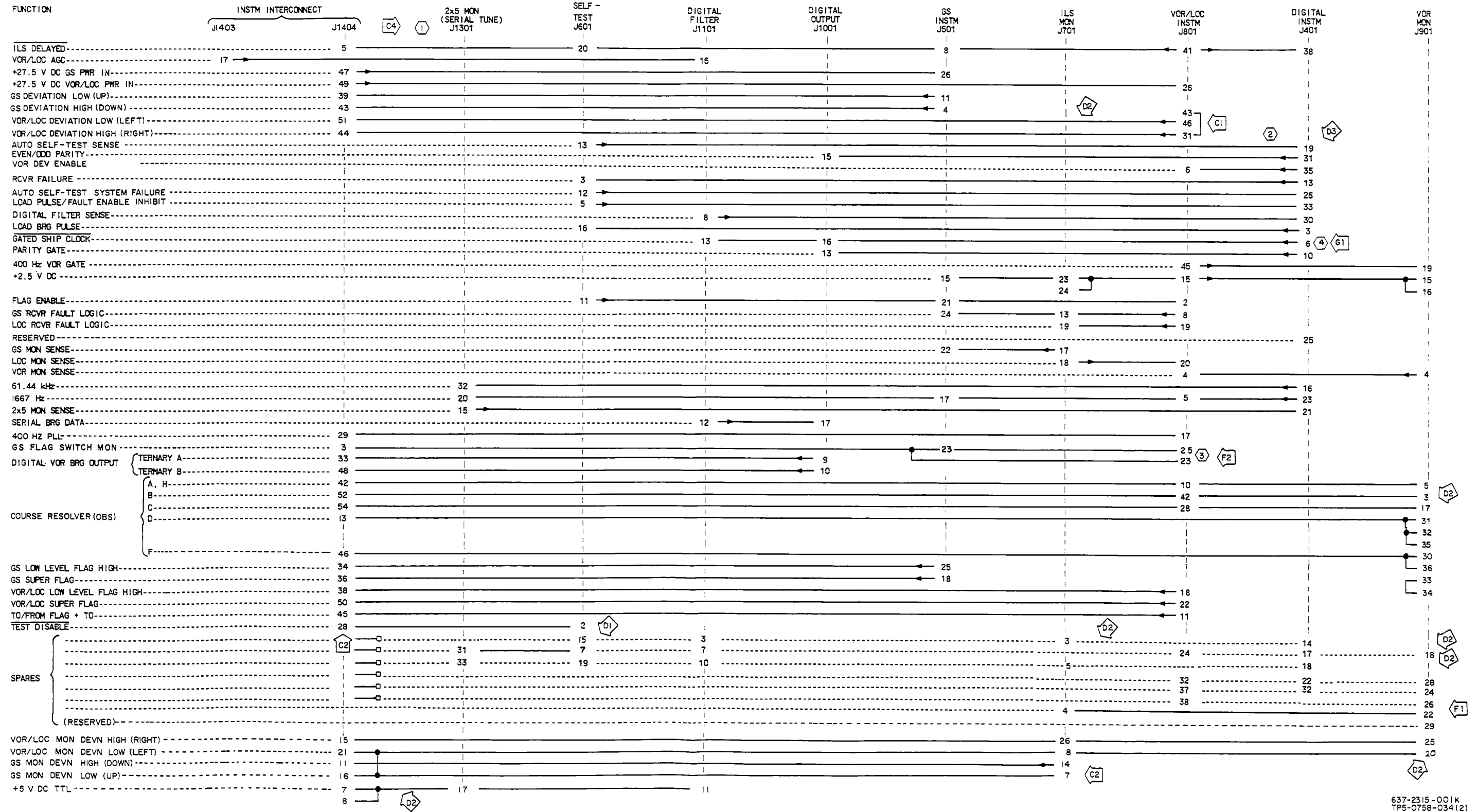
- ① ARROWS INDICATE ORIGIN OF SIGNAL.
- ② FOR 601-4215-003 AND 642-4215-002 NO CONNECTION BETWEEN J401-19 AND J601-13, JUMPER BETWEEN J401-1 AND J401-19.
- ③ FOR 642-4215-003 THERE IS NO CONNECTION BETWEEN J1404-3 AND J501-23, THERE IS A CONNECTION BETWEEN J1404-3 AND J801-23, DESIGNATED DETECTED 26 V AC LOGIC, AND THERE IS A CONNECTION BETWEEN J501-23 AND J801-25.
- ④ FOR SBJ; NO CONNECTION BETWEEN J1001-16 AND J401-6, ADDED 429 LOAD GATE J1101-7 TO J1001-18, DISCONNECTED J1001-18 FROM J1101-18 AND J401-4.

637-2315-001K
TP5-0758-034(1)

Instrumentation Interconnect A15 (CPN 601-4215-001, -002, -003 and 642-4215-001, -002, -003) Schematic Diagram
Figure 176 (Sheet 1 of 2)

34-35-10

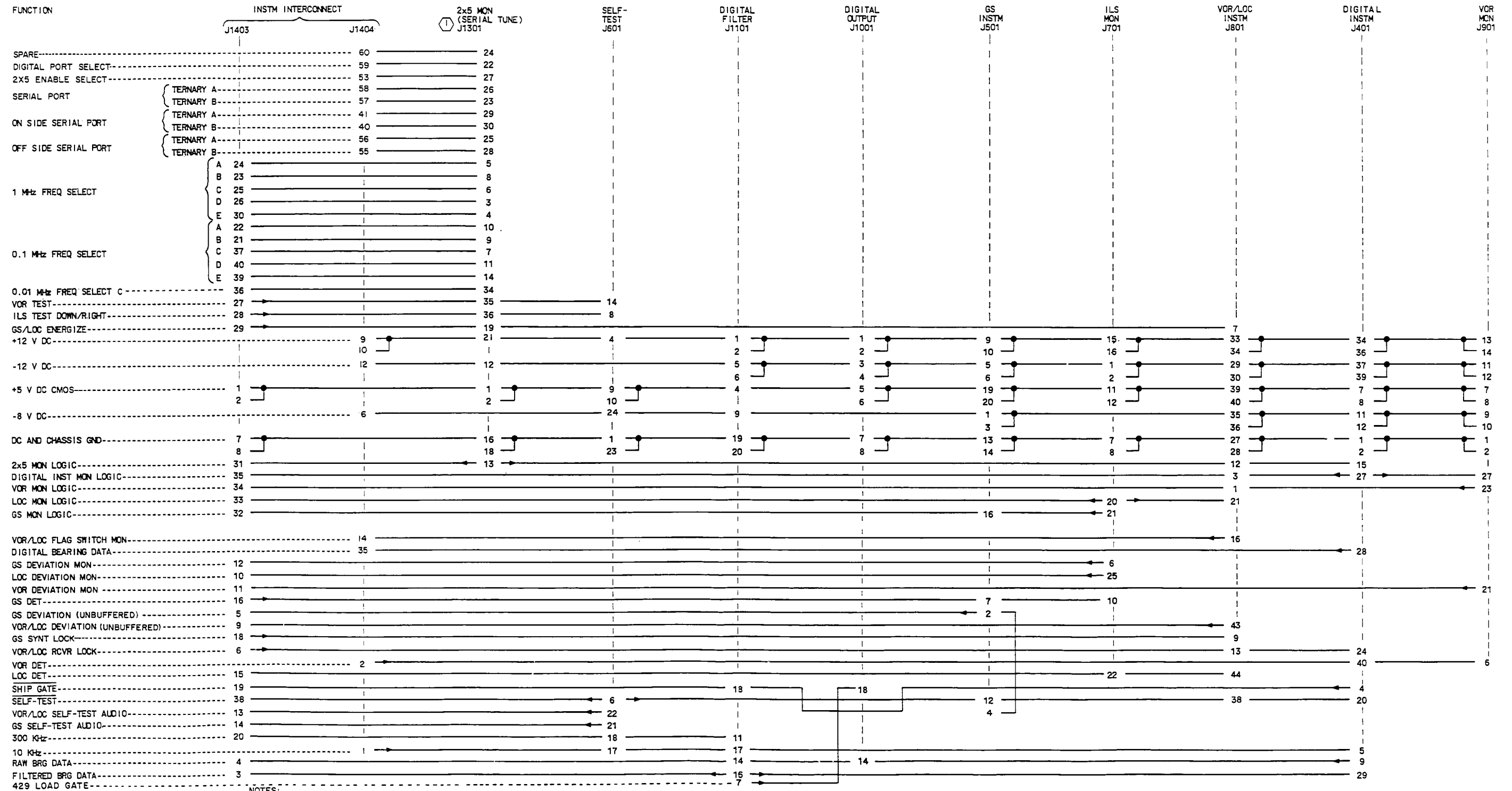
**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



637-2315-001K
 TP5-0758-034(2)

Instrumentation Interconnect A15 (CPN 601-4215-001, -002, -003
 and 642-4215-001, -002, -003) Schematic Diagram
 Figure 176 (Sheet 2)

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4() / 5() VOR/ILS Navigation Receiver
PART NO 622-3255**



NOTES:
① ARROWS INDICATE ORIGIN OF SIGNAL.

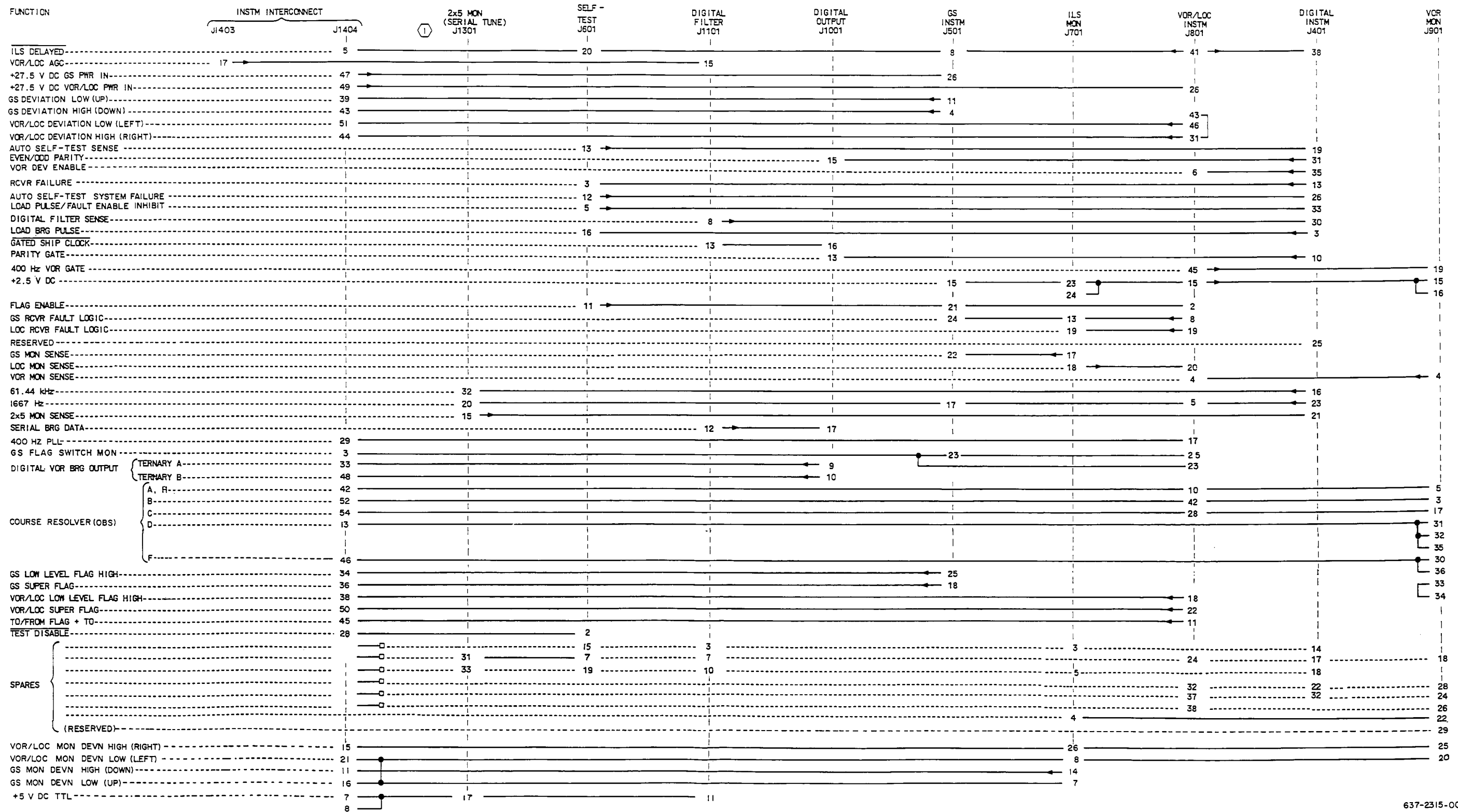
637-2315-002A (1)

Instrumentation Interconnect A15 (CPN 642-4215-004), Schematic Diagram
Figure 177 (Sheet 1 of 2)

34-35-10

Pages 198.205/198.206
Jul 15/95

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



637-2315-002A(2)

Instrumentation Interconnect A15 (CPN 642-4215-004), Schematic Diagram
 Figure 177 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – sheet 1
EFFECTIVITY: REV H
SERVICE BULLETIN: 8
DESCRIPTION/REASON: Added C1834 (4700 pF) to correct 300-kHz problems.

REV IDENT and SHEET: C2 – sheet 1
EFFECTIVITY: REV K
SERVICE BULLETIN: 8
DESCRIPTION/REASON: Deleted C1834 (4700 pF). Deleted L1807 suppressor. Changed R1801 (5.6 k Ω) to 1 k Ω . Improves level of 300-kHz signal.

REV IDENT and SHEET: D1 – sheet 1
EFFECTIVITY: All models
DESCRIPTION/REASON: Removed connection between R1816 and R1817. Added line between R1817 to L1808 to correct the schematic.

REV IDENT and SHEET: F1 – sheet 1
EFFECTIVITY: REV B
DESCRIPTION/REASON: Added 47-k Ω resistor R1828 to improve operation.

REV IDENT and SHEET: F2 – sheets 1 and 2
EFFECTIVITY: All models
DESCRIPTION/REASON: Added note 2 to show variation of component values.

REV IDENT and SHEET: F3 – sheet 1
EFFECTIVITY: All models

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

DESCRIPTION/REASON: The following changes made to correct schematic diagram:

Changed diodes CR1802 and CR1803 type number from MV109 to BB409J. Changed connector P1801B to P1802. Deleted ÷ symbol to right of PROGRAMMABLE DIVIDERS designation.

REV IDENT and SHEET: K1 – sheet 1

EFFECTIVITY: REV H

DESCRIPTION/REASON: Replaced obsolete part BB409J (CR1802 and 1803) with U18-3112 for better availability.

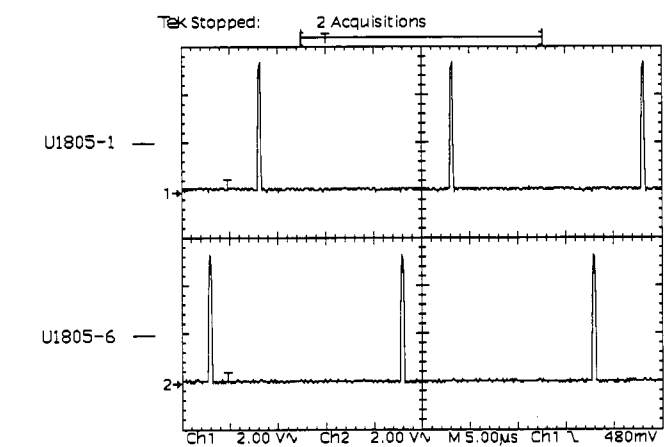
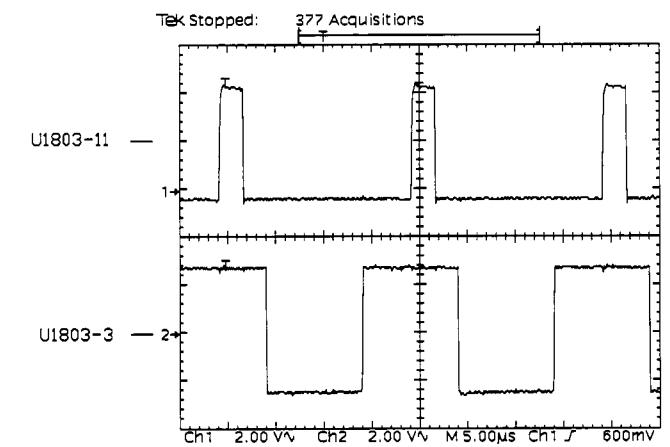
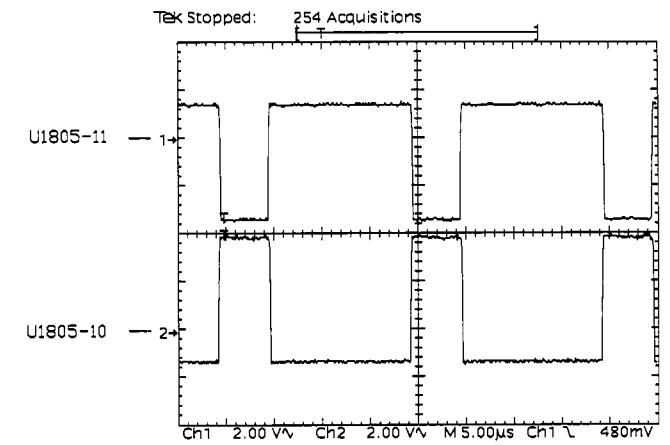
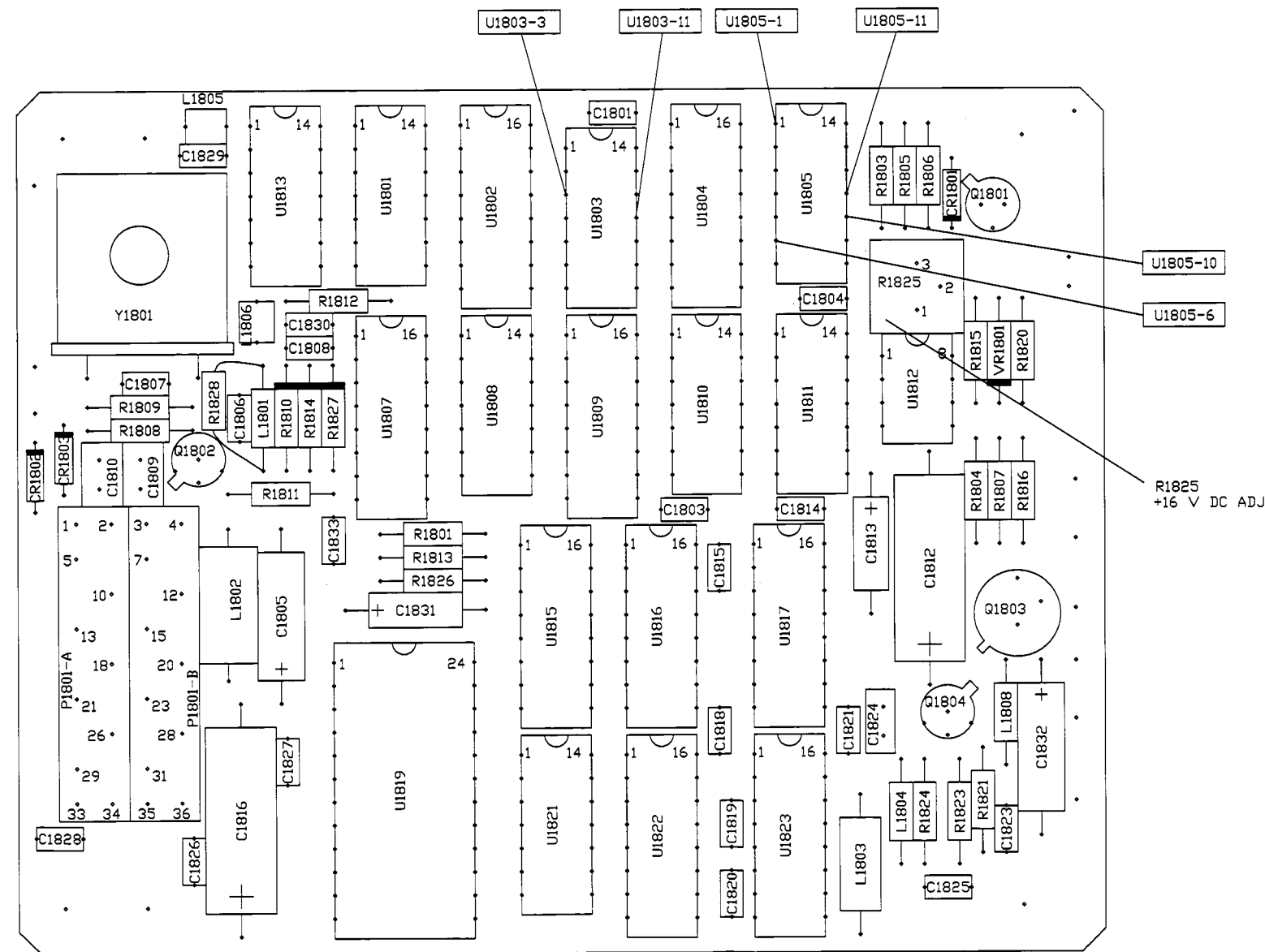
REV IDENT and SHEET: K2 – sheet 1

EFFECTIVITY: REV K

DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.

Sheet 1

RESISTOR	CARBON	METAL FILM
R1801	1.0 kΩ	1.0 kΩ
R1803	5600 Ω	5.62 kΩ
R1808	22 kΩ	22.1 kΩ
R1809	22 kΩ	22.1 kΩ
R1810	10 kΩ	10 kΩ
R1811	3900 Ω	3.92 kΩ
R1812	820 Ω	825 Ω
R1813	5600 Ω	5.62 kΩ
R1814	10 kΩ	10 kΩ
R1821	470 Ω	475 Ω
R1823	5600 Ω	5.62 kΩ
R1824	5600 Ω	5.62 kΩ
R1826	47 kΩ	47.5 kΩ
R1827	680 Ω	681 Ω
R1828	47 kΩ	47.5 kΩ



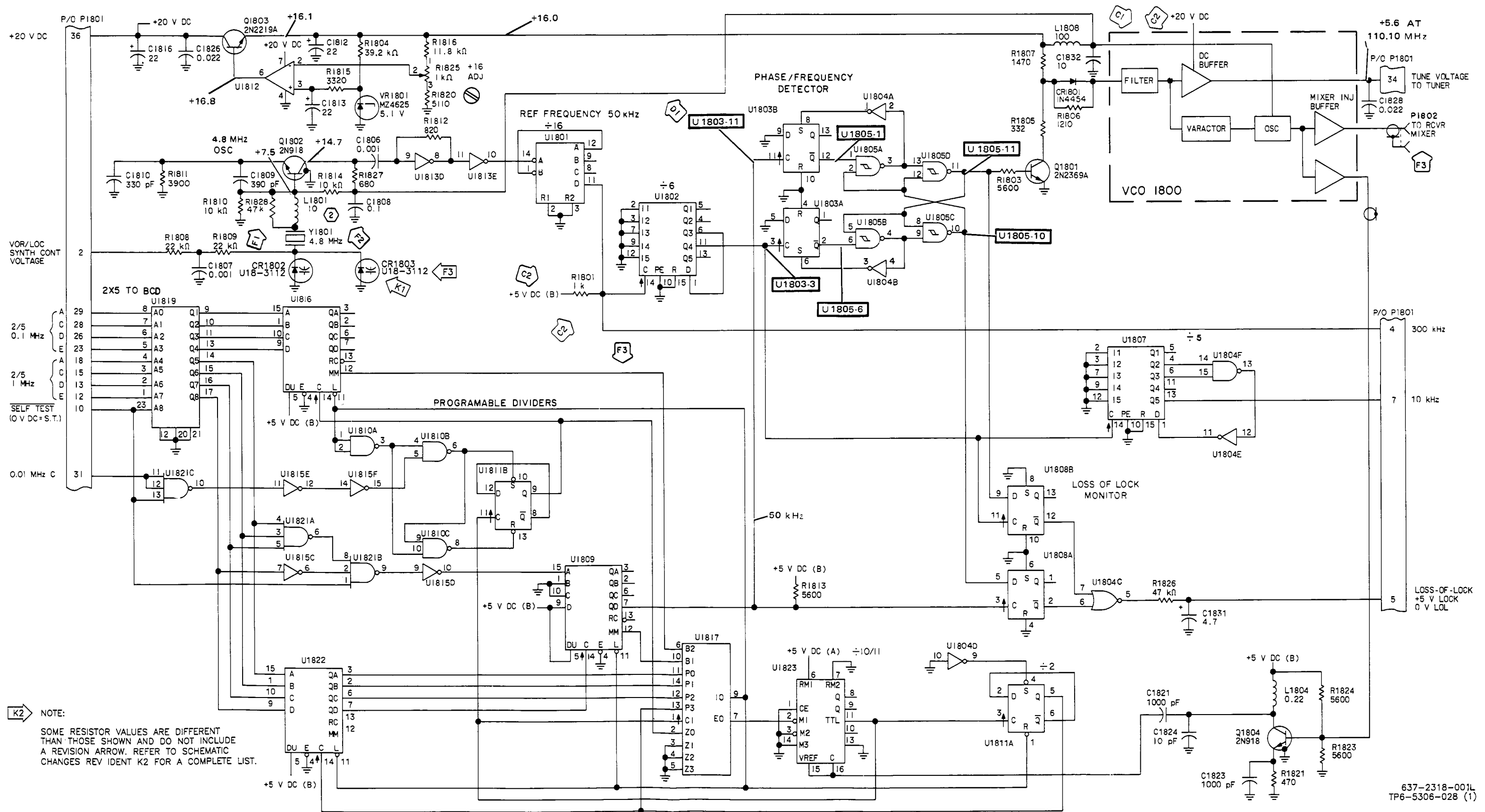
NOTE:
 PART OF SYNTHESIZER MODULE CPN 635-5701-001.

642-4218-001K
 AD-4697-01-

VOR/LOC Synthesizer A18 (CPN 635-5701-001), Maintenance Aid Diagram
 Figure 179

34-35-10

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

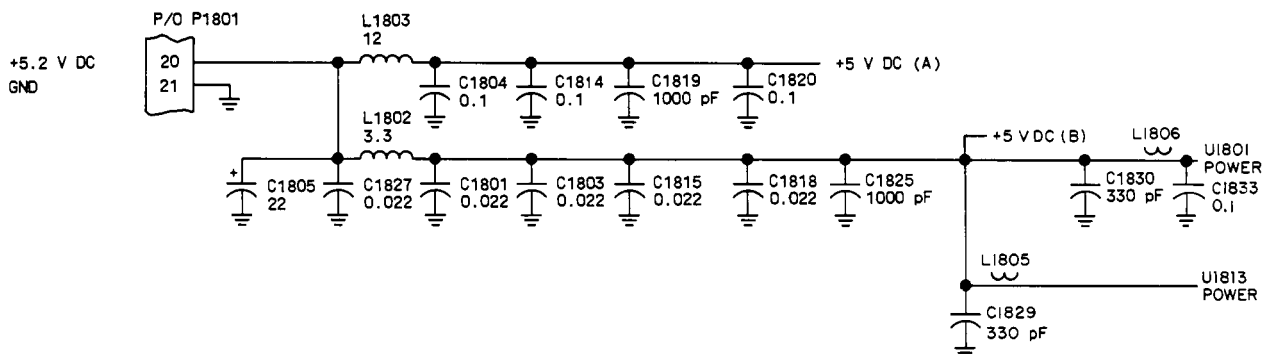


NOTE:
SOME RESISTOR VALUES ARE DIFFERENT THAN THOSE SHOWN AND DO NOT INCLUDE A REVISION ARROW. REFER TO SCHEMATIC CHANGES REV IDENT K2 FOR A COMPLETE LIST.

637-2318-001L
TP6-5306-028 (1)

VOR/LOC Synthesizer A18 (CPN 635-5701-001), Schematic Diagram
Figure 180 (Sheet 1 of 2)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



NOTES:

- ① UNLESS OTHERWISE SPECIFIED; RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS AND INDUCTANCE VALUES ARE IN MICROHENRYS.
- ② ON A18 CIRCUIT CARD (601-4318-001); L1801 IS A 6.8 μ H COIL AND R1828 IS NOT USED.

F2

POWER AND GROUND CONNECTIONS

U NO.	TYPE	POWER (V DC)			
		+20	+5(A)	+5(B)	GND
U1801	54LS93			5(FLTR)	10
U1802	CD4018 *			16	8
U1803	CD4013 *			14	7
U1804	MC14572		16		8
U1805	CD4093 *			14	7
U1807	CD4018 *			16	8
U1808	CD4013 *			14	7
U1809	54LS191			16	8
U1810	54LS00		14		7
U1811	54LS74		14		7
U1812	μ A741				
U1813	5404			14(FLTR)	7
U1815	CD4049 *		8		1
U1816	54LS191			16	8
U1817	MC12514		16		8
U1819	ROM			24	
U1821	CD4023 *		14		7
U1822	54LS190			16	8
U1823	11C90		4,5		12

* CMOS/MOS DEVICE

637-2318-001H
 TP6-5306-028(2)

VOR/LOC Synthesizer A18 (CPN 635-5701-001), Schematic Diagram
 Figure 180 (Sheet 2)

34-35-10

Pages 198.215/198.216
 Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: K1

EFFECTIVITY: REV B

DESCRIPTION/REASON: Changed C1812, C1816, C1830, C1832, and C1833 from 10.0 to 4.7 μ F for increased voltage rating.

REV IDENT and SHEET: K2

EFFECTIVITY: REV D

DESCRIPTION/REASON: Changed R1816 from 12.1 to 11.0 k Ω to adjust 16-V closer to nominal +16 V dc during sublevel test.

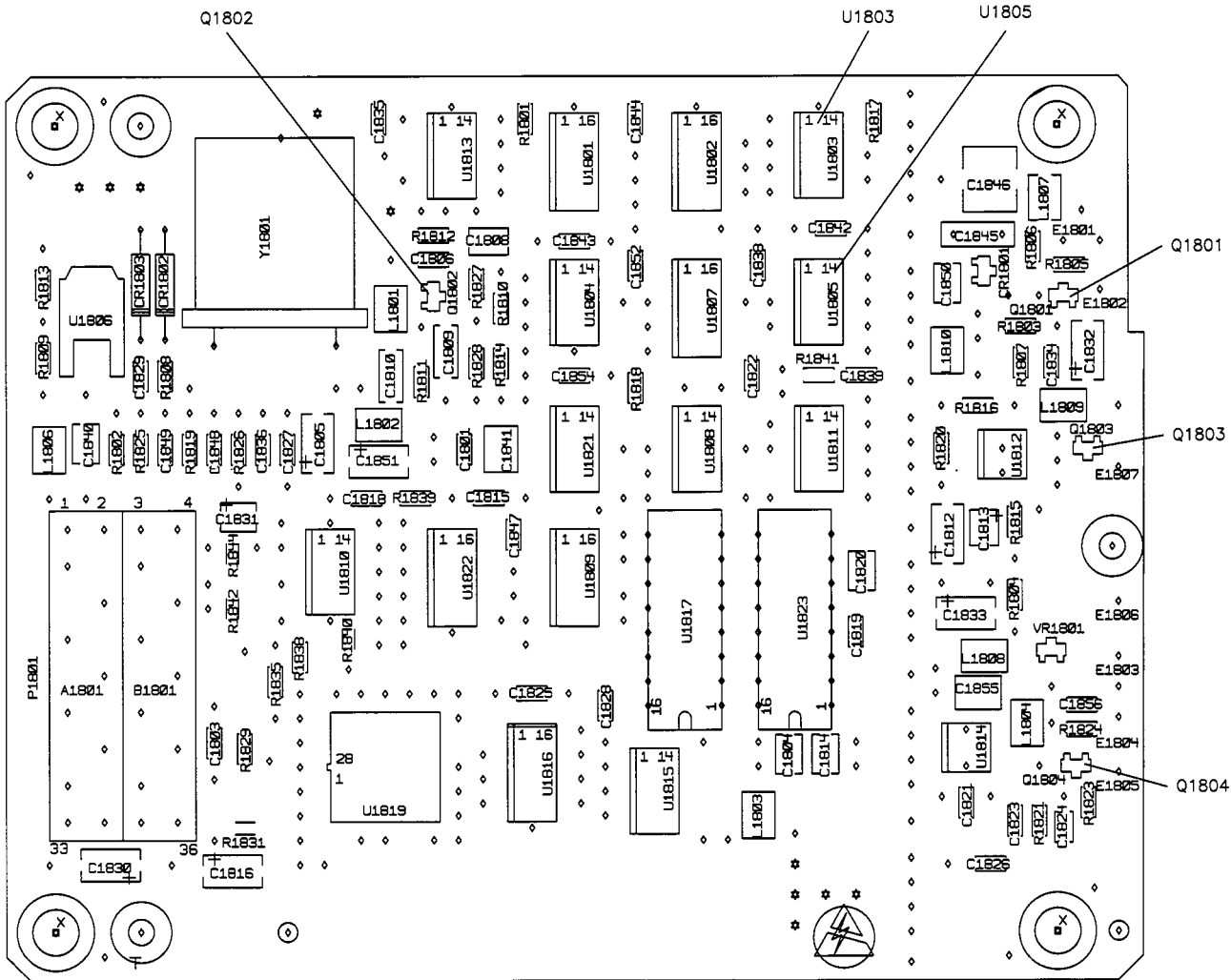
REV IDENT and SHEET: K3

EFFECTIVITY: REV E

DESCRIPTION/REASON: Changed R1816 from 11.0 to 11.5 k Ω to adjust 16-V closer to nominal +16 V dc during sublevel test.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

WAVEFORM INDEX CROSS REFERENCE (USE CPN 642-4218-001 AS WAVEFORM SOURCE).		
CPN 642-4218-001	CPN 642-4218-002	SCHEMATIC TEST POINT
U1803-3	U1803-11	TP-A
U1803-11	U1803-3	TP-B
U1805-1	U1805-1	TP-C
U1805-6	U1805-5	TP-D
U1805-10	U1805-8	TP-E
U1805-11	U1805-11	TP-F



NOTES:

- ① PART OF SYNTHESIZER MODULE CPN 628-8479-004.
- ② REFER TO FIGURE 173 FOR WAVEFORMS.

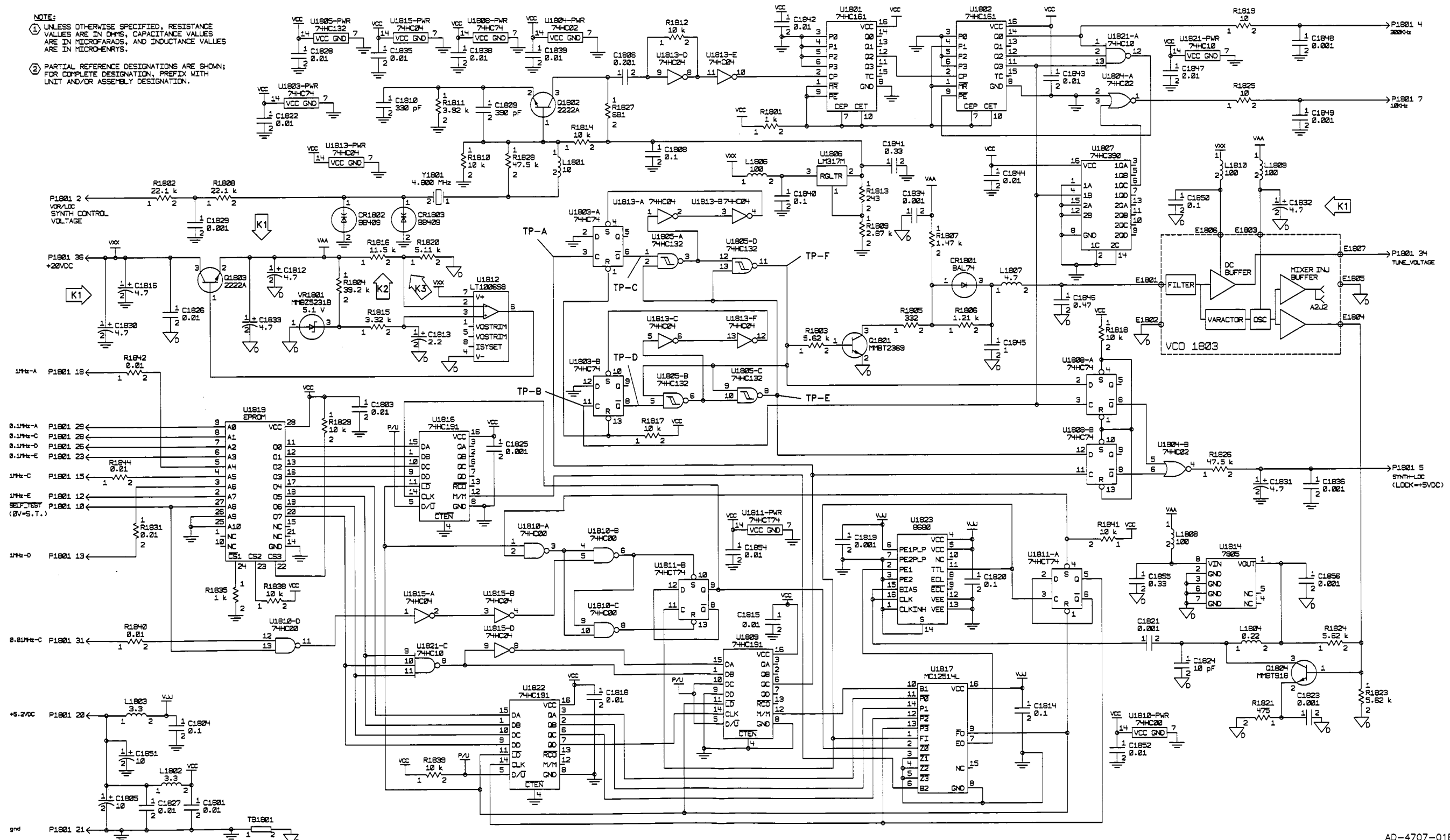
642-4218-002D
 AD-4708-01A

VOR/LOC Synthesizer A18 (CPN 628-8479-004), Maintenance Aid Diagram
 Figure 182

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4() / 5() VOR/ILS Navigation Receiver
PART NO 622-3255

- NOTE:**
- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 - ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.



AD-4707-01B
637-2318-002E

VOR/LOC Synthesizer A18 (CPN 628-8479-004), Schematic Diagram
Figure 183

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – sheet 1
EFFECTIVITY: REV F
DESCRIPTION/REASON: Changed R1907 (2370 Ω) to 1540 Ω . Corrected schematic error.

REV IDENT and SHEET: C2 – sheet 1
EFFECTIVITY: REV N
DESCRIPTION/REASON: Changed R1916 (39 Ω) to test select.

REV IDENT and SHEET: C3 – sheet 2
EFFECTIVITY: All models
DESCRIPTION/REASON: Added CMOS/MOS designation to IC table as aid to user.

REV IDENT and SHEET: F1 – sheet 1
EFFECTIVITY: All models
DESCRIPTION/REASON: The following changes made to correct schematic diagram:

Added connection from P1901-1 to P1901-2. Added connection from U1918-21 to ground. Changed +5 V DC to +5 V DC (B) (2 places). Added E1 through E5 and two grounds at VCO 1900.

REV IDENT and SHEET: F2 – sheet 1
EFFECTIVITY: REV B
DESCRIPTION/REASON: Changed capacitors C1914 and C1915 from 5 to 4.7 pF to provide more reliable component.

REV IDENT and SHEET: K1 – sheet 1
EFFECTIVITY: REV K
DESCRIPTION/REASON: Changed various resistors from carbon to metal film composition for better reliability. All resistors are listed below including values of both type resistors.
(Cont)

Glide Slope Synthesizer A19, Schematic Changes
Figure 184 (Sheet A)

34-35-10

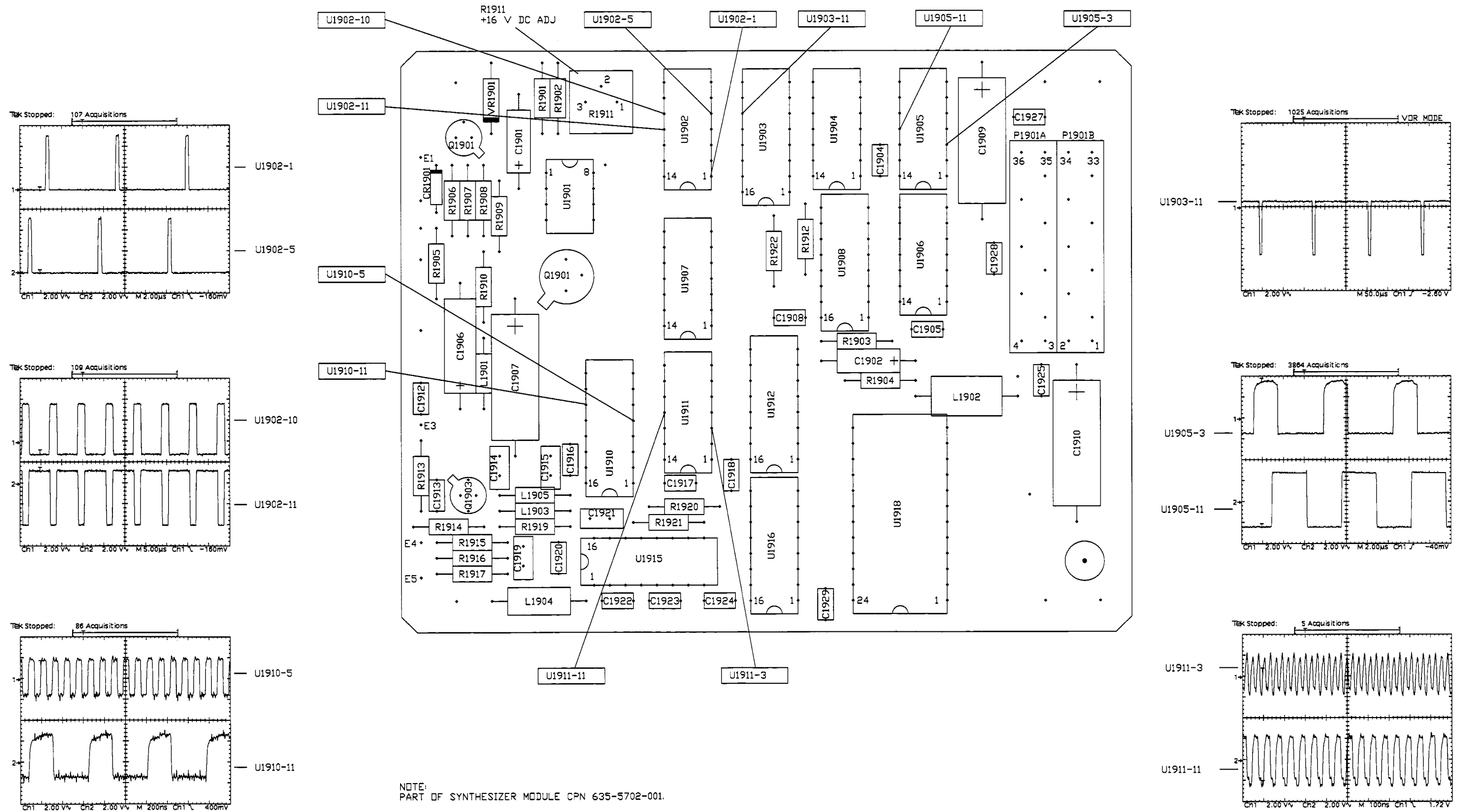
Page 198.223
Jul 15/95

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

DESCRIPTION/REASON: (Cont)

Sheet 1

RESISTOR	CARBON	METAL FILM
R1902	5600 Ω	5.62 k Ω
R1903	47 k Ω	47.5 k Ω
R1904	47 k Ω	47.5 k Ω
R1908	3300 Ω	3.32 k Ω
R1912	6800 Ω	6.81 k Ω
R1913	470 Ω	475 Ω
R1914	2200 Ω	2.21 k Ω
R1915	150 Ω	150 Ω
R1917	150 Ω	150 Ω
R1919	2200 Ω	2.21 k Ω
R1920	220 Ω	221 Ω
R1921	220 Ω	221 Ω
R1922	3300 Ω	3.32 k Ω



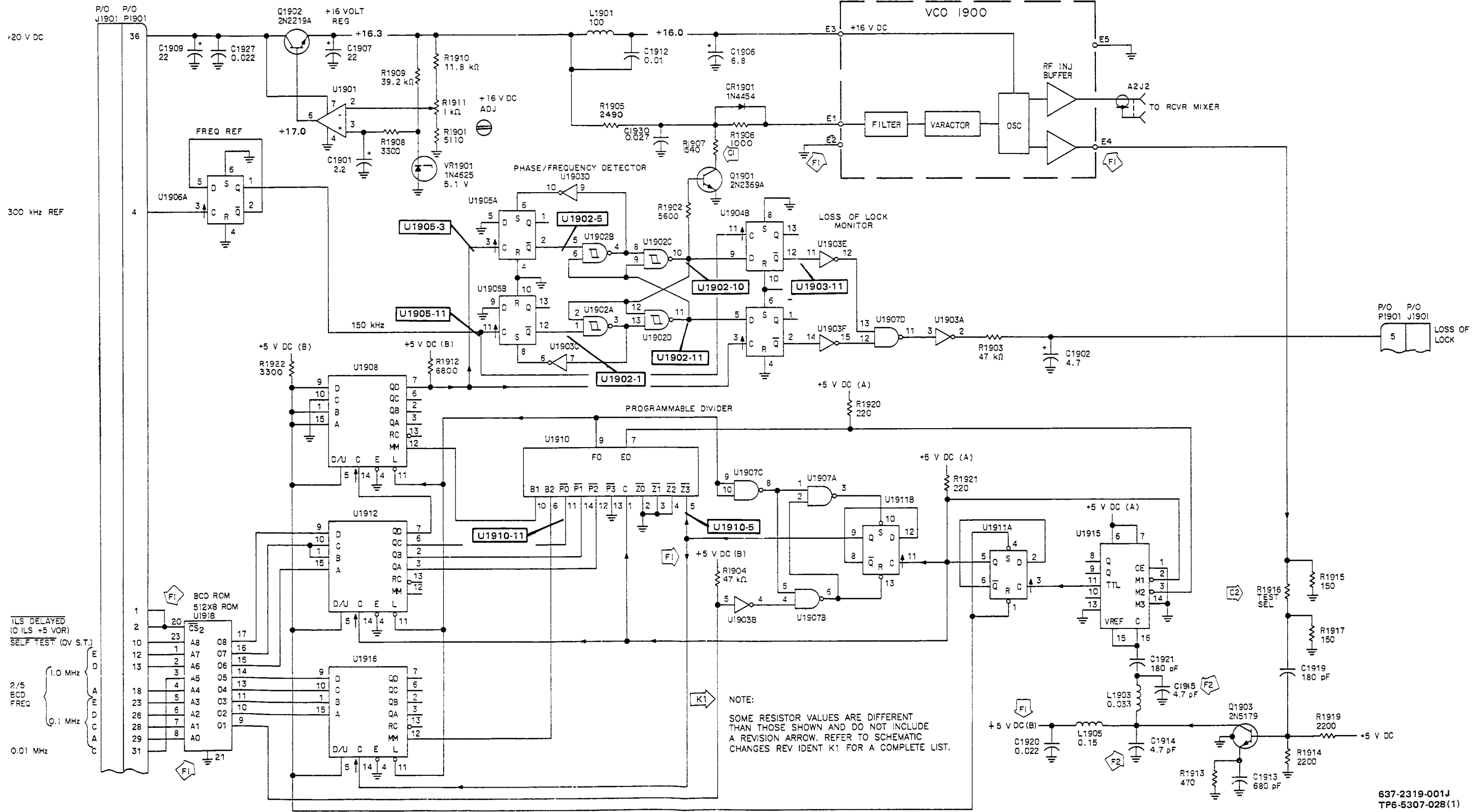
NOTE:
 PART OF SYNTHESIZER MODULE CPN 635-5702-001.

Glide Slope Synthesizer A19, Maintenance Aid Diagram
 Figure 185

34-35-10

642-4219-001H
 AD-4698-01-

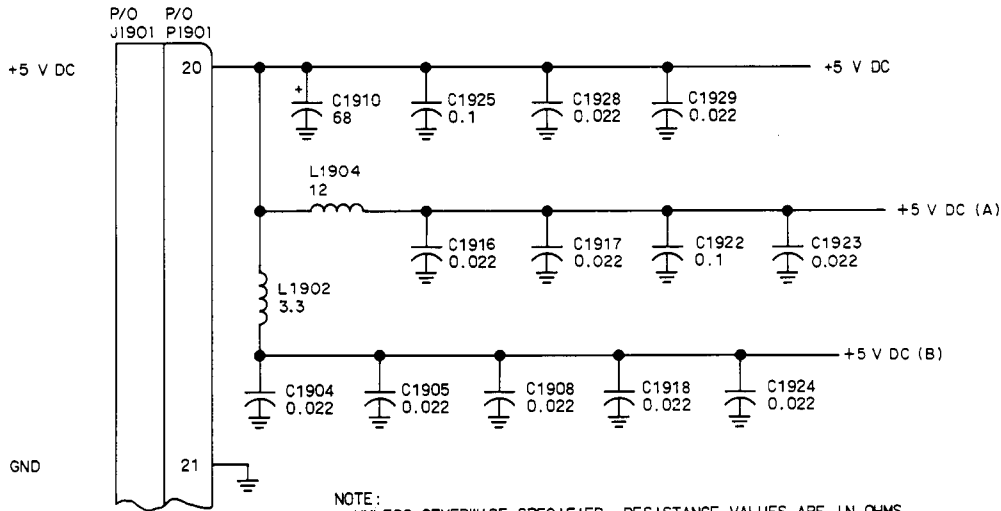
**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



Glide Slope Synthesizer A19, Schematic Diagram
 Figure 186 (Sheet 1 of 2)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTE:
 UNLESS OTHERWISE SPECIFIED; RESISTANCE VALUES ARE IN OHMS,
 CAPACITANCE VALUES ARE IN MICROFARADS, AND INDUCTANCE
 VALUES ARE IN MICROHENRYS.

POWER AND GROUND CONNECTIONS

U NO.	TYPE	POWER (V DC)			
		+5	+5(A)	+5(B)	GND
U1901	uA741				
U1902	CD4093 *			14	7
U1903	CD4049 *			1	8
U1904	CD4013 *			14	7
U1905	CD4013 *			14	7
U1906	CD4013 *			14	7
U1907	54LS00			14	7
U1908	54LS191			16	8
U1910	MC12514		16		8
U1911	54S74		14		7
U1912	54LS190			16	8
U1915	11C90		4,5		12
U1916	54LS190			16	8
U1918	512X8 ROM	24			12

C6

*CMOS/MOS DEVICE

637-2319
 TP6-5307-028

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: C1 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Added CMOS/MOS designation to IC chart.

REV IDENT and SHEET: C2 – NA

EFFECTIVITY: REV C (638-7622-001)

DESCRIPTION/REASON: Added R2237 and R2238, both 12.1 k Ω . Changed R2204, R2223 (3300 Ω) to 4640 Ω . Improves the performance of the equipment.

REV IDENT and SHEET: C3 – NA

EFFECTIVITY: REV G (638-7622-001, -002)

DESCRIPTION/REASON: Deleted VR2209 (1N4625) and R2228 (220 Ω). Improves performance of equipment.

REV IDENT and SHEET: C4 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Changed U2201A inverter designation to U2202A. Added jumper between E1 and E2, also added jumper from E5 to E6. Corrects errors in schematic.

REV IDENT and SHEET: D1 – NA

EFFECTIVITY: See SB 13

SERVICE BULLETIN: 13

DESCRIPTION/REASON: Added connection between C2208(+) and C2209. Performed only in field by SB 13 on 638-7622-001.

REV IDENT and SHEET: F1 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: Added note 3.

Serial Tune A22, Schematic Changes
Figure 187 (Sheet A)

34-35-10

Page 198.231
Jul 15/95

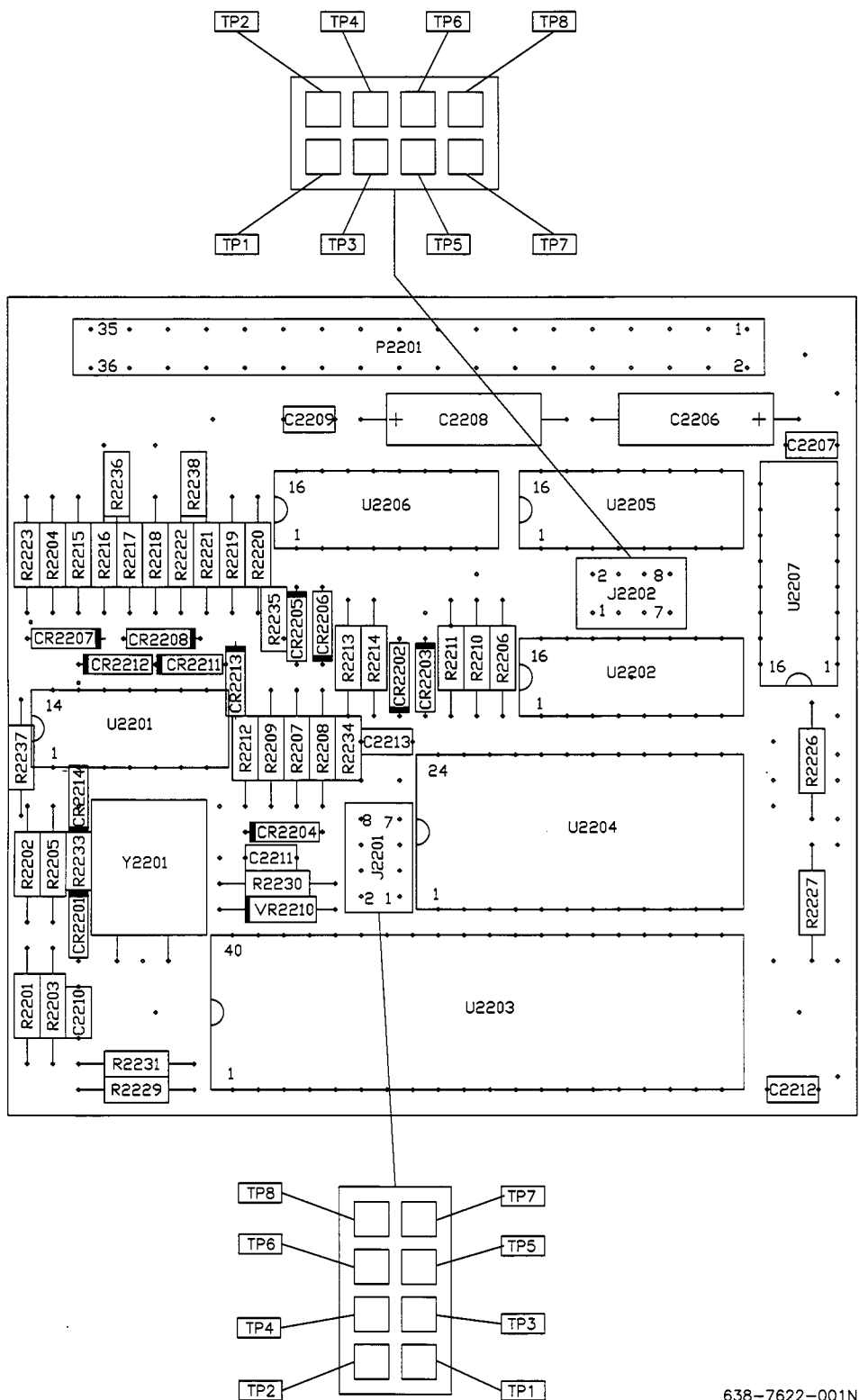
**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

REV IDENT and SHEET: F2 – NA

EFFECTIVITY: All models

DESCRIPTION/REASON: At U2201 microcircuit information box, pin 12 is shown connected to -12 V DC instead of ground to correct error.

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**

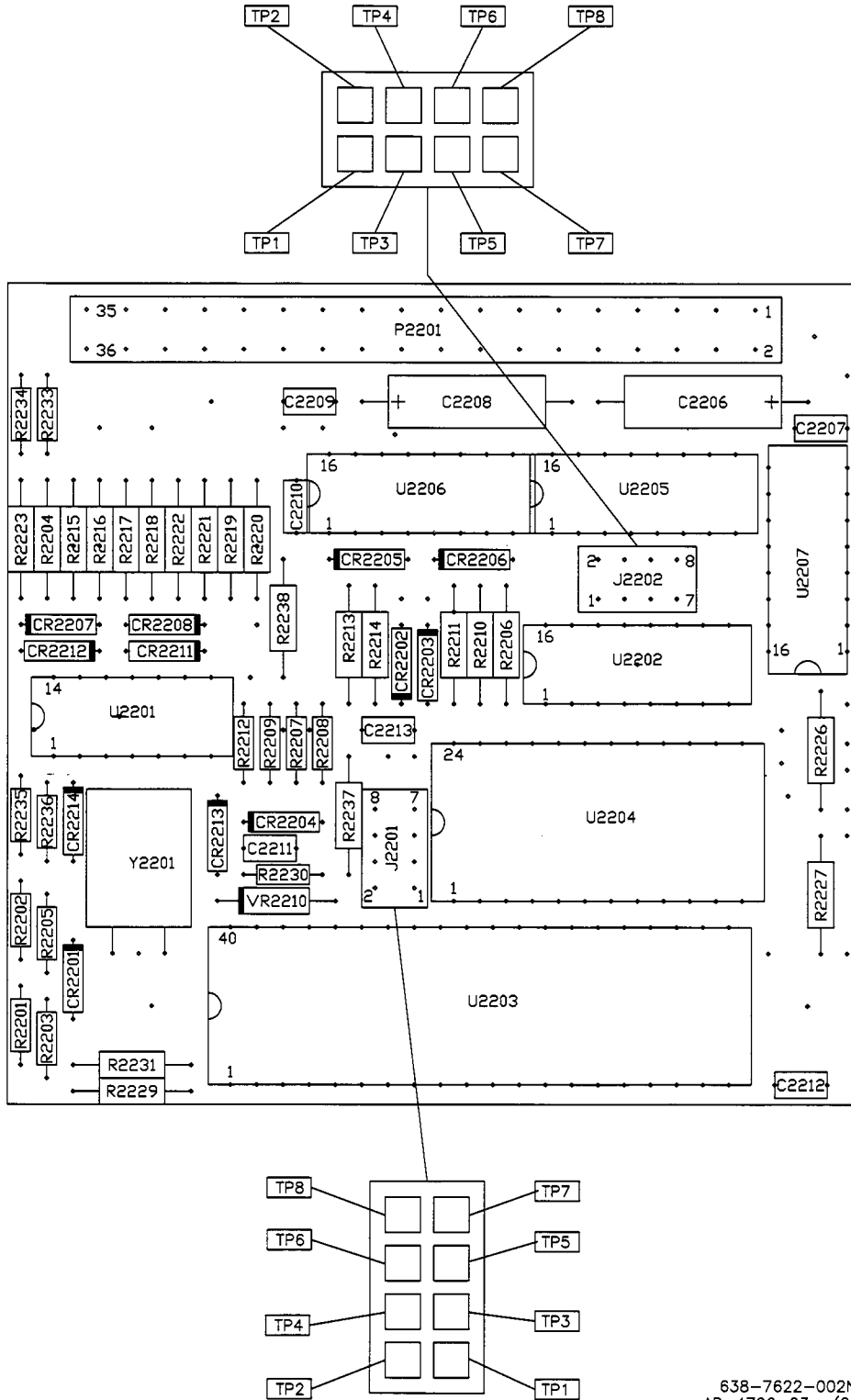


638-7622-001N
 AD-4706-03- (1)

Serial Tune A22 (CPN 638-7622-001), Maintenance Aid Diagram
 Figure 188 (Sheet 1 of 3)

34-35-10

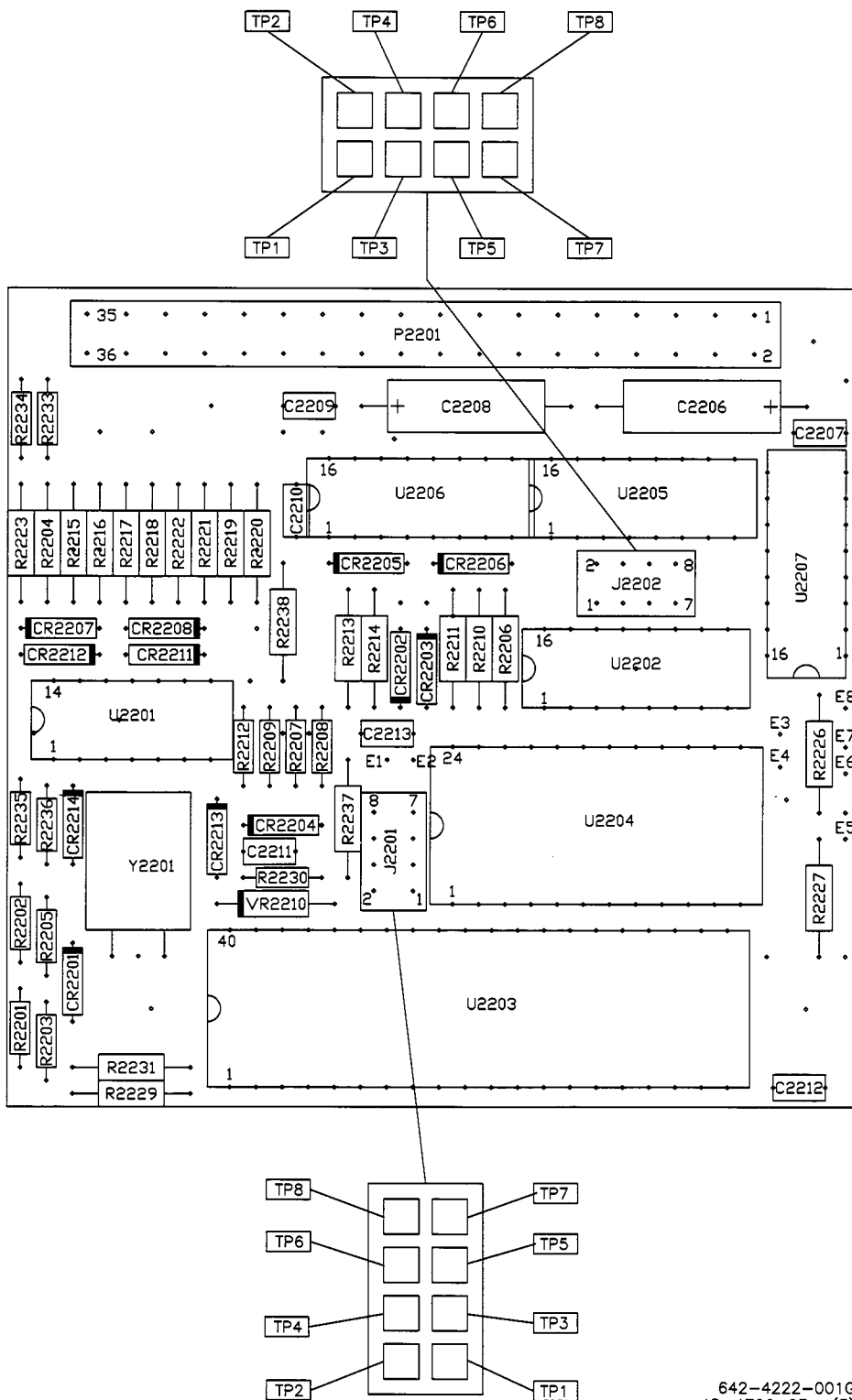
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



638-7622-002N
 AD-4706-03- (2)

Serial Tune A22 (CPN 638-7622-002), Maintenance Aid Diagram
 Figure 188 (Sheet 2)

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

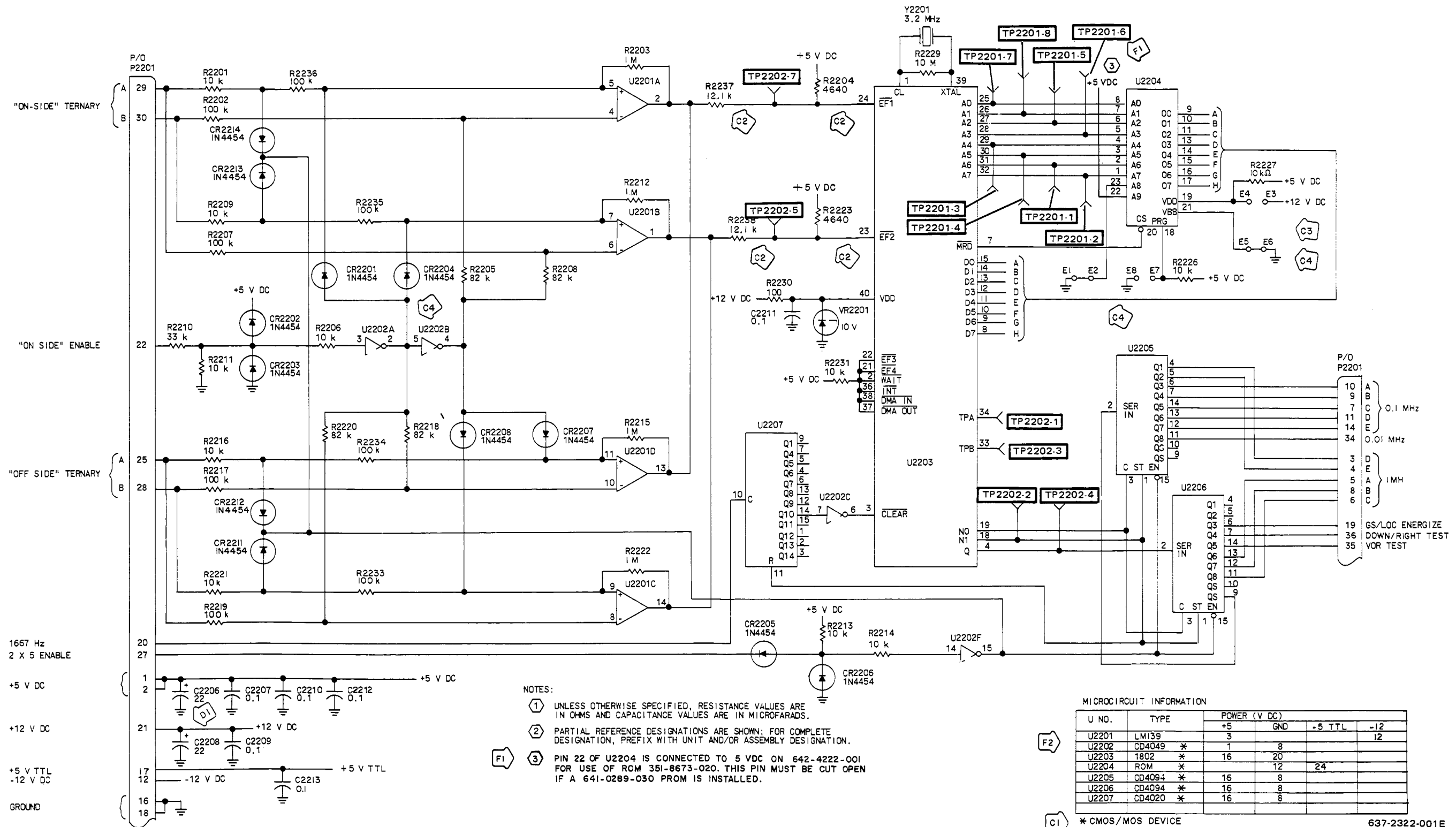


642-4222-001G
 AD-4706-03- (3)

Serial Tune A22 (CPN 642-4222-001), Maintenance Aid Diagram
 Figure 188 (Sheet 3)

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



NOTES:

- ① UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
- ② PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT AND/OR ASSEMBLY DESIGNATION.
- ③ PIN 22 OF U2204 IS CONNECTED TO 5 VDC ON 642-4222-001 FOR USE OF ROM 351-8673-020. THIS PIN MUST BE CUT OPEN IF A 641-0289-030 PROM IS INSTALLED.

MICROCIRCUIT INFORMATION

U NO.	TYPE	POWER (V DC)			
		+5	GND	-5 TTL	-12
U2201	LM139	3			12
U2202	CD4049 *	1	8		
U2203	1802 *	16	20		
U2204	ROM *		12	24	
U2205	CD4094 *	16	8		
U2206	CD4094 *	16	8		
U2207	CD4020 *	16	8		

F2 * CMOS/MOS DEVICE
 C1 637-2322-001E
 TP6-5335-018

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET: D1 – sheet 1

EFFECTIVITY: REV E (CPN 642-0571-001, -002)

DESCRIPTION/REASON: Added R11 (3.9 k Ω), R12 (39 k Ω), R13 (39 k Ω) and changed R4 (20 k Ω) to 6.81 k Ω to improve circuit operation.

REV IDENT and SHEET: D2 – sheet 1

EFFECTIVITY: REV F (CPN 642-0571-001, -002)

DESCRIPTION/REASON: Changed R11 (3.9 k Ω) to 2.7 k Ω , changed R12, R13 (39 k Ω) to 27 k Ω , changed R4 (6.81 k Ω) to 3.32 k Ω , changes made to improve circuit operation.

REV IDENT and SHEET: D3 – sheet 2

EFFECTIVITY: REV G (CPN 642-0571-001, -002) (New schematic added to show CPN 642-0571-001, -002 REV G and later, and CPN 642-4225-001, -002)

DESCRIPTION/REASON: Changed R12, R13 (27 k Ω) to 10 k Ω , changed Q6 (2N2907A) to 2N2222A.

Deleted R4 (3.32 k Ω) and R11 (2.7 k Ω). Added U4C to drive Q5-B. Connected Q3 and Q4 bases to Q6-C. Connected U5-5, 10 between Q6-C and +12 V; was connected between Q6-E and ground. Changes driving impedance for Q3 + Q4 to improve temperature stability of bearing output.

REV IDENT and SHEET: D4 – sheet 2

EFFECTIVITY: REV H (CPN 642-0571-001, -002)

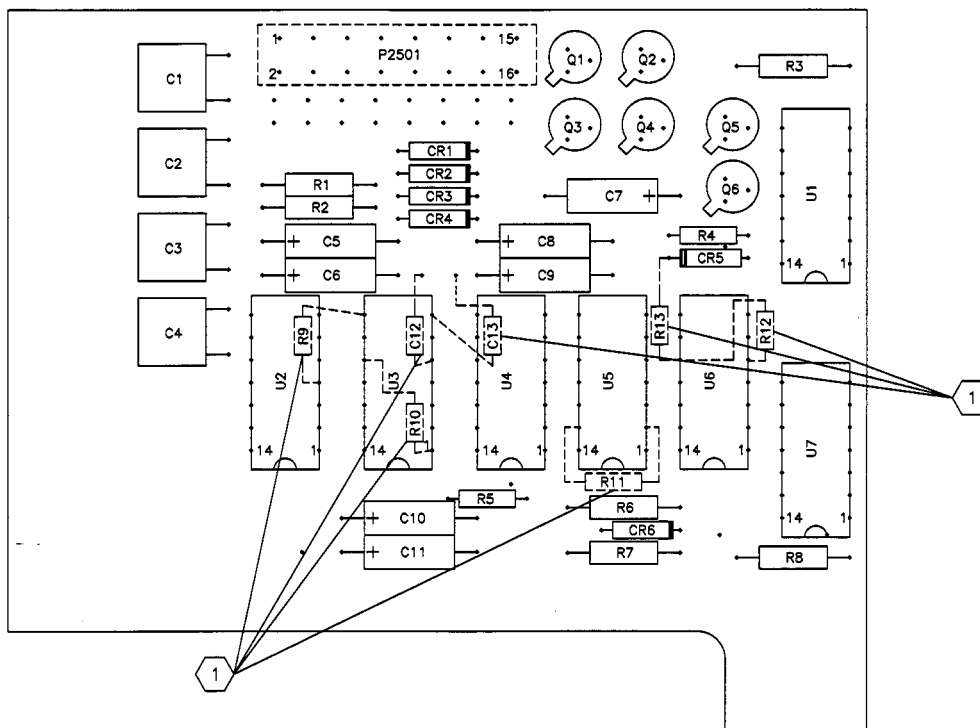
DESCRIPTION/REASON: Changed R1, R2 (10 k Ω) to 71.5 k Ω . Improves test time.

REV IDENT and SHEET: F1 – sheet 2

EFFECTIVITY: All models

DESCRIPTION/REASON: Deleted 2700- Ω resistor R11, which was never used in CPN 642-0571-001, -002 REV G or above, or in 642-4225-001, -002.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

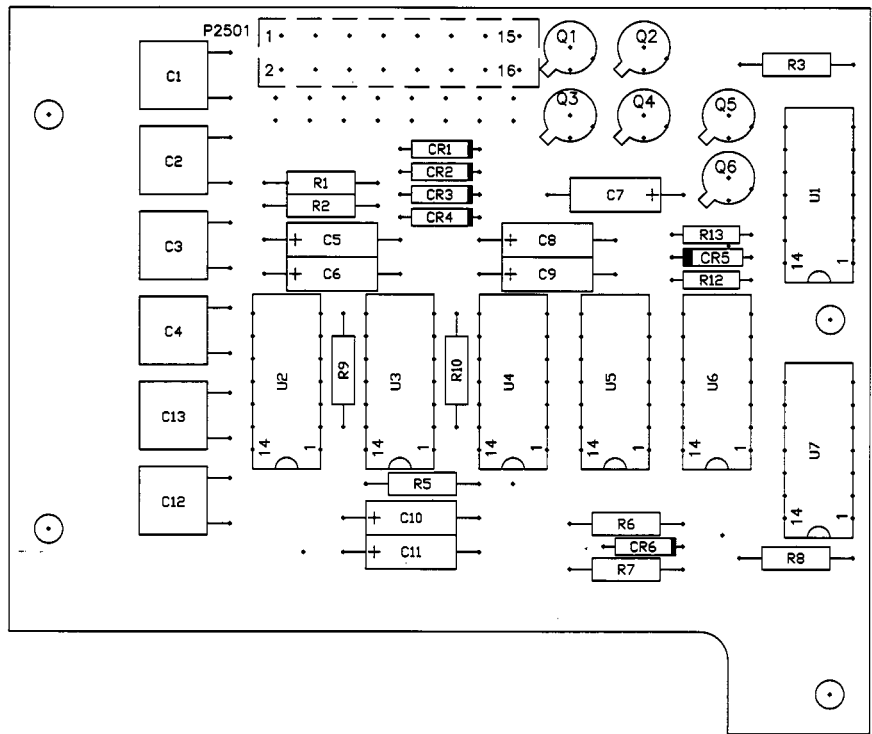


NOTE:

1 DASHED COMPONENTS LOCATED ON BACKSIDE OF BOARD.

642-0571-001J, -002J
 AD-4655-01-

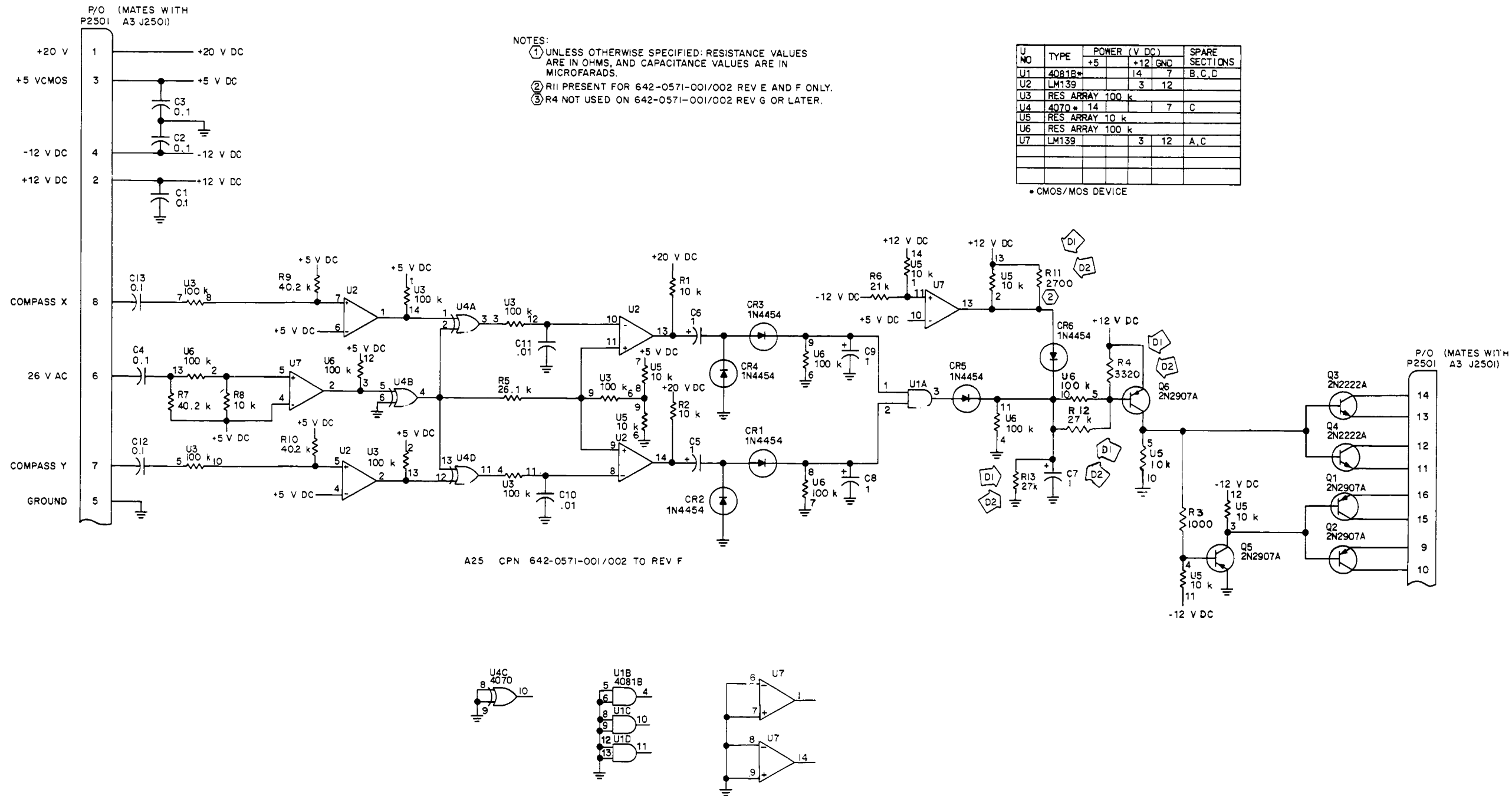
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



642-4225-001E,-002E
 AD-4693-01-

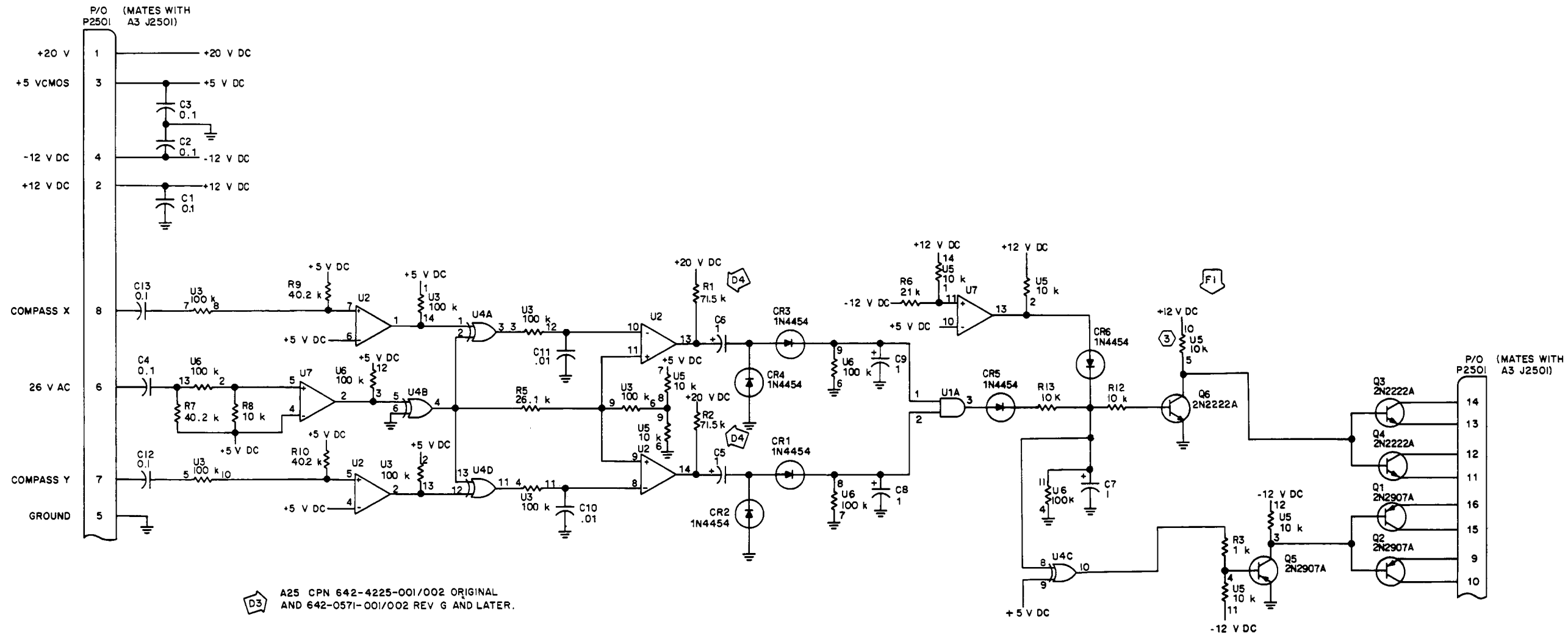
RMI Power Monitor A25 (CPN 642-4225-001, -002), Maintenance Aid Diagram
 Figure 191 (Sheet 2)

**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**



RMI Power Monitor A25 (CPN 642-0571-001, -002 and 642-4225-001, -002), Schematic Diagram Figure 192 (Sheet 1 of 2)

**COLLINS AIR TRANSPORT DIVISION
 COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255**



637-2325-001E
 TP6-6990-028(2)

RMI Power Monitor A25 (CPN 642-0571-001, -002 and 642-4225-001, -002), Schematic Diagram Figure 192 (Sheet 2)

34-35-10

Pages 198.249/198.250
 Jul 15/95

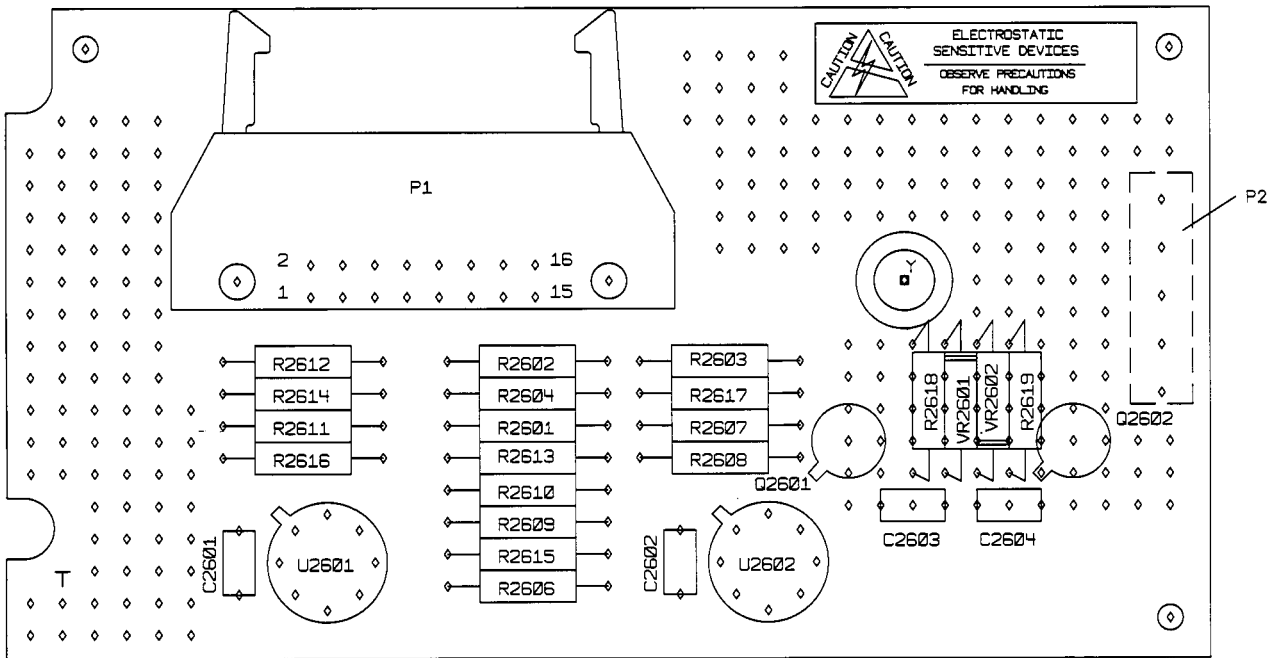
**COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255**

REV IDENT and SHEET:

EFFECTIVITY:

DESCRIPTION/REASON: This space will contain schematic revision history information.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

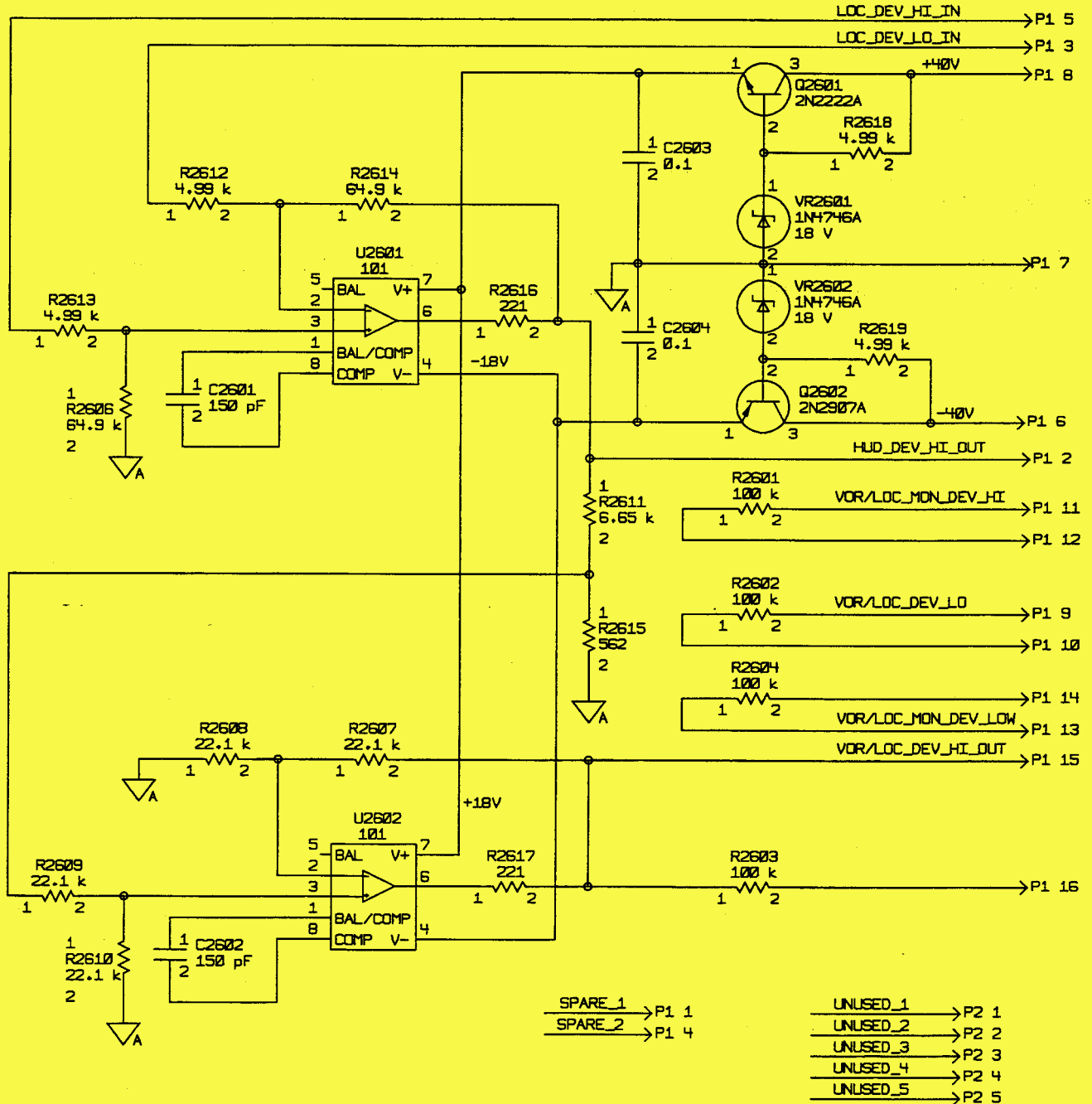


828-0173-001B

Heads Up Display Driver A26, Maintenance Aid Diagram
 Figure 194

34-35-10

ROCKWELL COLLINS AIR TRANSPORT SYSTEMS
COMPONENT MAINTENANCE MANUAL Volume 2
 51RV-4()/5() VOR/ILS Navigation Receiver, PART NO 622-3255



Heads Up Display Driver A26, Schematic Diagram (Partial)
 Figure 195

(828-5173-001B)
 TPE4286_01

51RV-4()/5() VOR/ILS Navigation Receiver
COMPONENT MAINTENANCE MANUAL (Vol 2) (523-0777753)

TEMPORARY REVISION NO. 34-35-10-08

Insert facing pages 198.253/198.254, 34-35-10

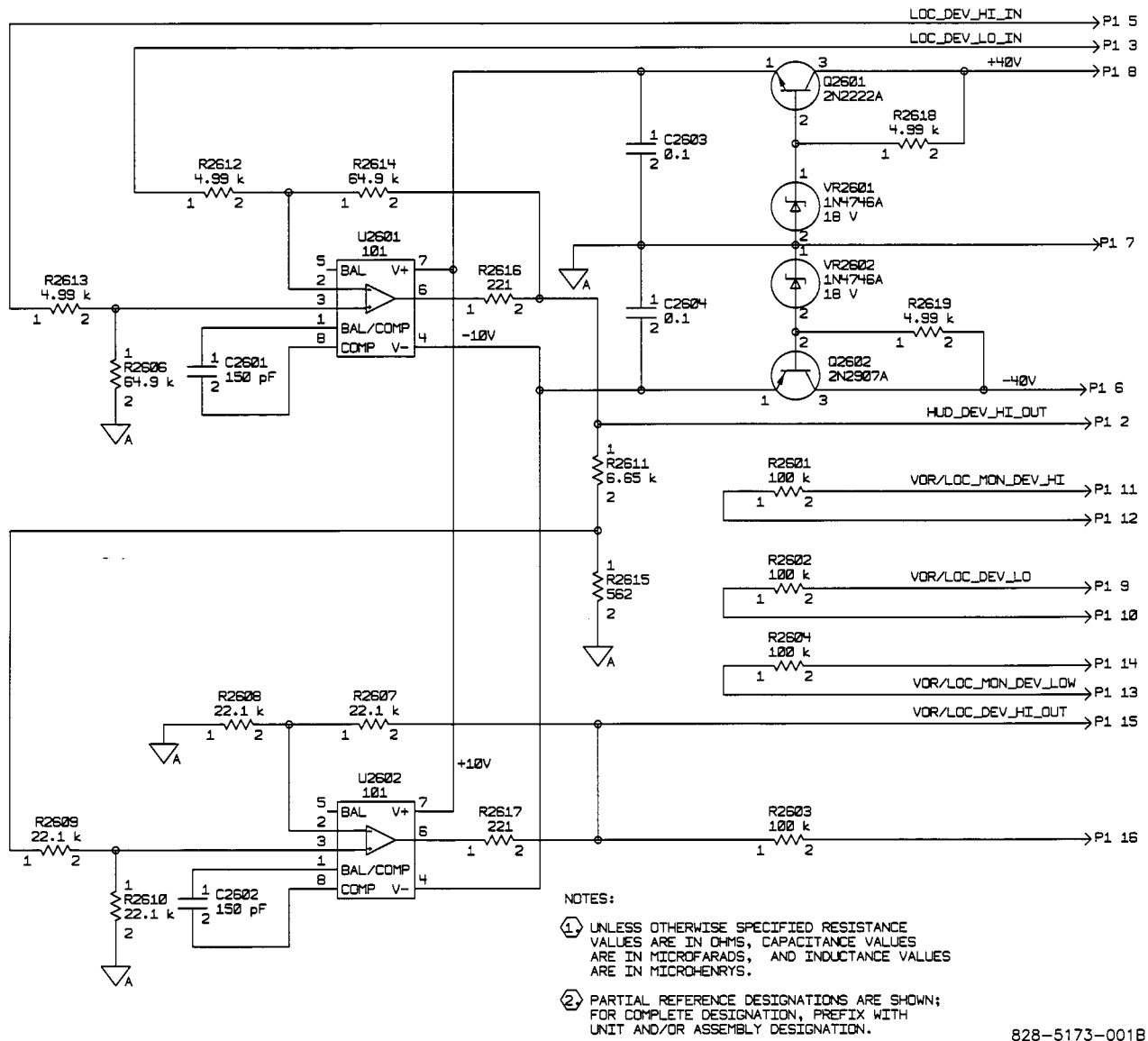
This temporary revision supersedes Temporary Revision 34-35-10-07

Subject: Correct Schematics

Replace Heads Up Display Driver A26, Schematic Diagram, Figure 195 with the illustration shown on page 6 of this temporary revision.

The revised schematic calls out the correct supply voltages for U2601 and U2602. Pin 7 on these ICs receive +18 V dc and pin 4 on these ICs receive -18 V dc.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



Heads Up Display Driver A26, Schematic Diagram
 Figure 195

34-35-10

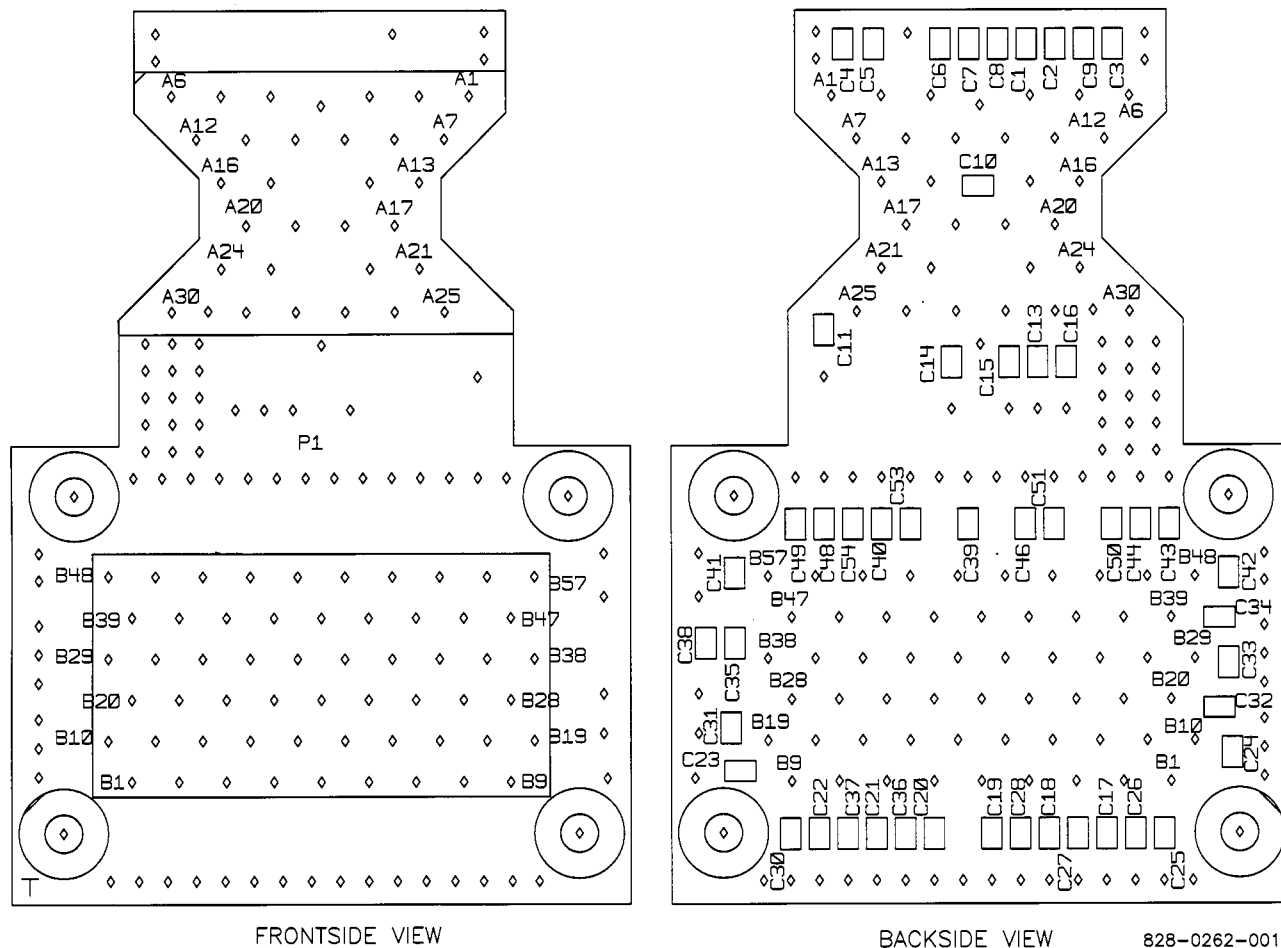
COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
51RV-4()/5() VOR/ILS Navigation Receiver
PART NO 622-3255

REV IDENT and SHEET:

EFFECTIVITY:

DESCRIPTION/REASON: This space will contain schematic revision history information.

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255

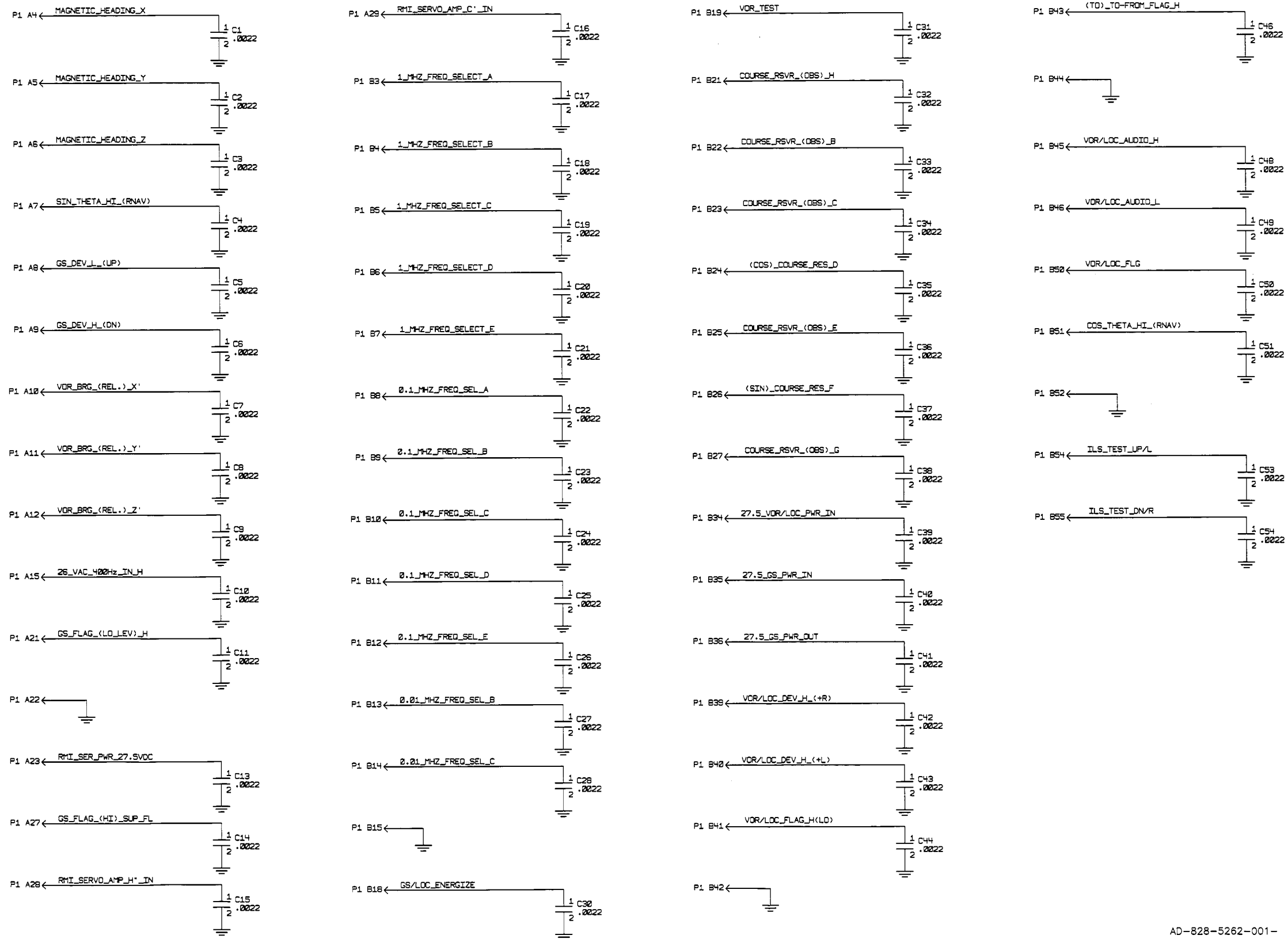


828-0262-001B
 AD-4690-01-

EMI Suppression Filter A30, Maintenance Aid Diagram
 Figure 197

34-35-10

COLLINS AIR TRANSPORT DIVISION
COMPONENT MAINTENANCE MANUAL, VOLUME 2
 51RV-4()/5() VOR/ILS Navigation Receiver
 PART NO 622-3255



AD-828-5262-001-

EMI Suppression Filter A30, Schematic Diagram
 Figure 198