

Honeywell

***COMPONENT MAINTENANCE
MANUAL***

BENDIX/KING[®]

KLN 90B

GPS NAVIGATION SYSTEM

*MANUAL NUMBER 006-15521-0003
REVISION 3 APRIL, 2006*

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Component Maintenance Manual with Illustrated Parts List

006-15521-0003

KLN 90B
GPS NAVIGATION SYSTEM
Part Number 066-04031-()

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NOTE

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REVISION HIGHLIGHTS

006-15521-0003 Rev. 3

Apr/2006

This is a complete reprint. All pages are revised and reformatted. Specific changes to content are denoted by change bars.

The Illustrated Parts List (IPL) has been updated and reflects current information. No change bars are used in this section. Refer to the [SCHEMATIC DIAGRAMS](#) section for specific changes to individual PC boards (CCAs) as applicable.

Revision highlight(s) include the removal of NVG unit versions.

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The Service Bulletins listed below have been incorporated in this manual.

SERVICE/SOFTWARE BULLETIN NUMBER (Honeywell No.)	MANUAL REVISION NUMBER	MANUAL REVISION DATE	EFFECTIVITY/COMMENTS
SB KLN 90B-1	3	Apr/2006	-1X21/-1X22, S/N 26740 -2X21/-2X22, S/N 81632
SB KLN 90B-2	3	Apr/2006	See Service Bulletin
SB KLN 90B-3	3	Apr/2006	See Service Bulletin
SB KLN 90B-4	3	Apr/2006	See Service Bulletin
SB KLN 90B-5	3	Apr/2006	See Service Bulletin
SWB KLN 90B-SW1	3	Apr/2006	-1121/-1221/-1321/-1421, S/N 24382 -2121/-2221/-2321/-2421, S/N 80950
SWB KLN 90B-SW2	3	Apr/2006	-1121/-1221/-1321/-1421, S/N 25821 -2121/-2221/-2321/-2421, S/N 81440
SWB KLN 90B-SW3	3	Apr/2006	-1421 Any S/N (SW mod level 21/09)
SWB KLN 90B-SW4	3	Apr/2006	-1121/-1221/-1321/-1421/-1521/-1621, S/N 27146 -2121/-2221/-2321/-2421, S/N 82063
SB KLN 90B-M1	3	Apr/2006	See Service Bulletin
SB KLN 90B-M2	3	Apr/2006	-1121/-1221/-1321/-1421, All S/N -2121/-2221/-2321/-2421, All S/N

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

THIS PAGE IS RESERVED

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Title Page	*	T-1	Apr/2006
Proprietary Notice	*	PN-1	Apr/2006
Revision Highlights	*	RH-1	Apr/2006
	*	RH-2	Apr/2006
Record of Revisions	*	RR-1	Apr/2006
	*	RR-2	Apr/2006
Service Bulletin List	*	SB-1	Apr/2006
	*	SB-2	Apr/2006
List of Effective Pages	*	LEP-1	Apr/2006
	*	LEP-2	Apr/2006
	*	LEP-3	Apr/2006
	*	LEP-4	Apr/2006
	*	LEP-5	Apr/2006
	*	LEP-6	Apr/2006
	*	LEP-7	Apr/2006
	*	LEP-8	Apr/2006
	*	LEP-9	Apr/2006
	*	LEP-10	Apr/2006
	*	LEP-11	Apr/2006
	*	LEP-12	Apr/2006
Table of Contents	*	TC-1	Apr/2006
	*	TC-2	Apr/2006
	*	TC-3	Apr/2006
	*	TC-4	Apr/2006
	*	TC-5	Apr/2006
	*	TC-6	Apr/2006
	*	TC-7	Apr/2006
	*	TC-8	Apr/2006
	*	TC-9	Apr/2006
	*	TC-10	Apr/2006
	*	TC-11	Apr/2006
	*	TC-12	Apr/2006
Introduction	*	INTRO-1	Apr/2006
Description and Operation	*	0	Apr/2006
	*	1	Apr/2006
	*	2	Apr/2006
	*	3	Apr/2006
	*	4	Apr/2006

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Description and Operation (cont).	*	5	Apr/2006
	*	6	Apr/2006
	*	7	Apr/2006
	*	8	Apr/2006
	*	9	Apr/2006
	*	10	Apr/2006
	*	11	Apr/2006
	*	12	Apr/2006
	*	13	Apr/2006
	*	14	Apr/2006
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		46	Blank
	F *	47	Apr/2006
		48	Blank
	F *	49	Apr/2006

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Description and Operation (cont).		50	Blank	
	F	*	51	Apr/2006
			52	Blank
	F	*	53	Apr/2006
			54	Blank
	F	*	55	Apr/2006
			56	Blank
Testing and Fault Isolation		*	1001	Apr/2006
		*	1002	Apr/2006
		*	1003	Apr/2006
		*	1004	Apr/2006
		*	1005	Apr/2006
		*	1006	Apr/2006
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		*	1017	Apr/2006
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		*	1019	Apr/2006
		*	1020	Apr/2006
		*	1021	Apr/2006
		*	1022	Apr/2006
		*	1023	Apr/2006
		*	1024	Apr/2006
		*	1025	Apr/2006
		*	1026	Apr/2006
		*	1027	Apr/2006
		*	1028	Apr/2006
		*	1029	Apr/2006
		*	1030	Apr/2006
		*	1031	Apr/2006
		*	1032	Apr/2006
		*	1033	Apr/2006
		*	1034	Apr/2006
		*	1035	Apr/2006
		*	1036	Apr/2006
		*	1037	Apr/2006

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Testing and Fault Isolation (cont).	*	1038	Apr/2006	
	*	1039	Apr/2006	
	*	1040	Apr/2006	
	*	1041	Apr/2006	
	*	1042	Apr/2006	
Schematics	*	2001	Apr/2006	
	*	2002	Apr/2006	
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	F	*	2019	Apr/2006
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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Schematics (cont).

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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Schematics (cont).	F	*	2085	Apr/2006
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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Schematics (cont).

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Disassembly

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*	3004	Apr/2006

Cleaning

*	4001	Apr/2006
*	4002	Apr/2006

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Cleaning (cont).	*	4003	Apr/2006	
	*	4004	Apr/2006	
	*	4005	Apr/2006	
	*	4006	Apr/2006	
Check	*	5001	Apr/2006	
	*	5002	Apr/2006	
	*	5003	Apr/2006	
	*	5004	Apr/2006	
Repair	*	6001	Apr/2006	
	*	6002	Apr/2006	
	*	6003	Apr/2006	
	*	6004	Apr/2006	
	*	6005	Apr/2006	
	*	6006	Apr/2006	
	*	6007	Apr/2006	
	*	6008	Apr/2006	
Assembly	*	7001	Apr/2006	
	*	7002	Apr/2006	
	*	7003	Apr/2006	
	*	7004	Apr/2006	
	*	7005	Apr/2006	
	*	7006	Apr/2006	
Special Tools, Fixtures and Equipment	*	9001	Apr/2006	
	*	9002	Apr/2006	
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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Illustrated Parts List (cont).	F	*	10009	Apr/2006
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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Illustrated Parts List (cont).

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Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Illustrated Parts List (cont).	*	10099	Apr/2006
	*	10100	Apr/2006
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	*	10109	Apr/2006
	*	10110	Apr/2006
Storage	*	15001	Apr/2006
	*	15002	Apr/2006

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

THIS PAGE IS RESERVED

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

TABLE OF CONTENTS

<u>ITEM</u>		<u>PAGE</u>
	<u>DESCRIPTION AND OPERATION</u>	
1.	General	1
	A. Purpose of Equipment	1
	B. Equipment Part Numbers	1
	C. Related Publications	1
	D. Lithium Battery Disposal	2
	E. ESDS Devices	2
2.	Configurations Available	4
3.	Leading Particulars	5
	A. KLN 90B GPS Navigation Receiver	5
	B. Environmental Certification	5
4.	Brief Description of Equipment	9
	A. Mechanical Description	9
	B. Electrical Description	9
5.	Theory of Operation	11
	A. Block Diagram Theory	11
	B. Detailed Theory	18
	<u>TESTING AND TROUBLESHOOTING</u>	
1.	General	1001
2.	Test Equipment Required	1001
3.	Functional Test Procedures	1001
	A. Purpose	1001
	B. Functional Test Procedures	1002
4.	Simulated ATLAS Functional Test Procedures	1022
5.	Troubleshooting Procedures	1022

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
6.	Alignment Procedures	1023
A.	General	1023
B.	Pre-alignment Set-up Procedures	1023
C.	Power Supply Alignment	1024
D.	Display Alignment	1024
E.	Real Time Clock	1026
F.	D-BAR Output Calibration	1027
G.	ARINC 429	1028
H.	RS-232	1029
I.	RMI Alignment	1029
7.	Retest Procedure	1030
8.	Service Information	1030
A.	Proper Test Equipment Usage	1030
B.	Capacitor Checking	1030
C.	Transistor Testing	1031
D.	Integrated Circuits	1033
E.	Test Points	1042
F.	Summary of Unit Modifications	1042
G.	Schematic Diagram and Summary of Changes	1042

SCHEMATIC DIAGRAMS

1.	General	2001
2.	Summary of Unit Changes	2001
3.	Summary of Changes and Schematic Diagrams	2001

DISASSEMBLY

1.	General	3001
2.	Recommended Disassembly Procedures	3001
A.	Unit Cover Removal and Disassembly	3001

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
B.	Logic/Power Supply Board Removal and Disassembly	3001
C.	RF Board Assembly Removal and Disassembly	3002
D.	Interface Board Removal and Disassembly	3002

CLEANING

1.	General	4001
2.	Recommended Cleaning Agents	4001
3.	Recommended Cleaning Procedures	4002
A.	Exterior	4002
B.	Interior	4002

CHECK

1.	General	5001
2.	Inspection Procedures	5001
A.	Cover	5001
B.	Front Panel	5001
C.	Chassis	5001
D.	Hardware, Covers and Shields	5001
E.	Circuit Boards	5001
F.	Connectors	5001
G.	Terminal Connections	5002
H.	Terminal Connections, Soldered	5002
I.	Wiring	5002
J.	Capacitors	5002
K.	Resistors and Diodes	5002
L.	Filters and Inductors	5002
M.	Transformers	5002
N.	Transistors and Integrated Circuits	5002
O.	Rotary Switches	5003
P.	Insulators	5003

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

ITEM

PAGE

REPAIR

1.	General	6001
2.	Repair Procedures	6001
	A. Repair Precautions	6001
	B. Electrostatic Discharge Sensitive (ESDS) Devices	6002
	C. PC Board, Two-Lead Component Removal	6005
	D. PC Board, Multi-Lead Component Removal	6006
	E. Replacement of Power Transistors	6006
	F. Replacement of Printed Circuit Board Protective Coating	6007
	G. Programmable Read Only Memory (PROM) Replacement	6007

ASSEMBLY

1.	General	7001
2.	Materials Required For Assembly	7001
3.	Recommended Reassembly Procedures	7002
	A. GPS Receiver Module Reinstallation	7002
	B. Cathode-Ray Tube (CRT) Reassembly	7002
	C. Power Supply Module Reassembly	7003
	D. Front Panel Reassembly	7003
	E. Main Module Reassembly	7004
	F. Unit Cover Replacement (Bottom)	7004
	G. Data Base Cartridge Replacement	7005

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1.	General	9001
2.	Equipment Required For Test	9001

ILLUSTRATED PARTS LIST

1.	General	10001
----	---------------	-------

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
2.	Revision Service	10001
3.	List of Abbreviations	10001
4.	Typical Parts List	10002

STORAGE

1.	General	15001
2.	Storage Procedures	15001
A.	Short-Term Storage	15001
B.	Long-Term Storage	15001

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

THIS PAGE IS RESERVED

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
Figure 1	KLN 90B GPS	0
Figure 2	ESDS Device Labels and Symbols	3
Figure 3	D0-160B/C Environmental Certification Categories	6
Figure 4	KLN 90B Host Computer Memory Organization	23
Figure 5	Database Memory Select Truth Tables	38
Figure 6	PC Module and Assembly Designations (KLN 90B)	45
Figure 7	KLN 90B Block Diagram	49
Figure 8	KLN 90B Host Computer Block Diagram	51
Figure 9	KLN 90B Display Driver Diagram	53
Figure 10	CRT Controller Timing Characteristics	55
Figure 1001	Display Alignment Page	1025
Figure 1002	Integrated Circuit Diagrams	1036
Figure 2001	KLN 90B Outline Drawing	2005
Figure 2002	KLN 90B Connector Pin Function Diagram	2007
Figure 2003	KLN 90B Final Assembly	2009
Figure 2004	KLN 90B Final Assembly Upgrade	2021
Figure 2005	Front Panel Module	2035
Figure 2006	Front Panel Module Schematic Diagram	2039
Figure 2007	Main Module	2043
Figure 2008	Main Module Schematic Diagram	2063
Figure 2009	Main Module KLN 90A Upgrade	2091
Figure 2010	Main Module (KLN 90A Upgrade) Schematic Diagram	2095
Figure 2011	Power Supply Module	2109
Figure 2012	Power Supply Module Schematic Diagram	2111
Figure 2013	Power Supply Module (KLN 90A Upgrade)	2117
Figure 2014	Power Supply Module (KLN 90A Upgrade) Schematic Diagram ...	2119

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
Figure 2015	Power Supply Adapter Module (KLN 90A Upgrade)	2123
Figure 2016	Power Supply Adapter (KLN 90A Upgrade) Schematic Diagram ..	2125
Figure 2017	Battery Module	2129
Figure 2018	Battery Module Schematic Diagram	2131
Figure 2019	OBS Adapter Module (KLN 90A Upgrade)	2135
Figure 2020	OBS Adapter Module (KLN 90A Upgrade) Schematic Diagram	2137
Figure 2021	Receiver Module (-0000)	2143
Figure 2022	Receiver Module (-0010)	2147
Figure 2023	Receiver Module Schematic Diagram (-0000)	2149
Figure 2024	Receiver Module Schematic Diagram (-0010)	2161
Figure 9001	KI 229 Magnetic Indicator	9002
Figure 9002	KLN 90B Test Harness	9003
Figure 9003	KLN 90B Test Fixture	9009
Figure 10001	Typical Parts List	10003
Figure 10002	KLN 90B Final Assembly	10005
Figure 10003	KLN 90B Final Assembly Upgrade	10009
Figure 10004	KLN 90B Chassis Assembly	10025
Figure 10005	KLN 90B Front Panel Assembly	10029
Figure 10006	Front Panel Module	10033
Figure 10007	Main Module	10039
Figure 10008	Main Module KLN 90A Upgrade	10065
Figure 10009	Power Supply Module	10085
Figure 10010	Power Supply Module (KLN 90A Upgrade)	10089
Figure 10011	Power Supply Adapter Module (KLN 90A Upgrade)	10093
Figure 10012	Battery Module	10097
Figure 10013	OBS Adapter Module (KLN 90A Upgrade)	10101

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
Figure 10014	Receiver Module (-0000)	10105
Figure 10015	Receiver Module (-0010)	10107

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

THIS PAGE IS RESERVED

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

<u>ITEM</u>		<u>PAGE</u>
Table 1	Related Publications	1
Table 2	KLN90B Configurations Available	4
Table 3	KLN90B Leading Particulars	5
Table 4	PC Module and Assembly Designations	10
Table 1001	Lighting Bus Voltages	1010
Table 1002	PNP Transistor Testing Procedure	1032
Table 1003	NPN Transistor Testing Procedure	1032
Table 1004	54/74 Series IC Alpha Character Significance	1034
Table 1005	Index to Integrated Circuit Diagrams	1035
Table 4001	Recommended Cleaning Agents	4001
Table 4002	Unsafe Solvents	4003
Table 7001	Sealants and Staking Compounds	7001
Table 9001	Test Equipment Required	9001
Table 10001	Abbreviations	10001

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

THIS PAGE IS RESERVED

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop repair.

This manual is divided into separate sections:

- | | |
|----------------------------|-------------------------------|
| 1. Title | 5. Introduction |
| 2. Record of revisions | 6. Description and Operation |
| 3. List of effective pages | 7. Test and repair procedures |
| 4. Table of contents | 8. IPL section |

Refer to the [TABLE OF CONTENTS](#) for the page location of applicable sections. An asterisked flagnote [*] in place of the page number indicates that no special instructions are provided for functions performed by standard industry practices.

An explanation of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements in the manual are in English units, unless otherwise stated.

The manual will be revised as necessary to reflect current information.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL



Figure 1 KLN 90B GPS

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

DESCRIPTION AND OPERATION

1. General

This section contains information relative to maintenance or repair procedures of Honeywell's BENDIX/KING KLN 90B Global Positioning System (GPS) Navigation Receiver, hereafter referred to as the KLN 90B, the global positioning system (GPS), or by its full nomenclature. The KLN90B Global Positioning System is shown in [Figure 1 KLN 90B GPS](#).

A. Purpose of Equipment

The purpose of the GPS navigation receiver is to provide the pilot with the aircraft's present position and guidance information. The present position information is processed by the KLN90B to determine crosstrack error, distance-to-waypoint, ground speed, track angle, time to waypoint, bearing to waypoint and advisory VNAV guidance.

An internal data base provides the KLN90B with information concerning airport, VORs, NDBs, intersections, outer markers, SIDs, STARS, and GPS non-precision approaches throughout the world. Waypoints are stored in the data base by their ICAO identifiers. The ICAO identifiers are, in most cases, taken directly from Jeppesen Sanderson or government aeronautical charts. This data base allows the pilot to create flight plans with a minimum of effort. The data base is contained in a removable data base cartridge.

B. Equipment Part Numbers

Honeywell part numbers assigned to the various configurations of the KLN90B GPS are given in [Table 2 KLN90B Configurations Available](#).

C. Related Publications

[Table 1 Related Publications](#) lists related publications for the KLN90B GPS Unit.

PUBLICATION	HONEYWELL IDENTIFICATION NUMBER	ATA IDENTIFICATION NUMBER
KLN90B GPS Navigation System System Maintenance Manual	006-10501-(XXXX)	N.A.

Table 1 Related Publications

D. Lithium Battery Disposal

CAUTION: UNDER NO CIRCUMSTANCES SHOULD LITHIUM BATTERIES BE CRUSHED, PIERCED OR INCINERATED IN OTHER THAN A SPECIALLY DESIGNED FURNACE. DISCHARGED OR UNWANTED BATTERIES WHICH SHOW NO SIGN OF PHYSICAL DAMAGE SHOULD HAVE ANY EXPOSED ELECTRICAL CONNECTIONS INSULATED AND SHOULD BE DISPOSED OF AS HAZARDOUS MATERIAL. IN THE EVENT THAT A LITHIUM BATTERY SHOULD BE DAMAGED SUCH THAT IT LEAKS A FLUID, REMOVE THE BATTERY TO A WELL VENTILATED AREA UNTIL THE ODOR HAS DISAPPEARED AND USE COPIOUS AMOUNTS OF WATER TO WASH AWAY THE EXTREMELY CORROSIVE ELECTROLYTE. AT ANY ONE TIME, UP TO FIVE OF THE BUTTON TYPE LITHIUM BATTERIES MAY BE DISPOSED OF WITH DOMESTIC RUBBISH.

E. ESDS Devices

CAUTION: THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. ALL MODULES CONTAINING ESDS DEVICES ARE FLAGGED OR IDENTIFIED ON SCHEMATICS AND ASSEMBLY ILLUSTRATIONS, AND ARE INDIVIDUALLY IDENTIFIED IN THE PARTS LIST. ALL ESDS DEVICES, INCLUDING UNIT MODULES AND INDIVIDUAL ESDS DEVICES, MUST BE HANDLED IN ACCORDANCE WITH SPECIAL ESDS HANDLING PROCEDURES OUTLINED IN THE [REPAIR](#) SECTION OF THIS MANUAL. FAILURE TO DO SO CAN RESULT IN DAMAGE TO ESDS DEVICES. THIS DAMAGE TYPICALLY RESULTS IN DEGRADED PERFORMANCE OR PREMATURE FAILURE, NOT IN CATASTROPHIC FAILURE AT THE TIME EXPERIENCED.

CAUTION: ESDS DEVICES INCLUDE, BUT ARE NOT LIMITED TO, CMOS, J-MOS, PMOS, NMOS, SOCMOS, HMOS, MOS/FET, MICROWAVE MIXER DIODES, SOME BIPOLAR DEVICES, AND SOME METAL FILM RESISTORS.

The labels and symbols shown in [Figure 2 ESDS Device Labels and Symbols](#) are used by Honeywell to identify ESDS applications. The labels DO NOT appear on units and modules manufactured prior to adoption of the STANDARD symbol.

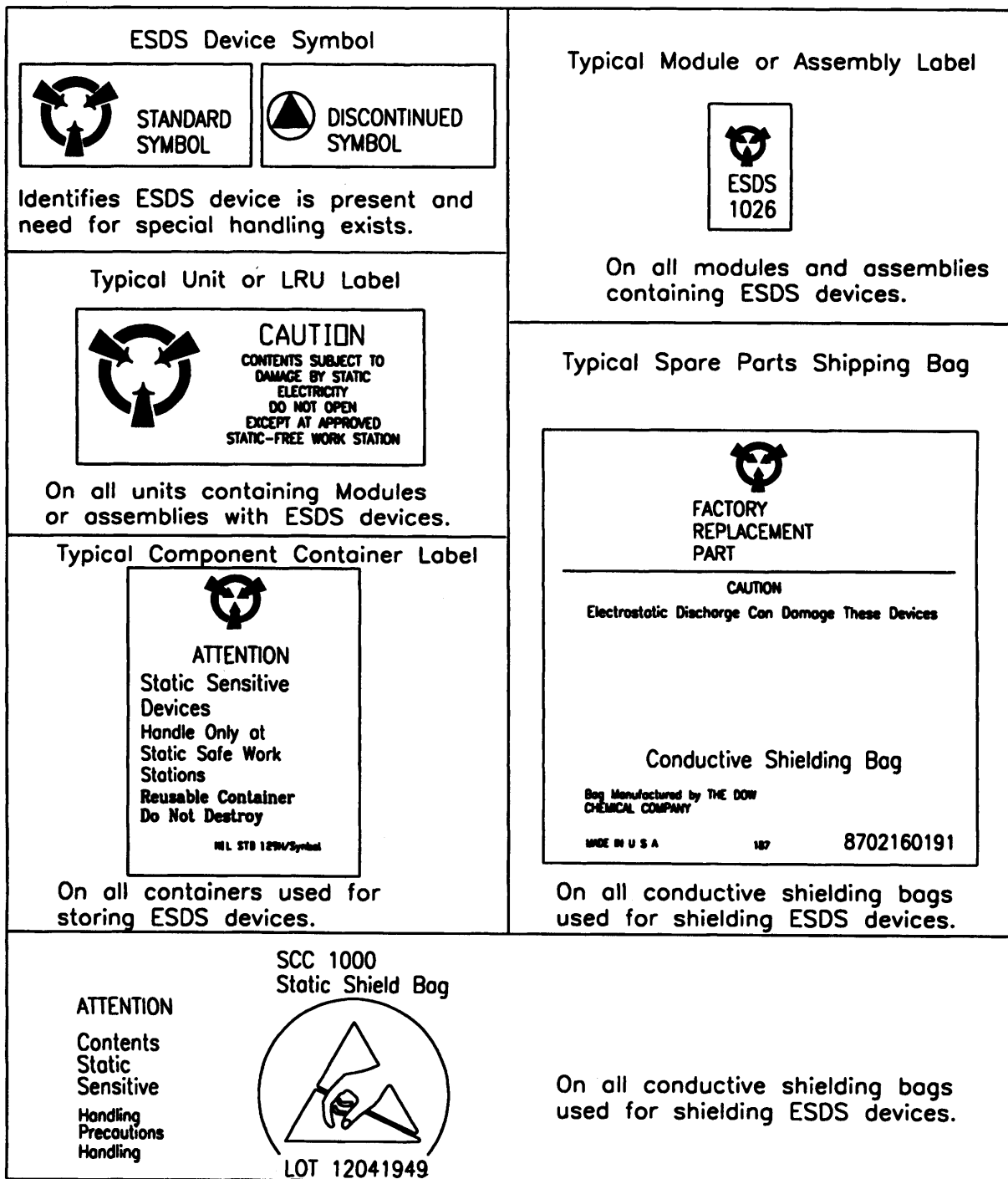


Figure 2 ESDS Device Labels and Symbols

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

2. Configurations Available

Table 2 KLN90B Configurations Available lists the available configurations of the KLN90B and the features of each configuration.

PART NUMBER	LAMPS	BEZEL	BRNV	KLN 90B UPGRADES
066-04031-1121	14V/28V	BLACK	-	-
066-04031-1122	14V/28V	BLACK	X	-
066-04031-1221	5V	BLACK	-	-
066-04031-1222	5V	BLACK	X	-
066-04031-1321	14V/28V	GRAY	-	-
066-04031-1322	14V/28V	GRAY	X	-
066-04031-1421	5V	GRAY	-	-
066-04031-1422	5V	GRAY	X	-
066-04031-2221	5V	BLACK	-	X
066-04031-2222	5V	BLACK	X	X
066-04031-2321	14V/28V	GRAY	-	X
066-04031-2322	14V/28V	GRAY	X	X
066-04031-2421	5V	GRAY	-	X
066-04031-2422	5V	GRAY	X	X

Table 2 KLN90B Configurations Available

3. Leading Particulars

A. KLN 90B GPS Navigation Receiver

Table 3 KLN90B Leading Particulars lists the leading particulars of the KLN90B Navigation Receiver.

CHARACTERISTIC	DESCRIPTION
Power Requirements	11 to 33 V dc at 2.5a max. (-40°C to +85°C)
Mounting	Panel
Dimensions	See Figure 2001 KLN 90B Outline Drawing.
Weight	See Figure 2001 KLN 90B Outline Drawing.
Altitude Range	Up to 50,000 feet
Temperature Range	-40° C to +70° C
Display and Panel Lighting	28 Vdc at 286 mA max.; 14 Vdc at 572 mA max.; 5 Vdc at 1.0A max.
Environmental Certification	See Figure 3 DO-160B/C Environmental Certification Categories.

Table 3 KLN90B Leading Particulars

B. Environmental Certification

The KLN90B GPS Navigation Receiver meets the environmental conditions of the Radio Technical Commission for Aeronautics (RTCA) document number DO-160C, "Environmental Conditions and Test Procedures for Airline Electronic/Electrical Equipment and Instruments." Environmental certification categories are detailed in [Figure 3 DO-160B/C Environmental Certification Categories.](#)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

RTCA/DO-160C

ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE:	KLN 90B GPS
PART NUMBER:	066-04031- 1121,1221,1321,1421,2121,2221,2321,2421,1521,1621 1122,1222,1322,1422,2122,2222,2322,2422,1522,1622 1124,1224,1324,1424,2124,2224,2324,2424,1524,1624
TSO NUMBER:	C129, Class A1
MANUFACTURER'S SPECIFICATION:	MPS 004-02017-4000
MANUFACTURER:	Honeywell International Inc.
ADDRESS:	23500 W. 105 th ST. OLATHE, KS 66061 USA

CONDITIONS	PARA	CONDUCTED TESTS
TEMPERATURE AND ALTITUDE	4.0	CATEGORY A2 and D1 (Except low temp -40° C)
IN-FLIGHT LOSS OF COOLING	4.5.4	CATEGORY V
TEMPERATURE VARIATION	5.0	CATEGORY B
HUMIDITY	6.0	CATEGORY A
OPERATIONAL SHOCK	7.0	Operational Shock Test
VIBRATION	8.0	CATEGORIES B,M,N,P and S
EXPLOSION	9.0	CATEGORY X (NOT TESTED)
WATERPROOFNESS	10.0	CATEGORY X (NOT TESTED)
FLUIDS SUSCEPTIBILITY	11.0	CATEGORY X (NOT TESTED)
SAND AND DUST	12.0	CATEGORY X (NOT TESTED)
FUNGUS	13.0	CATEGORY X (NOT TESTED)
SALT SPRAY	14.0	CATEGORY X (NOT TESTED)
MAGNETIC EFFECT	15.0	CLASS A
POWER INPUT	16.0	CATEGORY A and B
VOLTAGE SPIKE CONDUCTED	17.0	CATEGORY A and B
AUDIO FREQUENCY CONDUCTED	18.0	CATEGORY A, B and Z
SUSCEPTIBILITY		
INDUCED SIGNAL SUSCEPTIBILITY	19.0	CATEGORY A
RADIO FREQUENCY SUSCEPTIBILITY	20.0 Change 3	CATEGORY R
RADIO FREQUENCY EMISSION	21.0 Change 3	CATEGORY A
LIGHTNING INDUCED	22.0 Change 2	CATEGORY A3E3
LIGHTING INDUCED TRANSIENT		
SUSCEPTIBILITY		
LIGHTING DIRECT EFFECTS	23.0 Change 1	Category 1B
ICING	24.0	Category X (Not Tested)

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PAGE 1 OF 3 REV AC

Figure 3 DO-160B/C Environmental Certification Categories
(Sheet 1 of 3)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

RTCA DO-160

ENVIRONMENTAL QUALIFICATION FORM

REVISION HISTORY

REVISION	CHANGE ORDER NO.	DATE	
0	ORIGINAL ISSUE	DECEMBER 1994	1
102111		JANUARY 1995	2
130167		AUGUST 1997	
AA	133066	OCTOBER 1997	
AB	168052	FEBRUARY 2000	
AC	169656	MARCH 2000	

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DOCUMENT NUMBER 004-09129-4800
PAGE 2 OF 3 REV AC

Figure 3 DO-160B/C Environmental Certification Categories
(Sheet 2 of 3)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

REMARKS

-VIBRATION

CRITICAL FREQUENCIES: 7 TO 35Hz

20 TO 60Hz

No Changes in critical frequencies were observed

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PAGE 3 OF 3 REV AC

Figure 3 DO-160B/C Environmental Certification Categories
(Sheet 3 of 3)

4. Brief Description of Equipment

A. Mechanical Description

A basic KLN90B system consists of a panel mounted KLN90B GPS Sensor/Navigation Computer, a data base cartridge, and a KA91 or KA92 antenna. Additional system components may be added or interfaced to the KLN90B which increase its features and capabilities. Some of these optional components include an external Course Deviation Indicator (CDI) or HSI, RMI, and external annunciators.

The front panel module houses the KLN90B's pilot interface. The module contains the circuitry to support both sets of INC/DEC knobs (outer and inner), seven buttons (L CURSOR, R CURSOR, CLR, ENT, D->, MSG, ALT), the PULL-SCAN switch (right inner knob), and the ON/OFF BRT knob. Also, seven panel light bulbs are included. The light bulbs are powered and controlled by the aircraft's lighting bus.

B. Electrical Description

The KLN90B GPS receiver is panel mounted and consists of the front panel and chassis assemblies; the power supply, GPS receiver, battery module and main module assemblies; and CRT yoke option. The data base cartridge for the KLN90B contains a data module and a Data I/O module. The KLN90B is available with bezels in gray or black. The nomenclature and designator number series for assemblies of the KLN90B are listed in [Table 4 PC Module and Assembly Designations](#). Locations of these assemblies are shown in [Figure 6 PC Module and Assembly Designations \(KLN 90B\)](#).

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PC MODULE OR ASSEMBLY	EAS PART NUMBER	REFERENCE	CONNECTORS
Chassis Assembly	200-05193-0001	N/A	N/A
Front Panel Assembly	200-05195-002X	N/A	N/A
Power Supply Module (Standard KLN 90B)	200-08982-0000	100	J101
Power Supply Module (KLN 90A Upgrade)	200-08569-0001	100	J101
Power Supply Adapter Module (KLN 90A Upgrade)	200-08985-0000	3000	N/A
Front Panel Module	200-08457-000X	200	N/A
GPS Xpress Module	200-08825-0000	500	J501, J502
GPS Xpress Interface Module	200-08923-0010	N/A	J1
Battery Module	200-08981-0000	800	J801, J802, J803
Battery	015-00257-0000	N/A	N/A
OBS Resolver Adapter Module (KLN 90A Upgrade)	200-08922-0000	700	J701, J702, J703
Main Module (Standard KLN 90B)	200-08924-0000	1000	J1002, J1003, J1004 J1006, J1009, J1011 J1015, P1901
Main Module (KLN 90A Upgrade)	200-08459-0002	1000	J1002, J1003, J1004 J1006, J1009, J1011 J1015, P1901
CRT	021-00120-0001	N/A	N/A

Table 4 PC Module and Assembly Designations

The following prefixes are used in identifying a component:

C	Capacitor
CJ	Circuit Jumper
CR	Diode
DS	Bulb
E	Voltage or Signal Connecting Point
F	Fuse
I	Integrated Circuit
J	Jack
L	Inductor
P	Plug
Q	Transistor
R	Resistor
T	Transformer
TP	Test Point
U	Module/Integrated Circuit
Y	Crystal

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Examples of this identification system are as follows:

R1004 Resistor on main module.
T101-4 Pin 4 of power transformer.
J1002-5 Pin 5 of the card connector.

5. Theory of Operation

A. Block Diagram Theory

(1) General

[Figure 7 KLN 90B Block Diagram](#) is a simplified block diagram of the KLN90B GPS receiver. [Figure 8 KLN 90B Host Computer Block Diagram](#) is a block diagram of the host computer and [Figure 9 KLN 90B Display Driver Diagram](#) is a block diagram of the display drivers. Refer to these figures as an aid to the block diagram theory explained as follows.

(2) Operation of the Low Voltage Power Supply

The LVPS uses a flyback converter circuit to transform the aircraft power bus voltage (11-33volts) into the required voltages for the KLN90B's internal circuitry. The power supply incorporates over-voltage and short circuit protection to minimize the possibility of damage occurring in the power supply or other circuitry, resulting from abnormal circuit behavior within the KLN90B. The power supply is also protected by a fuse on the main module.

(3) Operation of the Front Panel Module (Controls)

The front panel module houses the KLN90's pilot interface. The module contains the circuitry to support both sets of INC/DEC knobs (outer and inner), seven buttons (L Cursor, R CURSOR, CLR, ENT, D->, MSG, and ALT), the PULL-SCAN switch (right inner knob), and the ON/OFF BRT knob. Also, seven panel light bulbs are included. The light bulbs are powered and controlled by the aircraft's lighting bus.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(4) Operation of the GPS Receiver Module

The GPS receiver module, operating in conjunction with the KA91 (071-01545-0200) or KA92 (071-01553-0200) antenna provides the host computer (located on the main module) with position, velocity, and time information through the RS232 interface module. The Host computer provides control information to the GPS Receiver through the RS232 interface module

The GPS receiver module P/N 200-08825-0000 is not a field serviceable assembly.

(5) Operation of the Main Module

The main module integrates a variety of functions onto a single module. The KLN90B has three microprocessors; two reside on the GPS receiver module and the other, the host computer, resides on the main module. The host computer controls all navigation functions associated with the KLN90B.

In addition, it controls ARINC 429 and RS232 communications, CDI activity, data base communications, RTC (real time clock) activity, the CRT video bit map. Most of the analog circuitry on the main module supports the CRT display. The Analog circuitry includes a CRT controller, deflection amplifiers, video driver, and high voltage power supply.

(6) Operation of the Host Computer

The host computer is responsible for displaying present position, defining flight path, navigation data, providing trip planning, providing calculator functions and providing user interface. It uses a Intel 80C186 operating at 10 MHz. The 10 MHz clock, driving the Microprocessor, is divided down to 2 MHz to drive the video timing circuit and 429 LSI.

Three types of memory devices are used: Erasable-Programmable- Read-Only-Memory (EPROM), Static-Read-Write-Memory (SRAM) and Electrically-Erasable-Programmable-Read-Only Memory (EEPROM). The KLN90B Host computer has 512 Kbytes of EPROM memory.

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The KLN90B has 64 Kbytes of volatile Ram and 64 Kbytes of non- volatile RAM and 8 Kbytes of video RAM.

(7) Operation of the RS232 I/O

The host computer communicates with the GPS sensor, fuel flow sensor, and ELT through the RS232 communication controllers, (CMOS Dual channel UART). Channel A is used for the GPS sensor and channel B is used for fuel sensor/ELT communication. The host computer communicates with the data loader or remote RS232 source through a single channel UART.

(8) Operation of the ARINC 429 I/O

An Honeywell proprietary ARINC 429 LSI provides the KLN90B with three 429 receivers and one 429 transmitter.

(9) Operation of the Knob Reader

The front panel control knobs are connected to optointerrupters. When a knob is read by the Host, the driver to that optointerrupter is activated and the status of the optointerrupter is monitored.

(10) Operation of Discrete Inputs

The discrete inputs are described in three sections: Program Pins inputs, Gray Code Altitude inputs and ALT Alert input.

(a) Program pins

There are four program pin inputs:

TAKE HOME
SDI 1/2
LEG/OBS CTRL
ARM SELECT

When TAKE HOME pin is shunted to the program ground, the KLN90B is forced to enter the TAKE HOME mode of operation. SDI 1/2 pin programs the KLN90B to accept certain types of 429 data. LEG/OBS CTRL and ARMSELECT pins are used during the calibration procedure.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(b) Gray Code altitude inputs

The Gray Code signals, (0-28 V), are converted to digital levels by the interface before being processed by the Host computer.

(c) $\overline{\text{ALT ALERT}}$

In addition to providing an output function, the $\overline{\text{ALT ALERT}}$ pin is read by the KLN90B as a discrete input.

(11) Operation of Discrete Outputs

The discrete outputs are described in three sections: Annunciator Outputs, $\overline{\text{ALT ALERT}}$, NAV Outputs, and OBI Outputs.

(a) Annunciator Outputs/ $\overline{\text{ALT ALERT}}$

The Host computer determines which of these outputs are to be active or inactive. A digital data word is placed on the DATA BUS to be latched by the output latch. Each output is represented by one bit in the word. The KLN 90B provides drivers for the following outputs:

ALT ALERT
APPROACH ACTIVE
APPROACH ARM
WPT ALERT
MSG

(b) NAV Outputs

The Host computer synthesizes the discrete NAV outputs. A digital data word is placed on the DATA BUS to be latched by the output latches. Each discrete NAV output is represented by one bit in the word. The KLN90B provides discrete drivers for NAV SUPER FLAG, NAV FLAG +, D-BAR +L/NAV FLAG-, +FROM and +TO outputs.

(c) OBI Outputs

OBI CLOCK, OBI DATA, OBI SYNC signals are synthesized by the Host computer. A digital data word is placed on the DATA BUS to be latched by the output latch. The instantaneous status of each signal is represented by three bits of the word, one bit for each signal.

(12) Operation of Analog Outputs

(a) ALT Alert Audio

An audio ALT Alert signal is generated by gating the 1 KHz Int signal through the ALT Alert audio driver. The amplitude of the output signal is controlled the 80C186 CPU via one of its internal timers.

(b) CDI Output

The CDI signal is generated by one of the 80C186's internal timer. The timer varies the duty cycle of its output. The CDI Driver converts the duty cycle of the timer into an analog signal.

(13) Operation of Display Driver

The Display Driver generates the drive signals required by the CRT. Control signals and display data are supplied by the Host Computer. Four sections are used to describe the display drivers circuitry: CRT Controller, Deflection Circuit, Video Driver, and HVPS.

(a) CRT Controller

The CRT Controller generates the 6.944 KHz drive signal for the HVPS, Video drive signal for the Video Driver, Horizontal and retrace signals for the Deflection Circuit, Vertical Sync and 1 KHz Interrupt signal for the Host Computer.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(b) Deflection Circuit

Horiz. RET. and Vert. RET. signals are processed by the deflections circuit into HORIZ. and VERT. deflection signals. A video control signal, produced in the deflection circuit, prevents phosphor burn of the CRT if the deflection signal is lost.

(c) Video Driver

The digital video signal, OP6 signal, and the video control signals are processed into a video drive signal for the CRT. The Video Driver also contains circuitry to generate the heater voltage for the CRT and a Spot Kill circuit to protect the CRT phosphor.

(d) HVPS

The HVPS converts the 6.944 KHz driver signal into +9 KVDC, +570 VDC, +95 VDC and FOCUS control signal.

(14) Operation of Data Base Cartridge

The FLASH data base cartridge (071-01523-hhss) is designed to be used in conjunction with the KLN90B GPS navigation system (066-04031-XXXX). Its function in this application is to store and provide access to data regarding airports, VOR's, NDB's, intersections, outer markers, and approaches. The data contained in the data base can be periodically updated via erasure and re-programming of the cartridge.

The maximum storage capacity of the cartridge is 3.50 Mbytes. A memory location within a particular 128K word block can be addressed by selecting the proper bank (BS0, BS1, BS2), top/bottom chip select (TCS, BCS), and a 17 bit address. The dash number scheme denoted by "hhss" defines the hardware/software configuration for a particular unit. The following is a description of the meaning of the four digit dash number, "hhss":

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

hh -hardware configuration designator

01 reserved
02 reserved
03 14 Flash memory chips

ss -software configuration designator

00 unprogrammed (blank) unit
01 reserved
02 programmed unit with specific software flavor
03 programmed unit with specific software flavor

The entire cartridge may be easily erased and re-programmed electrically.

(15) OBS Resolver Interface.

The OBS resolver Interface performs the following functions:

- Remote OBS resolver excitation output (450 Hz, $\pm 6V$ slew rate-limited square wave).
- Remote OBS resolver input processing using a synchronous detection/integration technique.
- OBS resolver excitation output fault detection and short-circuit protection.
- AGC (HW/SW) to accommodate various resolver types.
- Analog to Digital ratio-metric conversion and Host Computer interface.
- Produce baud clock for DUART, thus eliminating the need for a separate DUART time base crystal.

(16) Battery Module

The Battery Module Provides back-up system power and allows the KLN90B to operate through a power interruption of up to 1 second in duration. When an interruption of Aircraft Power is sensed by this module, an internal rechargeable battery pack is switched to the input of the Low Voltage Power Supply to maintain unit operation.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Operation is sustained for the duration of the power interruption, provided it is less than 1 second. When the unit is operating under normal conditions, the battery pack is recharged by this module.

B. Detailed Theory

(1) Reference figures for information in the detailed theory section are in the [ILLUSTRATED PARTS LIST](#) (IPL). Refer to the corresponding section of the IPL as needed when reading the following sections.

(2) Low Voltage Power Supply Module

The KLN90B power supply is classified as a flyback converter (or "ringing choke") operating in the discontinuous mode with current mode control. The power conversion takes place at a switching frequency of 166 KHz.

Aircraft power is supplied to the module via J1 pins 2 and 4. Aircraft ground is supplied to the module via J1 pins 7 & 9 the only ground connection to the power supply module. The mounting holes on the module are plated, but are not connected to the module's ground node. This prevents the KLN90B chassis from conducting the power supply ground return current, and maximizes the effectiveness of the input/RFI filter (C16, C15, L3, and C12).

Power is always applied to the power supply module, but ON/OFF HI must be connected to ON/OFF LO to activate the converter circuit. This mode of control allows the on/off switch for the KLN90B to be rated for a much lower current handling capability than the amount actually drawn by the power supply.

Resistor R11, diodes CR1, CR2, and transistor Q2 (resistors R11, R22-R24, diodes CR1, CR2, CR17, and CR18_, capacitor C19 and transistors Q2 and Q19 in 200-08982-0000) provide a proper start-up voltage (9-11 V) for I1 over the entire input voltage range of the supply. Once the supply outputs have stabilized, the +16V output takes over as the power source for I1 (CR2 becomes reversed biased as CR3 starts to conduct).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Resistor R21, capacitors C18, CR9 and transistor Q8 implement the "Soft Start" function of the supply. On turn-on this circuit forces the duty cycle drive, applied to Q1, to slowly increase from 0% to its steady state value. If the duty cycle drive was allowed to instantaneously start at 100% (continuous mode) unstable operation could result, since the control loop is not compensated for continuous mode operation. The soft start circuit prevents the control loop from servo-ing the outputs faster than they can respond at turn-on.

Transistors Q6 and Q7 shut down the power supply when the connection between ON/OFF HI and ON/OFF is opened. When the connection is opened, the base of Q6 is immediately pulled to ground potential by R18. Resistor R19 then turns on Q7 thus pulling PIN 1 of I1 low. Pin 1 of I1 is the open-collector output of the error amplifier of the power supply regulation feedback loop. Pulling this line low causes the duty cycle of Q1 to approach 0%, thus shutting down the converter's outputs. When the 16V line has dropped below about 7.6V, I1's under-voltage lockout circuit completely shuts down the converter circuit.

Resistors R2, R3, capacitors C4, and C5 set the switching frequency produced by I1 to 166.66 KHz. Integrated circuit I1 is a current mode controlled pulse width modulator IC.

Power MOSFET Q1 is operated in the switch mode and controlled by I1. The duty cycle of Q1 is dependent on the level of the 5 V output. The 5 V output is compared to a known reference voltage to produce an error signal for a closed feedback control loop. This control loop varies the duty cycle of Q1, thus modifying the amount of energy stored in the primary (and transferred to the secondary) of T1 during each switching period. The duty cycle of Q1 is varied such that the size of the error signal is minimized; thus, the converter produces a regulated output. Changes in output loading will change the level of the +5V output. The corresponding change in error signal will cause the converter to alter Q1's duty cycle as required to return the +5V output to its nominal value and minimize the error signal.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Load effects on the +16V, -13V and -5.5V outputs are reflected into the +5V output, where the regulation loop samples the output voltage. Because the regulator feedback is derived directly from the +5 V, the +5 V output will experience the tightest regulation. Transformer inefficiencies will limit the amount of regulation experienced by the other two outputs. The gain characteristics contributed to the control loop by I1's error amplifier circuit are set by R1, R4, R5, R12, and C2. Resistor R12 is trimmed until +5 V is observed at TP 7.

Diode CR7, BJT Q3, and resistors R13, R16 act to reduce the output of I1's error amplifier, thus reducing the Q1's duty cycle, if an over voltage condition ever starts to develop on the +5 V output.

Diode CR8 and resistor R10 will reduce I1's error amplifier output if a short circuit condition is ever observed on the outputs. This minimizes Q1's duty cycle and prevents the converter from sustaining damage during the fault.

Capacitors C1, C7, C14, diodes CR10, CR11, CR12, inductor L1, MOSFETs Q4, Q5, resistor R15 comprise a unique circuit that recovers the energy stored in the primary winding leakage inductance. The recovered energy is fed into the +16V output.

(3) Front Panel Module

Capacitor C1, diode CR1, transistor Q1, and resistors R1, and R2 comprise the CRT video intensity control circuit. DIM HI corresponds to the CRT cathode cutoff voltage, while DIM LO corresponds to the on-video clamping voltage. Transistor Q1 draws nearly constant current through CR1 to provide a constant DIM LO adjustment range regardless of the level of DIM HI.

The components U1 through U8 are optointerrupter devices. Each knob, on the front panel, utilizes two of the devices. The collectors of U1, U3, U5, and U7 are connected together on the main module, as are the collectors of U2, U4, U6, and U8. These two nodes represent the knob data lines that are read by the Host Computer to determine the state of a particular knob.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Resistor R3 through R6 bias the IR LEDs, within each optointerrupter, when the device has been selected by the Host Computer to determine the state of a particular knob.

(4) GPS Receiver Module

This module is not a field serviceable assembly.

(5) Main module

(a) Host Computer

An INTEL 80C186 microprocessor, I1, running at 10 MHz is the central processing unit (CPU) of the host computer. It is interrupt driven and operates in a real time mode.

1 Interrupts

The host computer processes four external interrupts. Interrupt INTO has the highest priority and serves as the timebase for the KLN90B host computer software task scheduling. The interrupt signal is a 1 KHz signal output from the video timing circuit. Interrupt INT1 has the second highest priority and is generated by the ARINC 429 XCVR, I60. Interrupt INT2 has the third highest priority and is generated by the DUART I42, RS232 Communication Controller. Interrupt INT3 is the lowest priority interrupt and is generated by UART I62, RS232 Communication Controller.

2 Reset Circuit

Whenever the voltage at pin 5 of I46B drops below 2.5V, I46B resets the CPU. This low voltage reset function also occurs if a ground fault condition exist via CR1 or CR58 on those respective supply rails.

3 Battery Backup Of Memory

The memory is maintained by a remote mounted lithium battery when the KLN90B power is off. When the KLN90B is on, CR3 is reverse biased by +5 V; Vbatt is held up by +5 V. When the KLN90B power is off, CR3 conducts causing Vbatt to be maintained (E0 and E1 connected to the terminals of the lithium battery which is remotely mounted). Pin 1 of I46A goes low if the unloaded battery voltage ever drops below 2.5 V (R14 not used).

4 Bus Latches

The address bus is latched via I2, I3, and I4. The I/O data bus is latched via I11, I12, I13, and I61.

5 Memory

ROM I17, and I18 comprise the KLN90B system ROM. RAM I8 and I10 comprise the non-volatile RAM, while I7 and I9 comprise the volatile ram. The provision exists, via CJ10, to make I7 and I8 nonvolatile also. Transistors Q47, Q48, Q49, and Q50 perform normal ram chip select function when the KLN90B is operating. When the unit is not operating, the nonvolatile RAM chip selects are pulled up to Vbatt, invoking stand-by mode.

EPLD device I16 implements the chip select logic for the system ROM (I17, I18), the data base TOP or BOTTOM chip pairs. In addition, the device produces two synchronous versions of the 2 MHz video dot clock (each 180 degrees out of phase with respect to the other) and also keys the data base wait state generator (I16) whenever the data base is accessed.

The KLN90B HOST computer memory organization is shown in [Figure 4 KLN 90B Host Computer Memory Organization](#).

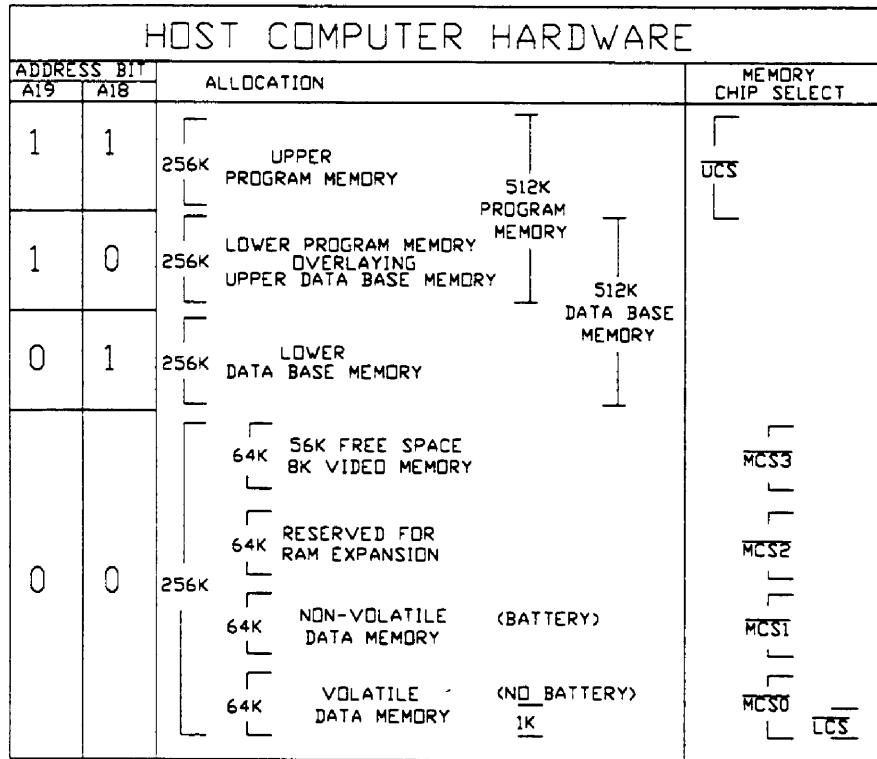


Figure 4 KLN 90B Host Computer Memory Organization

6 DUART

DUART I42 is utilized for RS232 communications, EEPROM writing (I45), watch dog timer reset actuation (CR52), data base bank selection, video blanking and page selection, (OP6), approach offset mode sensing, and others.

(b) RS232 I/O

RS232 channel A (TxDA and RxDA) communicates with the GPS receiver module. TxDB becomes RS232 OUT following level shifting by I43. RxDB is derived from RS232 IN via I43. UART I62 is utilized for RS232 communications with the remote data loader.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(c) ARINC 429 Transceiver

The Honeywell proprietary ARINC 429 LSI I60 transmits and receives ARINC 429 data. The output data is converted from HCT level to ARINC 429 levels by the circuitry associated with I51. The ARINC 429 inputs are level shifted to HCT levels by the circuitry associated with Q12 through Q23.

(d) Knob Reader Interface

The front panel knobs are selected and enabled individually using the circuitry associated with I41, I63, and Q55 through Q58. A knob is selected and enabled by performing a port write command to an address designated by setting one of the address bits (A1 through A4) low. The low address bits corresponds to the knob selected:

A1	right inner knob (RIK, RIKEN)
A2	right outer knob (ROK, ROKEN)
A3	left inner knob (LIK, LIKEN)
A4	left outer knob (LOK, LOKEN)

The state of the selected knob is available 1 msec after the select operation in bits 0 and 1 of input port IPA (IA0, IA1).

(e) Discrete Inputs

1 Program pins

There are four program pin inputs:

TAKE HOME

SDI $1/\bar{2}$

ARM SELECT

LEG/ $\overline{\text{OBS}}$ CONTROL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

These inputs are interfaced to the HOST computer through DUART I42. Since the four inputs use the same type of interface only the SDI $1/\bar{2}$ input will be described.

The SDI $1/\bar{2}$ interface consist of components: CR80, I42, R200, and R203. Resistor R203 is the pull-up resistor for the SDI $1/\bar{2}$ line. Resistor R200 limits the current allowed to flow into the DUART I42 input. Diode CR80 limits the voltage swing at the input of DUART I42 to a levels between 0 V and 5 VDC.

2 Gray Code Altitude Input Reader

The circuitry associated with Q63 through Q72 converts the Gray Code Altitude Input signals (0V to 28V) to proper digital levels for sampling by I39 and I40.

3 ALT ALERT

The ALT ALERT output of the KLN90B is also utilized as an input to the KLN90B.

The interface consists of C104, CR53, CR54 and R127 which provide RFI and lightning protection for input.

(f) Discrete Outputs

1 Annunciator Outputs

The following are annunciator outputs:

WPT ALERT

APPROACH ACTIVE

APPROACH ARM

MSG

All are essentially functionally identical. Only the operation of APPROACH ACTIVE driver will be discussed.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

When OA6 is high (HCMOS), the I65, control loop, composed of I65, C189, Q29, R261, and R253, is commanded to produce a current of around 300 mA in R261 (Q29). Under conditions of normal loading, Q29 will only experience currents up to 250 mA. In this case, the loop cannot force the 300 mA to flow and the output of I65C will be driven to the positive rail. This condition will be detected by I64C, a voltage comparator, thus producing a high level for IA14. The signal on IA14 is the over current sense signal for the APPROACH ACTIVE output.

If the load driven by Q29 attempts to deliver more than 300 mA, the control loop will respond by reducing the amount of gate drive to whatever amount is required to maintain around 300 mA in R261. This condition will also be detected and reflected in IA14 by I64C when the output of I65C falls below +9V. The threshold voltage of Q29 is typically 3 to 4 volts.

When OA6 is in the low state, the control loop is commanded to produce zero current in R261. In addition, Q60 introduces a large positive error into the feedback loop at the inverting input of I65C to ensure that the amplifier's output remains at zero volts.

2 NAV Outputs

The discrete NAV outputs interfaces are: +TO, +FROM, NAV FLAG +, D-BAR + L/NAV FLAG-, and NAV SUPERFLAG.

a NAV FLAG +, D-BAR + L/NAV FLAG-

The interface consists of components CR89, C95, C207, and R96 and provide a reference node for the NAV outputs. RFI and lightning protection are provided by CR89, C95 and C207. The reference level of the node is established through R96.

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b NAV SUPERFLAG

The NAV SUPERFLAG interface consist of components C45, CR88, CR89, Q32, Q33, R92, R93, R301 R94, and R95. RFI and lightning protection for the output line are provide by C45 and CR89. Resistor R93 provides a load for Q32 when the NAV SUPERFLAG output is not loaded.

Diode CR88, FET Q33, resistors R95 and R94 form a circuit to bias Q32 on if FILT. A/C PWR and NAV FLAG is Valid. FET Q32 acts a switchable current source for the NAV SUPERFLAG OUTPUT that is controlled by the output of Q33.

c +T0 and +FROM outputs

The +FROM interface driver circuit consist of components C96, CR90, CR92, I20, Q34, R97, R99. The +T0 interface driver circuit consist of components C97, CR90, CR91, Q35, R98, R100.

Because of I20 the two drivers will conduct 180° out of phase with each other when driven by a signal on the A01 bus line. Resistor 101 is connected between the two driver's output. Current flowing through the resistor develops a voltage drop that is used as a T0/FR drive signal.

The drivers Q34 and Q35 may also be controlled by the signal on OA0 line through Q76, R304 and R303. When driven by the OA0 line, both drivers can be gated off at the same time effectively disconnecting the drivers from the output +FROM and +T0 output lines.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Lightning and RFI protection for the output lines are provided by C96, C97, CR91 and CR92. Diode CR90 will limit driver outputs by limiting input drive signals to Q34 and Q35.

3 ALT ALERT

When OA8 is high, Q47 is turned on, causing the ALT ALERT output to be pulled low. C104, CR53, CR54, R129, and R283 provide lightning and RFI protection. This output primarily drives Sonalert-type devices. Because these devices possess low threshold currents, a very weak, but audibly noticeable tone may be produced under certain conditions due to leakage currents of semiconductor switch devices. R312 provides a light shunt path for Q47's off-state leakage current so that Sonalert-type devices will remain dormant when Q47 is off (OA8 low).

(g) OBI outputs

The OBI CLK, OBI DATA, and OBI SYNC interfaces are identical, only the OBI SYNC interface will be described. The OBI SYNC signal is generated by the HOST Computer. Bit 14 of a 16 bit word is latched by I13. Changing the status of this bit at the appropriate times generates the OBI SYNC signal. The output on pin 13 of I13 drives a FET driver (Q25). Lightning and RFI protection for the OBI SYNC OUT line is provided by CR66 and C80.

(h) Analog outputs

1 Altitude Alert Audio Driver

Transistors Q3, Q54, and resistors R131, R132, R133, and R124 level shift 1 KHz INT signal to swing between +16 V and -13 V (with C105 removed).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Integrated circuits I38 and I52A, capacitor C108, resistors R149, R160, and R161 create a DC voltage equal to the average value of TMR01. The output of I52A will vary from 0 V to 7.5 V as the duty cycle of TMR01 varies from 0% to 100%. Integrated circuit I52B generates a negative voltage with the same magnitude as the output of I52A. The two outputs together define p-p amplitude of the audio output.

Resistors R133 and R134 are sized so that the waveform at the junction of R133 and R134 is approximately centered around 0 V DC when the amplitude has been adjusted to the maximum value.

Capacitor C105 allows the waveform to return to 0 V when the signal from I21 is interrupted. Diode CR61 clamps the signal to the maximums defined by I52A and I52B. Symmetrical clamping of the signal eliminates the C105 average-value bleed-off that would otherwise be associated with the initial keying of the driver; the output will be immediately symmetrical about 0 V on keying. Diode CR60 acts to cancel the voltage drops introduced by CR61.

Integrated circuit I52C, resistors R163, R158, R157, R162, R153, R154, R159, and capacitor C159 comprise the output driver stage. Resistor R157 and capacitor C159 frequency compensate the driver loop.

2 CDI Driver Interface

One of the 80C186's integral timers, TMR00, is utilized as a control for the analog CDI driver. The timer output is duty cycle varied from 50% (no deviation) proportional to the amount of deviation desired. The timer output is integrated and level shifted by the circuit associated with I51, thus producing a DC output, centered about 0V, proportional to the duty cycle of the timer output.

(i) DISPLAY DRIVER

1 CRT Controller

The CRT controller generates all timing for the horizontal and vertical deflection, the video drive, and the high voltage power supply.

The 2 MHz video dot clock is derived from the 10 Mhz CPU clock by I32 and I16.

See [Figure 10 CRT Controller Timing Characteristics](#).

When vertical sync is not asserted, counter I25 addresses the video RAM, I54, via multiplexers I22, I23, and I24. Also, I26 is tri-stated during this time. In this way, the bit map stored in the video ram is sequentially read one byte at a time.

One byte is loaded from the video ram into shift register I28 every eight counts of the dot clock. Once loaded, I28 shifts out each bit, clocked by the dot clock.

These bits correspond to individual pixels on the display; a "1" turns the pixel on while a "0" turns the pixel off. Lower-numbered bits will appear to the left of higher-numbered bits within a given byte.

Vertical sync goes low as the RAM address changes to 0F00H. It goes high 912 microsecond later, as the RAM address changes to 0FE4H; the RAM address counter is then immediately cleared. Each row of dots requires 36 bytes of data (including horizontal retrace). The period during which vertical sync is high is sufficient for 106.7 rows of dots. Only 86 rows of dots out of the possible 106.7 rows of dots are used to display the entire screen.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Two copies of the screen image are kept in the video RAM. PAGE/SEL, originating as a DUART output, functions as the most significant video RAM address bit. While vertical sync is high (not asserted), PAGE/SEL toggles constantly at the blinking annunciator rate. This provides for blinking video; data present in one copy of the screen, but missing in the other, will blink on the display as PAGE/SEL toggles. The same concept applies to blinking reverse video fields.

Horizontal sync is high for 32 bytes and low for 4 bytes out of each horizontal sweep period. 32 bytes is 256 bits; 207 dots are required for each row.

Displayed image centering is achieved by changing the offsets of the video data with respect to the base address of the video RAM. Since the RAM addresses correspond to actual screen positions, moving the bitmap around in the video RAM moves the image around on the CRT. Once centering has been adjusted during alignment, the addressing offsets are stored in I45, the EEPROM.

When vertical sync is asserted, I26 is enabled, and the video RAM becomes addressable by the CPU address bus via I22, I23, and I24. The host computer monitors vertical sync and detects when it has gone low. Only during this time can the host computer modify the contents of the video RAM.

2 Deflection Circuit

The horizontal yoke connects between HORIZ. HI and HORIZ. LO. The horizontal deflection circuit utilizes a hybrid design. It combines a horizontal flyback drive stage with yoke current linearity correction circuit.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

The correction circuit maintains a linear current ramp in the yoke by maintaining a constant voltage across the yoke's effective inductance. This amounts to the addition of a ramp signal to the voltage applied to the top of the yoke winding. This voltage would be replaced by a dc voltage in a non-corrected circuit. The ramp voltage compensates for the voltage developed across the yoke's effective series resistance. When a completely linear current ramp is attained, the amount of ramp voltage added to the dc voltage at the top of the yoke winding (HORIZ. HI) will be equal to the voltage developed across the yoke's effective series resistance. Therefore, the yoke's inductance effectively experiences constant voltage throughout the entire horizontal scan period.

Integrated circuit I47A sizes HORIZ. RE-TRACE to key the horizontal bootstrap sweep generator comprised by C58, CR5, CR6, I48B, and R20. Resistor R194, the horizontal linearity adjustment control, determines the mix between constant level and ramp that passes on to I48C.

Integrated circuit I48C represents the gain element in the horizontal output power amplifier. Transistors Q4 and Q5 source or sink current as required to maintain the voltage commanded by the I48C feedback loop in which they lie. Diodes CR13 and CR14 set the bias relationship between Q4 and Q5 using complementary symmetry. Resistor R50, an emitter degeneration resistor, prevents the output stage from experiencing increased bias current and thermal runaway due to the effect of temperature on base-emitter voltage. The reverse biasing voltage drop produced across R50 minimizes any increase in bias point current flow from Q4 to Q5 due to decreased base-emitter voltage. Resistor R196 sets the gain of the horizontal output power amplifier.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Power MOSFET Q6 operates in the switch mode. During horizontal scan time (after steady state has been reached), Q6 conducts, allowing the horizontal yoke current (HORIZ. LO) to ramp up from its negative initial value to its maximum final value. When horizontal retrace goes low, Q6 abruptly shuts off. Since the yoke current cannot change instantaneously, C48 begins to charge. Capacitor C48 continues to charge until all of the energy stored in the magnetic field of the yoke inductance has been transferred to the electric field of the capacitor. At this point, the yoke current has reached zero. The voltage across C48 can exceed 100 V at this instant. Capacitor C48 then transfers this energy back to the yoke, causing the same peak current to flow in the yoke as did just prior to flyback, only this time in a negative direction. The integral reverse diode present in the MOSFET structure of Q6 conducts the yoke current when it flows in a negative direction. The amount of time required for this double transfer of energy to take place is matched closely to the time that horizontal retrace is low. When horizontal retrace goes high again, a new horizontal scan period begins.

Integrated circuit I47B sizes VERT. RETRACE to key the vertical bootstrap sweep generator comprised by C57, CR8, CR9, I48A, and R21. Capacitor C61 removes the dc component from the sweep waveform. Resistor R193 adjusts the size of the sweep applied to I50, the vertical deflection amplifier. Resistor R195 provides additional vertical centering range by adding a positive or negative d.c. bias to the sweep, if video bitmap shifting does not yield proper vertical centering (see section (a) [CRT Controller](#)).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

The vertical yoke connects between VERT. HI and VERT LO. Unlike in the horizontal drive, the vertical yoke lies in the feedback loop of the deflection amplifier. The zero created by R31 insures unconditional stability of the feedback loop. Resistor R33 and capacitor C66 are required by the manufacturer of I50 for amplifier stability. Resistor R34 converts the yoke current into a sense voltage that is fed back to I50.

Integrated circuit I50 forces this voltage to follow the vertical sweep waveform at pin 1. Since the sense voltage is a measure of the yoke current, the yoke current is directly proportional to the vertical sweep waveform.

A dual open collector voltage comparator, I49, blanks the video if either of the deflection outputs is missing. This function prevents the electron beam of the CRT from burning a line or spot in the phosphorus if a sweep is ever lost, or the yoke is accidentally disconnected. The rectified and filtered horizontal flyback pulses (HORIZ. LO) are monitored, in the case of the horizontal drive. A doubled and filtered version of the vertical output waveform (VERT. HI) is monitored, in the case of the vertical drive.

3 VIDEO DRIVER

Integrated circuit I31 gates the video signal with video control (CRT protection), and OP6 (DUART, CPU controlled). Level shifter, I34, shifts the video signal and provides sufficient peak current drive capability to drive the gate-source capacitance presented by Q7 and Q8.

Transistor Q10 functions as a high speed switching current sink that is digitally controlled by Q7 and Q8. Resistor R46 determines the maximum steady state current sunk by Q10 when the electron beam is on.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

When Q10 sinks current, DIM LO clamps the cathode voltage (VIDEO OUT) to the level set by the intensity control on the front panel. Lower DIM LO levels correspond to brighter CRT images.

Capacitor C27 and resistor R292 discharge the parasitic capacitance associated with the TP3 node and the CRT cathode itself, thus minimizing the fall time of the video output.

MOSFET Q9 functions as an active pull-up to quickly return the cathode drive voltage (VIDEO OUT) to cutoff (DIM HI) when the beam is electron beam is turned off.

Resistor R143 and transistor Q46 determine the cathode cutoff voltage (DIM HI).

The circuit associated with Q51 pulls the CRT G1 voltage from ground down to -13 V when the KLN90B is turned off. After several seconds, G1 drifts back up to ground potential. This function insures that the electron beam will remain turned off while the cathode heater is cooling down. This prevents the undesirable formation of a phosphor burn spot in the center of the CRT screen, that might otherwise develop over some period of use.

Resistor R208 and capacitor CR57 provide approximately 6.3 volts for the CRT cathode heater circuit.

4 High Voltage Power Supply

WARNING: THE HIGH VOLTAGE CIRCUITRY ON THE MAIN MODULE AND AROUND THE CRT ASSEMBLY PRESENT VOLTAGES WHICH ARE HAZARDOUS TO LIFE. EXERCISE EXTREME CARE WHEN WORKING NEAR THIS HIGH VOLTAGE CIRCUITRY.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

The KLN90B high voltage power supply is classified as a flyback converter operating in the discontinuous mode.

Unlike the low voltage power supply, however, output regulation is achieved by varying the input voltage level to the input of the transformer.

Flyback transformer module T1 (or alternate module T2) contains the HV transformer itself, a high voltage multiplier, an HV output filter, and a 300 Megohm HV feedback resistor.

The HV regulator error amplifier circuit, I53, compares a divided down version of the +9 kV to +5V. The output of the error amplifier, buffered by Q42, supplies the input voltage to T1. Transistor Q43 and resistor R139 form a base starving, over current protection circuit for Q42 and the primary winding of T1. Resistor R138 and capacitor C111 set the gain and frequency response of the error amplifier such that the control loop is stable. Resistor R137 is trimmed until +570 volts is observed at TP13.

Power FET Q44 switches the primary of T1 at a frequency of 6.944 KHz, with an on time duty cycle of 4/9. If for any reason the 6.944 KHz signal should become interrupted, Q44 will return to the off state.

Nominal HV supply outputs are +95 V at C114, +570 V at TP13, and +9 kV at the CRT anode.

If T2 is used instead of T1, C160 is included to absorb the primary leakage inductance energy released when Q44 turns off.

Resistor R142 and C106 provide the CRT with the proper focus voltage.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

5 Data Base Cartridge (071-01523-hhss)

The Data Base Cartridge consists of two circuit module assemblies, 200-08022-0030 and 200-08023-0030. The memory organization of the data base is shown in [Figure 5 Database Memory Select Truth Tables](#).

Each of the data base banks occupies 256k words (128k in the "bottom" and 128k in the "top"). Each of the sections is composed of four two-megabyte chips (Section 4 only contains two chips), two chips in the "bottom" and two chips in the "top". The lower bank number, in each section, is stored in the first 128K address locations of each chip.

KLN 90 DATA BASE ORGANIZATION		
DATA BASE MEMORY ORGANIZATION		
SECTION 4	NOT USED	NOT USED
	BANK 7	BOTTOM 256k WORDS
SECTION 3	BANK 3	256k WORDS
	BANK 6	TOP 256k WORDS
	BANK 2	BOTTOM 256k WORDS
	BANK 6	TOP 256k WORDS
SECTION 2	BANK 5	BOTTOM 256k WORDS
	BANK 1	256k WORDS
	BANK 5	TOP 256k WORDS
	BANK 1	BOTTOM 256k WORDS
SECTION 1	BANK 4	TOP 256k WORDS
	BANK 0	256k WORDS
	BANK 4	BOTTOM 256k WORDS
	BANK 0	TOP 256k WORDS

MEMORY SELECT TRUTH TABLE					
BS2	BS1	BS0	TCS	BCS	RESULTS
X	X	X	LO	LO	NOT ALLOWED
X	X	X	HI	LO	VALID SELECT
X	LO	X	LO	HI	
X	HI	LO	LO	HI	
X	HI	HI	LO	HI	STANDBY MODE
X	X	X	HI	HI	

WARNING

SETTING TCS AND BCS LOW (VIN_{LOW}) SIMULTANEOUSLY WILL RESULT IN PERMANENT DAMAGE TO THE UNIT.

VALID SELECT TRUTH TABLE					
BS2	BS1	BS0	TCS	BCS	RESULTS
LO	LO	LO	HI	LO	BANK 0, BOTTOM SELECTED
LO	LO	LO	LO	HI	BANK 0, TOP SELECTED
LO	LO	HI	HI	LO	BANK 1, BOTTOM SELECTED
LO	LO	HI	LO	HI	BANK 1, TOP SELECTED
LO	HI	LO	HI	LO	BANK 2, BOTTOM SELECTED
LO	HI	LO	LO	HI	BANK 2, TOP SELECTED
LO	HI	HI	HI	LO	BANK 3, BOTTOM SELECTED
HI	LO	LO	HI	LO	BANK 4, BOTTOM SELECTED
HI	LO	LO	LO	HI	BANK 4, TOP SELECTED
HI	LO	HI	HI	LO	BANK 5, BOTTOM SELECTED
HI	LO	HI	LO	HI	BANK 5, TOP SELECTED
HI	HI	LO	HI	LO	BANK 6, BOTTOM SELECTED
HI	HI	LO	LO	HI	BANK 6, TOP SELECTED
HI	HI	HI	HI	LO	BANK 7, BOTTOM SELECTED

MODE SELECTION TRUTH TABLE							
MODE	SIGNAL MODE	MEMORY SELECT	RD	PMG	V _{pp}	V _{cc}	DQ(0-7)
READ-ONLY	READ	VALID	LO	HI	V _{cc}	V _{cc}	DATA OUT
	OUTPUT DISABLE	VALID	HI	HI	X	V _{cc}	HIGH Z
	STANDBY	STANDBY	X	X	V _{cc}	V _{cc}	HIGH Z
READ/WRITE	READ	VALID	LO	HI	V _{pp}	V _{cc}	DATA OUT
	OUTPUT DISABLE	VALID	HI	HI	X	V _{cc}	HIGH Z
	STANDBY	STANDBY	X	X	V _{pp}	V _{cc}	HIGH Z
	WRITE	VALID	HI	LO	V _{pp}	V _{cc}	DATA IN

NOTE: X = DON'T CARE STATE (VIN_{HI} OR VIN_{LOW})
 LO = VIN_{LOW}
 HI = VIN_{HI}

Figure 5 Database Memory Select Truth Tables

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(j) Address Decoding & Device Selection Schemes

1 Input Port Bit Allocation

<u>BIT #</u>	<u>DESCRIPTION</u>
0	Knob data 1
1	Knob data 2
2	GPS DISPLAYED
3	SCAN (Right Inner Knob IN/OUT)
4	LEFT CRSR
5	RIGHT CRSR
6	MSG (Message)
7	DIR (Direct To)
8	CLR (Clear)
9	ENT (Enter)
10	<u>ALT (Altitude)</u>
11	<u>VERTICAL SYNC</u>
12	<u>WPT (Over Current Detect)</u>
13	<u>MSG (Over Current Detect)</u>
14	<u>APPROACH ACTIVE</u> (Over Current Detect)
15	<u>APPROACH ARM</u> (Over Current Detect)

2 Output Port Bit Allocation

<u>BIT #</u>	<u>DESCRIPTION</u>
0	NAV FLAG (NAV Super Flag)
1	TO/FR FLAG
2	(not used)
3	(not used)
4	WPT ALERT annunciator
5	MSG annunciator
6	APPROACH ACTIVE
7	APPROACH ARM
8	ALTITUDE ALERT annunciator
9	PAGE SELECT (CRT RAM page select)
10	EEDI (EEPROM)
11	EESK (EEPROM)
12	EECS (EEPROM)
13	OBI CLK
14	OBI SYNC
15	OBI DATA

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3 Intel 80C186 Timer Allocation

<u>TIMER</u>	<u>DESCRIPTION</u>
TMRO	D-BAR Driver Control
TMR1	Altitude Alert Audio Volume Control

4 Intel 80C186 Priority Interrupts Allocation

<u>INT</u>	<u>DESCRIPTION</u>
INT0	1 KHz Video timing
INT1	ARINC 429 interrupt
INT2	DUART RS232 Communication interrupt
INT3	UART RS232 Communication interrupt

5 Intel 80C186 Peripheral Select Allocation

<u>PCS</u>	<u>DESCRIPTION</u>
PCS0	Select input port
PCS1	Select Gray Code Altitude inputs
PCS2	Select Real Time Clock/OBS Resolver Interface
PCS3	Select Output port
PCS4	Select RS232 (UART)
PCS5	Select ARINC 429 LSI
PCS6	Select RS232 (DUART)

6 RS232 DUART

INPUT PORT ALLOCATION

<u>BIT#</u>	<u>DESCRIPTION</u>
0	<u>ARM SELECT</u>
1	<u>TAKE HOME</u>
2	<u>SDI 1/2</u>
3	Battery low
4	EEDO
5	NAV <u>superflag</u> (FBK)
6	LEG/OBS CONTROL

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OUTPUT PORT ALLOCATION

<u>BIT#</u>	<u>DESCRIPTION</u>
0	BANK SEL 0
1	BANK SEL 1
2	BANK SEL 2
3	<u>PIT_BULL</u> (watch dog)
4	<u>CSUM</u>
5	<u>PGM_FLASH</u>
6	<u>VIDEO_ENABLE</u>
7	OP7 (GPS reset)

(k) OBS Resolver Interface

I67 functions as the time base generator for the OBS resolver interface, as well as the baud clock generator for the DUART. It produces the following signals:

- 450 Hz; used to generate resolver excitation.
- 900 Hz; used in conjunction with 450 Hz to derive synchronous detection control.
- 225 Hz; used in short circuit protection circuit.
- 230.4 kHz; time base for the A/D converter.
- 3.6864 MHz; Host DUART baud clock.

450 Hz is made symmetrical about 0V by C223 before passing on to the OBS output drive circuit composed of R329 and the rest of the circuitry associated with I68C, Q80 and Q81. The circuitry associated with R332, I68D, I73, I69 (SC channel) and I70 (SA channel) implement the fault detection/short-circuit protection circuit by monitoring the saturation status of Q80. A saturation condition in Q80 will cause the output to shut down within one half-period of the output wave form, and remain shut down for around 36 msec. After that time-out period, the driver is again enabled (but will shut down again if the fault condition persists). R332 is sized such that the fault detection threshold will be reached at a typical output current of around 60 mA.

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The circuitry associated with I68A and I68B senses the voltage from remote resolver's sin and cos output windings and gain-adjusts them to the proper levels. R324, R325, I69 (SA, SB channel), C231, C233, R327, R328, C222, and C232 comprise the synchronous detector/integrator circuit. The voltages on C231 and C233 become the average values of the gain-adjusted input wave forms over the interval from $\pi/2$ to π when I69 connects R325 to C231 and R324 to C233. This interval is chosen so that wave form leading-edge non-linearities that are resolver angle-dependent and stator leakage inductance-dependent under load do not taint the integrated values. R327, R328, C222, and C232 further average-out the voltages from C231 and C233 over the interval from π to 2π and back around to $\pi/2$ and maintain the presentation of the averaged values to I71A while the inputs are being integrated.

The circuitry associated with I71 and I72 comprise an absolute-value circuit paired with a sign-bit extractor. This circuit essentially makes I66, an 8-bit A/D converter, into a 9-bit A/D converter circuit. I71C and I71D provide two versions of the ABS VAL signal to I66: a 1X scale version and a 2X scale version. The Host Computer, via a SW AGC function, selects the scale that maximizes the usable range of the A/D converter. This feature allows the KLN 90B to interface with "11.8 V output" resolvers as well as "22 V output" resolvers while maximizing the converter resolution in both cases. The I72B circuit is a precision clamp that prevents the A/D converter from being over-driven and causing output data errors.

I74 is the address decoder for the interface and I75 is the data bus latch for the status data for the conversion.

I1A produces a 10.5V voltage reference. When FILT A/C PWR falls below this value, the output of I1B changes from 0V to a value near 16V, initially causing both sides of C2 reach this voltage level also.

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Q4 and Q3 are turned on at this point, switching the Battery Pack to INT PWR via CR5. While the output of I1 is high, C2 is charging through R7. When the voltage across R7 has decayed to 50% of its original value, as determined by R8 and R9, the output of I1C changes from 0V to a value near 16V, causing Q1 to turn on momentarily via C3 and R4. This quickly pulls the voltage across R7 towards zero, turning off Q4 and Q3 in the process. The time required for the voltage across R7 to decay to 50% of its initial value is nominally around 1.5 seconds. If FILT A/C PWR is re-established during the time the voltage across R7 is decaying, the output of I1B returns to zero and the battery pack is switched out as the circuit resets.

The circuitry associated with I1D charges the battery pack when the unit is operating. The battery charging current is sourced by the 16V supply rail through R15 and R16. When the battery pack is not heavily discharged, the charging current is determined by the parallel combination of R15 and R16. The charging current into a heavily discharged battery pack is limited by Q2 being in the off state such that the sourcing impedance is twice the normal value. This limits the demand for system power by the charging circuit, which would otherwise be significantly higher for a heavily discharged battery pack.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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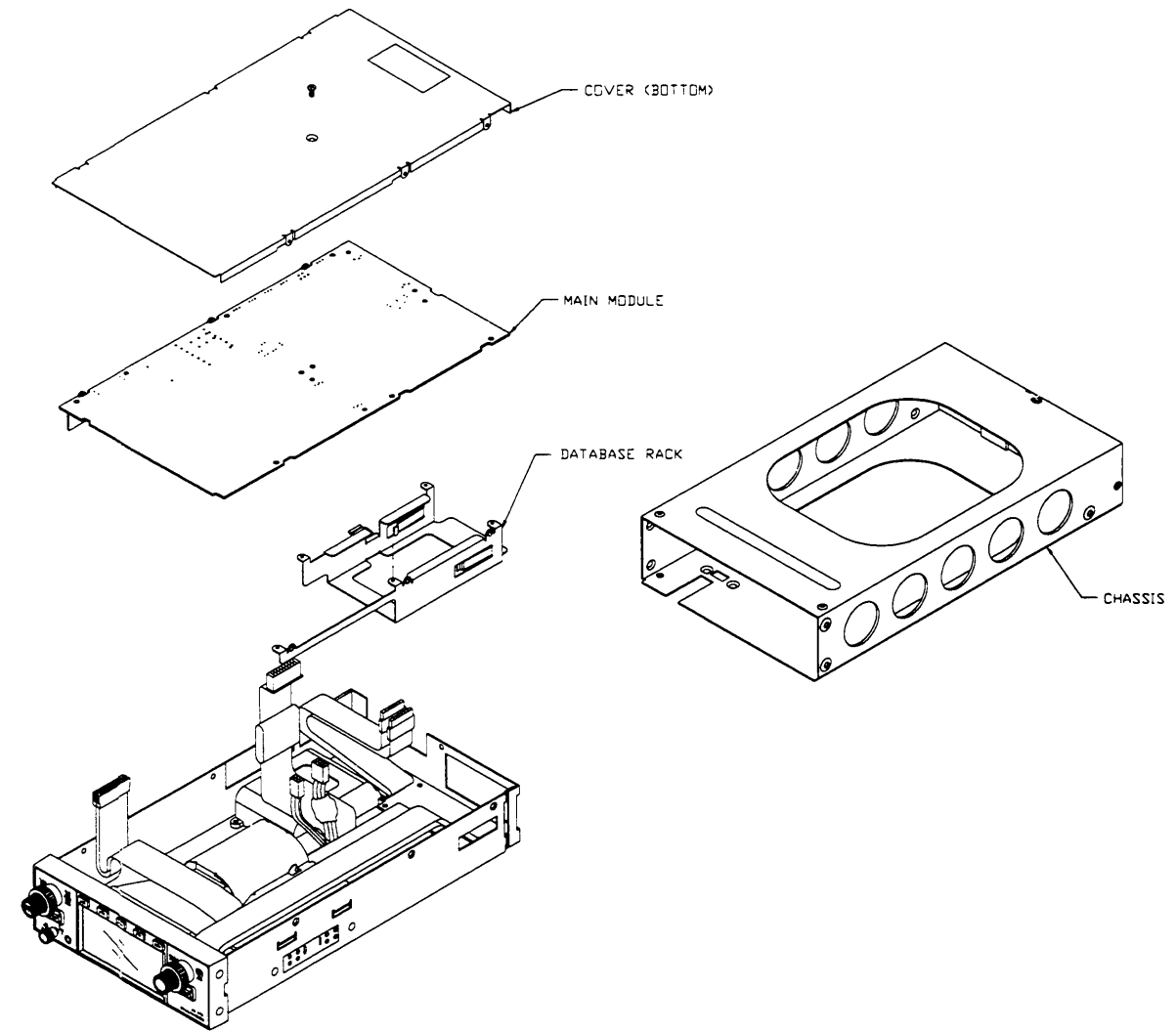
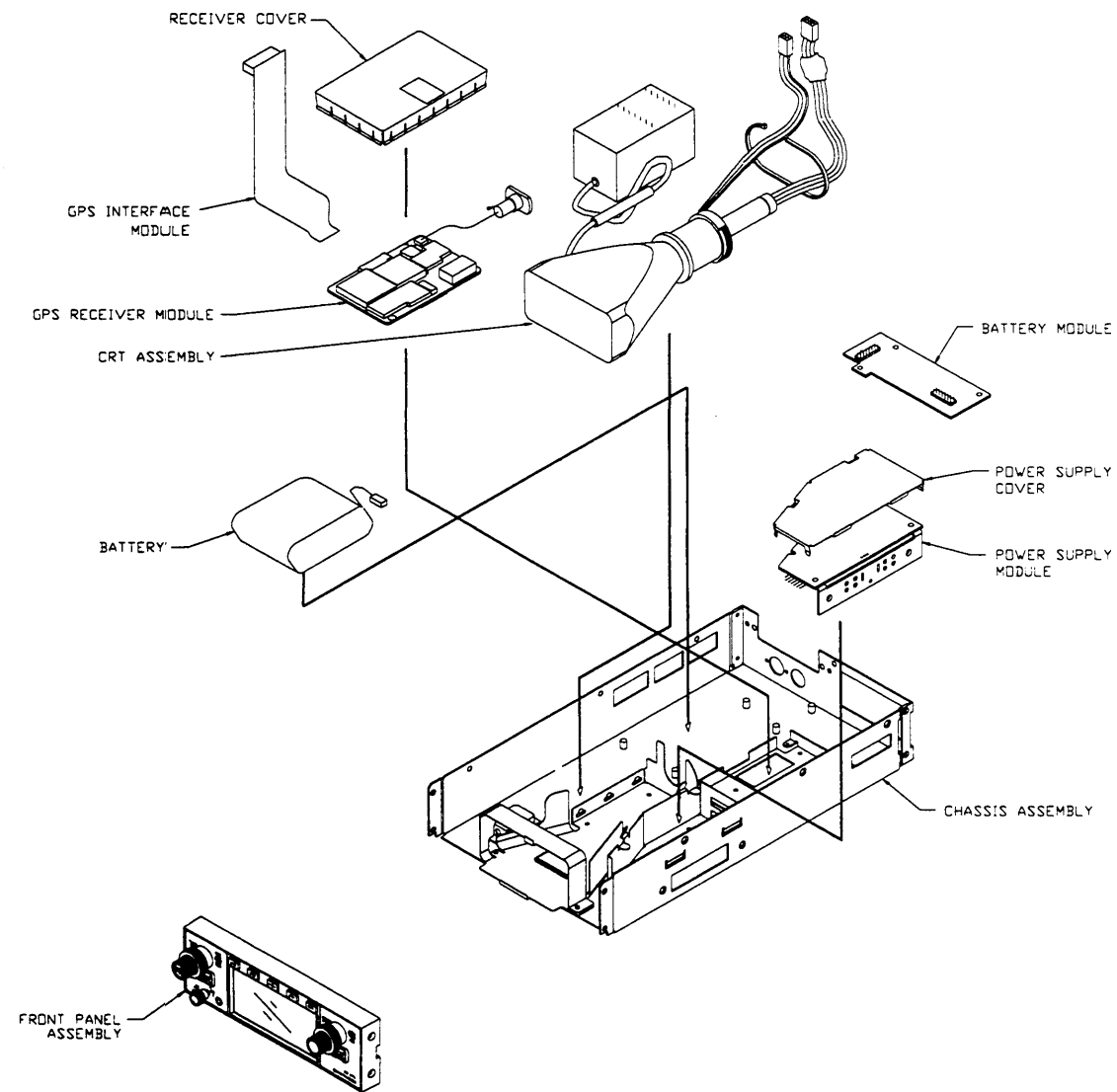


Figure 6 PC Module and Assembly Designations (KLN 90B)
(Sheet 1 of 2)

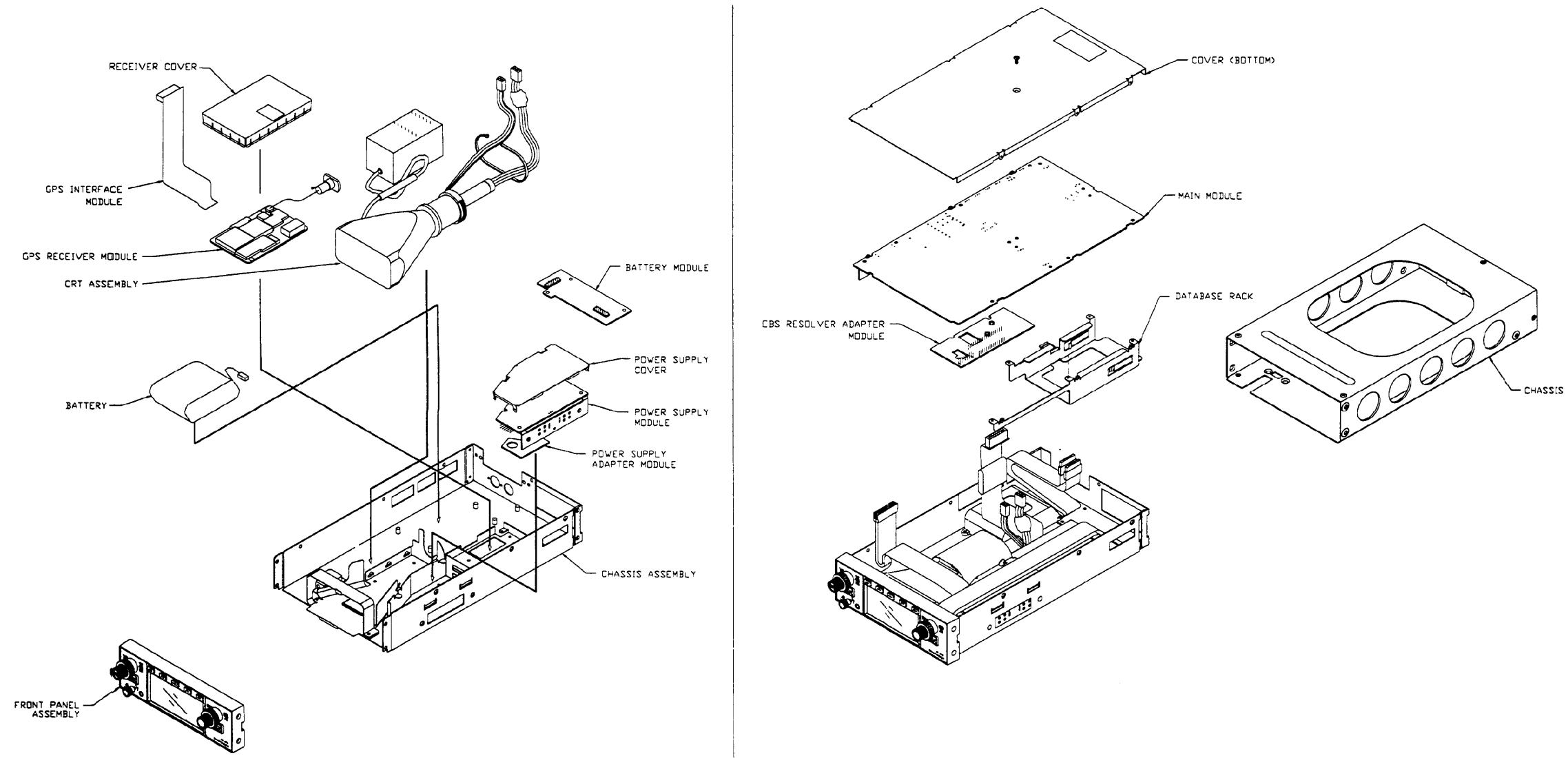


Figure 6 Module and Assembly Designations (KLN 90A Upgrade)
(Sheet 2 of 2)

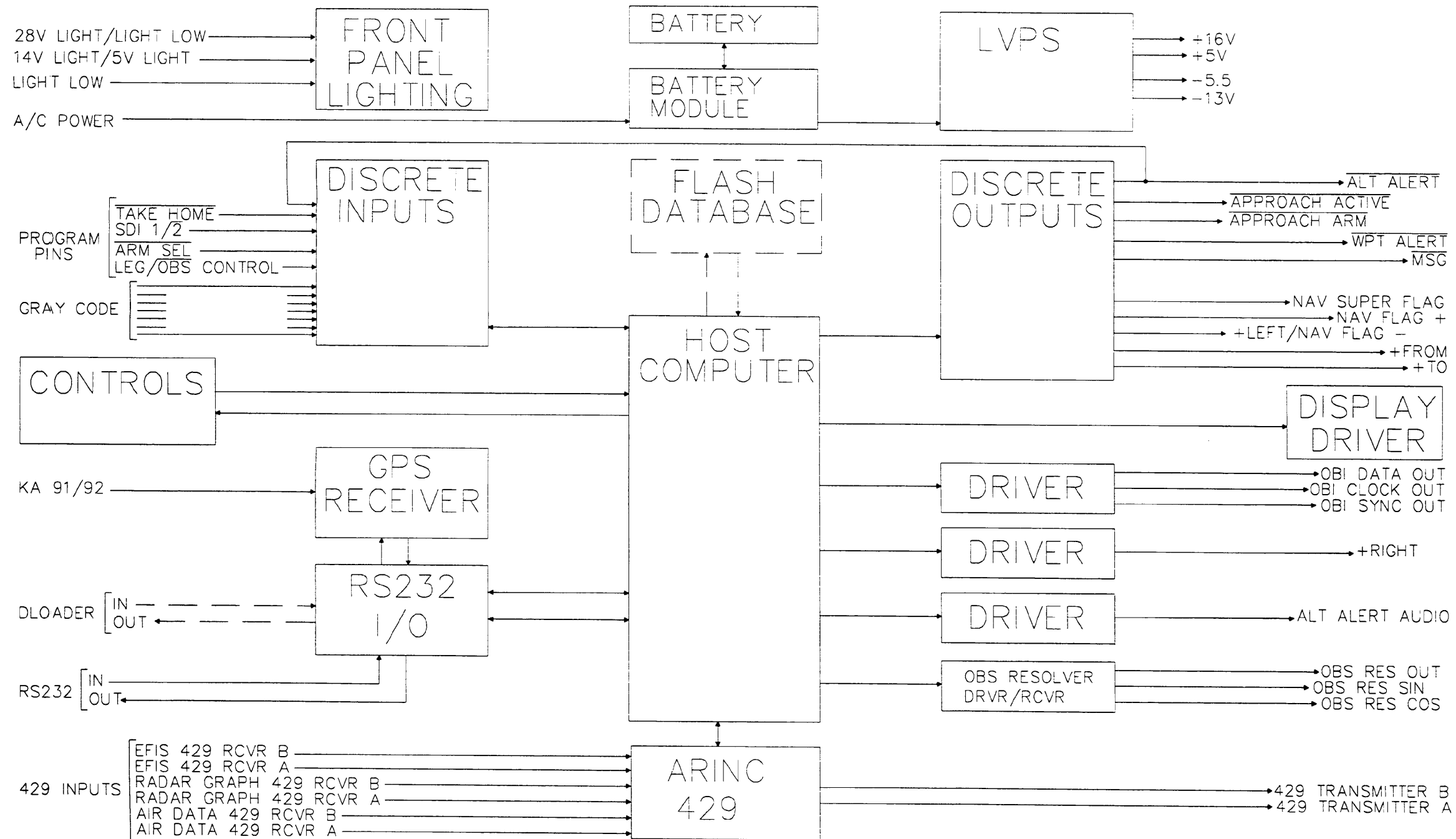


Figure 7 KLN 90B Block Diagram

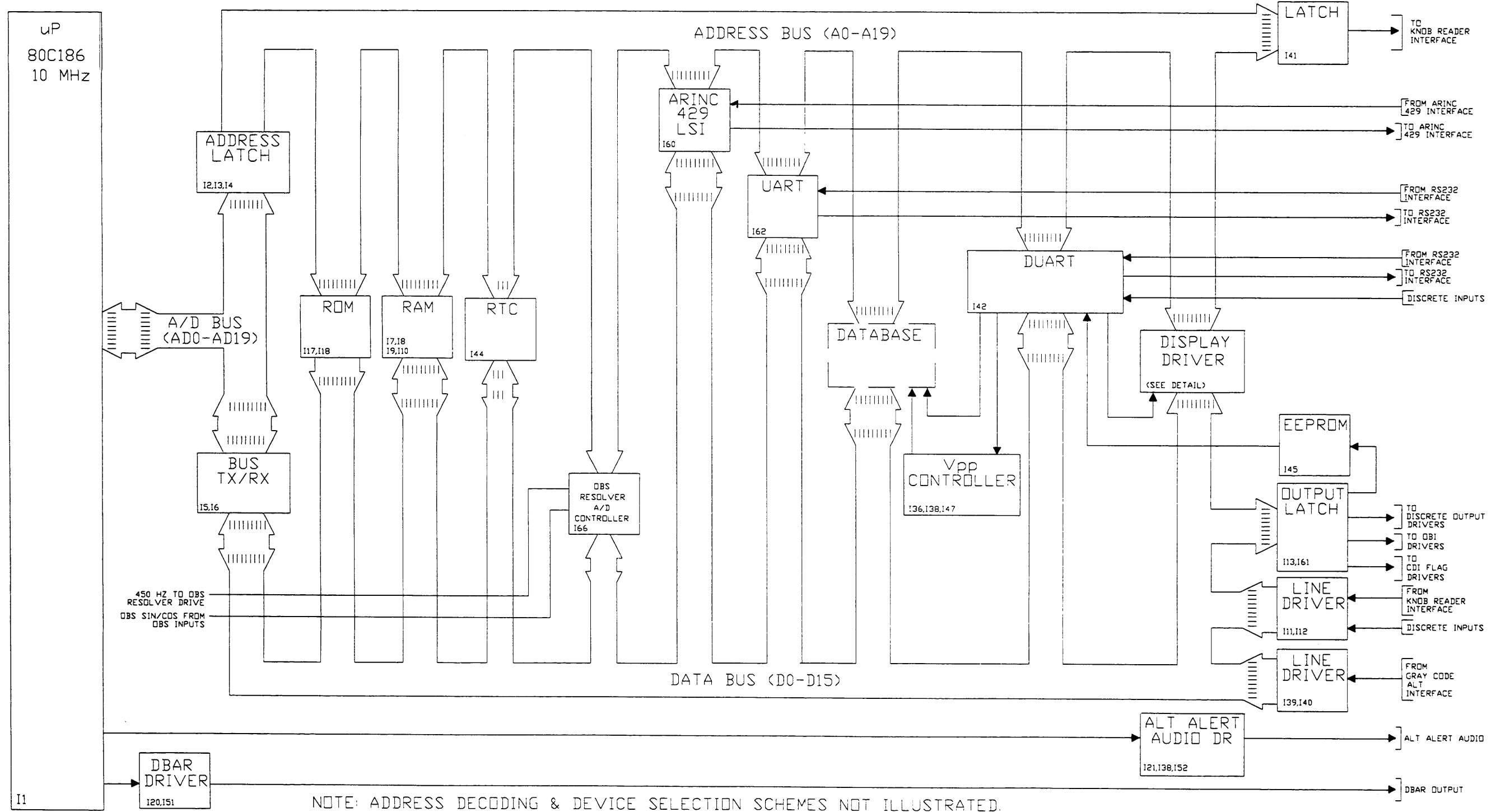


Figure 8 KLN 90B Host Computer Block Diagram

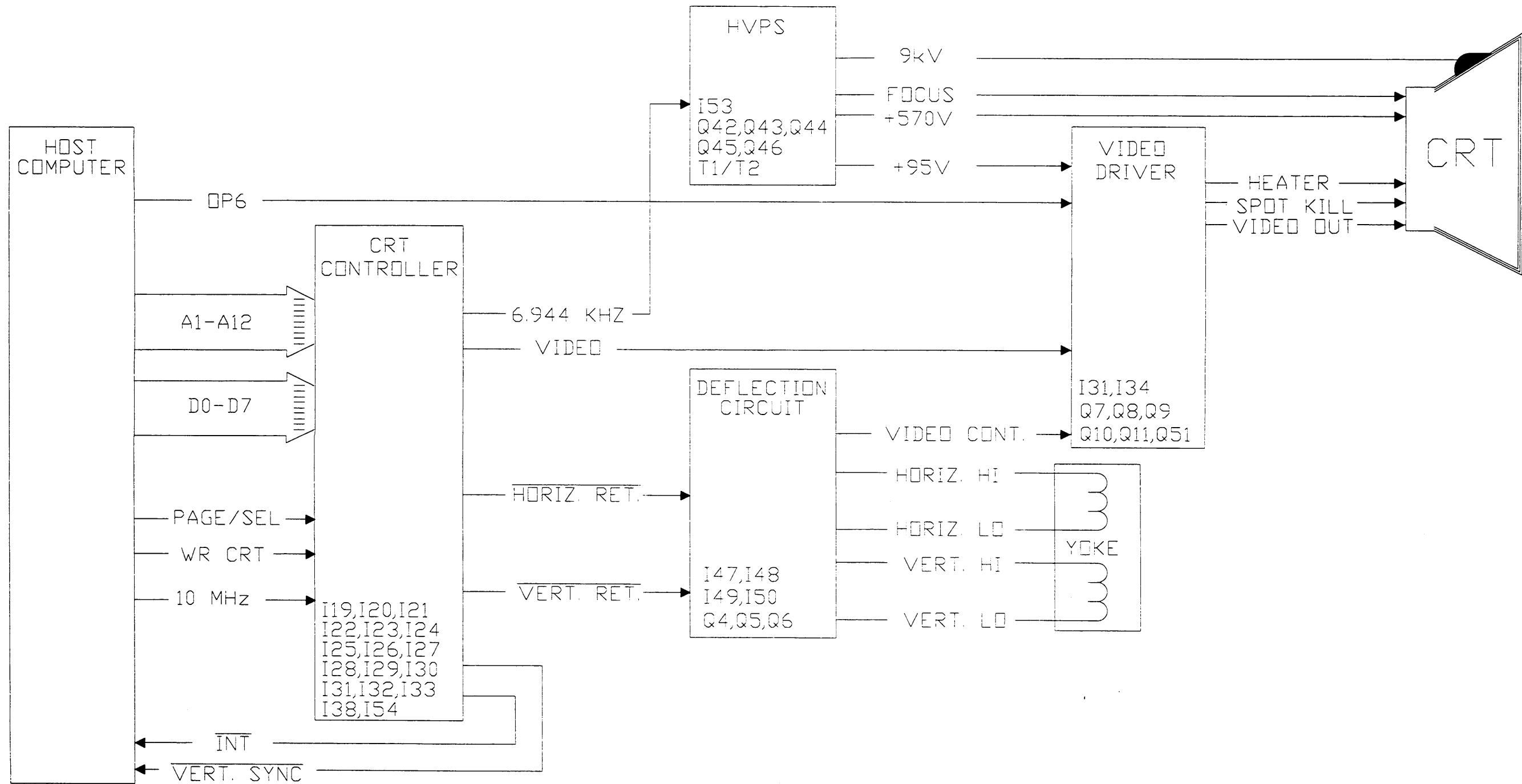
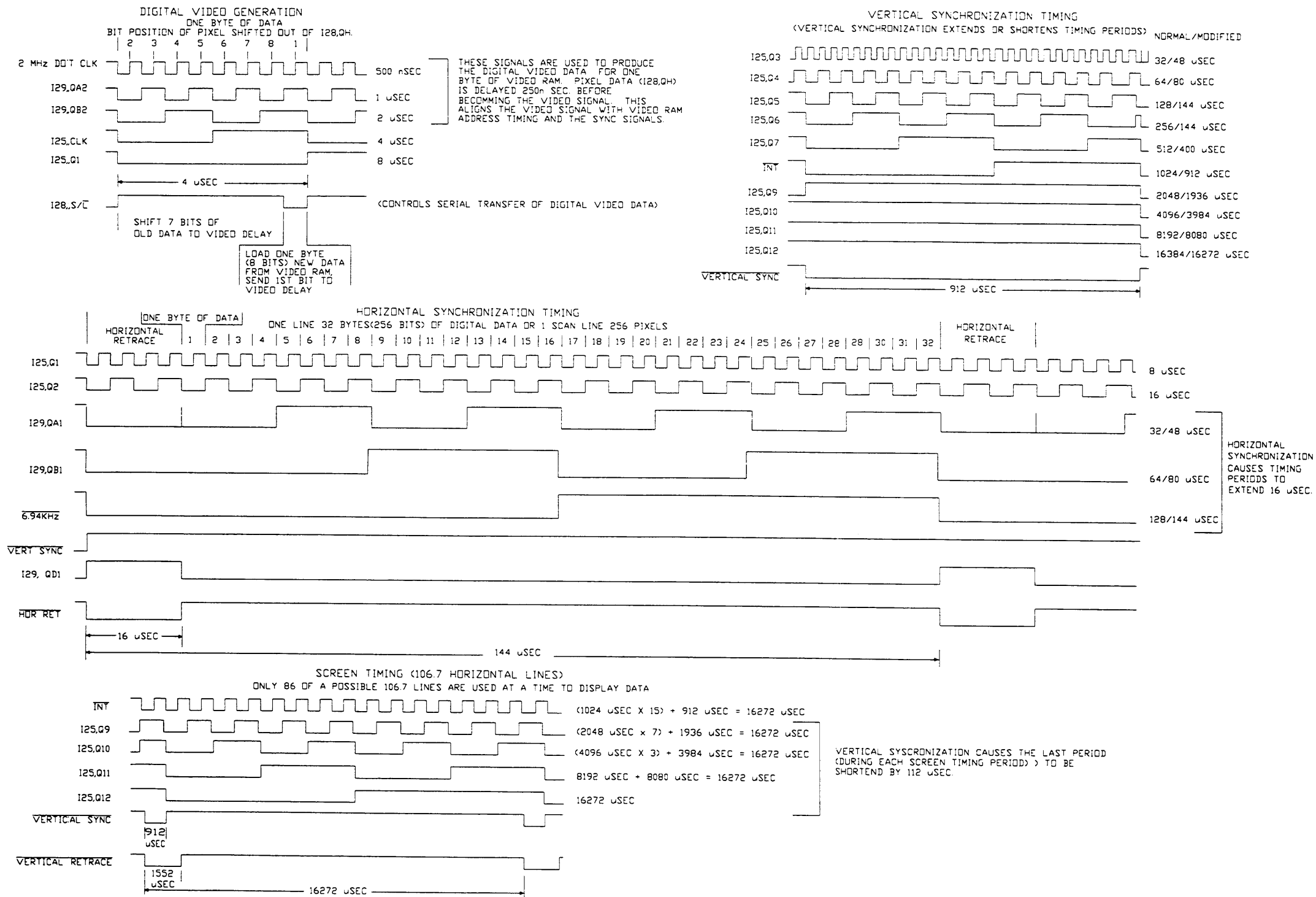


Figure 9 KLN 90B Display Driver Diagram



TIMING SUMMARY		
SIGNAL	PERIOD	
DOT CLK	500 nSEC	
129,QA2	1 uSEC	
129,QB2	2 uSEC	
125,CLK	4 uSEC	
125,Q1	8 uSEC	
125,Q2	16 uSEC	
125,Q3	32/48 uSEC	
125,Q4	64/80 uSEC	
125,Q5	128/144 uSEC	
125,Q6	256/144 uSEC	
125,Q7	512/400 uSEC	
125,Q9	2048/1936 uSEC	
125,Q10	4096/3984 uSEC	
125,Q11	8192/8080 uSEC	
125,Q12	16384/16272 uSEC	
129,QA1	32/48 uSEC	
129,QB1	64/80 uSEC	
6.948 KHZ	128/144 uSEC	
* TIMING DURING VRT SYNCHRONIZATION		
** TIMING EXTENDED BY HOR RET		
SIGNAL	ACTIVE PULSE WIDTH	PERIOD
HOR RET	16 uSEC	144 uSEC
VRT SYNC	912 uSEC	16272 uSEC
VRT RET	1552 uSEC	16272 uSEC

SCREEN CHARACTERISTICS	
DIGITAL VIDEO DATA 500 nSEC/1 BIT/ 1 DOT 4uSEC/1 BYTE/8 DOTS	
HORIZONTAL SWEEP 144uSEC/32BYTES/256DOTS NOTE: 256 DOTS POSSIBLE ONLY 207 DOTS USED	
VERTICAL SWEEP 16272uSEC/106.7LINES NOTE: 106.7 LINES POSSIBLE ONLY 86 LINES USED TO DISPLAY DATA	
PAGE 207DOTS/LINE X 86 LINES 2 PAGES/SCREEN NOTE: DISPLAY TOGGLES BETWEEN PAGE 1 AND PAGE 2.	

Figure 10 CRT Controller Timing Characteristics

TESTING AND TROUBLESHOOTING

1. General

This section contains instructions for functional testing, troubleshooting, and aligning the KLN 90B Global Positioning System (GPS) RNAV Receiver. The functional test is a cover-on test performed to determine the unit's operational status. The alignment procedures are performed after a misalignment has been isolated during troubleshooting, when a module or component that requires alignment has been replaced, or to set adjustable parameters to customer specifications.

2. Test Equipment Required

Refer to [SPECIAL TOOLS, FIXTURES, AND EQUIPMENT](#) section of this manual for information relating to test equipment that is required for testing, troubleshooting, and aligning the KLN90B.

NOTE: For any references to procedures using the KCA 167A Nonvolatile Memory Offloader, refer to the KCA 167A Component Maintenance Manual for details. The manual part number is listed in the [SPECIAL TOOLS, FIXTURES, AND EQUIPMENT](#) section of this manual.

3. Functional Test Procedures

A. Purpose

The purpose of the functional testing is to determine the operational status of the KLN90B. As such, the functional test may be used to check a new unit, a unit which has been in storage, or a unit which has been removed from an aircraft or storage. The functional test shall be performed with the unit fully assembled and no internal adjustments shall be made to the unit. Refer to [Figure 9002 KLN 90B Test Harness](#) for a suggested test setup.

If the KLN90B unit tests within the limits given, no further testing is required and the unit is considered suitable for installation in an aircraft. If the unit fails any portion of the functional test proceed to paragraph [5. Troubleshooting Procedures](#) of this section and isolate the fault in accordance with the troubleshooting information.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

WARNING: OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES. THE TECHNICIAN OR OPERATOR SHOULD OBSERVE ALL SAFETY PRECAUTIONS WHEN PERFORMING ANY TESTS OUTLINED IN THIS SECTION.

CAUTION: THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. UNIT MODULES AND INDIVIDUAL ESDS DEVICES MUST BE HANDLED IN ACCORDANCE WITH SPECIAL ESDS HANDLING PROCEDURES. FAILURE TO DO SO CAN RESULT IN DAMAGE TO ESDS DEVICES.

B. Functional Test Procedures

(1) Operational Controls

This section provides information concerning the KLN90B controls. Location and function are detailed.

NOTE: The left and right side of screen refers to the side of the screen that is on the left or right respectively when facing the unit's front panel.

- (a) Left hand knobs and "CURSOR" button: Located on left side of the unit, they control the left half of the screen.
- (b) Right hand knobs and "CURSOR" button: Located on the right side of the unit, they control the right half of the screen.
- (c) CURSOR ON & OFF: A light block on the display is used to indicate information on the block that may be changed. The cursor is "ON" when the block is lit. Information on a page may not be changed until the cursor is turned on.
- (d) Outer Knobs: The outside knob of the dual control knobs on either the left or right side. When the cursor is turned off, the outer knob is used to select different types of pages. When the cursor is turned on, the outer knob moves the cursor around the display.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (e) Inner knobs: The inside knob of the dual control knobs on either the left or right side. These knobs cause information under the cursor to change when the cursor is on. When the cursor is off, the left inner knob sequentially selects the page numbers of the selected type of page. The right hand knob sequentially selects the page numbers of the selected type of page when it is pushed in and the cursor is off. When the right hand knob is pulled out and the cursor is off, it is used to select data in a data base.
 - (f) ENT button: Causes information that has been changed in the cursor block to be stored or advances to TEST, WARNING, SELF-TEST, or DATA-BASE pages.
 - (g) MSG button: Toggles the MESSAGE pages on and off.
 - (h) CRSR button: Toggles the cursor on and off.
 - (i) ALT button: Toggles the ALT page on and off.
- (2) Initial Test Equipment Setup Procedure.

NOTE: The following checklist has been included and may used as a KLN90B final test data sheet.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

KLN 90B FINAL TEST DATA SHEET

UNIT P/N 066-04031-_____ S/N _____

Database Insertion Force

Normal insertion force _____ (OK)

Panel Lighting

Lighting bus current _____ for P/Ns ending in:

28V lighting bus current _____ mA (286mA DC MAX) -X1XX, -X3XX

14V lighting bus current _____ mA (572mA DC MAX) -X1XX, -X3XX

5V lamp current _____ A (1.0A MAX) -X2XX, -X4XX

Button/Knob Lighting _____ (OK)

Light leakage _____ (OK)

Turn On Aircraft Power

Input current _____ A (909 mA max @ 27.5V)

(Unit on) (NAV SFG not asserted)

TURN ON page _____ (OK)

Test Mode Warning

WARNING page _____ (OK)

Self-Test

SELF-TEST page _____ (OK)

Discrete Input Signals

GPS DISPLAYED _____ (OK)

TAKE HOME _____ (OK)

SDI 1/2 _____ (OK)

LEG/OBS _____ (OK)

ARM SELECT _____ (OK)

ALT ALERT & ALT ALERT AUDIO

ALT ALERT _____ (OK)

ALT Alert Audio (min set 00) _____ (OK)

ALT Alert Audio (max set 99) _____ (OK)

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GRAY Code ALT Inputs

First ALT reading _____ FT (49900 FT)
Second ALT reading _____ FT (24300 FT)

Discrete Output Signals

NAV FLAG (high) _____ mV (+350 mV to +900 mV)
NAV FLAG (low) _____ mV (less than +50 mV)
NAV SUPER FLAG _____ (OK)
TO/FROM Flag (+TO) _____ mV (+40 mV to +160 mV)
TO/FROM Flag (+FR) _____ mV (-40 mV to -160 mV)
TO/FROM (invalid NAV flag) _____ mV (not more than 5 mV)

Annunciator

WPT ALERT _____ (OK)
MSG _____ (OK)
APPROACH ARM _____ (OK)
APPROACH ACTIVE _____ (OK)

RMI

KTS 143 Display
RMI display is 130.0 deg. _____ (OK)
LEDs 3 and 4 are OFF _____ (OK)

OR

KI 229 Indicator Display
OBI/RMI display at 310 deg. _____ (OK)
SYNC VAL OFF, FLAG and ILS MODE ON _____ (OK)

CDI Right, Left, and Center Deviation

Right _____ MV (+60 mV to +90 mV)
Left _____ MV (-90 mV to - 60 mV)
Center _____ MV (-4 mV to +4 mV)

GPS Receiver

GPS state _____ (OK)
KLN 90B acquisition _____ (OK) (within 2 minutes)
Position valid _____ (OK) (within 10 minutes)
NAV state _____ (OK)
Non-volatile memory _____ (OK)

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No Database Module

NO DATABASE MODULE Message _____ (OK)
LOAD PUBLISH DB Message _____ (OK)

NAV2/SUP Page

NAV2/SUP page _____ (OK)

MESSAGE Page

No failure messages _____ (OK)
Failure messages displayed _____ (OK)
ARINC 429 I/O loop-back _____ (OK)
RS232 loop-back _____ (OK)
Data loader loop-back _____ (OK)

INC/DEC Knobs

Electrically Mechanically

Right and left inner and outer knobs _____ (OK) _____ (OK)
Right inner knob has detent _____ (OK)
Right inner knob PUSH/PULL function _____ (OK) _____ (OK)

Pushbuttons

Mechanical _____ (OK)
Electrical _____ (OK)

Display Alignment

Brightness control dark _____ (OK)
Brightness control bright _____ (OK)
Focus _____ (OK)
Horizontal linearity _____ (OK)
Orientation _____ (OK)
Image or screen drift _____ (OK)
NO SPOT test _____ (OK)

OBS Resolver Interface

Field values (normal conditions) _____ (OK)
Gain channel magnitude check _____ (OK)
Field values (resolver disconnected) _____ (OK)
Field values (OBS output shorted) _____ (OK)

Battery Module

One-second power interruption test _____ (OK)

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Post-final Procedures

Post-final procedures completed _____ (OK)

TECHNICIAN _____ DATE _____

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(2) Initial Test Equipment Setup Procedure (cont).

(a) Turn multimeter on.

(b) KTS 143 set-up:

1 Set all toggle switches (except S20, S21, and S22) to the "UP" position, and all rotary switches fully CCW.

2 Connect unit as per test harness schematic. (See [Figure 9002 KLN 90B Test Harness](#)).

3 Set switch S1 to "UP".

4 Set switch S2 to "DOWN".

5 Set switch S8 to "OFF".

6 Set switch S3 to "UP".

7 Apply power to KTS 143.

(c) KLN 90B test harness set-up. (See [Figure 9002 KLN 90B Test Harness](#))

1 Set switches S2, S4, S5, S12, S13, S15, S17, S19, S21 to "CLOSED".

2 Set switches S1, S3, S14, S16, S18, S20, S22, S23 to "OPEN".

3 Set switches S6, S7, S8, S9, S10, S11, S24, to "NORMAL".

(d) KCA 167A set-up. (Refer to the KCA 167A Component Maintenance Manual for procedures).

(e) Set S1 on 050-01571-0001 to the "400 Hz" position.

(3) Pre-Final Test Procedures

NOTE: Offload non-volatile memory before aligning or testing the unit. (Refer to KCA 167A Manual for procedures).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

NOTE: Voltage measurements are referenced to J901 pin 27 unless specified otherwise.

CAUTION: COOLING IS REQUIRED WHILE TESTING THE UNIT.

CAUTION: THE OFFLOADER HARNESS (155-02703-0 001) DOES NOT INCORPORATE INTERNAL POLARITY PROTECTION FOR THE TWO POWER SUPPLY INPUTS. REVERSE POLARITY POWER TO THESE INPUTS MAY DAMAGE TO THE UNIT.

- (a) Connect offloader harness to the KLN90B, PC and +27.5 VDC.
 - (b) Turn on the KLN90B.
 - (c) Pull BRT/PUSH ON out and then push it back in again (Cycle the power on the KLN90B). Do not advance beyond the TAKE- HOME MODE WARNING page and do not press any buttons or turn any knobs other than BRT/PUSH ON.
 - (d) Verify that the date and time on the PC's internal clock are correct (using DOS's "TIME" and "DATE" commands).
 - (e) Activate KUTIL90 program and save non-volatile memory. (Refer to KCA 167A Manual for procedures). Use the unit's serial number as the file name.
- (4) Database Insertion Force

CAUTION: DO NOT REMOVE OR REPLACE DATABASE CARTRIDGE WHILE KLN90B IS OPERATING.

- (a) Remove power from the KLN90B.
- (b) Remove and reinsert database cartridge. It should not bind or require excess force to install or remove.
- (c) Remove database cartridge from unit.
- (d) Connect fabricated test harness to the KLN90B.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(5) Panel Lighting

- (a) Note the version of the KLN90 to be tested to determine proper lighting bus to be used.
- (b) Connect Ammeter in series with the lighting bus.
- (c) Apply voltage to lighting bus as indicated in [Table 1001 Lighting Bus Voltages](#).

UNIT VERSION	BUS VOLT	P901 (HI)	P901 (LO)	CURRENT
X1XX/X3XX	28V	28	32	286 mA D.C.
X1XX/X3XX	14V	29	28&32	572 mA D.C.
X2XX/X4XX	5V	29	28&32	1.0 A (dc/ac rms @ 400Hz)

Table 1001 Lighting Bus Voltages

- (d) Disconnect voltage supply from lighting bus.
- #### (6) Turn ON/Aircraft Power
- (a) Verify A/C power voltage is +27.5 at Pin 40 of P901.
 - (b) Connect ammeter in series with the A/C power bus, at Pin 40 of P901.
 - (c) Close following switches on the test harness.
 - 1 Set switch S2 to (CLOSED).
 - 2 Set switch S4 to (CLOSED).
 - 3 Set switch S5 to (CLOSED).
 - (d) Push BRT/PUSH ON knob on faceplate to turn unit on.
 - (e) Note the current reading. It should not exceed 909 mA with NAV SUPER FLAG not asserted or 1.16 A with the NAV SUPER FLAG asserted.

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- (f) After the display illuminates, check for TURN ON page as listed below.

GPS	ORS 20
C1994	Honeywell INC
SELF TEST IN PROGRESS	

NOTE: Variable data may be different than in the sample display.

The page will time out in approximately 15 seconds.

(7) TEST MODE WARNING Page

After TURN ON page has timed out, TEST MODE WARNING page should be displayed as follows. Ensure that this occurs.

WARNING:
SYSTEM IS IN TEST MODE
DO NOT USE
FOR NAVIGATION
ACKNOWLEDGE?

(8) SELF-TEST Page

NOTE: While the SELF-TEST page is displayed, the left inc/dec knob is inoperative.

Press ENT button on unit to acknowledge TEST MODE WARNING Page. The TAKE HOME WARNING page should not appear at this time but the SELF-TEST page should be displayed as follows. Ensure that this occurs.

DIS	34.5NM	DATE/TIME
++++V++ +++		02 MAR 94
OBS IN	315°	14:15 CDT
OUT	315°	ALT 1324FT
RMI	130°	BARO:29.95"
ANNUN	ON	APPROVE?

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

NOTE: Variable data may be different than in the sample display.

NOTE: To proceed beyond the self-test page, S5 must be opened. S1 and S4 may also be opened, if desired.

(9) Discrete Inputs

(a) $\overline{\text{TAKE HOME}}$ select

- 1 Turn KLN90B off.
- 2 Set switch S2 of test harness to (Open).
- 3 Turn KLN90B on.
- 4 The KLN90B should not enter test mode.
- 5 Turn KLN90B off.
- 6 Set switch S2, S4, and S5 of test harness to (Close).
- 7 Turn KLN90B on.
- 8 After approximately 5 seconds, set S2, S4, and S5 to, open.
- 9 The KLN90B should now enter test mode.

(b) $\text{SDI } 1/\overline{2}$, GPS DISPLAYED, $\overline{\text{ARM SEL}}$, & $\overline{\text{LEG/OBS CTRL}}$
View directly on STA3 page.

HOST SW	20	
RCVR SW	20	
OBS CAL	100	
SDI 1/2	H	
GPS DIS	H	
ARM H LEG	H	
STA3		

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(c) ALT ALERT & ALT ALERT AUDIO

- 1 Connect scope to THTP 12.
- 2 Set switches S24 & S11 of test harness to (NORMAL).
- 3 Select the SET 9 page.
- 4 Press the left cursor button to activate the volume setting cursor field.
- 5 Verify that each time this field is changed (using left inner knob), an audio signal is produced at THTP 12, as observed with an oscilloscope, and that DS6 is lit.
- 6 Verify that when "00" appears in the cursor field, the peak amplitude of the voltage waveform observed at THTP 12 lies in the range of 0.6 V to 1.0 V.
- 7 Verify that when "99" appears in the cursor field, the peak amplitude of the voltage waveform observed at THTP 12 lies in the range of 3.1 V to 4.0 V.
- 8 Set switch S24 to (ALT ALERT Program).
- 9 Cycle power on the KLN90B.
- 10 Verify that the ALT ALERT functions are disabled.

(10) GRAY Code ALT Inputs

- (a) Enter barometric pressure of 29.92 in as the barometric setting on the SELF-TEST page.
- (b) Take note of ALT reading.
- (c) Set switches S15, S17, S19, S21 to (OPEN).
- (d) Take note of ALT reading.
- (e) Set switches S14, S16, S18, S20, S22, S23 to (OPEN).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(f) Take note of ALT reading.

(11) Discrete Output Signals

The following procedures should be performed only while the self- test page is displayed or results may vary from those anticipated.

- (a) Depress right CRSR Button on KLN90B once.
- (b) Monitor the voltage between THTP7 and THTP9 of the test harness. (Note: The multimeter used must be isolated from Ground.)
- (c) Repeatedly toggle the NAV Flag Output between a High and Low State by repeatedly pressing the CLR Button. A voltage reading of less than +50 mV is defined as a Low State. A voltage reading between +350 mV and +900 mV is defined as a High State.
- (d) Set test harness switch S10 to the "NORMAL" position.
- (e) Toggle the NAV SUPER FLAG output between high and low states by repeatedly pressing the CLR button until lamp DS5 is lit.
- (f) Monitor the voltage between THTP10 and THTP11 of the test harness.

NOTE: The multimeter used must be isolated from Ground.

- (g) Repeatedly toggle the TO/FROM output between a TO and FROM State by repeatedly pressing the DIRECT-TO button. A voltage reading between +40 mV and +160 mV defined as a TO state. A voltage reading between -40 mV and -160 mV is defined as a FROM state.
- (h) Toggle the NAV SUPER FLAG output between high and low states by repeatedly pressing the CLR button until lamp DS5 is not lit.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (i) Repeatedly attempt to toggle the TO/FROM output between a TO and FROM state by repeatedly pressing the DIRECT-TO button. The voltage reading shall not be more than 5 mV dc.

(12) Annunciators

- (a) Set Test Harness switches S6 through S10 to the "NORMAL" position.
- (b) Repeatedly press the CLR button on the KLN90B to toggle the annunciator outputs between a high and low State. Lamps DS1 through DS5 will be lit when outputs are asserted and off when they are not asserted. Verify that lamps DS1 through DS5 will toggle on and off.
- (c) While the outputs are in the "ON" state (lit), toggle switches S6 through S10 back and forth between the "NORMAL" and "TEST" positions. Verify that each indicator is not noticeably brighter with its switch in the "TEST" position than it is in the "NORMAL" position.
- (d) Return switches S6 through S10 to the "NORMAL" position.

(13) RMI - KTS 143 Option

- (a) Set switch S14 on KTS 143 to "DIGITAL OBI".
- (b) Set switch S12 on KTS 143 to "RECEIVE".
- (c) Set switch S7 on KTS 143 to "DOWN".
- (d) Set switch S9 ON KTS 143 to "NORMAL".
- (e) Pull BRT/PUSH ON knob out and then push it back in. (Cycle KLN90B power).
- (f) Verify that LED #3 and LED # 4 are off and that 130° is displayed on the KTS 143 while the SELF-TEST page is being displayed.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

OR

RMI - KI 229 Option

- (a) The OBI/RMI display in the KI 229 should indicate 310 deg.
- (b) The SYNC VAL light on the test harness must be OFF. The FLAG and ILS MODE lights on the test harness must be ON.

(14) CDI Left and Right Deviation

NOTE: Settling time of 15 seconds may be required before taking measurements.

- (a) Monitor the voltage between THTP8 with respect to THTP9 with a multimeter.

NOTE: The multimeter used must be isolated from ground.

- (b) If the reading on multimeter is negative depress CLR button on KLN90B. A reading of not less than +60 mV and not more than +90 mV (A nominal value is +75 mV) should be observed.
- (c) Depress CLR button. A voltage reading of not less than -90 mv or not more than -60 mv (nominal value is -75 mv) should be observed.
- (d) Depress Right CRSR button to turn the cursor on.
- (e) Move the cursor to the word "APPROVE".
- (f) Depress ENT button. Unit will leave SELF-TEST page.
- (g) Observe the reading on multimeter. It should be not less than -4 mV and not more than +4 mV (nominal value is 0 V).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(15) GPS Receiver

- (a) Select the STA 1 page.
- (b) Verify that none of the following appear after "STATE":

FAILC
FAILM
FAILR
- (c) Set GPS simulator to simulate the following conditions:

Satellite ID: 11
Code Switch: ON
Data Switch: ON
Doppler Switch: OFF
Doppler Frequency: N/A
Attenuation: Set Simulator RF Output
for - 109 dBm \pm 2 dBm
at P902.
- (d) The RCVR mode should be set to TEST on the STA 6 page.
- (e) Verify that the KLN90B acquires the correct satellite within 2 minutes on all 8 channels with an SNR of not less than 42, as seen on the STA 1 page.
- (f) Connect the KLN90B to the roof mounted KA 91/KA92 and cycle power.
- (g) Set the time and date to current time and date \pm 10 minutes. Set the unit's initial position (SET 1 page) to within 30 miles of the correct position of the roof-mounted KA91/ KA92. Set switches S14 through S23 to the "OPEN" state.
- (h) Verify that the unit will acquire the correct position within a .124 NMI radius from the exact antenna position within 10 minutes from power-up during adequate satellite coverage. Adequate satellite coverage is verified when the EPE shown on the STA 2 page is less than .124 NMI. Verify that the STATE: on the STA1 page is NAV or NAV D.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (i) Check the receiver's non volatile memory by cycling power after having a valid position. Verify that the receiver returns to NAV or NAV D state in five minutes or less.

(16) No Data Base Module Installed

- (a) The following should be displayed on the DATA BASE page if the data base cartridge is missing when the unit is on.

```
NO DATA BASE  
CARTRIDGE PRESENT  
PUBLISHED WPTS HAVE  
BEEN REMOVED FROM FPL 0  
MAGNETIC VARIATION:___ ° ___  
ACKNOWLEDGE
```

- (b) Ensure that the No Data Base Page was displayed.
- (c) After powering up the unit with a functional data base installed. Select the SET 0 Page and press the left cursor button. Verify that "LOAD PUBLISH DB" is listed as one of the possible options on the SET 0 Page.

(17) NAV2/SUP Page

- (a) Move cursor to word "ACKNOWLEDGE" and press ENT.
- (b) Note if NAV 2/SUP page is displayed.

(18) Message Page

- (a) Close switches S11 and S12 and S13 on the test harness. (LOOP BACK ARINC 429, RS232, AND DATA LOADER).
- (b) After about 15 seconds depress MSG Button.
- (c) Allow 15 seconds for unit to perform the loop back tests. No error message should be displayed. Ensure that no error message was displayed.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (d) Open switches S11 and S12 and S13 on the test harness. (OPEN LOOP BACK ARINC 429, RS-232 AND DATA LOADER).
 - (e) Allow 10 seconds for Unit to perform the LOOP BACK test. The following messages should be displayed:
 - EFIS RECEIVER FAILURE
 - RDRG RECEIVER FAILURE
 - AIR DATA FAIL
 - DATA LOADER ERROR
 - NO RS-232 DATA
 - (f) Press MSG button and allow the MESSAGE page to time out.
- (19) INC/DEC Knobs
- (a) Ensure that the right & left inner & outer knobs function electrically and mechanically.
 - (b) Ensure that the right inner knob detent function properly.
 - (c) Ensure that the right inner knob in and out positions function properly.
- (20) Push Buttons
- (a) Ensure that all push buttons mechanically function.
 - (b) Ensure that all push buttons electrically function.
- (21) Display
- (a) Visually inspect the KLN90B display for brightness, focus, horizontal linearity, and image drift.
 - (b) Pull BRT/PUSH ON knob on the KLN90B out and then push it back in (cycle KLN90B power). When the unit is off there should not be a glowing, lingering spot on the display.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(22) External OBS Resolver Interface

Proper operation of the External OBS interface may be verified on STA 7 page (TEST mode only)

1X SIN:	143	
1X COS:	143	
2X SIN:	255	
2X COS:	255	
F:0	V:1	G:1
A:345	M:202	
STA7		

where:

1X SIN = 1 times gain channel converted SIN magnitude
1X COS = 1 times gain channel converted SIN magnitude
2X SIN = 2 times gain channel converted SIN magnitude
2X COS = 2 times gain channel converted SIN magnitude

F:0 = OBS RES OUT fault status: 0 = output OK
1 = fault present

V:1 = External OBS angle status: 0 = invalid
1 = valid

G:1 = AGC status: 1 = 1 times gain selected
2 = 2 times gain selected

A:345 = Unadjusted external OBS angle

M:202 = SIN/COS vector magnitude

(a) Perform the following operations in any order using a 050-01571-0001 or equivalent.

- 1 Under normal operating conditions, verify the following field values on the STA 7 page:

F: 0

V: 1

G: 1

A: Resolver angle (EZ'd at $300^\circ \pm 1^\circ$ + resolver inherent accuracy tolerance).

M: not less than 150 and not greater than 360.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- 2 Adjust the resolver angle until the 2X SIN value and the 2X COS value drop to below 250 (not necessarily possible to do with both values at once). Verify that the 1 X values are equal to 50% (\pm 5%) of the 2X values.

- 3 Disconnect the resolver by opening S26, S27, and S28. Verify the following field values:

F: 0
V: 0
G: 2

- 4 Short circuit OBS RES OUT (P901 pin 31) directly to A/C ground using S25. While the fault is established, verify the following field values:

F: 1

V: 0

(23) Battery Module Test

After the UUT is operating normally and at ambient conditions for a period no longer than 15 minutes, ensure that the device will operate through a power interruption not exceeding 1 second in duration. No flagging or other abnormal indication should occur during this interruption.

(24) Procedure

- (a) Pull BRT/PUSH ON knob on the faceplate out. Remove power from the KLN90B.

- (b) Re-insert data base cartridge into the KLN90B if not already in unit.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

CAUTION: THE OFFLOADER HARNESS (155-02703-0001) DOES NOT INCORPORATE INTERNAL POLARITY PROTECTION FOR THE TWO POWER SUPPLY INPUTS (BANANA PLUGS- RED(+27.5 VDC), BLK (GROUND)). NEVER SUPPLY REVERSE POLARITY POWER TO THESE INPUTS. DAMAGE TO THE KLN90B MAY RESULT.

- (c) Connect OFFLOADER HARNESS (155-02703-0001) to the KLN90B, PC and +27.5 VDC.
- (d) Turn on KLN90B.
- (e) PULL BRT/PUSH ON out and then push it back in again cycling the power on the KLN90B. (Do not advance beyond the TAKE- HOME MODE WARNING page and do not press any buttons or turn any knobs other than BRT/PUSH ON).
- (f) Utilizing the KLN90B NMOS, up load the Data from the disk file created in section 3.B. (3) [Pre-Final Test Procedures](#) to the KLN90B user memory. (Refer to KCA 167A Manual for procedure).
- (g) Remove power and disconnect cables from the KLN90B.
- (h) Re-connect the KLN90B test harness and apply power to the KLN90B.
- (i) Remove power and disconnect the test harness.

4. Simulated ATLAS Functional Test Procedures

Not applicable.

5. Troubleshooting Procedures

The KLN90B self-test procedures are the primary means of troubleshooting the unit and will aid in troubleshooting a failure. If the unit displays "FAIL", approve date, database and then select the MESSAGE page to identify the failure using self-test.

6. Alignment Procedures

A. General

The alignment of the KLN90B GPS based RNAV consists of the alignment of the POWER SUPPLY, DISPLAY, REAL TIME CLOCK, D-BAR CALIBRATION, ARINC 429 TRANSMITTER/RECEIVER, RS232 TRANSMITTER/RECEIVER, and RMI OUTPUT.

Alignment of the KLN90B must be performed with all system circuit modules in place, or with suitable dummy Loads in place. All voltage readings at testpoints are referenced to GND (P901, Pin 27) unless otherwise stated.

WARNING: OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES. THE TECHNICIAN OR OPERATOR SHOULD OBSERVE ALL SAFETY PRECAUTIONS WHEN PERFORMING ANY TESTS OUTLINED IN THIS SECTION.

CAUTION: THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. UNIT MODULES AND INDIVIDUAL ESDS DEVICES MUST BE HANDLED IN ACCORDANCE WITH SPECIAL ESDS HANDLING PROCEDURES. FAILURE TO DO SO CAN RESULT IN DAMAGE TO ESDS DEVICES.

NOTE: The GPS receiver module is a factory serviceable item only.

B. Pre-alignment Set-up Procedures

(1) Before applying power to the unit, perform preliminary main module adjustments on any of the following components that have been replaced or manipulated prior to alignment.

- (a) Adjust R196 completely clockwise.
- (b) Adjust R142 completely counter-clockwise.
- (c) Adjust R195 to approximately mid-travel.
- (d) Adjust R143 to approximately mid-travel.
- (e) Adjust R194 to approximately mid-travel.
- (f) Adjust R193 to approximately mid-travel.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(g) Adjust R137 completely counter-clockwise.

(2) Close Switch S2 on the test harness.

(3) Close Switch S4 on the test harness.

(4) Close Switch S5 on the test harness.

C. Power Supply Alignment

Reference [Figure 2011 Power Supply Module](#) or [Figure 2013 Power Supply Module \(KLN 90A Upgrade\)](#) for component locations unless otherwise specified.

(1) Apply $+27.5 \pm 0.3$ VDC between pin 40 of P901 (+28VDC A/C PWR) and pin 27 of P901 (A/C GND). (Rear connector of the KLN90B).

(2) Adjust R12 to obtain a reading of $+5.0$ VDC $\pm .05$ VDC at TP 7.

(3) Sample the voltage at test point TP 6. The voltage read should be between $+14.4$ VDC and $+17.6$ VDC inclusive.

(4) Sample the voltage at test point TP 8. The voltage read should be between -10.95 VDC and -14.75 inclusive.

(5) Sample the voltage at test point TP 9. The voltage read should be between -4.95 and -6.05 VDC inclusive.

(6) If the voltage at test point TP 9 is slightly out of range, remove or add CJ 101 (farside of 200-08569-0001) and repeat steps.

D. Display Alignment

(1) Select the SET page with left outer knob.

(2) Select DISPLAY ALIGNMENT page, (SET 10 page) with the left inner knob. The following page will be displayed (see [Figure 1001 Display Alignment Page](#)).

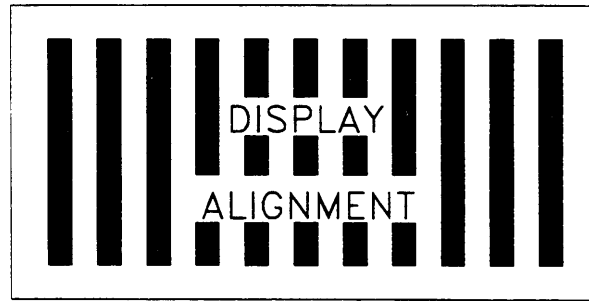


Figure 1001 Display Alignment Page

- (3) Set ON/OFF DIM knob at fully counter clockwise.
- (4) Select 1000 VDC range of the Multimeter (Note: DVM must have a 10 Meg Ohm min input impedance). Adjust R137 to obtain a voltage reading of +570 VDC \pm 1 VDC at TP 13.
- (5) Adjust R143 until the raster and any discernible screen data just disappears when the KLN90B's faceplate is shaded from ambient light.
- (6) Select the 200 VDC range of the DVM. Connect the DVM to TP3 and note the reading obtained.
- (7) Adjust R143 to obtain a voltage reading at TP3 that is 3 VDC more positive than the reading obtained in step (6).
- (8) Set the ON/OFF DIM knob fully CW.
- (9) Verify that raster lines do not appear.
- (10) With the ON/OFF DIM knob still full CW, repeat steps (4) and (9).
- (11) Set BRT/PUSH ON Knob on faceplate to 12:00 or 1:00 O'clock position, (2/3 full clockwise).
- (12) Adjust R142 to obtain sharpest over-all focus. (At maximum intensity, some blooming will occur making the focus adjustment difficult).
- (13) Press left CRSR button.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (14) If the horizontal lines of the SET 10 Page are not parallel with the horizontal edges of the CRT opening in the Front Panel Bezel, loosen the Yoke Clamp and adjust the angular position of the Yoke until parallelism is observed.

CAUTION: THE CRT NECK IS FRAGILE; EXERCISE CAUTION WHEN ADJUSTING THE YOKE POSITION.

- (15) Re-tighten Yoke Clamp.

CAUTION: DO NOT OVER-TIGHTEN THE YOKE CLAMP.

- (16) Adjust the left Outer Knob (Vertical Centering) in conjunction with R193 (Vertical Size) until the topmost horizontal lines lie $.220" \pm .025"$ from the top of the CRT opening in the front panel bezel and lowermost horizontal line lie $.125" \pm .025"$ from bottom edge of the CRT opening in front panel bezel (when the viewing angle is perpendicular to the face of the display). If the left outer knob does not allow sufficient vertical centering range, R195 can be adjusted to obtain additional vertical centering range.

- (17) Adjust the left inner knob (Horizontal Centering) in conjunction with R196 (Horizontal Size) until the outermost vertical lines of the SET 10 page lie $.220" \pm .25"$ from their respective edges of the CRT opening in the front panel bezel (when the viewing angle is perpendicular to the face of the display).

- (18) Adjust R194 (Horizontal Linearity) until all the vertical bars on the SET 10 Page appear equal in width and spacing. This adjustment will affect horizontal centering.

- (19) Repeat steps (17) and (18) until no further improvements can be made.

- (20) Press ENT button to store the centering data.

E. Real Time Clock

There are no alignment adjustments for the real time clock, however the following test is to be performed following service to any of the circuitry associated with the real time clock.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Refer to [Figure 2007 Main Module](#) or [Figure 2009 Main Module KLN 90A Upgrade](#) for component locations.

- (1) Connect an oscilloscope to TP 14 and verify the waveform has a frequency of approximately 64.000 Hz.
- (2) "HIGH" level = +4.5 to +5.5 Volts.
- (3) "LOW" level = 0.0 to +0.4 Volts.
- (4) Select the SET 2 page.
- (5) Set the three letter time zone designator to the local time zone.
- (6) Set the time, in 24 hour format, equal to the local time.
- (7) Set the date equal to the local date.
- (8) Verify the proper date, time and time zone on the SELF-TEST page.

F. D-BAR Output Calibration

- (1) Select the SET page with left outer knob.
- (2) Select D-BAR CAL page, (SET 11 page) with the left inner knob. The following message will be displayed on the left page:

```
D-BAR CAL  
PRESS CRSR  
TO ACTIVATE
```

- (3) After pressing the CRSR button, the following will be displayed.

```
D-BAR CAL  
CAL OUTPUT  
+300 mV
```

- (4) Select 2 VDC scale of the DVM (Note: DVM must be isolated from ground). Connect the positive test lead of the DVM to THTP8 of the test harness. Connect the negative test lead of the DVM to THTP9 of the test harness.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (5) Adjust left inner and outer knobs to obtain a DVM reading of $+300 \text{ mV} \pm 2 \text{ mV}$. The outer knob will function as a coarse adjustment and the inner knob will function as a fine adjustment.
- (6) Press the ENT button.
- (7) The KLN90B will display the following:

D-BAR CAL
CAL OUTPUT
-300 mV
- (8) Then adjust the left inner and outer knobs to obtain a DVM reading of $-300 \text{ mV} \pm 2 \text{ mV}$. The outer knob will function as a Coarse Adjustment and the inner knob will function as a fine adjustment.
- (9) Press the ENT button to save the calibration information.
- (10) Press the left CRSR button to leave this page.

G. ARINC 429

There are no alignment adjustments for the ARINC 429 transmitter and receivers. However, the following test is to be performed following service to any of the circuitry associated with the ARINC 429 transmitter/receiver.

- (1) Close test harness Switch S11.
- (2) Monitor the voltage at THTP2 (429 A line) and THTP1 (429 B line) with the oscilloscope. The following table indicates acceptable voltage level ranges for these two signals.

SIGNAL	"HI"	"NULL"	"LO"
429 XMIT A	+3.75 V MIN.	0 V \pm 0.25V	-3.75 V MAX
429 XMIT B	-3.75 V MAX.	0 V \pm 0.25V	+3.75 V MIN

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

H. RS-232

There are no alignment adjustments for the RS-232 transmitters/receivers. However, the following test is to be performed following service to any of circuitry associated with the RS-232 transmitters/receivers.

- (1) The bit rate should be 9600 baud \pm 96 baud. Since the same timebase is utilized for the GPS receiver interface and external RS-232 channels except for the DATA LOADER IN/OUT, the Baud Rate can be checked indirectly by verifying that the GPS receiver error message (NO RCVR DATA) does not appear on the MESSAGE Page.

If an error message does not appear, then the RS-232 Baud Rate is OK. If the message appears, further investigation is required to determine whether the problem is on the main module, the 155-02725-0000 Cable Assembly, or the GPS receiver module. The DATA LOADER IN/OUT baud rate must be verified with an oscilloscope or other means (THTP 14).

- (2) Close test harness Switches S12 and S13.
- (3) Monitor the voltage level of THTP6 (RS-232 OUT) and THTP 14 (DATA [B]LOADER OUT) of the test harness using the oscilloscope. The output levels required are defined below.

+3 volts min (SPACE condition)
-3 volts max (MARK condition)

NOTE: The data loader harness (155-02794-0001) must not be installed during this test.

I. RMI Alignment

There is no alignment for the RMI Output; however, the following test is to be performed following service to any of the circuitry associated with the RMI Output.

- (1) Monitor THTP3 with an oscilloscope.
- (2) Verify that the HIGH state is not less than +8.0V.
- (3) Verify that the LOW state is not more than +1.0v.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(4) Repeat steps (1) through (3) at THTP4 and THTP5.

7. Retest Procedure

After a fault has been isolated and repaired, the unit should be subjected to the functional test in the [3. Functional Test Procedures](#) section of this manual to ensure that the repaired area is operating correctly and that other areas have not been damaged during the repair procedure.

8. Service Information

A. Proper Test Equipment Usage

Semiconductor devices and integrated circuits are frequently damaged by accidentally applying excessive voltage or current to the device elements. These causes for failure are reduced with proper test equipment.

- (1) Do not use multimeters with sensitivities less than 500-ohms-per-volt. Use either a 20,000-ohms-per-volt multimeter or a vacuum tube voltmeter.
- (2) Do not use test equipment with transformer-less power supplies unless an isolation transformer is used in the ac power line.
- (3) Use a conductive table top for testing and connect the table top to the ground conductor of the 60 Hz power line.
- (4) Some test equipment is designed with a line filter across the ac input. This could result in accidentally applying 55 volts ac to the semiconductor device. To eliminate this possibility, always connect a ground wire from the test equipment chassis to the chassis of the unit-under-test (UUT) prior to making any other connections.
- (5) All low impedance equipment (such as pulse generators, etc.) should be disconnected before dc power supplies are turned off.

B. Capacitor Checking

- (1) Check all capacitors with proper voltage polarity. Polarized capacitors are damaged by reverse voltage and should be replaced if that occurs.

- (2) Check all capacitors with proper voltage level. A capacitor may be damaged if the voltage applied exceeds the dc working voltage of that capacitor.
- (3) When checking tantalum capacitors, use a series resistor to limit the charge and discharge rates to prevent surge damage to the capacitor. The value of the series resistor should be 10 ohms for each volt applied to the capacitor. Ensure that the maximum dc working voltage, as marked on the capacitor, is not exceeded and that the polarity markings on the capacitor are observed when applying voltage. Disregarding polarity markings or exceeding the dc working voltage may permanently damage the capacitor.

C. Transistor Testing

When testing transistor junctions for relative resistance, care should be taken to ensure that the semiconductor junctions are not damaged. Typically, this can be done by using a relatively low ohmmeter range setting for forward biasing tests and a higher ohmmeter range setting for reverse biasing tests. Using too high a range setting can damage the junctions; therefore, consult the individual component's specification sheet to ensure that the proper biasing is performed for each junction and that the ohmmeter range setting is correct for that specific component. [Table 1002 PNP Transistor Testing Procedure](#) and [Table 1003 NPN Transistor Testing Procedure](#) provide typical testing data for PNP and NPN transistors.

CAUTION: BEFORE INSTALLING A REPLACEMENT TRANSISTOR, MAKE CERTAIN THAT OTHER ELEMENTS OF THE CIRCUIT ARE IN GOOD OPERATING ORDER. IF A DEFECT EXISTS IN THE CIRCUIT, THE REPLACEMENT TRANSISTOR MAY ALSO FAIL.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

CHECK NO.	OHMMETER CONNECTIONS			RANGE	RELATIVE RESISTANCE
	BASE	COLLECTOR	EMITTER		
1	-		+	RX100 or RX1,000	Low (1,000 ohms or less)
2	+		-	RX10,000	High (100,000 ohms or more)
3		-	+	RX10,000	High (100,000 ohms or more)
4		+	-	RX10,000	High (100,000 ohms or more)
5	-	+		RX100 or RX1,000	Low (1,000 ohms or less)
6	+	-		RX10,000	High (100,000 ohms or more)
7 Connect base to collector		-	+	RX100 or RX1,000	Resistance should decrease from that obtained in check 3.
8 Connect base to emitter		-	+	RX10,000	High (100,000 ohms or more)

Table 1002 PNP Transistor Testing Procedure

CHECK NO.	OHMMETER CONNECTIONS			RANGE	RELATIVE RESISTANCE
	BASE	COLLECTOR	EMITTER		
1	+		-	RX100 or RX1,000	Low (1,000 ohms or less)
2	-		+	RX10,000	High (100,000 ohms or more)
3		+	-	RX10,000	High (100,000 ohms or more)
4		-	+	RX10,000	High (100,000 ohms or more)
5	+	-		RX100 or RX1,000	Low (1,000 ohms or less)
6	-	+		RX10,000	High (100,000 ohms or more)
7 Connect base to collector		+	-	RX100 or RX1,000	Resistance should decrease from that obtained in check 3.
8 Connect base to emitter		+	-	RX10,000	High (100,000 ohms or more)

Table 1003 NPN Transistor Testing Procedure

D Integrated Circuits

CAUTION: BEFORE INSTALLING A REPLACEMENT IC, VERIFY THERE IS NO VOLTAGE 10% GREATER THAN +VCC OR -VCC ON ANY OF THE IC HOLES ON THE BOARD. VERIFY THERE IS NO GROUND ON ANY IC HOLE THAT SHOULD NOT BE GROUNDED.

CAUTION: BEFORE INSTALLING A REPLACEMENT IC, MAKE CERTAIN THAT OTHER ELEMENTS OF THE CIRCUIT ARE IN GOOD OPERATING ORDER. IF A DEFECT EXISTS IN THE CIRCUIT, THE REPLACEMENT IC MAY ALSO FAIL.

(1) Common digital IC failures include:

SYMPTOM	POSSIBLE CAUSE
Constant LO	Input(s) or output shorted to ground pin of IC.
Constant HI	Input(s) or output shorted to Vcc pin of IC.
Approx. 1.5 Vdc	Open input(s) or output.
Output cannot go LO	Ground pin open.
Output cannot go HI	Vcc pin open.
Output cannot change	Inputs shorted together.

(2) Series 54/74 Integrated Circuits

Type-number identification is becoming increasingly complex for the 54/74 series of integrated circuits. These chips were originally referred to as TTL; however, many different type numbers now apply to chips that perform the same logical function, although specifications (temperature, speed, power, etc.) and interior configurations may be different. Usually, the only difference in the type numbers involves the alpha characters immediately following the 54/74 designation. Refer to [Table 1004 54/74 Series IC Alpha Character Significance](#) as a guideline in determining the specific specifications of each type.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

ALPHA CHARACTER	SIGNIFICANCE
NONE	Standard Transistor-Transistor-Logic (TTL)
S	Schottky-clamped TTL device. Contains the integrated Schottky-Barrier diode-clamped transistor circuitry.
LS	Low-power Schottky TTL device.
AS	Advanced Schottky TTL device.
ALS	Advanced Low-power Schottky TTL device.
HC	High-speed CMOS device. Requires special ESDS handling.
HCT	High-speed CMOS with TTL input voltage level compatibility. Requires special ESDS handling.
AC	Advanced CMOS device. Requires special ESDS handling.
ACT	Advanced CMOS with input TTL compatibility. Requires special ESDS handling.

Table 1004 54/74 Series IC Alpha Character Significance

(3) Integrated Circuit Functional Diagrams

The truth table of a logic element is a primary fault isolation tool. A HI level on all digital logic elements used in the MST 67A is between +2 Vdc and +5 Vdc in TTL circuits and +3.5 Vdc to +5 Vdc in CMOS circuits. A LO level is less than +0.8 Vdc in TTL and +1.5 Vdc in CMOS circuits. When checking input and output levels of a logic element under question it should be remembered that an input or output may not agree with its truth table, not because it has malfunctioned, but because some other component connected to the same point has shorted to ground or to (V_{CC}). This is not uncommon when an output of one element is connected to an input of another. It may be necessary to isolate the gate under question by unsoldering the necessary IC pins.

Most chips are available in both 54 series and 74 series type numbers. The 54 series have an operating temperature specification of -55°C to 125°C, and the 74 series have a temperature specification of 0°C to 70°C.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(4) Integrated Circuit Diagrams

This section contains descriptions of certain integrated circuits as an aid to understanding the operation of this equipment. Only more complex or uncommon integrated circuits are included in this section as information on basic logic elements, op-amps, and other simple circuits are readily available from publications such as general IC databooks or basic electronic theory. A listing of those circuits included is shown in [Table 1005 Index to Integrated Circuit Diagrams](#).

Honeywell PART NUMBER	FIGURE 1002 SHEET NO.	TYPE NUMBER	DESCRIPTION
120-02208-0004	1	80C186	MICROPROCESSOR
120-02456-0000	2	82050	UART
120-08030-0000	3	N.A.	ARINC 429
123-00390-0003	4	74HC390	COUNTER
123-00393-0003	5	74HC393	COUNTER
123-04046-0003	6	4046	PLL

Table 1005 Index to Integrated Circuit Diagrams

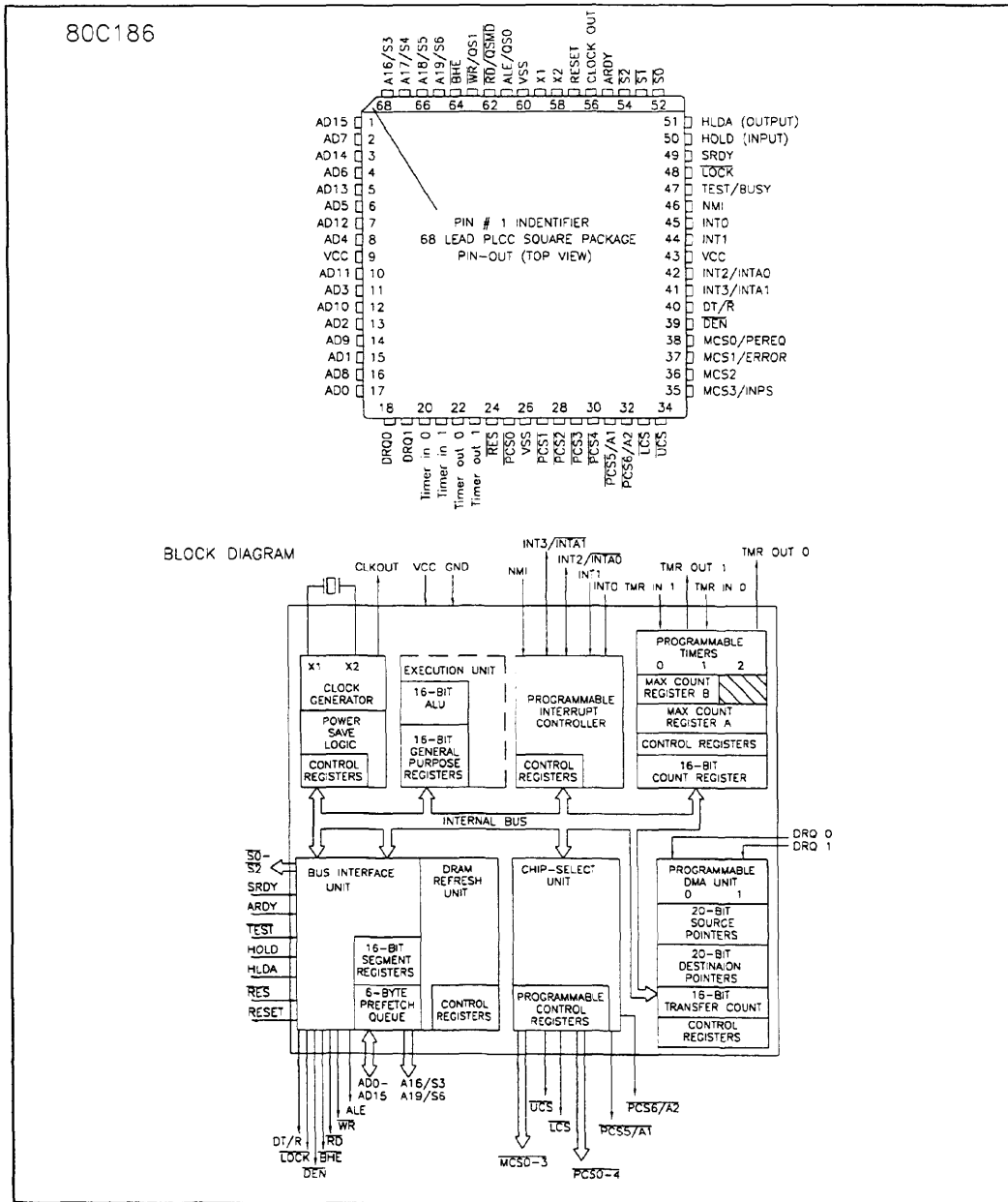


Figure 1002 Integrated Circuit Diagrams (Sheet 1 of 6)

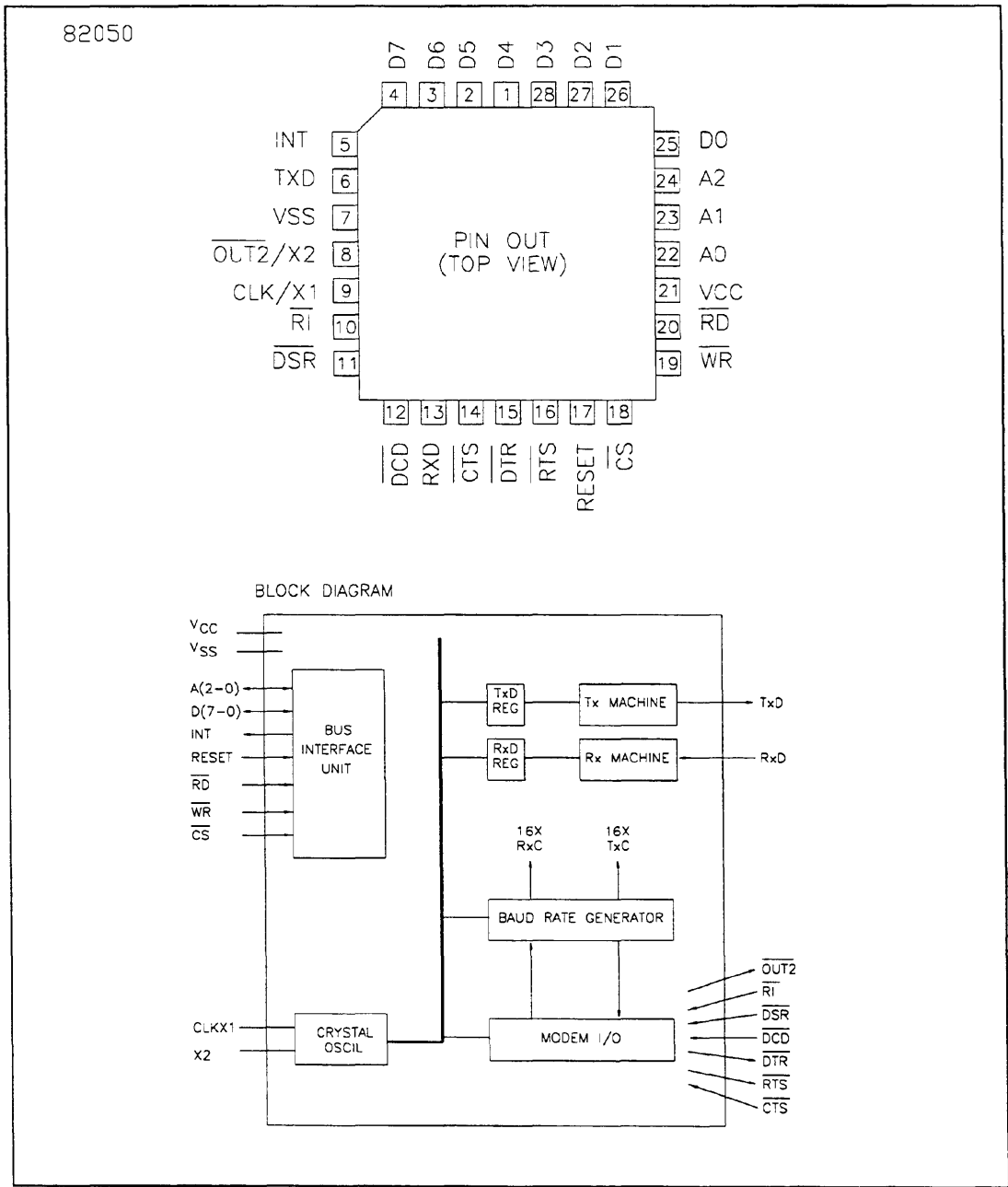


Figure 1002 Integrated Circuit Diagrams (Sheet 2 of 6)

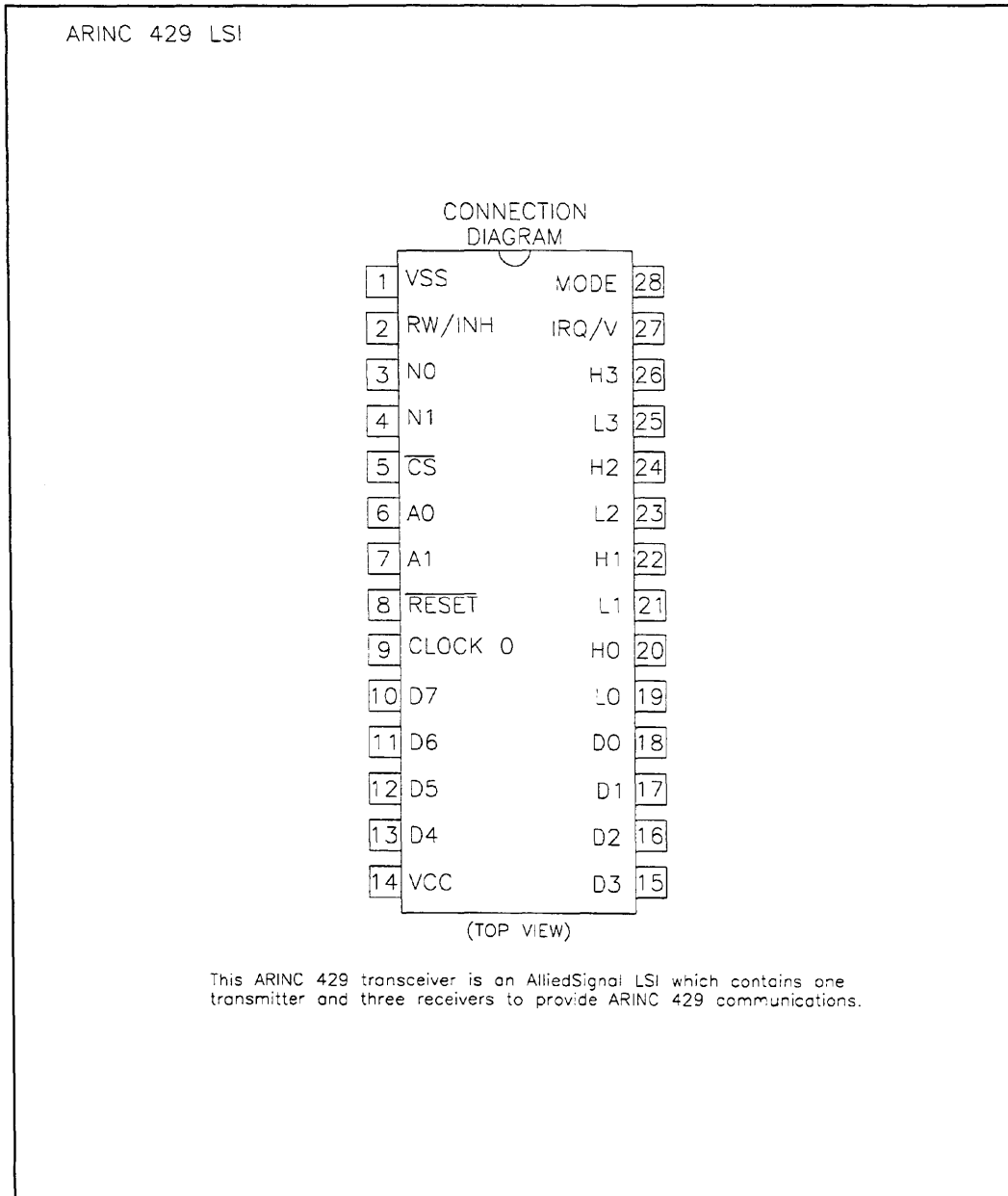


Figure 1002 Integrated Circuit Diagrams
(Sheet 3 of 6)

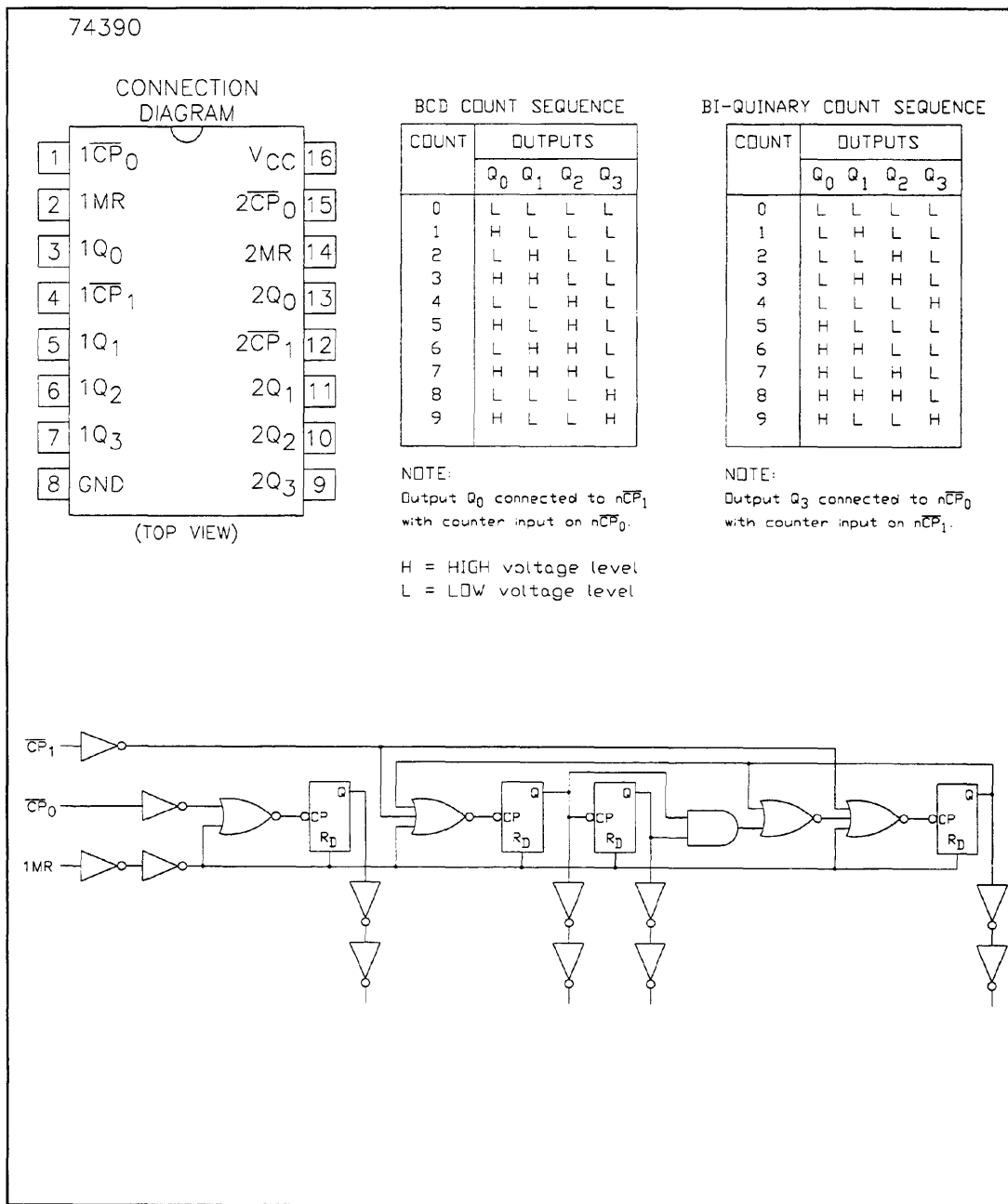


Figure 1002 Integrated Circuit Diagrams
(Sheet 4 of 6)

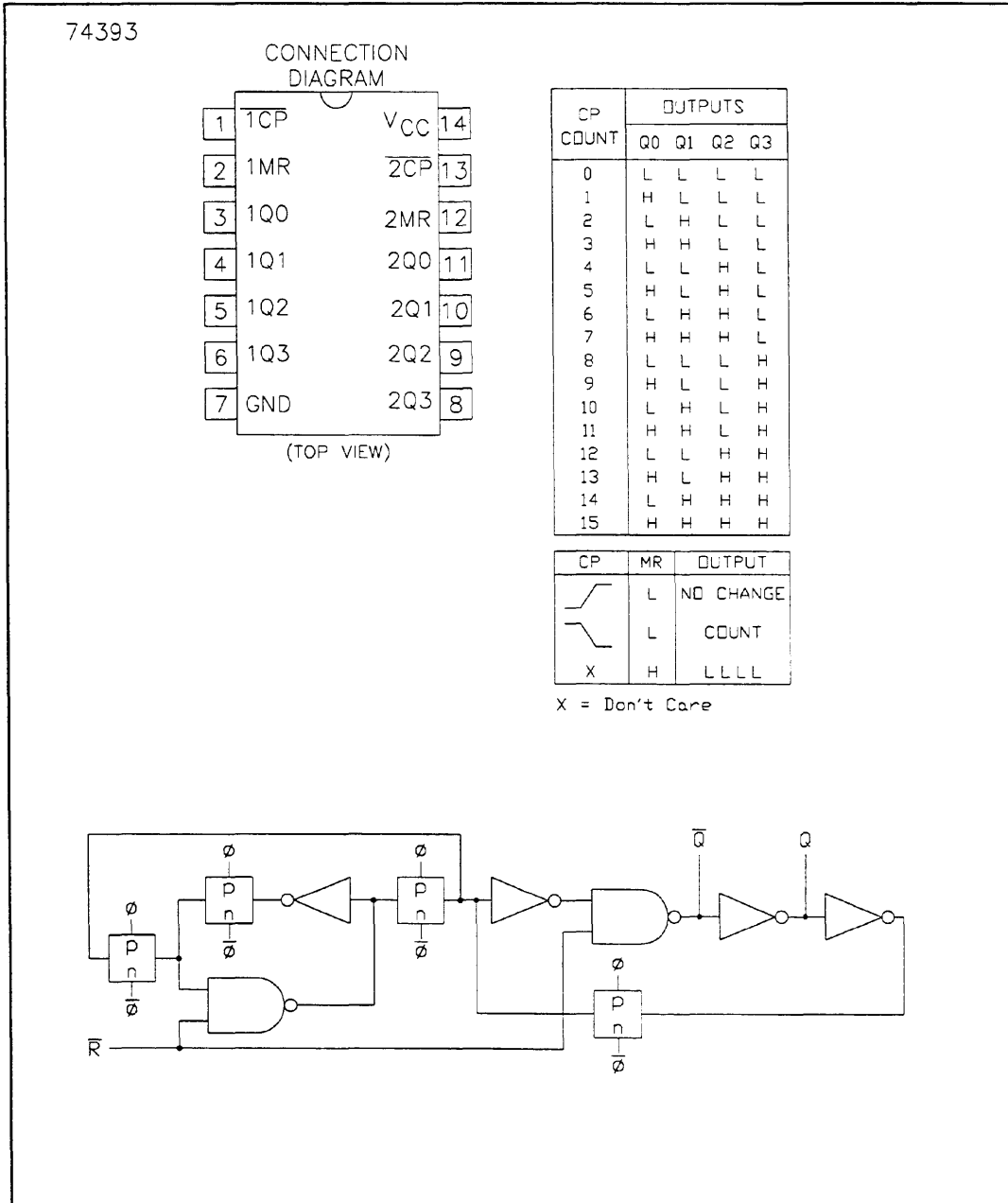


Figure 1002 Integrated Circuit Diagrams
(Sheet 5 of 6)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

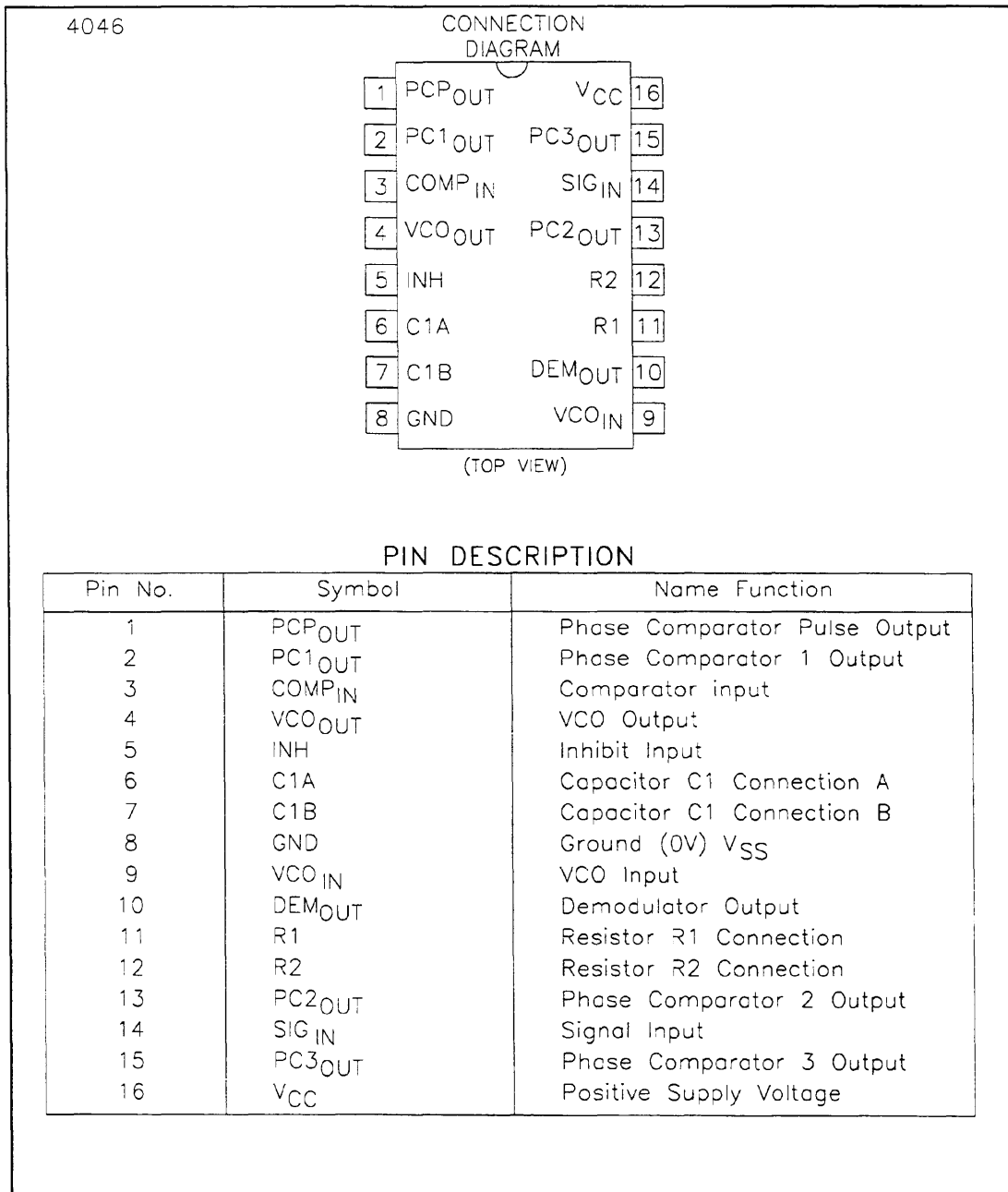


Figure 1002 Integrated Circuit Diagrams
(Sheet 6 of 6)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

E. Test Points

Information to be supplied at a later date.

F. Summary of Unit Modifications

The "Summary Of Units Modifications" page summarizes the unit modifications by the unit modification number, the modules affected, the subassembly modification number, the reason for the change, the serial number of the unit when the modification became effective, and the service bulletin if available. The "Summary Of Changes To" page for each assembly provides additional modification information.

G. Schematic Diagram and Summary of Changes

The main frame assembly schematic diagram illustrates the intercabling between the circuit module assemblies and the main frame assembly. Each circuit module is illustrated by a schematic diagram and circuit module component layout diagram.

Each diagram is covered by a "Summary Of Changes To" page.

All assembly modifications are described in detail. If the modification is too extensive to be verbally described, or numerous changes have already been described verbally, a current version of the schematic is added to the existing schematic.

SCHEMATIC DIAGRAMS1. General

This section contains a summary of changes, parts location diagram, and a schematic diagram for each circuit card assembly (CCA) or board. A summary of unit changes is also provided. Mechanical subassemblies without a corresponding schematic are not contained in this section.

2. Summary of Unit Changes

The "Summary of Unit Changes" page lists unit changes by manual revision and includes affected subassemblies, subassembly revisions, and service bulletin numbers, as applicable, for each revision. Detailed information on service bulletins is listed on the summary of changes page for each CCA. A service bulletin list is contained in the front of this manual.

3. Summary of Changes and Schematic Diagrams

The "Summary of Changes" page lists changes to each circuit card assembly (CCA) or board. A change number is assigned with a description of the change. The change order number, the revision number of the CCA, the unit modification numbers, the service bulletin number(s), and unit serial number effectivities are listed as applicable. The applicable page(s) of the assembly drawing (for parts location) and the schematic(s) are placed behind the summary of changes.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

SUMMARY OF UNIT CHANGES PART NUMBER 066-04031-()

CHANGE/ MOD NO.	SUB-ASSEMBLY/ MODULE (CCA) AFFECTED	SUBASSY CHANGE NO.	COMMENTS	SERVICE BULLETIN NO.*
1	200-08457-0099	AA	Improve reliability of increment/decrement knobs.	KLN 90B-1
2	200-08924-0000 200-08569-0099	AE	Replace obsolete ARINC LSI I1060 also requiring software replacement I1017.	KLN 90B-2
3	200-08982-0000 200-08569-0099	N.A.	Replace CR115 diode with date code 86E.	KLN 90B-3
4	200-08924-0000	AG	Prevents CRT arcing	KLN 90B-4
5	N.A.	N.A.	Prevents CRT arcing	KLN 90B-5
SW1	200-08924-0000 200-08569-0099 200-08825-00XX	N.A. N.A. N.A.	Software Improvements. Changes primarily affect the main board; however, the GPS receiver board is also affected if the unit is at SW Mod 21/03 or 21/04.	KLN 90B-SW1
SW2	200-08924-0000 200-08569-0099 200-08825-00XX	N.A. N.A. N.A.	Software Improvements. Changes primarily affect the main board; however, the GPS receiver board is also affected if the unit is at SW Mod 21/03 or 21/04.	KLN 90B-SW2
SW3	200-08924-0000 200-08569-0099	N.A. N.A.	Software bugs corrected.	KLN 90B-SW3
SW4	200-08924-0000 200-08569-0099 200-08825-00XX	N.A. N.A. N.A.	Software Improvements. Changes primarily affect the main board; however, the GPS receiver board is also affected if the unit is at SW Mod 21/03 or 21/04.	KLN 90B-SW4
M1	Numerous	N.A.	Unit conversion (upgrade).	KLN 90B-M1
M2	Numerous	N.A.	Unit conversion (upgrade).	KLN 90B-M2

* If applicable

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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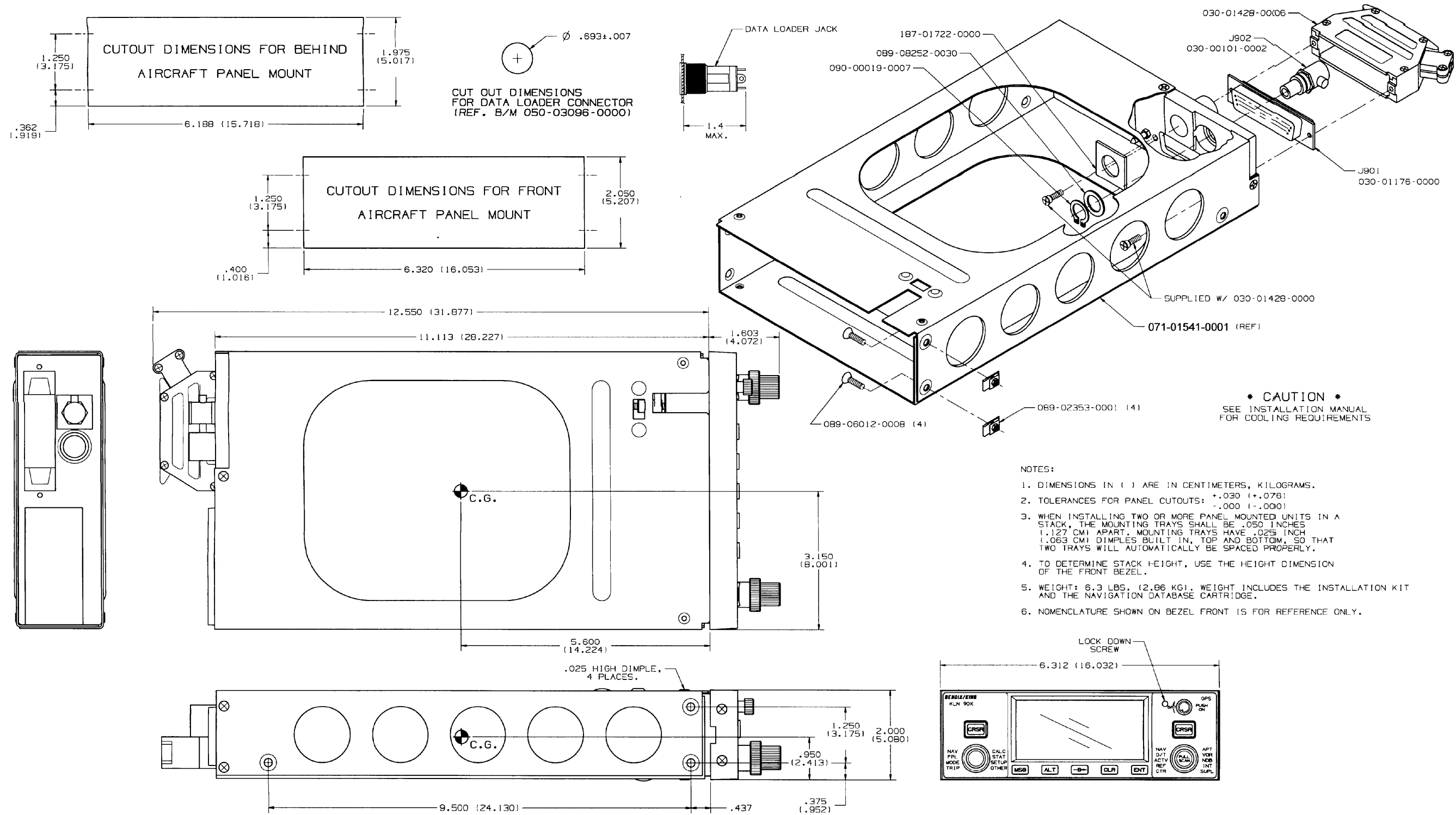
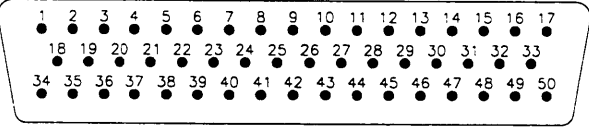


Figure 2001 KLN 90B Outline Drawing
(155-05818-0000 R-AB)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

J901	
1 ←	----- GPS DISPLAYED
2 ←	----- TAKE HOME (SEE NOTE 1)
3 ←	----- SDI 1/2
4 ←	----- EFIS 429 RECEIVER B
5 ←	----- EFIS 429 RECEIVER A
6 ←	----- RADAR GRAPHICS 429 RECEIVER B
7 ←	----- RADAR GRAPHICS 429 RECEIVER A
8 ←	----- AIR DATA 429 RECEIVER B (SEE NOTE 5)
9 ←	----- AIR DATA 429 RECEIVER A (SEE NOTE 5)
10	----- → OBI DATA OUT
11	----- → OBI CLOCK OUT
12	----- → OBI SYNC OUT
13	----- → RS 232 OUT
14	----- → WPT ALERT
15	----- → MSG
16	----- → APPROACH ACTIVE
17	----- → APPROACH ARM
18	----- → NAV SUPER FLAG
19	----- → NAV FLAG +
20	----- → +FROM
21	----- → +TO
22	----- → +RIGHT
23	----- → 429 TRANSMITTER B
24	----- → 429 TRANSMITTER A
25	----- → +LEFT/NAV FLAG -
26 ←	----- OBS RESOLVER SINE
27 ←	----- A/C GROUND
28 ←	----- 28V LIGHT/LIGHT LO (SEE NOTE 2)
29 ←	----- 14 V/5 V LIGHT (SEE NOTE 2)
30 ←	----- APPROACH ARM SELECT
31	----- → OBS RESOLVER OUT
32 ←	----- LIGHT LO (SEE NOTE 2)
33 ←	----- LEG/OBS CONTROL
34	----- → DATA LOADER OUT
35 ←	----- DATA LOADER IN
36 ←	----- RS 232 IN (SEE NOTE 3)
37 ←	----- OBS RESOLVER COSINE
38 ←	----- → ALT ALERT
39	----- → ALT ALERT AUDIO
40 ←	----- 11-33 V DC A/C POWER
41 ←	----- D4
42 ←	----- A1
43 ←	----- A2
44 ←	----- A4
45 ←	----- B1
46 ←	----- B2
47 ←	----- B4
48 ←	----- C1
49 ←	----- C2
50 ←	----- C4
← INPUTS OUTPUTS →	



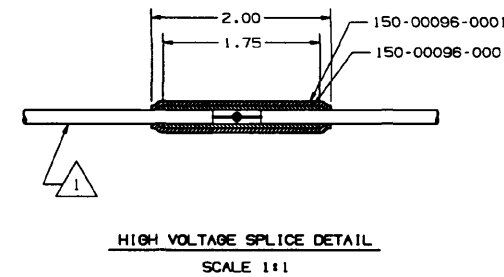
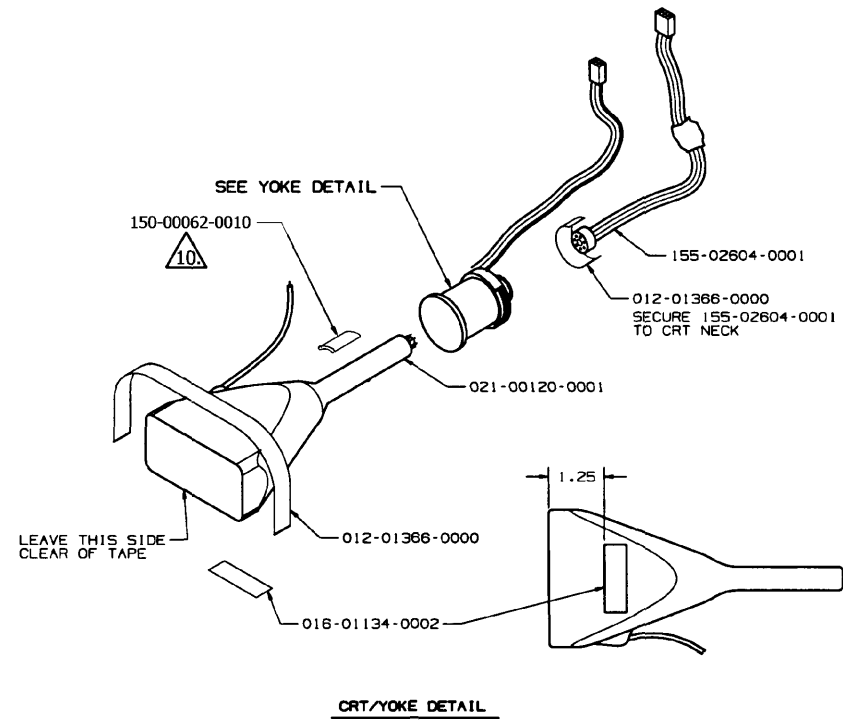
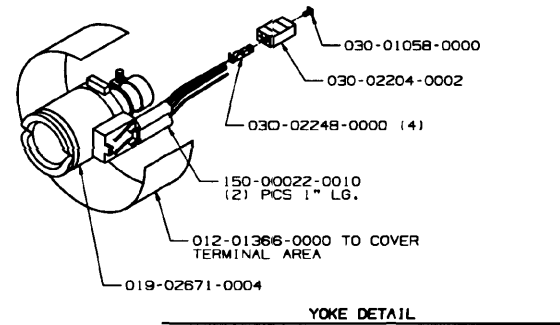
NOTES:

1. THIS PIN SHALL BE LEFT OPEN IN AIRCRAFT INSTALLATIONS.
2. LIGHTING BUS CONNECTIONS ARE AS FOLLOWS:

LIGHTING VOLTAGE	PIN 28	PIN 29	PIN 32
28 V LIGHTING	HI	N.C.	LO
14 V LIGHTING	LO	HI	LO
5 V LIGHTING	LO	HI	LO
3. IF THE INSTALLATION DOES NOT PROVIDE AN INPUT FOR J901 PIN 36 IN THE RS 232 FORMAT, PIN 13 OF J901 (RS 232 OUT) MUST BE CONNECTED TO PIN 36 OF J901 (RS 232 IN).
4. FORCED AIR COOLING IS REQUIRED.
5. IF THE INSTALLATION DOES NOT PROVIDE AN INPUT FOR ARINC 429 AIR DATA (J901 PINS 8,9), THEN PINS 23 AND 24 OF P901 MUST BE CONNECTED TO PINS 8 AND 9 OF P901 RESPECTIVELY.

Figure 2002 KLN 90B Connector Pin Function Diagram

YOKE WIRE CHART				
FROM YOKE PIN ON KPN:				TO CONNECTOR
WIRE P/N	TERM #	COLOR	WIRE LGTH	PIN NUMBER:
025-00029-0000	E1	BLK	10.0	J1003-P1
				P2 - N/C
				P3 - KEY
025-00029-0004	E2	YEL	10.0	P4
025-00029-0006	E3	BLU	10.0	P5
025-00029-0002	E4	RED	10.0	P6



NOTES:

1. HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. PRIOR TO SHRINKING AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED SUFFICIENTLY TO ENSURE PROPER ADHESION OF SHRINK TUBING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
2. DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10693-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00030-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
3. FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
4. YOKE COVER (047-10693-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
5. STAKE THREADS OF SCREWS PER 001-01080-0000.
6. P3, P4, P6, P9, P11 AND P15 MATE TO CORRESPONDING JACKS ON 205-00835-XXXX.
7. CLAMP OR PRESS DOWN FIRMLY T1001, WHILE SOLDERING TO PC BOARD.
8. PLACE HEAT SHRINK TUBE (150-00096-0001) COMPLETELY OVER BULB DS1 SO THAT HEAT SHRINK RESTS ON BOARD. SEAL END OF HEAT SHRINK BY PINCHING CLOSED IMMEDIATELY AFTER SHRINKING WHILE MATERIAL IS STILL SOFT.
9. INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
10. INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).
11. PLACEMENT OF SERIAL TAG 057-06044-000X TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
SERIAL TAG/TSO LABEL 057-06044-XXXX AND 057-02203-XXXX SHALL ACCOMPANY EACH UNIT UNTIL IT IS APPLIED. ONLY THE PRODUCTION APPROVAL HOLDER (HONEYWELL) IS AUTHORIZED TO APPLY THE TSO LABEL. THE LABEL SHALL BE APPLIED APPROXIMATELY AS SHOWN AND SHALL NOT COVER ANY EXISTING MARKING OR LABELING.
12. FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
13. SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

REF B/M 066-04031-1XXX

Figure 2003 KLN 90B Final Assembly
(300-05194-0001 R-AL, Sheet 1 of 2)

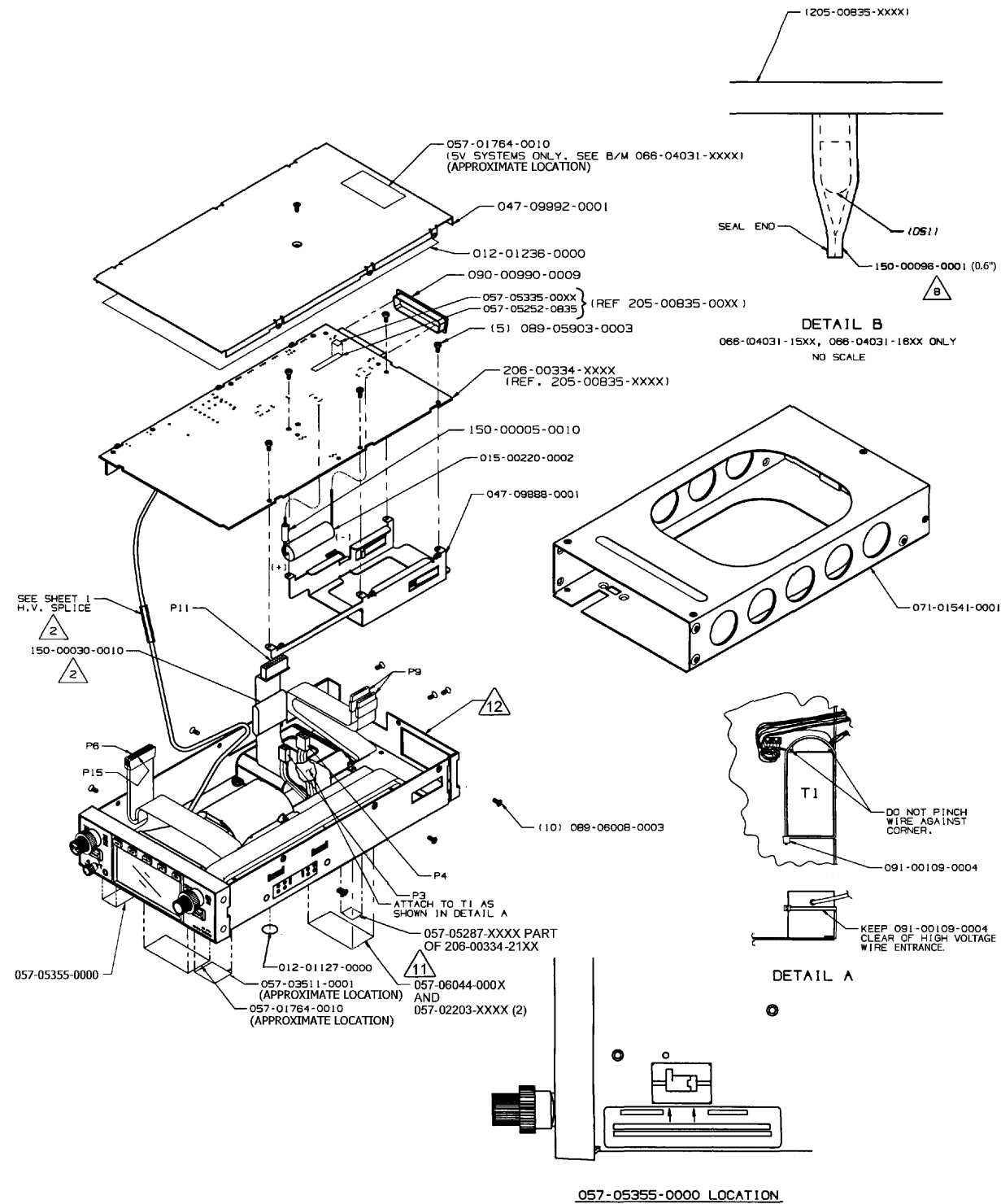
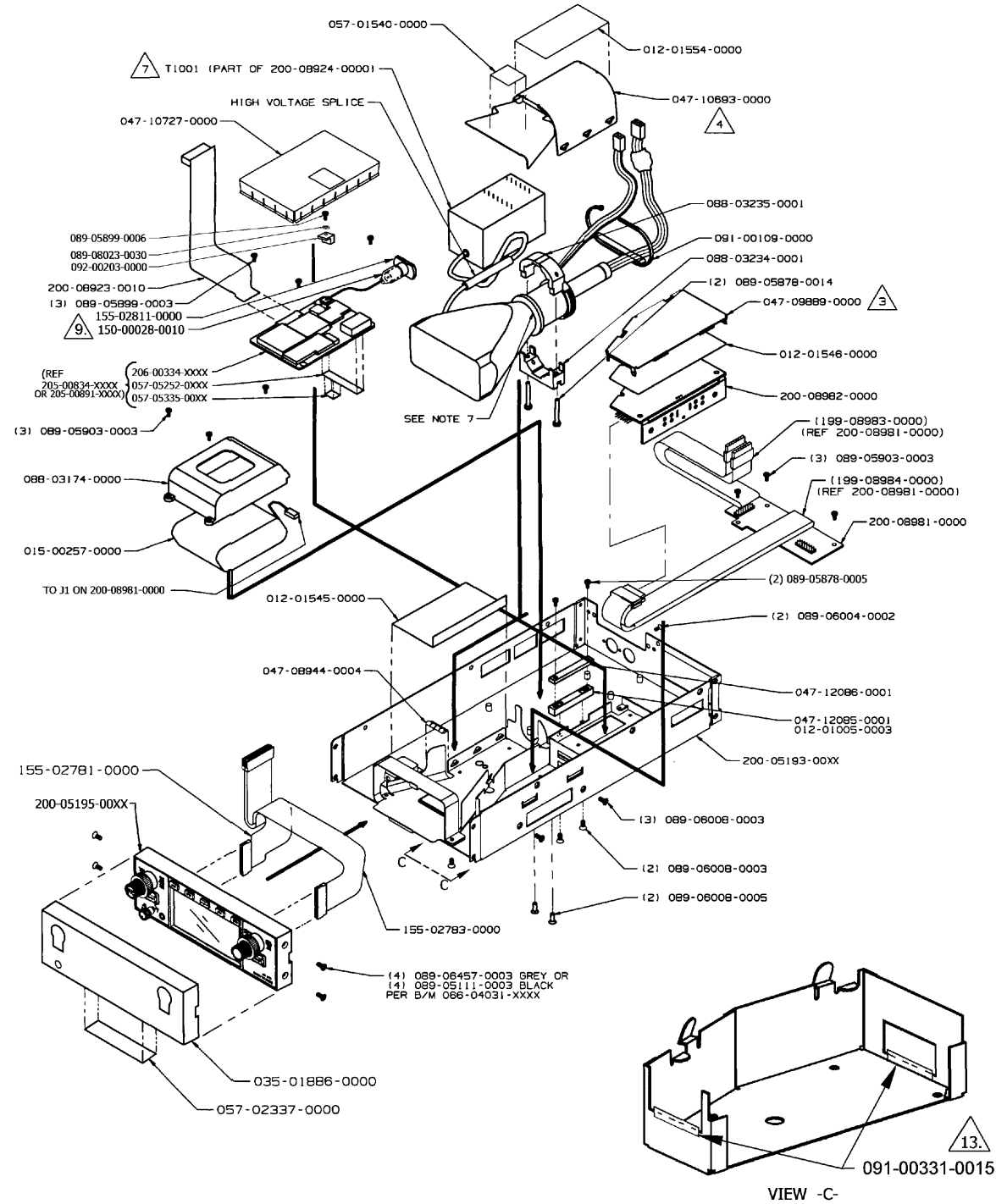
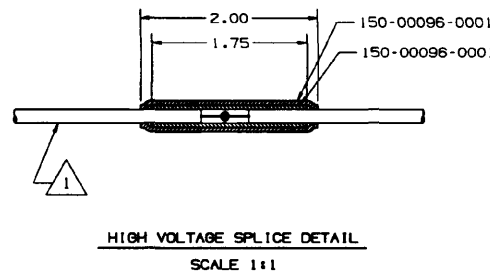
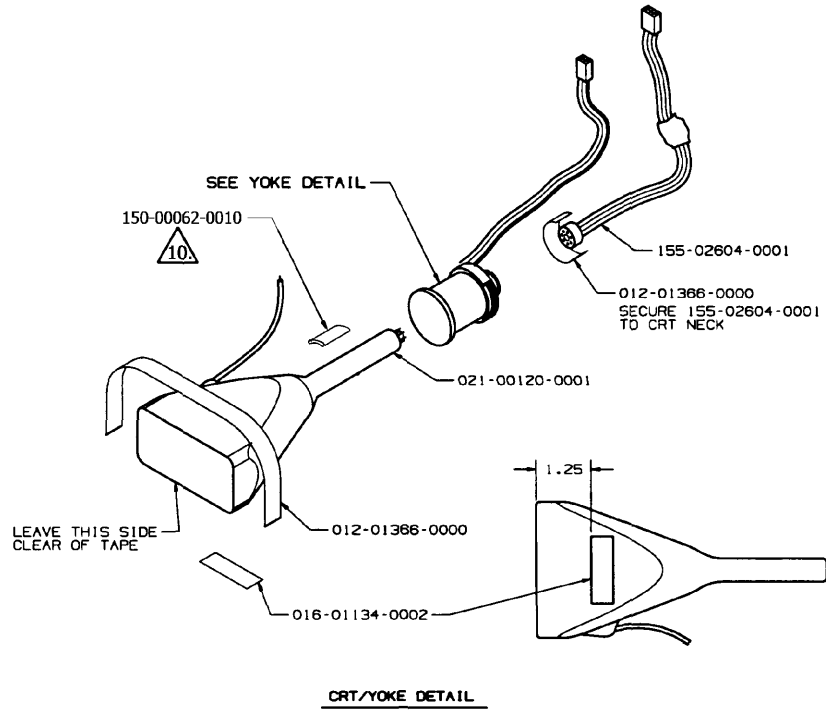
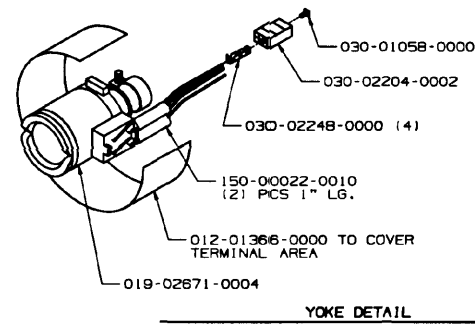


Figure 2003 KLN 90B Final Assembly (300-05194-0001 R-AL, Sheet 2 of 2)

YOKE WIRE CHART				
FROM YOKE PIN ON KPN:				TO CONNECTOR PIN NUMBER:
WIRE P/N	TERM #	COLOR	WIRE LGTH	
025-00029-0000	E1	BLK	10.0	J1003-P1
				P2 - N/C
				P3 - KEY
025-00029-0004	E2	YEL	10.0	P4
025-00029-0006	E3	BLU	10.0	P5
025-00029-0002	E4	RED	10.0	P6



NOTES:

1. HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. PRIOR TO SHRINKING AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED SUFFICIENTLY TO ENSURE PROPER ADHESION OF SHRINK TUBING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
2. DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10893-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00030-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
3. FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
4. YOKE COVER (047-10893-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
5. STAKE THREADS OF SCREWS PER 001-01080-0000.
6. P3, P4, P6, P9, P11 AND P15 MATE TO CORRESPONDING JACKS ON 205-00835-XXXX.
7. CLAMP OR PRESS DOWN FIRMLY T1001, WHILE SOLDERING TO PC BOARD.
8. PLACE HEAT SHRINK TUBE (150-00096-0001) COMPLETELY OVER BULB DS1 SO THAT HEAT SHRINK RESTS ON BOARD. SEAL END OF HEAT SHRINK BY PINCHING CLOSED IMMEDIATELY AFTER SHRINKING WHILE MATERIAL IS STILL SOFT.
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11. PLACEMENT OF SERIAL TAG 057-06044-0001 TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED. CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR. SERIAL TAG/TSO LABEL 057-06044-XXXX AND 057-02203-XXXX SHALL ACCOMPANY EACH UNIT UNTIL IT IS APPLIED. ONLY THE PRODUCTION APPROVAL HOLDER (HONEYWELL) IS AUTHORIZED TO APPLY THE TSO LABEL. THE LABEL SHALL BE APPLIED APPROXIMATELY AS SHOWN AND SHALL NOT COVER ANY EXISTING MARKING OR LABELING.
12. FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
13. SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

REF B/M 066-04031-1XXX

Figure 2003A KLN 90B Final Assembly
(300-05194-0001 R-AK, Sheet 1 of 2) (For Reference Only)

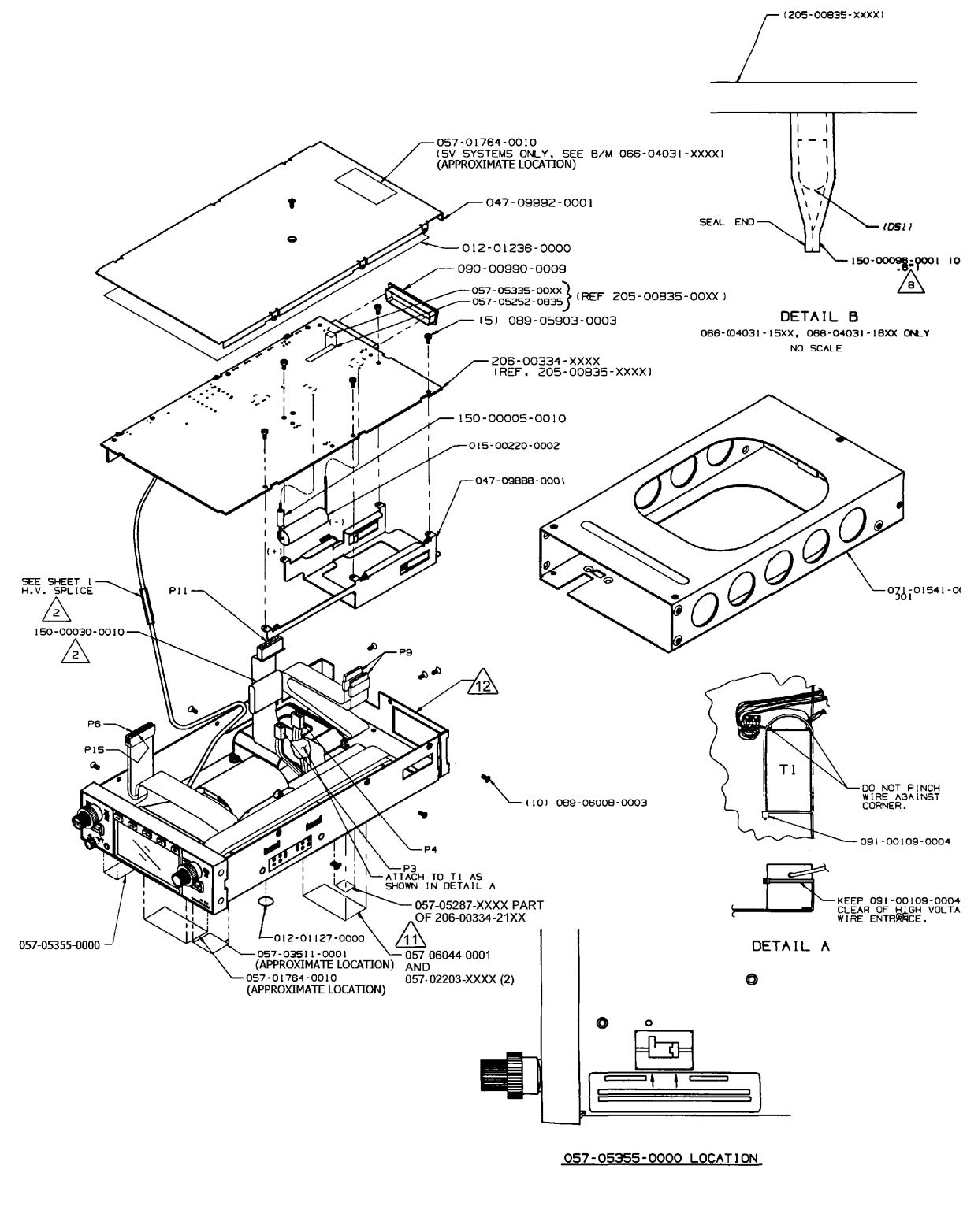
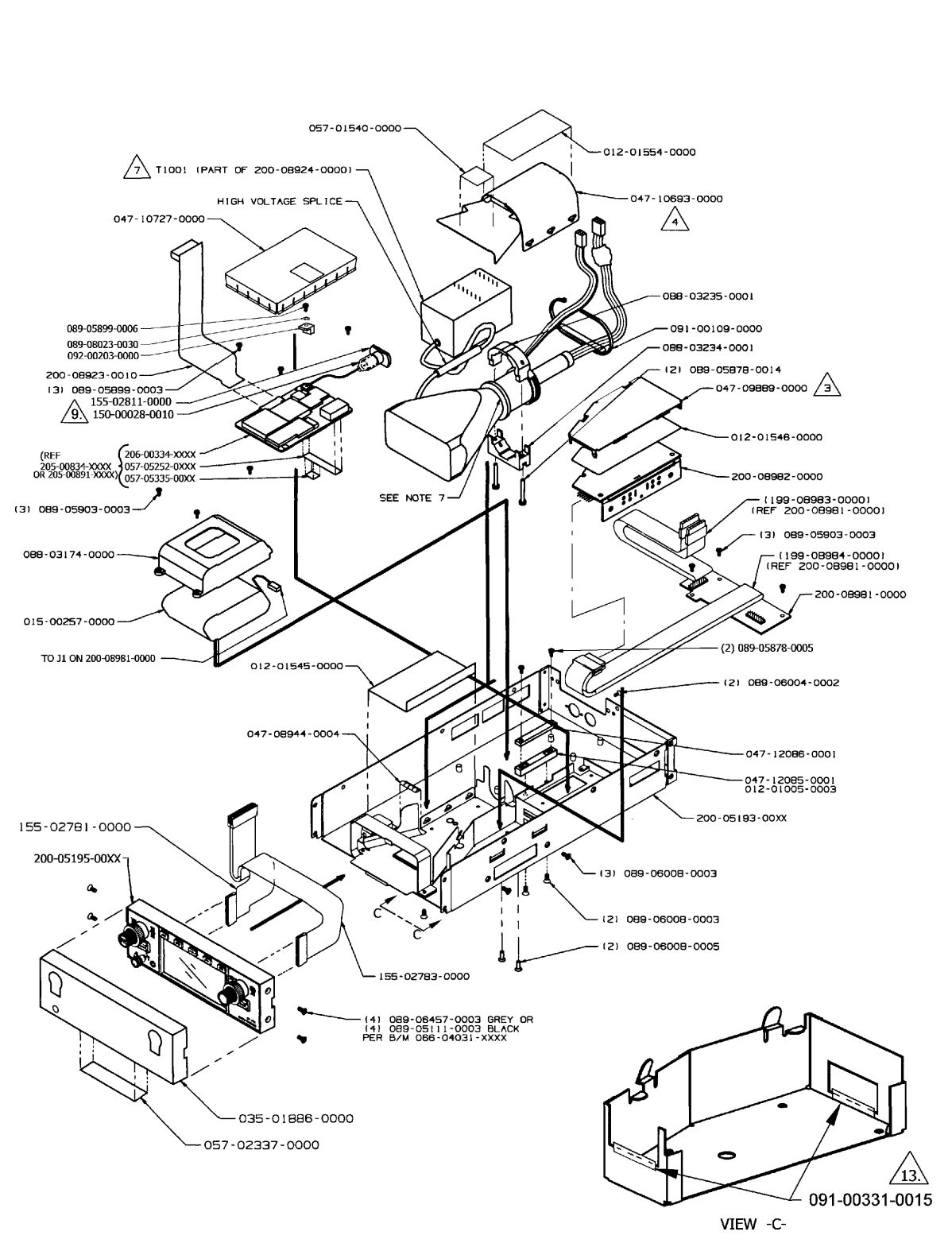
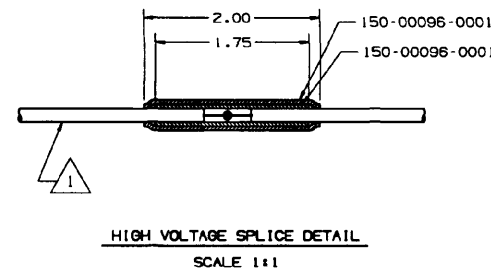
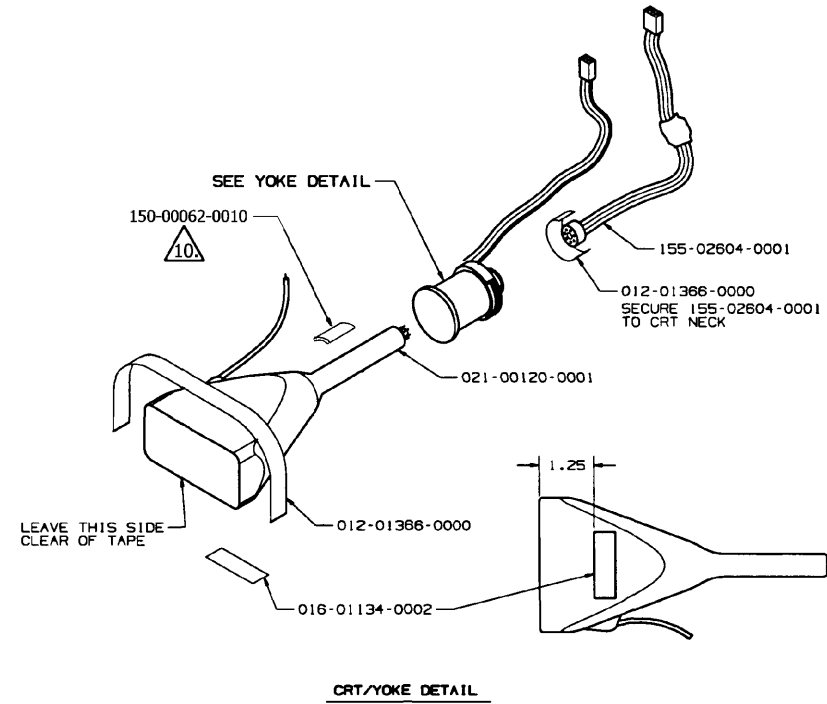
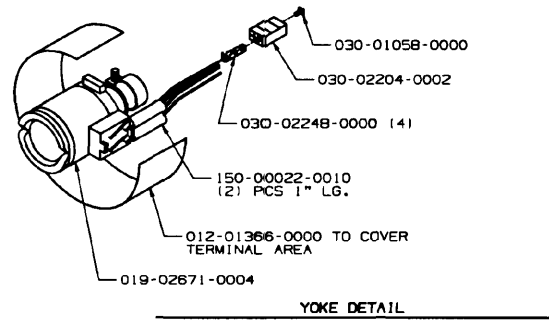


Figure 2003A KLN 90B Final Assembly (300-05194-0001 R-AK, Sheet 2 of 2) (For Reference Only)

YOKE WIRE CHART				
FROM YOKE PIN ON KPN:				TO CONNECTOR PIN NUMBER:
WIRE P/N	TERM #	COLOR	WIRE LGTH	
		019-02871-0004		
025-00029-0000	E1	BLK	10.0	J1003-P1
				P2 - N/C
				P3 - KEY
025-00029-0004	E2	YEL	10.0	P4
025-00029-0006	E3	BLU	10.0	P5
025-00029-0002	E4	RED	10.0	P6



NOTES:

1. HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. PRIOR TO SHRINKING AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED SUFFICIENTLY TO ENSURE PROPER ADHESION OF SHRINK TUBING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
2. DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10893-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00030-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
3. FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
4. YOKE COVER (047-10893-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
5. STAKE THREADS OF SCREWS PER 001-01080-0000.
6. P3, P4, P8, P9, P11 AND P15 MATE TO CORRESPONDING JACKS ON 205-00835-XXXX.
7. CLAMP OR PRESS DOWN FIRMLY T1001, WHILE SOLDERING TO PC BOARD.
8. PLACE HEAT SHRINK TUBE (150-00096-0001) COMPLETELY OVER BULB DS1 SO THAT HEAT SHRINK RESTS ON BOARD. SEAL END OF HEAT SHRINK BY PINCHING CLOSED IMMEDIATELY AFTER SHRINKING WHILE MATERIAL IS STILL SOFT.
9. INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
10. INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).
11. PLACEMENT OF SERIAL TAG 057-06044-0001 TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
12. FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
13. SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

Figure 2003B KLN 90B Final Assembly
(300-05194-0001 R-AH, Sheet 1 of 2) (For Reference Only)

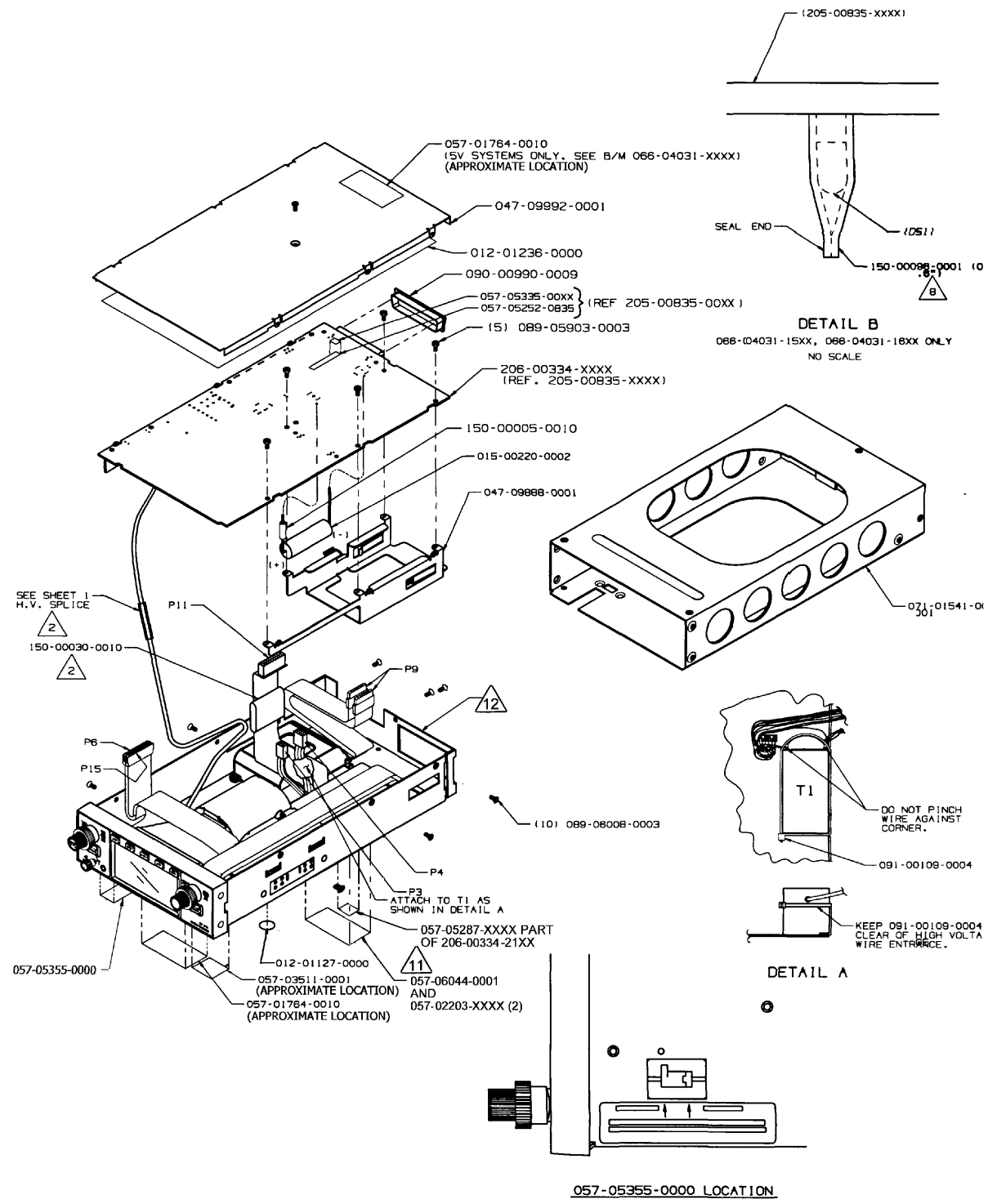
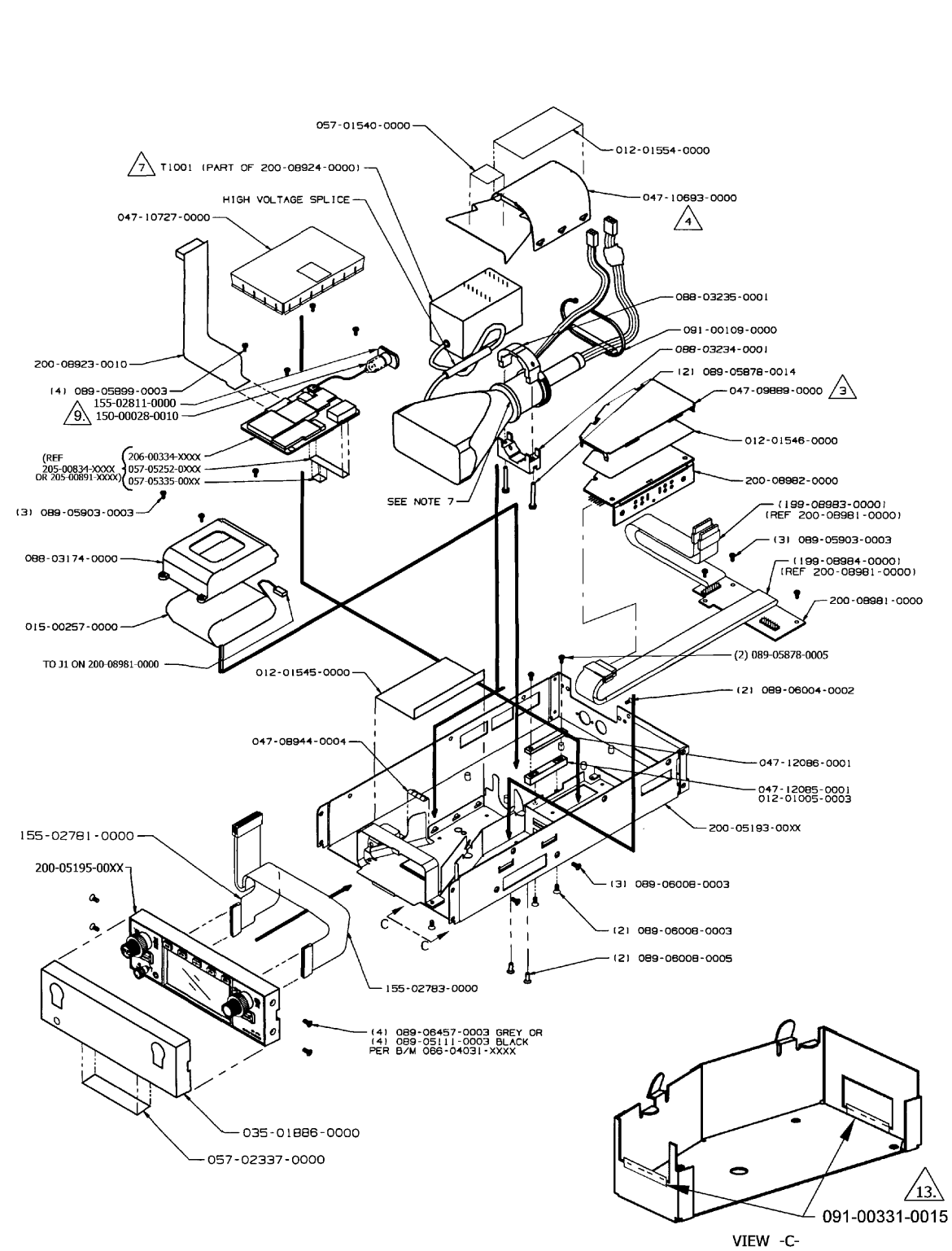
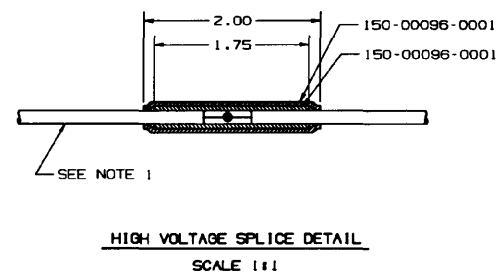
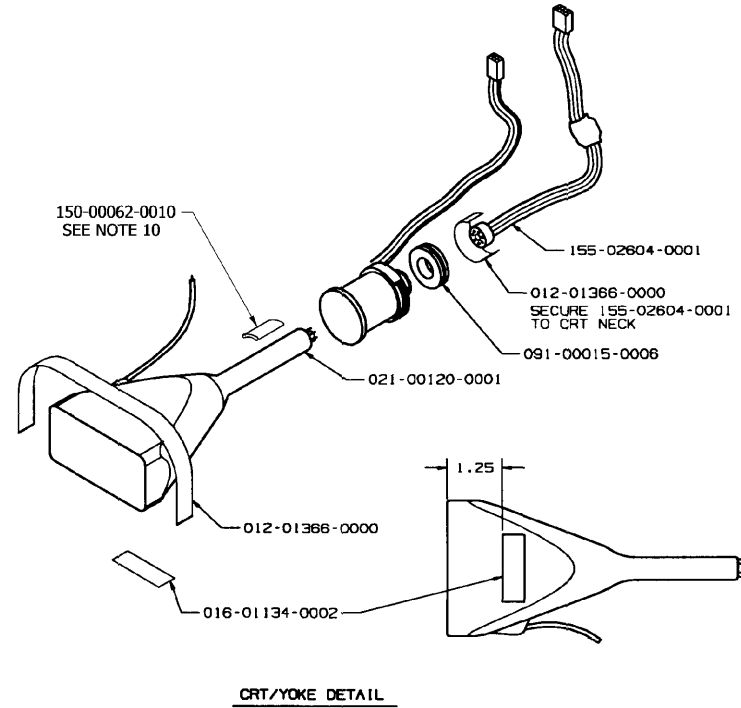
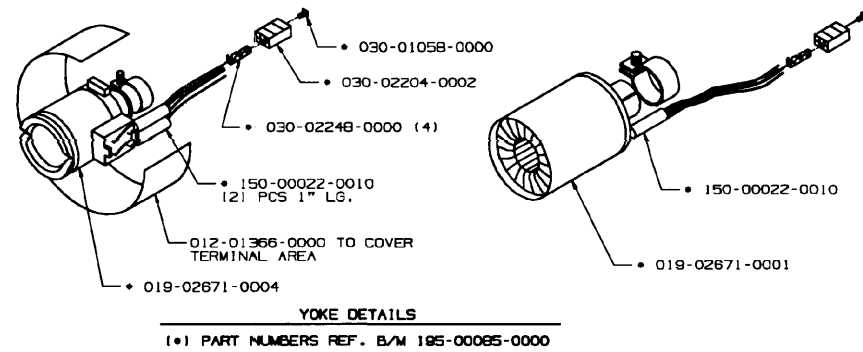


Figure 2003B KLN 90B Final Assembly (300-05194-0001 R-AH, Sheet 2 of 2) (For Reference Only)

YOKE WIRE CHART				
FROM YOKE P1N ON KPN:				TO CONNECTOR P1N NUMBER:
019-02671-0001	019-02671-0004			
TERM #	COLOR	WIRE LGTH		
BLK	E1	9.5	J1003-P1	
			P2 - N/C	
			P3 - KEY	
YEL	E2	9.5	P4	
BLU	E3	9.5	P5	
RED	E4	9.5	P6	



- NOTES:
- HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED WITH 111-TRICHLOROTHANE OR EQUIVALENT PRIOR TO SHRINKING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
 - DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10693-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00032-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
 - FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
 - YOKE COVER (047-10693-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
 - APPLY (016-01411-0000) LOCTITE 220 OR EQUIVALENT TO SCREW THREADS AS REQUIRED.
 - P3, P4, P8, P9 AND P15 MATE TO CORRESPONDING JACKS ON 205-00677-00XX
 - NOTE DELETED
 - PART NUMBERS SHOWN IN BOLD TEXT ARE PARTS THAT ARE IN 050-03305-000X CONVERSION KIT.
 - INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
 - INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).

- PLACEMENT OF SERIAL TAG 057-06044-0001 TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
 CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
 SERIAL TAG/TSO LABEL 057-06044-XXXX AND 057-02203-XXXX SHALL ACCOMPANY EACH UNIT UNTIL IT IS APPLIED. ONLY THE PRODUCTION APPROVAL HOLDER (HONEYWELL) IS AUTHORIZED TO APPLY THE TSO LABEL. THE LABEL SHALL BE APPLIED APPROXIMATELY AS SHOWN AND SHALL NOT COVER ANY EXISTING MARKING OR LABELING.
- FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
- SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

REF B/M 066-04031-2XXX

Figure 2004 KLN 90B Final Assembly Upgrade
 (300-05194-0002 R-AG, Sheet 1 of 2)

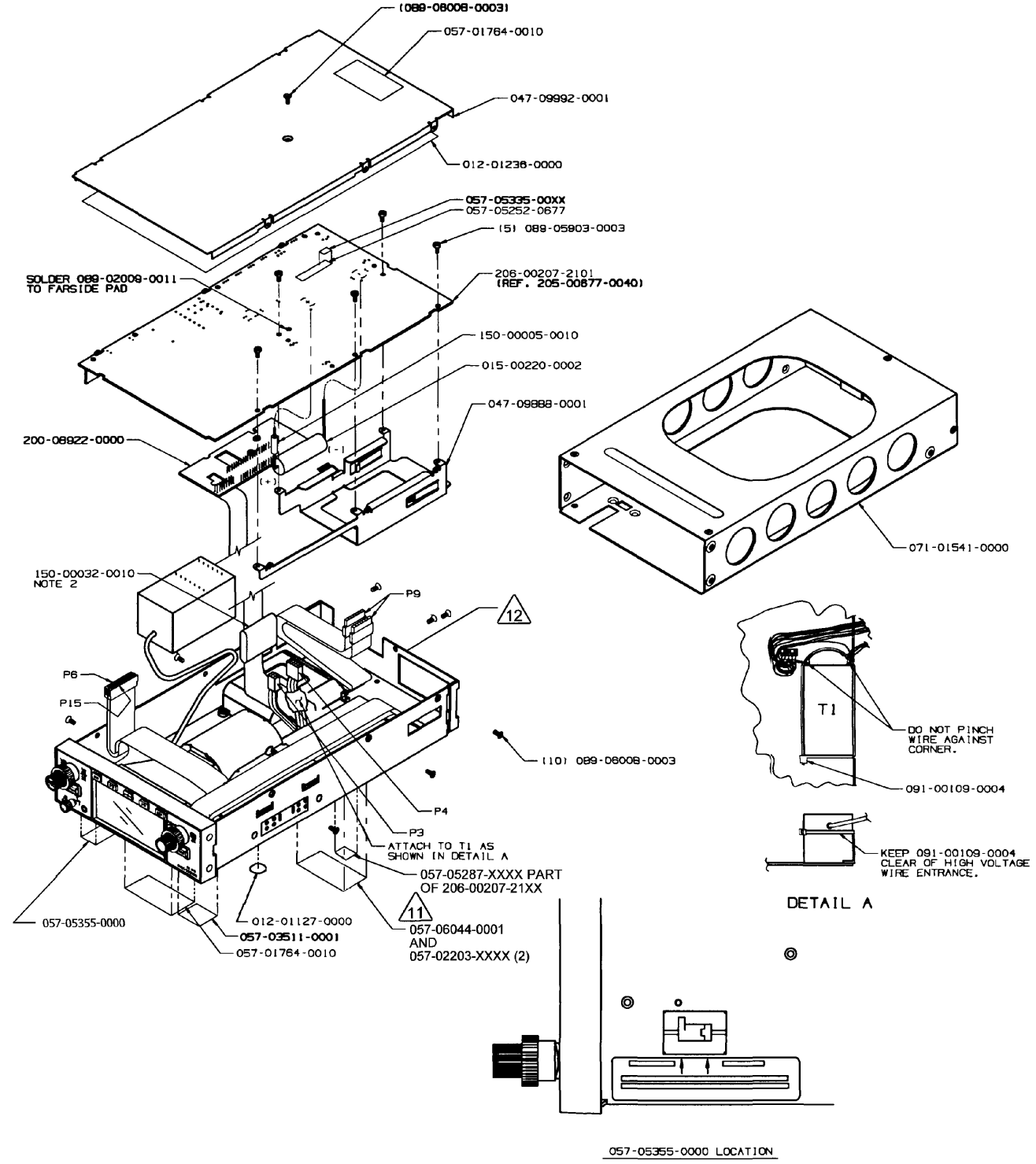
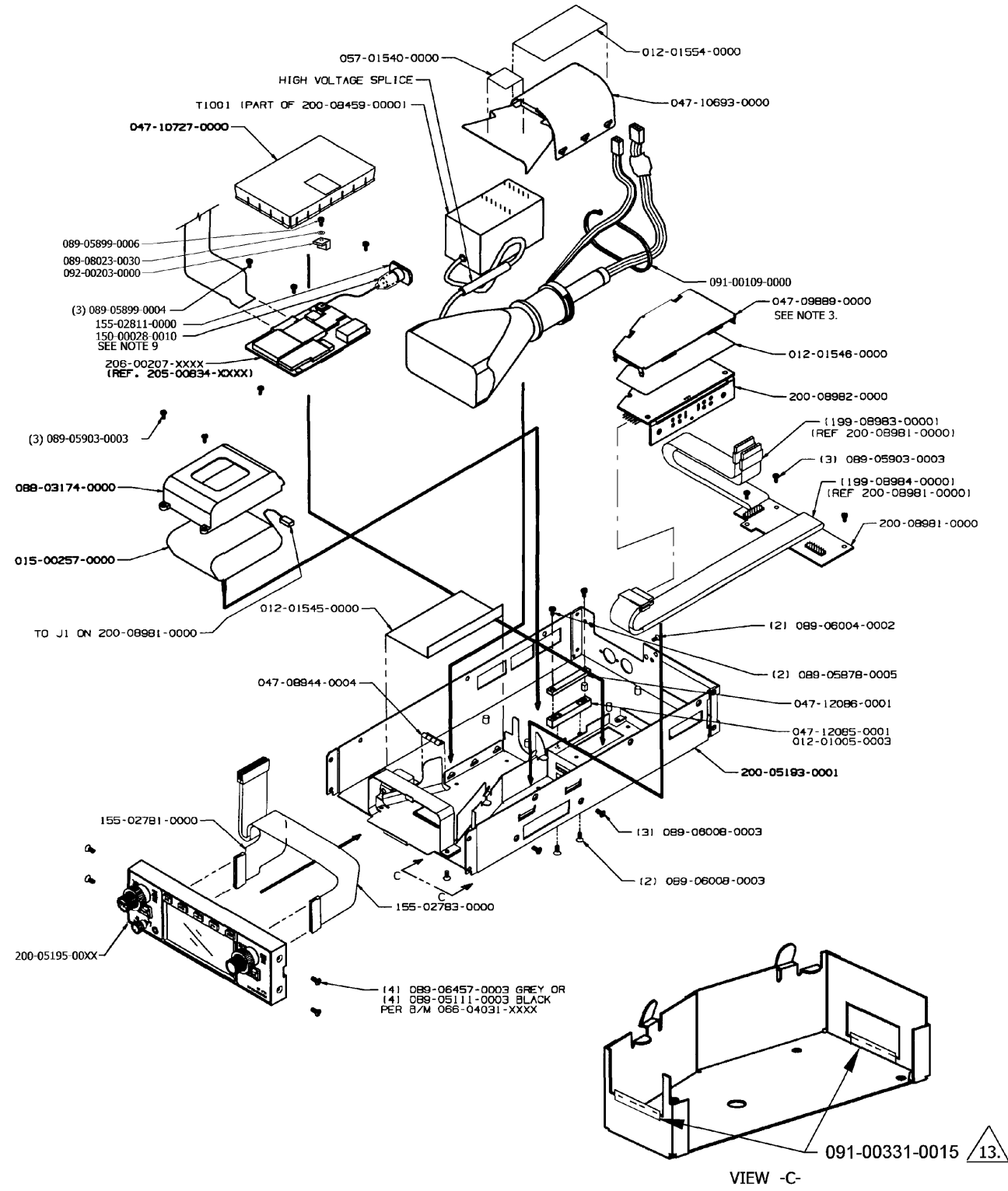
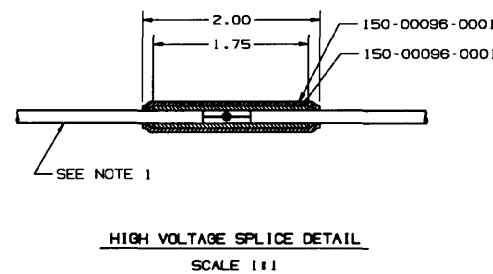
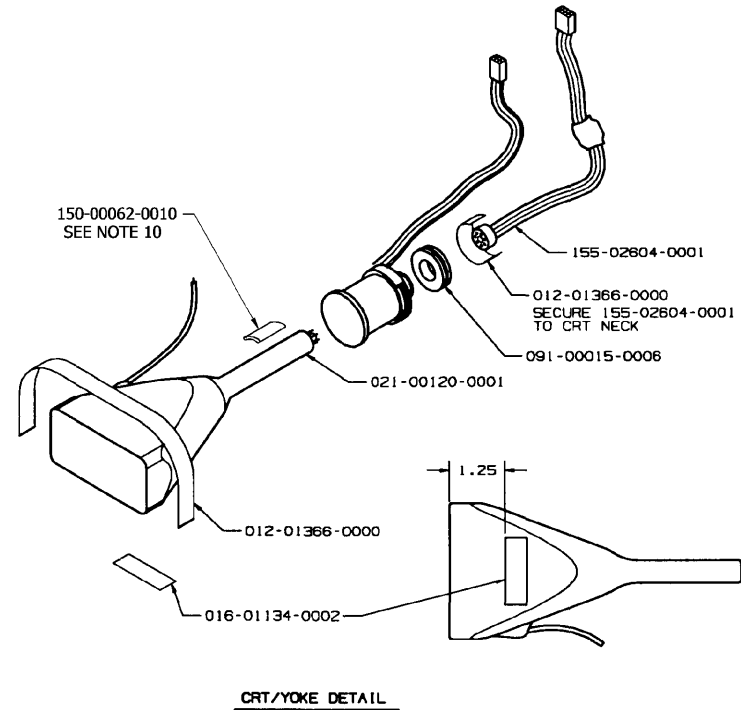
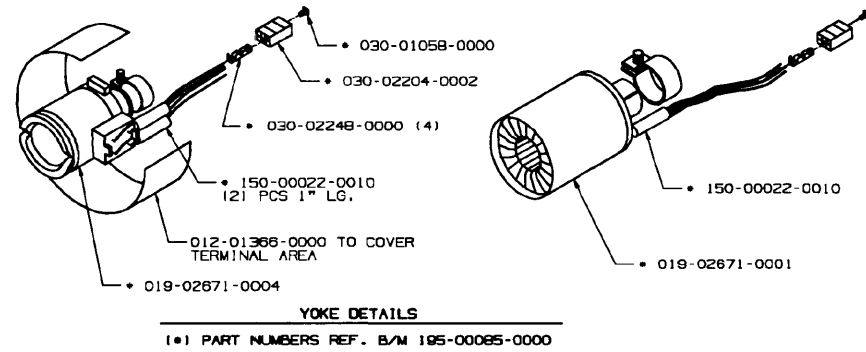


Figure 2004 KLN 90B Final Assembly Upgrade (300-05194-0002 R-AG, Sheet 2 of 2)

YOKE WIRE CHART				
FROM YOKE P1N ON KPN:				TO CONNECTOR P1N NUMBER:
019-02671-0001	019-02671-0004			
TERM #	COLOR	WIRE LGTH		
BLK	E1	BLK	9.5	J1003-P1
				P2 - N/C
				P3 - KEY
YEL	E2	YEL	9.5	P4
BLU	E3	BLU	9.5	P5
RED	E4	RED	9.5	P6



- NOTES:**
- HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED WITH 111-TRICHLOROETHANE OR EQUIVALENT PRIOR TO SHRINKING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
 - DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10693-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00032-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
 - FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
 - YOKE COVER (047-10693-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
 - APPLY (016-01411-0000) LOCTITE 220 OR EQUIVALENT TO SCREW THREADS AS REQUIRED.
 - P3, P4, P8, P9 AND P15 MATE TO CORRESPONDING JACKS ON 205-00677-00XX
 - NOTE DELETED
 - PART NUMBERS SHOWN IN BOLD TEXT ARE PARTS THAT ARE IN 050-03305-000X CONVERSION KIT.
 - INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
 - INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).
 - PLACEMENT OF SERIAL TAG 057-06044-0001 TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
 CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
 - FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
 - SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

Figure 2004A KLN 90B Final Assembly Upgrade (300-05194-0002 R-AE, Sheet 1 of 2) (For Reference Only)

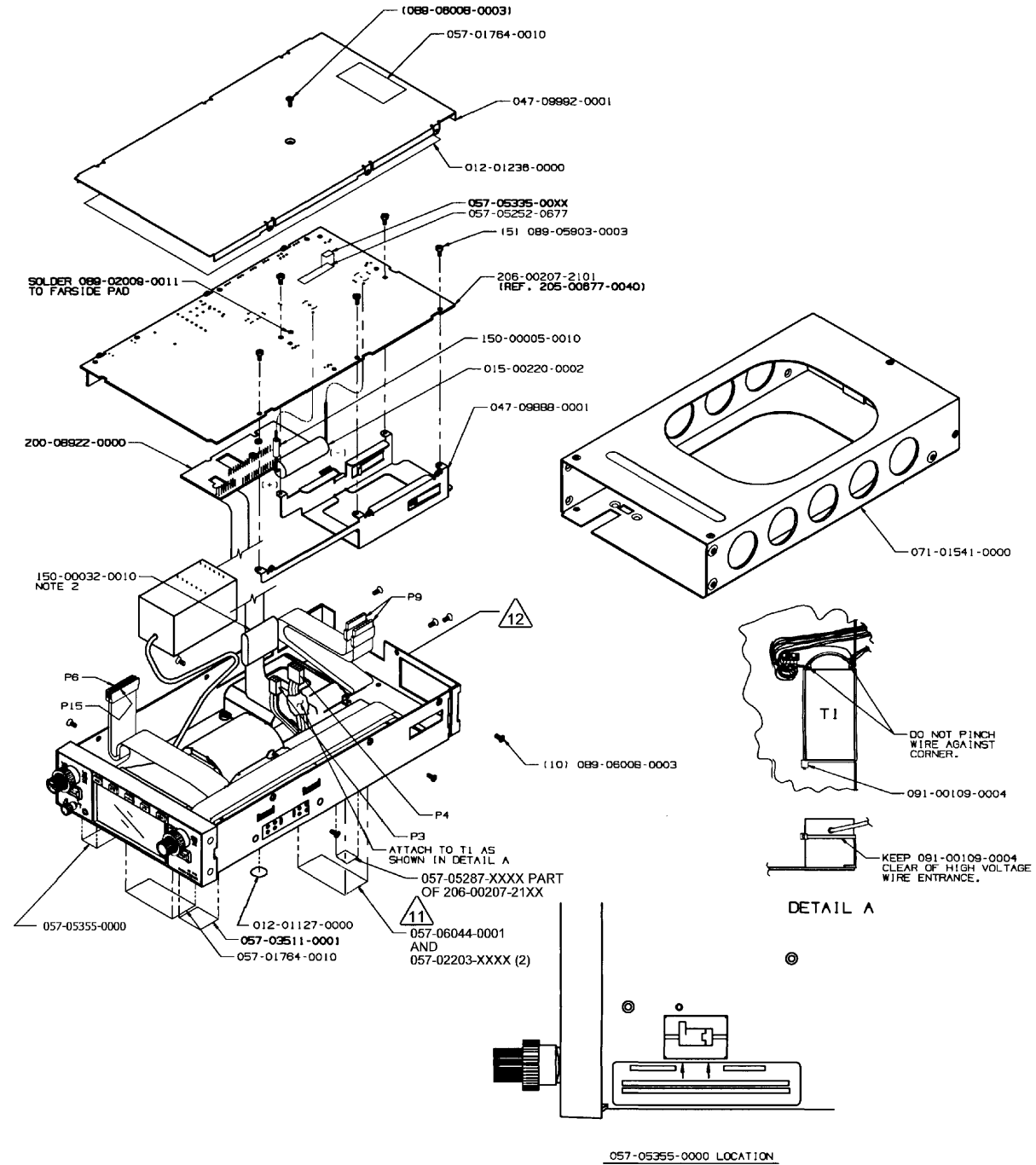
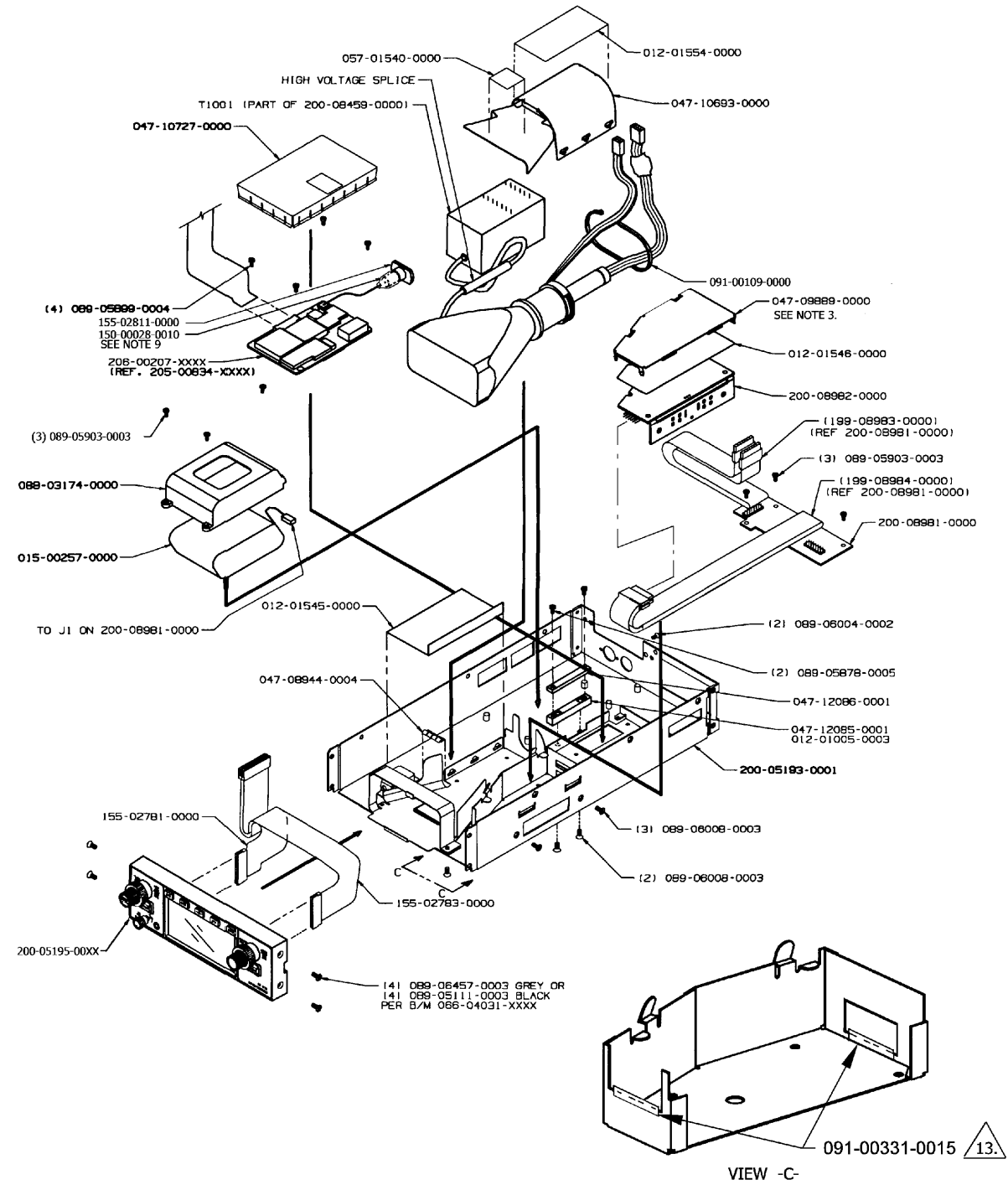


Figure 2004A KLN 90B Final Assembly Upgrade
(300-05194-0002 R-AE, Sheet 2 of 2) (For Reference Only)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
FRONT PANEL MODULE
PART NUMBER 200-08457-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
AA	Baseline revision 1, next revision AA Clerical	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
FRONT PANEL MODULE
PART NUMBER 200-08457-0001**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
	Baseline revision 1, next revision AA		
AA	Clerical	N.A.	N.A.
AB	Clerical	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
FRONT PANEL MODULE
PART NUMBER 200-08457-0099**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
	Baseline revision 0.		
1	Delete 088-00720-0000, Add 076-02308-0000.	N.A.	N.A.
2	Delete 076-01232-00003, 076-02121-0001. Add 076-02882-0001, 076-02883-0001.	N.A.	N.A.
3	Delete 076-02882-0001, 076-02883-0001. Add 076-01232-00003, 076-02121-0001.	N.A.	N.A.
4	Delete 076-01232-00003, 076-02121-0001, 089-08024-0030, 090-00036-0004, 090-00074-0001, 025-00018-0099 (Qty.3), 076-02308-0000. Add 025-00018-0099. (Qty.4)	N.A.	N.A.
5	Add REF2 002-08457-0000.	N.A.	N.A.
AA	Delete 073-00923-0002, 091-00580-0000. (Qty.2) Add 073-00923-0004, 088-03283-0001.(Qty.2)	Version Dependent See SB	SB KLN 90B-1
AB	Delete REF1 300-08457-0000, REF2 002-08457-0000.	N.A.	N.A.
AC	Delete 016-01097-0000, add 016-01013-0000.	N.A.	N.A.

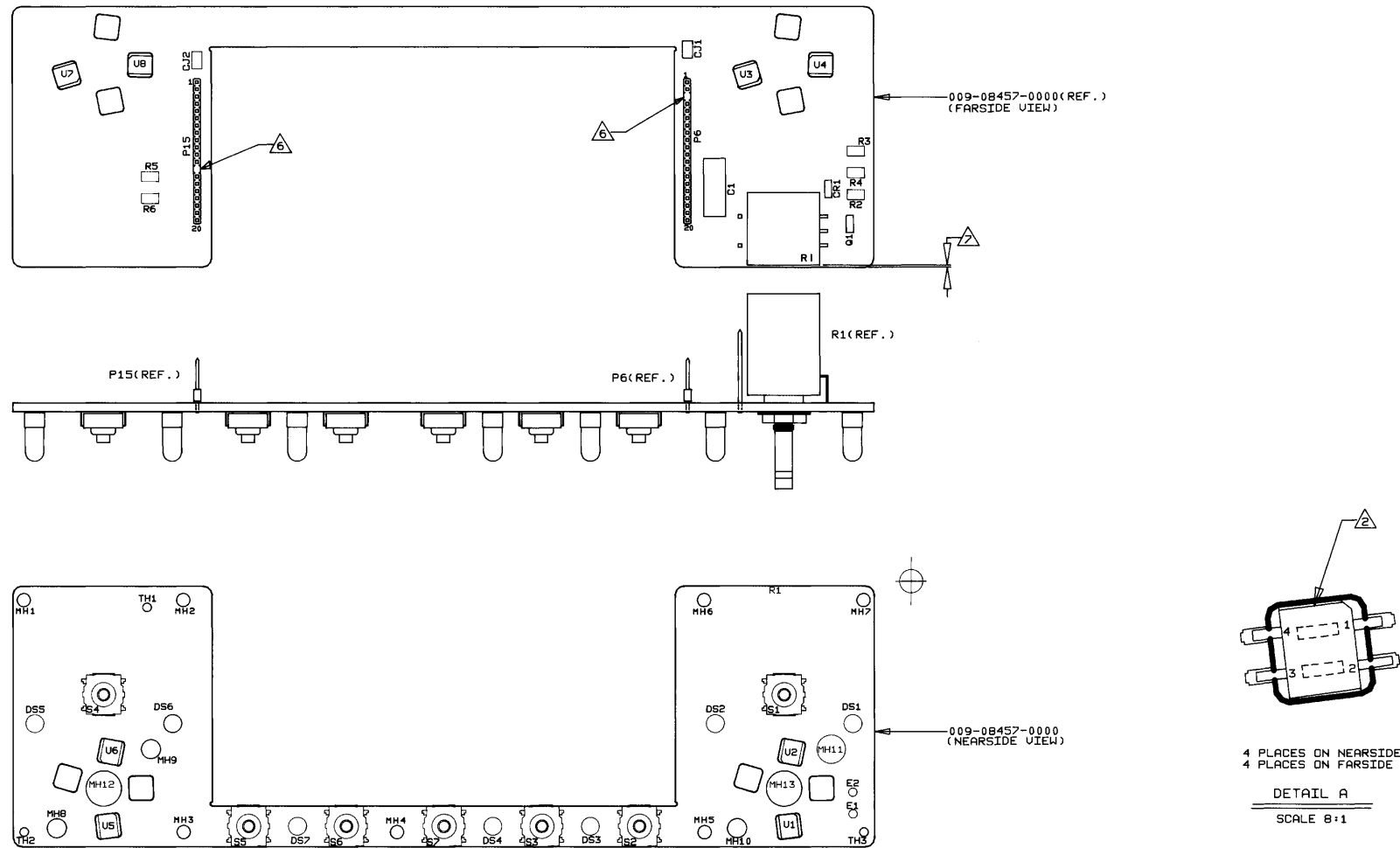
All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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NOTE: ADD 200 TO ALL REFERENCE DESIGNATORS.
I.E. C1 - C201



NOTES:

1. APPLY KPN 016-01040-0000 TO ALL EXPOSED SMD PINS/PADS/SOLDER JOINTS, THRU-HOLE COMPONENT PINS/PADS/SOLDER JOINTS, AND VIAS, WITH THE EXCEPTION OF THE FOLLOWING: ALL MOUNTING HOLES, E1 AND E2 (SEE NOTE 4), THE PINS OF P6 AND P15 BEYOND THE EXTENT OF THE PLASTIC HEADER RELATIVE TO THE SURFACE OF THE PCB, THE GLASS PORTIONS OF DS1 THRU DS7, THE TOP FACE OF S1 THRU S7 RELATIVE TO THE SURFACE OF THE PCB. IT IS ACCEPTABLE FOR COVERAGE OF CHIP COMPONENTS, SOT-23 COMPONENTS, AND C1 TO INCLUDE THE ENTIRE BODY OF THE DEVICE.
2. INSTALL U1 THRU U8 SO THAT BODY IS RECEDED IN PCB BOARD CUTOUT. PARTS SHOULD ALSO BE AS CENTERED AS POSSIBLE RELATIVE TO CUTOUT.
3. APPLY LUBRICANT (016-01013-0000) TO THE EXTERIOR OF 073-00550-0002 AND INTERIORS OF 073-00923-0004 AND 073-00924-0001 BEFORE ASSEMBLY.
4. SOLDER WIRE (025-00018-0099) FROM E1 AND E2 (FARSIDE OF PCB) TO S208. REFER TO DETAIL "A" ON PAGE 2. AFTERWARDS, APPLY KPN 016-01040-0000 TO E1 AND E2 (NEARSIDE AND FARSIDE).
5. STAKE ALL SCREW THREADS PER 001-01080-0000.
6. KEY BY REMOVING (NOT CUTTING) PIN 13 OF P15 AND PIN 3 OF P6.
7. MAXIMIZE P.C. BOARD EDGE CLEARANCE OF R1 BEFORE FIXING POSITION.
8. MANUAL-SOLDERING OF U1 THRU U8: MAXIMUM SOLDERING TEMPERATURE IS 500°F WITH A MAXIMUM DWELL TIME PER LEAD OF 5 SECONDS. ALLOW A MINIMUM OF 5 SECONDS PER PART TO COOL AFTER SOLDERING EACH LEAD.
9. SWITCH TACTILE S1 THRU S7 AND LAMPS DS1 THRU DS7 MUST BE INSTALLED PERPENDICULAR AND FLUSH TO BOARD.
10. REMOVED, NOT APPLICABLE
11. REMOVED, NOT APPLICABLE
12. AFTER DE-PANELING BOARD REMOVE EXCESS MATERIAL FLUSH TO THE EDGE.

REF. B/M: 200-08457-0000/01/99
REF. ASSEMBLY DWG. 300-08457-0000 REV. AE

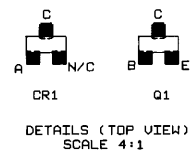


Figure 2005 Front Panel Module
(Internally Controlled Drawing, Ref: 300-08457-0000, Rev. AE, Sheet 1 of 2)

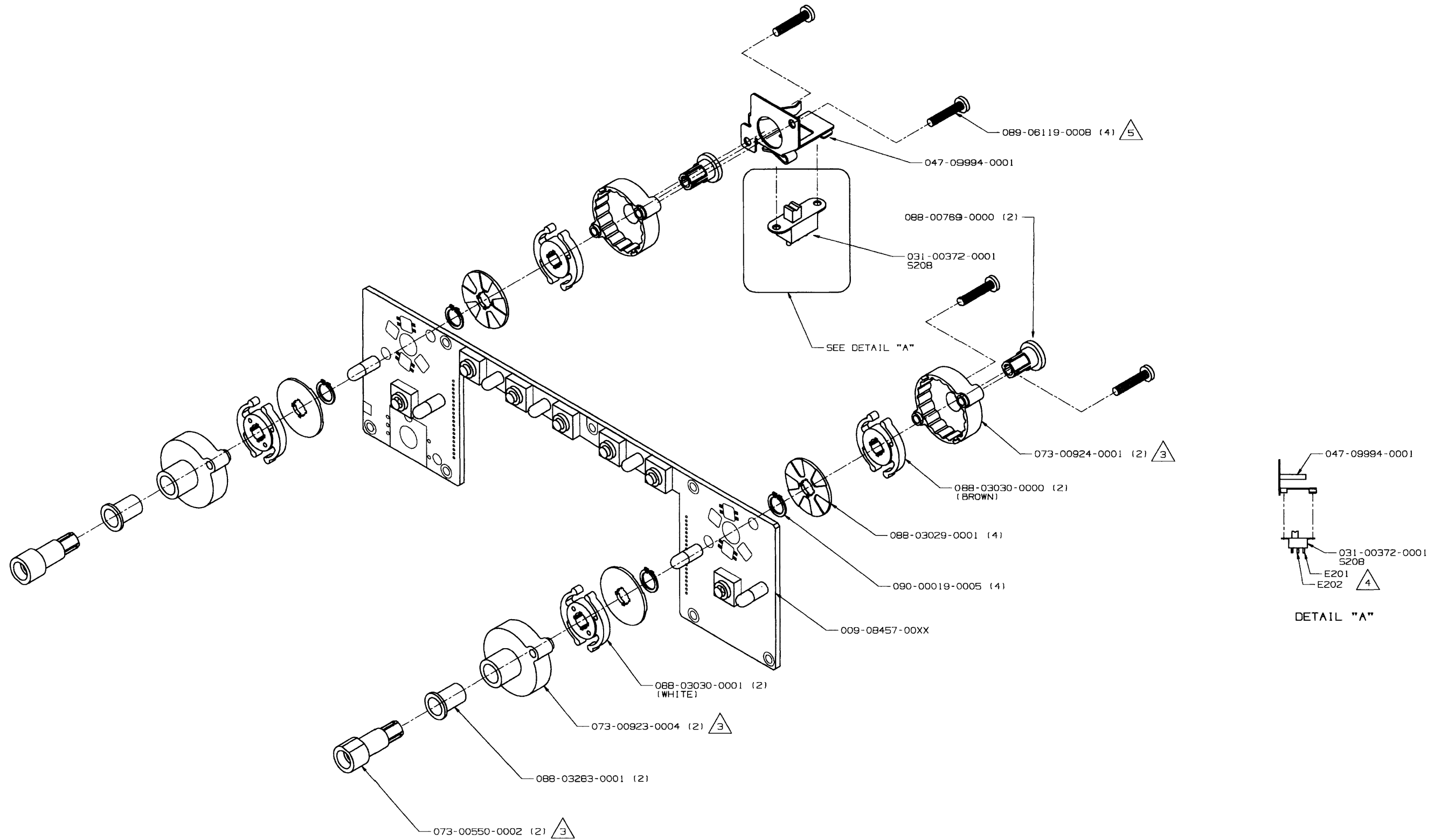


Figure 2005 Front Panel Module
(Internally Controlled Drawing, Ref: 300-08457-0000, Rev. AE, Sheet 2 of 2)

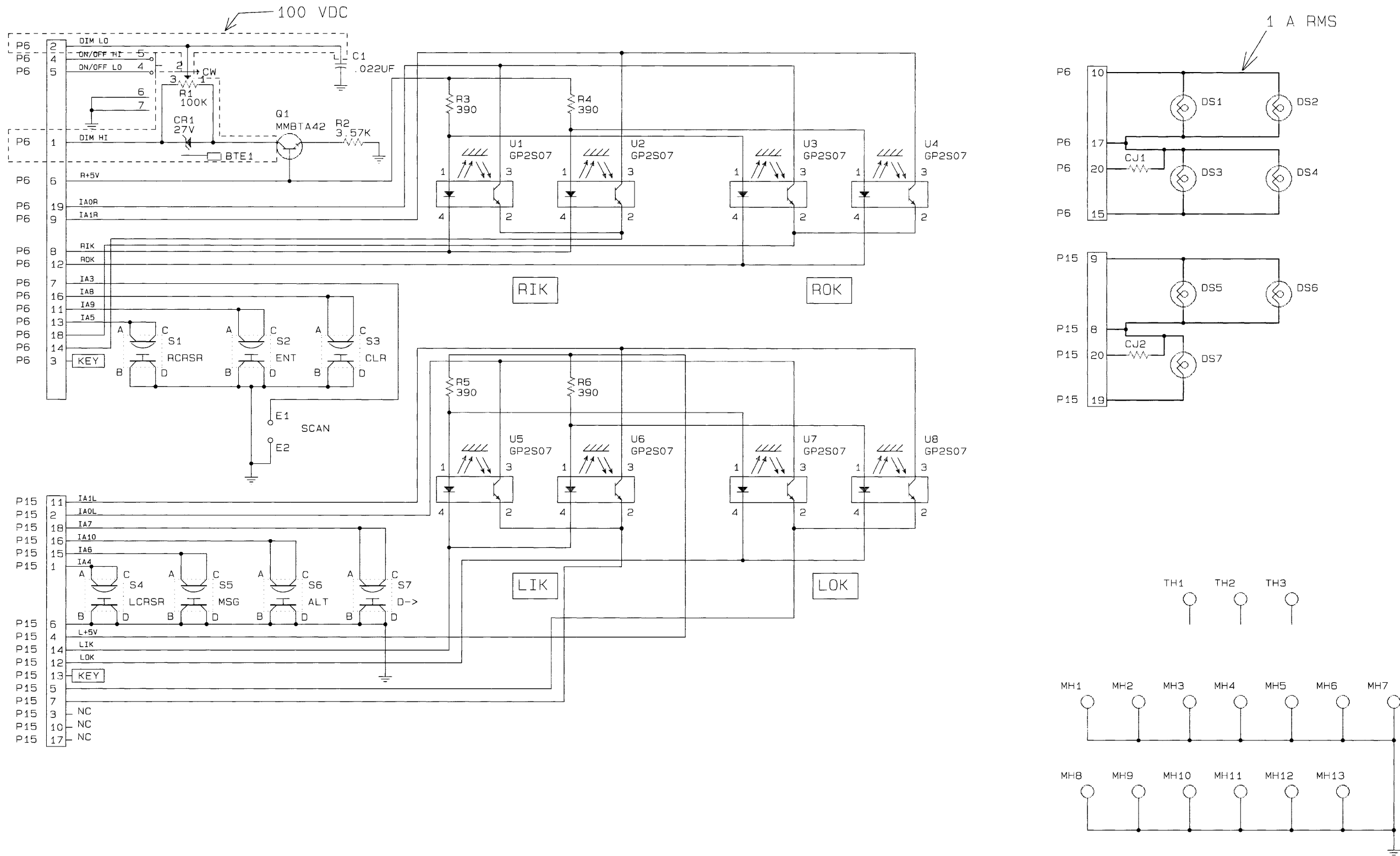


Figure 2006 Front Panel Module Schematic Diagram
(002-08457-0000 R-0)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
MAIN MODULE
PART NUMBER 200-08924-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
1	Baseline revision.		
2	Change J1901 to P1901.	N.A.	N.A.
3	Change C1088 to 096-01186-0034, change R1102 to 139-05112-0000.	N.A.	N.A.
4	Attaching parts change (numerous).	N.A.	N.A.
5	Delete 091-00361-0000 (Qty. 2), add CR1126, and R1356.	N.A.	N.A.
6	Change R1234 to 136-20100-0072.	N.A.	N.A.
7	Attaching parts change (numerous).	N.A.	N.A.
8	Add 187-01848-0001.	N.A.	N.A.
9	Add 187-01841-0000.	N.A.	N.A.
10	Delete 187-01841-0000.	N.A.	N.A.
11	Delete 016-01412-0000, Add REF1, REF2.	N.A.	N.A.
12	Add 016-01082-0000, delete 187-01848-0001.	N.A.	N.A.
13	Delete 126-00058-0000, change I1016 to 195-00186-0000. Next revision AA.	N.A.	N.A.
AA	Add 193-00835-0006.	N.A.	N.A.
AB	Change R1097 and R1098 to 139-06980-0000.	N.A.	N.A.
AC	Delete 193-00835-0006.	N.A.	N.A.
AD	Add REF3.	N.A.	N.A.
AE	Change I1060 to 120-08030-0010. Change S/W I1017 to 122-01515-0048.	Version Dependent See SB	KLN 90B-2
AF	Delete REF3.	N.A.	N.A.
AG	Add 016-01082-0000, 150-00005-0010, and C1259.	40638	KLN 90B-4
AH	Delete 088-02489-0000 (Qty. 2), add 088-02489-0001 (Qty. 2), change J1002 to 200-10545-0000. Next revision AJ.		
AJ	Delete 089-05903-0011 (Qty. 2), add 089-05903-0010 (Qty. 2), change C1058 to 108-00514-0001.		

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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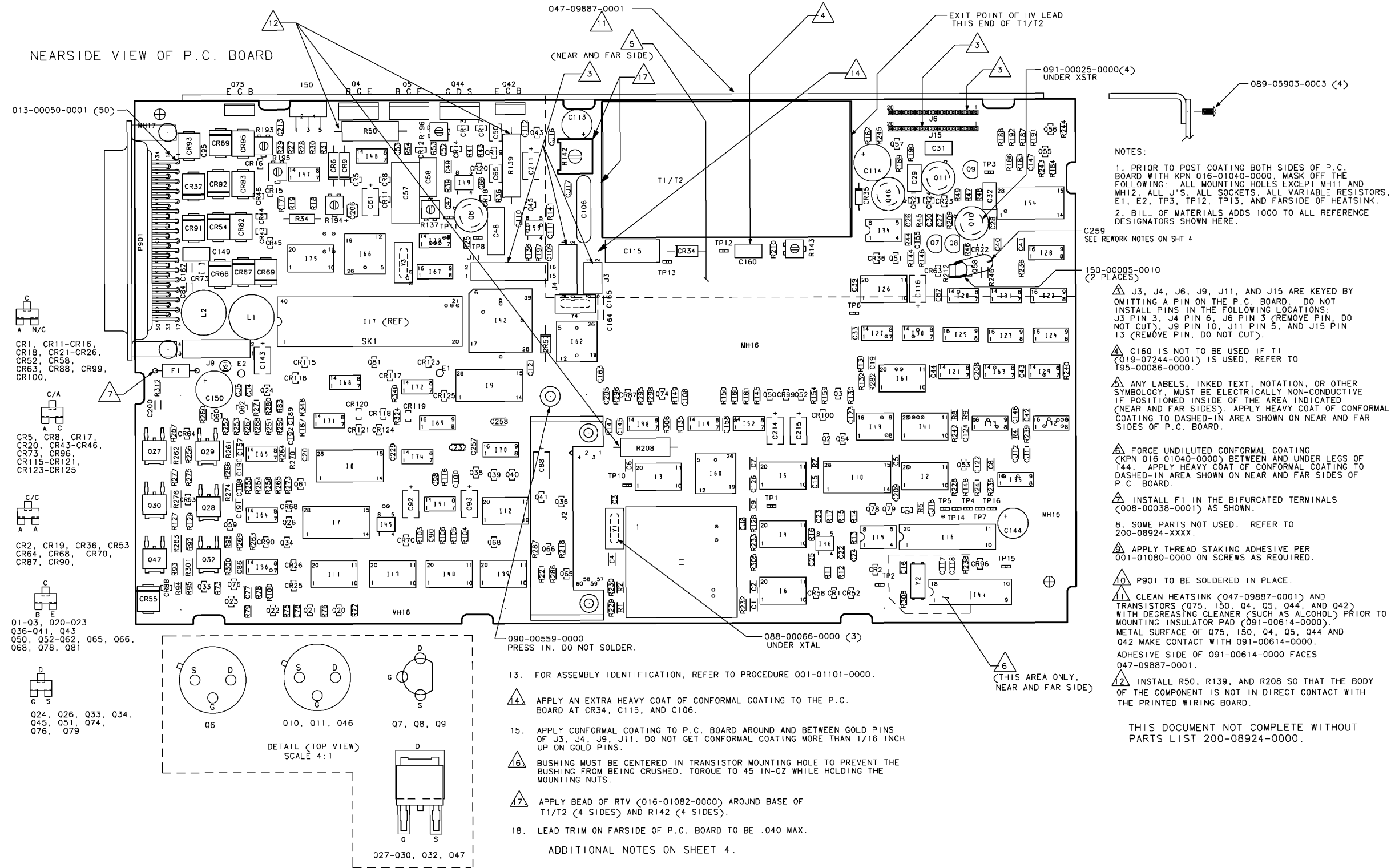
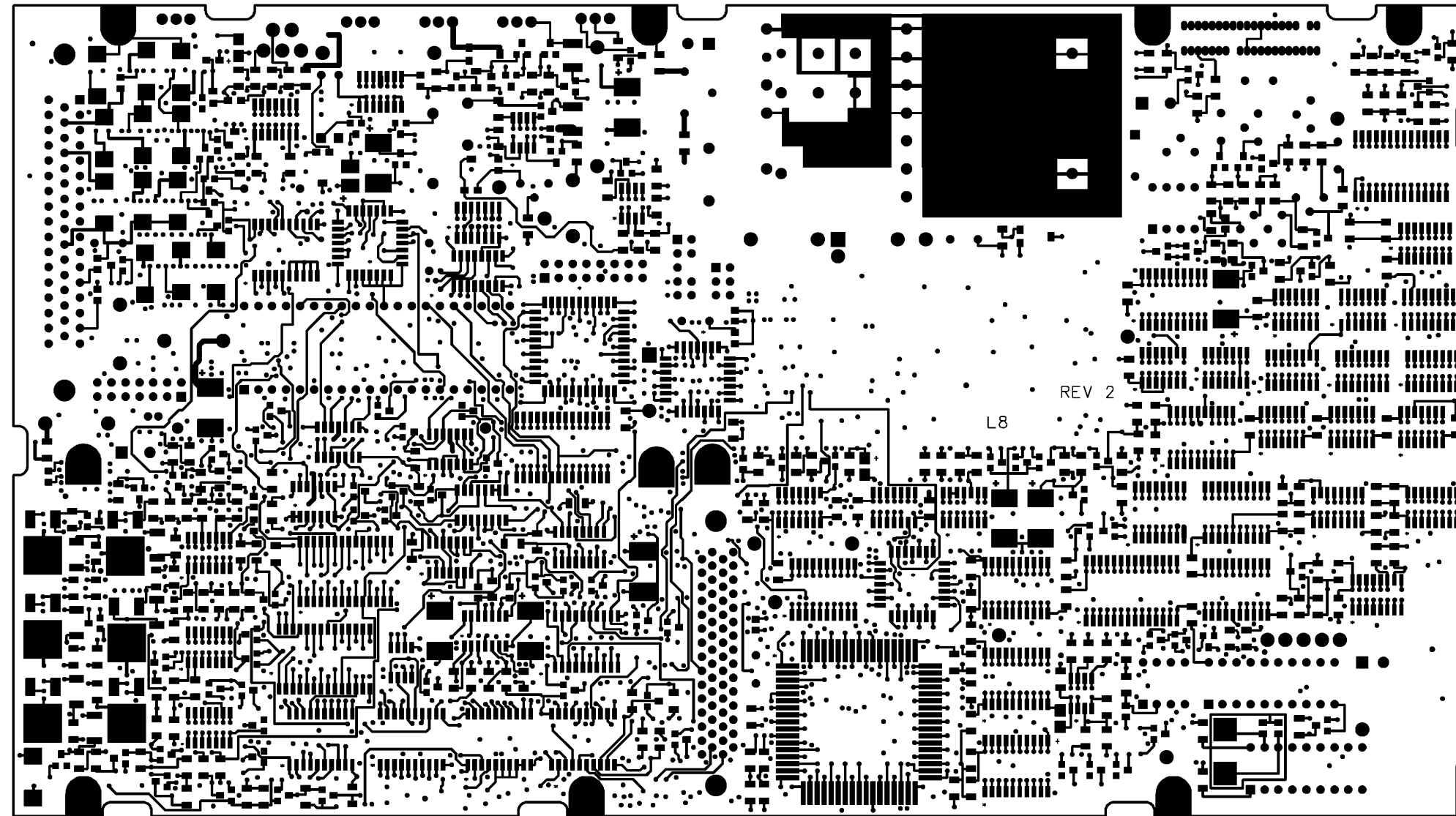
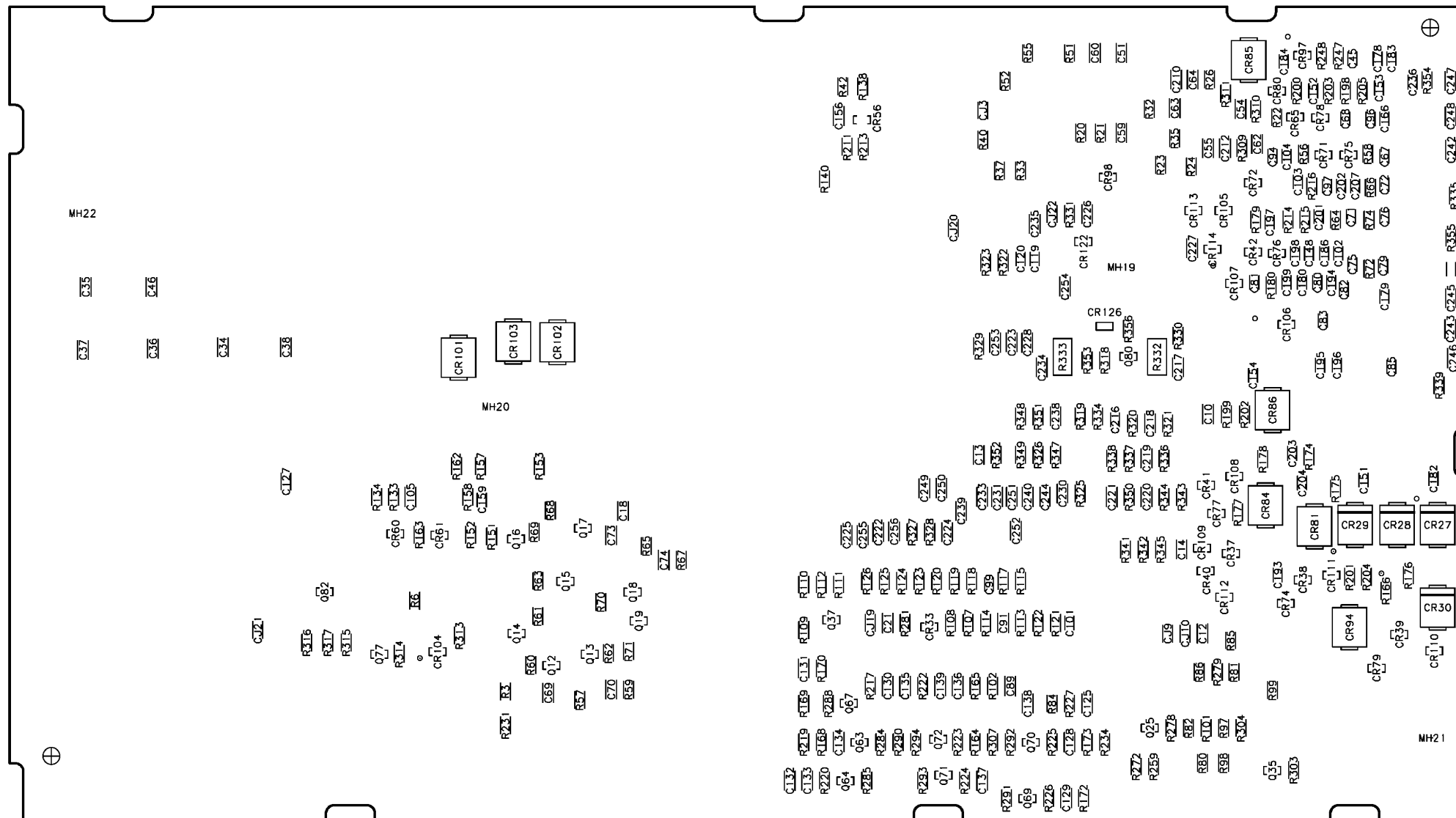
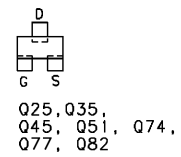
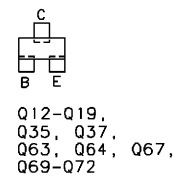
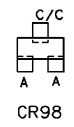
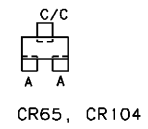
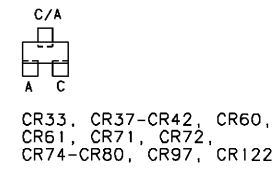
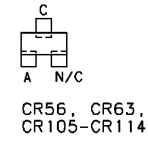


Figure 2007 Main Module
(300-08924-0000 R-AG, Sheet 1 of 5)



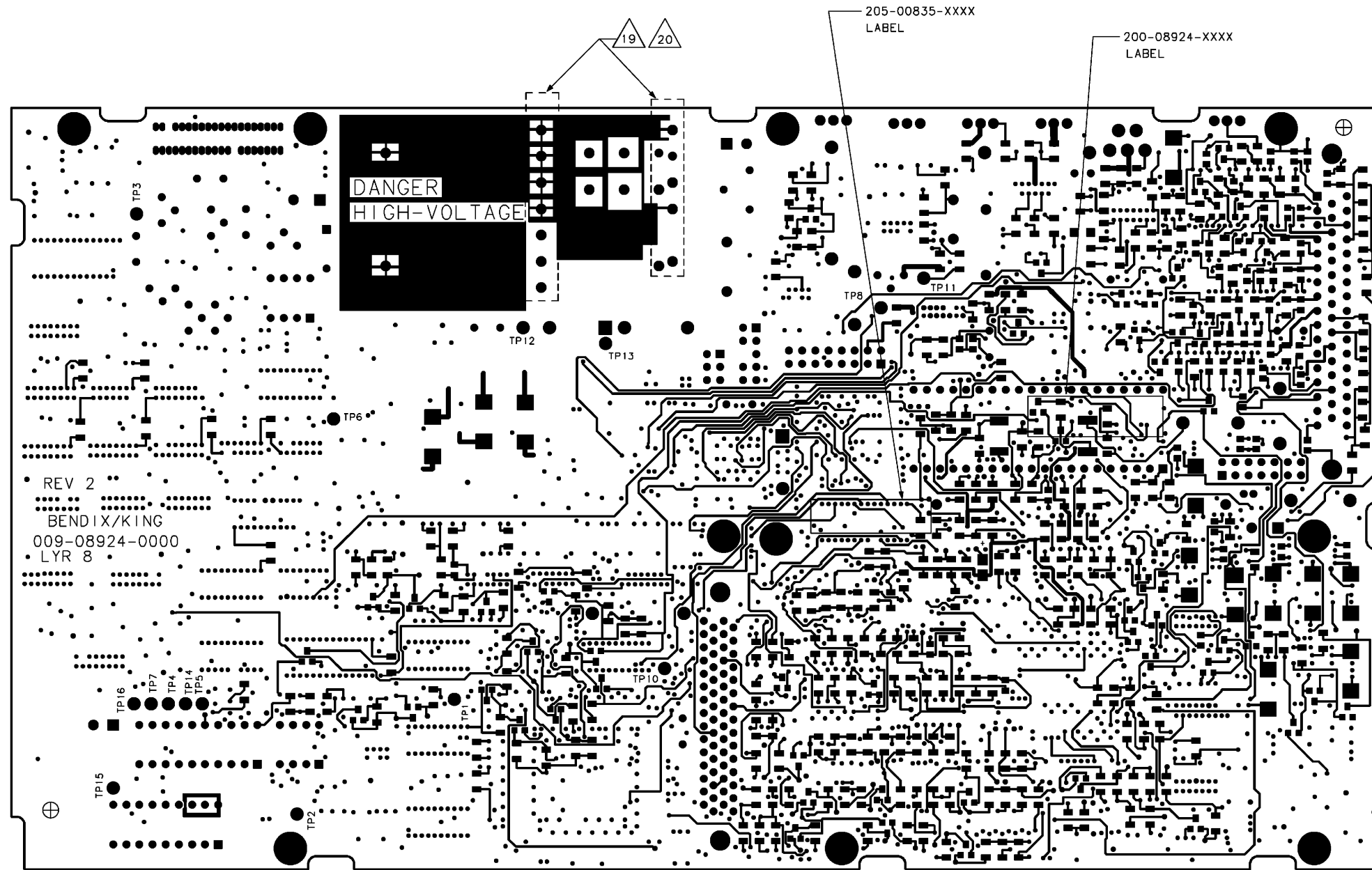
NEAR SIDE VIEW OF P.C. BOARD

Figure 2007 Main Module
(300-08924-0000 R-AG, Sheet 2 of 5)



FAR SIDE VIEW OF P.C. BOARD

Figure 2007 Main Module
(300-08924-0000 R-AG, Sheet 3 of 5)



NOTES CONTINUED FROM SHEET 1:

- 19. ALL LEADS OF T1/T2 ARE TO BE COVERED FULLY WITH SOLDER TO ROUND SHARP CORNERS ON THE FAR SIDE.
- 20. APPLY EXTRA HEAVY COAT OF UNDILUTED CONFORMAL COATING (KPN 016-01040-0000) BETWEEN AND UNDER LEADS OF T1/T2 AS SHOWN IN THE DASH-IN AREA ON THE FAR SIDE.

FAR SIDE VIEW OF P.C. BOARD

REWORK NOTES:

- A. INSTALL 2 PIECES OF TEFLON TUBING (150-00005-0010) ON LEGS OF C259.
- B. ATTACH C259 ACROSS R212 AND POSITION AS SHOWN.
- C. SECURE C259 WITH RTV (016-01082-0000).

Figure 2007 Main Module
(300-08924-0000 R-AG, Sheet 4 of 5)

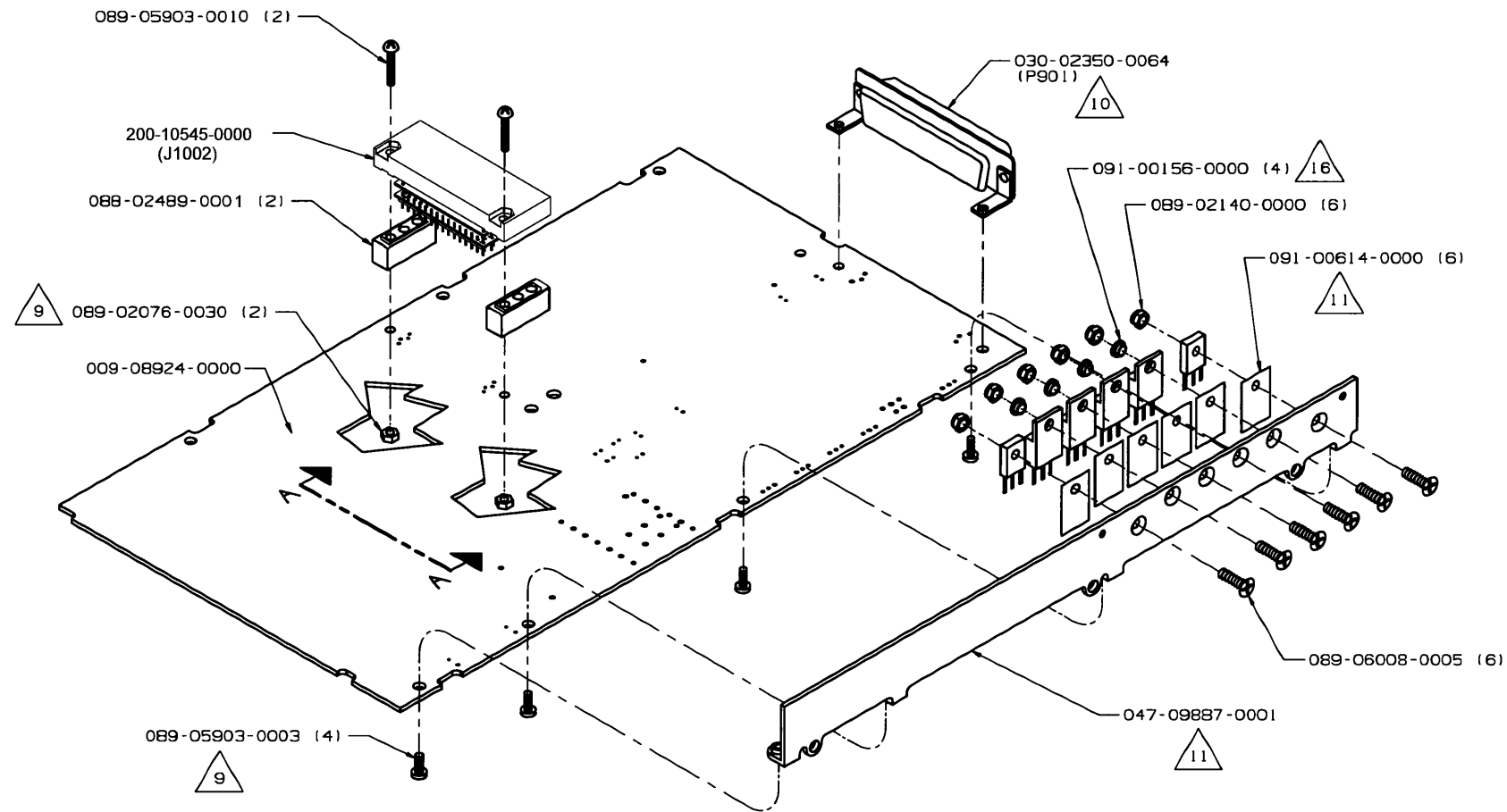


Figure 2007 Main Module
(300-08924-0000 R-AG, Sheet 5 of 5)

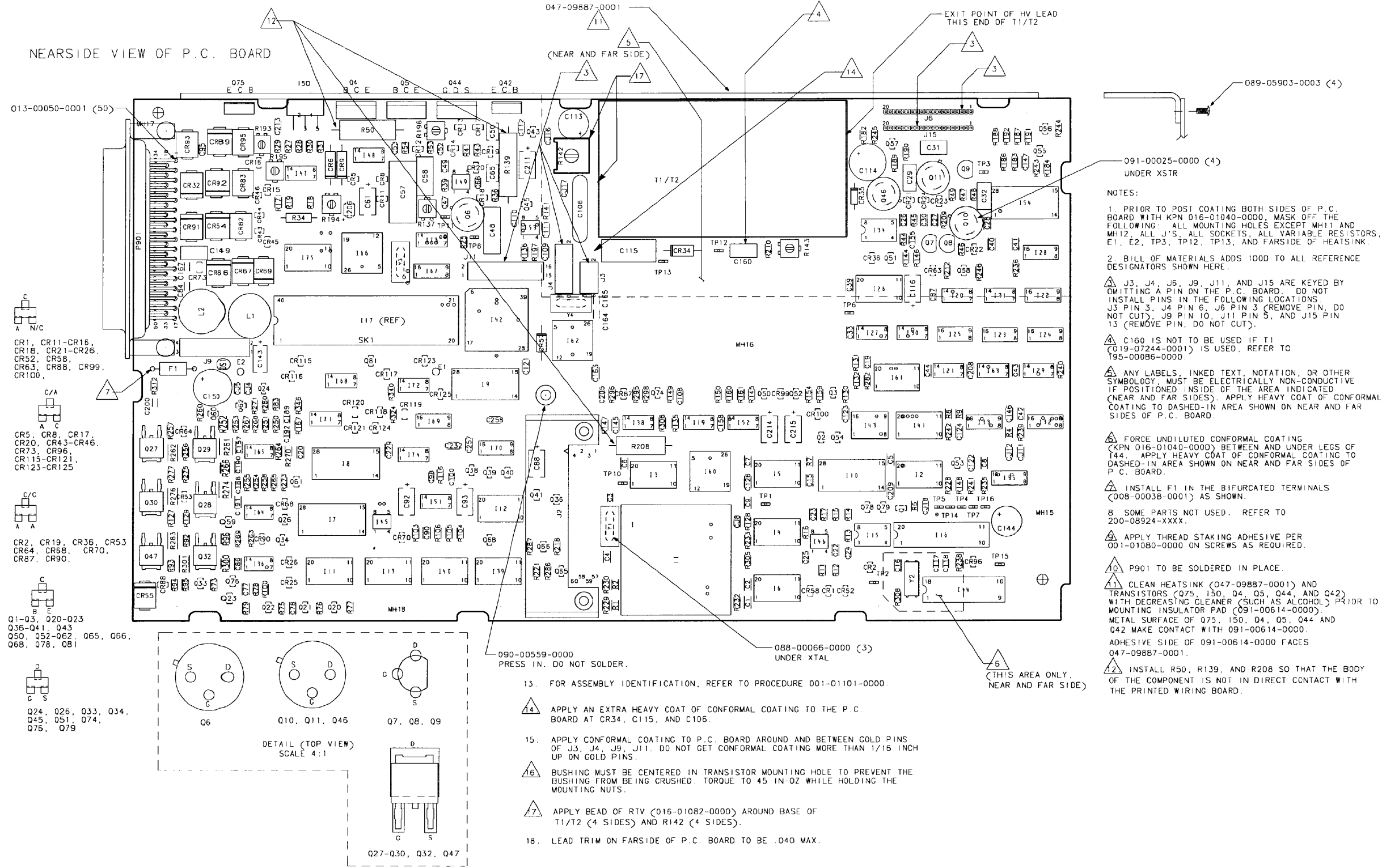
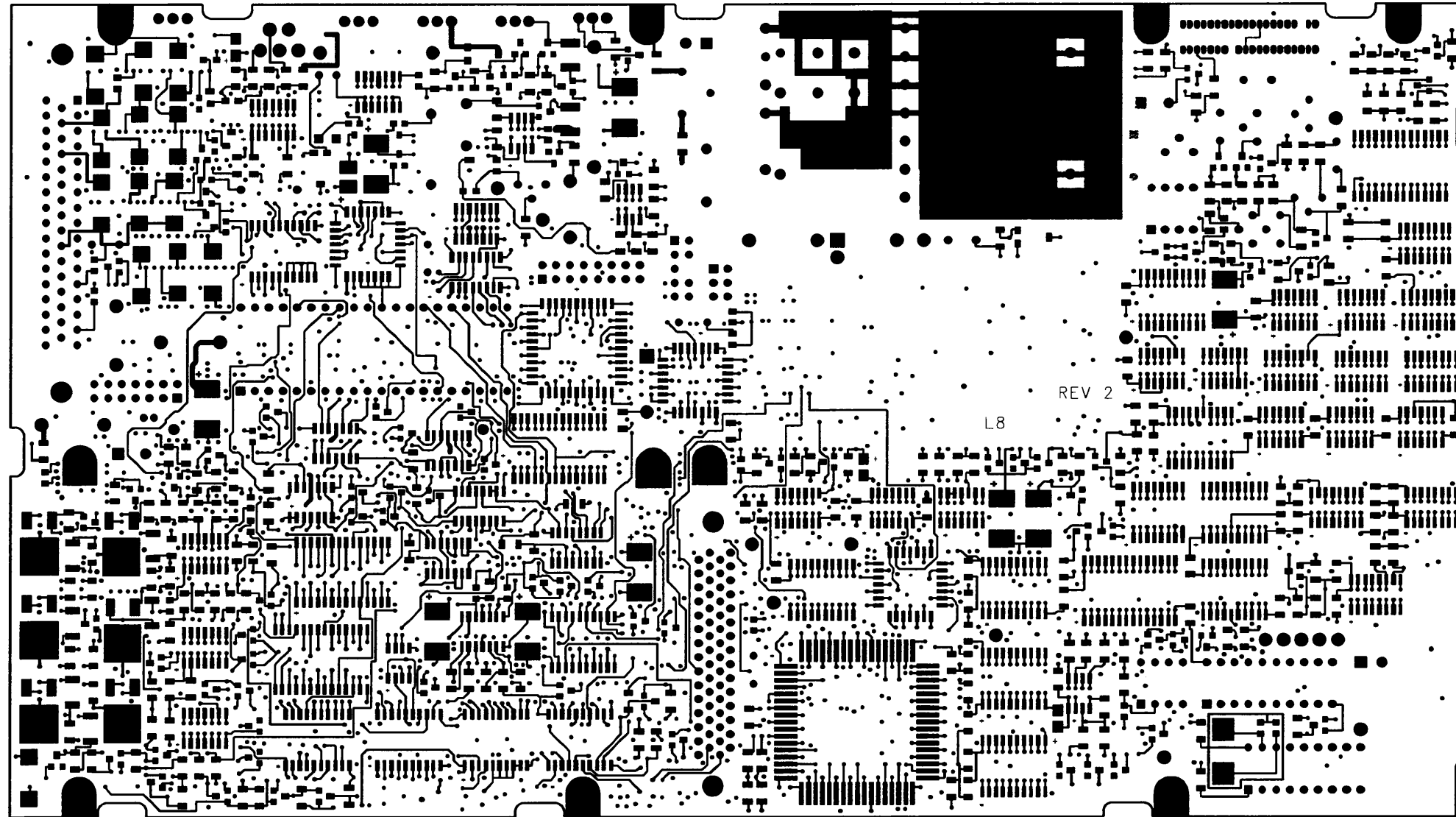
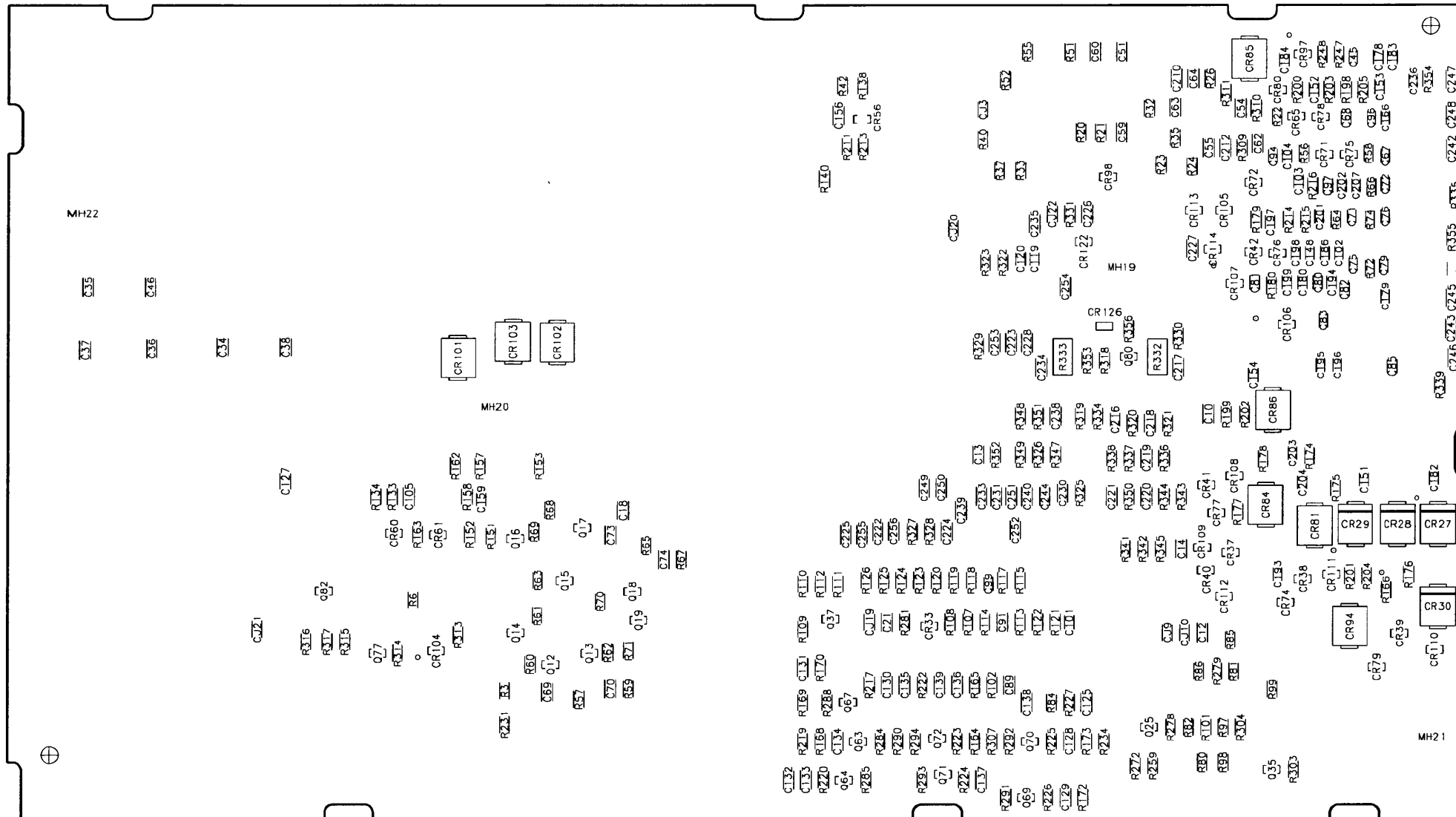
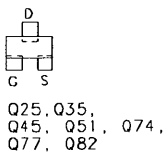
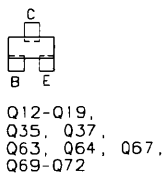
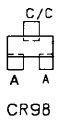
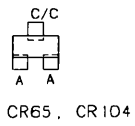
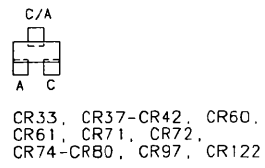
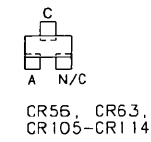


Figure 2007A Main Module (300-08924-0000 R-AC, Sheet 1 of 5) (For Reference Only)



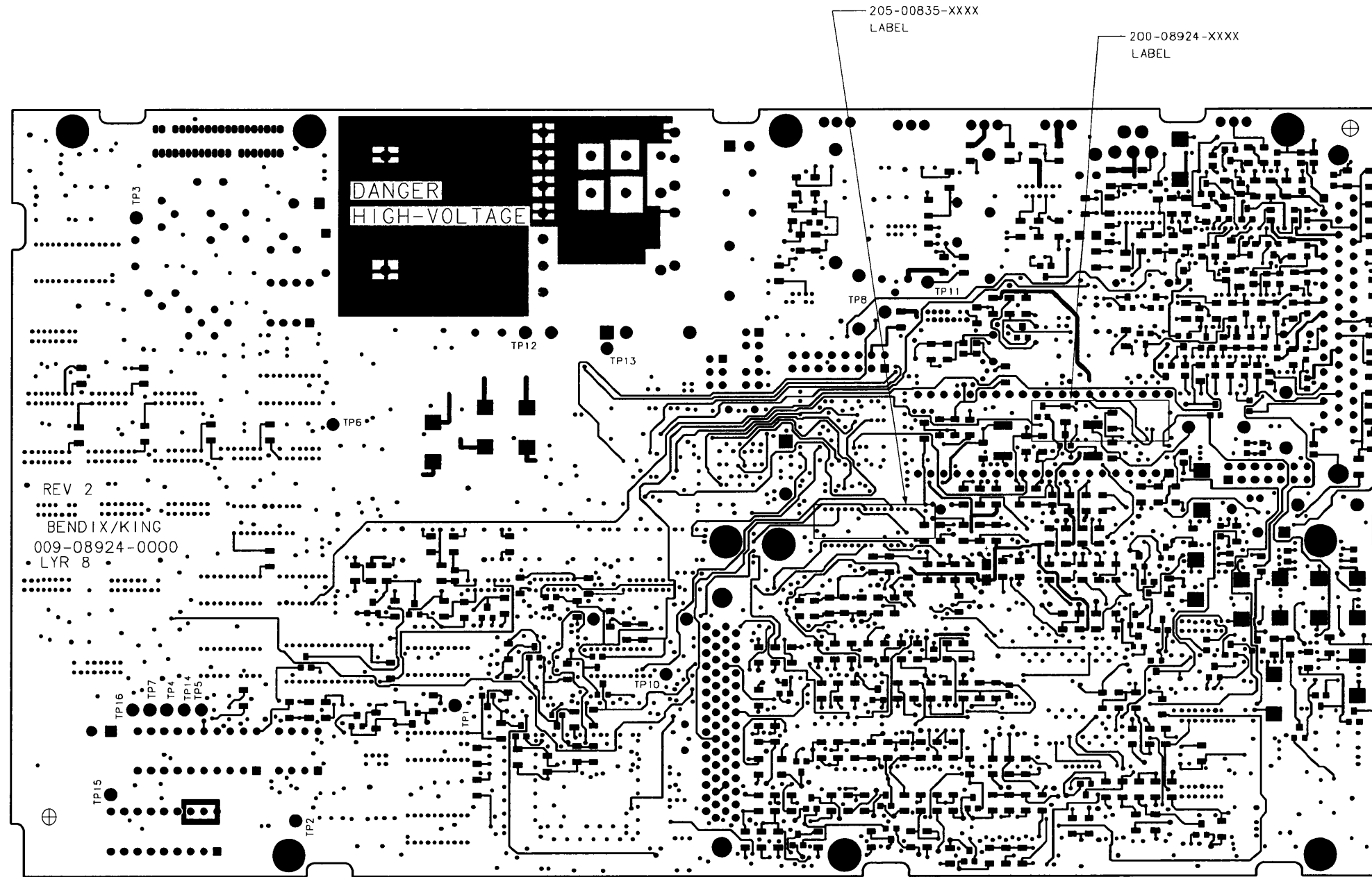
NEAR SIDE VIEW OF P.C. BOARD

Figure 2007A Main Module
(300-08924-0000 R-AC, Sheet 2 of 5) (For Reference Only)



FAR SIDE VIEW OF P.C. BOARD

Figure 2007A Main Module
(300-08924-0000 R-AC, Sheet 3 of 5) (For Reference Only)



FAR SIDE VIEW OF P.C. BOARD

Figure 2007A Main Module
(300-08924-0000 R-AC, Sheet 4 of 5) (For Reference Only)

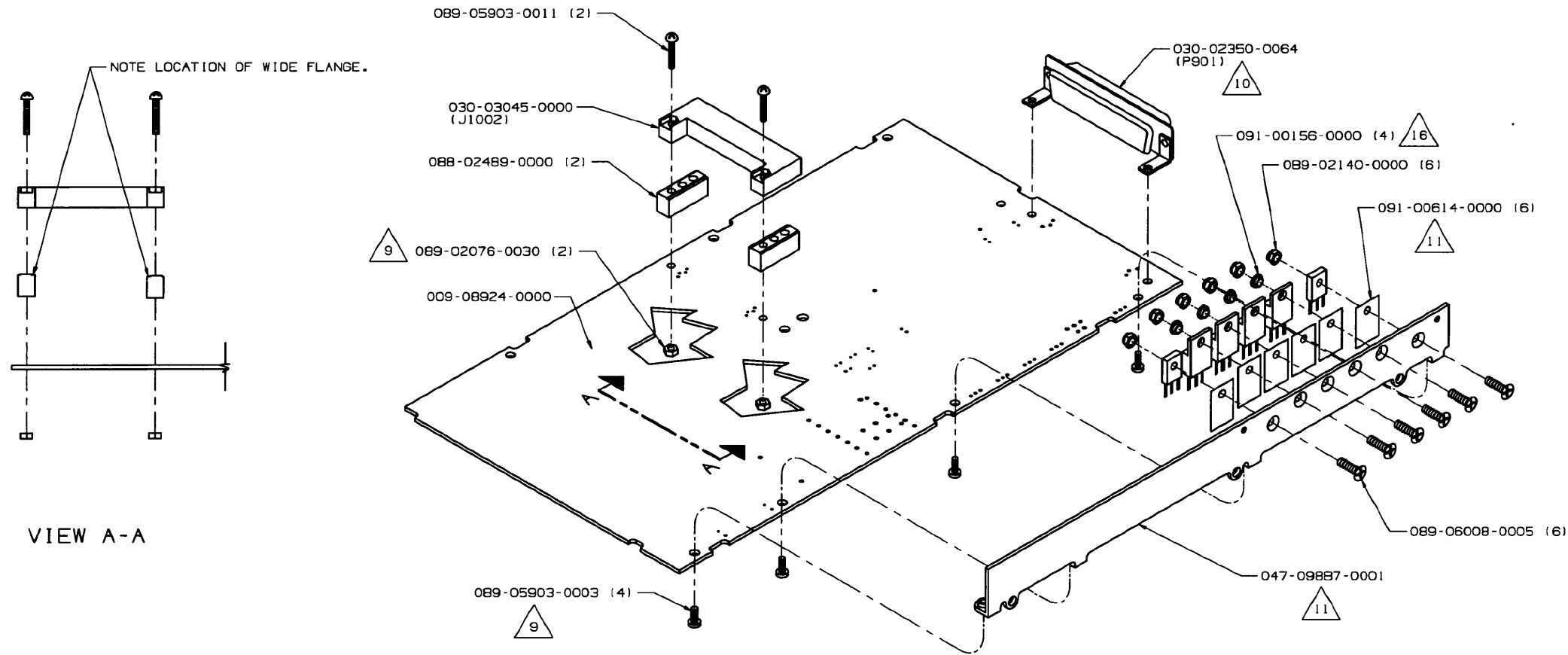


Figure 2007A Main Module
(300-08924-0000 R-AC, Sheet 5 of 5) (For Reference Only)

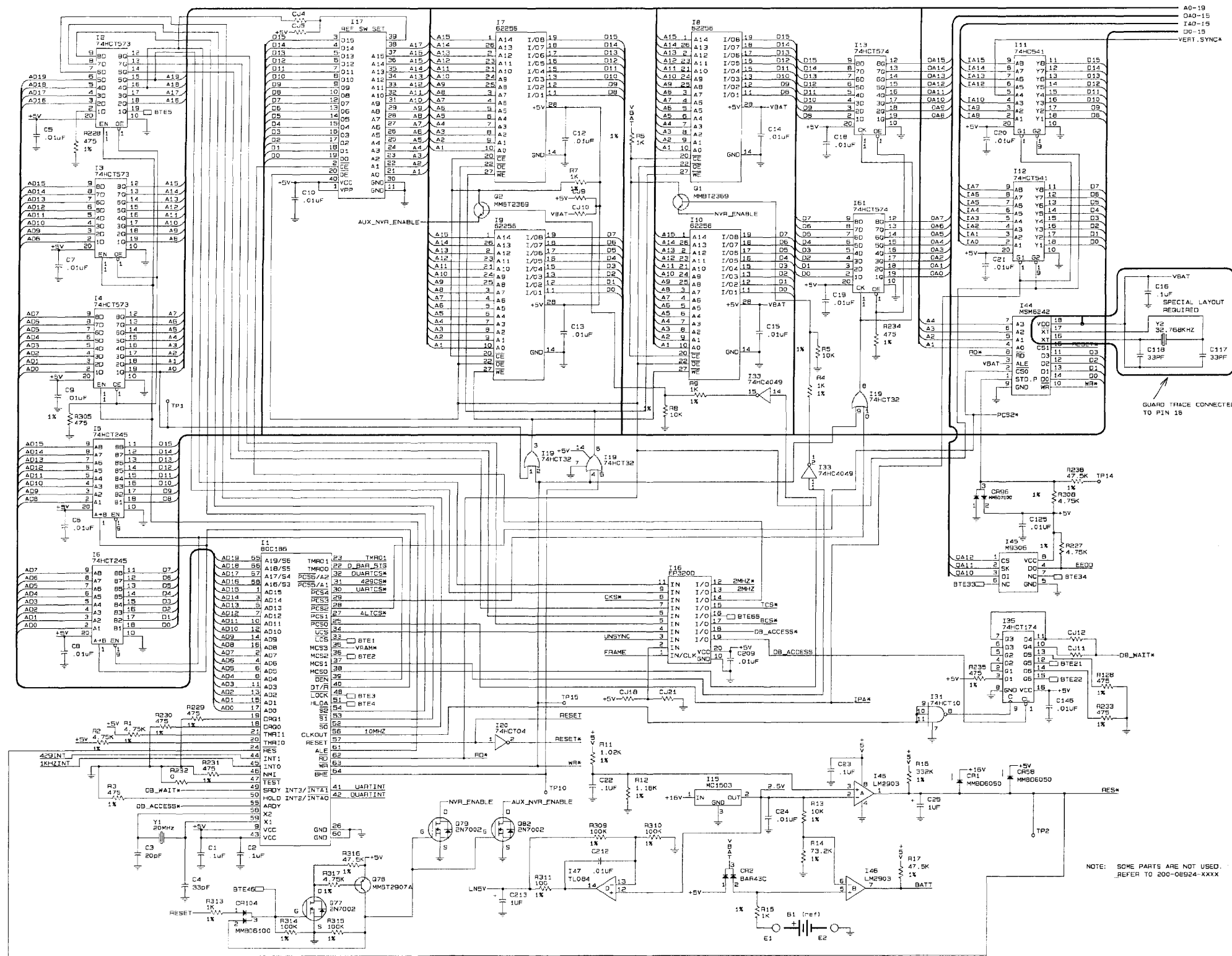


Figure 2008 Main Module Schematic Diagram (002-08924-0000 R-AD, Sheet 1 of 6)

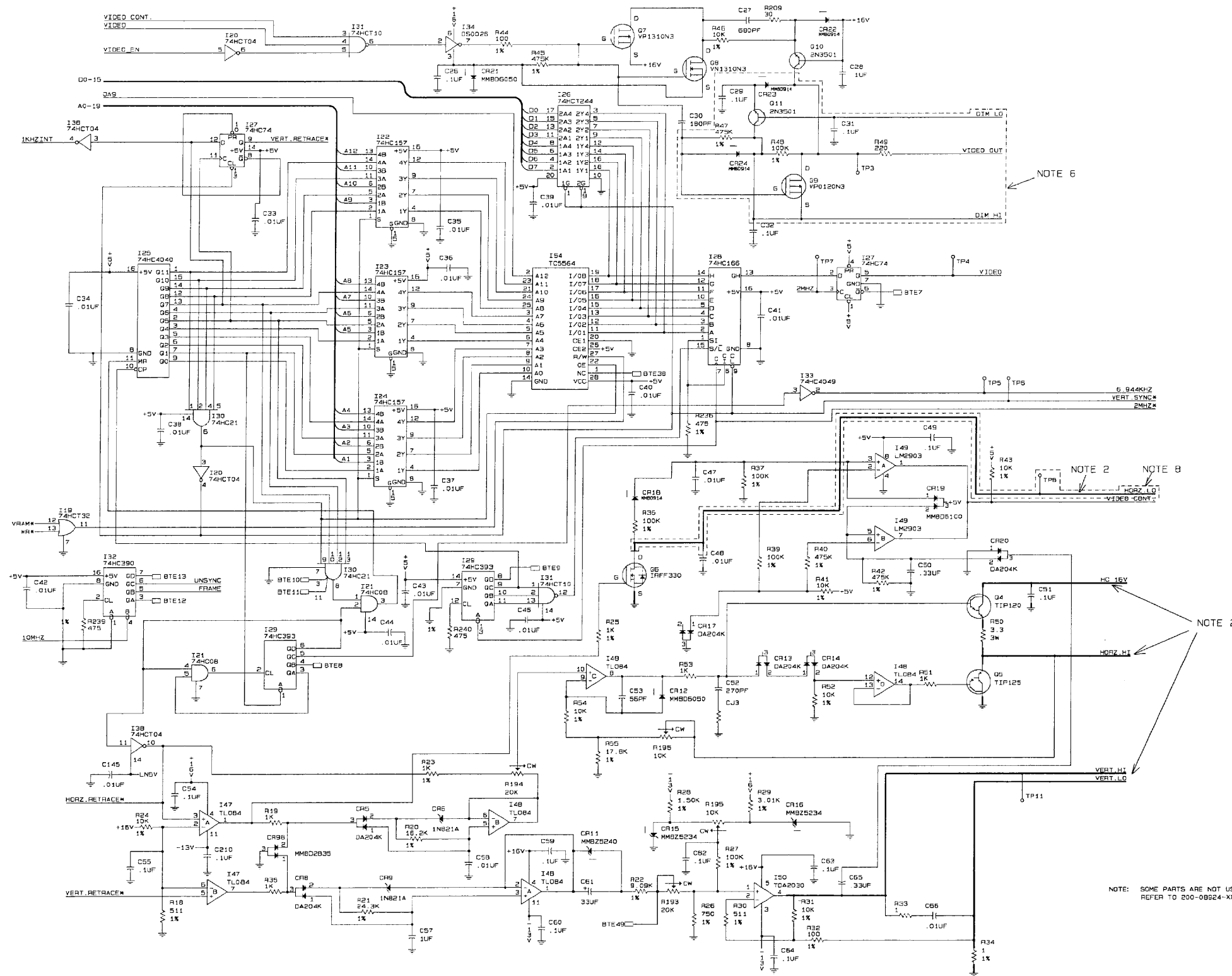


Figure 2008 Main Module Schematic Diagram (002-08924-0000 R-AD, Sheet 2 of 6)

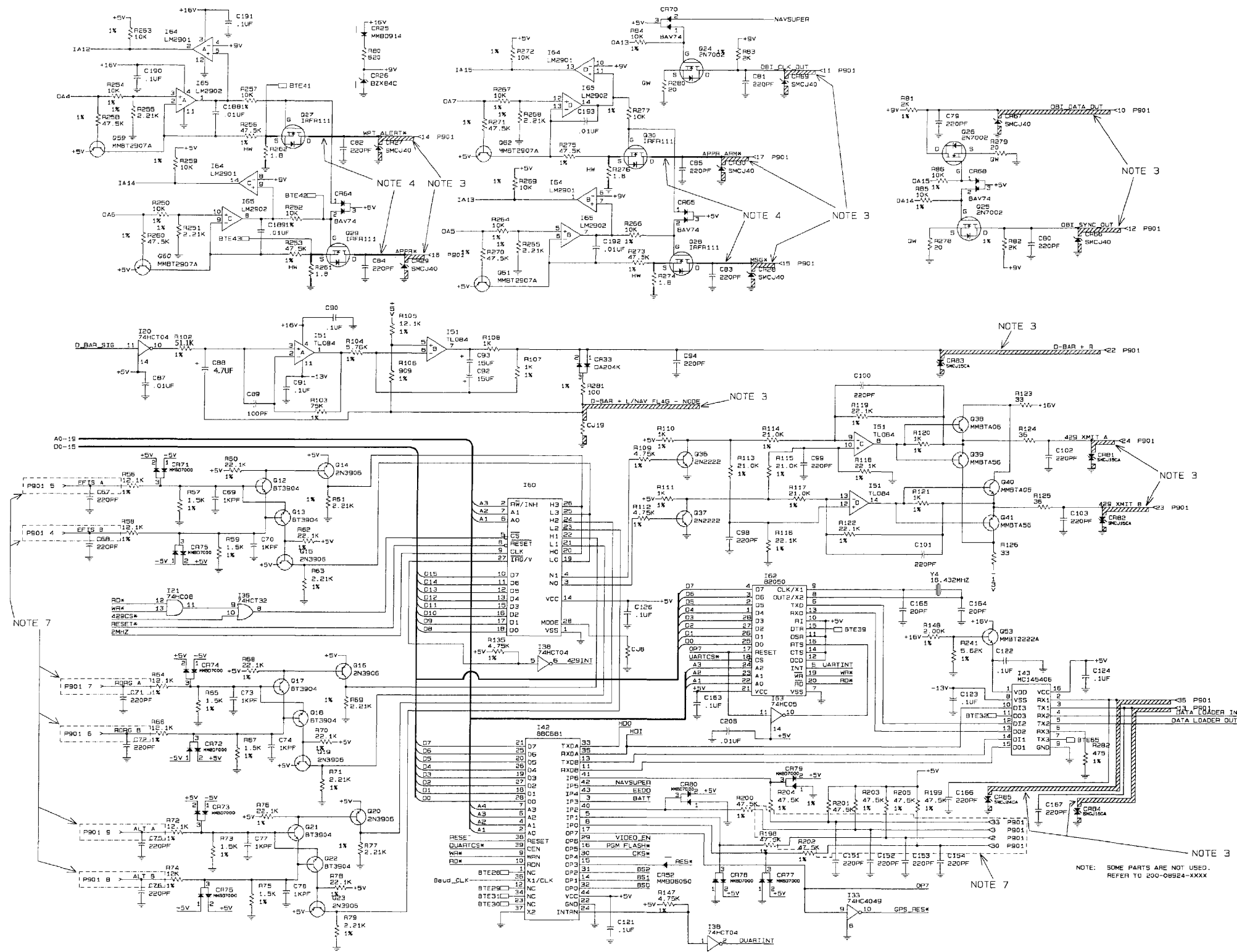


Figure 2008 Main Module Schematic Diagram (002-08924-0000 R-AD, Sheet 3 of 6)

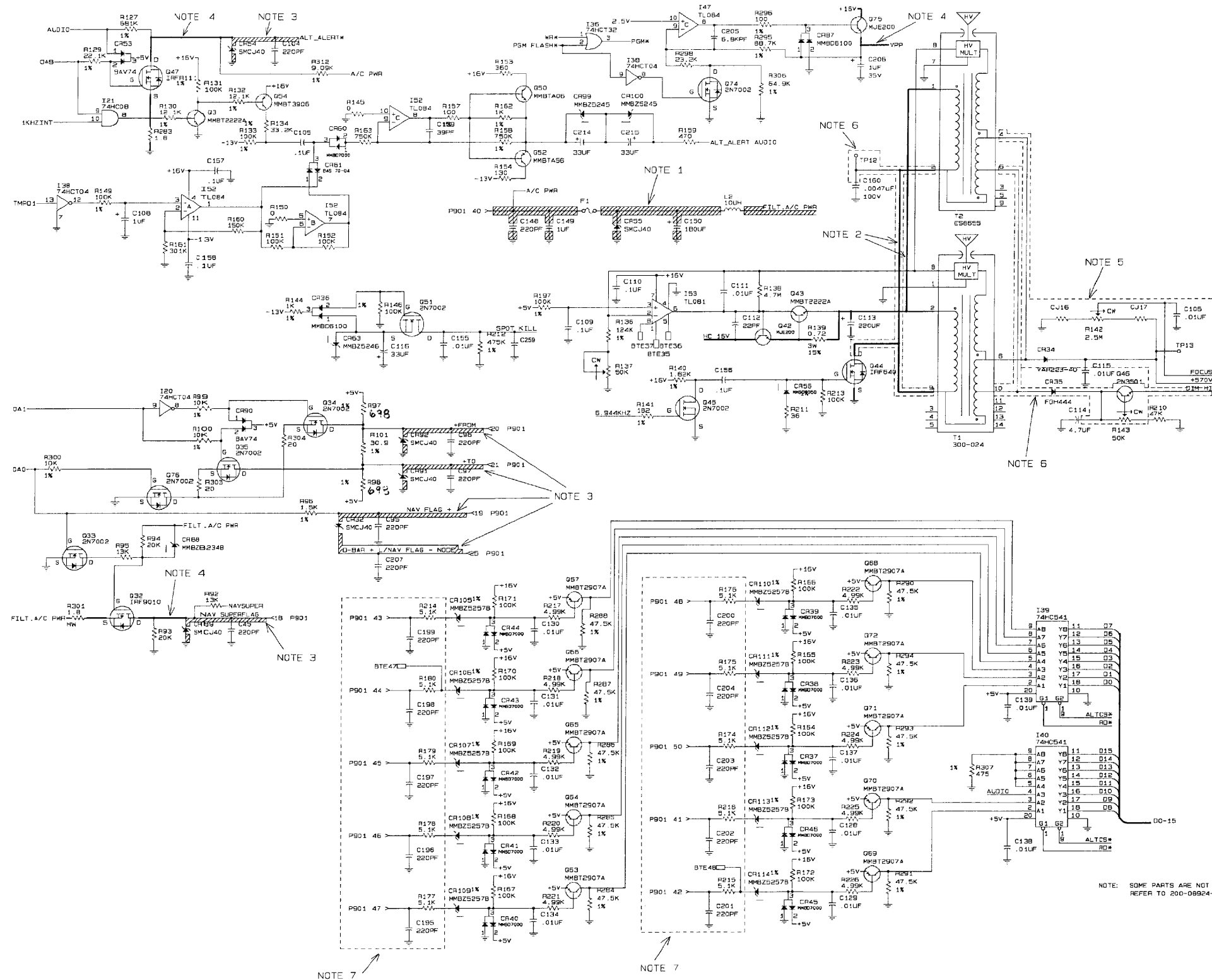


Figure 2008 Main Module Schematic Diagram (002-08924-0000 R-AD, Sheet 4 of 6)

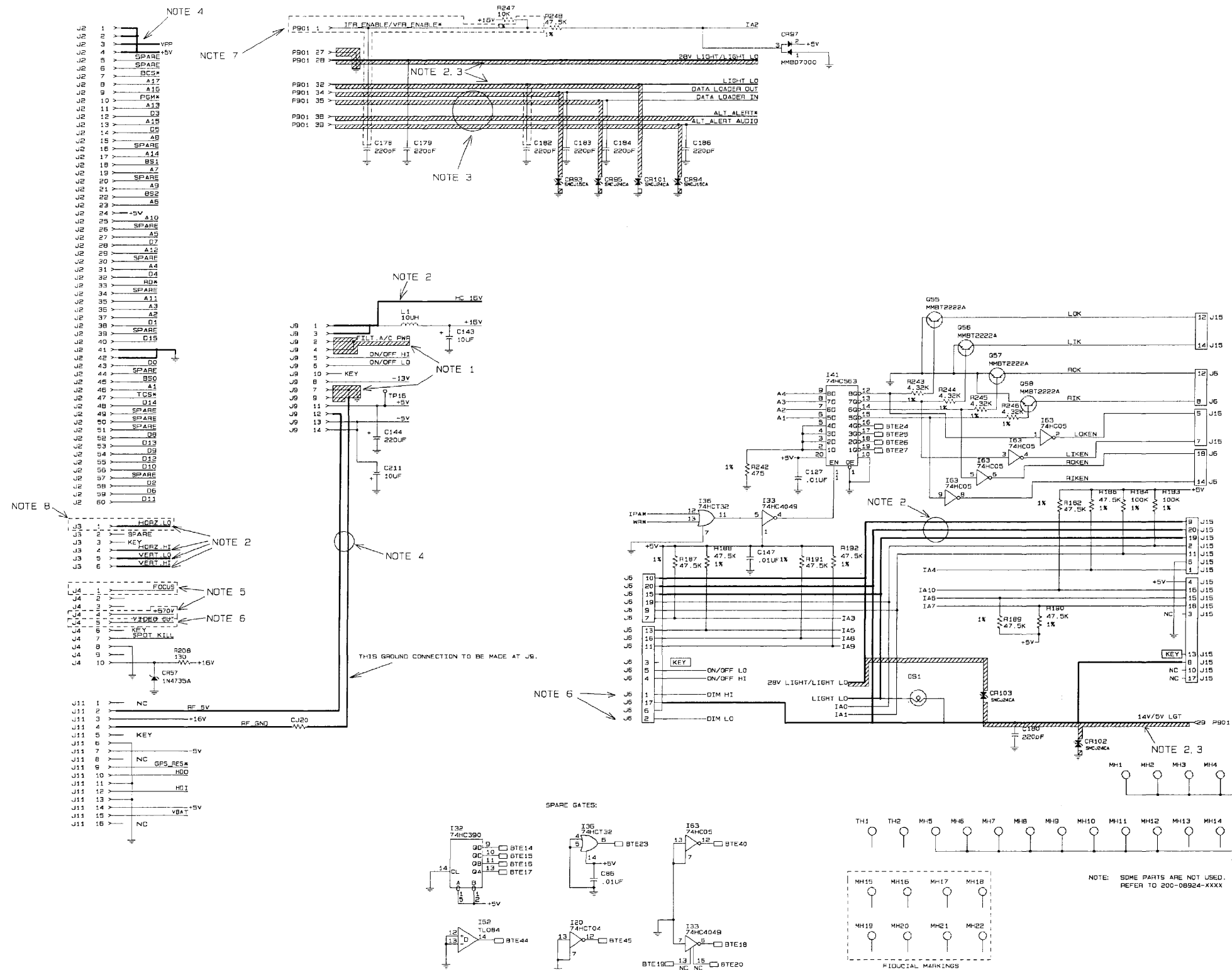
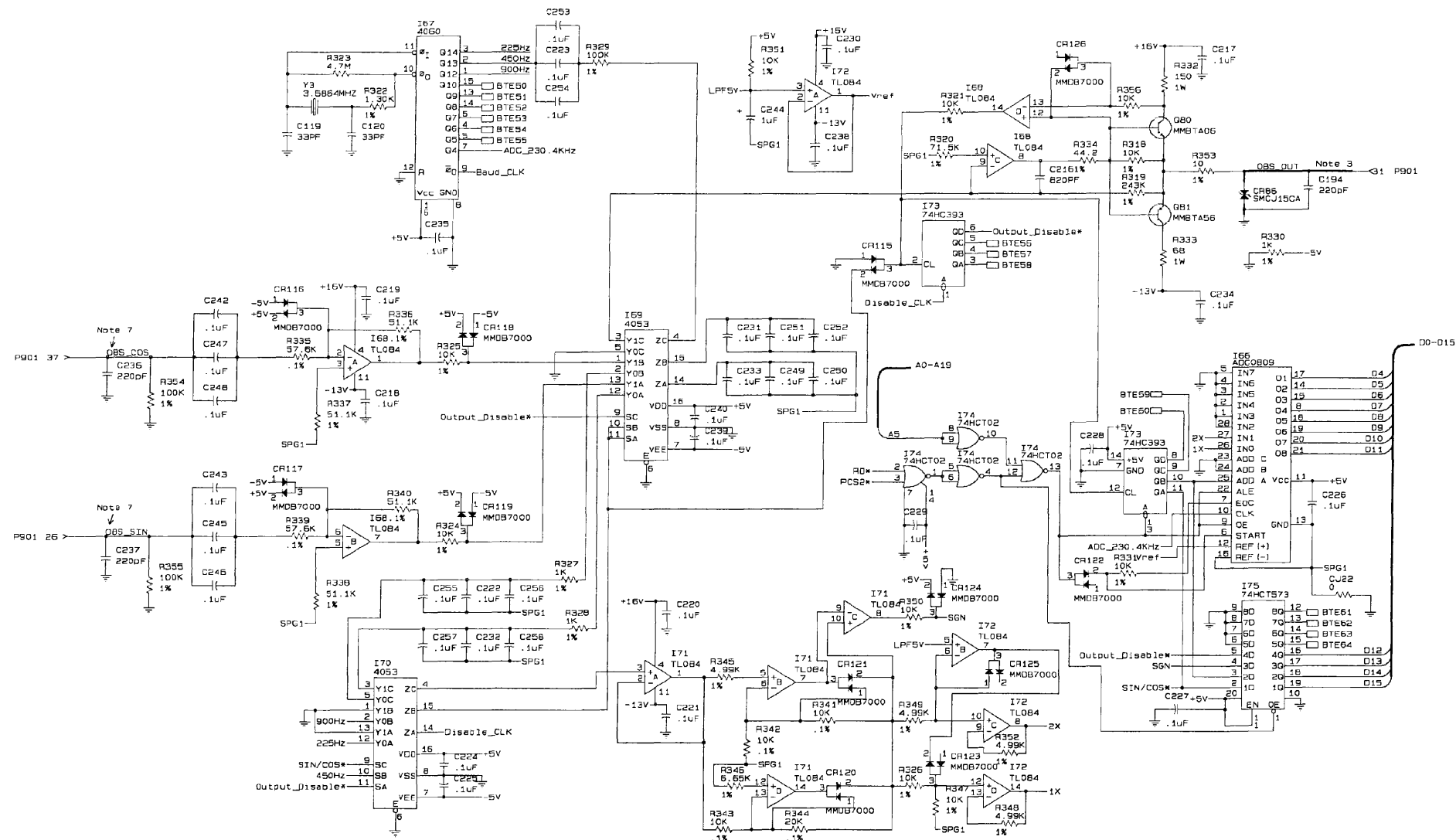


Figure 2008 Main Module Schematic Diagram (002-08924-0000 R-AD, Sheet 5 of 6)



- NOTES:
1. 6 AMPS RMS, 12 AMPS PEAK.
 2. 2 AMPS RMS.
 3. 1 AMP RMS, 60 AMPS PEAK (100 USEC DURATION, 1HZ REPETITION RATE).
 4. 500 MA RMS.
 5. 1000 VDC.
 6. 200 VDC.
 7. 300 V PULSE (100 USEC DURATION, 1 HZ REPETITION RATE).
600 V PEAK (10 USEC BURST OF 1 MHZ, 1 HZ REPETITION RATE).
 8. 300 V PULSE (10 USEC DURATION, 6.9 KHZ REPETITION RATE).

NOTE: SOME PARTS ARE NOT USED.
REFER TO 200-08924-XXXX

Figure 2008 Main Module Schematic Diagram
(002-08924-0000 R-AD, Sheet 6 of 6)

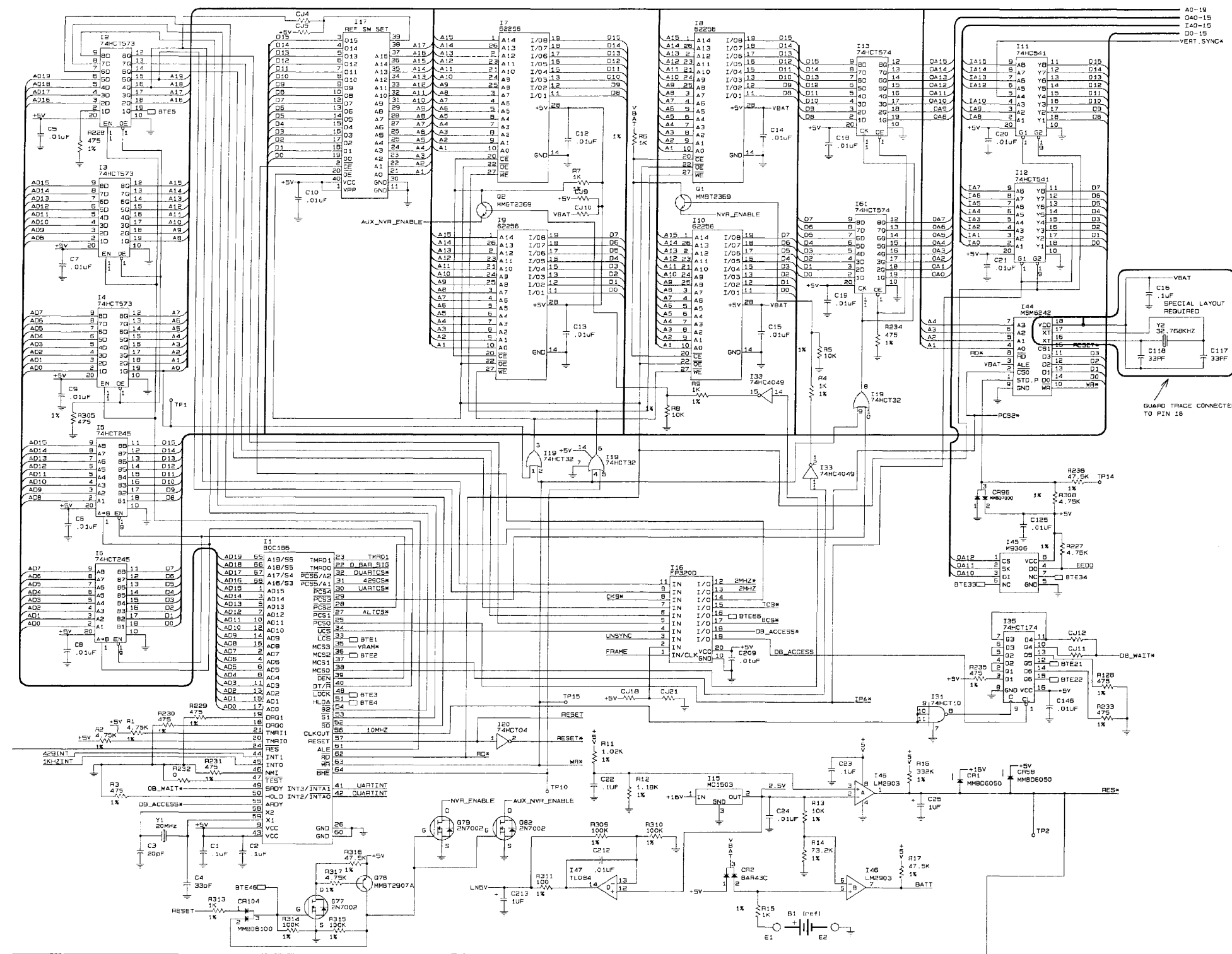


Figure 208A Main Module Schematic Diagram
(002-08924-000 R-AC, Sheet 1 of 6) (For Reference Only)

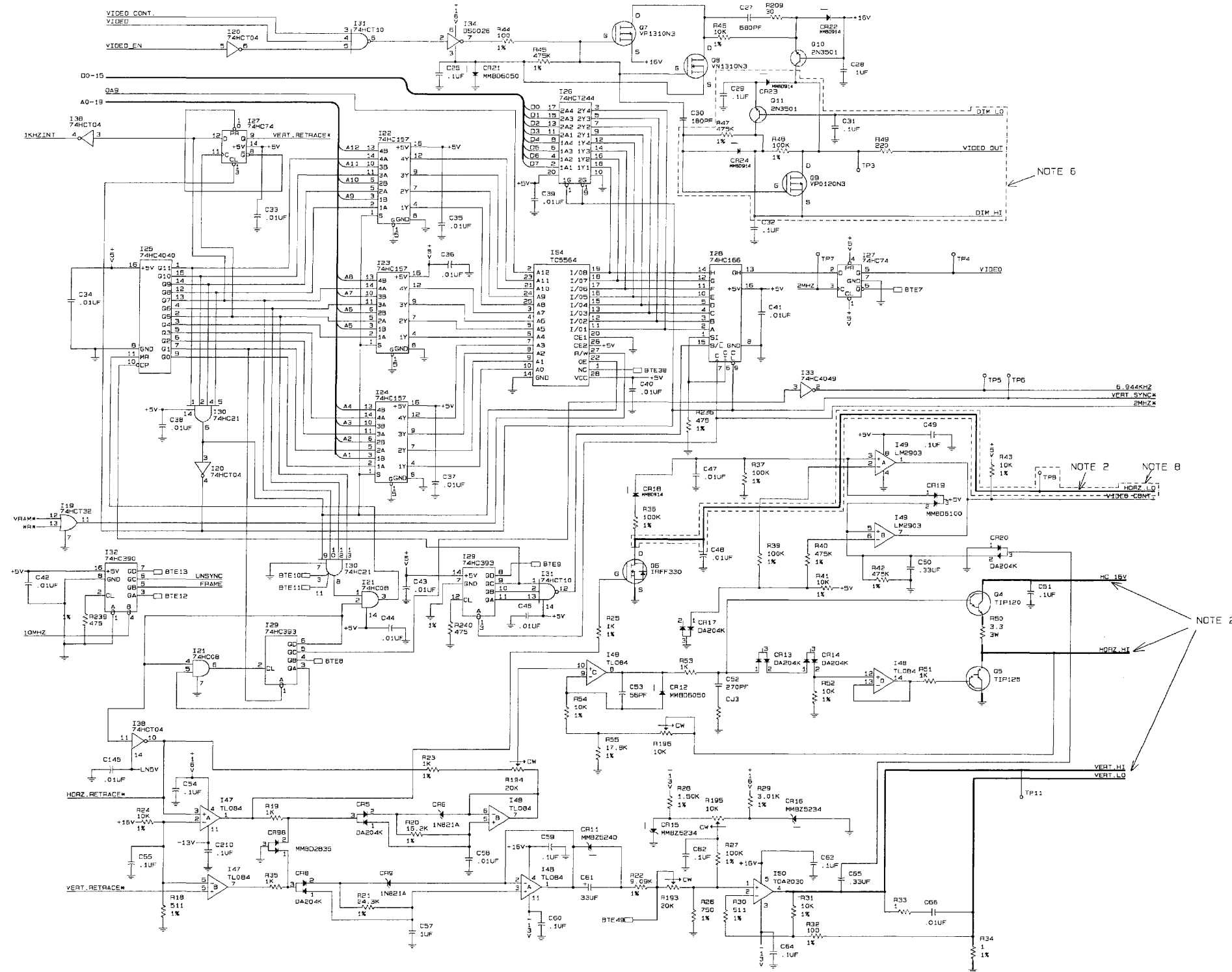


Figure 2008A Main Module Schematic Diagram
 (002-08924-0000 R-AC, Sheet 2 of 6) (For Reference Only)

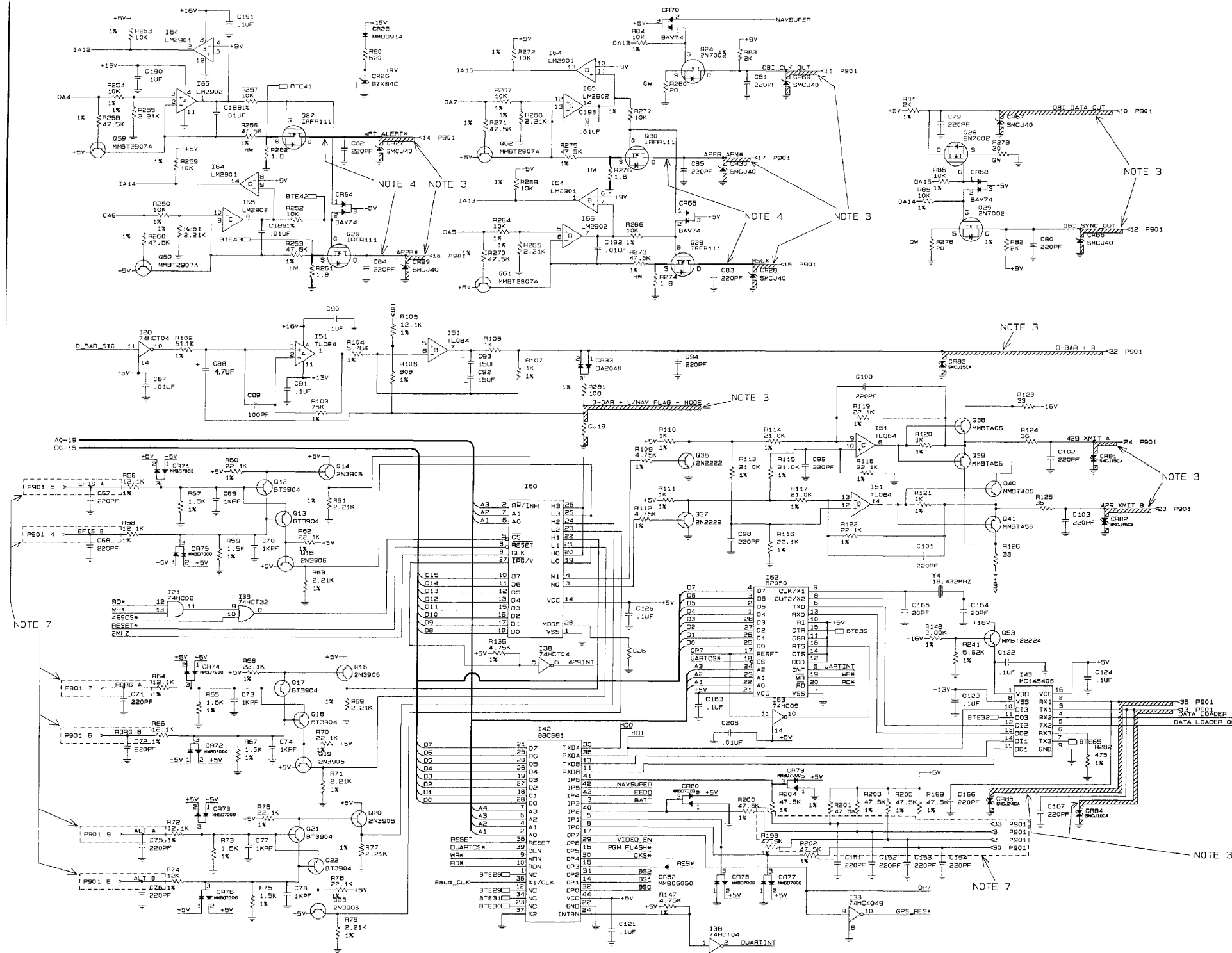


Figure 2008A Main Module Schematic Diagram (002-08924-000 R-AC, Sheet 3 of 6) (For Reference Only)

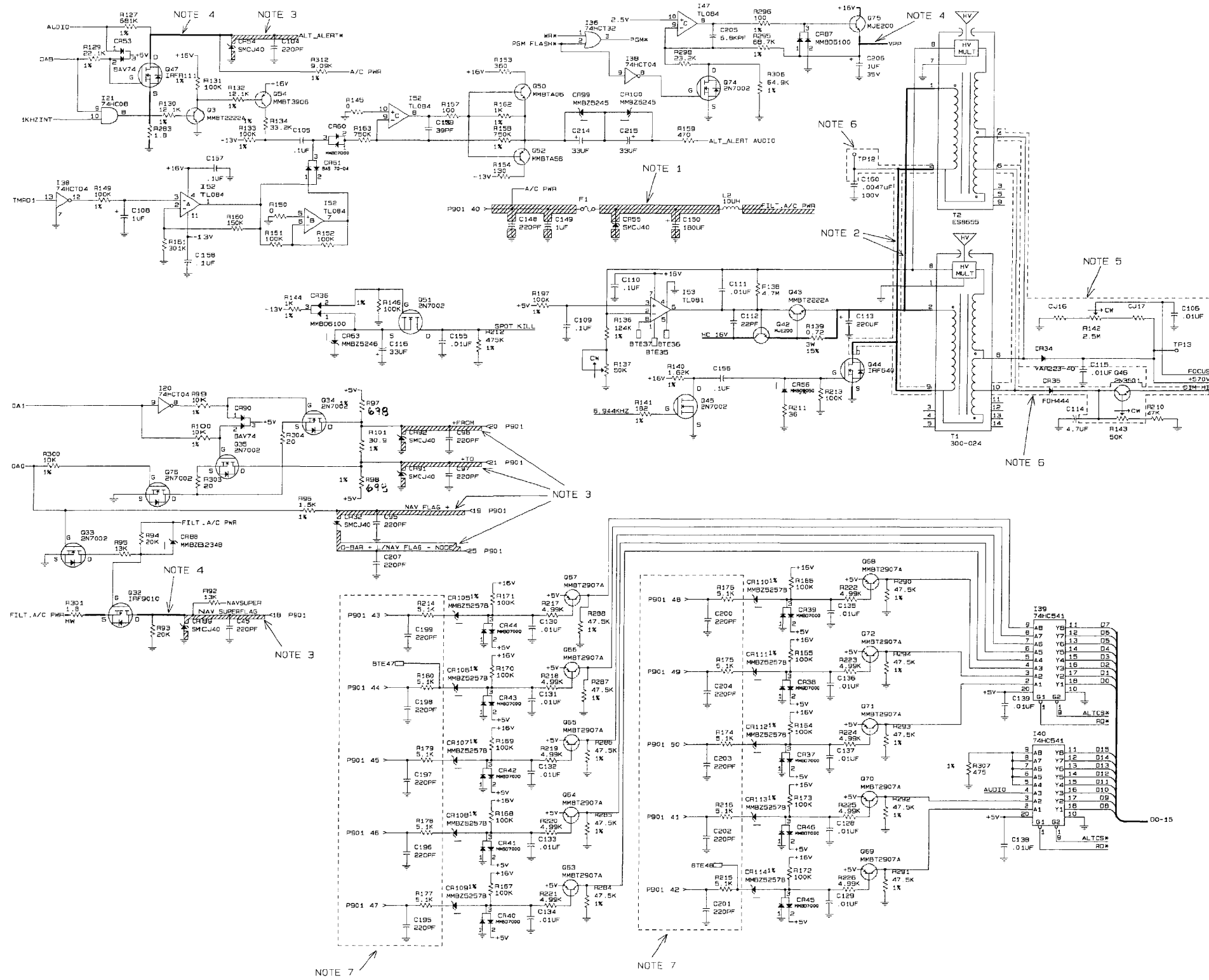


Figure 2008A Main Module Schematic Diagram (002-08924-0000 R-AC, Sheet 4 of 6) (For Reference Only)

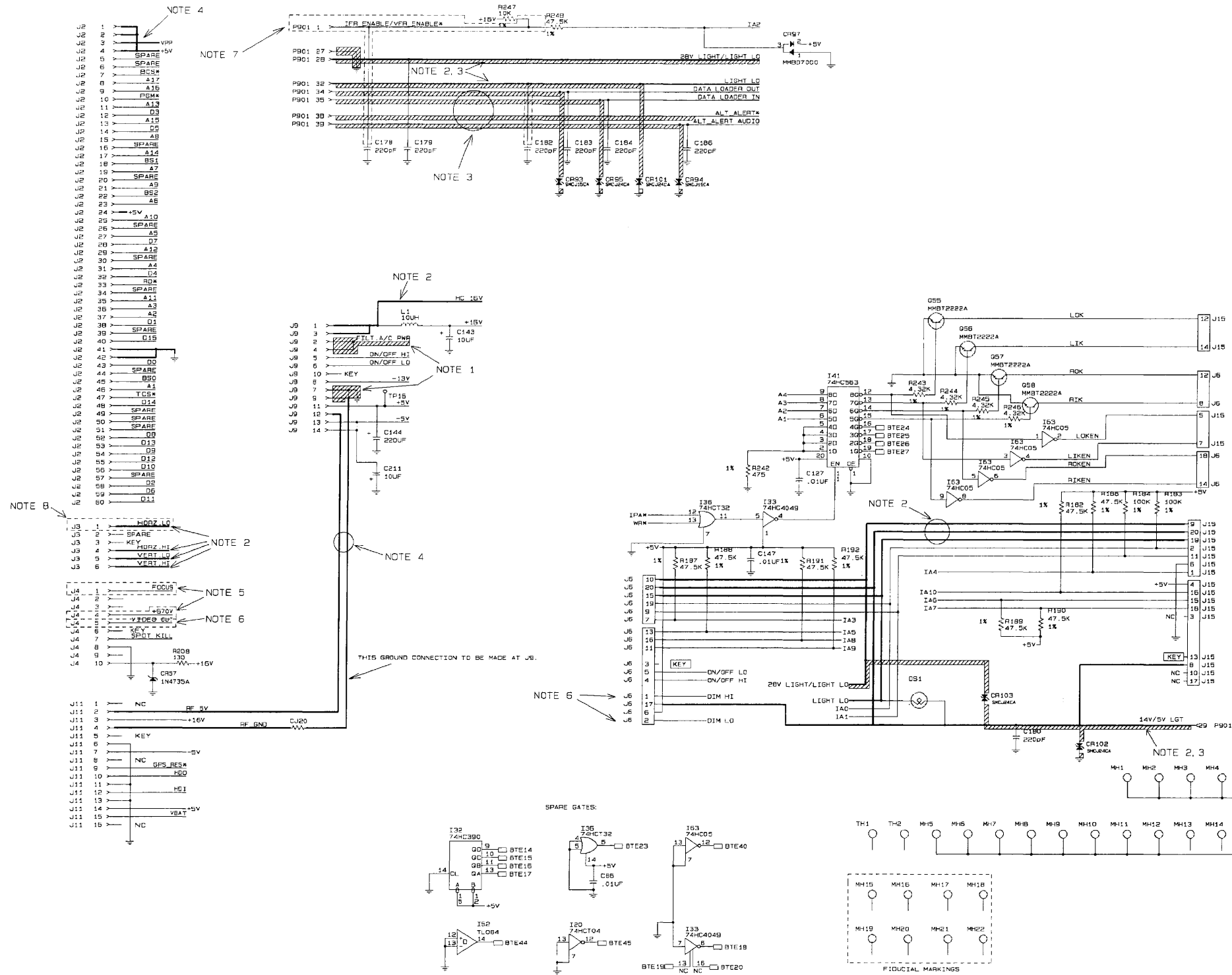


Figure 208A Main Module Schematic Diagram (002-08924-0000 R-AC, Sheet 5 of 6) (For Reference Only)

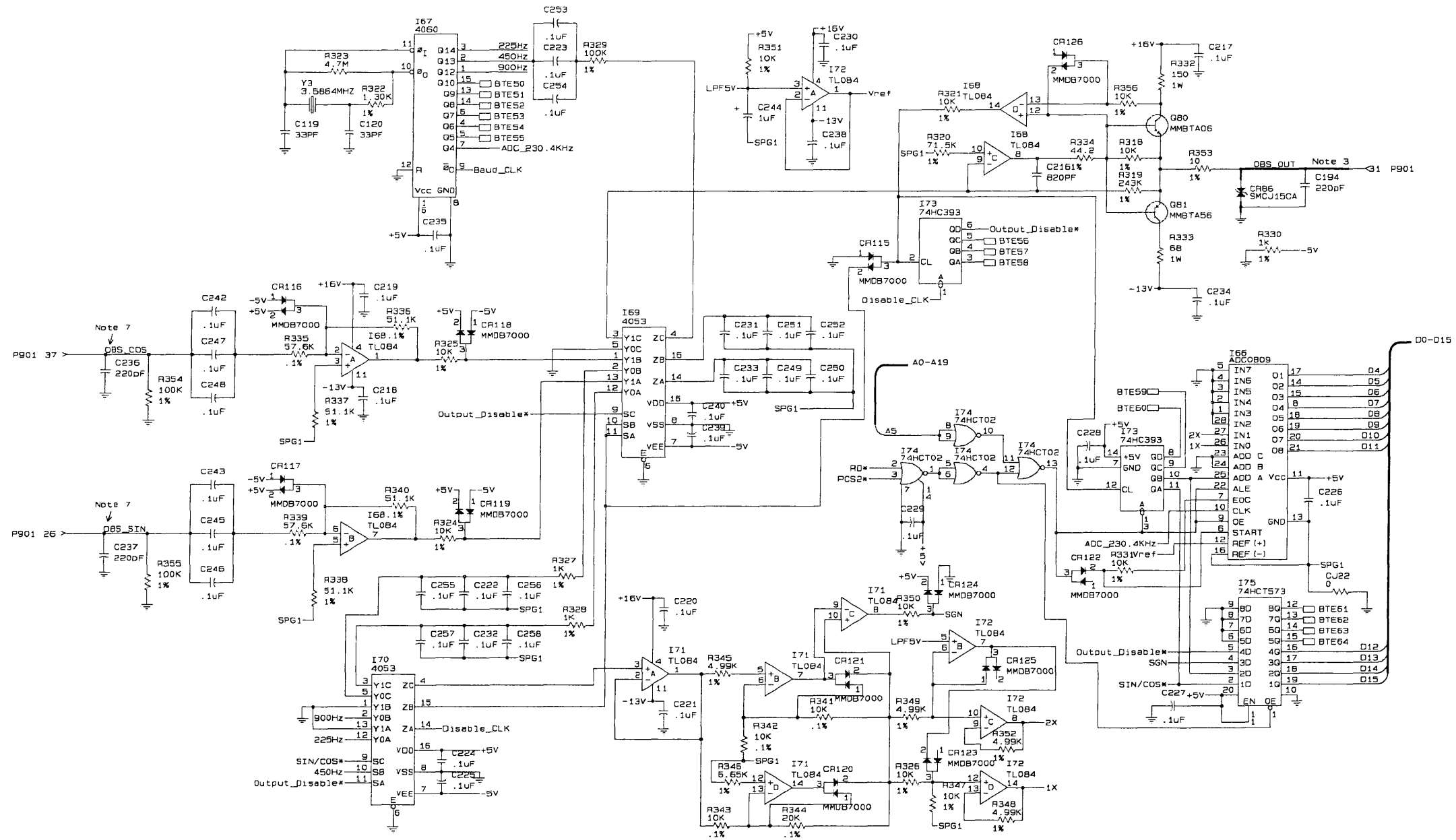


Figure 2008A Main Module Schematic Diagram (002-08924-0000 R-AC, Sheet 6 of 6) (For Reference Only)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
MAIN MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08459-0002**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision.		
1	Add 200-08922-0000, 200-08459-0099, CJ1004, CJ1005, CJ1018, CJ1021.		

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
MAIN MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08459-0099**

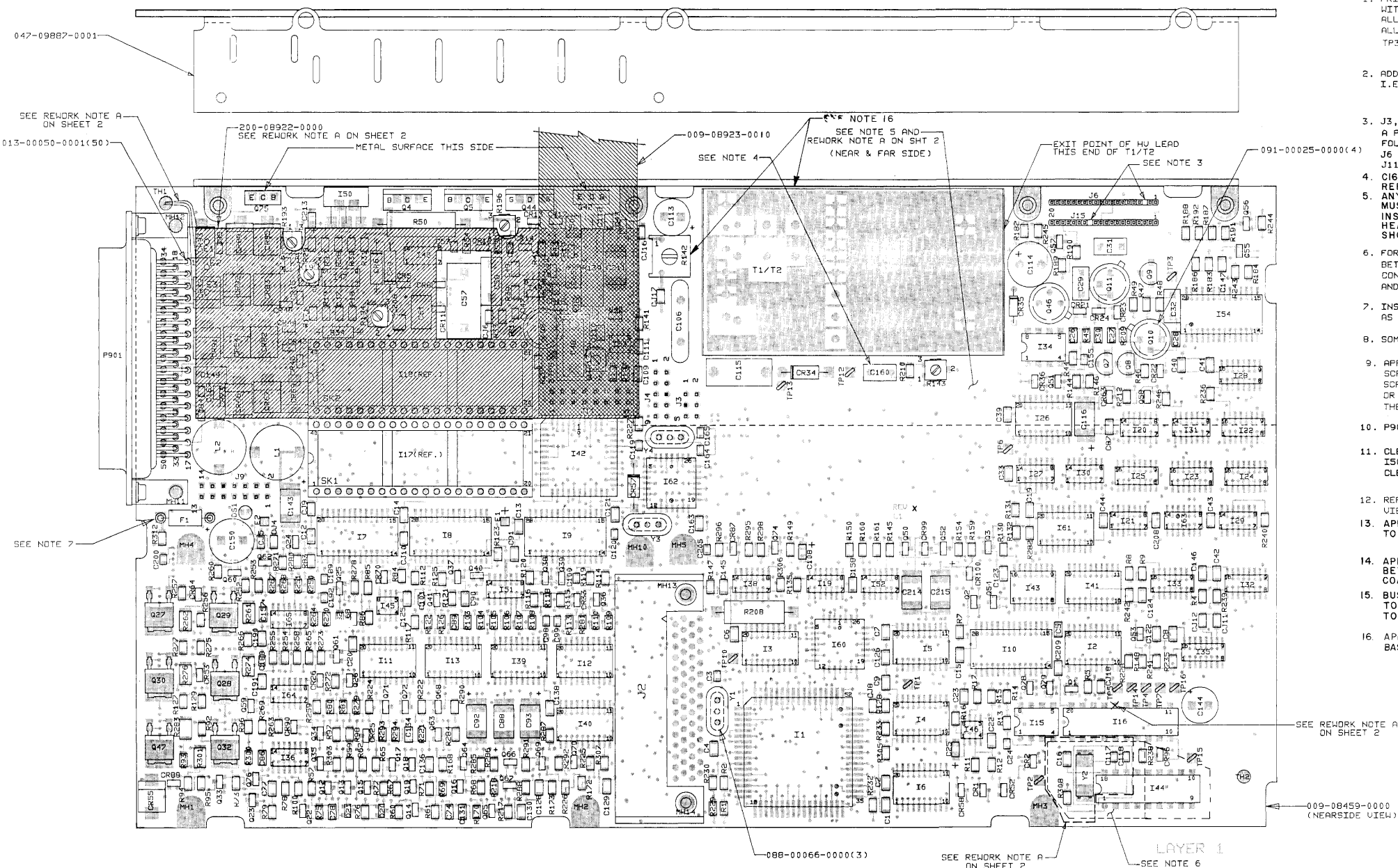
REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
1	Baseline revision.	N.A.	N.A.
2	Delete 089-07212-0005 (Qty.2), add 089-06618-0016 (Qty.2), 187-01848-0001.	N.A.	N.A.
3	Attaching parts change (numerous).	N.A.	N.A.
4	Delete, 187-01848-0001, add 016-01082-0000.	N.A.	N.A.
5	Delete 126-00058-0000, change I1016 to 195-00186-0000. Next revision AA.	N.A.	N.A.
AA	Change R1097 & R1098 to 139-06980-0000.	N.A.	N.A.
AB	Delete 088-02489-0000, add 088-02489-0001, change J1002 to 200-10545-0000.	N.A.	N.A.
AC	Change C1058 to 108-00514-0001.	N.A.	N.A.
	NOTE: If I1060 fails, change to 120-08030-0010. Refer to KLN 90B-2		

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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- NOTES:
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING: ALL MOUNTING HOLES EXCEPT MH11 AND MH12, ALL J'S, ALL SOCKETS, ALL VARIABLE RESISTORS, E1, E2, TP3, TP12, TP13, AND HEATSINK.
 2. ADD 1000 TO ALL REFERENCE DESIGNATORS. I.E. R8 = R1008 R118 = R1118
 3. J3, J4, J6, J9, J11, AND J15 ARE KEYED BY OMITTING A PIN ON THE PC BOARD. DO NOT INSTALL PINS IN THE FOLLOWING LOCATIONS: J3 PIN 3, J4 PIN 6, J6 PIN 3 (REMOVE PIN, DO NOT CUT), J9 PIN 10, J11 PIN 5, J15 PIN 13 (REMOVE PIN, DO NOT CUT).
 4. C160 IS NOT TO BE USED IF T1 (019-07244-0001) IS USED. REFER TO I95-00086-0000.
 5. ANY LABELS, INKED TEXT, NOTATION, OR OTHER SYMBOLOGY, MUST BE ELECTRICALLY NON-CONDUCTIVE IF POSITIONED INSIDE OF THE AREA INDICATED (NEAR AND FAR SIDE) APPLY HEAVY COAT OF CONFORMAL COATING TO DASHED-IN AREA SHOWN ON NEAR AND FAR SIDES OF PC BOARD.
 6. FORCE UNDILUTED CONFORMAL COATING (KPN 104-01040-0000) BETWEEN AND UNDER LEADS OF I44. APPLY HEAVY COAT OF CONFORMAL COATING TO DASHED-IN AREA SHOWN ON NEAR AND FAR SIDE OF PC BOARD.
 7. INSTALL F1 IN THE BIFURCATED TERMINALS (008-00038-0001) AS SHOWN.
 8. SOME PARTS NOT USED. REFER TO 200-08459-XXXX.
 9. APPLY LOCTITE 220 (016-01411-0000) OR EQUIVALENT ON SCREW THREADS AS REQUIRED. SCREWS (089-07212-0005) ARE TO END 0.5 THREADS ABOVE OR BELOW FLUSH WITH MATING NUT (089-02545-0003) IN THEIR INSTALLED CONDITION.
 10. P901 TO BE SOLDERED IN PLACE.
 11. CLEAN HEATSINK (047-09887-0001) AND TRANSISTORS (Q75, I50, Q4, Q3, Q44, Q42) WITH ALCOHOL OR EQUIVALENT CLEANER PRIOR TO MOUNTING INSULATOR PAD (012-01547-0000).
 12. REFER TO 300-08459-0000 SHEET 3 OF 3 FOR MECHANICAL VIEW OF ORIGINAL ASSEMBLY.
 13. APPLY AN EXTRA HEAVY COAT OF CONFORMAL COATING TO THE P.C. BOARD AT CR34, C115 AND C106.
 14. APPLY CONFORMAL COATING TO P.C. BOARD AROUND AND BETWEEN GOLD PINS OF J3, J4, J9, J11. DO NOT GET CONFORMAL COATING MORE THAN 1/16 INCH UP ON GOLD PINS.
 15. BUSHING MUST BE CENTERED IN TRANSISTOR MOUNTING HOLE TO PREVENT THE BUSHING FROM BEING CRUSHED. TORQUE TO 45 IN-OZ WHILE HOLDING THE MOUNTING NUTS.
 16. APPLY BEAD OF RTV (016-01082-0000) AROUND BASE OF T1/T2 (4 SIDES) AND R142 (4 SIDES)

REF. B/M: 066-04031-2X21

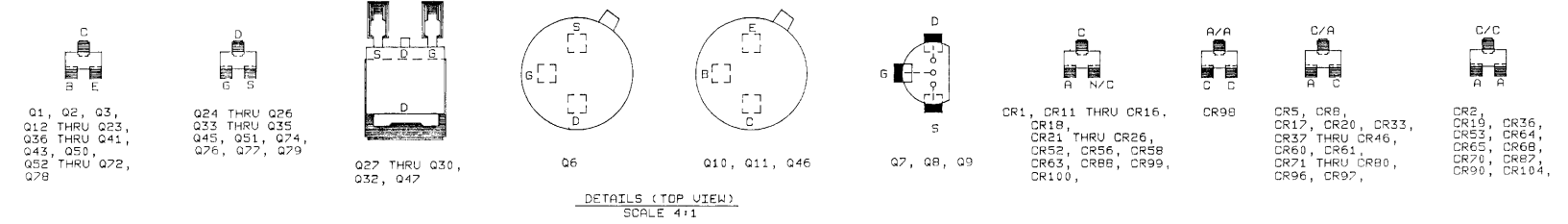


Figure 2009 Main Module KLN 90A Upgrade (300-08459-0002 R-5, Sheet 1 of 2)

NOTE: ADD 1000 TO ALL REFERENCE DESIGNATORS.
 I.E. R8 = R1008
 R118 = R1118

REWORK NOTES:

A. SPECIAL MATERIAL REQUIRED:

WIRE:	024-05068-0055	AR	-
OBS ADAPTER BOARD:	200-08922-0000	EA	1
	096-01186-0034	EA	1
	139-05112-0000	EA	1

IMPORTANT: WIRE ROUTING KEEP-OUT AREAS ARE DENOTED BY DASHED LINES WITH THIS REWORK NOTE AS A REFERENCE, INDICATED WITH AN ARROW TO THE DASHED-IN AREA.

INCORPORATE ECD 100017.

REMOVE C88 AND REPLACE WITH 096-01186-0034.
 REMOVE R102 AND REPLACE WITH 139-05112-0000.

CUT PIN 16 OF I16 ON MAIN BOARD. RUN WIRE FROM PIN 2 OF I44 TO THRU-HOLE LOCATION OF PIN 16 OF I16 ON MAIN BOARD (NOT THE CUT PIN PROTRUDING FROM THE IC BODY). RUN WIRE FROM PIN 3 OF I50 TO PIN 16 OF J11 ON FAR SIDE OF MAIN BOARD. STARTING ON FAR SIDE OF MAIN BOARD, RUN WIRES TO MAKE THE FOLLOWING CONNECTIONS:

MAIN BOARD (FAR SIDE)	TO	OBS ADAPTER BOARD (NEAR SIDE - THE SIDE WITH THE IC'S)
PIN 37 OF P901		THRU-HOLE E1
PIN 26 OF P901		THRU-HOLE E2
PIN 31 OF P901		THRU-HOLE E3

RUN WIRES THROUGH TOOLING HOLE TH1 TO THE NEAR SIDE OF THE MAIN BOARD, AND THEN TERMINATE CONNECTIONS ON THE OBS ADAPTER BOARD (8922). THESE 3 WIRES SHOULD BE TACKED DOWN ON FAR SIDE OF MAIN BOARD, BUT FREE ON NEAR SIDE OF MAIN BOARD. USE ENOUGH SERVICE LOOP ON THE NEAR SIDE OF THE MAIN BOARD TO ALLOW HANDLING AND INSTALLATION OF THE OBS ADAPTER BOARD ON TO ITS MAIN BOARD MOUNTING LOCATIONS (SK2 AND J11).

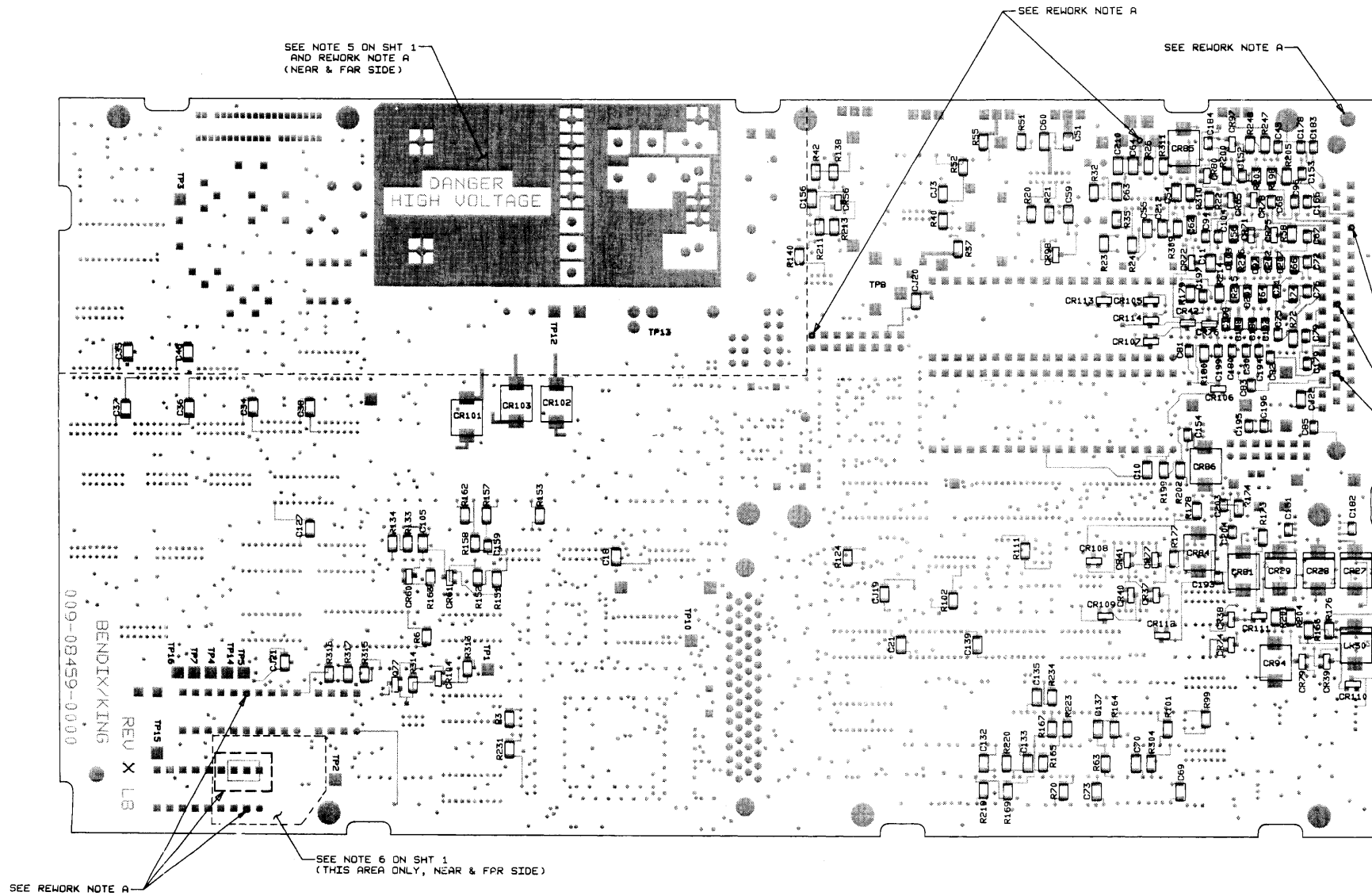
NOTE: WHEN THE OBS ADAPTER BOARD IS MOUNTED, THE SERVICE LOOP OF WIRES (3) SHOULD LIE BETWEEN THE MAIN BOARD AND THE OBS ADAPTER BOARD.

INSTALL THE OBS ADAPTER BOARD ON TO SK2 AND J11. DUE TO VERTICAL HEIGHT CONSTRAINTS, C149 MUST BE LEANED OVER BY PUSHING TO ONE SIDE. IF EXISTING INSTALLATION OF C149 WILL NOT ALLOW THIS TO BE DONE WITH PRESERVATION OF LEAD INTEGRITY, THEN C149 MUST BE REPLACED AND INSTALLED SUCH THAT IT CAN BE MADE, OR PRE-FORMED, TO LEAN TO ONE SIDE.

THE FLEX CIRCUIT CABLE (009-08923-0010) MATES WITH THE GPS RCUR BOARD.

SEE REWORK NOTE A

009-08459-0000 (FAR SIDE VIEW)



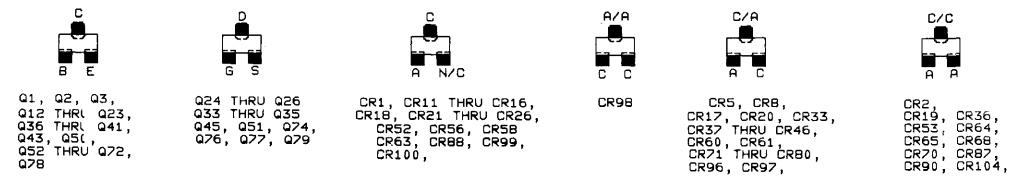
SEE NOTE 5 ON SHT 1 AND REWORK NOTE A (NEAR & FAR SIDE)

SEE REWORK NOTE A

SEE REWORK NOTE A

SEE NOTE 6 ON SHT 1 (THIS AREA ONLY, NEAR & FAR SIDE)

SEE REWORK NOTE A



DETAILS (TOP VIEW)
 SCALE 4:1

Figure 2009 Main Module KLN 90A Upgrade
 (300-08459-0002 R-5, Sheet 2 of 2)

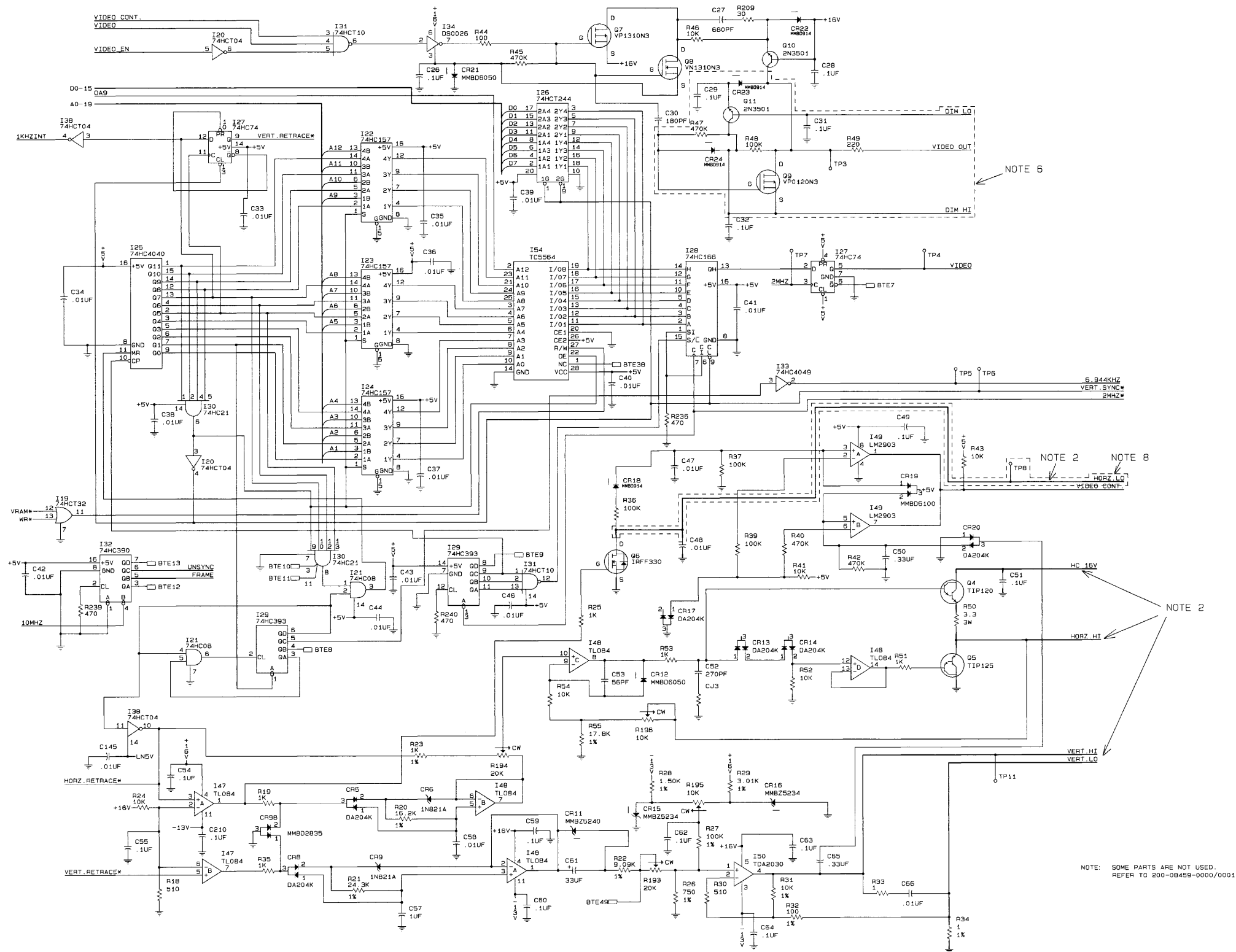


Figure 2010 Main Module (KLN 90A Upgrade) Schematic Diagram (002-08459-0002, R-0, Sheet 2 of 6)

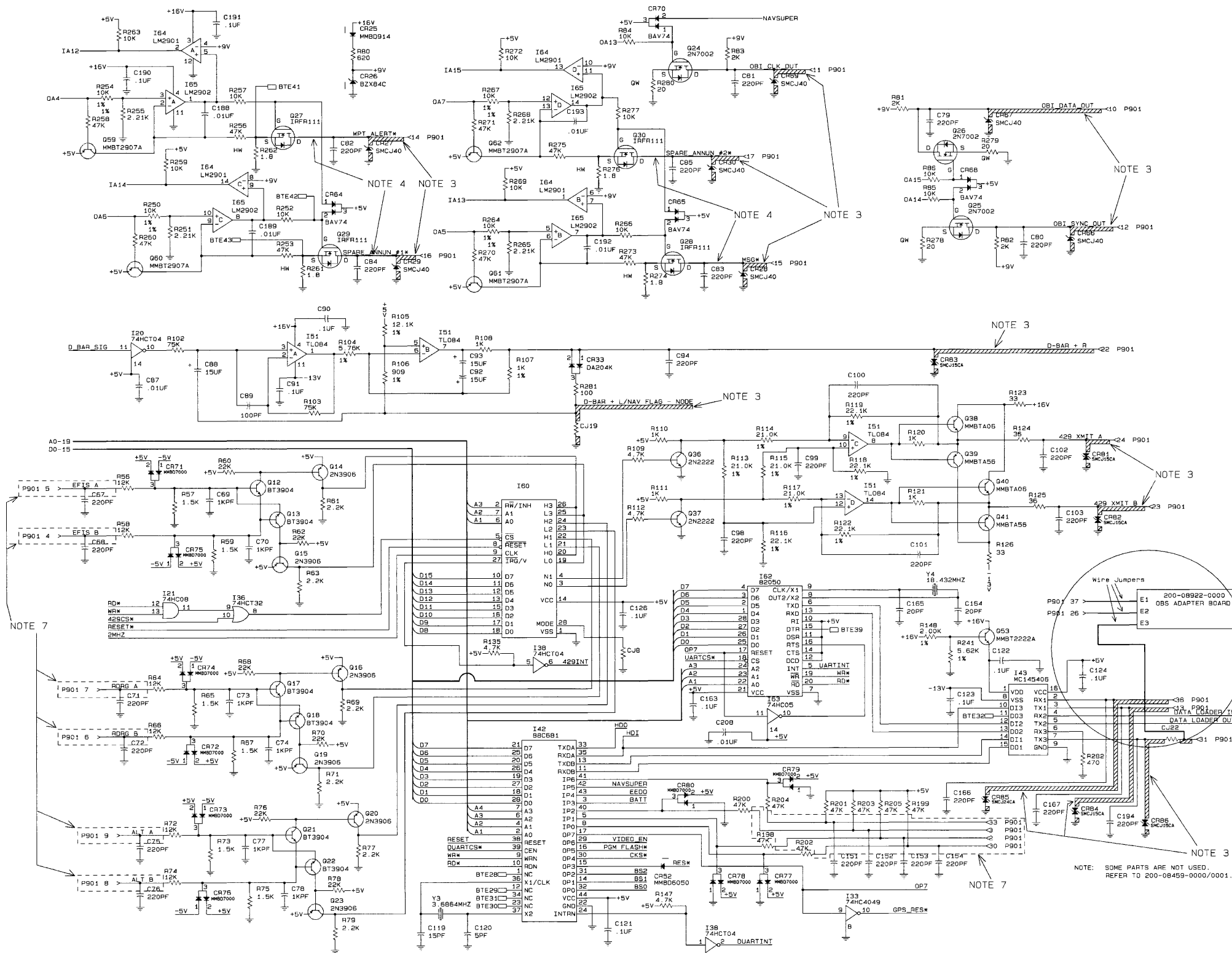


Figure 2010 Main Module (KLN 90A Upgrade) Schematic Diagram (002-08459-0002, R-0, Sheet 3 of 6)

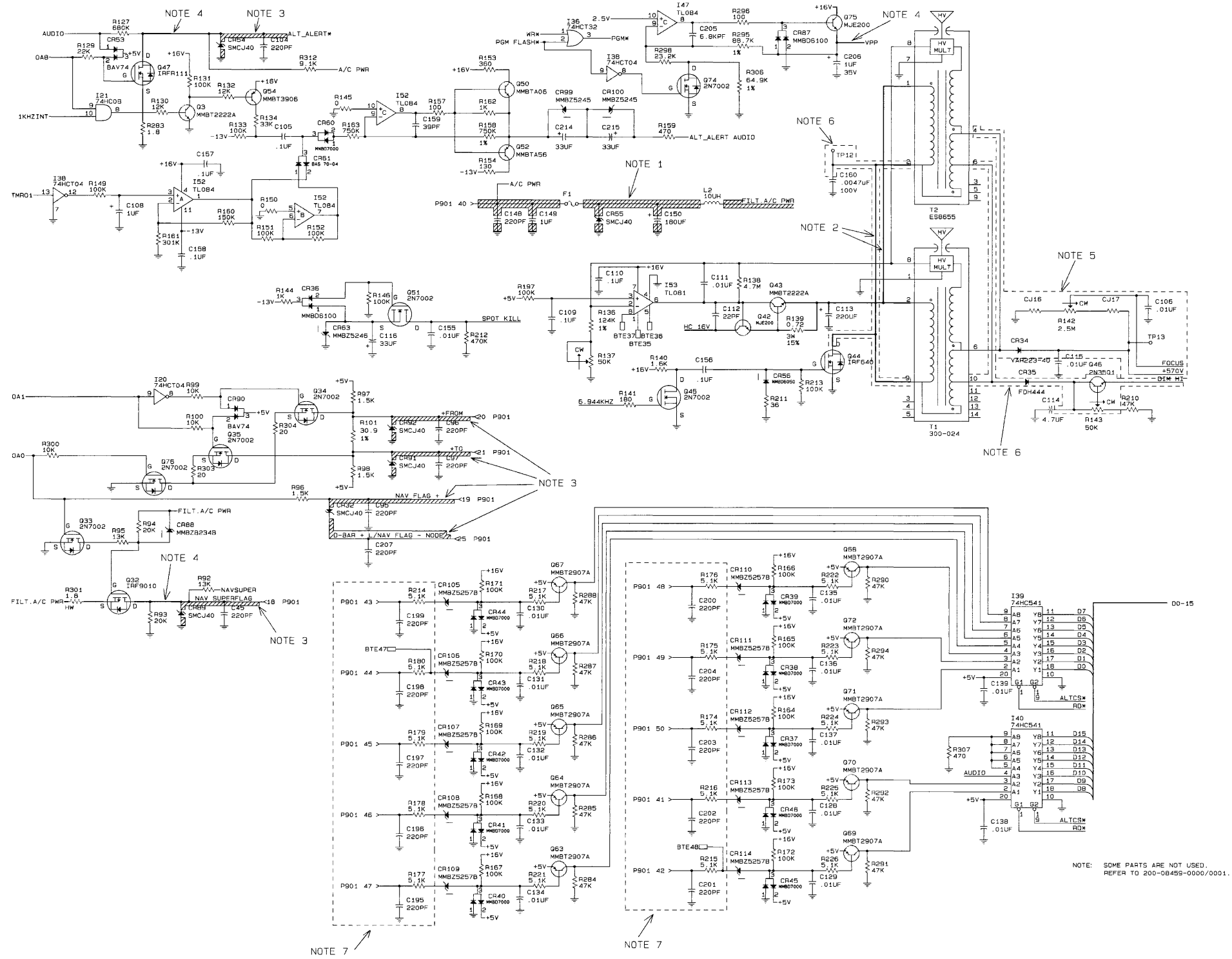


Figure 2010 Main Module (KLN 90A Upgrade) Schematic Diagram (002-08459-0002, R-0, Sheet 4 of 6)

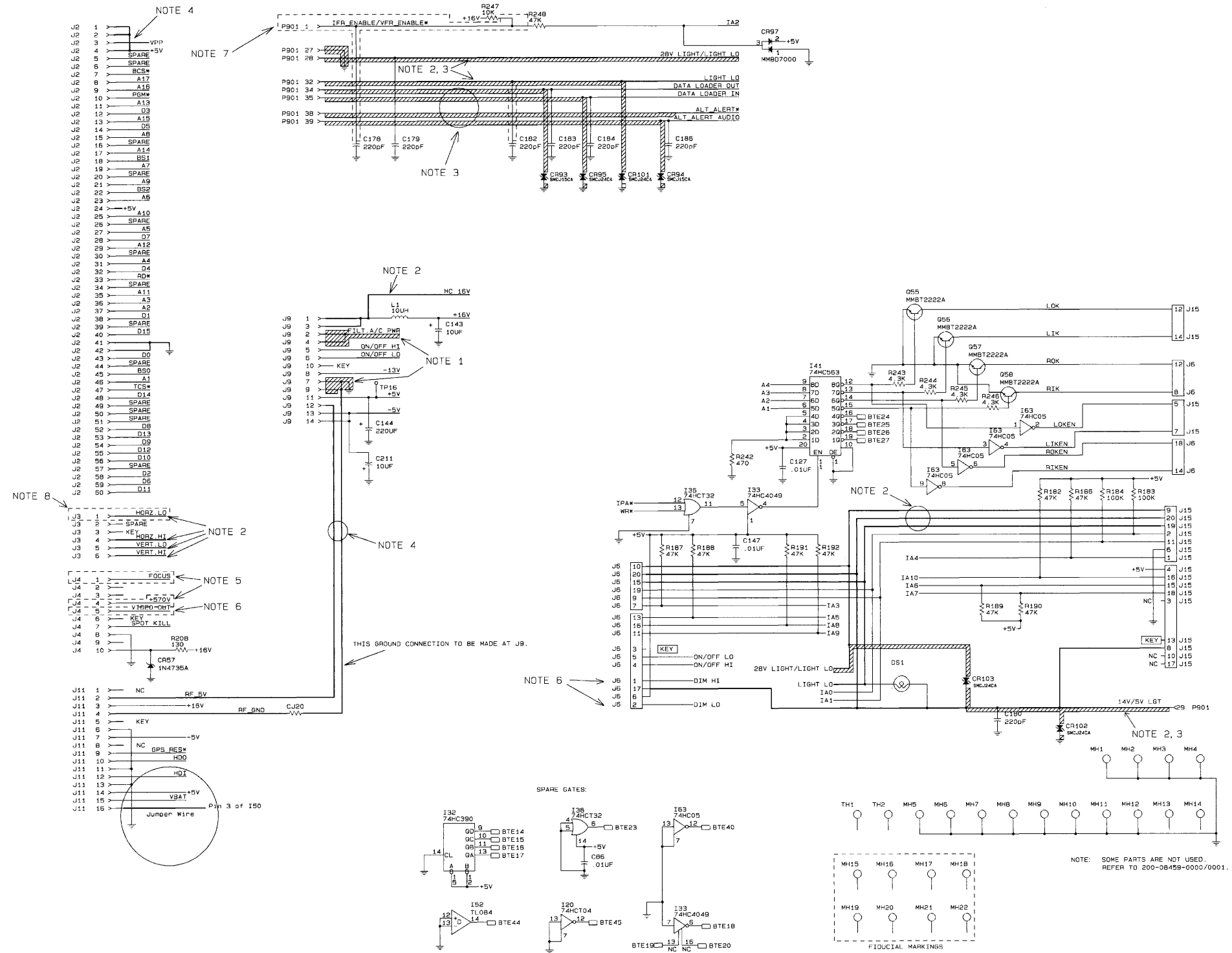


Figure 2010 Main Module (KLN 90A Upgrade) Schematic Diagram (002-08459-0002, R-0, Sheet 5 of 6)

- NOTES:
1. 6 AMPS RMS, 12 AMPS PEAK.
 2. 2 AMPS RMS.
 3. 1 AMP RMS, 60 AMPS PEAK (100 USEC DURATION, 1HZ REPETITION RATE) .
 4. 500 MA RMS.
 5. 1000 VDC.
 6. 200 VDC.
 7. 300 V PULSE (100 USEC DURATION, 1 HZ REPETITION RATE) .
600 V PEAK (10 USEC BURST OF 1 MHZ, 1 HZ REPETITION RATE) .
 8. 300 V PULSE (10 USEC DURATION, 6.9 KHZ REPETITION RATE) .

Figure 2010 Main Module (KLN 90A Upgrade) Schematic Diagram
(002-08459-0002, R-0, Sheet 6 of 6)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
POWER SUPPLY MODULE
PART NUMBER 200-08982-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision.		
1	Delete R121.	N.A.	N.A.
2	Change R106 to 130-05681-0023.	N.A.	N.A.
3	Change R111 to 130-05472-0023, change R122 to 130-05102-0023, change R123 to 130-05103-0023, change R124 to 130-05682-0023.	N.A.	N.A.
4	Delete 016-01411-0000, add REF1, REF2. Next revision AA.	N.A.	N.A.
AA	Add REF3	N.A.	N.A.
AB	Change 150-00004-0010 quantity from 1 to 2.	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

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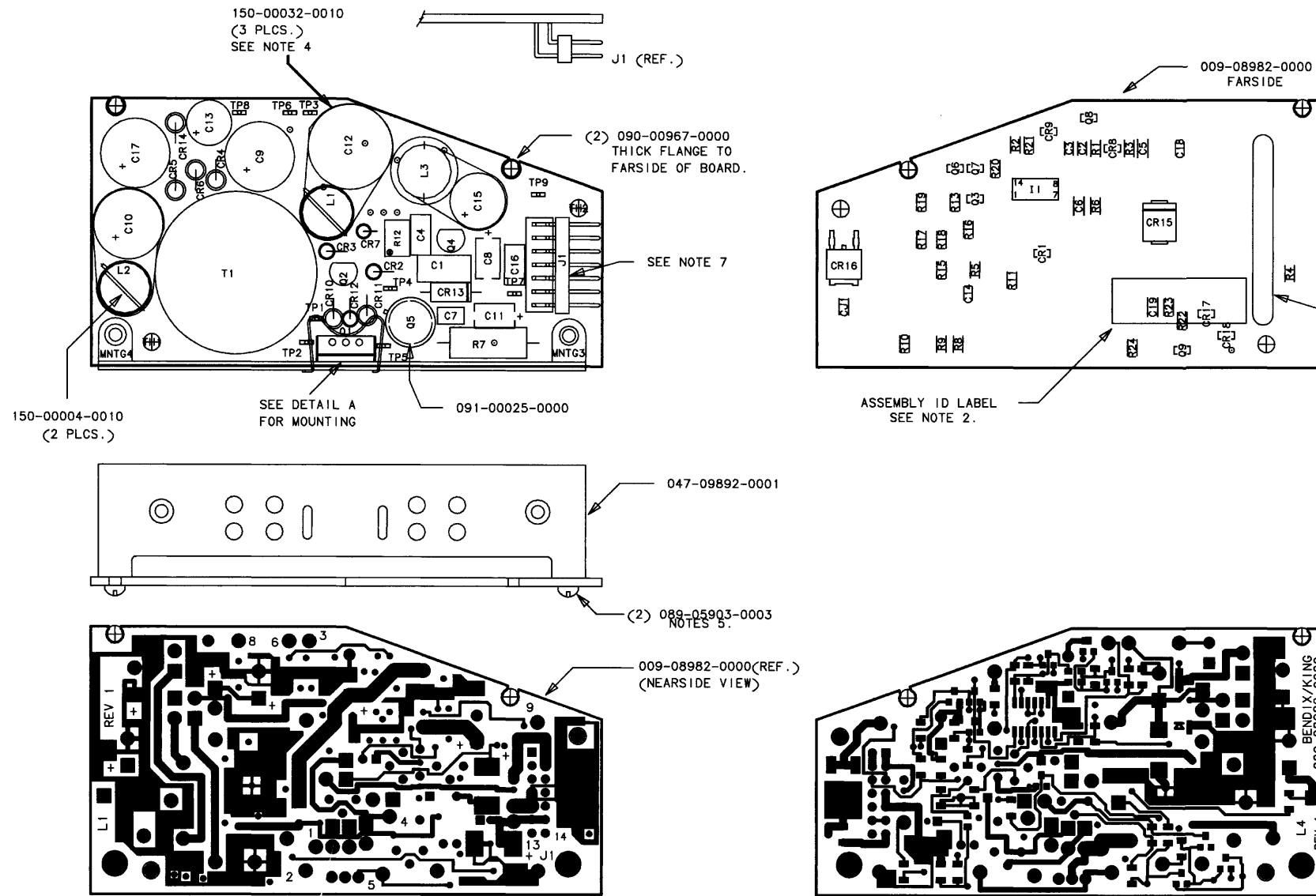
KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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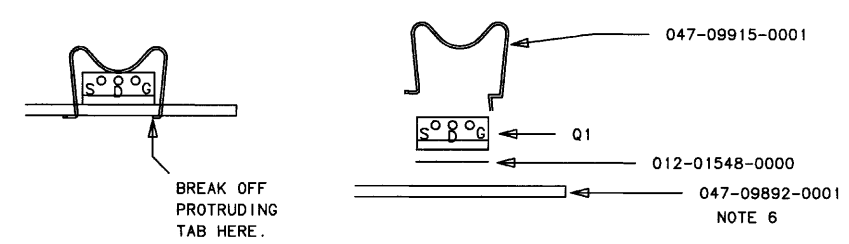
NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.
I.E. C1 = C101

NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING: ALL MOUNTING AREAS, ALL *E* NUMBERS, J1, R12, AND HEATSINK.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. MAXIMUM COMPONENT HEIGHT ON NEAR SIDE IS 0.90. MAXIMUM COMPONENT HEIGHT ON FAR SIDE IS .110
4. CUT LENGTH OF TUBING (150-00032-0010) TO 1/2' +/- 1/8'.
5. APPLY THREAD STAKING PER 001-01080-0000 ON SCREW THREADS AS REQUIRED.
6. CLEAN BACK OF Q1 AND MATING AREA OF HEATSINK (047-09892-0001) WITH ISOPROPYL ALCOHOL BEFORE MOUNTING INSULATOR (012-01548-0000)
7. KEY PIN 10 OF J1 BY REMOVING PIN.
8. SOME PARTS NOT USED. REFER TO 200-08982-XXXX.

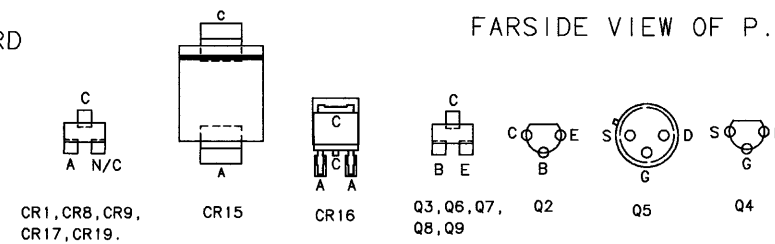


DETAIL A



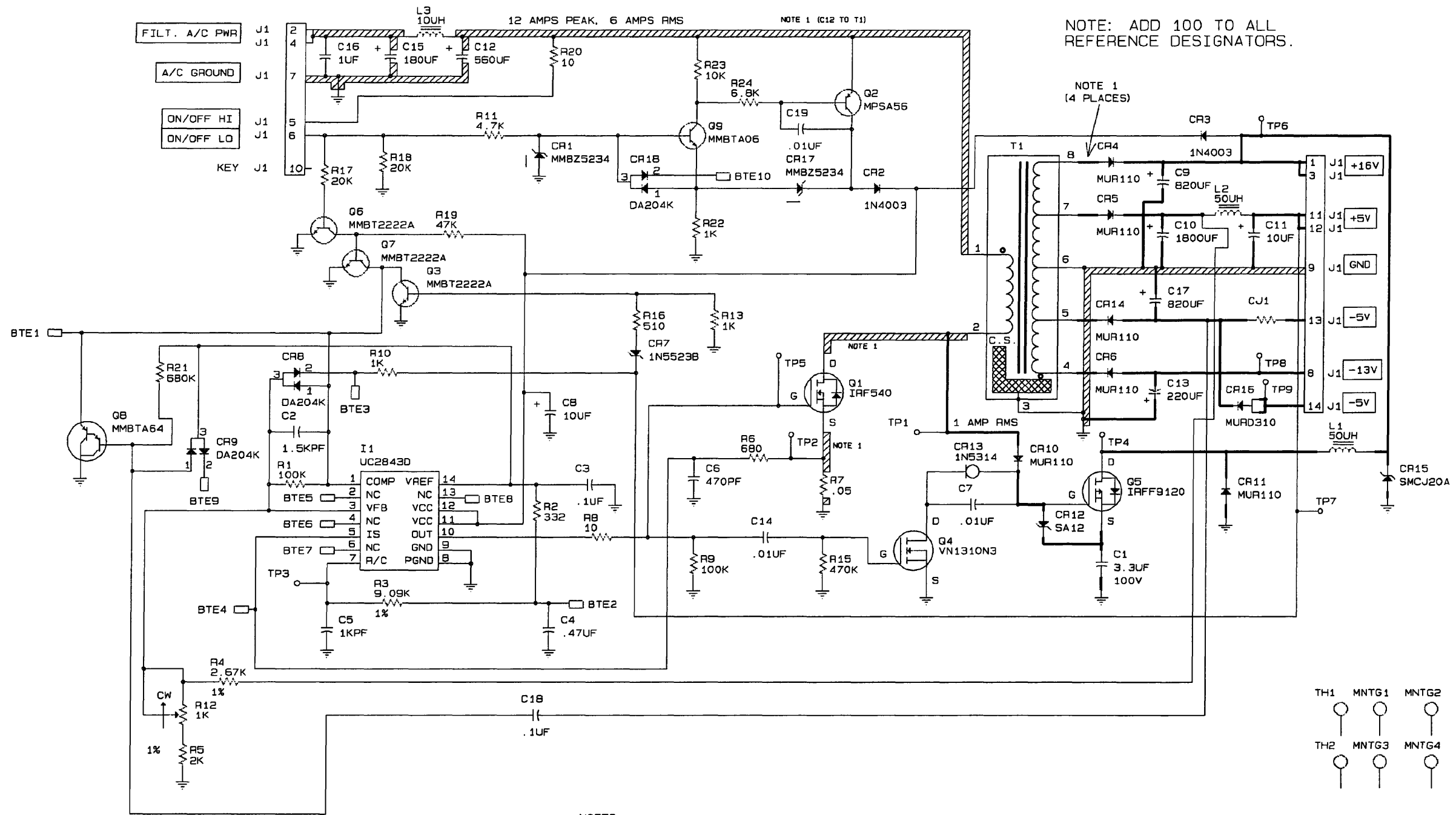
NEAR SIDE VIEW OF P.C. BOARD

FAR SIDE VIEW OF P.C. BOARD



REF BOM: 200-08982-XXXX

Figure 2011 Power Supply Module
(300-08982-0000 R-2)



NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.

- NOTES:
- 1) CONNECTING TRACE TO BE AS SHORT AS POSSIBLE.
 - 2) TIE GROUNDS DIRECTLY TO GROUND PLANE AT COMPONENT TERMINAL THRU-HOLES (LEADED PARTS).
 - 3) C16 TO BE POSITIONED AT CLOSEST POSSIBLE PROXIMITY TO J1 PINS INDICATED.
 - 4) MOUNTING HOLES NOT ELECTRICALLY CONNECTED TO ANY NODE ON THE BOARD (INCLUDING GROUND).
 - 5) SOME PARTS NOT USED. REFER TO 200-08982-XXXX

Figure 2012 Power Supply Module Schematic Diagram (002-08982-0000 R-1)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
POWER SUPPLY MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08569-0001**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision.		
1	Add 200-08985-0000, 200-08569-0099.		

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
POWER SUPPLY MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08569-0099**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
1	Baseline revision.		
2	Change R111 to 130-05472-0023, next revision AA	N.A.	N.A.
AA	Add 300-08569-0001, 002-08569-0001.	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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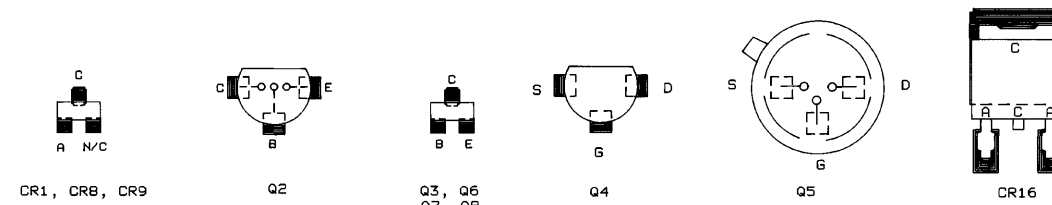
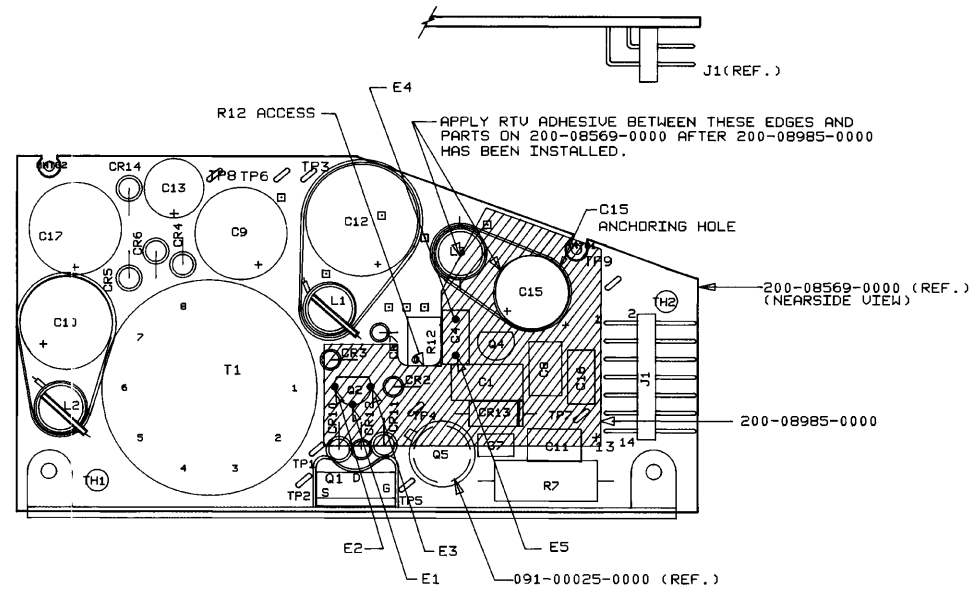
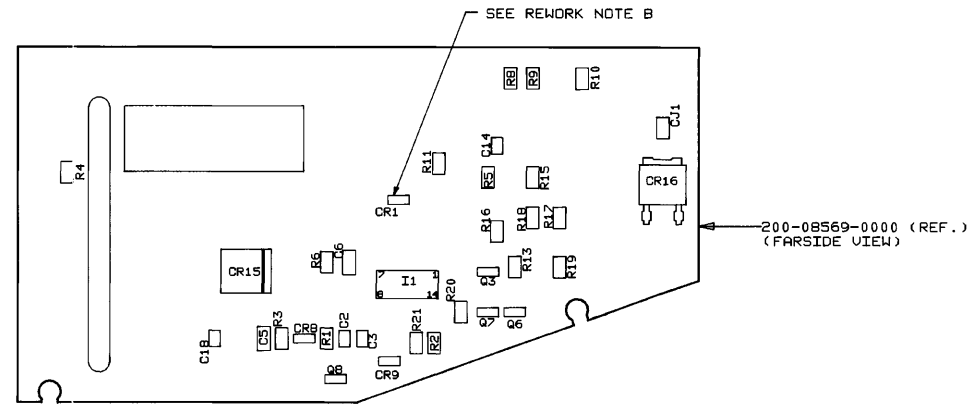
NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.
 I.E. C1 = C101 ON 200-08569-0000 ASSEMBLY

NOTES:

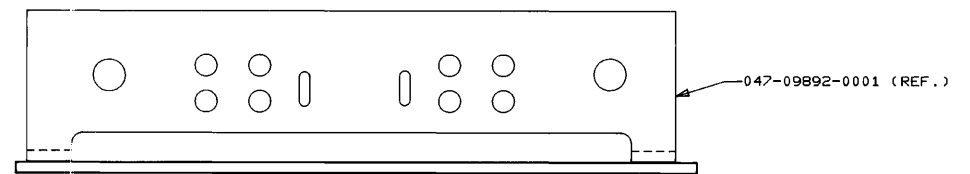
1. REFER TO 300-08569-0000, SHEET 2 OF 2, FOR DETAILED MECHANICAL VIEW OF ORIGINAL ASSEMBLY AND Q1 MOUNTING DETAILS.

REWORK NOTES:

- A. REMOVE C4, CR1 AND Q2. IF SHRINK TUBING ON C15/L3 PROTRUDES VERTICALLY BEYOND THE HEIGHT OF THE FERRITE CORE, THEN REMOVE THE SHRINK TUBING AND INSTALL NEW TUBING SUCH THAT IT DOES NOT PROTRUDE VERTICALLY BEYOND THE CORE OF L3.
- B. INSTALL 007-05117-0007 AT CR1 LOCATION (FARSIDE).
- C. INSTALL 030-03090-0001 (5 REQUIRED) AT C4 AND Q2 LOCATIONS (NEARSIDE).
- D. INSTALL 200-08985-0000 ONTO THE 030-03090-0001 LOCATIONS (USING E1 THRU E5) SUCH THAT C15 (8569) PASSES THROUGH THE LARGE HOLE IN THE 8985 PCB (COMPONENT SIDE OF 8985 ASSEMBLY FACES THE NEARSIDE OF THE 8569 ASSEMBLY). SOLDER 030-03090-0001'S AT THE E-TERMINAL LOCATIONS ON 200-08985-0000.
- E. APPLY RTU ADHESIVE, AS INDICATED, BETWEEN THE EDGES INDICATED ON 200-08985-0000, AND THE CORRESPONDING PARTS ON 200-08569-0000 (C15 AND L3).

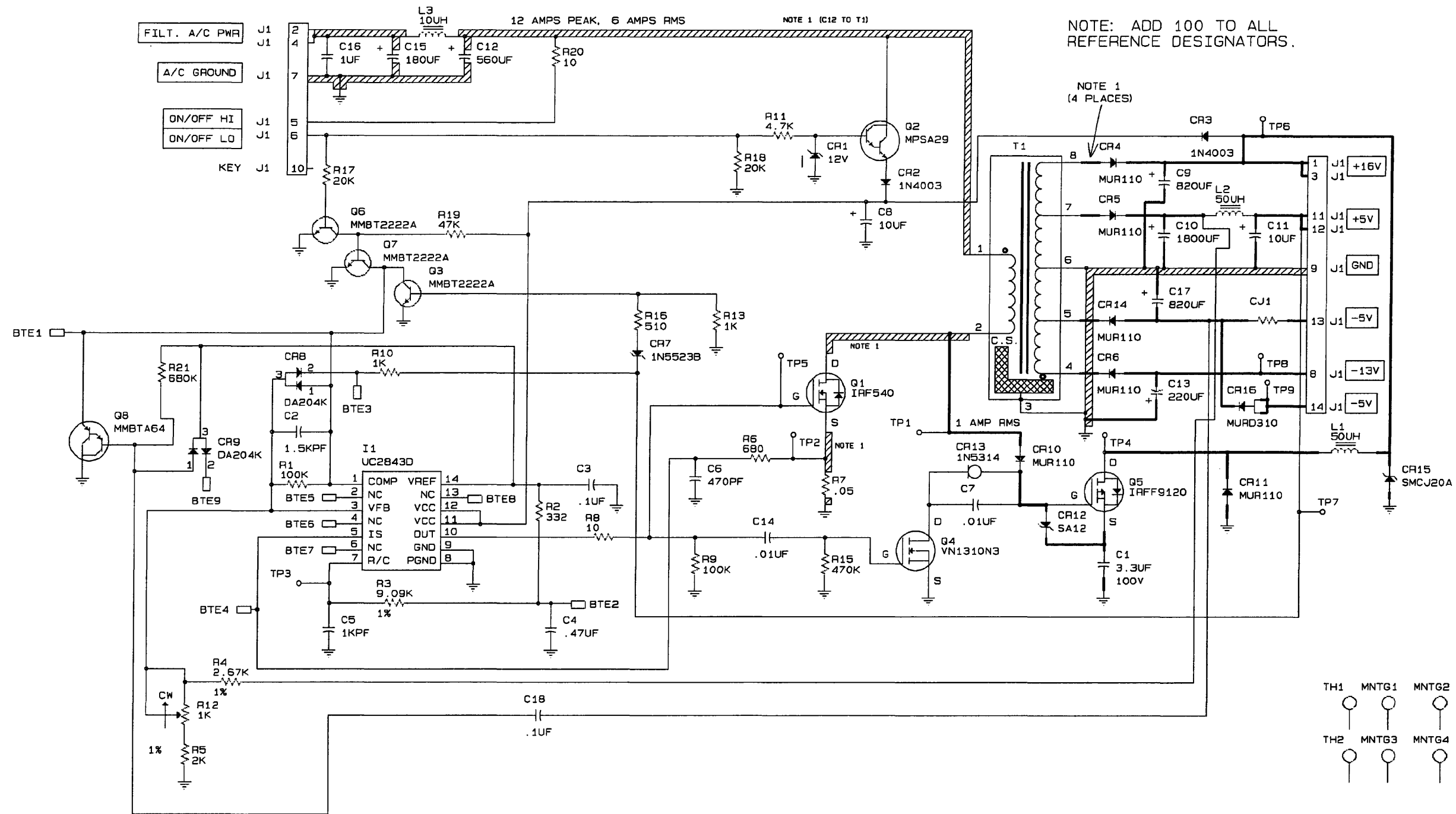


DETAILS 4:1
 (FOR REF.)



REF. B/M: 050-03305-0000

Figure 2013 Power Supply Module (KLN 90A Upgrade)
 (300-08569-0001 R-0)



NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.

NOTE 1 (4 PLACES)

- NOTES:
- 1) CONNECTING TRACE TO BE AS SHORT AS POSSIBLE.
 - 2) TIE GROUNDS DIRECTLY TO GROUND PLANE AT COMPONENT TERMINAL THRU-HOLES (LEADED PARTS).
 - 3) C16 TO BE POSITIONED AT CLOSEST POSSIBLE PROXIMITY TO J1 PINS INDICATED.
 - 4) MOUNTING HOLES NOT ELECTRICALLY CONNECTED TO ANY NODE ON THE BOARD (INCLUDING GROUND).

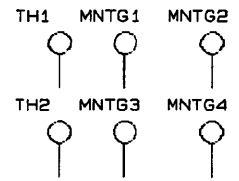


Figure 2014 Power Supply Module (KLN 90A Upgrade) Schematic Diagram (002-08569-0000 R-1)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
POWER SUPPLY ADAPTER MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08985-0000**

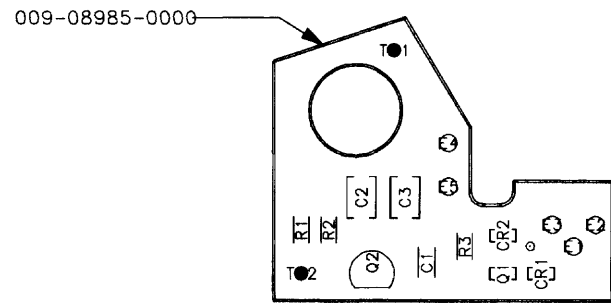
REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision.		
1	Add 016-01040-0000. Next revision AA.	N.A.	N.A.
AA	Add 002-08985-0000, 300-08985-0000.	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

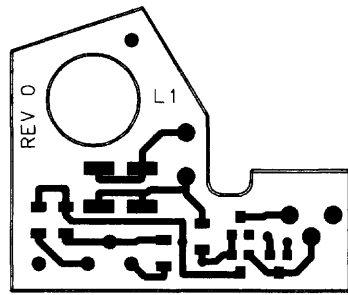
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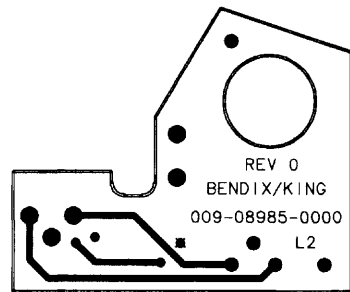
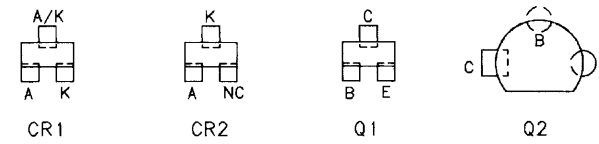
NEARSIDE VIEW OF P.C. BOARD

NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL 'E' NUMBERS,
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. ADD 3000 TO ALL REFERENCE DESIGNATORS.



NEARSIDE VIEW OF P.C. BOARD



FAR SIDE VIEW OF P.C. BOARD

REF. B/M 200-08985-0000

Figure 2015 Power Supply Adapter Module (KLN 90A Upgrade)
(300-08985-0000 R-1)

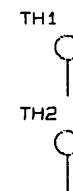
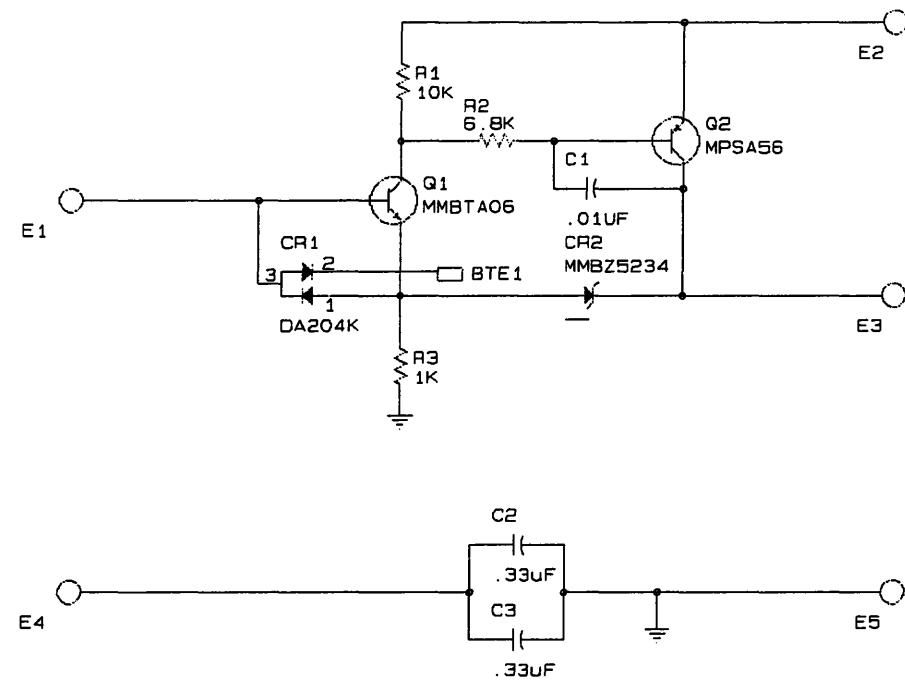


Figure 2016 Power Supply Adapter (KLN 90A Upgrade) Schematic Diagram
(002-08985-0000 R-0)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
BATTERY MODULE
PART NUMBER 200-08981-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision.		
1	Add 016-01040-0000.	N.A.	N.A.
2	Add REF1 002-08981-0000 and REF1 300-08981-0000. Next revision AA.	N.A.	N.A.
AA	Change REF1 300-08981-0000 to REF2 300-08981-0000. Add REF3 192-08981-0000.	N.A.	N.A.

All quantities are 1 EA. unless otherwise noted.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL 'E' NUMBERS, AND ALL J'S.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. KEY PIN 10 OF J2 AND J3 BY REMOVING PIN FROM PLASTIC HEADER.
4. ADD 800 TO ALL REFERENCE DESIGNATORS.
5. INSTALL R15 AND R16 SO THAT THE BODY OF THE COMPONENT IS NOT IN DIRECT CONTACT WITH THE PRINTED WIRING BOARD.

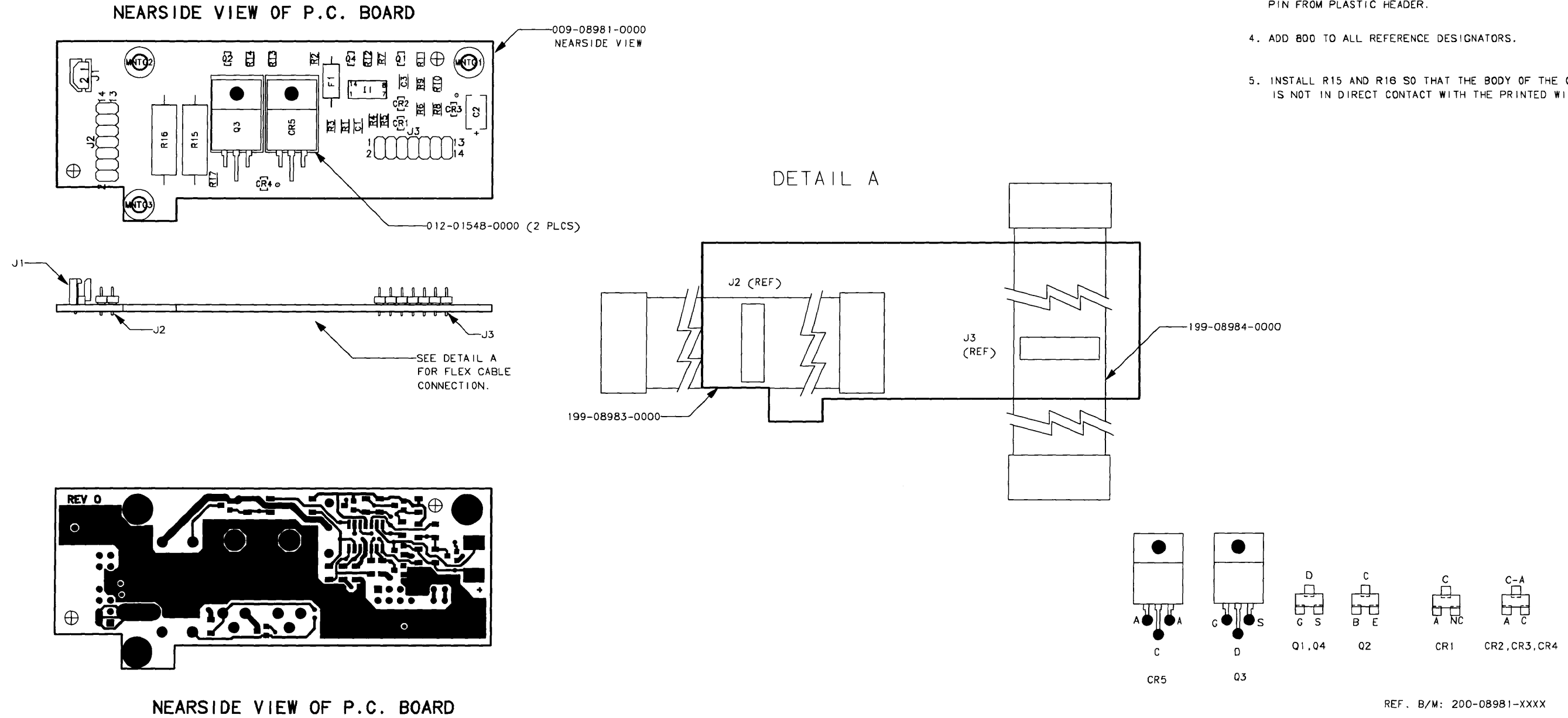
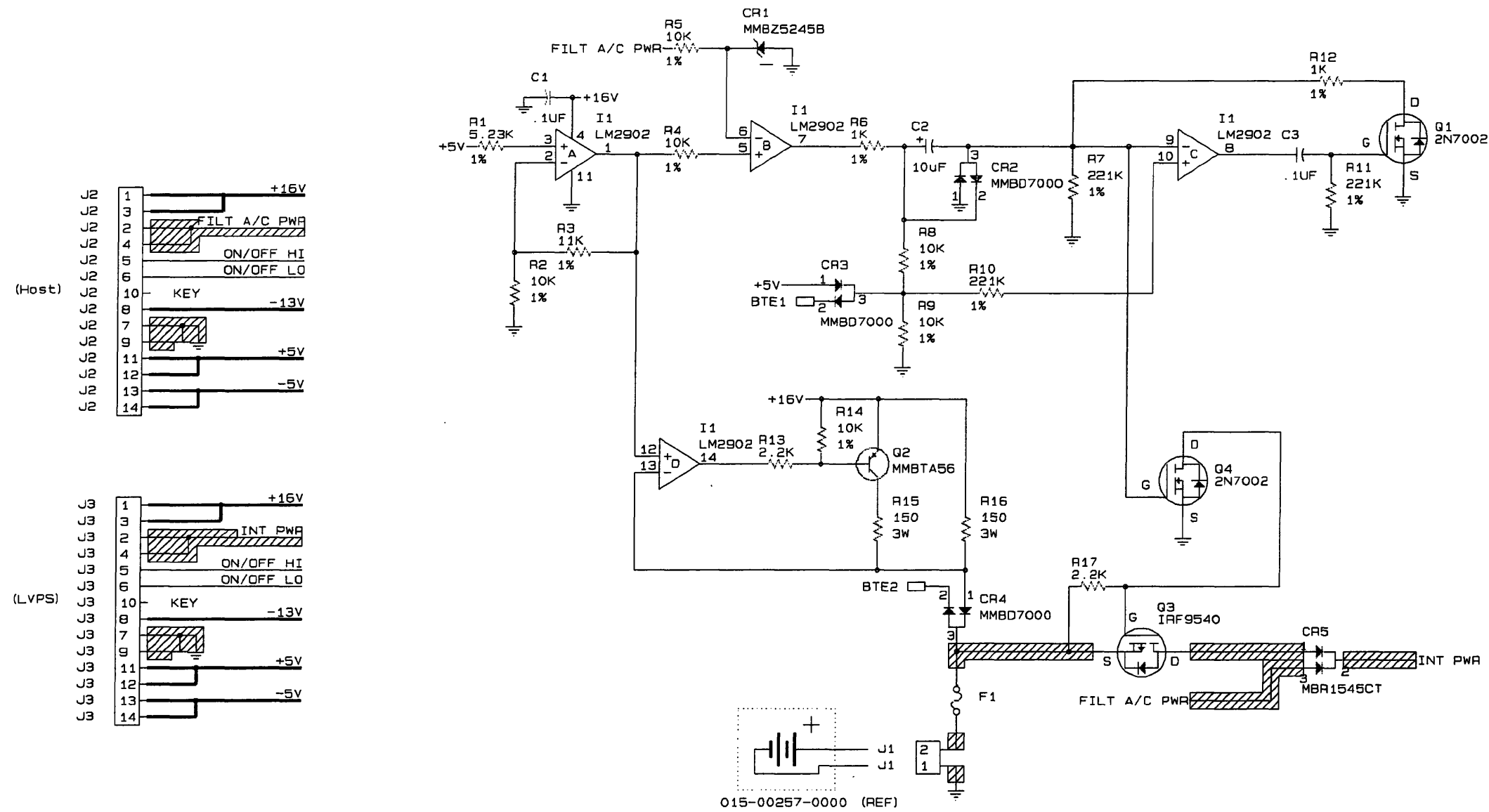


Figure 2017 Battery Module
(300-08981-0000 R-AA)

REF. B/M: 200-08981-XXXX



Current Capacity Key:

= 6 AMPS RMS, 12 AMPS Peak.
 = 2 AMPS RMS.

Figure 2018 Battery Module Schematic Diagram
 (002-08981-0000 R-0)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
OBS ADAPTER MODULE (KLN 90A UPGRADE)
PART NUMBER 200-08922-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
0	Baseline revision		
1	Change PCB to 009-08923-0010.	N.A.	N.A.
2	Add 016-01040-0000	N.A.	N.A.
3	Add CR713, R739.	N.A.	N.A.

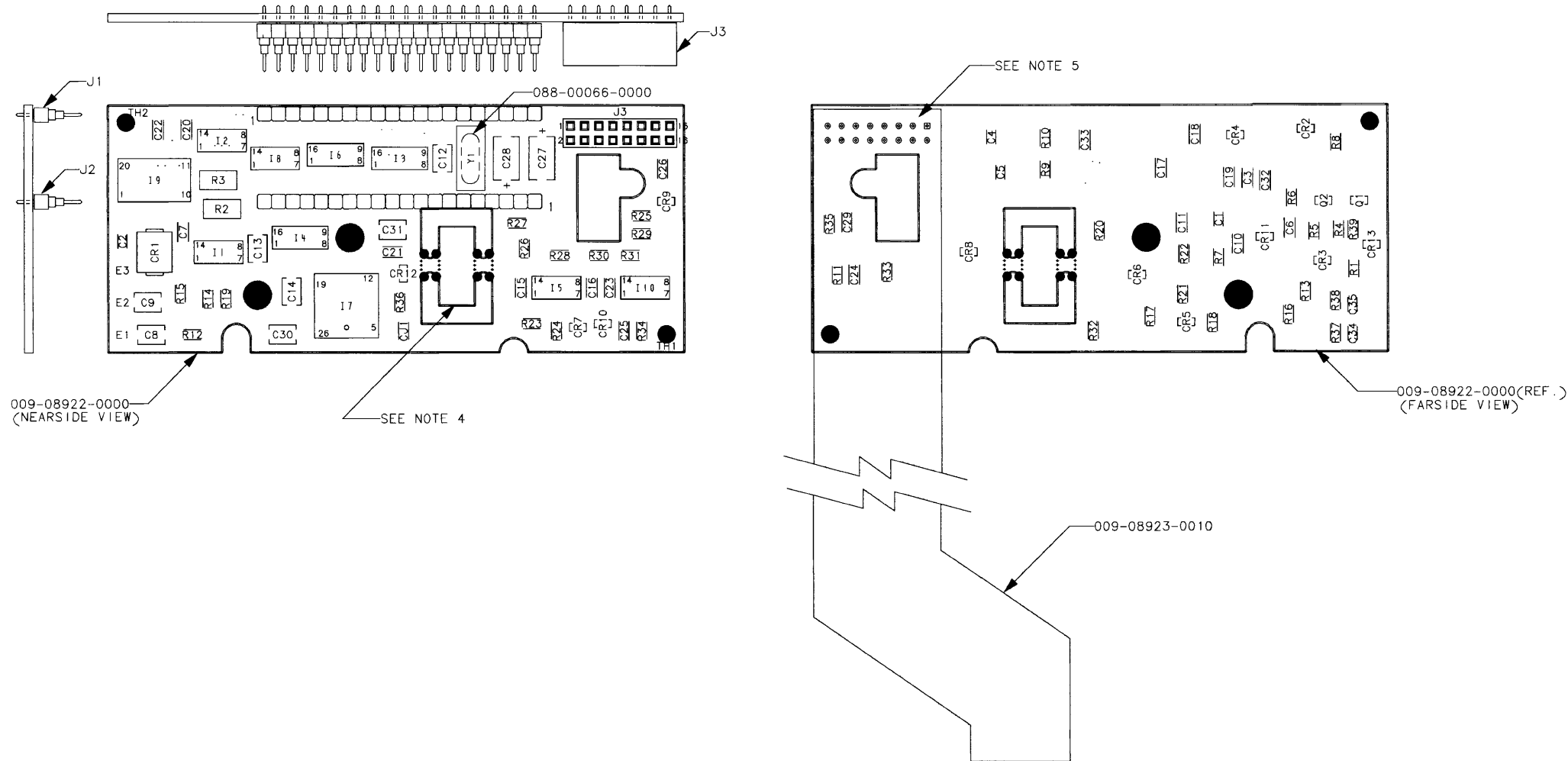
All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

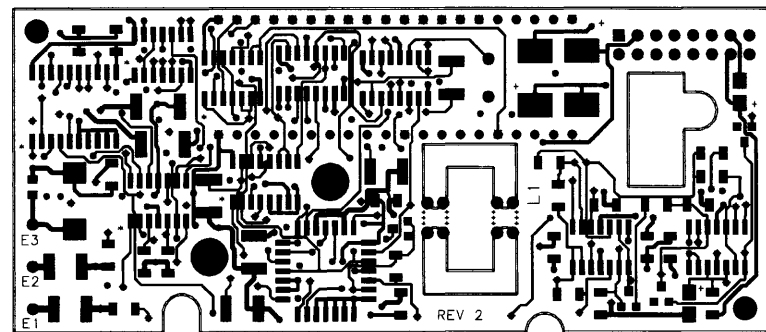
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NOTE: ADD 700 TO ALL REFERENCE DESIGNATORS.

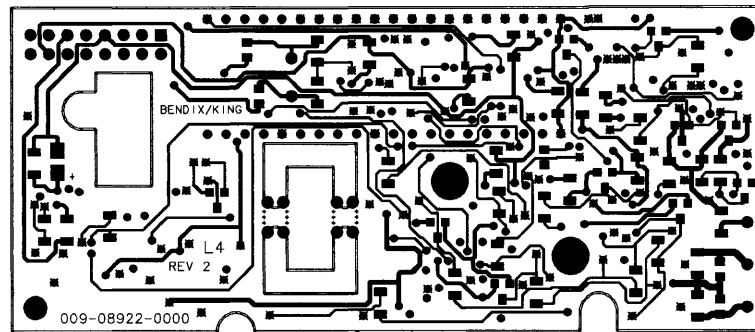


NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL *E* NUMBERS, J1, J2, J3.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000.
3. MAXIMUM LEAD PROTRUSION .090" MAX.
4. REMOVE BREAKOUT TAB FOLLOWING ASSEMBLY.
5. DO NOT TRIM PINS OF J3. SOLDER 009-08923-0010 TO PINS OF J3 (FARSIDE). ATTACHMENT OF 009-08923-0010 MUST BE FLUSH TO P.C. BOARD.



NEARSIDE VIEW OF P.C. BOARD



FARSIDE VIEW OF P.C. BOARD



CR2 THRU CR12
SCALE 4:1

REF. B/M: 200-08922-0000

Figure 2019 OBS Adapter Module (KLN 90A Upgrade)
(300-08922-0000 R-2)

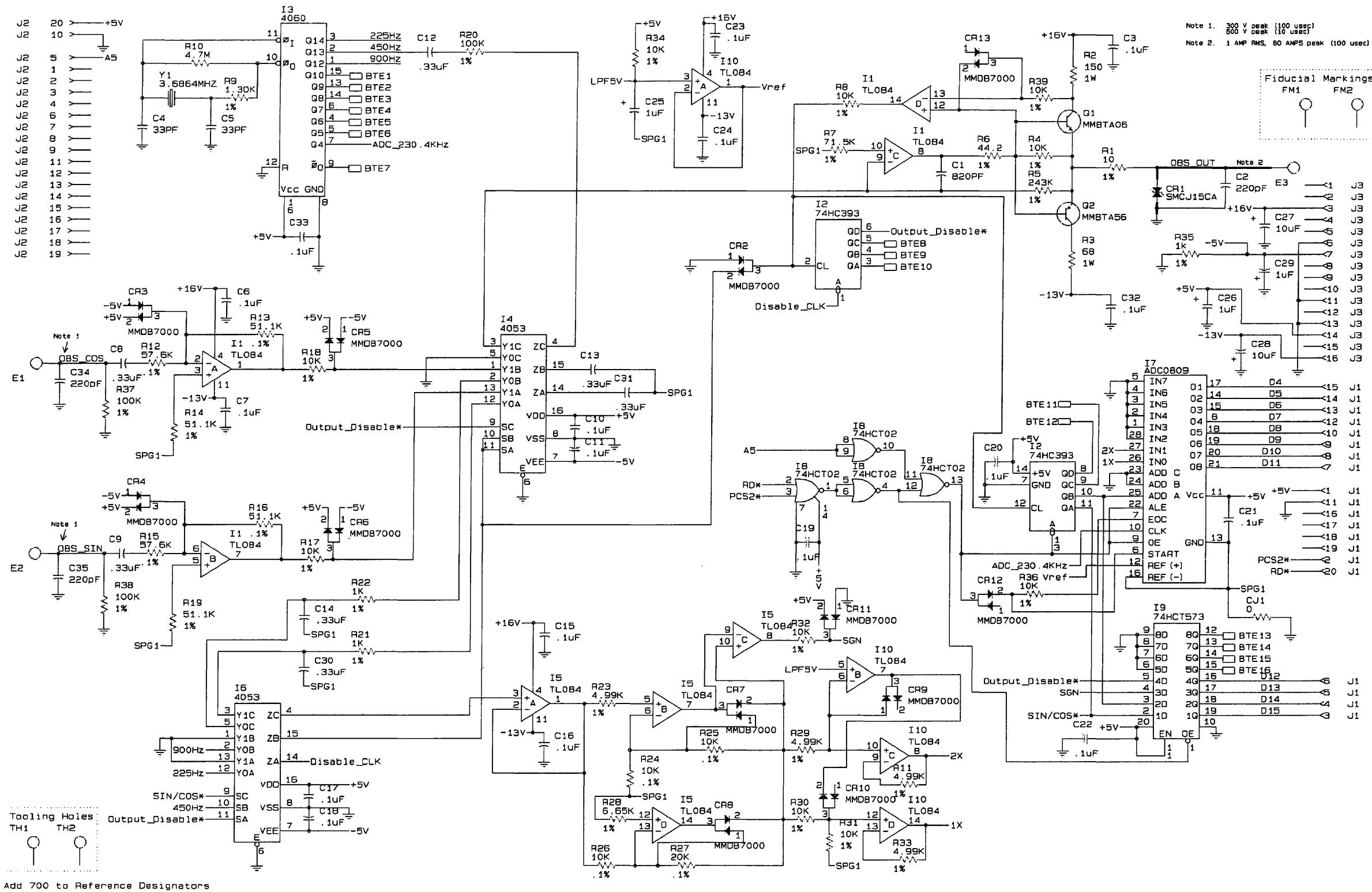


Figure 2020 OBS Adapter Module (KLN 90A Upgrade) Schematic Diagram (002-08922-0000 R-1)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
RECEIVER MODULE
PART NUMBER 200-08825-0000**

REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
	Not Serviceable, diagrams are for reference only.		

All quantities are 1 EA. unless otherwise noted.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

**SUMMARY OF CHANGES TO
RECEIVER MODULE
PART NUMBER 200-08825-0010**

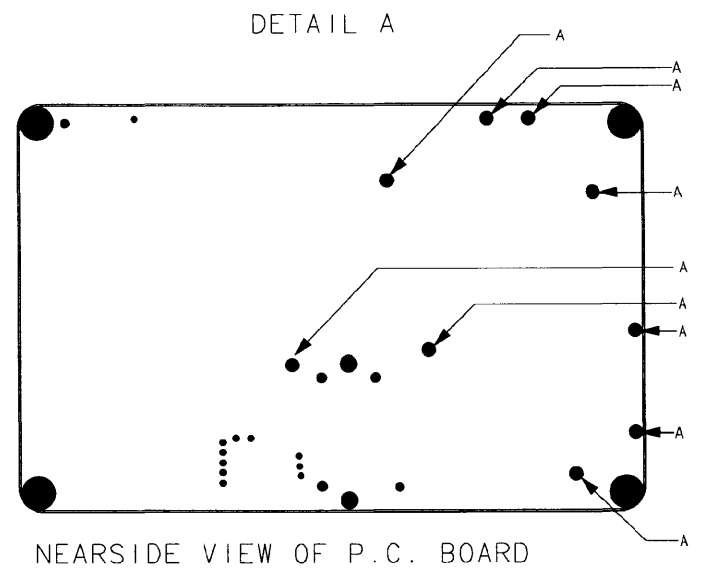
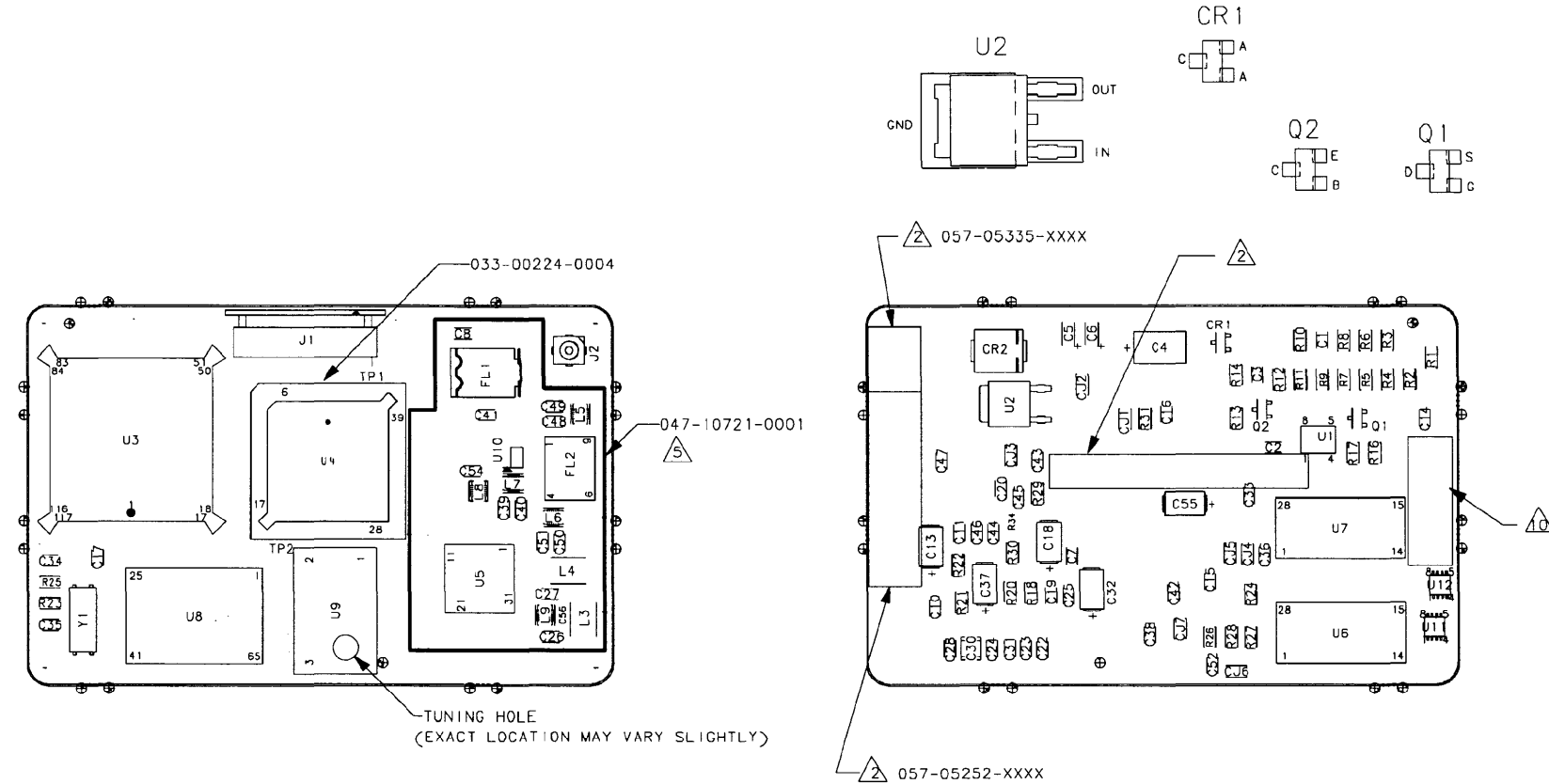
REVISION NO.	DESCRIPTION OF CHANGE	EFF UNIT S/N	SERVICE BULLETIN NO.
	Not Serviceable, diagrams are for reference only.		

All quantities are 1 EA. unless otherwise noted.

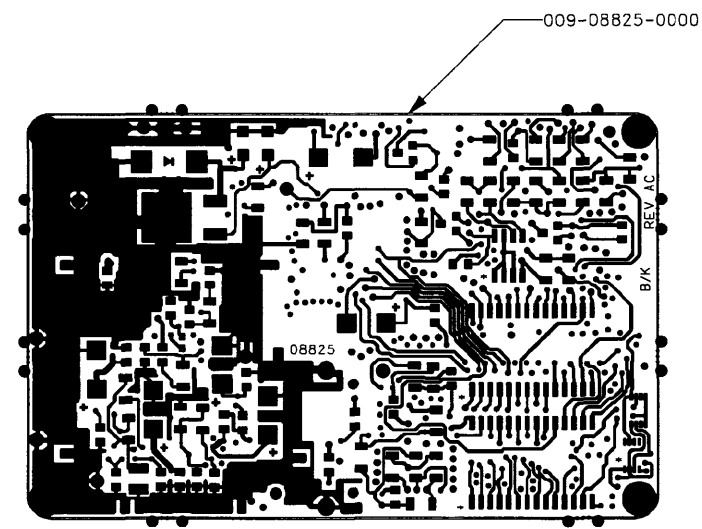
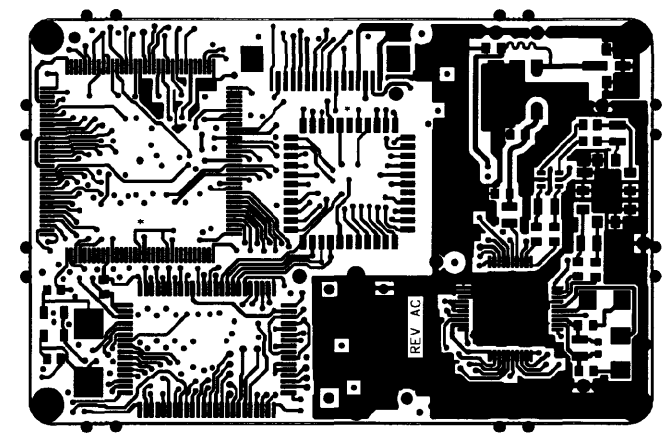
Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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- NOTES:
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL THROUGH HOLES LABELED 'A' IN DETAIL A, U9 TUNING HOLE, J1, J2 AND U4 SOCKET. RF SHIELD (047-10721-0001) TO BE INSTALLED TO BOARD AND LABELS AFTER POSTCOAT.
 2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000. REFER TO BOM 205-00891-00XX OR 205-00834-00XX FOR LABELING.
 3. NOT ALL PARTS INSTALLED, REFER TO 200-08825-XXXX
 4. 200-08825-XXXX ADDS 500 TO ALL REFERENCE DESIGNATORS.
 5. RF SHIELD (047-10721-0001) TO BE SOLDERED ONLY AT PLATED THRU HOLES AT THE TABS. DO NOT SEAM SOLDER.
 6. U9 TCXO TO BE HAND SOLDERED TO THE BOARD. DO NOT EXPOSE PART TO REFLOW TEMPERATURES, AND DO NOT EXPOSE INTERNAL COMPONENTS OF TCXO TO CLEANING SOLUTIONS.
 7. U5 IS TEMPERATURE SENSITIVE, AND CANNOT BE EXPOSED TO OVER 200 DEGREES C FOR OVER 5 MINUTES, OR EXPOSED TO OVER 230 DEGREES C FOR OVER 1 MINUTE. COMPONENT BODY OF U5 TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING. THERE MUST BE EVIDENCE OF SOLDER FROM THE COMPONENT BODY TO THE GROUND PLANE ON THE BOARD, BUT A COMPLETE FILLET IS NOT REQUIRED. RECYCLE U5 MATRIX TRAYS WITH THE COMPONENT SUPPLIER.
 8. COMPONENT BODY OF FL2 FILTER TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING WITH A MINIMUM OF .006" THICKNESS SOLDER PASTE (APPLICATION OF APPROX. .003" SOLDER).
 9. MAXIMUM LEAD PROTRUSION FOR U9 TCXO IS .07" AND RF SHIELD (047-10721-0001) IS .09".
 10. MANUFACTURING BAR CODE LABEL (OPTIONAL) MAY BE APPLIED TO FAR SIDE OF BOARD NEAR U7, COVERING VIA HOLES AND SILKSCREEN (ORIENTATION OPTIONAL).



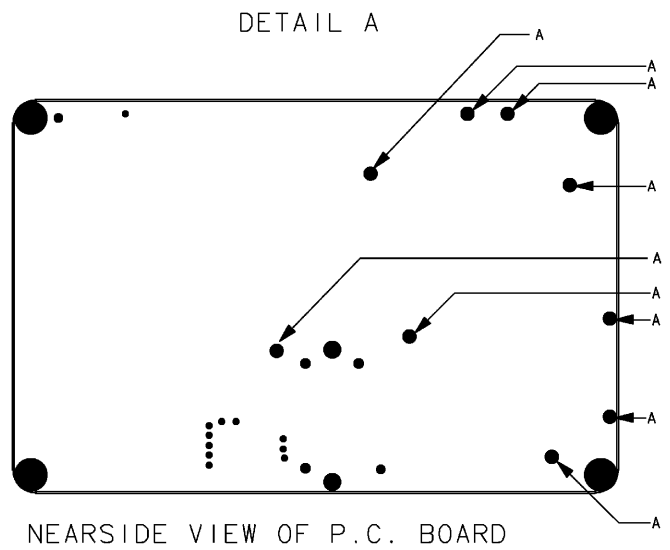
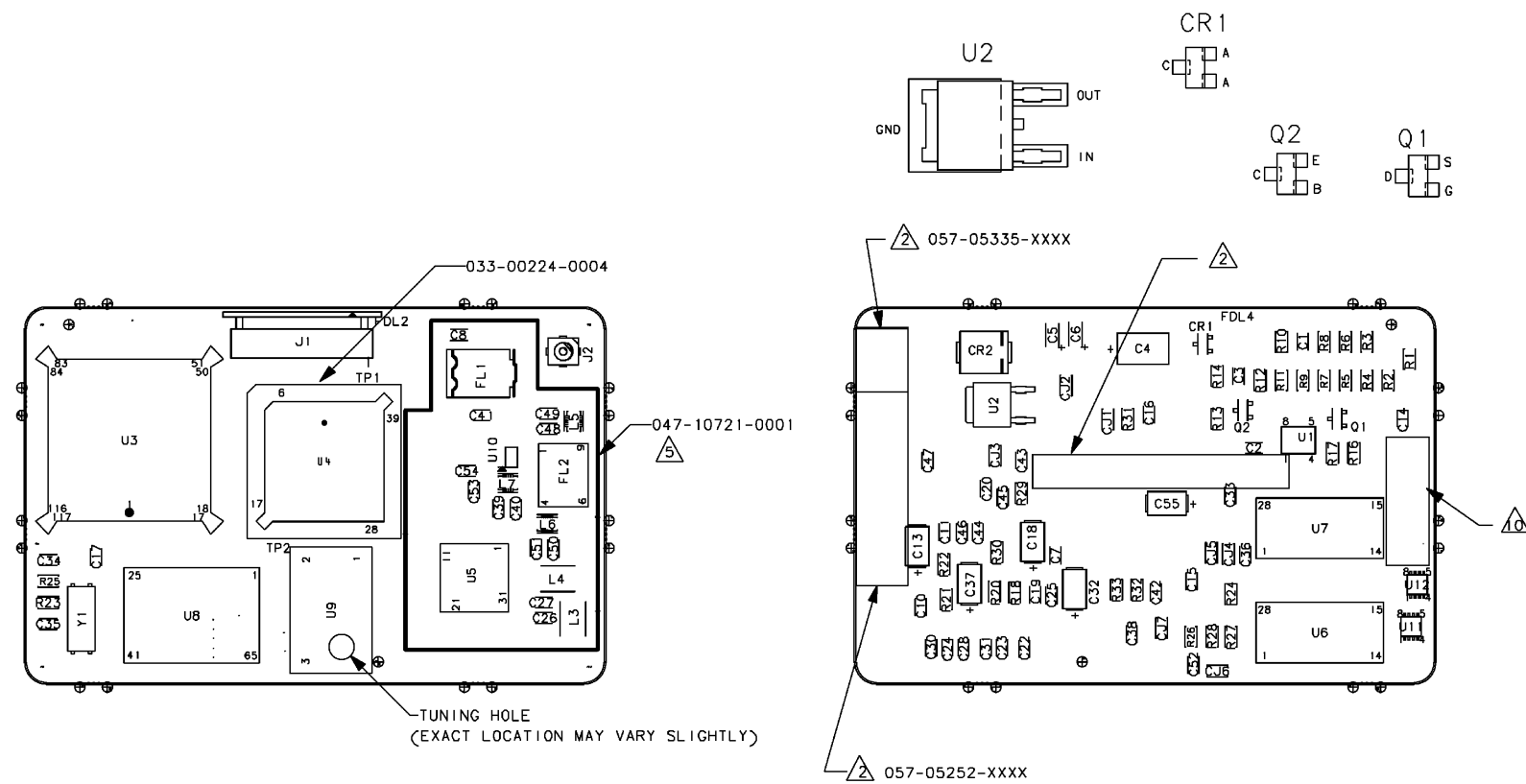
THIS DRAWING IS NOT COMPLETE WITHOUT PARTS LIST 200-08825-0000

REF: 193-00834-00XX
AND 193-00891-00XX

NEARSIDE VIEW OF P.C. BOARD

FAR SIDE VIEW OF P.C. BOARD

Figure 2021 Receiver Module (-0000)
(300-08825-0000 R-AE)

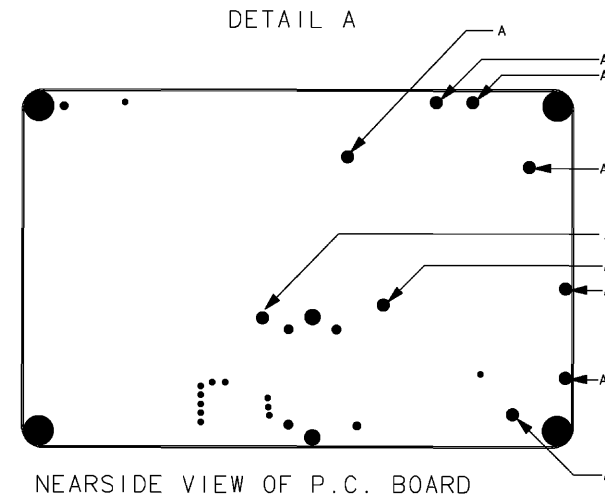
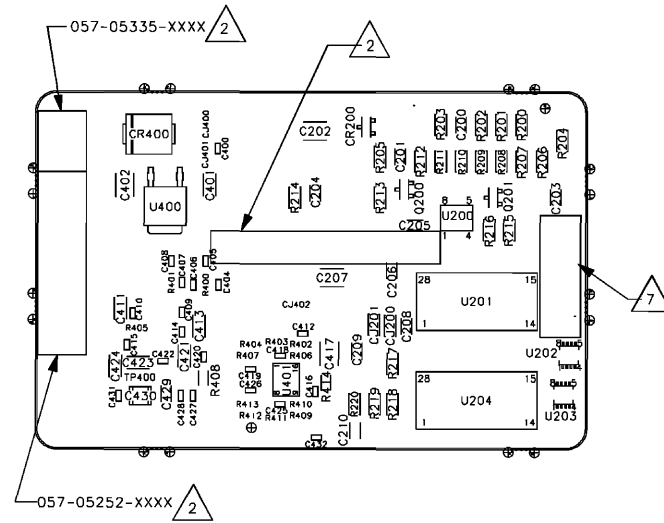
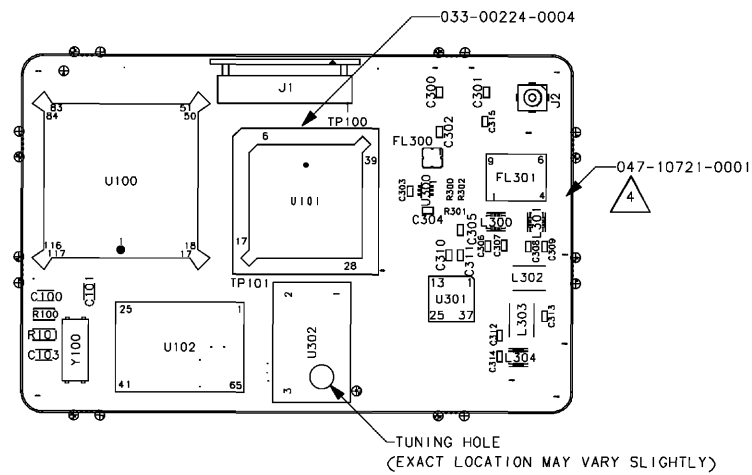


- NOTES:
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL THROUGH HOLES LABELED 'A' IN DETAIL A, U9 TUNING HOLE, J1, J2 AND U4 SOCKET. RF SHIELD (047-10721-0001) TO BE INSTALLED TO BOARD AND LABELS AFTER POSTCOAT.
 2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000. REFER TO BOM 205-00891-00XX OR 205-00834-00XX FOR LABELING.
 3. NOT ALL PARTS INSTALLED, REFER TO 200-08825-XXXX
 4. 200-08825-XXXX ADDS 500 TO ALL REFERENCE DESIGNATORS.
 5. RF SHIELD (047-10721-0001) TO BE SOLDERED ONLY AT PLATED THRU HOLES AT THE TABS. DO NOT SEAM SOLDER.
 6. U9 TCXO TO BE HAND SOLDERED TO THE BOARD. DO NOT EXPOSE PART TO REFLOW TEMPERATURES, AND DO NOT EXPOSE INTERNAL COMPONENTS OF TCXO TO CLEANING SOLUTIONS.
 7. U5 IS TEMPERATURE SENSITIVE, AND CANNOT BE EXPOSED TO OVER 200 DEGREES C FOR OVER 5 MINUTES, OR EXPOSED TO OVER 230 DEGREES C FOR OVER 1 MINUTE. COMPONENT BODY OF U5 TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING. THERE MUST BE EVIDENCE OF SOLDER FROM THE COMPONENT BODY TO THE GROUND PLANE ON THE BOARD, BUT A COMPLETE FILLET IS NOT REQUIRED. RECYCLE U5 MATRIX TRAYS WITH THE COMPONENT SUPPLIER.
 8. COMPONENT BODY OF FL2 FILTER TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING WITH A MINIMUM OF .006" THICKNESS SOLDER PASTE (APPLICATION OF APPROX. .003" SOLDER).
 9. MAXIMUM LEAD PROTRUSION FOR U9 TCXO IS .07" AND RF SHIELD (047-10721-0001) IS .09".
 10. MANUFACTURING BAR CODE LABEL (OPTIONAL) MAY BE APPLIED TO FAR SIDE OF BOARD NEAR U7, COVERING VIA HOLES AND SILKSCREEN (ORIENTATION OPTIONAL).

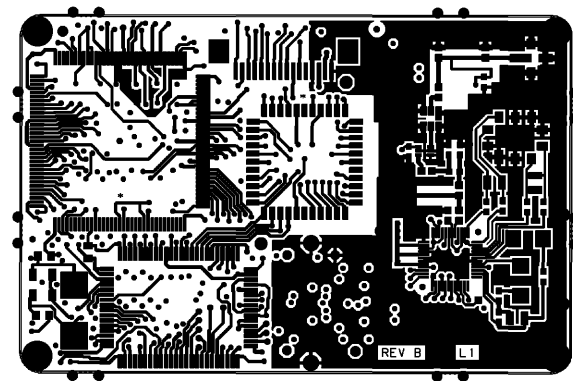
NEARSIDE VIEW OF P.C. BOARD

FAR SIDE VIEW OF P.C. BOARD

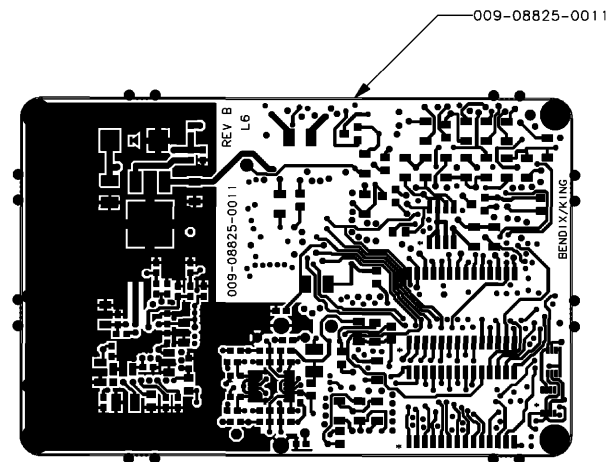
Figure 2021A Receiver Module
(300-08825-0000 R-AB) (For Reference Only)



- NOTES:
- POST COAT BOTH SIDES OF P.C. BOARD WITH PN 016-01040-0000. THE FOLLOWING SHOULD BE FREE OF POST COATING: ALL MOUNTING AREAS, ALL THROUGH HOLES LABELED 'A' IN DETAIL A, U302 TUNING HOLE, J1, J2 AND U101 SOCKET, TP100, TP101, TP400, RF SHIELD (047-10721-0001) AND LABELS TO BE INSTALLED TO BOARD AFTER POSTCOAT.
 - PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000. REFER TO BOM 205-00891-00XX OR 205-00834-00XX FOR LABELING.
 - NOT ALL PARTS INSTALLED, REFER TO 200-08825-0010.
 - RF SHIELD (047-10721-0001) TO BE SOLDERED ONLY AT PLATED THRU HOLES AT THE TABS. DO NOT SEAM SOLDER. POST COAT SOLDER JOINTS ON FAR SIDE OF BOARD AFTER THE SHIELD IS INSTALLED.
 - U302 TCXO TO BE HAND SOLDERED TO THE BOARD. DO NOT EXPOSE PART TO REFLOW TEMPERATURES, AND DO NOT EXPOSE INTERNAL COMPONENTS OF TCXO TO CLEANING SOLUTIONS.
 - MAXIMUM LEAD PROTRUSION FOR U302 TCXO IS .07" AND RF SHIELD (047-10721-0001) IS .09".
 - MANUFACTURING BAR CODE LABEL (OPTIONAL) MAY BE APPLIED TO FAR SIDE OF BOARD NEAR U201, COVERING VIA HOLES (ORIENTATION OPTIONAL).



NEARSIDE VIEW OF P.C. BOARD



FARSIDE VIEW OF P.C. BOARD

THIS DRAWING IS NOT COMPLETE WITHOUT PARTS LIST 200-08825-0010

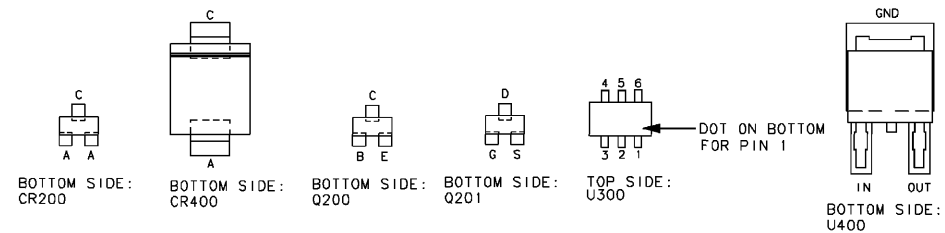
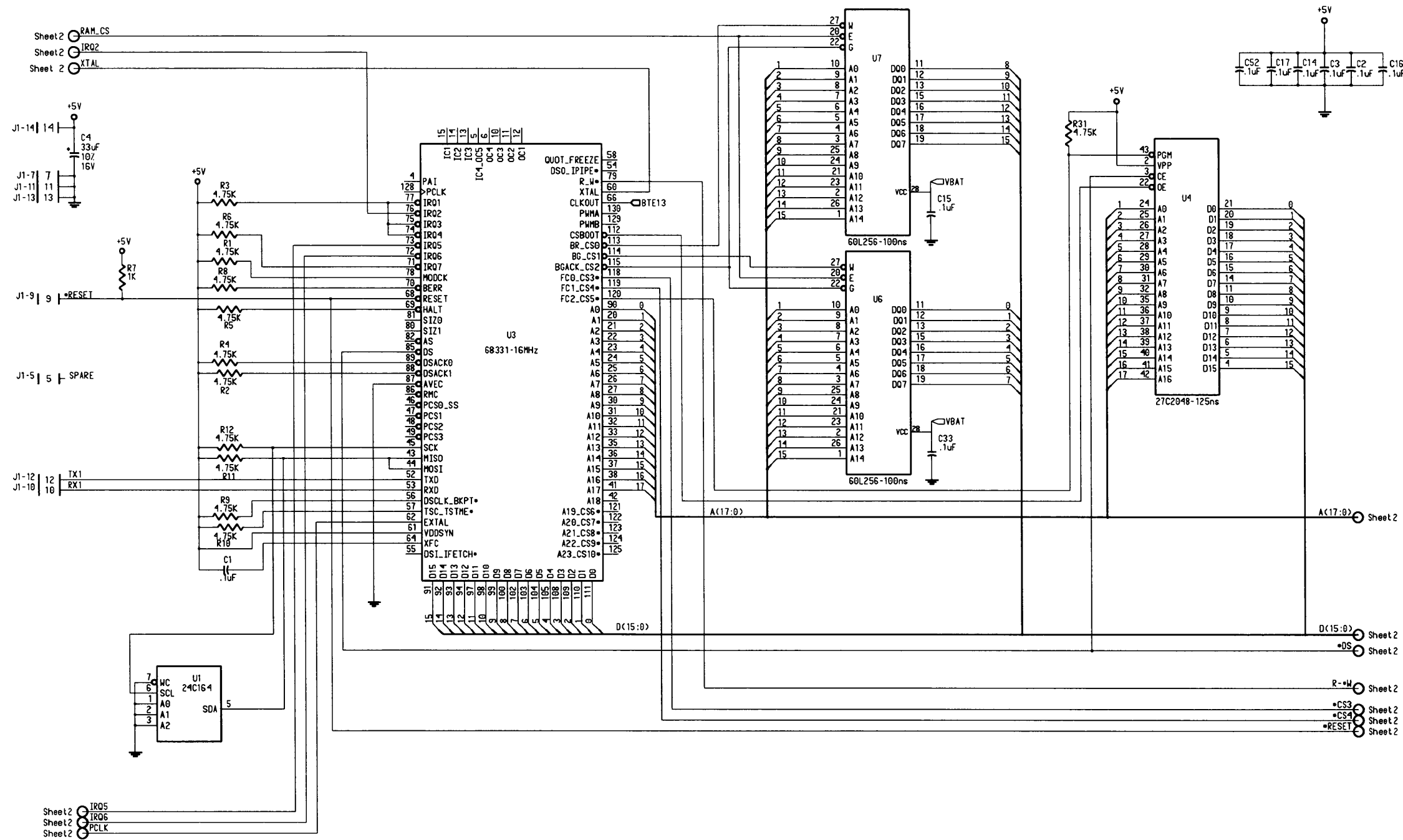
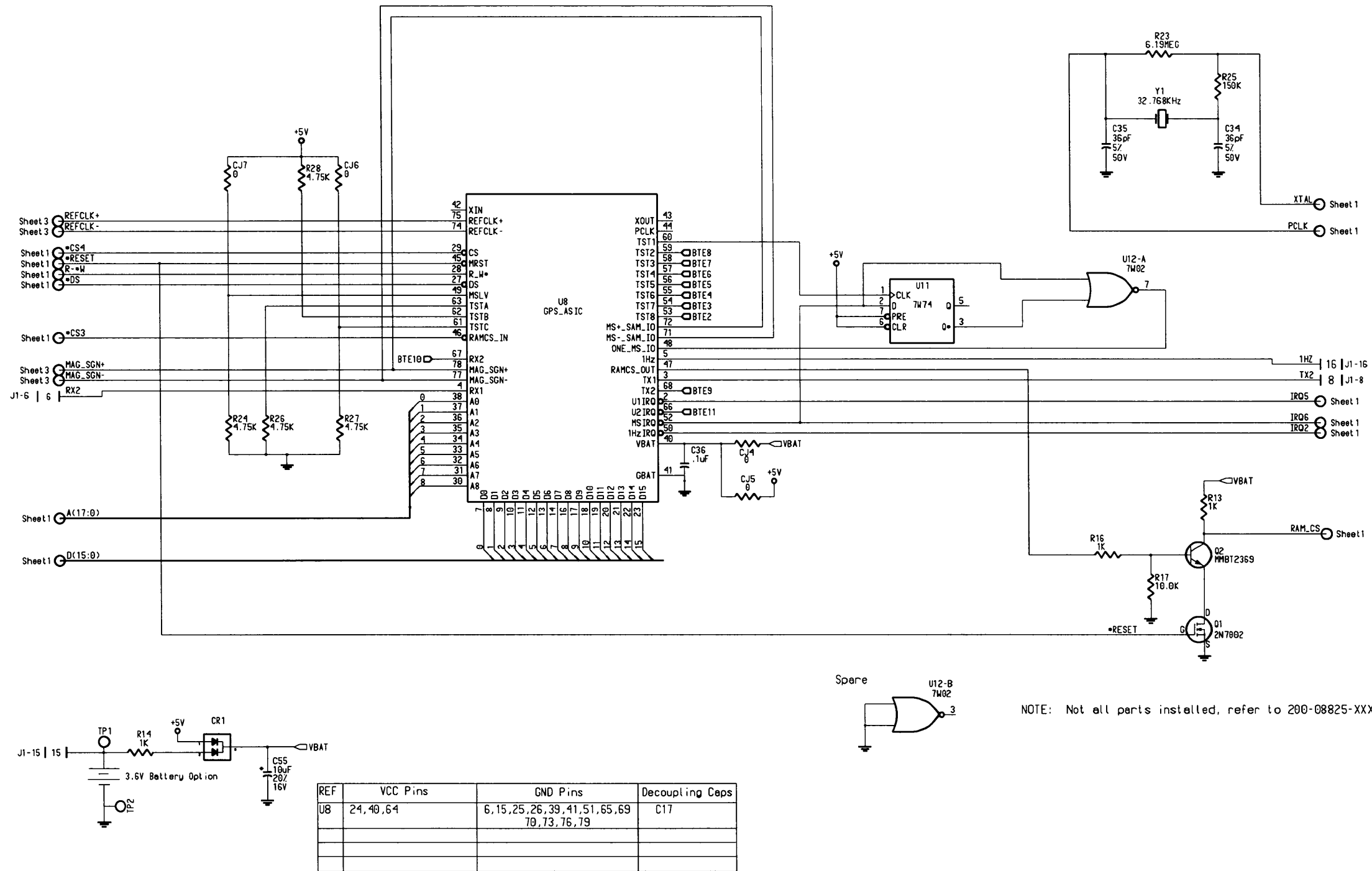


Figure 2022 Receiver Module (-0010)
(300-08825-0010 R-C)



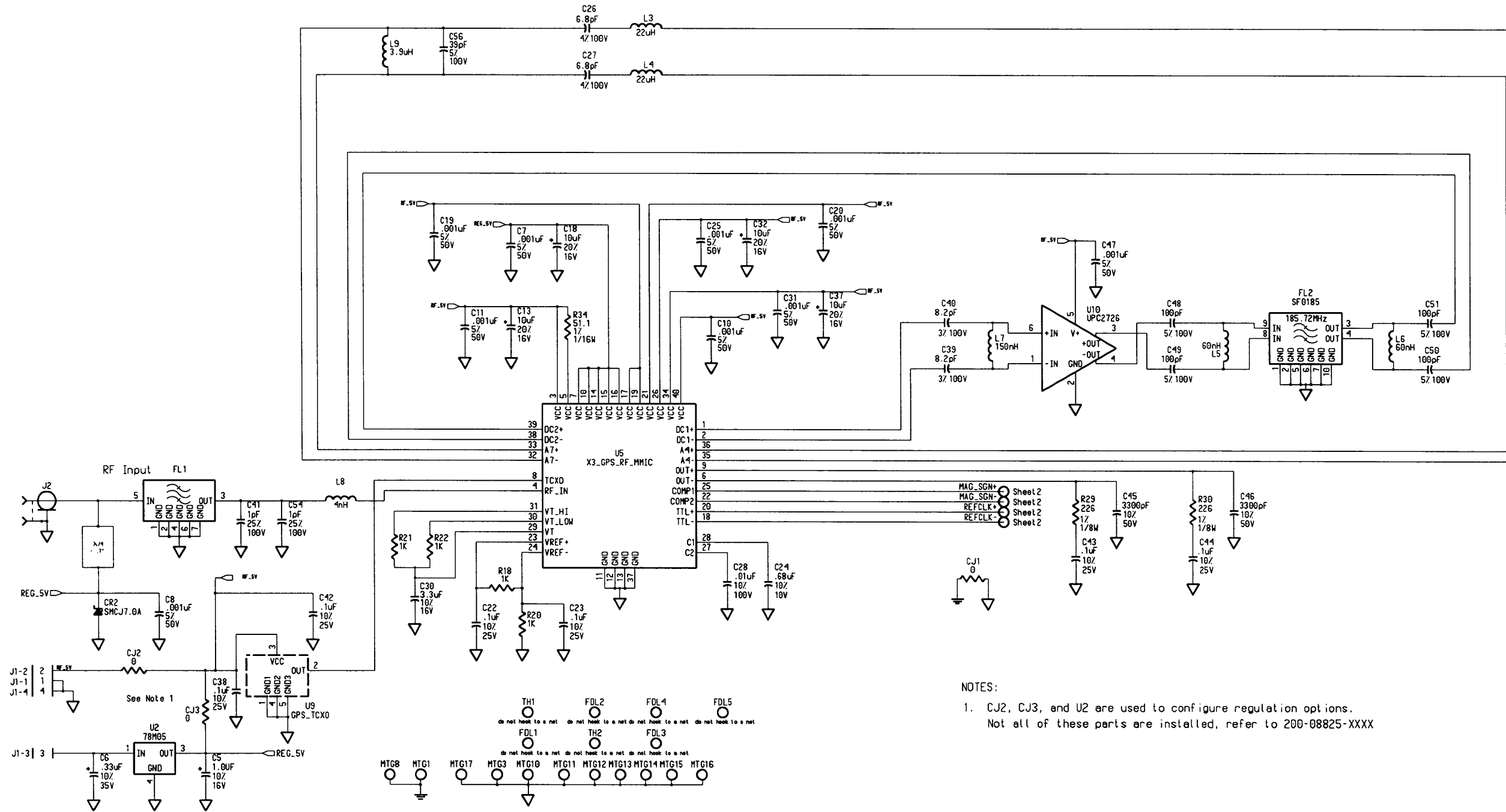
REF	VCC Pins	GND Pins	Decoupling Caps
U3	1, 7, 18, 28, 39, 50, 63, 65 84, 96, 107, 116, 126	2, 8, 17, 29, 34, 40, 51, 59, 67 83, 95, 101, 106, 117, 127	C3, C14
U1	8	4	C2
U6, 7	28	14	C15, C33
U4	44	12, 34	C16

Figure 2023 Receiver Module Schematic Diagram (-0000)
(002-08825-0000 R-AD, Sheet 1 of 3)



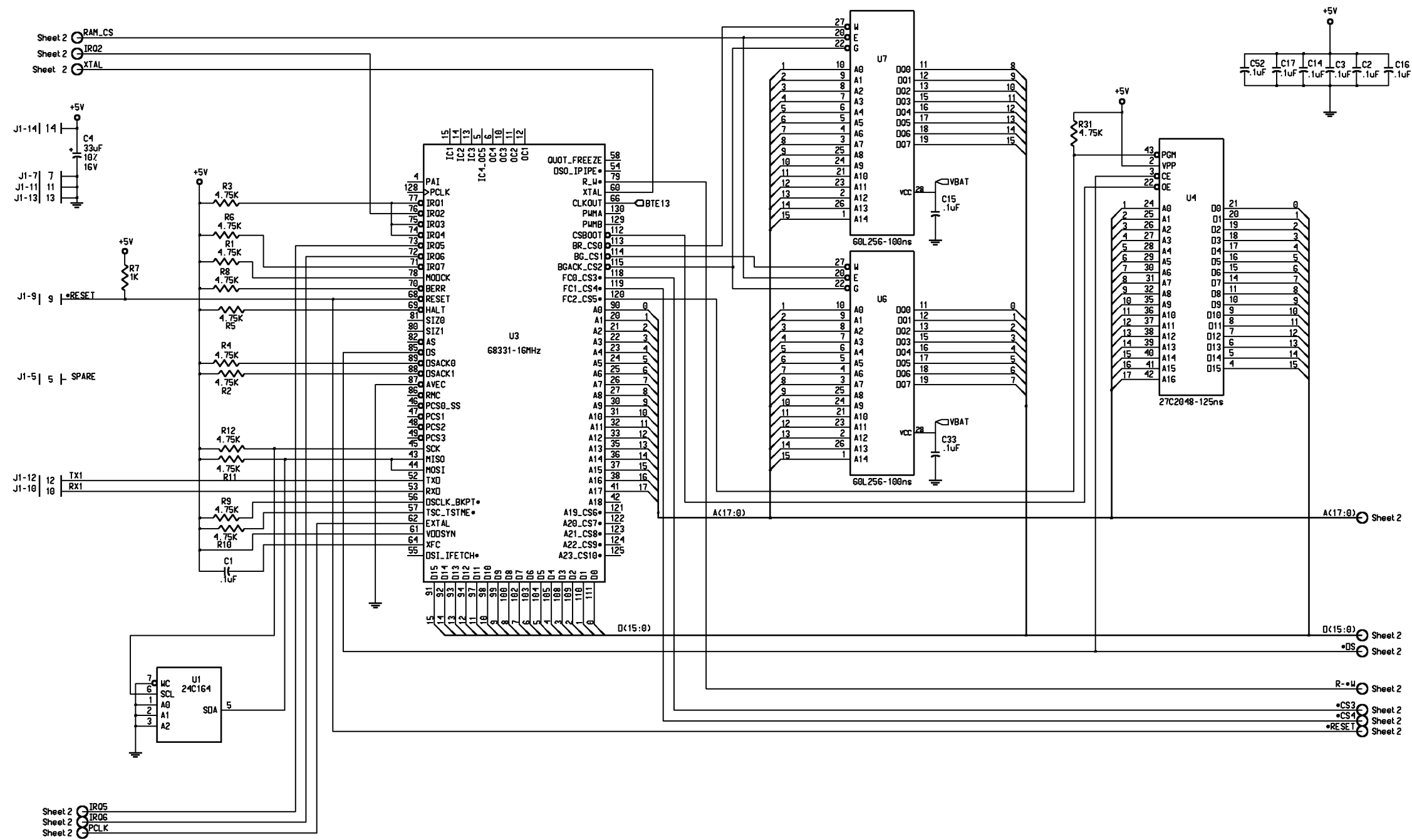
NOTE: Not all parts installed, refer to 200-08825-XXXX

Figure 2023 Receiver Module Schematic Diagram
(002-08825-0000 R-AD, Sheet 2 of 3)



NOTES:
 1. CJ2, CJ3, and U2 are used to configure regulation options.
 Not all of these parts are installed, refer to 200-08825-XXXX

Figure 2023 Receiver Module Schematic Diagram
 (002-08825-0000 R-AD, Sheet 3 of 3)



REF	VCC Pins	GND Pins	Decoupling Caps
U3	1, 7, 18, 28, 39, 50, 63, 65 84, 95, 107, 116, 126	2, 8, 17, 29, 34, 40, 51, 59, 67 83, 95, 101, 106, 117, 127	C3, C14
U1	8	4	C2
U6, 7	28	14	C15, C33
U4	44	12, 34	C16

Figure 2023A Receiver Module Schematic Diagram
(002-08825-0000 R-AA, Sheet 1 of 3) (For Reference Only)

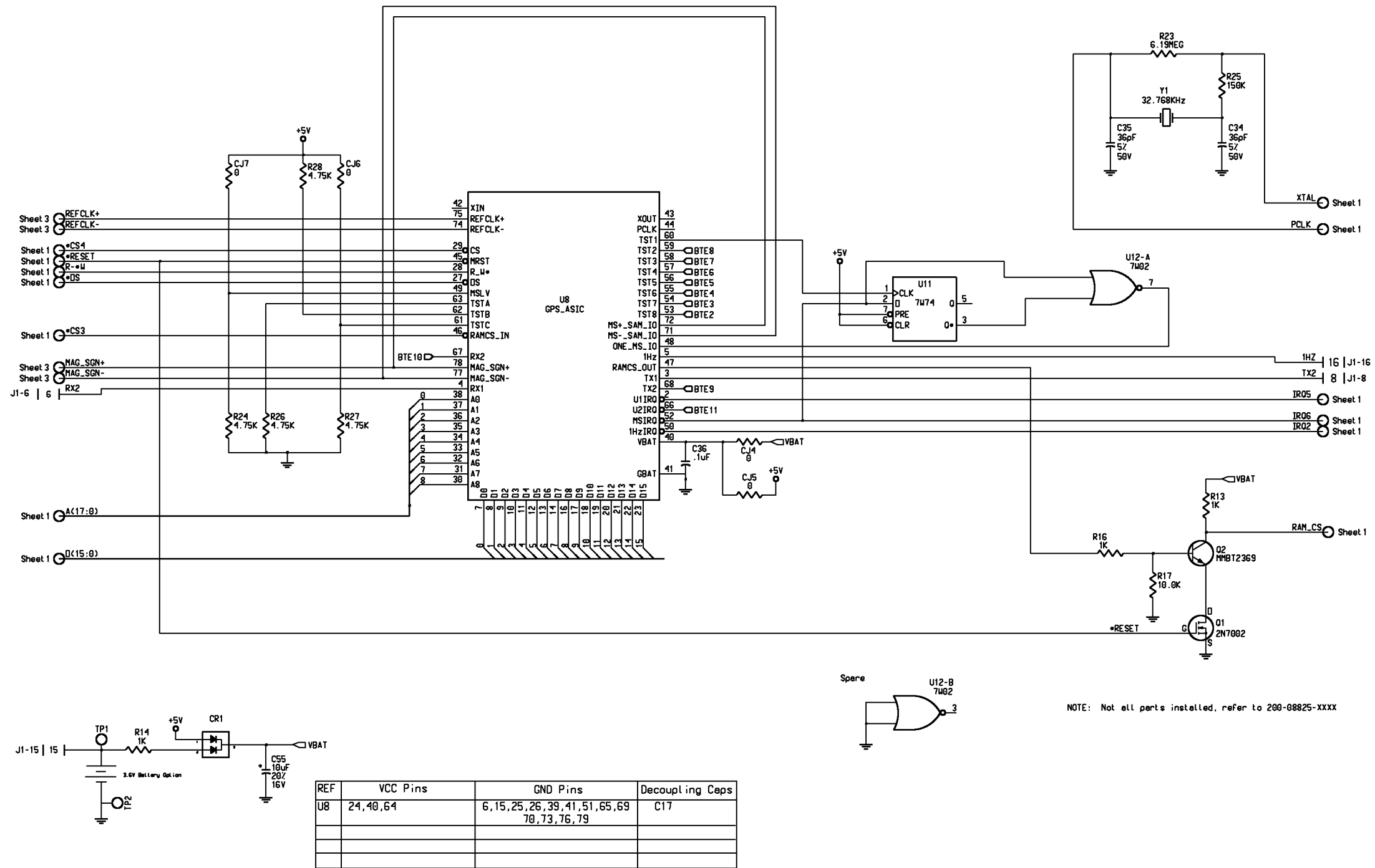


Figure 2023A Receiver Module Schematic Diagram
(002-08825-0000 R-AA, Sheet 2 of 3) (For Reference Only)

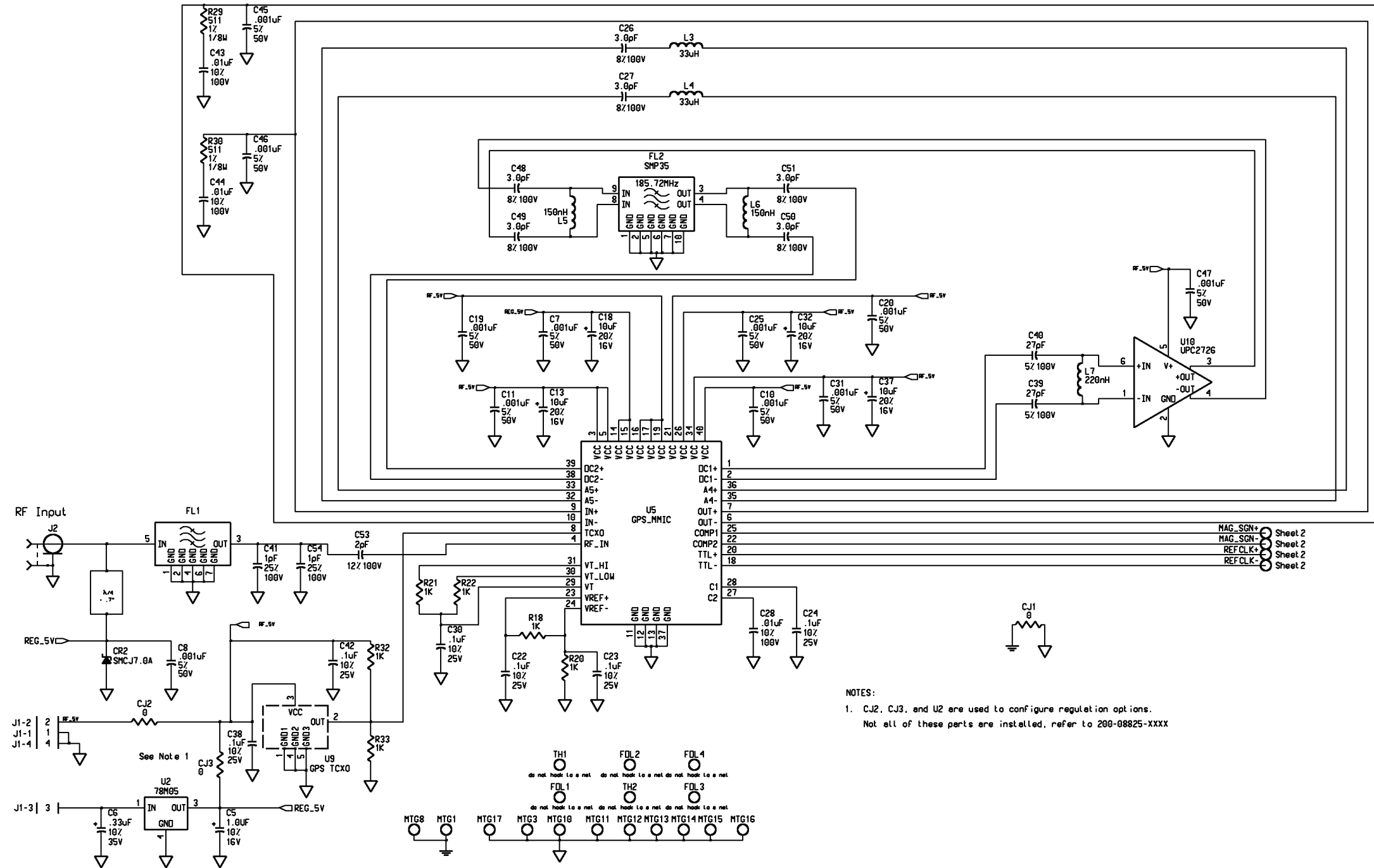
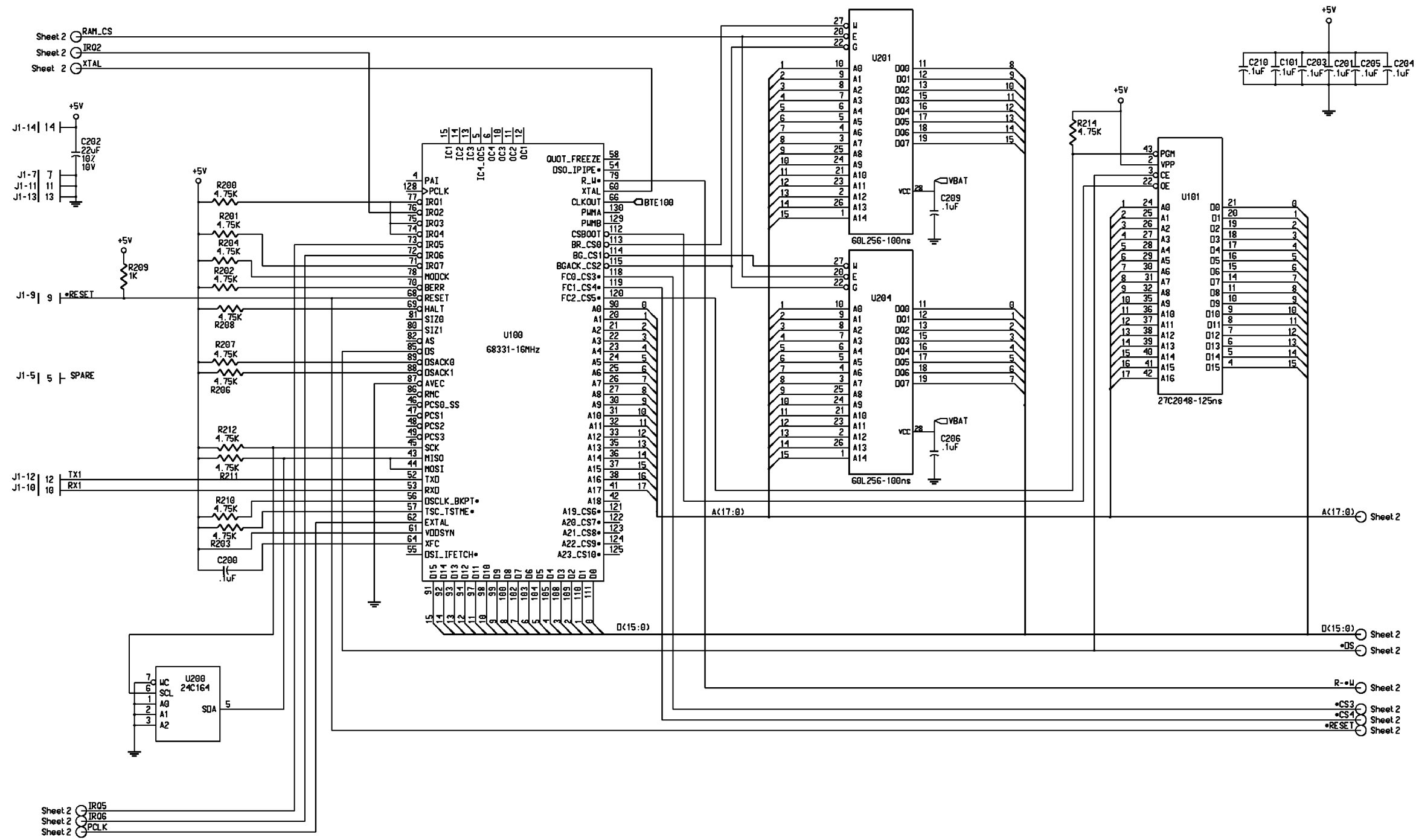
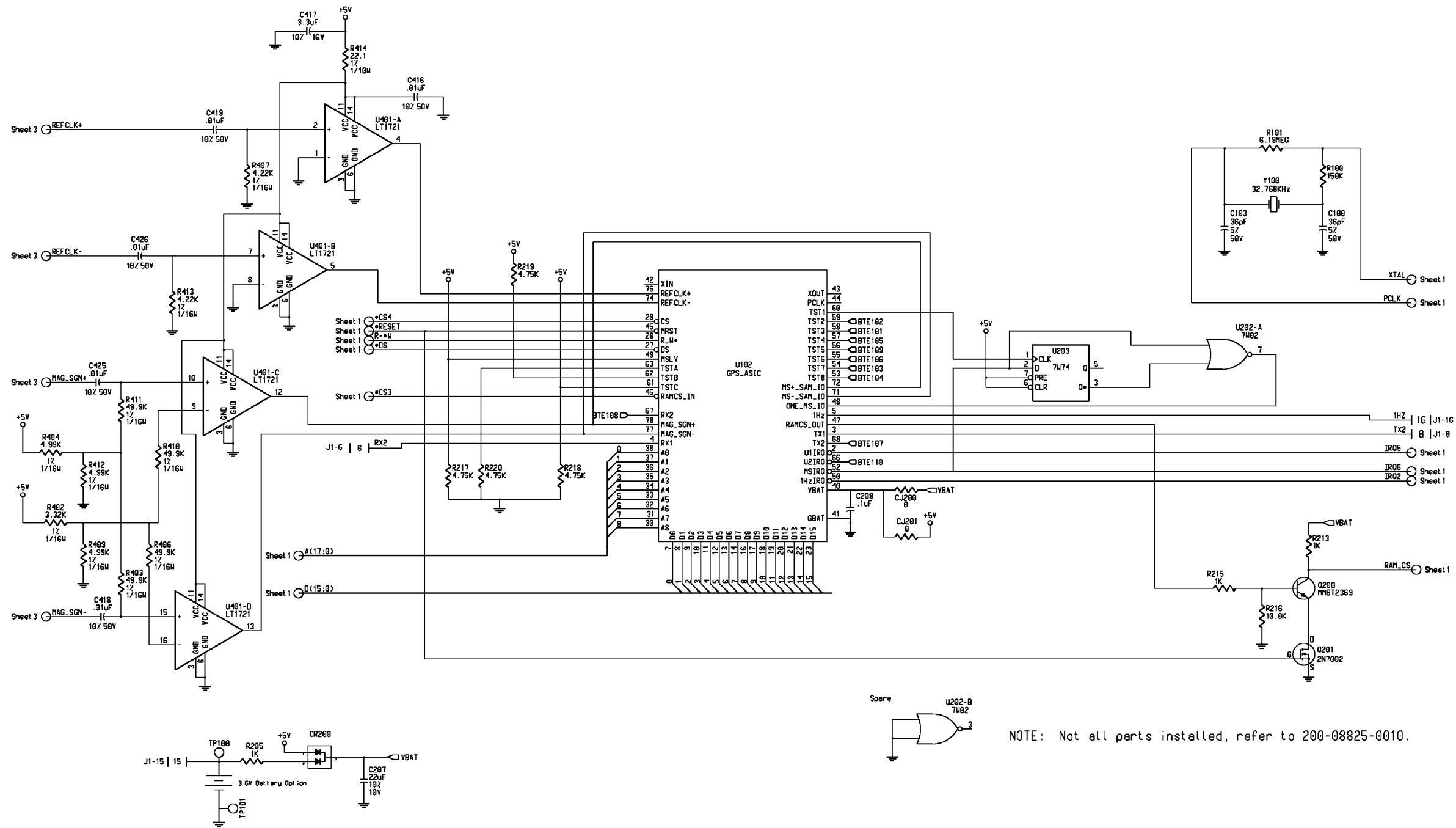


Figure 2023A Receiver Module Schematic Diagram
(002-08825-0000 R-AA, Sheet 3 of 3) (For Reference Only)



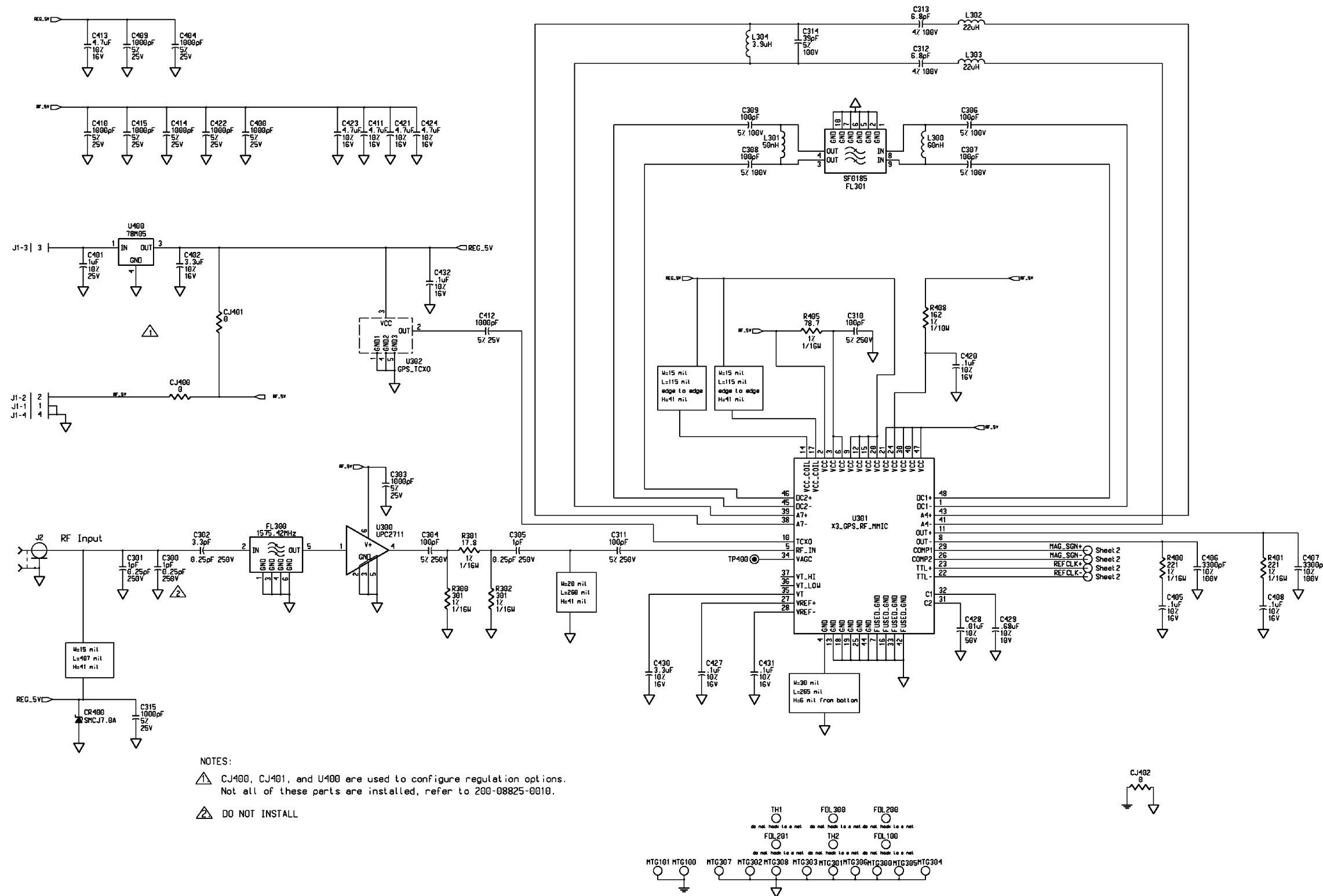
REF	VCC Pins	GND Pins	Decoupling Caps
U100	1,7,18,28,39,50,63,65 84,96,107,116,126	2,8,17,29,34,40,51,59,67 83,95,101,106,117,127	C201 C203
U200	8	4	C205
U201,204	28	14	C206,C209
U101	44	12,34	C204

Figure 2024 Receiver Module Schematic Diagram (-0010)
(002-08825-0010 R-C, Sheet 1 of 3)



REF	VCC Pins	GND Pins	Decoupling Caps
U102	24,40,64	6,15,25,26,39,41,51,65,69 70,73,76,79	C101

Figure 2024 Receiver Module Schematic Diagram
(002-08825-0010 R-C, Sheet 2 of 3)



NOTES:
 ⚠ CJ400, CJ401, and U400 are used to configure regulation options. Not all of these parts are installed, refer to 200-08825-0010.
 ⚡ DO NOT INSTALL

Figure 2024 Receiver Module Schematic Diagram (002-08825-0010 R-C, Sheet 3 of 3)

DISASSEMBLY

1. General

This section contains information for disassembly of the unit. Disassembly procedures are to be accomplished only when repairs or modifications are required, and only to the extent that is required by the repair, or as described in the modification service bulletin. This section contains the recommended procedures for removal of all subassemblies. Refer to the [ILLUSTRATED PARTS LIST](#) for aid in disassembly. Part numbers are used in the IPL drawings to identify specific parts. Complete disassembly should never be undertaken. Provisions have been made in the design of the unit to make complete disassembly unnecessary except to replace a damaged mechanical part that cannot be reached otherwise.

WARNING: REMOVE ALL POWER FROM THE UNIT BEFORE DISASSEMBLY OF ANY MODULE. BESIDES BEING DANGEROUS TO LIFE, VOLTAGE TRANSIENTS CAN CAUSE CONSIDERABLE DAMAGE TO THE EQUIPMENT.

CAUTION: EXERCISE EXTREME CARE WHEN DISCONNECTING AND RECONNECTING THE MULTIPLE PIN CONNECTORS TO ENSURE THAT THE CONNECTORS ARE NOT DAMAGED BY MISALIGNMENT OF THE PINS.

2. Recommended Disassembly Procedures

NOTE: View unit from front for determining left and right sides. Tag, or by some means, identify all disconnected wires or coaxial cables.

A. Unit Cover Removal and Disassembly

- (1) Remove two (2) fasteners (item 15) from rear of unit which secures the unit cover from the chassis I-beam (item 7).
- (2) Slide unit cover (item 1) backward from unit and remove.

B. Logic/Power Supply Board Removal and Disassembly

- (1) Follow procedure detailed in part A.
- (2) Remove ribbon cable P1001 from J1001.
- (3) Remove ribbon cable P1002 from J1002.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (4) Remove coax cable P1003 from J1003.
- (5) Remove six (6) fasteners (item 10) which secure logic/power supply board assembly (item 20) to chassis I-beam.
- (6) Remove logic/power supply board.

C. RF Board Assembly Removal and Disassembly

- (1) Follow procedure detailed in part A.
- (2) Remove four (4) fasteners (item 14) securing coax connector J405B3 and remove from front plate assembly (item 8).
- (3) Remove four (4) fasteners (item 14) securing coax connector J405B2 and remove from front plate assembly (item 8).
- (4) Remove coax cable P1003 from J1003 (cable running from logic/power supply board).
- (5) Remove ribbon cable P2001 from J2001.
- (6) Remove seven (7) fasteners (item 9) which secure RF board assembly (item 22) to chassis I-beam.
- (7) Remove RF board.

D. Interface Board Removal and Disassembly

- (1) Follow procedure detailed in part A.
- (2) Follow procedure detailed in part B.
- (3) Remove four (4) fasteners (item 15) securing J405B1 to front plate assembly (item 8).
- (4) Remove one (1) fastener (item 12) securing interface board (item 21) to front plate assembly (item 8).

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- (5) Remove interface board.
- (6) If necessary, remove three (3) fasteners (089-05903-0004) securing interface board to three (3) spacers (2 - 076-00372-0009) and (1 - 076-00372-0010).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

CLEANING

1. General

This section contains procedures for cleaning the component parts and subassemblies of the unit.

WARNING: GOGGLES MUST BE WORN WHEN USING PRESSURIZED AIR TO BLOW DUST AND DIRT FROM EQUIPMENT. ALL PERSONNEL SHOULD BE CLEARED FROM THE IMMEDIATE AREA.

WARNING: USE A VENTILATED HOOD WHEN USING A CLEANING SOLVENT. AVOID BREATHING SOLVENT VAPOR AND FUMES. AVOID CONTINUOUS CONTACT WITH CLEANING SOLVENT. WEAR A SUITABLE MASK, GOGGLES, GLOVES, AND AN APRON WHEN NECESSARY. CHANGE CLOTHING UPON WHICH SOLVENTS HAVE BEEN SPILLED.

WARNING: OBSERVE ALL FIRE PRECAUTIONS FOR FLAMMABLE MATERIALS. USE FLAMMABLE MATERIALS IN A HOOD PROVIDED WITH EXPLOSION-PROOF ELECTRICAL EQUIPMENT AND AN EXHAUST FAN WITH SPARKPROOF BLADES.

2. Recommended Cleaning Agents

[Table 4001 Recommended Cleaning Agents](#) lists the recommended cleaning agents to be used during overhaul of the unit.

NOTE: Equivalent substitutes may be used for listed cleaning agents.

TYPE	USED TO CLEAN
Denatured Alcohol	Various, exterior and interior
DuPont Ventrel SMT	Various, interior
PolaClear Cleaner (Polaroid Corp.) or Texwipe TX129 (Texwipe Co.)	CRT display filter, LCD displays, and general purpose lens/glass cleaner
KimWipes lint-free tissue (Kimberly Clark Corp.)	Various
Cloth, lint-free cotton	Various
Brush, flat with fiber bristles	Various
Brush, round with fiber bristles	Various
Dishwashing Liquid (mild)	Nylon, Rubber Grommets

Table 4001 Recommended Cleaning Agents

3. Recommended Cleaning Procedures

A. Exterior

- (1) Wipe dust cover and front panel with a lint-free cloth dampened with denatured alcohol.
- (2) For cleaning connectors, use the following procedure.

CAUTION: DO NOT ALLOW SOLVENT TO RUN INTO SLEEVES OR CONDUIT THAT COVERS WIRES CONNECTED TO INSERT TERMINALS.

- (a) Wipe dust and dirt from bodies, shells, and cable clamps using a lint-free cloth moistened with denatured alcohol.
 - (b) Wipe parts dry with a clean, dry, lint-free cloth.
 - (c) Remove dirt and lubricant from connector inserts, insulation, and terminals using a small soft bristled brush moistened with denatured alcohol.
 - (d) Dry the inserts with an air jet.
- (3) Remove cover.
 - (4) If necessary, open blocked ventilation holes by saturating the clogged holes with denatured alcohol and blowing the loosened material out with an air stream.

B. Interior

The following solvents are no longer recommended for benchtop or rework cleaning of printed circuit boards, modules, or subassemblies.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

TYPE	TYPE
Freon TF, IMC	Propyl Alcohol
Trichloroethane	Methyl Alcohol
Prelete (CFC-113)	Ethyl Alcohol
Carbon Tetrachloride	Butyl Alcohol
Chloroform	Methylene Chloride
Trichloroethylene	Xylene
Detergents (All™ and equivalents)	Genesolv 2004/2010

Table 4002 Unsafe Solvents

CAUTION: DO NOT USE SOLVENT TO CLEAN PARTS COMPOSED OF OR CONTAINING NYLON OR RUBBER GROMMETS. CLEAN THESE ITEMS WITH MILD LIQUID DISHWASHING DETERGENT AND WATER. USE DETERGENT FOR THIS PURPOSE ONLY.

CAUTION: DUPONT VERTREL SMT DOES HAVE GENERAL MATERIAL COMPATIBILITY PROBLEMS WITH POLYCARBONATE, POLYSTYRENE, AND RUBBER. IT IS RECOMMENDED THAT THESE MATERIALS BE CLEANED WITH DENATURED ALCOHOL.

CAUTION: DO NOT ALLOW EXCESS CLEANING SOLVENT TO ACCUMULATE IN ANY OF THE ADJUSTMENT SCREW CREVICES AND THEREBY SOFTEN OR DISSOLVE THE ADJUSTMENT SCREW EPOXY SEALANT.

CAUTION: AVOID AIR-BLASTING SMALL TUNING COILS AND OTHER DELICATE PARTS BY HOLDING THE AIR JET NOZZLE TOO CLOSE. USE BRUSHES CAREFULLY ON DELICATE PARTS.

CAUTION: IMPROPER CLEANING CAN RESULT IN SURFACE LEAKAGE AND CONDUCTIVE PARTICULATES, SUCH AS SOLDER BALLS OR METALLIC CHIPS, WHICH CAN CAUSE ELECTRICAL SHORTS. SEVERE IONIC CONTAMINATION FROM HANDLING AND FROM ENVIRONMENTAL CONDITIONS CAN RESULT IN HIGH RESISTANCE OR OPEN CIRCUITS.

CAUTION: ULTRASONIC CLEANING CAN DAMAGE CERTAIN PARTS AND SHOULD GENERALLY BE AVOIDED.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

NOTE: Clean miscellaneous metal parts i.e. fasteners, handles, mounting hardware, etc. with a suitable cleaning machine.

NOTE: Solvents may be physically applied in several ways including agitation, spraying, brushing, and vapor degreasing. The cleaning solvents and methods used shall have no deleterious effect on the parts, connections, and materials being used. If sensitive components are being used, spray is recommended. Uniformity of solvent spray flow should be maximized and wait-time between soldering and cleaning should be minimized.

Remove each module subassembly. Then remove any foreign matter from the casting.

- (1) Casting covers and shields should be cleaned as follows:
 - (a) Remove surface grease with a lint-free cloth.
 - (b) Blow dust from surfaces, holes, and recesses using an air stream.
 - (c) If necessary, use a solvent and scrub until clean, working over all surfaces and into all holes and recesses with a suitable non-metallic brush.
 - (d) Position the part to dry so that solvent is not trapped in holes or recesses. Use an air stream to blow out any trapped solvent.
 - (e) When thoroughly clean, touch up any minor damage to the finish.
- (2) Modules (circuit card assemblies) containing resistors, capacitors, rf coils, inductors, transformers, and other wired parts should be cleaned as follows:
 - (a) Remove dust and dirt from all surfaces, including all parts and wiring, using soft-bristled brushes in conjunction with an air stream.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (b) Any dirt that cannot be removed in this way should be removed with a brush (not synthetic) saturated with an approved solvent listed above. Use of a clean, dry, compressed air stream (25 to 28 psi) is recommended to remove any excess solvent.
 - (c) Remove flux residue, metallic chips, and/or solder balls with an approved solvent.
- (3) Wired chassis devices containing terminal boards, resistor and capacitor assemblies, rf coils, switches, sockets, inductors, transformers, and other wired parts should be cleaned as follows:

NOTE: When necessary to disturb the dress of wires and cables, note the positions before disturbing and restore them to proper dress after cleaning.

- (a) Blow dust from surfaces, holes, and recesses using an air jet.
 - (b) Finish cleaning chassis by wiping finished surfaces with a lint-free cloth moistened with solvent.
 - (c) Dry with a clean, dry, lint-free cloth.
 - (d) When thoroughly clean, touch-up any minor damage to the finish.
 - (e) Protect the chassis from dust, moisture, and damage pending inspection.
- (4) Ceramic and plastic parts should be cleaned as follows:
- (a) Blow dust from surfaces, holes, and recesses using an air jet.
 - (b) Finish cleaning chassis by wiping finished surfaces with a lint-free cloth moistened with solvent.
 - (c) Dry with a clean, dry, lint-free cloth.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

CHECK

1. General

This section provides procedures to perform a visual inspection of the unit.

2. Inspection Procedures

A. Cover

Inspect the cover for dents, deformation, or damage to the finish that should be repaired.

B. Front Panel

Check that name, serial number, and plates or stickers are secure and hardware is tight.

C. Chassis

Inspect chassis for loose or missing mounting hardware, deformation, dents, damaged fasteners, or damaged connectors. Check for corrosion or damage to the finish that should be repaired.

D. Hardware, Covers and Shields

Inspect for bent, warped, stripped, dented or corroded parts. Check for damaged fasteners. Check plating, painting, and identification stencils for worn, exposed, or scratched surfaces.

E. Circuit Boards

Inspect for loose, broken or corroded terminal connections and damage; such as cracks, burns, or charred track. Check for insufficient solder, proper bonding, fungus, mold or other deposits that should be repaired.

F. Connectors

Inspect connector bodies for broken parts, check insulation for cracks, and check contacts for damage, misalignment, corrosion, or bad plating. Check for broken, loose, or poorly soldered connections to connector terminals. Inspect connector hoods and cable clamps for crimped wires.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

G. Terminal Connections

Inspect for corrosion or loose connections.

H. Terminal Connections, Soldered

(1) Inspect for cold soldered or rosin joints. Bad joints can be recognized by a dull porous appearance.

(2) Check for excessive solder, insufficient solder, or solder splashes resulting from previous repair.

(3) Check for corrosion at the terminal connections.

I. Wiring

Inspect wiring of the chassis and subassemblies for any signs of physical damage or charring.

J. Capacitors

Inspect capacitors for case or body damage and for loose, broken, or corroded terminal connections.

K. Resistors and Diodes

Inspect for blistered, charred, or cracked bodies. Check for loose, broken, or corroded terminal connections.

L. Filters and Inductors

Inspect for damage to body or casting and for loose, broken, or corroded terminal connections. Check for secure mounting to chassis.

M. Transformers

Inspect for damage to case and for signs of excessive heating. Check for loose, broken, or corroded terminal connections.

N. Transistors and Integrated Circuits

Inspect for damage to body or casing. Check for proper and secure attachment to sockets.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

0. Rotary Switches

Check for proper mechanical operation: no binding or looseness should be evidenced.

P. Insulators

Inspect for looseness and/or evidence of damage such as burned areas, cracks, and broken or chipped edges.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

REPAIR

1. General

This section contains information for repair of the unit. The repair or replacement of damaged parts usually involves standard service techniques suggested by examination of drawings and equipment. Some repairs, however, demand an exact repair sequence to ensure proper operation of the equipment.

After correcting a malfunction in any section of the unit, the functional test in Test and Fault Isolation paragraph [3. Functional Test Procedures](#) should be performed.

CAUTION: THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. ALL MODULES CONTAINING ESDS DEVICES ARE FLAGGED OR IDENTIFIED ON SCHEMATICS AND ASSEMBLY ILLUSTRATIONS, AND ARE INDIVIDUALLY IDENTIFIED IN THE PARTS LIST. ALL ESDS DEVICES MUST BE HANDLED IN ACCORDANCE WITH PROCEDURES OUTLINED IN THIS SECTION OF THE MANUAL.

ESDS DEVICES INCLUDE, BUT ARE NOT LIMITED TO, C-MOS, J-MOS, PMOS, NMOS, SOCMOS, HMOS, MOS/FET, MICROWAVE MIXER DIODES, SOME BIPOLAR DEVICES, AND SOME METAL FILM RESISTORS.

MOST DAMAGE TO ESDS DEVICES RESULTS IN DEGRADED PERFORMANCE OR PREMATURE FAILURE, NOT IN CATASTROPHIC FAILURE AT THE TIME EXPERIENCED.

2. Repair Procedures

A. Repair Precautions

WARNING: VOLTAGES DANGEROUS TO LIFE EXIST. REMOVE ALL POWER BEFORE PROCEEDING WITH REPAIR.

- (1) Refer to paragraph 2. [B. Electrostatic Discharge Sensitive \(ESDS\) Devices](#) for special ESDS and MOS handling precautions.
- (2) Perform repairs and replace components with power disconnected from equipment.
- (3) Use a conductive table top for repairs. Connect table to ground conductors of 60Hz and 400Hz power lines.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (4) Replace connectors, shield conductors, and twisted pairs ONLY with identical items.
- (5) Standard references to printed circuit boards in this manual include the following terms. "Component side" and "nearside" refer to the side components are located on. "Solder side" and "farside" refer to the side opposite component side. "Near-side" on surface mount boards with components on both sides is the side with J#### and P#### connector numbers.
- (6) When replacing parts, carefully observe lead dress and component orientation. Keep leads as short as possible and observe correct repair techniques.
- (7) Surface mount components require special soldering techniques. The soldering iron tip should not touch the ceramic component body. The iron should be applied only to the termination-solder fillet.
- (8) Observe cable routing within unit prior to disassembly, to enable proper routing of cables during reassembly.

B. Electrostatic Discharge Sensitive (ESDS) Devices

Devices sensitive to electrostatic discharge are used in this equipment. These devices, including metal oxide semiconductors, some metal film resistors, and other devices, are susceptible to damage by electrostatic charges and high-voltage fields. Because of the very high resistance in ESDS devices, they can be damaged by low current electrical sources that would not damage standard semiconductors. Special precautions must be taken during handling and repair procedures to prevent damage.

The human body is the most common low-energy source causing damage to ESDS devices. The body generates and retains static electricity, in conjunction with non-conductive garments and floor covering. An individual can easily develop several thousand volts of electrostatic charge while simply walking across the floor or moving around in a chair. Electrostatic charges of 20 kV can develop on personnel, and 35 kV on their garments.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

The capacitive elements in all MOS devices, and in linear integrated circuits, hybrids, and bipolar integrated circuits can be destroyed by a voltage field, even when installed in their circuits.

Not all electrostatic damage will result in immediate catastrophic failure. Damaged devices may operate within their minimum limits but can experience early field failure or erratic performance later.

The following precautions are recommended for ESDS circuits, and are especially important in low humidity, high static conditions.

CAUTION: ESDS DEVICES INCLUDE, BUT ARE NOT LIMITED TO, CMOS, J-MOS, PMOS, NMOS, SOCMOS, HMOS, MOS/FET, MICROWAVE MIXER DIODES, SOME BIPOLAR DEVICES, AND SOME METAL FILM RESISTORS.

MOST DAMAGE TO ESDS DEVICES RESULTS IN DEGRADED PERFORMANCE OR PREMATURE FAILURE, NOT IN CATASTROPHIC FAILURE AT THE TIME EXPERIENCED.

(1) Storage

Store and transport all ESDS devices in conductive material. Do not insert ESDS devices into conventional plastic trays used for storing and transporting standard semiconductor devices. Special bags or containers must have a maximum resistivity of 10^4 ohms/cm, or the leads of the device must be shorted together through a conductive material (special foam) having a maximum resistivity of 10^4 ohms/cm.

Modules, circuit boards, or assemblies containing ESDS devices must be stored in static shielding bags with a maximum resistivity of 10^4 ohms/cm in the outer layer of the bag, and 10^{12} ohms/cm resistivity in the inner layer.

A caution label shall be attached to the outside of all containers containing ESDS devices. The ESDS labels are identified in the advisory information located in the front of this manual. Do not remove device from container until actually used or tested.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

(2) Work Station

All equipment, tools, materials, and personnel at the work station must be maintained at the same electrical potential. All grounding connections shall have a common point, and that point shall be connected to electrical ground.

Soldering irons shall be isolated from the power line by transformer, or shall be direct current isolated. The soldering iron must be grounded and have a resistance of less than 0.2 ohm from the tip to ground when the iron is hot.

Test equipment shall have all exposed metallic surfaces electrically connected to the test equipment power system ground (through 200 ohms or less).

Do not use rubber mats, carpets, and rugs in the work station area. Use grounded conductive mats.

Do not allow nonconductive items on the workbench. This includes such items as plastic ash trays, cellophane wrappers, plastic tools, Styrofoam coffee cups, etc.

Maintain the relative humidity higher than 40 percent (minimum) in the work area.

Keep all material and work surfaces CLEAN in the work area. Wash with damp cloth when necessary.

Keep the work station static-safe. Periodically check the area with a static meter. When a dangerous reading is observed, remove the nonconductor or take precautions to prevent contact with ESDS devices.

(3) Personnel

When handling electrostatic discharge sensitive devices or assemblies, wear a skin-contact wrist strap connected to the work station common ground.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

WARNING: DO NOT CONNECT PERSONNEL DIRECTLY TO EARTH OR BUILDING GROUND. USE A COMMERCIAL GROUNDING STRAP WITH 1 MEGOHM IN THE CORD TO PROTECT PERSONNEL FROM ELECTRICAL SHOCK.

WARNING: DO NOT WEAR GROUND STRAP WHEN TROUBLESHOOTING OR TESTING HIGH VOLTAGE CIRCUITS WITH POWER APPLIED.

Do not wear smocks, gloves, finger cots, or sleeve protectors made of plastic, nylon, or rubber in the area where ESDS devices are handled.

When the operator is properly grounded, contact with the operator's hand will provide sufficient ground for hand tools or other tools that may be electrically isolated from ground.

(4) Special Troubleshooting Precautions

In addition to the above considerations, the following specific precautions should be observed when troubleshooting or repairing modules containing ESDS devices.

Do not use high velocity dry air for applying heat during troubleshooting. Special infrared heat devices should be used.

Do not use Freon spray during troubleshooting. To cool components, use antistatic quick-chill sprays.

Remember, even when the ESDS device is installed on a printed circuit board it can STILL be damaged by electrostatic discharge.

C. PC Board, Two-Lead Component Removal

- (1) Note orientation of part. Clip one lead close to component body and bend component off board.
- (2) Grasp component and heat its lead hole from component side of board. When solder flows, lift component from board and discard.
- (3) Grasp remaining lead, heat its lead hole and lift from board.

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (4) Melt solder in each hole. Use a desoldering suction tool to remove solder from each hole.
- (5) Dress and form leads of replacement part.
- (6) Insert replacement component observing correct orientation.
- (7) Solder component in place. Clip leads on solder side of board.

D. PC Board, Multi-Lead Component Removal

- (1) Note orientation of part.
- (2) Clip each lead of component, as close to component as possible. Discard component.
- (3) Heat each hole from solder side and remove clipped lead from hole.
- (4) Melt solder in each hole. Use a desoldering suction tool to remove solder from each hole.
- (5) Insert replacement component observing correct orientation.
- (6) Solder component in place on farside of board. Avoid solder runs. Clip leads on solder side of board.

E. Replacement of Power Transistors

- (1) Unsolder leads and remove attaching hardware. Remove transistor and hard-coat insulator.
- (2) Apply Thermal Joint Compound Type 120 (Wakefield Engineering, Inc.) to the mounting surface of the replacement transistor.
- (3) Reinstall the transistor insulator and the power transistor using hardware removed in step (1).
- (4) After installing the replacement transistor, but before making any electrical connections, measure the resistance between the case of the transistor and the chassis to ensure that the insulation is ef-

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

fective. The resistance measured should be greater than 10MW.

(5) Reconnect leads to transistor and solder in place.

F. Replacement of Printed Circuit Board Protective Coating

WARNING: CONFORMAL COATING CONTAINS TOXIC VAPORS! USE ONLY WITH ADEQUATE VENTILATION!

(1) Clean repaired area of printed circuit board per instructions in the [CLEANING](#) section (4000) of this manual.

(2) Apply Conformal Coating Humiseal #1B-31 HYSOL PC20-35M-01 (Humiseal Division, Columbia Chase Corp., 24-60 Brooklyn Queens Expressway West, Woodside, N.Y., 11377) Honeywell p/n 016-01040-0000.

(3) Shake container well before using.

(4) Spray or brush surfaces with smooth, even strokes: if spraying hold nozzle 10-15 inches from work surface.

(5) Cure time is ten minutes at room temperature.

G. Programmable Read Only Memory (PROM) Replacement

The read only memory packages are specially programmed devices to provide specific logic outputs required for the operation in the control unit. The manufacturer's part (type) number is for the unprogrammed device and cannot be used. The Honeywell part number must be used to obtain the correctly programmed device. Refer to the [ILLUSTRATED PARTS LIST](#).

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

ASSEMBLY

1. General

This section provides procedures for assembly of the unit and its subassemblies. Assembly procedures are to be followed after the unit has been disassembled for repair, cleaning, inspection, or modification by service bulletin.

WARNING: REMOVE ALL POWER FROM UNIT BEFORE ASSEMBLY OF ANY MODULE. VOLTAGE TRANSIENTS ARE DANGEROUS TO LIFE. VOLTAGE TRANSIENTS CAN DAMAGE THE EQUIPMENT.

CAUTION: EXERCISE EXTREME CARE WHEN DISCONNECTING AND RECONNECTING MULTIPLE PIN CONNECTORS. ENSURE THAT CONNECTORS ARE NOT DAMAGED BY MISALIGNMENT OF THE PINS.

2. Materials Required For Assembly

[Table 7001 Sealants and Staking Compounds](#) lists materials used in assembly of the unit.

NOTE: Equivalent substitutes may be used for listed sealants, staking compounds, and thermal compounds.

REPRESENTATIVE TYPE	QUANTITY USED
Loctite 242	Thin coat to threads of screws and retaining nuts.
Conformal Coating Humiseal #1B-31 HYSOL PC 20-35M-01	Thin coat on all components, not on connectors.
Adhesive-Sealant RTV 3145	Thin coat for adhesion.
Superbonder 414	Thin coat to threads of screws and retaining nuts.
Thermal Compound	Thin coat on power transistor insulator (both sides).
Nylon Cable Tie	As required to secure wiring.
Solder, 60% Tin 40% Lead	As required for connections.

Table 7001 Sealants and Staking Compounds

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

3. Recommended Reassembly Procedures

CAUTION: THIS EQUIPMENT CONTAINS ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICES. EQUIPMENT MODULES AND ESDS DEVICES MUST BE HANDLED IN ACCORDANCE WITH SPECIAL ESDS HANDLING PROCEDURES.

A. GPS Receiver Module Reinstallation

- (1) Reconnect the coaxial cable (155-02811-0000) to the GPS Receiver module.
- (2) Reconnect the interface cable (200-08923-0010).
- (3) Install four screws (089-05899-0003) to secure the GPS receiver to the main chassis.
- (4) Install cover (047-10727-0000) over receiver and cables.

B. Cathode-Ray Tube (CRT) Reassembly

- (1) Reinstall high voltage (H.V.) splice (if severed). H.V. splice is to be made using the ball solder technique. Area which is to be covered with shrink tubing must be cleaned with 111-tri-chloroethane or equivalent prior to shrinking. Handle cleaned areas with an appropriate contamination minimizing agents such as cotton gloves.
- (2) Reconnect cable (P4 155-02604-0001) to CRT.
- (3) Apply tape (012-01366-0000) around connector (P4 cable) and the front periphery of the display area of the CRT.
- (4) Slide CRT into CRT stop assembly (047-10694-0000) which is a permanent attachment to the chassis (200-05193-0001).
- (5) Install CRT cover (047-10693-0000) by placing over CRT and snapping into tabs in the chassis assembly (200-05193-0001).
- (6) Secure CRT in stop assembly by tightening the CRT stop (clamping) screw (FHP 4-40X3/16, a part of the CRT stop assembly).

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (7) Follow procedures detailed in paragraphs 3. E. [Main Module Reassembly](#), 3. F. [Unit Cover Replacement \(Bottom\)](#), and 3. G. [Data Base Cartridge Replacement](#) respectively.

C. Power Supply Module Reassembly

- (1) Reinstall cables (199-08983-0000 and 199-08984-0000).
- (2) Position power supply module (200-08569-0001 or 200-08982-0000) in its proper location on the side of the chassis assembly (200-05193-0000) and secure with two screws (089-06008-0003).
- (3) Place hinged tabs of power supply cover (047-09889-0000) and attached insulator (012-01546-0000) in their proper slots in the chassis. Press on the other side of the cover until the tabs on the side opposite the hinged tabs snap into their proper slots.
- (4) Follow procedures detailed in paragraphs 3. E. [Main Module Reassembly](#), 3. F. [Unit Cover Replacement \(Bottom\)](#), and 3. G. [Data Base Cartridge Replacement](#) respectively.

D. Front Panel Reassembly

- (1) Mate the bezel (073-00917-00XX) with the front panel module (200-08457-000X).

NOTE: The function buttons (088-02419-005X) are held in place by the mating of the bezel and front panel module. Ensure that these components are installed in their proper locations.

- (2) Reinstall seven screws (089-06119-0004) along the top and bottom areas of the switch module assembly.
- (3) Replace the two inner knobs (088-03140-0001).
- (4) Replace the brightness adjust knob (073-00865-0002). Tighten the set screws contained in the knob to secure.
- (5) Press on knobs (088-03141-0001 and 088-03141-0002).
- (6) Reinstall cable (P6, 155-02781-0000).

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

- (7) Reinstall cable (P15, 155-02783-0000).
- (8) Reinstall the front panel assembly in its proper location.
- (9) Reinstall four screws, two per side, (089-06457-0003 gray or 089-05111-0003 black) from the left and right sides of the front panel assembly (200-05195-000X).
- (10) Follow procedures detailed in paragraphs 3. [E. Main Module Reassembly](#), 3. [F. Unit Cover Replacement \(Bottom\)](#), and 3. [G. Data Base Cartridge Replacement](#) respectively.

E. Main Module Reassembly

- (1) Reinstall cables (155-02781-0000, 155-02783-0000, 199-08983-0000, and 199-08984-0000).
- (2) Place the main module (200-08924-0000 or 200-08459-0002) in its proper position and install two screws (089-06008-0003), one from each side of J901 (030-02350-0064).
- (3) Follow procedures detailed in paragraphs 3. [F. Unit Cover Replacement \(Bottom\)](#) and 3. [G. Data Base Cartridge Replacement](#) respectively.

F. Unit Cover Replacement (Bottom)

- (1) Reinstall unit cover (047-09992-0001) and its attached insulator (012-01236-0000) in their proper locations in the chassis (200-05193-0000).
- (2) Reinstall one screw (089-06008-0003), located at the center of the back lower edge of the chassis, and one screw (089-06008-0016) in the bottom unit cover.
- (3) Reinstall six screws (089-06008-0003), three from each side, from both the right and left lower sides of the unit.
- (4) This completes the bottom unit cover installation.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

G. Data Base Cartridge Replacement

- (1) Install data base cartridge (071-01523-030X) in the back of the unit.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

This section contains information on special tools, fixtures, and test equipment used to test, troubleshoot, and repair the unit.

2. Equipment Required For Test

[Table 9001 Test Equipment Required](#) is a listing of the test equipment required to perform the testing and troubleshooting procedures described in this manual. Equipment other than that listed in [Table 9001 Test Equipment Required](#) under "Representative Type" can be substituted if the characteristics fulfill those listed under "Characteristics Required."

ITEM	DESCRIPTION	COMMON NAME	CHARACTERISTICS REQUIRED	REPRESENTATIVE TYPE
1	Digital Multimeter	dvm	Equivalent to Fluke 8010.	Fluke model 8010
2	Oscilloscope	oscilloscope or scope	Equivalent to Tektronics 2215	Tektronics 2215
3	GPS Signal Generator	GPS simulator	Equivalent to WeInavigate GS-100	WeInavigate GS-100
4	Memory Offloader	memory offloader	See 006-15519-0000 KCA 167A Component Maintenance Manual	AlliedSignal KCA 167A
5	KTS 143 Test Fixture	test fixture	Equivalent to KTS 143 or AlliedSignal KI 229	AlliedSignal KTS 143
6	Test Harness	test harness	N.A.	Fabricate per Figure 9002 KLN 90B Test Harness
7	GPS Antenna	GPS antenna	Equivalent to KA 91	AlliedSignal KA 91 071-01545-0X00
8	OBS Resolver Test Set		See Service Memo 105	AlliedSignal 050-01571-0001

Table 9001 Test Equipment Required

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

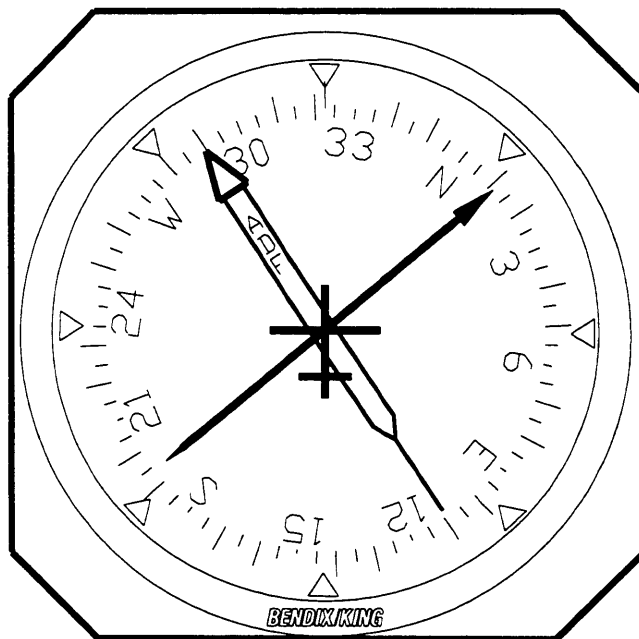


Figure 9001 KI 229 Magnetic Indicator

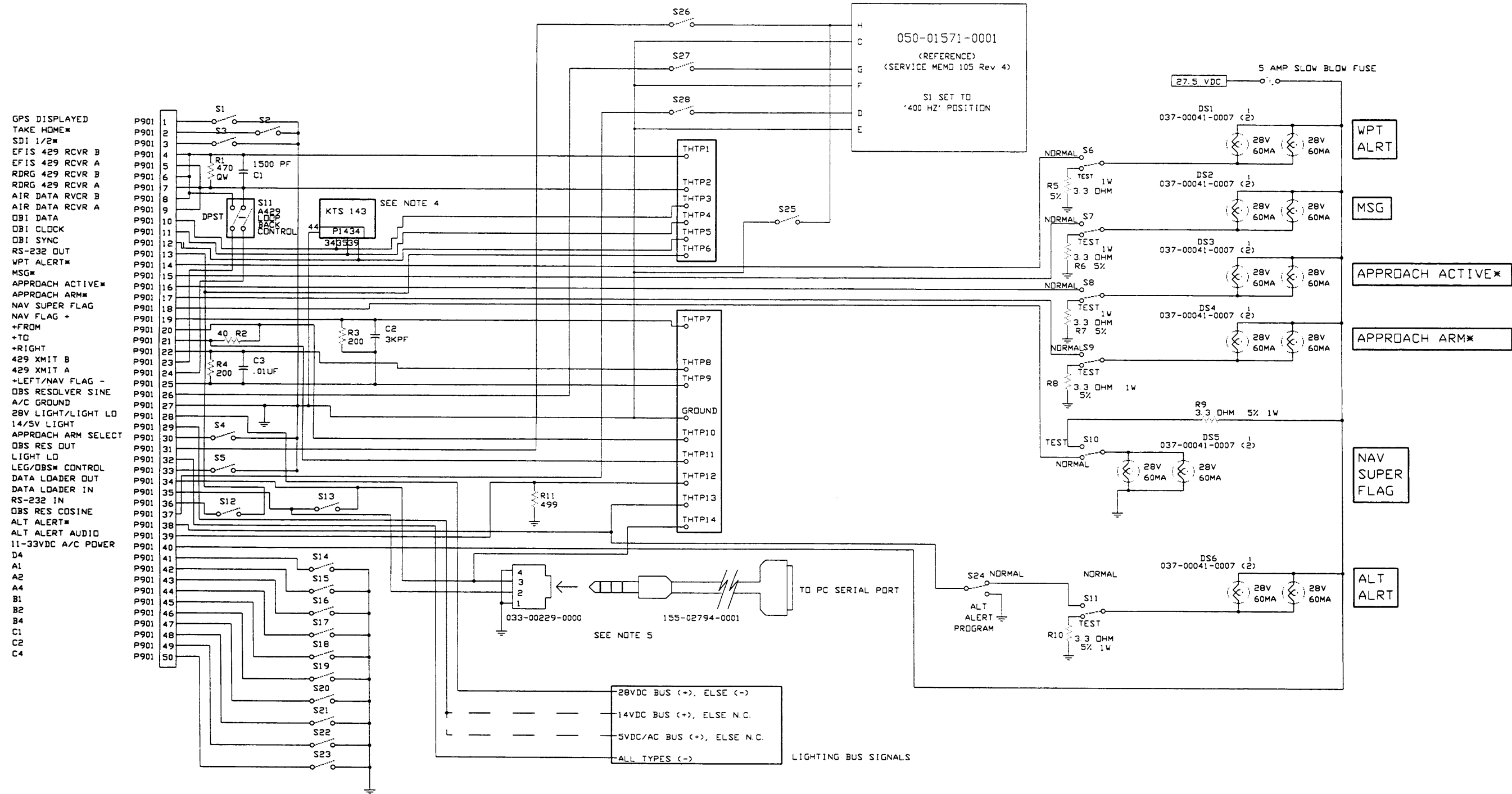
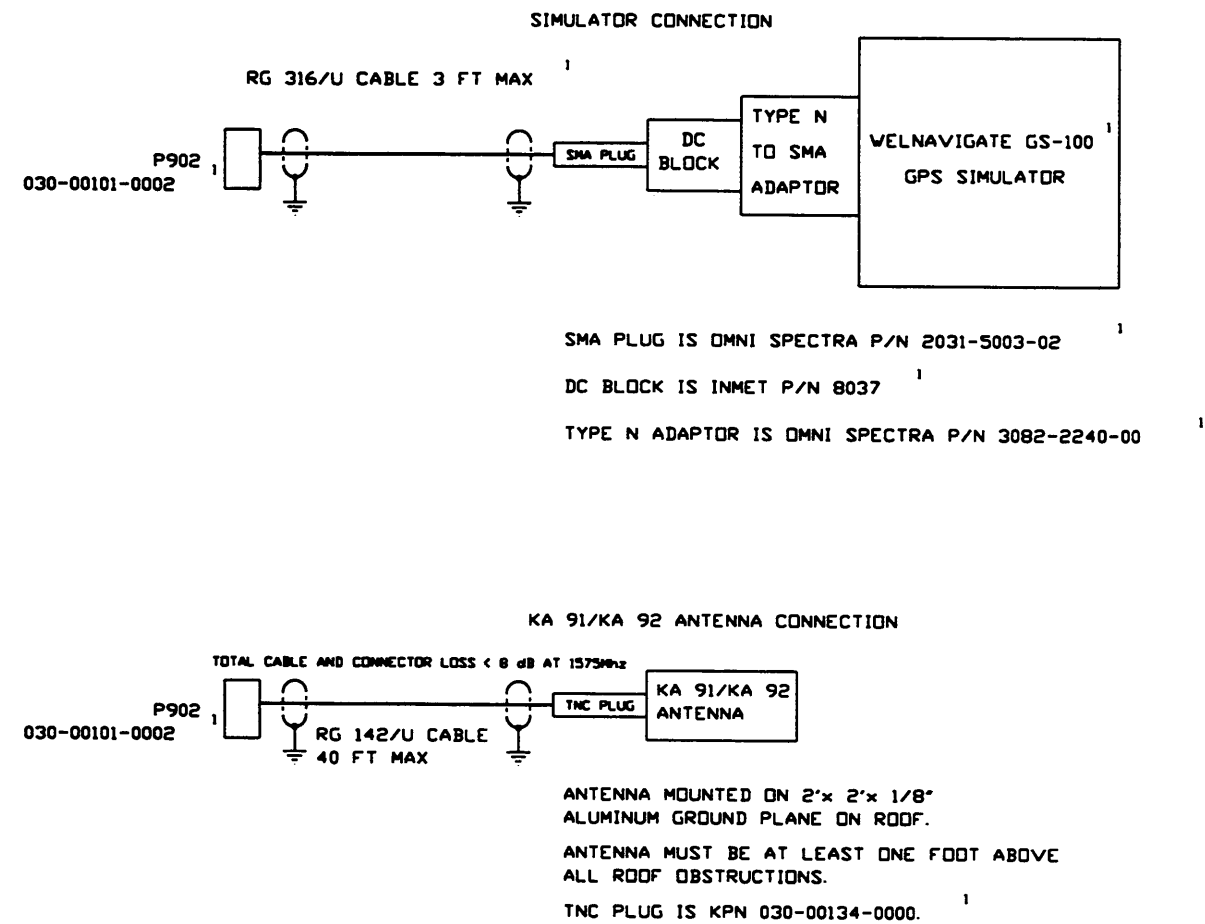


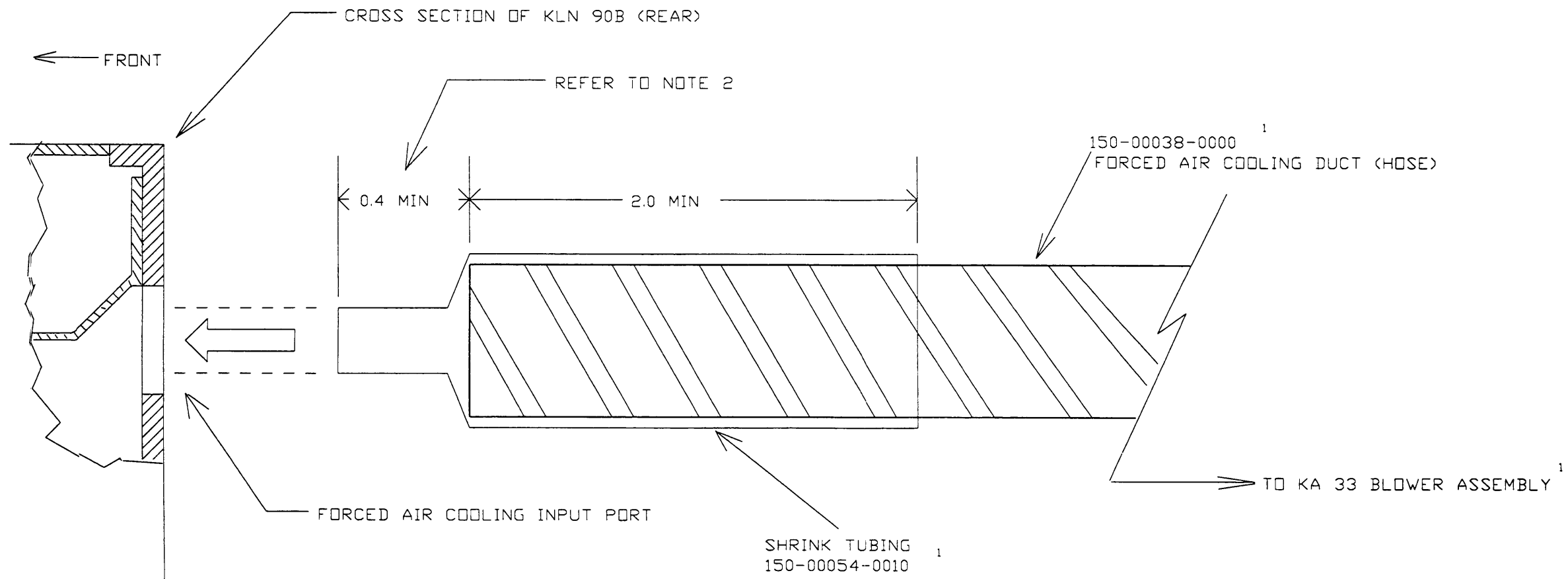
Figure 9002 KLN 90B Test Harness
(Sheet 1 of 3)



NOTES:

- 1) EQUIVALENT ITEM MAY BE SUBSTITUTED.
- 2) ALL RESISTOR TOLERANCES 1%, UNLESS OTHERWISE NOTED.
ALL CAPACITOR TOLERANCES 5%, UNLESS OTHERWISE NOTED.
- 3) ALL RESISTOR POWER RATINGS ARE 1/8 WATT, UNLESS OTHERWISE NOTED.
- 4) KI 229 MAY ALSO BE USED TO VERIFY PROPER OPERATION OF OBI OUTPUTS.
- 5) PART OF 050-03213-0000.

Figure 9002 KLN 90B Test Harness
(Sheet 2 of 3)



NOTES:

- 1) EQUIVALENT ITEM MAY BE SUBSTITUTED.
 - 2) COLLAPSE TUBING BY HEAT SHRINKING, ALL THE WAY AROUND, UNTIL SPECIFIED RECOVERED (HEAT SHRUNK) DIAMETER HAS BEEN OBTAINED.
- THIS OPERATION RESULTS IN THE FORMATION OF A "NOZZLE" THAT CAN BE INSERTED IN THE FORCED AIR INPUT PORT LOCATED ON THE REAR OF THE KLN 90B.

WARNING:

NEVER OPERATE THE KLN 90B WITHOUT FORCED AIR COOLING UNLESS THE UNIT HAS THE BOTTOM COVER REMOVED AND THE MAIN BOARD HINGED OPEN TO ALLOW AMPLE CONVECTION COOLING OF INTERNAL CIRCUITRY. EVEN IN THIS CONFIGURATION, EXTENDED PERIODS OF OPERATION WITHOUT FORCED AIR ARE NOT RECOMMENDED.

Figure 9002 KLN 90B Test Harness
(Sheet 3 of 3)

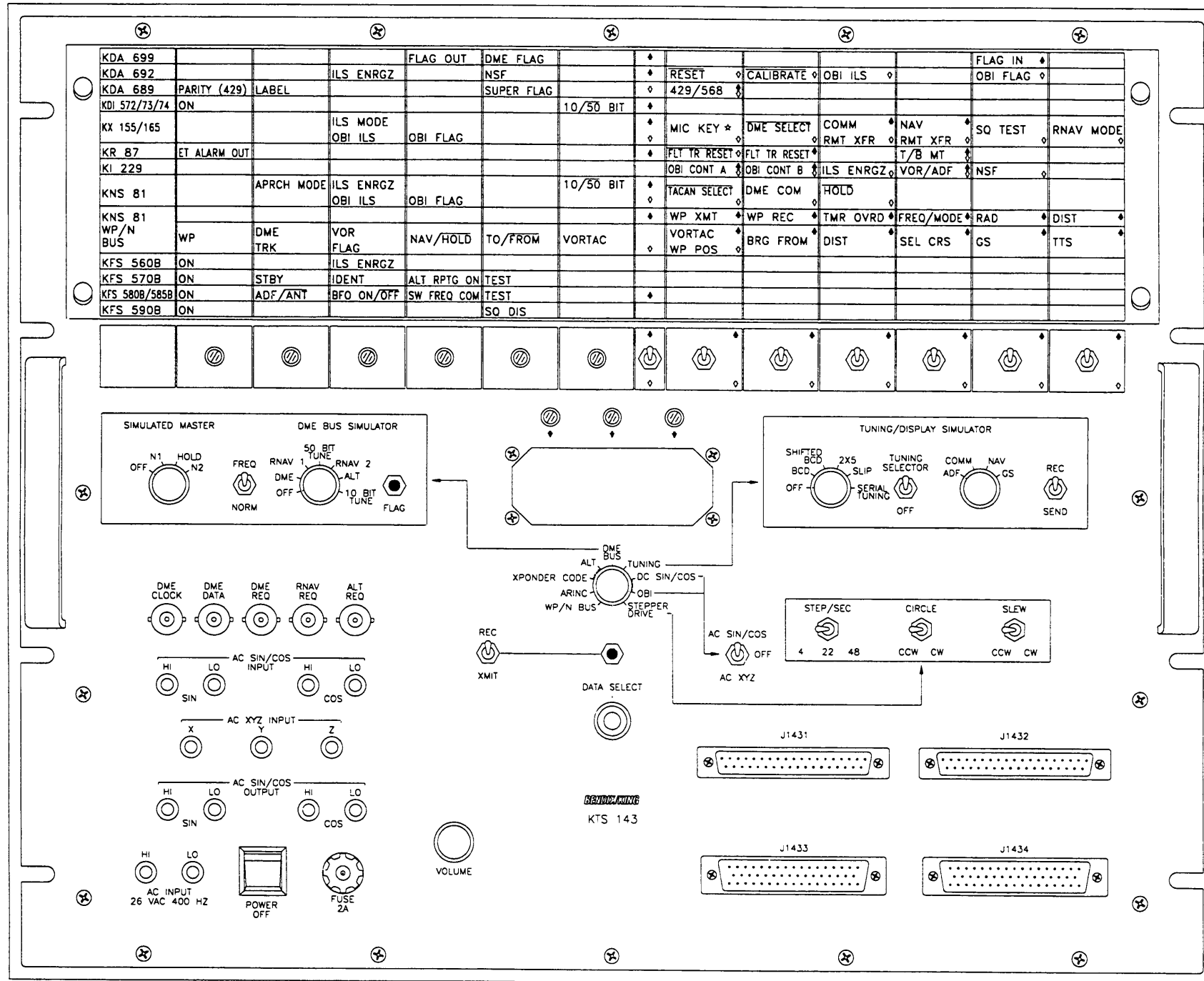


Figure 9003 KLN 90B Test Fixture

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

ILLUSTRATED PARTS LIST

1. General

This section contains the illustrated parts list (IPL) for the latest available unit end items and their sub-assemblies (CCAs/boards). The IPL provides for the proper identification of replacement parts. An assembly drawing is provided for the top (end item) assembly and each sub-assembly and is categorized by figure numbers. A parts list follows each assembly/sub-assembly drawing. Refer to the [SCHEMATIC DIAGRAMS](#) section and service bulletin list for historical changes to the units and their sub-assemblies.

Parts identified in this IPL by Honeywell part number meet design specifications for this equipment and are the recommended replacement parts. For warranty information concerning Honeywell replacement parts, consult the www.bendixking.com website.

Weights and measurements in the manual are in English units, unless otherwise stated.

Some part numbers may not be currently available. Consult the current Honeywell catalog or contact a Honeywell representative for equipment availability.

2. Revision Service

The manual will be revised as necessary to reflect current information.

3. List of Abbreviations

Abbreviation	Name
B	Motor or Synchro
C	Capacitor
CJ	Circuit Jumper
CR	Diode
DS	Lamp
E	Voltage or Signal Connect Point
F	Fuse
FL	Filter
FT	Feedthru
I	Integrated Circuit

Table 10001 Abbreviations

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

Abbreviation	Name
J	Jack or Fixed Connector
L	Inductor
M	Meter
P	Plug
Q	Transistor
R	Resistor
RT	Thermistor
S	Switch
T	Transformer
TP	Test Point
U	Component Network, Integrated Circuit, Circuit Assembly
V	Photocell/Vacuum Tube
W, WG	Waveguide
Y	Crystal

Table 10001 Abbreviations

4. Typical Parts List

Refer to [Figure 10001 Typical Parts List](#) for a typical parts list which accompanies each assembly drawing.

NOTE: The typical parts list is only a sample. The actual format and style may vary slightly. A 'Find Number' column, when shown, references selected items on the BOM's accompanying assembly drawing. This information does not apply to every BOM. Therefore, a lack of information in this column, or a lack of this column, should not be interpreted as an omission.

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

BOM NUMBER/DESCRIPTION/REVISION

DESCRIPTION

ASSEMBLY VERSION

FINAL ASSEMBLY 071-01578-0000 REV AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	Q000
C2001	106-04224-0047		CAP CHIP .22UF X7R	EA	1.00
C2002	106-04224-0047		CAP CHIP .22UF X7R	EA	1.00
C2003	106-04224-0047		CAP CHIP .22UF X7R	EA	1.00
R2038	139-03241-0000		RES CH 3.24K EW 1%	EA	1.00
R2039	139-02430-0000		RES CH 243 EW 1%	EA	1.00
R2040	139-00750-0000		RES CH 75.0 EW 1%	EA	1.00
TP2001	008-00309-0000		TEST POINT SURF MN	EA	1.00
TP2002	008-00309-0000		TEST POINT SURF MN	EA	1.00
U2005	12051354-0001		PP-IC,UPD482234G5-	EA	1.00
U2006	12051354-0001		PP-IC,UPD482234G5-	EA	1.00
U2021	12061010-0001		SI-IC,MEMORY CNTLR	EA	1.00
U2022	12061014-0001		SI-IC,DSP.CONTROLL	EA	1.00
Y2001	04416054-0015		XTAL OSC,36.000MHZ	EA	1.00
Y2002	04416054-0014		XTAL OSC,20.000MHZ	EA	1.00
	002-09229-0000		GP BOARD	RF	.00
	009-09229-0000	1	GP BOARD	EA	1.00
	01243055-0001	2	INSULATOR,THERMAL	EA	3.00
	01250068-0001	3	SPACER, HEADER	EA	6.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	016-01442-0000	4	E-6000 CLEAR SEALA	AR	1.00
	192-09229-0000		GP BOARD	RF	.00
	300-09229-0000		GP BOARD, FPD500	RF	.00
	34050-0084	6	SPACER,THD'D	EA	2.00
	46086-0007	5	SCREW,CAPTIVE,4-40	EA	3.00

REFERENCE DESIGNATOR

PART NUMBER

UNIT OF MEASURE

QUANTITY

FIND NUMBER

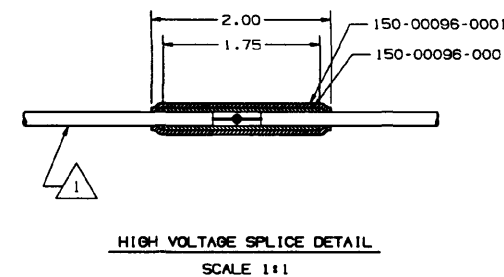
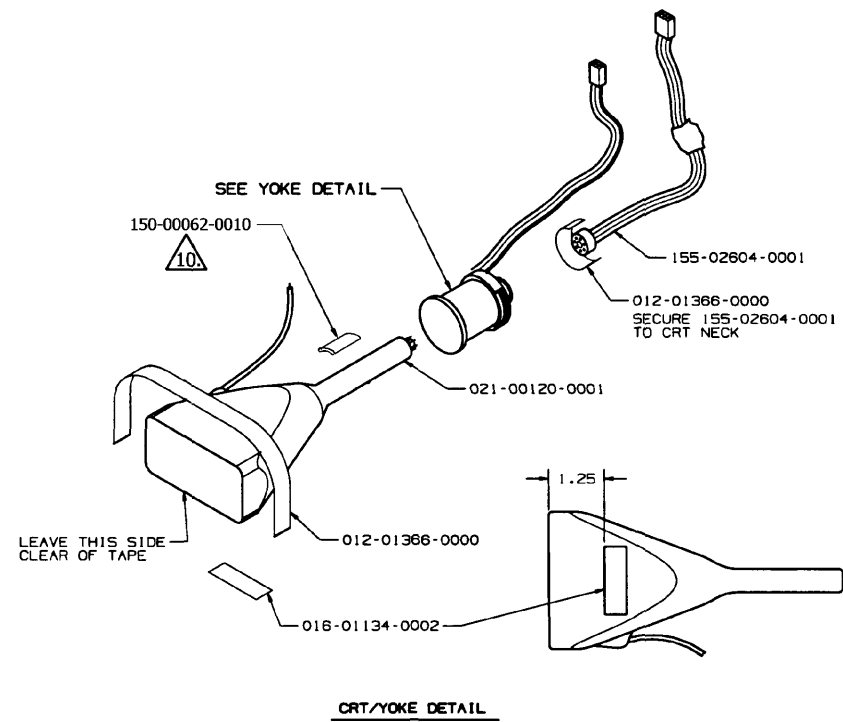
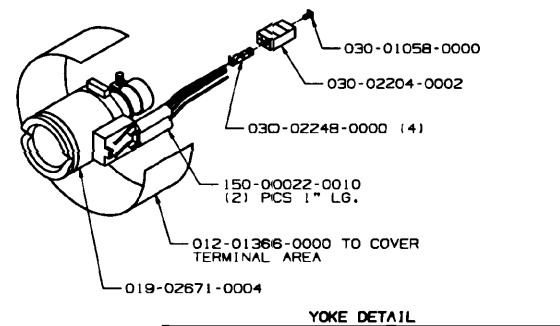
Figure 10001 Typical Parts List

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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YOKE WIRE CHART				
FROM YOKE PIN ON KPN:				TO CONNECTOR
WIRE P/N	TERM #	COLOR	WIRE LGTH	PIN NUMBER:
025-00029-0000	E1	BLK	10.0	J1003-P1
				P2 - N/C
				P3 - KEY
025-00029-0004	E2	YEL	10.0	P4
025-00029-0006	E3	BLU	10.0	P5
025-00029-0002	E4	RED	10.0	P6



NOTES:

1. HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. PRIOR TO SHRINKING AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED SUFFICIENTLY TO ENSURE PROPER ADHESION OF SHRINK TUBING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
2. DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10693-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00030-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
3. FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
4. YOKE COVER (047-10693-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
5. STAKE THREADS OF SCREWS PER 001-01080-0000.
6. P3, P4, P6, P9, P11 AND P15 MATE TO CORRESPONDING JACKS ON 205-00835-XXXX.
7. CLAMP OR PRESS DOWN FIRMLY T1001, WHILE SOLDERING TO PC BOARD.
8. PLACE HEAT SHRINK TUBE (150-00096-0001) COMPLETELY OVER BULB DS1 SO THAT HEAT SHRINK RESTS ON BOARD. SEAL END OF HEAT SHRINK BY PINCHING CLOSED IMMEDIATELY AFTER SHRINKING WHILE MATERIAL IS STILL SOFT.
9. INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
10. INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).
11. PLACEMENT OF SERIAL TAG 057-06044-000X TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
SERIAL TAG/TSO LABEL 057-06044-XXXX AND 057-02203-XXXX SHALL ACCOMPANY EACH UNIT UNTIL IT IS APPLIED. ONLY THE PRODUCTION APPROVAL HOLDER (HONEYWELL) IS AUTHORIZED TO APPLY THE TSO LABEL. THE LABEL SHALL BE APPLIED APPROXIMATELY AS SHOWN AND SHALL NOT COVER ANY EXISTING MARKING OR LABELING.
12. FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
13. SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

REF B/M 066-04031-1XXX

Figure 10002 KLN 90B Final Assembly
(300-05194-0001 R-AL, Sheet 1 of 2)

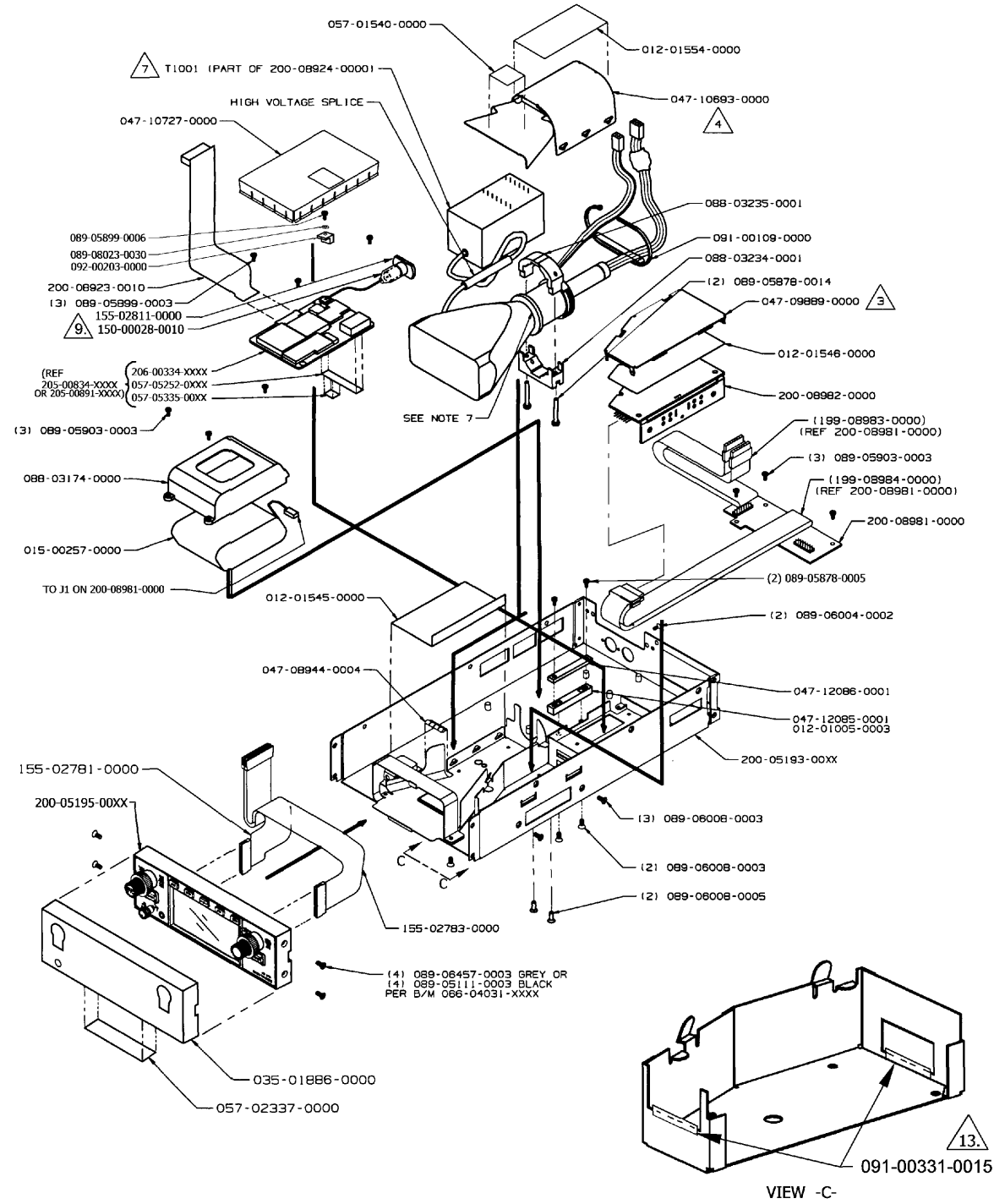
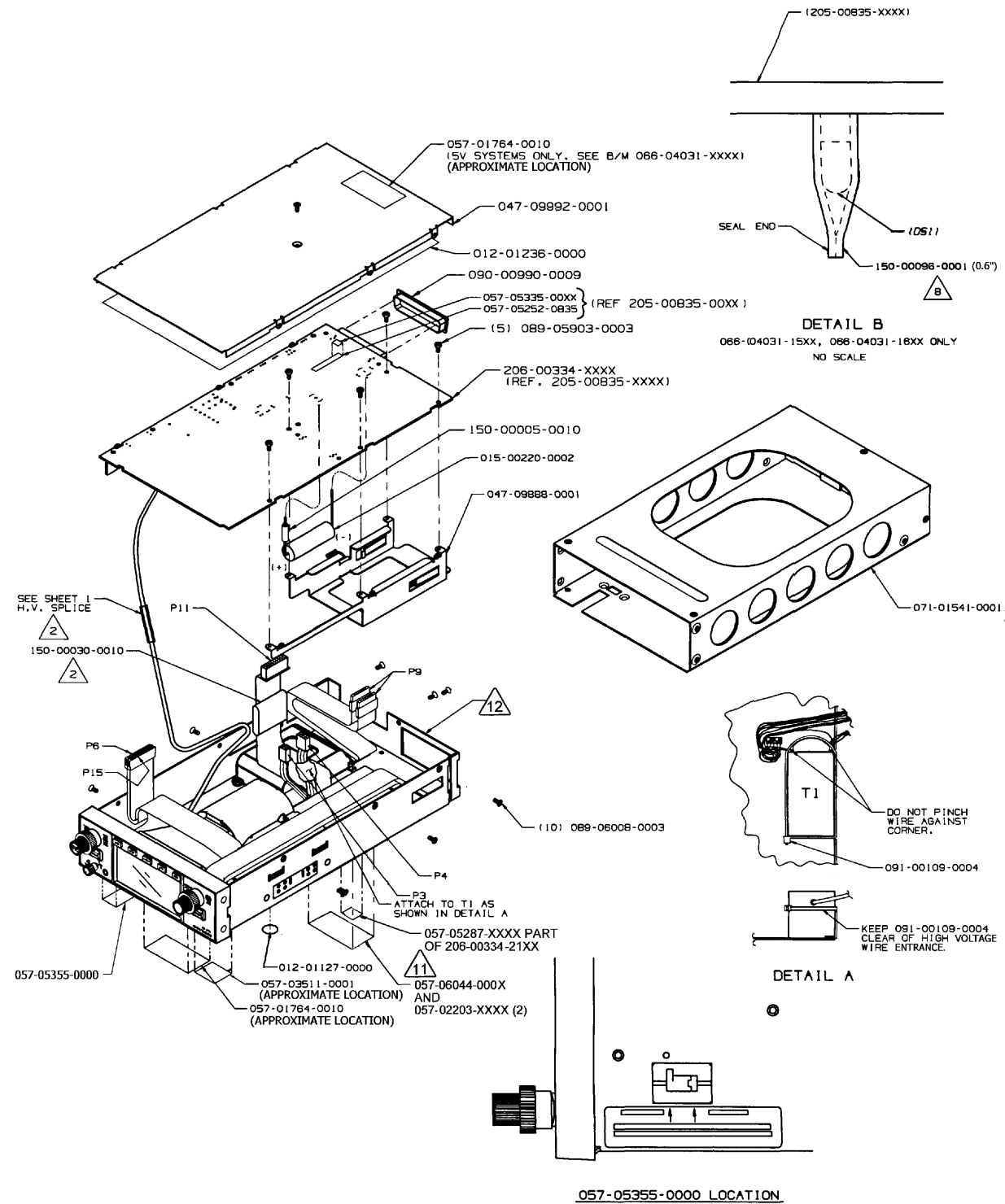
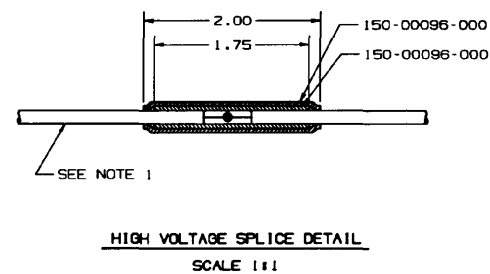
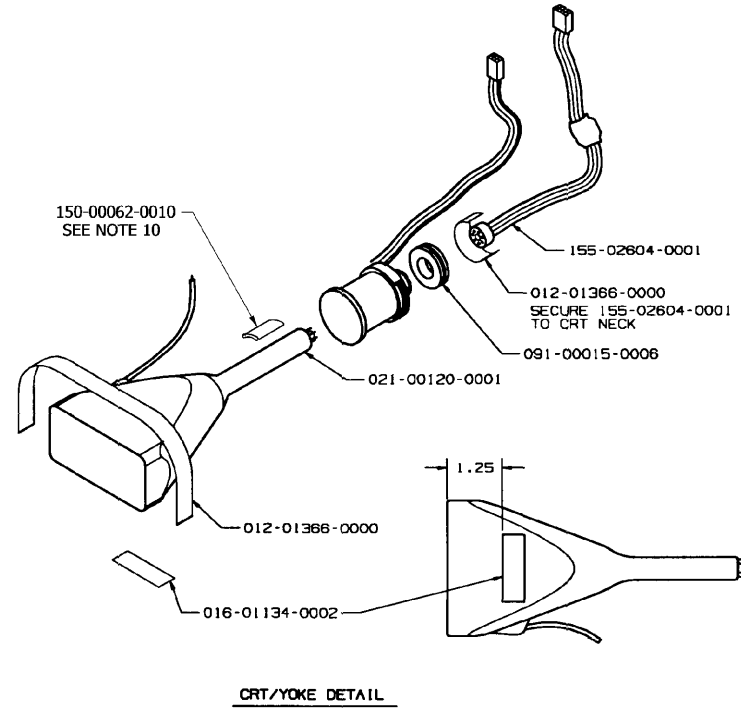
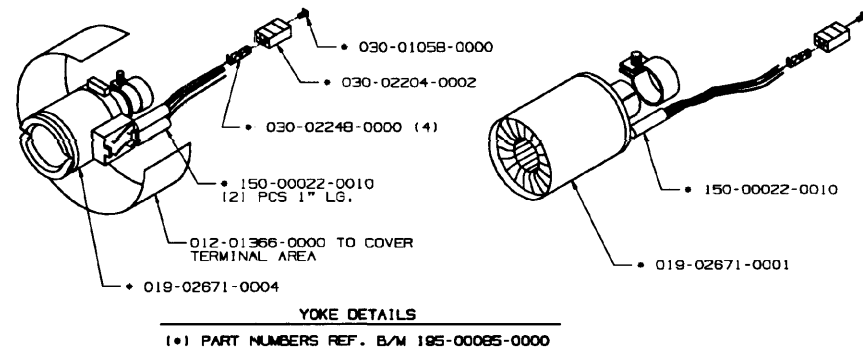


Figure 10002 KLN 90B Final Assembly
(300-05194-0001 R-AL, Sheet 2 of 2)



YOKE WIRE CHART				
FROM YOKE P1N ON KPN:				TO CONNECTOR P1N NUMBER:
019-02671-0001	019-02671-0004			
TERM #	COLOR	WIRE LGTH		
BLK	E1	9.5	J1003-P1	
			P2 - N/C	
			P3 - KEY	
YEL	E2	9.5	P4	
BLU	E3	9.5	P5	
RED	E4	9.5	P6	



- NOTES:
- HIGH VOLTAGE SPLICE TO BE MADE USING BALL SOLDER TECHNIQUE. AREA TO BE COVERED WITH SHRINK TUBING MUST BE CLEANED WITH 111-TRICHLOROTHANE OR EQUIVALENT PRIOR TO SHRINKING. HANDLE CLEANED AREAS WITH APPROPRIATE CONTAMINATION MINIMIZING PRODUCT (SUCH AS COTTON GLOVES).
 - DRESS HIGH VOLTAGE LEAD BY GUIDING BETWEEN YOKE COVER (047-10693-0000) AND HIGH VOLTAGE TRANSFORMER WHILE CLOSING MAIN BOARD INTO CHASSIS. USE 150-00032-0010 TUBE TO GUIDE INTO PLACE -DO NOT SHRINK-
 - FINGERS OF P/S SHIELD COVER (047-09889-0000) PROTRUDE THRU SLOTS IN SIDE OF (200-05193-0001) AND SNAPS DOWN OVER CLIPS ON P/S SHIELD (047-09890-0000)
 - YOKE COVER (047-10693-0000) SNAPS INTO MATING YOKE SHIELD BASE IN (200-05193-0001).
 - APPLY (016-01411-0000) LOCTITE 220 OR EQUIVALENT TO SCREW THREADS AS REQUIRED.
 - P3, P4, P8, P9 AND P15 MATE TO CORRESPONDING JACKS ON 205-00677-00XX
 - NOTE DELETED
 - PART NUMBERS SHOWN IN BOLD TEXT ARE PARTS THAT ARE IN 050-03305-000X CONVERSION KIT.
 - INSTALL HEAT SHRINK TUBING (150-00028-0010) ON REAR OF COAXIAL CONNECTOR (155-02811-0000) AS SHOWN.
 - INSTALLATION OF 150-00062-0010 IS USED AS A SHIM AND AS REQUIRED BY TEST. LOCATION, LENGTH AND QUANTITY WILL VARY BY UNIT. AFTER INSTALLATION, SECURE TUBING, YOKE AND CRT WITH RTV (016-01082-0000).

- PLACEMENT OF SERIAL TAG 057-06044-0001 TO BE LOCATED ON NON REMOVEABLE FRONT CENTER OF CHASSIS SUCH THAT TAG IS VISIBLE AFTER RACK IS INSTALLED.
 CAUTION: DO NOT COVER ANY SCREW HEADS. ADD 2 FLAVOR STICKERS 057-02203-XXXX PER BILL OF MATERIAL. ASSURE NUMBER SEQUENCE MATCH UNIT FLAVOR.
 SERIAL TAG/TSO LABEL 057-06044-XXXX AND 057-02203-XXXX SHALL ACCOMPANY EACH UNIT UNTIL IT IS APPLIED. ONLY THE PRODUCTION APPROVAL HOLDER (HONEYWELL) IS AUTHORIZED TO APPLY THE TSO LABEL. THE LABEL SHALL BE APPLIED APPROXIMATELY AS SHOWN AND SHALL NOT COVER ANY EXISTING MARKING OR LABELING.
- FOR UNITS S/N BELOW 40000 S/T, FLAVOR STICKERS AND S/W MOD TAG ARE ATTACHED TO REAR OF UNIT.
- SECURE GROMMET (091-00331-0015) ONTO CHASSIS USING ADHESIVE (016-01139-0000) AS REQUIRED.

REF B/M 066-04031-2XXX

Figure 10003 KLN 90B Final Assembly Upgrade
 (300-05194-0002 R-AG, Sheet 1 of 2)

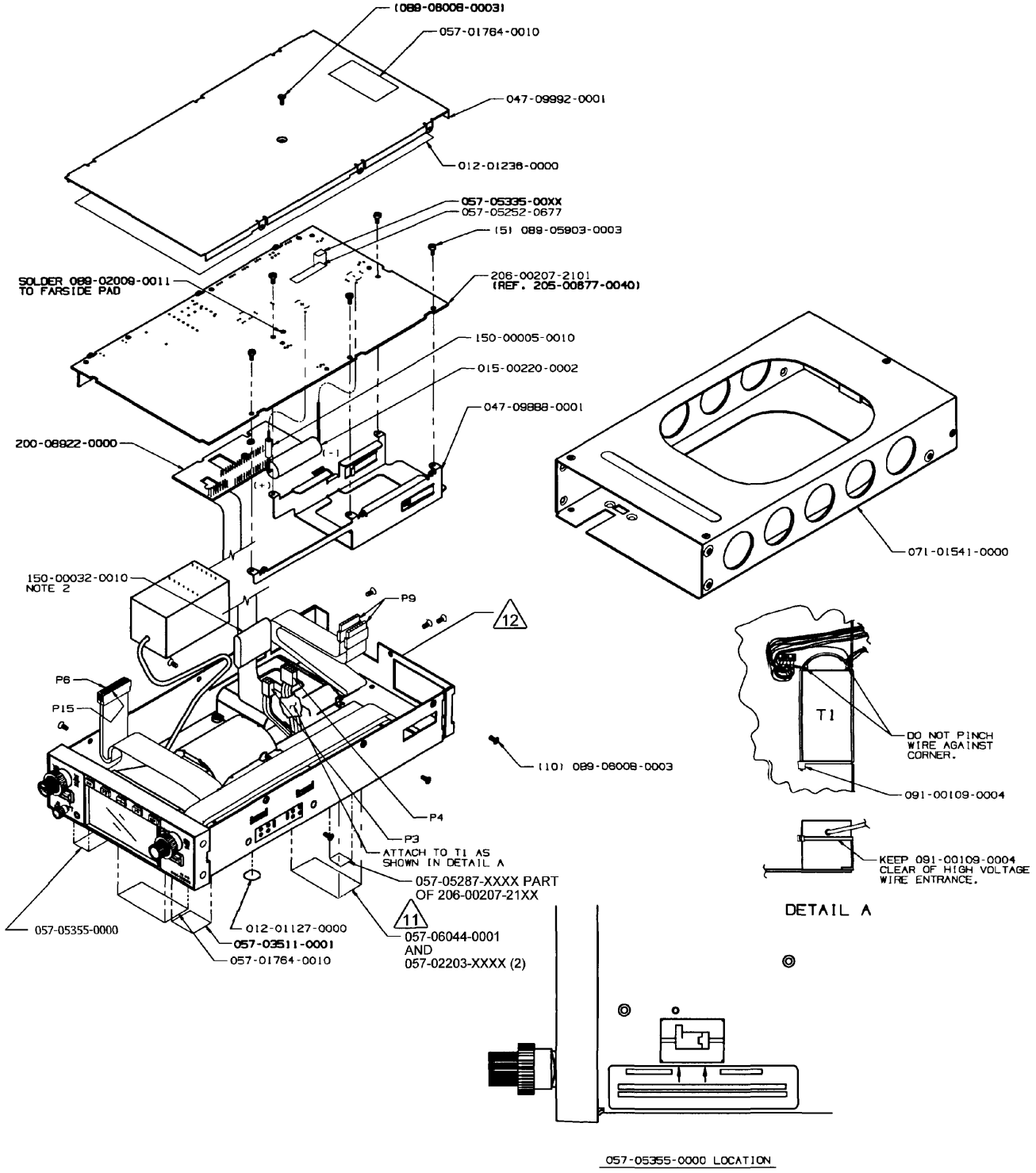
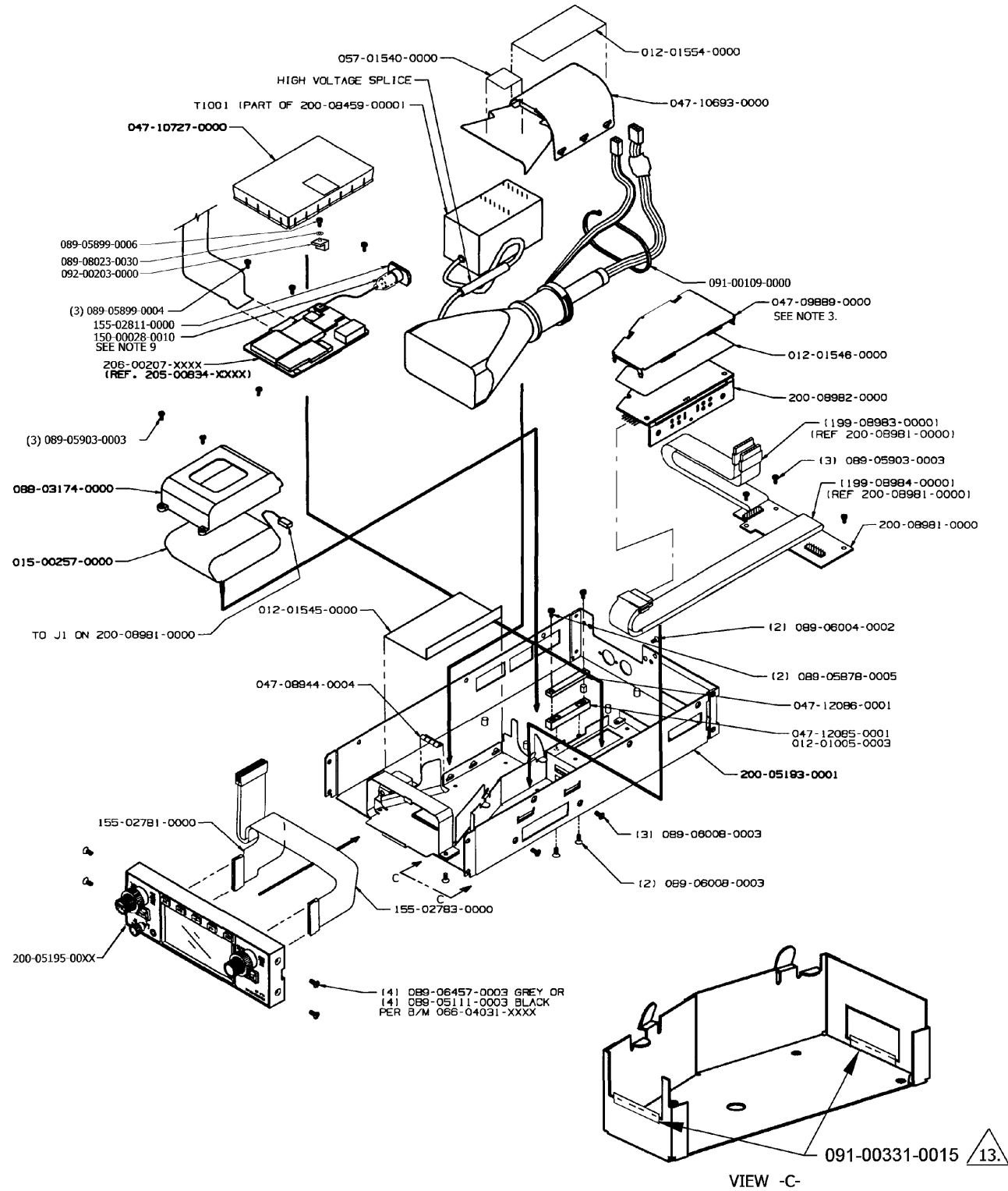


Figure 10003 KLN 90B Final Assembly Upgrade (300-05194-0002 R-AG, Sheet 2 of 2)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-1121	KLN90B 14V BLK	AF
066-04031-1122	KLN 90B BRNV 14V BLK	AG

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1121	-1122
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00	.
	000-00821-2111		PRODUCT STRUCTURE KLN 90B	RF	.00	.
	000-00821-2203		PRODUCT STRUCTURE KLN90B	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	057-02203-0011		FLAVOR STICKER	EA	1.00	.
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-03186-1122		FLAVOR TAG	EA	.	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0020		FRT PNL 14/28V BLK	EA	1.00	1.00
	206-00334-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00334-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00
	300-05194-0001		KLN 90B FINAL ASSY	RF	.	.00

PN	DESCRIPTION	REV
066-04031-1124	KLN 90B 743 14V BLK	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1124
	000-00821-2401		PRODUCT STRUCTURE. KLN 90B	RF	.00
	004-02017-4000		KLN 90B MPS	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	057-02203-0011		FLAVOR STICKER	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0020		FRT PNL 14/28V BLK	EA	1.00
	206-00334-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00
	300-05194-0001		KLN 90B FINAL ASSY	RF	.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-1221	KLN90B 5V BLK	AG
066-04031-1222	KLN 90B BRNV 5V BLK	AG

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1221	-1222
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00	.00
	000-00821-2111		PRODUCT STRUCTURE KLN 90B	RF	.00	.
	000-00821-2203		PRODUCT STRUCTURE KLN90B	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	057-01764-0010		TAG WARNING 2X	EA	2.00	2.00
	057-02203-0012		FLAVOR STCKR	EA	1.00	.
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-03186-1222		FLAVOR TAG	EA	.	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNCS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0021		FRT BLK 5V	EA	1.00	1.00
	206-00334-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00334-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-1224	KLN 90B 743 5V BLK	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1224
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00
	000-00821-2401		PRODUCT STRUCTURE. KLN 90B	RF	.00
	004-02017-4000		KLN 90B MPS	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	057-01764-0010		TAG WARNING 2X	EA	2.00
	057-02203-0012		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0021		FRT BLK 5V	EA	1.00
	206-00334-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-1321	KLN90B 14V GRY	AF
066-04031-1322	KLN 90B BRNV 14V GRY	AG

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1321	-1322
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00	.00
	000-00821-2111		PRODUCT STRUCTURE KLN 90B	RF	.00	.
	000-00821-2203		PRODUCT STRUCTURE KLN90B	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	057-02203-0013		FLAVOR STCKR	EA	1.00	.
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-03186-1322		FLAVOR TAG	EA	.	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0022		FRT GRY 14/28V	EA	1.00	1.00
	206-00334-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00334-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-1324	KLN 90B 743 14V GRY	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1324
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00
	000-00821-2401		PRODUCT STRUCTURE. KLN 90B	RF	.00
	004-02017-4000		KLN 90B MPS	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	057-02203-0013		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0022		FRT GRY 14/28V	EA	1.00
	206-00334-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-1421	KLN90B 5V GRY	AG
066-04031-1422	KLN 90B BRNV 5V GRY	AG

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1421	-1422
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00	.00
	000-00821-2203		PRODUCT STRUCTURE KLN90B	RF	.00	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	057-01764-0010		TAG WARNING 2X	EA	2.00	2.00
	057-02203-0014		FLAVOR STCKR	EA	1.00	.
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-03186-1422		FLAVOR TAG	EA	.	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0023		FRT GRY 5V	EA	1.00	1.00
	206-00334-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00334-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-1424	KLN 90B 743 5V GRY	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-1424
REF1	300-05194-0001		KLN 90B FINAL ASSY	RF	.00
	000-00821-2401		PRODUCT STRUCTURE. KLN 90B	RF	.00
	004-02017-4000		KLN 90B MPS	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	057-01764-0010		TAG WARNING 2X	EA	2.00
	057-02203-0014		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0023		FRT GRY 5V	EA	1.00
	206-00334-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-2121	KLN90B UPGR 14V BK	AF
066-04031-2122	KLN 90B BRNV 14V BLK	AE

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2121	-2122
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00	.00
	000-00939-2111		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00	.
	000-00939-2203		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.
	016-01082-0000		DC RTV 3145	AR	1.00	1.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00	5.00
	057-02203-0021		FLAVOR STCKR	EA	2.00	1.00
	057-02203-0022		FLAVOR STCKR	EA	.	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0020		FRT PNL 14/28V BLK	EA	1.00	1.00
	206-00207-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00207-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-2124	KLN 90B 743 14V BLK	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2124
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00
	000-00939-2401		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	016-01082-0000		DC RTV 3145	AR	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00
	057-02203-0021		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0020		FRT PNL 14/28V BLK	EA	1.00
	206-00207-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-2221	KLN90B UPGR 5V BLK	AF
066-04031-2222	KLN 90B BRNV 5V BLK	AE

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2221	-2222
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00	.00
	000-00939-2111		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00	.
	000-00939-2203		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.
	016-01082-0000		DC RTV 3145	AR	1.00	1.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00	5.00
	057-01764-0010		TAG WARNING 2X	EA	2.00	2.00
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-02203-0022		FLAVOR STCKR	EA	1.00	2.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0021		FRT BLK 5V	EA	1.00	1.00
	206-00207-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00207-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-2224	KLN 90B 743 5V BLK	A

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2224
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00
	000-00939-2401		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	016-01082-0000		DC RTV 3145	AR	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00
	057-01764-0010		TAG WARNING 2X	EA	2.00
	057-02203-0022		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-06044-0001		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-05111-0003		SCR. MACH. 4-40. FH 82. PH. SS. BLK OXD. 3/16 LG	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0021		FRT BLK 5V	EA	1.00
	206-00207-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-2321	KLN90B UPGR 14V GY	AF
066-04031-2322	KLN 90B BRNV 14V GRY	AE

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2321	-2322
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00	.00
	000-00939-2111		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00	.
	000-00939-2203		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.
	016-01082-0000		DC RTV 3145	AR	1.00	1.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00	5.00
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-02203-0022		FLAVOR STCKR	EA	.	1.00
	057-02203-0023		FLAVOR STCKR	EA	1.00	1.00
	057-05749-0000		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0022		FRT GRY 14/28V	EA	1.00	1.00
	206-00207-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00207-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-2324	KLN 90B 743 14V GRY	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2324
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00
	000-00939-2401		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	016-01082-0000		DC RTV 3145	AR	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00
	057-02203-0023		FLAVOR STCKR	EA	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00
	057-05749-0000		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0022		FRT GRY 14/28V	EA	1.00
	206-00207-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-2421	KLN90B UPGR 5V GRY	AG
066-04031-2422	KLN 90B BRNV 5V GRY	AE

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2421	-2422
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00	.00
	000-00939-2111		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00	.
	000-00939-2203		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.	.00
	004-02017-4000		KLN 90B MPS	RF	.00	.
	016-01082-0000		DC RTV 3145	AR	1.00	1.00
	016-01139-0000		SUPERBONDER 414	AR	1.00	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00	5.00
	057-01764-0010		TAG WARNING 2X	EA	2.00	2.00
	057-02203-0021		FLAVOR STCKR	EA	1.00	.
	057-02203-0022		FLAVOR STCKR	EA	.	1.00
	057-02203-0024		FLAVOR STCKR	EA	1.00	1.00
	057-05749-0000		S/N TAG. KLN 90B	EA	1.00	1.00
	066-04031-9800		COMMON BILL	EA	1.00	1.00
	066-04031-9900		COMMON BOM	EA	.	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00	4.00
	091-00331-0015		GRMT SLD SNGS-1	IN	2.00	2.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00	1.00
	200-05195-0023		FRT GRY 5V	EA	1.00	1.00
	206-00207-2111		KLN 90B PROGRAMMED BOARD SET	EA	1.00	.
	206-00207-2203		KLN 90B PROGRAMMED BOARD SET	EA	.	1.00

PN	DESCRIPTION	REV
066-04031-2424	KLN 90B 743 5V GRY	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2424
REF1	300-05194-0002		KLN90B FINAL ASSY	RF	.00
REF1	300-08459-0002		CONV MAIN BD ASSY	RF	.00
REF1	300-08569-0001		CONV PS BD ASSY	RF	.00
REF2	002-08459-0002		SCH CONV MAIN BD	RF	.00
REF2	002-08569-0001		SCH CONV PS BD	RF	.00
	000-00939-2401		PRODUCT STRUCTURE KLN 90B UPGRADES	RF	.00
	012-01005-0005	1	TAPE MYLAR 1 W	IN	.75
	016-01082-0000		DC RTV 3145	AR	1.00
	030-03090-0001		CONN BOARD SPACER	EA	5.00
	057-01764-0010		TAG WARNING 2X	EA	2.00
	057-02203-0024		FLAVOR STCKR	EA	2.00
	057-05749-0000		S/N TAG. KLN 90B	EA	1.00
	066-04031-9800		COMMON BILL	EA	1.00
	089-06457-0003		SCR FHP 4-40X3/16	EA	4.00
	150-00028-0010	2	TBG SHRNK 2&5/16	IN	1.00
	200-05195-0023		FRT GRY 5V	EA	1.00
	206-00207-2401		KLN 90B PROGRAMMED BOARD SET	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
066-04031-9800	COMMON BILL	AE

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-9800
	012-01005-0003		TAPE MYLAR .250 W	AR	1.00
	012-01127-0000		TAG COVER	EA	1.00
	012-01236-0000		INSUL W/ADHESIVE	AR	1.00
	012-01366-0000		PLASTIC FILM TAPE	IN	17.00
	012-01545-0000		INSULATOR H/V	EA	1.00
	012-01546-0000		INSULATOR P/S	EA	1.00
	012-01554-0000		CRT CVR INSULATOR	EA	1.00
	015-00220-0002		BATT LITH W/LEADS	EA	1.00
	015-00257-0000		KLN90B BATT PACK	EA	1.00
	016-01082-0000		DC RTV 3145	AR	1.00
	016-01134-0002		COPPER TAPE .50 IN	IN	1.50
	019-02671-0004		DEFLECTION YOKE	EA	1.00
	021-00120-0001		CRT POTTED ANODE	EA	1.00
	025-00029-0000		WIRE 24 BLK	IN	10.00
	025-00029-0002		WIRE 24 RED	IN	10.00
	025-00029-0004		WIRE 24 YEL	IN	10.00
	025-00029-0006		WIRE 24 BLU	IN	10.00
	030-01058-0000		CONN. PLUG. KEYING	EA	1.00
	030-02204-0002		CONN HSG 6 CAV	EA	1.00
	030-02248-0000		TERMINALS	EA	4.00
	035-01886-0000		PROTECTIVE COVER	EA	1.00
	047-08944-0004		FINGER STOCK	EA	1.00
	047-09888-0001		DATABASE RACK FIN	EA	1.00
	047-09889-0000		PWR SUPPLY COVER	EA	1.00
	047-09992-0001		BOT COVER FINISHED	EA	1.00
	047-10693-0000		CRT COVER	EA	1.00
	047-10727-0000		RECEIVER COVER	EA	1.00
	047-12085-0001		BOTTOM BRKT. FLEX CABLE	EA	1.00
	047-12086-0001		TOP BRKT. FLEX CABLE	EA	1.00
	057-01540-0000		WARNING HV TAG	EA	1.00
	057-02337-0000		PRTCTV CVR DECAL	EA	1.00
	057-03511-0001		DECAL. CAUTION	EA	1.00
	057-05355-0000		DECAL INSTALLATION	EA	1.00
	071-01541-0001		MTG RACK	EA	1.00
	088-03174-0000		BATTERY COVER	EA	1.00
	088-03234-0001		YOKE MOUNT BOTTOM	EA	1.00
	088-03235-0001		YOKE MOUNT TOP	EA	1.00
	089-05878-0005		SCR PHP 4-40 X 5/16	EA	2.00
	089-05878-0014		SCR PHP 4-40 X 7/8	EA	2.00
	089-05899-0003		SCR PHP 2-56X3/16	EA	3.00
	089-05899-0006		SCR PHP 2-56X3/8	EA	1.00
	089-05903-0003		SCR PHP 4-40X3/16	EA	11.00
	089-06004-0002		SCR FHP 2-56X1/8	EA	2.00
	089-06008-0003		SCR FHP 4-40X3/16	EA	15.00
	089-06008-0005		SCR FHP 4-40X5/16	EA	2.00
	089-08023-0030		WSHR FLT STD #2	EA	1.00
	090-00990-0009		PROTECTIVE CAP. SUB-D. 50P	EA	1.00
	091-00109-0000		CABLE TIE	EA	1.00
	091-00109-0004		CABLE TIE	EA	1.00
	092-00203-0000		GPS CABLE FASTENER	EA	1.00
	150-00005-0010		TUBING TFLN 20AWG	IN	.70
	150-00022-0010		TUBING SHNK 14AWG	IN	2.00
	150-00030-0010		TBG SHRNK 3/8&7/16	IN	1.60
	150-00062-0010		TUBING TFL 10G NAT	IN	3.00
	150-00096-0001		TUBING SHRINK 3/16	IN	3.75
	155-02604-0001		CABLE 7PIN CRT	EA	1.00
	155-02781-0000		LEFT SW BD CABLE	EA	1.00
	155-02783-0000		RIGHT SWBD CABLE	EA	1.00
	155-02811-0000		RF CABLE ASSY	EA	1.00
	200-05193-0001		CHASSIS ASSY	EA	1.00
	200-08923-0010		INTERFACE CABLE	EA	1.00
	200-08981-0000		KLN90B BATT MODULE	EA	1.00
	200-08982-0000		KLN90B LVPS	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN DESCRIPTION REV

206-00207-2111 KLN 90B PROGRAMMED BOARD SET -

SYMBOL PART NUMBER FIND NO DESCRIPTION UM -2111

REF100 000-00939-2111 PRODUCT STRUCTURE KLN 90B UPGRADES RF .00
REF100 716-00103-2111 KLN 90B CONFIGURATION INDEX (21/11) RF .00
057-05287-2111 KLN 90B SOFTWARE MOD TAG EA 1.00
205-00677-0048 KLN 90B PROGRAMMED HOST BOARD EA 1.00
205-00834-0002 XPRESS PROG'D EA 1.00

PN DESCRIPTION REV

206-00207-2203 KLN 90B PROGRAMMED BOARD SET -

SYMBOL PART NUMBER FIND NO DESCRIPTION UM -2203

REF100 000-00939-2203 PRODUCT STRUCTURE KLN 90B UPGRADES RF .00
REF100 716-00103-2203 KLN 90B CONFIGURATION INDEX RF .00
057-05287-2203 KLN 90B SOFTWARE MOD TAG EA 1.00
205-00677-0048 KLN 90B PROGRAMMED HOST BOARD EA 1.00
205-00891-0001 PXPRESS PROGRAM EA 1.00

PN DESCRIPTION REV

206-00207-2401 KLN 90B PROGRAMMED BOARD SET -

SYMBOL PART NUMBER FIND NO DESCRIPTION UM -2401

REF100 000-00939-2401 PRODUCT STRUCTURE KLN 90B UPGRADES RF .00
REF100 716-00103-2401 KLN 90B CONFIGURATION INDEX (24/01) RF .00
057-05287-2401 KLN 90B SOFTWARE MOD TAG EA 1.00
205-00677-0049 KLN 90B PROGRAMMED HOST BOARD EA 1.00
205-00891-0001 PXPRESS PROGRAM EA 1.00

PN DESCRIPTION REV

206-00334-2111 KLN 90B PROGRAMMED BOARD SET -

SYMBOL PART NUMBER FIND NO DESCRIPTION UM -2111

REF100 000-00821-2111 PRODUCT STRUCTURE KLN 90B RF .00
REF100 716-00103-2111 KLN 90B CONFIGURATION INDEX (21/11) RF .00
057-05287-2111 KLN 90B SOFTWARE MOD TAG EA 1.00
205-00834-0002 XPRESS PROG'D EA 1.00
205-00835-0008 KLN90B PROGRAMMED HOST BOARD EA 1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
206-00334-2203	KLN 90B PROGRAMMED BOARD SET	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2203
REF100	000-00821-2203		PRODUCT STRUCTURE KLN90B	RF	.00
REF100	716-00103-2203		KLN 90B CONFIGURATION INDEX	RF	.00
	057-05287-2203		KLN 90B SOFTWARE MOD TAG	EA	1.00
	205-00835-0008		KLN90B PROGRAMMED HOST BOARD	EA	1.00
	205-00891-0001		PXPRESS PROGRAM	EA	1.00

PN	DESCRIPTION	REV
206-00334-2401	KLN 90B PROGRAMMED BOARD SET	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-2401
REF100	000-00821-2401		PRODUCT STRUCTURE. KLN 90B	RF	.00
REF100	716-00103-2401		KLN 90B CONFIGURATION INDEX (24/01)	RF	.00
	057-05287-2401		KLN 90B SOFTWARE MOD TAG	EA	1.00
	205-00835-0009		KLN 90B PROGRAMMED HOST BOARD	EA	1.00
	205-00891-0001		PXPRESS PROGRAM	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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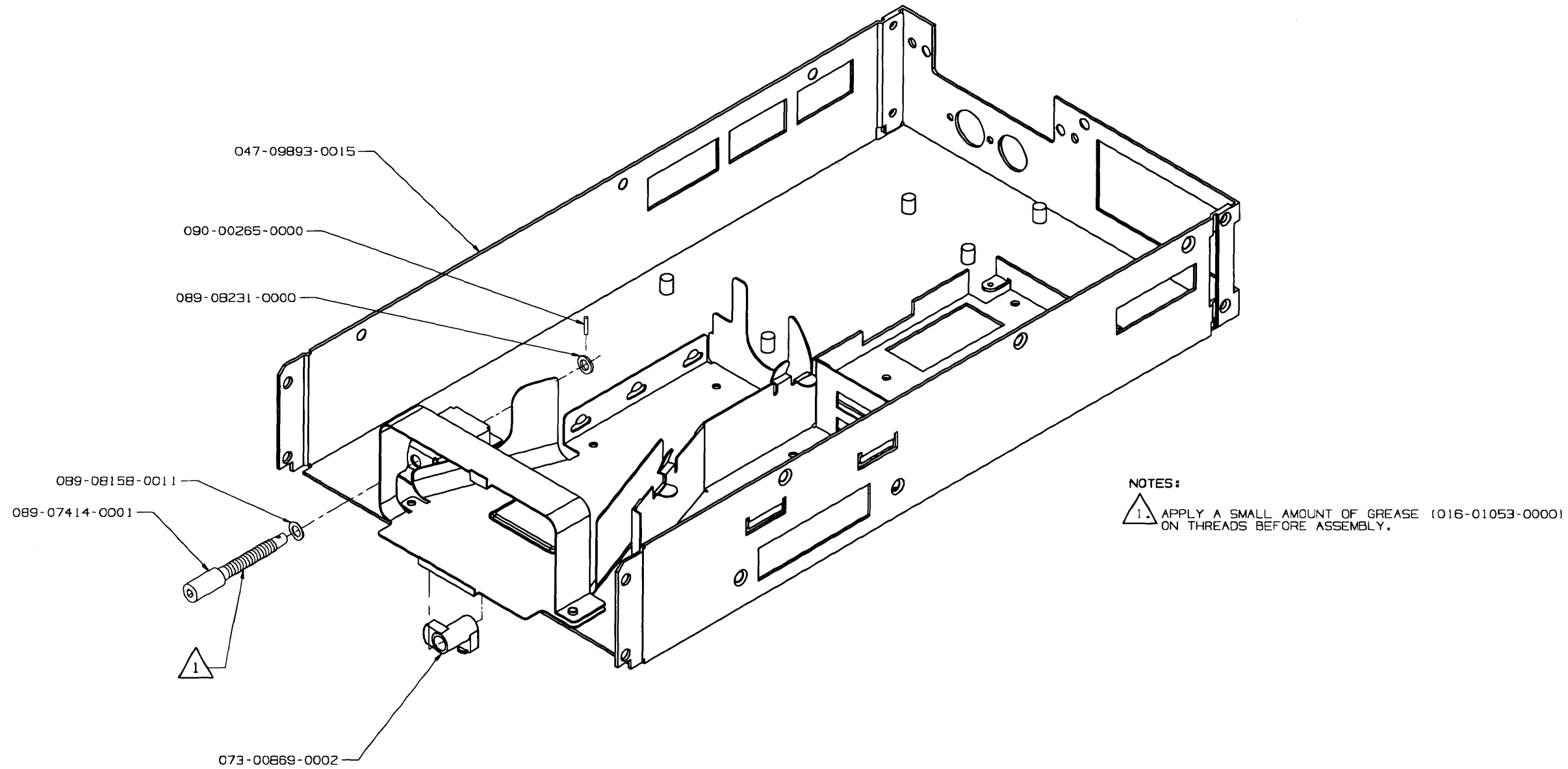


Figure 10004 KLN 90B Chassis Assembly
(300-05193-0001 R-1)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

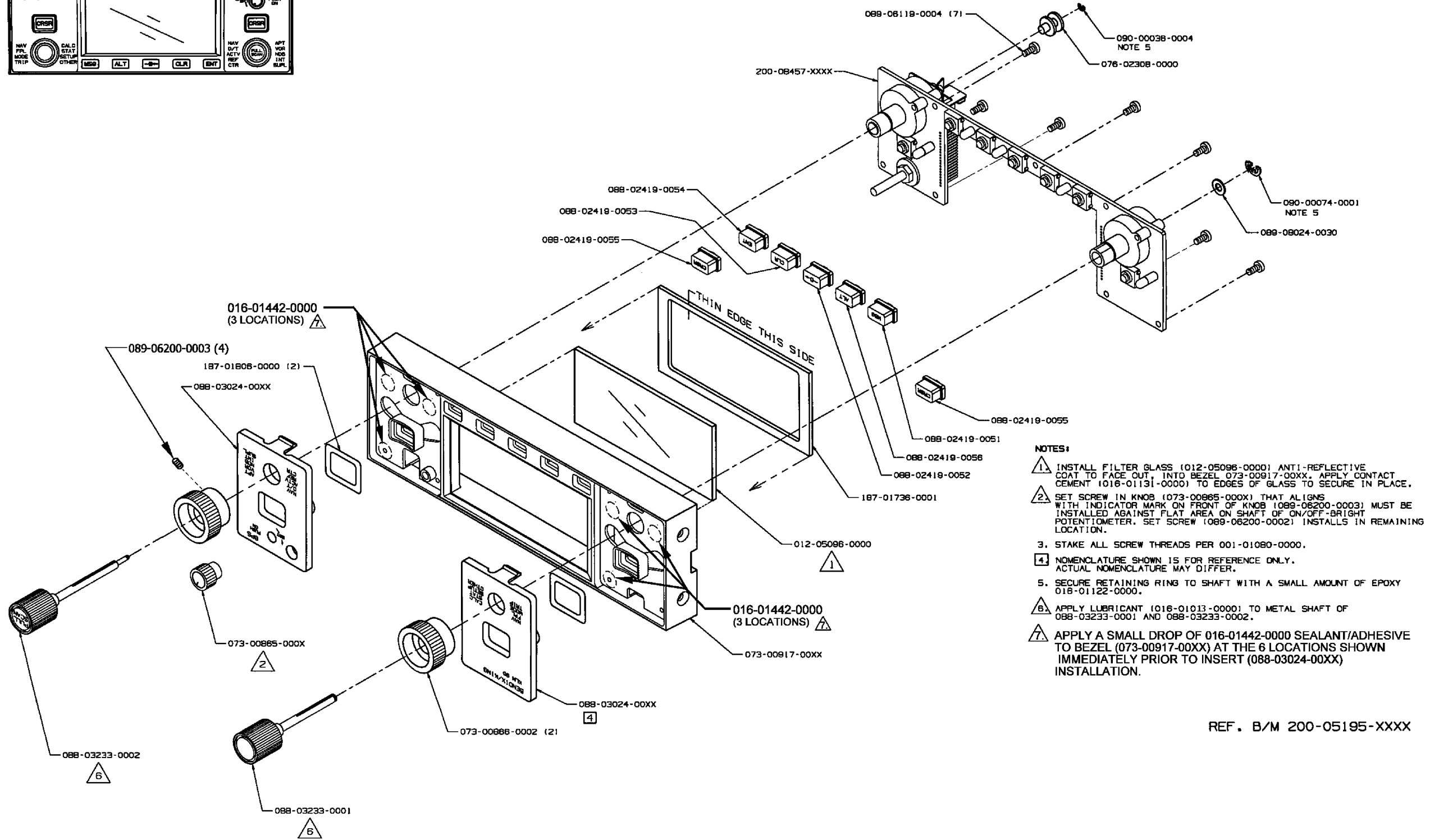
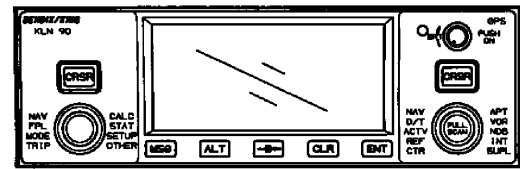
PN	DESCRIPTION	REV
200-05193-0001	CHASSIS ASSY	2

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0001
REF2	300-05193-0001		CHASSIS ASSY	RF	.00
	016-01053-0000		INS GRS MIL G3278	AR	1.00
	047-09893-0015		CHASSIS COMPLETE	EA	1.00
	073-00869-0002		HOLD DOWN UNIT	EA	1.00
	089-07414-0001		SCR RETAINING 8-32	EA	1.00
	089-08158-0011		WSHR FLT #8	EA	1.00
	089-08231-0000		WASHER FLAT	EA	1.00
	090-00265-0000		GROOVE PIN .046 X .250	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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REF. B/M 200-05195-XXXX

Figure 10005 KLN 90B Front Panel Assembly (300-05195-0000 R-AE)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-05195-0020	FRT PNL 14/28V BLK	1
200-05195-0021	FRT BLK 5V	1

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0020	-0021
	073-00917-0003		BEZEL BLACK FINISH	EA	1.00	1.00
	088-03024-0001		RT DECORATED BLACK	EA	1.00	1.00
	088-03024-0008		LEFT BLK 'B'	EA	1.00	1.00
	200-05195-0099		FRONT PNL COMMON	EA	1.00	1.00
	200-08457-0000		FRT PNL BD 14V/28V	EA	1.00	.
	200-08457-0001		FRT PNL BD 5V	EA	.	1.00

PN	DESCRIPTION	REV
200-05195-0022	FRT GRY 14/28V	1
200-05195-0023	FRT GRY 5V	1

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0022	-0023
	073-00917-0004		BEZEL GRAY FINISH	EA	1.00	1.00
	088-03024-0002		RT DECORATED GREY	EA	1.00	1.00
	088-03024-0009		LEFT GRY 'B'	EA	1.00	1.00
	200-05195-0099		FRONT PNL COMMON	EA	1.00	1.00
	200-08457-0000		FRT PNL BD 14V/28V	EA	1.00	.
	200-08457-0001		FRT PNL BD 5V	EA	.	1.00

PN	DESCRIPTION	REV
200-05195-0099	FRONT PNL COMMON	AD

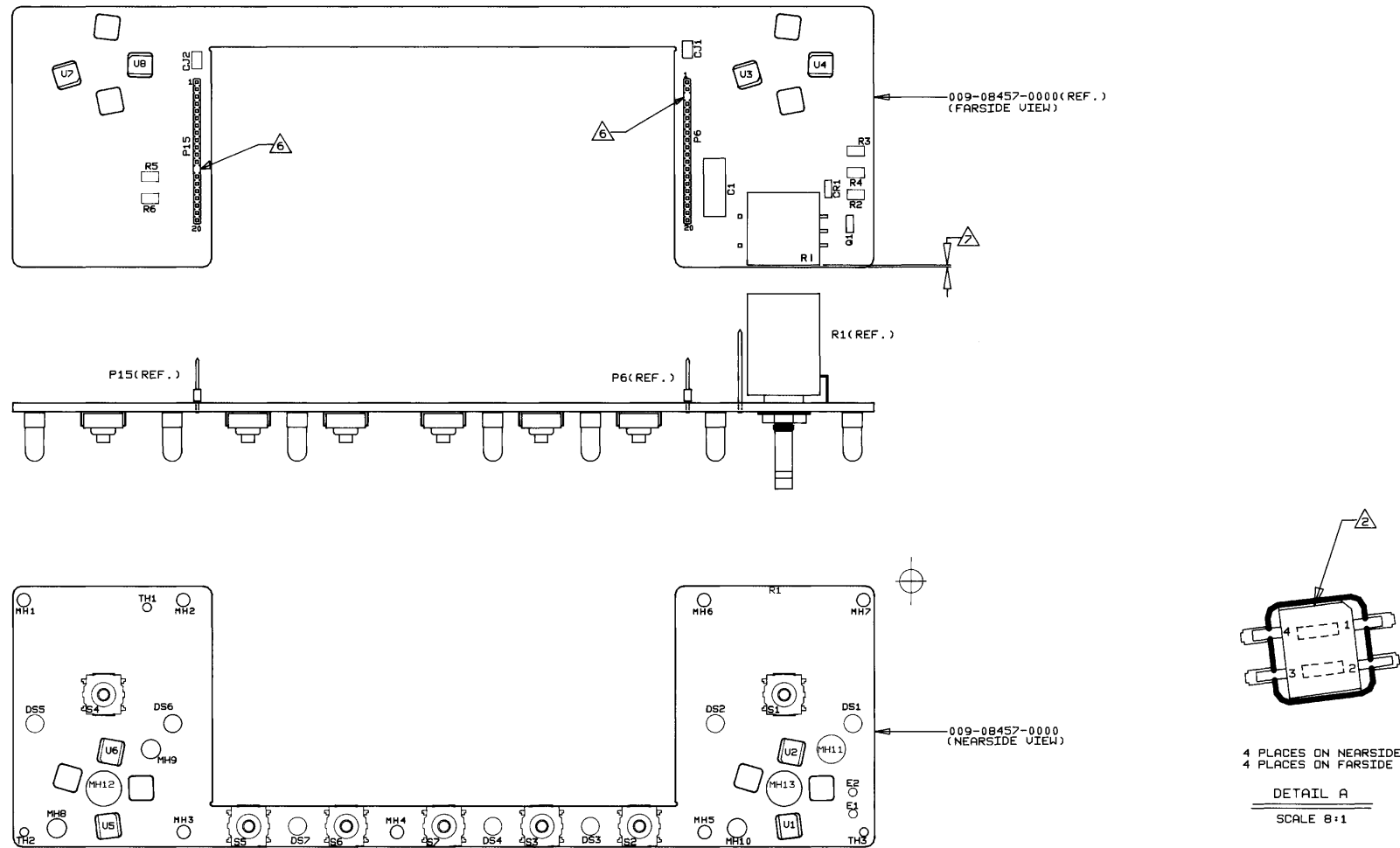
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0099
REF1	300-05195-0000		FRONT PANEL ASSY KLN 90	RF	.00
	012-05096-0000		FILTER CRT	EA	1.00
	016-01013-0000		VAC GREASE DC 976	AR	1.00
	016-01122-0000		EPOXY DEVCON 14250	AR	1.00
	016-01131-0000		CONTACT CEMENT #773	AR	1.00
	016-01442-0000		E-6000 CLEAR SEALANT	AR	1.00
	073-00865-0003		KNOB	EA	1.00
	073-00866-0002		KNOB	EA	2.00
	076-02308-0000		SPOOL SWITCH PULL	EA	1.00
	088-02419-0051		PSHBTN MSG W/PAD	EA	1.00
	088-02419-0052		PSHBTN D W/PAD	EA	1.00
	088-02419-0053		PSHBTN CLR W/PAD	EA	1.00
	088-02419-0054		PSHBTN ENT W/PAD	EA	1.00
	088-02419-0055		PSHBTN CSR W/PAD	EA	2.00
	088-02419-0056		ALT PB W/PAD	EA	1.00
	088-03233-0001		KNOB W/SHAFT MOLDED	EA	1.00
	088-03233-0002		KNOB W/SHAFT. RING	EA	1.00
	089-06119-0004		SCR PHP 2-56X1/4	EA	7.00
	089-06200-0002		SCR SET 2-56X1/16	EA	1.00
	089-06200-0003		SCR SET 2-56X3/32	EA	5.00
	089-08024-0030		WSHR FLT STD #3	EA	1.00
	090-00036-0004		RING RTNR .051	EA	1.00
	090-00074-0001		RETNG RING .125	EA	1.00
	187-01736-0001		GASKET. LENS	EA	1.00
	187-01806-0000		LIGHT SEAL GASKET	EA	2.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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NOTE: ADD 200 TO ALL REFERENCE DESIGNATORS.
I.E. C1 - C201



NOTES:

1. APPLY KPN 016-01040-0000 TO ALL EXPOSED SMD PINS/PADS/SOLDER JOINTS, THRU-HOLE COMPONENT PINS/PADS/SOLDER JOINTS, AND VIAS, WITH THE EXCEPTION OF THE FOLLOWING: ALL MOUNTING HOLES, E1 AND E2 (SEE NOTE 4), THE PINS OF P6 AND P15 BEYOND THE EXTENT OF THE PLASTIC HEADER RELATIVE TO THE SURFACE OF THE PCB, THE GLASS PORTIONS OF DS1 THRU DS7, THE TOP FACE OF S1 THRU S7 RELATIVE TO THE SURFACE OF THE PCB. IT IS ACCEPTABLE FOR COVERAGE OF CHIP COMPONENTS, SOT-23 COMPONENTS, AND C1 TO INCLUDE THE ENTIRE BODY OF THE DEVICE.
2. INSTALL U1 THRU U8 SO THAT BODY IS RECEDED IN PCB BOARD CUTOUT. PARTS SHOULD ALSO BE AS CENTERED AS POSSIBLE RELATIVE TO CUTOUT.
3. APPLY LUBRICANT (016-01013-0000) TO THE EXTERIOR OF 073-00550-0002 AND INTERIORS OF 073-00923-0004 AND 073-00924-0001 BEFORE ASSEMBLY.
4. SOLDER WIRE (025-00018-0099) FROM E1 AND E2 (FAR SIDE OF PCB) TO S208. REFER TO DETAIL "A" ON PAGE 2. AFTERWARDS, APPLY KPN 016-01040-0000 TO E1 AND E2 (NEAR SIDE AND FAR SIDE).
5. STAKE ALL SCREW THREADS PER 001-01080-0000.
6. KEY BY REMOVING (NOT CUTTING) PIN 13 OF P15 AND PIN 3 OF P6.
7. MAXIMIZE P.C. BOARD EDGE CLEARANCE OF R1 BEFORE FIXING POSITION.
8. MANUAL-SOLDERING OF U1 THRU U8: MAXIMUM SOLDERING TEMPERATURE IS 500°F WITH A MAXIMUM DWELL TIME PER LEAD OF 5 SECONDS. ALLOW A MINIMUM OF 5 SECONDS PER PART TO COOL AFTER SOLDERING EACH LEAD.
9. SWITCH TACTILE S1 THRU S7 AND LAMPS DS1 THRU DS7 MUST BE INSTALLED PERPENDICULAR AND FLUSH TO BOARD.
10. REMOVED, NOT APPLICABLE
11. REMOVED, NOT APPLICABLE
12. AFTER DE-PANELING BOARD REMOVE EXCESS MATERIAL FLUSH TO THE EDGE.

REF. B/M: 200-08457-0000/01/99
REF. ASSEMBLY DWG. 300-08457-0000 REV. AE

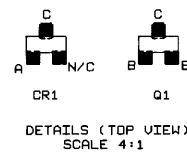


Figure 10006 Front Panel Module
(Internally Controlled Drawing, Ref: 300-08457-0000, Rev. AE, Sheet 1 of 2)

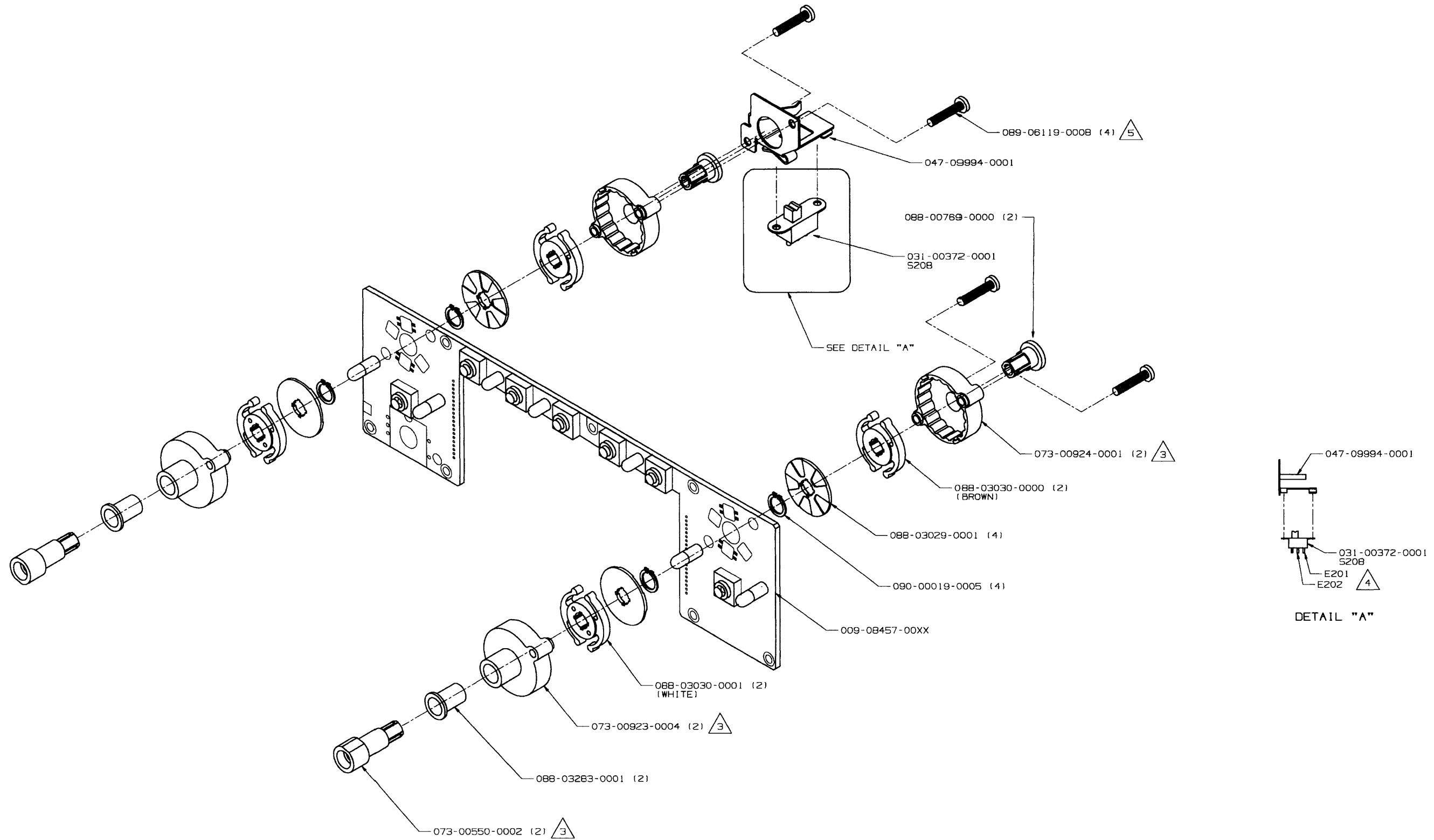


Figure 10006 Front Panel Module
(Internally Controlled Drawing, Ref: 300-08457-0000, Rev. AE, Sheet 2 of 2)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08457-0000	FRT PNL BD 14V/28V	AA
200-08457-0001	FRT PNL BD 5V	AB

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000	-0001
CJ201	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00	.
CJ202	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00	.
DS201	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS201	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS202	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS202	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS203	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS203	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS204	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS204	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS205	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS205	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS206	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS206	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
DS207	037-00223-0000		LAMP BLUE FILTERED	EA	.	1.00
DS207	037-00223-0001		LAMP BLUE FILTERED	EA	1.00	.
	002-08457-0000		SCH FRT PNL BD	RF	.00	.00
	192-08457-0000		KLN90 FRONT PANEL 14/28V ASSEMBLY	RF	.00	.
	192-08457-0001		KLN90 FRONT PANEL 5V ASSEMBLY	RF	.	.00
	200-08457-0099		FRT PNL BD CMN	EA	1.00	1.00
	300-08457-0000		FRONT PANEL BOARD	RF	.00	.00

PN	DESCRIPTION	REV
200-08457-0099	FRT PNL BD CMN	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0099
C201	111-00001-0063		CAP CR .022UF 200V	EA	1.00
CR201	007-05117-0022		DIO Z 27V SOT	EA	1.00
P206	030-03112-0020		CONN .050 MALE	EA	1.00
P215	030-03112-0020		CONN .050 MALE	EA	1.00
O201	007-00257-0001		MMBTA42 SO PKG	EA	1.00
R201	133-00135-0042		POT 100K P/P SW	EA	1.00
R202	139-03571-0000		RES CHIP 3.57KEW1%	EA	1.00
R203	130-05391-0023		RES CHIP 390EW5%	EA	1.00
R204	130-05391-0023		RES CHIP 390EW5%	EA	1.00
R205	130-05391-0023		RES CHIP 390EW5%	EA	1.00
R206	130-05391-0023		RES CHIP 390EW5%	EA	1.00
S201	031-00753-0000		SWITCH TACTILE	EA	1.00
S202	031-00753-0000		SWITCH TACTILE	EA	1.00
S203	031-00753-0000		SWITCH TACTILE	EA	1.00
S204	031-00753-0000		SWITCH TACTILE	EA	1.00
S205	031-00753-0000		SWITCH TACTILE	EA	1.00
S206	031-00753-0000		SWITCH TACTILE	EA	1.00
S207	031-00753-0000		SWITCH TACTILE	EA	1.00
S208	031-00372-0001		SWITCH SLIDE SPDT	EA	1.00
U201	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U202	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U203	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U204	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U205	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U206	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U207	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
U208	007-08094-0000		PHOTO INTERRUPTER	EA	1.00
	009-08457-0000		PC BD FRONT PANEL	EA	1.00
	016-01013-0000		VAC GREASE DC 976	AR	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08457-0099	FRT PNL BD CMN	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0099
	016-01040-0000		COATING TYPE AR	AR	1.00
	016-01411-0000		LOCTITE 220	AR	1.00
	025-00018-0099		WIRE 26 WHT	IN	4.00
	047-09994-0001		SWITCH BRKT W/F	EA	1.00
	073-00550-0002		SHAFT W/F	EA	2.00
	073-00923-0004		HOUSING. W/FIN. KLN 90B	EA	2.00
	073-00924-0001		HOUSING BACK MACH	EA	2.00
	088-00769-0000		SLEEVE LOCKING	EA	2.00
	088-03029-0001		INC/DEC REFLECTOR	EA	4.00
	088-03030-0000		INC/DEC RTR BROWN	EA	2.00
	088-03030-0001		INC/DEC RTR WHITE	EA	2.00
	088-03283-0001		KLN 90B BUSHING	EA	2.00
	089-06119-0008		SCR PHP 2-56X1/2	EA	4.00
	090-00019-0005		RING RTNR .188	EA	4.00

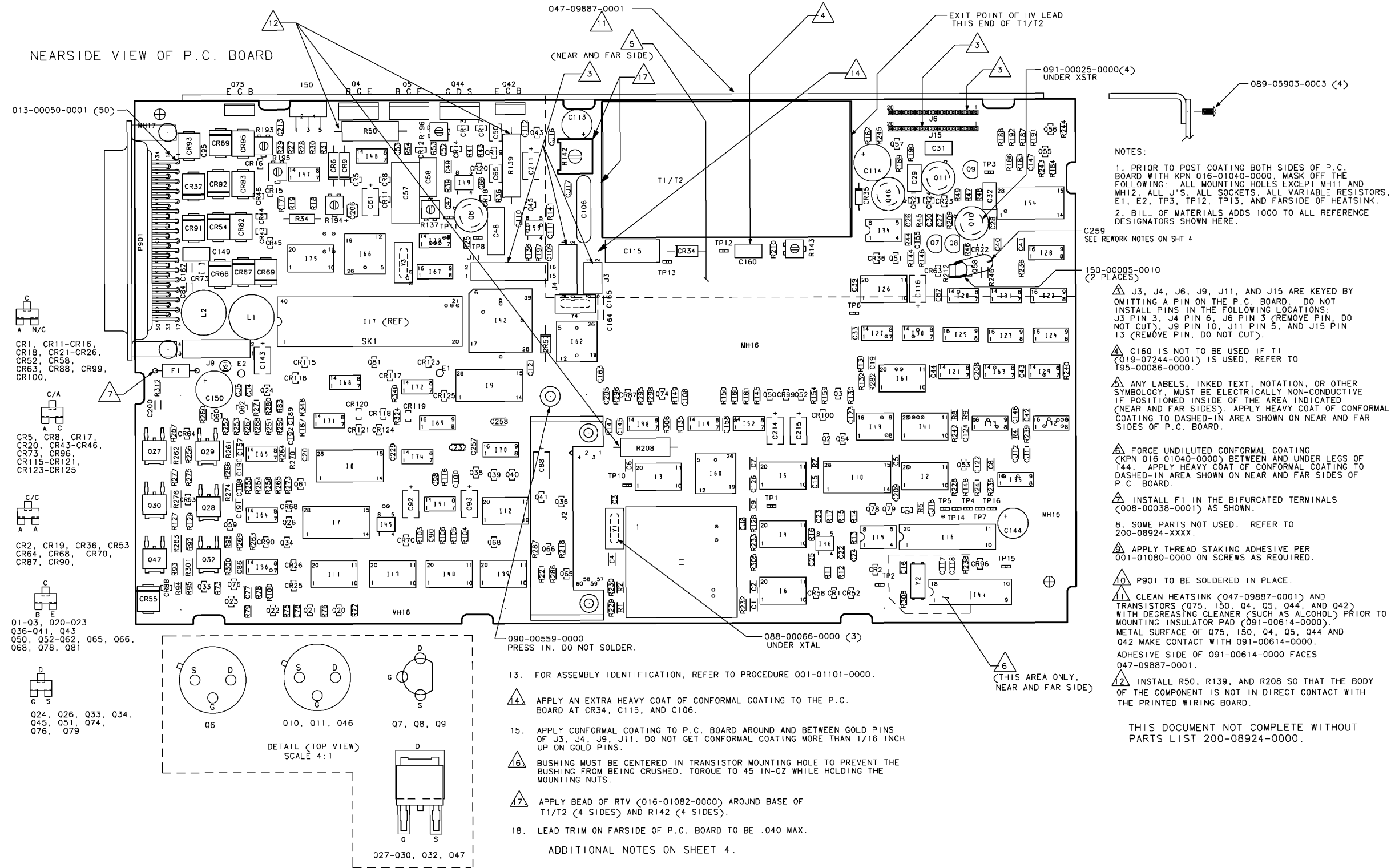
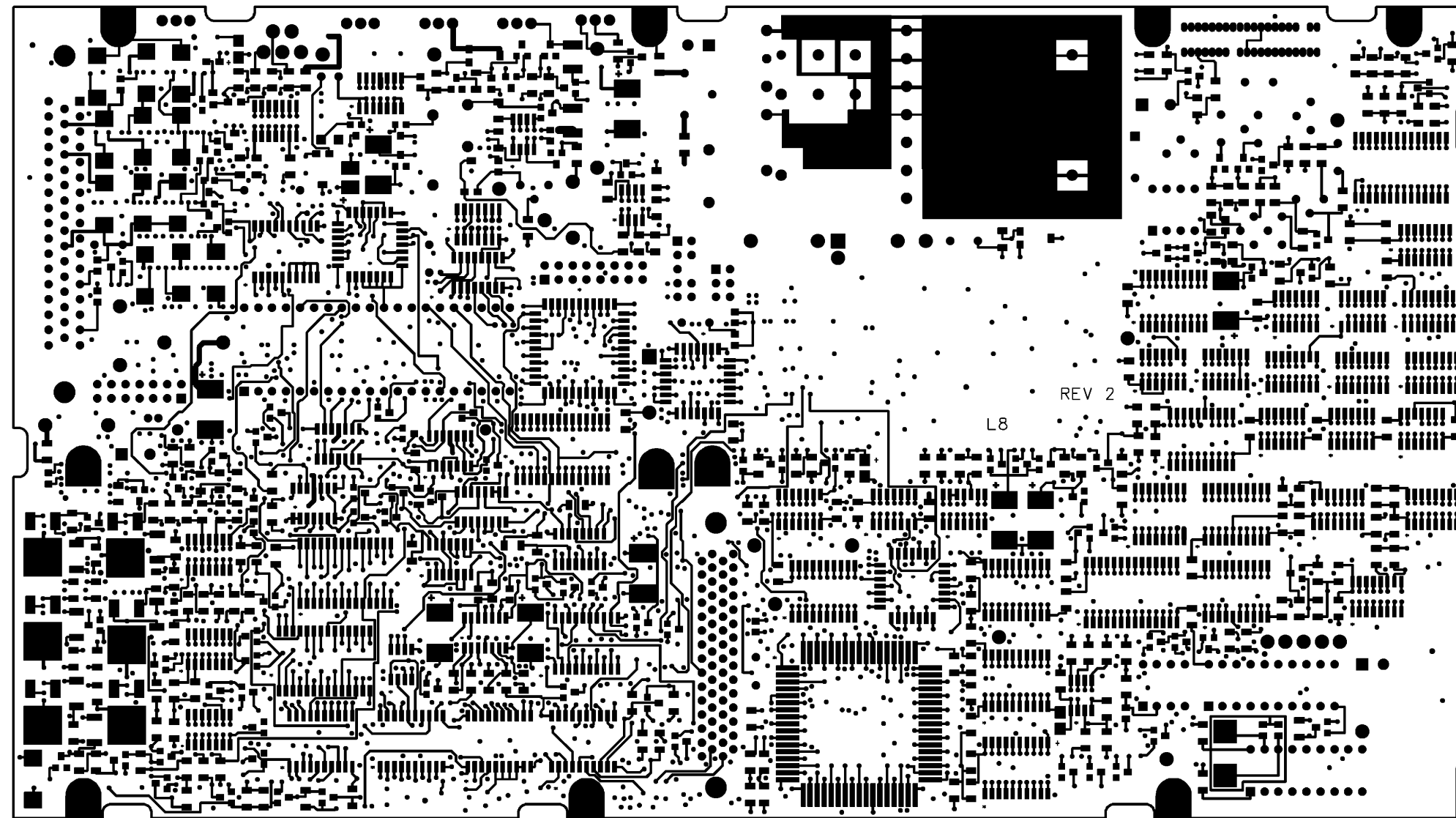
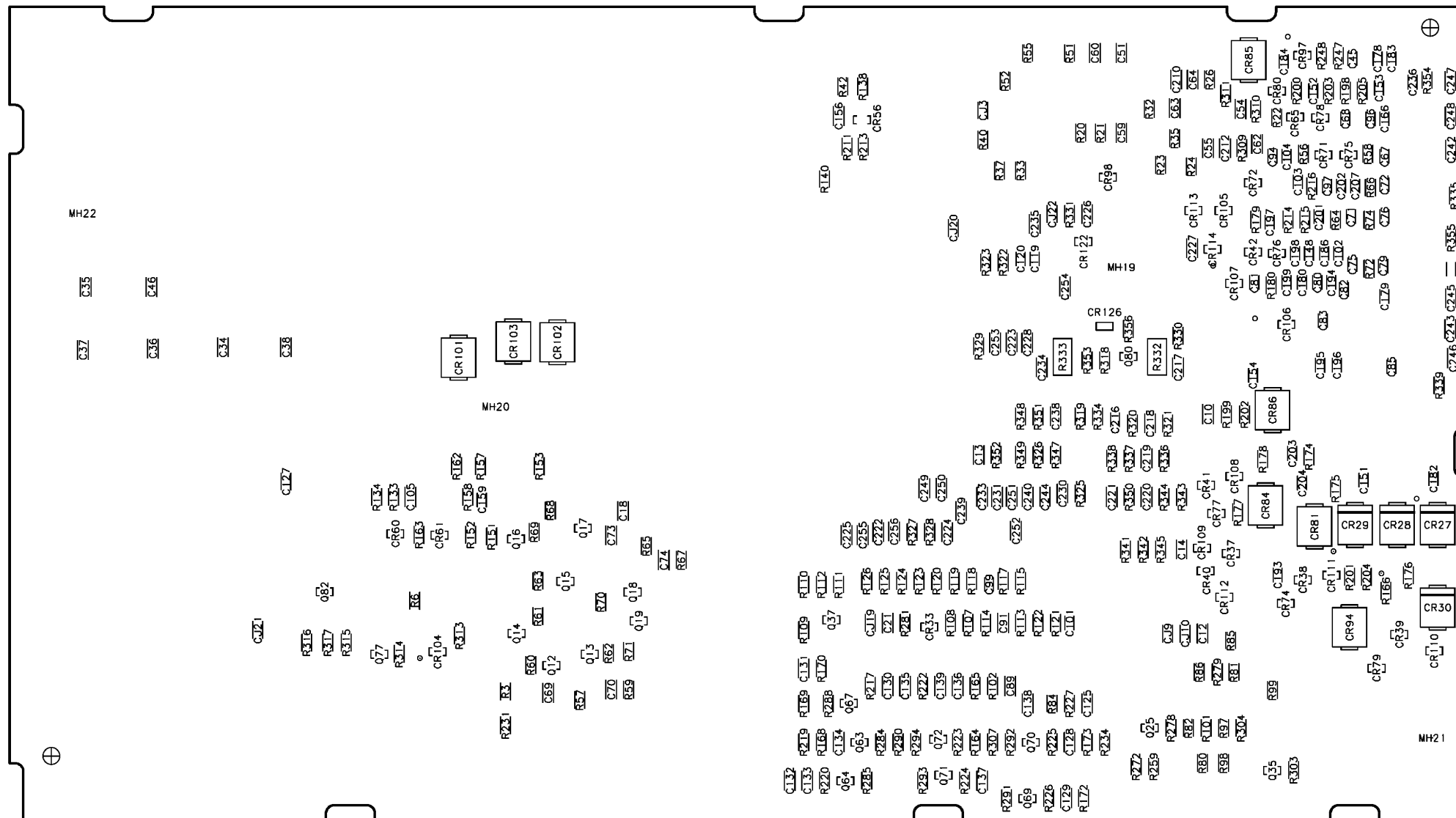
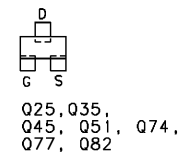
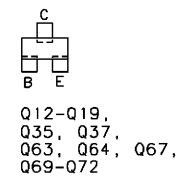
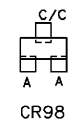
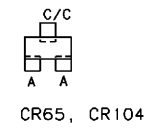
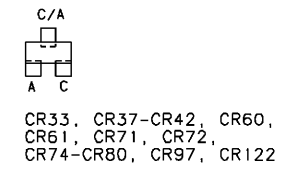
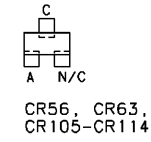


Figure 10007 Main Module
(300-08924-0000 R-AG, Sheet 1 of 5)



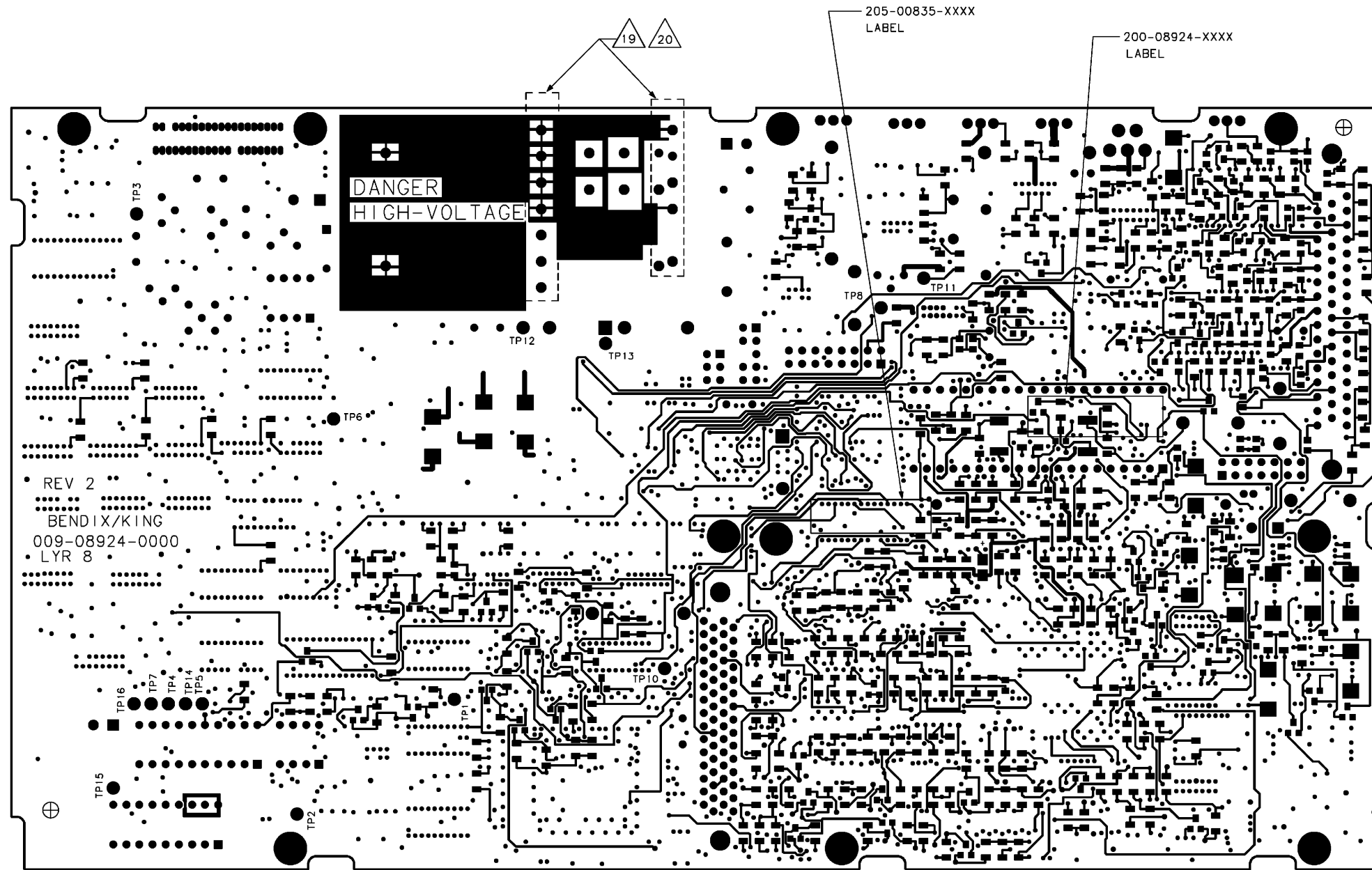
NEAR SIDE VIEW OF P.C. BOARD

Figure 10007 Main Module
(300-08924-0000 R-AG, Sheet 2 of 5)



FAR SIDE VIEW OF P.C. BOARD

Figure 10007 Main Module
(300-08924-0000 R-AG, Sheet 3 of 5)



NOTES CONTINUED FROM SHEET 1:

- 19. ALL LEADS OF T1/T2 ARE TO BE COVERED FULLY WITH SOLDER TO ROUND SHARP CORNERS ON THE FAR SIDE.
- 20. APPLY EXTRA HEAVY COAT OF UNDILUTED CONFORMAL COATING (KPN 016-01040-0000) BETWEEN AND UNDER LEADS OF T1/T2 AS SHOWN IN THE DASH-IN AREA ON THE FAR SIDE.

FAR SIDE VIEW OF P.C. BOARD

REWORK NOTES:

- A. INSTALL 2 PIECES OF TEFLON TUBING (150-00005-0010) ON LEGS OF C259.
- B. ATTACH C259 ACROSS R212 AND POSITION AS SHOWN.
- C. SECURE C259 WITH RTV (016-01082-0000).

Figure 10007 Main Module
(300-08924-0000 R-AG, Sheet 4 of 5)

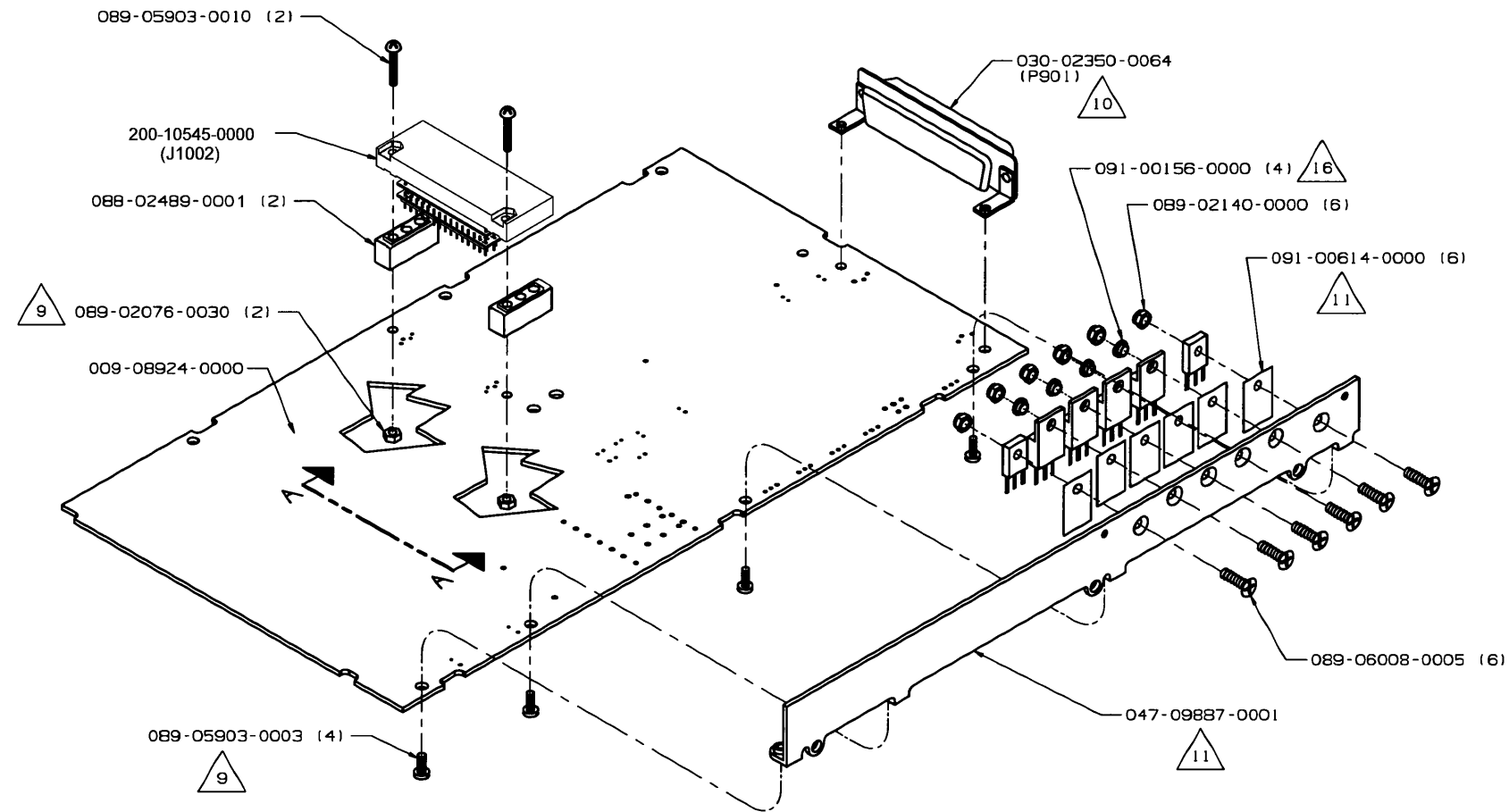


Figure 10007 Main Module
(300-08924-0000 R-AG, Sheet 5 of 5)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
205-00835-0008	KLN90B PROGRAMMED HOST BOARD	-
205-00835-0009	KLN 90B PROGRAMMED HOST BOARD	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0008	-0009
REF1	300-08924-0000		MAIN BD ASSY KLN 90B	RF	.00	.00
	057-05252-0835		IDT 205-00835-0000	EA	1.00	1.00
	057-05335-0008		DECAL DASH 08	EA	1.00	.
	057-05335-0009		DECAL DASH 09	EA	.	1.00
	125-00719-0048		KLN 90B PROGRAMMED HOST DEVICE SET	EA	1.00	.
	125-00719-0049		KLN90B PROGRAMMED HOST DEVICE SET	EA	.	1.00
	193-00835-0008		KLN 90B MAIN BD ASSEMBLY	EA	1.00	.
	193-00835-0009		KLN 90B MAIN BD ASSEMBLY	EA	.	1.00
	200-08924-0000		KLN90B MAIN BD	EA	1.00	1.00

PN	DESCRIPTION	REV
125-00719-0048	KLN 90B PROGRAMMED HOST DEVICE SET	-
125-00719-0049	KLN90B PROGRAMMED HOST DEVICE SET	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0048	-0049
I1017	122-01515-0048		KLN 90B PROGRAMMED HOST DEVICE SET	EA	1.00	.
I1017	122-01515-0049		KLN90B PROGRAMMED HOST DEVICE	EA	.	1.00
REF1	300-08924-0000		MAIN BD ASSY KLN 90B	RF	.00	.00

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C1001	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1002	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1003	106-05200-0016		CAPCH 20PF NPO 50V	EA	1.00
C1004	106-04330-0026		CH 33PF NPO/100V	EA	1.00
C1005	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1006	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1007	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1008	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1009	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1010	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1012	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1013	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1014	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1015	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1016	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1018	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1019	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1020	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1021	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1022	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1023	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1024	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1025	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C1026	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1027	106-04681-0047		CAP CH680PFX7R/50V	EA	1.00
C1028	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1029	111-00001-0022		CAP CR .1UF 100V	EA	1.00
C1030	106-04181-0026		CAPCH180PFNPO/100V	EA	1.00
C1031	111-00001-0022		CAP CR .1UF 100V	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C1032	111-00001-0022		CAP CR .1UF 100V	EA	1.00
C1033	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1034	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1035	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1036	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1037	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1038	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1039	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1040	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1041	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1042	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1043	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1044	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1045	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1046	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1047	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1048	108-05078-0000		CAP PC .01UF600V5%	EA	1.00
C1049	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1050	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C1051	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1052	106-05271-0026		CAPCH270PFNPO/100V	EA	1.00
C1053	106-05560-0026		CAP CH56PFNPO/100V	EA	1.00
C1054	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1055	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1057	108-05017-0011		CAP PC 1UF 50V	EA	1.00
C1058	108-00514-0001		CAP. POLYCARB. .01UF 5% 50V	EA	1.00
C1059	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1060	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1061	096-01186-0015		CAP 33UF 16V 10%	EA	1.00
C1062	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1063	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1064	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1065	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C1066	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1067	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1068	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1069	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1070	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1071	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1072	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1073	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1074	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1075	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1076	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1077	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1078	106-04102-0047		CH 1K X7R/50V	EA	1.00
C1079	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1080	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1081	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1082	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1083	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1084	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1085	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1086	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1087	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1088	096-01186-0034		CAP 4.7UF 35V 10%	EA	1.00
C1089	106-04101-0016		CH 100PF NPO/50V	EA	1.00
C1090	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1091	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1092	096-01186-0023		CAP 15UF 25V 10%	EA	1.00
C1093	096-01186-0023		CAP 15UF 25V 10%	EA	1.00
C1094	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1095	106-05221-0057		CAP CH220PFX7R/100	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C1096	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1097	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1098	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1099	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1100	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1101	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1102	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1103	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1104	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1105	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1106	118-00086-0000		CAP CR .01UF 1KV	EA	1.00
C1108	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C1109	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1110	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1111	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1112	106-04220-0026		CH 22PF NPO/100V	EA	1.00
C1113	097-00214-0002		CAP AL 220UF 25V	EA	1.00
C1114	097-00210-0001		CAP AL 4.7UF 200V	EA	1.00
C1115	118-00086-0000		CAP CR .01UF 1KV	EA	1.00
C1116	096-01186-0015		CAP 33UF 16V 10%	EA	1.00
C1117	106-05330-0026		CAP CH33PFNPO/100V	EA	1.00
C1118	106-05330-0026		CAP CH33PFNPO/100V	EA	1.00
C1119	106-05330-0016		CAP CH 33PFNPO/50V	EA	1.00
C1120	106-05330-0016		CAP CH 33PFNPO/50V	EA	1.00
C1121	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1122	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1123	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1124	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1125	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1126	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1127	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1128	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1129	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1130	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1131	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1132	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1133	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1134	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1135	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1136	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1137	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1138	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1139	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1143	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C1144	097-00104-0050		CAP AL 220UF 10V	EA	1.00
C1145	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1146	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1147	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1148	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1149	111-00001-0032		CAP CR 1UF 50V	EA	1.00
C1150	097-00214-0003		CAP AL 180UF 50V	EA	1.00
C1151	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1152	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1153	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1154	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1155	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1156	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1157	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1158	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1159	106-05390-0026		CAP CH39PFNPO/100V	EA	1.00
C1160	999-09999-0096		RESERVED	RF	.00
C1163	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1164	106-05200-0016		CAPCH 20PF NPO 50V	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C1165	106-05200-0016		CAPCH 20PF NPO 50V	EA	1.00
C1166	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1167	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1178	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1179	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1180	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1182	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1183	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1184	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1186	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1188	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1189	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1190	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1191	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1192	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1193	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C1194	999-09999-0098		PLACE HOLDER	RF	.00
C1195	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1196	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1197	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1198	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1199	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1200	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1201	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1202	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1203	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1204	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1205	106-05682-0046		CAP CH 6.8KX7R/50V	EA	1.00
C1206	096-01186-0030		CAP 1UF 35V 10%	EA	1.00
C1207	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1208	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1209	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1210	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1211	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C1212	106-04103-0047		CH 10K X7R/50V	EA	1.00
C1213	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C1214	096-01186-0015		CAP 33UF 16V 10%	EA	1.00
C1215	096-01186-0015		CAP 33UF 16V 10%	EA	1.00
C1216	106-05821-0046		CAP CH820PFX7R/50V	EA	1.00
C1217	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1218	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1219	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1220	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1221	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1222	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1223	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1224	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1225	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1226	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1227	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1228	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1229	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1230	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1231	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1232	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1233	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1234	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1235	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1236	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1237	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C1238	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1239	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1240	106-04104-0047		CH 100KX7R/50V	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C1242	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1243	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1244	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C1245	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1246	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1247	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1248	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1249	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1250	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1251	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1252	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1253	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1254	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1255	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1256	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1257	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1258	106-04104-0047		CH 100KX7R/50V	EA	1.00
C1259	109-00113-0001		CAP. SPARK GAP. .75 PF 1 KV ARC	EA	1.00
CJ1003	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1004	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1005	999-09999-0098		PLACE HOLDER	RF	.00
CJ1008	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1009	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1010	999-09999-0098		PLACE HOLDER	RF	.00
CJ1011	999-09999-0098		PLACE HOLDER	RF	.00
CJ1012	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1016	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1017	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1018	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1019	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1020	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CJ1021	999-09999-0098		PLACE HOLDER	RF	.00
CJ1022	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CR1001	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1002	007-06398-0000		DIO DUAL SCHOTTKY	EA	1.00
CR1005	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR1006	007-05051-0001		DIO Z 1N821A	EA	1.00
CR1008	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR1009	007-05051-0001		DIO Z 1N821A	EA	1.00
CR1011	007-05117-0012		DIO Z 10V SOT	EA	1.00
CR1012	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1013	195-00105-0000		DIODE OPTIONS	EA	1.00
CR1014	195-00105-0000		DIODE OPTIONS	EA	1.00
CR1015	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
CR1016	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
CR1017	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR1018	007-06177-0000		SMD DIO SI MMBD914	EA	1.00
CR1019	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1020	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR1021	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1022	007-06177-0000		SMD DIO SI MMBD914	EA	1.00
CR1023	007-06177-0000		SMD DIO SI MMBD914	EA	1.00
CR1024	007-06177-0000		SMD DIO SI MMBD914	EA	1.00
CR1025	007-06177-0000		SMD DIO SI MMBD914	EA	1.00
CR1026	007-05117-0011		DIO Z 9.1V SOT	EA	1.00
CR1027	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1028	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1029	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1030	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1032	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1033	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR1034	007-06129-0000		DIO S HV VAR223-40	EA	1.00
CR1035	007-06105-0000		DIO HV FDH444	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
CR1036	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1037	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1038	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1039	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1040	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1041	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1042	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1043	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1044	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1045	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1046	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1052	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1053	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1054	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1055	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1056	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1057	007-05011-0000		DIO Z 6.2V 1W 5%	EA	1.00
CR1058	007-06180-0000		DIO SW MMBD6050	EA	1.00
CR1060	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1061	007-06417-0000		DIODE SCHOTTKY	EA	1.00
CR1063	007-05117-0017		DIO Z 16V SOT	EA	1.00
CR1064	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1065	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1066	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1067	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1068	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1069	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1070	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1071	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1072	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1073	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1074	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1075	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1076	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1077	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1078	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1079	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1080	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1081	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1082	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1083	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1084	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1085	007-05241-0205		TRNSRB 1500W 24V	EA	1.00
CR1086	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1087	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1088	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
CR1089	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1090	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1091	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1092	007-05241-0002		TRNSRB 150W 40V	EA	1.00
CR1093	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1094	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR1095	007-05241-0205		TRNSRB 1500W 24V	EA	1.00
CR1096	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1097	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1098	007-06181-0000		DIO DUAL MMBD2835	EA	1.00
CR1099	007-05117-0016		DIO Z 15V SOT	EA	1.00
CR1100	007-05117-0016		DIO Z 15V SOT	EA	1.00
CR1101	007-05241-0205		TRNSRB 1500W 24V	EA	1.00
CR1102	007-05241-0205		TRNSRB 1500W 24V	EA	1.00
CR1103	007-05241-0205		TRNSRB 1500W 24V	EA	1.00
CR1104	007-06227-0000		DIO MMBD6100 SOT23	EA	1.00
CR1105	007-05117-0024		DIO Z 33V SOT	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
CR1106	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1107	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1108	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1109	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1110	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1111	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1112	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1113	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1114	007-05117-0024		DIO Z 33V SOT	EA	1.00
CR1115	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1116	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1117	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1118	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1119	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1120	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1121	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1122	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1123	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1124	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1125	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR1126	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
DS1001	037-00034-0002		LMP 8098 T1 14V	EA	1.00
F1001	036-00147-0010		SLO-BLO MINI FUSE	EA	1.00
I1001	120-02513-0000		16 BIT VPROCESSOR	EA	1.00
I1002	124-00573-0003		74HCT573 (SO)	EA	1.00
I1003	124-00573-0003		74HCT573 (SO)	EA	1.00
I1004	124-00573-0003		74HCT573 (SO)	EA	1.00
I1005	124-00245-0002		74HCT245D SO PKG	EA	1.00
I1006	124-00245-0002		74HCT245D SO PKG	EA	1.00
I1007	120-02363-0010		32KX8 RAM 100NS SO	EA	1.00
I1008	120-02363-0008		32K X 8 STATIC RAM	EA	1.00
I1009	120-02363-0010		32KX8 RAM 100NS SO	EA	1.00
I1010	120-02363-0008		32K X 8 STATIC RAM	EA	1.00
I1011	123-00541-0003		IC MOS 74HC541	EA	1.00
I1012	124-00541-0003		74HCT541 (SO)	EA	1.00
I1013	124-00574-0003		IC 74HCT574	EA	1.00
I1015	120-03103-0000		VOLTAGE REFERENCE. 2.5 VDC	EA	1.00
I1016	195-00186-0000		PREFERRED/ALTERNATE EPLD. KLN90B	EA	1.00
I1017	999-09999-0090		REF SFTWARE SET	RF	.00
I1019	124-00032-0003		IC 74HCT32 SO PKG	EA	1.00
I1020	124-00004-0003		IC 74HCT04 SO PKG	EA	1.00
I1021	123-00008-0003		74HC08 SO PKG	EA	1.00
I1022	123-00157-0003		74HC157 SO PKG	EA	1.00
I1023	123-00157-0003		74HC157 SO PKG	EA	1.00
I1024	123-00157-0003		74HC157 SO PKG	EA	1.00
I1025	123-04040-0003		74HC4040 SO PKG	EA	1.00
I1026	124-00244-0003		IC 74HCT244 SO PKG	EA	1.00
I1027	123-00074-0003		IC 74HC74 SO PKG	EA	1.00
I1028	123-00166-0003		74HC166 (SO)	EA	1.00
I1029	123-00393-0003		74HC393 (SO)	EA	1.00
I1030	123-00021-0003		74HC21 (SO)	EA	1.00
I1031	124-00010-0003		74HCT10 SO PKG	EA	1.00
I1032	123-00390-0003		IC 74HC390 S01C	EA	1.00
I1033	123-04049-0003		74HC4049 (SO)	EA	1.00
I1034	120-02233-0001		IC DS0026CJ-8	EA	1.00
I1035	124-00174-0003		IC 74HCT174 SO PKG	EA	1.00
I1036	124-00032-0003		IC 74HCT32 SO PKG	EA	1.00
I1038	124-00004-0003		IC 74HCT04 SO PKG	EA	1.00
I1039	123-00541-0003		IC MOS 74HC541	EA	1.00
I1040	123-00541-0003		IC MOS 74HC541	EA	1.00
I1041	123-00563-0003		74HC563 (SO PKG)	EA	1.00
I1042	120-02373-0000		DUAL CHANNEL UART	EA	1.00
I1043	120-06256-0003		CMDS 232 DRVR/RCVR	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
I1044	120-02462-0000		CMOS REAL TIME CLK	EA	1.00
I1045	120-02434-0003		256BIT EEPROM CMOS	EA	1.00
I1046	120-03127-0011		IC LM2903 SO PKG	EA	1.00
I1047	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1048	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1049	120-03127-0011		IC LM2903 SO PKG	EA	1.00
I1050	120-03114-0001		IC TDA-2030V	EA	1.00
I1051	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1052	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1053	120-03174-0012		OP AMP BI FET SO	EA	1.00
I1054	120-06129-0009		6264-15 8K X 8 RAM	EA	1.00
I1060	120-08030-0010		429 ARINC LSI. 28 PIN PLCC	EA	1.00
I1061	124-00574-0003		IC 74HCT574	EA	1.00
I1062	120-02456-0000		82050 UART	EA	1.00
I1063	123-00005-0003		74HC05 (SO PKG)	EA	1.00
I1064	120-03163-0001		LM2901 SO-14 COMP	EA	1.00
I1065	120-03196-0000		IC LM2902D	EA	1.00
I1066	120-03450-0000		ADC0809 SO	EA	1.00
I1067	124-04060-0003		IC 74HCT4060 SOPKG	EA	1.00
I1068	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1069	120-06074-0003		IC 4053 SO PKG	EA	1.00
I1070	120-06074-0003		IC 4053 SO PKG	EA	1.00
I1071	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1072	120-03174-0014		OP AMP BI FET SO	EA	1.00
I1073	123-00393-0003		74HC393 (SO)	EA	1.00
I1074	124-00002-0003		IC 74HCT02 SO PKG	EA	1.00
I1075	124-00573-0003		74HCT573 (SO)	EA	1.00
J1002	200-10545-0000		DB CONNECTOR FLEX JUMPER	EA	1.00
J1003	030-02174-0004		PIN CONTACT	EA	5.00
J1004	030-02174-0004		PIN CONTACT	EA	9.00
J1006	030-03112-0020		CONN .050 MALE	EA	1.00
J1009	030-02174-0004		PIN CONTACT	EA	13.00
J1011	030-02174-0004		PIN CONTACT	EA	15.00
J1015	030-03112-0020		CONN .050 MALE	EA	1.00
L1001	019-02687-0001		PWR FILTER CHOKES	EA	1.00
L1002	019-02687-0001		PWR FILTER CHOKES	EA	1.00
L1003	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1004	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1005	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1006	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1007	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1008	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1009	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1010	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1011	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1012	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1013	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1014	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1015	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1016	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1017	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1018	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1019	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1020	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1021	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1022	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1023	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1024	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1025	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1026	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1027	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1028	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1029	013-00050-0001		FERRITE BEAD .135	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
L1030	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1031	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1032	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1033	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1034	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1035	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1036	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1037	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1038	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1039	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1040	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1041	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1042	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1043	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1044	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1045	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1046	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1047	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1048	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1049	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1050	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1051	013-00050-0001		FERRITE BEAD .135	EA	1.00
L1052	013-00050-0001		FERRITE BEAD .135	EA	1.00
P1901	030-02350-0064		CONN SUB-D PC 50P	EA	1.00
01001	007-00933-0000		MMBT2369	EA	1.00
01002	007-00933-0000		MMBT2369	EA	1.00
01003	007-00468-0001		XSTR NPN MMBT2222A	EA	1.00
01004	007-00219-0000		XSTR S NPN TIP120	EA	1.00
01005	007-00218-0000		XSTR S PNP TIP125	EA	1.00
01006	007-00902-0000		IRFF330 HEXFET	EA	1.00
01007	007-00829-0000		XSTR FET VP1310N3	EA	1.00
01008	007-00830-0000		XSTR FET VN1310N3	EA	1.00
01009	007-01021-0000		MOSFET P-CH 200V	EA	1.00
01010	007-00497-0010		XSTR 2N3501JAN	EA	1.00
01011	007-00497-0010		XSTR 2N3501JAN	EA	1.00
01012	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01013	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01014	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01015	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01016	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01017	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01018	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01019	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01020	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01021	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01022	007-00530-0001		XSTR NPN MMBT3904	EA	1.00
01023	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01024	007-00903-0000		2N7002 MOSFET	EA	1.00
01025	007-00903-0000		2N7002 MOSFET	EA	1.00
01026	007-00903-0000		2N7002 MOSFET	EA	1.00
01027	007-00905-0000		IRFR111 HEXFET	EA	1.00
01028	007-00905-0000		IRFR111 HEXFET	EA	1.00
01029	007-00905-0000		IRFR111 HEXFET	EA	1.00
01030	007-00905-0000		IRFR111 HEXFET	EA	1.00
01032	007-00904-0000		HEXFET	EA	1.00
01033	007-00903-0000		2N7002 MOSFET	EA	1.00
01034	007-00903-0000		2N7002 MOSFET	EA	1.00
01035	007-00903-0000		2N7002 MOSFET	EA	1.00
01036	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01037	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01038	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00
01039	007-00466-0000		XSTR S PNP MMBTA56	EA	1.00
Q1040	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
01041	007-00466-0000		XSTR S PNP MMBTA56	EA	1.00
01042	007-00610-0000		XSTR NPN MJE200	EA	1.00
01043	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01044	007-00802-0000		IRF 640	EA	1.00
01045	007-00903-0000		2N7002 MOSFET	EA	1.00
01046	007-00497-0010		XSTR 2N3501JAN	EA	1.00
01047	007-00905-0000		IRFR111 HEXFET	EA	1.00
01050	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00
01051	007-00903-0000		2N7002 MOSFET	EA	1.00
01052	007-00466-0000		XSTR S PNP MMBTA56	EA	1.00
01053	007-00468-0001		XSTR NPN MMBT2222A	EA	1.00
01054	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	1.00
01055	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01056	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01057	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01058	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
01059	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01060	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01061	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01062	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01063	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01064	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01065	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01066	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01067	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01068	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01069	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01070	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01071	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01072	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01074	007-00903-0000		2N7002 MOSFET	EA	1.00
01075	007-00610-0000		XSTR NPN MJE200	EA	1.00
01076	007-00903-0000		2N7002 MOSFET	EA	1.00
01077	007-00903-0000		2N7002 MOSFET	EA	1.00
01078	007-00261-0003		XSTR 2N2907A (SOT)	EA	1.00
01079	007-00903-0000		2N7002 MOSFET	EA	1.00
01080	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00
01081	007-00466-0000		XSTR S PNP MMBTA56	EA	1.00
01082	007-00903-0000		2N7002 MOSFET	EA	1.00
R1001	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1002	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1003	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1004	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1005	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1006	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1007	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1008	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1009	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1011	139-01021-0000		RES CH 1.02K EW 1%	EA	1.00
R1012	139-01181-0000		RES CHIP 1.18KEW1%	EA	1.00
R1013	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1014	999-09999-0098		PLACE HOLDER	RF	.00
R1015	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1016	139-03323-0000		RES CH 332K EW 1%	EA	1.00
R1017	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1018	139-05110-0000		RES CH 511 EW 1%	EA	1.00
R1019	130-05102-0033		RES CHIP 1K OW 5%	EA	1.00
R1020	139-01622-0000		RES CH 16.2K EW 1%	EA	1.00
R1021	139-02432-0000		RES CH 24.3K EW 1%	EA	1.00
R1022	139-09091-0000		RES CH 9.09K EW 1%	EA	1.00
R1023	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1024	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1025	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R1026	139-07500-0000		RES CHIP 750 EW 1%	EA	1.00
R1027	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1028	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1029	139-03011-0000		RES CH 3.01K EW 1%	EA	1.00
R1030	139-05110-0000		RES CH 511 EW 1%	EA	1.00
R1031	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1032	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1033	130-05010-0023		RES CH 1.0 EW 5%	EA	1.00
R1034	136-20100-0072		RES PF 1 OW 1%	EA	1.00
R1035	130-05102-0033		RES CHIP 1K OW 5%	EA	1.00
R1036	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1037	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1039	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1040	139-04753-0000		RES CH 475K EW 1%	EA	1.00
R1041	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1042	139-04753-0000		RES CH 475K EW 1%	EA	1.00
R1043	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1044	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1045	139-04753-0000		RES CH 475K EW 1%	EA	1.00
R1046	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1047	139-04753-0000		RES CH 475K EW 1%	EA	1.00
R1048	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1049	130-05221-0023		RES CHIP 220 EW 5%	EA	1.00
R1050	132-00005-0000		RES WW 3.3 3W 10%	EA	1.00
R1051	130-05102-0033		RES CHIP 1K OW 5%	EA	1.00
R1052	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1053	130-05102-0033		RES CHIP 1K OW 5%	EA	1.00
R1054	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1055	139-01782-0000		RES CHIP 17.8KEW1%	EA	1.00
R1056	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1057	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1058	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1059	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1060	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1061	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1062	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1063	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1064	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1065	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1066	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1067	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1068	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1069	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1070	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1071	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1072	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1073	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1074	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1075	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1076	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1077	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1078	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1079	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1080	130-05621-0033		RES CHIP 620 OW	EA	1.00
R1081	139-02001-0000		RES CHIP 2K EW 1%	EA	1.00
R1082	139-02001-0000		RES CHIP 2K EW 1%	EA	1.00
R1083	139-02001-0000		RES CHIP 2K EW 1%	EA	1.00
R1084	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1085	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1086	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1092	130-05133-0033		RES CH 13K OW 5%	EA	1.00
R1093	130-05203-0033		RES CH 20K OW 5%	EA	1.00
R1094	130-05203-0033		RES CH 20K QW 5%	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R1095	130-05133-0033		RES CH 13K OW 5%	EA	1.00
R1096	139-01501-0000		RES CH 1.5K EW 1%	EA	1.00
R1097	139-06980-0000		RES CH 698 EW 1%	EA	1.00
R1098	139-06980-0000		RES CH 698 EW 1%	EA	1.00
R1099	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1100	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1101	139-00309-0000		RES CH 30.9 EW 1%	EA	1.00
R1102	139-05112-0000		RES CHIP 51.1K 1%	EA	1.00
R1103	139-07502-0000		RES CHIP 75KEW1%	EA	1.00
R1104	139-05761-0000		RES CH 5.76K EW 1%	EA	1.00
R1105	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1106	139-09090-0000		RES CHIP 909 EW 1%	EA	1.00
R1107	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1108	130-05102-0023		RES CH 1K EW 5%	EA	1.00
R1109	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1110	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1111	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1112	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1113	139-02102-0000		RES CHIP 21K EW 1%	EA	1.00
R1114	139-02102-0000		RES CHIP 21K EW 1%	EA	1.00
R1115	139-02102-0000		RES CHIP 21K EW 1%	EA	1.00
R1116	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1117	139-02102-0000		RES CHIP 21K EW 1%	EA	1.00
R1118	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1119	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1120	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1121	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1122	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1123	130-05330-0033		RES CHIP 33 OW 5%	EA	1.00
R1124	130-05360-0033		RES CHIP 36 OW 5%	EA	1.00
R1125	130-05360-0033		RES CHIP 36 OW 5%	EA	1.00
R1126	130-05330-0033		RES CHIP 33 OW 5%	EA	1.00
R1127	139-06813-0000		RES CH 681K EW 1%	EA	1.00
R1128	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1129	139-02212-0000		RES CHIP 22.1KEW1%	EA	1.00
R1130	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1131	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1132	139-01212-0000		RES CHIP 12.1K1%EW	EA	1.00
R1133	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1134	139-03322-0000		RES CH 33.2K EW 1%	EA	1.00
R1135	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1136	139-01243-0000		RES CH 124K EW 1%	EA	1.00
R1137	133-00560-0011		RES VA SMD 50K OW	EA	1.00
R1138	130-05475-0023		RES CH 4.7M EW 5%	EA	1.00
R1139	132-00116-0015		RES WW .75 3W 10%	EA	1.00
R1140	139-01621-0000		RES CH 1.62K EW 1%	EA	1.00
R1141	139-01820-0000		RES CH 182 EW 1%	EA	1.00
R1142	133-00559-0000		HV TRIM POT 2.5M	EA	1.00
R1143	133-00560-0011		RES VA SMD 50K OW	EA	1.00
R1144	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1145	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
R1146	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1147	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1148	139-02001-0000		RES CHIP 2K EW 1%	EA	1.00
R1149	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1150	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
R1151	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1152	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1153	130-05361-0023		RES CHIP 360 EW 5%	EA	1.00
R1154	130-05131-0023		RES CH 130 EW 5%	EA	1.00
R1157	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1158	139-07503-0000		RES CHIP 750KEW1%	EA	1.00
R1159	130-05471-0033		RES CHIP 470 QW5%	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R1160	139-01503-0000		RES CHIP 150KEW1%	EA	1.00
R1161	139-03013-0000		RES CHIP 301K EW1%	EA	1.00
R1162	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1163	139-07503-0000		RES CHIP 750KEW1%	EA	1.00
R1164	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1165	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1166	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1167	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1168	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1169	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1170	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1171	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1172	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1173	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1174	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1175	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1176	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1177	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1178	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1179	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1180	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1182	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1183	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1184	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1186	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1187	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1188	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1189	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1190	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1191	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1192	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1193	133-00560-0010		RES VA SMD 20K OW	EA	1.00
R1194	133-00560-0010		RES VA SMD 20K OW	EA	1.00
R1195	133-00560-0009		RES VA SMD 10K OW	EA	1.00
R1196	133-00560-0009		RES VA SMD 10K OW	EA	1.00
R1197	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1198	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1199	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1200	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1201	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1202	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1203	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1204	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1205	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1208	132-00107-0059		RES WW 130 3.25W5%	EA	1.00
R1209	130-05300-0023		RES CHIP 30 EW 5%	EA	1.00
R1210	130-05473-0033		RES CH 47K OW 5%	EA	1.00
R1211	130-05360-0023		RES CHIP 36.0EW5%	EA	1.00
R1212	139-04753-0000		RES CH 475K EW 1%	EA	1.00
R1213	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1214	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1215	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1216	130-05512-0033		RES CH 5.1K OW 5%	EA	1.00
R1217	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1218	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1219	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1220	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1221	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1222	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1223	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1224	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1225	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1226	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R1227	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1228	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1229	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1230	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1231	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1232	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
R1233	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1234	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1235	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1236	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1238	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1239	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1240	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1241	139-05621-0000		RES CHIP 5.62KEW1%	EA	1.00
R1242	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1243	139-04321-0000		RES CH 4.32K EW 1%	EA	1.00
R1244	139-04321-0000		RES CH 4.32K EW 1%	EA	1.00
R1245	139-04321-0000		RES CH 4.32K EW 1%	EA	1.00
R1246	139-04321-0000		RES CH 4.32K EW 1%	EA	1.00
R1247	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1248	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1250	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1251	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1252	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1253	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1254	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1255	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1256	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1257	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1258	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1259	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1260	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1261	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1262	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1263	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1264	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1265	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1266	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1267	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1268	139-02211-0000		RES CH 2.21K EW 1%	EA	1.00
R1269	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1270	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1271	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1272	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1273	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1274	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1275	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1276	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1277	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1278	130-05200-0033		RES CH 20 OW 5%	EA	1.00
R1279	130-05200-0033		RES CH 20 OW 5%	EA	1.00
R1280	130-05200-0033		RES CH 20 OW 5%	EA	1.00
R1281	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1282	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1283	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1284	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1285	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1286	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1287	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1288	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1290	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1291	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1292	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

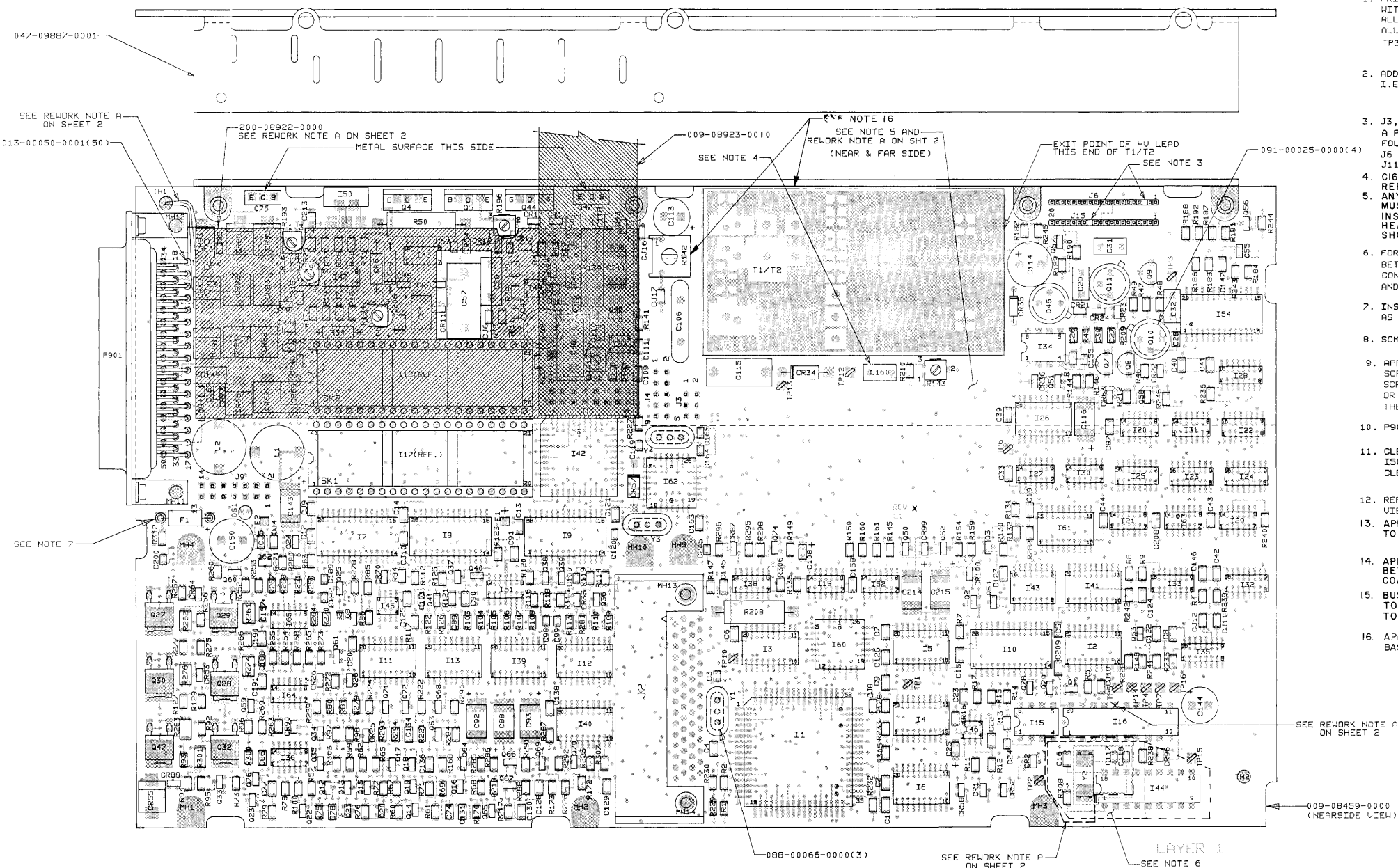
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R1293	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1294	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1295	139-08872-0000		RES CH 88.7K EW 1%	EA	1.00
R1296	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1298	139-02322-0000		RES CH 23.2K EW 1%	EA	1.00
R1300	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1301	130-05018-0043		RES CH 1.8 HW 5%	EA	1.00
R1303	130-05200-0033		RES CH 20 OW 5%	EA	1.00
R1304	130-05200-0033		RES CH 20 OW 5%	EA	1.00
R1305	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1306	139-06492-0000		RES CH 64.9K EW 1%	EA	1.00
R1307	139-04750-0000		RES CH 475 EW 1%	EA	1.00
R1308	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1309	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1310	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1311	139-01000-0000		RES CHIP 100 EW 1%	EA	1.00
R1312	139-09091-0000		RES CH 9.09K EW 1%	EA	1.00
R1313	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1314	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1315	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1316	139-04752-0000		RES CH 47.5K EW 1%	EA	1.00
R1317	139-04751-0000		RES CH 4.75K EW 1%	EA	1.00
R1318	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1319	139-02433-0000		RES CH 243K EW 1%	EA	1.00
R1320	139-07152-0000		RES CHIP 71.5KEW1%	EA	1.00
R1321	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1322	139-01301-0000		RES CH 1.30K EW 1%	EA	1.00
R1323	130-05475-0023		RES CH 4.7M EW 5%	EA	1.00
R1324	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1325	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1326	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1327	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1328	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1329	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1330	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R1331	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1332	130-05151-0053		RES CH 150 5% 1W	EA	1.00
R1333	130-05680-0053		RES CH 68 1W 5%	EA	1.00
R1334	139-00442-0000		RES CH 44.2 EW 1%	EA	1.00
R1335	139-05762-0003		RES CH 57.6K EW.1%	EA	1.00
R1336	139-05112-0003		RES CH51.1K EW0.1%	EA	1.00
R1337	139-05112-0000		RES CHIP 51.1K 1%	EA	1.00
R1338	139-05112-0000		RES CHIP 51.1K 1%	EA	1.00
R1339	139-05762-0003		RES CH 57.6K EW.1%	EA	1.00
R1340	139-05112-0003		RES CH51.1K EW0.1%	EA	1.00
R1341	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R1342	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R1343	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R1344	139-02002-0003		RES CH 20.0K EW.1%	EA	1.00
R1345	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1346	139-06651-0000		RES CH6.65K EW 1%	EA	1.00
R1347	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1348	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1349	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1350	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1351	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R1352	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R1353	139-00100-0000		RES CHIP 10 EW 1%	EA	1.00
R1354	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1355	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R1356	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
REF1	300-08924-0000		MAIN BD ASSY KLN 90B	RF	.00
REF2	002-08924-0000		KLN 90B MAIN BOARD SCHEMATIC	RF	.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08924-0000	KLN90B MAIN BD	AJ

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
SK1001	033-00092-0017		IC DIP SCKT 40C	EA	1.00
T1001	999-09999-0096		RESERVED	RF	.00
T1002	999-09999-0096		RESERVED	RF	.00
TP1001	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1002	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1003	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1004	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1005	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1006	999-09999-0098		PLACE HOLDER	RF	.00
TP1007	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1008	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1010	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1011	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1012	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1013	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1014	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1015	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP1016	008-00096-0001		TERMINAL TEST PNT	EA	1.00
Y1001	044-00313-0000		XTAL 20MHZ (20PF)	EA	1.00
Y1002	044-00307-0000		32.768KHZ CRYST OSC	EA	1.00
Y1003	044-00285-0000		CRYSTAL 3.6864 MHZ	EA	1.00
Y1004	044-00312-0000		XTAL 18.432MHZ	EA	1.00
	008-00038-0001		TERM BIFUR .084L	EA	2.00
	009-08924-0000		P/C MAIN BD	EA	1.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	016-01082-0000		DC RTV 3145	AR	2.00
	047-09887-0001		HEAT SINK FINISHED	EA	1.00
	088-00066-0000		SPACER PLASTIC	EA	3.00
	088-02489-0001		SPACER BLOCK. CONNECTOR	EA	2.00
	089-02076-0030		NUT FLAT 4-40	EA	2.00
	089-02140-0000		NUT LOCK 4-40	EA	6.00
	089-05903-0003		SCR PHP 4-40X3/16	EA	4.00
	089-05903-0010		SCR PHP 4-40X5/8	EA	2.00
	089-06008-0005		SCR FHP 4-40X5/16	EA	6.00
	090-00559-0000		STANDOFF PCBD 4-40	EA	1.00
	091-00025-0000		WSHR XSTR INSUL	EA	4.00
	091-00156-0000		BUSHING	EA	4.00
	091-00614-0000		TRANS INSULTRW/ADH	EA	6.00
	150-00005-0010		TUBING TFLN 20AWG	IN	.50
	195-00086-0000		HV TRANSFORMER OPTIONS	EA	1.00



- NOTES:
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING: ALL MOUNTING HOLES EXCEPT MH11 AND MH12, ALL J'S, ALL SOCKETS, ALL VARIABLE RESISTORS, E1, E2, TP3, TP12, TP13, AND HEATSINK.
 2. ADD 1000 TO ALL REFERENCE DESIGNATORS. I.E. R8 = R1008 R118 = R1118
 3. J3, J4, J6, J9, J11, AND J15 ARE KEYED BY OMITTING A PIN ON THE PC BOARD. DO NOT INSTALL PINS IN THE FOLLOWING LOCATIONS: J3 PIN 3, J4 PIN 6, J6 PIN 3 (REMOVE PIN, DO NOT CUT), J9 PIN 10, J11 PIN 5, J15 PIN 13 (REMOVE PIN, DO NOT CUT).
 4. C160 IS NOT TO BE USED IF T1 (019-07244-0001) IS USED. REFER TO I95-00086-0000.
 5. ANY LABELS, INKED TEXT, NOTATION, OR OTHER SYMBOLOGY, MUST BE ELECTRICALLY NON-CONDUCTIVE IF POSITIONED INSIDE OF THE AREA INDICATED (NEAR AND FAR SIDE) APPLY HEAVY COAT OF CONFORMAL COATING TO DASHED-IN AREA SHOWN ON NEAR AND FAR SIDES OF PC BOARD.
 6. FORCE UNDILUTED CONFORMAL COATING (KPN 104-01040-0000) BETWEEN AND UNDER LEADS OF I44. APPLY HEAVY COAT OF CONFORMAL COATING TO DASHED-IN AREA SHOWN ON NEAR AND FAR SIDE OF PC BOARD.
 7. INSTALL F1 IN THE BIFURCATED TERMINALS (008-00038-0001) AS SHOWN.
 8. SOME PARTS NOT USED. REFER TO 200-08459-XXXX.
 9. APPLY LOCTITE 220 (016-01411-0000) OR EQUIVALENT ON SCREW THREADS AS REQUIRED. SCREWS (089-07212-0005) ARE TO END 0.5 THREADS ABOVE OR BELOW FLUSH WITH MATING NUT (089-02545-0003) IN THEIR INSTALLED CONDITION.
 10. P901 TO BE SOLDERED IN PLACE.
 11. CLEAN HEATSINK (047-09887-0001) AND TRANSISTORS (Q75, I50, Q4, Q3, Q44, Q42) WITH ALCOHOL OR EQUIVALENT CLEANER PRIOR TO MOUNTING INSULATOR PAD (012-01547-0000).
 12. REFER TO 300-08459-0000 SHEET 3 OF 3 FOR MECHANICAL VIEW OF ORIGINAL ASSEMBLY.
 13. APPLY AN EXTRA HEAVY COAT OF CONFORMAL COATING TO THE P.C. BOARD AT CR34, C115 AND C106.
 14. APPLY CONFORMAL COATING TO P.C. BOARD AROUND AND BETWEEN GOLD PINS OF J3, J4, J9, J11. DO NOT GET CONFORMAL COATING MORE THAN 1/16 INCH UP ON GOLD PINS.
 15. BUSHING MUST BE CENTERED IN TRANSISTOR MOUNTING HOLE TO PREVENT THE BUSHING FROM BEING CRUSHED. TORQUE TO 45 IN-OZ WHILE HOLDING THE MOUNTING NUTS.
 16. APPLY BEAD OF RTV (016-01082-0000) AROUND BASE OF T1/T2 (4 SIDES) AND R142 (4 SIDES)

REF. B/M: 066-04031-2X21

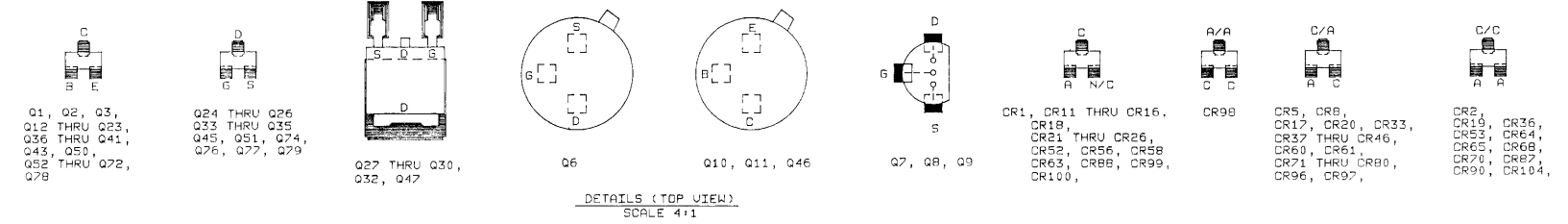


Figure 10008 Main Module KLN 90A Upgrade (300-08459-0002 R-5, Sheet 1 of 2)

NOTE: ADD 1000 TO ALL REFERENCE DESIGNATORS.
 I.E. R8 = R1008
 R118 = R1118

REWORK NOTES:

A. SPECIAL MATERIAL REQUIRED:

WIRE:	024-05068-0055	AR	-
OBS ADAPTER BOARD:	200-08922-0000	EA	1
	096-01186-0034	EA	1
	139-05112-0000	EA	1

IMPORTANT: WIRE ROUTING KEEP-OUT AREAS ARE DENOTED BY DASHED LINES WITH THIS REWORK NOTE AS A REFERENCE, INDICATED WITH AN ARROW TO THE DASHED-IN AREA.

INCORPORATE ECD 100017.

REMOVE C88 AND REPLACE WITH 096-01186-0034.
 REMOVE R102 AND REPLACE WITH 139-05112-0000.

CUT PIN 16 OF I16 ON MAIN BOARD. RUN WIRE FROM PIN 2 OF I44 TO THRU-HOLE LOCATION OF PIN 16 OF I16 ON MAIN BOARD (NOT THE CUT PIN PROTRUDING FROM THE IC BODY). RUN WIRE FROM PIN 3 OF I50 TO PIN 16 OF J11 ON FAR SIDE OF MAIN BOARD. STARTING ON FAR SIDE OF MAIN BOARD, RUN WIRES TO MAKE THE FOLLOWING CONNECTIONS:

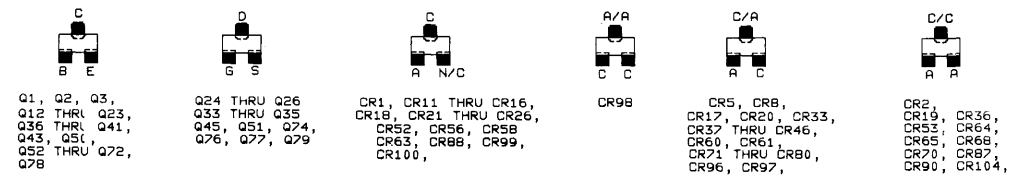
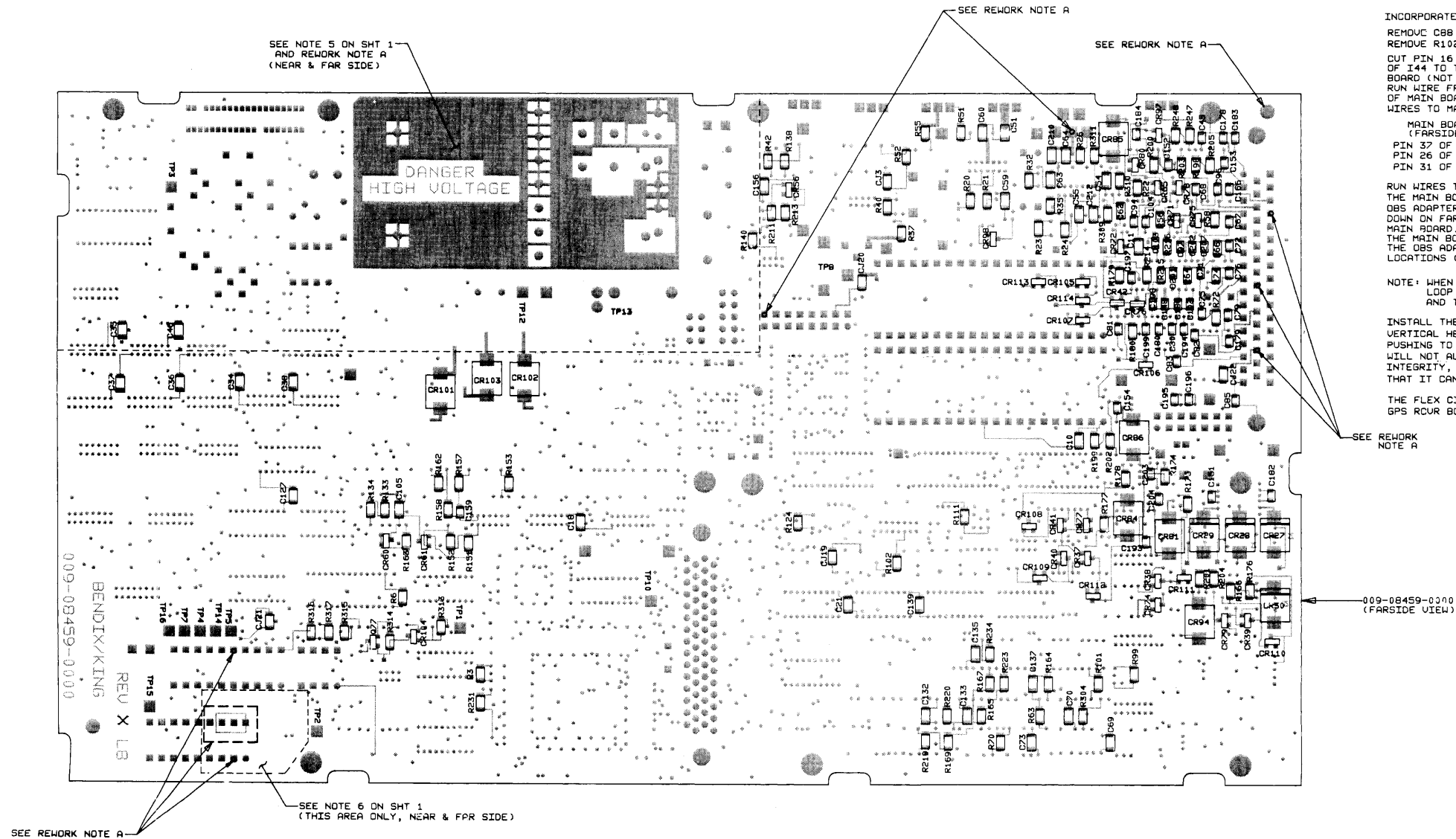
MAIN BOARD (FAR SIDE)	TO	OBS ADAPTER BOARD (NEAR SIDE - THE SIDE WITH THE IC'S)
PIN 37 OF P901		THRU-HOLE E1
PIN 26 OF P901		THRU-HOLE E2
PIN 31 OF P901		THRU-HOLE E3

RUN WIRES THROUGH TOOLING HOLE TH1 TO THE NEAR SIDE OF THE MAIN BOARD, AND THEN TERMINATE CONNECTIONS ON THE OBS ADAPTER BOARD (8922). THESE 3 WIRES SHOULD BE TACKED DOWN ON FAR SIDE OF MAIN BOARD, BUT FREE ON NEAR SIDE OF MAIN BOARD. USE ENOUGH SERVICE LOOP ON THE NEAR SIDE OF THE MAIN BOARD TO ALLOW HANDLING AND INSTALLATION OF THE OBS ADAPTER BOARD ON TO ITS MAIN BOARD MOUNTING LOCATIONS (SK2 AND J11).

NOTE: WHEN THE OBS ADAPTER BOARD IS MOUNTED, THE SERVICE LOOP OF WIRES (3) SHOULD LIE BETWEEN THE MAIN BOARD AND THE OBS ADAPTER BOARD.

INSTALL THE OBS ADAPTER BOARD ON TO SK2 AND J11. DUE TO VERTICAL HEIGHT CONSTRAINTS, C149 MUST BE LEANED OVER BY PUSHING TO ONE SIDE. IF EXISTING INSTALLATION OF C149 WILL NOT ALLOW THIS TO BE DONE WITH PRESERVATION OF LEAD INTEGRITY, THEN C149 MUST BE REPLACED AND INSTALLED SUCH THAT IT CAN BE MADE, OR PRE-FORMED, TO LEAN TO ONE SIDE.

THE FLEX CIRCUIT CABLE (009-08923-0010) MATES WITH THE GPS RCUR BOARD.



DETAILS (TOP VIEW)
 SCALE 4:1

Figure 10008 Main Module KLN 90A Upgrade
 (300-08459-0002 R-5, Sheet 2 of 2)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
205-00677-0048	KLN 90B PROGRAMMED HOST BOARD	-
205-00677-0049	KLN 90B PROGRAMMED HOST BOARD	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0048	-0049
	057-05252-0677		IDT 205-00677-0000	EA	1.00	1.00
	057-05335-0048		DECAL . DASH 48	EA	1.00	.
	057-05335-0049		DECAL DASH 49	EA	.	1.00
	125-00719-0048		KLN 90B PROGRAMMED HOST DEVICE SET	EA	1.00	.
	125-00719-0049		KLN90B PROGRAMMED HOST DEVICE SET	EA	.	1.00
	200-08459-0002		KLN90 MAIN BD UPGRD	EA	1.00	1.00
	300-08459-0002		CONV MAIN BD ASSY	RF	.00	.00

PN	DESCRIPTION	REV
125-00719-0048	KLN 90B PROGRAMMED HOST DEVICE SET	-
125-00719-0049	KLN90B PROGRAMMED HOST DEVICE SET	-

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0048	-0049
I1017	122-01515-0048		KLN 90B PROGRAMMED HOST DEVICE SET	EA	1.00	.
I1017	122-01515-0049		KLN90B PROGRAMMED HOST DEVICE	EA	.	1.00
REF1	300-08924-0000		MAIN BD ASSY KLN 90B	RF	.00	.00

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
C1001	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1002	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1003	106-05200-0016		CAPCH 20PF NPO 50V	EA	.	1.00
C1004	106-04330-0026		CH 33PF NPO/100V	EA	.	1.00
C1005	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1006	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1007	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1008	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1009	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1010	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1011	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1012	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1013	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1014	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1015	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1016	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1018	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1019	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1020	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1021	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1022	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1023	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1024	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1025	096-01186-0012		CAP 1.0UF 16V 10%	EA	.	1.00
C1026	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1027	106-04681-0047		CAP CH680PFX7R/50V	EA	.	1.00
C1028	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1029	111-00001-0022		CAP CR .1UF 100V	EA	.	1.00
C1030	106-04181-0026		CAPCH180PFNPO/100V	EA	.	1.00
C1031	111-00001-0022		CAP CR .1UF 100V	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
C1032	111-00001-0022		CAP CR .1UF 100V	EA	.	1.00
C1033	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1034	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1035	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1036	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1037	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1038	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1039	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1040	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1041	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1042	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1043	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1044	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1045	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1046	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1047	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1048	108-05078-0000		CAP PC .01UF600V5%	EA	.	1.00
C1049	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1050	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	.	1.00
C1051	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1052	106-05271-0016		CAP CH270PFNPO/50V	EA	.	1.00
C1053	106-05560-0016		CAP CH 56PFNPO/50V	EA	.	1.00
C1054	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1055	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1057	108-05017-0011		CAP PC 1UF 50V	EA	.	1.00
C1058	108-00514-0001		CAP. POLYCARB. .01UF 5% 50V	EA	.	1.00
C1059	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1060	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1061	096-01186-0015		CAP 33UF 16V 10%	EA	.	1.00
C1062	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1063	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1064	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1065	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	.	1.00
C1066	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1067	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1068	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1069	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1070	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1071	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1072	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1073	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1074	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1075	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1076	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1077	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1078	106-04102-0047		CH 1K X7R/50V	EA	.	1.00
C1079	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1080	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1081	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1082	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1083	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1084	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1085	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1086	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1087	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1088	096-01186-0023		CAP 15UF 25V 10%	EA	.	1.00
C1089	106-04101-0016		CH 100PF NPO/50V	EA	.	1.00
C1090	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1091	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1092	096-01186-0023		CAP 15UF 25V 10%	EA	.	1.00
C1093	096-01186-0023		CAP 15UF 25V 10%	EA	.	1.00
C1094	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
C1095	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1096	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1097	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1098	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1099	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1100	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1101	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1102	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1103	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1104	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1105	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1106	118-00086-0000		CAP CR .01UF 1KV	EA	.	1.00
C1108	096-01186-0012		CAP 1.0UF 16V 10%	EA	.	1.00
C1109	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1110	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1111	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1112	106-04220-0026		CH 22PF NPO/100V	EA	.	1.00
C1113	097-00214-0002		CAP AL 220UF 25V	EA	.	1.00
C1114	097-00210-0001		CAP AL 4.7UF 200V	EA	.	1.00
C1115	118-00086-0000		CAP CR .01UF 1KV	EA	.	1.00
C1116	096-01186-0015		CAP 33UF 16V 10%	EA	.	1.00
C1117	106-05330-0016		CAP CH 33PFNPO/50V	EA	.	1.00
C1118	106-05330-0016		CAP CH 33PFNPO/50V	EA	.	1.00
C1119	106-05150-0016		CAP CH 15PFNPO/50V	EA	.	1.00
C1120	106-05050-0011		CAP CH 5PF NPO/50V	EA	.	1.00
C1121	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1122	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1123	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1124	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1125	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1126	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1127	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1128	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1129	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1130	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1131	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1132	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1133	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1134	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1135	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1136	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1137	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1138	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1139	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1143	096-01186-0086		CAP 10UF 35V 20%	EA	.	1.00
C1144	097-00104-0050		CAP AL 220UF 10V	EA	.	1.00
C1145	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1146	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1147	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1148	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1149	111-00001-0032		CAP CR 1UF 50V	EA	.	1.00
C1150	097-00214-0003		CAP AL 180UF 50V	EA	.	1.00
C1151	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1152	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1153	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1154	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1155	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1156	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1157	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1158	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1159	106-05390-0016		CAP CH 39PFNPO/50V	EA	.	1.00
C1160	999-09999-0096		RESERVED	RF	.	.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
C1163	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1164	106-05200-0016		CAPCH 20PF NPO 50V	EA	.	1.00
C1165	106-05200-0016		CAPCH 20PF NPO 50V	EA	.	1.00
C1166	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1167	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1178	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1179	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1180	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1182	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1183	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1184	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1186	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1188	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1189	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1190	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1191	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1192	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1193	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C1194	999-09999-0098		PLACE HOLDER	RF	.	.00
C1195	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1196	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1197	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1198	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1199	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1200	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1201	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1202	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1203	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1204	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1205	106-05682-0046		CAP CH 6.8KX7R/50V	EA	.	1.00
C1206	096-01186-0030		CAP 1UF 35V 10%	EA	.	1.00
C1207	106-05221-0057		CAP CH220PFX7R/100	EA	.	1.00
C1208	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1209	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1210	106-04104-0047		CH 100KX7R/50V	EA	.	1.00
C1211	096-01186-0086		CAP 10UF 35V 20%	EA	.	1.00
C1212	106-04103-0047		CH 10K X7R/50V	EA	.	1.00
C1213	096-01186-0012		CAP 1.0UF 16V 10%	EA	.	1.00
C1214	096-01186-0015		CAP 33UF 16V 10%	EA	.	1.00
C1215	096-01186-0015		CAP 33UF 16V 10%	EA	.	1.00
CJ1003	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1004	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00	.
CJ1005	999-09999-0098		PLACE HOLDER	EA	1.00	.
CJ1006	999-09999-0098		PLACE HOLDER	RF	.	.00
CJ1007	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1008	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1009	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1010	999-09999-0098		PLACE HOLDER	RF	.	.00
CJ1011	999-09999-0098		PLACE HOLDER	RF	.	.00
CJ1012	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1016	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1017	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1018	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00	.
CJ1019	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1020	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CJ1021	999-09999-0098		PLACE HOLDER	EA	1.00	.
CJ1022	999-09999-0098		PLACE HOLDER	RF	.	.00
CR1001	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1002	007-06398-0000		DIO DUAL SCHOTTKY	EA	.	1.00
CR1005	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR1006	007-05051-0001		DIO Z 1N821A	EA	.	1.00
CR1008	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
CR1009	007-05051-0001		DIO Z 1N821A	EA	.	1.00
CR1011	007-05117-0012		DIO Z 10V SOT	EA	.	1.00
CR1012	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1013	195-00105-0000		DIODE OPTIONS	EA	.	1.00
CR1014	195-00105-0000		DIODE OPTIONS	EA	.	1.00
CR1015	007-05117-0007		DIO Z 6.2V SOT	EA	.	1.00
CR1016	007-05117-0007		DIO Z 6.2V SOT	EA	.	1.00
CR1017	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR1018	007-06177-0000		SMD DIO SI MMBD914	EA	.	1.00
CR1019	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1020	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR1021	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1022	007-06177-0000		SMD DIO SI MMBD914	EA	.	1.00
CR1023	007-06177-0000		SMD DIO SI MMBD914	EA	.	1.00
CR1024	007-06177-0000		SMD DIO SI MMBD914	EA	.	1.00
CR1025	007-06177-0000		SMD DIO SI MMBD914	EA	.	1.00
CR1026	007-05117-0011		DIO Z 9.1V SOT	EA	.	1.00
CR1027	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1028	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1029	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1030	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1032	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1033	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR1034	007-06129-0000		DIO S HV VAR223-40	EA	.	1.00
CR1035	007-06105-0000		DIO HV FDH444	EA	.	1.00
CR1036	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1037	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1038	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1039	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1040	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1041	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1042	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1043	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1044	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1045	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1046	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1052	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1053	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1054	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1055	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1056	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1057	007-05011-0000		DIO Z 6.2V 1W 5%	EA	.	1.00
CR1058	007-06180-0000		DIO SW MMBD6050	EA	.	1.00
CR1060	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1061	007-06417-0000		DIODE SCHOTTKY	EA	.	1.00
CR1063	007-05117-0017		DIO Z 16V SOT	EA	.	1.00
CR1064	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1065	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1066	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1067	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1068	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1069	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1070	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1071	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1072	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1073	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1074	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1075	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1076	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1077	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1078	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1079	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
CR1080	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1081	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1082	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1083	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1084	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1085	007-05241-0205		TRNSRB 1500W 24V	EA	.	1.00
CR1086	999-09999-0098		PLACE HOLDER	RF	.	.00
CR1087	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1088	007-05117-0007		DIO Z 6.2V SOT	EA	.	1.00
CR1089	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1090	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1091	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1092	007-05241-0002		TRNSRB 150W 40V	EA	.	1.00
CR1093	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1094	007-05241-0203		TRNSRB 1500W 15V	EA	.	1.00
CR1095	007-05241-0205		TRNSRB 1500W 24V	EA	.	1.00
CR1096	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1097	007-06184-0000		DIO DUAL SWITCHING	EA	.	1.00
CR1098	007-06181-0000		DIO DUAL MMBD2835	EA	.	1.00
CR1099	007-05117-0016		DIO Z 15V SOT	EA	.	1.00
CR1100	007-05117-0016		DIO Z 15V SOT	EA	.	1.00
CR1101	007-05241-0205		TRNSRB 1500W 24V	EA	.	1.00
CR1102	007-05241-0205		TRNSRB 1500W 24V	EA	.	1.00
CR1103	007-05241-0205		TRNSRB 1500W 24V	EA	.	1.00
CR1104	007-06227-0000		DIO MMBD6100 SOT23	EA	.	1.00
CR1105	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1106	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1107	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1108	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1109	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1110	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1111	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1112	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1113	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
CR1114	007-05117-0024		DIO Z 33V SOT	EA	.	1.00
DS1001	037-00034-0002		LMP 8098 T1 14V	EA	.	1.00
F1001	036-00147-0010		SLO-BLO MINI FUSE	EA	.	1.00
I1001	120-02513-0000		16 BIT VPROCESSOR	EA	.	1.00
I1002	124-00573-0003		74HCT573 (SO)	EA	.	1.00
I1003	124-00573-0003		74HCT573 (SO)	EA	.	1.00
I1004	124-00573-0003		74HCT573 (SO)	EA	.	1.00
I1005	124-00245-0002		74HCT245D SO PKG	EA	.	1.00
I1006	124-00245-0002		74HCT245D SO PKG	EA	.	1.00
I1007	120-02363-0010		32KX8 RAM 100NS SO	EA	.	1.00
I1008	120-02363-0008		32K X 8 STATIC RAM	EA	.	1.00
I1009	120-02363-0010		32KX8 RAM 100NS SO	EA	.	1.00
I1010	120-02363-0008		32K X 8 STATIC RAM	EA	.	1.00
I1011	123-00541-0003		IC MOS 74HC541	EA	.	1.00
I1012	124-00541-0003		74HCT541 (SO)	EA	.	1.00
I1013	124-00574-0003		IC 74HCT574	EA	.	1.00
I1015	120-03103-0000		VOLTAGE REFERENCE. 2.5 VDC	EA	.	1.00
I1016	195-00186-0000		PREFERRED/ALTERNATE EPLD. KLN90B	EA	.	1.00
I1017	999-09999-0090		REF SFTWARE SET	RF	.	.00
I1018	999-09999-0090		REF SFTWARE SET	RF	.	.00
I1019	124-00032-0003		IC 74HCT32 SO PKG	EA	.	1.00
I1020	124-00004-0003		IC 74HCT04 SO PKG	EA	.	1.00
I1021	123-00008-0003		74HC08 SO PKG	EA	.	1.00
I1022	123-00157-0003		74HC157 SO PKG	EA	.	1.00
I1023	123-00157-0003		74HC157 SO PKG	EA	.	1.00
I1024	123-00157-0003		74HC157 SO PKG	EA	.	1.00
I1025	123-04040-0003		74HC4040 SO PKG	EA	.	1.00
I1026	124-00244-0003		IC 74HCT244 SO PKG	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
I1027	123-00074-0003		IC 74HC74 SO PKG	EA	.	1.00
I1028	123-00166-0003		74HC166 (SO)	EA	.	1.00
I1029	123-00393-0003		74HC393 (SO)	EA	.	1.00
I1030	123-00021-0003		74HC21 (SO)	EA	.	1.00
I1031	124-00010-0003		74HCT10 SO PKG	EA	.	1.00
I1032	123-00390-0003		IC 74HC390 S01C	EA	.	1.00
I1033	123-04049-0003		74HC4049 (SO)	EA	.	1.00
I1034	120-02233-0001		IC DS0026CJ-8	EA	.	1.00
I1035	124-00174-0003		IC 74HCT174 SO PKG	EA	.	1.00
I1036	124-00032-0003		IC 74HCT32 SO PKG	EA	.	1.00
I1038	124-00004-0003		IC 74HCT04 SO PKG	EA	.	1.00
I1039	123-00541-0003		IC MOS 74HC541	EA	.	1.00
I1040	123-00541-0003		IC MOS 74HC541	EA	.	1.00
I1041	123-00563-0003		74HC563 (SO PKG)	EA	.	1.00
I1042	120-02373-0000		DUAL CHANNEL UART	EA	.	1.00
I1043	120-06256-0003		CMDS 232 DRVR/RCVR	EA	.	1.00
I1044	120-02462-0000		CMOS REAL TIME CLK	EA	.	1.00
I1045	120-02434-0003		256BIT EEPROM CMOS	EA	.	1.00
I1046	120-03127-0011		IC LM2903 SO PKG	EA	.	1.00
I1047	120-03174-0014		OP AMP BI FET SO	EA	.	1.00
I1048	120-03174-0014		OP AMP BI FET SO	EA	.	1.00
I1049	120-03127-0011		IC LM2903 SO PKG	EA	.	1.00
I1050	120-03114-0001		IC TDA-2030V	EA	.	1.00
I1051	120-03174-0014		OP AMP BI FET SO	EA	.	1.00
I1052	120-03174-0014		OP AMP BI FET SO	EA	.	1.00
I1053	120-03174-0012		OP AMP BI FET SO	EA	.	1.00
I1054	120-06129-0009		6264-15 8K X 8 RAM	EA	.	1.00
I1060	120-08030-0002		ARINC 429 LSI SO	EA	.	1.00
I1061	124-00574-0003		IC 74HCT574	EA	.	1.00
I1062	120-02456-0000		82050 UART	EA	.	1.00
I1063	123-00005-0003		74HC05 (SO PKG)	EA	.	1.00
I1064	120-03163-0001		LM2901 SO-14 COMP	EA	.	1.00
I1065	120-03196-0000		IC LM2902D	EA	.	1.00
J1002	200-10545-0000		DB CONNECTOR FLEX JUMPER	EA	.	1.00
J1003	030-02174-0004		PIN CONTACT	EA	.	5.00
J1004	030-02174-0004		PIN CONTACT	EA	.	9.00
J1006	030-03112-0020		CONN .050 MALE	EA	.	1.00
J1009	030-02174-0004		PIN CONTACT	EA	.	13.00
J1011	030-02174-0004		PIN CONTACT	EA	.	15.00
J1015	030-03112-0020		CONN .050 MALE	EA	.	1.00
J1901	030-02350-0064		CONN SUB-D PC 50P	EA	.	1.00
L1001	019-02687-0001		PWR FILTER CHOKES	EA	.	1.00
L1002	019-02687-0001		PWR FILTER CHOKES	EA	.	1.00
L1003	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1004	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1005	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1006	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1007	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1008	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1009	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1010	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1011	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1012	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1013	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1014	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1015	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1016	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1017	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1018	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1019	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1020	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1021	013-00050-0001		FERRITE BEAD .135	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
L1022	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1023	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1024	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1025	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1026	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1027	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1028	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1029	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1030	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1031	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1032	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1033	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1034	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1035	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1036	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1037	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1038	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1039	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1040	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1041	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1042	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1043	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1044	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1045	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1046	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1047	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1048	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1049	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1050	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1051	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
L1052	013-00050-0001		FERRITE BEAD .135	EA	.	1.00
01001	007-00933-0000		MMBT2369	EA	.	1.00
01002	007-00933-0000		MMBT2369	EA	.	1.00
01003	007-00468-0001		XSTR NPN MMBT2222A	EA	.	1.00
01004	007-00219-0000		XSTR S NPN TIP120	EA	.	1.00
01005	007-00218-0000		XSTR S PNP TIP125	EA	.	1.00
01006	007-00902-0000		IRFF330 HEXFET	EA	.	1.00
01007	007-00829-0000		XSTR FET VP1310N3	EA	.	1.00
01008	007-00830-0000		XSTR FET VN1310N3	EA	.	1.00
01009	007-01021-0000		MOSFET P-CH 200V	EA	.	1.00
01010	007-00497-0010		XSTR 2N3501JAN	EA	.	1.00
01011	007-00497-0010		XSTR 2N3501JAN	EA	.	1.00
01012	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01013	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01014	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01015	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01016	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01017	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01018	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01019	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01020	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01021	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01022	007-00530-0001		XSTR NPN MMBT3904	EA	.	1.00
01023	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01024	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01025	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01026	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01027	007-00905-0000		IRFR111 HEXFET	EA	.	1.00
01028	007-00905-0000		IRFR111 HEXFET	EA	.	1.00
01029	007-00905-0000		IRFR111 HEXFET	EA	.	1.00
01030	007-00905-0000		IRFR111 HEXFET	EA	.	1.00
Q1032	007-00904-0000		HEXFET	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
01033	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01034	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01035	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01036	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01037	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01038	007-00467-0000		XSTR S NPN MMBTA06	EA	.	1.00
01039	007-00466-0000		XSTR S PNP MMBTA56	EA	.	1.00
01040	007-00467-0000		XSTR S NPN MMBTA06	EA	.	1.00
01041	007-00466-0000		XSTR S PNP MMBTA56	EA	.	1.00
01042	007-00610-0000		XSTR NPN MJE200	EA	.	1.00
01043	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01044	007-00802-0000		IRF 640	EA	.	1.00
01045	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01046	007-00497-0010		XSTR 2N3501JAN	EA	.	1.00
01047	007-00905-0000		IRFR111 HEXFET	EA	.	1.00
01050	007-00467-0000		XSTR S NPN MMBTA06	EA	.	1.00
01051	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01052	007-00466-0000		XSTR S PNP MMBTA56	EA	.	1.00
01053	007-00468-0001		XSTR NPN MMBT2222A	EA	.	1.00
01054	007-00065-0001		XSTR 2N3906 (SOT-23)	EA	.	1.00
01055	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01056	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01057	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01058	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
01059	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01060	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01061	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01062	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01063	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01064	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01065	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01066	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01067	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01068	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01069	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01070	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01071	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01072	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01074	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01075	007-00610-0000		XSTR NPN MJE200	EA	.	1.00
01076	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01077	007-00903-0000		2N7002 MOSFET	EA	.	1.00
01078	007-00261-0003		XSTR 2N2907A (SOT)	EA	.	1.00
01079	007-00903-0000		2N7002 MOSFET	EA	.	1.00
R1001	130-05472-0023		RES CHIP 4.7KEW5%	EA	.	1.00
R1002	130-05472-0023		RES CHIP 4.7KEW5%	EA	.	1.00
R1003	130-05471-0023		RES CHIP 470EW5%	EA	.	1.00
R1004	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R1005	130-05103-0023		RES CH 10K EW 5%	EA	.	1.00
R1006	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R1007	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R1008	130-05103-0023		RES CH 10K EW 5%	EA	.	1.00
R1009	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R1011	139-01021-0000		RES CH 1.02K EW 1%	EA	.	1.00
R1012	139-01181-0000		RES CHIP 1.18KEW1%	EA	.	1.00
R1013	139-01002-0000		RES CHIP 10K EW 1%	EA	.	1.00
R1014	999-09999-0098		PLACE HOLDER	RF	.	.00
R1015	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R1016	130-05334-0023		RES CHIP 330KEW5%	EA	.	1.00
R1017	130-05473-0023		RES CHIP 47KEW5%	EA	.	1.00
R1018	130-05511-0023		RES CHIP 510 EW 5%	EA	.	1.00
R1019	130-05102-0033		RES CHIP 1K QW 5%	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
R1020	139-01622-0000	RES	CH 16.2K EW 1%	EA	.	1.00
R1021	139-02432-0000	RES	CH 24.3K EW 1%	EA	.	1.00
R1022	139-09091-0000	RES	CH 9.09K EW 1%	EA	.	1.00
R1023	139-01001-0000	RES	CHIP 1K EW 1%	EA	.	1.00
R1024	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1025	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1026	139-07500-0000	RES	CHIP 750 EW 1%	EA	.	1.00
R1027	139-01003-0000	RES	CHIP 100KEW1%	EA	.	1.00
R1028	139-01501-0000	RES	CH 1.5K EW 1%	EA	.	1.00
R1029	139-03011-0000	RES	CH 3.01K EW 1%	EA	.	1.00
R1030	130-05511-0023	RES	CHIP 510 EW 5%	EA	.	1.00
R1031	139-01002-0000	RES	CHIP 10K EW 1%	EA	.	1.00
R1032	139-01000-0000	RES	CHIP 100 EW 1%	EA	.	1.00
R1033	130-05010-0023	RES	CH 1.0 EW 5%	EA	.	1.00
R1034	136-20100-0072	RES	PF 1 OW 1%	EA	.	1.00
R1035	130-05102-0033	RES	CHIP 1K OW 5%	EA	.	1.00
R1036	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1037	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1039	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1040	130-05474-0023	RES	CHIP 470KEW5%	EA	.	1.00
R1041	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1042	130-05474-0023	RES	CHIP 470KEW5%	EA	.	1.00
R1043	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1044	130-05101-0023	RES	CH 100 EW 5%	EA	.	1.00
R1045	130-05474-0023	RES	CHIP 470KEW5%	EA	.	1.00
R1046	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1047	130-05474-0023	RES	CHIP 470KEW5%	EA	.	1.00
R1048	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1049	130-05221-0023	RES	CHIP 220 EW 5%	EA	.	1.00
R1050	132-00005-0000	RES	WW 3.3 3W 10%	EA	.	1.00
R1051	130-05102-0033	RES	CHIP 1K OW 5%	EA	.	1.00
R1052	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1053	130-05102-0033	RES	CHIP 1K OW 5%	EA	.	1.00
R1054	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1055	139-01782-0000	RES	CHIP 17.8KEW1%	EA	.	1.00
R1056	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1057	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1058	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1059	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1060	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1061	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1062	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1063	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1064	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1065	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1066	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1067	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1068	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1069	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1070	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1071	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1072	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1073	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1074	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1075	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1076	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1077	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1078	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1079	130-05222-0023	RES	CHIP 2.2KEW5%	EA	.	1.00
R1080	130-05621-0033	RES	CHIP 620 OW	EA	.	1.00
R1081	130-05202-0023	RES	CHIP 2K EW 5%	EA	.	1.00
R1082	130-05202-0023	RES	CHIP 2K EW 5%	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
R1083	130-05202-0023	RES	CHIP 2K EW 5%	EA	.	1.00
R1084	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1085	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1086	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1092	130-05133-0033	RES	CH 13K OW 5%	EA	.	1.00
R1093	130-05203-0033	RES	CH 20K OW 5%	EA	.	1.00
R1094	130-05203-0033	RES	CH 20K OW 5%	EA	.	1.00
R1095	130-05133-0033	RES	CH 13K OW 5%	EA	.	1.00
R1096	130-05152-0023	RES	CHIP 1.5KEW5%	EA	.	1.00
R1097	139-06980-0000	RES	CH 698 EW 1%	EA	.	1.00
R1098	139-06980-0000	RES	CH 698 EW 1%	EA	.	1.00
R1099	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1100	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1101	139-00309-0000	RES	CH 30.9 EW 1%	EA	.	1.00
R1102	130-05753-0023	RES	CHIP 75KEW 5%	EA	.	1.00
R1103	130-05753-0023	RES	CHIP 75KEW 5%	EA	.	1.00
R1104	139-05761-0000	RES	CH 5.76K EW 1%	EA	.	1.00
R1105	139-01212-0000	RES	CHIP 12.1K1%EW	EA	.	1.00
R1106	139-09090-0000	RES	CHIP 909 EW 1%	EA	.	1.00
R1107	139-01001-0000	RES	CHIP 1K EW 1%	EA	.	1.00
R1108	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1109	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1110	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1111	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1112	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1113	139-02102-0000	RES	CHIP 21K EW 1%	EA	.	1.00
R1114	139-02102-0000	RES	CHIP 21K EW 1%	EA	.	1.00
R1115	139-02102-0000	RES	CHIP 21K EW 1%	EA	.	1.00
R1116	139-02212-0000	RES	CHIP 22.1KEW1%	EA	.	1.00
R1117	139-02102-0000	RES	CHIP 21K EW 1%	EA	.	1.00
R1118	139-02212-0000	RES	CHIP 22.1KEW1%	EA	.	1.00
R1119	139-02212-0000	RES	CHIP 22.1KEW1%	EA	.	1.00
R1120	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1121	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1122	139-02212-0000	RES	CHIP 22.1KEW1%	EA	.	1.00
R1123	130-05330-0033	RES	CHIP 33 OW 5%	EA	.	1.00
R1124	130-05360-0033	RES	CHIP 36 OW 5%	EA	.	1.00
R1125	130-05360-0033	RES	CHIP 36 OW 5%	EA	.	1.00
R1126	130-05330-0033	RES	CHIP 33 OW 5%	EA	.	1.00
R1127	130-05684-0023	RES	CHIP 680KEW5%	EA	.	1.00
R1128	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1129	130-05223-0023	RES	CHIP 22K EW 5%	EA	.	1.00
R1130	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1131	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1132	130-05123-0023	RES	CHIP 12K5%EW	EA	.	1.00
R1133	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1134	130-05333-0023	RES	CHIP 33K EW 5%	EA	.	1.00
R1135	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1136	139-01243-0000	RES	CH 124K EW 1%	EA	.	1.00
R1137	133-00560-0011	RES	VA SMD 50K OW	EA	.	1.00
R1138	130-05475-0023	RES	CH 4.7M EW 5%	EA	.	1.00
R1139	132-00116-0015	RES	WW .75 3W 10%	EA	.	1.00
R1140	130-05162-0033	RES	CH 1.6K OW 5%	EA	.	1.00
R1141	130-05181-0023	RES	CHIP 180 EW 5%	EA	.	1.00
R1142	133-00559-0000	HV	TRIM POT 2.5M	EA	.	1.00
R1143	133-00560-0011	RES	VA SMD 50K OW	EA	.	1.00
R1144	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1145	130-05000-0025	RES	CHIP 0 EW CJ	EA	.	1.00
R1146	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1147	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1148	139-02001-0000	RES	CHIP 2K EW 1%	EA	.	1.00
R1149	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
R1150	130-05000-0025	RES	CHIP 0 EW CJ	EA	.	1.00
R1151	139-01003-0000	RES	CHIP 100KEW1%	EA	.	1.00
R1152	139-01003-0000	RES	CHIP 100KEW1%	EA	.	1.00
R1153	130-05361-0023	RES	CHIP 360 EW 5%	EA	.	1.00
R1154	130-05131-0023	RES	CH 130 EW 5%	EA	.	1.00
R1157	130-05101-0023	RES	CH 100 EW 5%	EA	.	1.00
R1158	139-07503-0000	RES	CHIP 750KEW1%	EA	.	1.00
R1159	130-05471-0033	RES	CHIP 470 OW5%	EA	.	1.00
R1160	139-01503-0000	RES	CHIP 150KEW1%	EA	.	1.00
R1161	139-03013-0000	RES	CHIP 301K EW1%	EA	.	1.00
R1162	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1163	139-07503-0000	RES	CHIP 750KEW1%	EA	.	1.00
R1164	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1165	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1166	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1167	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1168	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1169	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1170	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1171	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1172	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1173	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1174	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1175	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1176	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1177	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1178	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1179	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1180	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1182	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1183	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1184	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1186	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1187	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1188	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1189	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1190	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1191	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1192	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1193	133-00560-0010	RES	VA SMD 20K OW	EA	.	1.00
R1194	133-00560-0010	RES	VA SMD 20K OW	EA	.	1.00
R1195	133-00560-0009	RES	VA SMD 10K OW	EA	.	1.00
R1196	133-00560-0009	RES	VA SMD 10K OW	EA	.	1.00
R1197	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1198	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1199	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1200	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1201	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1202	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1203	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1204	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1205	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1208	132-00107-0059	RES	WW 130 3.25W5%	EA	.	1.00
R1209	130-05300-0023	RES	CHIP 30 EW 5%	EA	.	1.00
R1210	130-05473-0033	RES	CH 47K OW 5%	EA	.	1.00
R1211	130-05360-0023	RES	CHIP 36.0EW5%	EA	.	1.00
R1212	130-05474-0023	RES	CHIP 470KEW5%	EA	.	1.00
R1213	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1214	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1215	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1216	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1217	130-05512-0033	RES	CH 5.1K QW 5%	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
R1218	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1219	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1220	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1221	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1222	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1223	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1224	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1225	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1226	130-05512-0033	RES	CH 5.1K OW 5%	EA	.	1.00
R1227	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1228	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1229	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1230	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1231	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1232	130-05000-0025	RES	CHIP 0 EW CJ	EA	.	1.00
R1233	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1234	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1235	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1236	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1238	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1239	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1240	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1241	139-05621-0000	RES	CHIP 5.62KEW1%	EA	.	1.00
R1242	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1243	130-05432-0023	RES	CHIP 4.3KEW5%	EA	.	1.00
R1244	130-05432-0023	RES	CHIP 4.3KEW5%	EA	.	1.00
R1245	130-05432-0023	RES	CHIP 4.3KEW5%	EA	.	1.00
R1246	130-05432-0023	RES	CHIP 4.3KEW5%	EA	.	1.00
R1247	130-05103-0033	RES	CH 10K OW 5%	EA	.	1.00
R1248	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1250	139-01002-0000	RES	CHIP 10K EW 1%	EA	.	1.00
R1251	139-02211-0000	RES	CH 2.21K EW 1%	EA	.	1.00
R1252	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1253	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1254	139-01002-0000	RES	CHIP 10K EW 1%	EA	.	1.00
R1255	139-02211-0000	RES	CH 2.21K EW 1%	EA	.	1.00
R1256	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1257	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1258	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1259	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1260	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1261	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1262	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1263	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1264	139-01002-0000	RES	CHIP 10K EW 1%	EA	.	1.00
R1265	139-02211-0000	RES	CH 2.21K EW 1%	EA	.	1.00
R1266	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1267	139-01002-0000	RES	CHIP 10K EW 1%	EA	.	1.00
R1268	139-02211-0000	RES	CH 2.21K EW 1%	EA	.	1.00
R1269	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1270	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1271	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1272	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1273	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1274	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1275	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1276	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1277	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1278	130-05200-0033	RES	CH 20 OW 5%	EA	.	1.00
R1279	130-05200-0033	RES	CH 20 OW 5%	EA	.	1.00
R1280	130-05200-0033	RES	CH 20 OW 5%	EA	.	1.00
R1281	130-05101-0023	RES	CH 100 EW 5%	EA	.	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
R1282	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1283	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1284	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1285	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1286	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1287	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1288	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1290	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1291	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1292	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1293	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1294	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1295	139-08872-0000	RES	CH 88.7K EW 1%	EA	.	1.00
R1296	130-05101-0023	RES	CH 100 EW 5%	EA	.	1.00
R1298	139-02322-0000	RES	CH 23.2K EW 1%	EA	.	1.00
R1300	130-05103-0023	RES	CH 10K EW 5%	EA	.	1.00
R1301	130-05018-0043	RES	CH 1.8 HW 5%	EA	.	1.00
R1303	130-05200-0033	RES	CH 20 OW 5%	EA	.	1.00
R1304	130-05200-0033	RES	CH 20 OW 5%	EA	.	1.00
R1305	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1306	139-06492-0000	RES	CH 64.9K EW 1%	EA	.	1.00
R1307	130-05471-0023	RES	CHIP 470EW5%	EA	.	1.00
R1308	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
R1309	139-01003-0000	RES	CHIP 100KEW1%	EA	.	1.00
R1310	139-01003-0000	RES	CHIP 100KEW1%	EA	.	1.00
R1311	130-05101-0023	RES	CH 100 EW 5%	EA	.	1.00
R1312	130-05912-0023	RES	CHIP 9.1K5%EW	EA	.	1.00
R1313	130-05102-0023	RES	CH 1K EW 5%	EA	.	1.00
R1314	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1315	130-05104-0023	RES	CH 100K EW 5%	EA	.	1.00
R1316	130-05473-0023	RES	CHIP 47KEW5%	EA	.	1.00
R1317	130-05472-0023	RES	CHIP 4.7KEW5%	EA	.	1.00
SK1001	033-00092-0017	IC	DIP SCKT 40C	EA	.	1.00
SK1002	033-00092-0017	IC	DIP SCKT 40C	EA	.	1.00
T1001	999-09999-0096	RESERVED		RF	.	.00
T1002	999-09999-0096	RESERVED		RF	.	.00
TP1001	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1002	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1003	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1004	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1005	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1006	999-09999-0098	PLACE	HOLDER	RF	.	.00
TP1007	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1008	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1010	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1011	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1012	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1013	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1014	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1015	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
TP1016	008-00096-0001	TERMINAL	TEST PNT	EA	.	1.00
Y1001	044-00313-0000	XTAL	20MHZ (20PF)	EA	.	1.00
Y1002	044-00307-0000	32.768KHZ	CRYS OSC	EA	.	1.00
Y1003	044-00285-0000	CRYSTAL	3.6864 MHZ	EA	.	1.00
Y1004	044-00312-0000	XTAL	18.432MHZ	EA	.	1.00
	008-00038-0001	TERM	BIFUR .084L	EA	.	2.00
	009-08459-0000	PC	MAIN BD	EA	.	1.00
	016-01040-0000	COATING	TYPE AR	AR	.	1.00
	016-01082-0000	DC	RTV 3145	AR	.	1.00
	016-01411-0000	LOCTITE	220	AR	.	1.00
	047-09887-0001	HEAT	SINK FINISHED	EA	.	1.00
	088-00066-0000	SPACER	PLASTIC	EA	.	3.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08459-0002	KLN90 MAIN BD UPGRD	1
200-08459-0099	KLN90 MAIN COM BOM	AC

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002	-0099
	088-02489-0001		SPACER BLOCK. CONNECTOR	EA	.	2.00
	089-02140-0000		NUT LOCK 4-40	EA	.	6.00
	089-02545-0003		NUT METRIC FLAT M3	EA	.	2.00
	089-05903-0003		SCR PHP 4-40X3/16	EA	.	4.00
	089-06008-0005		SCR FHP 4-40X5/16	EA	.	6.00
	089-06618-0016		SCREW	EA	.	2.00
	091-00025-0000		WSHR XSTR INSUL	EA	.	4.00
	091-00156-0000		BUSHING	EA	.	4.00
	091-00614-0000		TRANS INSULTRW/ADH	EA	.	6.00
	195-00086-0000		HV TRANSFORMER OPTIONS	EA	.	1.00
	200-08459-0099		KLN90 MAIN COM BOM	EA	1.00	.
	200-08922-0000		OBS ADAPTER BD	EA	1.00	.

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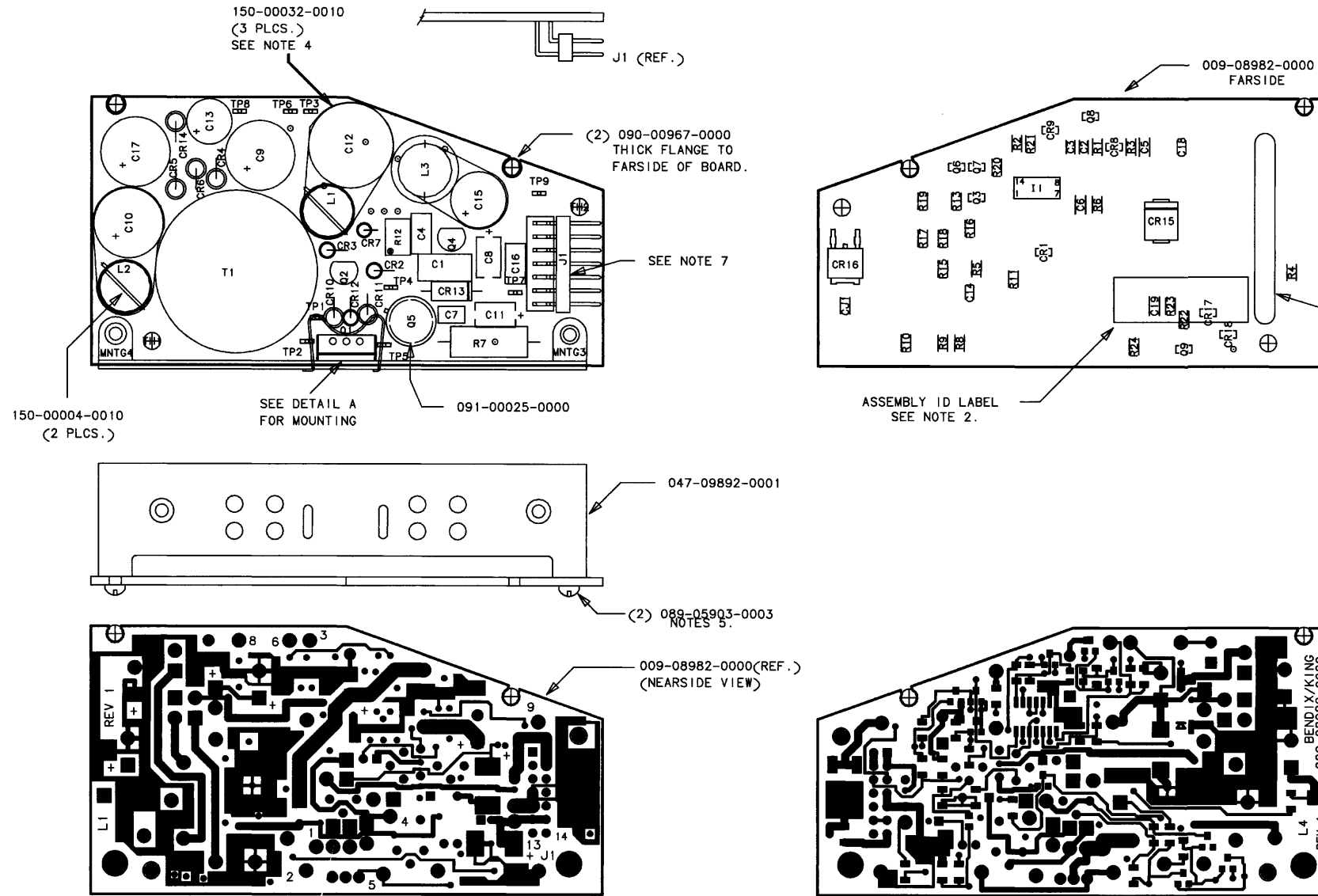
KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.
I.E. C1 = C101

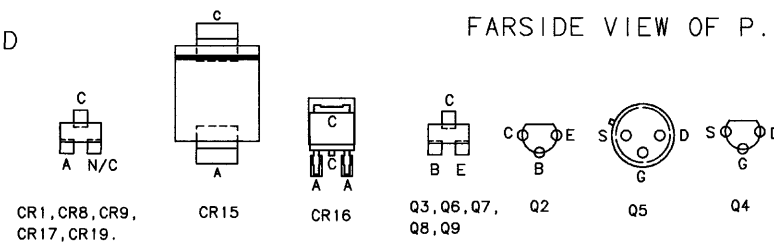
NOTES:

1. PRIOR TO POST COATING BOTH SIDIES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING: ALL MOUNTING AREAS, ALL *E* NUMBERS, J1, R12, AND HEATSINK.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. MAXIMUM COMPONENT HEIGHT ON NEARSIDE IS 0.90. MAXIMUM COMPONENT HEIGHT ON FARISIDE IS .110
4. CUT LENGTH OF TUBING (150-00032-0010) TO 1/2' +/- 1/8'.
5. APPLY THREAD STAKING PER 001-01080-0000 ON SCREW THREADS AS REQUIRED.
6. CLEAN BACK OF Q1 AND MATING AREA OF HEATSINK (047-09892-0001) WITH ISOPROPYL ALCOHOL BEFORE MOUNTING INSULATOR (012-01548-0000)
7. KEY PIN 10 OF J1 BY REMOVING PIN.
8. SOME PARTS NOT USED. REFER TO 200-08982-XXXX.



NEARSIDE VIEW OF P.C. BOARD

FARSIDE VIEW OF P.C. BOARD



REF BOM: 200-08982-XXXX

Figure 10009 Power Supply Module
(300-08982-0000 R-2)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08982-0000	KLN90B LVPS	AB

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C101	111-00002-0015		CAP CR3.3UF100V20%	EA	1.00
C102	106-05152-0047		CAPCH1500PFX7R/50V	EA	1.00
C103	106-05104-0078		CAP CH 100KZ5U/50V	EA	1.00
C104	111-00001-0028		CAP CR .47UF 50V	EA	1.00
C105	106-04102-0026		CH 1KPF NPO/100V	EA	1.00
C106	106-04471-0026		CH 470PF NPO/100V	EA	1.00
C107	111-00001-0069		CAP CR .01UF 100V	EA	1.00
C108	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C109	097-00214-0001		CAP AL 820UF 25V	EA	1.00
C110	097-00214-0000		CAP AL 1800UF 10V	EA	1.00
C111	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C112	097-00207-0002		CAP AL 560UF 50V	EA	1.00
C113	097-00214-0002		CAP AL 220UF 25V	EA	1.00
C114	106-05103-0048		CAP CH 10K X7R/50V	EA	1.00
C115	097-00214-0003		CAP AL 180UF 50V	EA	1.00
C116	111-00001-0032		CAP CR 1UF 50V	EA	1.00
C117	097-00214-0001		CAP AL 820UF 25V	EA	1.00
C118	106-05104-0078		CAP CH 100KZ5U/50V	EA	1.00
C119	106-04103-0047		CH 10K X7R/50V	EA	1.00
CJ101	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CR101	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
CR102	007-06025-0000		DIO S 1N4003	EA	1.00
CR103	007-06025-0000		DIO S 1N4003	EA	1.00
CR104	007-06141-0000		DIO MUR110	EA	1.00
CR105	007-06141-0000		DIO MUR110	EA	1.00
CR106	007-06141-0000		DIO MUR110	EA	1.00
CR107	007-05044-0005		DIO Z 1N5523B	EA	1.00
CR108	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR109	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR110	007-06141-0000		DIO MUR110	EA	1.00
CR111	007-06141-0000		DIO MUR110	EA	1.00
CR112	007-05238-0000		TRAN SUP SA12A	EA	1.00
CR113	007-06401-0000		DIO CUR REG 1N5314	EA	1.00
CR114	007-06141-0000		DIO MUR110	EA	1.00
CR115	007-05241-0006		TRNSRB 1500W 20V	EA	1.00
CR116	007-06435-0000		ULTRAFAST RECTIFR	EA	1.00
CR117	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
CR118	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
I101	120-03430-0000		IC 2843	EA	1.00
J101	030-03041-0007		CONN. HDR. PLG. .1 CTR. RA. 2 X 7	EA	1.00
L101	019-02102-0002		CHOKE 50UH	EA	1.00
L102	019-02102-0002		CHOKE 50UH	EA	1.00
L103	019-02687-0001		PWR FILTER CHOKES	EA	1.00
O101	007-00886-0000		XSTR MOSFET IRF540	EA	1.00
O102	007-00161-0000		XSTR S PNP MPSA56	EA	1.00
O103	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
O104	007-00830-0000		XSTR FET VN1310N3	EA	1.00
O105	007-00925-0000		IRFF9120	EA	1.00
O106	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
O107	007-00383-0004		SOT-23 2N2222A XST	EA	1.00
O108	007-00542-0000		XSTR PNP MMBTA64	EA	1.00
O109	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00
R101	130-05104-0023		RES CH 100K EW 5%	EA	1.00
R102	139-03320-0000		RES CHIP 332 EW 1%	EA	1.00
R103	139-09091-0000		RES CH 9.09K EW 1%	EA	1.00
R104	139-02671-0000		RES CH 2.67K EW 1%	EA	1.00
R105	139-02001-0000		RES CHIP 2K EW 1%	EA	1.00
R106	130-05681-0023		RES CH 680 EW 5%	EA	1.00
R107	132-00160-0000		RES WW .05 3W	EA	1.00
R108	130-05100-0023		RES CH 10 EW 5%	EA	1.00
R109	130-05104-0023		RES CH 100K EW 5%	EA	1.00
R111	130-05472-0023		RES CHIP 4.7KEW5%	EA	1.00
R112	133-00100-0036		RES VA 1K QW 10%	EA	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08982-0000	KLN90B LVPS	AB

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
R113	130-05102-0023		RES CH 1K EW 5%	EA	1.00
R115	130-05474-0023		RES CHIP 470KEW5%	EA	1.00
R116	130-05511-0023		RES CHIP 510 EW 5%	EA	1.00
R117	130-05203-0023		RES CHIP 20K EW 5%	EA	1.00
R118	130-05203-0023		RES CHIP 20K EW 5%	EA	1.00
R119	130-05473-0023		RES CHIP 47KEW5%	EA	1.00
R120	130-05100-0023		RES CH 10 EW 5%	EA	1.00
R121	130-05684-0023		RES CHIP 680KEW5%	EA	1.00
R122	130-05102-0023		RES CH 1K EW 5%	EA	1.00
R123	130-05103-0023		RES CH 10K EW 5%	EA	1.00
R124	130-05682-0023		RES CHIP 6.8KEW5%	EA	1.00
REF1	300-08982-0000		KLN90B LVPS ASSY	RF	.00
REF2	002-08982-0000		KLN 90B POWER SUPPLY SCHEMATIC	RF	.00
REF3	192-08982-0000		KLN90B POWER SUPPLY ASSEMBLY	RF	.00
T101	019-06134-0000		PWR SW XFMR	EA	1.00
TP101	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP102	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP103	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP104	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP105	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP106	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP107	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP108	008-00096-0001		TERMINAL TEST PNT	EA	1.00
TP109	008-00096-0001		TERMINAL TEST PNT	EA	1.00
	009-08982-0000		P/C KLN90B LVPS	EA	1.00
	012-01548-0000		XSTR INSUL W/ADHSV	EA	1.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	047-09892-0001		PWR SUP HT SNK FIN	EA	1.00
	047-09915-0001		TRANSISTOR CLIP	EA	1.00
	089-05903-0003		SCR PHP 4-40X3/16	EA	2.00
	090-00967-0000		GROMMET	EA	2.00
	091-00025-0000		WSHR XSTR INSUL	EA	1.00
	150-00004-0010		TUBING TFLN 22AWG	IN	2.00
	150-00032-0010		TBG SHRNK 1/2&5/8	IN	2.00

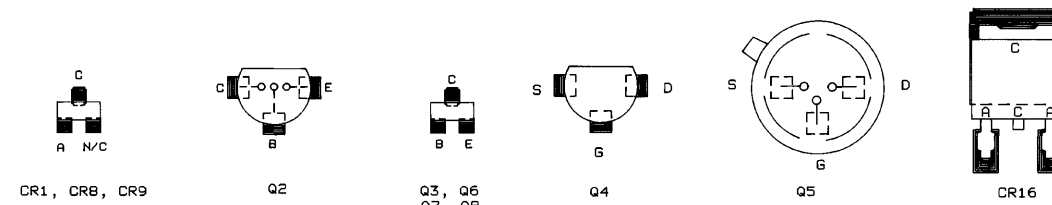
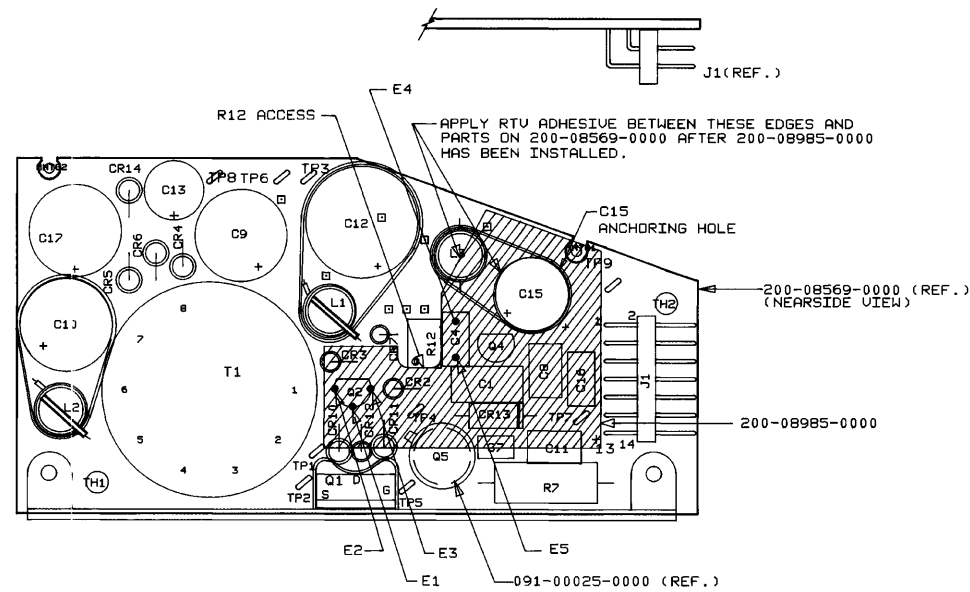
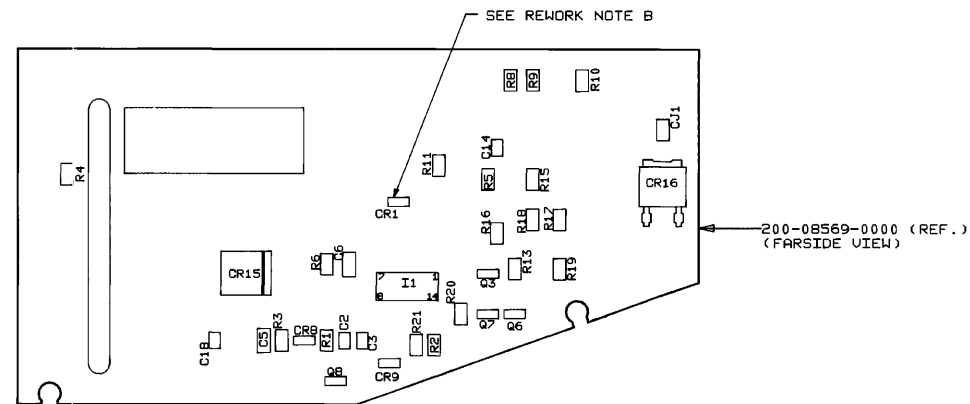
NOTE: ADD 100 TO ALL REFERENCE DESIGNATORS.
 I.E. C1 = C101 ON 200-08569-0000 ASSEMBLY

NOTES:

1. REFER TO 300-08569-0000, SHEET 2 OF 2, FOR DETAILED MECHANICAL VIEW OF ORIGINAL ASSEMBLY AND Q1 MOUNTING DETAILS.

REWORK NOTES:

- A. REMOVE C4, CR1 AND Q2. IF SHRINK TUBING ON C15/L3 PROTRUDES VERTICALLY BEYOND THE HEIGHT OF THE FERRITE CORE, THEN REMOVE THE SHRINK TUBING AND INSTALL NEW TUBING SUCH THAT IT DOES NOT PROTRUDE VERTICALLY BEYOND THE CORE OF L3.
- B. INSTALL 007-05117-0007 AT CR1 LOCATION (FAR SIDE).
- C. INSTALL 030-03090-0001 (5 REQUIRED) AT C4 AND Q2 LOCATIONS (NEAR SIDE).
- D. INSTALL 200-08985-0000 ONTO THE 030-03090-0001 LOCATIONS (USING E1 THRU E5) SUCH THAT C15 (8569) PASSES THROUGH THE LARGE HOLE IN THE 8985 PCB (COMPONENT SIDE OF 8985 ASSEMBLY FACES THE NEAR SIDE OF THE 8569 ASSEMBLY). SOLDER 030-03090-0001'S AT THE E-TERMINAL LOCATIONS ON 200-08985-0000.
- E. APPLY RTU ADHESIVE, AS INDICATED, BETWEEN THE EDGES INDICATED ON 200-08985-0000, AND THE CORRESPONDING PARTS ON 200-08569-0000 (C15 AND L3).



DETAILS 4:1
 (FOR REF.)

REF. B/M: 050-03305-0000

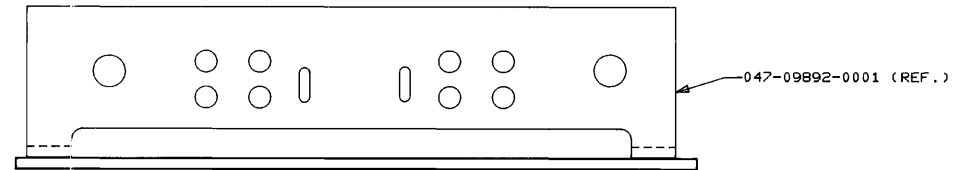


Figure 10010 Power Supply Module (KLN 90A Upgrade)
 (300-08569-0001 R-0)

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08569-0000	PWR-SUPPLY BD ASY	3
200-08569-0099	PWR-SUPPLY COM BOM	AA

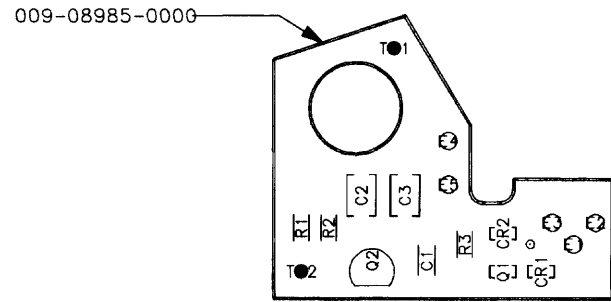
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000	-0099
C101	111-00002-0015		CAP CR3.3UF100V20%	EA	.	1.00
C102	106-05152-0047		CAPCH1500PFX7R/50V	EA	.	1.00
C103	106-05104-0078		CAP CH 100KZ5U/50V	EA	.	1.00
C104	111-00001-0028		CAP CR .47UF 50V	EA	.	1.00
C105	106-04102-0026		CH 1KPF NPO/100V	EA	.	1.00
C106	106-04471-0026		CH 470PF NPO/100V	EA	.	1.00
C107	111-00001-0069		CAP CR .01UF 100V	EA	.	1.00
C108	096-01186-0086		CAP 10UF 35V 20%	EA	.	1.00
C109	097-00214-0001		CAP AL 820UF 25V	EA	.	1.00
C110	097-00214-0000		CAP AL 1800UF 10V	EA	.	1.00
C111	096-01186-0086		CAP 10UF 35V 20%	EA	.	1.00
C112	097-00207-0002		CAP AL 560UF 50V	EA	.	1.00
C113	097-00214-0002		CAP AL 220UF 25V	EA	.	1.00
C114	106-05103-0048		CAP CH 10K X7R/50V	EA	.	1.00
C115	097-00214-0003		CAP AL 180UF 50V	EA	.	1.00
C116	111-00001-0032		CAP CR 1UF 50V	EA	.	1.00
C117	097-00214-0001		CAP AL 820UF 25V	EA	.	1.00
C118	106-05104-0078		CAP CH 100KZ5U/50V	EA	.	1.00
CJ101	130-05000-0025		RES CHIP 0 EW CJ	EA	.	1.00
CR101	007-05117-0014		DIO Z 12V SOT	EA	.	1.00
CR102	007-06025-0000		DIO S 1N4003	EA	.	1.00
CR103	007-06025-0000		DIO S 1N4003	EA	.	1.00
CR104	007-06141-0000		DIO MUR110	EA	.	1.00
CR105	007-06141-0000		DIO MUR110	EA	.	1.00
CR106	007-06141-0000		DIO MUR110	EA	.	1.00
CR107	007-05044-0005		DIO Z 1N5523B	EA	.	1.00
CR108	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR109	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	.	1.00
CR110	007-06141-0000		DIO MUR110	EA	.	1.00
CR111	007-06141-0000		DIO MUR110	EA	.	1.00
CR112	007-05238-0000		TRAN SUP SA12A	EA	.	1.00
CR113	007-06401-0000		DIO CUR REG 1N5314	EA	.	1.00
CR114	007-06141-0000		DIO MUR110	EA	.	1.00
CR115	007-05241-0006		TRNSRB 1500W 20V	EA	.	1.00
CR116	007-06435-0000		ULTRAFAST RECTIFR	EA	.	1.00
I101	120-03430-0000		IC 2843	EA	.	1.00
J101	030-03041-0007		CONN. HDR. PLG. .1 CTR. RA. 2 X 7	EA	.	1.00
L101	019-02102-0002		CHOKE 50UH	EA	.	1.00
L102	019-02102-0002		CHOKE 50UH	EA	.	1.00
L103	019-02687-0001		PWR FILTER CHOKES	EA	.	1.00
O101	007-00886-0000		XSTR MOSFET IRF540	EA	.	1.00
O102	007-00970-0000		XSTR INPN MPSA29	EA	.	1.00
O103	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
O104	007-00830-0000		XSTR FET VN1310N3	EA	.	1.00
O105	007-00925-0000		IRFF9120	EA	.	1.00
O106	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
O107	007-00383-0004		SOT-23 2N2222A XST	EA	.	1.00
O108	007-00542-0000		XSTR PNP MMBTA64	EA	.	1.00
R101	130-05104-0023		RES CH 100K EW 5%	EA	.	1.00
R102	139-03320-0000		RES CHIP 332 EW 1%	EA	.	1.00
R103	139-09091-0000		RES CH 9.09K EW 1%	EA	.	1.00
R104	139-02671-0000		RES CH 2.67K EW 1%	EA	.	1.00
R105	139-02001-0000		RES CHIP 2K EW 1%	EA	.	1.00
R106	130-05681-0023		RES CH 680 EW 5%	EA	.	1.00
R107	132-00160-0000		RES WW .05 3W	EA	.	1.00
R108	130-05100-0023		RES CH 10 EW 5%	EA	.	1.00
R109	130-05104-0023		RES CH 100K EW 5%	EA	.	1.00
R111	130-05472-0023		RES CHIP 4.7KEW5%	EA	.	1.00
R112	133-00100-0036		RES VA 1K OW 10%	EA	.	1.00
R113	130-05102-0023		RES CH 1K EW 5%	EA	.	1.00
R115	130-05474-0023		RES CHIP 470KEW5%	EA	.	1.00
R116	130-05511-0023		RES CHIP 510 EW 5%	EA	.	1.00

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KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08569-0000	PWR-SUPPLY BD ASY	3
200-08569-0099	PWR-SUPPLY COM BOM	AA

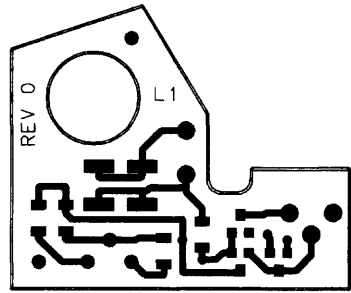
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000	-0099
R117	130-05203-0023		RES CHIP 20K EW 5%	EA	.	1.00
R118	130-05203-0023		RES CHIP 20K EW 5%	EA	.	1.00
R119	130-05473-0023		RES CHIP 47KEW5%	EA	.	1.00
R120	130-05100-0023		RES CH 10 EW 5%	EA	.	1.00
R121	130-05684-0023		RES CHIP 680KEW5%	EA	.	1.00
T101	019-06134-0000		PWR SW XFMR	EA	.	1.00
TP101	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP102	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP103	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP104	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP105	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP106	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP107	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP108	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
TP109	008-00096-0001		TERMINAL TEST PNT	EA	.	1.00
	002-08569-0001		SCH CONV PS BD	RF	.	.00
	009-08569-0000		PCBD PWR SUPPLY BD	EA	.	1.00
	012-01548-0000		XSTR INSUL W/ADHSV	EA	.	1.00
	016-01040-0000		COATING TYPE AR	AR	.	1.00
	016-01411-0000		LOCTITE 220	AR	.	1.00
	047-09892-0001		PWR SUP HT SNK FIN	EA	.	1.00
	047-09915-0001		TRANSISTOR CLIP	EA	.	1.00
	089-05903-0003		SCR PHP 4-40X3/16	EA	.	2.00
	090-00967-0000		GROMMET	EA	.	2.00
	091-00025-0000		WSHR XSTR INSUL	EA	.	1.00
	150-00004-0010		TUBING TFLN 22AWG	IN	.	1.00
	150-00032-0010		TBG SHRNK 1/2&5/8	IN	.	2.00
	200-08569-0099		PWR-SUPPLY COM BOM	EA	1.00	.
	300-08569-0001		CONV PS BD ASSY	RF	.	.00



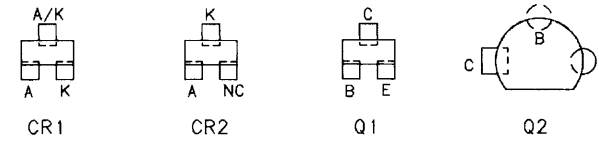
NEARSIDE VIEW OF P.C. BOARD

NOTES:

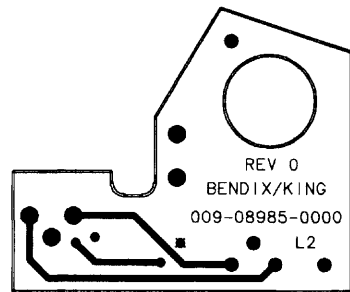
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL 'E' NUMBERS,
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. ADD 3000 TO ALL REFERENCE DESIGNATORS.



NEARSIDE VIEW OF P.C. BOARD



REF. B/M 200-08985-0000



FAR SIDE VIEW OF P.C. BOARD

Figure 10011 Power Supply Adapter Module (KLN 90A Upgrade)
(300-08985-0000 R-1)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08985-0000	KLN90B PS ADAPTER	AA

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C3001	106-04103-0047		CH 10K X7R/50V	EA	1.00
C3002	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C3003	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
CR3001	007-06223-0000		DIO DUAL SWITCHING (BAV99)	EA	1.00
CR3002	007-05117-0007		DIO Z 6.2V SOT	EA	1.00
O3001	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00
O3002	007-00161-0000		XSTR S PNP MPSA56	EA	1.00
R3001	130-05103-0033		RES CH 10K OW 5%	EA	1.00
R3002	130-05682-0033		RES CH 6.8K OW 5%	EA	1.00
R3003	130-05102-0033		RES CHIP 1K OW 5%	EA	1.00
	002-08985-0000		SCH PS ADAPTER KLN 90B	RF	.00
	009-08985-0000		P/C PS ADAPTER	EA	1.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	300-08985-0000		PS ADAPTER ASSY	RF	.00

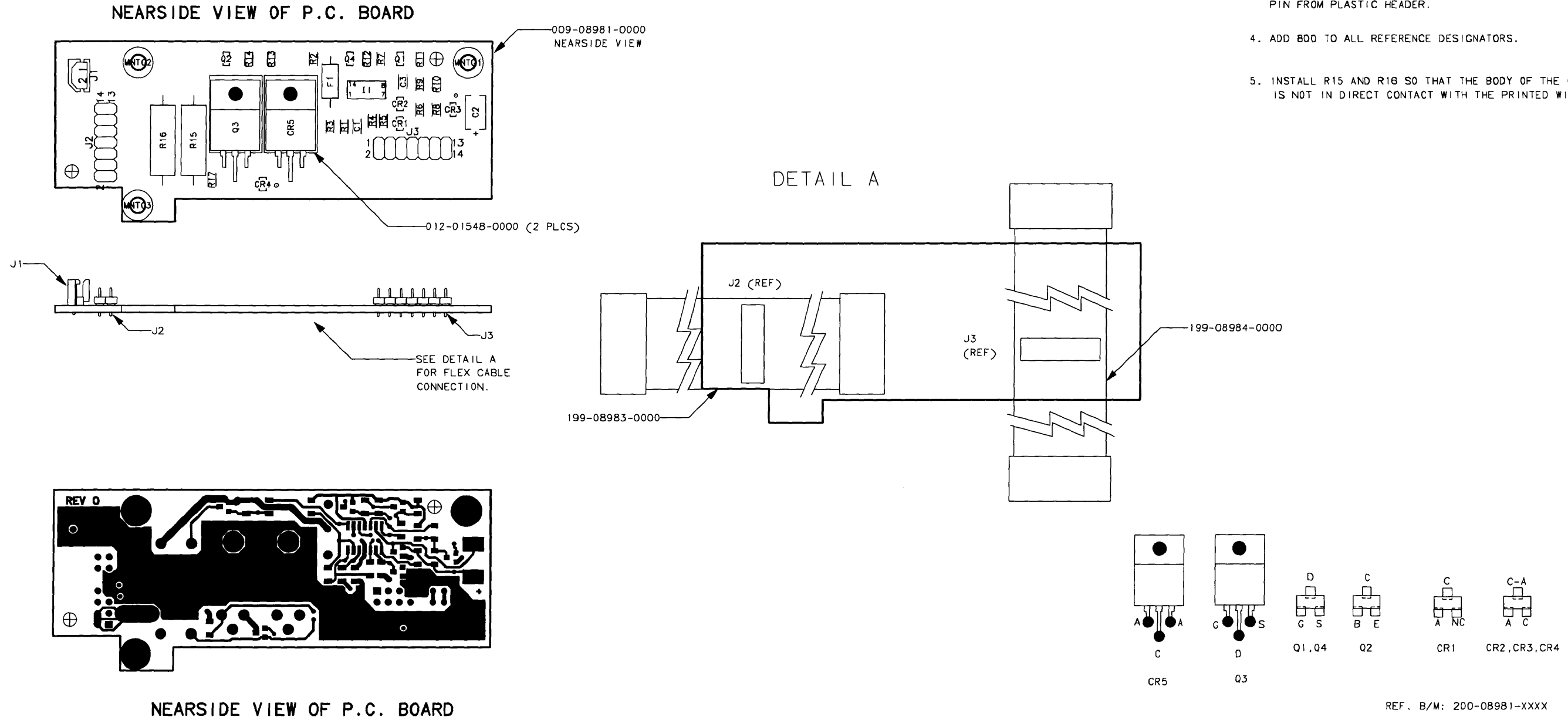
Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

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NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL 'E' NUMBERS, AND ALL J'S.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH SPEC. 001-01101-0000.
3. KEY PIN 10 OF J2 AND J3 BY REMOVING PIN FROM PLASTIC HEADER.
4. ADD 800 TO ALL REFERENCE DESIGNATORS.
5. INSTALL R15 AND R16 SO THAT THE BODY OF THE COMPONENT IS NOT IN DIRECT CONTACT WITH THE PRINTED WIRING BOARD.



REF. B/M: 200-08981-XXXX

Figure 10012 Battery Module
(300-08981-0000 R-AA)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08981-0000	KLN90B BATT MODULE	AA

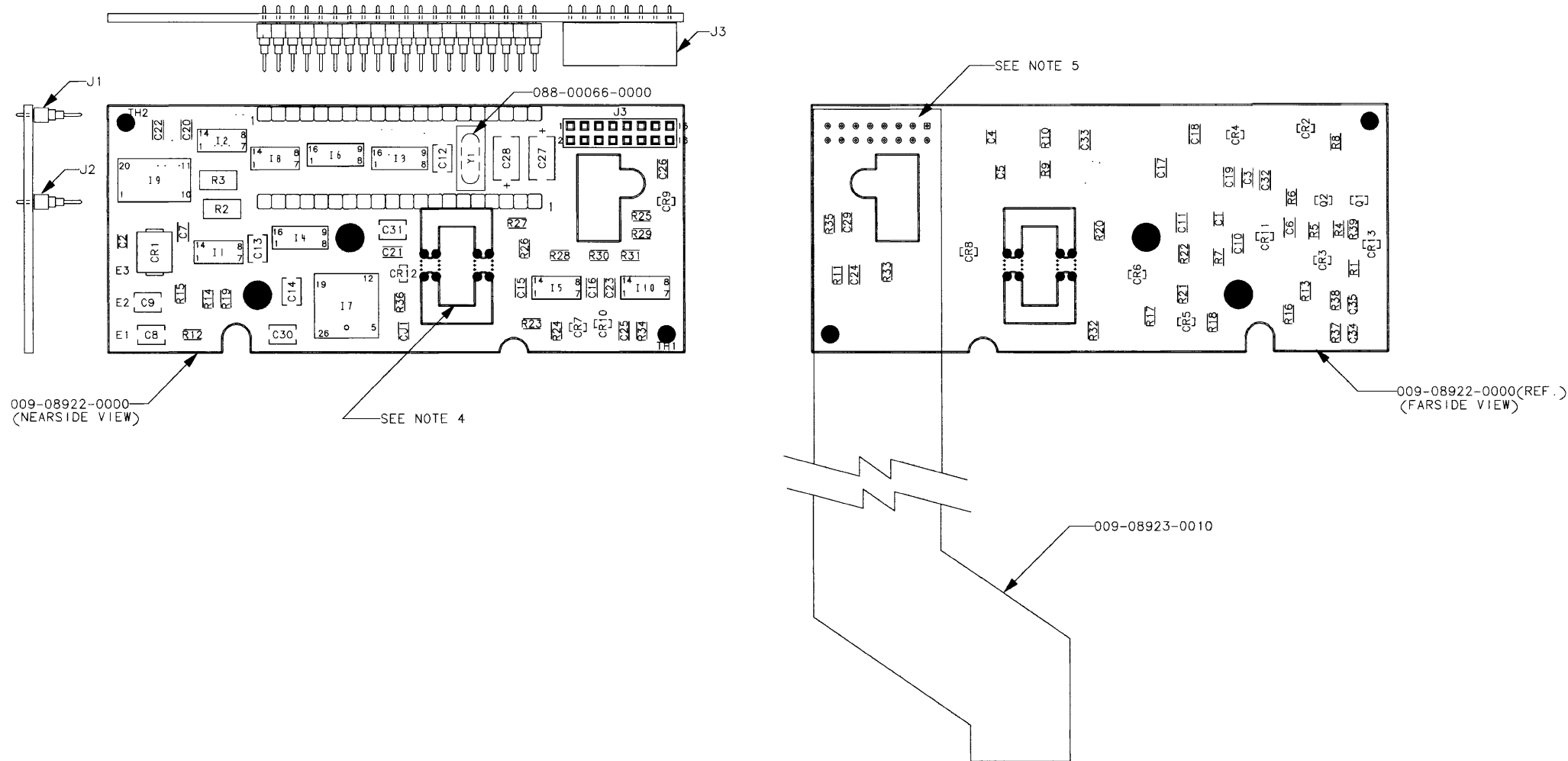
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C801	106-04104-0047		CH 100KX7R/50V	EA	1.00
C802	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C803	106-04104-0047		CH 100KX7R/50V	EA	1.00
CR801	007-05117-0016		DIO Z 15V SOT	EA	1.00
CR802	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR803	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR804	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR805	007-06131-0000		DIO CT RECTIFIER	EA	1.00
F801	036-00147-0010		SLO-BLO MINI FUSE	EA	1.00
I801	120-03196-0000		IC LM2902D	EA	1.00
J801	030-03274-0000		STRAIGHT PIN HEADR	EA	1.00
J802	030-02899-0007		LO PRFL TERM STRIP	EA	1.00
J803	030-02899-0007		LO PRFL TERM STRIP	EA	1.00
O801	007-00903-0000		2N7002 MOSFET	EA	1.00
O802	007-00466-0000		XSTR S PNP MMBTA56	EA	1.00
O803	007-00937-0000		XSTR P-CHAN HEXFET	EA	1.00
O804	007-00903-0000		2N7002 MOSFET	EA	1.00
R801	139-05231-0000		RES CH 5.23K EW 1%	EA	1.00
R802	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R803	139-01102-0000		RES 11K EW 1%	EA	1.00
R804	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R805	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R806	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R807	139-02213-0000		RES CH 221K EW 1%	EA	1.00
R808	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R809	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R810	139-02213-0000		RES CH 221K EW 1%	EA	1.00
R811	139-02213-0000		RES CH 221K EW 1%	EA	1.00
R812	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R813	130-05222-0033		RES CH 2.2K OW 5%	EA	1.00
R814	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R815	132-00010-0000		RES WW 150 3W 10%	EA	1.00
R816	132-00010-0000		RES WW 150 3W 10%	EA	1.00
R817	130-05222-0033		RES CH 2.2K OW 5%	EA	1.00
REF1	002-08981-0000		KLN 90B BATTERY MODULE SCHEMATIC	RF	.00
REF2	300-08981-0000		BATTERY MODULE	RF	.00
REF3	192-08981-0000		KLN90B BATTERY MODULE ASSEMBLY	RF	.00
	009-08981-0000		P/C BATT MODULE	EA	1.00
	012-01548-0000		XSTR INSUL W/ADHSV	EA	2.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	199-08983-0000		PWR SUPPLY CABLE	EA	1.00
	199-08984-0000		PWR SUPPLY CABLE	EA	1.00

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

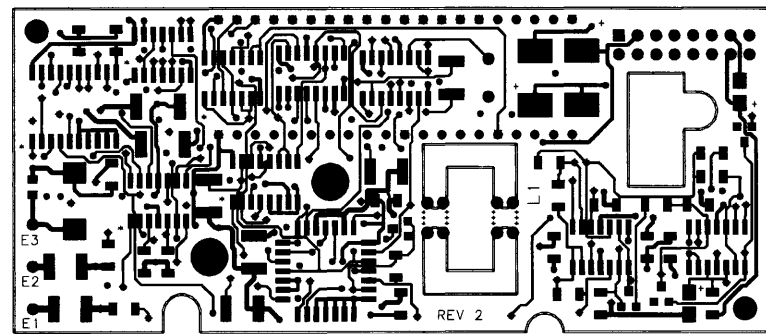
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NOTE: ADD 700 TO ALL REFERENCE DESIGNATORS.

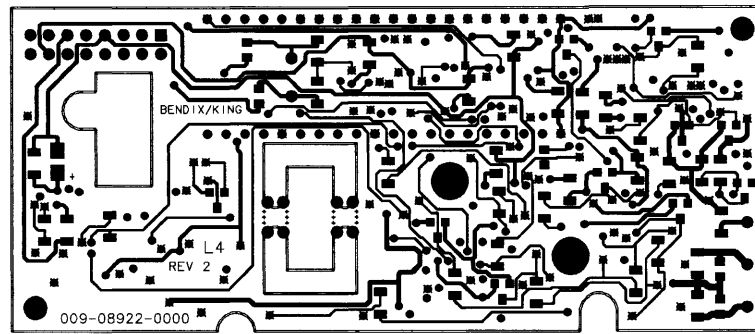


NOTES:

1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING; ALL MOUNTING AREAS, ALL *E* NUMBERS, J1, J2, J3.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000.
3. MAXIMUM LEAD PROTRUSION .090" MAX.
4. REMOVE BREAKOUT TAB FOLLOWING ASSEMBLY.
5. DO NOT TRIM PINS OF J3. SOLDER 009-08923-0010 TO PINS OF J3 (FARSIDE). ATTACHMENT OF 009-08923-0010 MUST BE FLUSH TO P.C. BOARD.



NEARSIDE VIEW OF P.C. BOARD



FARSIDE VIEW OF P.C. BOARD



CR2 THRU CR12
SCALE 4:1

REF. B/M: 200-08922-0000

Figure 10013 OBS Adapter Module (KLN 90A Upgrade)
(300-08922-0000 R-2)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08922-0000	OBS ADAPTER BD	3

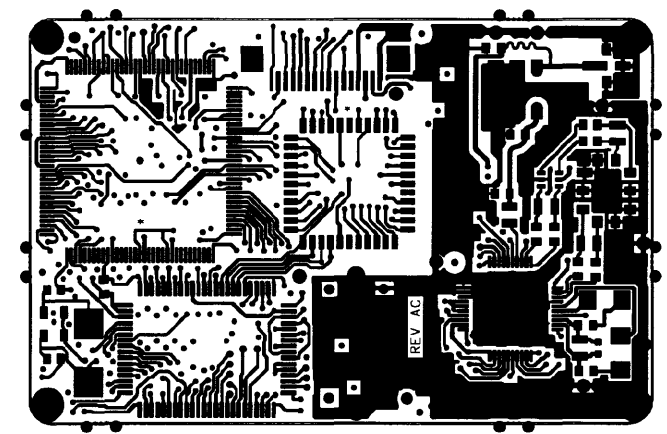
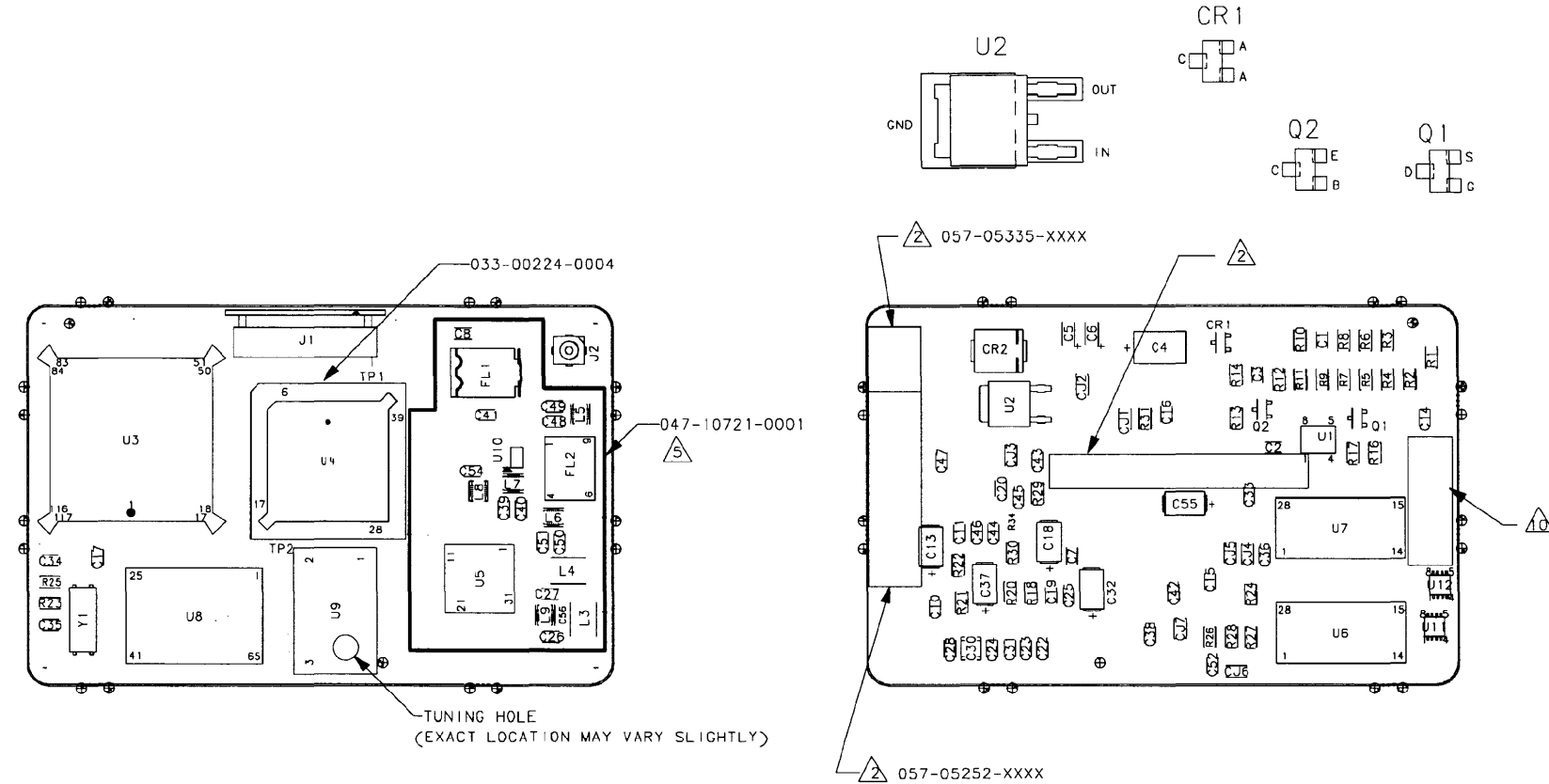
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
C701	106-05821-0046		CAP CH820PFX7R/50V	EA	1.00
C702	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C703	106-04104-0047		CH 100KX7R/50V	EA	1.00
C704	106-05330-0016		CAP CH 33PFNPO/50V	EA	1.00
C705	106-05330-0016		CAP CH 33PFNPO/50V	EA	1.00
C706	106-04104-0047		CH 100KX7R/50V	EA	1.00
C707	106-04104-0047		CH 100KX7R/50V	EA	1.00
C708	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C709	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C710	106-04104-0047		CH 100KX7R/50V	EA	1.00
C711	106-04104-0047		CH 100KX7R/50V	EA	1.00
C712	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C713	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C714	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C715	106-04104-0047		CH 100KX7R/50V	EA	1.00
C716	106-04104-0047		CH 100KX7R/50V	EA	1.00
C717	106-04104-0047		CH 100KX7R/50V	EA	1.00
C718	106-04104-0047		CH 100KX7R/50V	EA	1.00
C719	106-04104-0047		CH 100KX7R/50V	EA	1.00
C720	106-04104-0047		CH 100KX7R/50V	EA	1.00
C721	106-04104-0047		CH 100KX7R/50V	EA	1.00
C722	106-04104-0047		CH 100KX7R/50V	EA	1.00
C723	106-04104-0047		CH 100KX7R/50V	EA	1.00
C724	106-04104-0047		CH 100KX7R/50V	EA	1.00
C725	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C726	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C727	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C728	096-01186-0086		CAP 10UF 35V 20%	EA	1.00
C729	096-01186-0012		CAP 1.0UF 16V 10%	EA	1.00
C730	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C731	106-00122-0000		CH CER SMT 1812 .33UF 50V 10% X7R	EA	1.00
C732	106-04104-0047		CH 100KX7R/50V	EA	1.00
C733	106-04104-0047		CH 100KX7R/50V	EA	1.00
C734	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
C735	106-05221-0057		CAP CH220PFX7R/100	EA	1.00
CJ701	130-05000-0025		RES CHIP 0 EW CJ	EA	1.00
CR701	007-05241-0203		TRNSRB 1500W 15V	EA	1.00
CR702	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR703	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR704	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR705	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR706	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR707	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR708	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR709	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR710	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR711	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR712	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
CR713	007-06184-0000		DIO DUAL SWITCHING	EA	1.00
I701	120-03174-0014		OP AMP BI FET SO	EA	1.00
I702	123-00393-0003		74HC393 (SO)	EA	1.00
I703	124-04060-0003		IC 74HCT4060 SOPKG	EA	1.00
I704	120-06074-0003		IC 4053 SO PKG	EA	1.00
I705	120-03174-0014		OP AMP BI FET SO	EA	1.00
I706	120-06074-0003		IC 4053 SO PKG	EA	1.00
I707	120-03450-0000		ADC0809 SO	EA	1.00
I708	124-00002-0003		IC 74HCT02 SO PKG	EA	1.00
I709	124-00573-0003		74HCT573 (SO)	EA	1.00
I710	120-03174-0014		OP AMP BI FET SO	EA	1.00
J701	030-03043-0020		INTRCON STRIP CONN	EA	1.00
J702	030-03043-0020		INTRCON STRIP CONN	EA	1.00
J703	030-03221-0008		CONN RCPT DBL ROW	EA	1.00
Q701	007-00467-0000		XSTR S NPN MMBTA06	EA	1.00

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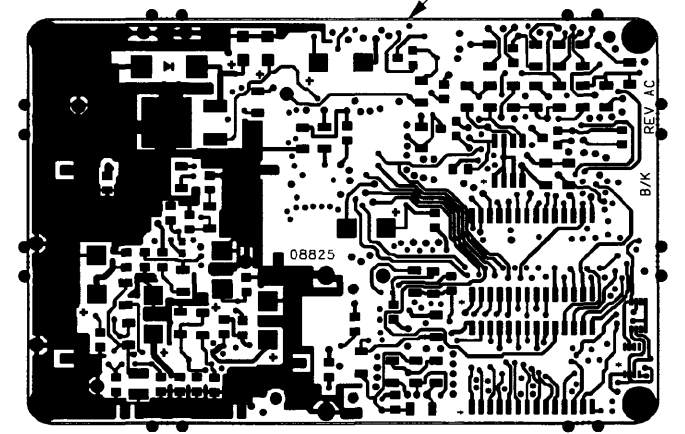
KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
200-08922-0000 OBS ADAPTER BD		3

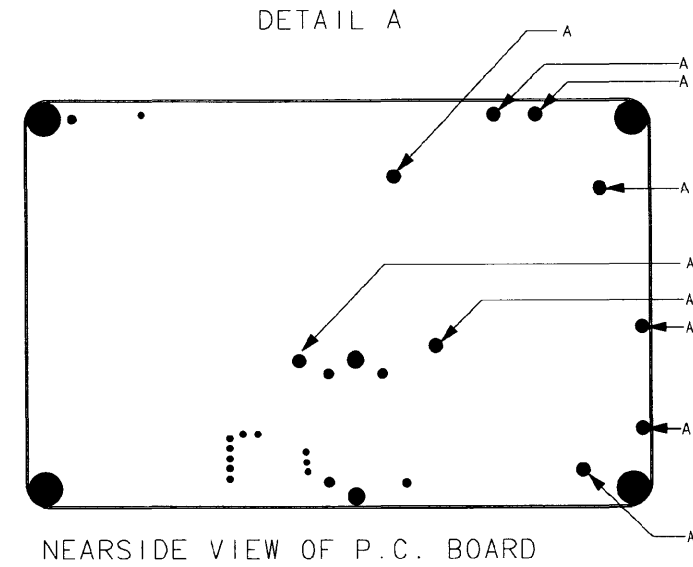
SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0000
0702	007-00466-0000		XSTR S PNP MMBSA56	EA	1.00
R701	139-00100-0000		RES CHIP 10 EW 1%	EA	1.00
R702	130-05151-0053		RES CH 150 5% 1W	EA	1.00
R703	130-05680-0053		RES CH 68 1W 5%	EA	1.00
R704	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R705	139-02433-0000		RES CH 243K EW 1%	EA	1.00
R706	139-00442-0000		RES CH 44.2 EW 1%	EA	1.00
R707	139-07152-0000		RES CHIP 71.5KEW1%	EA	1.00
R708	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R709	139-01301-0000		RES CH 1.30K EW 1%	EA	1.00
R710	130-05475-0023		RES CH 4.7M EW 5%	EA	1.00
R711	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R712	139-05762-0003		RES CH 57.6K EW.1%	EA	1.00
R713	139-05112-0003		RES CH51.1K EW0.1%	EA	1.00
R714	139-05112-0000		RES CHIP 51.1K 1%	EA	1.00
R715	139-05762-0003		RES CH 57.6K EW.1%	EA	1.00
R716	139-05112-0003		RES CH51.1K EW0.1%	EA	1.00
R717	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R718	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R719	139-05112-0000		RES CHIP 51.1K 1%	EA	1.00
R720	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R721	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R722	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R723	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R724	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R725	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R726	139-01002-0003		RES CH 10.0KEW.1%	EA	1.00
R727	139-02002-0003		RES CH 20.0K EW.1%	EA	1.00
R728	139-06651-0000		RES CH6.65K EW 1%	EA	1.00
R729	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R730	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R731	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R732	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R733	139-04991-0000		RES CHIP 4.99KEW1%	EA	1.00
R734	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R735	139-01001-0000		RES CHIP 1K EW 1%	EA	1.00
R736	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
R737	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R738	139-01003-0000		RES CHIP 100KEW1%	EA	1.00
R739	139-01002-0000		RES CHIP 10K EW 1%	EA	1.00
Y701	044-00285-0000		CRYSTAL 3.6864 MHZ	EA	1.00
	009-08922-0000		P/C OBS ADPTR BD	EA	1.00
	009-08923-0010		PCBD INTERFACE CABLE	EA	1.00
	016-01040-0000		COATING TYPE AR	AR	1.00
	088-00066-0000		SPACER PLASTIC	EA	1.00



NEAR SIDE VIEW OF P.C. BOARD



FAR SIDE VIEW OF P.C. BOARD



NOTES:

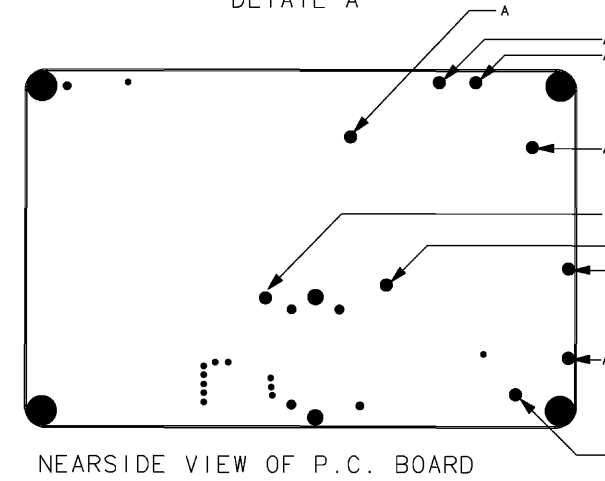
1. PRIOR TO POST COATING BOTH SIDES OF P.C. BOARD WITH KPN 016-01040-0000, MASK OFF THE FOLLOWING: ALL MOUNTING AREAS, ALL THROUGH HOLES LABELED 'A' IN DETAIL A, U9 TUNING HOLE, J1, J2 AND U4 SOCKET. RF SHIELD (047-10721-0001) TO BE INSTALLED TO BOARD AND LABELS AFTER POSTCOAT.
2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000. REFER TO BOM 205-00891-00XX OR 205-00834-00XX FOR LABELING.
3. NOT ALL PARTS INSTALLED, REFER TO 200-08825-XXXX
4. 200-08825-XXXX ADDS 500 TO ALL REFERENCE DESIGNATORS.
5. RF SHIELD (047-10721-0001) TO BE SOLDERED ONLY AT PLATED THRU HOLES AT THE TABS. DO NOT SEAM SOLDER.
6. U9 TCXO TO BE HAND SOLDERED TO THE BOARD. DO NOT EXPOSE PART TO REFLOW TEMPERATURES, AND DO NOT EXPOSE INTERNAL COMPONENTS OF TCXO TO CLEANING SOLUTIONS.
7. U5 IS TEMPERATURE SENSITIVE, AND CANNOT BE EXPOSED TO OVER 200 DEGREES C FOR OVER 5 MINUTES, OR EXPOSED TO OVER 230 DEGREES C FOR OVER 1 MINUTE. COMPONENT BODY OF U5 TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING. THERE MUST BE EVIDENCE OF SOLDER FROM THE COMPONENT BODY TO THE GROUND PLANE ON THE BOARD, BUT A COMPLETE FILLET IS NOT REQUIRED. RECYCLE U5 MATRIX TRAYS WITH THE COMPONENT SUPPLIER.
8. COMPONENT BODY OF FL2 FILTER TO BE SOLDERED TO GROUND PLANE ON BOARD DURING REFLOW SOLDERING WITH A MINIMUM OF .006" THICKNESS SOLDER PASTE (APPLICATION OF APPROX. .003" SOLDER).
9. MAXIMUM LEAD PROTRUSION FOR U9 TCXO IS .07" AND RF SHIELD (047-10721-0001) IS .09".
10. MANUFACTURING BAR CODE LABEL (OPTIONAL) MAY BE APPLIED TO FAR SIDE OF BOARD NEAR U7, COVERING VIA HOLES AND SILKSCREEN (ORIENTATION OPTIONAL).

THIS DRAWING IS NOT COMPLETE WITHOUT PARTS LIST 200-08825-0000

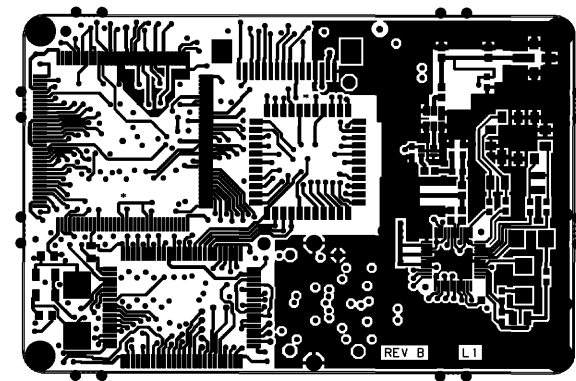
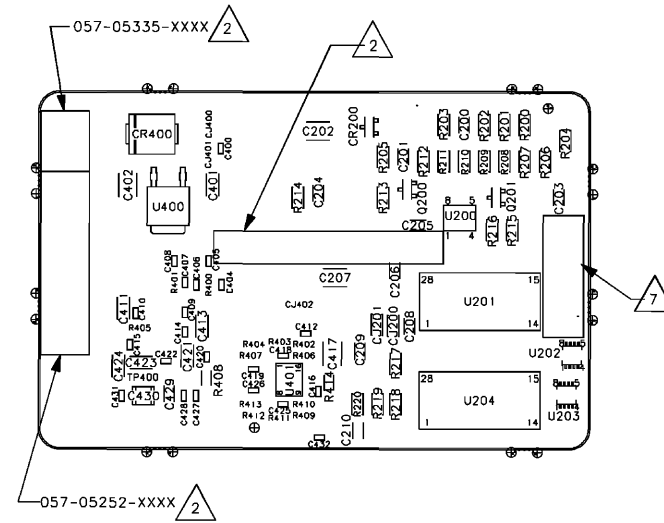
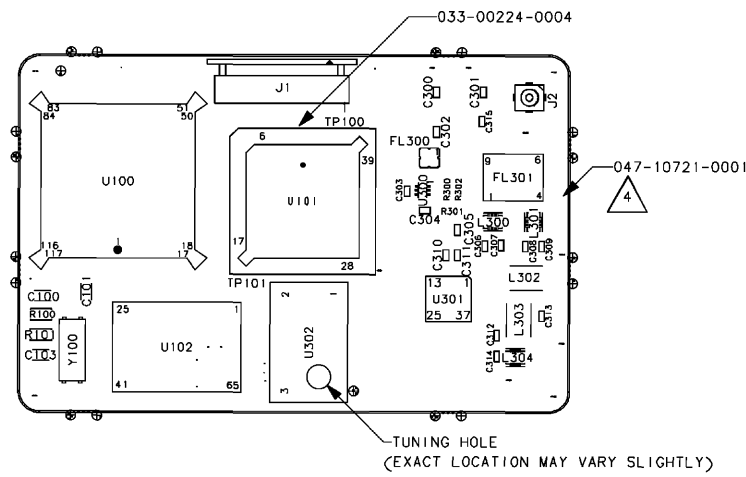
REF: 193-00834-00XX
AND 193-00891-00XX

Figure 10014 Receiver Module (-0000)
(300-08825-0000 R-AE) (Not Field Serviceable, Provided For Reference Only)

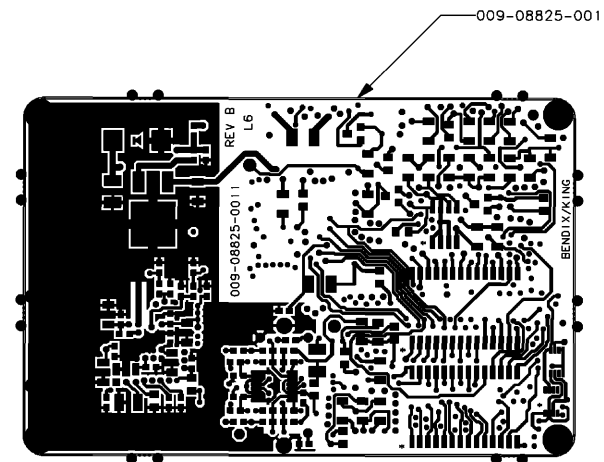
DETAIL A



- NOTES:
1. POST COAT BOTH SIDES OF P.C. BOARD WITH PN 016-01040-0000. THE FOLLOWING SHOULD BE FREE OF POST COATING: ALL MOUNTING AREAS, ALL THROUGH HOLES LABELED 'A' IN DETAIL A, U302 TUNING HOLE, J1, J2 AND U101 SOCKET, TP100, TP101, TP400, RF SHIELD (047-10721-0001) AND LABELS TO BE INSTALLED TO BOARD AFTER POSTCOAT.
 2. PRINTED CIRCUIT ASSEMBLY IDENTIFICATION MUST BE IN ACCORDANCE WITH KING SPEC. 001-01101-0000. REFER TO BOM 205-00891-00XX OR 205-00834-00XX FOR LABELING.
 3. NOT ALL PARTS INSTALLED, REFER TO 200-08825-0010.
 4. RF SHIELD (047-10721-0001) TO BE SOLDERED ONLY AT PLATED THRU HOLES AT THE TABS. DO NOT SEAM SOLDER. POST COAT SOLDER JOINTS ON FAR SIDE OF BOARD AFTER THE SHIELD IS INSTALLED.
 5. U302 TCXO TO BE HAND SOLDERED TO THE BOARD. DO NOT EXPOSE PART TO REFLOW TEMPERATURES, AND DO NOT EXPOSE INTERNAL COMPONENTS OF TCXO TO CLEANING SOLUTIONS.
 6. MAXIMUM LEAD PROTRUSION FOR U302 TCXO IS .07" AND RF SHIELD (047-10721-0001) IS .09".
 7. MANUFACTURING BAR CODE LABEL (OPTIONAL) MAY BE APPLIED TO FAR SIDE OF BOARD NEAR U201, COVERING VIA HOLES (ORIENTATION OPTIONAL).



NEARSIDE VIEW OF P.C. BOARD



FARSIDE VIEW OF P.C. BOARD

THIS DRAWING IS NOT COMPLETE WITHOUT PARTS LIST 200-08825-0010

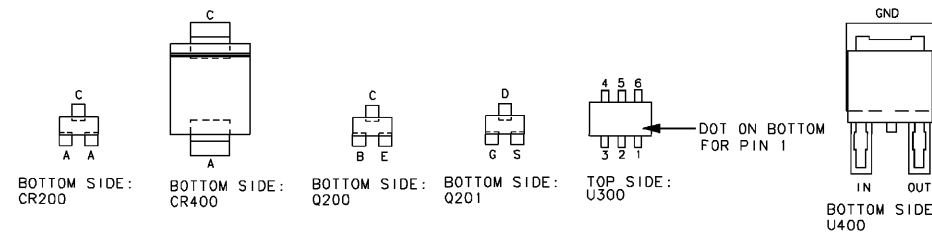


Figure 10015 Receiver Module (-0010)
(300-08825-0010 R-C) (Not Field Serviceable, Provided For Reference Only)

Honeywell

KLN 90B (UNIT P/N 066-04031-()) COMPONENT MAINTENANCE MANUAL

PN	DESCRIPTION	REV
205-00834-0002	XPRESS PROG'D	AB

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002
REF100	300-08825-0010		GPS XPRESS CARD KLN 90B	RF	.00
	057-05252-0834		IDT 205-00834-0000	EA	1.00
	057-05335-0002		DECAL DASH 02	EA	1.00
	125-00864-0002		XPRESS PROGRAM	EA	1.00
	193-00834-0002		GPS XPRESS ASSEMBLY	RF	.00
	200-08825-0010		GPS XPRESS CARD	EA	1.00

PN	DESCRIPTION	REV
205-00891-0001	PXPRESS PROGRAM	AB

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0001
REF100	300-08825-0010		GPS XPRESS CARD KLN 90B	RF	.00
	057-05252-0891		IDT 205-00891-0000	EA	1.00
	057-05335-0001		DECAL 205 DASH 01	EA	1.00
	125-00937-0001		PXPRESS PROGRAM	EA	1.00
	193-00891-0001		P XPRESS ASSEMBLY	RF	.00
	200-08825-0010		GPS XPRESS CARD	EA	1.00

PN	DESCRIPTION	REV
125-00864-0002	XPRESS PROGRAM	AA

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0002
REF1	300-08825-0010		GPS XPRESS CARD KLN 90B	RF	.00
U101	122-01538-0002		XPRESS PROG DEVICE	EA	1.00

PN	DESCRIPTION	REV
125-00937-0001	PXPRESS PROGRAM	AA

SYMBOL	PART NUMBER	FIND NO	DESCRIPTION	UM	-0001
REF1	300-08825-0010		GPS XPRESS CARD KLN 90B	RF	.00
U101	122-01621-0001		PXPRESS PROG DEVICE	EA	1.00

P/N 200-08825-00XX is not field serviceable.

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STORAGE

1. General

This section provides procedures for the storage of the unit.

2. Storage Procedures

A. Short-Term Storage

The unit can be temporarily stored on the shelf but should not be exposed to extremes of temperature, humidity, or other environmental conditions without additional protection. The use of plug covers is recommended.

B. Long-Term Storage

For long-term or unlimited storage, it is recommended that the unit be packaged as for shipment and that a suitable desiccant be placed within the container. Mark the packing date plainly on the container. An alternate method is to store the unit in a location having a carefully controlled, low-humidity environment. Units which have been in long-term storage must be visually inspected, cleaned, and must pass the functional test in the [TESTING AND TROUBLESHOOTING](#) section of this manual before returning to service.

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