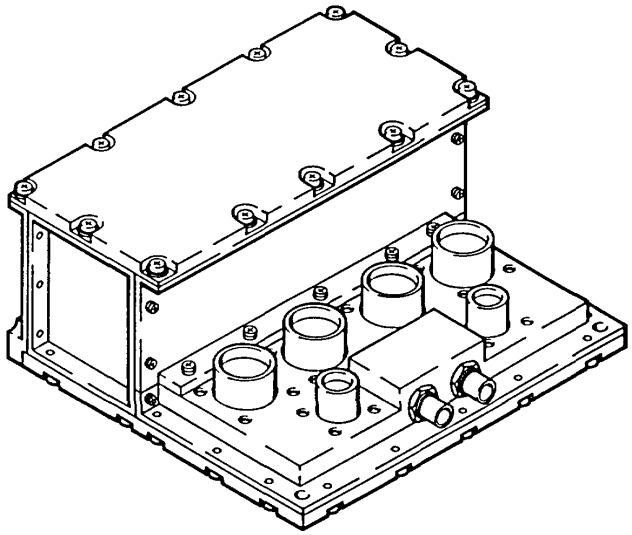
TECHNICAL MANUAL

OPERATOR'S, UNIT, AND

DIRECT SUPPORT

MAINTENANCE MANUAL



RECEIVER, CONTROL

C-11 634/U

(NSN 5895-01-222-4205)(EIC: N/A)

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 JULY 1993

Change

No. 1

HEADQUARTERS,
DEPARTMENTS OF THE ARMY
Washington, DC, 1 December 1996

Operator's, Unit, And Direct Support Maintenance Manual

CONTROL, RECEIVER C-11634/U
(NSN 5895-01-222-4205) (EIC: N/A)

TM 11-5895-1283-13, 15 July 1993, is changed as follows:

1. Title of manual is changed as shown above

2. Throughout this manual, the official nomenclature is changed as indicated above.

3. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove Pages	*Insert Pages*
5-1 through 5-6	5-1 through 5-6
B-1 through B-5/(B-6 blank) / Cover	B-1 through B-5/(B-6 blank) Cover

4. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

DISTRIBUTION:

To be distributed in accordance with the initial distribution number (IDN) 369460, requirements for TM 11-5895-1283-13.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

SAFETY SUMMARY

WARNING

Soldering operations can cause serious burns and eye injuries. Gloves, safety glasses, and protective apron are required (para 5-10, 5-11, 5-13).

Isopropyl alcohol is flammable and moderately toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate (para 5-12).

Zinc chromate dust primer is highly toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate (para 5-12, 5-14).

Adhesive, MIL-A-46016, type II, is flamable and slightly toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate (para 5-14).

HOW TO USE THIS MANUAL

1. **HOW DO I FIND INFORMATION?** To help you locate information, this manual has two types of indexes.

   a. Front Cover. Use front cover index and black tabs at the edge of pages to quickly find the chapters of this manual shown on the cover

   b. Table of Contents. Entries within the main table of contents duplicate the entries in each section of each chapter.

   c Chapter Indexes. These indexes are located in the front of each chapter. The listings are in order of appearance.

2. **HOW DO I GET FAMILIAR WITH THE EQUIPMENT?** See chapter 1 for physical and functional descriptions.

3. **DOES THE MANUAL CONTAIN OPERATOR INSTRUCTIONS?** See chapters 2 and 3 for applicability.

4. **WHAT IS THE EXTENT OF ORGANIZATIONAL MAINTENANCE?** See chapter 4. Normally, organizational maintenance is limited to quarterly preventive maintenance checks and services and replacement of defective line replaceable units (LRU's).

5. **WHERE IS DIRECT SUPPORT MAINTENANCE COVERED?** See chapter 5.

6. **ARE OTHER MANUALS REQUIRED?** Refer to appendix A for a list. Obtain these through normal supply channels.

7. **WHAT TOOLS AND EQUIPMENT ARE REQUIRED?** Refer to appendix B, (Maintenance Allocation) for a listing.

8. **WHERE DO I GET SPARE PARTS?** Refer to paragraph 5-3.

9. **WHAT ACTIONS ARE TAKEN IF MISTAKES ARE FOUND IN THE MANUAL?** See the block on the table of contents page.

10 **DO I NEED TO KNOW ANY SPECIAL SAFETY INSTRUCTIONS?** Ensure you understand the information on page A and B before you operate or maintain the equipment.

11. **WHAT OTHER FEATURES SHOULD I KNOW ABOUT THIS MANUAL?** You should know the use of NOTES, CAUTIONS, AND WARNINGS. Definitions are:

NOTE

An essential operating or maintenance procedure, caution, or statement which must be highlighted.

CAUTION

An operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness or long term health hazard to personnel.

WARNING

An operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in INJURY to or death of personnel.

Technical Manual

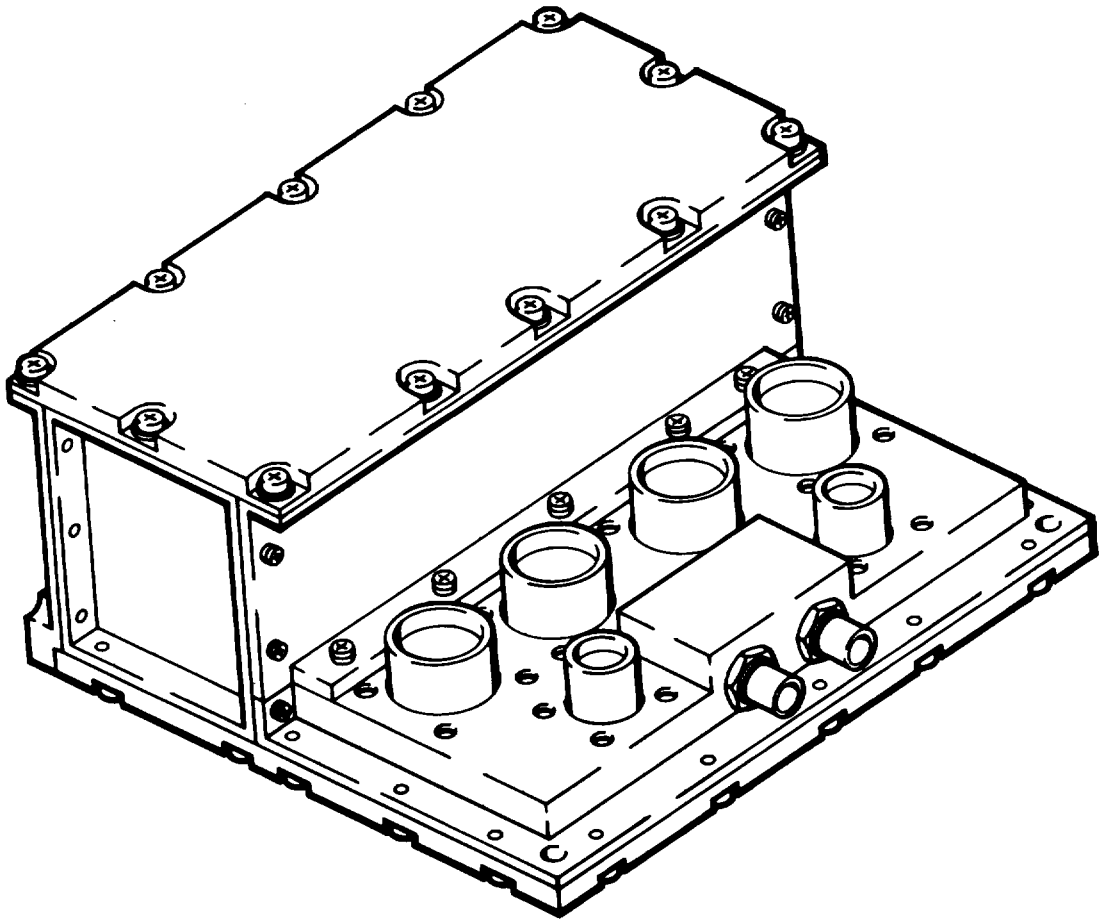
No. 11-5895-1283-13

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 July 1993

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL RECEIVER, DIGITAL CONTROL C-11634/U (5895-01-222-4205) (EIC:N/A)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007.In either case a reply will be fumished direct to you.



RECEIVER, DIGITAL CONTROL
C-11634/U

CHAPTER 1
INTRODUCTION

CHAPTER CONTENTS **Page**

Section I. GENERAL INFORMATION

1-1. SCOPE

Type of Manual: Operator's Organizational, and Direct Support Maintenance
Model Number and Equipment Name: C-1 1634/U - Receiver, Digital Control
Purpose of Equipment: Provides digital control of receiver group and routing data to quantizer-control group (Q-C group).

1-2. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA Pam 25-30 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

1-3. MAINTENANCE FORMS, RECORDS, AND REPORTS

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update.

b. Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

c. Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610. 1 9D/DLAR 4500.15.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ED-TC, Fort Monmouth, New Jersey 07703-5023. We'll send you a reply.

1-5. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-6. ADMINISTRATIVE STORAGE

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

1-7. REFERENCE INFORMATION

a Nomenclature Cross Reference List.

Common Name	Official Nomenclature
Computer processor (CP)	Computer Processor CP-1692/U
Control panel Control Panel	C-11804/ALQ
Frequency synthesizer (FS)	Frequency Synthesizer 0-1833/U
IF processor (IFP)	Processor, Intermediate Frequency CV-4008/U
IF switch (IFS)	Switch Assembly, Intermediate Frequency SA-2542/U
Interface unit (IU)	Interface Unit J-4522/U
L01	local oscillator 1
L02	local oscillator 2
NAV set	Carousel IV-E High-Accuracy Inertial Navigation System
Pod housing	Pod Housing
Quantizer-control group (Q-C group)	Quantizer-Control Group OA-9343/TSQ
Radio frequency antenna (RFA)	Antenna, Radio Frequency AS-3901/U
Receiver digital control (RDC)	Receiver, Digital Control C-1 1634/U
Receiver PS Power Supply,	Receiver PP-8184/U
Signal data recorder (SDR)	Recorder, Signal Data RD-547/U
Storage battery '	Battery, Storage C5117400
System PS	Power Supply PP-8158/U
Wide band data link	Interoperable Airborne Data Link
Mission test equipment (MTE)	Equipment Group, Mission Test

1-7.REFERENCE INFORMATION -Continued

Common Name	Official Nomenclature
Operator terminal	Alphanumeric Display Station HP2645A
RDC control (RDCCTL) (A5)	RDC Control CCA (A5) (C5117258)
RDC data path(RDCDP) (A1,A2)	RDC DP CA (A1,A2) (c5117242)
RDC local osc (RDCLO) (A3)	RDC Local Oscillator CCA(A4) (C5117347)
RDC read-only memory (RDCROM) (A4)	RDC Read-only Memory CCA (A4) (C5117253)
Connector Intfc (A6)	Connector Interface CCA (A6) (C5117240)

b. List of Abbreviations.

Amptd	amplitude
BIT	built-in test
CP	Computer processor
FS	Frequency synthesizer
IFP	IF processor
IFS	IF switch
IU	Interface unit
IUTS	Interface unit test set
MTE	Mission test equipment
-C group	Quantizer-control group
RFA	Radio frequency antenna
RDC	Receiver, digital control
SDR	Signal data recorder
RDCCTL	RDC control (A5)
RDCDP	RDC data path (Al, A2)
RDCLO	RDC local oscillator (A3)
RDCROM	RDC read-only memory (A4)

1-8. SAFETY, CARE, AND HANDLING

a Safety. For artificial respiration, refer to FM 21-11. When lifting or handling heavy objects, use two persons to prevent possible back injury.

b Care. Do not use the equipment as a step or a seat.

c. Handling. Do not drop the equipment or turn it over roughly. Avoid damage to connectors.

Section II. EQUIPMENT DESCRIPTION

1-9. CHARACTERISTICS, CAPABILITIES, FEATURES

CHARACTERISTICS

- MODULAR DESIGN ALLOWS FOR RACK MOUNTING
- PROTECTED AND ENCLOSED CIRCUITRY
- EASE OF ACCESS AND MAINTENANCE
- FRONT PANEL INTERFACE

CAPABILITIES

- CONTROLS COMMAND, ROM DATA, AND LOCK SIGNAL FLOW
- CONTROLS FLOW BETWEEN IU, RF AND IF PROCESSORS, IF SWITCH AND FREQUENCY SYNTHESIZERS

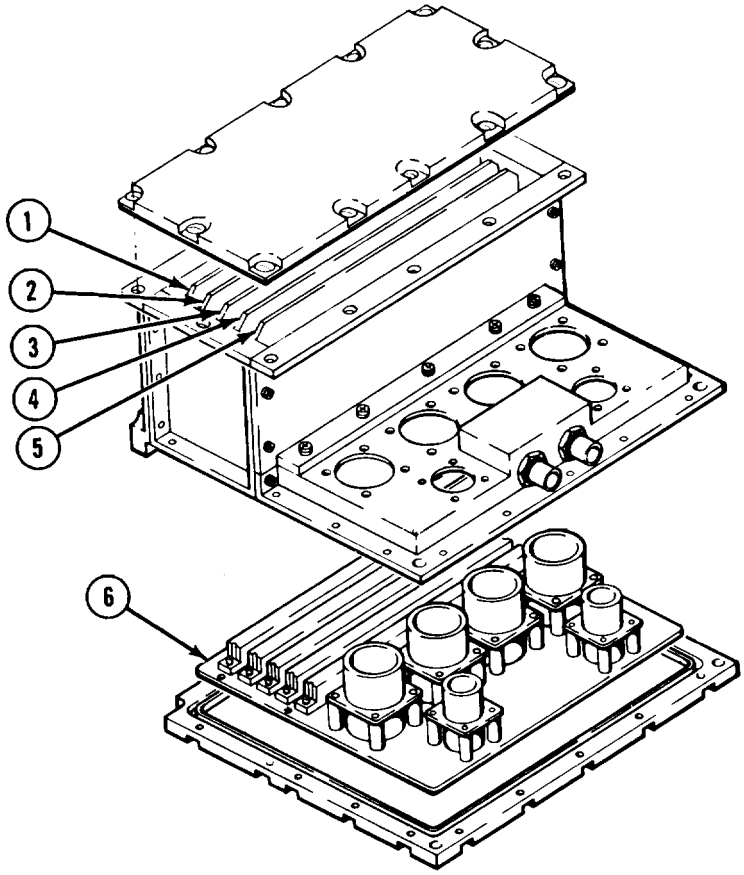
FEATURES

- QUICK REMOVAL AND REPLACEMENT
- QUICK DISCONNECT AND ACCESSIBLE EXTERNAL CABLES
- BUILT-IN TEST (BIT) CIRCUITS
- COMPLETE DIAGNOSTIC PROGRAM

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. General Location. Refer to TM 11-5895-1289-13-2.

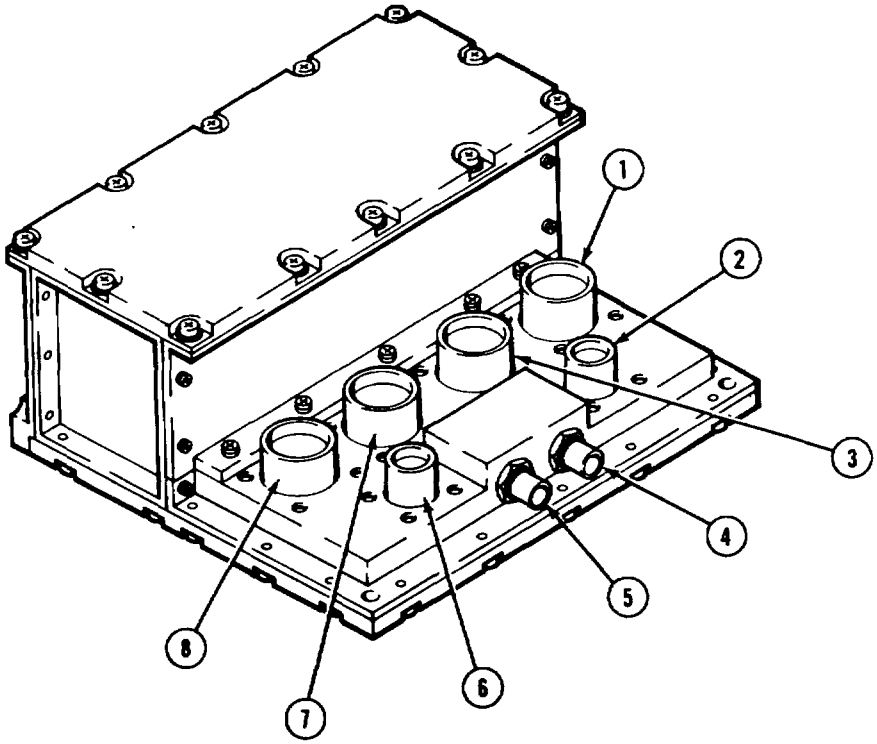
b. Major Components.



1	**RDC CONTROL (RDCCTL) (A5).**	Receives, distributes 1553B bus commands from IU
2	**RDC READ ONLY MEMORY (RDCROM) (A4).**	Controls flow of ROM data and generates initiating strobes
3	**RDC LOCAL OSC (RDCLO) (A3).**	Receives, distributes, and monitors lock signals
4	**RDC DATA PATH (RDCDP) (A2).**	Stores and sends band select, threshold level and bit commands.
5	**RDC DATA PATH (RDCDP) (AI).**	Same as A2
6	**CONNECTOR INTFC (A6).**	Ties all circuitry together

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

c. External Interfaces.



1	**CONNECTOR J4.**	Outputs tuning commands to FS No. 2
2	**CONNECTOR J6.**	Inputs power from receiver PS
3	**CONNECTOR J3.**	Outputs switch commands to IFS
4	**CONNECTOR J8.**	1553B data bus from IU
5	**CONNECTOR J7.**	1553B data bus from IU (terminated)
6	**CONNECTOR J5.**	I/O for bandwidth commands and ROM data from IU
7	**CONNECTOR J2.**	Outputs switch commands to IFS
8	**CONNECTOR J1.**	Outputs tuning commands to FS No. 1

1-11. EQUIPMENT DATA

a Physical.

Weight	5.00 lb (2.28 kg)
Height	3.82 in (9.70 cm)
Width	8.50 in (21.59 cm)
Length	7.50in (19.05 cm)

b Functional.

Input Power	+ 5.0 Vdc @ 3.0 amp +12.0 Vdc @ 0.2 amp -12.0 Vdc @ 0.2 amp

c Environmental.

Temperature

Operating	51 degrees F (-46 degrees C) to + 131 degrees F (+55 degrees C)
Non-operating	60 degrees F (-51 degrees C) to +185 degrees F (+ 85 degrees C)

Altitude

Operating	30,000 ft (9,144 m)
Non-operating	40,000 ft (12,192 m)
Humidity	0 to 98 percent
Fungus	Fungus resistant
Salt fog	Prolonged exposure without degradation
Sand and Dust	Exposure without damage or degradation
Vibration	Transportable by ground vehicle, watercraft, or aircraft

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-12. OVERVIEW

(1) **RADIO FREQUENCY ANTENNA (RFA).** Intercepts rf emitter signals. Downconverts rf signals to produce phase and trigger if. signal outputs.

(2) **IF SWITCH (IFS).** Filters RFA phase and trigger if. signals. Routes if. signals to IFP as directed by RDC.

(3) **IF PROCESSOR (IFP).** Processes if. signals for signal qualification and signal confirmation.

(4) **CONTROL PANEL**. Controls system PS. Also used to zeroize CP memory.

(5) **INTERFACE UNIT (IU).** Provides interface and control of major system units.

(6) **COMPUTER PROCESSOR (CP).** Performs data computation and signal processing functions for quantizer-control group (Q-C group).

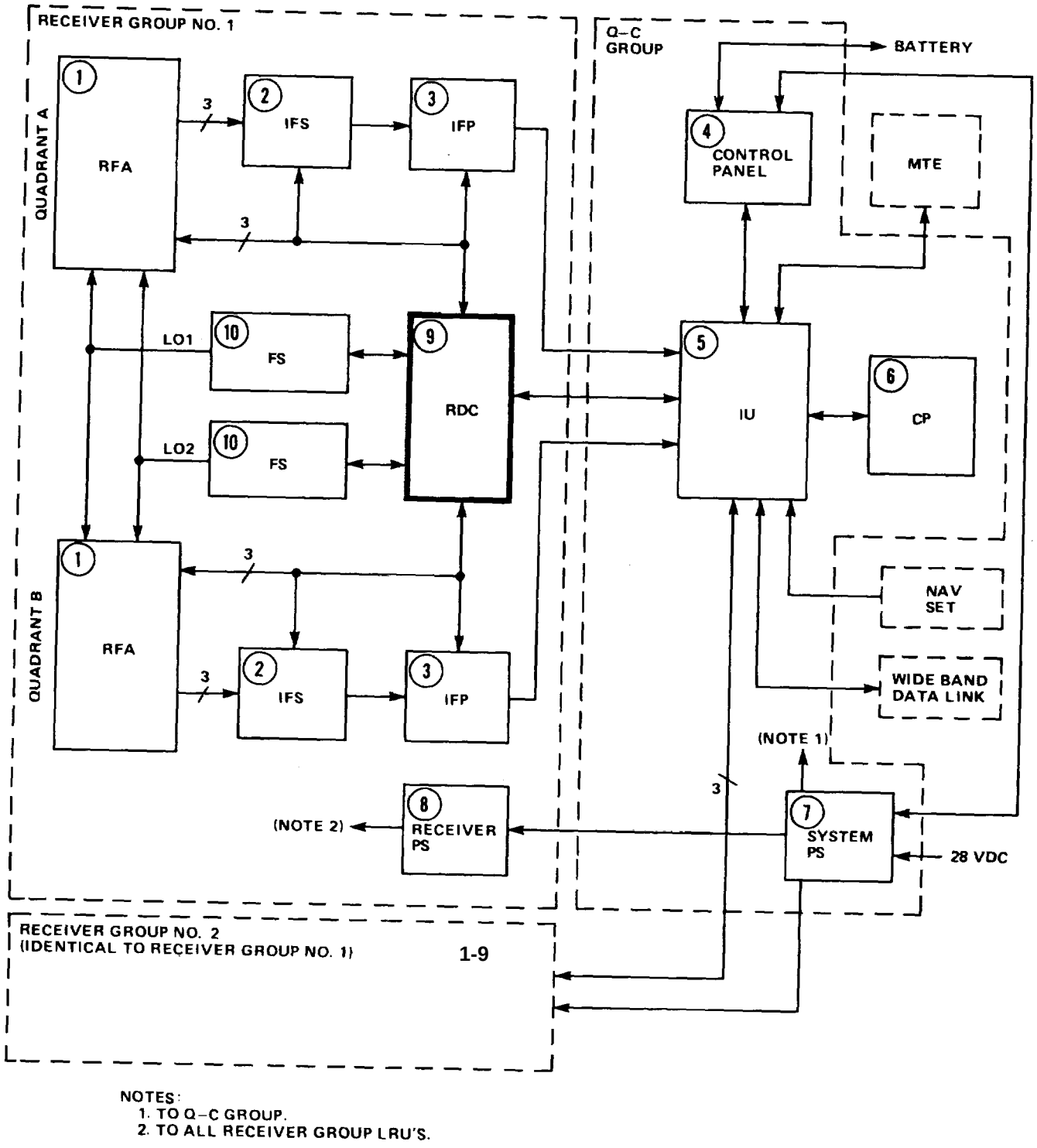
(7) **SYSTEM PS**. Provides primary power for Q-C group

(8) **RECEIVER PS.** Provides power for receiver group.

(9) **RECEIVER DIGITAL CONTROL (RDC).** Provides digital control of receiver group and routing of data to Q-C group.

(10) **FREQUENCY SYNTHESIZERS (FS).** Generates phase lock loop local oscillator (LO) signals (three bands) to rapidly tune RFA.

1-12. OVERVIEW- Continued



NOTES:
1. TO Q-C GROUP.
2. TO ALL RECEIVER GROUP LRU'S.

1-13. DETAILED OPERATION

(1) **RDC DATA PATH 1 (RDCDP1) (A1) AND RDC DATA PATH 2 (RDCDP2) (A2).** Receives and stores band select and threshold level commands from RDCCTL (A5). Sends these commands to RF switches (RFS), IFS, and IFP. The RDCDP1 and RDCDP2 also contains BIT circuitry.

(2) **RDC LOCAL OSCILLATOR (RDCLO) (A3).** Sends tune/lock signals to FS of IR group for frequency control. Receives lock-status signals from FS and transmits to IU of Q-C group. Monitors lock-status.

(3) **RDC READ-ONLY MEMORY (RDCROM) (A4).** Controls flow of ROM data from RF processors (RFP) to IU. (The RFP is part of RFA in IR group). Handles RFP ROM data requests and transfers RFP ROM phase-correction data to IU. Also generates initiating (read and write) strobes for RDCDP1, RDCDP2, and RDCLO.

(4) **RDC CONTROL (RDCCTL) (A5)**. Primary bi-directional communications interface between IU and other modules in RDC. Receives external serial digital control commands from IU and sends these commands via the RDC internal parallel data bus to other modules in RDC. Transmits command-status data to IU via the external serial MIL-STD-1553B data bus.

a. Inputs and Outputs. Refer to RDC functional block diagram.

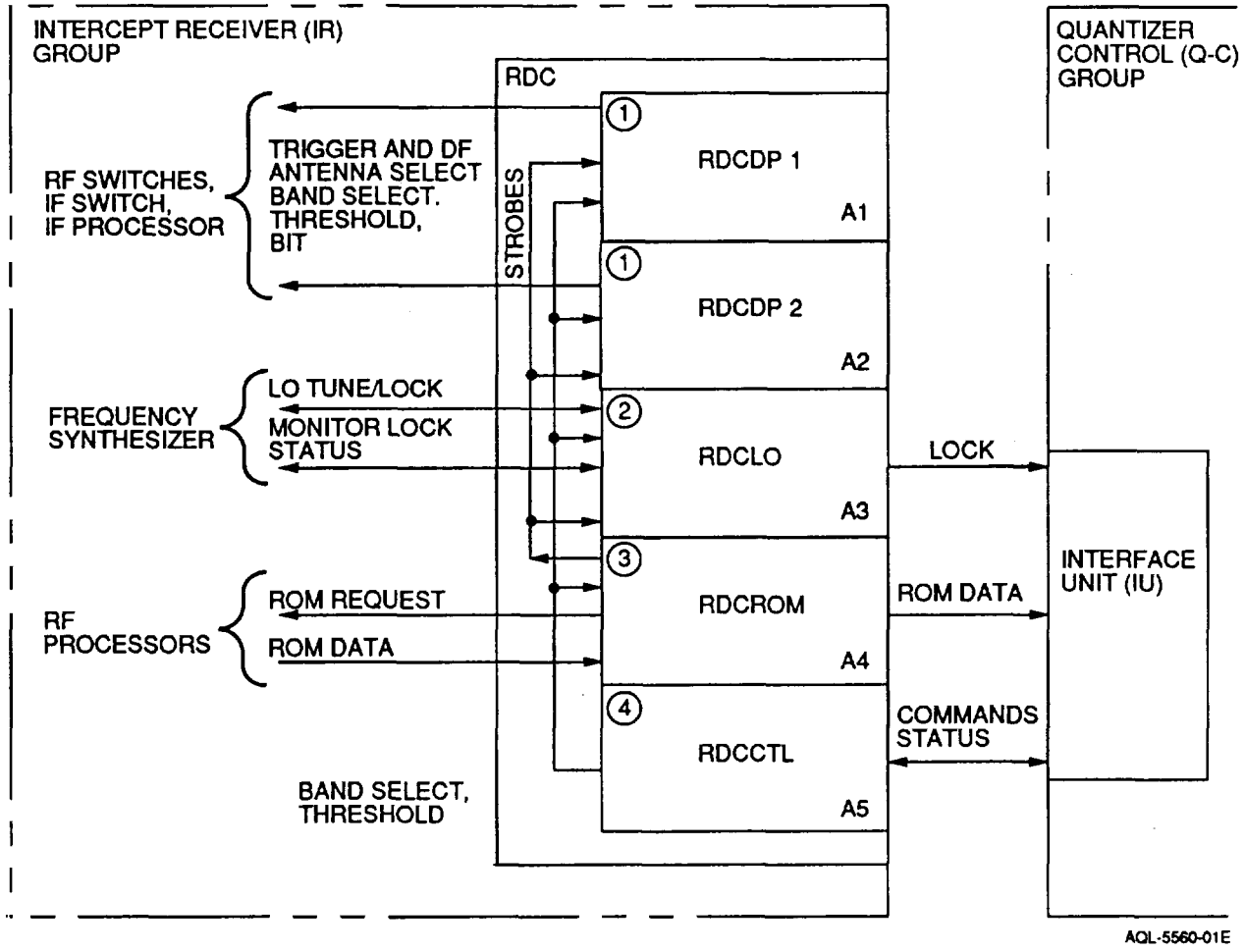
(1) **The RDC accepts:**

- Digital control commands from Q-C group IU
- ROM phase-correction data from RFP
- Lock-status data from FS
- BIT commands from IU

(2) The RDC outputs or switches:

- Control command-status data to Q-C group IU
- Local oscillator tune/lock signals to FS
- Lock-status data to IU from FS
- ROM data request to RFP
- RFP ROM (phase-correction) data to IU
- Band select, bandwidth select, and BIT select to IFS
- Trigger antenna select, direction finder (df) antenna select, and BIT select to RFA
- Threshold select, bandwidth select, and BIT select to IFP

1-3. DETAILED OPERATION - Continued



RDC FUNCTIONAL BLOCK DIAGRAM

1-13. DETAILED OPERATION - Continued

b. RDC Control (A5). Refer to RDCCTL (A5) block diagram. The main function of the RDCCTL is to interface the RDC with the IU of the Q-C group via bi-directional transfer of serial data over a MIL-STD-1553B bus.

(1) The on-board bi-directional communications interface circuit consists of:

- Direct-coupled stub (1553B bus stub) (one transformer for isolation between 1553B bus and transmitter/receiver)
- Transmitter/receiver (trans rcvr)
- Data bit terminal processor (DBTP)
- RDC internal data bus (internal parallel bus)

In the DBTP, external serial data is converted into internal parallel data and internal parallel data is converted into the external serial data format. Bi-directional data communication is provided between the RDC and the IU by the DBTP.

(2) Upon power up, master reset signals are generated by the pwrup reset circuits which reset the RDC. MRESET-/ is applied to the 8-bit latch and reset sync circuits. Reset synchronized signal (RDC RESET) is applied to DBTP. MRESET is applied to RDCLO (A3).

(3) Divide-by-three system clock circuit generates three signals to provide the necessary clocking for the RDC:

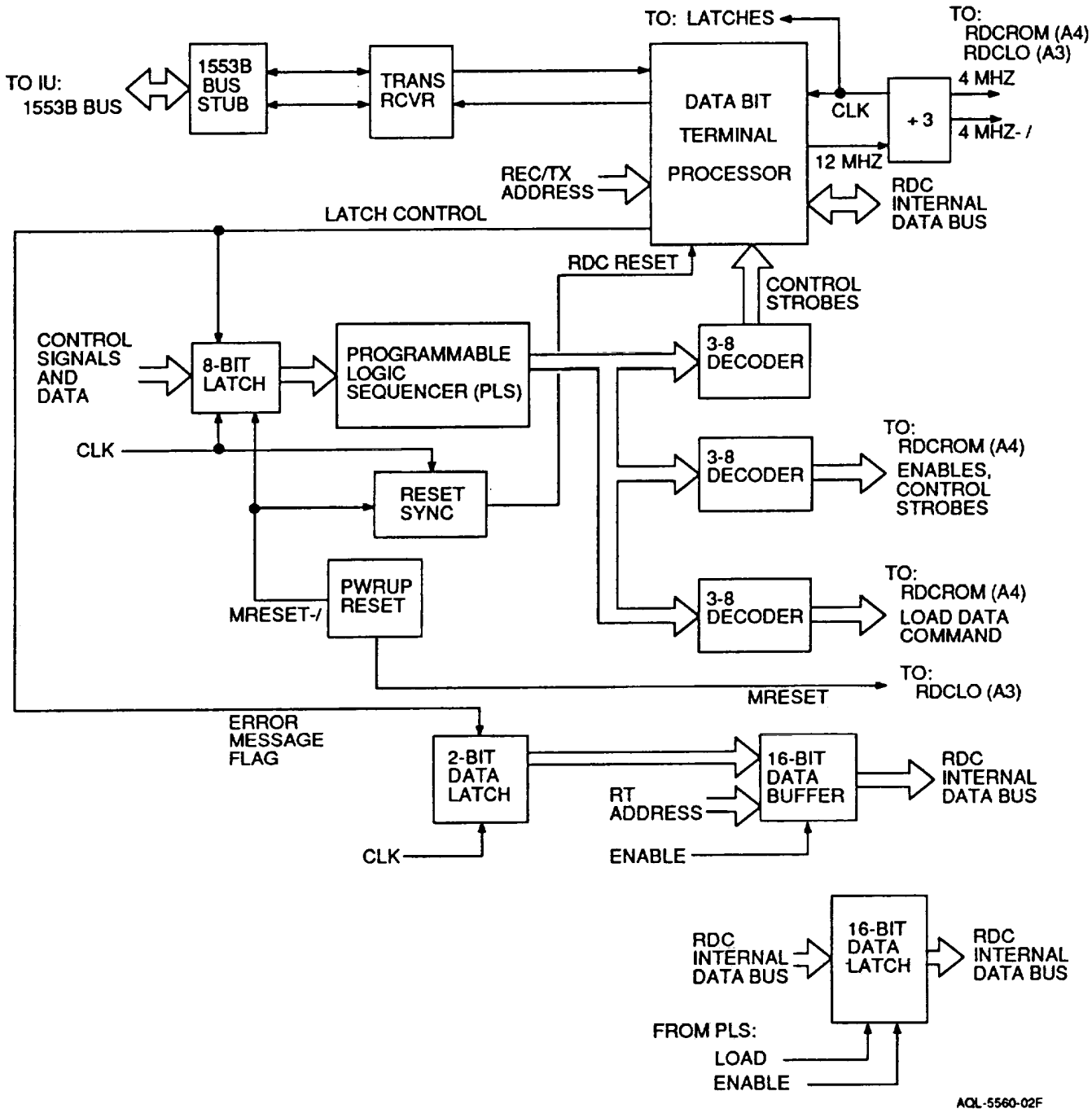
- 4MHZ and 4MHZ-/ are applied to RDCLO (A3) and RDCROM (A4)
- CLK is applied to 2-bit latch, 8-bit latch, DBTP, and reset sync circuits

(4) Receiver-transmitter control signals and data from the DBTP are fed into an 8-bit latch and clocked into the Programmable Logic Sequencer (PLS). PLS outputs are used to control decoders which generate control strobes for the DBTP and the RDCROM (A4) module.

(5) Upon power-up, a command word containing rec/tx address is received by the data bit terminal processor. If the address is incorrect, an error message flag signal on the latch control is strobed into the 2-bit data latch. The error message flag signal and the DBTP address are enabled onto the RDC internal data bus via the 16-bit data buffer.

(6) Data can be held in a 16-bit data latch and sent back to the IU via the RDC internal data bus, the DBTP, the trans rcvr, the 1553B bus stub, and the MIL-STD-1553B bus.

1-13. DETAILED OPERATION - Continued



RDCCTL (A5) BLOCK DIAGRAM

1-13.DETAILED OPERATION - Continued

c. RDC Read-Only Memory (A4). Refer to RDCROM (A4) block diagram. The RDCROM controls the flow of ROM data from the RFP to the IU. The module is divided into two sections.

(1) The first section comprises:

- Clock and control circuit
- 12-bit data latch
- Programmable logic sequencer (PLS)
- Series of decoders

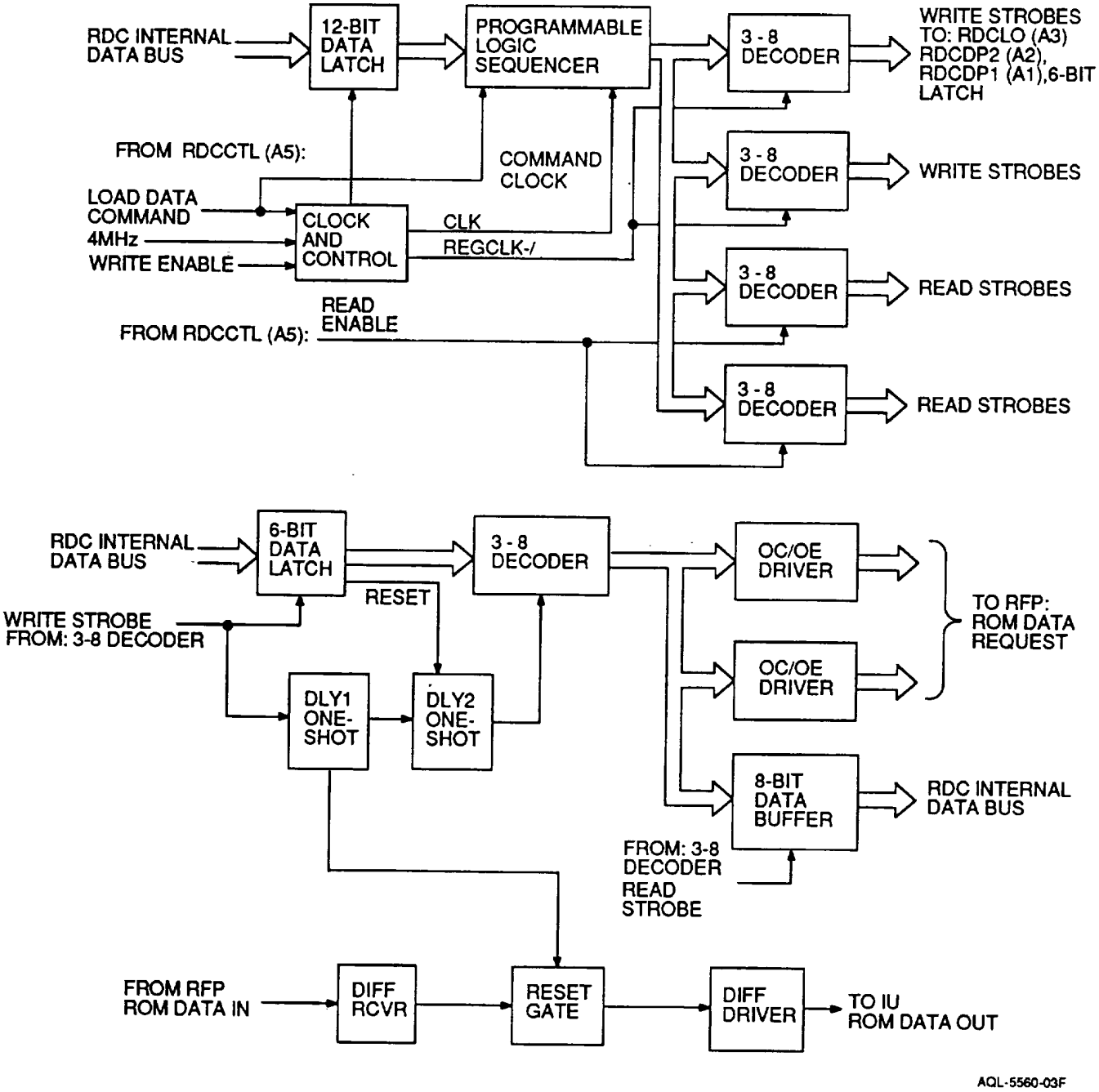
LOAD DATA COMMAND, 4MHz, and WRITE ENABLE from RDC control (A5) are combined in the clock and control circuits to produce COMMAND CLOCK, CLK, and REGCIX-/. Data present on the RDC internal data bus is clocked into the 12-bit data latch by COMMAND CLOCK. Data in the latch is clocked into the PLS by LOAD DATA COMMAND and CLK. The output from the PLS is fed into a series of 3-8 decoders. Two decoders are enabled by REGCLK-/, and two are enabled by READ ENABLES from RDC control (A5). The decoders provide read and write strobes for the RDCROM (A4) and write strobes to RDCDP1 (Al), RDCDP2 (A2), and RDCLO (A3).

(2) The second section comprises:

- 6-bit data latch
- Two one-shot delay circuits
- Decoder
- 8-bit data buffer
- Two open-collector/open-emitter (OC/OE) driver
- Differential receiver/driver circuit

In the second section, data present on the RDC internal parallel data bus is latched into the 6-bit data latch by a write strobe from the 3-8 decoders. This data is then decoded by the 3 to 8 decoder. The 6-bit data latch outputs are used as select inputs and an enable to the 3-8 decoders, and a reset to one-shot delay (DLY2). Decoded data is enabled by the one-shot delay circuits and is only present for the duration of DLY2. The decoded data selects one of the six RFP ROM through the OC/OE driver. The data contained in the six RFP ROM are phase-correction tables for the low band (LB), mid band (MB), and high band (HB) antenna arrays. This data, ROM DATA IN, is received at the differential receiver. ROM data is gated with DLY1 in the reset gate. ROM data out of the reset gate is sent by the differential driver to the IU. The decoded output data may be strobed onto the RDC internal parallel data bus through the 8-bit data buffer.

1-13. DETAILED OPERATION - Continued



RDCROM (A4) BLOCK DIAGRAM

1-13. DETAILED OPERATION - Continued

d. RDC Local Oscillator (A3).Refer to RDCLO (A3) block diagram, sheet 1. The RDCLO (A3) sends, receives, distributes, and monitors tune/lock signals between the FS and the IU. There are two identical circuits made up of:

- Two 6-bit latches
- 8-bit data buffer
- Differential driver/filter network

One circuit feeds quadrant A. The other circuit feeds quadrant B.

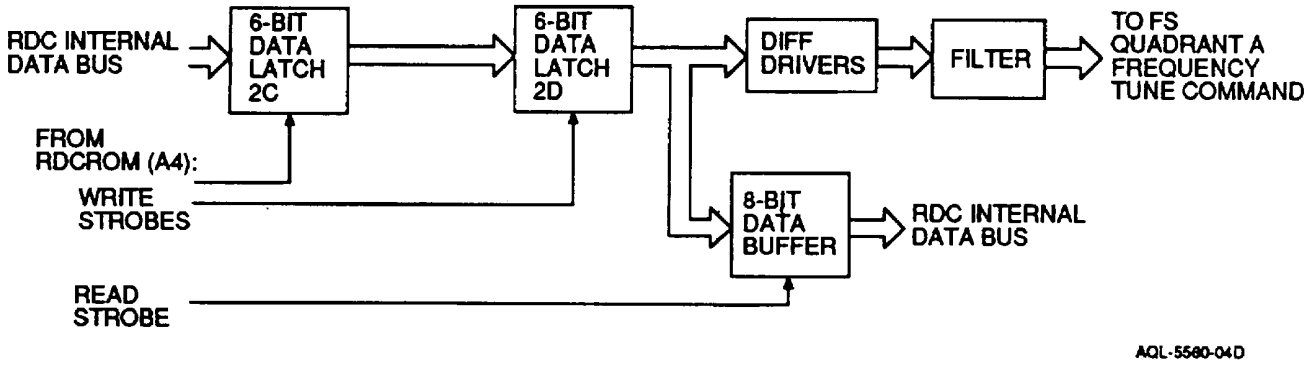
(1) Write strobes from the RDCROM (A4) will latch data from the RDC internal parallel data bus into the first 6-bit latch.

(2) Write strobes from the RDCROM (A4) will latch the data from the first latch into the second latch whose outputs are inputs to the differential drivers and the 8-bit data buffer.

(3) The output of the differential drivers contain the binary-coded decimal (BCD) representation of the most significant digit (MSD) of the frequency-tune (tune/lock) word.

(4) This data may be read back through the 8-bit data buffer to the internal data bus by read strobes generated in the RDCROM (A4).

1-13. DETAILED OPERATION - Continued



RDCLO (A3) BLOCK DIAGRAM (SHEET 1 OF 2)

1-13. DETAILED OPERATION - Continued

Refer to RDCLO (A3) block diagram, sheet 2.

(5) This part of the RDCLO (A3) consists of:

- Differential receiver
- Clock driver
- 12-bit counter
- Programmable logic sequencer (PLS)
- Schmitt trigger buffer
- Differential driver
- Two 8-bit data buffers for output to the RDC internal data bus

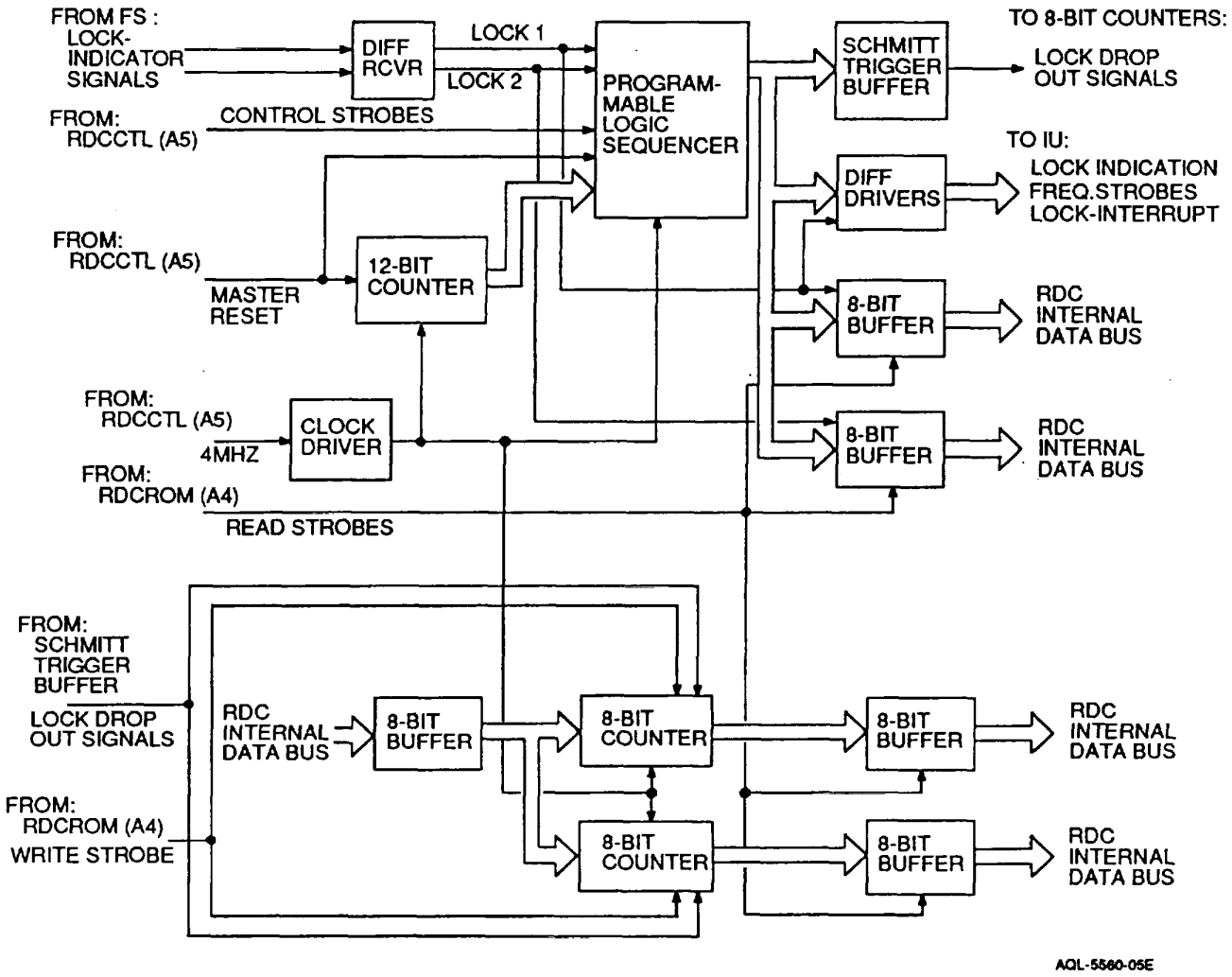
Lock-indicator signals, control strobes, and outputs of the free-running 12-bit counter are fed into the PLS. The PLS generates the lock drop out signals which are applied to a schmitt trigger buffer and then sent to the 8-bit buffer. The PLS also generates the lock indication, the frequency-strobe signals, and the lock-interrupt signals which are applied through differential drivers to the IU. The lock-status data may be enabled onto the external data bus through the 8-bit data buffers by read strobes generated on the RDCCTL (AS).

(6) The remaining part of the RDCLO (A3) consists of:

- 8-bit buffer for input from the RDC internal data bus
- Two 8-bit counters
- Two 8-bit buffers for output to the RDC internal data bus

The 8-bit counters are pre-loaded from data on the RDC internal parallel data bus through the shared 8-bit data buffer by a write strobe from the RDCROM (A4). The counters are enabled to count until a lock drop out signal is received from the schmitt trigger buffer. Once the count has reached the maximum for eight data bits, the counters are inhibited from counting. The output of the counters may be placed onto the external data bus by read strobes generated by the RDCROM (A4) and applied to the 8-bit buffers. The purpose of these counters is to ensure that phase-lock has occurred within a pre-determined time interval.

1-13. DETAILED OPERATION - Continued



RDCLO (A3) BLOCK DIAGRAM (SHEET 2 OF 2)

1-13.DETAILED OPERATION - Continued

e. RDC Data Path 2 (A2). Refer to RDCDP2 (A2) block diagram. The RDCDP2 receives, stores, and sends band select, threshold level, and BIT commands. The RDCDP2 consists of four identical circuits sharing a common 8-bit input data buffer. Each circuit is made up of:

- 8-bit data latch
- 8-bit data buffer
- Differential driver/filter network

(1) Data present at the RDC internal data bus is written to the 8-bit data latch through the 8-bit input data buffer by write strobes generated on the RDCROM (A4).

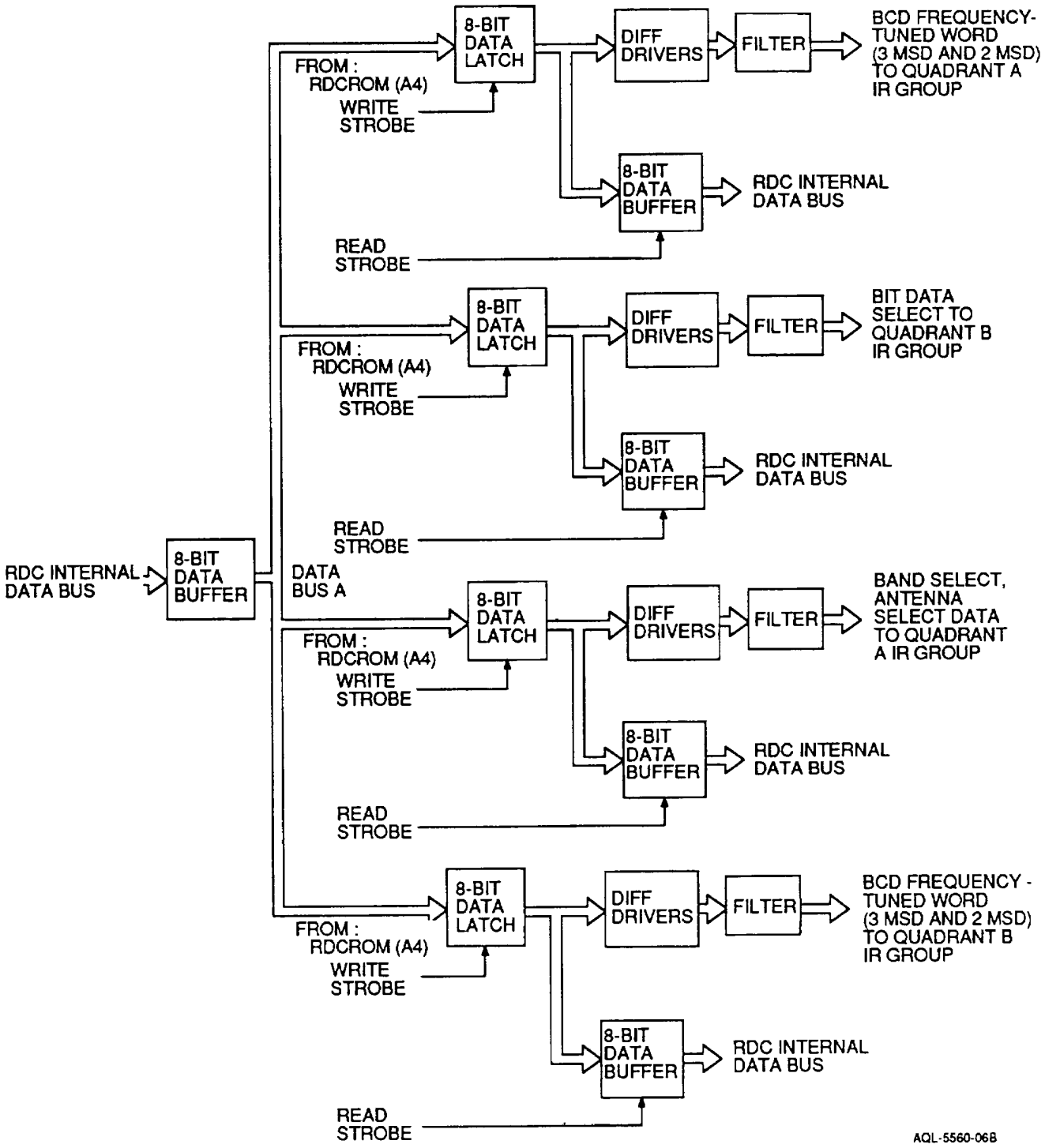
(2) Latched data is applied to differential drivers and filter networks and applied to the IR groups in quadrants A and B. The latched data may also be enabled onto the internal data bus through the 8-bit data buffers by read strobes generated in the RDCROM (A4).

(3) Two of the circuits output the BCD representation for signals (3MSD and 2MSD) of the frequency-tuned word to the IR groups in quadrants A and B.

(4) One circuit outputs the BIT data select B commands to the IFS, IFP, and RFA in quadrant B.

(5) The other circuit outputs the trigger antenna select, the band select, and the df antenna select to the IFS and RFA in quadrant A.

1-13. DETAILED OPERATION - Continued



RDCDP2 (A2) BLOCK DIAGRAM

1-13. DETAILED OPERATION - Continued

f. RDC Data Path 1 (AI). Refer to RDCDP1 (AI) block diagram. The RDCDP1 receives, stores, and sends band select, threshold level, and BIT commands. RDCDP1 consists of four identical circuits sharing a common 8-bit input data buffer. Each circuit is made up of:

- 8-bit data latch
- 8-bit data buffer
- Differential driver/filter network

(1) Data present at the RDC internal data bus is written to the 8-bit data latch through the 8-bit data buffer by write strobes generated in the RDCROM (A4).

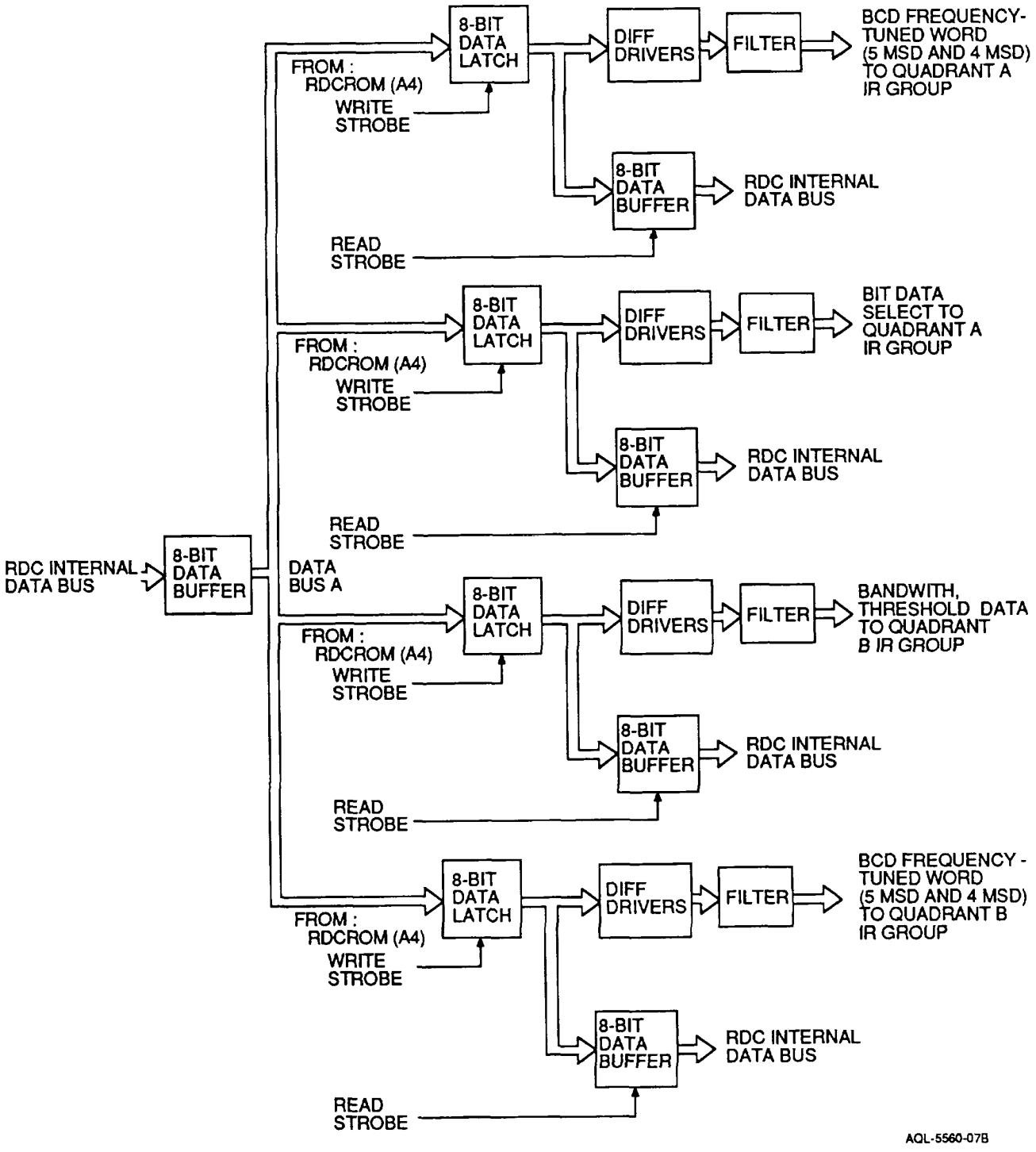
(2) Latched data is applied to differential drivers and filter networks and applied to the IR groups in quadrants A and B. The latched data may also be enabled onto the internal data bus through the 8-bit data buffers by read strobes generated in the RDCROM (A4).

(3) Two circuits output the BCD representation for signals (5MSD and 4MSD) of the frequency-tuned word to the IR groups in quadrants A and B.

(4) One circuit outputs the BIT data Select A commands to the IFS, IFP, and RFA in quadrant A.

(5) The other circuit outputs the bandwidth and threshold data to IFS and IFP in quadrant B.

1-3. DETAILED OPERATION - Continued



RDCDP1 (AI) BLOCK DIAGRAM

CHAPTER 2

OPERATING INSTRUCTIONS

Not Applicable.

CHAPTER 3

OPERATOR MAINTENANCE

Not Applicable.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE

For organizational maintenance instructions, refer to TM 11-5895-1289-13-2.

CHAPTER 5

DIRECT SUPPORT MAINTENANCE

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

5-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

5-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to Maintenance Allocation (appx B) and TM 11-5895-1283-23P.

5-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 11-5895-1283-23P

Section II. TROUBLESHOOTING

5-4. GENERAL

Troubleshoot the receiver digital control (RDC) by performing the following test setup, and fault isolation procedure. Always repeat the test procedure after completion of a corrective action to ensure that the RDC is fully operational. If the same malfunction(s) occur, perform the next recommended corrective action.

5-5. TEST SETUP

a. Test Equipment Required.
Refer to paragraph 5-1 and test setup diagram (fig. 5-1).

b. Test Connections.

(1) Make test setup (fig. 5-1).

(2) Set IUTS ac ON/OFF switch to OFF.

(3) Set control panel POWER switch to OFF.

NOTE

There are two different operator terminals used in this test setup. One is for system 4 (HP Terminal 2645N given in steps (4) thru (6) below and the other for system 1 (HP Terminal 700/43 given in step (7) below:

(4) On operator terminal (HP Model 2645N) set the controls as follows:

Switch	Set to
CRT monitor	ON
DUPLEX	FULL
PARITY	NONE
BAUD RATE	9600
Function	disengaged
REMOTE	engaged
CAPS LOCK	engaged

(5) Check that all operator terminal lamps, except TRANSMIT, are off.

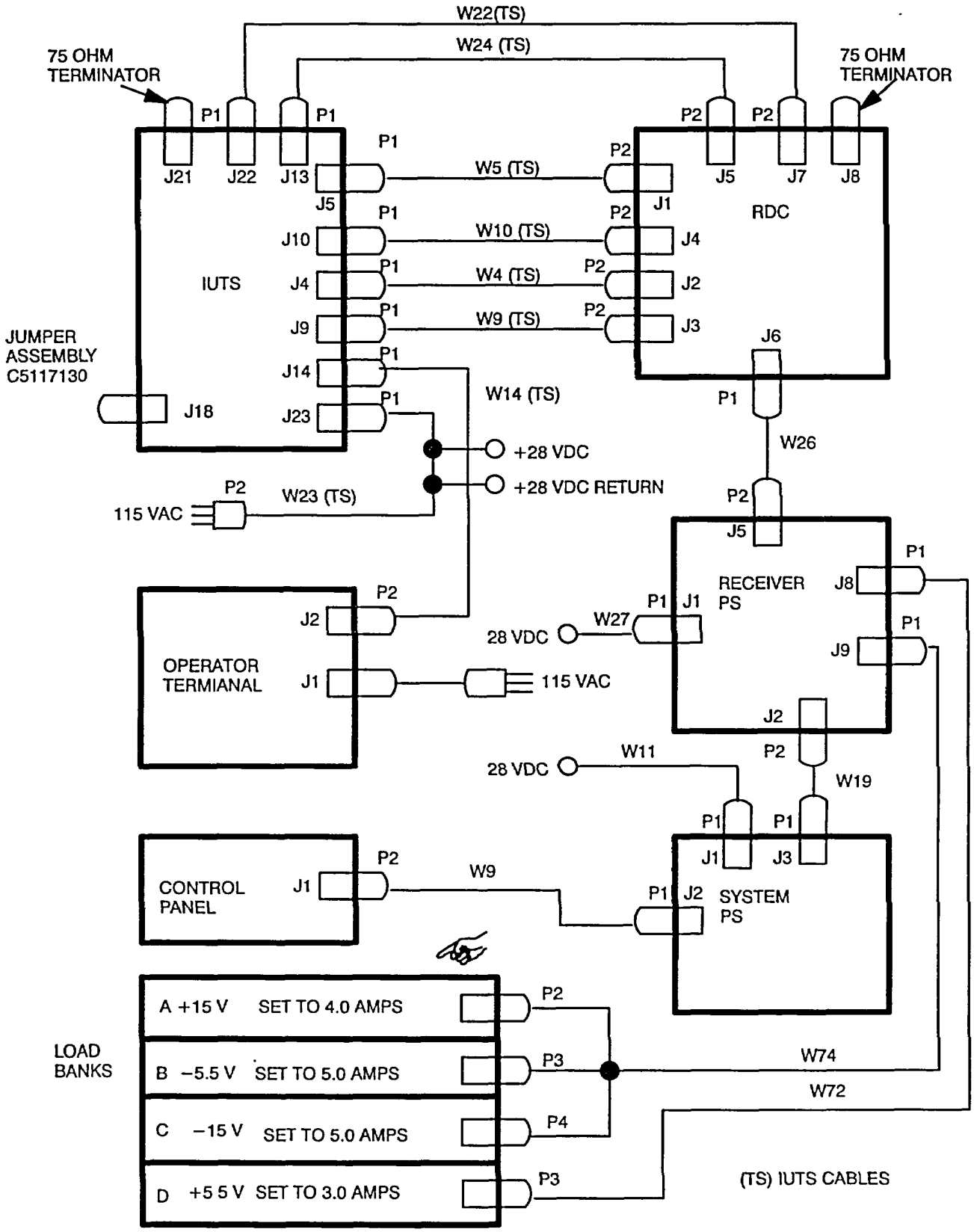


FIGURE 5-1. TEST SETUP

5-5. TEST SETUP- Continued

(6) Proceed to step (9) below.

(7) On operator terminal **(HP MODEL 700/43)** proceed as follows:

a Turn operator terminal on.

b Enter setup mode by pressing SHIFT-SETUP.

c Select User Setup mode by pressing function key F1.

NOTE

Data is changed by selecting the appropriate data column using the arrow keys. The space bar will cycle through the available choices for each column.

d Verify the following settings:

Time: Hour	Not set
Minute	Not set
Screen Saver	15 Minutes
Screen Attr	Normal
Refresh Rate	72 Hz
Cursor On	ON
Cursor Type	Blink Box
Smooth Scroll	Jump
Status Line	ON
On Line	ON LINE

e Select System Setup mode by pressing function key F8.

f Verify the following settings:

Screen Width	80
Mitipage	OFF
Auto Page	OFF
Attr Extent	Line
Bgnd Attr	Dim
Compatibility	Adds VP/A2
Enhanced Mode	OFF
Lead-in Char	ESC
EOM Char	NUL
Block Term	Us/Cr
Auto Scroll	ON
Auto Linefeed	OFF
Auto Wrap	ON
Monitor Mode	OFF
Graph Mode	OFF
Block Mode	Character
Protect Mode	OFF

5-5. TEST SETUP- Continued

g Select Data Communications mode by pressing function key F8.

h Verify the following settings for Main Port:

Baud Rate	9600
Data Length	8 bits
Parity	None
Stop Bits	1
Communication	Full Duplex
Rec Pace	None
Xmit Pace	None
CTS	Ignore
DSR	Ignore
CD	Ignore
Monitor Line	OFF

i Select Keyboard mode by pressing function key F8

j Verify the following settings:

Key Click	ON
Edit Keys	Remote
Auto Repeat	ON
Nationality	US
Language	English
Margin Bell	OFF
Cursor Down	Ctrl J
Lock or Gate	Lock
Lock Enable	ON

k Exit setup mode by pressing SETUP.

l Ensure CAPS LOCK is on.

(9) Proceed to paragraph 5-6.

5-6. TEST PROCEDURE AND FAULT ISOLATION

a. Use the following procedure. The procedure is arranged in four columns.

Column (1) Contains step number. Do not skip steps unless ACTION column (4) directs otherwise.

Column (2) Contains test operation to be performed.

Column (3) Contains normal indication to be observed when procedure has been performed.

5-6. TEST PROCEDURE AND FAULT ISOLATION- Continued

Column (4) Prescribes corrective action

b. Whenever a corrective action has been taken, perform steps 1 through 6 to verify repair.

c. If replacement of a part does not correct fault, reinstall original part before proceeding to next step.

d. Refer to applicable TM issued with the test equipment for operating instructions.

e. Refer to the following as required:

(1) FO-1 Component locations.
(2) FO-2 Wiring diagram

Connections made to test equipment are equivalent to 50-ohm terminations.

5-6. TEST PROCEDURES AND FAULT ISOLATION - Continued

STEP	PROCEDURE	INDICATIONS	ACTION
	PART I. TEST PROCEDURE		
	NOTE **Be sure test connections and initial switch settings are correct (para 5-5) before proceeding.**		
1.	Set IUTS switches as follows: a. PROCESSOR SELECT: -9 b. Ac ON/OFF - ON		
2.	Set control panel POWER switch to ON.		
3.	On IUTS, press and release RESET button.	MAIN MENU displayed	If not, refer to TM 11-5895-3150-13.

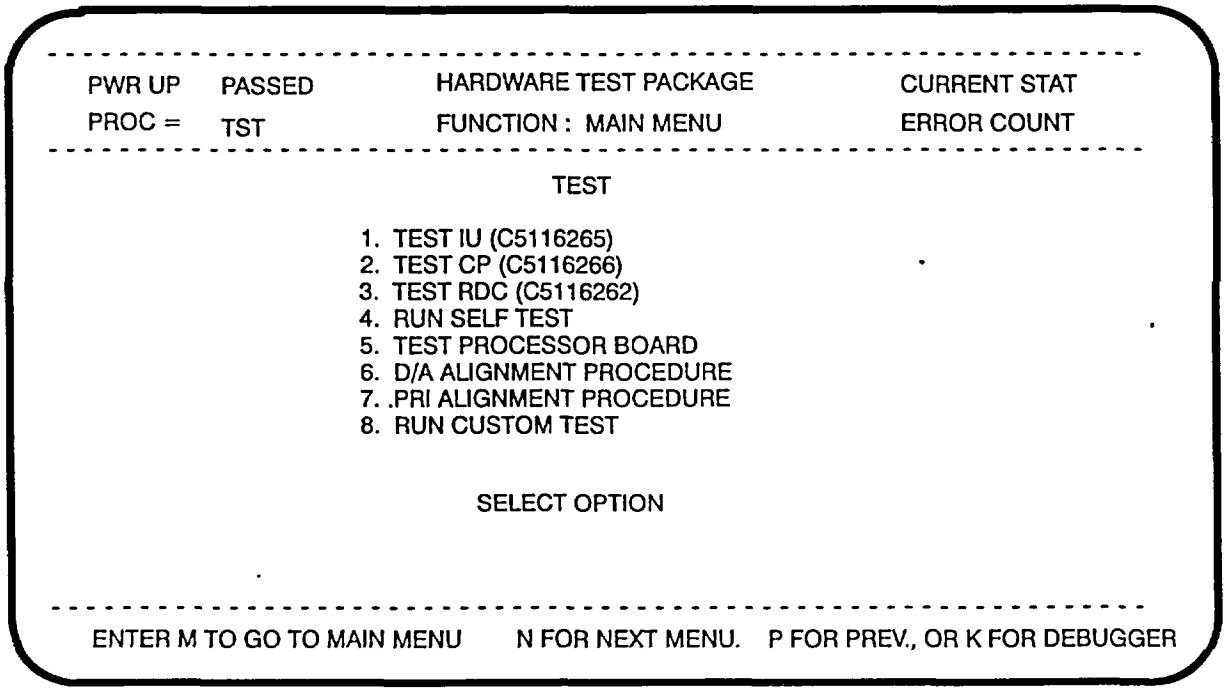


FIGURE 5-2. MAIN MENU

5-6. TEST PROCEDURE AND FAULT ISOLATION - Continued

STEP	PROCEDURE	INDICATIONS	ACTION
4.	On operator terminal, enter 3.	TEST EXECUTION menu (fig 5-3) displayed.	If not refer to - TM 11-6625-3150-13.

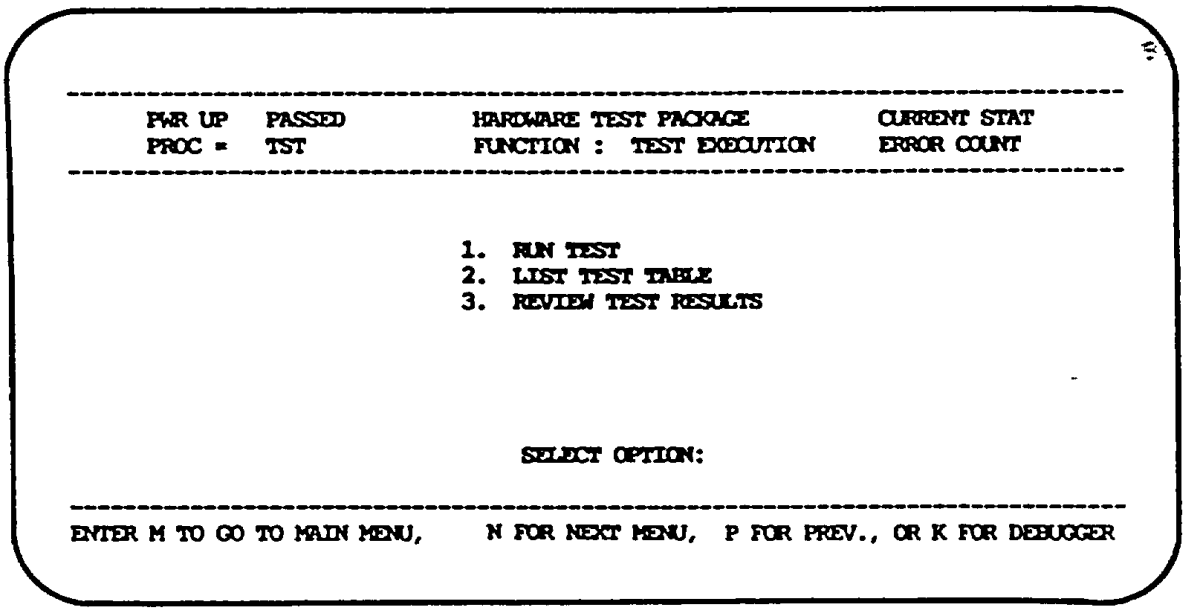


FIGURE 5-3. TEST EXECUTION MENU.

NOTE

The entire test will normally take approximately 60 seconds to run. During this time, diagnostic test task numbers will scroll on the screen indicating the task being executed. If the test halts on a diagnostic task for longer than 30 seconds, go to step 7

5	On operator terminal enter 1 <RETURN>.	Message displayed: NO HARDWARE ERRORS WERE DETECTED	If not, go to step 7.

STEP	PROCEDURE	INDICATIONS	ACTION
6.	End test procedure: a. Remove power from test setup. b. Remove RDC from test setup. c. If top or bottom cover removed, install cover (para 5–7 or 5–8)		
7.	Record task number of test module(s) that failed		a. If all test modules failed, except 00056, go to step 8. b. If one or more test modules failed, go to step 11.

PART II. FAULT ISOLATION

A. ALL TEST MODULES FAILED

8.	Check that test setup is correct (para 5–5).	Test setup correct	If not, correct test setup and repeat test procedure (steps 1 through 7 above).
9.	Check A5 by replacing with a known good A5 (para 5–9).	Passes test procedure	If test passes, replace A5 (para 5–9).
10.	Check RDC continuity. Remove bottom cover (para 5–8). Remove A1 through A5 (para 5–9). Refer to FO–2.	Continuity	a. If not, replace wire(s) (para 5–11). b. If fault persists, replace A6 (para 5–10). c. If fault still exists, send RDC to higher level maintenance.

B. ONE OR MORE TEST MODULES FAILED

NOTES

Find test procedure diagnostic task module number that failed under Task No. If more than one task failed start corrective actions with the lowest numbered task.

Perform corrective actions in order of priority 1, 2, then 3, as required.

The column heading where a priority number is found identifies the CCA to be checked or replaced.

5-6. TEST PROCEDURE AND FAULT ISOLATION—Continued

STEP	PROCEDURE	INDICATIONS	ACTION
11	Check CCAs according to figure 5–5 by replacing with a known good CCA (para 5–9).	Passes test procedure	a. If not, replace CCA (para 5–9). b. If fault persists, send RDC to higher level maintenance.

Task No.	Circuit Card Assembly					
	A1	A2	A3	A4	A5	A6
51	3	4	5	2	1	6
52	4	5	1	2	3	6
53	1	4	5	2	3	6
54	4	1	5	2	3	6
55	4	5	1	2	3	6
56	3	4	5	1	2	6
57	3	4	5	1	2	6

FIGURE 5-5. TASK NUMBERS/CCA MATRIX.

Section III. MAINTENANCE

5-7. TOP COVER

a. Removal.

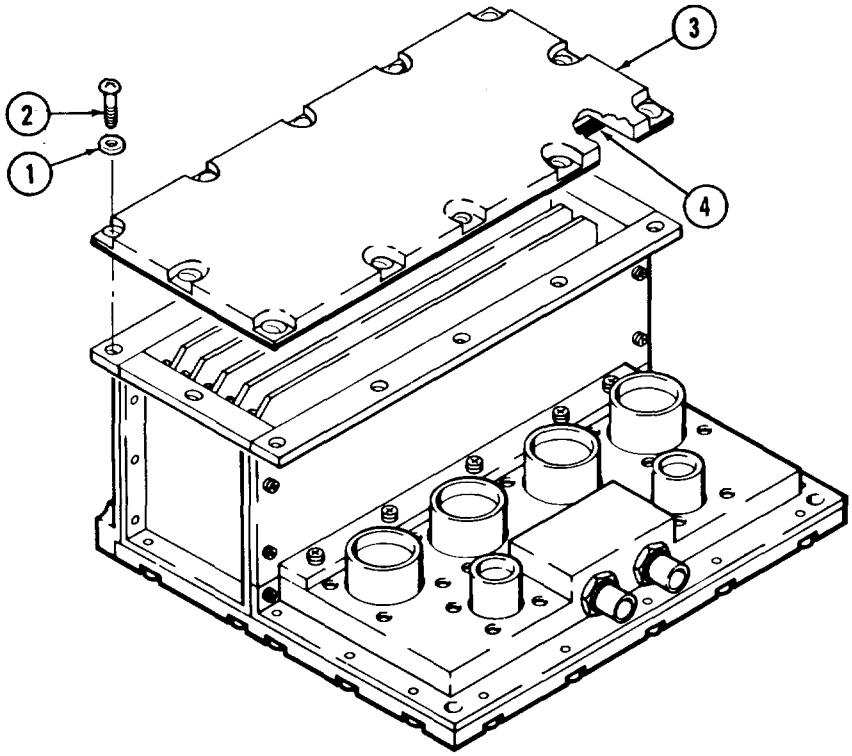
NOTE

If helicoil is stripped, replace helicoil insert (para 5-12).

(1) Remove 12 screws (2) and washers (1).

(2) Remove cover (3) gasket (4).

(3) Inspect gasket (4) for cracks or breaks. If damaged, replace gasket (para 5-14).



b. Installation.

(1) Place cover (3) and gasket (4) in installed position.

NOTE

If helicoil is stripped, replace helicoil insert (para 5-12

(2) Install 12 screws (2) and washers (1). Torque to 6-8 inch/pounds.

5-8. BOTTOM COVER

a. Removal.

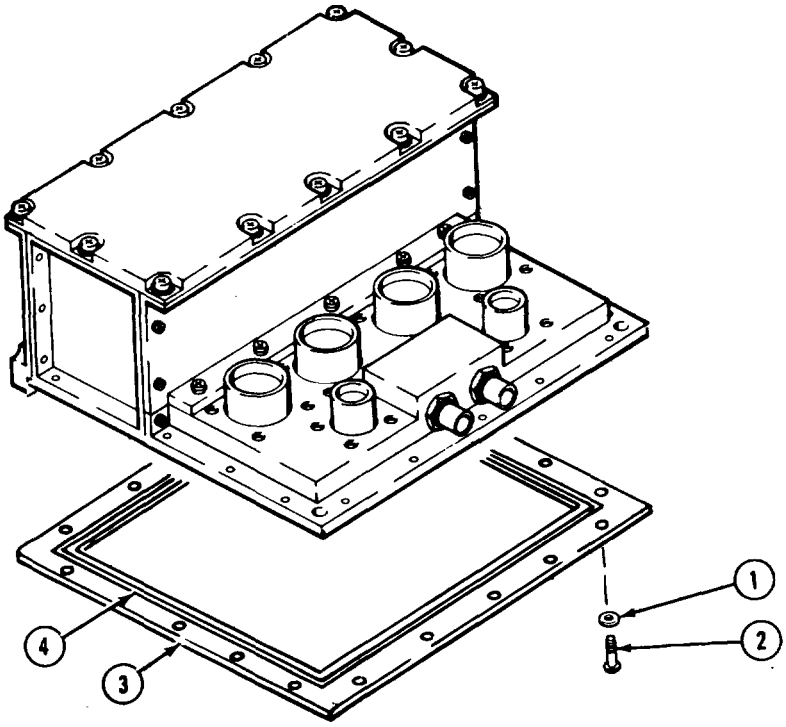
NOTE

If helicoil is stripped, replace helicoil insert (para 5-12).

(1) Remove 20 screws (2) and washers (1).

(2) Remove cover (3) and gasket (4).

(3) Inspect gasket (4) for cracks or breaks. If damaged, replace gasket (para 5-14).



b. Installation.

(1) Place cover (3) and gasket (4) in installed position.

NOTE

If helicoil is stripped, replace helicoil insert (para 5-12).

(2) Install 20 screws (2) and washers (1). Torque to 6-8 inch/pounds.

5-9 CIRCUIT CARDS Al THROUGH A5

NOTE

Procedures are the same for circuit cards Al through A5. Circuit card A2 is shown.

a. Preliminary Procedure. Remove top cover (para 5-7).

b. Removal.

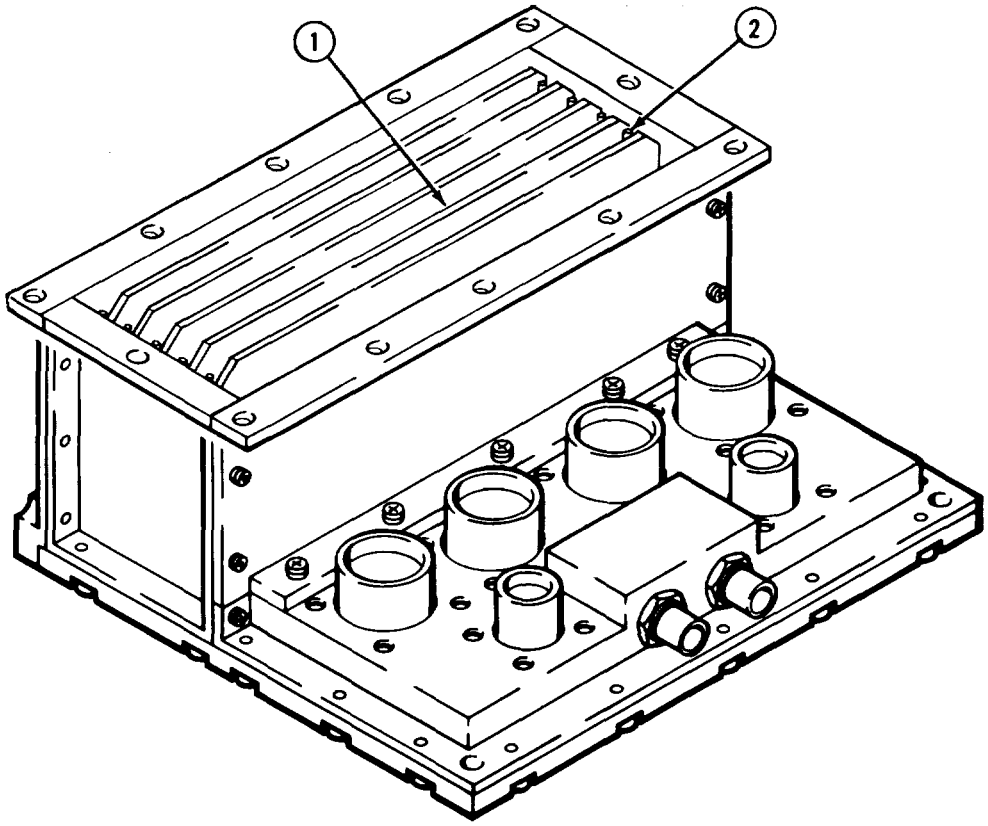
(1) Loosen circuit card cam locks (2).

(2) Remove circuit card (1).

c. Installation.

(1) Place circuit card (1) in installed position.

(2) Tighten circuit card cam locks (2).



d. Follow-on Procedure. Perform test procedure (para 5-6).

5-10. CONNECTOR INTERFACE A6

a. Preliminary Procedures.

(1) Remove Al through A5 (para 5-9).

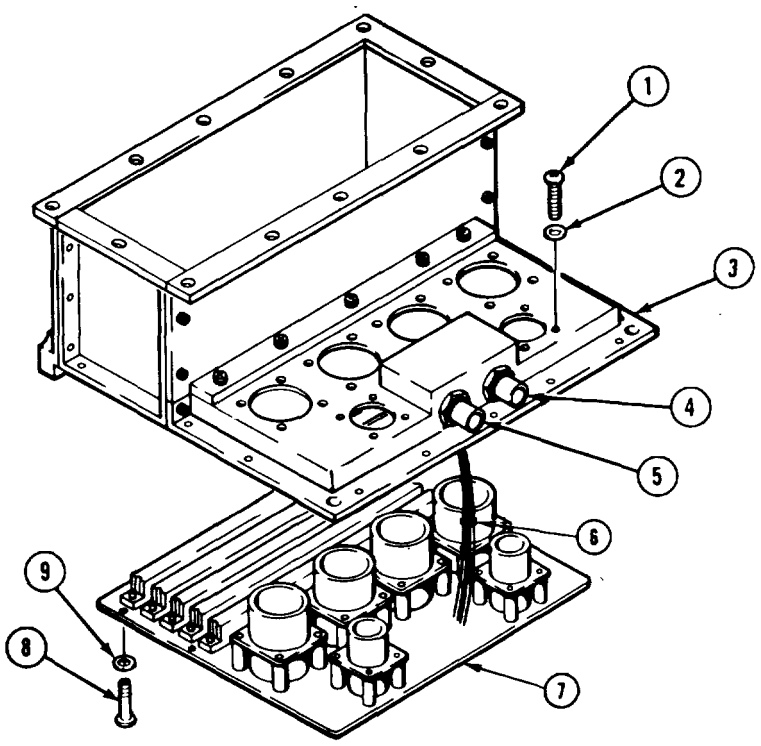
(2) Remove bottom cover (para 5-8)

b. Removal.

(1) Remove 24 screws (1) and washers (2).

(2) Remove four screws (8) and washers (9).

(3) Separate A6 (7) from housing (3) to access wiring (6).



5-10. CONNECTOR INTERFACE A6 - Continued

WARNING

Soldering operations can cause serious burns and eye injuries. Gloves, safety glasses, and protective apron are required.

CAUTION

Soldering iron should not exceed 25 watts. Excessive heat will damage connectors and A6.

(4) Tag, unsolder, and remove wiring (6) from connectors J7 (5) and J8 (4) at A6 (7).

(5) Remove A6 (7).

(6) Installation.

(7) Solder wiring (6) from connectors J7 (5) and J8 (4) to A6 (7) as tagged. Remove tags.

(8) Place A6 (7) in installed position.

(9) Install four screws (8) and washers (9).

(10) Install 24 screws (1) and washers (2). Torque to 68 inch/pounds.

(11) Follow-on Procedures

(12) Install bottom cover (para 5-8).

(13) Install Al through A5 (para 5-9).

(14) Perform test procedure (para 5-5).

5-11. WIRING

a. Preliminary Procedures.

(1) Remove Al through A5 (para 5-9).

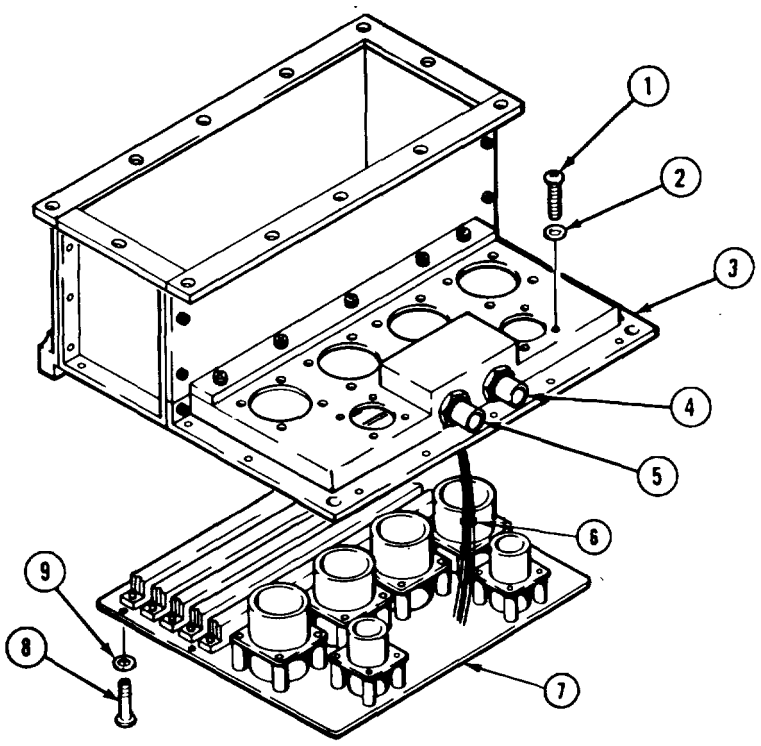
(2) Remove bottom cover (para 5-8).

b. Removal.

(1) Remove 24 screws (1) and washers (2).

(2) Remove four screws (8) and washers (9).

(3) Separate A6 (7) from housing (3) to access damaged wire (6).



5-11. WIRING - Continued

WARNING

Soldering operations can cause serious burns and eye injuries. Gloves, safety glasses, and protective apron are required.

CAUTION

Soldering iron should not exceed 25 watts or excessive heat will damage connectors and A6.

(4) Tag, unsolder, and remove wire (6) from A6 (7).

(5) Remove insulation sleeving (10) from wires (6).

(6) Remove wires (6) from connector J7 (5) or J8 (4).

c. Installation.

(1) Position insulation sleeving (10) on wires (6).

(2) Solder wires (6) to connectors J7 (5) or J8 (4) and A6 (7) as tagged. Remove tags.

(3) Position and shrink insulation sleeving (10).

(4) Place A6 (7) in installed position.

(5) Install four screws (8) and washers (9).

(6) Install 24 screws (1) and washers (2). Torque to 6-8 inch/pounds.

d. Follow-on Procedures.

(1) Install bottom cover (para 5-8).

(2) Install Al through A5 (para 5-9).

(3) Perform test procedure (para 5-6)

5-12. HELICOIL INSERTS

a. Removal,

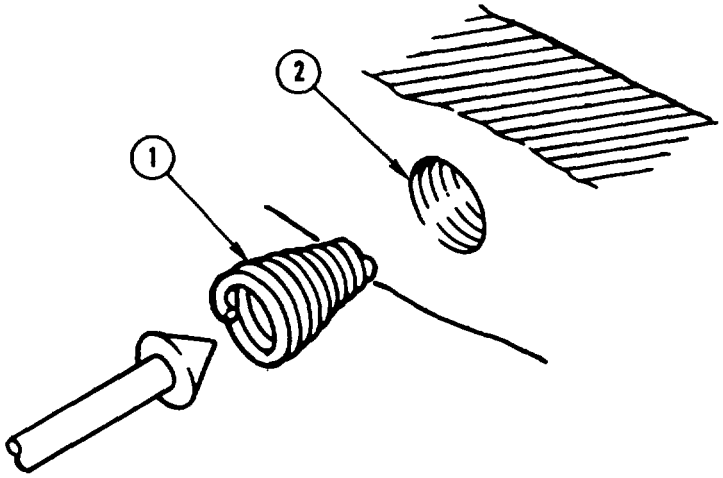
(1) Using removal tool, press and turn insert (1) counterclockwise.

(2) Remove insert (1). If insert cannot be removed, go to step (3).

(3) Using a scribe, pry top thread of insert (1) away from housing hole (2)

(4) Using needle-nose pliers, turn insert (1) counterclockwise.

(5) Remove insert (1).



5-12. HELICOIL INSETS- Continued

b. Installation.

WARNING

Isopropyl alcohol is flammable and moderately toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate.

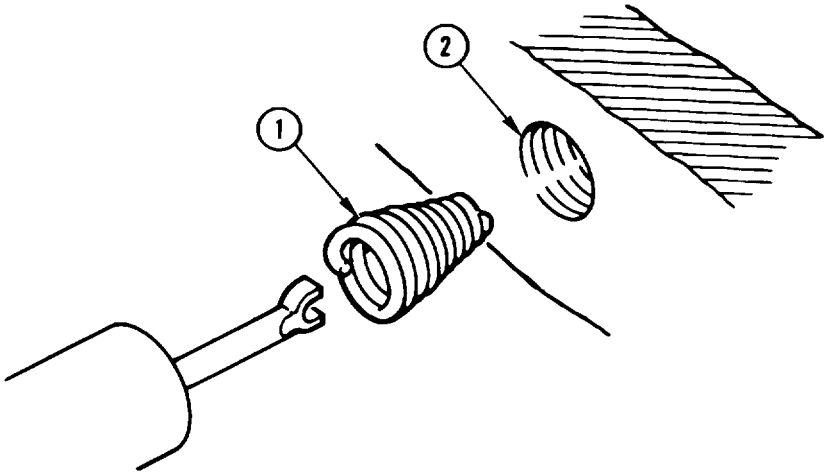
(1) Using pipe cleaner or swab, and isopropyl alcohol, clean housing hole (2).

(2) Place new insert (1) on insertion tool.

WARNING

Zinc chromate dust primer is highly toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate.

(3) Coat insert (1) with zinc chromate dust primer.



5-12. HELICOIL INSERTS - Continued

NOTE

Tape thread of insert should be below housing surface between 1/4 and 1 - 1/2 turns.

(4) Using insertion tool, install insert (1) in housing hole (2) as follows:

(a) Align insert threads with hole threads.

(b) Press insertion tool outer housing against hole housing (3).

(c) Turn insertion tool clockwise to thread insert into hole within limits given.

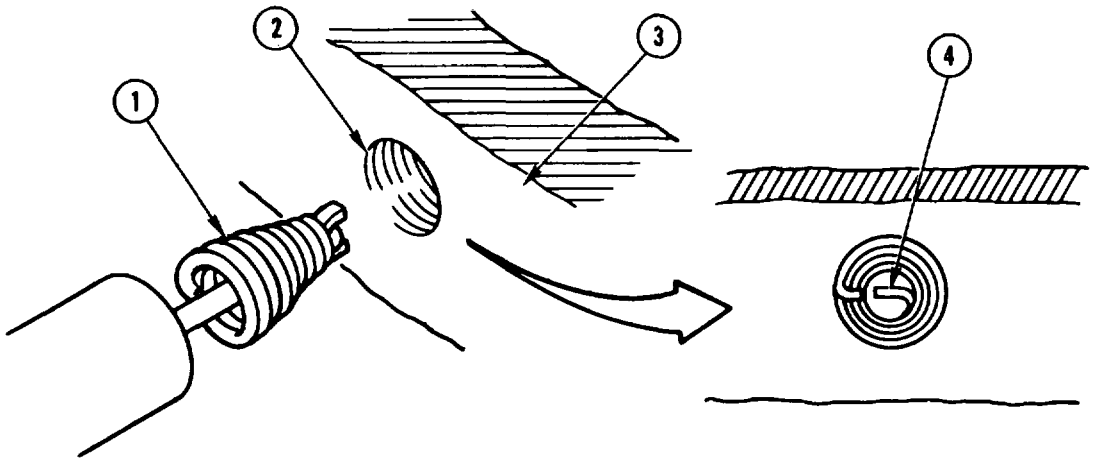
(5) Ensure insert (1) is between 1/4 and 1 - 1/2 turns below housing surface.

(a) If insert is installed within limits given, go to step (6).

(b) If insert is not installed within limits given, replace insert.

(6) Using tang removal tool, press and remove insert tang (4) from bottom of insert (1)

(7) Allow zinc chromate dust primer one hour to cure.



(c) Follow-on Procedure. Install top or bottom cover (para 5-7 or 5-8 as required).

5-13. CONNECTORS J7 AND J8

NOTE
Procedure is the same for J7 or J8.

a. Preliminary Procedures.

(1) Remove Al through A5 (para 5-9).

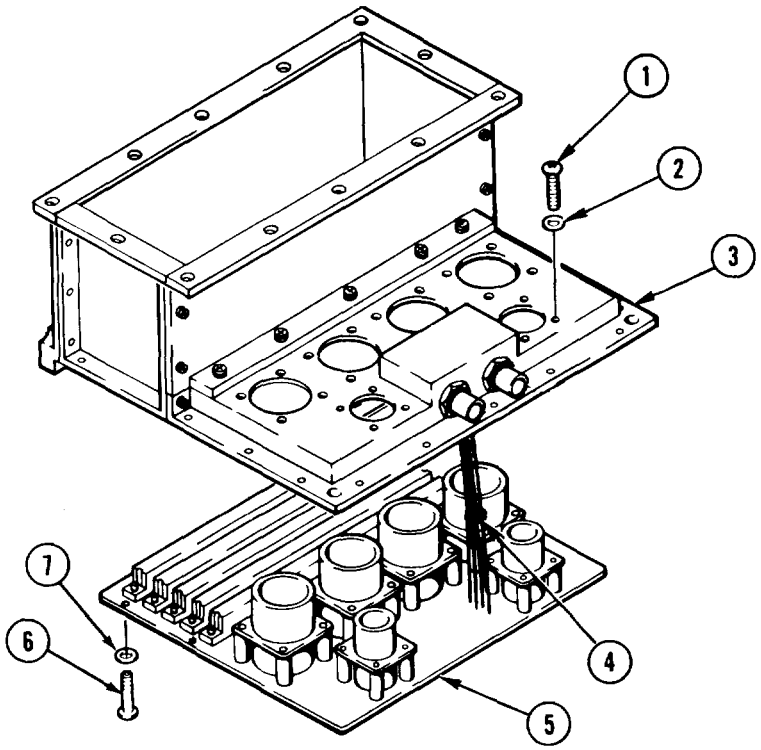
(2) Remove bottom cover (para 5-8).

b. Removal

(1) Remove 24 screws (1) and washers (2).

(2) Remove four screws (6) and washers (7).

(3) Separate A6 (5) from housing (3) to access wiring (4).



5-13. CONNECTORS J7 AND J8- Continued.

(4) Remove insulation sleeving (2) from wires (1).

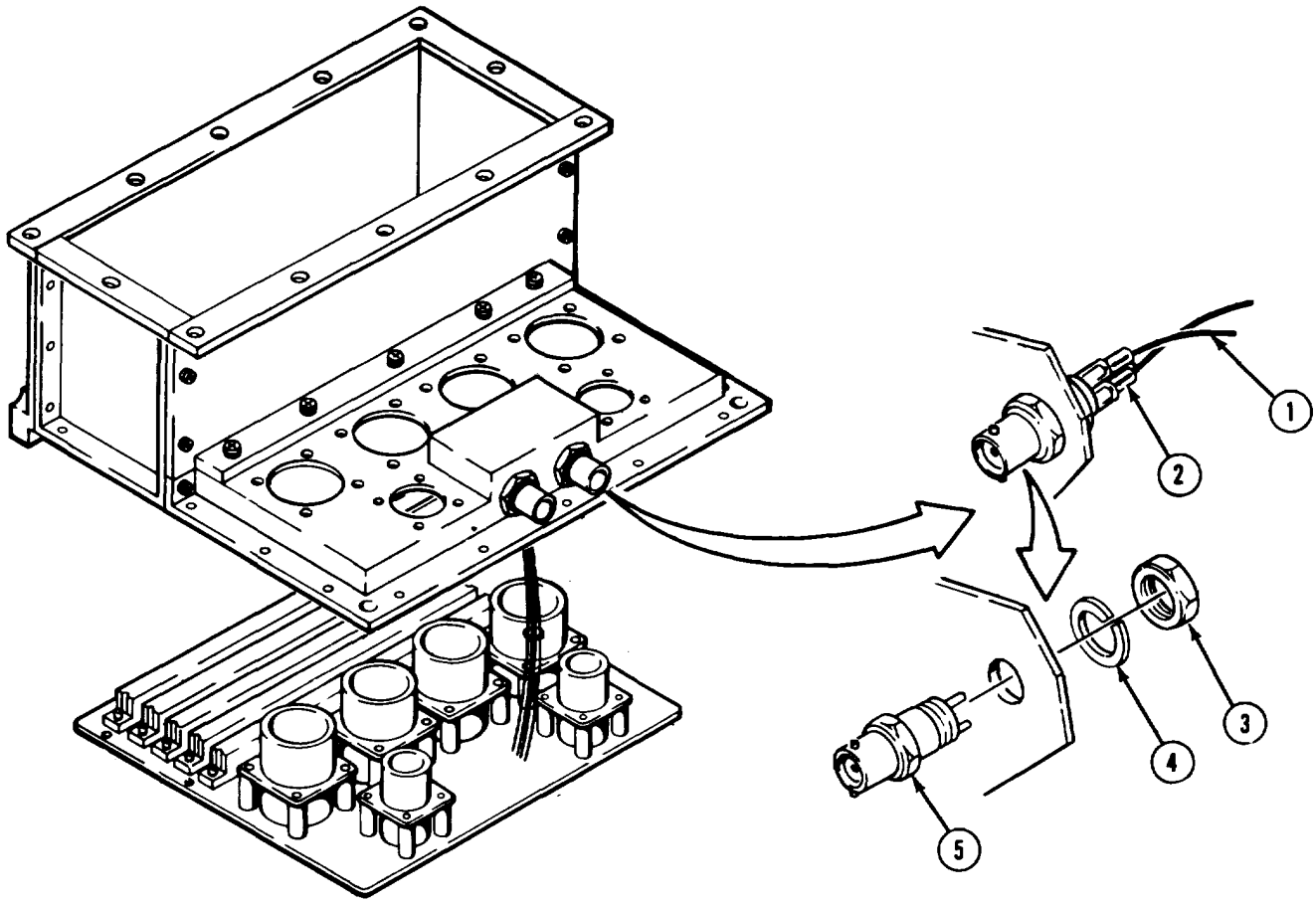
WARNING

Soldering operations can cause serious burns and eye injuries. Gloves, safety glasses, and protective apron are required.

(5) Tag, unsolder, and remove wires (1).

(6) Remove nut (3) and washer (4).

(7) Remove connector (5).



5-13. CONNECTORS J7 AND J8 - Continued

c. Installation.

(1) Place connector (5) in installed position.

(2) Install washer (4) and nut (3).

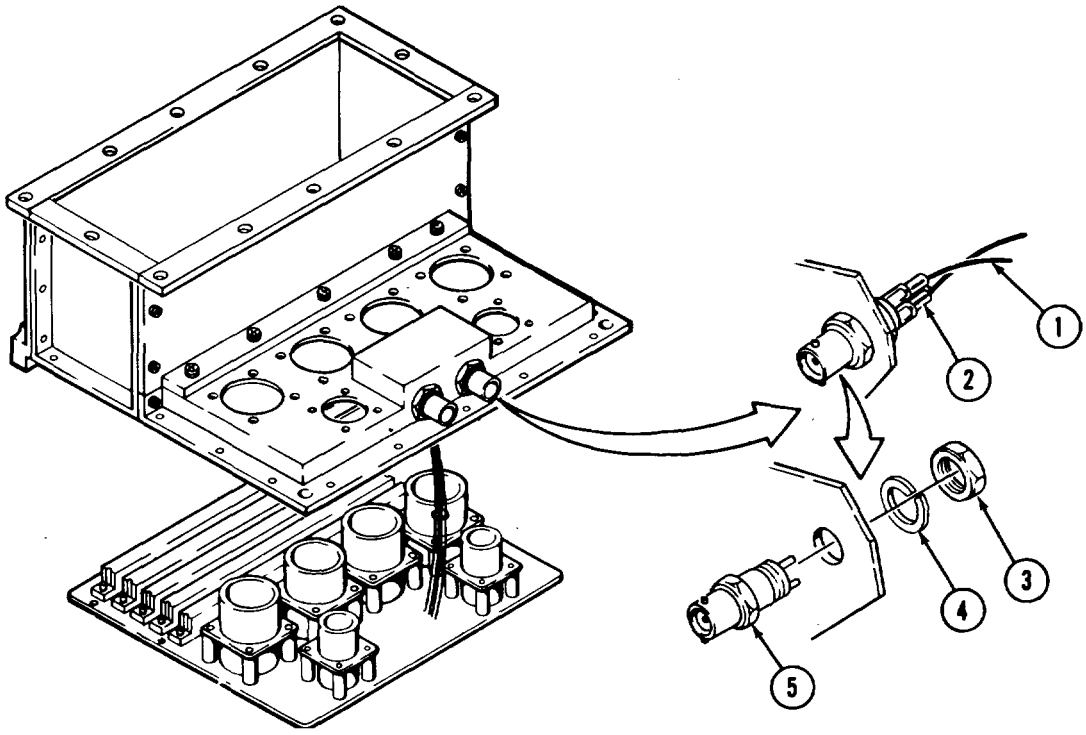
(3) Place new lengths of insulation sleeving (2) on wires (1).

WARNING

Soldering operations can cause serious burns and eye Injuries. Gloves, safety glasses, and protective apron are required.

(4) Resolder wires (1) as tagged. Remove tags.

(5) Using heat gun, position and shrink insulation sleeving (2).



d. Follow-on Procedures.

(1) Install bottom cover (para 5-8).

(2) Install A1l through A5 (para 5-9).

(3) Perform test procedure (para 5-6

5-14. GASKET

NOTE

procedure is the same for top or bottom cover gaskets. Bottom cover shown.

a. Preliminary Procedure. Remove top or bottom cover (para 5-7 or 5-8).

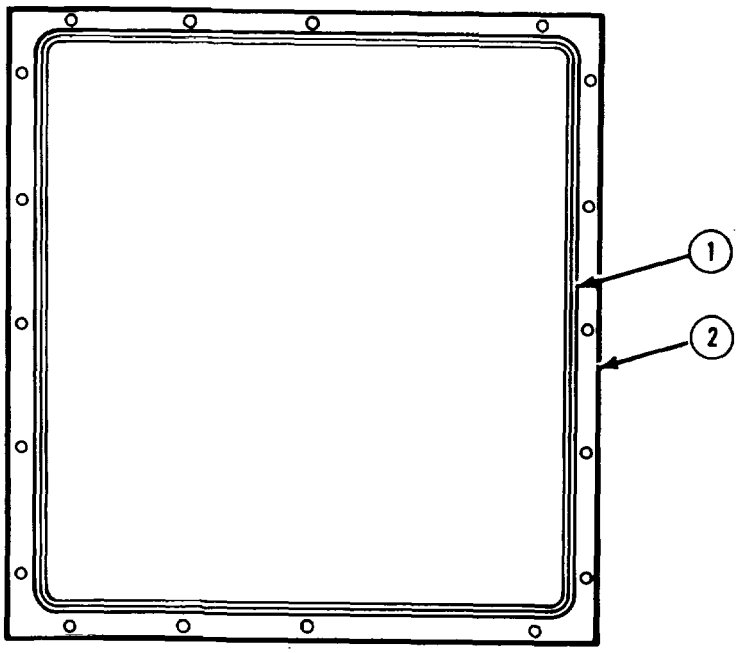
b. Removal.

(1) Scrape gasket (1) from cover (2).

WARNING

Isopropyl alcohol is flammable and moderately toxic to eyes, skin, and respiratory tract. Eye and skin protection is required. Good general ventilation is normally adequate.

(2) Using isopropyl alcohol, clean cover (2) to remove gasket (1) and adhesive residue.



5-14. GASKET - Continued

c. Installation.

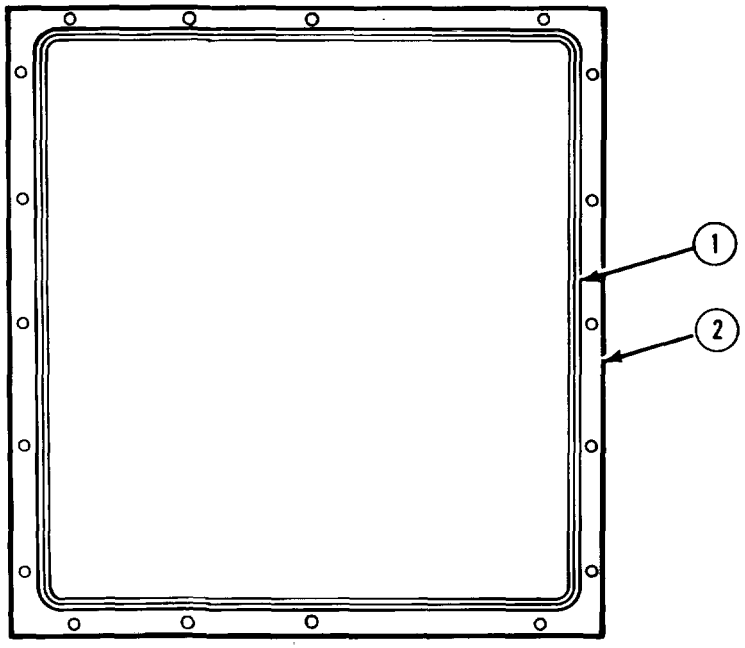
WARNING

Adhesive, MIL-A-46016, type II, is flammable and slightly toxic to eyes, skin, and respiratory tract. Eye and skin protection required. Good general ventilation is normally adequate.

(1) Apply light, even coat of adhesive to mating surface of gasket (1) and cover (2).

(2) Install gasket (1) on cover (2).

(3) Allow adhesive to cure at room temperature for 2 hours.



d. Follow-on Procedure. Install top or bottom cover (para 5-7 or 5-8)

Section IV. PREPARATION FOR STORAGE AND SHIPMENT

5-15. STORAGE FACILITIES

a. Security of the stored equipment is required. The area used for storage must protect the equipment from being stolen.

b. The equipment in storage must be protected from the weather. Covered storage is required

5-16. PROCEDURES

a. The equipment to be stored must be in good working order. Perform test procedure on the equipment prior to storage (para 5-6).

b. When putting the equipment into administrative storage (1-45 days) use a storage area that is accessible. Equipment in administrative storage must be able to be removed from storage and put into operation on 24 hour notice.

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual. Only those publications available to, and required by the user are listed.

A-2. FORMS

Recommended Changes to Publications ..... DA Form 2028,
and Blank Forms ..... DA Form 2028-2

Report of Discrepancy (ROD ..... SF 364

Discrepancy in Shipment Report (DISREP) ..... SF 361

Quality Deficiency Report ..... SF 368

A-3. FIELD MANUALS

First Aid and Safety ..... FM 21-11

A-4. TECHNICAL MANUALS

Operator's, Organizational, and Direct
Support Maintenance Manual for
Airborne Relay Facility AN/ARW-83(V)6 ..... TM 11-5821-332-13

Operator's, Organizational, and Direct
Support Maintenance Manual for
Power Supply, Receiver PP-8184/U ..... TM 11-5895-1280-13

Operator's, Organizational, and Direct
Support Maintenance Manual for
Control Panel C-11804/ALQ ..... TM 11-5895-1281-13

Organizational and Direct Support
Repair Parts and Special Tools
List for Receiver, Digital Control C-11634/U ..... TM 11-5895-1283-23P

Operator's, Organizational, and Direct
Support Maintenance Manual for
Power Supply PP-8158/U ..... TM 11-5895-1285-13

Operator's, Organizational, and Direct
Support Maintenance Manual for
Computer Processor CP-1 692/U ..... TM 11-5895-1286-13

Operator's, Organizational, and Direct
Support Maintenance Manual for
Test Set, Interface Unit TS-4221/U ..... TM 11-6625-3150-13

Alphanumeric Display Station - HP2645A ..... Commercial Manual

A-5. MISCELLANEOUS PUBLICATIONS

The Army Maintenance Management System ..... DA Pam 738-750 .

Consolidated Index of Army Publication ..... DA Pam 25-30
and Blank Forms

Procedures for Destruction of Electronics ..... TM 750-244-2
Materiel to Prevent Enemy Use (Electronics Command)

APPENDIX B

MAINTENANCE ALLOCATION CHART

FOR

CONTROL, RECEIVER C-11634/U

B-1. GENERAL

This appendix provides a summary of the maintenance operations for Control, Receiver C-1 1634/U. It authorizes levels of maintenance for specific maintenance functions of repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. MAINTENANCE FUNCTION

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean(decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/ operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

B-3. COLUMN ENTRIES

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a "work time' figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated. level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate 'work time" figures will be shown for each level. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C - Operator/Crew, O - Unit Maintenance/Aviation Unit Maintenance, F - Direct Support/Aviation Intermediate Maintenance, H - General Support Maintenance, D - Depot Maintenance

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (Section III)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Level. The codes in this column indicate the maintenance level allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

B-5. REMARKS

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

Section II. MAINTENANCE ALLOCATION CHART FOR CONTROL, RECEIVER C-11634/U

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
00	CONTROL, RECEIVER C-116341/U	INSPECT TEST TEST TEST REPAIR REPAIR REPLACE		0.2 0.2 0.2	 0.7 0.1 		 0.5 0.5 	 1 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 21, 22 2,3 6, 8, 9, 21, 22 6	 A C, D, E
01	CCA CONNECTOR INTERFACE (A6)	INSPECT TEST REPAIR REPLACE			0.2 0.6		 0.3 0.4 	 10 6, 8, 6	
02	CCA RDC DP (A1, A2)	INSPECT TEST REPAIR REPLACE			0.2 0.4		 0.3 0.4 	 10 6, 8, 6	
03	CCA RDC LO (A3)	INSPECT TEST REPAIR REPLACE			0.2 0.4		 0.3 0.4 	 10 6, 8, 6	
04	CCA RDC ROM (A4)	INSPECT TEST REPAIR REPLACE			0.2 0.4		 0.3 0.4 	 10 6, 8, 6	
05	CCA RDC CTL (A5)	INSPECT TEST REPAIR REPLACE			0.2 0.4		 0.3 0.4 	 10 6, 8, 6	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR CONTROL, RECEIVER C-11634/U

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
01	O	MISSION TEST EQUIPMENT		
02	F	ELECTRONICS SHOP, SEMI-TRAILER MOUNTED AN/USM-624 (SYSTEM 4 ONLY)		
03	F	ELECTRONICS SHOP, TRANSPORTABLE AN/USM-652 (SYSTEM 1 ONLY)	4940-01-381-5670	
04	F,D	TERMINATION, 75 OHM		TNG1-1-75
05	F,D	TEST SET, INTERFACE UNIT TS-4221/U		
06	0, F, D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-339-3150	
07	0	TAPE, LINE REPLACABLE DIAGNOSTICS		5034-2934-01
08	D	TOOL KIT, ELECTRONIC EQUIPMENT REPAIR	5180-00-339-3150	
09	0, D	SET, TORQUE LIMITING		MMCAR 5716A13
10	D	TEST SYSTEM		HP-7050
11	F, D	MULTIMETER, DIGITAL	6625-01-139-2512	467
12	F, D	REPAIR KIT, INSERT SCREW		C5090487
13	F, D	EXTRACTOR, CIRCUIT CARD		
14	F, D	INTERFACE UNIT J-4522/U	5975-01-253-6144	
15	F, D	PROCESSOR, COMPUTER CP-1692/U	7025-01-200-6690	
16	F, D	POWER SUPPLY, RECEIVER PP-81841U	5895-01-253-3997	
17	F, D	POWER SUPPLY PP-8158/U	6130-01-274-5050	
18	F, D	GENERATOR, DIGITAL DELAY WIDTH		7085
19	F, D	RECORDER, SIGNAL DATA RD-547		
20	F, D	COMPUTER, DIGITAL CP-1849/U		
21	D	TOOL, INSERTION/EXTRACTION	5120-00-018-0575	
22	D	TOOL, INSERTION/EXTRACTION		4916A
23	D	DISK, DIAGNOSTIC		

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	ACCOMPLISHES SYSTEM TESTS USING BIT AND MISSION TEST EQUIPMENT
B	ACCOMPLISHES THOSE TESTS REQUIRED TO LOCATE FAULTY MODULES, COMPONENTS, AND WIRES
C	PROVIDES ORGANIZATIONAL MAINTENANCE ASSISTANCE AS REQUIRED AND REPAIR OF CHASSIS/FRAME BY REPLACEMENT OF CONNECTORS AND OTHER CHASSIS AND FRONT PANEL MOUNTED PIECE PARTS
D	REPAIRS MINOR DAMAGE TO LRU CHASSIS AND COVERS TO INCLUDE STRAIGHTENING, SANDING, AND SPOT PAINTING
E	REMOVE/REPLACE CIRCUIT CARDS AND PERFORM REPAIR/REPLACEMENT OF WIRES

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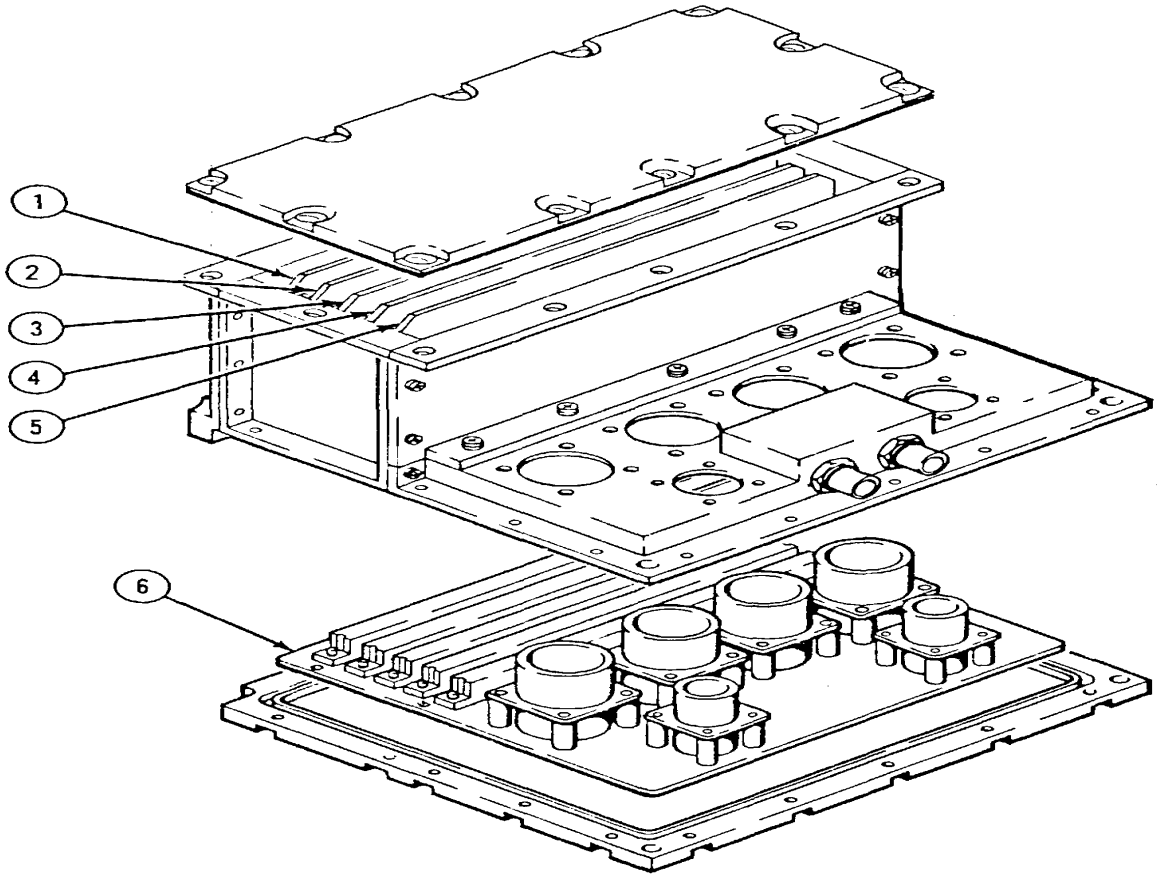
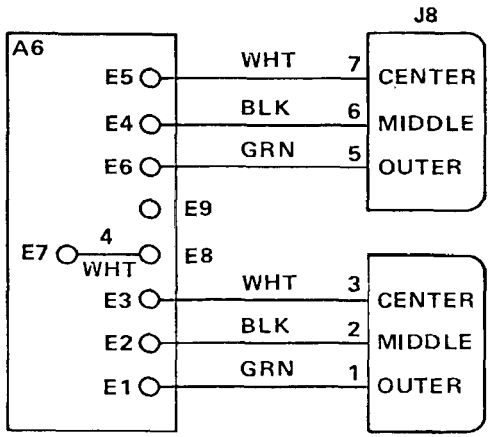


LEGEND

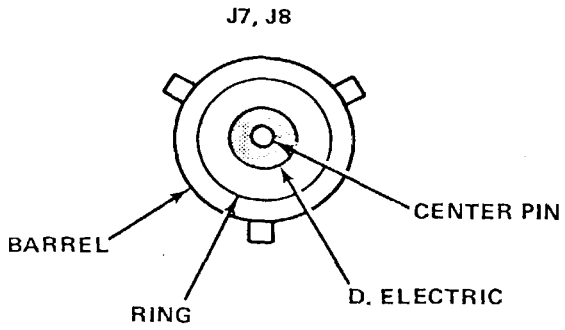
REFERENCE DESIGNATION	COMPONENTS	KEY	
A5	RDCCTL	1	
A4	RDCROM	2	
A3	RDCLO	3	
A2	RDCDP	4	
Al	RDCDP	5	
A6	CONNECTOR INTERFACE	6	

TM 1283-FO-1

FO-1. Component Locations



WIRING DIAGRAM



WIRE RUN CHART					
WIRE NO.	LENGTH	FROM REF DES	TO REF DES	COLOR	REMARKS
1	AR	J7–OUTER	A6E1	GREEN	SHIELD
2	▲	J7–MID	A6E2	BLACK	BUS–HI
3	|	J7–CEN	A6E3	WHITE	BUS–LO
4	|	A6E7	A6E8	WHITE	CHASSIS
5	|	J8–OUTER	A6E4	GREEN	SHIELD
6	|	J8–MID	A6E5	BLACK	BUS–LO
7	AR	J8–CEN	A6E6	WHITE	BUS–HI

TM 1283–FO–2

FO-2. Wiring Diagram

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GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

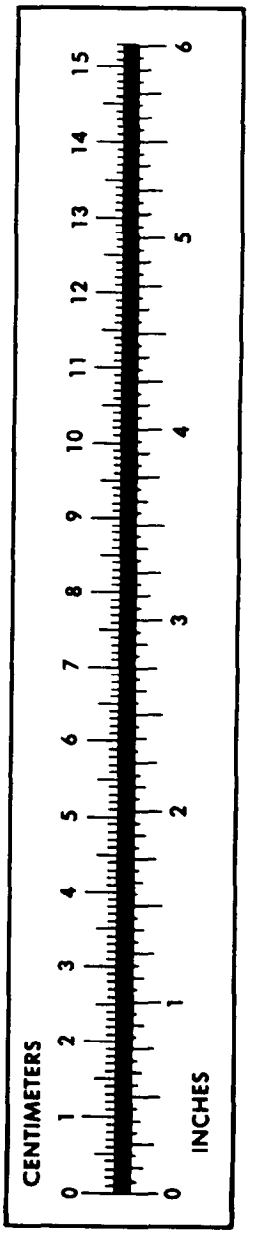
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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