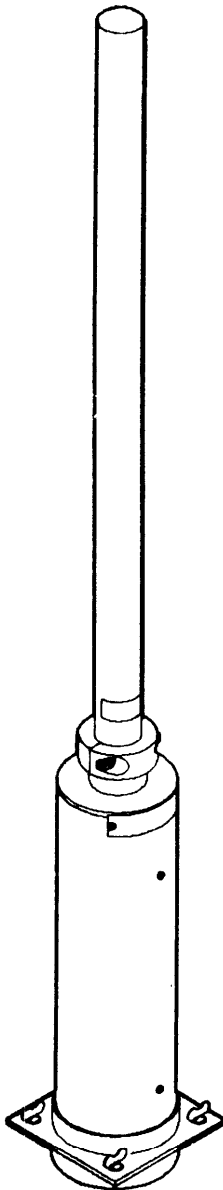


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TM 32-5811-151-24&P



**ORGANIZATIONAL,
DIRECT SUPPORT,
AND GENERAL SUPPORT
MAINTENANCE MANUAL
INCLUDING REPAIR
PARTS AND SPECIAL
TOOLS LIST**

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**ANTENNA
AS-3661/TRQ-32(V)**

(NSN 5811-01-162-2450)

HEADQUARTERS, DEPARTMENT OF THE ARMY

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15 MARCH 1989



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 WOODEN POLE OR A 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

ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT
 MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND
 SPECIAL TOOLS LIST
 FOR
 ANTENNA, AS-3661/TRQ-32(V)

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 Form DA 2028-2 located in back of this manual direct to: Commander, US Army Electronics Materiel Readiness Activity, ATTN: SELEM-ME-FM-N, Vint Hill Farms Station, Warrenton, Va. 22186. In either case, a reply will be furnished direct to you.

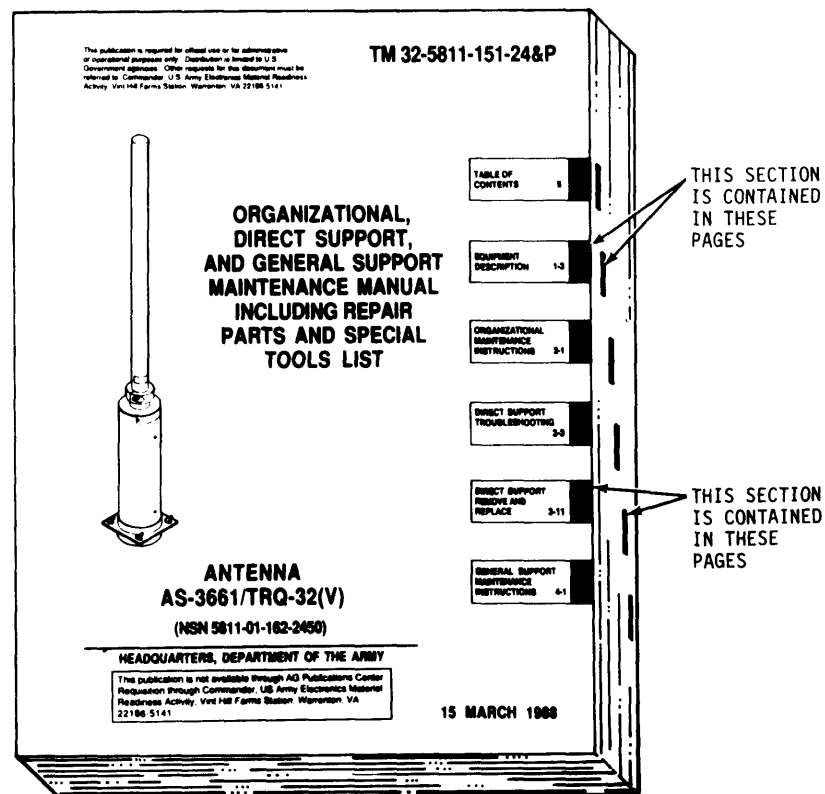
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HOW TO USE THIS MANUAL
(1 of 2)

This manual is divided into 4 chapters:

- o CHAPTER 1 contains an introduction to this manual and a functional description of the Antenna, AS-3661/TRQ-32(V).
- o CHAPTER 2 contains Organizational Maintenance instructions for the Antenna, AS-3661/TRQ-32(V).
- o CHAPTER 3 contains Direct Support Maintenance instructions for the Antenna, AS-3661/TRQ-32(V).
- o CHAPTER 4 contains General Support Maintenance instructions for the Antenna, AS-3661/TRQ-32(V).

Pages in this manual are numbered consecutively by chapter. Each chapter is divided into sections, and pertinent sections are indexed on the front cover and in the table of contents. On the front cover index, each section title is in a boxed blackened area. The blackened area matches a black mark appearing on the first page of that section in the manual. In the table of contents, each title that duplicates a title on the front cover index is highlighted with a box. The first page of each section contains a table that lists the contents and gives the index number of the data in that section.



HOW TO USE THIS MANUAL
(2 of 2)

Where descriptive text or procedures require supporting illustrations, the illustration will immediately precede the text. Illustration numbers are not used in this manual.

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1 OF 1 REMOVE INTERCEPT ANTENNA CABLE

The intercept antenna cable is located inside the tube assembly.

Tools Required: TK-105/G TK-100/G Personnel Required: 1

Remove the intercept antenna cable as follows:

1. Using a no.2 cross-tip screwdriver, remove and retain four machine screws, lockwashers, and flat washers securing antenna clamp to tube assembly. Retain ID label.
2. Pull antenna clamp from tube assembly to allow access to connector and datalink antenna.

INTRODUCTION

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Section I.

GENERAL INFORMATION

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SCOPE:

TYPE OF MANUAL: Organizational, Direct Support, and General Support Maintenance.

MODEL NUMBER AND EQUIPMENT NAME: Antenna, AS-3661/TRQ-32(V)

PURPOSE OF EQUIPMENT: The Antenna, AS-3661/TRQ-32(V) provides UHF transmission, reception, and intercept capability.

MAINTENANCE FORMS, RECORDS, AND REPORTS.

Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those described by DA PAM 738-750, The Army Maintenance Management System.

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Reporting of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2.

Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38.

Refer to the latest issue of DA PAM 310-1 to determine if there are new editions, changes, or additional publications pertaining to the equipment.

Refer to DA PAM 310-1 to determine if there are Modification Work Orders (MWO) pertaining to the equipment.

DESTRUCTION OF ARMY ELECTRONICS MATERIEL.

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

ADMINISTRATIVE STORAGE.

Administrative storage of equipment issued to and used by the Army activities shall be in accordance with TM 740-90-1.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your Antenna, AS-3661/TRQ-32(V) 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. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, CECOM, ATTN: AMSEL-PA-MA-D, Fort Monmouth, NJ 07703. We'll send you a reply.

NOMENCLATURE CROSS REFERENCE LIST.

Official nomenclature must be used when completing forms or when looking up technical manuals.

<u>COMMON NAME</u>	<u>OFFICIAL NOMENCLATURE</u>
UHF Datalink Antenna	Antenna, AS-3661/TRQ-32(V)

Section II.

EQUIPMENT DESCRIPTION AND DATA

	<u>PAGE</u>
Equipment Capabilities, and Features	1-3
Equipment Data	1-3
Location and Description of Major Components	1-4

EQUIPMENT CAPABILITIES AND FEATURES.

The antenna is a lightweight two-element unit used for transmission and reception of UHF data, and for interception of UHF transmissions. In addition, the intercept portion of the antenna is used to radiate BITE signals for testing other subsystems.

EQUIPMENT DATA.

WEIGHTS AND DIMENSIONS

ANTENNA, AS-3661/TRQ-32(V)

Overall

Overall Length	48.0 inches (121.97 cm)
Base Diameter	4.0 inches (10.16 cm)
Weight	3.5 pounds (1.589 kg)

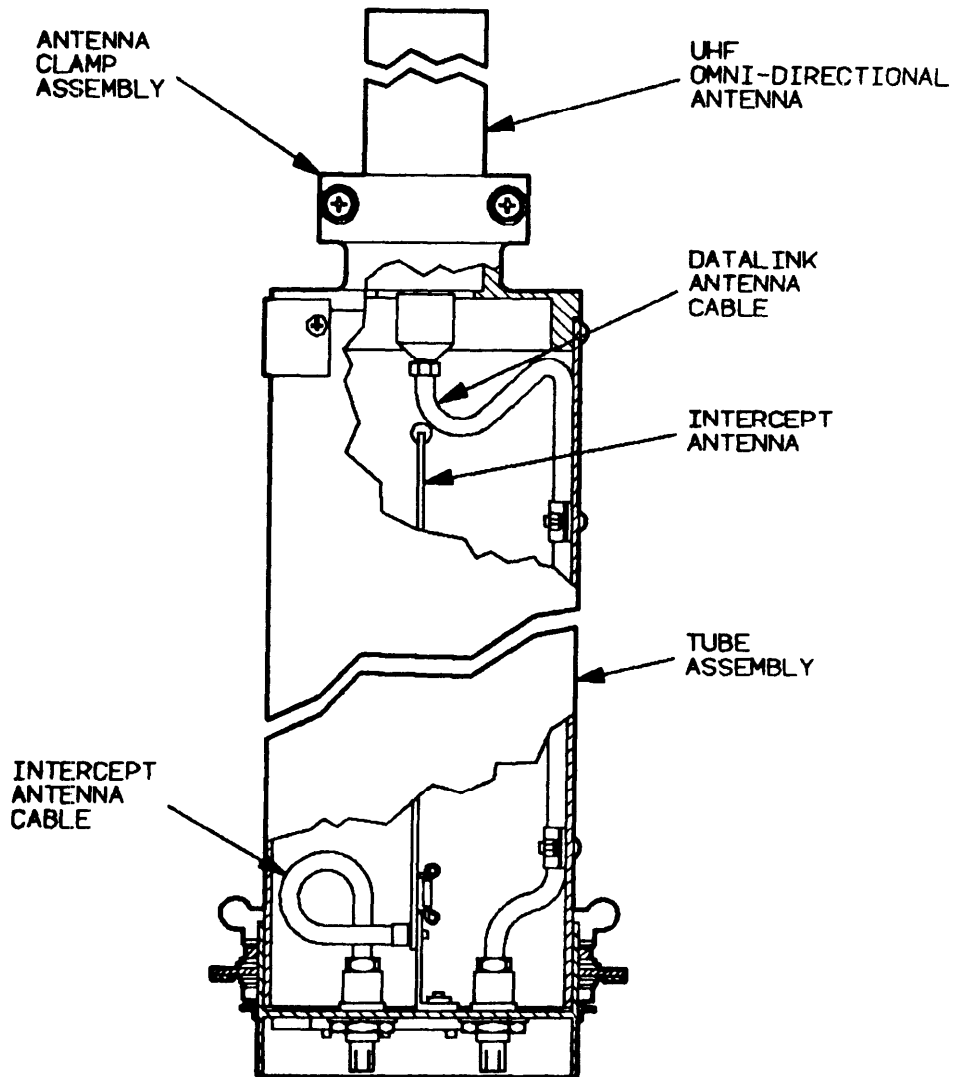
Intercept Antenna

Length	12.25 inches (31.12 cm)
Diameter	1.5 inches (3.81 cm)

Blade Antenna

Length	12.0 inches (30.48 cm)
Diameter	4.0 inches (10.16 cm)

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



UHF OMNI-DIRECTIONAL ANTENNA. Provides antenna for omni-directional transmission of data.

CLAMP ASSEMBLY. Provides base for UHF omni-directional antenna.

UHF DATALINK ANTENNA CABLE. Provides connection from E5P1 at base of tube assembly to UHF omni-directional antenna.

TUBE ASSEMBLY. Provides housing for all major components of the antenna.

UHF INTERCEPT ANTENNA. Blade antenna inside tube assembly for interception of UHF transmissions and radiates BITE signals for testing other subsystems.

UHF INTERCEPT ANTENNA CABLE. Provides connection from E6P1 at base of tube assembly to UHF intercept antenna.

Section III.

PRINCIPLES OF OPERATION

Antenna, AS-3661/TRQ-32(V), contains two co-linear antenna elements. One of the elements is the UHF data link antenna, encased in a fiberglass radome at the top of the assembly. The other element is the UHF intercept/BITE antenna, which is mounted directly below the data link antenna, also encased in a fiberglass radome.

The UHF data link antenna is a center-feed dipole that receives and transmits UHF data.

The UHF intercept antenna is a monopole blade antenna which intercepts UHF signals and radiates BITE signals for testing other subsystems.

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

There is no Organizational Maintenance for Antenna, AS-3661/TRQ-32(V).

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

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Section I.

REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

This chapter contains maintenance instructions required to service and maintain Antenna, AS-3661/TRQ-32(V). The maintenance instructions are supported by common tools and equipment, special tools, repair parts list, and troubleshooting information. The maintenance progresses from operational tests performed to locate a faulty unit through replacement of the faulty item.

COMMON TOOLS AND EQUIPMENT.

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

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

Special tools, TMDE, and support equipment and their purposes are identified in the maintenance allocation chart (appendix B), and in the repair parts and special tools list (appendix C). Use the instructions in appendix E to manufacture RF test

DIRECT SUPPORT REPAIR PARTS.

Repair parts are listed and illustrated in appendix C (RPSTL) of this manual.

Section II.

SERVICE UPON RECEIPT

There is no service upon receipt required for the Antenna, AS-3661/TRQ-32(V).

Section III.

**DIRECT SUPPORT PREVENTIVE MAINTENANCE,
CHECKS, AND SERVICES (PMCS)**

NOTE

Destruction of equipment to prevent enemy use will be performed at the direction of the commander.

To be sure your equipment is ready for your mission, you must do scheduled preventive maintenance checks and services (PMCS). When doing PMCS or routine checks, keep in mind the WARNINGS and CAUTIONS about electrical shock and bodily harm. Report any deficiencies on DA Form 2404.

There are eight categories or intervals of PMCS: W, M, Q, S, A, B, HR, and MI. They head the INTERVAL columns of the PMCS TABLE. A check, in one or more of the INTERVAL columns indicates the check and/or service that should be performed by the operator at a particular time.

Routine checks are not listed as PMCS checks. They are the following:

- o Cleaning
- o Dusting
- o Washing
- o Checking for frayed cables
- o Storing items when not in use
- o Covering unused receptacles
- o Checking for loose nuts, bolts, and screws.
- o Touchup in accordance with TM 43-0139.

Routine checks are things that you should do anytime you see they must be done. If you find a routine check like one of those listed in your PMCS TABLE, it was listed because other personnel reported problems with this item.

PREVENTIVE MAINTENANCE, CHECKS, AND SERVICES (PMCS)

W - Weekly Q - Quarterly A - Annually HR - Hours of Operation M - Monthly S - Semi-annually B - Bi-annually MI - Minutes of Operation									
ITEM NO.	INTERVAL								ITEM TO BE INSPECTED/PROCEDURE
	W	M	Q	S	A	B	HR	MI	
1			x						Inspect E5-P1 and E6-P1 for damage, corrosion/rust, looseness, and cleanliness.
2			x						Inspect gaskets on tube assembly for cleanliness and looseness.
3			x						Inspect exterior of antenna for chipped, cracked, or peeling paint. Touchup in accordance with TM 43-0139; paint to meet requirements of Mil-C-46168D, color number 34094 (green 383). Use B. F. Goodrich primer no. A-862-B.
4			x						Inspect turnlock studs, grommets, and retaining rings for completeness, cleanliness, and looseness.

Section IV.

TROUBLESHOOTING

INTRODUCTION

Troubleshooting at Direct Support maintenance level consists of performance of an operational checkout and fault isolation test. The operational checkout portion of the test will determine both operational capability and/or which antenna/cable assembly (UHF data link or UHF intercept) is at fault. **If the equipment is faulty,** proceed with the remainder of the test (fault isolation portion, starting at step 11) to correct the fault.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST

TEST OR INSPECTION
NORMAL INDICATION
CORRECTIVE ACTION

NOTE

The operational checkout portion of the following test must be performed every time a repair function has been performed.

If the equipment has been determined to be faulty, perform the entire procedure to fault isolate to the faulty component.

OPERATIONAL CHECKOUT (VSWR TEST)

1. Set up test equipment as shown in the test setup diagram to perform VSWR test on each of the antennas.

NOTE

To ensure correct readings during following VSWR test, lay antenna on its side on a non-conductive work surface at least four feet from all test equipment and personnel.

The HP-436A power meters, HP-8640B signal generator, and HP-3465B digital multimeter require 30 minutes of warm-up time before testing. The HP-436A power meters need to be calibrated according to the calibration procedures on the HP-8484A power sensors.

2. Using RF cable, connect signal generator RF OUTPUT connector to dual directional coupler INPUT connector (connector opposite test port).
3. Using power sensor cable, connect power meter POWER SENSOR INPUT connector to power sensor, and zeroize power meter. Connect power sensor to dual directional coupler INCIDENT POWER OUTPUT connector (connector nearest INPUT port).
4. Using power sensor cable, connect power meter POWER SENSOR INPUT connector to power sensor, and zeroize power meter. Connect power sensor to dual directional coupler REFLECTED POWER OUTPUT connector (connector nearest TEST port).
5. Using special purpose RF cable, connect data link antenna/cable assembly RF connector (E5P1) to dual directional coupler TEST PORT connector.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST (CONT)

TEST OR INSPECTION
 NORMAL INDICATION
 CORRECTIVE ACTION

OPERATIONAL CHECKOUT (VSWR TEST) (CONT)

Set test equipment controls and indicators as follows:

HP-8640B Signal Generator

- SCALE - VOLTS
- AM - OFF
- FM - OFF
- RANGE MHZ - To frequency specified for test
- LOCK - On after frequency selected is reached
- OUTPUT LEVEL - 0dB (adjust output level knob to obtain 5uW incident power on the HP-436A power meter)
- RF ON/OFF - ON
- TIME BASE VERNIER - CW so UNCAL light is off

HP-436A Power Meters

- MODE - WATT
- RANGE HOLD - OUT
- SENSOR ZERO - N/A
- POWER REF - OFF
- CAL FACTOR - Set in accordance with HP-8484A power sensor

6. Set the signal generator frequency from 225 to 400 MHz in 25 MHz steps with sufficient RF power to obtain 5 uW incident power on the HP-436A power meter.
7. Read the reflected power at each step.

Reflected power must not be greater than 1.3uW for each step.

If reflected power is greater than 1.3uW, proceed to fault isolation portion of this test.

8. Disconnect special purpose RF cable from data link antenna/cable RF connector (E5P1) and connect to intercept antenna/cable assembly RF connector (E6P1). The other end of special purpose RF cable is connected to dual directional coupler TEST PORT connector.
9. Set the signal generator frequency from 160 to 500 MHz in 50 MHz steps with sufficient power to obtain 5uW of incident power on the HP-436A power meter.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST (CONT)

TEST OR INSPECTION
NORMAL INDICATION
CORRECTIVE ACTION

OPERATIONAL CHECKOUT (VSWR TEST) (CONT)

10. Read the reflected power at each step.

Reflected power must not be greater than 2.0uW for each step.

If reflected power is greater than 2.0uW, proceed to fault isolation portion of this test.

(THIS IS THE END OF THE OPERATIONAL CHECKOUT PORTION OF THE TEST. THE FAULT ISOLATION PORTION FOLLOWS .)

FAULT ISOLATION TEST

NOTE

Once a fault has been determined to be in one of the two antenna/cable assemblies, perform the appropriate continuity checks for that assembly in accordance with the following steps.

Steps 11 through 15 apply for the UHF data link antenna/cable assembly, and steps 16 through 23 apply for the UHF intercept antenna/cable assembly.

UHF DATA LINK ANTENNA/CABLE ASSEMBLY CONTINUITY CHECKS:

11. Disconnect UHF omni-directional antenna from cable in accordance with antenna clamp remove procedure, steps 1 through 3, in section V of this chapter.
12. Using an ohmmeter, measure resistance between center conductor and outer shell on data link antenna cable.

Open condition (infinity).

If resistance measures less than infinity, replace data link antenna cable in accordance with removal/replacement procedures in section V of this chapter.

13. Using an ohmmeter, measure center conductor resistance from both ends of data link antenna cable.

Continuity (less than 3 ohms).

If resistance measures more than 3 ohms, replace data link antenna cable in accordance with removal/replacement procedures in section V of this chapter.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST (CONT)

TEST OR INSPECTION	
NORMAL INDICATION	
CORRECTIVE ACTION	

FAULT ISOLATION TEST (CONT)

UHF DATA LINK ANTENNA/CABLE ASSEMBLY CONTINUITY CHECKS (CONT):

- Using an ohmmeter, measure outer shell resistance from both ends of outer shell of data link antenna cable.

Continuity (less than 3 ohms).

If resistance measures more than 3 ohms, replace data link antenna cable in accordance with removal/replacement procedures in section V of this chapter.

- Using an ohmmeter, measure resistance from outer shell to center conductor of UHF omni-directional antenna.

Open condition (infinity).

If resistance measures less than infinity, replace UHF omni-directional antenna in accordance with removal/replacement procedures in section V of this chapter.

NOTE

If continuity checks fail to locate defective component of data link antenna/cable assembly, replace data link antenna cable in accordance with removal/replacement procedures in section V of this chapter. Perform VSWR test to verify repair.

If data link antenna cable was not the defective component, replace UHF omni-directional antenna in accordance with removal/replacement procedures in section V of this chapter. Re-run VSWR test.

UHF INTERCEPT ANTENNA/CABLE ASSEMBLY CONTINUITY CHECKS:

- Remove intercept antenna/cable assembly from tube assembly in accordance with UHF intercept antenna cable remove procedure in section V of this chapter.
- Using an ohmmeter, measure between center conductor to outer shell of intercept antenna cable.

Open condition (infinity),

If resistance measures less than infinity, replace intercept antenna cable in accordance with removal/replacement procedures in section V of this chapter.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST (CONT)

TEST OR INSPECTION
NORMAL INDICATION
CORRECTIVE ACTION

FAULT ISOLATION TEST (CONT)

UHF INTERCEPT ANTENNA/CABLE ASSEMBLY CONTINUITY CHECKS (CONT):

18. Using an ohmmeter, measure center conductor resistance from both ends of intercept antenna cable.

Continuity (less than 3 ohms).

If resistance measures more than 3 ohms, **replace intercept antenna cable** in accordance with removal/replacement **procedures** in section V of this chapter.

19. Using an ohmmeter, measure outer shell resistance from both ends of intercept cable outer shell.

Continuity (less than 3 ohms).

If resistance measures more than 3 ohms, replace intercept antenna cable in accordance with removal/replacement procedures in section V of this chapter.

20. Visually inspect UHF intercept antenna for signs of overheated components or burn spots on the antenna. If antenna shows burn spots, replace intercept antenna assembly in accordance with removal/replacement procedures in section V of this chapter.

21. Using an ohmmeter, measure resistance from center conductor to outer shell on intercept antenna assembly connector.

Open condition (infinity).

If resistance measures less than infinity, replace intercept antenna connector receptacle in accordance with removal/replacement procedures in section V of this chapter.

If resistance measures less than infinity after intercept antenna connector receptacle is replaced, replace intercept antenna assembly in accordance with removal/replacement procedures in section V of this chapter.

OPERATIONAL CHECKOUT AND FAULT ISOLATION TEST (CONT)

TEST OR INSPECTION	
NORMAL INDICATION	
CORRECTIVE ACTION	

FAULT ISOLATION TEST (CONT)

UHF INTERCEPT ANTENNA/CABLE ASSEMBLY CONTINUITY CHECKS (CONT):

22. Using an ohmmeter, measure across resistor on intercept antenna assembly.

15±0.15 ohms.

If resistance measures more than 15±0.15 ohms, replace resistor in accordance with removal/replacement procedures in section V of this chapter.

23. Using an ohmmeter, measure from antenna side of resistor to center conductor on connector.

15±0.15 ohms.

If meter does not read 15±0.15 ohms, replace intercept antenna connector receptacle in accordance with removal/replacement procedures in section V of this chapter.

If meter does not read 15±0.15 ohms after connector receptacle is replaced, replace intercept antenna assembly in accordance with removal/replacement procedures in section V of this chapter.

NOTE

If continuity checks fail to locate defective component, replace intercept antenna cable in accordance with removal/replacement procedures in section V of this chapter. Perform VSWR test to verify repair.

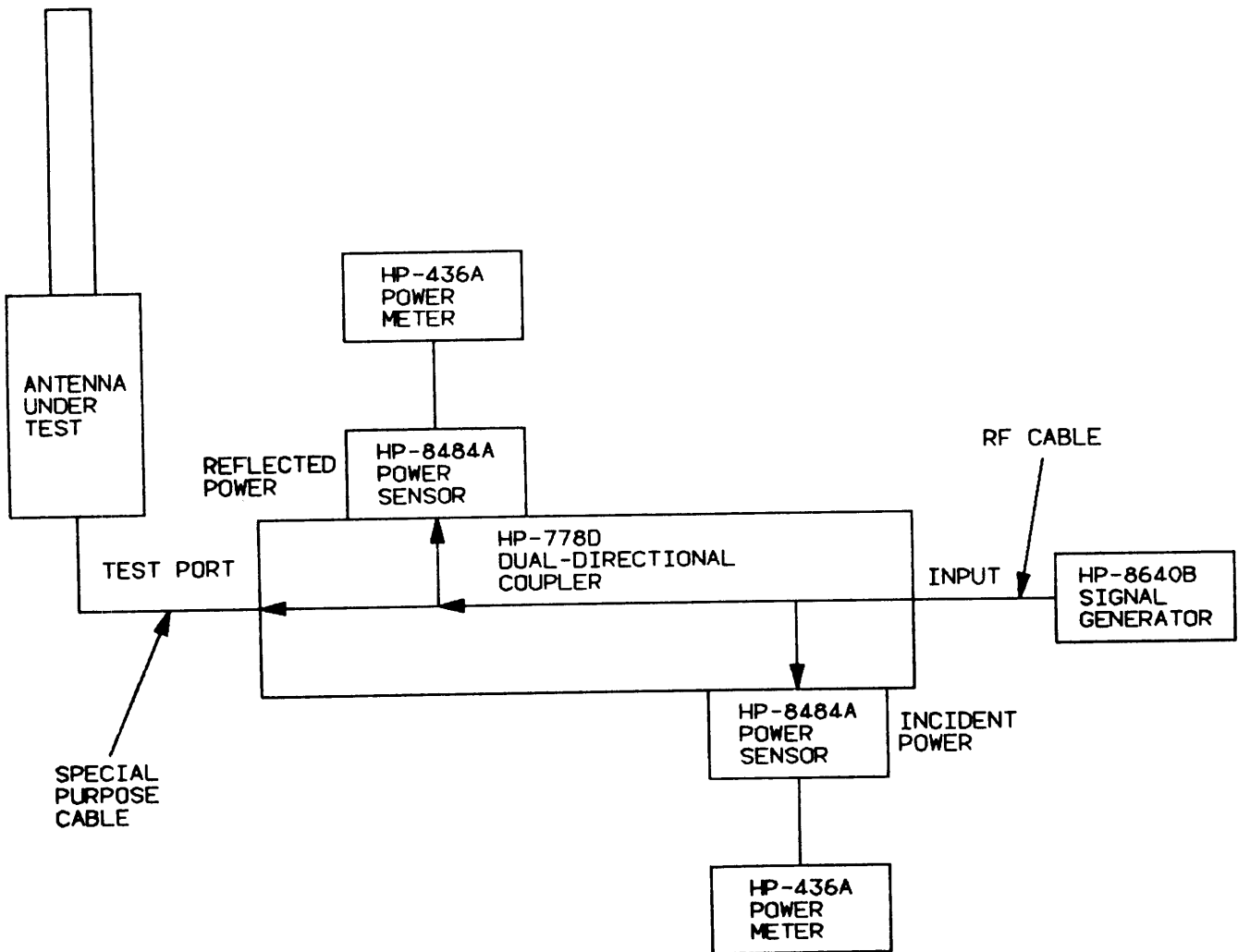
If intercept antenna cable was not the defective component, replace UHF intercept antenna in accordance with removal/replacement procedures in section V of this chapter. Re-run VSWR test.

(END OF TEST)

TEST SETUP DIAGRAM

NOTE

Required equipment: HP-8640B signal generator, two HP-436A power meters (with power sensor cables), two HP-8484A power sensors, HP-778D dual-directional coupler, a 50-ohm Impedance RF cable, and a special purpose 50-ohm impedance RF cable.
 (The two 50-ohm cables must be locally manufactured in accordance with appendix E.)



Section V.

REMOVAL AND REPLACEMENT

INTRODUCTION.

To facilitate Direct Support Level maintenance of the Antenna, AS-3661/TRQ-32(V), removal and replacement procedures are provided.

Upon completion of replacement of an electrical or electronic item, the functional test/troubleshooting procedure shall be performed, in accordance with section II of this chapter, to ensure proper operation of the replaced component.

<u>UNIT</u>	<u>LOCATION</u>	<u>PAGE</u>
ANTENNA CLAMP	TOP OF TUBE ASSEMBLY	3-12
DATA LINK ANTENNA CABLE	INSIDE TUBE ASSEMBLY	3-16
INTERCEPT ANTENNA ASSEMBLY	INSIDE TUBE ASSEMBLY	3-26
INTERCEPT ANTENNA ASSEMBLY RESISTOR	ON BASE OF INTERCEPT ANTENNA ASSEMBLY	3-28
INTERCEPT ANTENNA ASSEMBLY CONNECTOR RECEPTACLE	ON BASE OF INTERCEPT ANTENNA ASSEMBLY OPPOSITE RESISTOR	3-30
INTERCEPT ANTENNA CABLE	INSIDE TUBE ASSEMBLY	3-18
INTERCEPT ANTENNA TUBE ASSEMBLY	LARGEST CYLINDRICAL PORTION OF ANTENNA	3-20
INTERCEPT ANTENNA TUBE ASSEMBLY TURNLOCK STUD, GROMMET, RETAINING RING	ON BASE PLATE OF TUBE ASSEMBLY	3-22
INTERCEPT ANTENNA TUBE ASSEMBLY GASKET	ON BOTTOM OF BASE PLATE OF TUBE ASSEMBLY	3-24
UHF OMNI-DIRECTIONAL ANTENNA	TOP CYLINDRICAL PORTION OF ANTENNA	3-14

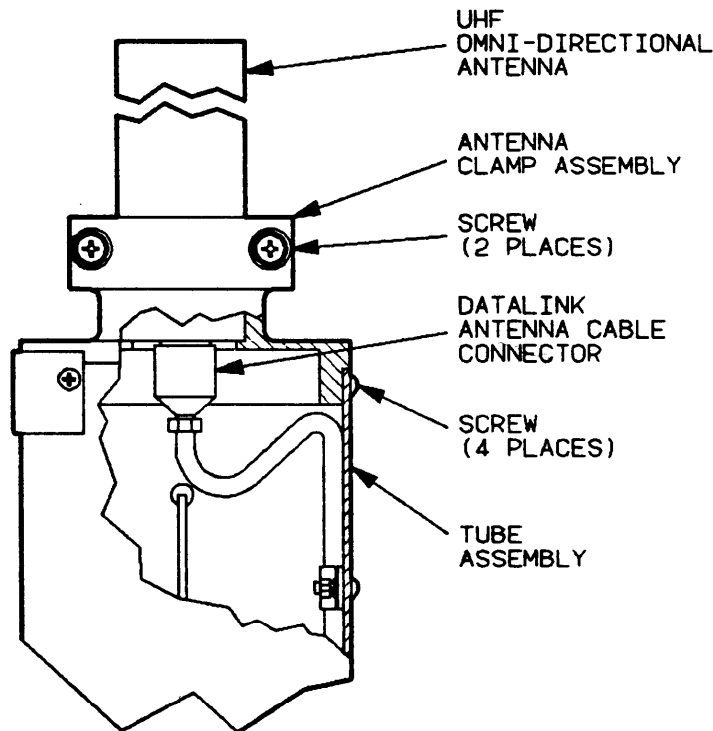


The antenna clamp is located at the top of the UHF/data link antenna.

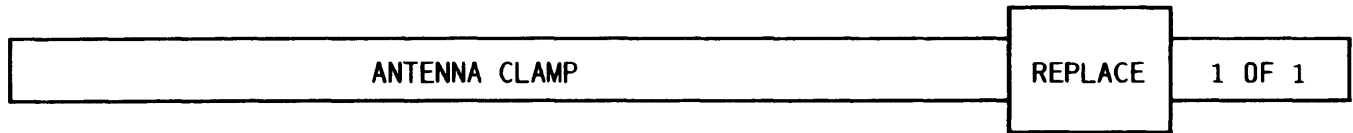
Tools Required: TK-105/G

Personnel Required: 1

Remove antenna clamp as follows:



1. Using a no.2 cross-tip screwdriver, remove and retain four machine screws, lockwashers, and flat washers securing antenna clamp to tube assembly. Retain ID label.
2. Pull antenna clamp away from tube assembly to allow access to connector on data link antenna cable.
3. Unscrew connector from UHF omni-directional antenna.
4. Using a no.2 cross-tip screwdriver, remove and retain two machine screws, lockwashers, and flat washers securing UHF omni-directional antenna to antenna clamp.
5. Remove antenna clamp from omni-directional antenna. Retain omni-directional antenna.

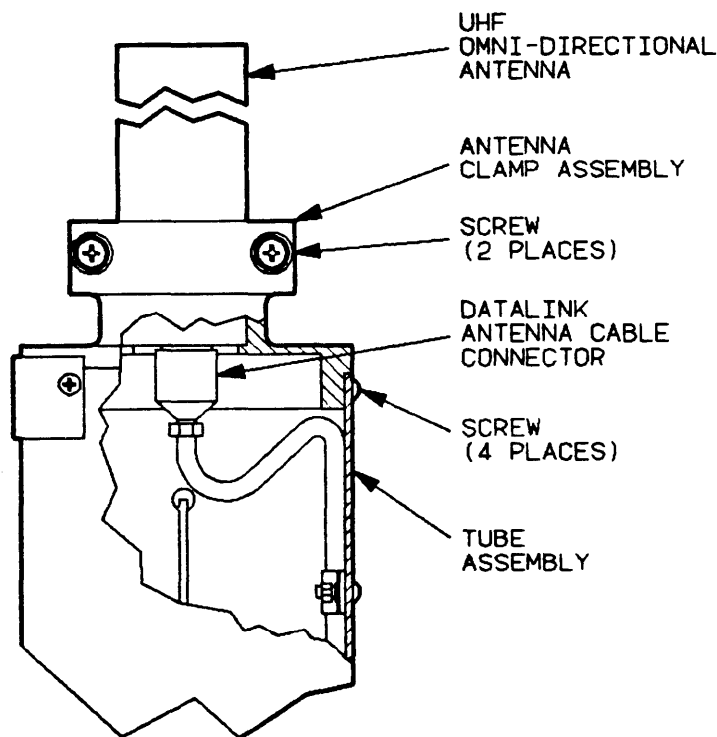


The antenna clamp is located at the top of the tube assembly.

Tools Required: TK-105/G

Personnel Required: 1

Replace antenna clamp as follows:



1. Position UHF omni-directional antenna into antenna clamp.
2. Using a no.2 cross-tip screwdriver, secure UHF omni-directional antenna to antenna clamp with two machine screws, lockwashers, and flat washers.
3. Connect data link antenna cable to UHF omni-directional antenna.
4. Place antenna clamp into tube assembly ensuring that screw holes in clamp align with holes in tube. Position ID label on side of tube and align with screw holes.
5. Using a no.2 cross-tip screwdriver, **secure antenna clamp to tube assembly** with four machine screws, lockwashers, and flat washers.
6. Perform operational checkout test.

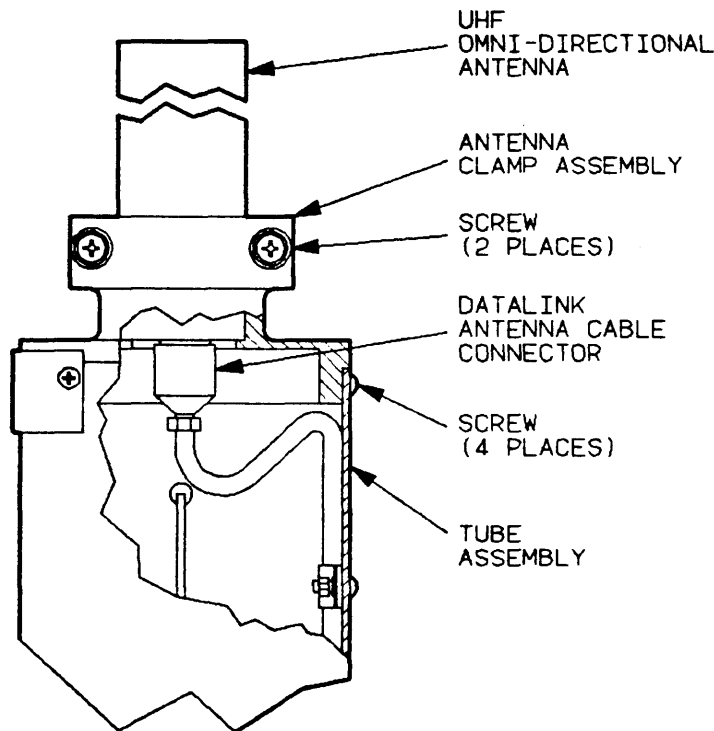
1 OF 1	REMOVE	UHF OMNI-DIRECTIONAL ANTENNA
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The UHF omni-directional antenna is located on the top of the Antenna, AS-3661/TRQ-32(V).

Tools Required: TK-105/G

Personnel Required: 1

Remove the UHF omni-directional antenna as follows:



1. Using a no.2 cross-tip screwdriver, remove and retain four machine screws, lockwashers, and flat washers securing antenna clamp to tube assembly. Retain ID label.
2. Pull antenna clamp away from tube assembly to allow access to connector on data link antenna cable.
3. Unscrew connector from UHF omni-directional antenna.
4. Using a no.2 cross-tip screwdriver, remove and retain two machine screws, lockwashers, and flat washers securing UHF omni-directional antenna to antenna clamp.
5. Pull UHF omni-directional antenna away from antenna clamp and retain clamp.

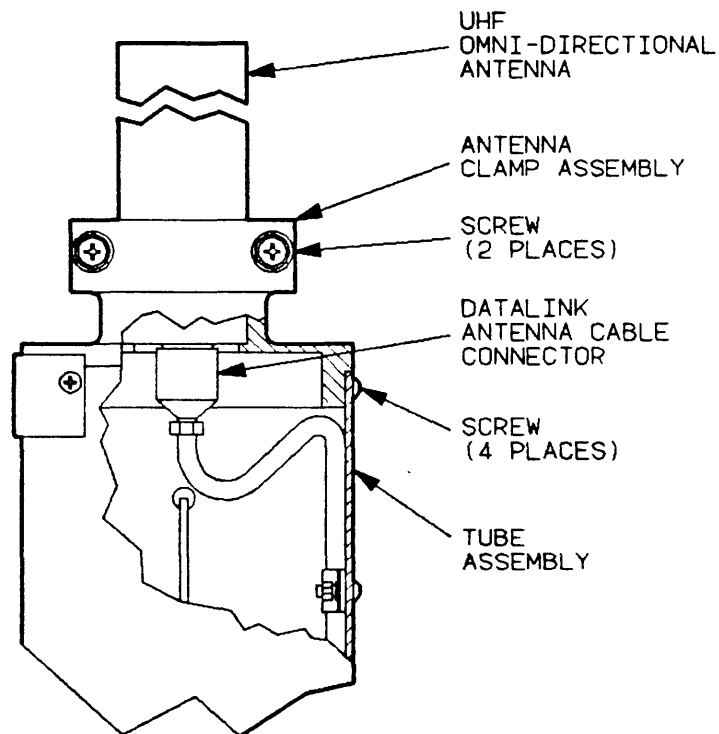
UHF OMNI-DIRECTIONAL ANTENNA	REPLACE	1 OF 1
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The UHF omni-directional antenna is located on the top of the Antenna, AS-3661/TRQ-32(V).

Tools Required: TK-105/G

Personnel Required: 1

Replace the UHF omni-directional antenna as follows:



1. Position UHF omni-directional antenna into antenna clamp.
2. Using a no.2 cross-tip screwdriver, secure UHF omni-directional antenna to antenna clamp with two machine screws, lockwasher, and flat washers
3. Connect data link antenna cable to UHF omni-directional antenna
4. Place antenna clamp into tube assembly ensuring that screw holes in clamp align with holes in tube. Position ID label on side of tube and align with screw holes.
5. Using a no.2 cross-tip screwdriver, secure antenna clamp to tube assembly with four machine screws, lockwashers, and flat washers.
6. Perform operational checkout test.

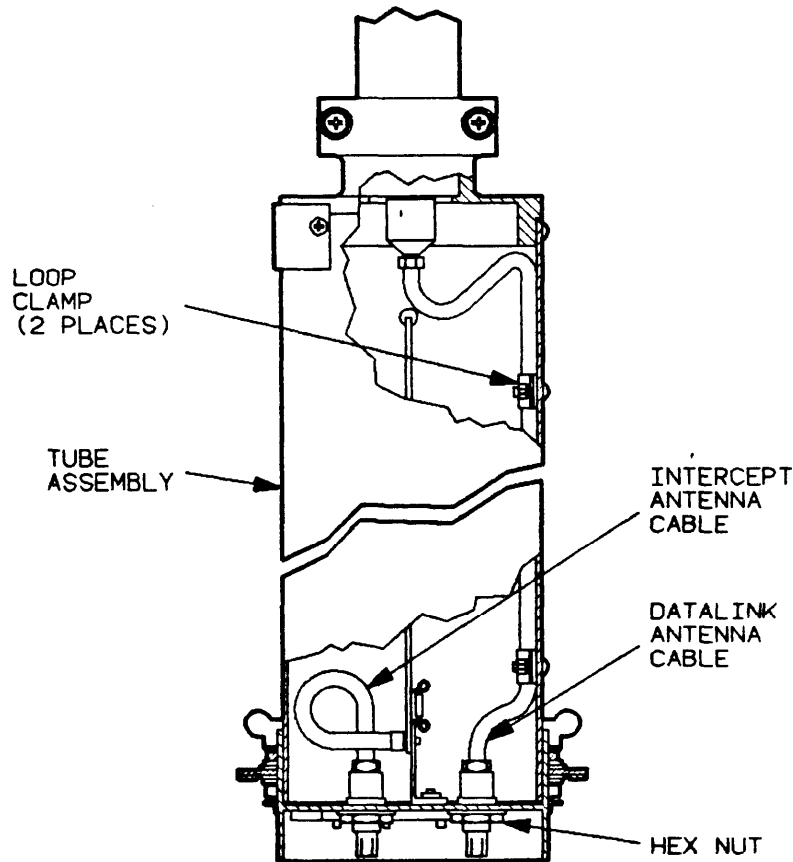


The data link antenna cable is located inside the tube assembly.

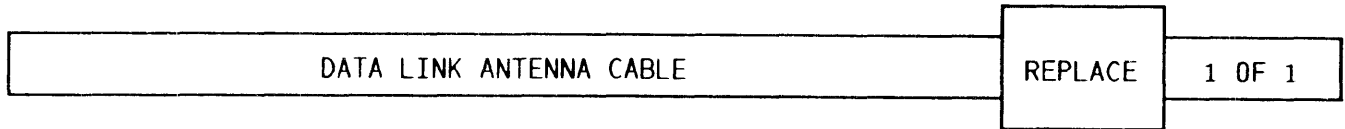
Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Remove the data link antenna cable as follows:



1. Remove UHF intercept antenna cable in accordance with remove procedure, steps 1 through 6, in this section.
2. Using a no.2 cross-tip screwdriver and 11/32" combination wrench, remove and retain two machine screws, lockwashers, four flat washers, and two hex nuts securing two loop clamps to tube assembly.
3. Using 9/16" open-end wrench, remove and retain hex nut securing data link antenna cable to bottom of tube assembly.
4. Remove data link antenna cable from top of tube assembly. Pull loop clamps from data link cable assembly, and retain loop clamps.

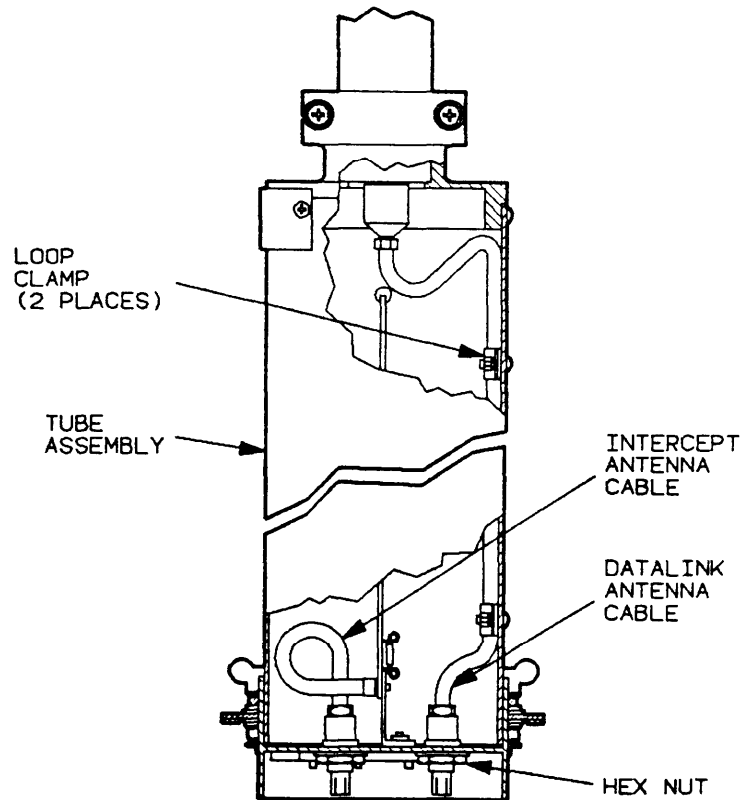


The data link antenna cable is located inside the tube assembly,

Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Replace the data link antenna cable as follows:



1. Place two loop clamps onto replacement data link antenna cable.
2. Route data link antenna cable down through top of tube assembly so that male connector protrudes from base of tube assembly.
3. Loosely secure data link antenna cable to base of tube assembly with one hex nut and lock washer. Align RF connector E5P1 using alignment tool (0099-1-4305). While alignment tool is in place, use a 9/16" open-end wrench to tighten hex nut. Remove alignment tool.
4. Align bolt holes on two loop clamps to bolt holes in tube assembly.
5. Using a no. 2 cross-tip screwdriver and 11/32" combination wrench, secure loop clamps and data link antenna cable to tube assembly with two machine screws, lockwashers, four flat washers, and two hex nuts.
6. Replace UHF intercept antenna cable in accordance with replace procedure, steps 2 through 7, in this section.

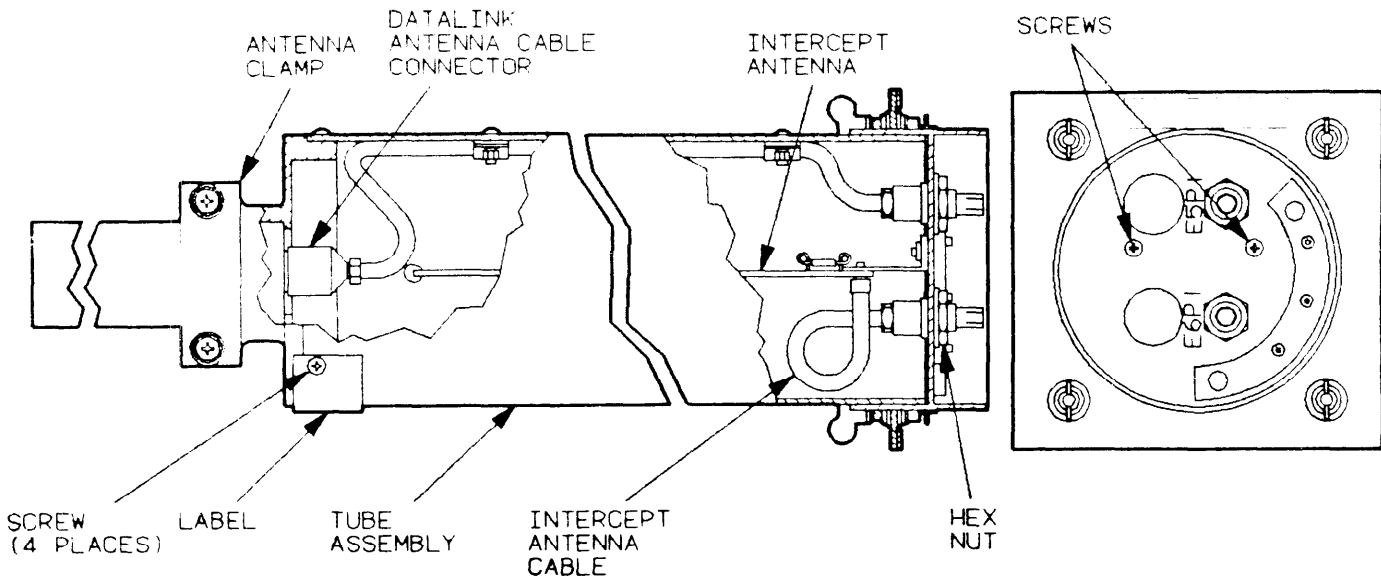


The intercept antenna cable is located inside the tube assembly.

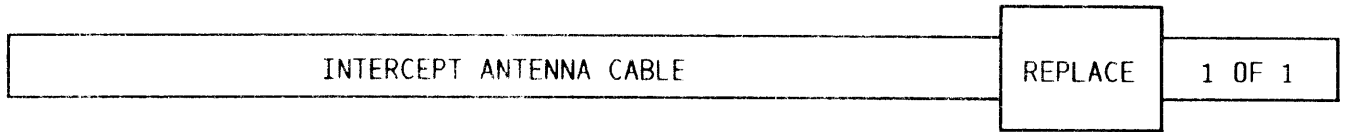
Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Remove the intercept antenna cable as follows:



1. Using a no 2 cross-tip screwdriver, remove and retain four machine screws, lockwashers, and flat washers securing antenna clamp to tube assembly. Retain ID label.
2. Pull antenna clamp away from tube assembly to allow access to connector on data link antenna cable.
3. Unscrew connector from UHF omni-directional antenna and retain antenna/clamp assembly.
4. Using a 9/16" open-end wrench, remove and retain one hex nut and lockwasher securing intercept antenna cable to base of tube assembly.
5. Using a no.2 cross-tip screwdriver, remove and retain two machine screws and flat-washers securing intercept antenna/antenna cable assembly to tube assembly.
6. Pull intercept antenna assembly/antenna cable out through top of tube assembly.
7. Using 5/16" open-end wrench, disconnect intercept antenna cable from intercept antenna assembly, and retain antenna.

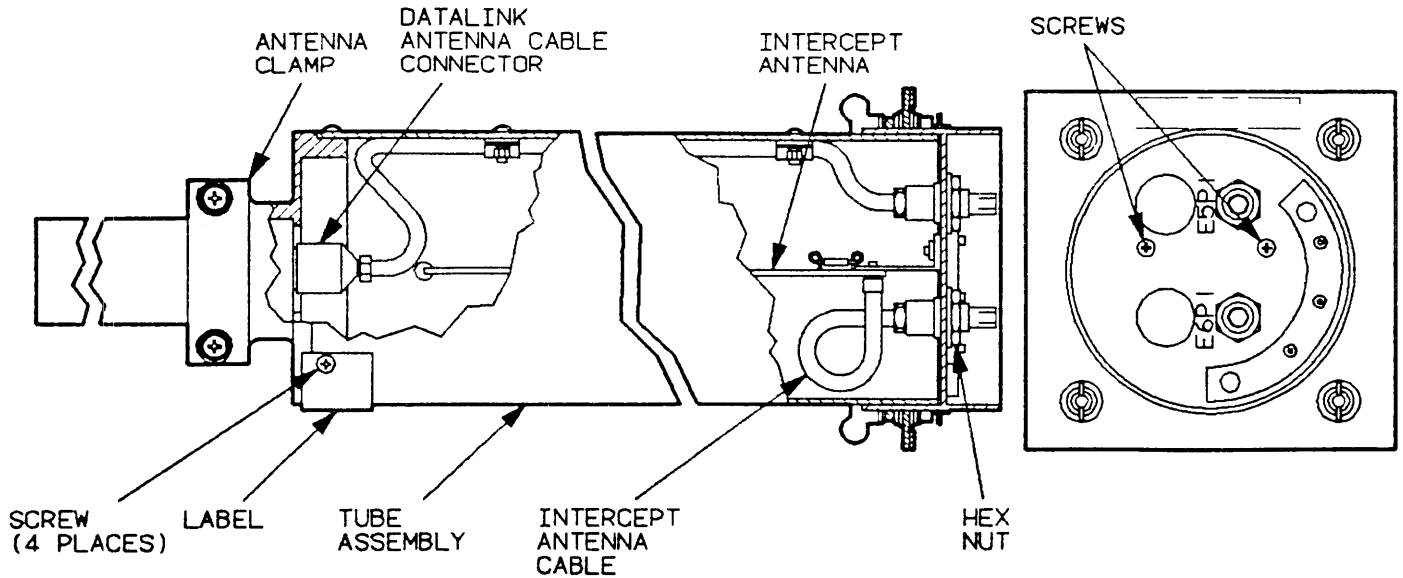


The intercept antenna cable is located inside the tube assembly.

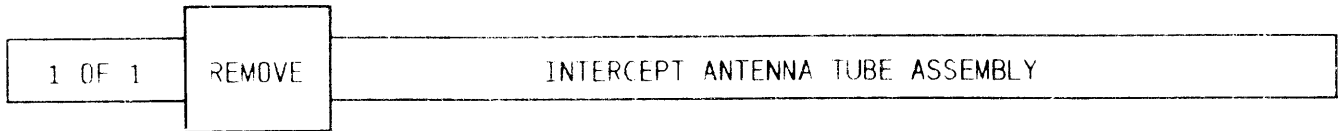
Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Replace the intercept antenna cable as follows:



1. Using a 5/16" open-end wrench, connect intercept antenna cable to intercept antenna assembly.
2. Route intercept antenna/antenna cable assembly down through top of tube assembly ensuring that cable connector protrudes from bottom of tube assembly and that holes in intercept antenna assembly align with holes in base of tube assembly.
3. Loosely secure intercept antenna cable to base of tube assembly with hex nut and lockwasher. Align RF connector E6P1 using alignment tool (0099-1-4305). While alignment tool is in place, use a 9/16" open-end wrench to tighten hex nut. Remove alignment tool.
4. Using a no.2 cross-tip screwdriver, secure intercept antenna assembly to base of tube assembly with two machine screws and flat washers.
5. Connect data link antenna cable to UHF omni-directional antenna.
6. Place antenna clamp into tube assembly ensuring that screw holes in clamp align with holes in tube. Position ID label on side of tube and align with screw holes. Using a no.2 cross-tip screwdriver, secure antenna clamp to tube assembly with four machine screws, lockwashers, and flat washers.
7. Perform operational checkout test.

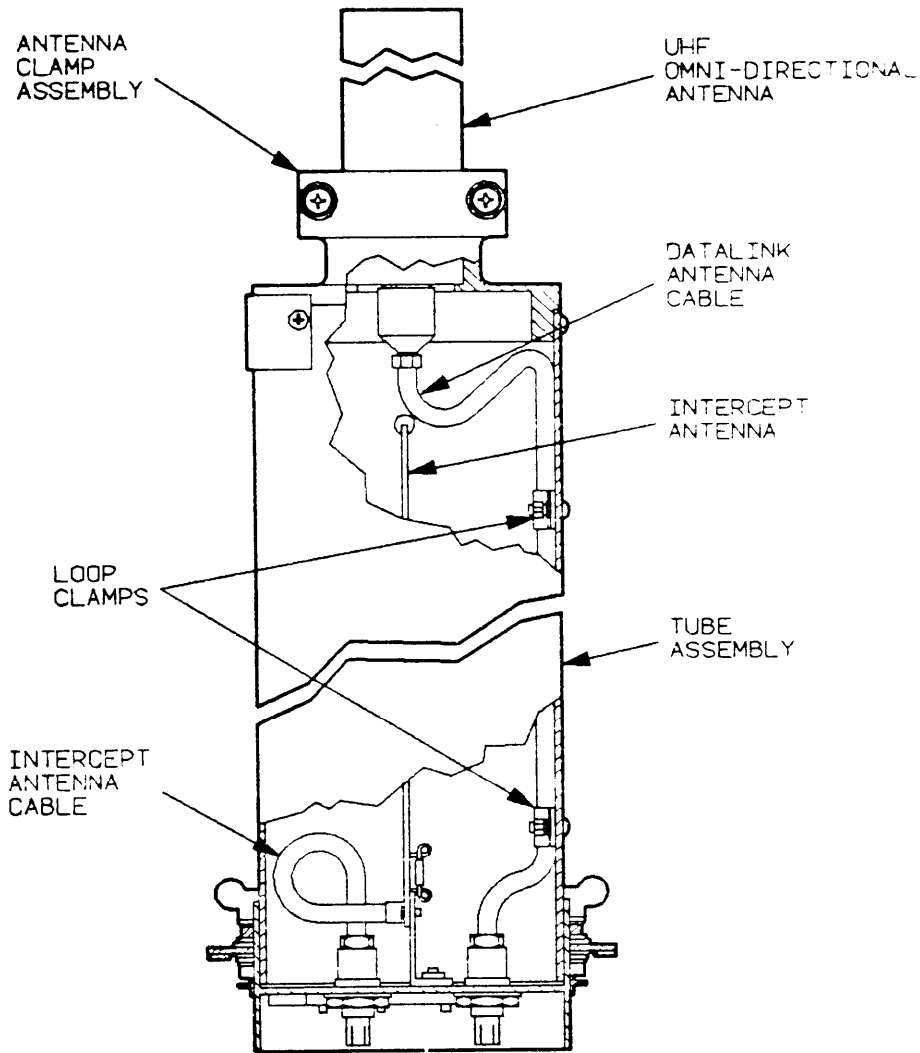


The intercept antenna tube assembly is the large cylindrical portion of the antenna assembly.

Tools Required: TK-105/G
TK-100/G

Personnel Required 1

Remove the intercept antenna tube assembly as follows:



1. Remove UHF omni-directional antenna, antenna clamp, data link antenna cable, and loop clamps in accordance with data link antenna cable remove procedure.

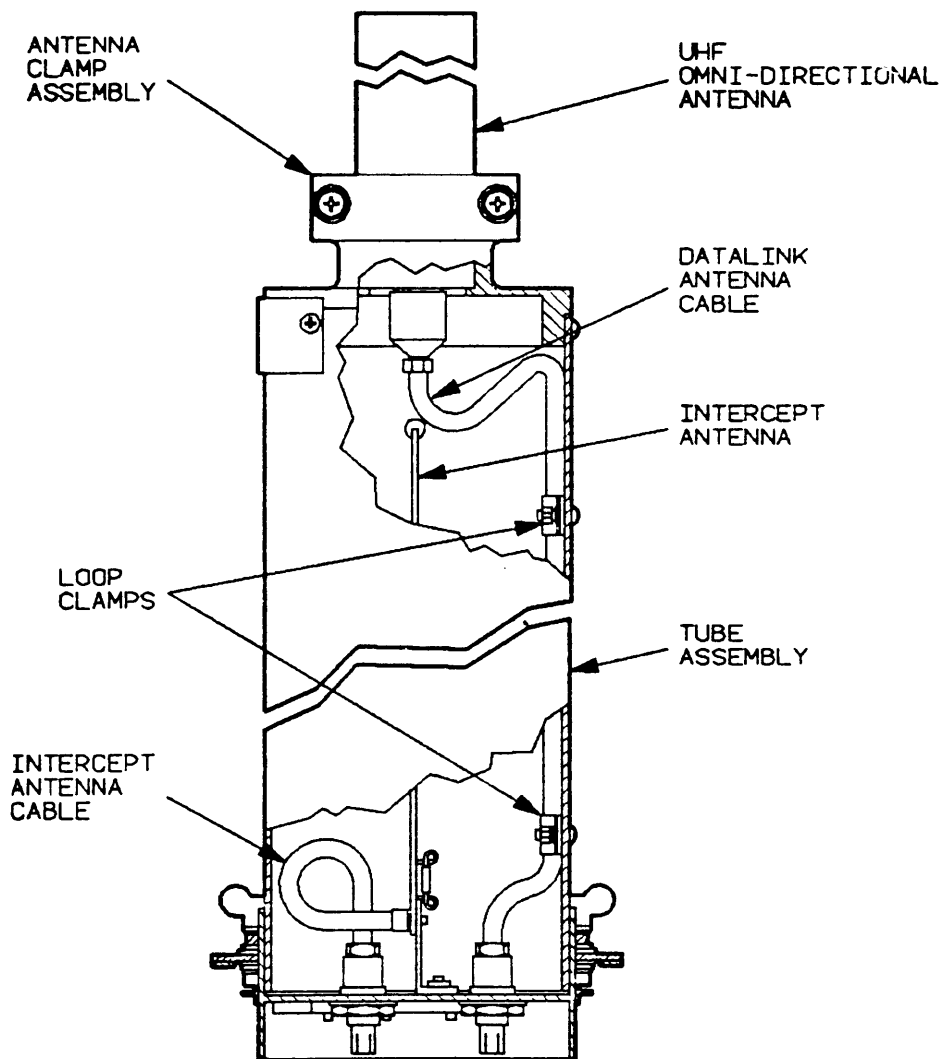
INTERCEPT ANTENNA TUBE ASSEMBLY	REPLACE	1 OF 1
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The intercept antenna tube assembly is the large cylindrical portion of the antenna assembly.

Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Replace the intercept antenna tube assembly as follows:



1. Replace UHF omni-directional antenna, antenna clamp, data link antenna cable, and loop clamps in accordance with data link antenna cable replace procedure.

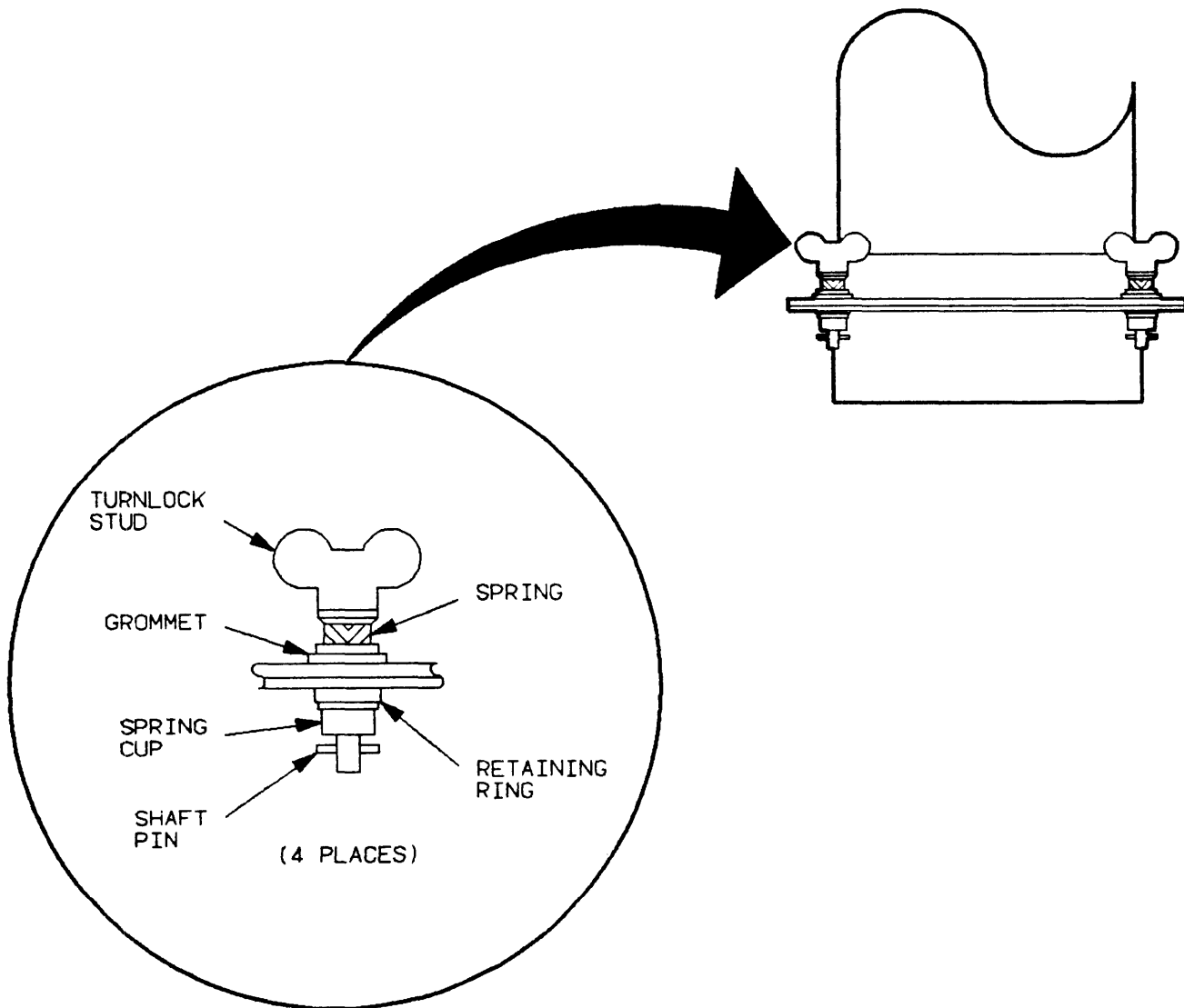
1 OF 1	REMOVE	TUBE ASSEMBLY TURNLOCK STUD, GROMMET, RETAINING RING
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The tube assembly turnlock stud, grommet, and retaining ring are located on the mast plate at the bottom of the tube assembly.

Tools Required: Needle-nose Pliers
Retaining Ring Pliers

Personnel Required: 1

Remove the turnlock stud, grommet and retaining ring as follows:



1. Lift turnlock stud and using needle-nose pliers, grip sides of spring cup, compress spring by pressing side of pliers against edge of mast plate, and move stud in grommet hole until shaft pin will slide out of hole.
2. Using retaining ring pliers, remove retaining ring from grommet. Remove grommet from tube assembly.

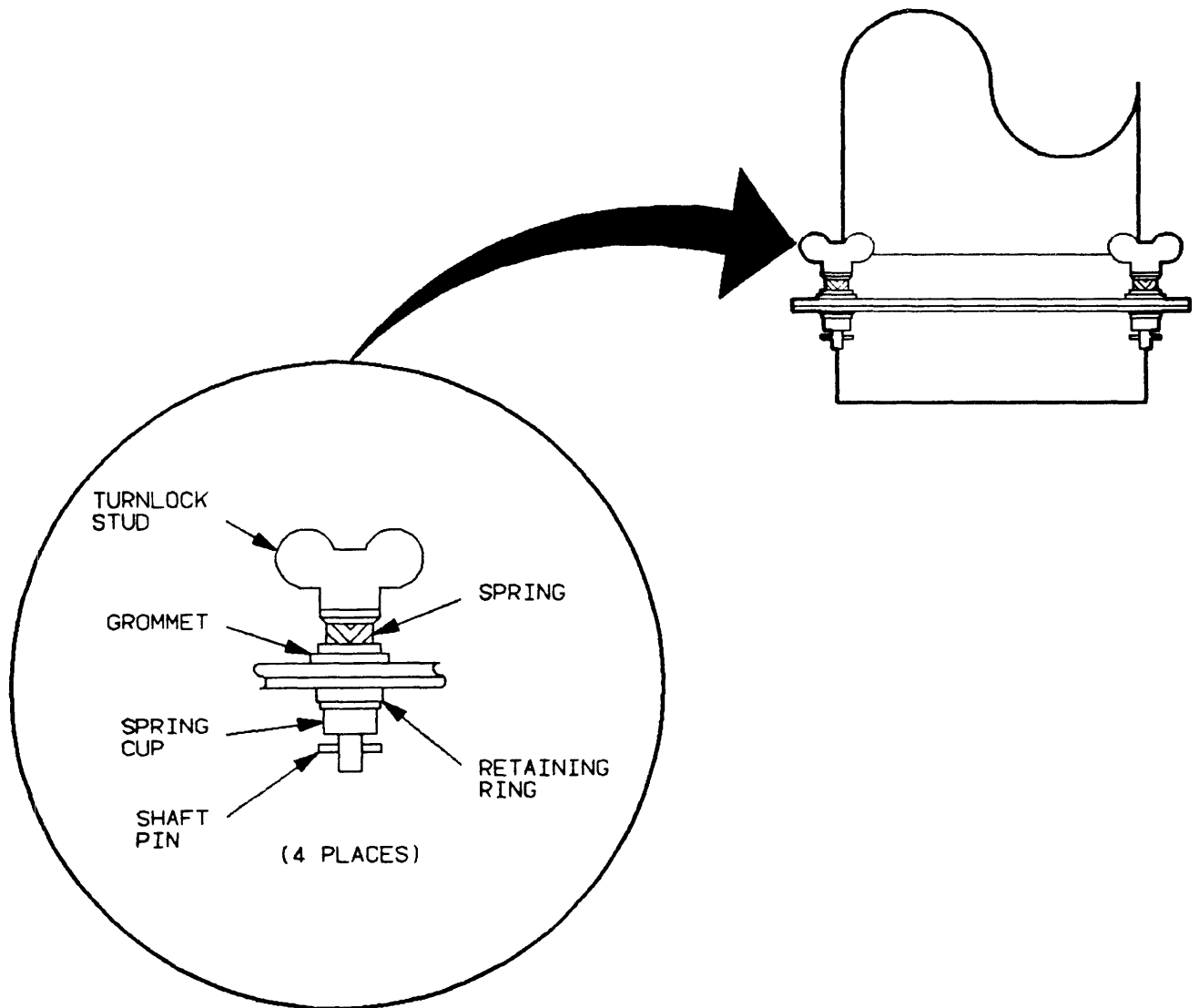
TUBE ASSEMBLY TURNLOCK STUD, GROMMET, RETAINING RING	REPLACE	1 OF 1
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The tube assembly turnlock stud, grommet, and retaining ring are located on the plate at the bottom of the tube assembly.

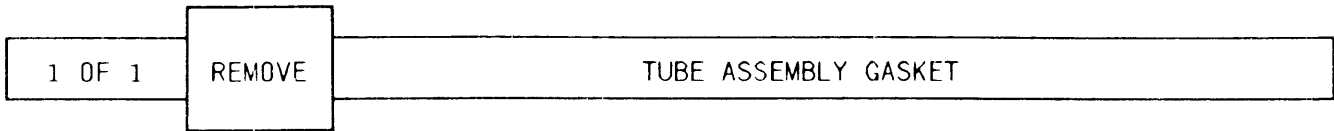
Tools Required: Needle-Nose Pliers
Retaining Ring Pliers

Personnel Required: 1

Replace the turn lock stud, grommet, and retaining ring as follows:



1. Position grommet in tube assembly, and using retaining ring pliers, secure grommet in mast plate with retaining ring.
2. Using needle-nose pliers, grip bottom of spring cup (next to shaft) and top of stud shaft (next to wing), compress spring, and insert shaft pin through grommet hole. Release pliers grip on turnlock stud.

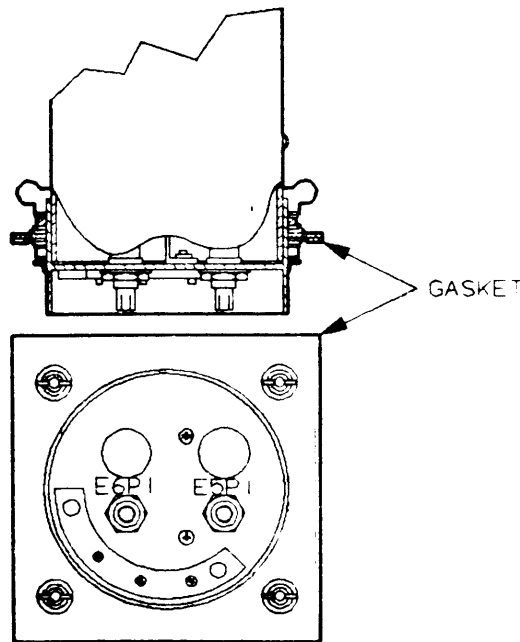


The intercept antenna tube assembly gasket is located on the bottom of the mast plate at the bottom of the tube assembly.

Tools Required: Putty Knife
Heat Gun

Personnel Required : 1

Remove the intercept antenna tube assembly gasket as follows

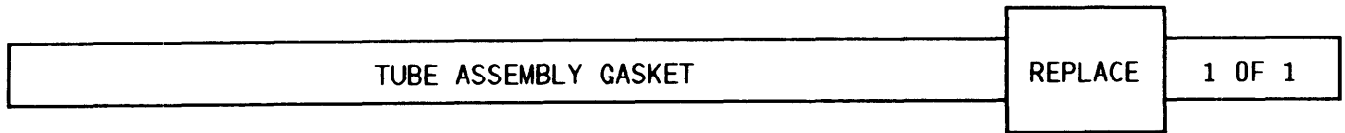


1. Using a putty knife and heat gun to soften adhesive, scrape old gasket from the tube assembly.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRI FLOUROETHANE. Prolonged breathing of vapor should be avoided. Solvent should not be used near heat or open flame; products of decomposition are toxic and irritating. Since TRICHLOROTRI FLOUROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which solvent cannot penetrate. If solvent is taken internally, consult a physician immediately.

2. Using cleaning compound (appendix D, item 1), clean the old adhesive from the intercept antenna gasket mounting surface on tube assembly.

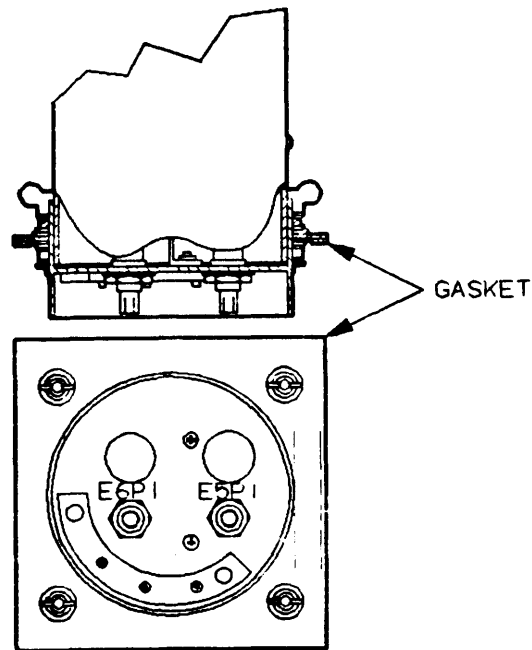


The intercept antenna tube assembly gasket is located on the bottom of the mast plate at the bottom of the tube assembly.

Tools Required: Putty Knife

Personnel Required: 1

Replace the intercept antenna tube assembly gasket as follows:



1. Center new intercept antenna gasket, adhesive side toward tube assembly, and press onto tube assembly.
2. Using sealing compound, apply between outer edges of intercept antenna gasket and tube assembly.

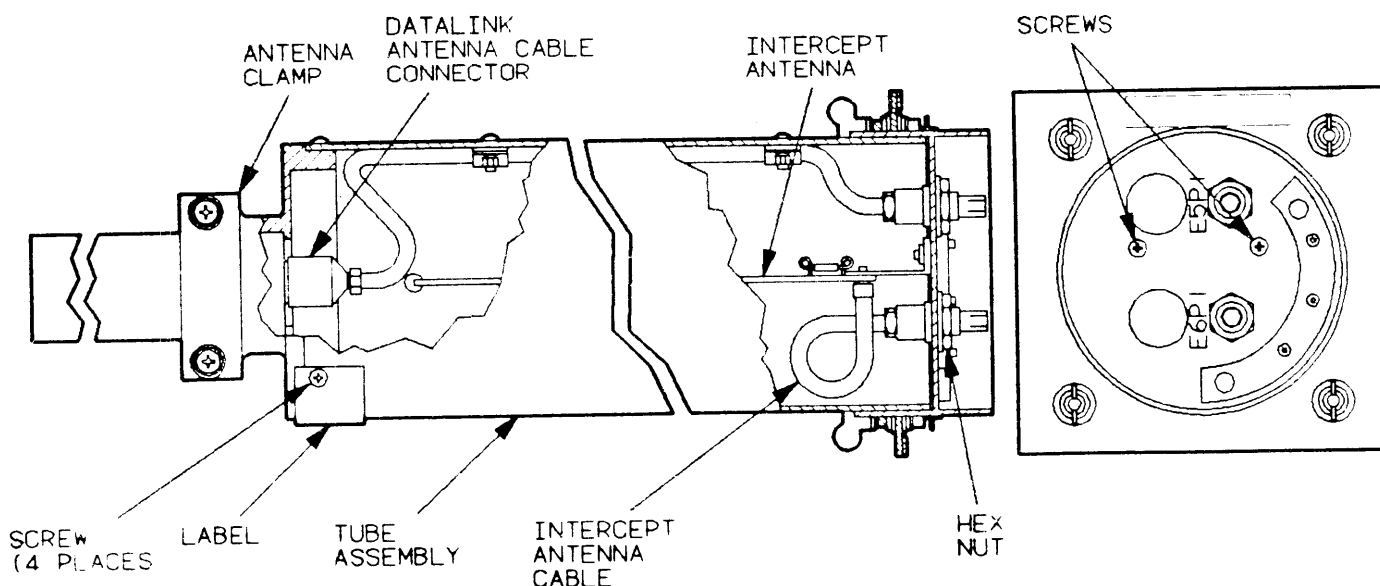


The intercept antenna assembly is located inside the tube assembly.

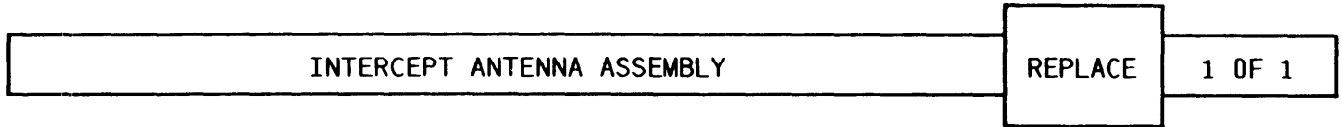
Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Remove the intercept antenna assembly as follows:



1. Using a no.2 cross-tip screwdriver, remove and retain four machine screws, lockwashers, and flat washers securing antenna clamp to tube assembly. Retain ID label.
2. Pull antenna clamp away from tube assembly to allow access to connector on data link antenna cable.
3. Unscrew connector from UHF omni-directional antenna and retain antenna/clamp assembly.
4. Using a 9/16" open-end wrench, remove and retain one hex nut and lock washer securing intercept antenna cable to base of tube assembly.
5. Using a no.2 cross-tip screwdriver, remove and retain two machine screws and flat washers securing intercept antenna assembly/antenna cable to tube assembly.
6. Pull intercept antenna assembly/antenna cable out through top of tube assembly.
7. Using a 5/16" open-end wrench, disconnect intercept antenna cable from intercept antenna assembly and retain cable.

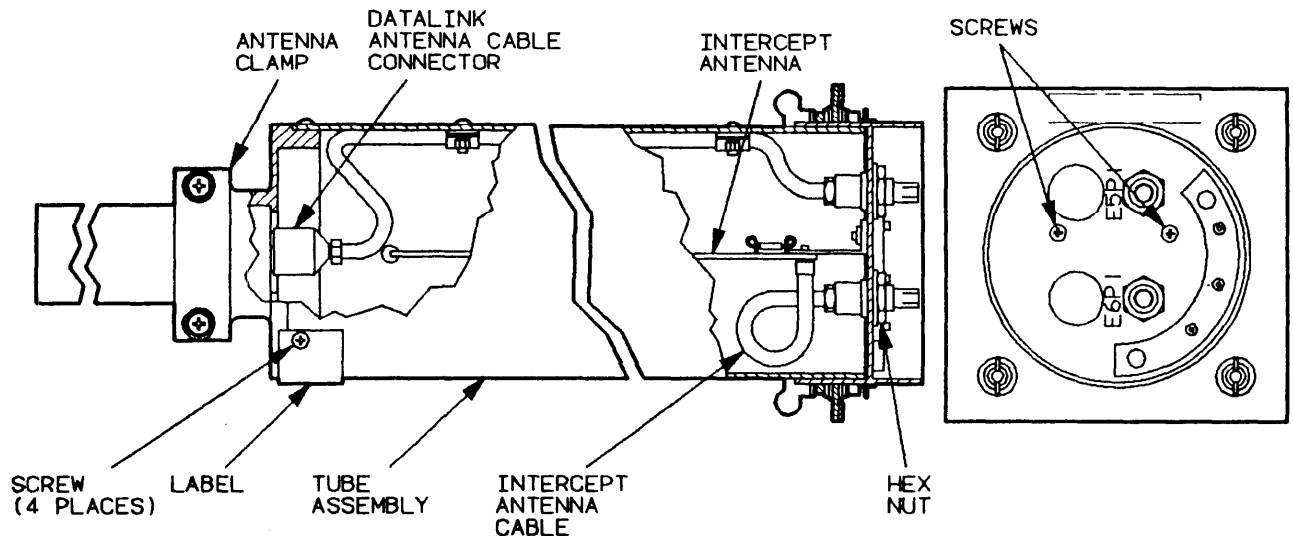


The intercept antenna assembly is located inside the tube assembly.

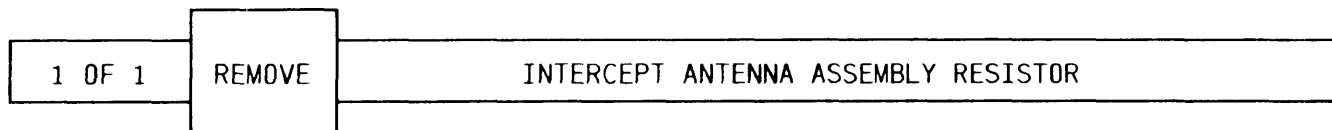
Tools Required: TK-105/G
TK-100/G

Personnel Required: 1

Replace the intercept antenna assembly as follows:



1. Using a 5/16" open-end wrench, connect intercept antenna cable to replacement intercept antenna assembly.
2. Route intercept antenna/cable down through top of tube assembly ensuring that cable connector is protruding from bottom of tube assembly and that holes in intercept antenna align with holes in base of tube assembly.
3. Loosely secure intercept antenna cable to base of tube assembly with hex nut and lockwasher. Align RF connector E6P1 using alignment tool (0099-1-4305). While alignment tool is in place, use a 9/16" open-end wrench to tighten hex nut. Remove alignment tool.
4. Using a no. 2 cross-tip screwdriver, secure intercept antenna assembly to base of tube assembly with two machine screws and flat washers.
5. Connect data link antenna cable to UHF omni-directional antenna.
6. Place antenna clamp into tube assembly ensuring that screw holes in clamp align with holes in tube. Position ID label on side of tube and align with screw holes.
7. Using a no. 2 cross-tip screwdriver, secure antenna clamp to tube assembly with four machine screws, lockwashers, and flat washers.
8. Perform operational checkout test.

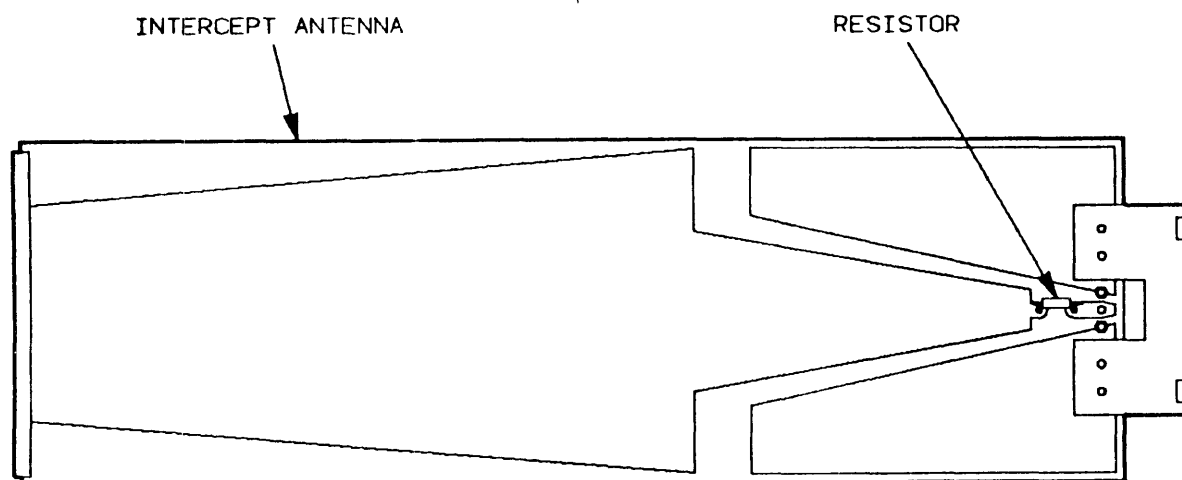


The intercept antenna assembly resistor is located inside the tube assembly.

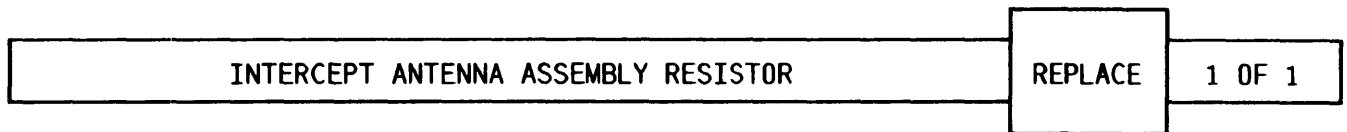
Tools Required: TK-105/G

Personnel Required: 1

Remove the intercept antenna assembly resistor as follows:



1. Remove intercept antenna assembly in accordance with remove procedure in this section.
2. Using a soldering set, unsolder and remove resistor from intercept antenna assembly.

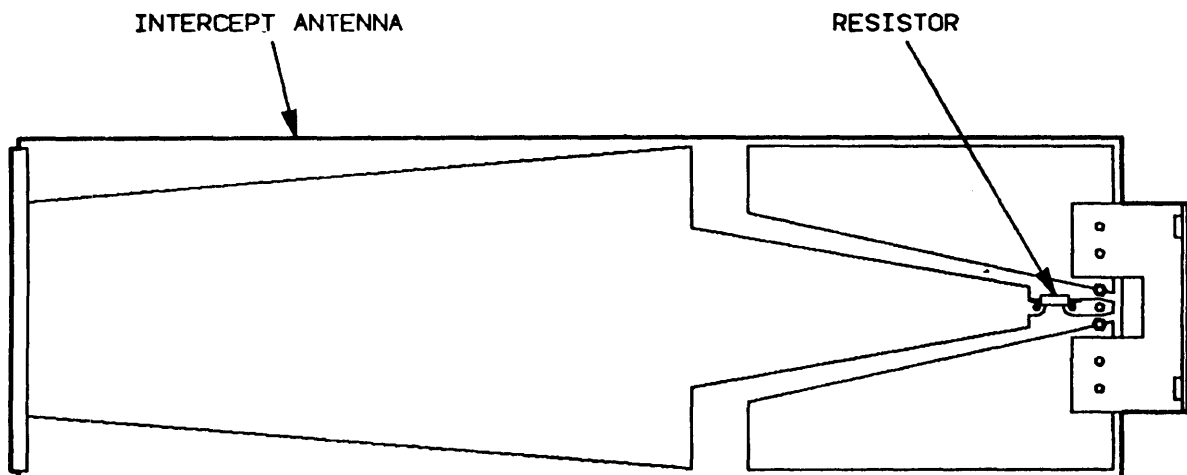


The intercept antenna assembly resistor is located inside the tube assembly.

Tools Required: TK-105/G

Personnel Required: 1

Replace the intercept antenna assembly resistor as follows:



1. Using a soldering set, solder resistor to lugs on intercept antenna assembly.
2. Replace intercept antenna assembly in accordance with replace procedure in this section.

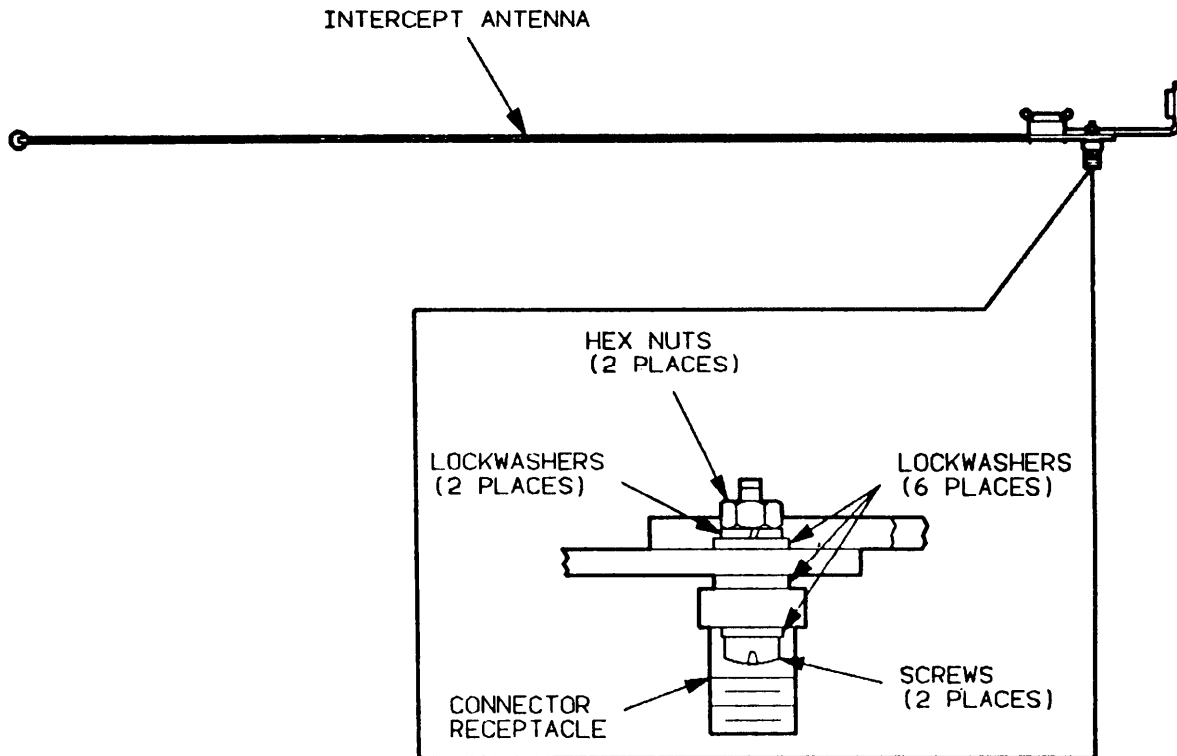
1 OF 1	REMOVE	INTERCEPT ANTENNA ASSEMBLY CONNECTOR RECEPTACLE
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The intercept antenna assembly connector receptacle is located inside the tube assembly.

Tools Required: TK-105/G

Personnel Required: 1

Remove the intercept antenna assembly connector receptacle as follows:



1. Remove intercept antenna assembly in accordance with remove procedure in this section.
2. Using a no.1 cross-tip screwdriver, 3/16" socket, and 1/4" drive socket handle, remove and retain two machine screws, lockwashers, hex nuts, and six flat washers securing connector receptacle to antenna.
3. Using soldering set, unsolder and remove connector receptacle from intercept antenna assembly.

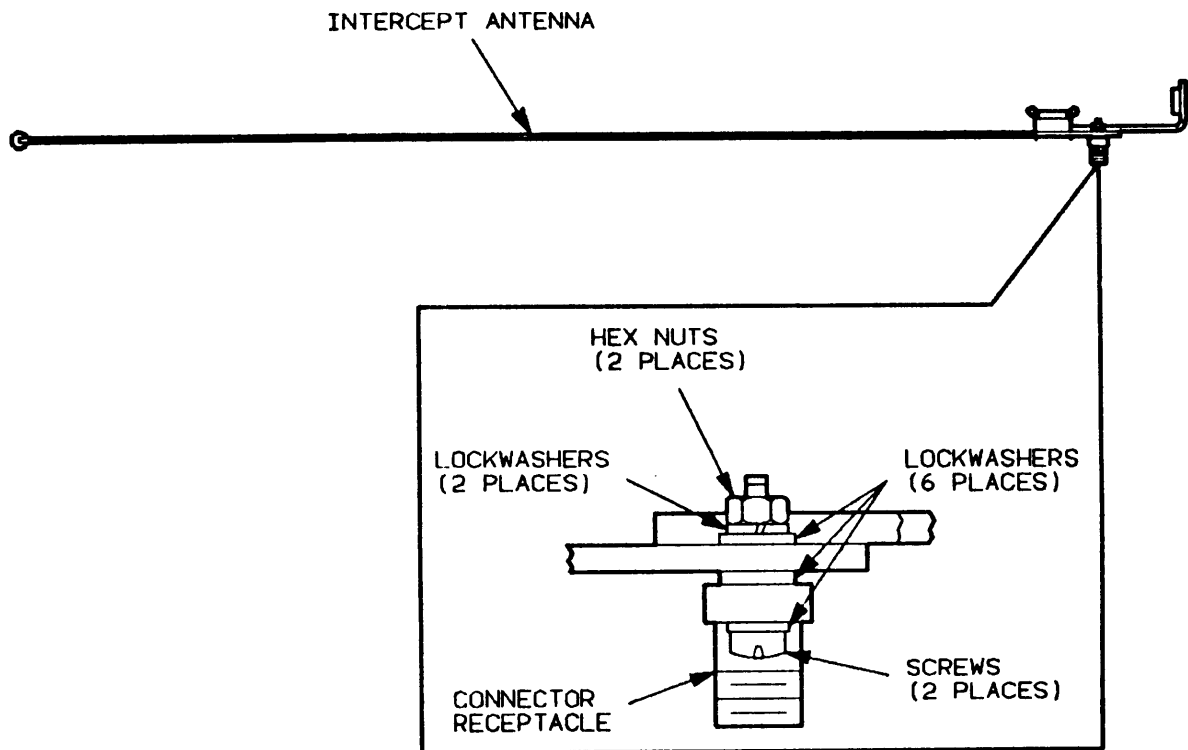
INTERCEPT ANTENNA ASSEMBLY CONNECTOR RECEPTACLE	REPLACE	1 OF 1
---	---------	--------

The intercept antenna assembly connector receptacle is located inside the tube assembly.

Tools Required: TK-105/G

Personnel Required: 1

Replace the intercept antenna assembly connector receptacle as follows:



1. Position connector receptacle on intercept antenna on opposite side of resistor and align holes in connector with holes in intercept antenna.
2. Using a no.1 cross-tip screwdriver, 3/16" socket, and 1/4" drive socket handle, secure connector receptacle to antenna with two machine screws, two lockwashers, two hex nuts, and six flat washers.
3. Using a soldering set, solder connector receptacle to intercept antenna assembly.
4. Replace intercept antenna assembly in accordance with replace procedure, steps 1 through 8, in this section.

CHAPTER

4

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

There is no General Support Maintenance for Antenna, AS-3661/TRQ-32(V).

APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists forms and publications that are referenced in this manual or that contain information applicable to the maintenance of the Antenna, AS-3661/TRQ-32(V).

A-2. FORMS

- Report of Packing and Handling Deficiencies DA Form 6
- Recommended Changes to Publications and Blank Forms DA Form 2028
- Equipment Inspection and Maintenance Worksheet DA Form 2404
- Discrepancy in Shipment ReportSF 361
- Report of Discrepancy (ROD)SF 364
- Quality Deficiency ReportSF 368

A-3. PUBLICATIONS

- Administrative Storage of Equipment TM 740-90-1
- Consolidated Index of Army Publications and Blank Forms DA PAM 310-1
- Procedures for Destruction of Electronics Material
to Prevent Enemy Use (Electronics Command) TM 750-244-2
- Expendable Items (Except Medical, Class V, Repair
Parts, and Heraldic Items) CTA 50-970
- Federal Supply Code for Manufacturers; United States and
Canada, Name-to-Code and Code-to-Name (GSA-FSS H4-1/H4-2) SB708-41/42
- First Aid for Soldiers FM 211-11
- Headset H-113/UTB SIG 286
- Installation Practices: Communications Systems
Grounding, Bonding, and Shielding FM 11-487-4
T0-31-10-24
- Military Specification, Coating, Aliphatic polyurethane,
Chemical Agent Resistant. MIL-C-46168D
- Painting Instructions for Field Use TM 43-0139

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I.

INTRODUCTION

B-1. PURPOSE AND SCOPE

The Maintenance Allocation Chart (MAC) in Section II assigns all authorized maintenance functions and repair operations to be performed by the lowest appropriate maintenance category and delineates the tools and test equipment required to perform the operations. It is a controlling influence in the preparation of equipment publications and the selection of repair parts.

Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS

Definitions of the maintenance function terms are as follows:

- a. INSPECT. To determine the serviceability of an item by comparing its physical, mechanical, 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 with prescribed standards.
- c. SERVICE. Operations required periodically to keep an item in proper operating condition, e.g., to clean, preserve, etc.
- d. REPLACE. The act of substituting a serviceable like part, subassembly, module, component, or assembly for an unserviceable counterpart.
- e. REPAIR. The application of maintenance service (inspect, test, service, replace) or other maintenance actions to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module, component, assembly, end item, or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.
- f. ADJUST. To maintain or regulate, within prescribed limits, by bringing an item into proper or exact position, or by setting the operating characteristics to specified parameters.
- g. ALIGN. To adjust specified variable elements of an item to bring about optimum or desired performance.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II

- a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which are to identify components, assemblies, subassemblies, and modules within 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 the purpose of having group numbers in the MAC and RPSTL coincide.
- d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "worktime" 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 the maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate "worktime" figures will be shown for each category. This number of task-hours specified by the "worktime" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under a typical field operating condition. 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 Organizational
- F Direct Support
- H General Support
- L Specialized Repair Activity
- D Depot

- 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. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III

The tool and test equipment requirements have taken under consideration the maintenance levels, the tasks to be accomplished at the various levels, the inherent BIT capabilities of the system, and the equipments currently in the Military inventory.

- 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 and test equipment for the maintenance functions.
- b. Maintenance Level. The codes in this column indicate the lowest maintenance level authorized to use the tool or test equipment.
- c. Nomenclature. This column lists the noun name and nomenclature for the tools and test equipment required to perform the maintenance functions.
- d. National/NATO Stock Number. This column lists the National or 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 (5-digit) for the manufacturer in parentheses.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV

- 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 2.

Section II.

MAINTENANCE ALLOCATION CHART
FOR
ANTENNA, AS-3661/TRQ-32(V)

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIP.	(6) REMARKS
			C	O	F	H	D		
00	ANTENNA, AS-3661/TRQ-32(V) (C5114102-1)	TEST			.9			5, 6, 7, 8	D
		SERVICE			.25				
		REPAIR			.3			1, 5, 6, 7, 8, 9, 10, 11	A, E
01	TUBE ASSEMBLY, INTERCEPT ANTENNA (C5114129-1)	REPLACE			.2			9, 10	
		REPAIR			.1			2, 3, 4	B
02	INTERCEPT ANTENNA ASSEMBLY (C5114130-1)	REPLACE			.1			9, 10	
		REPAIR			.1			10	C

TOOLS AND TEST EQUIPMENT REQUIREMENTS
FOR
ANTENNA, AS-3661/TRQ-32(V)

(1) TOOL OR TEST EQUIPMENT REF CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
1	F	MULTIMETER	6625-01-145-2430	AN/USM-486
2	F	HEAT GUN	4940-01-181-5876	CV-5700
3	F	PUTTY KNIFE	5110-00-240-5943	GGG-K-484
4	F	RETAINING RING PLIER	5120-00-088-9393	GGG-P-480
5	F	POWER METER	6625-01-096-8677	HP436A
6	F	DUAL DIR COUPLER	5985-01-048-7881	778D
7	F	POWER SENSOR	6625-01-028-2882	HP8484A
8	F	SIGNAL GENERATOR	4935-01-207-6339	HP8640B
9	F	TOOL KIT	5180-00-605-0079	TK-100/G
10	F	TOOL KIT	5180-00-610-8177	TK-105/G
11	F	CONNECTOR, ALIGNMENT FIXTURE		0099-1-4305

Section IV.

REMARKS

REFERENCE CODE	REMARKS
A	REPAIR BY REPLACING ANTENNA CLAMP, UHF OMNI-DIRECTIONAL ANTENNA, DATA LINK ANTENNA CABLE OR INTERCEPT ANTENNA CABLE.
B	REPAIR BY REPLACING TURNLOCK STUD, GROMMET, RETAINING RING OR INTERCEPT ANTENNA GASKET.
C	REPAIR BY REPLACING CONNECTOR RECEPTACLE OR RESISTOR.
D	FAULT ISOLATION AND FUNCTIONAL TESTING ACCOMPLISHED BY LOCALLY MANUFACTURING CABLES (APPENDIX E) FOR CONNECTIONS OF ANTENNA, DIRECTIONAL COUPLER, AND SIGNAL GENERATOR.
E	AFTER REPLACEMENT OF DATA LINK OR INTERCEPT ANTENNA CABLE, ALIGN CONNECTOR(S) E5P1 AND/OR E6P1 USING CONNECTOR ALIGNMENT FIXTURE.

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST

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Section I. INTRODUCTION

C-1. SCOPE

This appendix lists spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE), and other special support equipment required for performance of organizational, direct support, and general support maintenance of the antenna. It authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes.

C-2. GENERAL

This appendix is divided into the following sections:

- a. Section II. Repair Parts List. A list of spares and repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of authorized parts. Parts lists are composed of functional groups in numeric sequence, with the parts in each group listed in figure number and item number sequence.

- b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized for the performance of maintenance.
- c. Section IV. National Stock Number and Part Number Index. A list, in National item identification number (NINN) sequence, of all National stock numbers (NSN) appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance. This index is followed by a cross-reference list of reference designators to figure and item numbers.

C-3. EXPLANATION OF COLUMNS

- a. Illustration:

(1) Figure Number. Indicates the figure number of the illustration on which the item is shown.

(2) Item Number. The number used to identify the item called out in the illustration.

- b. Source, Maintenance, and Recoverability (SMR) Codes:

(1) Source Code. Source codes indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

CODE DEFINITION

- PA - Item procured and stocked to anticipated or known usage.
- PB - Item procured and stocked for insurance purpose because essentiality dictates that a minimum quantity be available in the supply system.
- PC - Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
- PD - Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
- PE - Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
- PF - Support equipment which will not be stocked but which will be centrally procured on demand.

CODE	DEFINITION
PG	- Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
KD	- An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	- An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	- Item included in both a depot overhaul/repair kit and a maintenance kit.
MO	- Item to be manufactured or fabricated at organizational level.
MF	- Item to be manufactured or fabricated at the direct support maintenance level.
MH	- Item to be manufactured or fabricated at the general support maintenance level.
MD	- Item to be manufactured or fabricated at the depot maintenance level.
AO	- Item to be assembled at organizational level.
AF	- Item to be assembled at direct support maintenance level.
AH	- Item to be assembled at general support maintenance level.
AD	- Item to be assembled at depot maintenance level.
XA	- Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	- Item is not procured or stocked. If not available through salvage, requisition.
XC	- Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

<u>CODE</u>	<u>DEFINITION</u>
XD -	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items coded above except those coded XA and aircraft support items as restricted by AR 700-42.

(2) Maintenance Code. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

<u>CODE</u>	<u>DEFINITION</u>
C	Crew or operator maintenance performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level.
F	Support item is removed, replaced, used at the direct support level.
H	Support item is removed, replaced, used at the general support level.
D	Support items that are removed, replaced, used at depot, mobile depot, or specialized repair activity only.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (ie, all authorized maintenance functions). This position will contain one of the following maintenance codes:

<u>CODE</u>	<u>DEFINITION</u>
O -	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F -	The lowest maintenance level capable of complete repair of the support item is the direct support level.

<u>CODE</u>	<u>DEFINITION</u>
H	- The lowest maintenance level capable of complete repair of the support item is the general support level.
D	- The lowest maintenance level capable of complete repair of the support item is the depot support level.
L	- Repair restricted to Specialized Repair Activity.
Z	- Nonrepairable. No repair is authorized.
B	- No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(3) Recoverability Code. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR code format as follows:

<u>CODE</u>	<u>DEFINITION</u>
Z	- Nonrepairable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	- Repairable item. When uneconomically repairable, condemn and dispose at organizational level.
F	- Repairable item. When uneconomically repairable, condemn and dispose at the direct support level.
H	- Repairable item. When uneconomically repairable, condemn and dispose at the general support level.
D	- Repairable item. When beyond the lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	- Repairable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
A	- Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

- d. **Part Number.** Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When a stock numbered item is requisitioned, the item received may have a different part number than the part being replaced.

- e. **Federal Supply Code for Manufacturer (FSCM).** The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, Government agency, etc.
- f. **Description.** Indicates the Federal item name and, if required, a minimum description to identify the item.
- g. **Unit of Measure (U/M).** Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.
- h. **Quantity Incorporated in Unit.** Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, of an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers, etc).

C-4. HOW TO LOCATE REPAIR PARTS

- a. When National stock number or part number is unknown:
 - (1) **First.** Using the table of contents, determine the functional group within which the item belongs. This is necessary since illustrations are prepared for functional groups and listings are divided into the same groups.
 - (2) **Second.** Find the illustration covering the functional group to which the item belongs.
 - (3) **Third.** Identify the item on the illustration and note the illustration figure and item number of the item.
 - (4) **Fourth.** Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When the National stock number or part number is known:

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in NINN sequence followed by a list of part numbers in alphanumeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list.

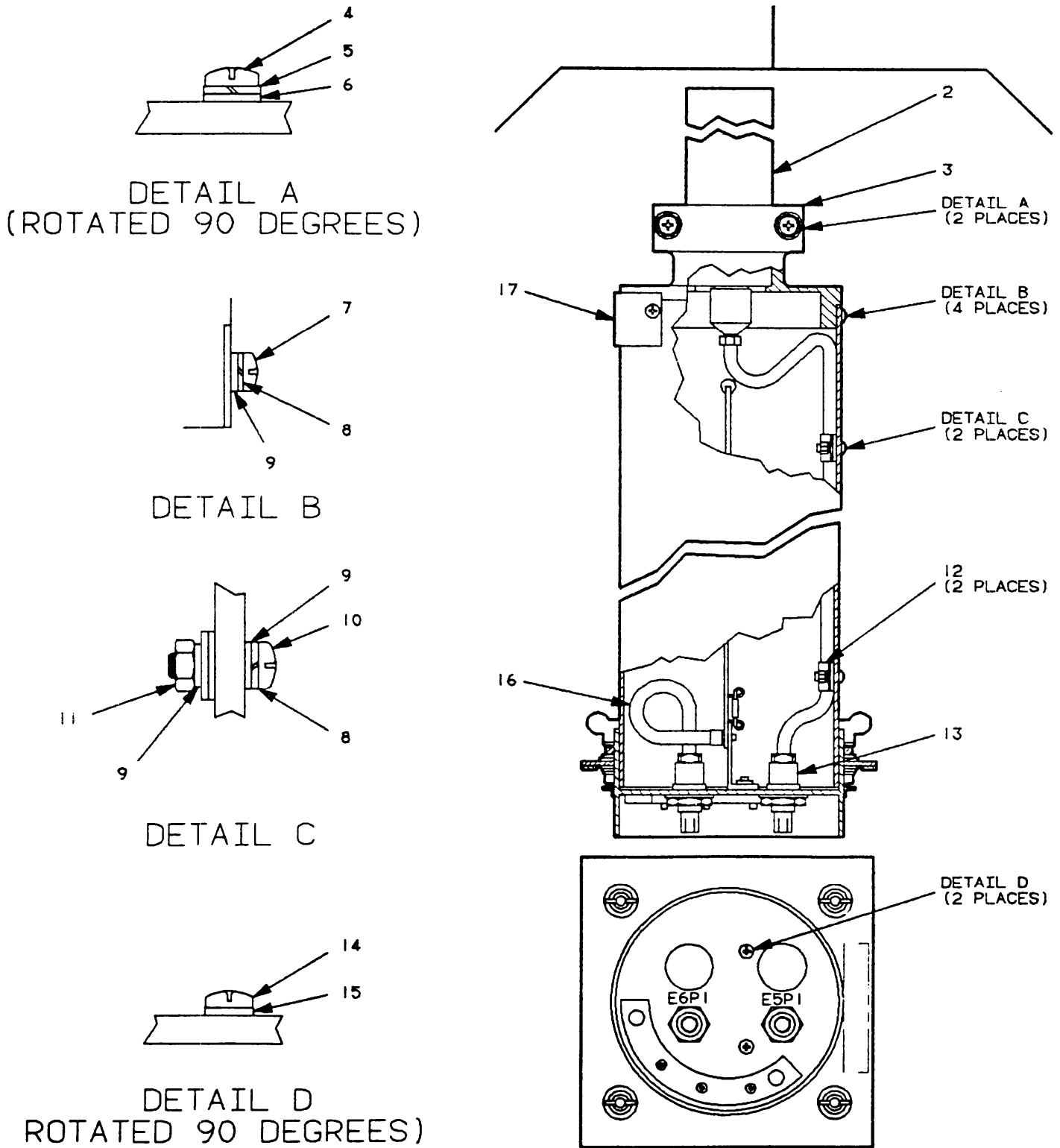


FIGURE C-1. ANTENNA, AS-3661/TRQ-32(V)

SECTION II. REPAIR PARTS LIST

(1) ILLUS	(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY
(A) FIG NO.	(B) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	UOC	U / M INC IN UNIT
					GROUP 00: ANTENNA, AS-3661 /TRQ-32(V)		
C-1	1	PAOFD	5811-01-162-2450	C5114102-1	57958	ANTENNA, AS-3661 /TRQ-32(V)	EA 1
C-1	2	PAFZZ	5895-01-171-3472	C5114107-1	57958	ANTENNA, OMNI- DIRECTIONAL	EA 1
C-1	3	XDFZZ		C5114120-1	57958	CLAMP, ANTENNA	EA 1
C-1	4	XDFZZ	5305-00-206-8152	MS35214-72	96906	SCREW, MACHINE	EA 2
C-1	5	XDFZZ	5310-00-184-8970	MS35338-101	96906	WASHER, LOCK	EA 2
C-1	6	XDFZZ	5310-00-045-5210	MS15795-910	96906	WASHER, FLAT	EA 2
C-1	7	XDFZZ	5305-00-637-1103	MS35214-41	96906	SCREW, MACHINE	EA 4
C-1	8	XDFZZ	5310-00-576-0546	MS35338-99	96906	WASHER, LOCK	EA 6
C-1	9	XDFZZ	5310-00-726-4360	MS15795-907	96906	WASHER, FLAT	EA 8
C-1	10	XDFZZ	5305-00-954-5641	MS35214-43	96906	SCREW, MACHINE	EA 2
C-1	11	XDFZZ	5310-00-934-9762	MS35649-286	96906	NUT, PLAIN	EA 2
C-1	12	XDFZZ	5340-01-136-1855	MS25281R4	96906	CLAMP, LOOP	EA 2
C-1	13	PAFZZ	5995-01-272-6362	C5114180-1	57958	CABLE, DATALINK ANTENNA	EA 1
C-1	14	XDFZZ	5305-00-059-8251	MS35214-26	96906	SCREW, MACHINE	EA 2
C-1	15	XDFZZ	5310-00-726-4368	MS15795-905	96906	WASHER, LOCK	EA 2
C-1	16	PAFZZ	5895-01-272-6361	C5114221-1	57958	CABLE, INTERCEPT ANTENNA	EA 1
C-1	17	XDFZZ		C5114212-1	57958	LABEL, IDENT	EA 1

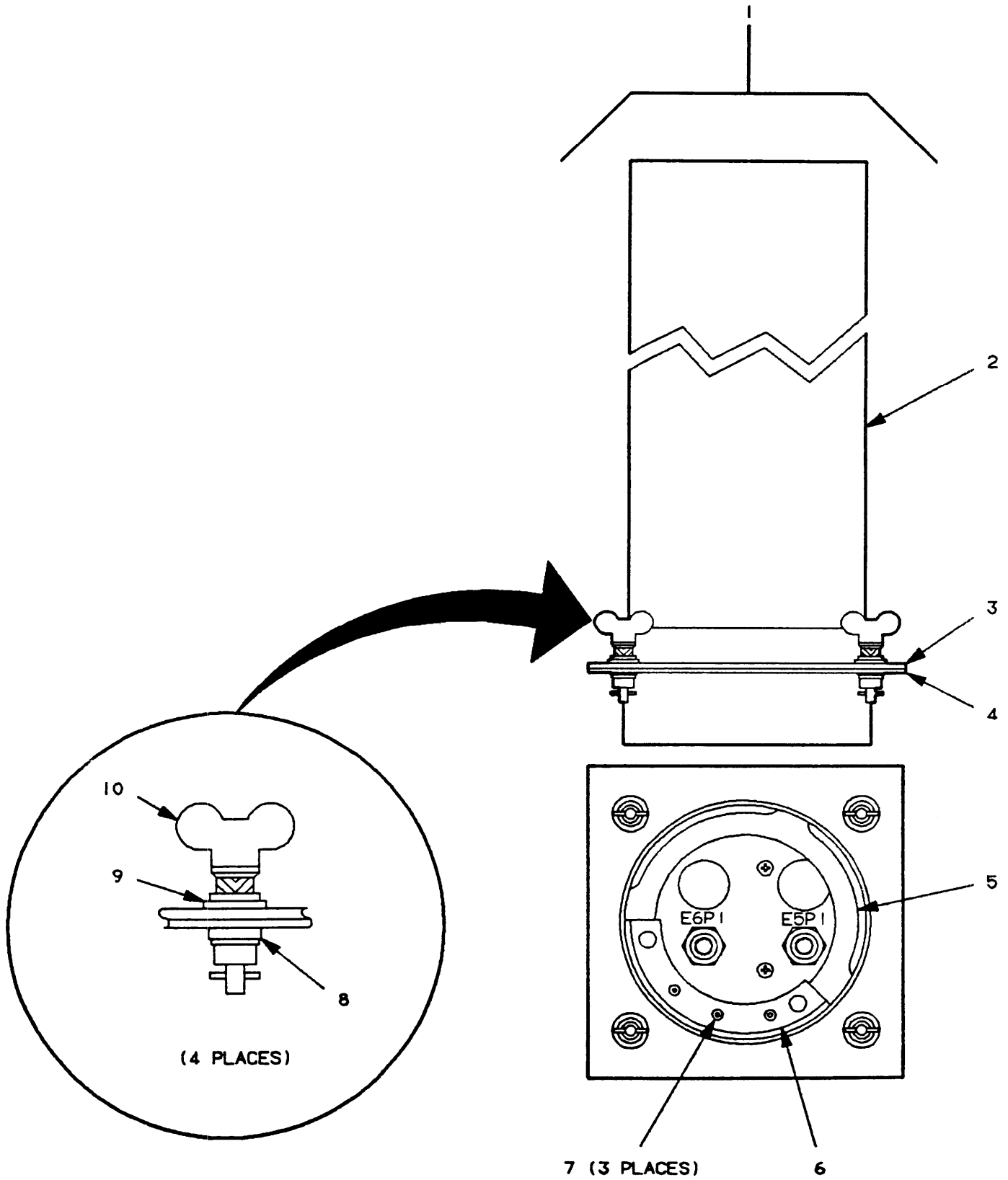


FIGURE C-2. INTERCEPT ANTENNA TUBE ASSEMBLY

(1) ILLUS (A) FIG NO.	(2) (B) ITEM NO.	(3) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	TM32-5811-151-24&P (6) DESCRIPTION	UOC	(7) U / M	(8) QTY INC IN UNIT
						GROUP 01: INTERCEPT ANTENNA TUBE ASSEMBLY			
C-2	1	XDFFD		C5114129-1	57958	TUBE ASSEMBLY, INTERCEPT ANTENNA		EA	1
C-2	2	XA		C5114129-501	57958	TUBE		EA	1
C-2	3	XA		C5114129-502	57958	MAST, PLATE		EA	1
C-2	4	PAFZZ		C5114190-1	57958	GASKET, INTERCEPT ANTENNA		EA	1
C-2	5	XDFZZ		C5114235-1	57958	SPACER		EA	1
C-2	6	XA		C5114129-503	57958	SUPPORT BAR		EA	1
C-2	7	XDFZZ	5320-00-023-4856	MS20470A4-8	96906	RIVET, SOLID		EA	3
C-2	8	PAFZZ	5365-00-543-3388	40G26-1	71286	RETAINING RING		EA	4
C-2	9	PAFZZ	5325-00-646-8092	4002-0S	71286	GROMMET		EA	4
C-2	10	PAFZZ	5325-00-959-0432	4002-9SW	71286	STUD, TURNLOCK		EA	4

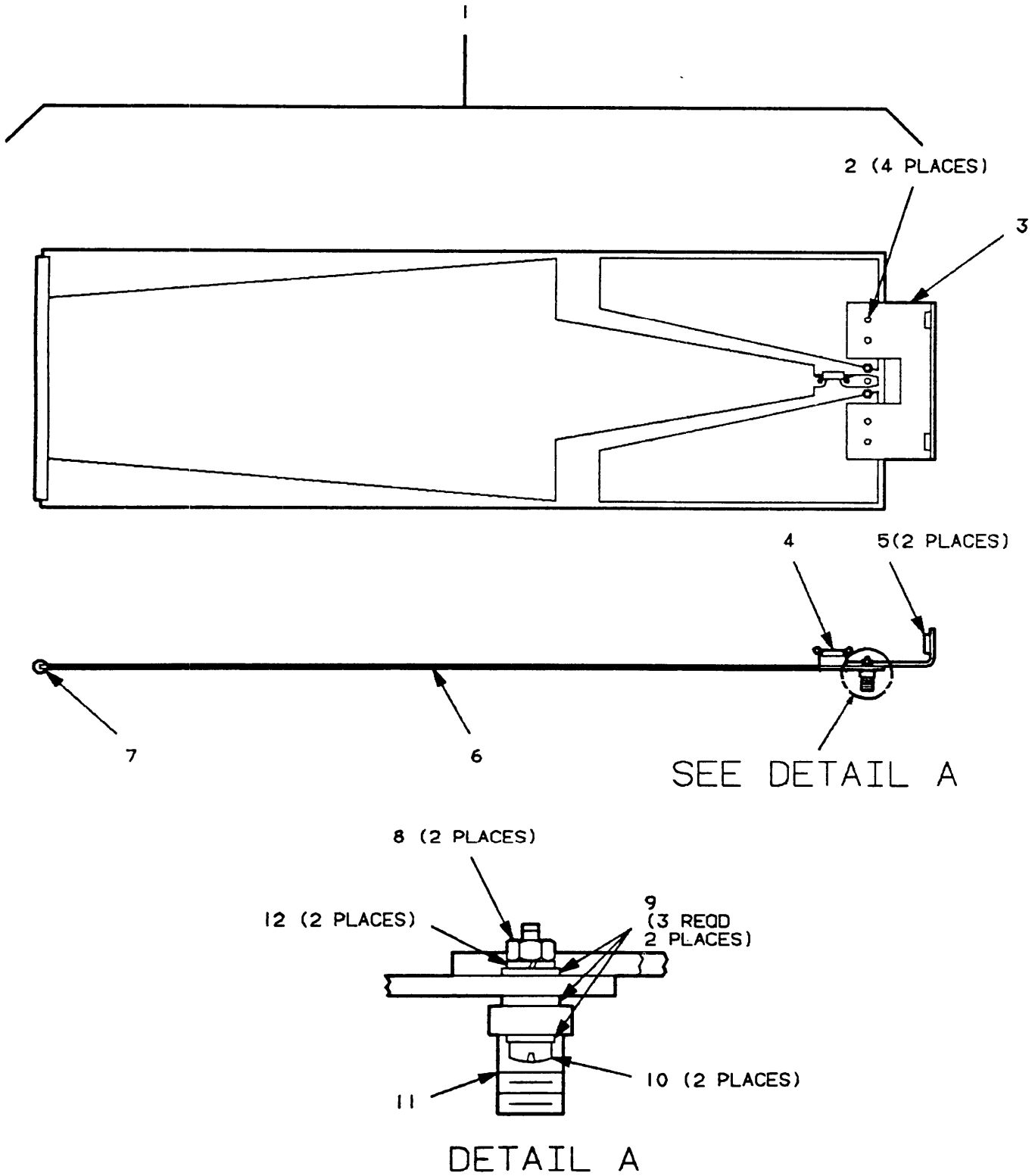


FIGURE C-3. INTERCEPT ANTENNA ASSEMBLY

(1) ILLUS (A) FIG NO.	(2) (B) ITEM NO.	(3) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	TM32-5811-151-24&P (6) DESCRIPTION	UOC	(7) U / M	(8) QTY INC IN UNIT
						GROUP 02: INTERCEPT ANTENNA ASSEMBLY			
C-3	1	PAFFH	5895-01-171-3473	C5114130-1	57958	ANTENNA ASSEMBLY. INTERCEPT		EA	1
C-3	2	XDFZZ	5320-00-721-8973	MS20470A3-3	96906	RIVET,SOLID		EA	4
C-3	3	XDFZZ		C5114130-501	57958	BRACKET,ANGLE		EA	1
C-3	4	PAFZZ	5905-01-080-5538	RNC60H15R0FS	81349	RESISTOR,FIXED		EA	1
C-3	5	XDFZZ	5310-00-075-3592	LKA-632-2	46384	NUT,SELFLOCKING		EA	2
C-3	6	PAFZZ		C5114131-1	57958	INTERCEPT ANTENNA		EA	1
C-3	7	XDFZZ		C5114188-1	57958	INSULATOR		EA	1
C-3	8	XDFZZ	5310-00-934-9740	MS35649-225	96906	NUT,PLAIN		EA	2
C-3	9	XDFZZ	5310-00-043-4708	NAS620C2	80205	WASHER,FLAT		EA	6
C-3	10	XDFZZ	5303-00-059-8229	MS35214-4	96906	SCREW,MACHINE		EA	2
C-3	11	PAFZZ	5935-01-078-4774	M39012/60-3002	81349	CONNECTOR,RECEP- TACLE,ELECTRICAL		EA	1
C-3	12	XDFZZ	5310-00-184-8990	MS35338-96	96906	WASHER,LOCK		EA	2

BULK MATERIALS

(1) ILLUS (A)	(2) FIG NO.	(3) SMR CODE	(4) NATIONAL STOCK NUMBER	(5) PART NUMBER	(6) DESCRIPTION	(7) UOC	(8) QTY INC IN UNIT
BULK		XDFZZ		SN60WRAP3	81348	SOLDER	LB
BULK		XDFZZ	6145-00-542-2773	M17/128- RG400	81349	CABLE,RF	FT
BULK		XDFZZ	5790-00-815-1295	M23053/5- 106-0	81349	INSULATION,SLEEVING	FT
BULK		XDFZZ	6145-00-681-7849	M17/084- RG223	81349	CABLE,RF	FT
BULK		XDFZZ	6145-00-542-6092	M17/28-RG58	81349	CABLE,RF	FT
BULK		XDFZZ	8040-00-078-9774	732RTV	71984	SEALING COMPOUND	TU

BULK MATERIALS

SECTION III.

SPECIAL TOOLS LIST

(1) ILLUS (A)	(2) FIG NO.	(3) SMR CODE	(4) NATIONAL STOCK NUMBER	(5) PART NUMBER	(6) DESCRIPTION	(7) UOC	(8) QTY INC IN UNIT
		XDFZZ		0099-1-4305	15942	CONNECTOR,ALIGNMENT FIXTURE	EA 1

STOCK NUMBER	FIG NO.	ITEM NO.	STOCK NUMBER	FIG NO.	ITEM NO.
5303-00-059-8229	C-3	10			
5305-00-059-8251	C-1	14			
5305-00-206-8152	C-1	4			
5305-00-637-1103	C-1	7			
5305-00-954-5641	C-1	10			
5310-00-043-4708	C-3	9			
5310-00-045-5210	C-1	6			
5310-00-075-3592	C-3	5			
5310-00-184-8970	C-1	5			
5310-00-184-8990	C-3	12			
5310-00-576-0546	C-1	8			
5310-00-726-4360	C-1	9			
5310-00-726-4368	C-1	15			
5310-00-934-9740	C-3	8			
5310-00-934-9762	C-1	11			
5320-00-023-4856	C-2	7			
5320-00-721-8973	C-3	2			
5325-00-646-8092	C-2	9			
5325-00-959-0432	C-2	10			
5340-01-136-1855	C-1	12			
5365-00-543-3388	C-2	8			
5790-00-815-1295	BULK				
5811-01-162-2450	C-1	1			
5895-01-171-3472	C-1	2			
5895-01-171-3473	C-3	1			
5905-01-080-5538	C-3	4			
5935-01-078-4774	C-3	11			
6145-00-542-2773	BULK				
6145-00-681-7849	BULK				
6850-00-105-3084	BULK				
8040-00-078-9774	BULK				
8040-00-160-8489	BULK				

ALPHA NUMERIC INDEX

PART NUMBER	FSCM	ALPHA NUMERIC INDEX		PART NUMBER	FSCM	ALPHA NUMERIC INDEX	
		FIG. NO.	ITEM NO.			FIG. NO.	ITEM NO.
4002-0S	71286	C-2	9				
4002-9SW	71286	C-2	10				
40G26-1	71286	C-2	8				
C5114102-1	57958	C-1	1				
C5114107-1	57958	C-1	2				
C5114120-1	57958	C-1	3				
C5114129-1	57958	C-2	1				
C5114129-501	57958	C-2	2				
C5114129-502	57958	C-2	3				
C5114129-503	57958	C-2	6				
C5114130-1	57958	C-3	1				
C5114130-501	57958	C-3	3				
C5114131-1	57958	C-3	6				
C5114180-1	57958	C-1	13				
C5114188-1	57958	C-3	7				
C5114190-1	57958	C-2	4				
C5114212-1	57958	C-1	17				
C5114221-1	57958	C-1	16				
C5114235-1	57958	C-2	5				
LKA-632-2	46384	C-3	5				
M17/084-RG223	81349	BULK					
M17/128-RG400	81349	BULK					
M17/28-RG58	81349	BULK					
M23053/5-106-0	81349	BULK					
M39012/60-3002	81349	C-3	11				
MS15795-905	96906	C-1	15				
MS15795-907	96906	C-1	9				
MS15795-910	96906	C-1	6				
MS20470A3-3	96906	C-3	2				
MS20470A4-8	96906	C-2	7				
MS25281R4	96906	C-1	12				
MS35214-26	96906	C-1	14				
MS35214-4	96906	C-3	10				
MS35214-41	96906	C-1	7				
MS35214-72	96906	C-1	4				
MS35214-43	9606	C-1	10				
MS35338-96	96906	C-3	12				
MS35338-99	96906	C-1	8				
MS35338-101	96906	C-1	5				
MS35649-225	96906	C-3	8				
MS35649-286	96906	C-1	11				
NAS620C2	80205	C-3	9				
RNC60H15R0FS	81349	C-3	4				
SN60WRAP3	81349	BULK					

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I.

INTRODUCTION

D-1. SCOPE

This appendix lists expendable supplies and materials you will need to maintain the equipment. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS

- a. Column 1 - Item Number. This number is assigned to the entry in the listing and is referenced to the narrative instructions to identify the material (e.g., "Use cleaning compound (appendix, item 1)").
- b. Column 2 - Level. This column identifies the lowest level of maintenance that requires the listed item.
 - C - Operator/Crew
 - O - Organizational Maintenance
 - F - Direct Support Maintenance
 - H - General Support Maintenance
- c. Column 3 - National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.
- d. Column 4 - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.
- e. Column 5 - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

EXPENDABLE SUPPLIES AND MATERIALS LIST

(1)	(2)	(3)	(4)	(5)
ITEM NO.	LEVEL	NATIONAL STOCK NUMBER	DESCRIPTION	U/M
1	F	6850-00-105-3084	CLEANING COMPOUND, FREON TF (TRICHLOROTRIFLOURO- ETHANE)	OZ

APPENDIX E
ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I.
INTRODUCTION

E-1. SCOPE

This appendix includes complete instructions for making items authorized to be manufactured or fabricated at direct support maintenance.

E-2. MATERIALS

All bulk materials needed for manufacture of the items are listed by part number or specification number on the illustration.

Section II.
MANUFACTURED ITEMS ILLUSTRATIONS

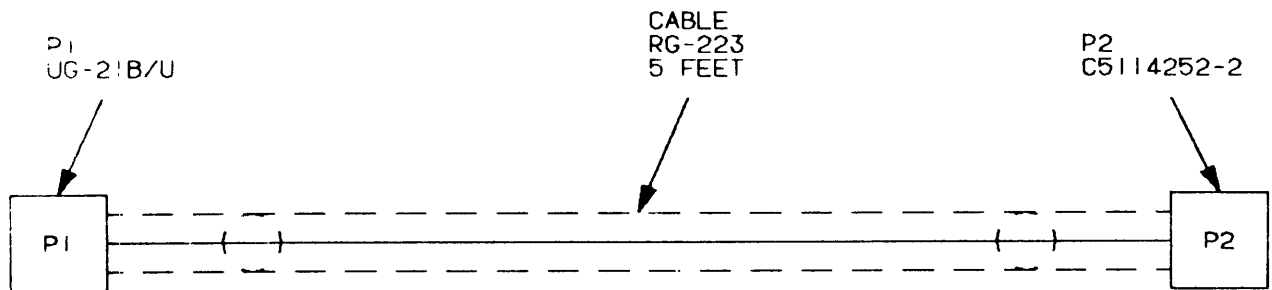


Figure E-1. Special Purpose Test Cable

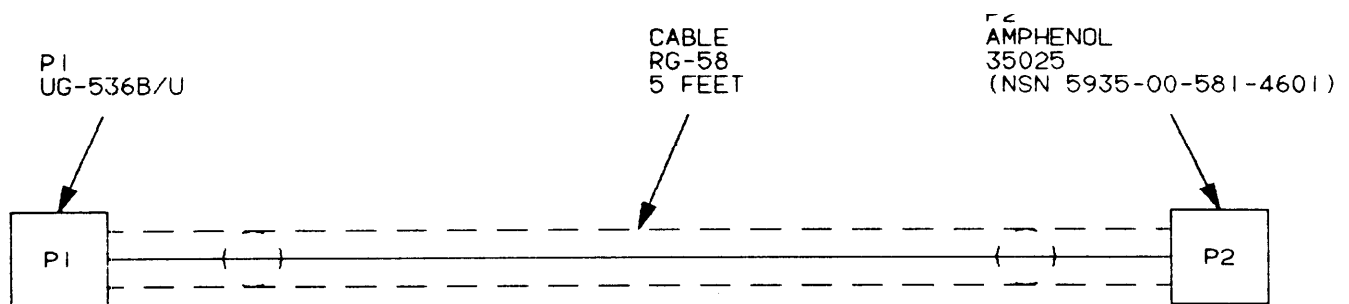


Figure E-2. RF Test Cable

GLOSSARY

Section I

ABBREVIATIONS

Following is a list of the non-standard abbreviations used in this manual.

BIT	Built-In-Test
FSCM	Federal Supply Code for Manufacturers
ID	Identification
MAC	Maintenance Allocation Chart
MHZ	Mega Hertz
MTOE	Modified Table of Organization and Equipment
RPSTL	Repair Parts and Special Tool List
RTN	Return
SMR	Source Maintenance Recoverability

Section II

DEFINITION OF UNUSUAL TERMS

DIPOLE - A double element antenna.

MONOPOLE - An antenna consisting of a single element.

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By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



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DATE

MARCH 1988

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IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT

PAGE NO	PARA GRAPH	FIGURE NO	TABLE NO
1-6	3h.		
3-4		3	

This paragraph is totally wrong. The switch settings for this radio are to be for VHF operation. All switch settings are presently set for UHF operation.

Recommend ROVR B switch is set to the ON position.

This illustration needs a side view also. Callouts must be added to existing illustration.

SAMPLE

TEAR ALONG DOTTED LINE

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Earl K. Anouse

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