TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
TRANSMITTING SET, RADAR DATA
AN/AKT-18B
(NSN 5841-01-070-4408)

This copy is a reprint which includes current pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY

2 JULY 1980

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT
Be careful when working on the 115-volt ac line connections or on circuits carrying dc power supply voltages.

WARNING

Extreme danger from the aircraft propellers exist when aircraft power is used to preflight the equipment. Use an auxiliary power unit (APU) to provide equipment power whenever possible.

ELECTROMAGNETIC RADIATION

When the data transmitting set is operated on the ground (during preflight, etc.), be sure all personal maintain a minimum distance of three feet from the antenna to prevent injuries from rf radiation.

DON'T TAKE CHANCES!
WARNING

All operations must conform to TB 385-4, Safety Precautions for Maintenance of Electrical/Electronic Equipment.

WARNING

When the data link control POWER switch is set to XMT, rf radiation through the antenna is present, If rf radiation clearance is not given, the preflight checkout procedure must be performed with the data link control POWER switch set to STBY. it should be noted that in STBY, only the encoder will be tested during the AIRBORNE BITE test.

WARNING

Rf radiation permission must be granted prior to performance of the DOWNLINK BITE test since rf radiation through the antenna will be present.

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 31 May 1983

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
TRANSMITTING SET, RADAR DATA AN/AKT-18B
(NSN 5841-01-070-4408)

TM 11-5841-287-12, 2 July 1980, is changed as follows:

1. New changed material is indicated by a vertical bar in the margin of the page.

2. Added or revised Illustrations arc indicated by a miniature pointing hand and a vertical bar adjacent to the illustration identification number.

3. Remove and insert pages indicated below:

Remove	*Insert*
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
1-7 and 1-8	1-7 and 1-8
1-9 and 1-10	1-9 and 1-10
3-3 and 3-4	3-3 and 3-4
A-1	A-1/(A-2 blank)
B-1 and B-2	B-1 and B-2

4. File this change sheet in front of the publication.

By Order of the Secretary of the Army

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DISTRIBUTION:

To be distributed in accordance with DA Form 12-36, Organizational maintenance requirements for AN/AKT-18.

TECHNICAL MANUAL

No 11-5841-287-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *2 July 1980*

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
TRANSMITTING SET, RADAR DATA
AN/AKT-1 8B
(NSN 5841-01-070-4408)

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 DRSEL-ME-MP, Fort Monmouth, New Jersey 07703

in either case, a reply will he furnished direct to you.

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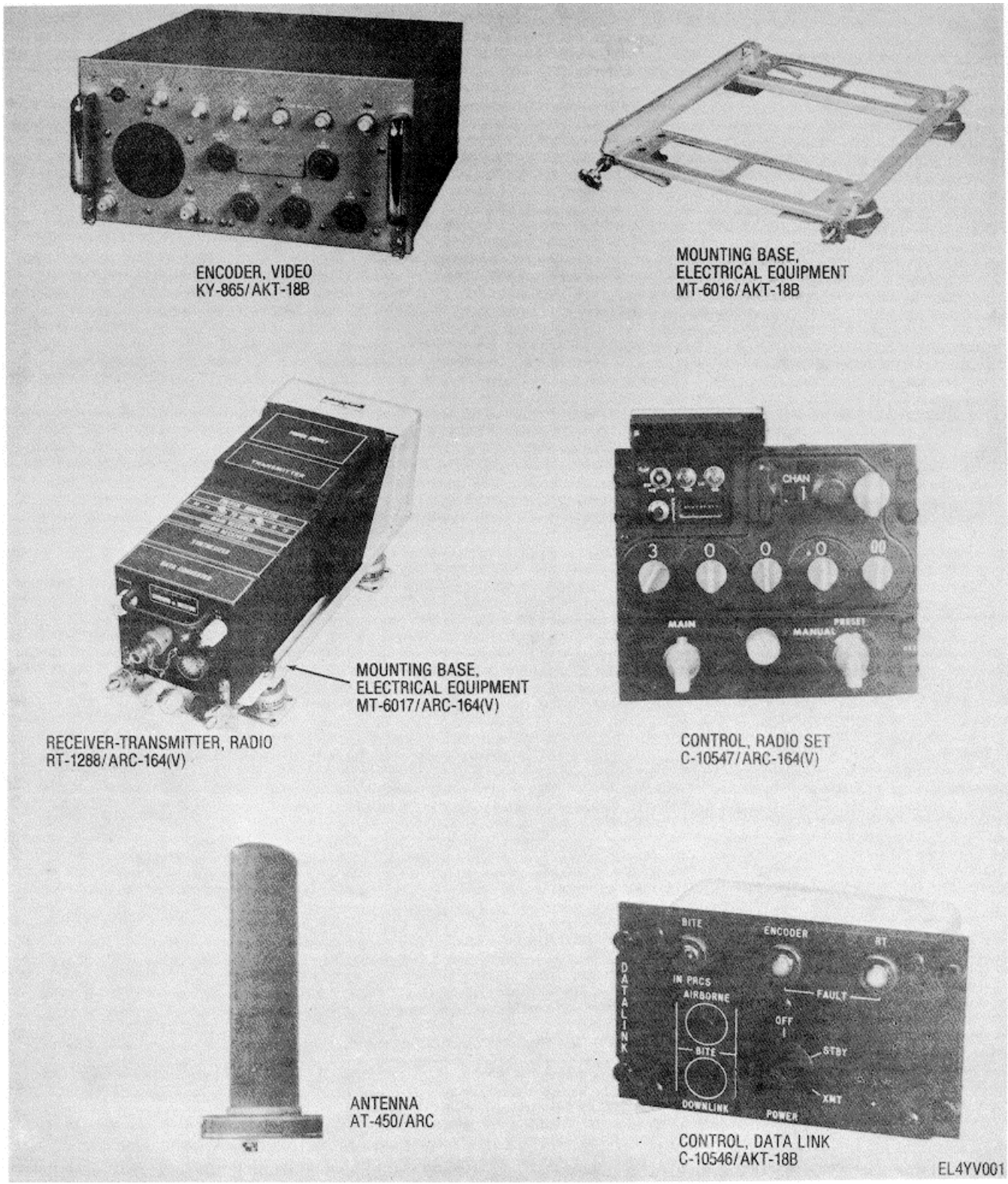

Figure 1-1. Transmitting Set, Radar Data AN/AKT-18B (data transmitting set).

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. Scope
This manual describes Transmitting Set, Radar Data AN/AKT-18B (fig 1-1), explains operation of the equipment, and provides operator and organizational maintenance instructions. It also describes basic functioning of the data transmitting set, operation under usual and unusual conditions, and cleaning and inspection. The appendix portion of this manual contains applicable technical manual references, basic Issue information, and additional maintenance information.

1-2. Consolidated Index of Army Publications and Blank Forms
Refer to the latest issue of DA Pam 310-1 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 TM 38-750, The Army Maintenance Management System (TAMMS).

b. Report of Packaging and Handling Deficiencies. Fill out and forward 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/ DLAR 4140.55/NAVMATINST 4355.73/AFR 400-54/ MCO 4430.3E.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and for Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPlNST 4610. 33B/AFR 75-18/MCO P4610.19C/DLAR 4500. 15.

1-4. Destruction of Army Materiel to Prevent Enemy Use
Destruction of Army electronic materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-5. Reporting Equipment Improvement Recommendations(EIR)
If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one ho can tell us what you don't like about our equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL--NE-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

1-6. Administrative Storage
Before storing the equipment, verify its operational status by performing the Organizational Preventive Maintenance Checks and Services, (chapter 3). If defects are noted in the equipment, make repairs or refer it to higher category maintenance in accordance with the Maintenance Allocation Chart (Appx D).

1-7. Hand Receipt
This manual has a companion document with a TM number followed "-HR" (stands for Hand Receipt). The TM 11-5841-287-10-HR consists of preprinted hand receipts (DA Form 2062) that list end Item related equipment (i.e. COEI, BII, and AAL) you must account for. As an aid to property accountability additional -HR manuals may be requisitioned from The Army Adjustant General Publications Center, Baltimore MD in accordance with the procedures in Chapter 3 AR 310-2, and DA Pam 310-10-2.

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1-8. Purpose and Use
Transmitting Set, Radar Data AN/AKT-18B (data transmitting set) is an airborne system which accumulates radar video data and navigational data, encodes the data into a serial digital bit stream, and transmits it to Receiving Set, Radar Data AN/TKQ-2B (data receiving set). Video and navigational information to be transmitted is derived from Radar Surveillance Set AN/APS-94F (radar set). The radar set and data transmitting and receiving sets are components of Radar Surveillance System AN/-UPD-7 (system). This system permits fixed target and moving target radar imagery from the airborne radar set to be recorded in real time by ground receiving sets for immediate use by field commanders. A typical installation of the data transmitting set is shown in figure 1-2.

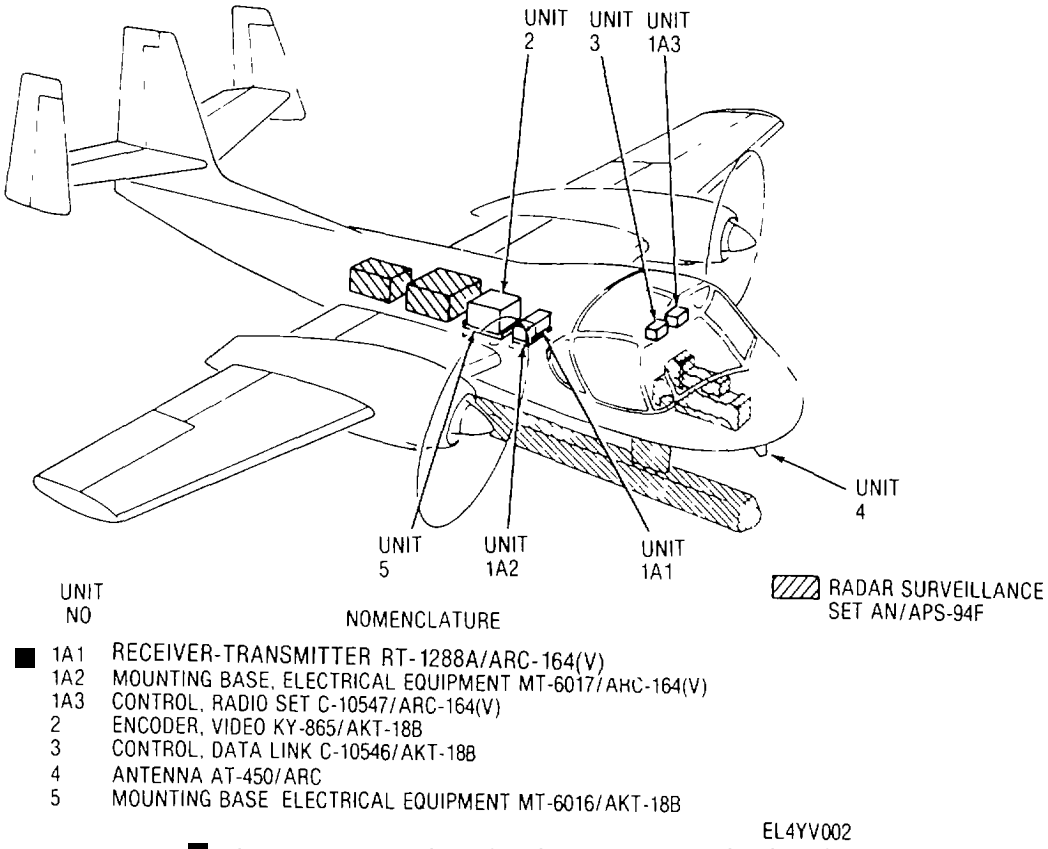

Figure 1-2. Location of major components in aircraft

1-9. Overall Description of System

The data transmitting set consists of seven major components (table 1-1 and fig 1-3) units 1A3 and 3 are mounted in the aircraft cockpit. Units 1A1, 1A2, 2, and 5 are mounted in the equipment bay in the aircraft fuselage. Unit 4 is mounted outside the aircraft. Aircraft cabling (not part of the data transmitting set) interconnects the various units. All signal inputs to the data transmitting set are supplied by the radar set. These signals include fixed target (FT) and moving target (MT) radar video, radar set mode information, and aircraft navigational data The encoder (unit 2) accumulates and formats the data for transmission. The message format is established automatically, depending on radar set operating conditions (mapping range, antenna selection, etc). The radar data to be transmitted is not affected by the control settings of the radar set's recorder. The encoded data is applied to the uhf receiver-transmitter, where it is converted to frequency shift keying (FSK) signals for transmission to ground units. The components of the data transmitting set are described in the following paragraphs.

Table 1-1. Common Names

Nomenclature	Common name
Transmitting Set, Radar Data AN/-AKT-18B	Data transmitting set
Radio Set, AN/ARC-164(V)16	Uhf radio set (unit 1)

Table 1-1. Common Names-Continued

Nomenclature	Common name
Receiver-Transmitter, Radio RT-1288A/ARC-164(V)	Uhf receiver-transmitter (unit 1A1)
Control, Radio Set C-10547/-ARC-164(V)	Uhf radio control (unit 1A3)
Mounting Base Electrical Equipment MT-6017/ARC-164(V)	Uhf radio mount (unit 1A2)
Encoder, Video KY-865/AKT-18B	Encoder (unit 2)
Control, Data Link C-10546/AKT-18B	Data link control (unit 3)
Mounting Base, Electrical Equipment MT-6016/AKT-18B	Encoder mount (unit 5)
Antenna AT-450/ARC	Uhf antenna (unit 4)

1-10. Description of Encoder

(fig 1-3 and 1-4)

a. The encoder is a fully automatic, microprocessor- based device used to convert (encode) radar digital and analog input signals into a serial digital data stream for transmission to the data receiving set. MT and FT VIDEO, GATED CLOCK, RANGE and RANGE DELAY, and ANTENNA GATE signals are input to the encoder from the radar set. Another group of signals (1) ADAS PRINT COMMAND; (2) ADAS DATA, (3) CLOCK, (4) DATA MODE, (5) GROUND SPEED, and (6) DRIFT ANGLE signals are inputs to the encoder from the recorder-processor-viewer. All of these signals, in addition to the data link control signals, are processed

within the encoder by means of a microprocessor with Its associated circuits. The serial output data of the encoder serves as the drive source for frequency shift keying of the uhf receiver-transmitter. The encoder also contains built- in-test-equipment (BITE) circuits which facilitate operator/crew and organizational maintenance.

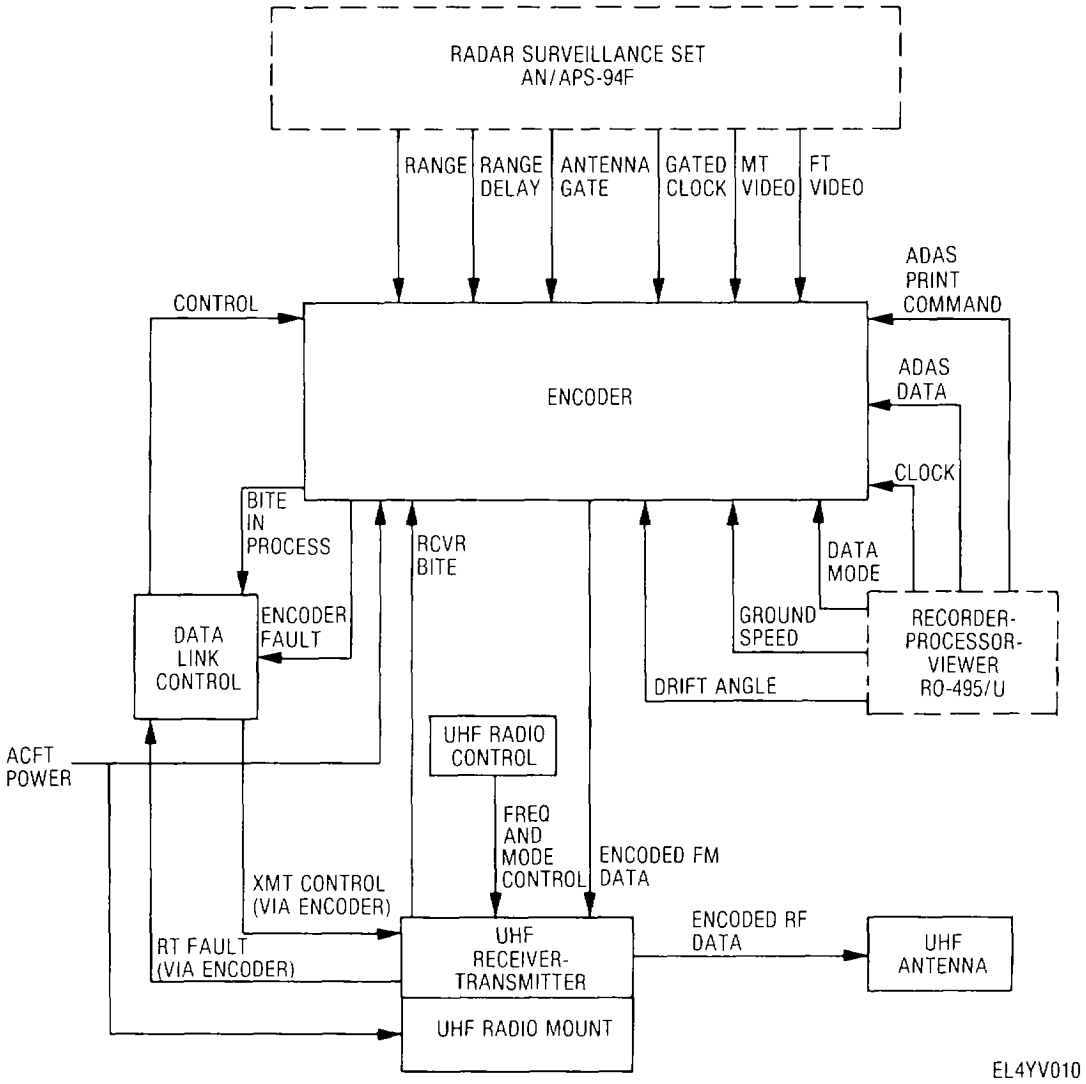

Figure 1-3. Data transmitting set block diagram.

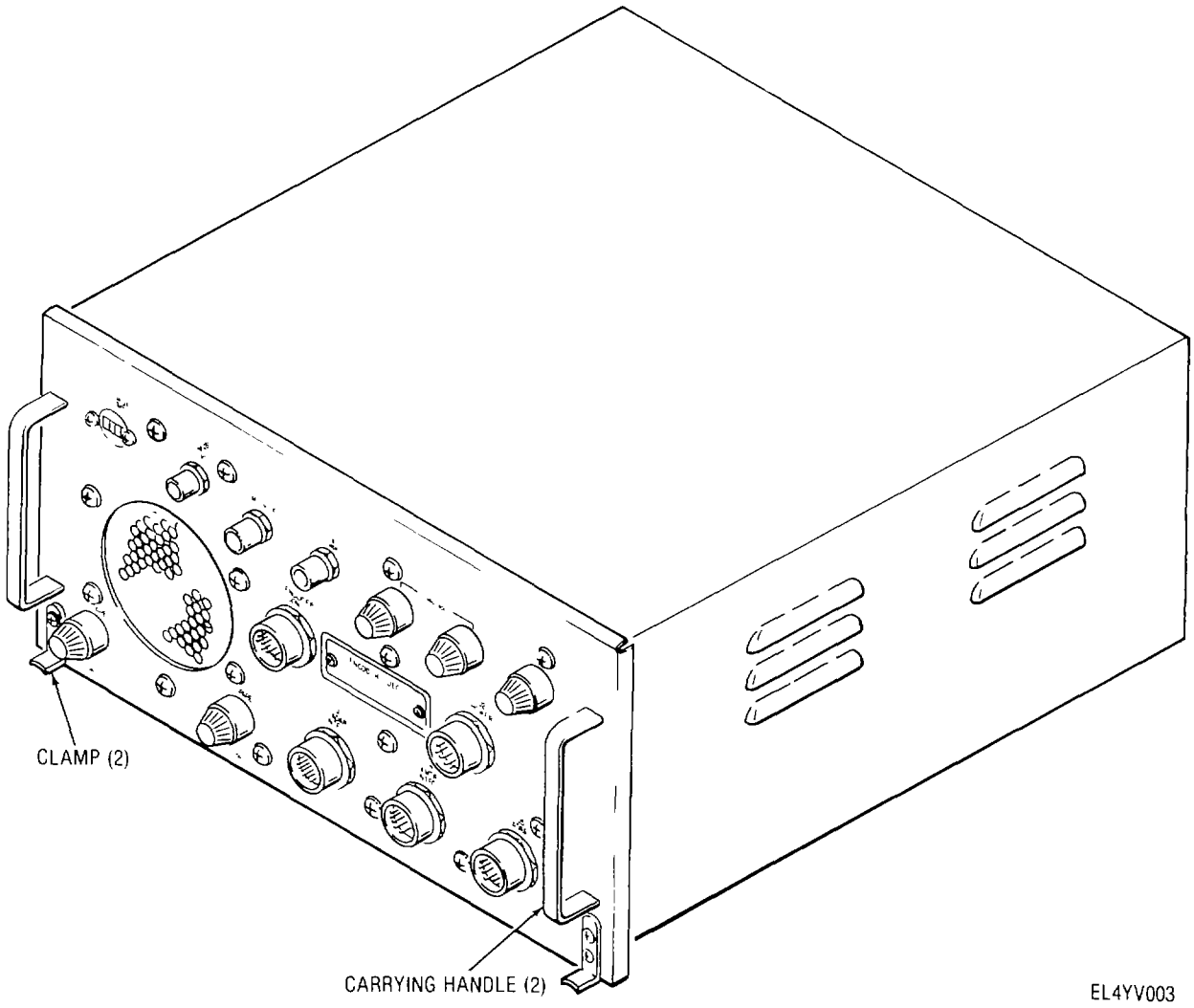

Figure 1-4. Encoder, Video KY-865/AKT-18B (encoder).

b. The encoder is installed on top of encoder mount. The encoder is secured to the encoder mount with self-locking retainers over two clamps which project from the lower corners of the encoder front panel. Cool, filtered air enters through the encoder front panel and is exhausted through louvered openings m the sides of the dust cover. Operating electrical connections are made through front-panel multiple-pin and coaxial connectors. The front panel of the encoder also contains 115 V ac and 28 V dc fuses, an elapsed-time meter, and carrying handles.

1-11. Description of Encoder Mount
(fig 1-5)

The encoder mount consists of a metal tray and four shock Isolators. Two mount self-locking retainers secure the encoder to the mount (para 1-9 and 1-10*b*).

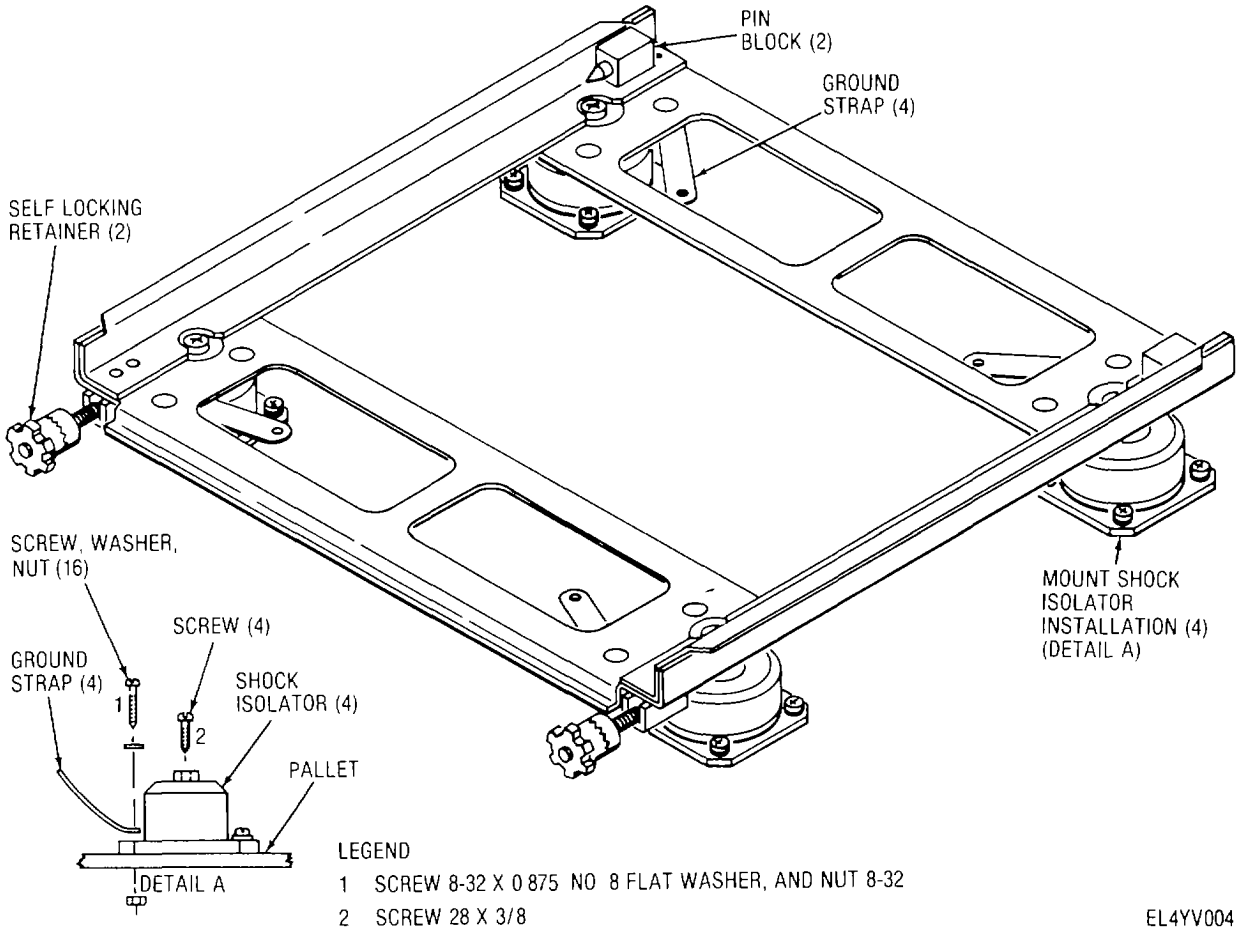

Figure 1-5. Mounting Base, Electrical Equipment MT-6016/AKT-18B (encoder mount)

1-12. Description of Data Link Control
(fig 1-6)

The data link control is mounted in the console area of the aircraft cockpit. The data link control contains controls necessary to check and operate the AN/AKT-18B equipment. Fault indicators provide detected equipment malfunction indications during both normal and BITE operation. Electrical connections to the data link control are made through a connector located at the rear of the unit.

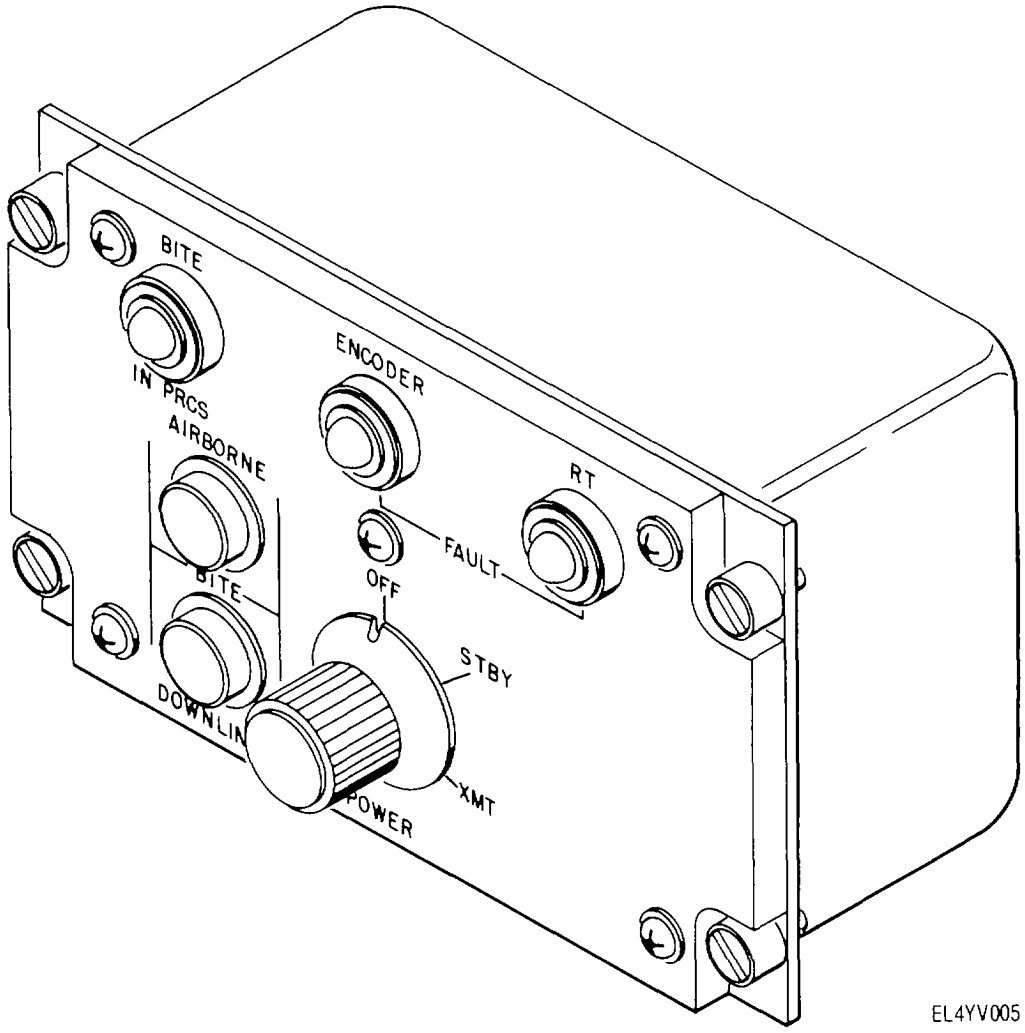

Figure 1-6. Control, Data Link C-10546/AKT-18B (data link control).

1-13. Description of Uhf Radio Set

The uhf radio set is capable of transmitting and receiving FSK modulated data on any of 7,000 of 25-kHz spaced channels in the 225.000 MHz to 399.975 MHz range. The uhf radio set comprises the uhf receiver-transmitter, uhf radio control; and uhf radio mount. The transmitter portion of the uhf receiver-transmitter transmits encoded digital data to the ground-based data receiving set. The receiver section of the uhf receiver-transmitter provides the encoder with a demodulated sample of the transmitted signal. This enables continuous self-checking of transmitter data synchronism during transmitting periods. These units are described in the following paragraphs.

a. Uhf Receiver-Transmitter (fig 1-7). The uhf receiver-transmitter is installed on top of and secured to uhf radio mount. Electrical connections are made through connectors located on the front panels of both the uhf receiver-transmitter and uhf radio mount. A carrying handle and primary input power fuses (115 V ac, 400 Hz and 28 V dc) are also located on the front panel of the uhf receiver-transmitter.

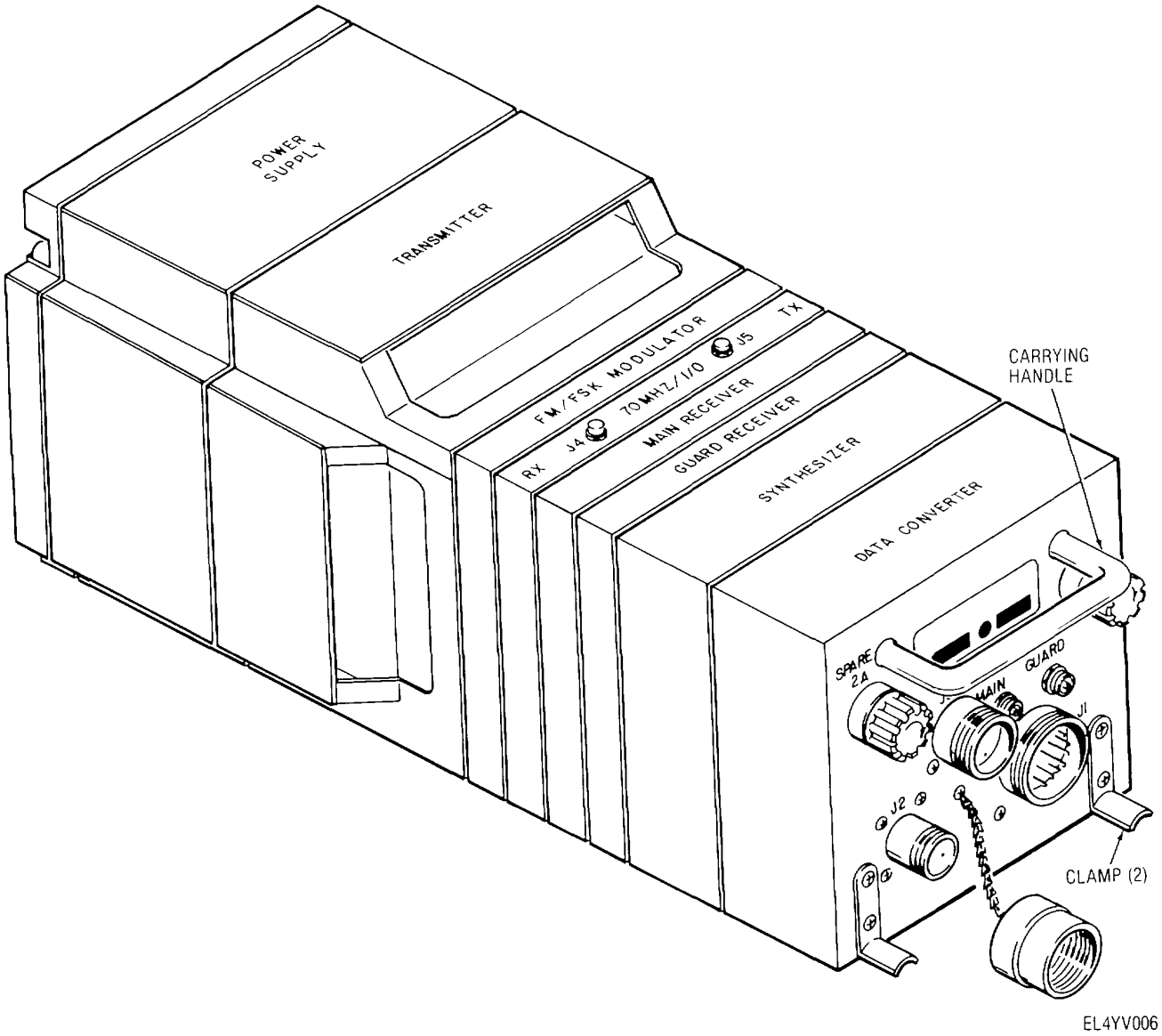

Figure 1-7. Receiver-Transmitter, Radio RT-1288A/ARC-164(V) (uhf receiver-transmitter)

b. Uhf Radio Mount (fig 1-8). The uhf radio mount is installed in the aircraft on four shock isolators. The functions of the mounting base are:

(1) Support the equipment.

(2) Provide primary power interface through a connector and two fuses.

(3) Provide cooling air through a rear-mounted fan. The connector and fuses are located on the mounting base front panel.

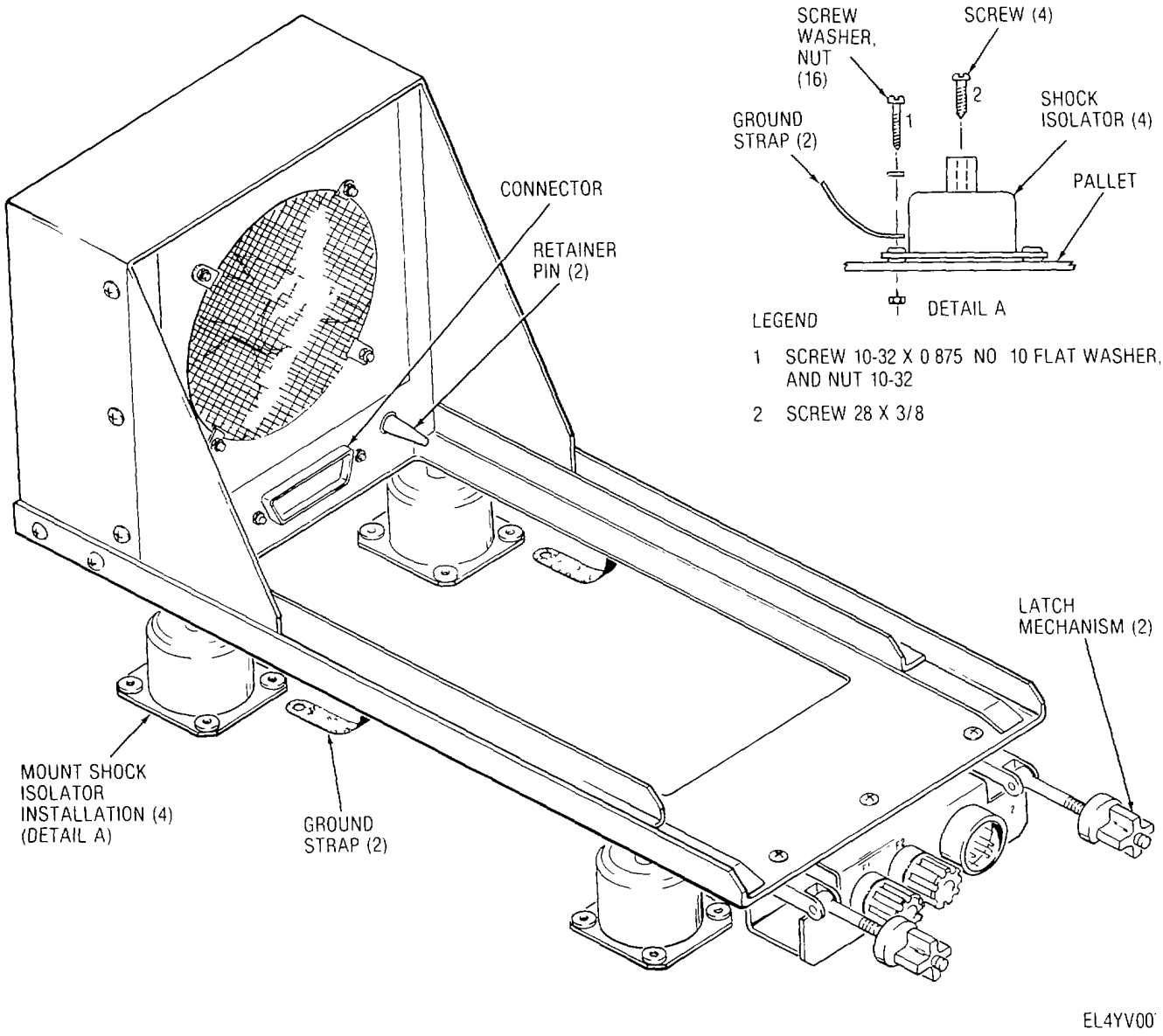

Figure 1-8. Mounting Base, Electrical Equipment MT-6017/ARC-164(V) (uhf radio mount)

c. Uhf Radio Control (fig 1-9). The uhf radio control is mounted in the console area of the aircraft cockpit. The principal functions of the uhf radio control are channel (frequency) selection and mode selection. Electrical connections are made through a connector located at the rear of the unit.

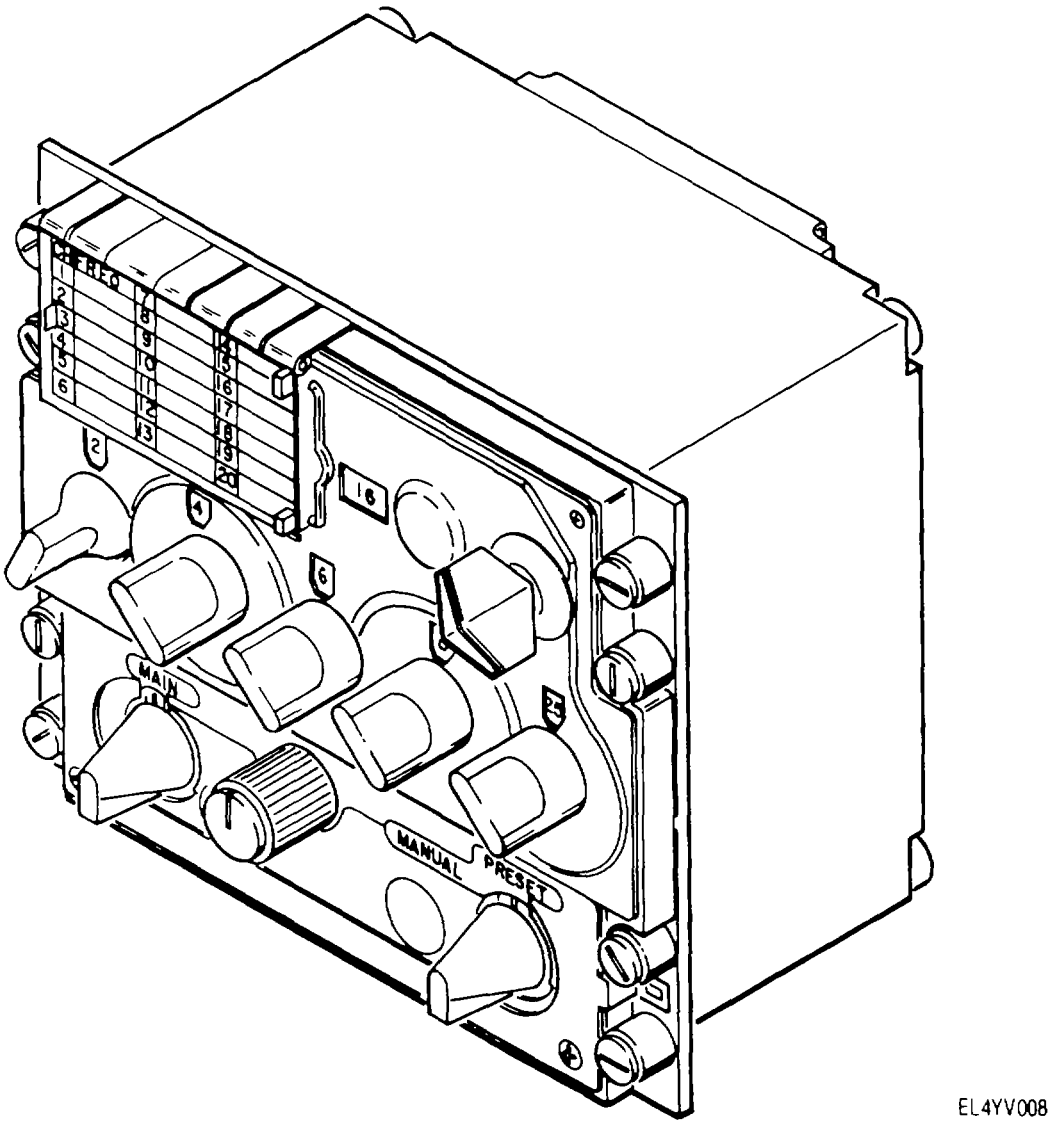

Figure 1-9. Control. Radio Set C-10547/ARC-164(V) (uhf radio control).

1-14. Description of Uhf Antenna
(fig 1-10)

The uhf antenna is flush-mounted on the underside of the aircraft fuselage, just aft of the nose it is an "omnidirectional" one-quarter wavelength blade-type antenna and is used to radiate encoded radar data from the uhf receiver-transmitter to the ground station data receiving set.

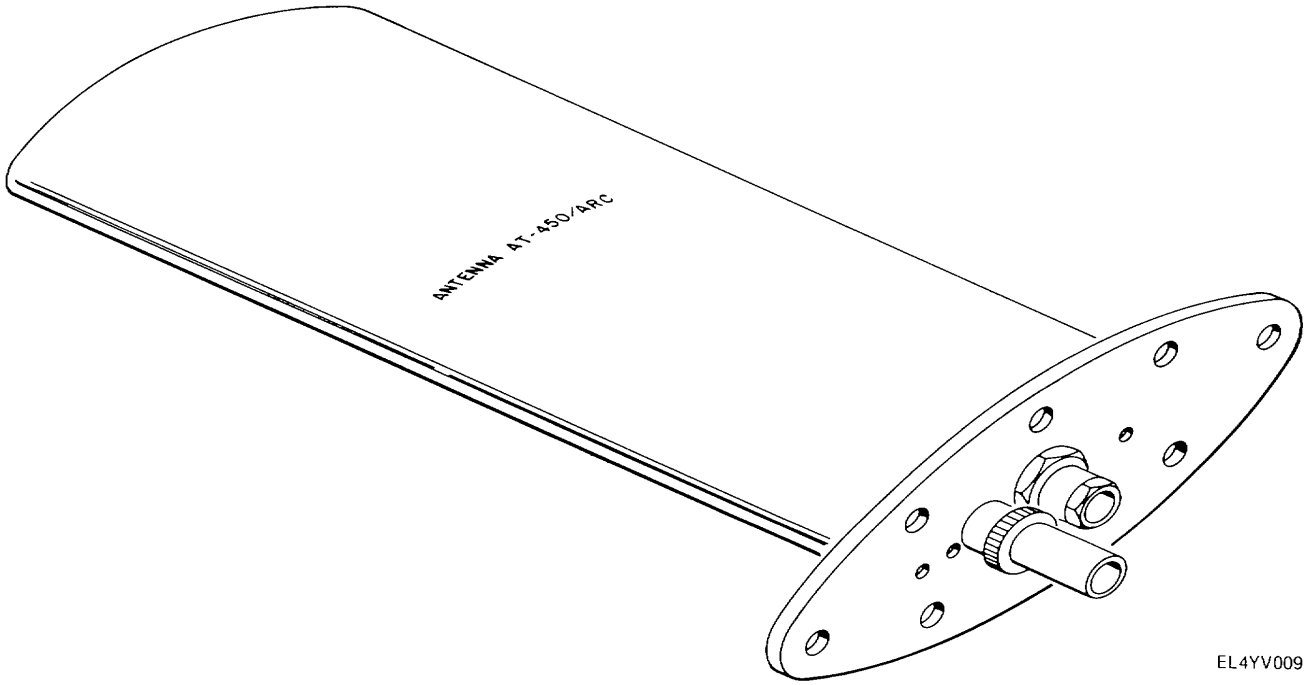

Figure 1-10. Antenna AT-405/ARC (uhf antenna).

1-15. Tabulated Data

Overall System Performance

Frequency range	225.000 to 399.975 MHz
Channel selection	7,000 channels, selectable in 25-kHz increments
Preset channels	20 (selectable)
Operating mode	FM/FSK data
RF power output	30 watts/100 watts (the 100-watt output will be available for the data transmitting set at a later date)
Altitude	
Operating	20,000 feet (6 km)
Nonoperating	40,000 feet (12 km)
Bit error rate	10^{-3}
Modulation type	Frequency shift keying (FSK)
Output bite rate	41,667 bits per second
Frame time	394 to 466 milliseconds
Word length	11 bits

Weight and dimensions

	Inches (millimeters)			*Weight*
Common name	*Height*	*Depth*	*Width*	*Pounds (kilograms)*
Uhf radio set (unit 1)				
Uhf receiver-transmitter (unit 1A1)	5.25 (133)	14.25 (362)	6.00 (152)	24.00 (10.9)
Uhf radio control (unit 1A3)	5.00 (127)	5.00 (127)	5.75 (146)	43.40 (2.0)
Uhf radio mount (unit 1A2)	7.25 (184)	17.00 (432)	6.75 (171)	4.50 (2.0)
Encoder (unit 2)	7.50 (191)	15.50 (394)	15.30 (389)	35.00 (15.9)
Data link control (unit 3)	3.25 (83)	4.00 (102)	5.75 (146)	1.40 (0.64)
Encoder mount (unit 5)	2.75 (70)	18.75 (476)	16.25 (413)	2.50 (1.1)
Uhf antenna (unit 4)	10.00 (254)	2.00 (51)	5.00 (127)	0.75 (0.34)

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. OPERATOR'S CONTROLS AND INSTRUMENTS

2-1. Damage From Improper Settings

Observe the following warnings and cautions when operating the data transmitting set.

WARNING

When the data transmitting set and radar set are operated on the ground (during preflight, etc), be sure all personnel maintain a minimum distance of three feet from the antenna to prevent injuries from rf radiation.

CAUTION

Illumination of either the ENCODER FAULT or RT FAULT indicator during normal operation indicates a possible power supply malfunction. If either the ENCODER FAULT or RT FAULT indicator on the data link control illuminates during normal operation, attempt to correct the fault by cycling the POWER switch between STBY and OFF several times, allowing 30-seconds between transitions. If a fault indication still remains, refer to paragraph 2-9 for additional instructions.

2-2. Operator's Controls and Indicators

All controls and indicators required for operation of the data transmitting set are located in the data link control and the uhf radio control. The controls and indicators of the data link control are shown in figure 2-1 and described in table 2-1. The controls and indicators of the uhf radio control are shown in figure 2-2 and described in table 2-2.

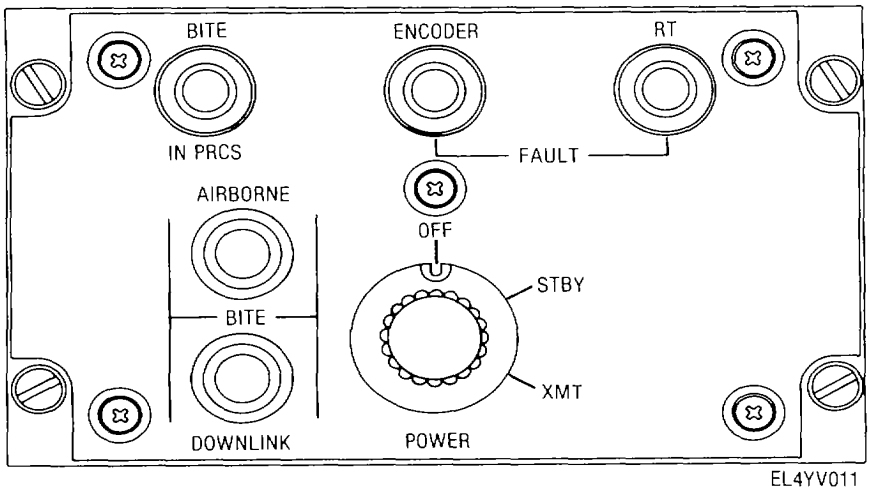

Figure 2-1. Data link control and indicators.

Table 2-1 Data Link Control Controls and Indicators

Control or indicator	Function
POWER switch	In OFF position, deenergizes data transmitting set In STBY position, energizes uhf radio set and encoder (unit 2) In XMT position, energizes transmitter in uhf radio set
AIRBORNE BITE switch	When pressed, initiates data Link control lamp test and AIRBORNE BITE test
DOWNLINK BITE test	When pressed, initiates data link control lamp test and DOWNLINK Bite test
BITE IN PR green CS indicator	When on, indicates AIRBORNE BITE or DOWNLINK test in process BITE
ENCODER FAULT indicator (yellow)	When on, indicates encoder (unit 2) or power supply malfunction
RT FAULT indicator (yellow)	When on, indicates either a data synchronization or a low rf power malfunction in the uhf receiver transmitter

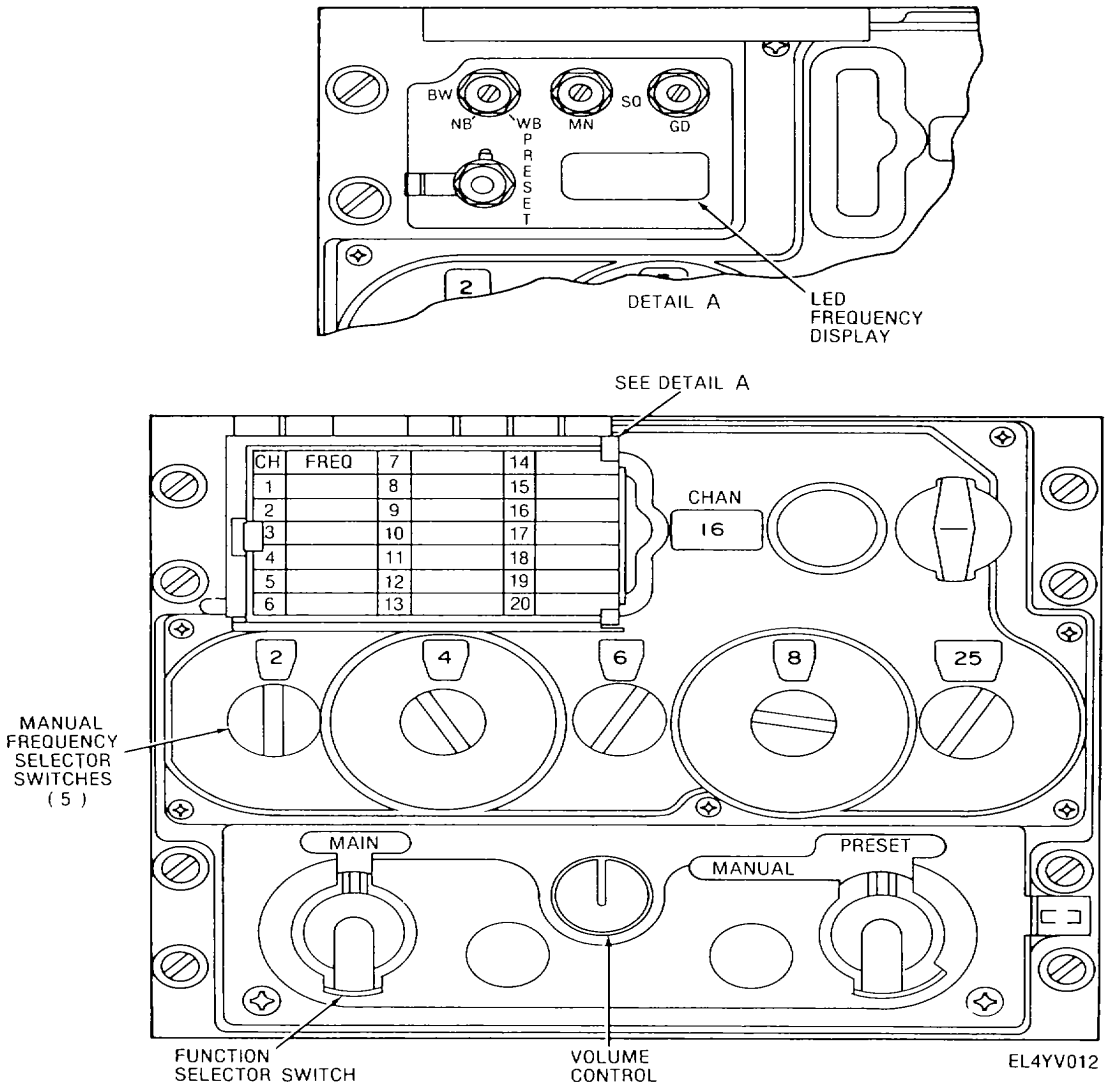

Figure 2-2. Uhf radio control controls and indicator.

Table 2-2 Uhf Radio Control Controls and Indicators

Control or indicator	Function
Function selector switch	Selects operating mode of uhf radio set Limited to MAIN position by covering bezel Other positions not functional
MANUAL/PRESET switch	in MANUAL position enables channel frequency selection by means of manual frequency selector switches in PRESET position, enables channel frequency selection by means of preset channel selector switches.
CHAN selector switch	Selects preselected channel frequency. Can be set to any one of 20 preselected frequencies. Selected channel number is displayed in window
Manual frequency selector switches:	

Table 2-2 Uhf Radio Control Controls and Indicators-Continued

Table 2-2 Uhf Radio Control Controls and Indicators-Continued

Control or indicator	Function
Hundreds switch	selects operating frequency in 100-MHz steps
Ten switch	Selects operating frequency in 10-MHz steps
Units switch	Selects operating frequency in 1-MHz steps
Tenths switch	Selects operating frequency in 0.1-MHz steps
Hundredths/thousandths switch	Selects operating frequency in 0.025 MHz steps
BW (NB/WB) switch	Used to select wideband or narrow-band selectivity of main receiver

Table 2-2 Uhf Radio Control Controls and Indicators-Continued

Control or indicator	Function
	(Set to WB at all times)
SQ-MN switch	Not operable (NOTE Squelch adjustment is performed using the SQUELCH-MAIN control on the uhf receiver-transmitter front panel)
SQ-GD switch	Not functional
PRESET switch	Stores selected frequency in selected preset channel
Indicator lamp display (red)	LED display of preset channel frequency
Volume control	Not functional

Section II. OPERATION UNDER USUAL CONDITIONS

2-3. Preliminary Starting Procedure

Before operation, set the data link control controls and uhf radio control controls as shown in table 2-3.

Table 2-3 Preliminary Control Settings

Component	Control	Setting
Data link control	POWER	OFF
Uhf radio control	MANUAL/PRESET	MANUAL
	Preset channel selector SWITCH	Not operative
	Manual frequency selector switches	Set to assigned frequency

2-4. Initial Checks and Adjustments

WARNING

Extreme danger from the aircraft propellers exists when aircraft power is used to preflight the equipment. Use an auxiliary power unit (APU) to provide equipment power whenever possible.

a. Visual Inspection.

(1) Inspect equipment for cleanliness. Clean as necessary with a clean cloth dampened with denatured alcohol or distilled water.

(2) Check all components for loose cable connectors. (Refer to paragraph 3-10 for access hatch door opening and closing procedures.)

(3) Check to see that applicable aircraft circuit breakers are on (pushed in).

(4) Check to see that mechanical action of each control listed in tables 2-1 and 2-2 is normal.

b. Equipment Starting

(1) Apply auxiliary power to aircraft and turn on inverter per applicable aircraft technical manual.

(2) Set data link control POWER switch to STBY.

c. Preflight Checkout Procedure.

(1) Set uhf radio control manual frequency selector switches to assigned frequency.

WARNING

When the data link control POWER switch is set to XMT, rf radiation through the antenna is present. If rf radiation clearance is not given, the Preflight checkout procedure must be performed with the data link control POWER switch set to STBY. It should be noted that in STBY, only the encoder will be tested during the AIRBORNE BITE test.

(2) After warmup of 3 minutes, set data link control POWER switch to XMT.

(3) On data link control, depress the AIRBORNE BITE switch. Observe that the BITE IN PRCS, ENCODER FAULT and RT FAULT indicators come on for 3 seconds. This indicates successful lamp test

(4) After the indicator lamp test sequence is completed, observe that the ENCODER FAULT and RT FAULT indicators go off and the BITE IN PRCS Indicator remains on for an additional 3 seconds, after which it goes off. This indicates that the AIRBORNE BITE test was successful. If reillumination of the ENCODER FAULT and/or RT FAULT indicator occurs, the AIRBORNE BITE test was not successful.

NOTE

Following initial observation of an ENCODER FAULT or RT FAULT indication, recycle the data link control POWER switch several times between XMT and OFF in an attempt to clear the fault indication. Wait approximately 30 seconds between switch transitions

NOTE

Disregard steps (5) and (6) when performing the AIRBORNE BITE test with the data link control POWER switch set to STBY.

(5) Set the uhf radio control MANUAL/PRESET switch to PRESET.

(6) Repeat steps (3) and (4) for each preset uhf receiver-transmitter channel, using the CHAN selector switch on the uhf radio control for channel selection.

NOTE

If the preset channel frequencies have not been selected or if it is desired to change any one or all of the frequencies, follow the procedure given in steps (7) through (11) below. Otherwise, proceed to step (12).

(7) Set manual frequency selector switches to

desired frequency.

(8) Set CHAN selector switch to desired channel number.

(9) Press PRESET switch (located under channel frequency chart). Release switch. This action stores selected channel frequency in memory.

(10) Record selected channel frequency on channel frequency chart.

(11) Repeat steps (7) through (10) for each channel frequency to be preset.

(12) If data transmission does not begin immediately, set data link control POWER switch to OFF.

d. Inflight Checkout Procedure. The inflight checkout procedure for the data transmitting set consists of performing the DOWNLINK BITE test. During the DOWNLINK BITE test, a fixed test pattern is continuously transmitted to the ground station to enable evaluation of system performance. Prior to performing the infight checkout procedure, accomplish the preliminary control settings specified in table 2-3.

WARNING

Rf radiation permission must be granted prior to performance of the DOWNLINK BITE test since rf radiation through the antenna will be present

(1) Instruct ground station to place equipment into the receive mode with full mapping capability.

(2) Set data link control POWER switch to STBY.

(3) Set uhf radio control manual frequency selector switches to assigned frequency or select assigned channel using CHAN selector switch.

(4) After warmup of 3 minutes, set data link control POWER switch to XMT.

(5) On data link control, depress the DOWNLINK BITE switch. Observe that the BITE IN PRCS, ENCODER FAULT, and RF FAULT indicators come on for 3 seconds. This indicates successful lamp test (6). After the indicator lamp test sequence is completed, observe that the ENCODER FAULT and RF FAULT indicators go off and the BITE IN PRCS indicator remains on. This indicates transmission of the DOWNLINK BITE test pattern is in progress. After approximately 5 minutes, verify with the ground station that the recorded proper test pattern is reproduced. This indicates successful completion of the DOWNLINK BITE test. To return to normal operation, depress the DOWNLINK BITE switch. At this tune the BITE IN PRCS indicator should go off. This indicates termination of the DOWNLINK BITE test.

NOTE

Following initial observation of an ENCODER FAULT or RT FAULT indication, recycle the data link control POWER switch several times between XMT and OFF in an attempt to clear the fault indication. Wait approximately 30 seconds between switch transitions

2-5. Operating Procedure

a. Be sure that the radar set is on and operating.

b. Set data link control POWER switch to STBY. Allow 3 minutes for warm-up

c. Set uhf radio control manual frequency selector switches or CHAN selector switch to the desired transmitting frequency. The uhf radio control MANUAL/ PRESET switch must be set to MANUAL if the manual frequency selector switches are used to set the frequency, or to PRESET if the CHAN selector switch is used to set the frequency.

d. Set data link control POWER switch to XMT.

2-6. Standby Operation

To place the data transmitting set in standby mode, set the data link control POWER switch to STBY.

2-7. Shutdown Procedure Set

Set data link control POWER switch to OFF.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

2-8. Operation Under Extreme Environmental Conditions

Observe the precautions below when operating the data transmitting set under extreme environmental conditions.

a. Extreme Heat and Cold. Do not operate the data transmitting set at temperatures below -40 degrees F (-40 degrees C) or above 131 degrees F (55 degrees C)

b. Salt Air and Sea Spray. Following prolonged exposure to salt air and/or sea spray, the data transmitting set should be thoroughly cleaned with a soft, damp, lint-free cloth

c. Sandstorms or Dust Storms. Following exposure to sandstorms or dust storms, the data transmitting set should be thoroughly cleaned. Remove loose dust or sand with a soft bristle brush or vacuum. Any material remaining should be removed with a soft, damp, lint-free cloth.

2-9. Operation Under Emergency Conditions

NOTE

Following initial observation of an ENCODER FAULT or RT FAULT indication, recycle the data link control POWER switch several tunes between XMT and OFF in an attempt to clear the fault indication. Wait approximately 30 seconds between switch transitions.

a. Operation With ENCODER FAULT Indication. Illumination of the ENCODER FAULT indicator on the data link control during normal operation indicates the presence of a power supply or BITE related malfunction in the encoder. Operation of the data transmitting set may be continued until such time as the transmitted data becomes unintelligible or nonexistent.

b. Operation With RT FAULT Indication. Illumination of the RT FAULT indicator on the data link control during normal operation Indicates the presence of a low rf power fault or a synchronization lock malfunction in the uhf receiver-transmitter. Operation of the data transmitting set may be continued until such time as the transmitted data becomes unintelligible or nonexistent.

2-10. Operation Through Electronic Counter-measures

a. Change the uhf receiver-transmitter frequency on the uhf radio control to a prearranged alternate channel.

b. Change aircraft altitude.

CHAPTER 3
MAINTENANCE

Section I. OPERATOR/CREW MAINTENANCE INSTRUCTIONS

3-1. Tools and Equipment Required for Operator/Crew Maintenance

Repair parts, special tools, special test equipment, and other special support equipment accessories issued with or prescribed for use by the operator of the data transmitting set are listed in the Components of End Item List, Appendix B.

3-2. Operator/Crew Lubrication Instructions

No lubrication of the equipment is required.

3-3. Operator/Crew Preventive Maintenance Checks and Services (PMCS)

a. General. Observe the following general precautions when performing the PMCS procedures.

(1) *Before you operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

(2) *While you operate.* Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PMCS.

(3) *After you operate.* Be sure to perform your after (A) PMCS

(4) *If your equipment fails to operate.* Report any deficiencies using the appropriate forms(TM 38-750)

b. PMCS Procedures. Refer to table 3-1 for operator/crew PMCS procedures.

Table 3-1 Operational Crew Preventive Maintenance Checks and Services

B-Before A--After M-Monthly
D-During W-Weekly C-Combat operability check

Item No	Interval B	D	A	W	M	C	Item to be inspected	Procedures	Equipment will be reported not ready (Red) If
1	•						All control knobs	Check all knobs for looseness or binding. Tighten knobs as required	Knobs are missing or controls are inoperative
2	•						All indicator lights	Check all indicators for looseness and broken, damaged, or missing parts.	Indicators are loose or broken or missing parts.
3	•						Data transmitting set.	Perform preflight (BITE) checks (para 2-4c).	ENCODER FAULT or R FAULT indicator remains on
4	•						data transmitting set	Perform inflight (BITE) checks (para 2-4d).	ENCODER FAULT or RT FAULT indicator remains on

3-4. Operator/Crew Troubleshooting

No troubleshooting is required by the operator/crew .

3-5. Operator/Crew Maintenance

No maintenance functions are allocated to this maintenance category

Section II. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

3-6. Tools, Equipment, and Materials Required for Organizational Maintenance

Tools, equipment, and materials required for organizational maintenance are listed below.

a. Tools. Tool Kit, Electronic Equipment TK-101/G.

b. Materials. Refer to Appendix E for the materials used at the organizational maintenance category.

c. Test Equipment.

(1) Auxiliary power unit (APU) capable of producing 28 volts dc at 200 amperes.(Refer to aircraft electronic configuration technical manual).

(2) Multimeter AN/USM-223

3-7. Organizational Lubrication Instructions

No lubrication of the equipment is required.

3-8. Organizational Repainting and Refinishing Instructions

No repainting or refinishing instructions are required at the organizational level.

3-9. Organizational Preventive Maintenance Checks and Services (PMCS)

a. General

(1) *If your equipment fails to operate.* Report any deficiencies using the appropriate forms(TM 38-750).

(2) *Special PMCS intervals.* in addition to the flying-hour intervals specified in the PMCS (table 3-2), accomplish the 100-hour checks under the following conditions

(*a*) When the equipment is initially installed.

(*b*) When the equipment is reinstalled.

(3) *Standby Condition.* Perform the 25-hour checks and operator/crew PMCS at least once a week if equipment is maintained in a standby condition.

b PMCS Procedures. Refer to table 3-2 for organizational PMCS procedures.

NOTE

Refer to paragraph 3-10 for access hatch door opening and closing procedures.

Table 3-2 Organizational Preventive Maintenance Checks and Services

Item no	Interval (flying hours)	Item to be Inspected	Procedures
1	25	Interconnecting cables	Check all interconnecting cables for cracks or breaks.
2	25	Connectors	Check all connectors for tightness.
3	25	Equipment mounts	Check for loose or missing nuts and bolts. Tighten or replace as required.
4	50	Exterior surfaces	Remove all dirt, rust, and corrosion from components.
5	100	Data transmitting set	Perform preflight and inflght check (para 2-4).

3-10. Access Hatch Door Opening and Closing Procedures

(fig. 3-1)

CAUTION

When opening a hatch door, hold on to the door until it has reached its travel limits to prevent possible door damage.

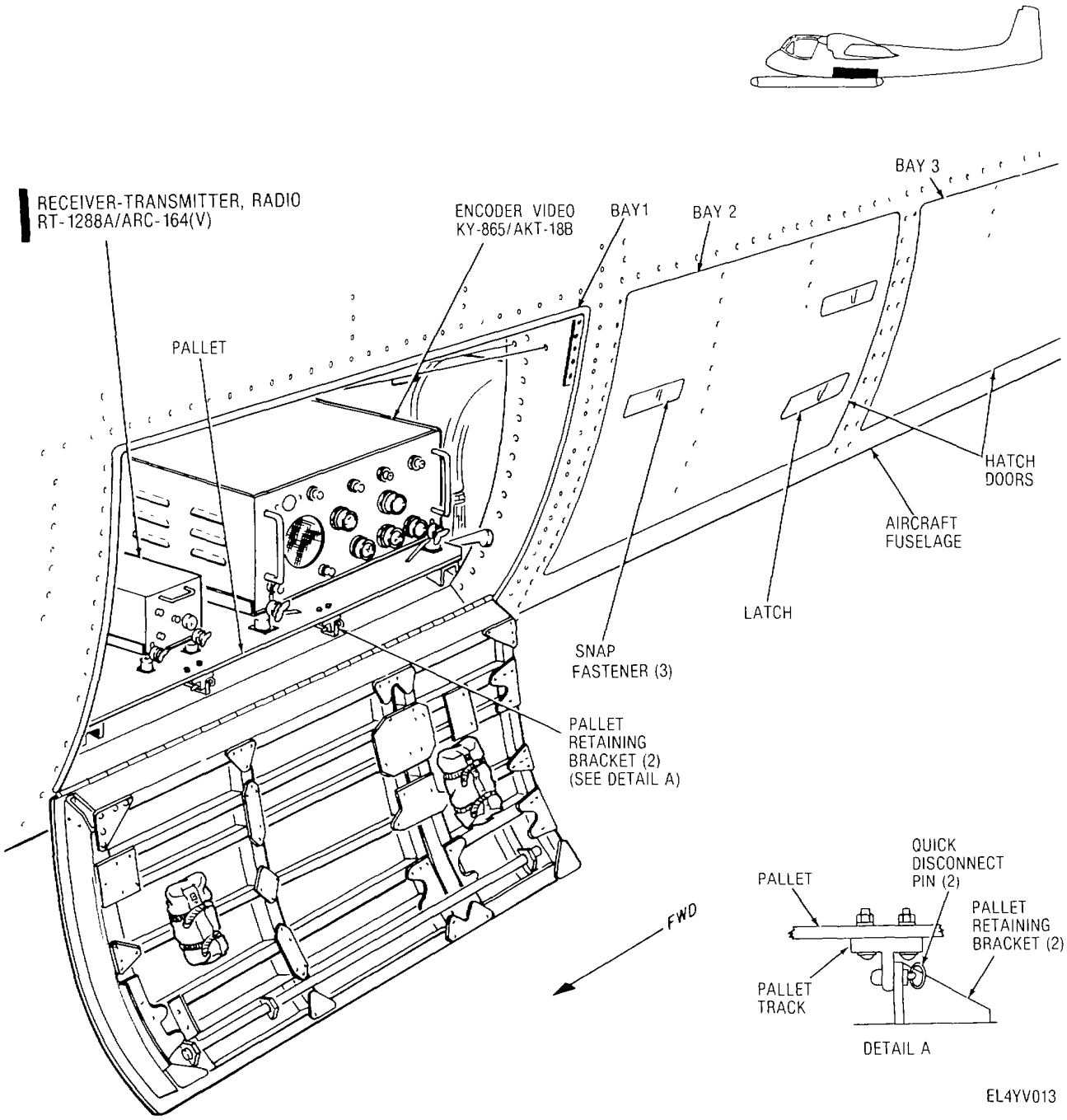

Figure 3-1. Equipment access hatches

a. Opening Access Hatch Doors.

(1) Press each of the three snap fasteners.

(2) Open the hatch door by grasping the top hatch door latch and pulling it forward.

(3) Allow the hatch door to swing down.

b. Closing Access Hatch Doors

CAUTION

Be sure that the access hatch doors fit flush with the aircraft fuselage to prevent accidental opening during flight. Each latch and snap fastener must fit flush with the doors.

(1) Close the access hatch door.

(2) While holding the access hatch door closed, push each of the latches closed.

(3) Engage each latch with Its snap fastener.

3-11. Organizational Troubleshooting Instructions
Table 3-3 contains organizational troubleshooting instructions for the data transmitting set To use the table, per- form the initial checks and adjustments (para 2-4) until an improper result or Indication is obtained Then, locate the appropriate malfunction in table 3-3 and perform the associated tests and corrective actions When the malfunction has been corrected, repeat the initial checks and adjustments (para 2-4) from the beginning to verify the operational status of the equipment

NOTE

Although all interconnecting cables are supplied as part of the aircraft electronics configuration, a data transmitting set cabling diagram is provided in figure 3-2 as a troubleshooting aid.

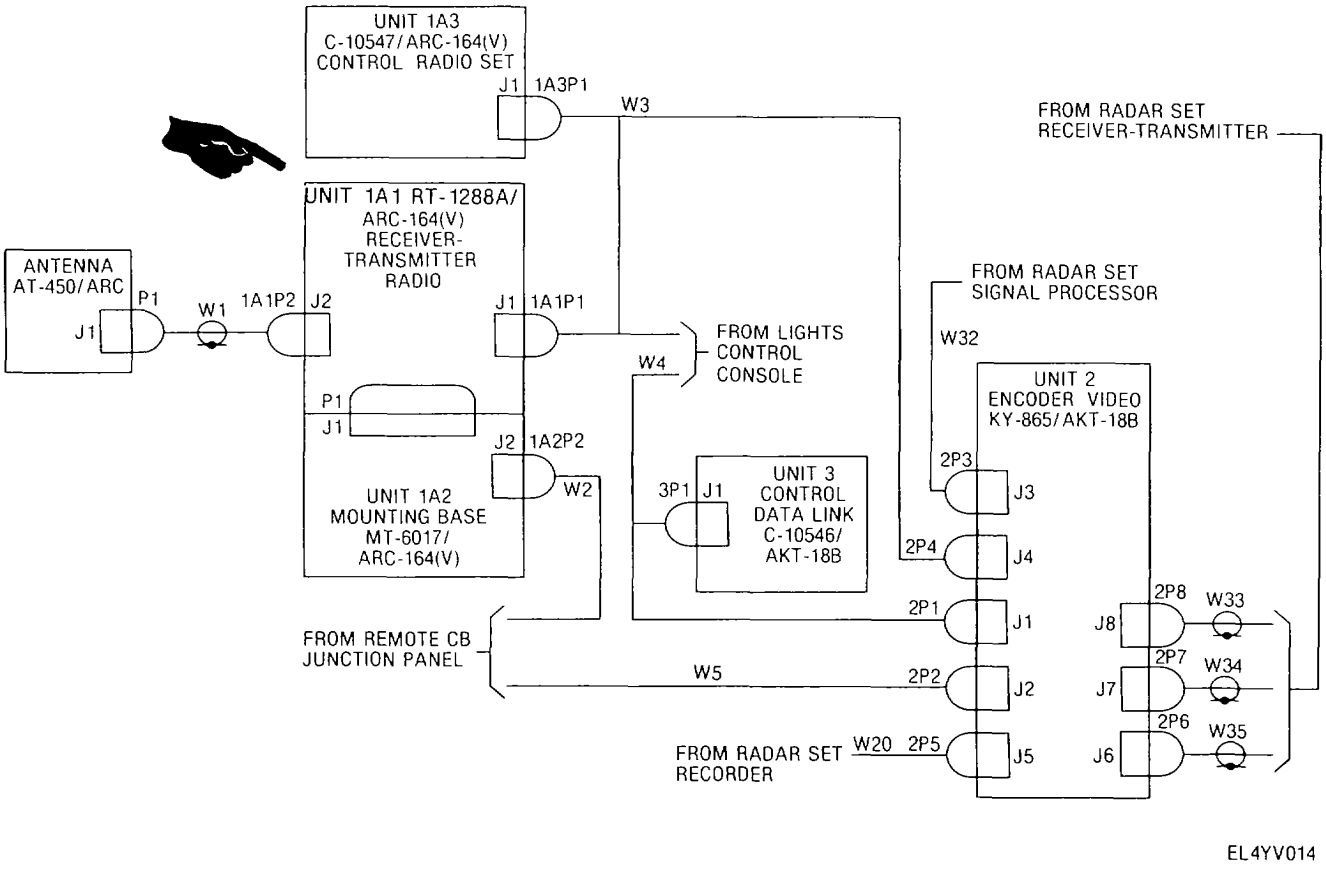

Figure 3-2. Data transmitting set cabling diagram.

Table 3-3. Organizational Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. ENCODER FAULT INDICATOR ON DATA LINK CONTROL ILLUMINATES IMMEDIATELY AFTER PLACING POWER SWITCH IN STBY POSITION Step 1. Check 115 VAC, 400 Hz fuses on encoder front panel. Replace fuse(s) if defective. Step 2. Check to see if encoder blower is operating. If blower is not operating, replace encoder and data link control (para 3-12 *b* and *c*). Step 3. Using multimeter, check cable W5 (fig 3-2) in accordance with applicable technical manual (Appendix A). Replace cable W5 as necessary. If cable W5 is good, replace encoder and data link control (para 3-12 *b* and *c*).
2 RT FAULT INDICATOR ON DATA LINK CONTROL ILLUMINATES IMMEDIATELY AFTER PLACING POWER SWITCH IN STBY POSITION Step 1. Check fuses on uhf receiver-transmitter, uhf radio control and uhf radio mount. Replace fuse(s) if defective.

Table 3-3 Organizational Troubleshooting Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
Step 2. Using multimeter, check cable W2 (fig. 3-2) in accordance with applicable technical manual (Ap pendix A). Replace cable W2 as necessary. Step 3. Observe that blower motor in uhf radio mount runs periodically. If blower motor is okay, replace uhf receiver-transmitter. If blower motor is not okay, replace uhf radio mount (para 3-12 *h*).
3. ALL INDICATORS ON DATA LINK CONTROL REMAIN OFF (NO LAMP TEST) AFTER AIRBORNE BITE OR DOWNLINK BITE SWITCH IS DEPRESSED. Check fuses on encoder front panel. Replace fuse(s) as necessary. If fuses are good, replace encoder and data link control (para 3-12 *b* and *c*).
4. ONE INDICATOR (BITE IN PRCS, ENCODER FAULT OR RT FAULT INDICATOR) REMAINS OFF AFTER AIRBORNE BITE OR DOWNLINK BITE SWITCH IS DEPRESSED. Check indicator lamp. Replace lamp as necessary. If lamp is good, replace encoder and data link control (para 3-12 *b* and *c*).
5. ENCODER FAULT INDICATOR ILLUMINATES AFTER COMPLETION OF AIRBORNE BITE OR DOWNLINK BITE TEST. Replace encoder and data link control (para 3-12 *b* and *c*).
6. RT FAULT INDICATOR ILLUMINATES AFTER COMPLETION OF AIRBORNE BITE OR DOWNLINK BITE TEST. a. Replace uhf receiver-transmitter and uhf radio control (para 3-12 *d* and *e*). b. If trouble still exists, replace uhf radio mount (para 3-12 *h*).
7. BOTH ENCODER AND RT FAULT INDICATORS ILLUMINATE AFTER COMPLETION OF AIRBORNE OR DOWNLINK BITE TEST. Replace encoder and data link control (para 3-12 *b* and *c*).
8. NO DATA IS RECEIVED BY GROUND STATION DURING DOWNLINK BITE TEST. Using multimeter, check cable W1 (fig 3-2) in accordance with applicable technical manual (Appendix A). Replace cable W1 as necessary. If cable W1 is good, replace uhf antenna (para 3-12 *j*).
9. BITE IN PRCS INDICATOR CAN NOT BE TURNED OFF BY THE DATA LINK CONTROL POWER SWITCH. Replace encoder and data link control (para 3-12 *b* and 3-12 *c*).

3-12. Organizational Maintenance of Data Transmitting Set

a. General. Organizational maintenance of the data transmitting set is limited to removal and replacement of defective components. Removal and replacement procedures are described in the following paragraphs. Refer to figure 3-2 to identify cable connections

WARNING

Turn off all power to the equipment before starting procedure

b. Removal and Replacement of Encoder.

(1) Removal.

(a) Set data link control POWER switch to OFF.

(b) Open forward access hatch door (para 3-10).

(c) Disconnect all cable connectors from connectors on the encoder front panel.

(d) Loosen and remove two self-locking retainers on encoder mount from two clamps on encoder front panel.

CAUTION

Be careful to clear cable harness when removing encoder from mount.

(e) Slide encoder forward to clear pin blocks on encoder mount and remove encoder from mount.

(2) *Replacement.*

CAUTION

Be careful to clear cable harness when installing encoder in mount.

(*a*) Place encoder on the encoder mount and slide rearward until two pin blocks are fully engaged.

(*b*) Place self-locking retainers on encoder mount over clamps on encoder front panel and tighten retainers.

(*c*) Connect cable connectors to encoder front panel connectors as shown in figure 3-2.

(*d*) Close access hatch door (para 3-10).

c. Removal and Replacement of Data Link Control.

(1) *Removal.*

(*a*) Turn off aircraft power to data link.

(*b*) Loosen four, quarter-turn fasteners that secure front panel of data link control to bulkhead.

(*c*) Pull data link control from bulkhead until rear of unit and connecting cable are accessible.

(*d*) Disconnect cable connector from rear connector of data link control and remove unit.

(2) *Replacement.*

(*a*) Connect cable connector to connector on rear of data link control.

(*b*) Push cable back into its recess area and slide data link control into bulkhead. Make sure that cable is not pinched.

(*c*) Tighten four, quarter-turn fasteners on data link control front panel.

d. Removal and Replacement of Uhf Receiver-Transmitter.

(1) *Removal.*

(*a*) Set POWER switch on data link control to OFF.

(*b*) Open forward access hatch door (para 3-10).

(*c*) Disconnect all cable connectors from connectors on uhf receiver-transmitter front panel.

(*d*) Remove safety wire from two latch mechanisms on uhf radio mount.

(*e*) Loosen and remove latch mechanisms on uhf radio mount from clamps on the uhf receiver-transmitter front panel.

(*f*) Slide uhf receiver-transmitter forward and remove it from mount.

(2) *Replacement.*

(*a*) Place uhf receiver- transmitter on uhf radio mount and slide toward rear of the mount until uhf receiver-transmitter back panel connector makes firm contact with mount connector.

(*b*) Replace latch mechanisms on uhf radio mount over clamps on uhf receiver-transmitter panel and tighten latch mechanism.

(*c*) Attach safety wire to two latch mechanisms on uhf radio mount.

(*d)* Connect cable connectors to uhf receiver-transmitter front panel connectors as shown in figure 3-2.

e. Removal and Replacement of Uhf Radio Control.

(1) *Removal.*

(*a*) Set POWER switch on data link control to OFF.

(*b*) Loosen eight, quarter-turn fasteners that secure front panel of uhf radio control to aircraft.

(*c*) Pull uhf radio control from the mounting panel until rear of unit and connecting cable are accessible.

(*d*) Disconnect cable connector from rear connector of uhf radio control and remove unit.

(2) *Replacement.*

(*a*) Connect cable connector to connector on rear of uhf radio control.

(*b*) Push cable back into its recess area and slide uhf radio control into bulkhead. Make sure that cable is not pinched.

(*c*) Tighten eight, quarter-turn fasteners on uhf radio control front panel.

f. Removal and Replacement of Uhf Antenna. Refer to applicable aircraft electronics configuration technical manual.

g. Removal and Replacement of Encoder Mount (fig 1-5)

(1) *Removal.*

(*a*) Remove encoder per b(1) above.

(*b*) Remove uhf receiver-transmitter per d(1) above.

(*c*) Disconnect cable connectors from interconnection box and air pressurization unit per TM 11-5895-1078-20.

(*d*) Disconnect air line from radar receiver-transmitter per TM 11-5895-1078-20.

CAUTION

Be careful to clear cable harness when removing pallet in the following step

(*e*) Remove pallet from bay 1 by removing two quick disconnect pins from two pallet retaining brackets (fig 3-1) and sliding pallet from equipment bay.

(*f*) Remove screws, flat washers, and nuts from four shock isolators that secure encoder mount to pallet and remove encoder mount from pallet.

(*g*) Remove screws that secure four shock isolators to mounting base and remove shock isolators from mounting base.

(2) *Replacement.*

(*a*) Mount four shock isolators on mounting base and secure with four screws.

(*b*) Place encoder mount on pallet and secure four shock Isolators to pallet with screws, flat washers, and nuts.

NOTE

Shock Isolators are installed with ground straps included

(*c*) Install pallet in bay 1 and lock in place by replacing two quick disconnect pins securing pallet retaining brackets to pallet tracks (fig 3-1).

(*d*) Replace encoder per b(2) above.

(*e*) Replace uhf receiver-transmitter per d(2) above.

(*f*) Connect cable connectors to interconnection box and air pressurization unit per TM 11-5895-1078-20.

(*g*) Connect air line to radar receiver-transmitter per TM 11-5895-1078-20.

h. Removal and Replacement of Uhf Radio Mount (fig 1-8).

(1) *Removal.*

(*a*) Remove uhf receiver-transmitter per d(1) above.

(*b*) Remove encoder per b(1) above.

(*c*) Disconnect cable connectors from interconnection box and air pressurization unit per TM 11-5895-1078-20.

(*d*) Disconnect air line from radar receiver-transmitter per TM 11-5895-1078-20.

CAUTION

Be careful to clear cable harness when removing pallet in the following step.

(*e*) Remove pallet from bay 1 by removing two quick disconnect pins from two pallet retaining brackets (fig 3-1) and sliding pallet from equipment bay.

(*f*) Remove screws, flat washers, and nuts from four shock Isolators and remove uhf radio mount from pallet.

(*g*) Remove screws that secure four shock isolators to mounting base and remove shock isolators from mounting base.

(2) *Replacement.*

(*a*) Secure shock isolators to mounting base with four screws.

(*b*) Place uhf radio mount on aircraft pallet and secure shock isolators to pallet with screws, flat washers, and nuts.

NOTE

Rear shock Isolators are installed with ground straps included.

(*c*) Install pallet in bay 1 and lock in place by replacing two quick disconnect pins securing pallet retaining brackets to pallet tracks (fig 3-1).

(*d*) Replace encoder per b(2) above.

(*e*) Replace uhf receiver-transmitter per d(2) above.

(*f*) Connect cable connectors to interconnection box and air pressurization unit per TM 11-5895-1078-20.

(*g*) Connect air line to radar receiver-transmitter per TM 11-5895-1078-20.

3-13. Cleaning

Cleaning the components of the data transmitting set is limited to removal of surface stains and dust accumulations. Remove surface stains using a lint-free cloth moistened with water. Use a mild soap or detergent for stubborn stains. Remove dust and other loose material using camel's-hair brush or cleaning tissue.

3-14. Testing After Repair

Perform the preflight check as described in paragraph 2-4.

APPENDIX A
REFERENCES

DA Pam 310-1	Consolidated Index of Army Publications and Blank Forms
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters
TB 385-4	Safety Precautions for Maintenance of Electrical/Electronic Equipment
TM 11-1510-204-20-2-1	Organizational Maintenance Manual for Signal Electronic Equipment Configuration, Army Model OV-ID Aircraft CNSN 1510-00-869-3654)
TM 11-5821-231-15P	Operator's, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart Antenna AT-450/ARC
TM 11-5841-286-13	Operator's, Organizational, and Direct Support Maintenance Manual for Radio Set AN/ARC-164(V)12 (NSN 5821-01-071-5624)
TM 11-5895-1078-20	Organizational Maintenance Manual for Radar Surveillance Set AN/APS-94F
TM 11-6625-654-14	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools List) for Multimeter AN/USM-223
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the AN/AKT-18B to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. Section II Integral Components of the End Item. These items, when assembled, comprise the AN/-AKT-18B and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the AN/AKT-18B in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

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

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

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

c. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. The part number indicates the primary number used by the manufacturer, 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. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

e. Usable on Code. Not applicable.

f. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item.

SECTION II INTERGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) DESCRIPTION (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
		5821-01-071-5624	RADIO SET AN/ARC-164(V)12	(80058)			1		
1-7		5841-01-122-7094	RECEIVER-TRANSMITTER RADIO RT-1288A/ARC-164(V)	(80058)			1		
1-9		5821-01-070-4433	CONTROL, RADIO SET C10547/ARC-164(V)	(80058)			1		
1-8		5821-01-070-4271	MOUNTING BASE, ELECTRICAL EQUIPMENT MT-6017/ARC-164(V)	(80058)			1		
1-4		5841-01-073-9012	ENCODER, VIDEO KY-865/AKT-18B	(80058)			1		
1-6		5841-01-073-9011	CONTROL, DATA LINK C-10546/AKT-18B	(80058)			1		
1-10		5985-00-545-6235	ANTENNA AT-450/ARC	(80058)			1		
1-5		5841-01-070-4272	MOUNTING BASE, ELECTRICAL EQUIPMENT MT-6016/AKT-18B	(80058)			1		

SECTION III. BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			TM 11-5841-287-12 TRANSMITTING SET, RADAR DATA AN/AKT-18B					

DRSEL-MA FORM 6010, (1 MAR 77) (EDITION OF 1 JUN 76 IS OBSOLETE) HISA-FM 545-77

APPENDIX D
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

D-1. General

This appendix provides a summary of the maintenance operations for the AN/AKT-18B it authorizes categories of maintenance for specific maintenance functions on 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.

D-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.

D-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 Category. 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 category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. 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
0 - Organizational

F - Direct Support
H - General Support
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.

D-4. Tool and Test Equipment Requirements (Sect. 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 Category. The codes in this column indicate the maintenance category 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.

D-5. Remarks (Sect. 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 II.

(Next printed page is D-3)

SECTION II. MAINTENANCE ALLOCATION CHART FOR TRANSMITTING SET, RADAR DATA AN/AKT-18B

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	TRANSMITTING SET,	INSPECT		0.5					
	RADAR DATA AN/AKT-18B	TEST		0.1				3	BITE, E
		TEST			0.5			7	
		ADJUST			0.5			7,10	
		INSTALL		2				12	
		REPLACE		2				12	
		REPAIR			1			7,9,10	A
		REPAIR					1	7,9,10	
		OVERHAUL					32	2 thru 15	
01	RADAR SET	TEST		0.1					
	A/N/ARC-164(V)12	REPLACE		0.1				12	F
		REPAIR							B
02	ENCODER, VIDEO	TEST			0.5			4,7	
	KY-865/AKT-18B	ADJUST			0.5			7,10	
		REPLACE		1				12	D
		REPAIR			1			7,9,10	A
		REPAIR					1	7,9,10,11 13,14	
		OVERHAUL					16	2 thru 15	
0201	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	VIDEO INTERFACE 2A17	TEST					0.5	2,4,5,7,8, 11,15	
		ADJUST					0.5	5,7,8,10, 11,15	
		REPLACE			0.3			10	
		REPAIR					1	2,4,5,6,7, 8,10,11,15	
0202	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	A/D CONVERTER 2A2	TEST					0.5	2,4,5,7,8, 15	
		ADJUST					0.5	4,5,7,8,11, 11,15	
		REPLACE			0.3			10	
		REPAIR					1	4,5,6,7,8, 10,11,15	
0203	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	F/T MEMORY 2A3, 2A4	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0204	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	M/T MEMORY 2A5, 2A6	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0205	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	VIDEO CONTROL 2A7	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0206	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	VIDEO MULTIPLEXER 2A9	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0207	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	MPU TIMING 2A11	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	

SECTION II MAINTENANCE ALLOCATION CHART
FOR
TRANSMITTING SET, RADAR DATA AN/AKT-18B

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0208	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	OUTPUT BUFFER 2A12	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0209	CIRCUIT CARD ASSEMBLY	TEST			0.5			1,4,7	
	POWER FAULT DETECTOR 2A13	TEST					0.5	4,5,7,8,11, 15	
		ADJUST						7,8,10,11, 15	
		REPLACE			0.3			10	
		REPAIR					1	4,5,7,8,10, 11,15	
0210	CIRCUIT CARD ASSEMBLY	TEST			0.5			4,7	
	OUTPUT MEMORY 2A14	TEST					0.5	7	
		REPLACE			0.3			10	
		REPAIR					1	6,7,10	
0211	CIRCUIT CARD ASSEMBLY	TIME			0.5			4,7	
	ADAS CONTROL 2A16	TIME					0.5	7	
		REPLACE			0.3			10	
		REPAIR						6,7,10	
									VISUAL
0212	CONNECTOR ASSEMBLY 2A18	INSPECT			0.2				
		REPAIR					2	3,10,13,14	
0213	FILTER ASSEMBLY , ELECTRICAL	TEST			0.5			3,4	
	2FL1	REPLACE			0.5			10	
		REPAIR			1			3,10	
									BITE
03	DATA LINK CONTROL	TEST		0 1					
	C-10546/AKT-18B	TEST			0.5			4,7	
		REPLACE		0 3				12	D
		REPAIR			1			1,7,8,10	C
		REPAIR					2	7,8,10,15	
		OVERHAUL					8		
04	MOUNTING BASE,	INSPECT		0.2					
	ELECTRICAL EQUIPMENT	REPLACE		1				12	
	MT-6016/AKT-18B	REPAIR			1			10	
05	ANTENNA	INSPECT		0.1					G
	AT-450/ARC								

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS FOR TRANSMITTING SET, RADAR DATA AN/AKT-18B

TOOL OR TEST EQUIPMENT REF	MAINTENANCE CATEGORY CODE	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	DIGITAL VOLTMETER AN/GSM-64B	6625-00-022-7894	
2	D	ELECTRONIC COUNTER AN/USM-207A	6625-00-044 3228	
3	O,F,D	MULTIMETER AN/USM-223	6625-00-999-7465	
4	F,D	OSCILLOSCOPE AN/USM-281C	6625-00-106-9622	
5	D	FUNCTION GENERATOR SG-747/U INCL. SWEEP/OFFSET PLUG-IN PL-1178/U	6625-00-118-6736 6625-00-104-2648	
6	D	REPAIR KIT, PRINTED WIRING BOARD MK-772/U	5999-00-757-7042	
7	F,D	TEST SET ELECTRONIC SYSTEMS AN/UKM-5	6625-01-073-9858	
8	F,D	POWER SUPPLY PP-3940A/G	6130-00-460-2148	
9	F,D	TOOL KIT ELECTRONIC EQUIPMENT TK-100/G	5180-99-605-0079	
10	F,D	TOOL KIT ELECTRONIC -EQUIPMENT TK-105/G	5180-99-610-8177	
11	D	TEST ADAPTER MX-10062	6625-01-074-7320	
12	O	TOOL KIT ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
13	D	WIRE WRAP GUN 14XA2	5130-00-465-8785	
14	D	WIRE WRAP TOOL 505084	5120-00-118-7075	
15	D	DIGITAL MULTIMETER AN/USM-4 51	6625-01-060-6804	

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1OCT 77

Section IV. REMARKS

Reference Code	Remarks
A	DIRECT SUPPORT REPAIR LIMITED TO MODULE REPLACEMENT.
B	REPAIR OF AN/ARC164(V) 12 TO BE ACCOMPLISHED PER TM-11-5841-286-13
C	DIRECT SUPPORT REPAIR IS LIMITED 10 REPLACEMENT OF INDICATING PANEL HARDWARE SUCH AS LAMPS, SWITCHES AND CONTROLS
D	REPLACE ENCODER KY-865 AND CONTROL C-10546 AS A PAIR.
E	TEST CABLES WITH MULTIMETER.
F	FOR MAINTENANCE REQUIREMENTS SEE MAC IN TM-11-5841-286-13.
G	FOR MAINTENANCE REQUIREMENTS SEE MAC IN TM-11-5821-231-15P.

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. NTRODUCTION

E-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the AN/AKT-18B These Items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)

E-2. Explanation of Columns

a. Column 1-Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column 2-Level. This column identifies the lowest level of maintenance that requires the listed item.

C-Operator/Crew

O-Organizational Maintenance/Aviation Unit Maintenance

F-Direct Support Maintenance/Aviation Intermediate 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 a part number.

e. Column 5-Unit of Measure (U/IM). 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.

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SECTION II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NUMBER AND FSCM	(5) UNIT OF MEAS
1	0	8020-00-245-4509	BRUSH, CAMEL'S HAIR, HB391, SIZE 1	PK
2	0		CLEANING TISSUE	PK
3	0	8305-00-205-3494	CLOTH, COTTON, LINT-FREE, CCC-440	PK

By Order of the Secretary of the Army

E C MEYER
General, United States Army
Chief of Staff

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Major General, United States Army
The Adjutant General

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