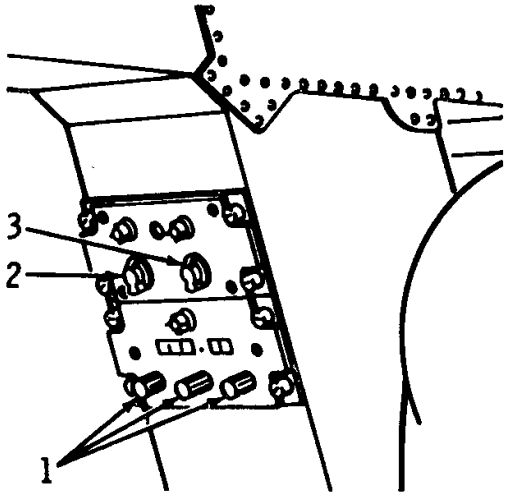
DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL
INCLUDING REPAIR PARTS LIST
TRANSMITTING SET, RADAR DATA AN/AKT-18
AND
TEST FACILITIES KIT MK-856/AKT-18

This copy is a reprint which includes current pages from Changes 1 through 3. The title was changed by C 3 to read as shown above.

HEADQUARTERS, DEPARTMENT OF THE ARMY
AUGUST 1966

CONDENSED OPERATING INSTRUCTIONS
FOR TRANSMITTING SET, RADAR DATA
AN/AKT-18



To operate set

a. Check that AN/APS-94C (radar set) is turned on.

b. Check that the DATA TRANS DC, AC, and D/A aircraft circuit breakers are closed.

c. The numbers of the steps below are the same as the numbers on the diagram.

(1) Adjust the frequency selector control knobs until assigned frequency (225.00 to 399.95 mc) appears in the MEGACYCLES indicator.

(2) Place the RANGE DELAY switch in the desired range delay position of 0, 20, or 40 km.

(3) Place the OFF-STBY-TRANSMIT switch in the STBY position until the mapping is to be performed. Place in TRANSMIT position when ready to start mapping.

To turn set off

d. To turn the data transmitting set off, place the OFF-STBY-TRANSMIT switch (3) in the OFF position.

CHANGE
No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *6 June 1977*

Operator's and Organizational Maintenance Manual
TRANSMITTING SETS, RADAR DATA AN/AKT-18 (NSN 5841-00-788-5223) AND AN/AKT-18A (NSN 5841-01-018-2869)
AND
TEST FACILITIES KITS MK-856/AKT-18 (NSN 5841-00-788-5228) AND MK-856A/AKT-18

TM 11-5841-255-12, 23 August 1966, is changed as follows:
The title of the manual is changed to read as shown above.
1. A vertical bar appears opposite changed or new material.
2. Remove and insert pages as indicated in the page list below:

Remove pages	*Insert pages*
E-1 through E-12	E-1 through E-12.1

3. File this change sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General United States Army
Chief of Staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant General

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

TM 11-5841-255-12
C4

CHANGE }
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., *23 September 1976*

Operator's and Organizational Maintenance Manual
Including Repairs Parts List

TRANSMITTING SETS, RADAR DATA AN/AKT-18 AND AN/AKT-18A
AND TEST FACILITIES KITS MK-856/AKT-18 AND MK-856A/AKT-18

TM 11-5841-255-12, 23 August 1966, is changed as follows:

The title of the manual is changed to read as shown above.

1. A vertical bar appears opposite changed or new material.

2. Remove and insert pages as indicated in the page list below:

Remove	*Insert*
i and ii	i and ii
1-1 through 1-2.2	1-1 through 1-2.2
none	E- I through E- 20
I-3 and Authentication	1-3
None	Authentication

3. File this change sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

FRED C. WEYAND
General, United States Army
Chief of Staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant General

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

WARNING
DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT.

Be careful when working on 115-and 300-volt circuits.

DON'T TAKE CHANCES!
EXTREMELY DANGEROUS VOLTAGES EXIST IN THE FOLLOWING

COMPONENTS OF ENCODER, VIDEO KY 565/AKT 18.

High voltage power supply----------+ 10,000 and + 2,300 volts
Photomultiplier power supply----------2,800 volts

TECHNICAL MANUAL
No. 11-5841-255-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *23 August 1966*

**OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
INCLUDING REPAIR PARTS UST**

**TRANSMITTING SETS, RADAR DATA AN/AKT-18 AND AN/AKT-18A
AND TEST FACILITIES KITS MK-856/AKT-18 AND MK-856A/AKT-18**

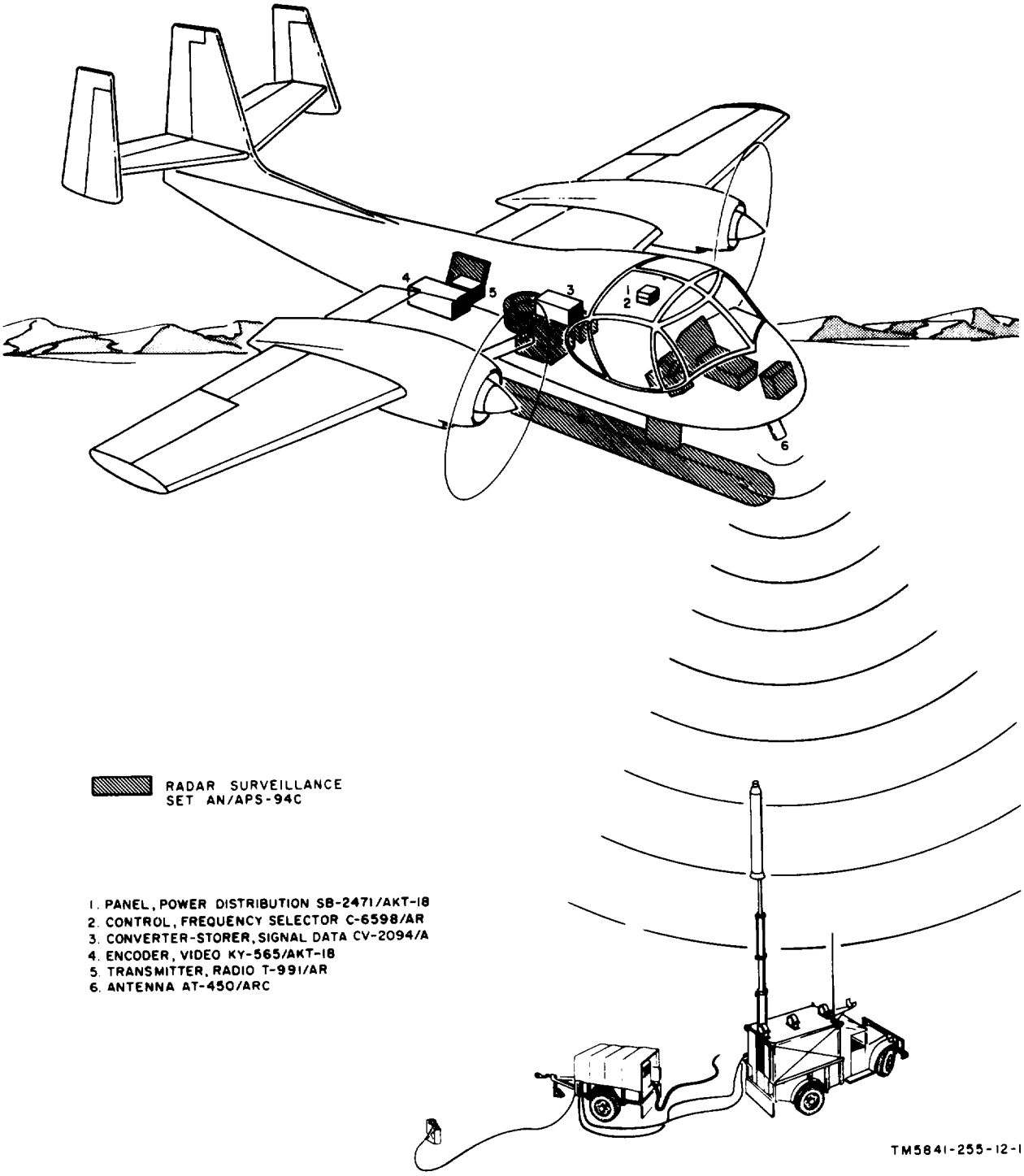


Figure 1-1. Transmitting Set, Radar Data AN/AKT-18, location of major components.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Transmitting Set, Radar Data AN/AKT-18 (fig. 1-1) and covers its operation, and operator and organizational maintenance. It includes operating procedures, cleaning and inspection of the equipment, and replacement of parts available to organizational maintenance. Also described in this manual is Test Facilities Kit MK-856/AKT-18 which is used by direct support maintenance personnel to maintain Transmitting Set, Radar Data AN/AKT-18.

b. References applicable to Transmitting Set, Radar Data AN/AKT-18 and Test Facilities Kit MK-856/AKT-18 are contained in appendix A. Appendix C contains the maintenance allocation chart.

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/NAVSUP PUB 378 (Navy)/AFR 71-4 (Air Force)/and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DIS-REP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army)/NAVSUP PUB 459 (Navy)/AFM 75-34 (Air Force)/and MCO P4610.19 (Marine Corps).

1-3.1. Reporting of Equipment Publication Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028, Recommended Changes to Publications, and forwarded direct to Commander, US Army Electronics Command, ATTN: DRSEL- MA-Q Fort Monmouth, NJ 07703.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

(Fig. 1-2.)

a. General. Transmitting Set, Radar Data AN/AKT-18, receives fixed-target and moving-target map information from airborne mapping system (Radar Surveillance Set AN/APS-94C) and transmits encoded converted video signals to ground stationed Receiving Set, Radar Data AN/TKQ-2. The AN/AKT-18 is compatible with the AN/APS-94C only. The AN/AKT-18 combines radar set rangemarks, a 41-kilometer rangemark, and radar set fixed-target and moving-target

video into a composite video signal, compresses the composite video signal bandwidth, encodes aircraft identification data and map-oriented data (aircraft groundspeed, drift angle and right and left, sweep, and aircraft present position information), producing encoded converted video signals. The encoded converted video signal is frequency modulated (fm) on one of 3,500 channels in the ultrahigh frequency (uhf) region, and transmitted to a remote, ground stationed, data receiving set (Receiving Set, Radar Data AN/TKQ-2). The data receiving set demodulates and decodes the fm signals and produces a permanent photographic aerial film radar map of terrestrial fixed and moving targets. Identical and simultaneous maps may also be produced in the airborne system (Radar Surveillance Set AN/APS-94C).

b. Surveillance System. The complete surveillance system, of which the data transmitting set is part, normally consists of:

(1) Radar Surveillance Set AN/APS94C.
(2) Transmitting Set, Radar Data AN/AKT-18.
(3) Receiving Set, Radar Data AN/TKQ-2.
(4) Doppler Navigation Set AN/ASN-64.

(a) Radar Surveillance Set AN/APS-94C is an X-band, side-looking airborne radar system with a 90-kilometer (55.92 miles) range to either or both sides of the flightpath. Fixed and moving targets are displayed on the cathode ray tubes of the radar indicator (not visible to operator) in the aircraft.

(b) Transmitting Set, Radar Data AN/AKT-18 is connected to Radar Surveillance Set AN/APS-94C and Doppler Navigation Set AN/ASN-64 when radar data are to be transferred to a ground-based station. Fixed and moving target signals, synchronization rangemarks and flight data are fed to Transmitting Set, Radar Data AN/AKT-18 in which the data are encoded for continuous fm transmission to the ground-based station.

(c) Ground-based Receiving Set, Radar Data AN/TKQ-2 decodes the signal and displays the video information on a photographic map. All electronic equipment for Receiving Set, Radar Data AN/TKQ-2 is housed in a mobile shelter which has been modified to include such items as wiring for light and power, air conditioners, and a personnel heater. A trailer-mounted gasoline engine-driven generator furnishes power for operating Receiving Set, Radar Data AN/TKQ-2 at remote locations.

(d) Main units of Transmitting Set, Radar Data AN/AKT-18 consist of Encoder, Video KY-565/AKT-18, Transmitter, Radio T-991/AR, Converter-Storer, Signal Data CV-2094/A. Control, Frequency Selector C-6598/AR and Panel, Power Distribution SB-2471/AKT-18. Functions of the KY-565/AKT-18 are to accept signals from Radar Surveillance Set AN/APS-94C and en- code them into encoded converted video signals that will modulate the T-991/AR. The CV-2094/A receives present position data from Doppler Navigation Set AN/ASN-64 and converts this data into digital form for insertion into the encoded converted video signal. It also provides present position data for the AN/APS-94C recorder or processor-viewer. Transmitter, Radio T-991/AR provides a fm- uhf carrier to transmit the data to ground- based Receiving Set, Radar Data AN/TKQ-2. The equipment transmits the encoded signal on any one of 3,500 channels in the 225.0 to 399.95 megacycle (mc) range.

1-4.1. Differences in models

Refer to appendix E for differences in models.

1-5. Technical Characteristics

a. Encoder, Video KY-565/AKT-18.

Input voltage requirements:
From Radar Surveillance Set AN/APS-94C ------ 300 volts dc, -10 vdc, 150 vdc, -300 vdc, 28 vdc control power; 115 volts ac, 400 cps, single-phase.
From aircraft primary power source ---------- 28 vdc
From AN/APS-94C inverter ---------- 115 vac, 400 cps
Single output ---------- 6.2 volts peak-to-peak nominal

Weight (including mount)---- 100 pounds

b. Transmitter, Radio R-991/AR.

Frequency range ---------- 225.00 to 399.95 mc (in 0.05-mc steps).
Number of frequency channels ---------- 3,500
Modulation ---------- Fm
Power output (matched load) ---------- 20 watts minimum
Power output (into load with 2:1 vswr) ---------- 12 watts minimum
Effective range ---------- 50 miles
Input power requirements:
From aircraft primary source ---------- 28 volts dc
Standby --------- 62 watts
Transmit -------- 292 watts
From AN/APS-94C inverter ---------- 115 vac, 400 cps
Standby --------- 74 watts
Transmit -------- 74 watts
Number of electron tubes --- 10
Weight (including mount) --- 34.0 pounds

c. Antenna AT-450/ARC.

Type ---------- Omnidirectional
Construction ---------- One-quarter wavelength blade.
Input impedance ---------- 50 ohms (nominal)

d. Converter-Storer, Signal Data CV-2094OA.

Input power requirements:
From aircraft primary source ---------- +280 volts dc, 3 amperes (max).

From AN/APS-94C inverter ---------- 115 vac, 400 cps,. single phase, 1 ampere (max).

Input signals:
From Control, Indicator C-6586/AYA-3 (part of AN/ASN-64) ------ 500 cps, 3-phase synchro
From Encoder, Video KY-5656/AKT-18. ---------- analog voltages (present position signals).
Video signals --- 6.2 volts peak-to-peak nominal.
Fast gate signal 14.43-cps square wave.
Output signals:
To Transmitter, Radio T-991/AR ---------- KY-565/AKT-18 video signal, with binary coded decimal information inserted.
To radar set recorder or processor-viewer:
Read command signals ---------- 4 volts dc switch-energizing voltage.
Present position signals ---------- 44 separate 1.2 vac segment voltages.

1-6. Dimensions and Weights

NOTE

This listing is based on the original shipment by the contractor on order No. 00613-PM-62 and FR28-043-M-05-00982(E)

Components of Transmitting Set, Radar Data AN/AKT-18 are listed in the chart below. The chart also lists weights and dimensions of the equipment.

Component	Quantity	Height (in.)	Depth (in.)	Width (in.)	Unit weight (lb)
Encoder, Video KY-565/AKT-18 (on mount without isolators).	1	11.26	26.84	13.88 100	
Transmitter, Radio T-991/AR.	1	10.56	15.5	9.56	33.5
Converter-Storer, Signal Data CV-2094/A.	1	6.412	19.40	10.47	35.0
Control, Frequency Selector C-6598/AR.	1	3.00	4.5	5.76	2.2
Panel, Power Distribution SB-2471/AKT-18.	1	3.00	4.5	5.75	2.2
Mounting MT-3448/AKT-18.	1	5.03	28.77	14.12	0.5
Mounting MT-2653/ARC.	1	0.375	14.125	9.5	0.6
Base, Shock Mount, Electrical Equipment MT-3617/A.	1	3.25	19.49	12.0	2.0
Antenna AT-450/ARC.	1	10.0	2.0	5.0	0.75

1-6.1. Items Comprising an Operable Transmitting Set, Radar Data AN/AKT-18 and Test Facilities Kit MK-856/AKT-18

FSN	Qty	Item	Fig. No
		NOTE	
		The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency; etc.	
5841-788-5223		Transmitting Set, Radar Data AN/AKT-18	1-1
		Consisting of:	
5821-545-6235	1	Antenna AT-450/ARC	1-7
5841-926-3102	1	Base, Shock Mount, Electrical Equipment MT-3617/A: (Mount secures converter-Storer, Signal Data CV-2094/A).	1-10
5821-98S-8927	1	Control, Frequency Selector C-6598/AR	1-5
5841-941-5519	1	Converter-Storer, Signal Data CV-2094/A	1-8
5841-788-4727	1	Encoder, Video KY-565/AKT-18	1-3
5821-980-5789	1	Mounting MT-2653/ARC: (Secures Transmitter, Radio T-991/AR	1-9
5841-788-4737	1	Mounting MT-3448/AKT-18: (Secures encoder, Video KY-565/AKT-18)	1-9
5841-985-8257	1	Panel, Power Distribution SB-2471/AKT-18	1-6
5821-985-8926	1	Transmitter, Radio T-991/AR	1-4
		Consisting of:	
5821-788-4691	1	Blower HD-701/AR	1-4
5821-788-5280	1	Indicator, Standing Wave Ratio IM-201/AR	1-4
5120-952-0108	1	Key Socket Head, SM-B-510858, 80063	1-4
5180-947-3083	1	Tool Kit: (mounted in the equip), SM-C-510946, 80063	
5821-788-4689	1	Transmitter Subassembly MX-6828/AR	1-4
5841-788-5228	1	Test Facilities Kit MK-856/AKT-18	1-11
		Consisting of:	
5995-985-8148	2	Cable Assembly, Radiofrequency CG-530D/U: (5 ft) (W5, W10)	1-11
3910-788-3775	1	Conveyor, Roller, Gravity MX-6829/AKT-18	1-11
		NOTE	
		Contained in only some MK-856/AKT-18, later issues of the kits do not contain this item.	
5821-985-8930	1	Coupler, Directional CU-1447/AKT-18	1-11
		NOTE	
		Contained in only some MK-856/AKT-18, later issues of the kit do not contain this item.	
5840-985-8913	1	Dummy Load, Electrical DA404/AKT-18	1-11
		NOTE	
		Contained in only some MK-856/AKT-18, later issues of the kit do not contain this item.	
5840-959-4314	1	Extender, Module MK-8542/U: (29 pin connectors)	1-11
5840-956-8769	1	Extender, Module MK-7543/U: (41 pin connectors)	1-11
5120-963-6570	1	Extractor, Integrated Circuit (MECL): (designed to remove integrated circuits) Ecom Dwg SM-C-567919.	
5840-788-5281	1	Interconnection Assembly, Power Supply MX-6870/AKT-18	1-11
5840-788-5281	1	Interconnection Assembly, Electrical Synchronizer MX-6871/AKT-18	1-11
5840-788-4709	1	Interconnection Assembly, Converted Video Amplifier MX-6872/AKT-18	1-11
5840-788-5282	1	Interconnecting Box J-2564/AKT-18	1-11
5935-539-0851	1	Radio Frequency Adapter UG57B/U	1-11
5995-871-8549	1	Wiring Harness, Branched CX-11073/AKT-18: (W1)	1-11
5995-880-5778	1	Wiring Harness CX-11076/AKT-18	1-11

FSN	Qty	Item	Fig. No.
5995-880-4508	1	Wiring Harness CX-11077/AKT-18	1-11
5841-940-8147	1	Wiring Harness, Branched CX-11467/AKT-18	1-11
		Accessories, Tool and Test Equipment	
		Consisting of:.	
5841-952-3244	1	Alignment Kit, Objective Lens MK-719/AKT-16	
6625-788-3780	1	Comparator, Frequency CM-77/USM	
6625-866-5381	1	Converter, Frequency, Electronics CV-394/USA-5	
6625-911-6368	1	Counter, Electronic, Digital Readout AN/USM-207	
5985-280-3480	1	Dummy Load, Electrical DA-75/U	
6625-073-8908	1	Fixture, Cathode Ray Tube Measuring AN/USM-198, A	
6625-669-0081	1	Frequency Meter AN/URM-81	
6625-813-8430	1	Indicator, Standing Wave Ratio AN/URM-120	
6625-999-7465		Multimeter AN/USM-223	
6625-360-2493	1	Multimeter ME-26B/U	
6625-087-3442	1	Oscilloscope, Subassembly, Vertical Channel, High Gain, Wide Band Pre-amplifier AM-3568/USM.	
6625-066-2525	1	Oscilloscope AN/USM-140A	
6625-511-5383	1	Prod, Test MX-2517/U	
6625-082-4275	1	Repair Kit, Printed Wiring Board MK-772/URC	
6625-699-0263	1	Test Set, Electron Tube TV-2/U	
6625-966-1961	1	Test Set, Transmitting Set Radar Data AN/AKM-2A	
5995-905-7572	3	Cable Assembly, Radiofrequency CG-530F/U: (8 ft) (W6, W7, W8)	1-11
5995-905-8273	1	Cable Assembly, Radiofrequency CG-1883A/U: (5 ft) (W4)	1-11
5995-880-5787	1	Cable Assembly, Special Purpose, Electrical CX-11072/U: (10 ft) (W9)	1-11
5995-880-3777	1	Cable Assembly, Special Purpose, Electrical CX-11074/U: (8 ft) (W2)	1-11
5995-880-5776	1	Cable Assembly, Special Purpose, Electrical CX-11075/U: (4 ft) (W3)	1-11
5841-788-5228	1	Test Facilities Kit MK-856/AKT-18	
	1	Test Set, Transistor AN/USM-171	
5180-605-0079	1	Tool Kit, Electronic Equipment TK-100/G	
5180-610-8177	1	Tool Kit, Electronic Equipment TK-105/G	
6625-820-0064	1	Transformer, Variable Power CN-16/-U	
6625-050-8686	1	Tube Tester, Electron Tube Tester, Electron Tube TV-7D/U	
		Voltmeter, Electronics ME-202/U	

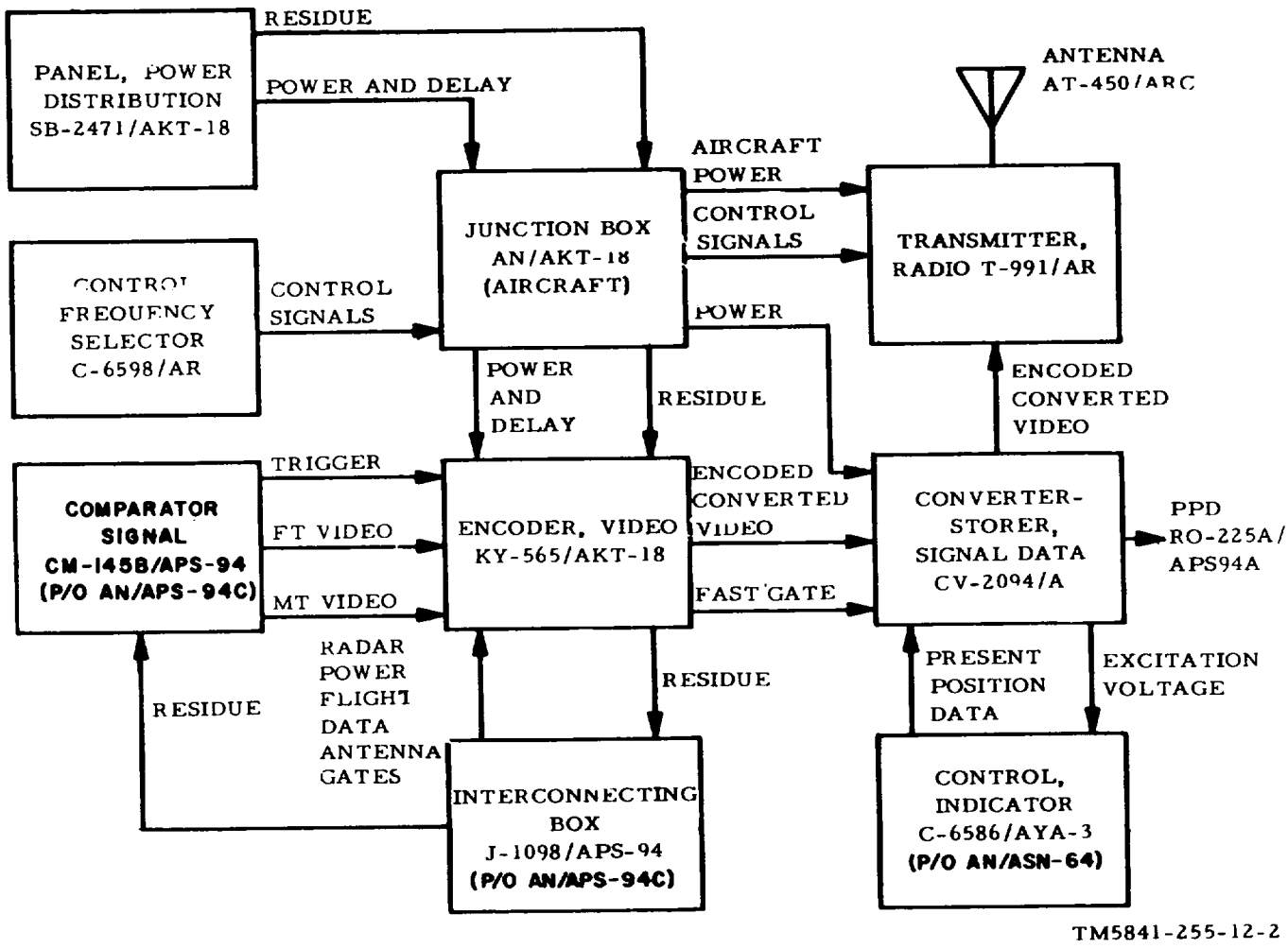


Figure 1-2. Transmitting Set, Radar Data AN/AKT-18, simplified block diagram.

1-7. Nomenclature and Common Names

A list of the nomenclature assignments for the components of Transmitting Set, Radar Data AN/AKT-18 and Test Facilities Kit MK-856/AKT-18 is given below. A common name is indicated after each nomenclatured item.

Nomenclature	Common name
Panel, Power Distribution SB-2471/AKT-18.	Power distribution panel
Control, Frequency Selector C-6598/AR.	Frequency selector control
Transmitter, Radio T-991/AR.	Radio transmitter
Converter-Storer, Signal Data CV-2094/A.	D/A converter
Encoder, Video KY-565/AKT-18.	Video encoder
Mounting MT-2653/ARC	Mount 1
Mounting MT-3448/AKT-18.	Mount 2
Base, Shock Mount, Electrical Equipment MT-3617/A.	Mount 3
Transmitting Set, Radar Data AN/AKT-18.	Data transmitting set
Antenna AT-450/ARC	Antenna
Test Facilities Kit MK-856/AKT-18.	Test facilities kit

1-8. Description of Transmitting Set, Radar Data AN/AKT-18 (figs. 1-3 through 1-7)

a. The data transmitting set consists of six major components and three minor components. The major components consist of Encoder, Video KY-565/AKT-18; Transmitter, Radio T-991/AR; Converter-Storer, Signal Data CV- 2094/A; Panel, Power Distribution SB-2471/ AKT-18; Control, Frequency Selector C-6598/ AR; and Antenna AT-450/ARC. Minor components consist of Mounting MT-3448/AKT-18; Mounting MT-2653/ARC; and Base, Shock Mount, Electrical Equipment MT-3617/A. Test Facilities Kit MK-865/AKT-18 is not part of Transmitting Set, Radar Data AN/AKT-18, but is used by higher maintenance category maintenance personnel to maintain the AN/ AKT-18.

b. Signals are fed from Comparator, Signal CM-145B/APS-94 in Radar Surveillance Set AN/APS-94C to Encoder, Video KY-565/ AKT-18 Transmitting Set Radar Data AN/ AKT-18. Encoder, Video KY-565/AFT-18 encodes the signals and produces an encoded converted video signal that is applied through Converter-storer, Signal Data CV-2094/A to Transmitter, Radio T-991/AR. Converter-Storer, Signal Data CV-2094/A receives pre- sent position data from Control, Indicator C-6586/AVA-3 in Doppler Navigation Set AN/ASN-64 and converts the data into digital form for insertions into the encoded converted video signal. The encoded converted video signal frequency modulates a carrier signal in Transmitter, Radio T-991/AR. The frequency-modulated carrier is amplified and transmitted through Antenna AT-4150/ARC to the ground-based data receiving set.

1-9. Description of Encoder, Video KY-565/AKT-18 (fig. 1-3)

This component is installed on Mounting MT-3448/AKT-18 located in the rear compartment of the aircraft fuselage and is accessible through an opening on the left side of the air- craft. Operating electrical connections to the video encoder are made at the front of this component by two multiple-pin connectors, J1 and J3, and five coaxial connectors, J4, J5, J6, J7, and J8. Connectors J2 and J9 are used for performing higher category maintenance -tests. Cooling air is drawn into the video encoder through an air conditioning filter on the front panel and exhausted through an opening in the rear. Encoder, Video KY-565/AKT-18 is secured to Mounting MT-3448/AKT-18 with wingnuts that hold the inner edges of the ferrules against two hooks projecting from the lower right- and left-hand corners of Encoder, Video KY-565/AKT-18 front panel. Two folding handles are located on the top front and rear of Encoder, Video KY-565/AKT-18.

1-10. Description of Transmitter, Radio T-991 /AR (fig. 1-4)

Transmitter, Radio T-991/AR consists of three subassemblies (a, b, and c below), which are contained in and on a single chassis. Transmitter, Radio T-991/AR is installed on Mounting MT-2653/ARC in the rear compartment of the aircraft fuselage. Two mounting screws secure the front end of Transmitter, Radio T-991/AR to the mounting, and the rear of Transmitter, Radio T-991/AR is held in place by two narrow extend guides.

a. Transmitter Subassembly MX-6828/AR. Transmitter Subassembly MX-6828/AR contains the main chassis and seven plug-in modules. Two handles are provided on the front panel to aid in removing the radio transmitter from Mounting MT-2653/ARC. A wrench is mounted on the rear of the cover for removal of the 12 captive screws that hold the cover. A mounting plate with shock mounts is held to the bottom of Transmitter Subassembly MX-6828/AR by four screws. Located in the lower portion of the front of Transmitter Subassembly MX-6828/AR are Control, Frequency Selector C-6598/AR connector 3AlJ1, Indicator, Standing Wave Ratio IM-201/AR connector 3A1J4, Converter-Storer, Signal Data CV-2094/A connector 3A1J3, and power connector 3AIJ2. In the rear of Transmitter Subassembly MX-6828/AR is blower connector 3A1J8.

b. Indicator, Standing Wave Ratio IM-201/AR. Indicator, Standing Wave Ratio IM-201/ AR is mounted on the front end of Transmitter Subassembly

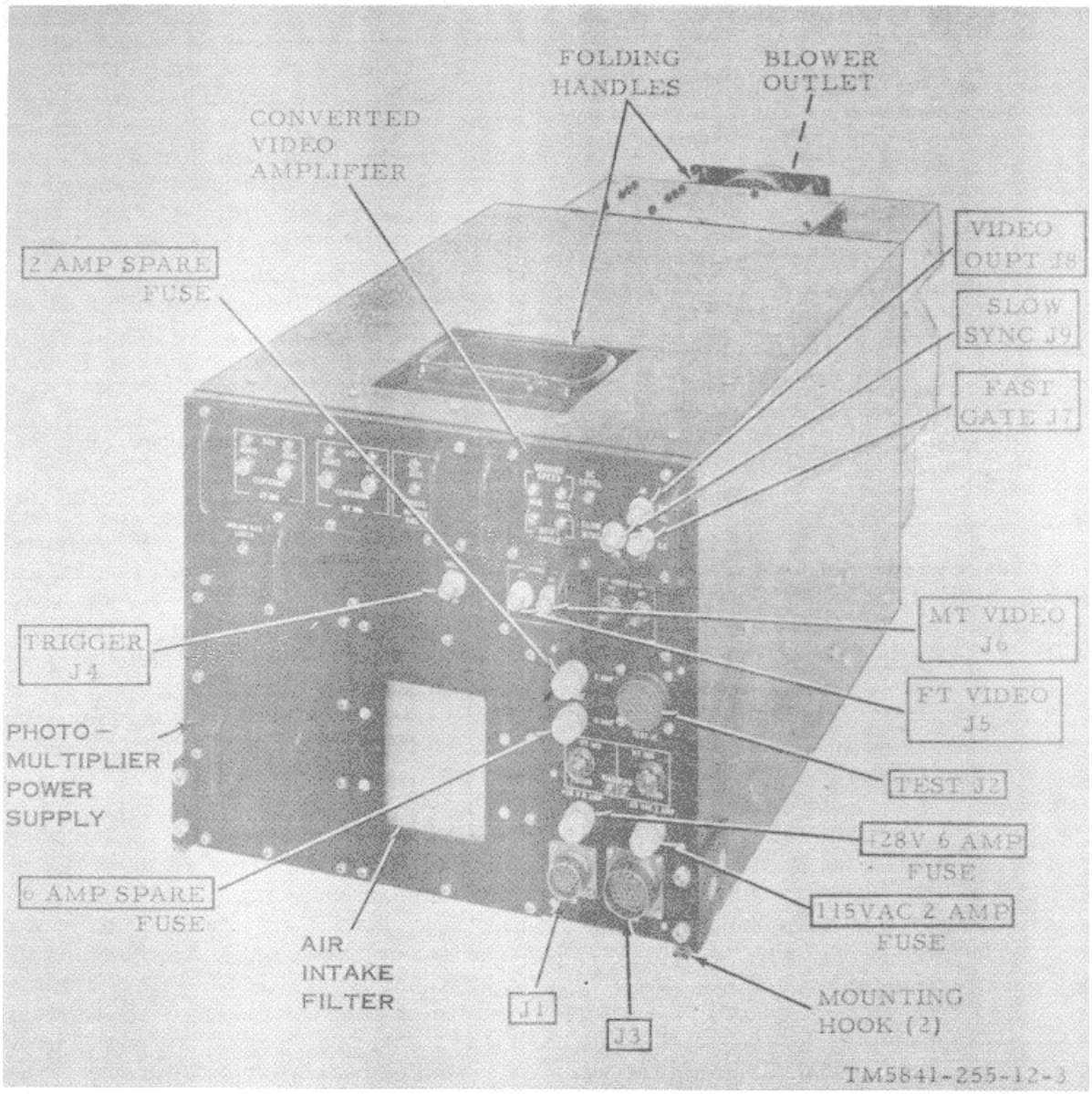


Figure 1-3. Encoder, Video KY-565/AKT-18.

MX-6828/AR cover by three crossrecessed screws. Located on the right side of Indicator, Standing Wave Ratio IM-201/AR is antenna connector 3A3J1. On the bottom of Indicator, Standing Wave Ratio IM-201/AR is connector 3A3P4 for connection to Transmitter subassembly MX-6828/AR. A meter and PRESS FOR REFL, POWER switch are mounted on the front of the indicator for measuring forward and reflected power being applied to AT-450/ARC Antenna.

c. Blower HD-701/AR. Blower HD-701/AR is mounted on the rear of Transmitter Subassembly MX-6828/AR by four hexagonal socket screws. Blower HD-701/AR contains a removable filter and plug 3A2P1, which connects to Transmitter Subassembly MX-6828/AR connector 3A1J8.

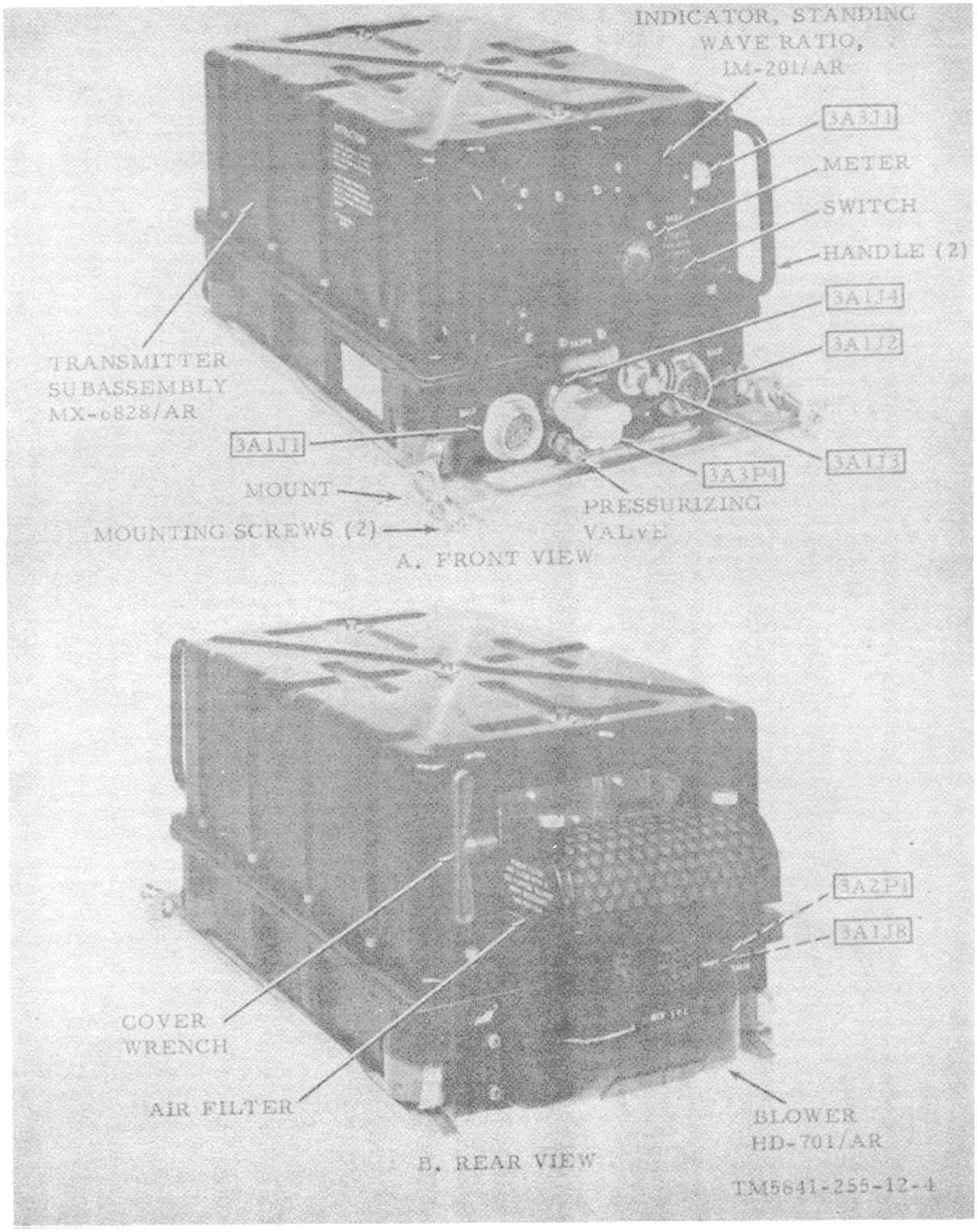


Figure 1-4. Transmitter, Radio T-991/AR.

1-11. Description of Control, Frequency Selector C6598/AR (fig. 1-5)

Control Frequency Selector C-6598/AR operates in conjunction with Transmitter, Radio T-991/AR (para 1-10) to provide selection of any one of 3,500 frequency channels through the three controls on the front panel. Three lamps on the front panel provide illumination. The degree of illumination is determined by the setting of the control on the aircraft internal and external lights panel. Two windows above the controls display the frequency selected. Located on the rear of Control, Frequency Selector C- 6598/AR is transmitter connector 4J1. The rear cover is held in place by two quarter-turn fasteners. Four quarter-turn fasteners secure the frequency selector control to the aircraft bulkhead.

1-12. Description of Panel, Power Distribution SB-2471/AKT-18 (fig. 1-6)

Panel, Power Distribution SB-2471/AKT-18 controls all power to Transmitting Set, Radar Data AN/AKT-18 and is located in the aircraft cockpit on a bulkhead between and above the pilot and the operator. Panel, Power Distribution SB-2471/AKT-18 is fastened to the bulkhead with four quarter-turn fasteners. Electrical connections are made at the rear of the component with 19-pin, plug-in connector 2J1. The connector is secured by means of four screws to a mounting backplate. Three controls are located on the front panel. The left-hand control is the RANGE DELAY switch, the center control is the RESIDUE control, and the right-hand control is the OFF-STBY- TRANSMIT switch. Two lamps located on the front panel provide illumination. The degree of illumination is determined by the setting of controls on the aircraft internal and external lights panel.

1-13. Description of Antenna AT-450/ARC (fig. 1-7)

Antenna AT-450/ARC is an omnidirectional antenna that transmits the frequency-modulated ultrahigh frequency (fm-uhf) carrier signal from the data transmitting set to Receiving Set, Radar Data AN/TKQ-2. Antenna AT-450/ ARC is a cylindrical one-quarter wavelength stub (blade-type) with a 50-ohm (nominal) input impedance.

1-14. Description of Converter-Storer, Signal Data CV-2094/A (fig. 1-8)

a. Converter-Storer, Signal Data CV-2094/A receives aircraft present position data in the form of synchro analog voltages from Control, Indicator C-6586/AYA3 (part of Doppler Navigation Set AN/ASN-64). Converter-Storer, Signal Data CV-2094/A converts this data into binary-coded decimal (bed) information for insertion into the encoded converted video signal that is applied to the radio transmitter for transmission to ground-based Receiving Set, Radar Data AN/TKQ-2. The bed information is also converted to segment logic data in Converter-Storer, Signal Data CV- 2094/A for use in the radar set recorder or recorder, processor-viewer.

b. Converter-Storer, Signal Data CV-2094/ AR is installed on Base, Shock Mount, Electrical Equipment MT3617/A in the rear compartment of the aircraft fuselage. The component is secured to the mount by two screw clamps that engage the mounting hooks on the front of the equipment. A handle is provided on the front panel to aid in removing the component from the mount. A removable cover is located at the top of the component and secured by six snap latches. A cooling blower within the component draws air from the outside through three, screened, louvered openings, two at the sides and one at the rear, and exhausts the air through a screened opening at the bottom. Four coaxial connecters, four multiple-pin connectors, a +28 VDC circuit breaker, and a 115 VAC circuit breaker are located on the front panel of Converter-Storer, Signal Data CV-2094/A.

1-15. Description of Minor Components

a. Mounting MT-3448/AKT-18 (fig. 1-9). This mount secures Encoder, Video KY-565/AKT-18 when installed in the aircraft. Two tapered threaded pins at

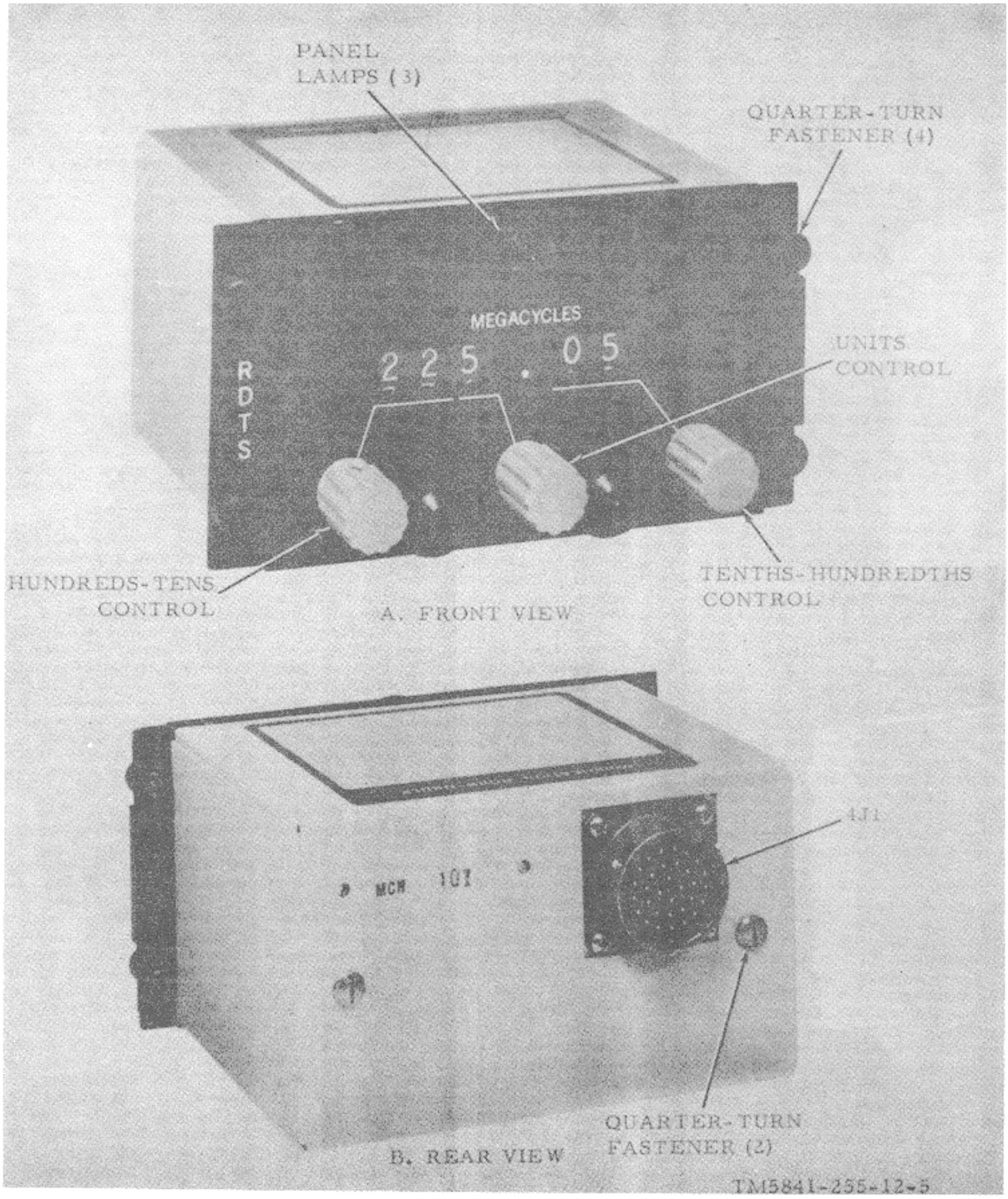


Figure 1-5. Control, Frequency Selector C-6598/AR.

the rear of the mount help secure the video encoder rear. Two wing-nuts and ferrules on eyebolts are used to hold the front of the video encoder. The wingnuts hold the ferrules against the right and left hooks of the video encoder.

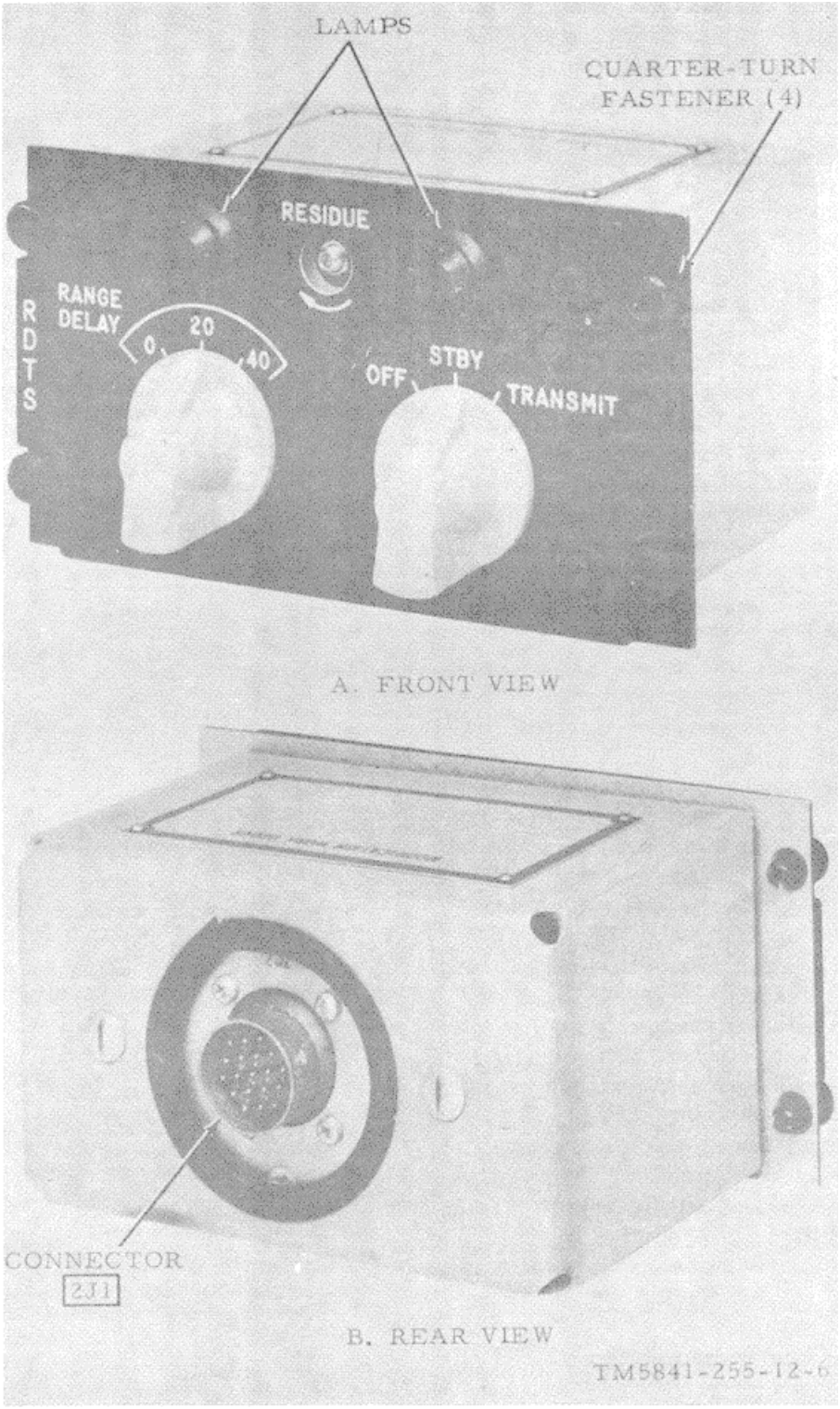


Figure 1-6. Panel, Power Distribution SB-2471/AKT-18.

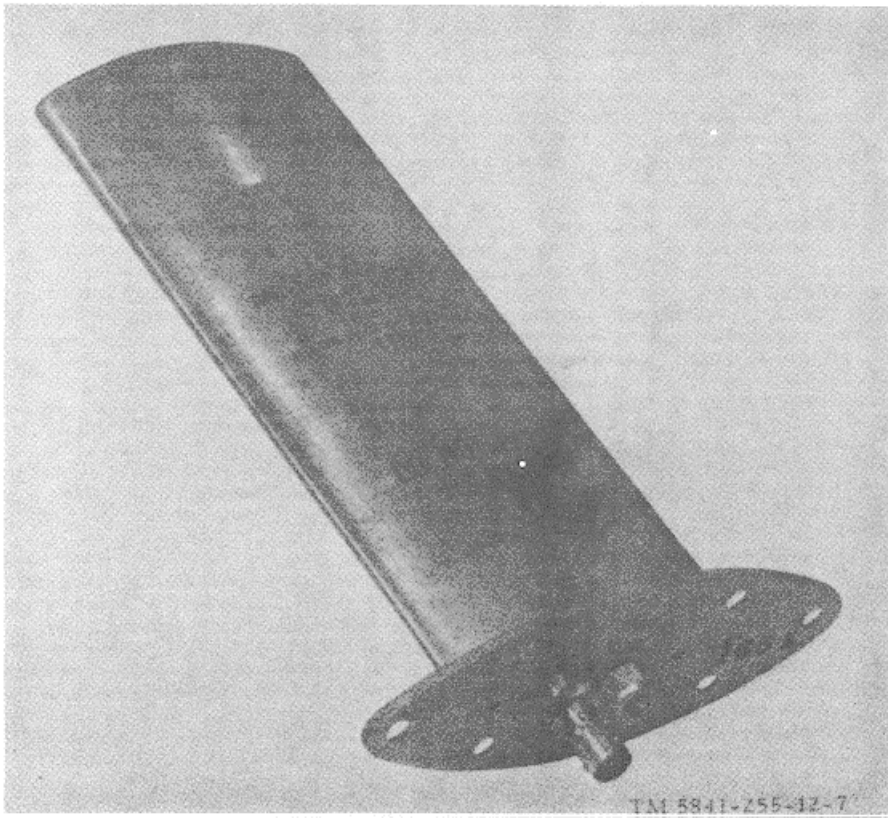


Figure 1-7. Antenna AT-450/ARC

b. Mounting MT-2653/ARC (fig. 1-9). Mounting MT-2653/ARC secures Transmitter, Radio T-991/AR when installed in the aircraft. Two holddown brackets at the rear of the mount help secure the rear of Transmitter, Radio T-991/AR. Two hook-type brackets, located in front, hold down the front end of Transmitter, Radio T-991/AR.

c. Base, Shock Mount, Electrical Equipment MT-3617/A (fig 1-10). This mount secures Converter-Storer, Signal Data CV-2094/A when installed in the aircraft. A curved lip at the rear of the mount and two screw clamps at the front secure Converter-Storer, Signal Data CV-2094/A to the mount.

1-16. Additional Equipment Required

The equipment given in a, b, and c below is not supplied with or part of Transmitting Set, Radar Data AN/AKT-18. It is required for use during operation and must be requisitioned separately.

a. Radar Surveillance Set AN/APS-94C. This set is an airborne radar surveillance system consisting of 11 major components. The equipment is used for making aerial photo-radar maps of terrain on either or both sides of an aircraft flightpath to determine the presence and location of fixed and moving targets. Signals by this radar set are converted to video which is displayed on cathode ray tubes and recorded photographically in the aircraft. Video from Radar Surveillance Set AN/APS-94C is also passed to Transmitting Set, Radar Data AN/AKT-18 which encodes it with data from the Doppler Navigation Set AN/ASN-64 and transmits the composite signal to a ground- based Receiving Set, Radar Data AN/TKQ-2.

b. Doppler Navigation Set AN/ASN-64. This radar set is a navigation and flight instrumentation system which uses a continuous wave doppler radar to

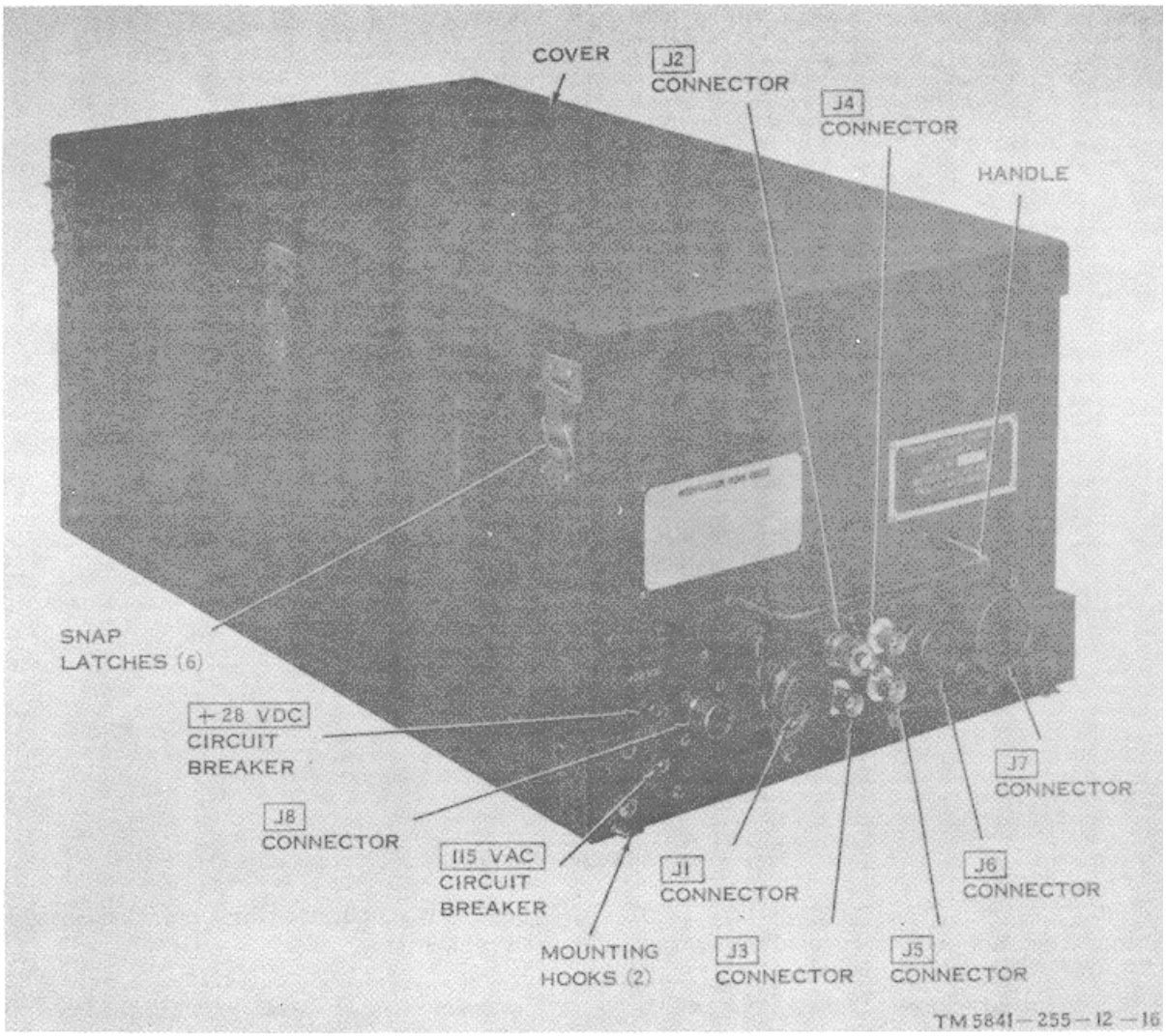


Figure 1-8. Converter-Storer, Signal Data CV-2094/A.

compute and display aircraft navigation data. The AN/ASN-64 provides Radar Surveillance Set AN/APS-94C and Transmitting Set, Radar Data AN/AKT- 18 with continuous aircraft groundspeed and drift angle information to automatically correct target presentation errors introduced by air- craft drift angle and changes in groundspeed, and provides aircraft present position data to Converter-Storer, Signal Data CV-2094/A of Transmitting Set, Radar Data AN/AKT-18.

c. Aircraft Interconnection Box J-1098/APS-94 and Interconnecting Cables. Aircraft Interconnecting Box J-1098/APS-94 and interconnecting cables are used to connect components of Transmitting Set, Radar Data AN/AKT-18 and Radar Surveillance Set AN/APS-94C when installed in the aircraft. Aircraft Interconnecting Box J-1098/APS-94 and interconnecting cables are not supplied with the data transmitting set.

1-17. Test Facilities Kit MK-856/AKT-1 8 (fig. 1-11)

The test facilities kit, with the exception of Conveyor, Roller Gravity MX-6829/AKT-18, duplicates

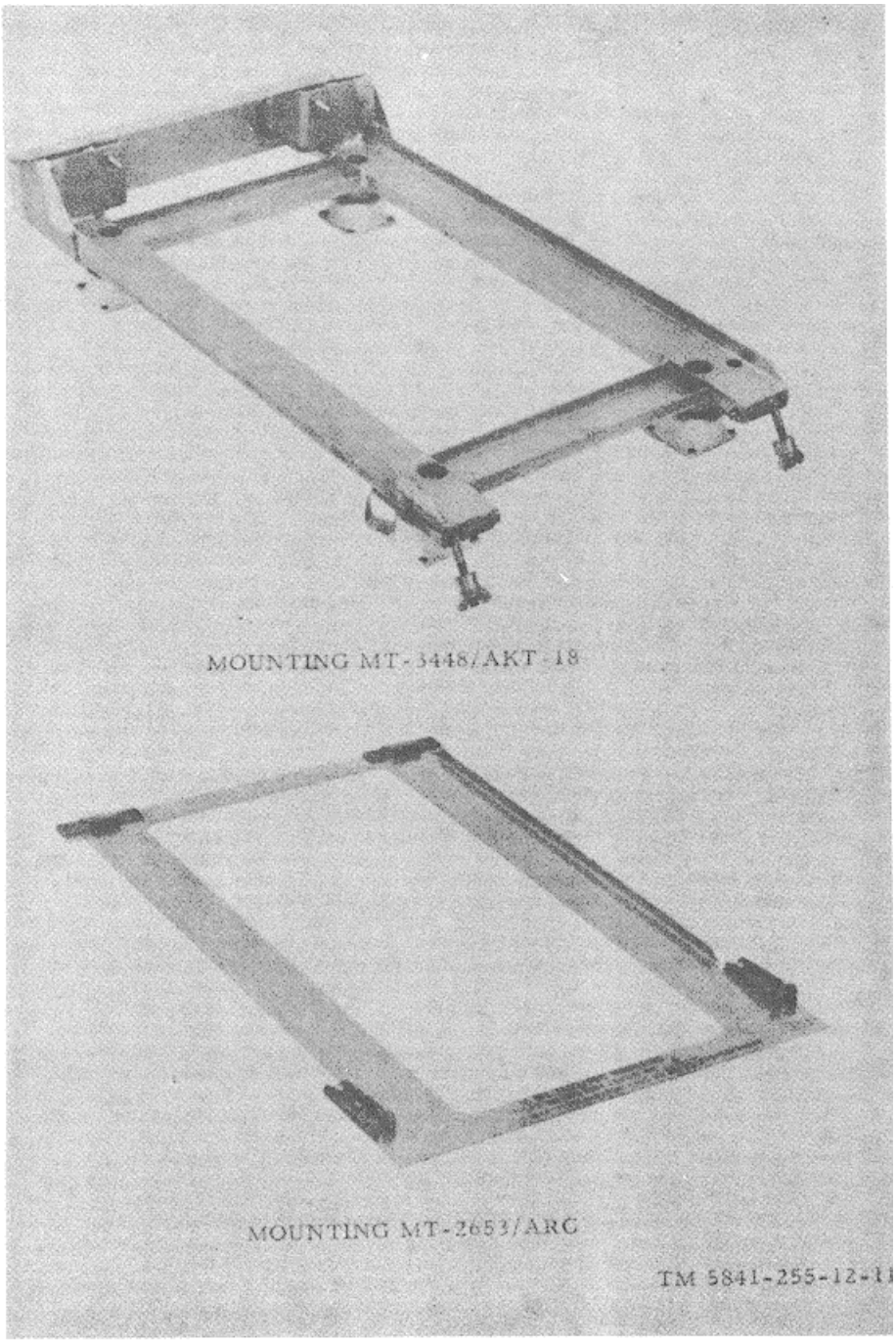


Figure 1-9. Mountings MT--448/AKT-18 and MT-265S/ARC.

the functions of the cables permanently installed in the aircraft, and provides additional items for bench testing the data transmitting set. It is intended for use by direct support maintenance personnel. The items comprising Test Facilities Kit MK-856/AKT-18 are identified in figure 1-11 and described in a through t below.

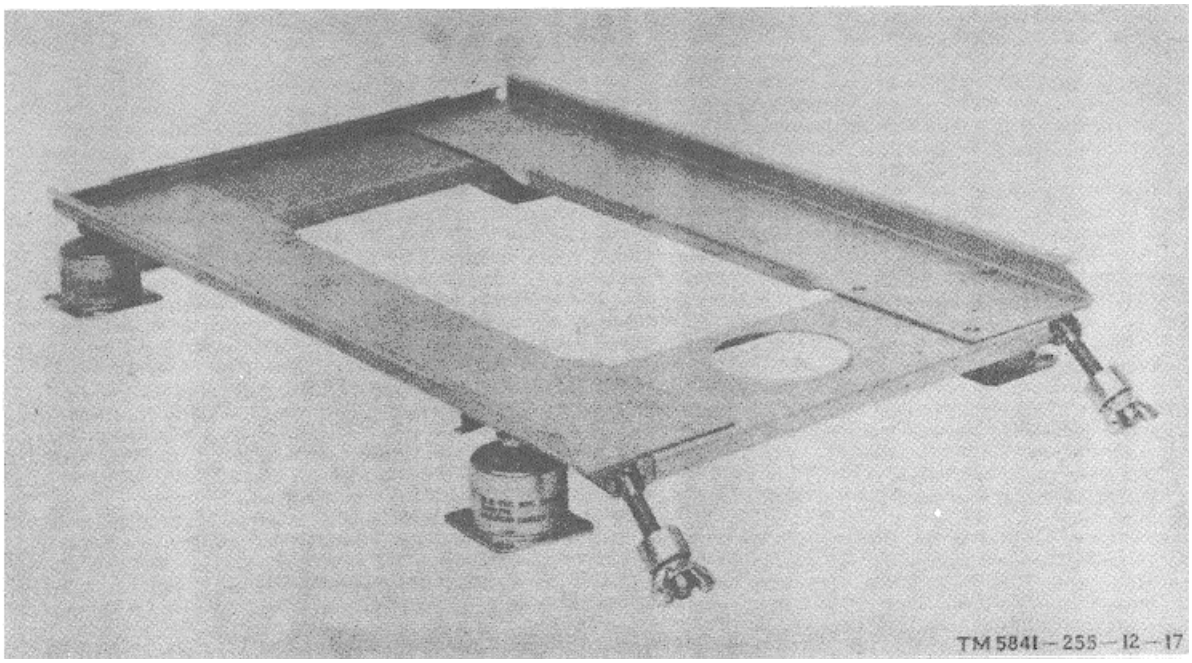


Figure 1-10. Base, Shock Mount, Electrical Equipment MT-3617/A.

Note. Dummy Load, Electrical DA-404/AKT-18 (l below); Coupler, Directional CU-1447/AKT-18 (n below); and Conveyor, Roller Gravity MX-6829/AKT-18 (p below) are contained in only some test Facilities Kits MK-856/AKT-18. Later issues of the kits do not contain these items.

a. Wiring Harness CX-11076/AKT-18 (1, fig. 1-11). This harness is used to extend electronic control amplifier 1A2A4 to the outside of Encoder, Video KY-565/AKT-18 for troubleshooting purposes. The harness is 2 feet long and consists of 15 individual conductors of stranded copper wire that terminate in a connector plug (5P1) at one end and a receptacle connector (5P2) at the other end. One connector (5P1) mates with P1 on electronic control amplifier 1A2A4. The other connector (5P2) mates with 1A2J4 on Encoder, Video KY-565/ AKT-18.

b. Wiring Harness CX-11077/AKT-18 (2, fig. 1-11). Wiring Harness CX-11077/AKT-18 connects video mapping group 1A1 to video converter group 1A2 for troubleshooting purposes. The wiring harness is 3 feet long and consists of 19 separate conductors of insulated stranded copper wire laced together to form a harness with an electrical connector on each end. One connector mates with 1A1P6 on video mapping group 1A1 and the other connector mates with 1A2J6 in video converter group 1A2.

c. Interconnection Assembly, Power Supply MX-6870/AKT-18 (3 fig. 1-11). Interconnection Assembly, Power Supply MX-6870/AKT-18 is used to extend photomultiplier power supply 1A1A5 outside Encoder, Video KY- 565/AKT-18. It is comprised of a 3.06- by 3.8- by 4.12-inch chassis, two leads, a laced wiring harness and a handle. The laced wiring harness, terminated on the free end by a connector, enters the open side of the chassis and terminates in another connector mounted on the opposite side of the chassis with the contact surface of the connector protruding to the outside of the chassis. A short lead terminates at one end in the connector which mounts on the chassis surface opposite the open end of the chassis. The other end of the lead terminates in a terminal stud. One end of the long lead terminates at the same terminal stud as the short lead. The other end of the long lead extends through the open side of the chassis where it terminates

in a connector. The laced wiring harness and lead extend approximately 14 inches from the chassis. A handle is attached to the chassis to facilitate inserting and removing the chassis from the component under test. The connector at the free end of the wiring harness mates with plug 1A1A5P1 on photomultiplier power supply 1A1A5 and the long lead connector mates with 1A1A5J1. The chassis of Interconnecting Assembly, Power Supply MX-6870/AKT-18 plugs into Encoder, Video KY-565/AKT-18 in place of photomultiplier power supply 1A1A5.

d. Interconnection Assembly, Electrical Synchronizer MX-6871/AKT-18 (4, fig. 1-11). This assembly extends electrical synchronizer 1A1A3 outside Encoder, Video KY-565/AKT-18 for troubleshooting purposes. It is comprised of a 1.155- by 4.19- by 12.875-inch chassis with an attached handle, and a laced wiring harness. The wiring harness terminates at each end in a connector. The connector on the free end of the wiring harness mates with 1AA3P1 on electrical synchronizer 1A1A3 when the synchronizer is removed from Encoder, Video KY-565/AKT-18 for troubleshooting. The other end of the wiring harness terminates in a connector that protrudes through the chassis of the interconnecting assembly. This connector mates with 1AlJ6 in Encoder, Video KY-565/AK-18 when the chassis of the interconnecting assembly is plugged into Encoder Video KY-565/AKT-18 in place of electrical synchronizer 1A1A3. The handle on the chassis of the interconnecting assembly facilitates inserting and removing of the chassis of the interconnecting assembly from the video encoder.

e. Interconnection Assembly, Converted Video Amplifier MX-6872/AKT-18 (5, fig. 1-11). The interconnecting assembly extends converted video amplifier 1AA2 approximately 30 inches outside Encoder, Video KY-565/AKT-18 for troubleshooting purposes. It is comprised of a 1.56- by 4- by 4.58-inch chassis with a handle attached and a wiring harness. The wiring harness is terminated at its free end by a connector that mates with connector 1A1A2P1 on converted video amplifier 1A1A2. The other end of the wiring harness enters the open side of the chassis and terminates in a connector that mounts on the opposite side wall of the chassis with the contacting surface of the connector protruding through to the outside of the chassis. The connector mates with 1A1J5 in Encoder, Video KY-565/AKT-18. When converted video amplifier 1A1A5 is removed from the video encoder for troubleshooting, the chassis of the interconnecting assembly is plugged into the video encoder in place of converted video amplifier 1A1A5. The connector on the free end of the wiring harness is plugged into the connector on converted video amplifier 1AlA5.

f. Cable Assembly, Special Purpose, Electrical CX-11075/U (4 ft) (Cable W3) (6, fig. 1-11). Frequency Selector C-6598/AR to 3A1J1 on Transmitter Subassembly MX-6828/AR when troubleshooting the transmitter subassembly. The cable is a 4-foot long, 22-conductor, rubber-insulated cable terminated on each end by an appropriate connector. One connector is marked W3P1 and the other connector W3P2.

g. Cable Assembly, Special Purpose, Electrical CX-11072/U (10 ft), (Cable W9) (7, fig. 1-11). Cable W9 is used to connect power auxiliary connector 5J10 on the AN/TKQ-2 to 1J7 on Interconnecting Box J-2664/AKT-18 to supply +28 volts and 115 volts alternating current (ac), 400 cycles to the interconnecting box. It also connects interconnecting box connector 1J7 to connector W1P1 of Wiring Harness, Branched CX-11073/AKT-18 to extend the length of power connections. Cable W9 is a 10-foot long, 7-conductor, rubber-insulated cable terminated on each end by an appropriate connector (W9P1 and W9P2).

h. Cable Assembly, Special Purpose, Electrical CX-11074/U (8 ft) (Cable W2) (8, fig. 1-11). Cable W2 is a 10-foot long, 24-conductor, rubber-insulated cable terminated on one end by a female connector (W2P1) and on the other end by a male connector (W2P2). It is used to connect jack 1A1J3 on Encoder, Video KY-565/AKT-18 to jack 1J11 on the AN/APS-94C interconnecting box.

i. Cable Assembly, Radio Frequency CG-1883A/U (5 ft) (Cable W4) (9, fig. 1-11). Cable W4 is used to connect Wattmeter AN/URM-120 to connector 3A3J1 on Indicator, Standing Wave Ratio IM-201/AR

when troubleshooting and servicing Transmitter Subassembly MX-6828/AR. It also connects transmitter jack 3A1J4 to directional coupler connector 8J1 when the IM-201/AR is not used. The cable is an RG-214/U coaxial cable terminated on each end by Electrical Connector Plug UG-21F/U. The cable has a nominal characteristic impedance of 50 ohms.

j. Wiring harness, Branched CX-11073/AK T-18 (Cable W1) (10, fig. 1-11). The wiring harness consists of a connector with two cables attached. The cables are banded together and then fan out 6 inches from the connector so that they can be connected to separate power sources. Two wires extend from the end of each cable. The wiring harness connects 1J7 on Interconnecting Box J-2564/AKT-18 to 115 volts vac and 28 volts direct current (dc) operating power during bench testing of the AN/AKT-18 components.

k. Cable Assemblies, Radio Frequency CG-530A/U (8 ft) (Cables W6, W7, and W8) (11, 12, and 13, fig. 1-11). These cables consist of an 8-foot long section of RY-62A coaxial cable terminated on each end by connector type UG-260 U. The cables have a characteristic impedance of approximately 93 ohms and are provided to facilitate various interconnections when servicing components of the AN/AKT-18. Cables WA6, W, and W8 interconnect, respectively, 1A1A3J4, 1A1A3J5, and 1A1J6 on Encoder, Video KY-565 AKT-18 with 5J7, 5J8, and 5J9 on Comparator, Signal CM-145B/ AIIS-94.

l. Dummy Load, Electrical DA-404 /AKT-18 (.14, fig. 1-11). The DA-404 AKT-18 dummy load(is approximately 6.6 inches long, 2.2 inches wide, and 2.2 inches high. The dummy load has an operating frequency range of 0 to 1,000 megacycles (mec). It presents a 50-ohm impedance to the transmitter and has an average power dissipation of 50 watts. The dummy load terminates the radio frequency (RF) output of Transmitter, Radio T-991/AR during bench testing of Transmitting Set, Radar Data AN, AKT-18. The connector 9J1 on the dummy load mates with Radio Frequency Adapter UG-57B/U.

M .Radio Frequency Adapter UG-57B/U (15, fig. 1-11). The UG-57B/U in an RF coaxial adapter with a male connector on each end that mates with connector UG-22/U or equal. It is 11/2 inches long and 0.821 inch in diameter, has a characteristic impedance of 50 ohms, and is rated for 500 volts RF maximum. The adapter facilitates coaxial cable interconnections when bench testing components and modules of the AN/AKT-18.

n. Coupler, Directional CU-1447/AKT-18 (16, fig. 1-11). The CU-1447/AKT-18 is a unidirectional transmission line coupler with a frequency range of 225 to 1,000 megacycles, a maximum standing wave ratio of 1:15, and a coupling loss of 30 decibels (db). It is 3.24 inches long, 1.12 inches wide, and 3 inches high. Each end is terminated in a N-type female connector. The directional coupler when used is inserted between the RF output of Transmitter, Radio T-991 AR and the antenna input. It is used to sample RF power from Transmitted, Radio T-991/AR transmission line for input into Test Set, Transmitting Set AN/AKM-2A when testing the radio transmitter.

o. Cable Assembly, Radio Frequency CG-530D/U (5 ft) (Cable W5 or W10) (17, fig. 1-11). Two of these cables are supplied in Test Facilities Kit MK-856i'AKT-18. Each cable consists of a 5-foot long section of RG-62A coaxial cable terminated on each end by connector type UG-260C/U. The cables have a characteristic impedance of approximately 93 ohms and are used to facilitate component interconnection when bench servicing the AN/AKT-18. Cable W5 interconnects jack 3A1J3 on Transmitter, Radio T-991 AR and jack 5J3 on Converter-Storer, Signal Data CV2094/A.. (Cable W10 interconnects jack 1A1A2J8 on Encoder, Video KY-565 AKT-18 and jack 5J4 on converter-Storer, Signal Data CV-2094/A.

p. Conveyor, Roller Gravity MX-6829/AKT-18 (fig. 1-11(2).1). The conveyor, a metal slide with bearings and casters and a protective plastic channel, facilitates removal or replacement of Encoder, Video KY-565/

AKT-18. In use, the conveyer is installed with the door frame bracket (A, fig. 1-11(2).1) fitted over the aircraft door sill and the video encoder mount bracket positioned on mount 2, flush with the bottom of the video encoder. The foot (B, fig. 1-11(2).1) fits over a section of the airframe.

q. Interconnecting Box J-2564/AKT-18 (19, fig. 1-11). The interconnecting box simulates

the functions of the aircraft interconnecting box and Panel, Power Distribution SB-2471/AKT-18 when the AN/AKT-18 is serviced outside of the aircraft. RANGE DELAY and OFF-STANDBY-TRANSMIT switches on the interconnecting box duplicate the functions of the corresponding switches on the power distribution panel in the aircraft. A 115-volt dc, 3-ampere fuse, and a 28-volt dc, 20-ampere fuse, are located on the interconnecting box along with two spare fuse holders. Test jacks are provided on the front of the interconnecting box for RESIDUE, 28-volt, and 115-volt measurements. Permanently attached cables 1W1, 1W2, and 1W3 facilitate interconnections with components of the AN/AKT-18 when the AN/ AKT-18 is bench serviced.

r. Wiring Harness, Branched CX-11467/ AKT-18 (20, fig. 1-11). The wiring harness consists of six 8-foot long conductors with a connector on one end and four sleeved leads on the other end. The four leads are tagged for identification. The conductors are bonded together and then fan out 6 inches from the connector so that they can be attached to separate power sources. The wiring harness is used to connect jack 5J8 on Converter-Storer, Signal Data CV-2094/A to 115 volts ac and 28 volts dc power during bench servicing of the components of the AN/AKT-18.

s. Extenders, Module MK-7542/U and MK-7543/U (21 and 22, fig. 1-11). The module extenders are dummy modules which may be plugged into the slot normally occupied by a functional module in Converter-Storer, Signal Data CV-2094/A. The functional module is then plugged into the module extender to permit observation and dynamic checks while the equipment continues to operate. The significant difference between the two module extenders is that the MK-7542/U has 29 pin connectors and the MK-7543/U has 41 pin connectors.

t. Extractor, Integrated Circuit. The integrated circuit extractor is made of aluminum and machined to a tweezer-like configuration, the jaws of which are designed to grip the small integrated circuit modlles for easy removal. The extractor is approximately 0.6 inch in diameter and 3 inches long.

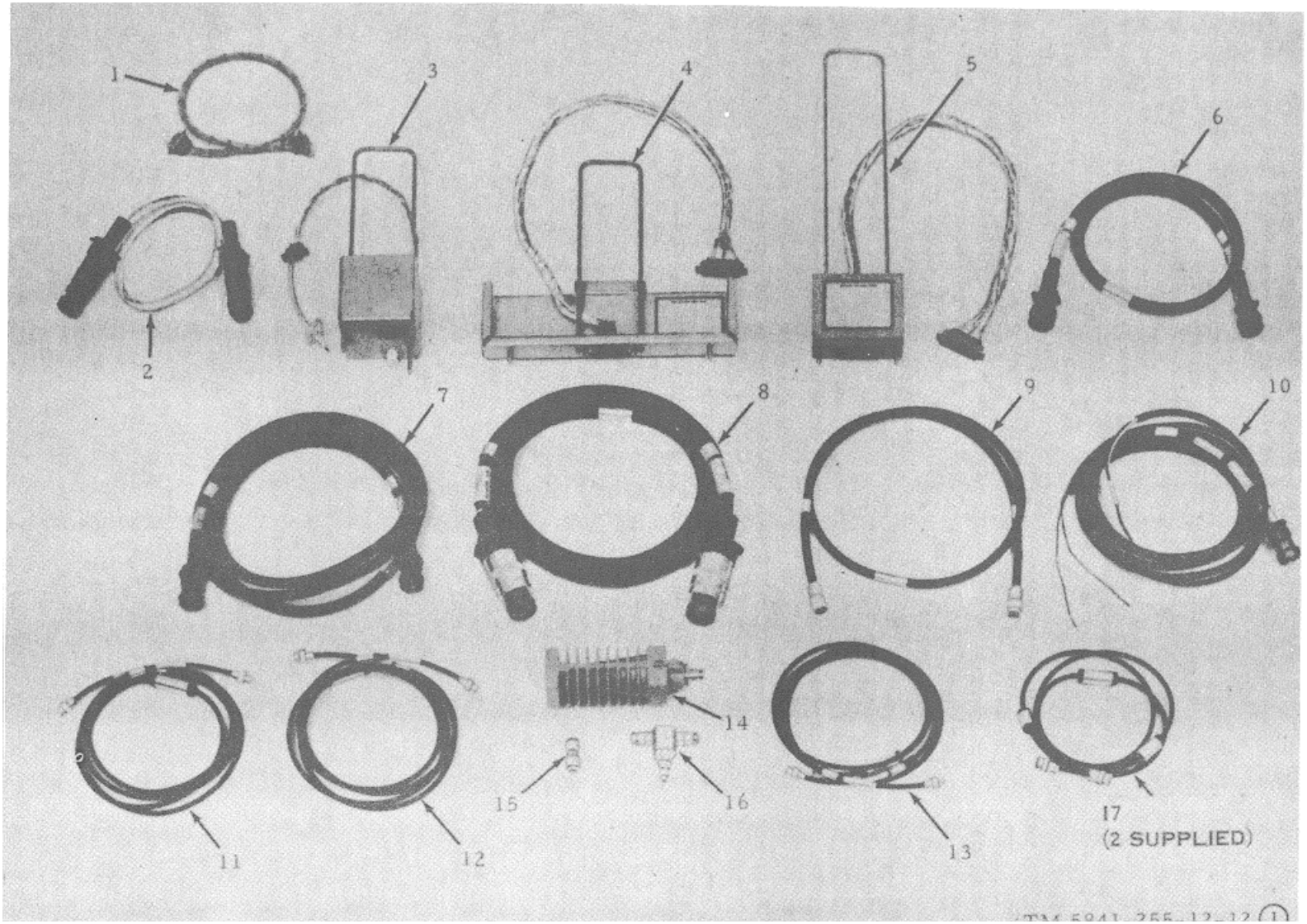


Figure 1-11 (1). Test Facilities Kit MK-856/AKT-18 (part 1 of 2)

1 Wiring Harness CX-11076/AKT-18
2 Wiring Harness CX-11077/AKT-18
3 Interconnection Assembly, Power Supply MX-6870/AKT-18
4 Interconnection Assembly, Electrical Synchronizer MX-6871/AKT-18
5 Interconnection Assembly, Converted Video Amplifier MX-6872/AKT-18
6 Cable Assembly, Special Purpose, Electrical CX-11075/U (4 ft) (cable WS)
7 Cable Amenably, Special Purpose, Electrical CX-11072/U (10 ft) (cable W9)
8 Cable Assembly, Special Purpose, Electrical CX-11074/U (8 ft) (cable W2)
9 Cable Assembly, Radio Frequency CG-1883A/U (5 ft) (cable W4)
10 Wiring Harness, Branched CX-11078/AKT-18 (W1)
11 Cable Assembly, Radio Frequency CG-530A/U (8 ft) (cable W6)
12 Cable Assembly, Radio Frequency CG-530A/U (8 ft) (cable W7)
13 Cable Assembly, Radio Frequency CG-530A/U (8 ft) (cable W8)
14 Dummy Load, Electrical DA-404/AKT-18
15 Radio Frequency Adapter UG-57B/U
16 Coupler, Directional CU-1447/AKT-18
17 Cable Assembly, Radio Frequency CG-530D/U (5 ft) (cable W5 or W10)

Figure 11 (1)--Continued.

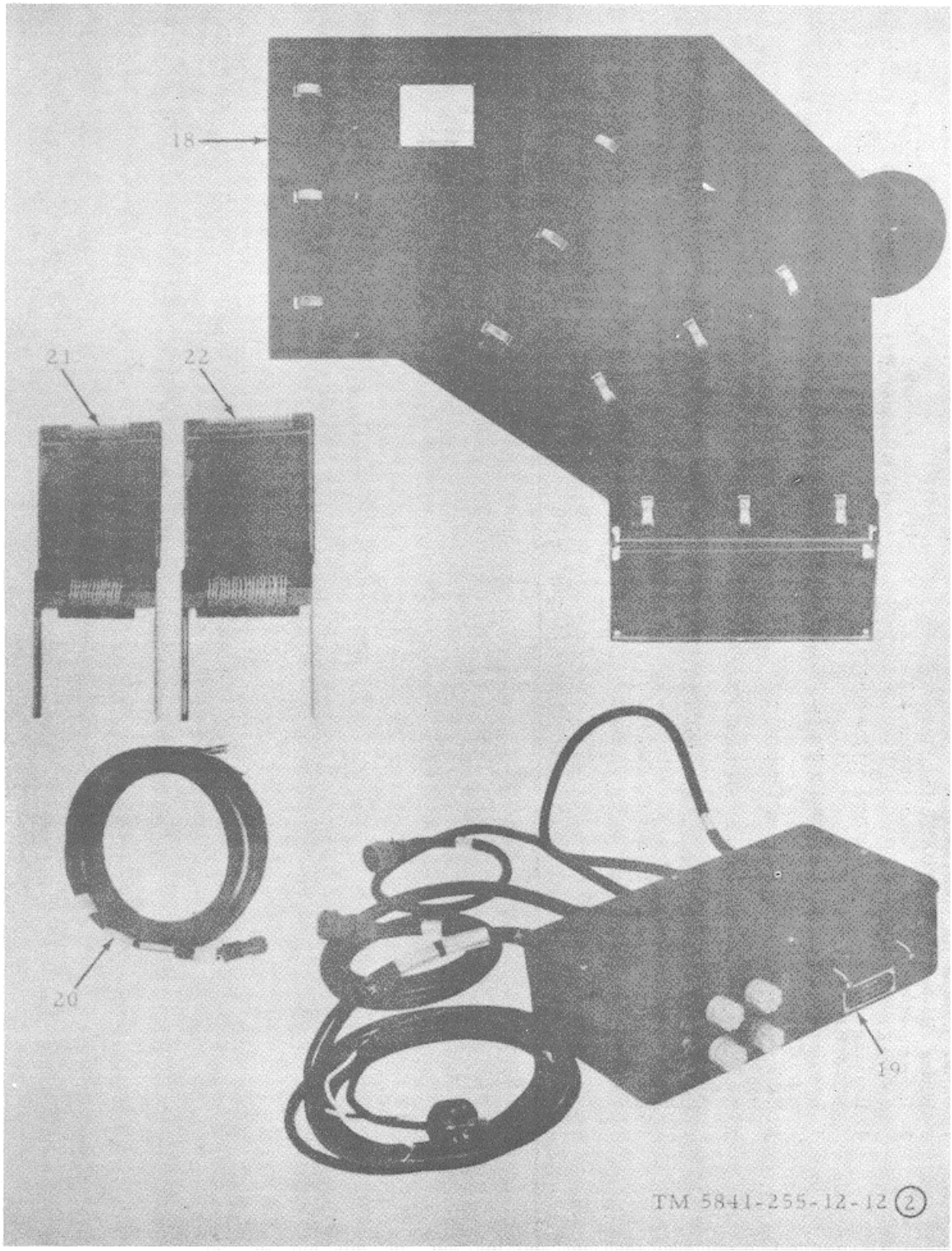


Figure 1-11 (2). Test Facilities Kit MX-856/AKT-18 (part 2 of 2)

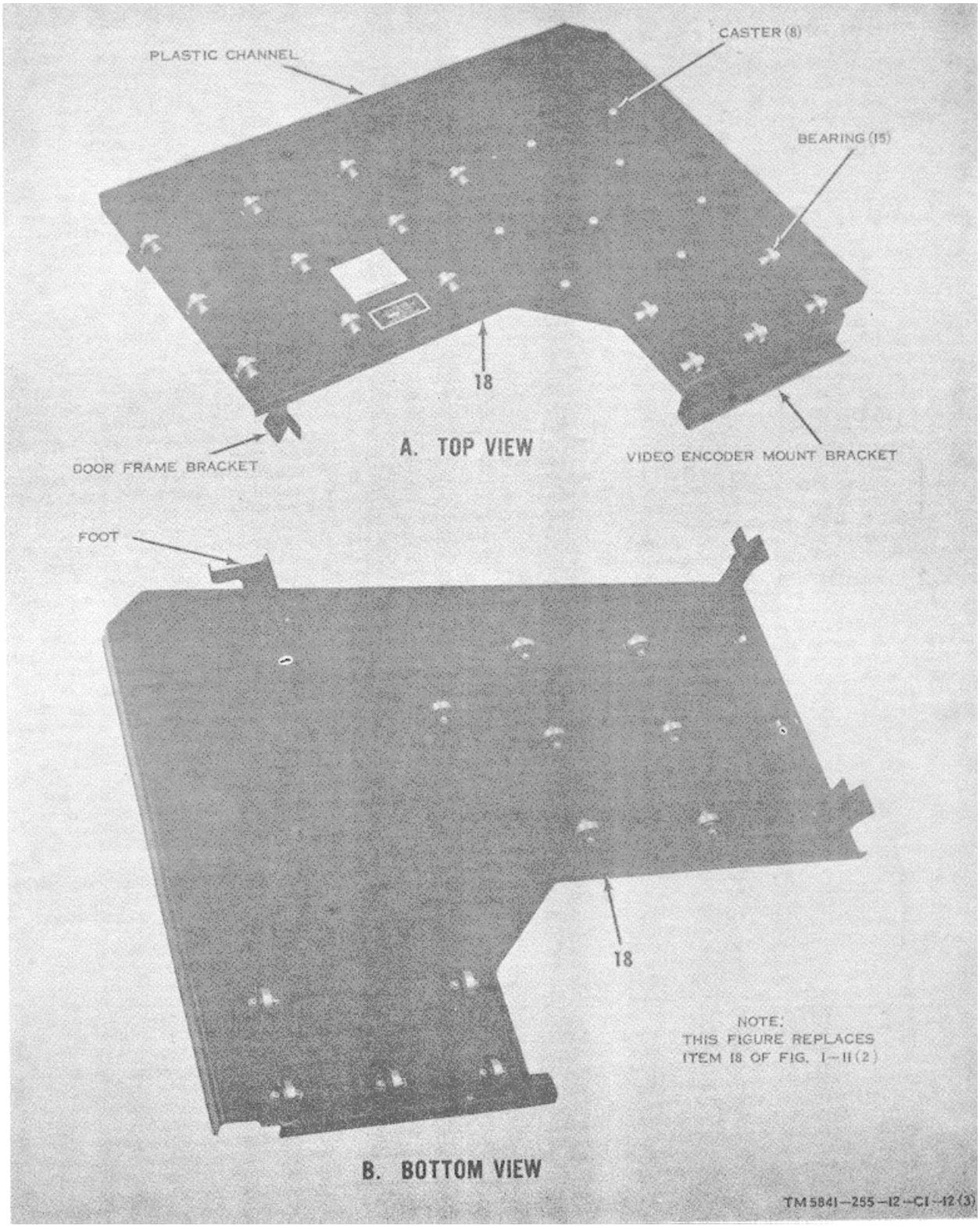


Figure 1-11 (2).1. Conveyor, Roller Gravity MX-6829/AKT-18.

18 Conveyor, Roller, Gravity MX-6829/AKT-18
19 Interconnecting Box J-2564/AKT-18
20 Wiring Harness, Branched CX-11467/AKT-18
21 Extender, Module MK-7542/U
22 Extender, Module MK-7543/U

Figure 11 (2)-Continued.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. OPERATOR'S CONTROLS AND INDICATORS

Note. **This section covers only items used by the operator; items used by maintenance personnel are covered by instructions for the appropriate maintenance category.**

2-1. General

Operating controls for Transmitting Set, Radar Data AN/AKT-18 are located on the center bulkhead in the pilot's compartment on Control, Frequency Selector C-6598/AR, and Panel, Power Distribution SB-2471/AKT-18. The function of each operator control and indicator is given in paragraphs 2-2 and 2-3.

2-2. Control, Frequency Selector C-6598/AR, Controls and Indicator (fig. 2-1)

CONTROL	Function
Hundreds-tens control ----	Selects operating frequency in 10-mc steps.
Units control ----------	Selects operating frequency in 1-mc steps.
Tenths-hundredths control.	Selects operating frequency in 0.05-mc steps.
MEGACYCLES indicator.	Indicates the frequency at which the radio transmitter is operating.

2-3. Panel, Power Distribution SB-2471/AKT-18, Controls (fig. 2-2)

Controls	Function
RANGE DELAY switch ----------	*Sw pos* — *Action* 0 ---------- Selects a O range delay for Transmitting Set, Radar Data AN/ART-18. 20 ---------- Selects a 20 km range delay for Transmitting Set, Radar Data AN/AKT-18. 40 ---------- Selects a 40-km range delay for Transmitting Set, Radar Data AN/AKT-18.
RESIDUE control (screwdriver-controlled pot.)	Used during initial flight to intensify or decrease moving target map background tone
OFF-STBY-TRANSMIT switch----------	*Sw pos* — *Action* TRANSMIT ---------- Enables operation of Transmitter, Radio T-991/AR. STBY ---------- Holds Transmitter, Radio T-991/AR in standby condition. OFF ---------- Deenergizes Transmitting Set, Radar Data AN/AKT-18.

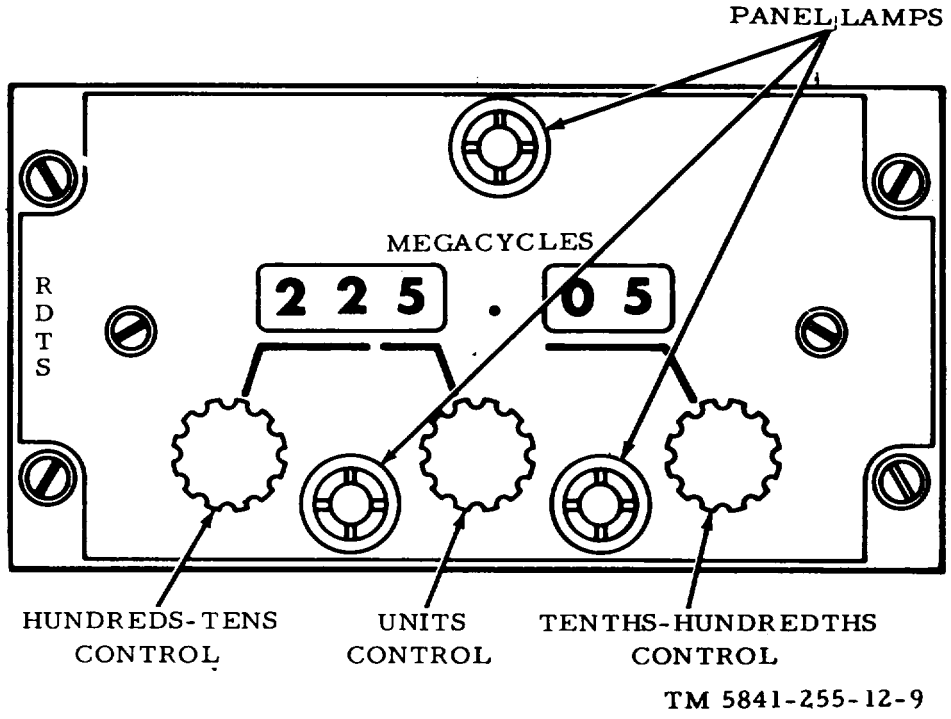


Figure 2-1. Control, Frequency Selector C-6598/AR, controls and indicator.

2-4. Aircraft Identification Switches (fig. 2-3)

The aircraft identification switches are located on the converted video amplifier within Encoder, Video KY-565/AKT-18 (fig. 1-3). Listed below are the switches and their functions.

Controls	*Function*
AIRCRAFT NO. identification switches:	Combination of switches in ON position must correspond to aircraft identification number.
	Sw pos — *Action*
1	ON — Adds a "1" to the coded aircraft identification number.
2	ON — Adds a "2" to the coded aircraft identification number.
4	ON — Adds a "4" to the coded aircraft identification number.
8	ON — Adds an "8" to the coded aircraft identification number.

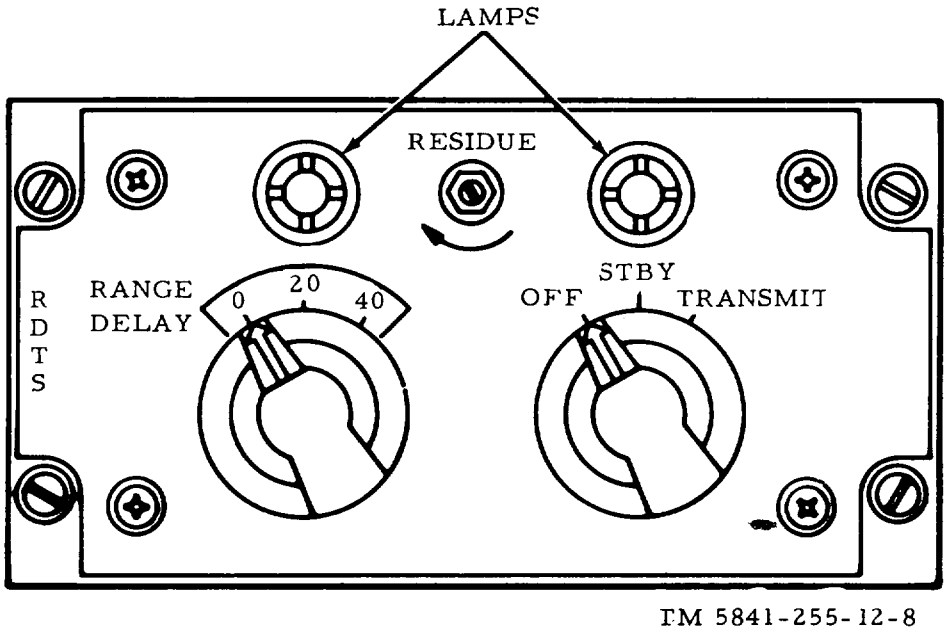


Figure 2-2. Panel, Power Distribution SB-2471/AKT-18, controls.

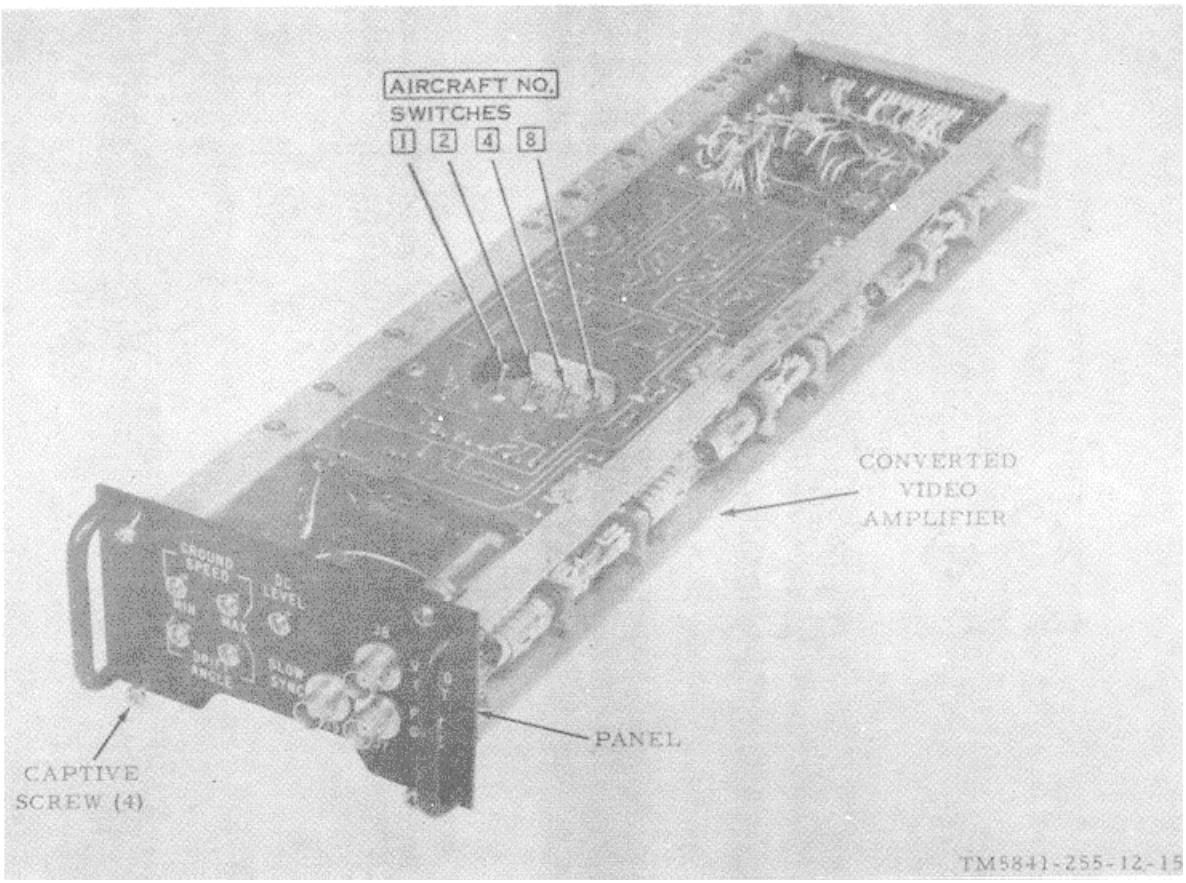


Figure 2-3. Converted video amplifier, showing aircraft number switches.

Section II. PREFLIGHT CHECKOUT PROCEDURE

2-5. General

a. Before proceeding on a flight mission, a preflight checkout of Transmitting Set, Radar Data AN/AKT-18 will be performed. The pre flight checkout is accomplished with the use of Test Set, Transmitting Set, Radar Data AN/ AKM-2A.

b. The AN/AKM-2A is a portable test set which includes Simulator, Radar Signal SM-460/AKM-2A (simulator); Test Set, Encoded Radar Data TS-2527/AKM-2A (preflight tester); and Oscilloscope OS-197/AKM-2A (oscilloscope). Only the preflight tester and oscilloscope are used in performing the pre flight checkout procedure.

c. In addition to checking Transmitting Set, Radar Data AN/AKT-18 before a mission, the preflight checkout procedure forms the basis for troubleshooting the AN/AKT-18. A trouble shooting chart (para 3-11) provides instructions for isolating a malfunction to a specific component (Encoder, Video KY-565/AKT-18; Transmitter, Radio T-991/AR, etc.). If an abnormal indication is observed during the pre flight checkout procedure, refer to the trouble shooting chart. If the corrective measures pre scribed in the troubleshooting chart do not correct the malfunction, the component must be referred to a higher category of maintenance. Note on the repair tag the indications encountered and how the equipment performed.

2-6. Preflight Test Setup

(fig. 3-1)

a. Test Equipment Required.

(1) Test Set, Encoded Radar Data TS-2527/AKM-2A (preflight tester).
(2) Cable Assembly, Special Purpose Electrical (2W1).
(3) Cable Assembly, Special Purpose Electrical (2W2)
(4) Cable Assembly, Special Purpose Electrical (2W'3).
(5) Cable Assembly, Special Purpose Electrical (2\5)
(6) Cable Assembly, RF-Transmitter RF (2W6).
(7) Oscilloscope OS-197/AKM-2A (oscillo scope).

Note. **Items 2 through 6 are supplied with the preflight tester.**

(8) Coupler, Directional CU-1447/AKT-18.
(9) Auxiliary power unit (APU). 28 volts dc at 200 amperes.

b. Equipment Interconnections. Make certain all power is turned off. Connect the test equipment and AN/AKT-18 as shown in figure 3-1 and described below.

(1) Connect test cable 2W1 between video encoder TEST connector J2 and pre flight tester VIDEO ENCODER connector 2J5.
(2) Connect test cable 2W2 between oscillo scope connector 3J1 and preflight tester OSCP connector 2J4.
(3) Connect test cable 2W3 between d/a converter connector J1 and preflight tester DATA CONVERTER connector 2J3.
(4) Connect test cable 2W6 between CU 1447/AKT 18 directional coupler at out put of transmitter and XMTR INPUT connector 2J2 of preflight tester. Do not disconnect cable between directional coupler and antenna.
(5) Connect APU to aircraft.

Note. **Refer to applicable aircraft electronic con figuration manual for connection and operation of APU.**

2-7. Preflight Test Procedure

a. Preliminary and Power Turn-On Procedures.

(1) Inspect components and cables of the AN/AKT-18. Look for cracks, breaks, corrosion, loose or binding knobs, loose connectors, and damage.
(2) Determine and record the assigned air craft identification number. Set the air craft identification number switches (para 2-9), if required.
(3) Close the aircraft DATA TRANS DC, AC, and D,/A (+28 vdc and 115 vac) and AN/APS-94C circuit breakers.
(4) Position the AN,/APS-94C RADAR con trol panel switches as follows:

Switch	Position
POWER	ON
NAV DATA	MAN
KNOTS GRD SPEED.....	300
DEGREES DRIFT.....	---15
ANTENNA	BOTH

(5) Position the AN/AKT-18 power distribution panel switches as follows:

Switch or control	Position
RANGE DELAY switch.	0
OFF-STBY-TRANSMIT switch.	STBY
RESIDUE control	Using a small screwdriver, turn control approximately 25 turns clockwise, then 2 turns counterclockwise.

(6) Check the air intake at the air filter on the video encoder front panel (fig. 1-3) to determine that the blower is operating. Use a piece of tissue or other light paper to determine that air is flowing.
(7) Turn on the aircraft INTERIOR LIGHTS control. Three panel illumination lamps on the frequency selector control (fig. 2-1) and two panel illumination lamps on the power distribution panel (fig. 2-2) should light.
(8) Tune the frequency selector control to 300 mc (para 2-10).

(9) Permit a 30 minute warmup period before proceeding with the test.
(10) Turn the OFF-STBY-TRANSMIT switch to TRANSMIT.

b. Video Encoder Test.

Note. **If the video pulses disappear during any applicable test, depress the preflight tester VIDEO RESET switch.**

(1) Set the preflight tester FUNCTION switch at ACFT IDENT, and the TEST SET DISPLAY/OFF/888 TEST switch at OFF (center).
(2) Position the test set oscilloscope trace at the bottom of the graticule to establish a ground reference.
(3) Set the preflight tester FUNCTION switch at CIRCLE SIZE 1, and the CIRCLE SIZE switch at NORM (center).
(4) Observe the oscilloscope display, which should contain five to six full video pulses (no dropout, full or partial) above and below the trace baselines (A, fig. 3-2).
(5) Set the CIRCLE SIZE switch at INCR the oscilloscope display should be as shown in A, figure 32.
(6) Set the CIRCLE SIZE switch at DCR; the oscilloscope display should be as shown in A, figure 32.
(7) Set the CIRCLE SIZE switch at NORM.
(8) Set the FUNCTION switch at CIRCLE SIZE 2.
(9) Repeat the procedures given in (4), (5), and (6) above. The oscilloscope display should be as shown in A, figure 3-2, except for circle size 2 toneburst, which will be narrower than seen when testing for circle size 1.

Note. **If corrective measures listed in the trouble shooting chart are required during this step, repeat (3) through (6) above, since the master circle size adjustment is common for circle sizes 1 and 2.**

(10) Set the FUNCTION switch at CRT BIAS 1.
(11) Set the AN/APS-94C RECORDER control ANTENNA switch to LEFT.
(12) Adjust the AN/APS-94C RADAR con trol KNOTS GRD SPEED control to 225, and the DEGREES DRIFT control to 0.
(13) Observe the oscilloscope; the display should conform to waveform B, figure 3-2. The pedestal level should be 0.6 volt (three minor graticule divisions) to average of noise. The 20-, 40-, and 41- kilometer (km) rangemarks, positioned as shown, should be present. In addition, one sequence of binary coded decimal (bed) present position information should appear as shown in a 2.5-minute interval.
(14) Set the power distribution panel RANGE DELAY switch at 20, and the preflight tester FUNCTION switch at CRT BIAS 2.
(15) Observe the oscilloscope; the display should conform to waveform C, figure 3-2. The pedestal level should be 0.6 volt to average of noise. The 40-, 41-, and 60-km rangemarks, positioned as shown, should be present. In addition, one sequence of bed present position in formation should appear, as shown, in a 2.5-minute interval.
(16) Set the power distribution panel RANGE DELAY switch to 40. Obtain (set) ground reference on oscilloscope.
(17) Observe the oscilloscope; the display should conform to waveform D, figure 3-2. The de level of waveform should be 1.8 volt (9 minor graticule divisions) above ground reference. The 41-, 60-, and 80-km rangemarks, positioned as shown, should be present. In addition, one sequence of bcd present position information should appear, as shown, in a 2.5-minute interval.
(18) Set the power distribution panel RANGE DELAY switch to 0.
(19) Set the preflight tester FUNCTION switch at CIRCLE PHASE.
(20) Observe the oscilloscope; the display should conform to waveform E, figure 3-2. The leading edge of the first video pulse should coincide with the trailing edge of the marker pulse supplied by the preflight tester.
(21) Set the preflight tester FUNCTION switch at DRIFT ANGLE.

(22) Observe the oscilloscope and adjust the video encoder DRIFT ANGLE MAX control for minimum width of displayed pulse (F, fig. 3-2).
(23) Set the preflight tester FUNCTION switch at GROUND SPEED.
(24) Observe the oscilloscope and adjust the video encoder GROUND SPEED MAX control for minimum width of displayed pulse (F, fig. 3-2).
(25) Set the FUNCTION switch at ACFT IDENT.
(26) Observe the preflight tester display. The number displayed should be the same as the assigned aircraft identification number (para 2-9).

c. Transmitter Test.

(1) Set the AN/APS-94C RECORDER control ANTENNA switch at BOTH, and the preflight tester FUNCTION switch at XMTR IN.
(2) Observe the oscilloscope; the display should conform to waveform G, figure 3-2. Video pulses should be 6.2 volts $\pm$2.0 (6.2 major graticule divisions $\pm$2.0); the toneburst amplitude, excluding aircraft identification tone burst, should be 4.2 volts $\pm$0.5 (4.2 major graticule divisions $\pm$0.5). The aircraft identification toneburst, if present, should be 1.9 volts $\pm$0.2 (1.9 major graticule divisions $\pm$0.2) in amplitude.
(3) Set the preflight tester FUNCTION switch at XMTR OUT.
(4) Observe the oscilloscope; the display should approximate G, figure 3-2.
(5) Observe transmitter forward power reading on the meter of Indicator, Standing Wave Ratio IM-201/AR; forward power should be 12 watts minimum.
(6) Depress the IM-201/AR PRESS FOR REFL POWER switch and observe the reflected power reading on the meter; it should be 5 watts maximum.

d. D/A Converter Tests.

(1) Set the preflight tester FUNCTION switch at PRES POS and observe + 12 V and 12 V preflight tester pilot lamps; neither lamp should light.
(2) Wait 30 seconds, and then observe the present position display on the pre flight tester. The display should have a north-south numerical indication followed by a fiducial mark (FFF) indication followed by an east-west numerical indication.
(3) Check the present position shown on Control, Indicator C-6586/AYA-3 of Doppler Navigation Set AN/ASN-64. The preflight tester north-south and east-west present position numerical displays should be within $\pm$5 unit digits (km) of those shown on the C6586/AYA-3. The amplitude of the bed presentation (H, fig. 3-2) on the oscilloscope should be 6.4 volts $\pm$0.6 (6.4 major graticule divisions $\pm$0.6). During the bcd presentation, the bcd presentation bias level should not fall below the video dc level.
(4) Set the preflight tester TEST SET DISPLAY/OFF/888 TEST switch at 888 TEST.
(5) Press Recorder, Radar Mapping RO-225A/APS-94A test switch S3 or Re corder-Processor-Viewer, Radar Map ping RO-166B/UP test switch S6 and observe an illuminated 888 north south and 888 east-west display with in the unit.
(6) Set the preflight tester TEST SET DISPLAY/OFF/-888 TEST switch at OFF.

e. Power Turnoff.

(1) Set the power distribution panel OFF STBY-TRANSMIT switch at OFF.
(2) Set the AN/APS-94C RADAR con trol panel POWER switch at OFF.
(3) Open aircraft DATA TRANS DC, AC, and D/A (+28 vdc and 115 vac) and AN/APS-94C circuit breakers.
(4) Disconnect the test equipment from the AN/AKT-18.
(5) Turn off and remove aircraft APU.

Section III. OPERATION

2-8. General

Before starting on a flight mission, the operator will check as follows:

a. Inspect Control, Frequency Selector C-6598/AR (fig. 2-1) for cracks, breaks, and loose or binding knobs.

b. Inspect Panel, Power Distribution SB-2471/AKT-18 (fig. 2-2) for cracks, breaks, and loose or binding knobs.

c. When aircraft internal and external lights control is in operation, check to see that the three panel illuminating lamps (fig. 2-1) on Control, Frequency Selector C-6598/AR and two lamps (fig. 2-2) on Panel, Power Distribution SB-2471/AKT-18 are lighted.

d. Be sure that the aircraft identification number has been properly programed into Transmitting Set, Radar Data AN/AKT-18 (para 2-9).

2-9. Aircraft Identification Number

a. Each aircraft equipped with Transmitting Set, Radar Data AN/AKT-18 is assigned an identification number. This identification is introduced electronically within Transmitting Set, Radar Data AN/AKT-18 and is indicated visually in ground-based Receiving Set, Radar Data AN/TKQ-2.

b. The aircraft identification data are produced in Encoder, Video KY-565/AKT-18 in Transmitting Set, Radar Data AN/AKT-18 by the setting of the four AIRCRAFT NO. switches (fig. 2-3) in the converted video am plifier module of Encoder, Video KY-565/ AKT-18 (fig. 1-3).

c. To gain access to the AIRCRAFT NO. identification switches, loosen the four captive screws on the front of the converted video amplifier (fig. 1-3) module and pull the module out of the video encoder far enough to permit manual positioning of the AIRCRAFT NO. switches (fig. 2-3).

d. The switches are numbered 1, 2, 4, and 8 with the assigned number designating the numeric value of the respective switch. The combined total of ON switches must equal the aircraft number. For example: if the assigned aircraft number is 12, switches 4 and 8 will be in the ON position. If the number is 15, all switches will be on (1 + 2 + 4 + 8).

Note. Switch ON position is toward rear of amplifier module.

2-10. Operation

Caution: **Do not turn on Transmitting Set, Radar Data AN/AKT-18 until after the air craft is airborne and then only with the approval of the pilot. The radar set must be on for at least 3 minutes before Transmitting Set, Radar Data AN/AKT-18 can be operated.**

a. Check to see that the three DATA TRANS aircraft circuit breakers (DC, AC, and D/A) are closed.

b. Adjust Control, Frequency Selector C 6598/AR (fig. 2-1)to the desired frequency as follows:

(1) Rotate the hundreds-tens control (left knob) to the desired 10 and 100-mc position as shown in the MEGACYCLES window.

(2) Rotate the units control (center knob) to the desired 1-mc position as shown in the MEGACYCLES window.

(3) Rotate the tenths-hundredth control (right knob) to the selected 0.1 and 0.01-mc position as shown in the MEGACYCLES window. Example: If the desired frequency is 225.05 megacycles, the operator, by adjusting the three controls, will bring into view in the window (read ing from left to right) 22, 5, and .05.

c. Adjust the controls on panel, Power Distribution SB-2471/AKT-18 (fig. 2-2) as follows:

(1) Adjust the RANGE DELAY switch to the selected range delay of 0, 20, or 40 km delay.

(2) Operate the OFF-STBY-TRANSMIT switch to STBY until the actual map ping is to be performed. When ready for mapping (transmitting), rotate the switch to TRANSMIT.

d. The RESIDUE control on the power distribution panel is normally set during an initial

flight to adjust the background tone of the moving target map. Terrain differences in radar reflective characteristics may require that the RESIDUE control be changed to suit average terrain conditions. An excessive back ground tone on the moving target map may be strong enough to obliterate weak moving tar gets. A slight adjustment of the RESIDUE control counterclockwise will reduce the moving target background tone to correct the above condition. Communication with Receiving Set, Radar Data AN/TKQ-2 operator will be necessary to determine the amount of adjustment needed.

2-11. Jamming

If jamming of the transmitted signal of Transmitting Set, Radar Data AN/AKT-18 should occur, the map being produced by the data receiving set will be distorted. Upon ad vice over the aircraft communication set by the operator of receiving Set, Radar Data AN/ TKQ-2 that the transmitted signal is being jammed, determine a new frequency for transmission. Change to the new frequency by operating the controls (para 2-10) on Control, Frequency Selector C6598/AR (fig. 2-1).

CHAPTER 3

MAINTENANCE

Section I. GENERAL

3-1. Scope of Maintenance

This chapter includes instructions covering operator and organizational maintenance of Transmitting Set, Radar Data AN/AKT-18. Tools and test equipment required for organizational maintenance are listed (para 3-2) and preventive maintenance procedures are provid ed (paras 3-3 through 3-9). A troubleshooting chart (para 3-11) is included and is to be used in conjunction with the preflight checkout procedure (para 2-6 to isolate a malfunction to a component. Also included are removal and replacement procedures for components and for lamps, fuses, air filters, and control knobs.

3-2. Tools, materials, and Test Equipment Required

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

a. Tools. Tool Kit, Radio Repairman TK-115/G contains the only tools required.

b. Materials.

(1) Cheesecloth, bleached, lint-free.
(2) Cleaning compound (FSN 7930-395-9542).
(3) Sandpaper, No. 000.
(4) Orangestick

c. Test Equipment.

(1) Test Set, Transmitting Set, Radar Data AN/AKM-2A.
(2) Test Set, Radar AN/GPM-46A (authorized for maintenance of Radar Surveillance Set AN/APS-94C).
(3) Multimeter AN/URM-105.
(4) Adapter UG-273/U.
(5) Auxiliary power unit (APU) capable of providing 28 volts dc at 200 amperes. (Refer to aircraft signal electronic configuration technical manual.)

Section II. PREVENTIVE MAINTENANCE

3-3. General

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

3-4. Preventive Maintenance Checks and Services

The preventive maintenance checks and services charts (paras 3-6 and 3-7) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and what the normal conditions are; the References column lists the illustrations. paragraphs, or manuals that contain de tailed repair or replacement procedures. If the defect cannot be remedied by the organizational repairman, higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38750.

3-5. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the AN/AKT-18 are required on an inter mediate and periodic basis.

a. Paragraph 3-6 prescribes intermediate checks and services to be accomplished every 25 flying hours and under the conditions listed below:

(1) When the equipment is initially in stalled.
(2) When the equipment is reinstalled after removal for any reason.
(3) At least once each week if the equipment is maintained in standby condition.

b. Paragraph 3-7 prescribes those periodic checks and services that must be performed concurrently with the aircraft periodic inspection (every 50 flying hours). This procedure includes a thorough visual inspection of components of the AN/AKT-18 and requires removal of components from the aircraft. The components will be placed on a bench where covers will be removed (with assistance of direct sup port personnel) to permit visual inspection.

3-6. Intermediate Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedures	References
1	Cables and connections	Tighten all cable connections (fingertight) on Encoder, Video KY-65/AKT-18, ConverterStorer, Signal Data CV2094/A, Panel, Power Distribution, SB-2471/AKT-18, Control, Frequency Selector C6598/AR, and Transmitter, Radio T-991/AR.	None.
2	Intercabling and connectors	Check all interconnecting cables and connectors for cracks and breakL Replace cables that have cracks or broken connectors.	None.
3	All items	If necessary, clean the system components in accordance with cleaning procedures.	Para 3-8
4	Fuses	Inspect fuses for continuity, proper rating, and correct installation. Make certain that the SPARE holders contain good, spare fuses.	Para 3-24.
5	Lamps	Check lamps on Panel, Power Distribution SB-2471/AKT-18 and control, Frequency Selector Cb598/AR panel for proper operation.	Para 3-24.
6	All items	Check all units for normal operation in accordance with the preflight checkout procedure (para 2-7).	None.

3-7. Periodic Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	Reference
1	Major components	Remove Encoder, Video KY-565/AKT-18, Transmtter, Radio T991/AR, Converter, Storer Signal Data	Para 3-14, 3-16, 3-18, 3-20, and 3-22.

Sequence No.	Item to be inspected	Procedures	References
		CV-2094/A, Panel, Power Distribution SB-2471/AKT-18, and Control, Frequency Selector C-6598/AR from the aircraft.	
2	Major components	With aid of direct support personnel, remove covers from components. Visually inspect (without removing) exposed modules, subassemblies, and parts for *a.* Loose or broken wires. category for *b.* Discoloration of parts, indicating overheating or shorting. *c.* Leakage of parts (capacitors and transformers). *d.* Blisters,cracks, checking, or loose paint. *e.* Cold solder joints (frosted appearance). *f.* Damaged hardware (nuts, bolts, washers, etc).	If any defects are observed, tag the component and refer to higher maintenance repair or replacement.
3	Major components ----------	Replace covers on components. Remove all rust and corrosion from components and touch up any bare spots with paint.	Para 3-8b.
4	Air intake filter (Transmitter, Radio T991/AR).	*a.* Remove air filter from Transmitter, Radio Radio T-991/AR. *b.* Clean and reinstall removed air filter.	Paras 3-8 and 3-27.
5	Air intake filter (Encoder, Video Video KY565/AKT18).	*a.* Remove air intake filter from Encoder, Video KY-565/AKT-18. *b.* Clean and reinstall removed filter in accordance with prescribed procedure.	Paras 3-8 and 3-26.
6	All items ----------	Reinstall system in aircraft	Paras 3-15, 3-17, 3-19, 3-21, 3-23.
7	Mountings ----------	Tighten loose nuts or bolts. Replace missing or damaged hardware as required.	
8	Publications ----------	See that all publications are complete, serviceable, and current.	DA Pam 310-4.
9	Modifications ----------	Check DA Pam 310-4 to determine if new applicable MWO's have been published. ALL URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38-750 and DA Parn 310-4.

3-8. Cleaning and Painting

a. Cleaning. Cleaning Transmitting Set, Radar Data AN/AKT-18 consists of removing dirt, dust, grease, fungus, or other foreign material from the exterior of the equipment.

(1) Remove dust and loose dirt with a clean soft cloth.

Warning: **Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. Do not use near a flame.**

(2) Remove grease, fungus, and ground in dirt from the equipment exterior with a cloth dampened (not wet) with cleaning compound. Wipe the component dry with a clean lint free cheese cloth.

(3) Remove dust or dirt from plugs and jacks with a brush.

(4) Clean the air filters in Encoder, Video KY-565 AKT-18 and Transmitter, Radio T-991/AR by washing mild soap an(1 water. Allow the air filter to thoroughly dry before re placing in the component. For air filter removal and replacement procedures, refer to paragraphs 3-26 and 3-27, respectively.

b. Touchup Painting Instructions. Remove rust and corrosion from metal surfaces by sanding them lightly with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further rust or corrosion. Refer to the applicable cleaning and refinishing prac tices specified in TB SIG 364.

3-9. Lubrication

No lubrication of the AN/AKT-18 is required.

Section III. TROUBLESHOOTING

3-10. General

a. The troubleshooting chart (para 3-11) is used in conjunction with the preflight check out procedure in paragraph 2-6 to isolate a malfunction to a component. The trouble symptoms given in the troubleshooting chart are those that may be obtained while performing the preflight checkout procedure (para 2-7). Paragraph references in the Trouble symptom column are to paragraphs in the preflight checkout procedure wherein the symptom would be encountered. Supplementary maintenance information is given in paragraphs 3-13 through 3-30.

b. During troubleshooting a malfunction may occur that indicates the radar set is not supplying proper inputs to Transmitting Set, Radar Data AN/AKT-18. In this case, stop the preflight checkout and perform the procedure given in paragraph 3-12. This procedure uses Test Set, Radar AN/GPM-46A and establishes which inputs, if any, are not being supplied properly.

3-11. Troubleshooting Chart

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	Blower in Eneoder, Video KY-565/AKT-18 is not Operating (para 2-7a(6)).	*a.* 115VAC 2 AMP fuse blown. fuse (para 3-24). *b.* 28 vdc or 115 vac voltages not present.	*a.* Check fuse. Replace defective *b.* Check voltages at Encoder, Video AN/AKT-18 +28 6 AMP and 115 VAC 2 AMP fuses (fig. 1-3). Place negative probe of multimeter in contact with chnssls of Encoder, Video KY 565GS/AK-18 and insert positive probe in center hole of +28 VDC 6 AMP

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
			fuseholder. Indication should be 28 vdc ± 0.5. To check voltage at 115 VAC 2 AMP fuse, set multimeter for D00vac range With multimeter negative probe to chassis, insert positive probe of multimeter in 115 VAC 2 AMP fuseholder for indication between 103 and 127 vac.
		c. Top or bottom cover of Encoder, Video KY-565/AKT-18 not secure, resulting in interlock switch being open.	*c.* See that top and bottom covers are secure.
		d. A module not securely mounted in Encoder, Vide, KY-565/AKT-18, resulting in respective interlock switch being open.	*d.* See that modules are secure.
		e. Faulty Encoder, Video KY-565/AKT-18. required.	*e.* Higher category of maintenance
3	Panel illuminating lamps on Control, Frequency Selector C-6598/AR or Panel, Power Distribution SB-2471/AKT-18 not lighted (para 2-7a (7)).	*a.* Defective lamp ----------	*a.* Check lamp, replace if necessary (para 3-24).
		b. No 28-volt panel illumination power to Panel, Power Distribution SB-2471/AKT-18 or Control, Frequency Selector C-6598-AR.	*b.* Check 28volt input to affected component. Refer to interconnecting diagram (fig. 3-5).
4	Aircraft identification number readout does not agree with actual number, or oscilloscope presentation does not conform to waveform in figure 3-2 (para 2-7 b(26)).	*a.* Improper aircraft number identification switch settings (fig. 2-3).	*a.* Check switch settings (para 2-4).
		b. Faulty AN/APS-94C radar set.	*b.* Perform procedure in paragraph 3-12.
		c. Faulty Encoder, Video KY 565/AKT-18.	*c.* Higher category maintenance required.
5	Forward power measured at Indicator, Standing Wave Ratio IM201/AR is less than 20 watts (para 2-7 c (5)).	Faulty Transmitter, Radio T 991/AR.	Hiigher category maintenance required.
6	Reflected power measured at Indicator, Standing Wave Ratio IM-201/AR is more than 5 watts (para 2-7 *c* (6)).	*a.* RF cable connectors not secure.	*a.* Check cable connectors.
			b. Check antenna.
		c. Faulty Transmitter, Radio T 991/AR. required.	*c.* Higher category maintenance

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
7	Oscilloscope presentation does not conform to waveform in figure 3-2 (para 2-7 *b* (4)).	*a.* Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control out of adjustment. *b.* Faulty Encoder, Video KY65/AKT-18.	*a.* Rotate Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control (fig. 3-3) slight cw. If necessary, rotate slightly ccw. *b.* Higher category maintenance required.
8	Oscilloscope presentation does not conform to waveform in figure 3-2 (para 2-7 *b* (5)).	*a.* Encoder, Video KY565/AKT18 MASTER CIRCLE SIZE control out of adjustment. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Rotate Encoder, Video KY565/AKT18 MASTER CIRCLE SIZE control (fig. 3-3) slightly ccw. *b.* Higher category maintenance required.
9	Oscilloscope presentation does not conform to waveform in figure 3-2 (para 2-7 *b* (6)).	*a.* Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control out of adjustment. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Rotate Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control (fig. 3-3) slightly cw. *b.* Higher category maintenance required.
10	Oscilloscope presentation does not conform to waveform in figure 3-2 (para 2-7 *b* (9)).	*a.* Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control out of adjustment. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Rotate Encoder, Video KY565/AKT-18 MASTER CIRCLE SIZE control (fig. 3-3) slightly cw. If necessary, rotate ccw. *b.* Higher category maintenance required.
11	Pedestal level not 0.6 volt to average of noise; or rangemarks not present (para 2-7 *b* (13)).	*a.* Encoder, Video KY565/AKT-18 FT IND BIAS control out of adjustment. *b.* Faulty AN/APS-94C radar set *c.* Faulty Encoder, Video KY565/AKT-18.	*a.* Adjust Encoder, Video KY65/AKT-18 FT. IND BIAS control (fig. 3-3). Rotating cw increases pedestal level. *b.* Perform procedure given in para 3-12. *c.* Higher category maintenance required.
12	Pedestal level not 0.6 volt to average of noise or rangemarks not present (para 2-7 *b* (15)).	*a.* Encoder, Video KY565/AKT-18 MT. IND BIAS control out of adjustment. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Adjust Encoder, Video KY565/AKT18 MT. IND BIAS control (fig. 3-3). Rotating cw increases pedestal level. *b.* Higher category maintenance required.
13	Dc level is not 1.8 volt above ground reference, or rangemarks not present (para 2-7 b (17)).	*a.* Encoder, Video KY565/AKT-18 DC LEVEL control out of adjustment. *b.* Fault AN/APS-94C radar set. *c.* Faulty Encoder, Video KY565/AKT-18. required.	*a.* Adjust Encoder, Video KY65/AKT-18 DC LEVEL control on front of converted video amplifier (fig. 2-3). Rotating ccw decreases dc level. *b.* Perform procedure given in paragraph 3-12. *c.* Higher category maintenance

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
14	Oscilloscope presentation does not conform to waveform G in figure 3-2 (2-7 *c* (2).	Faulty Encoder, Video KY565/AKT-18	Higher category maintenance required.
15	Video pulse leading edge does not coincide with negativegoing pulse (2-7 *b* (20)).	*a.* Encoder, Video KY565/AKT-18 MASTER CIRCLE PHASE control out of adjustment. *b.* Faulty Encoder, Video KY 565/AKT-18.	*a.* If video pulse leads negative going pulse, rotate Encoder, Video KY565/AKT-18 MASTER CIRCLE PHASE control (fig. 3-3) cw. If video pulse lags negative going pulse, rotate control ccw. *b.* Higher category maintenance required.
16	Pulse wieth cannot be minimized (2-7 *b* (22)). of adjustment.	*a.* Encoder, Video KY565/AKT-18 IDRIFT ANGLE MAX control (fig. 3-3) until pulses null. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Adjust Encoder, Video KY565/AKT-18 DRIFT ANGLE MAX control *b.* Higher category maintenance required.
17	Pulse width cannot be minimized (2-7 *b* (24)).	*a.* Encoder, Video KY565/AKT-18 GROUND SPEED MAX control out of adjustment. *b.* Faulty Encoder, Video KY565/AKT-18.	*a.* Adjust Encoder, Video KY565/AKT-18 GROUND SPEED MAX control (fig. 3-3) until pulses null. *b.* Higher category maintenance required.
18	+12V and -12V lamps light (para 2-7 d (1)).	+12 vdc and -12 vdc levels in Converter Storer, Signal Data CV-2094/A out of tolerance.	Higher category maintenance required.
19	Present position display sequence incorrect (para 2-7 *d* (2)).	Defective Converter Storer, Signal Data CV-2094/A.	Higher category maintenance required.
20	*a.* Present position display not within ± 5 km of that shown on Control, Indicator C-6586/ AYA-3 (para 2-7 *d* (3).	*a.* Aircraft wiring, Control, Indicator C-6586/AYA3, or ConverterStorer, Signal Data CV-2094/A defective.	*a.* Disconnect cable from J6 of ConverterStorer, Signal Data CV-2094/A and connect preflight tester cable 2W5 between connector 2J1 (DISPLAY) on preflight tester and ConverterStorer, Signal Data CV-2094/A connector J6. Check present position display on preflight tester with that programmed on preflight tester. If display and programing are within ± 5 unit digits, air craft wiring or C-6586/AYA 3 is at fault. If not within ±5 unit digits, refer ConverterStorer, Signal Data CV-2094/A to higher category maintenance.

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
	b. Bed presentation bias level falls below Video dc level (para-2-7 d (3).	b. Converter Storer, Signal Data CV-2094/A defective.	b. Higher category maintenance required.
21	-888, 888 display not observed (para 2-7 d (5)).	Recorder Radar Mapping RO-225/APS-94A or Recorder-Processr-Viewer, Radar Mapping RO-166B/UP defective.	Higher category maintenance required

3-12. Test Procedure, Test Set, Radar AN/GPM-46A.

The AN/GPM-46A check Encoder, Video KY-565 AKT-18 for voltage levels and signals being supplied by the AN/APS-94C radar set. Refer to TM 11-6625-561-12 for information regarding the AN/GPM-46A.. In general, the following operating instruction apply to the AN GPM-46A:

a. Place the AN/GPM-46A in the setup by connecting cable W1 (supplied with AN/GPM-46A) between connector J1 of the AN/GPM-46A and connector Test J2 (fig. 3-1) on Encoder. Video KY-565/AKT-18.

b. Rotate the ALL UNIT switch sequentially to position 1 through 19. In each position the AN/GPM-46A ALL UNITS meter pointer will go to the black portion of the dial if the proper level or signal is being received from the AN/APS-94C radar set.

c. The chart below provides a reference to voltage level or signal being monitored during each position of the ALL UNITS switch

ALL UNITS switch position	Voltage level or signal
1	+300 vdc
2	+150 vdc
3	--10 vdc
4	--300 vdc
5	+28 vdc
6	115 vac, 400 cps
7	115 vac, 400 cps
8	115 vac, 400 cps
9	115 vac, 400 cps
10	+300 vdc
11	+18 vdc
12	+28 vdc
13	+300 vdc
44	+150 vdc
15	+300 vdc
16	115 vac (scan drive)
17	Rangemarks
18	Radar trigger
19	Unblank gate

d. If the ALL UNITS meter pointer goes to the black portion of the dial for each position of the ALL UNITS switch, the inputs from the AN/APS-94C radar set are being received properly.

e. If the ALL UNITS meter pointer does not go to the black portion of the dial for one or more positions of the ALL UNITS switch, check the AN/APS-94C radar set for normal outputs (TM 11-6625-200-12). If the AN/ APS-94C radar set outputs are normal, inter connecting wiring may be defective or Encoder, Video KY-565/AKT-18 is malfunctioning.

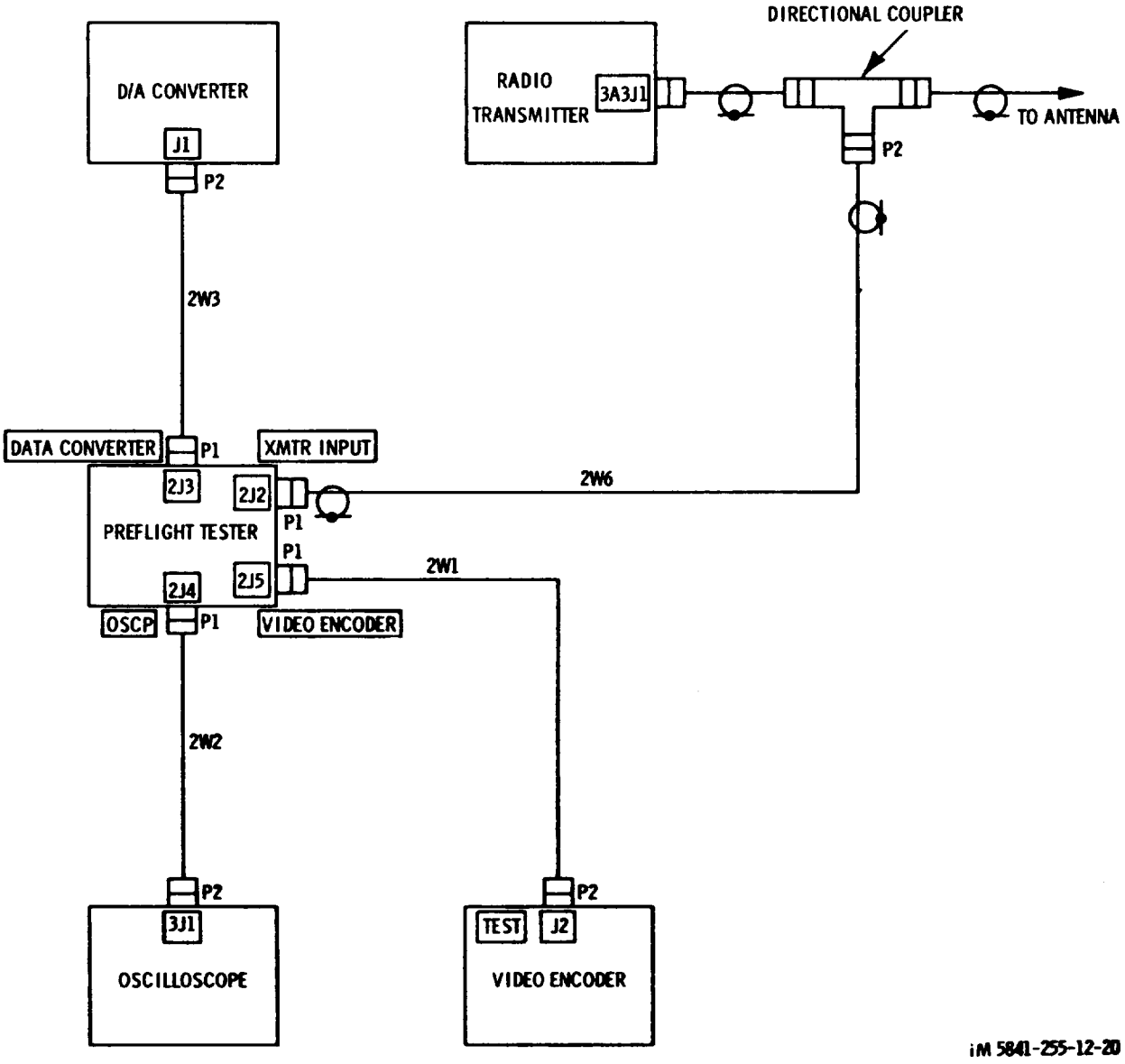


Figure 3-1. Test setup using Test Set, Transmitting Set, Radar Data AN/AKM-2A.

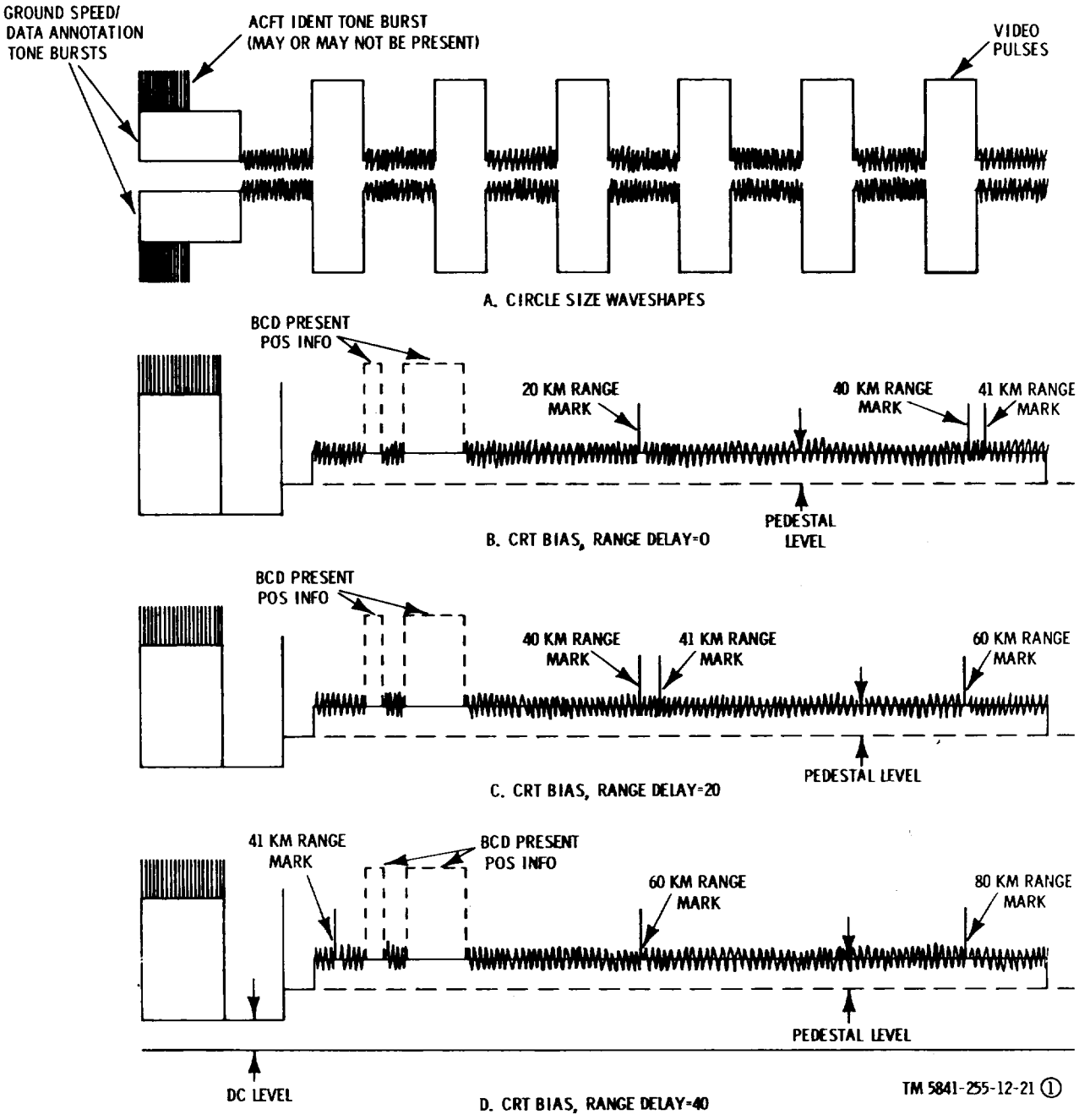


Figure 3-2 (1). Waveform (part 1 of 2).

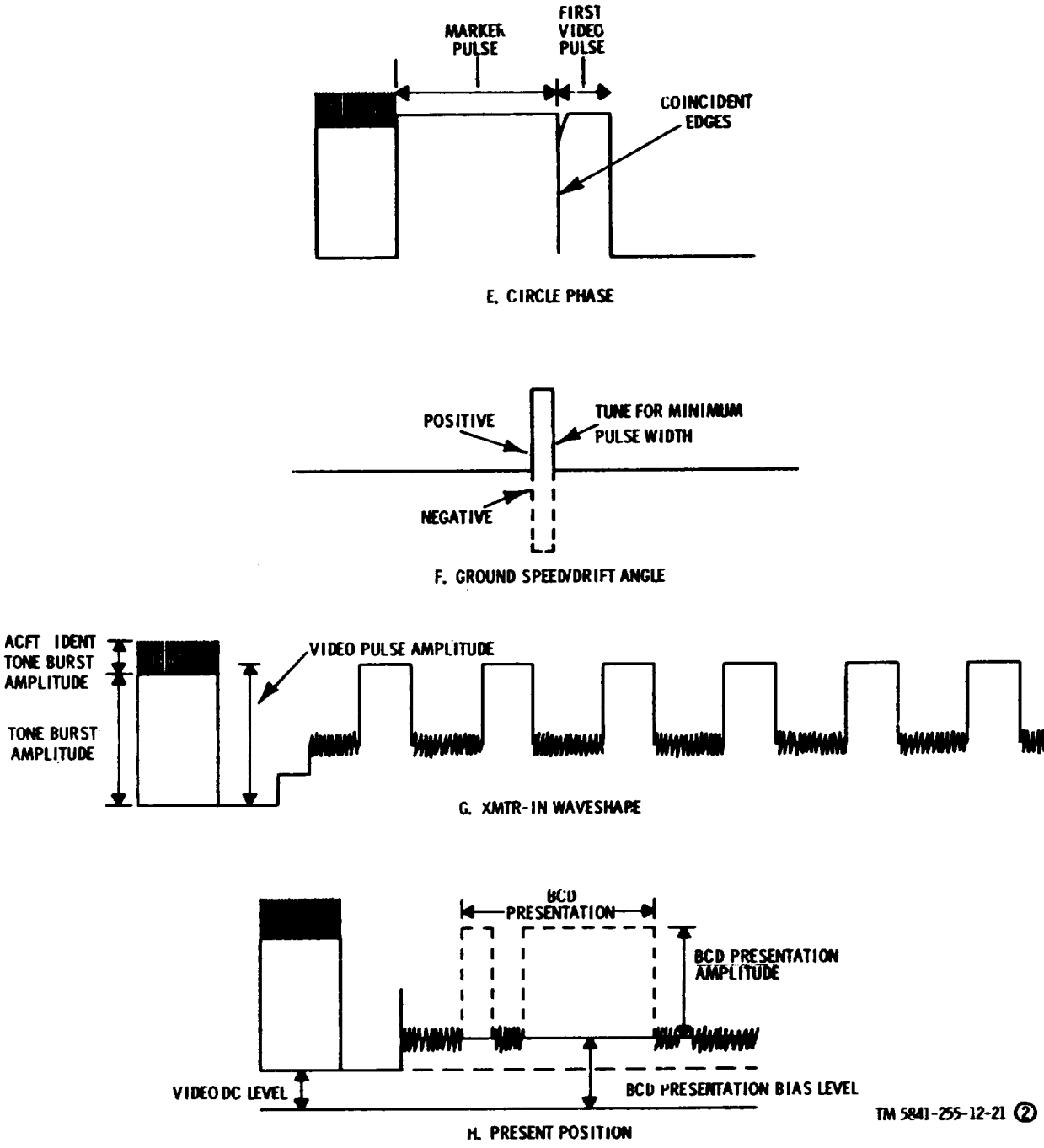


Figure 3-2 (2). Waveforms (part 2 of 2).

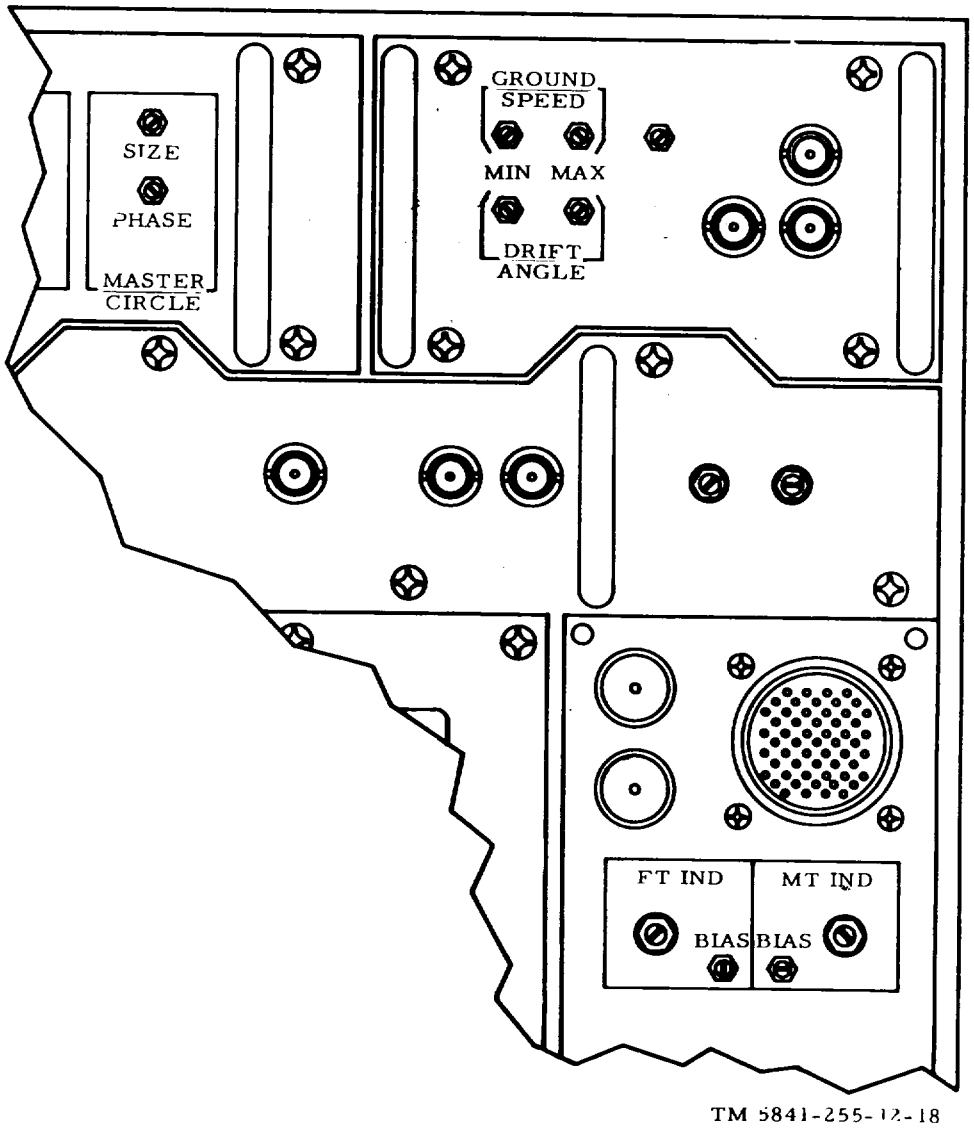


Figure 3-3. Encoder Video, KY-565/AKT-18, preflight alignment controls.

Section IV. SUPPLEMENT MAINTENANCE INFORMATION

3-13. Removal and Replacement

Removal and replacement of components of the data transmitting set are described in the paragraphs below. Refer to figure 3-5 as an aid in identifying proper cable connections.

Warning: **Be sure to turn off all power to the equipment before starting any removal procedure.**

3-14. Removal of Encoder, Video KY-565/AKT-18 (fig. 1-3)

To remove Encoder, Video KY-565/AKT-18, proceed as follows:

a. Disconnect the cable plugs from the connectors on Encoder, Video KY-565/AKT-18.

b. Remove the safety wire and loosen the two wingnuts on the eyebolts of Mounting MT- 3348/AKT-18 (fig. 1-9), releasing the clamps from the right and left hooks of Encoder, Video KY-565/AKT-18.

c. Position Conveyor, Roller Gravity MX-6829/AKT-18 in the aircraft as described in paragraph 1-7p and illustrated in figure 3-4.

d. Slide Encoder, Video KY-565/AKT-18 form Mounting MT-3348/AKT-18 on to Conveyor, Roller Gravity MX-6829/AKT-18 and pull Encoder, Video KY-565/AKT-18 to the door of the aircraft compartment.

3-15. Replacement of Encoder, Video KY-565/AKT-18

To replace Encoder, Video KY-565/AKT-18 proceed as follows:

a. Position Conveyor, Roller Gravity MX-6829/AKT-1g as indicated in paragraph 3-14*c.*

b. Slide Encoder, Video KY-565/AKT-18 on the rollers of Conveyor, Roller Gravity MX- 6829/AKT-18 to Mounting MT-3348/AKT-18.

c. Push Encoder, Video KY-565/AKT-18 on to Mounting MT3348/AKT-18 until it is firmly situated against the rear of the mount with the mount guide pins engaged with the guide receptacles on Encoder, Video MX-565/ AKT-18.

d. Connect the cable plugs to Encoder, Video MX-565/AKT-18 connectors; use figure 3-5 as an aid in making proper connections.

e. Secure Encoder, Video KY-565/AKT-18 to Mounting MT-3448/AKT-18 by placing the ferrules of the eyebolts of the mount over the right and left hooks of Encoder, Video KY- 565/AKT-18.

f. Tighten the two wingnuts on the eyebolts fingertight; check Encoder, Video KY-565/ AKT-18 for secure fastening.

g. Safety wire the eyebolts and the wingnuts.

3-16. Removal of Transmitter, Radio T-991/AR

(fig. 1-4)

To remove Transmitted, Radio T-991/AR, proceed as follows: AGO 7816A

a. Remove the cable connections from Transmitter, Radio T-991/AR.

b. Remove the safety wire and loosen the two mounting screws that secure Transmitter, Radio T-991/AR to Mounting MT-2653/ARC (fig. 1-9).

c. Lift out Transmitter, Radio T-991/AR.

3-17. Replacement of Transmitter, Radio T-991/AR

To replace Transmitter, Radio T-991/AR proceed as follows:

a. Place Transmitter, Radio T-991/AR on Mounting MT-2653/ARC; be sure to set the guide pins.

b. Connect the required cable plugs to Transmitter, Radio T-991/AR; use figure 3-5 as an aid in making proper connections.

c. Tighten both mounting screws simultaneously so that Transmitter, Radio T-991/AR is moved into place on Mounting MT-2653/ARC without twisting.

d. Safety wire the two mounting screws.

3-18. Removal of Converter-Storer, Signal Data CV-2094/A

(fig. 1-8)

To remove Converter-Storer, Signal Data CV-2094/A, proceed as follows:

a. Disconnect the cables from the connectors on Converter-Storer, Signal Data CV-2094/A.

b. Remove the safety wire that secures the wingnuts of Base, Shock Mount, Electrical Equipment MT-3617/A.

c. Loosen and swing down the two screw clamps that hold Converter-Storer, Signal Data CV-2094/AR to Base, Shock Mount, Electrical Equipment MT3617/A.

d. Lift the front end of Converter-Storer, Signal Data CV-2094/A slightly and pull for- ward to free the rear section of the D/A Converter from Base, Shock Mount, Electrical Equipment MT-3617/A.

3-19. Replacement of Converter-Storer, Signal Data CV-2094/A

To replace Converter-Storer, Signal Data CV-2094/A, proceed as follows:

a. Place Converter-Storer, Signal Data CV-2094/A on Base, Shock Mount, Electrical

Equipment MT-3617/A and slide to the rear of the mounting. Be sure that the lip on Converter Storer, Signal Data CV-2094'A is held by the rear curved section of Base, Shock Mount, Electrical Equipment MT-3617,/A.

b. Swing up and tighten the two wingnuts to hold Converter-Storer, Signal Data CV2094 'A.

c. Safety wire the wingnuts.

d. Connect the cables to Converter-Storer, Signal Data CV-2094 'A; use figure 3-5 as an aid in making proper connections.

3-20. Removal of Control, Frequency Selector C-598/AR

(fig. 1-5)

To remove Control, Frequency Selector C6598 'AR, proceed as follows: a. Loosen the four quarter-turn fasteners that secure the front panel of Control, Frequency Selector C-6598/AR to the center bulkhead in the pilot's cockpit.

b. Slowly pull Control, Frequency Selector C-6598/'AR from the bulkhead until the rear of the unit and the connecting cable are accessible.

c. Tag and disconnect the cable connector from the rear of Control, Frequency Selector C-6598'AR.

d. Lift out Control, Frequency Selector C6598/AR.

3-21. Replacement of Control, Frequency Selector C-598/AR

To replace Control, Frequency Selector C6598/AR, proceed as follows:

a. Connect the cable to the connector on the rear of Control, Frequency Selector C6598/'AR.

b. Mount Control, Frequency Selector C6598 AR in its proper place in the center bulkhead located in the aircraft cockpit.

c. Secure the front panel of Control, Frequency Selector C-6598/AR with the four quarter-turn fasteners.

3-22. Removal of Panel, Power Distribution SB-2471 /AKT-18

To remove Panel, Power Distribution SB2471/AKT-18, proceed as follows:

a. Loosen the four quarter-turn fasteners that secure Panel, Power Distribution SB2471/AKT-18 to the center bulkhead in the aircraft cockpit.

b. Carefully pull Panel, Power Distribution SB-2471/AKT-18 from the bulkhead until the rear of the unit and the connecting cable are accessible.

c. Tag and disconnect the cable from the connector at the rear of Panel, Power Distribution SB-2471/AKT-18.

d. Remove Panel, Power Distribution SB2471/AKT-18 from the bulkhead.

3-23. Replacement of Panel, Power Distribution SB-2471/AKT-18

(fig. 1-6)

To replace Panel, Power Distribution SB2471/AKT-18, proceed as follows:

a. Connect the cable (tagged in para 3-22c) to the connector on the rear of Panel, Power Distribution SB-2471/AKT-18.

b. Mount Panel, Power Distribution SB2471/AKT-18 in the bulkhead opening and secure with the four quarter-turn fasteners.

3-24. Removal and Replacement of Lamps, Fuses, and Control Knobs

a. Removal and Replacement of Lamps (figs. 1-5 and 1-6).

(1) Unscrew the lampholder assembly and gasket by turning counterclockwise.

(2) Remove the defective lamp from the lampholder assembly and replace with a new lamp.

(3) Replace the lampholder assembly in panel by turning clockwise.

b. Removal and Replacement of Fuses (fig. 1-3).

(1) Push in on the fuse holder, turn counterclockwise, and pull out the fuse holder.

(2) Remove the defective fuse from the fuse holder.

(3) Insert a new fuse of the correct value into the fuse holder.

(4) Push the fuse holder into the fuse holder socket and turn clockwise to lock into position.

c. Removal and Replacement of Control Knobs.

(1) Loosen the setscrews by unscrewing counterclockwise.
(2) Slide the control knob from the control shaft.
(3) Replace the new knob on the shaft.
(4) Tighten the setscrews to secure the control knob to the shaft.

***Note*: Be careful when mounting the knob to the shaft so that the knob does not scrape or rub against the panel. For smooth operation, be sure that the knob operates through its full range without rubbing against the panel.**

3-25. Removal and Replacement of Air Filters

Removal and replacement of the filters are covered in paragraphs 3-26 and 3-27. Be sure that power to the AN/AKT-18 is removed before starting removal procedures.

3-26. Removal and Replacement of Encoder, Video KY-565/AKT 18 Air Intake Filter

a. To remove air intake filter from Encoder, Video KY-565/AKT-18 (fig. 1-3), proceed as follows:

(1) Loosen the 10 captive screws that secure the photomultiplier power supply module to Encoder, Video KY565/AKT-18.
(2) Pull the photomultiplier power supply module straight out of Encoder, Video KY-565/AKT-18.
(3) Loosen the eight captive screws that secure the air intake filter to Encoder, Video KY-565/AKT-18.
(4) Remove the air intake filter panel.
(5) Remove the four bolts that secure the filter to the panel and remove the filter.

b. To replace the air intake filter, proceed £s follows:

(1) Secure the new or cleaned filter to the filter panel with the four bolts removed in a (5) above.
(2) Install the filter and panel in Encoder, Video KY-565/AKT-18 and secure with the eight captive screws.
(3) Install the photo-multiplier power supply in Encoder, Video KY-565/AKT18 and secure with the 10 captive screws.

3-27. Removal and Replacement of Transmitter, Radio T-991 /AR Air Filter

a. To remove the filter from Transmitter, Radio T-991/AR, proceed as follows:

(1) Remove the two slotted knurled screws from the top of the air filter, located on the rear of Transmitter, Radio T-991/AKT-18.
(2) Lift off the air filter perforated air intake screen.
(3) Carefully remove the filter.

b. To replace the filter, proceed as follows:

(1) Carefully replace the filter over the two studs.
(2) Replace the perforated air intake screen over the studs and the filter.
(3) Replace the two slotted knurled screws on the studs and finger tighten.

3-28. Checks and Repairs of Cables

Paragraphs 3-29 and 3-30 discuss the methods for checking and repairing external cabling and wiring of the data transmitting set. External cabling and wiring includes harnessed wiring, multiconductor cables, and coaxial cables.

3-29. Continuity Checks

A convenient procedure for checking continuity of the external wiring and cables of the data transmitting set is given in a, b, and c below. Be sure that the cable or wiring is disconnected from the power source before starting the continuity check.

a. Multiconductor Cable. This procedure is for multiconductor cables with a male connector on one end and a female connector on the other end. However, this procedure may be used for any combination of cables and connectors.

(1) Connect an ohmmeter common probe to the connector shell and the ohmmeter ohms probe (using highest resistance scale) to each individual connector pin.

Any reading on the ohmmeter scale above zero indicates a continuity or short in the cable or connector.

(2) Connect the common probe of the ohmmeter to a pin of the connector.

Connect the ohms probe (using highest resistance scale) to each of the remaining pins of the same connector. The ohmmeter should not indicate a continuity to any other pin of the connector. Connect the common probe to another pin of the connector and repeat the same procedure. Continue this procedure until each pin in turn has been tested to all other pins.

(3) Connect the common probe to a male pin of the cable connector. Connect the ohms probe (using the lowest resistance scale) to the matching female contact at the opposite end of the cable. The ohmmeter should read zero, indicating continuity between the male-female pin sets of the cable under test.

b. Coaxial Cables. To check the continuity of coaxial cables, use the following procedure:

(1) Connect the ohmmeter common probe to the stationary part of the plug body. Contact the center conductor pin with the ohms probe (using highest resistance scale). The ohmmeter should not indicate continuity.

(2) Connect the common probe to the center conductor pin of the coaxial cable and the ohms probe (using lowest resistance scale) to the center conductor pin at the other end of the cable. The ohmmeter should read zero, indicating continuity between the two pins.

(3) Connect the common probe to the plug body on one end of the coaxial cable, and the ohms probe (using lowest resistance scale) to the plug body at the other end of the cable. The ohmmeter should read zero, indicating continuity.

c. Harnessed Wires. To check the continuity of harnessed wires, use the following procedure:

(1) Locate the ends of the wire to be checked.

(2) Connect the ohmmeter common probe to ground. Connect the ohms probe (using highest resistance scale) to one end of the wire. The ohmmeter should not indicate continuity.

(3) Connect the common probe to one end of the wire and the ohms probe (using lowest resistance scale) to the other end of the wire. The ohmmeter should indicate continuity.

3-30. Cable Repairs

Typical procedures for repair of cables and wiring of Transmitting Set, Radar Data AN/ AKT-18 are given in a and b below.

a. Typical Multiconductor Cable Repairs. If there is noticeable wear or fraying of the insulation of a cable (and cable continuity check does not indicate any defective wires), wrap the worn or frayed area with plastic electrical tape. When a cable continuity check shows the cable is defective and the defect cannot be located, obtain a piece of cable the same type and length as the defective cable. Following the instructions given in (1) and (2) below, unsolder the connectors from the defective cable and solder them to the new cable.

(1) To disassemble the multiconductor cable connector, proceed as follows:

(a) Loosen the connector cable clamp screws.

(b) Unscrew the cable clamp and slide along the cable.

(c) Unscrew the retaining nut and slide along the cable.

(d) Use a screwdriver to remove the follower from around the grommet and slide it back along the cable.

(e) Pull the grommet clear of the pin inserts.

(f) Unsolder the wires from the solder pots of the pin inserts.

(2) When the new cable has been soldered to the connector, reassemble the connector as follows:

(a) Set the grommet firmly around the pin inserts.

(b) Seat the follower over the grommet.

(c) Screw the retaining nut into position.

(d) Screw the cable clamps on to the retaining nut.

(e) Tighten the cable clamp screws.

b. Typical Coaxial Cable Repair. When a coaxial cable is found to be defective, obtain a new piece of coaxial cable of the same length and type as the defective cable. Unsolder the connectors from the defective cable and solder them to the new cable. If the cable connector is defective or broken, replace the connector.

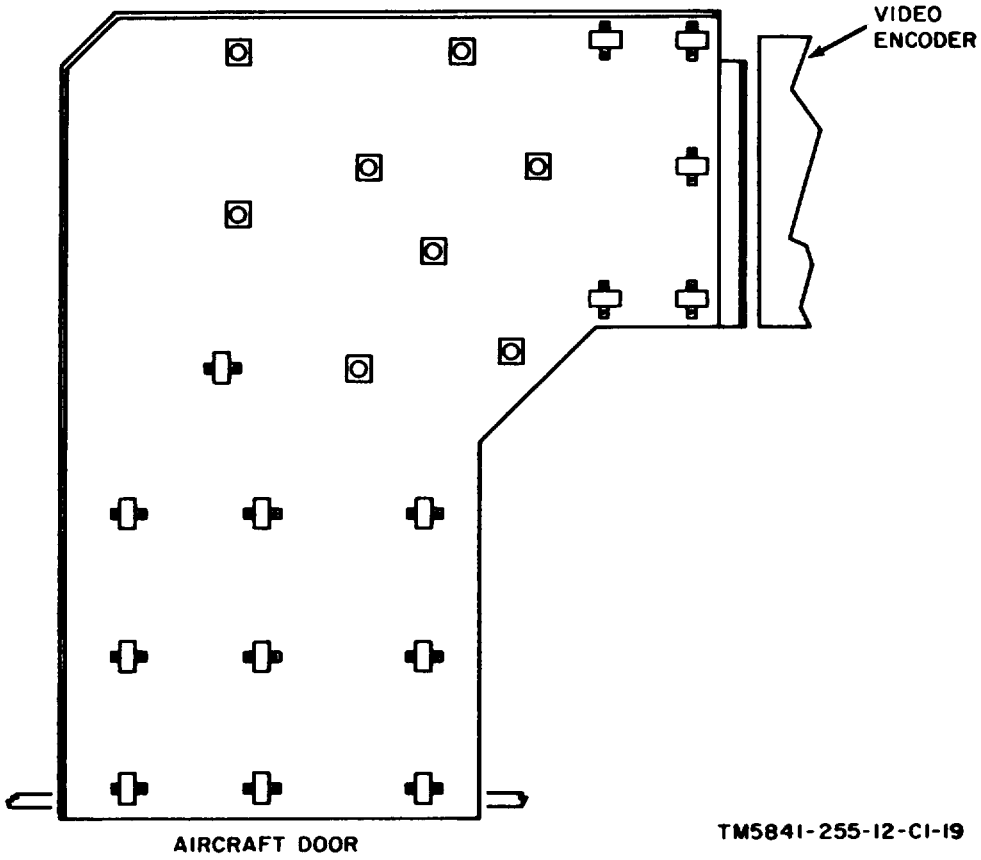


Figure 3-4. Conveyor, Roller Gravity MX-6829/AKT-18, in use.

CHAPTER 4

DEMOLITION TO PREVENT ENEMY USE

4-1. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures outlined in paragraph 4-2 will be used to prevent further use of the equipment by the enemy.

4-2. Methods of Destruction

a. Smash. Smash the controls, tubes, coils, switches, capacitors, transformers, and meters; use sledges, axes, handaxes, pickaxes, hammers, or crowbars. Smash all accessories and control panels.

***Warning*: Be careful to protect the eyes when smashing crts. These units implode violently, and may shower splinters of glass**

b. Cut. Use axes, hand axes, machetes, etc., to cut cabling, cording, and wiring. Use a heavy axe or machete to cut the interconnecting cables in a number of places. Slash component internal cabling and harnesses.

c. Burn. Burn technical manuals; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

d. Dispose. Bury or scatter the destroyed parts in slit trenches, foxholes, or throw them into streams.

APPENDIX A

REFERENCES

Following is a list of references applicable and available to the unit repairman of Transmitting Set, Radar Data AN/AKT-18 and Test Facilities Kit MK-856/AKT-18.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
SC 5180-91-CL-R07	Tool Kit, Electronic Equipment TK-105/G.
SM 11Az5180-S21	Tool Kit, Electronic Equipment TK-100/G.
TB SIG 222	Solder and Soldering.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11-530	Installation Practices for Aircraft Electric and Electronic Wiring.
TM 11-5840-274-14	Operator, Organizational, and Field Maintenance Manual: Fixture, Cathode-Ray Tube Measuring AN/USM-198.
(C) TM 11-5895-284-12	Organizational Maintenance Manual: Radar Surveillance Sets AN APS-94, AN/APS-94A, AN/APS-94B and AN/APS-94C(U).
TM 11-5950-205-15P	Operator's, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Transformer, Variable, Power CN-16/U, CN-16A/U, CN-16B/U.
TM 11-6625-200-12	Organizational Maintenance Manual: Multimeters ME-26A/U, ME-26B/U, ME-26C/U, and ME-26D/U.
TM 11-6625-274-12	Operator's and Organizational Maintenance Manual: Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.
TM 11-6625-312-12P	Operator's and Organizational Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Frequency Meter AN/URM-81.
TM 11-6625-316-12	Operator and Organizational Maintenance Manual: Test Sets, Electron Tube TV-2/U, TV-2A/U, TV-2B/U, and TV-2C/U.
TM 11-6625-446-12	Operator, Organizational, Field and Depot Maintenance Manual: Wattemeter AN/URM-120.
TM 11-6625-493-15	Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Comparator, Frequency CM-77A/USM.

TM 11-6625-535-15	Organizational, DS, GS, and Depot Maintenance Manual: Oscilloscope AN/USM-140A.
TM 11-6625-537-15	Operator, Organizational, Field, and Depot Maintenance Manual: Voltmeter, Electronic ME-202/U.
TM 11-6625-561-12	Operator and Organizational Maintenance Manual: Test Set, Radar AN/GPM-46A.
TM 11-6625-604-15	Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Frequency Converter CV-394/USA-5.
TM 11-6625-616-14	Operation, Organizational Maintenance, and Technical Instructions for Alignment Kit, Objective Lens MK-719/AKT-16.
TM 11-6625-700-10	Operator's Manual: Digital Readout, Electronic Counter AN/USM-207.
TM 11-6625-700-25	Organizational, DS, GS, and Depot Maintenance Manual: Digital Readout, Electronic Counter AN/USM-207.
TM 11-6625-826-12	Operator and Organizational Maintenance Manual: Test Set, Transmitting Set, Radar Data AN/AKM-2A.
TM 38-750	Army Equipment Record Procedures.

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Transmitting Set, Radar Data AN/AKT-18. 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.

C-2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designations.
They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code *Maintenance category*
C---------- Operator/Crew
O --------- Organizational Maintenance
F ---------- Direct Support Maintenance
H---------- General Support Maintenance
D---------- Depot Maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self-explanatory.

C-3. Explanation of Format for Tool and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. 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 for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
1	TRANSMITTING SET, RADAR DATA AN/AKT-18	O												Visual
			O F										9,16 8,9,10,12,13, 14,17,18,19, 20,22	
			H										3,7,8,9,10.11, 13,17,18,22, 23	
			D										1,2.3,5,7.8, 9,10,11,12, 13,16,17,18, 19,21.23.	
				O										Preventive maintenance
					O F									Visual
						H							12,13,19	
													4,8,12,13,17, 19	
							H						4,5,6,12,13	
									O					
										F			9,10,14,17, 19,20,22	
										H			9,10,11,14, 17,19,21	
											D		1 thru 19,21 23	Depot facilities
												D	1 thru 19,21 23	Depot facilities
1A	ANTENNA AT-450/ARC	O												Visual, see MAC contained in 11-521-231-15

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
	AN/AKT-15 (Continued)													
15	CABLE ASSEMBLY	O												Visual
			F										9,19,20	
				F									9,19,20	
									O					
										F			9,20	
												H	9,10,19,23	
												D	9,10,19,23	
2	CONTROL FREQUENCY SELECTOR 2-6596/AB	F												Visual
			F										9,10	
			H										9,10	
				F										Preventive maintenance
					F								9,10	
					H								9,10	
									F				19,20	
										D				Depot facilities
											D			Depot facilities
3	CONVERTER-STORER, SIGNAL DATA CV-2024/A	O												Visual
			F										8,9,10,12,13	
													19,20	
				0										Preventive maintenance
					F								19,20	
						D							8,9,10,11,12,	
													13,16,17,19,	
													23	
							D						1,4,6,8,12	
													13,16,19	
									G					
										F			14,18,19,20	
											H		2,3,7,9,10	
													11,14,17,18	
													19,21,23	
													1 THRU 14,16	Depot facilities
													thru 19,21,23	
												D	1 thru 14,16	Depot facilities
													thru 19,21,23	

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
	AN/AKT-18 (continued)													
3A	CIRCUIT BOARD ASSEMBLIES	F												Visual
			F										8,9,10,12,13, 19,20	
				F									19,20	
									O					
										F			9,10,14,17, 18,19,20	
										H			9,10,11,14, 17,18,19,21, 23	
											D		1 thru 14,16 thru 19,20,21,23	Depot facilities
3B	POWER SUPPLY	O												Visual
			O F										9 9,10,12,13, 19,20	
				O										Preventive maintenance
													19,20	
									O					
										F			9,10,14,19	
										H			9,10,11,14, 19,23	
											D		9,10,11,14, 19,23	

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
	AN/AKT-18 (continued)													
4	ENCODER, VIDEO, KY-565/,AKT-18	O												Visual
			O	F									9,16 8,9,10,12, 13,18,19,20	
					O	O								Preventive maintenance
							F	D	O				12,13,19,20	Depot facilities
										F			5,8,9,10,12, 13,17,18,19, 20,22	
										H			4,7,8,9,10, 11,12,13,17, 18,19,21,22, 23	
											D		1 thru 19,2 23	Depot facilities

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
	AN/AKT-18 (continued)													
4A1	VIDEO SYSTEM AASEMBLIES 1A1A1, 2, 3, etc	O												Visual
			O F										9,16 8,9,10,12,13, 17,18,19, 20,22	
F				O	F	F H							12,13,19,20 12,13,19,20 7,10,11,12, 13,19	Preventive maintenance
							D	O	O	F H	D	D	5,9,10,14,18, 19,20,22 5,14,18,19,21, 22 1 thru 19,21, 23 1 thru 19,21, 23	Depot facilities Depot facilities

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
	AN/AKT-18 (continued)													
4B1	POWER SYSTM	O												Visual
			O										9,16	
			F										9,10,12,13,	
				O									19,20,22	Preventive maintenance
					F								19,20	
								F					19,20	
									F				19,20	
										F			9,10,18,19	
													20,22	
										H			9,10,18,19,	
													21,22,23	
											D		9,10,12,13,15	Depot facilities
													16,18,19,21	
													23	
												D	9,10,11,12,13	Depot facilities
													15,16,18,19,	
													21,23	
5	PANEL, POWER DISTRIBUTION SB-2471/AKT-18	O												Visual
			O										9	
			F										9,10,19,20	
				O										Preventive maintenance
					F								19,20	
								F					19,20	
									F				19,20	
										F			9,10,19,20	
										H			9,10,11,19,	Shop facilities
													23	
											D		5,9,10,11,	Depot facilities
													19,21,23	

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
6	TRANSMITTER T-991/AR	O	O F										9,16	Visual
				O									8,9,10,12,13, 17,18,19,20	Preventive maintenance
					F								12,13,19,20	
						H							2,3,7,8,12, 13,19	Shop facilities
									O					
										F			5,9,10,17,1819,20,22	
										H			2,3,4,5,7,8, 9,10,11,12, 13,17,18,19, 21,22,23	Shop facilities
										D	D		2,3,4,5,7,8, 9,10, 11,12, 13,15,16,17, 18,19,21,23	Depot facilities
												D	2,3,4,5,7,89,10,11,12, 13,15,16,1718,19,21, 23	Depot facilities
6A1	INDICATOR, STANDING WAVE RATIO IM-201/AR	F												Visual
			F										9,10,17,19, 20	
				F										Preventive maintenance
					F								9,10	
							F						8	
							H						8	
							D							Depot facilities
									F				19,20	
										F			9,10,17,18, 19	
										D				Depot facilities
											D			Depot facilities

Maintenance Allocation Chart

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
6A2	TRANSMITTER SUBASSEMBLY IMX-6828/AR	O	F	O	H	H			F	F H D	H D		8,9,10.,12,19, 20,22.23 19,20 19,20 20 8.0,10,12,13, 17,18,19,20, 22 5,7,8,9,10, 11,12,13,17, 18,19,21,22, 23 Depot facilities 5,7,8,9,10, 11,12,13,17, 18,19,21,22, 23 Depot facilities	Visual Preventive maintenance

SECTION III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND TEST EQUIPMENT REQUIREMENTS				
TOOLS AND EQUPMENT	**MAINTENANCE CATEGORY**	**NOMENCLATURE**	**FEDERAL STOCK NUMBER**	**TOOL NUMBER**
		AN/AKT-18 (continued)		
1		ALINMET KIT, OBJECTIVE LENS MK-719( )/AKT-16	5841-952-3244	
2		CCMPAKATOM, FREWUENCY, CM-77/USM	6625-788-3780	
3		CONVERTER, FREQUENCY, ELECTRONIC CV-394/USA-5	6625-866-5381	
4		COUNTEH, ELECT(ONIC DIGITAL READOUT AN/USM-207	6625-911-6368	
5		DUUMY LOAD, ELECTRICAL DA-75/U	5985-280-3480	
6		FIXTURE, CATHODE RAY TUBE MEASURING AN/USM-198 AND A	6625-073-8908	
7		FREQUENCY METES AN/URM-81	6625-669-0081	
8		INDICATOR STANDING WAVE RATIO AN/URM-120( )	6625-813-8430	
9		MULTIMETER AN/USM-223	6625-999-7465	See note 1
10		MULTIMETER ME-26B/U	6625-360-2493	
11		PROD, TEST MX-2517/U	6625-511-5383	Expendable item
12		OSCILLOSCOPE, SUBASSEMBLY, VERTTCAL CHANNEL, HIGH GAIN, WIDE BAND PREAMPLFIER AM-3568/USM	6625-087-3442	
13		OSCILLOSOPE AN/USM-140A	6625-066-2525	See note 2
14		REPAIR KIT, PRINTED WIRING BOARD MK-772/URC	6625-082-4275	
15		TEST SET, ELECTRON TUBE TV-2/U	6625-699-0263	
16		TEST SET, TRANSMITTING SET RADAR DATA AN/AKM-2A	6625-966-1961	
17		TEST FACILITIES KIT MK-856/AXT-18	5844-788-5228	
18		TEST SET, TRANSISTOR AN/USM-171		See note 3
19		TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-605-0079	
20		TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-610-8177	

TOOLS AND TEST EQUIPMENT REQUIREMENTS				
TOOLS AND EQUPMENT	**MAINTENANCE CATEGORY**	**NOMENCLATURE**	**FEDERAL STOCK NUMBER**	**TOOL NUMBER**
		AN/AKT-18 (continued)		
21		TRANSFORMER, VARIABLE POWER CN-16/U	5950-235-2086	
22		TUBE TESTER, ELECTRON TUBE TV-7D/U	6625-820-0064	
23		VOLTMETER ELECTRONIC ME-202/U	6625-050-8686	
		NOTES:		
		1. USE TS-352/U UNTIL THE AN/USM-223 BECOMES AVAILABLE	6625-242-5023 (TS-352/U)	
		2. USE THE AN/USM-81 UNTIL THE AN/USM-140A BECOMES AVAILABLE	6625-701-4038 (AN/USM-81)	
		3. USE THE TS-1836/U UNTIL THE AN/USM-171( ) BECOMES AVAILABLE	6625-893-2628 (TS-1836/U)	

APPENDIX D

ORGANIZATIONAL REPAIR PARTS

Section I. INTRODUCTION

D-1. General

This appendix contains a list of repair parts required for the performance of organizational maintenance for Transmitting Set, Radar Data AN/AKT-18 and Test Facilities Kit MK-846/AKT-18.

Note. **No special tools, test, and support equipment are required for the AN/AKT-18 and MK-846/AKT-18.**

D-2. Explanation of Sections

This repair parts list is divided into sections.

a. Prescribed Load Allowance List (PLA), Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at organizational maintenance. This is a mandatory minimum stockage allowance.

b. Repair Parts, Organizational Maintenance, Section III. Repair parts authorized for organizational maintenance is included in this section.

c. Federal Stock Number Index, Section IV. This is a cross reference index of Federal Stock numbers to illustrations by figure and item number.

D-3. Explanation of Columns

An explanation of the columns in sections II and III is given below.

a. Source, Maintenance, and Recoverability Codes, Column 1, Section III.

(1) *Source code, column 1a.* The selection status and source for the listed item is noted here. Source codes and their explanations are as follows:

Code	*Explanation*
P -	Applies to repair parts that are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.
G -	Applies to major assemblies that are procured with PEMA funds for initial issue only to be used as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DSU and GSU level or returned to depot supply level.

(2) *Maintenance code, column 1b.* The lowest category of maintenance authorized to install the listed item is noted here.

Code	*Explanation*
O	*Organizational Maintenance*

(3) *Recoverability code, column 1c.* The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability code and its explanation is as follows:

Note. **When no code is indicated in the recoverability column, the part will be considered expendable.**

Code	*Explanation*
R -	Applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number, Column 1, Section II, Column 2, Section III. The Federal stock number for the item is indicated in this column.

c. Description, Column 2, Section II, Column 3, Section III. The sequence number, Federal item name, a five-digit manufacturer's code and a part number are included in this column.

d. Unit of Issue, Column 4, Section III. The unit used as a basis of issue, e.g., ea., pr, ft, yd, etc. is indicated in this column.

e. Quantity Incorporated in Unit Pack, Column 4, Section II; Column 5, Section III. Not used.

f. Quantity Incorporated in Unit, Column 6, Section III. The quantity of repair parts in an assembly is given in this column.

g. Maintenance Allowances, Column 3, Section II; Column 7, Section III.

(1) The allowance columns are divided into subcolumns. Indicated in each subcolumn is the total quantity of items authorized for the number of equipments supported.

Items authorized for use as required but not for initial stockage are identified with an asterisk (*) in the allowance column.

(2) The quantitative allowances for organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Subsequent changes to organizational allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-MR NMP-RR, Fort Monmouth, NJ 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

h. Illustration, Column 8, Section III.

(1) *Figure number, column 8a*. The number of the illustration in which the item is shown is indicated in this column.

(2) *Item or symbol number, column 8b*. The callout number used to reference the item in the illustration appears in this column.

D-4. Location of Repair Parts

a. When the Federal stock number is unknown, follow the procedures given in (1) through (4) below.

(1) Locate the appropriate appendix of the repair parts list.

(2) If the item or symbol number is available, locate the item by scrutiny of column 8b of the repair parts list.

(3) If the item, symbol, and figure number are not known, check the description column (column 3) in the repair parts list to locate the part.

(4) Locate the applicable illustration in this manual and note the figure number and item number. Use the repair parts listing and locate the figure number and item number as noted on the illustration.

b. When the Federal stock number is known, use the repair part listing to find the repair part and the figure and item numbers as noted in the Federal stock number index.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code	*Manufacturer's Name*
80063	Army Electronics Command Procurement and Production Directorate.
81349	Military Specifications Promulgated by Standardization Div. Directorate of Logistic Services DSA.
96906	Military Standards Promulgated by Standardization Div. Directorate of Logistics Services DSA.

SECTION II. PRESCRIBED LOAD ALLOWANCE LIST

PRESCRIBED LOAD ALLOWANCE						
(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	(3) 15-DAY ORG. MAINT. ALLOWANCE (A) 1-5	(B) 6-20	(C) 21-50	(D) 5-100	(4) QTY INC IN UN PK
	TEST FACILITIES KIT MK-856/AKT-18					
5920-131-9821	FUSE, CARTRIDGE: 81349; F02B15V3A (Note: One running spare)	*	*	2	2	
5920-284-9219	FUSE, CARTRIDGE: 81349; F03B32V20A (Note: One running spare)	*	*	2	2	
	VIDEO MAPPING					
5355-944-7202	KNOB: 80063; SMC510402	*	*	2	2	
5920-280-4960	FUSE, CARTRIDGE: 81349; FO2A250V2A (Note: One running spare)	*	*	2	2	
5920-548-3126	FUSE, CARTRIDGE: 81349; FO2A25OV6A (Note: One running spare)	*	*	2	2	
6240-155-7836	LAMP, INCANDESCE: 96906; MS25237-327	*	*	2	2	
6240-272-8601	LAMP: 96906; MS25237R327	*	*	2	2	

AMSEL-MR FORM 1 May 66 AM/AKT-18 2

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE				(4)	(5)	(6)	(7) 15-DAY ORG. MAINT. ALW				(8) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1 2 3 4 5 6	(3) DESCRIPTION		UNIT OF ISSUE	QTY INC IN UN PK	QTY INC IN UNIT	(A) 1-5	(B) 6-20	(C) 21-50	(D) 51-100	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
G	O	R	5841-788-5223		AOO1	TRANSMITTING SET, RADAR DATA AN/AKT-18: Compresses the target video and encodes data obtained from the Radar Surveillance Sets AN/APS-94 ( ), into suitable form the modulation of an FM transmitter which transmits data over a UHF link to the Ground Station Receiving Set, Radar Data AN/TKQ-2, for further processing (This item is nonexpendable.)	ea.								
G	O	R	5841-788-4727		B001	ENCODER, VIDEO KY-565/AKT-18 VIDEO MAPPING	ea		1					1-3	
P	O		5355-883-4609		B483	KNOB: 96906; MS25167P2B	ea		1	*	*	*	*		
P	O		5920-280-4960		B650	FUSE, CARTRIDGE: 81349; F02A250V2A (Note: One running spare)	ea		1	*	*	2	2	1-3	F1
P	O		5920-548-3126		B651	FUSE, CARTRIDGE: 81349; F02A250V6A (Note: One running spare)	ea		1	*	*	2	2	1-3	F2
G	O	R	5841-985-8257		D010	PANEL, POWER DISTRIBUTION SB-2471/AKT-18	ea		1	*	*	*	*	1-6	
P	O		5355-579-2896		D009	KNOB: 96906; MS25165-1	ea		2	*	*	*	*		
P	O		6240-272-8601		D010	LAMP: 96906; MS25237R327	ea		2	*	*	2	2	1-6	DS1, DS2
G	O	R	5821-985-8926		E001	TRANSMITTER RADIO T-991/AR	ea		1						
P	O		5120-952-0108		E012	KEY, SOCKET HEAD: 80063; SMB5Jo858	ea		1	*	*	*	*		
G	O	R	5821-985-8927		F393	CONTROL FREQUENCY SELECTOR C-6598/AR	ea		1						
P	O		5355-944-7202		F409	KNOB: 80063; SMC51402	ea		3	*	*	2	2		
P	O		6240-155-7836		F410	LAMP, INCANDESCE: 96906; MS25237-327	ea		3	*	*	2	2		DS1, DS2, DS3*
G	O		5821-980-5789		F463	MOUNTING MT-2653/ARC	ea		1						
G	O	R	5841-941-5519		G001	CONVERTER-STORER, SIGNAL DATA CV-2094/A	ea		1						

AMSEL-MR Form 6009 (Supersedes edition of 1 Dec 64, which is obsolete) AN/AKT 18 2
1 Jan 66

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE			(4)	(5)	(6)	(7) 15-DAY ORG. MAINT. ALW				(8) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1 2 3 4 5 6	(3) DESCRIPTION	UNIT OF ISSUE	QTY INC IN UN PK	QTY INC IN UNIT	(A) 1-5	(B) 6-20	(C) 21-50	(D) 51-100	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
					AN/AKT-18 (continued)									
G	O		5841-926-3102		H069 BASE, SHOCK MOUNT ELECTRICAL EQUIPMENT MT-3617/A: 80063; SMD497789	ea		1						
G	O		5821-545-6235		I001A ANTENNA AT-450/ARC	ea		1						
G	O		5841-788-4737		I002 MOUNTING MT-3448/AKT-18; 80063; SMD497521	ea		1						
					TEST FACILITIES KIT MK-856/AKT-18									
G	O	R	5840-788-5282		A002 INTERCONNECTING BOX J-2564/AKT,-18	ea		1						
P	O		5920-131-9821		A013 FUSE, CARTRIDGE: 81349; F02B125V3A (Note: One running spare)	ea		2	*	*	2	2	1-11	F2
P	O		5920-284-9219		A014 FUSE, CARTRIDGE: 81349; FO3B32V20A (Note: One running spare)	ea		2	*	*	2	2	1-11	F1
G	O	R	3910-788-3775		A040 CONVEYOR, ROLLER MX-6829/AKT-18	ea		1						
G	O	R	5840-788-5283		A049 INTERCONNECTION ASSEMBLY, POWER SUPPLY MX-6870/AKT-18	ea		1						
G	O	R	5840-788-5281		A062 INTERCONNECTION ASSEMBLY, ELECTRICAL SYNCHRONIZER MX-6871/AET-18	ea		1						
G	O	R	5995-880-5778		A071 WIRING HARNES CX-11076/AKT-18: 80063; SMND496942	ea		1						
G	O	R	5995-880-4508		A074 WIRING HARNESS CX-11077/AKT-18: 80063; SMD496943	ea		1						
G	O	R	5840-788-4709		A077 INTERCONNECTION ASSEMBLY, CONVERTED VIDEO AMPLIFIER MX-6872/AKT-18	ea		1						
G	O	R	5840-959-8769		A081K EXTENDER, MODULE MX-7543/U	ea		1						
G	O	R	5840-959-4314		A081S EXTENDER, MODULE MX-7542/U	ea		1						
G	O	R	5995-871-8549		A082 WIRING HARNESS, BRANCHED CX-11073/AKT-18	ea		1						

AMSEL-MR Form 6009 (Supersedes edition of 1 Dec 64, which is obsolete) AN/AKT-18

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE				(4)	(5)	(6)	(7) 15-DAY ORG. MAINT. ALW				(8) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1 2 3 4 5 6	(3) DESCRIPTION		UNIT OF ISSUE	QTY INC IN UN PK	QTY INC IN UNIT	(A) 1-5	(B) 6-20	(C) 21-50	(D) 51-100	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
					AN/AKT-18 (conitrLued)										
G	O	R	5995-880-3777		A085A	CABLE ASSY, SPECIAL PURPOSE, ELECTRICAL CX- 1104/U	ea		1						
G	O	R	5995-880-5776		A089A	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL CX-11075/U	ea		1						
G	O	R	5995-905-8273		A092B	CABLE ASSEMBLY RADIO FREQUENCY CG-1883A/AJ	ea		1						
G	O	R	5995-985-8148		A095B	CABLE ASSEMBLY, RADIO FREQUENCY CG-530F/U	ea		1						
G	O	R	5995-905-7572		A098B	CABLE ASSEMBLY, RADIO FREUENCY CG-530F/U	ea		1						
G	O	R	5995-905-7572		A098F	CABLE ASSEMBLY, RADIO FRERUENCY CG-530F/U	ea		1						
G	O	R	5995-905-7572		A098J	CABLE ASSEMBLY, RADIO FREQ'ENCY Ca-. 530F/U	ea		1						
G	O	R	5995-880-5787		A098N	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-11072/U	ea		1						
G	O	R	5995-985-8148		A099C	CABLE, RADIO FRFQUENCY CG-530F/U	ea		1						
G	O	R	5841-940-8147		A099I	WIRING HARNESS, BRANCHED CX-11467/AKT-18	ea		1						

AMSEL-MR Form 6609 (Supersedes edition of 1 Dec 64, which is obsolete) AN/AKT-18
1 Jan 66

SECTION IV. FEDERAL STOCK NUMBER INDEX

INDEX - FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE SYMBOL					
STOCK NO.	**FIGURE NO.**	**ITEM NO. REF. SYMBOL**	**STOCK NO.**	**FIGURE NO.**	**ITEM NO. REF. SYMBOL**
5920-131-9821	1-11	F2			
5920-280-4960	1-3	F1			
5920-284-9219	1-11	F1			
5920-548-3126	1-3	F2			
6240-272-8601	1-6	DS1, DS2			

AMSEL-MR Form 6069 AN/AKT-18
1 Feb 1966

APPENDIX E
DIFFERENCE DATA FOR AN/AKT-18A AND MK-856A/AKT-18

Section I. DESCRIPTION AND DATA

E-1. Scope

This appendix contains difference data necessary to describe the electrical and physical differences between Transmitting Set, Radar Data AN/AKT-18 and Transmitting Set, Radar Data AN/ AKT-18A (fig. E-1). Also described in this appendix is difference data between Test Facilities Kit MK-856/AKT-18 and Test Facilities Kit MK- 856A/AKT-18 which is used by direct support maintenance personnel. The data contained in the previous chapters of this technical manual apply to both versions of the AN/AKT-18, except for the deletions, modifications and additions that change the equipment to the AN/AKT-18A configuration. The differences in equipment are summarized below.

a. Converter-Storer, Signal Data CV-2094/A. This component is not used in the AN/AKT-18A configuration.

b. Base, Shock Mount, Electrical Equipment MT-3617/A. This mount is used to secure the CV-2094/A to the aircraft; therefore it is not used in the AN/AKT-18A configuration.

c. Panel, Power Distribution SB-24711AKT-18. This component is replaced by Control, Data Link C-9963/AKT-18A (*d* below) in the AN/AKT-18A configuration.

d. Control, Data Link C-9963/AKT-18A. This component is added in the AN/AKT-18A and replaces the SB-2471/AKT-18.

e. Power Supply-Synchronizer PP-7255/AKT-18A. This component is added in the AN/AKT-18A configuration.

f: Mounting Base, Electrical Equipment MT-792/AKT-18A. This mounting is added in the AN/AKT-18A to secure the PP-7255/AKT-18A to the aircraft.

g. Mounting Base, Electrical Equipment MT-4793/AKT-18A. This mounting is included in the AN/AKT-18A configuration to mount radar set Interconnecting Box J-2794/APS-94D in a new location. The J-2794/APS-94D is mounted to the front side of Radar Set Receiver-Transmitter, Radar RT-899/APS94D.

h. Encoder, Video KY-565A/AKT-18. This component is the same as Encoder, Video KY-565/ AKT-18, except for minor internal changes that make the KY-565A/AKT-18 useable in both the AN/AKT-18 and AN/AKT-18A configurations.

i. Test Facilities Kit MK-856A/AKT-18. This kit is the same as Test Facilities Kit MK-856/AKT-18, except for the addition of 18 cable assemblies and an extender that are required to test the AN/AKT-18A at the direct support maintenance level. Also, a large metal case and a small fiberglass case have been added in which the component parts of Test Facilities Kit MK-856A/ AKT-18 will be stored.

E-2. Purpose and Use

(fig. E-2)

a. General. Transmitting Set, Radar Data AN/AKT-18A receives fixed target and moving target video information and an antenna gate signal from Radar Surveillance Set AN/APS-94D through Processor, Radar Signal CM-374/APS-94D and transmits encoded converted video signals during left and right antenna operation to ground stationed Receiving Set, Radar Data AN/TKQ-2A. The AN/AKT-18A configuration is compatible with the AN/APS-94D only. The AN/AKT-18A combines the radar set fixed-target video and moving-target video into a composite video signal, compresses the composite video signal bandwidth, encodes the aircraft identification data and map oriented data (aircraft ground speed, drift angle, and right and left sweep), producing encoded converted video signals. The encoded converted video signals are frequency modulated (fm) on one of 3,500 channels in the ultrahigh frequency (uhf) region, and transmitted to a remote, ground stationed, data receiving set (Receiving Set, Radar Data AN/TKQ-2A). The data receiving set demodulates and decodes the fm signals and produces a permanent photo- graphic film radar map of terrestrial fixed and moving targets. Identical and simultaneous maps may be produced in the airborne system (Radar Surveillance Set AN/APS-94D).

b. Surveillance System. The complete surveillance system, of which Transmitting Set, Radar Data AN/AKT-18A is a part, normally consists of:

(1) Radar Surveillance Set AN/APS-94D.

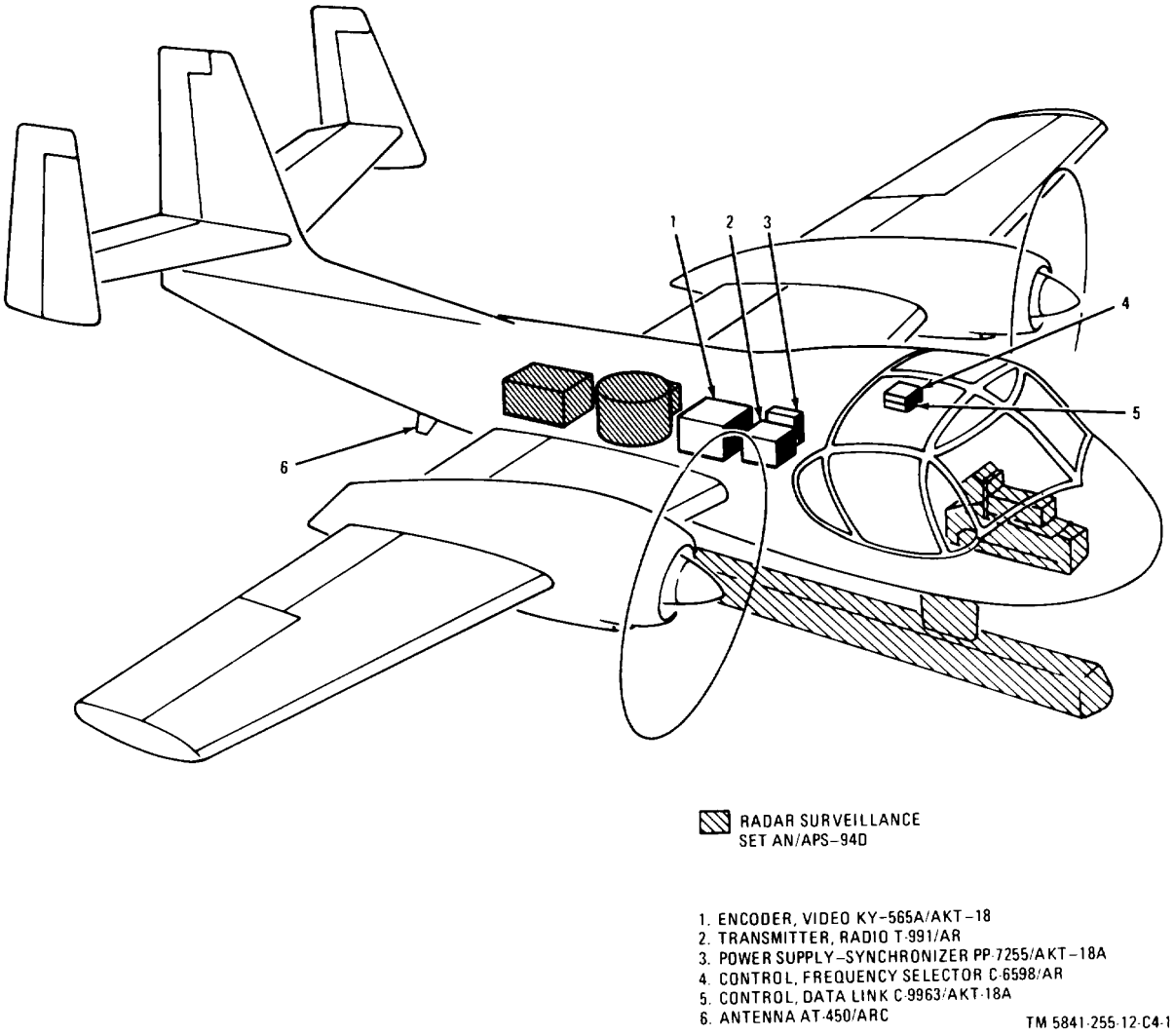


Figure E-1. Transmitting Set, Radar Data AN/AKT-18A. Location of major components.

(2) Transmitting Set, Radar Data AN/AKT-18A.

(3) Receiving Set, Radar Data AN/TKQ-2A.

E-3. Technical Characteristics

Technical characteristics for theAN/AKT-18A are identical to the AN/AKT-18 except as follows:

a. Converter-Storer, Signal Data CV-2094/A (deleted).

b. Panel, Power Distribution SB-2471/AKT-18 (deleted).

c. Encoder Video KY-565A/AKT-18 (same as KY-565/AKT-18 except as follows:)

Input voltage requirements:

From power supply portion of Power Supply-Synchronizer PP-7255/AKT-18A.....300 volts dc. -10 vdc. -300 vdc, 150 vdc, 28 vdc, 115 volts ac. 400 Hz. single-phase.

d. Power Supply-Synchronizer PP-7255/AKT-18A (added component)

Input power requirements:

From aircraft primary power source ..... 115 volts ac, 400 Hz, single-phase; 28 volts dc.

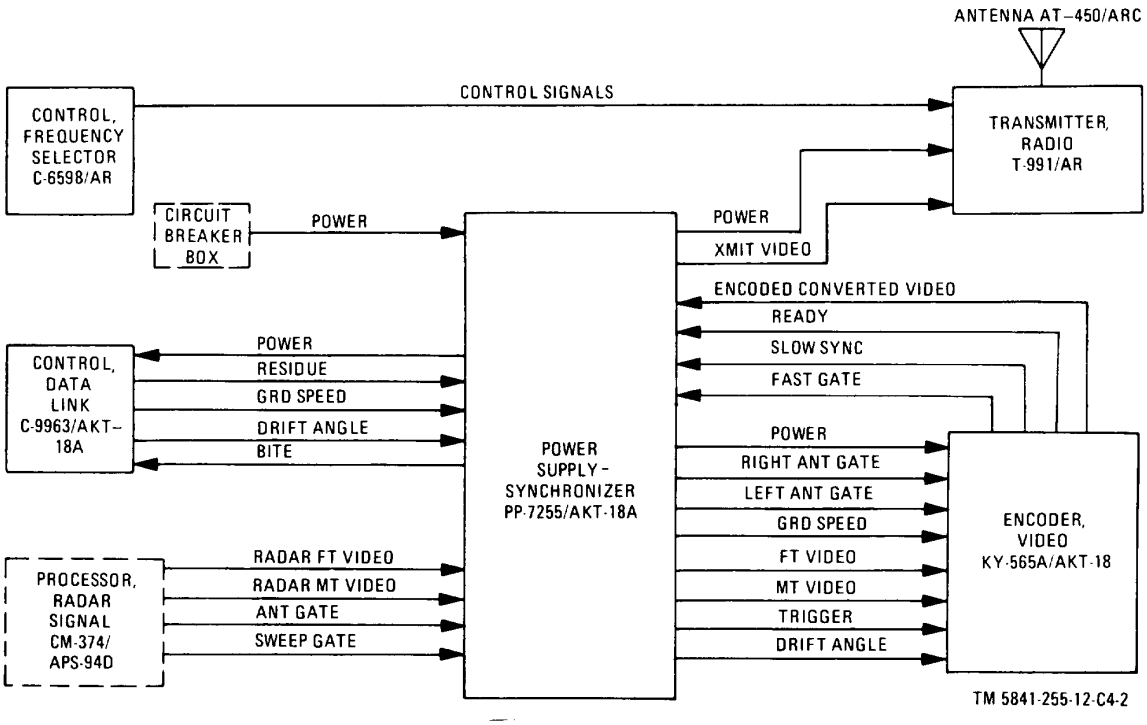


Figure E-2. Transmitting Set, Radar Data AN/AKT-18A, simplified block diagram.

Input signals:
- From Control, Data Link C-9963AKT-18A:
  - Residue.....Manually controlled dc voltage.
  - Ground speed .....Manually Controlled dc voltage.
  - Drift angle .....Manually Controlled dc voltage.
- From Processor, Radar Signal CM-374/APS-94D.... Antenna gate, sweep gate, radar FT video, and radar MT video.
- From Encoder, Video KY-565A/AKT-18 ....Encoded converted video.

Output signals:
- To Encoder, Video KY-565A/AKT-18:
  - Ground speed.....Controlled dc voltage.
  - Drift angle .....Controlled dc voltage.
  - FT video.....Internally-adjusted radar FT video.
  - MT video.....Internally adjusted, radar MT video.

Trigger .....20 + 10 volts, 0.5 + 0.1 µs.
- To Transmitter, Radio T-991/AR...Encoded converted video (62 volts p-p nominal).
- To Control Data Link C-9963/AKT-18A .Bite signal (ground or alternate ground and open):
  - Warmup.....Hz rate for approximately 60 seconds.
  - Operate .....Continuous ground
  - Failure .....A-Hz rate.

Output voltages.....300 vdc unregulated, -300 vdc, 150 vdc, -10 vdc, 28 vdc

Weight (including mount) .... 20 pounds

E-4. Dimensions and Weights

The modified Encoder, Video KY-565A/AKT-18 and components added to the AN/AKT-18A configuration are listed in the chart below. The chart also lists weights and dimensions of the equipment. All other reused components (except deleted Converter-Storer, Signal DataCV-2094/A; Panel, Power Distribution SB-2471/AKT-18; and Base, Shock Mount, Electrical Equipment MT-3617A) are listed in paragraph 1-6.

Component	Quantity	Dimensions (in.) Height	Depth	Width	Unit Weight (lb)
Encoder, Video KY-565A/AKT-18 (on mount without isolators).	1	11.26	26.84	13.88	100
Power Supply-Synchronizer PP-7255/AKT-18A.	1	7.62	10.13	11.82	17
Control, Data Link C996-3AKT-18A.	1	3.62	5.75	4.12	2

Component	Quantity	Dimensions (in.) Height	Depth	Width	Unit Weight (lb)
Mounting Base, Electrical Equipment MT-4792/AKT-18A.	1	2.661	14.30	11.25	3
Mounting Base, Electrical Equipment MT-4793/AKT-18A (used on AN/APS-94D).	1	5.125	17.00	12.75	3
Case, Test Facilities CY-7621/AKT-18	1	19.56	30.36	35.36	82
Case, Test Facilities CY-7620/AKT-18	1	8.56	18.28	25.54	13.60

E-5. Items Comprising an Operable Transmitting Set, Radar Data AN/AKT-18A

NOTE

Except for Encoder, Video KY-565A/AKT-18, figure numbers prefixed with 1-are identical to the items covered in paragraph 1-6.1.

NSN/part no.	Qty	Item	Fig. No.
5841-01-018-2869	1	Transmitting Set, Radar Data AN/AKT-18A consisting of:	E-1
5821-01-545-6235	1	Antenna AT-450/ARC	1-7
5821-00-985-8927	1	Control, Frequency Selector C-6598/AR	1-5
5821-00-985-8926	1	Transmitter, Radio T-991/AR	1-4
5821-00-980-5789	1	Mounting MT-2653(ARC (secures Transmitter, Radio T-991/ AR to aircraft rack).	1-9
5841-00-788-4727	1	Encoder, Video KY-565A/AKT-18 (minor changes)	1-3
5821-00-788-4737	1	Mounting MT-3448/AKT-18 (secures Encoder, Video KY-565A/AKT-18 to aircraft rack).	1-9
01-P06504H00-1	1	Control, Data Link C-9963/ AKT- 18A	E-3
01-P06503H00-1	1	Power Supply-Synchronizer PP-7255AKT-18A.	E-4
07-P06511H00-	1	Mounting Base, Electrical Equipment MT-4792/AKT-18A (secures Power Supply-Synchronizer PP-7255/AKT-18A to aircraft rack).	E-5
75-P06509H00-1	1	Mounting Base, Electrical Equipment MT-4793/AKT-18A (This mounting base is part of the AN/AKT-18A modification that relocates Interconnecting Box J-2794/APS-94D to the same aircraft compartment as Receiver-Transmitter, Radar RT-899/ APS-94D.	E-5
01-P09987H	1	Test Facilities Kit MK-856A/ AKT-18	E-6

E-6. Nomenclature and Common Names

A list of the nomenclature assignments and common names for the components of Transmitting Set, Radar Data AN/AKT-18A is given below.

Nomenclature	Common name
Encoder, Video KY-565A/ AKT-18	Video encoder
Power Supply-Synchronizer PP- 1255/AKT-18A	Power supply-synchronizer
Control, Data Link C9963/ AKT-18A	Data link control
Transmitter, Radio T-991/AR	Radio transmitter
Control, Frequency Selector C6598/AR	Frequency selector control
Mounting MT-2653/ARC	Mount 1
Mounting MT-3448/AKT-18	Mount 2
Mounting Base, Electrical Equipment MT-4792/AKT-18A.	Mount 4
Mounting Base, Electrical Equipment MT-4793/AKT-18A (used on AN/APS-94D).	Mount 5
Transmitting Set, Radar Data AN/AKT-18A	Data transmitting set

E-7. Description of Transmitting Set, Radar Data AN/AKT-18A (figs. E-3 and E-4)

a. The data transmitting set consists of six major components and four minor components. The major components consist of Encoder, Video KY565A/AKT-18; Transmitter, Radio T-991/AR; Control, Frequency Selector C-6598/AR; Control, Data Link C-9963/AKT-18A; Power Supply- Synchronizer PP-7255/AKT-18A; and Antenna AT-450/ARC. Three minor Transmitting Set, Radar Data AN/AKT-18A components consist of Mounting MT-3348/AKT-18; Mounting MT-2653/ ARC; and Mounting Base, Electrical Equipment MT-4792/AKT-18A. The fourth minor component consists of Mounting Base, Electrical Equipment MT-4793/AKT-18A, which is used in aircraft installation to secure Interconnecting Box J-2794/APS-94D to Receiver-Transmitter, Radar RT-899/APS-94D.

b. Ft video, mt video, antenna gate, and sweep gate signals developed in Radar Surveillance Set AN/APS-94D are fed from Processor, Radar Signal CM-374/APS-94D to the synchronizer portion of the power supply-synchronizer where the synchronized signals are then fed to the video encoder. All low voltages used in the data transmitting set are developed in the power supply portion of the power supply-synchronizer. The video encoder encodes the signals and produces an encoded converted video signal, which is applied

through the synchronizer portion of the power supply-synchronizer to drive the radio transmitter. The encoded converted video signal frequency modulates a carrier signal in the radio transmitter where the fm carrier is amplified and transmitted through Antenna AT-450/ARC to the ground-based data receiving set.

E-8. Description of Encoder, Video KY-565A/AKT-18 (fig. 1-3)

Encoder, Video KY-565A/AKT-18 is the same as Encoder, Video KY-565/AKT-18 except for minor internal circuit changes (addition of relay and wires). The KY-565A/AKT-18 is installed on Mounting MT-3448/AKT-18 in the forward fuselage compartment of the aircraft (fig. E-1).

E-9. Description of Control, Data Link C-9963/AKT-1 8A (fig. E-3)

The data link control replaces Panel, Distribution SB-2471/AKT-18 in the AN/AKT-18A configuration. The data link control controls all power to the data transmitting set and is located in the aircraft cockpit on the bulkhead between and above the pilot and operator. The data link control is fastened to the bulkhead with four quarter-turn fasteners. Electrical connections are made at the rear of the component with 19-pin connector 7J1. The connector is secured by means of a connector locking nut to a mounting backplate. Four controls, three illumination lamps, and one indicator are located on the front panel. The left-hand control is the DEGREES DRIFT control, the right-hand control is the KNOTS GRD SPEED control, the bottom-center control is the POWER SWITCH, and the bottom-left control is the RESIDUE potentiometer. Three lamps are located on the front panel to provide illumination. The BITE indicator on the bottom-right panel flashes at a 1-Hz rate for approximately 60 seconds until the equipment is ready to operate and then illuminates continuously to indicate that all circuits are properly operating. When trouble exists in the video encoder or power supply- synchronizer, the BITE indicator flashes at a 4-Hz rate.

E-10. Description of Power Supply-Synchronizer PP-7255/AKT-18A (fig. E-4)

a. The power supply-synchronizer performs two separate functions. The first function consists of the power supply section that develops all the dc and ac voltages necessary to operate the data transmitting set. The dc voltages consist of +15 vdc; -10vdc, + 150 vdc, + 300 vdc, + 28 vdc, and - 300 vdc. The ac voltage consists of 115 vac, 400 Hz, single-phase. The second function of the power supply-synchronizer consists of the synchronizer section that is a BITE/synchronizer generator. The synchronizer generator synchronizes the composite video signal developed in the video encoder with the antenna mode and fast trigger to insert a fine sync pulse in the composite video. The operation of the BITE circuit is described in paragraph E-9.

b. The power supply-synchronizer is installed on Mounting Base, Electrical Equipment MT-4792/ AKT-18A in the forward compartment of the aircraft fuselage (fig. E-1). The component is secured to the mount by two wingnuts on the front of the mounting base.

E-11. Description of Minor Components

a. Mounting MT-4792/AKT-18A (A, fig. E-5). This mount secures the power supply-synchronizer in the aircraft. Two tapered pins at the rear of the mount help secure the rear of the power supply-synchronizer. Two wingnuts and ferrules on eye-bolts are used to hold the front of the power supply-synchronizer. The wing nuts hold the ferrules against the right and left hooks of the power supply-synchronizer.

b. Mounting MT-4793/AKT-18A (B, fig. E-5). In converting the AN/AKT-18 to the AN/AKT-18A configuration, Interconnecting Box J-2794/ APS94D is removed from the rear compartment in the aircraft fuselage and hard mounted with Mounting MT-4793/AKT-18A to the side of Receiver-Transmitter, Radio RT-899/APS-94D in the center compartment. Both of these units are mounted to existing isolators on the aircraft rack.

E-12. Test Facilities Kit MK-856A/AKT-18 (fig. E-6 and E-6.1)

Test Facilities Kit MK-856A/AKT-18 is the same as Test Facilities Kit MK-856/AKT-18 except for the addition of 18 cables, a module extender, and two cases used for storing the component parts of the test facilities kit. The new cables duplicate the functions of the cables permanently installed in the aircraft for bench testing the AN/AKT-18A. The additional cables, module extender, and cases are identified in figures E-6 and E-6.1 and described in *a* through *u* below.

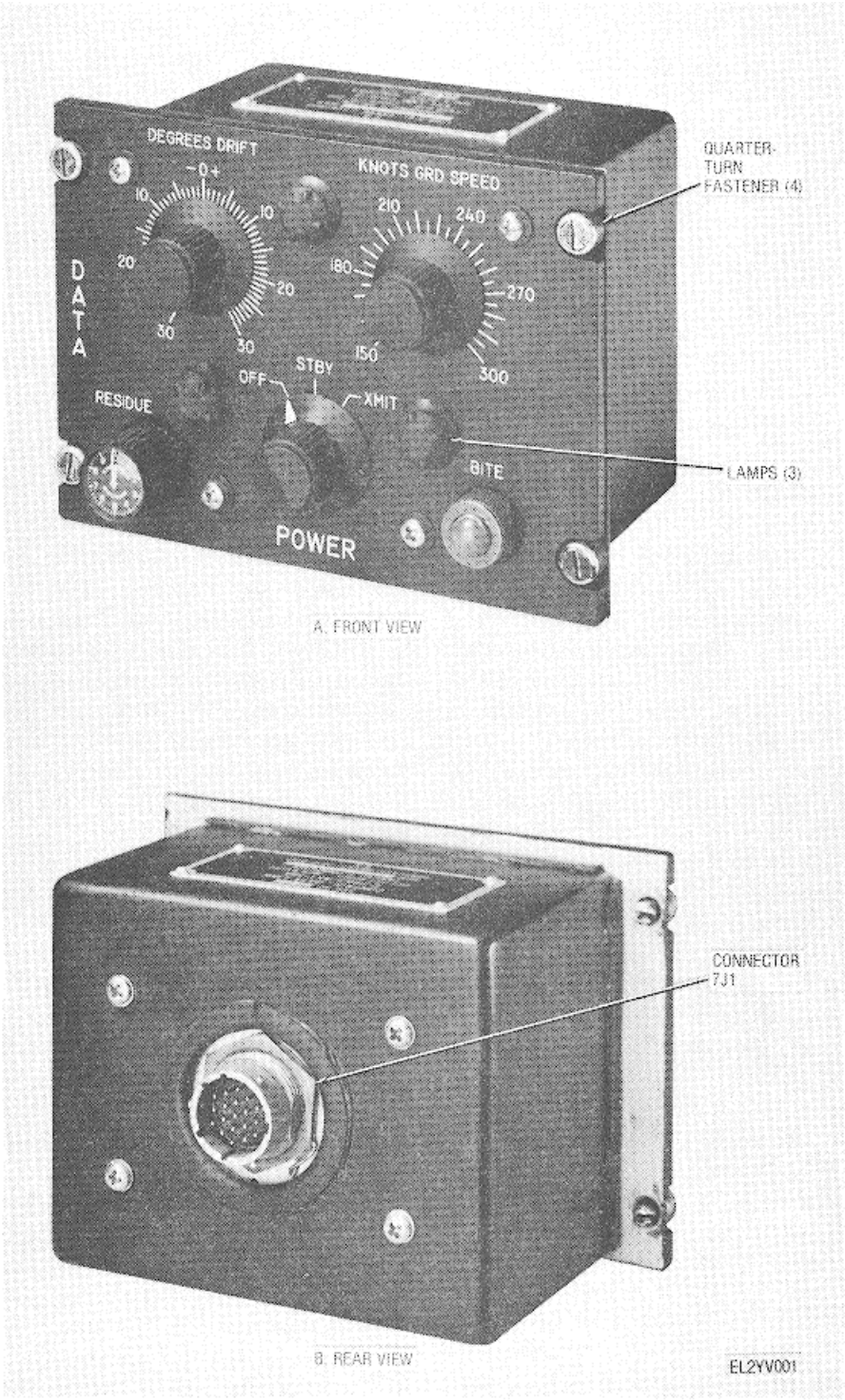


Figure E-3. Control, Data Link C-9963/AKT-18A.

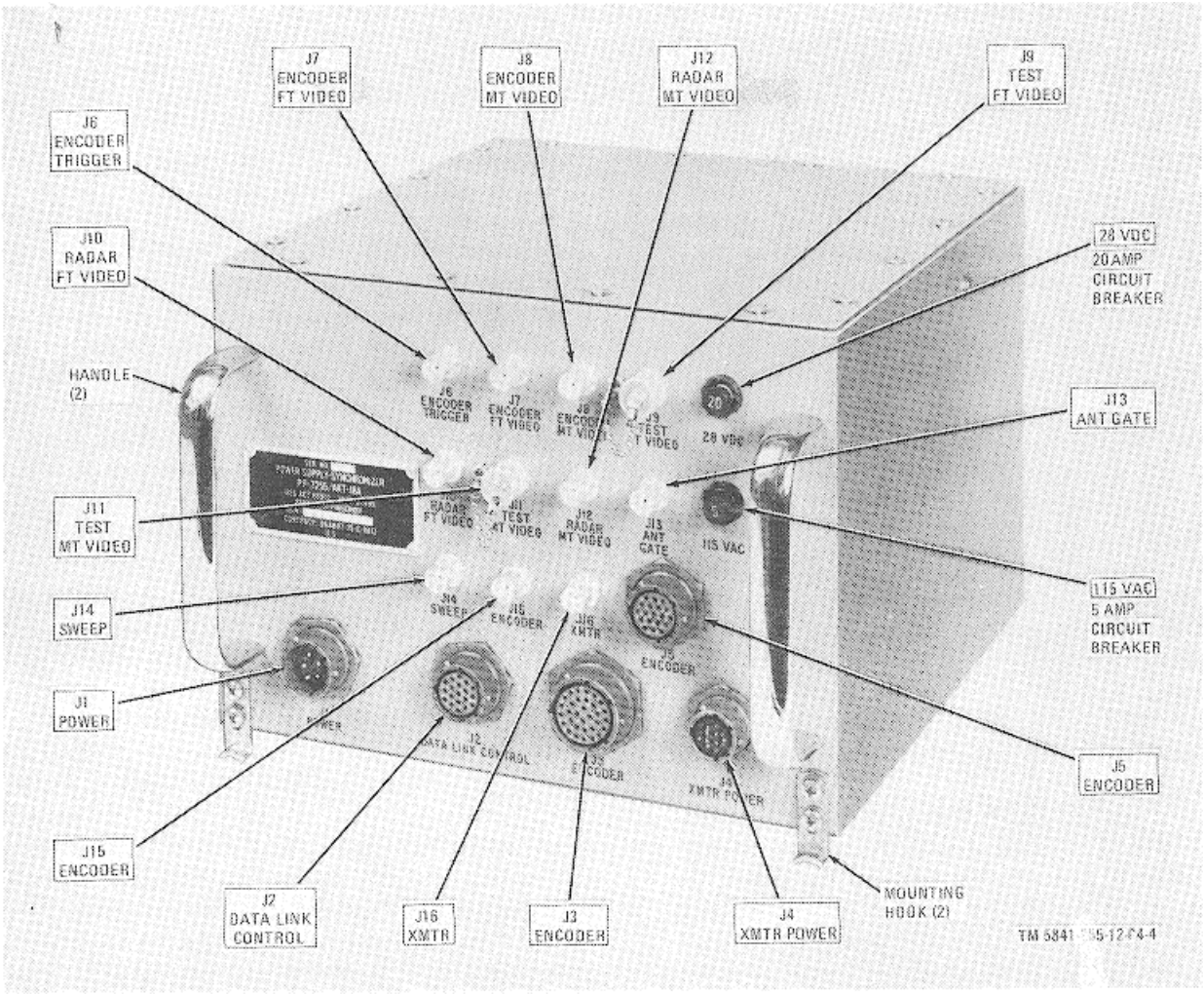


Figure E-4. Power Supply-synchronizer PP-7255/AKT-18A.

a. Cable Assembly, Special Purpose, Electrical 30-P06565H (Cable W1) (fig. E-6). Cable W1 is used to connect system power (+28 vdc and 115 vac) to connector 6J1 on the power supply-synchronizer. Cable W1 is an 8-foot long, 5-conductor, rubber- insulated cable terminated on one end with an MS3116F14-5S connector (W1P1) and the other end is unterminated.

b. Cable Assembly, Special Purpose, Electrical 30-P06566H (Cable W2) (fig. E-6). Cable W2 is used to connect data link control connector 7J1 to power supply-synchronizer connector 6J2 and to connect the data link control to a source of panel illumination power. Cable W2 is a 4-foot long, 17-conductor, rubber-insulated cable terminated at one end with an MS3116F14-19S connector (W2P1) and the other end with an MS3116F14-19P (W2P2). Two cable leads from one end of the cable are unterminated for connection to panel illumination power source.

c. Cable Assembly, Special Purpose, Electrical 30-PO6567H (Cable W3) (fig. E-6). Cable W3 is used to connect frequency selector control connector 4J1 to radio transmitter connector 3A1J1 and to connect the frequency selector control to a source of panel illumination power. Cable W3 is a 4-foot long, 23-conductor, rubber-insulated cable terminated at one end with an MS3116F16-26SW connector (W3P1) and the other end with an MS3116F18-32SW connector (W3P2). Two cable leads from one end of the cable are unterminated for connection to panel illumination power source.

*d. Cable Assembly, Special Purpose, Electrical 30-P06568H (Cable W4) (*fig. E-6). Cable W4 is used to connect radio transmitter connector 3A1J2 to power supply-synchronizer connector 6J4. Cable W4 is a 3-

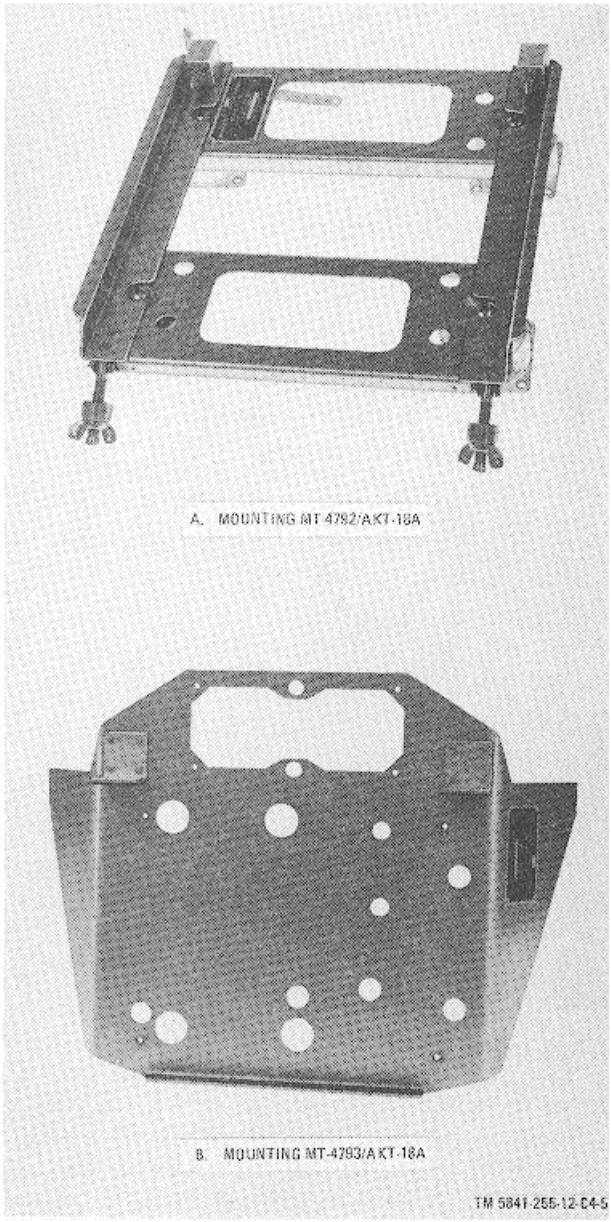


Figure E-5. .Mounting Bases Electrical Equipment MT-4792/AKT-18A AND MT-4793/AKT-18A.

foot long, 9-conductor, rubber-insulated cable terminated at one end with an MS3116F16- 26S connector (W4P1) and at the other end with an MS3116F12-10OP connector (W4P2).

e. Cable Assembly, Special Purpose, Electrical 30-P06569H (Cable W5) (fig. E-6). Cable W5 is used to connect video encoder connector 1J3 to power supply-synchronizer connector 6J3. Cable W5 is a 3-foot long, 9-conductor, rubber-insulated cable terminated at one end with a DM9702-37S connector (W5P1) and at the other end with an MS3116F18-32P connector (W5P2).

f. Cable Assembly, Special Purpose, Electrical 30-P06570H (Cable W6) (fig. E-6). Cable W6 is used to connect video encoder connector 1J1 to power supply-synchronizer connector 6J5. Cable W6 is a 3-foot long, 21-conductor, rubber-insulated cable terminated at one end with a DM9702-19S connector (W6P1) and the other end with an MS3116F14-19PW connector (W6P2).

g. Cable Assembly, Radio Frequency 30-P06571H (Cable W7) (fig. E-6). Cable W7 is used to connect power supply-synchronizer connector 6J14 to Processor, Radar Signal CM-374/APS-94D connector CP1-P2. Cable W7 is a 6-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W7P1 and W7P2).

h. Cable Assembly, Radio Frequency 30-P06572H (Cable W8) (fig. E-6). Cable W8 is used to connect power supply-synchronizer connector 6J13 to Processor, Radar Signal CM-374/APS-94D connector 3J10. Cable W8 is a 6-foot long coaxial cable (RG-62A/U terminated at both ends with a UG-260F/U connector (W8P1 and W8P2).

i. Cable Assembly, Radio Frequency 30-P06573H (Cable W9) (fig. E-6). Cable W9 is used to connect power supply synchronizer connector 6J10 to Processor, Radar Signal CM-374/APS-94D connector 3J12. Cable W9 is a 6-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W9P1 and W9P2).

j. Cable Assembly, Radio Frequency 30-P06574H (Cable W10) (fig. E-6). Cable W10 is used to connect power supply-synchronizer connector 6J12 to Processor, Radar Signal CM-374/APS-94D connector 3J13. Cable W10 is a 6-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG260F/U connector (W10P1 and W10OP2).

k. Cable Assembly, Radio Frequency 30-P06575H (Cable W11) (fig. E-6). Cable W11 is used to connect power supply-synchronizer connector 6J6 to video encoder connector 1J4. Cable W11 is a 4-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W11P1 and W11P2).

l. Cable Assembly, Radio Frequency 30-PP06576H(Cable W12) (fig. E-6). Cable W12 is used to connect power supply-synchronizer connector 6J7 to video encoder connector lJ5. Cable W12 is a 4-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W12P1 and W12P2).

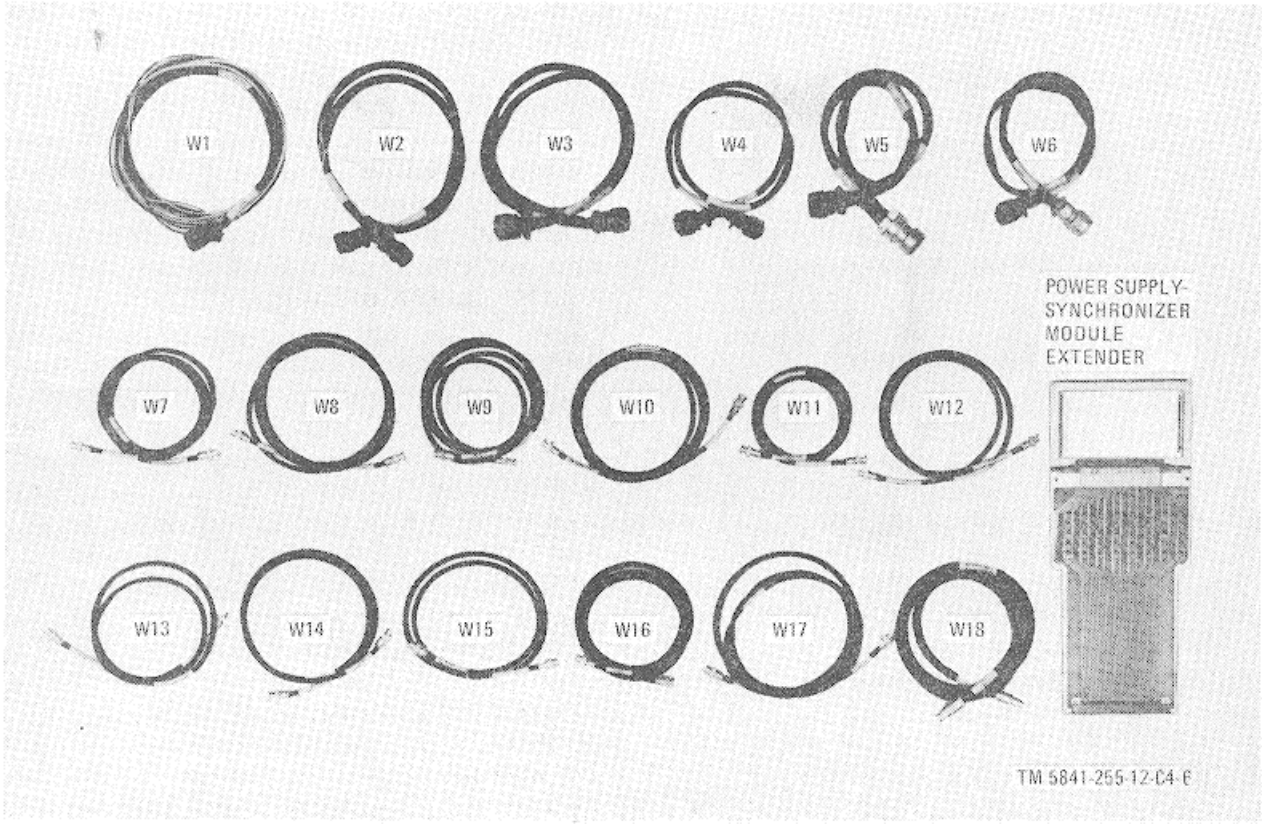


Figure E-6. Test Facilities Kit MK-856A/AKT-18.

m. Cable Assembly, Radio Frequency 30-P06577H (Cable W1V3) (fig. E-6). Cable W13 is used to connect power supply-snychronizer connector 6J8 to video encoder connector LJ6. Cable W13 is a 4foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W13P1 and W13P2).

n. Cable Assembly, Radio Frequency 30-P06578H (Cable W14) (fig. E-6). Cable W14 is used to connect power supply-snychronizer connector 6J16 to radio transmitter connector 3ALJ3. Cable W14 is a 4-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W14P1 and W14P2).

o. Cable Assembly, Radio Frequency 30-P06579H (Cable W15) (fig. E-6). Cable W15 is used to connect power supply-synchronizer connector 6J15 to the video encoder connector 1J8 (CP2). Cable W15 is a 4-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W15P1 and W15P2).

p. Cable Assembly, Radio Frequency 30-P06580H (Cable W16) (fig. E-6). Cable W16 is used to connect CP2-P2 (test) on the video encoder to the oscilloscope (OS197/AKM-2A) vertical input connector. Cable W16 is a 6-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W16P1 and W16P2).

q. Cable Assembly, Radio Frequency 30-P06581H (Cable W17) (fig. E-6). Cable W17 is used to connect video encoder connector lW9 (slow sync) to the oscilloscope (OS-197/AKM-2A) EXT. TRIGGER connector. Cable W17 is a 6-foot long coaxial cable (RG-62A/U) terminated at both ends with a UG-260F/U connector (W17P1 and W17P2).

r. Cable Assembly, Radio Frequency 30-PO6582H (Cable W18) (fig. E-6). Cable W18 is used to connect radio transmitter connector 3A3J1 to antenna load connector J1. Cable W18 is a 5-foot long coaxial cable (US-214/U) terminated at both ends with a UG-21H/U connector (W18P1 and W18P2).

s. Extender, Module 01-P06527H (fig. E-6). This module extender is a dummy module which may be plugged into the slot normally occupied by a functional module in the power supply-snychronizer. The functional module is then plugged into the module extender to permit observation and dynamic checks on the power supply-synchronizer while the equipment continues to operate.

Figure E-6.1. Storage cases (part of MK-856A/AKT-18).

t. Case, Test Facilities Kit CY-7620/AKT-18 (fig. E-6.1). This case is made of fiberglass and is stored inside the larger, metal Case, Test Facilities Kit CY-7621/AKT-18. The smaller case contains the following small components of the test facilities kit:

(1) Interconnection Assembly, Power Supply MX-6870/AKT-18
(2) Interconnection Assembly, Electrical Synchronizer MX-6871/AKT-18
(3) Interconnection Assembly, Converted Video Amplifier MX-6872/AKT-18
(4) Dummy Load, Electrical DA-404/AKT-18
(5) Radio Frequency Adapter UG-57B/U
(6) Coupler, Directional CU-1447/AKT-18
(7) Extender, Module MX-7542/U
(8) Extender, Module MX-7543/U
(9) Extender, Module 01-P06527H
(10) Extracter, Card 01-P09988H

u. Case, Test Facilities Kit CY-7621/AKT-18 (fig. E-6.1). This large, metal case is used to store all the components of the test facilities kit, including the small, fiberglass case and its contents. Components contained in the larger case (in addition to the smaller case and its contents) include:

(1) Wiring Harness CX-11076/AKT-18
(2) Wiring Harness CX-11077/AKT-18
(3) Cable Assembly, Special Purpose, Electrical CX-11075/U
(4) Cable Assembly, Special Purpose, Electrical CX-11072/U
(5) Cable Assembly, Special Purpose, Electrical CX-11074/U
(6) Cable Assembly, Radio Frequency CG-1883A/U
(7) Wiring Harness, Branched CX-11073/AKT-18
(8) Cable Assembly, Radio Frequency CG-530A/U (three)
(9) Cable Assembly, Radio Frequency CG-530D/U
(10) Wiring Harness, Branched CX-11467/AKT-18
(11) Conveyor, Roller, Gravity MX-6829/AKT-18
(12) Interconnecting Box J-2564/AKT-18
(13) Bench Test Cable Set, 30-P06596H consisting of:
(a) Cable Assembly, Special Purpose, Electrical 30-P06565H
(b) Cable Assembly, Special Purpose, Electrical 30-P06566H
(c) Cable Assembly, Special Purpose, Electrical 30-P06567H
(d) Cable Assembly, Special Purpose, Electrical 30-P06568H
(e) Cable Assembly, Special Purpose, Electrical 30-P06569H
(f) Cable Assembly, Special Purpose, Electrical 30-P06570H
(g) Cable Assembly, Radio Frequency 30-P06571H
(h) Cable Assembly, Radio Frequency 30-P06572H
(i) Cable Assembly, Radio Frequency 30-P06573H
(j) Cable Assembly, Radio Frequency 30-P06574H
(k) Cable Assembly, Radio Frequency 30-P06575H
(l) Cable Assembly, Radio Frequency 30-P06576H
(m) Cable Assembly, Radio Frequency 30-P06577H
(n) Cable Assembly, Radio Frequency 30-P06578H
(o) Cable Assembly, Radio Frequency 30-P06579H
(p) Cable Assembly, Radio Frequency 30-P06580H
(q) Cable Assembly, Radio Frequency 30-P06581H
(r) Cable Assembly, Radio Frequency 30-P06582H

Section II. OPERATING INSTRUCTIONS

E-13. Operator's Controls and Indicators

Operating controls for the data transmitting set are located on the frequency selector control and data link control which are located on the center bulkhead in the pilot's compartment. The function of the frequency selector control is covered in Chapter 2. The function of each operator control and indicator for the data link control is given in paragraph E-14.

E-14. Control, Data Link C-9963/AKT-18A Controls and Indicators (fig. E-7)

Control or indicator	*Function*
DEGREES DRIFT control	Manual control to dial in drift angle of aircraft.
KNOTS GRD SPEED control	Manual control to dial in ground speed of aircraft.
RESIDUE control	Used during initial flight to intensify or decrease fixed target background on moving target film.
POWER Switch	*Sw pos* / *Action*: XMIT — Enables operation of radio transmitter. STBY — Holds radio transmitter in standby condition. OFF — Deenergizes data transmitting set.
BITE indicator	Lamp flashes at 1-Hz rate for approximately 60 seconds until equipment is ready to operate and then continuously illuminates to indicate that all circuits are properly operating. Failures in BITE circuit cause the lamp to flash at 4-Hz rate. BITE circuit is reset by turning either STBY or XMIT. Lamp lens has adjustable opening to set light level

E-15. Aircraft Identification Switches

Aircraft identification switches for the AN/AKT-18A are identical to those described for the AN/AKT-18.

E-16. Preflight Checkout Procedure

a. Before proceeding on a flight mission, a preflight checkout of Transmitting Set, Radar Data AN/AKT-18A will be performed. The preflight checkout is accomplished with the use of Test Set, Transmitting Set, Radar Data AN/AKM-2A.

b. The AN/AKM-2A is a portable test set that includes Simulator Group, Radar Signal OH-2/AKM-2A (simulator group); Test Set-Alignment Group, Radar Data OQ-3/AKM-2A (test set-alignment group); and Data Display Group OA-8167/AKM-2A (data display group).

c. In addition to checking the data transmitting set before a mission, the preflight checkout procedure forms the basis for troubleshooting the data transmitting set. A troubleshooting chart (para E-26) provides instructions for isolating a malfunction to a specific component (power supply-synchronizer, video encoder, radio transmitter, or data link control). All other components are covered in chapter 3. If an abnormal indication is observed during the preflight checkout procedure, refer to the troubleshooting chart. If the corrective measures prescribed in the troubleshooting chart do not correct the malfunction, the component must be referred to a higher category of maintenance. Note on the repair tag the indications encountered and how the equipment performed.

E-17. Preflight Test Setup

(fig. E-8)

a. Test Equipment Required

(1) Oscilloscope OS-197/AKM-2A (part of Data Display Group OA-8167/AK1-2A.

(2) Auxiliary power unit (APU), 28 volts dc at 200 amperes.

b. Equipment Interconnections. Connect the test equipment and AN/AKT-18A as shown in figure E-8. The test connections shown in figure E-8 are additions or changes from the normal aircraft interconnections for the AN/AKT-18A as shown in figure E-10.

E-18. Preflight Test Procedure

a. Preliminary and Power turn-on Procedures.

(1) Inspect components and cables on the data transmitting set. Look for cracks, breaks, corrosion, loose or binding knobs, loose connectors, and damage.

(2) Determine and record the assigned aircraft identification number. Set the aircraft identification switches (para 2-9), if required.

(3) Close the aircraft DATA TRANS DC and AC (+ 28 vdc and 115 vac) and AN/APS-94D circuit breakers.

(4) Position Control, Radar Set C-7645/APS-94D (radar control) panel switches as follows:

Switch	*Position*
POWER	ON
PRF	FIXED
RANGE DELAY	O
ANTENNA	L(left)
RANGE	50

(5) Position controls on data link control as follows:

Switch or control	*Position*
POWER switch	STBY
DEGREES DRIFT control	-15°
KNOTS GRD SPEED control	300
RESIDUE control	On the first flight, position control at 9 (that is, turn knob until short pointer is at 9 and long p<,inter is at 0)

(6) Verify that the BITE indicator lamp flashes at a 1Hz rate during the 60-second warmup

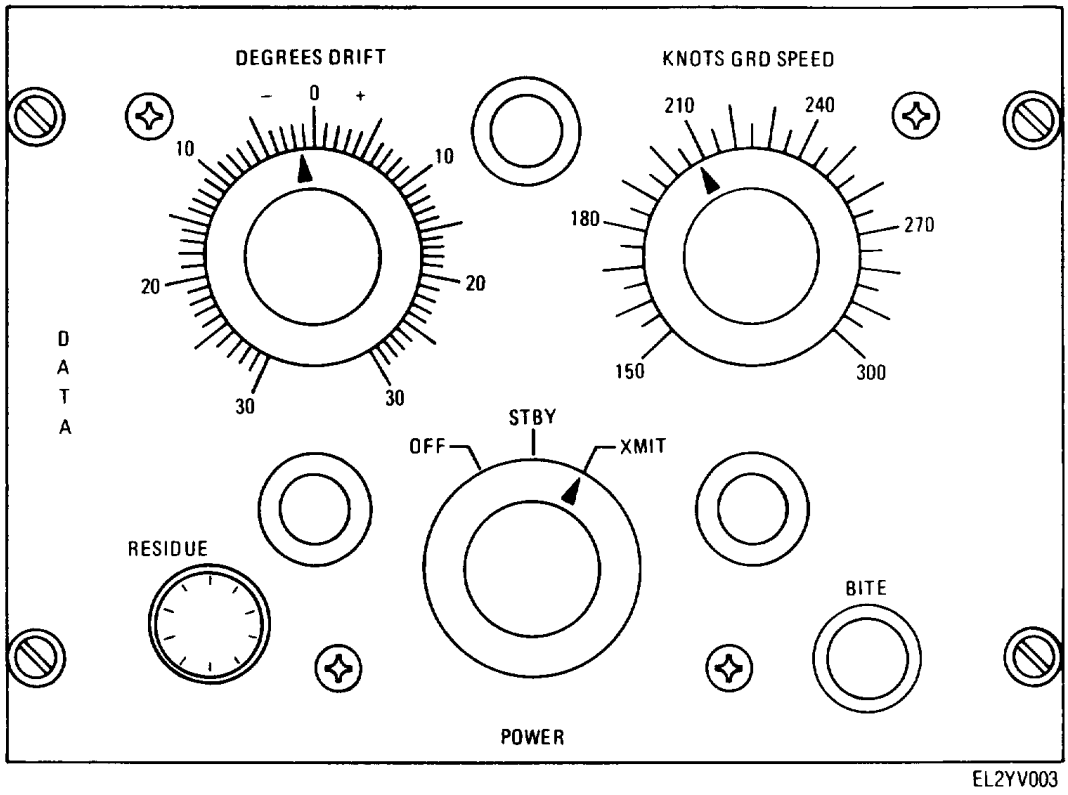


Figure E-7. Control, Data Link C-9963/AKT-18A, controls and indicator.

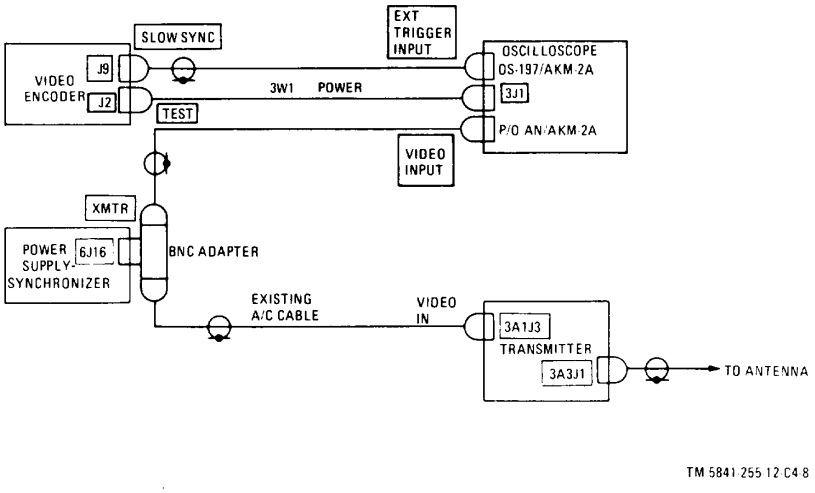


Figure E-8. Test setup for preflight testing AN/AKT-18A.

*U.S. GOVERNMENT PRINTING OFFICE: 1977-765010/520

interval, and then illuminates continuously. A 4-Hz flashing rate indicates a failure (para E-25).

(7) Check the air intake at the air filter on the video encoder front panel (fig. 1-3) to determine what the blower is operating. Use a piece of tissue or other light paper to determine that air is flowing.

(8) Turn on the aircraft INTERIOR LIGHTS control. Three panel illumination lamps on the frequency selector control (fig. 2-1) and three panel illumination lamps on the data link control (fig. E-7) should light.

(9) Tune the frequency selector control to the desired operating frequency.

(10) Permit a 15-minute warmup period before proceeding with test.

b. Video Encoder Test.

(1) Position the oscilloscope controls as follows:

Control	Position
VOLTSIDIV	1 Volt
INPUT SELECTOR	DC
TIME/DIV	2 MILLISEC
HORIZ MODE	SWEEP
TRIGGER STABILITY	PRESET
TRIGGER SLOPE	DC
TIME(DIV (VARIABLE)	CAL

(2) Adjust the oscilloscope TRIGGER SLOPE LEVEL control for a stable display of the tone burst.

NOTE

Some aircraft power systems may require different trigger settings and require use of calibration signal to calibrate sweep speeds.

(3) Disconnect the video INPUT cable to the oscilloscope, and position the trace on the crt for a zero reference level on the bottom line of the scale and then reconnect the video INPUT cable.

(4) Observe the oscilloscope display for the width of the ground speed tone burst; see waveform A, figure E-9. It should be 11.2 ± 0.5 ms. Adjust the KNOTS GRD SPEED control on the data link control to 150 knots, and observe the tone burst on the display;, see waveform B, figure E-9. The low burst should be 2.5 ± 0.2 ms wide. Reset the KNOTS GRD SPEED control to 300 knots.

(5) Adjust the oscilloscope TIME/DIV (VARIABLE) control slowly to make the second ground speed tone burst appear from the right side on the oscilloscope display.

(6) Adjust the oscilloscope horiz. POSITION control to center first wide tone burst in the display. Change the HORIZ MODE switch to 5X MAG. Observe that the fine sync pulse is present and note if the aircraft identification tone burst is present.

(7) Adjust the horiz POSITION control until the second wide tone burst is visible. Observe that the fine sync pulse is absent and note if aircraft identification tone burst is present.

(8) Observe the oscilloscope. The display should conform to waveform H, figure 3-2. The dc level of waveform should be 1.8 ± 0.1 volts; and the tone burst amplitude, excluding aircraft identification tone burst, should be 4.2 ± 0.5 volts. The aircraft identification tone burst, if present, should be 1.9 ± 0.2 volts. The fine sync pulse if present, should be 7.9 ± 0.2 volts. The video pedestal level should be 0.6 ± 0.2 volts to average of noise.

(9) Set the ANTENNA switch, on the radar control, to the R (right) position. Observe that the fine sync pulse is now present; see waveforms C and D, figure E-9.

(10) Adjust the horiz POSITION control until the first tone burst is visible. Observe that the fine sync pulse is absent.

(11) Set the ANTENNA switch on the radar control to R (right) position. Change the HORIZ MODE switch to SWEEP and the VARIABLE TIME/DIV control to CAL. Using the horiz POSITION control, center the display. Set the TRIGGER SLOPE switch to + DC and adjust the TRIGGER SLOPE LEVEL control for a stable display of the tone burst. This is the drift angle tone burst.

(12) Observe the oscilloscope display for the width of the drift angle tone burst; see waveform B, figure E-9. The width should be 2.5 ± 0.2 ms. Adjust the DRIFT ANGLE control on the data link control to + 15 and observe the tone burst on the oscilloscope. The tone burst should be 11.2 ± 0.5 ms wide. Reset the DRIFT ANGLE control to - 15.

(13) Adjust the VARIABLE TIME/DIV control on the oscilloscope to make second tone burst visible.

(14) Adjust the horiz POSITION control on the oscilloscope to center the first tone burst and change the HORIZ MODE switch to 5X MAG. Observe that the fine sync pulse is present and note if the aircraft identification tone burst is present.

(15) Adjust the horiz POSITION control to center second tone burst. Observe that the fine sync pulse is present and note if the aircraft identification tone burst is present.

(16) Check to identify if aircraft identification tone bursts are same as the last digit in the aircraft

tail number.

c. Radio Transmitter Test

WARNING

Stay a minimum of 3 meters away from antenna during the radio transmitter test.

(1) Set the POWER switch on the data link control to XMIT.

(2) Tune the aircraft UHF radio to 300 MHz and verify that the data link is transmitting. Data link transmission can be determined by listening for the characteristic chirp on the aircraft UHF radio.

NOTE

Due to the physical location of the power supply-synchronizer in front of the radio transmitter, the exact reading on the radio transmitter power meter is difficult to obtain; therefore, for steps (3) and (4), check for an approximate meter indication between 10 and 2 o'clock on the scale.

(3) Observe the radio transmitter forward power reading on the meter of Indicator, Standing Wave Ratio IM-201/AR; forward power should be 12 watts minimum (approximately 1 o'clock).

(4) Depress the IM-201/AR PRESS FOR REFL POWER switch and observe the reflected power reading on the meter; reflected power should be 5 watts maximum(between 10 and 11 o'clock).

d. Power Turnoff.

(1) Set data link control POWER switch at OFF.

(2) Set radar control POWER switch at OFF.

(3) Open the aircraft DATA TRANS DC and AC, and AN/APS-94D circuit breakers.

(4) Disconnect the test equipment from the data transmitting set.

NOTE

The cables that were removed from the original installation must be reconnected or the equipment will not function.

(5) Turn off and remove the aircraft APU.

E-19. Operation

a. General. Before starting on a flight mission, the operator will check as follows:

(1) Inspect the frequency selector control (fig 2-1) for cracks, breaks, and loose or binding knobs.

(2) Inspect the data link control (fig. E-7) for cracks, breaks, and loose or binding knobs.

(3) When aircraft internal and external light control is in operation, check that the three illuminating lamps on frequency selector control and three illuminating lamps on data link control illuminate.

(4) Be sure that the aircraft identification number has been properly programmed into the data transmitting set(b below).

b. Aircraft Identification Number. The procedure for setting aircraft identification numbers in the AN/AKT-18A is the same as for the AN/AKT-18 configuration (para 2-9).

c. Operation.

CAUTION

Do not turn on the data transmitting set until after the aircraft is airborne and then only with the approval of the pilot. The AN/APS-94D set must be operating (or in standby),before the operator turns on the data transmitting set.

NOTE

Make certain that AN/APS-94D PRF switch (on radar control) is set to FIXED position.

(1) Check to determine that the two DATA TRANS aircraft circuit breakers(DC/AC) are closed.

(2) Adjust frequency selector control (fig. 2-1) to the desired frequency (para 2 -10b).

(3) Operate the data link control (fig. E-7) POWER switch to STBY until the actual mapping is to be performed. When ready for mapping (transmitting), rotate the POWER switch to XMIT.

(4) When necessary, adjust the RESIDUE control during flight to adjust the background tone of the moving target map. Refer to paragraph 2-10d for additional information on setting the control for proper background tone.

d. Jamming. Operating procedures under jamming for the AN/AKT-18A are identical to the AN/AKT-18 procedures(para 2-11).

Section III. MAINTENANCE

E-20. Scope

This section includes instructions applicable only to the revised video encoder and the new data link control and power supply-synchronizer in the AN/AKT-18A. The remaining components (frequency selector control and radio transmitter) are covered in chapter 3. Tools, materials, and test equipment required for organizational maintenance procedures are listed in paragraph E-21

and preventive maintenance procedures are covered in paragraphs E-22 through E-24. A troubleshooting chart (para E-26) is included and is to be used in conjunction with the preflight checkout procedure outlined in paragraph E-16 to isolate a malfunction to a component. Also included are replacement procedures for the data link control and power supply- synchronizer.

E-21. Tools, Materials, and Test Equipment Required

Tools, materials, and test equipment required for organizational maintenance of the AN/AKT-18A are listed below:

a. Tools and Materials. Same as for AN/AKT- 18.

b. Test Equipment.

(1) Test Set, Transmitting Set, Radar Data AN/AKM-2A.
(2) Multimeter AN/URM- 105.
(3) Adapter UG-273/U.
(4) Test Facilities Kit MK-856A/AKT- 18.
(5) Auxiliary power unit (APU).

E-22. Preventive Maintenance

Preventive maintenance checks and services of the data transmitting set are required on an intermediate and periodic basis.

a. Paragraph E-23 prescribes intermediate checks and services to be accomplished every 25 flying hours and under the following conditions.

(1) When the equipment is initially installed.
(2) When the equipment is reinstalled after removal for any reason.
(3) At least once each week if the equipment is maintained in a standby condition.

b. Paragraph E-24 prescribes those periodic checks and services that must be performed concurrently with the aircraft periodic inspection (every 50 flying hours). This procedure includes a thorough visual inspection of the components of the data transmitting set and requires removal of the components from the aircraft. The components will be placed on a bench where covers will be removed (with assistance of direct support personnel) to permit visual inspection.

E-23. Intermediate Preventive Maintenance Checks and Services Chart

Sequence No.	*Item to be Inspected*	*Procedures*	*References*
1	Cables and connectors	Tighten all cable connections (fingertight) on the power supply-synchronizer and data link control(refer to paragraph 3-6 for other units).	None.
2	Intercabling and connectors	Refer to paragraph :3- 6.	None
3	All items	Refer to paragraph 3-6.	(Para 3-8).
4	Fuses	Refer to paragraph 3-6.	(Para 3-24).
5	Lamps	Check lamps on the data link control for proper operation.	(Para 3-24).
6	All items	Check all units for normal operation in accordance with the preflight checkout procedure outlined in paragraph E-16.	None

E-24. Periodic Preventive Maintenance Checks and Services Chart

Sequence No.	*Item to be Inspected*	*Procedures*	*References*
1	Major components	Remove video encoder. radio transmitter, frequency selector control. data link control and power supply-synchronizer from the aircraft.	(Para 3-14, :3-16, 3-20. E-29. and E-:31
2	Major components	Refer to paragraph .3- 7.	None.
3	Major components	Refer to paragraph 3- 7.	(Para 3-8b).
4	Air intake filter (radio transmitter).	Refer to paragraph :3- 7	(Para :3-8 and :3- 27)
5	Air intake filter (video encoder).	Refer to paragraph 3-7	(Para:3-8 and: 3-26;)
6	All items	Reinstall system in aircraft	(Para 3-15,3-17, 3-21.

Sequence No.	*Item to be Inspected*	*Procedures*	*References*
7	Mountings	Refer to paragraph :3-7.	E-:31. and E-:33).
8	Publications	Refer to paragraph :3-7.	
9	Modifications	Refer to paragraph :3-7.	

E-25. Troubleshooting

All troubleshooting procedures for the video encoder, radio transmitter and frequency selector control are covered in chapter 3. The following troubleshooting procedure chart (para E-26) is to be used in conjunction with the preflight checkout procedure covered in paragraph E-16 to isolate a malfunction to a component in the data transmitting set.

E-26. Troubleshooting Chart

Item No.	*Trouble*		*Checks and corrective*
1	Control, Data Link C-99631AKT-18A BITE lamp not illuminating.	*a.* Defective lamp	*a.* Check lamp, replace if necessary (para :3-24).
		b. No 5-volt illumination power to control, Data Link C-996:3/AKT-18A BITE lamp.	*b.* Check 5-volt input to affected component (fig. E-10)
		c. Faulty Control, Data Link C-9963/AKT- 18A.	*c.* Higher category maintenance required.
2	Control, Data Link C-996:3/AKT-18A BITE lamp flashes at 4-Hz rate.	*a.* Faulty Encoder, Video KY-565A/AKT-18.	*a.* Higher category maintenance required.
		b. Faulty Power Supply-Synchronizer PP-72551AKT- 18A	*b.* Higher category maintenance required.
		c. 400-Hz power fails.	*c.* Check for 400-Hz power into Transmitting Set, Radar Data AN/AKT- 18A.
3.	Panel illuminating lamps on Control, Data; Link C-996fi:3/AKT- 18A not illuminating.	Refer to paragraph:3-11(3).	Refer to interconnecting diagram (fig. E- 10).
4	Two tone bursts do not appear on oscilloscope display.	*a.* Faulty adjustment of oscilloscope variable sweep control.	*a.* Readjust variable sweep control.
		b. Faulty Encoder, Video KY-565A/AKT-18.	*b.* Perform tests of paragraph 2-7b, steps 1-10 and 19-26.
5	Aircraft identification number readout does not agree with actual number, or oscilloscope presentation does not conform to waveform in figure E-9.	Refer to paragraph 3-11, item No. 4.	
6	In ANTENNA L (left) position, first GS or both DA tone bursts do not contain fine sync pulse shown on waveforms A through D), figure E-9.	*a.* Faulty Power Supply-Synchronizer PP-7255/AKT-18A	*a.* Higher category maintenance required.
		b. No antenna gate signal from Radar SurveillanceSetAN/APS-94D.	*b.* Check cabling between Radar Surveillance Set AN/APS-94 and Transmitting Set, Radar Data AN/AKT-18A. If cabling is not defective, higher category maintenance is required on Radar Surveillance Set AN/APS-94D.
7	In ANTENNA R (right) position, second GS tone burst does not contain fine sync pulse shown on waveforms A through D), figure E-9.	*a.* Fault Power Supply-Synchronizer PP-72551AKT-18A	*a.* Higher category maintenance required.
		b. No antenna gate signal from Radar SurveillanceSetAN/APS-94D.	*b.* Check cabling between Radar Surveillance Set AN/APS-94D and Transmitting Set, Radar Data AN/AKT-18A. If cabl-

Item No.	*Trouble*	*Probable trouble*	*Checks and corrective measures*
			ing is not defective, higher category maintenance is required on Radar Surveillance Set AN/APS-94D.
8	Pedestal level not 0.6 volt to average of noise or rangemarks not present.	Refer to paragraphs 3-11, item No. 11.	
9	Dc level is not 1.8 volts above ground reference.	Power Supply-synchronizer Pp-7255/AKT-18A out of adjustment.	Higher category maintenance required.
10	DA and GS tone bursts on crt are not 4.2 $\pm$ 0.5 volts, aircraft ident tone burst not 1.9 $\pm$ 0.2 volts, and fine sync pulse not 7.9 + 0.2 volts above 1.8-volt pedestal.	Faulty Encoder, Video KY-565A/AKT-18.	Higher category maintenance required.
11	The20 or 40 km range marks are not visible in left ft and mt video.	Radar Surveillance Set AN/APS-94D not on or not operating properly. **NOTE** **Marks have a 30 second on/off cycle).**	Higher category maintenance required.
12	Width of GS tone burst not as required.	a. Control, Data Link C-9963/AKT-18A KNOTS GRD SPEED control not set properly. b. Control, Data Link C-9963/AKT-18A needs adjustment. c. Encoder, Video KY-565A/AKT-18 faulty.	a. Readjust control. b. Higher category maintenance required. c. Higher category maintenance required.
13	Radio transmitter forward power is less than 12 watts.	Refer to paragraph 3-11, item No. 5.	
14	Radio transmitter reflected power is more than 5 watts.	Refer to paragraph 3-11, item No. 6	

E-27. Removal and Replacement Procedures

All removal and replacement procedures that are not covered in the following paragraphs are described in chapter 3.

WARNING

Be sure to turn off all power to equipment before starting any removal procedure.

E-28. Removal and Replacement of Encoder, Video KY-565A/AKT-18 (fig. 1-3)

Removal and replacement of the video encoder (para 3-14) is identical for the AN/AKT-18A configuration, except Conveyor, Roller Gravity MX-6829/AKT-18 is not used to remove or replace the unit. The replacement procedure for the video encoder (para 3-15) is identical for the AN/AKT-18A configuration, except Conveyor, Roller Gravity MX-6829/AKT- 18 is not used to replace the unit.

E-29. Removal and Replacement of Transmitter, Radio T-991/AR (fig. 1-4)

Removal and replacement of the radio transmitter (para 3-16) is identical for the AN/AKT-18A configuration, except the power supply-synchronizer (para E-32) must be removed before performing the radio transmitter removal procedure.

E-30. Removal of Control, Data Link C-9963/AKT-18A (fig. E-3)

To remove the data link control, proceed as follows:

a. Loosen the four quarter-turn fasteners that secure the data link control to the center bulkhead between the pilot and operator in the aircraft cockpit.

b. Carefully pull the data link control from the bulkhead until the rear of the unit and the multipin connecting cable are accessible.

c. Tag and disconnect the cable from connector 7J1 at the rear of the data link control.

d. Remove the data link control from the bulkhead.

E-31. Replacement of Control, Data Link C-9963/AKT-18A

To replace the data link control, proceed as follows:

a. Connect the cable (tagged in para E-30) to connector 7J1 on the rear of the data link control.

b. Mount the data link control in the bulkhead between the pilot and operator and secure with the four quarter-turn fasteners.

E-32. Removal of Power Supply-Synchronizer PP-7255/AKT-18A (fig. E-4)

To remove the power supply-synchronizer, proceed as follows:

a. Disconnect the cables from the connectors on the power supply-synchronizer.

b. Remove the safety wire and loosen the two wingnuts on the eyebolts of Mounting Base, Electrical Equipment MT-4792/AKT-18A (fig. E-5) and release the clamps from the right and left hooks on the power supply-synchronizer.

c. Slide the power supply-synchronizer forward and out of Mounting Base, Electrical Equipment MT-4792/AKT- 18A.

E-33. Replacement of Power Supply-Synchronizer PP-7255/AKT-18A

To replace the power supply-synchronizer, proceed as follows:

a. Place the power supply-synchronizer on Mounting Base, Electrical Equipment MT-4792/AKT-18A and push the power supply-synchronizer to back of frame on the mounting base until it is firmly situated against the rear of the mount with the guide pins engaged with the guide receptacles on the power supply-synchronizer.

b. Connect the cables to the power supply-synchronizer connectors (fig. E- 10).

c. Secure the power supply-synchronizer to Mounting Base, Electrical Equipment MT-4792/AKT- 18A by placing the ferrules of the eyebolts on the mount over the right and left hooks on the power supply-synchronizer.

d. Tighten the two wingnuts on the eyebolts fingertight; check the power supply-synchronizer for a secure mounting.

e. Safety wire the eyebolts and the wingnuts.

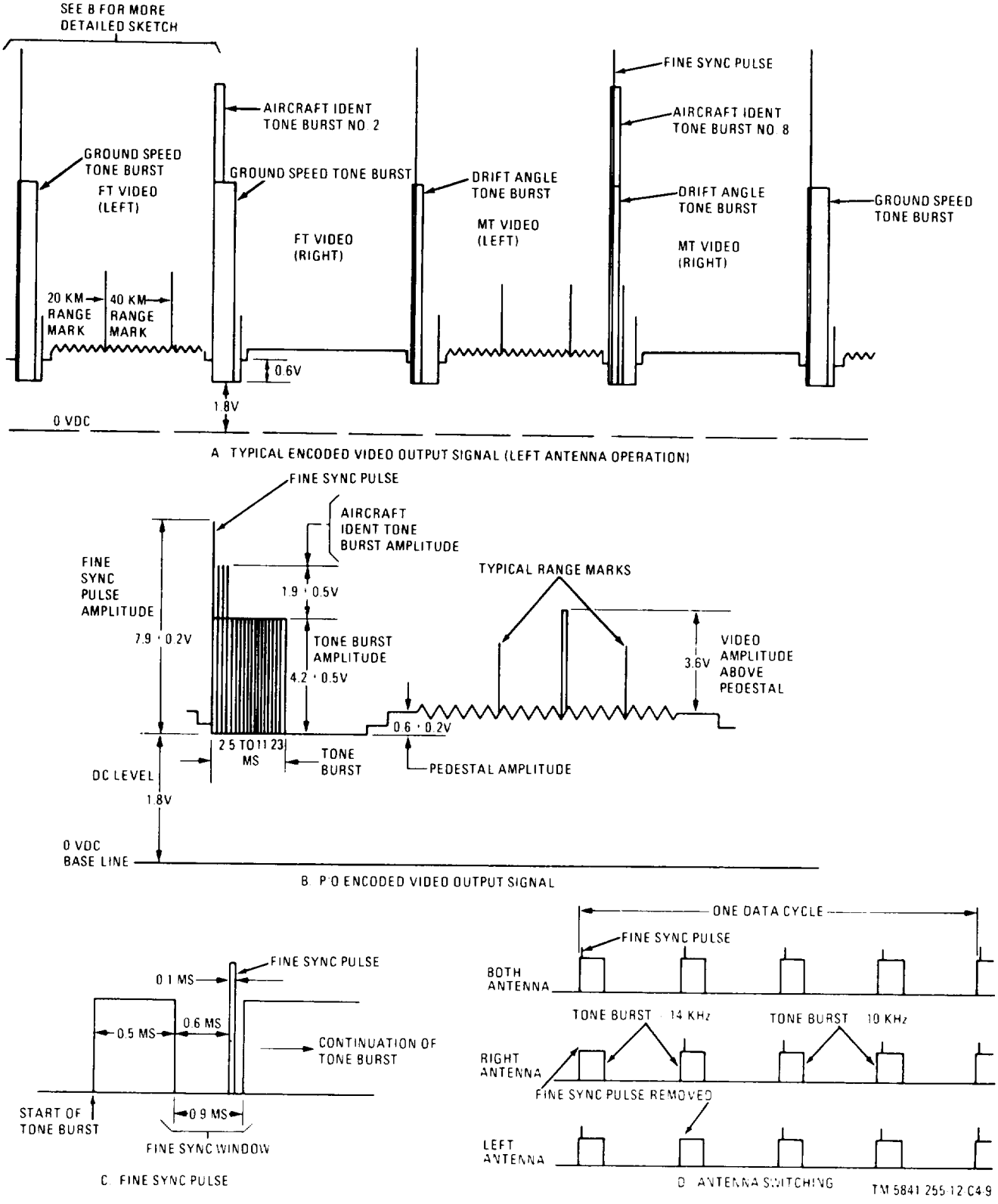


Figure E-9. Waveforms (AN/AKT-18A).

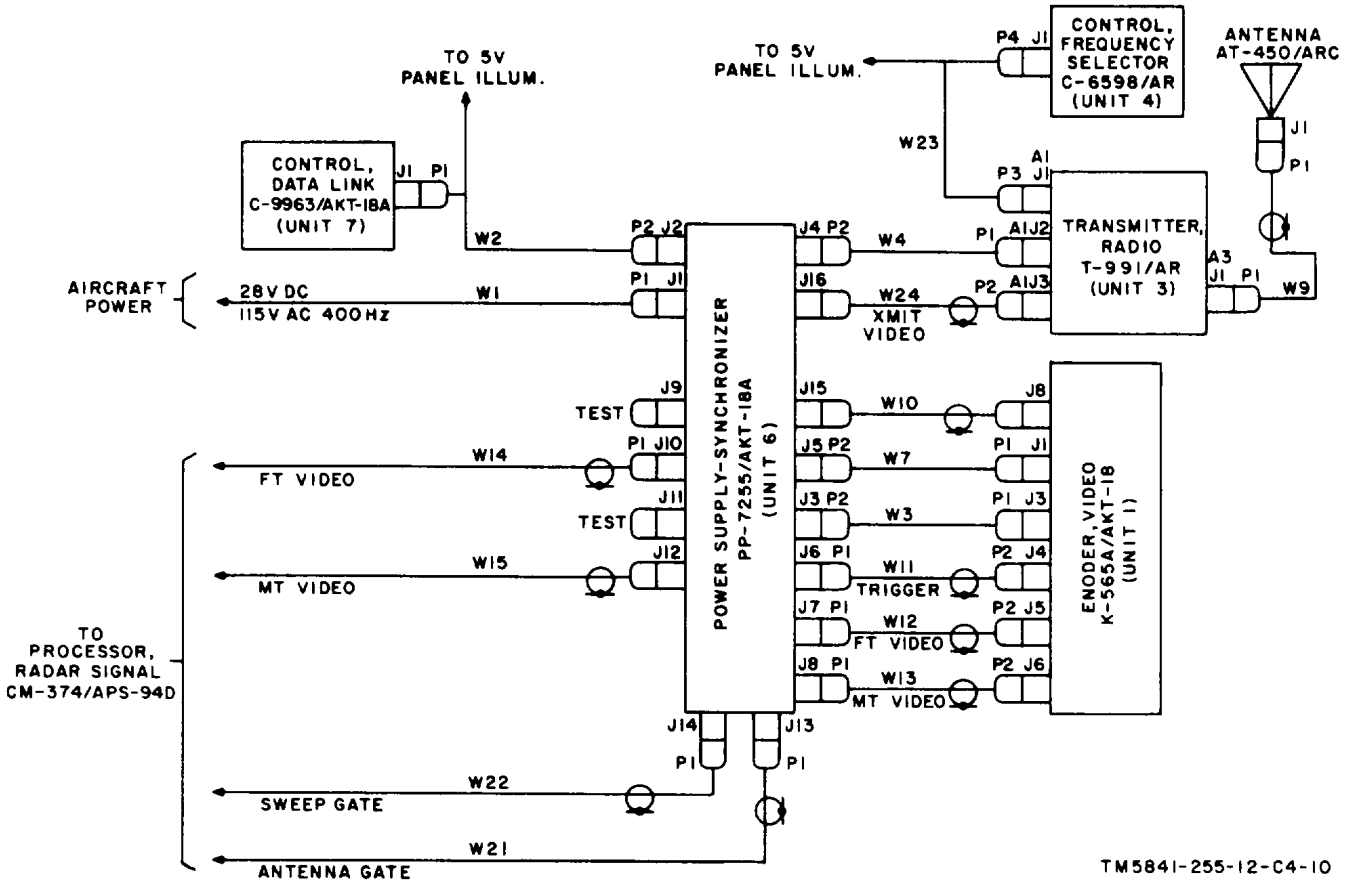


Figure E-10. Transmitting Set, Radar Data AN/AKT-18A, interconnection diagram.

INDEX

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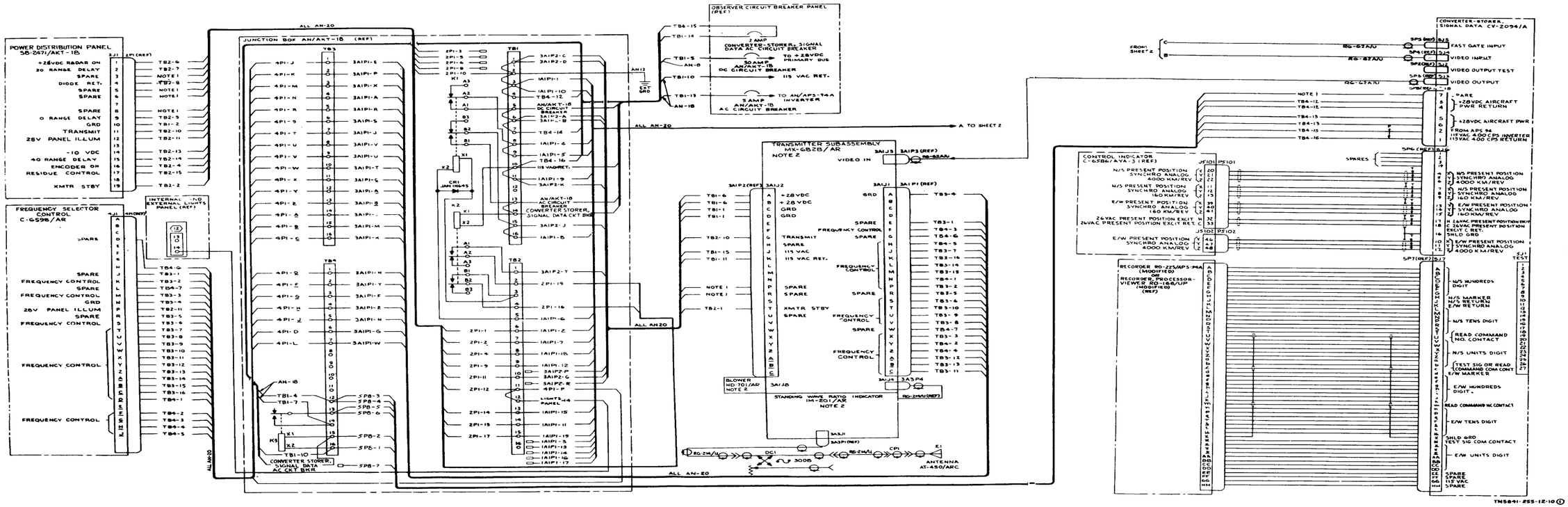

Figure 3-5 (1). Transmitting Set, Radar Data AN/AKT-18, interconnecting diagram (part 1 of 2).

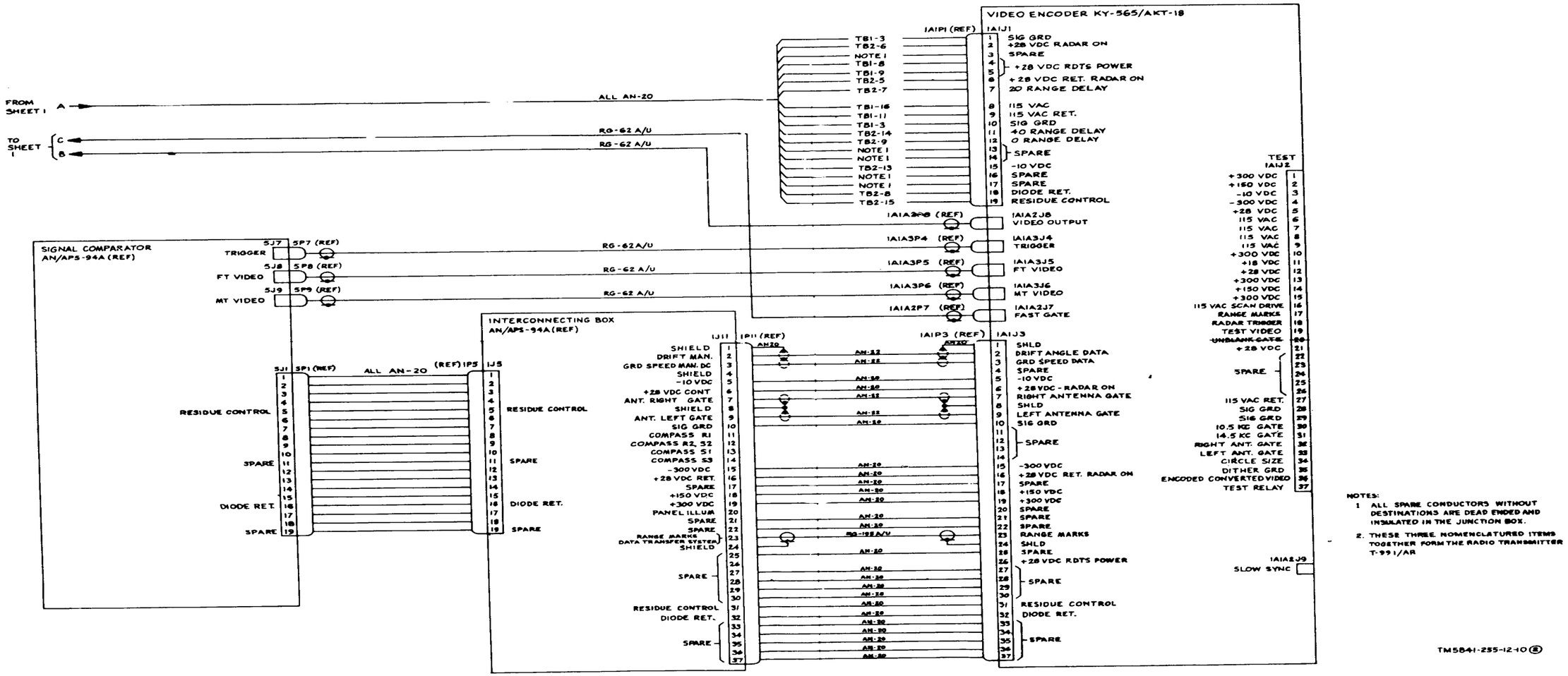

Figure 3-5 (2). Transmitting Set, Radar Data AN/AKT-18, interconnecting diagram (part 2 of 2).

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