

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

TECHNICAL MANUAL

No. 11-5841-255-12



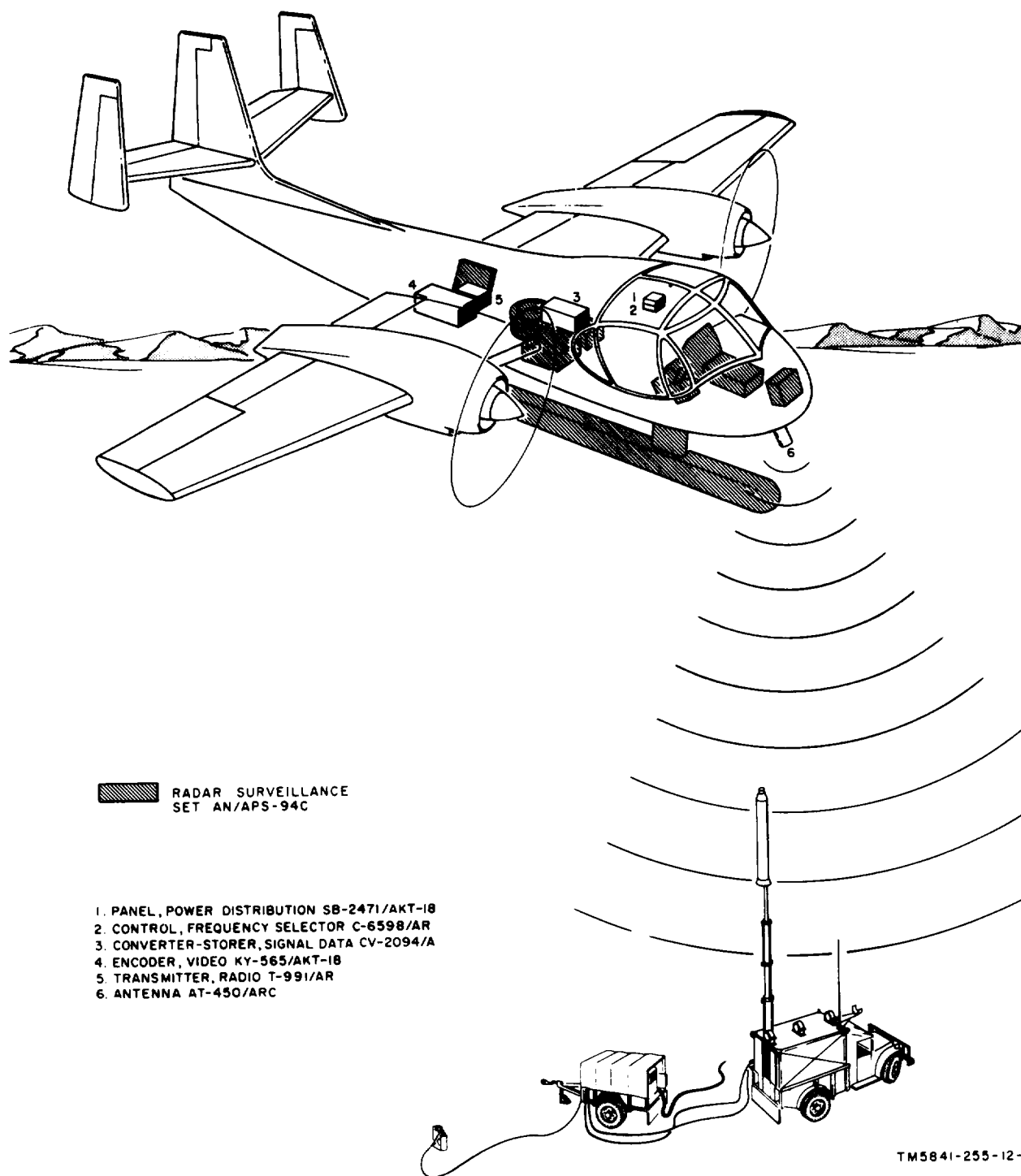
HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 23 August 1966

**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**

			Paragraph	Page
CHAPTER	1.	INTRODUCTION		
Section	I.	General-----	1-1--1-3	1-1
	II.	Description and data -----	1-4--1-17	1-1--1-12
CHAPTER	2.	OPERATING INSTRUCTIONS		
Section	I.	Operator's controls and indicators -----	2-1--2-4	2-1, 2-2
	II.	Preflight checkout procedure-----	2-5--2-7	2-4--2-5
	III.	Operation -----	2-8--2-11	2-8--2-9
CHAPTER	3.	MAINTENANCE		
Section	I.	General-----	3-1, 3-2	3-1, 3-1
	II.	Preventive maintenance-----	3-3, 3-9	3-1, 3-4
	III.	Troubleshooting -----	3-10,3-12	3-4, 3-8
	IV.	Supplementary maintenance information -----	3-13,3-30	3-12,3-16
CHAPTER	4.	DEMOLITION TO PREVENT ENEMY USE-----	4-1, 4-2	4-1
APPENDIX	A.	REFERENCES -----		A-1
	C.	MAINTENANCE ALLOCATION -----		C-1
	D.	ORGANIZATIONAL REPAIR PARTS.....		D-1
	E.	DIFFERENCE DATA FOR AN/AKT-18A AND MK-856A/AKT-18		E-1
INDEX.....				I-1

Change 4 i



TM 11-5841-255-12-1

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

Change 4 1-1

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 Sur-
veillance 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