URGENT

TB 1-1500-351-20-1

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

FABRICATION OF THE AN/APR-39(V)1, AN/APR-39(V)2, AN/APR-39A(V)1 AND THE AN/APR-39A(V)4 RADAR SIGNAL DETECTING SET, ANTENNA-DETECTOR CABLES FOR AH-IF, AH164A/D, CH-47D/E, OH-58A/C/D, UH-IH/V, AND UH-60A/L/Q/EH-60A HELICOPTERS

Headquarters, Department of the Army, Washington, D.C.

16 April 1999

NOTE

THIS PUBLICATION IS EFFECTIVE INDEFINITELY
UNLESS SOONER RESCENDED OR SUPERSEDED.

1. Priority Classification. URGENT.

2. Task/Inspection Suspense Date. N/A

3. Reporting Compliance Suspense Date. N/A

4. Summary of Problem.

a. Field reports indicate that the AN/APR-39A(V)1 and AN/APR-39A(V)4 Antenna-Detector cables are having a high rate of failure on the AH-64A/D, OH-58D and UH-60A/L aircraft. The existing cables are not as flexible or durable as the new RG-400 cables. The existing cables currently can not be repaired or fabricated in the field.

b. In the interim while the aircraft technical manuals are being updated with the data supplied from this Technical Bulletin (TB) the units are authorized to fabricate the RG-400 cables used on the AN/APR-39(V)1, AN/APR-39(V)2, AN/APR-39A(V)1 and the AN/APR-39A(V)4 Radar Signal Detecting Sets.

c. For manpower/downtime and funding impacts see paragraph 12.

This TB supesedes TB 1-1500-351-20-1, dated 28 December 1998.

d. The purpose of this Technical Bulletin (TB) is to provide the necessary instructions for local fabrication of the AN/APR-39(V)1, AN/APR-39(V)2, AN/APR-39A(V)1 and the AN/APR-39A(V)4 Antenna-Detector cables and allows the cables to be replaced through attrition. It is recommended that if at least one Antenna-Detector cable requires replacement that all four (4) cable assemblies be replaced at the same time to prevent any line loss.

5. End Items to be Inspected. N/A

6. Assembly /Components to be inspected. N/A

7. Parts to be removed/installed. N/A

8. Inspection Procedures. N/A

9. Correction Procedures. The following procedures and tables are to be used to locally fabricate the AN/APR-39(V)1, AN/APR-39(V)2, AN/APR-39A(V)1 and the AN/APR-39A(V)4 cable assemblies using RG-400 cable material.

AH-1F

Location	FWD LEFT	FWD RIGHT	AFT LEFT	AFT RIGHT
New Part Number	5595-CAB39-001-13	5595-CAB39-001-14	5595-CAB39-001-15	5595-CAB39-001-16
Old Part Number	209-077-100-5	209-077-100-7	209-077-100-3	209-077-100-1
SD18573 45 degree Connector				
SD18574 Straight Connector	2	2		1
SD18575 90 degree Connector			2	1
M17/128-RG-400 RG-400 Cable	19 inches	19 inches	29 inches	29 inches
MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

SD18573, 45 degree connectors can be used to prevent chaffing of the cables in all locations.

AH-64A/D

Location	FWD LEFT	FWD RIGHT	AFT LEFT	AFT RIGHT
New Part Number	5595-CAB39-001-1	5595-CAB39-001-2	5595-CAB39-001-4	5595-CAB39-001-3
Old Part Number	AE11776-1	AE11776-2	AE11776-4	AE11776-3
SD18573 45 degree Connector				
SD18574 Straight Connector			2	2
SD18575 90 degree Connector	2	2		
M17/128-RG-400 RG-400 Cable	42 inches	42 inches	20 inches	23 inches
MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

CH-47D/E

Location	FWD LEFT	FWD RIGHT	AFT LEFT	AFT RIGHT
New Part Number	5595-CAB39-001-21	5595-CAB39-001-22	5595-CAB39-001-23	5595-CAB39-001-24
Old Part Number	R2S01-S01-048.0	R2S01-S01-048.0	R2S01-S01-024.0	R2S01-S01-024.0
SD18573 45 degree Connector				
SD18574 Straight Connector	2	2	2	2
SD18575 90 degree Connector				
M17/128-RG-400 RG-400 Cable	50 inches	60 inches	24 inches	24 inches

MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

SD18573, 45 degree connectors can be used to prevent chaffing of the cables in all locations.

OH-58A/C/D

Location	FWD LEFT	FWD RIGHT	AFT LEFT	AFT RIGHT
New Part Number	5595-CAB390-001-5	5595-CAB39-001-6	5595-CAB39-001-7	5595-CAB39-001-8
Old Part Number	209-077-100-7	209-077-100-5	209-077-100-3	209-077-100-1
SD18573 45 degree Connector				
SD18574 Straight Connector	2	2	2	2
SD18575 90 degree Connector				
M17/128-RG-400 RG-400 Cable	28 inches	29 inches	40 inches	41 inches
MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

SD18573, 45 degree connectors can be used to prevent chaffing of the cables in all locations.

UH-1 H/V

Location	FWD LEFT	FWD RIGHT	APT LEFT	APT RIGHT
New Part Number	5595-CAB39-001-17	5595-CAB39-001-18	5595-CAB39-001-19	5595-CAB39-001-20
Old Part Number	AE-4144-B	AE-4144-A	AE4144-D	AE4144-C
SD18573 45 degree Connector				
SD18574				

Straight Connector	2	2	2	2
SD18575 90 degree Connector				
M17/1280-RG-400 RG-400 Cable	28 inches	28 inches	36 Inches	36 Inches
MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

SD18573, 45 degree connectors can be used to prevent chaffing of the cables in all locations.

UH-60A/L/Q/EH-60A

Location	FWD LEFT	FWD RIGHT	AFT LEFT	AFT RIGHT
New Part Number	5595-CAB39-001-9	5595-CAB39-001-10	5595-CAB39-001-11	5595-CAB39-001-12
Old Part Number	70600-00204-041	70600-00204-042	70600-00204-061	70600-00204-062
SD18573 45 degree Connector	1	1	1	1
SD18574 Straight Connector	1	1	1	1
SD18575 90 degree Connector				
M17/128-RG-400 RG-480 Cable	31 inches	31 inches	38 Inches	38 Inches
MIL-I-23053/4 White Sleeve Marker	3	3	3	3
M23053/5-106-0 Shrink Tubing	2	2	2	2

SD18573, 45 degree connectors can be used to prevent chaffing of the cables In ail locations.

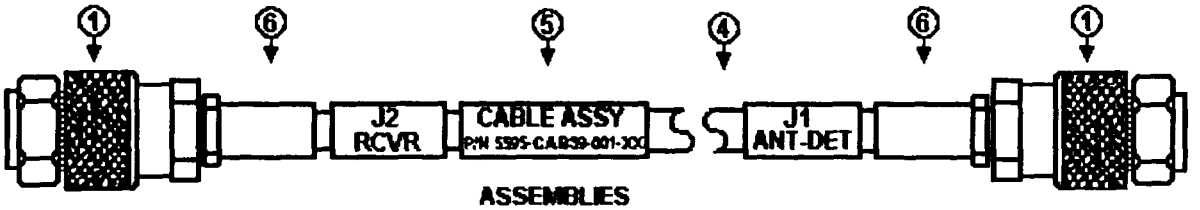
a. Cable Assembly Instructions:

1. Cut the RG-400/U, cable material to the length that is required for the appropriate aircraft located in the aircraft table.

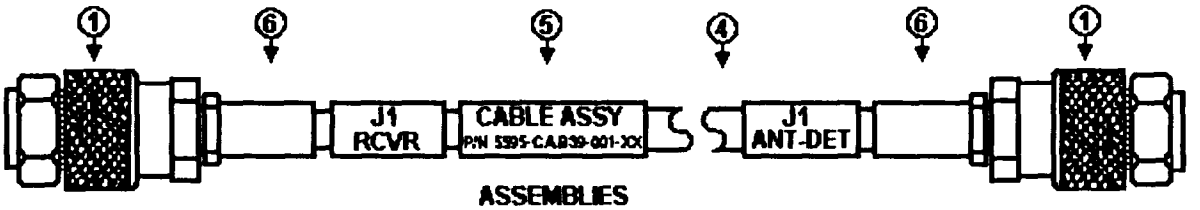
2. Cut three (3) pieces of white sleeve marker material into 2" lengths for each cable assembly to be fabricated. If no wire-marking machine is available for marking the white sleeve marker use a black indelible ink pen and print the cable number on the sleeve marker. Mark the sleeve marker with the information located at the top of the appropriate column for the cable to be fabricated. Example: CABLE ASSY. 5595-CAB39-001-13. Slide the sleeve marker onto the center of the cable assembly and shrink in place.

3. Mark the remaining two (2) sleeve markers with the following information. If the cable being fabricated is for the FWD LEFT mark one of the white sleeve markers with J2 RCVR and the other white sleeve marker with J1 ANT-DET using a black plastic tip indelible ink pen. Slide the sleeve marker onto each end of the cable assembly but do not shrink in place until the connectors are installed.

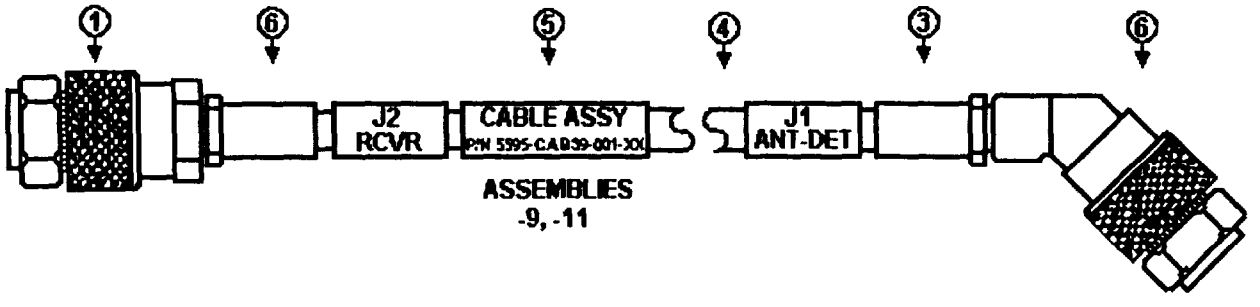
4. Use the following examples in the fabrication of the cable assemblies that associate to the last two digits of the New Part Number located in the aircraft charts above.



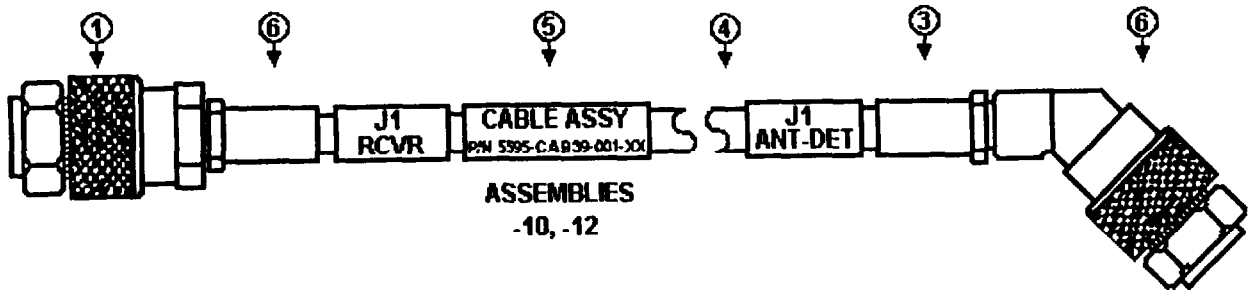
ASSEMBLIES
-3, -5, -7, -13, -17, -19, -21, -23



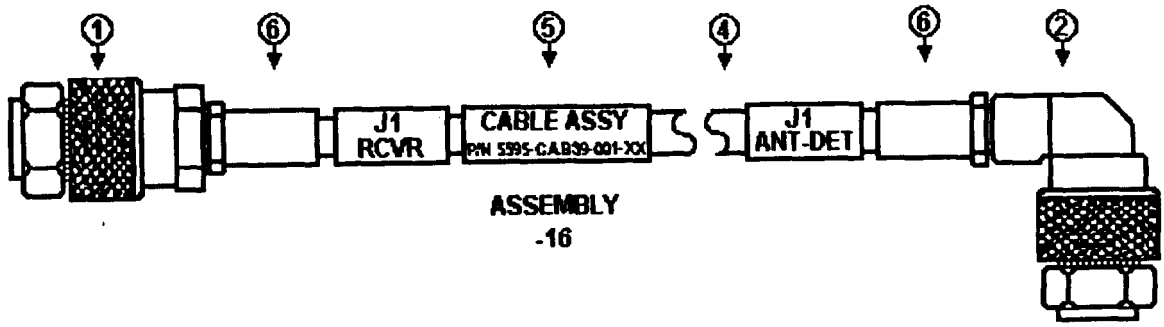
ASSEMBLIES
-4, -6, -8, -14, -18, -20, -22, -24



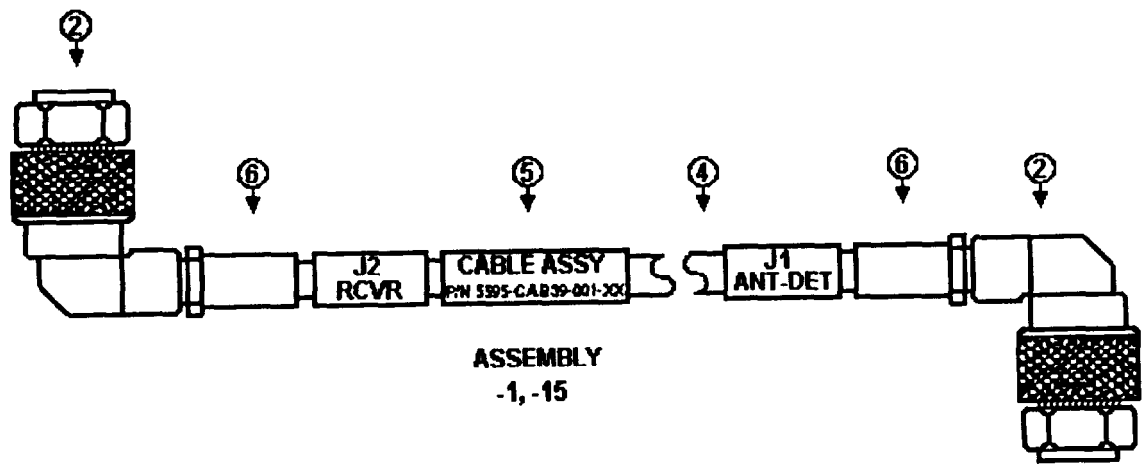
ASSEMBLIES
-9, -11



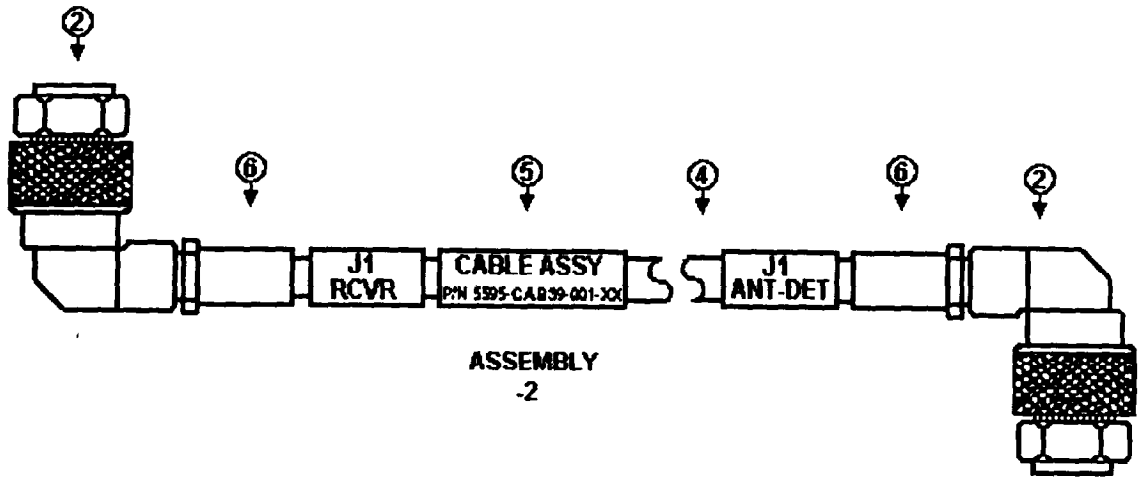
ASSEMBLIES
-10, -12



ASSEMBLY
-16



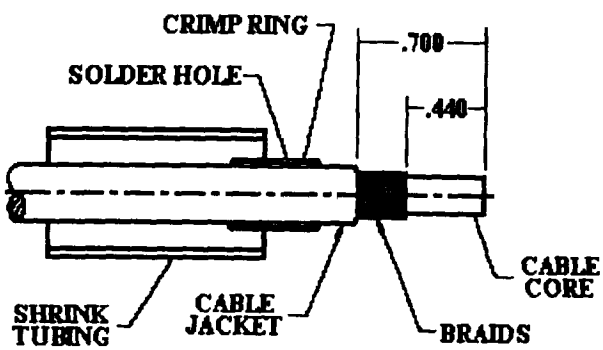
ASSEMBLY
-1, -15



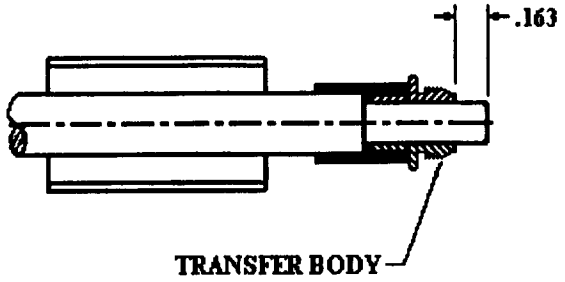
Receivers to Antenna-Detectors

FROM	TO FWD LEFT	TO FWD RIGHT	TO AFT LEFT	TO AFT RIGHT
J1 RCVR		J1 ANT-DET		J1 ANT-DET
J2 RCVR	J1 ANT DET	———	J1 ANT-DET	-------

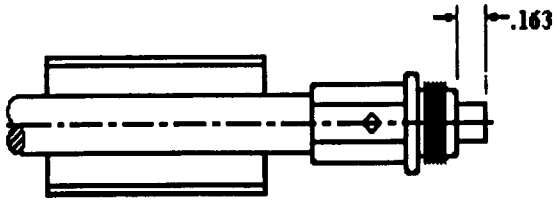
5. Slide the shrink tubing and crimp ring onto the cable. The hole for the solder on the crimp ring should be closest to the end of the cable. Then trim the jacket to .700" from the end of the cable and trim the braids to .440" from the end of the cable; as shown below.



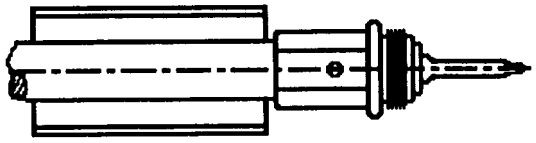
6. Slide the transfer body over the cable core and under the braid until there is .163 of core showing out of the front of the transfer body. Than slide the crimp ring over the braids and against the transfer body.



7. Crimp the crimp ring using the crimping tool M22520/5-01 and die Y211. Solder the crimp ring to the braids with rosin core tin solder or equivalent.



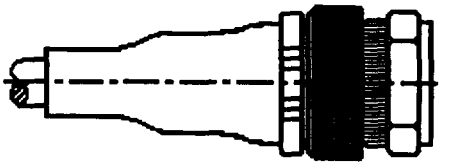
8. Trim the cable core flush with the end of the transfer body. Be careful not to nick the center of the cable conductor. Tin the center conductor with rosin-core tin alloy solder. Slide the rear dielectric with the large diameter first onto the center conductor. Put a .020" diameter x .040" long rosin-core tin alloy solder slug into the center contact. Then slide the contact onto the center conductor and solder it in place.



NOTE:

For straight connectors only, place Teflon gasket over the center connector.

9. Apply Loctite 620 or equivalent to the threads of the transfer body and screw on the connector body. Torque connector body and transfer body to 20 inch-pounds. Shrink the shrink tubing right behind the connector body as shown. Shrink the white sleeve markers behind the shrink tubing for each end.



b. Using an AN/PSM-45A Multimeter perform a continuity check to assure there are no opens or shorts in the fabricated cable.

c. Upon cable installation into the aircraft perform the PMCS RF Functional Test in accordance with TM 11-5841-294-12 Page 3-25, Paragraph 3-13.

10. Supply/Parts and Disposition.

a. Parts Required: See above tables in paragraph 9 for configuration of aircraft and quantity requirements.

NOMENCLATURE	TYPE	NSN	CAGE	PART NUMBER
Electrical Connector Plug	45-Degree	5935-01-463-1121	98999	SD18573
Electrical Connector Plug	Straight	5935-01-457-0919	68999	SD18574
Electrical Connector Plug	90-Degree	5935-01-457-0924	68999	SD18575
Radio Frequency Cable	RG-400/U	6145-00-542-2773	81349	M17/128-RG-400
Electrical Insulation Sleeving	White Marker	5970-00-248-5354	81349	MIL-I-23053/4
Electrical Insulation Sleeving	Shrink Tubing	5970-00-815-1295	81349	M23053/5-106-0

b. Bulk and Consumable Material:

NOMENCLATURE	NSN	CAGE	PART NUMBER	QTY
Tin Alloy Solder	3439-020-438-6292	81348	QQ-S-71	A R
Adhesive (Loctite)	8040-01-129-7171	05972	620	AR
Electrical Component Tiedown Strap	5975-01-386-4837	96906	MS3368	AR
Electrical Insulation Sleeving	5970-00-248-5354	81349	MIL-I-23053/4	A R
Electrical Insulation Sleeving	5970-00-815-1295	81349	M23053/5-106-0	AR

Pen, Plastic Tip	7520-01-436-2573	0243B	189/6	PG

c. Disposition. Dispose of removed parts in accordance with local supply procedures.

d. Disposition of Hazardous Material. N/A.

11. Special Tools, Jigs and Fixtures Required. N/A

NOMENCLATURE	NSN	CAGE	PART NUMBER	QTY
Radar Signal Simulator SM-674A/UPM	**6625-01-274-0836**	**80058**	**A3084100**	**1**
Hand Terminal Crimping Tool	**5120-00-596-9313**	**81349**	**M22520/5-01**	**1**
Die Crimping	**5120-01-445-7604**	**11851**	**Y211**	**1**
Digital Multimeter AN/PSM-45A or equivalent	**6625-01-265-6000**	**80058**	**AN/PSM-45A**	**1**
	3439-00-460-7198	**97049**	**W-TCP-K**	**1**

12. Application.

a. Category of Maintenance. AVUM for fabricating the AN/APR-39(V)1, AN/APR-39(V)2, AN/APR-39A(V)1 and the AN/APR-39A(V)4 RG-400/U cable assemblies.

b. Estimated Time Required. Total of 1.5 man-hours per cable assembly for fabrication.

c. Estimated Cost Impact of Stock Fund Items to the field. $175.00 per cable.

d. TB/MWOS to be applied prior to or concurrently with this inspection. N/A.

e. Publications Which Require Change as a Result of This Technical Bulletin.

1. UH-60AL/EH-60A	TM 1-1520-237-23 TM 1-1520-237-23P
2. AH-64A	TM 1-1520-238-23 TM 1-1520-238-23P
3. AH-64D	TM 1-1520-Longbow/Apache
4. UH-1H/V	TM 55-1520-210-23 TM 55-1520-210-23P
5. OH-58A/C	TM 55-1520-228-23 TM 55-1520-228-23P
6. AH-1F	TM 55-1520-236-23 TM 55-1520-236-23P

7. CH-47D	TM 55-1520-240-23 TM 55-1520-240-23P
8. OH-58D	TM 1-1520-248-23 TM 1-1520-248-23P

13. References:

TM 11-5841-283-12	AVIATION UNIT MAINTENANCE MANUAL FOR RADAR SIGNAL DETECTING SET, AN/APR-39(V)1 (NSN 5841-01-023-7112) {NAVAIR 16-30APR39-1).
TM 11-5841-283-24P	ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LISTS FOR RADAR SIGNAL DETECTING SET. AN/APR-39(V)1 (NSN 5641-01-023-7112) {NAVAIR 16-30 APR39-3}.
TM 11-5841-288-12	AVIATION UNIT MAINTENANCE MANUAL FOR RADAR SIGNAL DETECTING SET AN/APR-39(V)2 (NSN 5841-01-054-8540).
TM 11-5841-288-24P	ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS FOR RADAR SIGNAL. DETECTING SET, AN/APR-39(V)2 (NSN 5841-01-054-8540)
TM 11-5841-294-12	OPERATOR AND AVIATION UNIT MAINTENANCE MANUAL FOR RADAR SIGNAL DETECTING SET AN/APR-AV) (NSN 5841-01-236-8951).
TM 11 -5841-294-20P	AVIATION UNIT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR RADAR SIGNAL DETECTING SET AN/APR-39A(V)1 (NSN 5841-01-236-8951).
TM 11-6940-211-12	OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL FOR SIMULATOR, RADAR SIGNAL SM-674/UPM (NSN 6940-01-031-5887) AND TEST ADAPTER, RADAR SIGNAL., MX-9848/APR-39(V) (5841-01-025-0379) REPRINTED W/BASIC INCL C1)
TM 11-6940-213-12	OPERATOR AND AVIATION UNIT MAINTENANCE MANUAL FOR RADAR SIGNAL SIMULATOR SET SM-674A/UPM (NSN 6625-01-274-0836) AND RADAR SIGNAL TEST ADAPTER MX-9848A/APR-39(V) (4920-01-279-5446)
TM 55-1500-323-24	INSTALLATION PRACTICES AIRCRAFT ELECTRIC AND ELECTRONIC WIRING

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). N/A

b. Task/Inspection Reporting Suspense Date (Aircraft). N/A.

c. Reporting Compliance Suspense Date (Spares). N\A.

d. Task/Inspection Reporting Suspense Date (Spares). N/A.

15. Weight and Balance. N/A.

16. Points of Contact for this Technical Bulletin.

a. Technical, Mr. Don Hubler, SFAE-AV-IR, DSN 897-4415, or Commercial (256) 313-4415.

b. Logistical, Mr. Jim Carter, SFAE-AV-IR, DSN 897-4437, or Commercial (256) 313-4437.

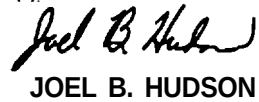
c. Foreign Military Sales (FMS), Recipients requiring clarification of action advised by this message should contact DSN 897-0869 or Commercial (256) 313-0869.

d. After hours, contact AMCOM Command Operations Center (COC), DSN 897-2066/2067 or Commercial (256) 313-2066/2067.

By Order of the Secretary of the Army:

DENNIS J. REIMER
***General, United* States Amy**
Chief of Staff

Officlal:



JOEL B. HUDSON
Administrative Assistant to the Secretary of the Army
05723

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P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 077057-000