URGENT

***TB 1–1520–210–20–50**

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ONE–TIME INSPECTION OF MAST ASSEMBLY, ALL UH–1H/V AIRCRAFT

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

7 August 2000

NOTE

This TB supercedes UH–1–00–09 (TB 1–1520–210–20–49), and primarily affects paragraphs 8 and 9. Those organizations having completed the inspection and reporting requirements of SOF UH–1–00–09 (TB 1–1520–210–20–49) must still comply with the reporting requirements of this TB.

1. Priority Classification. URGENT

NOTE

IAW AR 95–1, paragraph 6–6a, MACOM commanders may authorize temporary exception from SOF message/TB requirements. Exception may only occur when combat operations or matter of life or death in civil disasters or other emergencies are so urgent that they override the consequences of continued aircraft operation.

a. Aircraft in Use. Upon receipt of subject message/TB, make the following entry on the DA Form 2408–13–1. Enter a **Horizontal Red Dash (–)** status symbol with the following statement: "Inspect Main Rotor Mast Assembly records IAW SOF message UH–1–00–10 (TB 1–1520–210–20–50) before next flight." Clear the **Red Horizontal Dash (–)** when the procedures in paragraphs 8. and 9. are completed. The affected aircraft shall be inspected as soon as practical, but NLT prior to next flight. Commanders who are unable to comply with the requirements of subject message/TB within the time frame specified will upgrade the affected aircraft status symbol to a **Red (X)**.

b. Aircraft in Depot Maintenance. Depot commanders will not issue aircraft until they are in compliance with subject message/TB. US Helicopters will inspect DD 250 aircraft prior to issue.

c. Aircraft Undergoing Maintenance. Commanders and facility managers will not issue aircraft until they are in compliance with subject message/TB.

***This TB supersedes USAAMCOM Safety of Flight (SOF) Messages UH–1–00–09, 142234Z, JUN 00, UH–1–00–10, 1912577 JUL 00 and TB 1–1520–210–20–49 dated 27 June 2000.**

d. Aircraft in Transit.

(1) Surface/Air Shipment. Prior to first flight.

(2) Ferry Status. Inspect at final destination.

e. Maintenance Trainers (Category A and B). N/A.

f. Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves. Upon receipt of subject message/TB, depot and materiel activity commanders will ensure the material condition tags of all items in all condition codes listed in paragraphs 6. and 7. are annotated to read "SOF UH–1–00–10 (TB 1–1520–210–20–50), One–Time Inspection of Mast Assembly, not complied with."

(1) Wholesale Stock. Report receipt of subject message/TB IAW paragraph 14.c.(1). Upon receipt of subject message/TB, depot and materiel activity commanders will ensure all serviceable items (condition codes A, B, C, D, and E) listed in paragraphs 6. and 7. located in wholesale depot storage are placed in condition code J and tagged with a Suspended Tag/Label–Material, DD Form 1576/DD Form 1576–1. Do not remove original condition tags. Report compliance with subject message/TB IAW paragraph 14.d.(1).

(2) Retail Stock. Report receipt of subject message/TB IAW paragraph 14.c.(2). Upon receipt of subject message/TB, commanders and facility managers maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the procedures IAW paragraphs 8. and 9. on suspect material. Dispose of discrepant materiel IAW paragraph 10. Report compliance with subject message/TB IAW paragraph 14.d.(2).

g. Components/Parts in Work. (Depot Level and Others). Depot and other maintenance activity commanders will ensure items listed in paragraphs 6. and 7. are not issued until they are in compliance with subject message/TB.

2. Task/Inspection Suspense Date. Complete the inspection IAW paragraph 8. prior to next flight, but NLT 9 August 2000, and report IAW paragraph 14.b.

3. Reporting Compliance Suspense Date. Report compliance IAW paragraph 14.a. NLT 9 August 2000.

4. Summary of the Problem.

NOTE

The following is provided for clarity: The Transmission Mast Assembly (P/N 204–040–366–15) (item 4, figure 150, TM 55–1520–210–23P–1) has a 1500–hour TBO. The data plate (item 27) for the Transmission Mast Assembly is located on the edge of the plate assembly (item 28). The Mast Assembly (P/N 204–011–450) (item 5) is a sub–assembly of the Transmission Mast Assembly and has a 1500–hour retirement life. The data plate for the Mast Assembly is affixed to the pole approximately 2 inches below the damper mount. To avoid confusion between the Transmission Mast Assembly (P/N 204–040–366–15) and the Mast Assembly (P/N 204–011–450), the Mast Assembly will be referred to as the "Mast Pole" throughout the remainder of subject message/TB.

a. This SOF message is prompted by an in–flight mast separation which occurred on a Bell Helicopter Model 212 helicopter. The post accident investigation revealed that the cause of the failure was a fatigue failure in the damper clamp splined area of the Mast Pole, specifically in the snap ring groove. The same Mast Pole is used on Army UH–1H/V helicopters. Although there have been no similar failures on Army aircraft, a total of seven failures have occurred in the commercial arena. Further investigation has shown that two manufacturing defects in the damper clamp snap ring grooves (i.e. burrs and undersized radii) contribute

to these failures. The manufacturer (Bell Helicopter) has developed a Mast Pole inspection procedure that will be utilized by government inspection teams that have been trained in the identification of these defects and outfitted with the appropriate inspection equipment.

b. For Manpower/Downtime and Funding Impacts, see paragraph 12.

c. The purpose of this TB is to:

(1) Supercede SOF UH–1–00–09 (TB 1–1520–210–20–49) and provide clarification of inspection scheduling procedures.

(2) Restrict from use all Mast Poles that have more than 400 hours time since new (TSN) that have not been inspected by a Bell Helicopter Service Center or an approved government inspection team.

(3) Allow continued use of Mast Poles with less than 400 hours TSN until 31 December 2000, or until the 400 hours TSN is reached, which ever occurs first.

(4) Require special DA Form 2410 reporting of all Transmission Mast Assemblies and Mast Poles currently in the field and on aircraft. (not applicable to FMS countries).

5. End Items to be inspected. All UH–1H/V series aircraft.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Transmission Mast Assembly	204–040–366–ALL (all dash numbers)	1615–00–255–2896 1615–00–073–8203

7. Parts to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Mast Assembly (Mast Pole)	204–011–450–ALL (all dash numbers)	N/A

8. Inspection Procedures.

a. Inspect aircraft DA Form 2408–16 to determine the current TSN and time since overhaul (TSO) of the Transmission Mast Assembly (P/N 204–040–366–all dash numbers) listed in paragraph 6.

b. Inspect Transmission Mast Assembly (P/N 204–040–366–all dash numbers) DA Form 2408–16 to calculate the current TSN of the Mast Pole (P/N 204–011–450–all dash numbers) listed in paragraph 7.

c. Gain access to the Transmission Mast Assembly and verify the serial numbers on both the Transmission Mast Assembly and the Mast Pole. See clarification NOTE at the beginning of paragraph 4. Report serial number/part number/hours discrepancies IAW paragraph 9.b.

d. Perform correction procedures IAW paragraph 9.

9. Correction Procedures.

NOTE

Mast assemblies previously inspected by a Bell Helicopter authorized service center or army authorized teams, under the provisions of SOF UH–1–00–09 (TB 1–1520–210–20–49) do not require re–inspection but are required to meet the reporting requirements of paragraph 9.f. of subject message/TB.

NOTE

Only, Bell Helicopter Service Centers and certain government inspection teams (OLR teams and AVCRADS) have the specialized equipment and training required to perform the snap ring groove inspections on army UH–1 aircraft. MACOMs have the option to immediately inspect their masts by contacting a Bell Helicopter Service Center in their area to arrange an inspection, or may wait until the government teams are dispatched, based upon priority. Any cost associated with having this inspection performed by a Bell service center is the responsibility of the MACOM.

NOTE

Unlike commercial operators, the US Army does not count or track RIN (retirement index number) on UH–1 masts. Although the commercial directives and the Bell inspection procedure allow continued use of defective masts with a reduced retirement life, the US Army does not support this practice. Therefore, any mast inspected and found with improper radii or burrs in the snap ring groove shall be immediately removed from service.

a. Units shall contact their MACOM POC in paragraph 16.g. to schedule the inspection of aircraft/masts.

b. Accomplish the following actions based on the TSN of the Mast Pole (P/N 204–011–450–all dash numbers).

NOTE

Inspection of Mast Poles with more than 1400 hours is not considered economical at this time.

(1) TSN over 400 hours. Mast Pole shall not be utilized until inspected for defects. If installed on an aircraft, change the status symbol of the aircraft to a **Red (X)** with the following statement: "Aircraft Mast Pole S/N XXXXX unserviceable IAW SOF UH–1–00–10 (TB 1–1520–210–20–50)." Aircraft on **Red (X)** status symbol waiting for inspection of the mast will be maintained in flyable storage with ground run–ups authorized.

(2) TSN less than 400 hours. Mast Pole may continue in service IAW the following: For Mast Pole assemblies with less than 400 hours TSN installed on aircraft, enter a **Red Horizontal Dash (–)** status symbol on the aircraft DA Form 2408–13–1 with the following statement: "Remove Mast Pole S/N XXXXX from service for inspection IAW SOF UH–1–00–10 (TB 1–1520–210–20–50), when it reaches 400 hours TSN (XXXXX aircraft hours), or 31 December 2000, (whichever comes first)." Mast Poles removed under this criteria will be held for inspection. Units using the manual record keeping system may carry the entry forward onto the DA Form 2408–14–1. ULLS–A units will keep the entry on the DA Form 2408–13–1 and let it carry forward daily.

c. Contact the 2410 hotline to resolve any serial number/part number/hours discrepancies discovered during records check. If discrepancies cannot be resolved, Mast Assembly shall not be returned to service.

NOTE

Masts will have the DA Form 2408–5–1 for the Transmission Mast Assembly and Mast Pole Assembly annotated with the date of the snap ring groove inspection, name of the person or facility who performed the inspection, TSN of the mast, and outcome of the inspection (defects found or returned to service).

d. Mast poles inspected and found with defects (undersized radii or burrs in the damper mount snap ring grooves) are considered unserviceable and shall be removed from service and returned to supply using normal procedures. Unserviceable masts may remain on the aircraft to facilitate ground runs until such time as a replacement mast is received.

e. Mast poles inspected and found without defects may be returned to service for the remainder of the published 1500–hour retirement life, and aircraft status symbol may be cleared.

f. All mast assemblies and mast poles will have a special one time DA Form 2410, copy 3, completed and submitted to CDR, US Army Aviation and Missile Command, Attn: AMSAM–MMC–RE–FD (2410), Redstone Arsenal, Alabama 35898–5000, with the following information:

(1) Control Number – Enter 6 alpha/numeric characters.

(2) BLOCK 1: Nomenclature – (1) Mast assembly, (2) Mast pole.

(3) BLOCK 2: NSN – NSN of component from data plate.

(4) BLOCK 3. Part Number – Part number of component from data plate.

(5) BLOCK 4: Serial Number – Serial number of component from data plate.

(6) BLOCK 5: Cage Code – Manufacturers code, obtain from data plate.

(7) BLOCK 6: Number of Prev O/HS – Number of previous overhauls on the mast assembly. “RC” for mast pole.

(8) BLOCK 7: Time Since Last Inst (Hrs) – Time the component has accumulated since it was installed.

(9) BLOCK 8: Time Since New (Hrs) – Current total time since new.

(10)BLOCK 9: Time Since Overhaul (Hrs) – Current time since overhaul for the mast assembly. “RC” for the mast pole.

(11)BLOCK 10: Failure Code – “999”.

(12)BLOCK 14: WUC – “06H03” for the mast assembly. “06H03C” for the mast pole.

(13)BLOCK 50: Installed On (NOMEN NHA) – “Mast Assembly” that the mast pole is installed on.

(14)BLOCK 51: NSN (NHA) – National Stock Number of the mast assembly that the mast pole is installed on.

(15)BLOCK 52: Part Number (NHA) – Part number of the mast assembly that the mast pole is installed on.

(16)BLOCK 53: Serial Number (NHA) – Serial number of the mast assembly that the mast pole is installed on.

(17)BLOCK 54: Hours (NHA) – Current time since new of the mast assembly that the pole is installed on.

(18)BLOCK 60: ACFT Model – “UH–1” for the mast assembly.

(19)BLOCK 61: ACFT S/N – Aircraft serial number the mast assembly is installed on.

(20)BLOCK 62: Maint Level – “O” for AVUM, “F” for AVIM or “D” for depot.

(21)BLOCK 63: Date Installed – Date the 2410 is completed.

(22)BLOCK 64: UIC (this action) – Unit identification code of the organization completing this action.

(23)BLOCK 70: Inspection and Action Codes – Put an “A” in the box next to (A) serv if component is serviceable or a “B” in the box next to (B) unserv if component is unserviceable.

(24)BLOCK 71: PID and Telephone Number – For the person completing this action.

(25) Remarks Block – If the mast pole has been inspected enter failed or passed in this block.

10. Supply/Parts and Disposition.

NOTE

HQDA–ODCSOPS will prioritize units and repair parts distribution through the MACOMS.

a. Parts Required. Items cited in paragraph 6. may be required to replace defective items.

b. Requisitioning Instructions. Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57–59) “ XD8 (X–RAY–DELTA–EIGHT)”.

NOTE

Project code “XD8” (X–Ray–DELTA–EIGHT) is required to track and establish a data base of stock fund expenditures incurred by the field as a result of SOF actions.

NOTE

All mast assemblies shipped from CCAD will have the DA Form 2408–5–1 and 1574 (yellow) serviceable tags annotated “SOF UH–1–00–10 (TB 1–1520–210–20–50) complied with”.

NOTE

New mast poles, “Zero Time Assemblies” under contract #DAAH2398G0002 and subsequent are serviceable, but the DA Form 2408–5–1 and 1574 (yellow) serviceable tag will not be annotated.

c. Bulk and Consumable Materials. N/A.

d. Disposition. Hold pending further instructions.

e. Distribution of Hazardous Material. IAW Environmental Protection Agency directives as implemented by your servicing environmental coordinator (AR 200–1).

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

12. Application.

a. Category of Maintenance. AVUM. Aircraft downtime will be charged to AVUM. Report aircraft non–mission capable maintenance (NMCM) while undergoing inspection and correction IAW subject message/TB.

b. Estimated Time Required.

(1) Total of 1 man–hour using 1 person.

(2) Total of 1 hour downtime for one end item.

c. Estimated Cost Impact of Stock Fund Items to the Field. N/A.

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 Inspection. N/A.

13. References.

a. TM 55–1520–210–23P–1

b. DA PAM 738–751

14. Recording and Reporting Requirements.

NOTE

In addition to the following reporting requirements, units are reminded of the special DA Form 2410 reporting requirements of paragraph 9.f.

a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of subject message/TB on DA Form 2408–13–1 on all subject mission design series (MDS) aircraft, commanders will forward a priority message, datafax or e–mail to CDR, AMCOM, ATTN: AMSAM–SF–A (SOF compliance officer), Redstone Arsenal, AL 35898–5000, IAW AR 95–1. Datafax number is DSN 897–2111 or (256) 313–2111. E–mail address is <safeadm@redstone.army.mil>. The report will cite subject message/TB number, date of inspection, aircraft serial number (if applicable), aircraft and component hours, and results of the inspection to include Mast Assembly serial number and TSO, Mast Pole part number, serial number and TSN.

b. Task/Inspection Reporting Suspense Date (Aircraft). Upon completion of inspection, commanders will forward a priority message to the logistical POC listed in paragraph 16.c. The report will cite subject message/TB number, date of inspection, aircraft serial number, aircraft and component hours, and results of the inspection to include Mast Assembly serial number and TSO, Mast Pole serial number and TSN, and whether the mast passes or fails the records check. Units will provide an additional copy of the inspection results to their MACOM logistics POC. Inspection and reports will be completed no later than 14 days after task/inspection suspense date.

c. Reporting Subject Message/TB Receipt Date (Spares).

(1) Materiel in Wholesale Depot Storage. Depot and materiel activity commanders will report receipt of subject message/TB by e–mail or datafax to the wholesale materiel (spares) point of contact listed in paragraph 16.b. NLT 26 July 2000. Provide local point of contact.

(2) Materiel in Retail Storage. Commanders and facility managers will report receipt of subject message/TB by e–mail or datafax to the logistical point of contact listed in paragraph 16.b. NLT 26 July 2000. Provide local point of contact.

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

(1) Materiel in Wholesale Depot Storage. Depot and materiel activity commanders will report compliance with subject message/TB to the wholesale materiel point of contact (spares) listed in paragraph 16.c. NLT 26 July 2000 on DD Form 1225. Provide the cost of compliance with subject message/TB to include an estimate of the cost reimbursable funding required to move serviceable items on hand listed in paragraphs 6. and 7. to a work area, unpack the materiel, repack the materiel after inspection, and to return the materiel to storage, as appropriate. Report, by original serviceable condition code, the quantity of materiel placed in condition code J. Report by e–mail or datafax and provide local point of contact.

(2) Materiel in Retail Storage. Commanders and facility managers will report compliance with subject message/TB to the logistical point of contact in paragraph 16.b. NLT 26 July 2000. Report the quantity

inspected by condition code and the resulting condition code. Report by e–mail or datafax and provide local point of contact.

e. The Following Forms are Applicable and are to be Completed in Accordance with DA PAM 738-751, 15 March 1999:

NOTE

ULLS–A users will use applicable " E" forms.

(1) DA Form 2408–5–1, Equipment Modification Record (Transmission Mast Assembly and Mast Pole Assembly).

(2) DA Form 2408–13, Aircraft Status Information Record.

(3) DA Form 2408–13–1, Aircraft Inspection and Maintenance Record.

(4) DA Form 2408–14–1, Uncorrected Fault Record (manual records keepers, only).

(5) DA Form 2408–15, Historical Record for Aircraft.

(6) DA Form 2408–16, Aircraft Component Historical Record.

(7) DA Form 2410, Component Removal and Overhaul Record (not required for FMS countries).

(8) DD Form 1574/DD Form 1574–1, Serviceable Tag/Label–Materiel (color yellow). Annotate remarks block with "Inspected serviceable IAW SOF UH–1–00–10 (TB 1–1520–210–20–50)."

(9) DD Form 1575/DD Form 1575–1, Suspended Tag/Label–Materiel (color brown). Annotate remarks block with "Suspended IAW SOF UH–1–00–10 (TB 1–1520–210–20–50)".

(10) DD Form 1577–2/DD Form 1577–3, Unserviceable (Reparable) Tag/Label–Materiel (color green). Annotate remarks block with "Unserviceable IAW SOF UH–1–00–10 (TB 1–1520– 210–20–50)."

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for subject message/TB is Mr. Ralph Vemmer, AMSAM–AR–E–I–D–U, DSN 645–0663 or (256) 955–0663. Datafax is 256–313–3818. E–mail is <ralph.vemmer@uh.redstone.army.mil>. Alternate is Steve Monaco, AMSAM–AR–E–I–D–U, DSN 645–0078 or (256) 955–0078; datafax is (256) 955–6590; e–mail is "steve.monaco@uh.redstone.army.mil".

b. Logistical point of contact for subject message/TB is Charlie Elkins, AMSAM–DSA–UH–U, DSN 645–0073 or (256) 955–0073. Datafax is DSN 897–3762 or (256) 313–3762. E–mail is <charlie.elkins@uh.redstone.army.mil>.

c. Wholesale Materiel point of contact (Spares) for subject message/TB is Mr. Kenneth Gardner, AMSAM–MMC–VS–UN, DSN 897–1545 or commercial (256) 313–1545. Datafax is DSN 897–1541 or (256) 313–1541. E–mail is <gardner–kd@exchange1.redstone.army.mil>.

d. Forms and records point of contact for subject message/TB is Ms. Ann Waldeck, AMSAM–MMC–RE–FF, DSN 746–5564 or commercial (256) 876–5564. Datafax is DSN 746–4904 or (256) 876–4904. E–mail is <waldeck–ab@redstone.army.mil>.

e. Safety points of contact for subject message/TB are:

(1) Primary: Mr. Jim Hanson (SAIC), AMSAM–SF–A, DSN 897–2113 or (256) 313–2113. Datafax is DSN 897–2111 or (256) 313– 2111. E–mail is <jim.hanson@redstone.army.mil>.

(2) Alternate: Mr. Signey Hernandez, AMSAM–SF–A, DSN 897–2094 or commercial (256) 313–2094. Datafax is DSN 897–2111 or (256) 313–2111. E–mail is <signey.hernandez@redstone.army.mil>.

f. Foreign Military Sales (FMS) recipients requiring clarification of action advised by subject message/TB should contact either CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM–SA, DSN 897–0410 or commercial (256) 313–0410; E–mail is <wittstrom–jl@redstone.army.mil> or Mr. Ronnie W. Sammons, AMSAM–SA–CS–NF, DSN 897–0408 or (256) 313–0408; datafax is DSN 897–0411 or (256) 313–0411, E–mail is <sammons–rw@redstone.army.mil> (Huntsville, AL. is GMT minus 6 hrs).

g. The MACOM points of contact for subject message/TB are as follows:

AMC	John Savelli	DSN 767–9891
FORSCOM	MSG Tucker	DSN 367–6239
NGB	MAJ David Gereski	DSN 327–7773
MDW	CPT Al Robison	DSN 656–7647
ATEC	Jeff Stayton	DSN 761–4985
TRADOC	Judy Dyer	DSN 680–5683
USAREUR	Dave Spinks	011–49–631–413–8900
USARPAC	Chief Mike McCarthy	COM 808–438–9892

The 2410 HOTLINE is DSN 897–2410, OR (256)313–2410.

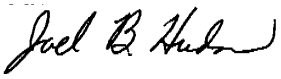
h. After hours contact AMCOM Command Operations Center (COC) DSN 897–2066/2067 or commercial (256) 313–2066/2067.

17. Reporting of Errors and Recommending Improvements. You can improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM–MMC–LS–LP, Redstone Arsenal, Alabama 35898–5000. A reply will be furnished to you. You may also send in your comments electronically to our E–mail address: <is–lp@redstone.army.mil> or by datafax: DSN 788–6546 or commercial (256) 842–6546. Instructions for sending a 2028 by E–mail may be found at the back of most TMs.

By Order of the Secretary of the Army:

Official:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0021303

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DA FORM 1 JUL 79 2028-2

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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

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

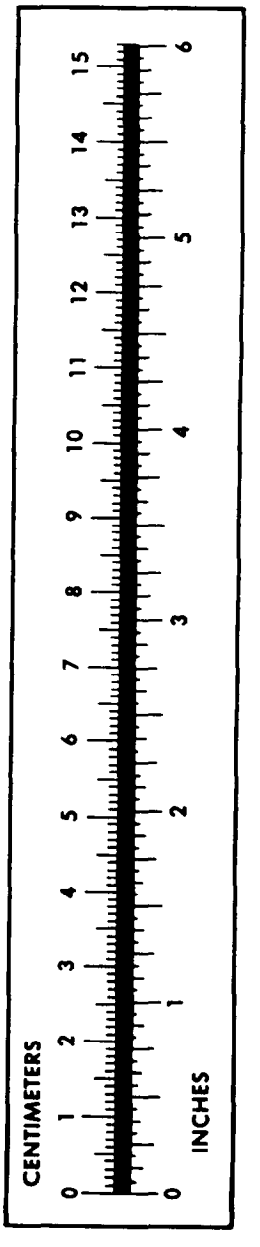
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



PIN: 078371-000