DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

REMOTE CONTROL CIRCUIT BREAKER(RCCB) MIS-WIRE INSPECTION/REPAIR AND CIRCUIT BREAKER USAGE RESTRICTIONS ON AH-64A HELICOPTERS

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

1 September 1991

Approved for public release; distribution is unlimited.

NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL 1 SEPTEMBER 1992 UNLESS SOONER RESCINDED OR SUPERSEDED.

1. Priority Classification. ROUTINE

NOTE

See AR 95-3, Para 5-6A, for noncompliance authority of major commanders.

a. Aircraft in Use. Upon receipt of Ibis Technical Bulletin, the condition status symbol of the cited aircraft will be changed to a Red Horizontal Dash (-). The Red Horizontal Dash (-) may be cleared when the inspection of paragraph 8 below is complected. The affected aircraft shall be inspected as soon as practical but no later than the task/inspection suspense date. Aircraft shall be palced on a Circled Red (X) and restricted from use of the Hellfire Missile System if the inspection is not complied within 10 hours/14 days from the date of receipt of this Technical Bulletin.

b. Aircraft in Deport Maintenance. Same as paragraph 1.a.

c. Aircraft Undergoing Maintenance. Same as paragraph 1.a.

d. Aircraft in Transit.

(1) Surface/Air Shipment. Same as paragraph 1.a.

*This TB Supersedes USAAVSCOM Aviation Safety Action Message 152100Z AUG 91 (AH-64-91-ASAM-15).

(2) Ferry Status.

(a) Same as paragraph 1.a.

(b) Those aircraft that have a DD 250 and are at McDonnell Douglas Helicopter Company (MDHC) will be inspected prior to ferry to final destination.

c. Maintenance Trainers (Category a,b and others). Same as paragraph 1.a.

f. Component/Parts in Stock Including War Reserves At All Levels (Deport and Others). Not applicable.

2. Task/Inspection Suspens Date. Within 10 hours/14 days from the date of receipt of this Technical Bulletin.

3. Reporting Compliance Suspense Date. Within 15 working days of the date of this Technical Bulletin per paragraph 14.a.

4. Summary of Problem.

a. Miswired Missile System Remote Control Circuit Breakers(RCCB) have been discovered on two aircraft. RCCB CB3 delivers arm power to the launchers. RCCB CB201, CB202, CB203 and CB204 deliver DC primary power to the launchers. One aircraft has CB202 pins 3 and 5A reversed. The other aircraft had CB3 pins 3 and 5A reversed. If an aircraft is misfired at any RCCB and if the fire interlock problem as codrrected in reference 13d is present, power can be delivered to the launcher anytime the aircraft is powered up resulting in possible inadvertent Hellfire launches.

b. For manpower/downtime and funding impacts, see paragraph-12.

c. The purpose of this technical bulletin is to:

(1) Direct a one time inspection of RCCB wiring.

(2) Provide a correction procedure of miswired RCCB's.

(3) Provide Pilot and Copilot/ Gunner DC Electric Circuit Breaker(CB) usage restrictions until corrective action is implemented.

5. End Items to be Inspected. All AH-64A aircraft.

6. Assembly Components to be Inspected. Not Applicable.

7. Parts to be Inspected.

NOMENCLATURE	PART NO	N S N
Circuit Breaker(RCCB CB3)	HS5265-1020	5925-01-193-4815
Circuit Breaker(RCCB CB201 thru 204)	HS5265-1025	5925-01-183-6633
Electromagnetic Relay(K1-5)	HS4235-1101	5945-01-187-1855
Electromagnetic Relay(K2-5/6)	HS4228-1101	5945-01-187-1769

8. Inspection Procedures.

a. Safed aircraft per TM 55-1520-238-23, para 1-7-2.

b. Disconncct P511 from each of the following 4 pylon jacks:

1J511, 2J511, 3J511 and 4J511 at the pylon/launchcr interface.

NOTE

Prior to inspection clean all connectors addressed in this Technical Bulletin using Electron 13- conductor cleaner, NSN 6850-01-102-1809 or compound cleaning solvent - flux removal, NSN 6850-00419-5004 or equivalent. Ensure true aircraft ground is used for all measurements in this Technical Bulletin.

c Apply External Electrical Power to the aircraft per TM 55-1520-238-23, para 1-7-16.

d. With the aircraft powered, ensure the Arm/Safe switches in both crew stations arc set in the off position.

c. Using a multimeter, check the P511 connectors of all four (4) pylons for 28 volts DC from pins AA, EE and FF to ground. Note affected connector(s) and associated pin(s).

f. If no voltage levels are found, this inspection is completed. Reconnect all connectors and perform the Missile System Maintenance Operational Check(MOC) per TM 9-1475-475-20, para 2-3-8. Proceed to step 9f for circuit breaker usage restrictions,

g. If a voltage level is found proceed to the correction procedures in paragraph 9.

9. Correction Procedures.

a. For voltage levels encountered on pins AA of P511 on any one of the four pylons, proceed to 9c.

b. For voltage levels encountered on pins EE and/or FF of P511 on any one of the 4 pylons proceed to 9d.

c. Correction procedure for power at pin AA.

(1) Remove aircraft power.

(2) Gain access to the power distribution panel per TM 55-1520-238-23, para 2-3-44.

(3) Crossed wiring check.

(a) Locate CB3 (Figure 374, item 31, TM 55-1520-238-23P).

(b) Remove wire from terminal 5A. Using a multimeter, check from the removed wire to ground for an open circuit.

(c) Remove wire from terminal 3. Using a multimeter, check from this removed wire to ground for continuity.

(d) If steps 9c(3)(b) and 9c(3)(c) checks arc confirmed, thcn the wires were attached crosswircd. Reverse and reattach these wires. Retest for 28 volts at discrepant P511 connector(s) pin by repeating the inspection procedure. If 28 volts is still present as a rcsult of retest, Procccd to para 9c.

(c) If steps 9c(3)(b) and (c(3)(c) checks indicate the wire from terminal 5A does not have continuity to ground and the wire from terminal 3 does not have continuity to ground, leave wiring disconnected and proceed to para 9c.

d. Correction Procedure for plower at pins EE and/or FF.

(1) Remove aircraft power.

(2) Remove wing access cover(s) LW8, LW7, RW7 AND RW8 (TM 55-1520-238-23, para 2-2-5) of discrepant pylon(s) found in the inspection procedure of para 8.

(3) Locate respective discrepant pylon(s) RCCB CB201, 202, 203 and/or 204 per TM 55-1520-23P, Figure 472, item 3. This Figure locates RCCB's for any one of the four pylons. Perform the following for each discrepant pylon.

(a) Remove wire from terminal 5A of RCCB. Using a multimeter, check from the removed wire to ground for an open circuit.

(b) Remove wire from terminal 3. Using a multimeter, check from this removed wire to ground for continuity.

(c) If steps 9d(3)(a) and 9d(3)(b) checks arc confirmed, then the wires were alttached crosswired. Reverse and reattach wires. Retest for 28 volt at discrepant P511 connector pin(s) by repeating the inspection procedure.

(d)If steps 9d(3)(a) and 9d(3)(b) checks indicate the wire from terminal 5A does have continuity to ground and the wire from terminal 3 does not have continuity to ground, leave wiring disconnected to the discrepant RCCB and procced to para 9c.

c. Corrective Procedures For Possible Defective RCCB's and/or Electromagnetic Relays.

(1) Ensure aircraft power is removed.

(2) Using a multimeter, check continuity between terminals A1 and A2 of suspect circuit breaker(s) (RCCB CB3 201, 202, 203 and/or 204). Shorted terminals require replacement of applicable circuit breaker. Open terminals require replacement of related relay.

NOTE

The K 1-5 relay controls power at pins AA, and the K2-5/6 relay controls power at at pins EE/FF. The K1-5 and K2-5/6 relays are located in TM 55-1520-238-23P, Figure 380, items 1 and 2 respectivcly.

(3) Replace discrepant relays per TM 55-1520-238-23, para 9-8-35.

(4) Reconnect all wires to their respective CB terminals (5A and 3).

(5) Repeat inspection procedure, para 8.

(6) If the preceding instructions do not correct the undesired voltage to P511, contact your local LAR and/or MDHC FSR for further instruction.

(7) Remove external electrical power to the aircraft IAW TM 55-1520-238-23, PARA 1-7-16.

(8) Install the access cover to the power distribution center IAW TM 55-1520-238-23, para 2-3-44.

(9) Install the wing access covers IAW TM 55-1520-238-23, para 2-2-5. Reconnect the Hellfire connector,P511 and close and secure the pylon nose fakings.

f. Interim CB Usage Restrictions.

(1) Insert a copy of this Technical Bulletin into the aircrew information reading files,

(2) Units will train all AH-64A Pilots and Copilot/Gunner with the following CB usage restrictions to prevent potential inadvertent missile launches:

WARNING

The Copilot/Gunner must not push in the DC Electric CB If it has popped (in flight or on ground) with the safe/arm switch in the arm and missile switch on when carrying live Hellfire missiles on the aircraft. Both Pilot and Copilot /Gunner missile switches must be positioned to off or both Pilot and Copilot/Gunner safe/arm switches must be positioned to safe prior to resetting the DC Electric CB.

10. Supply/Parts and Disposition. Not Applicable.

11. Special Tools, Jigs and Fixtures Required.

NOMENCLATURE	PART NO.	NSN
Multimeter	AN/URM-105C	6625-00-999-6282 or equivalent
Relay Removal Tool (4 prong)	CTJ-R12	5120-01-232-0023
Relay Removal Tool (2 prong)	CTJ-R06	5120-01-097-5219
Wire Insert/Removal Tool	M81969/14-02	5120-00-9154587

12. Application.

a. Category of Maintenance. AVIM. Aircraft downtime will be charged to AVUM.

b. Time Required.

(1) For RCCB Miswired Inspection.

(a) Total of 0.5 manhours using 2 persons.

(b) Total of 0.5 manhours downtime for one end item.

(2) For RCCB Miswired inspection and correction.

(a) Total of 5.0 manhours using 2 persons.

(b) Total of 2.5 hours downtime for one end item.

c. Estimated Cost Impact of Stock Fund Items to the Field. Not Applicable

d. TB/MWOs to be Applied Prior To or Concurrently with This Inspection. Not applicable.

e. Publications Which Will Require Change as a Result of This Inspection. Not Applicable.

13. References.

a. TM 55-1520-238-23, Aviation Unit and Intermediate Maintenance Manual for Ann y AH-64A Helicopter, basic DTD 7 June 1988.

b. TM 55-1520-238-23P, Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List AH-64A Helicopter DTD 18 March 91.

c. TM 55-1520-238-T-10, Aviation Unit and Intermediate Troubleshooting Manual for Army AH-64A Helicopter, Wiring Diagram, DTD 5 Sep 90.

d. TB 1-1520-238-20-23, Prevention of Uncommanded Hellfire Launches on AH-64A Aircraft DTD 15 June 1991.

14. Recording and Reporting Requirements.

a. Reporting Compliance “Suspense Date (aircraft). Upon entering requirements of this technical bulletin on DA Form 2408-13, forward a priority message, datafax or E-Mail to Commander, AVSCCM, ATTN: AMSAV-XSOF (SOF Compliance Officer), per AR 95-3. DATAFAX number is DSN 693-2064 or commercial 314/263-2064. E-mail address is “’AMSAVXSOF (AT SIGN) St-Louis-EMh3.Army.Mil”. The report will cite this technical bulletin, date of entry in DA Form 2408-13, the aircraft mission design series and serial numbers of aircraft in numerical order.

b. Task/Inspection Reporting Suspense Date (aircraft). Upon completion of inspection, units finding Miswired RCCBs will forward a Priority message to: Commander, AVSCOM, Attn: AMSAV-EIA. The report will cite this message number, date of inspection, Aircraft serial number, Aircraft and Component hours and results of the inspection. Inspection and reports will be completed no later than 10 days after task/inspection suspense date.

c. Reporting Compliance Suspense Date (Spares). Not Applicable.

d. Task/Inspection Reporting Suspense Date (Spares). Not Applicable.

e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 Jan 88.

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

(2) DA Form 2408-15, Historical Record for Aircraft.

15. Weight and Balance. Not applicable.

16. Points of Contact.

a. Technical point of contact for this TB is Mr. James Lamkins/Matt Benzek, AMSAV-EIA, DSN 693-1679 or commercial, 314/263- 1679.

b. Logistical point of contact for this TB is Mr. Al Hopkins,SFAE-AV-AAH-LS, DSN 693-1946 or commercial, 314/263-1946.

c. Forms and Records point of contact for this TB is Mr. Roger Barre/Don Bryant, AMSAV-MPPD, DSN 693-1955 or commercial, 314/263-1955.

d. Point of contact for this TB is Mr. Dong K. Nguyen, AMSAV-XSOF, DSN 693-9089 or commercial, 314/263-9089.

e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this technical bulletin should contact Mr. Ron Van Rees, AMSAV-IOA, DSN 693-2626 or commercial 3 14/363-2626.

By Order of the Secretary of the Army

GORDON R. SULLIVAN
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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

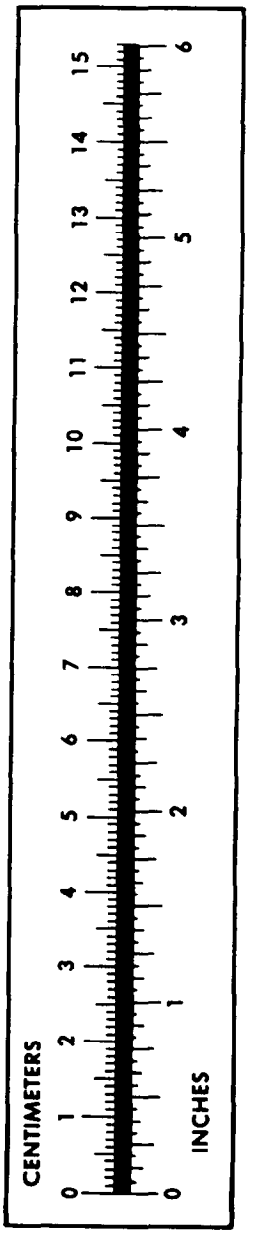
TEMPERATURE

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



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