SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

TURBINE OUTLET TEMPERATURE (TOT) WIRE HARNESS, ONE TIME INSPECTION

1. PLANNING INFORMATION

A. Aircraft Affected:

600N helicopters, S/N RN003 thru RN056.

B. Assembly/Components Affected By This Notice:

The TC3002 terminal block located on the aft–right face of the engine fireshield.
The TC300 terminal block located over the left–hand engine bay door.
P1202J connector located in the battery compartment.
P5 connector located on TOT indicator.

C. Reason:

There have been reports from the field of erroneous turbine outlet temperature (TOT) readings on aircraft equipped with analog/digital TOT indicators. To verify TOT system calibration and prevent the possibility of erroneous TOT indications. Failure to perform the requirements of this Bulletin may result in a condition that could damage critical engine components.

D. Description:

Procedures in this Bulletin provide owners and operators with information pertaining to verifying the installation of proper termination hardware in the aircraft TOT wiring circuitry.

E. Time of Compliance:

The requirements of this Bulletin shall be accomplished within the next 100 hours of helicopter operation or no later than 15 March 2000.

F. FAA Approval:

The technical design aspects of this Bulletin are FAA Approved.

G. Manpower:

Part I: 0.5 man–hours
Part II: 3.0 man–hours

H. Interchangeability:

None

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I. Material/Part Availability:

Contact MDHI Warranty and Repair Dept.

NOTE: Parts are individually packaged. Do no remove from package until you are ready to install. Terminal sockets may be impossible to distinguish from each other.

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	**Part No.**	**Qty.**	**Source**
Terminal Lug, Chromel (stud size #8)	1–321897–0	3	MDHI
Terminal Lug, Alumel (stud size #10)	1–321898–0	3	MDHI
Terminal Pin, Chromel	M39029/87–480	1	MDHI
Terminal Pin, Alumel	M39029/87–479	1	MDHI
Terminal Socket, Chromel	M39029/88–492	1	MDHI
Terminal Socket, Alumel	M39029/88–491	1	MDHI
Terminal Socket, Chromel	010–2020–055C	1	MDHI
Terminal Socket, Alumel	010–2020–055A	1	MDHI
Terminal Socket, Chromel	M39029/88–484	1	MDHI
Terminal Socket, Alumel	M39029/88–483	1	MDHI
Terminal Pin, Chromel	M39029/87–476	1	MDHI
Terminal Pin, Alumel	M39029/87–475	1	MDHI

TOOLS AND EQUIPMENT	
Nomenclature	**Source**
Crimping tool P/N 46673–L (for terminal lugs)	AMP Inc. 441 Friendship Rd. Harrisburg, PA 17111 Phone: (717) 564–0100 FAX: (717) 986–7575
Crimping tool P/N MS22520/1–01	Daniels Manufacturing Corp. 526 Thorpe Road Orlando, FL 32824 Phone: (407) 855–6161 FAX: (407) 855–6884
Positioner P/N MS22520/1–02 (for M39029/10–140, –141 sockets)	Daniels
Positioner P/N MS22520/1–04 (for M39029/88–491, –492 sockets, and M39029/87–479, –480 pins)	Daniels

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TOOLS AND EQUIPMENT (Cont.)	
Nomenclature	**Source**
Thermocouple tester Fluke, Model No. 714	Fluke Corp. P.O. Box 9090 Everett, WA 98206 Phone: (425) 347–6100 FAX: (425) 356–5116
Omega, Model No. CL–307A–K	OMEGA Engineering Inc. One Omega Drive, Box 4047 Stanford, CT 06907–0047 Phone: (203) 359–1660 FAX: (203) 359–7700
Barfield, Model No. TT–1000A	Barfield Instrument Corp. P.O. Box 025367 Miami, FL 33102 Phone: (305) 871–3900 FAX: (305) 871–5629

J. Warranty Policy:

Parts will be provided at no cost to the operators. Tools will not be provided by MD Helicopters. MD Helicopters will compensate operators for labor, via a spares credit, not to exceed three (3) hours.

K. Weight and Balance:

N/A

L. Other Publications Affected:

Latest revision of applicable Rolls Royce Allison Operation and Maintenance Manual.

2. ACCOMPLISHMENT INSTRUCTIONS

A. Part I

(1). Disconnect the engine thermocouple wire harness at the TC3002 terminal block located on the aft–right face of the engine fireshield.

(2). Connect tester (Ref. Figure 1) to TC3002.

(a). Connect tester wire to #8 stud on TC3002 (white chromel wire) (yellow lead for Fluke and Omega, red for Barfield).

(b). Connect tester wire to #10 stud on TC3002 (green alumel wire) (red lead for Fluke and Omega, black for Barfield).

CAUTION For Omega and Fluke testers, do not force lead into tester, one lead prong of plug is larger than the other, damage to tester connection will occur.

(c). Connect lead to tester.

(3). Connect FADEC maintenance lap–top terminal to ECU.

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(4). Set power switch to source for Omega and Fluke or ON position for Barfield.

NOTE: Do not set temperature above 765°C. If maximum temperature is exceeded on the TOT gauge (779°C for more than 12 seconds), an exceedance is recorded.

(5). Set indicator to temperatures in Table 1.

(6). Turn on aircraft electrical power.

NOTE: TOT indicator requires approximately five seconds to reset internal circuitry.

(7). Verify TOT gauge indicates same as tester, within tolerance (Ref. Table 1).

(a). If TOT indicator matches temperatures in Table 1, no further action is required.

(b). If TOT indicator does not match temperatures in Table 1;

1). Refer to applicable Rolls Royce Allison Operation and Maintenance Manual for possible maintenance actions, if TOT gauge indicates 30° lower than tester.

2). Perform Part II of this service bulletin.

(8). Verify FADEC maintenance lap–top terminal indicates TOT within ±5°C. If FADEC maintenance lap–top terminal is not within tolerance (±5°C), perform Part III of this service bulletin.

(9). Turn off aircraft electrical power.

(10). Set source switch to off position.

(11). Disconnect tester from TC3002.

(12). Reconnect engine thermocouple wire harness to TC3002 terminal block.

(13). Record compliance to the Service Bulletin in the Compliance Record section of the helicopter Log Book.

Table 1. TOT System Test

Tester Setting (°C)	Indicator Reading (°C)
625°	625° ±10°
680°	680° ±10°
727°	727° ±10°
765°	765° ±10°

B. Part II

NOTE: Terminal lugs and connector pins and sockets must be crimped on, no soldering allowed.

(1). Disconnect airframe thermocouple wire harness from TC3002 terminal block.

(2). Using a magnet, verify that the terminal attached to the Chromel wire (white jacket) is not attracted to the magnet and that the terminal is silver (not gold) in color.

(3). Using a magnet, verify that the terminal attached to the Alumel wire (green jacket) is attracted to the magnet and that the terminal is silver (not gold) in color.

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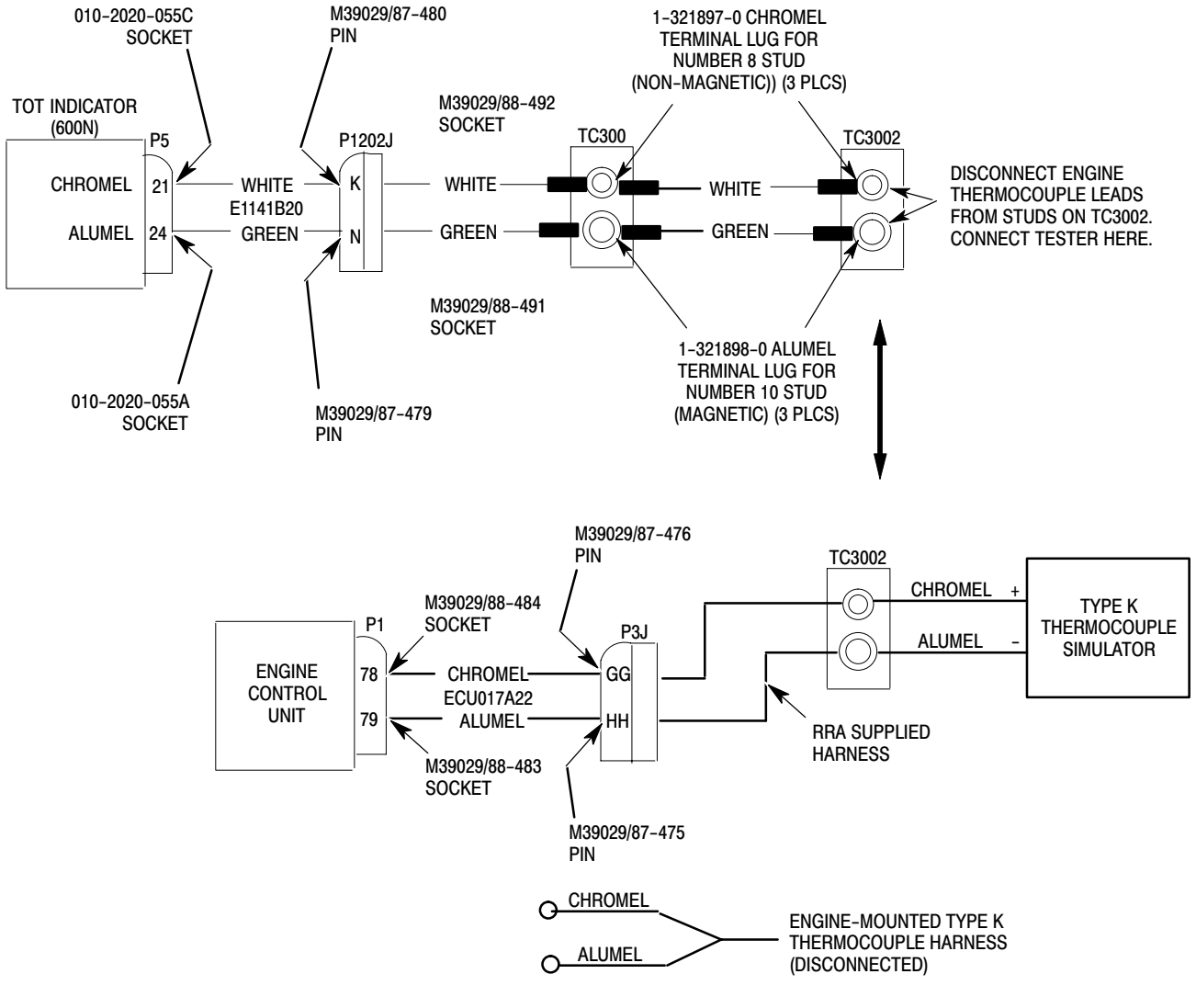

Figure 1. TOT Wire Harness Termination Verification

(4). If either is discrepant, replace the terminal lug(s) with the correct terminal lug(s).

(5). Reconnect the airframe thermocouple wire harness to the TC3002 terminal block.

(6). Disconnect airframe thermocouple wire harness from TC300 terminal block.

(7). Using a magnet, verify that the terminal attached to the Chromel wire (white jacket) is not attracted to the magnet and that the terminal is silver (not gold) in color.

(8). Using a magnet, verify that the terminal attached to the Alumel wire (green jacket) is attracted to the magnet and that the terminal is silver (not gold) in color.

(9). If either is discrepant, replace the terminal lug(s) with the correct terminal lug(s).

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(10). Reconnect the airframe thermocouple wire harness to the TC300 terminal block.

(11). Disconnect P1202 from J1202 in battery compartment.

(12). Remove pins K and N from P1202.

(13). Using a magnet, verify that pin N is magnetic and pin K is not magnetic and that the pins are silver (not gold) in color.

(14). If either is discrepant, replace the pin(s) with the correct pin(s).

(15). Reinstall pins in P1202.

(16). Remove and replace sockets K and N from J1202.

(17). Reconnect P1202 to J1202.

(18). Disconnect P5 from TOT indicator.

(19). Remove and replace sockets 21 and 24 from P5.

(20). Reconnect P5 to TOT indicator.

(21). Perform Part I of this bulletin again.

NOTE: If TOT indicating system fails again, replace the analog indicator and re-test the system.

(22). After TOT system passes test, record compliance to the Service Bulletin in the Compliance Record section of the helicopter Log Book.

C. Part III

NOTE: Terminal lugs and connector pins and sockets must be crimped on, no soldering allowed.

(1). Disconnect P3 from J3 on the firewall.

(2). Remove pins GG and HH from J3.

(a). Using a magnet, verify that pin HH is magnetic and pin GG is not magnetic.

(b). Verify that both pins are silver (not gold) in color.

(3). If either pin is discrepant, replace the pin(s) with the correct pin(s).

(4). Reinstall the pins into J3 and reconnect J3 to P3.

(5). Disconnect P1 from ECU.

(6). Remove and replace sockets 78 and 79 from P1.

(7). Perform Part I of this bulletin again.

NOTE: If ECU TOT indication fails again, refer to Rolls-Royce Allison Maintenance Manual for FADEC system troubleshooting procedures.

3. DISPOSITION OF PARTS REMOVED

Return indicators to MDHI for disposition.

4. POINTS OF CONTACT

For further assistance, contact your local MDHI Field Service Representative (refer to the latest revision of the *"At Your Service"* handbook for address and telephone numbers) or contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 891-6342. DATAFAX: (480) 891-6782.

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Compliance Recording Form

Customer/Operator Name

_____

Aircraft Serial No.

_____

Helicopter Total Time

_____

Date of Compliance

_____

Signature of Person Confirming Compliance

_____

FAX this form to MDHI (480) 891–6782

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