

TECHNICAL BULLETIN

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MD900 (902 CONFIGURATION) PW206E TO PW207E ENGINE CONVERSION MODIFICATION

1. PLANNING INFORMATION

A. Aircraft Affected:

MD900 (902 Configuration) helicopters serial numbers 900-00052 thru 900-00076, 900-00079, 900-00080 equipped with PW206E engines.

B. Assembly/Components Affected By This Bulletin:

900P1600111 And 900P1600211 Engine Build-Up Assembly, Integrated Instrument Display System (IIDS) (P/N 900A3720002-109, 900A3720002-119), Electronic Engine Control (EEC) (P/N 3043845-01, 3043845-02), Igniter Box (P/N 3039488, 3121148-01, 3043937-01), Forward Interconnect Panel Wire Harness (P/N 900E2760612), LH Engine Controls Wire Harness (P/N 900E2760123), RH Engine Controls Wire Harness (P/N 900E2760122).

C. Reason:

To allow owners/operators of MD900 (902 Configuration) helicopters equipped with PW206E engines to convert to PW207E engines.

D. Description:

Procedures in this Bulletin provide owners and operators instructions to change MD900 (902 Configuration) helicopters equipped with PW206E engines to PW207E engines. This modification must be accomplished with MD Helicopters Field Service Engineering approval. In addition to replacing the engines (including EECs and Igniter Boxes), the changes listed below are required as part of this modification.

- Modify the forward interconnect panel wire harness, W612 and the LH and RH engine controls wire harnesses, W123 and W122.
- Replace the IIDS.
- Remove the engine wet combustor drain line (and fuel catch can, if installed).

E. FAA Approval:

The technical design aspects of this Bulletin are FAA Approved.

F. Manpower:

60 man-hours.

G. Time of Compliance

Customer option, at owner/operator discretion.

H. Interchangeability:

None

I. Material/Part Availability:

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MOD – PW207E Engine Conversion 90005000058–101			
Part Number	Nomenclature	Quantity	Source
AS3492-01	Gasket	3 EA	MDHI
MDM16-1191 (MIL-S-38249) (Pro Seal 700)	Compound Sealing Fire Proof	3 OZ	MDHI or Commercial
M22759/43-22-9	Wire, 22AWG, Cond-1	8 FT	MDHI
M22759/35-24-9	Wire, 24AWG, Cond-1	128 FT	MDHI
M39029/22-191	Contact, Socket	6 EA	MDHI
M39029/58-360	Contact, Pin, 5Z22	6 EA	MDHI
M39029/56-348	Contact Socket, 5Z22	6 EA	MDHI
M39029/56-351	Contact Socket, 5Z20	6 EA	MDHI
900A3720002-121*	IIDS ASSY.	1 EA	MDHI
M83248/1-020	O-Ring	2 EA	MDHI
AS3208-04	Packing Preformed	2 EA	MDHI
MS20995C20	Lock Wire	5 FT	MDHI or Commercial
MS20995C32	Lock Wire	6 FT	MDHI or Commercial
M4610631ARN	Adhesive Silicone	1 OZ	MDHI or Commercial
MDM4-1078T11 or MDM4-1078T3 (MIL-L-23398)	Solid Film Lubricant	1 OZ	MDHI or Commercial
MIL-I-23594	Electrical Tape, TYI, CL4, .75W	2 FT	MDHI or Commercial
PW207E**	Engine, Turboshaft PW207E	2 EA	MDHI or Commercial
SS-51043	Plug Button	2 EA	MDHI
NAS1096-3-14	Screw	6 EA	MDHI
900P3660811-101	Hose, Forward Engine Drain	2 EA	MDHI
900G9720008-101	IIDS Ground Based Maintenance Computer Software CD-ROM	1 EA	MDHI

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MOD – PW207E Engine Conversion 90005000058-101 (Cont.)			
Part Number	Nomenclature	Quantity	Source
900P2630115-106***	Primary Exhaust Nozzle Assembly Right Hand	1 EA	MDHI
900P2630115-105***	Primary Exhaust Nozzle Assembly Left Hand	1 EA	MDHI

*Customers will send in their current version of IIDS to be updated to the -121 version by MDHI. Contact MDHI Field Service Engineering.

**Customers will contact Pratt & Whitney to exchange the PW206E engines for the PW207E engines. Contact MDHI Field Service Engineering.

*** Customers that have the the 900P2630115-106 and/or the 900P2630115-105 primary exhaust nozzle assemblies should have those items removed from their conversion kit. Contact MDHI Field Service Engineering.

J. Warranty Policy:

Standard warranty policy applies.

K. Tooling:

TOOLS AND EQUIPMENT	
Nomenclature	Source
Engine Sling T402	MDHI
Engine Maintenance Stand T404	MDHI
Strap Wrench, Mini T2016	MDHI
Inspection Gauge (Engine Alignment) T401	MDHI

L. Weight and Balance:

The weight & balance procedure will be performed as a part of this Bulletin.

M. Electrical Load Data:

N/A

N. Other Publications Affected:

Rotorcraft Maintenance Manual (Servicing and Maintenance) (CSP-900RMM-2)
 Rotorcraft Maintenance Manual (Instruments - Electrical - Avionics) (CSP-900RMM-3)
 Illustrated Parts List (CSP-900IPC-4)
 Rotorcraft Flight Manual (902 Configuration with PW207E) (CSP-902RFM207E-1)

O. Points of Contact

For further assistance, contact your local MDHI Field Service Representative or contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 346-6387. DATAFAX: (480) 346-6813

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2. ACCOMPLISHMENT INSTRUCTIONS

NOTE: Part A. Preparation must be completed and approved before performing any work in Part B. Modification.

A. Preparation

- (1). MDHI field service engineering will do a complete visual inspection of the helicopter and an inventory of installed components and systems to make sure this change can be done to the helicopter.
 - (a). MDHI Field Service Engineering will make sure the condition and configuration of the helicopter is correctly recorded in the engine and rotorcraft logbooks.
 - (b). MDHI Field Service Engineering will examine the rotorcraft logbook to make sure all applicable MDHI service bulletins and Federal Aviation Authority (FAA) Airworthiness Directives (AD) or equivalent local aviation authority directives applicable to the helicopter have been completed.
 - (c). MDHI field service engineering will make a list of all Supplemental Type Certificate (STC) and field approved systems and components installed on the helicopter. MDHI field service engineering will send the list and all records related to all STC and field approved systems and components installed on the helicopter to MDHI Engineering for inspection and approval. The list and records will be examined to make sure STC or field approved installations will not have an unwanted effect on the change from PW206E engines to PW207E engines.
- (2). If the MDHI inspection shows that STC or field approved installations can have an unwanted effect on the change from PW206E engines to PW207E engines, it will be necessary for the helicopter owner or repair station to make the necessary corrections to remove the unwanted effect.
- (3). All helicopter defects found will be corrected before the change from PW206E engines to PW207E engines is complete.
- (4). All records (which can include ground or flight tests) related to STC and/or field approved installations and/or corrections must have been approved by the applicable civil aviation authority engineering or applicable civil aviation authority Designated Engineering Representative (DER) (if delegated).

B. Modification

NOTE: Accurate records are required to document the removal and installation of the various helicopter components. Standard inspections and recording of replacement part serial numbers and critical torques, etc., are required.

- (1). Preserve engines in accordance with engine manual (Ref. Sec 01-00-00).
- (2). Download IIDS data (Ref. Ground Based Maintenance Computer (GBMC) User Guide, CSP-900RMM-2 S2).
- (3). Remove LH and RH primary exhaust nozzle assemblies (Ref. CSP-900RMM-2, Section 78-00-00, Engine Exhaust).
- (4). Remove engine cowling assembly L260 and R260 (Ref. CSP-900RMM-2 Section 53-30-00 and CSP-900RMM-2, Section 71-00-00, Engine Removal).

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- (5). Remove LH and RH engines (Ref. CSP-900RMM-2, Section 71-00-00, Engine Removal).
- (6). Strip down LH and RH engines (Ref. CSP-900RMM-2, Section 71-00-00, Engine Strip down).
- (7). Prepare LH and RH engines for shipment (Ref. Pratt & Whitney Canada Maintenance Manual).
- (8). Make appropriate Engine Logbook entries and revise Rotorcraft Log Book Installed Component Record to indicate engine removals from helicopter.
- (9). Remove IIDS (Ref. CSP-900RMM-2, Section 95-30-00, Integrated Instrument Display System (IIDS) Removal).
- (10). Revise Rotorcraft Log Book Installed Components Record to indicate IIDS removal and revise IIDS Data Log at rear of Rotorcraft Log Book.
- (11). Do a PW206A/E to PW207E Engine Drain Modification.

NOTE: Use Table MOD - PW207E Engine Conversion 90005000058-101. (Ref. page 2 and 3 of this Technical Bulletin)

- (a). If installed, remove the two fuel catch cans, related hoses, related fittings, ground jumper, and related hardware (Ref. CSP-900RMM-2, Section 71-70-00).
- (b). Remove the two aft engine drain hoses, combustor drain tube assemblies, and related hardware (Ref. CSP-900RMM-2, Section 71-70-00).
- (c). Install screws and washers that attach upper deck drain tubing. Replace six screws in six lower adhesive bonded standoffs (three each side) with new screws (P/N NAS1096-3-14) (Ref. CSP-900RMM-2, Section 71-70-00).
- (d). Remove the two aft bulkhead unions, nuts, and washers from upper deck (Ref. CSP-900RMM-2, Section 71-70-00).

Solvent Cleaner (C429)



- (e). Clean upper deck where the two aft bulkhead unions were removed, use solvent cleaner.
- (f). Install plug buttons (P/N SS-51043) in the two locations where aft bulkhead unions were removed.

Sealing Compound (C215)



- (g). Apply a fillet seal on plug buttons, use fireproof sealing compound (P/N MDM16-1191) (Ref. CSP-SPM, Section 20-50-00).
- (h). If catch cans were installed, remove the two forward engine drain hoses between upper deck and fuel vapor shroud drain hose tee (Ref. CSP-900RMM-2, Section 71-70-00).

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- (i). If catch cans were installed, install new forward engine drain hoses (P/N 900P3660811-101) between upper deck and fuel vapor shroud drain tee (Ref. CSP-900RMM-2, Section 71-70-00).
- (12). Build up LH PW207E engine (Ref. CSP-900RMM-2, Section 71-00-00, Engine Buildup).
- (13). Install LH PW207E engine (Ref. CSP-900RMM-2, Section 71-00-00, Engine Installation).
- (14). Revise Installed Component Record in Rotorcraft Log Book and make appropriate entry in Engine Log Book.
- (15). Build up RH PW207E engine (Ref. CSP-900RMM-2, Section 71-00-00, Engine Buildup).
- (16). Install RH PW207E engine (Ref. CSP-900RMM-2, Section 71-00-00, Engine Installation).
- (17). Revise Installed Component Record in Rotorcraft Log Book and make appropriate entry in Engine Log Book.
- (18). Do a PW206A/E to PW207E Engine Control Modification.

NOTE: This Modification Is Not Required For serial Numbers 900-00079 And 900-00080. They Are Already Wired To Accept PW207E Engines.

- (a). Remove wires as indicated in Table 1, if wires are installed in helicopter.
- (b). Identify new wire segments (Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (c). Assemble wire harness per interconnect drawings pages 8 and 9 with best shop and maintenance practices.(Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (d). Wire harness routing at installer's discretion.(Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (e). Terminate contacts (Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (f). Insert contacts (Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (g). Continuity test all electrical modification (Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00).
- (h). Wires indicated with dashed lines are installed on baseline aircraft.

NOTE: Optional: Wires from wire harness W122 and W123 can be capped and stowed on both ends of the wire (Ref. CSP-900RMM-3, Section 98-30-00, 98-40-00, 98-50-00, and CSP-SPM, Section 20-60-00) and left in the wire harness. Do not cut.

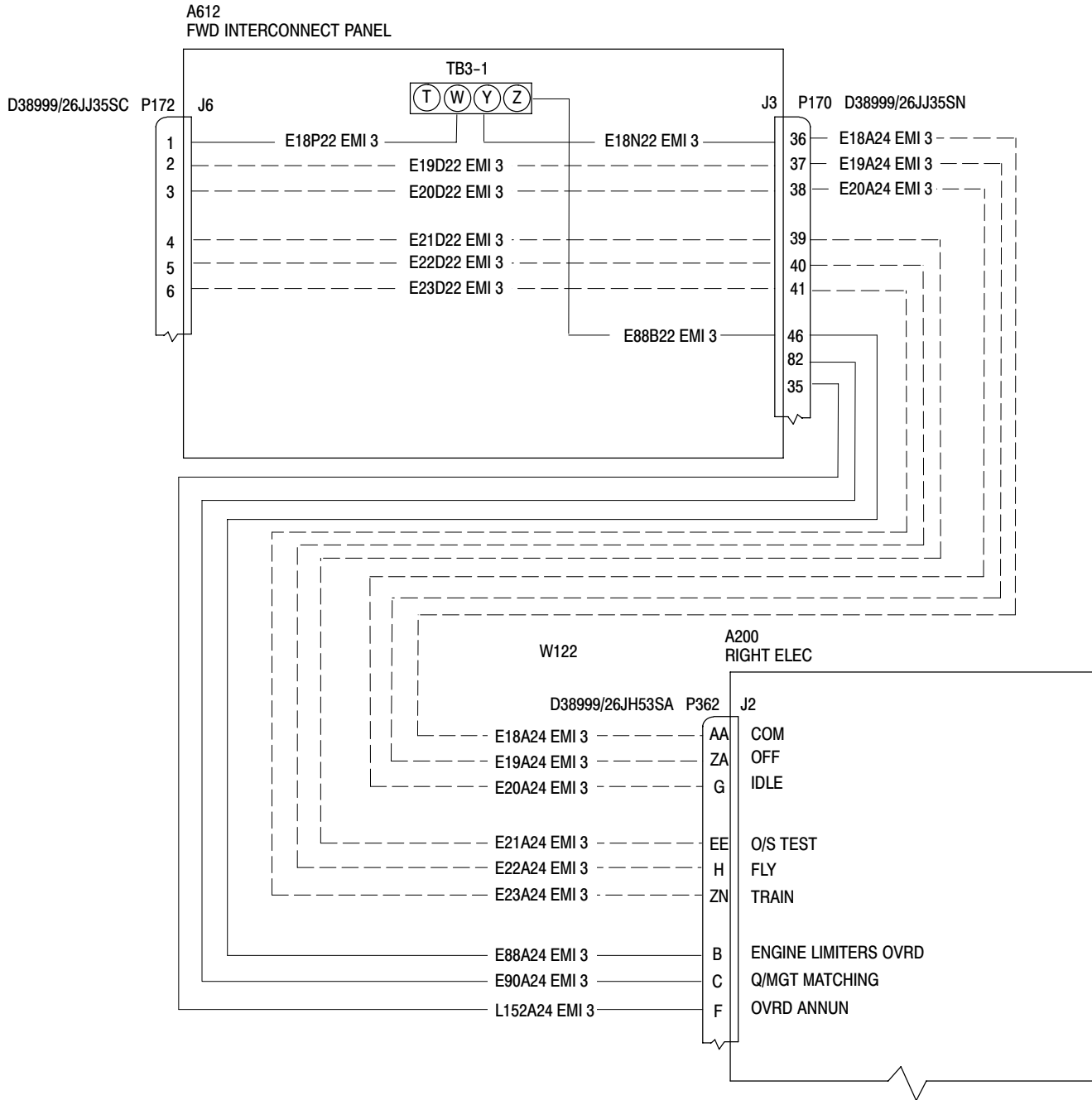
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Table 1.

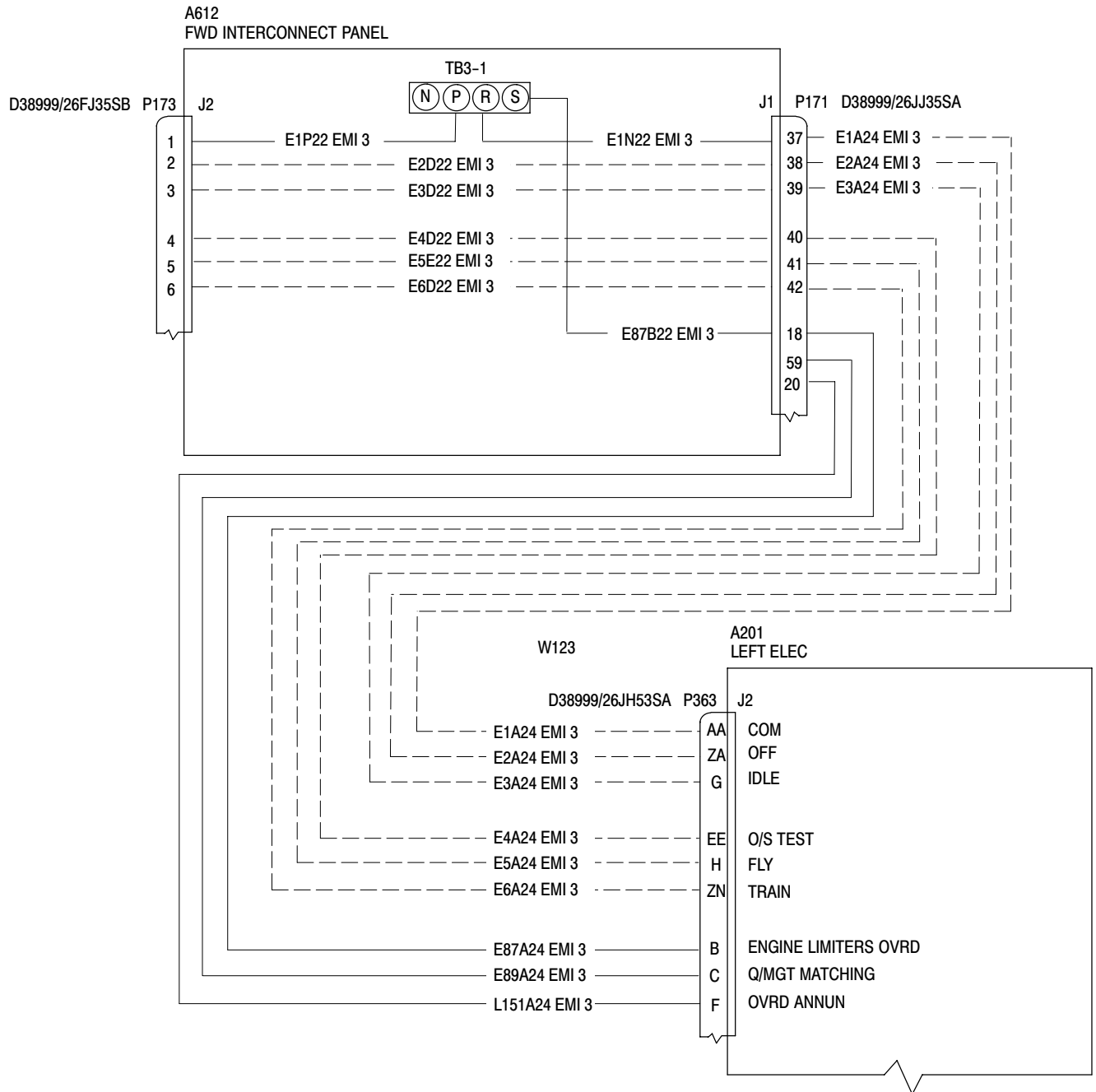
W612 WIRE HARNESS		
REMOVE AND DISCARD THE FOLLOWING WIRES		
From	TO	WIRE ID
J1-37	J2-1	E1E22 EMI 3
J3-36	J6-1	E18E22 EMI 3
J1-SH12	J1-SH13	E7E24 EMI 3
J2-SH4	J2-SH5	E7G24 EMI 3
J3-SH17	J3-SH18	E25E24 EMI 3
J6-SH4	J6-SH5	E25G24 EMI 3
J1-18	TB2-6-Z	E280B24 EMI 3
J1-59	TB3-2-E	L48B24 EMI 3
J3-46	K1-5-A2	E79B22 EMI 3
J6-SH4	TB3-1-E	L45B24 EMI 3
W122 WIRE HARNESS		
REMOVE AND DISCARD THE FOLLOWING WIRES		
From	TO	WIRE ID
P170-35	P105-ZP	L45A24 EMI 3
P170-46	P150-A	E79A22 EMI 3
W123 WIRE HARNESS		
REMOVE AND DISCARD THE FOLLOWING WIRES		
From	TO	WIRE ID
P171-18	P102-35	E280A24 EMI 3
P171-59	P104-ZP	L48A22 EMI 3

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- (19). Install new EECs (P/N 3055498-01) and record EEC serial numbers (Ref. CSP-900RMM-2, Section 76-00-00, EEC Installation).
- (20). Remove existing ignitor boxes (Ref. CSP-900RMM-2, Section 71-00-00, Ignitor Box Removal).
- (21). Install new igniter boxes (P/N 3043937-03) and record ignitor box serial numbers (Ref. CSP-900RMM-2, Section 71-00-00, Ignitor Box Installation).
- (22). Install primary exhaust nozzle assembly (P/N 900P2630115-105 & 900P2630115-106) (Ref. CSP-900RMM-2, Section 78-00-00, Engine Exhaust).
- (23). Install engine cowling assembly L260 and R260 (Ref. CSP-900RMM-2 Section 53-30-00)
- (24). Install IIDS.
 - (a). Install new IIDS, P/N 900A3720002-121 (Ref. CSP-900RMM-2, Section 95-30-00, Integrated Instrument Display System (IIDS) Installation).
 - (b). Do an IIDS Initialization (Ref. CSP-900RMM-2, Section 95-30-00).

NOTE: GBMC software P/N 900G9720008-101 is required to upload data to the new IIDS.

- (c). Upload IIDS data (Ref. Ground Based Maintenance Computer (GBMC) User Guide, CSP-900RMM-2 S3).
- (d). Revise Rotorcraft Log Book Installed Components Record to indicate IIDS installation and revise IIDS Data Log at rear of Rotorcraft Log Book.
- (25). Do a weight & balance (Ref. CSP-900RMM-2, Section 08-10-00, Weighing and Balancing).

C. Completion

NOTE:

- There is no change in the approved life of any MD900 life-limited component due to the PW206E to PW207E engine conversion.
 - Existing MD900 Service Letters and Technical Bulletins are still applicable to the helicopter, as required.
 - New Service Bulletins and ADs for the MD900 are applicable, as required.
- (1). MDHI Field Service Engineering will review the Helicopter Logbook, Engine Logbook and technical data to assure the helicopter has been converted in accordance with this technical bulletin.
 - (2). Replace existing Rotorcraft Flight Manual with new Rotorcraft Flight Manual (RFM) CSP-902RFM207E-1 and ensure that the following are transferred to the RFM.
 - (a). Weight & balance data.
 - (b). FAA Form 337s.
 - (c). Rotorcraft Flight Manual Supplements.
 - (3). Do a Wet motor run and Dry motor run (Ref. RFM 01-00-00 TBL 201)

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- (4). Do a Powerplant Operational Test (Ref. CSP-900RMM-2, Section 71-00-00).
- (5). Do a maintenance operational check flight using MD900 Production Flight Test Procedure and Check Off List (P/N 9000D000020).
- (6). If required, set oil pressure IAW Pratt and Whitney Canada maintenance manual and CMM 71-00-00 Adjustment/Test.

3. IDENTIFICATION

The engine conversion does not result in a helicopter model change; the helicopter serial number does not change.

4. DISPOSITION OF PARTS REMOVED

N/A

5. COMPLIANCE RECORD

Record compliance to this Technical Bulletin in the Compliance Record section of the helicopter Log Book. Submit Compliance Forms to MDHI Field Service Engineering.



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PW206E TO PW207E ENGINE CONVERSION MODIFICATION COMPLIANCE RECORDING FORM

Owner/Operator: _____ Helicopter Serial Number: _____
 Address: _____ Helicopter Total Time: _____

 Phone Number: _____ DATAFAX: _____

Signature and Date

PRE MODIFICATION

Visual inspection and configuration inventory completed.

All Service Bulletins and Airworthiness Directives complied with.

List of STCs and/or Field Approvals compiled and forwarded to MDHI Engineering (attach list).

List of STCs and/or Field Approvals reviewed by MDHI Engineering to verify that STCs and Field Approvals do not have an adverse affect on the engine conversion Type Design and are compatible with other modifications.

List of STCs and/or Field Approvals with any required substantiation and/or corrective action approved by FAA Engineering or FAA DER (if delegated).

POST MODIFICATION

Helicopter and engine logbooks reviewed to verify that all required information has been entered.

The modification is completed in accordance with PW206E to PW207E Engine Conversion Report (P/N 9000R000194) and PW206E to PW207E Engine Conversion Mod drawing (P/N 90005000058).

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PW206E TO PW207E ENGINE CONVERSION MODIFICATION PARTS REPLACEMENT RECORD

Part Nomenclature	Removed Part		Installed Part	
	Part Number	Serial No.	Part Number	Serial No.
LH Engine	PW206E		PW207E	
RH Engine	PW206E		PW207E	
IIDS	900A3720002- _ _ _ _		900A3720002-121	
LH EEC	3043845- _ _		3055498-01	
RH EEC	3043845- _ _		3055498-01	
LH Igniter Box			3043937-03	
RH Igniter Box			3043937-03	