

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**
A Subsidiary of Textron Inc.

NO 407-99-20

DATE 08-27-99

PAGE NO. 1 of 10

DATE
REV.

MODELS AFFECTED: 407

SUBJECT: **FREEWHEEL RETURN LINES,
REPLACEMENT AND RELOCATION OF.**

HELICOPTERS AFFECTED: Bell 407 Serial Numbers 53000 and 53002 through 53285

[Helicopters Serial Number 52286 and subsequent will have the intent of this Technical Bulletin completed before delivery.]

COMPLIANCE: At the option of the customer.

DESCRIPTION:

The freewheel housing is drained by gravity using two return hoses. Bell Helicopter has found that the oil return hoses are positioned too high; this causes a high oil level in the freewheel unit. This bulletin introduces a new freewheel hose, P/N 70-061H00T225A, and re-routes the new and the other return hoses, P/N 70-079H000D142.

APPROVAL:

The engineering design aspects of this Technical Bulletin are Transport Canada approved.

MANPOWER:

Approximately 4.0 man-hours are necessary to complete this Bulletin. Man-hours are based on hands-on time and can change due to personnel and facilities available.

7851 60540

WARRANTY:

Owners/operators who comply with the instructions outlined in this bulletin are eligible for a special 100% warranty credit toward the purchase of the parts specified in the "Required Material" section of this bulletin. In addition, labor to incorporate this bulletin will be allowed to a maximum of USD 220.00.

To receive this credit;

1. Customers must order the replacement parts from an approved BHTI spares supply source.
2. Comply with the instructions outlined in this bulletin by installing the listed parts no later than 31 March 2000.
3. The owner/operator must send a completed Malfunction Report (MR) to BHT Warranty Administration within 30 days after the completion of this Technical Bulletin. A copy of the BHTI invoice that refers to the hardware used to accomplish this Technical Bulletin must be attached to the Malfunction Report (MR).

- NOTE -

Customers who comply with the instructions in this bulletin after 31 March 2000 are **not** eligible for the special warranty credit provisions listed above.

MATERIAL:

Required Material:

The material that follows is required for the accomplishment of this Technical Bulletin and can be procured through your Bell Helicopter Textron Supply Center.

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>QUANTITY</u>
407-040-626-103	BRACKET ASSY	1
70-061H000T225A	HOSE ASSY	1
MS21919WDG9	CLAMP	1
MS27039-1-04	SCREW	1
NAS1149D0332J	WASHER	1

Consumable Material:

The material that follows is necessary to complete this Technical Bulletin, however this material is consumable (bench stock), and may be available depending on the operators consumable material stock levels. This material can be obtained through your Bell Helicopter Textron supply Center.

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>REFERENCE NO.</u>
MILS8802CLB2 PT	SEALANT	C-308

SPECIAL TOOLS:

Not required.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-407-MM-2, Rev.2 - 1 June 1996

Chapter 12, Servicing.

BHT-407-MM-3, Rev.4 - 16 December 1996

Chapter 25, Component Removal and Installation.

BHT-407-MM-5, 16 December 1996

Chapter 53, Cowling Removal and Installation.

BHT-407-MM-6, Rev.2 - 1 June 1996

Chapter 63, Transmission Oil Fittings, Hoses and Tubes Assembly.

PUBLICATIONS AFFECTED:

BHT-407-IPB

Chapter 63.

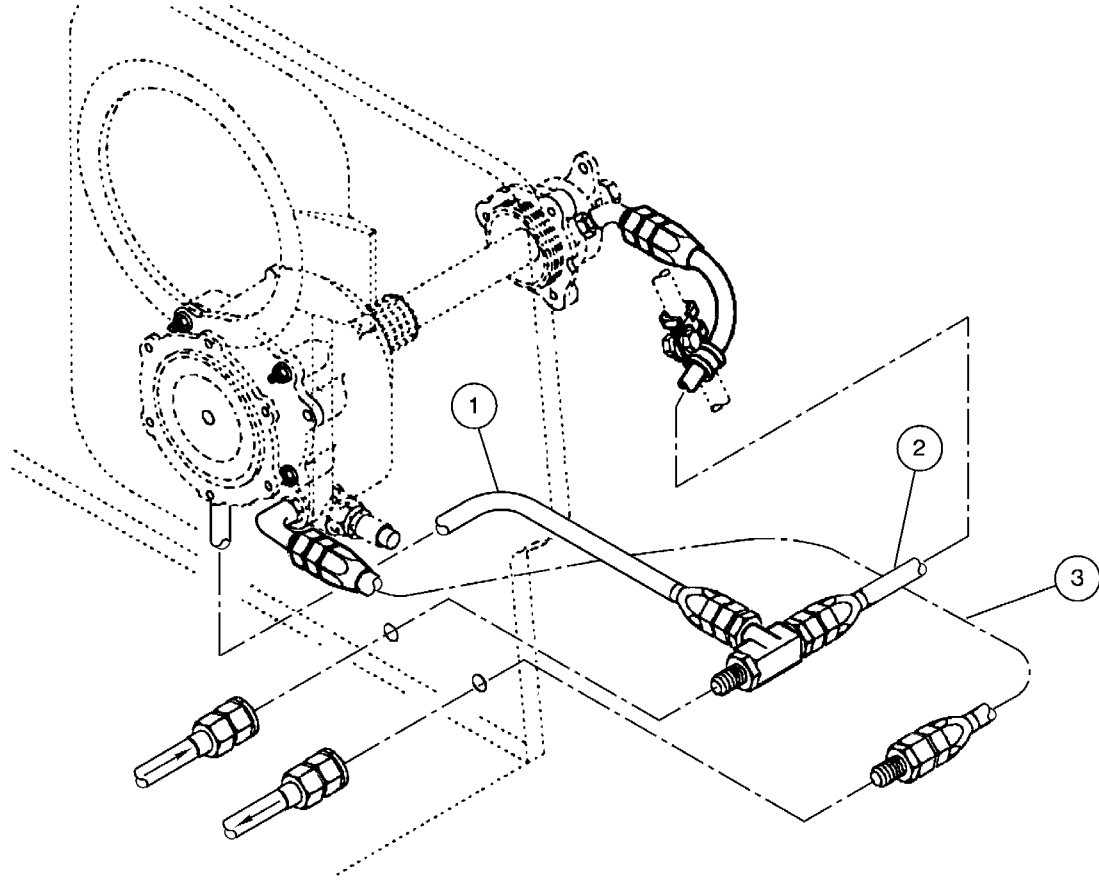
BHT-407-MM

Chapter 63.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove the transmission fairing and the air inlet cowling (refer to BHT-407-MM, Chapter 53).
2. Drain the transmission oil. (refer to BHT-407-MM, Chapter 12).
3. In the engine bay, re-route the freewheel oil return hose (3), under the freewheel oil pressure hose, (1) and (2) (Refer to Figure 1).
4. Rework the transmission bay as follows (Refer to Figure 2):
 - a) Remove and retain the screw (2), the nut (11), the washer (10) and the clamp (1).
 - b) Remove and discard the oil return hose (6).
 - c) Disconnect the oil hose assemblies (3), (9) and hose assemblies (5) and (7) from the unions (4).
 - d) Remove and retain the unions (4) from the bracket (8).
 - e) Remove the necessary interior panels to gain access to the rivet heads in the bracket (8).
 - f) Remove the rivets and discard the bracket (8).
5. Install the new bracket (2), using two rivets (3). Apply a bead of sealant (C-308) (Refer to Figure 3).
6. Install the removed unions (8) and re-connect the oil hose assemblies (14), (13), (9) and (10) on the bracket (12) (Refer to Figure 4).

7. Install the new oil return hose assembly (11) in the transmission bay as follows (Refer to Figure 4):
 - a) Connect the straight fitting of the hose assembly (11) to the union in the engine firewall and the angled fitting to the union on the transmission.
 - b) Install the clamp (7) on the oil return hose assembly (11) fasten to the bracket (12) using a screw (5) and a washer (6).
 - c) Relocate the existing clamp (2) and attach with the screw (1), the washer (3) and the nut (4).
8. Service the transmission with oil. (Refer to BHT-407-MM, Chapter 12.)
9. Install the interior panels removed in Step 4e.
10. Before you fly the helicopter, make sure that the oil lines and the mating unions on the firewall and the transmission do not have leaks (BHT-407-MM-6, Chapter 63).
11. Install the fairing and the cowling removed in Step 1.
12. Make an entry in the helicopter historical records to show that this Technical Bulletin is completed
13. Make an entry in the record of Technical Bulletin in the Maintenance Manual.



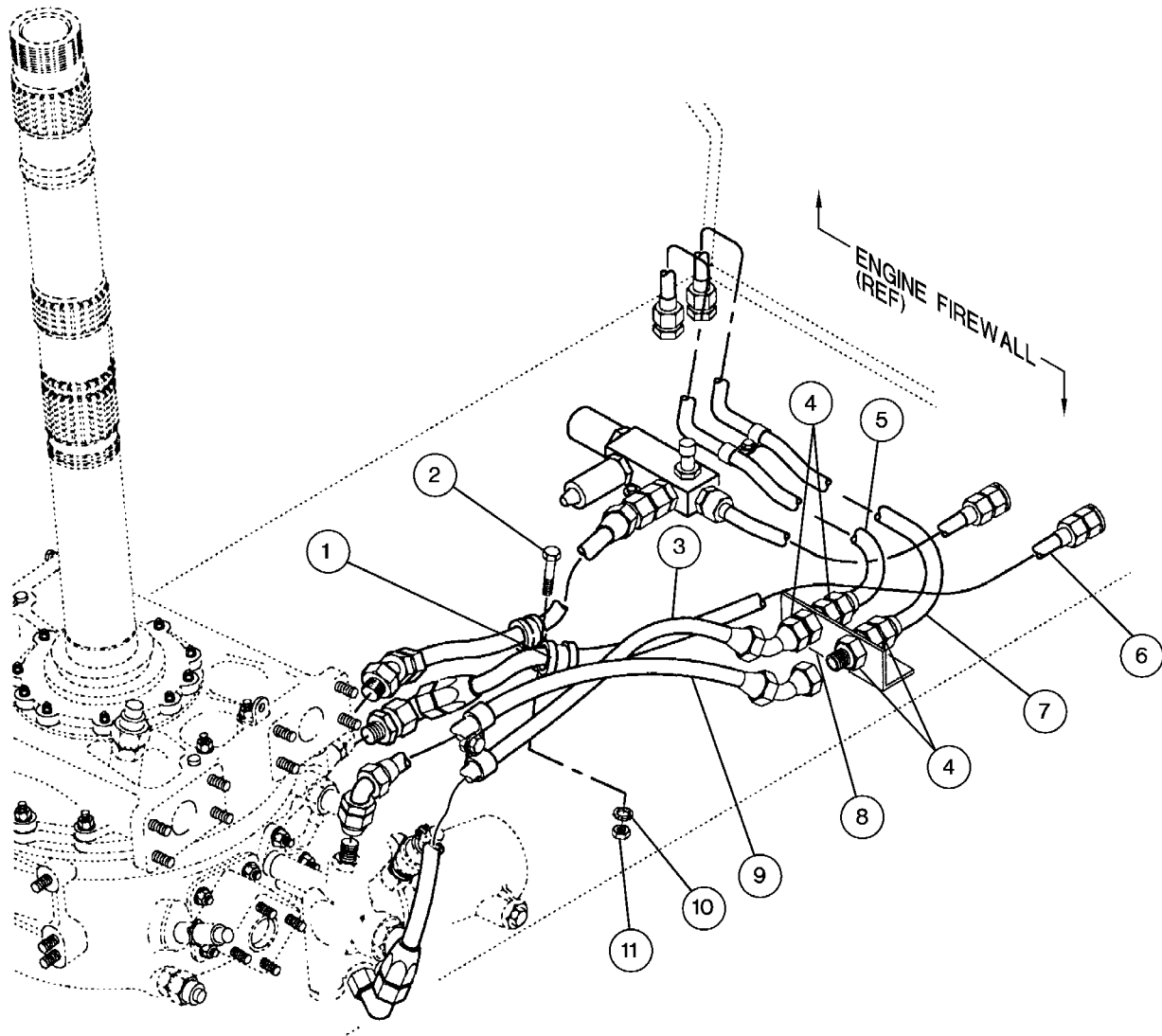
LEGEND

- 1. Hose assy. 70-079F045Z083 (oil pressure)
- 2. Hose assy. 70-079E000D176 (oil pressure)
- 3. Hose assy. 70-079H000D142 (oil return)

NOTE

Reroute the freewheel oil return hose (3) under the freewheel oil pressure hoses (1) and (2).

Figure 1. Re-route of Engine Bay Oil Return Hose

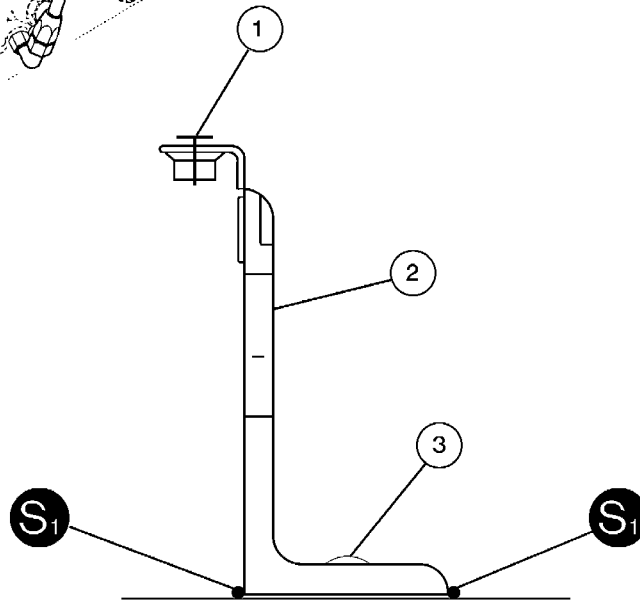
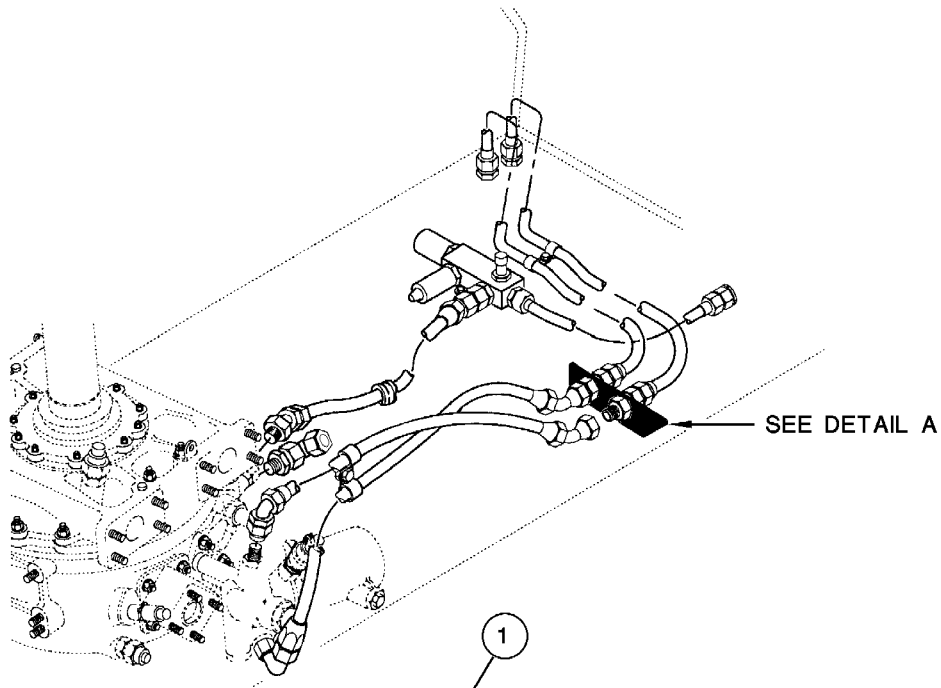


LEGEND

1. Clamp MS21919WDG6
2. Screw MS27039-1-08
3. Hose assy 70-061J285W210A
4. Union AN832-8D
5. Hose assy 407-040-628-101
6. Hose assy 70-061H080W210A
7. Hose assy 407-040-627-101
8. Bracket 407-040-626-101
9. Hose assy 70-061J180W164A
10. Washer NAS1149D0332J
11. Nut MS21042L3

RTB00502

Figure 2. Transmission Bay Rework



DETAIL A

LEGEND

- 1. Nut 90-002-1
- 2. Bracket 407-040-626-103
- 3. Rivet MS20470AD5



MIL-S-8802 TYPE 2, CL82 (C-308)

Figure 3. Transmission Bay Bracket Installation

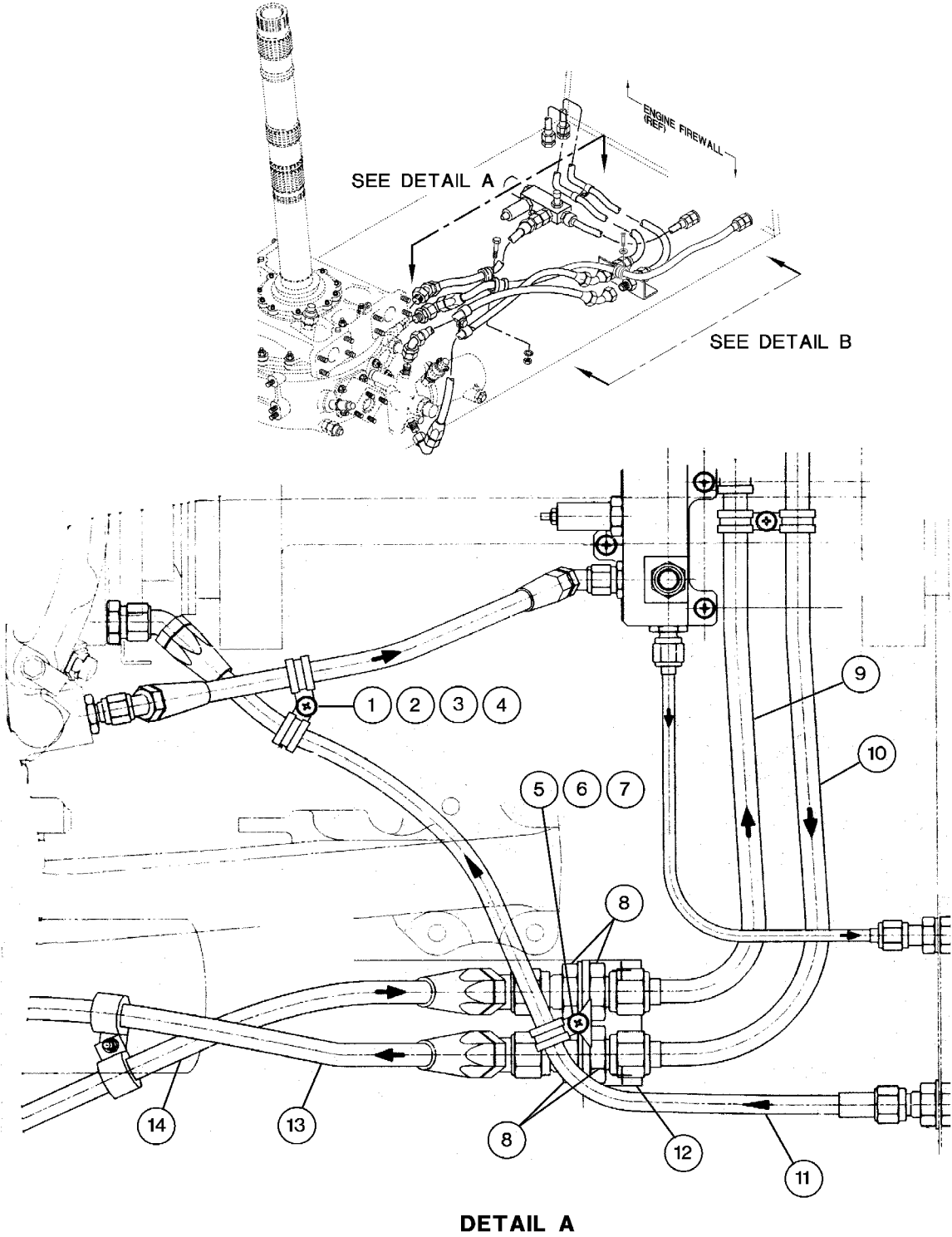
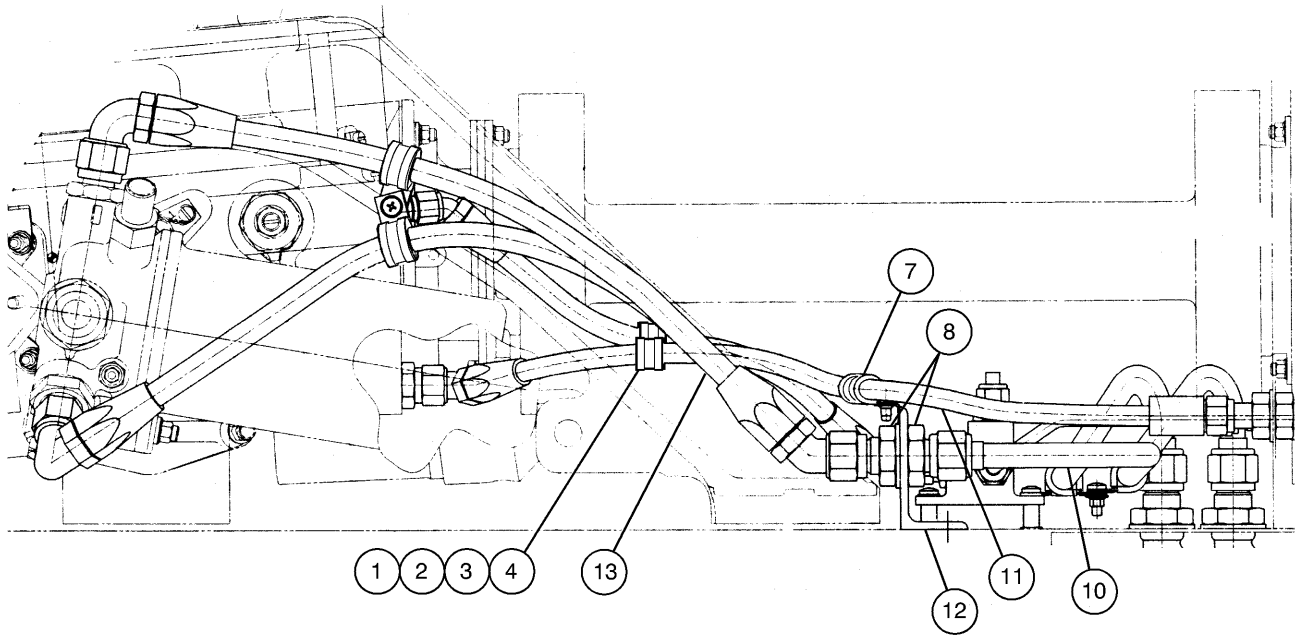


Figure 4. Transmission Bay New Oil Hose Installation (Sheet 1)



DETAIL B

LEGEND

1. Screw MS27039-1-08
2. Clamp MS21919WDG6
3. Washer NAS1149D0332J
4. Nut MS21042L3
5. Screw MS27039-104
6. Washer NAS1149D033J
7. Clamp MS21919WDG9
8. Union AN832-8D
9. Hose assy 407-040-628-101
10. Hose assy 407-040-627-101
11. Hose assy 70-061H000T225A
12. Bracket 407-040-626-103
13. Hose assy 70-061J180W164A
14. Hose assy 70-061J285W210A

Figure 4. Transmission Bay New Oil Hose Installation (Sheet 2)