

TECHNICAL BULLETIN
Bell Helicopter

A Textron Company

No. 407-08-85

Date Dec 15, 2008

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DATE
REV

MODEL AFFECTED: 407

SUBJECT: FUEL TRANSFER LIGHT DELAY RELAYS,
INSTALLATION OF

HELICOPTERS AFFECTED: 407 Helicopters serial number 53000 through
53799

[407 Helicopters serial number 53800 and subsequent
will have the intent of this bulletin accomplished prior
to delivery.]

COMPLIANCE: At Customer's Option

DESCRIPTION:

Bell Helicopter has received some reports of the forward fuel transfer lights flickering at very low fuel state.

This bulletin provides instructions to install two (2) time delay relays in the fuel transfer wiring system that will correct this condition.

PART I of this bulletin is intended for helicopters S/N 53579 through 53584 only. It provides the instructions for installation of fuel restrictor P/N 407-062-033-101 on the fuel transfer pump assembly to return to common configuration.

PART II of this bulletin provides the instructions for the installation of two (2) time delay relays in the fuel transfer wiring system to correct the fuel transfer light flickering at low fuel state.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

MANPOWER:

Approximately 4.0 man-hours for PART I and 12.0 man-hours for PART II are required to complete this bulletin. Man-hours are based on hands-on time, and may vary with personnel and facilities available.

WARRANTY:

There is no warranty credit applicable for parts or labor associated with this Bulletin.

MATERIALS:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
M39029/35-275	Contact	2
130-005-6W3	Tubing (M23053/5-106-3)	2
31-065-2840K1	Decal	1
31-065-2840K2	Decal	1
407-075-044-101	Relay Mounting Bracket	1
140-039-22	Wire (M22759/41-22-9)	157 feet
M39029/22-191	Contact	2
M39029/22-192	Contact	2
M39029/92-533	Contact	8
MS21059L3	Nutplate	2
MS25036-103	Terminal lug	2
MS27039-1-07	Screw	2
MS27488-22	Sealing plug	8
NAS1097AD3	Rivet	4
NAS1149D0332J	Washer	2
SO-1055-8690	Socket	2
TDH-6050-5001	Relay	2
407-062-033-101	Restrictor	1 (see note)

NOTE: Required for helicopters serial number 53579 through 53584 only.

Consumable Material:

The following material is required to accomplish this bulletin; however this material is considered consumable (bench stock) material and may not require ordering depending on the operators' consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>	<u>Reference</u>
3950 SCOTCHCAL	Sealer	A/R	C-349
TT-N-95,TYII 1GAL	Naphtha	A/R	C-305

SPECIAL TOOLS:

None Required

WEIGHT AND BALANCE:

<u>Weight</u>	<u>Arm</u>	<u>Longitudinal Moment</u>	<u>Arm</u>	<u>Lateral* Moment</u>
+0.2 Lbs (+0.1 kg)	155.4 in. (3947 mm)	+31 in-Lbs (+3.6 kg x mm/100)	-21.8 in. (-554 mm)	-4 in-Lbs (-0.5 kg x mm/100)

* In lateral calculations, - is left and + is right.

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-407-IPB Illustrated Parts Breakdown
 BHT-407-MM-Maintenance Manual
 BHT-ELEC-SPM Electrical Standard Practices Manual
 BHT-ALL-SPM Standard Practices Manual

PUBLICATIONS AFFECTED:

BHT-407-MM-10 Chapter 96 Electrical Systems
 BHT-407-MM-12 Chapter 98 Wiring Diagrams
 BHT-407-IPB

ACCOMPLISHMENT INSTRUCTIONS:

Part I: Installation of Restrictor on helicopters S/N 53579 through 53584 only. For helicopters 53000 through 53578 and 53585 through 53799, proceed with PART II.

1. Prepare the helicopter for maintenance.
2. Ensure all electrical power is removed from the helicopter.
3. Disconnect the helicopter battery.
4. Remove fuel transfer pump assembly (Refer to BHT-407-MM-4 Chapter 28).
5. Remove cap assembly P/N AN929-6 (Refer to Figure 1).
6. Install restrictor P/N 407-062-033-101.
7. Reinstall fuel transfer pump assembly (Refer to BHT-407-MM-4 Chapter 28).
8. Continue on to **Part II**.

Part II: Installation of time delay relays.

1. Prepare the helicopter for maintenance.
2. Ensure all electrical power is removed from the helicopter.
3. Disconnect the helicopter battery.
4. Remove forward and aft interior headliner as well as hat bin and windshield centre pillar panel (Refer to BHT-407-MM-3 Chapter 25).
5. Remove Pilot seat panel assembly and centre covers between Pilot and Copilot seats as well as R/H and L/H nose console side panels (Refer to 407-MM-5 Chapter 53).
6. Gain access to the terminal board 4TB2 module M located at left side FWD relay panel (Refer to Figure 2).
7. Refer to the wiring modifications instruction table at bottom of Figure 2 sheet 2 to determine actions required.

-NOTE-

Actions specified in the "ACTION" column shown in the Wiring Modification instructions Table are as follows.

- **DELETE** - Remove the wire completely from the helicopter.
- **ADD** - A new wire is required

8. Perform the "DELETE" actions listed in the Wiring Modifications Table.

-NOTE-

Wires from 2840XK1 and 2840XK2 to 4TB2, 4DS1P1, 1P12 and 1J13 will pass in main wiring harness that is located next to Box Beam R/H side. Refer to BHT-ELEC-SPM for wire termination procedures

9. Perform the "ADD" actions listed in the Wiring Modifications Table.

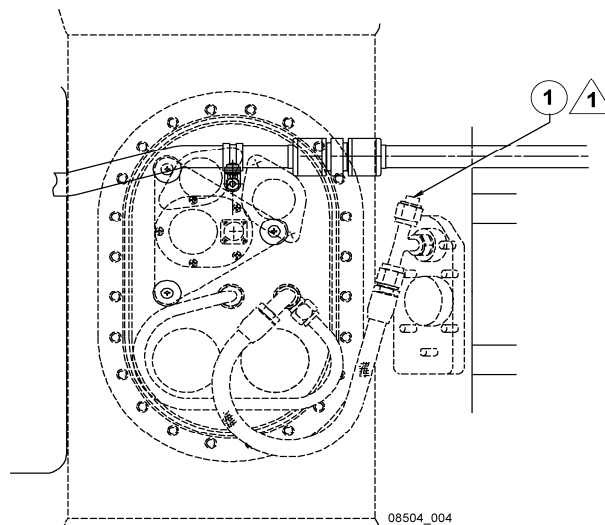
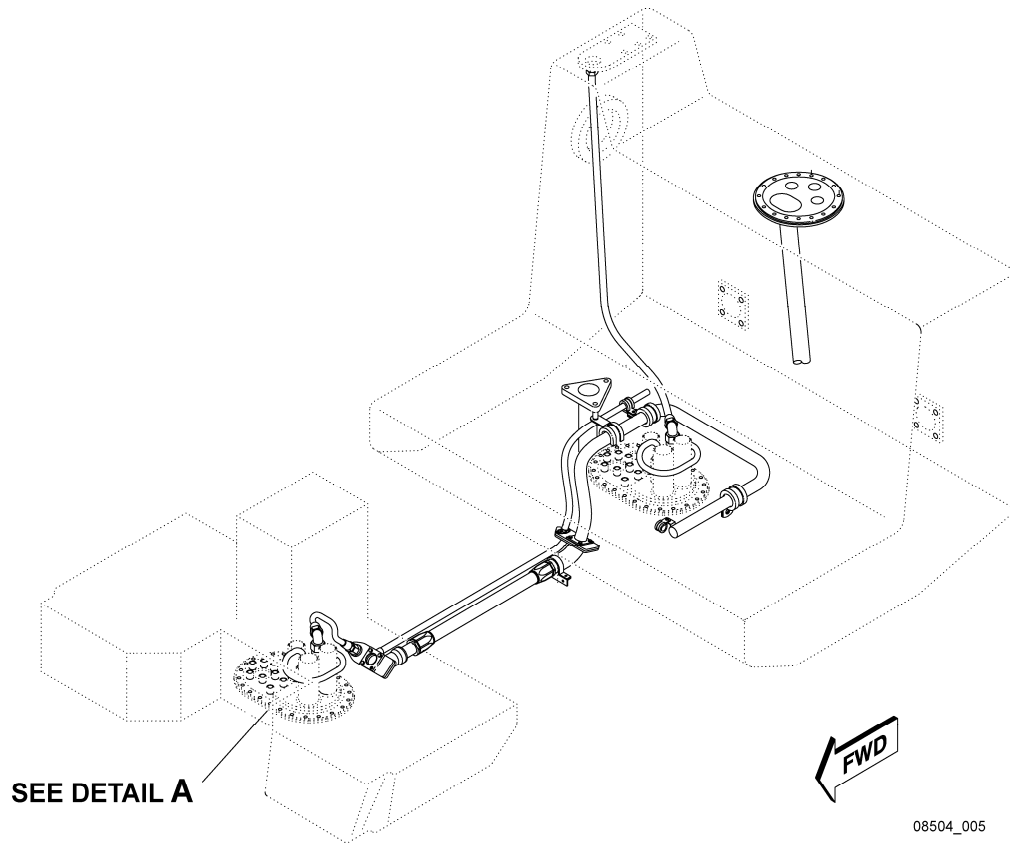
CAUTION

Relays and relay socket must be assembled on bracket prior to installation on airframe, therefore leave enough length on applicable wires before installation.

10. Install Bracket and relays (Refer to Figure 3 and BHT-206-SRM-1).

- i. Use existing tooling hole as reference for second hole.
- ii. Drill and deburr both holes 0.203 - 0.208 inch (5.1562 – 5.2832 mm).
- iii. Locate, drill and deburr nutplate securing holes.
- iv. Install nutplates (1) using rivets (11).
- v. Install relay sockets (7) and relays (4) on bracket (10) using nuts (2), (5), (9) and washers (3), (6), (8).
- vi. Install bracket (10) using screws (12) and washers (13).

11. Thoroughly wipe surface where decals will be installed with Naphtha (C-305).
Install decals (14) and (15).
12. Seal all edges of the decals using edge sealer (C-349).
13. Reassemble helicopter as per BHT-407-MM and BHT-407-IPB.
14. Perform Left and Right Fuel Transfer Pump Annunciator (L/Fuel XFR, R/Fuel XFR) Operational Check (Refer to BHT-407-MM-10 Chapter 96).
15. If you carried out **Part I** perform Fuel System Operational Check (Refer to BHT-MM-4 Chapter 28).
16. Make an entry in the helicopter records to show that this technical bulletin has been accomplished.



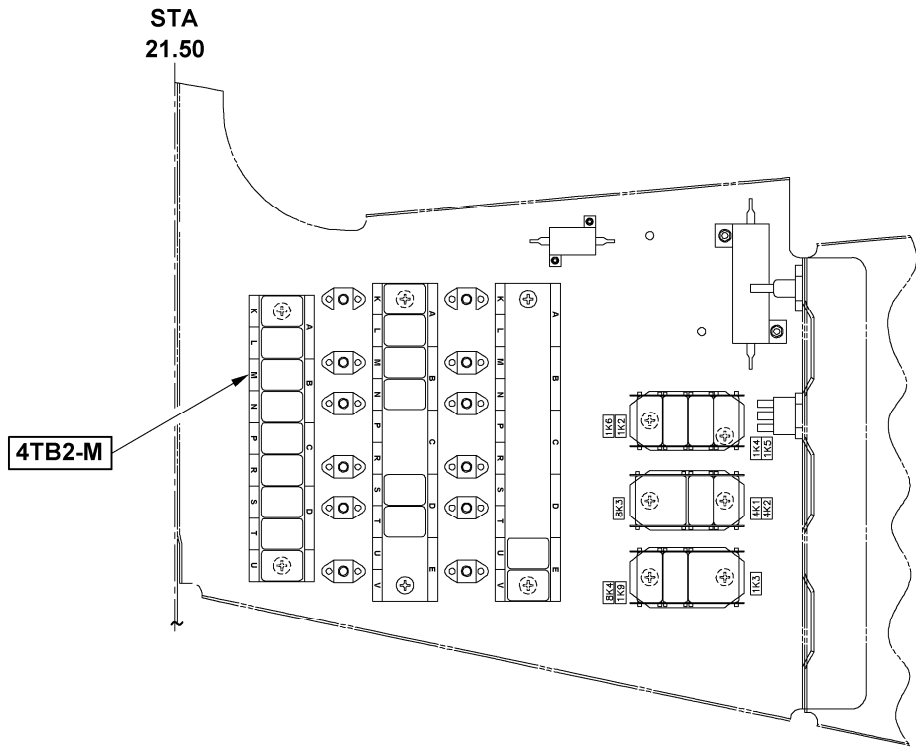
DETAIL A
LOOKING DOWN

1. Restrictor 407-062-033-101

NOTE

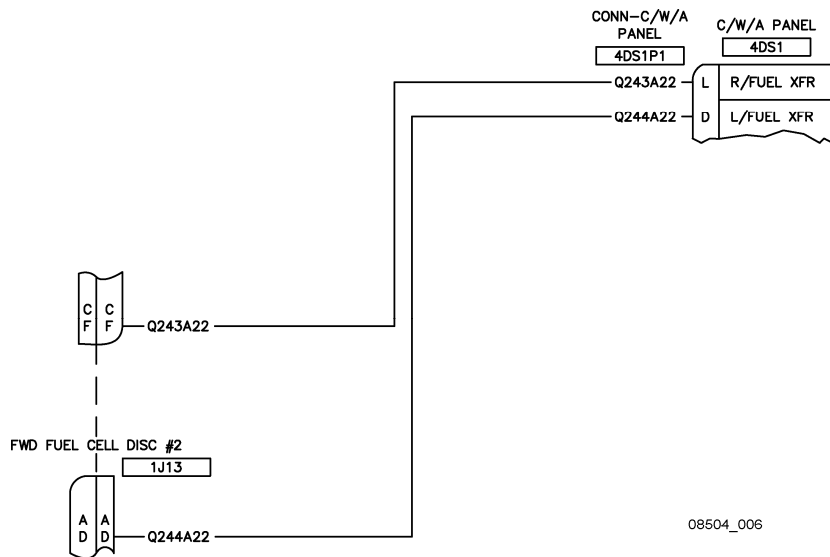
- 1 Remove existing cap and install restrictor.

Figure 1: Forward transfer pump assembly



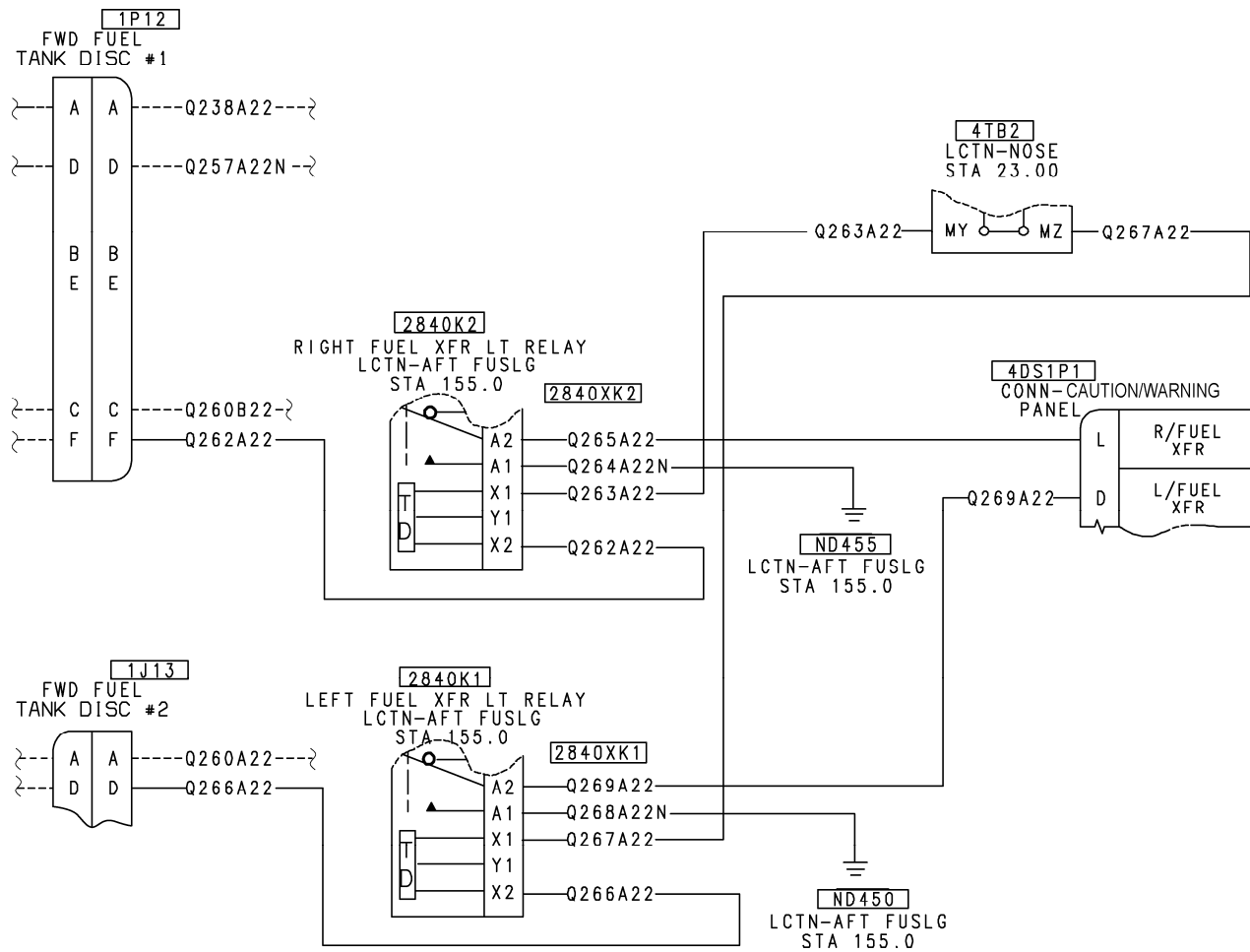
LH SIDE FWD RELAY
(WIRES OMITTED FOR CLARITY)

4TB2-M Location



PRE TB WIRING DIAGRAM

Figure 2: Wiring Installation Sheet 1 of 2

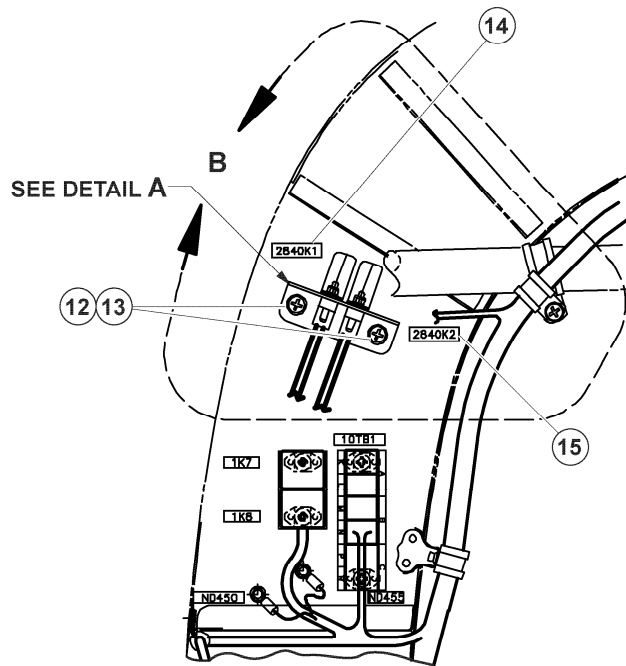


POST TB WIRING DIAGRAM

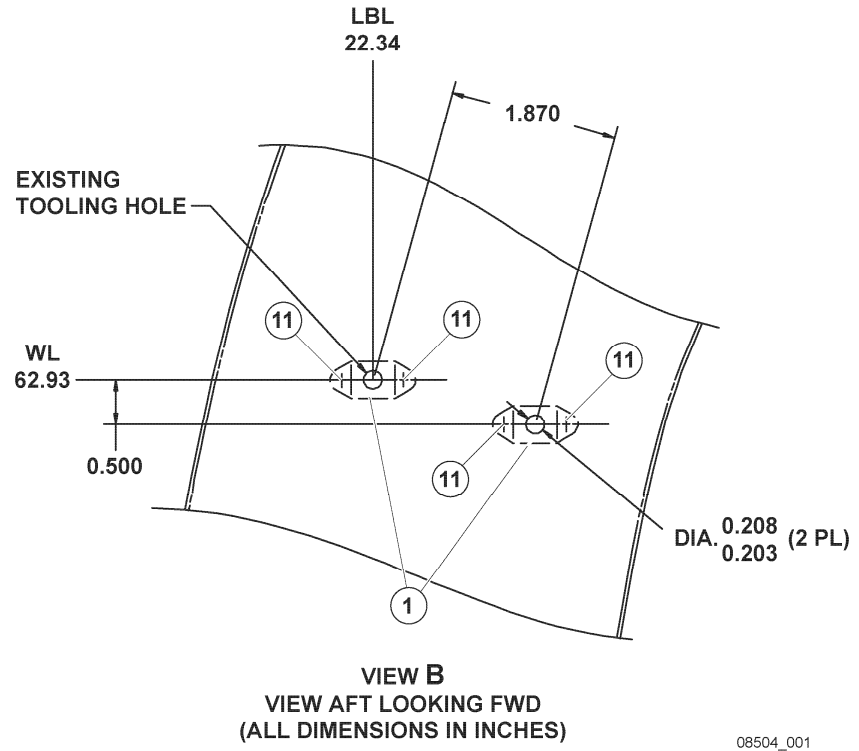
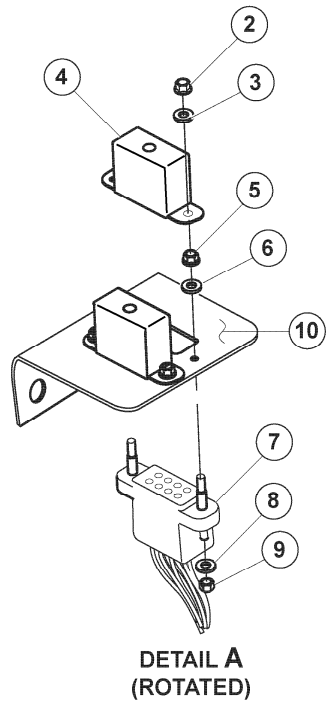
WIRING MODIFICATIONS INSTRUCTION TABLE						
ACTION	WIRE #	LENGTH (FEET)	FROM	HARDWARE	TO	HARWARE
DELETE	Q243A22	-	1P12-F	-	4DS1P1-L	-
DELETE	Q244A22	-	1J13-D	-	4DS1P1-D	-
ADD	Q262A22	30	1P12-F	M39029/22-192	2840XK2-X2	M39029/92-533
ADD	Q263A22	22	2840XK2-X1	M39029/92-533	4TB2-MY	M39029/22-191
ADD	Q264A22N	2	2840XK2-A1	M39029/92-533	ND455	MS25036-103
ADD	Q265A22	22	2840XK2-A2	M39029/92-533	4DS1P1-L	M39029/35-27
ADD	Q266A22	30	1J13-D	M39029/22-192	2840XK1-X2	M39029/92-533
ADD	Q267A22	22	2840XK1-X1	M39029/92-533	4TB2-MZ	M39029/22-191
ADD	Q268A22N	2	2840XK1-A1	M39029/92-533	ND450	MS25036-103
ADD	Q269A22	22	2840XK1-A2	M39029/92-533	4DS1P1-D	M39029/35-27

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Figure 2: Wiring Installation Sheet 2 of 2



1. Nutplates MS21059L3
2. Nut (provided with relay socket)
3. Washer (provided with relay socket)
4. Relay TDH-6050-5001
5. Nut (provided with relay socket)
6. Washer (provided with relay socket)
7. Relay socket SO-1055-8690
8. Washer (provided with relay socket)
9. Nut (provided with relay socket)
10. Bracket 407-075-044-101
11. Rivet NAS1097AD3
12. Screw MS27039-1-07
13. Washer NAS1149D0332J
14. Decal 31-065-2840K1
15. Decal 31-065-2840K2



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Figure 3. Station 155.0 Bracket and Relay Installation