

TRANSMITTER RELOCATION, KIT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS

MODELS: BELL 212, 412, 412EP/EPI, 412CF



Read all of the Instructions for Continuing Airworthiness
thoroughly prior to performing any activities relating to this product



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Notes

1. If changes to this document are required, Alpine Aerotech Ltd. shall revise all pages and reissue the entire document.
2. Alpine Aerotech Ltd. shall make any subsequent revisions of this document available free of charge upon request. Alpine Aerotech Ltd. also recommends that the end user of this product periodically verify the revision level of this document.

Section 1: Description

The following information provides a functional description of the Transmitter Relocation, Kit as defined in Alpine Aerotech Ltd. authority dataset AAL-214-030-001.

- Due to accessibility limitations of the engine compartment, gaining access to the RHS Engine Oil Pressure Transmitter for maintenance activity is greatly impaired.
- AAL's solution is to remove the transmitter from its current location and using a reducer fitting, flex line, union fitting and sheet metal bracket, relocate it to the Aft cabin bulkhead, using existing potted fasteners in the bulkhead.



Section 2 Maintenance Manual Supplement

General Notes

1. The following information defines the instructions for continuing airworthiness, repair allowances and airworthiness limitations for the item(s) referenced within this document.
2. Refer to the current revision of the BHT Maintenance Manual, BHT-212-MM, BHT-412-MM and C-12-146-000/MF-001 for the chapter(s) and section(s) referenced within this document.
3. Refer to the Section 3: Installation & Removal Instructions and Section 4: Illustrated Parts Breakdown for the replacement and/or installation of the item(s) referenced within this section.
4. Scheduled inspection for the item(s) referenced within this document shall be accomplished in accordance with (IAW) the Inspection Procedures specified.
5. Limitations for the item(s) referenced within this document are IAW the Airworthiness Limitations specified.



Airworthiness Limitations

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

Supplement to applicable Maintenance Manual, Chapter 4, Airworthiness Limitations Schedule

Notes

1. Refer to the applicable Maintenance Manual, Chapter 4-1 and 4-2, for general information on airworthiness limitations and airworthiness limitation schedules.
2. Item(s) **not** listed in the Scheduled Airworthiness Limitations section within this document have an unlimited airworthiness life.

Scheduled Airworthiness Limitations

1. There are no airworthiness limitations associated with the item(s) referenced within this document.



Inspection Procedures

Supplement to applicable Maintenance Manual, Chapter 5, Inspection and Component Overhaul Schedule

Notes

1. Refer to the applicable Maintenance Manual, Section 5, for general information on inspections, inspection definitions, inspection intervals, inspection methods and inspection schedules.
2. General Inspections, as indicated within this document, are defined as visual, non-thorough checks.
3. Detailed Inspections, as indicated within this document, are defined as visual and thorough, searching checks.
4. Perform Daily Inspections every day, prior to flight operation. If damage is detected, perform the 100 Hour/12 Month Inspections.
5. Perform 100 Hour/12 Month Inspections every 100 hours or every 12 months, whichever occurs first, prior to flight operation. If damage is detected, refer to the Repair Procedures section within this document.

Scheduled Inspections

1. Daily Inspections

Data Reference: Section 3: Installation and Removal Instructions
Section 4: Illustrated Parts Breakdown

- i. Perform a General Inspection on the Transmitter Relocation, Kit, Installation for general condition.
- ii. Perform a General Inspection on the Transmitter Relocation, Kit, Installation for proper security.



Scheduled Inspections

2. 100 Hour/12 Month Inspections

Data Reference: Section 3: Installation and Removal Instructions
Section 4: Illustrated Parts Breakdown

- i. Perform a Detailed Inspection on all materials and finishes in the Transmitter Relocation, Kit, Installation for evidence of corrosion, cracks and damage.
- ii. Perform a Detailed Inspection on all materials and finishes in the Transmitter Relocation, Kit, Installation for proper integrity and condition.
- iii. Perform a Detailed Inspection on the Transmitter Relocation, Kit, Installation for proper security.
- iv. Perform a Detailed Inspection on all hardware and fasteners in the Transmitter Relocation, Kit, Installation for proper security and torque.



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Repair Procedures

1. Repairs to the item(s) referenced within this document are **not** permitted. Contact Alpine Aerotech Ltd. for further information if repairs are required to the item(s) referenced within this document.



Section 3 Installation & Removal Instructions

Weight & Balance

<u>Part Number</u>	<u>Description</u>	<u>Weight</u>	<u>Long. Arm</u>	<u>Lat. Arm</u>
AAL-214-030-001	Transmitter Relocation, Kit	1.316*	166.87	24.18
		.597 (Kg)	4.238 (m)	.614 (m)

* Total increase in weight to aircraft.

General Notes

1. All Installation Instructions shall be accomplished in accordance with (IAW) standard aircraft practices. Refer to the current revision of the FAA publications AC 43.13-1B and AC 43.13-2B for details on standard aircraft practices.
2. All Fasteners shall be torqued to standard aircraft specifications, unless otherwise specified. Refer to the current revision of the FAA publications AC 43.13-1B and AC 43.13-2B for details on standard torque specifications.
3. All Dimensions are in imperial measures (inches/pounds).
4. Refer to Section 2: Maintenance Manual Supplement for instructions on maintenance for the item(s) referenced within this section.
5. Refer to Section 4: Illustrated Parts Breakdown for the part numbers of the item(s) referenced within this section.



3.1 Installation Instructions Bell 212, 412, 412EP, 412CF

1. Gain Access to the oil pressure, transmitter on the RHS engine.

NOTE: The removal of the engine(s) may make installation easier.

2. Remove the electrical connector from the oil pressure, transmitter.
3. Trace the three wires from this electrical connector to the junction just above the engine oil fill scupper, remove these three wires from the harness and tie them as a separate harness. Re-tie the remaining harness as before.
4. Remove and retain the oil pressure, transmitter from the engine, discard the packing.
5. Install the Fitting, Detail (Item 3) and Packing (Item 5) into the engine where the transmitter was removed from, and safety-wire.
6. Fasten the Hose, Assy (Item 6) to the Fitting, Detail (Item 3) and safety-wire.
7. Route the Hose, Assy (Item 6) in the most practical manner possible in an outboard direction maintaining a horizontal attitude. Using standard aircraft practices as outlined in FAA publications AC 43.13-1B and AC 43.13-2B, secure the Hose, Assy (Item 6) to prevent fretting/abrasion damage. All ancillary items required to secure the Hose, Assy (Item 6) are to be supplied by the installer.

NOTE: Minimum bend radius for the hose stated in the manufacturer's specs is 5.50 in.

8. Locate and install the Bracket, Assy (Item 1) using the existing fasteners, in the AFT Cabin Bulkhead. Reference Figure 1.



3.1 Installation Instructions **Bell 212, 412, 412EP, 412CF**

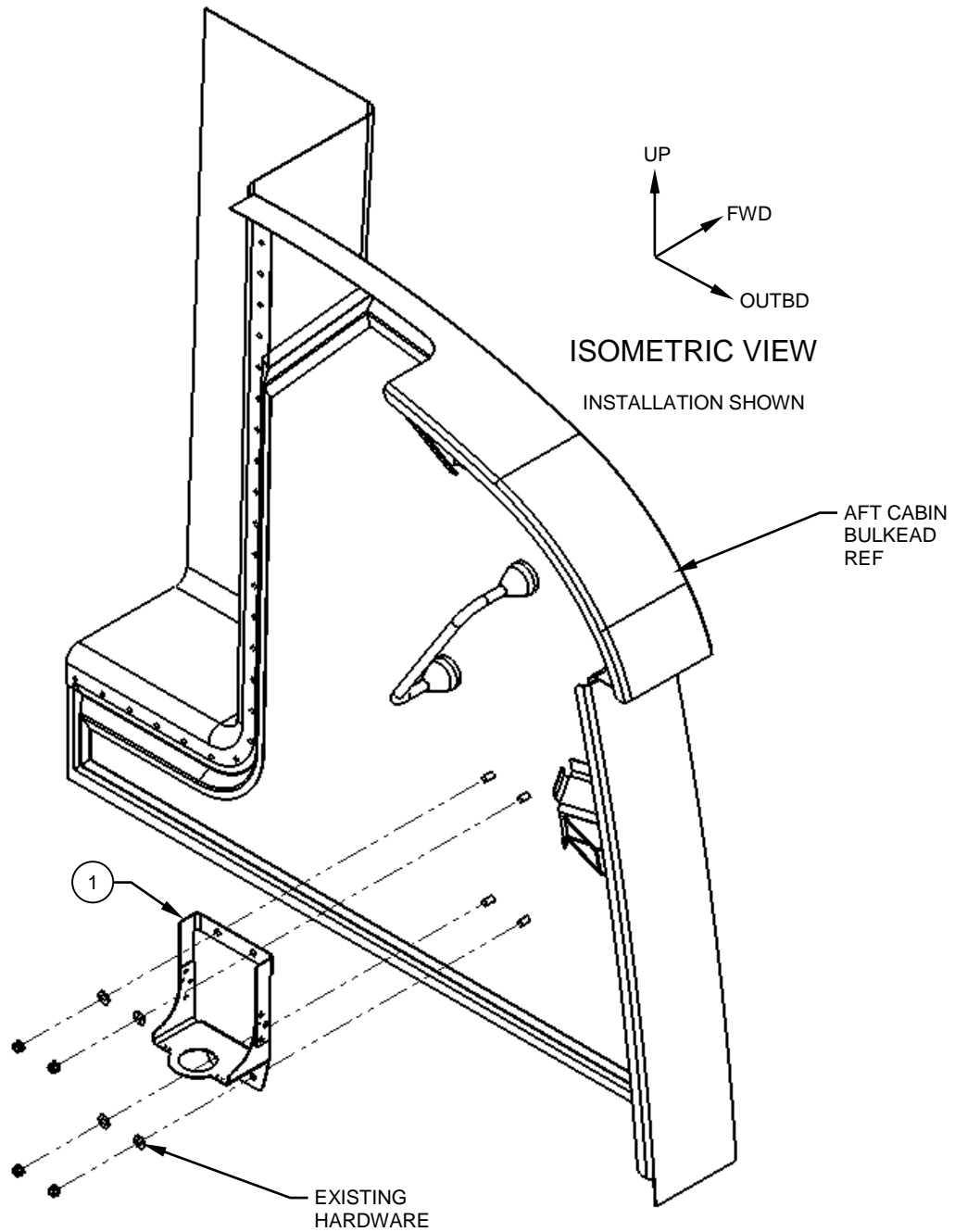


Figure 1



3.1 Installation Instructions **Bell 212, 412, 412EP, 412CF**

9. Install the oil pressure transmitter onto the Bracket, Assy (Item 1) using the Nut Tube, Detail (Item 7), and safety-wire the transmitter to the Bracket, Assy (Item 1). Reference Figure 2.

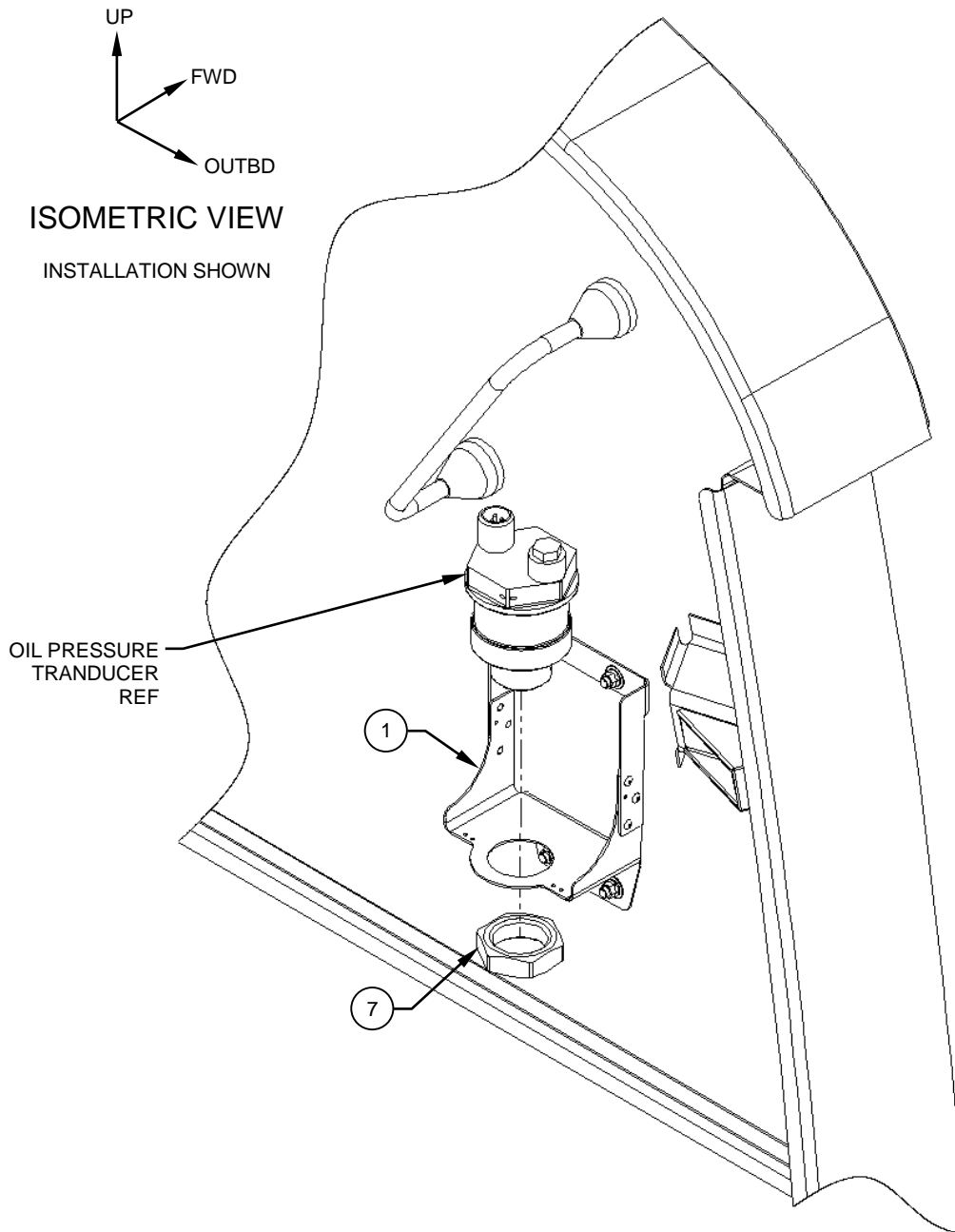
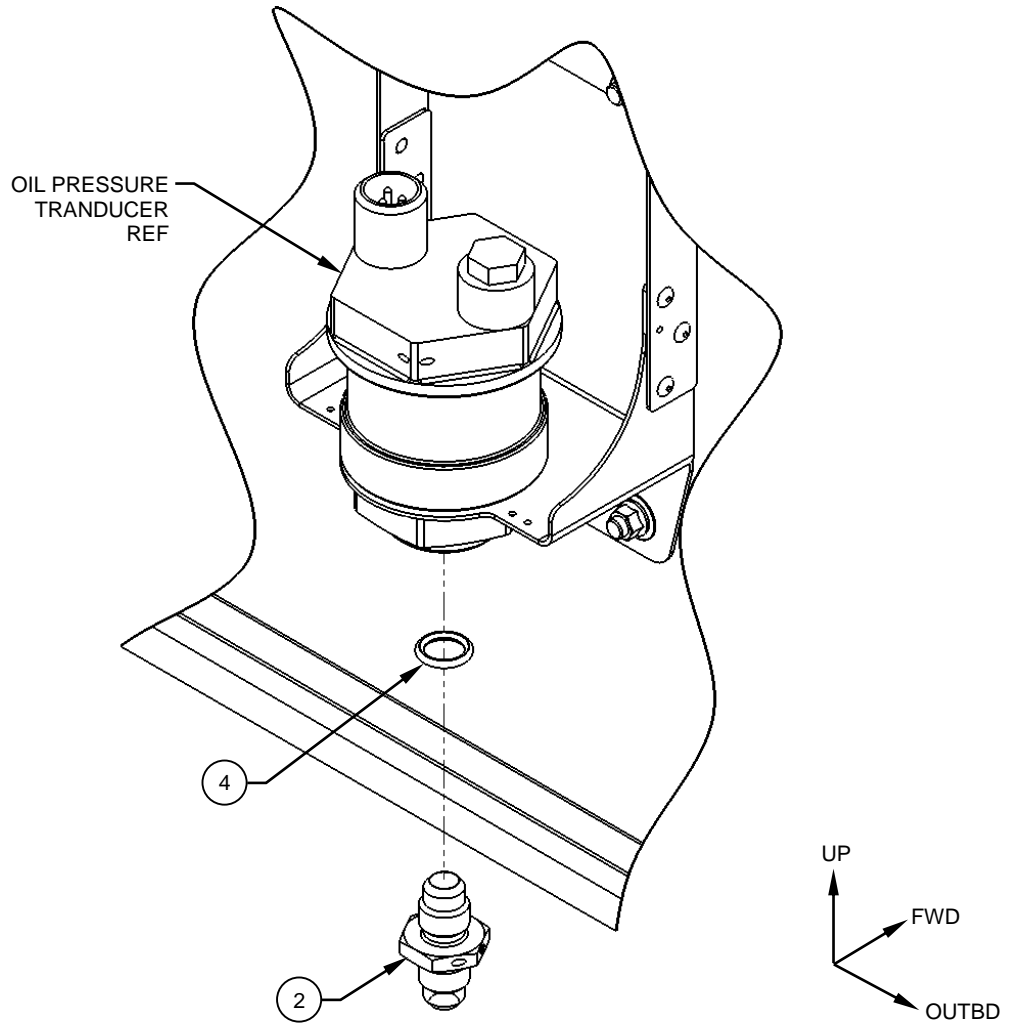


Figure 2



3.1 Installation Instructions Bell 212, 412, 412EP, 412CF

10. Install Fitting, Detail (Item 2) and Packing (Item 4) into the bottom of the oil pressure, transmitter and safety-wire. Reference Figure 3.



ISOMETRIC VIEW

INSTALLATION SHOWN

Figure 3



3.1 Installation Instructions **Bell 212, 412, 412EP, 412CF**

11. Fasten the Hose, Assy (Item 6) to the Fitting, Detail (Item 2). Reference Figure 4.

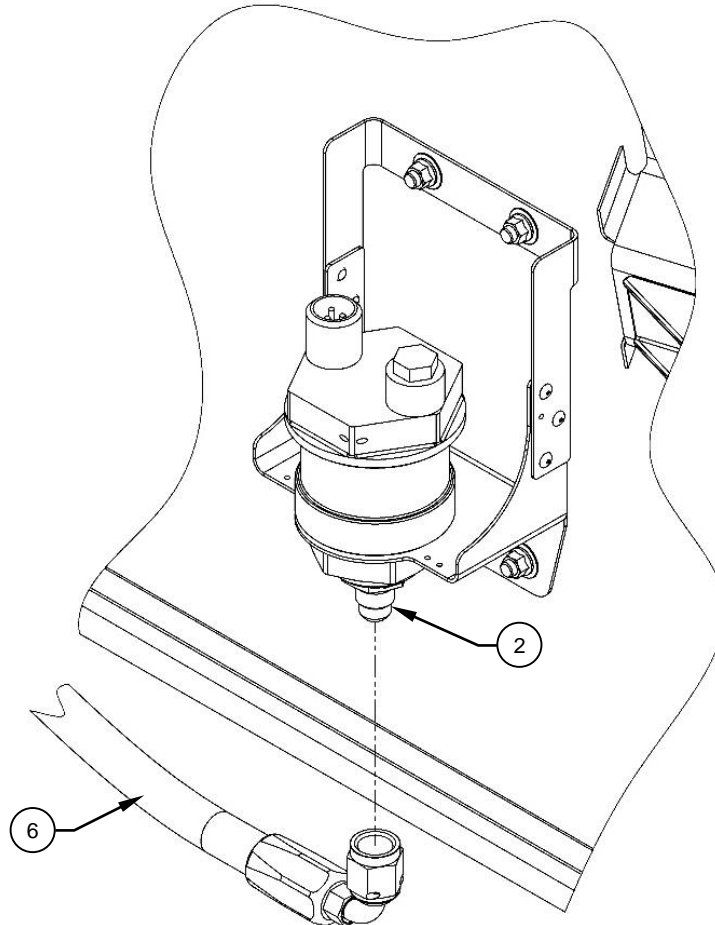
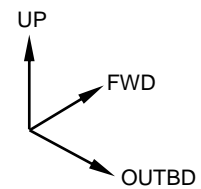


Figure 4



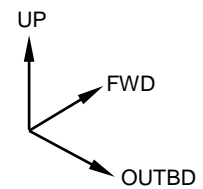
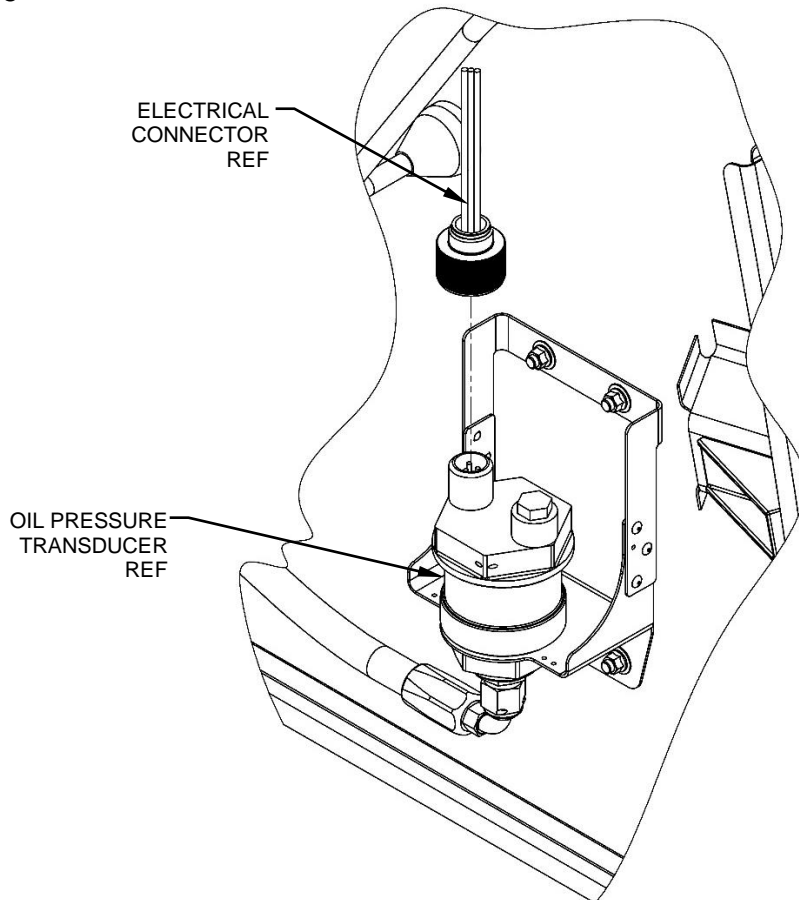
ISOMETRIC VIEW

INSTALLATION SHOWN



3.1 Installation Instructions **Bell 212, 412, 412EP, 412CF**

12. Re-install the electrical connector to the oil pressure transmitter and safety-wire. Reference Figure 5.



ISOMETRIC VIEW

INSTALLATION SHOWN

Figure 5



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3.1 Installation Instructions Bell 212, 412, 412EP, 412CF

13. Bleed the air from the Hose, Assy (Item 6) by starting the modified engine and loosening the hose fitting common to the Fitting, Detail (Item 2) until positive oil flow is established. Re-tighten the hose fitting and safety- wire. Reference Figures 4 & 5.
14. Installation complete.
15. Perform a General Inspection of all items to ensure proper installation and function.
16. Update the aircraft logbook for the installation of the Transmitter Relocation, Kit.



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3.2 Removal Instructions

Bell 212, 412, 412EP, 412CF

1. As there are no special considerations or additional steps to remove the Transmitter Relocation, Kit for inspections, the removal of the Transmitter Relocation, Kit can be considered the opposite of installation.
2. Perform a General Inspection of all items to ensure proper removal.
3. Update the aircraft logbook for the removal of the Transmitter Relocation, Kit.



3.3 Installation Instructions Bell 412EPI

1. Gain Access to the oil pressure, transmitter on the RHS engine.

NOTE: The removal of the engine(s) may make installation easier.

2. Remove the electrical connector from the oil pressure, transmitter.
3. Trace the wires from this electrical connector to the junction just above the engine oil fill scupper, remove these wires from the harness and tie them as a separate harness. Re-tie the remaining harness as before.
4. Remove and retain the oil pressure, transmitter from the engine, discard the packing. Remove the transmitter bushing and discard the packing.
5. Install the Fitting, Detail (Item 3) and Packing (Item 5) into the engine where the transmitter bushing was removed from and safety-wire.
6. Fasten the Hose, Assy (Item 6) to the Fitting, Detail (Item 3) and safety-wire.
7. Route the Hose, Assy (Item 6) in the most practical manner possible in an outboard direction maintaining a horizontal attitude. Using standard aircraft practices as outlined in FAA publications AC 43.13-1B and AC 43.13-2B, secure the Hose, Assy to prevent fretting/abrasion damage. All ancillary items required to secure the Hose, Assy are to be supplied by the installer.

NOTE: Minimum bend radius for the hose stated in the manufacturer's specs is 5.50 in.

8. Locate and install the oil pressure transducer into the supplied Adel Clamp, Detail (Item 9) using the lower inboard existing fastener. Reference Figure 6.
9. Re-install the electrical connector to the oil pressure transmitter and safety-wire if appropriate. Reference Figure 6.



3.3 Installation Instructions **Bell 412EPI**

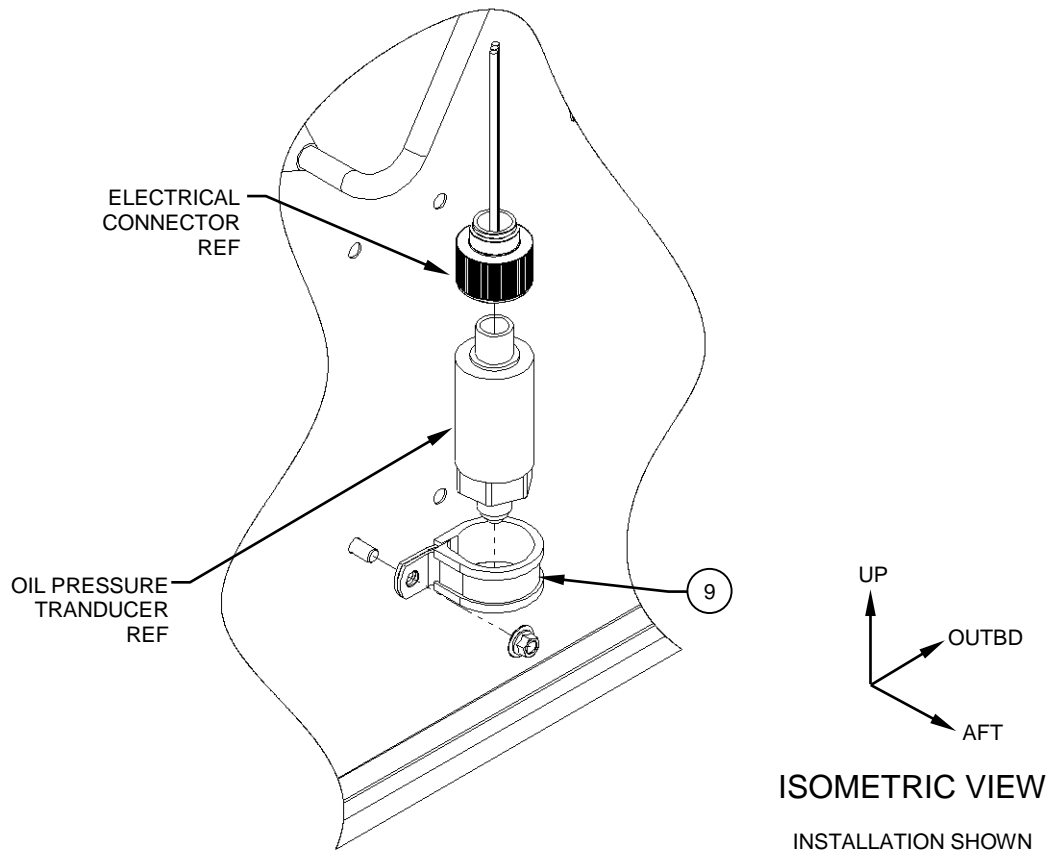


Figure 6



3.3 Installation Instructions Bell 412EPI

10. Fasten the Hose, Assy (Item 6) to the oil pressure transducer. Reference Figure 7.
11. Bleed the air from the Hose, Assy (Item 6) by starting the modified engine and loosening the hose fitting common to the transmitter until positive oil flow is established. Re-tighten the hose fitting and safety- wire. Reference Figures 7.
12. Installation complete.
13. Perform a General Inspection of all items to ensure proper installation and function.
14. Update the aircraft logbook for the installation of the Transmitter Relocation, Kit.

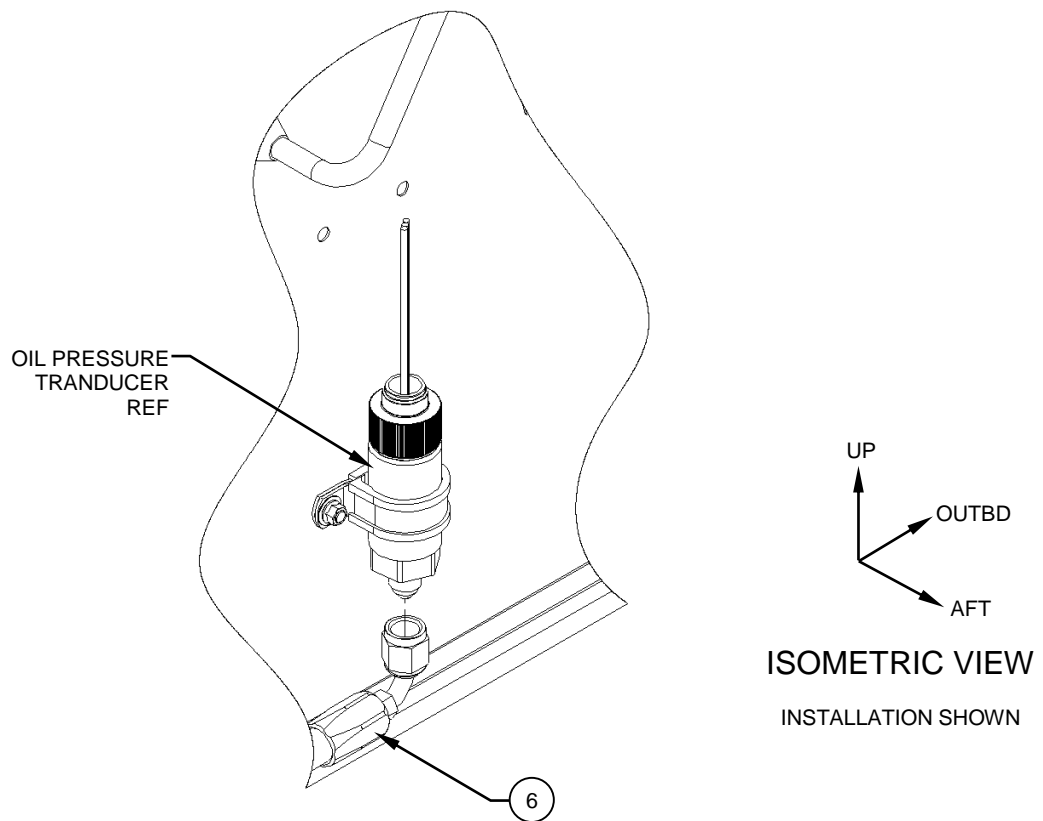


Figure 7



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3.4 Removal Instructions

Bell 412 EPI

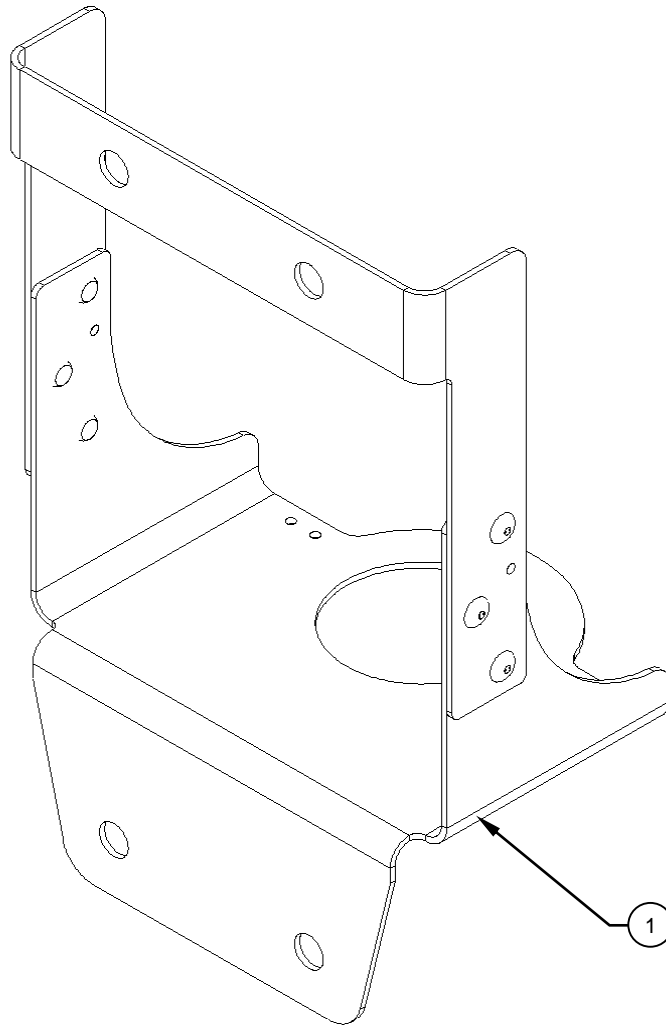
1. As there are no special considerations or additional steps to remove the Transmitter Relocation, Kit for inspections, the removal of the Transmitter Relocation, Kit can be considered the opposite of installation.
2. Perform a General Inspection of all items to ensure proper removal.
3. Update the aircraft logbook for the removal of the Transmitter Relocation, Kit.

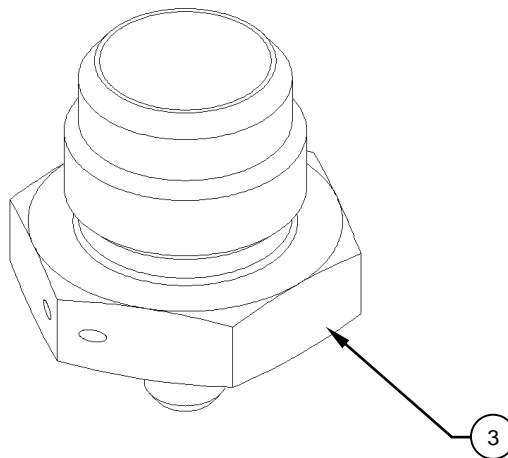
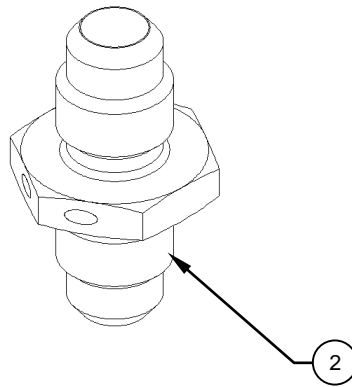


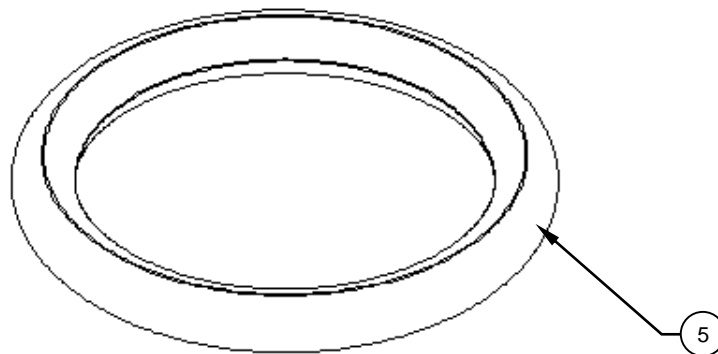
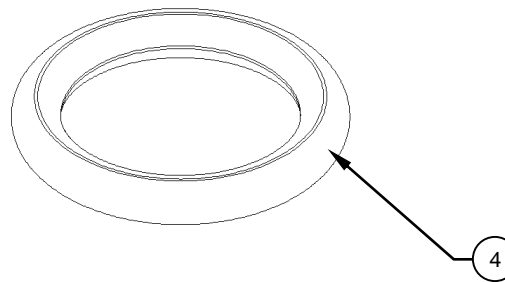
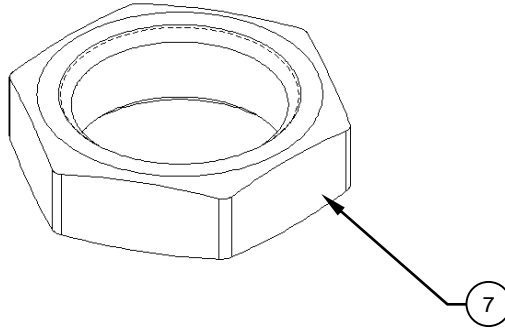
Section 3 **Illustrated Parts Breakdown**

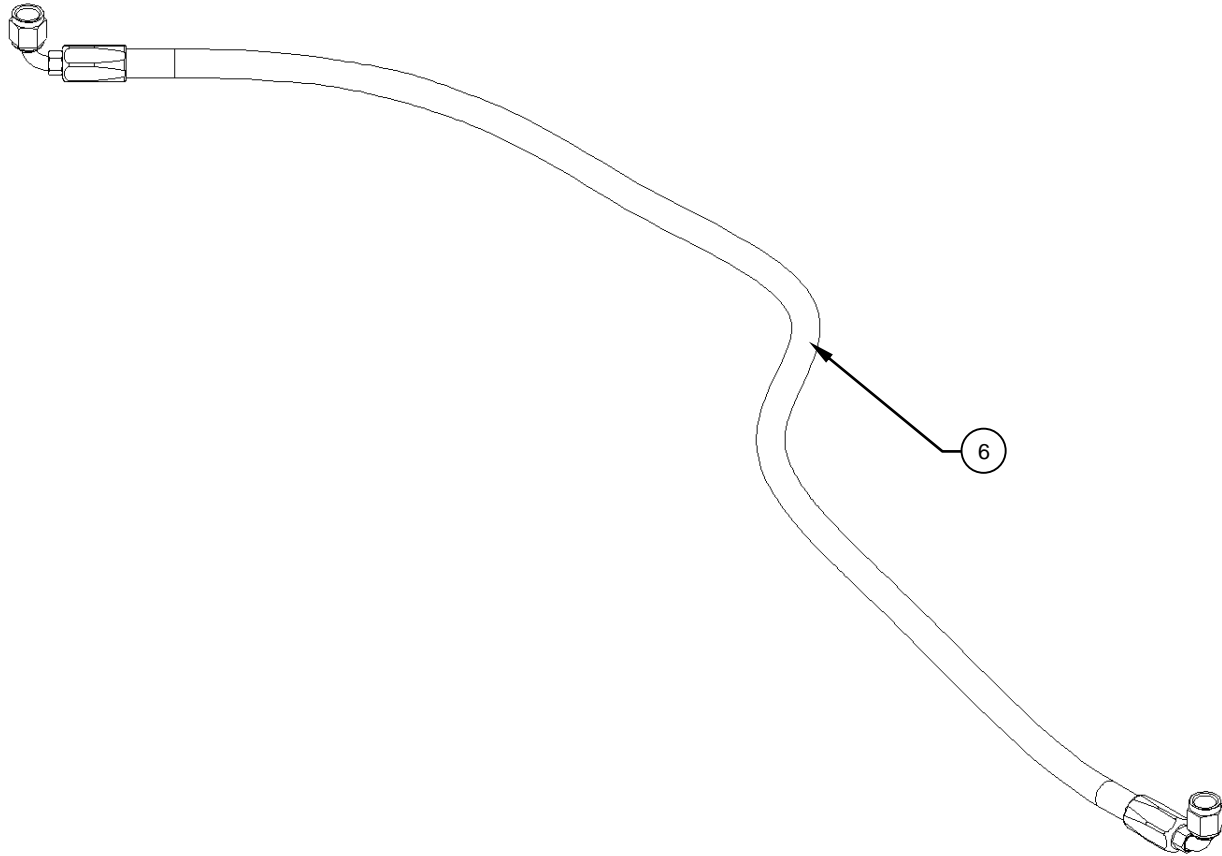
General Notes

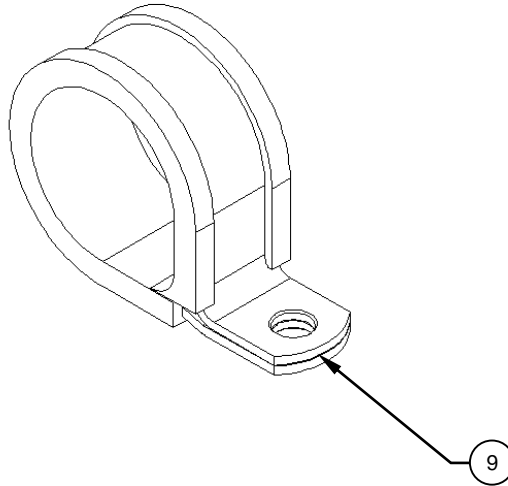
1. Item 8 is not shown.













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ITEM	QTY	NUMBER	DESCRIPTION	MATERIAL	REF STOCK SIZE	SPEC	FINISH	MANUFACTURER
-	-	AAL-214-030-001	TRANSMITTER RELOCATION, KIT	C/O SHADED ITEMS ONLY				
1	1	AAL-214-031-001	BRACKET, ASSY	NA	NA	NA	NA	ALPINE AEROTECH LTD.
2	1	AAL-214-032-003	FITTING, DETAIL	NA	NA	NA	NA	ALPINE AEROTECH LTD.
3	1	AAL-214-032-004	FITTING, DETAIL	NA	NA	NA	NA	ALPINE AEROTECH LTD.
4	1	AS3208-04	PACKING, DETAIL	SEE SPEC	SEE SPEC	AS3208	SEE SPEC	SOURCE AS REQUIRED
5	1	AS3209-213	PACKING, DETAIL	SEE SPEC	SEE SPEC	AS3209	SEE SPEC	SOURCE AS REQUIRED
6	1	AE6229E0330-000	HOSE, ASSY	SEE MFR	SEE MFR	NA	SEE MFR	AEROQUIP
7	1	AN924-12J	NUT TUBE, DETAIL	SEE SPEC	SEE SPEC	AN924	SEE SPEC	SOURCE AS REQUIRED
8	AR	MS20995C41	WIRE, SAFETY OR LOCK	SEE SPEC	SEE SPEC	MS20995	SEE SPEC	SOURCE AS REQUIRED
9	1	AS21919WCJ15	ADEL CLAMP, DETAIL	SEE MFR	SEE MFR	NA	SEE SPEC	SOURCE AS REQUIRED