

**R44-series Electronic Ignition System (EIS) Upgrade Kit Instructions**

*Kit replaces retard CMI magneto with EIS. Use KI-272-2A on R44 S/N 2625 thru 2724 (except 2703) and Cadet S/N 30071 thru 30089. Use KI-272-2B on R44 II S/N 14412 thru 14613.*

**NOTE**

Visit [www.robinsonheli.com](http://www.robinsonheli.com) to verify kit instructions are current revision. Review instructions before installation; contact RHC Technical Support with questions. Verify kit contents match list; contact RHC Customer Service if parts are missing or damaged.

**NOTE**

Kit installation requires current revision Lycoming Service Instruction Nos. 1437 & 1569, available at [www.lycoming.com](http://www.lycoming.com).

ITEM	PART NUMBER	KIT CONTENTS	R44 QTY PER KI-272-2A	R44 II QTY PER KI-272-2B
1	KI-272-2Instr.	Kit Instructions . . . . .	1	1
2	A130-35	Spacer . . . . .	0	1
3	B049-14	Harness Assembly . . . . .	1	1
4	B049-15	Harness Assembly . . . . .	1	1
5	B158-4-1IN	Heat Shrink, 1 inch diameter (1-inch length) . . . . .	4	4
6	D260-4	Relay . . . . .	0	1
7	B263-4	Socket . . . . .	1	1
8	B263-31	Housing . . . . .	1	1
9	D275-210	Fuse . . . . .	1	1
10	01F29428-CT	Screws (Lycoming part number, alternate to 01F31508-CT) . . . . .	3	3
11	66K6D3SN-01	EIS (Lycoming part number, includes 66K6D hardware kit) . . . . .	0	1
12	66K6D3SN-02	EIS (Lycoming part number, includes 66K6D hardware kit) . . . . .	1	0
13	67U20649	Ignition Harness (Lycoming part number) . . . . .	1	1
14	68H22624	Cushion, Magneto drive (Lycoming part number) . . . . .	2	2
15	M-674	Gasket, copper - spark plug (alternate to STD-295) . . . . .	1	1
16	STD-475	Washer, 5/16-inch lock internal teeth (Lycoming part number) . . . . .	2	2
17	MS3367-4-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack) . . . . .	2	2
18	MS3367-5-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack) . . . . .	2	2
19	MS21919WDG7	Clamp . . . . .	0	1
20	MS25171-1S	Nipple . . . . .	1	1
21	MS27039C1-08	Screw . . . . .	0	1
22	MS27039C1-14	Screw . . . . .	0	1
23	MS35206-227+	Screw (Note: "+" in part number indicates 10-qty pack) . . . . .	1	1
24	MS35333-37	Washer, lock - internal tooth . . . . .	2	2

### Special Tools

- Wire stripping and crimping tools
- Heat gun

### Kit Instructions

1. Ensure ignition switch is OFF; remove key. Turn BATTERY switch OFF. Disconnect lead-acid battery per Maintenance Manual (MM) § 37-11 or lithium-ion battery per MM § 37-12, as applicable.

#### NOTE

Parenthetic dash numbers, such as (-166), indicate number marked on wiring insulation (if single conductor), or jacket (if multi-conductor and/or shielded).

2. **R44 and Cadet only:**

Refer to R44 Illustrated Parts Catalog (IPC) Figure 96-63B. Remove aft belly panel and remove starting vibrator (magneto start booster). Slide one B158-4-1IN heat shrink over each receptacle on wires (-166) & (-584). Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify receptacle is insulated and heat shrink is secure. Secure covered wires using appropriately sized ty-raps & trim tips flush.

**R44 II only:**

Refer to IPC Figure 96-63B. Remove aft belly panel and remove SlickSTART® (magneto start booster). Slide one B158-4-1IN heat shrink over receptacle on wires (-1523 & -1525, two wires into one spade connector) & one B158-4-1IN heat shrink over receptacle on wire (-1527). Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify receptacles are insulated and heat shrinks are secure. Secure covered wires using appropriately-sized ty-raps & trim tips flush.

3. **R44 II only:**

Refer to Figure 1. Install D260-4 relay onto C294-3 frame assembly (includes C296 bulkhead) using MS27039C1-08 screw. Connect airframe harness wires to relay as marked and secure wires using MS27039C1-14 screw, MS21919WDG7 clamp, and A130-35 spacer.

4. Refer to IPC Figures 53-1 and 53-5. Remove D040-1, C377 (LH), and C378 (RH) cowling assemblies.  
**R44 II only:** Remove D057-2 air box assembly per R44 MM § 6.470.

5. Refer to KI-255-2 R44-series Engine Air-Oil Separator Installation Kit instructions, Figures 1 and 2. Disconnect A729-77 rubber [drain] tube from C728-2 separator assembly and temporarily cap tube. Disconnect A785-43 hose from separator assembly, and remove screws securing separator assembly at MS21919 clamp & bottom tab. Remove separator assembly and temporarily cap hose.

**Kit Instructions (continued)**

6. Refer to IPC Figure 71-5 or 71-9 (as applicable). Photo-document installation of ignition harness connected to engine-left (retard) magneto, including all ty-rap & clamp locations. Disconnect harness from engine-left magneto and remove harness from engine. Remove engine-left (retard) magneto from engine per Lycoming Service Instruction No. (SI) 1569 Installation section I.
7. Refer to Lycoming SI 1437. Remove lower spark plug from cylinder 1 & discard copper gasket. Rotate crankshaft in normal direction until cylinder 1 is on compression stroke, then continue normal rotation until starter ring gear support indicates top center (marked "TC" on support) of compression stroke. Inspect removed spark plug, service as required, install in cylinder 1 using new M-674 copper gasket, and torque per R44 MM § 23-33.
8. Perform Lycoming SI 1569 Installation section II, Remove and Inspect Drive Interface. Install new 68H22624 cushions in removed LW-19096 gear retainer. Install magneto drive interface per SI 1569 Installation section III.
9. Refer to Figure 2. Install B049-14 and B049-15 harness assemblies to 66K6D3SN-01 or -02 EIS as shown. Perform Lycoming SI 1569 Installation sections V, VI (clean engine oil may be substituted for M-6 grease), & VII.
10. Refer to Figure 3A or 3B (as applicable). Locate B304-21 or -22 fuse assembly adjacent to B415 battery relay. Remove ty-raps as required and install D275-210 (10A) fuse; secure using appropriately sized ty-raps & trim tips flush.
11. **R44 Helicopter S/N 2625 thru 2670, Cadet S/N 30071 thru 30085 and RII S/N 14412 thru 14520 only:**  
Refer to Figures 3A or 3B (as applicable), and 4. Locate stowed wire (-3086) covered with black heat shrink and remove ty-raps as required for access. Cut off heat-shrink-covered portion of wire (-3086), strip end, and crimp B263-4 socket on wire. Inspect crimp per MM §23-84; verify security of socket. Install socket into B263-31 housing; verify security of socket in housing.
12. Refer to Figures 3A or 3B (as applicable), and 4. Connect existing p-lead and shield drain wires to EIS as shown. Locate and connect wire (-3086) to B049-14 harness assembly. Slide B158-4-1IN heat shrink over ring terminal on unused retard wire. Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify ring terminal is insulated and heat shrink is secure. Secure terminal to adjacent wire bundle using appropriately sized ty-raps & trim tips flush.
13. Refer to Figure 4. Install 67U20649 ignition harness using (3) 01F29428-CT screws. Route and connect ignition leads as marked on spark-plug nuts. Dress & secure harness per photos taken in step 6. Perform Lycoming SI 1569 Installation section XIV Final Inspection.
14. Install C728-2 Separator assembly using KI-255-2 R44-series Engine Air-Oil Separator Installation, as required.

**Kit Instructions (continued)**

15. **R44 II only:** Install D057-2 air box assembly per R44 MM § 6.480
16. Install D040-1, C377 (LH), and C378 (RH) cowling assemblies. Install aft belly panel.
17. Connect lead-acid battery per MM § 37-11 or lithium-ion battery per MM § 37-12, as applicable.
18. Perform Lycoming SI 1569 Operation sections I. Pre-Operational Check and II. Operational Check.
19. Revise helicopter's Weight and Balance Record in Pilot's Operating Handbook (POH) Section 6 to reflect this installation by incorporating the following data:

**Remove:**

(R44 and Cadet only):

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Retard Magneto Ignition System	-5.90 lb	94.69 in	-558.692 in-lb	4.41 in	-26.05 in-lb

**OR**

(R44 II only):

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Retard Magneto Ignition System	-6.12 lb	93.80 in	-574.052 in-lb	4.25 in	-26.05 in-lb

**Install:**

(R44 and Cadet only):

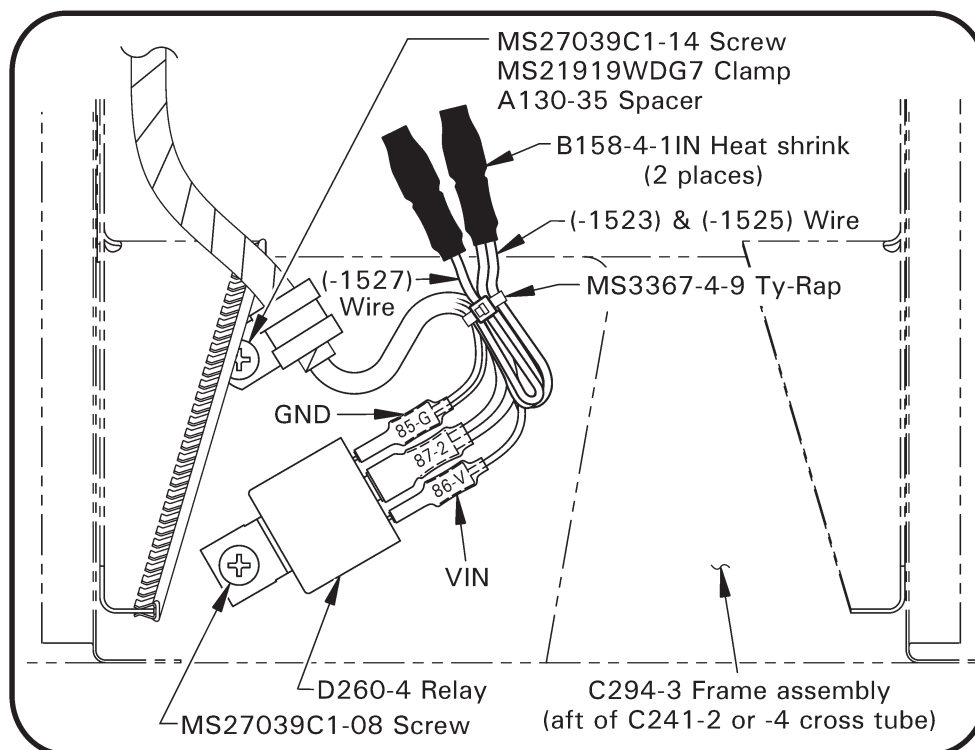
Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Electronic Ignition System (Engine LH)	+5.19 lb	97.88 in	+507.997 in-lb	4.98 in	25.85 in-lb

**OR**

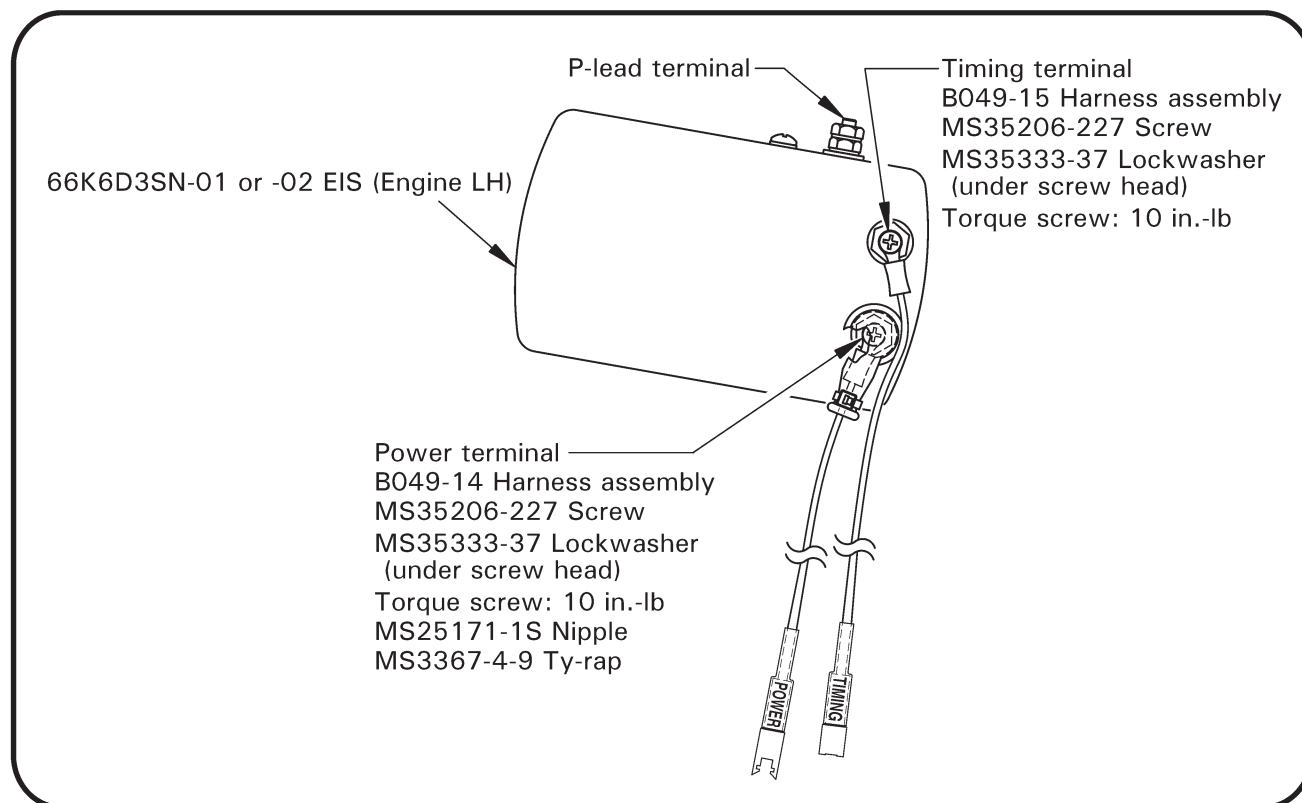
(R44 II only):

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Electronic Ignition System (Engine LH)	+5.24 lb	97.45 in	+510.646 in-lb	4.90 in	25.70 in-lb

20. Make appropriate maintenance record entries.



**Figure 1 D260-4 Relay installation**  
(View looking forward)



**Figure 2 Harness installations**

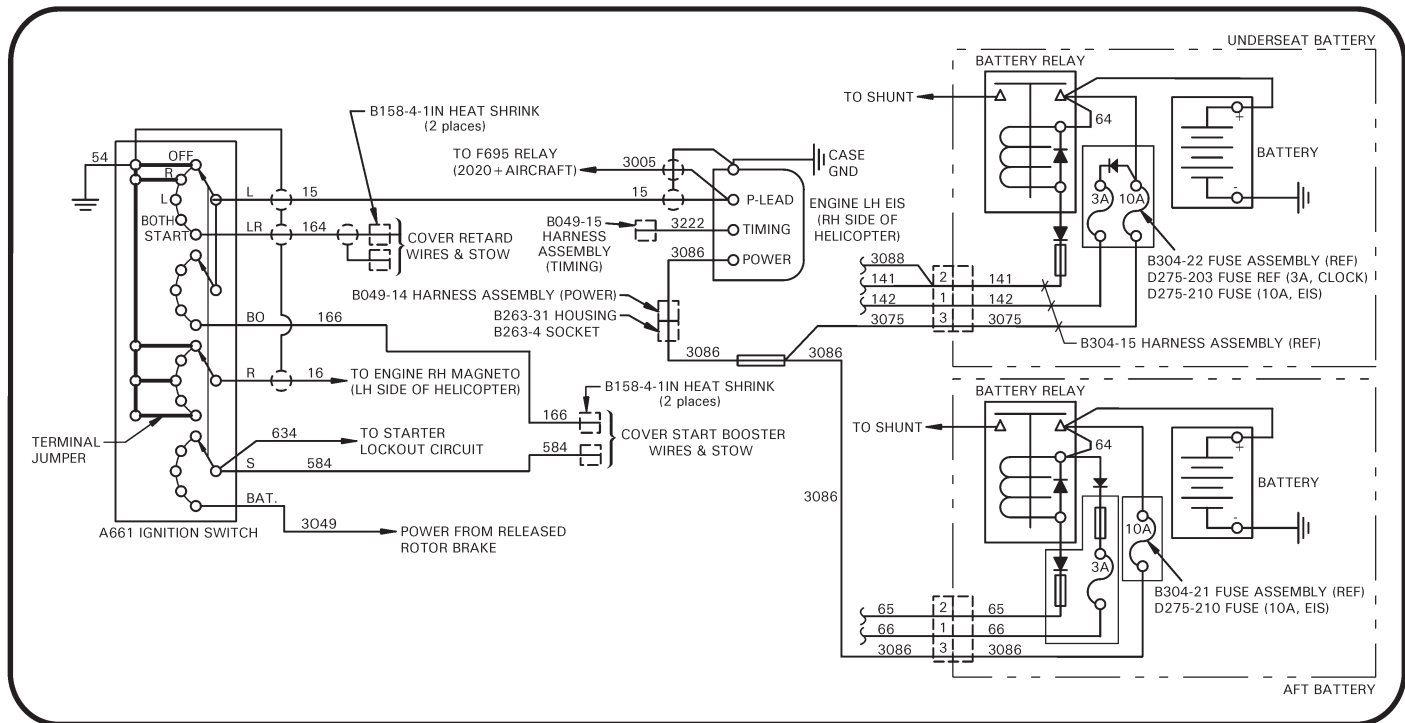


Figure 3A R44 and Cadet EIS schematic

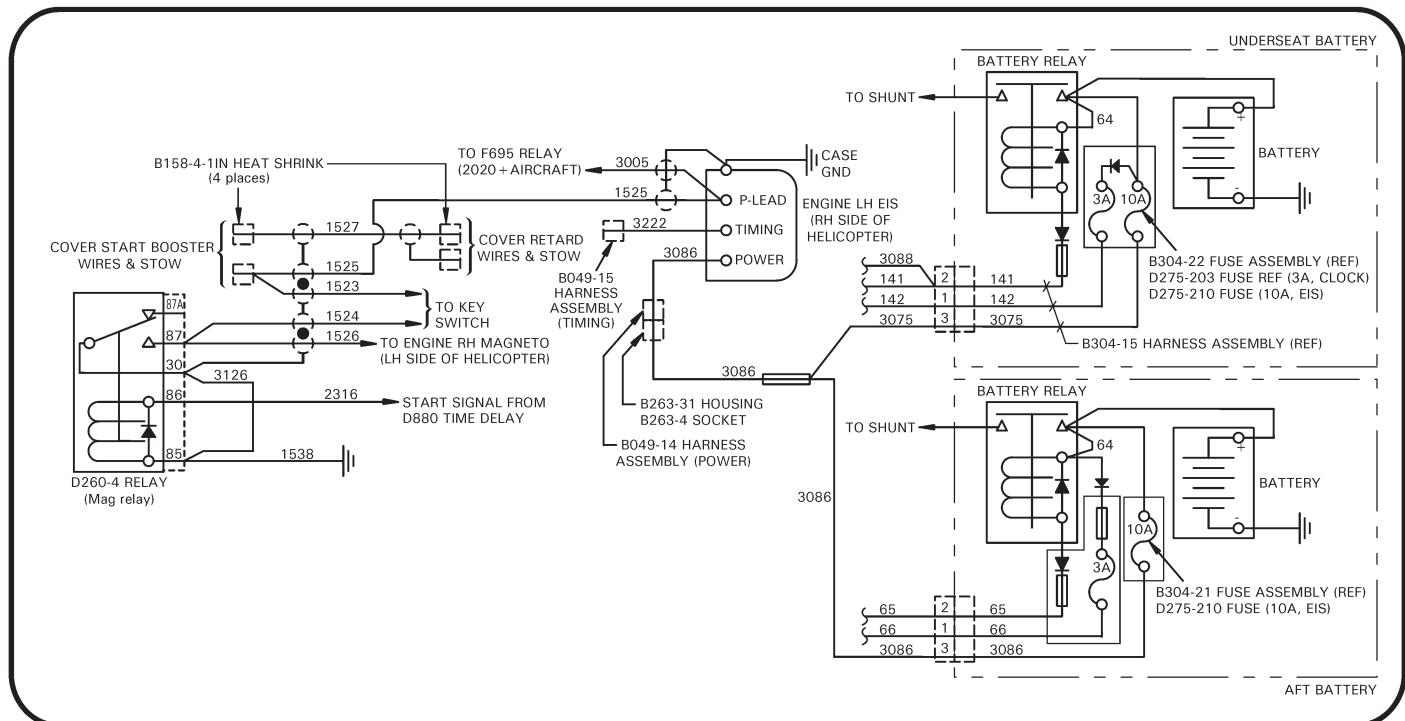
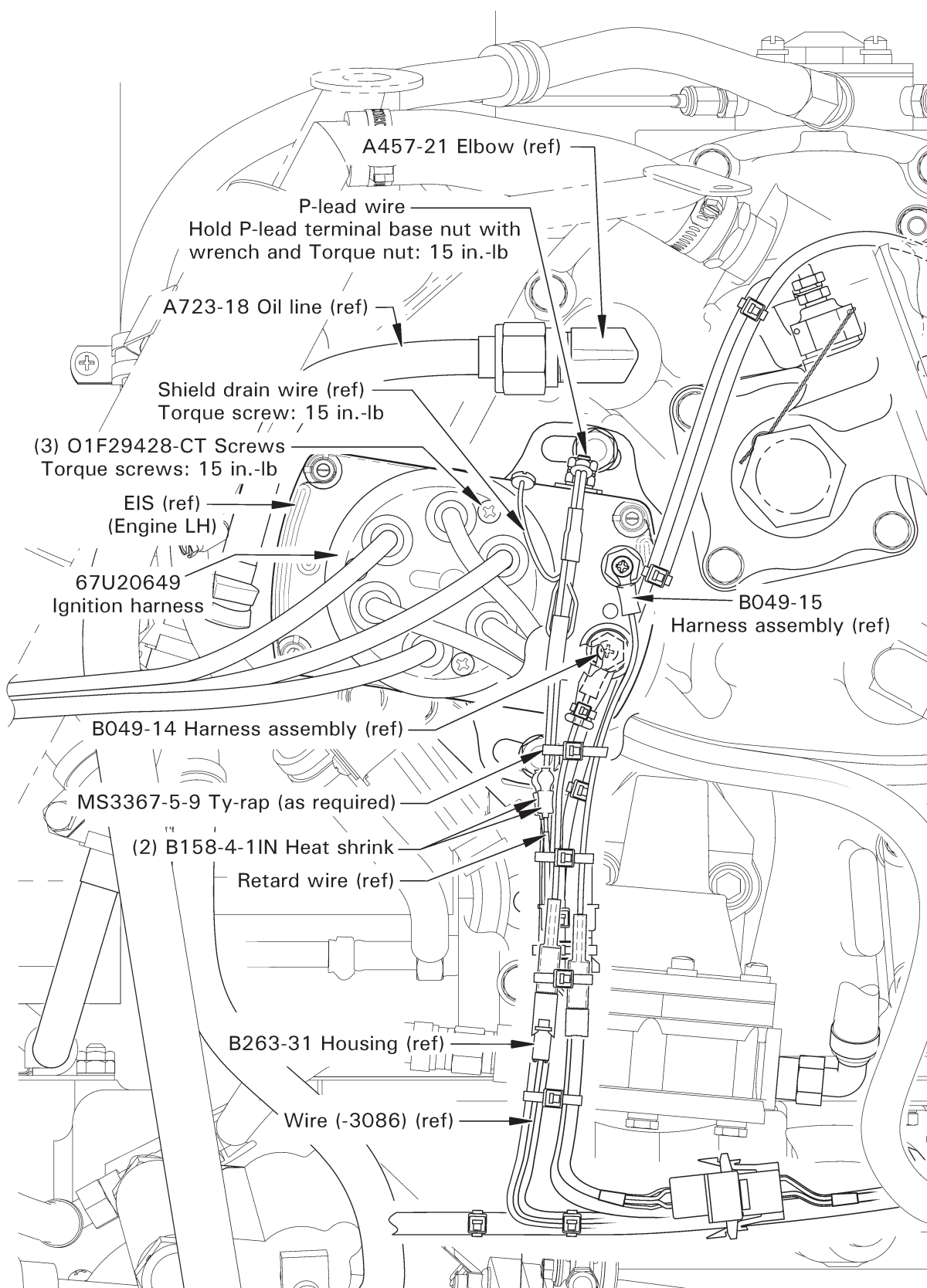


Figure 3B R44 II EIS schematic



**Figure 4 R44 II EIS installation, engine LH shown**  
(View looking aft, R44 similar)