

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

*Kit replaces retard TCM magneto with EIS and converts associated wiring. Helicopter must be configured with A723-18 oil line for clearance; refer to KI-286 (may be performed simultaneously). Use KI-272-3A on R44 S/N 2624 & prior and Cadet S/N 30070 & prior, and KI-272-3B for R44 II S/N 14411 & prior. Contact RHC Technical Support for nose battery-configured helicopters.*

**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 Lycoming Service Instruction No. 1569. Visit [www.lycoming.com](http://www.lycoming.com) for current revision of noted technical publication.

ITEM	PART NUMBER	KIT CONTENTS	QTY PER KI-272-3A	QTY PER KI-272-3B
1	KI-272-3Instr.	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 – 1/4 inch diameter (1-inch length) . . . . .	4	4
6	B263-4	Socket . . . . .	1	1
7	B263-11	Housing . . . . .	1	1
8	B263-31	Housing . . . . .	1	1
9	B304-21	Fuse Assembly . . . . .	1	1
10	D260-4	Relay . . . . .	0	1
11	KI-272-3086	Wire Assembly . . . . . Includes: [1] B274-16 Wire, 16 gage, 90 inch length (marked "KI-272-3086") [1] B263-3 Pin [1] B263-10 Housing	1	1
12	01F29428-CT	Screws (Lycoming part number) . . . . .	3	3
13	66K6D3SN-01	EIS (Lycoming part number) . . . . .	0	1
14	66K6D3SN-02	EIS (Lycoming part number) . . . . .	1	0
15	67U20649	Ignition Harness (Lycoming part number) . . . . .	1	1
16	MS3367-4-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack) . . . . .	1	1
17	MS3367-5-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack) . . . . .	1	1
18	MS21919WDG7	Clamp . . . . .	0	1
19	MS25171-1S	Nipple . . . . .	1	1
20	MS27039C1-08	Screw . . . . .	0	1

ITEM	PART NUMBER	KIT CONTENTS	QTY PER KI-272-3A	QTY PER KI-272-3B
21	MS27039C1-14	Screw . . . . .	0	1
22	MS35206-227+	Screw (Note: "+" in part number indicates 10-qty pack) . . . . .	1	1
23	MS35333-37	Lockwasher . . . . .	2	2

### Special Tools

- Wire stripping and crimping tools
- Heat gun

### Kit Instructions

1. Turn BATTERY switch OFF. Disconnect battery per R44 Maintenance Manual (MM) § 37-10.

#### 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-series and Cadet only:**

Refer to R44 Illustrated Parts Catalog (IPC) Figure 96-63B. Gain access to, and remove magneto start booster. Slide B158-4-1IN heat shrink over receptacles 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 wire is insulated and heat shrink is secure. Secure covered wires using appropriately-sized ty-raps.

**R44 II-series only:**

Refer to IPC Figure 96-63B. Gain access to, and remove magneto start booster. Slide B158-4-1IN heat shrink over receptacles on wires (-1523), (-1525) & (-1527). Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify wire is insulated and heat shrink is secure. Secure covered wires using appropriately sized ty-raps.

3. **R44 II-series only:**

Refer to Figure 1. Install D260-4 relay onto C296-3 bulkhead using MS27039C1-08 screw. Connect airframe harness wires to relay as marked and secure 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.
5. Refer to IPC Figure 71-5 or 71-9. Remove LH (retard) magneto from engine per Lycoming Service Instruction (SI) No. 1569; retain mounting hardware and discard magneto gasket.
6. Refer to Figure 2. Install B049-14 and B049-15 harness assemblies to 66K6D3SN-01 or -02 EIS as shown. Internally time EIS per SI 1569.
7. Install EIS using retained hardware and time to engine per SI 1569.

**Kit Instructions (continued)**

8. Refer to Figures 3, and 4A or 4B. Locate B415 battery relay. Remove nipple from relay's direct power stud; remove & retain nut securing battery positive cable and remove cable from stud. Insert ring terminal on B304-21 fuse assembly thru nipple and install to stud; install battery positive cable and retained nut. Special torque nut to 80 in-lb; verify security. Torque stripe per MM Figure 2-1. Position nipple over stud and secure using appropriately-sized ty-raps. Cinch ty-strap until snug without over-tightening, and trim tip flush with head. Install B263-11 housing to B304-21 fuse assembly; verify security of socket in housing.
9. Refer to Figure 4A or 4B. Connect KI-272-3086 wire to newly installed fuse assembly. Route KI-272-3086 wire along main harness to EIS. Ensure wire has sufficient slack to connect to newly installed EIS without preloading wire. Trim wire to appropriate length. Secure along main harness using appropriately sized ty-raps. Cinch ty-strap until snug without over-tightening, and trim tip flush with head.
10. Strip KI-272-3086 wire 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.
11. Refer to Figures 4A or 4B, and 5. Install existing p-lead and shield drain wires to EIS as shown. Connect newly installed KI-272-3086 wire to B049-14 harness (power). Slide B158-4-1IN heat shrink over 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 wire is insulated and heat shrink is secure. Stow terminal by securing to adjacent wire bundle using appropriately-sized ty-raps.
12. Install 67U20649 ignition harness using (3) 01F29428-CT screws and special torque screws per SI 1569. Route ignition leads as marked.
13. Install D040-1, C377 (LH), and C378 (RH) cowling assemblies.
14. Connect battery per MM § 37-10.
15. Perform operation check per SI 1569.
16. 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

Kit Instructions (continued)

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

17. Make appropriate maintenance record entries.

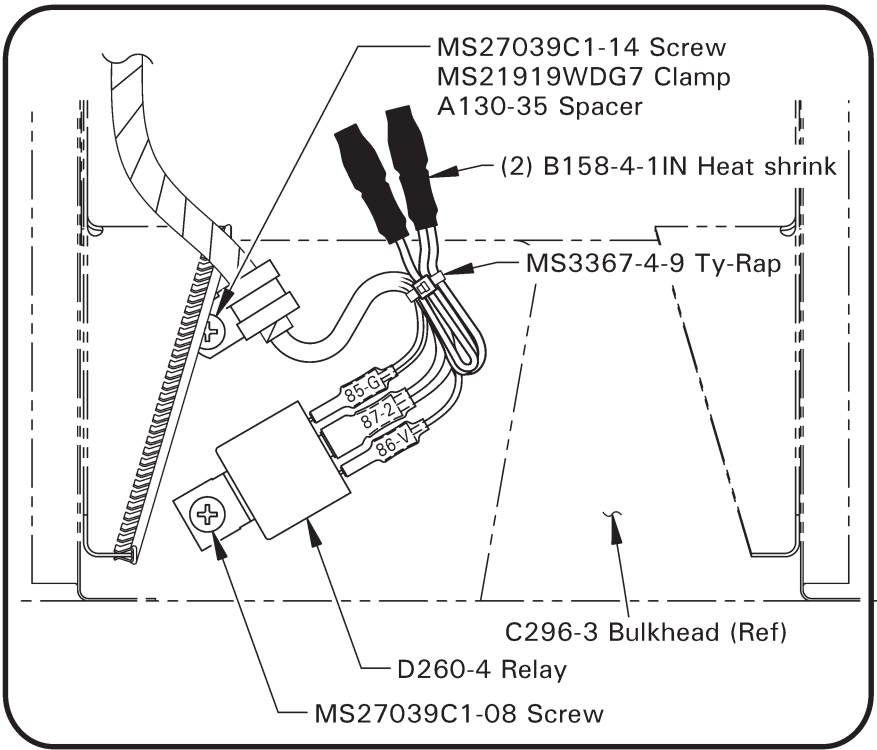
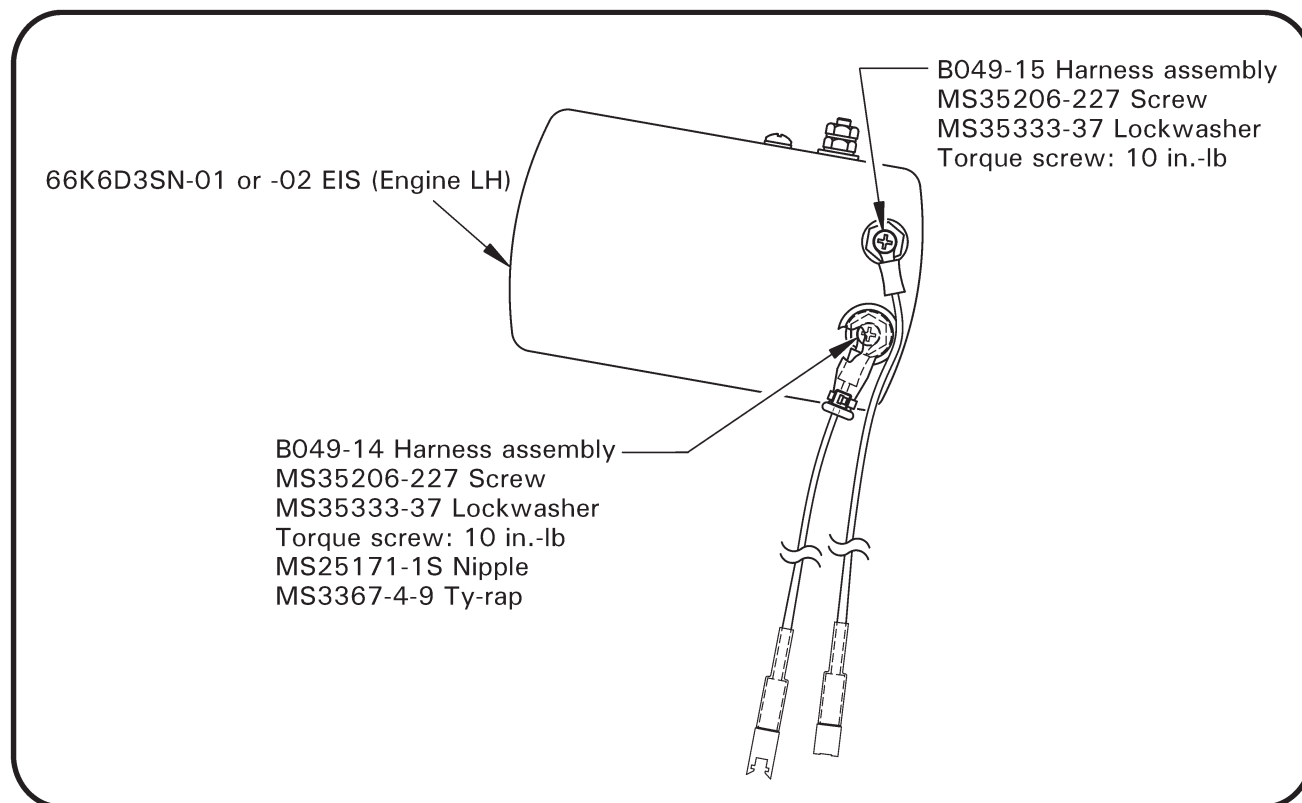
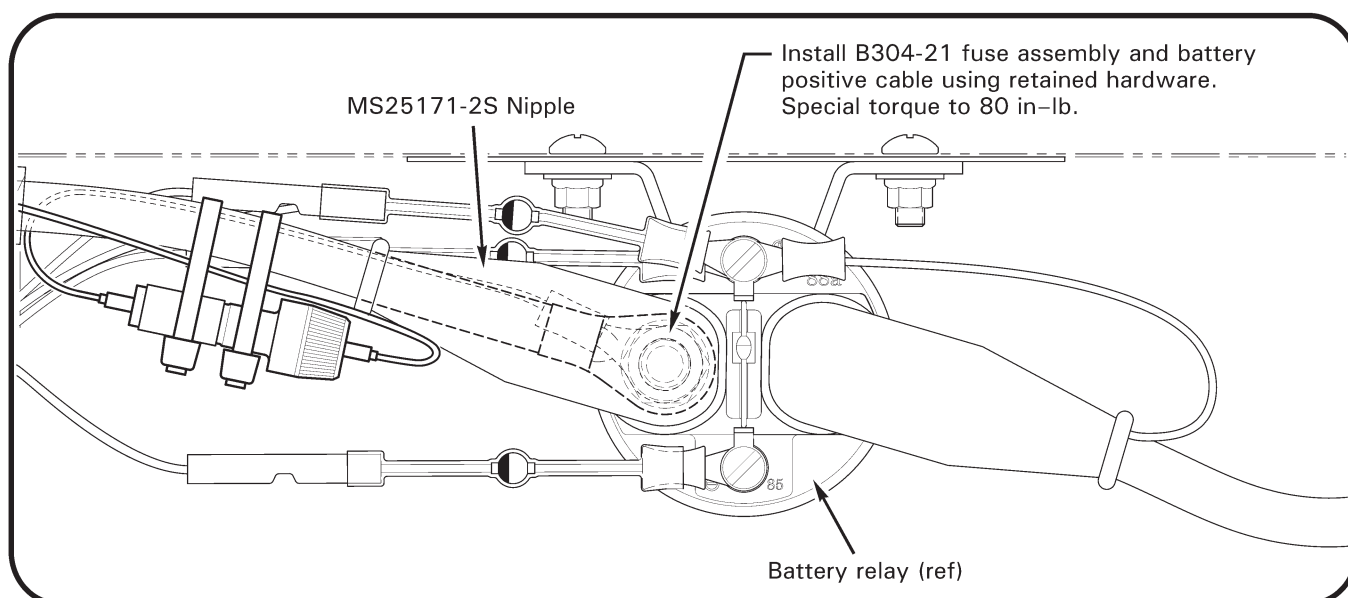


Figure 1 D260-4 Relay installation  
(View looking forward)

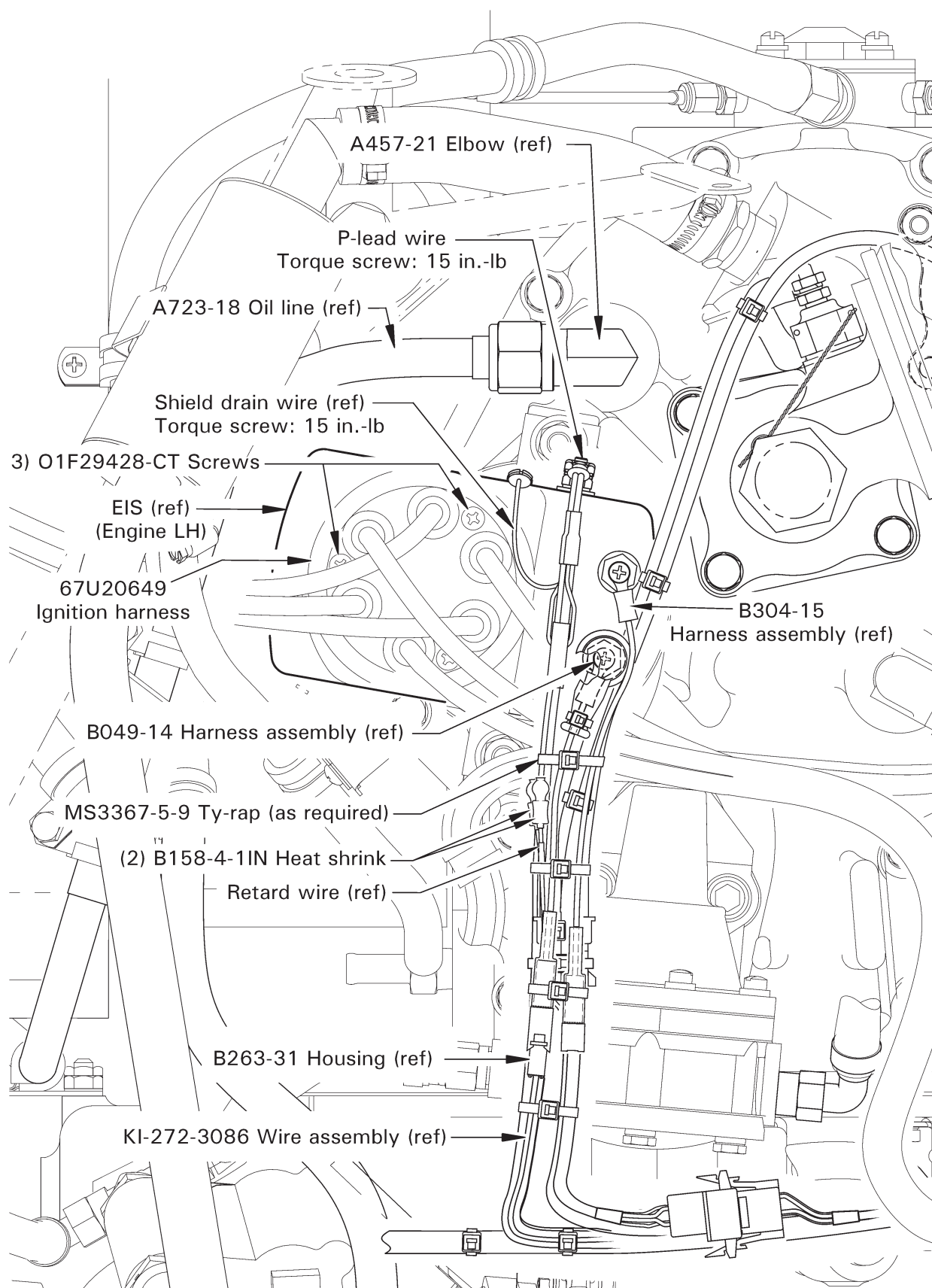


**Figure 2 Harness installations**



**Figure 3 B304-21 Fuse assembly installation**  
(Relay orientation similar for alternate locations)





**Figure 5 R44-II series EIS installation, engine LH shown**  
(View looking aft, R44-series similar)