

R44-series Bendix Style Magneto (CMI) Conversion Kit Instructions

Kit replaces factory installed or kit installed EIS unit with retard CMI magneto. Use KI-272-5A on R44 S/N 2625 & subsequent and Cadet S/N 30071 & subsequent. Use KI-272-5B on R44 II S/N 14412 & subsequent.

NOTE

Visit <https://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](#) and [Lycoming Operator Manual](#), available at www.lycoming.com.

ITEM	PART NUMBER	KIT CONTENTS	R44 QTY PER KI-272-5A	R44 II QTY PER KI-272-5B
1	KI-272-5Instr.	Kit Instructions	1	1
2	A225-1.1FT	Grommet (1-foot length)	1	0
3	B158-4-1IN	Heat Shrink, 1 inch diameter (1-inch length)	1	2
4	B330-7	Palnut	2	2
5	B332-43+	Palnut (Note: "+" in part number indicates 10-qty pack)	1	1
6	62224	Gasket, Magneto-to-engine gasket (Lycoming part number)	1	1
7	73013	Coupling, Magneto drive, retard (Lycoming part number; this part will be provided unless alternate part [below] is selected.)	1	1
	73000	Coupling, Magneto drive, retard (Lycoming part number; this part may be provided based on availability.)	0	0
8	10-357487-241	Starting vibrator (Magneto Start Booster)	1	0
9	10-600616-3	Magneto (retard, TCM Type S6LSC-200)	1	0
10	10-600616-9	Magneto (retard, TCM Type S6LSC-200)	0	1
11	68H22624	Cushion, Magneto drive (Lycoming part number)	2	2
12	M2463R	Ignition harness	1	1
13	M-674	Gasket, copper - spark plug (alternate to STD-295)	1	1
14	STD-475	Washer, 5/16-inch lock internal teeth (Lycoming part number)	2	2
15	SS1002	SlickSTART® (magneto start booster)	0	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	MS35650-302	Nut	2	2
19	MS27039C1-07	Screw	0	2
20	MS27039C1-08	Screw	2	0
21	NAS1149F0332P+	Washer (Note: "+" in part number indicates 20-qty pack)	1	1

Consumable

Loctite C5-A, Copper based Anti-seize or equivalent.

Kit Instructions

1. Ensure ignition switch is OFF; remove key. Turn BATTERY switch OFF. Disconnect lead-acid battery per R44 Maintenance Manual (MM) § 37-11 or lithium-ion battery per MM § 37-12, as applicable.

NOTE

Parenthetic dash numbers, such as (-3126), indicate number marked on wiring insulation (if single conductor), or jacket (if multi-conductor and/or shielded).

2. **R44 II only:** Refer to Figures 1 & 2A, and R44 Illustrated Parts Catalog (IPC) Figure 96-63B. Remove aft belly panel. Remove MS21919WDG7 clamp and associated hardware securing airframe harness. Remove D260-4 relay from C294-3 frame assembly (located on C296 bulkhead). Slide one B158-4-1IN heat shrink over receptacle on wire (-3126). 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.

Refer to Figures 2A & 3A, and IPC Figure 96-63B. Install SlickSTART® (magneto start booster) to frame assembly (located on C296 bulkhead) using (2) MS27039C1-07 screws in newly-vacated holes. Locate stowed wire (-1527) and wires (-1523 & -1525), two wires into one spade connector covered with black heat shrink, removing ty-raps as required. Remove heat-shrink covering wires. Connect airframe harness wires to SlickSTART® (magneto start booster) as shown. Secure covered wire using appropriately-sized ty-rap. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.

3. **R44 and Cadet only:**
Refer to Figure 2B & IPC Figure 96-63B. Remove aft belly panel. Install starting vibrator (magneto start booster) onto C294-3 frame assembly (located on C296 bulkhead) using (2) MS27039C1-08 screws. Position and install A225-1 grommet, trimmed to 4.00 inches. Locate stowed wires (-166) & (-584) covered with black heat shrink, removing ty-raps as required. Remove heat-shrink covering wires (-166) & (-584). Connect airframe harness wires to starting vibrator (magneto start booster) as shown.
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.
6. Refer to Figures 3A or 3B (as applicable) and 5. Disconnect existing p-lead and shield drain wires from EIS unit.
7. Refer to Figure 4. Locate B304-21 or -22 fuse assembly adjacent to B415 battery relay. Remove ty-raps as required and remove D275-210 (10A) fuse; secure using appropriately sized ty-raps. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.

Kit Instructions (continued)

8. Refer to Figure 5. Determine if helicopter has provisional B049-14 harness assembly, which is connected to existing EIS unit. Perform **A** or **B** below, as required.
 - A. For helicopters with provisional B049-14 harness assembly:** Locate and disconnect wire (-3086) from B049-14 harness assembly connected to EIS. Slide B158-4-1IN heat shrink over housing on wire (-3086). 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. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.
 - B. For helicopters without provisional B049-14 harness assembly:** Locate and disconnect existing wire (-3086) from EIS. Slide B158-4-1IN heat shrink over ring terminal on wire (-3086). 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. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.
9. Refer to IPC Figure 71-5 or 71-9 (as applicable), and Lycoming SI 1569 Maintenance Chapter, Removal. Photo-document installation of ignition harness connected to engine-left EIS unit, including all ty-rap & clamp locations. Disconnect ignition harness from EIS and remove harness from engine. Remove engine-left EIS unit from engine; retain mounting hardware.
10. Refer to Lycoming SI 1437 and Lycoming Operators Manual section 5.1.b. Remove lower spark plug from cylinder 1, and 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 corresponding magneto timing (marked on engine data plate) of compression stroke.
11. Refer to Figure 6. Apply light coat of C5-A copper-base anti-seize compound on magneto shaft. Using hardware supplied with magneto, install 73013 or 73000 coupling and spacer on to magneto. Torque castellated nut to 180-300 in-lb. Align castellated nut to next available hole on shaft and install supplied cotter pin through the castellated nut. Bend and trim prong as shown.
12. Refer to Lycoming Engine Parts Catalog [O-540-F1B5 series](#) Figure 19, or [IO-540-AE1A5 series](#) Figure 28 (as applicable). Remove LW-19096 gear retainer (retaining) assembly from engine. Inspect gear retainer per Lycoming SI 1569, Installation Section II. Install new 68H22624 magneto drive cushion in gear retainers. Install gear retainers to engine.
13. Inspect removed spark plug and service as required. Install in cylinder 1 using new M-674 copper gasket and torque per R44 MM § 23-33.
14. Refer to Lycoming Operators Manual section 5.1.b and perform steps (3) thru (20), using new 62224 gasket and retained hardware.
15. Refer to Figure 7. Install M2463R ignition harness using supplied screws. Route and connect ignition leads as marked on spark-plug nuts. Dress & secure harness per photos taken in step 9.
16. Locate stowed retard wire covered with black heat shrink along adjacent wire bundle to magneto, removing ty-raps as required. Remove heat-shrink and connect existing p-lead, retard, and shield drain wires to magneto as shown.

Kit Instructions (continued)

- 17. Install C728-2 separator assembly using KI-255-2 R44-series Engine Air-Oil Separator Installation Kit Instructions, as required.
- 18. **R44 II only:** Install D057-2 air box assembly per R44 MM § 6.480
- 19. Install D040-1, C377 (LH), and C378 (RH) cowling assemblies. Install aft belly panel.
- 20. Connect lead-acid battery per MM § 37-11 or lithium-ion battery per MM § 37-12, as applicable.
- 21. 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
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

Install:

(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

- 22. Make appropriate maintenance record entries.

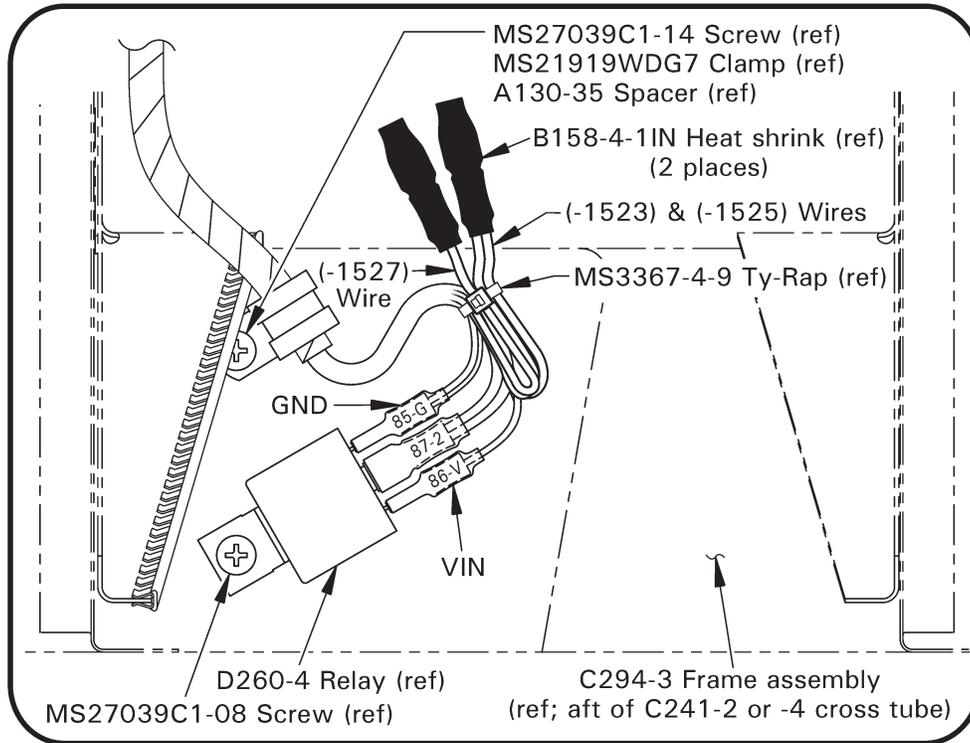


Figure 1 D260-4 Relay installation location
(aft seat tunnel; view looking forward)

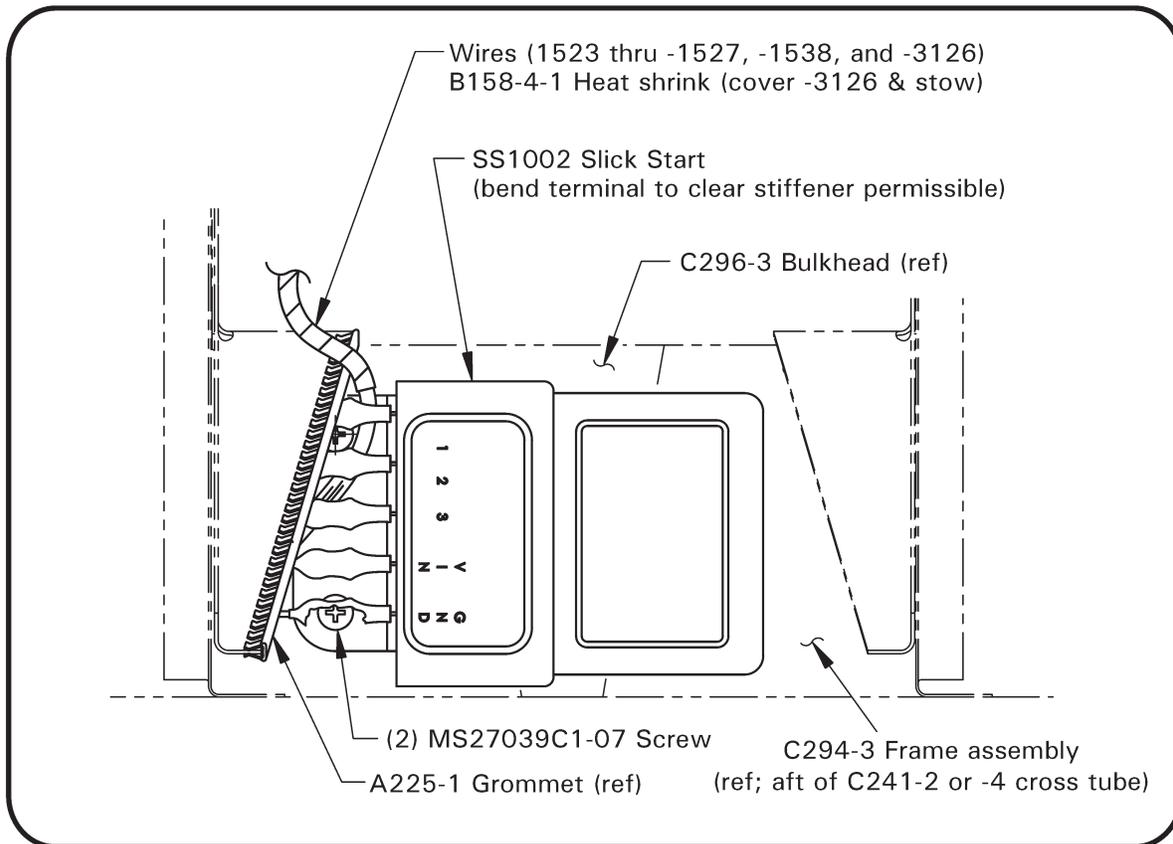


Figure 2A R44 II SS1002 SlickSTART® installation
(aft seat tunnel; view looking forward)

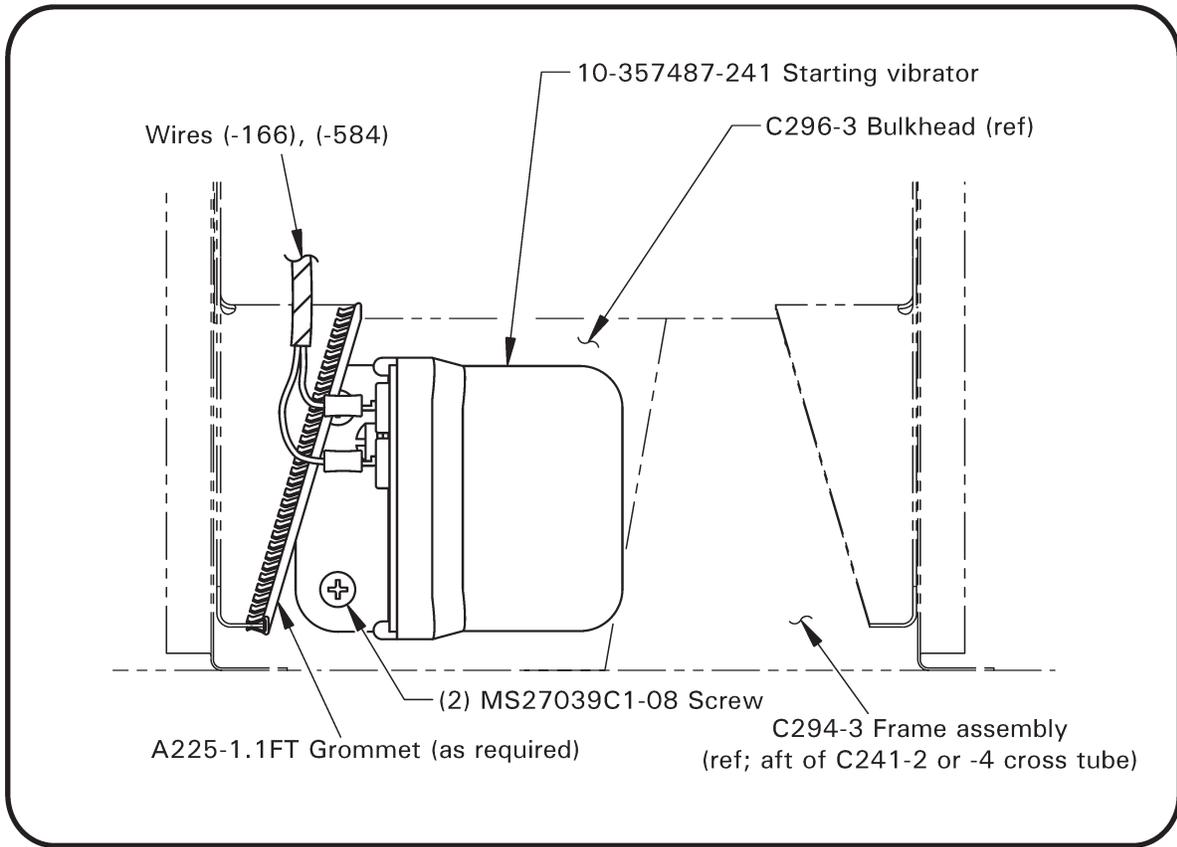


Figure 2B R44 & Cadet Starting Vibrator Installation
(aft seat tunnel; view looking forward)

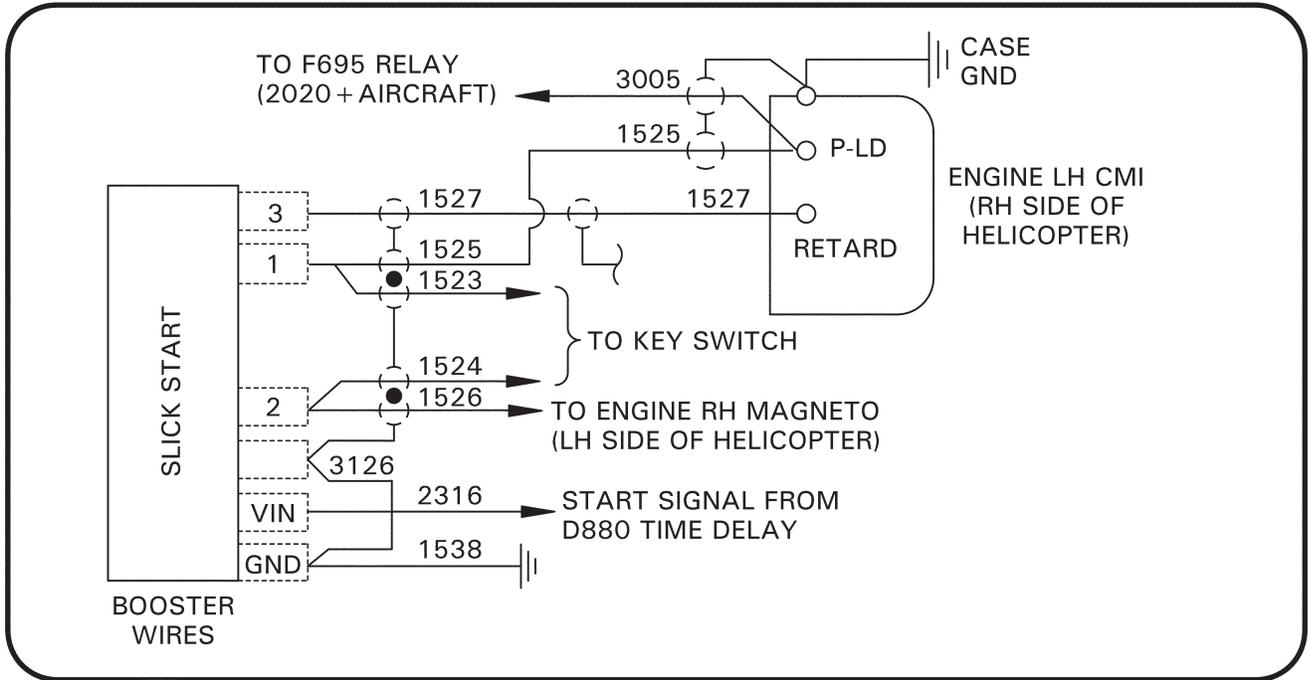


Figure 3A R44 II SS1002 SlickSTART® Schematic

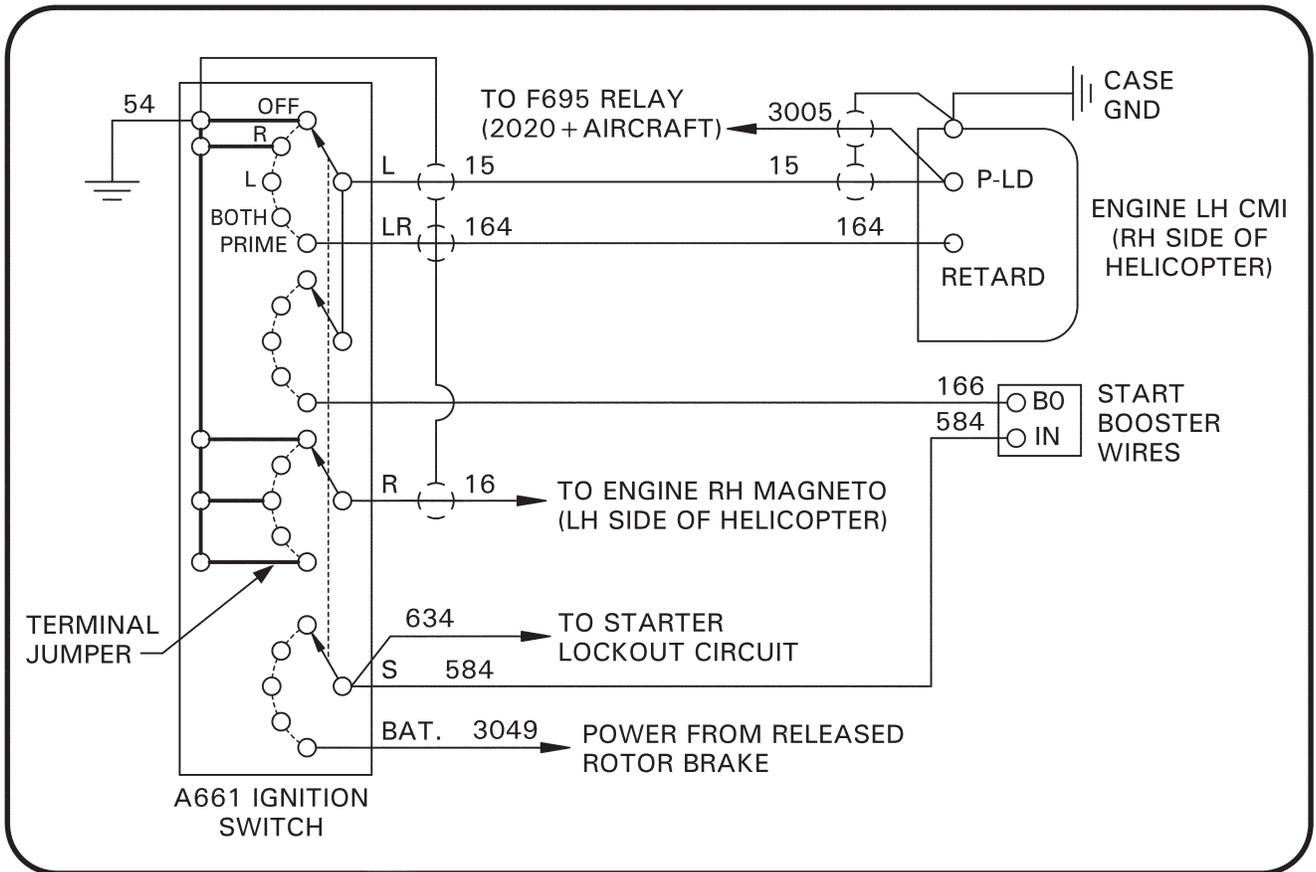


Figure 3B R44 and Cadet Starting Vibrator Schematic

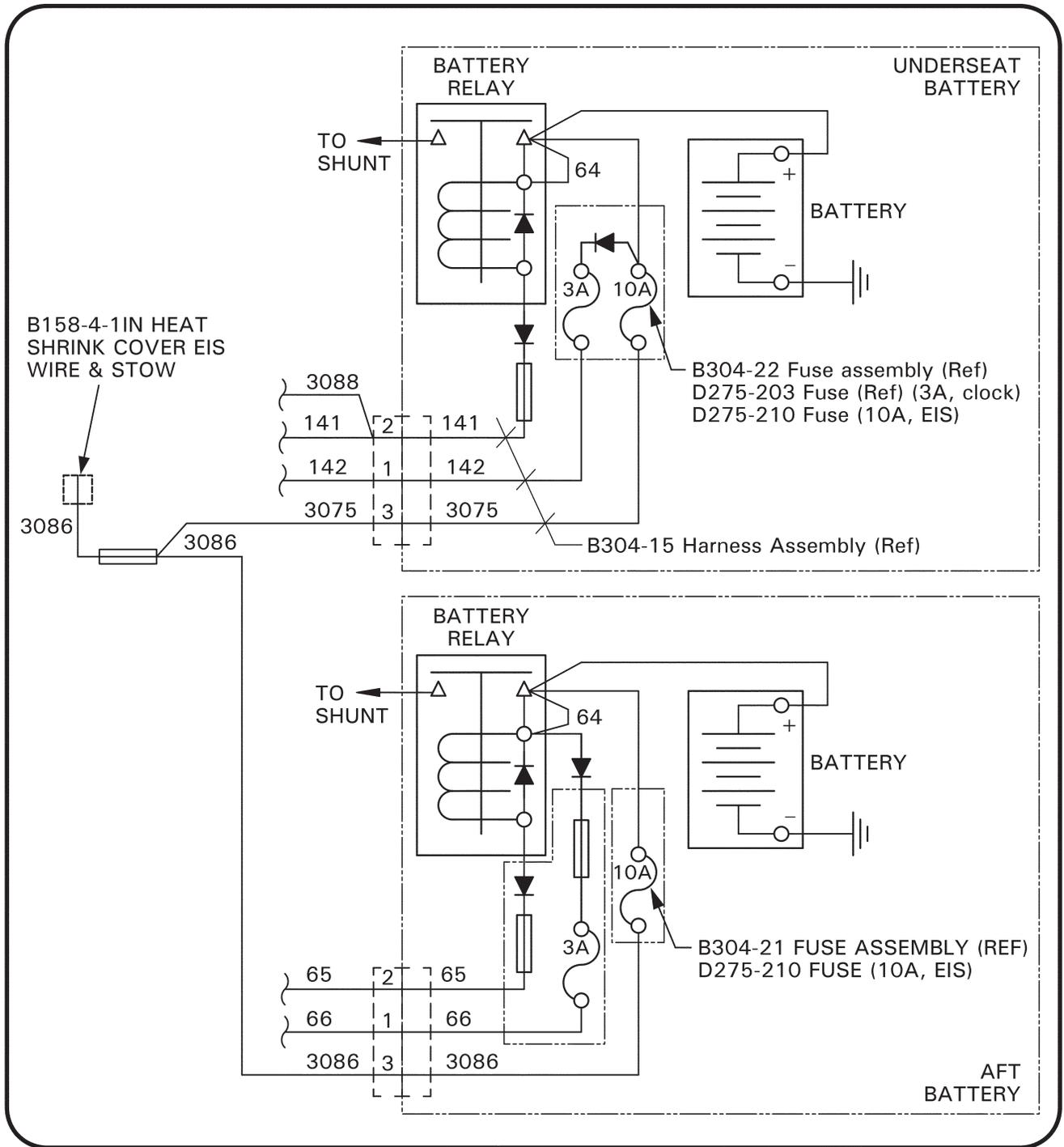


Figure 4 B304 Schematic

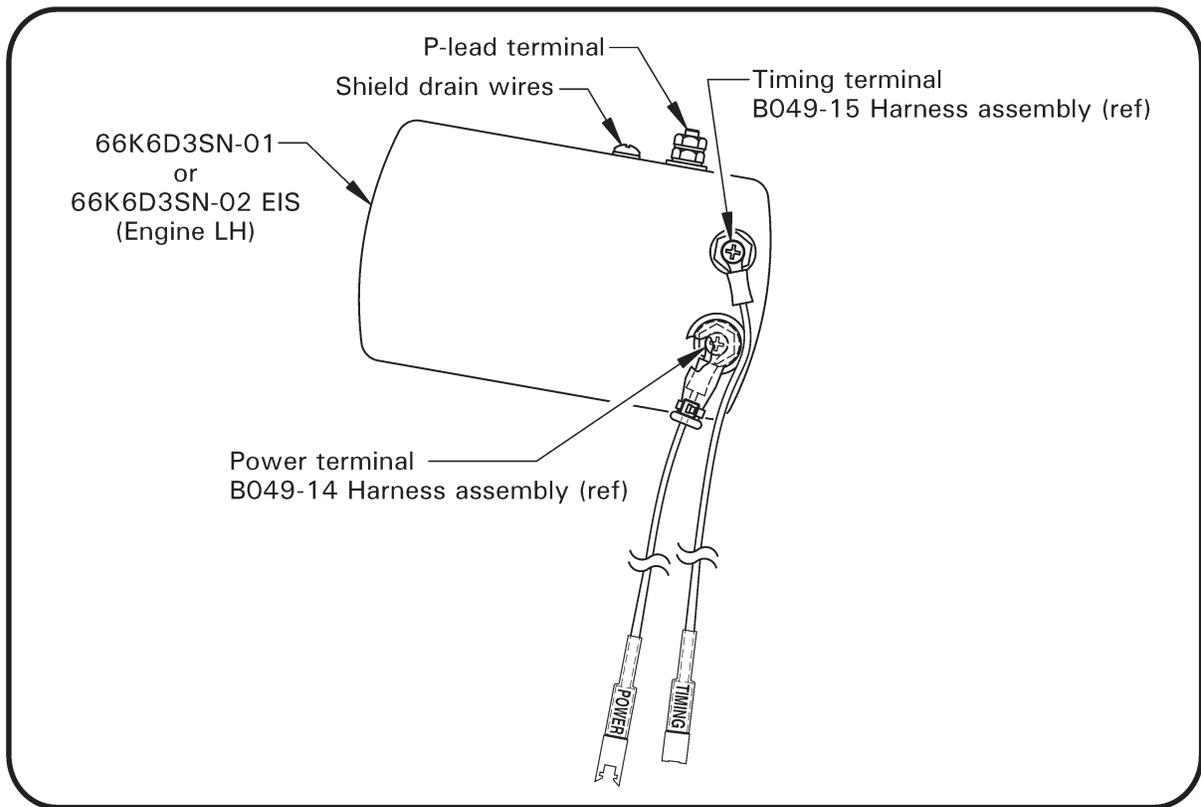


Figure 5 EIS harness assembly

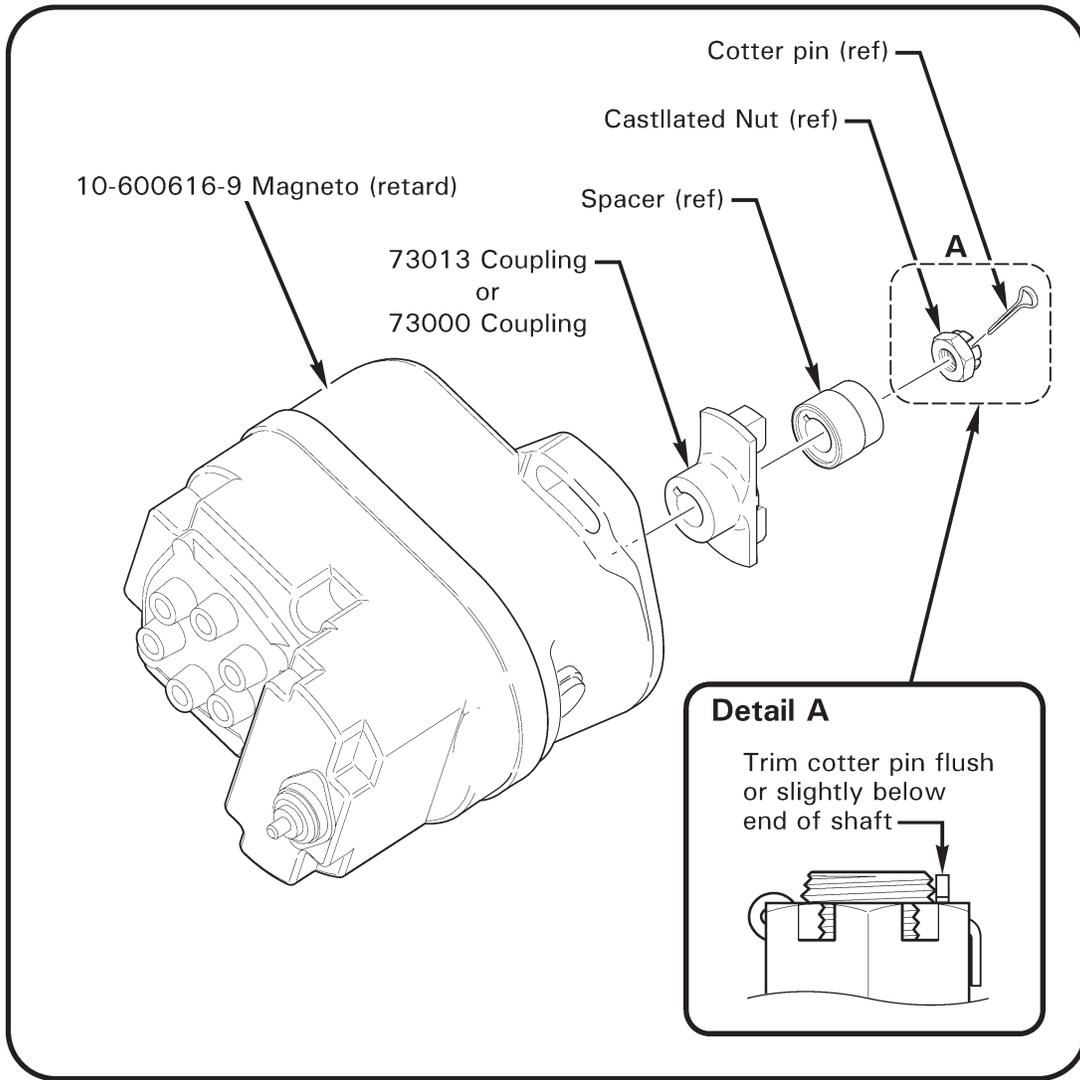


Figure 6 Magneto 73013 coupling assembly

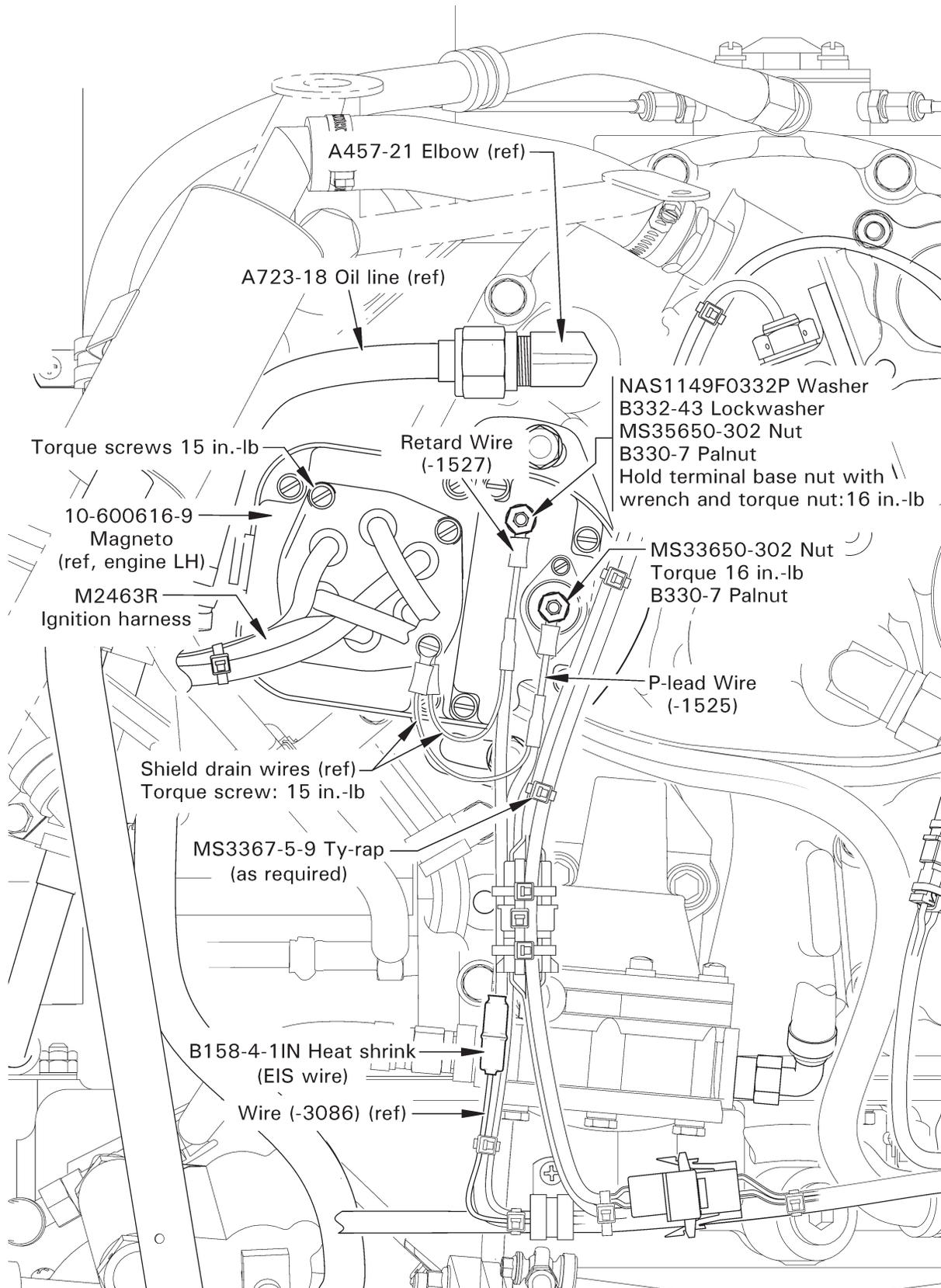


Figure 7 R44 II CMI magneto installation, engine LH shown
(View looking aft; R44 similar)