

PREVOST

Instruction Sheet

IS-19908






BOSCH TO DELCO REMY ALTERNATOR INSTALLATION, H3-45
From D-2364 up to H-3734

MATERIAL



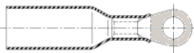
Order Main Kit **IS19908**, which contains

Part No.	Description	Qty
0610086	Alternator Mechanical Kit, Right	1
0610089	Adaptation Kit, Right, H3-45	1
IS-19908	Instruction Sheet	1
FI-19908	Feuille d'instructions	1

0610086 Alternator Mechanical Kit, Right

Part No.	Description		Qty
560720	Alternator Remy 55SI 24V-250A Pad Mount		1
069892	Pulley 8PK, 83 DOB		1
069894	Bracket, Alternator Remy		1
506065	Belt Poly V 8PK1435 EPDM QT+Aramide		2
5001308	SCR CAP HEXF N500 M10-1.5X40 G10.9		4
5002091	SCR CAP HEXF N500 M10-1.5X120 G10.9		4
5001137	WSH FL SS .203X.438X.06 (M5,#10)		2
5001180	NUT HEX NYRT SS 10-24		2
500411	WSH FL SS .260X.697X.05 (M6,1/4)		1
5001341	WSH FL SS 8.4X17X1.6 (M8,5/16)		1
500685	NUT HEX NYRT 5/16-18 SS		1

0610089 Adaptation Kit, Right, H345

Part No.	Description		Qty
450580	MODIFIED BRACE, AC COMPRESSOR		1
5000360	STUD, M10-1.5X52 N500		1
N55439-02	RING TERMINAL 5MM / 16-14 / DURASEAL		3
N33509-06	Shrink tubing		12"
0610052	Power cable RH alternator H345		1
0610034	Ground cable RH alternator		1

NOTE

Material can be obtained through regular channels.

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TOOLS

<p>15/16" THIN WALL ADAPTER. CROWFOOT</p> 	<p>060088 CLUTCH EXTRACTOR</p> 	<p>METRIC OPEN END WRENCH SET</p> 
<p>RATCHET AND SOCKET SET - METRIC</p> 	<p>HEX BIT SOCKET SET - METRIC</p> 	<p>TORQUE WRENCH</p> 
<p>SOFT FACED HAMMER</p> 	<p>1 5/8 OPEN END WRENCH</p> 	<p>BELT TENSION GAUGE</p> 
<p>1/2 SQUARE DRIVE BREAKER BAR</p> 	<p>VOLTMETER / MULTIMETER</p> 	<p>CUTTING PLIERS</p> 

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PROCEDURE



DANGER

Park vehicle safely, apply parking brake, stop engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position. Apply vehicle lockout procedures according to local policies.

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OVERVIEW

The procedure involves removing the existing Bosch alternators, their corresponding brackets and harnesses and replacing them with a DelcoRemy 55SI alternator.

The alternators require new brackets and harnesses.

First time users should read the procedure before starting work on a vehicle. Best viewed in color.

ELECTRICAL SCHEMATICS

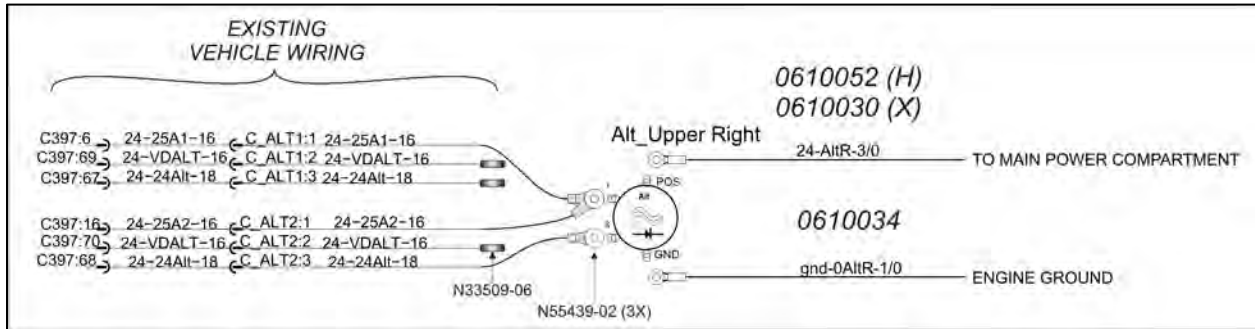


FIGURE 1: ALTERNATOR CONNECTIONS

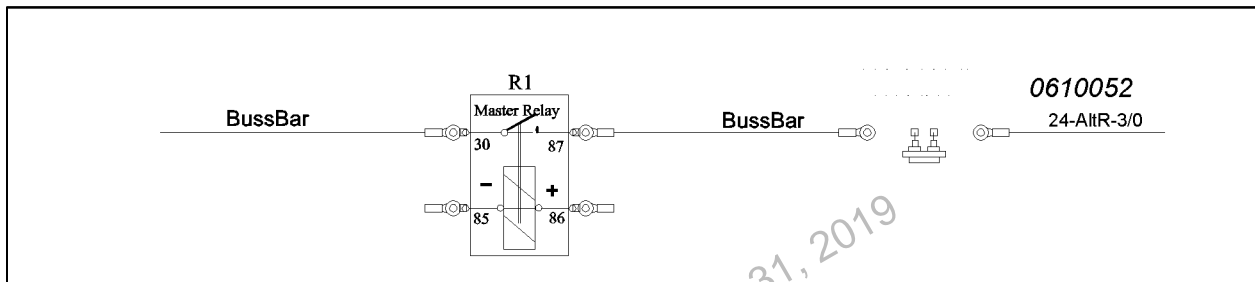


FIGURE 2: POWER CABLE CONNECTIONS IN MAIN POWER COMPARTMENT

BOSCH ALTERNATORS REMOVAL, RIGHT HAND SIDE

1. Loosen bolt **A** on A/C belt tensioner.
2. Unscrew and remove nut **B**.
3. Remove the mechanical tensioner assembly.
4. Remove the A/C compressor drive belts (2 side-by-side belts).

Note: Keep hardware for reuse

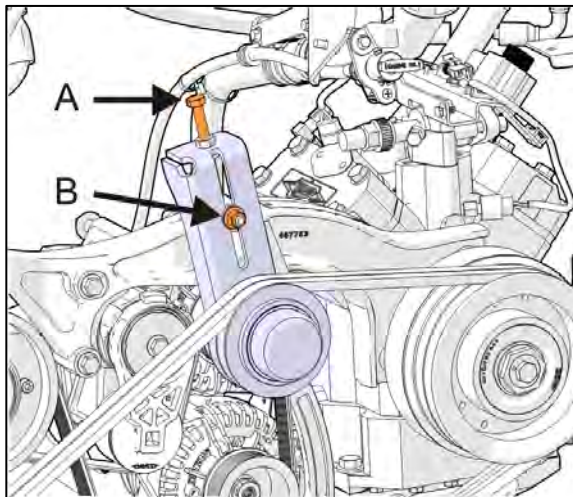


FIGURE 3

5. Remove the LANG electromagnetic clutch assembly.

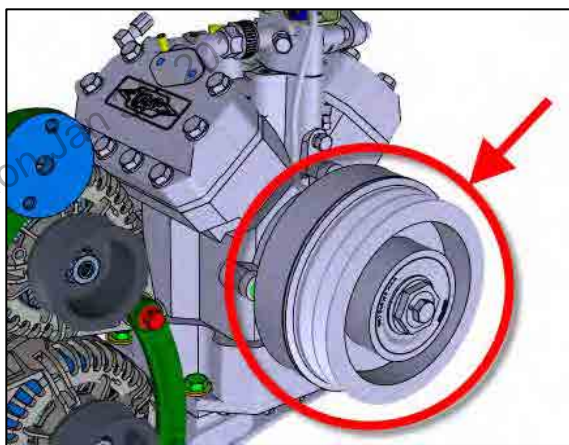
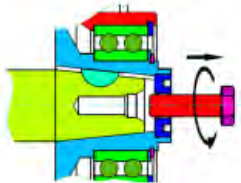


FIGURE 4

6. Hold the rotor with the 1 5/8 wrench. Loosen and remove the M12 rotor mounting screw.



REMOVING THE M12
SCREW



FIGURE 5

For the next step, use rotor extractor tool #680888.

7. Screw the extractor tool into the straining washer only until the rotor pops off the tapered shaft. Then work the rotor off the shaft by hand with help from soft faced mallet as needed.



PULL OFF THE ROTOR WITH TOOL #680888 (shown)

TAKE OFF THE ROTOR
FIGURE 6

8. Loosen the fastening screws (4x) of the coil and pull the coil off the retainer.



FIGURE 7

9. Remove the support bracket mounting bolts on the engine. Reserve.
10. Remove the belt tensioner bolt. Reserve for re-use.
11. Remove and discard the alternator drive belt.

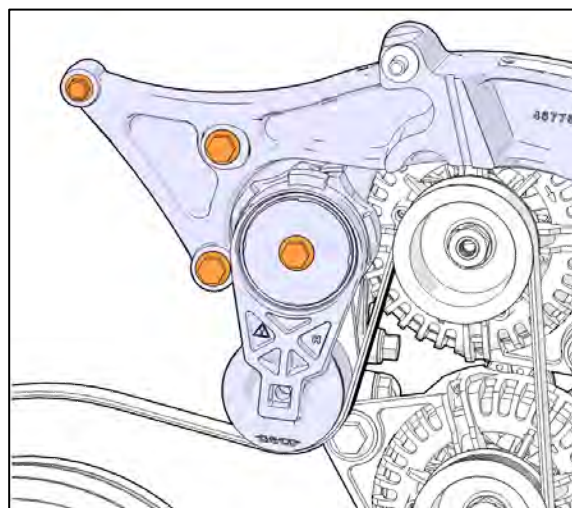


FIGURE 8

12. Unscrew and remove two socket cap screws.
13. Discard the reinforcement bracket.
14. Keep hardware for re-use.

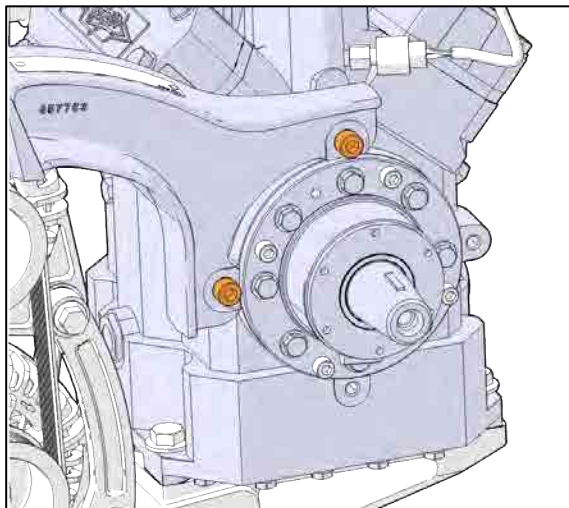


FIGURE 9

15. Remove compressor mounting bolts and reserve. Move compressor slightly aside to provide working space.

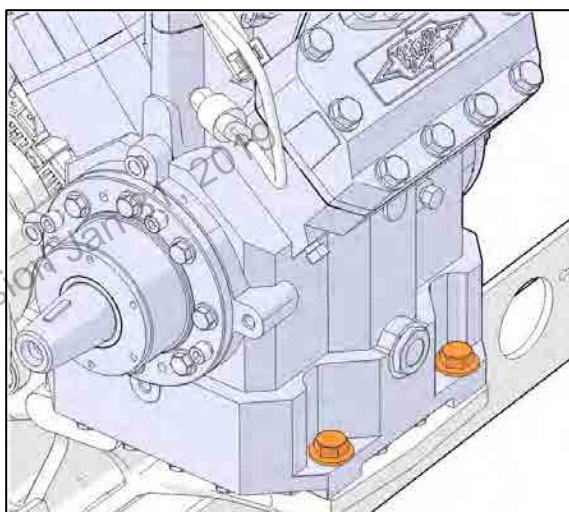


FIGURE 10



WARNING

The alternator is connected to the batteries through master relay R1. If the ignition switch is in the OFF position and the battery master switch (master cut-out) is set to the OFF position, there should not be electrical power to the alternator terminals. However, a faulty master relay R1 could eventually leave the battery power circuit closed, thus electrical power would be present at the alternator terminals.

Using a multimeter, probe the alternator **B1+** terminal and the ground terminal. Make sure that the voltage reading is 0 volt before disconnecting the alternator cables.

16. Disconnect the *Power, Jumper, Control Harness* and *Ground* cables from the alternators. Discard.
17. Do not dismantle the power cable yet. This will be done when installing the new cable.

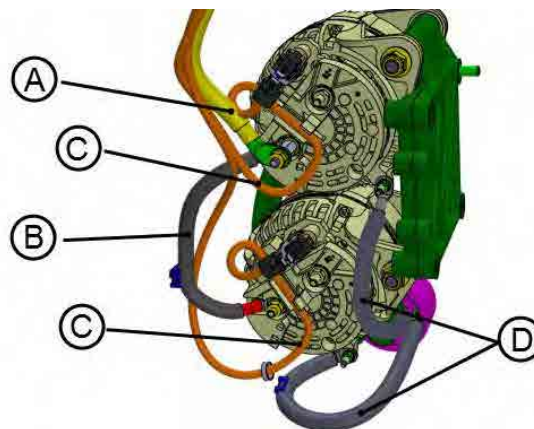


FIGURE 11

- A: (+) POWER CABLE
- B: (+) JUMPER CABLE
- C: CONTROL HARNESS
- D: GROUND CABLE

18. Remove the existing alternators. To do so, unscrew the four (4) mounting bolts identified on the figure. Discard bolts and alternators.
19. Also remove the idler at the bottom. Discard idler and hardware.

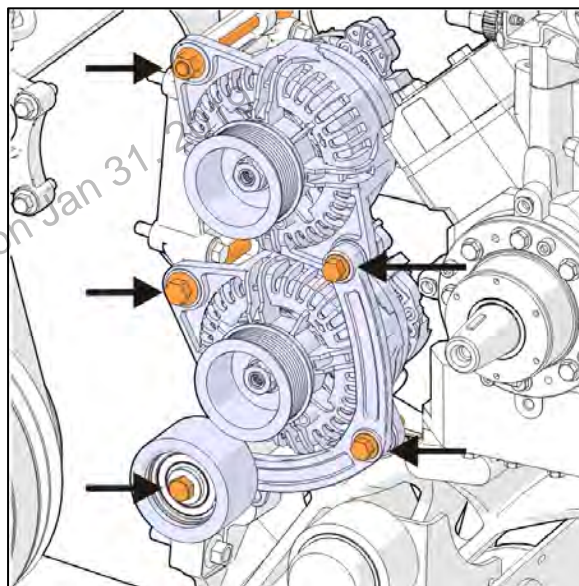


FIGURE 12

20. Remove the alternator support bolted on the engine. Discard support and bolts.

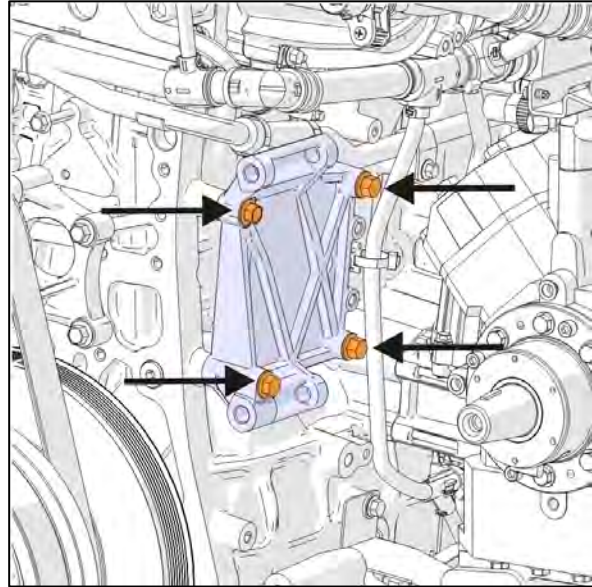


FIGURE 13

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RIGHT HAND ALTERNATOR INSTALLATION

21. Installing the alternator pulley.

Place 560720 alternator flat on a bench with the shaft horizontal.

Required tools:

- 15-16" crowfoot adapter
- 8mm hex bit

Clean shaft and pulley with brake cleaner.

Slide pulley 069892 on shaft by hand.

Hand thread nut on shaft until snug.

Using 15/16" adapter and 8mm hex bit to block shaft rotation, tighten to **70-80 lb-ft.**

Apply torque seal

Never use power tools to install pulley and nut.

Note: Do not apply any pressure to end of the shaft. Internal damage may occur if the shaft is pushed back and turned.

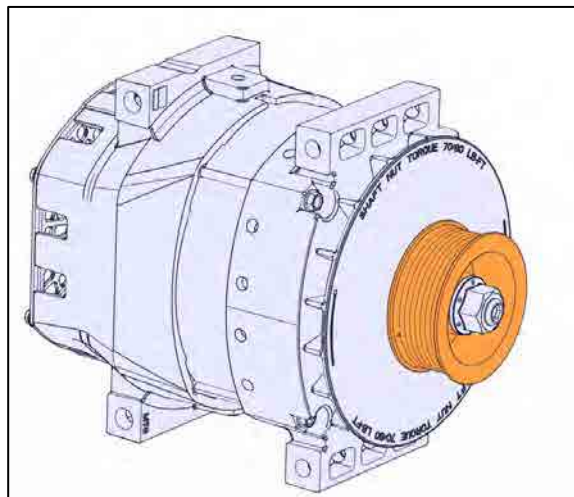


FIGURE 14

22. Install bracket 069894 on engine with four (4) 5001308 M10x40 bolts.

Apply blue Loctite 680038

Tighten to **35 lb-ft.**

Apply torque seal.

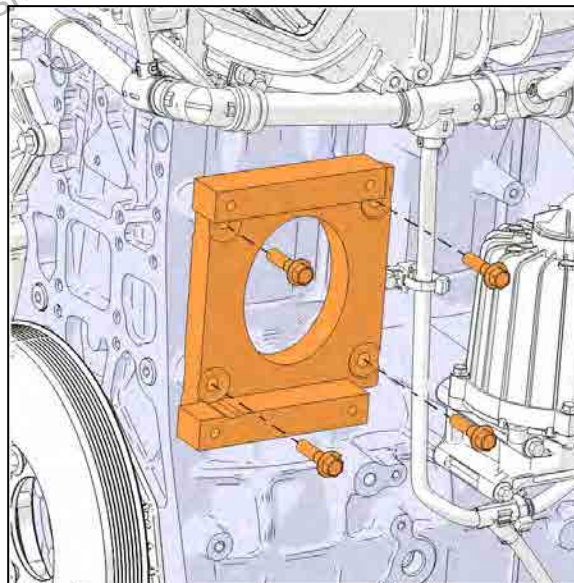


FIGURE 15

23. Install alternator on engine with four (4)
5002091 M10x120 bolts.

Apply blue Loctite 680038

Tighten to **48 lb-ft**

Apply torque seal.

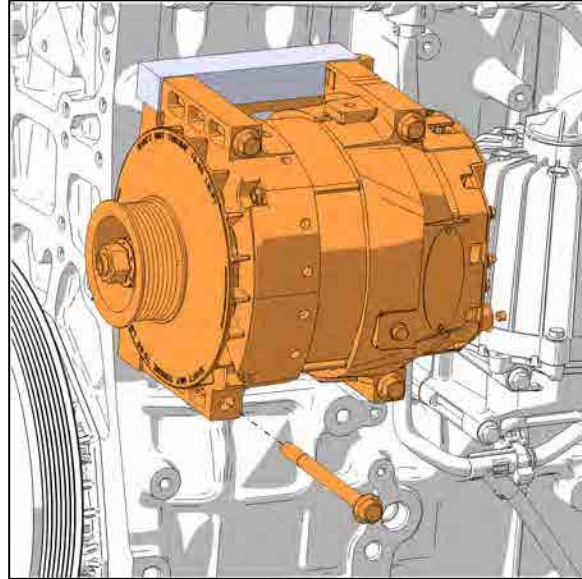


FIGURE 16

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RIGHT HAND ALTERNATOR INSTALLATION (continued)

24. Install stud 5000360 with Red Loctite 271 on new modified compressor brace 450580. Install it so it exceeds by 25mm.

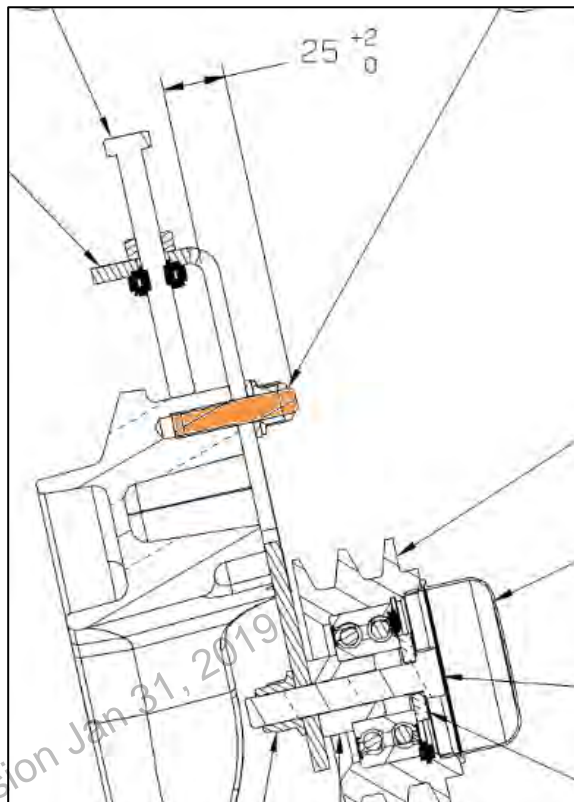


FIGURE 17

25. Install *modified** compressor brace support 450580.

Install reserved hardware by hand.

Tighten **C** to **43 lb-ft**

Tighten **D** to **22 lb-ft**

Tighten **E** to **40 lb-ft**

Apply torque seal.

*450580 is modified with clearance for the Alternator fan and a different indexation angle for the tensioner.

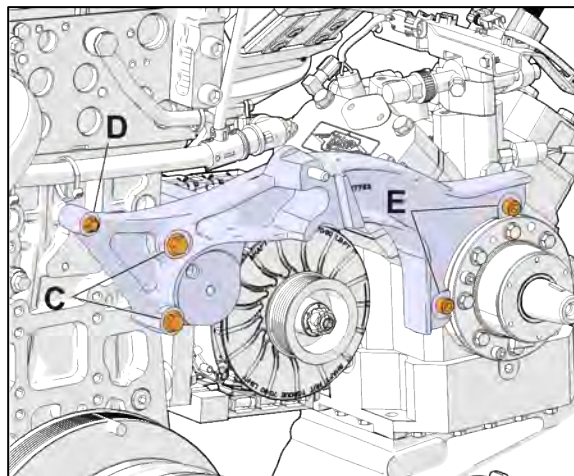


FIGURE 18

26. Install the alternator belt tensioner with hardware **E** reserved earlier.

Tighten to **48 lb-ft**.

Apply torque seal

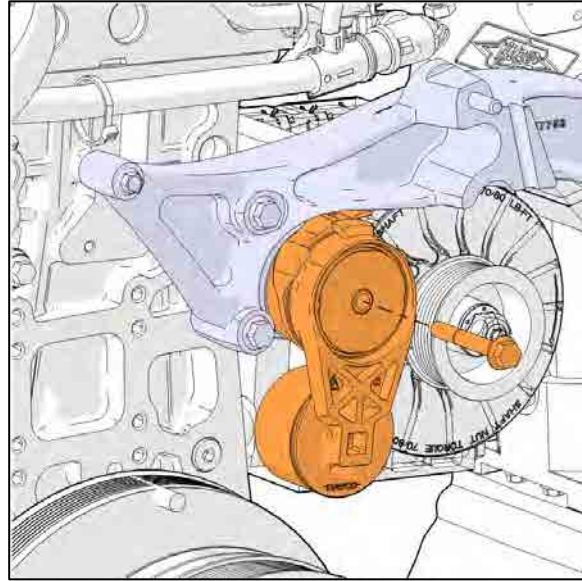


FIGURE 19

27. Install alternator belt 506065. To do so, rotate the automatic belt tensioner using a ½ square drive breaker bar

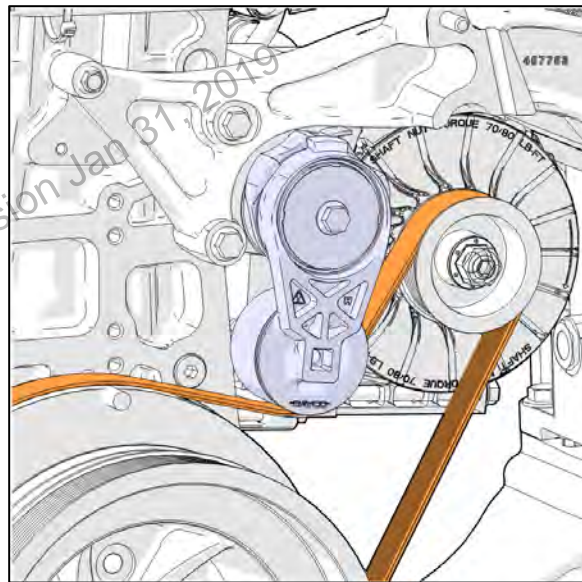


FIGURE 20

28. Install A/C clutch coil.

Use blue Loctite 243

Tighten to **22lb-ft**

Apply torque seal

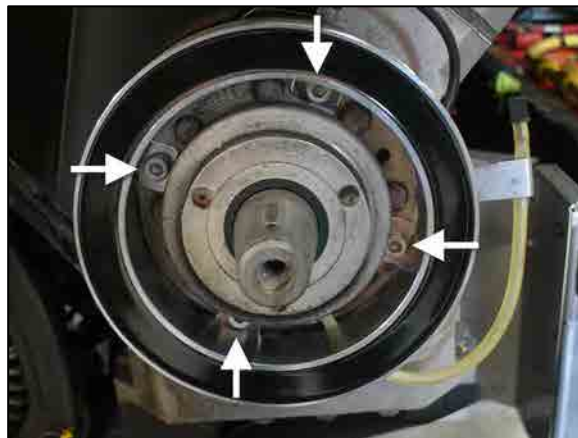


FIGURE 21

29. Mount the rotor on the shaft end.

The flange and the shaft end of the compressor must be free from dirt.

Apply high temperature approved assembly grease on the shaft end for easy dismounting of the clutch. Lang recommends the use of Molykote G-rapid-plus or Molykote P 40.

30. Carefully mount the rotor on the shaft end by hand.

Never use a hammer for pressing the rotor on.

Align the key on the compressor shaft with the keyway on the pulley bore. To avoid damaging the bore of the rotor, feel the engagement of the key in the keyway and slip the rotor on the shaft end of the compressor till reaching the stop.

The Woodruff key on the shaft end and the groove in the location hole of the rotor must be flush.



FIGURE 22

31. Fasten the rotor to the shaft end using the M12 screw and by holding-up with a wrench on the rotor.
32. Turn rotor by hand and pay attention to the free run and the generation of noises. In case of grinding or similar noises, dismount the clutch and check installation.

USE BLUE LOCTITE 243 ON THREADS

Tighten to **60lb-ft**

Apply torque seal

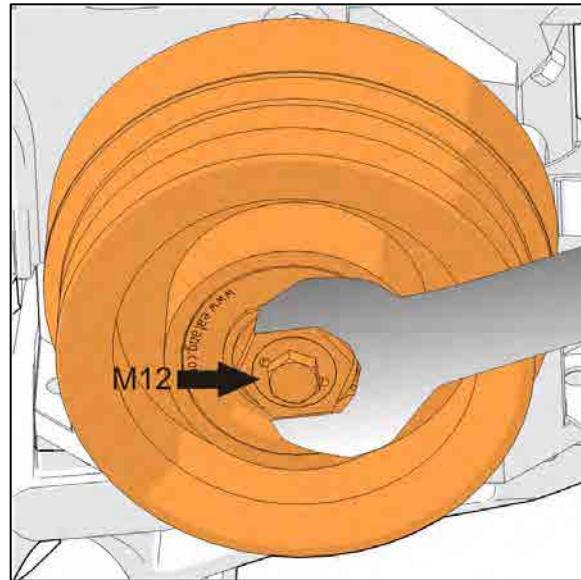


FIGURE 23

33. Re-install compressor mounting bolts. Tighten to **82 lb-ft**
Apply torque seal

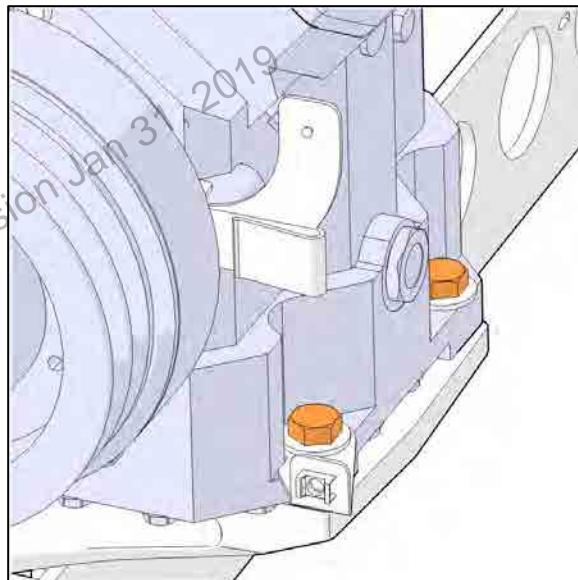


FIGURE 24

34. Re-install A/C belt tensioner and belt.

A belt strand tension gauge is needed. Belt tension should be within the following range:

- 90-100 lbs new belts (mean of 2 belt values)
- 75-85 lbs used belts (mean of 2 belt values)

35. Apply blue Loctite 243 on bolt **B** threads and then hand-tighten bolt **B**. Adjust belt tension using bolt **A**. Use the jam nut at the base of bolt **A** to keep proper tension adjustment.

Note: Once thread locker is applied, do not wait too long before applying final torque.

When proper tension is achieved, tighten bolt **B** to **43 lbf-ft.** (58 N-m).

Apply torque seal

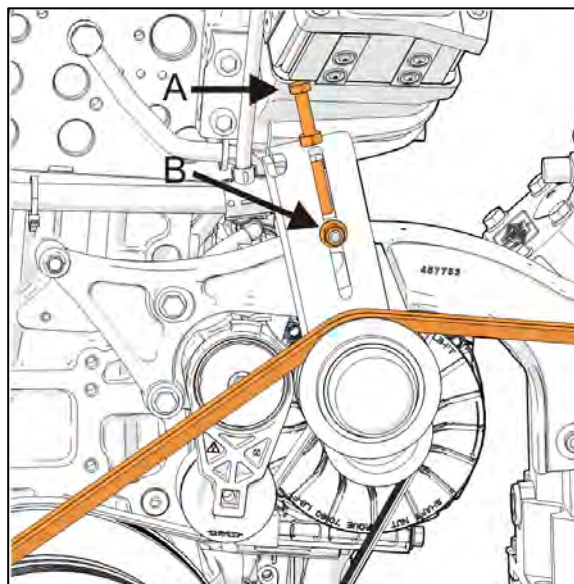


FIGURE 25

RIGHT HAND ALTERNATOR CONNECTIONS

36. Crimp N55439-02 ring terminals on wires 25A1; 25A2 and 24Alt at C_ALT2:3. Melt the heat shrink to seal the connection.

Refer to **ELECTRICAL SCHEMATICS**

37. Remove terminals on wires VDALT (2x); 24Alt at C_ALT1:3. Seal with N55439-01 heat shrink tube

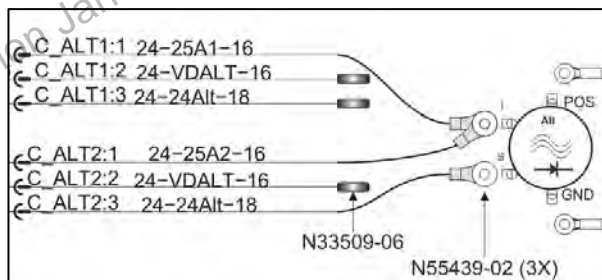


FIGURE 26

38. Connect ring terminals 25A1 and 25A2 on Indicator, "I"; 24Alt on Sense, "S".

Use 5001180 10-24 Nylon lock nut and 5001137 washer.

Tighten to the following torque values:

Sense: **25-45 lb-in (3.0 5.0 N-m)**

Indicator: **25-45 lb-in (3.0 5.0 N-m)**

Apply color guard 684013 on connections.

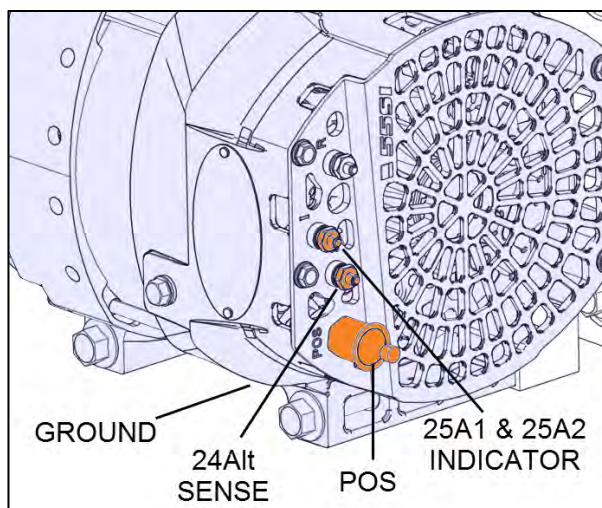


FIGURE 27

39. Install ground cable 0610034 and power cable 0610052 on alternator.

Ground:

Add 500411 SS Washer.

Tighten to **50-60 lb-in (5.6-6.8 N-m)**

Positive:

Use 500685 Nylon lock nut and 5001341 SS Washer.

Tighten to **80-125 lb-in (9.0-14.0 N-m)**

Apply color guard 684013 on connections.

40. Connect ground cable to the engine.

Tighten to **240 lb-in.**

Apply color guard 684013 on connections.

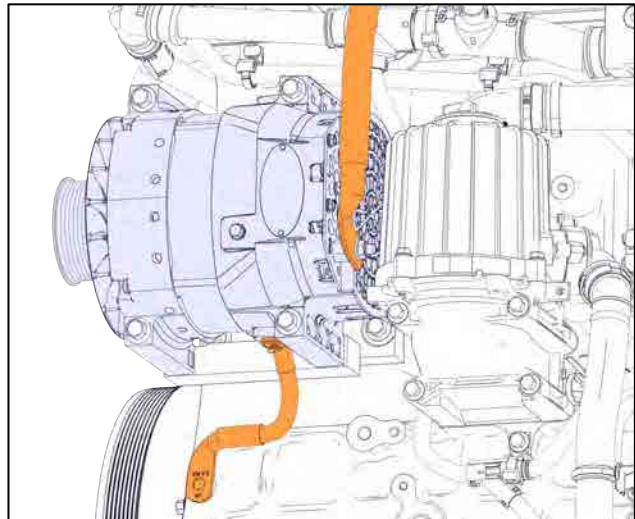


FIGURE 28

41. Secure control harness and power cable together with double loop cable ties as shown in images below.

42. If the red LTD wire was disturbed by dismantling of the Bosh wiring, secure it using the recommendations outlined in Appendix A "LTD wire guidelines".

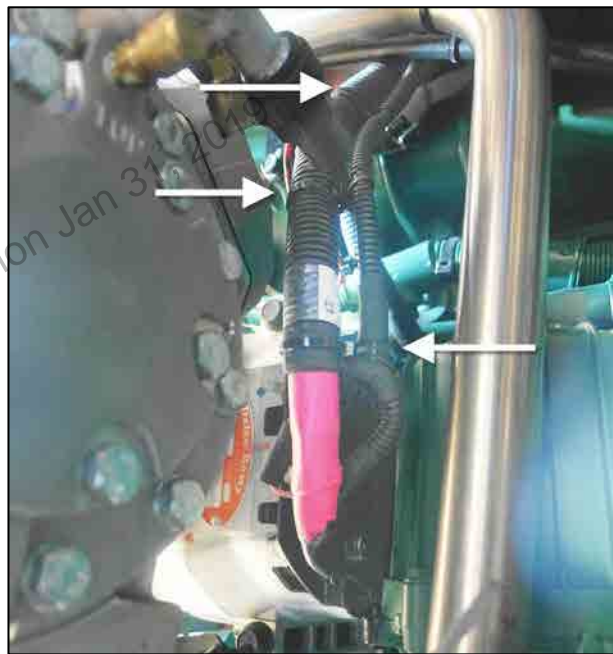


FIGURE 29

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43. Route power cable from the main power compartment towards the engine.

Dismantle the former cable progressively; Use the same routing, cable supports and mounting points for the new power cable.



FIGURE 30

-
44. **H series vehicles:** In the main power compartment, connect to 24V junction block on the fore wall.

Tighten to **96 lb-in.**

Apply torque seal.

Refer to **ELECTRICAL SCHEMATICS.**



FIGURE 31

45. **X series vehicles:** In the main power compartment, connect to 24V junction block near R1 relay.

Tighten to **96 lb-in.**

Apply torque seal.


Refer to **ELECTRICAL SCHEMATICS.**



FIGURE 32

FUNCTIONAL TESTING

46. Reset main circuit breakers if applicable. Set the battery master switch (master cut-out) to the ON position and start the engine. Make sure that the charging system is working normally.

On the instruments cluster, the alternator telltale  illuminates if the alternators are not charging.

APPENDIX A – LTD WIRE GUIDELINES

IMPORTANT: If the LTD wire is disturbed; the following guidelines must be followed to secure it properly.

NOTE

Always use double loop cable ties to secure LTD. LTD must be tied alone, with no other cables in the loop.

NOT ALLOWED



Possible contact or rubbing against screws, edges, etc.

CORRECT



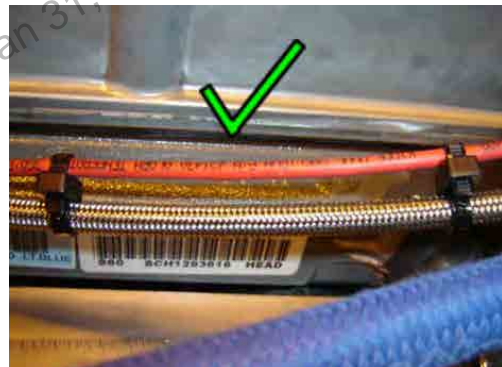
LTD must be routed clear of screws, sharp edges, etc.

NOT ALLOWED



Rubbing or possible rubbing against abrasive surfaces

CORRECT



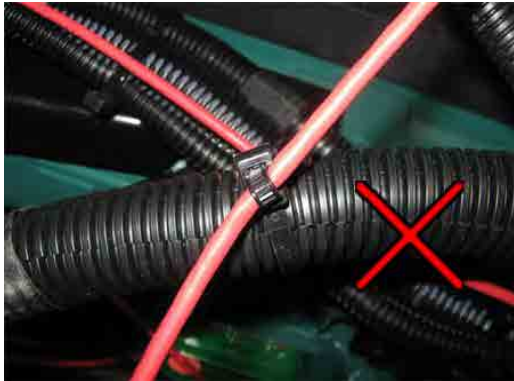
LTD must be secured with double loop cable ties. Distance between cable ties must not exceed 4 inches (100mm) max

NOT ALLOWED



LTD touching cut cable tie

NOT ALLOWED



LTD extending slantingly from the cable tie

CORRECT



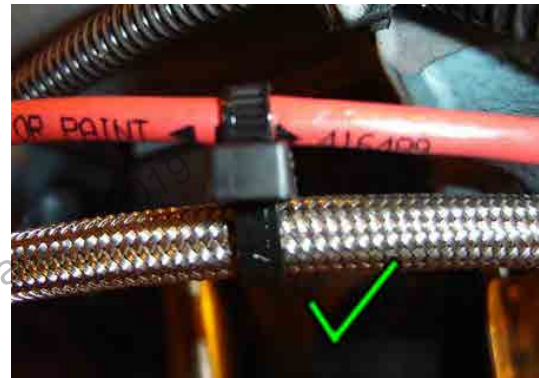
LTD is not a flexible harness. Avoid tight bends and kinks which could short circuit the LTD. Loops must have a minimum radii of 4 inches (100 mm)

NOT ALLOWED

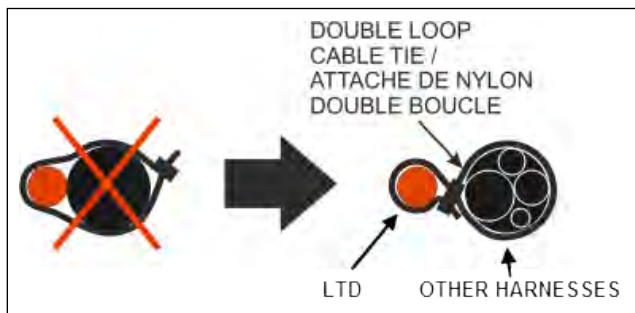


Cable tie tighten in excess on the LTD. Tighten cable tie on LTD by hand only. Tighten just enough to prevent LTD from slipping from once side to the other inside the cable tie loop

CORRECT



Proper tightening of the cable tie on the LTD



LABOR REFERENCE TABLE

Table for reference only.

Actual times will vary depending on vehicle condition.

	<i>Operation</i>	<i>Approximate labor (hours)</i>
Step 1	BOSCH ALTERNATORS REMOVAL, RIGHT HAND SIDE	1h
Step 2	INSTALLING THE RIGHT HAND ALTERNATOR. (includes wiring)	2h
Step 3	FUNCTIONAL TESTING	0.5h
	Total	3.5 hours

PARTS / WASTE DISPOSAL

Discard waste according to applicable environmental regulations (Municipal/State[Prov.]/ Federal)

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