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Current Language: English
Other Languages: NONE
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Coding Information

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Title: ISB Starter Software & Hardware Update

Applies To: DuraStar, WorkStar, CE Bus equipped with ISB and Allison transmission built prior to 06/01/2015

CHANGE LOG

06/23/2016 - Updated Applies to section of the iKnow.
 04/28/2016 - Fixed Typo
 04/22/2016 - Updated Coding
 04/06/2016 - Updated Note, and coding
 11/11/2015 - Added warranty reminder to description section.

DESCRIPTION

Note : Prior to starting this repair, be sure IK0800503 was followed.

The following steps will guide technician through starter motor control software and hardware update. The update will enhance the existing circuit design by utilizing Body Control Module to monitor the Transmission Engine Crank Enable message broadcasted on the J1939 Public Datalink from the Transmission Control Module (TCM), while still allowing the hard wired Transmission Engine Crank Enable signal to be captured from the (TCM).

Wiring schematic below (Figure 1) shows an example of how the new hardware and software will be added to existing starter relay/TCM neutral relay coil side circuit. The rectifier diode and wire make up the new hardware and the new software will be programmed in the BC as a feature code

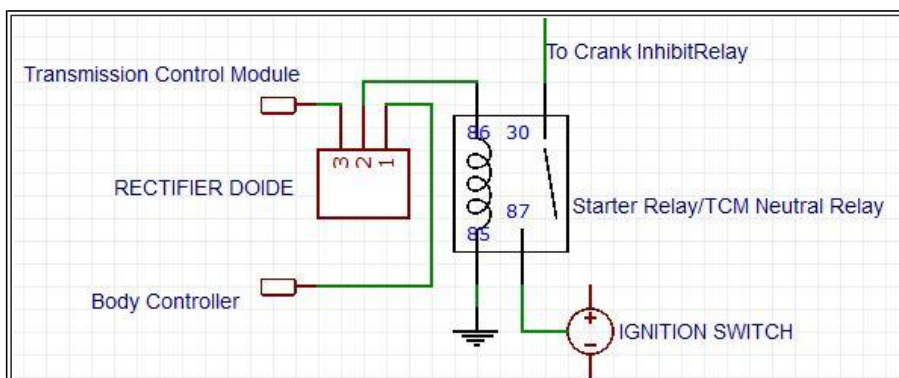


Figure 1: Example of new circuit

SPECIAL TOOLS / SOFTWARE

Tool Description
EZ Tech

SERVICE PARTS INFORMATION

Durastar/Workstar Part List

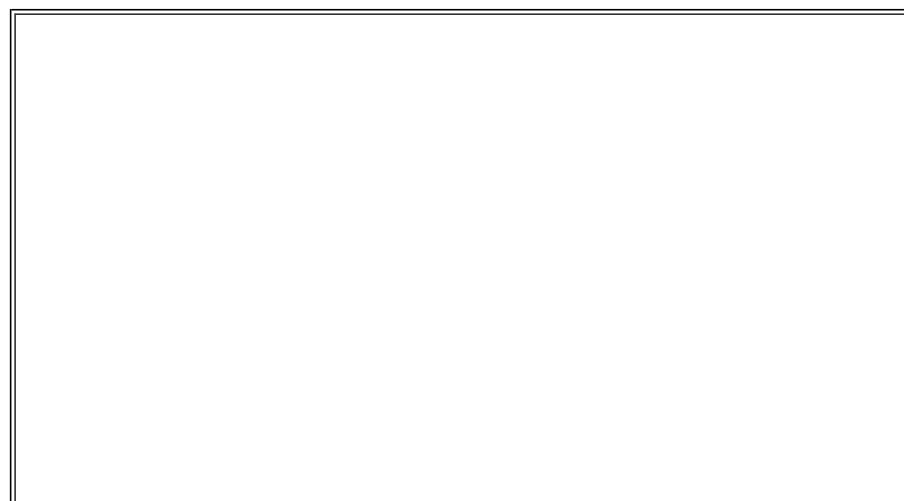
Kit Description	Part Number	QTY	Model
Harness, I/P Overlay, DuraStar	2515087C91	1	Durastar/Workstar

CE Bus Parts List

Kit Description	Part Number	QTY	Model
Harness, I/P Overlay, CE Bus	2515129C91	1	CE Bus
GROMMET 3/8" X 27/32" X 5/16	128157	1	CE Bus
LOOM, CONVOLUTED ELECTRICAL WIRE 1/4" I.D. X .390" O.D. 1' LONG	2644094R1	2	CE Bus
SEALANT, RTV SILICONE BLACK 3 OUNCES	PTX81158	1	CE Bus

DURASTAR/WORKSTAR INSTALL PROCEDURE

1. Shift transmission into Park or Neutral, set parking brake, and install wheel chocks
2. Remove fuse panel cover, center trim ring, storage compartment, instrument cluster, and driver side panel, to access BC
3. Route pre terminated BC terminal end of new service kit wire from the fuse/relay block along existing main harness behind storage compartment, instrument cluster to BC. Securing the harness along the way with electric tape
4. Remove Terminal Position Assurance Mechanism (TPA) from blue connector 1601 on BC, (Refer to Figure 2) populate cavity F3 (Durastar) or F1 (Workstar) with pre terminated end (3522073C1) {from the kit}, re-insert TPA, plug connector back into BC



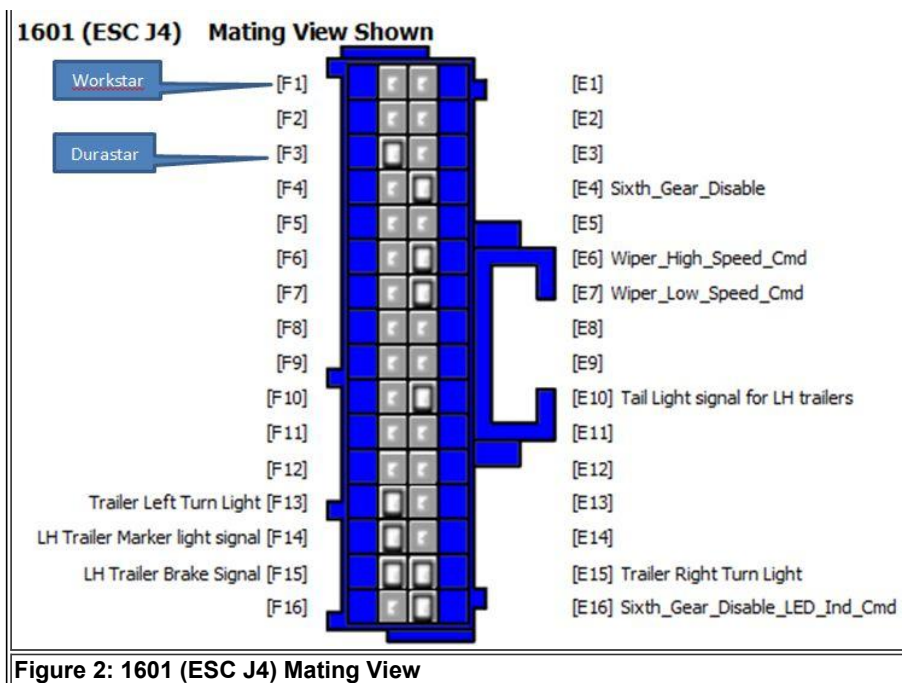


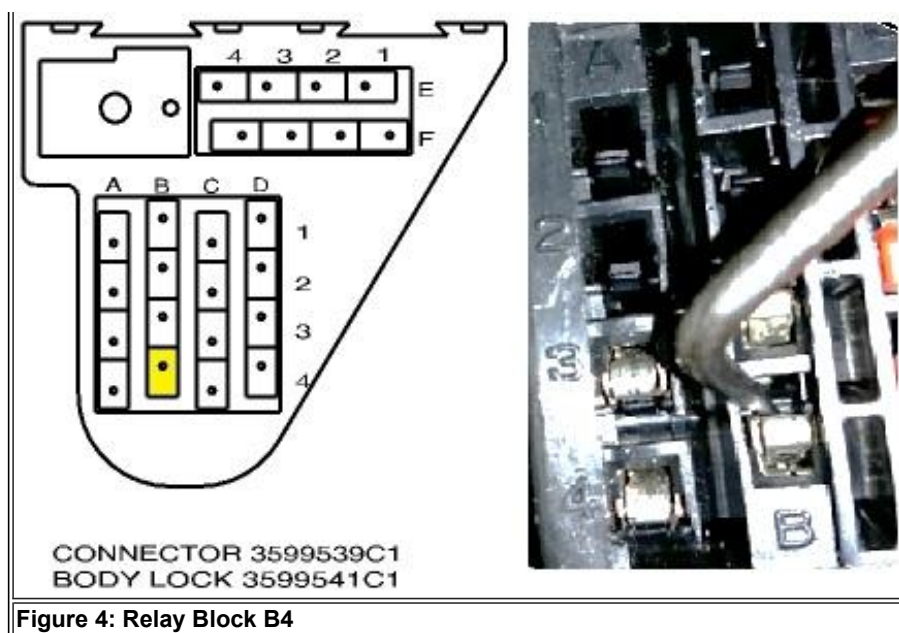
Figure 2: 1601 (ESC J4) Mating View

5. Use instructions located in [IK2600028](#) to apply new feature code 595BXH (F3 for Durastar) or 595BXX (F1 for Workstar)
6. Remove starter relay and orange terminal lock (Figure 3) by using a pick tool by prying up on the corner (if terminal lock breaks upon removal, replace with lock from unused area in fuse/relay block)

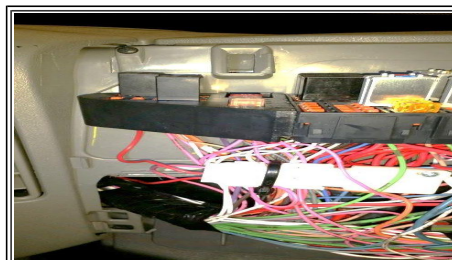


Figure 3: Relay and terminal lock

7. Remove wire from B4 (Figure 4) and insert wire from kit coming from cavity 2 of the rectifier diode connector, to the TCM Neutral Relay/Starter Relay Terminal block cavity B4



8. Install previously removed orange terminal lock and relay(s) and secure rectifier diode with electric tape to existing harness (Figure 5)



9. Test new software and hardware- Crank engine 5 times using ONLY the new Body Controller circuit to validate software and hardware were installed and are functioning correctly

NOTE: If the engine does NOT crank, validate previous steps were followed correctly, and then contact Tech Service

10. Cut existing terminal off wire removed from B4 in step 7 and then follow butt splice procedure in [IK0800269](#) to connect with the pre-butt spliced circuit end supplied from kit

11. Test step to validate existing software and hardware- Unplug connector 1601 from the BC, crank engine 5 times using TCM hardwire circuit

NOTE: If the engine does NOT crank, validate previous steps were followed correctly, and then contact Tech Service

12. Clear fault codes that were generated from the testing steps, install fuse panel cover, console, trim panel, cluster, and driver side kick panel

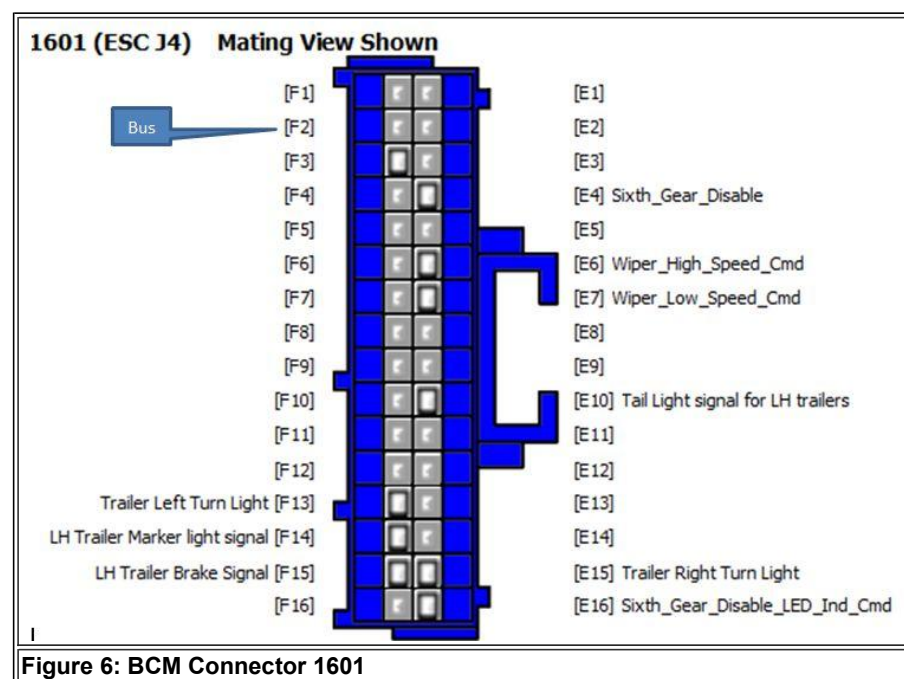
13. Remove wheel chocks

CE BUS INSTALL PROCEDURE

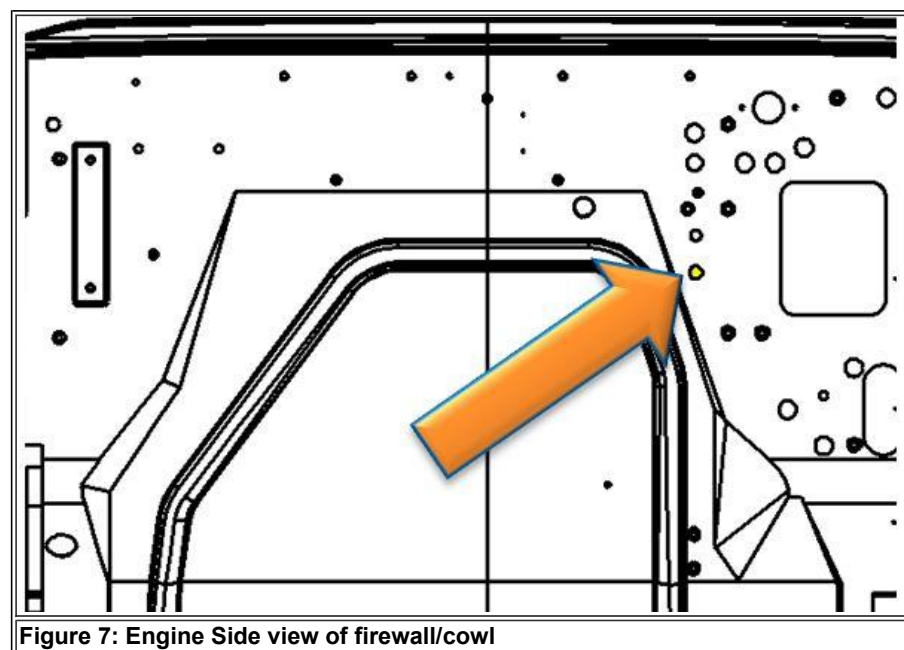
You may compare original electrical diagram of [starter circuit](#) to the [circuit overlay diagram](#) that is being installed in the steps below

INSTALLATION PROCEDURE:

1. Shift transmission into Park or Neutral, set parking brake, and install wheel chocks
2. Remove Terminal Position Assurance Mechanism (TPA) from blue connector 1601 on BC, populate F2 (Figure 6) with pre terminated end (3522073C1) {from the kit}, re-insert TPA, plug connector back into BC



3. Use instructions located in [IK2600028](#) to apply new feature code 595BXJ (F2 Bus)
4. Locate and remove steel plug (Figure 7) from cowl/firewall, clean area around the hole, and then insert GROMMET 3/8" X 27/32" X 5/16 {from kit}



5. Route the harness from BC to grommet installed in step 4, secure with tie straps along the way
6. Locate TCM Neutral Switch Relay on underhood cowl bracket and remove circuit K92 #141 from the relay connector cavity number 86

NOTE: Verify circuit K92 #141 has 12v in Neutral/Park and not 12v when in gear

7. Pass wires encased in split loom through grommet into the engine compartment to the TCM Neutral Switch Relay, secure harness along the way with tie straps

8. Seal wire pass through at grommet with Adhesive silicone sealant #81158 or equivalent

8. Populate TCM Neutral Switch Relay # 86 with seal and pre terminated end (2039343C1) {from the kit}

9. Test new software and hardware- Crank engine 5 times using ONLY the new Body Controller circuit to validate software and hardware were installed and are functioning correctly

NOTE: If the engine does NOT crank, validate previous steps were followed correctly, and then contact Tech Service

10. Cut terminal off circuit K92 #141 that was removed from the TCM Neutral Switch Relay cavity #86 and then follow butt splice instructions ([IK0800269](#)) to properly attach the pre terminated butt splice circuit {from the kit} to circuit K92 #141

NOTE: Connection must be crimp, solder, heat shrink since it is underhood

11. Test step to validate existing software and hardware- Unplug connector 1601 from the BC, crank engine 5 times using TCM hardwire circuit

NOTE: If the engine does not crank validate previous steps were followed correctly then contact Tech Service

12. Clear DTC's generated by last step, remove wheel chocks

WARRANTY INFORMATION

Warranty Claim Coding:

Group:	08540 - Cranking System
Noun:	202 - Motor, Starter

Standard Repair Times:

Description	Chassis	Engine	SRT	SRT Link
ISB STARTER SOFTWARE & HARDWARE UPDATE	Durastar	ISB	KL08-1013SB	ISB Starter Soft/Hardware update SRT Times
ISB STARTER SOFTWARE & HARDWARE UPDATE	Workstar	ISB	KL08-1013SB	
ISB STARTER SOFTWARE & HARDWARE UPDATE	CE Bus	ISB	GY08-1013SB	

OTHER RESOURCES

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