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Coding Information

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Title: N9/N10 Engines Logging SPN 560 FMI 2 When Using Auto Neutral

Applies To: 500k baud rate communication trucks w/ Auto Neutral

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

01/23/2018 - Article updated with 2 new notes from a feedback request
 07/03/2017 - Updated wiring diagram and work instructions added.
 12/20/2016 - Initial Article Release

DESCRIPTION

This document will guide the user through diagnosing and repairing a unit that has Auto Neutral and logs SPN 560 FMI 2 only when using the Auto Neutral feature. Or the engine will not ramp when put into neutral using the Auto Neutral function.

For proper operation of the Auto Neutral function please refer to this document [IK1300022](#)

SYMPTOM(s)

MIL light is on or the unit is unable to ramp up after being placed into neutral via the auto neutral switch.

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
SPN 560 FMI 02 (link to FCAP)	Driveline disengaged signal erratic, intermittent or incorrect

Lamp Reaction

Malfunction Indicator Lamp (MIL) will illuminate when this fault is detected during two consecutive drive cycles.

Associated Faults

None

Fault Facts

This fault is for automatic transmissions only.

Drive Cycle to Determine Fault Status

Continuous

SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
ServiceMaxx			Operator's Manual

SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required	Package Quantity
RELAY MICRO SPDT	3519350C1	1	1
TERMINAL (FUSED POER AND RELAY)	3534164C1	6	4
TERMINAL (TCM)	3686945C1	1	10
FUSE 10 AMP	MIN10	1	5
TERMINAL BUTT SPLC 16-14AWG	3517502C1	2	7
SLEEVE HEAT SHRINK	2644000R1	As Needed	50
18G WIRE	Obtain Locally	As Needed	

DIAGNOSTIC STEP(s)

WARNING! To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and install wheel chocks to prevent the vehicle from moving in either direction.

WARNING! To prevent property damage, personal injury, and / or death, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

WARNING! To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

WARNING! To prevent property damage, personal injury, and / or death, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.

WARNING! To prevent property damage, personal injury, and / or death, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.

Step	Action	Decision
1	DIAGNOSTIC: Does SPN 560 FMI 2 set every time the truck is started and shifted in and out of neutral regardless of using the Auto Neutral feature?	Yes: Refer to FCAP No: Go to Step 2

Step	Action	Decision
2	DIAGNOSTIC: Does the fault code only set when using Auto Neutral? NOTE: The code will take 10 seconds to set after being put into neutral via Auto Neutral switch. Rapid cycling of the switch may not cause the fault to set. NOTE: Alternative complaint may be that the engine will not ramp up after using the Auto Neutral function. Possible Stationary Regen Issues.	Yes: Refer to schematic listed below and wire in a new signal wire for the DDS circuit. NOTE: Some body builders are using the neutral signal wire already for controlling AESC. Do not remove their wiring, splice in for a complete repair.
		No: Return to FCAP

REPAIR STEP(s)

For proper wire repair refer to [IK0800269](#)

The ECM pin 65 and BCM J6 Pin M want to see 12v every time the unit is in neutral. This wiring change will allow you to borrow a ground signal from a spare output pin 45 of the TCM and then run through the relay to send power to the ECM pin 65. The output driver pin 45 of the TCM will always send out a ground signal as long as the unit is in neutral. It will not matter if the unit is shifted into neutral via autoneutral or button push in order for pin 45 to give an output to confirm neutral engagement.

REMOVAL PROCEDURE:

1. Remove lid for fuse panel in cab.
2. Remove all necessary panels to route your wiring.

INSTALLATION PROCEDURE:

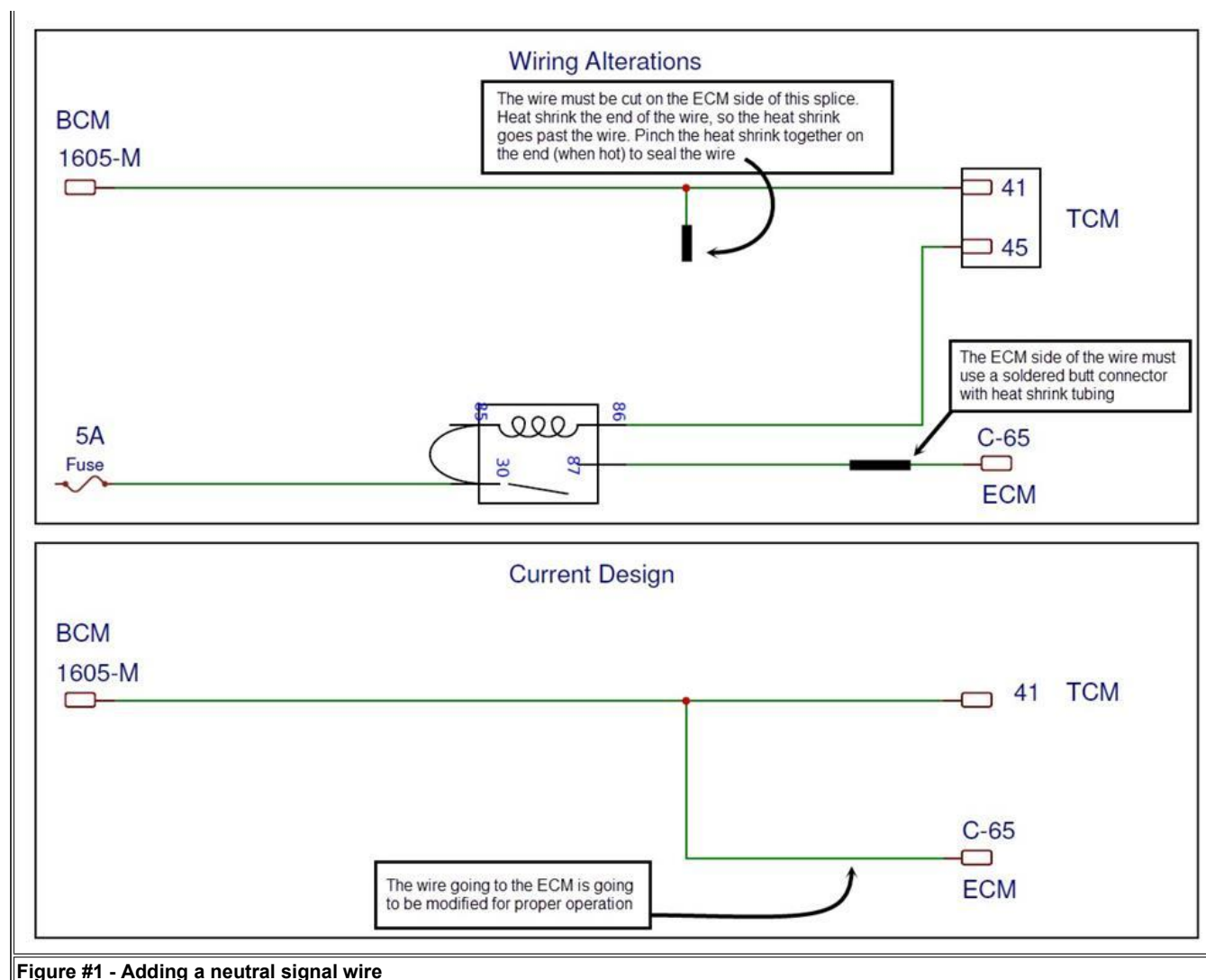


Figure #1 - Adding a neutral signal wire

1. Find an open relay socket and open fused ignition port in the power distribution module.
2. Break the splice on the ECM side. Make sure the stub that is not going to be used anymore is properly isolated so that it can't ground out.
3. Wire in fuse power and input from TCM and output to the ECM per the schematic above.
4. After install, verify no codes are present. After completing an autonneutral shift wait 10 seconds to be sure the code does not set after an auto neutral shift.

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

OTHER RESOURCES

[Master Service Information Site](#)

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