

2014FA12
May, 2015
Page 1 of 5

SUBJECT: H 50 EP System™ Software Release to Improve Drive Unit Life in Transit Application

MODELS AFFECTED: H 50 EP System™ Transit Buses Equipped with Cummins ISB or ISL Engines MY 2007 or Newer

Introduction:

Allison Transmission, Inc. (ATI) has developed new software for 3rd Generation and 4th Generation Transit Buses equipped with Cummins Engines and Allison H 40/50 EP Systems.

This software will reduce time the Drive Unit is exposed to excessive engine induced reversing torque. This is produced when Engine RPM is dwelling at or near 280 to 560 RPM and can accelerate torsional fatigue damage to the drive unit input shaft. The new 3rd Generation software will be available on April 17, 2015, and the new 4th Generation software will be released and available on April 30, 2015.



NOTE: This new software is released ONLY for Transit Buses equipped with Cummins ISB or ISL Engines MY 2007 or newer.



NOTE: This new software will NOT prevent input shaft fractures caused by engine seizure or hydrolock.

Engine Start Conditions with New Software Release

The H 40/50 EP System™ will crank the engine to 250 rpm while checking the engine's resistance.

- If engine resistance is acceptable, the H 40/50 EP System™ will increase the engine speed to 650 rpm and the engine will begin fueling.
- If high engine resistance is detected, the H 40/50 EP System™ will set DTC 65-25 (Engine Failed to Crank) and the crank will abort.
 - The new crank logic will also abort for any inverter fault (DTC 73-XX or 74-XX) that disables Motor A/B as a result of cranking parameters not being achieved.

In Rear Run Mode, the engine will idle at 700 RPM regardless of the Customer Specification Sheets (CSS) idle speed setting.



NOTE: If an attempt is made to start the engine after an aborted crank, using the Emergency Override Switch, DTC 46-01 (System Override Active) will set. The Emergency Override Switch should ONLY be used to start the vehicle in an emergency situation.



NOTE: The following procedure **MUST** be performed as follows. Failure to perform the steps in the correct order may result in a “No Start” condition.

Procedure:

1. Using Cummins INSITE™, complete the Cummins engine trim configuration changes. The Cummins engine trim configuration changes **MUST** be performed along with the new Allison software (SID) installation in order for the protection to operate effectively. Cummins Engine Control Module (ECM) trim settings need to be performed as follows:



NOTE: Cummins INSITE™ is available in four (4) functional levels (Basic, Lite, RSGR, and Pro). The Basic level is “read only” and will **NOT** allow the engine configuration changes to occur. Cummins INSITE™ LITE or higher **MUST** be used to perform the following engine trim configuration changes.

SAE J1939 Multiplexing

- Auxiliary Shutdown Switch – Refer to [Figure 1](#)
 - Auxiliary Shutdown Switch must be “**Enabled**”
 - Set Source Address to “**3 – Transmission #1**”



NOTE: If these parameters are **NOT** set correctly, the Transmission Control Module (TCM) will log DTC 65-29 (Engine Fuel Inhibit Fault).

Features and Parameters	ECM Value	Units	Original Value
Road Speed Governor	Enable		
SAE J1939 Multiplexing			
Accelerator Interlock Switch	Disable		
Accelerator Pedal or Lever Position	Enable		
Aftertreatment Diesel Exhaust Fluid Tank Level Sensor	Disable		
Aftertreatment Diesel Exhaust Fluid Tank Temperature Sensor	Disable		
Aftertreatment Regeneration Permit Switch	Disable		
Aftertreatment Regeneration Start Switch	Disable		
Air Conditioning Pressure Switch	Disable		
Ambient Air Temperature Sensor	Disable		
Auxiliary Shutdown Switch	Enable		
Source Address	3 - Transmission #1		
Clutch Pedal Position Switch	Disable		
Cruise Control On/Off Switch	Disable		
Cruise Control Pause Switch	Disable		

2714847

Figure 1. Auxiliary Shutdown Switch Configuration

- Adjustable Low Idle Speed – Refer to [Figure 2](#)
 - Adjustable Low Idle Speed must be “**Enabled**”

- 3rd Generation Control Systems – Low Idle Speed MUST be set at “**700 RPM**”
- 4th Generation Control Systems – Low Idle Speed to be INITIALLY set at “**700 RPM**”.



NOTE: 4th Generation Control Systems – If DTC 65-18 becomes active during the road test, reset the Low Idle Speed at 750 rpm. Some OEMs specify that the Low Idle Speed be set at 750 rpm. DTC 65-18 will set if an excessive mismatch exists between the actual engine rpm and the rpm specified in the calibration.

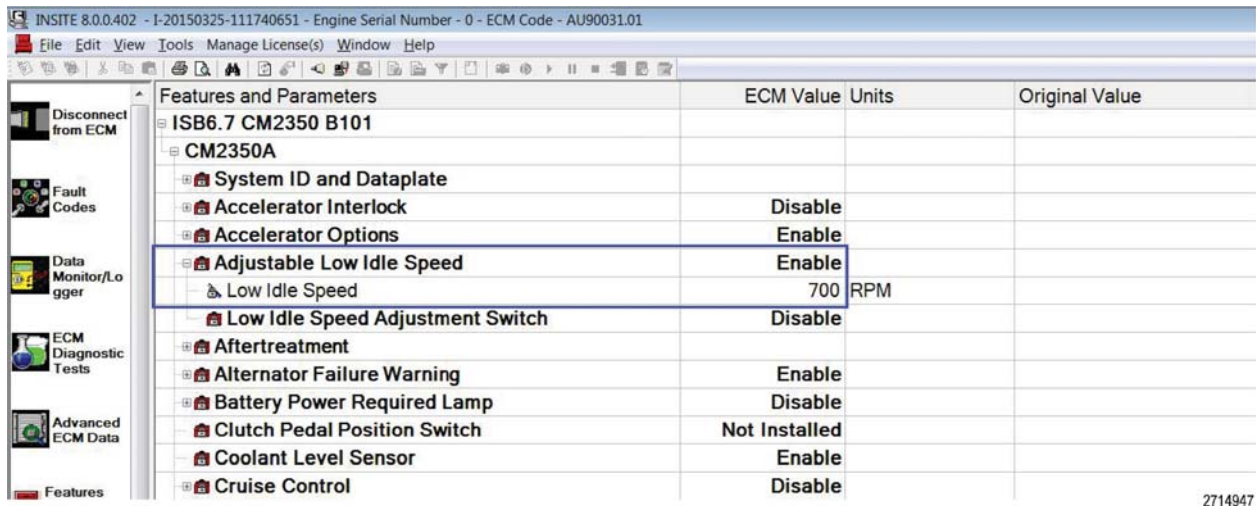


Figure 2. Adjustable Low Idle Speed Configuration



NOTE: Figure 2 shows the Low Idle Speed to be set at 700 rpm. The Low Idle Speed may be set at 700 rpm or 750 rpm for 4th Generation control systems depending on OEM Customer Specification Sheets (CSS) request.



NOTE: Refer to the tables in SIL 17-EP-07 (Troubleshooting for Low Power Complaints with Cummins ISB/ISL Engine) to ensure that all trim settings are properly set.

2. Contact your local Allison Transmission Distributor.

- The Distributor Technician will acquire a System Identification Number (SID) equipped with the new software to be installed.
- The new SIDs containing the input shaft protection software can be identified by the SID Revision Level. The 9th and 10th digits will be 20 or higher.
 - 65-XXXXX-020-X = 3rd Generation MY 2007 Input Shaft Protection Software Release Example
 - 68-XXXXX-020-X = 4th Generation MY 2010 Input Shaft Protection Software Release Example
 - 6C-XXXXX-020-X = 4th Generation MY 2013 Input Shaft Protection Software Release Example



NOTE: Updating the SID to the 020 Revision Level will require that the following engine trim settings be verified as requested. Failure to verify the engine trim settings will result in ATI Diagnostic Trouble Codes (DTCs) being set.



NOTE: In the event that the engine needs to be started with a supplemental starter motor, the Auxiliary Shutdown Switch reception **MUST** be disabled to allow engine fueling.

New Diagnostic Codes Associated with the Software Release:

1. **DTC 46-01: System Override Active:** Override has been used to bypass hardware protections
 - a. **System Response:** None; records number of times override is used
 - b. **Corrective Action:** Investigate override usage if this fault appears in history
2. **DTC 65-28: Engine Performance Shutdown:** ESS discharging due to engine performance issue
 - a. **System Response:** Disable propulsion; shut down engine
 - b. **Corrective Action:** Discontinue attempts to operate the vehicle until corrected
3. **DTC 65-29: Engine Fuel Inhibit Fault:** Detection of improper engine fueling
 - a. **System Response:** Check system light illuminates; clear code with Universal Allison DOC®
 - b. **Corrective Action:** Discontinue operation of the vehicle until corrected; check engine trim settings



NOTE: The new diagnostic codes will display in Universal Allison DOC® as the DTC ONLY. The DTC description or troubleshooting procedure will NOT be included.

For additional assistance, contact Allison Technical Assistance Center (TAC) at 1-800-252-5283.

Drive Unit Input Shaft Pre-Authorization:

In the event of a Drive Unit Input Shaft fracture, the policy assistance will continue with the Pre-Authorization process until December 31, 2015.

Claim Submittal Information:

Allison Service Outlets must follow the published Allison Transmission Labor Time Guide for all work performed. Claims will be accepted for repair orders opened prior to December 31, 2015.

Claim Type	04
Special Activity Indicator	2014FA12
Primary Failed Part	87 (ATI Directed Activity)
Complaint Code	AT02
Failure Code	CC03

Labor Operation Code	Labor Hours	Labor Operation Description
00096501	1.0	TCM Recalibration*
00096400	0.5	Test Drive

*Includes connecting to Universal Allison DOC® (Laptop)

Any additional parts, labor, net items, or travel costs deemed necessary to complete this Field Action must be described in detail in the claim narrative. Unexplained costs will be deducted from the claim. Allison service outlets must follow the published Allison Transmission current labor time guide for work performed when adding any additional charges.

Contact Information by Vehicle Region:

Questions concerning this Customer Satisfaction initiative may also be directed to:

Allison Transmission, Inc.
Attn: H40 50 Service Group
P.O. Box 894
Indianapolis, IN 46206-0894