

SIL 09-EP-16
March, 2016
Page 1 of 6

SUBJECT: Energy Storage System 3 (ESS 3) Release Notification

MODELS AFFECTED: H 40/50 EP™ Transmissions

Effective June 2016, the Allison Transmission, Inc. will release the third generation of the Energy Storage System (ESS3, P/N 29557378 & ESS3 CertPlus P/N 29557576) for the H 40/50 EP™ products. The first ESS3 serial number will begin with 7010015001. The intention of this SIL is to introduce the ESS3 to the service channel, describe the differences between the ESS2 and ESS3, and detail new service parts and procedures.



WARNING: Before replacing or repairing an ESS1, ESS2, or ESS3, perform the High Voltage Disconnect Verification Procedure found in the H 40/50 EP System service manual SM3602.

Interchangeability

The differences between ESS2 and ESS3 are internal with the exception of some identifying stickers on the ESS cover and HVIL covers (refer to Figure 1). A new System Identification Number (SID) must be Re-flashed when an ESS2 is replaced with an ESS3. The connectors (high voltage and low voltage), pins, mounting points, and external dimensions are identical between the ESS2 and ESS3 making them fully interchangeable assemblies.

Internal Changes

The major internal differences between the ESS2 and ESS3 include the number of BCIMs, new main relays, number of current sensors, new junction board, and new internal low voltage harness. There are 3 BCIMs in the ESS3 as opposed to 6 in the ESS2. The high and low side main relays are replaced by a single main relay part number that is used for both high and low side switching. The new junction board is specific to the ESS3 as is the new internal low voltage harness.

SM / SL7774EN

Copyright © 2016 Allison Transmission, Inc. All Rights Reserved.

3060651

***Please Note:** Allison Transmission Service Information Letters are intended for use by professional, trained technicians, not for the "do-it-yourselfer." They are written to inform those technicians of conditions that may occur on some transmission models (or serial numbers ranges) or to provide information that could assist in the proper servicing of a specific Allison transmission. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, do not assume that the Service Information Letter applies to your transmission, or that your transmission has the condition described. Product evolution and information updates are inevitable. Please see your authorized Allison Transmission service leader or distributor to understand if your particular transmission may benefit from the information contained within the Service Information Letter.*

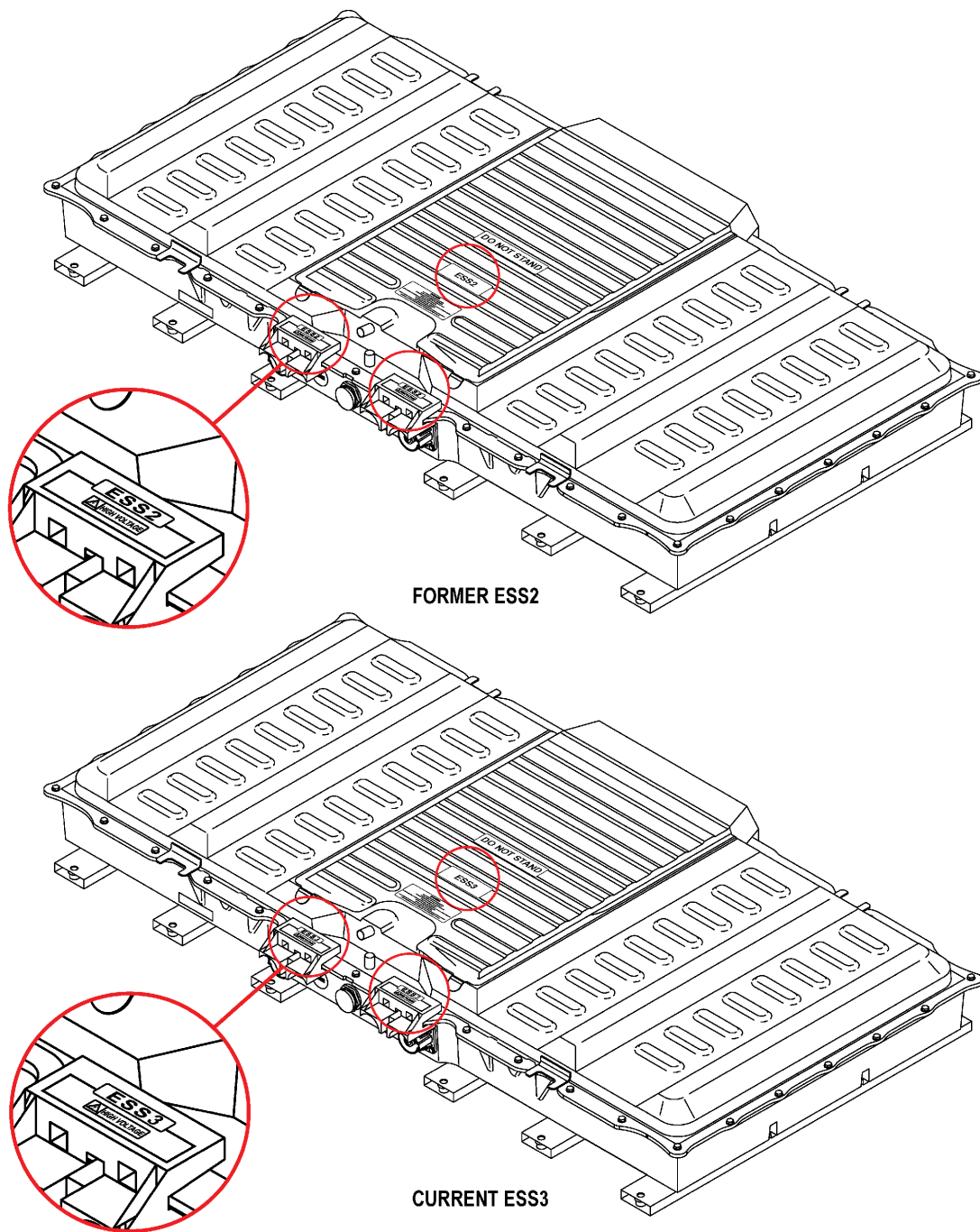


Figure 1. Energy Storage System (ESS)

3105827

The following instructions and Table 1 describe how to download the correct SID.

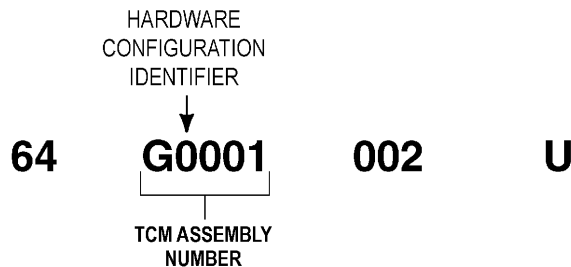


NOTE: If the requested SID is not available, contact TAC and request the SID be created.

TCM Assembly Number Breakdown:

SIDs are created based on hardware configuration and the application of system (for additional information reference SIL 2-EP-08).

- The third through the seventh digits of a SID makeup the Transmission Control Module (TCM) Assembly Number; the TCM Assembly Number can be broken down into two groups:
 - The fourth digit of the SID, second digit of the TCM Assembly Number, identifies the hardware configuration of the system; 0-F (See Table 1)
 - The rest of the TCM Assembly Number digits are specific to the application



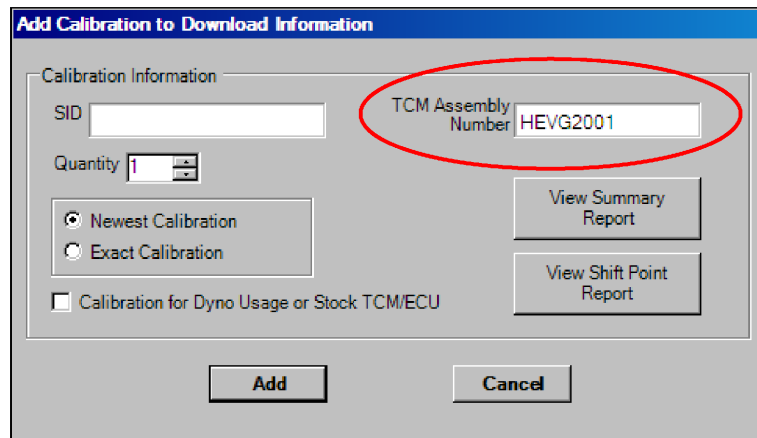
70636

Figure 2. SID Breakdown

Table 1. Hardware Configuration

SID Number	Hardware Configuration			
	Engine	TCM/VCM Type	Inverter Type	Battery Pack
VV-XSXXX-YYY-Z	Pre MY 07	Pre-4th Gen	DPIM1	ESS3
VV-XTXXX-YYY-Z	Pre MY 07	Pre-4th Gen	DPIM2	ESS3
VV-XUXXX-YYY-Z	MY2007	Pre-4th Gen	DPIM1	ESS3
VV-XVXXX-YYY-Z	MY2007	Pre-4th Gen	DPIM2	ESS3
VV-XWXXX-YYY-Z	MY2010	4th Gen	DPIM1	ESS3
VV-XXXXX-YYY-Z	MY2010	4th Gen	DPIM2	ESS3
VV-XYXXX-YYY-Z	MY2013	4th Gen	DPIM2	ESS3
VV-XZXXX-YYY-Z	MY2016	4th Gen	DPIM2	ESS3

When an ESS1 or ESS2 is replaced with an ESS3, the SID must be updated so the 4th digit matches the new hardware configuration of the system. The rest of the TCM Assembly Number portion of the SID should stay the same, but all other digits may be different. For this reason, the new SID should be downloaded as a TCM Assembly Number rather than a SID (refer to [Figure 3](#)). To download any SID by TCM Assembly Number, add a “HEV” prefix to the TCM Assembly Number portion of the SID. If changing a vehicle’s hardware configuration, change the second digit of the TCM Assembly Number based on Table 1.



V20184.00.00

Figure 3. TCM Assembly Number

Example: A technician is working on a bus with the SID 64-G0001-002-U, Pre MY07, Pre 4th Gen, DPIM1 and an ESS1. The technician determines that the ESS1 must be serviced with an ESS3. After installing the ESS3 the technician would need to reflash the entire vehicle (TCM, VCM, DPIM, and ESS) with the SID VV-XS001-YYY-Z to match the vehicle's new hardware configuration.



NOTE: The SIDs required for an ESS2 to ESS3 replacement will be released AS NEEDED. Use TCM Reflash to verify that the new SID is available before obtaining authorization for an ESS3 from the Technical Assistance Center (TAC). If the required SID is not yet available, inform TAC when requesting authorization for the ESS3.

Parts Information:

Assembly Serviceability

With the release of the ESS3 all ESSs should be serviced with an ESS3, P/N 29557378 or ESS3 CertPlus P/N 29557576. Service Information Letter (SIL) 21-EP-08 describes identifying the need to order a replacement ESS and the requirements necessary prior to placing an order. As with the ESS2, authorization must be obtained prior to ordering a service ESS3. Contact TAC if you believe an ESS1, ESS2, or ESS3 requires replacement.

Component Serviceability

The same components that are serviceable in an ESS2 are serviceable in an ESS3. However, most components are not interchangeable between the ESS2 and ESS3. Table 2 describes the part differences between ESS2 and ESS3.

The parts listed in Table 2 are new for ESS3 and are not interchangeable with the former ESS2 parts. Figures 6 and 7 illustrate BCIM differences.

Table 2. ESS3 Parts

Former ESS2 Parts		Current ESS3 Parts	
Part Number	Description	Part Number	Description
29550667	Thermistor Assembly, No. 1	29558095	Thermistor Assembly, No. 1
29550668	Thermistor Assembly, No. 2	29550896	Thermistor Assembly, No. 2

Table 2. ESS3 Parts (cont'd)

Former ESS2 Parts		Current ESS3 Parts	
Part Number	Description	Part Number	Description
29550669	Thermistor Assembly, No. 3	29558097	Thermistor Assembly, No. 3
29550670	Thermistor Assembly, No. 4		
29550671	Thermistor Assembly, No. 5		
29556072	Thermistor Assembly, No. 6		
29550673	Battery Controller Interface Module (BCIM)	29558054	Battery Controller Interface Module (BCIM)
29542856	Harness Wiring, Low Voltage	29558053	Harness Wiring, Low Voltage
29542847	Relay Assy - Main High Side	29558066	Relay Assy, Main
29542848	Relay Assy - Main Low Side	29558066	Relay Assy, Main
29542850	Sensor Assy - Current	29558059	Sensor Assy - Current



NOTE: Although the ESS2 and ESS3 BCIMs look identical, they have different software. It is important to install the correct BCIM during a repair. Failure to do so will set an active 76-61 Battery Subpack Software ID code and shut down the vehicle's high voltage system. The only way to correct this scenario is to install the correct BCIM. As seen in Table 3, BCIMs can be identified by either their Allison or Panasonic P/Ns prior to installation. Refer to Table 3 and the interchangeability section of this SIL to identify whether you are working on an ESS2 or an ESS3. The software levels of ESS2 and ESS3 are subject to revision, but the middle digit of the software will always remain the same: "2" for ESS2 and "3" for ESS3.



V20215.00.00

Figure 4. ESS3 Battery Controller Interface Module (BCIM) P/N 29558054

Table 3. BCIM and Software Identification

ESS Generation	Allison BCIM P/N	Panasonic BCIM P/N	Software Level
ESS1	29549707	EV-EHSOR01C	E19
ESS2	29550673	EV-EER03A	E27
ESS3	29558054	EV-EEH02ADG1	E30

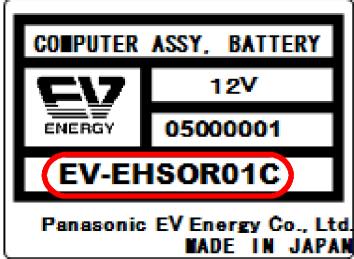


Figure 5.
ESS1 BCIM P/N 29549707 With E19 Software

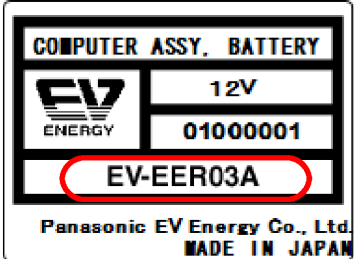


Figure 6.
ESS2 BCIM P/N 29550673 With E27 Software

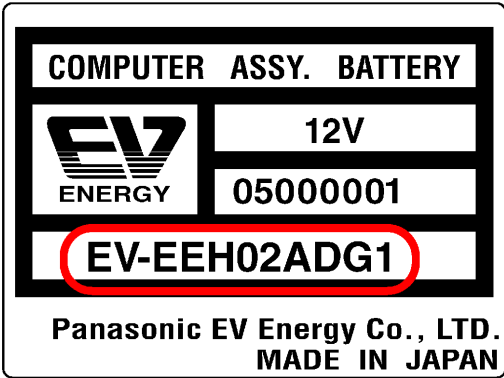


Figure 7.
ESS3 BCIM P/N 29558054 With E30 Software

ESS3 Storage:

Maximum shelf life for an ESS3 is 12 months (same as ESS2). Shelf life is affected by storage temperature. Detailed storage guidelines and maintenance charge procedures can be found in the ESS Service Manual SM4162 Section 1-7.



NOTE: For initial receipt of an ESS3, assume several months of shipping/logistics timing and incorporate into the shelf life maintenance schedule. The complete date (manufacturing date) of an ESS can be found using the S/N search function of Unit History. Unit History is found under the Warranty tab of the initial Allison Transmission Extranet screen.