

SIL 25-1K2K-18
August, 2018
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SUBJECT: Harsh 1-2 Shift Complaint

MODELS AFFECTED: 1000/2000 Series Product Families with 5th Generation Controls with Software prior to B181

Description of Complaint:

Some vehicles equipped with either a 1000 or 2000 Series Allison transmission may experience a harsh 1-2 shift. These vehicles may also have an active Diagnostic Trouble Code (DTC) P2789 Clutch Adaptive Learning at Limit.

Serviceability:

Complete the troubleshooting steps outlined in the 1000/2000 Troubleshooting Manual, TS7138 for the harsh 1-2 shift and/or DTC P2789. If troubleshooting does not resolve the issue, connect to the TCM (Transmission Control Module) using the Allison DOC® software to check the "SEM/LRTP" (Shift Energy Management/Low Range Torque Protection) status in the **ENGINE MAKE AND MODEL** field found on the **Additional Calibration Information** screen.

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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 dealer or distributor to understand if your particular transmission may benefit from the information contained within the Service Information Letter.

While connected to the TCM, select the **Calibration Information** button from the menu on the left side of the Allison DOC[®] software screen. Then select the **Additional Calibration Information** bar in the lower right corner of the **Calibration Information** screen. Refer to [Figure 1](#).

Customer Modifiable Constant

Parameter	Value
Group: Automatic Neutral Engage	
AUTOMATIC NEUTRAL - SINGLE INPUT	Disabled
AUTOMATIC NEUTRAL - SINGLE INPUT WITH SELECTOR OVERRIDE	Disabled
AUTOMATIC NEUTRAL - DUAL INPUT WITH AUTOMATIC RETURN-T...	Disabled
Group: PTO Enable	
PTO DRIVE INTERFACE 1	J1939 PTOIDE INT...
PTO DRIVE INTERFACE 1: Maximum Engine Speed for Engagement	2600 rpm
PTO DRIVE INTERFACE 1: Maximum Engine Speed for Operation	3150 rpm
PTO DRIVE INTERFACE 1: Lockup Engagement Speed	1200 rpm
PTO DRIVE INTERFACE 1: Torque Limiting	Disabled
PTO DRIVE INTERFACE 1: Torque Limit	650 ft-lb
PTO DRIVE INTERFACE 1: Drive Ratio (Percentage of Engine Speed)	120
PTO DRIVE INTERFACE 2	J1939 PTOIDE INT...
PTO DRIVE INTERFACE 2: Maximum Engine Speed for Engagement	2600 rpm
PTO DRIVE INTERFACE 2: Maximum Engine Speed for Operation	3150 rpm
PTO DRIVE INTERFACE 2: Lockup Engagement Speed	1200 rpm
PTO DRIVE INTERFACE 2: Torque Limiting	Disabled
PTO DRIVE INTERFACE 2: Torque Limit	650 ft-lb
PTO DRIVE INTERFACE 2: Drive Ratio (Percentage of Engine Speed)	120
Group: Engine Brake and Pre-Select Request	
ENGINE BRAKE INTERFACE	Primary On-Vehi...
ENGINE BRAKE: Minimum Preselect Range	3rd Range
ENGINE BRAKE: Alternate Minimum Preselect Range	6th Range
Group: Range Indicator	
RANGE INDICATOR	GPO C IF DEFINED...
Selected Ranges	P II
Group: Output Speed Indicator A	
OUTPUT SPEED INDICATOR A	GPO D IF DEFINED...
OUTPUT SPEED INDICATOR A: Turn On Speed	70 rpm
OUTPUT SPEED INDICATOR A: Turn Off Speed	60 rpm
Group: Neutral Indicator for PTO	
NEUTRAL INDICATOR FOR PTO AND PTO REQUEST (NIPTO)	Disabled
Group: Primary Mode	
PRIMARY MODE: Gears	6321
Torque Converter Model	
Torque Converter Temperature Model 0	
Maximum Calculated Temperature	211 °F / 99 °C
Over-temp Counter	0
Over-temp Currently Detected	False
Converter Over-temp Protection Activation Count	0

TCM Information

Parameter	Value
Cal ID	B16200038B59N
TCM Assembly Number	61BR0A7U
Software Level	L16BCDPC_5J6996B
Serial Number	BK6882A163560605
Part Number	29556882
TCM Date	12-21-2016
HCN / CCN	52 / L16BCDPC_5J6996B
Programmed VIN	N/A
Engine VIN	Not Available
This Tool S/N	164801
Last Tool S/N	LDSTATION
Vocational Model	2550 RDS

I/O

Signal Source	Signal State	Function Name	Function State
121, Databus	OFF	Input - Anti-Lock Brake System (ABS)	OFF
Databus		Input - Diesel Particulate Filter	OFF
161	OFF	Input - Overdrive Disable Interface	OFF
122	OFF	Input - Preselect Request Input 1	OFF
142	OFF	Input - Secondary Mode	OFF

Signal Source	Signal State	Function Name	Function State
Databus		Output - Lockup Indicator	OFF
105	OFF	Output - Output Speed Indicator A	OFF
145	ON	Output - Range Indicator	ON
124, Databus	OFF	Output - Range Inhibit Indicator -- RII	OFF
Databus		Output - Secondary Mode Indicator	OFF

Additional Calibration Information

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Figure 1.

Observe the **VALUE** in the **ENGINE MAKE AND MODEL** field in the upper left corner of the **Additional Calibration Information** screen. Refer to [Figure 2](#).

Additional Calibration Information			
Read-Only Calibration Information/Constants	Value	SEM/LRTP & Engine Torque Information	Value
ENGINE MAKE AND MODEL	SEM & LRTP OFF - Other ...	SEM/LRTP Compatibility	Compatible
NUMBER OF ENGINE CYLINDERS	4 CYLINDER ENGINE	SEM Validated	ECM doesn't support SEM
FuelSense	Disabled	LRTP Validated	ECM doesn't support LRTP
DynActive SHIFTING	Disabled	SEM Enabled Status	Disabled
PRIMARY MODE: DYNACTIVE: Flat Ground Economy B...	60	LRTP Enabled Status	Disabled
PRIMARY MODE: DYNACTIVE: Grade Economy Bias	25	SEM Torque Reduction Status	Correct Response
PRIMARY MODE: DYNACTIVE: Minimum Engine Spee...	1000 rpm	LRTP Torque Reduction Status	Correct Response
SECONDARY MODE: DYNACTIVE: Flat Ground Econom...	60	Unapproved SEM Torque Reducing Device	Information Not Valid
SECONDARY MODE: DYNACTIVE: Grade Economy Bias	25	Unapproved LRTP Torque Reducing Device	Information Not Valid
SECONDARY MODE: DYNACTIVE: Minimum Engine Sp...	1000 rpm	Max Eng. Torq. Allowed during loss of J1939 Com...	23601.99 ft-lb
FuelSense 2.0: Coasting NEUTRAL AT STOP	Enabled	Peak Torque from AETC Message	619.55 ft-lb
ACCELERATION RATE MANAGEMENT	Disabled		
ACCELERATION RATE MANAGEMENT: Custom Low S...	10.80		
ACCELERATION RATE MANAGEMENT: Custom High S...	39.60		
ACCELERATION RATE MANAGEMENT: Custom Low S...	1.70		
ACCELERATION RATE MANAGEMENT: Custom High S...	0.75		
NEUTRAL-TO-RANGE ASSIST (NRA)	Disabled		
PRIMARY MODE: Shift Schedule	Variable		
PRIMARY MODE: Shift Speed	2500		
SECONDARY MODE: Shift Schedule	SA 1000/2000		
SECONDARY MODE: Shift Speed	2100		
SECONDARY MODE: Starting Range Override	NA		

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Figure 2.

If the **VALUE** is set to **SEM & LRTP OFF**, and the software level is prior to B181, use the Allison TCM Reflash™ software to download software level B181 or newer. Recalibrate the TCM with the B181 software and confirm that the TCM was recalibrated with B181 or newer software. Refer to [Figure 3](#).



NOTE: Authorized Allison Service Outlets shall start a TAC case and submit an Allison DOC® snapshot to TAC prior to recalibrating the TCM to B181 or newer software. TAC will then verify that the TCM is to be recalibrated.

The screenshot displays the Allison DOC software interface. The top menu bar includes options like File, Reprogram, Action Request, Snapshot, Reports, Software Configuration, Help, and Print Screen. The main window shows a table of DTCs (Diagnostic Trouble Codes) with columns for DTC-Sym, Active, Historic, Check Trans, Failure Record, and Description. Below this, there are buttons for Clear DTC Information, Performance Complaints, Failure Records, DTC Test, and View TCM/Engine Faults. The bottom section contains two tables: TCM Information and Transmission Data. The TCM Information table lists various identifiers and their values, with the Cal ID highlighted. The Transmission Data table lists various parameters and their values.

TCM Information		Value
Cal ID	B18200034D23D	
TCM Assembly Number		
Software Level	L18BCD_PC_868	
Serial Number	BK8100AC80570007	
Part Number	29558100	
TCM Date	02-26-2018	
HCN / CCN	52 / L18BCD_PC_868	
Programmed VIN		
Engine VIN	3ALACWFB9KDKH7098	
This Tool S/N	164801	
Last Tool S/N	VCP 2_1	
Vocational Model	2100-2200 RDS	
Transmission Model	1000	

Transmission Data		Value	Units
Relative Accelerator Position		0.0	%
Input Speed		39	rpm
Turbine Speed		63	rpm
Output Speed		0	rpm
Attained Range		Neutral	
Driver Selected Range		Park	
Trans Fluid Temp		120 °F / 49...	
Ignition Voltage		0.6	V
Battery Voltage		12.9	V
Internal Mode Switch A		Closed	
Internal Mode Switch B		Open	
Internal Mode Switch C		Open	
Internal Mode Switch P		Closed	

Figure 3.

Warranty Information:

Authorized Allison Service Outlets shall submit an AWAARE claim type 01 for each vehicle completed under this SIL. Any additional work shall be claimed separately, even if performed simultaneously with another transmission repair, e.g.; overhaul solenoid replacement, etc.

AWAARE Claim Values	
Claim Type	01
Authorization Number	Attach a copy of this SIL along with the TAC Case Number to the claim
Special Activity Number	251K2K18
Primary Failed Part	400
Complaint Code	FS10
Failure Code	BA04

AWAARE Claim Labor Variable Values		
Labor Operation Code	Labor Hours	Labor Operation Description
096501	1	TCM Recalibration and Verify
096400	0.5	Test Drive



NOTE: Record the TCM serial number in the Failed Component Serial Number field in the AWAARE claim. Any diagnostic codes, (DTCs), must be recorded in the Diagnostic Codes section of the AWAARE claim. Include the TAC Case number in the AWAARE claim narrative.



NOTE: Labor is not to exceed 1.5 hours to recalibrate the TCM, verify the software level and test drive the vehicle. If the vehicle is equipped with a green diagnostic connector, disconnect the TCM 80-way connector, then use the Allison TCM Reflash™ Harness (J-47276) and the WTEC Load Box (J-42455A) to recalibrate the TCM software and calibration (refer to SIL 01-TR-16). An additional 0.5 hours will be permitted to disconnect the 80-way TCM connector, recalibrate the TCM with the WTEC Load Box and reconnect the 80-way TCM connector. Additional customer change requests will not be covered by this program and will be at the customer's expense.