307-01 Automatic Transmission - 6-Speed Automatic
Transmission – 6R140
Diagnosis and Testing

2021 - 2022 F-53 Motorhome, F-59 Commercial
Stripped Chassis
Procedure revision date: 01/6/2021

Parameter Identification (PID) Chart

Diagnostic PID Chart

PID Acronym	PID Name	Description
APP1	APP sensor 1	APP
AST	Time Since Start	Time (in seconds) since the vehicle was started
BOO1	Brake Pedal Position	Position of the brake pedal (on/off)
CLR_TIME	Global Real Time At Most Recent Clear Diagnostic Information	The time at which diagnostic trouble codes (DTCs) were last cleared
CLRDIST	Distance since DTC cleared	Distance driven since PCM DTC s were cleared
DTC PCM	Continuous Codes	Number of PCM DTC s present
ECT PCM	ECT PCM	Engine coolant temperature data provided to the PCM
ENGLOAD	Engine Load	Engine load calculated by the PCM
FTBRAKE	Foot Brake	Foot brake state used by strategy
GEAR	Gear Commanded by Module	PCM commanded transmission gear
GEAR_OSC	Gear Commanded by Output State Control	Output state control commanded gear
GEAR_RAT	Gear Ratio Commanded	Theoretical transmission gear ratio commanded
HRSH_SHFT	Firm Shift	Output state control commanded firm shift
IN_GEAR	In Gear	The transmission is applying a load to the engine
LINEDSD	Line Pressure Control Desired	Commanded line pressure
LPC	Line Pressure Control	Commanded pressure for the LPC Variable Force Solenoid (VFS)
LPC_AMP	Line Pressure Control in Amps	Commanded current for the LPC Variable Force Solenoid (VFS)
LPC_F	Line Pressure Control Status	Fault status for the LPC Variable Force Solenoid (VFS)
MIL_DIS	The distance travelled since the (MIL) was activated	The distance travelled since the MIL was activated
OSS_F	Output Shaft Speed Status	Fault status for the OSS sensor
OSS_SRC	Unfiltered Output Shaft Speed A	Actual speed of the OSS sensor (rpm)
RPM_PCM	Engine Revolutions Per Minute	Engine rpm input to PCM
SHFT_DROP	Shift RPM Drop in Input Shaft Speed Below Expected	Shift rpm drop in input shaft speed below expected
SHFT_FLRE	Shift RPM Rise in Input Shaft Speed Above Expected	Shift rpm rise in input shaft speed above expected
SHFT_ID	Shift Identification of Shift (PID)s Lag, Time, Flare and Drop	Shift identification of shift PID s lag, time, flare and drop
SHFT_LAG	Shift Time Elapsed From 10% to 90% of Complete	Actual time during shift between 10% and 90% complete

SHFT_TIME	Shift Time Elapsed From Commanded to 10% Complete	Shift time 0% to 10% complete
SHFT_TYP	Shift Type	Shift Type
SSPCA	Shift Solenoid Pressure Control A	Commanded pressure for the Shift Solenoid Pressure Control A (SSPCA)/CB1234
SSA_AMP#	Shift Solenoid Pressure Control A	Commanded current for the Shift Solenoid Pressure Control A (SSPCA)/CB1234
SSPCA_F	(SSPCA) Status	Fault status for the Shift Solenoid Pressure Control A (SSPCA)/CB1234
SSPCB	Shift Solenoid Pressure Control B	Commanded pressure for the Shift Solenoid Pressure Control B (SSPCB)/C35R
SSB_AMP#	Shift Solenoid Pressure Control B	Commanded current for the Shift Solenoid Pressure Control B (SSPCB)/C35R
SSPCB_F	(SSPCB) Status	Fault status for the Shift Solenoid Pressure Control B (SSPCB)/C35R
SSPCC	Shift Solenoid Pressure Control C	Commanded pressure for the Shift Solenoid Pressure Control C (SSPCC)/CB26
SSC_AMP#	Shift Solenoid Pressure Control C	Commanded current for the Shift Solenoid Pressure Control C (SSPCC)/CB26
SSPCC_F	(SSPCC) Status	Fault status for the Shift Solenoid Pressure Control C (SSPCC)/CB26
SSPCD	Shift Solenoid Pressure Control D	Commanded pressure for the Shift Solenoid Pressure Control D (SSPCD)/CBLR, C456
SSD_AMP#	Shift Solenoid Pressure Control D	Commanded current for the Shift Solenoid Pressure Control D (SSPCD)/CBLR, C456
SSPCD_F	(SSPCD) Status	Fault status for the Shift Solenoid Pressure Control D (SSPCD)/CBLR, C456
SSPCE	Shift Solenoid Pressure Control E	Commanded pressure for the Shift Solenoid Pressure Control E (SSPCE)/CBLR, C456
SSE_AMP#	Shift Solenoid Pressure Control E	Commanded current for the Shift Solenoid Pressure Control E (SSPCE)/CBLR, C456
SSPCE_F	(SSPCE) Status	Fault status for the Shift Solenoid Pressure Control E (SSPCE)/CBLR, C456
SST_D	SelectShift™ Transmission - Down Switch Input	SelectShift™ transmission-down switch input
SST_U	SelectShift™ Transmission - Up Switch Input	SelectShift™ transmission-up switch input
TCC AMP#	Converter Pressure Control	Commanded current for the TCC
TC_SLIPACT	Torque Converter Slip Actual	Actual difference between engine speed and turbine speed, measured in rpm
TC_SLIPDSD	Torque Converter Slip Desired	PCM commanded difference between engine speed and turbine speed, measured in rpm
TCC	Torque Converter Clutch Solenoid	Commanded pressure for the TCC
TCC_F	Torque Converter Clutch Pressure Control Fault	Fault status for the TCC
TCC_OSC#	Output State Control of Torque Converter	Output state control commanded pressure to the TCC
TCC_RAT	Torque Slip Ratio	Actual speed ratio of torque converter (1.0 = fully engaged)
TCS_DEPRES	Transmission Control Switch Pressed	TCS status
TCS_STATE	Transmission Control Switch Requested State	TCS status

TFT	Transmission Fluid Temperature	TFT
TFT_F	Transmission Fluid Temperature Status	Fault status for TFT sensor
TFTV	Transmission Fluid Temperature	TFT voltage
TR	Transmission Range	TR
TR_CRANK	Transmission Range Input Allowing Engine Start	TR
TR_DC	Transmission Range Duty Cycle	Duty cycle output of the sensor
TR_F	Transmission Range Status	Fault status for TR sensor
TR_FREQ	Transmission Range Frequency	Frequency output of the sensor
TRAN_RAT	Gear Ratio Measured	Actual transmission gear ratio
TRANS_VOLT_A	Transmission Supply Voltage Control State	Transmission supply voltage
TRO_N_F	Neutral Output Status	Transmission neutral output status
TRO_P_F	Park Output Status	Transmission park output status
TSS_F	Turbine Shaft Speed Reliable	Fault status of the TSS sensor (rpm)
TSS_SRC	Unfiltered Turbine Shaft Speed	Actual speed of the TSS sensor (rpm)
VPWR_PCM	Module supply voltage	PCM supply voltage
VSS	Vehicle Speed	Vehicle Speed

NOTE: *The diagnostic PID list is generic and not all PIDs may be available on any given vehicle.*

Output State Control Enabling Criteria

Retrieve the continuous codes, carry out a KOEO and KOER on-demand self test before using output state control. Any DTC s related to the TR sensor, TSS sensor or OSS sensor must be fixed or the PCM won't allow output state control to operate.

SSA_AMP#, SSB_AMP#, SSC_AMP#, SSD_AMP#, SSE_AMP#, TCC_AMP#

- Current to individual shift solenoids can be commanded when carrying out an electrical circuit check. To enable OSC , the:
    - • TR must be either PARK or NEUTRAL
    - • KOEO or KOER with engine at idle (APP1 = 0%)

LINE_DSD#

- Line pressure in the transmission can be commanded higher or lower while monitoring the actual line pressure on a gauge. To enable OSC , the:
    - • TR must be either PARK or NEUTRAL
    - • KOER with engine idle greater than 1000 RPM (APP1 = 0%)

GEAR_OSC#

- Individual gears can be commanded by using GEAR_OSC# while road testing the vehicle. The functionality is similar to using the Select Shift +/- button on vehicles equipped with Select Shift. The PCM/TCM cannot command certain gears if the engine speed/vehicle speed combination could result in engine damage. To enable OSC , the:
    - • TR must be in DRIVE
    - • VSS greater than 10 km/h (6 mph).

TCC_OSC#

- Some vehicle concerns may be more pronounced when the torque converter clutch is applied or released. For example, minor cylinder misfires may not be felt during a road test until the additional load of the torque converter clutch is applied. To enable OSC , the:
    - • TR must be in DRIVE
    - • Engine RPM greater than 1200

- - • GEAR equal to 3, 4, 5, or 6
  - • VSS greater than 3 km/h (2 mph)
  - • <u>BPP</u> = OFF
  - • TFT between 15°C (60°) to 115°C (240°F)

HRSH_SHFT#

- Some transmission concerns may be identified by temporarily commanding firm shifts. To enable <u>OSC</u> the:
  - • TR must be in Park, Rev, N or DRIVE
  - • Won't work in M, 2, 1