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M.U.T.-III SE Function

caution	After disconnecting the M.U.T.-III SE vehicle interface (VI) from the data link connector, the ignition must be cycled OFF → ON (for at least 5 seconds) → OFF. If this step is not performed, the BCM may not go to “sleep mode”, potentially causing a discharged battery and a no-start condition.

APPLICABLE ITEM

Diagnosis mode	Description
Self Diagnostic Result	Display DTC which TCM memorizes
Data List	Displays TCM input/output data in real time
Special Function	• Displays TCM part number • This mode enables a technician to adjust some devices faster and more accurately
CALIB DATA	The calibration data status of TCM can be checked

SELF DIAGNOSTIC RESULTS

Refer to DTC Index.

DTC at 1st trip and method to read DTC

- DTC (P0705, P0711, P0720, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on “Self Diagnostic results” of M.U.T.-III SE.
  When DTC is currently detected, “Active DTC” is displayed. If “Stored DTC” is displayed, it shows a malfunction occurred in the past.
- When the DTC at the 1st trip is detected, “1t” is displayed.

DTC deletion method

note	If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn the ignition ON again. (Engine stop)

1. Touch “TRANSMISSION” of M.U.T.-III SE.
2. Touch “Self Diagnostic Result”.
3. Touch “Erase DTCs”. (DTC memorized in TCM is erased.)

Freeze Frame Data (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on M.U.T.-III SE.

Monitored item	Displayed contents
ODO/TRIP METER	Displays the mileage at the time the malfunction is detected.
DTC count (Count)	Displays the number of times DTC is detected.

DATA MONITOR

note	The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to M.U.T.-III SE display items.

Monitored item	(Unit)	Remarks
L POSITION SW	(On/Off)	• Displays the operation status of the transmission range switch (L position). • This monitor item do not use.
SPORT MODE SW	(On/Off)	• Displays the reception status of the overdrive control switch signal received through CAN communication. • This monitor item do not use.
ECO MODE SW	(On/Off)	• Displays the reception status of the ECO mode switch signal received through CAN communication. • This monitor item do not use.
SPORT MODE IND	(On/Off)	• Displays the transaxle status of the O/D OFF indicator light signal transmitted through CAN communication. • This monitor item do not use.
MANU MODE SIGNAL	(On/Off)	Displays the transaxle status of the manual mode signal transmitted through CAN communication.
Ds mode signal		• Displays whether it is the Ds mode. • This monitor item do not use.
ECO MODE SIGNAL	(On/Off)	• Displays the transaxle status of the ECO mode signal transmitted through CAN communication. • This monitor item do not use.
M GEAR POS		Display the target gear of manual mode
ENGBRKLVL	(On/Off)	Displays the setting of “ENGINE BRAKE ADJ” in “Special Function”.

Monitored item	(Unit)	Remarks
AIR BLDING STATE	(INCOMP/COMP)	• Displays the status of “ELECTRIC O.P. AIR BLEEDING” in “Special Function”. • This monitor item do not use.
2WD/4WD identification		Displays the axle type of the vehicle.
T/M warning indicator DTC		Displays the first DTC when CVT system warning is displayed.
T/M warning indicator mileage		Displays the total mileage when CVT system warning is displayed at first time.
D POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (D position).
N POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (N position).
R POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (R position).
P POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (P position).
IDLE SW	(On/Off)	Displays the reception status of the closed throttle position signal received through CAN communication.
STRDWNSW	(On/Off)	Displays the operation status of the paddle shifter (down switch).
STRUPSW	(On/Off)	Displays the operation status of the paddle shifter (up switch).
DOWNLVR	(On/Off)	• Displays the operation status of the selector lever (down switch). • This monitor item do not use.
UPLVR	(On/Off)	• Displays the operation status of the selector lever (up switch). • This monitor item do not use.

Monitored item	(Unit)	Remarks
NONMMODE	(On/Off)	• Displays if manual mode is not activated. • This monitor item do not use.
MMODE	(On/Off)	• Displays if manual mode is activated. • This monitor item do not use.
Tow mode switch	(On/Off)	• Displays the reception status of the TOW mode switch signal received through CAN communication. • This monitor item do not use.
CVT LIGHT	(On/Off)	• Displays the transaxle status of the CVT warning light signal transmitted through CAN communication. • This monitor item do not use.
ASC ON	(On/Off)	Displays the reception status of the ASC operation signal received through CAN communication.
TCS ON	(On/Off)	Displays the reception status of the TCS operation signal received through CAN communication.
ABS FAIL SIGNAL	(On/Off)	Displays the reception status of the ABS malfunction signal received through CAN communication.
ABS ON	(On/Off)	Displays the reception status of the ABS operation signal received through CAN communication.
G SEN CALIBRATION	(YET/DONE)	Displays the status of “G SENSOR CALIBRATION” in “Special Function”.
N IDLE STATUS	(On/Off)	• Displays idle neutral status. • This monitor item do not use.
SNOW MODE	(On/Off)	• Displays whether it is the SNOW mode. • This monitor item do not use.

Monitored item	(Unit)	Remarks
ECO MODE	(On/Off)	• Displays whether it is the ECO mode. • This monitor item do not use.
NORMAL MODE	(On/Off)	• Displays whether it is the NORMAL mode. • This monitor item do not use.
SPORT MODE	(On/Off)	• Displays whether it is the SPORT mode. • This monitor item do not use.
ELECTRIC OP RELAY	(On/Off)	• Displays the command status from TCM to the electric oil pump relay. • This monitor item do not use.
E-OP RELAY MON	(On/Off)	• Monitors the command status from TCM to the oil pump relay and displays the monitored value. • This monitor item do not use.
Exchange transmission		This monitor item do not use.
Exchange oil pressure C/V		This monitor item do not use.
CVTF DETERIORATION DATE		This monitor item do not use.
Select - Initial learning temp		This monitor item do not use.
Lock-up - Initial learning temp		This monitor item do not use.
Select (N-D) - Initial learn press		This monitor item do not use.
Select (N-D) - Initial learn time		This monitor item do not use.

Monitored item	(Unit)	Remarks
Select (N-R) - Initial learn press		This monitor item do not use.
Select (N-R) - Initial learn time		This monitor item do not use.
Lock-up - Initial learning 1		This monitor item do not use.
SLIP REV	(rpm)	Displays the speed difference between the input shaft speed of CVT and the engine speed.
ELECTRIC OP DUTY	(%)	• Displays the command signal value (duty) of the electric oil pump transmitted from TCM. • This monitor item do not use.
Slip revolution absolute value	(rpm)	This monitor item do not use.
Target transmission speed	(sec)	This monitor item do not use.
E-OP DUTY MON	(%)	• Monitors the status signal value (duty) transmitted from the electric oil pump and displays the monitored value. • This monitor item do not use.
Input speed sensor	(rpm)	Displays the input speed calculated from the pulse signal of the input speed sensor.
PRI SPEED SEN	(rpm)	Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.
SEC REV SENSOR	(rpm)	Displays the secondary pulley speed calculated from the pulse signal of the output speed sensor.
ENG SPEED SIG	(rpm)	Displays the engine speed received through CAN communication.
SEC PRESSURE SEN	(V)	Displays the signal voltage of the secondary pressure sensor.
PRI PRESSURE SEN	(V)	Displays the signal voltage of the primary pressure sensor.

Monitored item	(Unit)	Remarks
ATF TEMP SEN	(V)	Displays the signal voltage of the CVT fluid temperature sensor.
G SENSOR	(V)	Displays the signal voltage of the G sensor.
TRQ RTO		Display the torque ratio of torque converter.
G sensor (TCM)	(V)	• Displays the voltage signal of G sensor for TCM. • This monitor item do not use.
BRAKESW	(On/Off)	Displays the reception status of the stop light switch signal received through CAN communication.
SHIFT IND SIGNAL		Displays the transaxle value of shift position signal transmitted via CAN communication.
RANGE		Displays the gear position recognized by TCM.
VSP SENSOR	(km/h or mph)	Displays the vehicle speed calculated from the CVT output shaft speed.
ESTM VSP SIG	(km/h or mph)	• Displays the vehicle speed signal (ABS) received through CAN communication. • Models with ABS are displayed.
VIGN SEN	(V)	Displays the battery voltage applied to TCM.
PVIGN VOLT	(V)	Displays the backup voltage of TCM.
VEHICLE SPEED	(km/h or mph)	Displays the vehicle speed recognized by TCM.
INPUT REV	(rpm)	Displays the input shaft speed of CVT recognized by TCM.
PRI SPEED	(rpm)	Displays the primary pulley speed recognized by TCM.
SEC SPEED	(rpm)	Displays the secondary pulley speed recognized by TCM.
ENG SPEED	(rpm)	Displays the engine speed recognized by TCM.
PULLEY GEAR RATIO		Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.
G SPEED	(G)	Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.
ACCEL POSI SEN 1	(deg)	Displays the estimated throttle position received through CAN communication.

Monitored item	(Unit)	Remarks
VENG TRQ	(Nm)	Display the engine torque recognized by TCM.
PRI TRQ	(Nm)	Display the input shaft torque of CVT.
SEC PRESSURE	(MPa)	Displays the secondary pressure calculated from the signal voltage of the secondary pressure sensor.
PRI PRESSURE	(MPa)	Displays the primary pressure calculated from the signal voltage of the primary pressure sensor.
FLUID TEMP	(°C or °F)	Displays the CVT fluid temperature calculated from the signal voltage of the CVT fluid temperature sensor.
DSR REV	(rpm)	Displays the target primary pulley speed calculated from processing of gear shift control.
TRGT GEAR RATIO		Displays the target gear ratio of the pulley from processing of gear shift control.
LU PRS	(MPa)	Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control.
LINE PRS	(MPa)	Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.
TRGT PRI PRESSURE	(MPa)	Displays the target oil pressure of the primary pressure solenoid valve calculated from oil pressure processing of gear shift control.
Target select pressure	(MPa)	Displays the target oil pressure of the select solenoid valve calculated from oil pressure processing of gear shift control.
TARGET SEC PRESSUR	(MPa)	Displays the target oil pressure of the secondary pressure solenoid valve calculated from oil pressure processing of gear shift control.
ISOLT1	(mA)	Displays the command current from TCM to the torque converter clutch solenoid valve.
ISOLT2	(mA)	Displays the command current from TCM to the line pressure solenoid valve.
PRI SOLENOID	(mA)	Displays the command current from TCM to the primary pressure solenoid valve.
SEC SOLENOID CURRENT	(mA)	Displays the command current from TCM to the secondary pressure solenoid valve.

Monitored item	(Unit)	Remarks
SELECT SOLENOID CURRENT	(mA)	Displays the command current from TCM to the select solenoid valve.
SOLMON1	(mA)	Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.
SOLMON2	(mA)	Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.
PRI SOL MON	(mA)	Monitors the command current from TCM to the primary pressure solenoid valve and displays the monitored value.
SEC SOL MON CURRENT	(mA)	Monitors the command current from TCM to the secondary pressure solenoid valve and displays the monitored value.
SELECT SOL MON CURRENT	(mA)	Monitors the command current from TCM to the select solenoid valve and displays the monitored value.
G SEN SLOPE	(%)	Displays the gradient angle calculated from the G sensor signal voltage.
CVT-B		• Displays CVT fluid temperature count. • This monitor item do not use.
CVT-A		• Displays CVT fluid temperature count. • This monitor item do not use.

WORK SUPPORT

Function name	Item name	Description
ECU Information	-	Displays TCM part number.
Clear	ERASE LEARNING VALUE	• Erases learning value memorized by TCM.

Function name	Item name	Description
		• This monitor item do not use.
Learning	FWD CLUTCH POINT LEARNING	Allow learning of the forward clutch engagement point.
Engine brake adjustment	ENGINE BRAKE ADJ.	Although there is no malfunction on the transaxle and the CVT system, if a customer make a complaint like “I do not feel comfortable with automatic operation of the engine brake on downhill”, the engine brake may be cancelled with “engine brake adjustment”.
Confirm CVTF deterioration (clear)	CONFORM CVTF DETERIORTN	Checks the degradation level of the CVT fluid under severe conditions.
G sensor calibration	G SENSOR CALIBRATION	Compensates the G sensor.
IP characteristics data writing	WRITE IP CHARA - REPLACEMENT AT/CVT	Writes IP characteristics when transaxle assembly is replaced.
	READ IP CHARA - REPLACEMENT TCM	Reads IP characteristics when TCM is replaced.
	WRITE IP CHARA - REPLACEMENT TCM	Writes IP characteristics when TCM is replaced.
MAC KEY writing	-	Write MAC key to TCM.

Engine brake adjustment

ENGINE BRAKE LEVEL	
ON	: Turn ON the engine brake control.
OFF	: Turn OFF the engine brake control.