

## GROUP 22B

# TWIN CLUTCH-SPORTRO NIC SHIFT TRANSMISSION (TC-SST)

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# TWIN CLUTCH-SPORTRONIC SHIFT TRANSMISSION (TC-SST)

## GENERAL INFORMATION

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Due to the addition of RALLIART, TC-SST (twin clutch-sportronic shift transmission) has been adopted. The TC-SST assembly is a twin clutch type automatic M/T that offers the easy driving similar to A/T, excellent sport driving, and enhanced fun to drive. The TC-SST assembly offers the following features.

### Good fuel efficiency

- Because the basic structure is the same as M/T, it is simple and has a high driving force transmission efficiency.
- Instead of the torque converter, the clutch is used to transfer the driving force from engine, reducing the loss of driving force.
- Through the precise joint control with the engine, the gears can be shifted at the optimum timing. (With NORMAL mode)

### Shift feeling

- Corresponding to the optimization of shift change timing by the automatic shifting, the shift shock is reduced, and the shifting is made smooth without torque loss.

### Easy drive

- By adopting TC-SST-ECU, solenoid valve, sensor, valve body, and others, the easy driving similar to A/T has been achieved.

### Sport drive

- Drive mode switching function is equipped which enables the selection of NORMAL, SPORT.

### Fun to Drive

- The manual mode and the paddle shift are adopted that allow the driver to shift gears at any timing.

### Starting acceleration

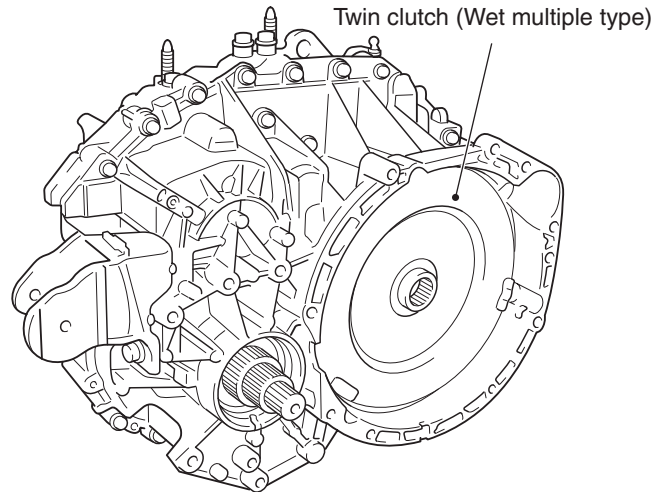
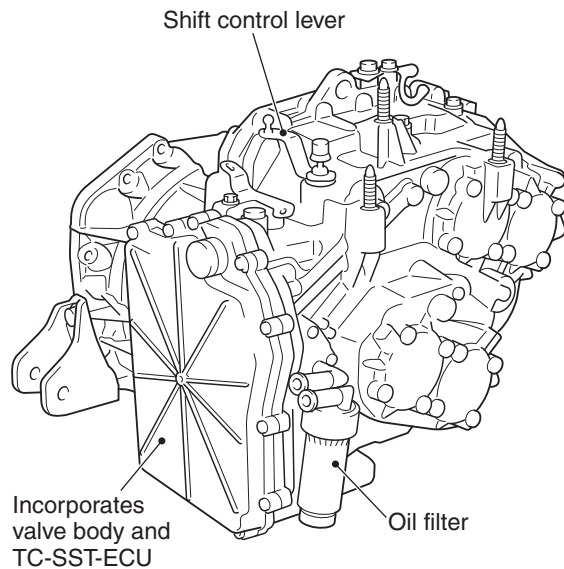
- The clutch and gear shift operation are automatically controlled, reducing the power transfer loss and achieving the ideal starting acceleration.

## SPECIFICATIONS

Item	Specification	
Transmission model	W6DGA	
Transmission type	6-speed forward, 1-speed reverse constant mesh	
Clutch	Wet multiplate clutch x 2	
Transmission ratio	1st	3.655
	2nd	2.368
	3rd	1.754
	4th	1.322
	5th	0.983
	6th	0.731
	Reverse	4.011
Final gear ratio	4.062	
Helical gear LSD (front differential)	Present	
Transfer	Reduction ratio	0.302
	Differential gear unit	Hydraulic pressure multiplate clutch (ACD)
Transmission oil	Brand	Dia Queen SSTF-I
	Capacity dm <sup>3</sup> (qt)	7.6 (8.0) [Including 0.5 (0.53) in oil cooler]

Item		Specification
Transfer oil	Brand	Dia Queen LSD gear oil
	Capacity dm <sup>3</sup> (qt)	0.8 (0.85)
ACD fluid	Brand	DIAMOND ATF SP III
	Capacity dm <sup>3</sup> (qt)	0.9 (0.95) [Including hydraulic pipe section]

**OVERVIEW**



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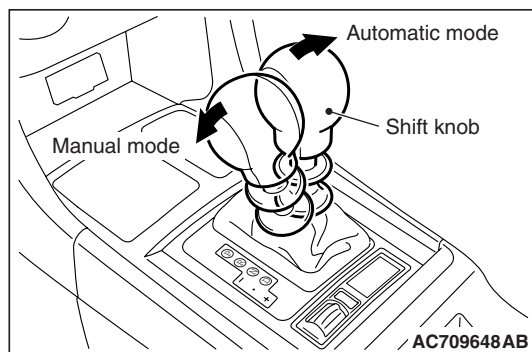
**DESCRIPTION OF FUNCTION**

The TC-SST assembly offers the following features, achieving high-performance as well as the easy driving and sport driving.

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**SHIFTING MODE**

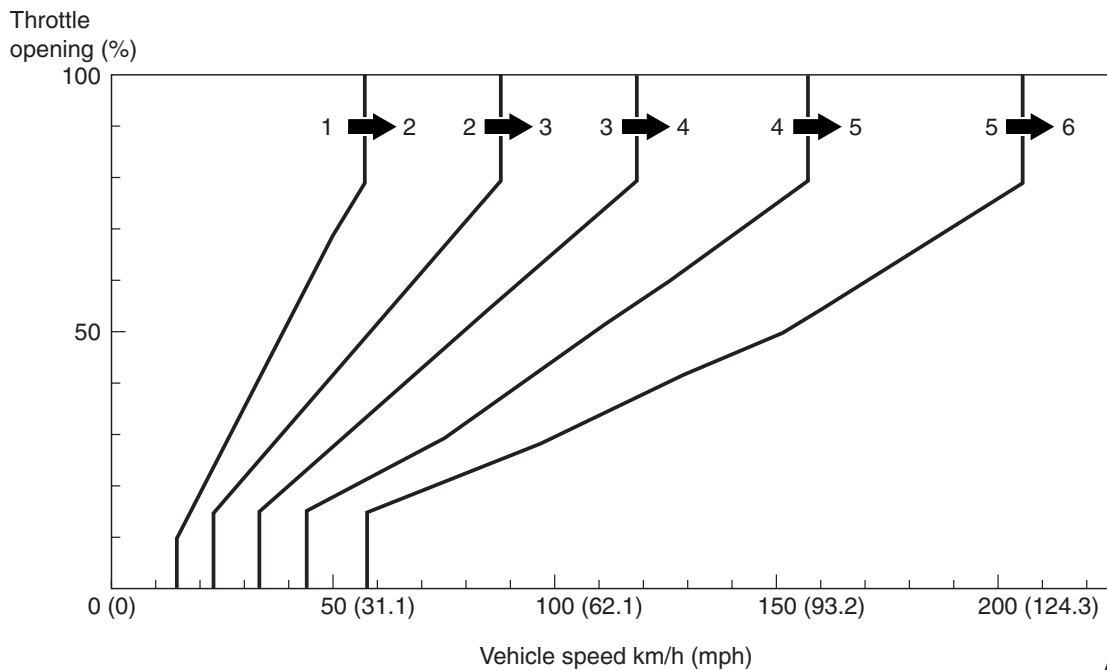
By the operation of shift lever, the automatic mode and manual mode can be selected.



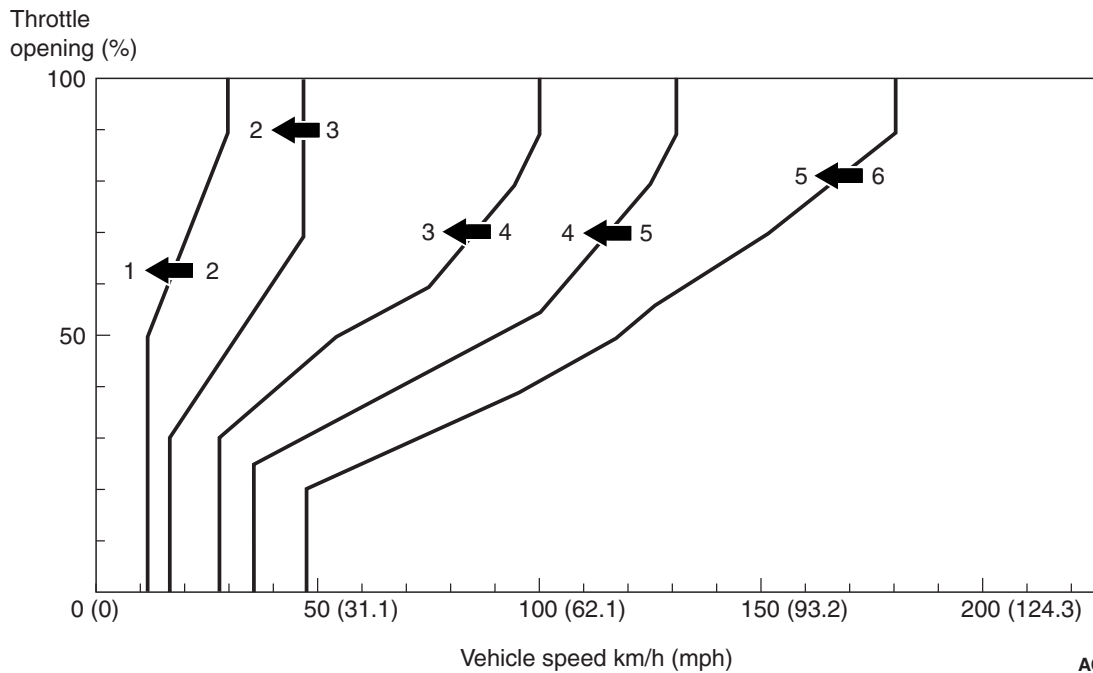
Mode	Control content
Automatic mode (Shift lever position: D)	<ul style="list-style-type: none"> <li>Shifting is performed automatically according to the shift map. By the operation of paddle shift, the mode can be changed to the manual mode. (When the "+" side lever of paddle shift is pulled for 2 seconds, the mode returns to the automatic mode. When the vehicle is stopped, the mode automatically returns to the automatic mode.)</li> <li>In combination with the drive mode, it provides support for the economy driving to circuit driving.</li> </ul>
Manual mode (Shift lever position: +/-side)	<ul style="list-style-type: none"> <li>By the operation of shift lever or paddle shift, the driver can change gears at any timing.</li> <li>No automatic shifting is performed during driving, but the selection of 1st gear and clutch engagement at starting are performed automatically. Also, the gear is downshifted automatically during deceleration before a stop, and the clutch is released during stop to achieve the neutral status.</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>Depending on the driving and operation conditions, the shifting may be restricted, including the prohibition of upshifting to ensure the driving performance and prohibition of downshifting to prevent the engine over revolution.</li> <li>When the fluid temperature is high, the shifting may be delayed from the operation in order to protect the TC-SST assembly.</li> </ul>

**SHIFT MAP**

**<NORMAL - UPSHIFT>**



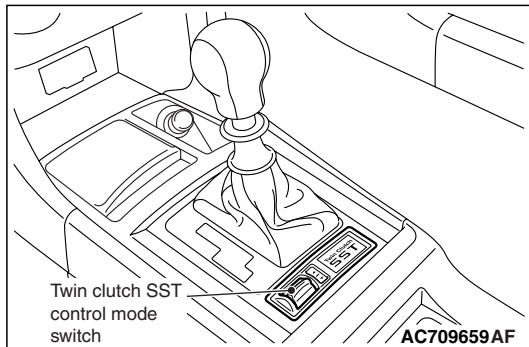
<NORMAL - DOWNSHIFT>



AC707188 AD

**DRIVE MODE**

By the switching of twin clutch SST control mode switch, two types of control modes, which are NORMAL, SPORT, can be selected.



Mode	Control content
NORMAL	<ul style="list-style-type: none"> <li>This mode is best suited for the normal driving on normal roads, expressways, and snowy roads.</li> <li>A consideration is given to comfort and fuel efficiency, and the control is performed to shift gears smoothly at low engine speed.</li> </ul>
SPORT	<ul style="list-style-type: none"> <li>This mode is best suited for sport driving.</li> <li>Compared to NORMAL, the control is performed to shift gears swiftly at high engine speed. This mode enables driving that is characteristic of RALLIART, offered by the shifting timing focused on acceleration, the deceleration by downshifting at braking, and others.</li> </ul>

**CREEP FUNCTION**

With TC-SST, by intentionally making the clutch to slip (half clutch), the creep driving can be performed which is similar to A/T. Because this function allows the forward and backward driving in low speed, the driving becomes easier on congested road and when

parking the vehicle.

**KICK-DOWN FUNCTION**

For the overtakes on expressway and the acceleration on upslope, when the accelerator pedal is depressed suddenly, the gear is intentionally downshifted for one gear.

Depending on the driving conditions, the downshifting may be performed with 2 or 3 gears skipped, or the downshifting may be rejected.

**DESCRIPTION OF CONSTRUCTION AND OPERATION**

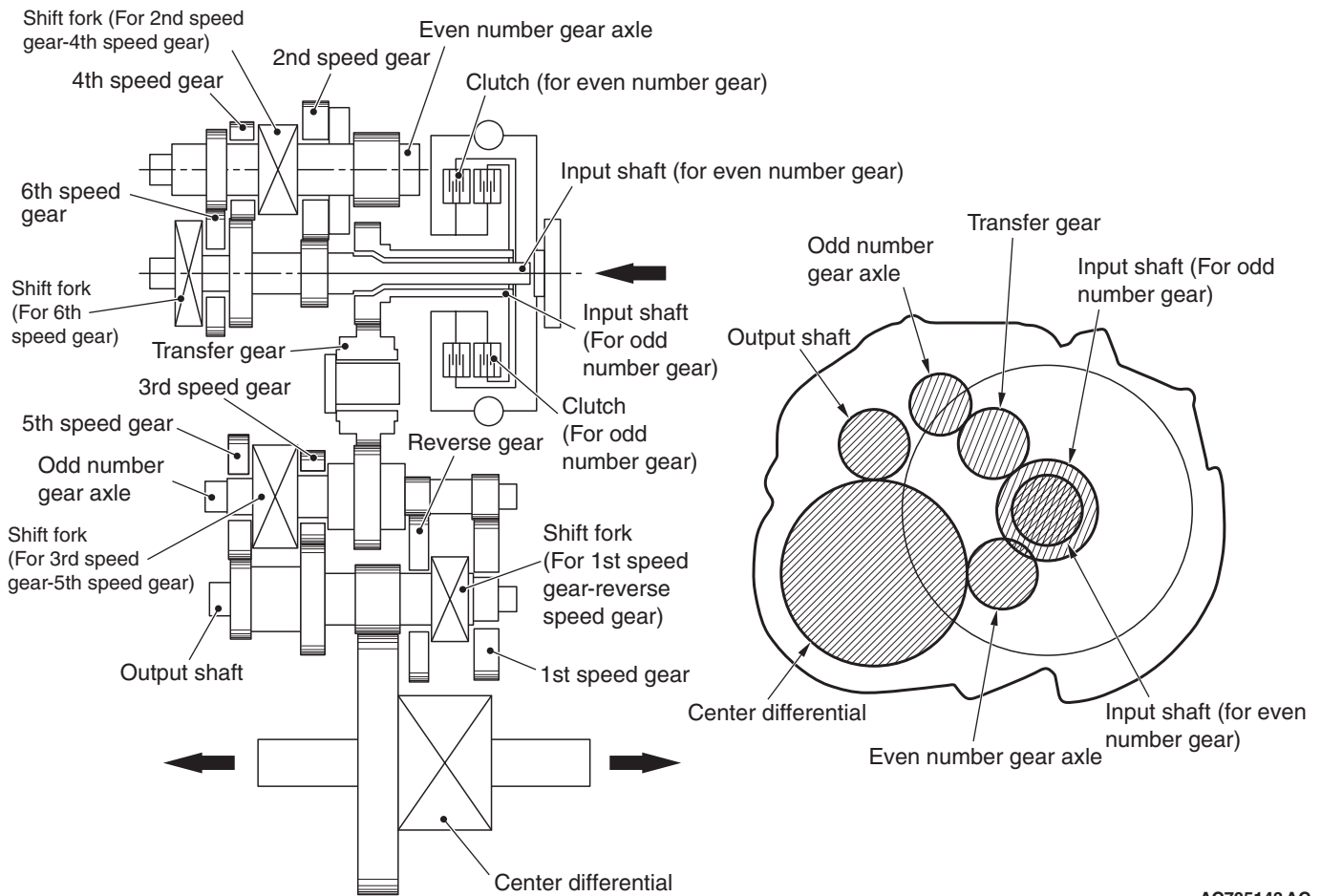
M2224000300112

The TC-SST assembly consists mainly of the clutch, shifting section, valve body, and TC-SST-ECU. The valve body is controlled by TC-SST-ECU, and the clutch and shifting operations are performed by the hydraulic pressure from the valve body.

Name		Structure and action
Shift mechanism	Clutch	Two wet multiplate clutches are divided for the odd number gears and even number gears, and each clutch is engaged and released alternately.
	Shifting section (Reverse, 1st, 3rd, 5th)	The odd number gear axle consists of the reverse, 1st, 3rd, and 5th gears, synchronizer, and two shift forks, and it is connected to the clutch (for odd number gears).
	Shifting section (2nd, 4th, 6th)	The even number gear axle consists of the 2nd, 4th, and 6th gears, synchronizer, and two shift forks, and it is connected to the clutch (for even number gears).
Hydraulic mechanism	Valve body	The hydraulic circuit for feeding oil to each part of TC-SST assembly is mounted, and the solenoid valve for changing the circulating path and controlling the hydraulic pressure is equipped.
Control mechanism	TC-SST-ECU	Incorporated into the TC-SST assembly. Controls the solenoid valve based on various signals.

**SHIFT MECHANISM**

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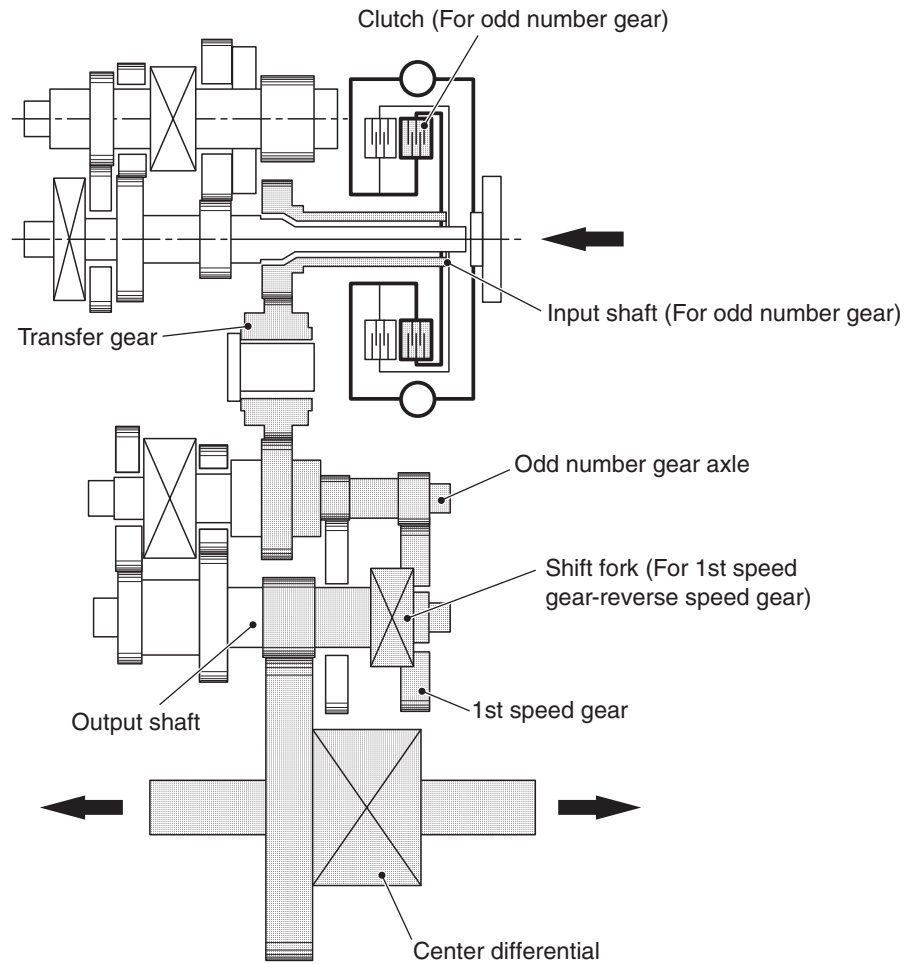


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The shifting mechanism of TC-SST assembly is divided into two systems as the odd number gear axle (reverse, 1st, 3rd, 5th) and even number gear axle (2nd, 4th, 6th). Each mechanism is joined with an independent clutch, establishing a structure with which two 3-speed M/T mechanisms are combined.

**WHEN IN P AND N RANGE**

In the P range and N range, the 2nd gear and the 1st gear are engaged beforehand with the two clutches kept released.

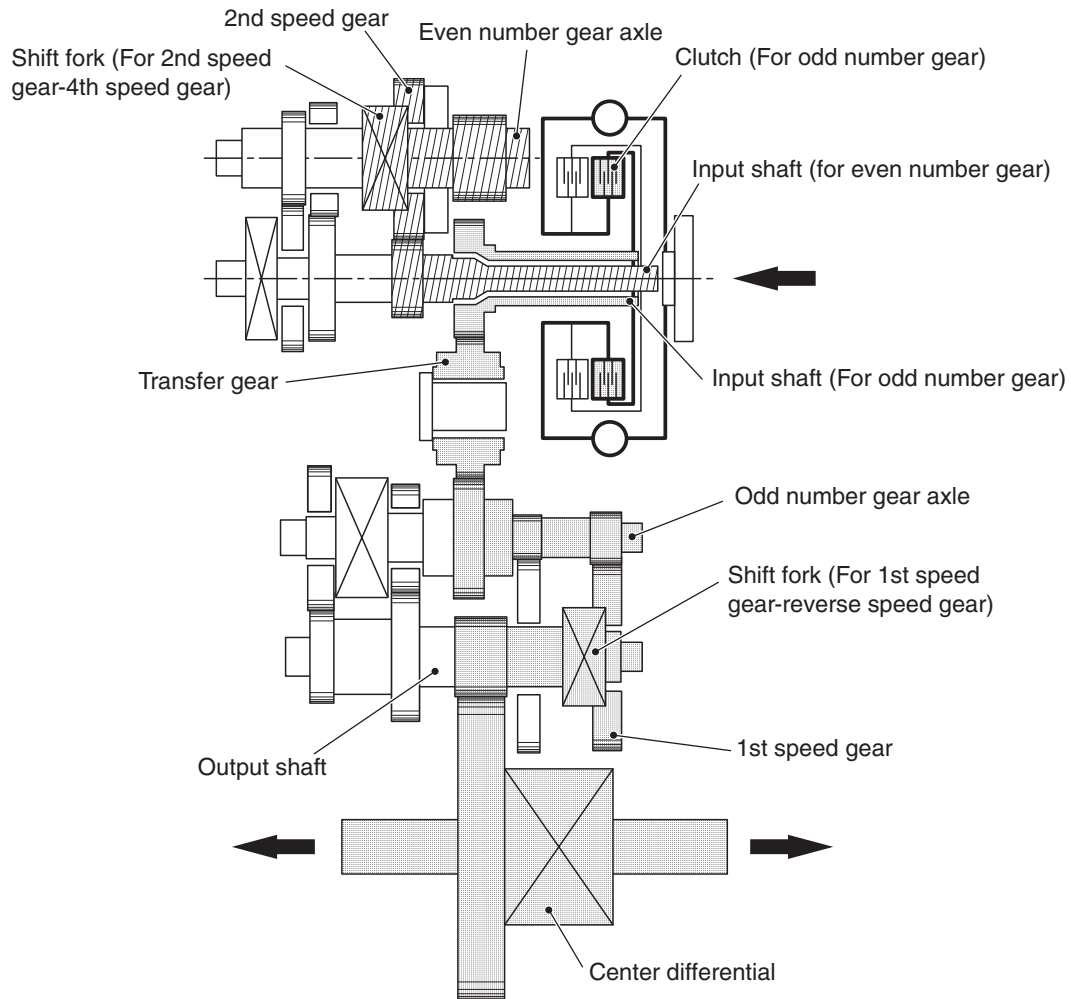
AT STARTING (P →D RANGE, N →D  
RANGE)

AC705587AD

Corresponding to the operations from P to D and from N to D, the clutch for the odd number gears is engaged to perform the 1st gear starting.

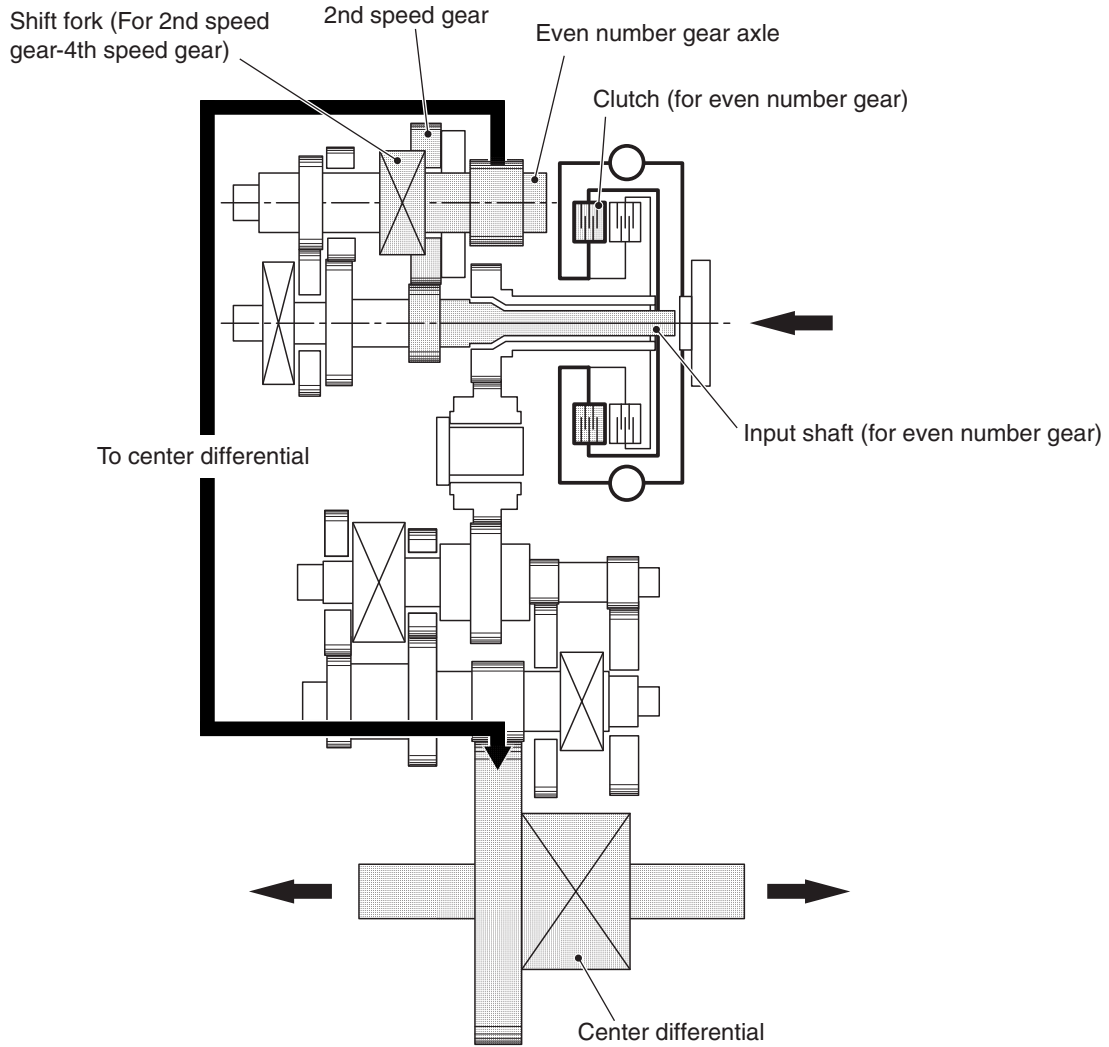


WHEN DRIVING IN 1ST GEAR



During driving with the 1st gear, the even number gear clutch is kept released, and the 2nd gear is engaged in advance. (During driving with even number gears, the odd number gears are engaged in advance.)

WHEN DRIVING IN 2ND GEAR



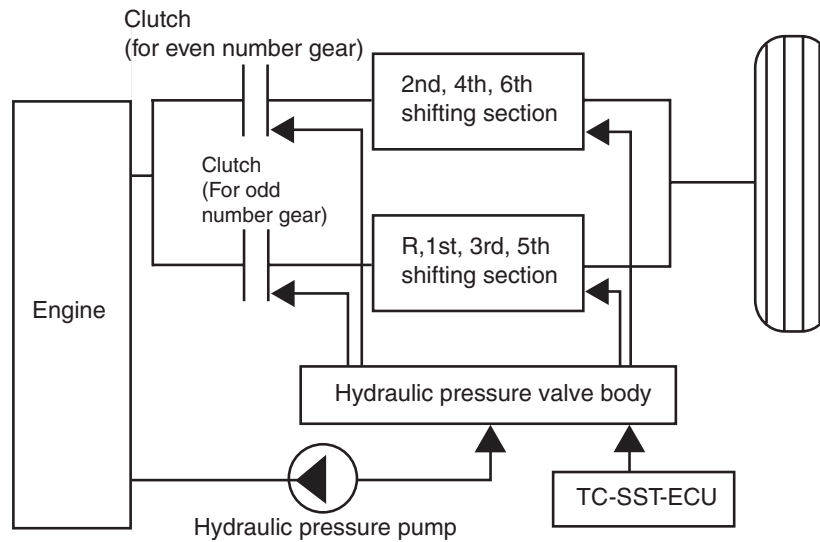
AC705589 AC

The clutch (for odd number gears) is released at the shifting timing in accordance with the shift map, and the clutch (for even number gears) is engaged to perform driving with the 2nd gear.

Because the shifting is performed only by the alternation of two clutches, the shifting time is short, and the clutch does not become completely released during driving.

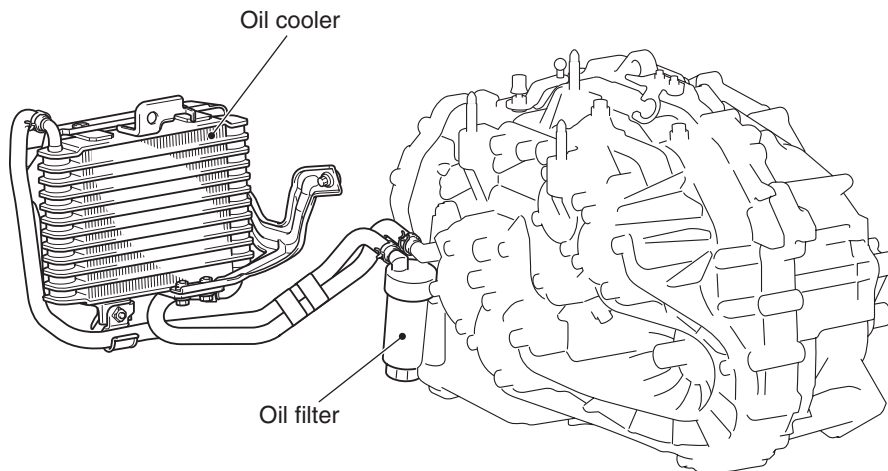
HYDRAULIC MECHANISM

M2224000500075



AC705353 AD

By the operation of solenoid valve, the valve body feeds the hydraulic pressure needed for the operation of clutch and each shifting section. The solenoid valve is controlled by TC-SST-ECU, and the hydraulic pump generates the hydraulic pressure by using the engine power.

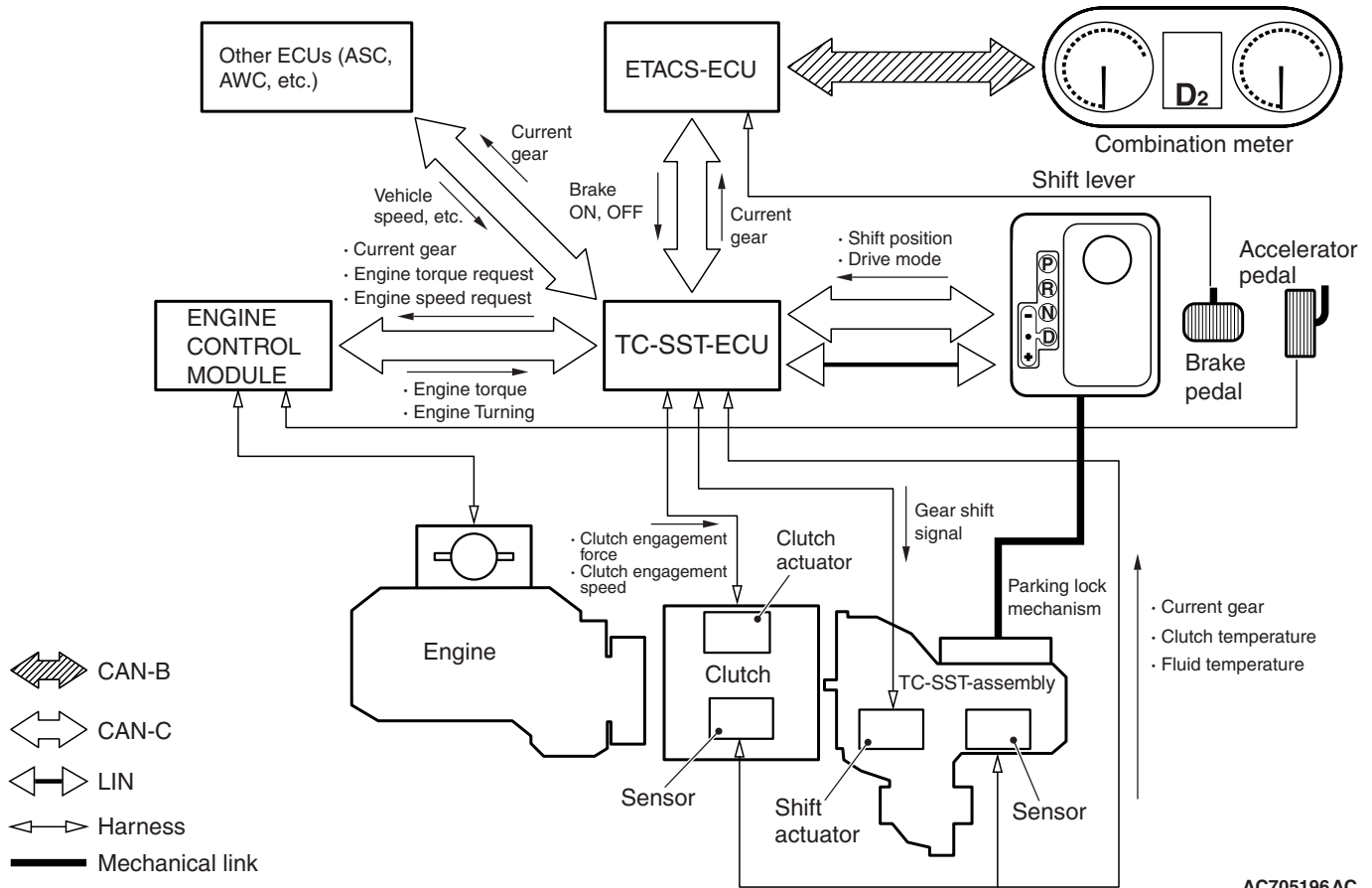


AC705842 AC

Also, to prevent the oil performance drop, the oil cooler and oil filter are equipped.

CONTROL MECHANISM

M2224000600094



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TC-SST-ECU communicates with various systems (engine control module, shift lever, twin clutch SST control mode switch, and others) to recognize the driver operation, driving condition, malfunction of systems, and others, and performs the corresponding control of TC-SST assembly.

Name	Function content
TC-SST-ECU	<ul style="list-style-type: none"> <li>Incorporated into the TC-SST assembly. Controls the solenoid valve of valve body based on the driver operations and signals from sensors and ECUs, and performs the engagement and releasing of clutch as well as the gear shifting.</li> <li>By sending and receiving the information on engine torque, engine speed, shifted gear, and others with the engine control module, performs the integrated control of engine and TC-SST assembly.</li> </ul>
Engine control module	By sending and receiving the information on engine torque, engine speed, shifted gear, and others with TC-SST-ECU, performs the integrated control of engine and TC-SST assembly.

<b>Name</b>	<b>Function content</b>
ETACS-ECU	<ul style="list-style-type: none"> <li>• Transmits the information to TC-SST-ECU of the brake operation and others needed for the vehicle starting and shifting timing.</li> <li>• Receives the information from TC-SST-ECU of the current gear, TC-SST assembly malfunction, and others, and sends the information to the combination meter to display the information.</li> </ul>
Other ECUs (ASC-ECU, AWC-ECU, and others)	By the communication with ECUs which are relevant to the driving performance, controls the TC-SST assembly to support the normal driving to the circuit driving.
Shift lever	By sending the information to TC-SST-ECU of the driver operations, and shifting mode and drive mode switching/selection, controls the TC-SST assembly corresponding to the operation conditions.

**DIAGNOSTIC FUNCTION**

M2224000700132

**DIAGNOSTIC TROUBLE CODE**

If a trouble is present to the TC-SST assembly, a corresponding trouble spot is stored in the TC-SST-ECU as the diagnostic trouble code below, and the code can be read by using the scan tool.

**DIAGNOSTIC TROUBLE CODE TABLE**

<b>Diagnosis trouble code No.</b>	<b>Diagnostic item</b>	<b>Main trouble cause</b>
P0630	Chassis number	VIN not written
P0701	EEPROM	EEPROM malfunction
P0702	Internal control module, monitoring processor	Malfunction of internal control module, monitoring processor
P0712	TC-SST-ECU temperature sensor	Output low range out of TC-SST-ECU temperature sensor
P0713		Output high range out of TC-SST-ECU temperature sensor
P0715	Input shaft 1 (odd number gear axle) speed sensor	Output high range out of input shaft 1 (odd number gear axle) speed sensor
P0716		Poor performance of input shaft 1 (odd number gear axle) speed sensor
P0717		Output low range out of input shaft 1 (odd number gear axle) speed sensor
P0725	Engine speed	Abnormality in crankshaft angle sensor signal
P0746	Line pressure solenoid	Drive current range out of line pressure solenoid
P0753	Shift select solenoid 1	Open circuit in shift select solenoid 1
P0758	Shift select solenoid 2	Open circuit in shift select solenoid 2
P0776	Clutch cooling flow solenoid	Drive current range out of clutch cooling flow solenoid
P0777		Clutch cooling flow solenoid sticking
P0841	Clutch 1 pressure sensor	Poor performance of clutch 1 pressure sensor
P0842		Output low range out of clutch 1 pressure sensor
P0843		Output high range out of clutch 1 pressure sensor

Diagnosis trouble code No.	Diagnostic item	Main trouble cause
P0846	Clutch 2 pressure sensor	Poor performance of clutch 2 pressure sensor
P0847		Output low range out of clutch 2 pressure sensor
P0848		Output high range out of clutch 2 pressure sensor
P0960	Line pressure solenoid	Open circuit in line pressure solenoid
P0961		Overcurrent of line pressure solenoid
P0962		Short to ground in line pressure solenoid
P0963		Short to power supply in line pressure solenoid
P0964	Clutch cooling flow solenoid	Open circuit in clutch cooling flow solenoid
P0965		Overcurrent of clutch cooling flow solenoid
P0966		Short to ground in clutch cooling flow solenoid
P0967		Short to power supply in clutch cooling flow solenoid
P0968	Shift/cooling switching solenoid	Open circuit in shift/cooling switching solenoid
P0970		Short to ground in shift/cooling switching solenoid
P0971		Short to power supply in shift/cooling switching solenoid
P0973	Shift select solenoid 1	Short to ground in shift select solenoid 1
P0974		Short to power supply in shift select solenoid 1
P0976	Shift select solenoid 2	Short to ground in shift select solenoid 2
P0977		Short to power supply in shift select solenoid 2
P1637	EEPROM	Diagnostic trouble code storing malfunction of EEPROM
P1676	Variant coding	Variant coding not complete
P1802	Shift lever	Malfunction of shift lever LIN communication
P1803		CAN or LIN time-out error of shift lever
P1804	Shift fork position sensor 1 and 2	Shift fork position sensor 1 and 2 system (Power supply voltage low range out)
P1805		Shift fork position sensor 1 and 2 system (Power supply voltage high range out)
P1806	Shift fork position sensor 3 and 4	Shift fork position sensor 3 and 4 system (Power supply voltage low range out)
P1807		Shift fork position sensor 3 and 4 system (Power supply voltage high range out)
P1808	TC-SST-ECU temperature, fluid temperature sensor	Correlation error of TC-SST-ECU temperature, fluid temperature sensor
P180C	Clutch pressure cut	Clutch pressure cut spool sticking
P181B	Clutch 1	Pressure low range out of clutch 1
P181C		Pressure high range out of clutch 1
P181E	Clutch 2	Pressure low range out of clutch 2
P181F		Pressure high range out of clutch 2

<b>Diagnosis trouble code No.</b>	<b>Diagnostic item</b>	<b>Main trouble cause</b>
P1820	Shift fork position sensor 1	Voltage low range out of shift fork position sensor 1
P1821		Voltage high range out of shift fork position sensor 1
P1822		Output range out of shift fork position sensor 1
P1823		Neutral of shift fork position sensor 1
P1824		Poor performance of shift fork position sensor 1
P1825	Shift fork position sensor 2	Voltage low range out of shift fork position sensor 2
P1826		Voltage high range out of shift fork position sensor 2
P1827		Output range out of shift fork position sensor 2
P1828		Neutral of shift fork position sensor 2
P1829		Poor performance of shift fork position sensor 2
P182A	Shift fork position sensor 3	Voltage low range out of shift fork position sensor 3
P182B		Voltage high range out of shift fork position sensor 3
P182C		Output range out of shift fork position sensor 3
P182D		Neutral of shift fork position sensor 3
P182E		Poor performance of shift fork position sensor 3
P1831	Shift fork position sensor 4	Voltage low range out of shift fork position sensor 4
P1832		Voltage high range out of shift fork position sensor 4
P1833		Output range out of shift fork position sensor 4
P1834		Neutral of shift fork position sensor 4
P1835		Poor performance of shift fork position sensor 4
P1836	Shift fork 1	Malfunction of shift fork 1
P183D	Shift fork 2	Malfunction of shift fork 2
P1844	Shift fork 3	Malfunction of shift fork 3
P184B	Shift fork 4	Malfunction of shift fork 4
P1852	Shift fork 1 or 2	Opposite direction movement of shift fork 1 or 2
P1855	Shift fork 3 or 4	Opposite direction movement of shift fork 3 or 4
P1857	Odd number gear axle	Odd number gear axle interlock
P1858	Even number gear axle	Even number gear axle interlock
P185D	Clutch	Clutch open not possible
P1862	High side 1	Overcurrent of high side 1
P1863		Open circuit in high side 1
P1864		Short to power supply in high side 1
P1866	High side 2	Overcurrent of high side 2
P1867		Open circuit in high side 2
P1868		Short to power supply in high side 2
P186A	High side 3	Overcurrent of high side 3
P186B		Open circuit in high side 3
P186C		Short to power supply in high side 3
P186D	High side 1	Output low range out of high side 1

Diagnosis trouble code No.	Diagnostic item	Main trouble cause
P186E	High side 2	Output low range out of high side 2
P186F	High side 3	Output low range out of high side 3
P1870	Engine torque	Abnormality in torque signal from the engine control module
P1871	APS	APS signal abnormality
P1872	Between shift lever and TC-SST	Q-A function abnormality between shift lever and TC-SST
P1873	Clutch 1	Pressure abnormality of clutch 1
P1874	Clutch 2	Pressure abnormality of clutch 2
P1875	Damper speed sensor	Poor performance of damper speed sensor
P1876	Gear	1 st gear block
P1877		2 nd gear block
P1878		3 rd gear block
P1879		4 th gear block
P187A		5 th gear block
P187B		6 th gear block
P187C		Gear block reverse
P1880	EOL mode active	TC-SST set mode error
P1881	Twin clutch SST control mode switch	Malfunction of the Twin clutch SST control mode switch and circuit
P1885	Shift fork 1	Shift fork 1 jump out
P1886	Shift fork 2	Shift fork 2 jump out
P1887	Shift fork 3	Shift fork 3 jump out
P1888	Shift fork 4	Shift fork 4 jump out
P1890	Teach-In	Teach-In not completed
P2718	Clutch/shift pressure solenoid 1	Open circuit in clutch/shift pressure solenoid 1
P2719		Overcurrent of clutch/shift pressure solenoid 1
P2720		Short to ground in clutch/shift pressure solenoid 1
P2721		Short to power supply in clutch/shift pressure solenoid 1
P2727	Clutch/shift pressure solenoid 2	Open circuit in clutch/shift pressure solenoid 2
P2728		Overcurrent of clutch/shift pressure solenoid 2
P2729		Short to ground in clutch/shift pressure solenoid 2
P2730		Short to power supply in clutch/shift pressure solenoid 2
P2733	Clutch/shift switching solenoid 1	Spool sticking of clutch/shift switching solenoid 1
P2736		Open circuit in clutch/shift switching solenoid 1
P2738		Short to ground in clutch/shift switching solenoid 1
P2739		Short to power supply in clutch/shift switching solenoid 1
P2742	Fluid temperature sensor	Output low range out of fluid temperature sensor
P2743		Output high range out of fluid temperature sensor



Diagnosis trouble code No.	Diagnostic item	Main trouble cause
P2766	Input shaft 2 (even number gear axle) speed sensor	Poor performance of input shaft 2 (even number gear axle) speed sensor
P2809	Clutch/shift switching solenoid 2	Spool sticking of clutch/shift switching solenoid 2
P2812		Open circuit in clutch/shift switching solenoid 2
P2814		Short to ground in clutch/shift switching solenoid 2
P2815		Short to power supply in clutch/shift switching solenoid 2
U0001	Bus off	Bus off
U0100	Engine time-out error	Engine time-out error
U0103	Shift lever time-out error	Shift lever time-out error
U0121	ASC time-out error	ASC time-out error
U0136	ACD time-out error	ACD time-out error
U0141	ETACS time-out error	ETACS time-out error

### SERVICE DATA

Using scan tool, the information sent to and received by TC-SST-ECU can be checked.

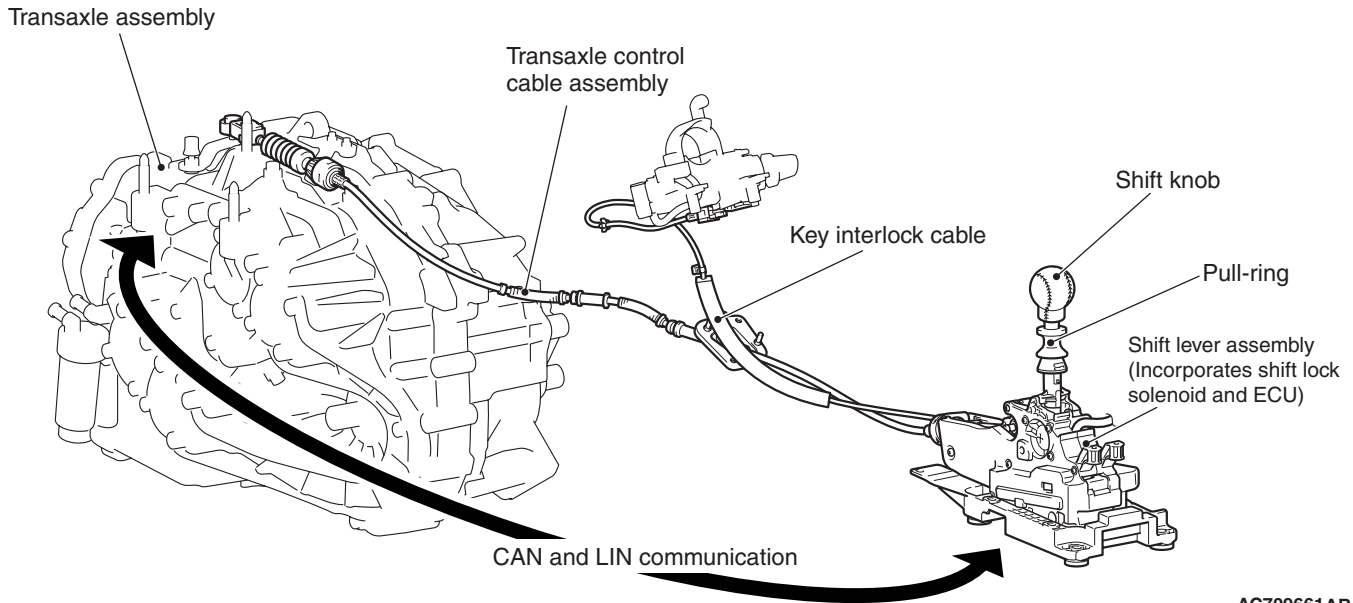
## TRANSAXLE CONTROL

### GENERAL INFORMATION

In order to differentiate the TC-SST assembly shift lever from A/T and CVT, a new exclusive shift lever has been developed whose appearance is made similar to that for M/T. It offers the following features.

- Sporty, straight type shift lever operation has been adopted, and the operating power at each shift position have been properly tuned, ensuring the firm and smooth operation feel.
- The manual mode (6-speed) has been installed to allow manual shifting according to the driver's operation.
- ECU that is incorporated in the shift lever transmits the lever position information and others to TC-SST-ECU via CAN (main circuit) and LIN (auxiliary circuit).
- For the parking lock mechanism, the transmission control cable is adopted.
- The electrical control-type shift lock (shift lever cannot be shifted to the position other than P position unless the brake pedal is depressed) mechanism with the solenoid has been adopted to facilitate the tuning work in assembly. The cable type having an established past record is adopted for the key interlock mechanism.
- Spherical shift knob is used to achieve the same quality as that for M/T.
- As a mis-operation preventative mechanism between P and R range, the pull ring has been adopted.
- The main components have been made of resin to reduce weight and number of components.

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AC709661 AB

**ERRONEOUS OPERATION PREVENTION MECHANISMS**

M2222004000106

**SHIFT LOCK MECHANISM**

This is basically the same as with the electric shift lock mechanism which is used for OUTLANDER.

**KEY INTERLOCK MECHANISM**

This is basically the same as with the cable-type key interlock mechanism which is used for A/T vehicles.

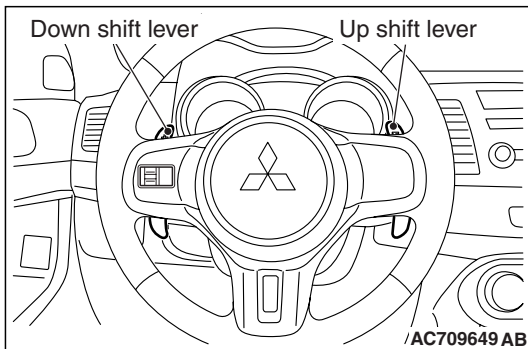
**PADDLE SHIFT**

M2222005000110

The mechanism is basically the same as that of OUTLANDER.

*NOTE: With the automatic shifting (shift lever position: D), when the mode is changed to the manual mode by the paddle shift operation, the mode is cancelled by the conditions below.*

- *Upshift lever is pulled for 2 seconds or more.*
- *Vehicle is stopped.*



**DIAGNOSTIC FUNCTION**

M2222003000084

**DIAGNOSTIC TROUBLE CODE**

If a trouble is present to the shift lever, a corresponding trouble spot is stored in the shift lever-ECU as the diagnostic trouble code below, and the code can be read by using the scan tool.

**DIAGNOSTIC TROUBLE CODE TABLE**

Code No.	Diagnostic item	Main trouble cause
P0563	Abnormality in power supply	Overvoltage from battery
P198D	Defective EEPROM	EEPROM writing data abnormality
P198E	Malfunction of the lever position sensor	No signal is present.
P198F		Signal is present multiple in numbers.
U0001	Bus off	Bus off
U0100	Engine time-out error	Engine time-out error
U0101	TC-SST time-out error	TC-SST time-out error
U0121	ASC time-out error	ASC time-out error
U0141	ETACS time-out error	ETACS time-out error

**ACTIVE CENTER DIFFERENTIAL (ACD)**

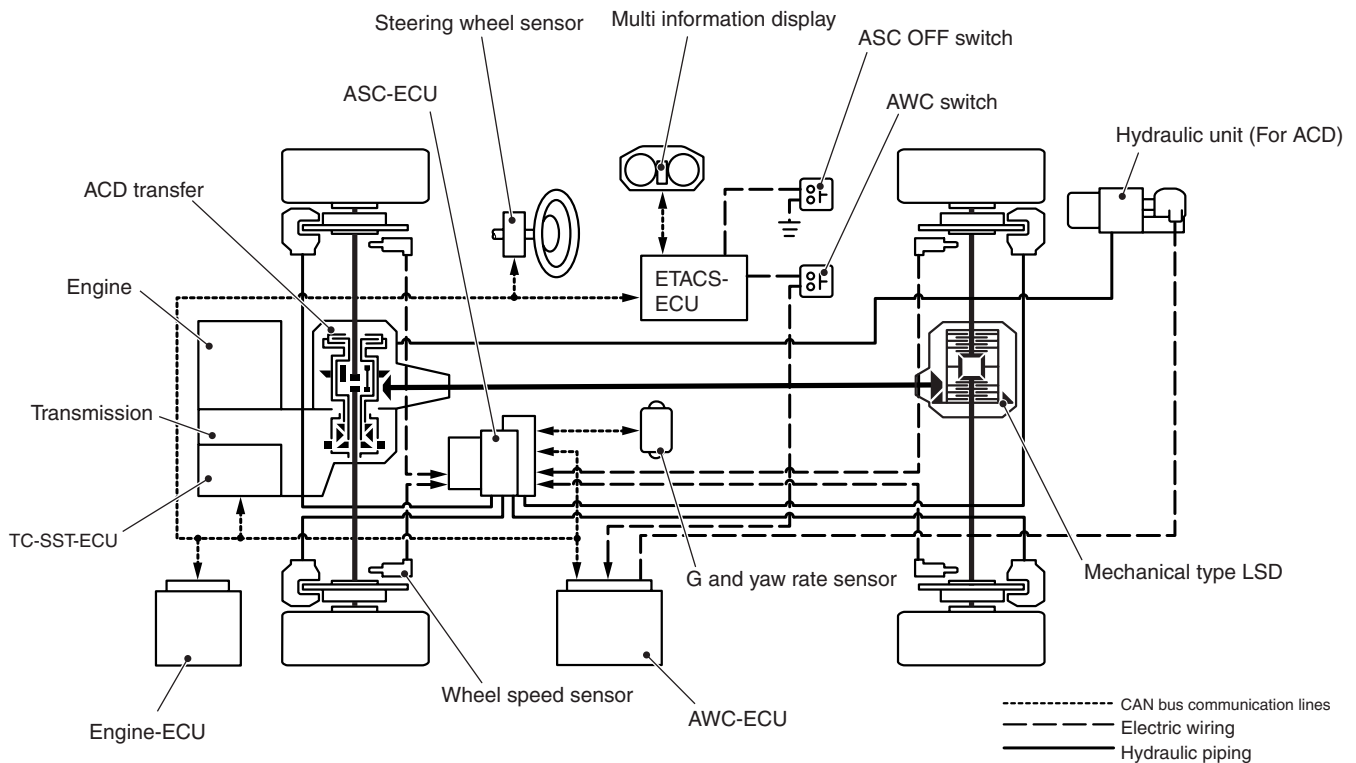
**GENERAL INFORMATION**

M2223000100182

The ACD is the system to improve acceleration performance and straightforward driving ability by controlling the limitation force and driving force distribution of the center differential.

**DESCRIPTION OF STRUCTURE AND OPERATION**

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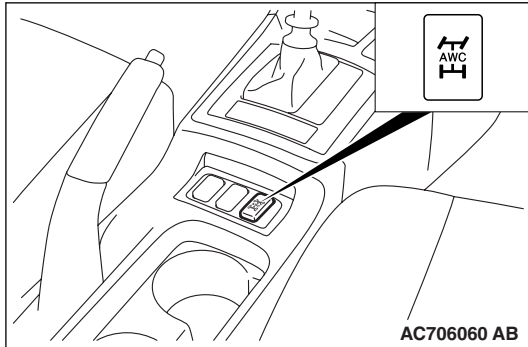


AWC-ECU performs a calculation based on the information from ECU, sensors, and switches. Then, based on the calculation value, it appropriately operates the hydraulic unit (for ACD) to control in response to the driver's operations and vehicle behaviors.

ACD transfer	Adjusts the center differential operation by controlling the multiplate clutch transfer torque inside the ACD transfer based on the hydraulic pressure from the hydraulic unit.
Hydraulic unit (For ACD)	Controls the hydraulic pressure supplied to the multiplate clutch in the ACD transfer according to the signal from the AWC-ECU.
AWC-ECU	Based on the information obtained via CAN communication and others, it appropriately controls ACD.
Sensors	Information of sensors (throttle position sensor, G sensor, steering sensor, wheel speed sensor, yaw rate sensor), engine torque, and engine speed are sent to the AWC-ECU.

**AWC SWITCH**

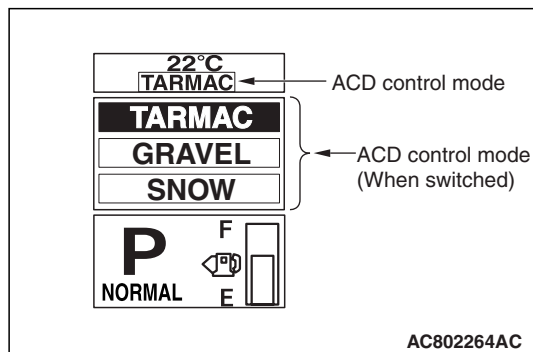
By pressing the AWC switch, the driving mode can be switched among TARMAC, GRAVEL, and SNOW. With each pressing of the AWC switch, the ACD control mode shifts in the order as follows: TARMAC →GRAVEL →SNOW →TARMAC



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**MULTI INFORMATION DISPLAY**

The current driving mode is displayed at all times to the upper center of multi information display. When the mode is switched, the mode switching status is displayed automatically to the information screen at the middle, and then the screen returns to the previous screen after the completion of setting.



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**CONTROL OVERVIEW**

**ACD CONTROL MODE**

The ACD control is the same as with previous model, and the control mode can be switched among TARMAC, GRAVEL, and SNOW in response to road conditions.

<b>ACD control mode</b>	<b>Road condition achieving an effect</b>
TARMAC	Normally used. Use this mode on a paved road.
GRAVEL	Used when driving on slightly slippery road surfaces such as wet road and gravel.
SNOW	Used when driving on slippery road surfaces such as snowy road.

### **SENSOR INFORMATION**

With the information of sensors (throttle position sensor, G sensor, steering sensor, wheel speed sensor, yaw rate sensor), engine torque, and engine speed, the accurate control has been achieved, and the vehicle response to the driving status has been improved.

### **ADDITION OF TC-SST CONTROL**

For vehicles with TC-SST, AWC-ECU communicates with TC-SST-ECU via CAN line to suppress unnecessary gear shifts during cornering which hamper the sport driving.

### **DIAGNOSIS FUNCTION**

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### **DIAGNOSTIC TROUBLE CODE**

If a trouble is present to the ACD system, a corresponding trouble spot is stored in AWC-ECU as the diagnostic trouble code below, and a warning is displayed to the multi information display.

### **DIAGNOSTIC TROUBLE CODE TABLE**

<b>Diagnosis trouble code No.</b>	<b>Diagnostic item</b>	<b>Main trouble cause</b>
C1000	Stoplight switch	Stoplight switch seizure
C100A	FL wheel speed sensor	Abnormality in circuit
C1011		Abnormality in signal
C1014		Abnormality in characteristics
C1015	FR wheel speed sensor	Abnormality in circuit
C101C		Abnormality in signal
C101F		Abnormality in characteristics
C1020	RL wheel speed sensor	Abnormality in circuit
C1027		Abnormality in signal
C102A		Abnormality in characteristics
C102B	RR wheel speed sensor	Abnormality in circuit
C1032		Abnormality in signal
C1035		Abnormality in characteristics
C1078	Tire speed	Abnormality in tire speed
C1219	Steering wheel sensor	Abnormality in signal
C121A	Steering wheel sensor	Neutral learning abnormality
C123C	G and yaw rate sensor	Abnormality in signal

Diagnosis trouble code No.	Diagnostic item	Main trouble cause
C1242	G and yaw rate sensor	Abnormality in longitudinal G sensor output signal
C1610	AWC power supply electronic relay	Abnormality in AWC power supply electronic relay
C1611	AWC pressure sensor	AWC pressure sensor low voltage
C1612		AWC pressure sensor high voltage
C1613	AWC switch	AWC switch seizure
C1614	Parking brake switch	Parking brake switch ON seizure
C1616	Cranking signal	Cranking signal seizure
C1617	AWC CAN (main)	AWC CAN main data not received
C161C	ACD current value	ACD current value abnormality
C161D	AWC pump relay	Abnormality in AWC pump relay circuit
C161E	AWC pump	AWC pump trouble
C161F	AWC actuator	AWC actuator protection 1
C1621	AWC actuator	AWC actuator protection 2
C1622	ACD control	ACD control abnormality
C1624	AWC-ECU	AWC-ECU internal error
C1625	AWC pressure sensor power supply voltage	Abnormality in AWC pressure sensor power supply voltage
C2100	Battery positive voltage	Abnormal battery voltage (too low)
C2101		Abnormal battery voltage (too high)
C2203	Chassis number	Chassis number not written
C2205	Steering wheel sensor	Internal error in steering wheel sensor
U0001	Bus off	Bus off
U0100	Engine time-out error	Engine time-out error
U0101	TC-SST time-out error	TC-SST time-out error
U0121	ASC time-out error	ASC time-out error
U0126	Steering wheel sensor time-out error	Steering wheel sensor time-out error
U0141	ETACS time-out error	ETACS time-out error
U0401	Engine data	Engine data error
U0428	Steering wheel sensor data	Abnormality in steering wheel sensor data
U0431	ETACS data	ETACS data error
U1415	Variant coding	Variant coding not implemented
U1417	Variant coding	Abnormality in variant coding
U1425	TC-SST data	TC-SST data error
U1427	Wheel speed sensor data	Wheel speed sensor data error
U1428	G and yaw rate sensor data	Abnormality in G and yaw rate sensor data