ELECTRONIC AUTOMATIC TRANSMISSION (EAT)

DESCRIPTION

General

The automatic gearbox is a four speed unit with electronic control of gear selection, shift quality and torque converter lock-up. A starter/ inhibitor/ reverse light switch on the gearbox transmits gear selector position to the EAT ECU, which outputs appropriate signals to an electro-hydraulic valve block in the gearbox. The signals from the starter/ inhibitor/ reverse light switch are also transmitted to the BCU, which uses them to operate the gear selected indicator in the instrument pack.

The EAT ECU is located under the LH front seat below the radio/cassette player power amplifier (if fitted). A mode switch on the gear selector panel allows the driver to change the mode of the ECU operation between manual and sport modes. Warning lamps in the instrument pack are operated by the ECU to indicate control mode and system status.

Refer to Workshop Manual Automatic Gearbox for Description and Operation of the EAT.

OPERATION

EAT Supply

Circuit supply

A feed from the battery positive terminal is connected on an R wire to the engine compartment fusebox where it passes through fusible link 8 and fuse 12.

The feed from fuse 12 is connected from the fusebox on a PY wire to the EAT ECU pin C0193-26 and supplies a continuous battery feed to the ECU.

The feed from fusible link 8 is connected on an NW wire to the passenger compartment fusebox and from the fusebox to the ignition switch on an N wire.

Ignition switch supply

With the ignition switch in position II, the feed from fusible link 8 passes through the ignition switch to the passenger compartment fusebox on a Y wire, where it passes through fuses 24 and 25.

The feed from fuse 24 is connected from the fusebox to the EAT ECU pin C0193-54 on an LGO wire to inform the ECU that the ignition is on. The feed from fuse 25 is connected from the fusebox to the starter/ inhibitor/ reverse light switch pin C0675-2 on a GY wire.

EAT Operation

Gearbox solenoid valve block

The gearbox solenoid valve block is connected to the EAT ECU as follows:

- ECU pin C0193-5 on an OG wire to gearbox solenoid pin C0543-H. This provides an output to the pressure regulator solenoid valve.
- ECU pin C0193-43 on an R wire to connector interface C0728-2/C0678-2 and from the interface to the gearbox solenoid pin C0243-E on an OK wire. This receives a positive input from the gearbox output shaft speed sensor.
- ECU pin C0193-14 on a B wire to connector interface C0728-1/C0678-1 and from the interface to gearbox solenoid pin C0243-F on an OB wire. This receives a negative input from the gearbox output shaft speed sensor.
- ECU pin C0193-30 on an OP wire to gearbox solenoid pin C0243-B. This provides an output for the shift control solenoid valve (MV1).
- ECU pin C0193-33 on an OW wire to gearbox solenoid pin C0243-K. This provides an output for the shift control solenoid valve (MV2).
- ECU pin C0193-32 on an SO wire to gearbox solenoid pin C0243-M. This provides an output to the converter lock-up solenoid valve (MV3).
- ECU pin C0193-53 on an OLG wire to gearbox solenoid pin C0243-L. This provides an output for power supply to the solenoid valves.

Starter/ inhibitor/ reverse light switch

The starter/ inhibitor/ reverse light switch is connected to the EAT ECU as follows:

- ECU pin C0193-7 on a UG wire, via header C0724, to starter/ inhibitor/ reverse light switch pin C0675-37. This receives an input from the switch Y contacts. The input is also supplied via header C0724 to the BCU pin C0662-6.
- ECU pin C0193-36 on a UP wire, via header C0724, to starter/ inhibitor/ reverse light switch pin C0675-9. This receives an input from the switch W contacts. The input is also supplied via header C0724 to the BCU pin C0662-9.
- ECU pin C0193-8 on a UB wire, via header C0724, to starter/ inhibitor/ reverse light switch pin C0675-10. This receives an input from the switch X contacts. The input is also supplied via header C0724 to the BCU pin C0662-13.
- ECU pin C0193-9 on a UW wire, via header C0724, to starter/ inhibitor/ reverse light switch pin C0675-6. This receives an input from the switch Z contacts. The input is also supplied via header C0724 to the BCU pin C0663-7.

The starter/ inhibitor/ reverse light switch pin C0675-4 is connected on a B wire, via splice SJ2, to earth header C0552.

The starter/ inhibitor/ reverse light switch pin C0675-1 is connected on a GN wire, via header C0287 LHD/C0294 RHD, to the BCU pin C0661-8.

The starter/ inhibitor/ reverse light switch pin C0675-8 is connected on an NP wire to BCU pin C0663-10.

The starter/ inhibitor/ reverse light switch pin C0675-5 is connected on a BG wire, via splice joint A31 (and header C0294 LHD/C0287 RHD Td5 only), to BCU pin C0663-11.

On Td5 engine vehicles only, the starter/ inhibitor/ reverse light switch is connected from pin C0675-5, through splice joint A31, to connector interface C0681-10/C0668-10 on a BG wire. From the interface the connection continues on a BW wire, via header C0294 LHD/C0287 RHD, to the ECM pin C0658-35.

Automatic transmission selector lamp

The automatic transmission selector lamp is connected to the BCU as follows:

- BCU pin C0662-22 on an RG wire to automatic transmission selector lamp pin C0245-6.
- BCU pin C0662-23 on an RS wire to automatic transmission selector lamp pin C0245-5.
- BCU pin C0662-24 on an RK wire to automatic transmission selector lamp pin C0245-4.
- BCU pin C0662-25 on an RP wire to automatic transmission selector lamp pin C0245-3.
- BCU pin C0662-26 on an RY wire to automatic transmission selector lamp pin C0245-12.
- BCU pin C0662-8 on an RU wire to automatic transmission selector lamp pin C0245-11.
- BCU pin C0662-9 on an RW wire to automatic transmission selector lamp pin C0245-10.

The automatic transmission selector lamp pin C0245-9 is connected on a GLG wire to the IDM in the passenger compartment fusebox.

The automatic transmission selector lamp pin C0245-7 is connected on a UO wire to the EAT ECU pin C0193-45.

The automatic transmission selector lamp pin C0245-1 is connected on a B wire to earth header C0708.

Instrument pack

The instrument pack pin C0230-5 is connected on a YG wire to the EAT ECU pin C0193-51. This connection operates the manual mode lamp in the instrument pack.

The instrument pack pin C0230-4 is connected on a YR wire to the EAT ECU pin C0193-25. This connection operates the sport mode lamp in the instrument pack.

The instrument pack pin C0233-16 is connected on an SK wire, via header C0293 LHD/ C0292 RHD to the IDM in the passenger compartment fusebox. This connection is the serial data bus and supplies gear position data from the selector indicator, via the IDM, to the instrument pack.

Diagnostic socket

The diagnostic socket pin C0040-7 is connected on a K wire, via header C0286, to the EAT ECU pin C0193-31.

Engine Control Module (ECM)

The EAT ECU pin C0193-16 is connected on a W wire to ECM pin C0637-36 V8/C0158-35 Td5.

The EAT ECU pin C0193-44 is connected on a Y wire to ECM pin C0637-37 V8/C0158-32 Td5.

EAT ECU

EAT ECU pin C0193-13 is connected to the transmission high/low switch by an RK wire. When the transfer box is in low range the switch is closed and connects the RK wire to earth on a B wire through splice SJ2 and earth header C0552.

The EAT ECU is connected on B wires from pins C0193-6 and C0193-28 to earth header C0708.

ACTIVE CORNERING ENHANCEMENT (ACE)

DESCRIPTION

General

The ACE system is an optional fitment to control vehicle roll angles. The system is electrically and hydraulically operated with all operations controlled by an ACE ECU. The ACE system provides improved vehicle handling and suspension characteristics and is active for both on and off-road driving. Refer to the Workshop Manual for detailed description and operation of the ACE system.

OPERATION

ACE Supply

Circuit supply

A feed from the battery positive terminal is connected on an R wire to the engine compartment fusebox. The feed passes through fusible link 8 and fuse 15.

The feed from fusible link 8 is connected on a NW wire to the passenger compartment fusebox and from the fusebox to the ignition switch on an N wire.

The feed from fuse 15 is connected to the contacts and coil of the ACE relay.

Ignition switch supply

When the ignition switch is in position II, the feed from fusible link 8 flows through the ignition switch to the passenger compartment fusebox on a Y wire and passes through fuses 25 and 29.

Ignition signal

When the ignition is in position II, the feed from fuse 29 in the passenger compartment fusebox passes on a GO wire to the ACE ECU pin C0647-11.

ACE Operation

Mains supply

The coil of the ACE relay is connected to pin C0647-6 on a BR wire to the ACE ECU. When conditions are correct, the ACE ECU provides an earth path for the relay coil, which allows the feed from fuse 15 to energise the coil and close the relay contacts.

When the ACE relay contacts close, the feed from fuse 15 passes through the contacts and passes on a PO wire to pin C0647-28 on the ACE ECU.