



AUTOMATIC TRANSMISSION

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AUTOMATIC TRANSMISSION - Description

The electronic automatic transmission is hydraulically controlled by a hydrodynamic torque converter with controlled lock.

The driver can choose to drive the car with the transmission working in fully automatic mode or switch to sequential manual mode, when the car can be driven in a more sporty manner in conditions (fast driving over mixed routes with bends and continual gradient changes) where a fully automatic transmission would not make the most of the car's qualities.

When the lever is positioned to the left of the normal selection channel, the transmission is set to engage top or bottom gear and sends a forward or backward command to the gear knob.

Naturally gear changes only take place if the engine rpm so permit; when the vehicle is stopped, the gearbox changes automatically to 1st gear.

The automatic transmission is controlled by an electronic control unit that computes the most suitable gear ratio and converter lock condition from signals sent in by the injection system (rpm, fuel injection, throttle position and coolant temperature) and transmission sensors (turbine rpm, car speed and transmission temperature) in order to send controls to the solenoid unit.

AUTOMATIC TRANSMISSION - Functional description

The electronic automatic transmission (EAT) control unit M55 monitors and governs the entire automatic transmission management system.

The control unit is supplied directly by the battery via the line of maxifuse CENTR of B5 , to pin 55 of M55 via a line protected by fuse F10 of junction unit B1 .

Ignition-operated power supply (INT/A) reaches pin 31 and 54 of M55 via a line protected by specific fuse B42 .

Pins 6, 28 and 34 of control unit M55 are earthed.

Control unit M55 is connected to EAT solenoid L50, which contains the valves which control the pressure regulators and certain sensors:

- pin 52 of M55 supplies the solenoids, whose control signals are sent from pins 30 and 33 of M55 ;
- pin 3 of M55 supplies the pressure regulators, whose control signals are sent from pins 1, 4, 5 and 29 of M55 ;
- pins 14, 15 and 42 of M55 are connected to the car speed sensor inside unit L50 ;
- pins 16, 23 and 44 of M55 are connected to the transmission input rpm sensor inside unit L50 ;

Control unit M55 is connected to the EAT sensor unit via junction D79:

- pin E of D79 is supplied directly from the battery via the line of maxifuse CENTR of B5 , via a line protected by fuse F10 of junction unit B1 : pin K is earthed.
- pins G and H of D79 are connected to the reversing sensor and send signals to turn on the reversing light (3309201SeeE2022REVERSING LIGHTS)
- Pins A, B, C and D of D79 are connected to control unit M55 and indicate the positions assumed by the lever selector to pins, 36, 8, 37 and 9 of M55 respectively.

Control unit M55 governs a series of safety checks:

- shift lock (lever locked if key not turned to MAR and brake pressed): sends a signal from pin 32 to the speed control unit H37 pin 14;
- key lock (key locked if the gear shift is not set to P): sends a signal from pin 48 to relay J6 : this is excited by electrical current from the battery via line of maxifuse CENTR of B5 via a line protected by fuse F17 of junction unit B1 and controls the lock electromagnet built into ignition switch H1 ;
- doors open buzzer: the signal that the driver's door is open - lock N50 reaches pin 45 of M55 ; the command for the buzzer, located in C pin 11, is sent from pin 51
- start-up (the engine will start only with the gear shift set to P or N): a signal is sent from one of the two sensors (pin I of connector D79 to relay J5 which enables start-up: pin 50 of starter motor A20 (3309762SeeE5010STARTING AND RECHARGING).

Control unit M55 is equipped with a self-diagnostic unit that may be used by connecting the unit to connector R10 : this receives signals from pin 50 of control unit M55 .

The self-diagnostic system also generates a signal - from pin 25 - sent to the automatic transmission fault warning light, located on instrument panel E50 , while pin 15 of connector A of E50 supplies an ignition-operated power supply (INT/A) via fuse F1 of junction unit B1 .

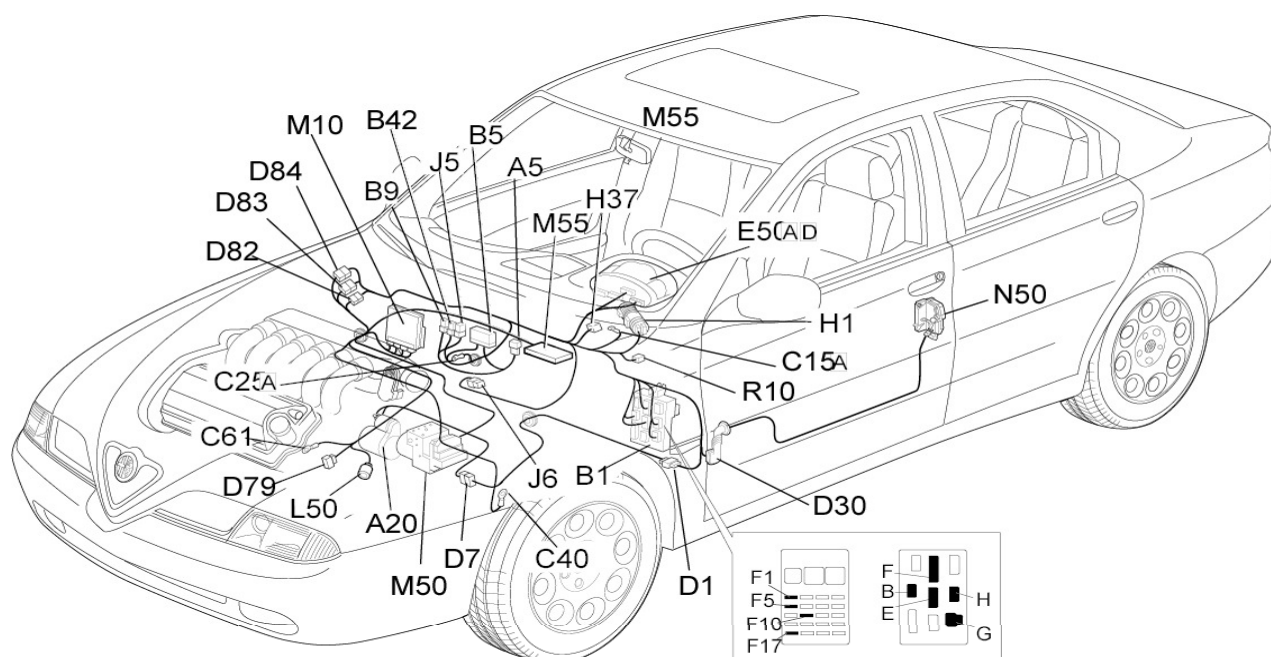
Gear control unit H37 is supplied at pin 10 directly from the battery from a line protected by maxifuse CENTR of B5 via a line protected by fuse F17 of junction unit B1 and when the ignition is operated (INT/A) to pins 8 and 9 of a line protected by fuse F5 of junction unit B1 ; pins 1, 16 and 17 are earthed.

Unit H37 is connected to instrument E50 from pins 3, 4, 5, 6 and 7 to turn on the warning light leds for the relevant speeds.

Unit H37 connects control unit M55 via pins 18, 19 and 20 to pins 12, 35 and 13 respectively to indicate activation of the TIP function (manual transmission operation).

The control unit M55 is connected to the engine management control unit M10 and the ABS control unit M50 , which indicates skidding of the front wheels. This connection is via the CAN line from pins 82, 83, 85 and 86 of M55 and manages the control of the programme called 'WINTER'.

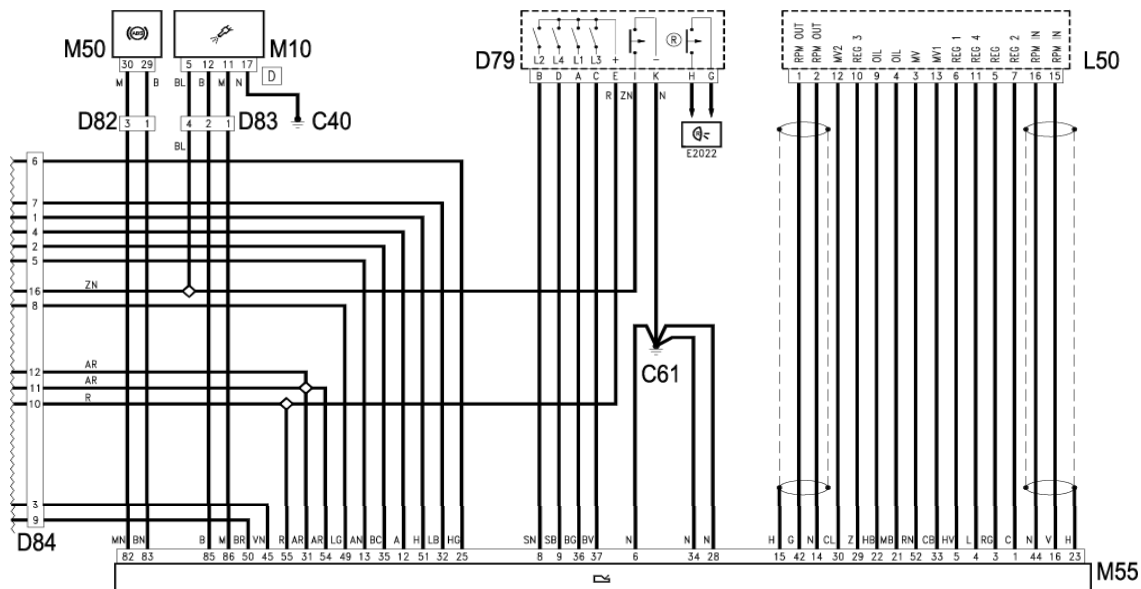
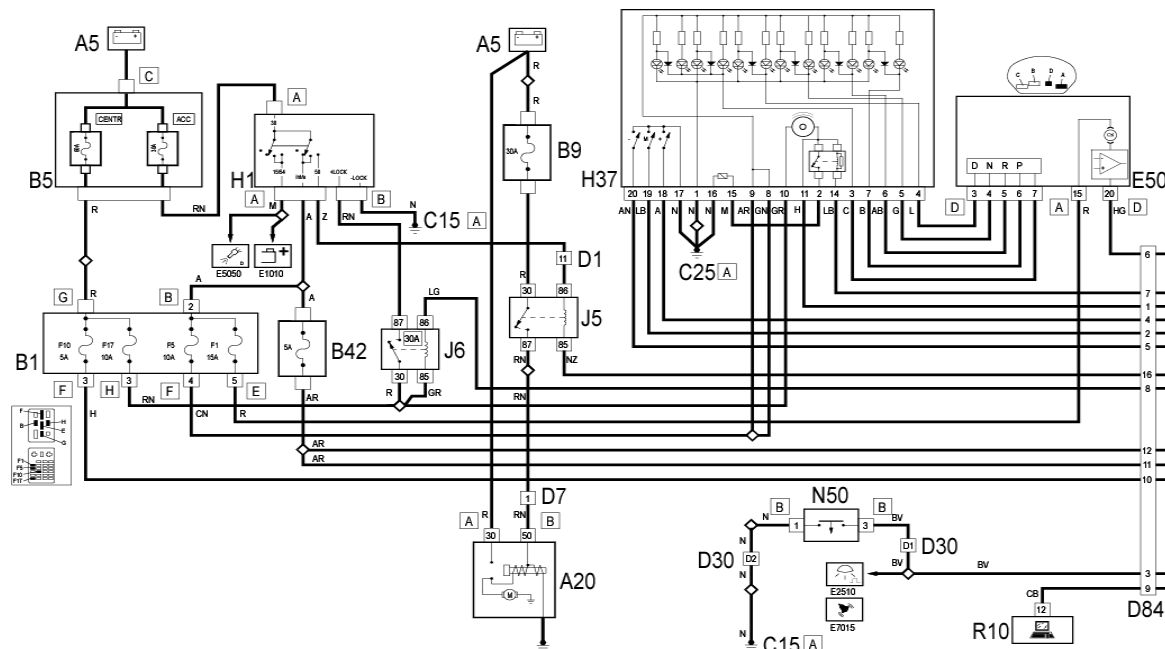
AUTOMATIC TRANSMISSION - Location of components



Component code	Name	Assembly reference
A5	Terminal board	-
A20	Starter' motor	5520B
B1	Junction unit	-
B1	Junction unit	5505A
B1	Junction unit	5505A
B2	Dashboard junction unit (CPL)	-
B2	Junction unit	-
B2	Junction unit	5505A
B5	MAXI FUSE box	-
B9	Starting enablement MAXI FUSE	-
B42	CAE supply fuse	-
B99	Battery fuses junction unit (CBA)	5530B
C10	Front left earth	-
C13	Front earth on left side panel	5505A
C15	Facia earth, driver's side	-
C21	Passenger side dashboard earth	-
C25	Earth on steering column	-
C30	Rear left earth	-
C40	Engine earth	5505A
C61	Automatic transmission earth	-
D1	Front-dash-board coupling	-
D4	Engine front connection	-
D6	Rear - front coupling	-
D7	Recharging front connection	-
D19	Dashboard / battery coupling	-
D20	Dashboard-rear coupling	-
D30	Driver's front door rear. section.	-
D30	Front left door connection	-
D79	CAE sensors connection	-
D82	CAE-ABS coupling	-
D83	CAE-front coupling	-
D83	CAE-i.e coupling.	-
D83	Front-automatic transmission coupling	-
D84	CAE-dash-board coupling	-
D84	Connection with dashboard cable for CAE	-
E50	Instrument panel	-
E50	Instrument panel	5560B

H1	Ignition switch	5520A
H37	CAE gear control unit	2135A
J5	Starting enablement relay	-
J6	Key Lock relay	-
J6	Starting disablement relay (CAE)	-
L50	CAE solenoids assembly	-
L50	CAE solenoids assembly	2130B
M10	Engine management control unit	-
M10	Engine management control unit	1056B
M11	Fuel injection main relay diode	-
M50	ABS control unit	3340A
M55	CAE control unit	-
M55	CAE control unit	2135B
N50	Left front door lock geared motor	-
R10	Multiple tester connection	-

AUTOMATIC TRANSMISSION - Wiring diagram



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A5	Terminal board	-
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B1	Junction unit	5505A
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B2	Junction unit	-
B2	Junction unit	5505A
B5	MAXI FUSE box	-
B9	Starting enablement MAXI FUSE	-
B42	CAE supply fuse	-
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C13	Front earth on left side panel	5505A
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C21	Passenger side dashboard earth	-
C25	Earth on steering column	-
C30	Rear left earth	-
C40	Engine earth	5505A
C61	Automatic transmission earth	-
D1	Front-dashboard coupling	-
D4	Engine front connection	-
D6	Rear - front coupling	-
D7	Recharging front connection	-
D19	Dashboard / battery coupling	-
D20	Dashboard-rear coupling	-
D30	Driver's front door rear. section.	-
D30	Front left door connection	-
D79	CAE sensors connection	-
D82	CAE-ABS coupling	-
D83	CAE-front coupling	-
D83	CAE-i.e coupling.	-
D83	Front-automatic transmission coupling	-
D84	CAE-dashboard coupling	-
D84	Connection with dashboard cable for CAE	-
E50	Instrument panel	-
E50	Instrument panel	5560B
H1	Ignition switch	5520A
H37	CAE gear control unit	2135A
J5	Starting enablement relay	-
J6	Key Lock relay	-
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