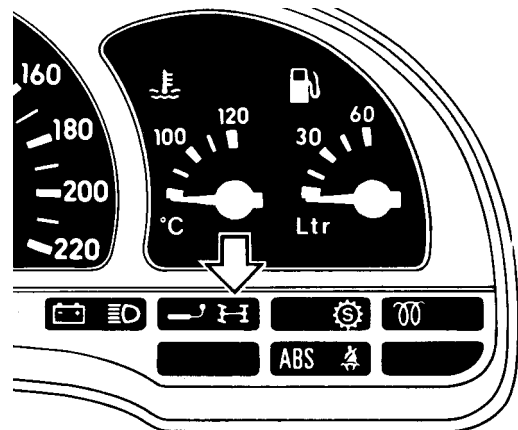


Error codes

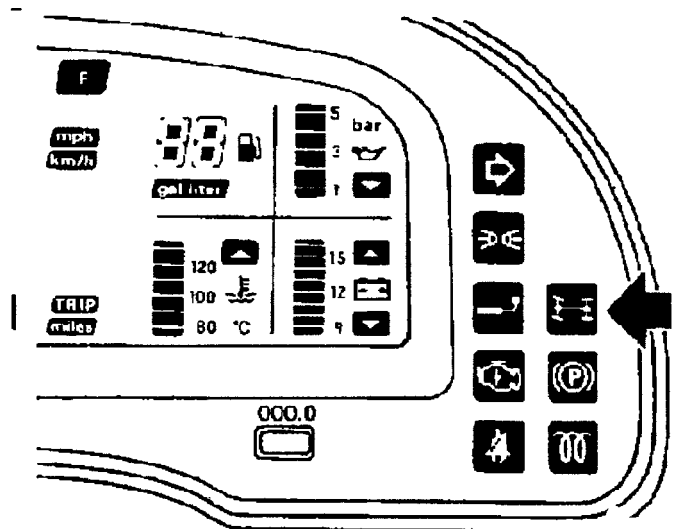
General notes

The all wheel drive is equipped with self-diagnosis. After an error recognition the controller stores the error as to two places error code. Is to be considered absolutely:

● **The all wheel control light lights up constantly** and goes out only with switching off the ignition, an error occurred, which was detected and stored by the controller. The **all wheel drive is switched off**. Brake stability is ensured in each case.



● If the all wheel **control light flashes**, must be assumed the all wheel drive does not switch off when braking. That means, the vehicle does not have used brake stability, particularly with driving conditions with low friction value (ice, snow, wetness).



- Check whether the correct controller is inserted. If the controller were replaced, test travel to execute, since the error codes are no longer stored.
- Ignition switches ON.
- Possibly available error codes over the control light are output-flashed now.
- Note stored error codes.
- Cables or modules, whose defect could have caused error code storage, on the basis of the F0: DATALIST determine.
- Cables or modules concerned with circuit analyzer MKM-587-A measure and errors encircle.
- Defective sections replace.

- For the deletion of the error codes use the TECH1 (F4: DELETE CODES), or ignition 16 times switch off and on.
- Test travel executes and check repeat.

● Service

After an error was detected, the control valve is switched off and the all wheel control light, depending upon weight of the error, is flashing or switched on continuously. If the error is after ignition out and restarts not any longer ascertainable, the function software runs again normally.

Error code viewing with diagnostic switch KM-640

With the KM-640 at the diagnose plug X 13 the clamp J with the clamp A is short circuit. Clamp J is the attraction line of the controller for the all wheel drive.

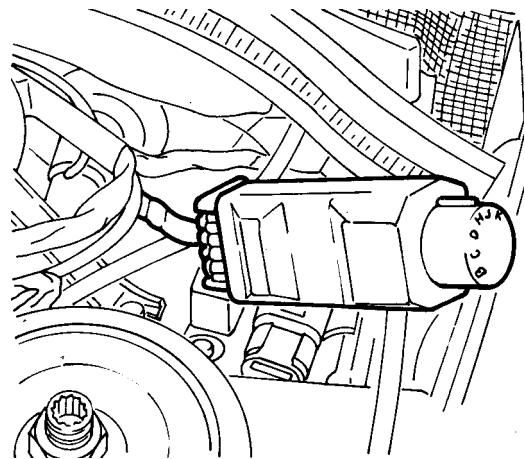
Thus with switched on ignition the flashing code output is released. Possibly available error codes over the all wheel control light in the instrument panel are output-flashed now.

The number 12, which the first 3 times output-flashes, serves as check and as introduction of the diagnosis. In the case of several error codes these 3 times successively, in numeric order are output-flashed.

Attaching diagnose plug KM-640

Diagnose plug remove from holder. The diagnose plug is on the left side of the engine compartment beside the octane number plug.

Diagnostic switch KM-640 at the diagnose plug attach.



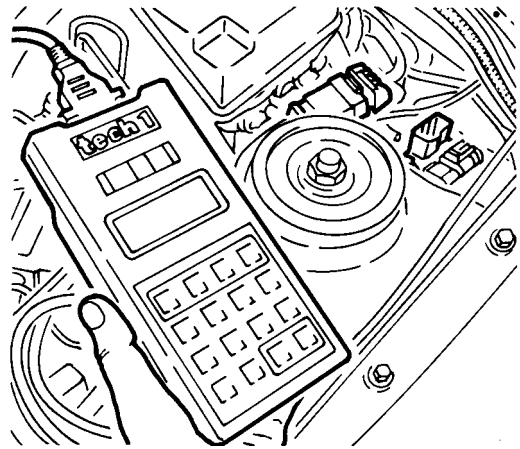
● Service

The diagnose plug is in the engine compartment on the left side (same plug for all systems with self-diagnosis).

With the diagnostic switch KM-640 error codes of the all wheel drive can be recalled in switching position "J".

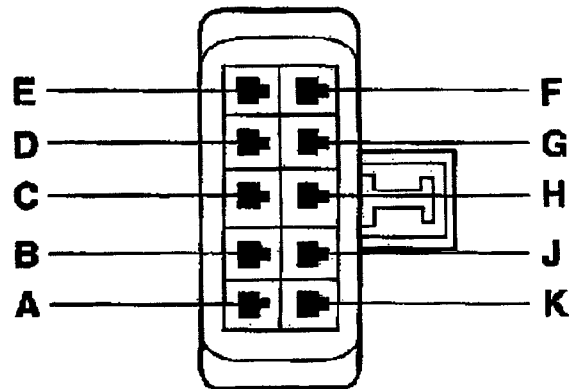
With the hand-tester TECH1 and the program-model "OPEL 88-89 ECU" also an examination of the all wheel drive is possible.

Starting from 1994 AWD error codes are selectable **only** with Tech1!



10-pin connector plug X13 for diagnosis the construction years 1989 - 1993

- A Earth
- B Diagnostic attraction line engine electronics
- C Diagnostic attraction line transmission electronics
- D Diagnostic attraction line on board computer
- E Unidirectional data line
- F Battery voltage clamp 30
- G Bi-directional data line
- H Diagnostic attraction line theft warning system
- J Attraction line 4x4 controller
- K Diagnostic attraction line ABS-2H



Clamp "A" with clamp "J" connects and flashing out the code of the 4x4 control light. Only possible of construction years 1989-1993.

Starting from 1994 AWD error codes are selectable **only** with Tech1!

Error code list

Error code	Error description	Error cause	Control light
12	introduction diagnose		
15	Oil temperature sensor voltage high	<ul style="list-style-type: none"> ● Interruption in the oil temperature sensor electric circuit. ● The error is stored directly when recognition in driving. ● The all wheel drive is switched off. 	activated
24	Distance frequency transmitter	Failure of the signal from the distance frequency transmitter.	on
31	Inductive pulse generator (RPM)	Failure of the number of revolutions signal	on
32	Pressure switch	Pressure switch closed, despite magnetic valve on. Pressure switch opened, despite magnetic valve off.	on flashes
33	Magnetic valve	Cable interruption	on
34	Magnetic valve	Short-circuit against earth	on
37	Stop light switch	Failure of the signal from the stop light switch.	on
39	No ABS signal	<ul style="list-style-type: none"> ● No wheel number of revolutions information in front left from the ABS controller. ● RPM greater 2300 min-1 ● Above condition must be fulfilled for at least 15 s. ● The all wheel drive is switched off. 	activated
55	Electrical controller	Controller defectively	flashes
71	brake switch voltage high	<ul style="list-style-type: none"> ● Engine runs ● The controller detects on both inputs (clamps 1 and 16) battery voltage. ● Above conditions must be fulfilled for at least 10-ms. ● The all wheel drive is switched off. <p>NOTE: The controller detects a logic error. The two inputs (clamps 1 and 16) of the stop light switch must indicate different switching status. If one contact of the switch is closed, the other will be opened.</p>	activated
72	brake switch voltage low	<ul style="list-style-type: none"> ● Engine runs ● The controller detects on both inputs (clamps 1 and 16) earth potential. ● Above conditions must be fulfilled for at least 10 ms. ● The all wheel drive is switched off. <p>NOTE: The controller detects a logic error. The two inputs (clamps 1 and 16) of the stop light switch must indicate different switching status. If one contact of the switch is closed, the other will be opened.</p>	activated

73	Stop without braking	<ul style="list-style-type: none"> ● Engine runs ● Vehicle stoppage is detected, after the vehicle from a rate of more than 60 km/h was delayed without the brake to operate. ● Above conditions must be fulfilled for at least 2 s. ● The all wheel drive is switched off. 	activated
74	pressure switch pressure low, AWD on	<p>During the initialisation</p> <ul style="list-style-type: none"> ● Engine runs ● Operating pressure lower 10 bar, although all wheel drive is switched on. ● Above conditions must be fulfilled for at least 2 s. ● The all wheel drive is switched off. <p>During driving</p> <ul style="list-style-type: none"> ● Operating pressure lower 10 bar, although all wheel drive is switched on. ● Above condition must be fulfilled for at least 0.5 s ● The all wheel drive is switched off. 	activated
75	Oil temperature sensor voltage low	<ul style="list-style-type: none"> ● Oil temperature more largely 140 °C on a driving speed more than 190 km/h. ● Oil temperature more largely 160°C ● The error is stored directly when recognition in driving. ● The all wheel drive is switched off. 	activated

Oil level check

The oil level check must take place with filled accumulator of the multiple disk clutch.

In the case of ignition ON approx. 25 to 30 times the brake operate, until oil level does not rise any longer, afterwards oil level check.

- With cold oil (20°C) oil level min. on the lower marking
- With hot oil (80°C) oil level max. on the upper marking

Maintenance, our recommendation:

The oil in the transferbox is to be changed once per year or all 10'000 to 15'000 km!

Oil quality for the transferbox

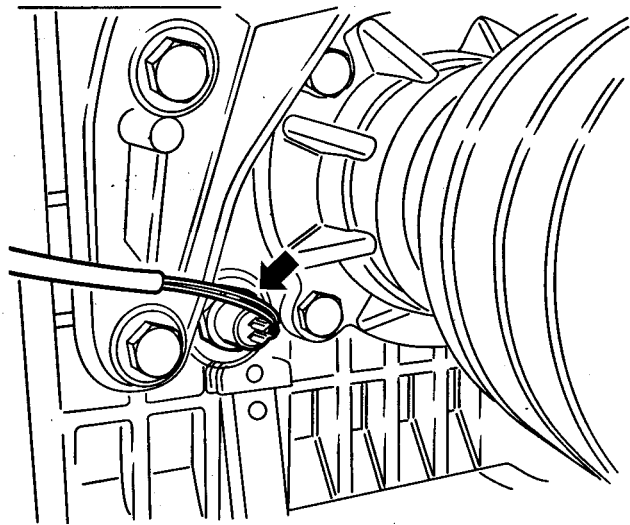
Only the synthetic oil catalogue no.19 40 703 (part no. 90 443 530), released by Adam OPEL AG.

● Service

Starting from introduction of the Vectra / Cavalier 4x4 (model year 89) used automatic transmission oil 19 40 699 (90 350 341) "Dexron® II..." is **not** mixable with the synthetic oil 19 40 703 (90 443 530).

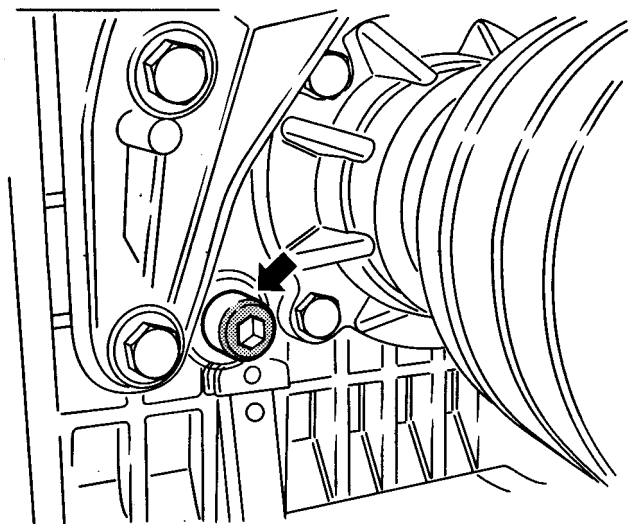
With oil temperature sensor

The transferbox for the all wheel drive starting from model year 94 is equipped with an oil temperature sensor (until model year 94: oil temperature switches). For an oil level check this sensor is unscrewed. The oil filling of the transferbox must lock with the lower edge of the thread of the control opening.



Without oil temperature sensor

To oil level check see above description.



Damage pictures

Broken planetary gears, sun wheel teeth defectively

Causes of the damage:

- handbrake while driving pulled without to brake
- to high temperatures in the transfer boxes



Aborting and merged teeth

Causes of the damage:

- much too much rolling circumference differences between front- and rear axle
- too little oil in the transferbox, overheats

