

504

Automatique

**driving
particulars**



This booklet deals only with the particulars of cars equipped with ZF AUTOMATIC TRANSMISSION and should be used together with 504 Instruction Book.

ADJUSTMENTS

We advise against attempting any adjustment of the transmission and its controls (control rods, "kick-down" cable, carburettor).

Only the Concessionaires or Agents of the manufacturer are entitled to effect these operations.

FOREWORD

This 504 car is equipped with an automatic transmission consisting of a three-ratio automatic gearbox and a hydrodynamic torque converter, manufactured by ZAHNRAD-FABRIK A.G., FRIEDRICHSHAFEN.

You should read this book carefully to obtain quick and complete driving mastery of this car which has no clutch pedal or gear change lever; you will then derive the maximum pleasure from the use of your car.

summary

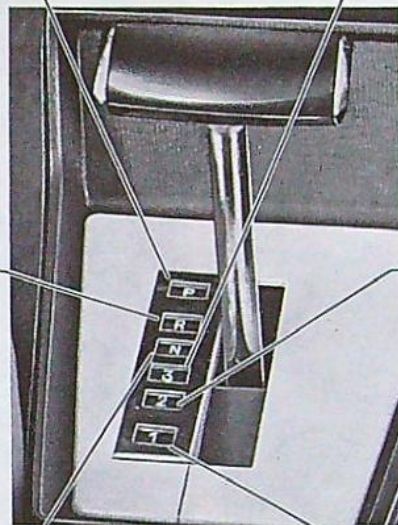
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LAY OUT OF CONTROLS**PARKING**

Gearbox in neutral
Driven wheels locked

REVERSE**NEUTRAL**

Neutral
Driven wheels not locked

**3**

3 speeds

Power-overrun Normal driving
Automatic change - Town driving
Driving on roads - Best consumption

2

2 speeds

Locking in 2nd - No 3rd speed
Good acceleration
Winding or badly surfaced roads
Best performance

1

1 speed

Locking in 1st - No 2nd or 3rd speed
Mountain roads
Efficient engine braking

operation



SELECTING GEAR RATIOS

Selection with the lever

The selector lever, situated on the transmission tunnel, incorporates an index, illuminated when the car lights are on, which indicates the various drive positions previously described.

Positions :

P - PARKING

The gearbox is in the neutral position, the driven wheels are locked by a mechanical device in the transmission.

THE STARTER MAY BE OPERATED.

R - REVERSE

The engine drives the car backwards.

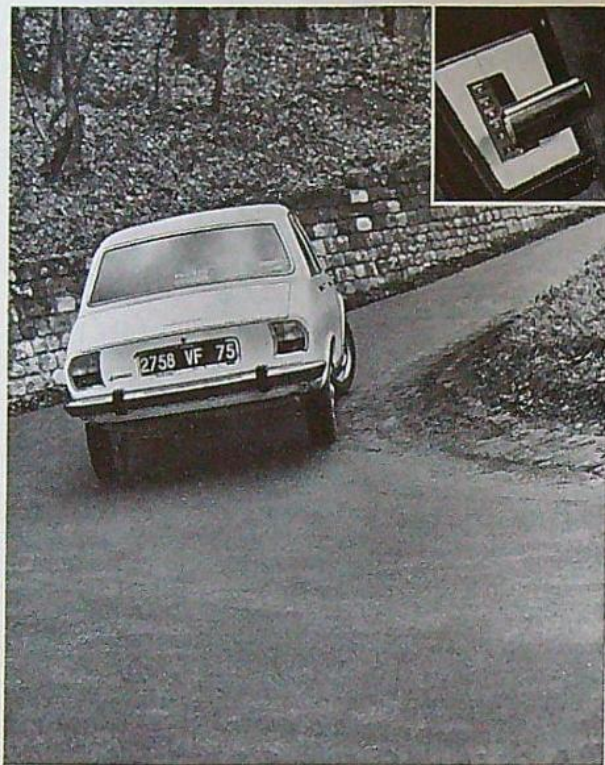
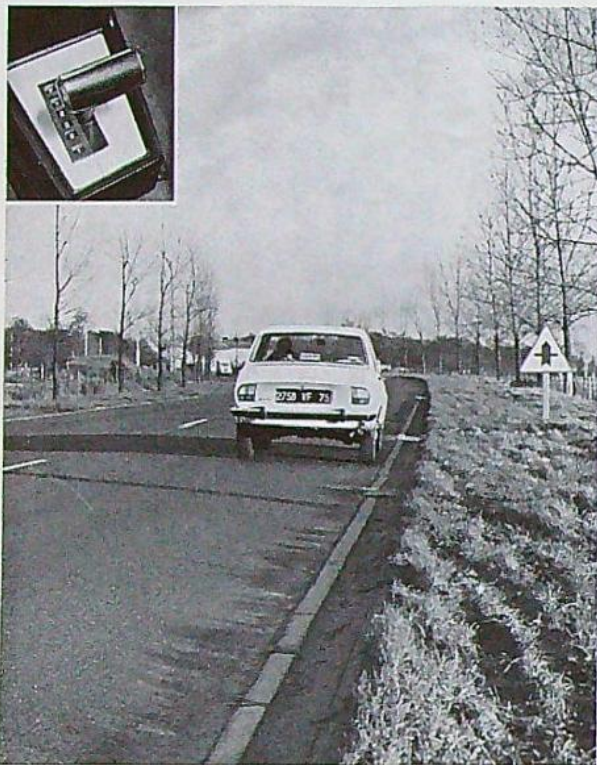
N - NEUTRAL

The gearbox is in the neutral position but the driven wheels are not locked.

THE STARTER MAY BE OPERATED.

To change from N to R or P and from P to R, raise the handle in order to release the lock.

operation



3 - AUTOMATIC

The engine drives the car forwards.

This position gives a range adapted to normal driving conditions when maximum performance is not required : driving in town, on open roads, on roads with a fairly good surface, on snow and black ice but not on steep hills.

PULLING AWAY IS EFFECTED IN 1st speed, and the 2nd and 3rd speeds are automatically selected ; the change point is flexible and depends on the accelerator pedal position.

2 - LOCKING IN 2nd

The engine drives the car forwards.

The point of change, 2nd → 1st and 1st → 2nd as in position 3, is flexible and depends on the accelerator pedal position.

There is no change into 3rd speed.

This range exploits the engine power to its maximum in 1st and 2nd speeds.

It is used on winding or badly surfaced roads and wherever the driver wants fast acceleration or efficient engine braking without passing unintentionally into the 3rd speed.

1 - LOCKING IN 1st

The engine drives the car forwards.

No change to 2nd and 3rd speeds.

This position enables good engine braking at low speeds, for mountain roads for example, without the risk of unintentional selection of the 2nd speed. It also enables pulling away and "using the gears" as with a conventional gearbox: starting in position 1 - Acceleration - "change" to position 2 for driving in "2nd gear" then "changing" to 3 for "3rd gear".

This new design of the ranges enables the satisfaction of all styles of driving.

Examples :

3
1 → 2 → 3 — 3 → 2 → 1

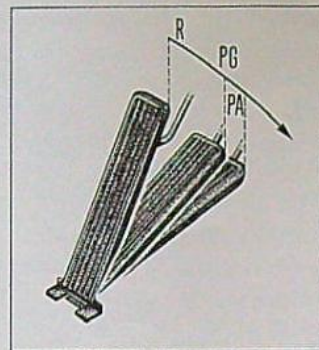
or

3 → 2 → 3 — 3 → 1 → 2 → 3
etc.

Fully automatic - power - overrun

Fast driving, semi automatic, where the driver is in full control of the gear selection without having to worry about the clutch.

operation



Selection through use of the accelerator pedal : called "kick-down"

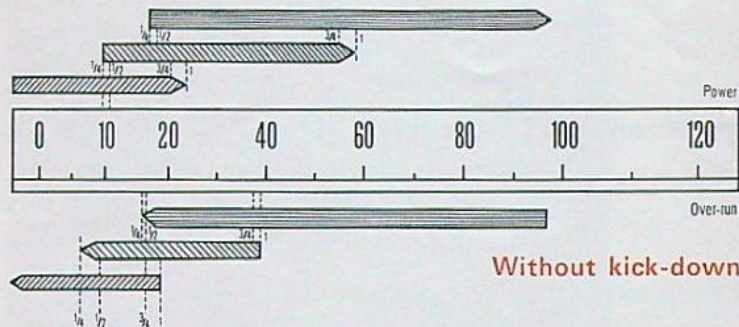
The accelerator pedal may be depressed beyond the full-throttle position, to the kick-down position.

The driving potentialities offered by the selector lever are thus increased.

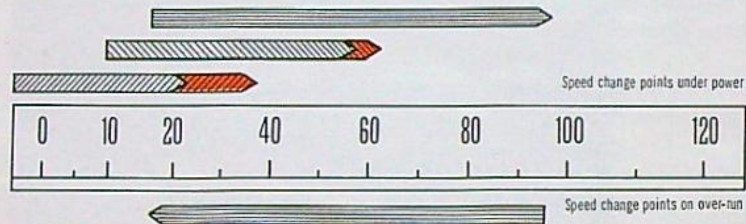
Depressing completely the accelerator pedal causes the automatic gearbox to change down to a lower gear combination, or increases the speed at which the change in the selected gear ratio is effected.

This system provides for quick and snappy accelerations, making full use of maximum engine power. Besides, starts may thus be speeded up, through the use of first ratio, with the selector lever in Position, " 3 ".

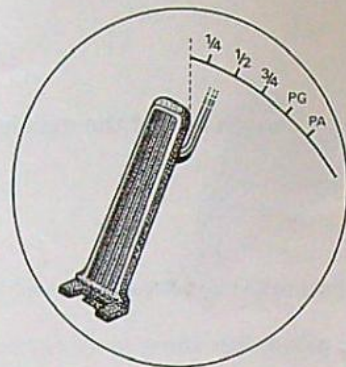
operation



Without kick-down



With Kick-down

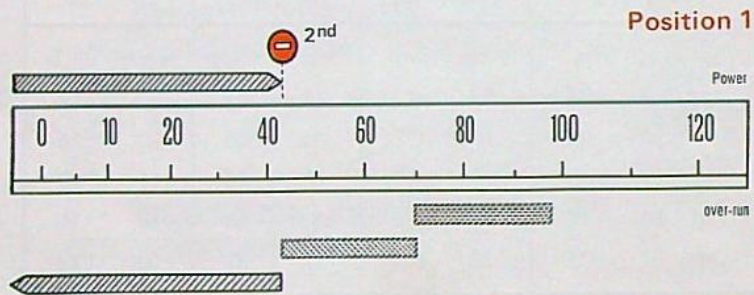
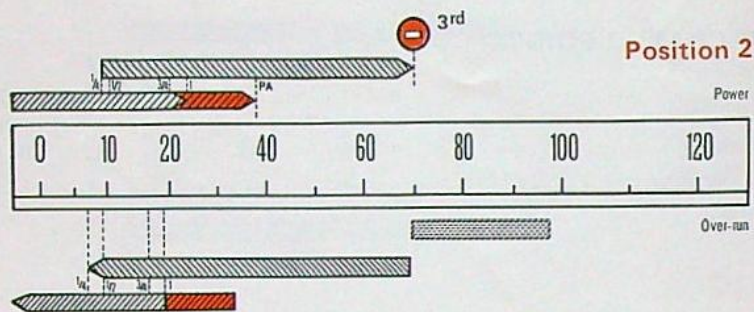


-  1st gear
-  2nd gear
-  3rd gear
-  1st kick-down
-  2nd kick-down

GEAR CHANGE POINTS**Position "3" automatic**

- Gear change points VARY according to accelerator pedal position.
- The car starts in 1st gear.

Accelerator pedal position	POSITION 3							
	1st → 2nd		2nd → 3rd		3rd → 2nd		2nd — 1st	
	m.p.h.	km/h	m.p.h.	km/h	m.p.h.	km/h	m.p.h.	km/h
1/4 of pedal travel	9	15	15	25	14	23	7	12
1/2 of pedal travel	10	17	16	27	15	25	9	15
3/4 of pedal travel	19	31	55	89	37	60	15	25
1/1 of pedal travel (full throttle)	23	38	57	92	38	62	18	30
Kick-down position	37	60	62	100	60	97	32	53

operation

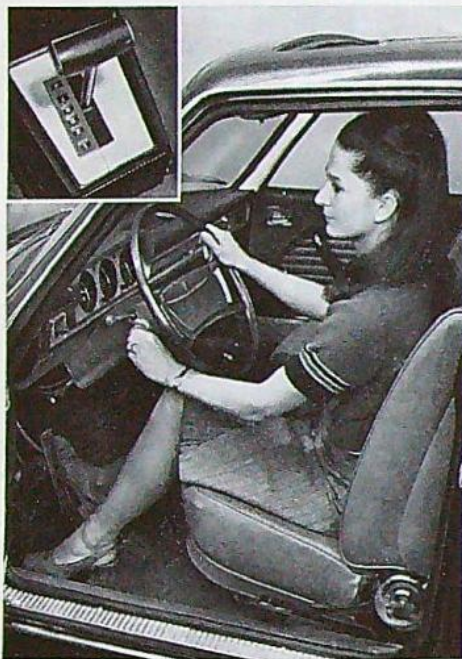
Position 2 - Locking in 2nd

- The car always starts in 1st gear.
- No 3rd speed.
- Change 2 → 1, 1 → 2 as in position 3.
- Change point variable according to accelerator pedal position.
- When 2 is selected at speed (3rd to 2nd) a safety device prevents the selection of the 2nd speed and racing of the engine. Engagement on overrun at 69 m.p.h. (112 km/h).

Position 1 - Locking in 1st

- No 3rd or 2nd speed selection.
- When 1 is selected at speed the above safety device comes into action. Engagement on overrun at 42 m.p.h. (68 km/h).

Accelerator pedal position	Position 2						Position 1	
	1 → 2		2 → 1		3 → 2		2 → 1	
	m.p.h.	km/h	m.p.h.	km/h	m.p.h.	km/h	m.p.h.	km/h
1/4 of pedal travel	9	15	7	12	69	112	42	68
1/2 of pedal travel	10	17	9	15				
3/4 of pedal travel	19	31	15	25				
1/1 of pedal travel (full throttle)	23	38	18	30				
Kick-down position	37	60	32	53				



STARTING THE CAR

- Index the selector lever to position N.
- Start the engine.
- As soon as the engine starts, depress the brake pedal to hold the car at a standstill.
- Move the selector lever to position 3 (or to position 2 or 1) according to the type of start and road), but do not depress the accelerator pedal.
- On flat ground, slowly release the brake pedal. The car moves forwards slowly. This slow motion allows for extremely accurate manoeuvres controlled through use of the brake pedal.
- Depress the accelerator pedal according to the type of driving required.
- Gears are changed automatically, smoothly, at low or high engine rpm, according to the position of the selector lever and of the accelerator pedal.
- Stopping the car is achieved by releasing the accelerator pedal and depressing the brake pedal; the engine does not stall.

STOPPING AND STARTING ON UPWARDS SLOPES

An "anti-slip" device prevents the car from "creeping" backwards when stopped on a gentle slope as long as engine continues running.

Town driving on sloping roads no longer requires use of the hand-brake or of the brake pedal and thus affords a degree of driving comfort seldom obtained with mechanical gearboxes.

STARTING THE CAR IN COLD WEATHER

Set the handbrake, pull the choke midway, and let the engine idle with the selector lever in the N position.

The selector lever should be moved to the 1 position as required to warm the engine and the torque converter oil if the engine stalls with the lever in the 3 position in very cold weather. Avoid racing engine.

PARKING MANŒUVRES

Parking manœuvres are accurate within an inch with the automatic transmission, because of the smooth drive provided by the torque converter. Car movement is controlled by merely depressing the brake pedal.





SPECIAL CONDITIONS

- The operating mode of the automatic transmission can be changed by using KICK-DOWN (see page 7) to overcome special difficulties (negotiating sharp curves, overtaking articulated lorries, obtaining quick starts, etc.) ; the selector lever can also be moved to the 2 position, if the 3 position was used ; faster accelerations and more efficient engine braking are thus obtained.

CARAVAN OR BOAT TOWING

Caravan or boat towing is only possible on condition that an oil temperature gauge be fitted on the dashboard.

After adaptation of the device by our Concessionaires the towing load should not exceed 2,424 lbs (1,100 kg) and the towing speed 50 mph (80 km.h.).

TOWING OF THE VEHICLE

The selector lever should be set to the N position if the car has to be towed. A maximum speed of 30 mph (50 kph) should not be exceeded, and the car should not be towed over more than 25 or 30 miles (40 or 50 km).

After repairing the vehicle, the oil level must be checked and topped up if necessary, using the recommended oil.

The engine cannot be started by towing or pushing the car.

MISTAKES TO BE AVOIDED

The selector lever should never be set to the P or R positions before the car is at a complete standstill; on the other hand, the selector lever can be moved from the 3 position to the 1 and 2 positions or vice-versa while the car is moving.

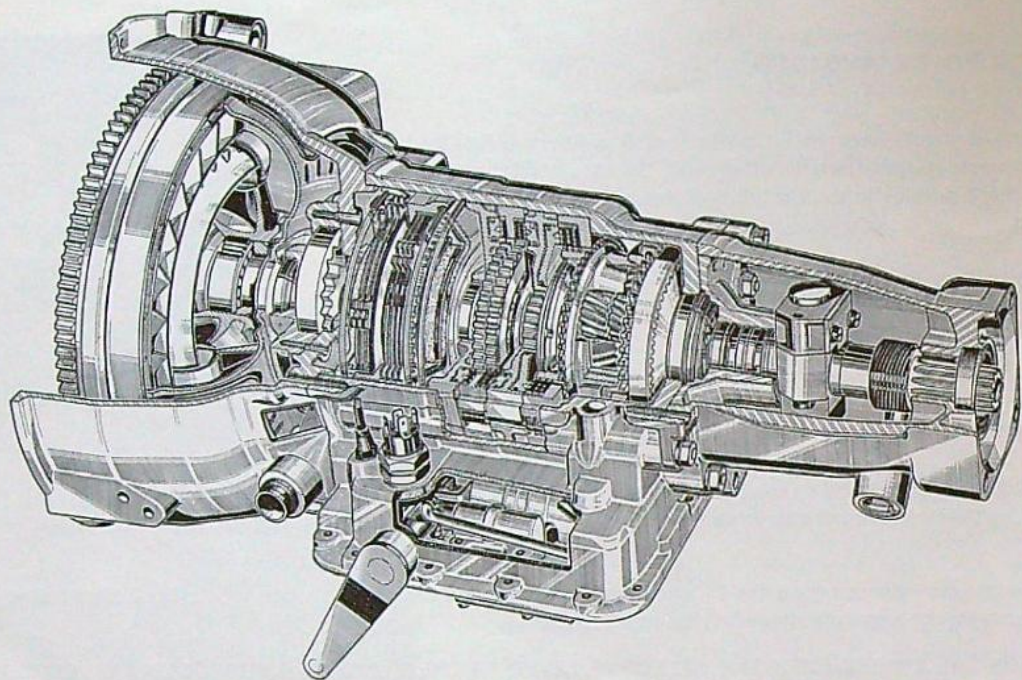
To change from N to R or P and from P to R raise the handle in order to release the lock.



IMPORTANT

- The **PARKING** position should be selected only after the lever has been set first to the **NEUTRAL** position with the brakes released, when parking the car in front of a kerb; the tyres can thus return to their normal condition, after being compressed against the kerb by inertia.
- Never leave the car without setting the handbrake when stopped on an upwards slope, as the "anti-slip" device of the automatic transmission no longer operates when the engine stops.

NEVER RACE THE ENGINE WITH THE SELECTOR LEVER IN THE 3, 2, 1 OR R POSITIONS AND WITH THE HAND-BRAKE SET OR THE BRAKE PEDAL FULLY DEPRESSED.



FREE 600 MILE (1,000 km) CHECK, UNDER GUARANTEE

This check is obligatory in order that the guarantee be applicable.

It must be carried out by one of our Concessionaires within 3 months from the date of delivery of the car, between 600 and 800 miles (1,000 and 1,200 km).

The guarantee card, enabling you to have this check carried out, will be sent to you by post after delivery of the vehicle.

The vehicle will have to be left for 24 hours for this check to be effected.

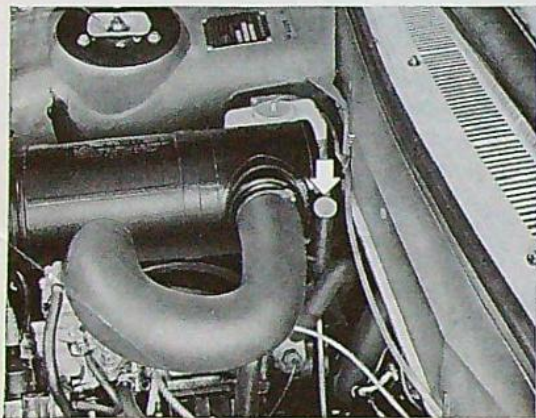
As for the other parts of the vehicle, the transmission must **only** be lubricated with "ESSO" products.

Oil for the gearbox : ESSO type A.AQ.ATF 2974 A

maintenance

CHECKING THE GEARBOX OIL LEVEL

Every 600 miles



a - Preliminary conditions :

- the gearbox should be warm
- the engine should run at idling speed, and should be at normal operating temperature
- the selector lever should be set to the N position
- the car should be empty and on flat ground
- the handbrake should be set.

b - Procedure :

- remove the oil dipstick
- wipe the dipstick clean using a clean, lintless cloth
- check the oil level; this should be between the upper and lower reference marks **M** and **m**. Top up or drain as necessary in order to obtain the correct level.

NOTE : The difference between the two marks is equivalent to about 1 pint (0.6 litre):

MINI = 8.1 pint (4.6 litres)

MAXI = 9.1 pint (5.2 litres)

The flat side of the dipstick should be parallel to the apron to facilitate installation.

DRAINING AND REFILLING WITH OIL

at 600 miles, 3,000 miles, and every 9,000 miles afterwards

a - Preliminary conditions:

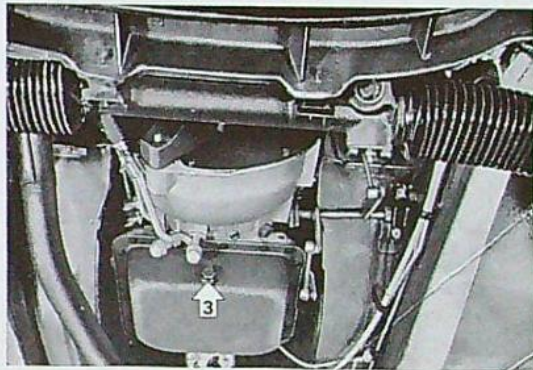
- the gearbox should be warm
- the engine should be stopped (but at normal operating temperature)
- the selector lever should be to the N position
- the car should be empty and on flat ground
- the handbrake should be set.

b - Necessary equipment:

- measuring glass 1
- metal funnel 2
- clean, lintless cloth.

c - Procedure:

- remove the gearbox drain plug 3
- wait until the oil flow has completely ceased before reinstalling the drain plug
- pour 2 litres (3.5 pints) of clean oil in the measuring glass
Esso type A.A.Q. ATF 2974 A
- pour the metered oil into the funnel attached to the filler tube
- start the engine and let it run at idle speed
- remove the dipstick, wipe it clean, check the oil level
- top up to bring the oil level up to the minimum mark m
- road test the car for a few miles
- check, and drain or top up level if necessary
- check the gearbox housing drain plugs for leaks.



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