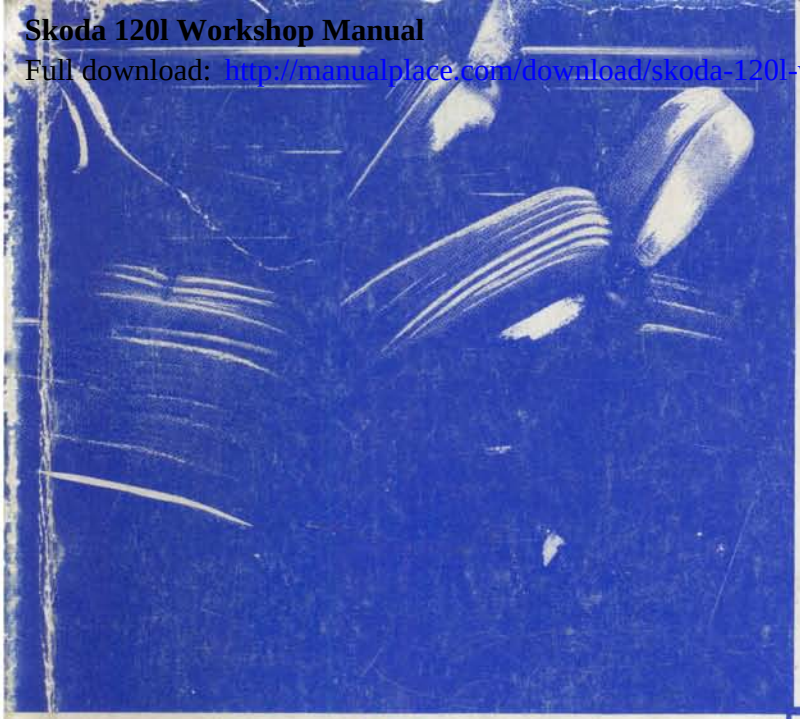
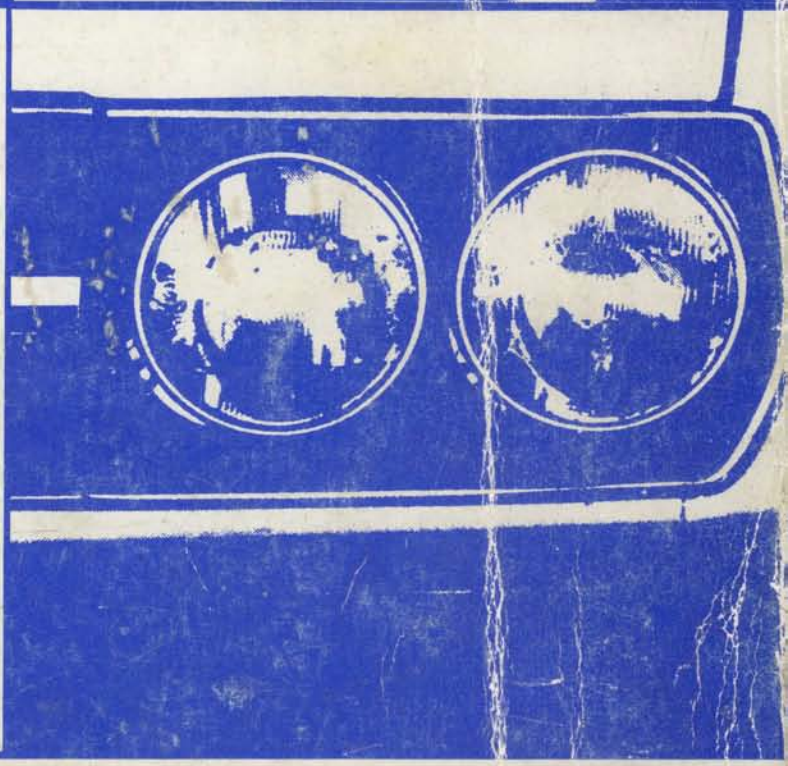


WORKSHOP MANUAL

SKODA 105 S, 105 L, 120 L, 120 LE, 120 LS and 120 LSE

PASSENGER CARS

Revised Edition 1980 version



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WORKSHOP MANUAL
of
SKODA 105 S, 105 L, 120 L, 120 LE, 120 LS and 120 LSE

PASSENGER CARS

REVISED EDITION

1980 VERSION

Reprinted in England by Jemtech Printing Company Limited, Otterbourne, Hampshire

The purpose of this workshop manual is to ensure perfect servicing and repairs of ŠKODA cars by acquainting you, the workers of car services, with the pertinent procedures.

The manual is divided into independent sections or chapters according to the fundamental function of the individual car mechanisms and systems, and/or the kind of information required. It includes descriptions of installation and removing as well as assembly and dismantling procedures, adjusting data, a list of tools and fixtures recommended by the manufacturer, etc.

Refer to the catalogue of spare parts as a supplement to the illustrations, which has been worked out in the same sequence. It will also help you to identify the minor design deviations of the individual production series.

Changes of procedures and supplements to the information contained in this manual are published currently in the ŠKODA Service Bulletins and they will, eventually, be incorporated in the next editions of the manual.

Manufacturer: MOTOR WORKS, National Corporation,
Mladá Boleslav

Exporter: MOTOKOV
Praha – Czechoslovakia

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1 - GENERAL TECHNICAL INFORMATION

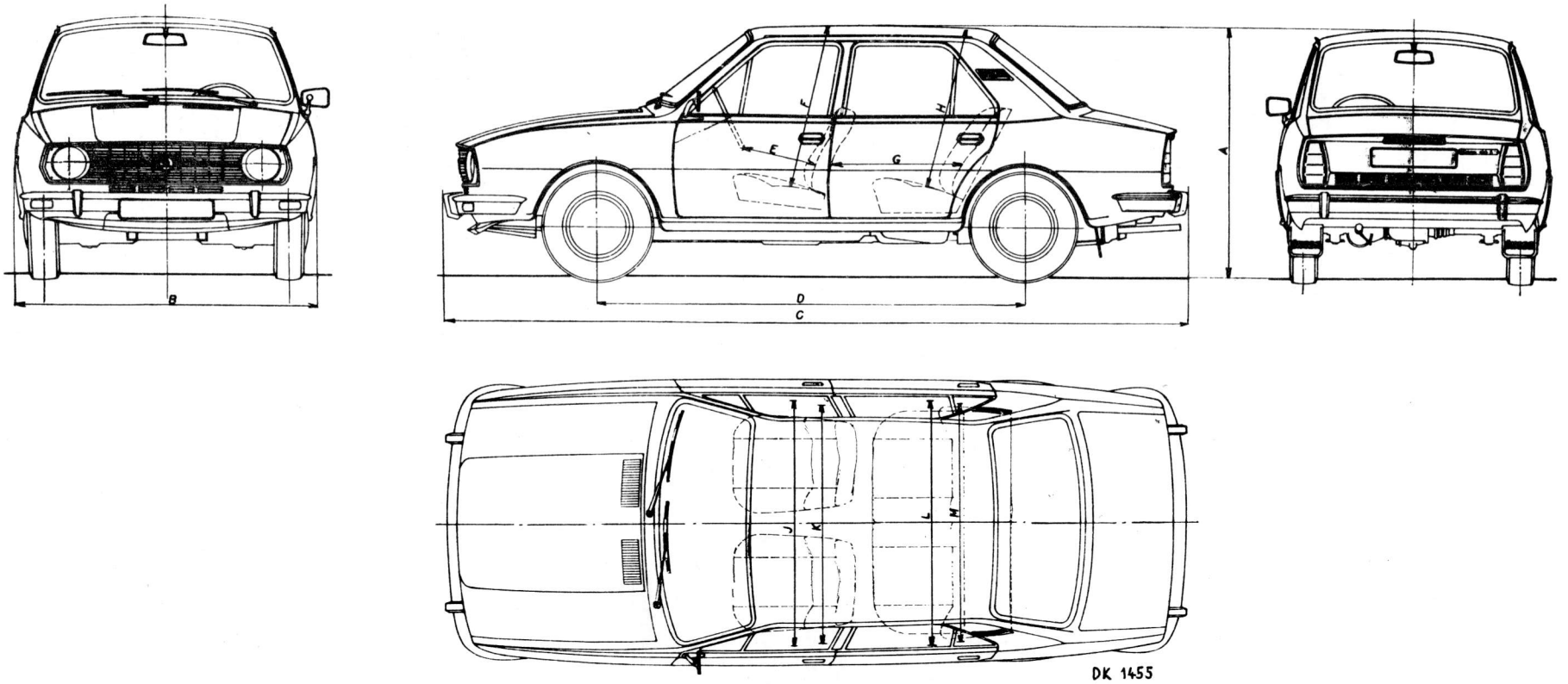


Fig. 1/1 Car Dimensional Drawing

A - Total height	1400	mm
B - Total width	1595	mm
C - Total length	4160	mm
D - Wheel base	2400	mm
E - Distance between steering wheel and seat backrest	400 $^{+\ 50}_{-100}$	mm
F - Distance between seat cushion and ceiling	900	mm
G - Distance between seat backrests	700 $^{+100}_{-\ 50}$	mm
H - Distance between seat cushion and ceiling	870	mm
J, L - Width at elbow height	1350	mm
K, M - Width at shoulder height	1320	mm

1.1 GENERAL CHARACTERISTICS OF CARS — U.K. VERSION

The Škoda 105 S is a five-seat car with a chassisless body, a rear spark-ignition petrol engine, and a driving rear axle. The radiator is in front.

Since 1978 105 S includes items 1, 2, 4, 8, 9, 10, 11.

ŠKODA 105 L is the ŠKODA 105 S car with refined appointments and extras, i. e.:

- wheel embellishers
- wind-up rear-door windows
- adjustable front seat backrests and headrests
- ashtrays in rear-door ponels
- decorative cover strips on door sills
- mouldings at bottom of window openings
- halogen headlamps
- automatic switching off of direction indicators
- instrument panel with circular dials
- switch of disability warning lights
- reversing lamp

ŠKODA 120 L is the ŠKODA 105 L car with boosted engine power (increased swept volume, etc.) and other refinements, for example halogen headlamps, asymmetric.

ŠKODA 120 LS is the ŠKODA 120 L car with further increased engine power (due to increased compression ratio, etc.) and incorporating the following extras:

- glossy frame around windows
- twin headlamps
- instrument panel with tachometer
- brake booster

All models fitted with Brake Servo since 1978.

Since 1979, 120 LE and 120 LSE uprated trim of basic 120 L and 120 LS.

1.2 IDENTIFICATION PLATES AND NUMBERS, KEYS

Identification plate and car identification number

The plate is affixed to the transverse wall of the luggage boot (main luggage compartment). It contains the name of the manufacturer, some of the technical data, the number of the engine and bodywork which is also the identification number of the car. The serial number of the body itself is stamped along the identification plate, or on the body left-hand longitudinal runner in the engine bay (in the point of jack fitting), and the engine number on the water pump flange.

Keys

Three keys are provided with the car: the door key, the ignition key for the switchbox with the steering lock, and the key for the fuel tank filler cap lock.

1.3 FUNCTIONAL CAR EQUIPMENT

Doors

Both front doors can be locked from outside with the key, all doors can be secured by inside press-buttons against opening from the outside. Inside handles are used for unlocking and opening them from inside.

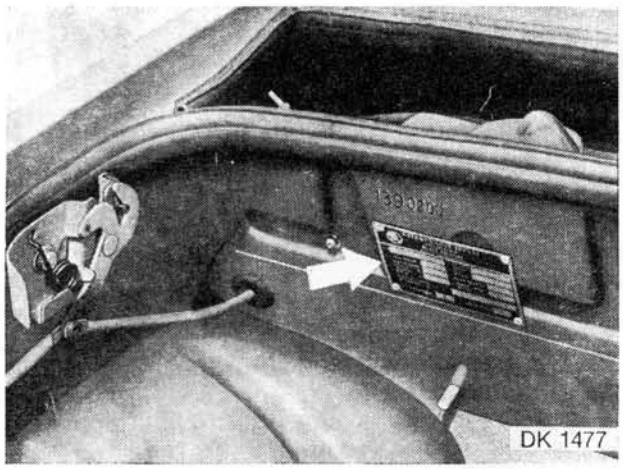


Fig. 1.2/1 Car Identification Plate

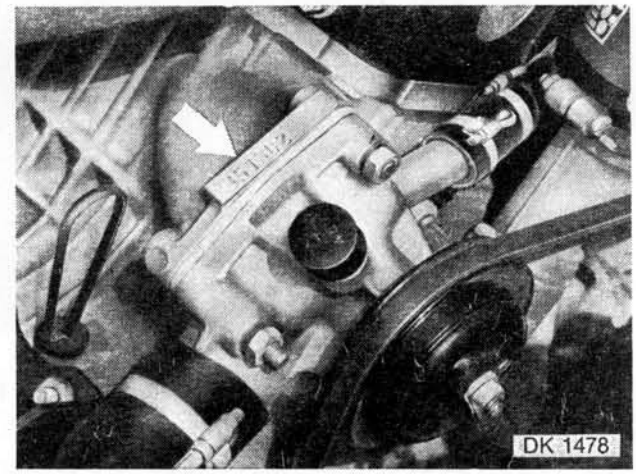


Fig. 1.2/2 Engine Serial Number

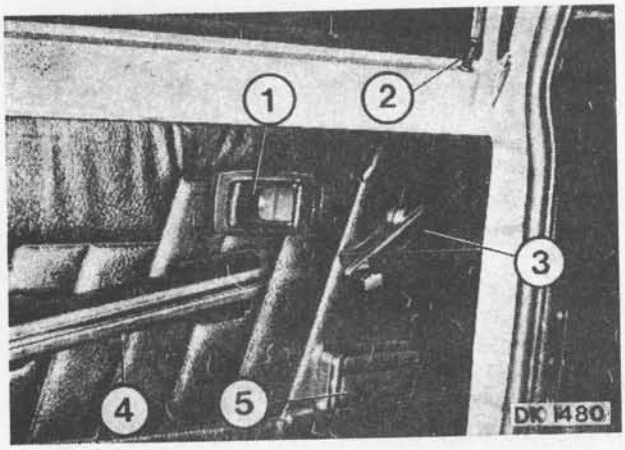


Fig. 1.3/1 Inside Door Mechanisms

1 - Handle
2 - Lock press-button
3 - Drop window crank
4 - Door pull
5 - Ashtray (depending on rear door outfit)

The child-proof latch of the rear doors can be engaged by tipping down its lever. The doors can be opened from outside after disengaging (unlocking) the latch by pulling the press-button.

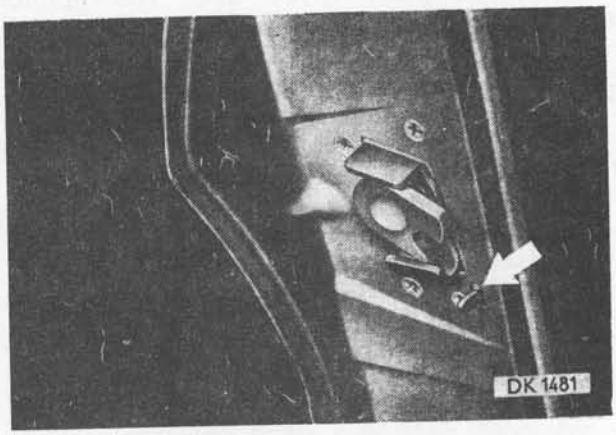


Fig. 1.3/2 Child-proof Latch

INSTRUMENT PANEL

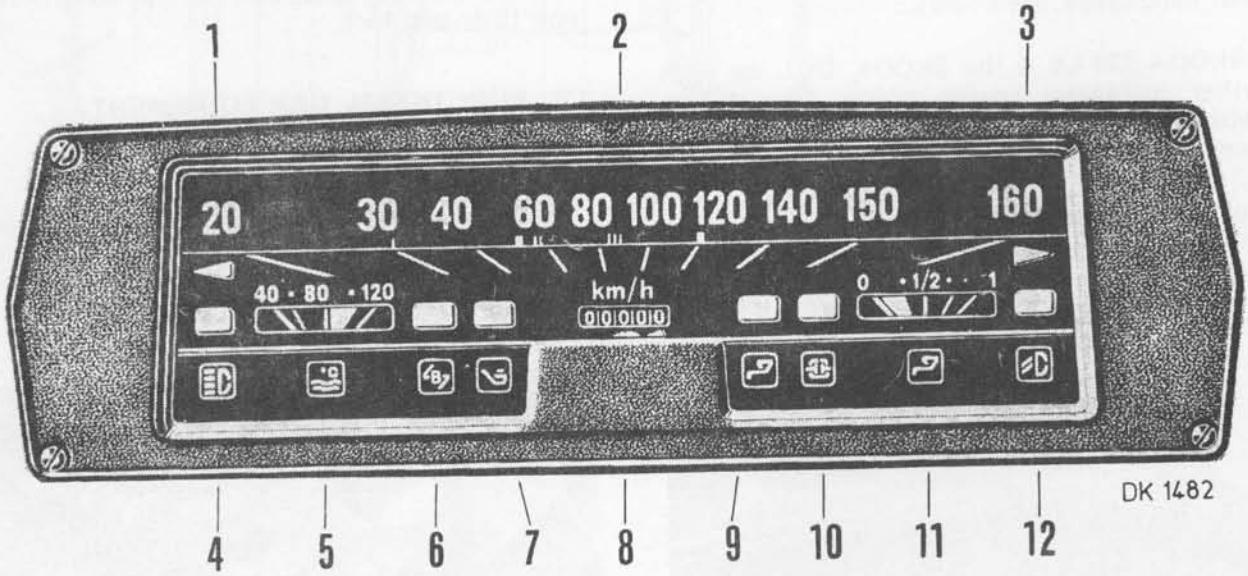
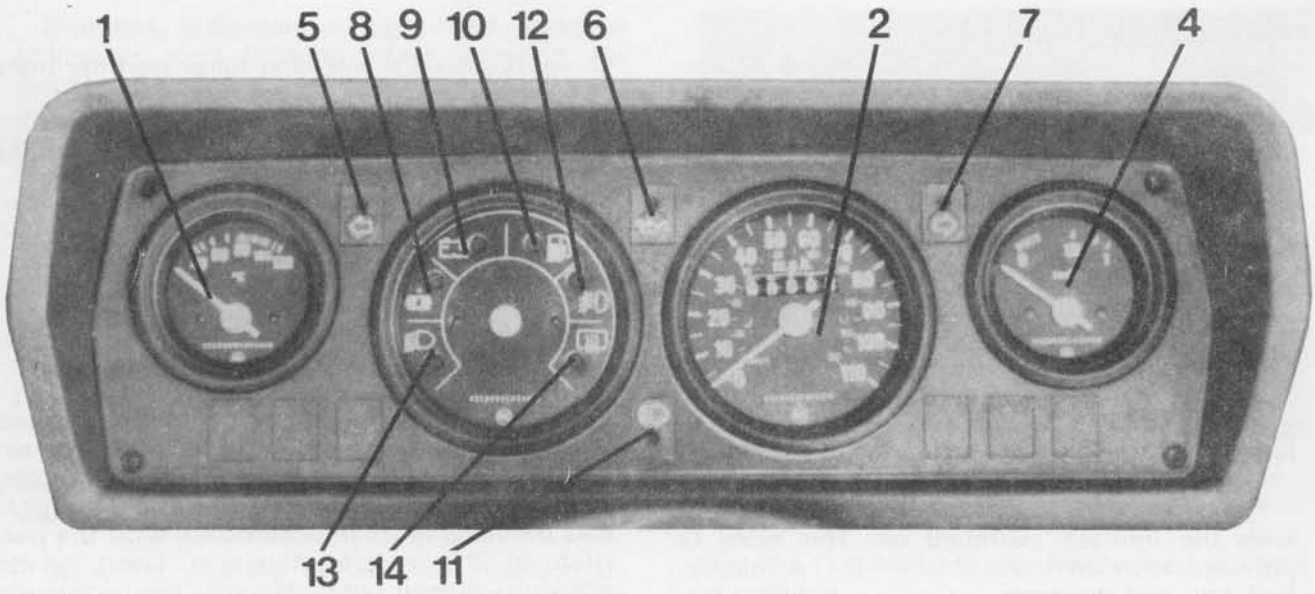


Fig. 1.3/3 SKODA 105 S Instrument Panel up to October 1978 only.

1 - Warning light of left-hand direction indicators, green
2 - Speedometer
3 - Warning light of right-hand direction indicators, green
4 - High-beam warning light, blue
5 - Thermometer (of engine cooling liquid)
6 - Charging warning light, red
7 - Oil pressure warning light, red
8 - Distance recorder
9 - Fuel reserve warning light, amber
10 - Brake system warning light, red
11 - Fuel gauge
12 - Unoccupied, green

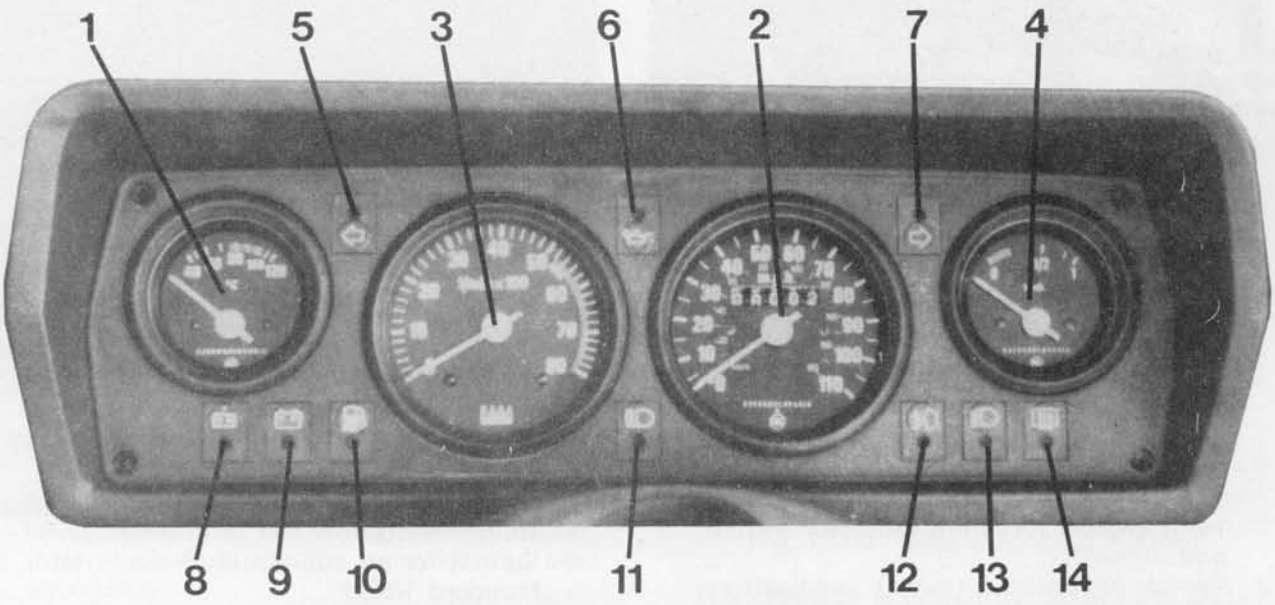


INSTRUMENT PANEL WITHOUT TACHOMETER

1 – Engine coolant thermometer
2 – Speedometer with distance recorder
3 – Tachometer (engine speed indicator)
4 – Fuel gauge

Warning Lamps

5 – Left-hand direction indicators – green
6 – Engine lubricating oil pressure – red
7 – Right-hand direction indicators – green
8 – Brake system – red
9 – Alternator operation – red
10 – Fuel reserve – orange
11 – High beam – blue
12 – Rear fog – orange
13 – Dip beam (not connected)
14 – Heated rear screen



INSTRUMENT PANEL WITH TACHOMETER

Warning lights:

5 - left-hand direction indicators, green
6 - oil pressure, red
7 - right-hand direction indicators, green
8 - brake system, red
9 - charging, red
10 - fuel reserve, amber
11 - high beam, blue
12 - unoccupied, green - fog lamp warning light included in special extras
13 - unoccupied, green - low-beam warning light included in special extras
14 - unoccupied, red

The thermometer indicates the temperature of the coolant with the ignition switched on. The optimum operating temperature range is from 75 to 105 °C. In ŠKODA 105 S, this range is identified by the green zone of the scale.

The fuel gauge indicates the level of the fuel with the ignition switched on. The scale is provided with divisions 0 - ½ - 1, i. e., empty, half full, and full tank.

The driver is warned by the red warning light when there are less than 5 litres of fuel in the fuel tank.

The tachometer indicates the speed (revolutions) of the engine. The speed should never rise to the red zone. When changing the gears, an increase of speed within the range of the yellow zone is permissible.

The parking lights come on when the switch is thrown to the first right-hand position. The switch switches on the headlamps, tail lights, and the licence plate light.

The headlights, i. e. driving (high beam) and dipped (low beam), are switched on by throwing the switch to the second right-hand position. The switch switches on all parking lights and the headlights in accordance with the position of the switch stem-type lever: centre position - dipped lights, towards the instrument panel - driving lights. When the driving lights are on, the blue warning light glows.

The auxiliary headlamps come on after pulling the switch knob, but only while main headlamps are on.

The headlamp flasher starts flashing when pulling the switch lever toward the steering wheel ring.

The horn is sounded by depressing the lever toward the steering wheel shaft.

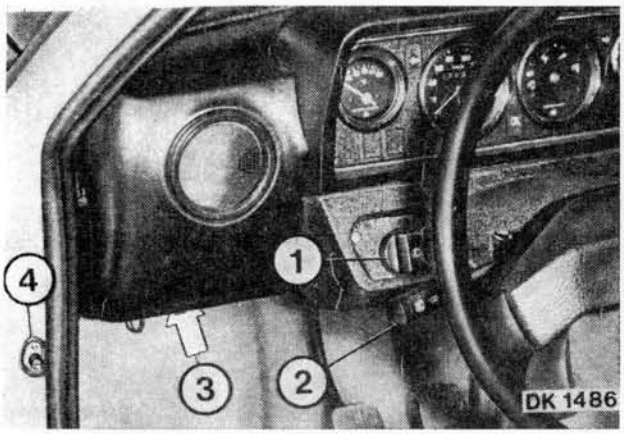


Fig. 1.3/6 Switches - part I

1 - Parking light switch and feeder of headlamp dipswitch
2 - Horn switch, direction indicator switch, and dipswitch
3 - Switch of auxiliary (extra) headlamps
4 - Door switch

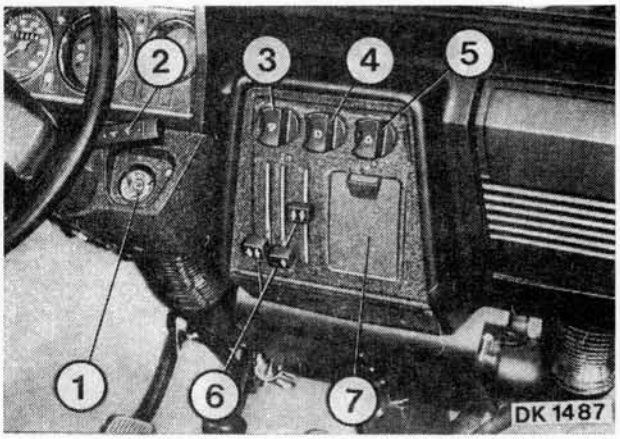


Fig. 1.3/7 Switches - part II and ashtray

1 - Switchbox and steering lock
2 - Switch of windscreen wipers and washer
3 - Heater switch
4 - Switch for an additional device - not standard fitted
5 - Disability warning light switch - not on ŠKODA 105 S
6 - Heater control
7 - Ashtray

Direction indicators - Right-hand direction indicators start flashing when throwing the switch lever upward, the left-hand indicators are actuated when throwing the lever downward. With the exception of ŠKODA 105 S, they switch off automatically after the turn is completed.

Windscreen wipers - With the switch lever pointing upwards, i. e. in position I, the wiper motor starts running at low speed, in position II (again upwards), the motor runs at high speed. The downward switching position of the lever is not occupied.

Windscreen washer - The pump is actuated when pushing the switch lever toward the steering wheel shaft.

Disability warning lights - All direction indicators and both direction indicator warning lights start flashing when turning the switch clockwise.

Heater - For heating and ventilation see Chapter 11.7.

Glove box - Push down the knob to open it.

Blowers of front door windows - The flow of hot or fresh air can be controlled by the flap installed in the mouth of the blower. When opening, press it down in the place marked with grooves; when directing the flow of air,

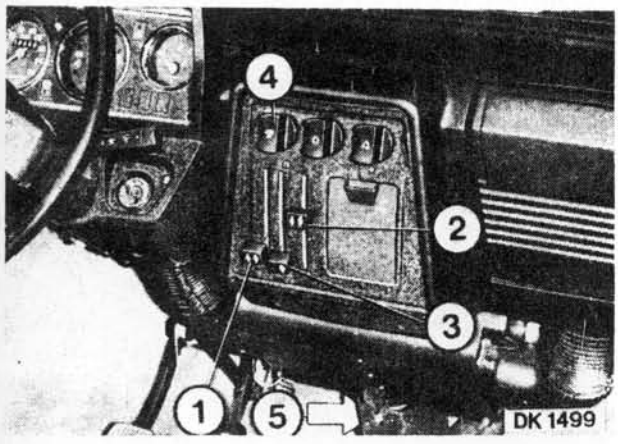


Fig. 1.3/8 Heater and Ventilation Controls

1 - Air distribution control lever
2 - Lever controlling hot water inlet to heater, inlet of air from the fan, and hot and cold air mixing
3 - Lever for shutting off air inlet into heater
4 - Two-position fan motor switch
5 - Lever controlling air inlet into floor tunnel and toward rear seats

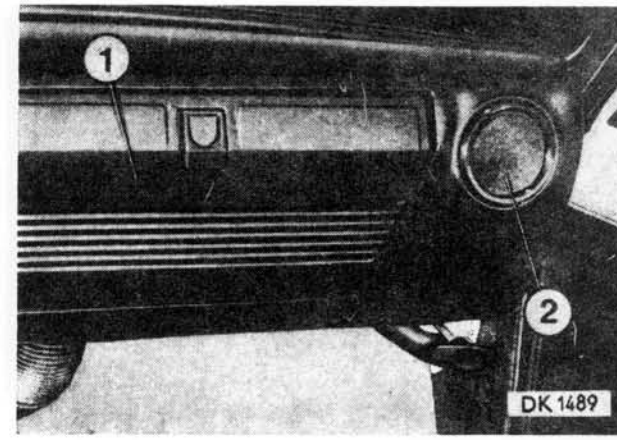


Fig. 1.3/9 Glove box (1) and Door-window blow-off duct (2)

take the flap between the fingers and rotate it as required.

Electric socket - Being installed under the facia panel on the left, it is permanently supplied with current.

See Fig. 13.1/2

CONTROLS AND AUXILIARY DEVICES

The steering wheel and pedals are of standard design (from left: clutch pedal, brake pedal, accelerator pedal).

The hand brake is applied by pulling the lever. To release the brake, first pull it and depress the press button on the lever top, then push it down as far as it will go.

Gear lever - Its positions for engaging the individual gears are shown in the gear change pattern: Figures 1 to 4 designate forward speed gears, "R" denotes the reverse gear.

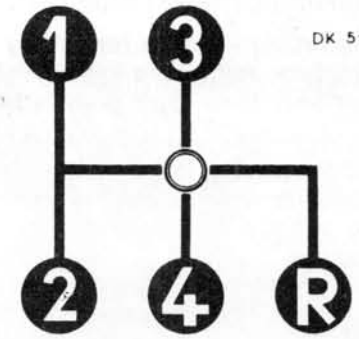


Fig. 1.3/10 Gear Changing Pattern

The choke is actuated by raising the lever.

The switchbox c/w steering lock interconnects the electrical equipment, starts the engine, and locks the steering.

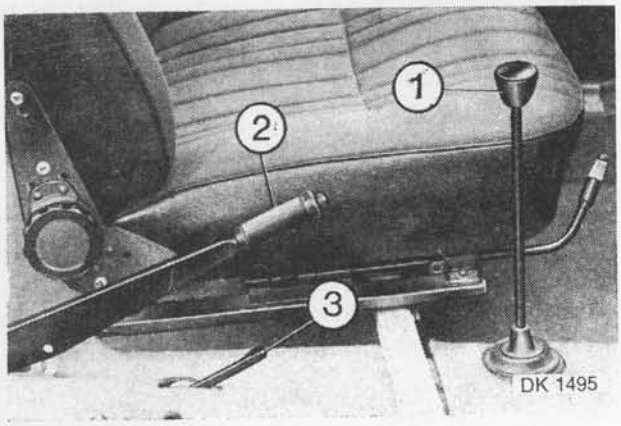


Fig. 1.3/11 Controls between Front Seats

1 - Gear lever
2 - Hand brake lever
3 - Choke

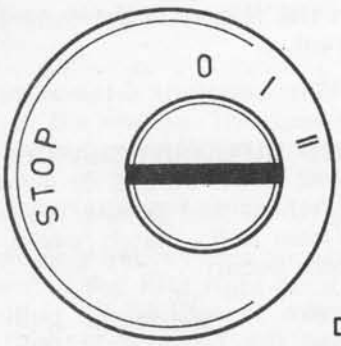


Fig. 1.3/12 Switching Positions of Switchbox c/w Steering Lock

0 - All functions off, engine stopping

I - Ignition on - ignition system and all parts of electrical equipment are supplied with current

II - Engine starting - before repeating the starting procedure, return the key to the "0" position and only then start the engine again

STOP - Position for withdrawing the ignition key and engaging the steering lock (after having withdrawn the ignition key, turn the steering wheel till the latch of the lock clicks home).
If the key cannot be turned when unlocking the steering, relieve the stress of the steering gear by turning the steering wheel slightly.

LUGGAGE AND ENGINE COMPARTMENTS

The main luggage compartment (boot) is in the forebody, the interior (inbuilt) luggage compartment behind the rear seat backrests.

Boot lid up to 1978 – To open it, press down the release on the right-hand side under the facia panel. Then lift the lid on the right-hand side and secure it in its raised position with the aid of the articulated strut. After lowering the lid, lock it by pulling the release as far as it will go.

Since 1978 open lid by pulling handle and lower as described above. To lock press lid above catches.

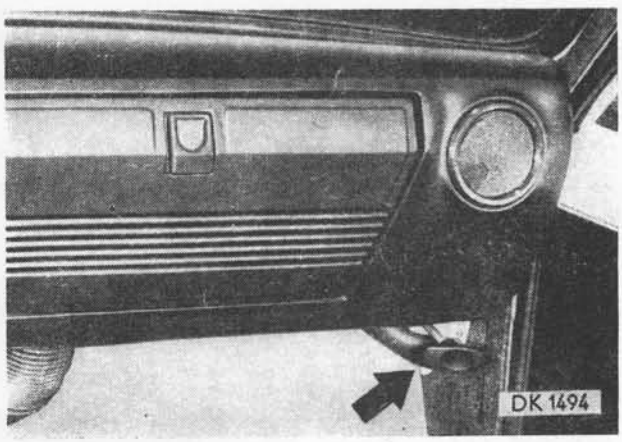


Fig. 1.3/13 Boot Lid Release

Engine bonnet - To open it, pull the lever in the aperture of the left-hand rear door. To close the bonnet, press it down with the hand into position.

For any work in the engine compartment see the notice in paragraph 1, Chapter 2.1.

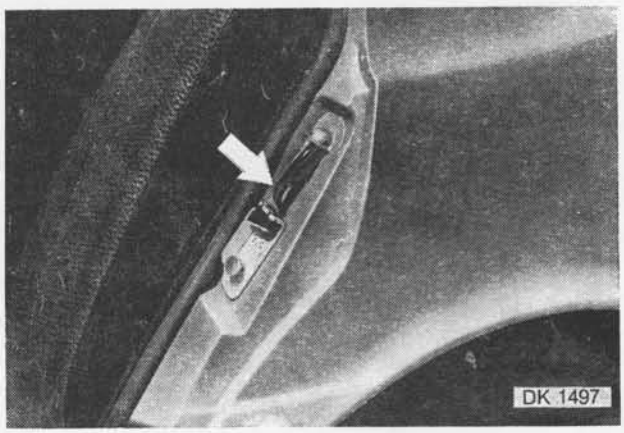


Fig. 1.3/14 Rear Bonnet Release Lever

SEATS, ADJUSTMENT AND CONVERSION

To make the seat slide, unlock it by lifting the lever and tilt the backrest by rotating the rosette.

To adjust the required height of the headrest (in Škoda 120 LS model or included in optional equipment) first unlock it an then pull it upward. Its maximum height is limited by a punch mark on its upright. The headrest must not be pulled out above the level of the fastening nuts.

The seats can be converted into berths. After removing the headrests, shift the seats to their foremost position and tip down the backrests.

By tipping over the rear seat backrests (after pushing off the levers behind the top edge of the backrests), access is gained to the interior luggage compartment. A loading platform is formed when tipping over also the rear seat cushions.

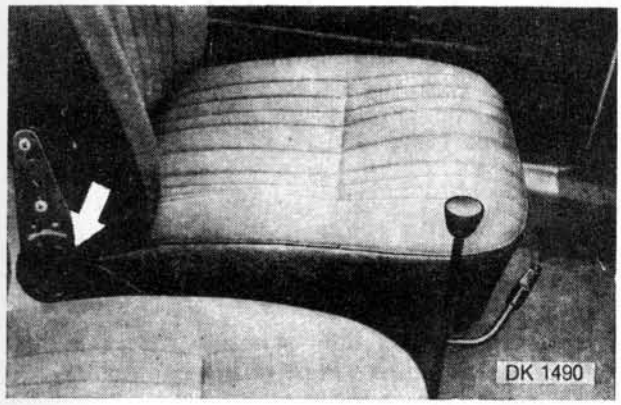


Fig. 1.3/16 Adjustment of front seats for leg-room and backrest rake adjustment (with the exception of ŠKODA 105 S)

Seat belts - see Chapter 14.11.

Courtesy lights are controlled automatically by the front door switches (with the type 105 S only on the driver's side). Moreover, a switch is provided direct on the lamps.

The ashtray in the facia panel can be removed after its opening (pull at its upper edge) by lifting it slightly while pulling it out. To put it back, insert it in its casing in the facia panel by its upper part first, lift it, and push it into position.

Ashtrays in the rear doors (with the exception of type 105 S) - To remove the ashtray, open it, push it down, tip its upper part out of its casing in the door, and disengage it from its hold in the casing by moving its lower part inward. When putting the ashtray back, insert first its lower part into the door, depress the ashtray and close it.

1.4 CAR JACKING UP AND TOWING

Jacking up with the hand jack - The hand jack is stowed in the engine compartment and held in position by means of a strap. Fit the jack into the jack bracket welded to the underbody on each side of the car.

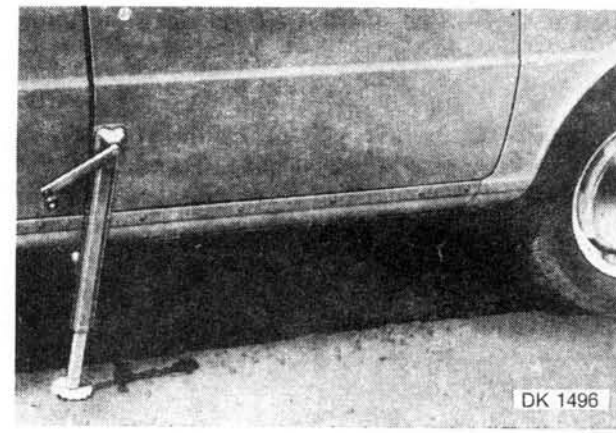


Fig. 1.4/1 Jacking up the Car with the Hand Jack

When jacking up the car, chock the wheels or apply the hand brake. Use chocks always on a slope.

When working under the car, place suitable supports under the door sills as shown in Fig. 1.4/2.

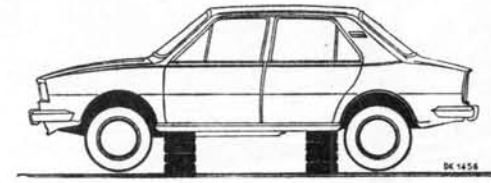


Fig. 1.4/2 Supporting the Car when Working under it

To stow away the jack, pull down the lifting arm till it rests against the foot, put the crank into the body runner section, and fasten the jack in position with the strap provided for this purpose.

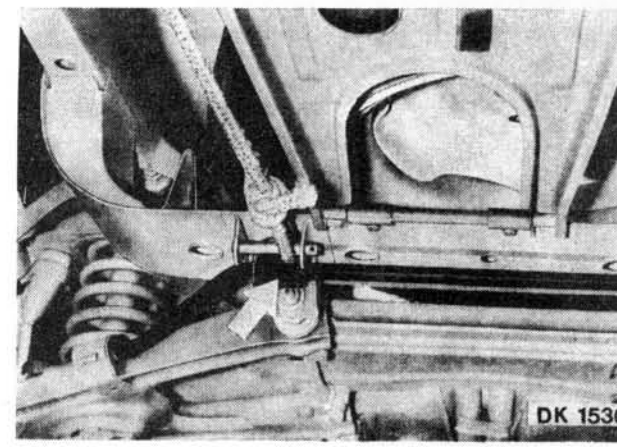


Fig. 1.4/3 Hooking of Towing Rope

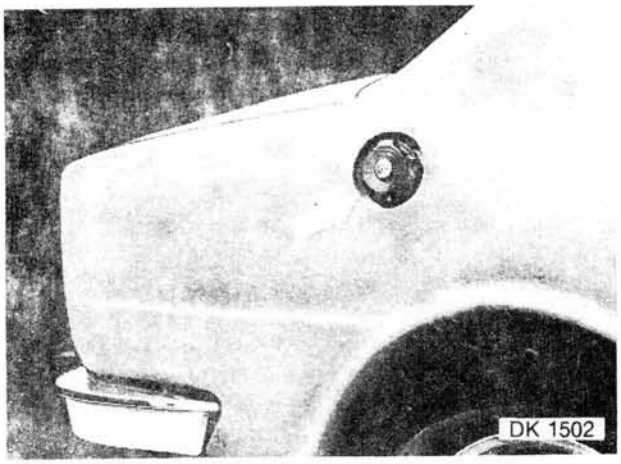
Lifting the car with a power jack - When using a service power jack, let the car rest on the points shown in Fig. 1.4/2.

To tow the car, hook the towing rope on to the bracket under the car nose. Thread the pin through the loop of the rope and the bracket lugs and secure the pin with a cotter pin (both the pin and the cotter pin are included in the car accessories).

1.5 SPARE WHEEL AND FUEL TANK

Spare wheel - After having opened the luggage boot lid, pull the handle of the spare wheel carrier release rod. The carrier is released and swings down (special equipment of the car includes a safety latch behind the bumper which has to be pushed aside to release the carrier).

Fig. 1.5/1 Handle of Spare Wheel Lock Release Rod (from above) and Safety Latch Lever



Fi. 1.5/2 Fuel Tank Filler Neck

After having closed the carrier (by lifting it), push the release lever under the bumper to the right as far as it will go.

Fuel tank - The filler neck with cap is in the rear on the right-hand side of the car. It can be locked and unlocked by means of the respective key.

1.6 STARTING THE ENGINE AND CHECKING ITS CORRECT RUNNING

1. Make sure that the gear lever is in its neutral position, switch on the ignition (position I on the switch box) and watch the coming on of the oil pressure and charging warning lights, i. e. check the function of the alternator - see the information in paragraph 4.

Prepare the engine for starting according to its temperature:

- Starting from cold in winter - do not touch the accelerator pedal and use the full choke
- Starting from cold in summer - do not touch the accelerator pedal and use only half of the choke
- Starting a warmed-up engine - depress the accelerator pedal slowly to the toe-board, do not touch the choke

2. Depress the clutch pedal (advisable in summer, necessary in winter) and start the engine by turning the ignition key to position II. Let go of the key as soon as the engine fires and release the accelerator pedal (if it has been depressed).

It the engine refuses to fire, return the key to the position "0" and repeat the starting procedure. If the engine is warmed up, depress the accelerator pedal to about one third of its total travel.

If the cold engine stalls even after the second and third starting attempt, enrich the starting mixture by quickly depressing the accelerator pedal once or twice to half of its travel during the next starting attempt.

Never let the starter motor run for more than about 5 seconds. Wait some 5 seconds before repeating the starting.

Fuel is injected by every quick depression of the accelerator pedal and enriches the mixture so that it is difficult to ignite. If the engine is flooded, start it with a fully depressed accelerator pedal.

3. Increase the engine speed carefully while releasing the clutch pedal. If the engine shows signs of stalling, depress again the clutch pedal.

Race the engine moderately and briefly to lubricate and warm it up. With a cold engine, half a minute will do in summer and about one minute in winter. This lubricating and warming-up period can be omitted if the engine is still warm and lubricated by a previous drive.

Never use the choke longer than necessary. Start closing the choke gradually soon after the engine has fired and close it fully when the engine shows no more signs of stalling.

4. When increasing the engine speed, make sure that the oil pressure and charging warning lights go out. If everything is in order, you can pull away with the car.

1.7 TECHNICAL DATA

Dimensions

Wheel Track. Dependent on wheel equipment – Front/Rear	1280/1250 mm 1300/1270 mm 1310/1280 mm
Wheel base	2,400 mm
Ground Clearance	170 mm
Overall length	4,160 mm
Overall width	1,595 mm
Height of loaded car	1,400 mm approx.

Weights	Skoda 105 S	Skoda 105 L	Skoda 120 L	Skoda 120 LS
Empty weight	805 kg	825 kg	825 kg	825 kg
Curb weight	855 kg	875 kg	875 kg	885 kg
Payload	400 kg	400 kg	400 kg	400 kg
Gross-vehicle weight	1255 kg	1275 kg	1275 kg	1285 kg
Axle load ratings (of G.V.W. at normal car loading)				
Front axle	530 kg	540 kg	545 kg	540 kg
Rear axle	725 kg	735 kg	750 kg	750 kg

Permissable axle loads

Permissable loading of only one of the axles without exceeding the gross-vehicle weight rating.

Front axle	580 kg
Rear axle	780 kg

Running properties	Skoda 105 S 105 L	Skoda 120 L	Skoda 120 LS
Peak speed	130 km/hr	140 km/hr	150 km/hr
Maximum climable gradient	31%	34%	39%
Travelling range, approx.	550 km	480 km	440 km
Acceleration: 0 - 100 km/hr 1st through to 4th gear	23 sec	19 sec	17 sec
Basic fuel consumption MPG/LKM (UK Official Test Results)	1980 model		
Urban	31.7/8.9	32.5/8.7	33.2/8.5
56 mph	42.8/6.6	43.5/6.5	42.2/6.7
75 mph	—	31.4/9.0	29.1/9.7
Engine oil consumption, maximum	0.8 ltrs/1,000 km		
Turning circle diameters			
– outside wheel (centre line) track	10.2 m ± 5%		
– inside wheel (centre line) track	6.5 m ± 5%		
– between walls	11.0 m ± 5%		

ENGINE

Model	
– for Škoda 105 S and 105 L	Škoda 742.10 Engine No/1
– for Škoda 120 L	Škoda 742.12 Engine No/2
– for Škoda 120 LS	Škoda 742.12X Engine No/9
Type	four-stroke, spark-ignition, carburettor engine with overhead valves
Number of cylinders	4
Cylinder arrangement	in line
Cooling	pump-circulated antifreeze, thermostatic temperature control
Swept volume	
– Škoda 105 S and 105 L	1,046 c. c.
– Škoda 120 L and 120 LS	1,174 c. c.
Bore	
– Škoda 105 S and 105 L	68 mm
– Škoda 120 L and 120 LS	72 mm
Stroke	72 mm
Compression ratio	
– Škoda 105 S, 105 L and 120 L	8.5 : 1
– Škoda 120 LS	9.5 : 1
Engine power output to ČSN and DIN	
– Škoda 105 S and 105 L	33.9 kW (46 h. p.) at 4,800 r. p. m.
– Škoda 120 L	38.3 kW (52 h. p.) at 5,000 r. p. m.
– Škoda 120 LS	42.7 kW (58 h. p.) at 5,200 r. p. m.
Maximum torque	
– Škoda 105 S and 105 L	74.5 Nm at 3,000 r. p. m.
– Škoda 120 L	85.2 Nm at 3,000 r. p. m.
– Škoda 120 LS	90.2 Nm at 3,250 r. p. m.
Fuel - recommended octane number	
– Škoda 105 S, 105 L and 120 L	90 minimum
– Škoda 120 LS	95 minimum
Carburettor type	dual, two-stage, downdraught model JIKOV 32 EDSR
Fuel lift pump type	diaphragm pump, model JIKOV MF

CLUTCH

Type	dry, single-plate, with direct disengagement
Control	hydraulic

GEARBOX

Type	with helical spur gears
Speeds	4 forward and 1 reverse, synchrolock on the 1st-, 2nd-, 3rd-, and 4th-speed gears
Gear ratios – 1st-speed gear	3.8
2nd-speed gear	2.12
3rd-speed gear	1.41
4th-speed gear	0.96
reverse gear	3.27

REAR AXLE

Type	with swinging half-axles and independently suspended wheels
Constant-ratio final drive	spiral bevel gearing
Gear ratio	4.22 (normal ratio) 4.44 (mountain ratio)
Differential	bevel pinion type
Suspension	helical springs and telescopic shock absorbers
Rear wheel toe-in	see Chapter 5.5

FRONT AXLE

Type	with wishbones and independently suspended wheels
Suspension	helical springs with telescopic shock absorbers and torsion bar

Front axle (steering) geometry – see Chapter 6.1

STEERING

Type	direct, symmetrical, screw-and-nut steering with an independent track rod for each wheel
Steering gear ratio	17.3 : 1
Steering wheel diameter	380 mm
Maximum lock angle of nearside/farside wheel	29°30′/37°
Checking lock angle of nearside/farside wheel	20°/23° ± 45°
Number of steering wheel turns required for lock-to-lock movement	2.5

WHEELS

Number of wheels	4+1			
Rims	4½J x 14	4½J x 13	5J x 13	5½J x 13
Tyres	155 x 14	165 x 13		

Tyre pressures – see Chapter 10.1

BRAKES

Type	disk brakes front, internal expanding shoe-brakes rear
Foot brake	twin-circuit, direct-acting hydraulic or semi-servo hydro-pneumatic (Škoda 120 LS)
Hand brake	mechanical, direct-acting, cable-type, acting on rear wheels
Brake-shoe lining:	
– width, rear	40 ± 0.5 mm
– maximum thickness, rear	5 mm
– angular shoe-lining contact, rear	120°
– brake drum diameter, rear	230 mm
– effective brake-shoe lining area, rear	385 cm²
– brake disk diameter, front	252.5 mm
– effective braking area, front	76 cm²

Brake fluid:	
– classification	SAE J 1703 C
– brand filled-in in the factory	SYNTOL HD 190

FUEL TANK

Location	suspended under floor board of car rear half
Fuel cleaning (filtration)	strainer in fuel tank, fuel filter, and strainer in carburettor

CHASSIS LUBRICATION

Type	self-lubricating bearings, repacking with grease by grease nipples; wheel bearings packed with grease

ELECTRICAL EQUIPMENT

Earthing	negative pole
Rated voltage	12 volts
Service voltage	14 volts
Ignition	battery (coil) type
Storage battery	type AKUMA 6N 37 – 12 volts, 37 ampere-hours
Alternator	14V 35 amps 1976-79 105/120 L
PAL Magneteton	14V 42 amps 1979 on 105/120 L 14V 42 amps 1976-79 120 LS 14V 55 amps 1979 on 120 LS
Voltage regulator	type PAL Magneton, 14 volts
Distributor	type PAL Magneton with centrifugal timing device and vacuum unit
Ignition coil	type PAL Magneton, 12 volts
Starter motor	type PAL Magneton, 12 volts 0.66 kilowatts (0.9 h. p.)

Sparking plugs – see Chapter 13.7

BODYWORK

Type	all-metal, closed, four-door, chassisless body
Seating capacity	5 occupants
Luggage compartments, capacity	0.40 m³ (0.28 m³ main luggage compartment for a load of about 40 kg, 0.12 m³ interior luggage compartment for a load of about 10 kg)
Heater	hot-water heater with fan, fed with water from the engine cooling system

FILLING CAPACITIES

Engine – Škoda 105 S, 105 L and 120 L	4 litres maximum – 2.5 litres minimum of engine oil
Škoda 120 LS	4.6 litres maximum – 3 litres minimum of engine oil
Gearbox and final drive case	2.5 litres of gear oil (2 litres when changing oil)
Steering box	0.16 litres of gear oil (about 0.25 litres when topping up)
Brake system and clutch	0.48 litres of brake fluid (filling for tropical regions, etc. see Chapter 16.2)
Cooling system	12.5 litres of antifreeze
Fuel tank	38 litres