

SERVICE MANUAL

CARS AND VANS

121 and 122 S models

Part 13

SPECIFICATIONS

Export Service Department

AKTIEBOLAGET

VOLVO

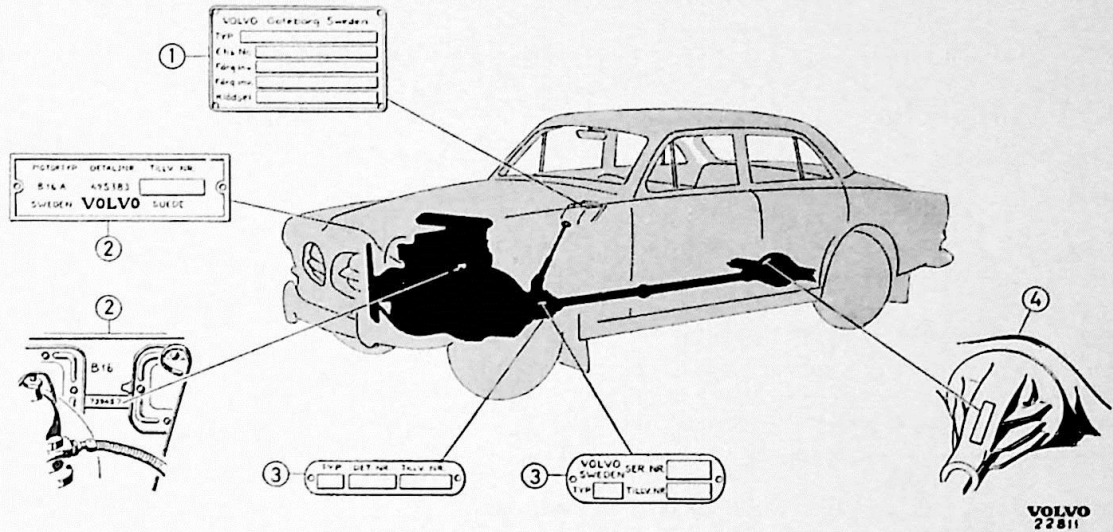
GÖTEBORG . SWEDEN

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TYPE DESIGNATIONS

These specifications concern the Volvo 121 and 122 S models.



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|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Location of chassis number. | The type designation and chassis number are stamped on a plate attached to the pedal casing. |
| 2. Location of engine number. | The engine type, part number and serial number on early production engines are stamped on a plate attached to the right-hand side of the engine. On late production engines, the part number is cast into the engine block with the serial number stamped below it. These are on the left side. |
| 3. Gearbox number. | H 6 gearbox. Plate attached to left side.
M 4 gearbox. Plate attached to bottom. |
| 4. Rear axle number and ratio. | Part number cast in axle, serial number stamped in casing. |

Wheelbase	2600 mm (102.4")
Track, front	1315 mm (51.8")
,, rear	1315 mm (51.8")
Overall length	4450 mm (175.2")
Overall width	1620 mm (63.8")
Overall height, unladen	1505 mm (59.25")
Ground clearance, empty	210 mm (8.3")
Turning circle (at tread centre)	9900 mm (389.8")

ENGINE

Cylinder block

Material	Special-alloy cast-iron
The cylinder bores are machined direct into the block	
Bore, standard	79.37 mm (3.125")
„ 0.010" oversize	79.62 mm (3.135")
„ 0.020" „	79.88 mm (3.145")
„ 0.030" „	80.13 mm (3.155")
„ 0.040" „	80.39 mm (3.165")
„ 0.050" „	80.64 mm (3.175")

Pistons

Material	Light-alloy
Weight	410 ± 5 grammes (14.46 ± 0.18 oz.)
Permissible weight difference for pistons in the same engine	10 grammes (0.35 oz.)
Total height	86 mm (3.386")
Height from gudgeon pin centre to piston top	46 mm (1.81")
Piston clearance	0.03—0.05 mm (0.0012"—0.0020")
Diameter, standard, measured at right angles to gudgeon pin at bottom end of piston	79.33 mm (3.123")
0.010" oversize	79.58 mm (3.133")
0.020" „	79.84 mm (3.144")
0.030" „	80.09 mm (3.153")
0.040" „	80.35 mm (3.164")
0.050" „	80.60 mm (3.173")

Piston rings

Piston ring gap measured at ring opening	0.25—0.50 mm (0.010"—0.020")
Piston ring oversizes	0.010" 0.020" 0.030" 0.040" 0.050"

Compression rings

Chromed upper ring	
Number of rings per piston	2
Height	1.97 mm (0.078")
Piston ring clearance in groove	0.068—0.079 mm (0.0027"—0.0031")
Both rings have chamfered inner edges These are turned upwards	

Oil rings

Number on each piston	1
Height	4.73 mm (0.186")
Piston ring clearance in groove	0.045—0.073 mm (0.0017"—0.0029")

Gudgeon pins

B 16 A

B 16 B

Fully-floating. Circlips at both ends in piston

Fit:

In connecting rod	Close running fit
In piston	Slide fit
Diameter, standard	19 mm (0.748")
" 0.05 mm oversize	19.05 mm (0.750")
" 0.10 mm " 	19.10 mm (0.752")
" 0.20 mm " 	19.20 mm (0.756")

Cylinder head

Height, measured from cylinder head contact surface to cylinder head nut level

99 mm
(3.90")

97.5 mm
(3.84")

Crankshaft

(Replaceable bearing shells for main and connecting rod bearings)

Crankshaft end play	0.01—0.10 mm (0.0004"—0.0040")	0.01—0.10 mm (0.0004"—0.0040")
Main bearings, radial play, flange bearing	0.014—0.064 mm (0.0005"—0.0025")	0.014—0.064 mm (0.0005"—0.0025")
" " " " others	0.014—0.064 mm (0.0005"—0.0025")	0.051—0.100 mm (0.0020"—0.0039")
Big-end bearings, radial play	0.051—0.091 mm (0.0020"—0.0036")	0.051—0.087 mm (0.0020"—0.0034")

Main bearings

Main bearing journals

Diameter, standard	53.950—53.960 mm (2.1240"—2.1244")
" undersize 0.010"	53.696—53.706 mm (2.1140"—2.1144")
" " 0.020"	53.442—53.452 mm (2.1040"—2.1044")
" " 0.030"	53.188—53.198 mm (2.0940"—2.0944")
" " 0.040"	52.934—52.944 mm (2.0840"—2.0844")
Main bearing journal width, flange bearing:	
Standard	38.935—38.975 mm (1.5329"—1.5344")
Oversize 0.1 mm (undersize shell 0.010")	39.035—39.075 mm (1.5369"—1.5384")
" 0.2 mm (" " 0.020")	39.135—39.175 mm (1.5407"—1.5423")
" 0.3 mm (" " 0.030")	39.235—39.275 mm (1.5447"—1.5463")
" 0.4 mm (" " 0.040")	39.335—39.375 mm (1.5486"—1.5502")

Main bearing shells, flange bearing shell:

Thickness, standard	1.911—1.918 mm (0.0752"—0.0755")
" undersize 0.010"	2.038—2.045 mm (0.0802"—0.0805")
" " 0.020"	2.165—2.172 mm (0.0852"—0.0855")
" " 0.030"	2.292—2.299 mm (0.0902"—0.0905")
" " 0.040"	2.419—2.426 mm (0.0952"—0.0955")

Other main bearing shells

	B 16 A	B 16 B
Thickness, standard	1.911—1.918 mm (0.0752"—0.0755")	1.894—1.900 mm (0.0746"—0.0748")
„ undersize 0.010"	2.038—2.045 mm (0.0802"—0.0805")	2.021—2.027 mm (0.0796"—0.0798")
„ „ 0.020"	2.165—2.172 mm (0.0852"—0.0855")	2.148—2.154 mm (0.0845"—0.0848")
„ „ 0.030"	2.292—2.299 mm (0.0902"—0.0905")	2.275—2.281 mm (0.0895"—0.0898")
„ „ 0.040"	2.419—2.426 mm (0.0952"—0.0955")	2.402—2.408 mm (0.0946"—0.0948")

Big-end bearings

Big-end bearing journals

Bearing seat with	32.900—33.000 mm (1.2953"—1.2992")
Diameter, standard	47.589—47.600 mm (1.8736"—1.8740")
„ undersize 0.010"	47.335—47.347 mm (1.8636"—1.8640")
„ „ 0.020"	47.081—47.092 mm (1.8536"—1.8540")
„ „ 0.030"	46.827—46.838 mm (1.8436"—1.8440")
„ „ 0.040"	46.573—46.584 mm (1.8336"—1.8340")

Big-end bearing shells

Thickness, standard	1.560—1.568 mm (0.0614"—0.0617")	1.562—1.568 mm (0.0615"—0.0617")
„ undersize 0.010"	1.687—1.695 mm (0.0664"—0.0667")	1.689—1.695 mm (0.0665"—0.0667")
„ „ 0.020"	1.814—1.822 mm (0.0714"—0.0717")	1.816—1.822 mm (0.0715"—0.0717")
„ „ 0.030"	1.941—1.949 mm (0.0764"—0.0767")	1.943—1.949 mm (0.0765"—0.0767")
„ „ 0.040"	2.068—2.076 mm (0.0814"—0.0817")	2.070—2.076 mm (0.0815"—0.0817")

Connecting rods

Marked 1—4 from the camshaft. Classified A—D to show the weight classification. Only connecting rods with the same weight classification may be fitted in any one engine

Axial play at crankshaft	0.15—0.35 mm (0.0059"—0.0138")
Length, centre-centre	150 ± 0.1 mm (5.905" ± 0.0039")
Weight, classification A	578—608 grammes (20.35—21.48 oz.)
„ „ B	608—638 grammes (21.48—22.54 oz.)
„ „ C	638—668 grammes (22.54—23.60 oz.)
„ „ D	668—698 grammes (23.60—24.65 oz.)

Flywheel

Permissible axial throw	0.20 mm (0.008")
Ring gear (chamfer facing front)	116 teeth

Flywheel housing

	B 16 A	B 16 B
Permissible axial throw, max.		0.08 mm (0.0031")
,, radial throw, max.		0.15 mm (0.0059")

Camshaft

	Gear, fibre gear on camshaft	
Drive	3	
Number of bearings	46.975—47.000 mm (1.8494"—1.8504")	
Front bearing journal, diameter	42.975—43.000 mm (1.6919"—1.6929")	
Centre bearing journal, diameter	36.975—37.000 mm (1.4557"—1.4567")	
Rear bearing journal, diameter	0.025—0.075 mm (0.0010"—0.0030")	
Radial clearance		
Clearance for camshaft setting check (cold engine):	1.10 mm (0.043")	1.15 mm (0.045")
Inlet valves should open at	10° after T.D.C.	0° (T.D.C.)

Timing gears

Crankshaft gear	20 teeth
Camshaft gear	40 teeth
Tooth flank clearance	0.01—0.04 mm (0.0004"—0.0016")

Valve system

Valves

Inlet

Disc diameter	37 mm (1.457")	
Stem diameter	7.859—7.874 mm (0.3098"—0.3104")	
Valve seat angle	44,5°	
Cylinder head seat angle	45°	
Seat width in cylinder head	1.5 mm (0.059")	
Clearance, warm engine	0.40 mm (0.016")	0.50 mm (0.020")

Exhaust

Disc, resistant to ethyl fuel		
Disc diameter	34 mm (1.34")	
Stem diameter	7.830—7.845 mm (0.3087"—0.3093")	
Valve seat angle	44,5°	
Cylinder head seat angle	45°	
Seat width in cylinder head	1.5 mm (0.059")	
Clearance, warm engine	0.45 mm (0.018")	0.50 mm (0.020")

Valve guides

Length	62 mm (2.44")	
Inner diameter	7.905—7.920 mm (0.3112"—0.3122")	
Height above cylinder head upper surface	21 mm (0.827")	
Clearance, valve stem-guide, inlet valves	0.031—0.061 mm (0.0012"—0.0024")	
" " " exhaust valve	0.060—0.090 mm (0.0024"—0.0035")	

Valve springs

Length, unloaded	45 mm (1.772")
.. with 25.5 ± 2 kg (56 ± 4½ lb.) loading	39 mm (1.535")
.. with 66 ± 3.5 kg (145½ ± 7¾ lb.) loading	30.5 mm (1.201")

Lubricating system

Oil capacity in crankcase	2.75 litres (4¾ Imp. pints = 5¾ US pints)
Oil capacity incl. oil filter	3.5 litres (6¼ Imp. pints = 7½ US pints)
Oil pressure, hot engine, 2000 rpm (about 50 kph [30 mph] in 3rd gear)	2.5—3.5 kg/cm ² (35.6—49.8 p.s.i.)
Lubricant type	Engine oil (Service MM, MS)
Viscosity, below 32° F	SAE 10 W
.. 32° F—90° F	SAE 20
.. above 90° F	SAE 30
Oil cleaner, make and type	AC or Mann
.. .. designation, element and gasket	AC 1531572; Mann H 10. 18 + Di 105-02

Oil pump

Lubricating oil pump, type	Gear
.. .. number of teeth	10
.. .. axial clearance	0.02—0.10 mm (0.0008"—0.004")
.. .. radial clearance	0.00—0.10 mm (0—0.004")
.. .. tooth flank clearance	0.15—0.35 mm (0.0059"—0.0138")

Fuel system

Fuel pump, type	AC diaphragm pump
Fuel pressure	Min. 0.14 kg/cm ² (2 p.s.i.) Max. 0.25 kg/cm ² (3.5 p.s.i.)
Pumping capacity, when idling (min. 300 r.p.m.)	0.5 litre/min. (7/8 Imp. pint/min. = 1 US pint/min.)
Fuel tank, capacity	45 litres (10 Imp. galls. = 12 US galls.)
Fuel gauge, type	Electric

Carburettor, B 16 A Engine

Model designation	Zenith 34VN	
	Designation	Data
Venturi	27	
Main jet, standard	97	0.97 mm
.. .. Bentlyl	102	1.02 mm
Compensating jet	97	0.97 mm
Idling jet	50	0.50 mm
Air jet for idling	50	0.50 mm
Acceleration jet	40	0.40 mm
Float valve	1.75	
Float valve gasket, thickness		1.0 mm (0.039")
Fuel level, when running		18 mm (0.709") below top of float chamber
Idling speed		400—600 r.p.m.

Carburettors B 16 B Engine

Type	Horizontal carburettors
Make and designation	SU H4
Number of carburettors	2
Size (air intake diameter)	38 mm (1½")
Fuel jet, designation	AUC 2112
Fuel needle, designation	GT
Checking gauge for float level (between the cover and the yoke-formed part of the needle valve lever)	11 mm (7/16")
Rapid idling, setting of lever in cam plate	Position 2
Idling speed	about 550 r.p.m.

Ignition system

Voltage	6 volts
Order of firing	1—3—4—2
Ignition setting, basic (B 16 A and B 16 B)	4° before T.D.C. (93 octane Research)
" " B 16 A engine	2° after T.D.C. (83 octane Research)
Ignition setting at 1500 r.p.m. engine speed (vacuum regulator disconnected), B 16 A and B 16 B	21° before T.D.C. (93 octane Research)
Ignition setting at 1500 r.p.m. engine speed (vacuum regulator disconnected), (B 16 A)	15° before T.D.C. (83 octane Research)
Spark plugs (B 16 A)	Champion J7 or corresponding
" " (B 16 B)	Champion J6 or corresponding
Spark plug gap	0.7—0.8 mm (0.028"—0.032")

Cooling system

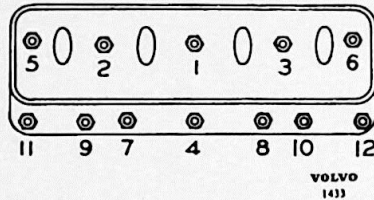
Type	Pressure
Capacity	about 8.5 litres (2 Imp. galls. = 2½ US galls.)
Radiator cap valve opens at	0.23—0.30 kg/cm ² pressure (3¼—4¼ p.s.i.)
Thermostat:	
Rated	170
Type	Balanced = is not influenced by water pump pressure
Begins to open at	75°—78° C (167°—172° F)
Fully open at	90° C (195° F)
Fan belt (SAE designation)	HC .380×33"

Wear tolerances

Cylinder:	
Re-bore when worn (if engine has excessive oil consumption)	0.25 mm (0.0098")
Crankshaft:	
Permissible out-of-roundness on main bearing journals	max. 0.05 mm (0.0020")
Permissible out-of-roundness on big-end bearing journals	max. 0.07 mm (0.0028")
Max. end play on crankshaft	0.15 mm (0.0059")
Valves:	
Permissible clearance between valve stem and valve guide	0.15 mm (0.0059")
Valve stem, permissible wear	max. 0.02 mm (0.0008")
Valve disc edge should be at least	1 mm (0.040")
Camshaft:	
Permissible out-of-roundness (with new bearings) ..	max. 0.075 mm (0.0030")
Bearings, permissible wear	max. 0.02 mm (0.0008")

Tightening torques

	Kgm	Lb/ft
Cylinder head	7—8	50—60
Main bearings	8—10	60—70
Big-end bearings	4—5	30—35
Flywheel	2.3—2.7	17—20
Spark plugs	3.5	25
Bolts for dynamo ($3/8''$ —16)	2.5	18
Bolts for oil filter	2	15



Cylinder head nut tightening sequence.

CLUTCH

Type	Single dry plate
Size	8"
Clutch friction area, total	340 cm ² (54 sq. in.)
Plate thickness, when installed	7.0—7.5 mm (0.276"—0.295")
Rivets for plate lining:	
Number	16
Size	$9/64'' \times 1/4''$ (3.5 × 6.5 mm)
Distance between release lever contact surface for release bearing and flywheel	46 mm (1.81")
Clutch springs, length:	
Unloaded	55 mm (2.165")
Loaded with 88 ± 2.5 kg (194 ± 5 1/2 lb.)	38 mm (1.496")
Clutch springs, number	6
Clutch levers, adjust to:	
7.5 mm (.3") lower than the adjuster jig (SVO 2065) hub within ± 1.5 mm (0.06") and within 0.25 mm (0.010") of each other	

GEARBOX

Early production

The type and number are stamped on a plate attached to the left-hand side of the gearbox

Second and third speed gear are synchronized

Type designation

H 6

Ratios:

1st speed	3.13: 1
2nd speed	1.62: 1
3rd speed	1: 1
Reverse	2.66: 1

Number of teeth on the different gears:

Main drive pinion	17
Countershaft, drive gear	24
" 1st speed gear	14
" 2nd speed gear	20
Main shaft, 1st speed gear	31
" " 2nd speed gear	23
Reverse	17 and 20
Lubricant	Gear oil
" viscosity	SAE 80
Oil capacity	0.5 litres (7/8 Imp. pint = 1 US pint)

Late production

Type and number stamped on a plate attached to the bottom of the gearbox
Four-speed, fully synchronized

Type designation M 4

Gear ratios:

1st speed	3.45: 1
2nd speed	2.18: 1
3rd speed	1.31: 1
4th speed	1: 1
Reverse	3.55: 1

Number of teeth on the different gears:

Main drive pinion	18 teeth
Countershaft, drive gear	28 teeth
" gear for 1st speed	14 teeth
" gear for 2nd speed	20 teeth
" gear for 3rd speed	25 teeth
" gear for reverse	14 teeth
Main shaft, gear for 1st speed	31 teeth
" " gear for 2nd speed	28 teeth
" " gear for 3rd speed	21 teeth
" " gear for reverse	32 teeth
Reverse gear	19 teeth
Lubricant	Gear oil
" viscosity	SAE 80
Oil capacity	about 0.9 litres (1 1/2 Imp. pints = 1 US quart)

Speedometer gears

Rear axle gear ratios	Tyre size	Speedometer gears			Mileometer theoretical inaccuracy %
		Number of teeth		Ratio	
		Drive gear	Driven gear		
4.56: 1 (9: 41)	5.90"—15"	5	18	3.6	+ 1.5

Speedometer cable revolutions per km (mile) 630 (1135)

PROPELLER SHAFT

Propeller shaft	Tubular, two-piece, three universal joints, centre bearing
Manufacture and type	Hardy-Spicer with needle bearings
Lubricant, universal joints	Special chassis lubricant

REAR AXLE

Manufacturing number and gear ratios are stamped on a plate attached to the rear axle housing

Rear axle, type	Semi-floating
Track	1315 mm (51 ³ / ₄ ")
Axial clearance for drive shafts	0.02—0.12 mm (0.0008"—0.0047")

Rear axle gear

Type	Crown wheel and pinion (hypoid)
Gear ratio	4.56:1 (9:41)
Tooth flank clearance (pinion—crown wheel)	0.10—0.20 mm (0.004"—0.008")
Axial throw, crown wheel	max. 0.08 mm (0.0032")
Tension, pinion bearing	2—4 kgem (1.71—3.48 lb. in)
Lubricant	Hypoid oil
viscosity	SAE 80
Oil capacity	1.3 litres (2 ¹ / ₄ Imp. pints = 2 ³ / ₄ US pints)

Tightening torques

	Kgm	Lb/ft
Flange	20	150
Cap	5.5—6	40—45
Crown wheel	5.5—6	40—45

FRONT AXLE AND STEERING GEAR

Front axle

Shims at front axle member	thickness = 2 mm (0.080")
Shims at upper control arm	thickness = 3 mm (0.125")
	thickness = 0.15 mm (0.006")
	thickness = 0.5 mm (0.020")
	thickness = 1 mm (0.040")

Steering gear

Steering wheel diameter	430 mm (16 ³ / ₄ ")
Number of turns (lock to lock)	3 ¹ / ₄
Steering box, make and type	Gemmer cam and roller
" " ratio	15.5:1
Shims for steering box bearing	thickness = 0.1 mm (0.004")
	thickness = 0.2 mm (0.008")
	thickness = 0.25 mm (0.010")
Washer between adjuster screw and steering shaft	thickness = 2.1 mm (0.083")
	thickness = 2.2 mm (0.087")
	thickness = 2.3 mm (0.091")
Steering box lubricant	Hypoid oil SAE 80
Capacity	0.2 litres (1/4 Imp. pint = 1/2 US pint)

Idler arm:	
Required torque	1.5—8.5 Kgc _m (1.3—7.0 lb. in.)
Shims	thickness = 0.1 mm (0.004")
	thickness = 0.35 mm (0.014")
Tightening torque for Nyloc nut	8.5 Kgc _m (60 lb. ft.)
Tightening torque for steering wheel nut	5 Kgc _m (35 lb. ft.)

Wheel alignment (unladen)

Caster up to chassis Nos. 2610	-1/2° to +1/2°
" from chassis Nos. 2611	0° to +1°
Camber	0° to +1/2°
Toe-in	0—4 mm (0"—5/32")
Toe-out:	
When the outer wheels is turned 20°, the inner wheel should be turned	21.5° to 23.5°
"King pin inclination" inwards	8° (at 0° camber)
Max. turn angle outwards	40°

BRAKES

Master cylinder, diameter, inner	7/8"
Wheel unit cylinders, diameter, front	7/8"
" " " " rear	7/8"
Brake lines, outer diameter	3/16"
Brake drum, diameter, front	228.6 mm (9.0")
" " " rear	228.6 mm (9.0")
" " radial throw, max.	0.15 mm (0.006")
Brake linings:	
Width	2"
Thickness	3/16"
Diameter of hole for contact plug	19 mm (3/4")
Length, front wheel brakes, forward shoe	260 mm (10 1/4")
" " " " rear shoe	260 mm (10 1/4")
" rear wheel brakes, forward shoe	260 mm (10 1/4")
" " " " rear shoe	200 mm (8")
Effective brake lining area, front	520 cm ² (81 sq. in.)
" " " " rear.	465 cm ² (72 sq. in.)
" " " " total	985 cm ² (153 sq. in.)
Brake shoe return spring:	
Pull required for a total length of 154 mm (6 1/16"), front	13.5—30 Kg (30—45 lbs.)
Pull required for a total length of 154 mm (6 1/16"), rear	15.5—20 Kg (34—45 lbs.)
Clearance, brake shoe—brake drum	0.1 mm (0.004")

WHEELS AND TYRES

Wheels

Type	Disc 4-J
Size	4.00"—15"
Number of wheel nuts	5
Out-of-roundness, max.	2.5 mm (0.09")
Warping, max.	2.5 mm (0.09")
Unbalance (complete wheel)	max. 900 gr. cm. (8 lb. in.)
Wheel, r.p.km. (mile): 5.90"—15"	about 505 (808)
Torque required for tightening wheel nuts	10—14 Kgc _m (70—100 lb. ft.)

Tyres

Type	Tubeless tyres
Size	5.90"—15"
Ply	4
Rolling radius	315 mm (12.40")
Tyre pressure (cold tyres):	
Front tyres	1.4 kg/cm ² (20 p.s.i.)
Rear tyres	1.7 kg/cm ² (24 p.s.i.)

SPRINGS AND SHOCK ABSORBERS

Front springs

Type	Coil springs
Material thickness	14.1—14.3 mm (0.55"—0.56")
Outer diameter	121—122.5 mm (4.76"—4.82")
Total number of turns	8.7
Test values:	
Loading to compress spring 1 cm (²⁵ / ₆₄ " (measured within spring lengths 175—215 mm [6.89"—8.46"])	47.8—51.8 Kg (105—115 lb.)
Length, fully compressed	max. 120 mm (4.73")
Loading for spring length of 195 mm (7.68")	
Yellow marking	481—491 Kg (1062—1082 lb.)
Blue	491—501 Kg (1082—1104 lb.)
Red	501—511 Kg (1104—1126 lb.)

Rear springs

Type	Coil springs
Material thickness	11.7—11.9 mm (0.46"—0.47")
Outer diameter	114.5—116.0 mm (4.50"—4.56")
Total number of turns	10.7
Test values:	
Loading to compress spring 1 cm (²⁵ / ₆₄ " (measured within spring lengths 225—265 mm [8.86"—10.40"])	19.4—21.4 Kg (43—47 lb.)
Length, fully compressed	max. 123 mm (4.85")
Loading for spring length of 245 mm (9.64")	
Yellow marking	276—282 Kg (609—622 lb.)
Blue	282—288 Kg (622—635 lb.)
Red	288—294 Kg (635—648 lb.)

Shock absorbers

Make and type	Delco, telescopic
Total length:	
Front shock absorbers, compressed	approx. 300 mm (11.81")
" " " extended	approx. 415 mm (16.34")
Rear shock absorbers, compressed	approx. 355 mm (14.0")
" " " extended	approx. 530 mm (20.86")

ELECTRICAL SYSTEM

Battery

Type	Boliden 3F06, NOACK 312, SAAJ GH 13—6, Tudor 3 Df6 or similar
------------	------------------------------------------------------------------------

Earthed	Negative
Voltage	6 volts
Battery capacity, standard	85 amp.h.
Electrolyte specific weight, fully charged battery	1.275—1.285
" " " when charging is necessary	1.230

Ignition system

Firing order	1—3—4—2
Ignition setting, B 16 A (83 octane Research)	2° after T.D.C.
" " B 16 A (93 octane Research)	4° before T.D.C.
" " B 16 B (93 octane Research)	4° before T.D.C.
Ignition coil	ZS/KZ 1/6/4
Spark plug thread	14 mm
" " type (B 16 A)	Champion J7 or corresponding
" " " (B 16 B)	Champion J6 or corresponding
" " gap	0.7—0.8 mm (0.028"—0.032")

Distributor

Type	VJU 4 BR 20
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Test values

Direction of rotation	Clockwise
Ignition setting:	
Centrifugal governor	
Distributor degrees	0 5 10 14±1
Distributor speed, r.p.m.	210—380 370—500 825—1200 1575—1925
Vacuum governor	
Distributor degrees	0 8±1
Vacuum cm Hg	7—14 50
Breaker points, gap	0.4—0.5 mm (0.0157"—0.0197")
" " contact pressure	0.4—0.5 kg (.88—1.1 lb.)
" " closing angle	50±3°

Dynamo

Type	Bosch LJ/GG 200/6-2300 R 7
Voltage	6 volts
Earthed	Negative
Current output, continuous	max. 49 amps.
Direction of rotation	Clockwise
Ratio, engine—dynamo	1: 1.8
Carbon brush designation	WSK 40 L3
" " number	2

Test values

Brush spring pressure	0.45—0.60 kg (0.99—1.3 lb.)
Field winding, current consumption	4 amps. at 5 volts
Dynamo as motor, current consumption	8 amps. at 5 volts
Charging, cold dynamo:	
6.4 volts 0 amps	1850—1900 r.p.m.
8 volts 40 amps	2575—2675 r.p.m.
Charging, warm dynamo:	
6.4 volts 0 amps	1875—1950 r.p.m.
8 volts 40 amps	2750—2850 r.p.m.

Charging relay

Type	Bosch RS/UA 200/6/23
Equalizing resistance AR	5.5—6.0 ohms
Control resistance W1	3.2—3.7 ohms
" " W2	5.0—6.0 ohms

Test values

Reverse current relay:	
Cut-in voltage	5.5—6.3 volts
Reverse current	4—9 amps (closed circuit)
Voltage control:	
Control voltage, unloaded dynamo, first control stage	7.0—7.5 volts
Current control:	
Control current	47—51 amps
Test values are rated at an air temperature of about	20° C (68° F)

Starter motor

Type	Bosch EGD 0, 6/6 AR 19
Solenoid, type designation	SSM 120/2
Voltage	6 volts
Earthed	Negative
Direction of rotation	Clockwise
Output	0.6 h.p. at —10° C (14° F)
	0.75 h.p. at +20° C (68° F)
Number of teeth on gear	9
Carbon brushes, designation	DSK 35/5
Number	4

Test values

Mechanical:

Armature axial clearance	0.15—0.30 mm (0.006"—0.012")
Brush spring tension	0.8—0.9 kg (1.76—2 lb.)
Distance of drive gear from flywheel ring gear	3 mm (0.118")
Armature brake friction torque	3—5 kgcm (2.6—4.34 lb./in.)
Starter motor idling torque	0.4—0.8 kgcm (0.35—0.69 lb./in.)

Electrical:

Unloaded starter motor:

Test period	max. 15 secs.
5.5 volts and 65—75 amps.	3500—4500 r.p.m.

Loaded starter motor:

4.5 volts and 260—280 amps.	750—850 r.p.m.
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Locked starter motor:

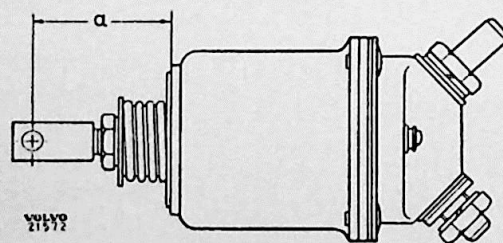
3.5 volts and 450—480 amps.	min. 1.33 kgm (9.4 lb.ft.) (r.p.m.=0)
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Solenoid

Test values

Winding current consumption

Between connection 50 and earth	9—12 amps at 5.0 volts
Between connections 50 and 30	31—35 amps at 5.0 volts
Cut-in voltage	2.5—3.3 volts
Cut-out voltage	0.8—1.6 volts
Measurement "a" (see fig.)	32.2±0.1 mm (1.27" +0.004")



*Control solenoid setting
(iron core retracted)*

Fuses

Fusebox under the bonnet on the left-hand side of the cowl

8 A (4)
25 A (2)

Bulbs

	No.	Watts	Socket
Headlights	2 st	45 W—40 W Duplo	BA 20 d
Parking lights	4 st	2 W	BA 9 s
Number plate lights	2 st	5 W	BA 15 s
Brake warning lights	2 st	15 W	BA 15 s
Tail lights	2 st	5 W	BA 15 s
Instrument lights	2 st	2 W	BA 9 s
Direction indicator and side-lights, front	2 st	20/5	BA 15 d spec.
Direction indicator lights, rear	2 st	20 W	BA 15 s
Glovebox light	1 st	2 W	BA 9 s
Clock light	1 st	2 W	BA 9 s
Roof light	1 st	10 W	S 8
Warning light for direction indicators	1 st	2 W	BA 9 s
" " " headlight beams	1 st	2 W	BA 9 s
" " " oil pressure	1 st	2 W	BA 9 s
" " " charging control	1 st	2 W	BA 9 s

Headlight settings

Vertical setting. Adjust at a distance of 16 ft 5" (5 m)

From wall

3" (7.5 cm) below the headlight horizontal centre line

Horizontal setting

3" (7.5 cm) out from the headlight vertical centre line

LUBRICATION

Engine

Lubricant type	Engine oil
Viscosity, below 32° F	SAE 10 W
" 32° F—90° F	SAE 20—20 W
" above 90° F	SAE 30
Oil capacity, with oil filter	3.5 litres (6 ¹ / ₄ Imp. pints = 7 ¹ / ₂ US pints)
" " without oil filter	2.75 litres (4 ⁷ / ₈ Imp. pints = 6 US pints)

Gearbox H 6

Lubricant type	Gearbox oil
Viscosity	SAE 80
Oil capacity	0.5 litres (7/8 Imp. pint = 1 US pint)

Gearbox M 4

Lubricating oil, type	Gearbox oil
" " viscosity	SAE 80
" " capacity	0.9 litres (1 ¹ / ₂ Imp. pints = 2 US pints)

Rear axle gear

Lubricant type	Hypoid oil
Viscosity	SAE 80
Oil capacity	1.3 litres (2 ¹ / ₄ Imp. pints = 2 ³ / ₄ US pints)

Steering gear

Lubricant type	Hypoid oil
Viscosity	SAE 80
Oil capacity	0.2 litre (3/8 Imp. pint = 1/2 US pint)