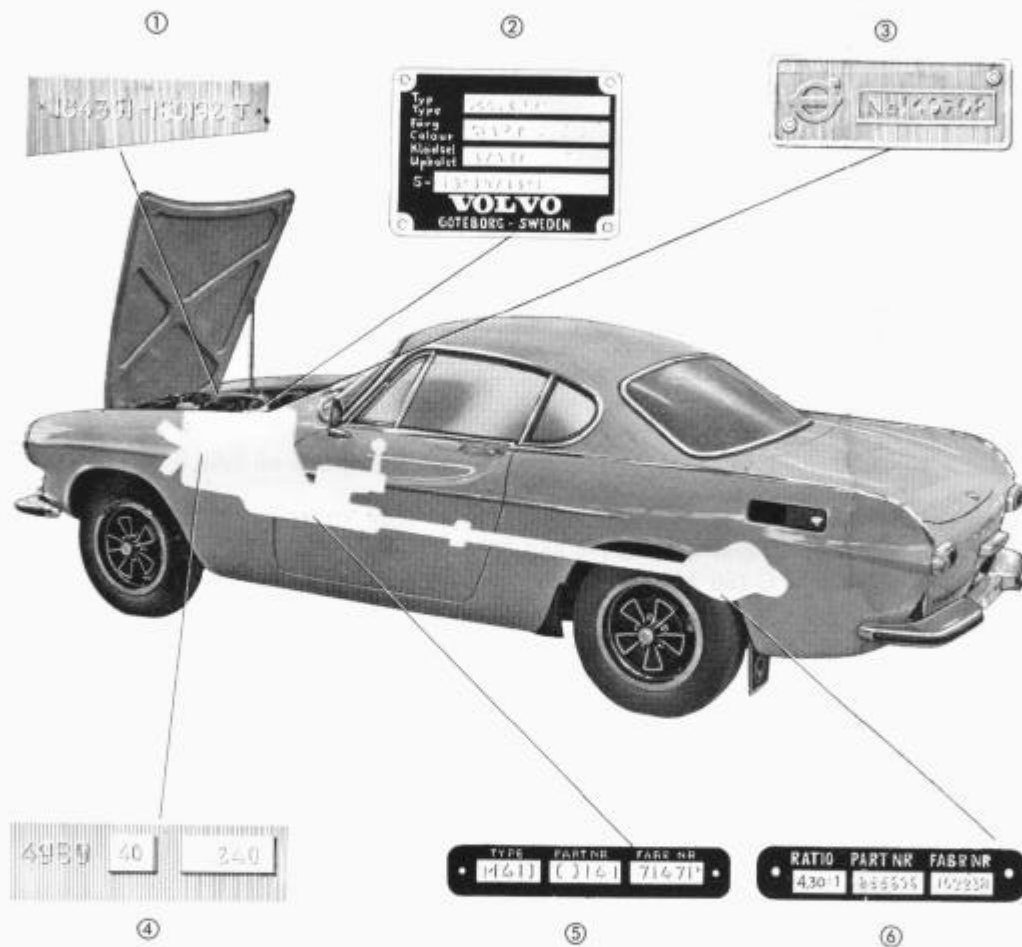


TYPE DESIGNATIONS

TYPE PLATES



1. Type, model designation and chassis number stamped on body plating.
On certain markets data is also included on a plate placed on the windscreen left-hand post.
2. Vehicle type designation,

- tion, code numbers for colour and upholstery.
3. Body number.
4. Engine type designation, part number and manufacturing serial number (on left hand side of engine).
5. Gearbox type designation,

- code numbers for colour and upholstery.
3. Body number.
4. Engine type designation, part number and manufacturing serial number (on left hand side of engine).
5. Gearbox type designation, part number and manufacturing serial number (underneath gearbox).
6. Plate on left hand side of final drive casing showing reduction ratio, number and serial number for final drive.

GROUP 03

SPECIFICATIONS

MEASUREMENTS AND WEIGHTS

Length	4350 mm (171.25")
Width	1700 mm (67.0")
Height	1280 mm (50.4")
Wheelbase	2450 mm (96.5")
Track, front	1310 mm (51.6")
rear	1310 mm (51.6")
Clearance	155 mm (6")
Turning circle	9 m (30 ft.)
Curb weight	1170 kg (2580 lb.)

LUBRICATION

ENGINE

Lubricant, type	Engine oil
grade	Service MS
viscosity, all year round	Multigrade oil SAE 10 W-30
at continuous temp. below	
—20°C (—4°F)	Multigrade oil SAE 5 W-20
or	
viscosity below —10°C (14°F)	SAE 10 W
between —10 and +30°C (14 and 86°F)	SAE 20/20 W
above +30°C (86°F)	SAE 30
Oil change quantity, without oil filter	3.25 litres (5.72 Imp. pints = 6.86 US pints)
with oil filter	3.75 litres (6.60 Imp. pints = 7.91 US pints)

GEARBOX WITH OVERDRIVE

Lubricant, type	Engine oil
grade	Service MS
viscosity, all year round	SAE 30
alternative	Multigrade oil SAE 20 W-40
Oil change quantity, gearbox and overdrive	1.6 litres (2.81 Imp. pints = 3.38 US pints)

AUTOMATIC TRANSMISSION

Lubricant	Automatic Transmission Fluid, Type F
Oil capacity	6.3 litres (11.09 Imp. pints = 13.29 US pints)

FINAL DRIVE

Lubricant, type, without differential lock	Oil acc. to MIL-L-2105 B
with differential lock	Oil acc. to MIL-L-2105 B provided with
	additive for differential lock
viscosity, above —10°C (14°F)	SAE 90
below —10°C (14°F)	SAE 80
Oil change quantity	1.3 litres (2.28 Imp. pints = 2.74 US pints)

STEERING BOX

Lubricant, type	Hypoid oil
viscosity, all year round	SAE 80
oil capacity	0.25 litre (0.44 Imp. pint = 0.53 US pint)

ENGINE

GENERAL

Type designation	B 20 E
Output, h.p. at r.p.m. (SAE)	130/6000
(DIN)	120/6000
Max. torque, kpm. (lb.ft.) at r.p.m. (SAE)	18.0 (130)/3500
(DIN)	17.0 (123)/3500
Compression pressure (hot engine) with starter motor at 250—300 r.p.m.	12—14 kp/cm ² (170—200 p.s.i.)
Compression ratio	10.5:1
Number of cylinders	4
Bore	88.92 mm (3.5008")
Stroke	80 mm (3.15")
	1.99 litres
Weight incl. electrical equipment	approx. 155 kg (341 lb.)

CYLINDER BLOCK

Material	Special alloy cast iron
Bore, standard	88.92 mm (3.501")
oversize 0.030"	89.68 mm (3.531")

PISTONS

Material	Light alloy
Weight	507±5 grammes (18±0.18 oz.)
Permissible weight deviation between pistons in same engine	10 grammes (0.35 oz.)
Height, total	71 mm (2.79")
Height from piston pin centre to piston crown	46 mm (1.81")
Piston clearance	0.04—0.06 mm (0.0016"—0.0024")

PISTON RINGS

Piston ring gap, measured in ring opening	0.40—0.55 mm (0.015—0.022")
Oversize on piston rings	0.030"

Compression rings

Upper ring chromed.	
Number on each piston	2
Height	1.98 mm (0.078")
Piston ring clearance in groove	0.045—0.072 mm (0.0017—0.0028")

Oil scraper rings

Number on each piston	1
Height	4.74 mm (0.186")
Scraper ring clearance in groove	0.045—0.072 mm (0.0017—0.0028")

GUUDGEON PINS

Floating fit. Circlips at both ends in piston.	
Fit:	
In connecting rod	Close running fit
In piston	Push fit
Diameter, standard	22.00 mm (0.866")
oversize 0.05"	22.05 mm (0.868")

CYLINDER HEAD

Height, measured from cylinder head contact face to bolt head face	84.8 mm (3.34")
Distance from cylinder head top face to upper end of overflow pipe (located under the thermostat)	35 mm (1.38")
Cylinder head gasket, thickness (off-load)	0.8 mm=0.032" (loaded 0.7=0.028")

CRANKSHAFT

Crankshaft, end float	0.047—0.138 mm (0.0019—0.0054")
Big-end bearings, radial clearance	0.029—0.071 mm (0.0012—0.0028")
Main bearings, radial clearance	0.028—0.079 mm (0.0011—0.0031")

MAIN BEARINGS

Main bearing journals

Diameter, standard	63.451—63.464 mm (2.4977—2.4982")
undersize 0.010"	63.197—63.21 mm (2.4880—2.4886")
0.020"	62.943—62.956 mm (2.4781—2.4786")
Width on crankshaft for pilot bearing shell	
Standard	38.960—39.000 mm (1.5338—1.5351")
Oversize 1 (undersize shell 0.010")	39.061—39.101 mm (1.5438—1.5451")
2 (" " 0.020")	39.163—39.203 mm (1.5538—1.5551")

Main bearing shells

Thickness, standard	1.979—1.985 mm (0.0780—0.0782")
undersize 0.010"	2.106—2.112 mm (0.0830—0.0932")
0.020"	2.233—2.239 mm (0.0880—0.0882")

BIG-END BEARINGS

Big-end bearing journals

Width of bearing recess	31.950—32.050 mm (1.2579—1.2618")
Diameter, standard	54.099—54.112 mm (2.1299—2.9281")
undersize 0.010"	53.845—53.858 mm (2.1199—2.1204")
0.020"	53.591—53.604 mm (2.1099—2.1104")

Big-end bearing shells

Thickness, standard	1.833—1.841 mm (0.0722—0.0725")
undersize 0.010"	1.960—1.968 mm (0.0772—0.0774")
0.020"	2.087—2.095 mm (0.0822—0.0823")

CONNECTING RODS

End float on crankshaft	0.15—0.35 mm (0.006—0.014")
Length, centre—centre	145±0.1 mm (5.71±0.004")
Max. permissible weight deviation between connecting rods in same engine	6 grammes (0.21 oz.)

FLYWHEEL

Permissible axial throw, max.	0.05 mm (0.002")/150 mm (5.9") diam.
Ring gear (chamfer forwards)	142 teeth

FLYWHEEL CASING

Max. axial throw for rear face	0.05 mm (0.002")/100 mm (3.9") diam.
Max. radial throw for rear guide	0.15 mm (0.006")

CAMSHAFT

Marking	D
Number of bearings	3
Front bearing journal, diameter	46.975—47.000 mm (1.8490—1.8504")
Intermediate bearing journal, diameter	42.975—43.000 mm (1.6920—1.6930")
Rear bearing journal, diameter	38.975—39.000 mm (1.4560—1.4567")
Radial clearance	0.020—0.075 mm (0.0008—0.0030")
End float	0.020—0.060 mm (0.0008—0.0024")
Valve clearance for control of camshaft setting (cold engine)	1.40 mm (0.055")
Inlet valve should then open at	5.5° B.T.D.C.

Camshaft bearings

Front bearing, diameter	47.020—47.050 mm (1.8512—1.8524")
Intermediate bearing, diameter	43.025—43.050 mm (1.6939—1.6949")
Rear bearing, diameter	37.020—37.045 mm (1.4575—1.4585")

TIMING GEARS

Crankshaft drive, number of teeth	21
Camshaft gear (fibre), number of teeth	42
Backlash	0.04—0.08 mm (0.0016—0.0032")
End float, camshaft	0.02—0.06 mm (0.008—0.0024")

VALVE SYSTEM

Valves

Inlet

Disc diameter	44 mm (1.73")
Stem diameter	7.955—7.970 mm (0.3132—0.3138")
Valve face angle	44.5°
Valve seat angle	45°
Seat width in cylinder head	2 mm (0.080")
Clearance, both warm and cold engine	0.40—0.45 mm (0.016—0.018")

Exhaust

Disc diameter	35 mm (1.378")
Stem diameter	7.925—7.940 mm (0.3120—0.3126")
Valve face angle	44.5°
Valve seat angle	45°
Seat width in cylinder head	2 mm 0.080")
Clearance, both warm and cold engine	0.40—0.45 mm (0.016—0.018")

Valve guides

Length, inlet valve	52 mm (2.047")
exhaust valve	59 mm (2.323")
Inner diameter	8.000—8.022 mm (0.315—0.316")
Height above upper face of cylinder head	17.9 mm (0.705")
Clearance, valve stem — valve guide, inlet valve	0.030—0.067 mm (0.0013—0.0026")
exhaust valve	0.060—0.097 mm (0.0024—0.0038")

Valve springs

Length, unloaded, approx.	46 mm (1.81")
with a loading of 29.5±2.3 kg (65±5 lb.)	40 mm (1.57")
with a loading of 82.5±4.3 kg (182±9.5 lb.)	30 mm (1.18")

LUBRICATING SYSTEM

Oil capacity, incl. oil filter	3.75 litres (6.60 Imp. pints = 7.91 US pints)
excl. oil filter	3.25 litres (5.72 Imp. pints = 6.86 US pints)
Oil pressure at 2000 r.p.m. (with warm engine and new oil filter)	2.5—6.0 kp/cm ² (36—85 p.s.i.)
Lubricant	Engine oil for Service MS
viscosity all year round	Multigrade oil SAE 10 W-30
or	
viscosity above +30°C (86°F)	SAE 30
between —10° and +30°C (14 and 86°F)	SAE 20/20 W
below —10°C (14°F)	SAE 10 W
When cold-starting difficulties are to be expected (below —20°C = —4°F), multigrade oil SAE 5 W-20 can be used.	

Oil filter

Type Full-flow type

Oil pump

Oil pump, type	Gear
number of teeth on each gear wheel	9
end float	0.02—0.10 mm (0.0008—0.0040")
radial clearance	0.08—0.14 mm (0.0032—0.0055")
backlash	0.15—0.35 mm (0.0060—0.0140")

Relief valve spring (in oil pump)

Length, off-load	39 mm (1.54")
load with 5 ± 0.4 kg (11 ± 0.88 lb.)	26.25 mm (1.03")
7 ± 0.8 kg (15.4 ± 1.76 lb.)	21.0 mm (0.83")

FUEL SYSTEM

Fuel filter

Type	Paper filter
Changing intervals	20 000 km (12 500 miles)

Fuel pump

Type	Rotor pump
Capacity	50 l/h at 2 kp/cm ² (11 Imp. galls = 13 US galls/h at 28 p.s.i.)
Current consumption	2.5 amps
Non-return valve closes	1.2—1.6 kp/cm ² (17—23 p.s.i.)
Relief valve opens	approx. 4.5 kp/cm ² (64 p.s.i.)

Pressure regulator

Setting value	2.0 kp/cm ² (28 p.s.i.)
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Injectors

Resistance in magnetic winding	2.4 ohms at +20°C (68°F)
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Cold-start valve

Resistance in magnetic winding	4.2 ohms at +20°C (68°F)
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Auxiliary air regulator

Fully open at	—25°C (—13°F)
Fully closed at	+60°C (140°F)

Temperature sensor I (intake air)

Resistance	approx. 300 ohms at +20°C (68°F)
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Temperature sensor II (coolant)

Resistance	approx. 2500 ohms at +20°C (68°F)
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Pressure sensor

Resistance in primary winding (stops 7 and 15)	approx. 90 ohms
Resistance in secondary winding (stops 8 and 10)	approx. 350 ohms

Air cleaner

Type	Paper insert
Changing intervals	40 000 km (25 000 miles)

CO-Test

Hot engine, idling speed	1.0—2.0 %
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Venting filter (only U.S.A.)

Type	Foam plastic filter
Changing intervals	40 000 km (25 000 miles)

COOLING SYSTEM

Type	Sealed system
Radiator cap valve opens at	0.7 kp/cm ² (10 p.s.i.)
Capacity	approx. 8.5 litres (1.87 imp. galls = 2.24 US galls)
Fan belt, designation	HC—38×888
right-steered vehicle	HC—38×988
Fan-belt tensioning: For a force of 7.5—10.0 kp (16.5—22 lb.) on the belts between the pulleys, there will be a deflection of	10 mm (0.39")

Thermostat

Type	Wax
Marking	82°C (179°F)
Starts opening at	81—83°C (176—182°F)
Fully open at	90°C (194°F)

TIGHTENING TORQUES

	Kpm	Lb. ft.
Cylinder head	8.5—9.5	61—68
Main bearings	12—13	87—94
Big-end bearings	5.2—5.8	38—42
Flywheel	5.0—5.5	36—40
Spark plugs	3.5—4.0	25—29
Camshaft nut	13—15	94—108
Bolt for crankshaft belt pulley	7—8	50—58
Bolt for alternator (1/2")	7.1—8.6	50—60
Nipple for oil filter	4.5—5.5	32—40
Bolt for oil sump	0.8—1.1	6—8

WEAR TOLERANCES

Cylinder:

To be rebored when wear amounts to (if engine has abnormal oil consumption)	0.25 mm (0.010")
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Crankshaft:

Permissible out-of-round on main bearing journals, max. ...	0.05 mm (0.002")
Permissible out-of-round on big-end bearing journals, max. ...	0.07 mm (0.0028")
Crankshaft end float, max.	0.15 mm (0.006")

Valves:

Permissible clearance between valve stems and valve guides, max.	0.15 mm (0.006")
Valve spindle, permissible wear, max.	0.02 mm (0.0008")

Camshaft:

Permissible out-of-round (with new bearings), max.	0.07 mm (0.0028")
Bearings, permissible wear, max.	0.02 mm (0.0008")

Timing gears:

Permissible backlash, max.	0.12 mm (0.0048")
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ELECTRICAL SYSTEM

BATTERY

Type	Tudor 6 EX 4 E
Voltage	12 volts
Grounded	Negative pole
Battery, capacity, standard	60 Ah
Specific gravity of electrolyte:	
Fully charged battery	1.28
When recharging is necessary	1.21
Recommended charging current	5.5 amps

ALTERNATOR

S. E. V. MOTOROLA 14 V - 71270202

Output	490 W
Max. amperage	35 A
Max. speed	15000 r.p.m.
Direction of rotation	Optional
Ratio: engine — alternator	1:2
Min. length, brushes	5 mm (0.2")
Tightening torque: Attaching screws	0.28—0.30 kpm (2.0—2.2 lb. ft.)
Nut for pulley	4 kpm (29 lb. ft.)

Test values

Field winding resistance	5.2±0.2 ohm
Voltage drop across isolating diode	0.8—0.9 V
Output test	30 A (min. at 3000 r.p.m. and approx 13 V)

BOSCH K 1 - 14 V 35 A 20

Output	490 W
Max. amperage	35 A
Max. speed	12000 r.p.m.
Direction of rotation	Clockwise
Ratio, engine — alternator	1:2
Min. diameter of slip rings	31.5 mm (1.24")
Max. permissible radial throw on, slip rings	0.03 mm (0.0012")
rotor body	0.05 mm (0.0020")
Min. length of brushes	8 mm (0.31")
Brush pressure	0.3—0.4 kp (6.6—8.8 lb.)
Tightening torque for pulley	3.5—4.0 kpm (25—29 lb. ft.)

Test values

Resistance in, stator	0.26+0.03 ohm
rotor	4.0+0.4 ohm
Output test	35 A (min. at 6000 r.p.m. and 14 V)

VOLTAGE REGULATOR

S. E. V. Motorola 14 V - 33525

Control voltage, cold regulator	13.1—14.4 V
after driving 45 minutes	13.85—14.25 V

BOSCH AD - 14 V

Control voltage at 4000 alternator r.p.m., cold regulator, read within 30 seconds (lower two contacts)	14.0—15.0 V
Load current, lower two contacts	28—30 A
Control range (between two upper and lower contacts)	0—0.3 V
Load current, upper two contacts	3—8 A

START MOTOR

Type	Bosch GF 12 V 1 PS
Voltage	12 V
Grounded	Negative pole
Direction of rotation	Clockwise
Output	approx. 1 h.p.
Number of teeth on pinion	9
Brushes, number	4

Test values

Mechanical:

Rotor end float	0.05—0.3 mm (0.002—0.012")
Brush spring tension	1.15—1.30 kp (2.53—2.86 lb.)
Distance from pinion to ring gear	1.2—4.4 mm (0.047—0.173")
Frictional torque of rotor brake	2.5—4.0 kpcm (2.17—3.81 lb.in.)
Pinion idling torque	1.3—1.8 kpcm (1.13—1.56 lb.in.)
Backlash	0.35—0.60 mm (0.014—0.018")
Pinion modules	2.11
Minimum diameter of commutator	33 mm (1.3")
Minimum length of elec. brushes	14 mm (0.6")

Electrical:

Unloaded starter motor:	
12.0 V and 40—50 A	6900—8100 r.p.m.
Loaded starter motor:	
9 V and 185—220 A	1050—1350 r.p.m.
Locked starter motor:	
6 V and 300—350 A	0 r.p.m.

Control solenoid

Cut-in voltage	Min. 8 V
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IGNITION SYSTEM

Voltage	12 V
Firing order	1-3-4-2
Ignition timing, 97 octane (ROT) at 700—800 engine r.p.m. (vacuum governor disconnected)	10° before T.D.C.
Spark plugs. Normal driving	Bosch W 225 T 35 or corresponding
Hard driving	Bosch W 240 T 1 or corresponding
Spark plug, gap	0.7—0.8 mm (0.028—0.032")
tightening torque	3.5—4.0 kpm (25.3—29.0 lb. ft.)
thread	14 mm (0.56")

Distributor

Type	Bosch JFURX 4
Direction of rotation	Anti-clockwise
Breaker points, gap	0.4—0.5 mm (0.016—0.020")
dwel angle (at 500 r.p.m.)	59°—65°
contact pressure	0.50—0.63 kp (1.1—1.4 lb.)
Capacitor	0.25 μ F $\pm$ 25 %
Centrifugal governor:	
Advance range, total	12.5 $\pm$ 1° distributor graduation
Advance begins at	375—550 r.p.m. (distr.)
Values 5°	800—950 r.p.m. (distr.)
10°	1200—1375 r.p.m. (distr.)
Advance finishes at	1500 r.p.m. (distr.)
Vacuum governor: (negative control)	
Drop, total	5 $\pm$ 1° distributor graduation
Drop begins at	30—110 mm (1.18—4.33") Hg
Values 2°	60—120 mm (2.36—4.72") Hg
Drop finishes at	130 mm (5.12") Hg

LAMP BULBS

LAMP BULBS	Watts	Socket	Number
Headlights	45/40 W	P 34 t	2
Parking lights, front*)	4 cp	Ba 9 s	2
Brake and rear lights	32/4 cp	BAY 15 d	2
Turn indicators*)	32 cp	Ba 15 s	4
Reversing lights	32 cp	Ba 15 s	1
License plate light	4 cp	Ba 9 s	2
Interior lighting	5 W	SW 8.5	2
Glove locker light	2 W	Ba 9 s	1
Instrument panel lighting, without clock	3 W	W 2.1 d	8
clock	2 W	Ba 7 s	1
Lighting, heater controls	3 W	W 2.1 d	1
Warning lamps:			
full beam	3 W	W 2.1 d	1
charging	3 W	W 2.1 d	1
turn indicators	3 W	W 2.1 d	1
oil pressure	2 W	Ba 7 s	1
overdrive	2 W	Ba 9 s	1
brakes	2 W	Ba 9 s	1
elec. heated rear window	1.2 W	W 1.8 d	1
emergency warning flashers	1.2 W	W 1.8 d	1
Side marker lights (only USA)	5 W	Ba 15 s	4
*) For USA: Turn indicators and parking lights, front	32/4 cp	BAY 15 d	2

FUSES

Number (5 A)	4
(8 A)	6
(16 A)	2

ELECTRICALLY HEATED REAR WINDOW

Output, at first position of switch	approx. 40 W
at second position of switch	approx. 150 W

POWER TRANSMISSION, REAR AXLE

CLUTCH

Clutch, type	Single, dry-plate
Size	8½" (215.9 mm)
Clutch friction area, total	440 cm² (68.2 sq.in.)
Clutch fork free travel	3—4 mm (0.12—0.16")
Clutch pedal travel	140 mm (5.5")
Clutch spring, type	Diaphragm-plate
The clutch levers are not adjustable	

GEARBOX

Type designation	M 41
Reduction ratios:	
1st speed	3.13:1
2nd speed	1.99:1
3rd speed	1.36:1
4th speed	1:1
Overdrive	0.797:1
Reverse	3.25:1
Oil pressure, direct drive	approx. 1.5 kp/cm ² (21 p.s.i.)
overdrive	32—35 kp/cm ² (455—498 p.s.i.)
Tightening torque, nut for flange	11.0—14.0 kpm (80—101 lb. ft.)
Lubricant	Engine oil
viscosity	SAE 30 or SAE 20 W-40
grade	Service MS
Oil capacity, gearbox and overdrive	approx. 1.6 litres (2.81 Imp. pints = 3.38 US pints)

AUTOMATIC TRANSMISSION

Make and type	Borg-Warner, type 35	
Type designation	AS 9—35 EN	
Colour of type plate	Post office red	
Reduction ratios:		
1st gear	2.31:1	× Converter ratios
2nd gear	1.45:1	
3rd gear	1:1	
Reverse	2.09:1	
Number of teeth, front sun gear	32	
rear sun gear	28	
planet gear, short	16	
planet gear, long	17	
ring gear	67	
Size of converter	9½" (24 cm)	
Torque ratio in converter	2:1—1:1	
Normal stall speed	2550 r.p.m.	
Weights	Kg	lb.
Gearbox	37.2	82
Converter case	3.0	6.6
Converter	10.9	24
Total, without fluid	51.1	112
Weight of fluid	6.0	13.25
Total, with fluid	57.1	126
Fluid, type	Automatic Transmission Fluid, Type F	
Fluid capacity	6.3 litres (11.1 Imp. pints = 13.3 US pints)	
Normal operating temperature of fluid	approx. 212—240°F (110—115°C)	

APPROXIMATE SHIFT SPEEDS

Throttle position	1—2 shift		2—3 shift		3—2 shift		3—1 shift	
	km.p.h.	km.p.h.	km.p.h.	km.p.h.	km.p.h.	km.p.h.	km.p.h.	km.p.h.
Full throttle	45	28	80	49				
Kick-down	65	40	112	70	100	62	55	34

SPRINGS FOR CONTROL SYSTEM

SPRING

	Approximate length	Effective number of turns	Wire diameter
1—2 shift valve	1.094"	27.8 mm 13½	0.024" 0.61 mm
Converter exhausting valve	0.70"	17.8 mm 12	0.018" 0.46 mm
Rear pump check valve	0.617"	15.7 mm 3	0.019" 0.49 mm
*) Rear pump check valve	0.617"	15.7 mm 5	0.024" 0.61 mm
Primary regulator valve	2.940"	74.7 mm 14	0.056" 1.42 mm
Servo orifice control valve	1.086"	27.6 mm 24	0.025" 0.64 mm
*) Servo orifice control valve	1.213"	30.8 mm 25	0.024" 0.61 mm
Modulator valve	1.069"	27.2 mm 19	0.028" 0.71 mm
*) Modulator valve	1.069"	27.2 mm	0.028" 0.71 mm
Secondary regulator valve	2.593"	65.9 mm 18	0.056" 1.42 mm
2—3 shift valve (inner spring)	1.59"	40.4 mm 22½	0.036" 0.91 mm
Throttle valve (inner spring)	0.807"	20.5 mm 28	0.018" 0.46 mm
*) Throttle valve (inner spring)	0.807"	20.5 mm 25	0.018" 0.46 mm
Throttle valve (outer spring)	1.107"	29.8 — 19½	0.032" 0.81 mm
*) Throttle valve (outer spring)	1.185"	30.1 mm	
Governor valve	1.107"	28.8 — 18	0.032" 0.81 mm
*) Alternative springs	1.185"	30.1 mm	

TIGHTENING TORQUES

APPLICATION

	Lb. ft.	Kpm
Torque converter — drive plate	25—30	3.5—4.1
Transmission case — converter housing	8—13	1.1—1.8
Extension housing — transmission case	30—55	4.1—7.6
Oil pan — transmission case	8—13	1.1—1.8
Front servo — transmission case	8—13	1.1—1.8
Rear servo — transmission case	13—27	1.8—3.7
Pump adaptor — front pump body	17—22	2.4—3.0
Slotted screws	2—3	0.3—0.4
Pump adaptor — transmission case	8—18.5	1.1—2.6
Rear pump — transmission case	4—7	0.6—0.41
Slotted screws	1.7—3.0	0.25—0.41
Centre support — transmission case	10—18	1.4—2.5
Outer lever — manual valve shaft	7—9	1.0—1.2
Pressure point	4—5	0.6—0.7
Oil pan drain plug	8—10	1.1—1.4
Oil tube collector — lower body	1.7—2.5	0.25—0.35
Governor line plate — lower body	1.7—2.5	0.25—0.35
Lower body end plate — lower body	1.7—2.5	0.25—0.35
Upper body end plate front or rear — upper body	1.7—2.5	0.25—0.35
Upper body — lower body	1.7—2.5	0.25—0.35
Valve bodies assembly — transmission case	4.5—9	0.6—1.2
Front pump strainer — lower body	1.7—2.5	0.25—0.35
Downshift valve cam bracket — valve body	1.7—2.5	0.25—0.35

Governor

Inspection cover — extension housing	4—5	0.6—0.8
Cover plate — governor body	1.7—4.0	0.25—0.55

Brake band adjustment

Adjusting screw nut — front servo lever	15—20	2.1—2.8
Adjusting screw locking nut, rear servo — case	25—30	3.5—4.1

Special threaded parts

Starter inhibitor switch locknut	4—6	0.6—0.8
Downshift valve cable adaptor — transmission case	8—9	1.1—1.2
Coupling flange — driven shaft	35—50	4.8—6.9

PROPELLER SHAFT

Type	Tubular, divided, three universal joints, support bearings
Universal joints	Fitted with needle bearings
Lubricant, sliding joint (when assembling)	Molybdenum disulphide chassis grease
universal joints	Chassis grease. Further addition not required

REAR AXLE

Rear axle, type	Semi-floating
Track	1350 mm (53.15")

Final drive

Type	Spiral bevel (hypoid)
Reduction ratio	4.10:1 or 4.30:1
Backlash	0.13—0.20 mm (0.005—0.008")
Pre-loading on pinion bearings, new bearings	11—23 kpcm (9.55—20.0 lb. in.)
run-in bearings	6—11 kpcm (5.21—9.55 lb. in.)
Pre-loading on differential bearings	0.13—0.20 mm (0.005—0.008")
Lubricant	Hypoid oil
viscosity	SAE 90
Oil capacity	approx. 1.3 litres (2.28 Imp. pints = 2.74 US pints)

Tightening torques

	Kpm	Lb. ft.
Flange	28—30	200—220
Caps	5.0—7.0	35—50
Crown wheel	6.5—9.0	45—65

BRAKES

FRONT WHEEL BRAKES

Type	Disc brakes
Brake disc:	
Outside diameter	268.5 mm (10.6")
Thickness, new, nominal measurement	14.34 mm (0.6")
reconditioned, min.	13.14 mm (0.52")
Warp	Max. 0.10 mm (0.004")
Brake linings:	
Number per wheel	2
Thickness, new	10 mm (0.394")
Effective area	172 cm ² (27 sq.in.)
Code designation	DB 812 GG
Wheel unit cylinders:	
Number per wheel	4
Diameter	36.12 mm (1.422")

REAR WHEEL BRAKES

Type	Disc brakes
Brake disc:	
Outside diameter	295.5 mm (11.63")
Thickness, new, nominal measurement	9.6 mm (0.378")
reconditioned, min.	Min. 8.4 mm (0.33")
Warp	Max. 0.15 mm (0.006")
Brake lings:	
Number per wheel	2
Thickness, new	10 mm (0.394")
Effective area	100 cm ² (15.5 sq.in.)
Code designation	DB 812 GG
Wheel unit cylinders:	
Number per wheel	2
Diameter	36.12 mm (1.422")

MASTER CYLINDER

Type	Tandem cylinder
Nominal diameter	22.2 mm (0.87")
Bore	Max. 22.40 mm (0.882")
Piston diameter	Min. 22.05 mm (0.868")

BRAKE LINE

Outer diameter	3/16"
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BRAKE VALVE

Make	A t e
Operating pressure	29±2 kp/cm ² (412±28 p.s.i.)
Outgoing pressure at an input pressure of:	
25 kp/cm ² (356 p.s.i.)	25 kp/cm ² (356 p.s.i.)
45 kp/cm ² (640 p.s.i.)	31.5—36.5 kp/cm ² (448—519 p.s.i.)
100 kp/cm ² (1422 p.s.i.)	47.5—54.5 kp/cm ² (675—775 p.s.i.)

SERVO CYLINDER

Type	Direct operating
Make	A t e
Designation	Bromsgerät T 51
Ratio	1:2.7

PARKING BRAKE

Brake drum:

Diameter	Max. 178.33 mm (7.0")
Radial throw	Max. 0.15 mm (0.006")
Out-of-round	Max. 0.2 mm (0.008")
Brake linings, effective area	175 cm ² (27 sq.in.)

TIGHTENING TORQUES

	Kpm	Lb. ft.
Attaching bolts, front brake caliper	9—10	65—70
Attaching bolts, rear brake caliper	6—7	45—50
Attaching nuts, rear guard plate	3.7—4.4	27—32
Wheel nuts	10—14	70—100
Stop bolt, master cylinder	1.3	9.5
Attaching nuts, master cylinder	2.4	17
Bleed nipples	0.4—0.6	3—4.5
Brake pipes	1.1—1.5	8—11
Brake hoses	1.6—2.0	12—15
Plug, brake valve	10—12	70—85
Locknut, brake valve	2.5—3.5	18—25
Warning valve, switch	1.4—2.0	10—15

FRONT END AND STEERING GEAR

WHEEL ALIGNMENT (unloaded vehicle)

Caster	0 to +1°
Camber	0 to +1/2°
King pin inclination at camber of 0°	8°
Toe-in	0 to 4 mm (0 to 0.16")
Toe-out	
At a 20° turn of the outer wheel the inner wheel should be turned	21.5 to 23.5°

STEERING GEAR

Steering wheel diameter	406.4 mm (16")
Number of turns from stop to stop	3 1/4 turns
Steering box, make and type	Gemmer, "cam and ball"
reduction ratio	15.5:1
Lubricant for steering box	Hypoid oil SAE 80
Capacity	0.25 litre (0.44 Imp. pint=0.53 US pint)

Tightening torques

	Kpm	Lb. ft.
Nut for spindle bearing	7	50
Clamp nut, upper wishbone	1.9—2.5	14—18
Nut for rubber bush, upper wishbone shaft	5.5—6.2	40—45
Bolt, upper wishbone shaft	5.5—7.0	40—50
Nut for lower ball joint	4.8—5.5	35—40
Nut for rubber buffer, lower wishbone	2.1—3.5	15—25
Steering wheel nut	2.8—4.0	20—30
Nut for pitman arm	14—17	100—120
Locknut for tie rod	7.5—9.0	55—65
Nut for steering rods and tie rods (ball joints)	3.2—3.7	23—27
Nut for safety device	3—5	22—36

