



DINO 2400

Coupe and Spider

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CHASSIS

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CHASSIS

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ELECTRICAL SYSTEM

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IDENTIFICATION

Chassis type	{ Coupe 135 BC Spider 135 BS
Engine type	135 C.000

ENGINE

Cycle	4-stroke, gasoline
Number of cylinders . .	6, 65° V
Bore	3.64 in (92,5 mm)
Stroke	2.36 in (60 mm)
Displacement	167.55 cu in (2418 cm ³)
Compression ratio . . .	9 to 1
Maximum horsepower (DIN)	180
at	6600 r.p.m.
Maximum torque (DIN) .	159 ft.lbs (22 kgm)
at	4600 r.p.m.
Lubrication pressure (at rated speed)	85 p.s.i. (6 kg/cm ²)

Valve Timing:

— Intake { opens	40° B.T.D.C.
{ closes	52° A.B.D.C.
— Exhaust { opens	53° B.B.D.C.
{ closes	31° A.T.D.C.
— Adjustment clearance . . . . .	.02 in (0,5 mm)
— Running clearance, cold , between cams and tappet plates:	
Intake . . . . .	.0078 in (0,20 mm)
Exhaust . . . . .	.0157 in (0,40 mm)

Fuel System:

- Electric fuel pump and fuel delivery regulator.
- Three dual-barrel, downdraft, Weber 40 DCNF6 carburetors, with synchronized throttle opening, cold-starting device and accelerating pump.
- Blow-by gases and oil vapors recirculating device.

CLUTCH

Single-plate, dry.
Elastic hub and dampening rings.
Diaphragm spring.
Mechanical release control.

TRANSMISSION

Gear ratios:	
— First, synchronized	2.991
— Second, »	1.763
— Third, »	1.301
— Fourth, »	1
— Fifth, »	0.874
— Reverse.	3.670
Free-ring synchronizers.	
Gearshift lever on tunnel.	

PROPELLER SHAFT

Dual. Front shaft with flexible joint on transmission end and universal joint on differential end. Rear shaft is housed in the differential carrier tubular extension.

REAR AXLE

Hypoid final drive set, ratio 9/43.
Floating type axle shafts, connected to the wheels and differential by means of universal joints.
Self-locking differential.

STEERING

Worm and roller, with hydraulic damper on idler arm support.
Steering shaft with middle section equipped with two universal joints.
Steering ratio 16.4 to 1
Turning diameter { Coupe 3.8 ft (11,6 m)
 { Spider 3.5 ft (10,7 m)
Steering rods ball joints lubricated for life.

FRONT SUSPENSION

Independent wheel type.
Control arms with coil springs, hydraulic shock absorbers, sway bar and reaction struts on lower control arms.
Ball joints lubricated for life.

REAR SUSPENSION

Independent wheel type.
Longitudinal arms carry coil springs and telescopic pillars incorporating double acting hydraulic shock absorbers.
Axle shafts acting as cross reaction struts.
Wheel anchoring cross bars.
Sway bar.

BRAKES

Ventilated disk brakes on all 4 wheels. Two independent hydraulic circuits.

Master cylinder diameter: 1 in.

Vacuum power brake acting on all wheels.

Electric vacuum pump for boosting power brake vacuum.

Brake regulator acting on rear brake circuit, linked to rear suspension arms by means of torsion bars.

Manual parking brake acting on rear wheels.

Worn-down brake linings and parking brake « on » warning light.

WHEELS AND TIRES

Cast-alektron disk wheels

— Rim type 6 $\frac{1}{2}$ x 14"

Radial ply tires

— Type 205/70 VR - 14"

	Coupe	Spider
Tire pressure front and rear . . .	31.3 p.s.i. 2.2 kg/cm ²	27 p.s.i. 1,9 kg/cm ²

ELECTRICAL SYSTEM

Voltage 12

Battery, capacity (at 20-hour discharge rate) { Coupe 77 amp/h
Spider 55 amp/h

Fiat alternator, type . . . { Coupe A 12 M 124/12/57
Spider A 12 M 124/12/47

Voltage regulator, type . { Coupe RC 2/12
Spider RC 2/12 B

Fiat starting motor, type . E 100-1,5/12 - Var. 1

Ignition device Dinoplex

GENERAL DATA

	Coupe		Spider	
	in	mm	in	mm
Overall length . . .	177.4	4507	162.7	4134
Overall width . . .	66.8	1696	67.3	1710
Max-height (unloaded)	51.8	1315	50.0	1270
Wheelbase	100.4	2550	89.7	2280
Tread, front	54.7	1390	54.5	1383
Tread, rear	54.4	1381	54.4	1381
Ground clearance (loaded)	4.7	120	4.7	120

WEIGHTS

Curb weight (with replenishments, spare wheel, tool kit and accessories) . . .

Accommodation . .

Payload

Gross weight, fully loaded

Distribution of gross weight on axles

— front

— rear

Maximum trailer weight

	Coupe	Spider
Curb weight (with replenishments, spare wheel, tool kit and accessories) . . .	3086 lbs (1400 kg)	2734 lbs (1240 kg)
Accommodation . .	4	2 + 1
Payload	4 persons + 88 lbs (40 kg)	2+1 persons + 66 lbs (30 kg)
Gross weight, fully loaded	3792 lbs (1720 kg)	3260 lbs (1480 kg)
Distribution of gross weight on axles		
— front	1764 lbs (800 kg)	1630 lbs (740 kg)
— rear	2028 lbs (920 kg)	1630 lbs (740 kg)
Maximum trailer weight	2425 lbs (1100 kg)	2200 lbs (1000 kg)

PERFORMANCES

Maximum **speeds**, fully loaded, on good level roads, engine run-in:

	Coupe		Spider	
	mph	km/h	mph	km/h
— First	40	65	40	65
— Second	68	110	68	110
— Third	93	150	93	150
— Fourth	121	195	121	195
— Fifth above	127	205	130	210

Climbable gradients, fully loaded, on good roads, engine run-in:

	Coupe	Spider
	%	%
— First	50	55
— Second	27	30
— Third	19	20
— Fourth	14	14.5
— Fifth	11	11.5

UNIT	QUANTITY				FILL IN
	Imp. measure	US measure	lt	kg	
Fuel tank including a reserve of . . .	15.4 gals 1.3 to 2 gals	18.5 gals 1,6 to 2,4 gals	70 6 to 9	—	{ Premium gasoline
Cooling system (radiator, engine, expansion tank and heater)	10.8 qts	13 qts	12.3	—	
Engine sump and filter ⁽¹⁾ { Coupe Spider	6.8 qts 6.4 qts	8.1 qts 7.6 qts	7.75 7.25	6.98 6.53	FIAT oil ⁽⁴⁾
Transmission	2.1 pts	2.5 pts	1.20	1.10	
Rear axle	5.3 pts	6.3 pts	3	2.77	FIAT W 90/DA oil (SAE 90 EP, special for self-locking differentials) FIAT W 90 M oil
Steering gear . . . . .	.49 pts	.58 pts	0.275	0.260
Hydraulic brake circuit:					{ Special CG fluid for hydraulic systems
— front caliper lower cylinders	.26 pts	.32 pts	0.150	0.150	
— front caliper upper cylinders and rear caliper cylinders .	.35 pts	.42 pts	0.200	0.200	
Hydraulic shock absorbers . .	.25 pts	.3 pts	0.140	0.126	{ FIAT S.A.I. fluid
— front (each)					
— rear (each) { Coupe Spider . . . . .	.66 pts .61 pts	.79 pts .74 pts	0.375 0.350	0.371 0.346
Windshield washer	1.76 pts	2.1 pts	1	—	Water and FIAT DP 1 fluid solution ⁽³⁾

⁽¹⁾ Oil quantity for periodic oil changes, without replacing the filter cartridge, is as follows:

- Coupe 6.2 Imp. qts - 7.3 US qts - 7 l - 6.3 kg.
- Spider 5.7 Imp qts - 6.8 US qts - 6,5 l - 5.85 kg.

⁽²⁾ This solution has antioxidant, anticorrosion, antifoam, antiscaling properties and will not freeze down to -30° F (-35° C).

⁽³⁾ In summer add 30 cm³ to each liter of water. In winter, for temperatures as low as 14° F (-10° C), use a 50-50 mixture of water and **FIAT DP 1 fluid**. Where temperatures are consistently below 14° F (-10° C) use **FIAT DP 1 fluid** undiluted.

⁽⁴⁾ Use following oil grades (detergent oils with low ash content. Type MS-MILL-2104B):

- For temperatures below 32° F (0° C): Fiat **VS 30 (SAE 30)** oil.
- For temperatures above 32° F (0° C): Fiat **VS 40 (SAE 40)** oil.

DESCRIPTION	in	mm
Cylinder bore Cylinder bores are graded in .00039 (0.01 mm) classes	3.6417 to 3.6429	92.500 to 92.530
Piston pin diameter <div> { Class 1 { Class 2 </div>	.7871 to .7872 .7872 to .7874	19.994 to 19.997 19.997 to 20.000
Small-end bushing I.D. (after press fitted) . . <div> { Class 1 { Class 2 </div>	.7879 to .7880 .7880 to .7881	20.012 to 20.015 20.015 to 20.018
Main bearing saddle bore	2.6249 to 2.6255	66.675 to 66.688
Width of rear main bearing bore, between thrust ring seats	1.3063 to 1.3082	33.180 to 33.230
Big-end bore	1.8554 to 1.8560	47.128 to 47.142
Small-end bore . . . . .	.9055 to .9063	23.000 to 23.021
Connecting rod bearing thickness . . . . .	.0674 to .0676	1.712 to 1.718
Piston pin to small-end bushing: — assembly clearance . . . . .	.0006 to .0008	0.015 to 0.021
Connecting rod bearing to crankpin: — assembly clearance . . . . .	.0021 to .0039	0.055 to 0.099
Small-end bushing to small-end bore	interference at all times	

DESCRIPTION		in	mm
Piston diameter (standard, for service):			
— measured at right angles to piston pin, at .6 in (15 mm) from skirt bottom	Class A Class B Class C	3.6349 to 3.6353 3.6353 to 3.6357 3.6357 to 3.6361	92.330 to 92.340 92.340 to 92.350 92.350 to 92.360
Oversize piston range, for service . . . . .		.0079-.0157-.0236	0.2-0.4-0.6
Piston bore diameter	Class 1 Class 2	.7873 to .7875 .7875 to .7876	19.999 to 20.002 20.002 to 20.005
Piston ring groove width	1st groove 2nd groove 3rd groove	.0602 to .0610 .0602 to .0610 .1778 to .1785	1.530 to 1.550 1.530 to 1.550 4.515 to 4.535
Standard piston pin diameter	Class 1 Class 2	.7871 to .7872 .7872 to .7874	19.994 to 19.997 19.997 to 20.000
Oversize piston pin, for service . . . . .		.0079	0.2
Piston ring thickness:			
— 1st compression ring . . . . .		.0582 to .0586	1.478 to 1.490
— 2nd oil ring . . . . .		.0582 to .0586	1.478 to 1.490
— 3rd slotted oil ring with expander . . . . .		.1763 to .1768	4.478 to 4.490
Piston fit in bore [measured at right angles to piston pin, at .6 in (15 mm) from skirt bottom]:			
— assembly clearance . . . . .		.0063 to .0070	0.160 to 0.180
Piston pin in boss:			
— assembly clearance . . . . .		.00008 to .00031	0.002 to 0.008
Piston ring side clearance:			
— 1st compression ring . . . . .		.0016 to .0028	0.040 to 0.072
— 2nd oil ring . . . . .		.0016 to .0028	0.040 to 0.072
— 3rd slotted oil ring . . . . .		.0010 to .0022	0.025 to 0.057
Piston ring end gap in bore:			
— 1st compression ring . . . . .		.0118 to .0177	0.30 to 0.45
— 2nd oil ring . . . . .		.0118 to .0177	0.30 to 0.45
— 3rd slotted oil ring . . . . .		.0098 to .0157	0.25 to 0.40
Oversize piston ring range . . . . .		.0079-.0157-.0236	0.2-0.4-0.6

DESCRIPTION	in	mm
Main journal diameter	2.4782 to 2.4789	62.948 to 62.966
Main bearing saddle bore	2.6249 to 2.6255	66.675 to 66.688
Main bearing thickness . . . . .	.0719 to .0722	1.825 to 1.834
Crankpin diameter	1.7172 to 1.7180	43.619 to 43.637
Main bearing to journal: — assembly clearance . . . . .	.0016 to .0035	0.041 to 0.090
Main bearing rear journal length, between shoulders . . .	1.4961 to 1.5118	38.000 to 38.040
Width of rear main bearing bore, between thrust ring seats	1.3063 to 1.3082	33.180 to 33.230
Rear main bearing bore thrust ring thickness . . . . .	.0909 to .0929	2.310 to 2.360
Crankshaft end play, thrust rings installed: — assembly play . . . . .	.0019 to .0094	0.050 to 0.240
Maximum allowable misalignment of crankshaft journals .	.0008	0.02 (*)
Maximum allowable misalignment between crankpins and journals . . . . .	.004	± 0.10
Squareness of flywheel mounting flange to crankshaft centerline: — maximum allowable out-of-true, measured with dial indicator plunger resting on flange at abt. 1.4 in (35 mm) from crankshaft rotation axis . . . . .	.001	0.025
Flywheel: — parallelism between the clutch disk resting face and the crankshaft mounting flange: maximum allowable out-of-true . . . . .	.003	0.08
— squareness of above faces to rotation axis: maximum allowable out-of-true004	0.1

(*) Total dial indicator reading.

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ENGINE

CYLINDER HEAD

TABLE

II-4

DESCRIPTION	in	mm
Valve guide bore in cylinder head5118 to .5126	13.000 to 13.018
Valve guide O.D. . . . .	.5137 to .5145	13.050 to 13.068
Valve guide I.D., press fitted . . . . .	.3150 to .3156	8.000 to 8.015
Valve guide to bore in head: press fit . . . . .	.0013 to .0027	0.032 to 0.068
Valve stem diameter . . . . .	.3128 to .3140	7.946 to 7.975
Valve stem to valve guide: — assembly clearance . . . . .	.0010 to .0027	0.025 to 0.069
Valve seat angle in head	45° ± 5'	
Valve face angle	45° ± 5'	
Valve head diameter } intake } exhaust	1.673 1.449	42.5 36.8
Maximum valve runout, measured on a full turn of the valve guided on stem, with dial indicator plunger resting on center of face . . . . .	.0008	0.02
Valve seat width in head (contact surface) abt.	.05	1.3
Valve seat I.D. } intake } exhaust	1.457 1.339	37 34
Valve lift (without lash) } intake } exhaust	.366 .338	9.3 8.6
Tappet bore diameter in head	1.4573 to 1.4585	37.015 to 37.045
Tappet O.D.	1.4557 to 1.4565	36.975 to 36.995
Tappet to bore in head: assembly clearance . . . . .	.0008 to .0027	0.020 to 0.070
Tappet plate thickness: basic size . . . . .	.1575 ± .0004	4 ± 0.01
Tappet plates for service are available in a range of 30 thicknesses, with .0019 in (0.05 mm) increments	from .1279 to .1850	from 3.25 to 4.70
Camshaft journal bores diameter in head . . . . .	.9848 to .9857	25.013 to 25.035
Camshaft journal diameter . . . . .	.9818 to .9823	24.937 to 24.950
Camshaft journal to bore in head clearance . . . . .	.0025 to .0038	0.063 to 0.098

VALVE SPRINGS

	Inner	Outer
Part number	4146798	4146799
Spring length check under a load of 57.3 lbs (26 kg) . . .	—	1.52 in (38.6 mm)
Spring length check under a load of 26.4 lbs (12 kg) . . .	1.38 in (35 mm)	—
Minimum allowable load referred to above lengths	24.2 lbs (11 kg)	33 lbs (15 kg)

CARBURETOR

Type	WEBER 40 DCNF 6	
	1st and 2nd barrel	
	in	mm
Barrel	1.575	40
Main venturi	1.299	32
Auxiliary venturi area	.007 sq. in	4,5 mm ²
Main jet . . . . .	.049	1.25
Idling jet . . . . .	.020	0.50
Main air metering jet . . . . .	.086	2.20
Idling air metering jet . . . . .	.047	1.20
Pump jet . . . . .	.017	0.45
Pump discharge port . . . . .	.016	0.4
Needle valve seat . . . . .	.069	1,75
Float level { Distance between float and cover face, without gasket, held in vertical position Travel	1.97 ± .01 .334	50 ± 0.25 8.5

OIL PUMP

Clearance between gear upper face and pump cover mating face . . . . .	.0016 to .0031	0.040 to 0.080
Gear to pump housing clearance . . . . .	.0021 to .0037	0.054 to 0.095

ITEM	Part No.	Thread	Material	Torque	
				ft. lbs	kgm
Cylinder head stud nut	4146619	M 10 x 1	R 100 stud R 100	58	8
Flywheel to crankshaft self-locking screw	4158725	M 10 x 1,25	40 Ni Cr Mo 2 R 120 to 135	61½	8,5
R. H. cylinder head stud nut	1/61008/11	M 8	R 50 Znt stud R 80 Znt	14½	2
Camshaft sprocket screws	4146765 4146779	M 18 x 1,5	R 100	80	11
Damper hub screw	4229641	M 18 x 1,5	R 100 Fosf Pul	145	20
Water pump to front cover stud nut	1/61008/11	M 8	R 50 Znt stud R 80 Znt	18	2,5
Water pump to crankcase screw . .	1/60445/21 1/60447/21	M 8	R 80 Znt	18	2,5
Stub pipe to water pump housing nut	1/61008/11	M 8	R 50 Znt stud R 80 Znt	14½	2
Oil pump nut	1/61024/11	M 8 x 1	R 50 Znt stud R 80 Znt	18	2,5
Intake manifold to crankcase screw .	1/60452/21	M 8	R 80 Znt stud R 80 Znt	22	3
Oil sump nut	1/61023/11	M 8	R 50 Znt stud R 80 Znt	14½	2
Connecting rod cap nut	4152747	M 10 x 1	30 CD4 Bon screw 30 NCD 12 Trf. Bon	54	7,5
Main bearing cap nut	4218021	M 12 x 1,5	38 CD4 Bon stud R 100	80	11
Starting motor to bell housing screw	1/60447/21	M 8	R 80 Znt	18	2,5
Alternator upper bracket to front cover nut	1/61008/11	M 8	R 50 Znt stud R 80 Znt	14½	2
Alternator to upper bracket nut . . .	1/21647/11	M 10 x 1,25	R 50 Znt screw R 80 Znt	36	5
Alternator to oil sump nut	1/61015/11	M 12 x 1,25	R 50 Znt screw R 80 Znt	58	8
Spark plug	4170471 4147200	M 14 x 1,25	—	25	3,5

CLUTCH

Type	single-plate, dry
Throwout mechanism	diaphragm spring
Control	mechanical
Driven disk	with friction linings
Lining O.D.	9 in (228 mm)
Maximum allowable clutch lining runout . . . . .	.0059 in (0.15 mm)
Pedal free travel, corresponding to a .079 in (2 mm) clearance between friction ring and throwout sleeve abt.	1 in (25 mm)
Clutch release flange travel, corresponding to a pressure plate minimum movement of .05 in (1.4 mm) . . . . .	.31 in (8 mm)

TRANSMISSION

Type	manual, with gearshift lever on tunnel
Speeds	five forward and reverse
Free-ring type synchronizers	on all forward gears
Gear type	constant mesh, helical toothed
Gear ratios:	
— First	2.99
— Second	1.76
— Third	1.30
— Fourth	1
— Fifth	0.874
— Reverse	3.66

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Dino 2400

CHASSIS
REAR AXLE

TABLE
III-2

Type	floating axle shafts, connected to wheels and differential by means of universal joints
Final drive set	hypoid
Final drive ratio	9/43
Drive pinion bearings	two
Bearing type	taper roller
Drive pinion bearings preload setting	by collapsible spacer and tightening pinion nut with torque wrench
Drive pinion bearings preload (pinion nut torque)	130 to 202 ft. lbs (18 to 28 kgm)
Drive pinion rolling torque . . . . .	.87 to 1 ft. lb (12 to 14 kgcm)
Differential case bearings	two
Bearing type	taper roller
Adjustment	by shims
Differential bearings preload: differential carrier spread . . . . .	.0012 to .0020 in (0.03 to 0.05 mm)
Side gears adjustment	by shims
Side gears end play adjustment: shim thickness range . . . . .	.0354-.0374-.0394-.0413-.0433 .0453-.0472-.0492 in (0.90-0.95-1.00-1.05-1.10-1.15-1.20-1.25 mm)
Drive pinion adjustment: shim thickness range . . . . .	.1240-.1260-.1279-.1299-.1319 .1338-.1358-.1378-.1398-.1417 .1437-.1457-.1476-.1496-.1516 .1535-.1555-.1575-.1594 in (3.15-3.20-3.25-3.30-3.35-3.40 3.45-3.50-3.55-3.60-3.65-3.70- 3.75-3.80-3.85-3.90-3.95-4.00- 4.05 mm)
Ring gear adjustment and bearings preload: shim thickness range . . . . .	.2264-.2283-.2303-.2323-.2342 .2362-.2382-.2401-.2421-.2441 in (5.75-5.80-5.85-5.90-5.95-6.00- 6.05-6.10-6.15-6.20 mm)
Drive pinion and ring gear	matched set
Drive pinion to ring gear backlash . . . . .	.0039 to .0059 in (0.10 to 0.15 mm)
Axle shaft type	floating
Differential carrier and wheel hub bearings	ball

Type	Independent wheels, with hydraulic shock absorbers and coil springs (see table III-e)
Stabilizer bar	transverse, mounted on rubber bushings
Upper control arms:	
Connection to body	by pivot pins and rubber bushings
Connection to knuckle pillar	by ball joints
Lower control arms:	
Connection to cross member	by pivot pins and rubber bushings
Connection to knuckle pillar	by ball joints
Knuckle pillars:	
Inclination angle	$6^{\circ} \pm 20'$
Caster, loaded (*)	$3^{\circ} \pm 20'$
Caster adjustment	by shims and reaction rod length variation
Wheels:	
Camber, loaded (*) { Coupe	$0^{\circ}30' \pm 20'$
Spider	$1^{\circ}30' \pm 20'$
Camber adjustment	by shims
Toe-in, loaded (*) . . . . .	.079 to .157 in (2 to 4 mm)
Toe-in adjustment	by threaded sleeves on tie rod ends
Bearing lubrication	FIAT MR 3 grease
Ground clearance, loaded (*):	
measured:	
— front, at cross member, 13.5 in (345 mm) from center	11.4 in (290 mm)
— rear, at mounting plate for differential support cross member	17.9 in (454 mm)
(*) Loaded car { Coupe: 3 persons + 66 lbs (30 kg) luggage. Spider: 2 persons + 44 lbs (20 kg) luggage.	

FIAT**CHASSIS****TABLE****Dino 2400****FRONT SPRINGS AND SHOCK ABSORBERS****III-4**

Coil springs (Coupe)	Part number	4221213
	Spring length under a load of 1124 lbs (510 kg) . .	9.4 in (239 mm)
	Minimum allowable load referred to the spring length of 9.4 in (239 mm)	1058 lbs (480 kg)
Coil springs (Spider)	Part number	4230307
	Spring length under a load of 1058 lbs (480 kg) . .	9.1 in (231 mm)
	Minimum allowable load referred to the spring length of 9.1 in (231 mm)	1003 lbs (455 kg)
Shock absorbers	Type: hydraulic, telescopic, double-acting	
	Pressure cylinder diameter	1.06 in (27 mm)
	Stroke (abutting begins)	13.74 ± .8 in (349 ± 2 mm)
	Setting (*) {	compression18 to .31 in (4.5 to 8 mm)
		rebound71 to .94 (18 to 24 mm)

(*) Reading on apparatus **Ap. 5023** under following test conditions:

- arm 250.
- travel 100;
- dial position B-80°.

TYPE: Independent wheels. Longitudinal control arms carrying coil springs; telescopic pillars with built-in hydraulic shock absorbers; axle shafts acting as cross reaction struts. Two cross rods and sway bar.

Wheels	Negative camber, loaded (*) Toe-in, loaded (*) — Adjustment: by varying length of cross anchor rods.	— 1° ± 30' .24 ± .04 in (6 ± 1 mm)																						
Coil springs (Coupe)	Part number Spring length under a load of 1047 lbs (475 kg) . . . Minimum allowable load referred to the spring length of 9.17 in (233 mm)	4221214 9.17 in (233 mm) 981 lbs (445 kg)																						
Coil springs (Spider)	Part number Spring length under a load of 848 lbs (385 kg) Minimum allowable load referred to the spring length of 9.17 in (233 mm)	4220180 9.17 in (233 mm) 794 lbs (360 kg)																						
Shock absorbers	Type: hydraulic, telescopic, double-acting.																							
		<table><tr><th colspan="2">Coupe</th><th colspan="2">Spider</th></tr><tr><th>in</th><th>mm</th><th>in</th><th>mm</th></tr><tr><td>1.5</td><td>38</td><td>1.5</td><td>38</td></tr><tr><td>22.71 ± .12</td><td>577 ± 3</td><td>21.73 ± .12</td><td>552 ± 3</td></tr><tr><td rowspan="2">.27 to .43</td><td>7 to 11</td><td rowspan="2">.27 to .43</td><td>7 to 11</td></tr><tr><td>19 to 25</td><td>19 to 25</td></tr></table>	Coupe		Spider		in	mm	in	mm	1.5	38	1.5	38	22.71 ± .12	577 ± 3	21.73 ± .12	552 ± 3	.27 to .43	7 to 11	.27 to .43	7 to 11	19 to 25	19 to 25
Coupe		Spider																						
in	mm	in	mm																					
1.5	38	1.5	38																					
22.71 ± .12	577 ± 3	21.73 ± .12	552 ± 3																					
.27 to .43	7 to 11	.27 to .43	7 to 11																					
	19 to 25		19 to 25																					
	Pressure cylinder diameter																							
	Stroke (abutting begins) .																							
	Setting (**) { compression																							
	rebound																							

(*) Loaded car { Coupe: 3 persons + 66 lbs (30 kg) luggage.
Spider: 2 persons + 44 lbs (20 kg) luggage.

(**) Reading on apparatus **Ap. 5023** under following test conditions:
— arm 250;
— travel 100;
— dial position A-130°.

Type	worm and roller
Steering ratio	16.4 to 1
Steering wheel turns from R. to L. lock abt.	3
Steering diameter { Coupe	3.8 ft (11.6 mm)
Spider	3.5 ft (10.7 m)
Steering angle:	
— inner wheel	$33^{\circ} \pm 1^{\circ}30'$
— outer wheel	26°
Front wheel toe-in, loaded (*)	$.12 \pm .04$ in (3 ± 1 mm)
Worm to roller lash adjustment	by adjusting screw
Steering rods	symmetrical and independent for each wheel, with center link and idler arm with hydraulic damper
Tie rods	with adjustable ball joints
Center link	with non-adjustable ball joints
Ball joint lubrication	permanently lubricated type

(*) Loaded car { Coupe: 3 persons + 66 lbs (30 kg) luggage.
Spider: 2 persons + 44 lbs (20 kg) luggage.

Type	front and rear wheel disk brake, pedal operated
Brake disk diameter { front rear	10.62 to 10.63 in (269.7 to 270 mm) 11.01 to 11.02 in (279.7 to 280 mm)
Disk thickness, front { nominal minimum allowable after refacing minimum allowable for wear . . . . .	.783 to .791 in (19.9 to 20.1 mm) .744 in (18.9 mm) .728 in (18.5 mm)
Disk thickness, rear { nominal minimum allowable after refacing minimum allowable for wear . . . . .	.724 to .732 in (18.4 to 18.6 mm) .685 in (17.4 mm) .669 in (17 mm)
Maximum allowable disk runout (total reading on dial indicator resting at .12 in (3 mm) approx. from disk edge) . . . . .	.006 in (0.15 mm)
Master cylinder bore	1 in (25.4 mm)
Brake calipers — front — rear	floating type two pistons single piston
Caliper cylinder bore: — front { upper lower — rear	1.686 in (42.85 mm) 1.337 in (33.96 mm) 1.686 in (42.85 mm)
Brake regulator — regulator setting — regulator ratio	acting on rear wheels see table III-n 0.46
Power brake — type — vacuum cylinder effective surface — working travel — piston-valve diameter — reaction disk diameter — distance between piston push rod and master cylinder seating plate	vacuum-hydraulic, boosted by vacuum pump, acting on all wheels Mastervac tandem 92.2 sq.in (595 cm ²) 1.49 ± .4 in (38 ± 1 mm) .519 in (13.2 mm) .995 in (25.27 mm) .094 to .106 (2.4 to 2.7 mm)

I T E M	Part No.	Thread	Material	Torque	
				ft. lbs	kgm
CLUTCH					
Clutch cover screw	1/38258/21	M 8	R 80 Znt	18	2,5
Clutch pedal nut	1/61015/11	M 12 x 1,25	R 50 Znt (screw R 80)	18	2,5
TRANSMISSION					
Transmission to engine screw	1/55412/21	M 12 x 1,25	R 80 Znt	65	9
Transmission front case to main case nut	1/21647/11	M 10 x 1,25	R 50 Znt (stud R 50)	36	5
PROPELLER SHAFT					
Flexible joint screw nut	1/25745/11	M 10 x 1,25	R 50 Znt (screw R 80 Znt)	36	5
Rear shaft tubular housing to diffe- rential carrier screw	1/59709/21	M 10 x 1,25	R 80 Znt	36	5
Pillow block screw	1/59709/21	M 10 x 1,25	R 80 Znt	29	4
DIFFERENTIAL					
Differential caps to carrier screw . .	1/58887/20	M 10 x 1,25	R 80	36	5
Side covers to carrier screw	1/38258/21	M 8	R 80 Cdt	18	2,5
Rear cover to carrier screw	1/60432/21	M 8	R 80 Znt	18	2,5
Rear cross member to carrier screw	1/55429/21	M 12 x 1,25	R 80 Znt	65	9
Drive pinion nut	4187167	M 30 x 1	R 80 (shaft 19 NC 5 Carbon 9)	130 to 202	18 to 28
Ring gear screw	4145198	M 10 x 1,25	40 Ni Cr Mo 2 R 120 ÷ 135	76	10,5
Rear cross member to body screw .	1/61397/21	M 10 x 1,25	R 80 Znt	29	4
Rear cross member to body screw nut	1/25748/11	M 14 x 1,5	R 50 Znt (screw R 80 Znt)	87	12

I T E M	Part No.	Thread	Material	Torque	
				ft. lbs	kgm
FRONT SUSPENSION					
Wheel screws	4152211	M 14 x 1,5	C 35 R Bon Cdt	65	9
Front cross member screw	1/61419/21	M 12 x 1,25	R 80 Znt	65	9
Upper control arm front screw	4060013	M 12 x 1,25	R 80 Znt	50	7
Upper control arm support screw . .	1/21647/11	M 10 x 1,25	R 50 Znt (screw R 80)	36	5
Front rod to body nut	1/25748/11	M 14 x 1,5	R 50 Znt (screw 35 NC 5 R)	65	9
Ball pin to knuckle pillar nut	1/25748/11	M 14 x 1,5	R 50 Znt (pin 40 Ni Cr Mo 2) R 120-135	87	12
Front rod to lower control arm nut .	1/61015/11	M 12 x 1,25	R 50 Znt (screw R 100)	72	10
Lower control arm to cross member nut	1/61015/11	M 12 x 1,25	R 50 Znt (screw R 80)	65	9
Upper control arm rear nut	1/61015/11	M 12 x 1,25	R 50 Znt (screw R 80)	65	9
Shock absorber lower mounting nut .	1/21647/21	M 10 x 1,25	R 80 Znt (screw R 100)	36	5
Shock absorber upper mounting nut	1/21647/21	M 10 x 1,25	R 80 Znt (screw R 50)	25	3,5
Shock absorber upper support nut . .	1/61008/11	M 8 x 1,25	R 50 Znt (screw R 50)	11	1,5
Sway bar support screw	4445345	M 12 x 1,25	R 80 Cdt	29	4

I T E M	Part No.	Thread	Material	Torque	
				ft. lbs	kgm
REAR SUSPENSION					
Axle shaft nut	1/40443/71	M 22 x 1,5	C 40 Rct Znt (shaft 38 NCD 4 Bon)	195	27
Wheel screw	4193015	M 14 x 1,5	C 35 R Bon Znt	65	9
Front cross member to body screw .	1/61421/21	M 12 x 1,25	R 80 Znt	65	9
Control arm to front cross member screw nut	1/61050/11	M 12 x 1,25	R 50 Znt (screw R 80 Znt)	65	9
Control arm to rear wheel pillar screw nut	1/61050/11	M 12 x 1,25	R 50 Znt (screw R 80)	65	9
Shock absorber to pillar side screw .	4180253	M 12 x 1,25	R 80 Znt	65	9
Sway bar support to control arm screw nut	1/61008/11	M 8	R 50 Znt (screw R 80 Znt)	11	1,5
Rubber pad to shock absorber nut .	1/07913/11	M 14 x 1,5	R 50 Znt (stem C 43)	58	8
Shock absorber to body nut	1/61041/11	M 8	R 50 Znt (screw R 50)	11	1,5
Shock absorber to pillar lower screw	1/59709/21	M 10 x 1,25	R 80 Znt	36	5
Cross rod nut	1/61051/11	M 12 x 1,25	R 50 Znt (screw R 80)	58	8

I T E M	Part No.	Thread	Material	Torque	
				ft. lbs	kgm
STEERING					
Steering wheel to shaft nut	1/07914/11	M 16 x 1,5	R 50 Znt (shaft C 30 Norm)	36	5
Idler arm support to body nut	1/25745/11	M 10 x 1,25	R 50 Znt (screw R 100)	36	5
Steering box to chassis nut	1/25745/11	M 10 x 1,25	R 50 Znt (screw R 80 Znt)	36	5
Steering rod ball joint nut	1/07934/11	M 14 x 1,5	R 50 Znt (pin 12 NC 3 Ind)	40	5,5 (min. before fitting cotter pin)
Steering linkage support nut	1/61008/11	M 8	R 50 Znt (screw R 80 Znt)	18	2,5
BRAKES					
Brake and clutch pedal to support nut	1/61015/11	M 12 x 1,25	R 50 Znt (screw R 80 Znt)	18	2,5
Pedal support to body screw	1/61367/21	M 8	R 80 Znt	18	2,5
Hand lever support screw	1/38256/21	M 8	R 80 Znt	14½	2
Master cylinder screw	1/61008/11	M 8	R 80 Znt	18	2,5
Front caliper to plate screw	4207672	M 12 x 1,25	R 80 Znt	65	9
Caliper plate and steering arm to knuckle pillar screw nut	1/21647/21	M 10 x 1,25	R 80 Znt (screw R 100)	43	6
Rear caliper to pillar screw	1/59079/31	M 10 x 1,25	R 100 Znt	72	10
Power brake nut	1/61008/11	M 8	R 50 Znt (screw R 80)	14½	2
POWER PLANT SUSPENSION					
Mounts to engine screw	1/59707/21	M 10 x 1,25	R 80 Znt	36	5
Rubber pad to transmission rear cover nut	1/61008/11	M 8	R 50 Znt (stud R 80)	18	2,5
Rubber pad to rear cross member nut	1/61008/11	M 8	R 50 Znt (screw R 80)	18	2,5
Rear cross member to body floor screw	1/60436/21	M 8	R 80 Znt	18	2,5

Alternator specifications.	Coupe	Spider
	FIAT A 12 M 124/12/57 12 Volts 1080 ± 50 rpm 57 Amps 70 Amps 13,000 rpm 15,000 rpm 2.6 ± 0.05 Ohms 2.7 ^{+0.2} _{-0.1} Ohms clockwise	FIAT A 12 M 124/12/47 12 Volts 1100 ± 50 rpm 47 Amps 58 Amps 13,000 rpm 15,000 rpm 4.5 ± 0.1 Ohms 4.6 ^{+0.2} _{-0.1} Ohms clockwise
Rectifier diode specifications.		
Type { SIEMENS IRCI	E 11 - E 12 4 AF 2	
Rated voltage	12 Volts	
Permanent direct current	20 Amps	
Peak inverse voltage	150 Volts	
Maximum direct current	25 Amps	
Voltage regulator test and setting.	Coupe	Spider
	RC 2/12 5000 rpm 40 to 50 Amp/h 7 Amps 2 to 12 Amps 14.2 ± 0.3 Volts 45 to 55 Amps 0.2 to 0.7 Volts 27.7 ± 2 Ohms 3.75 ± 0.25 Ohms .059 ± .003 in (1.5 ± 0.07 mm) .017 ± .004 in (0.45 ± 0.1 mm)	RC 2/12 B 5000 rpm 40 to 50 Amp/h 7 Amps 2 to 12 Amps 14.2 ± 0.3 Volts 25 to 35 Amps 0.2 to 0.7 Volts 27.7 ± 2 Ohms 5.65 ± 0.3 Ohms

Type	E 100-1.5/12 Var. 1
Voltage	12 Volts
Nominal power	1.5 kilowatts
Rotation, pinion end	clockwise
Pole shoes	4
Field winding	series-parallel
Engagement	overrunning clutch
Engagement control	solenoid
Pole shoes I.D.	2.668 to 2.675 in (67.80 to 67.97 mm)
Armature diameter	2.631 to 2.633 in (66.85 to 66.90 mm)
Bench test data:	
— Operation test (at 68° F - 20° C):	
Current	300 Amps
Speed	1300 rpm
Voltage	9.3 Volts
— Stall torque (at 68° F - 20° C):	
Current	588 Amps
Voltage	6.3 Volts
— No-load test (at 68° F - 20° C):	
Current	20 Amps
Voltage	12.3 Volts
Speed	4100 rpm
Mechanical characteristics test.	
— Brush spring pressure (on unworn brushes)	2.2 ± .2 lbs (1 ± 0.1 kg)
— Armature shaft end play . . . . .	.003 to .03 in (0.07 to 0.7 mm)
— Mica undercut depth . . . . .	.04 in (1 mm)
— Overrunning clutch efficiency: static torque for turning pinion slowly not above	2.4 in. lbs (2.8 kgcm)
Lubrication.	
— Drive unit splines and shaft bushings	FIAT VS 10 W oil
— Sleeve and disk	FIAT MR 3 grease
Solenoid.	
— Current draw not above	23 Amps
— Winding resistance at 68° F (20° C)	0.39 ± 0.02 ohms
— Contact stroke . . . . .	.43 to .55 in (11 to 14 mm)
— Plunger stroke . . . . .	.55 to .63 in (14 to 16 mm)

Ignition distributor.

Type	MARELLI S 125 BX, dual contact breaker
Static advance	10°
Automatic advance	30° ± 2°
Breaker contact pressure	2.2 to 2.6 lbs (1000 to 1200 gr)
Contact gap . . . . .	.012 to .015 in (0.32 to 0.38 mm)
Condenser capacity at 50 to 100 Hertz	0.20 to 0.25 microfarad
Condenser insulation resistance at 212° F (100° C) and 100 Volts d.c., more than	1 Megaohm/Microfarad
Ignition angle	every 60° ± 1°
Contact closing angle	50° ± 2°
Contact opening angle	10° ± 2°
Firing order	1-4-2-5-3-6

Ignition coil.

Symbol	MARELLI BZR 205 A
Primary winding ohmic resistance at 68 °F (20° C)	1.3 to 1.5 Ohms
Secondary winding ohmic resistance at 68° F (20° C)	5500 to 7000 Ohms
Resistor resistance	0.7 to 0.9 Ohms
Ground insulation resistance at 500 Volts d. c., not below.	50 Megohm

Spark Plugs.

	CHAMPION	MARELLI	BOSCH
Symbol	N 60 Y	CW 9 LP	W300T30
Thread	M 14 x 1.25		
Electrode gap . . . . .	.020 to .023 in (0.5 to 0.6 mm)		

Headlights	four
High and low beam	iodine vapor halogen lamp
Aiming	see Table IV-b
Front parking and direction lights.	
Double-filament bulb:	
— parking light	5 Watts
— direction light	21 Watts
Direction side repeaters	two
Bulb	4 Watts
Rear parking, direction, stop lights and reflector	two
Bulb:	
— direction indicator	21 Watts
Double-filament bulb:	
— parking light	5 Watts
— stop light	21 Watts
License plate light	one
— bulb	5 Watts
Back-up light	two
— bulb	21 Watts
Outer lighting switch:	
— Spider	on console on tunnel
— Coupe	on instrument panel
Headlight selector switch and flasher	switch lever under steering wheel, left side
Door-open warning light	4 Watts
Engine compartment light	5 »
Trunk compartment light	5 »
Glove box light with press switch	5 »
Interior light	5 »
Instrument light	3 »
Clock light	3 »
Cigarette lighter spot light	4 »
Low fuel warning light	3 »
Low engine oil pressure warning light	3 »
No-charge warning light	3 »
Parking light indicator	3 »
High beam indicator	3 »
Turn signal indicator	3 »
Hand brake « on » and worn-down brake lining warning light	3 »
Choke « on » indicator	3 »
Rear window defogger « on » indicator (Coupe only)	3 »

Speedometer and mileage recorder	total and trip
Clock	electric
Engine tachometer	electronic
Water thermometer	electric
Engine oil thermometer	electric
Oil gauge and low pressure warning light	red light
Fuel gauge and low fuel warning light	red light
No-charge warning light	red light
Parking light indicator	green light
High beam indicator	blue light
Turn flashers indicator	green light
Hand brake « on » (intermittent light) } indicator	red light
Worn-down brake linings (fixed light) }	
Choke « on » indicator	yellow light
Rear window defogger « on » indicator (Coupe only)	orange light
Cigarette lighter spot light	orange light
Flashing turn signal.	
Number of flashes per minute, with a total nominal load of 46 Watts:	
— at a nominal voltage of 12 Volts and at 68° F (20° C)	85 ± 8
Electric vacuum pump	
Maximum cut-in period	to boost power brake vacuum
	12 seconds
Windshield wiper	
Operation	flexible shaft type
Control	continuous or intermittent
	by lever under steering wheel,
	right side
Wiper cycles per minute	52 to 70
Windshield washer	
Control	with pump
	pedal press switch

Fuse	PROTECTED CIRCUITS	Fuse	PROTECTED CIRCUITS
A (*)	— Electric fuel pump, relay and relay energizing circuit. — Brake vacuum pump relay winding.	O (16 Amps)	— Map light under instrument panel. — Clock. — Open-door warning light. — Horns. — Inspection lamp socket. — Cigarette lighter. — Dome light.
B (*)	— Electric heater motor. — Windshield wiper.		
C (*)	— High beam, left. — High beam indicator.		
D (*)	— High beam, right.		
E (*)	— Low beam, left.	P (16 Amps)	— Radiator fan motor.
F (*)	— Low beam, right.		
G (*)	— Front parking light, left. — Parking light indicator. — Rear parking light, right. — License plate light, left. — Cigarette lighter spot light. — Back-up light. — Engine compartment light. — Trunk compartment light.	Q (*)	— Water thermometer. — Oil thermometer. — Engine oil pressure gauge. — Low oil pressure warning light. — Fuel gauge and low fuel warning light. — Engine tachometer. — Hand brake « on » and worn-down lining indicator. — No-charge warning light and sending unit. — Radiator fan motor relay winding. — Choke « on » indicator. — Window lift relay winding. — Turn signals and indicators. — Rear window defogger relay winding. — Glove box light.
H (*)	— Front parking light, right. — Rear parking light, left. — License plate light, left. — Instrument light. — Heater controls spot light.		
I (25 Amps)	— Window lift, right.		
L (25 Amps)	— Window lift, left.		
M (16 Amps)	— Spare fuse.		
N (16 Amps)	— Rear window defogger. — Rear window defogger « on » indicator.		
		R (*)	— Voltage regulator. — Alternator field winding.

Unprotected circuits: — Generator.
— Starting motor.
— Ignition.
— Low beam relay.
— Brake vacuum pump.

10 8-Amp fuses - 4 16-Amp fuses - 2 25-Amp fuses.

(*) With ignition on.

Fuse	PROTECTED CIRCUITS	Fuse	PROTECTED CIRCUITS
A (*)	— Electric fuel pump, relay and winding. — Brake vacuum pump relay winding.	N (16 Amps)	— Spare fuse.
B (*)	— Electrofan motor. — Windshield wiper.	O (16 Amps)	— Inspection lamp socket. — Map light under instrument panel. — Clock. — Open-door warning light. — Horns. — Cigarette lighter.
C (*)	— High beam, left. — High beam indicator.		
D (*)	— High beam, right.		
E (*)	— Low beam, left.		
F (*)	— Low beam, right.	P (25 Amps)	— Radiator fan motor.
G (*)	— Front parking light, left. — Parking light indicator. — Rear parking light, right. — License plate light, left. — Back-up light. — Trunk compartment light.	Q (*)	— Oil thermometer. — Water thermometer. — Engine tachometer. — Oil gauge. — Low oil pressure warning light. — Hand brake « on » and worn-down lining indicator. — Choke « on » indicator. — Fuel gauge and low fuel warning light. — Radiator fan relay winding. — No-charge warning light and sending unit. — Turn signals and indicators. — Stop lights. — Glove box light.
	H (*)		— Front parking light, right. — Rear parking light, left. — License plate light, right. — Engine compartment light. — Cigarette lighter spot light. — Instrument light.
I (25 Amps)			— Window lift, right (optional).
L (25 Amps)			— Window lift, left (optional).
M (25 Amps)	— Spare fuse.		R (*)	— Voltage regulator. — Alternator field winding.

Unprotected circuits: — Ignition.
— Starting motor.
— Generator.
— Low beam relay.
— Brake vacuum pump.

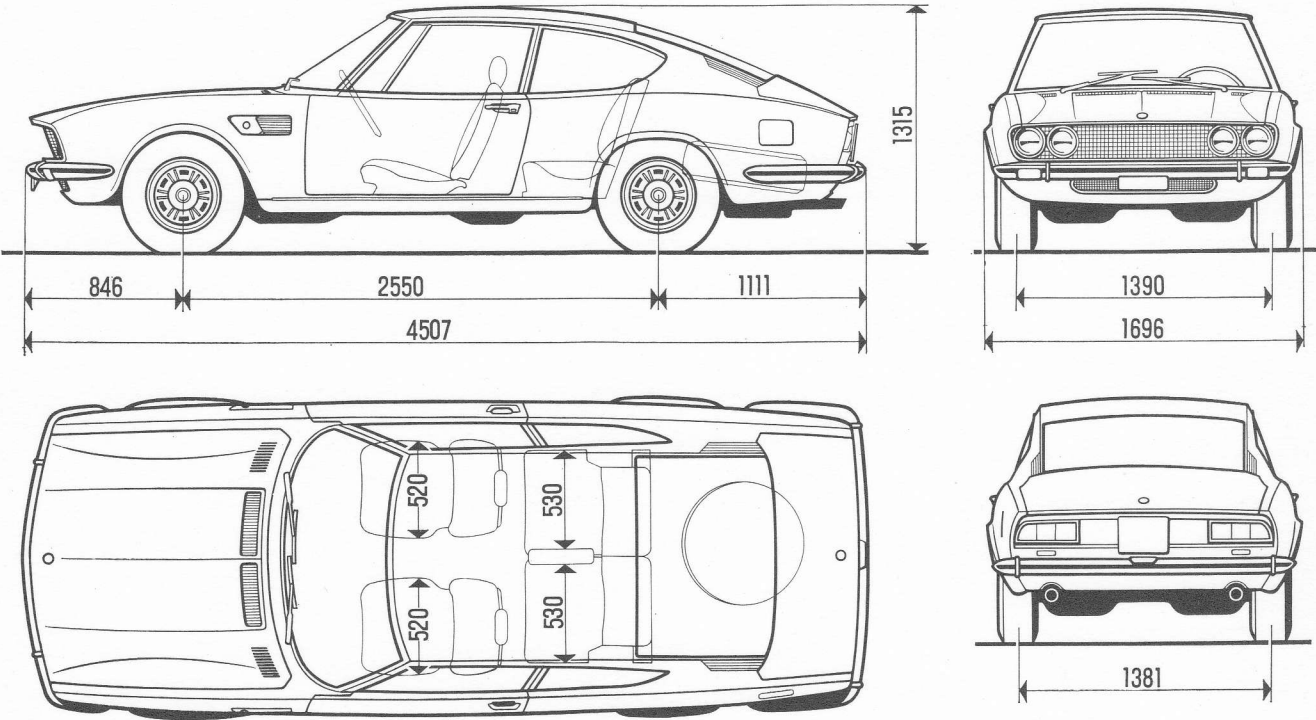
10 8-Amp fuses - 2 16-Amp fuses - 4 25-Amp fuses.

(*) With ignition on.

FIAT
Dino 2400

MAIN DATA
DIMENSIONS (Coupe)
(metric)

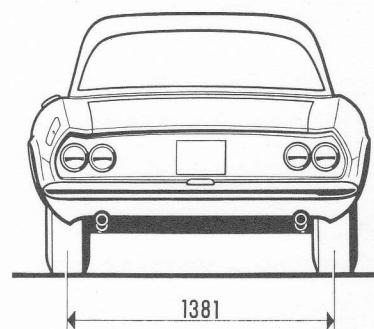
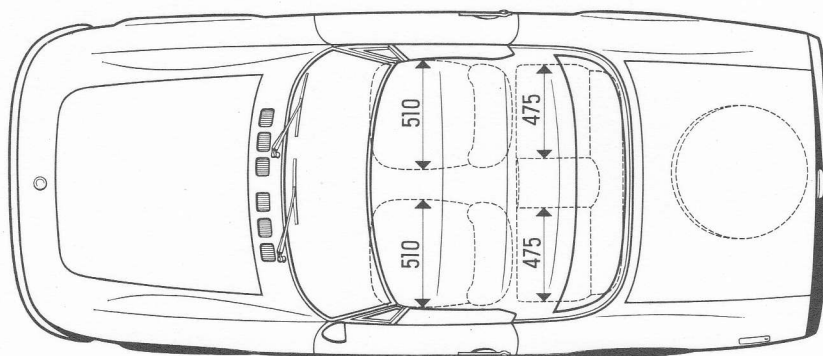
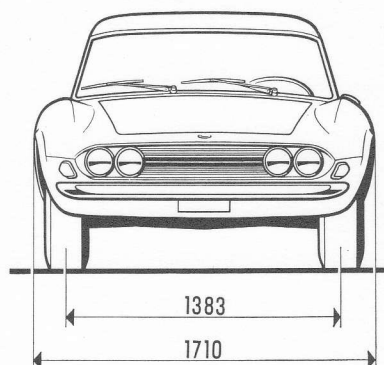
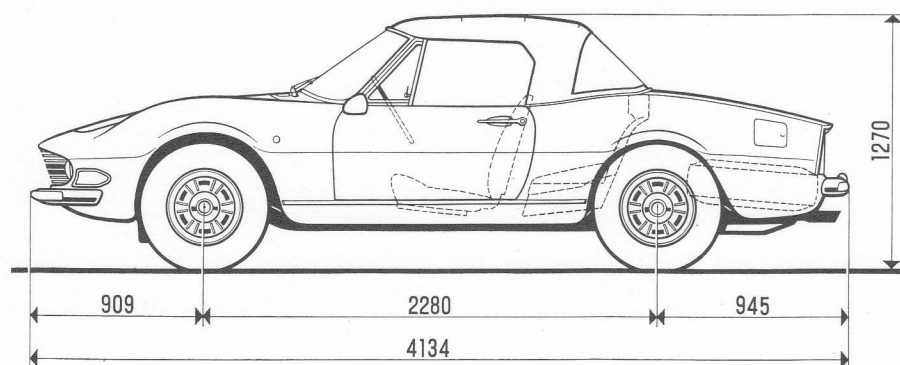
TABLE
I-a

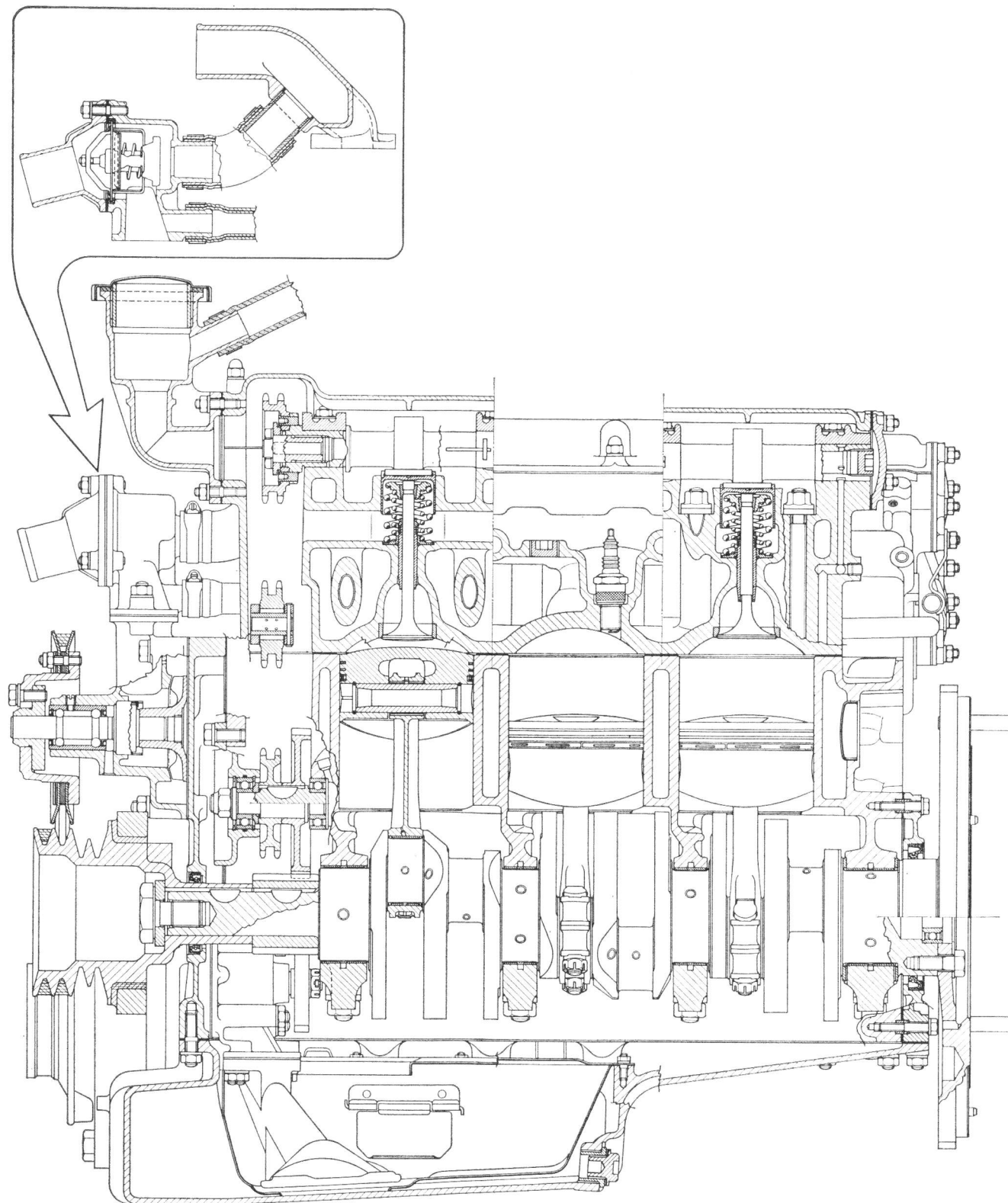


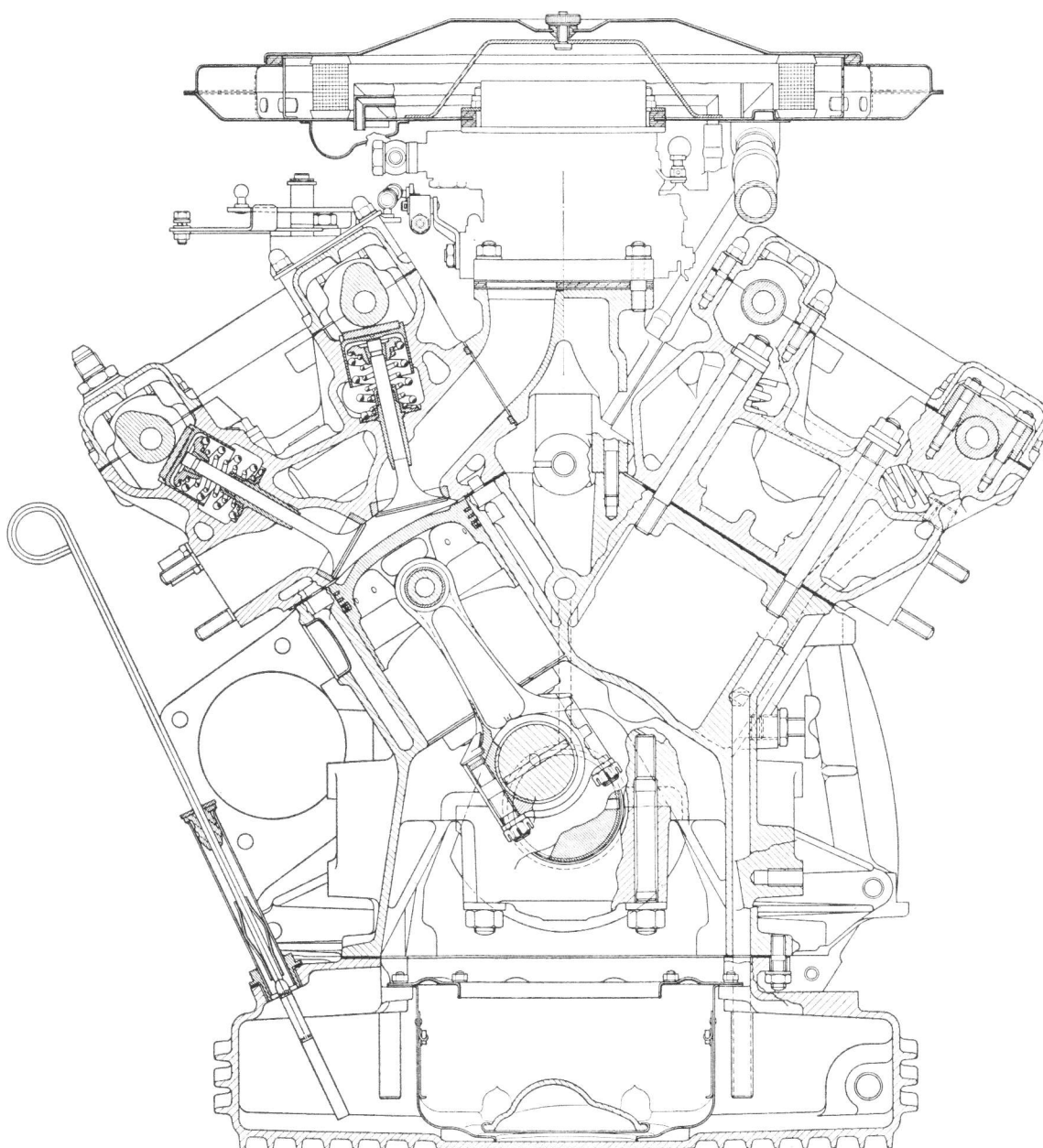
FIAT
Dino 2400

MAIN DATA
DIMENSIONS (Spider)
(metric)

TABLE
I-b







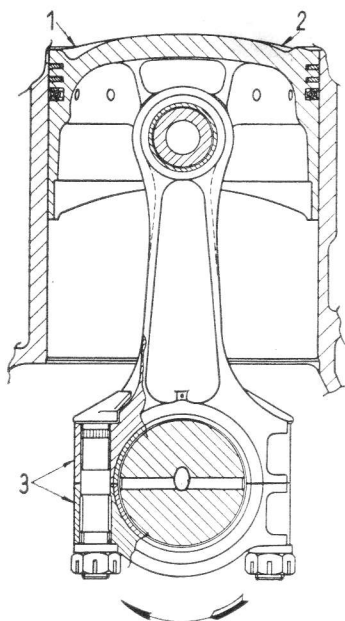
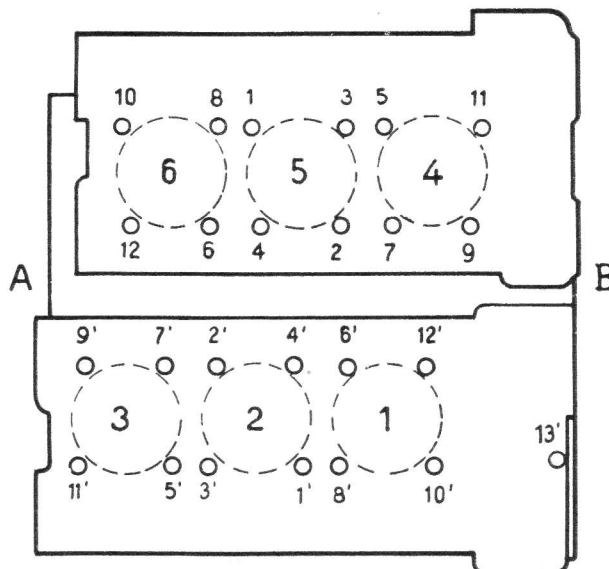


Diagram showing the installation of connecting rod-piston assembly.

1. Depression on head to provide clearance for exhaust valve - 2. Depression on head to provide clearance for intake valve - 3. Connecting rod matching number with cylinder.

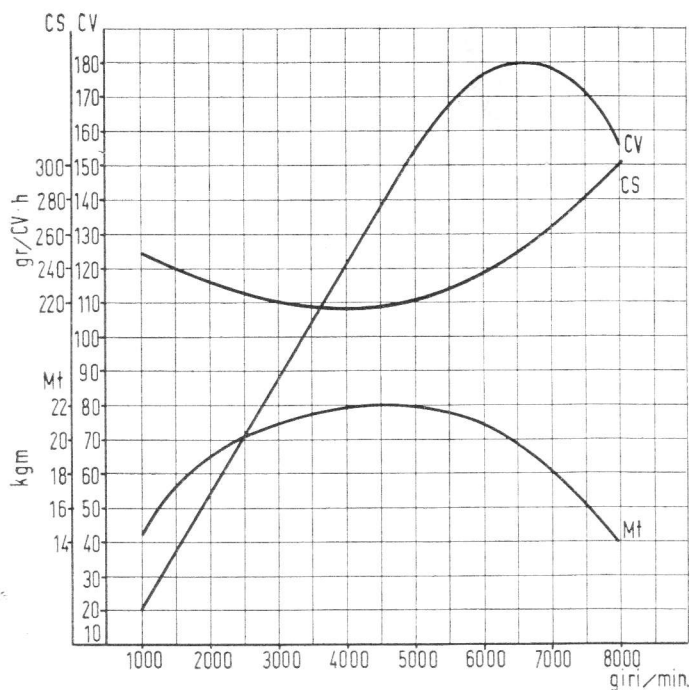
NOTE - Connecting rod numbers must point outward. Arrow indicates rotation direction of engine.



Cylinder heads hold-down screws tightening sequence.

A. Flywheel side.

B. Timing chain side.



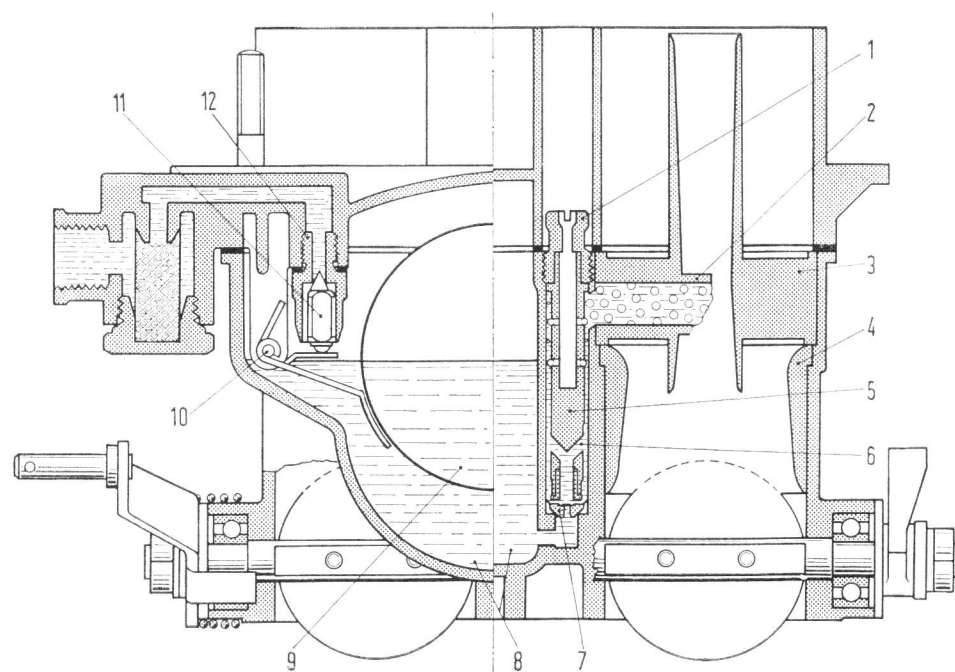
Characteristic curves of engine, according to the DIN method.

CS = fuel consumption

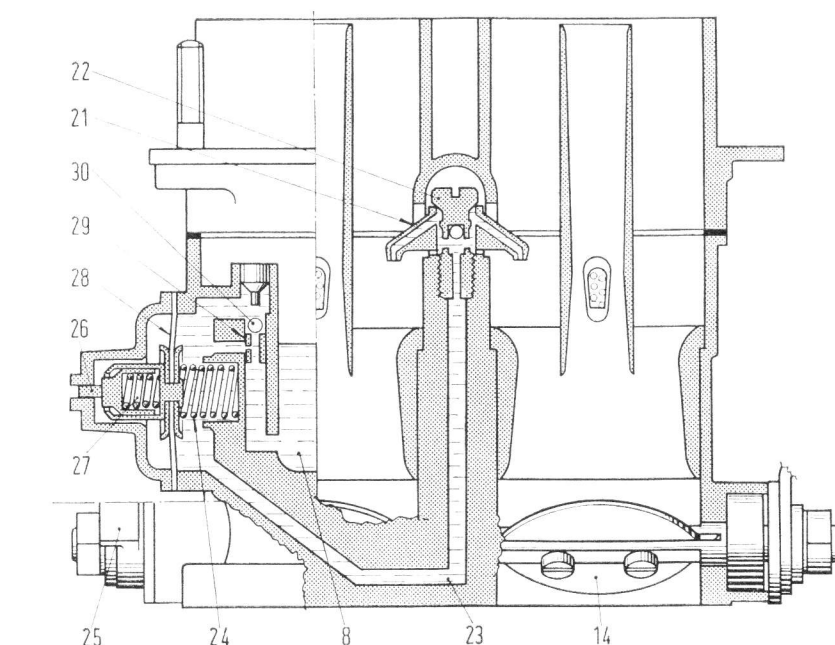
Cv = HP

Mt = torque

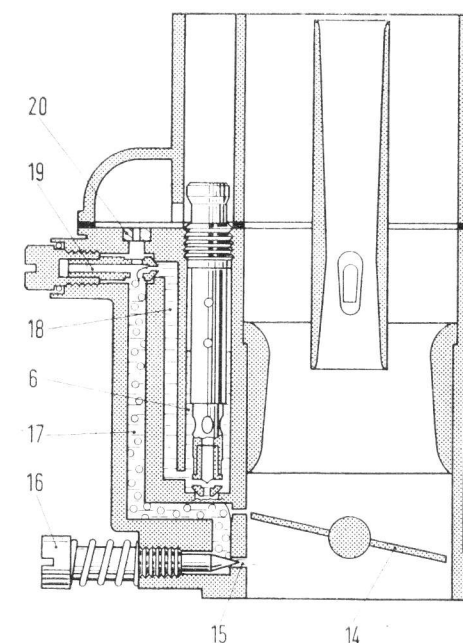
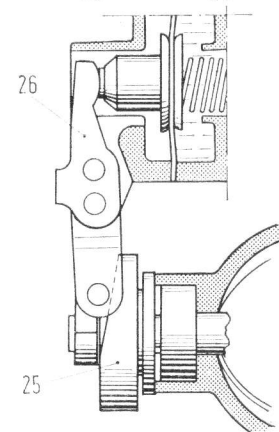
giri/min = rpm



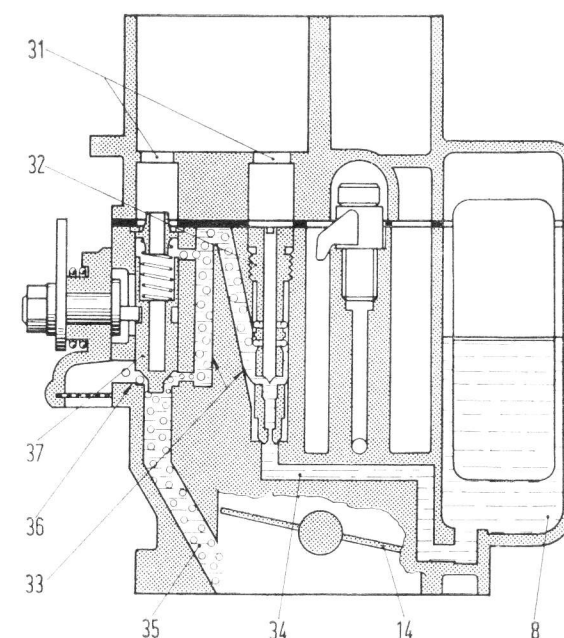
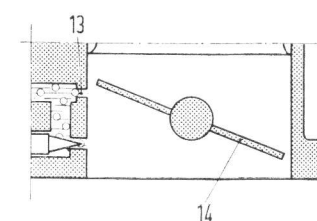
NORMAL RUNNING



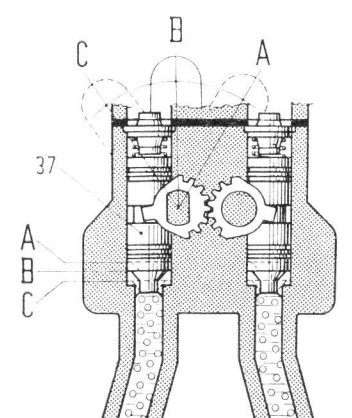
ACCELERATING PUMP



IDLING AND PROGRESSION

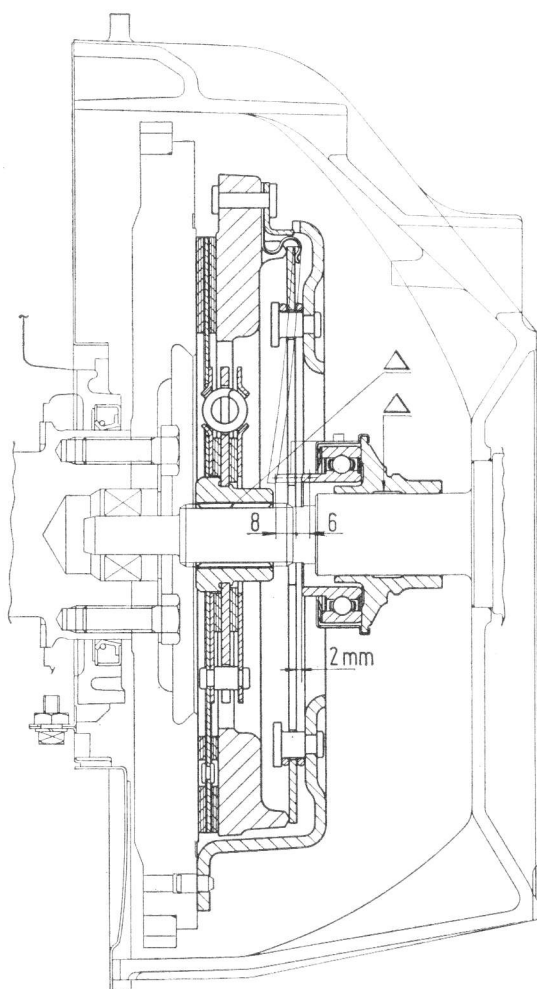


STARTING DEVICE



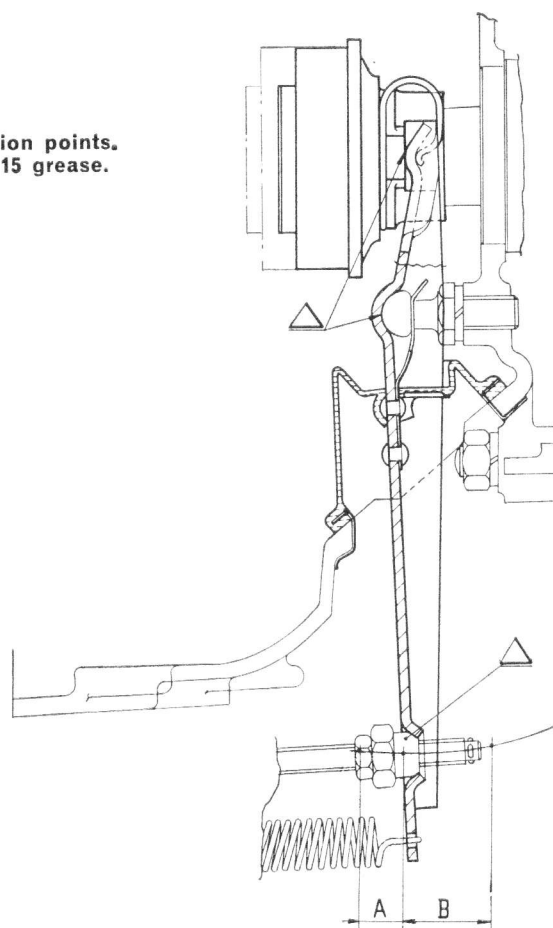
1. Main air correction jet - 2. Jet - 3. Auxiliary venturi - 4. Primary venturi - 5. Emulsion tube - 6. Well - 7. Main jet - 8. Float bowl - 9. Float - 10. Float pivot pin - 11. Needle - 12. Needle valve - 13. Progression port - 14. Throttle - 15. Idle port - 16. Mixture adjusting screw - 17. Idle mixture duct - 18. Idle feeding duct - 19. Idle jet - 20. Idle air calibrated bushing - 21. Pump jet - 22. Delivery valve - 23. Delivery valve duct - 24. Accelerating pump diaphragm control spring - 25. Pump drive cam - 26. Pump drive lever - 27. Pump diaphragm reaction spring - 28. Pump diaphragm - 29. Calibrated port - 30. Ball valve - 31. Air inlet ports - 32. Starting jet - 33. Starting mixture duct - 34. Starting fuel duct - 35. Starting mixture duct - 36. Air inlet port - 37. Valve.

Engine cold starting: starting device « on », position A - Half-warm starting: starting device partially « on », position B - During warm-up, also with the car in motion, turn the starting device progressively off - Normal running, device off: position C, as soon as the engine has warmed up.



- .079 in (2 mm) = Clearance to be obtained by adjusting the clutch control push rod.
- .236 in (6 mm) = Maximum allowable shift due to disk lining wear.
- .315 in (8 mm) = Release travel.

Δ = Lubrication points.
FIAT KG 15 grease.

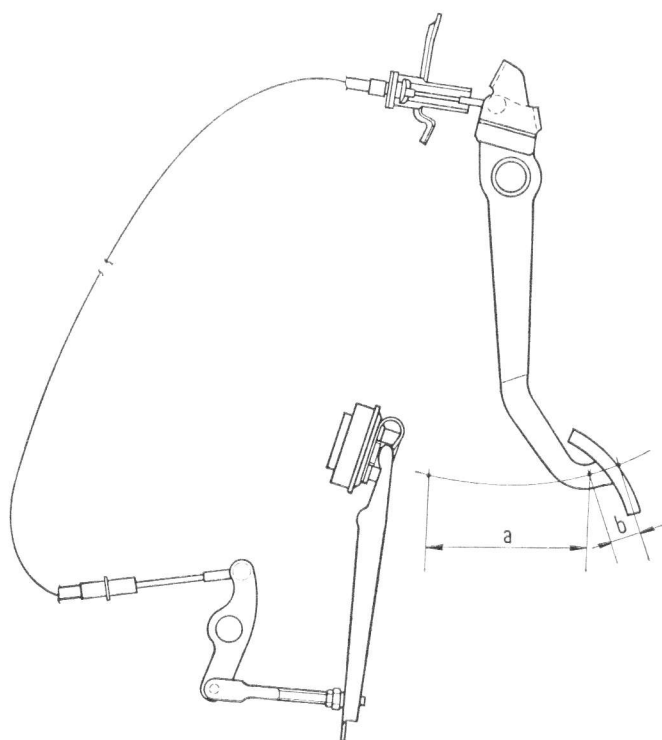


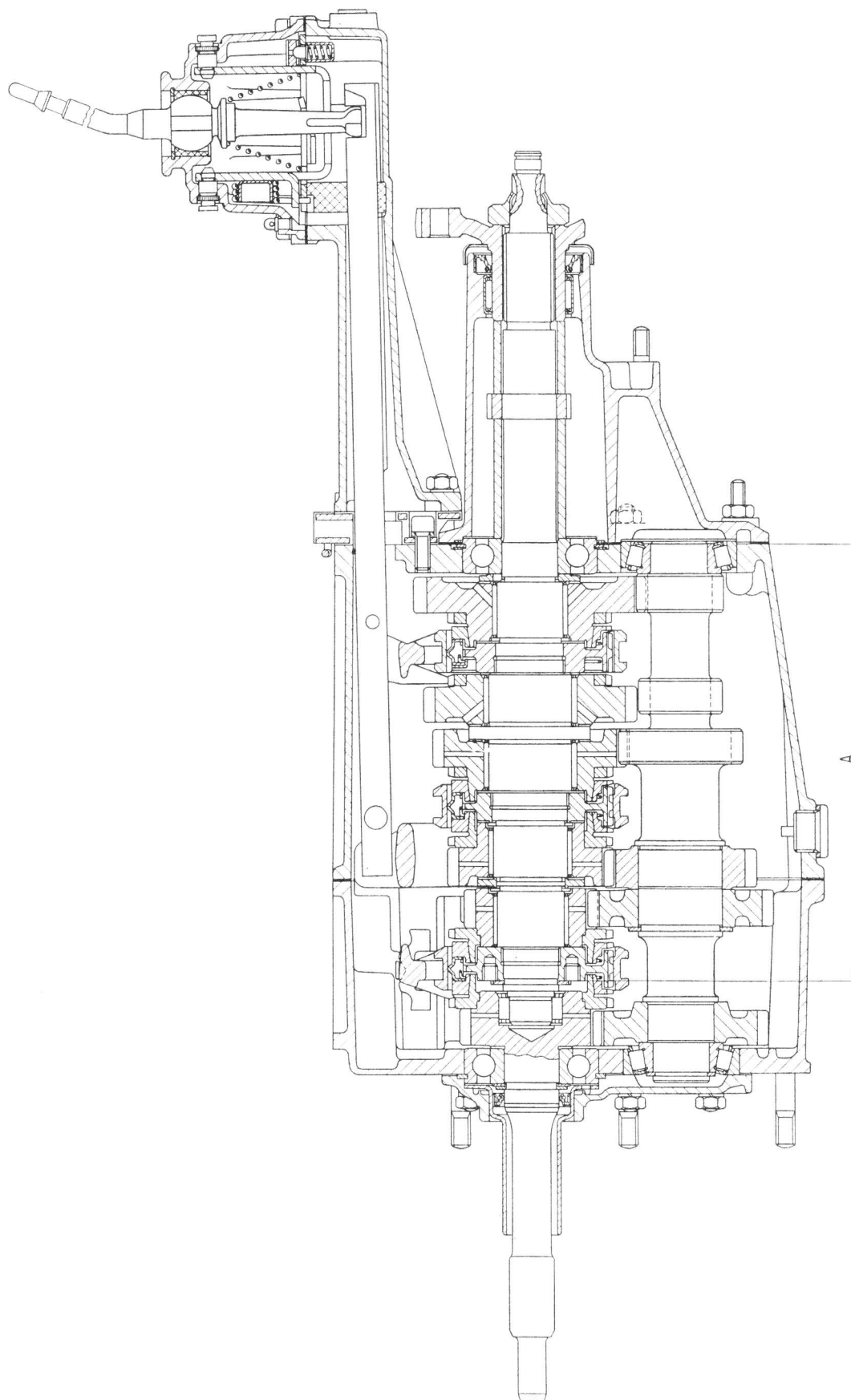
A = .551 in (14 mm) - Clutch release lever shift due to disk lining wear.

B = 1.102 in (28 mm) - Travel corresponding to a minimum disk withdrawal of .055 in (1,4 mm).

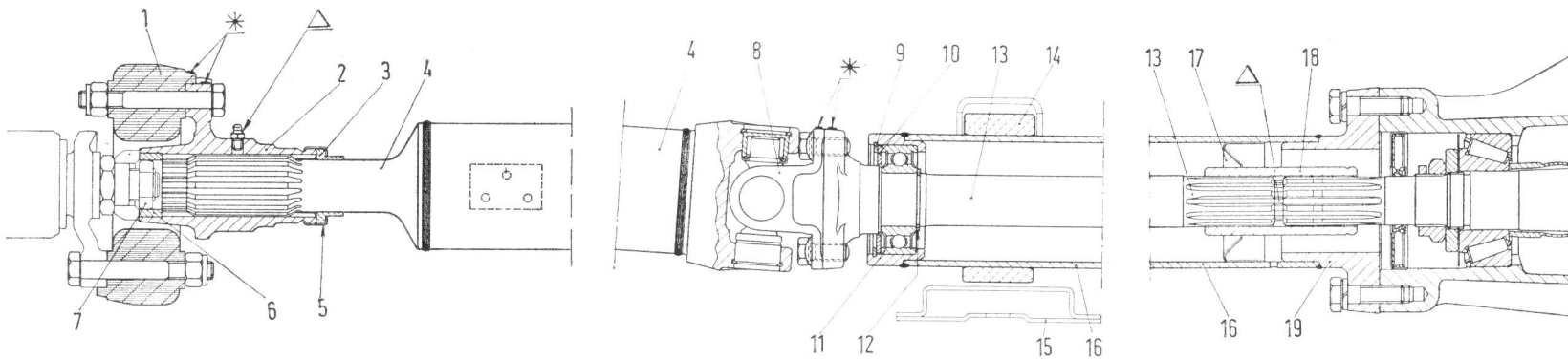
a = 5.12 in (130 mm) - Maximum release travel, including the elastic give-in (.177 in - 4,5 mm on the cable).

b = abt. 1 in (25 mm) - Play take-up travel.





A = $9.051 \pm .004$ in (230 ± 0.1 mm) distance from transmission case rear face to center shoulder of 4th gear sleeve hub.



Δ = Lubrication points.

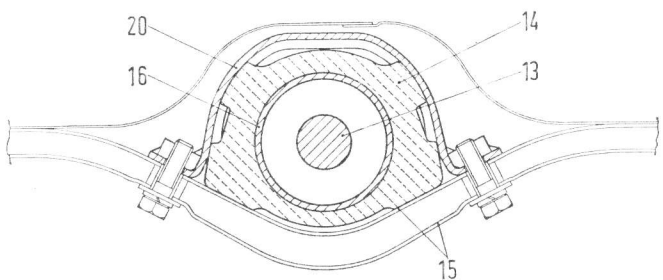
Slip sleeves:

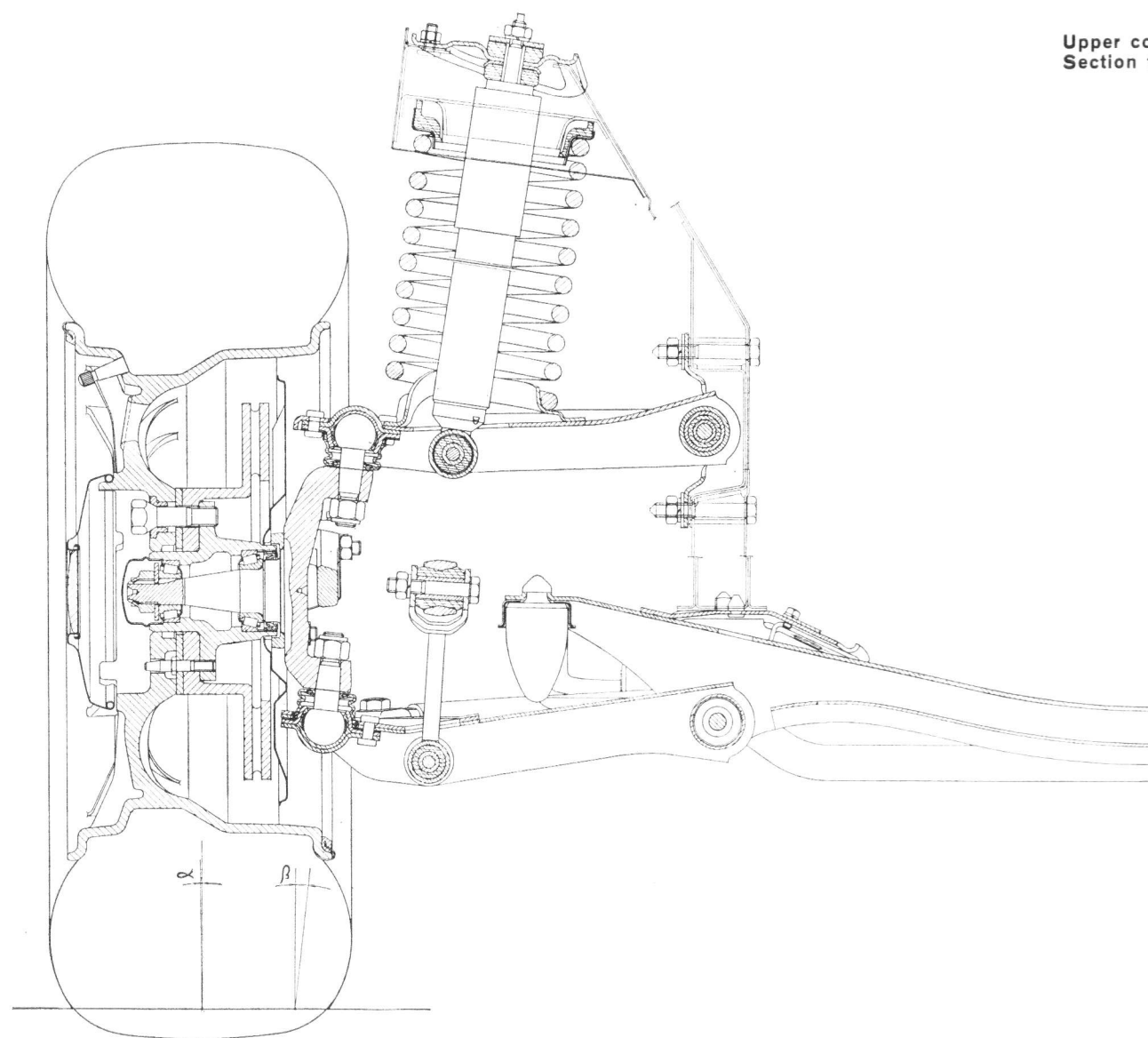
- with lubricator: FIAT Jota 1 grease;
- without lubricator: FIAT KG 15 grease.

Longitudinal section of propeller shaft through flexible joint, center pillow block, splined connection sleeve on drive pinion and cross section through pillow block.

1. Flexible joint - 2. Sliding yoke - 3. Seal - 4. Front propeller shaft - 5. Sheath - 6. Centering bushing - 7. Centering ring - 8. Universal joint yoke - 9. Circlip - 10. Bearing shield - 11. Ball bearing - 12. Thrust ring - 13. Rear propeller shaft - 14. Center pillow block - 15. Cross member - 16. Rear propeller shaft housing - 17. Shield - 18. Connection sleeve to drive pinion - 19. Rear propeller shaft housing to differential carrier attachment flange - 20. Pillow block bracket.

(*) Reference marks for correct mating.

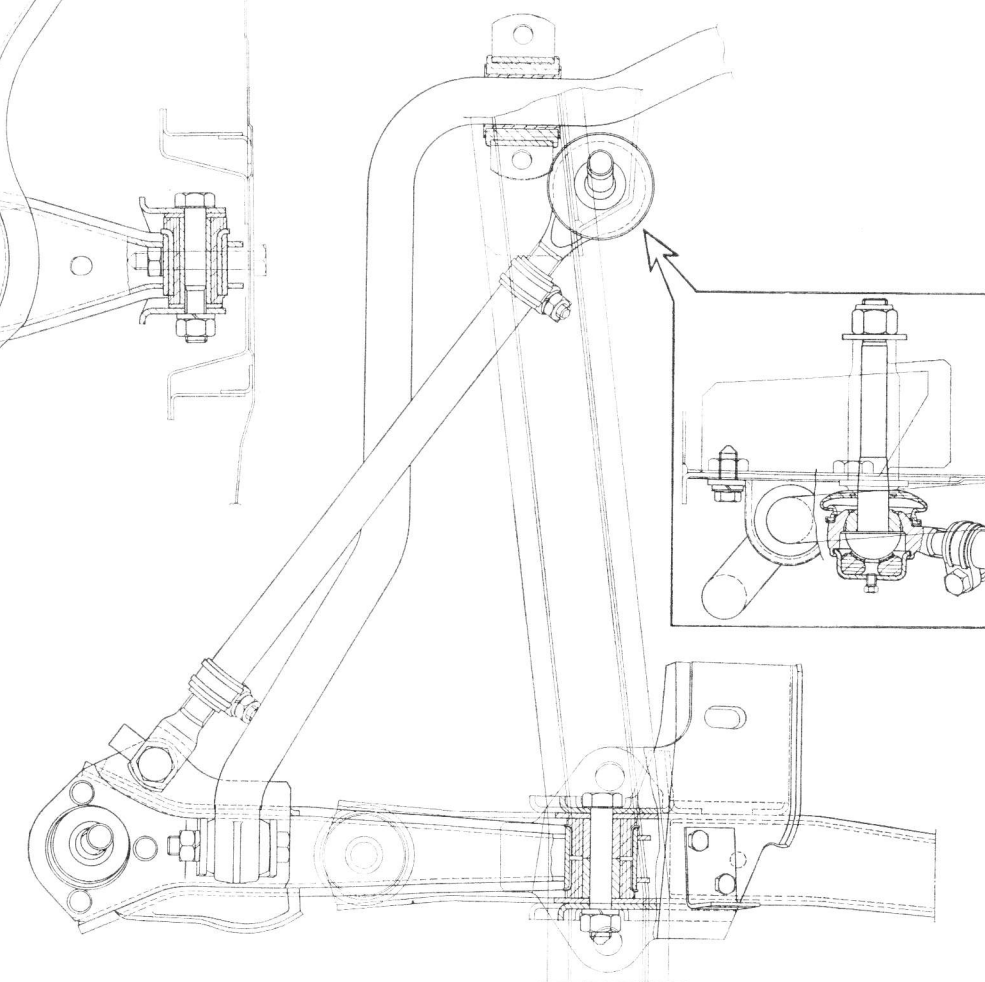
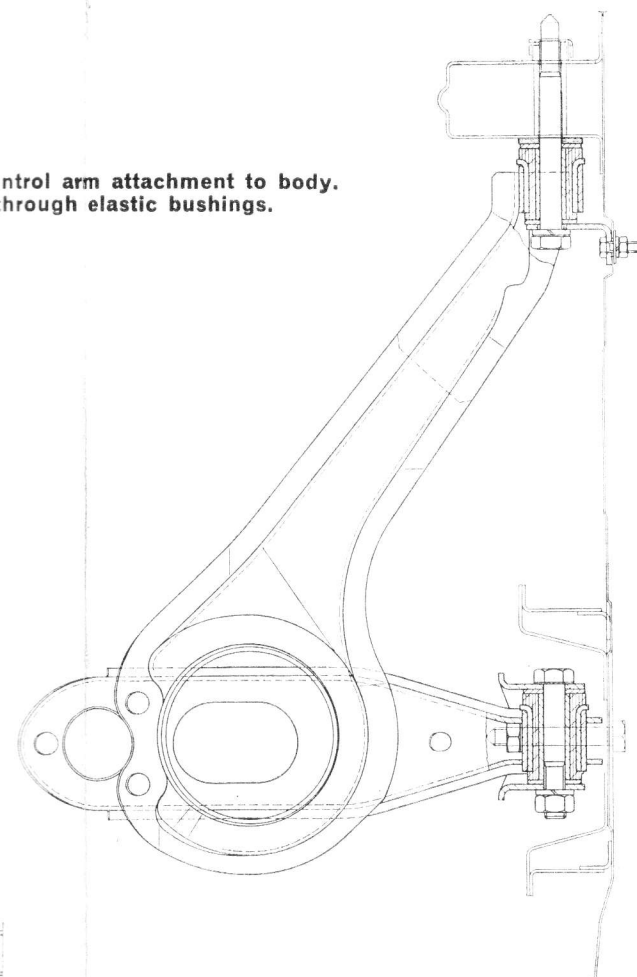




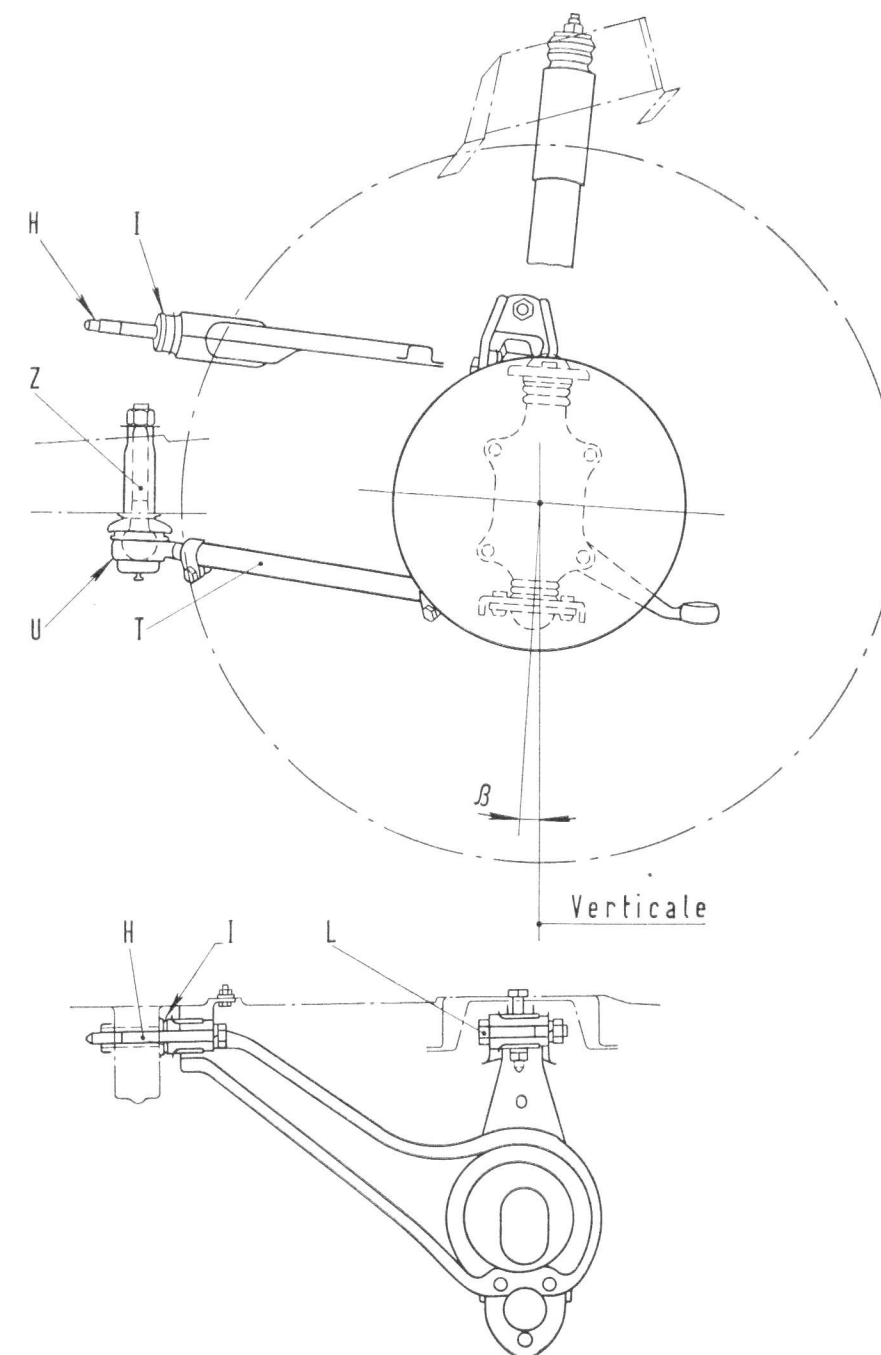
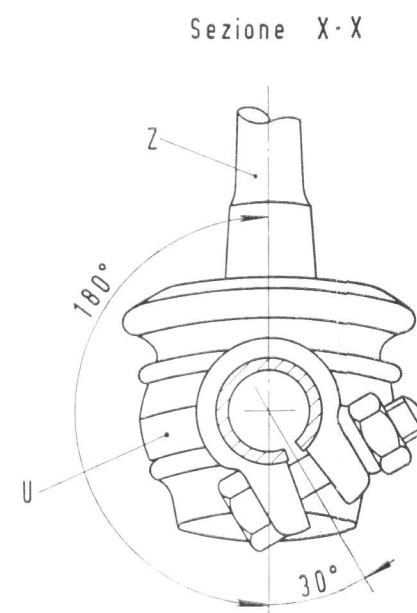
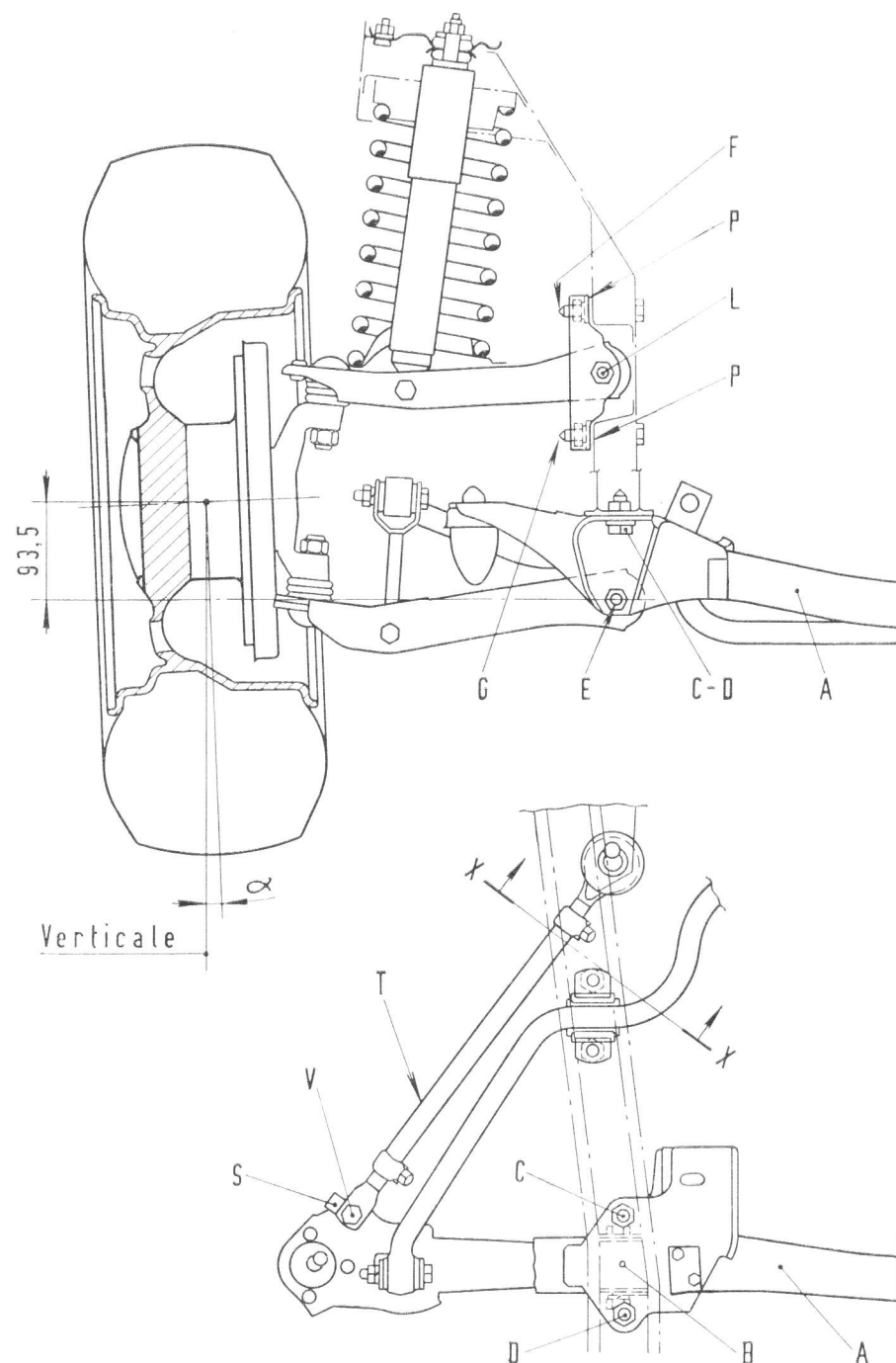
Cross section of left wheel

α = wheel camber: $\left\{ \begin{array}{l} \text{Coupe } 0^{\circ} 30' \pm 20' \\ \text{Spider } 1^{\circ} 30' \pm 20' \end{array} \right.$
 β = knuckle pillar inclination: $6^{\circ} \pm 20'$.

Upper control arm attachment to body.
Section through elastic bushings.



Sections through joints (Coupe).
Lower control arm. Detail shows sway bar and reaction strut attachment to body.
NOTE - On the Spider version, only the sway bar attachment varies.



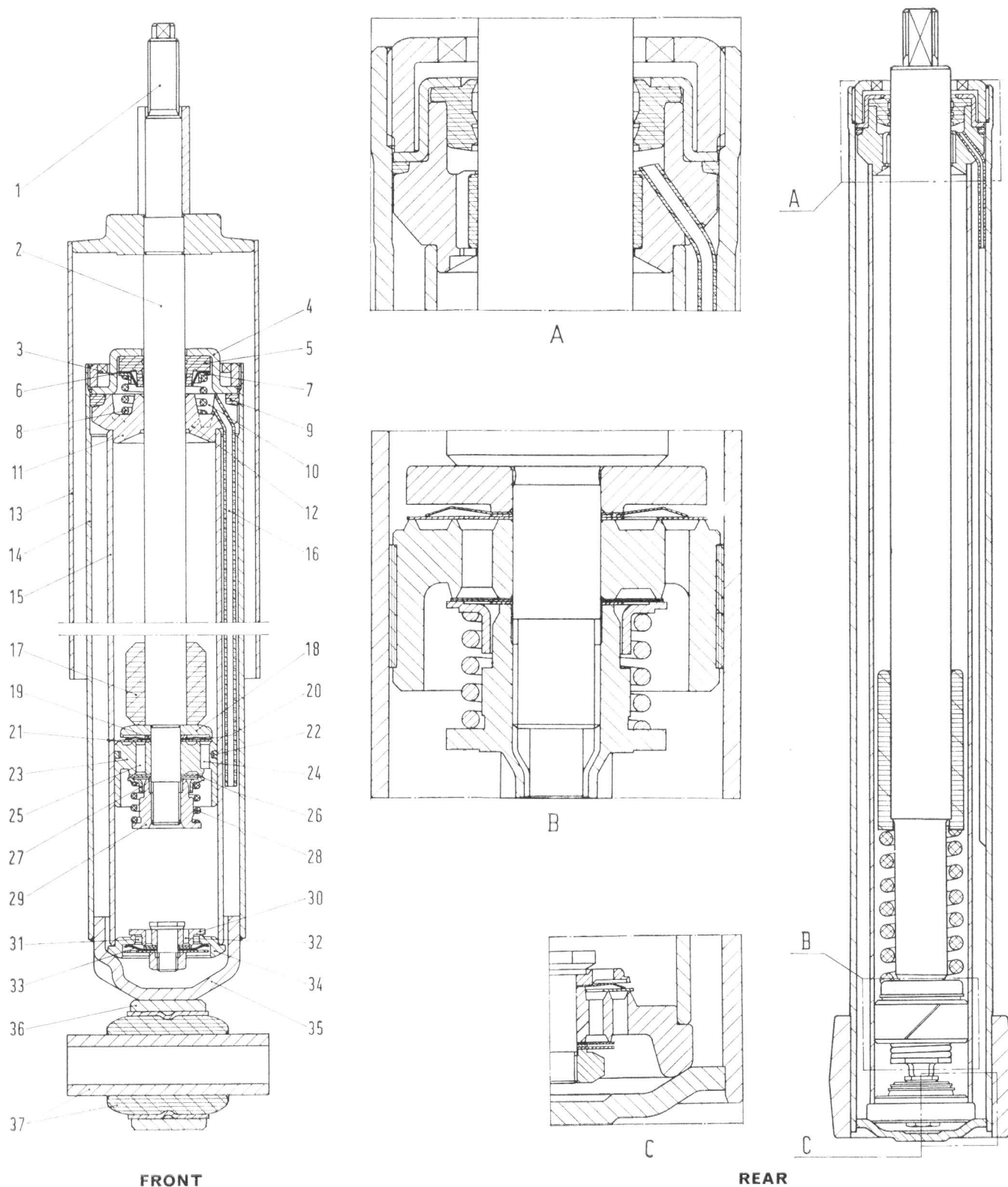
Front suspension assembling and adjusting diagram (Spider).

A. Cross member for lower control arm attachment - B. Centering dowel - C-D. Cross member to body screws - E. Lower control arm pivot pin - F-G. Upper control arm support screws - H. Upper control arm front pivot pin - I. Knuckle pillar inclination adjustment shims - L. Upper control arm rear pivot pin - P. Wheel camber adjusting shims - S. Plate for front reaction strut clevis - T. Front reaction strut - U. Reaction strut head - V. Front reaction strut clevis screw - Z. Front reaction strut pin.

α . Wheel camber } Spider $1^{\circ} 30' \pm 20'$ (loaded: 2 persons + 44 lbs - 20 kg).
Coupe $0^{\circ} 30' \pm 20'$ (loaded: 3 persons + 66 lbs - 30 kg). β . Knuckle pillar caster $3^{\circ} + 20'$.

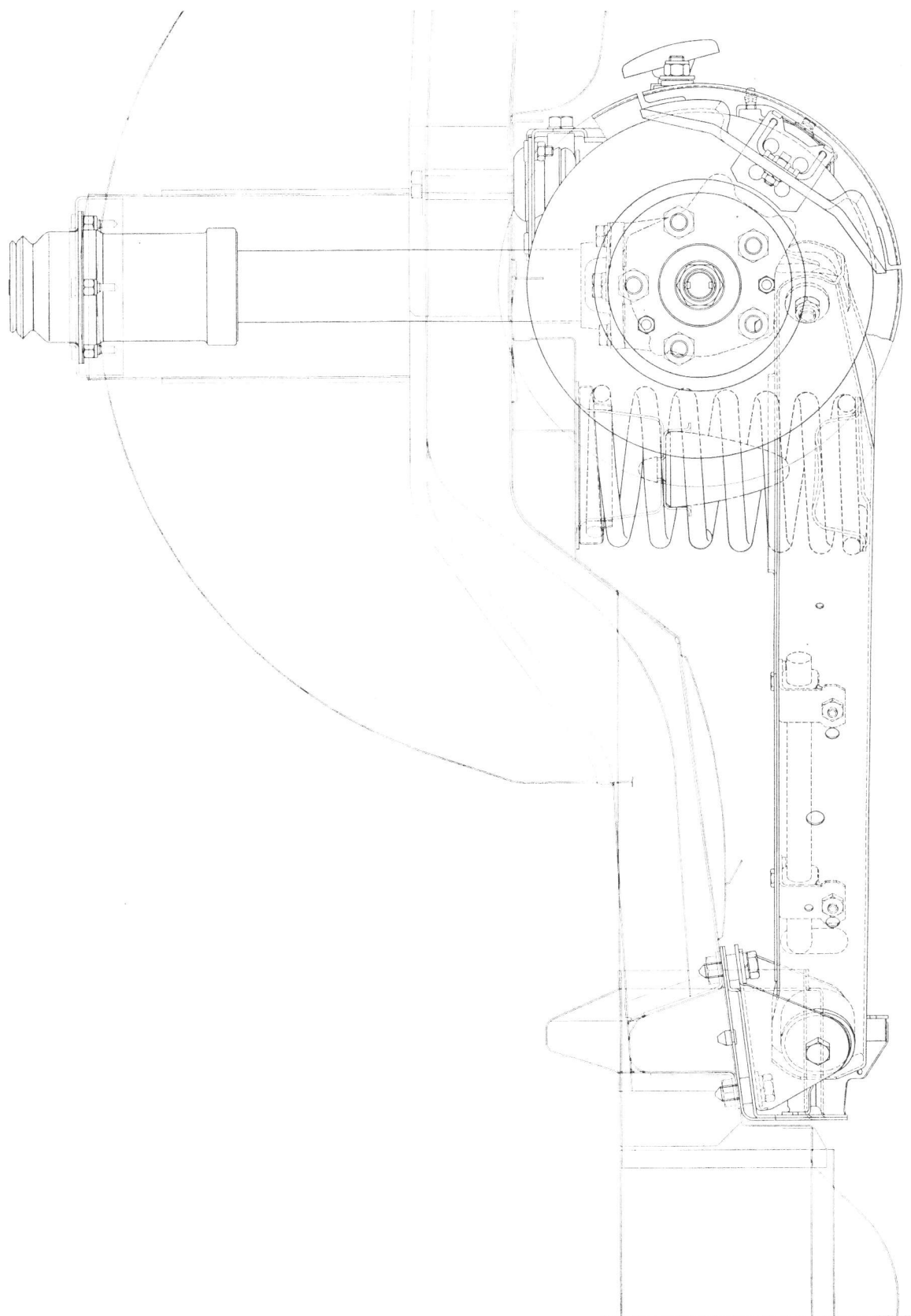
NOTE - The Coupe front suspension assembling diagram varies in the sway bar to body attachment.

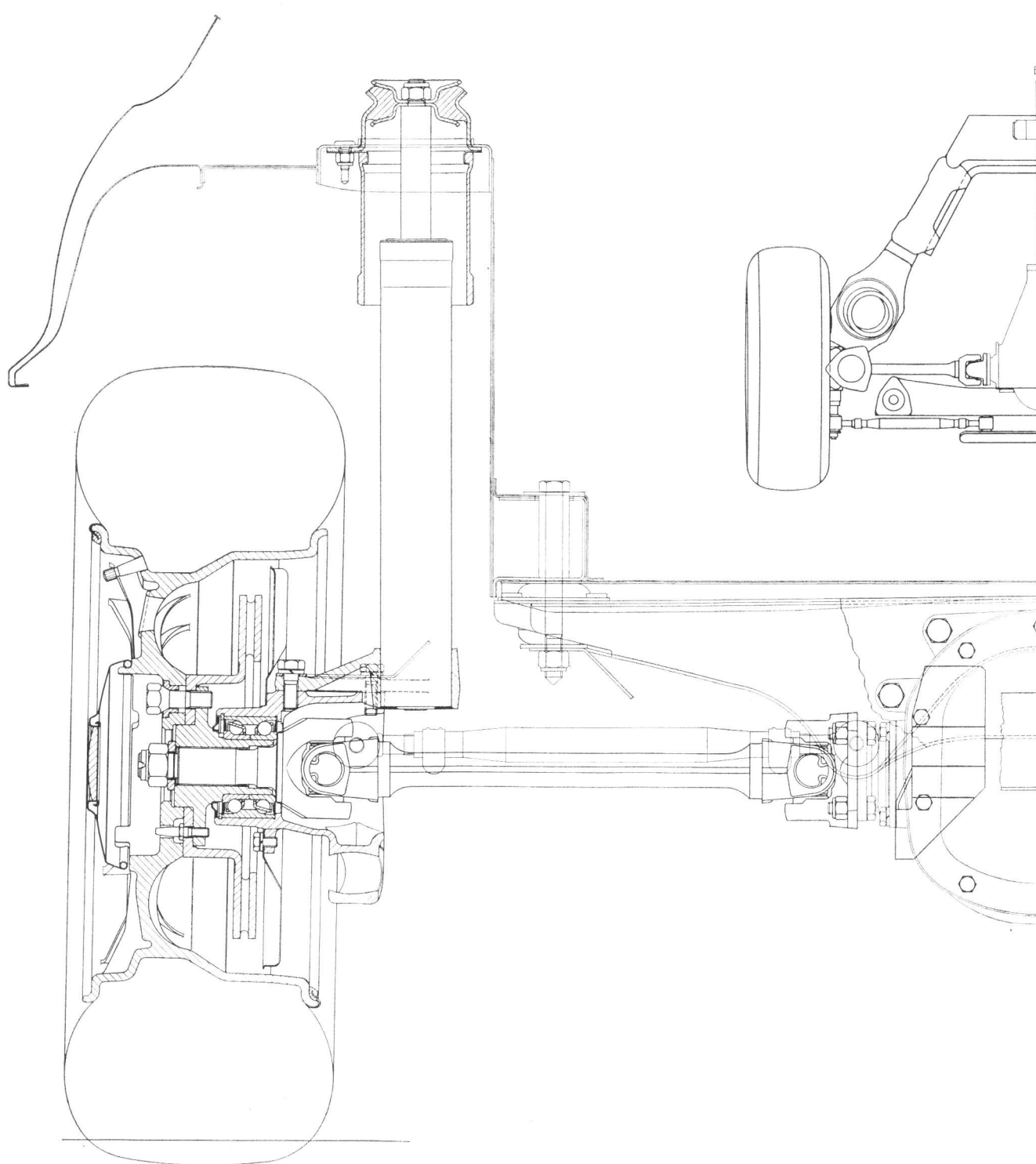
Verticale = Vertical; Sezione = Section.

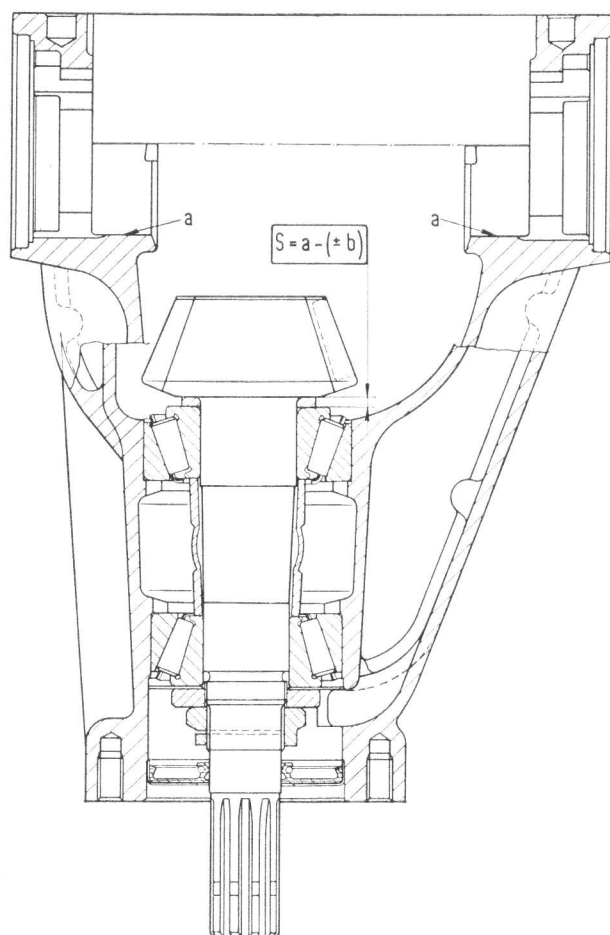


Sectional view of front suspension shock absorber.

1. Upper attachment threaded tang - 2. Stem - 3. Cylinder upper cap - 4. Packing box - 5. Packing - 6. Tongue spring - 7. Spring cup - 8. Packing spring - 9. Lower cylinder seal - 10. Gas bubbles bleed chamber - 11. Stem guide bushing - 12. Gas bubbles discharge port - 13. Dust shield - 14. Outer reservoir cylinder - 15. Inner cylinder - 16. Gas bubbles bleed tube - 17. Buffer - 18. Intake valve lift check disk - 19. Valve lift adjusting washer - 20. Star-shaped valve spring - 21. Intake valve - 22. Piston ring - 23. Piston - 24. Piston ports for intake valve - 25. Piston ports for rebound valve - 26. Rebound valve - 27. Spring guide - 28. Rebound valve spring - 29. Piston plug - 30. Compensating valve - 31. Annular recess for compensating valve - 32. Compression valve ports - 33. Step-action compression valve - 34. Compensating and compression valves holder plug - 35. Lower plug - 36. Lower attachment eye - 37. Lower eye pin and bushing.







Drive pinion assembling diagram

S = drive pinion thrust washer thickness.

a = average value of dial indicator readings in two measurements taken on both saddle bores (*).

b = value marked on pinion at Factory.

(*) This value corresponds to the difference between the theoretical and the actual distance between the differential saddle bores centerline and the shoulder of the drive pinion rear bearing inner ring.

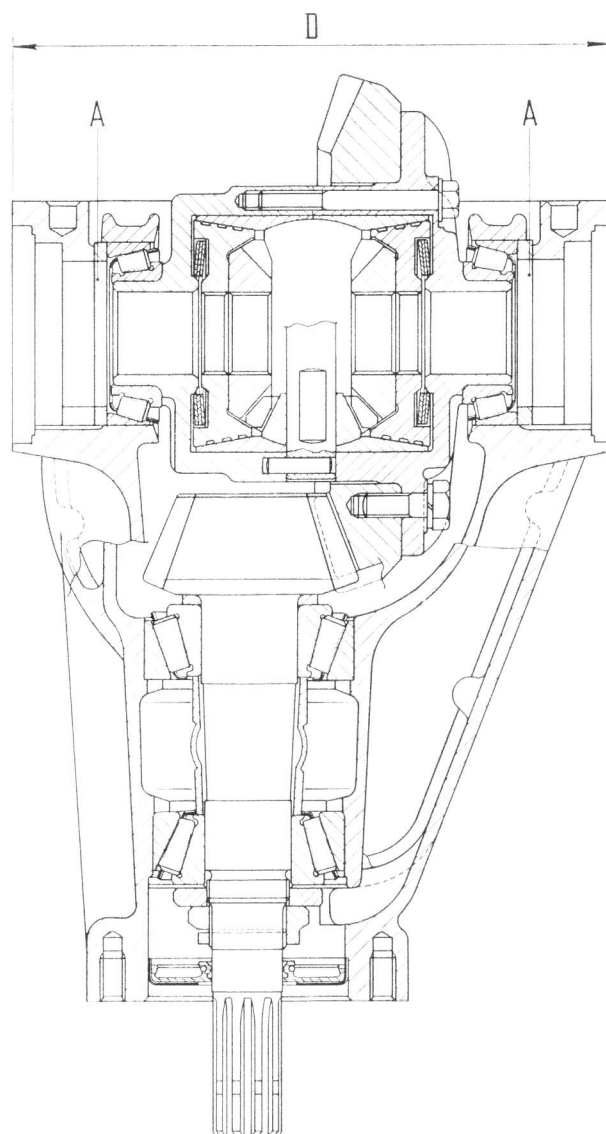
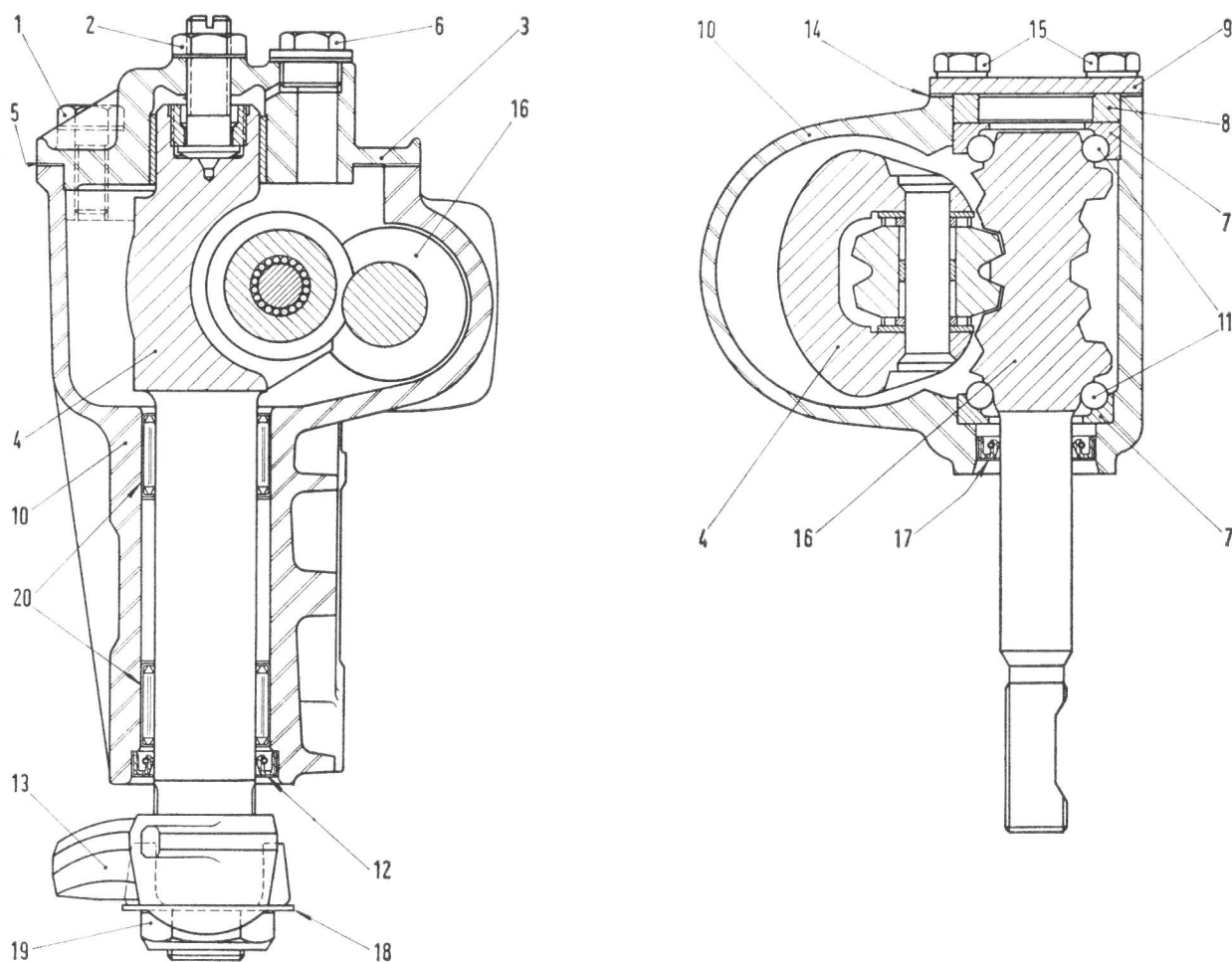


Diagram for checking the preload of the differential case roller bearings.

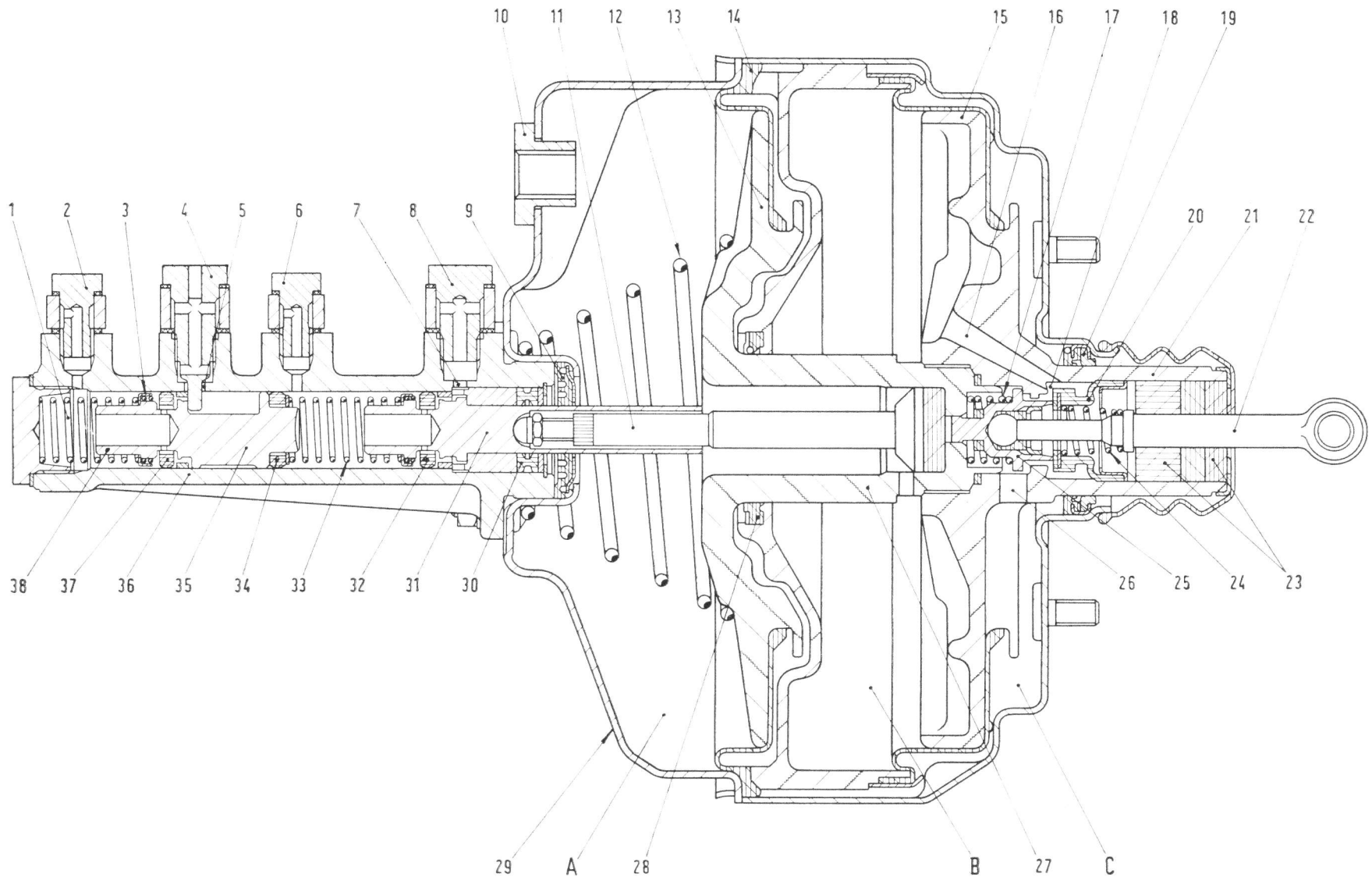
D. Distance between differential carrier ends. Roller bearing preload is obtained by inserting shims **A** of suitable thickness, so that distance **D** is increased by .002 to .003 - (0,05 to 0,07 mm).

The preloading operation must not alter the previously set backlash between drive pinion and ring gear (.004 to .006 in - 0.10 to 0.15 mm).



Steering box sections through roller shaft and worm.

1. Cover screw - 2. Adjusting screw nut - 3. Cover - 4. Roller shaft - 5. Gasket - 6. Oil filler plug - 7. Bearing outer rings - 8. Bearing retaining ring - 9. Cover - 10. Steering box - 11. Ball bearings - 12. Seal - 13. Pitman arm - 14. Gasket - 15. Cover screws - 16. Steering shaft - 17. Seal - 18. Lock plate - 19. Pitman arm nut - 20. Needle bearings.



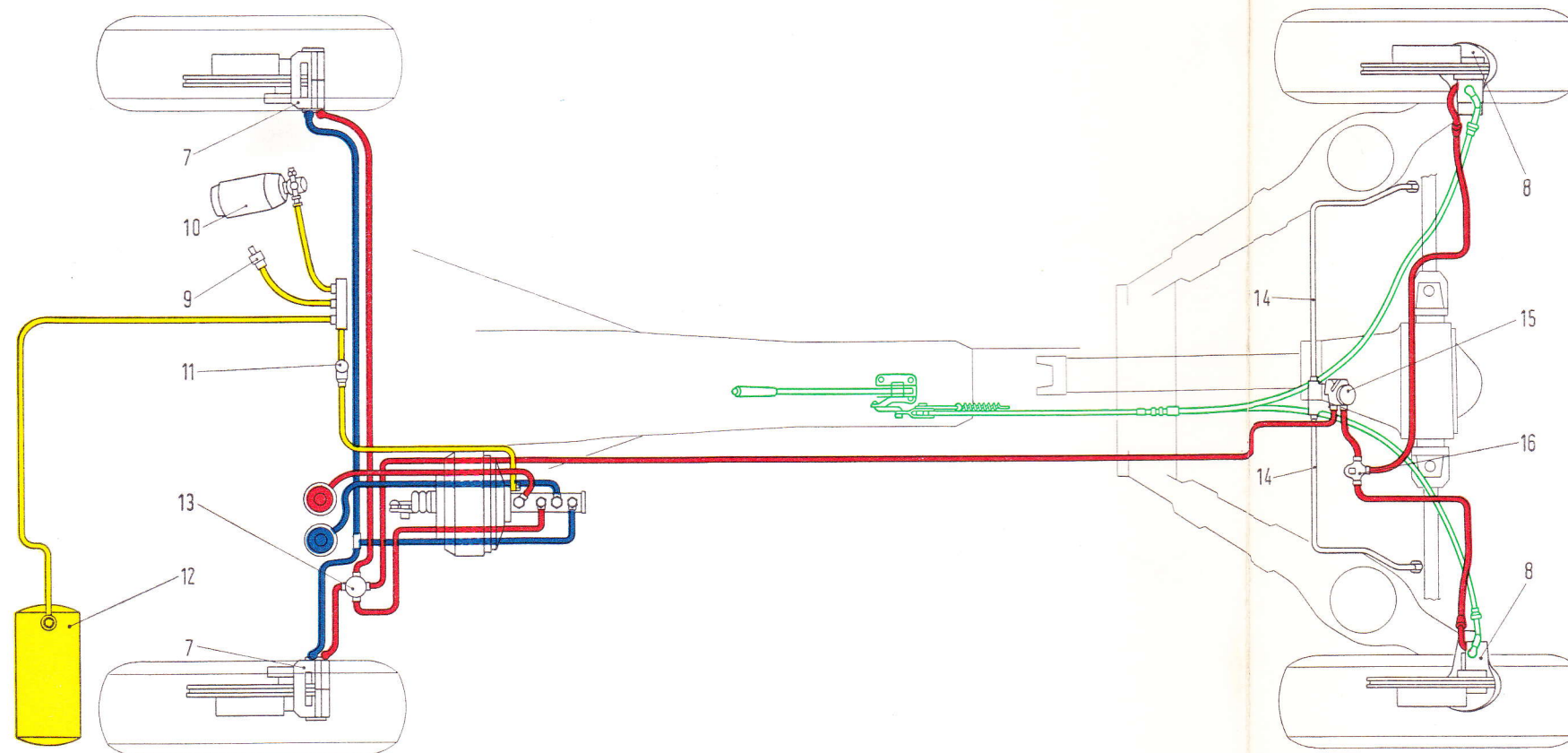
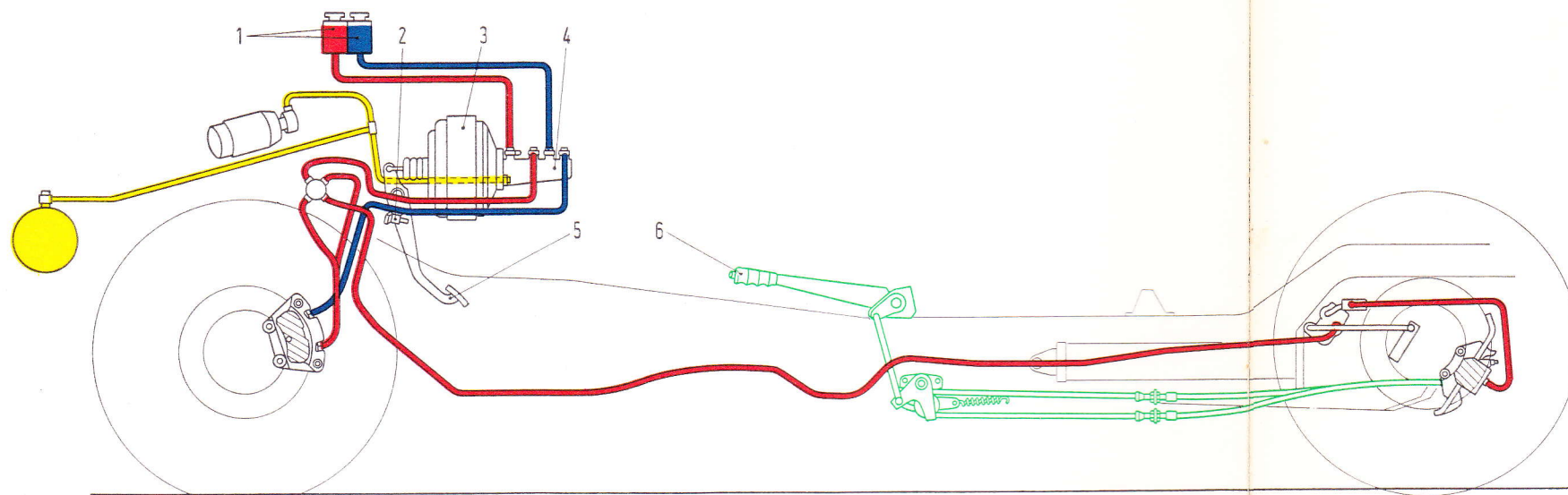
Sectional view of Mastervac power brake and tandem master cylinder.

1. Piston return spring for rear brake circuit - 2. Connector, rear brake line - 3. Spring cup - 4. Connector, line from rear brake fluid tank - 5. Compensating port - 6. Connector, line to front brakes - 7. Fluid inlet - 8. Connector, line from front brake fluid tank - 9. Front seal - 10. Vacuum line connector seat - 11. Hydraulic piston control rod - 12. Piston return spring - 13. Front control piston - 14. Diaphragm - 15. Rear control piston - 16. Vacuum duct - 17. Check valve return spring - 18. Vacuum duct port - 19. Rear seal - 20. Valve - 21. Control piston guide tube - 22. Valve control rod - 23. Filtering element - 24. Valve piston return spring - 25. Valve piston - 26. Vacuum and air control passageway - 27. Hydraulic piston control rod guide tube - 28. Front control piston packing - 29. Power brake front housing - 30. Hydraulic piston packing - 31. Hydraulic piston, front brake circuit - 32. Floating ring valve - 33. Piston return spring, front brake circuit - 34. Seal - 35. Hydraulic piston, rear brake circuit - 36. Master cylinder body - 37. Seal - 38. Piston end - A. Front chamber - B. Rear chamber.

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BRAKES

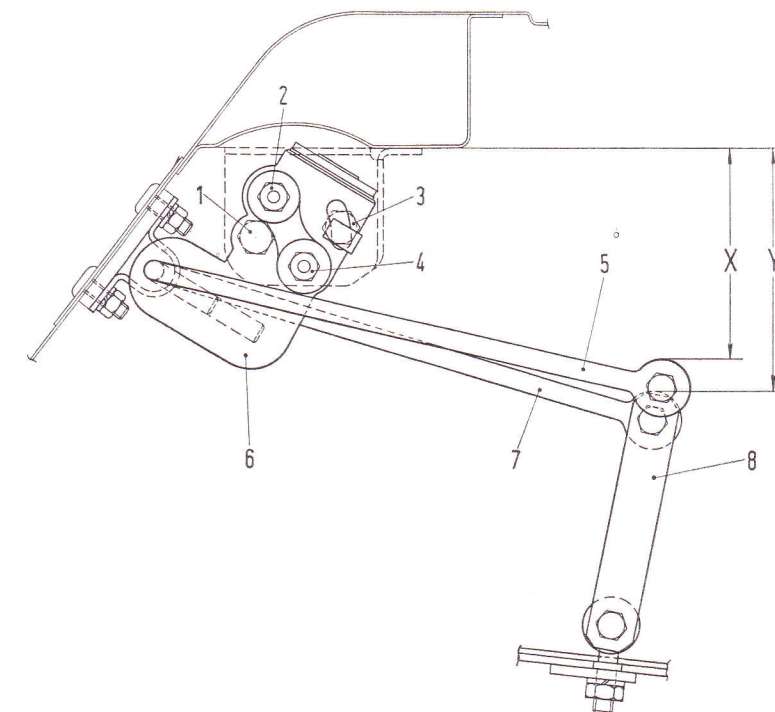
TABLE
III-m



- Power brake vacuum circuit.
- Hydraulic circuit actuating front wheel caliper upper cylinders.
- Hydraulic circuit actuating front wheel caliper lower cylinders and rear wheel caliper cylinders.

BRAKE SYSTEM DIAGRAM

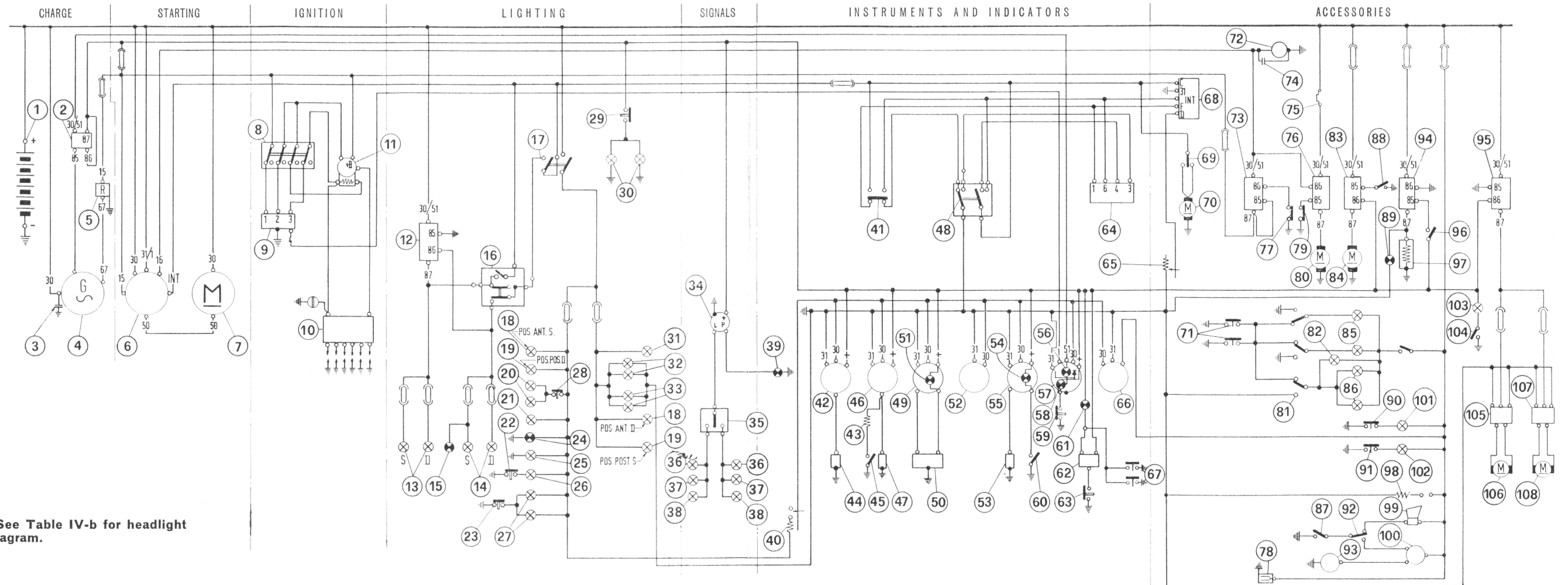
1. Brake fluid dual tank.
2. Stop light switch.
3. Vacuum power brake.
4. Hydraulic master cylinder.
5. Brake pedal.
6. Parking brake lever.
7. Front wheel calipers.
8. Rear wheel calipers.
9. Vacuum pump switch.
10. Vacuum pump.
11. Power brake check valve.
12. Vacuum tank.
13. Four-way connector for front and rear brakes.
14. Brake regulator torsion bars.
15. Brake regulator.
16. Three-way connector for rear wheel brakes.



BRAKE REGULATOR ADJUSTING DIAGRAM

1. Brake regulator attaching screw.
 2. Connector, regulator to rear brakes line.
 3. Brake regulator attaching screw.
 4. Connector, master cylinder to regulator line.
 5. Left torsion bar.
 6. Brake regulator.
 7. Right torsion bar.
 8. Links connecting torsion bars to control arms.
- $x = \begin{cases} \text{Coupe } 4.134 \pm .197 \text{ in } (105 \pm 5 \text{ mm}). \\ \text{Spider } 3.189 \pm .197 \text{ in } (81 \pm 5 \text{ mm}). \end{cases}$
 $y = \begin{cases} \text{Coupe } 4.606 \pm .197 \text{ in } (117 \pm 5 \text{ mm}). \\ \text{Spider } 3.661 \pm .197 \text{ in } (93 \pm 5 \text{ mm}). \end{cases}$

NOTE - Set upper ends of bars 5 and 7 so that they just contact the regulator piston. Tighten regulator attaching screws 1 and 3, after making sure that distances x and y between bars lower ends and body conform to specifications.



NOTE - See Table IV-b for headlight aiming diagram.

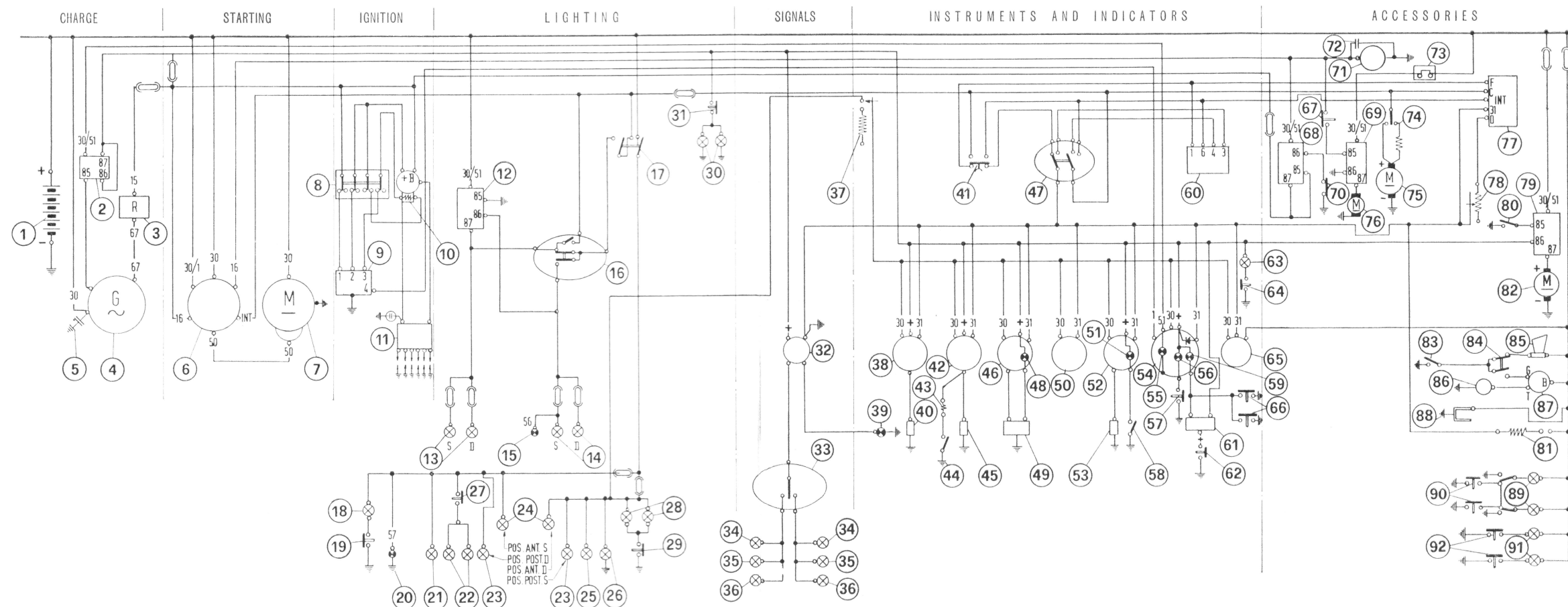
Basic wiring diagram, Coupe

1. Battery.
2. No-charge warning light relay.
3. Radio interference suppressor for alternator.
4. Alternator.
5. Voltage regulator.
6. Ignition, services and starting switch.
7. Starting motor.
8. Ignition switch.
9. Electronic ignition unit.
10. Ignition distributor.
11. Ignition coil.
12. Low beam relay (cuts in when turning on high beams).
13. Outboard headlights: low beam.
14. Inboard headlights: high beam.
15. High beam indicator (blue light).
16. High and low beam selector switch.
17. Outer lighting switch.
18. Front parking lights.
19. Rear parking lights.
20. Back-up light.
21. License plate light.
22. Trunk compartment light press switch.
23. Engine compartment light press switch.
24. Parking lights indicator (green light).
25. Cigarette lighter spot light.
26. Trunk compartment light.
27. Engine compartment light.
28. Back-up light press switch.

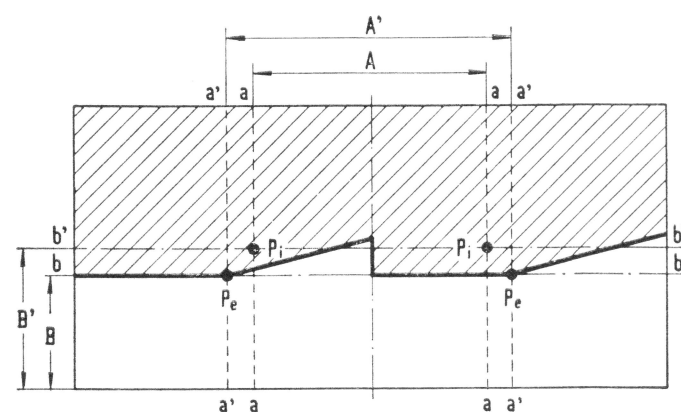
29. Stop lights press switch.
30. Stop lights.
31. License plate light.
32. Switch light.
33. Heater controls lights.
34. Turn signal flasher.
35. Turn signal selector switch.
36. Turn signal lights, front.
37. Turn signal side repeaters.
38. Turn signal lights, rear.
39. Turn signal tell-tale light.
40. Instrument light dimmer.
41. Windshield washer pump pedal.
42. Cooling water thermometer.
43. Water thermometer additional resistor.
44. Engine oil thermometer sending unit.
45. Water thermometer thermal switch: shifts thermometer hand to end of scale (danger) independently from pulses from sending unit 47.
46. Engine oil thermometer.
47. Water thermometer sending unit.
48. Windshield wiper three-position switch.
49. Fuel gauge.
50. Fuel gauge sending unit.
51. Low fuel warning light (red light).
52. Speedometer.
53. Engine oil pressure gauge sending unit.

54. Low oil pressure warning light (red light).
55. Engine oil gauge.
56. No-charge warning light (red light).
57. Engine tachometer.
58. Choke « on » indicator (yellow light).
59. Press switch for indicator 58.
60. Oil pressure switch for warning light 54.
61. Hand brake « on » and worn-down brake lining indicator (red light).
62. Hand brake « on » indicator (intermittent red light).
63. Press switch for indicator 62.
64. Windshield wiper motor intermitter (with built-in relay).
65. Windshield wiper speed regulator.
66. Electric clock.
67. Brake lining wear signalling device.
68. Windshield wiper unit.
69. Heater electrofan three-position switch.
70. Heater electrofan two-speed motor.
71. Courtesy and map lights jamb switch.
72. Electric fuel pump.
73. Electric fuel pump relay.
74. Radio interference suppressor for fuel pump.
75. Vacuum pump motor protector.
76. Vacuum pump relay.
77. Fuel pump oil pressure switch.
78. Inspection lamp socket.
79. Vacuum pump relay switch.

80. Vacuum pump.
81. Map lights switch.
82. Dome light.
83. Radiator fan relay.
84. Radiator electrofan.
85. Interior lights with built-in switch.
86. Map lights.
87. Horn button.
88. Thermal switch for relay 83.
89. Rear window defogger « on » indicator (orange light).
- 90-91. Open-door warning light jamb switch.
92. Horn switch.
93. Horn air compressor.
94. Rear window defogger relay.
95. Electric window lift relay.
96. Rear window defogger switch.
97. Rear window defogger.
98. Cigarette lighter.
99. Electric horn.
100. Air horn relay.
- 101-102. Open-doors warning lights.
103. Glove compartment light.
104. Glove compartment light press switch.
105. Left window lift switch.
106. Left window lift.
107. Right window lift switch.
108. Right window lift.



Basic wiring diagram, Spider.



Headlights aiming diagram (Coupe and Spider)

Coupe

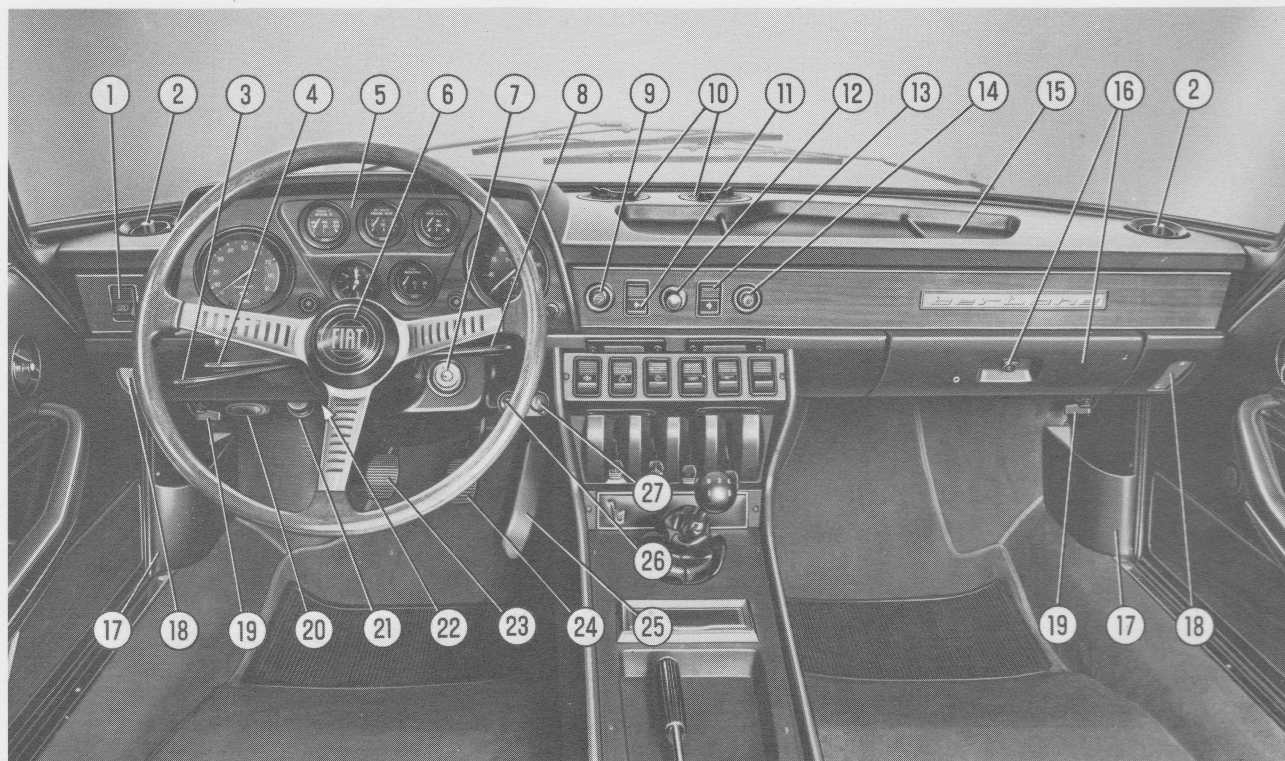
A = 34.4 in (87,5 cm)
A' = 48.8 in (124 cm)
B = C - 3.5 in (9 cm)
B' = C - 1.6 in (4 cm)
C = Height of headlight center from ground, measured when aiming headlights.

Spider

A = 29.1 in (74 cm)
A' = 37.2 in (94,5 cm)
B = C - 2.7 in (7 cm)
B' = C - 1.2 in (3 cm)

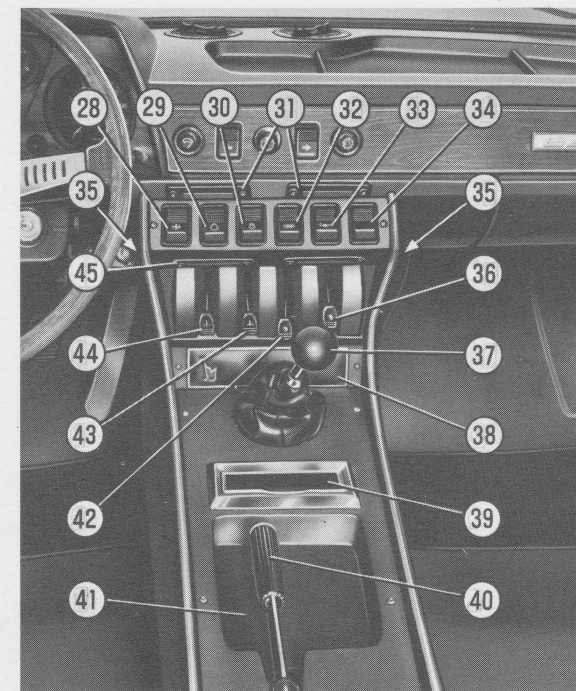
Above data are applicable to unloaded car, at 15 ft (5 m) from screen, both new and with settled suspensions.

1. Battery.
2. No-charge warning light relay.
3. Voltage regulator.
4. Alternator.
5. Radio interference suppressor for alternator.
6. Ignition, services and starting motor switch.
7. Starting motor.
8. Ignition switch.
9. Electronic ignition unit.
10. Ignition coil.
11. Ignition distributor.
12. Low beam relay (cuts in when turning on high beams).
13. Outboard headlights: low beam.
14. Inboard headlights: high beam.
15. High beam indicator (blue light).
16. Headlight selector switch and flasher.
17. Outer lighting three-position switch.
18. Trunk compartment light.
19. Trunk compartment light press switch.
20. Parking lights « on » indicator.
21. License plate light.
22. Back-up lights.
23. Rear parking lights.
24. Front parking lights.
25. License plate light.
26. Cigarette lighter spot light.
27. Back-up light press switch.
28. Engine compartment lights.
29. Press switch for lights 28.
30. Stop lights.
31. Stop light press switch.
32. Turn signal flasher.
33. Turn signal selector switch.
34. Front turn signal lights.
35. Turn signal side repeaters.
36. Rear turn signal lights.
37. Instrument lights dimmer and switch.
38. Engine oil thermometer.
39. Turn signal indicator.
40. Engine oil thermometer sending unit.
41. Windshield washer pump pedal.
42. Cooling water thermometer.
43. Additional resistor for thermometer 42.
44. Thermal switch for thermometer 42: shifts thermometer hand to end of scale (danger) independently from pulses from sending unit.
45. Water thermometer sending unit.
46. Fuel gauge.
47. Windshield wiper three-position selector switch.
48. Low fuel warning light (red light).
49. Fuel gauge sending unit.
50. Speedometer.
51. Low engine oil pressure warning light (red light).
52. Engine oil pressure gauge.
53. Oil pressure gauge sending unit.
54. Engine tachometer.
55. No-charge warning light (red light).
56. Choke « on » indicator (yellow light).
57. Press switch for indicator 56.
58. Oil pressure switch for warning light 51.
59. Hand brake « on » indicator (intermittent red light).
60. Windshield wiper motor intermitter (with built-in relay).
61. Flasher for indicator 59.
62. Press switch for indicator 59.
63. Glove compartment light.
64. Press switch for light 63.
65. Electric clock.
66. Brake lining wear signalling device.
67. Vacuum pump switch.
68. Electric fuel pump relay.
69. Vacuum pump relay.
70. Fuel pump oil pressure switch.
71. Electric fuel pump.
72. Radio interference suppressor for pump 71.
73. Vacuum pump motor protector.
74. Heater electrofan three-position switch.
75. Heater electrofan two-speed motor.
76. Vacuum pump motor.
77. Windshield wiper unit.
78. Windshield wiper speed regulator.
79. Relay for motor 82.
80. Thermal switch for relay 79.
81. Cigarette lighter.
82. Cooling water fan motor.
83. Horn button.
84. Horn switch.
85. Electric horn.
86. Pneumatic horn air compressor.
87. Pneumatic horn relay.
88. Inspection lamp socket.
89. Map light and switch.
90. Map light jamb switch.
91. Open-door warning light.
92. Open-door warning light jamb switch.

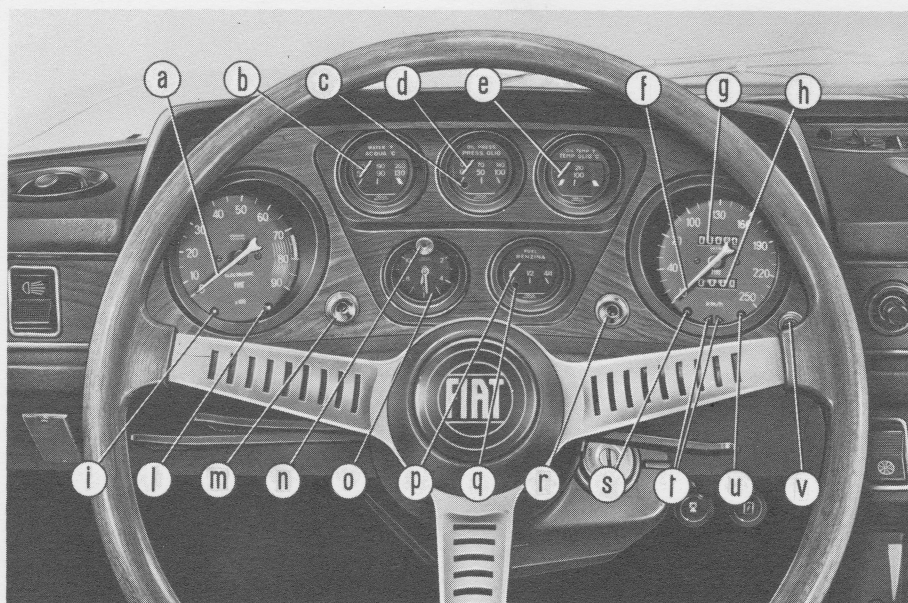


1. Outer lighting switch - 2. Adjustable fresh-air diffusers for directing air flow as desired - 3. Headlights selector lever - 4. Turn signal selector lever - 5. Instrument cluster - 6. Horn button - 7. Key-switch for ignition, services, starting and antitheft device - 8. Windshield wiper three-position control lever - 9. Windshield wiper speed regulator knob - 10. Adjustable diffusers for directing air flow against windshield or into car interior - 11. Left window lift switch - 12. Cigarette lighter - 13. Right window lift switch - 14. Instrument lights switch and dimmer knob - 15. Utility shelf -

16. Glove compartment push-button with lock (fuses are located inside glove compartment) - 17. Utility pockets (two) - 18. Front interior lights (two) - 19. Adjustable fresh-air diffusers under instrument panel - 20. Hood latch release knob - 21. Windshield wiper and washer pedal press switch - 22. Inspection lamp socket - 23. Clutch pedal - 24. Service and emergency brakes pedal - 25. Accelerator pedal - 26. Hand accelerator knob - 27. Choke knob - 28. Heater electrofan three-position switch - 29. Front interior lights switch - 30. Front and rear interior lights cut-out switch -

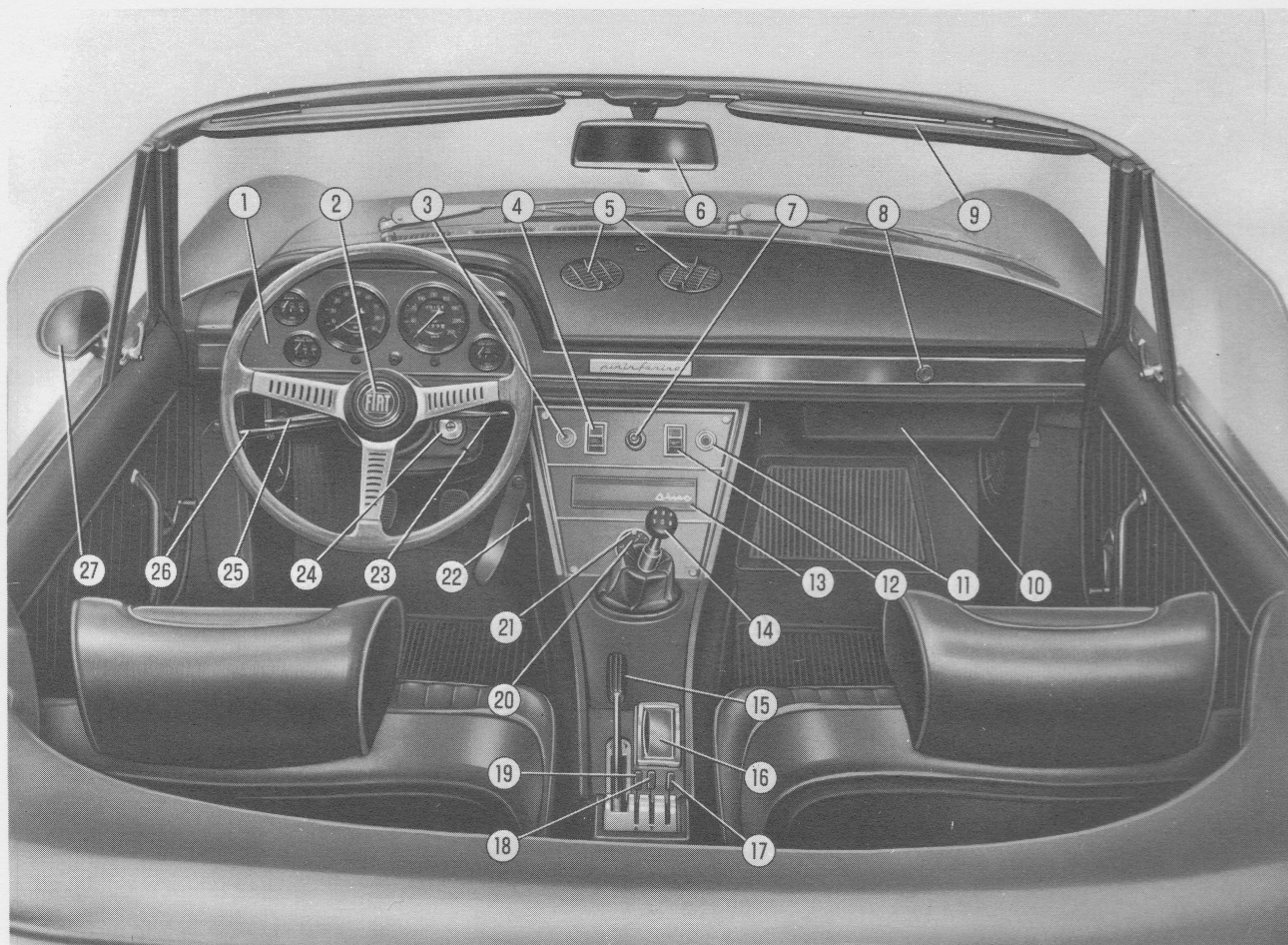


31. Heater switch and controls lights on console - 32. Rear window defogger switch - 33. Electric and electropneumatic horns change-over switch - 34. Spare switch - 35. Warm air inlet louvers, from heater to front interior - 36. Hot water tap control lever, from engine to heater - 37. Gearshift lever - 38. Trim cover for radio receiver recess - 39. Front ashtray - 40. Parking brake hand lever - 41. Utility tray on console - 42. Fresh-air inlet lid control lever - 43. Control lever for conveying air flow from heater to rear interior - 44. Control lever for conveying air flow from heater to front interior.



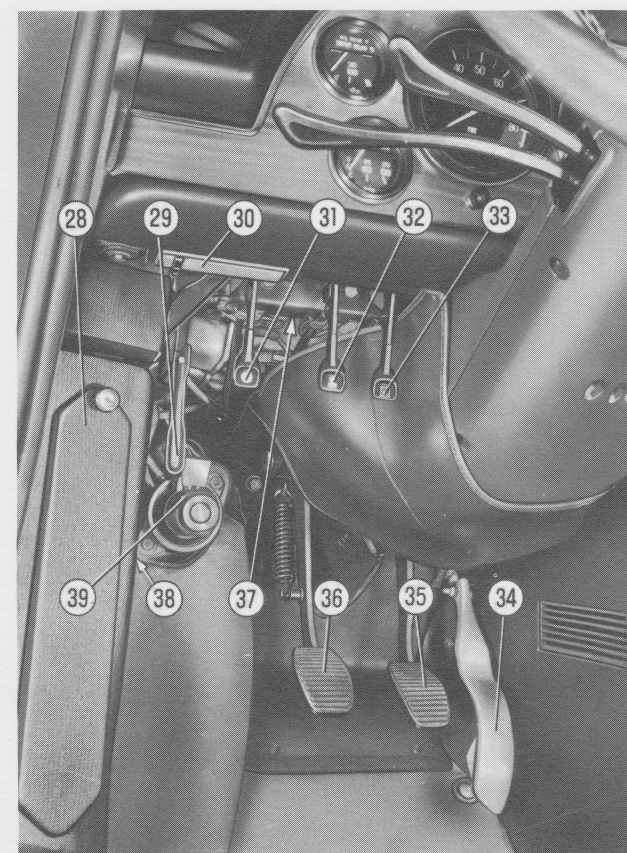
Instrument cluster.

a. Electronic engine tachometer - b. Engine coolant thermometer - c. Low oil pressure warning light - d. Oil gauge - e. Engine oil thermometer - f. Speedometer - g. Total mileage recorder - h. Trip recorder - i. No-charge warning light - l. Choke «on» indicator - m. Rear window defogger «on» indicator - n. Clock reset knob - o. Electric clock - p. Fuel gauge - q. Low fuel warning light - r. Hand brake «on» and worn-down brake linings warning light - s. Parking lights «on» indicator - t. Turn signal tell-tale light - u. High beam «on» indicator - v. Trip recorder zeroing knob.

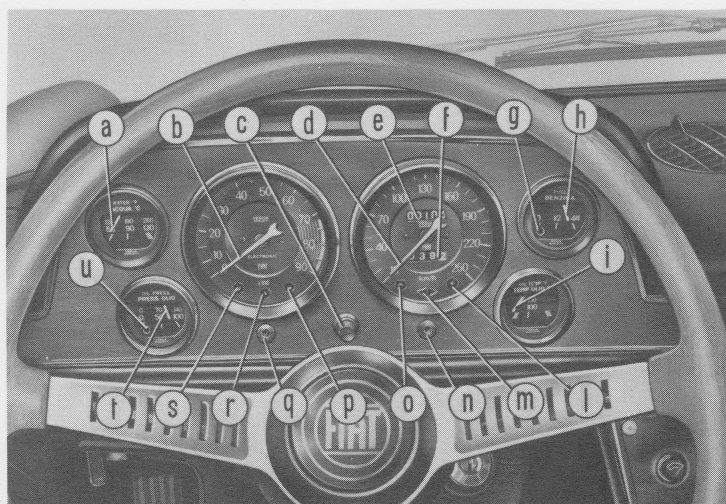


1. Instrument cluster - 2. Horn button - 3. Windshield wiper speed regulator knob - 4. Outer lighting three-position switch - 5. Adjustable fresh-air diffusers for directing air flow as desired - 6. Inside rear view mirror with anti-dazzle device - 7. Cigarette lighter - 8. Glove compartment lock - 9. Sun visor, passenger side, with vanity mirror - 10. Glove compartment - 11. Instrument lights switch and dimmer - 12. Electric and electropneumatic horns change-over switch

- 13. Trim cover for radio receiver recess - 14. Gearshift lever - 15. Parking brake hand lever - 16. Ashtray - 17. Heater air inlet trap control lever - 18. Hot water tap control lever, engine to heater - 19. Fresh-air inlet lid control lever - 20. Electric clock - 21. Clock reset knob - 22. Air conditioning electrofan three-position switch - 23. Windshield wiper three-position switch - 24. Key-switch for ignition, services, starting and antitheft device - 25. Turn signal selector lever -



26. Headlights selector lever - 27. Outside rear view mirror - 28. Fuse block - 29. Hood release lever - 30. Map lights (two) with switch - 31. Fresh-air inlet (through diffusers 38) control levers - 32. Choke control lever - 33. Hand accelerator lever - 34. Accelerator pedal - 35. Service and emergency brakes pedal - 36. Clutch pedal - 37. Inspection lamp socket - 38. Fresh-air diffusers under instrument panel - 39. Windshield wiper and washer pedal press switch.



a. Water thermometer - b. Engine tachometer - c. Trip recorder zeroing knob - d. Speedometer - e. Total mileage recorder - f. Trip recorder - g. Low fuel warning light - h. Fuel gauge - i. Engine oil thermometer - l. High beams « on » indicator - m. Turn signal tell-tale light - n. Speedometer retaining knob - o. Parking lights « on » indicator - p. Hand brake « on » indicator - q. Engine tachometer retaining knob - r. Choke « on » indicator - s. No-charge warning light - t. Engine oil pressure gauge - u. Low oil pressure warning light.