Alfa Romeo

inspection specifications

Alfetta

BERLINA - COUPE

This publication, intended for the Alfa Romeo Service Network, contains all the technical data and instructions to be observed when repairing and tuning Alfa Romeo cars.

It includes vehicles of similar basic characteristics and is divided into "operational" Groups (such as clutch, gearbox, steering, etc.) which are identified by the first two figures in the table number, as indicated in the following index.

Each one of these Groups is subdivided into three sections: "Operation", "Dimension" and "Recommended products".

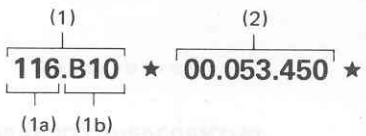
Data changes arising from development modifications on the car will be notified by means of the Technical Bulletins . It will be the responsability of the Service Network to amend this Publication accordingly, which will be updated periodically by the factory.

Important

For the correct use of this Publication, it is frequently necessary to identify and interpret correctly the symbols and numbers indicated on the chassis and on the engine of the vehicle in question, as shown on the first page of Group 00 - Car complete. In order to facilitate this operation, the numbering system is explained below.

A) CHASSIS NUMBERING

This consists of two groups as follows:



(1) **Type number:** including 5 digits, subdivided as follows:

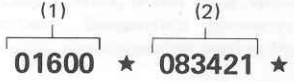
1a) **Basic type number:** allocated to any series of vehicles having a common design concept (i.e. 105 Giulia models, 116 Alfetta models).

1b) **Type variant number:** identifies within the basic type those vehicles that differ by variant details thereby altering their characteristics (i.e. 116.B10 Alfetta saloon 1600 LHD, 116.B20 Alfetta saloon 1.8 LHD, 116.36 Alfetta GTV 2000).

(2) **Serial number: allocated on a progressive basis by production.**

B) ENGINE NUMBERING

This is composed of the groups of figures i.e.



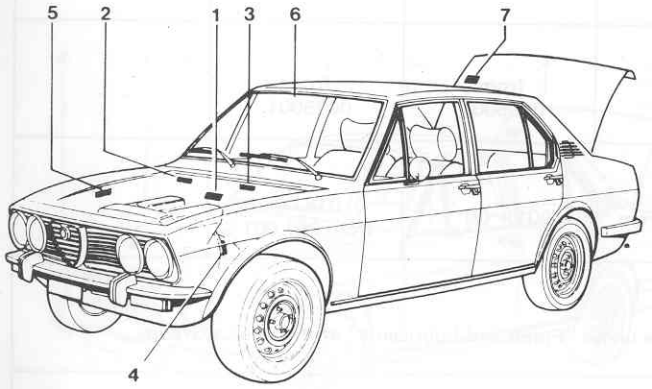
(1) **Type number:** allocated to each series of engines with common general characteristics (i.e. 016.00 Alfetta 1600 engine, 016.55 Alfetta 2000 engine, etc.).

(2) **Engine serial number:** allocated on a progressive basic by production.

INDEX

VEHICLE AND SERVICE IDENTIFICATION DATA

SALOON



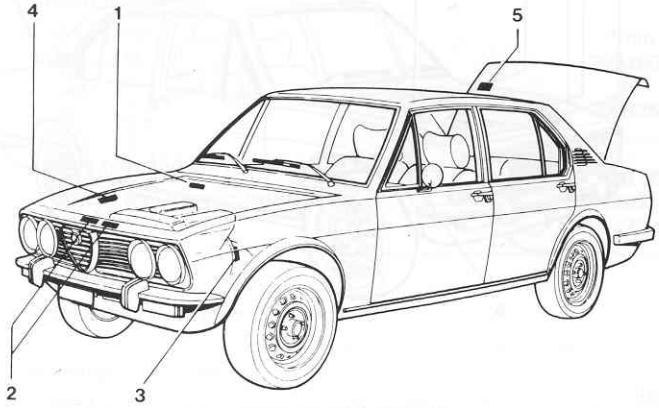
	Data	ALFETTA 1.6 LHD	ALFETTA 1.6 RHD
	Car type number		
1	– On type approval plate	116.00	116.02
2	– On scuttle	116.00	116.02
3	– On identification plate	116.00	–
	Progressive chassis serial No.		
2	– On scuttle	from 0001001	from 0001001
	Engine type and progressive serial number		
4	– On LH rear of cylinder block	016.00 from 000001*(1) 016.00 from *016001+(2)	
	Lubrication		
5	– On appropriate plate	See under "Fluids and Lubricants" of the various Group	
	Running-in instructions		
6	– Plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	
	Paints and varnishes		
7	– On appropriate plate	Indicates the product used for original paintwork	

(1) Engine conforming to stricter anti-pollution standard EEC 70/220.

(2) Engine conforming to stricter anti-pollution standard EEC 74/290 (the sign + instead of an asterisk after serial number distinguishes from EEC 70/220 version).

	Data	ALFETTA 1.6 - M.Y. 1977		ALFETTA 1.6 - M.Y. 1979	
		LHD	RHD	LHD	RHD
	Car type number				
1	– On type approval plate	116.00	116.02	116.00	– –
2	– On scuttle	116.00	116.02	116.00	– –
3	– On identification plate	116.00	116.02	116.00	– –
	Progressive chassis serial No.				
2	– On scuttle	from 0050001	from 0005001	from 0075001	– –
	Engine type and progressive serial number				
4	– On LH rear of cylinder block	01600 from *0016001 + (2)		016.00 from 257.001	– –
	Lubrication				
5	– On appropriate plate	See under "Fluids and Lubricants" of the various Groups.			
	Running-in instructions				
6	– Plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max engine speed is 4500 rpm			
	Paints and varnishes				
7	– On appropriate plate	Indicates the product used for original paintwork			

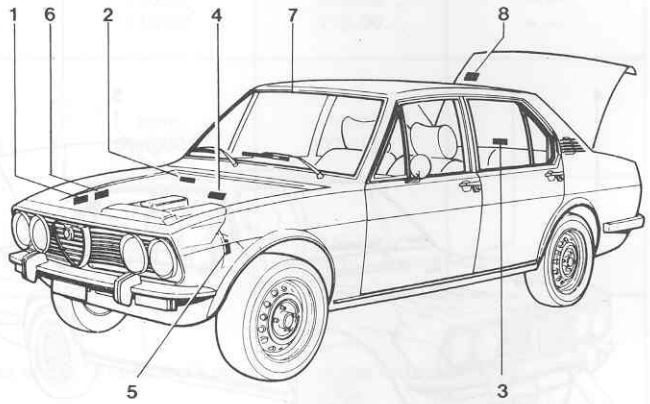
(2) Engine conforming to stricter anti-pollution standard EEC 74/290 (the sign + instead of an asterisk after serial number distinguishes from 70/220 version).



	Data	ALFETTA 1.6 - M.Y. '82
		LHD
2	**Tupe code** – On identification plate	113.11.0
1	**Car type number** – On bulkhead	116.B10
2	– On identification plate	116.B1A (1) 116.B1 (2)
1	**Chassis serial number** – On bulkhead	from 00.001.014
3	**Engine type and serial number** – On left at rear of crankcase	016.00 from 257.001
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups.
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork.
	Running-in instructions	For the first 500 km 300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm

(1) Long ratio gearbox version.
(2) Close ratio gearbox version.

	Data	ALFETTA 1.8 LHD	ALFETTA 1.8 RHD
	Car type number		
1	– On the approval plate	116.08	116.09
2	– On scuttle	116.08 (1)	116.09
3	– On boot water drain	116.08	–
4	– On identification plate	–	–
	Chassis number		
2	– On scuttle	from 2001001	from 0001001
	Engine type and progressive serial number		
5	– On LH rear of cylinder block	016.08 from * 00001* (2) 016.08 from *S00001 (3)	
	Lubrication		
6	– On appropriate plate	See under "Fluids and Lubricants" of the various groups	
	Running-in instructions		
7	– On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	
	Paints and varnishes		
8	– On appropriate plate	Indicates the product used for original paintwork	

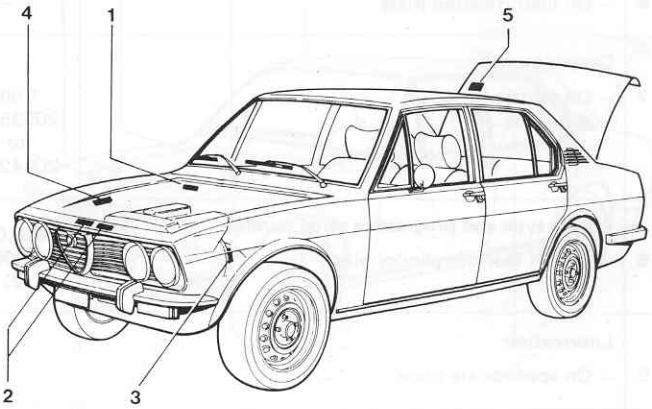


(1) Up to chassis 2116150: number stamped only on cars for export to France.
(2) Engine with no emission control devices.
(3) Engine conforming to anti pollution standard EEC 70/220 (letter S distinguishes from other versions in notes 2 and 4).

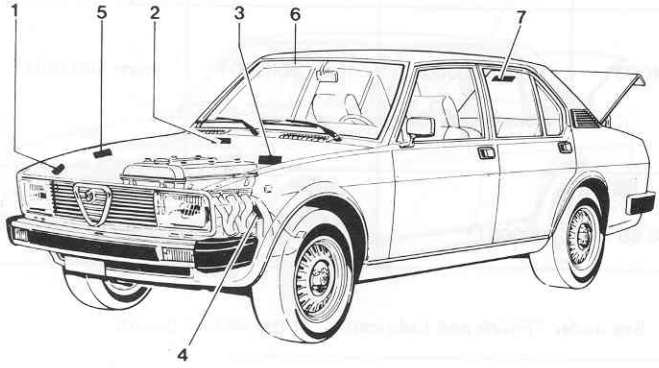
	Data	ALFETTA 1.8		ALFETTA 1.8		ALFETTA 1.8 - M.Y. '79	
		LHD	RHD	LHD	RHD	LHD	RHD
	Car type number						
1	– On type approval plate	116.42	– –	116.42	116.09	116.42	– –
2	– On scuttle	– –	– –	116.42 (1)	116.09	116.42	– –
3	– On boot water drain	116.42	– –	– –	– –	– –	– –
4	– On identification plate	– –	– –	116.42	– –	116.42	– –
	Chassis number						
2	– On scuttle	from 2093501 to 2094250	– –	from 2107001	from 0005001	from 2170001	– –
	Engine type and progressive serial number						
5	– On LH rear of cylinder block	016.08 *X00001* (2)	– –	016.08 from *X00001* + (4)		016.78 from 000001	– –
	Lubrication						
6	– On appropriate plate	See under "Fluids and Lubricants" of the various groups					
	Running-in instructions						
7	– On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the max. engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max engine speed is 4500 rpm					
	Paints and varnishes						
8	– On appropriate plate	Indicates the product used for original paintwork					

(1) Up to chassis 2116150: number stamped only on cars for export to France
(2) Engine with no emission control devices
(4) Engines conforming to stricter anti-pollution standard EEC 74/290 (the letter X and sign + after the serial number distinguish from other versions in notes 2 and 3)

	Data	ALFETTA 1.8 - M.Y. '82 LHD
2	**Type code** – On identification plate	113.12.0
1	**Car type number** – On bulkhead	116.B20
2	– On identification plate	116.B2 (1) / 116.B2A (2)
1	**Chassis serial number** – On bulkhead	from 00.001.015
3	**Engine type and serial number** – On left at rear of crankcase	016.78 from 000.001
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm



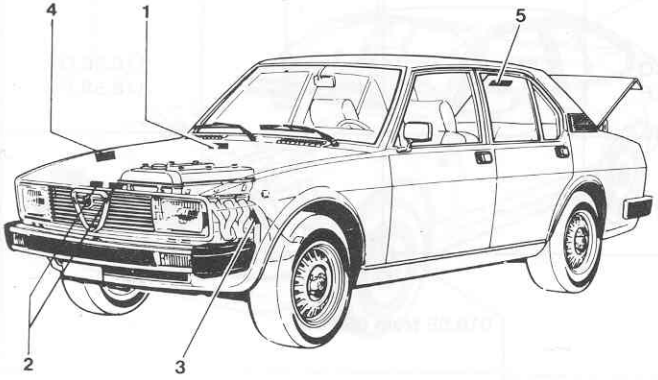
(1) Long ratio gearbox version
(2) Close ratio gearbox version



	Data	ALFETTA 2.0	
		LHD	RHD
	Car type number		
1	– On type approval plate	116.55	116.56
2	– On scuttle	116.55	116.56
3	– On identification plate	116.55	– –
	Progressive chassis serial No.		
2	– On scuttle	from 0001001	
	Engine type and progressive serial number		
4	– On LH rear of cylinder block	016.23 from *000001*	
	Lubrication		
5	– On appropriate plate	See under "Fluids and Lubricants" of the various groups	
	Running-in instructions		
6	– On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	
	Paints and varnishes		
7	– On appropriate plate	Indicates the product used for original paintwork	

	Data	ALFETTA 2.0 - 1978 model year		ALFETTA 2.0 - 1978 model year	
		Manual gearbox		Automatic transmission	
		LHD	RHD	LHD	RHD
	Car type number				
1	– On type-approval plate	116.55	116.56	116.55	116.56
2	– On scuttle	116.55	116.56	116.55	116.56
3	– On identification plate	116.55	– –	116.55	– –
	Progressive chassis serial No.				
2	– On scuttle	from 0040001	from 0003001 (1) from 03006101 (2)	from 2001001	from 4001001
	Engine type and progressive serial number				
4	– On IH rear of cylinder block	016.55 from *000001*		016.55 from *000001*	
	Lubrication				
5	– On appropriate plate	See under "Fluids and Lubricants" of the various groups			
	Running-in instructions				
6	– On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max. engine speed is 4500 rpm			
	Paints and varnishes				
7	– On appropriate plate	Indicates the product used for original paintwork			

(1) Numbering applicable to early s/nos, up to chassis 0006100
(2) New numbering applicable to EEC/ISO detoxed cars



	Data	ALFETTA 2.0 - M.Y. '82	
		LHD	RHD
2	**Type code** – On identification plate	113.05.0	113.06.0
1	**Car type number** – On bulkhead	116.55.0	116.56.0
2	– On identification plate	116.55.F (1) 116.55.G(2)	116.56.F (1) 116.56.G(2)
1	**Chassis serial number** – On bulkhead	from 00.112.021	from 03.010.011
3	**Engine type and serial number** – On left at rear of crankcase	016.55 from 000.001	
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups	
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork	
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	

(1) Long ratio gearbox version
(2) Close ratio gearbox version

	Data	ALFETTA 2.0 "QUADRIFOGLIO"		ALFETTA 2.0 - Model Year '82	
		LHD	RHD	LHD	RHD
2	**Type code** – On identification plate	113.32	– –	– –	113.43
1 2	**Car type number** – On bulkhead – On identification plate	115.55.O 116.55.F	– – – –	– – – –	116.56.O 116.56.F
1	**Chassis serial number** – On bulkhead	from 00.127.111	– –	– –	from 03.011.001
3	**Engine type and serial number** – On left at rear of crankcase	016.55 from 000.001			
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups			
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork			
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max. engine speed is 4500 rpm			

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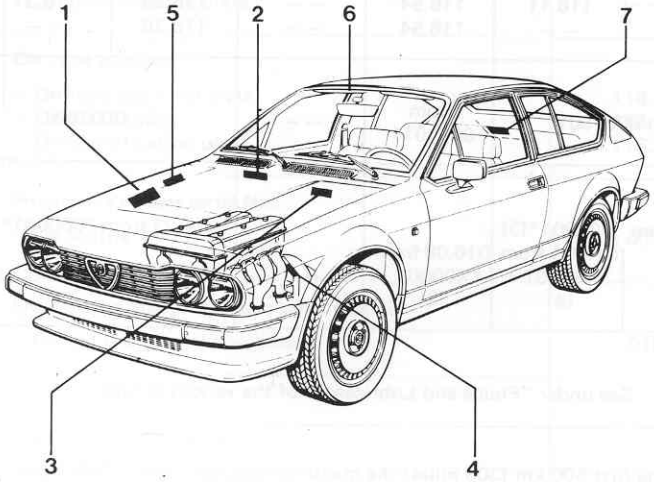


	Data	ALFETTA G.T. 1.6	
		LHD	RHD
	Car type number		
1	– On type approval plate	116.04	116.05
2	– On scuttle	116.04	116.05
3	– On identification plate	116.04	– –
	Progressive chassis serial number		
2	– On bulkhead	from 0001001	from 0001001
	Engine type and serial number		
4	– On LH rear of cylinder block	016.00 from *016001 + (1)	
	Lubrication		
5	– On appropriate plate	See under "Fluids and Lubricants" of the various group	
	Running-in instructions		
6	– Plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	
	Paints and varnishes		
7	– On appropriate plate	Indicates the product used for original paintwork	

(1) Engine conforming to stricter anti-pollution standard EEC 74/290 (the sign + instead of an asterisk after serial number distinguishes this version).

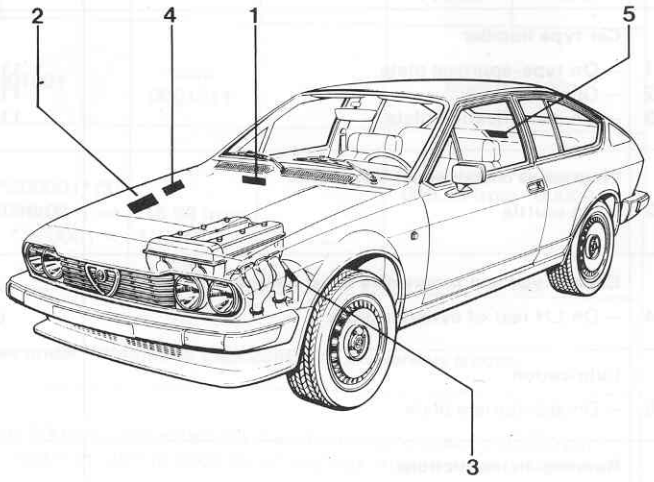
	Data	ALFETTA G.T. 1.8		ALFETTA G.T. 1.8		ALFETTA GTV 2.0	
		LHD	RHD	LHD	RHD	LHD	RHD
	Car type number						
1	– On type approval plate	116.10	116.11	116.54	– –	116.36	116.37
2	– On scuttle	116.10	116.11	116.54	– –	116.36	116.37
3	– On identification plate	116.10	– –	116.54	– –	116.36	– –
	Progressive chassis serial No.						
2	– On scuttle	from 0001001		from 0001011	– –	from 0001001	
	Engine type and progressive serial number						
4	– On LH rear of cylinder block	016.08 from *S00001*(3)	016.08 from *X00001 + (4)	016.08 from *X00001 + (4)	– –	016.23 from *000001*	
	Lubrication						
5	– On appropriate plate	See under "Fluids and Lubricants" of the various groups					
	Running-in instructions						
6	– On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max. engine speed is 4500 rpm					
	Paints and varnishes						
7	– On appropriate plate	Indicates the product used for original paintwork					

(3) Engine conforming to anti-pollution Standard EEC 70/220
(4) Engine conforming to stricter anti-pollution standard EEC 74/290 (the letter X and sign + after the serial number distinguish from EEC 70/220 version)

	Data	ALFETTA GTV - 1978 model year (2000)		ALFETTA GTV - 1980 model year (2000)	
		LHD	RHD	LHD	RHD
1	**Type code** – On identification plate	– –	– –	116.59•	116.60•
	Car type number				
1	– On type-approval plate	116.36	116.37	116.36	116.37
2	– On scuttle	116.36	116.37	116.36	116.37
3	– On identification plate	116.36	– –	116.36	– –
2	**Progressive chassis serial No.** – On scuttle	from 0030001	from 0010001 (1) from 00011919(2)	from 00050001	from 03015001
4	**Engine type and progressive serial number** – On LH rear of cylinder block	016.55 from *000001*		016.55 from *000001*	
5	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups			
6	**Running-in instructions** – On plate affixed to passenger side sunvisor	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max. engine speed is 4500 rpm			
7	**Paints and varnishes** – On appropriate plate	Indicates the product used for original paintwork			

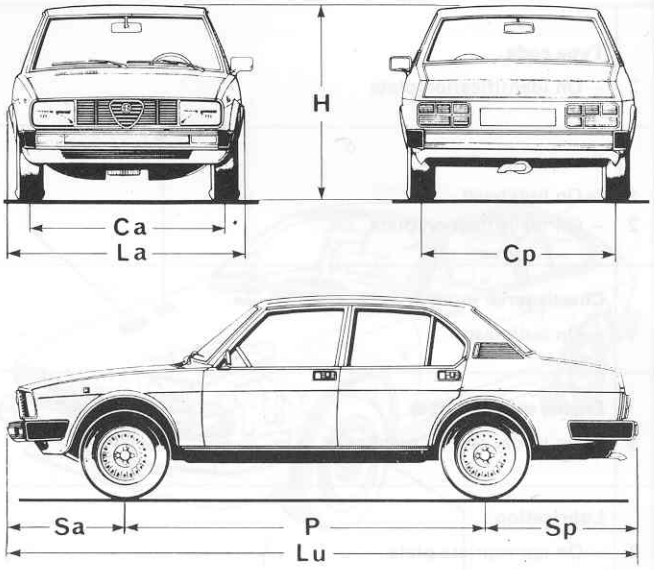
• For car identification purposes use only the factory type code no.
(1) Numbering applicable to early s/nos. up to chassis 0011918
(2) New numbering applicable to EEC/ISO detoxed cars

	Data	ALFETTA GTV 2.0 Model Year '82	
		LHD	RHD
2	**Type code** – On identification plate	116.59.1	116.60.1
1 2	**Type of car** – On bulkhead – On identification plate	116.36.0 116.36.C	116.37.0 116.37.C
1	**Chassis serial number** – On bulkhead	from 00.055.001	from 03.016.001
3	**Engine serial number** – On left at rear of crankcase	016.55 from 000.001	
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups	
5	**Paint products** – On appropriate plate	Indicate the products used for original paintwork	
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 or 1000 miles) the maximum engine speed is 4500 rpm	



	Data	ALFETTA GTV - Model Year '83	
		LHD	RHD
2	**Type code** – On identification plate	113.17	113.18
	Car type number		
1	– On bulkhead	116.36.O	116.37.O
2	– On identification plate	116.36.C	116.37.C
	Chassis serial number		
1	– On bulkhead	from 00.062.501	from 03.017.501
	Engine serial number		
3	– On left at rear of crankcase	016.55 from 000.001	016.55 from 000.001
	Lubrication		
4	– On appropriate plate	See under "Fluids and Lubricants" of the various groups	
	Paint products		
5	– On appropriate plate	Indicates the products used for original paintwork	
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	

DIMENSIONS - WEIGHTS			Saloon 1600	Coupé 1600
			116.00 116.02	116.04 116.05
Wheelbase		P	2510	2400
Track	Front	Ca	1360	1360
	Rear	Sp	1358	1358
Overall length		Lu	4240 (1) 4280 (2)	4190
Overhang	Front	Sa	700 (1) 710 (2)	820
	Rear	Sp	1030 (1) 1060 (2)	970
Overall width		La	1620	1660
Overall height (unladen)		H	1430	1330
Overall clearance (laden)			125	122
Minimum turning radius			5050	5000
Kerb weight		kg	1060	1080
Max permissible weight		kg	1460	1400
Payload		kg	400	320
Max permissible axle weight	Front	kg	800	800
	Rear	kg	880	880
Max. towing weight		kg	1130 (3) 1200 (4) (5)	1000
Max. nose weight		kg	70	70
Number of seats	Front		2	2
	Rear		3	2



(1) To chassis s/nos. { 11600 - 0050000 / 11602 - 0005000

(2) From chassis s/nos. { 11600 - 0050001 / 11602 - 0005001

(3) Applies to cars for Italy

(4) Applies to cars for Europe, except Italy

(5) Applies to cars for Germany, with vehicle fully laden and maximum trailer weight, 15% gradient can be negotiated

			Saloon 1800 - 2000			
			116.08 (1) 116.09	116.42 (2) 116.09	116.55 (3) 116.56	116.55 (4) 116.56
Wheelbase		P	2510			
Track	Front	Ca	1360			
	Rear	Cp	1350 (5) 1358 (6)	1358		
Overall length		Lu	4280		4385	
Overhang	Front	Sa	710		825	
	Rear	Sp	1060		1050	
Overall width		La	1620		1640	
Overall height (unladen)		H	1430			
Overall clearance (laden)			125			
Minimum turning radius			5050			
Kerb weight		kg	1060		1140	1165
Max. permissible weight		kg	1460		1540	1565
Payload		kg	400			
Max. permissible axle weight	Front		800			
	Rear		880		920	
Max. towing weight		kg	800	1130 (9) 1200 (10) (11)	1200*	
Max. nose weight		kg	70			
Number of seats	Front		2			
	Rear		3			

(1) To chassis s/no. 0.005.000
(2) From chassis s/no. 0.005.001
(3) Vehicle with manual gearbox
(4) Vehicle with automatic transmission
* For Germany gradeability 15%

(5) To chassis s/nos. 116.08 2069896 - 116.09 0002295.
(6) From chassis s/nos. 116.08 9069870 - 116.00 0002296.
(9) Applies to cars for Italy.

(10) Applies to cars for Europe except Italy.
(11) Applies to cars for Germany: with vehicles fully laden and maximum trailer weight, 15% gradient can be negotiated.

			Coupé 1800 - 2000				Saloon - M.Y. '82	
							1600-1800	2000
			116.10 116.11	116.54	116.36 116.37	116.59 116.60	113.11 113.12	113.05-113.06 113.32-113.43
Wheelbase		P	2400				2510	
Track	Front	Ca	1360			1364 (7) 1374 (8)	1366	
	Rear	Cp	1358			1358 (7) 1368 (8)	1358	
Overall length		Lu	4190		4205	4260	4385	
Overhang	Front	Sa	820		830	855	825	
	Rear	Sp	970		975	1005	1050	
Overall width		La	1660			1664	1640	
Overall height (unladen)		H	1330				1430	
Overall clearance (laden)			122				125	
Minimum turning radius			5000				5050	
Kerb weight		kg	1054		1080	1110	1120	1140
Max. permissible weight		kg	1374		1400	1450	1545	1565
Payload		kg	320			340	425	
Max. permissible axle weight	Front		800					
	Rear		880				920	
Max. towing weight		kg	800	800*	1000*		1190	1200
Max. nose weight		kg	70					
Number of seals	Front		2					
	Rear		2				3	

(7) Rims 5½ J x 14 and 6 J x 15

(8) Rims 6 J x 14

*For Germany gradeability 15%

MAINTENANCE SCHEDULE

No.	OPERATIONS	A	B	km/1000					Notes (1)
				25	45	65	85	105	
00-10	Test vehicle	x	x						
00-20	Check tightening of all fasteners	x							
01-10	Change engine oil and filter element. Check lubrication system for leaks	x	x	x	x	x	x	x	(2)
01-20	Check valve clearance and timing chain tension; adjust, if necessary	x	x	x	x	x	x	x	
01-40	Check drive belts of alternator and air conditioner compressor and self-levelling suspension pump ▲	x	x	x		x		x	
01-50	Replace drive belts of alternator, air conditioner compressor and self-levelling suspension pump ▲				x		x		
01-70	Check tightening of cylinder head nuts	x	x						
04-10	Check fuel system for leaks	x	x	x	x	x	x	x	
04-20	Replace air cleaner element		x	x	x	x	x		(3)
04-30	Clean fuel filter and change element	x			x		x		
04-40	Clean carburettor jets and flame trap of exhaust gas ricirculation system	x		x	x	x	x	x	
04-50	Check and if necessary, adjust idle speed, fast idle * and exhaust emission	x	x	x	x	x	x	x	
05-10	Check contact breaker point gap (10). Check ignition timing; adjust as necessary		x	x	x	x	x	x	

No.	OPERATIONS	A	B	km/1000					Notes (1)
				25	45	65	85	105	
05-20	Replace spark plugs			x	x	x	x	x	(4)
07-10	Check coolant level. Check cooling system for leaks.	x	x	x		x		x	(5)
07-20	Replace coolant and check cooling system for leaks				x		x		(6)
12-10	Check clutch fluid level •	x	x	x	x	x	x	x	(7)
13-10	Replace gearbox oil (manual and automatic) and differential oil	x			x		x		
13-20	Check gearbox oil level (manual and automatic) and differential oil level		x	x		x		x	
17-10	Check condition of half shaft and steering box boots	x	x	x	x	x	x	x	
21-10	Check, and if necessary, adjust front wheel alignment	x							
22-10	Check braking system	x	x	x	x	x	x	x	
22-20	Check brake pad wear and replace pad as required		x	x	x	x	x	x	(8)
22-30	Replace brake fluid				x		x		(9)
22-40	Check brake fluid level	x	x	x		x		x	(7)
22-50	Check, and if necessary, adjust handbrake lever travel	x		x	x	x	x	x	
25-10	Check self-levelling suspension fluid level	x			x		x		

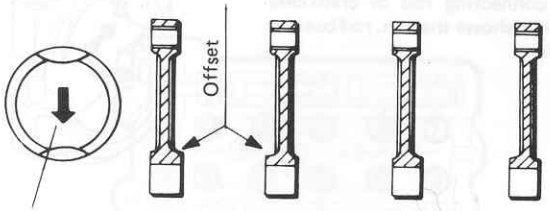
No.	OPERATIONS	A	B	km/1000					Notes (1)
				25	45	65	85	105	
25-20	Check self-levelling suspension operation (trim) ▲	x			x		x		
28-10	Check tyre pressure	x	x	x	x	x	x	x	(5)
56-10	Lubricate door, boot and bonnet hinges; if necessary adjust strikers	x	x	x	x	x	x	x	(5)
65-10	Check battery electrolyte level and top up, if necessary. Tighten and grease battery terminals	x	x	x	x	x	x	x	(5)
65-20	Check headlamp beam aim and adjust as required	x							

(1) A = 700 to 1200 km; B = 5000 to 6000 km
(2) To be carried out also at km/1000: 15, 35, 55, 75, 95 or once a year. Check the oil level frequently (when refuelling).
(3) Check and clean the element at the intervals indicated under note (2), but more frequently when driving mainly under dusty conditions.
(4) Check the spark plugs at the intervals indicated under note (2).
(5) To be carried out frequently (when refuelling).
(6) To be carried out every two years.
(7) To be carried out also at the intervals indicated under note (2).
(8) To be carried out also at the intervals indicated under note (2), and more frequently for sporty and mountain driving.
(9) To be carried out yearly
(10) Only for vehicles without electronic ignition
▲ Only for vehicles with automatic transmission
* Only for model year 1978 2000 cc. vehicles with manual gearbox
● Only for vehicle with manual gearbox

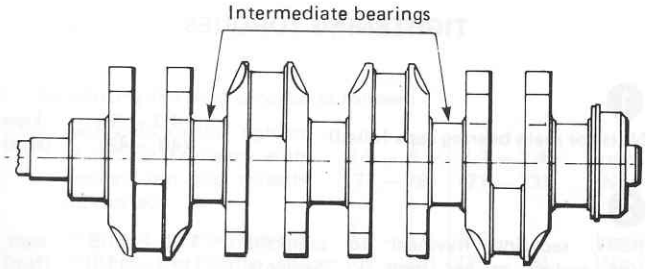
OPERATION

1

FITTING CYLINDER LINERS, PISTONS, CONNECTING RODS, GUDGEON PINS



Arrow (only 1800 and 2000 cc. engines)



A) Cylinder liners and pistons

These components must be paired by using parts of the same grade (1), identified by paint marks of the same colour on the piston crown and on the outside of the cylinder liner, as detailed below:

GRADE	A	B	C
COLOUR	BLUE	PINK	GREEN

B) Pistons and gudgeon pins

These two components must be paired by using parts of the same grade (1), identified by paint marks of the same colour (i.e. white or black) on the inside of the gudgeon pin and on the outside of the gudgeon pin bore.

C) Pistons and connecting rods

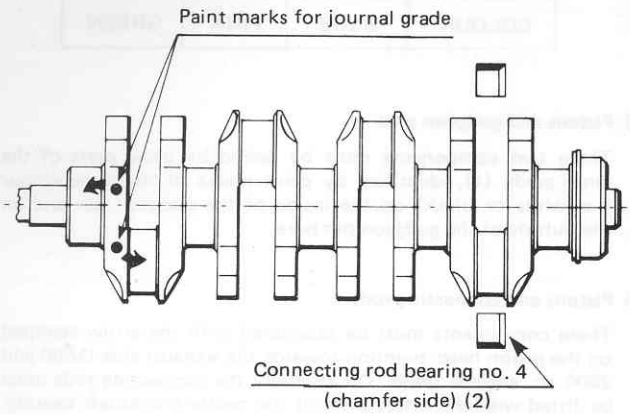
These components must be assembled with the arrow stamped on the piston head pointing towards the exhaust side (1800 and 2000 cc. engines only). On assembly the connecting rods must be fitted with the offset towards the centre crankshaft bearing.

N.B. - The difference in weight among con. rods (complete with caps and bolts) should not exceed 2 grams.
- The difference in weight among pistons (complete with pins and rings) should not exceed 4 grams.

(1) For component sizes refer to items 3 and 4 of "Dimensions".

1

PAIRING OF CON. ROD & MAIN BEARINGS

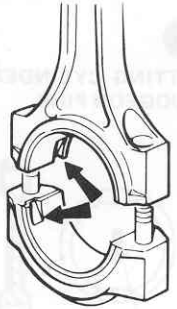


A) Con. rod and main bearings

When assembling, the crankshaft and connecting rod bearings (1) must be selected to ensure that the paint mark (red or blue) corresponds with that on the crankpin concerned. The connecting rod bearing (no. 4) must be assembled with the chamfer towards the flywheel side (2).

B) Con. rod and main bearing caps

On assembly the bearing caps must be fitted with the locating notch on the same side (intake or exhaust) as the locating notch on the connecting rod or crankcase (sketch shows the con. rod bearing cap).



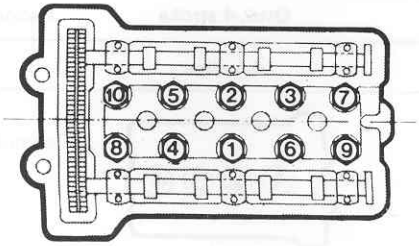
TIGHTENING TORQUES

1 Nuts for main bearing caps (oiled)	4.7 – 5 (46 – 49)	kgm (Nm)
2 Bolts, securing flywheel to crankshaft (use sealant as per item 3, "Sealants")	11.2 – 11.5 (110 – 113)	kgm (Nm)
3 Nuts for con. rod bearing caps (oiled)	5 – 5.53 (49 – 52)	kgm (Nm)
4 Nut securing pulley to crankshaft (oiled)	19 – 20 (187 – 195)	kgm (Nm)

(1) For component sizes refer to items 3 and 4 of "Dimensions".
(2) Applies only to 1800 (up to 016.08 *X70571*+) and 2000 (up to 016.23 *069866* and 016.55 *000051*) cc. engine with bearings having chamfer of 1.5 mm on one side only as shown in figure.

5

	1600 2000	1800	
Cylinder head nut tightening sequence			



1) On refitting the head proceed as follows:

– with cold engine, tighten in proper sequence with washer, nut and threads lubricated	7.9 – 8.1 (77 – 79)	7.2 – 7.4 (71 – 73)	kgm (Nm)
– with hot engine, tighten without slackening to:	8.4 – 8.5 (82 – 83)	7.6 – 7.7 (75 – 76)	kgm (Nm)
2) After having covered about 1000 km, slacken nuts by one turn in proper sequence when engine is cold, lubricate washer and nut contact surfaces and re-tighten to:	8.8 – 9 (86 – 88)	7.8 – 8 (76 – 78)	kgm (Nm)

N.B.: The procedure in 2) above applies also when coupons A and B are carried out.

6

Camshaft bearing cap nuts (oiled)	2 – 2.5 (20 – 22)	kgm (Nm)

7

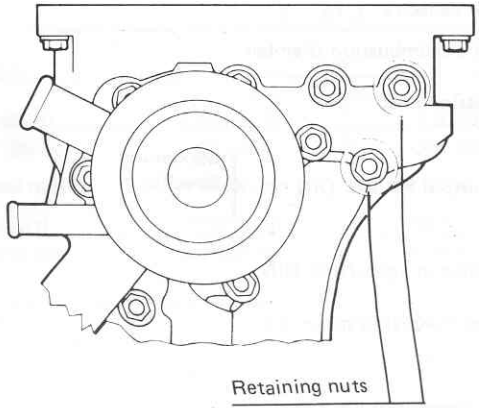
Main bearing lock nut (oiled)	1.1 – 1.3 (11 – 13)	kgm (Nm)

8

Cylinder head cover nuts	1.4 – 2 (14 – 20)	kgm (Nm)

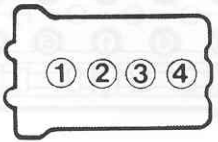
9

Nuts securing front cover and water pump to cylinder block (1)	1.36 – 2.25 (14 – 22)	kgm (Nm)

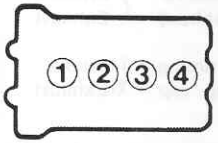


(1) 7 mm diameter studs only.

DIMENSIONS

① Engine data		1600 cc. ENGINES	1800 cc. ENGINES	
		016.00	016.08 (2)	016.08 (3)
Cycle		Otto, 4 stroke		
No. of cylinders		4 in-line		
Cylinder numbering				
Bore - stroke	mm	78 x 82	80 x 88.5	
Cylinder capacity	cc	1570	1779	
Volume of combustion chamber	cc	49	52	
Compression ratio		9	9.5	
Power output HP/kW DIN	Maximum	109 (80)	122 (89.7)	118 (86.8)
	Specific	69.4 (51)	68.5 (50.4)	66.3 (48.8)
		at 5600 rmp	at 5500 rpm	at 5300 rpm
Max. torque in kgm (Nm) DIN		14.4 (141) at 4300 rpm	17 (167) at 4400 rpm	17 (167) at 4400 rpm
Mean effective piston speed (1)		15.3	16.25	15.6

(1) At max. power output speed
(2) Engines with no emissions control devices (up to 016.08 *99999*) and engines conforming to anti-pollution standard EEC 70/220.
(3) Engines with no emissions control devices (from 016.08 *X00001*) and engines conforming to stricter anti-pollution standard EEC 74/290.
N.B.: Engines are distinguished by different serial numbers (letters and numbers). See group 00.

Engine data		1800 cc. ENGINES	2000 cc. ENGINES	
		016.78	016.23	016.55
Cycle		Otto, 4 stroke		
No. of cylinders		4 in-line		
Cylinder numbering				
Bore - stroke	mm	80 x 88.5	84 x 88.5	
Cylinder capacity	cc	1779	1962	
Volume of comustion chamber	cc	52	61.3	
Compression ratio		9.5	9	
Power output HP/kW DIN	Maximum	122 (89.7)	120 (88.2)	130 (96)
	Specific	68.5 (50.4)	61 (45)	66 (49)
		at 5300 rmp	at 5300 rpm	at 5400 rpm
Max. torque in kgm (Nm) DIN		17 (167) at 4400 rpm	17.9 (176) at 4400 rpm	18.1 (178) at 4400 rpm
Mean effective piston speed (1)		15.6	15.6	15.93

(1) At max. power output speed
(2) Engines with no emissions control devices (up to 016.08 *99999*) and engines conforming to anti-pollution standard EEC 70/220.
(3) Engines with no emissions control devices (from 016.08 *X00001*) and engines conforming to stricter anti-pollution standard EEC 74/290.
N.B. Engines are distinguished by different serial numbers (letters and numbers). See group 00.

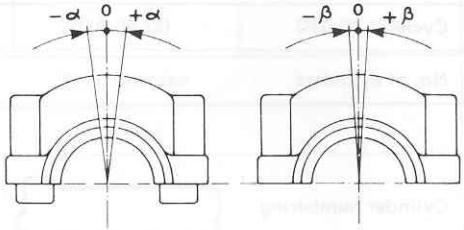
2

Timing data
(all dimensions are with engine cold)

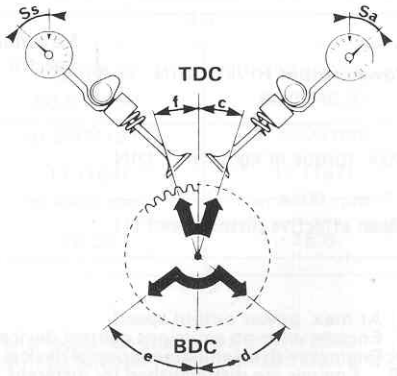
			1600 cc. ENGINES 016.00 (1)	016.00 (3)
Camshafts	Intake		105.02.03.200.01	105.20.03.200.00
	Exhaust		105.02.03.200.01	105.02.03.200.00
Nominal lift			9	9
Clearance between the heel radius of the cam and tappet head	Intake		0.400 to 0.450	
	Exhaust		0.450 to 0.500	
Angular position of timing mark on front bearing cap	Intake	β	+1°	+1°
	Exhaust	α	-5°30′	-4°
INTAKE – Opens	Linear displacement of tappet	Sa	0.25	
	Corresponding angular movement (BTDC)	c	17° to 20°	14°46′ to 17°46′
INTAKE – Closes	Linear displacement of tappet	Sa	0.25	
	Corresponding angular movement (ABDC)	d	41°44°	38°46′ to 41°46′
EXHAUST – Opens	Linear displacement of tappet	Ss	0,20	
	Corresponding angular movement (BBDC)	e	50° to 53°	44°46′ to 47°46′
EXHAUST – Closes	Linear displacement of tappet	Ss	0.20	
	Corresponding angular movement (ATDC)	f	8° to 11°	8°46′ to 11°46′

(1) Engines with no emissions control devices and engines conforming to anti-pollution standard EEC 70/220
(3) Engines conforming to stricter anti-pollution standard EEC 74/290
N.B.: Engines are distinguished by different serial numbers (letters and numbers). See group 00

REFERENCE MARKS ON THE FRONT BEARING CAP
(viewed from flywheel side)

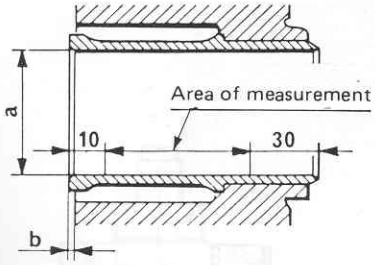


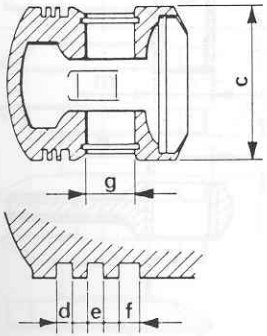
CHECKING VALVE OPENING AND CLOSING ANGLES
(Crankshaft rotates in anticlockwise direction when viewed from flywheel side)

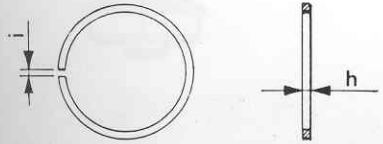


	1800 cc. ENGINES				2000 cc. ENGINES	
	016.08 (1)	016.08 (2)	016.08 (3)	016.78	016.25	016.55
	105.48.03.200.01 105.48.03.200.01		105.20.03.200.00 105.20.03.200.00	105.48.03.200.01 105.48.03.200.01	105.20.03.200.00	105.48.03.200.01
	9.5		9	9.5	9	9.5
	0.400 – 0.450 0.450 – 0.500					
β α	–0° 15′ –4° 15′	+ 1° 15′ –4° 15′	+ 1° –4°	–0° 15′ +0° 15′	+ 1° –4°	–0° 15′ +0° 15′
Sa	0.25					
c	21°30′ – 24°30′	18°30′ – 21°30′	14°46′ – 17°46′	21°30′ – 24°30′	14°46′ – 17°46′	21°30′ – 24°30′
Sa	0.25					
d	40°30′ – 43°30′	43°30′ – 46°30′	38°46′ – 41°46′	40°30′ – 43°30′	38°46′ – 41°46′	40°30′ – 43°30′
Ss	0.20					
e	49°30′ – 52°30′		44°46′ – 47°46′	40°30′ – 43°30′	44°46′ – 47° 46′	40°30′ – 43°30′
Ss	0.20					
f	12°30′ – 15°30′		8°46′ – 11°46′	21°30′ – 24°30′	8°46′ – 11°46′	21°30′ – 24°30′

(1) Engines with no emissions control devices and engines conforming to anti-pollution standard EEC 70/220.
(2) Engines with no emissions control devices (from 01608 *X00001*)
(3) Engine conforming to stricter anti-pollution standard EEC 74/290
N.B.: Engines are distinguished by different serial numbers (letters and numbers). See group 00.







3

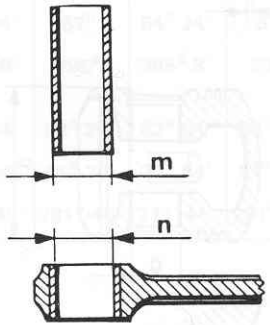
Liners, pistons, rings, pins

INSPECTION DATA

		1600 cc.	1800 cc.	2000 cc.
a) Liner bore	Class A (Blue)	77.985–77.994	79.985–79.994	83.985–83.994
	Class B (Pink)	77.995–78.004	79.995–80.004	83.995–84.004
	Class C (Green)	78.005–78.014	80.005–80.014	84.005–84.014
b) Protrusion of liners above cylinder block face (1)		0.00–0.06	0.01–0.06	
Max. ovality and taper of liners			0.01	
c) Piston diameter (2)	Class A (Blue)	77.945–77.955	79.945–79.955	83.935–83.945
	Class B (Pink)	77.955–77.965	79.955–79.965	83.945–83.955
	Class C (Green)	77.965–77.975	79.965–79.975	83.955–83.965
d) Top compression ring groove width		1.535-1.555(3) 1.525-1.545(4)	1.525–1.545	
e) 2nd compression ring groove width			1.775–1.795	
f) Oil control ring groove width			4.015–4.035	4.515–4.535
g) Pin seat bore	Black		22.000–22.002	
	White		22.003–22.005	
h) Ring thickness	Top compression ring		1.478–1.490	
	2nd compression ring		1.728–1.740	
	Oil control ring		3.978–3.990	4.478–4.490
i) Oil ring gap (5)	Top compression ring		0.30–0.45	0.25–0.40
	2nd compression ring	0.30–0.40	0.30–0.45	
	Oil control ring	0.30–0.45	0.25–0.40	

(1) To take this reading, fit liner retaining tools and tighten nuts to 1 – 1.5 kgm (10 – 15 Nm).
(2) To be measured perpendicularly to gudgeon pin, at distances from lower edge of piston skirt as follows: 1600 engine (Borgo piston - 17 mm; Mondial piston - 20 mm) 1800 engine - 15 mm; 2000 engine - 17 mm.
(3) Borgo piston
(4) Mondial piston
(5) To be measured inside ring gauge or cylinder liner.

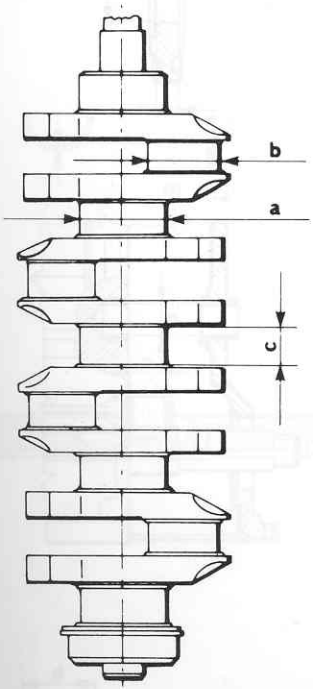
		1600 cc.	1800 cc.	2000 cc.
m) Pin diameter	Black		21.994–21.997	
	White		21.997–22.000	
n) Small end bush bore			22.009–22.015	



FITTING DATA

– Liner/piston play	mm	0.030–0.040	0.030–0.049	0.040–0.059
– Ring/groove clearance	Top compression ring	0.045–0.077(1) 0.035–0.067(2)	.0.035–0.067	
	2nd compression ring		0.035–0.067	
	Oil control ring		0.025–0.057	
– Pin/seat bore clearance			0.003–0.008	
– Pin/small end clearance	Black		0.008–0.021	
	White		0.005–0.018	

(1) Borgo piston
(2) Mondial piston



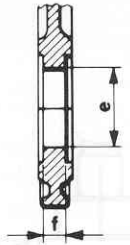
4

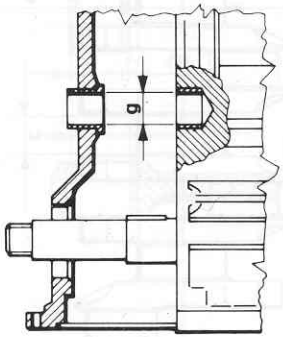
Crankshaft - crankcase - connecting rods - bearings - flywheel

INSPECTION DATA

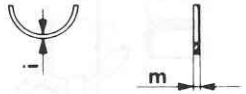
a) Main journal diameter	Red	59.961 – 59.971
	Blue	59.951 – 59.961
b) Crankpin diameter	Red	49.988 – 49.998
	Blue	49.978 – 49.988
c) Width of centre main bearing journal		30.000 – 30.035
– Maximum permissible ovality for main journals and crankpins		0.007
– Maximum permissible taper for main journals and crankpins		0.01
– Maximum variation in parallelism between main journals and crankpins		0.015
– Maximum misalignment among main bearing journals		0.04
– Maximum misalignment between the centrelines of the two pairs of crankpins and the centreline of journals.		0.3

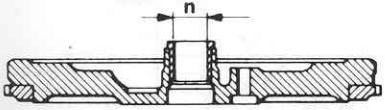
e) Diameter of main bearing seat in crankcase	63.647 – 63.666 (1)
f) Length of centre bearing seat	25.15 – 25.20
g) Bore diameter of timing idler gear shaft bushes (2)	20.677 – 20.698
h) Big end seat bore	53.695 – 53.708





(1) Previous diameters:
A) 63.657 to 63.676 for early 016.08 engines
B) 63.652 to 63.671 (front. centre and intermediate bearings) } For all other engines
63.647 to 63.666 (rear bearing)
(2) Should replacement become necessary, always replace both bushes



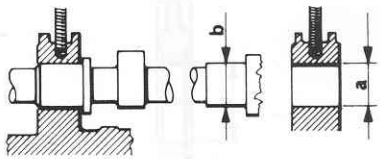


		1600 cc.	1800 cc.	2000 cc.
i) Main bearing thickness	Red	1.829–1.835	1.829–1.835(1) 1.824–1.830(2)	1.829–1.835
	Blue	1.835–1.841	1.835–1.841(1) 1.830–1.836(2)	1.835–1.841
l) Con. rod bearing thickness	Red		1.831–1.837	
	Blue		1.837–1.843	
m) Thickness of thrust ring			2.311–2.362	
n) I.D. of flywheel centre bushing			26.010–26.023	
FITTING DATA				
Main bearing-to-journal clearance (1)	Red		0.006–0.047	
	Blue		0.004–0.045	
Main bearing-to-journal clearance (3) – Front, centre & intermediate bearings	Red	0.011–0.052	0.011–0.052 0.016–0.057 0.026–0.067	0.011–0.052
	Blue	0.009–0.050	0.009–0.050 0.014–0.055 0.024–0.065	0.009–0.050
Main bearing-to-journal clearance (3) – Rear bearing	Red	0.006–0.047	0.006–0.047 0.016–0.057 0.026–0.067	0.006–0.047
	Blue	0.004–0.045	0.004–0.045 0.014–0.055 0.024–0.065	0.004–0.045
Con. rod bearing-to-crankpin clearance	Red		0.023–0.058	
	Blue		0.021–0.056	
Crankshaft end float			0.080–0.265	
End float on con. rod big end			0.2–0.3	

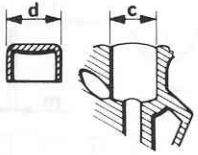
(1) Late
(2) Early bearing { SFCM 62071 CP (P.N. 105.12.02.112.00-03)
SFCM 62072 CP (P.N. 105.12.02.111.00-03)
(3) Early main bearings and seats.

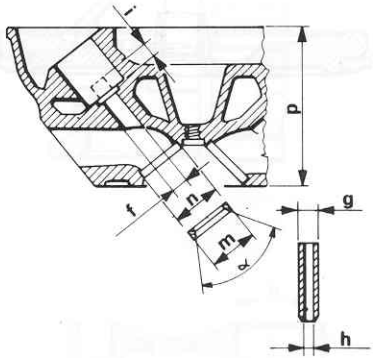
5

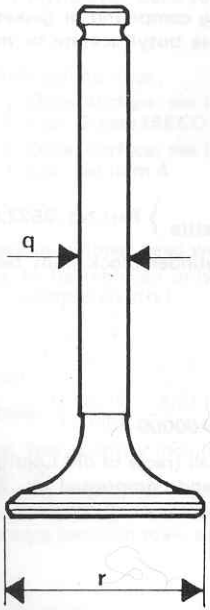
Camshaft, valves, tappets, springs and head



		1600 cc.	1800 cc.	2000 cc.
INSPECTION DATA				
a) Camshaft journal bearing bore			27.000–27.033	
b) Camshaft journal diameter			26.959–26.980	
c) Tappet seat bore	Standard		35.000–35.025	
	Oversize		35.200–35.225	
d) Tappet diameter	Standard		34.973–34.989	
	Oversize		35.173–35.189	
e) Spring length with valve open	Outer spring	27.5		27
	Inner spring		26	
Load at length "e"	Outer spring	35.67–37.33		38.7–40.3
	Inner spring		22.24–23.16	
f) Valve guide seat bore			13.990–14.018	
g) Valve guide O.D.			14.033–14.044	
h) Diameter of valve guide bore (intake and exhaust)			9.000–9.015	
i) Valve guide protrusion	Intake		13.300–13.500	
	Exhaust		16.300–16.500	
m) Valve seat insert O.D. Standard	Intake	42.597–42.632		45.065–45.100
	Exhaust	38.597–38.632		41.065–41.100
Oversize	Intake	42.897–42.932		45.365–45.400
	Exhaust	38.897–38.932		41.365–41.400







			1600 cc.	1800 cc.	2000 cc.
n) Seat insert housing bore	Standard	Intake	42.532–42.557		45.000–45.025
		Exhaust	38.532–38.557		41.000–41.025
	Oversize	Intake	42.832–42.857		45.300–45.325
		Exhaust	38.832–38.857		41.300–41.325
a) Seat insert taper			120°		
p) Minimum height after cylinder head skimming			111.5		
– Max. error of parallelism between head faces			0.087		
– Max. head face flatness error			0.05		
q) Valve stem dia.		Intake	8.972–8.987		
		Exhaust	8.935–8.960		
r) Valve head dia.	Ate	Intake	41.000–41.200		44.010–44.150
		Exhaust	37.000–37.200		40.010–40.150
	Eaton Livia	Intake	41.000–41.150		44.000–44.150
		Exhaust	37.000–37.150		40.000–40.150

FITTING DATA

Camshaft journal/bearing clearance		0.020–0.074
Camshaft end float		0.065–0.182
Tappet/seat clearance		0.011–0.052
Valve stem/guide clearance	Intake	0.013–0.043
	Exhaust	0.040–0.080
Valve guide/seat interference fit		0.015–0.054
Seat insert/housing interference fit		0.04–0.10

6

Oil pressure after warm-up

at 800 - 900 R.P.M.	0.5 to 1	kg/cm²
at 5500 R.P.M.	3.5 to 5	

TEMPERATURES

1

Cylinder head temperature for valve seat installation — 100 °C

2

Starter ring gear shrinking temperature — 120/140 °C

SEALANTS

1

Bolts retaining timing cover to cylinder head

– jointing compound DIRING Curil Part. No. 3522-00017

Note - To remove traces of old jointing compound or gasket from cylinder head or block faces use butyl acetate or methyl-ethylketone.

2

Joint face on cam covers

Jointing Compound { DIRING: Heldite / DOW CORNING: Hermetite } Part.No. 3522.00015

Note - For cleaning front cover and cylinder block joint faces see item 1 above.

3

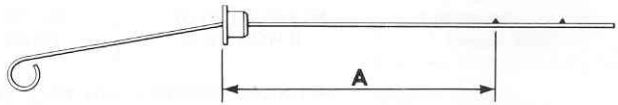
Bolts retaining flywheel to crankshaft

– LOCTITE 270 (green) Part. No. 3524-00009

Note - Before applying Loctite, remove all traces of old Loctite from threads using a suitable brush and compressed air. Always degrease threads using trichlorethylene or chlorothene.

FLUIDS AND LUBRICANTS

		1600-1800-2000 cc. 016.00 - 016.08 016.23	1800-2000 cc. 016.78 - 016.55
1 Sealing tubes for rear main bearing cap Fluid { UNION CARBIDE CHEMICALS CO: Ucon Lube 50 HB-5199 MILLOIL: Lube for rubber } Part. No. 4500-17502			
2 Crankshaft sealing rings Front { Outer surface: see item 4 Lip: Grease ISECO Molykote BR2 - Part. No. 3671-69841 Rear { Outer surface: see item 4 Lip: see item 4			
3 Oil supply in cylinder head wells: see item 4 Warning: to be replaced only when re-assembling (when cylinder head is completely dry)	g	415	
4 Engine oil Alternatives { AGIP: Sint 2000 10W50 - Part. No. 3631-69352 SHELL: Super Plus Motor Oil 15W50-Part.No.3631-69351		5.86(*) (▲) 5.5(●) 5(●)	5.5(●) 5(■)
Warning: This quantity includes: – Sump, full – Filter and relates to changes performed during routine maintenance; when dismantling of parts is involved refer to 3 above. – Difference between max. and min. marks on dipstick.	kg	5.35(*)(▲) 5(●) 4.5(■) 0.5 2(*)(▲) 1.65(●) 1.15(■)	5(●) 4.5(■) 0.5 1.65(●) 1.15(■)
5 Grinding paste for valves and valve seats SIPAL AREXONS (carbon silicone for valves) Part. No. 4100-31502			



(1) Early dipstick with "A" = 243 mm
(●) Late dipstick with "A" = 247 mm
(▲) Coupe with early dipstick (ref. *)
(■) Late dipstick with "A" = 188 mm

OPERATION

1

Fuel system components (for the identification of carburetters only ALFA ROMEO part numbers should be used)

Engine (1)		Fuel pump	CARBURETTOR		
			Weber	Solex	Dellorto
1600 cc.	016.00 With idle speed adjusting screw unsealed (6)	FISPA 4033.01 (M) 105.00.04.020.01	116.00.04.010.00 116.00.04.011.00 40 DCOE 82/83		116.00.04.010.04 116.00.04.011.04 DHLA 40F 116.00.04.010.06 116.00.04.011.06 DHLA 40 F
	016.00 With idle speed adjusting screw sealed (7)	FISPA 4055.03 (M) 116.08.04.020.03 116.08.04.020.05	116.00.04.010.08 116.00.04.011.08 40 DCOE 106/107	116.00.04.010.09 116.00.04.011.09 C40 ADDHE/15	116.00.04.010.07 116.00.04.011.07 DHLA 40G
	016.00 from 257.001	SAWARA 9.06.033.00 (M) 116.08.04.020.04 116.08.04.020.06	116.50.04.010.05 116.50.04.011.05 40 DCOE 128/129 116.50.04.010.07 116.50.04.011.07 40 DCOE 136/137	116.50.04.010.03 116.50.04.011.03 C40 ADDHE/31	116.50.04.010.04 116.50.04.011.04 DHLA 40 H 116.50.04.010.06 116.50.04.011.06 DHLA 40G
1800 cc.	016.08 Standard		116.08.04.010.00 116.08.04.011.00 40 DCOE 80/81	116.08.04.010.04 116.08.04.011.04 C 40 DDH 8	116.08.04.010.02 116.08.04.011.02 DHLA 40 F

(1) Engine types are identified with different serial numbers (letters and numbers) see group 00.
(6) Up to engine 016.00 *050000 +
(7) From engine 016.00 *050001 +
(M) Mechanical pump

Engine (1)			Fuel pump	CARBURETTER		
				Weber	Solex	Dellorto
1800 cc. ENGINE	016.08 Anti-pollution standard EEC 70/220		105.00.04.020.01 FISPA 4033.01 (M) 116.08.04.020.03 FISPA 4055.03 (M) 116.08.04.020.05 116.08.04.020.04 SAVARA 9.06.033.00 (M) 116.08.04.020.06	116.08.04.010.06 116.08.04.011.06 40 DCOE 72/73		116.08.04.010.05 116.08.04.011.05 (2)(3) DHLA 40F 116.08.04.010.11 116.08.04.011.11 (2)(3) DHLA 40F
	016.08 Stricter anti-pollution standard EEC 74/290	With idle speed adjusting screw unsealed (4)		116.08.04.010.06 116.08.04.011.06 40 DCOE 72/73		116.08.04.010.05 116.08.04.011.05 (3) DHLA 40F 116.08.04.010.11 116.08.04.011.11 (3) DHLA 40F
		With idle speed adjusting screw sealed (5)				116.23.04.010.04 116.23.04.011.04 DHLA 40G 116.55.04.010.01 116.55.04.011.01 DHLA 40F
	016.78			116.78.04.010.00 116.78.04.011.00 40 DCOE 130/131	116.78.04.010.02 116.78.04.011.02 C 40 ADDHE/32	116.78.04.010.01 116.78.04.011.01 DHLA 40H 116.97.04.010.00 116.97.04.011.00 DHLA 40H

(2) Except engines for export to Sweden
(3) Except engines for export to Japan
(4) Standard up to engine 016.08 *X50000 +
(5) Standard from engine 016.08 *X50001 +
(M) Mechanical pump

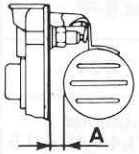
Engine (1)		Fuel pump	CARBURETTER		
			Weber	Solex	Dellorto
2000 cc. ENGINE	016.23 Stricter anti-pollution standard EEC 74/290	FISPA 4033.01 (M) 105.00.04.020.01 FISPA 4055.03 (M) 116.08.04.020.03 / 116.08.04.020.05 SAVARA 9.06.033.00 (M) 116.08.04.020.04 / 116.08.04.020.06	116.23.04.010.05 116.23.04.011.05 40 DCOE 112/113	116.23.04.010.03 116.23.04.011.03 C 40 ADDHE/16	116.23.04.010.04 116.23.04.011.04 DHLA 40G 116.55.04.010.01 116.55.04.011.01 DHLA 40G
	016.55 Vehicles with manual transmission		116.55.04.010.06 116.55.04.011.06 40 DCOE 124/125 116.55.04.010.10 116.55.04.011.10 40 DCOE 138/139	116.55.04.010.05 116.55.04.011.05 C 40 ADDHE/27 116.78.04.010.02 116.78.04.011.02 C 40 ADDHE/32	116.55.04.010.04 116.55.04.011.04 DHLA 40H 116.55.04.010.11 116.55.04.011.11 DHLA 40H 116.97.04.010.00 116.97.04.011.00 DHLA 40H
	For vehicles with automatic transmission			116.47.04.010.02 116.47.04.011.02 C 40 ADDHE/26	

(M) Mechanical pump

1 **Weber carburetter settings**

	DIMENSIONS		
	40 DCOE 72/73 (detoxed)	40 DCOE 80/81	40 DCOE 82/83 (detoxed)
Alfa Romeo part number	116.08.04.010.06	116.08.04.010.00	116.00.04.010.00
	116.08.04.011.06	116.08.04.011.00	116.00.04.011.00
Venturi	32	32	30
Main jet	1.35	1.35	1.32
Main emulsion tube	F 34	F 34	F 41
Main air jet	2.10	2.10	1.80
Idle jet	0.55	0.55	0.55
Idle air jet	F 17	F 17	1.10 (4 holes)
Progression holes	4 holes Ø 1.2/1.6/1.6/1.5	4 holes Ø 1.2/1.6/1.6/1.5	5 holes Ø 1.4/1.7/1.6/1.6/1.5
Choke jet	0.65 F5	0.65 F5	0.65 F5
Choke air metering jet	2.00	2.00	1.00
Choke mixture bush	1.00	1.00	– –
Accelerator pump jet	0.35 horizontal	0.35 horizontal	0.35 radial horizontal

40 DCOE 106/107 (detoxed)	40 DCOE 112/113 (detoxed)	40 DCOE 125/125 (detoxed)	40 DCOE 128/129 (detoxed)	40 DCOE 130/131 (detoxed)	40 DCOE 136/137 (detoxed)	40 DCOE 138/139 (detoxed)
116.00.04.010.08	116.23.04.010.05	116.55.04.010.06	116.05.04.010.05	116.78.04.010.00	116.50.04.010.07	116.55.04.010.10
116.00.04.011.08	116.23.04.011.05	116.55.04.011.06	116.05.04.011.05	116.78.04.011.00	116.50.04.011.07	116.55.04.011.10
30	32	32	30	32	30	32
1.32	1.42	1.38	1.20	1.38	1.20	1.38
F 41	F 41	F 41	F 47	F 41	F 47	F 41
1.80	1.80	1.60	1.50	1.60	1.50	1.60
0.55 4 holes Ø 1.10	0.55 4 holes Ø 1.10	0.57	0.59	0.57	0.59	0.59 4 holes Ø 1.10
F 21	F 21 - 55	F 21	F 21	F 21	F 21	F 21
5 holes Ø1.3/1.4/1.4/1.5/15	5 holes Ø14/1.6/1.6/1.5/1.4	5 holes Ø1.2/1.4/1.4/1.5/1.5	5 holes Ø1.2/1.4/1.4/1.5/1.5	5 holes Ø1.2/1.4/1.4/1.5/1.5	5 holes Ø1.3/1.4/1.4/1.5/1.5	5 holes Ø1.3/1.4/1.4/1.5/1.5
F 9 - 85 (Ø 1,50)	1.50 (F 9 - 85)	1.50 (F 9 - 85)	0.85 (F 9)	1.50 (F 9 - 85)	0.85 (F 9)	1.50 (F 9 - 85)
3 holes Ø 2,5	3 holes Ø 2.5	3 holes Ø 2.5	– –	3 holes Ø 2.5	3 holes Ø 2.5	3 holes Ø 2.5
– –	– –	– –	– –	– –	– –	– –
0.40	0.45 vertical	0.35	0.35	0.35	0.40	0.40

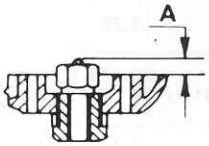
			40 DCOE 72/73 (detoxed)	40 DCOE 80/81	40 DCOE 82/83 (detoxed)
Alfa Romeo part number			116.08.04.010.06	116.08.04.010.00	116.00.04.010.00
			116.08.04.011.06	116.08.04.011.00	116.00.04.011.00
By-pass for accelerator pump inlet valve			0.60		0.35
Accelerator pump, delivery per 20 strokes per barrel		cm^3	3.5 to 4.5	(3 to 4)*	(2.5 to 3.5)*	5.5 to 6.5
Accelerator pump rod	Stroke	mm	18	16*	13.5*	18
	Length	mm	63	61	58.5	– –
Needle valve			1.50			1.50
Float weight		g	26			26
FLOAT LEVEL HEIGHT Distance "A" between lid with gasket and float			7.5			7.5 to 8.5

* Early

40 DCOE 106/107 (detoxed)	40 DCOE 112/113 (detoxed)	40 DCOE 124/125 (detoxed)	40 DCOE 128/129 (detoxed)	40 DCOE 130/131 (detoxed)	40 DCOE 136/137 (detoxed)	40 DCOE 138/139 (detoxed)
116.00.04.010.08	116.23.04.010.05	116.55.04.010.06	116.05.04.010.05	116.78.04.010.00	116.50.04.010.07	116.55.04.010.10
116.00.04.011.08	116.23.04.011.05	116.55.04.011.06	116.05.04.011.05	116.78.04.011.00	116.50.04.011.07	116.55.04.011.10
0.35 (by-pass in piston)	– –	0.35	0.35 (in piston)	0.35 (in piston)	0.45	0.35 (in piston)
9.5 to 10.5	9 to 12	– –	– –	– –	6.5 to 9.5	7.5 to 10.5
18	13	15	15	15	16,5	16,5
– –	– –	– –	– –	– –	– –	– –
1.50	1.50	1.50	1.50	1.50	1.50	1.50
26	26	26	26	26	26	26
7.5 to 8.5	7.5 to 8.5	6.5 to 7.5	6.5 to 7.5	6.5 to 7.5	6.75 to 7.25	6.75 to 7.25

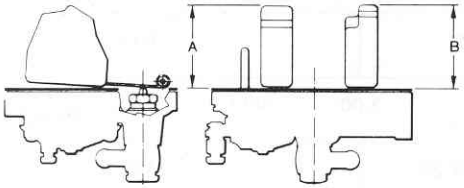
2

Solex carburetter settings	C40 DDH 8 (detoxed)	C40 ADDHE/15 (detoxed)	C40 ADDHE/16 (detoxed)	C40 ADDHE/27 (detoxed)
Alfa Romeo part number	116.08.04.010.04	116.00.04.010.09	116.23.04.010.03	116.55.04.010.05
	116.08.04.011.04	116.00.04.011.09	116.23.04.011.03	116.55.04.011.05
Venturi	32	30	32	32
Main jet	1.40	1.27	1.40	1.325
Main emulsion tube	2 through holes Ø 2 1 hole Ø 0.8 (2 through holes Ø1.5)*	2 through holes Ø 0.8 5 through holes Ø 1	2 through holes Ø 0.8 5 through holes Ø 1	2 through holes Ø 1.2 1 through hole Ø 1.2 4 through holes Ø 1
Main air metering jet	1.55 (1.50)*	1.50	1.65	1.45
Idle jet	0.50	0.57	0.57	0.55
Idle air metering jet	1.30	1.67	1.67	1.50
Progression holes	– –	5 holes Ø1/1.4/1.4/1.4/1.4	5 holes Ø1/1.4/1.4/1.4/1.4	5 holes Ø1.1/1.6/1.6/1.6/1.6
Choke jet	1.40	1.40	1.40	1.40
Choke air metering jet	6.00 mixture hole 1.25	4.5	4.50	4.50
Accelerator pump jet	0.35	0.45 vertical	0.45 axial vertical	0.45
By-pass for accelerator pump inlet valve	0	0	0	0

	C40 DDH 8 (detoxed)	C40 ADDHE/15 (detoxed)	C40 ADDHE/16 (detoxed)	C40 ADDHE/27 (detoxed)
Alfa Romeo part number	116.08.04.010.04	116.00.04.010.09	116.23.04.010.03	116.55.04.010.05
	116.08.04.011.04	116.00.04.011.09	116.23.04.011.03	116.55.04.011.05
Accelerator pump delivery per 20 strokes, per barrel cm^3	5 to 7	10 to 14 (9 to 11)*	10 to 14 (11 to 13)*	8 to 10
Needle valve	1.60 reduced pitch	1.60 reduced pitch	1.60 reduced pitch	1.60 reduced pitch
Washer under needle valve	1.00	1.00	1.00	1.00
Float weight g	13.1 to 14.1	13.6	13.6	13.6
FLOAT LEVEL SETTING Potrusion of needle valve above cover face (dimensions "A") 	4.4 to 4.6	4.4 to 4.6	4.4 to 4.6	4.4 to 4.6

* Early

	C40 ADDHE/26 (detoxed)	C40 ADDHE/31 (detoxed)	C40 ADDHE/32 (detoxed)
Alfa Romeo part number	116.47.04.010.02	116.50.04.010.03	116.78.04.010.02
	116.47.04.011.02	116.50.04.011.03	116.78.04.011.02
Venturi	32	30	32
Main jet	1.40	1.3	1.32
Main emulsion tube	2 through holes Ø 1.2 1 through hole Ø 1.2 4 through holes Ø 1	2 through holes Ø 0.8 5 through holes Ø 1	5 through holes Ø 1 2 through holes Ø 1.2
Main air metering jet	1.55	1.60	1.55
Idle jet	0.40	0.57	0.55
Idle air metering jet	1.20	1.75	1.70
Progression holes	5 holes Ø 1.2/1.6/1.6/1.6/1.6	5 holes Ø1.1/1.3/1.3/1.3/1.3	5 holes Ø1.1/1.6/1.6/1.6/1.6
Choke jet	1.40	1.40	1.40
Choke air metering jet	2 holes Ø 4.5	4.5	2 holes Ø 4.5
Accelerator pump jet	0.45 axial vertical	0.45 axial vertical	0.45 vertical
By-pass for accelerator pump inlet valve	0	0	0

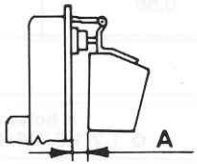
		C40 ADDHE/26 (detoxed)	C40 ADDHE/31 (detoxed)	C40 ADDHE/32 (detoxed)
Alfa Romeo part number		116.47.04.010.02	116.50.04.010.03	116.78.04.010.02
		116.47.04.011.02	116.50.04.011.03	116.78.04.011.02
Accelerator pump delivery per 20 strokes, per barrel	cm^3	8 to 10	6.5 to 9.5	8 to 10
Needle valve		1.60 reduced pitch	1.60 reduced pitch	1.60
Washer under needle valve		1.00	1.00	1.00
Float weight	g	13.6	13.6	13.6
FLOAT LEVEL SETTING Distance between lid with gasket and float				
	a	40.5 to 42.5	40.5 to 42.5	40.5 to 42.5
	b	41 to 43	41 to 43	41 to 43

3 **Dellorto carburetter settings**

	DHLA 40F (detoxed)	DHLA 40F (detoxed)	DHLA 40G (detoxed)
Alfa Romeo part number	116.00.04.010.04	116.00.04.010.06	116.00.04.010.07
	116.00.04.011.04	116.00.04.011.06	116.00.04.011.07
Venturi	30		
Main jet	1.32		
Main emulsion tube	7772.08.28		7772.10.28
Main air metering jet	2.10		2.20
Idle jet	0.55		
Idle air metering jet	2.20		
Progression holes	5 holes Ø1.2/1.6/1.6/1.5/1.5		5 holes Ø1.2/1.6/1.6/1.8/1.8
Choke jet	0.70	0.80	
Choke air metering jet	3.00		2 holes (3.00)* Ø 3.5
Choke emulsion tube	7482.01.28	7482.3	

* Early

DHLA 40F	DHLA 40F (detoxed)	DHLA 40F (detoxed)	DHLA 40G (detoxed)	DHLA 40G (detoxed)	DHLA 40F (detoxed)
116.08.04.010.02	116.08.04.010.05	116.08.04.010.11	116.23.04.010.04	116.36.04.010.00	116.42.04.010.00
116.08.04.011.02	116.08.04.011.05	116.08.04.011.11	116.23.04.011.04	116.36.04.011.00	116.42.04.011.00
32					
1.45					
7772.08.28			7772.10.28		7772.08.28
2.10			2.40		2.10
0.55			0.58	0.55	0.52
2.20					
5 holes Ø 1.2/1.6/1.6/1.5/1.5			5 holes Ø 1.2/1.6/1.6/1.8/1.8		5 holes Ø1.2/1.6/1.6/1.5/1.5
0.70		0.80			
3.00			2 holes Ø 3.5 (3.00)*	2 holes Ø 3.5 1 hole Ø 1.35	1.50
7482.01.28		7482.3			

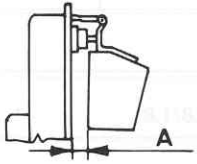
	DHLA 40F (detoxed)	DHLA 40F (detoxed)	DHLA 40G (detoxed)
Alfa Romeo part number	116.00.04.010.04	116.00.04.010.06	116.00.04.010.07
	116.00.04.011.04	116.00.04.011.06	116.00.04.011.07
Accelerator pump jet	0.33		0.33 horizontal (0.35 vertical)*
Accelerator pump delivery per 20 strokes, per barrel cm^3	7.5 – 9.5		
Needle valve	1.50		
Float weight g	10		
FLOAT LEVEL SETTING Distance "A" between lid with gasket and float (mm) 	14.5 – 15		

* Early

DHLA 40F	DHLA 40F (detoxed)	DHLA 40F (detoxed)	DHLA 40G (detoxed)	DHLA 40G (detoxed)	DHLA 40F (detoxed)
116.08.04.010.02	116.08.04.010.05	116.08.04.010.11	116.23.04.010.04	116.36.04.010.00	116.42.04.010.00
116.08.04.011.02	116.08.04.011.05	116.08.04.011.11	116.23.04.011.04	116.36.04.011.00	116.42.04.011.00
0.33 radial metering tube			0.35 axial vertical metering tube	0.35 radial metering tube	0.33 radial metering tube
7.5 to 9.5 (5 to 6)*		7.5 to 9.5	8 to 10 (7.5 to 9.5)*	8 to 10	7.5 to 9.5
1.50					
10					
14.5 to 15					

	DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40G (detoxed)
Alfa Romeo part number	116.50.04.010.04	116.50.04.010.06	116.55.04.010.01
	116.50.04.011.04	116.50.04.011.06	116.55.04.011.01
Venturi	30		32
Main jet	1.30		1.45
Main emulsion tube	7772.11		7772.10.28
Main air metering jet	1.80		2.40
Idle jet	0.58		
Idle air metering jet	2.20		
Progression holes	5 holes Ø 1.2/1.6/1.6/1.8/1.8		
Choke jet	0.80		
Choke air metering jet	2 holes Ø 3.5		
Choke emulsion tube	7482.3		

DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)
116.55.04.010.04	116.55.04.010.11	116.78.04.010.01	116.93.04.010.01	116.97.04.010.00
116.55.40.011.04	116.55.04.011.11	116.78.04.011.01	116.93.04.011.01	116.97.04.011.00
32			30	32
1.50	1.48	1.50	1.30	1.48
7772.10.28	7772.11	7772.10	7772.11	
2.10			1.80	2.10
0.58			0.57	
2.20				
5 holes Ø 1.2/1.6/1.6/1.8/1.8				
0.80				
2 holes Ø 3.5				
7482.3				

		DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40G (detoxed)
Alfa Romeo part number		116.50.04.010.04	116.50.04.010.06	116.55.04.010.01
		116.50.04.011.04	116.50.04.011.06	116.55.04.011.01
Accelerator pump jet		0.42 vertical		0.40
Accelerator pump delivery per 20 strokes, per barrel	cm^3	6 to 8	8 to 10	
Needle valve		1.50		
Float weight	g	10	8.5	10
FLOAT LEVEL SETTING Distance "A" between lid with gasket and float (mm)		14.5 to 15		

DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)	DHLA 40H (detoxed)
116.55.05.010.04	116.55.04.010.11	116.78.04.010.01	116.93.04.010.01	116.97.04.010.00
116.55.04.011.04	116.55.04.011.11	116.78.04.011.01	116.93.04.011.01	116.97.04.011.00
0.35 axial	0.40 axial		0.42	0.40
7 to 9			6.5 to 9.5	
1.50				
8.5				
14.5 to 15				

4

Engine idle RPM (1)

Engine warm, gearbox in neutral, clutch engaged

Normal idling speed

Engine with idle speed adjusting screw unsealed	750 to 950
Engine with idle speed adjusting screw sealed	850 to 1000

5

Co emissions at normal idling speed (1)

Engine hot, gearbox in neutral, clutch engaged EEC 70/220 anti-pollution and EEC 74/290 stricter anti-pollution engines	% in vol.	⩽ 4.5

6

Fuel pump delivery pressure

Conditions:
– Zero delivery
– Engine speed from 5000 to 6000 rpm
– Pressure gauge level with fuel pump

	kg/cm²	0.30 to 0.45

7

Dimensions for accelerator linkage setting

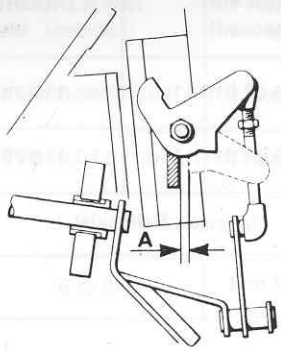
Vehicles with manual gearbox

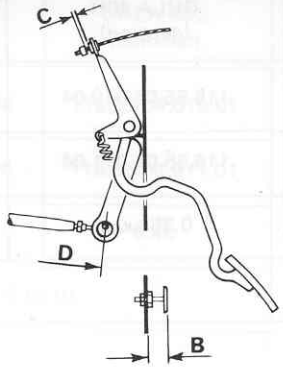
Clearance "A" between throttle lever and limit stop on carburetter with accelerator fully depressed	A	1 - 2
Height "B" of accelerator pedal stop above floor	B	15 to 22 (2) 19 to 29 (3)

Note - Adjust clearance "A" by means of accelerator pedal stop and check height "B". If "B" does not come within specified limits, adjust length of the horizontal control rod.

Clearance "C" between clamp on hand throttle cable and pedal lever (in rest position)	C	5 to 6

(1) Engines are distinguished by different serial numbers (letters and numbers) see group 00.
(2) LHD
(3) RHD





Vehicle with automatic transmission

Horizontal control rod ball joint centre distance "D" (in rest position)	D	295 (2) 283 (3)

Note - After adjusting centre distance, adjust automatic transmission kick-down control (see group 16).

Clearance "C" between clamp on hand throttle cable and pedal lever (in rest position)	C	5 to 6

8

Fuel tank capacity

– Full capacity	Saloon	49 litres
	Coupe	56 litres
– Reserve		8 litres

FLUIDS AND LUBRICANTS

1

Accelerator pedal bellows (LHD only)

REINACH grease: E 10 TAC - Part. No. 3671-69812

2

Accelerator pedal shaft (on rubber bushes)

ISECO grease: Molykote paste G - Part. No. 3671-69840

SEALANTS

1

Gaskets between cushioned carburetter mountings and intake manifold

Jointing compound { DIRING HELDITE / DOW CORNING Hermetite } Part. No. 3522-00015

2

Gasket between air cleaner and air intake (intake side)

Jointing compound { ICER: - Pluricolla Alpha 75 TRSP / D.E.B.: B 400/AR } Part. No. 3521-00004

1 OPERATION

Components and timing

ENGINE	IGNITION COIL	DISTRIBUTOR	SPARK PLUG	ALTERNATOR [REGULATOR]	STARTER	ADVANCE
016.00 up to engine s/no. 257000	105.26.65.079.00 BOSCH 0221.119.008 105.48.65.079.01 MARELLI BE 200A 105.48.65.079.00 KLITZ G 53 SB 105.12.65.079.01 DUCELLIER 2792 A 105.12.65.079,02 SEV MARCHAL 3H 105.12.65.079.03 ISKRA ATA 0105	105.48.05.011.08 BOSCH 0.231.178.006JFA 105.48.05.011.05 MARELLI S 145 C 116.36.05.011.00 MARELLI S 145 CX	105.14.05.106.01 LODGE 2HL	116.10.05.060.03 BOSCH 0.120.400.848 K1 ➞ 14V45A22 [105.36.65.028.00 BOSCH 0.190.601.006 AD1]	116.00.05.030.05 BOSCH 0001211987 EF ➞ 12V-0.7PS 116.08.05.030.02 PARIS-RHONE D8E12612V 116.08.05.030.00 BOSCH 0001211207 EF ➞ 12V-0.7PS	STATIC 7° ± 1° BTDC at 850 ± 50 rpm
				116.10.05.060.01 PARIS-RHONE A 13 R121 [116.10.65.028.01 PARIS-RHONE AYC 2112]		
				116.10.05.060.06 SEV MARCHAL A14:45/55 {71156030 71271102 [116.10.65.028.02 SEV MARCHAL 72717202]		MAX. (1) 38° +0° -3° BTDC at 5100 rmp
				116.10.05.060.18 SEV MARCHAL A14/55A 71212702 [116.10.65.028.05 SEV MARCHAL - Blue Mark]		

(1) Max. setting: pointer aligned with notch M.

ENGINE	IGNITION COIL	DISTRIBUTOR	SPARK PLUG	ALTERNATOR [REGULATOR]	STARTER	ADVANCE (5)
016.00 from engine s/no. 257001	105.26.65.079.00 BOSCH 0.221.119.008 105.48.65.079.01 MARELLI BE200A 105.48.65.079.00 KLITZ G53SB 105.12.65.079.01 DUCELLIER 2792A 105.12.65.079.02 SEV MARCHAL 3H 105.12.65.079.03 ISKRA ATA-0105 116.55.65.079.02 (3) MARELLI AEI 200B 116.97.65.079.00 (3) BOSCH 0.221.600.002	116.55.05.011.00 BOSCH 0.231.170.229 116.55.05.011.01 MARELLI S1688X 116.55.05.011.03 DUCELLIER 4533A 116.97.05.011.01 (4) MARELLI SM 802 BX 116.97.05.011.00 (4) BOSCH 0.237.002.018	105.14.04.106.01 LODGE 2HL	116.10.05.060.03 BOSCH 0.120.400.848 K1→14V45A22 [105.36.65.028.00 BOSCH AD1] 116.10.05.060.01 PARIS RHONE A13R121 [116.10.65.028.01 PARIS RHONE AYC2112] 116.10.05.060.18 SEV MARCHAL A14/55A 71212702 [116.10.65.028.05 SEV MARCHAL Blue Mark] 116.10.05.060.08 (2) BOSCH 0.120.489.549 K1-14V55A20 116.10.05.060.12 (2) PARIS RHONE A13R192 116.55.05.060.02 (2) MARELLI	116.08.05.030.00 BOSCH 0.001.211.207 EF→12V-0.7 CV 116.00.05.030.10 MARELLI E-95-0.9/12 116.00.05.030.09 PARIS-RHONE D8E 145 116.08.05.030.03 DUCELLIER DmE 124 P1	**STATIC** 7°±1° BTDC at 850±50 rpm **MAX.** (1) 38° +0° −3° BTDC at 5100 rpm

(1) Max. setting: pointer aligned with notch M.
(2) With integral electronic voltage regulator
(3) Coil with electronic control unit for electronic ignition
(4) For engines with electronic ignition
(5) To be tested with vacuum pipe disconnected

<table>
<tr><th>ENGINE</th><th>IGNITION COIL</th><th>DISTRIBUTOR</th><th>SPARK PLUG</th><th>ALTERNATOR [REGULATOR]</th><th>STARTER</th><th>ADVANCE</th></tr>
<tr><td rowspan="2">016.08
regular
up to engine
s/no.
25.431 (1)</td><td rowspan="3">105.26.65.079.00
BOSCH
0.221.119.008

105.48.65.079.01
MARELLI
BE200A

105.48.65.079.00
LITZ G53SB

105.12.65.079.01
DUCELLIER
2792A

105.12.65.079.02
SEV MARCHAL
3H

105.12.65.079.03
ISKRA ATA - 0105</td><td rowspan="2">105.48.05.011.02
BOSCH
0.231.110.045JF4

105.48.05.011.04
MARELLI S 145 B</td><td rowspan="3">105.14.05.106.01
LODGE 2HL</td><td>116.10.15.060.03
BOSCH 0.120.400.848
K1➞14V45A22

[105.36.65.028.00
BOSCH
0.190.601.006AD1]</td><td rowspan="3">116.00.05.030.05
BOSCH
0001211987
EF➞12V-0.7PS

116.00.05.030.02
PARIS-RHONE
D8E19012V

116.08.05.030.02
PARIS-RHONE
D8E12612V

116.08.05.030.00
BOSCH
0001211207
EF➞12V-0.7PS</td><td>STATIC
3° ± 1° BTDC

MAX. (2)
40°$^{+0°}_{-3°}$
BTDC
at 4600 rpm</td></tr>
<tr><td>116.10.05.060.01
PARIS-RHONE
A13R121

[116.10.65.028.01
PARIS-RHONE
AYC 2112]</td></tr>
<tr><td rowspan="2">016.08
regular
up to engine
s/no.
25432
(1)

from engine
s/no.
X00001

016.08
equipped
with
antipollution
device</td><td rowspan="2">105.48.05.011.06
BOSCH
0.231.129.036JF4

105.48.05.011.05
MARELLI S 145 C

105.48.05.011.08
BOSCH
0.231.178.006JF4</td><td>116.10.05.060.06
SEV MARCHAL
A14.45/55
{ 71156030
71271102

[116.10.65.028.02
SEV MARCHAL
72717202]</td><td>STATIC
7°±1° BTDC
at
850±50 rpm

MAX. (2)
38°$^{+0°}_{-3°}$
BTCD
at 5100 rpm</td></tr>
<tr><td>116.10.05.060.18
SEV MARCHAL
A14/55A
71212702

[116.10.65.028.05
SEV MARCHAL
blue mark]</td></tr>
</table>

(1) Prestandardised engines fitted from 27.582 to 28.807

(2) Max. setting: pointer aligned with M { from 28.830 to 28.879 / from 28.949 to 29.697

ENGINE	IGNITION COIL	DISTRIBUTOR	SPARK PLUG	ALTERNATOR [REGULATOR]	STARTER	ADVANCE (5)
016.78	105.26.65.079.00 BOSCH 0.221.119.008 105.48.65.079.01 MARELLI BE200A 105.48.65.079.00 KLITZ G53SB 105.12.65.079.01 DUCELLIER 279A 105.12.65.079.02 SEV MARCHAL 3H 105.12.65.079.03 ISKRA ATA-0105 116.55.65.079.02 (3) MARELLI AEI 200B 116.97.65.079.00 (3) BOSCH 0.221.600.002	116.55.05.011.00 BOSCH 0.231.170.229 116.55.05.011.01 MARELLI S 168 BX 116.55.05.011.03 DUCELLIER - 4533A 116.97.05.011.01 (4) MARELLI SM 802 BX 116.97.05.011.00 (4) BOSCH 0.237.002.018	105.14.05.106.01 LODGE 2HL	116.10.05.060.03 BOSCH 0.120.400.848 K1 ➔ 14V45A22 [105.36.65.028.00 BOSCH-AD1] 116.10.05.060.01 PARIS-RHONE A13R121 [116.10.65.028.01 PARIS-RHONE AYC2112] 116.10.05.060.18 SEV MARCHAL A14/55A 71212702 [116.10.65.028.05 SEV MARCHAL blue mark] 116.10.05.060.08 (1) BOSCH 0.120.489.549 K1 ➔ 14V55A20 116.10.05.060.12 (1) PARIS-RHONE A13R192 116.55.05.060.00 (1) MARELLI	116.08.05.030.00 BOSCH 0.001.211.207 EF ➔ 12V-0.7CV 116.00.05.030.10 MARELLI - E95 - 0.9/12 116.00.05.030.09 PARIS-RHONE D8E 145 116.08.05.030.03 DUCELLIER DmE 124 P1	**STATIC** 7° ± 1° BTDC at 800 ± 50 rpm **MAX.** (2) 38° +0° -3° BTDC at 5100 rpm

(1) With integral electronic voltage regulator
(2) Max. setting: pointer aligned with notch M
(3) Coils with electronic control unit for electronic ignition
(4) For engines with electronic ignition
(5) To be tested with vacuum pipe disconnected

ENGINE	IGNITION COIL	DISTRIBUTOR	SPARK PLUG	ALTERNATOR [REGULATOR]	STARTER	ADVANCE
016.23	116.55.65.079.00 BOSCH 0.221.119.044 116.33.65.079.00 MARELLI BZR202B 116.55.65.079.01 BOSCH 0.221.119.044	116.36.05.011.01 BOSCH 0.231.178.013 116.36.05.011.00 MARELLI S 145 CX	105.14.05.106.01 LODGE 2HL	116.10.05.060.03 BOSCH 0.120.400.848 K1→14V45A22 [105.36.65.028.00 BOSCH-AD1]	105.12.05.030.03 BOSCH 0.001.311.110 GF→12V-1.1PS 116.55.05.030.00 PARIS-RHONE D10E70 116.55.05.030.01 MARELLI E100 - 1.3 - 12	**STATIC** 7° ± 1° BTDC at 850 ± 50 rpm
				116.10.05.060.01 PARIS-RHONE A13R121 [116.10.65.028.01 PARIS-RHONE AYC2112]		
				116.10.05.060.18 SEV MARCHAL A14/55A 71212702 [116.10.65.028.05 SEV MARCHAL blue mark]		**MAX.** (2) 38° +0° -3° BTDC at 5100 rpm
				116.10.05.060.08 (1) BOSCH 0.120.489.549 K1→14V55A20 116.10.05.060.12 (1) PARIS-RHONE A13R192 116.55.05.060.00 (1) MARELLI		

(1) With integral electronic voltage regulator
(2) Max. setting: pointer aligned with notch M

ENGINE	IGNITION COIL	DISTRIBUTOR	SPARK PLUG	ALTERNATOR [REGULATOR]	STARTER	ADVANCE (5)
016.55	116.55.65.079.00 BOSCH 0.221.119.044 116.33.65.079.00 MARELLI BZR202B 116.55.65.079.01 BOSCH 0.221.119.044 116.55.65.079.02 (3) MARELLI AEI 200B 116.97.65.079.00 (3) BOSCH 0.221.600.002	116.55.05.011.00 BOSCH 0.231.170.229 116.55.05.011.01 MARELLI S168BX 116.55.05.011.03 DUCELLIER 4533A 116.97.05.011.01 (4) MARELLI SM 802 BX 116.97.05.011.00 (4) BOSCH 0.237.002.018	105.14.05.106.01 LODGE 2HL	116.10.05.060.03 BOSCH 0.120.400.848 K1→14V45A22 [105.36.65.028.00 BOSCH-AD1] 116.10.05.060.01 PARIS-RHONE A13R121 [116.10.65.028.01 PARIS-RHONE AYC2112] 116.10.05.060.18 SEV MARCHAL A14/55A 71212702 [116.10.65.028.05 SEV MARCHAL Blue mark] 116.10.05.060.08 (1) BOSCH 0.120.489.549 K1→14V55A20 116.10.05.060.12 (1) PARIS-RHONE A13R192 116.55.05.060.00 (1) MARELLI	105.12.05.030.03 BOSCH 0.001.311.110 GF→12V-1.1PS 116.55.05.030.00 PARIS-RHONE D10E70 116.55.05.030.01 MARELLI E100 - 1.3 - 12	**STATIC** 7° ± 1° BTDC at 850 ± 50 rpm **MAX. (2)** 38° +0° −3° BTDC at 5100 rpm

(1) With integral electronic voltage regulator
(2) Max. setting: pointer aligned with notch M
(3) Coils with electronic control unit for electronic ignition
(4) For engines with electronic ignition
(5) To be tested with vacuum pipe disconnected

TIGHTENING TORQUES

1			
Spark plugs			
(white lube as per item 1 under "Fluids and Lubricants")	2.5 to 3.5 (25 to 34)	kgm (Nm)	

FLUIDS AND LUBRICANTS

1	
Spark plug threads	
OIL ISECO: Molykote A - Part. No. 4500-18304	

DIMENSIONS

1

Data for BOSCH ignition distributor
Bench test

		105.48.05.011.02 0.231.110.045 JF4		105.48.05.011.06 0.231.129.036 JF4	
Contact breaker gap	mm	0.4 – 0.5		0.3 – 0.4	
Contact pressure	g	500 – 630		400 – 630	
Dwell angle		60° ± 3°		63° – 67°	
Distributor RPM	Automatic advance curve	Upper	Lower	Distributor RPM	Automatic advance curve	Upper	Lower
250		initial	–	430		initial	–
350		3° 24′	–	500		1° 15′	–
400		4° 30′	–	550		2° 15′	initial
450		5° 30′	initial	700		5° 30′	2°
500		6° 15′	2°	800		6° 30′	3° 15′
550		6° 45″	4°	1000		7° 45′	5° 15′
650		7° 30′	5° 15′	1700		11° 15′	9°
700		7° 45′	5° 30′	2550		15° 30′	13° 30′
2125		17°	15°	3000		15° 30′	13° 30′

Data for BOSCH ignition distributor		105.48.05.011.08 0.231.178.006.JF4
Bench test		116.36.05.011.01 0.231.178.013
Contact breaker gap	mm	0.35 ± 0.05
Contact pressure	g	500 – 630
Dwell angle		66° ± 2°
Resistive rotor arm	KΩ	1 + 0.2

Distributor RPM	Automatic advance curve Upper	Lower
150	initial	initial
200	30′	–30′
450	30′	–30′
500	1° 30′ (1° 45′)*	–30′
550	2° 15′ (2° 45′)*	–30′
700	4° 45′ (6°)*	1° 15′ (1° 30′)*
800	6° (7°)*	2° 30′ (2° 45′)*
1000	7° 15′ (8° 15′)*	4° 15′ (5° 15′)*
1700	11° 30′ (12°)*	8° 30′ (9°)*
2550	16° 30′	13° 30′
3000	16° 30′	13° 30′

* Early values applicable up to engine 016.08-X58704 and to engine 016.23-014689
Early values applicable up to engine 016.00-047130 (with unsealed idle adjuster)
Early values applicable up to engine 016.00-061093 (with sealed idle adjuster)

Electronic distributor data for electronic BOSCH ignition	116.97.05.011.00 0.237.002.018
Bench test	

Distributor RPM	Automatic advance curve Upper	Lower	Vacuum mm Hg	Vacuum advance curve Upper	Lower
100	15′	1° 30′	0	30′	–30′
230	–30′	45′	60	45′	–30′
280	0°	0°	90	2°	–30′
330	15′	–45′	101	2° 45′	–30′
380	0°	–1°	150	6°	3°
470	1°	–1° 15′	195	8° 30′	5° 45′
900	6°	3° 30′	210	8° 45′	6° 30′
1900	11° 15′	9°	225	8° 45′	6° 45′
2500	15° 15′	12° 45′	300	8° 45′	6° 45′
2700	15° 30′	13° 30′			
3000	15°	13°			

Data for BOSCH ignition distributor		116.55.05.011.00 0.231.170.229
Contact breaker gap	mm	0.35
Contact pressure	g	500
Dwell angle		62° ± 3°
Resistive rotor arm	KΩ	⩾4.5

Distrinutor RPM	Automatic advance curve		Vacuum mmHg	Vacuum advance curve	
	Upper	Lower		Upper	Lower
150	initial	initial	0	30′	−30′
200	30′	−30′	50	30′	−30′
400	30′	−30′	100	4° 15′	−30′
550	2° 30′	−30′	212	9° 45′	6° 45′
800	5° 45′	2° 15′	320	9° 45′	6° 45′
1000	7° 30′	4° 30′			
1500	10°	7°			
2550	16° 30′	13° 30′			
3000	16° 30′	13° 30′			

2

Data for MARELLI ignition distributor
Bench test

		105.48.05.011.04 S 145 B	105.48.05.011.05 S 145 C 116.36.05.011.00 S 145 CX
Contact breaker gap	mm	0.42 – 0.48	0.42 – 0.48
Contact pressure	g	550 ± 50	550 ± 50
Dwell angle		60° ± 3°	60° ± 3°

Distributor RPM	Automatic advance curve Upper	Lower	Distributor RPM	Automatic advance curve Upper	Lower
250	initial	–	450	initial	–
350	3° 15′	–	500	1° 15′	–
400	4° 30′	–	550	2° 15′	initial
450	5° 30′	initial	700	5° 30′	2°
500	6° 15′	2°	800	6° 30′	3° 15′
550	6° 45′	4°	1000	7° 45′	5° 15′
650	7° 30′	5° 15′	1700	11° 15′	9°
700	7° 45′	5° 30′	2550	15° 30′	13° 30′
2125	17°	15°	3000	15° 30′	13° 30′

Data for MARELLI ignition distributor 116.55.05.011.01 S 168 BX

Bench test

Contact breaker gap	0.37 – 0.43 mm
Contact pressure	475 ± 50 g
Dwell angle	55° ± 3°
Resistive rotor arm	5 ± 1 KΩ

Distributor RPM	Automatic advance curve Upper	Automatic advance curve Lower	Vacuum mm Hg	Vacuum advance curve Upper	Vacuum advance curve Lower
150	initial	initial	0	30′	–30′
200	45′	–30′	70	30′	–30′
450	45′	–30′	100	2° 30′	–30′
550	2° 45′	–30′	212	9° 45′	6° 45′
700	6°	1° 30′	320	9° 45′	6° 45′
800	7°	2° 45′			
1000	8° 15′	5° 15′			
2550	16° 30′	13° 30′			
3000	16° 30′	13° 30′			

Electronic distributor data for MAGNETI MARELLI electronic ignition 116.97.05.011.01 SM 802 BX

Bench test

Distributor RPM	Automatic advance curve Upper	Automatic advance curve Lower	Vacuum mm Hg	Vacuum advance curve Upper	Vacuum advance curve Lower
250	0°	0°	0	30′	–30′
300	15′	–15′	70	30′	–30′
450	30′	–1°	100	2° 30′	–30′
550	1° 30′	–30′	212	9° 45′	6° 45′
800	4° 15′	2°	300	9° 45′	6° 45′
1000	6° 15′	4° 30′			
1900	11° 30′	9°			
2550	15° 30′	13° 30′			
3000	15° 15′	13° 15′			

3

Data for DUCELLIER ignition distributor 116.55.05.011.03

Bench test 4533 A

Contact breaker gap 0.35 mm

Contact pressure 450 ± 50 g

Dwell angle 57° ± 3°

Resistive rotor arm 5 KΩ

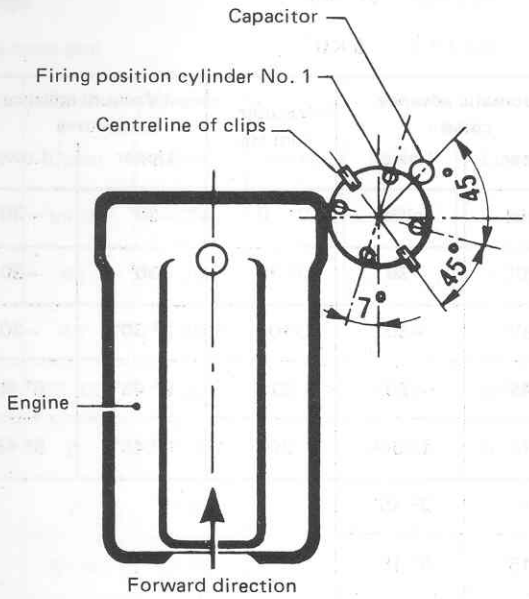
Distributor RPM	Automatic advance curve		Vacuum mm Hg	Vacuum advance curve	
	Upper	Lower		Upper	Lower
150	initial	initial	0	30′	–30′
200	45′	–30′	70	30′	–30′
450	45′	–30′	100	2° 30′	–30′
550	2° 45′	–30′	212	9° 45′	6° 45′
700	6°	1° 30′	300	9° 45′	6° 45′
800	7°	2° 45′			
1000	8° 15′	5° 15′			
2550	16° 30′	13° 30′			
3000	16° 30′	13° 30′			

4

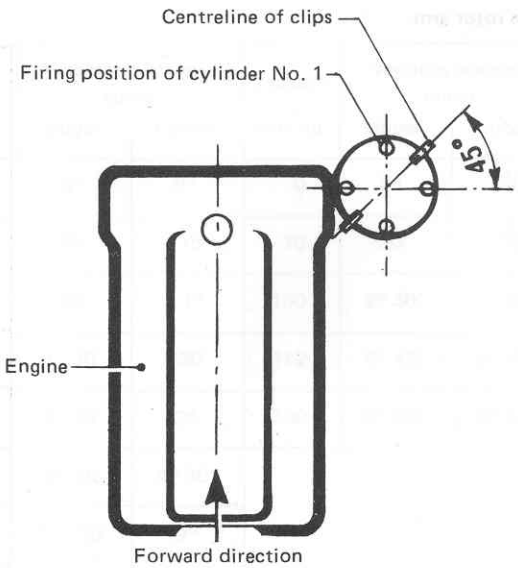
Positioning of distributor (016.00 (1) - 016.08 - 016.23 engines)

The position shown in diagram is applicable when cylinder No. 1 is in the firing position (piston at TDC and both valves closed).

INSTALLATION DIAGRAM OF BOSCH DISTRIBUTOR



INSTALLATION DIAGRAM OF MARELLI DISTRIBUTOR

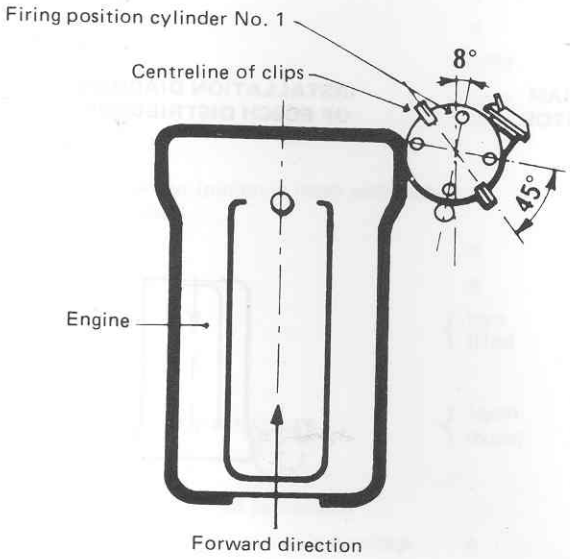


(1) Up to engine 257.000

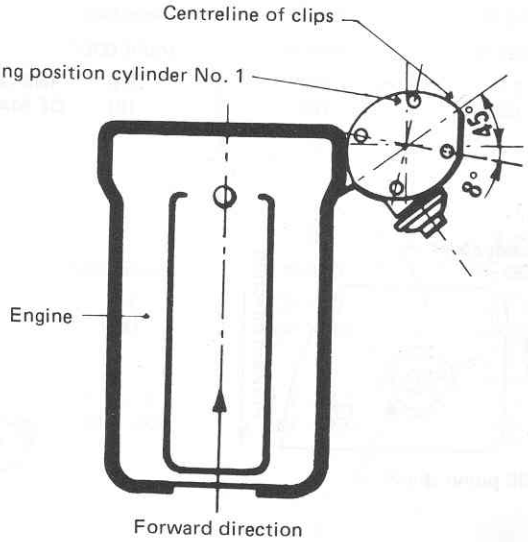
Positioning of distributor (016.00 (1) - 016.55 - 016.78 engines)

The position shown in the diagram is applicable when cylinder no. 1 is in the firing position (piston TDC and both valves closed).

INSTALLATION DIAGRAM OF BOSCH-DUCELLIER DISTRIBUTOR



INSTALLATION DIAGRAM OF MARELLI DISTRIBUTOR



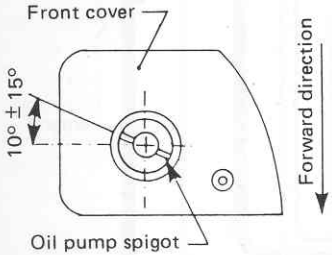
(1) From engine 257.001

5

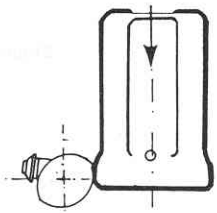
Positioning of distributor

The position shown in the diagram is applicable when cylinder no. 1 is in the firing position (piston at TDC and both valves closed).

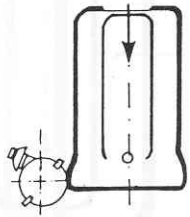
– Distributor drive recess on oil pump spigot must be positioned as shown.
– Position distributor by turning distributor body to align cylinder no. 1 ignition mark on edge of skirt with rotor.



INSTALLATION DIAGRAM OF MARELLI DISTRIBUTOR



INSTALLATION DIAGRAM OF BOSCH DISTRIBUTOR



6

Starter

Mechanical and electrical data

		116.00.05.030.05 BOSCH (0001211987) EF ➔ 12V-0.7PS	105.12.05.030.03 BOSCH (0001311110) GF ➔ 12V-1.7PS	116.80.05.030.00 BOSCH (0001211207) EF ➔ 12V-1.7PS	116.00.05.030.10 MARELLI E 95-0.9/12
1) Running torque test (pinion in mesh with starter ring gear and with dynamometer brake)					
– Voltage	V	9	9	10	9.8
– Current	A	⩽225	290 max	⩽230	⩽220
– Speed	RPM	1000 – 1200	1300 (min)	⩾1450	⩾1800
– Torque	kgm	0.6	0.8	0.5	0.5
	(Nm)	(6)	(8)	(5)	(5)
2) Lock torque test (pinion in mesh with locked starter ring gear)					
– Voltage	V	6	6	8	7.4
– Current	A	⩽290	520 (max.)	⩽400	⩽460
– Torque	kgm	⩾0.75	1.4	⩾1.07	⩾1.2
	(Nm)	(⩾7)	(14)	(⩾10.5)	(⩾12)
3) Light running torque test	kgcm	1.4 – 2.2	1.4 – 2	1.3 – 2.2	1.3
	(Ncm)	(14 – 22)	(14 – 20)	(13 – 22)	(13)
4) Solenoid switch (fitted to starter)					
– Max. current draw at nominal voltage	A	⩽28	38	⩽40	55
– Min. operating voltage	V	at –20°C ⩽7.8 at +80°C ⩽9.7	at –20°C 7.5 at +80°C 9.5	–	at –20°C ⩽6.5 at +80°C ⩽9
Pinion tooth module		2.1167	2.1167	2.1167	2.116

		116.08.05.030.02 PARIS-RHONE D8E 12612V / 116.00.05.030.02 PARIS-RHONE D 8 E 10912 V	116.55.05.030.00 PARIS-RHONE D 10 E 70	116.00.05.030.09 PARIS-RHONE D 8 E 145	116.08.030.03 DUCELLIER Dm E 124 P1
Electrical and mechanical data					
1) Running torque test (pinion in mesh with starter ring gear and with dynamometer brake)					
– Voltage	V	9.7	9.2	9.3	
– Current	A	⩽200	⩽280	⩽230	
– Speed	RPM	1600 – 1700	1450	1600 – 1700	
– Torque	kgm	0.5	0.8	0.5	
	(Nm)	(5)	(8)	(5)	
2) Lock torque test (pinion in mesh with locked starter ring gear)					
– Voltage	V	7.3	6.8	7.2	
– Current	A	⩽400	510	⩽410	
– Torque	kgm	1.2	2.03	1.2	
	(Nm)	(12)	(20)	(11.8)	
3) Light running torque test	kgcm	1.9 – 2.5	1.2 – 1.9	1.2 – 1.9	
	(Ncm)	(19 – 25)	(12 – 19)	(12 – 19)	
4) Solenoid switch (fitted on starter)					
– Max. current draw at nominal voltage	A	⩽55	⩽55	⩽55	
– Min. operating voltage	V	– –	⩽12.5	– –	
Pinion tooth module		2.1167	2.116	2.166	2.116

7

Alternator/regulator unit		116.10.05.060.03 BOSCH (0120400848) K1→14V - 45A - 22	116.10.05.060.01 PARIS-RHONE A13R121 - 12V	116.10.05.060.06 SEV MARCHAL A1445/55 { 71156030 71271102 116.10.05.060.18 SEV MARCHAL A 14/55A 71212702
Electrical data				
– Min. output	A	45	50	55
– Start charging	RPM	1150	1100	1000
– 2/3 max. output	RPM	2200	2200	2000
– Max. output	RPM	6000	6000	8000

Note: The data apply to the alternator connected to corresponding voltage regulator (see "Components and timing").

		116.10.05.060.08 (1) BOSCH 0.120.489.549 K1→14V - 55A - 20	116.10.05.060.12 (1) PARIS-RHONE A13-R192	116.55.05.060.00 (1) MARELLI
– Min. output	A	55	50	~60
– Start charging	RPM	1000	1000	1100
– 2/3 max. output	RPM	2000	2000	2100
– Max. output	RPM	6000	8000	6000

(1) With integral electronic voltage regulator

8 Coil

Electrical data

R_1 (20°C) - Resistance of primary winding Ω

R_2 (20°C) - Resistance of secondary winding Ω

r (20°C) - Resistor Ω

105.25.65.079.00 BOSCH 0.221.119.008 $R_1 = 2.9 - 3.4$ $R_2 = 6000 - 10000$	105.48.65.079.00 KLITZ G 53 SB $R_1 = 2.9 - 3.2$ $R_2 = 5400 - 8000$	105.12.65.079.02 SEV MARCHAL 3H $R_1 => 3$ $R_2 = 5250 - 6000$
116.55.65.079.00 BOSCH 0.221.119.044 $R_1 = 1.7 - 2.2$ $R_2 = 7000 - 12000$	105.12.65.079.03 ISKRA - ATA 0105 $R_1 = 3.2$ $R_2 = 6740$	105.48.65.079.01 MARELLI BE 200A $R_1 = 3.2 \pm 4\%$ $R_2 = 6300 \pm 10\%$
105.12.65.079.01 DUCELLIER 2792 A $R_1 = 2.8 - 3.4$ $R_2 = 6000 - 10000$	116.33.65.079.00 MARELLI BZR 202 B $R_1 = 1.70 \pm 4\%$ $r = 0.8 \pm 10\%$ $R_2 = 8500 \pm 10\%$	116.55.079.01 BOSCH 0.221.119.044 $R_1 = 1.7 - 2.2$ $r = 0.9 \pm 5\%$ $R_2 = 7000 - 12000$
116.97.65.079.00 (1) BOSCH 0.221.600.002 $R_1 = 0.7 - 1$ $R_2 = 6700 - 9600$	116.55.65.079.02 (1) MARELLI BAE 207 B $R_1 = 0.72 \pm 10\%$ $R_2 = 7900 \pm 10\%$	

(1) Coils with electronic control unit for electronic ignition

TIGHTENING TORQUES

❶ Temperature gauge sender on water jacket of inlet manifold	3.5 – 4 (34 – 39)	kgm (Nm)
❷ Temperature switch on cylinder head, for high water temperature	2 – 2.5 (20 – 25)	kgm (Nm)
❸ Nuts securing cover to inlet manifold thermostat	1 – 1.6 (10 – 16)	kgm (Nm)
❹ Temperature switch for electric fan on radiator (reference torque to be obtained using ordinary spanner and antiseize (see item 2 under "Fluids and Lubricants")	2 – 2.5 (20 – 25)	kgm (Nm)

DIMENSIONS

❶ Radiator leakage test pressure	1.1	kgm/cm²

TEMPERATURES

❶ **Thermostat setting**

– Thermostat begins to open at	81° – 85°	°C
– Thermostat fully open at	95°	°C
– Bulb travel	⩾7.5	mm

❷ Cut-in temperature for electric fan	84° – 88°	°C

FLUIDS AND LUBRICANTS

1

Filling cooling system

For temperature down to –20°C

– Antifreeze (concentrated) - Part. No. 3681-69956	3	litres
– Distilled water	5	litres
– Antifreeze (ready for use) - Part. No. 3681-69958	8	litres

For temperature down to –35°C

– Antifreeze (concentrated) - Part. No. 3681-69956	4	litres
– Distilled water	4	litres

NOTE: A stronger antifreeze mixture for protection against temperatures from –20°C to –35°C can be obtained by draining off a certain amount of existing mixture from the radiator and the header tank and replacing it with the same quantity of concentrated antifreeze as follows:

– Radiator	1.6	litres
– Header tank	0.34	litres

Warning: These products cause damage to the paintwork - avoid contact.

2

Thread of temperature switch for radiator fan

Antiseize R. GORI: Never seez - Part. No. 3671-69850.

SEALANTS

1

Cooling system leak preventer

AREXONS sealing powder - Part. No. 3522-00101 8 g

NOTE: ALUMASEAL may be used as an alternative

TIGHTENING TORQUES

1

Unions, hydraulic clutch pipes

– Rigid pipe unions	0.8 – 1 (8 – 9)	kgm (Nm)
– Hose unions	1 – 1.5 (10 – 15)	kgm (Nm)

NOTE: Torque for reference; to be achieved using ordinary spanner

2

Bolts retaining clutch cover to flywheel	1.3 – 1.6 (13 – 16)	kgm (Nm)

3

Bolts retaining clutch shaft to flywheel (using compound as indicated under 2 Sealants)	2.7 – 3.2 (27 – 31)	kgm (Nm)

4

Nut retaining release fork to shaft	9.5 – 10.5 (94 – 103)	kgm (Nm)

5

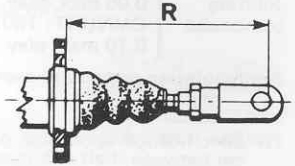
Bolts retaining clutch assembly to gearbox/ differential unit	2.9 – 3.3 (29 – 32)	kgm (Nm)

DIMENSIONS

1

Push rod adjustment dimension

R = mm 101.5



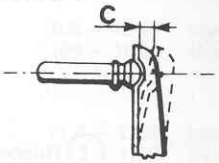
2

Static balacing of flywheel/diaphragm spring (max. permissible out-of-balance)	10	grcm

3

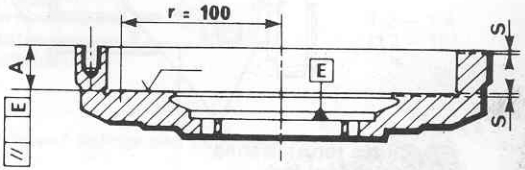
Slave cylinder travel

C = mm 11.1 to 12.7



4

Clutch flywheel regrinding



The driven plate contact face should be reground to such an extent as not to alter the dimension between clutch plate contact face and clutch cover register face.

mm 22.5 + 0.2 (2)
A = mm 25 + 0.2 (1)

If dimension A is not within the specified limits the clutch cover register face should be reground as well.

Tolerances

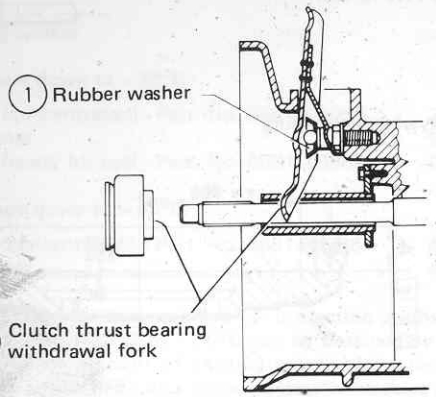
– Misalignment of clutch plate contact face to clutch shaft mounting face (as read at radius "r") // = 0.08 mm

– Misalignment of the face of the register for the clutch cover and the clutch shaft mounting face // = 0.08 mm

– Surface roughness of clutch plate contact face √ = μ0.4 to 0.5

(1) For 200 mm dia. clutch
(2) For 215 mm dia. clutch

FLUIDS AND LUBRICANTS



1

Washer on ball pin for clutch fork

Grease: { AGIP: F1 Grease 33FD / IP Autogrease FD } Part. No. 3671-69833

2

Clutch thrust bearing and release fork

Grease ISECO: Molykote BR2 - Part. No. 3671-69841

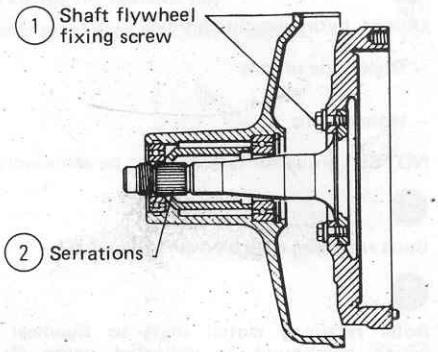
3

Hydraulic clutch system

Fluid { AGIP F1 Brake Fluid Super HD / ATE: Blau S } Part. No. 3681-6995

Warning: This product is harmful to paintwork and should therefore be kept away from it.

SEALANTS



1

Thread of bolts retaining clutch shaft to flyweel

Locking compound: LOCTITE 270 (Green) Part. No. 3524-00009(2)

2

Clutch shaft serrations

Jointing compound: LOCTITE 242(Blue) - Part. No. 3524-00010(2)

3 (1)

Inner bearing seat on clutch shaft

Jointing compound { LOCTITE: 601 (green) - Part. No. 3524-00011 (2) / 0.05 max. play / OMNIFIT: 150L (green) - Part. No. 3524-00009 (2) / 0.10 max. play }

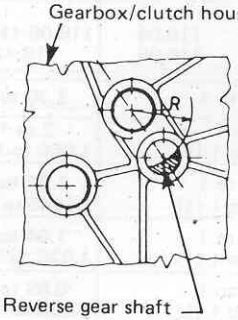
Apply jointing compound over entire outer periphery.

(1) Specification applicable only to clutch assemblies without spacer between shaft bearings.
(2) Before applying Loctite, remove any trace of old compound using a suitable brush and compressed air. Degrease surfaces using trichlorethylene or chlorothene.

OPERATION

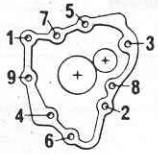
1

Positioning reverse gear shaft in gearbox/clutch housing



TIGHTENING TORQUES

1 Bolts sercuring crownwheel to differential housing (oiled)	6.8 – 7.5 (67 – 73)	kgm (Nm)
2 Nuts securing cover to differential housing (and "tool flange" for determination of preload)	1.8 – 2.2 (18 – 21)	kgm (Nm)
3 Static rolling torque of taper bearing on differential housing		
– For new bearings	10 – 20 (98 – 196)	kgcm (Ncm)
– For used bearings	5 – 7 (49 – 68)	kgcm (Ncm)
4 Bolts securing shoulder plate to intermediate flange	1.4 – 1.6 (14 – 15)	kgm (Nm)
5 Nut for primary shaft	9.5 – 10.5 (94 – 103)	kgm (Nm)
6 Nut for bevel pinion	11.4 – 12.6 (112 – 123)	kgm (Nm)
7 Nuts, securing gearbox/differential housing and gearbox/clutch housing to intermediate flange	1.2 – 1.4 (12 – 13)	kgm (Nm)
8 Cover for detent springs and balls (selector rods)	1.7 – 2.1 (17 – 20)	kgm (Nm)
9 Reversing light switch	2.3 – 2.7 (23 – 26)	kgm (Nm)
10 Bolts securing cover to gearbox/differential housing	1.8 – 2.2 (18 – 21)	kgm (Nm)
11 Nuts securing rear selector lever to control rod and coupling	2.8 – 3.3 (28 –32)	kgm (Nm)
12 Nut securing coupling (flexible or rigid) connecting rear lever to gear control rod	2 – 3.2 (20 – 31)	kgm (Nm)
13 Fast idle switch on intermediate flange (installed only in T 116.09 for export to Sweden and 2000, model year 1978).	4.1 – 4.9 (40 – 38)	kgm (Nm)



DIMENSIONS

1

Up to model year '82 excluded

		1600		1800		2000
		116.00 116.02	116.04 116.05	116.08-116.09 116.42	116.10-116.11 116.54	116.36-116.37 116.55-116.56 116.59
	1st	3.30 to 1		3.30 to 1	3.30 to 1	3.30 to 1
	2nd	2 to 1 1.956 to 1 (1)		2 to 1 1.956 to 1 (1)	2 to 1	2 to 1 1.956 to 1 (1)
	3rd	1.37 to 1 1.345 to 1 (1)		1.37 to 1 1.1345 to 1 (1)	1.37 to 1	1.37 to 1 1.345 to 1 (1)
	4th	1.04 to 1 1.026 to 1 (1)		1.04 to 1 1.026 to 1 (1)	1.04 to 1	1.04 to 1 1.026 to 1 (1)
	5th	0.83 to 1 0.833 to 1 (1)		0.83 to 1 0.833 to 1 (1)	0.833 to 1	0.83 to 1 0.833 to 1 (1)
	REV.	2.62 to 1		2.62 to 1	2.62 to 1	2.62 to 1
Axle ratio		10/43		10/41		
Overall transmission ratios Speed at 1000 engine rpm	1st	14,19 to 1	14,19 to 1	13.53 to 1	13.53 to 1	13.53 to 1
	kph	8.1	7.98	8.44	8.2	8.37
	2nd	8.60 to 1 8.410 to 1 (1)	8.60 to 1 8.410 to 1 (1)	8.20 to 1 8.019 to 1 (1)	8.20 to 1	8.20 to 1 8.019 to 1 (1)
	kph	13.4	13.19	13.94	13.6	13.83
	3rd	5.89 to 1 5.783 to 1 (1)	5.89 to 1 5.783 to 1 (1)	5.62 to 1 5.514 to 1 (1)	5.62 to 1	5.62 to 1 5.514 to 1 (1)
	kph	19.5	19.19	20.29	19.8	20.13
	4th	4.47 to 1 4.411 to 1 (1)	4.47 to 1 4.411 to 1 (1)	4.26 to 1 4.206 to 1 (1)	4.26 to 1	4.26 to 1 4.206 to 1 (1)
	kph	25.8	25.5	26.90	26.1	26.73
	5th	3.57 to 1 3.582 to 1 (1)	3.57 to 1 3.582 to 1 (1)	3.40 to 1 3.415 to 1 (1)	3.40 to 1	3.40 to 1 3.415 to 1 (1)
	kph	32	31.5	33.27	32.6	33.03
	REV.	11.26 to 1	11.26 to 1	10.74 to 1	10.74 to 1	10.74 to 1
	kph	10.2	10.08	11.02	10.35	10.58

(1) Ratios for gearbox with reduced module

From model year '82	1600	1800	2000	
	113.11	113.12	113.05 - 113.06 113.32 - 113.43	113.17-113.18 116.59-116.60
1st	3.500 to 1			
2nd	1.956 to 1			
3rd	1.258 to 1			
4th	0.946 to 1			
5th	0.780 to 1			
REV.	3.000 to 1			

	11/43	9/41 (1)	10/43 (1)	11/42	10/43 (1)	11/42	10/43
1st	13.72 to 1	15.94 to 1	15.05 to 1	13.37 to 1	15.05 to 1	13.37 to 1	15.05 to 1
kph	8.29	7.12	7.54	8.49	7.54	8.50	7.53
2nd	7.66 to 1	8.90 to 1	8.41 to 1	7.47 to 1	8.41 to 1	7.47 to 1	8.41 to 1
kph	14.84	12.74	13.49	15.20	13.49	15.20	13.48
3rd	4.93 to 1	5.73 to 1	5.40 to 1	4.80 to 1	5.40 to 1	4.80 to 1	5.40 to 1
kph	23.08	19.81	20.98	23.63	20.98	23.62	20.98
4th	3.71 to 1	4.31 to 1	4.07 to 1	3.61 to 1	4.07 to 1	3.61 to 1	4.07 to 1
kph	30.69	26.34	27.90	31.42	27.90	31.42	27.90
5th	3.06 to 1	3.55 to 1	3.35 to 1	2.98 to 1	3.35 to 1	2.98 to 1	3.35 to 1
kph	37.23	31.95	33.84	38.11	33.84	38.11	33.83
REV.	11.76 to 1	13.66 to 1	12.90 to 1	11.42 to 1	12.90 to 1	11.42 to 1	12.90 to 1
kph	9.68	8.30	8.80	9.91	8.80	9.90	8.79

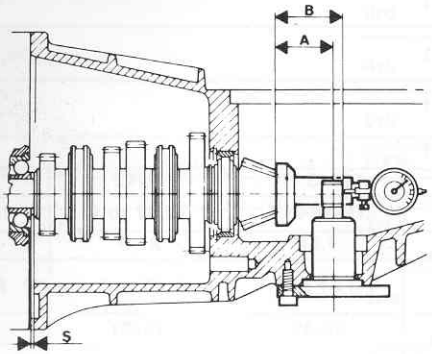
(1) Axle ratio for close ratio gearbox version.

2

Clearance between differential wheels and pinions 0 to 0.05 mm

3

Determining the thickness S of shim between the bush of 4th-speed gear and the bearing inner race.



$S = \pm L - (\pm C)$

Where:

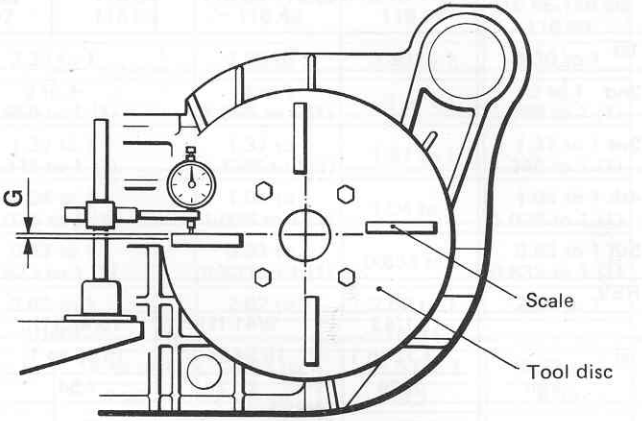
L = Crown wheel axis reading taken with dial gauge
C = Dimension stamped on pinion

The distance must correspond to the nominal distance plus or minus the figure stamped on the pinion face (expressed in hundreths')

– Nominal distance between crown wheel centre and bevel pinion head A = 56.5 ± 0.03 mm
– Dimension of tool C. 60163 for zero setting the dial gauge B = 66.5 mm

4

Bevel drive backlash 0.10 to 0.20 mm



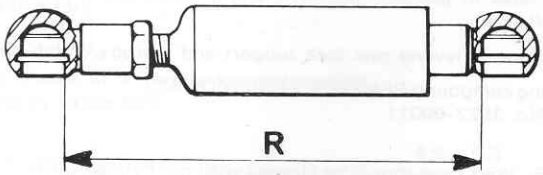
Backlash must be determined by placing the pointer of a dial gauge on the scale of the tool disc at a point corresponding to the average radius of the crown wheel (77 mm) and moving the disc by the amount of backlash present.
If backlash is not within the required limits, proceed as follows, noting that the total thickness of the shims behind the outer taper bearing races in the differential housing must remain constant, as otherwise the preload would be altered.

a) **Backlash below the required limit.** Move the crown wheel away from the pinion **by reducing** the number of shims on the side of the differential cover and **increasing** by the same amount the number on shims on the gearbox/final drive side.

b) **Backlash in excess of specified figure.** Move the crownwheel closer to the pinion **by increasing** the thickness of the shims on the differential cover side and by **decreasing** by the same amount the thickness of the adjustment shims on the gearbox/final drive side.

5

Selector rod flexible linkage installing dimension R = 71.5 ± 0.5 mm



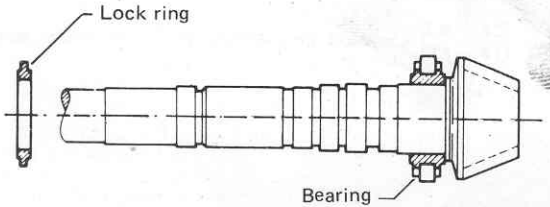
6

Axial clearance between selector forks and synchromesh hubs 0.7 to 0.9 mm

TEMPERATURES

1

Fitting temperature for bevel pinion roller bearing lock ring (head side) 140 °C

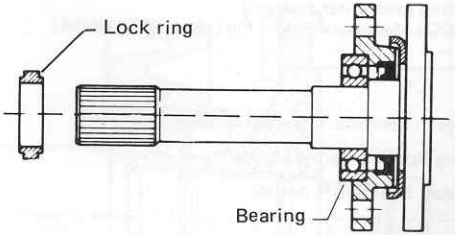


2

Gearbox/clutch housing heating temperature for fitting reverse gear shaft and selector rod bush 140 to 160 °C

3

Heating temperature for rear shaft bearing lock ring 190 °C



4

3rd and 4th drive gear heating temperature for installation on main shaft 195 to 210 °C

FLUIDS AND LUBRICANTS

1

Gearbox/differential assembly roller bearing and detent devices

Grease { AGIP: F1 Grease 33 FD / IP: Autogrease FD — Part. No. 3671-69833

2

Gear lever ball joint
Reverse sliding gear inner bushing
Grease ISECO: Molykote BR2 - Part. No. 3671-69841

3

Sealing rings in gearbox/differential assembly

Inner sealing lip: See item 2 above

Outer surface: See item 4 below

4

Gearbox/differential oil — 2.750 kg

Oil { AGIP: F1 Rotra HP SAE 85W90 / SHELL: Spirax 85W90 HD — Part. No. 3631-69408

SEALANTS

1

Joint faces of gearbox/final drive and gearbox/clutch and intermediate flange.

Joint face of reverse gear lock support and gearbox/clutch housing

Jointing compound PERFECT SEAL (LOWAC)
Part. No. 3522-00011

NOTE: Joint faces should be cleaned with methylated spirit.

TIGHTENING TORQUES

1

Bolts securing the prop. shaft flexible coupling to flywheel, shafts and clutch fork.

A) By means of a torque spanner applied directly to the bolt

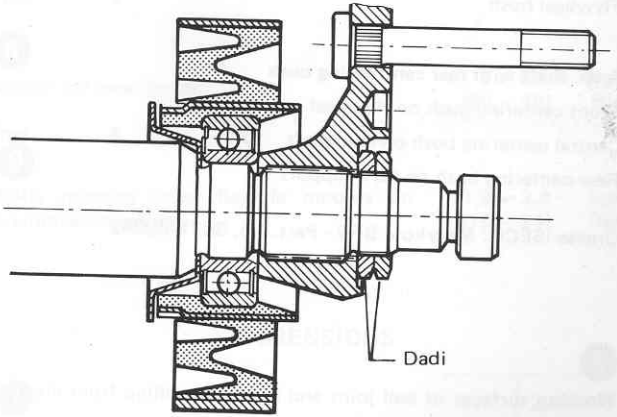
Prop. shaft with capscrew	4.9 – 5.3 (49 – 53)	kgm (Nm)
Prop. shaft interference fit bolt and lock nut	4.4 – 4.9 (44 – 49)	kgm (Nm)
Prop. shaft with rear centralising bush	4 – 5 (39 – 49)	kgm (Nm)

B) By means of extension A 5.0190/91/92 and torque spanner with arm length of 300 or 400 mm

Prop. shaft with capscrew	4.1 – 4.5 (41 – 45)	kgm (Nm)
Prop. shaft interference fit bolt and lock nut	3.8 – 4.2 (38 – 41)	kgm (Nm)
Prop. shaft with rear centralising bush	3.4 – 4.2 (33 – 41)	kgm (Nm)

2

Nuts securing fork and centre prop. shaft support	9.5 – 10.5 (93 – 105)	kgm (Nm)



FLUIDS AND LUBRICANTS

1

Prop. shaft with capscrew.

Prop. shaft with interference fit bolt and lock nut

Prop. shaft front bush	int. dia	5	cm^3
	ext. dia.	thin coat	
Prop. shaft rear bush and rubber cushion		7	cm^3
Prop. shaft centre bush and rubber cushion		7	cm^3
Flywheel bush		2	cm^3

Prop. shaft with rear centralising bush

Front centering bush on flywheel Central centering bush on rear shaft Rear centering bush on fork support	5	cm^3

Grease ISECO: Molykote BR2 - Part. No. 3671-69842

2

Working surfaces of ball joint and bush controlling front clearance

Working surfaces of ball joint and central and rear spherical seat

Apply a thin coat of Molykote G Rapid grease - Part. No. 3671-69842

SEALANTS

1

Centre support seat and centre fork seat splines

Jointing compound { LOCTITE: 270 (Blue) / OMNIFT: 150 M (Blue) } Part. No. 3524-00010

Note: For central support retention apply jointing compound to shaft at 3 equally spaced points.
Before applying jointing compound, remove any traces of old compound by wiping and blowing the surface.
Degrease using trichlorethylene or chlorothene.

OPERATION

1

Use of automatic transmission (2000 cc. models only)

Gear selection from P or N position must be carried out at engine speeds between idle (see group 04) and 1200 rpm. otherwise the clutch may be damaged.
It is advisable to hold brake pedal down when gear is engaged as vehicle tends to move forward when engine is idling.

TIGHTENING TORQUES

1		
Unions, transmission fluid outlet and return pipes on automatic transmission and oil cooler	3.5 – 4.5 (34 – 44)	kgm (Nm)
Pipe and hose fittings	4.5 – 5.5 (44 – 54)	kgm (Nm)
2		
Bolts retaining shaft to connecting plate and converter (with sealant as per para.1)	2.7 – 3.2 (26 – 31)	kgm (Nm)
3		
Nut retaining selector fork to shaft on transmission	9.5 – 10.5 (94 – 103)	kgm (Nm)
4		
Starter motor inhibitor and reverse light switch	3.5 (34)	kgm (Nm)
5		
Oil level sender on oil filler union	2.4 – 3 (24 – 29)	kgm (Nm)
6		
Plug overfill warning light hole on transmission oil filler	0.5 – 0.6 (4.8 – 6)	kgm (Nm)
7		
Oil filler cap	1.5 – 2 (15 – 20)	kgm (Nm)
8		
Union, oil level sender	7 – 8 (69 – 78)	kgm (Nm)
9		
Bolts retaning front flexible mounts on transmission casing	1.9 – 2.4 (19 – 24)	kgm (Nm)

DIMENSIONS

1

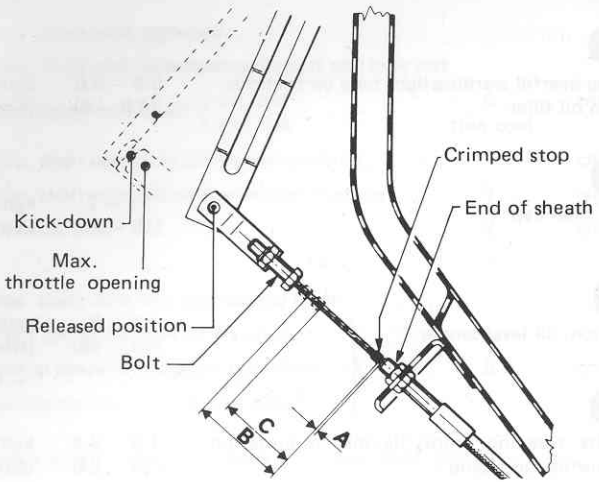
Gearbox ratios

1st	2.48 to 1
2nd	1.48 to 1
3rd	1 to 1
REV	2.09 to 1

Final drive ratio 13/46

2

Adjusting kick-down cable (1)



1) With the accelerator pedal fully released set dimension "A" between crimped stop and the end of the sheath by means of the bolt "A" 0 to 0.5 mm (2)

2) Adjust the stop bolt under the accelerator pedal to give the crimped stop the travel "B", when fully depressed (full throttle aperture plus kick-down movement) "B" 44 mm

3) Depress the accelerator pedal to the full throttle position and check that in this position the crimped stop has completed a travel "C" 39 mm

(1) To be carried out with the accelerator cable already connected and adjusted as detailed in group 04
(2) The cable should be slightly taut, i.e. without any end play

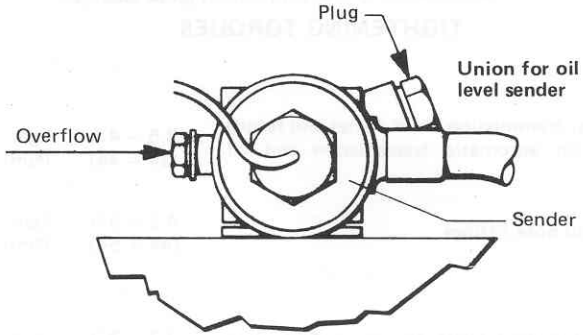
FLUIDS AND LUBRICANTS

1

Fluid capacity, automatic transmission

– Total capacity	6	kg
– Quantity required for regular fluid changes	1.5	kg

Fluid: AGIP: F1 ATF Dexron B 1129 – Part. No. 3631-69225



Fluid Change

The fluid should be changed with the transmission at ambient temperature (20°C), and with the selector lever in the "P"position. Remove the oil level sender; add the quantity of fluid specified for the regular change.
Check the fluid level as described below.

Checking fluid level

This operation should be carried out with the transmission fluid temperature at 70°C, the engine running at idling speed and the selector lever in the "P" position.
Check that fluid level is at lower edge of overfill inspection hole.
Check that fluid level warning light on dashboard lights up.

Note: If the check is made with the transmission fluid at a different temperature, a false reading may be obtained.

2

Stud for gear selector lever and seats on gear selector lever housing - lubricate with:

ISECO grease: Molykote Longterm n. 2 - Part. No. 3671 - 69831

SEALANTS AND ADHESIVES

1

Thread of bolts retaining shaft to connecting plate and torque converter

Jointing compound { LOCTITE 270 (Green) / OMNIFIT 200 M (Green) } Part. No. 3524-00009

Note: Before applying jointing compound, remove any traces of old compound using a suitable tool and compressed air. Degrease using trichloretylene or chlorothene.

2

Converter shaft fork serrations

Jointing compound { LOCTITE: 242 (Blue) / OMNIFIT: 150 M (Blue) } Part. No. 3524-00010

See note, item 1

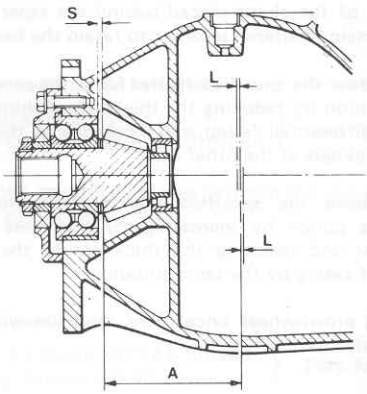
TIGHTENING TORQUES

1 Bolts securing half shaft to differential output shaft and drive flange (with grease as in item 1, Lubricants).	3 – 3.6 (30 – 36)	kgm (Nm)
2 ▲ Crown wheel retaining bolts (oiled)	6.8 – 7.5 (67 – 74)	kgm (Nm)
3 ▲ Bolts securing differential cover (and flange of special tool for measuring preload)	2 – 2.5 (20 – 25)	kgm (Nm)
4 ▲ Rotating torque to determine differential bearing static pre-load		
with new bearings	15 – 25 (147 – 225)	kgcm (Ncm)
with reused bearings	5 – 7 (49 – 68)	kgcm (Ncm)
5 ▲ Nut retaining bevel pinion	7 – 9 (69 – 88)	kgm (Nm)
6 ▲ Bolts retaining rear differential cover to differential casing	2 – 2.5 (20 – 22)	kgm (Nm)
7 ▲ Bolts retaining differential drive shaft cover to differential casing	1.8 – 2.2 (18 – 22)	kgm (Nm)
8 ▲ Oil filler and drain caps on differential casing	1.5 – 18 (15 – 18)	kgm (Nm)

▲ Applies only to vehicles with automatic transmission

DIMENSIONS

1 ▲ Determining thickness of shim S between back of pinion and bearing to control pinion height.



$S = \pm L - (\pm C)$

Where:

L = Variation of crown wheel centreline measured with dial gauge

C = Value etched under pinion head face (in hundredths)

The actual value should correspond to the nominal value ± tolerance etched under the pinion head face.

Nominal distance between crown wheel centreline and pinion head

A = 99 ± 0.03 mm

▲ Applies only to vehicles with automatic transmission

2

Bevel drive backlash 0.1 to 0.20 mm

The backlash should be measured by setting the pointer of the dial gauge against the graduated scale on the special tool disc at a point equivalent to the mean radius of the crownwheel (84.5 mm) and move the disc through the backlash.
If backlash is not as specified, proceed as follows, noting that the total thickness of the shims placed behind the taper roller bearing cups should remain unaltered in order to retain the bearing pre-load.

a) **Backlash below the specified figure:** Move the crownwheel away from the pinion by **reducing** the thickness of shims on the cover side of the differential casing, and **increasing** by the same amount the shim thickness at the other side.

b) **Backlash above the specified figure:** Move the crownwheel towards the pinion by **increasing** the thickness of the shims in the cover and **reducing** the thickness of the shims at the other side of casing by the same amount.

Note: Rotating crownwheel once, play must be within 0.05 mm (0.002 in)

3 ▲

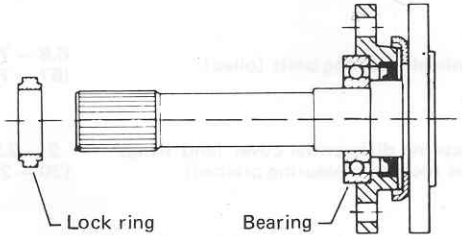
Limited slip differential clutch pack clearance 0.1 to 0.2 mm

▲ Only for vehicles with automatic transmission

TEMPERATURES

1 ▲

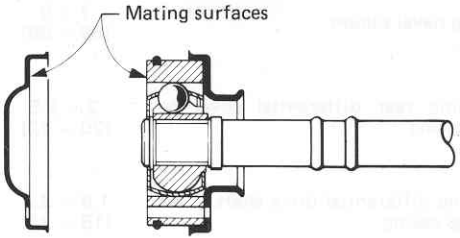
Temperature for fitting bearing lock ring to differential drive shaft 190 °C



SEALANTS AND ADHESIVES

1 ▲

Mating surfaces of constant-velocity joint inner and outer cover.

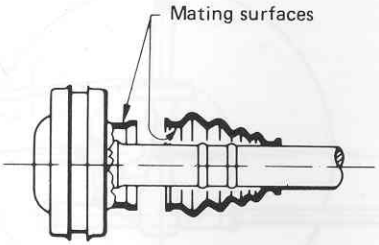


Jointing compound: CURIL K2 - Part. No. 3522-00031

▲ Only for vehicles with automatic transmission

2

Constant-velocity joint inner flange/boot mating surfaces.



Jointing compound: BOSTIK 475 or U.S.M. 473
Part. No. 3521-00034

3 ▲

Mating faces, differential drive shaft flange and differential casing.

Mating faces, gearbox casing - differential casing.

Jointing compound : PERFECT SEAL (LOWAC)
Part. No. 3522-00011

Note: Use methylated spirits to clean surfaces.

▲ Only for vehicles with automatic transmission

FLUIDS AND LUBRICANTS

1

Threads of bolts retaining half shaft to differential output shaft spacer

Grease ISECO: Molykote BR2 - Part. No. 3671-69841

2

Constant-velocity joint for half shaft 70 g

Grease { Molykote VN 2461/C / OPTIMOL Olistamoly 2LN584 } Part. No. 3671-69843

Note: Divide the amount of grease between the two sides of the row of balls of the joint.

3 ▲

Differential oil capacity 1.1 kg

Oil { AGIP: F1 Rotra MP SAE 80W90 / SHELL: Spirax HD 90 } Part. No. 3631-69408

4 ▲

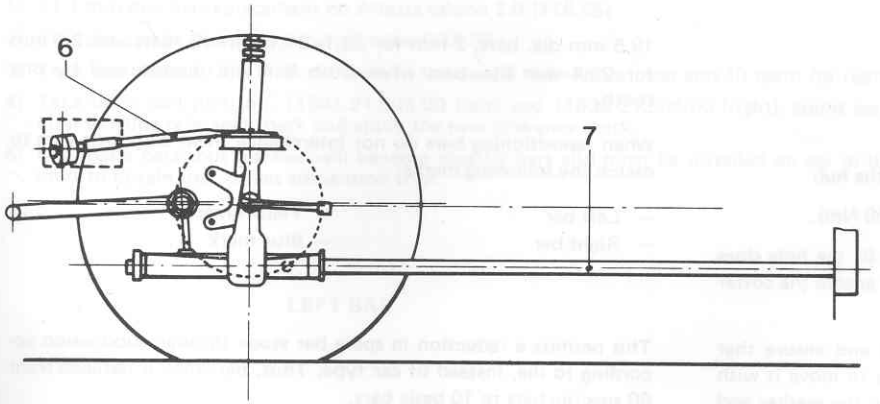
Differential oil seals

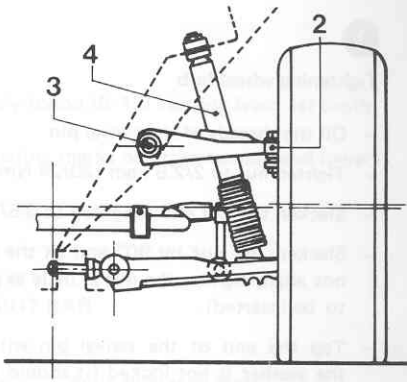
Sealing lip - see Part. No./item 1

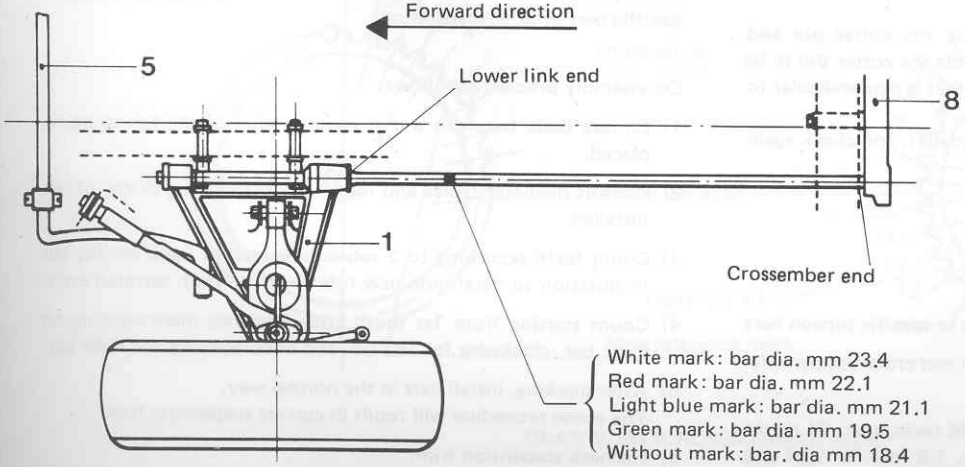
Outer diameter - see Part. No./Item 4

▲ Only for vehicles with automatic transmission

FRONT SUSPENSION DIAGRAM







1 - Lower link
2 - Ball joint
3 - Upper link
4 - Damper
5 - Anti-roll bar
6 - Tie rod
7 - Torsion bar
8 - Torsion bar crossmember

OPERATION

1

Tightening wheel hub

- Oil the threads of the swivel pin
- Tighten nut to 2/2.5 kgm (20/24 Nm) rotating the hub
- Slacken the nut and retighten to 0.5/1 kgm (5/10 Nm).
- Slacken the nut by 90° and fit the cotter pin (if the hole does not align, tighten the nut as little as possible to enable the cotter to be inserted).
- Tap the end of the swivel pin with a mallet and ensure that the washer is not locked (it should be possible to move it with little effort by applying a screwdriver between the washer and hub).

Note: Should the washer be locked, remove the cotter pin and slacken the nut just sufficiently to enable the cotter pin to be inserted in the hole on the swivel pin that is perpendicular to the one previously used.
Tap the end of the swivel pin with a mallet, and check again that the washer is free to move.

2

Basic torsion bar replacement and conversion to specific torsion bars

Reposition torsion bars relative to lower link and crossmember references to adjust front suspension trim.

Different number of bar serrations (front: 35 teeth, rear: 34 teeth) permits a minimum trim change of approx. 1.5 mm for 18.4 and 19.5 mm dia. bars, 2 mm for 22.1, 21.1 mm dia. bars and 2.5 mm for 23.4 mm dia. bars when both bars are repositioned by one tooth.

When repositioning bars do not interchange them and make sure to match the following marks:

- Left bar – Yellow mark
- Right bar – Blue mark

This permits a reduction in spare bar stock through subdivision according to dia, instead of car type. Thus, bar stock is reduced from 80 specific bars to 10 basic bars.

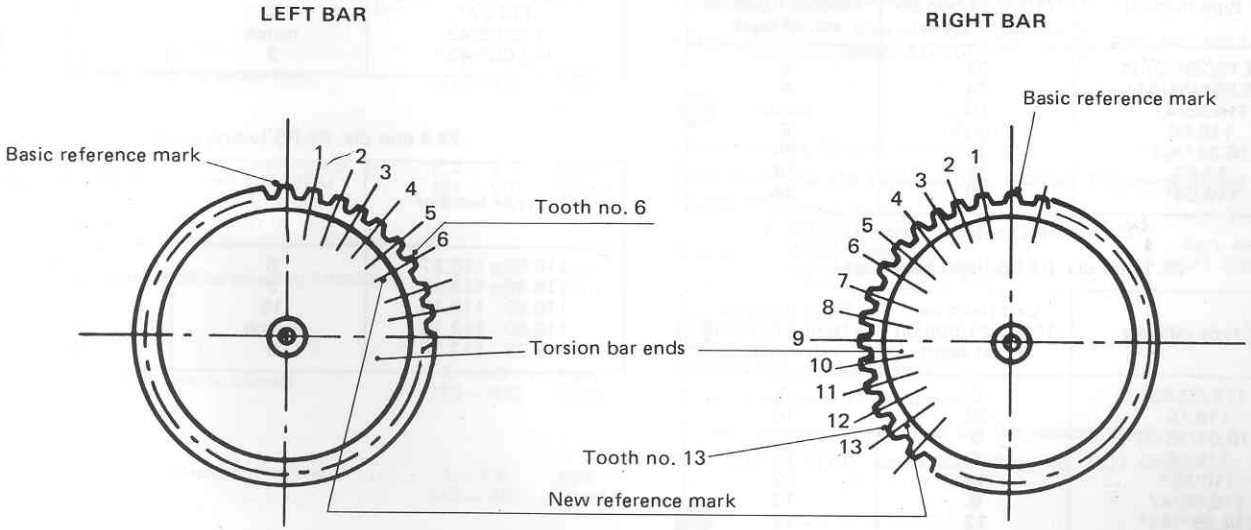
Consequently, basic bars obtained from store must be converted to specific bars prior to installation.

On assembly proceed as follows:

1) Choose basic bar with a dia. equal to that of the bar to be replaced.
2) Consult diameter tables and look for table relating to dia. of bar installed.
3) Count teeth according to 2 values indicated in table for the car in question to determine new references on both serrated ends.
4) Count starting from 1st tooth after reference mark existing on basic bar, clockwise for left bar and anticlockwise for right bar.
5) After marking, install bars in the normal way.
The above procedure will result in correct suspension trim.
6) Recheck suspension trim.

Example:

1) 21.1 mm dia. bar replacement on Alfetta saloon 2.0 (116.55)
2) Car type can be found on annexed table (116.55)
3) Take two values in line with car type, in this case 6 teeth for left bar and 13 teeth for right bar.
4) Take basic bars part. no. 11691.21.505.00 (left) and 11636.21.506.00 (right), count teeth previously found (6-13) starting from 1st tooth after existing reference mark and apply the new reference mark.
5) New basic bars thus marked will become specific bars and must be installed on car in line with existing marks on crossmember and lower links to obtain the correct suspension trim.



REAR VIEW (CROSSMEMBER SIDE)

18.4 mm dia. BARS (without mark)

Car type number	Left basic bar 11611.21.505.00 no. of teeth	Right basic bar 11610.21.506.00 no. of teeth
116.00/02/08	7	10
116.00/09/42	7	10
116.04/10/36	7	notch
116.05/11/37	notch	10

19.5 mm dia. BARS (green mark)

Car type number	Left basic bar 11656.21.505.00 no. of teeth	Right basic bar 11655.21.506.00 no. of teeth
116.15/29/33/34	24	6
116.55*/58/47*	24	6
116.55/47	10	notch
116.56	notch	6
116.58*/63*	39	24
11.63	31	16
116.56*	10	24

21.1 mm dia. BARS (light blue mark)

Car type number	Left basic bar 11691.21.505.00 no. of teeth	Right basic bar 11638.21.506.00 no. of teeth
116.00/42	6	8
116.15	23	18
116.04/36/37	3	notch
116.56	6	15
116.56*	10	22
116.55/47	6	13
116.55*/47*	12	18
116.76	25	26
116.76*	29	34
116.74	10	15

22.1 mm dia. BARS (red mark)

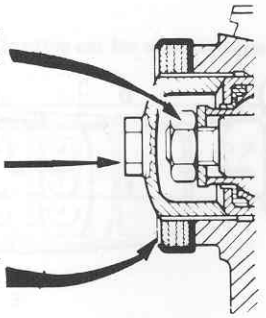
Car type number	Left basic bar 11642.21.505.00 no. of teeth	Right basic bar 11642.21.506.00 no. of teeth
116.00/42	notch	notch
116.55	2	8
116.55*	8	13
116.56	notch	15
116.76	22	26
116.76*	27	26
116.56*	2	18
113.05/11/12/30/32	2	8
113.07/42	22	26
113.05*/12*/30*/11*/32*	8	13
113.07*	27	26
113.06/43	notch	15
113.06*/43*	2	17

23.4 mm dia. BARS (white mark)

Car type number	Left basic bar 11660.21.505.00 no. of teeth	Right basic bar 11659.21.506.00 no. of teeth
116.59 - 113.17	5	notch
116.46 - 113.15	9	3
116.69 - 113.10	16	12
116.60 - 113.18	notch	4
116.73 - 113.16	5	6

* Only for A/C equipped cars

TIGHTENING TORQUES



1	Nut at the end of the lower link mounting	3 – 3.5 (30 – 34)	kgm (Nm)
2	Lower link lock ring	2 – 3.5 (20 – 34)	kgm (Nm)
3	Safety nut for lower link lock ring	6 – 7.2 (59 – 70)	kgm (Nm)
4	Nut retaining ball joint to lower link.	1.5 – 2 (15 – 19)	kgm (Nm)
5	Nut retaining lower link mounting to chassis	8.2 – 9.2 (81 – 90)	kgm (Nm)
6	Nut retaining upper link to steering knuckle	8.2 – 9.2 (81 – 90)	kgm (Nm)
7	Nuts retaining upper link to chassis	4 – 4.5 (40 – 44)	kgm (Nm)
8	Nut retaining caster adjustment rod to chassis	4 – 4.5 (40 – 44)	kgm (Nm)
9	Nuts retaining torsion bar crossmember	6.5 – 7.5 (64 – 74)	kgm (Nm)

FLUIDS AND LUBRICANTS

1

Space in wheel hub — 50 g

Grease { AGIP: F1 Grease 33 FD / SHELL: Retinax AX } Part. No. 3671-69833

2

Wheel hub seal
Sealing lip and running surface

Grease: (ISECO) Molykote BR2 - Part. No. 3671-69841

Note: Prior to installation, lubricate seal O.D. with:

Oil { AGIP: F1 Rotra HP SAE 80W90 / SHELL: Spirax AD 90) } Part. No. 3631-69408

3

Rubber blocks for anti-roll bar

Prior to fitting the stabiliser bar, moisten the inside of the rubber blocks with:

Grease { (ISECO) Ergon Rubber Grease No. 3 / SPCA: Spagraph / REINACH: Sferul B2AR } Part. No. 3671-69816

4

Serrated end of torsion bars

Bolts, retaining top link to body

Connecting links for stabiliser bar (on bottom links)

Anti-seize R. GORI: Never Seez - Part. No. 3671-69850

5

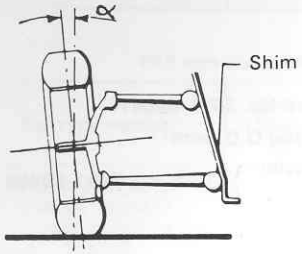
Cavity between bush and bottom link — 6 g

Grease (ISECO) Molykote Longterm no. 2
Part. No. 3671-69831

DIMENSIONS

1 **Front wheel angles**

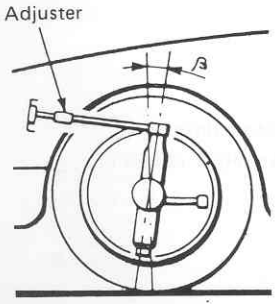
Camber angle (1) (2)



$\alpha =$ 20′ ± 30′

Max. difference between RH and LH wheels 40′

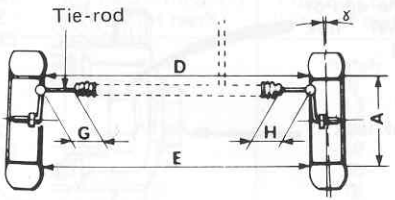
Castor angle (1) (3)



$\beta =$ 4°30′ ± 30′

Max. difference between LH and RH wheels 20′

Toe-out (1) (4)



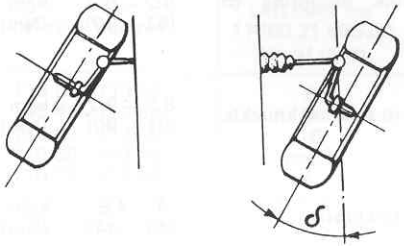
δ = 9′

E-D = mm 1 ± 1

G = mm H

A = Dia. for toe-out measurement mm 365

Max. steering lock of outside wheel (1)



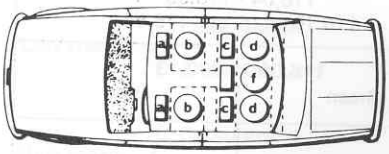
δ = 30°

(1) These figures are for use with car in normal height equal to a static load (see "Suspension Height")
(2) The addition or removal of one shim alters the camber angle by 15′ approx.
(3) One revolution of the adjuster alters the castor angle by 45′ approx.
(4) One revolution of the tie-rod alters the toe-out on one wheel by approx. 35′ (3.5 mm in respect of dimension D-E)
(5) Vehicles with bolted top link

2

Suspension height

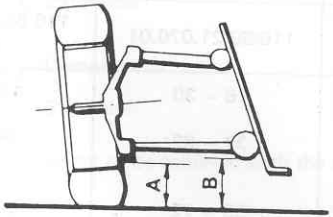
Diagram for loading car for checking suspension height



		Saloon	G.T.
a =		25	25
b =		50	50
c =	kg	25	
d =		50	
e =		–	25
f =		–	50

Front suspension height (1)

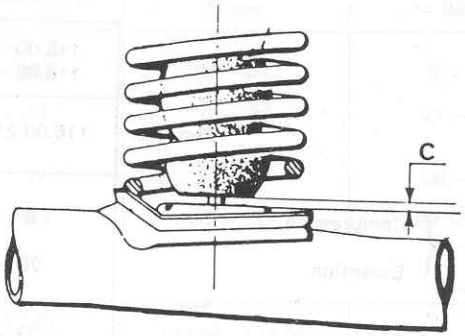
Front suspension height (1)



B-A = mm 44 ± 5

Rear suspension height

(*) C = mm 5 ± 5
(**) C = mm 44 ± 5 (2)



Inspection dimension C under static load after travelling 41 ± 5

Inspection dimension C to be obtained upon initial assembly 48 ± 5 } (3)

(*) Saloon with 11600.25510.08 springs and bump block 11600.25503.01
Coupe with front anti-roll bar 11600.21600.12 and bump block 11600.25503.01

(**) Saloon with 11600.25510.12/13 springs and bump block 11600.25503.04
Coupe with front anti-roll bar 11610.21600.00 and bump block 11600.25503.03

(1) This dimensions increases by approx. 1.5 mm when rotating the torsion bar (RH bar clockwise, LH bar anti-clock-wise) by one tooth in both locations

(2) Vehicle with manual gearbox

(3) Vehicle with automatic transmission

3

Damper adjustment and matching

Front and rear dampers must be matched on installation as shown in table.

FRONT

			116.00 - 116.02 116.08 - 116.09	116.10 - 116.11 116.54	116.04 - 116.05 116.10 - 116.11 - 116.54	
		Part. No.	116.00.21.070.01	116.00.21.070.06	116.00.21.070.13 Green	116.00.21.070.13 Blue
Low speed	Compression	kg	6 – 15	5 – 16	7 – 17	9 – 19
	Extension		28 – 50	12 – 33	37 – 64	24 – 43
High speed	Compression		32 – 45	19 – 33	20 – 32	47 – 65
	Extension		157 – 205	84 – 127	83 – 118	98 – 135

			113.05 - 113.06 - 113.11 - 113.12 113.30 - 113.32 - 113.43 - 116.00 116.02 - 116.08 - 116.09 - 116.42 116.55 - 116.56	116.04 - 116.05 116.36 - 116.37 116.59 - 116.60	116.00 - 116.42 116.55 - 116.56
		Part. No.	116.50.21.070.01 (1)	116.59.21.070.01	116.55.21.070.03 (2)
Low speed	Compression	kg	13 – 25	16 – 30	12 – 24
	Extension		25 – 45	37 – 62	16 – 32
High speed	Compression		39 – 57	53 – 72	36 – 54
	Extension		102 – 140	170 – 220	110 – 150

REAR

			116.00 - 116.02 116.08 - 116.09	116.10 - 116.11 116.54	116.04 - 116.05 116.10 - 116.11 - 116.54	
		Part.No.	116.00.25.070.11 116.00.25.070.06	116.00.25.070.10	116.00.25.070.17 Green	Blue
Low speed	Compression	kg	6 – 15	5 – 16	6 – 16	9 – 19
	Extension		22 – 50	12 – 39	15 – 38	21 – 54
High speed	Compression		29 – 45	19 – 37	21 – 35	26 – 45
	Extension		122 – 155	86 – 144	83 – 127	92 – 143

			113.05 - 113.06 - 113.11 - 113.12 113.30 - 113.32 - 113.43 - 116.00 116.02 - 116.08 - 116.09 - 116.42 116.55 - 116.56	116.04 - 116.05 116.36 - 116.37 116.59 - 116.60	116.00 - 116.42 116.55 - 116.56
		Part. No.	116.00.25.070.23 (1)	116.59.25.070.01	116.55.25.070.03 (2)
Low speed	Compression	kg	7 – 17	13 – 26	12 – 24
	Extension		11 – 30	33 – 72	12 – 32
High speed	Compression		24 – 42	41 – 63	33 – 54
	Extension		91 – 138	128 – 186	96 – 145

Note: These figures are to be achieved with the dampers at 20° ± 2°C.

(1) Dampers installed with 21.1 mm dia. 60% and 22.1 mm dia. 50% torsion bars
(2) Two-tube dampers installed with 21.1 mm dia. 50% torsion bars and 21 mm dia. rear anti-roll bar.

OPERATION

Brake system components						
			116.00-116.08 116.42	116.09	116.04-116.10 116.36-116.54 116.55-116.59	113.05-113.06-113.11-113.12 113.17-113.18-113.32-113.43 113.59-113.60-116.02-116.05 116.11-116.37-116.56-116.60
Servo-ATE or BENDITALIA		Ø in.	7 (1) 8	7 (2) 8	8	8
Master cylinder - ATE or BENDITALIA		Ø mm	20.64	22.2 20.64 (2)	20.64	22.2
	Travel: front/rear	mm	16.5/10	16.5/10	16.5/10	16.5/10
Calipers - ATE	Front	Ø mm	48			
	Rear	Ø mm	38			
Pads (*) FERODO	Front	Part. No. of set Supplier's reference Identification colours	116.33.22.052.00/30 Ferit I/D 332 GG B-BL-BL-B			
	Rear	Part. No. of set Supplier's reference Identification colours	116.33.26.003.00/30 Ferit I/D 332 GG B-BL-BL-B			
Pads (*) FRENDO	Front	Part. No. of set Supplier's reference Identification colours	116.00.22.052.03/30 FD 109 GG B-G-G-B			
	Rear	Part. No. of set Supplier's reference Identification colours	116.00.26.003.08/30 FD 109 GG B-G-G-B			

BL = Blue; B = White; G = Yellow
Orient arrow towards forward direction of disc when installing pads
(*) Install discs with same supplier's reference at front and rear
(1) On cars 116.08 to chassis s/no. 2.036.562
(2) To chassis s/no. 0.002.099

TIGHTENING TORQUES

1	Bolt retaining front brake calipers to steering knuckle	7.5 – 8.5 (75 – 84)	kgm (Nm)
2	Nuts retaining rear brake calipers to gearbox/ differential housing	4.67 – 5.35 (46 – 52)	kgm (Nm)
3	Bolts retaining half shaft and brake disc to differential output shaft	5.13 – 5.67 (51 – 56)	kgm (Nm)
4	Pipe connections of hydraulic braking system (nominal torque using open ended spanner)	0.8 – 1 (8 – 10)	kgm (Nm)
5	Nuts retaining brake servo to pedal mounting	1.2 – 1.5 (12 – 15)	kgm (Nm)
6	Locknut for brake pad adjustment screws on brakes	0.7 – 1 (7 – 10)	kgm (Nm)

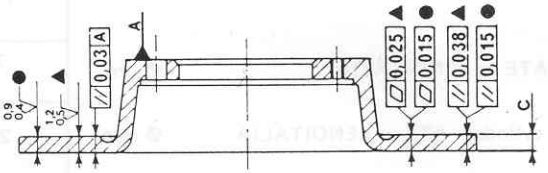
Note: Nominal torques, obtained using open ended spanner

DIMENSIONS

1	Clearance between brake pads and disc on rear brakes (when assembled)		0.1 – 0.15	mm
2	Brake pad thickness	New	1.5	mm
		Wear limit	7	

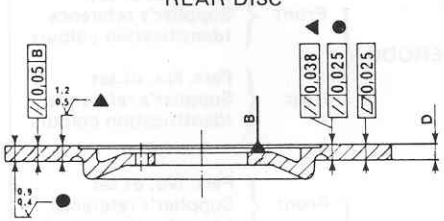
3 Dimensions for machining brake discs (1)

FRONT DISC



C	New	11	12.7 *
	Min. thickness after grinding	10	10
	Wear limit	9	9

REAR DISC



D	New	10
	Min. thickness after machining	9
	Wear limit	8

Note: Grind off the same amount from both faces of the disc.

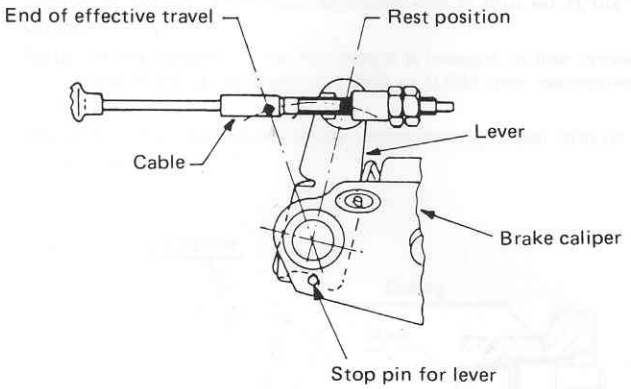
(*) Thickness values of oversized front brake discs
(1) ▱ = flatness // = parallelism (in mm)
√ = roughness (in μ)
● Peripheral measurement; ▲ Radial measurement

4

Circuit pressure of hydraulic braking system using air bleed device R. 20105 — 2.8 to 3 kg/cm²

5

Adjustment of hand brake lever travel (number of free notches on the ratchet before locking the wheels) — 4 to 6



Note: With the handbrake lever in rest position, the following points must be checked:

1 – Clearance between pads and rear brake discs (see "Dimensions", item 1 group 22) must be as specified.
2 – There must be no cable endfloat
3 – The levers on the brake calipers must be in rest position (in contact with the stop pin).

FLUIDS AND LUBRICANTS

1

Brake hydraulic system

Fluid { ATE: Blau S / AGIP: F1 Brake Fluid Super HD } Part. No. 3681-69905

Warning: This product is harmful to paintwork and contact should be avoided

2

Brake calipers gaiters

Grease: ATE Bremszylinder Paste

3

Pedal pivot

Grease: Molykote Longterm no. 2 - Part. No. 3671-69831

SEALANTS AND ADHESIVES

1

Joint faces of brake servo and pedal support

Joint compound: LOWAC Perfect Seal
Part. No. 3522-00011

OPERATION

1

Adjusting the Spica pinion/rack backlash.
Part. No. 116.00.23.002.40 (LHD only)

Fully tighten adjuster by hand.

Unscrew the adjuster so as to free the slide.

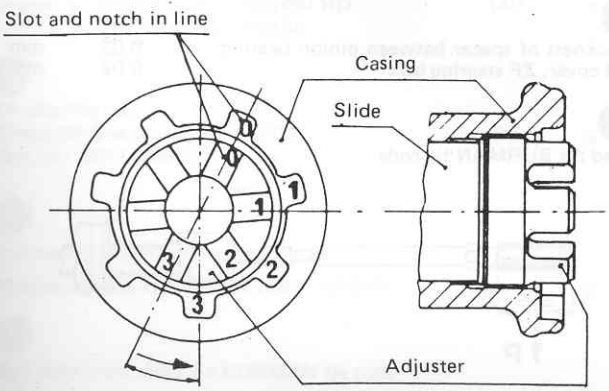
Tighten the adjuster to approximately 0.3 kgm (3 Nm).

Select the slot in the adjuster nearest to the centreline of a notch in the casing (see sketch below).

Back off the adjuster until the third slot and the third notch are aligned as shown; a backlash of 0.069 mm is thus set at the rack centre.

Note: If the second or the first notch is brought in line instead of the third, a backlash of 0.046 or 0.023 mm respectively is set.

Check that the rack moves freely throughout its travel with no sign of binding.



2

Adjusting the Spica pinion/rack backlash.
Part. No. 116.46.23.002.43 (LHD only)

Fully tighten adjuster by hand

Fit the spring so that it is properly seated in the housing

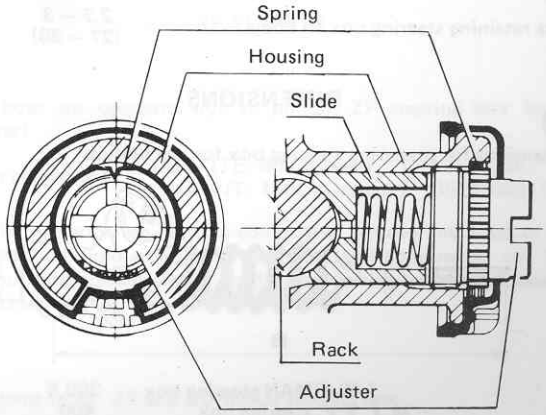
Fit the plastic cap

Tighten the adjuster to approx. 0.3 kgm (3 Nm)

Unscrew the adjuster by three serrations (three "clicks" of the spring on the serrated portion of the adjuster): the rack/pinion backlash will be set to 0.09 mm

Note: If the adjuster is turned by two or one serrations, the amount of backlash is 0.06 mm or 0.03 mm respectively.

Check whether the rack moves freely throughout its travel without any sign of binding.



TIGHTENING TORQUES

1 Steering tie rod on rack

ZF steering box	5 (49)	kgm (Nm)
SPICA steering box	7.1 (70)	kgm (Nm)

2 Bolts retaining covers to ZF steering box — 1.5 (15) kgm (Nm)

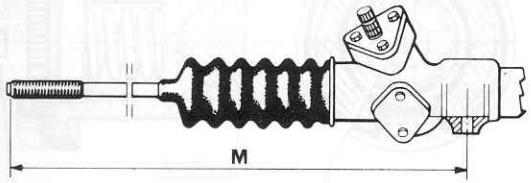
3 Bolts retaining pinion cover to BURMAN setting box — 2 – 2.3 (20 – 22) kgm (Nm)

4 Bolts retaining damper cover to BURMAN steering box — 0.8 – 1.1 (8 – 10) kgm (Nm)

5 Bolts retaining steering box to body — 2.7 – 3 (27 – 30) kgm (Nm)

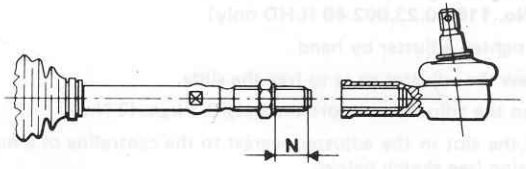
DIMENSIONS

1 Dimensions for preparing steering box for installation



M	BURMAN steering box	399,5	mm
	Z.F. steering box	400	mm
	SPICA steering box	399,5	mm

2 Dimensions for fitting ball joints to tie rods

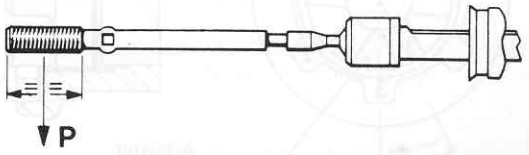


N	BURMAN steering box	29.5	mm
	Z.F. steering box	31	mm
	SPICA steering box	26	mm

3 End float between ball bearing and pinion ZF steering box — max. 0.05 mm

4 Thickness of spacer between pinion bearing and cover, ZF steering box — 0.05 mm / 0.05 mm

5 Load on BURMAN tie rods



P = 4.81 kg

FLUIDS AND LUBRICANTS

1

Steering column bushes

Sliding bushes
- External surface
- Oil AGIP F1 OSO 25 - Part. No. 4500-10504
- Internal surface
- Grease: AGIP: F1 Grease 33 FD / SHELL: Retinax AX / Part. No. 3671/69833

Roller bushes
- Lubricate seats in steering column with:
- Grease: SPCA: Spagraph / ISECO: Ergon Rubber Grease no. 3 / Part. No. 3671-69816

2

BURMAN steering box

Grease: AGIP: F1 Rotra HP SAE 80W90 / SHELL: Spirax 80W90 HD / Part. No. 3631-69408 — 140 g

3

ZF steering box
Grease BP Energrease HT - EP00 — 90 g
Part. No. 3671-69828

4

Surfaces of upper bracket on scuttle

Molykote paste G - Part. No. 3671-69840 — max. 8 g

5

Ball joint (rack side) on BURMAN tie rods

Molykote grease BR2 - Part. No. 3671-69841

6

Gaiter clip seat on BURMAN tie rods

Emulsion "Releasil 7"

7

SPICA steering box — 90 g

Grease: AGIP: F1 Grease 33 FD / SHELL: Retinax AX — Part. No. 3671-69833

Inside box
Rack
Rack housing
Pinion bush
Backlash take-up plunger
Backlash adjuster

SEALANTS

1

Rack bush on opposite side to pinion, ZF steering box (outer diameter)

Jointin compound: LOCTITE: 602 (Green) / OMNIFIT: 150L (Green) — Part. No. 3524-00011

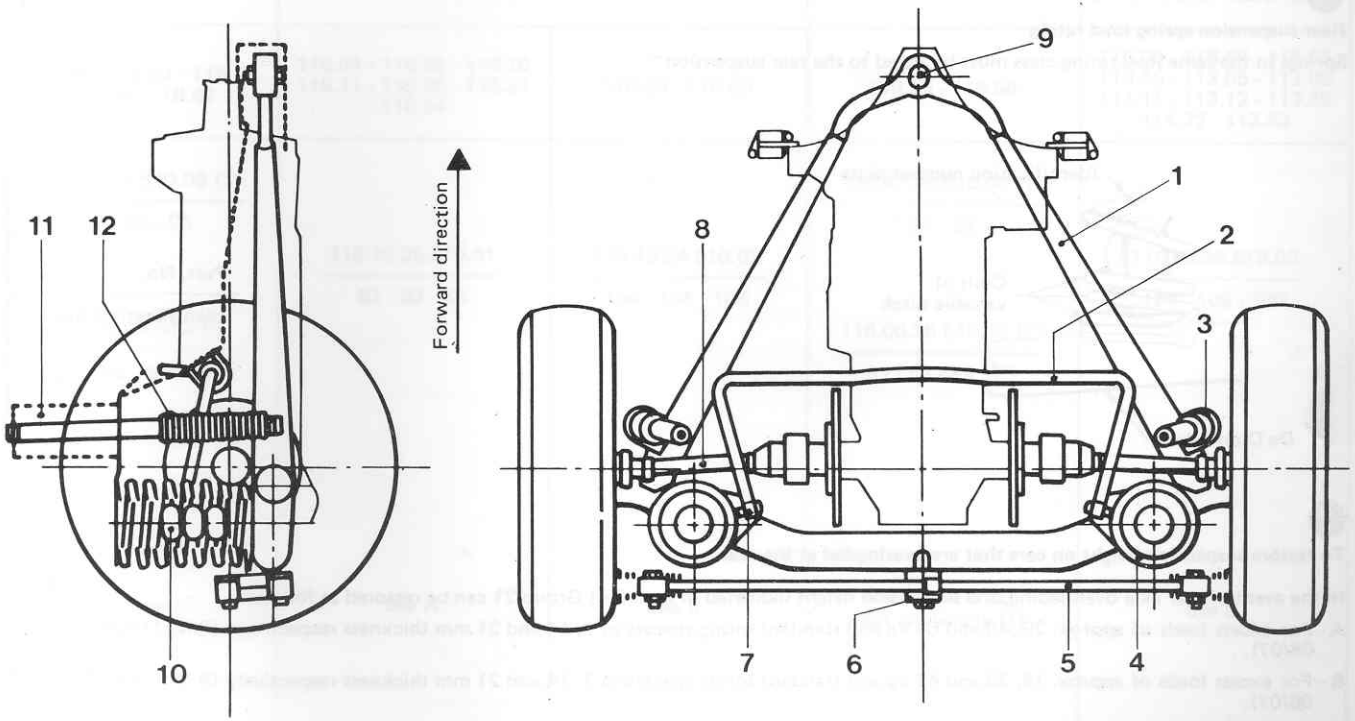
Note: Before applying jointing compound, remove any trace of old locking fluid using a suitable tool and compressed air. The surfaces should always be degreased using trichlorethylene or chlorothene.

2

Cover joint faces. ZF and BURMAN steering box

Jointing compound: Curil K2 - Part. No. 3522-00031

REAR SUSPENSION DIAGRAM



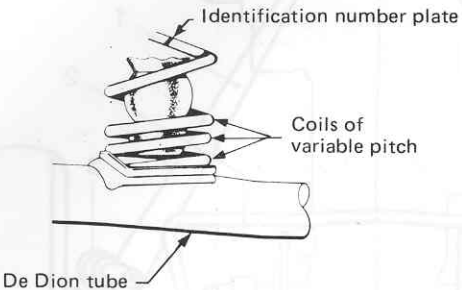
1 - Axle
2 - Anti-roll bar
3 - Damper
4 - Helical springs
5 - Rod
6 - Rocker arm
7 - Hanger
8 - Axle shaft
9 - Silentbloc housing
10 - Rubber pad
11 - Damper bracket
12 - Damper bellows

OPERATION

1

Rear suspension spring load rating

Springs in the same load rating class must be fitted to the rear suspension



Part. No.
Identification No.

2

To restore suspension height on cars that are overloaded at the rear

In the event of rear axle overloading, the suspension height indicated in item 2 of Group 21 can be restored as follows:

A - For excess loads of approx. 20, 40 and 60 kg add standard spring spacers of 7, 14 and 21 mm thickness respectively (P.N. 11600.25528.05/06/07).

B - For excess loads of approx. 14, 28 and 42 kg add standard spring spacers of 7, 14 and 21 mm thickness respectively (P.N. 11600.25528.05/06/07).

C - For higher excess loads, which can occur with liquified petroleum gas installation, it is possible to replace the standard springs with springs P.N. 11634.25510.00. These accomodate excess loads of up to approx. 70 kg without the use of spacers. With spacers the excess load conditions are as detailed below:
- Road spring 11634.25510.00 plus 7 mm spacer = 95 kg approx.
- Road spring 11634.25510.00 plus 14 mm spacer = 120 kg approx.
- Road spring 11634.25510.00 plus 21 mm spacer = 145 kg approx.

Note: The thickness of the spacers fitted should not exceed 21 mm, to prevent the spring becoming coil bound before the end of the suspension travel.

Saloon 1600 - 1800	Coupe 1600 - 1800 - 2000		Saloon 2000	Saloon 1600 - 1800 - 2000
116.00 - 116.02 - 116.08 116.09 - 116.42	116.04 - 116.05 - 116.10 116.11 - 116.36 - 116.37 116.54	116.59 - 116.60	116.55 - 115.56	116.00 - 116.42 - 116.55 116.56 - 113.05 - 113.06 113.11 - 113.12 - 113.30 114.32 - 113.43
116.00.25.510.08 (*) 04 - 05 - 06	116.10.25.510.01 61 - 62 - 63	116.46.24.510.02 104 - 105 - 106	116.47.25.510.00 (1) 91 - 92	116.55.25.510.00 107 - 108 - 109
116.00.25.510.13 82 - 83 - 84 - 85			116.00.25.510.13 (2) 82 - 83 - 84 - 85	
See A and C	See A	See B	See A and C (2) Not applicable (1)	See B

(*) Variable rate springs to be installed with the 3 variable-pitch coils facing the De Dion tube
(1) With automatic transmission and self-levelling suspension
(2) With manual gearbox

TIGHTENING TORQUES

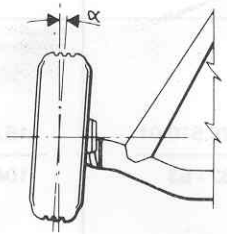
1 Lock ring for wheel hub bearing	23 – 27 (226 – 264)	kgm (Nm)
2 Wheel hub nut	27 – 33 (265 – 324)	kgm (Nm)
3 Bolt securing axle to gearbox / final drive crossmember	9 – 11 (89 – 107)	kgm (Nm)
4 ▲ Control valve-to-tee line connections (nominal torque obtained using open ended spanner)	0.8 – 1 (8 – 10)	kgm (Nm)
5 ▲ Self-levelling suspension system line connections (nominal torque obtained using open ended spanner)	1.7 – 1.9 (17 – 19)	kgm (Nm)
6 ▲ Bolt retaining self-levelling suspension pump drive pulley	4 – 4.5 (40 – 45)	kgm (Nm)

▲ Applies to vehicles with automatic transmission and self-levelling suspension.

DIMENSIONS

1 Rear wheel angles

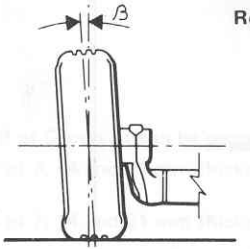
Rear wheel toe-in



$\alpha =$ 0°30′ ± 15′ (*)
0° ± 10′ (**)

Max. difference between RH and LH wheels 10′

Rear wheel camber



$\beta =$ 0° ± 30′

Max. difference between RH and LH wheels 20′

(*) Applies to 116.08 cars from start of production to chassis no. 2.034.000

(**) Applies to 116.08 cars from chassis no. 2.034.001 (axles initially identified by means of white mark)

FLUIDS AND LUBRICANTS

1

Rubber bushes on rear anti-roll bar supports.

Grease { SPCA: Spagraph / ISECO: Ergon Rubber Grease no. 3 } Part. No. 3671-69816

2

Wheel hub bearing ring nut
Lower damper pin
Bolts securing torque arms to chassis

Anti-seizure compound R. GORI: Never Seez
Part. No. 3671-69850

3

Wheel stub shaft threads

Grease coating - Part. No. 4100-81210

Note: Brush on grease after tightening hub nut and before fitting lock nut

4 (1)

Self-levelling suspension, hydraulic system 3 litres

ARAL oil 1010 - Part. No. 3631-69325

Note: This product is harmful to paintwork and rubber parts

Checking oil level

Carry out with unladen vehicle and with engine running. Level must be at MAX mark on tank.

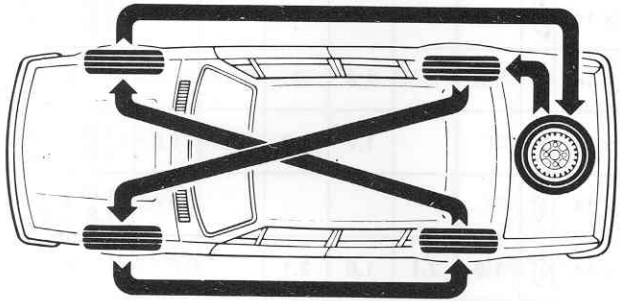
(1) Cars with automatic transmission and self-levelling suspension

OPERATION

1

Wheel changing diagram

(Operation to be carried out every 5,000 km)



TIGHTENING TORQUES

1

Wheel nuts

The tightening torque must be adhered to, in particular with alloy wheels	9 – 11 (88 – 108)	kgm (Nm)

DIMENSIONS

1

Maximum permissible weight for balancing wheels

Outside of rim	100	g
Inside of rim	120	g
Maximum permissible residual out-of-balance	10	g

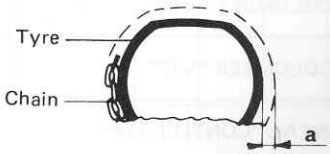
Note: Should it not be possible to balance wheels in the conditions above, move tyre relative to rim and inner tube.

2

Snow chains should be fitted to the drive wheels only.

Maximum increase in size caused by chain

165 x 14 and 185/70 x 14 tyres	a =	18	mm
195/60 x 15 tyres		15	



FLUIDS AND LUBRICANTS

1

Tyres bead against rim

Fluid { UNION CARBIDE CHEMICALS COMPANY: Ucon lubricant 50HB-5100
MILLOIL: Lubricant for rubber sections
Part. No. 4500-17502

Tyres with inner tubes

TYRES		Class	Rims		Saloon 1600-1800 A	Saloon 1600-1800 P	Coupè 1600 A	Coupè 1600 P	Coupè 1800-2000 A	Coupè 1800-2000 P	Saloon 2000 A	Saloon 2000 P
PIRELLI "CN 54"	165.14	S.R.	5½ J x 14	N V	1.6	1.8	1.6	1.8				
PIRELLI "P3"	165.14	S.R.	5½ J x 14	N V	1.8	1.8	1.8	1.8				
MICHELIN "XAS"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2
MICHELIN "ZX"	165.14	S.R.	5½ J x 14	N V	1.8	2	1.8	2				
MICHELIN "XVS"	185/70.14	H.R.	5½ J x 14	N V			1.7	1.8	1.7	1.8	1.8 1.8	1.8 2.2
KLEBER COLOMBES "V10GT"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2
KLEBER COLOMBES "V10"	165.14	S.R.	5½ J x 14	N V	1.6	2.1	1.6	2.1				
KLEBER COLOMBES "V12"	165.14	S.R.	5½ J x 14	N V	1.7	2.0	1.7	2.0				
CONTINENTAL "CONTITT 714"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2
CONTINENTAL "CONTITT 714"	165.14	S.R.	5½ J x 14	N V	1.6	1.8	1.6	1.8				
CONTINENTAL	195/70.14	H.R.	5½ J x 14	N V			1.7	1.8	1.7	1.8		
FIRESTONE "HS1"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2
FIRESTONE "Cavallino Sport 200"	165.14	S.R.	5½ J x 14	N V	1.7	1.8	1.7	1.8				

Tyres with inner tubes

TYRES		Class	Rims		Saloon 1600-1800		Coupè 1600		Coupè 1800-2000		Saloon 2000	
					A	P	A	P	A	P	A	P
FIRESTONE "HS1"	185/70.14	H.R.	5½ J x 14	N V			1.7	1.8	1.7	1.8	1.8 1.8	1.8 2.2
FIRESTONE "S1"	165.14	S.R.	5½ J x 14	N V	1.7	1.8	1.7	1.8				
GOOD YEAR "G800S"	165.14	S.R.	5½ J x 14	N V	1.6	1.8	1.6	1.8				
GOOD YEAR "G800 GRAND PRIX 70"	185/70.14	H.R.	5½ J x 14	N V			1.7	1.8	1.7	1.8		
GOOD YEAR "G800"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2
CEAT "VELTRO"	165.14	S.R.	5½ J x 14	N V	1.6	1.8	1.6	1.8				
CEAT "VELTRO"	185/70.14	H.R.	5½ J x 14	N V			1.7	1.8	1.7	1.8	1.8 1.8	1.8 2.2
CEAT "VELTRO 173/1"	165.14	H.R.	5½ J x 14	N V							1.8 1.8	1.8 2.2

A = Front
P = Rear
N = Reduced load (up to 4 occupants)
V = Fully laden (5 occupants + 50 kg)

SR - Up to 180 km/h
HR - Up to 210 km/h
VR - Over 210 km/h
Pressures in kg/cm^2 with tyres cold

Tubeless tyres

TYRES			Class	Rims		Saloon 1600-1800 A	Saloon 1600-1800 P	Coupè 1600 A	Coupè 1600 P	Saloon 2000 A	Saloon 2000 P	Coupè 2000 A	Coupè 2000 P
PIRELLI "P3"	165.14	Tbl	S.R.	5½ J x 14 H2	N V	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
PIRELLI "CN 36"	165.14	Tbl	H.R.	5½ J x 14 H2	N V					1.8 1.8	1.8 2.2		
PIRELLI "P5"	185/70.14	Tbl	H.R.	5½ J x 14 H2 6 J x 14	N V	1.8 1.8	1.8 2.2	1.7	1.8	1.8 1.8	1.8 2.2	1.7	1.8
MICHELIN "ZX"	165.14	Tbl	S.R.	5½ J x 14 H2	N V	1.8	2.0	1.8	2.0	1.8	2.0	1.8	2.0
MICHELIN "XAS"	165.14	Tbl	H.R.	5½ J x 14 H2	N V					1.8 1.8	1.8 2.2		
MICHELIN "XVS"	185/70.14	Tbl	H.R.	5½ J x 14 H2 6 J x 14	N V	1.8 1.8	1.8 2.2	1.7	1.8	1.8 1.8	1.8 2.2	1.7	1.8
KLEBER "V12"	165.14	Tbl	S.R.	5½ J x 14 H2	N V	1.7	2.0	1.7	2.0	1.7	2.0	1.7	2.0
KLEBER "V12GTS"	185/70.14	Tbl	H.R.	5½ J x 14 H2 6 J x 14	N V	1.8 1.8	1.8 2.2	1.7	1.8	1.8 1.8	1.8 2.2	1.7	1.8
FIRESTONE "S1"	165.14	Tbl	S.R.	5½ J x 14 H2	N V	1.7	1.8	1.7	1.8				
FIRESTONE "HS1"	165.14	Tbl	H.R.	5½ J x 14 H2	N V					1.8 1.8	1.8 2.2		
FIRESTONE "HS1"	185/70.14	Tbl	H.R.	5½ J x 14 H2 6 J x 14	N V	1.8 1.8	1.8 2.2	1.7	1.8	1.8 1.8	1.8 2.2	1.7	1.8
GOOD YEAR "G800 + S"	165.15	Tbl	S.R.	5½ J x 14 H2	N V	1.6	1.8	1.6	1.8				
GOOD YEAR "GPS"	185/70.14	Tbl	H.R.	5½ J x 14 H2 6 J x 14	N V	1.8 1.8	1.8 2.2	1.7	1.8	1.8 1.8	1.8 2.2	1.7	1.8

Tubeles tyres

TYRES		Class	Rims		Saloon 1600-1800 A	Saloon 1600-1800 P	Coupè 1600 A	Coupè 1600 P	Saloon 2000 A	Saloon 2000 P	Coupè 2000 A	Coupè 2000 P
CEAT "VELTRO"	165.14 Tbl	S.R.	5½ J x 14 H2	N V	1.6	1.8	1.6	1.8				
PIRELLI "P6"	195/60.15 Tbl	H.R.	6J x 15 CH	N V							2;0	2.0
GOOD YEAR G800 + GPS 70	185/70.14 Tbl	H.R.	5½ J x 14 H2	N V	1.8	1.8 2.2	1.8	1.8 2.2	1.8	1.8 2.2	1.8	1.8 2.2
CEAT VELTRO 173	185/70.14 Tbl	H.R.	6 J x 14 H2	N V	1.8	1.8 2.2	1.8	1.8 2.2	1.8	1.8 2.2	1.8	1.8 2.2

A = Front
P = Rear
N = Reduced load (up to 4 occupants)
V = Fully laden (5 occupants + 50 kg)
SR = Up to 180 km/h
HR = Up to 210 km/h

VR = Over 210 km/h
Pressures in kg/cm^2 with tyres cold
Tbl = Tubeless
H2 = Double hump
CH = Combination hump

OPERATION

1

Fitting a towing bracket

The towing bracket components may be of different dimensions from those shown, but they should be of sufficient strength and the mounting points to the body must be as shown in the diagram.

A 12-volt, 7-pin plug should be used for the electrical connection, meeting requirements of Italian CUNA CN 165-30.

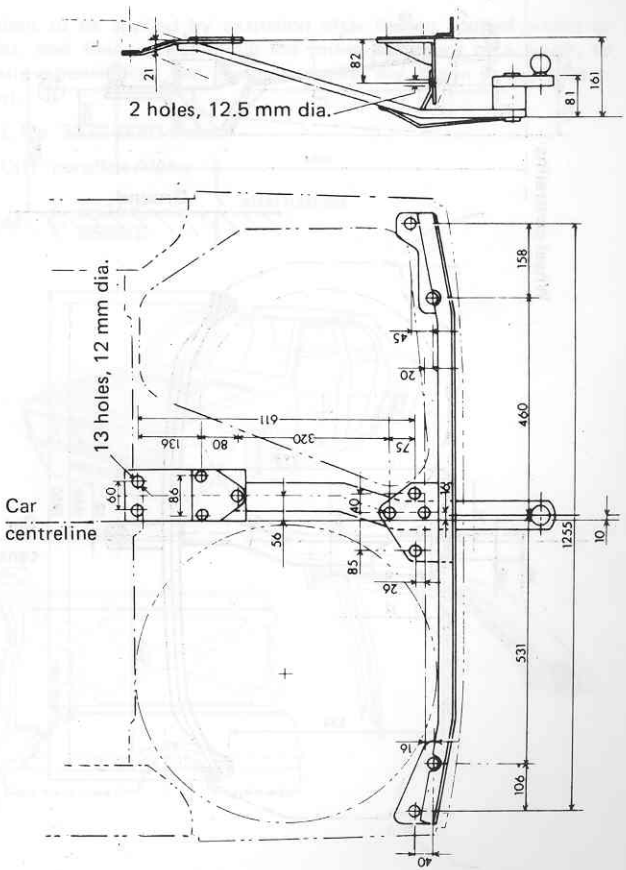
A "Iso 50" type CUNA CN 138-30 towing ball should be used.

In addition, the following points should be adhered to:

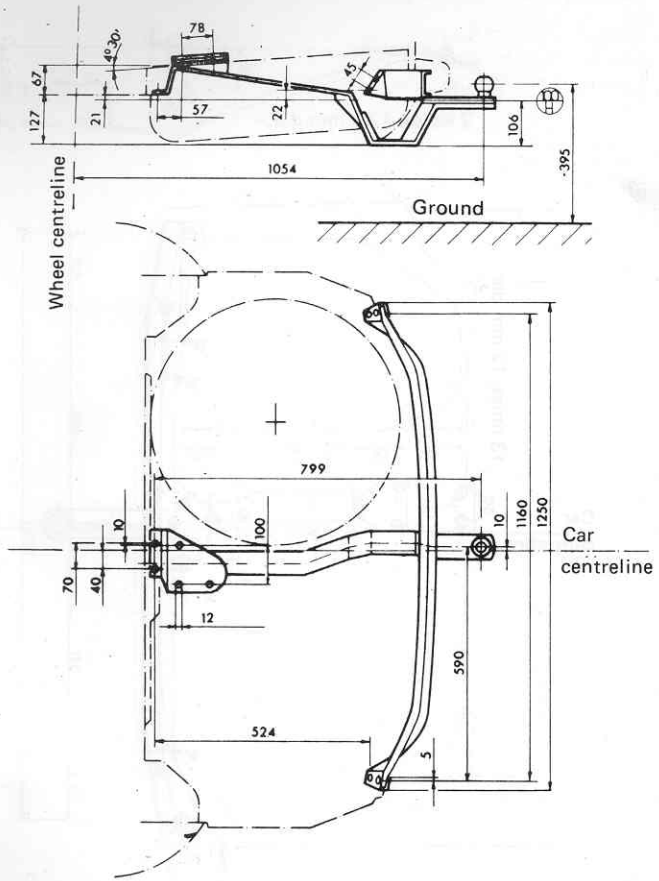
- Connect the vehicle earth to that of the trailer, using the 7-pin plug and a 2.5 mm^2 section cable.
- Replace the flasher unit with one of double the capacity, suitable for two extra 21 W bulbs.
- Any holes that have to be drilled to accommodate the cables must be grommeted.

Note: For the maximum towing weight of the car, see item 1 "Dimensions" Group 00.

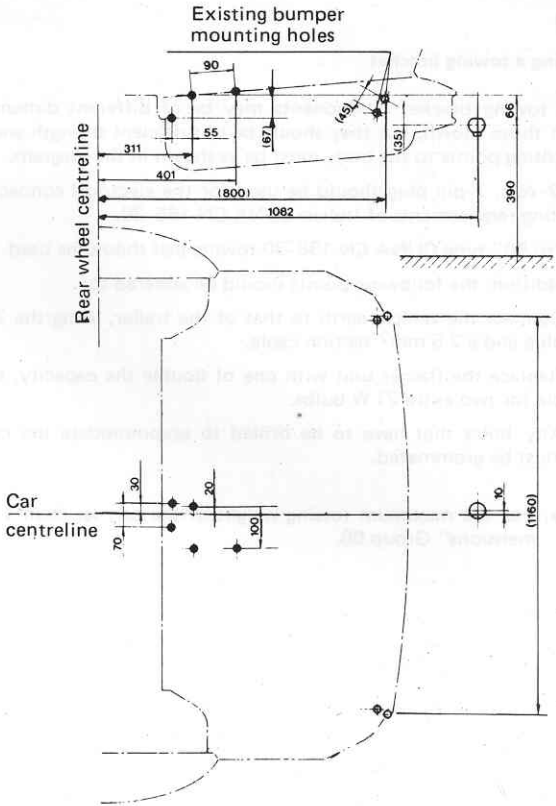
SALOON



GT and GTV



GTV 2000 model year 1980



○ 4 bolts, M8 x 1.25
● 5 bolts, M10 x 1.25

SEALANTS AND ADHESIVES

1

Panel edge protection on assembly

Conductive anti-rust paint to be applied by brush on the edges of all replacement panels and corresponding mounting brackets on the body prior to welding (the illustration shows an example).

Part. No. 3540-44401

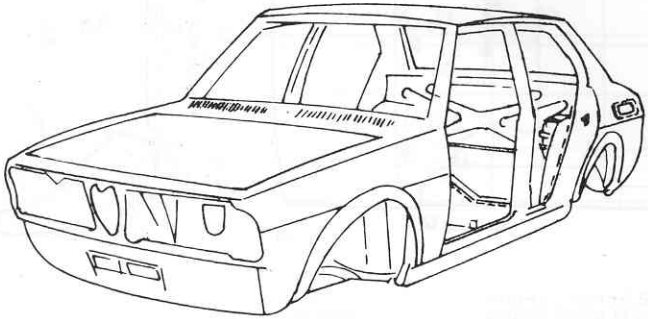
SAVID: Zincovid No. 7949

SCHRAM LACK: Extrinum Punktschweifarbe

GLASURIT { Glassomax 7 F4625 (red)*
* to be used with catalyst

Glassomax Harter 965-7/1 in the proportion 1 to 10 (Part. No. 3514-20003)

Note: The panels must be welded within 15 minutes of paint application (air drying time of paint film).
The film thickness after drying should be 0.005 - 0.025 mm



------- Areas to be protected before welding

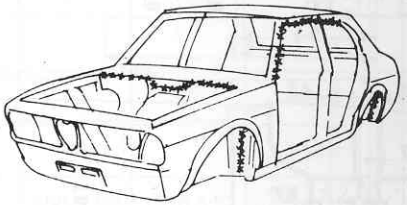
2

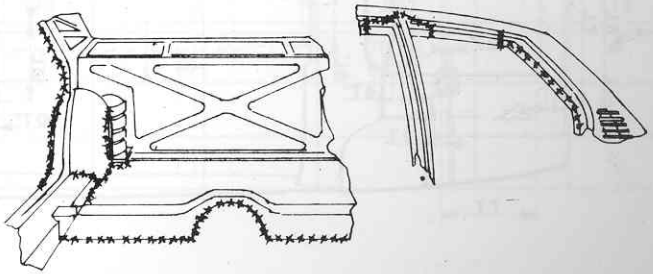
Sealing body panels joints

Sealant to be applied by extrusion after having applied primer or paint, and then spread along the joints by means of a brush, to ensure a continuous seal. (some examples are shown in the illustration).

Part. No. 3522-00014

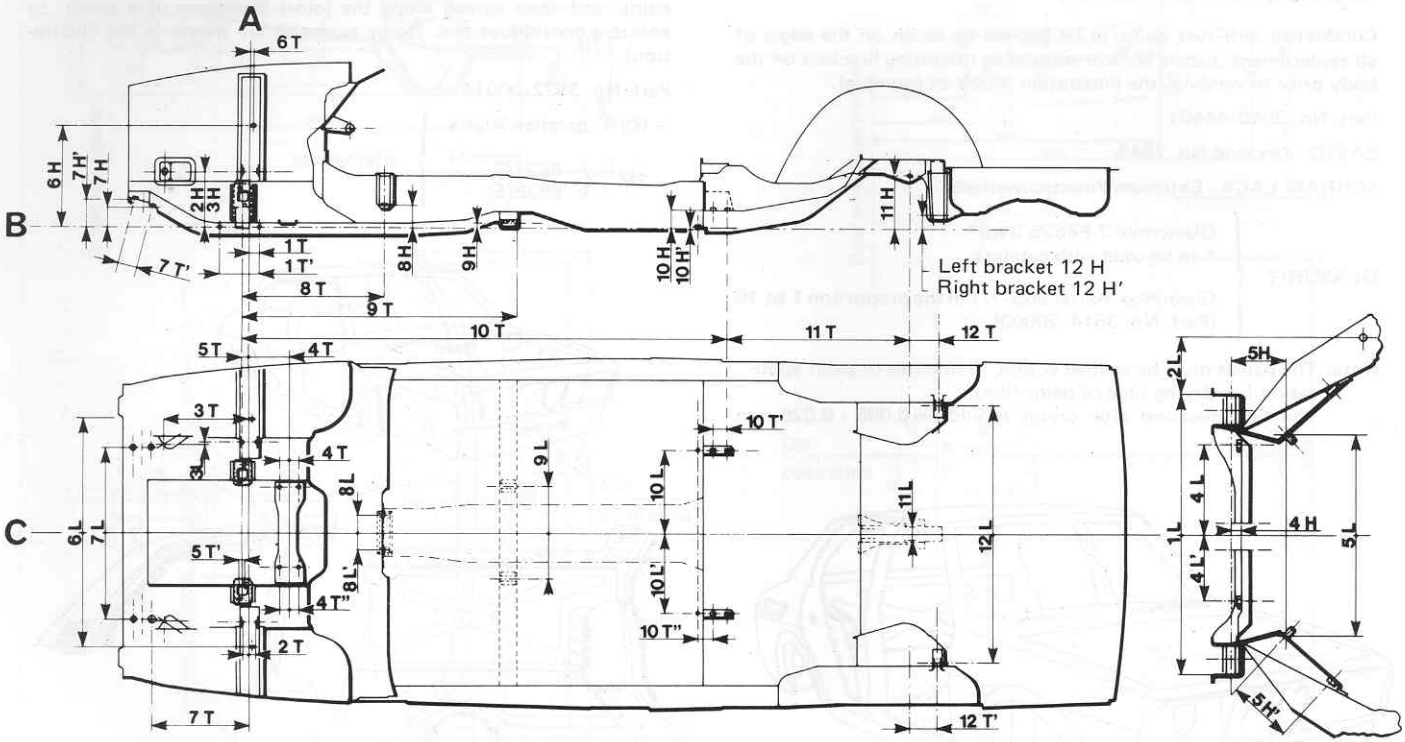
– ICIR: paraflex Alpha
– 3M: 8531/E, 8536/E
} alternatives





xxxxxx Areas to be sealed

DIMENSIONS FOR BODY INSPECTION



A – Transversal reference axis (centreline of brackets of front suspension upper arm)
B – Vertical reference plane (centreline of holes for attaching the front suspension lower arm)
C – Longitudinal reference axis (car centreline)

	1 Front suspension lower arm attachments	**2** Front suspension upper arm attachments	**3** Caster control link attachments	**4** Steering box attachments	**5** Front engine mounts	**6** Upper attachments of damper	**7** Anti-roll bar attachments	**8** Rear engine mount	**9** Torsion bar brace attachments	**10** De-Dion axle cross-member attach	**11** Rear gearbox mount	**12** Watt links attachments
H	0	222 ± 2	222 ± 2	18 ± 2	87 ± 1	398	79.5	84	17	72	230 213*	134
H'					102		116			1 ± 0.2		39
L	520 ± 2	97 ± 1	7	180	396.5 ± 1	894	680	72	370	331 ± 1	59	1028
L'				135				66		318 ± 1		
T	37.5	51 ± 0.5	336.5 ± 2	158	29.5 ± 1	8	390	558.5 ± 2	1076.5±2	1917 ± 2 (1) 1807.5 ± 2 (2)	715 ± 2 717 ± 2*	117
T'	167 ± 0.2			74	22		70			55		112
T''				80						70 (1) 50 (2)		
R.H.D. L				135								
R.H.D. L'				180								

(1) Saloon (2) Coupè

* From chassis s/no. as follows:
Alfetta 1.6 (116.00) - 0.075.666
Alfetta 1.8 (116.42) - 2.170.304
Alfetta 2.0 (116.55) - 0.059.705
Alfetta 2.0 R.H.D. (116.56) - 0.005.650
Alfetta GT 1.6 (116.04) - 0.015.820
Alfetta GTV 2.0 (116.36) - 0.038.513
Alfetta GTV 2.0 (116.59) - from first car

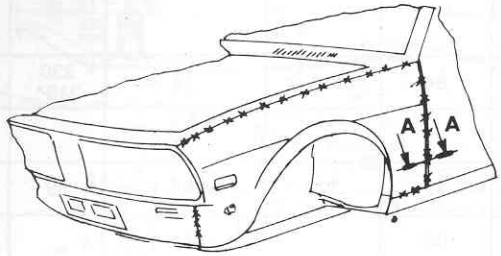
3

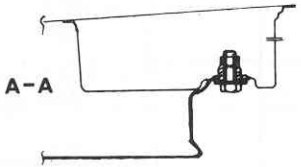
Sealing bolted connections

Butyl rubber sealant applied between the edges of mated components.

Part. No. 3522-00045

3M - Autosealer 8573E





x x x x x Area to be sealed

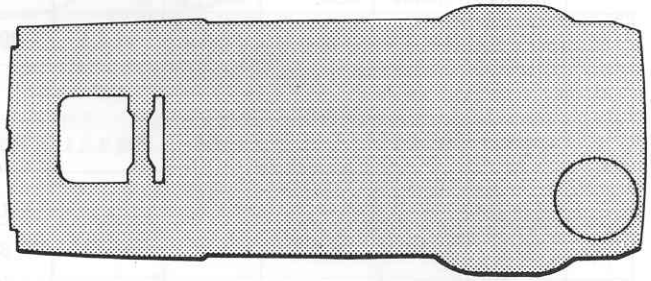
4

Underbody protection

Anti-drum - Part. No. 3523-00001 4* mm

3M { Body plast 8874 E / Body Schutz 8864 E } alternatives

I.V.I. Grey acrylic protector 854751



Area to be protected

* Thickness of wet sprayed coat to obtain a dry film thickness of approx. 3 mm

TIGHTENING TORQUES

❶ Electromagnetic clutch pulley to compressor shaft screw	3 – 3.5 (30 – 34)	kgm (Nm)
❷ Pressure switch to compressor nuts	2 – 3.1 (20 – 30)	kgm (Nm)
❸ Compressor support to cylinder head plug nuts	7.5 (74)	kgm (Nm)
❹ Freon pipe unions (5/8 in - 3/4 in)	1.57 – 1.73 (15.4 – 17)	kgm (Nm)
❺ Freon pipe unions (7/8 in)	2.49 – 2.75 (24.4 – 27)	kgm (Nm)

SEALANTS

❶ Front cylinder head plugs for compressor support retention.

Jointing compound { LOCTITE: 270 (Green) / OMNIFIT: 200 M } Part. No. 3524-00009 (1)

Note: Prior to applying compound, clean threads of plugs and holes in cylinder head with trichlorethylene.

❷ Electromagnetic clutch pulley to compressor shaft screw

Jointing compound { LOCTITE: 270 (Green) / OMNIFIT: 200 M } Part. No. 3524-00009 (1)

Note: Clean the threads with thichlorethylene before applying jointng compound

(1) Use sealants Part. No. 3524-00007 and 3524-00002 up to exhaustion of existing stocks.

FLUIDS AND LUBRICANTS

1

Union threads, refrigerant (Freon) pipes air conditioning system (on installation). See item 2.

2

Refrigerant capacity, air conditioning 0.7 – 0.8 kg

FREON 12 - Part. No. 3681-69910

Note: Prior to charging the system, moisture should be removed by applying a vacuum of ~0.8 mm for ~30 minutes.

3

Refrigerant (Freon) pipes grommets

Fluid { UNION CARBIDE CHEMICALS COMPANY:
Ucon lubricant 50 HB-5100
MILLOIL: Rubber lubricant
Part. No. 4500-17502

4

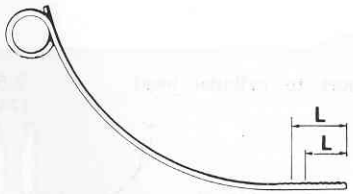
Compressor oil

"SUNISO 4G" - Part. No. 3631-69526

YORK type F 206 R

Compressor oil capacity

g ~ 280

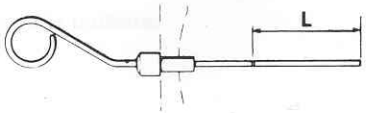


Oil level dipstick (1) L min = 22 mm
L max = 29 mm

ASPERA FRIGO TYPE HG 700 AP

Compressor oil capacity

g ~ 340



Oil level dipstick (1) L = 55 – 56 mm

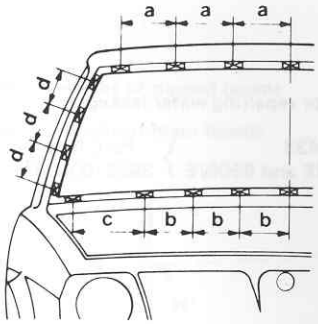
(1) Figure obtained with compressor installed in car after running

DIMENSIONS

1 (1)

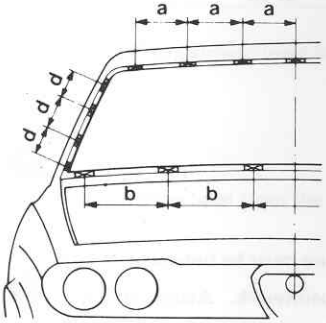
Windscreen finisher retaining clip installation diagram

SALOON



	Saloon
a =	160
b =	135
c =	210
d =	120
No. of clips =	24

COUPE'

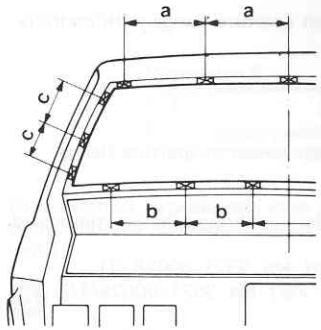


	Coupè
a =	150
b =	240
c =	–
d =	175
No. of clips =	21

2 (1)

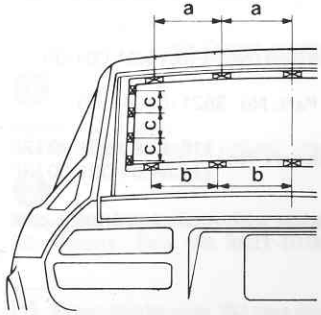
Rear screen finisher retaining clip installation diagram

SALOON



	Saloon
a =	235
b =	200
c =	115
No. of clips =	17

COUPE'



	Coupè
a =	200
b =	210
c =	200
No. of clips =	18

(1) Only for cars with adhesive bonded windscreens

SEALANTS AND ADHESIVES

1

Adhesive bonding windscreen and rear screen spacers to aperture flange

Jointing compound ICAD: Carstik 0.5
Part. No. 3521-00005 (1)

Note: Before installing spacers, clean aperture flange with methylated spirit

2

Adhesive bonding windscreen and rear screen to aperture flange

Primer - Part. No. 3521-00032

Allow primer to dry for 10 mins before applying adhesive compound

Adhesive compound A7 { Base: Part. No. 3521-00028 (1)
Catalyst: Part. No. 3521-00028/1/2

Proportions by weight for compound preparation: base 100, catalyst 13 to 14, mix for 10 mins. The compound must be used within 30 to 40 mins.

(1) Spare part. No. 116.10.61.001.00

Single component jointing cement - Part. No. 3521-00044 (1)

(*) Spare part. No. 116.42.61.001.00 (2)
116.54.61.001.00 (3)

Note: Before jointing, clean glass edges with methylated spirit and aperture flange with heptane.

3

Glass aperture flange weather sealing (for repairing water leakage)

Jointing compound { ICIR: PARAFLEX AR
3M: Sealant 8522 } Part. No. 3522-00014

4

Glass weatherseal mating surface (for repairing water leakage)

Jointing compound { DEBOR: M33
3M: 8506/E and 8509/E } Part. No. 3522-00004

(*) Alternative - Storage temperature must be between 15 and 30°C
(1) **Note:** Product harmful to paintwork. Avoid contact with visible paintwork
(2) Saloon
(3) Coupè

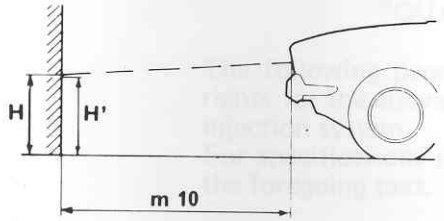
DIMENSIONS

1

Adjusting main and dipped beams

The dimensions given refer to an unladen car without fuel, with tyres inflated to correct pressure and in straight-ahead position. The distance between centres of the light beams must be the same as the distance between centres of the headlamps.

	4-beam Saloon	2-beam Saloon	Coupè	
H = Height of dipped beams	44	44	45	cm
H_1 = Height of main beams	43			cm



Beam adjustment lever in unladen-vehicle position

2

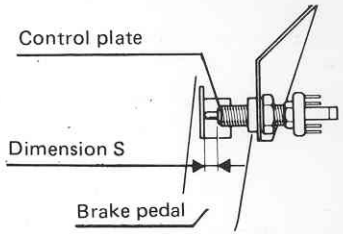
Battery electrolyte level from the top of the plates 4/5 mm

3

Density (at 25°C) of electrolyte, battery charged 1.28 ± 0.01 kg/dm3

4

Fitting stop light switch



Dimensions S between the stop light switch body and the control plate on the brake pedal S = 5 mm

5

Battery capacity 50 / 60 (1) / 66 (2) / 80 (3) Ah

FLUIDS AND LUBRICANTS

1

Battery terminals
Grease: REINACH: E10TAC - Part. No. 3671-69812

2

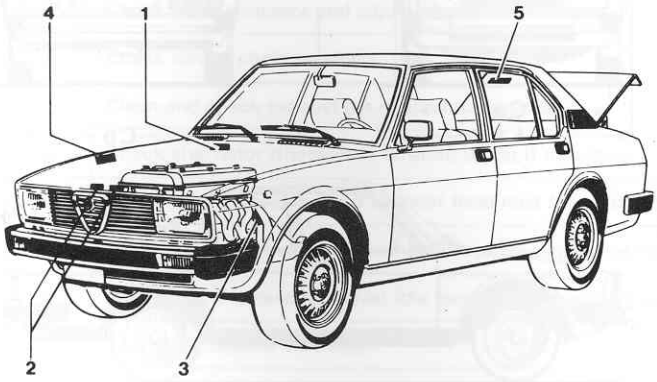
Repairing broken resistance wires of heated rear screen
Silver paste - Part. No. 3521-01001

(1) From model year '82 cars only
(2) Only for A/C equipped cars
(3) For 113.32 cars only

DETAILS FOR ALFETTA LUSSO 2.0 L.I. AND "QUADRIFOGLIO" VERSIONS

The following pages list the "Inspection Specifications" variants for the above mentioned cars, equipped with Spica fuel injection system.
For specifications and data not given in this section refer to the foregoing text.

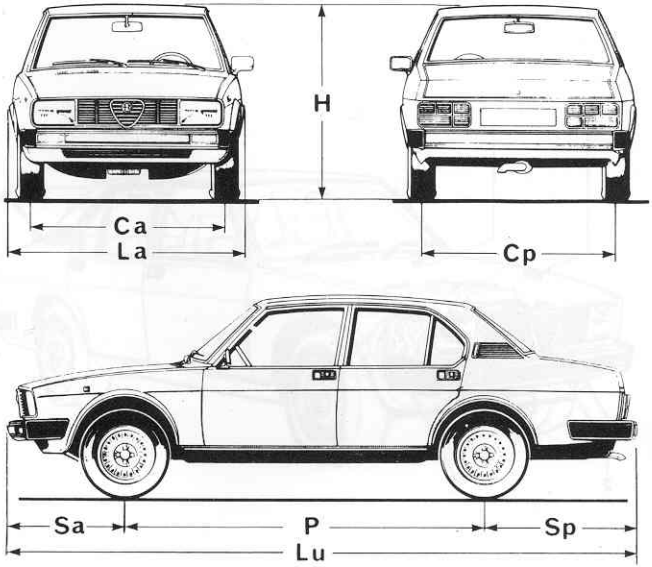
VEHICLE IDENTIFICATION AND SERVICE DATA



	Data	ALFETTA 2.0	
		Injection lusso	Injection Quadrifoglio M.Y. '82
		LHD	RHD
2	**Type code** – On identification plate	– –	113.30
	Car type number		
1	On scuttle	116.58	116.58.O
2	– On identification plate	116.58.B	116.58.C
1	**Chassis serial number** – On scuttle	from 0.004.001	from 00.006.011
3	**Engine type and serial no.** – On LH rear of crankcase	016.74 from *000.001*	
4	**Lubrication** – On appropriate label	See under "Fluids and lubricants" of the various group	
5	**Paint and varnishes** – On appropriate label	Indicates the product used for original paintwork	

DIMENSIONS AND WEIGHTS

			116.58	113.30
Wheelbase		P	2510	
Track	Front	Ca	1360	1366
	Rear	Cp	1358	
Overall length		Lu	4500	4385
Overhang	Front	Sa	885	825
	Rear	Sp	1105	1050
Overall width		La	1640	
Overall height (unladen)		H	1430	
Ground clearance (laden)			125	
Min turning radius			5500	
Kerb weight (incl. 70 kg driver)			1280	1210
Max. laden weight		kg	1630	1565
Payload		kg	420	425
Max. axle weight	Front	kg	820	800
	Rear	kg	950	920
Towability		kg	1200	
Max. towbar load		kg	50	
No. of seats	Front		2	
	Rear		3	



ROUTINE MAINTENANCE SCHEDULE

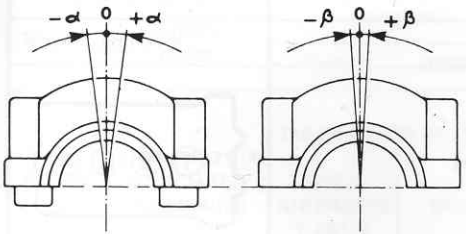
Item No.	OPERATION	km/1000	A	B	25	45	65	85	105	Notes (1)
		MI/1000	A	B	15	28	40	53	65	
1	Change engine oil and filter		x	x	x	x	x	x	x	(2)
2	Change injection pump oil filter cartridge				x	x	x	x	x	(2)
3	Check valve clearance and adjust, if necessary		x	x	x	x	x	x	x	
4	Check timing chain tension		x	x	x	x	x	x	x	
5	Clean and check exhaust gas recirculation system				x	x	x	x	x	
6	Check alternator driving belt tension; adjust if necessary		x	x	x		x		x	
7	Check engine fasteners and cylinder head nust for tightness		x							
11	Clean and check evaporative emission system; replace as necessary				x		x		x	
12	Check and if necessary, adjust idle speed and exhaust emissions		x	x	x	x	x	x	x	
13	Change air cleaner cartridge				x	x	x	x	x	(5)
14	Check braking system			x	x	x	x	x	x	
15	Replace drive belts of alternator and air conditioner compressor					x		x		
16	Check shutter, vacuum device, and temp. sensor. Adjust or replace as necessary.				x		x		x	
18	Replace tank fuel filter and main filter cartridge		x		x	x	x	x	x	
19	Clean, check and lubricate accelerator cable				x		x		x	

Item No.	OPERATION	km/1000	A	B	25	45	65	85	105	Notes (1)
		MI/1000	A	B	15	28	40	53	65	
20	Clean throttle valves and adjust linkage		x		x		x		x	
21	Check and, if necessary, adjust linkage stop screws and idle speed emissions		x		x		x		x	
22	Check, adjust and if necessary, replace starter solenoid and thermostat				x		x		x	
23	Check, adjust and, if necessary, replace cut-off solenoid and micro-switch		x		x		x		x	
25	Check and, if necessary, adjust contact breaker point gap and ignition timing. Lubricate cam.		x		x	x	x	x	x	
28	Check and, if necessary, adjust handbrake lever travel		x							
29	Replace spark plugs				x	x	x	x	x	(3)
30	Check and, if necessary, replace heating and cooling system pipes, hose clamps, connections, seals, thermostat.		x		x	x	x	x	x	
31	Check and, if necessary, top up antifreeze mixture level		x	x	x		x		x	
32	Replace antifreeze mixture					x		x		(4)
35	Check and, if necessary, top up clutch fluid level		x	x	x	x	x	x	x	
36	Check and, if necessary, adjust total clutch travel		x							
40	Check and, if necessary, top up gearbox/differential oil level			x	x		x		x	
41	Replace gearbox/differential oil					x		x		
45	Check condition of half shaft and steering box boots		x	x	x	x	x	x	x	
48	Check and, if necessary, adjust front wheel toe-out		x							

Item No.	OPERATION	km/1000	A	B	25	45	65	85	105	Notes (1)
		MI/1000	A	B	15	28	40	53	65	
50	Check and, if necessary, replace brake pads and hydraulic system components			x	x	x	x	x	x	
52	Check and, if necessary, top up brake fluid level		x	x		x		x		
53	Replace brake fluid				x		x		x	(6)
55	Check tyre pressure		x	x	x	x	x	x	x	(7)
60	Check door operation and, if necessary, adjust and lubricate strikers		x	x						
65	Check and, if necessary, top up battery electrolyte level		x	x	x	x	x	x	x	(7)
66	Check and, if necessary, adjust or replace electrical system components instruments, lamps and indicators		x							
70	Test vehicle		x	x	x	x	x	x	x	

(1) A = 700-1200 km; B = 5000-6000 km
(2) To be carried out also at km/1000: 15, 35, 55, 75, 95 or once a year. Check the oil level frequently (when refuelling).
(3) Check the spark plugs at the intervals indicated under note (2)
(4) To be carried out every 2 years. Check mixture level frequently (when refuelling)
(5) To be carried out at the intervals indicated under note (2)
(6) To be carried out at least once a year
(7) To be carried out frequently (when refuelling)

REFERENCE MARKS ON THE FRONT BEARING CAP
(viewed from flywheel side)

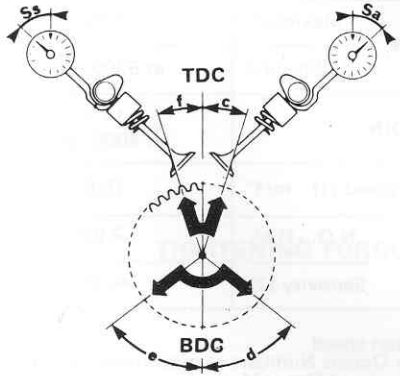


	116.58	113.30

2 **Timing data** (all dimensions are with engine cold)

Camshafts	Inlet		105.48.03.200.01	
	Exhaust		105.48.03.200.01	
Nominal lift			9.5	
Clearance between the heel radius of the cam and tappet head	Inlet		0.425 to 0.450	0.400 to 0.450
	Exhaust		0.475 to 0.500	0.450 to 0.500
Angular position of timing mark on front bearing cap	Inlet	β	−0°15′	
	Exhaust	α	+0°15′	

CHECKING VALVE OPENING AND CLOSING ANGLES
(Crankshaft rotates in anticlockwise direction when viewed from flywheel side)



INTAKE Opens	Linear displacement of tappet	Sa	0.25	
	Corresponding angular movement (BTDC)	c	21°30′ to 24°30′	
INTAKE Closes	Linear displacement of tappet	Sa	0.25	
	Corresponding angular movement (ATDC)	d	40°30′ to 43°30′	
EXHAUST Opens	Linear displacement of tappet	Ss	0.20	
	Corresponding angular movement (BBDC)	e	40°30′ to 43°30′	
EXHAUST Closes	Linear displacement of tappet	Ss	0.20	
	Corresponding angular movement (ATDC)	f	21°30′ to 24°30′	

OPERATION

1

System components

Engine	Supply pump	Injection		Timing
		Pump	Injectors	
016.74	11646.04021.00 BOSCH (E) 0580464020	116.34.04.035.01 (1) (2) SPICA AIBB4CS75 T 261/1	SPICA	70° BTDC at start of intake (3)

(E) Electric pump
(1) Spare part number including pump and injectors
(2) Mark: yellow triangle on pulley side
(3) Pointer aligned with notch 1 on front crankshaft pulley

TIGHTENING TORQUES

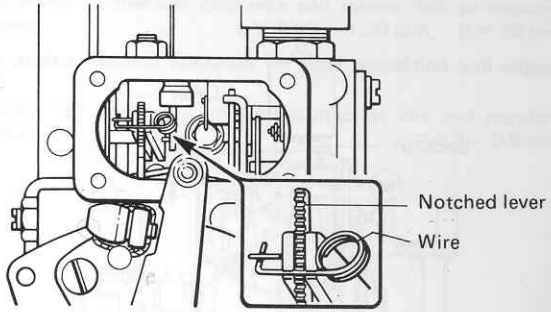
1

Injectors	2.8 – 3.2	kgm
	(28 – 31)	(Nm)

DIMENSIONS

1

Capsule bellows adjustment (warm engine)



– Space width number on notched lever engaged by wire as a function of atmospheric pressure P (space width numbering from top to bottom)

P = mmHp	Space width No.
700 – 719	10
719 – 740	9
740 – 760	8
760 – 780	7

– Check wire position after a number of sharp accelerations over 4000 rpm (screw capsule for higher number space width and back off for lower number space width: a 15° rotation is equal to one space width).

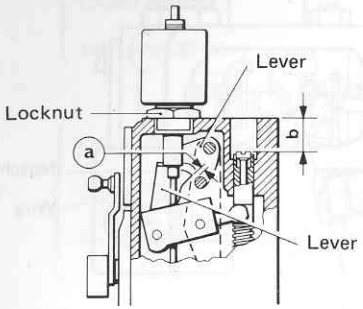
(1) "Warm engine" means with water temperature over 80°C.

2

Starter solenoid adjustment (pump on bench)

Clearance "a" between lever pin and lever with tightened locknut and dummy thermostat "b" back off solenoid to reduce clearance "a" and screw in to increase

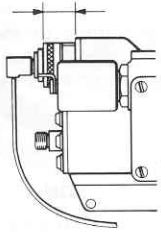
a = 1.15 – 1.25 mm
b = 19 mm



3

Cut-off solenoid assembly dimension (cold engine)

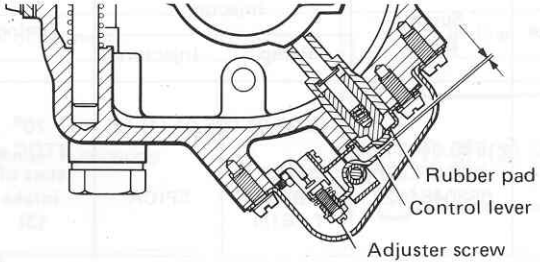
Dimension is given for guidance on assembly and must be corrected according to car performance on the road (screw in solenoid for leaner mixture and back off to obtain a richer mixture) 25.4 mm



4

Microswitch adjustment (pump on bench) (1)

Insert a 1 mm shim between rubber cap and control lever (governor lever in rest position) to close electric circuit 1 mm

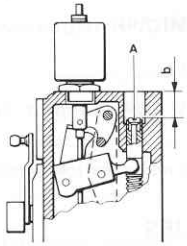


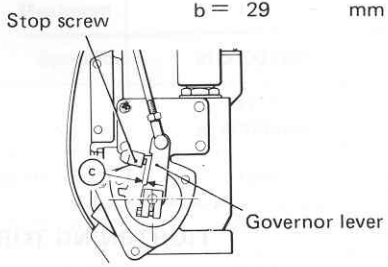
5

Thermostat extension arm adjustment (cold engine)

Clearance "c" between governor lever and stop screw with link disconnected from lever and dummy thermostat "b" (back off screw A to reduce clearance and screw in to increase clearance).

$c = 0.5 \,^{+0.1}_{-0}$ mm
b = 29 mm



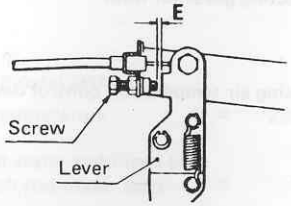


(1) To be used only when an injection pump calibration machine is not available (note fuel supply cut-in rpm indicated in item 16, "Dimensions"). After installing pump on engine, check cut-off device efficiency and adjust microswitch on calibration machine as necessary.

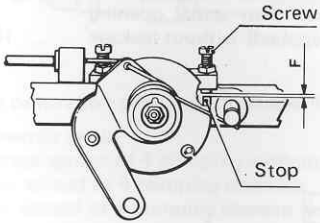
6

Accelerator control adjustment (cold engine)

Clearance "E" between cable lever and stop screw, with relay in light contact at idle and accelerator pedal slightly depressed (cable end float). E = 1 mm

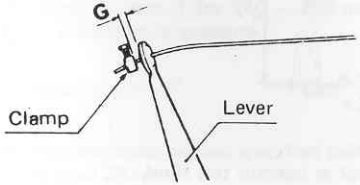


Clearance "F" between max. stop screw and associated stop on relay with accelerator pedal fully depressed F = 2 mm



Clearance "G" between clamp on hand throttle cable and lever on pedal G = 5 – 6 mm

Accelerator pedal limit travel screw protrusion from floor 15–22mm



7

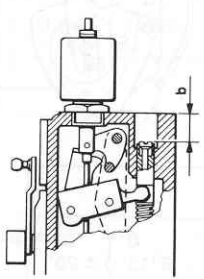
Governor link adjustment

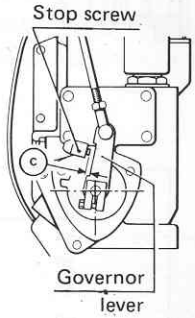
1) **Cold engine (preliminary adjustment)**

Clearance "c" between governor lever and associated stop screw with relay in light contact at idle and dummy thermostat "b" (extend link to increase clearance and retract link to decrease clearance) c = 0.90 – 1.30 mm b = 29 mm

2) **Warm engine (normal clearance for final inspection and adjustment)**

Clearance "c" with relay in light contact at idle and standard thermostat c = 0.3 – 0.6 mm





8

Throttle alignment at idle

Max. difference between average vacuum values of 2 front and 2 rear cylinders 10 mmHg

9

Engine idle speed 600 – 800 rpm

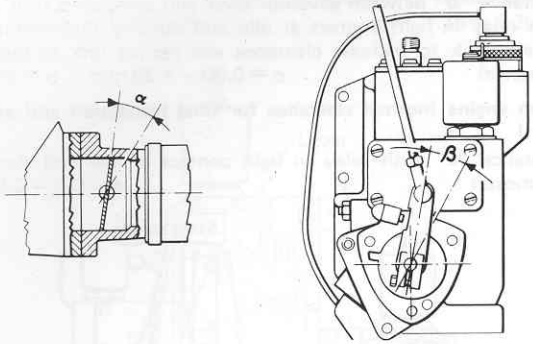
10

Idling speed exhaust emissions

Warm engine, gearbox in neutral, clutch engaged and accessories disconnected (e.g. air conditioner) CO% by vol. ≤3.5

11

Throttle opening angles – α – and corresponding governor lever rotation angles β (cold engine)



α	β
0°	0°
2°	8°13′ ± 20′
4°	14°40′
6°	20° 9′
10°	29°30′ ± 1°
15°	39°20′
20°	47°54′
25°	55°33′
30°	62°30′
35°	68°51′
40°	74°41′ ± 2°
50°	84°55′
60°	93°25′
70°	100°12′
82°	106° 8′

To be checked after performing the following operations (see item 7, page 3):

1) Install dummy thermostat — b = 29 mm

2) Adjust clearance between governor lever and stop screw (by extending or retracting governor link) — c = 0.3 – 0.6 mm

12

Vacuum for checking air temperature control device operation

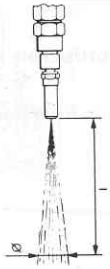
230 mmHg

13

Injector data

1) **Opening pressure**
Injector must hold for 5 sec. a pressure 1 – 2 kg/cm² lower than actual opening pressure (slowly applied) without leakage — 18 – 28 kg/cm²

2) **Aerosol method**
(rapidly applied pressure)



l = 100 mm
Ø = 20 mm

Note: Use petrol as injector test fluid.

14

Fuel pump hydraulic data

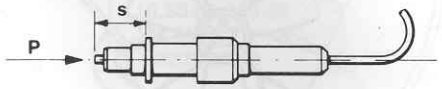
Delivery pressure	2.3 to 2.7	kg/cm²
Output (zero pressure)	1.5 to 2	l/min

15

Injection pump thermostat setting

S value, 20°C bulb temperature $S = 23^{+0.5}_{-1}$ mm

To be measured with water stabilized bulb temperature and push rod under load $P = 4$ kg



16

Injection pump calibration data (with injectors)

PUMP 116.34.04.035.41 SPICA AIBB 4CS75 - T261/1

β		0°	5°	20°	36°	50°	105°
Pump rpm		325	500	600	2000	2000	3000
Output q min cm³, 1000 shots	q med	$13.6^{-0.2}_{+0.6}$	$14.5^{-0.7}_{+0.7}$	$24.3^{-0.8}_{+0.8}$	19.2^{-1}_{+1}	26.1^{-1}_{+1}	54.7^{-2}_{+2}
	q	0.8	1.1	1.3	1.3	1.5	2
	q min	13.4	13.8	23.3	18.2	35.0	52.7

β = Governor angle
q. med. = average spread of 4 pumping elements
q. = max. spread of 4 pumping elements
q. min. = min. spread of 4 pumping element delivery

Note: Deliveries apply to injection pump preset as follows:

1) Fit dummy thermostat to dimension indicated in item 5 (check clearance between governor lever and stop screw)
2) Adjust capsule so that wire engages notched lever space width specified in item 1 for 740 – 760 mmHg pressure, regardless of atmospheric pressure.

Fuel supply cut-in speed at $\beta = 0°$ 650^{-10}_{+25} rpm

Note: No pumping element must exceed specified fuel supply cut-in speed by more than 25 rpm.

17

Fuel tank capacity	49	l
Reserve	6.5 to 8	l

FLUIDS AND LUBRICANTS

1

Pedal and hand throttle control cables

Grease AGIP F1 Grease 15 - Part. No. 3671-69810

2

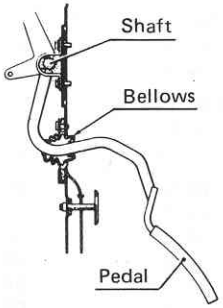
Accelerator pedal bellows

Grease REINACH OLEOBLIZ E 10 TAC - Part. No. 3671-69812

3

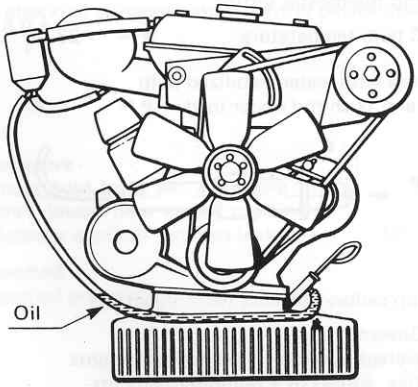
Accelerator pedal shaft (on rubber bushes)

Grease Molykote paste G - Part. No. 3671-69840



4

Pipe capacity (oil separator to engine oil level dipstick support) (see "Fluids and Lubricants" group 01) 20 cm^3



5

Injection pump engine oil capacity (see "Fluids and Lubricants" group 01) 250 g

Note: To be refilled only when fitting a new or exchange unit pump.

OPERATION

1 Components and timing

Engine	Ignition coil	Distributor	Spark plugs	Alternator regulator	Starter	Advance
016.74	116.33.65.079.00 Marelli BZR 202 B 116.55.65.079.02 (4) Marelli AEI 200 B	116.34.05.011.01 Marelli S 166 B 116.74.05.011.00 Marelli S 166 BK 113.30.05.011.00 (4) Marelli SM 817 A	105.14.05.106.01 LODGE 2 HL	116.10.05.060.08 (3) BOSCH 0.120.489.549 K1 → 14V 55A 20	105.12.05.030.03 BOSCH 0.001.311.110 GF → 12V - 1.1 PS	**STATIC** (1) 9° ± 1° BTDC at idle speed **MAX.** (2) 38° +0° -3° BTDC at 5000 rpm

(1) Static setting: pointer aligned with notch F
(2) Max. setting: pointer aligned with notch M
(3) With integral electronic voltage regulator
(4) Only for 113.30

DIMENSIONS

1

Ignition distributor data

– Bench test

		116.74.05.011.00 MARELLI S 166 BK 116.34.05.011.01 (1) MARELLI S 166 B	113.30.05.011.00 MARELLI SM 817 A
– Contact breaker gap	mm	0.42 – 0.48	
– Contact pressure	g	550 ± 50	
– Dwell angle		60° ± 3°	
– Resistive rotor arm	K Ω	– –	5 ± 1

Distributor RPM	Automatic advance curve		Distributor RPM	Automatic advance curve	
	Upper	Lower		Upper	Lower
400	initial	–	250	0°	0°
500	3°30′	initial	300	15′	–15′
600	5°15′	2°	450	30′	–1°
700	6°	3°15′	550	1°30′	–30′
900	7°30′	5°	800	4°15′	2°
1700	14°	11°30′	1000	6°15′	4°30′
1800	15°	12°30′	1900	11°30′	9°
1900	15°	13°	2550	15°30′	13°30′
2700	15°	13°	3000	15°15′	13°15′

(1) Main contact breaker only (black L.T. connection)

2

STARTER
Mechanical and electrical data

		105.12.05.030.03 BOSCH (0001.311.110) GF→12V 1.1 PS
1) Running torque test (pinion in mesh with starter ring gear and with dynamometer brake)		
– Voltage	V	9
– Current	A	290
– Speed	RPM	1300
– Torque	kgm	0.8
	(Nm)	(8)
2) Lock torque test (pinion in mesh with locked starter ring gear)		
– Voltage	V	6
– Current	A	520
– Torque	kgm	1.4
	(Nm)	(14)
3) Light running torque test	kgcm	1.4 – 2
	(Ncm)	(14 – 20)
4) Solenoid switch (fitted to starter)		
– Max. current at nominal voltage	A	38
– Min. operating voltage	V	at –20°C 7.5 at +80°C 9.5
Note: Pinion tooth module		2.1167

3

ALTERNATOR/REGULATOR UNIT
Electrical data

	116.10.05.060.08 BOSCH 0.120.489.549 K1→14V-55A-20
– Min. output	55 A
– Starts charging at	1000 rpm
– 2/3 max. output	2000 rpm
– Max. output	6000 rpm

4

COIL
Electrical data

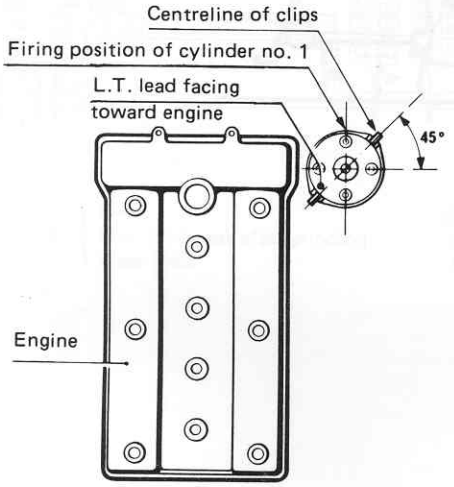
	116.33.65.079.00 MARELLI BZR 202 B
R_1 (20°C) – Resistance of primary winding	1.70 ± 4% Ω
R_2 (20°C) – Resistance of secondary winding	8500 ± 10% Ω
r (20°C) – Resistor	0.8 ± 10% Ω

5

Positioning of distributor

The position shown in diagram is applicable when cylinder no. 1 is in firing stroke (i.e. piston at TDC and both valves closed)

Installation diagram of MARELLI distributor



TIGHTENING TORQUES

1	Spark plugs (white lube as per item 1 under "Fluids and Lubricants")	2.5 to 3.5 (25 to 34)	kgm (Nm)

FLUIDS AND LUBRICANTS

1

Spark plug threads

ISECO oil: Molykote A

Part. No. 4500-18304

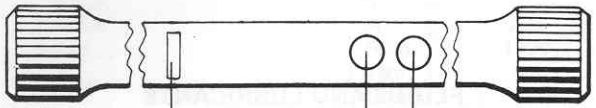
OPERATION

1

Pairing torsion bars

– RH spare torsion bar 116.44.21.506.00

* H - White



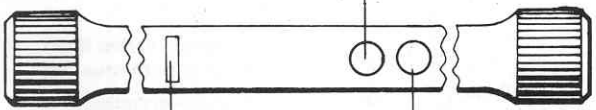
, Marking of torsional preload (letter or painted mark)*

Blue mark for RH torsion bar

Light blue mark for 21.1 dia. torsion bar

– LH spare torsion bar 116.56.21.505.01

*R - White-White



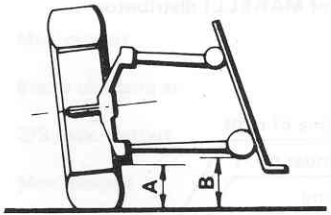
Yellow mark for LH torsion bar

Marking of torsional preload (letter or painted mark)*

DIMENSIONS

1

Front suspension height



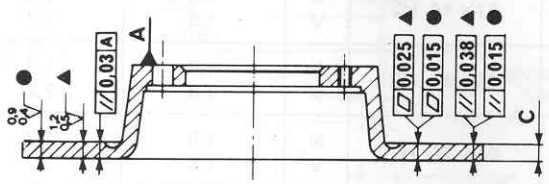
B-A = 50 ± 5 mm

DIMENSIONS

1

Dimensions for regrinding brake discs (1)

FRONT DISC



C	New	12.7	mm
	Min. thickness after grinding	10	mm
	Wear limit	9	mm

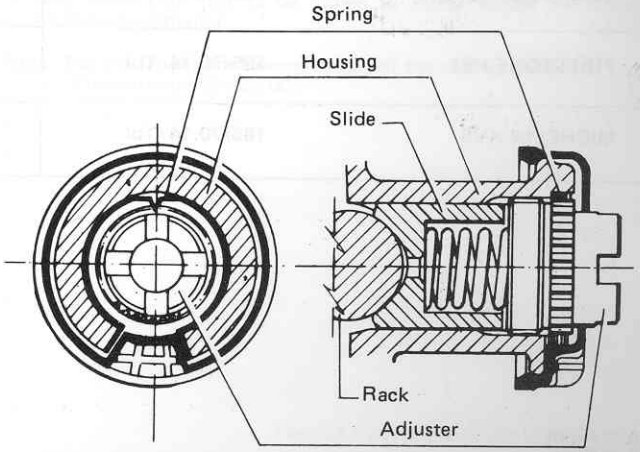
(1) □ = flatness // = parallelism
√ = roughness (in μ)
● Peripheral measurement ▲ Radial measurement

OPERATION

1

Adjusting the Spica pinion/rack backlash
Part. No. 116.46.23.002.43

- Fully tighten adjuster by hand
- Fit the spring so that it is properly seated in the housing
- Fit the plastic cap
- Tighten the adjuster to approx. 0.3 kgm (3 Nm)
- Unscrew the adjuster by three serrations (three "clicks" of the spring on the serrated portion of the adjuster): the rack/pinion backlash will be set to 0.09 mm
  Note: If the adjuster is turned by two or one serrations, the amount of backlash is 0.06 mm or 0.03 mm respectively.
- Check whether the rack moves freely throughout its travel without any sign of binding.



DIMENSIONS

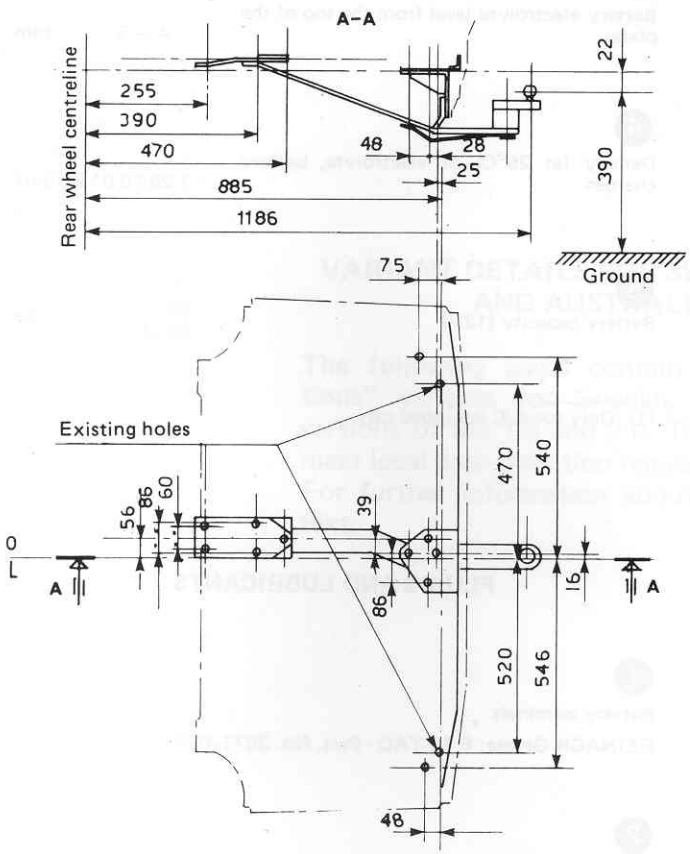
1

Cold tyre pressure (kg/cm²)

TYRES		CLASS	RIMS		A	P
PIRELLI P5	185/70.14 Tbl	H.R.	6J x 14 H2	N V	1.8 1.8	1.8 2.2
KLEBER V12 GTS	185/70.14 Tbl	H.R.	6J x 14 H2	N V	1.8 1.8	1.8 2.2
GOOD YEAR G 800 S - GPS 70	185/70.14 Tbl	H.R.	6J x 14 H2	N V	1.8 1.8	1.8 2.2
CEAT VELTRO 173	185/70.14 Tbl	H.R.	6J x 14 H2	N V	1.8 1.8	1.8 2.2
FIRESTONE HS1	185/70.14 Tbl	H.R.	6H x 14 H2	N V	1.8 1.8	1.8 2.2
MICHELIN XVS	185/70.14 Tbl	H.R.	6J x 14 H2	N V	1.8 1.8	1.8 2.2

A = Front
P = Rear
N = Reduced load (up to 4 occupants)
V = Fully laden (5 occupants + 50 kg)

HR - Up to 210 km/h
Tbl - Tubeless
H2 - Double hump



○ 15 bolts, M10 x 1.25

OPERATION

1

Fitting a towing bracket

The towing bracket components may be of different dimensions from those shown, but they should be of sufficient strength and the mounting points to the body must be as shown in the diagram.

A 12-volt, 7-pin plug should be used for the electrical connection, meeting requirements of italian CUNA CN 165-30.

A "Iso 50" type CUNA CN 138-30 towing ball should be used.

In addition, the following points should be adhered to:

- Connect the vehicle earth to that of the trailer, using the 7-pin plug and a 2.5 mm^2 section cable.
- Replace the flasher unit with one of double the capacity, suitable for two extra 21 W bulbs.
- Any holes that have to be drilled to accommodate the cables must be grommeted.

Note: For the maximum towing weight of the car, see item 1 "Dimensions" Group 00.

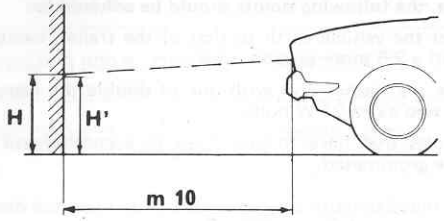
DIMENSIONS

1

Adjusting main and dipped beams

The dimensions given refer to an unladen car without fuel, with tyres inflated to correct pressure and in straight-ahead position. To distance between centres of the light beams must be the same as the distance between centres of the headlamps.

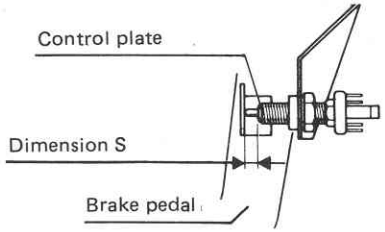
H = Height of dipped beams	44	cm
H_1 = Height of main beams	43	cm



2

Fitting stop light switch

Dimensions S between the stop light switch body and the control plate on the brake pedal. S = 5 mm



3

Battery electrolyte level from the top of the plates 4 – 5 mm

4

Density (at 25°C) of electrolyte, battery charged 1.28±0.01 kg/dm³

5

Battery capacity (12V) 60 / 66 (1) Ah

(1) Only for A/C equipped cars.

FLUIDS AND LUBRICANTS

1

Battery terminals

REINACH Grease: E 10 TAC - Part. No. 3671-69812

2

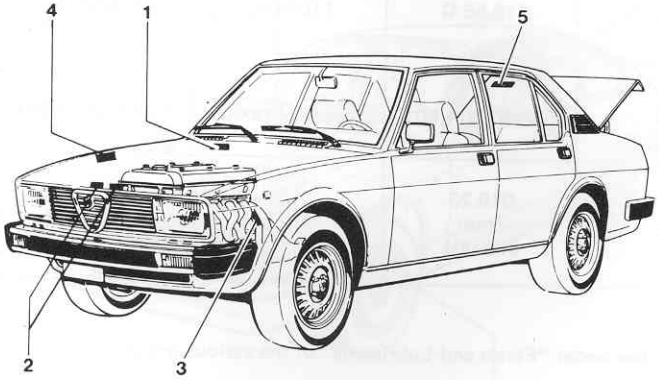
Repair of broken resistance wires of heated rear windows

Silver paste - Part. No. 3521-01001

VARIANT DETAILS FOR SWEDEN - SWITZERLAND AND AUSTRALIA VERSIONS

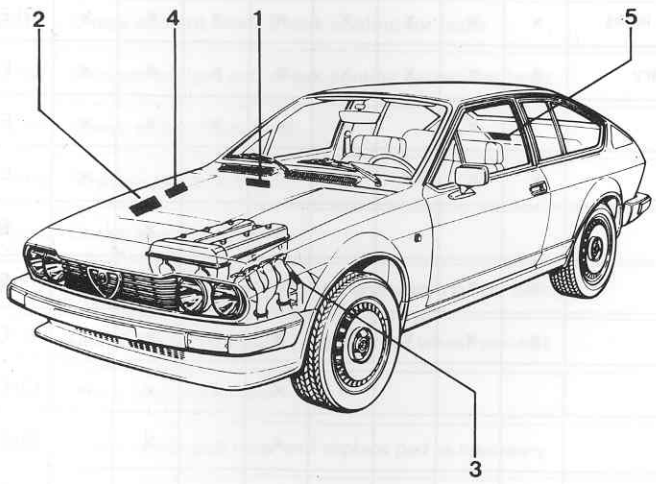
The following pages contain the "Inspection Specifications" variants for Sweden, Switzerland and Australia versions of the 1.8 and 2.0. The car engine is designed to meet local anti-pollution regulations.
For further information about the car, see the foregoing text.

VEHICLE IDENTIFICATION AND SERVICE DATA



	Data	ALFETTA 1.8 Switzerland '83 LHD	RHD
2	**Type code** — On identification plate	133.12.0	– –
1	**Car type number** — On scuttle	116.B20	– –
2	— On identification plate	116.B2A	– –
1	**Chassis serial number** — On scuttle	from 00.001.001	– –
3	**Engine type and serial number** — On LH rear of cylinder block	016.78 from 000.001	– –
4	**Lubrication** — On appropriate plate	See under "Fluids and Lubricants" of the various groups	
5	**Paint products** — On appropriate plate	Indicates the product used for original paintwork	
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	

	Data	ALFETTA 2.0			
		Australia '82		Switzerland - Sweden '83	Australia '83
		LHD	RHD	LHD	RHD
2	**Type code** – On identification plate	– –	113.43	113.05.0	113.06.0
1 2	**Car type number** – On scuttle – On identification plate	– – – –	116.56.O 116.56.G	116.56.O 116.56.G	116.56.O 116.56.G
1	**Chassis serial number** – On scuttle	– –	from 03.011.001	from 00.112.001	from 03.010.001
3	**Engine type and serial number** – On LH rear of cylinder block	– –	016.23 from 000.001	016.55 from 000.001	
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups			
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork			
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the max. engine speed is 4500 rpm			



	Data	G.T.V. 2.0	
		Switzerland - Sweden '83	Australia '83
		LHD	RHD
2	**Type code** – On identification plate	113.17	113.18
1 2	**Car type number** – On scuttle – On identification plate	116.36.O 116.36.C	116.37.O 116.37.C
1	**Chassis serial number** – On scuttle	from 00.062.501	from 03.017.501
3	**Engine type and serial number** – On LH rear of cylinder block	016.55 from 000.001	
4	**Lubrication** – On appropriate plate	See under "Fluids and Lubricants" of the various groups	
5	**Paint products** – On appropriate plate	Indicates the product used for original paintwork	
	Running-in instructions	For the first 500 km (300 miles) the maximum engine speed is 3500 rpm From 501 to 1500 km (301 to 1000 miles) the maximum engine speed is 4500 rpm	

MAINTENANCE SCHEDULE

(Switzerland version cars)

No.	OPERATION	A	B	km/1000						Notes (1)
				10	20	40	60	80	100	
0010	Test vehicle	x	x							
0020	Check tightening of all fasteners	x	x							
0110	Change engine oil and filter element. Check lubrication system for leaks	x	x	x	x	x	x	x	x	(2) E
0120	Check valve clearance and timing chain tension; adjust, if necessary	x	x	x	x	x	x	x	x	E
0130	Clean exhaust gas recirculation system		x		x	x	x	x	x	E
0140	Check alternator drive belt and adjust if necessary	x	x	x	x		x		x	E
0150	Replace alternator drive belt					x		x		E
0160	Tighten cylinder head nuts	x	x							E
0410	Check fuel system for leaks	x	x	x	x	x	x	x	x	E
0420	Replace air cleaner element				x	x	x	x	x	(3) E
0430	Replace fuel filter element					x		x		(4) E
0440	Clean carburettor jets		x		x	x	x	x	x	E
0450	Check, and if necessary, adjust idle speed, fast idle and exhaust emissions	x	x	x	x	x	x	x	x	(5) E
0470	Check choke control operation	x	x		x	x	x	x	x	(5) E

No.	OPERATION	A	B	km/100						Notes (1)
				10	20	40	60	80	100	
0480	Check tightening of carburettor and manifold bolts		x							E
0510	Check ignition advance	x	x	x	x	x	x	x	x	E
0520	Replace spark plugs				x	x	x	x	x	(6) E
0710	Check coolant level. Check cooling for leaks	x	x		x		x		x	(7) E
0720	Replace coolant and check cooling system for leaks					x		x		(8) E
1210	Check clutch fluid level	x	x		x	x	x	x	x	(5)
1310	Replace gearbox oil	x				x		x		
1320	Check gearbox oil level		x		x		x		x	
1710	Check condition of half shaft and steering box bellows	x	x		x	x	x	x	x	
2110	Check, and if necessary, adjust front wheel toe-out	x								
2210	Check braking system	x	x		x	x	x	x	x	
2220	Check brake pad wear and replace pad as necessary		x		x	x	x	x	x	(9)
2225	Check condition of servo vacuum pipe	x	x	x	x	x	x	x	x	E
2230	Replace brake fluid					x		x		(10)
2240	Check brake fluid level	x	x		x		x		x	(5)

No.	OPERATIONS	A	B	km/1000						Notes (1)
				10	20	40	60	80	100	
2250	Check and if necessary adjust handbrake lever travel	x			x	x	x	x	x	
2810	Check tyre pressure	x	x		x	x	x	x	x	(7)
5610	Lubricate door, boot and bonnet hinges; if necessary adjust strikers	x	x		x	x	x	x	x	
6510	Check battery electrolyte level and torque, if necessary. Tighten and grease battery terminals.	x	x		x	x	x	x	x	(7)
6520	Check headlamp beam aim and adjust as necessary	x								

(1) A = 700-1200 km; B = 5000-6000 km
(2) To be carried out also at km/1000: 30, 50, 70 or 90 or once a year. Check the oil level frequently (when refuelling).
(3) Check and clean the element at km/1000: A-B, 10-30-50-70-90 but more frequently when driving mainly under dusty conditions.
(4) Clean filter at coupon B and 20-60-100 km/1000
(5) To be carried out also at km/100 30-50-70-90
(6) Check and if necessary replace spark plugs at km/1000: A-B 10, 30, 50, 70, 90
(7) To be carried out frequently (when refuelling)
(8) To be carried out at least every 2 years
(9) To be carried out also at km/1000: 10-30-50-70-90
(10) To be carried out at least once a year
(E) Relating to emission control

MAINTENANCE SCHEDULE
(Sweden and Australia versions)

No.	OPERATIONS	A	B	km/1000					Notes (1)
				25	45	65	85	105	
0010	Test vehicle	x	x						
0020	Check tightening of all fasteners	x	x						
0110	Change engine oil and filter element. Check lubrication system for leaks	x	x	x	x	x	x	x	(2)
0120	Check valve clearance and timing chain tension; adjust, if necessary	x	x	x	x	x	x	x	
0130	Clean exhaust gas recirculation system		x	x	x	x	x	x	
0140	Check drive belts of alternator and air conditioner compressor	x	x	x		x		x	
0150	Replace drive belts of alternator and air conditioner compressor				x		x		
0170	Check tightening of cylinder head nuts	x	x						
0410	Check fuel system for leaks	x	x	x	x	x	x	x	
0420	Replace air cleaner element			x	x	x	x	x	(3)
0430	Replace fuel filter element				x		x		(4)
0440	Clean carburettor jets		x	x	x	x	x	x	
0450	Check, and if necessary, adjust idle speed, fast idle and exhaust emissions	x	x	x	x	x	x	x	(5)

No.	OPERATIONS	A	B	km/1000					Notes (1)
				25	45	65	85	105	
0470	Check choke control operation	x	x	x	x	x	x	x	(5)
0480	Check tightening of carburettor and manifold bolts		x						
0510	Check contact breaker point gap. Check ignition timing; adjust as necessary. Check ignition system leads and connections	x	x	x	x	x	x	x	(6)
0520	Replace spark plugs			x	x	x	x	x	(7)
0710	Check coolant level. Check cooling system for leaks	x	x	x		x		x	(8)
0720	Replace coolant and check cooling system for leaks				x		x		(9)
1210	Check clutch fluid level	x	x	x	x	x	x	x	(5)
1310	Replace gearbox oil	x			x		x		
1320	Check gearbox oil level		x	x		x		x	
1710	Check condition of half shaft and steering box bellows	x	x	x	x	x	x	x	
2110	Check, and if necessary, adjust front wheel toe-out	x							
2210	Check braking system	x	x	x	x	x	x	x	
2220	Check brake pad wear and replace pad as necessary		x	x	x	x	x	x	(10)
2225	Check condition of servo vacuum pipe	x	x	x	x	x	x	x	
2230	Replace brake fluid				x		x		(11)

No.	OPERATION	A	B	km/1000					Notes (1)
				25	45	65	85	105	
2240	Check brake fluid level	x	x	x	x	x		x	(5)
2250	Check, and if necessary, adjust handbrake lever travel	x		x	x	x	x	x	
2810	Check tyre pressure	x	x	x	x	x	x	x	(8)
5610	Lubricate door, boot and bonnet hinges; if necessary adjust strikers	x	x	x	x	x	x	x	
6510	Check battery electrolyte level and top up, if necessary. Tighten and grease battery terminals	x	x	x	x	x	x	x	(8)
6520	Check headlamp beam aim and adjust as necessary	x							
0493	Clean and check evaporative emission system		x	x	x	x	x	x	

(1) A = 700-1200 km; B = 5000-6000 km
(2) To be carried out also at km/1000: 15, 35, 55, 75, 95 or once a year. Check the oil level frequently (when refuelling).
(3) Check and clean the element at coupons A and B, at the intervals indicated under note (2) but more frequently when driving mainly under dusty conditions.
(4) Clean filter at coupon B and 25-65-105 km/1000.
(5) To be carried out also at the intervals indicated under note (2).
(6) Check and if necessary adjust contacts at the intervals indicated under note (2)
(7) Check and if necessary replace spark plugs at coupons A and B, at the intervals indicated under note (2)
(8) To be carried out frequently (when refuelling)
(9) To be carried out ar least every 2 years
(10) To be carried out also at the intervals indicated under note (2) and more frequently for hard or mountain driving
(11) To be carried out at least once a year

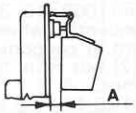
OPERATION

1

System components	DELLORTO CARBURETTOR
ENGINE 016.78	11305.04010.01 11305.04011.01 DHLA 40 H
ENGINE 016.65	11305.04010.01 11305.04011.01 DHLA 40 H

DIMENSIONS

2

Dellorto carburettor settings		DHLA 40 H (detoxed)
Alfa Romeo part number		11305.04010.01 11305.04011.01
Venturi		32
Main jet		1.48
Main emulsion tube		7772.11
Main air metering jet		2.10
Idle jet		0.57
Idle air metering jet		2.20
Progression holes		n. 5 holes Ø 1.2-1.6-1.6-1.8-1.8
Choke jet		0.80
Choke air metering jet		2 holes Ø 3.5
Choke emulsion tube		7482.3
Accelerator pump jet		0.40 vertical metering tube
Accelerator pump delivery per 20 strokes, per barrel	cm^3	6.5 – 9.5
Needle valve		1.50
Float weight	g	8.5
FLOAT LEVEL SETTING Distance "A" between lid with gasket and float (mm) 		14.5 – 15

1

Engine idle speed

Warm engine, gearbox in neutral, clutch engaged

	1800 - 2000 Model Year '83
Low idle	850 - 1000 rpm
Fast idle	1400 - 2000 rpm

2

CO percentage in exhaust gases at idle (% by volume)

Warm engine, gearbox in neutral, clutch engaged

		1800 - 2000 Model Year '83
At exhaust tail pipe end		0.5 – 2
At exhaust manifold	1st cylinder	~0.5
	2nd-3rd-4th cylinder	1.5 – 2

Alfa Romeo Auto S.p.A.

DIREZIONE ASSISTENZA
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