



***TECHNICAL SPECIFICATIONS  
PUBLICATIONS LIST  
RECALL CAMPAIGN  
SERVICE BULLETIN INDEX***

**328 / 328  
GTB / GTS**

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**Ferrari** Servizio Assistenza Tecnica

**Ferrari**

FERRARI NORTH AMERICA

**328 / 328**  
**GTB / GTS**

U.S. VERSION

**TECHNICAL SPECIFICATIONS**



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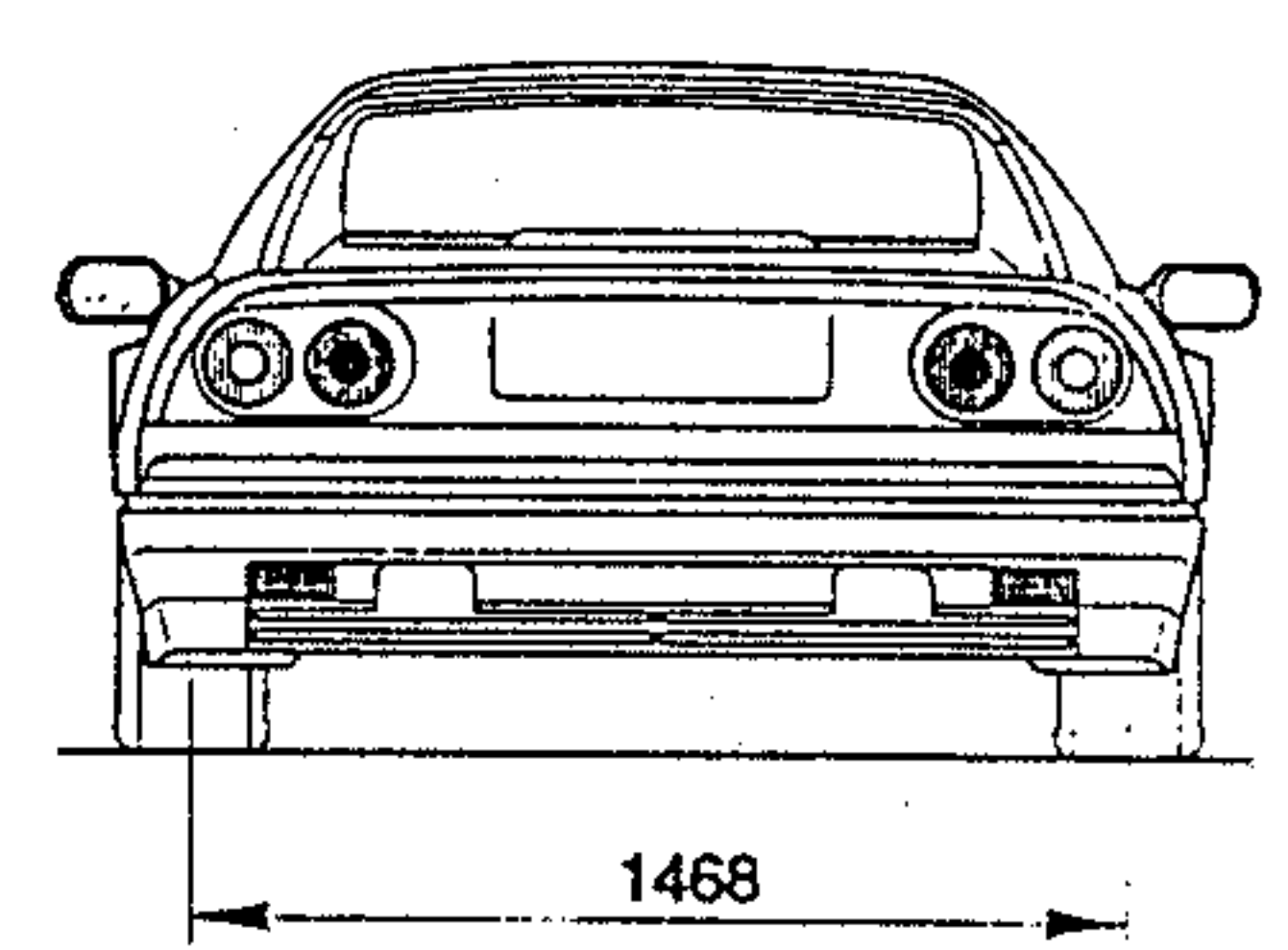
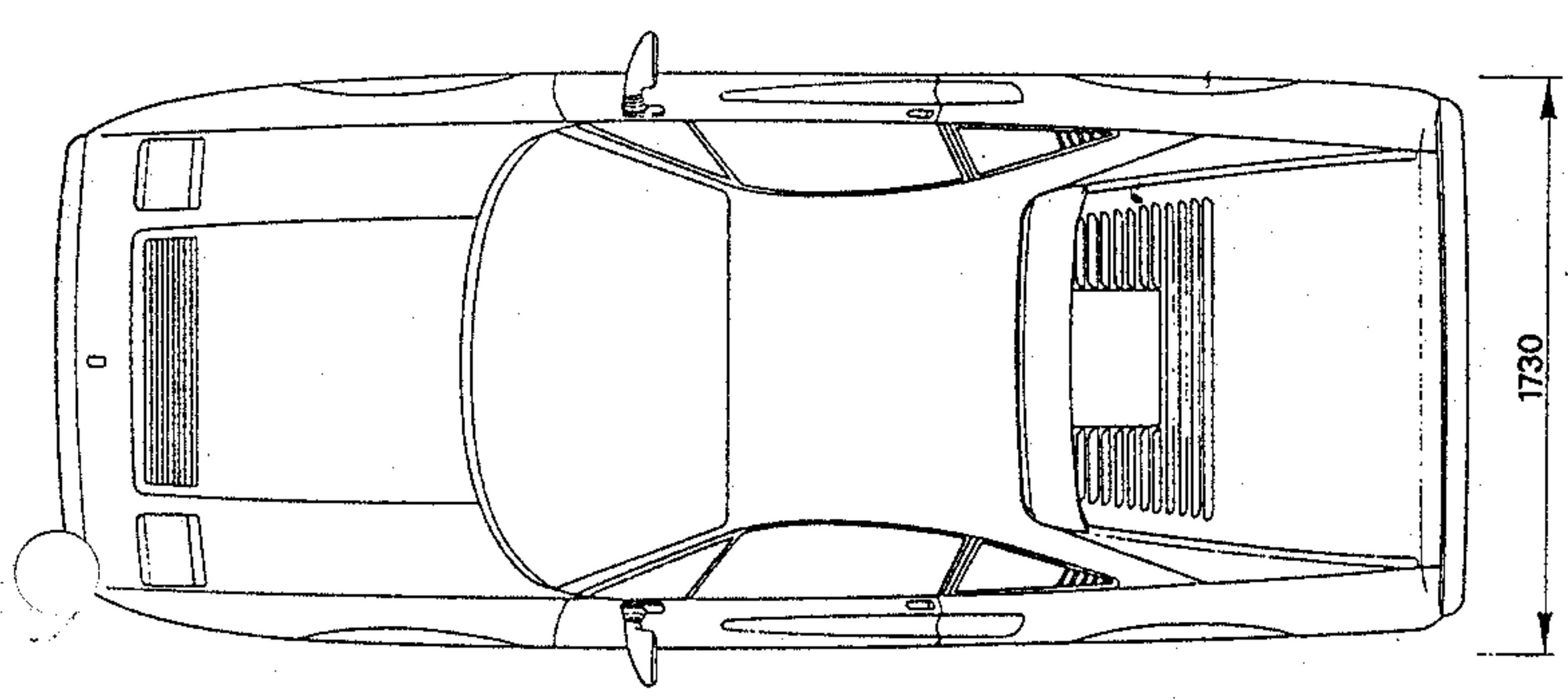
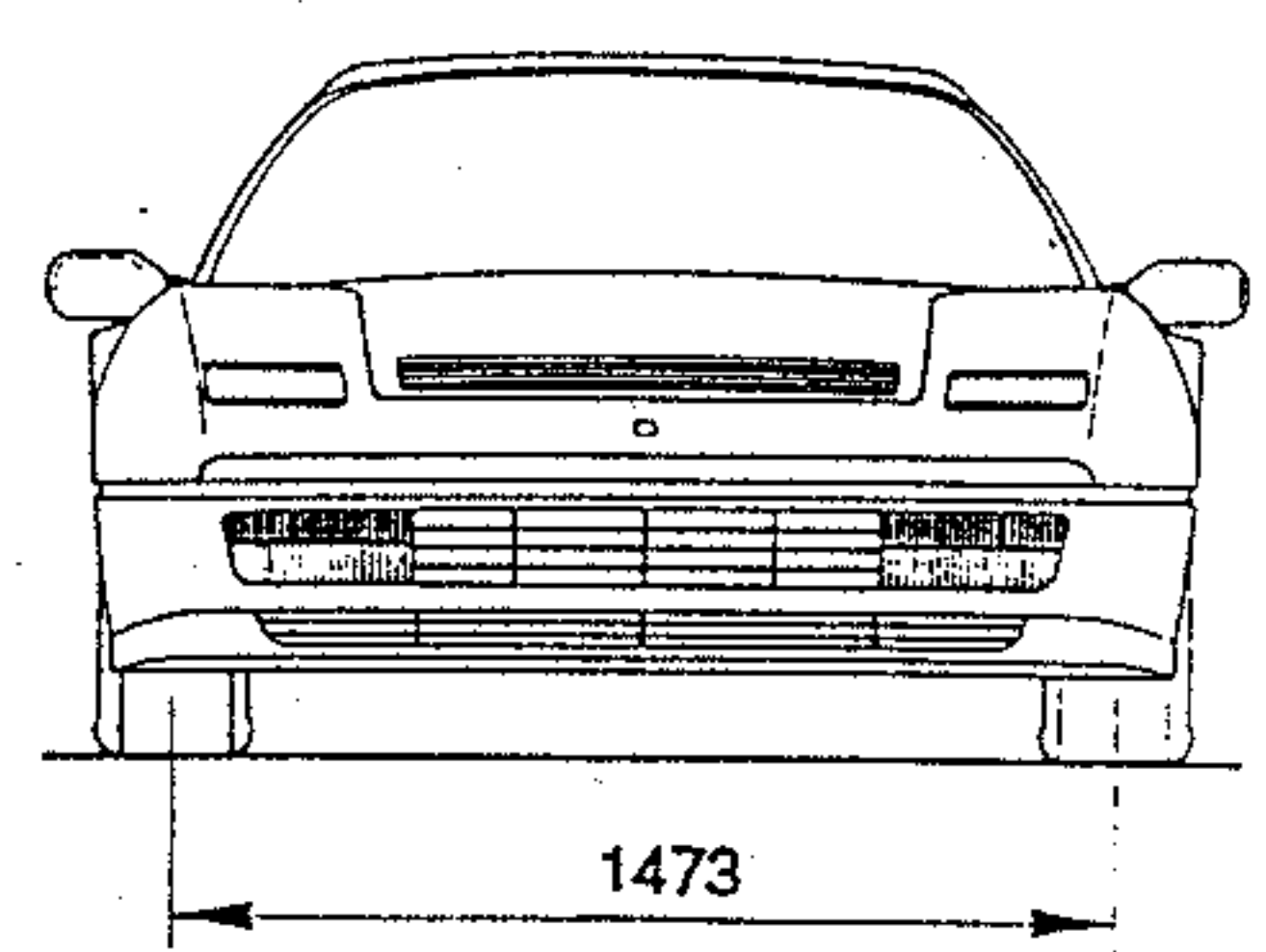
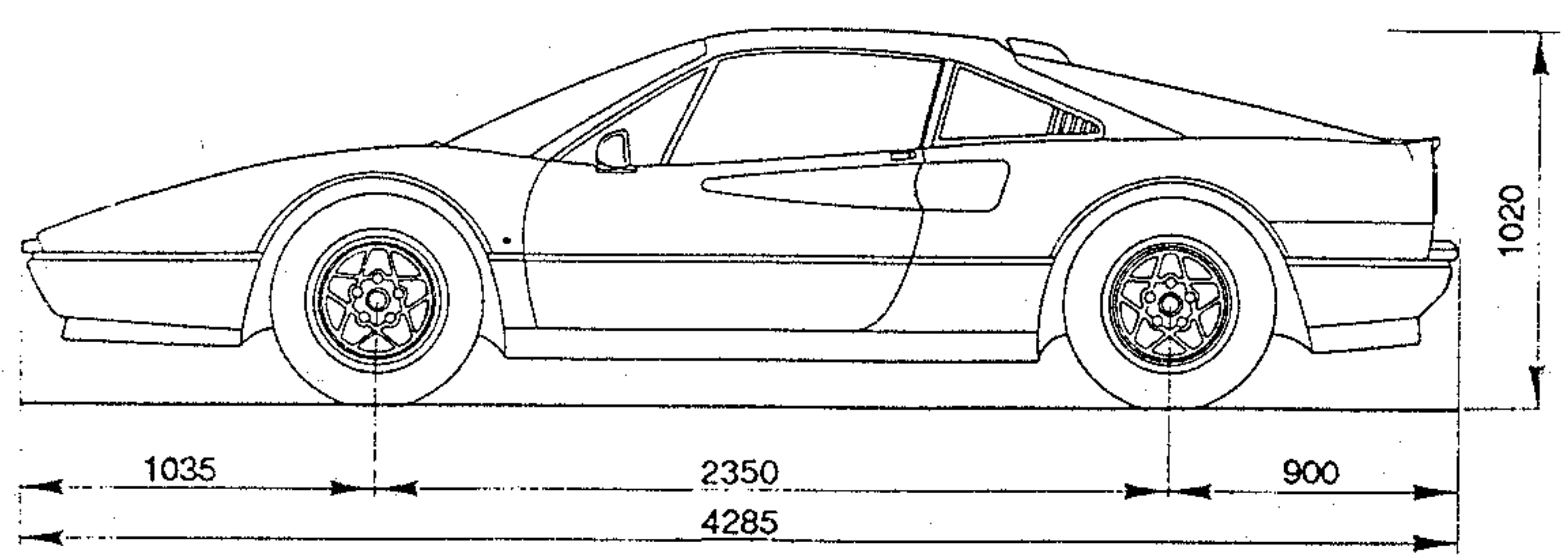
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|----------|----|

GENERAL INFORMATION

OVERALL DIMENSIONS



|                                   |    |            |
|-----------------------------------|----|------------|
| Wheel Base                        | MM | 2350       |
| Front Track                       | MM | 1473       |
| Rear Track                        | MM | 1468       |
| Overall Length                    | MM | 4285       |
| Overall Width                     | MM | 1730       |
| Overall Height (unloaded vehicle) | MM | 1020       |
| Designated Seating Capacity       |    | 2          |
| Curb Weight                       | KG | 1422 (GTB) |
|                                   | KG | 1435 (GTS) |
| Gross Weight (fully laden)        | KG | 1620 (GTB) |
|                                   | KG | 1635 (GTS) |

## PERFORMANCES

### Attainable speeds at 1000 RPM

|            |      |      |
|------------|------|------|
| - 1st gear | KM/H | 8.6  |
| - 2nd gear | KM/H | 12.5 |
| - 3rd gear | KM/H | 17.3 |
| - 4th gear | KM/H | 24.5 |
| - 5th gear | KM/H | 31.9 |

|               |      |     |
|---------------|------|-----|
| Maximum Speed | KM/H | 250 |
|---------------|------|-----|

## ACCELERATION

|                    |     |      |
|--------------------|-----|------|
| 0 - 400 m          | SEC | 14.6 |
| Standing Kilometer | SEC | 26.4 |

## VIN (VEHICLE IDENTIFICATION NUMBER) INTERPRETATION

| Digit No.         | Designation | Description                                            |
|-------------------|-------------|--------------------------------------------------------|
| 1-2-3             | ZFF         | Manufacturer-Ferrari                                   |
| 4                 | X           | Engine Type-F105 C 040-<br>US Version 3.2 liter-4valve |
| 5                 | A           | Passenger Protection System                            |
| 6-7               | 12          | Model Designation                                      |
| 8                 | A           | Version-USA                                            |
| 9                 | -           | Check Digit-USA                                        |
| 10                | G           | Model Year G-1986<br>H-1987 J-1988                     |
| 11                | 0           | Manufacturing Plant                                    |
| 12-13-14-15-16-17 | -           | Chassis Progressive Number                             |

## CAPACITIES

|                      |                                    |     |                                                     |
|----------------------|------------------------------------|-----|-----------------------------------------------------|
| Engine Oil           | Initial Fill                       | LTR | 10                                                  |
|                      | Refill (w/filter)                  | LTR | 8                                                   |
|                      | Cap. on Dipstick<br>(min. to max.) | LTR | 2                                                   |
|                      | Viscosity                          |     | SAE 10W-40, 10W-50<br>15W-40, 15W-50                |
|                      | API Rating                         |     | SF/CD                                               |
| Gearbox-Differential | Capacity                           | LTR | 4                                                   |
|                      | Viscosity                          |     | 75W-90, 80W-90                                      |
|                      | API Rating                         |     | GL-5                                                |
| Air Conditioning     | Refrigerant-R-12                   | KG  | 1.0                                                 |
|                      | Compressor Oil                     | LTR | .33                                                 |
|                      | Type                               |     | Carrier PP-3636                                     |
| Brake Circuit        | Capacity                           | LTR | 0.58                                                |
|                      | Type                               |     | Super HD Dot 4                                      |
| Cooling System       | Capacity                           | LTR | 22                                                  |
|                      | Antifreeze Mixture<br>(to -30°C)   | LTR | 11                                                  |
|                      |                                    |     |                                                     |
| Fuel System          | Capacity                           | LTR | 70                                                  |
|                      | Type                               |     | Prem. Unleaded<br>Min. 95 RON or 91 $\frac{R+M}{2}$ |

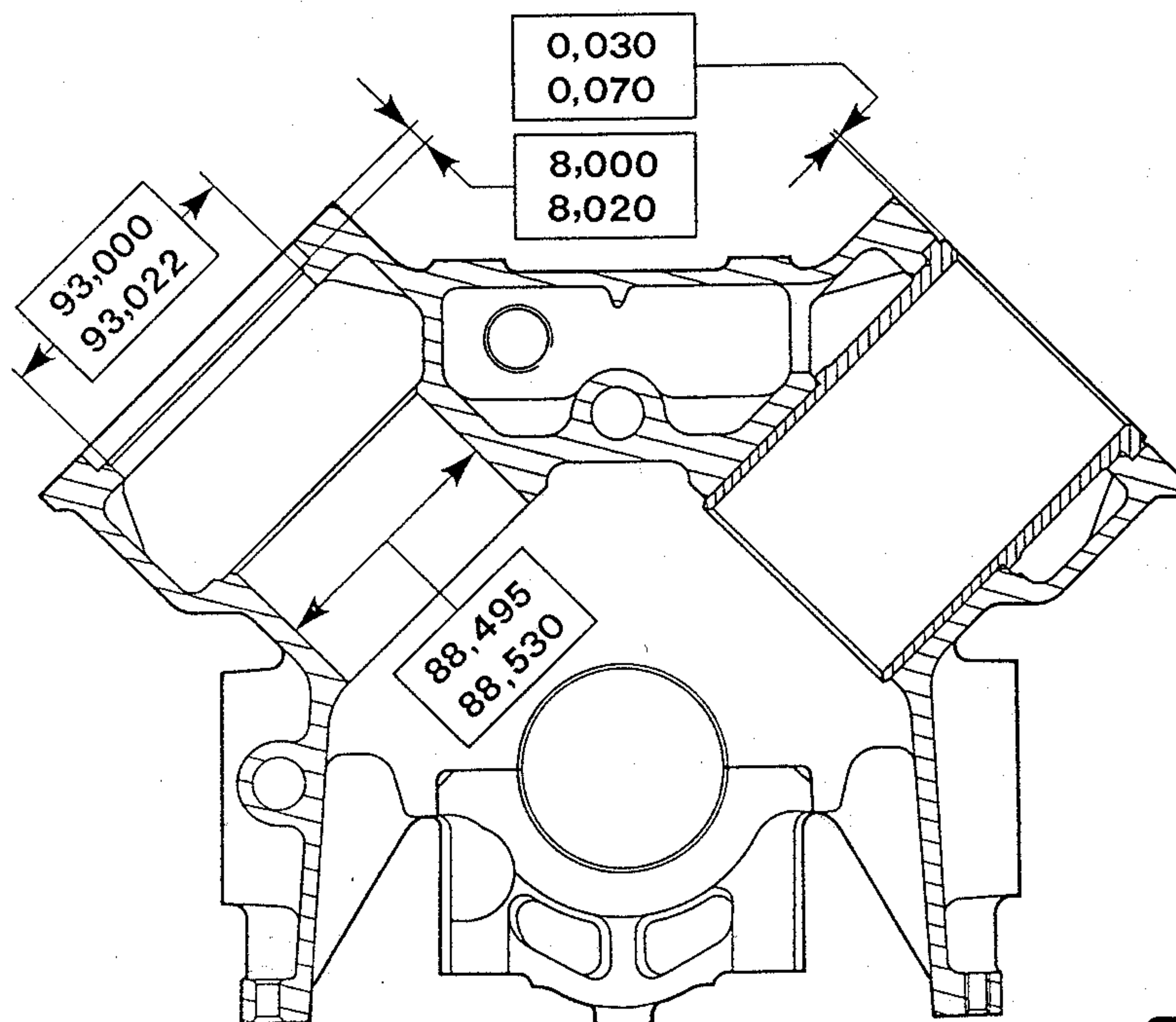


## ENGINE

### MAIN SPECIFICATIONS

|                            |     |              |
|----------------------------|-----|--------------|
| Type (US Version)          |     | F 105C040    |
| Cylinders                  |     | 8 a V di 90° |
| Cylinder Bore              | MM  | 83           |
| Piston Stroke              | MM  | 73.6         |
| Piston Displacement        | CC  | 3186         |
| Compression Ratio          |     | 9.2:1        |
| Max. Engine Speed          | RPM | 7700         |
| DIN Max. Power             | CV  | 260          |
| Corresponding Engine Speed | RPM | 7000         |
| Maximum Torque             | Kgm | 29.5         |
| Corresponding Engine Speed | RPM | 5500         |

### CRANKCASE AND CYLINDER LINERS



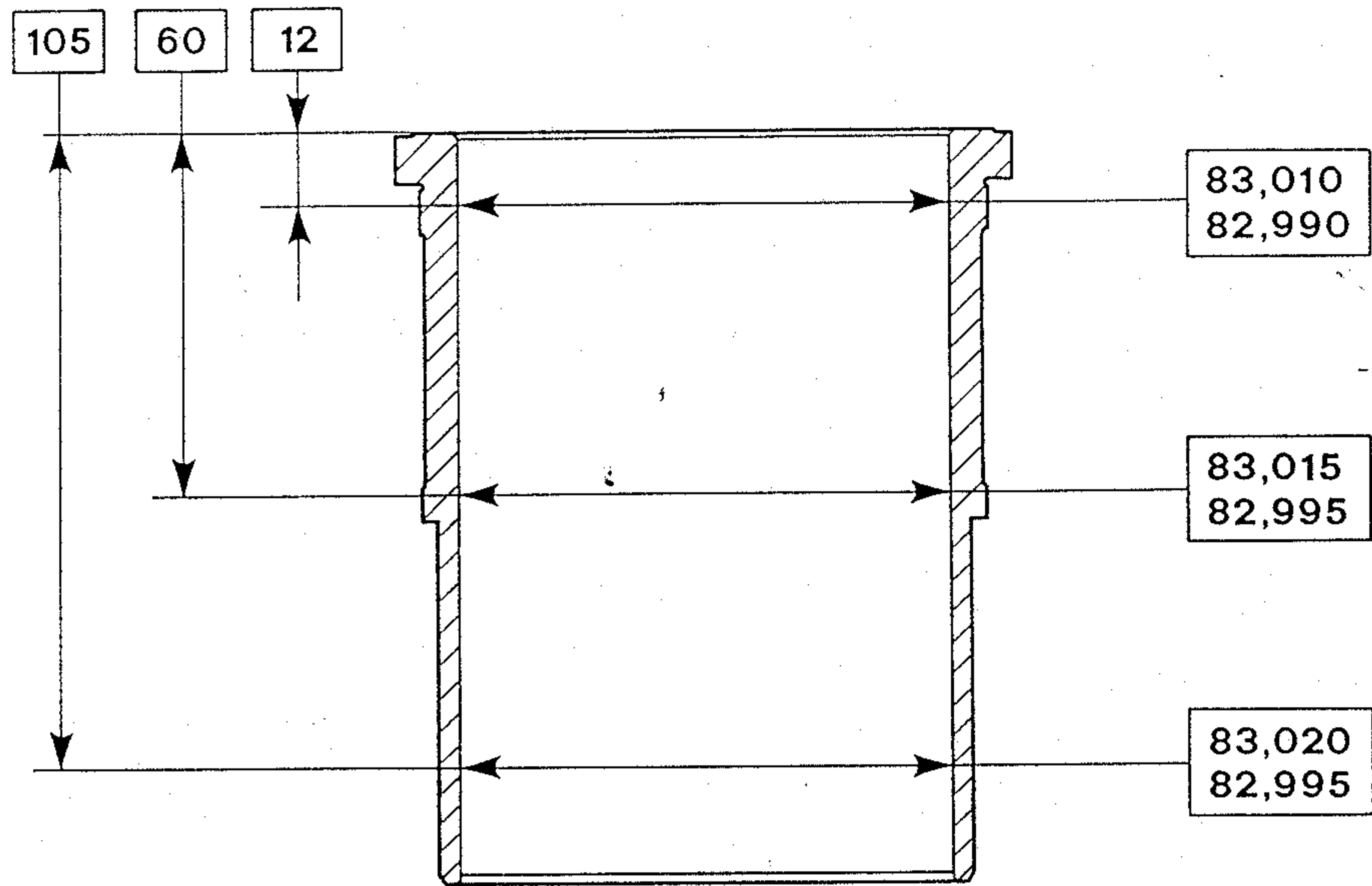
B

ENGINE

**328 / 328**  
**GTB / GTS**  
U.S. VERSION

CRANKCASE AND CYLINDER LINERS - CONT.

|                                      |    |             |
|--------------------------------------|----|-------------|
| Max. wear of cylinder liner bore     | MM | 0.080-0.100 |
| Max. taper                           | MM | 0.010-0.025 |
| Max. ovalization                     | MM | 0.010-0.025 |
| Grinding degree of liner (roughness) | UM | 0.6-0.8     |
| Liner Protrusion from crankcase      | MM | 0.03-0.07   |

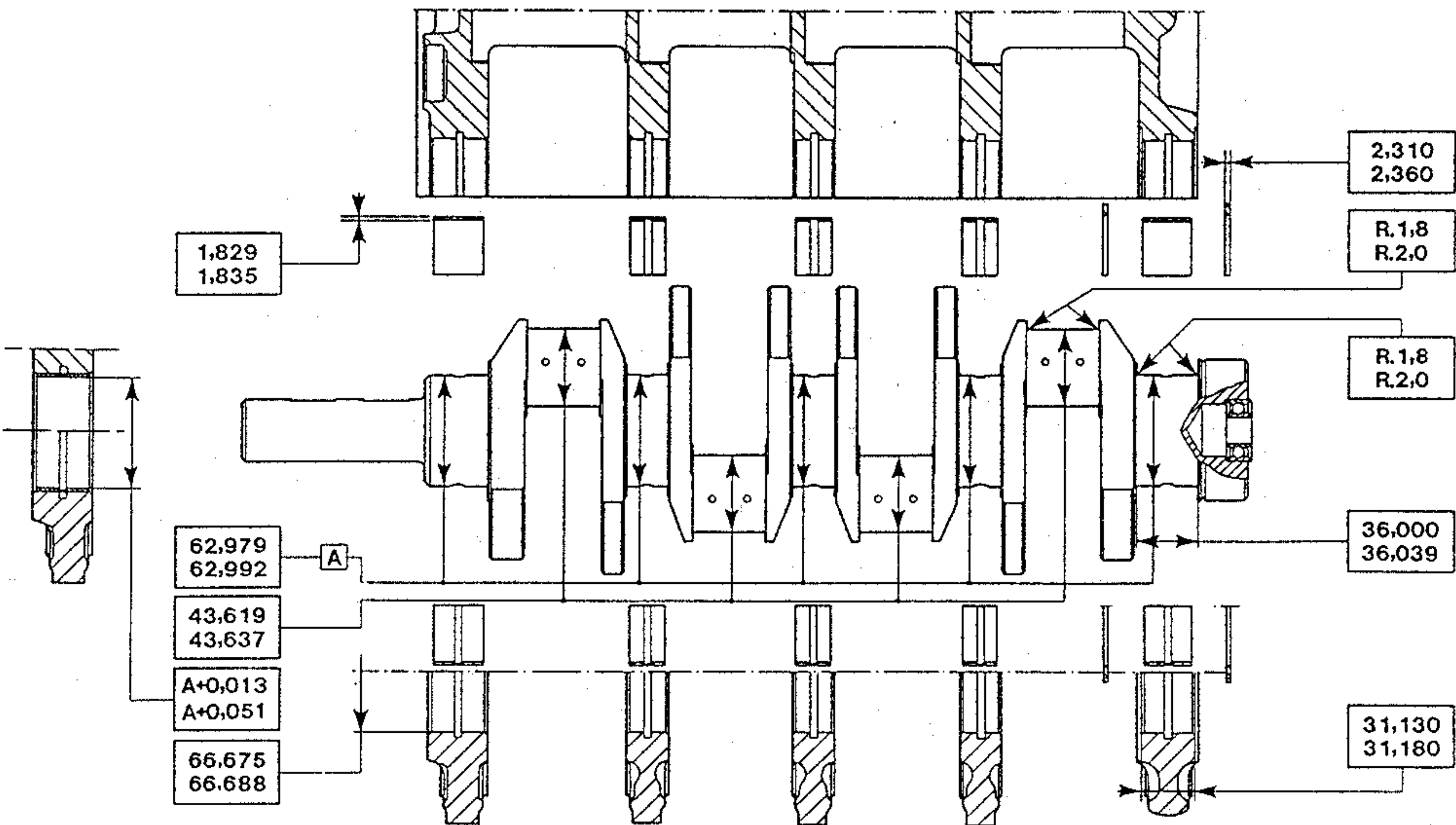


CRANKSHAFT - MAIN BEARINGS

|                                                                                        |    |             |
|----------------------------------------------------------------------------------------|----|-------------|
| Fit, main bearings/main journals                                                       |    |             |
| Assembling Clearance                                                                   | MM | 0.013-0.051 |
| Limit of Wear                                                                          | MM | 0.15        |
| Crankshaft end float with shims                                                        |    |             |
| Assembling Clearance                                                                   | MM | 0.100-0.240 |
| Limit of Wear                                                                          | MM | 0.30        |
| Max. permitted allowance on main journal alignment                                     | MM | 0.02        |
| Max. permitted allowance on the parallelism of crankpins in respect with main journals | MM | 0.01        |

CRANKSHAFT - MAIN BEARINGS - CONT.

|                                                                                                                                     |     |               |
|-------------------------------------------------------------------------------------------------------------------------------------|-----|---------------|
| Max. ovalization of journals and crankpins after grinding                                                                           | MM  | 0.01          |
| Perpendicularity in relation to the rotation axis of the flywheel flange surface at 48mm from the axis. The permitted allowance is: | MM  | 0.025         |
| Surface hardness of main journals and crankpins                                                                                     | HRC | 56            |
| Surface finishing of main journal and crankpins                                                                                     | μ   | 0.2           |
| Diameter of main journals                                                                                                           | MM  | 62.979-62.992 |
| Diameter of crankpins                                                                                                               | MM  | 43.619-43.637 |
| Inside diameter of main bearing saddle in crankcase                                                                                 | MM  | 66.675-66.688 |
| Thickness of Main Bearing                                                                                                           | MM  | 1.829-1.835   |
| Main Bearing Preload (minimum)                                                                                                      | MM  | 0.05          |



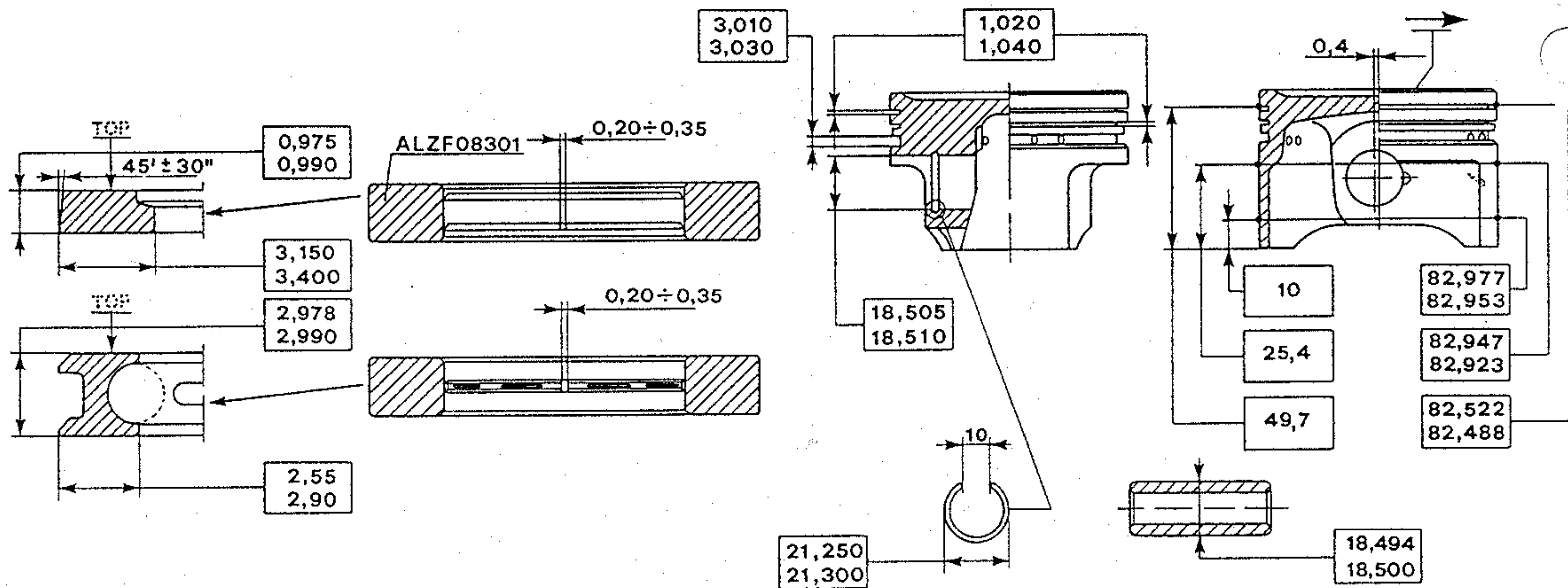
|                           |    |               |
|---------------------------|----|---------------|
| Diameter of Main Journals |    |               |
| Nominal Diameter          | MM | 62.979-62.992 |
| 1st Undersize (-0.254)    | MM | 62.725-62.738 |
| 2nd Undersize (-0.508)    | MM | 62.471-62.484 |

CRANKSHAFT - MAIN BEARINGS - CONT.

|                                |    |             |
|--------------------------------|----|-------------|
| Thickness of Main Bearings     |    |             |
| Nominal Diameter               | MM | 1.829-1.835 |
| 1st Oversize (+0.127)          | MM | 1.956-1.962 |
| 2nd Oversize (+0.254)          | MM | 2.083-2.089 |
| Thickness of Shims (End Float) |    |             |
| Nominal Diameter               | MM | 2.310-2.380 |
| 1st Oversize (+.025)           | MM | 2.560-2.610 |

PISTONS - CONNECTING RODS

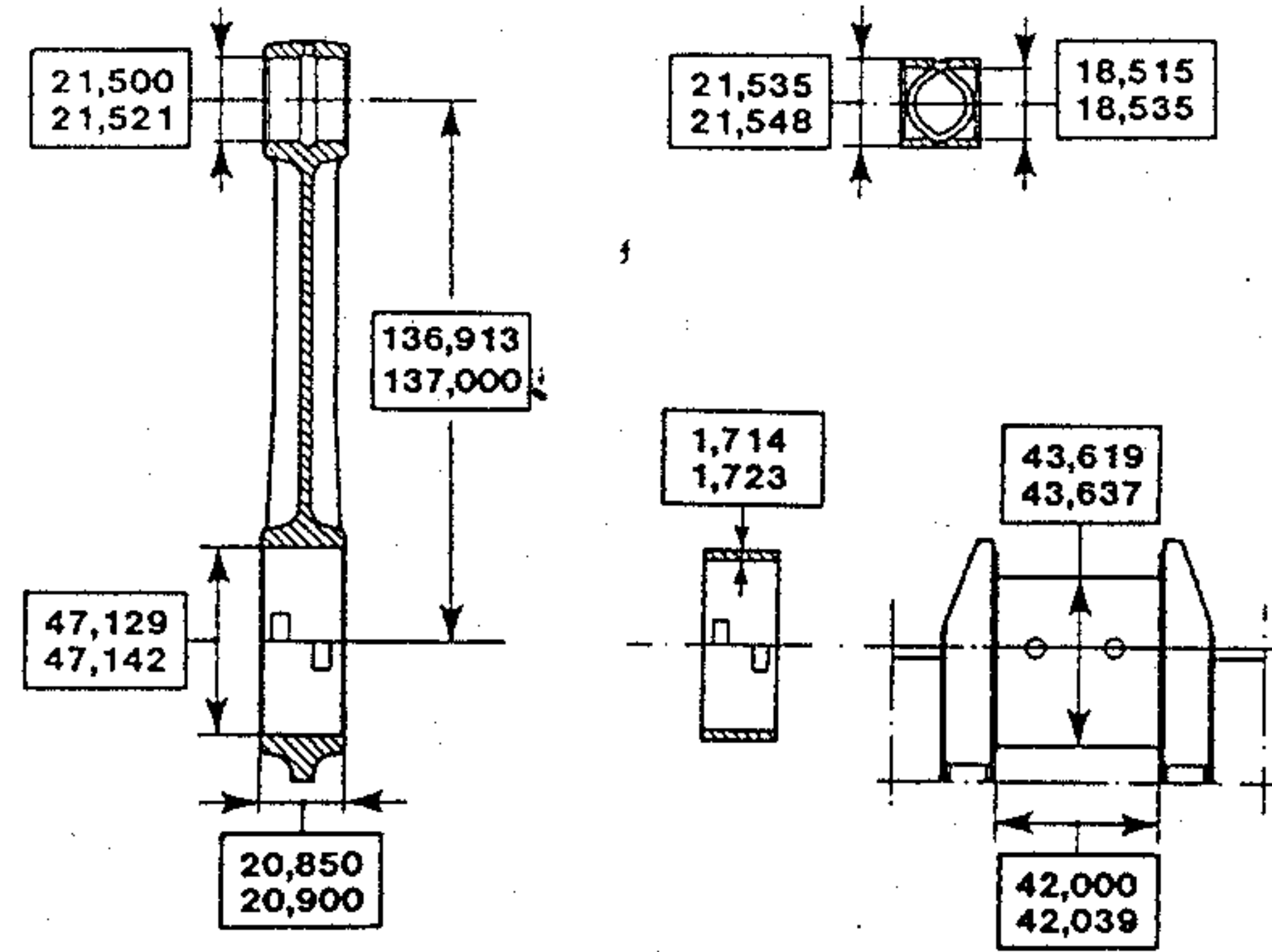
|                                                                  |    |             |
|------------------------------------------------------------------|----|-------------|
| Fit, Piston Skirt/Cylinder Wall<br>(measure 8.5mm from the base) |    |             |
| -Assembling Clearance                                            | MM | 0.020-0.060 |
| -Limit of Wear                                                   | MM | 0.10        |
| Piston Ring Groove/Piston Ring Clearance                         |    |             |
| -1°-2°core shaped piston ring                                    | MM | 0.030-0.065 |
| -3° oil scraper ring                                             | MM | 0.020-0.052 |
| -Limit of Wear                                                   | MM | 0.13        |
| Wear Limit of Piston Rings<br>(measured in tool CS 5730)         | MM | 0.8-1.0     |



|                                     |    |             |
|-------------------------------------|----|-------------|
| Fit, Piston pin/conn. rod small end | MM | 0.015-0.041 |
| -Limit of Wear                      | MM | 0.050       |
| Interference, pin bushing/conn. rod | MM | 0.014--.048 |
| Fit, big end bearings/crankpins     |    |             |
| -Assembling Clearance               | MM | 0.046-0.089 |
| -Limit of Wear                      | MM | 0.012       |

# PISTONS - CONNECTING RODS - CONT.

|                                    |    |               |
|------------------------------------|----|---------------|
| End Float of coupled conn. rods    | MM | 0.200-0.339   |
| Diameter of crankpins (crankshaft) |    |               |
| -Nominal diameter                  | MM | 43.619-43.637 |
| -1st undersize (-.254)             | MM | 43.365-43.383 |
| -2nd undersize (-.508)             | MM | 43.111-43.129 |
| Thickness of Big End Bearings      |    |               |
| -Nominal diameter                  | MM | 1.714-1.723   |
| -1st oversize (+0.127)             | MM | 1.841-1.850   |
| -2nd oversize (+0.254)             | MM | 1.968-1.977   |

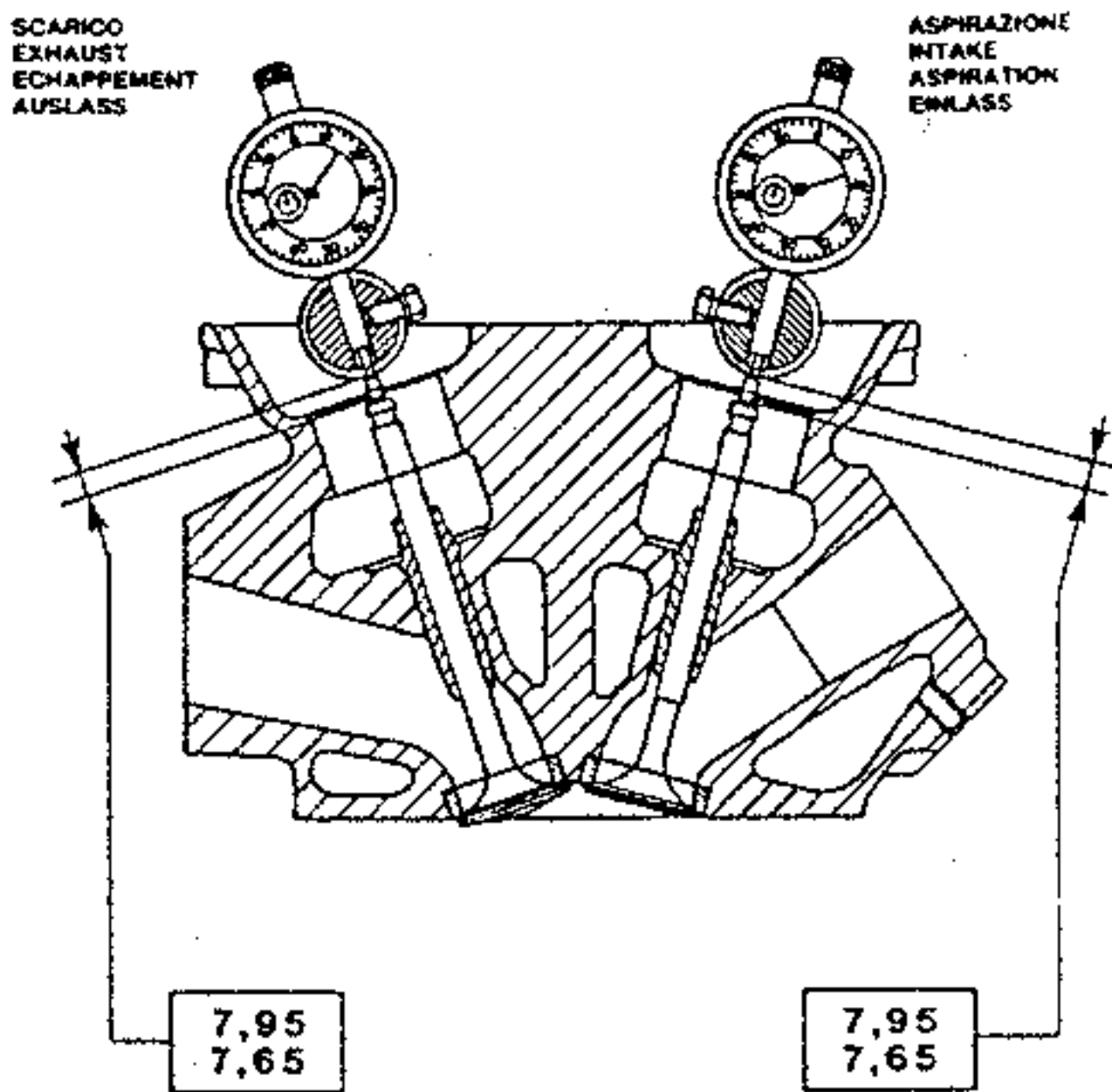
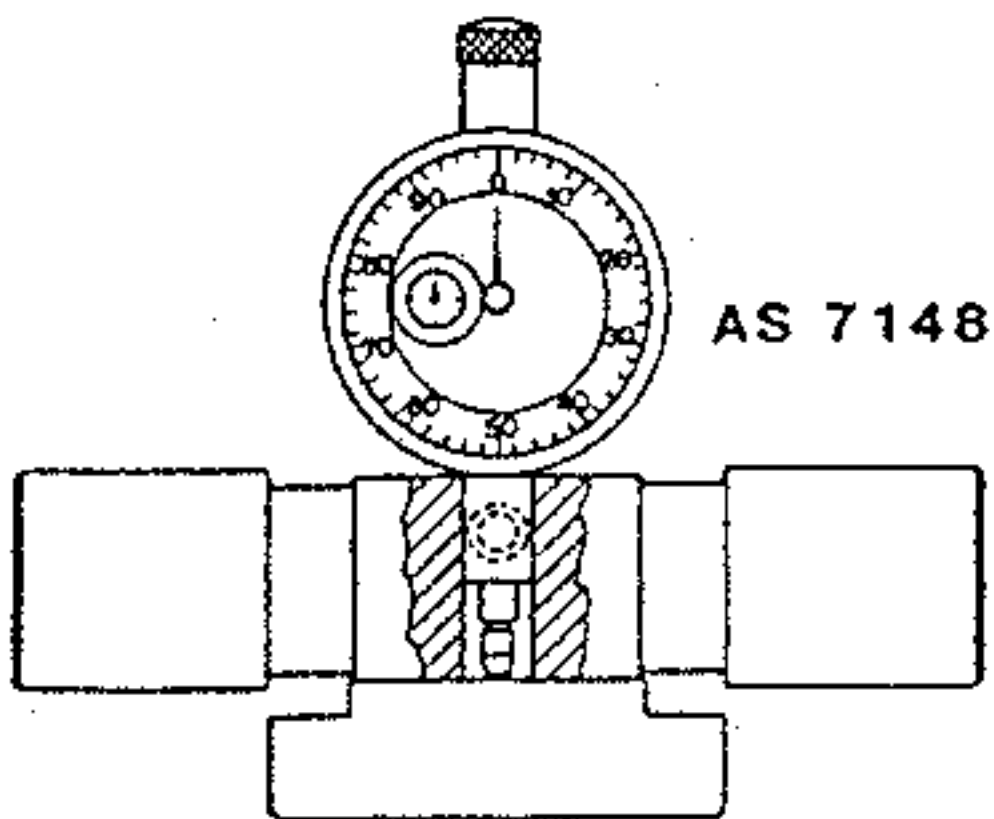
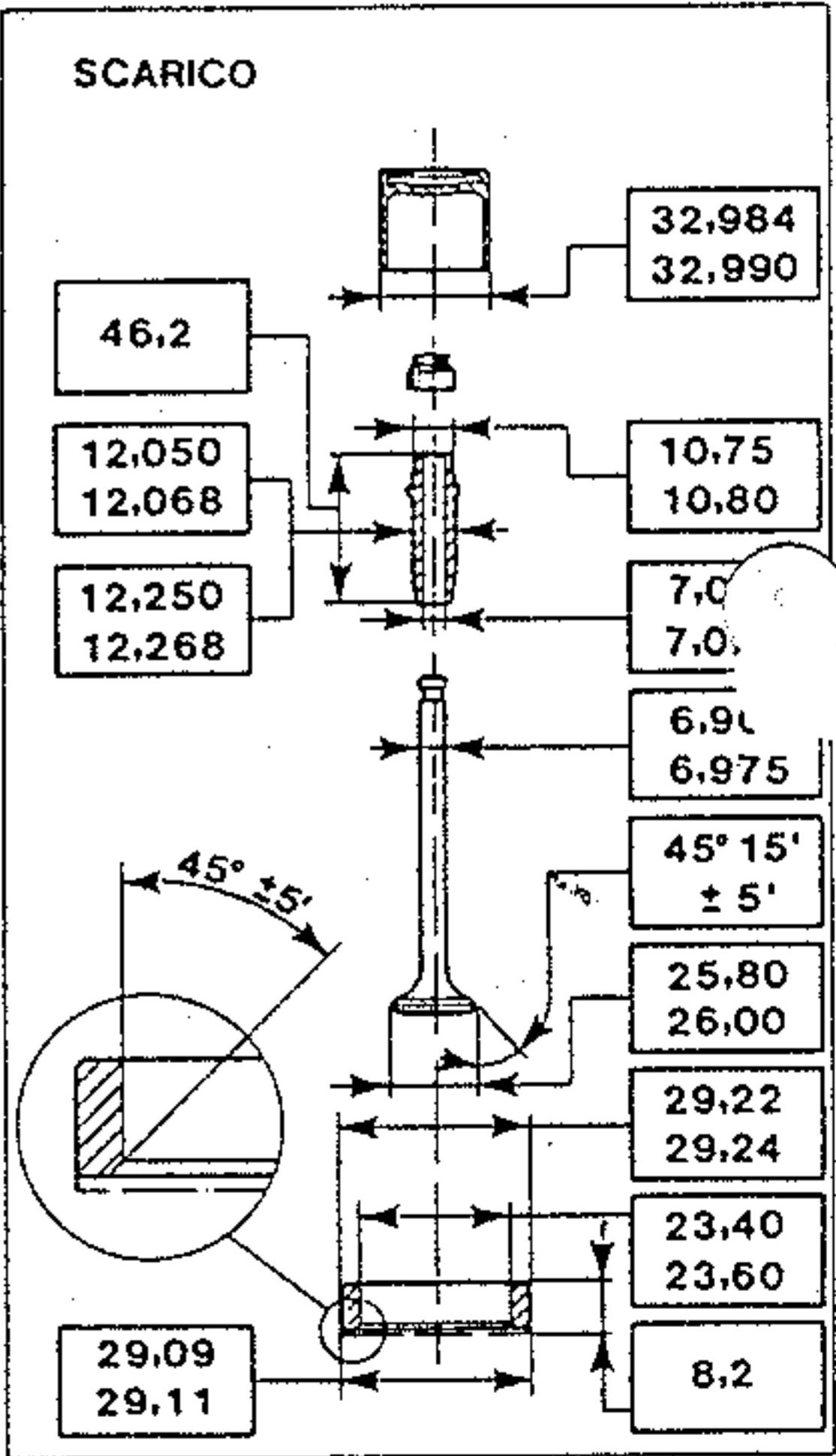
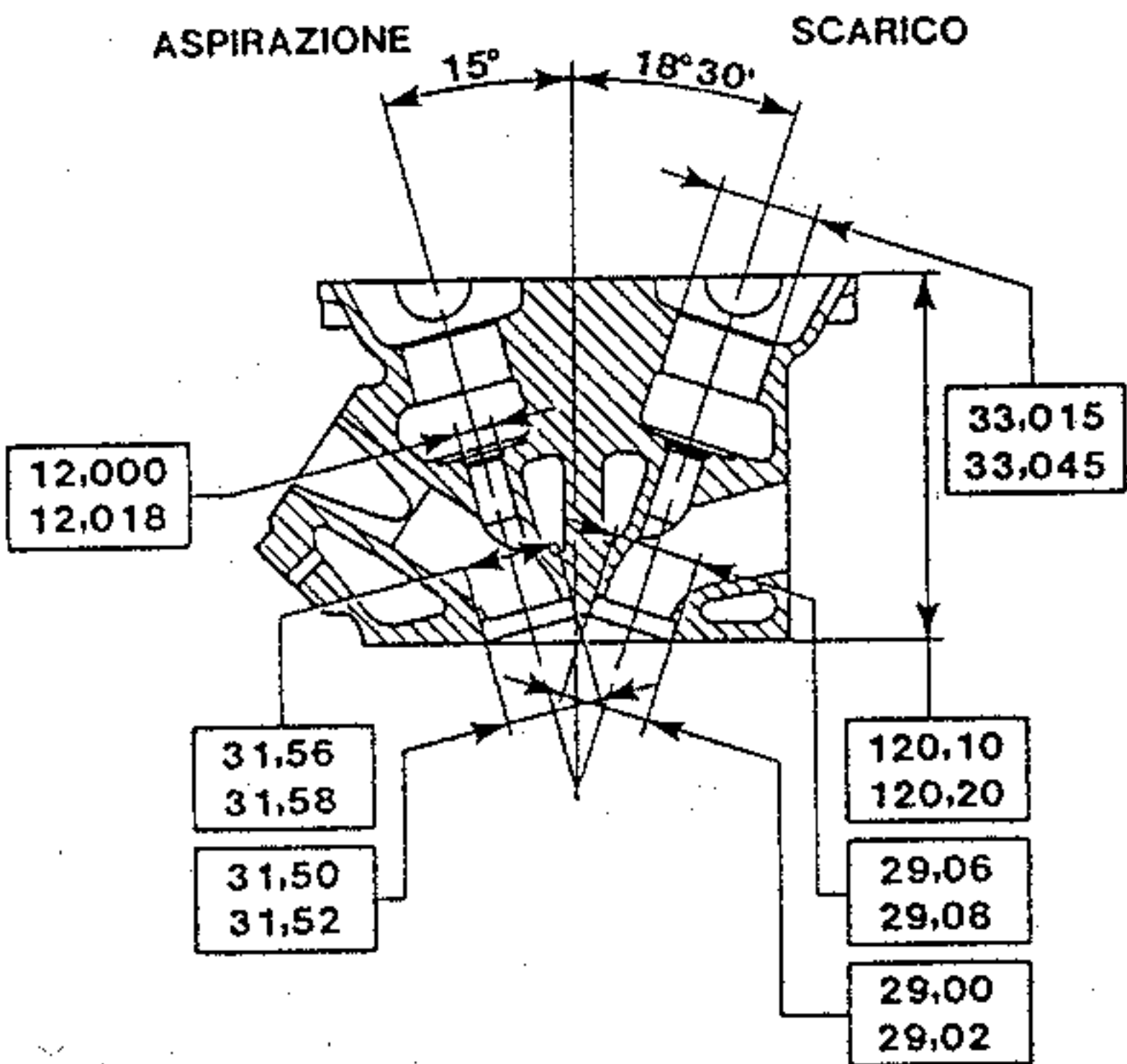
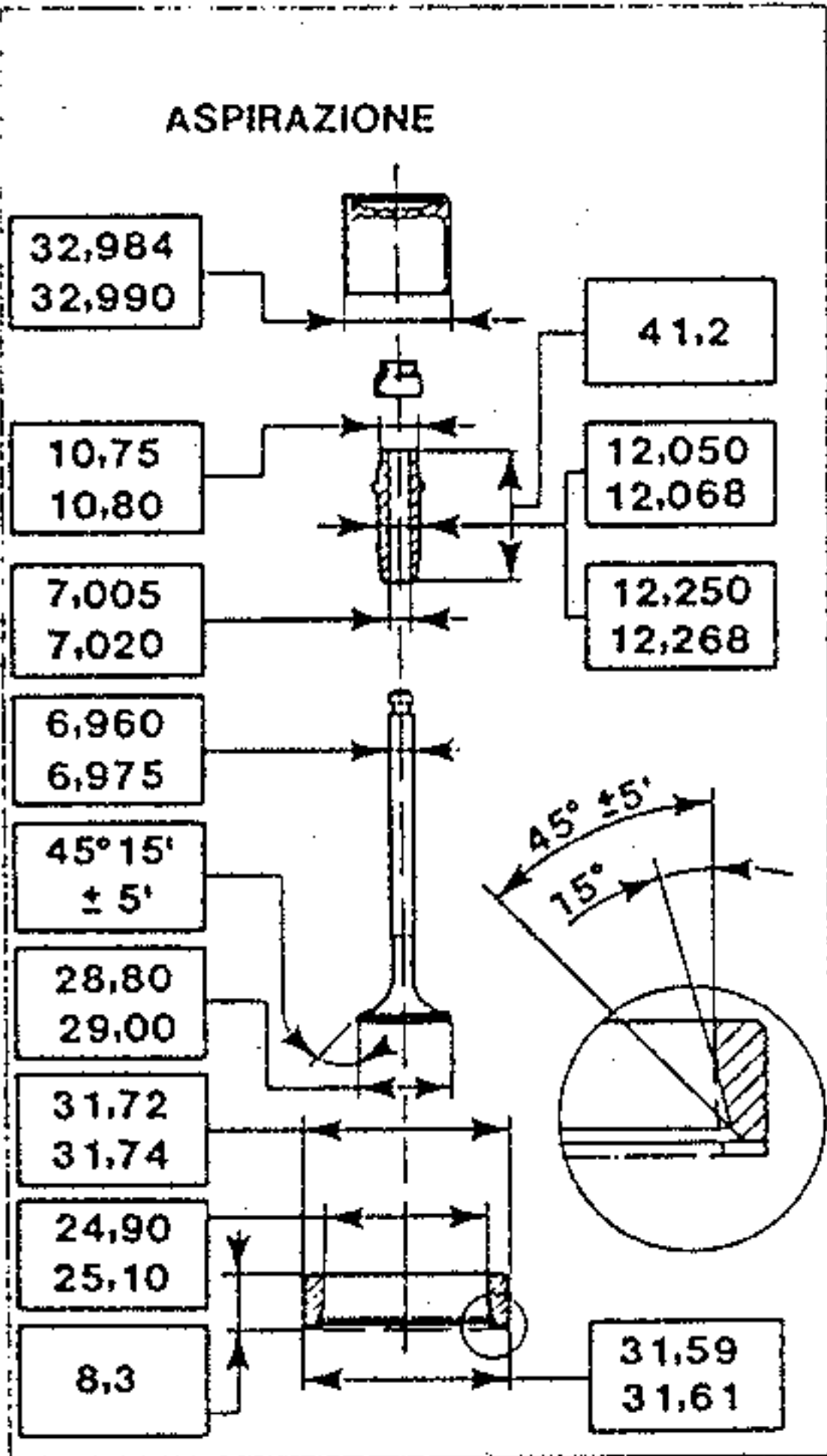


## Weight Grading - Connecting Rods

| LETTER | CORRESPONDING<br>in gr. |
|--------|-------------------------|
| A      | 520 ÷ 524               |
| B      | 524 ÷ 528               |
| C      | 528 ÷ 532               |
| D      | 532 ÷ 536               |
| E      | 536 ÷ 540               |
| F      | 540 ÷ 544               |
| G      | 544 ÷ 548               |
| H      | 548 ÷ 552               |
| I      | 552 ÷ 556               |
| L      | 556 ÷ 560               |
| M      | 560 ÷ 564               |
| N      | 564 ÷ 568               |
| O      | 568 ÷ 572               |
| P      | 572 ÷ 576               |
| Q      | 576 ÷ 580               |
| R      | 580 ÷ 584               |
| S      | 584 ÷ 588               |
| T      | 588 ÷ 592               |
| U      | 592 ÷ 596               |
| V      | 596 ÷ 600               |

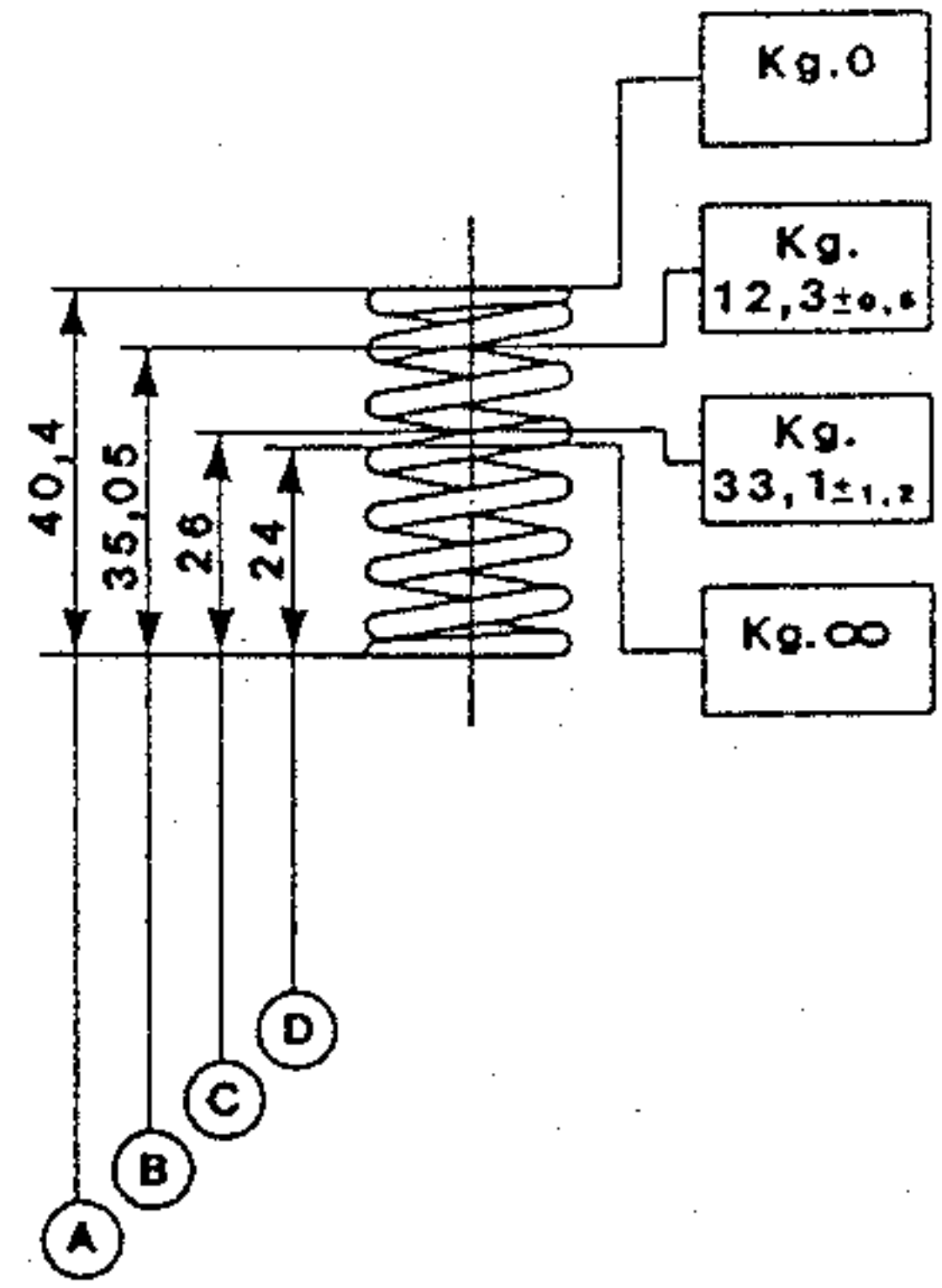
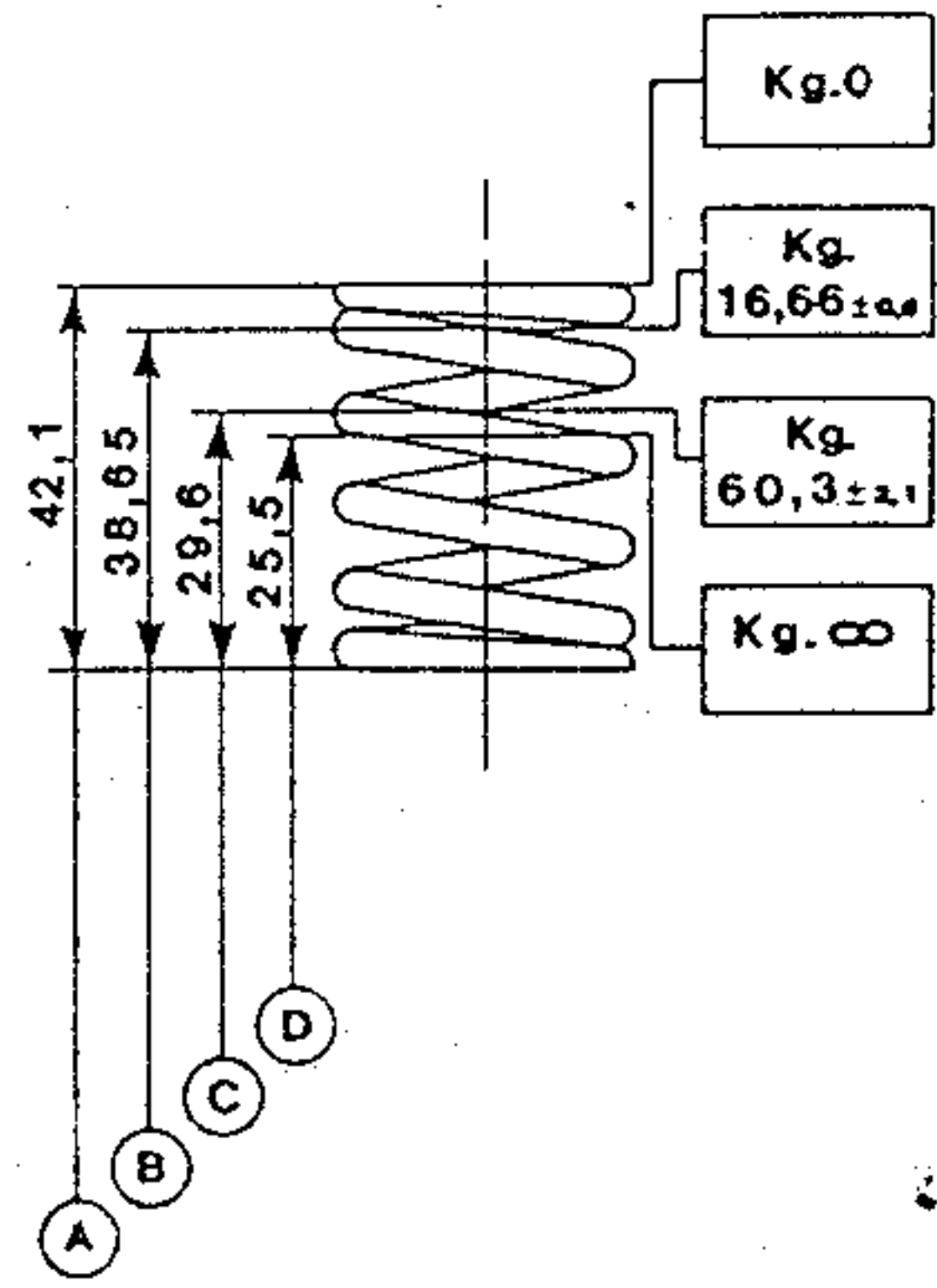
CYLINDER HEADS

|                                                             |           |    |             |
|-------------------------------------------------------------|-----------|----|-------------|
| Assembling interface between valve guide and seat in head   |           | MM | 0.032-0.068 |
| Interface on seats                                          | Max. Dia. | MM | 0.18-0.14   |
|                                                             | Min. Dia. | MM | 0.11-0.07   |
| Fit, Valve stem/valve guide                                 |           |    |             |
| -Assembling Clearance (int. & exh.)                         |           | MM | 0.025-0.045 |
| -Limit of Wear                                              |           | MM | 0.10        |
| Max. misalignment between valve stem and head (int. & exh.) |           | MM | 0.02        |
| Clearance between thimble and relevant seat                 |           |    |             |
| -Assembling Clearance                                       |           | MM | 0.025-0.061 |
| -Limit of Wear                                              |           | MM | 0.10        |



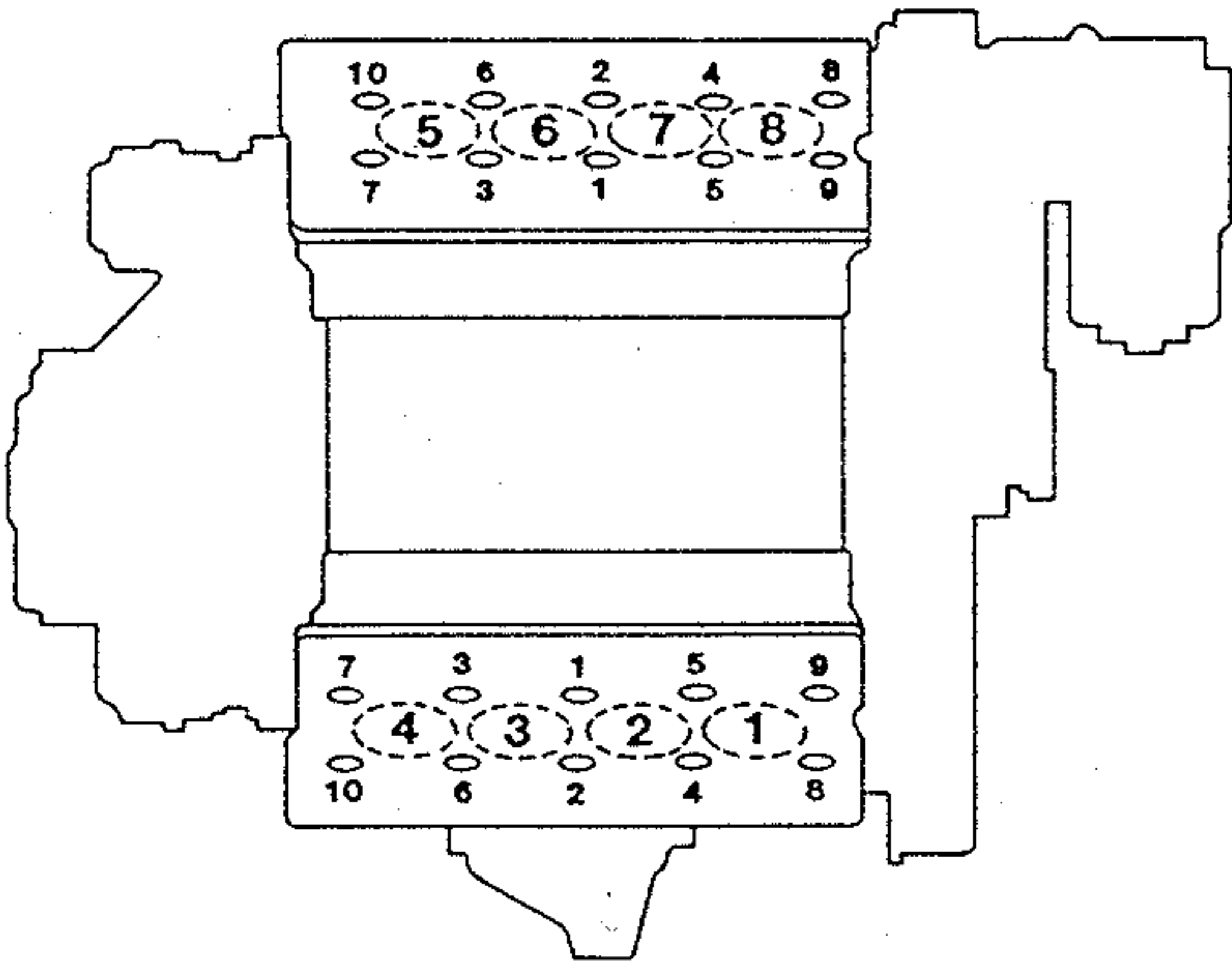
CYLINDER HEADS - CONT.

Valve Spring Data

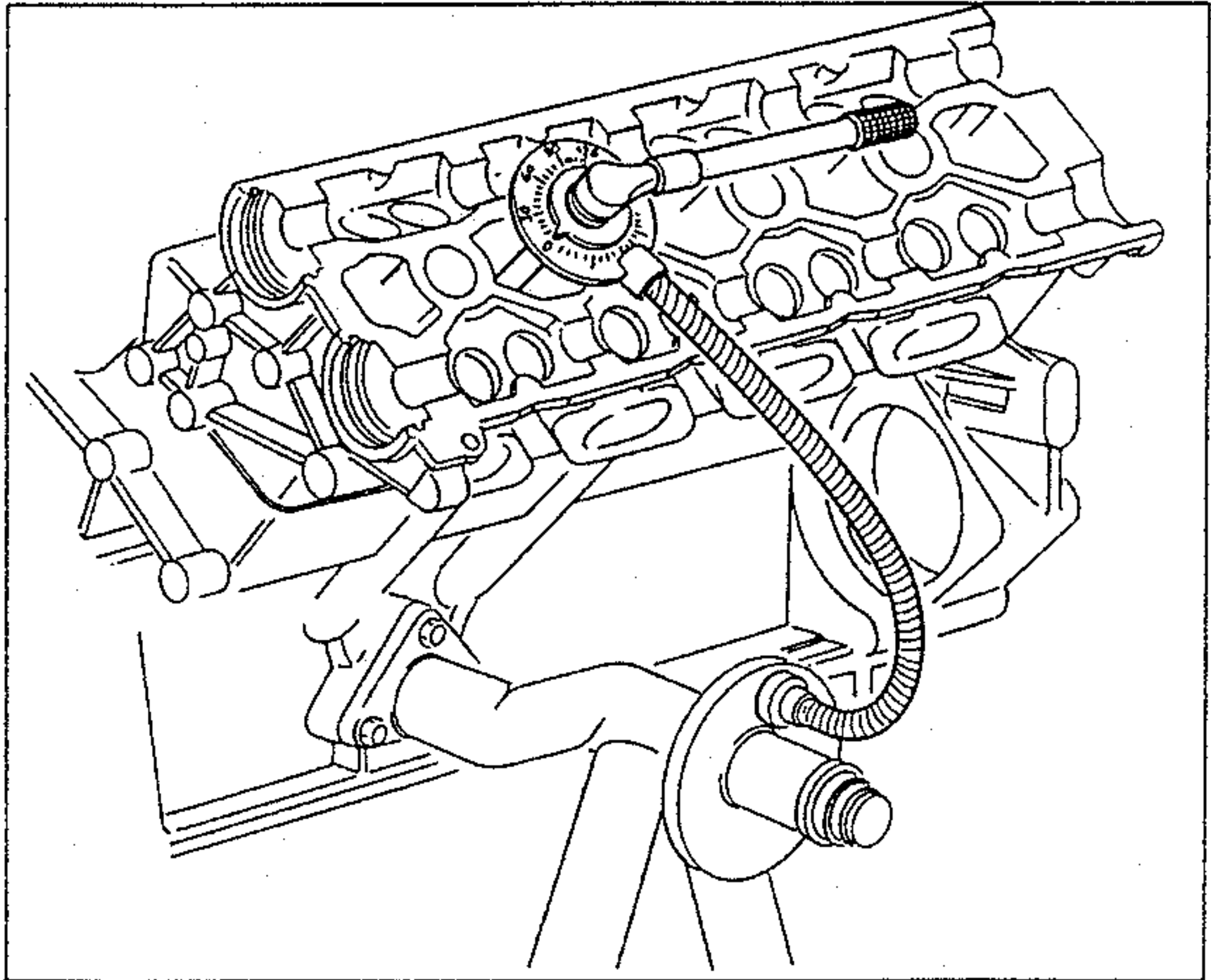


Tightening Information

Tightening Sequence



Cylinder head tightening using degree wheel  
USAG No. 830 1/2 and Ferrari socket AV 1393

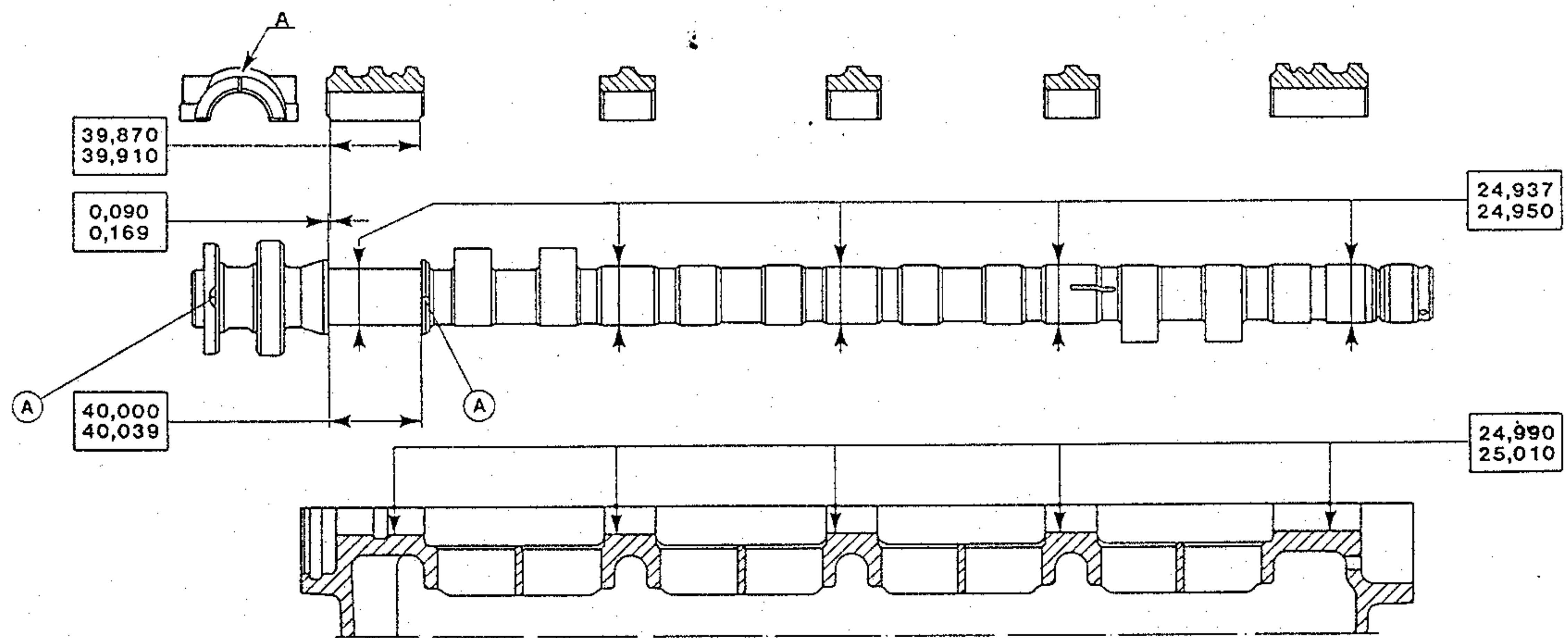


Procedure: (see Service Bulletin 10-14)

- Initially torque cylinder head to 4.5 Kgm (35 ft. lbs.)
- Then tighten each nut in sequence an additional 120° of rotation of the nut.

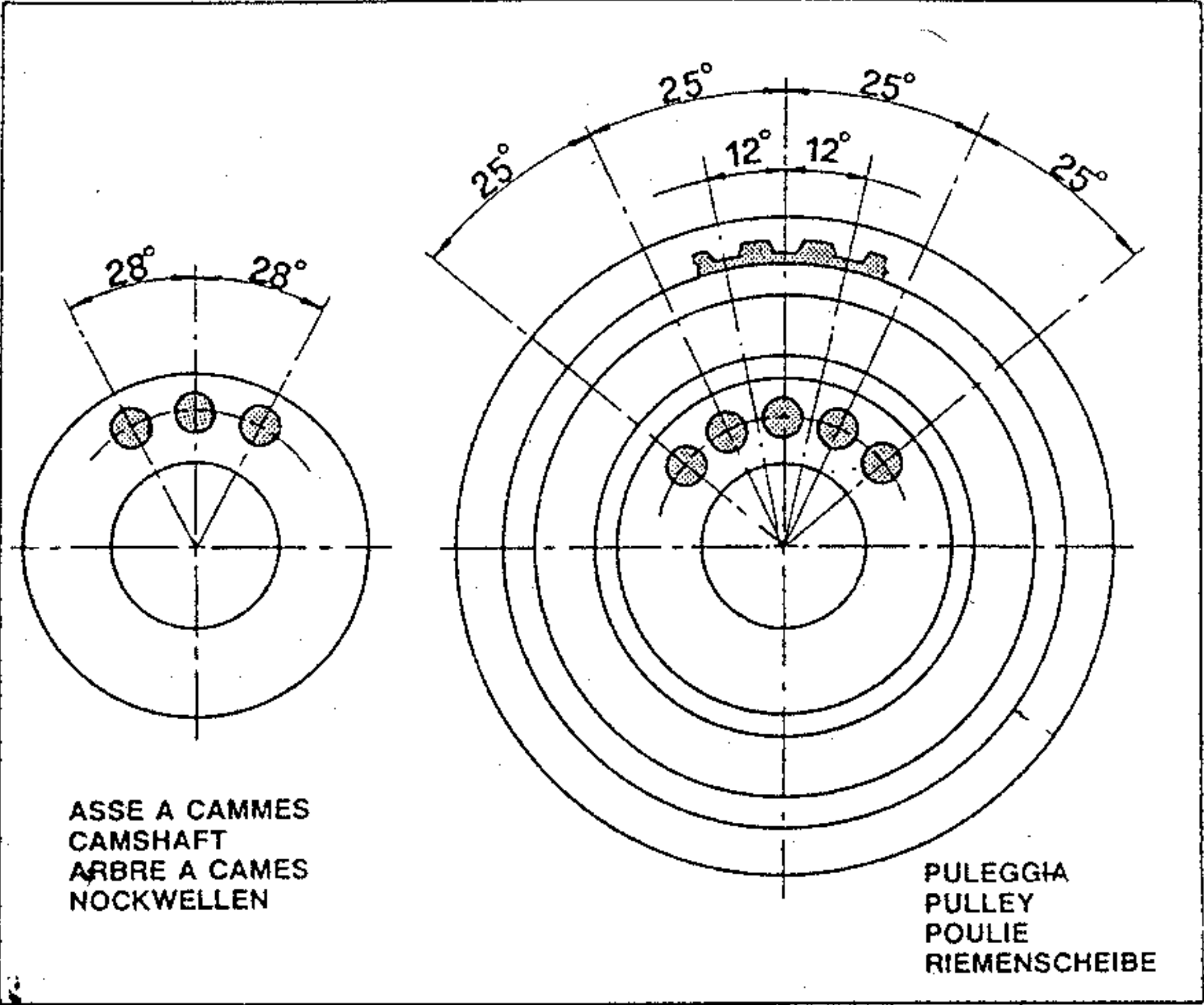
**TIMING SYSTEM**

|                              |    |             |
|------------------------------|----|-------------|
| Fit, camshaft/camshaft seats |    |             |
| -Assembling Clearance        | MM | 0.040-0.073 |
| -Limit of Wear               | MM | 0.10        |
| End Float                    | MM | 0.050--.169 |
| Maximum Eccentricity         | MM | 0.044       |
| Shim Thickness               | MM | 3.25-4.60   |
| -in steps of:                | MM | 0.05        |
| Operating Clearance          |    |             |
| -intake                      | MM | 0.20-0.25   |
| -exhaust                     | MM | 0.35-0.40   |



TIMING SYSTEM - CONT.

Drillings of Camshaft & Pulleys



VALVE TIMING

Timing Clearance

-Intake & Exhaust

MM 0.50

Intake

-Opens before TDC  
-Closes after BDC

° 16  
° 48

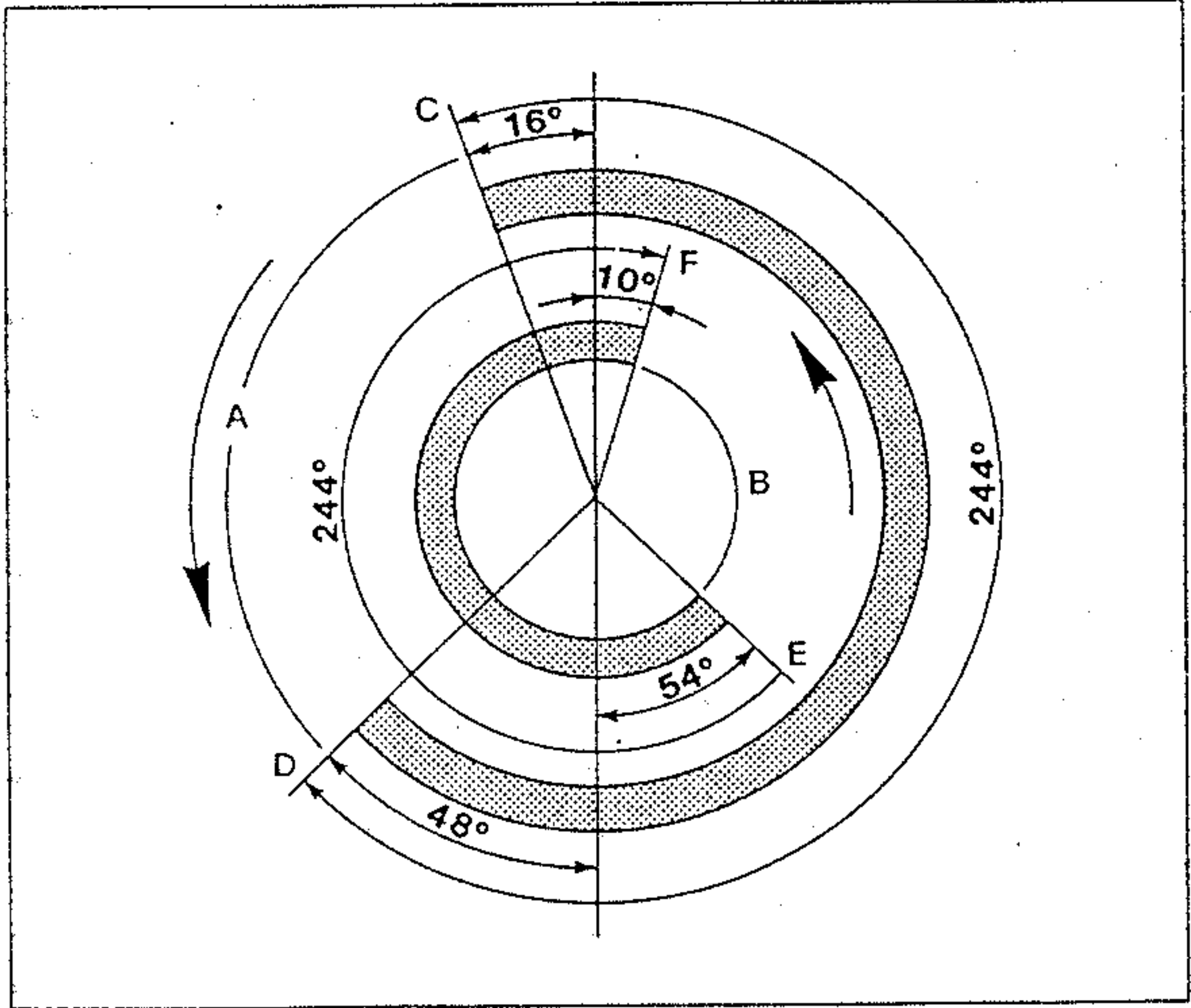
Exhaust

-Opens before BDC  
-Closes after TDC

° 50  
° 10

Tolerance

° ± 1



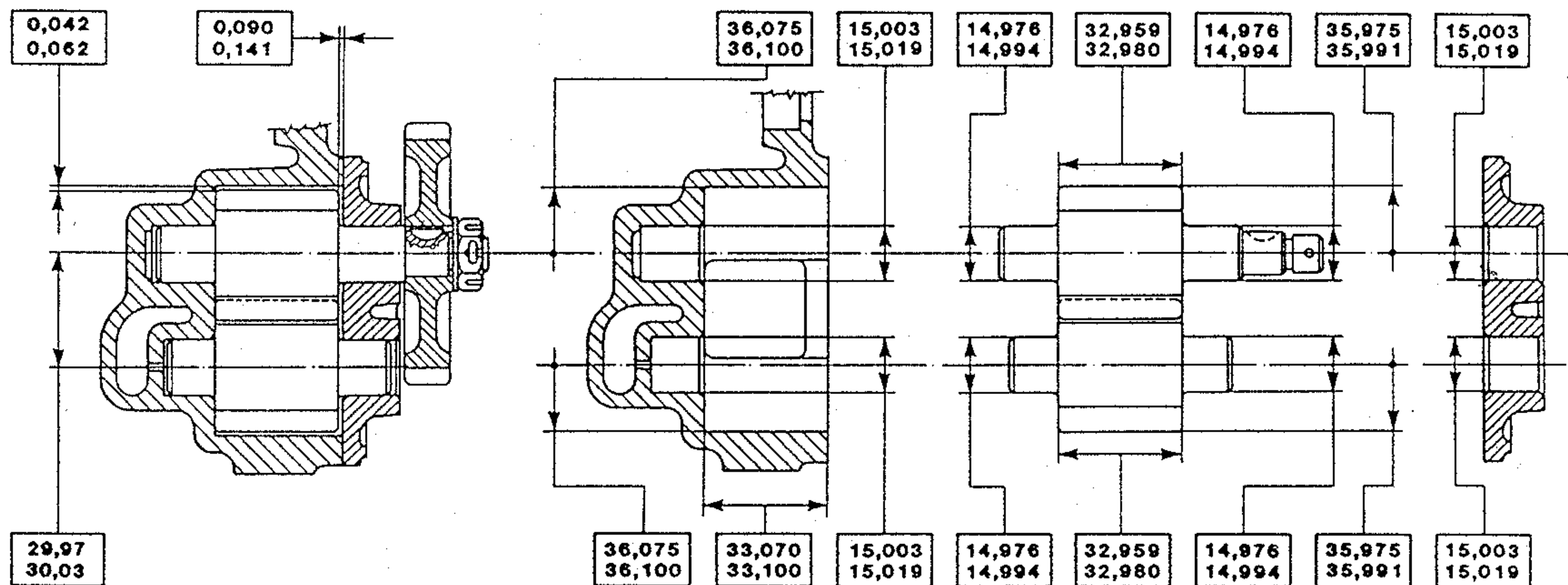


## LUBRICATION SYSTEM

### MAIN SPECIFICATIONS OF OIL PUMP

|                                                |    |             |
|------------------------------------------------|----|-------------|
| Clearance between gear teeth                   | MM | 0.2-0.3     |
| Assembling radial play between pin and support | MM | 0.009-0.043 |
| -limit of wear                                 | MM | 0.08        |
| Mesh clearance of driving gear on crankshaft   | MM | 0.04-0.08   |
| End Float-max. limit                           | MM | 0.15        |

### OIL PUMP



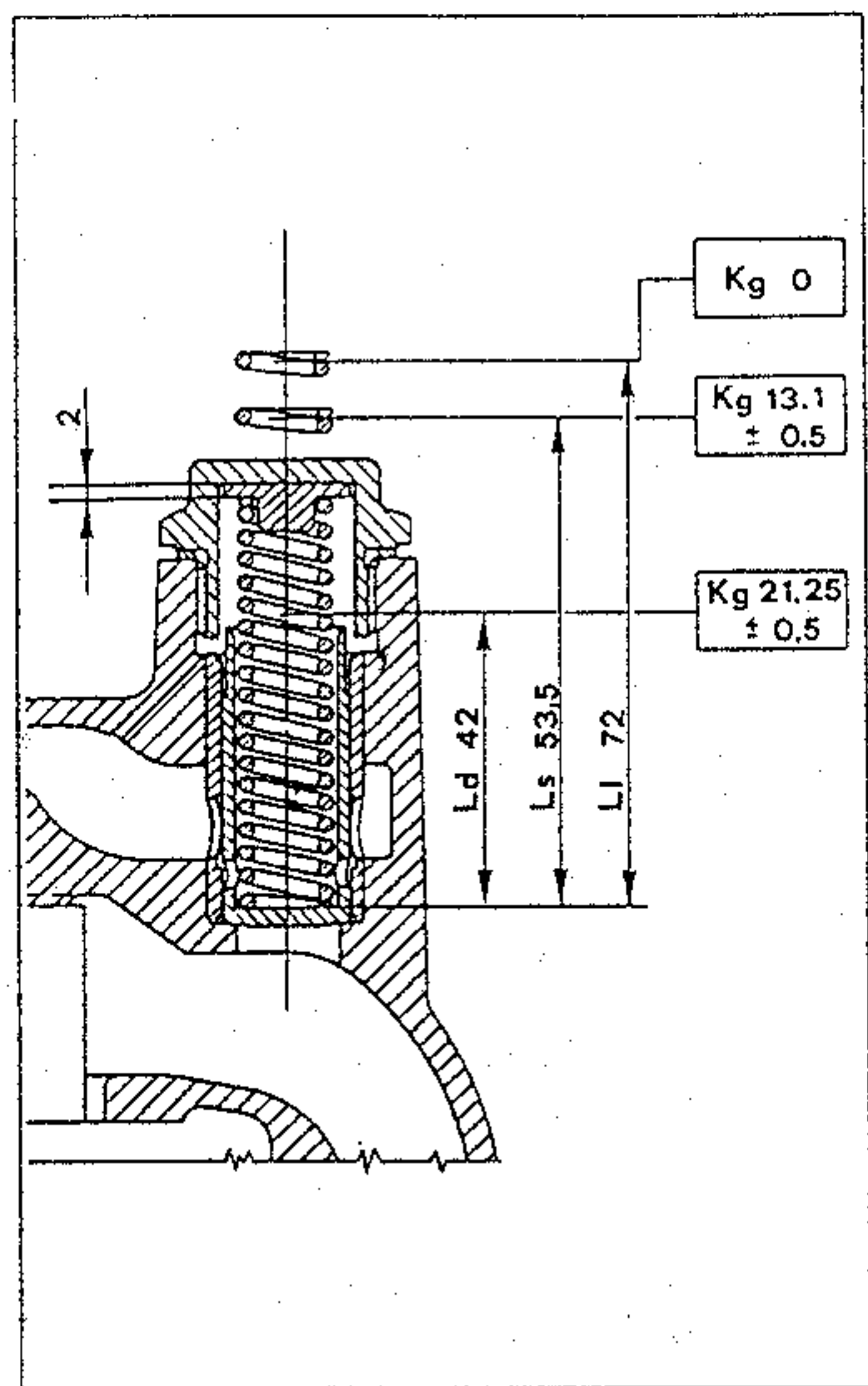
### OIL FILTER

|         |              |
|---------|--------------|
| Type    |              |
| -UFI    | 41.23.162.20 |
| -Savara | 9.28.239     |

OIL PRESSURE

At 6000<sup>o</sup> RPM - 100<sup>o</sup> C Oil temp.                      Bar                      5.5-6.5

Oil Pressure Relief Valve



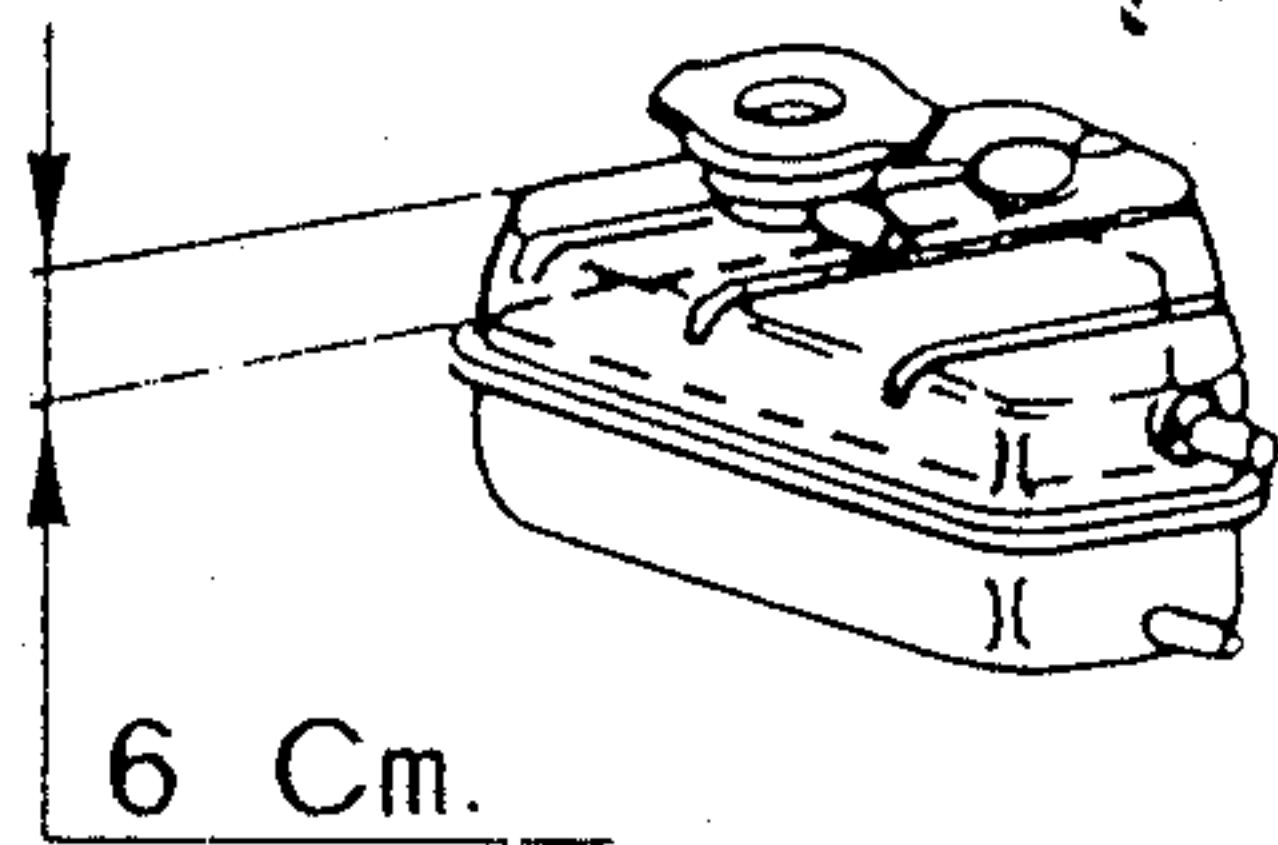
ENGINE OIL

|                                    |                                      |    |
|------------------------------------|--------------------------------------|----|
| Initial Fill                       | LTR                                  | 10 |
| Refill (w/filter)                  | LTR                                  | 8  |
| Cap. on Dipstick<br>(min. to max.) | LTR                                  | 2  |
| Viscosity                          | SAE 10W-40, 10W-50<br>15W-40, 15W-50 |    |
| API Rating                         | SF/CD                                |    |

COOLING SYSTEM

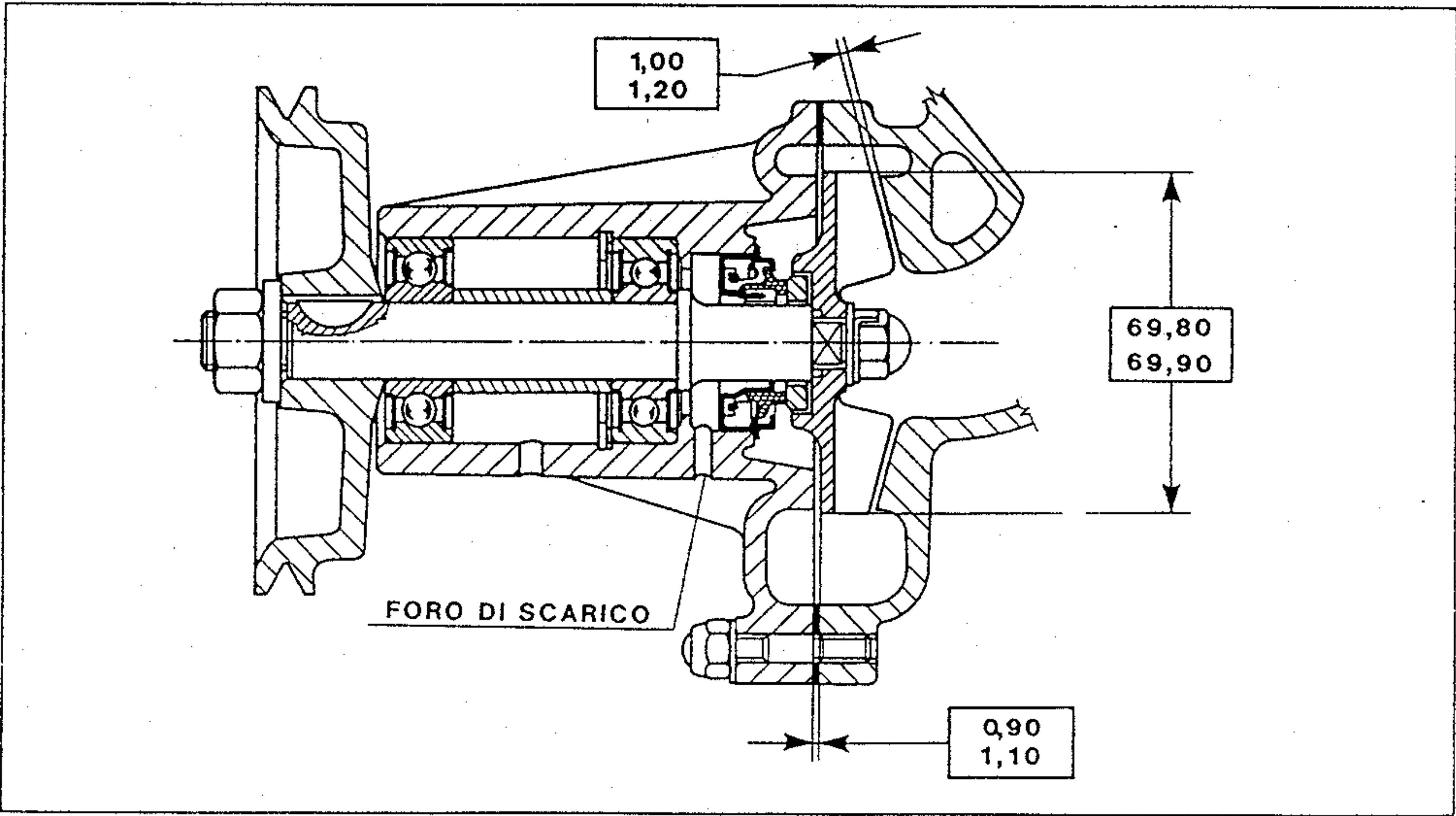
MAIN SPECIFICATIONS

|                             |      |     |
|-----------------------------|------|-----|
| Max. Operating Pressure     | Bar  | 0.9 |
| Max. Operating Temperature  | °C   | 115 |
| Thermostatic Switch         |      |     |
| -Opens                      | °C   | 84  |
| -Closes                     | °C   | 75  |
| Coolant Capacity            |      |     |
| -50%-50% mixture            | lit. | 22  |
| of antifreeze & water       |      |     |
| Coolant Level (Warm Engine) | CM   | 6   |



Coolant Level in  
Expansion Tank (Warm Engine)

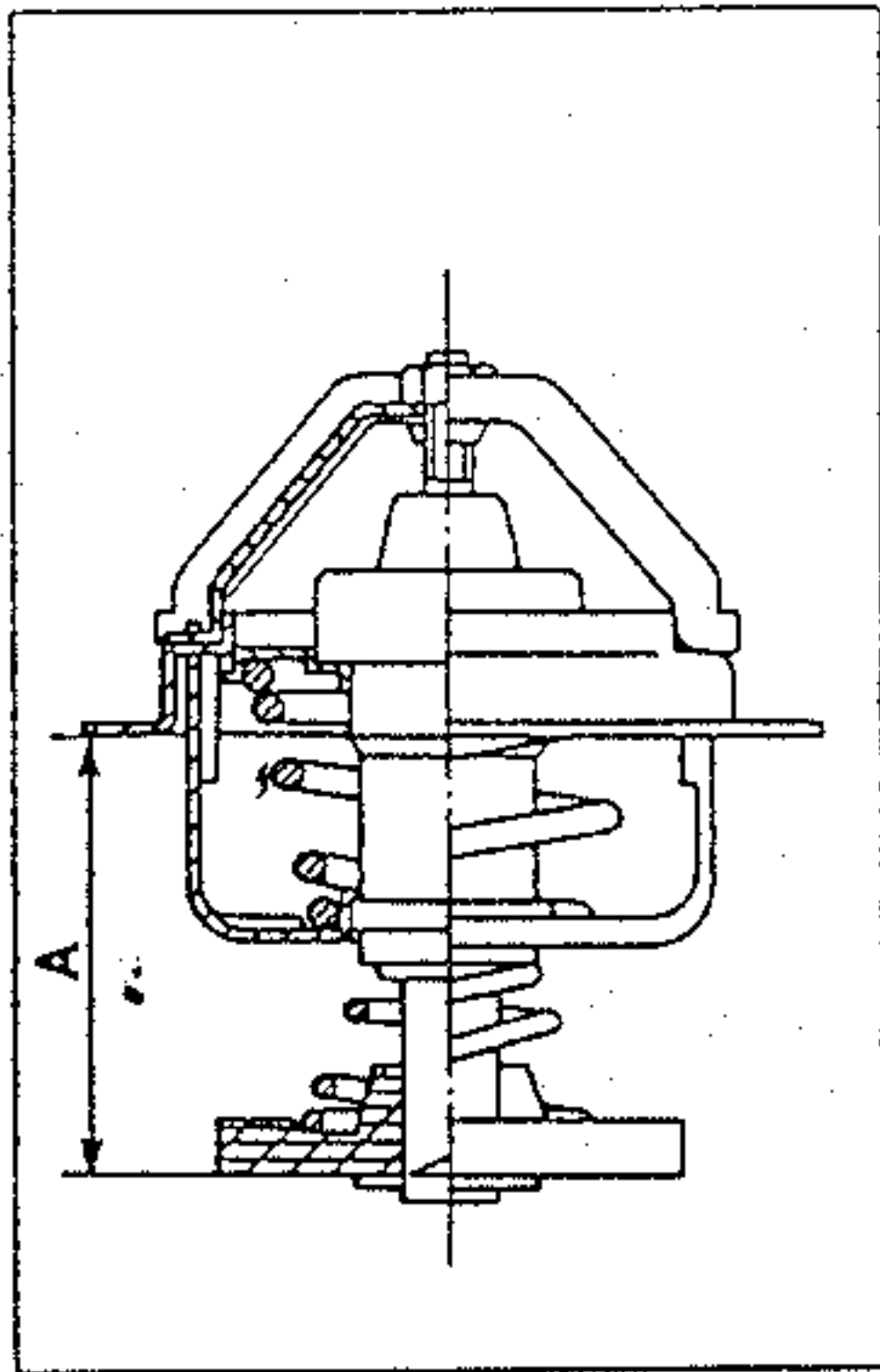
WATER PUMP



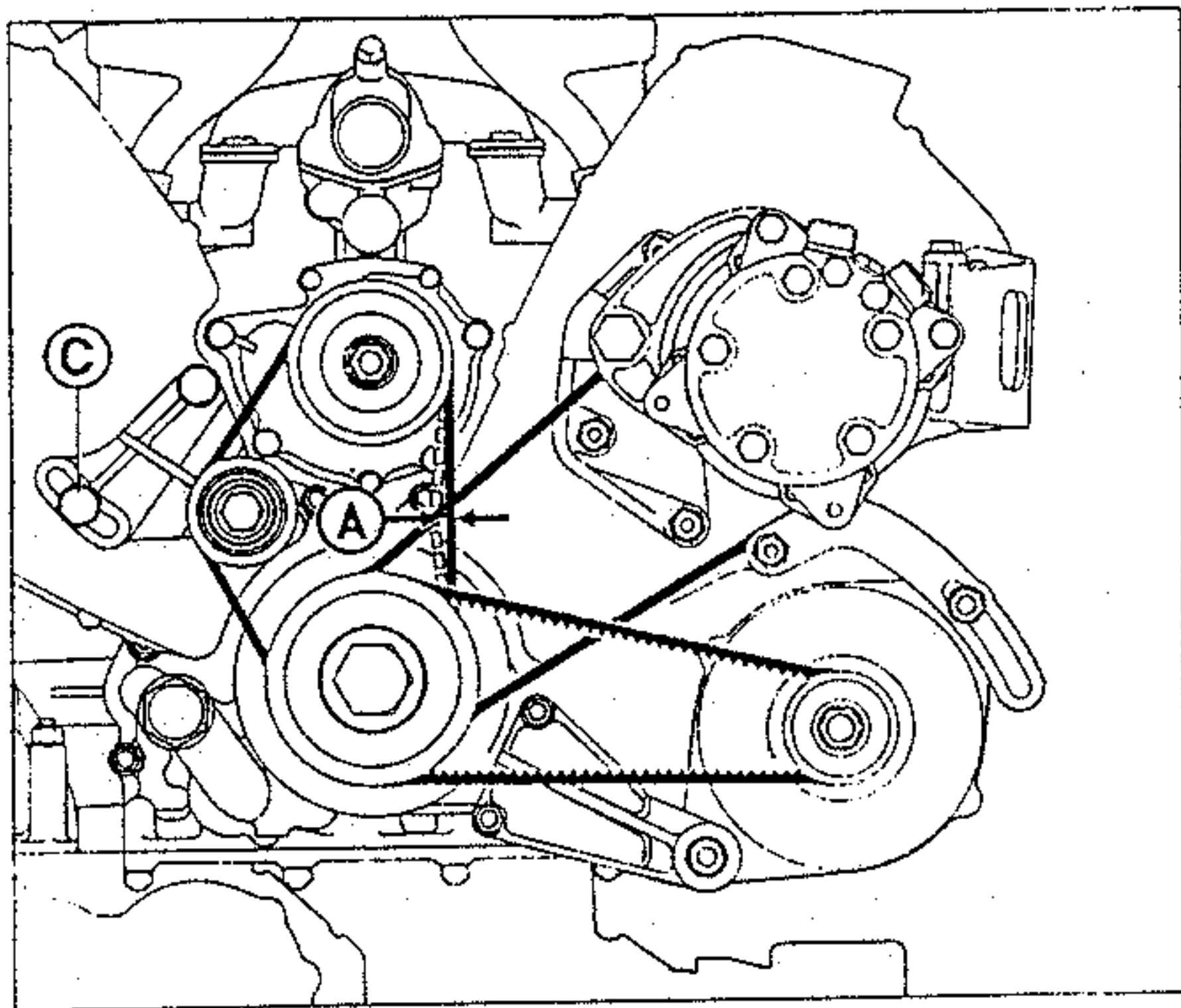
THERMOSTAT OPENING

|               |    |      |
|---------------|----|------|
| (Dimension A) |    |      |
| 20 °C         | MM | 32.5 |
| 75 °C         | MM | 41   |
| 96 °C         | MM | 44.5 |

Thermostat Opening (Dimension A)



WATER PUMP BELT TENSION



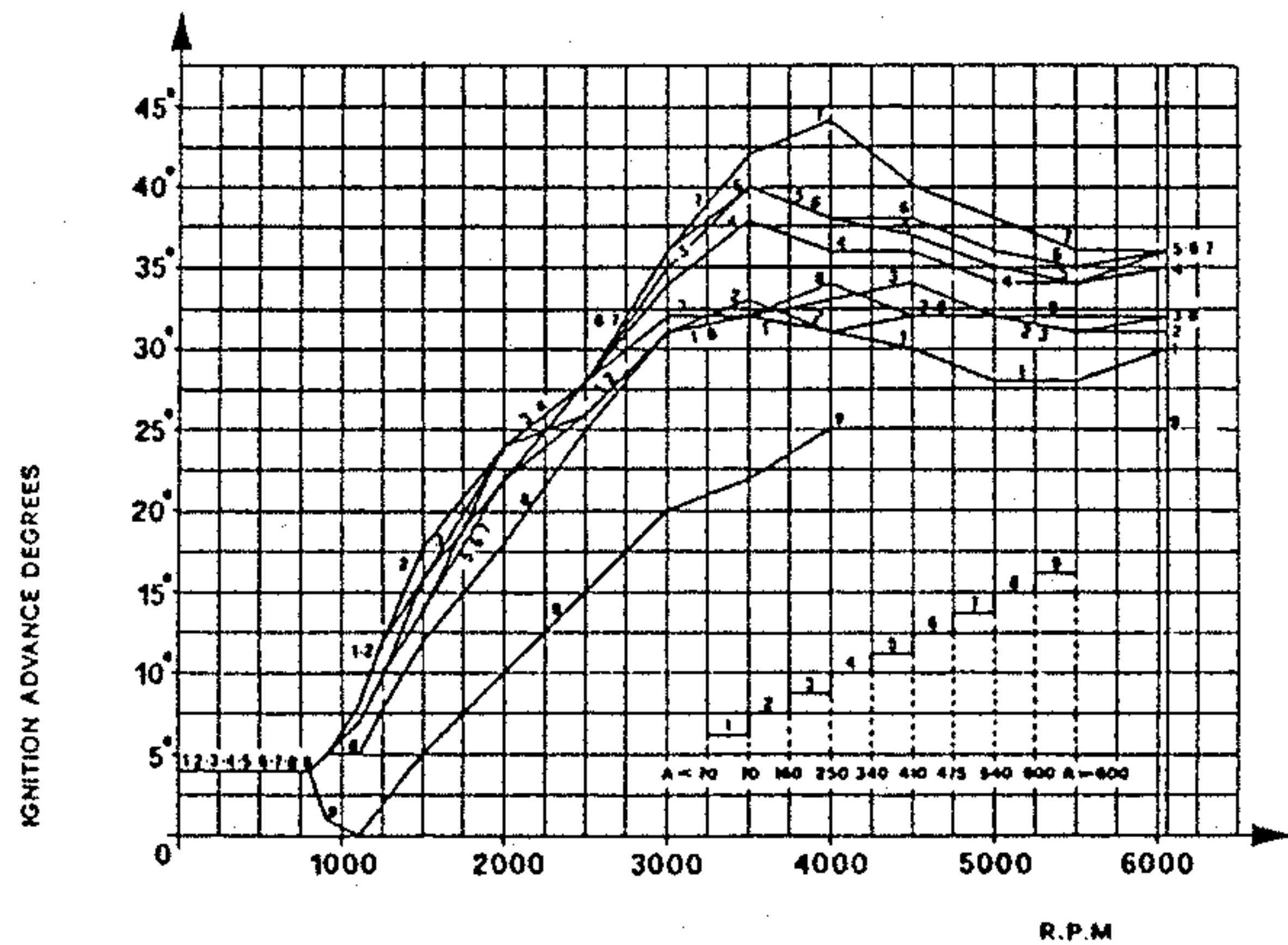
|                                        |    |       |
|----------------------------------------|----|-------|
| Manual Tensioning (with 5mm defection) |    |       |
| -new belt                              | KG | 3     |
| -used belt                             | KG | 2.5   |
| With Tensiometer (Gates 150)           |    |       |
| -new belt                              | KG | 38-45 |
| -used belt                             | KG | 31-38 |

IGNITION SYSTEM

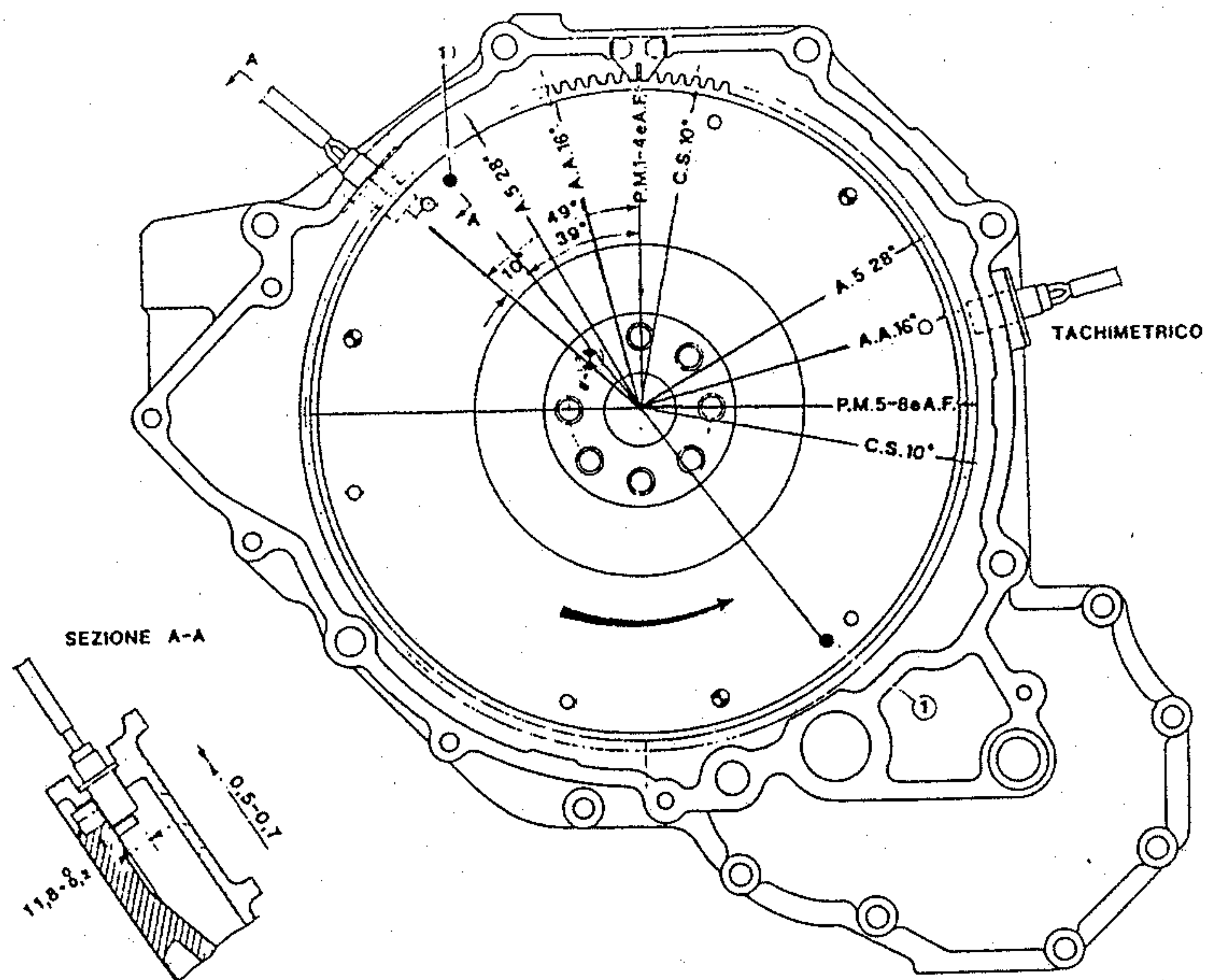
MAIN SPECIFICATIONS

|                             |                           |
|-----------------------------|---------------------------|
| Ignition Control Unit       | Marelli Microplex MED806A |
| -advance at 1000RPM with    | 0                         |
| vacuum hose connected       |                           |
| -advance at 5000RPM with    | 28                        |
| vacuum hose disconnected    |                           |
| -no. of memorized curves    | 9                         |
| Ignition Coil W/Power Stage | Marelli AE 1500-C         |
| -firing order               | 1-3-4-2<br>5-7-8-6        |
| Spark Plugs                 |                           |
| -type                       | Champion A6G              |
| -thread                     | M12 x 1.25                |
| -electrode gap              | mm 0.6-0.7                |
| Sensors                     |                           |
| -Top dead center            | Sens8F                    |
| -Tachimetric                | Sens8F                    |
| Jofatron Settings           |                           |
| -Memory Code                | 27                        |
| -TDC pickup offset Angle    | 1/4 10                    |
|                             | 5/8 00                    |
| -No. of cylinders           | 4                         |

IGNITION ADVANCE CURVES



## FLYWHEEL MARKINGS



AA - Opening of Intake Valve  
PM - Top Dead Center + Advance at 1000 RPM  
A-5 - Advance at 5000 RPM  
CS - Closing of Exhaust Valve

# INJECTION

## MAIN SPECIFICATIONS

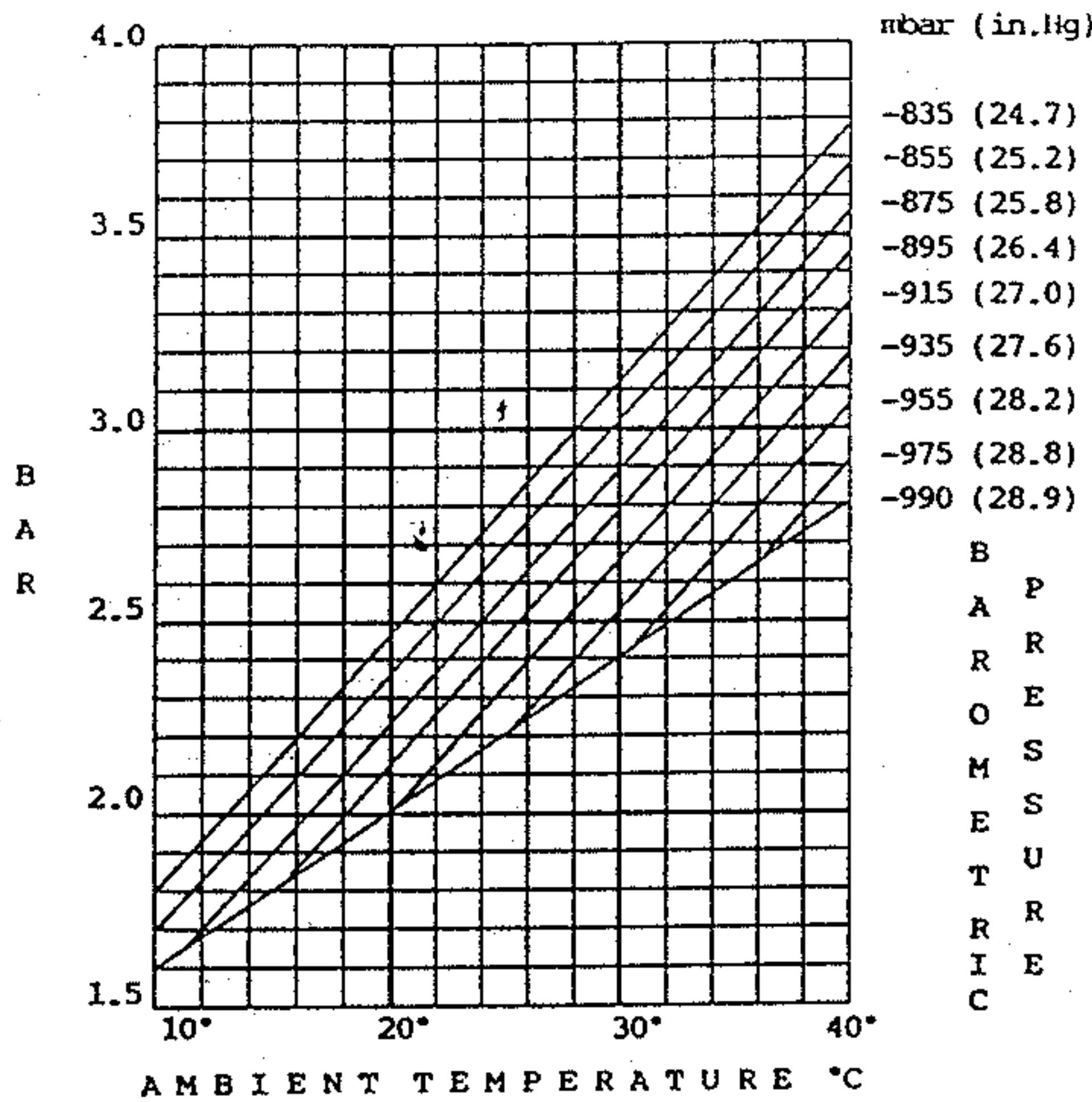
Fuel Pump Delivery

Min cc

1100/30 sec. (Min.)

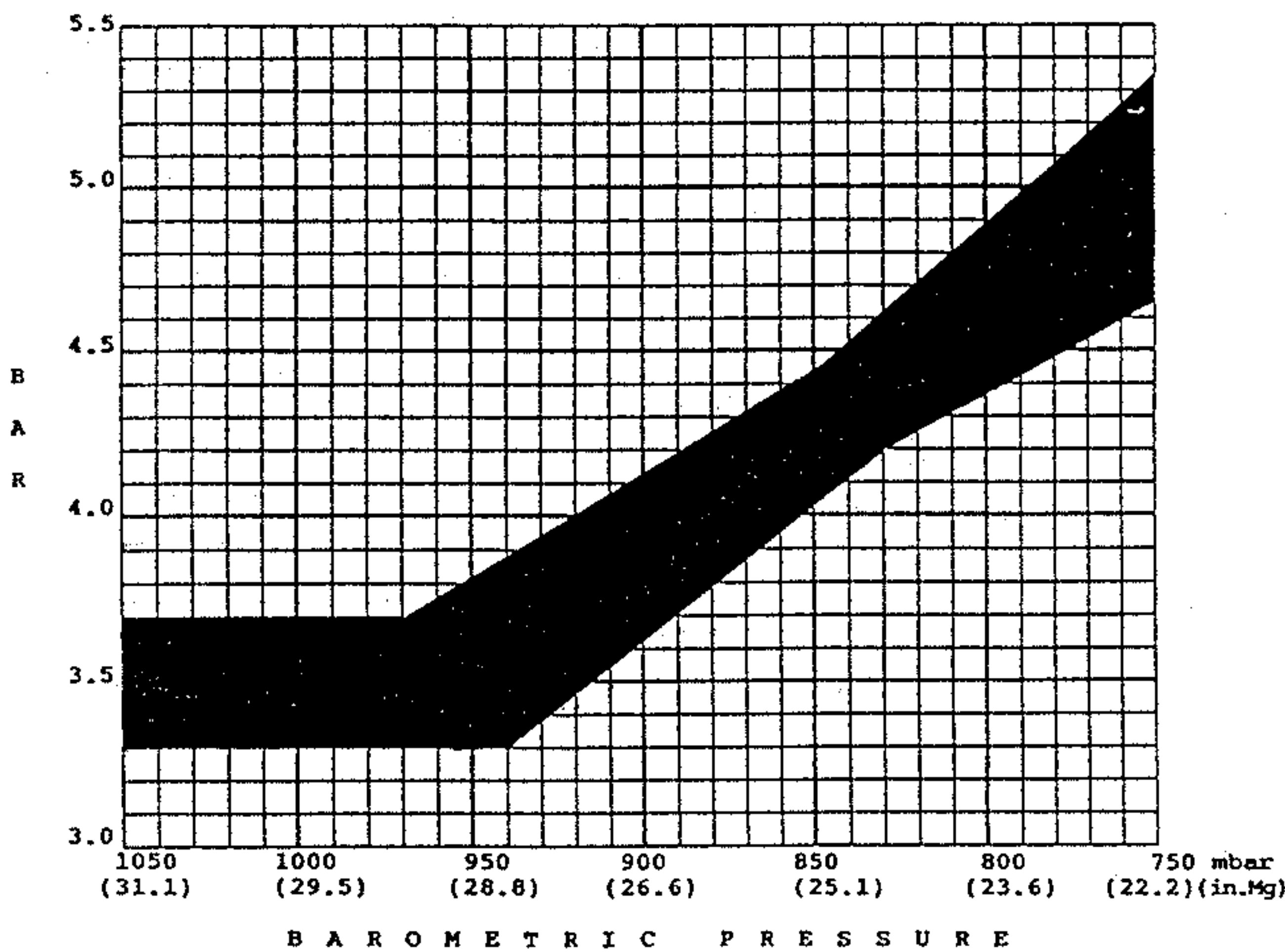
Cold Control Pressure

use graph below - tolerance of  $\pm 0.2$  Bar.



Warm Control Pressure

use graph below



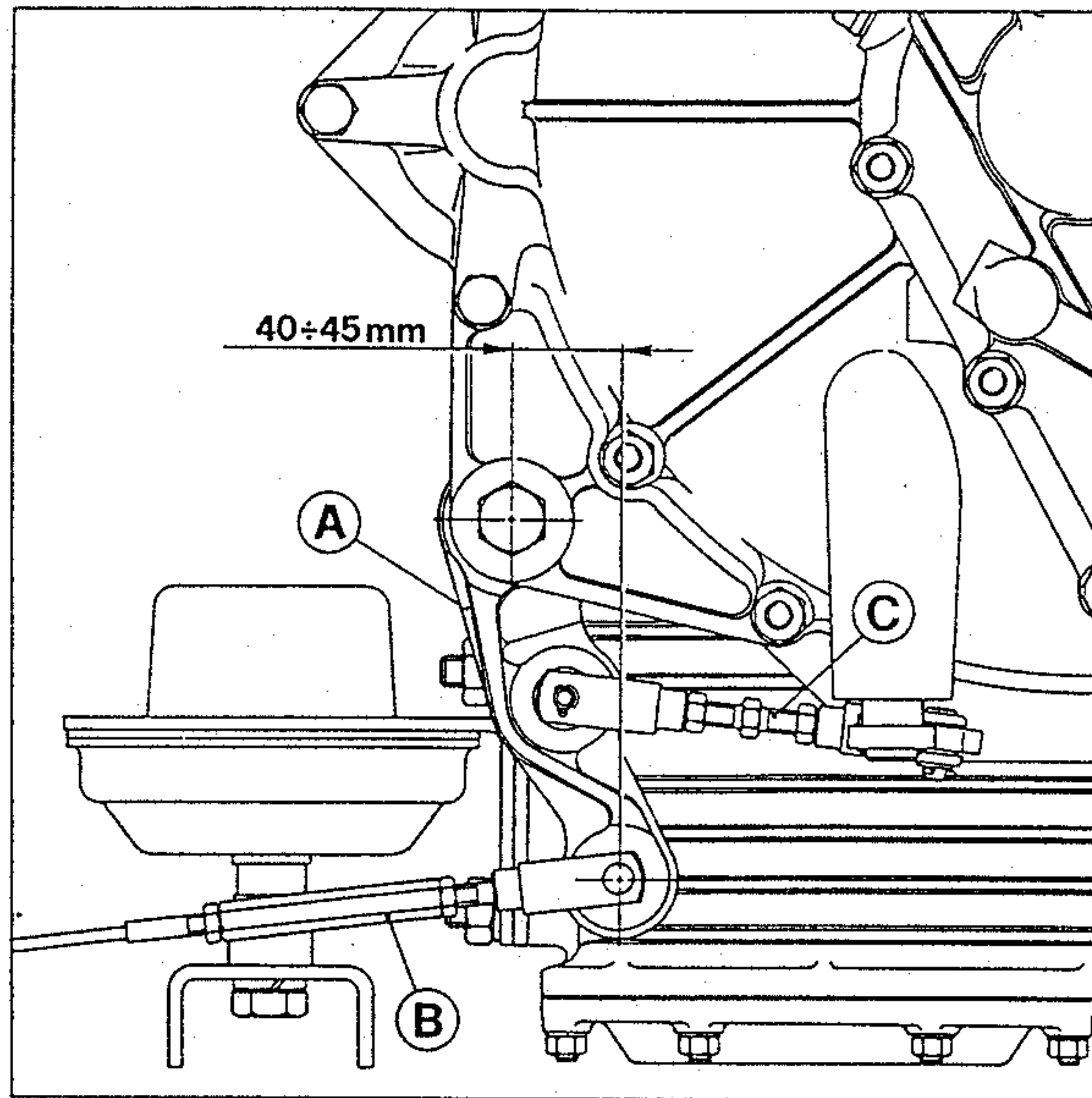
# MAIN SPECIFICATIONS (CONT.)

|                             |        |                         |
|-----------------------------|--------|-------------------------|
| Primary Pressure            | Bar    | 4.7 - 5.4               |
| Residual Pressure           | Bar    | After 10 Min. 2.7       |
|                             | Bar    | After 20 Min. 2.6       |
| Injector Opening            | Bar    | 3.0 - 4.1               |
| Fuel Delivery Comparison    | CC     | idle 6.0 - 6.6          |
|                             |        | part load 40.0 - 43.0   |
|                             |        | full load 136.0 0 150.0 |
| Idle Adjustment Warm Engine | RPM    | 1000 $\pm$ 100          |
|                             | CO %   | .7 $\pm$ .2             |
|                             | HC PPM | 200 max.                |

# CLUTCH

## MAIN SPECIFICATIONS

|                                        |    |                  |
|----------------------------------------|----|------------------|
| Type                                   |    | Dry single-plate |
| Outer diameter of facing               | MM | 242.06           |
| Inner diameter of facing               | MM | 161.80           |
| Thickness of driven plate without load | MM | 8.76             |
| Thickness of drive plate under load    | MM | 8.26             |
| Wear limit of driven plate             | MM | 1.65             |
| Clutch adjustment                      |    |                  |



REFERENCE S.B. 21-5

## FLYWHEEL

|                                       |    |     |
|---------------------------------------|----|-----|
| Maximum wear in thickness of flywheel | MM | 0.8 |
| Surface roughness of flywheel         | μ  | 0.8 |



CLUTCH - GEARBOX - REAR AXLE

**328 / 328**  
**GTB / GTS**  
U.S. VERSION

## GEARBOX

### GEARBOX RATIOS

|      |       |       |
|------|-------|-------|
| 1    | 40:13 | 3,076 |
| 2    | 36:17 | 2,117 |
| 3    | 32:21 | 1,523 |
| 4    | 28:25 | 1,120 |
| 5    | 24:29 | 0,827 |
| R.M. | 38:13 | 2,923 |

### MAIN SPECIFICATIONS

|                                                                                  |    |                       |
|----------------------------------------------------------------------------------|----|-----------------------|
| Speeds                                                                           |    | 5 forward and reverse |
| Synchronizers on forward speeds                                                  |    | Floating rings        |
| Radial ply between idle gears and bearings<br>(For 1st,2nd,3rd speeds & reverse) | MM | 0.023÷0.058           |
| (For 4th and 5th speeds)                                                         | MM | 0.022÷0.054           |
| Axial ply between idle gears and shims                                           | MM | 0.27÷0.31             |
| -Limit to wear                                                                   | MM | 0.35                  |
| Axial ply of reverse idle gear                                                   | MM | 0.20÷0.30             |
| Backlash                                                                         | MM | 0.030÷0.05            |
| Clearance between forks & sleeves:                                               |    |                       |
| -Axial ply<br>(For 1st,2nd,3rd speeds & reverse)                                 | MM | 0.20÷0.60             |
| (For 4th and 5th speeds)                                                         | MM | 0.40÷0.55             |
| Radial play on diameter<br>(For 1st,2nd,3rd speeds & reverse)                    | MM | 1.25÷1.55             |
| (For 4th and 5th speeds)                                                         | MM | 1.20÷1.60             |
| Clearance between control rods and relevant holes                                | MM | 0.016÷0.061           |
| Shafts disalignment                                                              | MM | 0.02                  |
| Lubrication                                                                      |    | Through pump          |

**SYNCHRONIZER**

|                        |    |       |
|------------------------|----|-------|
| Limit of Wear          |    |       |
| 1st 2nd 3rd            | MM | 0.4   |
| 4th 5th                | MM | 0.4   |
| Synchronizer Clearance |    |       |
| 1st 2nd 3rd            | MM | 0.5   |
| 4th 5th                | MM | 0.5   |
| Load on Sleeve         |    |       |
| 1st 2nd 3rd            | Kg | 17-25 |
| 4th 5th                | Kg | 25-34 |

**OIL PUMP MAIN SPECIFICATIONS**

|                   |    |            |
|-------------------|----|------------|
| Number of Teeth   |    | 13         |
| Running Clearance | MM | 0.048 Min. |
|                   | MM | 0.093 Max. |
| End Float         | MM | 0.075 Min. |
|                   | MM | 0.140 Max. |
| Back Lash         | MM | 0.050 Min. |
|                   | MM | 0.100 Max. |

DIFFERENTIAL

MAIN SPECIFICATIONS

|                                                                      |    |                    |
|----------------------------------------------------------------------|----|--------------------|
| Differential                                                         |    | Limited-slip type  |
| Cylindrical crown and pinion                                         |    | With helical teeth |
| Bearings                                                             |    | Taper roller type  |
| Preloading adjustment                                                |    | By spacing washers |
| Preloading of new bearings:<br>measured with a pulley diameter 200mm | Kg | P=2,280±4.030      |
| Backlash                                                             | MM | 0.03÷0.04          |
| Wear limit                                                           | MM | 0.12               |
| Limited slip percentage                                              | %  | 40                 |
| Nominal thickness of shim,<br>crown RH side                          | MM | ≈2.65              |
| Nominal thickness of shim,<br>LH side for preloading                 | MM | ≈2.90              |

## STEERING

### MAIN SPECIFICATIONS

|                             |       |                                   |
|-----------------------------|-------|-----------------------------------|
| Cam Gear Steering           |       | Rack & Pinion                     |
| Pinion Inclination          | 0     | 4.5                               |
| Steering wheel lock to lock | Turns | 3.25                              |
| Minimum turning diameter    | M     | 12                                |
| Steering fluid type         |       | B.P. Energrease<br>F.G.L. (G4937) |
| Fluid capacity              | CC    | 120                               |

## SUSPENSION

### ALIGNMENT SPECIFICATIONS - UNTIL C.N. 76625

| WHEELS |                 | FRONT<br>REAR               | 7J X 16"<br>8J X 16"                |                                |                              |
|--------|-----------------|-----------------------------|-------------------------------------|--------------------------------|------------------------------|
| TIRES  |                 | FRONT                       | GOODYEAR EAGLE<br>205/55 VR 16 N.O. | GOODYEAR EAGLE<br>205/55 VR 16 | GOODYEAR NCT<br>205/55 VR 16 |
|        |                 | REAR                        | GOODYEAR EAGLE<br>225/50 VR 16 N.O. | GOODYEAR EAGLE<br>225/50 VR 16 | GOODYEAR NCT<br>225/50 VR 16 |
| FRONT  | Camber (*)      | - 0° 10' + - 0° 30'         |                                     |                                |                              |
|        | Toe - In (*)    | ins. .08 + .12<br>mm. 2 + 3 |                                     |                                |                              |
|        | Caster Angle    | 4° 30'                      |                                     |                                |                              |
|        | Pressure (cold) | p.s.i. 33<br>bar 2.3        |                                     |                                |                              |
| REAR   | Camber (*)      | - 1° 30' + - 1° 50'         |                                     |                                |                              |
|        | Toe - In (*)    | ins. .12 + .16<br>mm. 3 + 4 |                                     |                                |                              |
|        | Pressure (cold) | p.s.i. 36<br>bar 2.5        | p.s.i. 36<br>bar 2.5                | p.s.i. 33<br>bar 2.3           |                              |

(\*) Static load car: full tanks, 2 people and 44lbs of luggage

**FRONT SUSPENSION DIAGRAM - UNTIL C.N. 76625**

**REAR SUSPENSION DIAGRAM - UNTIL C.N.76625**

ALIGNMENT SPECIFICATIONS - FROM C.N. 76626

| WHEELS |                 | FRONT<br>REAR | 7J X 16"<br>8J X 16"                     |                              |                                     |
|--------|-----------------|---------------|------------------------------------------|------------------------------|-------------------------------------|
| TIRES  | FRONT           |               | GOODYEAR EAGLE<br>205/55 VR (ZR) 16 N.O. | MICHELIN MXW<br>205/55 VR 16 | PIRELLI P700<br>205/55 VR 16 (OPT.) |
|        | REAR            |               | GOODYEAR EAGLE<br>225/50 VR (ZR) 16 N.O. | MICHELIN MXW<br>225/50 VR 16 | PIRELLI P700<br>225/50 VR 16 (OPT.) |
| FRONT  | Camber (*)      |               | - 0°35' +- 0°55'                         |                              |                                     |
|        | Toe - In (*)    |               | ins. .08 + .12<br>mm. 2 + 3              |                              |                                     |
|        | Caster Angle    |               | 5° 50" + 6° 10'                          |                              |                                     |
|        | Pressure (cold) |               | p.s.i. 33<br>bar 2.3                     | p.s.i. 31<br>bar 2.1         | p.s.i. 37.5<br>bar 2.6              |
| REAR   | Camber (*)      |               | - 1°50' +- 2° 10'                        |                              |                                     |
|        | Toe - In (*)    |               | ins. .12 + .16<br>mm. 3 + 4              |                              |                                     |
|        | Pressure (cold) |               | p.s.i. 36<br>bar 2.5                     | p.s.i. 36<br>bar 2.5         | p.s.i. 37.5<br>bar 2.6              |

(\*) Static load car: full tanks, 2 people and 44lbs of luggage

FRONT SUSPENSION DIAGRAM - FROM C.N. 76626

STEERING -



SUSPENSION - SHOCK ABSORBERS

REAR SUSPENSION DIAGRAM - FROM C.N. 76626

SHOCK ABSORBERS

MAIN SPECIFICATIONS

|                       |       |                  |
|-----------------------|-------|------------------|
| Type until C.N. 76625 | Front | KONI 82 P - 2289 |
|                       | Rear  | KONI 82 P - 2290 |
| Type from C.N. 76626  | Front | KONI 82 - 2335   |
|                       | Rear  | KONI 82 - 2236   |
| Shock fluid type      |       | Agip OS0-32      |
| Fluid capacity        | Front | .190 lts.        |
|                       | Rear  | .310 lts.        |

## BRAKES

### MAIN SPECIFICATIONS

|                      |     |            |
|----------------------|-----|------------|
| Brake Fluid Capacity | LTR | 0.58       |
| Brake Fluid Type     |     | Agip DOT 4 |

|                                    |                 | FRONT                                        | REAR                                         |
|------------------------------------|-----------------|----------------------------------------------|----------------------------------------------|
| DISCS                              |                 |                                              |                                              |
| Material                           |                 | self-ventilated<br>cast iron molyb.<br>alloy | self-ventilated<br>cast iron molyb.<br>alloy |
| Diameter                           | MM              | 282                                          | 280                                          |
| Thickness:                         |                 |                                              |                                              |
| nominal                            | MM              | 22                                           | 22                                           |
| min. acceptable after surfacing    | MM              | 20                                           | 20                                           |
| Area of one face                   | CM <sup>2</sup> | 388                                          | 301                                          |
| Max. surface roughness             | μ               | 1.6                                          | 1.6                                          |
| Max. oscillation<br>w/mounted disc | MM              | 0.075                                        | 0.075                                        |

|                 |    | ATE             | ATE             |
|-----------------|----|-----------------|-----------------|
|                 |    | floating piston | floating piston |
| CALIPERS        |    |                 |                 |
| Piston diameter | MM | 57              | 48              |

|                                                     |                 | FERIT I/D 346 GG | FERIT I/D 346 GG |
|-----------------------------------------------------|-----------------|------------------|------------------|
| PADS                                                |                 |                  |                  |
| Material                                            |                 |                  |                  |
| Surface                                             | CM <sup>2</sup> | 48               | 36               |
| Automatic clearance take up<br>between disc and pad | MM              | 0.5              | 0.5              |
| Braking action regulator:<br>operation<br>ratio     | BAR             | ---              | 42<br>0.46       |

|            |     |                    |
|------------|-----|--------------------|
| HAND BRAKE |     |                    |
| Operation  | --- | mechanical control |
| Type       | --- | drum type          |

### TEVES ABS BRAKE SYSTEM

#### HYDRAULIC SYSTEM

|                                                                      |      |              |
|----------------------------------------------------------------------|------|--------------|
| Brake Fluid Type                                                     |      | DOT4         |
| Capacity                                                             | lit. | 1.05         |
| System Operating Pressure                                            | Bar  | 140-180 ± 10 |
| Accumulator Gas Pressure                                             | Bar  | 40-80        |
| Hydraulic Pump Safety Valve<br>Setting                               | Bar  | 210          |
| Hydraulic Pump Efficiency Test                                       | Sec. | Max 60       |
| Pressure Switch                                                      |      |              |
| a-switch-with pressure increase<br>closed                            | Bar  | 135          |
| b-switch-with pressure decrease<br>open                              | Bar  | 105          |
| Note-if pressure falls below 105 bar warning light<br>is illuminated |      |              |

MECHANICAL

|                        |       |             |
|------------------------|-------|-------------|
| Wheel Movement Sensors |       |             |
| No. of teeth           | Front | 96          |
|                        | Rear  | 99          |
| Sensor Gap             | MM    | 0.35 - 0.55 |

ELECTRICAL

|                                                                             |       |               |
|-----------------------------------------------------------------------------|-------|---------------|
| Wheel Sensor Resistance                                                     | K OHM | 0.800 - 1.400 |
| Resistance of Main Valve                                                    | OHM   | 2-5           |
| Resistance of Left Front,<br>Right Front and Rear Delivery<br>Valves        | OHM   | 5-8           |
| Resistance of Left Front,<br>Right Front and Rear Return<br>Valve Solenoids | OHM   | 3-5           |
| Voltage output from wheel sensor                                            | V-AC  | 0.10 - 0.60   |
| Resistance of main coil relay                                               | OHM   | 50-100        |

WHEELS

MAIN SPECIFICATIONS FOR GOODYEAR NCT TIRES

|                                                |             |                                                      |
|------------------------------------------------|-------------|------------------------------------------------------|
| -Light Alloy Wheels                            |             | Front 7Jx16"<br>Rear 8Jx16"                          |
| -Tires                                         |             | Front 205/55 VR16<br>Rear 225/50 VR16                |
| -Pressure (Cold)                               | BAR<br>BAR  | Front 2.3 (33 psi)<br>Rear 2.3 (33 psi)<br>3¼" x 18" |
| -Spare Wheel<br>tire<br>pressure<br>max. speed | BAR<br>KM/H | Goodyear 105/80 R 18<br>4.2 (60 psi)<br>80 (50 mph)  |

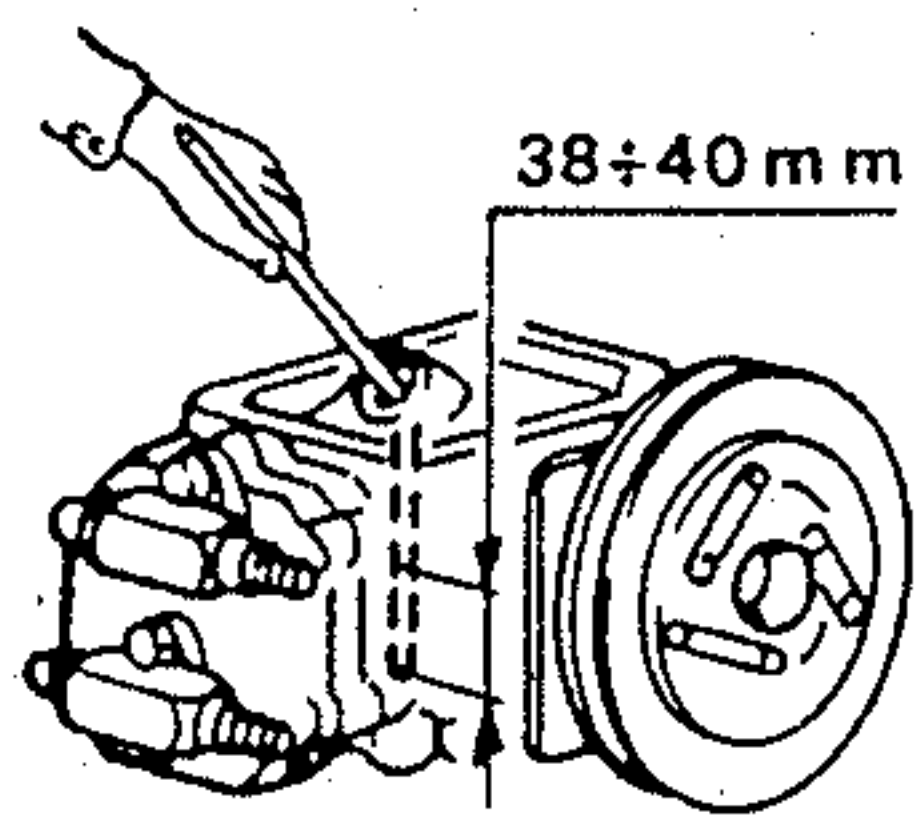
MAIN SPECIFICATIONS FOR GOODYEAR EAGLE TIRES

|                                                |             |                                                      |
|------------------------------------------------|-------------|------------------------------------------------------|
| -Light Alloy Wheels                            |             | Front 7Jx16"<br>Rear 8Jx16"                          |
| -Tires                                         |             | Front 205/55 VR16<br>Rear 225/50 VR16                |
| -Pressure (Cold)                               | BAR<br>BAR  | Front 2.5 (36 psi)<br>Rear 2.3 (33 psi)<br>3¼" x 18" |
| -Spare Wheel<br>tire<br>pressure<br>max. speed | BAR<br>KM/H | Goodyear 105/80 R 18<br>4.2 (60 psi)<br>80 (50 mph)  |

AIR CONDITIONING

MAIN SPECIFICATIONS

|                                                                |           |                                                 |
|----------------------------------------------------------------|-----------|-------------------------------------------------|
| Refrigerant Type                                               |           | R-12                                            |
| Refrigerant Capacity                                           | KG        | 1.0 (2.2 lbs.)                                  |
| Compressor Oil Type                                            |           | Agip TER 60                                     |
| Compressor Oil Capacity                                        | LTR       | 0.33 (11 ft.oz.)                                |
| A/C Compressor Belt Type                                       |           | Gates Polyflex 11m x 925                        |
| Tension with Tensiometer<br>(Gates 150 Type)<br>With Used Belt | KG<br>KG, | On 11m scale, tension<br>should be 22.5<br>19.0 |



A/C Compressor Oil Level

System Pressures

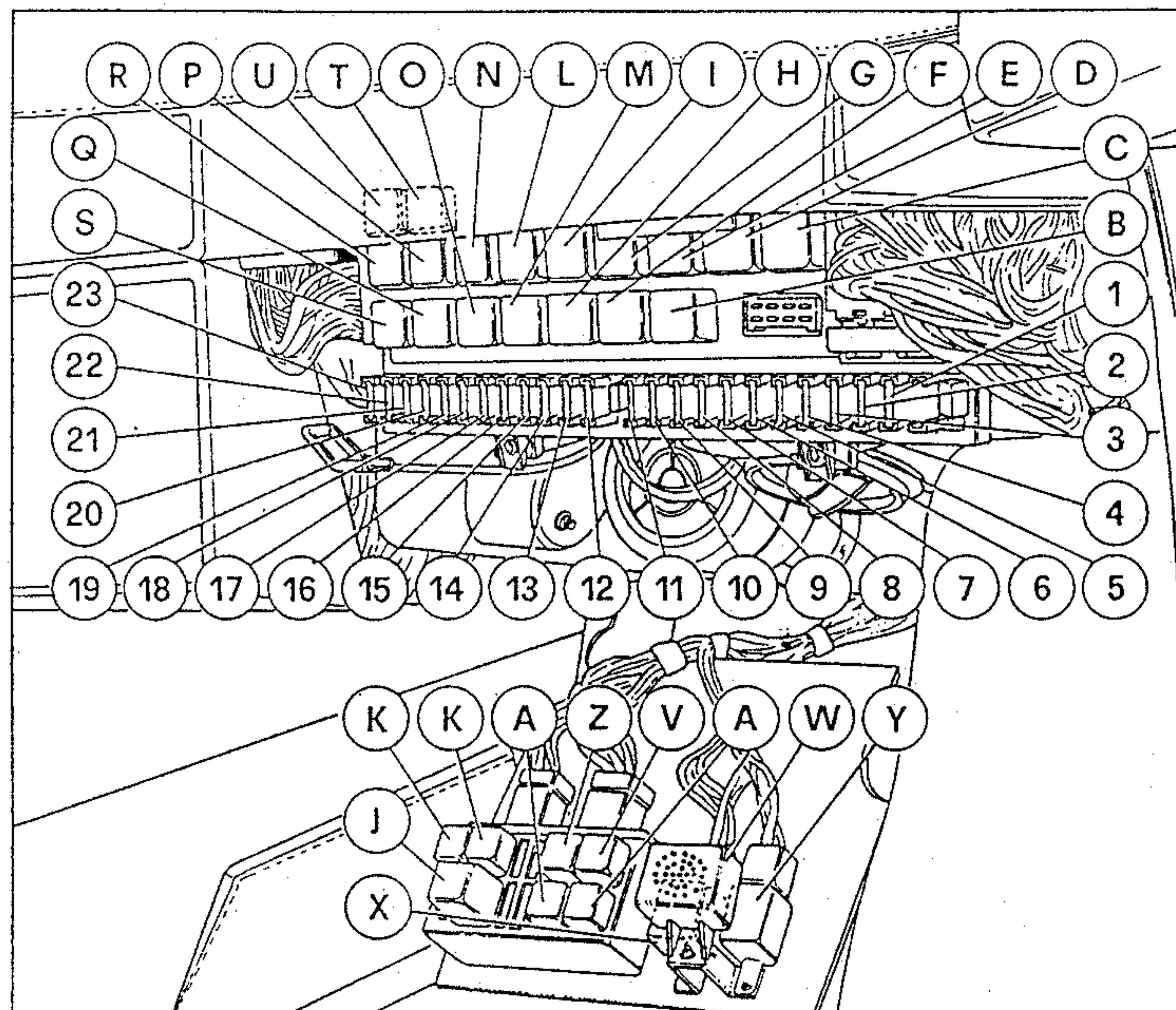
| Amb.<br>Temp.<br>°C | Low pr.<br>mbar | High pr.<br>mbar | Temp.<br>air at outlets<br>°C |
|---------------------|-----------------|------------------|-------------------------------|
| 27°                 | 0 ÷ 1           | 10 ÷ 12          | 6 ÷ 8                         |
| 32°                 |                 | 12 ÷ 14          |                               |
| 35°                 | 1 ÷ 2           | 13 ÷ 14,5        |                               |
| 38°                 |                 | 15 ÷ 16,5        |                               |
| 40°                 |                 | 16,5 ÷ 18        |                               |

Air Discharge Temperature                      °C                      6-8



## FUSES AND RELAYS

### RELAYS



- A - Relay for heater blowers (BOSCH 0 332 014 113)
- B - Relay for RH head-lamp lifting motor (BOSCH 0 332 204 101)
- C - Relay for high/low wiper speed (BOSCH 0 332 204 101)
- D - Relay for head-lamps lifting motor (BOSCH 0 332 204 101)
- E - Relay for LH head-lamps, lifting motor (BOSCH 0 332 204 101)
- F - Relay for electro-fan of AC condenser (BOSCH 0 332 014 113)
- G - Relay for left electro-fan of water radiator (BOSCH 0 332 014 113)
- H - Warning horn relay (BOSCH 0 332 014 113)
- K - Relays for heater blowers (BOSCH 0 332 014 113)
- J - Flasher for direction indicators
- I - Relay for right electro-fan of water radiator (BOSCH 0 332 014 113)
- L - Relay for low beams (BOSCH 0 332 014 113)
- M - Relay for high beam headlamps (BOSCH 0 332 014 113)
- N - Relay for flashing (BOSCH 0 332 014 113)
- O - Relay for external lights (BOSCH 0 332 015 006)
- P - Relay for air conditioning operation (BOSCH 0 332 204 101)
- Q - Relay for windows motors (BOSCH 0 332 014 113)
- R - Relay for fuel pump (BOSCH 0 332 014 113)
- S - Fuel injection delivery pump starting-relay (BOSCH 0 332 204 101)
- T - Relay for light lifting motors (with low beams on) (BOSCH 0 332 014 113)
- U - Relay for key controlled services (BOSCH 0 332 014 113)
- V - Relay for air conditioner control (BOSCH 0 332 014 113)
- X - Windshield wiper timing relay
- Y - Timer for interior lights
- Z - Relay for AC compressor (BOSCH 0 332 014 113)
- W - Seat belts control unit

### FUSES

#### Left box

- 1 - A25: Electric motor for high/low beams-RH heater
- 2 - A25: LH heater
- 3 - A15: Daylight flashing-Current socket-Door locking-Interior lights
- 4 - A15: Hazard-Cigar lighter-Aerial-Parking lights
- 5 - A20: Electro-fan for AC condenser
- 6 - A20: Left electro-fan for water radiator
- 7 - A20: Right electro-fan for water radiator
- 8 - A20: Horns-Clock-Radio
- 9 - A7,5: Cold start electro-valve
- 10 - A15: LH main beam and relevant warning light
- 11 - A15: RH main beam

#### Right box

- 12 - A10: LH dipped beam
- 13 - A10: RH dipped beam
- 14 - A7,5: Front lights-Rear lights
- 15 - A7,5: Front lights-Rear lights
- 16 - A15: Parking lights lamp-Instrument panel lights-Front fog lights
- 17 - A20: Air conditioning system
- 18 - A20: LH window motor
- 19 - A20: RH window motor
- 20 - A15: Fuel pump
- 21 - A7,5: Instrument-Displays for heater controls-Ext. rear view mirrors
- 22 - A15: Windscreen wiper-Windscreen washer-Reverse light
- 23 - A15: Direction indicator lights - Stop rear lights

**BATTERY**

**MAIN SPECIFICATIONS**

|                                                     |      |          |
|-----------------------------------------------------|------|----------|
| Model                                               |      | Delco    |
| Voltage                                             | V    | 12       |
| Capacity<br>(20 hr. at 27°C)                        | AH   | 66       |
| Cold Start Current<br>DIN-30S-9V<br>150S 6V at 18°C | AMPS | 300      |
| Euro Standard Dimension                             |      | L3       |
| US Standard Dimension                               |      | Group 42 |

**BATTERY TEST PROCEDURE**

- Green ball must be visible in hydrometer
- Apply load of 300 A for 15 sec. to remove surface charge
- Wait 1 minute for battery to regenerate
- Apply load of 200 A for 15 sec. and check voltage is not below specified values

| Temperature | Voltage |
|-------------|---------|
| 20°C        | 9.6     |
| 10°C        | 9.4     |
| 0°C         | 9.1     |
| -10°C       | 8.8     |

- If battery is below specified voltage-replace battery

## ALTERNATOR

|                                           |      |                          |
|-------------------------------------------|------|--------------------------|
| Model                                     |      | Bosch 0.120.469.641      |
| Voltage                                   | V    | N1 14V 37/85 Amp<br>12   |
| Output (amps)                             | AMPS | 8S                       |
| Voltage Regulator Setting                 | V    | 14                       |
| Cut-in Speed                              | RPM  | 1000                     |
| Max. Steady Speed                         | RPM  | 12000                    |
| Armature Resistance                       | OHM  | 0.13 r $\pm$ 10%         |
| Field Resistance                          | OHM  | 4 r $\pm$ 10%            |
| Alternator Belt-Type                      |      | Continental 10/9.5 x 800 |
| Tension w/Tensiometer<br>(Gates 150 Type) | KG   | 32.3 0 35.0              |
| -With Used Belt                           | KG   | 30.0 - 32.0              |

## STARTER

|                       |      |                     |
|-----------------------|------|---------------------|
| Model                 |      | Bosch 0.001.110.004 |
| Voltage               | V    | 12                  |
| Nominal Power         | CV   | 1.4                 |
| Direction of Rotation |      | Right Handed        |
| Pinion Drive          |      | Free-wheel drive    |
| Control               |      | Electro-magnetic    |
| Stall Torque          |      |                     |
| Current               | AMPS | 690-780             |
| Voltage               | V    | 6                   |
| Torque Developed      | KGM  | 2.3                 |
| No Load Test          |      |                     |
| Current               | AMPS | 50-80 Amps          |
| Voltage               | V    | 11.5                |
| Speed                 | RPM  | 7300-9300 RPM       |

## BULBS

| Description                             | Type                      | Wattage (12 Volt)      |
|-----------------------------------------|---------------------------|------------------------|
| Headlamp low / high beam                | Sealed Beam               | 50/60                  |
| Auxiliary stop light                    | Cylindrical               | 21 cd.                 |
| Front fog lights                        |                           | 55                     |
| Direction front lights                  |                           | 21                     |
| Direction rear lights                   | Spherical                 | (SAE type 107/32cp)    |
| Reverse lights                          |                           | 5/21                   |
| Parking and stop rear lights            | Spherical double filament | (SAE type 1034-3/32cp) |
| Parking front lights                    | Spherical                 | 5                      |
| Number plate lights                     |                           | (SAE type 67/4 cp)     |
| Interior lights (in roof)               | Cylindrical               | 5                      |
| Open-door marker lights                 | Tubular                   | 4                      |
| Unfastened safety belts warning light   | Tubular                   | 3                      |
| Front and rear side markers             | Tubular                   | 4                      |
|                                         |                           | (SAE type 158/2 cp)    |
| Instrument lights                       |                           |                        |
| Fuel reserve warning light              |                           |                        |
| Warning light for brake system failure  |                           |                        |
| Headlamp main beam warning light        | Tubular                   | 3                      |
| Warning light for parking brake engaged |                           |                        |
| Direction lights indicator              |                           |                        |
| Parking lights indicator                |                           |                        |
| Heated rear window warning light        |                           |                        |
| Electric fan motors indicator           |                           |                        |
| Emergency lights indicator              | Tubular                   | 1,2                    |
| Generator charge indicator              |                           |                        |
| Slow/Down warning light                 |                           |                        |

## WIRE GAUGE SIZES

### Wire Sizes

| Metric<br>(mm <sup>2</sup> ) | SAE<br>AWG<br>(gage) | Ohms<br>per<br>1000 Feet |
|------------------------------|----------------------|--------------------------|
| 0.5                          | 20                   | 10.0                     |
| 0.8                          | 18                   | 6.9                      |
| 1.0                          | 16                   | 4.7                      |
| 2.0                          | 14                   | 2.8                      |
| 3.0                          | 12                   | 1.8                      |
| 5.0                          | 10                   | 1.1                      |
| 8.0                          | 8                    | 0.7                      |
| 13.0                         | 6                    | 0.4                      |
| 19.0                         | 4                    | 0.3                      |
| 32.0                         | 2                    | 0.2                      |
| 40.0                         | 1                    | 0.14                     |
| 50.0                         | 0                    | 0.11                     |
| 62.0                         | 00                   | 0.09                     |

# TOOLS

|        | <u>TOOL NO.</u> | <u>PART NO.</u> | <u>DESCRIPTION</u>                                       |
|--------|-----------------|-----------------|----------------------------------------------------------|
| ENGINE |                 |                 |                                                          |
|        | AV 476          | 95970476        | Wrench for dampner nut (36mm)                            |
|        | AV 1393         | 95971393        | Box wrench for cylinder head tightening (15mm)           |
|        | AV 1499         | 95971499        | Tool for removing valve springs                          |
|        | AV 617          | 95970617        | Engine Stand                                             |
|        | AV 5897         | 95975897        | Goniometer for checking camshaft timing                  |
|        | AV 815          | 95970815        | Wrench for ring nuts of timing belt drive pulleys (28mm) |
|        | AV 816          | 95970816        | Punch for timing drive bearings (12mm x 32mm)            |
|        | AV 823          | 95970823        | Punch for crankshaft front oil seal (42mm x 59mm)        |
|        | AV 824          | 95970824        | Punch for timing belt drive oil seal (23mm x 40mm)       |
|        | AV 857          | 95970857        | Box wrench for conn. rod nuts (14mm)                     |
|        | US 4720         | 95974720        | Reamer for camshaft housings (25mm)                      |
|        | AS 4736         | 95974736        | Main bearing housing checking bar (66.675mm)             |
|        | AV 240          | 95970240        | Main bearing housing lapping bar (66.665mm)              |
|        | AS 102178       | 95972178        | Tool for installing valve guides (7mm)                   |
|        | AV 1504         | 95971504        | Tool for removing valve guides (7mm)                     |
|        | TLDF 00713      | 95970713        | Go-no-go gauge for valve guides (7mm)                    |
|        | AS 6236         | 95976236        | Clamping tool for cylinder liners (10 required)          |
|        | AS 7148         | 95977148        | Tool for measuring valve shim thickness                  |
|        | AS 9560         | 95979560        | Tool for removing valve shims                            |
|        | AS 9560/A       | 95970003        | Thimble spacer for adjusting valves                      |
|        | US 14077        | 95970010        | Reamer for valve guides (7mm)                            |
|        | ALZF 08301      | 95970033        | Gauge for cylinder liner (83mm)                          |
|        | AS 102916       | 95972916        | Gauge for checking cylinder liner protrusion             |
|        | AV 1639         | 95971639        | Tool for removing cylinder liners                        |
|        | USAG 830        | 900000830       | Protractor for tightening cylinder heads                 |
|        | AV 1629         | 95971629        | Tool for distributor oil seal(34mm x 46mm)               |
|        | AV 1651         | 95971651        | Driver for water pump seal                               |
|        | AV 1653         | 95971653        | Tool for installing crankshaft seal (rear)               |
|        | AV 1984         | 95970029        | Lifting cables for engines                               |
|        | 91107           | 900004558       | Gates alternator, water pump tension gauge               |
|        | USAG279MG       | 900126779       | Spark Plug socket 18mm                                   |
|        | KDEP1035        | 95971247        | Adjusting wrench for emission                            |
|        | AV1726          | 95971726        | Punch for camshaft extension                             |

| <u>TOOL NO.</u>                    | <u>PART NO.</u> | <u>DESCRIPTION</u>                            |
|------------------------------------|-----------------|-----------------------------------------------|
| <b>ENGINE (CONT.)</b>              |                 |                                               |
| AV1629                             | 95971629        | Punch for ign. oil seals                      |
| AV865/2                            | 95970866        | Punch for connecting rod bush                 |
| AV1521                             | 95971521        | Punch for water pump bearing                  |
| AV1623                             | 95971623        | Tool for centering oil seal on distributor    |
| AV1654                             | 95971654        | Punch for assembling camshaft oil seal        |
| KDEP1040/14                        | 95970006        | Guide ring 110mm                              |
|                                    | 95970012        | Guide ring 105mm                              |
| <b>CLUTCH-GEARBOX-DIFFERENTIAL</b> |                 |                                               |
| AS103095                           | 95972666        | Clutch alignment tool                         |
| AV855                              | 95970855        | Wrench for idle gears ring nuts               |
| AV702                              | 95970702        | Stand for gearbox                             |
| AV9561                             | 95979561        | Fork alignment tool                           |
| AV630                              | 95970630        | Clamping tool for detent springs              |
| AV5067                             | 95975067        | Preload pulley 200mm                          |
| AV5568                             | 95975568        | Wrench for ring nut 56mm                      |
| AV5764                             | 95975764        | Punch for differential bearing                |
| AS5839                             | 95975839        | Punch for differential oil seal               |
| AS6704                             | 95976704        | Pulley extension                              |
| AV8729                             | 95978729        | Punch for outer ring of diff. bearing 76x89mm |
| AV979                              | 95970979        | Puller for clutch housing bear.               |
| AV1156                             | 95971156        | Wrench for clutch shaft ring nut              |
| AV1795                             | 95971795        | Puller for clutch shaft inner bearing         |
| AS680                              | 95976680        | Punch for layshaft bearing                    |
| <b>CHASSIS</b>                     |                 |                                               |
| AS9016                             | 95979016        | Puller for steering wheel hub                 |
| AV485                              | 95970485        | Wrench for steering wheel ring                |
| AV7394                             | 95977394        | Pullers for suspension and steering joints    |
| AS7783                             | 95977783        | Wrench for ring nuts of rear hub 44mm         |
| AV1514                             | 95971514        | Puller for Amp connector                      |
| AS7396                             | 95977396        | Punch for steering knuckle lever              |
| AV1658                             | 95971658        | Punch for assembling rear wheel hub seal      |
| AV1040 & AV1041                    | 95971041        | Tool for suspension bushings                  |

TOOL NO.

PART NO.

DESCRIPTION

**DIAGNOSTIC TOOLS**

|             |           |                                    |
|-------------|-----------|------------------------------------|
| KDJE7451    | 95971241  | Fuel delivery comparison tester    |
| KDJE7452    | 95971242  | Injector Tester                    |
| SVT260      | 95970011  | Vacuum Pump STANT                  |
| JOFA K8S    | 92970005  | Jofatron                           |
|             | 95970025  | B-storage for Jofatron             |
| KDEP1034/12 | 95971246  | Set of joints                      |
| KDJE P100   | 95971243  | Pressure tester                    |
|             | 95970020  | 25 pin interconnector              |
|             | 95970024  | 35 pin interconnector              |
|             | 95970037  | Brake pedal depressor              |
|             | 95970035  | Pressure gauge for main brake pump |
|             | 95970036  | Pressure gauge for brake calipers  |
| KDJE P600   | 900004172 | Duty cycle meter                   |
|             | 900004173 | Duty cycle meter cable             |

**TIGHTENING TORQUE**

**ENGINE**

THREAD

TORQUE Kgm(Ft.Lbs.)

|                                                                       |         |            |
|-----------------------------------------------------------------------|---------|------------|
| Securing throttle lever                                               | 6x1     | 0.9 (6.5)  |
| Securing camshaft covers                                              | 6x1     | 0.9 (6.5)  |
| Securing camshaft caps                                                | 6x1     | 0.9 (6.5)  |
| Securing throttle to spindle                                          | 8x1.25  | 2 (14.5)   |
| Securing front cover to water pump housing and belt stretcher support | 8x1.25  | 2.5 (18)   |
| Securing clutch pressure plate to flywheel                            | 8x1.25  | 2.5 (18)   |
| Securing water thermoswitch (only USA)                                | 8x1.25  | 2.5 (18)   |
| Securing starter motor                                                | 8x1.25  | 2.7 (19.5) |
| Securing water pump rotor                                             | 8x1     | 2.5 (18)   |
| Securing conn. rod caps                                               | 10x1    | 6.6 (47.5) |
| Securing oil pump driving gear                                        | 10x1    | 4.5 (32.5) |
| Securing A/C compressor to support                                    | 10x1.25 | 2 (14.5)   |
| Securing alternator to support                                        | 10x1.25 | 3 (21.5)   |
| Securing timing case                                                  | 10x1.25 | 4 (29)     |
| Securing alternator bracket                                           | 10x1.25 | 6 (43.5)   |
| Securing flywheel to crankshaft                                       | 10x1.25 | 8.5 (61.5) |
| Securing belt stretcher of A/C compressor                             | 12x1.25 | 4.6 (33.5) |
| Securing timing belt stretcher                                        | 12x1.25 | 5.6 (40.5) |
| Securing water pump spindle                                           | 12x1.25 | 6 (43.5)   |
| Securing pulleys to camshafts                                         | 12x1.25 | 10 (72)    |
| Securing main bearing caps                                            | 12x1.25 | 9 (65)     |

## ENGINE (CONT.)

|                                   | THREAD       | TORQUE Kgm(Ft.Lbs.) |
|-----------------------------------|--------------|---------------------|
| Securing alternator pulley        | 14x1         | 3.5 (26)            |
| Securing cylinder heads           | 10x1.00      | (33) then 120°      |
| Securing spark plugs (328)        | 12x1.25      | 1.6 (11.5)          |
| Securing timing belt driving gear | 17x1         | 12 (86.5)           |
| Securing damper to crankshaft     | 18x1.5       | 20 (144)            |
| Securing oil radiator unions      | 30x1.5 (328) | 8 (57.5)            |

## INJECTION SYSTEM

|                                                                                     |        |            |
|-------------------------------------------------------------------------------------|--------|------------|
| Securing pipings to fuel dist. and start valve                                      | 8x1    | 0.85 (6)   |
| Securing union from fuel dist. to warm up reg.                                      | 8x1    | 1.25 (9)   |
| Securing fuel pipings                                                               | 10x1   | 1.5 (11)   |
| Securing union with pivoting nut for return piping<br>fuel dist. to pipe on chassis | 12x1.5 | 2.3 (16.5) |
| Securing nuts and unions for fuel pipings                                           | 12x1.5 | 2.75 (20)  |
| Securing union with filter on fuel distributor                                      | 12x1.5 | 3.5 (25.5) |
| Securing fuel pipe unions                                                           | 12x1.5 | 2.75 (20)  |
| Securing thermo-time switch                                                         | 14x1.5 | 3.05 (22)  |

## ACCELERATOR

|                            |        |          |
|----------------------------|--------|----------|
| Securing accelerator pedal | 8x1.25 | 1.5 (11) |
|----------------------------|--------|----------|

## CLUTCH-GEARBOX AND DIFFERENTIAL

|                                                                            |         |            |
|----------------------------------------------------------------------------|---------|------------|
| Securing supports to gearbox,<br>differential cover and clutch, pads, etc. | 8x1.25  | 2.5 (18)   |
| Securing supports to gearbox,<br>differential cover and clutch, pads, etc. | 10x1.25 | 5.5 (39.5) |
| Securing supports to gearbox,<br>differential cover and clutch housing     | 10x1.25 | 5.5 (39.5) |
| Securing rocker arm pivot                                                  | 12x1.25 | 6 (43.5)   |
| Securing differential flange                                               | 12x1.25 | 9 (65)     |
| Securing ring nut to mainshaft (transmission side)                         | 25x1.5  | 18 (129.5) |
| Securing ring nut to clutch shaft                                          | 30x1.5  | 20 (144)   |
| Securing front and rear nuts, gearbox shafts                               | 32x1.5  | 20 (144)   |
| Securing rocker arm pivot on pedal                                         | 12x1.5  | 6 (43.5)   |
| Securing arm pivot ring nut on pedal housing                               | 15x1    | 11 (79.5)  |

## WHEELS - BRAKES AND SUSPENSIONS

|                                                 |         |          |
|-------------------------------------------------|---------|----------|
| Securing rear stabilizer bar to link            | 8x1.25  | 2.1 (15) |
| Securing bearing holding flange to hub carrier  | 8x1.25  | 2.1 (15) |
| Securing brake disc to wheel hub                | 8x1.25  | 2.5 (18) |
| Securing ball joints to front suspension levers | 10x1.25 | 7 (50.5) |
| Securing axle-shaft to flanges                  | 10x1.25 | 8 (57.5) |
| Securing brake disc to wheel hub                | 12x1.25 | 5 (36)   |

THREAD

TORQUE Kgm(Ft.Lbs.)

**WHEELS - BRAKES AND SUSPENSIONS (CONT.)**

|                                                                                        |         |            |
|----------------------------------------------------------------------------------------|---------|------------|
| Securing suspension levers to forks                                                    | 12x1.25 | 5.6 (40.5) |
| Securing front link and shock absorber to support                                      | 12x1.25 | 6 (43.5)   |
| Securing upper levers of front suspension to chassis and shock absorber to lower level | 12x1.25 | 7 (50.5)   |
| Securing brake caliper to hub carrier                                                  |         |            |
| -Without Heli-Coil                                                                     | 12x1.25 | 10 (72)    |
| -With Heli-Coil                                                                        | 10x1.5  | 4.5 (32.5) |
| Securing rear shock absorber and levers to hub carrier                                 |         |            |
| -Cadmium-plated bolts                                                                  | 12x1.25 | 5.6 (40.5) |
| -Bonderized bolts                                                                      |         | 7 (50.5)   |
| Securing caliper to steering knuckle                                                   |         |            |
| -Cadmium-plated bolts                                                                  | 12x1.25 | 8 (57.5)   |
| -Bonderized bolts                                                                      |         | 10 (72)    |
| Securing ball joints to steering knuckle                                               | 12x1.25 | 6.4 (46)   |
| Securing suspension forks to chassis                                                   | 14x1.5  | 8 (57.5)   |
| Securing wheels to hub                                                                 | 14x1.5  | 10 (72)    |
| Securing steering knuckle lever                                                        | 20x1.25 | 16 (115)   |
| Securing axle shaft flange to wheel shaft                                              | 27x1.25 | 22 (158.5) |

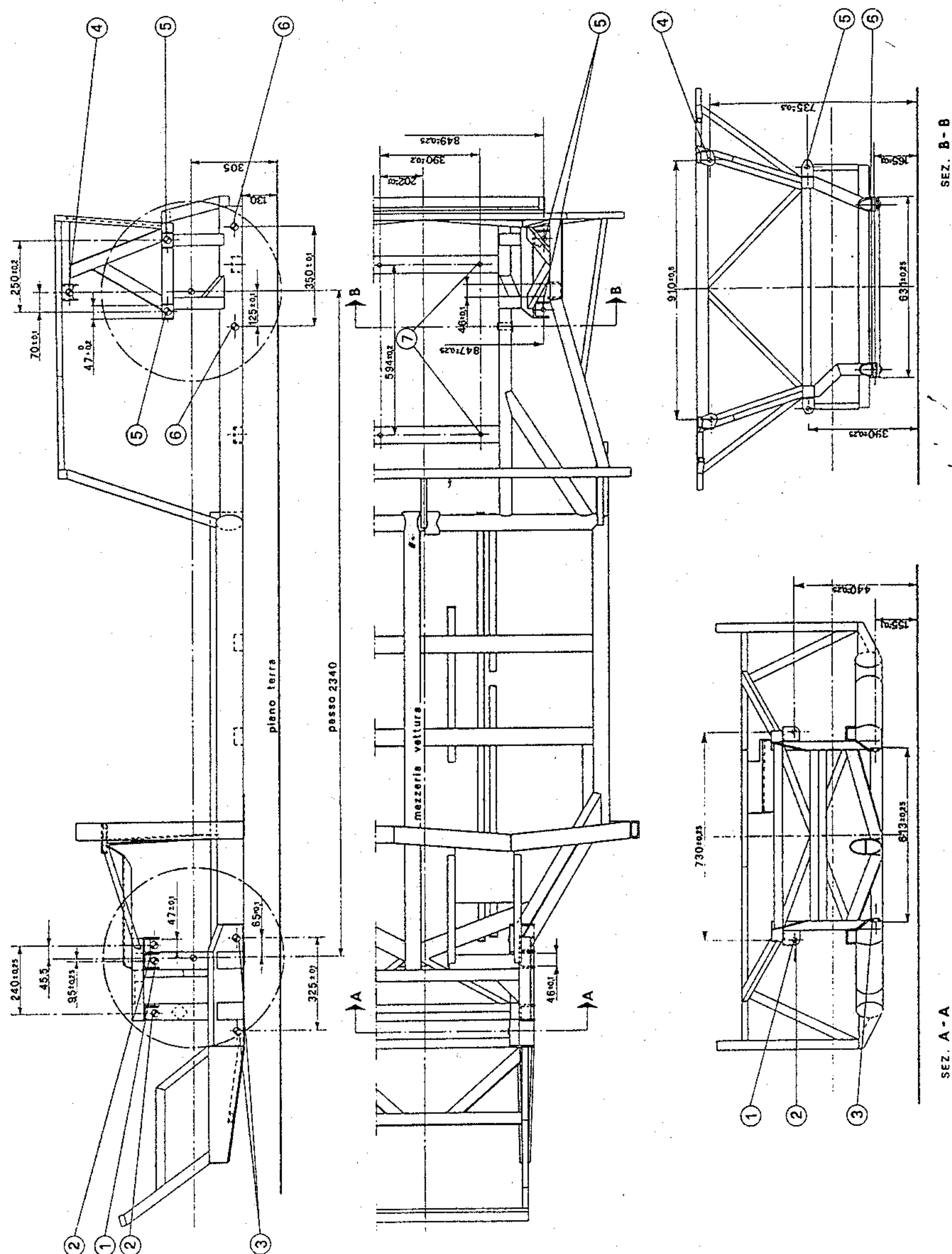
**STEERING**

|                                                      |        |            |
|------------------------------------------------------|--------|------------|
| Securing steering box ball joint to steering knuckle | 3/8"   | 4.5 (32.4) |
| Securing support of steering box                     | 8x1.25 | 2 (14.5)   |
| Securing steering column ring nut                    | 22x1.5 | 14 (101)   |

**CHASSIS**

|                                      |       |         |
|--------------------------------------|-------|---------|
| Securing nut fuel level gauge sender | 4x0.7 | 0.3 (2) |
|--------------------------------------|-------|---------|

# CHASSIS



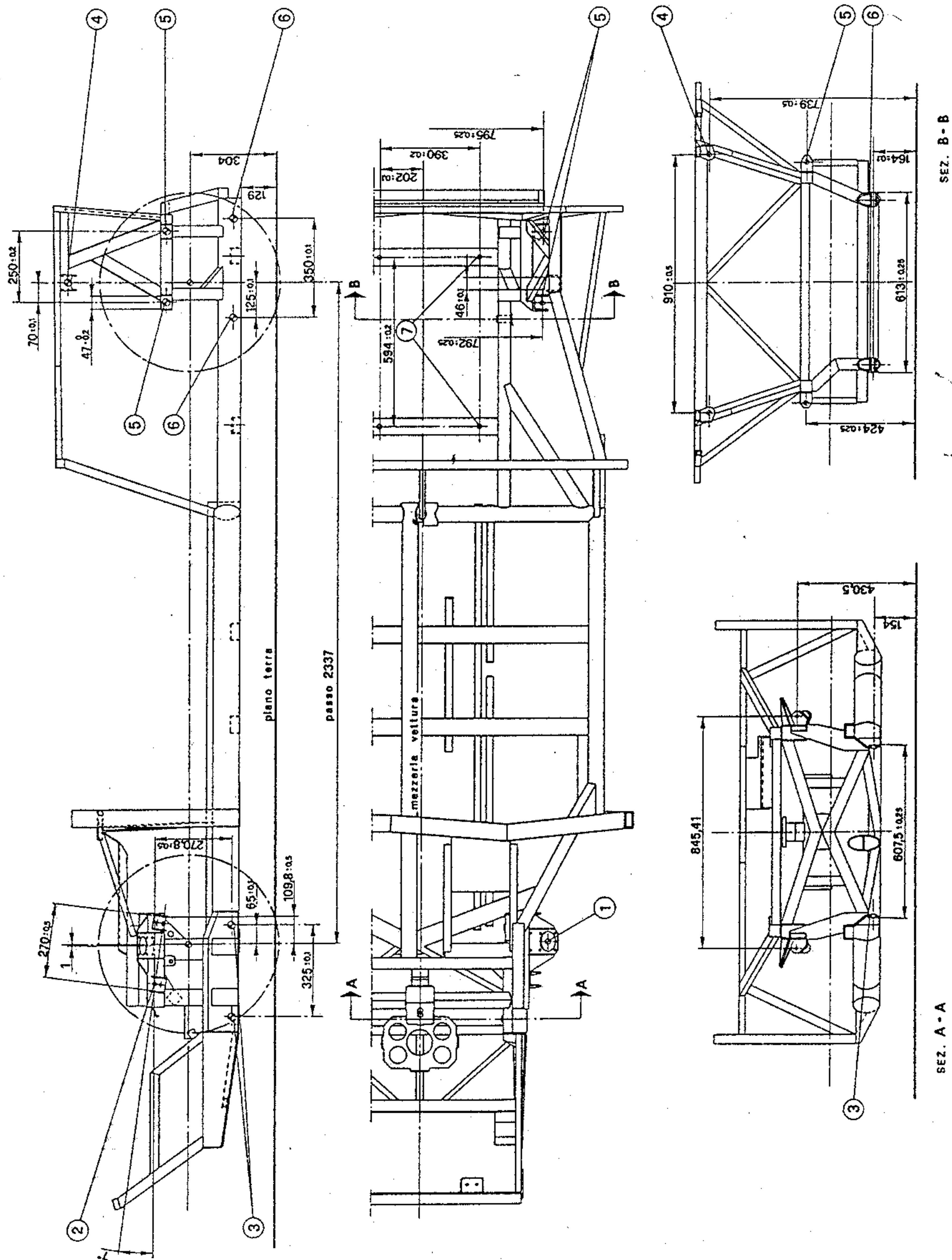
## CHASSIS DIAGRAM - UNTIL C.N. 76625

- 1 - Upper connection of front shock absorber
- 2 - Upper arm connection of front suspension
- 3 - Lower fork connection for front suspension
- 4 - Upper connection for rear shock absorber
- 5 - Upper arm connection of rear suspension
- 6 - Lower fork connection for rear suspension
- 7 - Propeller unit mountings

**328 / 328**  
**GTB / GTS**  
U.S. VERSION



TOOLS - TIGHTENING TORQUES - CHASSIS



### CHASSIS DIAGRAM - FROM C.N. 76626

- 1 - Upper connection of front shock absorber
- 2 - Upper arm connection of front suspension
- 3 - Lower fork connection for front suspension
- 4 - Upper connection for rear shock absorber
- 5 - Upper arm connection of rear suspension
- 6 - Lower fork connection for rear suspension
- 7 - Propeller unit mountings



# EMISSION CONTROL

## PULSE AIR INJECTION SYSTEM

|                            |                      |       |
|----------------------------|----------------------|-------|
| Operational Period         |                      |       |
| Water temp. below          | °C                   | 57    |
| Oil temp. above            | °C                   | 25    |
| Oil temperature switch     |                      |       |
| opens                      | °C                   | 22-28 |
| closes                     | °C                   | 12-18 |
| Coolant temperature switch |                      |       |
| opens                      | °C                   | 54-60 |
| closes                     | °C                   | 30-36 |
| Cut-off valve (pulse air)  |                      |       |
| closed                     | with vacuum of mm Hg | 18.30 |
| open                       | with vacuum of mm Hg | 64.50 |

## EXHAUST SYSTEM OVERTEMPERATURE WARNING DEVICE

|                                  |    |          |
|----------------------------------|----|----------|
| System Activated                 | °C | 900 ± 20 |
| (warning light begins flashing)  |    |          |
| Warning Light Illuminated Steady | °C | 940 ± 20 |

## CATALYST

|        |      |                      |
|--------|------|----------------------|
| Type   |      | Three-way Conversion |
| No.    |      | one                  |
| Volume | lit. | 3.96                 |

# Ferrari

FERRARI NORTH AMERICA

## 328 / 328 GTB / GTS U.S. VERSION

### PUBLICATIONS LIST

| <u>DESCRIPTION</u>             | <u>FERRARI<br/>PART NO.</u> | <u>FACTORY<br/>PRINT NO.</u> |
|--------------------------------|-----------------------------|------------------------------|
| 328 GTB/GTS Parts Catalog      | 95990251                    | 374/85                       |
| 328 GTB/GTS Parts Catalog 1987 | 95990255                    | 462/87                       |
| 328 GTB/GTS Parts Catalog 1988 | 95990259                    | 524/88                       |
| 328 Service Time Schedule      | 95990844                    | 404/85                       |
| Workshop Manual                | 95990873                    | 550/89                       |
| 328 GTB/GTS Owners Manual      | 95990076                    | 396/85                       |
| 328 GTB/GTS Owners Manual      | 95990068                    | 458/86                       |
| 328 GTB/GTS Owners Manual 1988 | 95990089                    | 481/87 N900                  |
| 328 GTB/GTS Owners Manual 1989 | 95990104                    | 535/88                       |
| Wiring Diagram 1986 / 87       | 95990849                    | 440/86                       |
| Wiring Diagram 1989            | 95990875                    | 559/89                       |
| Teves ABS MKII Brake System    | 95990866                    | 534/88                       |
| Recall Book No. 143/144        | N/A                         | N/A                          |
| Technical Information Binder   | 900003700                   | N/A                          |



# RECALL CAMPAIGN

REF. NO. 143  
FLEXIBLE OIL LINES

REF. NO. 144  
FUEL RETURN RUBBER HOSE

DECEMBER 1986

READ, INITIAL  
AND PASS ON

| Service Manager | Parts Manager | Service Writer | Technician |  |  |  |  | Warranty Clerk |
|-----------------|---------------|----------------|------------|--|--|--|--|----------------|
|                 |               |                |            |  |  |  |  |                |

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# Ferrari

Ferrari North America  
777 Terrace Avenue  
Hasbrouck Heights, NJ 07604  
201-393-4081

December 23, 1986

Dear Ferrari Dealer,

Ferrari Spa, the manufacturer of Ferrari automobiles, has determined that the following defects, which relate to Motor Vehicle Safety, may exist in certain Ferrari 328 GTS/GTB, 3.2 Mondial and 3.2 Mondial Cabriolet vehicles.

- A - On certain 328 GTS/GTB, 3.2 Mondial and 3.2 Mondial Cabriolet vehicles, the flexible oil hoses for the engine oil radiator could leak engine oil. This leakage may occur if there is insufficient clamping of the metal connectors at the flexible portion of the oil hose. Should such engine oil leakage occur and should the use of the vehicle be prolonged, severe engine damage may result due to the lack of lubrication. As with any type of oil leakage, the possibility of vehicle engine fire may exist.

The remedy will consist of the replacement of both upper and lower flexible oil hoses with new interchangeable hoses manufactured with an improved procedure. At the same time, the engine oil pressure regulating valve assembly will also be updated by installing components identical to those utilized in present production, in order to better regulate the engine oil pressure.

This repair will be performed free of charge for the vehicle owner and will require approximately 1.6 hours.

- B - On certain 328 GTS/GTB vehicles, the flexible rubber hose for the return of fuel to the right side fuel tank may be subject to chafing. This condition can occur if the flexible rubber hose was positioned too close to the metallic discharge connector of the air conditioner compressor.

The remedy will consist of an inspection of the flexible fuel hose, which if necessary will be repositioned and which will also be replaced if it shows any abrasions or damage.

The repair will be performed free of charge for the vehicle owner and will require approximately .6 hours.



We have accordingly set notices to all owners of the potentially affected vehicles advising them of the problems and requesting that they contact any Authorized Ferrari Dealer for the necessary remedies, as per the attached notification letters.

Sincerely,

Ferrari North America



# RECALL CAMPAIGN NO. 143

## FLEXIBLE OIL LINES FOR ENGINE OIL RADIATOR

### INTRODUCTION

**SUBJECT:** Recall Campaign No. 143  
Flexible Oil Lines

**VEHICLES:** 1986 328 GTB/GTS, 3.2 Mondial and 3.2 Mondial Cabriolet vehicles with the following serial number ranges:

| MODEL                 | STARTING FROM<br>SERIAL # | UP TO<br>SERIAL # |
|-----------------------|---------------------------|-------------------|
| 328 GTB/GTS           | 60053                     | 63809             |
| 3.2 Mondial Coupe     | 61851                     | 63777             |
| 3.2 Mondial Cabriolet | 59645                     | 63927             |

**CONDITION:** The flexible oil hoses for the engine oil radiator could leak engine oil. This leakage may occur if there is insufficient clamping of the metal connectors to the flexible portion of the oil hose. Should such engine oil leakage occur and should the use of the vehicle be prolonged, severe engine damage may result due to lack of lubrication. As with any type of oil leakage, the possibility of vehicle engine fire may exist.

**REMEDY:** The remedy will consist of the replacement of both upper and lower flexible oil hoses with new interchangeable hoses manufactured with an improved procedure. At the same time, the engine oil pressure regulating valve assembly will also be updated by installing components identical to those utilized in present production, in order to better regulate the engine oil pressure.

# RECALL CAMPAIGN NO. 143

## PARTS:

The required spare parts necessary to update a vehicle is indicated as follows:

| MODEL AND VERSION                  | KIT P.N. | KIT COMPOSITION                                                                                                                                                                                         |
|------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 328 GTB/GTS<br>U.S.A.              | 95240011 | No. 1-128238-Hose from block to cooler (GREEN DOT)<br>No. 1-128239-Hose from cooler to filter (GREEN DOT)<br>No. 1-125885-Plunger for control valve (3 HOLES)<br>No. 1-131743-Spacer for valve spring   |
| 3.2 Mondial<br>Coupe<br>U.S.A.     | 95240012 | No. 1-126910-Hose from block to cooler (GREEN DOT)<br>No. 1-126911-Hose from cooler to filter (GREEN DOT)<br>No. 1-125885-Plunger for control valve (3 HOLES)<br>No. 1-131743-Spacer for valve spring   |
| 3.2 Mondial<br>Cabriolet<br>U.S.A. | 95240013 | No. 1-128541-Hose from block to cooler (GREEN DOTS)<br>No. 1-128542-Hose from cooler to filter (GREEN DOTS)<br>No. 1-125885-Plunger for control valve (3 HOLES)<br>No. 1-131743-Spacer for valve spring |

## COST:

A. An initial supply of the above mentioned kits will be shipped to your Dealership. Your Parts Account will be charged accordingly.

B. One kit will be required per vehicle. Additional kits are available through the Ferrari North America Spare Parts Department, Cypress, CA.

## LABOR:

Operation No. 143, Time 1.6 hours

## REIMBURSEMENT:

On receipt of the correctly completed Recall Campaign Claim.

# RECALL CAMPAIGN NO. 143

## INSTRUCTIONS

### DESCRIPTION OF MODIFICATION

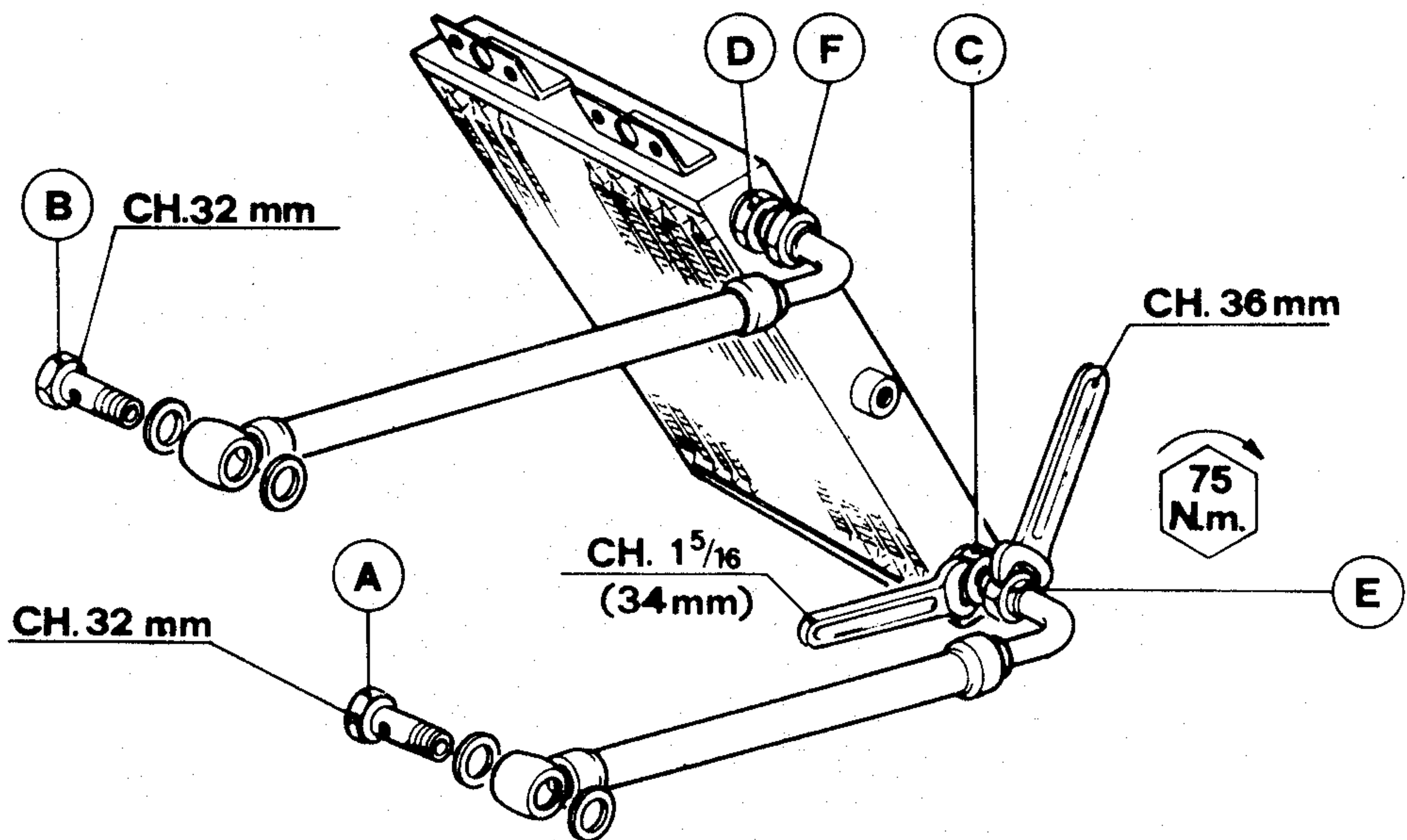
With the engine cold, place the vehicle on a lift. Under the engine, place a drain tray in order to collect residual escaping oil.

- On 3.2 Mondial Coupe and Cabriolet, remove both right and left rear wheels and the corresponding inner mud guards.
- On 328 GTB/GTS, remove only the right rear wheel and the corresponding mud guard.

### I - Replacement of both upper and lower oil hoses for the engine oil cooler (Ref. Fig. 1).

- 1 - Disconnect from the mountings on the chassis the expansion tank of the cooling system and, without disconnecting the water hoses, move the tank toward the center of the engine compartment.
- 2 - With a 32mm wrench, loosen and remove the two threaded plugs A and B in order to disconnect the oil hoses from the engine block and filter base.

Fig. 1



## RECALL CAMPAIGN NO. 143

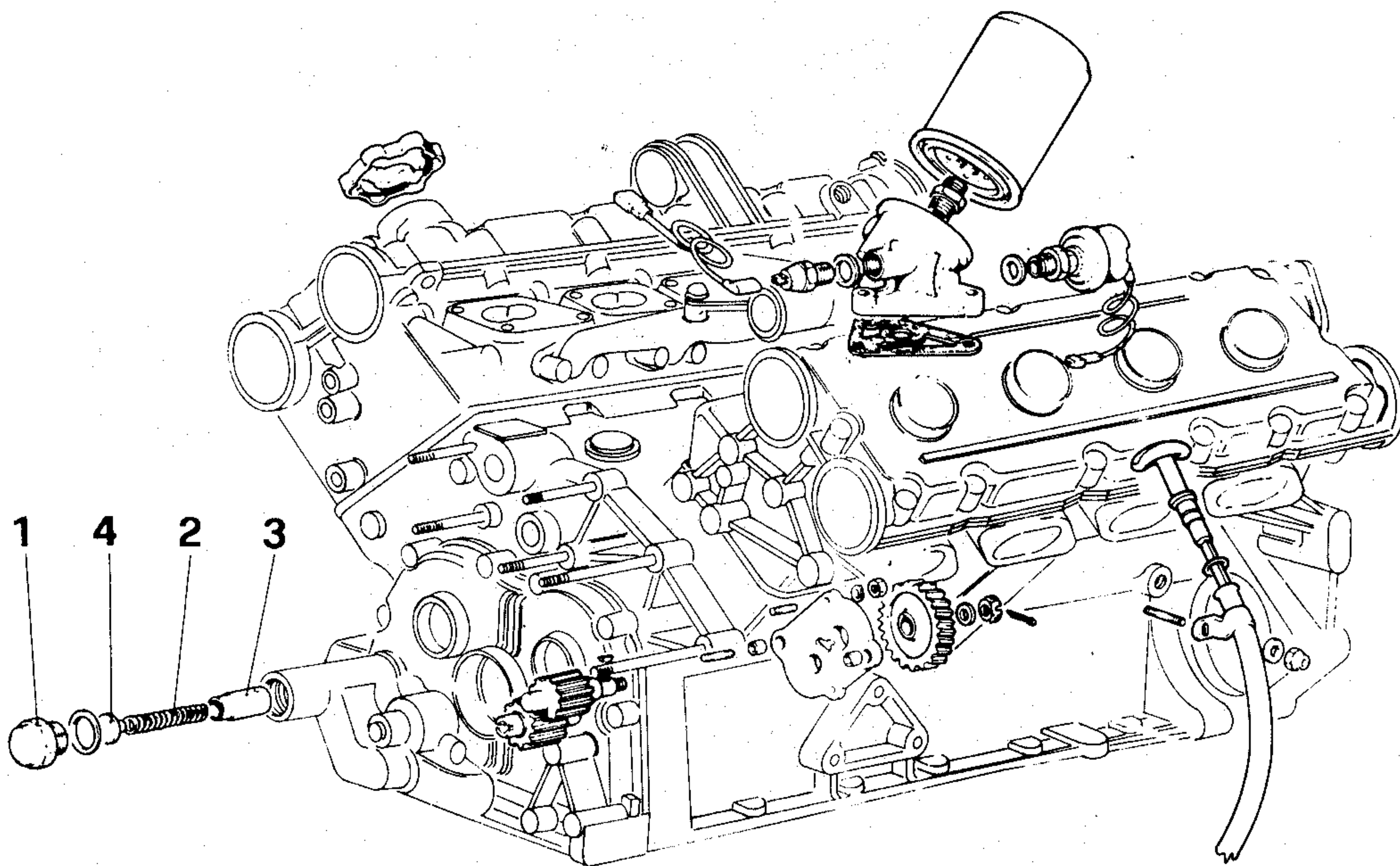
- 3 - With a 1-5/16" (or 34mm) wrench, hold the connectors C and D soldered to the oil cooler and, with a second 36mm wrench, unscrew and remove the connectors E and F.
- 4 - After removing the oil hoses, install the new hoses, identified with a green painted dot on the connector, and repeat in reverse order the steps mentioned.

The approximate tightening torque for the connectors E and F is 75Nm (=7.6 Kgm or 55 lb. ft.).

### II - Updating of the engine oil pressure control valve (Ref. Fig. 2 and 3).

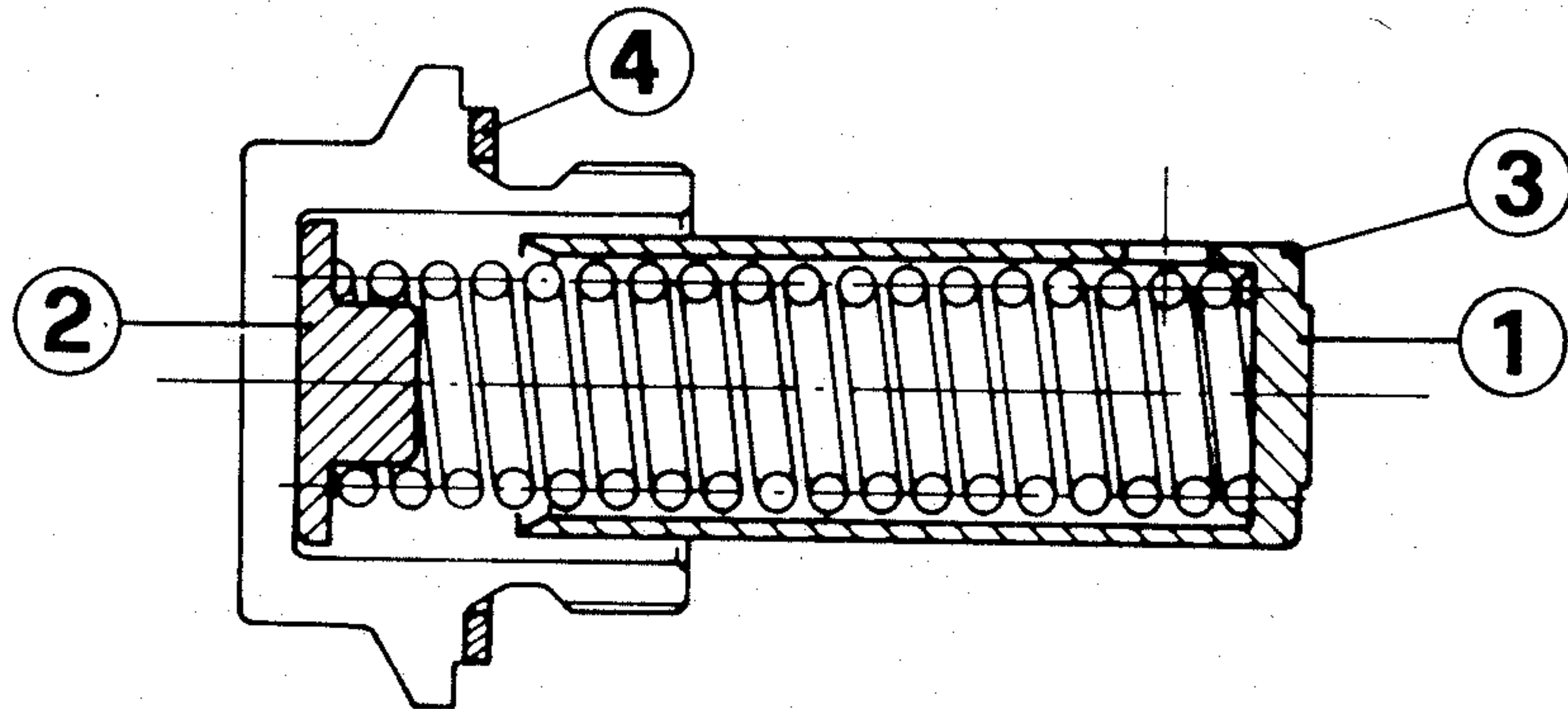
- 1 - With a 32mm wrench, unscrew and remove the cap 1, Fig.2.
- 2 - Remove the spring 2, Fig. 2, and remove the existing control plunger 3, Fig. 2.
- 3 - Remove the spacer 4, Fig. 2 for the spring.
- 4 - Insert the new control plunger 1, Fig. 3, which has the 3 new lateral holes 3, Fig. 3, and check that it slides freely into the sleeve.

Fig. 2



RECALL CAMPAIGN NO. 143

Fig. 3



- 5 - Insert the new spacer 2, Fig. 3, and verify that the centering portion enters properly the spring as shown in Fig. 3.
- 6 - Reinstall the cap with the proper gasket.

**IMPORTANT:** After the updating is performed, please identify the cap with a green painted mark.

Once the operation is completed, start and warm up the engine. Ensure there is no oil leakage.

Finally check the engine oil level, and add oil if necessary.

RECALL CAMPAIGN NO. 144

FLEXIBLE RUBBER HOSE FOR FUEL RETURN

INTRODUCTION

SUBJECT: Recall Campaign No. 144  
Flexible rubber hose for return of fuel to right side fuel tank

VEHICLES: 1986 328 GTB/GTS vehicles with the following serial number ranges:

| MODEL            | STARTING FROM<br>SERIAL # | UP TO<br>SERIAL # |
|------------------|---------------------------|-------------------|
| 1986 328 GTB/GTS | 60053                     | 66711             |

CONDITION: The flexible rubber hose (Ref. A, Fig. 1) for the return of fuel to the right side fuel tank may be subject to chafing. This condition can occur if the flexible rubber hose was positioned too close to the metallic discharge connector (Ref. B, Fig. 1) of the air conditioner compressor.

REMEDY: On all the above mentioned vehicles, this flexible rubber hose must be inspected and, if necessary, must be repositioned. The hose (p.n. 116767) must be replaced if it shows any abrasion or damage.

PARTS: The parts necessary for eventual replacement of the rubber hose are:

Qty. 1 p.n. 116767 - Flexible rubber hose  
Qty. 2 p.n. 12179490 - Clamp

LABOR: Operation No. 144 Time 0.6 hours.

REIMBURSEMENT: On receipt of the correctly completed Recall Campaign Claim.

RECALL CAMPAIGN NO. 144

Fig. 1

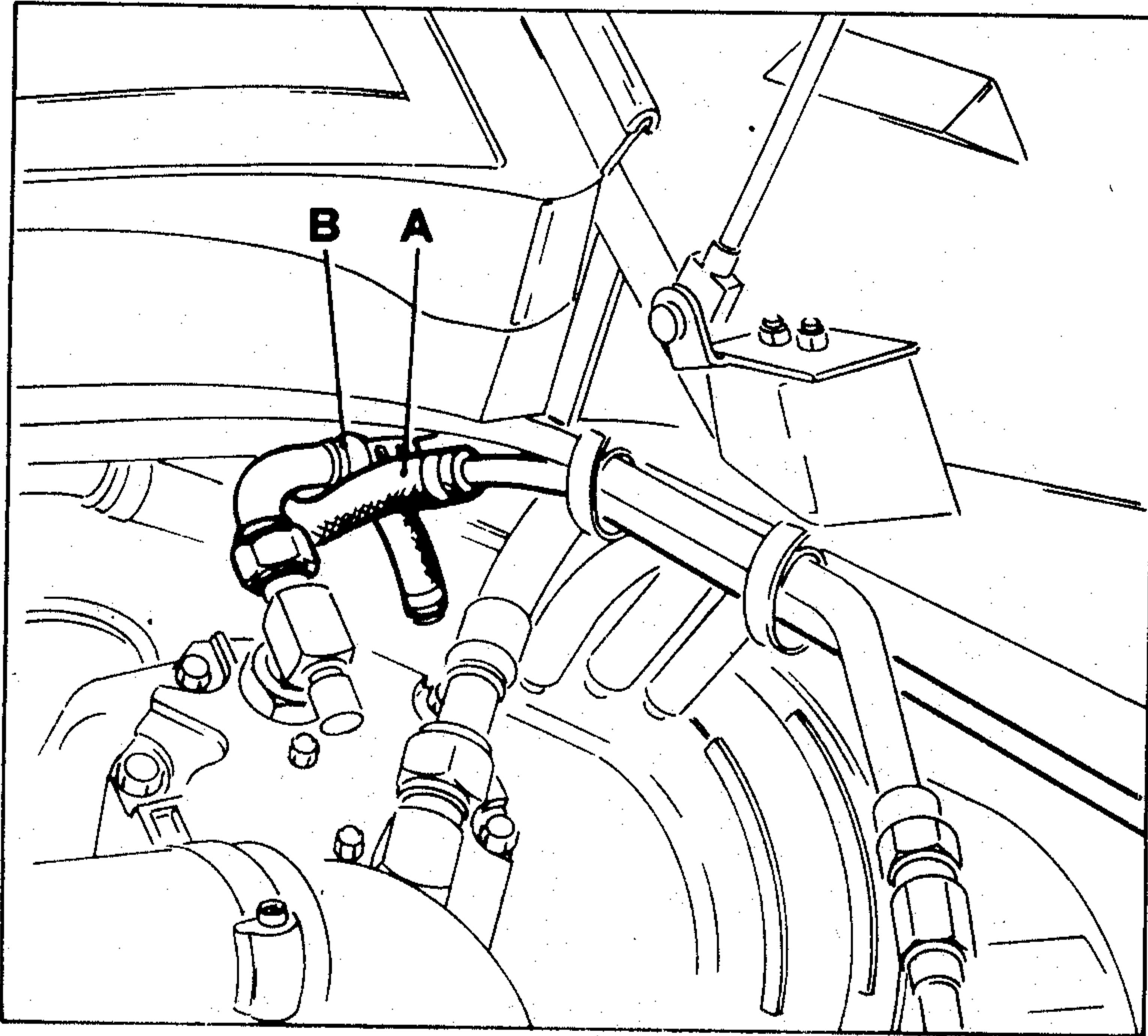
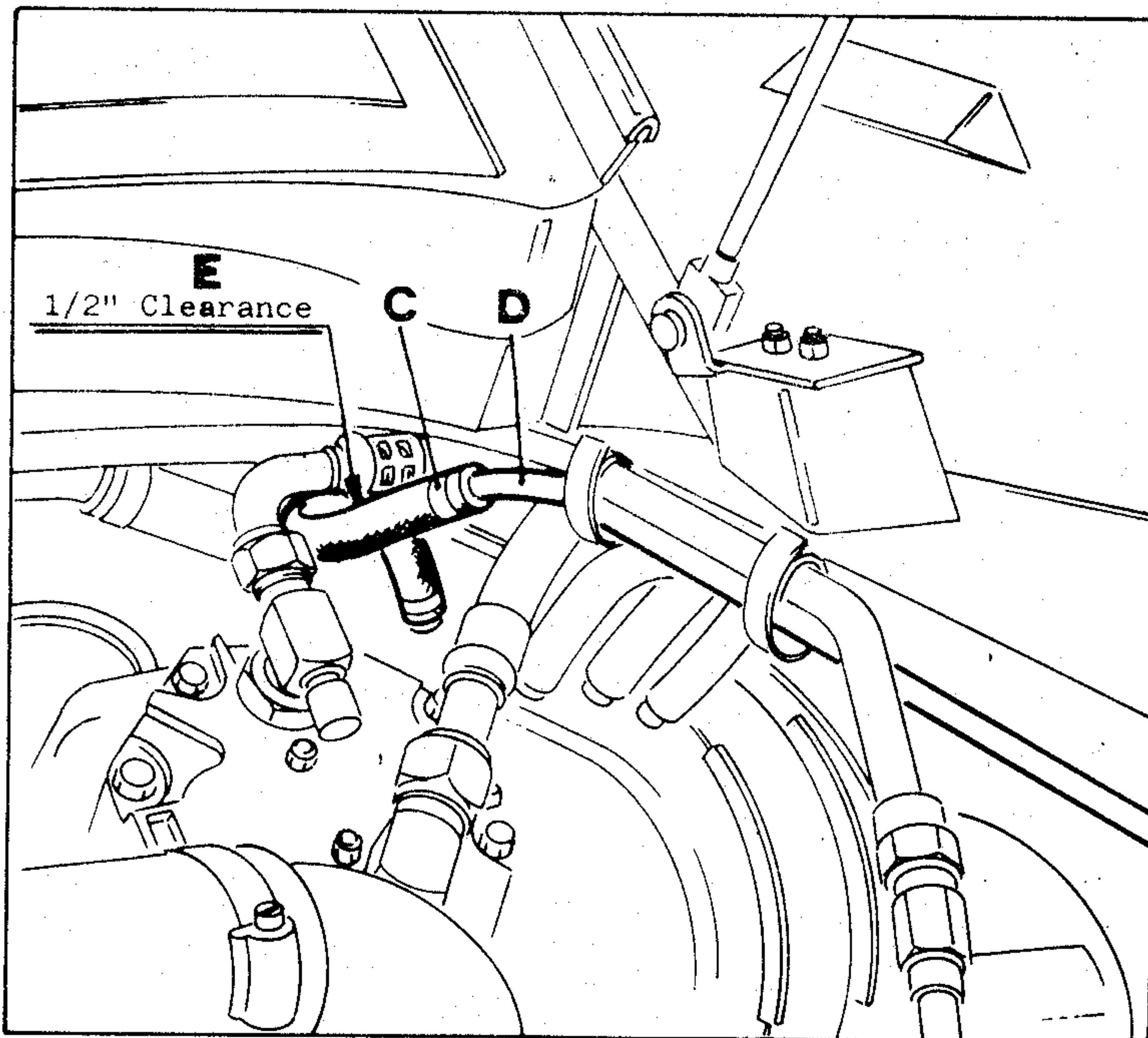


Fig. 2



## RECALL CAMPAIGN NO. 144

### INSTRUCTIONS

After a visual inspection, in order to properly reposition the hose, perform the following:

- 1 - Place the vehicle on a lift and remove the right rear wheel and the corresponding mud guard.
- 2 - Disconnect the air cleaner assembly F, Fig. 3 from the fuel metering unit, and disconnect the blow-by breather pipe from the air cleaner.
- 3 - Inside the wheel housing, disconnect the air conveyor G, Fig. 3 from the body.
- 4 - Lift up the conveyor/air cleaner assembly G and F, Fig. 3 in order to have sufficient access to the fuel return line.
- 5 - Using a round rod as a lever, which must react on the frame member, push downwards on the clamp C, Fig. 2, in order to slightly re-shape the metallic pipe D, Fig. 2, and increase its downward curvature until the clearance E between the rubber hose and the connector of the air conditioner compressor becomes sufficient (approximately 1/2").
- 6 - Check that clamp C, Fig. 2 has remained properly tight.
- 7 - If the existing hose shows abrasion or damage, replace it with a new one, which shall be installed with 2 new clamps.

### WARNING

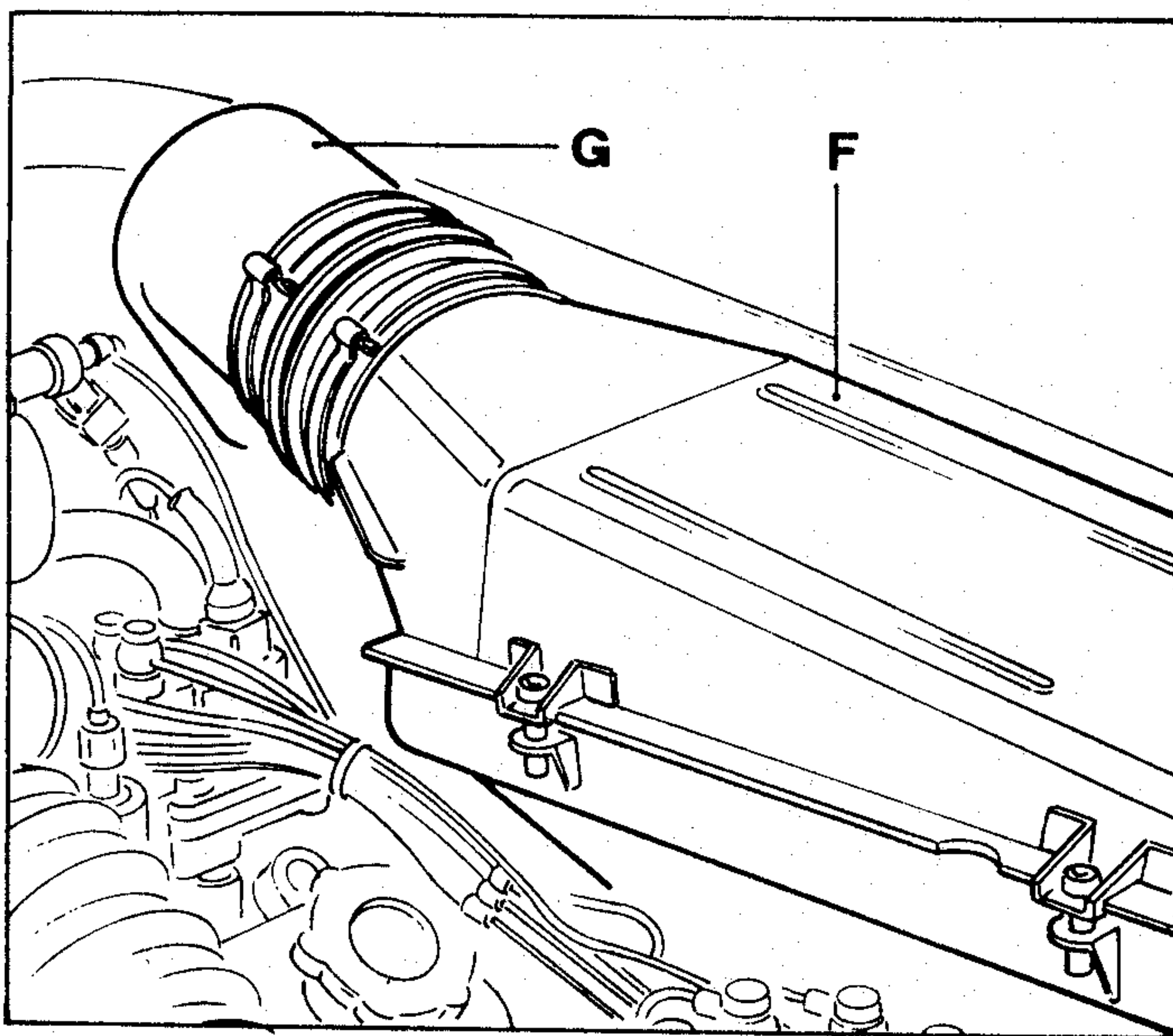
NO SMOKING. DISCONNECT THE BATTERY.

HIGHLY FLAMMABLE MATERIAL. KEEP AWAY FROM SPARKS OR OPEN FLAMES. PROVIDE ADEQUATE VENTILATION. FUEL, WHEN SATURATED ON CLOTHING WILL CAUSE SKIN IRRITATION. PROCEED ACCORDINGLY.

- 8 - Re-assemble the parts previously removed, then start the engine and check for no leakage from the fuel hose.

RECALL CAMPAIGN NO. 144

Fig. 3



## RECALL CLAIM FORM INSTRUCTIONS

### FOREWORD

The enclosed Recall Claim Form has been numbered in these areas to be completed by your Dealership. The numbered areas indicate the necessary information needed to process the claim and promptly credit your account.

### INSTRUCTIONS

Information required to complete the Recall Claim Form.

#### Area

#### Instructions

- 1 Enter your Ferrari 5-digit account number.
- 2 Enter vehicle mileage at time of repair.
- 3 Enter date of repair.
- 4 Enter Dealer claim calculations:  
Parts Dealer Net (Stock order price)  
Parts Handling (30%)  
Total Parts  
Total Labor (hrs x your approved WLR)  
Amount Claimed
- 5 Enter name of authorized servicing Dealer.
- 6 Signature of Dealer or authorized designee.
- 7 Signature of vehicle's owner.
- 8 If VIN number listed in area 8 appears invalid, please show correct VIN in explanation space (9).

### REPAIR

No repair order need be attached for the campaign unless an owner has lost or never received a Recall Claim Form. If this occurs, record all pertinent data, as required by the Recall Claim Form, on a repair order. Make sure owner signs the repair order.

The repair order must not be submitted until the Ferrari Representative can provide a blank Recall Claim Form. Transfer pertinent data from repair order to the Recall Claim Form. In OWNER area (7), write "Owner's signature on repair order no. \_\_\_\_\_." Attach the repair order to the Claim Form and submit for reimbursement.

### MAILING

In a Warranty Claim Form Envelope send Recall Claim Form (and repair order when required) to Ferrari North America Area Office.

**Ferrari**

Division of Fiat Auto U.S.A., Inc.

| DOCUMENT NUMBER FOR FACTORY USE ONLY.                                                   |             | SERV. DLR ACCT. NO. | YR.      | V.I.N. NO.                | MALE CODE | CLASS CODE | CAMPAIGN NO.                                                                                                           |
|-----------------------------------------------------------------------------------------|-------------|---------------------|----------|---------------------------|-----------|------------|------------------------------------------------------------------------------------------------------------------------|
|                                                                                         |             | ①                   |          | ⑧                         |           |            |                                                                                                                        |
| CLAIM NO.                                                                               |             | SELL DLR ACCT. NO.  |          | MO. / DAY / YR.           |           | MILEAGE    | ALL RECALL WORK MUST BE ON AN APPROPRIATE RECALL CLAIM FORM NOT A WARRANTY CLAIM FORM ATTACH REPAIR ORDER COPY TO BACK |
| 80001                                                                                   |             |                     |          | ③ / /                     |           | ②          |                                                                                                                        |
| PART DESCRIPTION                                                                        | PART NUMBER | QTY                 | DLR. NET | EXPLANATION               |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | ⑨                         |           |            |                                                                                                                        |
| OWNER:                                                                                  |             |                     |          |                           |           |            |                                                                                                                        |
| WE CERTIFY THE COMPLETION OF SERVICES REQUIREMENTS UNDER THIS CAMPAIGN ON THIS VEHICLE. |             |                     |          |                           |           |            |                                                                                                                        |
| AUTHORIZED SERVING DEALER                                                               |             |                     |          | LABOR REQUIRED            |           |            |                                                                                                                        |
| ⑤                                                                                       |             |                     |          | HOURS                     |           |            |                                                                                                                        |
| SIGNATURE                                                                               |             |                     |          | AUTHORIZATION NO.         |           |            |                                                                                                                        |
| ⑥                                                                                       |             |                     |          |                           |           |            |                                                                                                                        |
| FACTORY COMMENTS                                                                        |             |                     |          | DEALER CLAIM CALCULATIONS |           |            |                                                                                                                        |
| <input type="checkbox"/> REJECT                                                         |             |                     |          | PARTS DEALER NET          |           |            |                                                                                                                        |
| <input type="checkbox"/> RETURN                                                         |             |                     |          | PARTS HANDLING            |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | TOTAL PARTS               |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | TOTAL LABOR               |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | SUBLET                    |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | TOTAL                     |           |            |                                                                                                                        |
|                                                                                         |             |                     |          | AMOUNT CLAIMED            |           |            |                                                                                                                        |
| OWNERS SIGNATURE                                                                        |             |                     |          |                           |           |            |                                                                                                                        |
| ⑦                                                                                       |             |                     |          |                           |           |            |                                                                                                                        |
| CLAIMS PAID SUBJECT TO AUDIT AND PARTS INSPECTION                                       |             |                     |          |                           |           |            |                                                                                                                        |

FACTORY COPY

# Ferrari

Ferrari North America  
777 Terrace Avenue  
Hasbrouck Heights, NJ 07604  
201-393-4081

December 23, 1986

Dear Ferrari Owner,

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicles Safety Act.

Ferrari Spa, the manufacturer of Ferrari automobiles, has determined that the following defects may exist in certain Ferrari 3.2 Mondial and 3.2 Mondial Cabriolet vehicles.

The flexible oil hoses for the engine oil radiator could leak engine oil. This leakage may occur if there is insufficient clamping of the metal connectors to the flexible portion of the oil hose. Should such engine oil leakage occur and should the use of the vehicle be prolonged, severe engine damage may result due to lack of lubrication. As with any type of oil leakage, the possibility of vehicle engine fire may exist.

The remedy will consist of the replacement of both upper and lower flexible oil hoses for the engine oil radiator with new interchangeable hoses manufactured with an improved procedure. At the same time, the engine oil pressure regulating valve assembly will also be updated by installing components identical to those utilized in present production, in order to better regulate the engine oil pressure.

Since your car is among those potentially affected by the above condition, we ask you to kindly contact any Ferrari Service Dealer immediately in order to arrange for the modification to be performed.

Of course the above modification which will not immobilize your vehicle for longer than half a day, will be performed free-of-charge.



By the time you receive this letter, the authorized Ferrari Dealer will have been supplied with the instructions and parts to perform the repair.

If the Dealer fails or is unable to make the necessary repairs free-of-charge within a reasonable time, you should inform either the National Headquarters Office of Ferrari North America, 777 Terrace Avenue, Hasbrouck Heights, NJ 07604 (201) 393-4080, the Western Area Office, 6780 Katella Avenue, Cypress CA 90630 (714) 895-3388, or the Eastern Area Office, 220 Turner Industrial Way, Aston, PA 19014 (215) 494-1545, whichever is most convenient to your location.

Although we urge you to immediately call one of the numbers indicated above, if the vehicle is not repaired free-of-charge or within a reasonable time, you may also contact the Administrator of the National Traffic Safety Administration in Washington, D.C. 20590 or call the Auto Safety Hotline at 1-800-424-9393.

We urge you to comply with this notice promptly and apologize for any inconvenience this may cause you.

Sincerely,

Ferrari North America



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201-393-4081

December 23, 1986

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The flexible rubber hose for return of fuel to the right side fuel tank may be subject to chafing. This condition can occur if the flexible rubber hose was positioned too close to the metallic discharge connector of the air conditioner compressor.

The remedy will consist of an inspection of the flexible fuel hose, which, if necessary will be re-positioned, and which will also be replaced if it shows any abrasion or damage.

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Ferrari North America



**Ferrari**

FERRARI NORTH AMERICA

**328 / 328**  
**GTB / GTS**  
U.S. VERSION

# SERVICE BULLETIN INDEX

## 00 - GENERAL INFORMATION - 00

|                         |                       |
|-------------------------|-----------------------|
| 10 - ENGINE             | BRAKES - 40           |
| 14 - FUEL SYSTEM        | STEERING - 51         |
| 15 - EMISSION CONTROL   | SUSPENSION - 60       |
| 16 - LUBRICATION        | ELECTRICAL - 80       |
| 17 - COOLING SYSTEM     | AIR CONDITIONING - 84 |
| 18 - EXHAUST SYSTEM     | BODY - 90             |
| 21 - CLUTCH             | HEATING - 96          |
| 30 - TRANS. / REAR AXLE | PAINT - 97            |



| NUMBER                                    | DESCRIPTION                                                      | DATE     |
|-------------------------------------------|------------------------------------------------------------------|----------|
| <b>SECTION - 00 - GENERAL INFORMATION</b> |                                                                  |          |
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| -24                                       | CHANGE NOTICE - Brake Fluid DOT4<br>(All Models)                 | 08-10-87 |
| -25                                       | New AGIP SINT 2000 10W40 Engine Oil<br>(All Models)              | 06-15-88 |
| -32                                       | CHANGE NOTICE - Connolly Leather<br>VM - 4208. (328 - Mondial t) | 07-15-89 |

### SECTION - 10 - ENGINE

|       |                                                                          |          |
|-------|--------------------------------------------------------------------------|----------|
| 10-14 | Cylinder Head Tightening on F105C<br>Engines (3.2 8 Cyl.)                | 09-08-86 |
| -15   | Camshaft Extension for Ignition Rotors<br>(8 & 12 Cyl.)                  | 11-24-86 |
| -16   | Oil Sump for F105C Engines<br>(3.2 8 Cyl.)                               | 12-30-86 |
| -18   | Oil Seal for Ignition Distributor<br>(Testarossa - 328 - 3.2 Mon. - 412) | 04-20-87 |
| -21   | CHANGE NOTICE - Engine Dampner<br>Securing Bolt (All Models)             | 08-10-87 |
| -23   | CHANGE NOTICE - Chrome Plated Intake<br>and Exhaust Valves (3.2 8 Cyl.)  | 06-15-88 |
| -24   | CHANGE NOTICE - Valve Seats<br>(3.2 8 Cyl.)                              | 12-15-88 |
| -25   | CHANGE NOTICE - Crankshaft oil seal<br>(328 - Turbo - 3.2 Mon.)          | 07-15-89 |

### SECTION - 14 - FUEL SYSTEM

|      |                                                                           |          |
|------|---------------------------------------------------------------------------|----------|
| 14-9 | CHANGE NOTICE - Fastening of Cold<br>Start Injector (8 Cyl. - Testarossa) | 10-05-88 |
|------|---------------------------------------------------------------------------|----------|

### SECTION - 15 - EMISSION CONTROL SYSTEM

|      |                                               |          |
|------|-----------------------------------------------|----------|
| 15-3 | CHANGE NOTICE - CO / HC Probe<br>(3.2 8 Cyl.) | 06-15-88 |
|------|-----------------------------------------------|----------|



| NUMBER                                        | DESCRIPTION                                                                     | DATE     |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------|
| <b>SECTION - 16 - LUBRICATION</b>             |                                                                                 |          |
| 16-2                                          | CHANGE NOTICE - Spring for Oil Press.<br>Relief Valve (3.2 8 Cyl. - Testarossa) | 06-05-87 |
| -3                                            | CHANGE NOTICE - Oil cooler Air Duct<br>(328)                                    | 06-15-88 |
| <b>SECTION - 17 - COOLING SYSTEM</b>          |                                                                                 |          |
| 17-4                                          | CHANGE NOTICE - Sealing of Water<br>Radiator Seat (328)                         | 06-15-88 |
| <b>SECTION - 18 - EXHAUST SYSTEM</b>          |                                                                                 |          |
| 18-3                                          | CHANGE NOTICE - Exhaust Manifold<br>(328 GTB/S - 3.2 Mon. - Cab.)               | 08-10-87 |
| <b>SECTION - 21 - CLUTCH</b>                  |                                                                                 |          |
| 21-5                                          | Clutch Release System<br>(TURBO - 328 GTB/S)                                    | 08-10-87 |
| -8                                            | CHANGE NOTICE - Clutch Disc (8 Cyl.)                                            | 10-05-88 |
| <b>SECION - 30 - TRANSMISSION / REAR AXLE</b> |                                                                                 |          |
| 30-6                                          | CHANGE NOTICE - Synchron. Blocks<br>(All Models)                                | 08-10-87 |
| -9                                            | CHANGE NOTICE - Center Dowel on<br>Trans. Intermediate Housing (3.2 8 Cyl.)     | 06-15-88 |
| -10                                           | CHANGE NOTICE - Gear Shift Rocker<br>Arm Support (8 Cyl.)                       | 10-05-88 |
| <b>SECTION - 40 - BRAKES</b>                  |                                                                                 |          |
| 40-3                                          | 328 GTB/S Braking System                                                        | 12-30-86 |



| NUMBER                               | DESCRIPTION                                                                        | DATE     |
|--------------------------------------|------------------------------------------------------------------------------------|----------|
| <b>SECTION - 51 - STEERING</b>       |                                                                                    |          |
| 51-1                                 | CHANGE NOTICE - Steering Wheel<br>(328 & TURBO GTB/S)                              | 10-05-88 |
| <b>SECTION - 60 - SUSPENSION</b>     |                                                                                    |          |
| 60-17                                | CHANGE NOTICE - Suspension & Wheels<br>(328 & TURBO GTB/S)                         | 10-05-88 |
| <b>SECTION - 80 - ELECTRICAL</b>     |                                                                                    |          |
| 80-28                                | Electrical Test Procedure for Microplex<br>Ignition System                         | 04-20-87 |
| -29                                  | Electrical Test Procedure for BOSCH K -<br>Jetronic w/Lambda (M.Y. 84-87 - 8 Cyl.) | 04-20-87 |
| -32                                  | CHANGE NOTICE - Rear and Engine<br>Wiring Harnesses (328)                          | 08-10-87 |
| -35                                  | CHANGE NOTICE - Wiring Harness<br>Covering (328 - TURBO GTB/S)                     | 10-05-88 |
| -36                                  | Calibration of Display Indicator<br>(328 - TURBO - 412)                            | 02-13-89 |
| -39                                  | CHANGE NOTICE - Electronic control for<br>ventilation fan speed (328 - F40)        | 07-15-89 |
| -40                                  | Carbon & spring for distributor cap<br>(All Models)                                | 07-15-89 |
| <b>SECTION - 90 - BODY</b>           |                                                                                    |          |
| 90-10                                | CHANGE NOTICE - Front Bonnet<br>(328 - TURBO)                                      | 06-15-88 |
| -11                                  | CHANGE NOTICE - Side Grill Grommet<br>(328 GTS)                                    | 10-05-88 |
| <b>SECTION - 96 - HEATING SYSTEM</b> |                                                                                    |          |
| 96-3                                 | Heater Fan Motors (328 - TURBO)                                                    | 12-15-88 |



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **00-23**

**PRODUCTION CHANGE**

DATE: 8/10/87

**SUBJECT: GEARBOX OIL - AGIP ROTRA SX**  
**VEHICLES: SEE TABLE BELOW**

|                   |             |        |       |       |       |  |  |
|-------------------|-------------|--------|-------|-------|-------|--|--|
| Starting<br>from: | Model       | 8 Cyl  | 8 Cyl | Turbo | 412   |  |  |
|                   | Area        | Europe | USA   | Italy | All   |  |  |
|                   | Chassis no. | 67437  | 67465 | 67499 | 67463 |  |  |
|                   | Engine no.  |        |       |       |       |  |  |
|                   | Gearbox no. |        |       |       |       |  |  |

**Description:**

The gearbox is filled with the new gearbox oil AGIP ROTRA SX 75W 90.

**NOTE:** The oil AGIP ROTRA 80W 90 remains in the Testarossa gearbox and the 412 rear axle.

**Reason:**

Reducing shifting effort when cold.

| REPLACED PARTS |                |             | NEW PARTS    |                |             |
|----------------|----------------|-------------|--------------|----------------|-------------|
| ref.<br>fig.   | Part<br>Number | Description | ref.<br>fig. | Part<br>Number | Description |
|                |                |             |              |                |             |
|                |                |             |              |                |             |
|                |                |             |              |                |             |
|                |                |             |              |                |             |
|                |                |             |              |                |             |
|                |                |             |              |                |             |

Spare parts procedures:

Reference spare parts catalogue:



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

00-24

PRODUCTION CHANGE

DATE: 8/10/87

SUBJECT: BRAKE FLUID DOT4 AGIP  
VEHICLES: ALL

|                |             |       |       |       |       |       |  |
|----------------|-------------|-------|-------|-------|-------|-------|--|
| Starting from: | Model       | 328   | 3.2 M | Turbo | TR    | 412   |  |
|                | Area        | All   | All   | Italy | All   | All   |  |
|                | Chassis no. | 68915 | 68847 | 68913 | 68787 | 68531 |  |
|                | Engine no.  |       |       |       |       |       |  |
|                | Gearbox no. |       |       |       |       |       |  |

### Description:

Brake and hydraulic clutch release systems are being filled with AGIP Brake Fluid DOT4. This fluid is compatible with the AGIP Brake Fluid Super HD DOT3 previously used. The maintenance schedule specified for each model remains unchanged.

### Reason:

The new fluid has a higher boiling point.

| REPLACED PARTS |             |             | NEW PARTS |             |             |
|----------------|-------------|-------------|-----------|-------------|-------------|
| ref. fig.      | Part Number | Description | ref. fig. | Part Number | Description |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |

Spare parts procedures:

Reference spare parts catalogue:



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

00-25

DATE: 6/15/88

**SUBJECT: NEW AGIP SINT 2000 10W 40 ENGINE OIL**  
**VEHICLES: ALL**

Starting from cars with C.N. 76966, the new **AGIP SINT 2000 10W 40** oil is being used for engine lubrication, replacing the SINT 2000 10W 50 type which Agip no longer produces.

You may use up the Agip Sint 2000 10W 50 oil you have in stock.

The table below provides a list of Agip products used in our vehicles with the corresponding quality levels; it also shows the minimum quality levels required of other products which may be used **only** when Agip lubricants are not available.

| AGIP PRODUCTS         | AGIP PRODUCT QUALITY LEVELS                                         | MINIMUM CORRISPONDING QUALIATY LEVELS  |                                                     |
|-----------------------|---------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------|
|                       |                                                                     | EUROPE                                 | OTHER COUNTRIES                                     |
| AGIP SINT 2000        | SAE 10W/40<br>API SF/CD<br>CCMC G3-D1-D2-PD3<br>MIL-L-46152-C LEVEL | SAE 10W/40<br>API SF/CD<br>CCMC G3-D1  | SAE 10W/40<br>SAE 15W/40<br>SAE 15W/50<br>API SF/CC |
| AGIP ROTRA MP         | SAE 80W/90<br>API GL-5<br>MIL-L-2105-C                              | SAE 80W/90<br>API GL-5<br>MIL-L-2105-C | SAE 80W/90<br>API GL-5                              |
| AGIP ROTRA SX         | SAE 80W/90<br>API GL-5<br>MIL-2105-C                                | SAE 75W/90<br>API GL-5<br>MIL-L-2105-L | SAE 75W/90<br>SAE 80W/90<br>API GL-5                |
| AGIP DEXTRON II       | GM 6137 M<br>ZF 7006 050 157                                        | GM 6137 M<br>ZF 7006 050 157           | GM 6137 M                                           |
| AGIP BRAKE FLUID DOT4 | FMVSS DOT-3/DOT-4<br>SAE J-1703                                     | FMVSS DOT-3/DOT-4<br>SAE J-1703        | FMVSS DOT-4                                         |
| AGIP TER 60           | DIN 51503 KA/KC 68                                                  | DIN 51503 KA/KC 68                     | CARRIER PP-3636                                     |
| AGIP OSO 32           | ISO HM 32<br>DIN 51524 HLP<br>DENISON HF-2                          | ISO HM 32<br>DIN 51524 HLP             | ISO HM 32<br>DENISON HF2                            |
| AGIP ANTIFREEZE       | BS 3151 Type B                                                      | BS 3151 Type B                         | BS 3151 Type B                                      |
| AGIP ATF DEXTRON      | GM 6032 M<br>ZF 7006 050 157                                        | GM 6032 M<br>ZF 7006 050 157           | GM 6032 M                                           |



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **00-32**

**PRODUCTION CHANGE**

DATE: 7/15/89

SUBJECT: CONNOLLY LEATHER - 4208  
VEHICLES: 328 - MONDIAL T

|                   |             |       |       |  |  |  |  |
|-------------------|-------------|-------|-------|--|--|--|--|
| Starting<br>from: | Model       | 328   | MON T |  |  |  |  |
|                   | Area        |       |       |  |  |  |  |
|                   | Chassis no. | 79662 | 79496 |  |  |  |  |
|                   | Engine no.  |       |       |  |  |  |  |
|                   | Gearbox no. |       |       |  |  |  |  |

**Description:**

Beginning with the above listed chassis number, a new Connolly leather VM 4208 has been introduced. This will replace the previously used VM 3218. Please note there is a difference in color and tone.

**Reason:**

Production change.

| REPLACED PARTS |             |                          | NEW PARTS |             |                          |
|----------------|-------------|--------------------------|-----------|-------------|--------------------------|
| ref. fig.      | Part Number | Description              | ref. fig. | Part Number | Description              |
|                |             | Connolly leather VM 3218 |           |             | Connolly leather VM 4208 |
|                |             |                          |           |             |                          |
|                |             |                          |           |             |                          |
|                |             |                          |           |             |                          |
|                |             |                          |           |             |                          |
|                |             |                          |           |             |                          |

Spare parts procedures: If replacement is necessary, order a cover quoting the code number and enclosing a sample.

Reference spare parts catalogue:

REF. SAT T.I. CN 67



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

## SERVICE BULLETIN No

10-14

DATE: 9/8/86

**SUBJECT: Cylinder Head Tightening on F105C Engines (3200-8 cylinder)**

**VEHICLES: 328 GTB/S, 3.2 Mondial and 3.2 Mondial Cabriolet**

### INTRODUCTION

The new 3200-8 cylinder engines, installed on 328 GTB/GTS and Mondial 3200/Cabriolet is equipped with new studs (p.n. 126647), washers (p.n. 126648) and nuts (p.n. 126646), for fitting and tightening of cylinder heads. They are torqued following a special procedure in order to ensure a uniform and constant load which does not vary in consequence of the settling down of the cylinder head gasket and engine life. There is no longer any need to re-torque during the scheduled maintenance.

### INITIAL INSTALLATION AT FACTORY

The original fitting, on the new engine, is performed by Ferrari by means of a special computerized, dynamometric wrench (SPS Technologies, model SENSOR I) performed in two steps:

- 1 : Pre-torque (snug) of each nut up to 55Nm (40 Ftlbs), following the same sequence specified for the 308 engine.
- 2 : Always in sequence, slight unscrewing followed by final tightening up to the "elasticity limit" of each stud. The reached elasticity limit is monitored and warned by the wrench itself, which calculates it as gradient of torque against degree of rotation (system: JCS-TEL).

### MAINTENANCE

It is not necessary to re-torque the cylinder heads for the entire engine life. However, for our knowledge and research we ask you to perform a rough checking of the head nuts torque, at least on the first cars, while performing valve clearances checking (every 15,000 miles) in the following way; with a standard torque wrench, ACCURATELY CALIBRATED AT 70 Nm (52 Ftlbs), try to tighten each head nut and CHECK IT DOES NOT ROTATE.

In case one or more nuts prove to be not tight, you shall unscrew and re-tighten following the procedure described in the next section (see ENGINE OVERHAULING).



### ENGINE OVERHAULING

In case of engine overhauling, or re-fitting of a cylinder head, for installation it would be theoretically necessary to use the special computerized wrench, type SENSOR I, by SPS Technologies, in order to exactly duplicate the initial tightening performed by the Ferrari Factory.

However, an acceptable result can be achieved with the following tools:

- Standard torque wrench (1/2")
- Ferrari special socket (AV 1393) for 4 valve engine
- Angle check wrench (like, for instance, USAG No. 830 - 1/2" drive)

Utilizing the following procedure:

- 1 - Lubricate with graphite grease the thread of the studs and the contact surfaces of both washers and nuts.
- 2 - Following the sequence specified by the manual, torque each nut to exactly 45 Nm (33 Ftlbs) paying attention to have the Ferrari special socket AV 1393 at 90° with the handle of the torque wrench.
- 3 - Then, always in sequence, tighten each nut of additional 120 degrees by using a normal wrench, combined with the angle check wrench and Ferrari special socket AV 1393.

For the above last step, since the position of the nut does not allow a 120° rotation in one operation only, you shall perform the following:

- Connect the angle check wrench (for instance USAG 830 - 1/2") between the Ferrari socket AV 1393 and the handle.
- Connect an iron plate to the engine, in order to locate the magnet on top of it.
- Manually bring to "zero" the dial on the angle check wrench.
- Tighten the nut as far as possible and read the angle you have reached.
- Pull up and reposition the wrench, then manually bring the dial in the position previously reached
- Tighten the nut further and read the new total angle reached.
- Repeat the above operations a few times (3+4) until a total angle of 120° has been reached.

Note: The USAG angle Check Wrench (Ferrari Part Number 900000830) will be automatically shipped from the Ferrari NA Spare Parts Dept., Cypress, CA to your dealership. Dealer cost - \$36.27. Additional units are available through the Ferrari NA Spare Parts Department following normal ordering procedures.



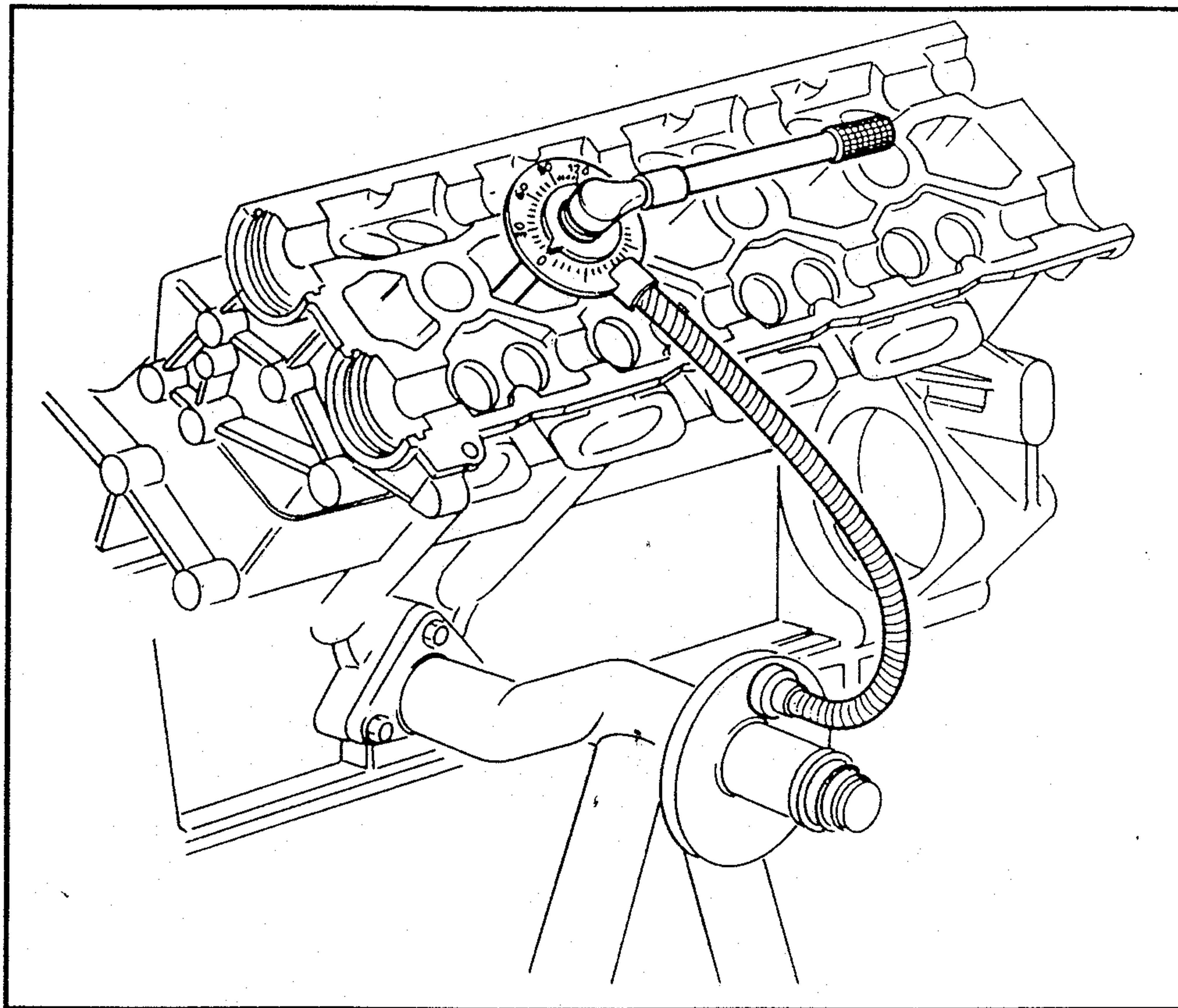
# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

10-14

PAGE: 3



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

10-15

DATE: 11/24/86

SUBJECT: Camshaft Extension for Ignition Rotor

VEHICLES: 8 and 12 Cylinder Cars

## Preliminary:

We wish to inform you that for the chassis number ranges indicated below, a camshaft extension incorporating a rubber torsional dampner for the ignition rotor arm was utilized.

| Model       | Version        | From C.N. | To C.N. |
|-------------|----------------|-----------|---------|
| 328 GTB/S   | North American | 60053     | 65731   |
| 3.2 Mondial | " "            | 59645     | 65731   |
| Testarossa  | " "            | 60177     | 66071   |

In case you should experience an oil leak from the above "rubber type camshaft extension", we have introduced a "solid type camshaft extension" to be used as replacement.

## Spare Parts

| Ref. | Description        | Part No.                                 | Notes                                                                                                         |
|------|--------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| A    | Pin                | 132355                                   | The old pin P.N. 129120 can be used until exhaustion of present stock                                         |
| B    | Camshaft Extension | 1126166<br>8126166<br>6126166<br>7126166 | 1/4 Cylinder Bank - 8 Cyl.<br>5/8 Cylinder Bank - 8 Cyl.<br>1/6 Cylinder Bank - TR<br>7/12 Cylinder Bank - TR |
| C    | Ignition Rotor     | 126139                                   | Hazelbrown Color                                                                                              |



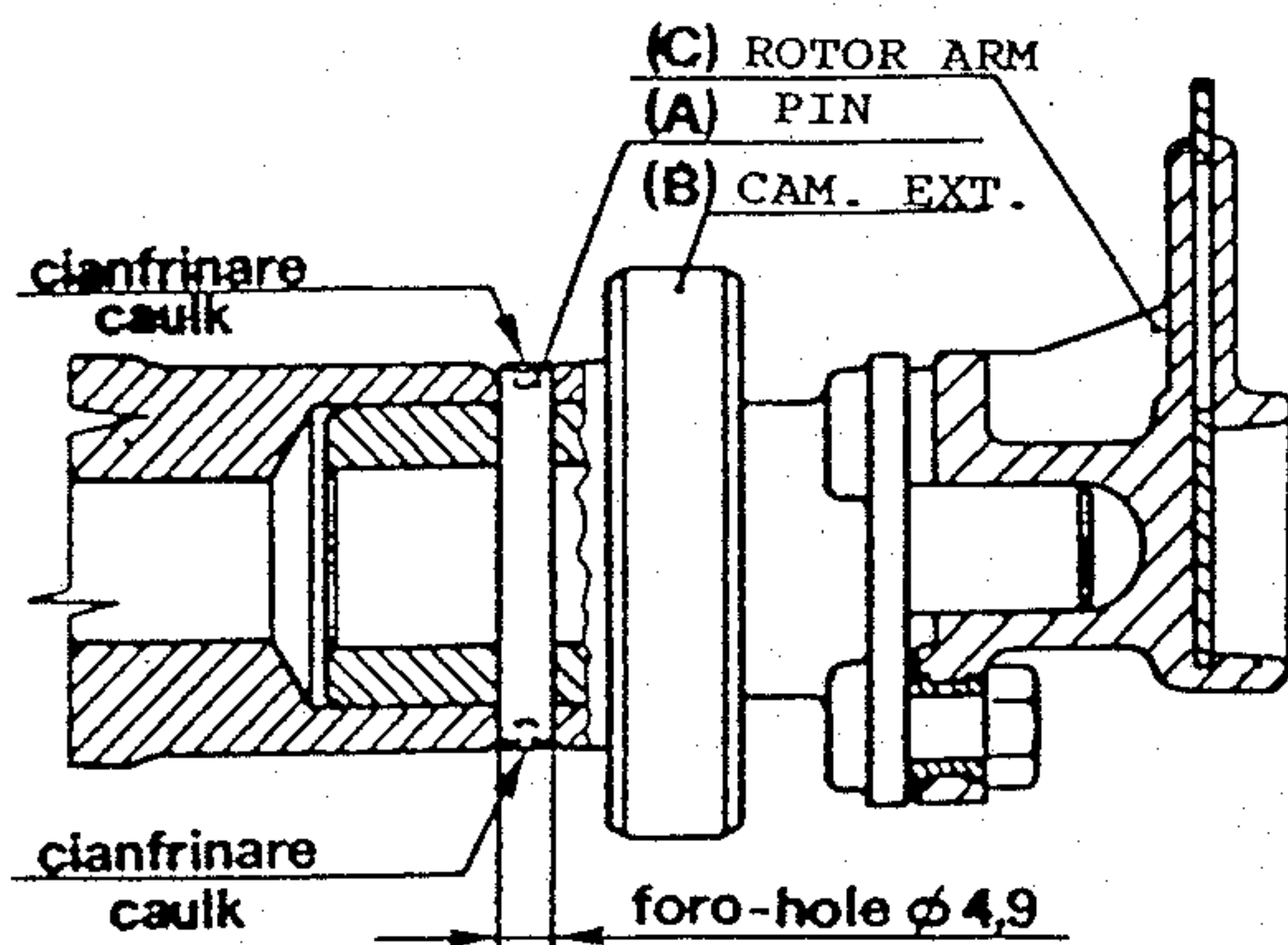


Fig. 1

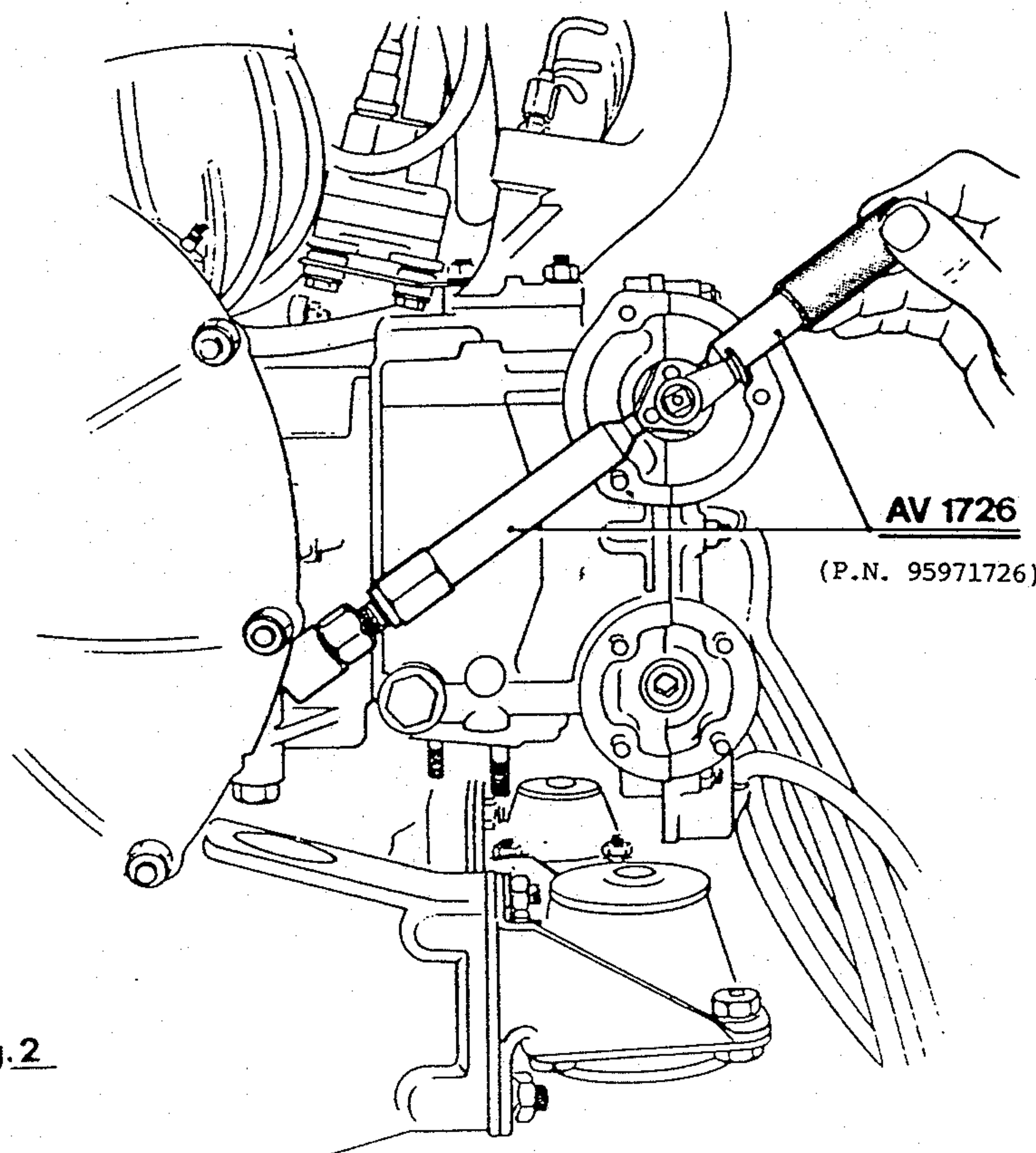


Fig. 2



## REPLACEMENT PROCEDURE

This operation shall be performed only in case of damage or oil leak on the existing extension.

- Remove the ignition distributor cap and its supporting flange with oil sealing ring.
- With a cylindrical punch (3mm dia.) remove the old fixing pin.
- With self-adhesive tape, protect the cylinder head and cover, then, with two levers, pull out the old extension.
- Carefully clean and re-insert the new extension.
- With an aluminum punch, push down the pin, then hold it in position with the special tool AV 1726 and caulk one side with the special punch (Fig. 2). Rotate for 180° the camshaft and repeat the prior operation in order to caulk also the other side of the pin.
- By gently hitting with a punch and hammer, check that the pin is firmly locked.

## WARRANTY PROCEDURE

For this updating, when performed under the Ferrari Limited Warranty, please issue a Warranty Claim utilizing the applicable codes and repair times as indicated below:

| Vehicle Type             | Comp. Code | Prob. Code | Oper No.   | Time |
|--------------------------|------------|------------|------------|------|
| 328 GTB/S                | 04.81.38   | 01         | 04.81.38.0 | 2.0  |
| Mondial 3.2<br>Cabriolet | 09.81.38   | 01         | 09.81.38.0 | 2.0  |
| Testarossa               | 10.81.38   | 01         | 10.81.38.0 | 1.0  |



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **10-16**

DATE: 12/30/86

**SUBJECT: OIL SUMP FOR F105C ENGINES (3.2 LITER, 8 CYLINDER)**  
**VEHICLES: 328 GTB/GTS, 3.2 MONDIAL, 3.2 MONDIAL CABRIOLET**

Starting with the following identification numbers:

| Model                                       | Version | Starting From |                 |
|---------------------------------------------|---------|---------------|-----------------|
|                                             |         | Engine No.    | Chassis No. (*) |
| 328 GTB/GTS<br>3.2 Mondial<br>and Cabriolet | Europe  | 1392          | ≈65001          |
|                                             | U.S.A.  | 686           | ≈65101          |
| GTB/GTS Turbo                               | Italy   | 54            | ≈65201          |

(\*) the indicated chassis nos. are for approximate reference only.

A new engine oil sump has been introduced. It incorporates a suction sump for a new suction pipe which extends 18mm lower in comparison with the previous suction pipe (see figures 1 and 2).

## PURPOSE OF THE MODIFICATION:

The new assembly helps suction in order to prevent eventual discontinuity of oil pump action due to "cornering effect" when the engine oil level starts decreasing below MINIMUM.

## SERVICE INFORMATION:

The replaced oil sump (p.n. 107875) has been used on ALL Ferrari vehicles with 8 cylinder, wet sump, engines (208 - 308 - Mondial - 328). In case of replacements on 8 cylinder vehicles with chassis number lower than those here indicated, it is necessary to follow these instructions:



## SERVICE BULLETIN No

10-16

PAGE: 2

- 1 - The new oil sump (p.n. 130919) can only be used in conjunction with the new suction pipe (p.n. 129551): in case the new parts are installed, both the oil sump and the suction pipe must be replaced.

Should the new oil sump be used in conjunction with the old suction pipe, the efficiency of the oil pump would be impaired with the consequence of lack of oil pressure while cornering.

- 2 - The new suction pipe (p.n. 129551) cannot be used on engines having the old oil sump (p.n. 107875) because it would interfere.

ATTENTION in case of eventual engine replacement, with a new engine to be installed on an old gearbox assembly which would carry the old type oil sump.

In such case, it is also necessary:

- either to replace the oil sump with a new one (solution to be preferred);
- or to install on the new engine the old type suction pipe.



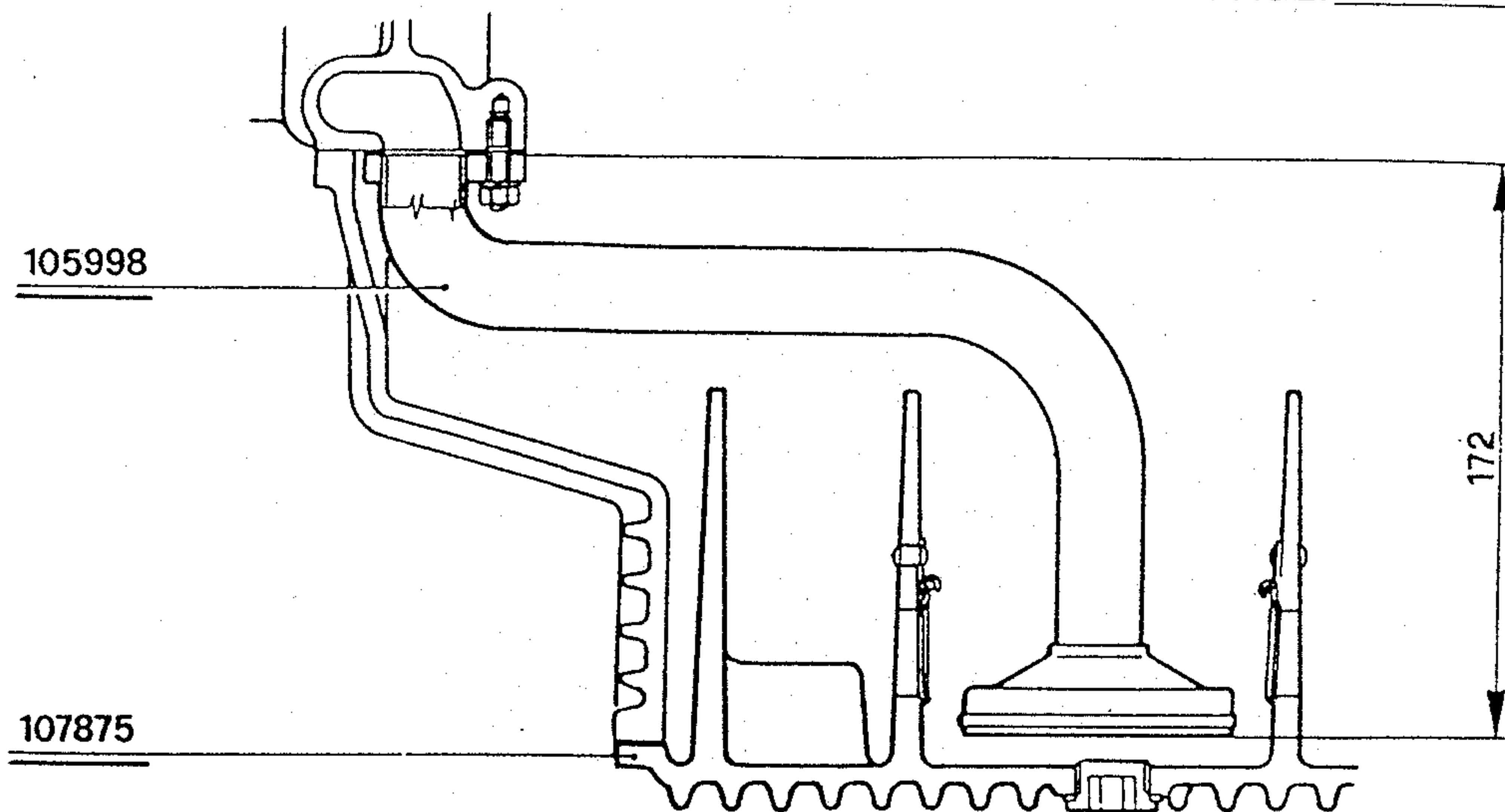


Fig. 1 - Old Type Oil Sump and Suction Pipe

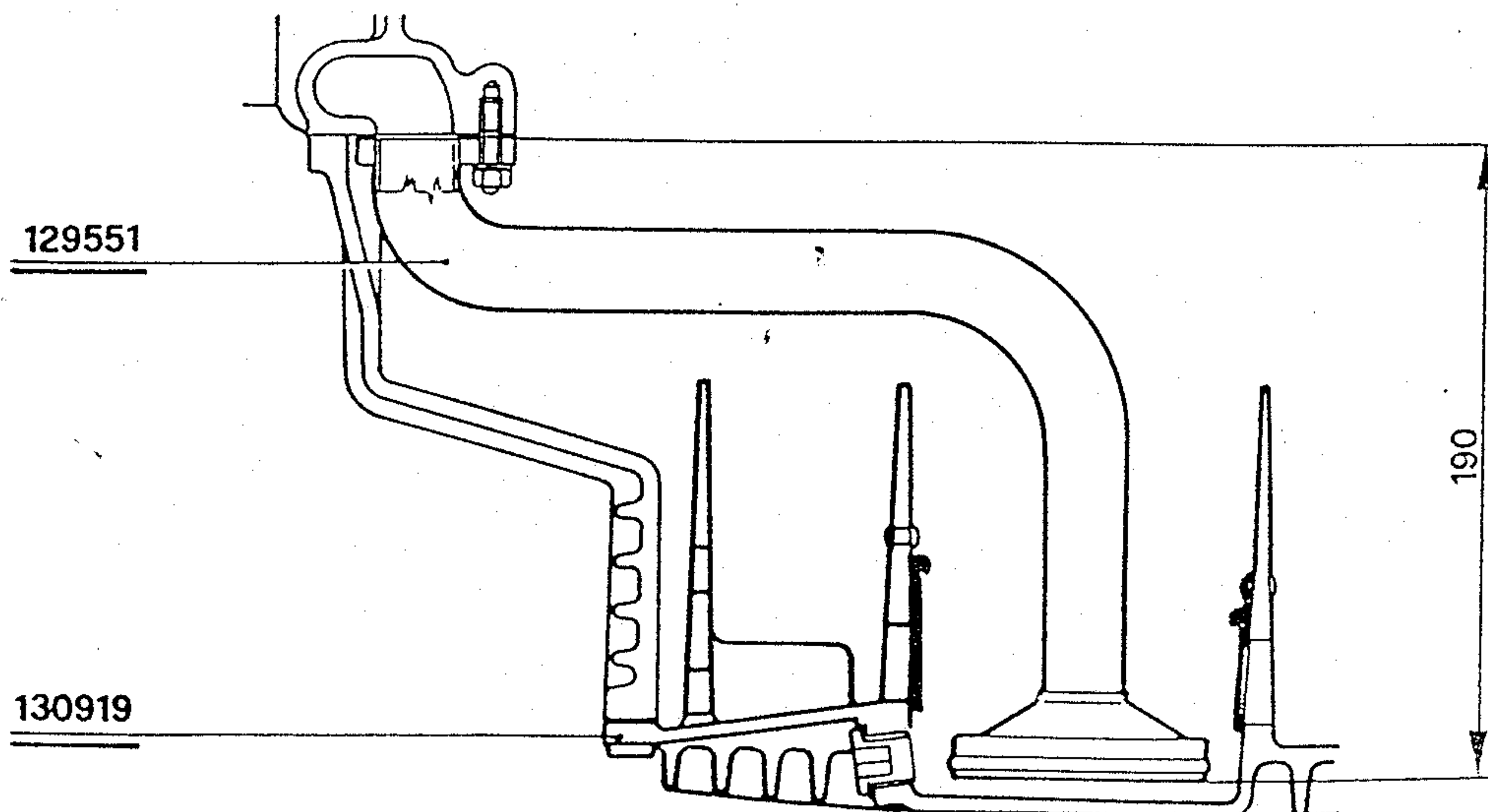


Fig. 2 - New Type Oil Sump and Suction Pipe



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 10-18

DATE: 4/20/87

SUBJECT: NEW OIL SEAL FOR IGNITION DISTRIBUTOR  
VEHICLES: TESTAROSSA, 328 GTB/S, 3.2 MONDIAL,  
3.2 MONDIAL CABRIOLET, & 412

## INTRODUCTION:

A new oil seal, with double lip, for ignition distributor (ref. A, Fig. 1) has been studied and introduced into production.

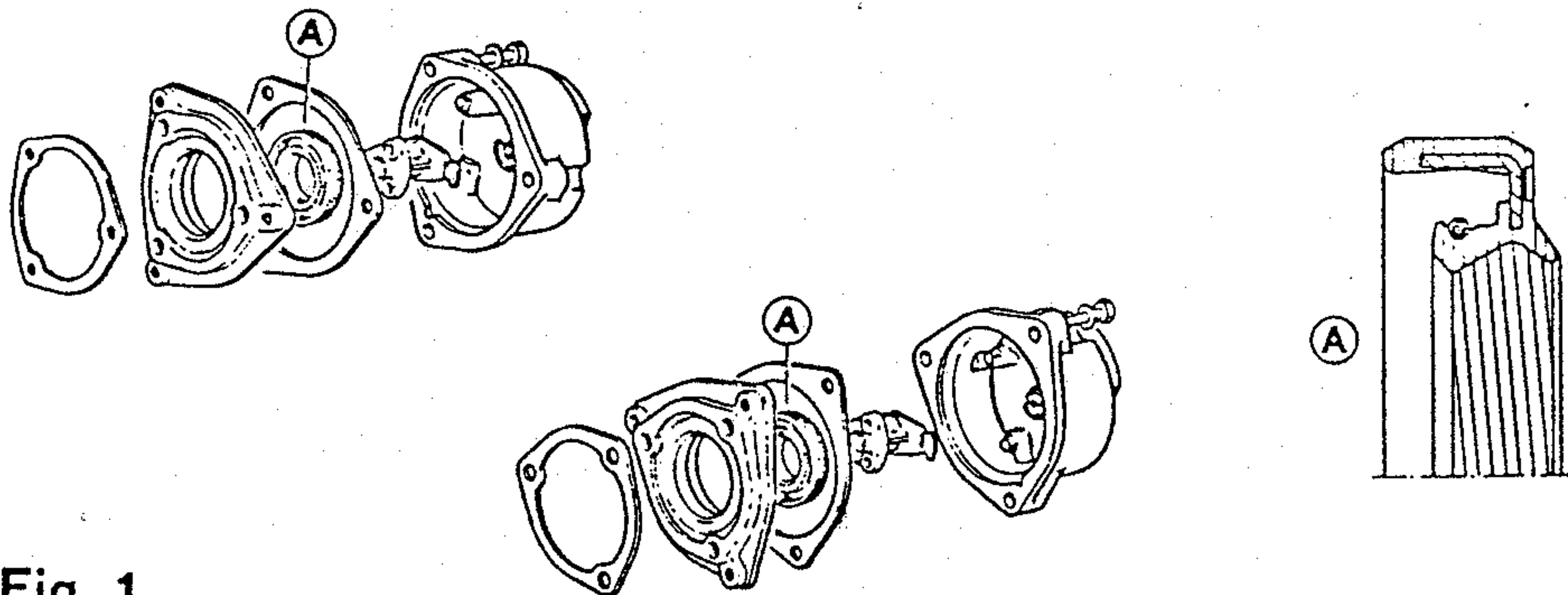


Fig. 1

The new seal is available in 2 versions, each of them being suitable for one specific direction of camshaft rotation, and precisely:

P.N. 132452 (RED COLOR) for Testarossa

P.N. 132453 (BLACK COLOR) for 8 cylinder engines and 412

The references for production change and the Service/Spare Parts policy are explained in the following pages.



## IMPORTANT:

The previous oil seal (P.N. 126105) is to be considered obsolete and will no longer be supplied. Any of these seals you may have in your stock (also the ones included in the engine gasket kits) can be returned to the Ferrari North America Spare Parts Department utilizing the normal AFA procedures. This return must be completed by May 31, 1987.

## TESTAROSSA

Starting with the following production nos.:

| Version | Engine No. | Chassis No. |
|---------|------------|-------------|
| Europe  | 289 (KE)   | 69747       |
| USA     | 578        | 69745       |

NOTE: The parts shown by Fig. 2 have been introduced into production.

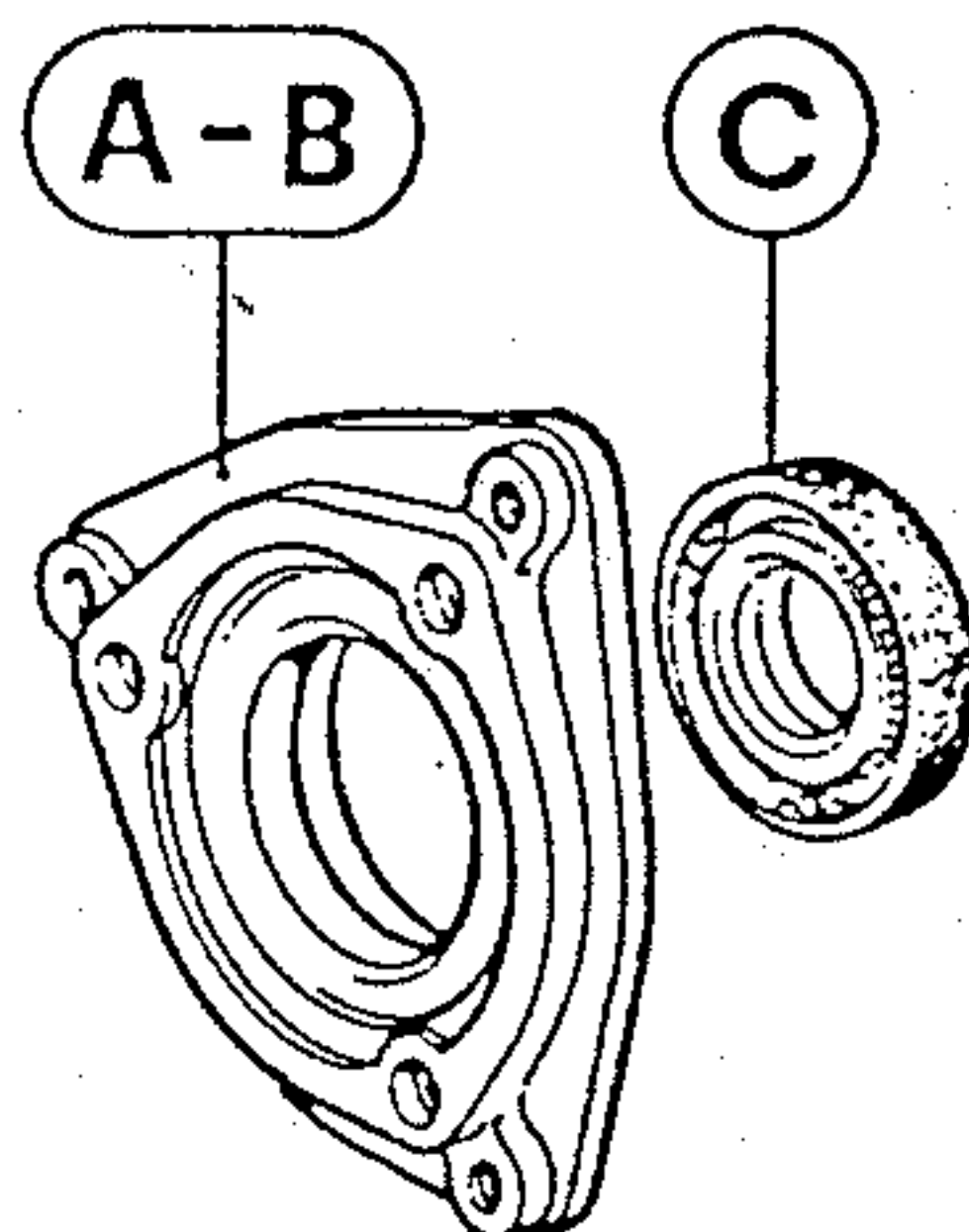


Fig. 2

- (A) : P.N. 133346; Mounting flange for ignition distributor 1-6
- (B) : P.N. 133347; Mounting flange for ignition distributor 7-12
- (C) : P.N. 132452; Oil seal



## SERVICE AND SPARE PARTS POLICY:

In case of replacement on a previous vehicle, employ the new oil seal p.n. 132452, which can be installed on the previous flange with the addition of the 1.25 mm spacer (as shown by Figure 3), in order to achieve a correct positioning.

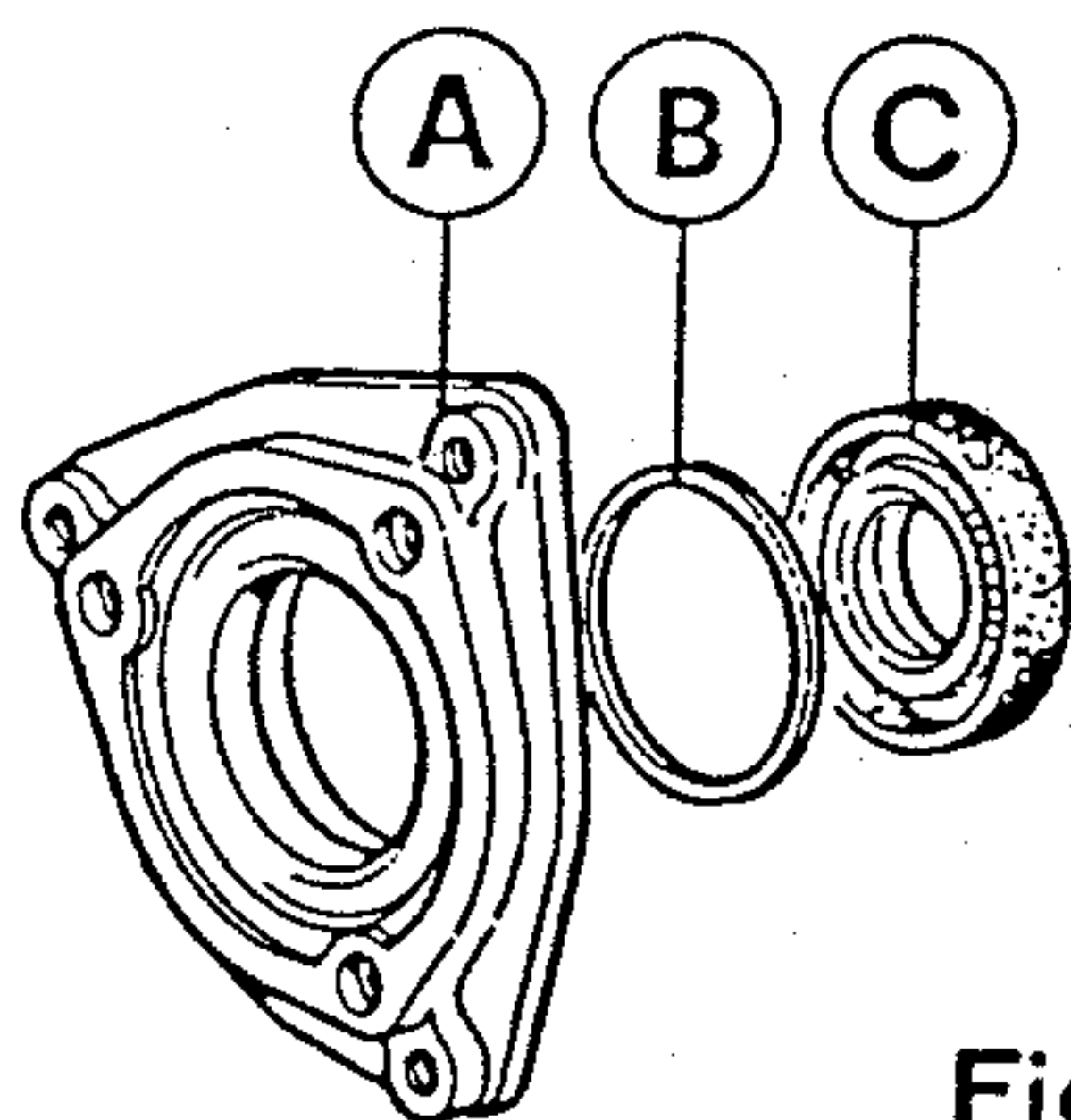


Fig. 3

(A) : P.N. 126115; Previous mounting flange for ignition distributor (bank 1-6 ÷ 7-12)

(B) : P.N. 133066; Spacer 1.25 mm

(C) : P.N. 132452; Oil seal

## 328 GTB/GTS - 3.2 MONDIAL/CABRIOLET

Starting with the following production nos.:

| Type                      | Version | Engine No. | Chassis No. |
|---------------------------|---------|------------|-------------|
| 328 GTB/GTS               | Europe  | 2337       | 69665       |
|                           | USA     | 1193       | 69639       |
| 3.2 Mondial/<br>Cabriolet | Europe  | 2339       | 69677       |
|                           | USA     | 1196       | 69645       |

NOTE: The parts shown by Figure 4 have been introduced into production.

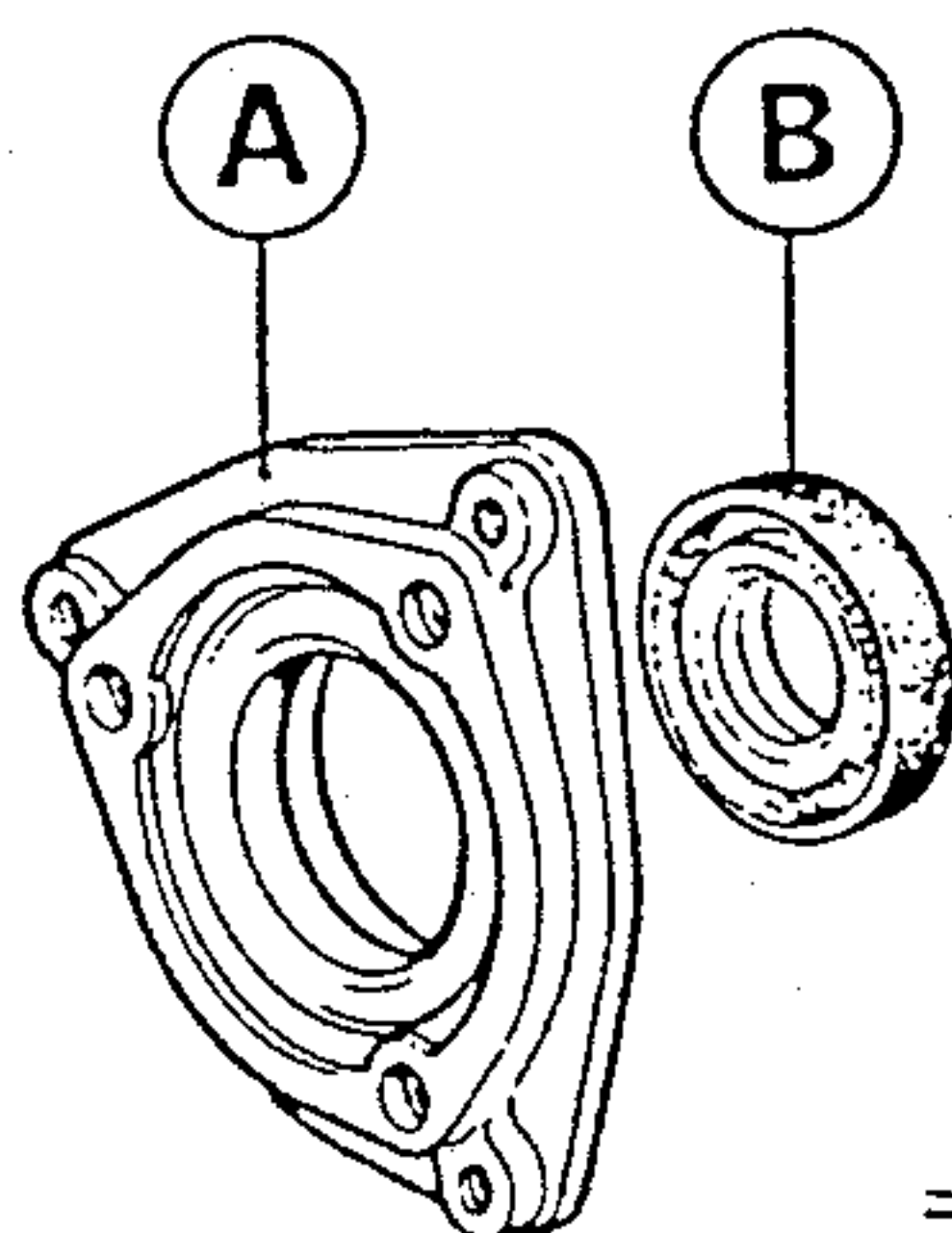


Fig. 4

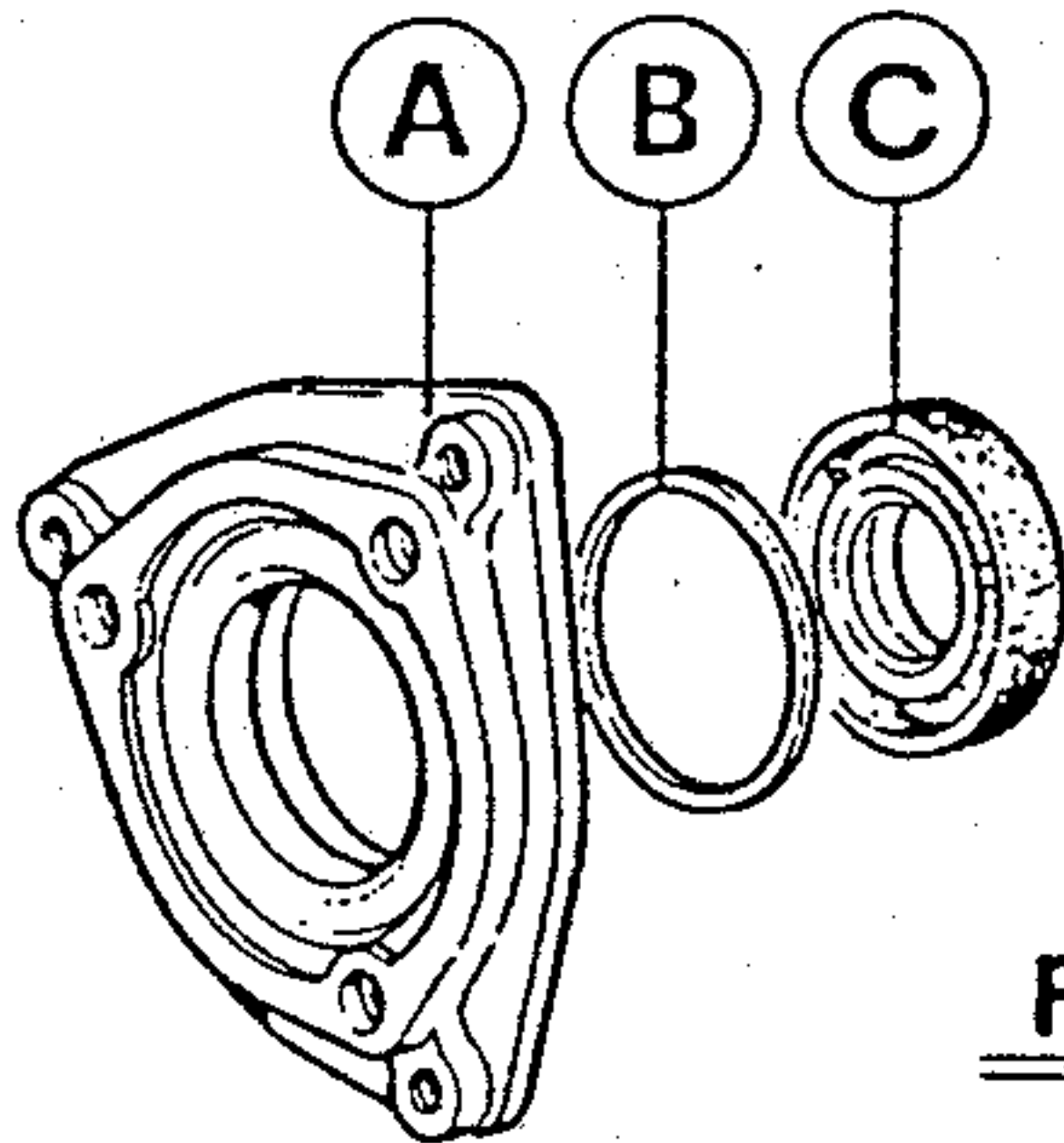
(A) : P.N. 133100; Mounting flange for ignition distributor (bank 1-4 ÷ 5-8)

(B) : P.N. 132453; Oil seal



## SERVICE AND SPARE PARTS POLICY:

In case of replacement on a previous vehicle, employ the new oil seal p.n. 132453; which can be installed on the previous flange with addition of the 1.25 mm spacer (as shown by Figure 5), in order to achieve a correct positioning.



**Fig. 5**

(A) : P.N. 126115; Previous mounting flange for ignition distributor (bank 1-4 ÷ 5-8)

(B) : P.N. 133066; Spacer 1.25mm

(C) : P.N. 132453; Oil seal

## ATTENTION

On some previous 8 cylinder 3.2 liter engines, and precisely:

European Version from no. 1949 up to no. 2336 inclusive

U.S.A. Version from no. 988 up to no. 1192 inclusive

a different oil seal, with 45mm outside diameter (instead of 47mm) has been installed.

This special seal is not available as spare part.

Also in this case, for replacement of the seal originally installed, employ only the new seal p.n. 132453. For this purpose, you shall also install the new mounting flange for ignition distributor (p.n. 133100), as shown by Figure 4 (also the early type flange P.N. 126115 can be utilized with the 1.25mm spacer, P.N. 133066).



412

Starting with the following production nos.:

Engine No. 314 Chassis No. 69601 approximately

the parts shown by Figure 7 have been introduced into production.

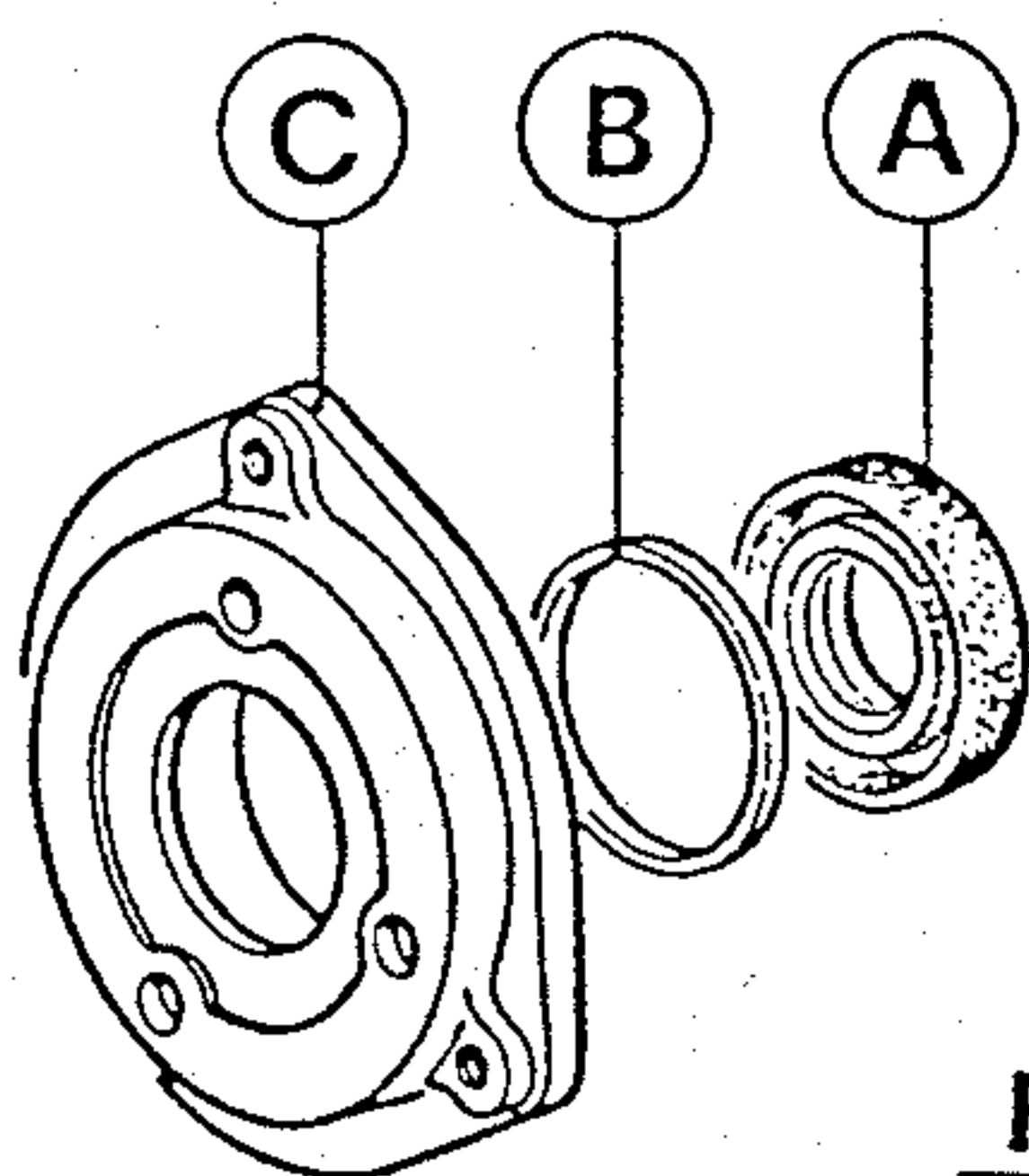


Fig.7

- (A) : P.N. 132453; Oil seal
- (B) : P.N. 133070; Spacer 2.25mm
- (C) : Right and left mounting flange for ignition distributor, unchanged compared with previous engines

## SERVICE AND SPARE PARTS POLICY:

In case of replacement on a previous vehicle, employ only the new seal p.n. 132453, which can be installed on the previous engines with the addition of the 2.25mm spacer (as shown by figure 7), in order to achieve a correct positioning.



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

10-21

## PRODUCTION CHANGE

DATE: 8/10/87

SUBJECT: ENGINE DAMPNER SECURING BOLT  
VEHICLES: ALL

Starting  
from:

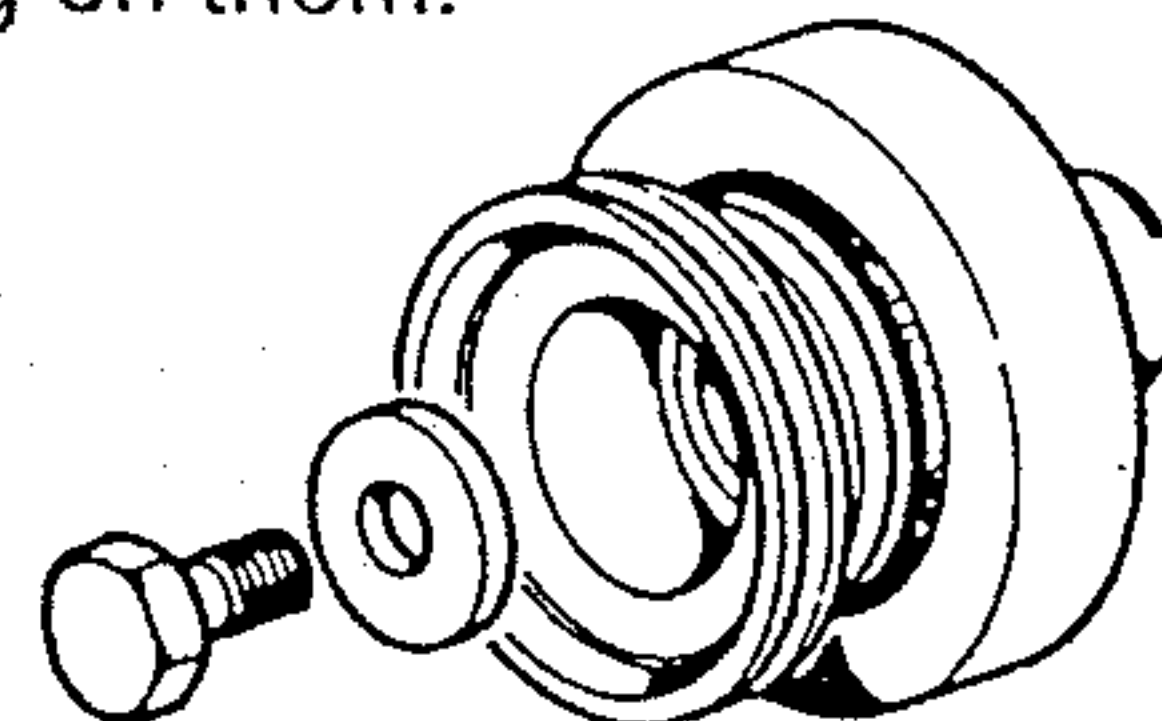
|             |              |       |       |       |  |  |
|-------------|--------------|-------|-------|-------|--|--|
| Model       | 328<br>3.2 M | Turbo | TR    | 412   |  |  |
| Area        | All          | Italy | All   | All   |  |  |
| Chassis no. | 68881        | 68869 | 69263 | 68957 |  |  |
| Engine no.  |              |       |       |       |  |  |
| Gearbox no. |              |       |       |       |  |  |

### Description:

The bolt securing the front dampner is installed with loctite type 242; the torque specification remains unchanged (20 Kgm = 145 ft. lb.). The bolts installed with this new procedure can be recognized from a yellow painted marking on them.

### Reason:

Production Improvement



### REPLACED PARTS

### NEW PARTS

| ref.<br>fig. | Part<br>Number | Description | ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|--------------|----------------|-------------|
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |

Spare parts procedures:

Reference spare parts catalogue:



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 10-23

**PRODUCTION CHANGE**

DATE: 6/15/88

SUBJECT: CHROMIUM PLATED INTAKE & EXHAUST VALVES  
VEHICLES: 3.2 MONDIAL AND 328

Starting  
from:

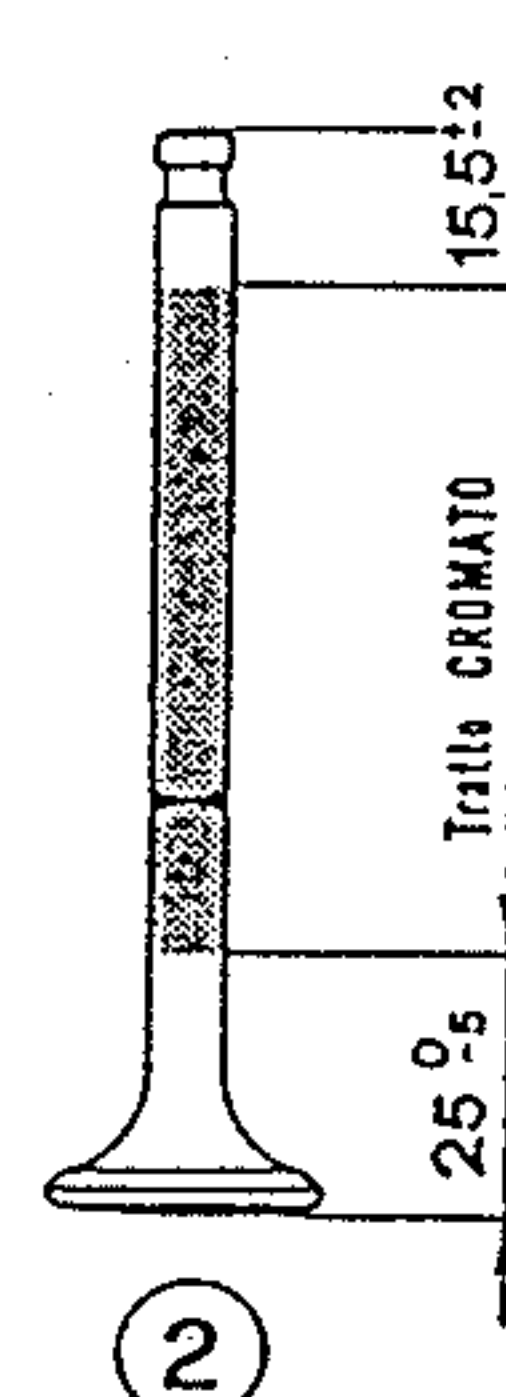
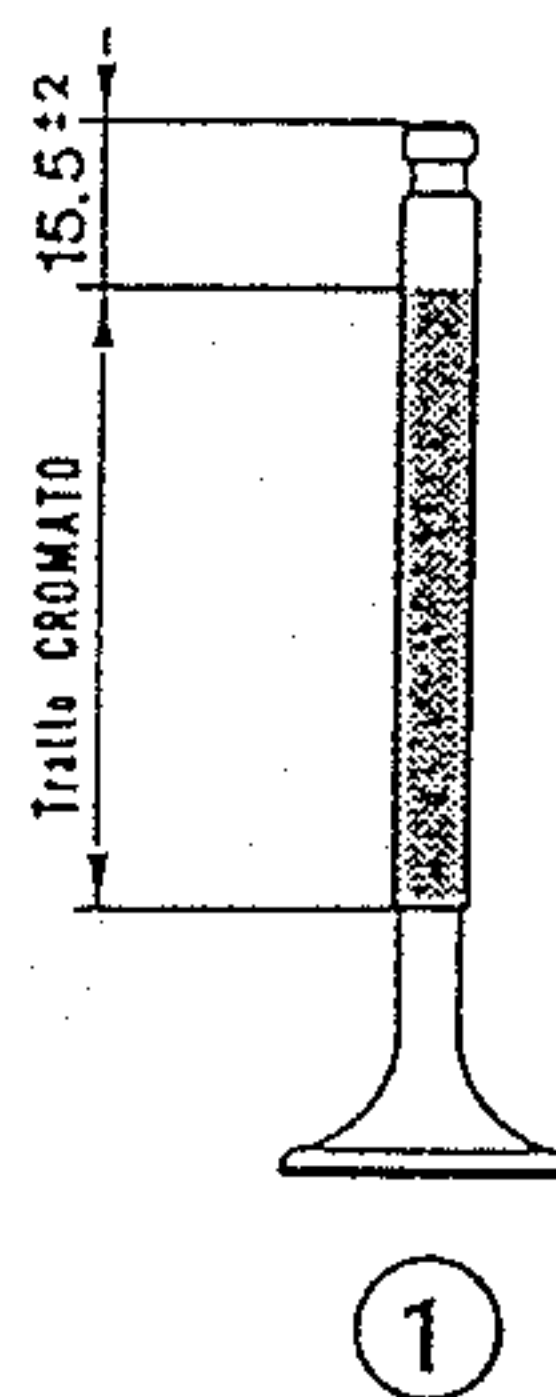
|             |         |         |         |  |  |  |
|-------------|---------|---------|---------|--|--|--|
| Model       | 3.2-328 | 3.2-328 | 3.2-328 |  |  |  |
| Area        | Europe  | USA     | CH      |  |  |  |
| Chassis no. | 71381   | 71401   | 71411   |  |  |  |
| Engine no.  | 2537    | 1406    | 88      |  |  |  |
| Gearbox no. |         |         |         |  |  |  |

**Description:**

New valves are installed with  
chromium-plated stem.

**Reason:**

Better quality.



**REPLACED PARTS**

| ref.<br>fig. | Part<br>Number | Description   |
|--------------|----------------|---------------|
| 1            | 117363         | Intake valve  |
| 2            | 117364         | Exhaust valve |
|              |                |               |
|              |                |               |
|              |                |               |
|              |                |               |

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description   |
|--------------|----------------|---------------|
| 1            | 131198         | Intake valve  |
| 2            | 131199         | Exhaust valve |
|              |                |               |
|              |                |               |
|              |                |               |
|              |                |               |

**Spare parts procedures:**

The new valves are interchangeable with previous ones.

**Reference spare parts catalogue:**

3.2 Mondial No. 473/87 - Tav. 7 and 328 No. 462/87 - Tav. 7



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 10-24

PRODUCTION CHANGE

DATE: 12/15/88

SUBJECT: VALVE SEATS  
VEHICLES: 3.2 MONDIAL - 328

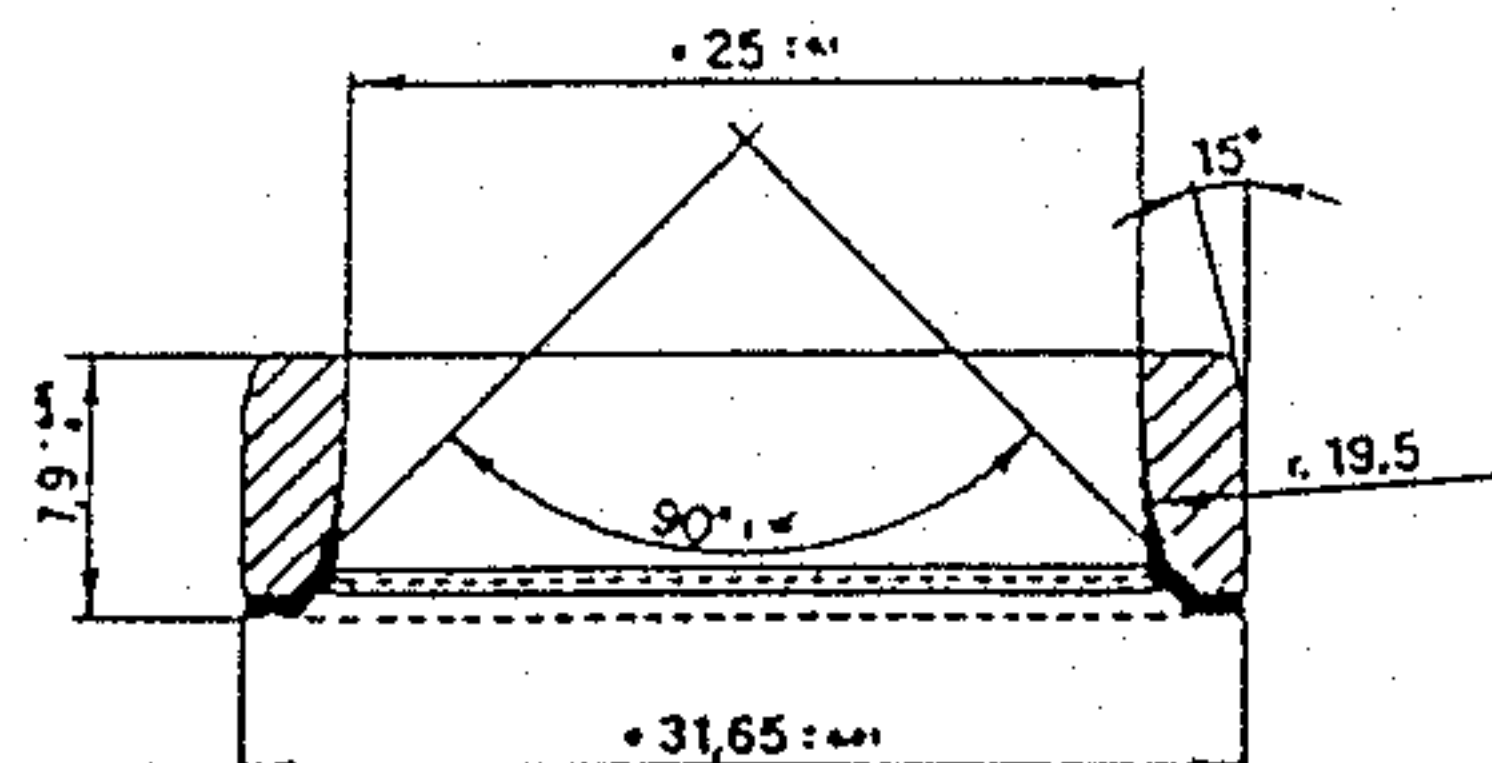
Starting  
from:

|             |         |       |  |  |  |  |
|-------------|---------|-------|--|--|--|--|
| Model       | Mondial | 328   |  |  |  |  |
| Area        |         |       |  |  |  |  |
| Chassis no. | 76558   | 76666 |  |  |  |  |
| Engine no.  |         |       |  |  |  |  |
| Gearbox no. |         |       |  |  |  |  |

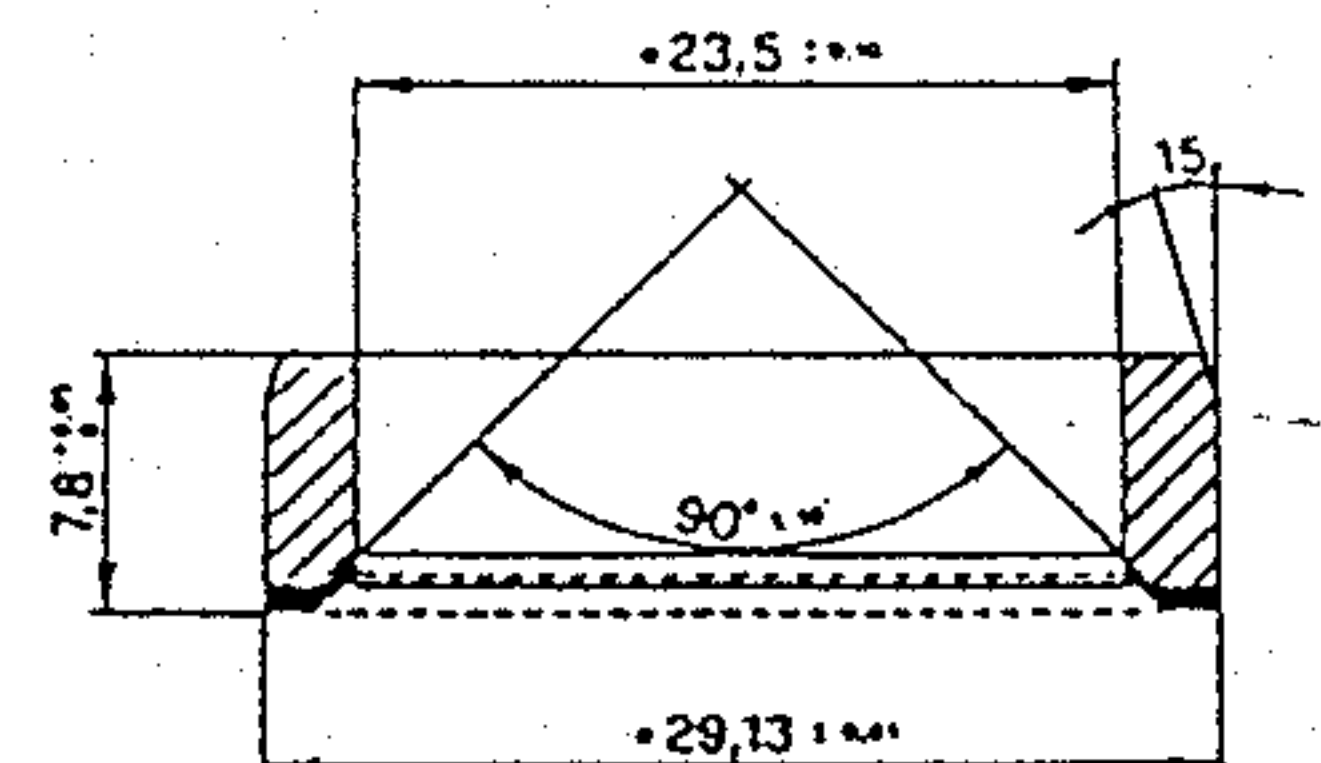
Description:

Starting from the above chassis numbers cylindrical instead of conical valve seats have been installed (see drawing).

Intake valve seat



Exhaust valve seat



REPLACED PARTS

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

NEW PARTS

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

Spare parts procedures:

Reference spare parts catalogue:



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **10-25**

**PRODUCTION CHANGE**

DATE: 7/15/89

SUBJECT: CRANKSHAFT OIL SEAL  
VEHICLES: 328 - TURBO - 3.2 MONDIAL

Starting  
from:

|             |         |         |         |         |         |       |
|-------------|---------|---------|---------|---------|---------|-------|
| Model       | 328 GTS | 328 GTS | 328 GTB | 3.2 MON | 3.2 MON | TURBO |
| Area        |         | USA     | CH      |         | USA     |       |
| Chassis no. | 78404   | 78529   | 78398   | 78531   | 78408   | 78423 |
| Engine no.  | 14159   | 14208   | 14099   | 14265   | 14278   | 14050 |
| Gearbox no. |         |         |         |         |         |       |

**Description:**

A new crankshaft oil seal has been introduced.

**Reason:**

Improved oil sealing at crankshaft.

| REPLACED PARTS |                |                     | NEW PARTS    |                |                     |
|----------------|----------------|---------------------|--------------|----------------|---------------------|
| ref.<br>fig.   | Part<br>Number | Description         | ref.<br>fig. | Part<br>Number | Description         |
|                | 106244         | Crankshaft oil seal |              | 136527         | Crankshaft oil seal |
|                |                |                     |              |                |                     |
|                |                |                     |              |                |                     |
|                |                |                     |              |                |                     |
|                |                |                     |              |                |                     |
|                |                |                     |              |                |                     |

**Spare parts procedures:** Old parts that you might have in stock must be returned to the Ferrari N.A. Parts Department, following normal AFA procedures.

**Reference spare parts catalogue:**

328 No. 524/88 Tav. 4 - 3.2 Mondial No. 473/87 Tav. 4 - Turbo No. 482/86 Tav. 4

REF. SAT T.I. CN 66



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

14-9

PRODUCTION CHANGE

DATE: 10/5/88

SUBJECT: FASTENING OF COLD START INJECTOR  
VEHICLES: EIGHT - CYLINDER AND TESTAROSSA

Starting  
from:

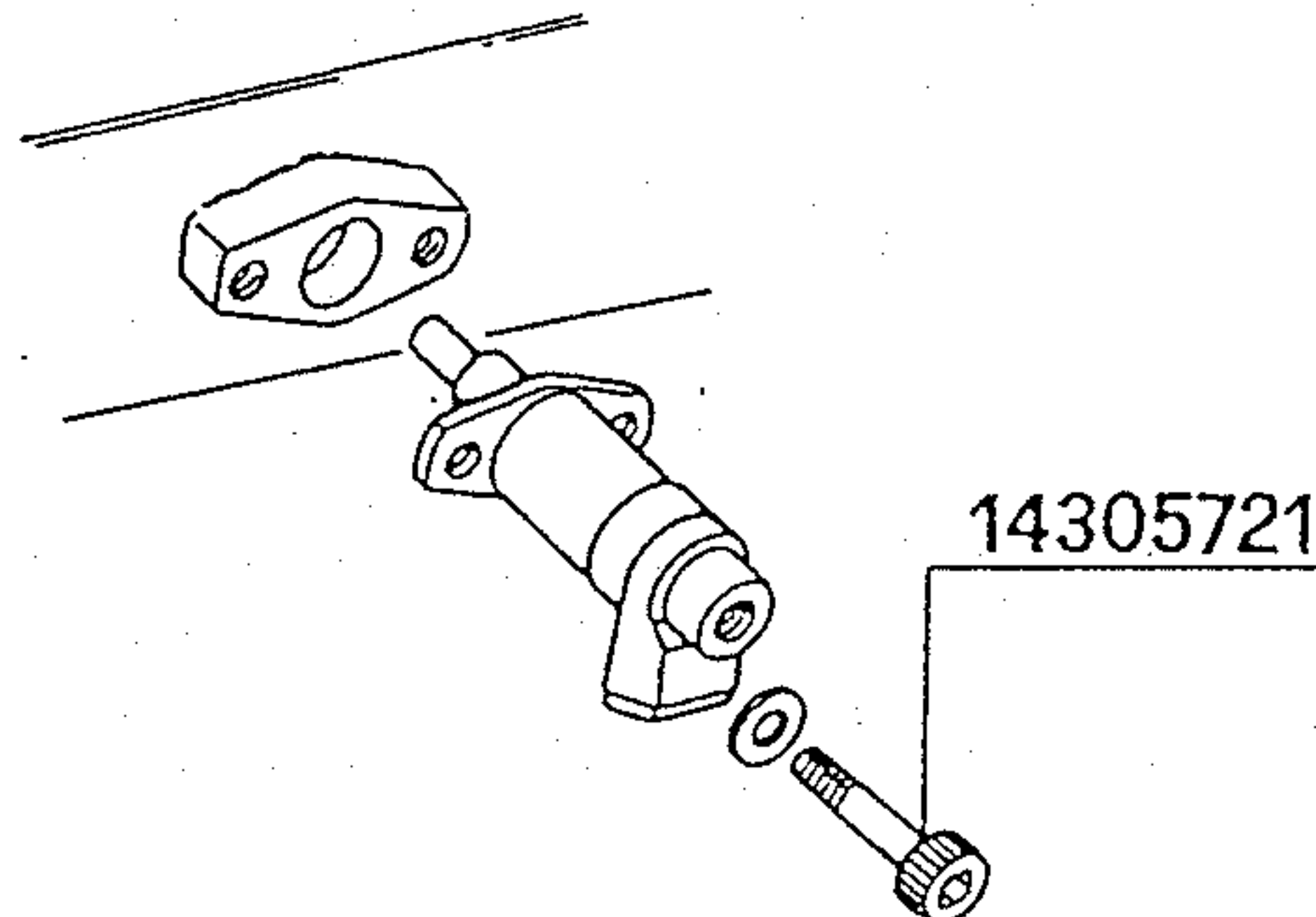
|             |       |         |       |       |  |  |
|-------------|-------|---------|-------|-------|--|--|
| Model       | 328   | Mondial | Cab.  | TR    |  |  |
| Area        | All   | All     | All   | All   |  |  |
| Chassis no. | 76347 | 76331   | 76453 | 76199 |  |  |
| Engine no.  |       |         |       |       |  |  |
| Gearbox no. |       |         |       |       |  |  |

**Description:**

The manner of fastening the cold start injector is no longer accomplished by the use of studs, but rather with socket head cap screws.

**Reason:**

Production change.



**REPLACED PARTS**

**NEW PARTS**

| ref. fig. | Part Number | Description       | ref. fig. | Part Number | Description           |
|-----------|-------------|-------------------|-----------|-------------|-----------------------|
|           | 13541621    | Stud - 8 Cyl.     |           | 14305721    | Socket Head Cap Screw |
|           | 13541521    | Stud - Testarossa |           |             |                       |
|           | 12574211    | Nut               |           |             |                       |
|           |             |                   |           |             |                       |
|           |             |                   |           |             |                       |
|           |             |                   |           |             |                       |

Spare parts procedures:

Reference spare parts catalogue:



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 15-3

## PRODUCTION CHANGE

DATE: 6/15/88

SUBJECT: CO / HC PROBE

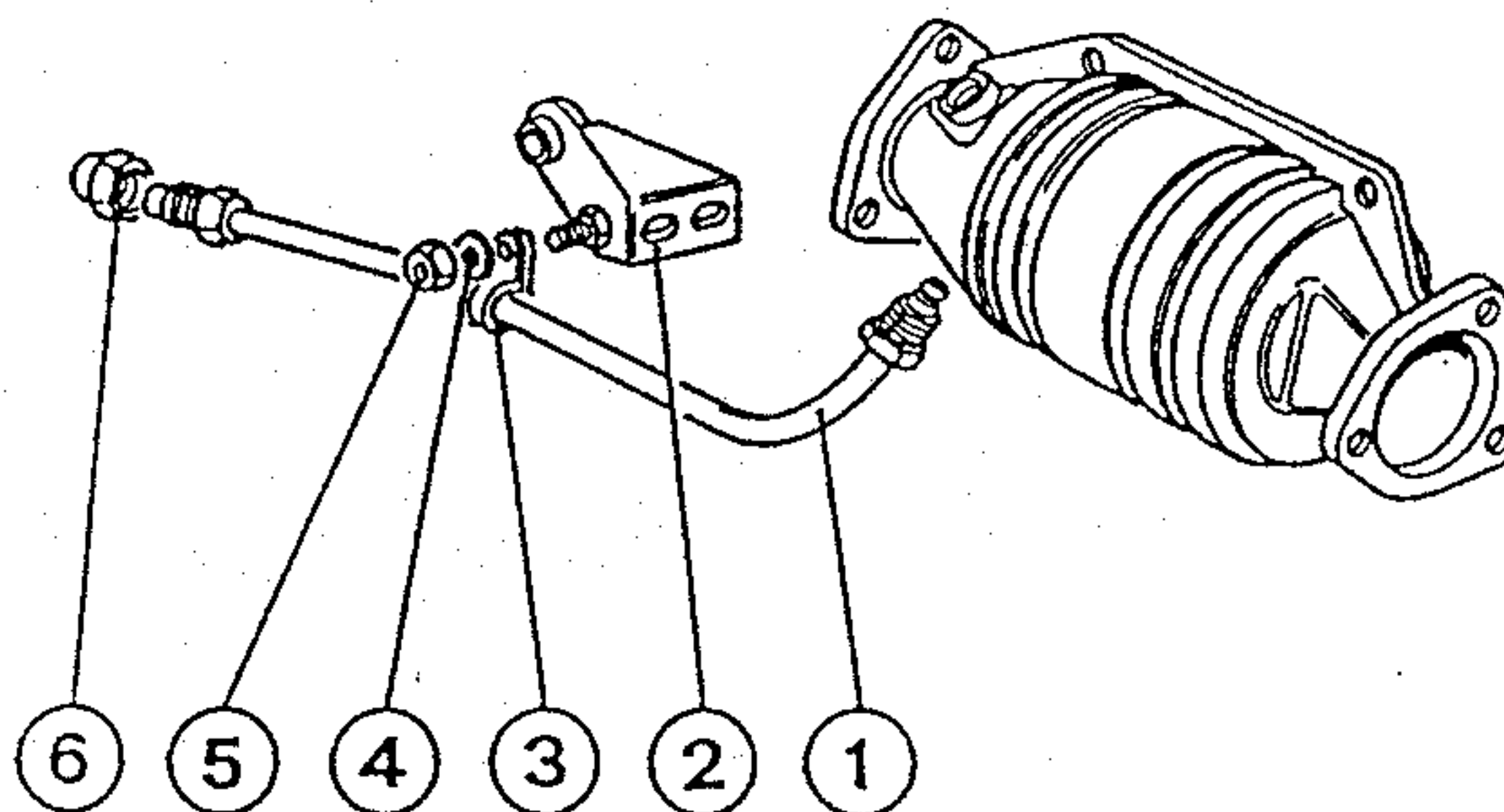
VEHICLES: 328 USA / 3.2 MONDIAL USA

Starting  
from:

|             |       |         |  |  |  |  |
|-------------|-------|---------|--|--|--|--|
| Model       | 328   | Mondial |  |  |  |  |
| Area        |       |         |  |  |  |  |
| Chassis no. | 75609 | 75587   |  |  |  |  |
| Engine no.  | 10516 | 10194   |  |  |  |  |
| Gearbox no. |       |         |  |  |  |  |

### Description:

A pipe is installed on the catalytic converter to check CO / HC in order to comply with the new Swiss regulations. The modification is extended on all ( 8 Cyl.) cars provided with catalytic converters.



| REPLACED PARTS |             |             | NEW PARTS |             |               |
|----------------|-------------|-------------|-----------|-------------|---------------|
| ref. fig.      | Part Number | Description | ref. fig. | Part Number | Description   |
| -              | 110860      | Plug        | 1         | 136747      | Probe         |
| -              | 10298460    | Gasket      | 2         | 136251      | Right bracket |
|                |             |             | 3         | 10418101    | Clamp         |
|                |             |             | 4         | 12644601    | Washer        |
|                |             |             | 5         | 116416      | Nut           |
|                |             |             | 6         | 16109642    | Plug          |

Spare parts procedures:

Reference spare parts catalogue:

3.2 Mondial No. 473/87 Tav. 20 and 328 No. 462/87 Tav. 18



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **16-2**

**PRODUCTION CHANGE**

DATE: 6/5/87

SUBJECT: SPRINGS FOR OIL PRESSURE RELIEF VALVE  
VEHICLES: SEE TABLE

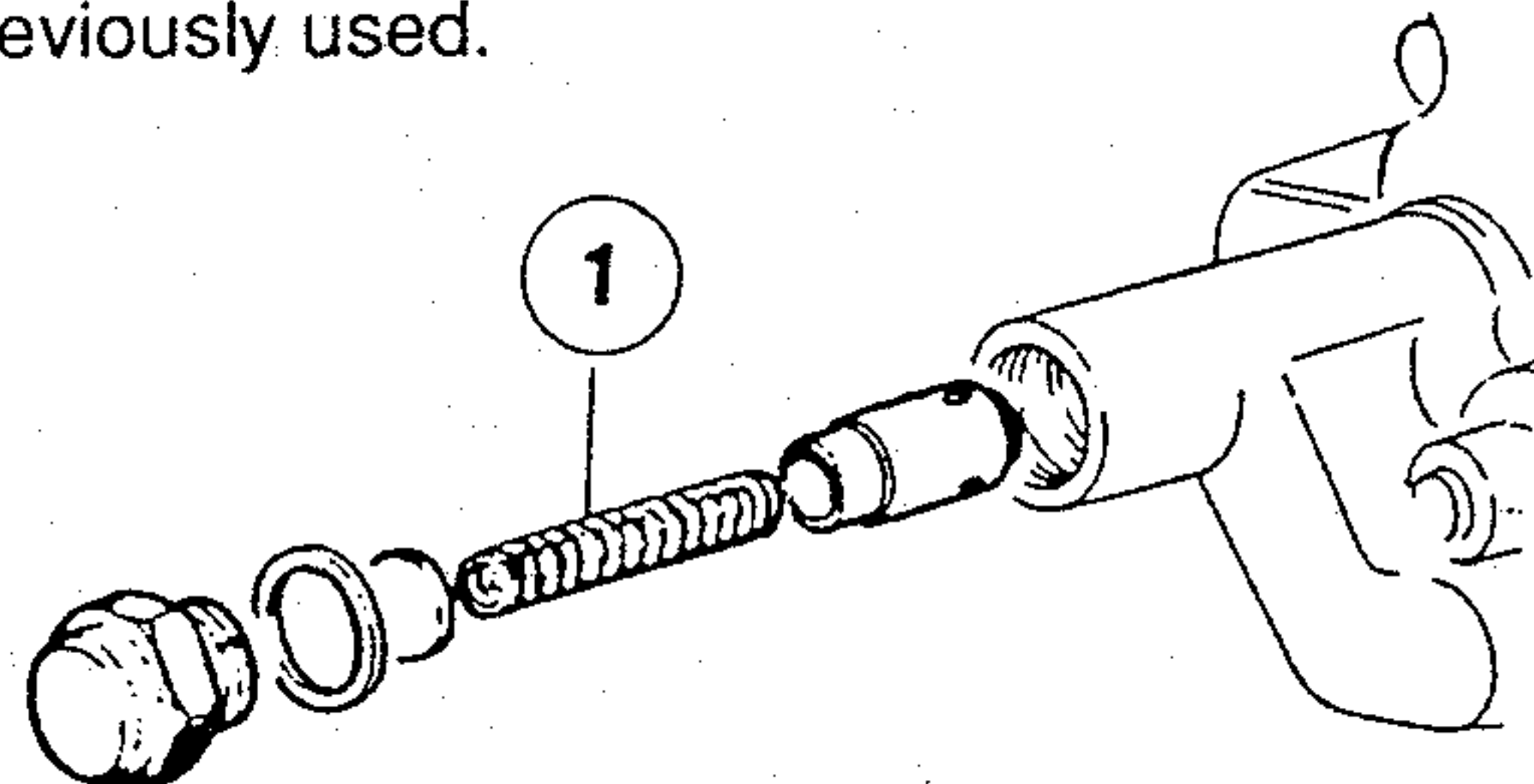
|                |             |             |             |             |            |       |  |
|----------------|-------------|-------------|-------------|-------------|------------|-------|--|
| Starting from: | Model       | 3.2 Mon 328 | 3.2 Mon 328 | 3.2 Mon 328 | TR - KE    | TR    |  |
|                | Area        | Europe      | USA         | Swiss       | Except USA | USA   |  |
|                | Chassis no. | 69739       | 69769       | 69777       | 69757      | 69781 |  |
|                | Engine no.  | 2353        | 1203        | 20          | 291        | 579   |  |
|                | Gearbox no. |             |             |             |            |       |  |

**Description:**

A new spring for oil pressure relief valve has been introduced; the new spring is more flexible and slightly shorter than the spring previously used.

**Reason:**

Part supersession



| REPLACED PARTS |             |                     | NEW PARTS |             |                    |
|----------------|-------------|---------------------|-----------|-------------|--------------------|
| ref. fig.      | Part Number | Description         | ref. fig. | Part Number | Description        |
| 1              | 106900      | Spring (76 mm long) | 1         | 133550      | Spring (72mm long) |
|                |             |                     |           |             |                    |
|                |             |                     |           |             |                    |
|                |             |                     |           |             |                    |
|                |             |                     |           |             |                    |
|                |             |                     |           |             |                    |

**Spare parts procedures:**

In case of replacement, use only the new spring.

**Reference spare parts catalogue:**

328 (Tav. 20, NR 27) - 3.2 Mondial (Tav. 21, NR 27) - Testarossa (Tav. 23, NR 52)



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

16-3

**PRODUCTION CHANGE**

DATE: 6/15/88

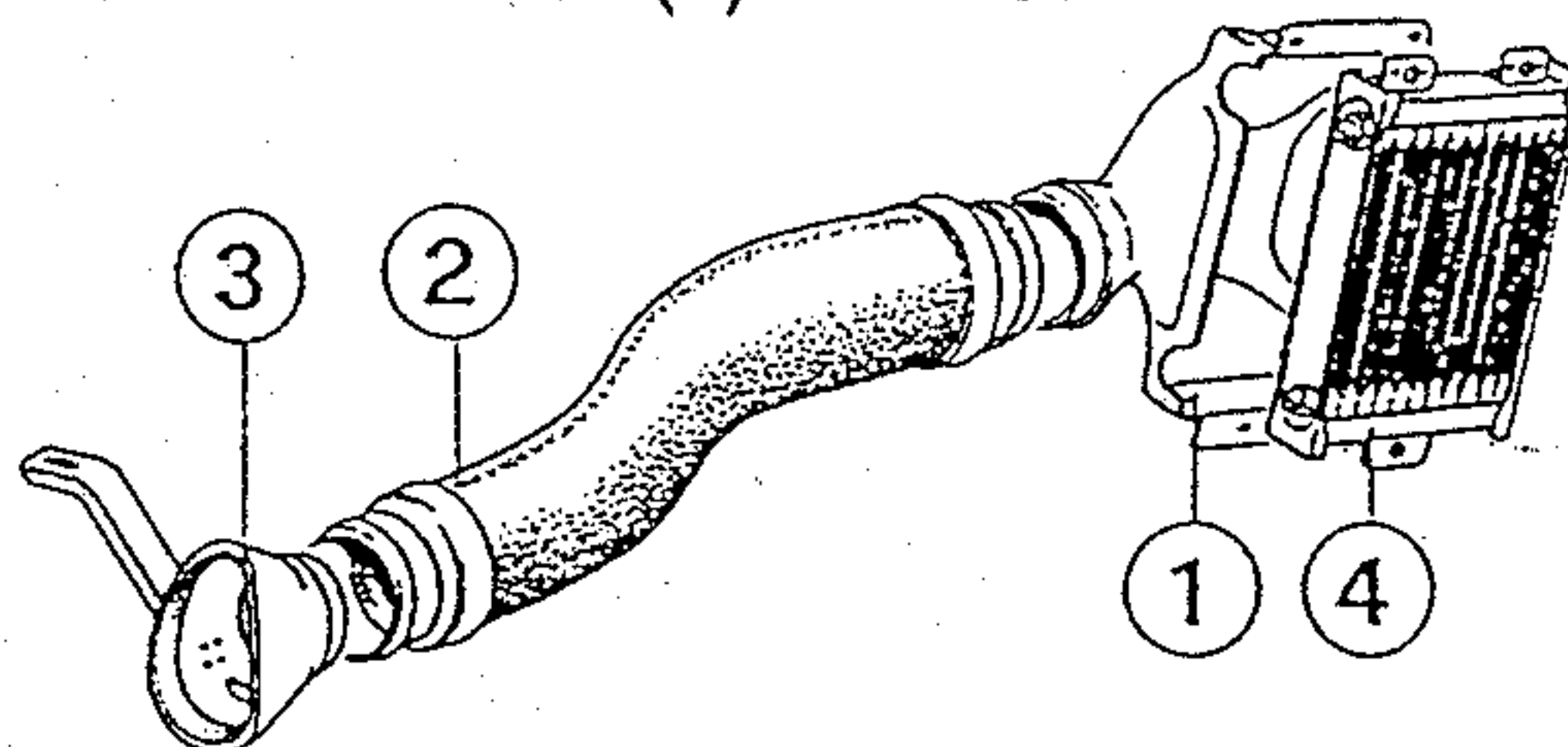
**SUBJECT: OIL COOLER AIR DUCT**  
**VEHICLES: 328**

|                |             |        |         |         |  |  |  |
|----------------|-------------|--------|---------|---------|--|--|--|
| Starting from: | Model       | 328    | 328 GTS | 328 GTB |  |  |  |
|                | Area        | Europe | USA     | USA     |  |  |  |
|                | Chassis no. | 75272  | 76628   | 76726   |  |  |  |
|                | Engine no.  |        |         |         |  |  |  |
|                | Gearbox no. |        |         |         |  |  |  |

**Description:**

A new oil cooler air duct (3) is fitted to a new flexible tube (2) along with a modified conveyor (1). In addition, there is also installed a new oil cooler (4) P.N. 135774.

The vehicles with C.N. 75596 - 75799 -  
75807 - 75810 - 75865 - 75868 - 75876 : are  
still assembled with a pre-modified oil cooler.



| REPLACED PARTS |             |               | NEW PARTS |             |               |
|----------------|-------------|---------------|-----------|-------------|---------------|
| ref. fig.      | Part Number | Description   | ref. fig. | Part Number | Description   |
| 1              | 127035      | Conveyor      | 1         | 136035      | Conveyor      |
| 2              | 107553      | Flexible tube | 2         | 136008      | Flexible tube |
| 3              | 60373602    | Air duct      | 3         | 62432400    | Air duct      |
| 4              | 126917      | Oil cooler    | 4         | 135774      | Oil Cooler    |
|                |             |               |           |             |               |
|                |             |               |           |             |               |

**Spare parts procedures:** The new oil cooler can be installed on cars with C.N. lower than 75272 but the air conveyor must be slightly adapted.

**Reference spare parts catalogue:**

328 Cat. 462/87 Tav. 20 and 104



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

17-4

**PRODUCTION CHANGE**

DATE: 6/15/88

SUBJECT: SEALING OF WATER RADIATOR SEAT  
VEHICLES: 328 GTB / GTS AND TURBO

Starting  
from:

|             |       |       |  |  |  |  |
|-------------|-------|-------|--|--|--|--|
| Model       | 328   | Turbo |  |  |  |  |
| Area        | All   | Italy |  |  |  |  |
| Chassis no. | 68731 | 68739 |  |  |  |  |
| Engine no.  |       |       |  |  |  |  |
| Gearbox no. |       |       |  |  |  |  |

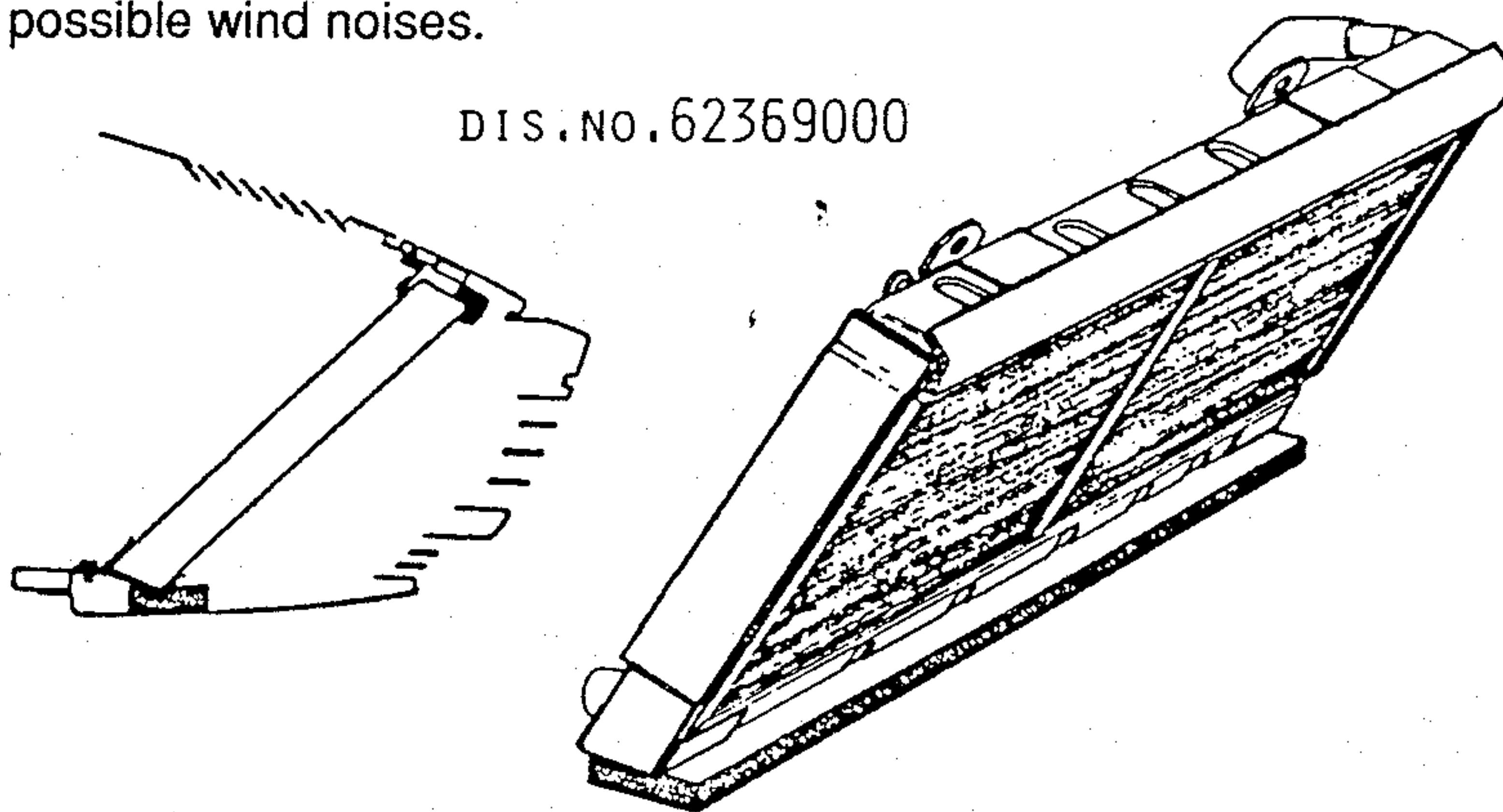
**Description:**

An additional gasket has been introduced on the upper edge of the water radiator as shown in the drawing.

NOTE: Previously, other gaskets in the lower position and in the lateral edges of the radiator were introduced. For details regarding those gaskets, please refer to 328 GTB / GTS Parts Catalogue (Cat. 462/87) dated March 1987.

**Reason:**

Eliminate possible wind noises.



**Spare parts procedures:**

Please verify the availability in your stock of above gasket.

**Reference spare parts catalogue:**

328 GTB / GTS Cat. 462/87 March 1987 Tav. 21



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **18-3**

## PRODUCTION CHANGE

DATE: 8/10/87

SUBJECT: EXHAUST MANIFOLDS  
VEHICLES: 3.2 MONDIAL - 328

Starting  
from:

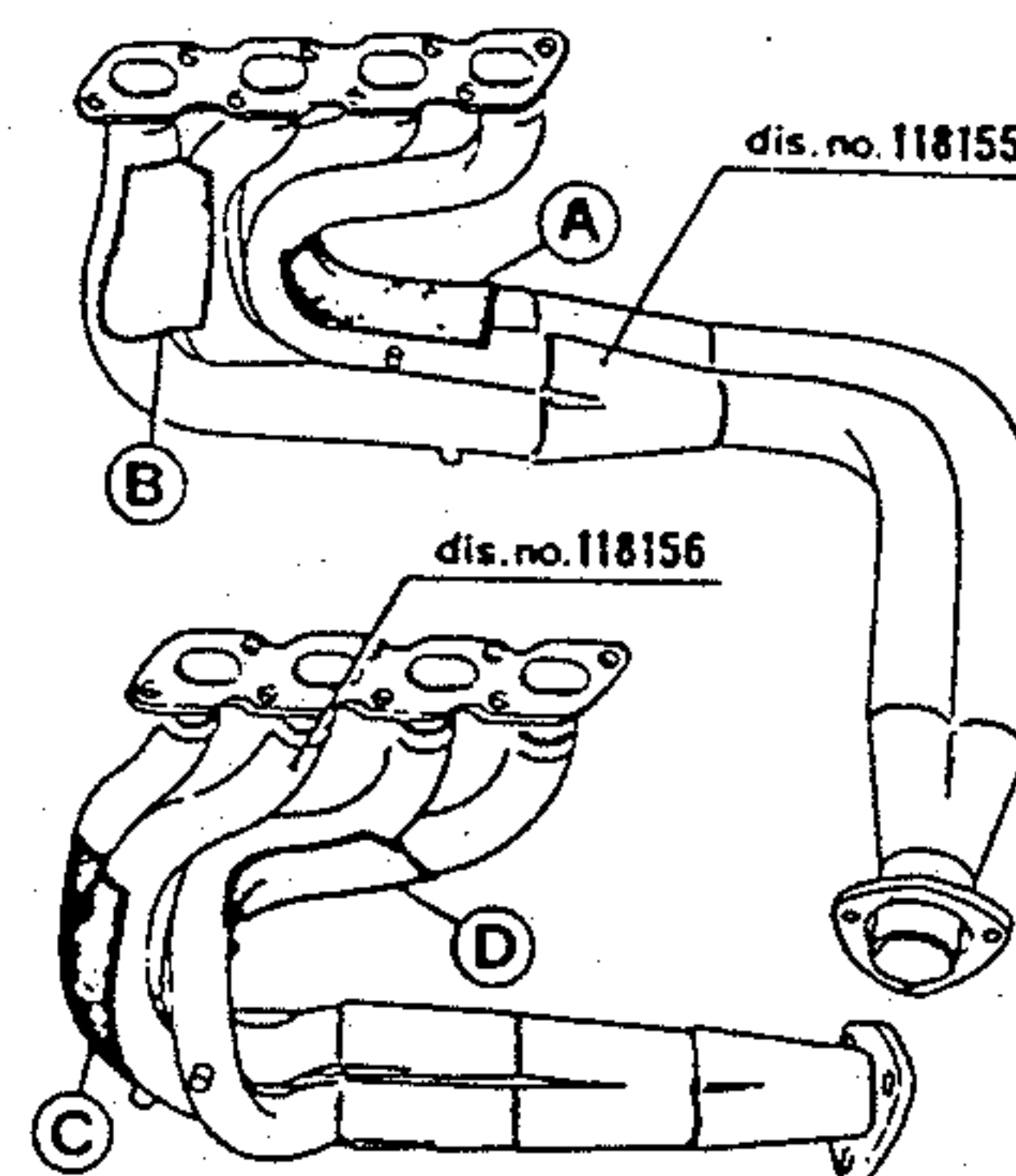
|             |                  |                  |  |  |  |  |
|-------------|------------------|------------------|--|--|--|--|
| Model       | 3.2 M            | 328              |  |  |  |  |
| Area        | Basic<br>Version | Basic<br>Version |  |  |  |  |
| Chassis no. | 69121            | 68973            |  |  |  |  |
| Engine no.  |                  |                  |  |  |  |  |
| Gearbox no. |                  |                  |  |  |  |  |

### Description:

Modified exhaust manifolds, with additional gusset plates (A-B-C-D) are being used. The modified manifolds keep the same part number of the previous one (118155 - 118156).

### Reason:

More efficient dampening of vibrations and noise.



### REPLACED PARTS

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

### NEW PARTS

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

### Spare parts procedures:

The Ferrari Spare Parts Dept. will supply modified exhaust manifolds only.

### Reference spare parts catalogue:

3.2 Mondial Cat. 375/86 - Tav. 18 - Ref. 20-22.

328 Cat. 462/86 - Tav. 17 - Ref. 14-15.



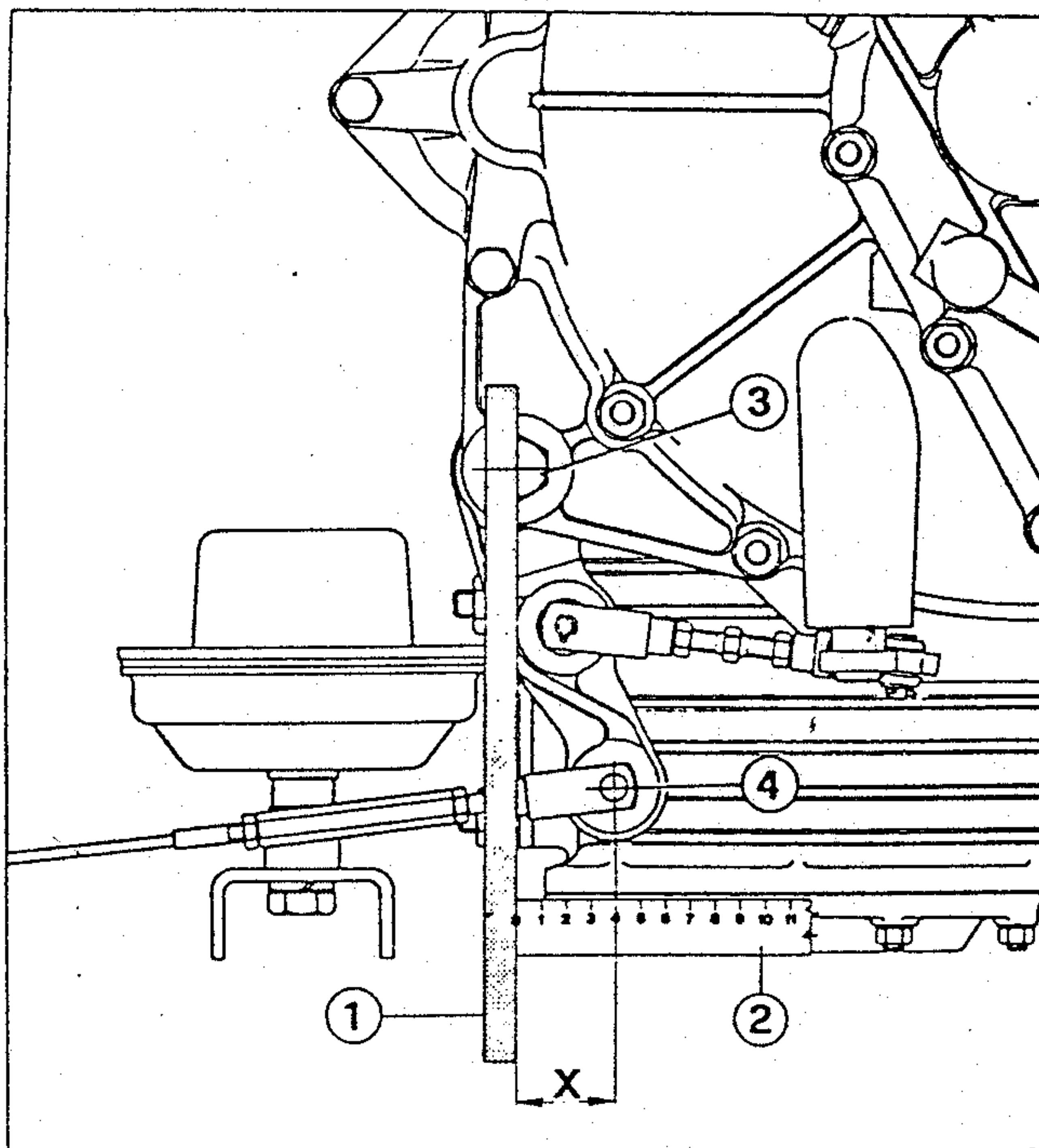
DATE: 8/10/87

**SUBJECT: CLUTCH RELEASE SYSTEM**

**VEHICLES: TURBO & 328 GTS / GTB**

You are kindly requested to check and adjust the clutch release system on each Turbo and 328 GTB/GTS car with chassis no. lower than 72891 (vehicles in stock included). According to the following procedure:

- 1 - On the clutch housing, measure the distance X (Fig. 1) with a straight edge and a ruler, as shown by Fig. 1. The distance X must read between 40 and 45 mm.



**Fig. 1**

1 - Straight edge, held vertical and positioned on the center of the bolt (3).

2 - Ruler, to which the center of the pin (4) must be referred, in order to read the distance X (X= 40 to 45 mm).

Should the distance X be found outside of the specified range, you shall:



- 2 - Adjust the threaded link C until the specified distance of 40 to 45 mm is achieved.

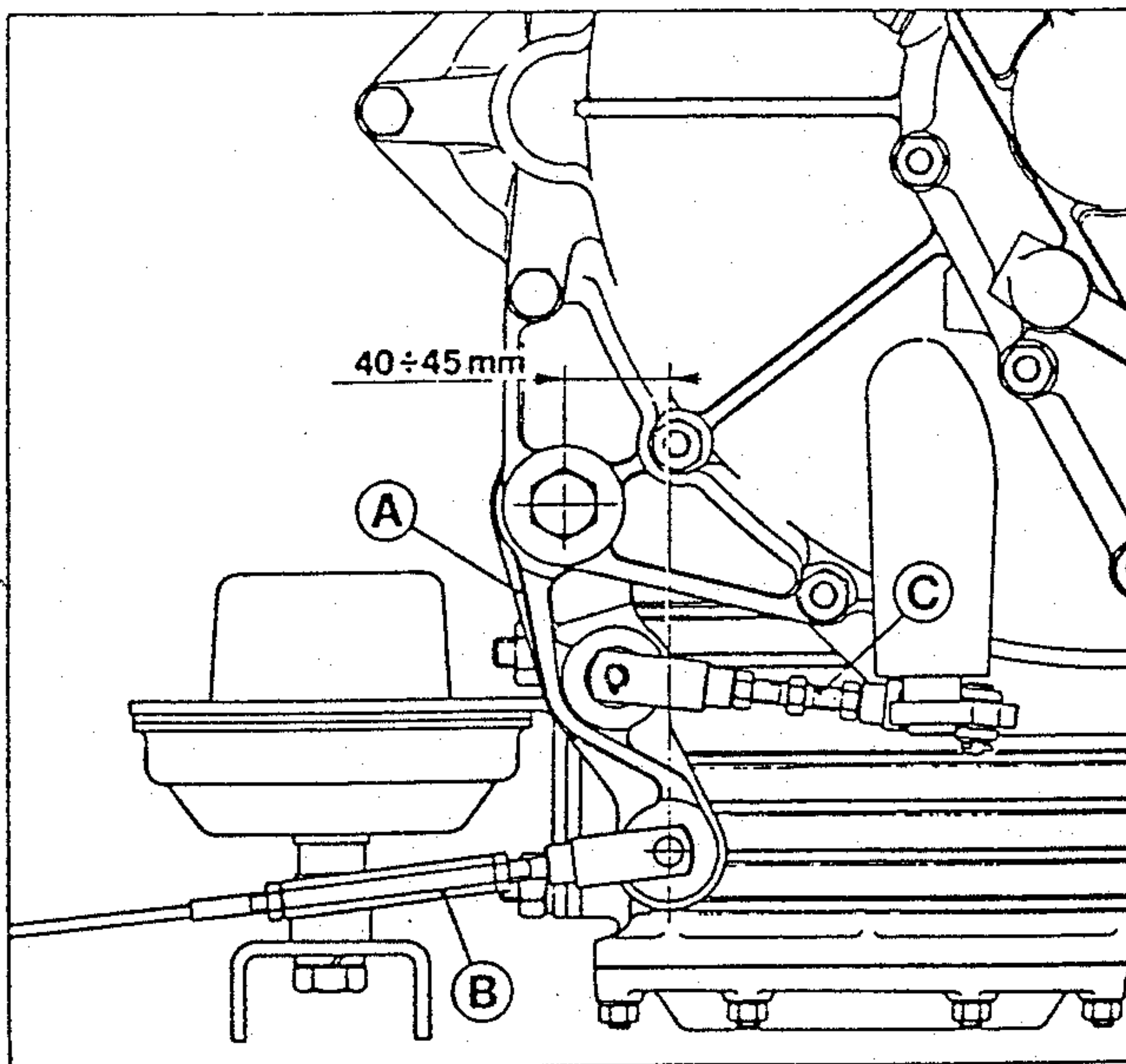


Fig. 2: Clutch Control Linkage on the Clutch Housing.

- A - Intermediate Lever
- B - Threaded connector for compensation of cables stretching.
- C - Threaded link for adjustment of system.

The clutch linkage positioning as shown in Figure 2 allows the release bearing and the related linkage to move backwards as the clutch disc wears normally, without any interference which would cause slipping of the clutch.

Once the distance X is adjusted within 40 to 45 mm, you shall:

- 3 - Check the alignment of the clutch and brake pedals. If necessary, adjust only the threaded connector B (Fig. 2) in order to achieve the alignment.



**WARNING:** After the above mentioned checkings and adjustments are performed, you shall identify the car with a green painted marking on the threaded connector B.

**TIME:** The above described operations required 0.4 hours.

**COST:** To be debited under warranty according to the standard procedure, with the following codes:

|                  | <u>328</u>               | <u>Turbo</u>             |
|------------------|--------------------------|--------------------------|
| Component Code:  | 04.21.53                 | 13.21.53                 |
| Problem Code:    | 01                       | 01                       |
| Operation Codes: | 04.21.53.0<br>04.21.73.0 | 13.21.53.0<br>13.21.73.0 |



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

21-8

PRODUCTION CHANGE

DATE: 10/5/88

SUBJECT: CLUTCH DISC

VEHICLES: EIGHT - CYLINDER

Starting  
from:

|             |       |  |  |  |  |  |
|-------------|-------|--|--|--|--|--|
| Model       | 8 Cyl |  |  |  |  |  |
| Area        | All   |  |  |  |  |  |
| Chassis no. | 76824 |  |  |  |  |  |
| Engine no.  |       |  |  |  |  |  |
| Gearbox no. |       |  |  |  |  |  |

**Description:**

A clutch disc utilizing asbestos - free linings has been introduced into production.

**Reason:**

To conform with anti-pollution specifications.

**REPLACED PARTS**

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description | ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|--------------|----------------|-------------|
|              | 120482         | Clutch Disc |              | 134996         | Clutch Disc |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |

**Spare parts procedures:** The clutch discs are interchangeable. The previous clutch discs may be used until your stock is exhausted.

**Reference spare parts catalogue:**



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 30-6

**PRODUCTION CHANGE**

DATE: 8/10/87

SUBJECT: SYNCHRONIZING BLOCKS

VEHICLES: 3.2 MONDIAL, TURBO, 328, TR, 412

Starting  
from:

|             |       |       |     |     |     |  |
|-------------|-------|-------|-----|-----|-----|--|
| Model       | 3.2 M | Turbo | 328 | TR  | 412 |  |
| Area        | All   | Italy | All | All | All |  |
| Chassis no. |       |       |     |     |     |  |
| Engine no.  |       |       |     |     |     |  |
| Gearbox no. |       |       |     |     |     |  |

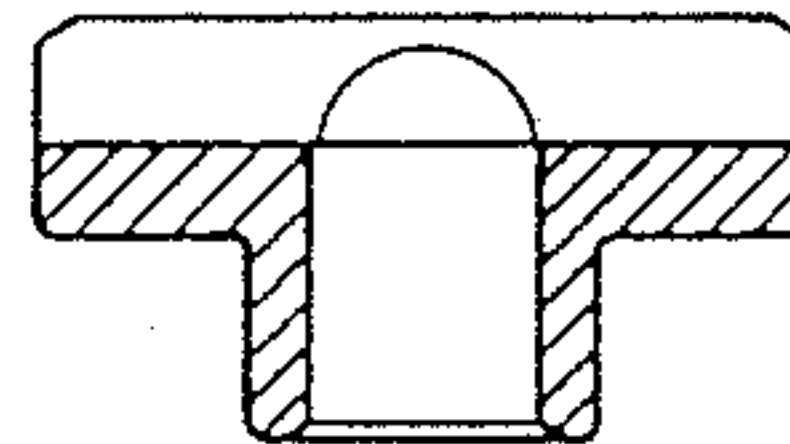
**Description:**

New synchronizing blocks are being used; they have a visible relief on the top surface, as shown by the layout. The new blocks keep the same P.N. of the previous ones with which they are interchangeable (P.N. 106042).

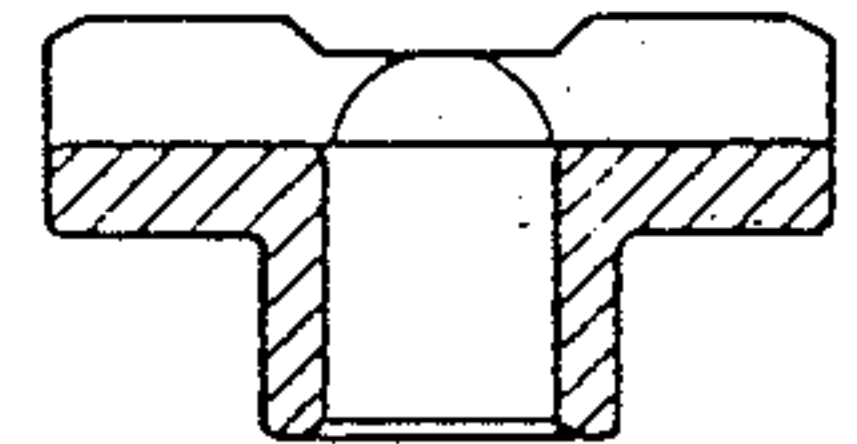
**Reason:**

Higher resistance.

previous type



with relief



**REPLACED PARTS**

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

Spare parts procedures:

Reference spare parts catalogue: Use only the new type synchronizing blocks, previous type blocks, which you might have in stock, shall be returned under warranty.



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

30-9

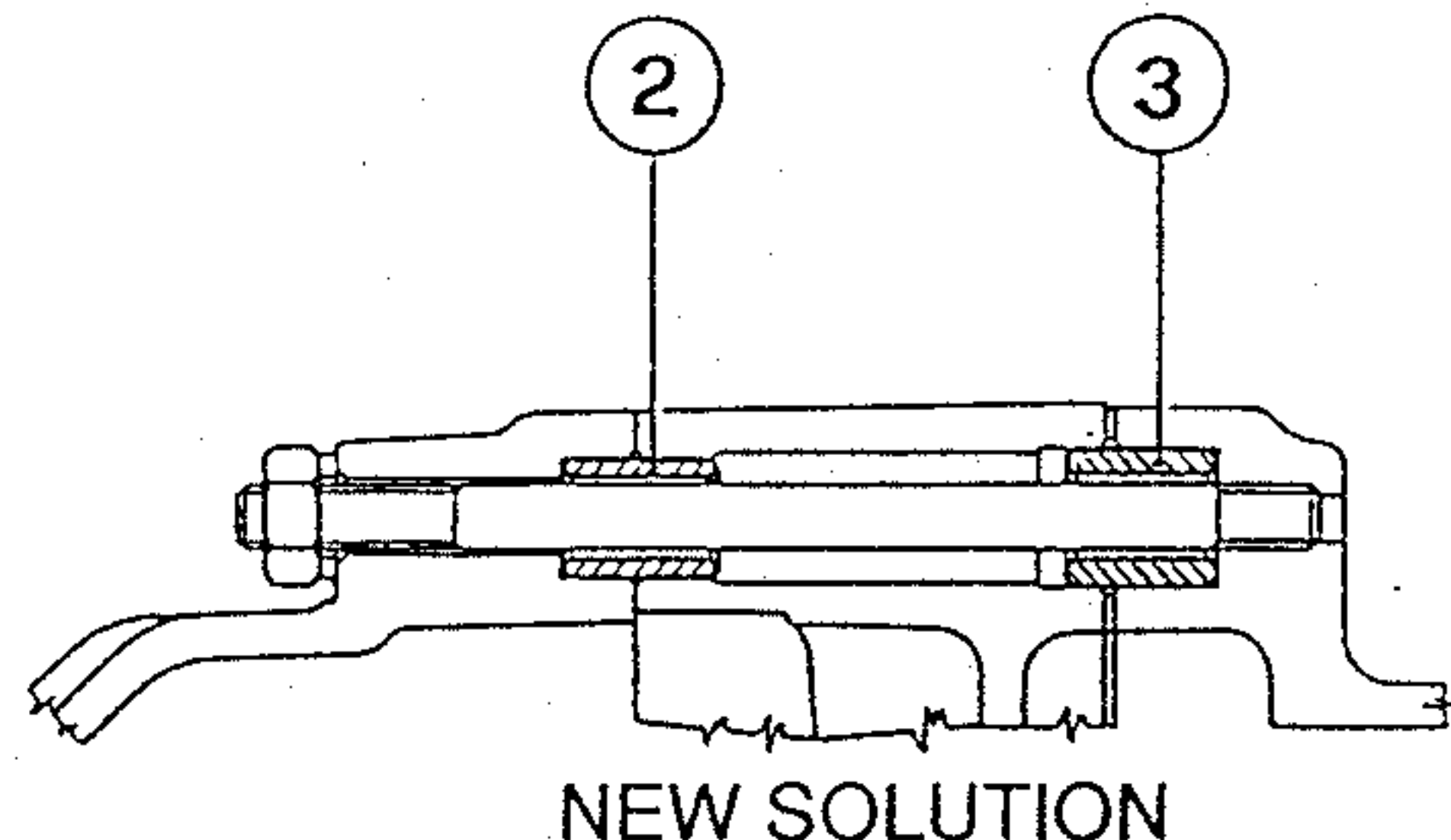
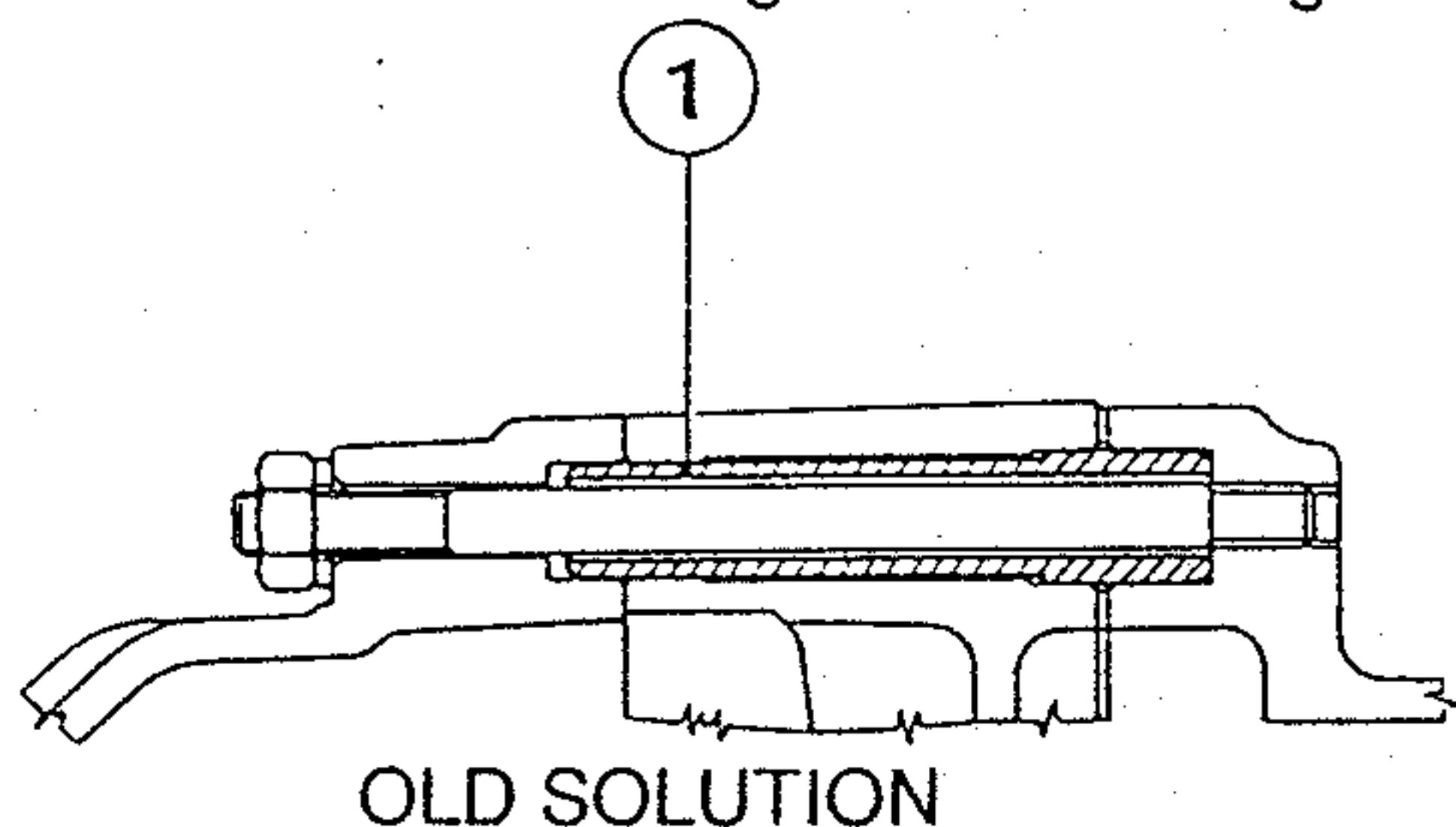
PRODUCTION CHANGE

DATE: 6/15/88

SUBJECT: CENTERING DOWEL ON TRANSMISSION INTERMEDIATE HOUSINGS  
VEHICLES: 8 CYLINDER

|                |             |           |           |           |  |  |  |
|----------------|-------------|-----------|-----------|-----------|--|--|--|
| Starting from: | Model       | 3.2 - 328 | 3.2 - 328 | 3.2 - 328 |  |  |  |
|                | Area        | Europe    | USA       | Italy     |  |  |  |
|                | Chassis no. | 72125     | 72509     | 72291     |  |  |  |
|                | Engine no.  | 2633      | 1496      | 413       |  |  |  |
|                | Gearbox no. |           |           |           |  |  |  |

**Description:** The intermediate casting is installed by means of 2 centering dowels instead of one on the gearbox housing and the crankcase.



| REPLACED PARTS |             |             | NEW PARTS |             |                             |
|----------------|-------------|-------------|-----------|-------------|-----------------------------|
| ref. fig.      | Part Number | Description | ref. fig. | Part Number | Description                 |
| 1              | 104033      | Dowel       | 2         | 102692      | Centering dowel             |
|                |             |             | 3         | 134480      | Trans. intermediate housing |
|                |             |             |           |             |                             |
|                |             |             |           |             |                             |
|                |             |             |           |             |                             |
|                |             |             |           |             |                             |

**Spare parts procedures:**

The two solutions are interchangeable between themselves.

**Reference spare parts catalogue:** 328 No. 462/87 Tav. 25 - Turbo GTB/GTS No. 432/87 Tav. 21 - 3.2 Mondial, the modification is already reported in the Parts Catalogue No. 473/87



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

30-10

**PRODUCTION CHANGE**

DATE: 10/5/88

**SUBJECT: GEAR SHIFT ROCKER ARM SUPPORT**

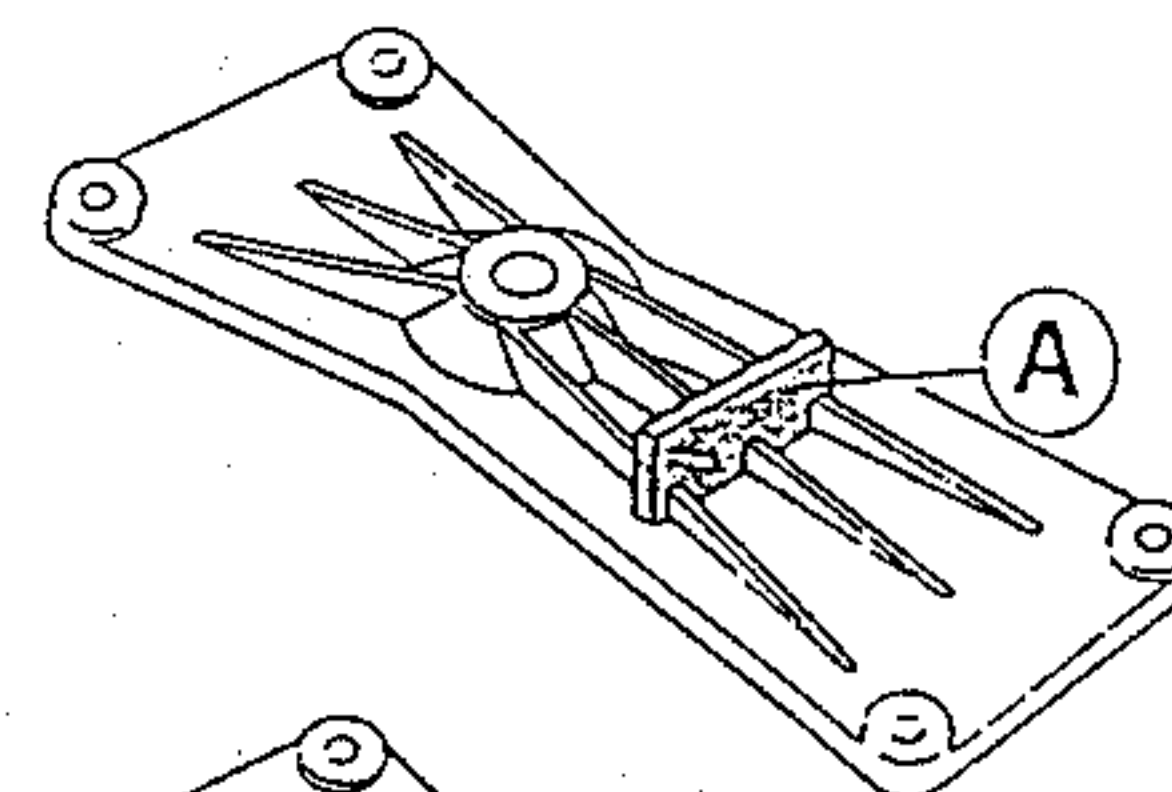
**VEHICLES: EIGHT - CYLINDER VEHICLES**

|                |             |                  |       |        |                  |       |  |
|----------------|-------------|------------------|-------|--------|------------------|-------|--|
| Starting from: | Model       | 328              | 328   | 8 Cyl. | Mondial          | Turbo |  |
|                | Area        | Exc.<br>USA + CH | CH    | USA    | Exc.<br>USA + CH | Italy |  |
|                | Chassis no. | 77135            | 77035 | 77066  | 77106            | 77047 |  |
|                | Engine no.  |                  |       |        |                  |       |  |
|                | Gearbox no. | 2891             | 276   | 2339   | 860              | 700   |  |

**Description:**

The gear shift rocker arm support (P.N. 114864) has been modified with the addition of a shoulder (A) as shown.

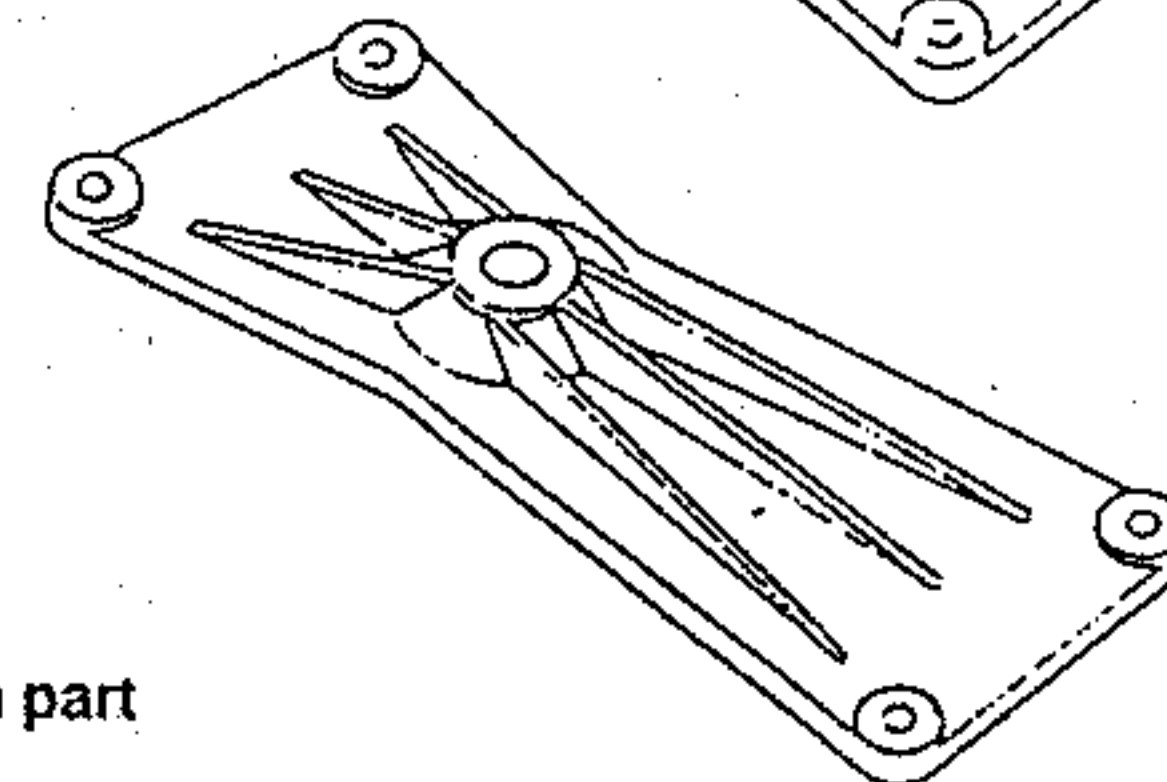
new solution



**Reason:**

To avoid the disengagement of the gearshift fork (first and reverse gear) during servicing of gearbox.

pre-modification part



| REPLACED PARTS |             |             | NEW PARTS |             |             |
|----------------|-------------|-------------|-----------|-------------|-------------|
| ref. fig.      | Part Number | Description | ref. fig. | Part Number | Description |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |

**Spare parts procedures:** The modified support retains the same part number as the previous support ie. P.N.114864

**Reference spare parts catalogue:**



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

**SERVICE BULLETIN No**

**40-3**

DATE: 12/30/86

**SUBJECT: BRAKE SYSTEM**

**VEHICLES: 328 GTB / GTS**

The components indicated below of the 328 GTB / GTS braking system have been modified for standardization with similar components employed on the GTB / GTS Turbo of present production ( Italian Version).

The new parts which are interchangeable with the corresponding previous one, are shown in the following table:

| FERRARI PART NO. |               | DESCRIPTION                   | IN PROD.<br>STARTING<br>W/ C.N. | REF. TO : SPARE<br>PTS CATALOG 328<br>GTB / S - Nov. 85 |
|------------------|---------------|-------------------------------|---------------------------------|---------------------------------------------------------|
| NEW PART         | PART REPLACED |                               |                                 |                                                         |
| 131359           | 124373        | Rear brake pressure regulator | 64963                           | TAV. 32 - NO.17                                         |
| 131008           | 124514        | Brake booster, for L.H. drive | 67251                           | TAV. 31 - NO. 5                                         |

Please update your Spare Parts Catalog ( 328 GTB / GTS ) to reflect these part supersessions.



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

51-1

PRODUCTION CHANGE

DATE: 10/5/88

SUBJECT: STEERING WHEEL

VEHICLES: 328 AND TURBO GTB / GTS

Starting  
from:

|             |       |       |  |  |  |  |
|-------------|-------|-------|--|--|--|--|
| Model       | 328   | Turbo |  |  |  |  |
| Area        | All   | Italy |  |  |  |  |
| Chassis no. | 77451 | 77450 |  |  |  |  |
| Engine no.  |       |       |  |  |  |  |
| Gearbox no. |       |       |  |  |  |  |

**Description:**

The steering wheel has been set off center by 10mm.

**Reason:**

Production Change.

**REPLACED PARTS**

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description          | ref.<br>fig. | Part<br>Number | Description            |
|--------------|----------------|----------------------|--------------|----------------|------------------------|
|              | 119023         | Steering wheel w/hub |              | 136549         | Steering wheel w/hub . |
|              |                |                      |              |                |                        |
|              |                |                      |              |                |                        |
|              |                |                      |              |                |                        |
|              |                |                      |              |                |                        |
|              |                |                      |              |                |                        |

**Spare parts procedures:**

The new steering wheel is interchangeable with the previous one.

**Reference spare parts catalogue:**

328 No. 462/87 Tav. 36

Turbo No. 432/86 Tav. 32



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

60-17

PRODUCTION CHANGE

DATE: 10/5/88

SUBJECT: SUSPENSIONS AND WHEELS

VEHICLES: 328 AND TURBO GTB / GTS

Starting  
from:

|             |         |         |              |              |  |  |
|-------------|---------|---------|--------------|--------------|--|--|
| Model       | 328 GTB | 328 GTS | Turbo<br>GTB | Turbo<br>GTS |  |  |
| Area        | All     | All     | All          | Italy        |  |  |
| Chassis no. | 76626   | 76627   | 76679        | 76939        |  |  |
| Engine no.  |         |         |              |              |  |  |
| Gearbox no. |         |         |              |              |  |  |

Description:

New suspensions and wheels have been introduced as listed on the attached five tables.

The wheel alignment specifications for the new suspension are specified in the attached table.

Reason:

Standardization with the Mondial models.

REPLACED PARTS

NEW PARTS

| ref.<br>fig. | Part<br>Number | Description | ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|--------------|----------------|-------------|
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |

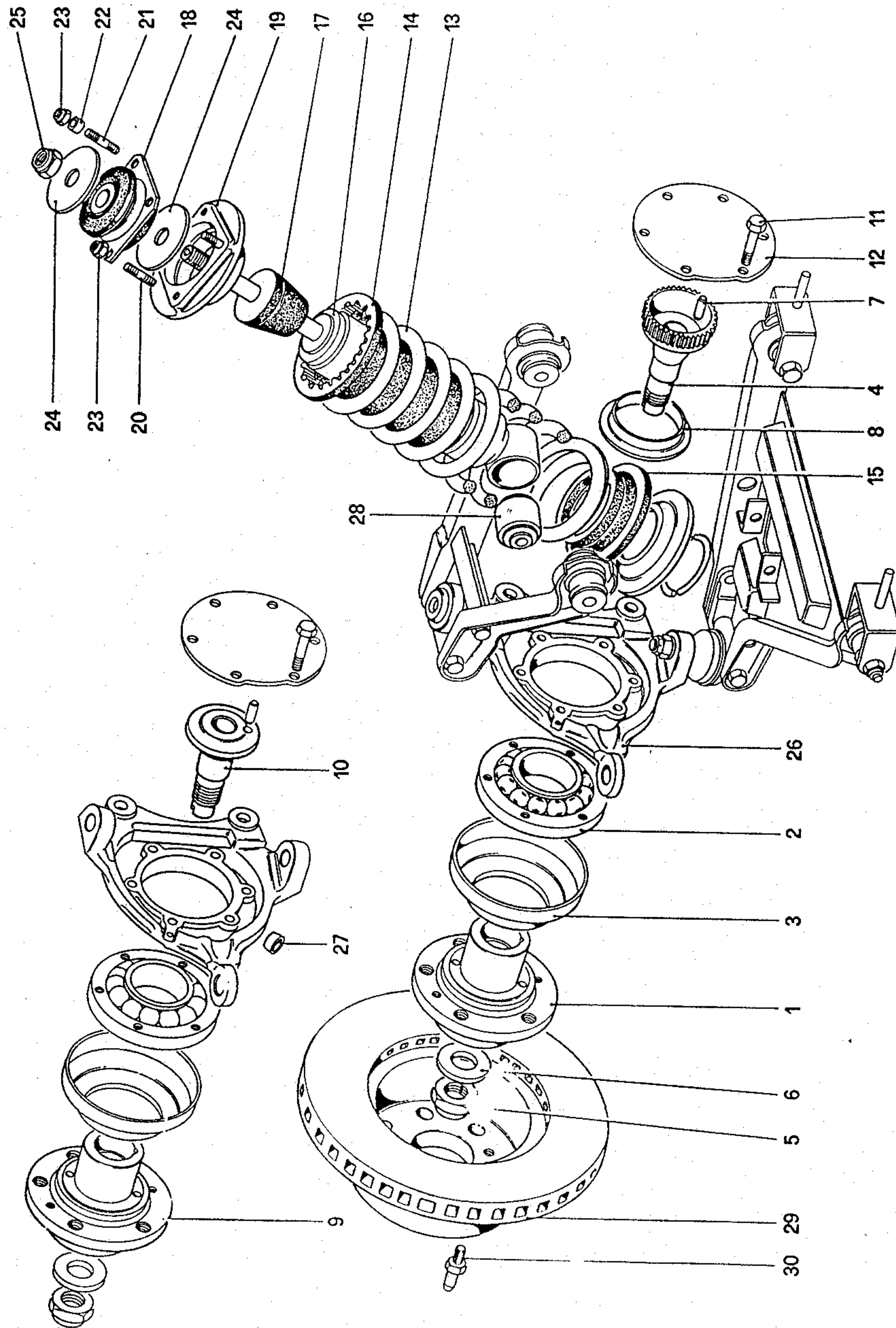
Spare parts procedures:

328 No. 462/87

Turbo No. 432/86

Reference spare parts catalogue:





TAV. 43

DATA: OTTOBRE 88

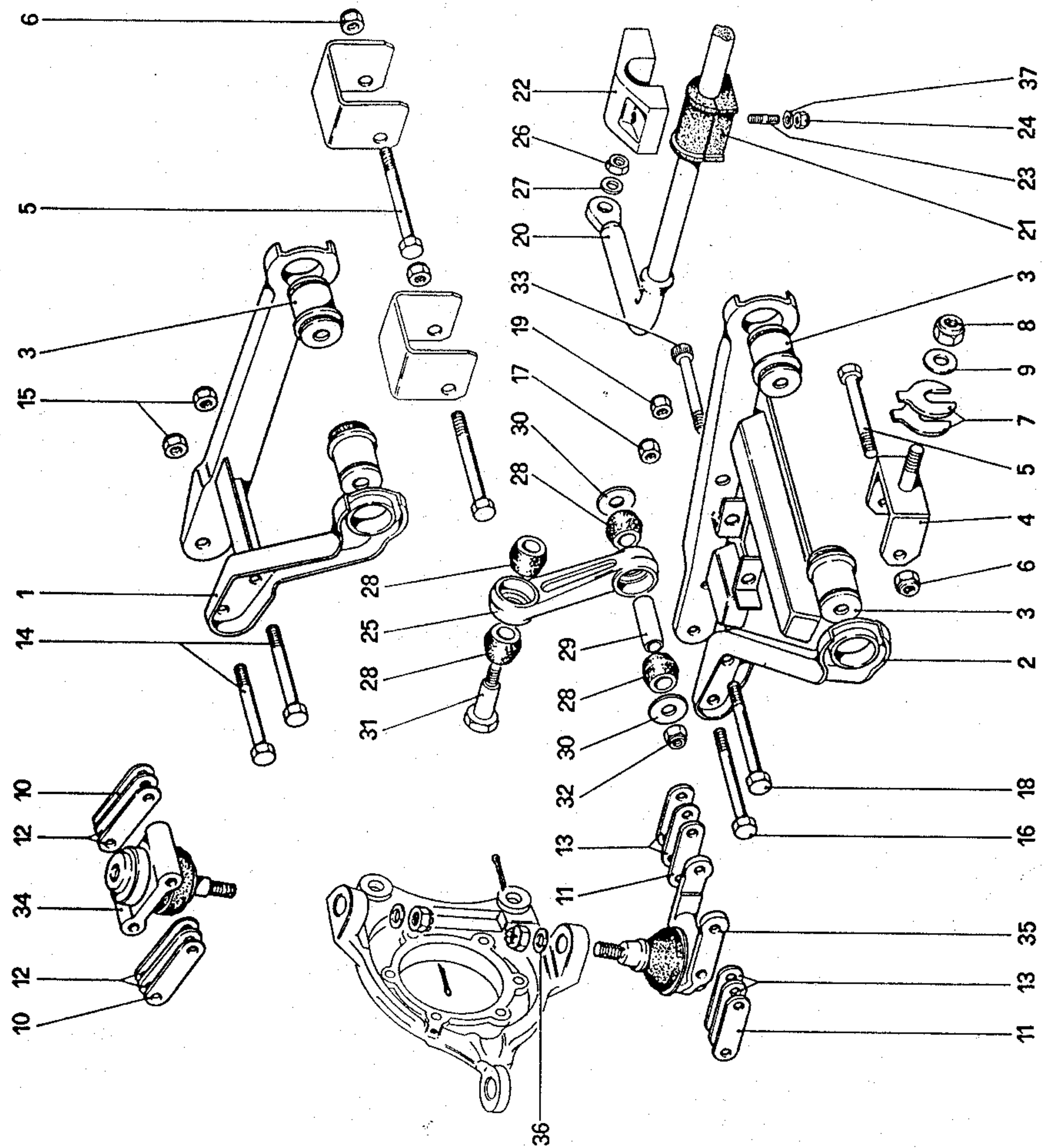
SOSPENSIONE ANTERIORE — AMMORTIZZATORE E DISCO FRENO - Dalla vettura N. 76626

FRONT SUSPENSION — SHOCK ABSORBER AND BRAKE DISC - Starting from car No. 76626

328 / 328  
GTB / GTS

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                               | DESCRIPTION                                  |
|------|----------------------|------|---------------------------------------------|----------------------------------------------|
| 1    | 131738               | 2    | (A) Mozzo ruote                             | (A) Front wheel hub                          |
| 2    | 112799               | 2    | Cuscinetto                                  | Bearing                                      |
| 3    | 112823               | 2    | Coppetta                                    | Bearing cover                                |
| 4    | 138426               | 2    | Perno con ruota fonica                      | Stay bolt toothed wheel                      |
| 5    | 124642               | 2    | Dado                                        | Nut                                          |
| 6    | 124464               | 2    | Rondella                                    | Washer                                       |
| 7    | 13909870             | 2    | Spina                                       | Pin                                          |
| 8    | 131279               | 2    | Anello di protezione                        | Protection ring                              |
| 9    | 124463               | 2    | (B) Mozzo ruote                             | (B) Front wheel hub                          |
| 10   | 124465               | 2    | (B) Perno fissaggio cuscinetto              | (B) Stay bolt for bearing                    |
| 11   | 14238931             | 12   | Vite                                        | Screw                                        |
| 12   | 131278               | 2    | Coperchio                                   | Cover                                        |
| 13   | 133157               | 2    | Molla sospensione                           | Suspension spring                            |
| 14   | 113582               | 2    | Distanziale superiore                       | Upper spacer                                 |
| 15   | 113581               | 2    | Distanziale inferiore                       | Inner spacer                                 |
| 16   | 136884               | 2    | Ammortizzatore - Fino alla vettura n. 78612 | Shock absorber - Up to car no. 78612         |
| 16   | 138263               | 2    | Ammortizzatore - Dalla vettura n. 78613     | Shock absorber - Starting from car no. 78613 |
| -    | 138897               | 2    | Piatello per ammortizzatore                 | Plate for shock absorber                     |
| -    | -                    | -    | Con ammortizzatore n. 138263                | With shock absorber no. 138263               |
| -    | -                    | -    | Anello seeger                               | Seeger ring                                  |
| -    | 138898               | 2    | Con ammortizzatore n. 138263                | With shock absorber no. 138263               |

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                          | DESCRIPTION                          |
|------|----------------------|------|----------------------------------------|--------------------------------------|
| 17   | 130936               | 2    | Tampone - Con ammortizzatore n. 136884 | Pad - With shock absorber no. 136884 |
| 17   | 138435               | 2    | Tampone - Con ammortizzatore n. 138263 | Pad - With shock absorber no. 138263 |
| 18   | 114812               | 2    | Hyperblock                             | Hyperblock                           |
| 19   | 114809               | 2    | Scodellino tenuta molla                | Cup, spring retainer                 |
| 20   | 13543321             | 4    | Prigioniero                            | Stud                                 |
| 21   | 13543821             | 4    | Prigioniero                            | Stud                                 |
| 22   | 13606011             | 4    | Distanziale                            | Spacer                               |
| 23   | 16104121             | 8    | Dado                                   | Nut                                  |
| 24   | 114815               | 4    | Rondella                               | Washer                               |
| 25   | 16105121             | 2    | Dado                                   | Nut                                  |
| 26   | 130056               | 1    | Fuso a snodo Dx.                       | Stub axle, right                     |
| 26   | 130057               | 1    | Fuso a snodo Sx.                       | Stub axle, left                      |
| 27   | 14326601             | 2    | (B) Tappo                              | (B) Plug                             |
| 28   | 100809               | 2    | Estendblock                            | Estendblock                          |
| 28   | 130516               | 2    | Per ammortizzatore n. 136884           | For shock absorber no. 136884        |
| 28   | -                    | -    | Estendblock                            | Estendblock                          |
| 29   | 117185               | 2    | Per ammortizzatore n. 138263           | For shock absorber no. 138263        |
| 30   | 104370               | 4    | Disco freno                            | Brake disc                           |
| 30   | -                    | -    | Vite di centraggio                     | Centering screw                      |



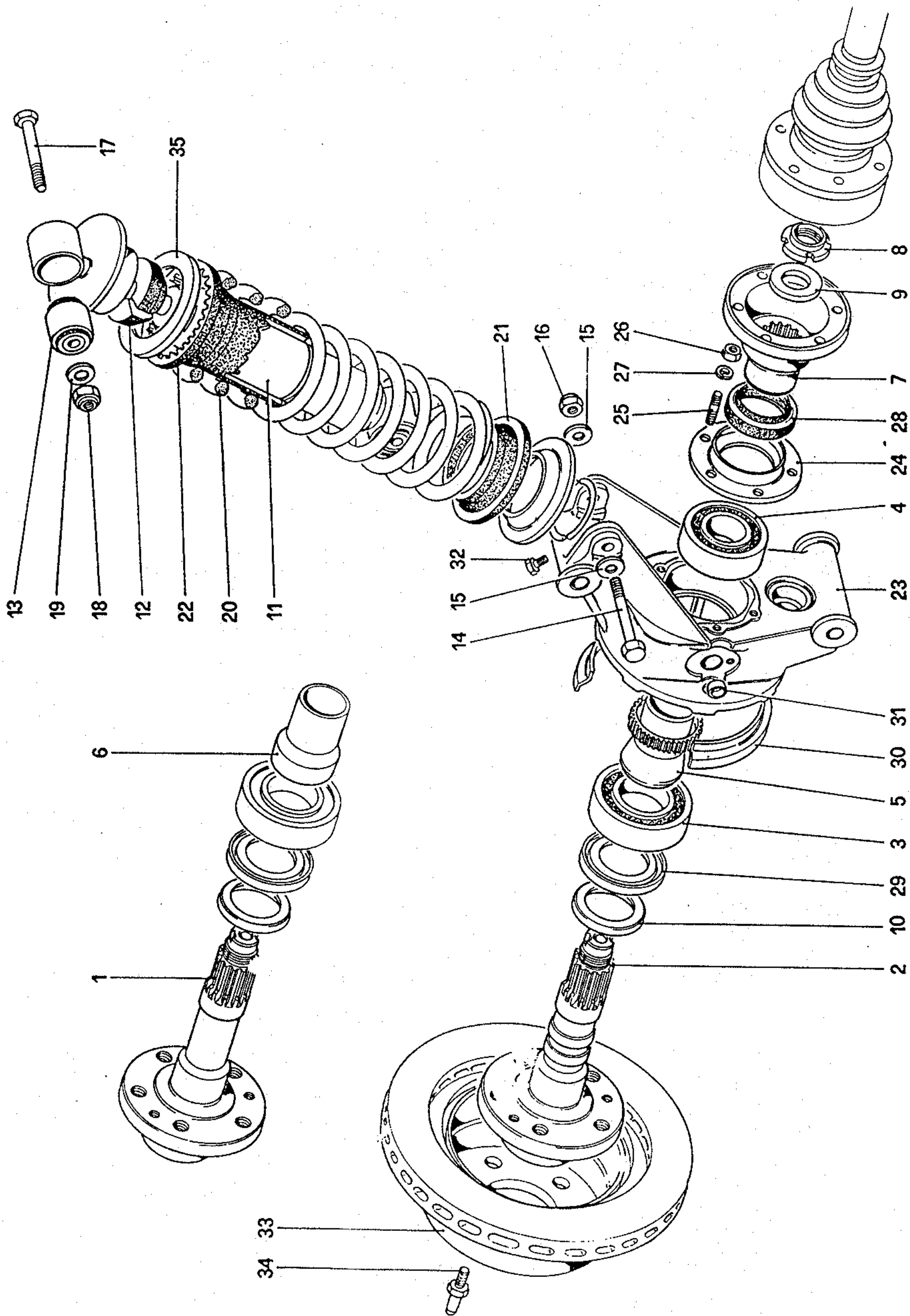
**328 / 328i**  
**GTS**

SOSPENSIONE ANTERIORE — AMMORTIZZATORE E DISCO FRENO - Dalla vettura N. 76626  
FRONT SUSPENSION — SHOCK ABSORBER AND BRAKE DISC - Starting from car No. 76626

TAV. 45  
DATA: OTTOBRE 88

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                     | DESCRIPTION                  |
|------|----------------------|------|-----------------------------------|------------------------------|
| 15   | 12574521             | 4    | Dado                              | Nut                          |
| 16   | 15971621             | 2    | Bullone                           | Bolt                         |
| 17   | 12574521             | 2    | Dado                              | Nut                          |
| 18   | 15541531             | 2    | Bullone fissaggio ammortizzatori  | Bolt                         |
| 19   | 16105121             | 2    | Dado                              | Nut                          |
| 20   | 136166               | 1    | Barra stabilizzatrice - No per GD | Stabilizer rod - Not for RHD |
| 20   | 139547               | 1    | Barra stabilizzatrice - Per GD    | Stabilizer rod - For RHD     |
| 21   | 130533               | 2    | Tampone                           | Pad                          |
| 22   | 130532               | 2    | Supporto                          | Support                      |
| 23   | 13516821             | 4    | Prigioniero                       | Stud                         |
| 24   | 16104411             | 4    | Dado                              | Nut                          |
| 25   | 114891               | 2    | Biscottino per barra              | Rod link                     |
| 26   | 16103621             | 2    | Dado                              | Nut                          |
| 27   | 106854               | 2    | Rondella                          | Washer                       |
| 28   | 100984               | 8    | Gommino per barra                 | Grommet for rod              |
| 29   | 100985               | 2    | Tubo distanziale                  | Spacer tube                  |
| 30   | 105334               | 4    | Rondella                          | Washer                       |
| 31   | 121679               | 2    | Perno                             | Pin                          |
| 32   | 16105121             | 2    | Dado                              | Nut                          |
| 33   | 116966               | 2    | Vite                              | Screw                        |
| 34   | 116280               | 2    | Giunto sferico superiore          | Upper ball joint             |
| 35   | 133944               | 2    | Giunto sferico inferiore          | Lower ball joint             |
| 36   | 101445               | 2    | Rondella                          | Washer                       |
| 37   | 102683               | 4    | Rondella                          | Washer                       |

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                                                                          | DESCRIPTION                                               |
|------|----------------------|------|----------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1    | 131900               | 1    | Leva superiore Dx.                                                                     | Upper lever, right                                        |
| -    | 131901               | 1    | Leva superiore Sx.                                                                     | Upper lever, left                                         |
| 2    | 115706               | 1    | Leva inferiore Dx.                                                                     | Lower lever, right                                        |
| -    | 115707               | 1    | Leva inferiore Sx.                                                                     | Lower lever, left                                         |
| 3    | 104398               | 8    | Flamblok per attacco leve                                                              | Flamblock for levers                                      |
| 4    | 112807               | 4    | Forcella inferiore                                                                     | Lower fork                                                |
| 5    | 106419               | 8    | Bullone                                                                                | Bolt                                                      |
| 6    | 16105121             | 8    | Dado                                                                                   | Nut                                                       |
| 7    | 107025               | 8    | Rondella di rasamento per forcella inferiore - spessore 1 mm. (di eventuale montaggio) | Shim for lower fork, thickness 1 mm. (possible fitting)   |
| -    | 107418               | 8    | Idem spessore mm. 1,5                                                                  | Ditto, thickness 1,5 mm.                                  |
| -    | 107419               | 8    | Idem spessore mm. 2                                                                    | Ditto, thickness 2 mm.                                    |
| -    | 107420               | 8    | Idem spessore mm. 2,5                                                                  | Ditto, thickness 2,5 mm.                                  |
| -    | 107421               | 8    | Idem spessore mm. 3                                                                    | Ditto, thickness 3 mm.                                    |
| -    | 107422               | 8    | Idem spessore mm. 3,25                                                                 | Ditto, thickness 3,25 mm.                                 |
| 8    | 12575821             | 4    | Dado                                                                                   | Nut                                                       |
| 9    | 101041               | 4    | Rondella                                                                               | Washer                                                    |
| 10   | 115072               | -    | Piastrina superiore registrazione incidenza (di eventuale montaggio)                   | Upper adjusting plate for caster angle (possible fitting) |
| 11   | 115073               | -    | Piastrina inferiore registrazione incidenza (di eventuale montaggio)                   | Lower adjusting plate for caster angle (possible fitting) |
| 12   | 103256               | 8    | Piastrina superiore registrazione chassey                                              | Upper adjusting plate                                     |
| 13   | 101022               | 8    | Piastrina inferiore registrazione chassey                                              | Lower adjusting plate                                     |
| 14   | 15971621             | 4    | Bullone                                                                                | Bolt                                                      |



TAV. 47

DATA: OTTOBRE 88

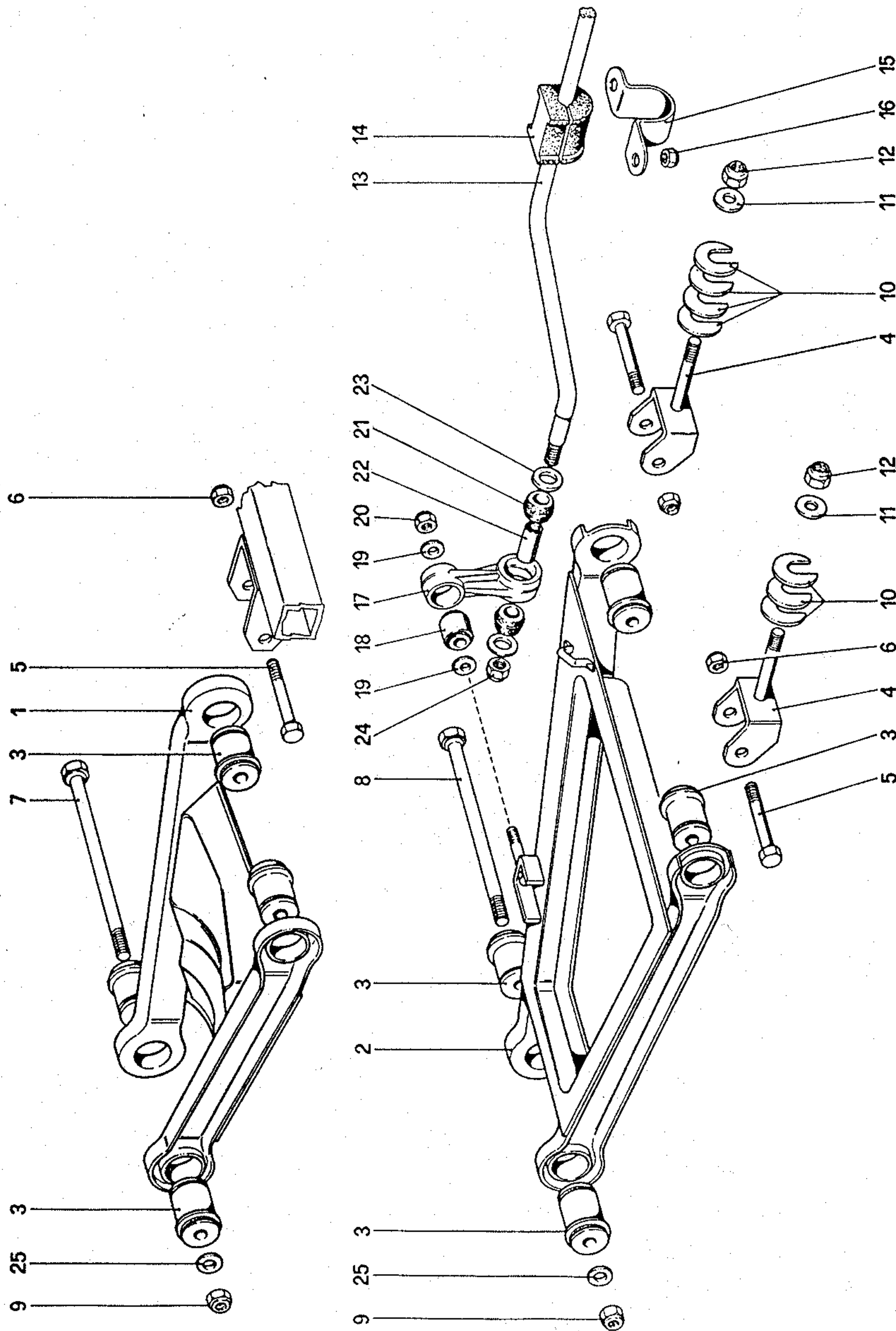
SOSPENSIONE POSTERIORE — AMMORTIZZATORE E DISCO FRENO - Dalla vettura N. 76626

REAR SUSPENSION — SHOCK ABSORBER AND BRAKE DISC - Starting from car No. 76626

328 / 328  
GTB / GTS

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                                               | DESCRIPTION                                                |
|------|----------------------|------|-------------------------------------------------------------|------------------------------------------------------------|
| 1    | 124964               | 2    | (B) Albero con mozzo post.                                  | (B) Shaft with rear hub                                    |
| 2    | 132408               | 2    | (A) Albero con mozzo post.                                  | (A) Shaft with rear hub                                    |
| 3    | 125935               | 2    | Cuscinetto esterno                                          | Outer bearing                                              |
| 4    | 125934               | 2    | Cuscinetto interno                                          | Inner bearing                                              |
| 5    | 136308               | 2    | (A) Distanziale con ruota fonica                            | (A) Spacer with toothed wheel                              |
| 6    | 120876               | 2    | (B) Distanziale                                             | (B) Spacer                                                 |
| 7    | 119372               | 2    | Flangia attacco semiassi                                    | Flange connecting axle shafts                              |
| 8    | 102289               | 2    | Ghiera                                                      | Ring nut                                                   |
| 9    | 105511               | 2    | Rondella                                                    | Washer                                                     |
| 10   | 124965               | 2    | Distanziale                                                 | Spacer                                                     |
| 11   | 130729               | 2    | Ammortizzatore - Fino alla vettura n. 78612                 | Shock absorber - Up to car no. 78612                       |
| 11   | 138264               | 2    | Ammortizzatore - Dalla vettura n. 78613                     | Shock absorber - Starting from car no. 78613               |
| -    | 138897               | 2    | Piatello per ammortizzatore<br>con ammortizzatore n. 138264 | Plate for shock absorber<br>with shock absorber no. 138264 |
| -    | 138898               | 2    | Anello seeger<br>con ammortizzatore n. 138264               | Seeger ring<br>with shock absorber no. 138264              |
| 12   | 104442               | 2    | Tampone - Con ammortizzatore n. 130729                      | Pad - With shock absorber no. 130729                       |
| 12   | 138435               | 2    | Tampone - Con ammortizzatore n. 138264                      | Pad - With shock absorber no. 138264                       |
| 13   | 130516               | 4    | Estendiblock                                                | Estendiblock                                               |
| 14   | 112441               | 2    | Vite                                                        | Screw                                                      |
| 15   | 106616               | 4    | Rondella                                                    | Washer                                                     |

| Rif. | Dis. No.<br>Part No | Q.ty | DENOMINAZIONE               | DESCRIPTION             |
|------|---------------------|------|-----------------------------|-------------------------|
| 16   | 16105121            | 2    | Dado autobloccante          | Selflocking nut         |
| 17   | 106419              | 2    | Vite                        | Screw                   |
| 18   | 16105121            | 2    | Dado autobloccante          | Selflocking nutRondella |
| 19   | 13550521            | 2    | Molla sospensione           | Suspension spring       |
| 20   | 113516              | 2    | Distanziale inferiore       | Lower spacer            |
| 21   | 103264              | 2    | Distanziale superiore       | Upper spacer            |
| 22   | 103263              | 2    | Portamozzo Dx.              | Hub holder, (right)     |
| 23   | 130309              | 2    | Portamozzo Sx.              | Hub holder, (left)      |
| -    | 130310              | 2    | Flangia tenuta cuscinetto   | Flange for bearing      |
| 24   | 125976              | 12   | Prigioniero                 | Stud                    |
| 25   | 13543321            | 12   | Dado                        | Nut                     |
| 26   | 16100811            | 12   | Rondella                    | Washer                  |
| 27   | 127496              | 2    | Anello di tenuta            | Sealing ring            |
| 28   | 115068              | 2    | Anelo centrifugatore        | Centrifugal ring        |
| 29   | 124966              | 2    | Coperchietto paraspruzzi    | Splash guard            |
| 30   | 103117              | 2    | (B) Tappo                   | (B) Plug                |
| 31   | 14328601            | 2    | (B) Vite                    | (B) Screw               |
| 32   | 10979421            | 2    | Disco freno                 | Brake disc              |
| 33   | 117186              | 4    | Vite di centraggio          | Centering screw         |
| 34   | 104370              | 2    | Distanziale - Per USA-CH-SA | Spacer - For US-CH-SA   |
| 35   | 129435              | 2    |                             |                         |



TAV. 49

DATA: OTTOBRE 88

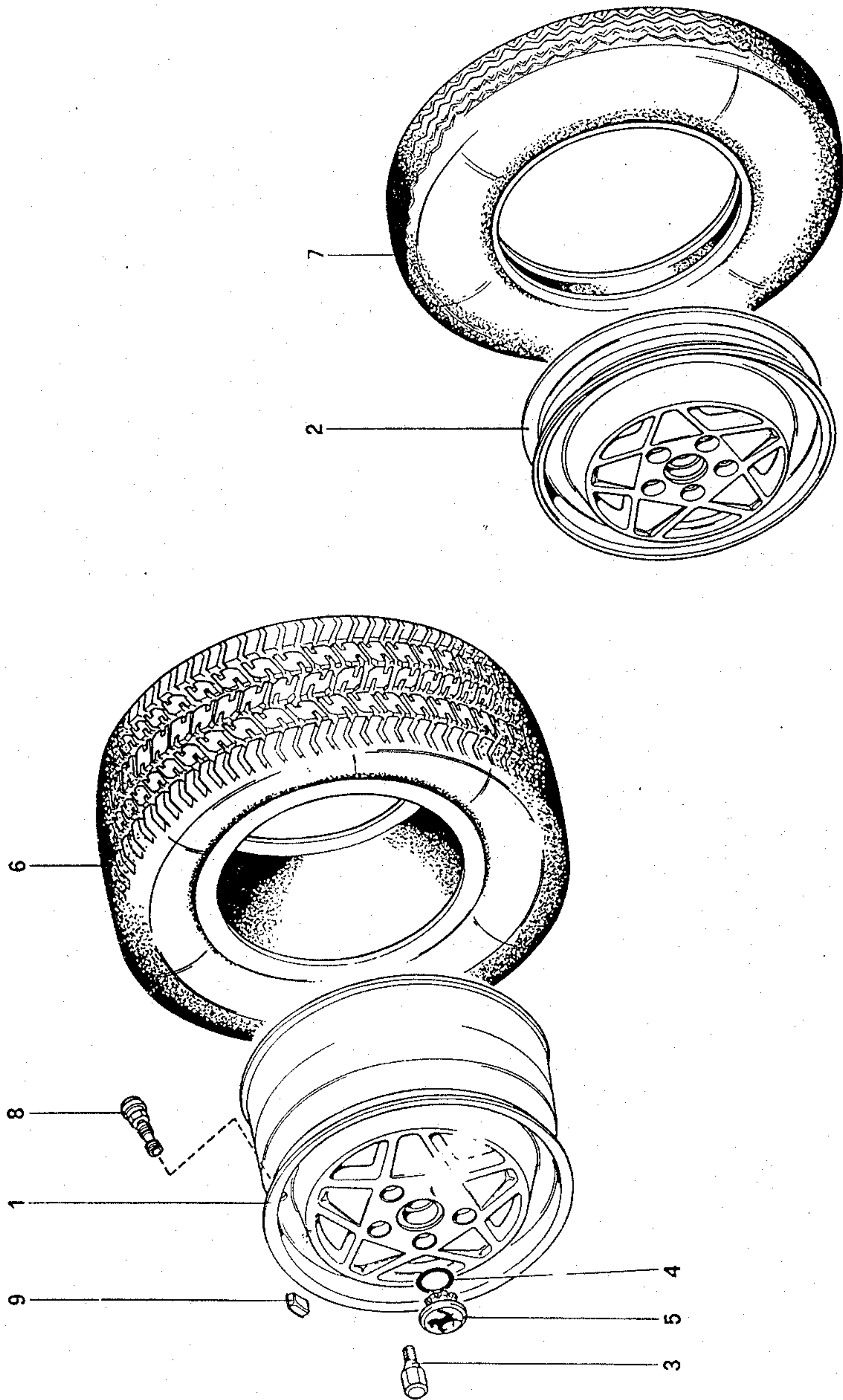
SOSPENSIONE POSTERIORE — LEVE - Dalla vettura N. 76626

REAR SUSPENSION — WISHBONES - Starting from car No. 76626

328 / 328  
GTB / GTS

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE              | DESCRIPTION               |
|------|----------------------|------|----------------------------|---------------------------|
| -    | 107341               | 8    | Idem spessore mm. 3        | Ditto, thickness 3 mm.    |
| -    | 107342               | 8    | Idem spessore mm. 3,25     | Ditto, thickness 3,25 mm. |
| 11   | 101041               | 4    | Rondella                   | Washer                    |
| 12   | 12575821             | 4    | Dado                       | Nut                       |
| 13   | 134226               | 1    | Barra stabilizzatrice      | Stabilizer rod            |
| 14   | 109010               | 2    | Tampone                    | Pad                       |
| 15   | 104417               | 2    | Cavalloetto tenuta barra   | Rod retainer              |
| 16   | 12575621             | 4    | Dado                       | Nut                       |
| 17   | 108432               | 2    | Biscottino per barra       | Rod link                  |
| 18   | 100773               | 2    | Silentblock per biscottino | Silentblock               |
| 19   | 108913               | 4    | Rondella di rasamento      | Shim                      |
| 20   | 16105121             | 2    | Dado                       | Nut                       |
| 21   | 107335               | 4    | Gommino                    | Grommet                   |
| 22   | 108294               | 2    | Tubo distanziale           | Spacer                    |
| 23   | 117285               | 2    | Rondella                   | Washer                    |
| 24   | 16104421             | 2    | Dado                       | Nut                       |
| 25   | 106616               | 4    | Rondella                   | Washer                    |

| Rif. | Dis. No.<br>Part No. | Q.ty | DENOMINAZIONE                                                                          | DESCRIPTION                                            |
|------|----------------------|------|----------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1    | 115716               | 1    | Leva superiore Dx.                                                                     | Upper lever, right                                     |
| -    | 115715               | 1    | Leva superiore Sx.                                                                     | Upper lever, left                                      |
| 2    | 117805               | 1    | Leva inferiore Dx.                                                                     | Lower lever, right                                     |
| -    | 117806               | 1    | Leva inferiore Sx.                                                                     | Lower lever, left                                      |
| 3    | 103170               | 16   | Flamblok per attacco leve                                                              | Flamblok for levers                                    |
| 4    | 130752               | 4    | Forcella inferiore                                                                     | Lower fork                                             |
| 5    | 121693               | 8    | Bullone                                                                                | Bolt                                                   |
| 6    | 16105121             | 8    | Dado                                                                                   | Nut                                                    |
| 7    | 112439               | 2    | Bullone                                                                                | Bolt                                                   |
| 8    | 112440               | 2    | Bullone                                                                                | Bolt                                                   |
| 9    | 16105121             | 4    | Dado                                                                                   | Nut                                                    |
| 10   | 107340               | 8    | Rondella di rasamento per forcella inferiore-spessore mm. 2,5 (di eventuale montaggio) | Shim for lower fork, thickness 2,5mm possible fitting) |
| -    | 101039               | 8    | Idem spessore mm. 1                                                                    | Ditto, thickness 1 mm.                                 |
| -    | 107338               | 8    | Idem spessore mm. 1,5                                                                  | Ditto, thickness 1,5 mm.                               |
| -    | 107339               | 8    | Idem spessore mm. 2                                                                    | Ditto, thickness 2 mm.                                 |



TAV. 51

DATA: OTTOBRE 88

RUOTE - Dalla vettura N. 76626

WHEELS - Starting from car No. 76626

328 / 328  
GTB / GTS

| Rif. | Dis. No.<br>Part No | Q.ty | DENOMINAZIONE                                                                                   | DESCRIPTION                                                                            |
|------|---------------------|------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| -    | 136195              | -    | Copertura posteriore MICHELIN MXX 225 VR16 - In alternativa al n. 124344 -No per GD-CH-SA-USA-J | Rear tyre- MICHELIN MXX 225/50 VR16 In alternative no. 124344 - Not for RHD-CH-SA-US-J |
| 6    | 136029              | -    | Copertura anteriore Pirelli P700 (A richiesta) - No per USA-AUS-J                               | Front tyre- Pirelli P700 (Optional) Not for US-AUS-J                                   |
| -    | 136030              | -    | Copertura posteriore Pirelli P700 (A richiesta) - No per USA-AUS-J                              | Rear tyre- Pirelli P700 (Optional) Not for US-AUS-J                                    |
| 7    | 133817              | 1    | Copertura per ruota di scorta Goodyear T 105/80 R18 - No per USA-GD-CH                          | Spare wheel tyre Goodyear T 105/80 R18 - Not for US-RHD-CH                             |
| -    | 134123              | -    | Copertura per ruota di scorta Michelin 115 R18 - No per USA-GD-CH                               | Spare wheel tyre Michelin 115/85 R18 Not for US-RHD-CH                                 |
| 8    | 105069              | 5    | Valvola                                                                                         | Valve                                                                                  |
| 9    | 108851              | -    | Contrappeso gr. 10                                                                              | Counter weight gr. 10                                                                  |

| Rif. | Dis. No.<br>Part No | Q.ty | DENOMINAZIONE                                                                                        | DESCRIPTION                                                                              |
|------|---------------------|------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1    | 137079              | -    | Ruota anteriore - 7J x 16"                                                                           | Front rim - 7J x 16"                                                                     |
| -    | 130905              | -    | Ruota posteriore - 8J x 16"                                                                          | Rear rim - 8J x 16"                                                                      |
| 2    | 136861              | -    | Ruota di scorta 3 1/4B x 18" No per CH-GD-SA                                                         | Spare rim 3 1/4B x 18" Not for CH-RHD-SA                                                 |
| 3    | 136225              | 10   | Colonnella per ruota anteriore                                                                       | Front wheel stud                                                                         |
| -    | 120503              | 10   | Colonnella per ruota posteriore                                                                      | Rear wheel stud                                                                          |
| 4    | 120065              | 4    | Anello di tenuta                                                                                     | Sealing ring                                                                             |
| 5    | 108947              | 4    | Coppetta per ruota                                                                                   | Wheel cover                                                                              |
| 6    | 129865              | -    | Copertura anteriore - Goodyear EAGLE 205/55 VR16 - No per CH                                         | Front tyre - Goodyear EAGLE 205/55 VR16 - Not for CH                                     |
| -    | 124344              | -    | Copertura posteriore - Goodyear EAGLE 225/55 VR16 - No per CH                                        | Rear tyre - Goodyear EAGLE 225/55 VR16 - Not for CH                                      |
| 6    | 137140              | -    | Copertura anteriore - MICHELIN MXX 205/55 VR16 - In alternativa al n. 129866 - No per GD-CH-SA-USA-J | Front tyre - MICHELIN MXX 205/55 VR16 - In alternative No. 129866 Not for RHD-CH-SA-US-J |

WHEEL AND TIRE SETTING DATA

|                 |                 |               |                                          |                              |                                     |
|-----------------|-----------------|---------------|------------------------------------------|------------------------------|-------------------------------------|
| WHEELS          |                 | FRONT<br>REAR | 7J X 16"<br>8J X 16"                     |                              |                                     |
| TIRES           |                 | FRONT         | GOODYEAR EAGLE<br>205/55 VR 16 N.O.      | MICHELIN MXW<br>205/55 VR 16 | PIRELLI P700<br>205/55 VR 16 (OPT.) |
|                 |                 | REAR          | GOODYEAR EAGLE<br>225/50 VR 16 N.O.      | MICHELIN MXW<br>225/50 VR 16 | PIRELLI P700<br>225/50 VR 16 (OPT.) |
| FRONT           | Camber (*)      |               | - 0°35' ÷ - 0°55'                        |                              |                                     |
|                 | Toe - In (*)    |               | ins. .08 ÷ .12<br>mm. 2 ÷ 3              |                              |                                     |
|                 | Caster Angle    |               | 5° 50" ÷ 6° 10'                          |                              |                                     |
|                 | Pressure (cold) |               | p.s.i. 33<br>bar 2.3                     | p.s.i. 31<br>bar 2.1         | p.s.i. 37.5<br>bar 2.6              |
| REAR            | Camber (*)      |               | - 1°50' ÷ - 2°10'                        |                              |                                     |
|                 | Toe - In (*)    |               | ins. .12 ÷ .16<br>mm. 3 ÷ 4              |                              |                                     |
|                 | Pressure (cold) |               | p.s.i. 36<br>bar 2.5                     | p.s.i. 36<br>bar 2.5         | p.s.i. 37.5<br>bar 2.6              |
| Spare Wheel     |                 |               | 3 ¼" X 18"                               |                              |                                     |
| Tire            |                 |               | Goodyear 105/80 R 18                     |                              |                                     |
| Pressure (cold) |                 |               | p.s.i. 60 (Max. speed 50 mph)<br>bar 4.2 |                              |                                     |

(\*) Static load car: full tanks, 2 people and 44lbs of luggage



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **80-28**

DATE: 4/20/87

**SUBJECT: ELECTRICAL TEST PROCEDURE FOR MARELLI MICROPLEX  
IGNITION SYSTEM**

**VEHICLES: TESTAROSSA-MICROPLEX MED 120B  
328 GTB/GTS, 3.2 MONDIAL AND 3.2 MONDIAL CABRIOLET-  
MICROPLEX MED 806A**

## INTRODUCTION:

Attached there are two Electrical Test Procedures that can be utilized when troubleshooting the Marelli Microplex Ignition System. These tests are to be performed using the special interconnector (25 pin-Ferrari P.N. 95970020) connected in series with the Microplex Ignition Control Unit.

There are two separate test procedures. One for use on Testarossa vehicles and one for 8 cylinder cars with 3.2 engines. Please utilize the appropriate test procedure and follow closely the instructions in sequence listed under "Important Notes".



**ELECTRICAL TEST PROCEDURE FOR  
MICROPLEX IGNITION SYSTEM - MED 120B  
(TR - 12 CYL.)**

**EQUIPMENT / SPECIAL TOOLING**

- Interconnector - Ferrari P.N. 95970020  
- Digital Volt / Ohm Meter  
Ex. Alltest Multimeter No. 3510

| Important Notes:                                                                             | Test No. | Meter Setting |           | Correct Theoretical Value          | Item Being Checked                                                                                                               | Notes                                                                            |
|----------------------------------------------------------------------------------------------|----------|---------------|-----------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|                                                                                              |          | Pin (-) (+)   | Dial      |                                    |                                                                                                                                  |                                                                                  |
| Install Interconnector<br>Microplex Disconnected<br>Electrical Checks Made<br>w/Ignition Off | 1        | 2 1           | OHM       | 600 - 1000 $\Omega$                | Resistance of TDC Pick - Up                                                                                                      | If 0 $\Omega$ or greater than 1500 $\Omega$ , replace sensor                     |
| "                                                                                            | 2        | 3 16          | OHM       | 600 - 1000 $\Omega$                | Resistance of Tachimetric Pick - Up                                                                                              | If 0 $\Omega$ or greater than 1500 $\Omega$ , replace sensor                     |
| "                                                                                            | 3        | 11 17         | OHM       | 0 $\Omega$ - Less Than .2 $\Omega$ | Ground for Microplex<br>Advance Curve Family Identification                                                                      | If greater than .2 $\Omega$ , check for proper elec. conn. and grd. at ign. coil |
| "                                                                                            | 4        | 11 18         | OHM       | $\infty$                           | Advance Curve Family Identification                                                                                              |                                                                                  |
| "                                                                                            | 5        | 11 23         | OHM       | $\infty$                           | Advance Curve Family Identification                                                                                              |                                                                                  |
| Turn Ignition Key ON<br>Microplex Disconnected                                               | 6        | 11 13         | Volt - DC | 11 - 13 V                          | Voltage Supply to Microplex                                                                                                      | If less than 11 - 13 V check cond. of batt. & elec. conn.                        |
| Turn Ignition Key OFF<br>Reconnect Microplex<br>Start Engine - IDLE                          | 7        | 11 19         | Volt - DC | 12 - 14.5 V<br>0 V                 | Voltage Signal to Microplex from Throttle Microswitch ( Idle Position)<br>Off Idle Signal to Microplex from Throttle Microswitch | Check the idle position adjustment of micro-switch.<br>Check elec. conn.         |
| "                                                                                            | 8        | 2 1           | Volt - AC | >.10 V                             | Voltage Output of TDC Pick - Up                                                                                                  | If less than, check the position of sensor. (.4-.7mm)                            |

ELECTRICAL TEST PROCEDURE FOR  
MICROPLEX IGNITION SYSTEM - MED 120B  
(TR - 12 CYL.)  
PAGE - 2 -

PAGE: 3

| Important Notes:                                                      | Test No. | Meter Setting |           | Correct Theoretical Value | Item Being Checked                         | Notes                         |
|-----------------------------------------------------------------------|----------|---------------|-----------|---------------------------|--------------------------------------------|-------------------------------|
|                                                                       |          | Pin (-) (+)   | Dial      |                           |                                            |                               |
| Turn Ignition Key OFF<br>Reconnect Microplex<br>Start Engine - IDLE   | 9        | 3 16          | Volt - AC | > 1.5 V                   | Voltage Output of Tachimetric Pick - Up    |                               |
| "                                                                     | 10       | 10 9          | Volt - DC | 2.8 - 3.5 V               | Microplex Output to Power Module 7/12 Bank | If 0v, replace Microplex ECU. |
| "                                                                     | 11       | 15 14         | Volt - DC | 2.8 - 3.5 V               | Microplex Output to Power Module 1/6 Bank  | If 0v, replace Microplex ECU. |
| "                                                                     | 12       | 11 24         | Volt - DC | .20 - .35 V               | Output Signal to Tachometer                |                               |
| Turn Ignition Key OFF<br>Remove Interconnector<br>Reconnect Microplex |          |               |           |                           |                                            |                               |

ELECTRICAL TEST PROCEDURE FOR  
MICROPLEX IGNITION SYSTEM - MED 806A  
(3.2 - 8 CYL.)**EQUIPMENT / SPECIAL TOOLING**  
- Interconnector - Ferrari P.N. 95970020  
- Digital Volt / Ohm Meter  
Ex. Alltest Multimeter No. 3510

| Important Notes:                                                                             | Test No. | Meter Setting  |           | Correct Theoretical Value            | Item Being Checked                                                                                                                 | Notes                                                                                     |
|----------------------------------------------------------------------------------------------|----------|----------------|-----------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|                                                                                              |          | Pin<br>(-) (+) | Dial      |                                      |                                                                                                                                    |                                                                                           |
| Install Interconnector<br>Microplex Disconnected<br>Electrical Checks Made<br>w/Ignition Off | 1        | 2 1            | OHM       | 600 - 1000 $\Omega$                  | Resistance of TDC Pick - Up                                                                                                        | If 0 $\Omega$ or greater<br>than 1500 $\Omega$ ,<br>replace sensor                        |
| "                                                                                            | 2        | 3 16           | OHM       | 600 - 1000 $\Omega$                  | Resistance of Tachimetric Pick - Up                                                                                                | If 0 $\Omega$ or greater<br>than 1500 $\Omega$ ,<br>replace sensor                        |
| "                                                                                            | 3        | 11 17          | OHM       | Less than<br>.2 $\Omega$             | Ground for Microplex<br>Advance Curve Family Identification                                                                        | If greater than .2 $\Omega$ ,<br>check for proper elec.<br>conn. and grd. at<br>ign. coil |
| "                                                                                            | 4        | 11 18          | OHM       | $\infty$                             | Advance Curve Family Identification                                                                                                |                                                                                           |
| "                                                                                            | 5        | 11 23          | OHM       | $\infty$                             | Advance Curve Family Identification                                                                                                |                                                                                           |
| "                                                                                            | 6        | 11 19          | OHM       | Less than<br>.2 $\Omega$<br>$\infty$ | Idle Signal to Microplex from Throttle<br>Microswitch (Idle Position)<br>OFF Idle Signal to Microplex from Throttle<br>Microswitch | Check the idle position<br>adjustment of micro-<br>switch.<br>Check elec. conn.           |
| Turn Ignition Key ON<br>Microplex Disconnected                                               | 7        | 11 13          | Volt - DC | 11- 13 V                             | Voltage Supply to Microplex                                                                                                        |                                                                                           |

ELECTRICAL TEST PROCEDURE FOR  
MICROPLEX IGNITION SYSTEM - MED 806A

(3.2 - 8 CYL.)

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PAGE: 5

| Important Notes:                                                      | Test No. | Meter Setting  |           | Correct Theoretical Value | Item Being Checked                        | Notes                                                 |
|-----------------------------------------------------------------------|----------|----------------|-----------|---------------------------|-------------------------------------------|-------------------------------------------------------|
|                                                                       |          | Pin<br>(-) (+) | Dial      |                           |                                           |                                                       |
| Turn Ignition Key OFF<br>Reconnect Microplex<br>Start Engine - IDLE   | 8        | 2 1            | Volt - AC | > .20 V                   | Voltage Output of TDC Pick - Up           | If less than, check the position of sensor. (.4-.7mm) |
| "                                                                     | 9        | 3 16           | Volt - AC | > 2.0 V                   | Voltage Output of Tachimetric Pick - Up   |                                                       |
| "                                                                     | 10       | 10 9           | Volt - DC | 2.8 - 3.5 V               | Microplex Output to Power Module 5/8 Bank | If 0v, replace Microplex ECU.                         |
| "                                                                     | 11       | 15 14          | Volt - DC | 2.8 - 3.5 V               | Microplex Output to Power Module 1/4 Bank | If 0v, replace Microplex ECU.                         |
| "                                                                     | 12       | 11 24          | Volt - DC | .20 - .35 V               | Output Signal to Tachometer               |                                                       |
| Turn Ignition Key OFF<br>Remove Interconnector<br>Reconnect Microplex |          |                |           |                           |                                           |                                                       |

# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

80-29

DATE: 4/20/87

**SUBJECT: ELECTRICAL TEST PROCEDURE FOR FUEL INJECTION SYSTEM-  
BOSCH K-JETRONIC WITH LAMBDA (8 CYLINDER)**

**VEHICLES: 1984-1985 308 QV, MONDIAL QV, MONDIAL CABRIOLET  
1986-1987 328 GTB/GTS, 3.2 MONDIAL AND 3.2 MONDIAL  
CABRIOLET**

## INTRODUCTION:

Attached please find the above Electrical Test Procedure that can be utilized when troubleshooting the Bosch K-Jetronic with Lambda fuel injection system. These tests are to be performed using the special interconnector (35 pin-Ferrari P.N. 95970024) connected in series with the Bosch electronic control unit.

Please follow closely the instructions in sequence listed under "Important Notes".



| Important Notes:                                                                                                        | Test No. | Meter Setting |           | Correct Theoretical Value                  | Item Being Checked                                                                          |
|-------------------------------------------------------------------------------------------------------------------------|----------|---------------|-----------|--------------------------------------------|---------------------------------------------------------------------------------------------|
|                                                                                                                         |          | Pin (-) (+)   | Dial      |                                            |                                                                                             |
| Turn Ignition Key OFF<br>Reconnect ECU<br>Reconnect Safety Sw.<br>Reconnect Cold Start Diode<br>Start Engine - Let Idle | 7        | 15 8          | Volt - AC | 7.4 V<br>± .2                              | 60% Duty Cycle (Open Loop) - (F105C040 Engines)<br>Water Temp. < 57° C<br>Oil Temp. < 25° C |
|                                                                                                                         |          |               |           | 7.6 V<br>± .2                              | 65% Duty Cycle (Open Loop) - (F105E040 Engines)<br>Water Temp. < 59° C<br>Oil Temp. > 25° C |
|                                                                                                                         |          |               |           | 6.4 V<br>± .2                              | 50% Duty Cycle (Open Loop)<br>Water Temp. < 57° C<br>Oil Temp. > 25° C                      |
|                                                                                                                         |          |               |           | 5.3 - 6.3 V<br>± .15                       | Closed Loop<br>Water Temp. > 59° C<br>Oil Temp. > 25° C<br>Catalyst Temp. > 300° C          |
|                                                                                                                         |          |               |           | 7.4 V<br>(F105C040)<br>7.6 V<br>(F105E040) | WOT Enrichment<br>(Jump Pin #12 & #16 to simulate, with a jumper wire).                     |
| "                                                                                                                       | 8        | 4 2           | Volt - DC | .1 V - .8 V                                | Voltage Signal from Oxygen Sensor.                                                          |

**ELECTRICAL TEST PROCEDURE**  
**BOSCH K - JETRONIC WITH LAMBDA**  
**(F105E040 & F105C040 ENGINES)****EQUIPMENT / SPECIAL TOOLING**

- Interconnector - Ferrari P.N. 95970024  
- Digital Volt / Ohm Meter  
Ex. Alltest Multimeter No. 3510

| Important Notes:                                                             | Test No. | Meter Setting                         |           | Correct Theoretical Value             | Item Being Checked                                                                                                                                                                                                       |
|------------------------------------------------------------------------------|----------|---------------------------------------|-----------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                              |          | Pin (-) (+)                           | Dial      |                                       |                                                                                                                                                                                                                          |
| Ignition Key OFF<br>ECU Disconnected                                         | 1        | 5 7                                   | OHM       | 0 $\Omega$<br>$\infty$                | Coolant Temperature Switch<br>Water Temperature Below 54 - 60° C<br>Water Temperature Above 54 - 60° C                                                                                                                   |
| "                                                                            | 2        | 5 6                                   | OHM       | 0 $\Omega$ Idle<br>> 2000<br>off idle | Remove diode for cold start injector and insert jumper wire.<br>Continuity of idle contact on throttle microswitch.                                                                                                      |
| "                                                                            | 3        | 5 12                                  | OHM       | 0 $\Omega$ - WOT                      | Continuity of W.O.T. contact on throttle microswitch.<br>Resistance should be infinite and become zero with throttle opening above 60° from idle.<br>NOTE: If oil temperature is below 15° C, reading will be 0 $\Omega$ |
| "                                                                            | 4        | 4 2                                   | OHM       | > 1 million cold<br>300/1500 warm     | Internal resistance of oxygen sensor, which changes greatly with temperature.                                                                                                                                            |
| "                                                                            | 5        | Chassis Ground 5<br>Chassis Ground 16 | OHM       | < .2 $\Omega$<br>< .2 $\Omega$        | Ground connection for ECU.                                                                                                                                                                                               |
| ECU Disconnected<br>Ignition Key ON<br>Fuel Dist. Safety Sw.<br>Disconnected | 6        | 5 8                                   | Volt - DC | 8 - 13 V                              | Voltage Supply to ECU from Bosch protection relay.                                                                                                                                                                       |

**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **80-32**

**PRODUCTION CHANGE**

DATE: 8/10/87

SUBJECT: REAR AND ENGINE WIRING HARNESS  
VEHICLES: 328 GTB / GTS

Starting  
from:

|             |       |  |  |  |  |  |
|-------------|-------|--|--|--|--|--|
| Model       | 328   |  |  |  |  |  |
| Area        |       |  |  |  |  |  |
| Chassis no. | 71059 |  |  |  |  |  |
| Engine no.  |       |  |  |  |  |  |
| Gearbox no. |       |  |  |  |  |  |

**Description:**

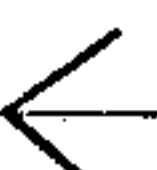
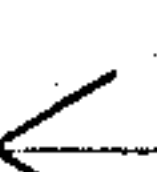
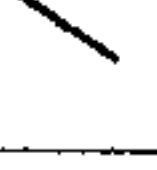
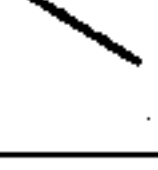
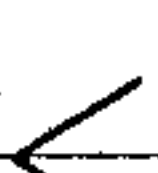
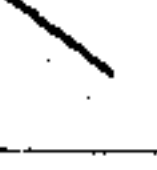
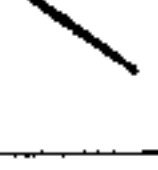
A protection sheathing for the wiring harness of the engine auxiliaries and a modified connector for the pick-ups wiring have been introduced.

**Reason:**

Cable sheathing change.

**REPLACED PARTS**

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description                                                                                                         | ref.<br>fig. | Part<br>Number | Description                                                                                                           |
|--------------|----------------|---------------------------------------------------------------------------------------------------------------------|--------------|----------------|-----------------------------------------------------------------------------------------------------------------------|
|              | 61803500       | Rear Harness<br> Not for USA     |              | 62357800       | Rear Harness<br> Not for USA     |
|              | 61803900       | Engine Harness<br> Aus. - J - CH |              | 62357700       | Engine Harness<br> Aus. - J - CH |
|              | 61808700       | Rear Harness<br> For USA         |              | 62359600       | Rear Harness<br> For USA         |
|              | 61809100       | Engine Harness<br> Aus. - J      |              | 62359700       | Engine Harness<br> Aus. - J      |
|              | 62346800       | Rear Harness<br> For CH - 87     |              | 62359800       | Rear Harness<br> For CH - 87     |
|              | 61931500       | Engine Harness<br> For CH - 87   |              | 62359900       | Engine Harness<br> For CH - 87   |
|              | 61804000       | Pick - Ups Harness                                                                                                  |              | 62357600       | Pick - Ups Harness                                                                                                    |

**Spare parts procedures:**

The individual parts are not interchangeable with the replaced parts.

**Reference spare parts catalogue:**

328 GTB / S Cat. 462/86 - Tav. 120 - Ref. 11 - 15 - 16.



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No **80-35**

**PRODUCTION CHANGE**

DATE: 10/5/88

SUBJECT: WIRING HARNESS COVERING  
VEHICLES: 328 AND TURBO GTB / GTS.

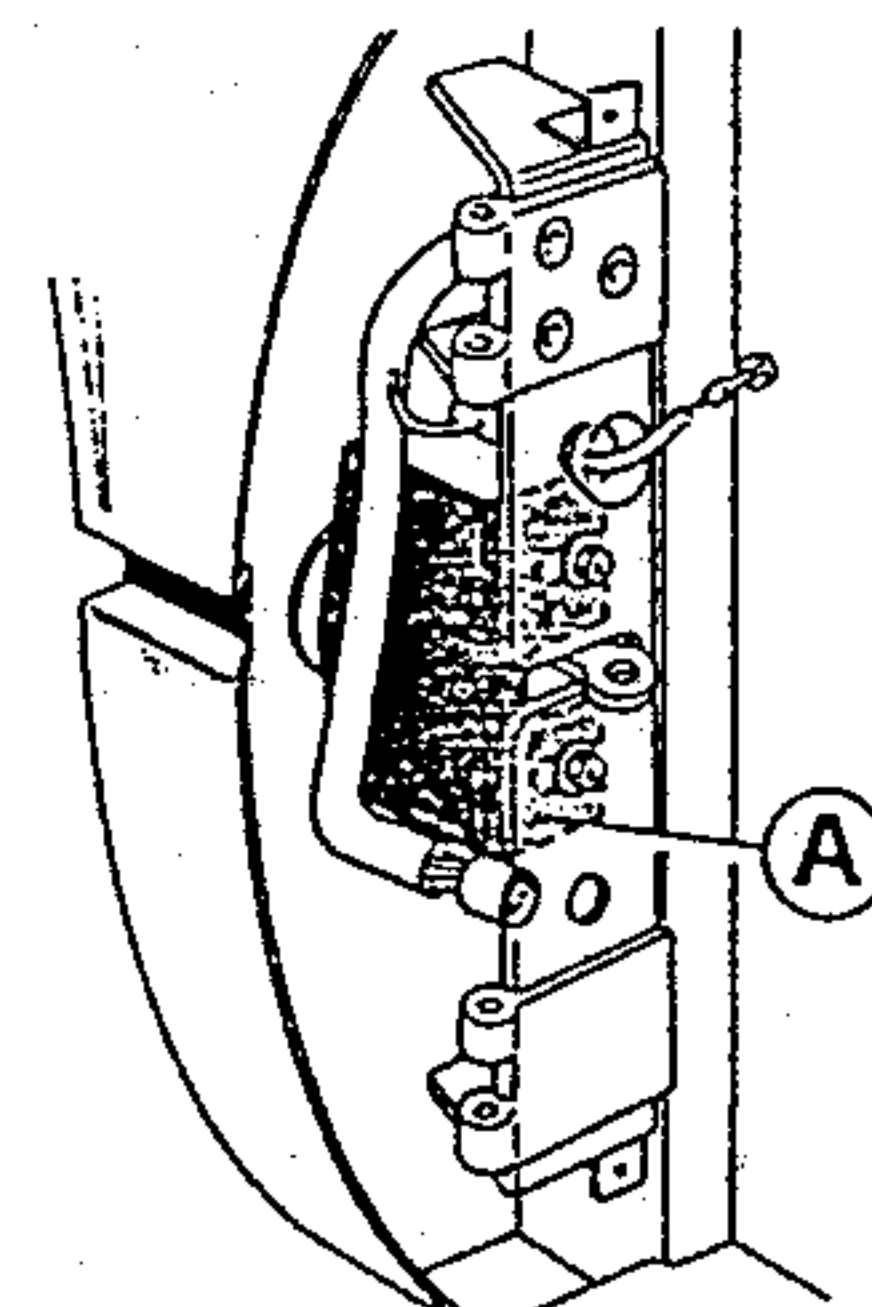
|                |             |           |  |  |  |  |
|----------------|-------------|-----------|--|--|--|--|
| Starting from: | Model       | 328 Turbo |  |  |  |  |
|                | Area        | All       |  |  |  |  |
|                | Chassis no. | 75586     |  |  |  |  |
|                | Engine no.  |           |  |  |  |  |
|                | Gearbox no. |           |  |  |  |  |

**Description:**

A covering for the wiring harness has been introduced in the door hinge area.

**Reason:**

For easier installation of wiring harness in the door hinge area.



| REPLACED PARTS |             |             | NEW PARTS |             |             |
|----------------|-------------|-------------|-----------|-------------|-------------|
| ref. fig.      | Part Number | Description | ref. fig. | Part Number | Description |
|                |             |             | A         | 62500100    | Covering    |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |
|                |             |             |           |             |             |

**Spare parts procedures:**

The covering can also be fitted to previous cars.

**Reference spare parts catalogue:**



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

80-36

DATE: 2/13/89

**SUBJECT:** Calibration of display indicator

**VEHICLES:** 328 GTB/S and TURBO (P.N. 61808200 Right, P.N. 61808300 Left)  
412 (Pininfarina P.N. 2578089800 Right, P.N. 2578089900 Left)

ATTACHED PLEASE FIND A DESCRIPTION OF THE CALIBRATION PROCEDURE FOR THE ABOVE ITEMS.

IT IS RECOMMENDED THAT AFTER THE CALIBRATION PROCEDURE HAS BEEN CARRIED OUT A DAB OF PAINT BE APPLIED TO THE ADJUSTMENT SCREWS TO PREVENT ANY ALTERATION OF THE SETTING DURING USE.

REF. SAT T.I. 499



## CALIBRATION PROCEDURE

### 1. LED Display Indicator with 4 Potentiometers ( fig. 1)

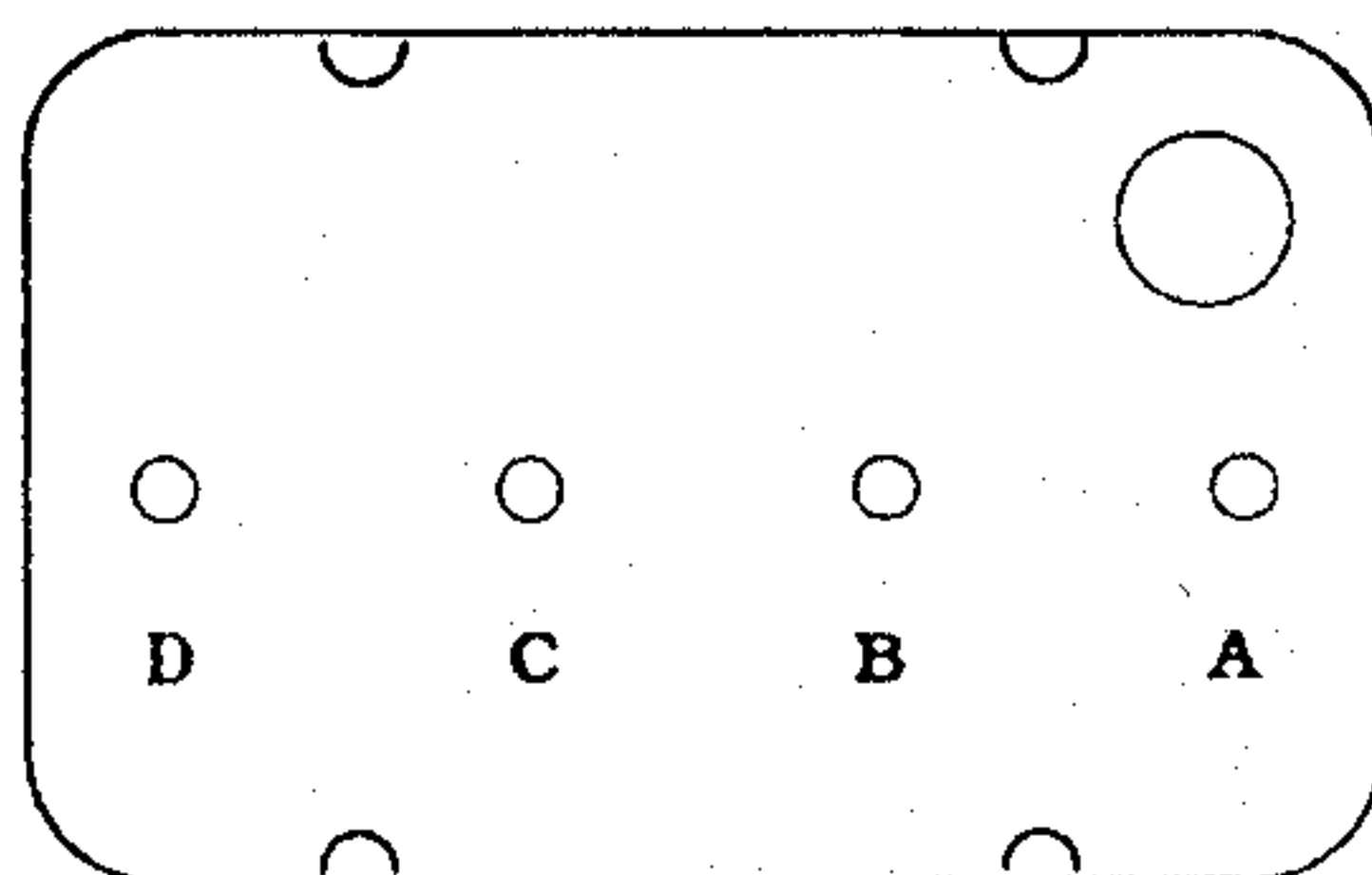
#### 1.1 RED LED: Heater Water Valve

- 1.1.1 Through hole **D** rotate the potentiometer screw in a clockwise direction to the limit of its travel.
- 1.1.2 Press the end of the rocker switch bar with the red spot for at least 10 seconds.
- 1.1.3 If the LED's are all light, then through hole **C** gently rotate the potentiometer anti-clockwise until one LED goes out then rotate carefully clockwise without stopping until all LED's are lit. Should one or more LED's not light then rotate the potentiometer in a clockwise direction without stopping, until all LED's are lit.

#### 1.2 YELLOW LED: Air Distribution Flap

- 1.2.1 Press the end of the rocker switch bar with the orange spot (328) or white spot (412) for at least 10 seconds.
- 1.2.2 Through hole **B** rotate the potentiometer screw in a clockwise direction until the first LED just lights then rotate the screw in an anti-clockwise direction without stopping until the LED goes out.
- 1.2.3 Press the demist symbol end of the rocker switch bar for at least 10 seconds.
- 1.2.4 Through hole **A** rotate the potentiometer in a clockwise direction to the limit of its travel, then rotate it in an anti-clockwise direction without stopping until an LED lights up.
- 1.2.5 Repeat steps 1.2.1 through 1.2.4 for at least 3 times, after which the calibration may be considered complete.

FIGURE NO. 1



## CALIBRATION PROCEDURE

### 2. LED Display Indicator with 3 Potentiometers (fig.2)

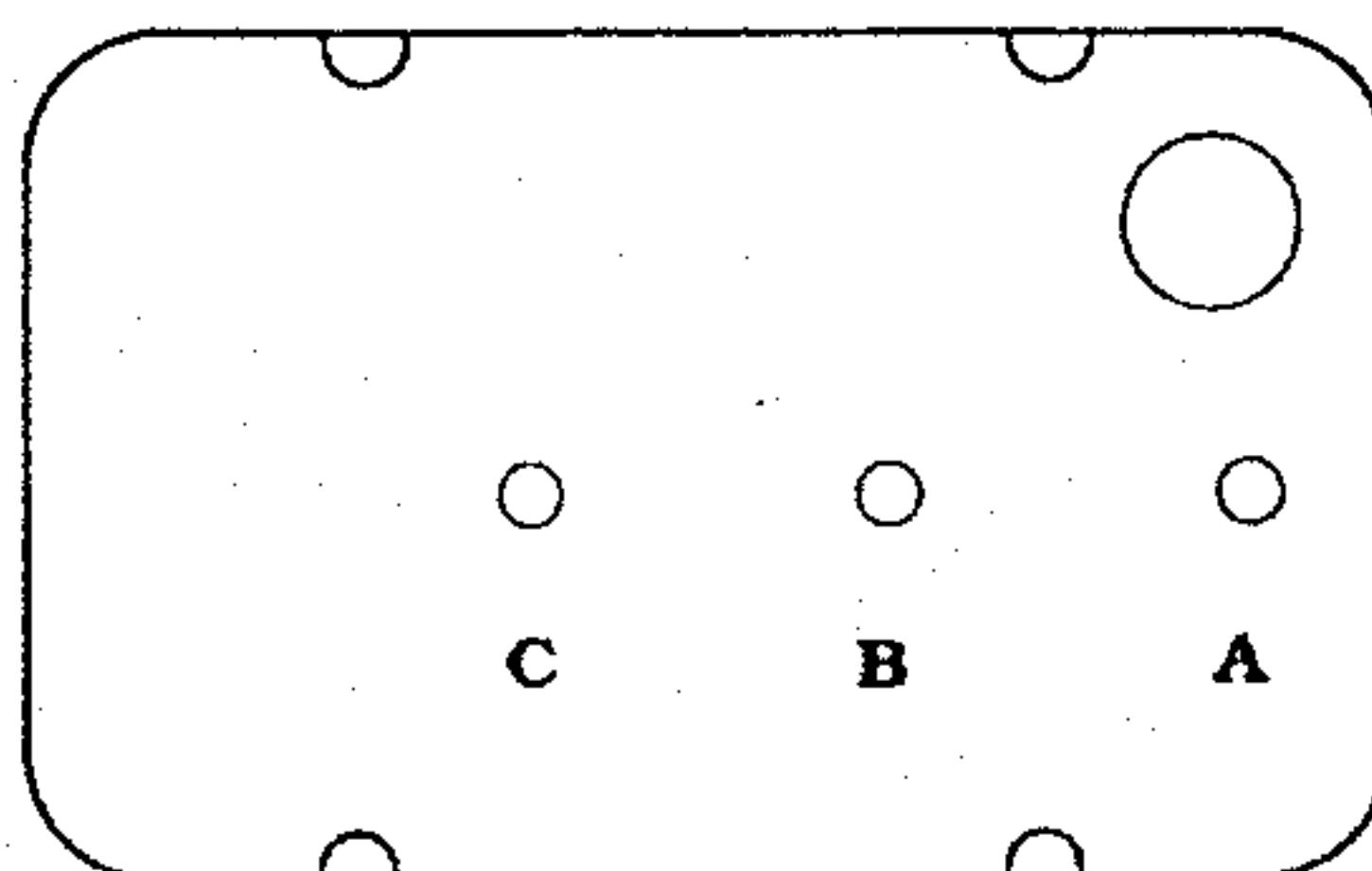
#### 2.1 RED LED: Heater Water Valve

- 2.1.1 Press the end of the rocker switch with the blue spot for at least 10 seconds to ensure that the valve is closed.
- 2.1.2 Through hole **C** rotate the potentiometer screw in a clockwise direction to the limit of its travel, and if as a result all the LED's are extinguished leave the screw at the end of its travel: otherwise gently rotate the screw anti-clockwise until the last red LED goes out.
- 2.1.3 Press the end of the rocker switch bar with the red spot for at least 10 seconds and check that all LED's are lit. Should this not be the case, then through hole **C** adjust the potentiometer screw in an anti-clockwise direction without stopping until the last LED is lit.

#### 2.2 YELLOW LED : Air Distribution Flap

- 2.2.1 Press the end of the rocker switch bar with the orange spot (328) or white spot (412) for at least 10 seconds.
- 2.2.2 Through hole **A** rotate the potentiometer screw in a clockwise direction until the first LED just lights, the gently rotate in an anti-clockwise direction without stopping until the first LED goes out.
- 2.2.3 Press the demist symbol end of the rocker switch bar for at least 10 seconds.
- 2.2.4 Through hole **B** rotate the potentiometer screw in a clockwise direction until the limit of its travel. If all the LED's are lit leave the screw in that position, but if one or more of the LED's are not lit, gently rotate the screw anti-clockwise without stopping until the last LED lights up.
- 2.2.5 Press the end of the rocker bar switch with the orange spot (328) or white spot (412) for at least 10 seconds to ensure that all LED's extinguish, at which point the calibration is complete. If however one or more of the LED's remain lit gently rotate potentiometer **A** in an anti-clockwise direction without stopping until all the LED's extinguish then repeat the procedure from step 2.2.3.

FIGURE NO.2



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

80-39

**PRODUCTION CHANGE**

DATE: 7/15/89

**SUBJECT: ELECTRONIC CONTROL FOR VENTILATION FAN SPEED**  
**VEHICLES: 328 - F40**

|                   |             |         |         |       |  |  |  |
|-------------------|-------------|---------|---------|-------|--|--|--|
| Starting<br>from: | Model       | 328 GTB | 328 GTS | F40   |  |  |  |
|                   | Area        |         |         |       |  |  |  |
|                   | Chassis no. | 79600   | 79752   | 79763 |  |  |  |
|                   | Engine no.  |         |         |       |  |  |  |
|                   | Gearbox no. |         |         |       |  |  |  |

**Description:**

A new electronic control for ventilation fan speed has been introduced into production.

**Reason:**

Operational improvement

| REPLACED PARTS |                |                    | NEW PARTS    |                |                    |
|----------------|----------------|--------------------|--------------|----------------|--------------------|
| ref.<br>fig.   | Part<br>Number | Description        | ref.<br>fig. | Part<br>Number | Description        |
|                | 62373900       | Electronic control |              | 62618000       | Electronic control |
|                |                |                    |              |                |                    |
|                |                |                    |              |                |                    |
|                |                |                    |              |                |                    |
|                |                |                    |              |                |                    |
|                |                |                    |              |                |                    |

**Spare parts procedures:** The new electronic controls replace the old ones. Old parts that you might have in stock must be returned to the Ferrari N.A. Parts Department, following normal AFA procedures.

**Reference spare parts catalogue:**

REF. SAT T.I. CN 65



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

80-40

DATE: 7/15/89

SUBJECT: CARBON & SPRING FOR DISTRIBUTOR CAP (P.N. 140567)

VEHICLES: TESTAROSSA - 328 GTB/GTS - GTB/GTS TURBO -  
3.2 MONDIAL - 412

The item will now be supplied separately from the complete distributor cap.

The carbon & spring will be supplied by our spare parts department and may be ordered under the single part number 140567.

REF. SAT T.I. 508



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

90-10

**PRODUCTION CHANGE**

DATE: 6/15/88

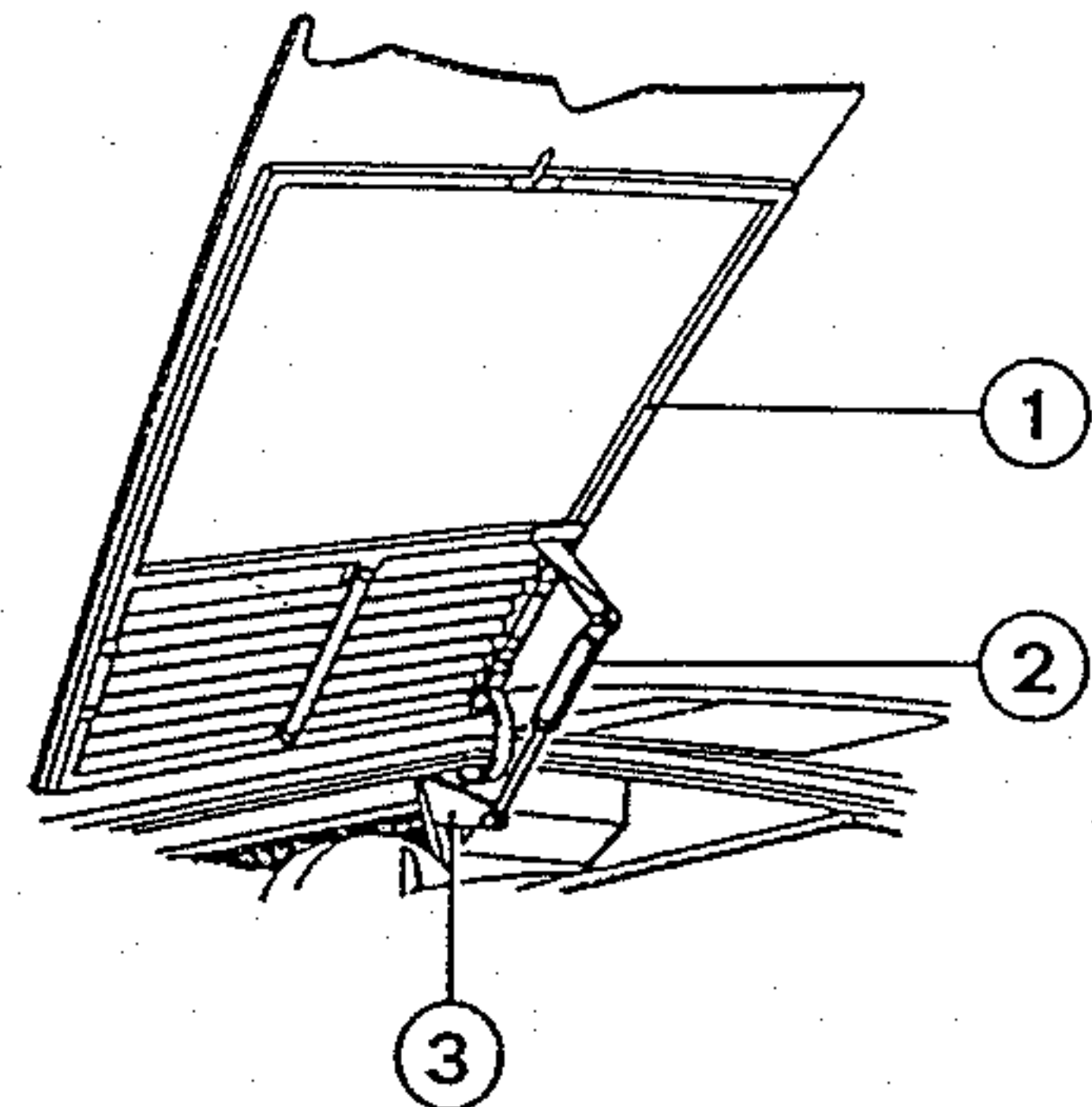
SUBJECT: FRONT BONNET  
VEHICLES: 328 & TURBO

Starting  
from:

|             |       |       |  |  |  |  |
|-------------|-------|-------|--|--|--|--|
| Model       | 328   | Turbo |  |  |  |  |
| Area        | All   | Italy |  |  |  |  |
| Chassis no. | 75592 | 75593 |  |  |  |  |
| Engine no.  |       |       |  |  |  |  |
| Gearbox no. |       |       |  |  |  |  |

**Description:**

A new bonnet is assembled having a new support located on the right hand side instead of the previous left hand side.



**REPLACED PARTS**

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description    | ref.<br>fig. | Part<br>Number | Description    |
|--------------|----------------|----------------|--------------|----------------|----------------|
| 1            | 61751500       | Front Bonnet   | 1            | 62486200       | Front Bonnet   |
| 2            | 60118107       | Shock Absorber | 2            | 62380500       | Shock Absorber |
| 3            | 61748600       | Bracket        | 3            | 62484300       | Bracket        |
|              |                |                |              |                |                |
|              |                |                |              |                |                |
|              |                |                |              |                |                |

**Spare parts procedures:**

The new parts are not interchangeable, singularly with pre - modified parts.

**Reference spare parts catalogue:**

328 Cat. No. 462/87 Tav. 112      Turbo GTB / GTS Cat. No. 432/87 Tav. 105



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

90-11

**PRODUCTION CHANGE**

DATE: 10/5/88

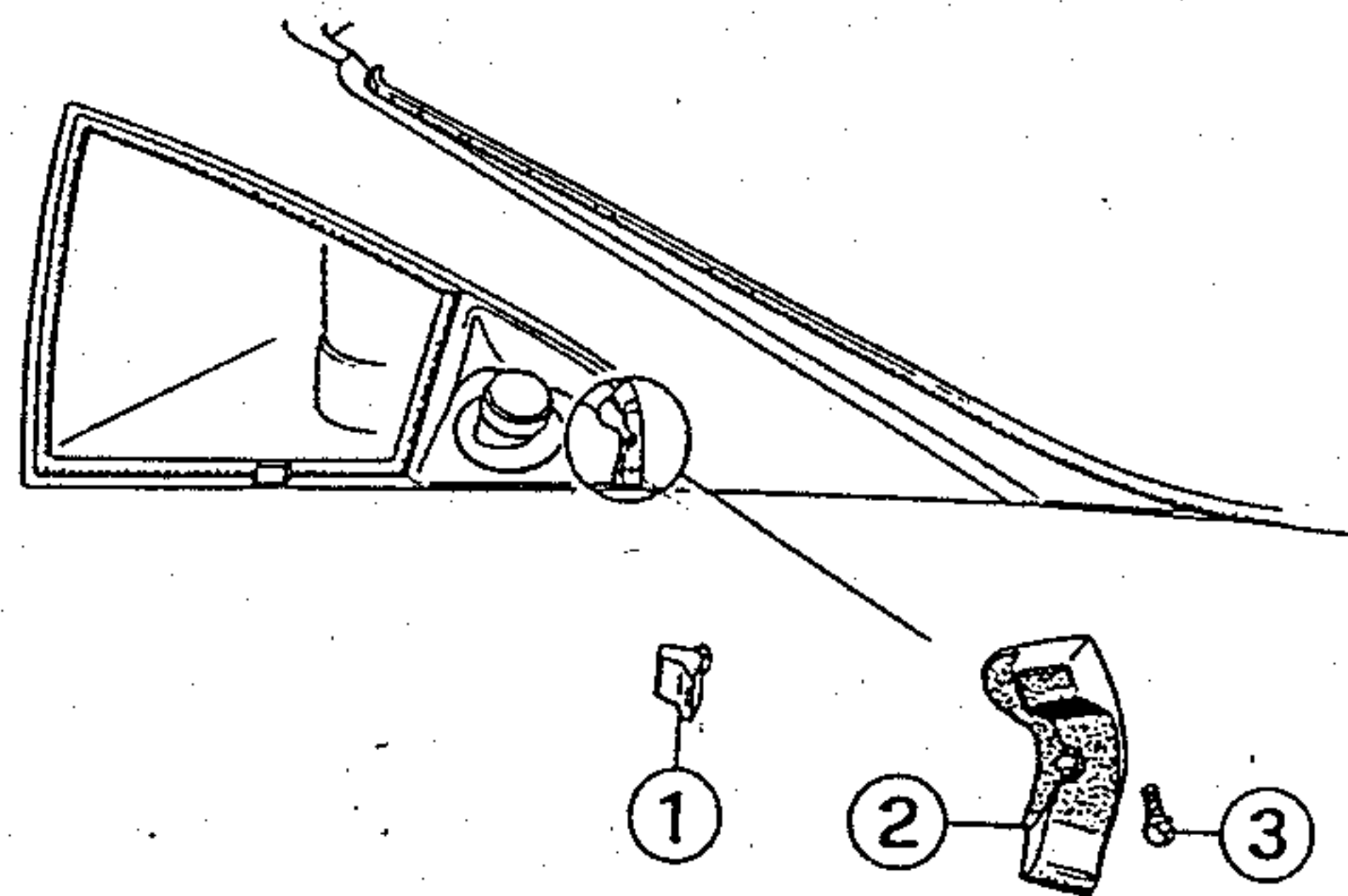
SUBJECT: SIDE GRILL GROMMET  
VEHICLES: 328 GTS

Starting  
from:

|             |         |  |  |  |  |  |
|-------------|---------|--|--|--|--|--|
| Model       | 328 GTS |  |  |  |  |  |
| Area        | All     |  |  |  |  |  |
| Chassis no. | 76681   |  |  |  |  |  |
| Engine no.  |         |  |  |  |  |  |
| Gearbox no. |         |  |  |  |  |  |

**Description:**

The left side grill grommet is of  
a new design.



**Reason:**

Production change.

**REPLACED PARTS**

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
| 1            | 61989600       | Grommet     |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|
| 2            | 62460200       | Grommet     |
| 3            | 10389377       | Screw       |
|              |                |             |
|              |                |             |
|              |                |             |
|              |                |             |

Spare parts procedures:

Reference spare parts catalogue:



**Ferrari**

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No 96-3

**PRODUCTION CHANGE**

DATE: 12/15/88

**SUBJECT: HEATER FAN MOTORS**  
**VEHICLES: 328 AND TURBO**

Starting  
from:

|             |       |       |  |  |  |  |
|-------------|-------|-------|--|--|--|--|
| Model       | 328   | Turbo |  |  |  |  |
| Area        |       |       |  |  |  |  |
| Chassis no. | 76076 | 76085 |  |  |  |  |
| Engine no.  |       |       |  |  |  |  |
| Gearbox no. |       |       |  |  |  |  |

**Description:**

New type heater fan motors complete with filters have been introduced.

**Reason:**

Production change.

**REPLACED PARTS**

**NEW PARTS**

| ref.<br>fig. | Part<br>Number | Description | ref.<br>fig. | Part<br>Number | Description |
|--------------|----------------|-------------|--------------|----------------|-------------|
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |
|              |                |             |              |                |             |

**Spare parts procedures:** The new heater fan motors are not interchangeable with the previous type. The part numbers for the new parts can be found on the attached drawing.

**Reference spare parts catalogue:**



# Ferrari

SOCIETA PER AZIONI ESERCIZIO FABBRICHE AUTOMOBILI E CORSE

SERVICE BULLETIN No

96-3

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SOLUZIONE PREMODIFICA

PREVIOUS TYPE

SOLUTION AVANT MODIFICATION

BAULÖSUNG VOR DER VARIANTE

61743500 USA

61903300 TURBO

61884100 - 61869800 USA

61770100

60696300

61748500 no per USAeTURBO

61770000 no per USA

61945900 USA

61947300 USA

61990000

15644101

61947300 no per USA

61947700 no per USA

NUOVA SOLUZIONE

NEW TYPE

NOUVELLE SOLUTION

NEUE LÖSUNG

12574121

13274411

10519301

62507800 USA

62440500 TURBO

62438800

62518000 no per USAeTURBO

62438700

61947300

62438900

