

































SYMBOLS - ASSISTANCE OPERATIONS

	Removal Disconnection
	Refitting Connection
	Removal Disassembly
	Fitting in place Assembly
	Tighten to torque
	Tighten to torque + angle value
	Press or caulk
	Regulation Adjustment
	Visual inspection Fitting position check
	Measurement Value to find Check
	Equipment
	Surface for machining Machine finish
	Interference Strained assembly
	Thickness Clearance
	Lubrication Damp Grease
	Sealant Adhesive
	Air bleeding
	Replacement Original spare parts

	Intake
	Exhaust
	Operation
ϱ	Compression ratio
	Tolerance Weight difference
	Rolling torque
	Rotation
	Angle Angular value
	Preload
	Number of revolutions
	Temperature
	Pressure
$>$	Oversized Higher than.... Maximum, peak
$<$	Undersized Less than.... Minimum
	Selection Classes Oversizing
	Temperature < 0 °C Cold Winter
	Temperature > 0 °C Hot Summer

OPTIONAL ELECTRICAL AND MECHANICAL PARTS INSTALLATIONS

Accessories mounting, additions and modifications on the vehicle are to be performed complying with IVECO mounting instructions (specific document "Instructions for transformation and preparation" is available at Assistance Network workshops). It is reminded that, especially about the electric system, several electric sockets are provided for as series (or optional) sockets in order to simplify and normalise the electrical intervention that is care of preparation personnel.

For any exception to mounting instructions, IVECO's authorisation is necessary.

Lack of observance of above described prescriptions involves guarantee lapse.



It is absolutely forbidden to make modifications or connections to electric central units wiring harnesses; in particular, the data interconnection line between central units (CAN line) is to be considered inviolable.

CONVERSIONS BETWEEN THE MAIN UNITS OF MEASUREMENT OF THE INTERNATIONAL SYSTEM AND MOST USED DERIVED QUANTITIES

Power

$$1 \text{ kW} = 1.36 \text{ metric HP}$$

$$1 \text{ kW} = 1.34 \text{ HP}$$

$$1 \text{ metric HP} = 0.736 \text{ kW}$$

$$1 \text{ metric HP} = 0.986 \text{ HP}$$

$$1 \text{ HP} = 0.746 \text{ kW}$$

$$1 \text{ HP} = 1.014 \text{ metric HP}$$

Torque

$$1 \text{ Nm} = 0.1019 \text{ kgm}$$

$$1 \text{ kgm} = 9.81 \text{ Nm}$$

Revolutions per time unit

$$1 \text{ rad/s} = 1 \text{ rpm} \times 0.1046$$

$$1 \text{ rpm} = 1 \text{ rad/s} \times 9.5602$$

Pressure

$$1 \text{ bar} = 1.02 \text{ kg/cm}^2$$

$$1 \text{ kg/cm}^2 = 0.981 \text{ bar}$$

$$1 \text{ bar} = 10^5 \text{ Pa}$$

Where accuracy is not particularly needed:

Nm unit is for the sake of simplicity converted into kgm according to ratio 10:1

$$1 \text{ kgm} = 10 \text{ Nm};$$

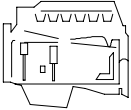
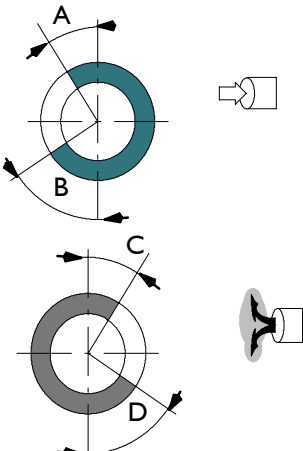
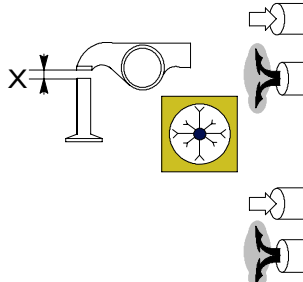
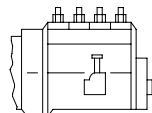
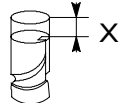
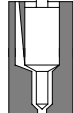
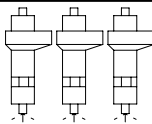

bar unit is for the sake of simplicity converted into kg/cm^2 according to ratio 1:1

$$1 \text{ kg/cm}^2 = 1 \text{ bar}.$$

Temperature

$$0^\circ \text{ C} = 32^\circ \text{ F}$$

$$1^\circ \text{ C} = (1 \times 1.8 + 32)^\circ \text{ F}$$

	Type	FIAE048I F	FIAE048I G	FIAE048I H
	<p>TIMING SYSTEM</p> <p>Start before T.D.C. A</p> <p>end after B.D.C. B</p> <p>Start before T.D.C. D</p> <p>end after B.D.C. C</p>		<p>14°</p> <p>27°</p> <p>54°</p> <p>10°</p>	
	<p>For timing check</p> <p>Operation</p> <p>X mm</p> <p>X mm</p> <p>X mm</p> <p>X mm</p>		<p>-</p> <p>-</p> <p>-</p> <p>-</p>	
	<p>SUPPLY</p>	<p>High pressure fuel feed system BOSCH EDC16 Composed of CPI high-pressure pump, electro-injectors, hydraulic accumulator (rail), EDC control unit, pressure and temperature sensors</p>		
	<p>Pump setting With piston no.1 at T.D.C.</p> <p>Start of delivery mm</p>		<p>-</p> <p>-</p>	
	<p>Electro-injectors type</p>	<p>BOSCH CRI 2-2</p>		
	<p>Injection sequence</p>	<p>1- 3 - 4 - 2</p>		
	<p>Injection pressure bar</p>	<p>1600</p>		

Refitting

Unless otherwise specified, re-attachment is carried out by reversing the order of detachment operations. In particular, comply with the following instructions:

Verify the conditions listed below, which refer to the tools used for valve timing:

- tool 99360614 (6, SENZA CODICE) must be inserted into the overhead;
- tool 99360615 (11, SENZA CODICE) must be inserted into the base unit.

Verify that the junction planes of the cylinder head and the base unit are clean.

Do not soil the cylinder head gasket.

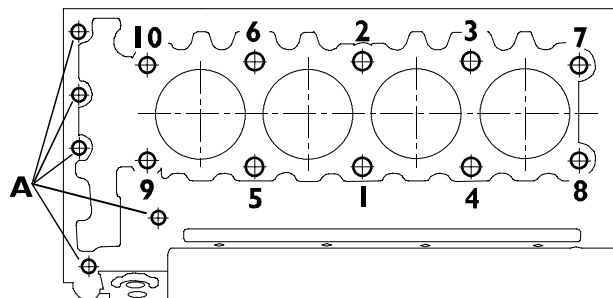
Place the cylinder head gasket with the "TOP" writing facing the head itself.

NOTE The gasket must strictly be kept sealed in its own package and be unwrapped soon before being fitted.

Fit the cylinder head, insert the screws and tighten up in three subsequent steps, by following the sequence and indications shown in the next figure.

NOTE Angle lock is carried out by means of tool 99395216.

Figure 26

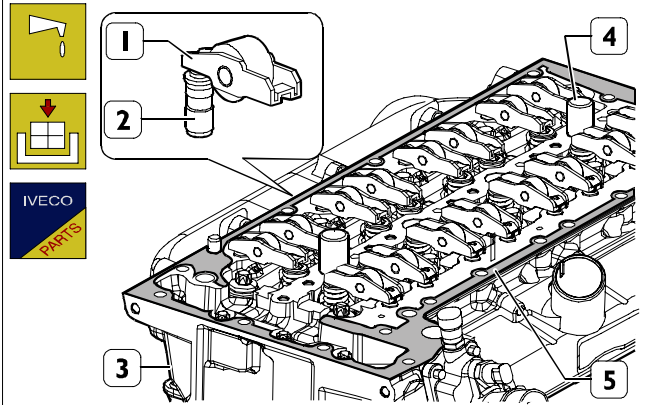


88355

Cylinder head fastening screw tightening sequence:

- step 1: preliminary tightening by means of a torque wrench:
 - tighten screws 1-2-3-4-5-6 to 130 Nm;
 - tighten screws 7-8-9-10 to 65 Nm.
- step 2: angle locking:
 - tighten screws 1-2-3-4-5-6 to 90°;
 - tighten screws 7-8-9-10 to 90°.
- step 3: angle locking:
 - tighten screws 1-2-3-4-5-6 to 90°;
 - tighten screws 7-8-9-10 to 60°.
- Tighten screws A to 25 Nm.

Figure 27



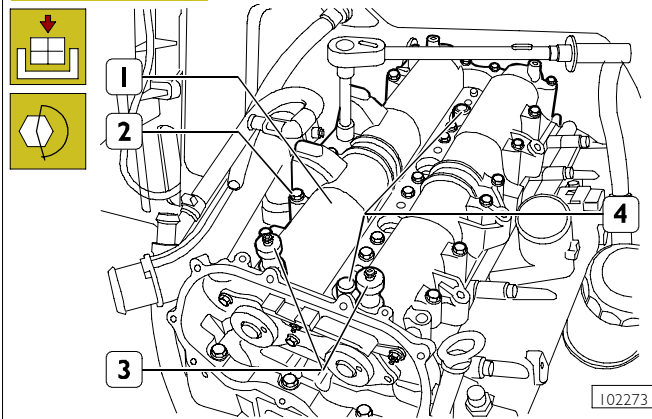
102226

Thoroughly clean hydraulic tappets (2), then lubricate and fit them to cylinder head (3), by correctly positioning rocker arms (1) on the valves.

Fit gasket (5).

Insert the two tools Sp. 2264 (4) into the electric injector seats for subsequent overhead centring on the cylinder head.

Figure 28

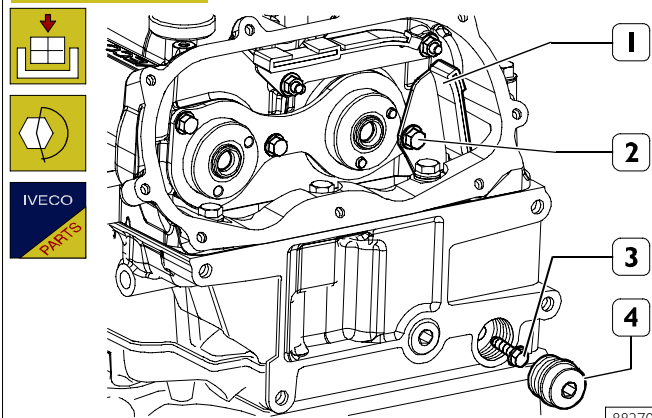


102273

Fit overhead (1) complete with tools 99360614 (3) for valve timing, then tighten fastening screws (2) to the specified torque.

Remove tools Sp. 2264 (4).

Figure 29



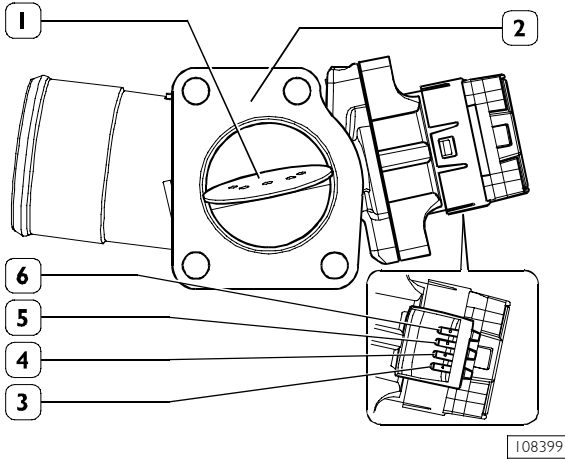
88270

Fit fixed upper shoe (1). Tighten screws (2 and 3) to the specified torque.

Fit plug (4) together with a new basket, then tighten it to the specified torque.

540760 Throttle valve assembly

Figure 320



- 1. Throttle valve - 2. Electric actuator - 3. Throttle position signal - 4. Ground - 5. Voltage - 6. PWM signal

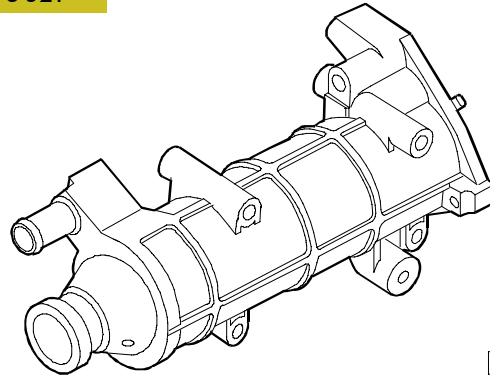
The throttle valve (N.O.) assembly, fitted on the inlet manifold, controls the amount of air from the intercooler, to be mixed with the exhaust gas made to circulate by the E.G.R. valve, according to a programmed percentage.

The circulated exhaust gas will be mixed with the air from the intercooler within a duct obtained in the cylinder head.

The throttle valve is operated by an electric actuator controlled by a PWM signal from EDC control unit I 6.

540730 Heat exchanger

Figure 321



The heat exchanger fitted between the turboblower and the throttle valve assembly is used to lower the exhaust gas temperature in order to accordingly reduce the volume of the same.

It consists of a body that incorporates a number of corrugated pipes. The circulated exhaust gas flowing through the pipes are cooled by the engine coolant flowing inside the body.

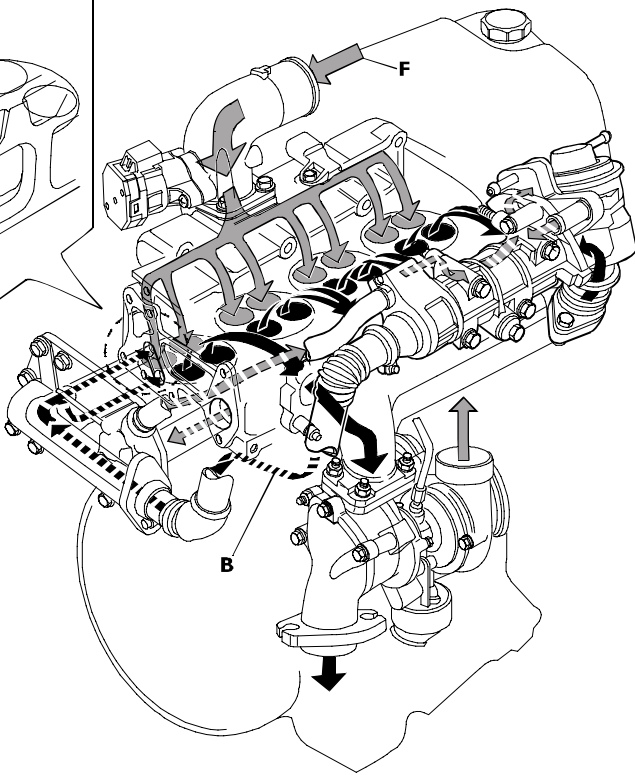
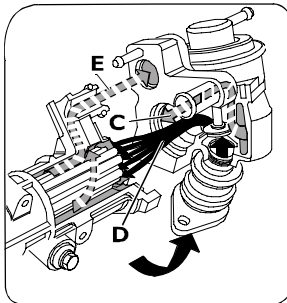
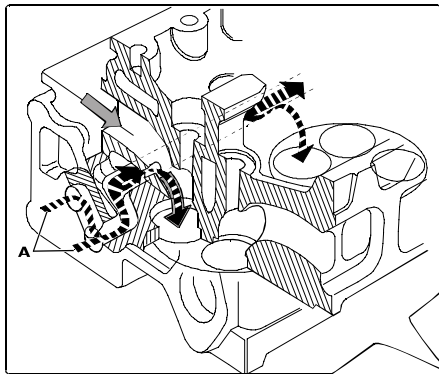


Figure 322

- Air from intercooler
- Cooled exhaust gasses
- Engine coolant
- Hot exhaust gasses
- Circulated exhaust gas/air mixture

EXHAUST GAS COOLING SCHEME

- A. Intake exhaust gasses - B. Cooled exhaust gasses - C. Coolant to heater -
- D. E.G.R. valve exhaust gasses - E. Coolant incoming from cylinder head - F. Air from intercooler

TOOLS

TOOL NO.	DESCRIPTION
<p>99322205</p>	<p>Assemblies overhaul revolving stand</p>
<p>99322225</p>	<p>Unit support (to use with stand 99322205)</p>
<p>99340205</p>	<p>Percussion extractor</p>
<p>99341002</p>	<p>Single-acting scaffold</p>
<p>99341003</p>	<p>Single-acting scaffold</p>
<p>99341004</p>	<p>Single-acting scaffold</p>

MODEL	VERSION	PITCH (mm)	Propeller shaft length in mm.			
			Front shaft SENZA CODICE-4		Rear shaft SENZA CODICE-2	
			L	L ₁	L	
				GKN supply	DANA supply	
60C - 65C 15/18	VAN	3300	670	614	1630 ÷ 1720	1630 ÷ 1715
	CHASSI CAB	3450	670	626	1780 ÷ 1870	1790 ÷ 1875
	CHASSI CAB	3750	670	660	2075 ÷ 2165	2085 ÷ 2170
	VAN	3950	670	995	2280 ÷ 2370	2280 ÷ 2365

MODEL	VERSION	PITCH (mm)	Propeller shaft length in mm.					
			Front shaft SENZA CODICE-4	Central shaft SENZA CODICE-4		Rear shaft		
			L	L	L ₁	L		
					GKN supply	DANA supply		
60C - 65C 15/18	CHASSI CAB	4350	670	801		724	1885 ÷ 1975	1885 ÷ 1970
	CHASSI CAB	4750	670	730		1065	2350 ÷ 2440	2350 ÷ 2435

MODEL	VERSION	PITCH (mm)	Propeller shaft length in mm.					
			Front shaft SENZA CODICE-4	Central shaft SENZA CODICE		Rear shaft Figure 5.1.2		
			L	L		L ₁	L	
			GKN supply	DANA supply		GKN supply	DANA supply	
60C - 65C 15/18	CHASSIS COWL	3750	670	(•) 970 ÷ 1070	-	-	(•) 825 ÷ 925	-
	CHASSIS COWL	4350	670	(•) 970 ÷ 1070	-	-	(•) 1395 ÷ 1495	-
	CHASSIS COWL	4750	670	(•) 1080 ÷ 1180	-	408	-	(•) 1705 ÷ 1790

(•) Vehicles with Telma retarder

DESCRIPTION

The rear axle is the load-bearing type with a single reduction using a hypoid crown wheel and pinion.

The axle housing is made of pressed sheet steel with hot pressed arms.

The bevel pinion is supported by two pre-lapped tapered roller bearings to hold the bearing pre-load better.

The rolling torque of the bearings of the bevel pinion is adjusted by changing the thickness of the adjustment ring between the two tapered roller bearings.

In addition, it is possible to adjust the position of the bevel pinion with respect to the ring bevel gear by changing the thickness of the ring between the axle housing and the bevel pinion rear bearing external ring.

The gear housing is supported by two tapered roller bearings.

The rolling torque of the bearings is adjusted with adjustment rings between the spacer rings and the external rings of the bearings.

The clearance between pinion and crown wheel is adjusted by changing the thickness and/or position of the adjustment rings, though the total thickness must be the same as that of the adjustment rings removed.

The gear housing is composed of two half-housings.

It may be of two different sizes depending on the ratio of the crown wheel and pinion.

The gearing of the differential is composed of four planetary gears and two crown wheels.

The wheel hubs are keyed, with UNIT BEARINGS lubricated for life, onto the arms of the axle housing.

The bearings need no adjustment.

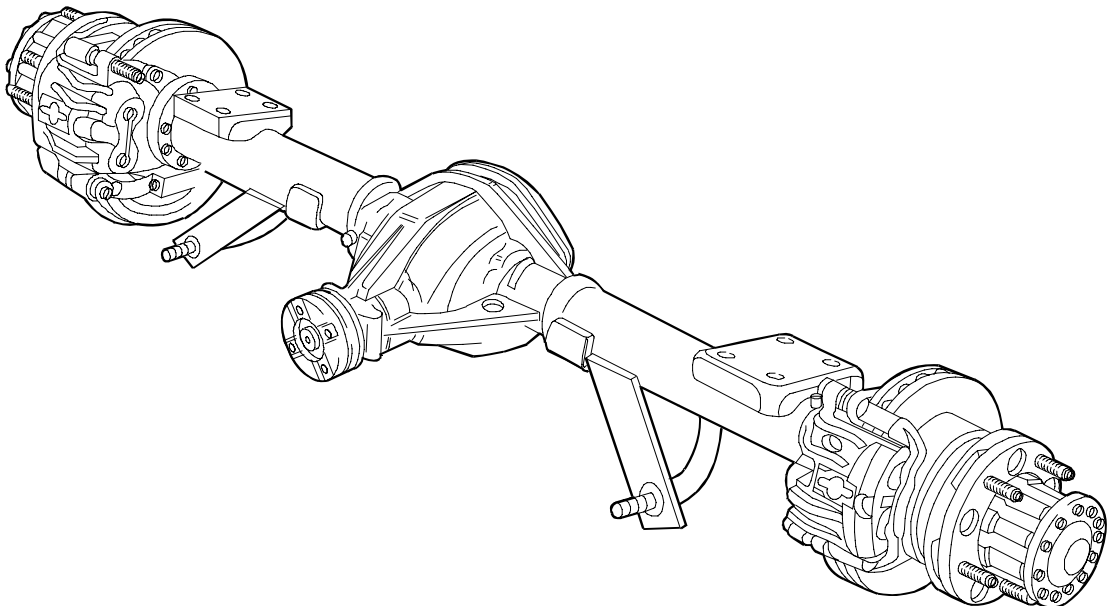
The brakes are disc brakes with floating brake calipers.

The disc brakes are keyed onto the wheel hubs.

The brake calipers are secured with flanges fixed onto the arms of the axle housing.

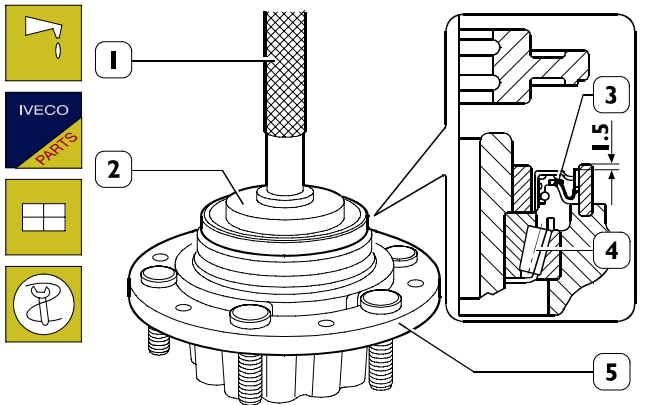
The parking brake is the drum type, built into the brake disc.

Figure 1



51858

Figure 21



62932

Lubricate rear taper roller bearing inner ring (4) with SAE W 140 M-DA oil and fit it to wheel hub (5). Use tool 99374132 (2) provided with proper handle 99370006 (1) to fit sealing ring (3).

NOTE Use tool 99374132 (2) side to position the sealing ring (3) at 1.5 mm from wheel hub side surface.

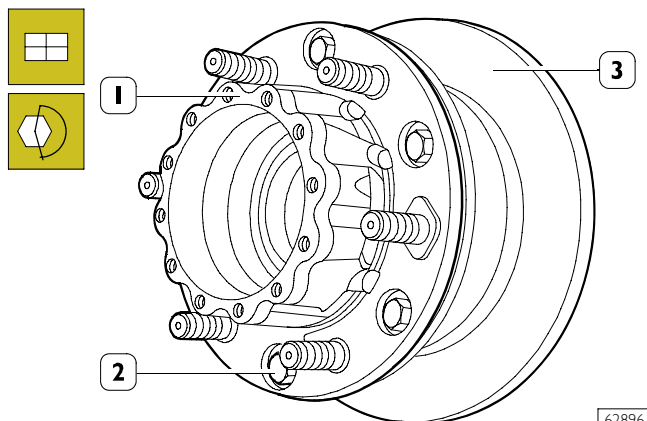
Fit the phonic wheel, if any, on the wheel hub.

NOTE Phonic wheel fitting shall be performed after heating it at 150°C.

When fitting is over, check whether the phonic wheel is resting perfectly on the hub seat.

Check whether phonic wheel squareness and oscillation is lower than 0.2 mm.

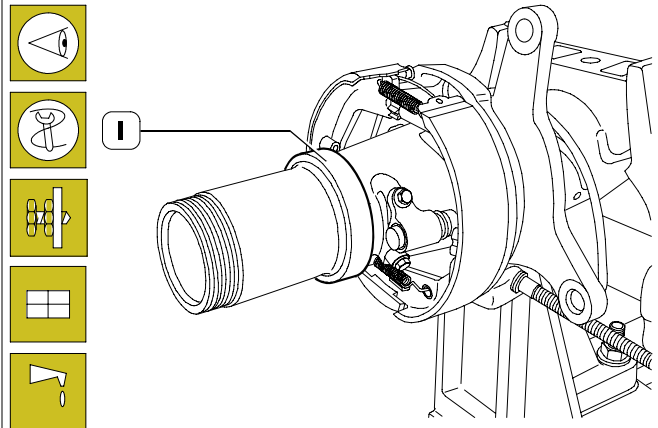
Figure 22



62896

Fit the brake disc (3) on the wheel hub (1) and tighten the fastening screws (2) to the specified torque.

Figure 23

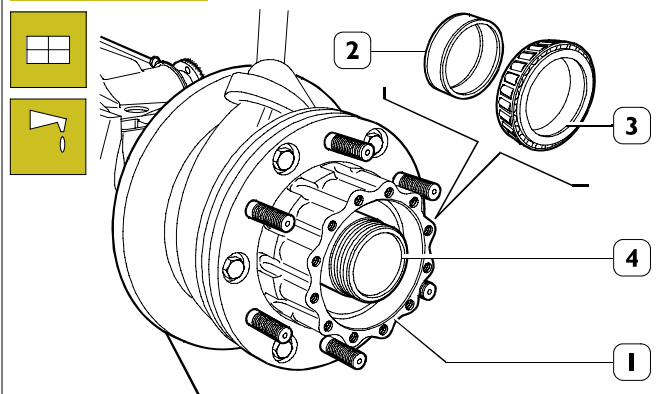


62938

NOTE Check and, if necessary, adjust the clearance between the parking brake drum and shoes as described in the Brakes section.

Lubricate the sleeve and the sealing ring supporting ring (1) with TUTELA W140/M-DA (SAE 85W140) oil.

Figure 24



62897

Use suitable rope and hoist to fit wheel hub (1) on sleeve (4). Lubricate spacer (2) and outer bearing inner ring (3) with Tutela W140/M-DA and fit them on sleeve (4).

DESCRIPTION

The front axle 5819 has independent wheels.

It is basically composed of:

- stub axles;
- wheel hubs;
- suspension arms.

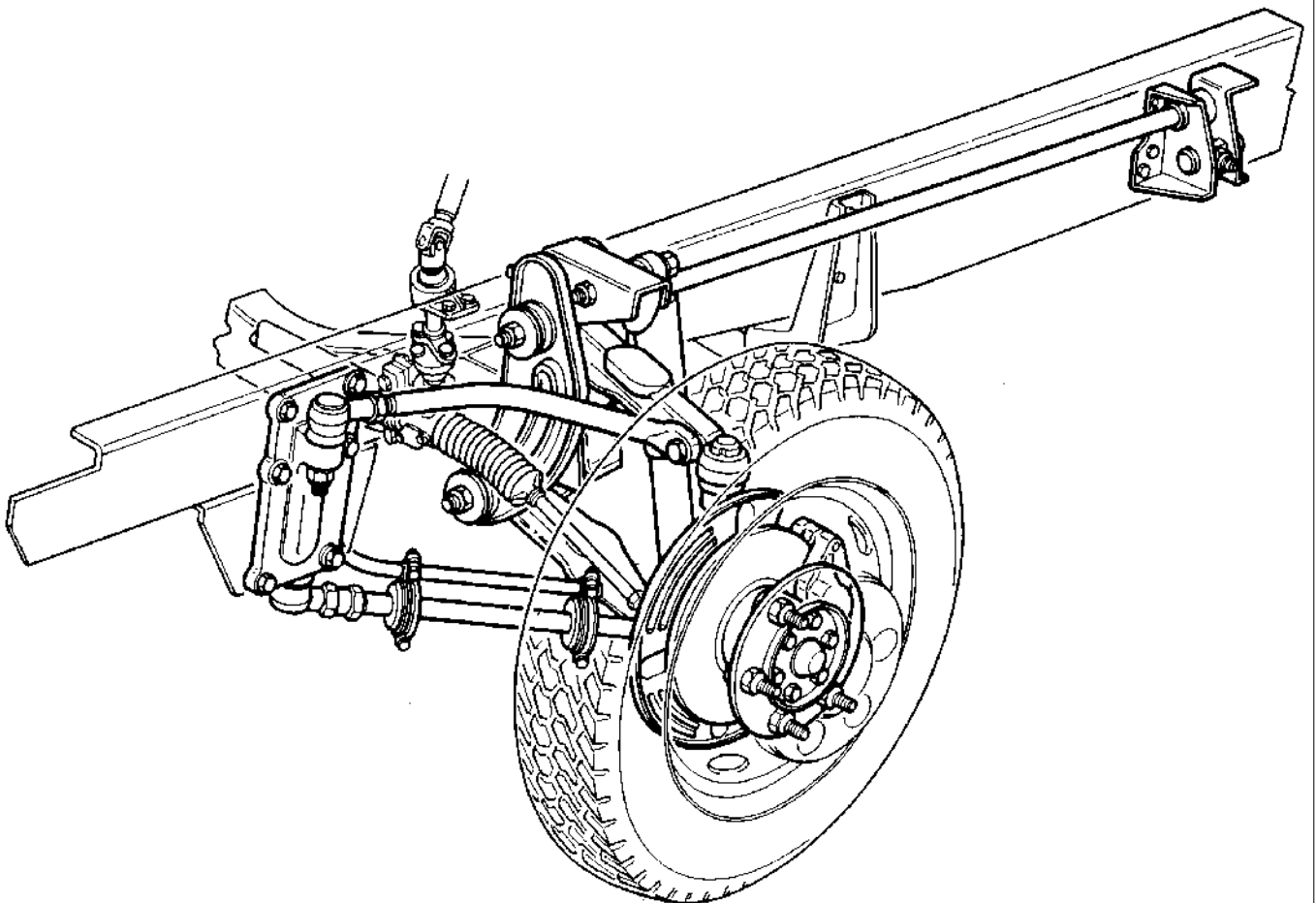
The stub axles are also the end elements of the suspension.

They are connected to the top and bottom suspension arms by swivel heads that allow turning the stub axle.

The brake calipers and steering levers are secured on the king-pin of the stub axles.

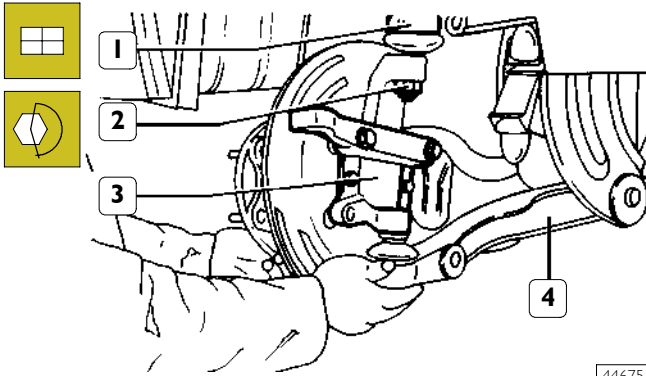
The hubs are supported on the stub axle pins by Unit-Bearings, which need no adjustment or lubrication.

Figure 1



30772

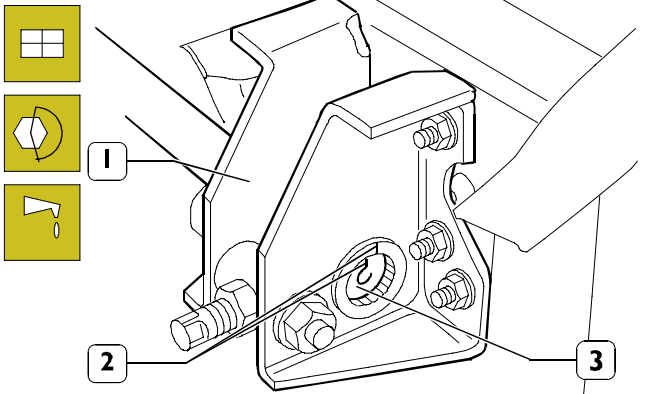
Figure 52



44675

Connect the stub axle (3) to the link pins of the top (1) and bottom (4) suspension arms. Tighten the fixing nuts (2) to the required torque.

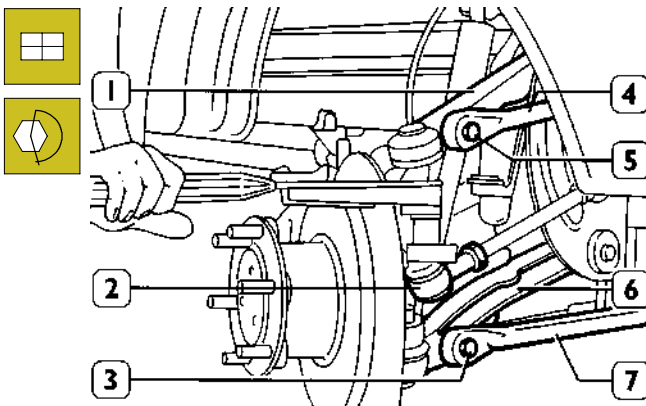
Figure 53



74998

Lubricate the grooved portion of the torsion bar (3). Assemble the torsion bar (3) and the support (1) so that the splines (2) of the toothed bush and of the torsion bar coincide. Fix the support (1) to the chassis tightening the fastening screw nuts to the prescribed torque.

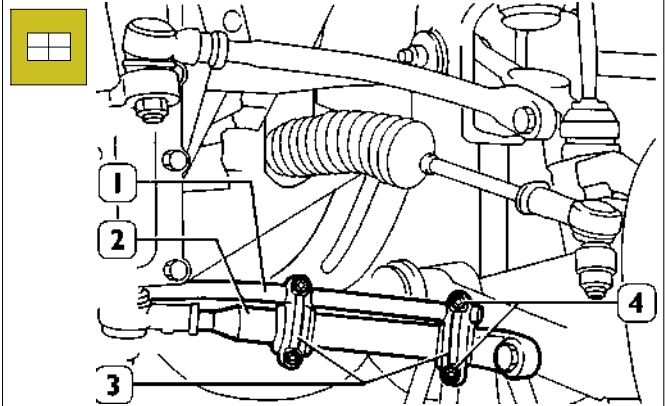
Figure 54



44676

Refit the tie rods (4 and 7) to the suspension arms (1 and 6) without tightening the nuts for the screws (3 and 5) to their torque; connect the link pin (2) of the steering gear housing tie rod to the lever of the stub axle and tighten the nut to the required torque.

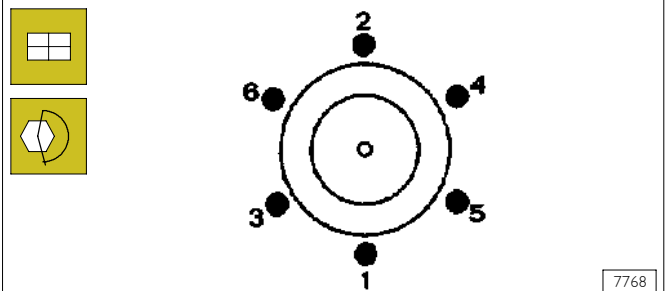
Figure 55



44697

Fit the stabilizer bar (1) back onto the bottom screw stays (2) with the clamps (3), taking care that the screws (4) go into the slots in the stabilizer bar. Complete fitting the suspension back on by mounting the shock absorber.

Figure 56



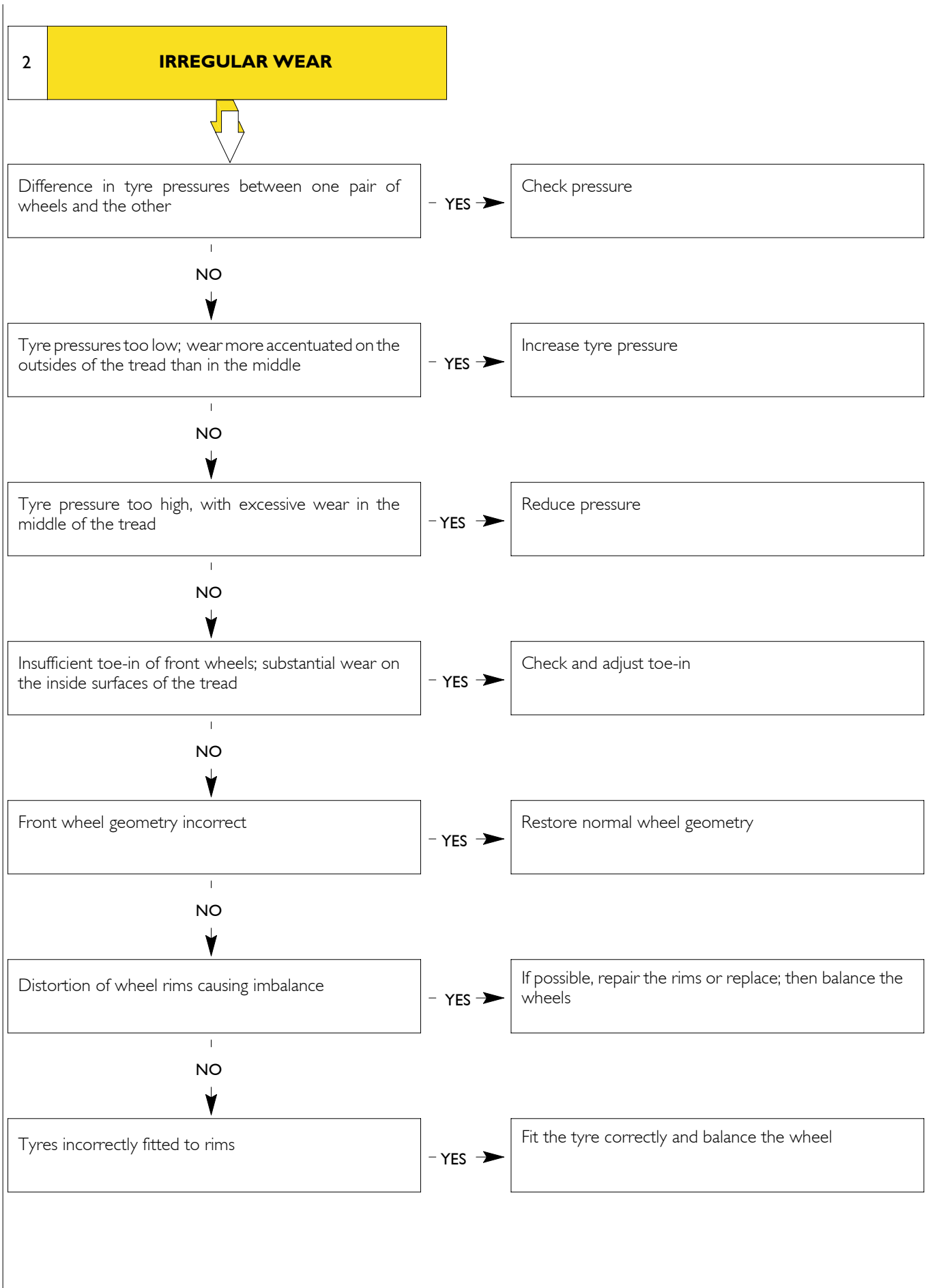
7768

Refit the wheels, mount the nut guard and screw on the fixing nuts; lower the vehicle, removing the stands.

Following the order shown in the figure, tighten the fixing nuts to the required torque.

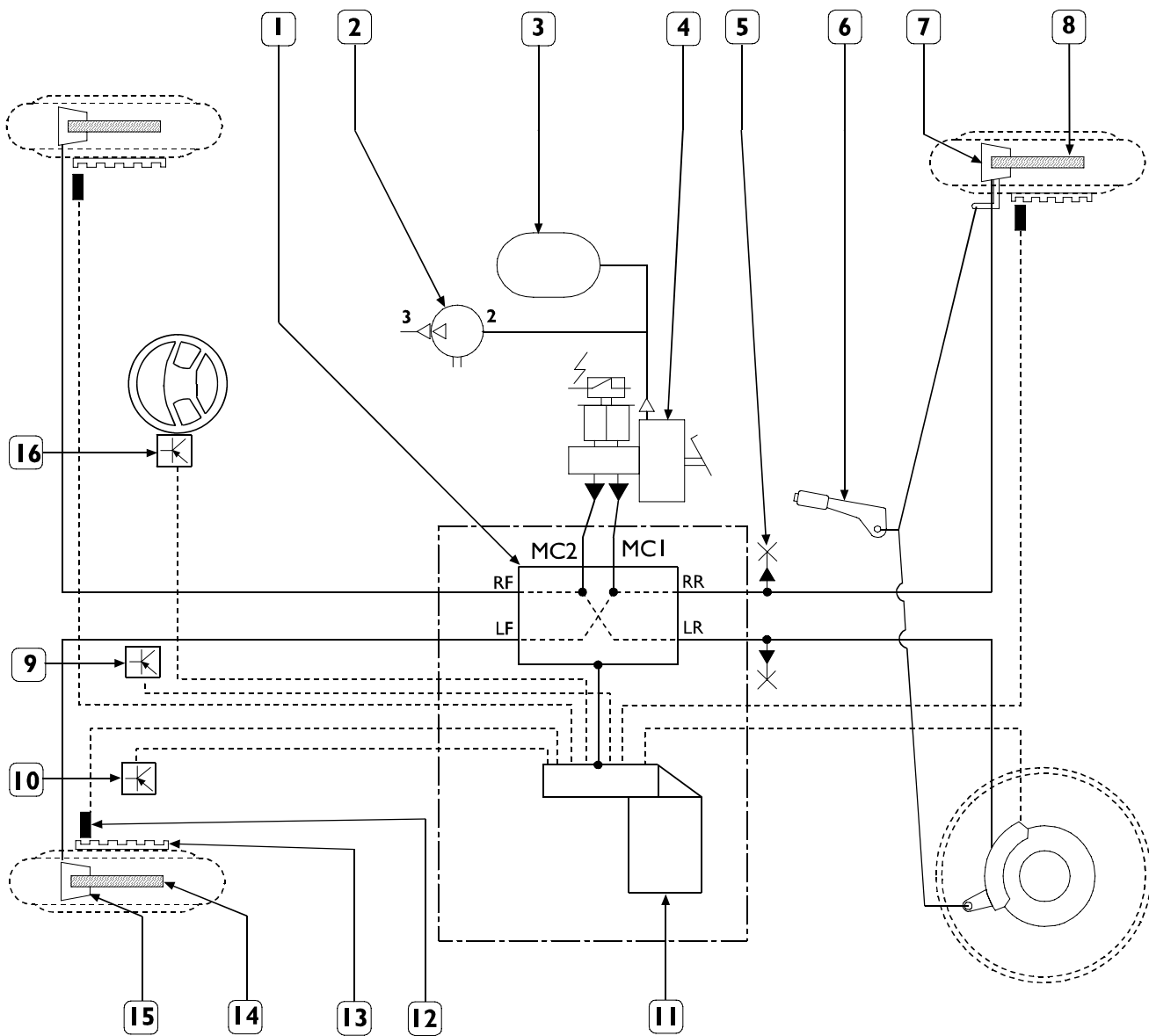
Then tighten the torsion bar fixing nuts to the required torque and mount the safety split pins on them.

Tighten the nuts for the screws securing the top and bottom tie rods to their respective levers to the required torque.



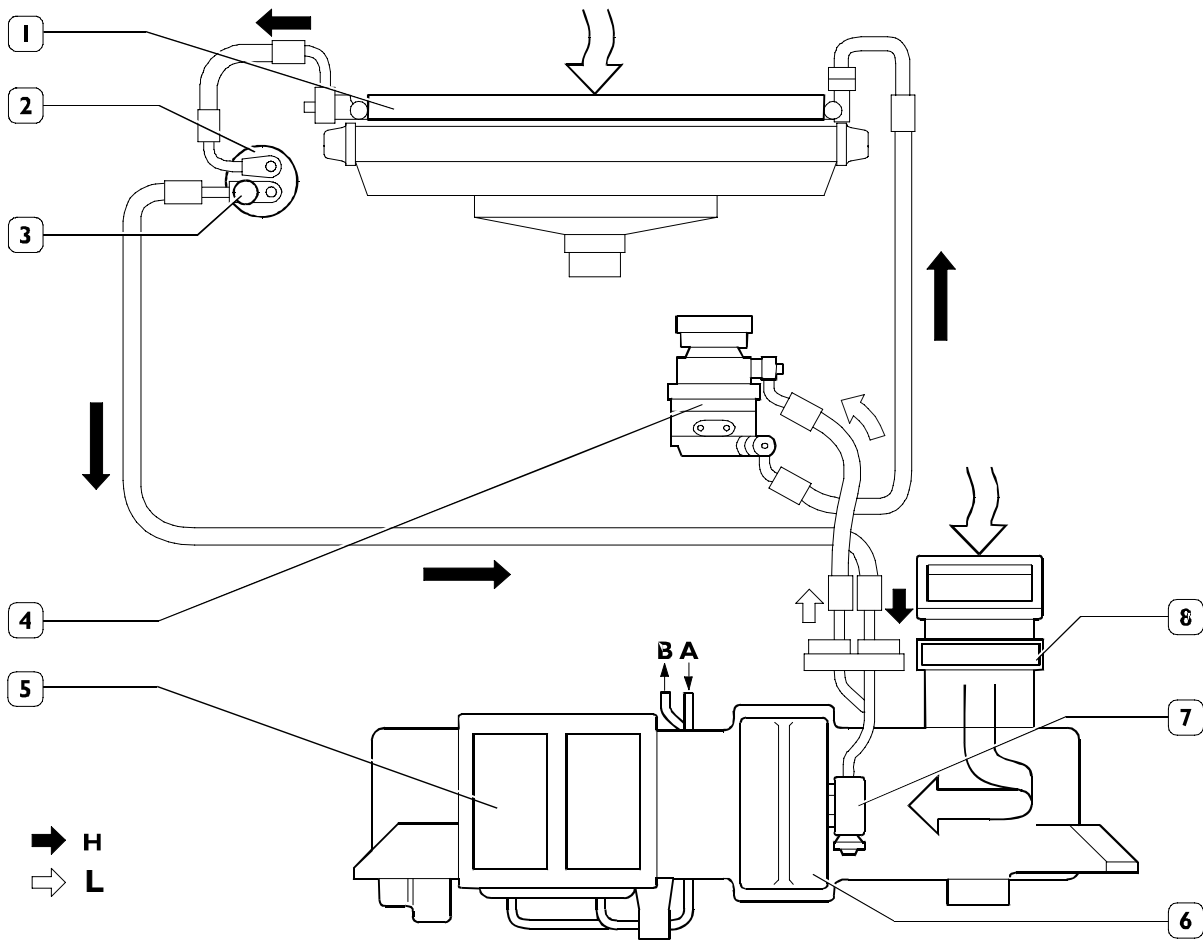
Outline diagram for vehicles 29L - 35S with ESP 8

Figure 24



109109

1. Electro-hydraulic modulator - 2. Vacuum pump - 3. Vacuum tank - 4. Servo brake - 5. Hydraulic pressure test point - 6. Parking brake lever - 7. Rear brake caliper - 8. Rear brake disc - 9. Yaw sensor - 10. Longitudinal acceleration sensor - 11. Electronic control unit - 12. Wheel revolutions sensor - 13. Phonic wheel - 14. Front brake disc - 15. Front brake caliper - 16. Steering angle sensor

AIR-CONDITIONING SYSTEM MAIN COMPONENTS AND FUNCTIONAL DIAGRAM**Figure 1**

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A. Refrigerant liquid inlet - B. Refrigerant liquid outlet - H. High-pressure circuit - L. Low-pressure circuit.

1. Condenser - 2. Three-level pressure switch - 3. Drier filter - 4. Compressors - 5. Heater/fan unit - 6. Evaporator - 7. Expansion valve - 8. Pollen filter.

AIR-CONDITIONING AND HEATING**Description**

This is accomplished by integrating an air-conditioning and a heating system.

This integration makes it possible to change the temperature and humidity in the cab.

Air-conditioning

Air-conditioning is accomplished by taking advantage of the high capacity of some gases to lower temperature considerably in their phase of expansion, thereby making it possible to absorb heat from the cab.

This condition is obtained by two different levels of pressure (high, when the refrigerant fluid is in its liquid state, and low, when the fluid is in its gaseous state) that are established and maintained during operation of the system.

Heating

Heating is accomplished by a radiator, in the heater unit, in which the engine coolant circulates.

Special doors allow air to pass through the radiator only when the heating function is activated.

The main components of the air-conditioning and heating system comprise:

- compressor (4);
- condenser (1);
- drier filter (2);
- three-level pressure switch (3);
- expansion valve (7);
- evaporator (6);
- heater/fan unit (5);
- pollen filter (8).

