1. SECTIONS AND GROUPS INDEXES

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SECTIONS AND GROUPS INDEXES FH120W

SECTION 8 - ELECTRICAL SYSTEM

SECTION 9 - TROUBLESHOOTING

SECTION 10 - OPERATIONAL PERFORMANCE TEST

SECTION 11 - ENGINE

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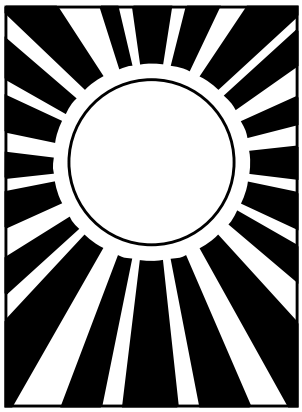
SAFETY PRECAUTIONS

WORK IN A CLEAN AREA

- Before starting a job, clean the work area. Remove objects that may be a safety hazard to the mechanic or bystanders.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ILLUMINATE WORK AREA SAFELY

- Illuminate your work area adequately but safely.
  - Use a portable safety light for working inside or under the machine.
  - Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.


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USE TOOLS PROPERLY

- Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.
  - Use power tools only to loosen threaded tools and fasteners.
  - For loosening and tighening hardware, use the correct size tools.
  - Do not use U.S. measurement tools on metric fasteners.
  - Avoid bodily injury caused by slipping wrenches.
- Use only recommended replacement parts. (See **PARTS CATALOG**).


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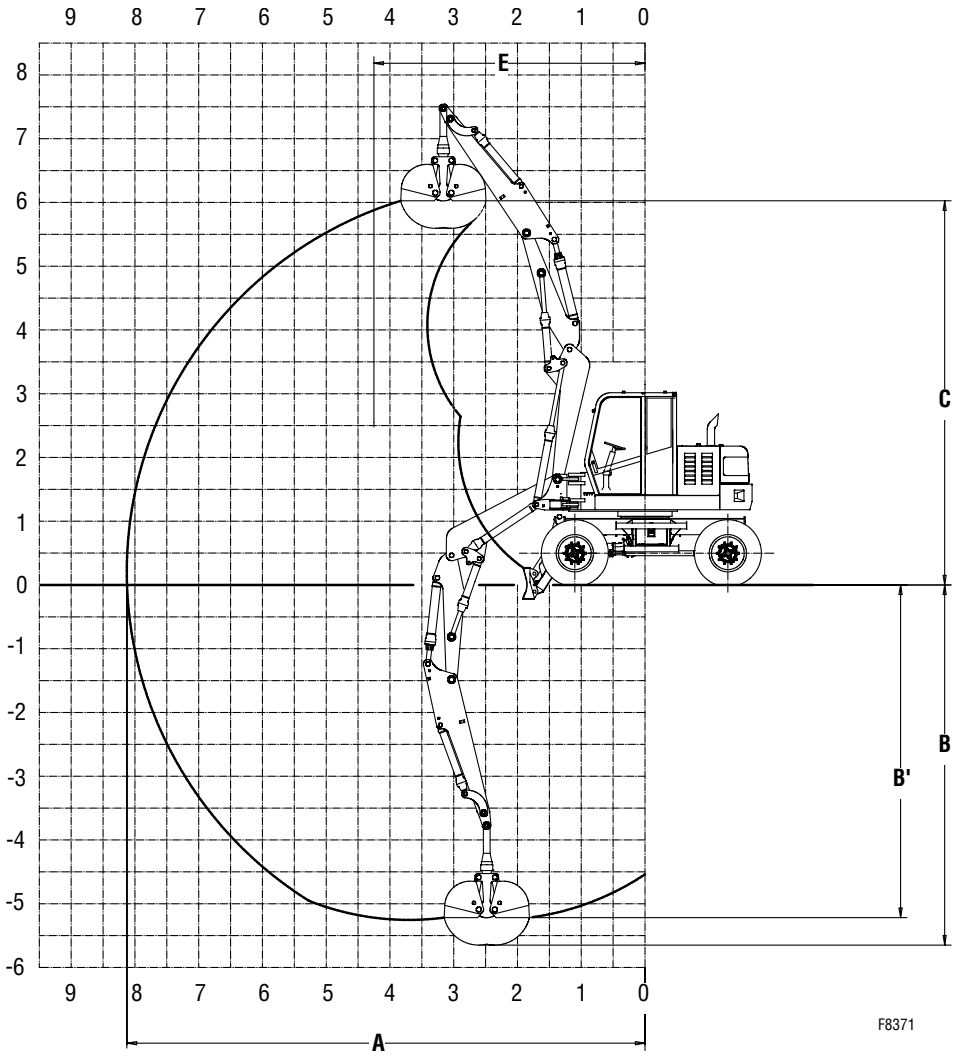
2.4 DIGGING PERFORMANCES - TRIPLE ARTICULATION VERSION WITH CLAMSHELL BUCKET



NOTE: *Digging performances depend on the features of the clamshell bucket used, chosen according to the machine lifting capacity and version.*

ARM	mm	2000	2350
A	mm	7789	8124
B	mm	5308	5649
B'	mm	4877	5218
C	mm	5734	6026
E	mm	3994	4251

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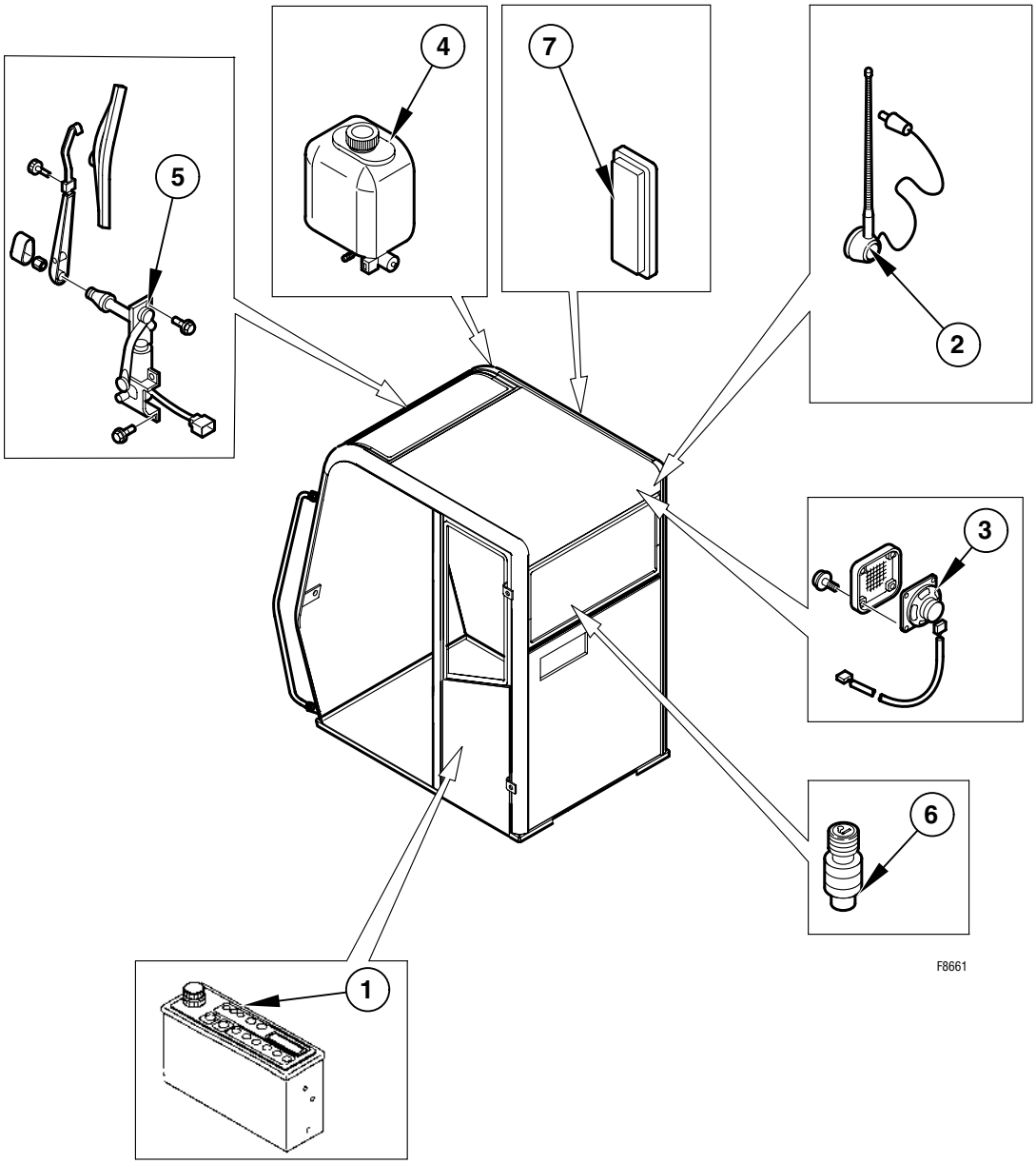
1.8 CAB ELECTRIC COMPONENTS

(A) Cab electric components location.
(For further informations about electric components see section 8).



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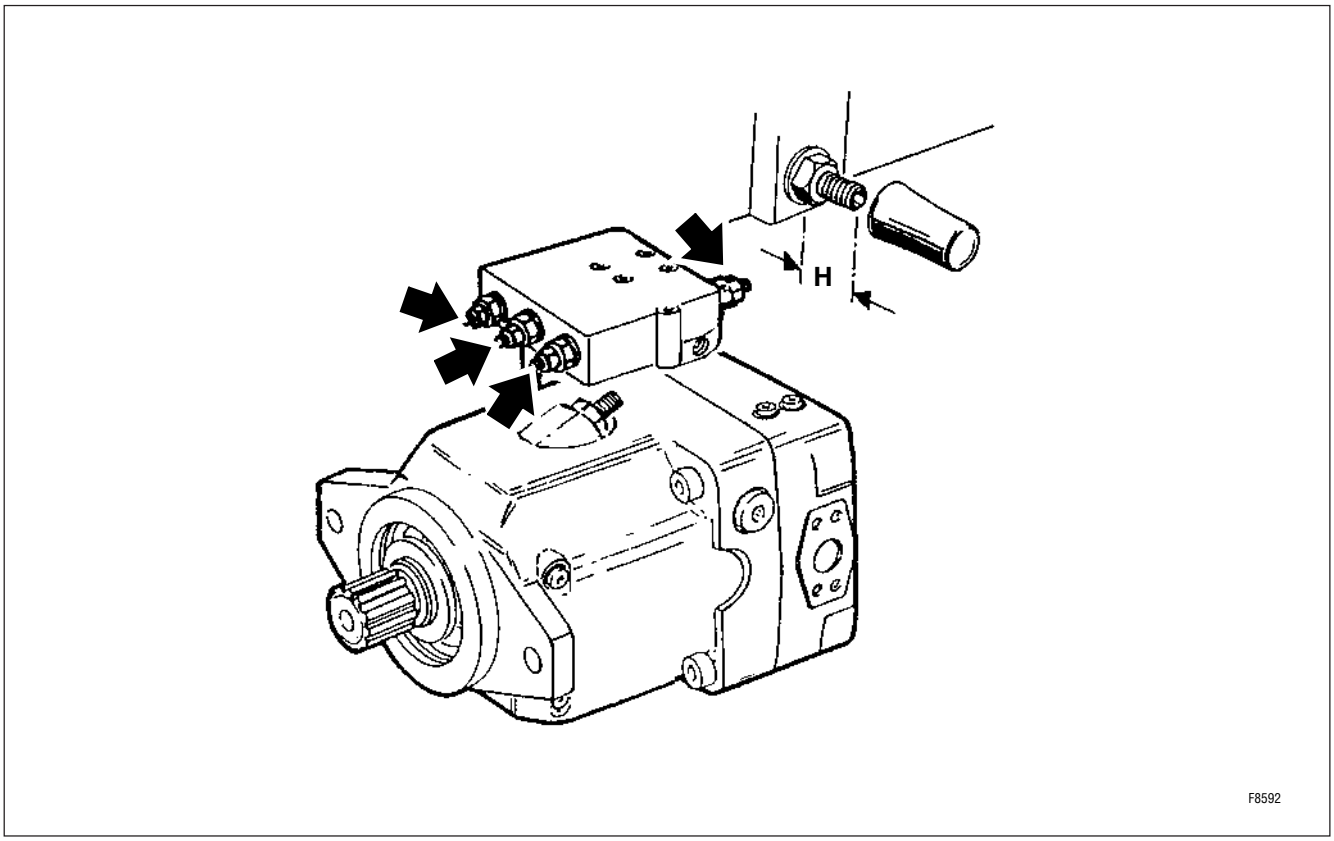
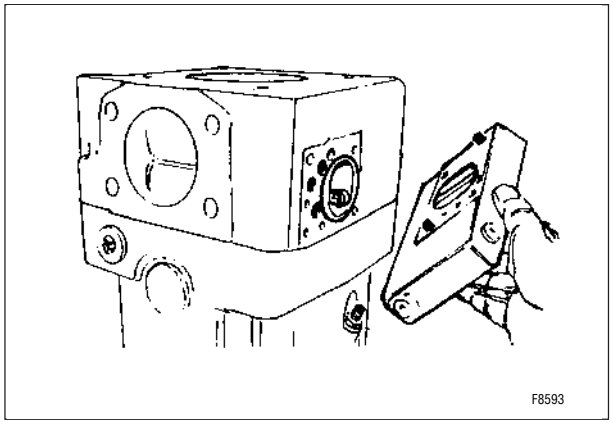
1 - Radio set
2 - Antenna
3 - Speaker
4 - Windshield washer with electric motor
5 - Wiper motor
6 - Lighter
7 - Ceiling light

Remove protection cover. Measure and note adjustment heigth "**H**".

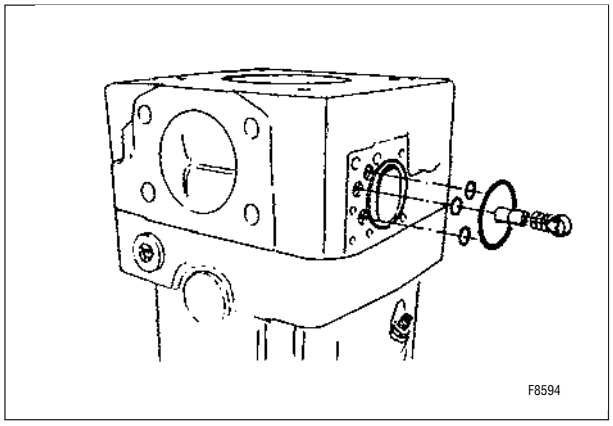


2.1.5 REMOVE PORT PLATE, REGULATOR

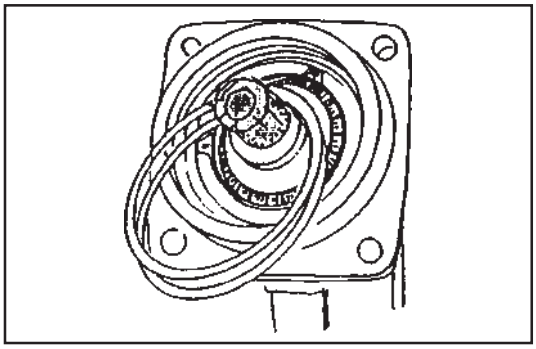
Remove regulator housing.



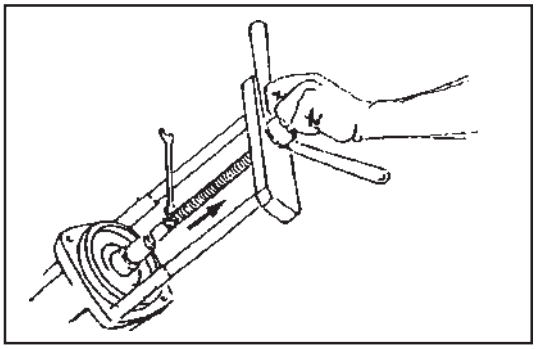
Remove O-rings, measuring piston with bush and spring.



5 Remove the shim(s).

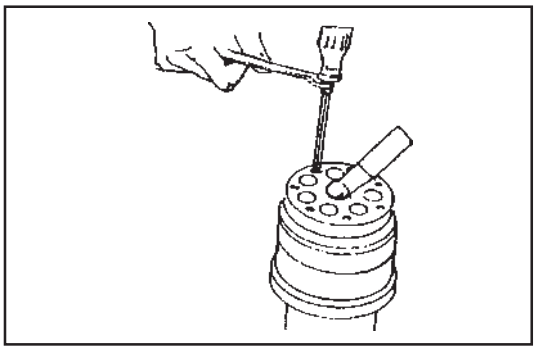


6 Remove rotary group with extractor.



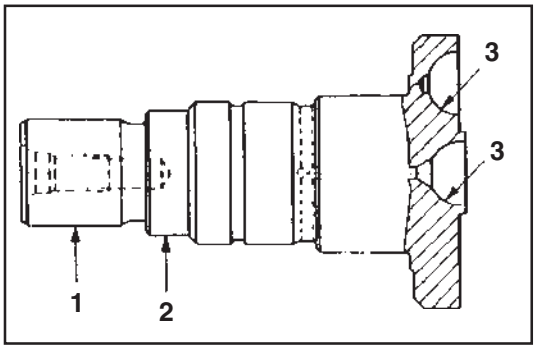
7 Loosen the screw, then remove retaining plate.

NOTE - The screws are held by Loctite.

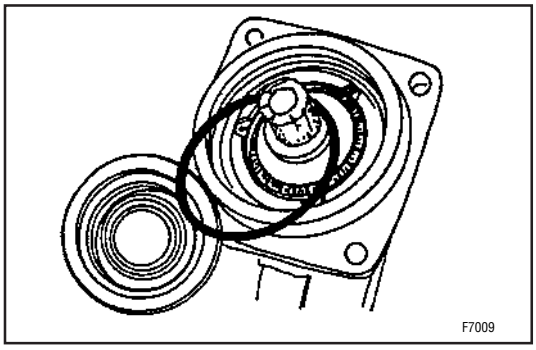


8 Before proceeding to the assembly of rotary group, it needs to perform the following check:

- **Drive shaft**
  1. Should be free of corrosion or erosion. no damage to spline.
  2. No trace of wear, free of scratches.
  3. Cups free of scratches and no pitting.

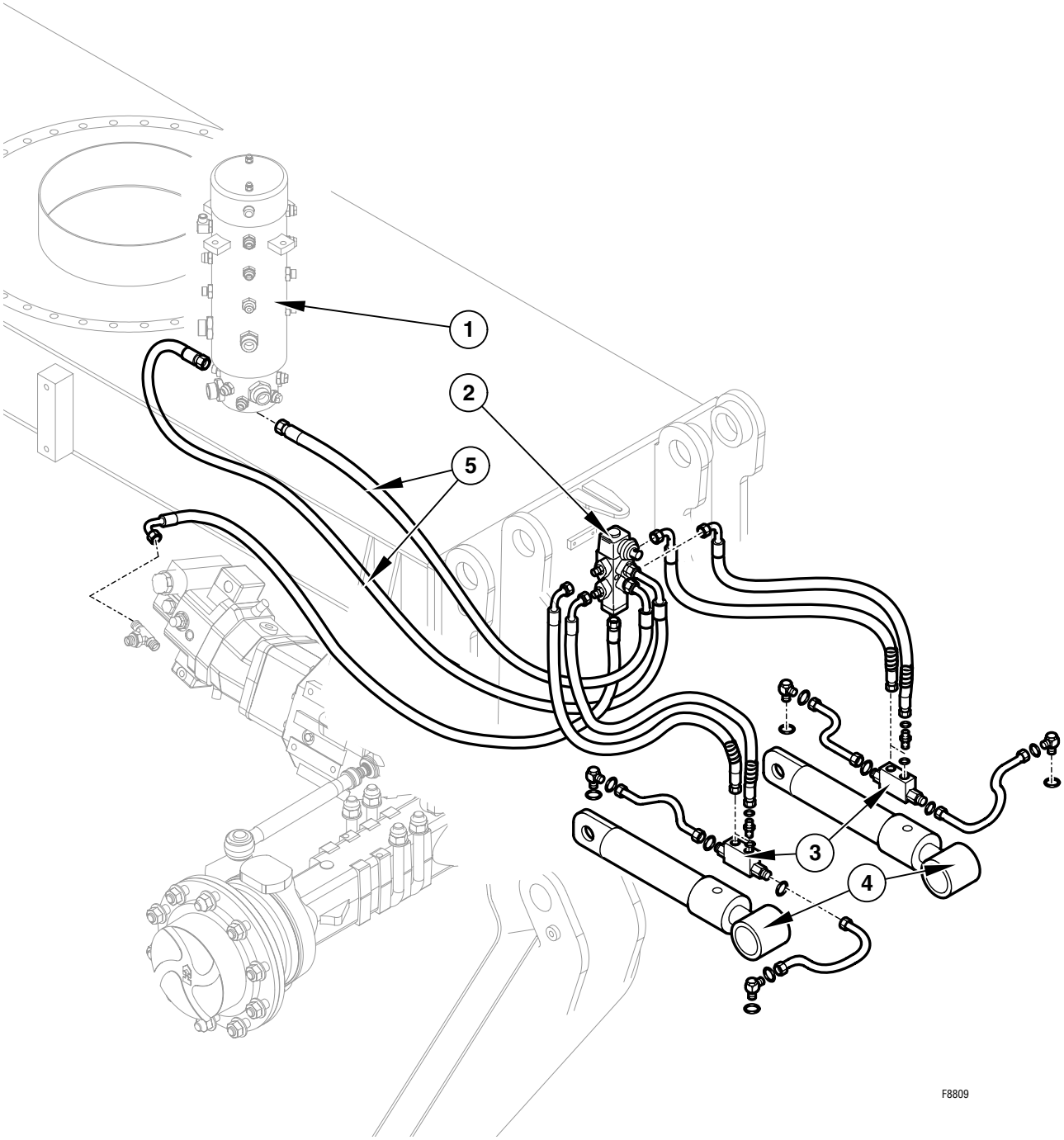


9 Remove front cover.



1.8.6 BLADE/REAR STABILIZER HOSES

The drive hose contains a selection valve sending oil to the two blade cylinders at the same time, or separately to each stabilizer cylinder. The selection valve is locked in central position if the machine is equipped with blade and is driven by a piloting if the machine is equipped with stabilizers.



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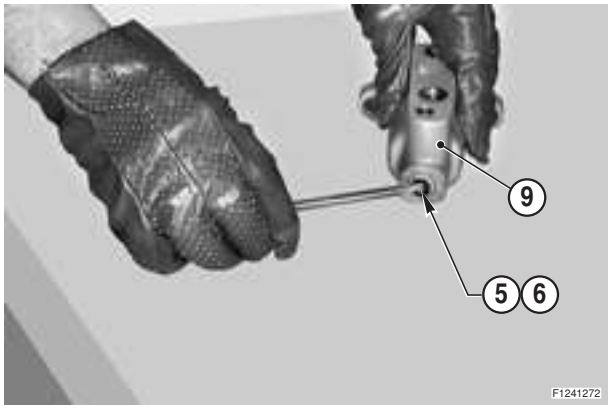
1 - Rotary joint
2 - Selector valve
3 - Check valve
4 - Blade/stabilizer cylinders
5 - To the piloting

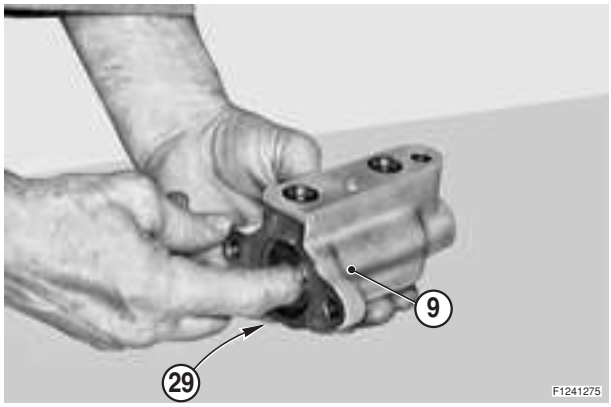
Assembly

1 **ASSEMBLY OF DOUBLE EFFECT SHIFT CYLINDER**
Fit O-Ring (**5**) for rod seal and dust scraper ring (**6**) into the cylinder.



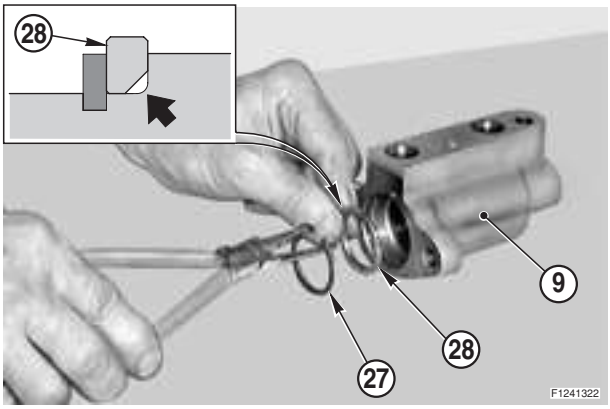
2 Replace O-Ring (**30**) and fit 1st gear selection piston (**29**) into cylinder (**9**).

NOTE. Lubricate O-Ring.



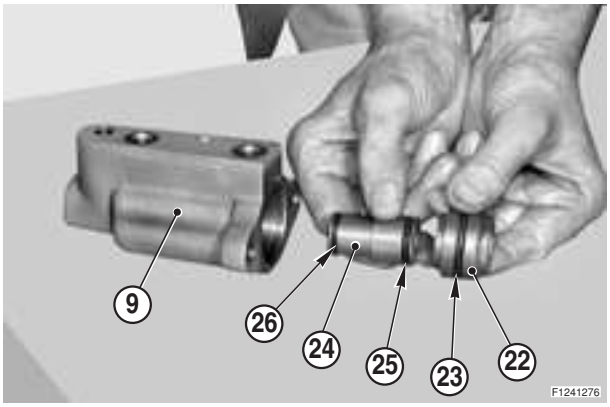
3 Fit shim (**28**) and snap ring (**27**).

NOTE. Carefully check if shim chamfer (**28**) is oriented towards cylinder inner part.



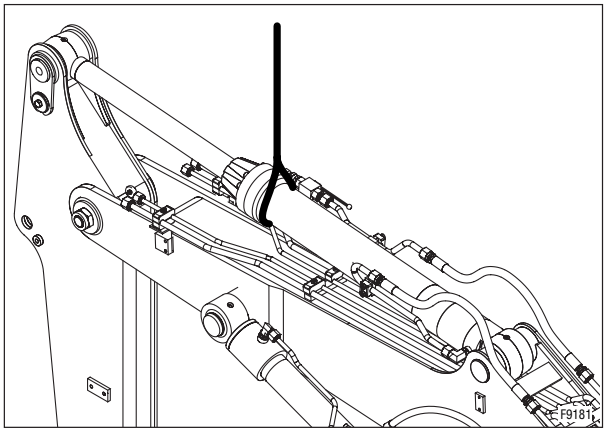
4 Replace O-Rings (**22**), (**25**) and (**26**) and fit 2nd gear selection piston (**23**) and inner piston (**24**) to cylinder (**9**).

NOTE. Lubricate O-Rings.

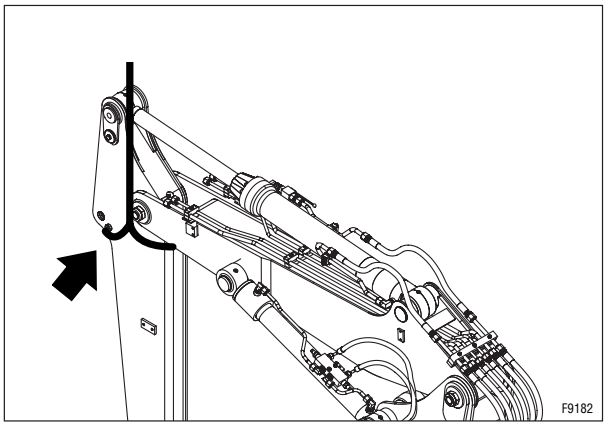


Penetration arm removal

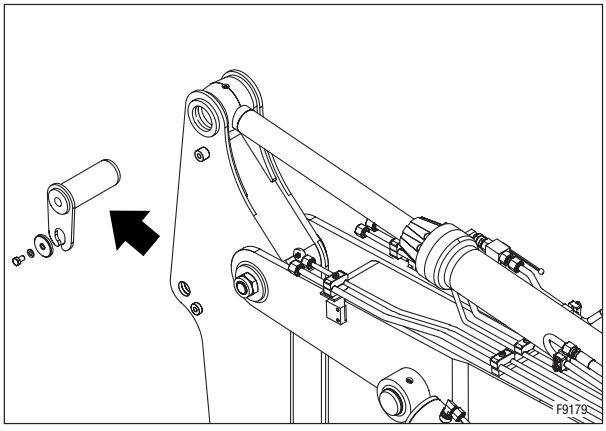
1 Hoist penetration cylinder.



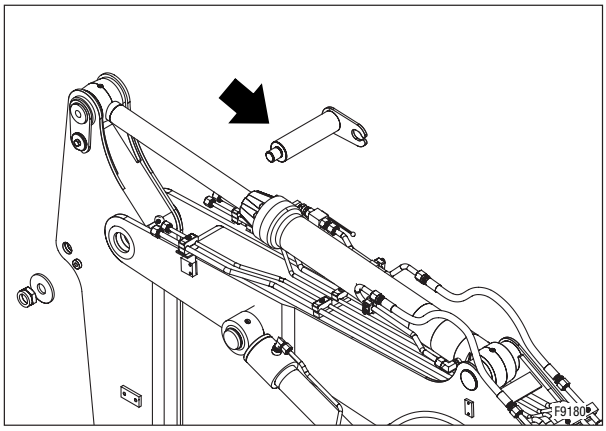
2 Hoist penetration arm.



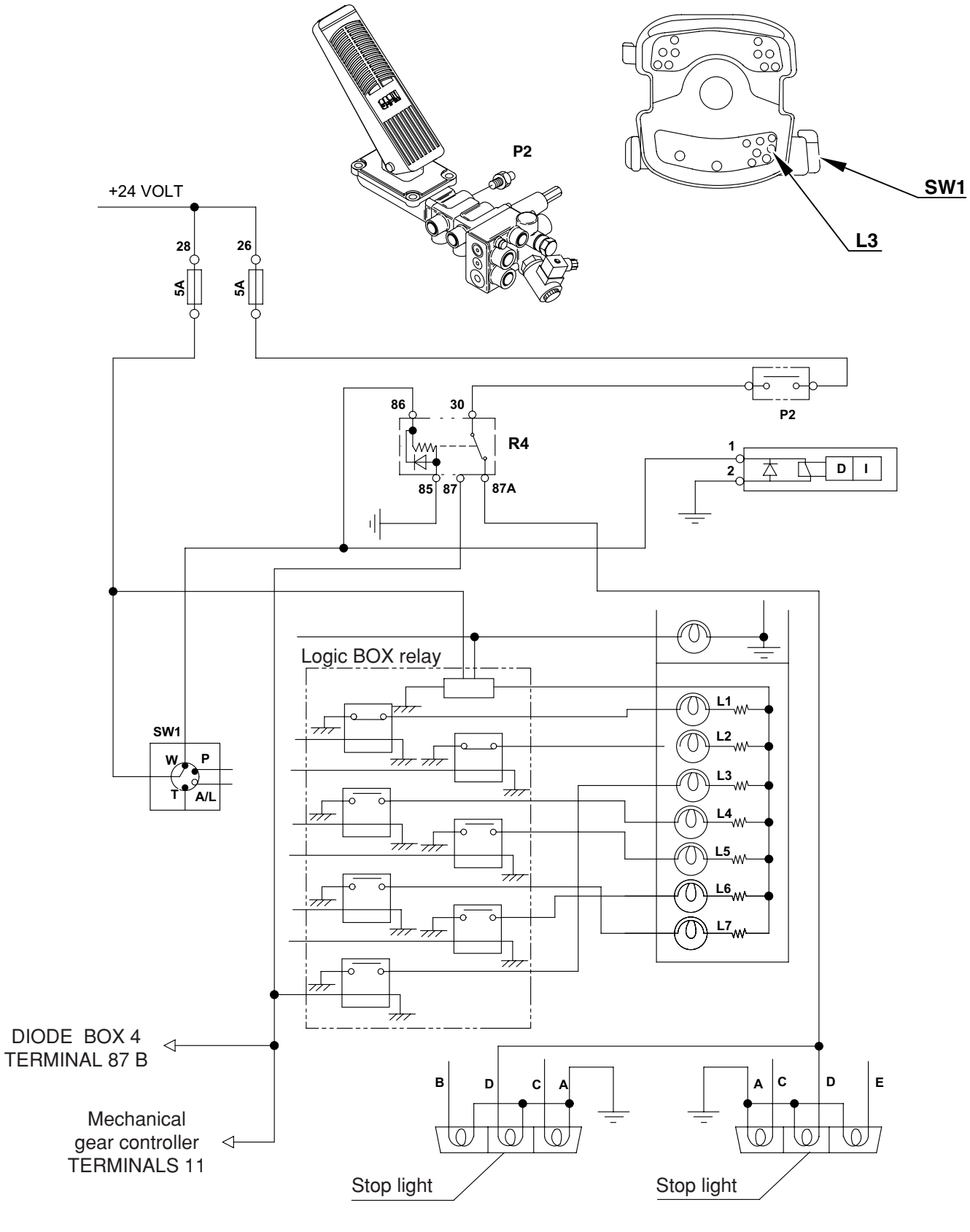
3 Untighten fixing screw and push out pin.



4 Untighten lock nut and push out pin.



WORKING BRAKE CONTROL (SWITCH SW1 IN POSITION W)



6.3 BATTERIES

6.3.1 DESCRIPTION

The machine includes two free-maintenance and series-mounted batteries (**1**). For battery disconnection, set the relative switch (**2**) to position OFF.

6.3.2 ELECTRICAL FEATURES

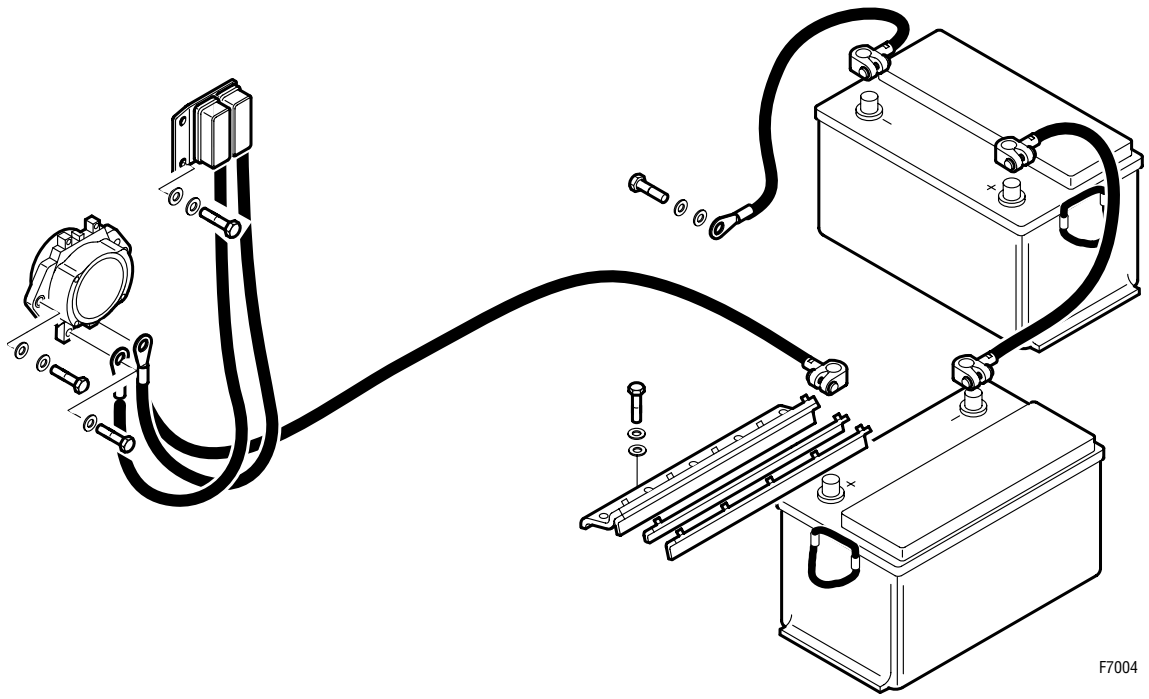
Nominal voltage	12V
Nominal capacity (20 h)	75 Ah
Discharge current (-18°C)	440 A

6.3.3 MAINTENANCE PRECAUTIONS

- Make sure the two batteries are correctly connected.
- Batteries contain SULPHURIC ACID:
  Always protect your eyes when working near batteries, to avoid accidental contact with the acid solution. In case the solution comes in contact with your skin or eyes, rinse immediately and call a doctor.
- The gas released by the batteries is highly inflammable:
  in case of battery recharge, leave battery compartment open to improve ventilation. Avoid to recharge in closed rooms. Do not keep sparks or open flames close to batteries.
- Disconnect batteries before any maintenance operation on main machine electrical system.

6.3.4 PROTECTION FUSE

The electrical system includes two fuses Link 40A and one fuse Link 80A for battery protection located in the same compartment.



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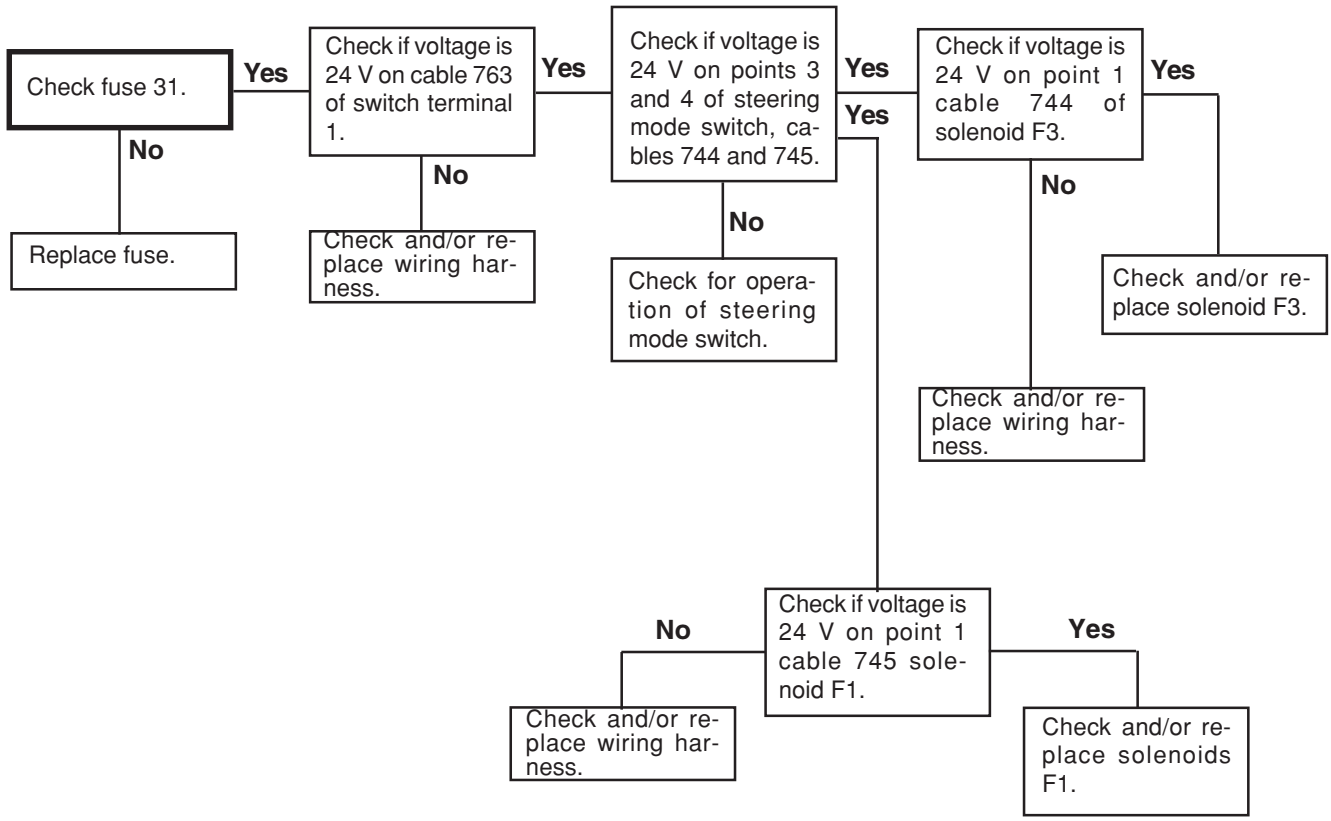
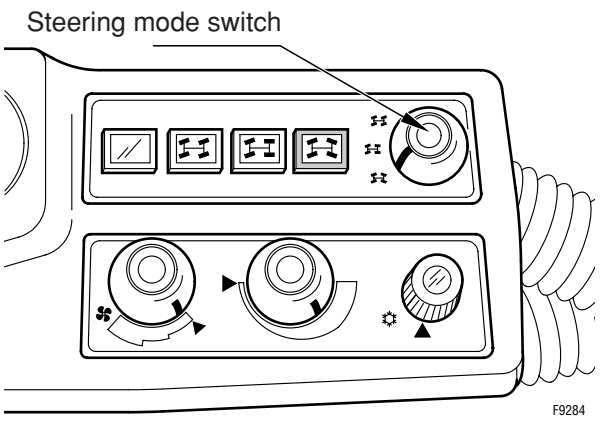
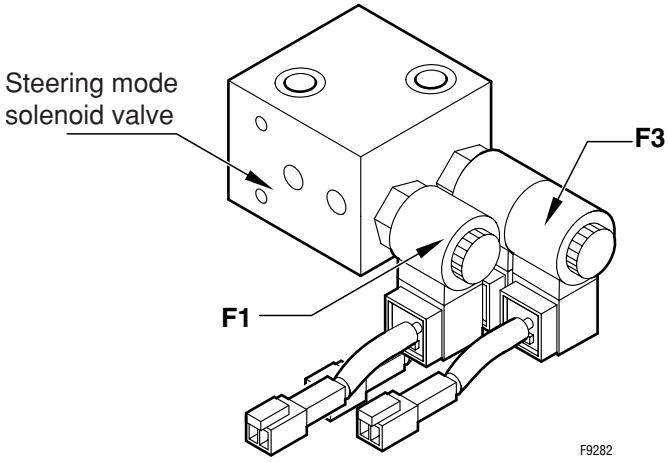
3.15.2 DOUBLE STEERING INDICATOR LIGHTS UP BUT STEERING DOES NOT OCCUR

Test conditions:

- switch in position







7 Fit new valve stem seals on the valve guides. ensure that the brown seal is fitted to the exhaust valve and green seal is fitted to the inlet valves.

8 Put the new valve springs in position.

9 Fit the valve spring caps.

CAUTION: Ensure that the valve spring is compressed squarely or damage can occur to the valve stem.

10 Fit the valve spring compressor, compress the valve spring and fit the collets. Remove the valve spring compressor.

11 Fit the rocker assembly, operation 12A-02.

12 Check the valve tip clearances, operation 12A-05.

13 Fit the rocker cover, operation 12A-01.

NOTE: If other or all of the valve springs are to be changed, they can be changed two cylinders at a time. The sets of cylinders are:

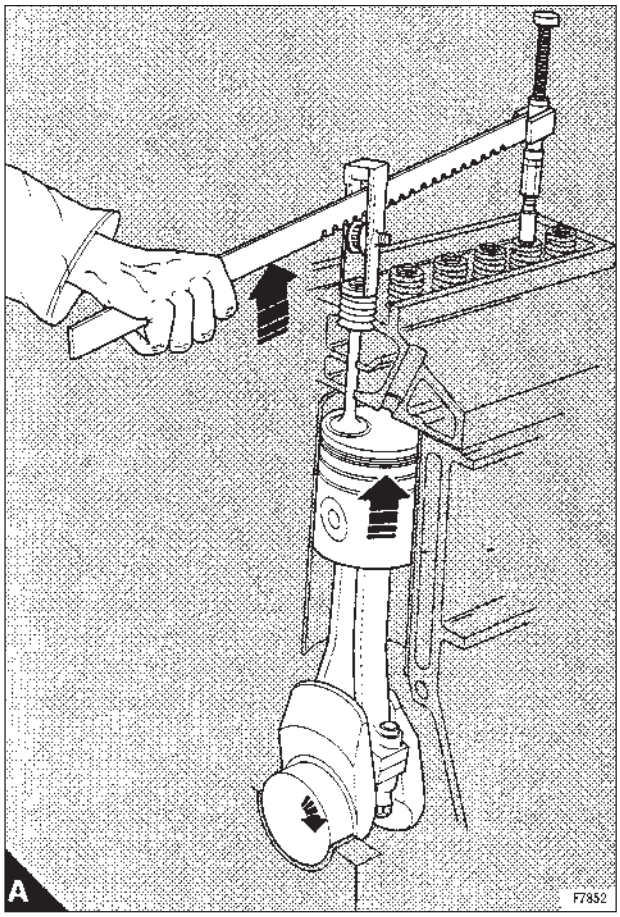
For 4 cylinder engines: 1 and 4, 2 and 3.

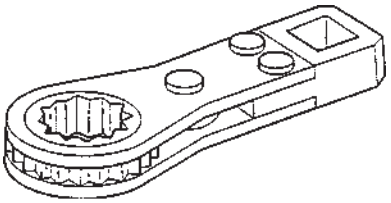
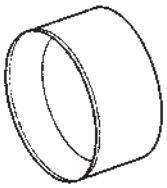
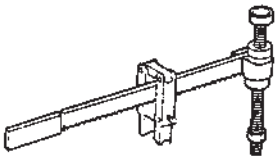
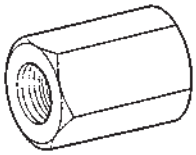
If the rocker assembly has been removed, piston TDC can be found as follows:

1 Fit the valve spring compressor and compress the valve springs to open the valve.

2 Rotate the crankshaft, by hand, in the normal direction of rotation until the piston touches the valve.

3 Continue to rotate the crankshaft, and at the same time, release pressure on the valve spring compressor until the piston is at TDC (**A**).



Number	Description	Illustration
PD.239	Spanner for flange nuts of the Bosch fuel injection pump. Part number 21825964	
PD.206	Replacer tool for pistons. Part number 21825615	
PD.208	Dial gauge for use withPD.41D. Part number 21825617	
PD.6118B	Valve spring compressor. Part number 21825666	
PD.6118-7	Stud adaptor for use with PD.6118B. Part number 21825672	
PD.6118-8	Setscrew adaptor for use withPD.6118B. Part number 21825673