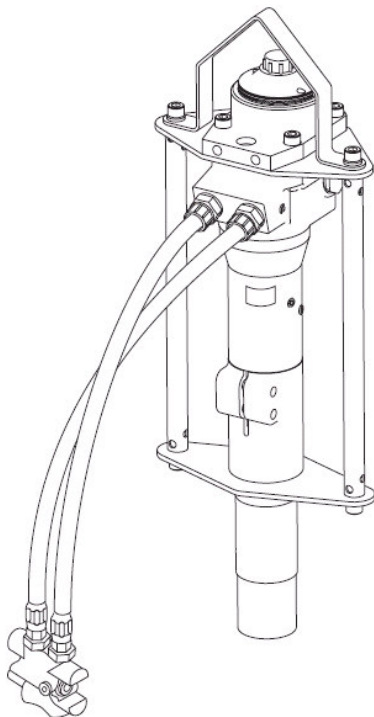


Hydraulic ground rod driver

Operator's Instructions



LGRD-RV 16
LGRD-RV 25

Safety regulations

These instructions contain important sections dealing with safety.

Special attention must be paid to all framed safety text that begins with a warning symbol (triangle) followed by a signal word, as shown below



denotes a hazard or hazardous procedure which CAN lead to serious or life-threatening injuries if the warning is not observed.



denotes a risk or risky procedure which CAN lead to personal injury or damage to equipment if the caution is not observed.

Also observe the following general safety rules:

- Before starting the product, read through **these instructions** carefully.
- For reasons of product safety, the product must not be modified.
- Use approved personal protective equipment.
- Use Atlas Copco Genuine Parts only.
- Replace damaged or worn plates.
- Only trained personnel may work on the product.

About this handbook

To operate the A/C range of hydraulic ground rod drivers efficiently and safely you must know the ground rod driver and have the skill to use it. You must also be a competent operator of the machine supplying the ground rod driver with hydraulic power.

This handbook is designed to give you a good understanding of the ground rod driver and its safe operation.

Using this handbook

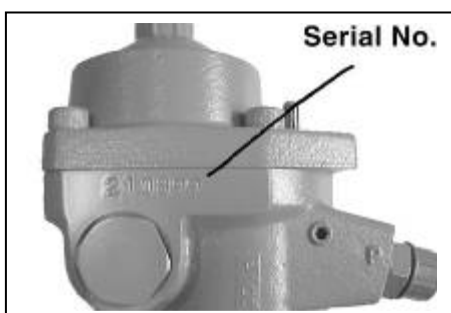
Read this handbook from front to back before using the ground rod driver for the first time. Particular attention must be given to all the safety aspects of operating and maintaining the ground rod driver.

Ground rod driver model and serial number

The following ground rod drivers are covered by this handbook:

Ground rod driver with remote control valve

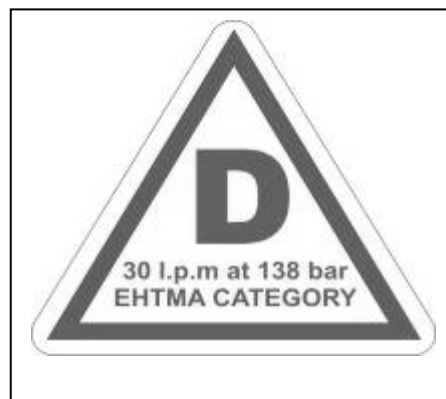
- LGRD-RV16 for 16mm (5/8") rod.
- LGRD-RV-25 for 25,4mm (1") rod.



The serial number of your ground rod driver is stamped on the barrel as shown and on the dataplate. It is important to quote the serial number when making repairs or ordering parts. Identification of the serial number is the only means of ensuring that you receive the correct part for your particular ground rod driver.

EHTMA categorization

The A/C range of hydraulic ground rod drivers are categorized by the EHTMA as Category D Ground rod drivers and can be safely used on any hydraulic powerpack displaying the brown EHTMA D decal as shown below.



Personal protective equipment



WARNING

Long-term exposure to loud noise can cause permanent damage to hearing if ear protectors are not used.



WARNING

Long-term exposure to vibration can cause progressive injury to the fingers, hands and wrists. Do not use the machine if you are experiencing discomfort, cramp or pain. Consult your doctor before continuing to work with the machine



WARNING

Working in some materials can generate dust which can adversely affect the health of the operator. When working in dust generating environments an approved dust mask shall be worn.

Always use approved personal protective equipment. The following applies to operators and other personnel in the immediate vicinity of the working zone:

- Protective helmet
- Ear protectors
- Protective goggles
- Dust mask in dusty environments
- Protective gloves
- Protective footwear

Vibration from hand-held machines is transmitted into the hands via the handles.

Working zone



WARNING

Do not use the hydraulic ground rod driver in an explosive environment.

Make sure that no other personnel trespass into the working zone.

Keep the place of work clean, and free of foreign objects.

Safety check list

Maintenance safety



WARNING

Hydraulic fluid

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.



WARNING

Hydraulic pressure

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, isolate the hydraulic supply.



WARNING

Damaged hoses can cause serious personal injury. Inspect hoses regularly. If any of the following are found, the hose shall be replaced:

- Damaged connections
- Damaged outer casing
- Blisters on the outer casing
- Folds or damage from clamping
- Exposed inner reinforcement

 **WARNING**

Hot surfaces

DO NOT operate the ground rod driver at hydraulic oil temperatures higher than 60°C (140°F). Higher temperatures will be transmitted to the ground rod driver controls and may burn.

 **WARNING**

Accumulator

The ground rod driver incorporates a pressure accumulator. This accumulator is pressurized even when there is no hydraulic pressure to the ground rod driver. Attempting to dismantle the accumulator without first releasing the pressure can cause injury or death. This procedure must be carried out by a qualified person.

 **CAUTION**

Repairs and maintenance

Do not try to do repairs or any other maintenance work you do not understand.

 **WARNING**

The hydraulic ground rod driver is not insulated against electric current. Should the rod or ground rod driver come in contact with the electrical power sources, there is a risk of personal injury.

 **WARNING**

Modifications and welding

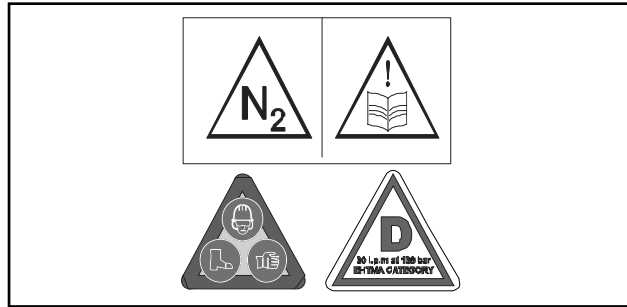
Non-approved modifications can cause injury and damage.

 **CAUTION**

Only use lubricants and hydraulic fluids recommended by the manufacturer.

Safety decals

Decals on the ground rod driver warn you of particular hazards. Read, and make sure you understand the safety message, before you work with the ground rod driver. Keep all decals clean and readable. Replace lost or damaged decals. The decals on the ground rod driver are as shown.



Connecting/disconnecting the ground rod driver

Connecting the ground rod driver

- 1 Ensure that the hydraulic supply meets the requirements of the ground rod driver (see **Specification Section**) and it is stopped.

Note: The A/C range of hydraulic ground rod drivers can be connected to any supply suitable for this particular piece of equipment (see Specification Section).

- 2 Connect the hydraulic hoses. Make sure the hoses are clean and not damaged before connecting them. The connectors are of the 'quick release' type. Make sure they lock in place.

- **Oil supply:** If the oil supply of the power source exceeds the flow prescribed, the engine r.p.m. must be reduced, until correct oil flow is achieved (test equipment, order No. 3371801154 can be used).

- **Oil flow divider:** If the oil flow cannot be adjusted by lowering the r.p.m., an oil flow divider must be installed. This will secure the ground rod driver the correct oil flow and lead excess oil back to the tank (or to the operating valve block).

- **Pressure relief valve:** To protect the ground rod driver against too high a pressure, the pressure relief valve of the powerpack must be set in accordance with the technical data. If that is not possible, connection can be made by installing a separate pressure relief valve. In case of doubt, contact your dealer.

- **Back pressure:** The back pressure (return line pressure) of the ground rod driver should be as low as possible and may not exceed max. Back pressure (see technical data) measured at the ground rod driver in order to avoid functional disturbances.

- **Filter:** The power source must be fitted with a return line oil filter with a filter rating of 10-25µ.

- **Oil cooler:** Oil coolers must be able to stand a pressure of min. 10 bar and should be provided with a by-pass valve opening at a pressure of 2 bar in case of pulsations in the return line.

The LGRD requires an oil flow of 25-30 l.p.m. and then works at a pressure of 105-125 bar.

Disconnecting the ground rod driver



WARNING

Hydraulic oil at pressure can injure you. Follow the instructions below for connecting the hoses.

- 1 Stop the hydraulic supply.
- 2 Disconnect the hoses by pulling up the knurled locking rings and pulling up the couplings. Fit blanking caps to the hoses.

Hydraulic hoses

For connecting the ground rod driver the hydraulic hose shall be approved for a working pressure of at least 140 bar and have a 1/2" inner diameter. To resist exterior wear and tear we recommend using a 2-layer hydraulic hose.

The connection on the ground rod driver marked with a P (pump) is the entry point for oil, and that marked with a T (tank) is the exit point.

Quick release couplings

In the original, hydraulic hoses are fitted with Flat-Face quick release couplings. This kind of quick release coupling is stronger and easier to clean. The quick release couplings are fitted so that the male connection supplies the oil and the female connection receives the oil.

Quick release couplings shall be approved for a minimum 140 bar working pressure.

This section is intended as a guide to using the ground rod driver



WARNING

Never lean against the ground rod driver in order not to lose foothold, if the rod should break by accident, or if the rod suddenly sinks.



WARNING

Never rest the rod in a driver on your foot or against your body.



WARNING

Please read the maintenance instructions carefully before using the hydraulic ground rod driver for the first time.

When working in some materials particles can fly. Make sure no one else is within the work area. Use recommended protective clothing and equipment to protect yourself from flying particles.

Stop the hydraulic power source before change the rod.

Disconnect the hydraulic power source before the ground rod driver is serviced.

Always use rods with suitable dimensions for the ground rod driver.

Rods that not fit well in the driver during driving can cause injury. Never use rods that are much worn or are damaged.

Always wear protective goggles, protective footwear and ear protectors when using the ground rod driver.



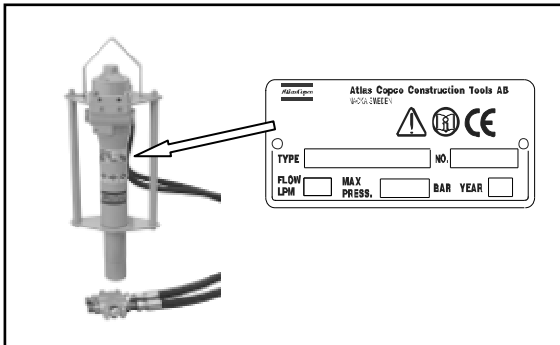
CAUTION

Do not operate the LGRD without pressure being applied e.g. Do not press the remote control valve (RC) on the LGRD in the air. Such repeated action may result in damage to the LGRD. If the energy supply to the LGRD is interrupted, release the remote control valve (RC) immediately to prevent damage.

Choice of ground rod driver

The A/C range of the LGRD is a heavy-duty, hydraulically powered reciprocating tools designed for driving ground rods of various lengths. The high power-to-weight ratio and low vibration reduce operator fatigue and increase productivity. Included is a remote double-acting operating valve that allows operation on either open-center or closed-center hydraulic systems. The LGRD-RV 25 can drive rods up to 25 mm (1") in diameter. The LGRD-RV16 accommodates rods up to 16 mm (0.625") in diameter.

Year of manufacture: See the ID-tag.



Correct working methods

Note: Low/High Temperatures. In cold conditions, warm up the ground rod driver by light use for a few minutes before starting work.

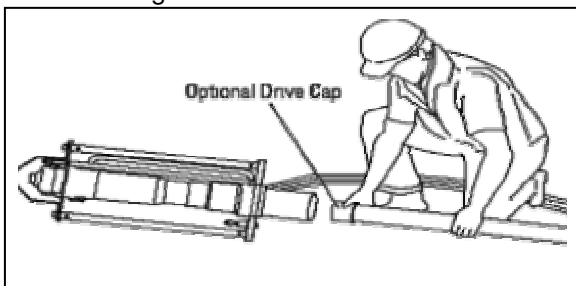
1. Start the power source.

Note: Allow the power source to run for a few minutes to warm the hydraulic fluid.

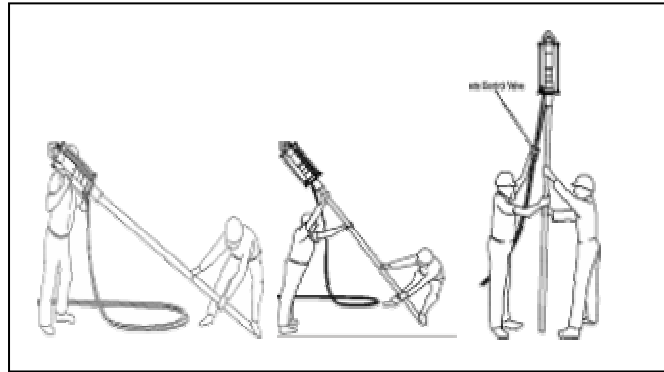
2. Remove the protective caps from the quick-release couplings.

3. Clean the quick-release couplings if needed and connect the tail-hoses to the extension hoses of the power source (see operating manual of the power source).

4. Slide the ground rod into the LGRD as shown.



5. Lift the ground rod and driver to a vertical position as shown. For long and heavy rods, two persons may be required.



6. To start the tool, move the control spool on the remote control valve to the ON position. When the LGRD is within reach, grasp the handles.

7. When driving, make sure you are able to keep safely balanced. Keep arms and legs clear of the rod, if a rod breaks during operation the ground rod driver with a projecting broken shank will suddenly drop.

8. Avoid activating the ground rod driver when it is removed from the rod and ground. This will lead to increased hydraulic oil temperatures and seal wear.

9. DO NOT invert the ground rod driver without first isolating the hydraulic supply.

11. Do not continue to work if the hoses vibrate abnormally.

12. Investigate the contents of the material in which you are going to work. Look out for hidden cables and pipes, e.g. electricity, telephone, water, gas, or sewage lines.

13. If you suspect that the rod has struck a hidden object, stop the machine immediately. Make sure there is no danger before continuing with the work.

14. Only use the machine for the jobs for which it is intended.

Be alert

Always concentrate on what you are doing. Use common sense. Never operate the machine when you are tired or under the influence of drugs, alcohol or other substances which might affect your vision, reaction ability or judgments.

Technical Data Atlas Copco LGRD

LGRD w/remote valve: Weight without hoses, remote valve and adaptor.....	20.5 kg
LGRD w/remote valve: Service weight incl. tail-hose, valve and adaptor	24.0 kg
Oil flow range	25-30 l.p.m.
Working pressure	105-125 bar
Max. back pressure in return line (measured at ground rod driver)	15 bar
Hydraulic oil working temperature.....	30-70°C
High-pressure accumulator charging pressure (Nitrogen).....	50 bar
Pressure relief valve setting (max.)	160 bar
Blow frequency at 30 l.p.m.	29 Hz (1740 1/min.)
Impact energy.....	70 Joule
Connections P and T.....	Standard ½ "BSP (alternatively ¾ "JIC)
Required cooling capacity (in case of alternative power source)	Approx. 2 kW
Vibration level (ISO 8662-5).....	19.1 m/s ² (H/A)
Sound pressure level 1 m (ISO 11203)	LPA = 97 dB
Measured sound power level (2000/14/EC)	LWA = 108 dB
Guaranteed sound power level (2000/14/EC)	LWA = 111 dB

Service schedules



WARNING

Maintenance work must only be done by competent personnel



CAUTION

Only use lubricants and hydraulic fluids recommended by Atlas Copco.

To make sure your ground rod driver keeps working to maximum efficiency, it is essential that it is properly and regularly maintained in accordance with the service schedules included in this handbook.

Badly maintained equipment can be a danger to the operator and the people working around him. Make sure that the regular routine maintenance and lubrication jobs listed in the service schedules are done to keep the equipment in a safe and efficient working condition.

Do not use equipment which is due for a service. Make sure that any defects found during the regular routine maintenance checks are rectified before you use the equipment.

Scrapping worn-out machines

Worn-out machines should be scrapped so that as much material as possible is recovered and to cause as little environmental impact as possible.

NB. Before a worn-out hydraulic ground rod driver is scrapped it must be emptied and cleaned of all hydraulic oil. Waste hydraulic oil shall be handled in such a way as to cause no environmental impact.

Recommended hydraulic oil

In order to protect the environment Atlas Copco recommends the use of biologically degradable hydraulic oil.

Viscosity (preferred)	20 – 40 cSt
Viscosity (permitted)	15 – 100 cSt
Viscosity index	Min. 100

Standard mineral or synthetic oil can be used. When the ground rod driver is used continuously the oil temperature will stabilize at a level which is called the working temperature. This will be, depending on the type of work and the cooling capacity of the hydraulic system, between 20 - 40 °C above the ambient temperature.

At working temperature oil viscosity must lie within the preferred limits. The viscosity index indicates the connection between viscosity and temperature. This is the reason why a high viscosity is preferred,

because then the oil can be used within a wider range of temperatures.

The ground rod driver shall not be used if oil viscosity fails to remain within the permitted area, or if the working temperature of the oil does not fall between +20°C and 70°C.

Daily

Clean

- 1 The ground rod driver and hoses.

Check (Ground rod driver disconnected)

- 2 All hydraulic connections.
- 3 For damage to the ground rod driver and its hoses.

Monthly

Check (Ground rod driver disconnected)

- 1 Torque tightness of all fasteners.
- 2 The bush in nose casting for wear or damage.
- 3 Wear on the shank of the ramming tool.

Every 600 operating hours or yearly (whichever occurs first)

- 1 Overhaul the ground rod driver – refer to the **overhauling instructions**.



WARNING

Maintenance must be done only by suitable qualified and competent persons.

Symptom	Possible fault	Remedy
Ground rod driver fails to operate.	No flow from supply.	Check output with flow and pressure tester.
	Hoses incorrectly fitted.	Check that pressure feed is connected to P port on the LGRD.
	Main spool jammed or damaged.	Remove and check. Clean all associated parts.
	Striker piston seized	Remove and check for 'pick-up' on piston feeder or barrel. Replace any damaged parts.
LGRD lacks striking power.	Insufficient available pressure.	Check Main Relief Valve.
	Low accumulator gas pressure (Normally associated with violent shaking of hoses).	Re-charge the accumulator – refer to Service Manual.
	Stopping bush in nose casting loose.	Apply Loctite 648 and press back.
LGRD runs slow	Insufficient flow	Check that the flow rate is correct.
	Cold oil.	Warm up the oil supply. Optimum temperature 30–70 °C (86–158 °F).
	High return line back pressure.	Check return line back-pressure. Pressure should not exceed 10 bar.
	Incorrect oil	Use only Hydraulic Oil according to spec.
	Q.R. coupling defect	Locate and replace defect coupling.
LGRD runs hot.	Inadequate cooling of hydraulic oil.	Check oil supply has adequate cooling. Temperature should not exceed 80 °C (176 °F).

