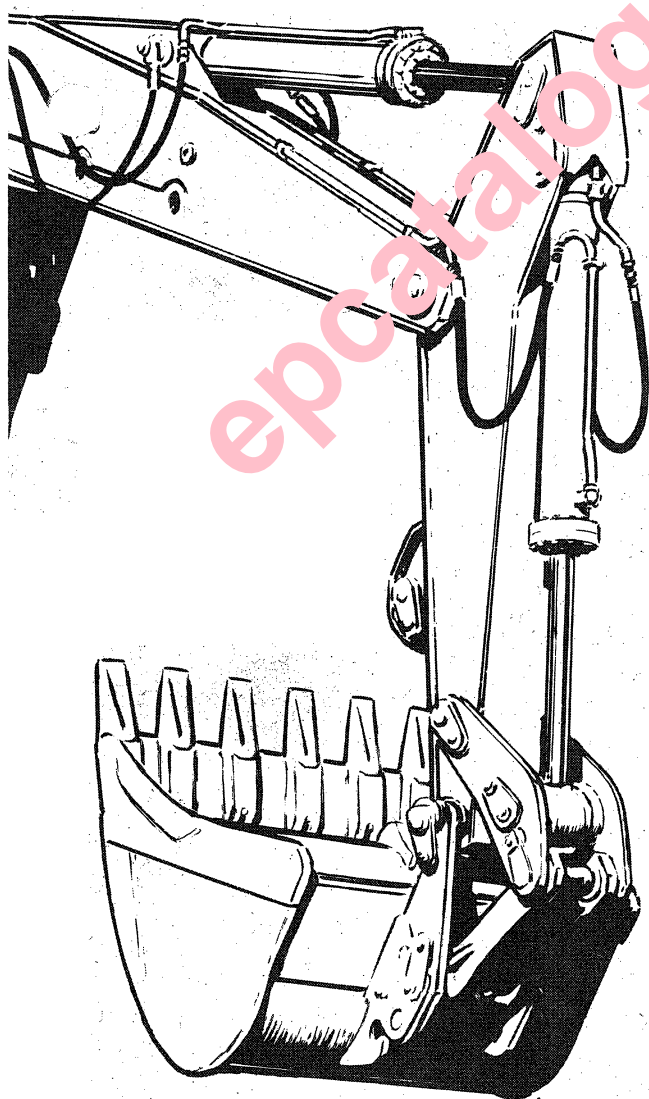


# **HYDRAULIC MOTORS**



**Service  
manual**

**60406205**

**Reprinted**

## AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognizing the real cause and doing something about it before the accident occurs.

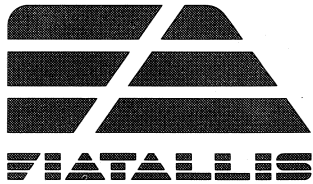
Regardless of the care used in the design and construction of any type of equipment there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many thousand serious injuries each year. That rule is:

***Never attempt to reach on or adjust a machine while it is in motion.***

## WARNING

On machines having hydraulically, mechanically, and/or cable controlled equipment (such as shovels, loaders, dozers, scrapers, etc.) be certain the equipment is lowered to the ground before servicing, adjusting and/or repairing. If it is necessary to have the hydraulically, mechanically, and/or cable controlled equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the hydraulic lift cylinders, cable and/or mechanical devices used for controlling the equipment.







## HYDRAULIC MOTORS

### Service manual

Form 604.06.205

#### WARNING

STUDY THE OPERATION AND MAINTENANCE INSTRUCTION MANUAL THROUGH BEFORE STARTING, OPERATING, MAINTAINING, FUELING OR SERVICING THIS MACHINE.

-  The Operation and Maintenance Instruction Manual provides the instructions and procedures for starting, operating, maintaining, fueling, shutdown and servicing that are necessary for properly conducting the procedures for overhauling the related components outlined in this Service Manual.
-  This symbol is your safety alert sign. It MEANS ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.
-  Read and heed all safety instructions carrying the signal words WARNING and DANGER.
-  Machine mounted safety signs have been color coded yellow with black border and lettering for WARNING and red with white border and lettering for DANGER points.

#### IMPORTANT

The information in this manual was current at the time of publication. It is our policy to constantly improve our product and to make available additional optional items. These changes may affect procedures outlined in this manual. If variances are observed, verify the information through your Dealer.

#### NOTE

Additional publications pertaining to this model and to all other FIAT ALLIS products are available through FIAT ALLIS dealers. Publications are generally available in several languages. Refer to Service Publications Index for all such publications; this index is available from FIAT ALLIS.

**GENERAL**

Study the Operation and Maintenance Instruction Manual before starting, operating, maintaining, fueling, or servicing machine.

Read and heed all machine-mounted safety signs before starting, operating, maintaining, fueling or servicing machine.

Machine-mounted safety signs have been color coded yellow with black borders and lettering for warning and red with white borders and lettering for danger points.

Do not allow unauthorized personnel to service or maintain this machine. Do not perform any work on equipment that is not authorized. Follow the Maintenance and Service procedures. Study the Operation and Maintenance Instruction Manual before starting, operating, maintaining, fueling or servicing this machine.

Always wear safety glasses with side shields.

Do not wear rings, wrist watches, jewelry, or loose or hanging apparel, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can catch on moving parts. Wear proper safety equipment as authorized for the job. Examples: hard hats, safety shoes, heavy gloves, ear protectors, safety glasses or goggles, reflector vest, or respirators. Consult your employer for specific safety equipment requirements.

Do not use controls or hoses as handholds when climbing on or off machine. Hoses and controls are movable and do not provide a solid support. Controls may also be inadvertently moved causing accidental machine or equipment movement.

Do not jump on or off machine. Keep two hands and one foot, or two feet and one hand, in contact with steps and grab-rails and handles at all times.

Machine should not be serviced with anyone in the operator's seat unless they are qualified to operate the machine and are assisting in the servicing.

Keep operator compartment, stepping points, grab-rails and handles clean of foreign objects, oil, grease, mud or snow accumulation to minimize the danger of slipping or stumbling. Clean mud or grease from shoes before attempting to mount or operate the machine.

Never attempt to operate the machine or its tools from any other position than seated in the operator's seat. Keep operator's compartment clear of loose objects.

If movement of an attachment by means of the machine's hydraulic system is required for service or maintenance, do not raise or lower attachments from any position other than when seated in the operator's seat. Before starting machine or moving attachment or tool, make sure to set brakes, sound horn and call for an all clear. Raise attachment slowly.

Always block with external support any linkage, parts, or machine according to local or national requirements.

Never allow anyone to walk under or be near unblocked raised equipment. Avoid working or walking under raised blocked equipment unless you are assured

of your safety.

Never place head, body, limbs, fingers, feet or hands into an exposed portion between uncontrolled or unguarded scissor points of machine without first providing secure blocking.

Never lubricate, service or adjust a machine with the engine running, except as called for in the Operation and Maintenance Instruction Manuals. Do not wear loose clothing or jewelry near moving parts.

When servicing or maintenance requires access to areas that cannot be reached from the ground, use a ladder or step platform that meets local or national requirements to reach the service point. If such ladders or platform are not available, use the machine handholds and steps as provided. Perform all service or maintenance carefully.

Shop or field service platform and ladders used to maintain or service machinery should be constructed and maintained according to local or national requirements.

Never check or fill fuel tanks, storage batteries or use starter fluid near lighted smoking materials or open flame due to the presence of flammable fluid.

Brakes are inoperative when manually released for servicing. Provision must be made to maintain control of the machine by blocking or other means.

Always place the fuel nozzle against the side of the filler opening before starting and during fuel flow. To reduce the chance of a static electricity spark, keep contact until after fuel flow is shut off.

Use only designated towing or pulling attachment points. Use care in making attachment. Be sure pins and locks as provided are secure before pulling. Stay clear of drawbars, cables or chains under load.

To move a disabled machine, use a trailer or low boy truck if available. If towing is necessary, provide warning signals as required by local rules and regulations and follow operation and maintenance instruction manual recommendations. Load and unload on a level area that gives full support to the trailer wheels. Use ramps of adequate strength, low angle and proper height. Keep trailer bed clean of clay, oil and all materials that become slippery. Tie machine down securely to truck or trailer bed and block tracks (or wheels) as required by the carrier.

Never align holes with fingers or hands. Use the proper aligning tool.

Remove sharp edges and burrs from reworked parts. Use only grounded auxiliary power source for heaters, chargers, pumps and similar equipment to reduce the hazards of electrical shock.

Lift and handle all heavy parts with a lifting device of proper capacity. Be sure parts are supported by proper slings and hooks. Use lifting eyes if provided. Watch out for people in the vicinity.

Never place gasoline or diesel fuel in an open pan. Never use gasoline or solvent or other flammable fluid to clean parts. Use authorized commercial, non-flam-



mable, non-toxic solvents.

When using compressed air for cleaning parts use safety glasses with side shields or goggles. Limit the pressure to 2 bar (30 psi) according to local or national requirements.

Do not smoke or permit any open flame or spark near when refueling, or handling highly flammable materials.

Do not use an open flame as a light source to look for leaks or for inspection anywhere on the machine.

Be sure all mechanic's tools are in good condition. DO NOT use tools with mushroomed heads. Always wear safety glasses with side shields.

Move carefully when under, in or near machine or implements. Wear required protective equipment, such as hard hat, safety glasses, safety shoes, ear protectors.

When making equipment checks that require of the engine, have an operator in the operator seat at all times with the mechanic in sight. Place the transmission in neutral and set the brakes and lock. Keep hands and clothing away from moving parts. Shut off engine and disengage the Power Take-Off Lever before attempting adjustments or service.

Never use the bucket as a man lift.

The articulation point between frames will not clear a person. Stay clear when engine is running. Support, using device provided when servicing. Put on support to carry position and secure before moving machine after servicing. See Operation and Maintenance Instruction Manual.

For field service, move machine to level ground if possible and block machine. Work is absolutely necessary on an incline, block machine and its attachments securely. Move machine to level ground as soon as possible.

Guard against kicking chains or cables. Do not lift or pull through a linked chain or cable. Always wear heavy gloves when handling chain or cable.

Be sure cables are anchored and the anchor point is strong enough to handle the expected load. Keep exposed personnel clear of anchor point and cable or chain. **DO NOT PULL OR TOW UNLESS OPERATOR'S COMPARTMENTS OF MACHINES INVOLVED ARE PROPERLY GUARDED** against accidental cable or chain backlash.

Keep maintenance area **CLEAN** and **DRY**. Remove water or oil slicks immediately.

**DO NOT** pile oily, greasy rags – they are a fire hazard. Store in a closed metal container.

Before starting machine or moving attachment check and adjust and lock operator's seat. Be sure all personnel in the area are clear before starting or moving machine and any of its attachments. Sound horn.

Rust inhibitors are volatile and flammable. Prepare parts in well-ventilated place. Keep open flame away. **DO NOT SMOKE**. Store container in a cool well-ventilated place secured against unauthorized personnel.

Do not carry loose objects in pockets that might fall unnoticed into open compartments.

Keep clutches and brakes on machine and attachments such as Power Control Units, winches and master clutches adjusted according to Operation and Maintenance Instruction Manuals of the manufacturer at all times. **DO NOT** adjust machine with engine running except as specified.

Wear proper protective equipment such as safety goggles or safety glasses with side shields, hard hat, safety shoes, heavy gloves when metal or other particles are apt to fly or fall.

Wear welder's protective equipment such as dark safety glasses, helmets, protective clothing, gloves and safety shoes when welding. Wear dark safety glasses near welding. **DO NOT LOOK AT ARC WITHOUT PROPER EYE PROTECTION.**

Know your jacking equipment and its capacity. Be sure the jacking point used on the machine is appropriate for the load to be applied. Be sure the support for the jack at the machine and under the jack is appropriate and stable. Any equipment up on a jack is dangerous. Transfer load to appropriate blocking as a safety measure before proceeding with service or maintenance work according to local or national requirements.

Wire rope develops steel slivers. Use authorized protective equipment such as heavy gloves, safety glasses when handling.

Handle all parts with extreme care. Keep hands and fingers from between parts. Wear authorized protective equipment such as safety glasses, heavy gloves, safety shoes.

Inspect your seat belt at least twice a year for signs of fraying, wear, or other weakness that could lead to failure.

Where it is necessary to use diesel fuel as a lubricant make sure all smoking material and open flames are extinguished or that no sparks are near. Place all parts in a closed container of clear diesel fuel for use as needed.

To minimize dangers of fire and explosion, it is recommended that before any welding is done on a fuel tank, the tank be completely drained of fuel, fuel lines disconnected and the ends closed to protect them, and the tank be steam cleaned. All traces of fuel must be removed before welding is started. Flood the tank with carbon dioxide (CO<sub>2</sub>) before and during welding. Caps must be removed and vents and other openings left open during welding.

Dry ice (solid carbon dioxide) is extremely cold and will freeze flesh on contact. Use care to prevent contact with skin, eyes, or other parts of the body to avoid personal injury.

When work is required under or between components, block with an external support capable of holding the components in place according to local or national requirements.

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