



MANITOU NORTH AMERICA, INC.

6401 IMPERIAL DRIVE
Waco, TX 76712-6803

For Parts Orders contact your Manitou North America Dealer or call:
Manitou North America, Parts Dept. 800-425-3727 or (254) 799-0232
Parts Dept. Fax: (254) 867-6504 Website: www.manitou-na.com

CALIFORNIA PROPOSITION 65 WARNING

Diesel Engine Exhaust and some of its constituents are known to the State of California to cause cancer, birth defects or other reproductive harm.

**S402TC-D, S502TC-D,
S602TC-D, S404TC-D,
S504TC-D & S604TC-D**

**OPERATOR/SERVICE
MANUAL**

THIS OPERATOR'S MANUAL MUST BE KEPT IN THE LIFT TRUCK. IT MUST BE READ AND UNDERSTOOD BY THE LIFT TRUCK OPERATOR.

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DESCRIPTION

These rough terrain forklifts are specially designed for use on unimproved natural terrain as well as the disturbed terrain of construction sites where the regular small industrial trucks cannot operate.

In this role, the lift truck is of maximum benefit to construction engineers, builders, farmers, etc., for transporting materials and equipment over uneven ground with a minimum of labor and expense.

This lift truck has been built around the well proven Ford powertrain, which is basically a tractor type engine and transmission with specific modifications which enable it to withstand demanding work. The skid unit is supported within a strong steel chassis which absorbs the stresses of the mast, counterweights and steering axle.

The mast rails are manufactured to K-D Manitou, Inc. specifications and roll one within the other. The roller mounted fork carriage is lifted by a dual chain system controlled by single acting hydraulic controlled equipment.

A full power steering system of the non-reactive type is installed and consist of an engine mounted hydraulic pump, a power steering unit mounted below the steering wheel and two double acting hydraulic cylinders mounted on the rear axle.

There are two hydraulic circuits which are fully independent and contain return line filters which insure the fluid is being continually filtered during circulation.

1ST Circuit - lift and tilt cylinder and attachments

2ND Circuit - power steering only

This rough terrain lift truck is designed with a complete electrical system, including alternator with voltage regulator, starter, and lighting.

The following pages contain detailed specifications of the complete truck, and all necessary servicing instructions to maintain it in proper operational condition.

K-D Manitou, Inc. policy is one of continual improvement and development, and may therefore introduce changes at any time without prior notice.

INSTRUMENTS AND CONTROLS - CONT'D

FIGURE 1

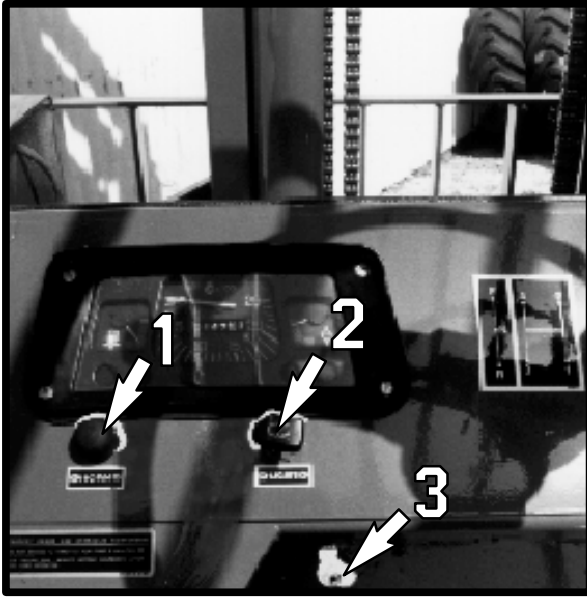
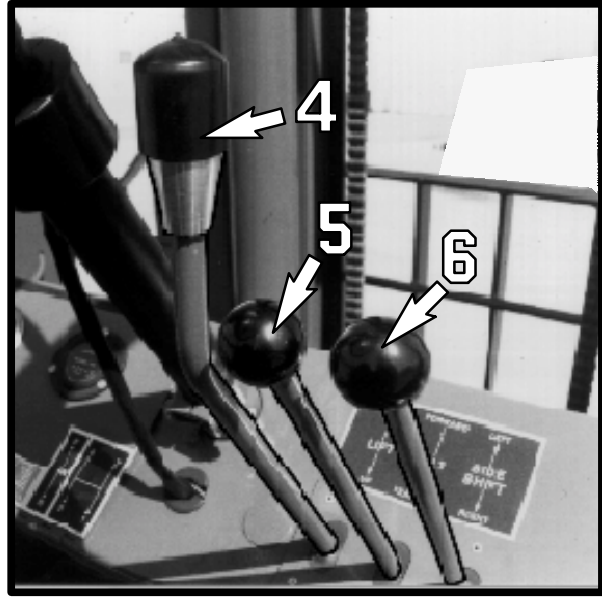


FIGURE 2



Item 1.) HORN BUTTON (See Figure 1) Pressing inward on button activates the horn.

Item 2.) LIGHT SWITCH (See Figure 1)

The light switch is the pull-push type. The positions of operation are:

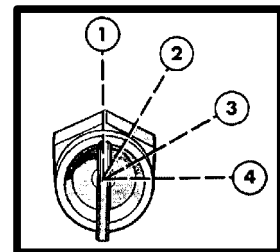
- a) Pushed-In - All lights off.
- b) Intermediate position - Instrument lights only.
- c) Pulled-Out position - All lights engaged.

Item 3.) KEY-START/STOP SWITCH (See Figure 1)

WARNING: Do not use ether with the glowplug. If in an emergency, it is necessary to use ether with the Thermostart installed, disconnect the terminal wire from the glow plug on the intake manifold and insulate the free end of the wire. (The glowplug is at the front of the manifold.)

The ignition switch is a key switch with four positions. The positions are:

- 1.) First position - *Electrical Equipment and Engine "OFF"*.
- 2.) Second position - *Accessories "ON"* (Truck operating position after engine starts.)
- 3.) Third position (Spring return) - *Glow-plug* for cold weather starting (0° - 40° F); push in on key and hold for 15 seconds to activate.
- 4.) Forth position - *Engine starter position*; push in on the key at position 3 then turn to position 4, hold until the engine starts, but no longer than 30 seconds at a time.



Item 4.) LIFT LEVER (See Figure 2)

This lever lifts the carriage forks when pulled back and lowers the forks when pushed forward.

Item 5.) TILT LEVER (See Figure 2)

This lever tilts the mast forward when pushed forward and tilts the mast back when pulled back.

WARNING: SEE "GENERAL RULES" FOR TILTING RESTRICTIONS!

Item 6.) SIDE SHIFT LEVER (See Figure 2)

This lever shifts the mast and load to the right when pulled back and to the left when pushed forward.

Note: Additional hydraulic valve levers can be added for optional hydraulic attachments.

EVERY 50 HOURS SERVICE

SERVICE CHECK:

- 1.) Sheet metal, paint, decals, etc...
- 2.) Mast and truck frame for damages.
- 3.) Lube all truck and mast grease fittings.
- 4.) Tire pressures, wheels and lug nuts.
- 5.) Exhaust system, muffler, brackets, etc.
- 6.) Fan belt, tension and condition.
- 7.) Engine coolant, radiator, hoses.
- 8.) Overhead guard and connecting bolts.
- 9.) Battery, electrolyte level.
- 10.) Electrical cables, wires and terminals.
- 11.) Fuel system for leaks, damages.
- 12.) Fuel filter system.
- 13.) Hydraulic system for leaks.
- 14.) Air cleaner/filter and hose connections.
- 15.) Engine starting safety switches.
- 16.) Lights & gauges.
- 17.) Service brake and park brake.
- 18.) Steering control and response.
- 19.) Engine throttle/governor operation.
- 20.) Engine maximum no-load idle speed.
- 21.) Hydraulic system operation:
 - a) Tilt cylinder response.
 - b) Side shift cylinder response.
 - c) Lift cylinder and mast response:
 - c1) Empty _____ c2) Loaded _____
 - d) Dump valve operating response.
- 22.) Differential lock operation.
- 23.) Engine oil.
- 24.) Transmission oil level.
- 25.) Drive axle oil level.
- 26.) Adjust parking brake.
- 27.) Steer axle breather (4WD only).
- 28.) Steer axle oil level (4WD only).
- 29.) Steer axle hub oil level (4WD only)
- 30.) Tilt cylinder pins and snap rings.
- 31.) Mast mount bar and cap head bolts.
- 32.) Lube mast mount bar.
- 33.) Mast chain connections.
- 34.) Lube mast chains.
- 35.) All optional equipment and accessories.

EVERY 600 HOURS SERVICE

CHECK VALVE CLEARANCE

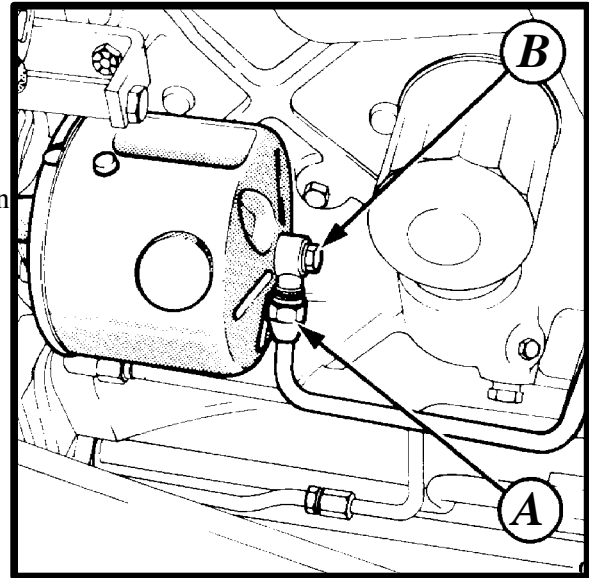
Consult your dealer.

CHECK INJECTORS

Consult your dealer.

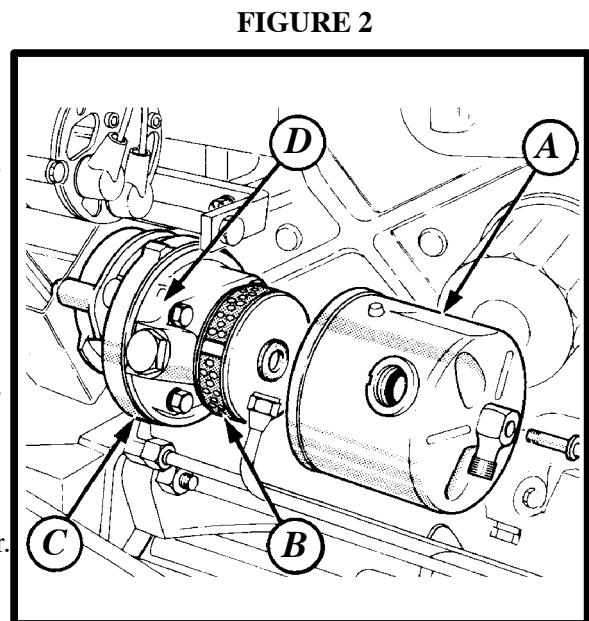
POWER STEERING OIL DRAINING

- 1.) Disconnect the inlet tube (Figure 1, Item **A**) from the rear of the power steering oil reservoir.
- 2.) Loosen the bolt (Item **B**) and allow the oil to drain into a suitable container.



POWER STEERING OIL FILTER

- 1.) Separate the reservoir (Figure 2, Item **A**) from the pump.
- 2.) Remove and discard the filter (Item **B**) and 'O' ring seal (Item **C**).
- 3.) Clean the pump and reservoir using a clean solvent and air dry.
- 4.) Install a new filter and 'O' ring seal on the pump.
- 5.) Re-assemble the reservoir insuring that the locating lug (Item **D**) on the pump body aligns with the edge of the indentation in the reservoir.



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