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MANUAL PREVIEW

Allis Chalmers

Operator's Manual

HD14

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Operator's Manual

AC-O-HD14

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FOREWORD

The instructions given in this book cover the operation of the Allis-Chalmers "HD-14" tractor. A close adherence to these instructions will result in many hours of trouble-free operation and a longer operating life for the unit.

This book is written for the purpose of giving the operator essential information regarding the day-to-day care, lubrication, and adjustment of the tractor. Economical operation will be insured if these instructions are followed.

Many Allis-Chalmers owners employ the dealer's Service Department for any work other than routine care and adjustments. This practice is encouraged as our dealers are kept well informed by the factory regarding advanced methods of servicing Allis-Chalmers products and are equipped to render satisfactory service.

SPECIFICATIONS

Engine:

Make	General Motors Diesel
Type	Two Cycle
Number of Cylinders	6
Bore	4-1/4"
Stroke	5"
R.P.M. (Governed at Full Load)	1500
Fuel	Commercial Diesel Fuel Oil

TRACTOR SPEEDS MILES PER HOUR

First	1.72
Second	2.18
Third	2.76
Fourth	3.50
Fifth	4.36
Sixth	7.00
Low Reverse	2.00
High Reverse	3.20
MAXIMUM DRAWBAR HORSEPOWER	132.19
Belt Horsepower	150.48
Ground Clearance	13-1/2"
Drawbar Height	15-1/2"

Shipping Weight

(Wood blocking and tools not included). . . 28,800 lbs. approximately

CAPACITIES

Crankcase for Refill (Filters Empty, Quarts)	16
(Filters Full, Quarts)	14
Cooling System. (U.S. Std. Gal.)	12
Final Drive Case (U.S. Std. Gal.)	2 each
Fuel Tank . . . (U.S. Std. Gal.)	68
Transmission Case (U.S. Std. Gal.)	10
Track Release Spring Housing (Quarts Each)	13

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1. FAN - One lubrication point. Lubricate every 200 hours of operation with pressure gun lubricant.
2. GENERATOR - Two lubrication points. Lubricate every 200 hours of operation with light motor oil.
3. SECONDARY OIL FILTER - Install a new element in the secondary filter every 240 hours of operation or every fourth oil change. Refer to Topic 10.
4. CRANKCASE BAYONNET GAUGE - Inspect oil level every 10 hours of operation.
5. THROTTLE LEVER DISC - Lubricate when necessary for easy operation with pressure gun lubricant; do not over-lubricate.
6. FRONT IDLER - Two lubrication points. Lubricate every 200 hours of operation with 18 strokes of the gun. Use approved motor oil. Refer to Topic 7.
7. STARTER - Two lubrication points. Lubricate every 200 hours of operation with light motor oil.
8. CLUTCH SHIFTER BEARING - Lubricate every 10 hours of operation with pressure gun lubricant of high heat resistance.
9. TRACK SUPPORT ROLLER - Two lubrication points. Lubricate every 200 hours of operation with 10 strokes of the gun. Use approved motor oil. Refer to Topic 8.
10. STABILIZER CRANK ASSEMBLY - Twelve lubrication points. Lubricate every 10 hours of operation with pressure gun lubricant.
11. TRACK RELEASE SPRING MECHANISM - Inspect oil level every 200 hours of operation. Keep filled to filler plug with motor oil same viscosity as used in transmission. Drain, flush and refill with motor oil same viscosity as used in transmission every 800 hours of operation. Capacity 13 quarts.
12. TRUCK WHEELS - Ten lubrication points. Lubricate every 200 hours of operation with 8-1/2 strokes of the gun. Use approved motor oil. Refer to Topic 6.
13. BELL CRANK THRUST PIN - Two lubrication points. Lubricate every 10 hours of operation with pressure gun lubricant.
14. STEERING CLUTCH THROWOUT BEARING - Four lubrication points. Lubricate every 10 hours of operation with pressure gun lubricant of high heat resistance.
15. FINAL DRIVE DRAIN PLUG - Drain, flush, and refill every 200 to 400 hours of operation. Capacity 8 quarts each.
16. FINAL DRIVE FILLER PLUG - Inspect oil level every 10 hours of operation. Keep filled to level of filler elbow with approved motor oil.
17. SEDIMENT TRAPS - Drain traps every morning before starting, or more often if necessary. In freezing weather, drain after stopping so water will not freeze in traps.
18. FIRST STAGE FUEL OIL FILTERS - Install new elements when necessary. Refer to Topic 11.
19. TRACKS - No lubrication necessary.
20. TRANSMISSION DRAIN PLUG - Drain, flush, and refill every 800 hours of operation with approved motor oil. Capacity 40 quarts.
21. TRANSMISSION CASE FILLER PLUG AND OIL LEVEL BAYONNET GAUGE - Inspect oil level every 10 hours of operation and keep the oil level between "Low" and "Full" on the bayonet gauge.
22. LUBRICATING OIL PRESSURE GAUGE - Normal operating pressure when engine is warm at full throttle is 25 to 35 on the gauge; if gauge does not register stop engine immediately and determine the cause.
23. BATTERIES - Keep the top and terminals clean. Keep filled with clean distilled water to 3/8" above separator plates; inspect water level daily. Test with a hydrometer.
24. AIR CLEANERS - Inspect and service every 10 hours of operation. Refer to Topic 13.
25. CRANKCASE FILLER CAP - One filler point. Change oil every 30 to 60 hours of operation. USE NON-CORROSIVE DIESEL LUBRICATING OILS CONTAINING ADDITIVES PREVENTING SLUDGE OR GUM DEPOSITS. Capacity 14 quarts.
26. SECOND STAGE FUEL OIL FILTER - Install new element when necessary, that is, when pressure drops below normal range (25 to 65) due to filter clogging. Refer to Topic 11.
27. PRE-CLEANERS - Inspect and service every 10 hours of operation. Refer to Topic 12.
28. CRANKCASE DRAIN PLUG - One drain point. Drain and refill with new oil every 30 to 60 hours of operation. Refer to Topic 1A.
29. PRIMARY OIL FILTER - Clean the Primary Oil Filter at each crankcase oil change. Refer to Topic 10.
30. WATER PUMP DRAIN - Periodically drain and flush out system. Refer to Topic 18.
31. RADIATOR DRAIN - Periodically drain and flush out system. Refer to Topic 18. Capacity 12 gallons.

ROUTINE SERVICE

The operating life of a tractor can be materially increased and fewer shut downs will be experienced if the unit is properly serviced at regular periodic intervals. Often major repairs and shut downs can be avoided if the tractor is inspected regularly and the trouble corrected when it is of a minor nature.

The following outline gives the operator the points that should be lubricated and inspected at each inspection period.

TEN (10) HOUR SERVICE

Lubricate:

- (a) Stabilizer Crank Assy. (All Button-Head Fittings)
- (b) Bell Crank Thrust Pin
- (c) Master Clutch Shifter Bearings
- (d) Steering Clutch Release Bearings

Inspect:

Lubricating Oil Level
Air Cleaners
Pre-Cleaners
Cooling System
Fuel Sediment Traps
Batteries
Transmission Case Oil Level
Fuel Level
Final Drive Case Oil Level
Inspect Tractor for Loose Nuts and Bolts
Steering Clutch Throwout Adjustment
Master Clutch Adjustment
Brake Adjustment
Front Idler and Track Adjustment

SIXTY (60) HOUR SERVICE

Drain and refill crankcase. The oil should be changed every 30 to 60 hours depending upon the quality of oil, the kind of fuel used and the working conditions.
Clean primary lubricating oil filter. Install a new element in the secondary filter with every fourth oil change or every 240 hours.

ONE HUNDRED (100) HOUR SERVICE

Inspect:

Generator Belt
Fan Belts
Wire insulation and Connections
Track Shoe Bolts
Final Drive Packing Adjustment

TWO HUNDRED (200) HOUR SERVICE

Lubricate:

Truck Wheels
Front Idlers
Track Support Rollers
Fan
Generator
Starter
Master Clutch Cams

Inspect:

Track Release Spring Mechanism Oil Level
Drain, flush and refill cooling system.
Drain, flush and refill final drive cases.
The oil in the final drive cases should be changed every 200 to 400 hours of operation depending upon the operating conditions.

EIGHT HUNDRED (800) HOUR SERVICE

Drain, flush and refill the transmission case; change sooner if conditions warrant lighter or heavier oil.
Drain, flush and refill the track release housing.



TRUCK WHEEL LUBRICATION

Approximately 17 quarts of lubricant will be required for each complete servicing of truck wheels, front idlers and support rollers.

The truck wheels, which employ the use of positive seals, are lubricated at the factory but must be re-lubricated upon delivery and every two hundred hours thereafter.

The lubrication of these truck wheels is a process of flushing out the old lubricant by forcing it out with the new lubricant. The lubricating equipment for the truck wheels consists of a special lubricator which is included in the tool equipment of the tractor.

Before lubricating the truck wheels, wash the ends of the shafts and the nozzle of the lubricator hose thoroughly. Before inserting the nozzle into the truck wheel, pump the lubricator plunger up and down several times

to make sure that it is discharging the full amount of lubricant.

Remove the plug from the end of the truck wheel shaft and insert the nozzle as far as it will go (approximately 6 inches) into the shaft. Holding the nozzle firmly in this position, pump the lubricant slowly into the wheel. The plunger should be lifted slowly and to its full height so that the full amount of lubricant will be drawn into the plunger barrel. 8-1/2 such strokes are required to fill each truck wheel. Each stroke of the lubricator delivers four (4) ounces of lubricant.

CAUTION: Never put too much pressure on the lubricator handle because of the danger of developing extreme pressure which is injurious to truck wheel seals.

Immediately after injecting the lubricant into the wheel assembly, replace the plug and gasket to prevent the new lubricant from running out. The nozzle should always be inserted into the carrying handle when the lubricator is not in use to prevent dirt from entering the nozzle or hose.

TRUCK WHEEL LUBRICATION (Cont'd.)

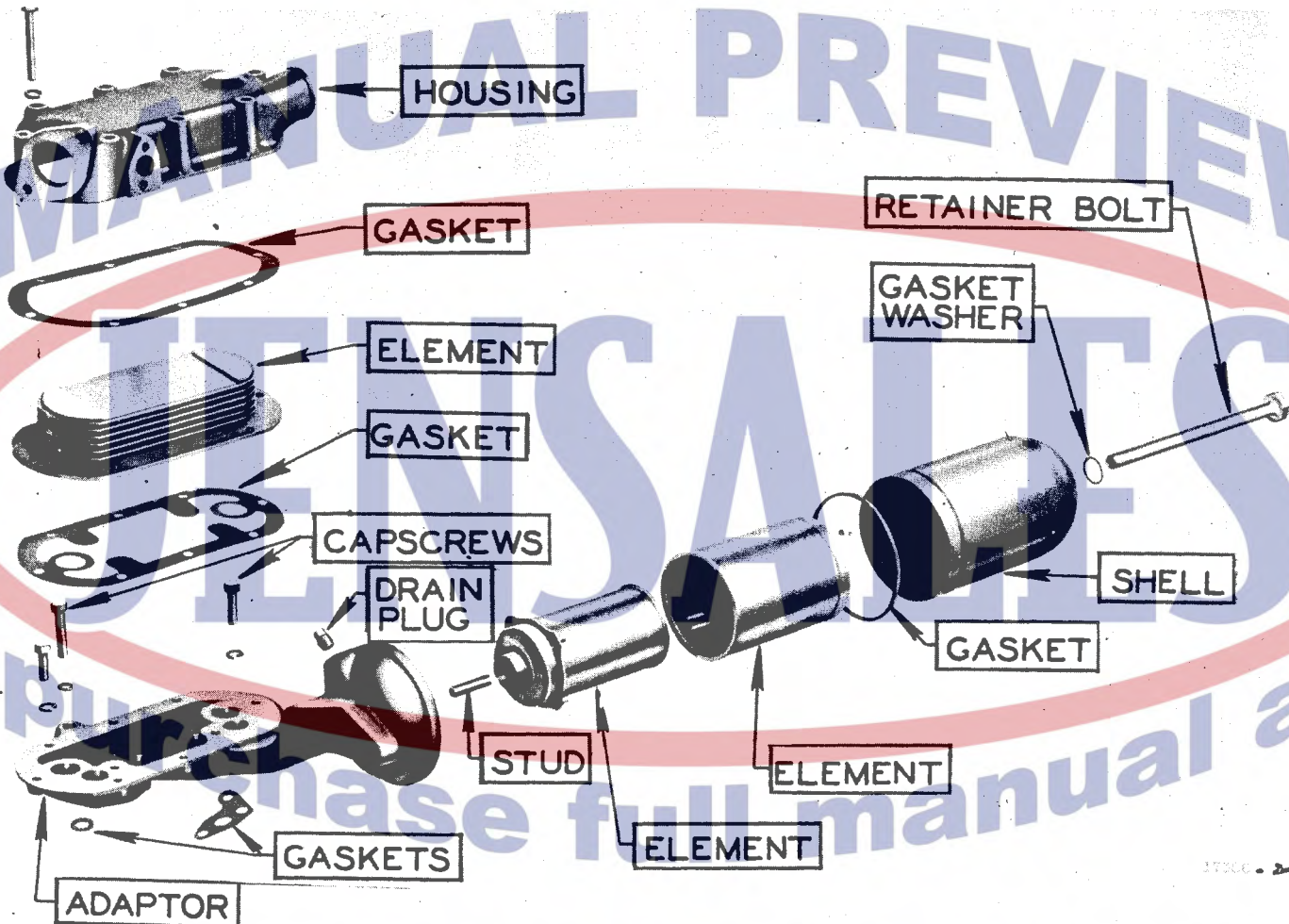
Use only motor oil recommended by Allis-Chalmers--see the nearest Allis-Chalmers dealer or Allis-Chalmers factory branch for the current approved list of oils.

FRONT IDLER LUBRICATION

The front idlers are lubricated with the same equipment and in the same manner with the same oil as the truck wheels. Each front idler should be serviced with 18 strokes of the lubricator.

SUPPORT ROLLER LUBRICATION

The track support rollers are lubricated with the same equipment and in the same manner as the truck wheels and front idlers. Each support roller should be serviced with 10 strokes of the lubricator.



PRIMARY OIL FILTER AND OIL COOLER

LUBRICATING OIL FILTERS AND OIL COOLER

To provide a normal flow of clean, cool oil to the engine it is essential that both the primary oil filter, secondary oil filter and cooler be kept in good condition. Each of these units will be discussed separately in the following text.

A. PRIMARY OIL FILTER

1. The primary oil filter of the double screen type, is located in the lubricating system between the oil pump and the oil cooler. (See illustration). All the oil from the pump passes through the filter and cooler. The oil filter removes all larger particles from the oil and collects a portion of the sludge from the oil on the two screen elements. The strainer will remove any particles from the oil larger than .005" in diameter. If the strainer should become clogged, the by-pass valve will open and allow the oil to flow directly from the pump to the main oil gallery. This condition should by no means be tolerated since oil flowing by way of the by-pass will not have the benefit of being cleaned or cooled, and continuous operation in this manner may cause unlimited damage to engine parts.

B. REMOVAL AND CLEANING OF PRIMARY FILTER

1. Remove filter drain plug.

LUBRICATING OIL FILTERS AND OIL COOLER (Cont'd.)

2. Remove the oil filter retainer bolt.
3. Remove the oil filter shell and filter elements from the filter base.
4. The filter elements must be washed after every oil change. Wash the elements in fuel oil with a soft brush. Do not scrape the elements with a sharp or metal instrument or wash them with a wire brush. Wash the filter base and outer shell before reassembling.

After washing, reassemble the filter on the filter base. After assembling check to see whether copper gasket under retainer bolt prevents oil leaks. Also be sure oil filter shell gasket fits properly. Run the motor for a few minutes and inspect for oil leaks.

C. CLEANING PRIMARY FILTER ELEMENTS AND OIL COOLER WITH SOLVENTS.

A filter element that has become loaded with impurities due to neglect can usually be cleaned only through use of special solvents in conjunction with some type of circulating system that will create a flushing action.

NOTE: When a filter element is removed from an engine it should be cleaned immediately. Do not allow a dirty element to dry, since this will cause lacquer or sludge deposits to harden. Keep submerged in a pail of fuel oil before cleaning.

1. Effective solvents

Excello Floor cleaning compound

Bendix cleaning compound

Turco cleaning compound

#70 stripper

A mixture of Oakite #7 and fuel oil. 3 parts Oakite and 5 parts of fuel oil.

NOTE: The solvents listed above should be used according to the directions of manufacture. After cleaning operation is completed all traces of the cleaning solution should be washed from the filter elements. In the event that the above procedure does not eliminate the clogged condition, a new filter element must be installed.

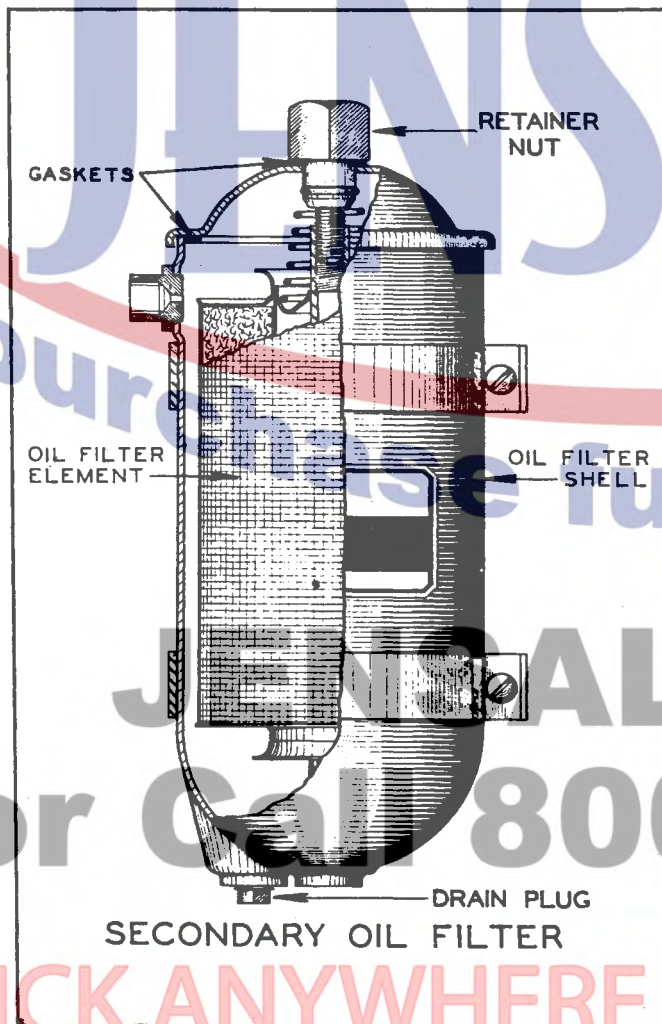
2. Another very effective solvent is the new Bendix cleaner which dissolves or loosens the sludge or other foreign matter that may be collected on the metal of the oil cooler or filter elements.

Its application is very simple since all that is required is submersion of cooler or filter in solution for a sufficient length of time to allow the chemical action of the fluid to properly remove the impurities. The length of time for the submersion will depend upon the condition of the cooler or filter elements.

The impurities, etc., removed from elements will settle in the bottom of the containers used for this cleaning operation.

After the above operation, the cooler or filter elements should be left to drain for a few minutes, then followed up with a thorough washing with spirits or live steam to remove all traces of the cleaning solution. If solution in container is properly covered to prevent evaporation, it may be used again.

NOTE: The above information is submitted in a general manner in order to explain the principles of this cleaner. However, it is recommended that the more specific instructions supplied by the manufacturer of cleaner be studied carefully before using any cleaning solution.



D. SECONDARY OIL FILTER.

The secondary oil filter is located on the left side of the motor. The inlet line at the top of the filter body is connected to the main oil gallery in the cylinder block.

LUBRICATING OIL FILTERS AND OIL COOLER (Cont'd.)

The outlet line from the filter body is at the bottom and drains back into the crankcase.

Only a portion of the oil flows through this filter. This filter has a replaceable element and must be changed every 4th oil change or every 240 hours of operation.

E. REMOVAL OF SECONDARY FILTER ELEMENT AND INSTALLATION OF A NEW ONE.

1. Remove the drain plug at the bottom of body and loosen the cover. Let the oil drain out before removing the element.
2. Remove the filter element and discard it.
3. Clean out the filter body and replace drain plug.
4. Install new element, new cover gasket and tighten cover securely.
5. When installing new element one extra quart of oil is required for crankcase filling. NOTE: When filling crankcase with oil fill only to full mark on crankcase bayonet gauge.
6. Start motor, inspect for leaks and run for a few minutes. Then stop motor and let it set long enough for the oil to drain back into crankcase. Check crankcase bayonet gauge to see if more oil is needed.
7. In cold weather the motor should be run long enough to attain operating temperature before checking the oil level.

F. OIL COOLER

1. The lubricating oil cooler lowers the oil temperature as the oil travels through the small passages inside the cooling element. If these passages become entirely clogged, no cooling of the oil can take place, and the oil is by-passed without filtering or cooling directly to cylinder block oil gallery. It is absolutely necessary that the oil cooler element be kept clean for proper oil cooling.
2. Cleaning of a clogged cooler is sometimes very difficult. A cooler that has become loaded with impurities over a long period of operation can usually be cleaned only through use of special solvents in conjunction with some type of circulating system that will create a flushing action. However, in most cases the use of any of the special solvents, as listed perviously, in a hand operated force pump will dislodge any accumulation. In the event that such treatment does not eliminate the clogged condition, a new cooler element must be installed.

NOTE: A clogged oil cooler or filter is a contributing factor in low engine oil pressure which may be the cause of one or many operating difficulties.

FUEL SYSTEM AND FILTERS

Fuel is drawn from the bottom of the fuel tank, through the first stage filters, by the transfer pump. The transfer pump then forces through the second stage filter to the fuel intake manifold on the side of the engine. The fuel then flows under pressure to the injectors. Note that the fuel entering the injectors is filtered through a porous bronze filter. The surplus fuel leaves the injectors through another porous bronze filter, flows into the return fuel manifold and back to the fuel tank through the return fuel line.

The sediment traps on the fuel tank should be drained every 10 hours of operation or once daily before starting engine; preferably at the beginning of the operating period. In freezing weather, drain at end of operating period as water might collect in traps and cause damage due to freezing.



Under normal operating conditions when using clean fuel, the FIRST STAGE FUEL FILTERS between sediment trap and transfer pump should operate without clogging for approximately 300 to 500 hours. The elements in these filters are replaceable. A drop in fuel pressure may indicate that the filter is clogged. Never attempt to clean the filter element. If clogging occurs, install new elements and gaskets.