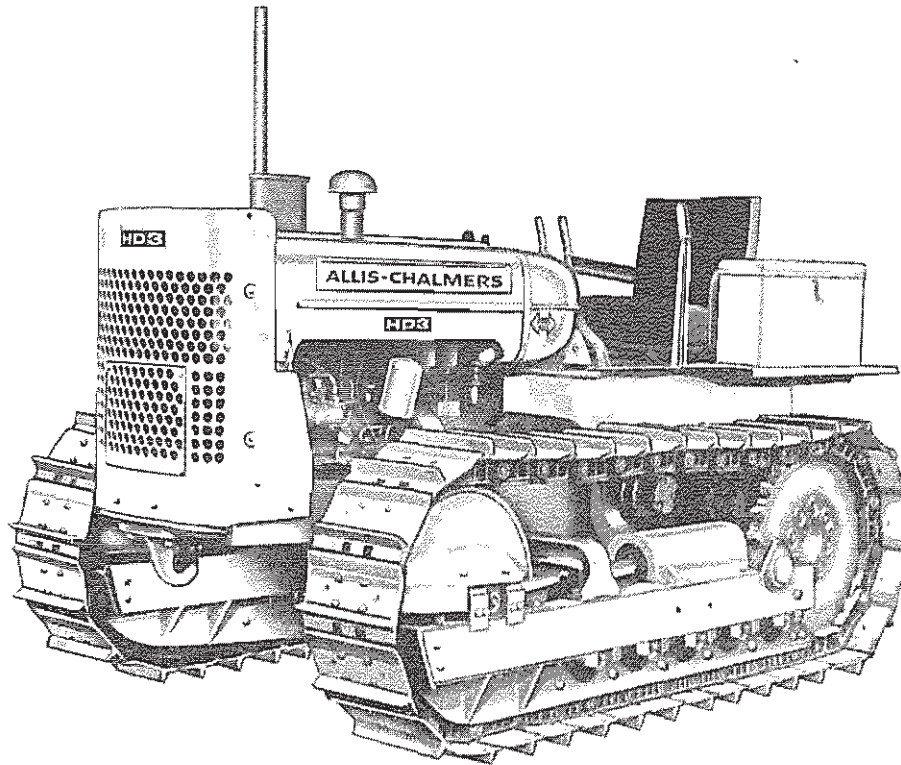


OPERATORS INSTRUCTIONS FOR MODEL H-3 & HD-3 TRACTORS



 **ALLIS-CHALMERS**

BOX 512 • MILWAUKEE, WISCONSIN 53201

LITHO. IN U. S. A.

1013033

SERIAL NO. 8694 AND UP

DEALERS PRE-DELIVERY SERVICE

MODEL H-3 AND HD-3 TRACTORS

FIRM NAME _____ DATE DELIVERED _____

ADDRESS _____ SERIAL # _____

PHONE _____ ENGINE # _____

THE FOLLOWING PRE-DELIVERY SERVICE HAS BEEN COMPLETED:

- | | |
|---|--|
| 1. LUBRICATED | 14. VALVE TAPPET CLEARANCE CHECKED |
| 2. OIL LEVEL IN GEAR HOUSINGS CHECKED | 15. SPARK PLUG GAP CHECKED |
| 3. ENGINE OIL LEVEL CHECKED | 16. ENGINE CLUTCH ADJUSTMENT CHECKED |
| 4. AIR CLEANER CHECKED | 17. ENGINE SPEEDS CHECKED |
| 5. FUEL FILTERS CHECKED | 18. STEERING CLUTCH ADJUSTMENT CHECKED |
| 6. BATTERY CHECKED | 19. STEERING BRAKE ADJUSTMENT CHECKED |
| 7. COOLING SOLUTION IN RADIATOR CHECKED | 20. SHUTTLE OR POWER DIRECTOR CLUTCH
ADJUSTMENT CHECKED |
| 8. GENERATOR CHARGE RATE CHECKED | 21. HYDRAULIC SYSTEM CHECKED |
| 9. IGNITION TIMING CHECKED | 22. ALL BOLTS & NUTS TIGHTENED |
| 10. INJECTION PUMP TIMING CHECKED | 23. LIGHTS CHECKED |
| 11. CARBURETOR CHECKED | 24. TRACK ADJUSTMENT CHECKED |
| 12. FAN BELT ADJUSTMENT CHECKED | 25. APPEARANCE OF TRACTOR |
| 13. CYLINDER HEAD TORQUE CHECKED | |

★ ★ ★

YOUR TRACTOR HAS BEEN ADJUSTED AND SERVICED BY DEALER PRIOR TO ITS DELIVERY TO YOU.

YOU ARE REQUESTED TO ADVISE WHEN TRACTOR HAS OPERATED 30 DAYS (OR 100 HOURS) SO DEALER REPRESENTATIVE CAN CHECK ITS ADJUSTMENTS AND PERFORMANCE.

DELIVERY RECORD
FOR
FARM OR INDUSTRIAL TRACTORS

THIS FORM MUST BE FILLED OUT, IN TRIPLICATE, BY THE DEALER AND SIGNED BY THE CUSTOMER AT TIME UNIT IS DELIVERED.

DELIVERED TO _____
R. R. # _____ BOX # _____
TOWN _____
STATE _____
PHONE _____

DEALER _____
TOWN _____
SERIAL # _____
ENGINE # _____
SERVICED BY _____

CHECK ONE

FARM USE

☐

INDUSTRIAL USE

☐

EXPLAIN CARE, SAFE OPERATION AND ADJUSTMENTS OF ITEMS LISTED BELOW:

- | | |
|---|---|
| <input type="checkbox"/> SAFETY PRECAUTIONS | <input type="checkbox"/> GEAR SHIFTING |
| <input type="checkbox"/> LUBRICATION | <input type="checkbox"/> POWER DIRECTOR OR SHUTTLE CLUTCH |
| <input type="checkbox"/> MOTOR OIL | <input type="checkbox"/> POWER TAKE OFF |
| <input type="checkbox"/> FUEL | <input type="checkbox"/> DRAW BAR |
| <input type="checkbox"/> FUEL FILTERS | <input type="checkbox"/> BELT PULLEY |
| <input type="checkbox"/> LUBRICATION AND SERVICE GUIDES | <input type="checkbox"/> STARTING MOTOR |
| <input type="checkbox"/> ENGINE OIL FILTER | <input type="checkbox"/> STEERING CLUTCHES |
| <input type="checkbox"/> HYDRAULIC PUMP RESERVOIR | <input type="checkbox"/> STEERING BRAKES |
| <input type="checkbox"/> HYDRAULIC OIL FILTER | <input type="checkbox"/> TRACK ADJUSTMENT |
| <input type="checkbox"/> RESERVOIR BREATHER CAPS | <input type="checkbox"/> VALVE TAPPET CLEARANCE |
| <input type="checkbox"/> TRANSMISSION | <input type="checkbox"/> BATTERY |
| <input type="checkbox"/> FINAL DRIVES | <input type="checkbox"/> RADIATOR PRESSURE CAP |
| <input type="checkbox"/> GENERATOR | <input type="checkbox"/> OPERATING TEMPERATURE |
| <input type="checkbox"/> TRACK IDLERS AND ROLLERS | <input type="checkbox"/> DRAIN COCKS |
| <input type="checkbox"/> BREAK IN PERIOD | <input type="checkbox"/> FAN BELT |
| <input type="checkbox"/> INSTRUMENTS AND CONTROLS | <input type="checkbox"/> HYDRAULICS |
| <input type="checkbox"/> STARTING AND STOPPING | <input type="checkbox"/> STORING TRACTOR |
| <input type="checkbox"/> ENGINE CLUTCH | |

REMARKS: _____

TO BE COMPLETED:

BACKHOE:

MAKE _____
MODEL _____
SERIAL No. _____

LOADER:

MAKE _____
MODEL _____
SERIAL No. _____

MOWERS:

MAKE _____
MODEL _____
SERIAL No. _____

OTHER EQUIPMENT:

NAME _____
MAKE _____
MODEL _____
SERIAL No. _____

WARRANTY

It is understood that the Allis-Chalmers machinery is sold by the Dealer with the standard warranty of the Manufacturer, set forth in full on page one of the Operators Manual. This warranty is the only warranty either express, implied, or statutory, upon which said machinery is sold.

THIS MACHINE HAS BEEN DELIVERED TO ME IN GOOD CONDITION AND I HAVE BEEN INSTRUCTED IN ITS CARE, ADJUSTMENT AND SAFE OPERATING PRACTICES.

DELIVERED BY: _____
Dealer

BY: _____
Date

OWNER
OPERATOR: _____
Signature

Original Copy — FOR ALLIS-CHALMERS BRANCH



BE CAREFUL

1. KEEP ALL SHIELDS IN PLACE.
2. STOP MACHINE TO ADJUST AND OIL.
3. WHEN MECHANISM BECOMES CLOGGED, DISENGAGE POWER BEFORE CLEANING.
4. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.
5. KEEP OFF IMPLEMENT UNLESS SEAT OR PLATFORM IS PROVIDED. KEEP OTHERS OFF.

BE A SAFE OPERATOR

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 can not be completely safe guarded 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 CLEAN, OIL, OR ADJUST A MACHINE WHILE IT IS IN MOTION!

"NATIONAL SAFETY COUNCIL"

DELIVERY RECORD
FOR
FARM OR INDUSTRIAL TRACTORS

THIS FORM MUST BE FILLED OUT, IN TRIPLICATE, BY THE DEALER AND SIGNED BY THE CUSTOMER AT TIME UNIT IS DELIVERED.

DELIVERED TO _____
R. R. # _____ BOX # _____
TOWN _____
STATE _____
PHONE _____

DEALER _____
TOWN _____
SERIAL # _____
ENGINE # _____
SERVICED BY _____

CHECK ONE

FARM USE ☐

INDUSTRIAL USE ☐

EXPLAIN CARE, SAFE OPERATION AND ADJUSTMENTS OF ITEMS LISTED BELOW:

- | | |
|---|---|
| <input type="checkbox"/> SAFETY PRECAUTIONS | <input type="checkbox"/> GEAR SHIFTING |
| <input type="checkbox"/> LUBRICATION | <input type="checkbox"/> POWER DIRECTOR OR SHUTTLE CLUTCH |
| <input type="checkbox"/> MOTOR OIL | <input type="checkbox"/> POWER TAKE OFF |
| <input type="checkbox"/> FUEL | <input type="checkbox"/> DRAW BAR |
| <input type="checkbox"/> FUEL FILTERS | <input type="checkbox"/> BELT PULLEY |
| <input type="checkbox"/> LUBRICATION AND SERVICE GUIDES | <input type="checkbox"/> STARTING MOTOR |
| <input type="checkbox"/> ENGINE OIL FILTER | <input type="checkbox"/> STEERING CLUTCHES |
| <input type="checkbox"/> HYDRAULIC PUMP RESERVOIR | <input type="checkbox"/> STEERING BRAKES |
| <input type="checkbox"/> HYDRAULIC OIL FILTER | <input type="checkbox"/> TRACK ADJUSTMENT |
| <input type="checkbox"/> RESERVOIR BREATHER CAPS | <input type="checkbox"/> VALVE TAPPET CLEARANCE |
| <input type="checkbox"/> TRANSMISSION | <input type="checkbox"/> BATTERY |
| <input type="checkbox"/> FINAL DRIVES | <input type="checkbox"/> RADIATOR PRESSURE CAP |
| <input type="checkbox"/> GENERATOR | <input type="checkbox"/> OPERATING TEMPERATURE |
| <input type="checkbox"/> TRACK IDLERS AND ROLLERS | <input type="checkbox"/> DRAIN COCKS |
| <input type="checkbox"/> BREAK IN PERIOD | <input type="checkbox"/> FAN BELT |
| <input type="checkbox"/> INSTRUMENTS AND CONTROLS | <input type="checkbox"/> HYDRAULICS |
| <input type="checkbox"/> STARTING AND STOPPING | <input type="checkbox"/> STORING TRACTOR |
| <input type="checkbox"/> ENGINE CLUTCH | |

REMARKS: _____

TO BE COMPLETED:

BACKHOE:

MAKE _____
MODEL _____
SERIAL No. _____

LOADER:

MAKE _____
MODEL _____
SERIAL No. _____

MOWERS:

MAKE _____
MODEL _____
SERIAL No. _____

OTHER EQUIPMENT:

NAME _____
MAKE _____
MODEL _____
SERIAL No. _____

WARRANTY

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THIS MACHINE HAS BEEN DELIVERED TO ME IN GOOD CONDITION AND I HAVE BEEN INSTRUCTED IN ITS CARE, ADJUSTMENT AND SAFE OPERATING PRACTICES.

DELIVERED BY: _____
Dealer

BY: _____
Date

OWNER
OPERATOR: _____
Signature

2nd Copy — FOR DEALER'S FILE



BE A SAFE OPERATOR

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.

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DELIVERED TO _____
R. R. # _____ BOX # _____
TOWN _____
STATE _____
PHONE _____

DEALER _____
TOWN _____
SERIAL # _____
ENGINE # _____
SERVICED BY _____

CHECK ONE	
FARM USE <input type="checkbox"/>	INDUSTRIAL USE <input type="checkbox"/>

EXPLAIN CARE, SAFE OPERATION AND ADJUSTMENTS OF ITEMS LISTED BELOW:

- | | |
|--|--|
| <input type="checkbox"/> SAFETY PRECAUTIONS
<input type="checkbox"/> LUBRICATION
<input type="checkbox"/> MOTOR OIL
<input type="checkbox"/> FUEL
<input type="checkbox"/> FUEL FILTERS
<input type="checkbox"/> LUBRICATION AND SERVICE GUIDES
<input type="checkbox"/> ENGINE OIL FILTER
<input type="checkbox"/> HYDRAULIC PUMP RESERVOIR
<input type="checkbox"/> HYDRAULIC OIL FILTER
<input type="checkbox"/> RESERVOIR BREATHER CAPS
<input type="checkbox"/> TRANSMISSION
<input type="checkbox"/> FINAL DRIVES
<input type="checkbox"/> GENERATOR
<input type="checkbox"/> TRACK IDLERS AND ROLLERS
<input type="checkbox"/> BREAK IN PERIOD
<input type="checkbox"/> INSTRUMENTS AND CONTROLS
<input type="checkbox"/> STARTING AND STOPPING
<input type="checkbox"/> ENGINE CLUTCH | <input type="checkbox"/> GEAR SHIFTING
<input type="checkbox"/> POWER DIRECTOR OR SHUTTLE CLUTCH
<input type="checkbox"/> POWER TAKE OFF
<input type="checkbox"/> DRAW BAR
<input type="checkbox"/> BELT PULLEY
<input type="checkbox"/> STARTING MOTOR
<input type="checkbox"/> STEERING CLUTCHES
<input type="checkbox"/> STEERING BRAKES
<input type="checkbox"/> TRACK ADJUSTMENT
<input type="checkbox"/> VALVE TAPPET CLEARANCE
<input type="checkbox"/> BATTERY
<input type="checkbox"/> RADIATOR PRESSURE CAP
<input type="checkbox"/> OPERATING TEMPERATURE
<input type="checkbox"/> DRAIN COCKS
<input type="checkbox"/> FAN BELT
<input type="checkbox"/> HYDRAULICS
<input type="checkbox"/> STORING TRACTOR |
|--|--|

REMARKS: _____

TO BE COMPLETED:

BACKHOE:

MAKE _____
MODEL _____
SERIAL No. _____

LOADER:

MAKE _____
MODEL _____
SERIAL No. _____

MOWERS:

MAKE _____
MODEL _____
SERIAL No. _____

OTHER EQUIPMENT:

NAME _____
MAKE _____
MODEL _____
SERIAL No. _____

WARRANTY

It is understood that the Allis-Chalmers machinery is sold by the Dealer with the standard warranty of the Manufacturer, set forth in full on page one of the Operators Manual. This warranty is the only warranty either express, implied, or statutory, upon which said machinery is sold.

THIS MACHINE HAS BEEN DELIVERED TO ME IN GOOD CONDITION AND I HAVE BEEN INSTRUCTED IN ITS CARE, ADJUSTMENT AND SAFE OPERATING PRACTICES.

DELIVERED BY: _____
Dealer

BY: _____
Date

OWNER
OPERATOR: _____
Signature

3rd Copy - FOR CUSTOMER



BE CAREFUL

1. KEEP ALL SHIELDS IN PLACE.
2. STOP MACHINE TO ADJUST AND OIL.
3. WHEN MECHANISM BECOMES CLOGGED, DISENGAGE POWER BEFORE CLEANING.
4. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.
5. KEEP OFF IMPLEMENT UNLESS SEAT OR PLATFORM IS PROVIDED. KEEP OTHERS OFF.

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NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST A MACHINE WHILE IT IS IN MOTION!

"NATIONAL SAFETY COUNCIL"

FOREWORD

This book provides instructions and essential information regarding Operation, Adjustments, etc., of this Allis-Chalmers product. Close adherence to these instructions will result in successful performance and a longer operating life for your equipment.

This "Green Cross for Safety" is used in the book to emphasize safety precautions that should be followed by operator to avoid accident and possible injury. Where you see this emblem heed its warning.



This "Green Cross for Safety" is used only by members of the National Safety Council.

In addition to the written material in this book, actual photographs are used to clearly show the various parts mentioned in the instructions.

All users of Allis-Chalmers equipment are urged to call upon their local dealer's Service Department for all service requirements other than routine care and adjustments. This practice is encouraged as all dealers are kept well informed regarding advanced methods of servicing Allis-Chalmers products and are equipped to render complete service.

WARRANTY

ALLIS-CHALMERS MANUFACTURING COMPANY (the Company) warrants its new machinery covered by this order or contract (excluding tires and B-Series engines and engine accessories which are warranted by the respective manufacturers only) to be free of defects in workmanship and material at the time of shipment from the Company's factory.

This warranty is the only warranty upon which the Company's new machinery is sold. NO OTHER WARRANTY SHALL BE IMPLIED AND ALL STATUTORY WARRANTIES SHALL BE DEEMED WAIVED. No warranty of any kind, statutory, implied, or otherwise, is made with respect to second-hand machinery or with respect to new machinery which, after shipment from the Company's factory, has been altered, repaired or treated in any manner whatsoever.

The Company will repair or replace f.o.b. its factory any part in its new machinery which under normal use fails within twelve months (except six months instead of twelve months in the case of products of the Springfield and Deerfield Works of the Company and engines sold as power units) from date of delivery of such machinery to the first user, provided that the Company is promptly notified thereof and that the part is returned to the Company or to an authorized dealer properly identified, charges prepaid, and is found to the satisfaction of the Company to have been defective in workmanship or material at the time of shipment of the machinery from the factory as aforesaid.

The Company's liability whether in contract or in tort arising out of warranties, representations, instructions, or defects from any cause shall be limited exclusively to repairing or replacing under the conditions as aforesaid.

No representative of the Company has authority to change this warranty and no attempt to repair or promise to repair or improve the machinery by any representative of the Company shall change or extend this warranty.

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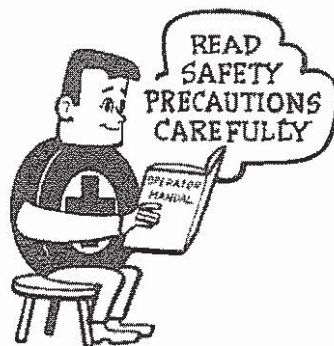
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SAFETY PRECAUTIONS



Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

1. Do not fill fuel tank when engine is hot or when smoking.
2. Do not attempt to oil or grease a machine or tractor while it is in operation.
3. Do not wear loose fitting clothing that may become entangled in moving parts.
4. Keep all shields and guards in place.
5. Place gear shift lever in neutral position before starting engine.
6. Tractor and related equipment should only be operated by those who are responsible and delegated to do so.
7. Only one person - the operator - should be permitted on tractor when tractor is in motion.
8. The rate of travel on hillsides or curves should be regulated so there is no danger of tipping.
9. Do not remove radiator cap when engine temperature is above 212°F.
10. Steering brakes should be properly adjusted.
11. Do not drive too close to the edge of a ditch or creek.
12. Never operate your tractor in an unventilated building.
13. When tractor is hitched to a stump or other heavy loads, always hitch to drawbar and never take up slack in chain with a jerk.
14. Always keep tractor in gear when going down steep grades. Do not ride or depress clutch pedal.
15. Do not leave the engine running unattended when anyone is adjusting or repairing a driven machine.
16. Do not attempt to operate tractor unless you are in the driver's seat.
17. Provide a first aid kit. Treat all scratches, cuts, etc., with the proper antiseptic immediately.
18. Always stop power take-off before leaving driver's seat.
19. Never stand between tractor and drawn implement when hitching. Use an iron hook to handle drawbar.
20. Place gear shift lever in neutral position when dismounting from tractor.
21. Do not dismount from tractor while it is in motion.
22. Keep a fire extinguisher handy at all times.
23. Steering clutches should be properly adjusted.



UNDER NO CIRCUMSTANCES SHOULD ANYTHING BE PULLED FROM, OR BE HOOKED TO ANY PART OF THE TRACTOR EXCEPT THE DRAWBAR.



ENGINE SPECIFICATIONS

H-3 Tractor

ENGINE - GASOLINE

Make Own
Model 160
Type Power Crater
Number of Cylinders 4
Number of Main Bearings 3
Bore 3-5/8"
Stroke 3-7/8"
Firing Order 1-2-4-3
Low Idle R. P. M. 500-575
High Idle R. P. M. 1975-2025
Rated Load R. P. M. 1800
Piston Displacement 160 Cu. In.
Compression Ratio - Gasoline 8-1
Cylinder Liners Replaceable-Wet

DISTRIBUTOR

Make Delco Remy
Model 1112607
Point Gap022"
Rotor Rotation Clockwise
Advance Centrifugal-Automatic
Advance Timing 25° B. T. D. C. at
1750 R. P. M.

SPARK PLUGS

Thread Size 14 mm.
Thread Reach 3/8"
Point Gap025"
Heat Range
A-C C 45
Autolite A-5
Champion J-7

VALVES

Location In head
Valve Clearance-Hot
Intake008" to .010"
Exhaust014" to .016"

THERMOSTAT

Type By pass-pellet

BATTERY

Type 12 volt
Capacity 60 A. H.

ENGINE SPECIFICATIONS

HD-3 Tractor

ENGINE - DIESEL

Make Own
Model D-175
Type Natural Asperated - 4 Cycle
Number of Cylinders 4
Number of Main Bearings 5
Bore 3-9/16"
Stroke 4-3/8"
Firing Order 1-3-4-2
Low Idle R. P. M. 600-650
High Idle R. P. M. 2000-2025
Rated Load R. P. M. 1800
Piston Displacement 175 Cu. In.
Compression Ratio 15.5-1
Cylinder Liners Replaceable - Wet

FUEL INJECTION PUMP

Make Roosa Master
Model DBGFC-429-3AF
Injection Timing 22° B. T. D. C.

NOZZLE HOLDER

Make Own
Type Throttling Pintle
Opening Pressure 2000 P. S. I.

VALVES

Location In Head
Valve Clearance-Hot
Intake010"
Exhaust019"

THERMOSTAT

Type By pass-pellet

BATTERY

Group 2H
Number Used 2
Type 6 volt
Capacity 135 A. H.

The Allis-Chalmers Manufacturing Company reserves the right to make changes in the above specifications or to add improvements at any time without notice or obligation.

GENERAL SPECIFICATIONS

ENGINE CLUTCH-FOOT OPERATED

Type Single disc-dry
Disc Diameter 9"

POWER DIRECTOR CLUTCH - HAND OPERATED

Type Multiple disc-wet
Dual Range High-low
Disc Diameter 7"
Number of Disc-High Range 3
Number of Disc-Low Range 3
Ratio-High Range 1-1
Ratio-Low Range 1.26-1

SHUTTLE CLUTCH-HAND OPERATED

Type Multiple Disc-wet
Disc Diameter 7"
Dual Clutch Forward-reverse
Number of Disc-Forward Clutch 3
Number of Disc-Reverse Clutch 3

STEERING CLUTCHES

Number Used 2
Type Multiple Disc-dry
Number of Disc-Each 4
Disc Diameter 9-7/8"

BRAKES - FOOT OPERATED

Type Enclosed-contracting
Drum Diameter 11-1/2"

DRAWBAR

Height above ground-approx. 14"
Swing-approx. 22"

STEERING

Type Two steering clutches

TRACKS

Width of track shoes (standard) 10"
Width of track shoes (optional) 7"
Min. to 14" Max.
Width of track tread . . (center to center) 48"

TRANSMISSION

Type Constant Mesh-Helical gears
Forward speeds -
 with power director clutch 8
 with shuttle clutch 4
Reverse speeds -
 with power director clutch 2
 with shuttle clutch 4

TRAVEL SPEEDS-WITH POWER DIRECTOR

High Range
 First Gear 1.64
 Second Gear 2.14
 Third Gear 3.12
 Fourth Gear 5.22
 Reverse Gear 2.44
Low Range
 First Gear 1.30
 Second Gear 1.71
 Third Gear 2.49
 Fourth Gear 4.14
 Reverse Gear 1.93

TRAVEL SPEEDS-WITH SHUTTLE CLUTCH

Forward M. P. H.
 First Gear 1.21
 Second Gear 2.14
 Third Gear 3.12
 Fourth Gear 5.20
Reverse M. P. H.
 First Gear 1.23
 Second Gear 2.19
 Third Gear 3.14
 Fourth Gear 5.32

GENERAL DIMENSIONS

Length - Over-all 108-11/16"
Length - Less drawbar 100-3/16"
Height - Over-all 71-15/16"
Height - To top of hood 48-5/16"
Width - Over-all 62"

SHIPPING WEIGHT

Approximately 5900 Lbs.

CAPACITIES-OIL, FUEL AND COOLANT

Cooling system Gasoline 10 qt.
 Diesel 11 qt.
Fuel Tank 16 Gal.
Engine Oil Sump Gasoline 4 qt.
 Diesel 5 qt.
Hydraulic Pump 12 qt.
Power Director Clutch 8-1/3 qt.
Shuttle Clutch 10-1/2 qt.
Final Drives-Each 6.7 qt.
Transmission 16 qt.

POWER TAKE-OFF - OPTIONAL

Spline Size 1-3/8"
R. P. M. @ 1650 of Engine 540

BELT PULLEY P. T. O. DRIVEN-OPTIONAL

Pulley Diameter 10"
Pulley Width 6"
R. P. M. @ 1650 Engine 950
Ft. Per Min. @ 1650 Engine RPM 2480

GENERAL INFORMATION

H-3 Gasoline

LUBRICATION

IT PAYS TO PAY A LITTLE MORE FOR QUALITY LUBRICANTS AND FUELS

It has long been recognized that the life of a tractor is largely determined by the kind of lubrication and daily service it receives. Therefore, always use oil and fuels of high quality, manufactured by a dependable oil company who has established a reputation for quality products, and whose success depends on maintaining such quality.

In addition to using high quality oils, it is also necessary to use oils of proper viscosity. Oil which is too heavy cannot reach all points to be lubricated, therefore, it will cause undue wear. Oil that is too light will not form a protective film between moving parts.

For best results do not deviate from the viscosities given in the Lubrication and Service Guide. Some parts need more frequent attention than others. Follow the time interval given in the Lubrication and Service Guide closely.

MOTOR OIL

Motor oils are designated by code letters as follows: ML - MM - MS. The letters denote the type of service for which the unit is used.

- ML - for use under light loads and favorable conditions.
- MM - for use at rated loads and speed under average conditions.
- MS - for use under severe conditions, such as heavy loads, start-stop operation, or high temperature conditions.

Your tractor engine should be provided with MS oil.

Oil designated MS contains certain additives to increase film strength, to be corrosion resis-

tant, to carry contamination in suspension and as pour point depressants, etc.

The fact that the oil has the ability to carry contaminants in suspension rather than deposit them in the engine, causes the oil to discolor rapidly. Thus, the color of the oil cannot be used to determine when to change. (Follow the interval given in the Lubrication and Service Guide).

Two common contaminants found in engine oil are water and tetraethyl lead. Both cause the oil to have a grayish color when emulsified with the oil. Lead is not harmful to the engine and may be disregarded.

Water may accumulate from leaks, or from start-stop, or low temperature operation. Water is harmful to engine if present in any quantities.

A simple test, to determine if lead or water is present in the oil, is to heat a small sample. If the oil spits and pops, but does not return to its original clearness, it contains both water and lead. If it spits and pops and returns to its original clearness, it contains water only. If it does not spit and pop and does not clear up, it contains lead only.

If it is determined that the sample contains lead, do not worry, as this is a natural condition.

If it is determined the sample contains water, then the method of operation should be changed to avoid excessive condensation.

FUEL

FOR ECONOMY AND PERFORMANCE USE FUEL SPECIFIED FOR YOUR ENGINE.

The carbureted engine for your tractor is designed to burn a regular grade of gasoline having an octane rating (research method) of 89 or higher.

FUEL STORAGE GASOLINE

Fuel should be stored away from buildings and in shade, if possible. One of the most practical storage means is an elevated tank with an open sided roof high enough for air to circulate around tank. This protects the tank from rain or snow and hot sun rays.

The tank should be provided with a hose equipped with a self closing nozzle. This prevents entrance of dirt.

The fuel storage tank should be installed so that one end of the tank is slightly lower and equipped with a drain valve at the lower end for draining off water and sediment.

The fuel tank size should be determined to provide capacity that fuel will not be stored for periods of over three months.

Long storage periods cause fuel oxidation, raising the gum varnish content. Excess gum or varnish is detrimental to internal combustion engines.

The fuel companies provide fuel tailored to meet the existing weather conditions. These fuels are changed at the start of the predominant seasons according to regional weather trends and roughly correspond to spring, summer, fall and winter, making an average of four changes per year.

Fuels are tailored to give ease of starting for winter fuel. Summer fuel is tailored to give low vapor pressure to avoid vapor lock. Spring and fall fuels are in between.

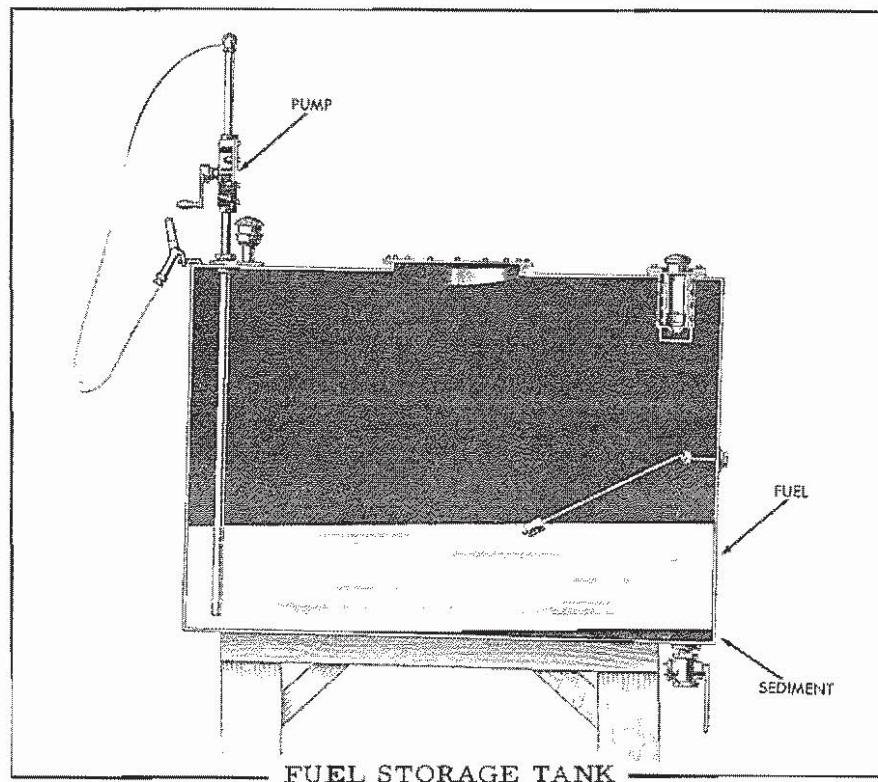
An effort should be made to purchase fuels in such quantity that they are not carried over into succeeding seasons.

For example, winter fuel used for heavy work in the spring season causes higher fuel consumption, vapor lock tendencies, and perhaps boiling of fuel in tractor tank, which causes rapid evaporation of light ends of fuel.

In reverse, summer fuel used for winter operation causes a slow warm up and stalling, sputtering and backfiring upon any sudden throttle opening.

Fuel purchased for example in the fall and then carried through to spring or summer use may have an increase in gum content. If the gum is excessive it is expected that it would cause an increase in piston ring sticking, valve burning, and spark plug fouling.

The fuel tank on tractor should be filled at the end of the days run, rather than at the start of the days run. This will reduce the water content of the fuel, as the tank is less subject to condensation when it is full.



GENERAL INFORMATION

HD-3 DIESEL

LUBRICATION

IT PAYS TO PAY A LITTLE MORE FOR QUALITY LUBRICANTS AND FUELS.

It has long been recognized that the life of a tractor is largely determined by the kind of lubrication and daily service it receives. Therefore, always use oil and grease of high quality manufactured by a dependable oil company who has established a reputation for quality products and whose success depends on maintaining such quality.

In addition to using high quality oils it is also necessary to use oils of proper viscosity. Oil which is too heavy cannot reach all points to be lubricated, therefore, it will cause undue wear. Oil that is too light will not form a protective film between moving parts.

For best results do not deviate from the viscosities given in the Lubrication and Service Guide. Some parts need more frequent attention than others. Follow the time interval given in the Lubrication and Service Guide closely.

MOTOR OIL

Motor oils are designated by code letters as follows: DG - DM - DS. The letters denote the type of service for which the unit is used.

DG - Diesel general service
DM - Diesel medium service
DS - Diesel severe service

Oil used in the engine crankcase should meet the specifications of DS Series III oil.

Heavy duty oils of the DS Series III Classification provides the most satisfactory lubrication for "ALLIS - CHALMERS" Diesel engines. These oils use additives to lower the pour point and to protect the engine from corrosion. They help to keep the engine free from varnish, sludge and deposits.

Unless the oil has the proper additives, fuels with a high sulphur content causes excessive piston ring and cylinder liner wear, excessive oil consumption and piston ring sticking.

If a fuel with more than .5% sulphur content must be used, the oil change interval should be shortened.

Oil designated DS Series III contains certain additives to increase film strength, to be corrosion resistant, to carry contamination in suspension and as pour point depressants, etc.

The fact that the oil has the ability to carry contaminants in suspension rather than deposit them in the engine, causes the oil to discolor rapidly.

Thus the color of the oil cannot be used to determine when to change. (Follow the interval given in the Lubrication and Service Guide).

FUELS

FOR ECONOMY AND PERFORMANCE USE FUELS SPECIFIED FOR YOUR ENGINE.

Fuel used in the "Allis-Chalmers" Diesel engine must have certain qualities in order to ignite and burn at the proper temperature and the proper rate. Experience has shown that the fuel best suited, closely follows these specifications:
Gravity (API) 30-35
Viscosity Saybolt Universal at 100°F. 30-40
Flash F.° minimum 150°F.
Diesel index 48.5-65.5
Cetane number 46-60
Pour Point 0°F.
98% Recovery 700°F.
Sediment and water trace
Ash maximum. 02%
Conradson carbon maximum .03%
Sulphur maximum 0.5%

Number 2 high speed diesel fuels generally meet the above specifications.

Some of the more desirable high speed diesel fuels do not have a low enough pour point for below zero operation and cause filter plugging, which in turn causes hard starting. In this event a winter grade fuel of the same type should be obtained.

No fuel is satisfactory for use if it is dirty. A few small pieces of dirt can cause costly damage to the fuel injection pump, which is built of closely fitted precision parts.

The following rules should cover the handling of fuel before it reaches the fuel injection pump.

1. Do not handle fuel in open containers where dust is blowing around.
2. Do not use waste or linty rags around fuel containers or injection equipment.
3. Clean all storage tanks at regular intervals.
4. If pumps are used to bring fuel from storage tank to tractor, keep covered with dust proof covers when not in use.
5. When emptying a drum or storage tank, agitate as little as possible and leave approximately one inch of fuel in bottom of tank or drum.
6. Keep all fuel handling equipment, such as measures, funnels, containers, etc., scrupulously clean and keep them covered when not in use. Cleanliness prevents difficulty.

FUEL STORAGE DIESEL

The importance of proper fuel storage cannot be too strongly stressed. Storage tanks, drums or portable service tanks must be free from rust scale, sediment, or any other foreign matter which will contaminate the fuel. Contaminated fuel will clog the fuel filters and eventually damage the fuel injection pump and fuel nozzles.

The most practical fuel storage seems to be an elevated tank with an open sided roof, high enough for air to circulate tank. This protects the fuel tank from rain or snow, and hot sun rays.

The fuel storage tank should be installed so that one end of tank is slightly lower, and equipped with a drain valve at the lower end for draining off the sediment and water. The tank should also be provided with a hose, equipped with a self closing nozzle to prevent the entrance of dirt.

A portable storage tank provides the best method of storing fuel on the job. Since all storage tanks are subject to condensation, it is very important that sediment sump be provided in the bottom of the tank so that water and sediment can be drained daily.

A portable storage tank should be provided with a pump, so the fuel can be pumped into the tractor fuel tank with a minimum of handling. Draining fuel from supply tank into buckets or other containers, then pouring it into the tractor fuel tank is not considered a good method of handling fuel.

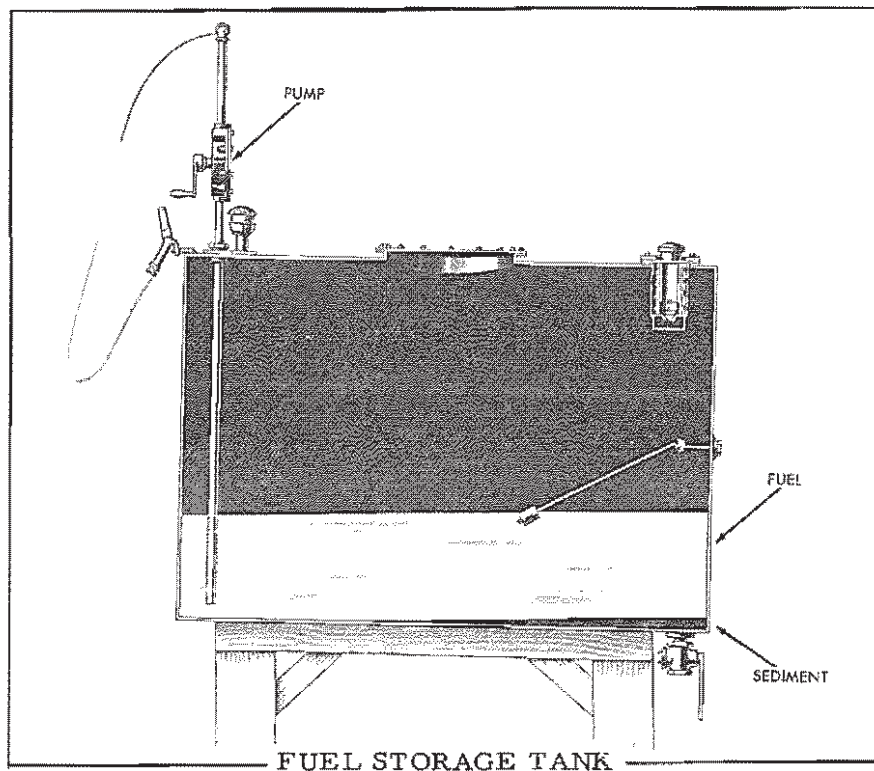
Fuel should be allowed to settle as long as possible in a storage container, before it is used in the fuel tank of the tractor. This will allow the sediment and water to settle to the bottom of the storage container and permitting cleaner fuel to be used in the tractor fuel tank.

Where conditions are such that drums must be used to supply fuel, it is advisable to have enough drums to allow sufficient time for the fuel to settle before being used. It is also advisable to use a pump and drain the fuel from the drum or container, rather than drain it from the bottom of the fuel container.

The fuel thus left in a number of drums can be collected into one drum and used after the usual time allowed for settling. In this manner the sediment and foreign matter will be disposed of and no fuel will be wasted.

Whenever drums are used for fuel storage, they should be covered, or placed under shelter so that the fuel will not become contaminated by water, which will enter through the filler plugs when it rains, even though the plugs are tight.

The fuel tank of the tractor should be filled at the end of the day's run, rather than at the start of the day's run. This will reduce the water content of the fuel, as a full tank is less subject to condensation.



LUBRICATION & SERVICE GUIDE

H-3 GASOLINE

ITEM NO.	DESCRIPTION	TIME INTERVAL	PROCEDURE
No. 1	Engine Cooling System	Daily (8-10 hrs)	Maintain level of coolant to 1/2" of radiator neck (radiator capacity is 2-1/2 gals.)
No. 2	Engine Breather Cap and Oil Filler	Daily (8-10 hrs)	Wash filter in gasoline, allow to dry and saturate with engine oil
No. 3	Fuel Filter	Daily (8-10 hrs)	Inspect bowl and clean when water or sediment is visible.
No. 4	Engine Oil Sump	Daily (8-10 hrs)	Check and maintain oil level to full mark on level gauge.
		100 hrs.	Change oil (sump holds 4-qt).
No. 5	Engine Oil Filter	200 hrs.	Replace element with "Allis-Chalmers" filter provided specifically for your engine.
No. 6	Air Cleaner - Dry Type	100 hrs.	Remove and clean filter. Replace after 10 washings or 1 yr.
For additional information concerning the above items, refer to following text.			

NO. 1 ENGINE COOLING SYSTEM (Fig. 2)

Check cooling system every day for proper coolant level. The proper level is within 1-1/2" of the radiator neck. Do not over fill, as it is necessary to have space for expansion when coolant is at operating temperature. If filled to radiator neck, as coolant expands it will be forced out through over-flow pipe.

Drain cocks are located at front of radiator and at L.H. side of cylinder block. Open all drain cocks when draining cooling system and remove radiator cap to prevent air locking which will retard draining. In freezing weather stay near tractor and make sure the cooling system is completely drained.

No. 2 ENGINE BREATHER CAP (Fig. 2)

Remove R.H. hood to service breather cap or to add engine oil. Service breather cap daily (8 to 10 hours). Remove breather cap and clean thoroughly, wash in gasoline to remove all dirt from the wire filtering mesh. Saturate the wire mesh with oil before replacing. The wire mesh

must be saturated with oil so that it will collect the dust and prevent it from entering the engine. If filtering mesh is left dry the breather cap will not function as intended, as dirt will enter the engine and engine life will be drastically reduced.

No. 3 FUEL FILTER H-3 GASOLINE (Fig. 1)

Check daily and clean when water or sediment is visible. Clean filter element when necessary.

The fuel filter is provided for the purpose of keeping dirt and water from entering the carburetor. However, the best results are obtained by using adequate fuel storage handling facilities.

If the fuel is kept free of dirt and water by use of clean containers and proper handling, the filter will have little work to perform. Excessive cleaning of filter indicates dirty fuel.

To clean the filter, shut off the fuel supply. Loosen the bowl retaining nut and move bail to one side. Remove bowl, gasket and felt element. Note which side of the element is upward and be sure to re-install with the same side upward.

The felt element can be cleaned with ordinary soap and water and using a small stiff brush. The element must be thoroughly dry before re-installing. It is good practice to keep an extra element on hand to install when the present one needs cleaning. This will avoid delay in the drying operation.

It is also advisable to keep extra bowl gaskets on hand as the oil gasket is liable to leak after cleaning.

Turning the shut-off valve wide open will seal fuel from the packing gland and prevent leakage in the open position. When valve is shut off, the packing gland nut must be snug to prevent leakage.

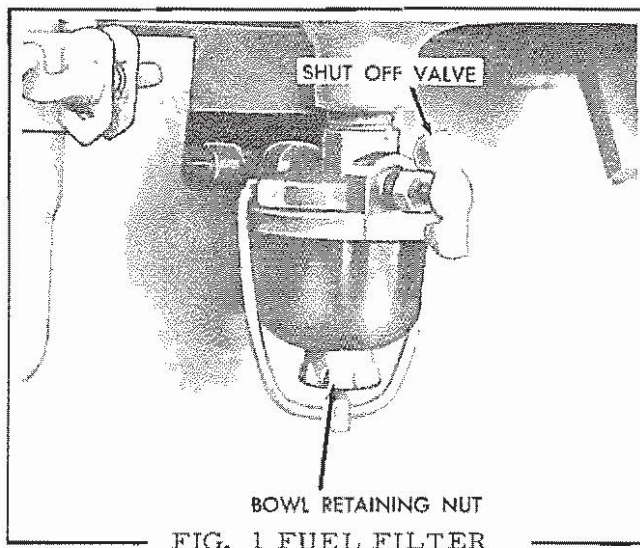


FIG. 1 FUEL FILTER

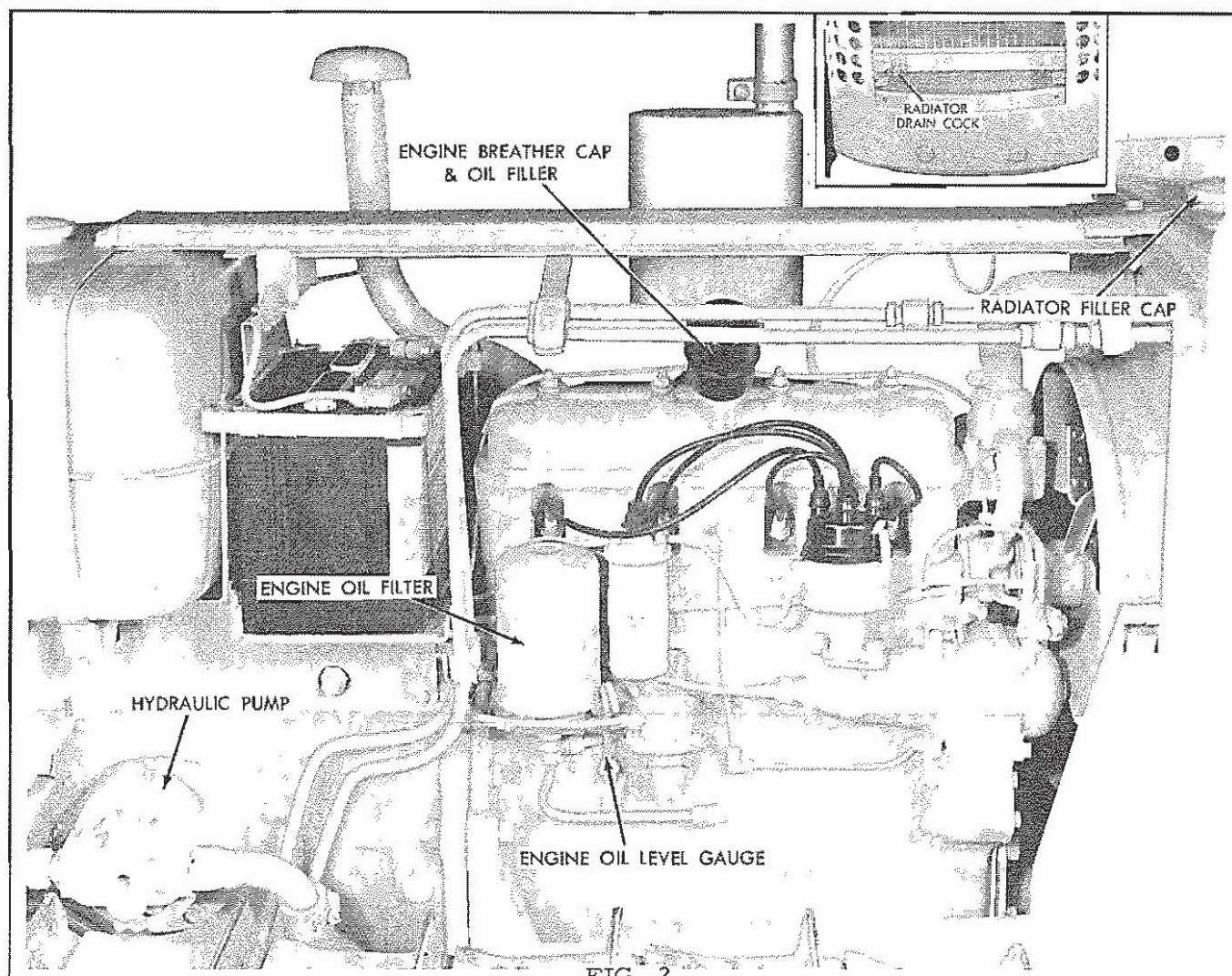


FIG. 2

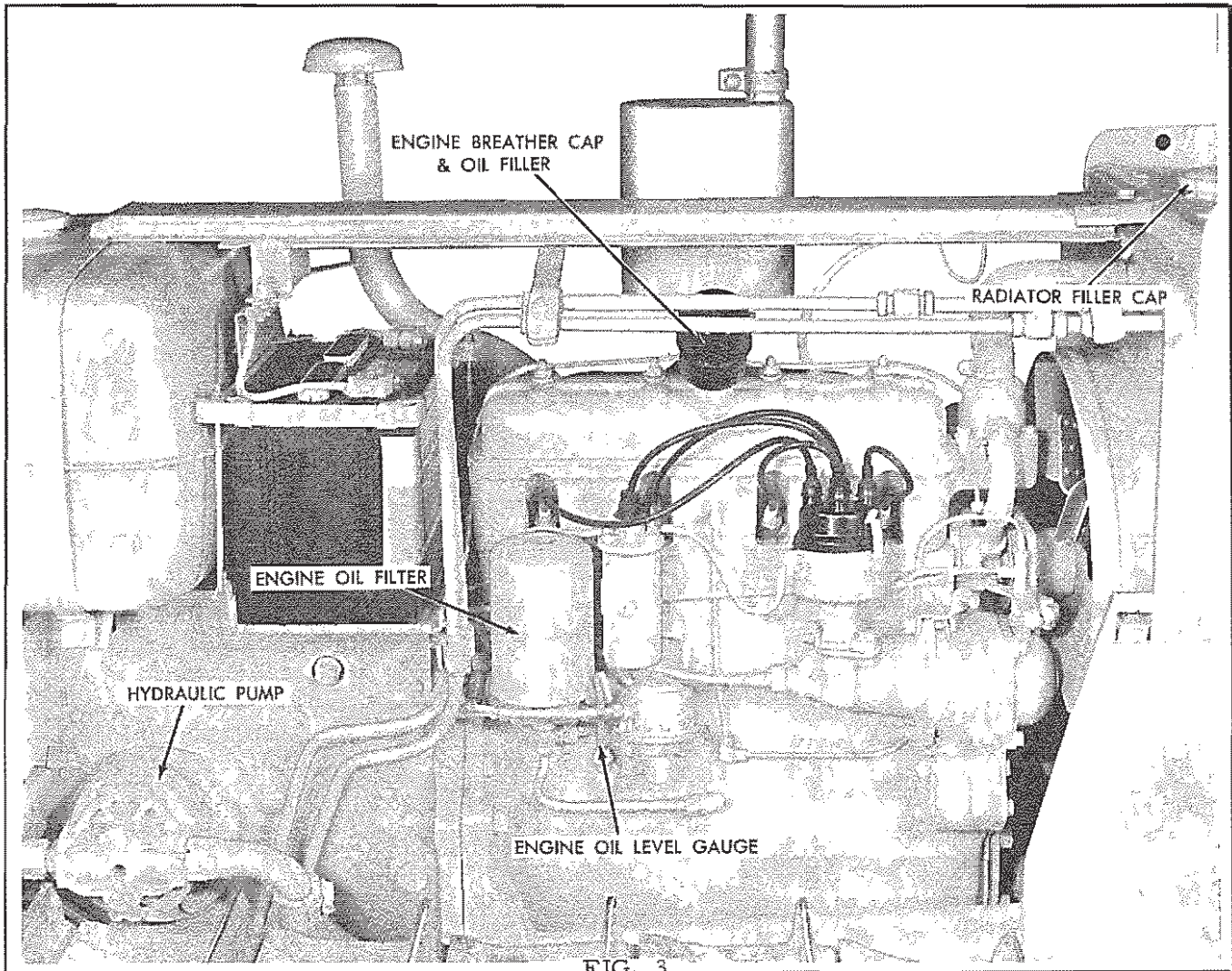


FIG. 3

No. 4 ENGINE OIL SUMP (Fig. 3)

Check engine oil sump daily (8 to 10 hours) for proper oil level. Maintain oil level to full

mark on oil level gauge. Do not over fill. Use oils of the MS service classification. Use oils of the following viscosities for the prevailing temperatures.

GASOLINE		RECOMMENDED SAE VISCOSITY OIL	RECOMMENDED SAE MULTI-VISCOSITY OIL
Lowest expected temperature during time oil will be in crankcase	90° 20° Below 20°	SAE30 SAE20-20W SAE10W	SAE10W-30 SAE10W-30 SAE10W-30

If preferred, a multiple viscosity oil of SAE 10W-30 may be used for all temperatures.

No. 5 ENGINE OIL FILTER - FULL FLOW TYPE (Fig. 3)

Replace the oil filter element every 200 hours of operation with an "Allis-Chalmers" filter provided specifically for your engine. Various filters for different engine may look alike, but are only designed to operate on a specific engine. **CAUTION:** Do not interchange oil filters. Make a practice of keeping several filter elements on

hand so that they will be available when needed.

Insure the life of your engine by regular replacement of oil filter. The oil filter is a highly efficient unit for the purpose of filtering abrasive particles from the engine oil. Changing the filter element every 200 hours of operation will keep the oil clean and add many hours to the effective life of the engine.

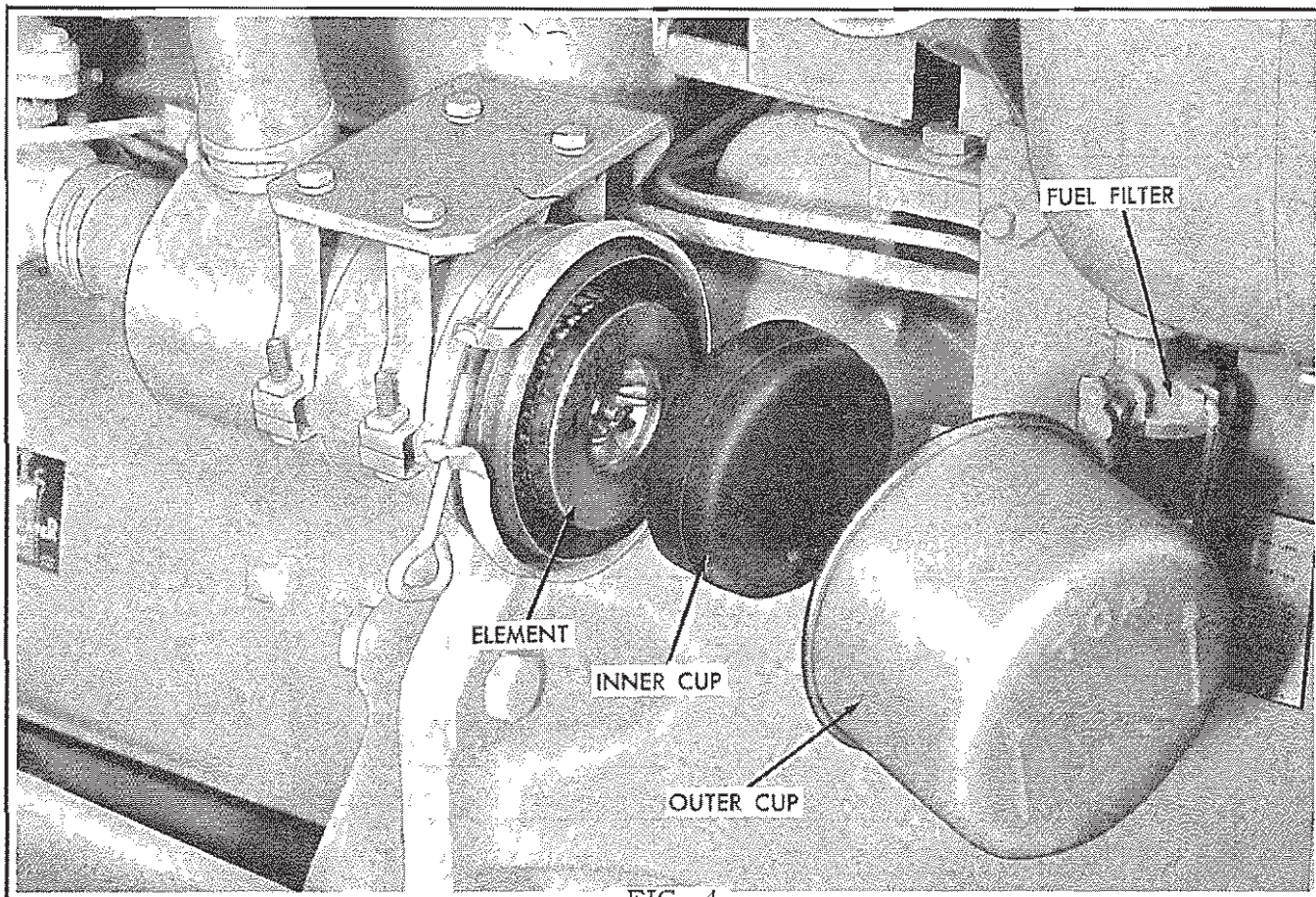


FIG. 4

No. 6 AIR CLEANER - DRY TYPE (Fig. 4)

The air cleaner is of the dry type with a built in pre-cleaner. It has a removable filtering element that can be cleaned and replaced as long as it is in good condition. As dust is separated from the air, it will enter the outer cap through the cyclone action of the air cleaner.

To remove the filtering element for cleaning, loosen the hand screw and remove outer cup. Pull inner cup from outer cup and dump out dirt. Loosen wing nut at end of element and pull element from housing. Do not service air cleaner while engine is running.

The element may be cleaned by dropping element gently on a solid flat surface until dust is removed. Hold element level (flat) and drop it gently a distance of approximately 6 inches. Clean element at every oil change interval - 100 hours.

If the filter element becomes dark as though oil

or soot has contacted element, it should be washed in water using a mild non-sudsing detergent, then rinsed in plain water and allowed to dry before using.

Check element for breaks or cracks at each cleaning interval. Replace element with new one after 10 washings or once each year, whichever comes first.

An air filter indicator is available as optional equipment. It attaches to the air cleaner outlet tube and measures restriction in air cleaner. Indicator will warn the operator when it becomes necessary to clean the air cleaner element. When dust restricts the air flow through filtering element to a point that it should be cleaned, a colored flag will become visible in the indicator window.

When reinstalling the filter element, be sure element is seated in air cleaner housing properly. If element is allowed to set crooked in housing, dust will not be filtered properly.

LUBRICATION & SERVICE GUIDE

HD-3 DIESEL

ITEM NO.	DESCRIPTION	TIME INTERVAL	PROCEDURE
No. 1	Engine cooling system	Daily (8-10 hrs)	Maintain level of coolant to 1/2" of radiator neck (Radiator capacity is 2-3/4 gal.)
No. 2	Engine oil sump	Daily (8-10 hrs)	Check and maintain oil level to full mark on level gauge.
		75 hrs	Change oil (sump holds 5 qt.)
No. 3	Air cleaner-dry type	75 hrs	Remove and clean filter. Replace after 10 washings or 1 yr.
No. 4	Engine oil filter - by-pass type	150 hrs.	Replace element with "Allis-Chalmers" filter provided specifically for your engine.
No. 5	Fuel filters - sediment bowl	Daily (8-10 hrs)	Inspect bowl and clean when water or sediment is visible
	Primary and secondary filter	500 hrs.	Remove and replace filter with "Allis-Chalmers" filter provided
For additional information concerning the above items, refer to following text.			

No. 1 ENGINE COOLING SYSTEM (Fig. 5)

Check cooling system every day for proper coolant level. The proper level is within 1-1/2" of the radiator neck. Do not over fill, as it is necessary to have space for expansion when coolant is at operating temperature. If filled to radiator neck, as coolant expands it will be forced out through over-flow pipe.

Drain cocks are located at front of radiator and at R.H. side of cylinder block. Open all drain cocks when draining cooling system, and remove radiator cap to prevent air locking which will retard draining. In freezing weather stay near tractor and make sure the cooling system is completely drained.

No. 2 ENGINE OIL SUMP - DIESEL (Fig. 5 & 6)

Check engine oil sump daily (8 to 10 hours) for proper oil level. Maintain oil level to full mark on oil level gauge. Do not over fill. Use oils of DS Series III service classification only. Use the following viscosities for the prevailing temperatures:

DIESEL		RECOMMENDED VISCOSITY
Lowest expected temperature during time oil will be in the crankcase	90° 40° 20° Below 20°	SAE40 SAE30 SAE20-20W SAE10W

Drain and refill oil sump with fresh, clean oil after every 75 hours of operation. Drain plug is located at bottom of oil sump. Remove cover in pan (Fig. 6) to gain access to plug.

No. 3 AIR CLEANER - DRY TYPE - DIESEL (Fig. 5)

The air cleaner is of the dry type with a built in pre-cleaner and automatic dust unloader. It has a removable filtering element that can be cleaned and replaced as long as it is in good condition. As dust is separated from the air, it will enter the dust unloader through the cyclone action of the air cleaner and will automatically be dumped out.

To remove the filtering element for cleaning, remove the L.H. hood assembly, loosen the hand screw at front of air cleaner and remove the retainer bar assembly. Remove the filtering element from cleaner. Never service air cleaner while the engine is running.

The element may be cleaned by dropping gently on a solid flat surface until dust is removed from element. Hold element level (flat) and drop gently a distance of approximately 6 inches. Clean element at every oil change interval, 75 hours for diesel tractors.

If the filter element becomes dark as though oil or soot has contacted element, it should be washed in water using a mild non-sudsing deter-

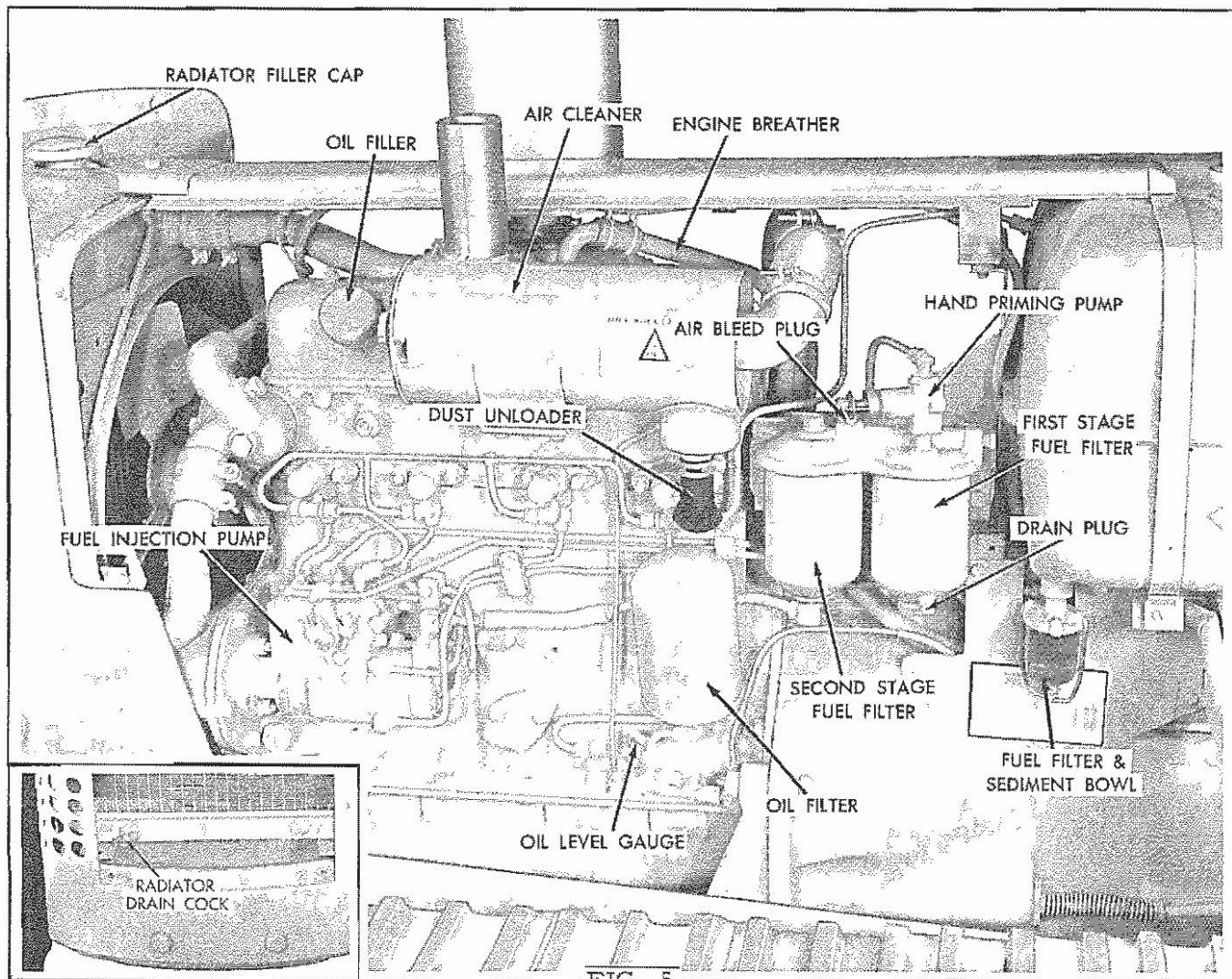


FIG. 5

gent, then rinsed in plain water and let dry before using. Be sure the gasket at end of element is in good condition. Check element for breaks or cracks at each cleaning interval. Replace with a new element once each year, or after 10 washings whichever comes first.

Inspect gaskets and replace, if necessary. New replacement gaskets can be installed to element by using 3 MEC 847 cement available from your Allis-Chalmers Dealer.

An air filter indicator is available as optional equipment, which attaches to the air cleaner outlet tube and measures air cleaner restriction. This indicator will warn the operator when it becomes necessary to clean the air cleaner element. When dust restricts the air flow through element to a point that it should be cleaned, a colored flag will become visible in the indicator window.

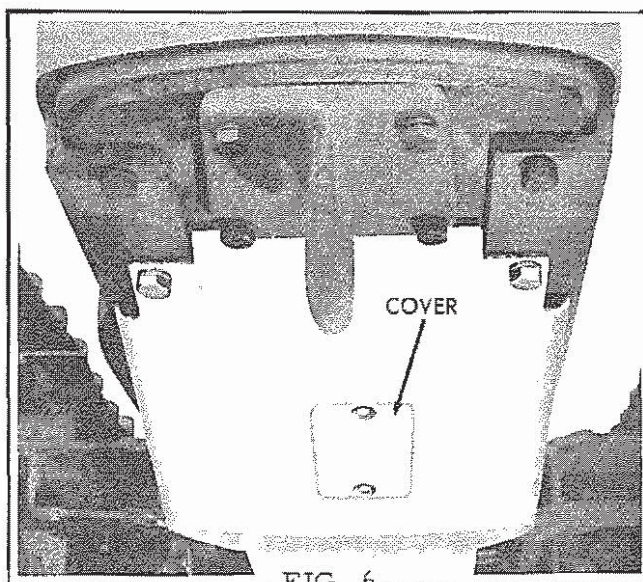


FIG. 6

No. 4 ENGINE OIL FILTER - BY-PASS TYPE (Fig. 7)

Replace the oil filter element every 150 hours of operation or every second oil change with an "Allis-Chalmers" filter, provided specifically for your engine. Various filters for different engines may look alike, but are only designed to operate on a specific engine.

CAUTION: Do not interchange oil filters. Make a practice of keeping several filter elements on hand, so that they will be available when needed.

Insure the life of your engine by regular replacement of the oil filter. The oil filter is a highly efficient unit used for the purpose of filtering abrasive particles from the engine oil. Changing the filter element every 150 hours of operation or every second oil change will keep the oil clean and add many hours to the effective life of the engine.

FUEL FILTERS (Fig. 7)

The fuel system is provided with a primary and secondary fuel filter mounted at the L. H. side of the engine, plus a fuel filter and sediment bowl assembly mounted at the fuel tank which incorporates the fuel "shut-off" valve.

The purpose of the fuel filters is to remove water, sediment or abrasives from the fuel, before the fuel enters the injection equipment. The proper handling and storage of fuels will increase the life of the filters and reduce the intervals required in draining the filter sumps.

Close the fuel "shut-off" valve and remove the sediment bowl at fuel tank periodically, daily if necessary. Clean the filtering screen when necessary. If dirt, sediment or water is found in the filter bowl each day it indicates the fuel is contaminated and the method of handling and storing of fuel should be improved. If the fuel is clean very little sediment or water will be found in the sediment bowl and the cleaning period may be extended accordingly.

If sediment or water is found in the filter bowl, always drain the sump of the primary fuel filter at left side of engine. With filter bowl in place, close the fuel shut-off valve at tank, remove the drain plug at bottom of primary filter, open fuel valve and allow some fuel to drain from the primary filter. To check for sediment or water, catch the fuel drained in a container and any foreign matter can easily be determined. Close "shut-off" valve and install drain plug.

Replace the filter elements in the primary and secondary filters at each 500 hours of operation. Poor fuel handling and storage facilities will decrease the effective life of the filters, in other words, dirty fuel will decrease the life of filters, while clean fuel will increase the life of the filters, never operate until the filters become

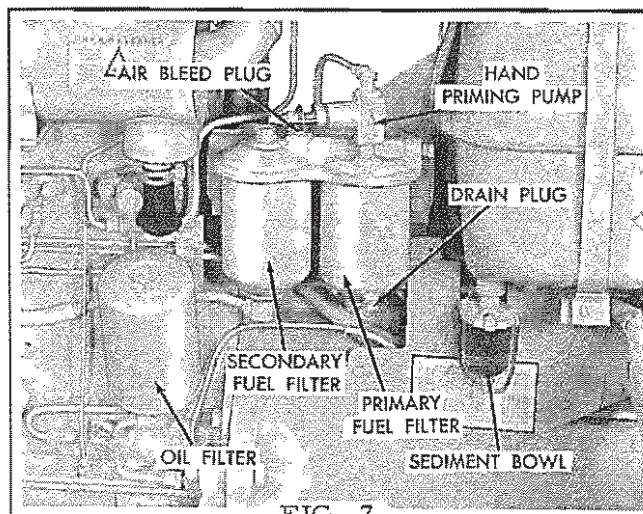


FIG. 7

plugged, or to a point to where a decrease in engine speed or power is noticed. Some dirt may seek its way through the secondary filter and cause severe damage to the fuel injection equipment. A fuel gauge is available as optional equipment that will indicate when filters are becoming plugged, and a warning that they must be replaced.

Each time the primary filter sump is drained, or when replacing filter elements, it may be necessary to bleed out air by removing the plug at top of filter head assembly. Remove air bleed plug and turn on fuel valve at tank. Operate the hand priming pump until all air has escaped and solid fuel is to the level of the air bleed plug and install bleed plug at top of filter head.

Each time the filter elements are replaced, or if fuel lines are removed for any reason, it will be necessary to bleed the air from the fuel system. Engines which do not have fuel in the filters or injection pump, will not start until solid fuel (without air bubbles) reaches the injection nozzles. The fuel will not flow from the tractor fuel tank through the filtering system by gravity, therefore the hand priming pump is installed so that the air may be bled from filters without cranking engine, eliminating excessive drain on the battery.

To operate the hand priming pump, loosen the bail nut retaining the pumping plunger and swing the bail downward, work the plunger in and out by hand until all the air is out of the system, then push the plunger in and retain in this position by tightening the bail nut.

The fuel transfer pump is built in and is an integral part of the fuel injection pump. It receives fuel from the secondary filter after the fuel has been filtered.

The governor is also an integral part of the injection pump and controls the amount of fuel metered to the engine, thus controlling the speed and power of the engine.

LUBRICATION & SERVICE GUIDE

H-3 and HD-3 TRACTORS

ITEM NO.	DESCRIPTION	TIME INTERVAL	PROCEDURE
No. 1	Hydraulic pump reservoir	Daily (8-10 hrs)	Maintain oil level to full mark on oil level gauge.
		Twice yearly	Change oil in both hydraulic reservoir and torque housing compartment
No. 2	Hydraulic oil filter	200 hrs.	Replace filter with Allis-Chalmers filter provided.
No. 3	Hydraulic pump reservoir breather caps	Daily (8-10 hrs)	Wash breather caps in gasoline, allow to dry and saturate wire mesh with engine oil.
No. 4	Transmission	Weekly (50-60 hrs)	Check and maintain oil level to full mark on oil level gauge
		Twice yearly	Drain and refill with SAE 10W-30 viscosity oil. Capacity is 16 qts.
No. 5	Final drives	Weekly (50-60 hrs)	Maintain oil level to filler and level plug at rear of housing with 80 E. P. oil.
		Once yearly	Remove final drive sump and change oil. Use 80 E. P. oil.
No. 6	Power director or shuttle clutch	Weekly (50-60 hrs)	Maintain oil level to full mark on oil level gauge with SAE 10W-30 viscosity oil.
		Twice yearly	Drain and refill compartment Capacity is 8-1/3 qts.
No. 7	Generator	At every engine oil change	Lubricate front and rear bearings at every oil change with 3 drops of engine oil.
No. 8	Battery	Weekly (50-60 hrs)	Maintain electrolyte solution to a level 3/8" above separators.
No. 9	Track idler and rollers	100 hrs.	Lubricate with SAE 90 transmission oil
No. 10	Track support roller	100 hrs.	Lubricate with SAE 90 transmission oil.

For additional information concerning the above items, refer to following text.

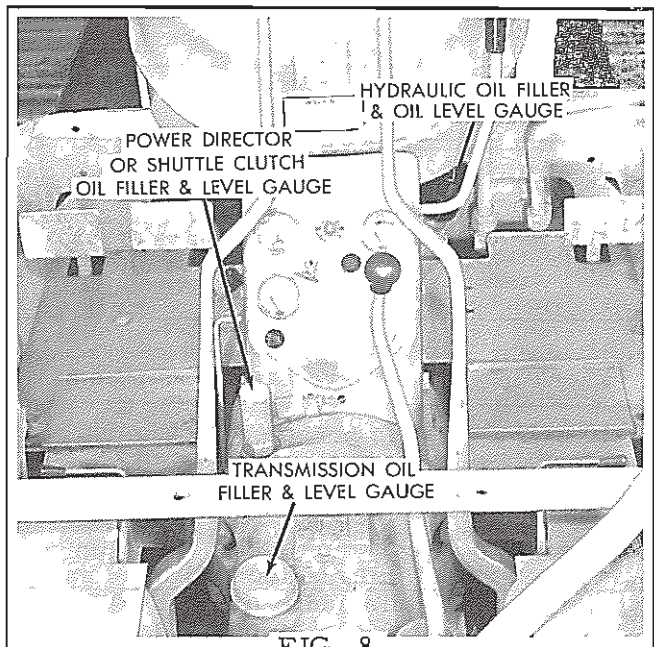


FIG. 8

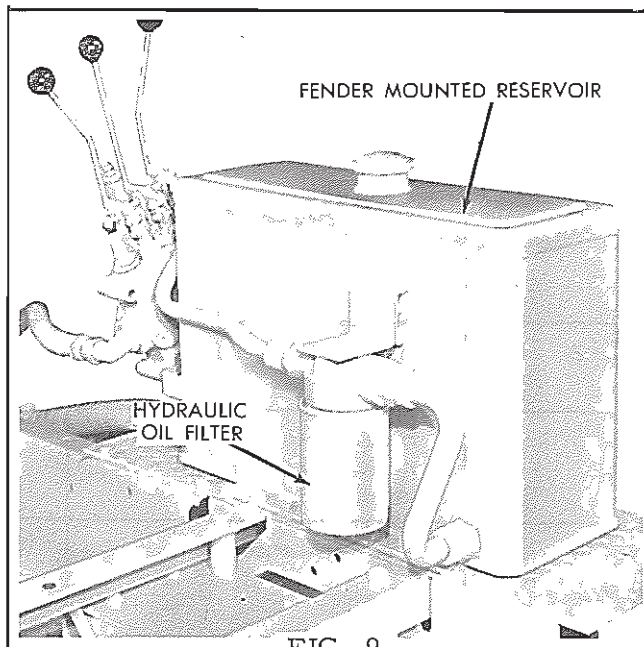


FIG. 9

No. 1, No. 2 and No. 3 HYDRAULIC PUMP RESERVOIR (Figs. 8 & 9)

Tractors may be equipped with either a fender mounted, or a torque housing oil reservoir. In either case the torque housing oil supply must be checked. Check oil level daily (8 to 10 hours) and keep filled to full mark on oil level gauge of both oil supplies.

For temperatures above 45°F. use SAE 20-20W viscosity oil. For temperatures below 45°F. use SAE 10W, or 10W-30 viscosity oil. Change oil twice a year in both hydraulic reservoir and torque housing oil compartment. Change the hydraulic oil filter after every 200 hours of operation. Clean oil compartment breather caps daily. (Fig. 10).

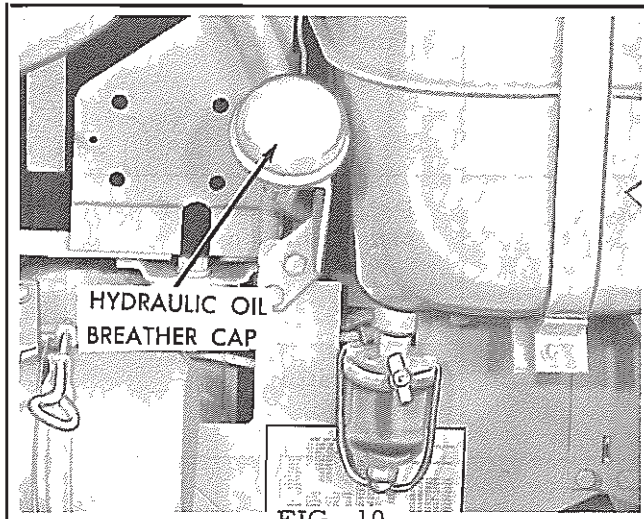


FIG. 10

No. 4 TRANSMISSION (Fig. 8)

Check oil level once a week (50 to 60 hours) and keep filled to the full mark on the level gauge. Use an oil having a SAE 10W-30 viscosity. Drain and refill with fresh oil twice a year.

No. 5 FINAL DRIVES (Fig. 11)

Check oil level once a week, or after each 50 to 60 hours of operation. Keep filled to level of filler and level plug, located at rear of final drive housing. Use oil having a viscosity of 80 EP. Remove oil sump and change oil once a year.

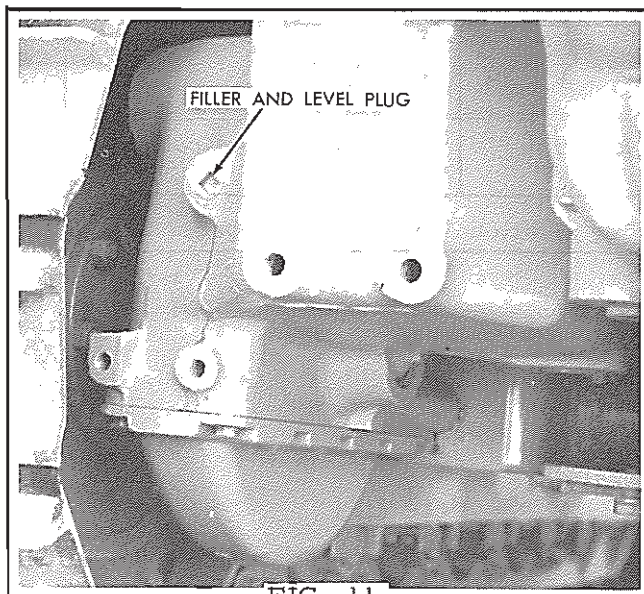


FIG. 11

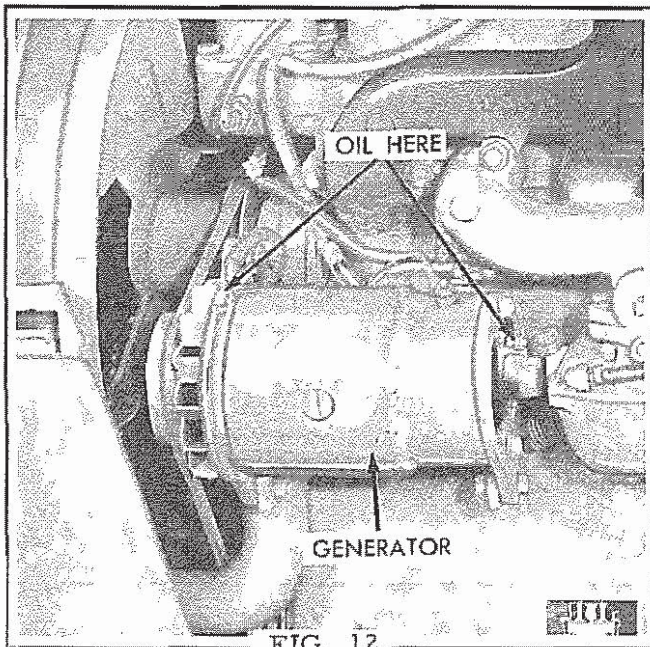


FIG. 12

No. 6 POWER DIRECTOR OR SHUTTLE CLUTCH (Fig. 8)

Check oil level once a week (50 to 60 hours) and keep filled to the level mark on oil level gauge. Gauge must be screwed all the way down when checking oil level. Use an oil having a SAE 10W-30 viscosity. Drain and refill twice a year.

No. 7 GENERATOR (Fig. 12)

Lubricate front and rear bearings at every oil

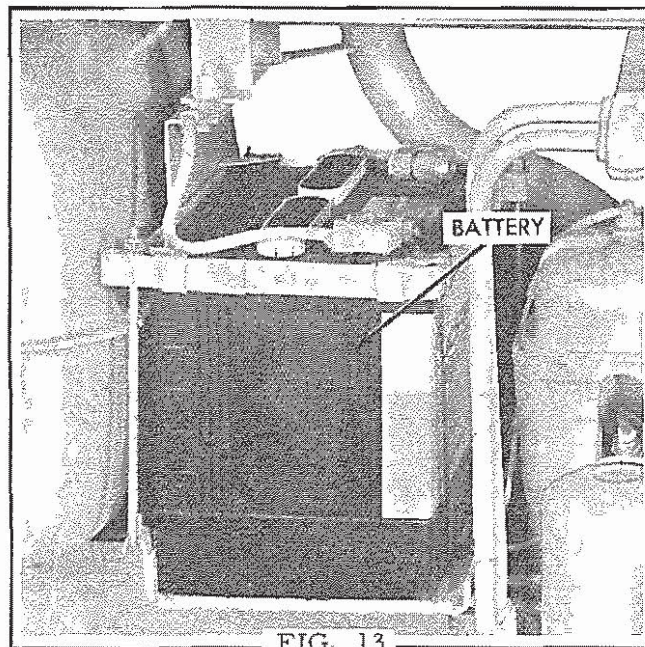


FIG. 13

change with two or three drops of engine oil.

No. 8 BATTERY (Fig. 13)

Check weekly (50 to 60 hours) and maintain the electrolyte solution $3/8''$ above the separators. Use distilled or rain water only. The supply of water should be kept in clean covered containers of glass, china or rubber. Battery should be checked occasionally with a battery hydrometer to determine the charged condition of battery.

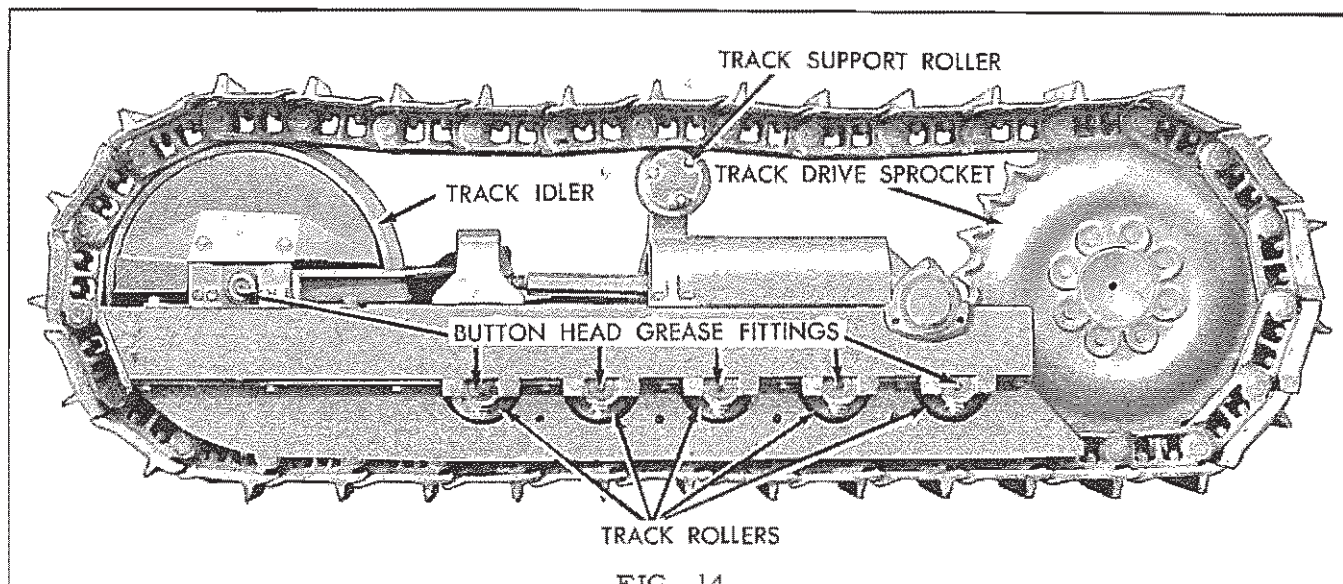


FIG. 14

No. 9 LUBRICATION - TRACK IDLER AND ROLLERS (Fig. 14)

Lubricate every 100 hours of operation. Clean the button head grease fittings thoroughly of all dirt before attaching grease gun. Carefully pump a few strokes of SAE 90 transmission oil into bearings until a resistance is felt on the grease gun. Avoid forcing grease into bearings after this resistance is felt. This is a slow process and must be done slowly to avoid forcing oil by bearing seals. Do not confuse lubricant forced through seals for seal leakage.

TRACK SUPPORT ROLLER

Lubricate every 100 hours of operation. To lubricate, turn roller until one capscrew in cover plate is down. Remove the two upper capscrews.

Insert tube of Rose gun forcing SAE 90 transmission oil through one capscrew hole and allowing air to escape from the other. When filled to level of capscrew holes, replace capscrews and tighten to 25 to 30 ft. lbs. torque.

GREASE GUN

The grease gun listed as a machinery item is a low pressure gun and should be used for lubricating the track rollers and track idlers. The use of the low pressure grease gun will enable the operator to more readily feel the resistance when idlers and rollers are full of lubricant. Thus, excess lubricant will not be pumped into rollers and idlers and forced by seals. When using a high pressure grease gun, the resistance is less noticeable and damage to seals may occur without warning.



BREAK-IN PERIOD

The engine is assembled and tested at the factory to insure that it is ready for work; however, the engine must be properly broke in to obtain the peak performance and long life that is built into the engine. Proper break-in will increase the power and prolong engine life.

To properly break in an engine merely means that the engine should be operated at reduced loads for a period of time (approximately 100 hours) long enough for the piston rings to wear in with the cylinder liners and form a lapped fit which would make a perfect seal between pistons and liners before the engine is used on rated load operations.

If an engine is operated at full load before it is broke in, the high pressures and temperatures created from the burning gases tend to escape through between the piston and cylinder liner into the engine crankcase, this is called blow-by. Blow-by tends to heat and collapse the piston rings which causes them to carbon up and stick to such extent that they will never seat to the cylinder liners. This causes the engine to have excessive oil consumption and a loss of power. In any event, the time required for proper break-in is well paid for in added fuel economy and top engine performance.

Engine crankcase oil should be used the first 50 hours of operation during the break-in period and then drained. Any foreign material which might accumulate in a new engine will be drained out with the break-in oil. Refill the engine oil sump with oil as recommended in the lubrication and service guide.

If it is necessary to add engine oil before the 50 hour break-in period elapses, add oil of the type and viscosity recommended in the lubrication and service guide.

In breaking in an engine, it is necessary to maintain the proper operating temperature (green section on temperature gauge) to avoid the accumulation of condensation. This practice should also be continued after the break-in period. Condensation will damage and deteriorate the vital

parts of an engine to complete destruction if allowed to accumulate for a period of time.

As the break-in period progresses, after the first 50 hours of operation at reduced loads, the load should be increased at short intervals until at the end of 100 hours. The engine, at this time, may be operated at rated loads. The load on the engine can be decreased or increased by selecting a lower or higher transmission speed.

An engine should never be used on a load that would cause it to lug. This would be considered an overload. The throttle should be in the full speed position on any load, during or after the break-in period. Reducing engine speed on light loads may create a lugging condition.

For long life of an engine, it should never be operated at its maximum power output on continuous loads. Only 80% of the maximum power output should be used.

For proper break-in the following suggestions are made for best results:

1. Make certain that all points of care and lubrication outlined under lubrication and service guide have been serviced as specified.
2. Operate tractor under light loads for the first 100 hours of operation by using one gear speed slower than necessary to pull the load.
3. Maintain engine temperature between 180 to 200°F.
4. Drain the crankcase oil at the end of the first 50 hours of operation and refill with an oil of the recommended viscosity and type for the prevailing temperature.

At the end of 100 hours of operation the cylinder head studs should be torqued and the valve lash adjusted. Tighten the head bolts by starting at the center and working around and out toward ends of head.

INSTRUMENTS & CONTROLS

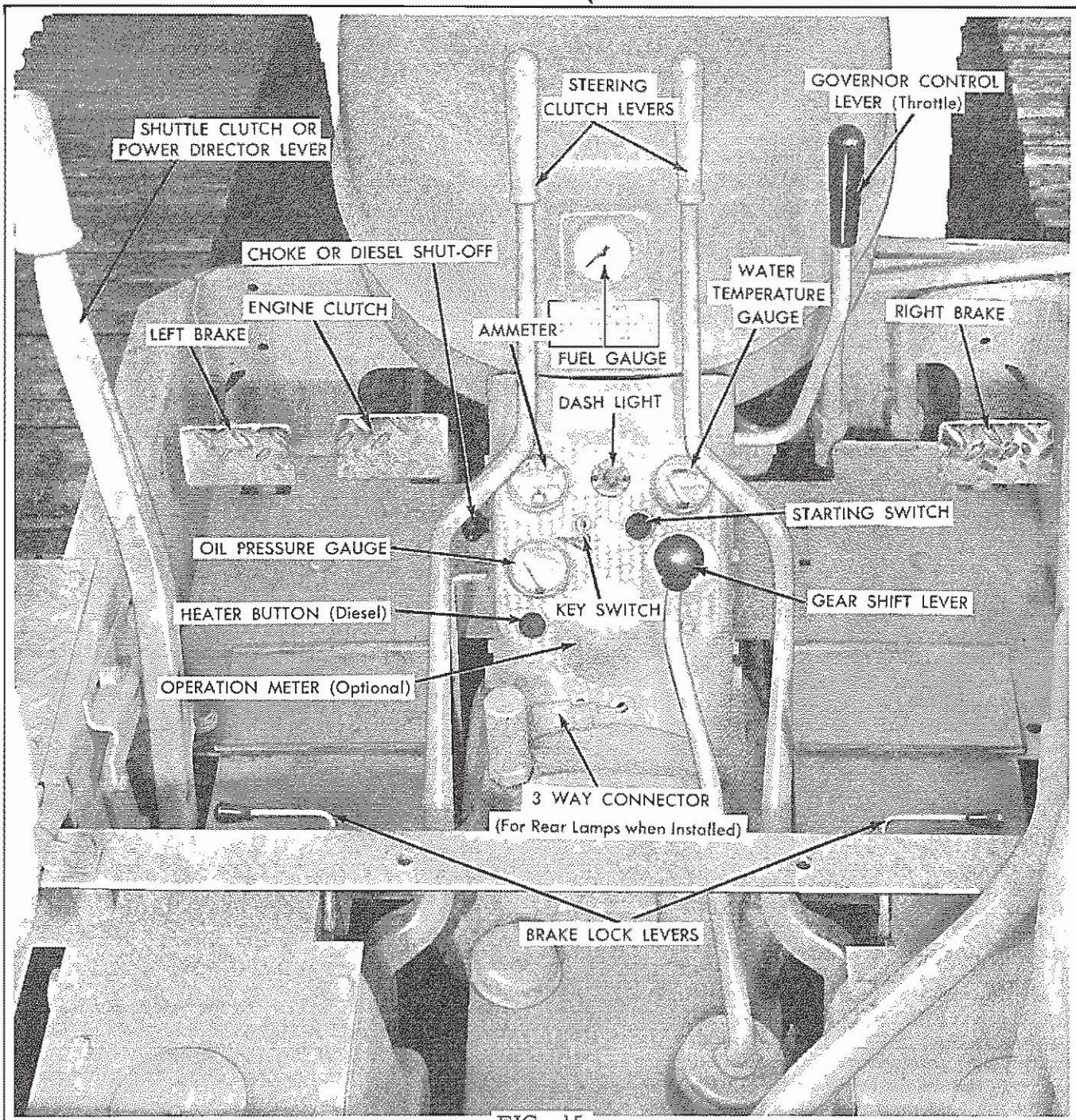


FIG. 15

The operator of the tractor must familiarize himself with the various controls and the instruments provided for its operation. Although many of these controls are similar to those of other tractors, there are important differences, and it is not wise regardless of previous experience, to operate the tractor before fully understanding the purpose of each control and instrument.

KEY SWITCH (Fig. 15)

On gasoline models the ignition and starting switch circuit is connected when the key switch is in the "ON" position. To start engine, depress the starting switch button when key switch is in the "ON" position.

On diesel models the manifold air heater and

starting switch circuit is connected to ignition terminal of key switch. To operate the heater button the key switch must be in the "ON" position when the air heater push button is depressed.

The key may be removed from switch when in the "OFF" position to prevent tractor from being operated by unauthorized persons.

STARTING SWITCH (Fig. 15)

The starting switch is of the push button type and is located on the instrument panel. To start engine, turn the key switch to the "ON" position and depress the push button starting switch to crank engine.

ENGINE CLUTCH

The engine clutch is the inner one of two pedals on L.H. side of tractor platform. It is used to disengage the engine clutch when shifting the transmission gears.

SHUTTLE CLUTCH OR POWER DIRECTOR LEVER

This lever is located on the L.H. side of operators seat. When tractor is equipped with shuttle clutch, moving lever forward and rearward will cause the tractor to move forward and rearward when transmission is engaged.

When the tractor is equipped with the power director clutch, moving lever forward engages the high range clutch. Moving lever rearward engages low range clutch.

STEERING CLUTCH LEVERS

The steering levers control two steering clutches which connect the transmission with the final drive gears and track drive sprockets. These levers are used to steer the tractor to right or left by disengaging the right or left steering clutch. Pull the R.H. steering lever back to make a right turn; pull the L.H. steering lever back to make a left turn. Refer to "STEERING OF TRACTOR".

BRAKE PEDALS

The brake pedals are used to retard the speed or to facilitate turning the tractor. To turn the tractor to the right, fully disengage the right steering clutch and press on the right brake pedal; to turn the tractor to the left, fully disengage the left steering clutch and press on the left brake pedal. After the desired turn has been made, release the brake pedal and return the steering lever to its forward position. Keep

hold of levers while returning them to their forward position.

CAUTION: Never attempt to use the brakes to turn the tractor without first pulling the steering lever back as far as possible on the side toward which the turn is to be made.

CHOKE CONTROL KNOB - GASOLINE

On gasoline models the choke control knob is located forward from the L.H. side of instrument panel. Pull rearward on control knob to choke engine when making a cold start, a hot engine usually starts without choking. In cold weather more choking may be necessary. When engine starts, release choke control knob.

FUEL SHUT-OFF KNOB - DIESEL

On diesel models the injection pump fuel shut-off knob is located forward from the L.H. side of instrument panel. This knob must be moved to the rearward or run position to start and run engine. When knob is moved forward to the stop position it shuts off the fuel injection and the engine will stop. Never shut off a hot engine. Allow engine to idle for a few minutes to gradually cool all parts evenly.

GOVERNOR CONTROL LEVER - THROTTLE

The governor control lever is located forward and to the right of the operator and controls the speed of the engine. With the lever in the extreme forward position the engine will idle. Moving the control lever rearward increases the engine speed. The lever should be in the extreme rearward position, or full speed position when engine is operating under load.

The control lever has a friction adjustment located by removing the L.H. side sheet below fuel tank. This adjustment should be just tight enough that the lever will stay in any set position. If set too tight the lever will be hard to move from closed to full speed position, and if adjusted too loose, the lever will not stay in the desired position.

AMMETER

The ammeter is located on the instrument panel, and indicates the rate at which the battery is being charged or discharged. Normally, the ammeter will show a slight charge when the engine is first started, then gradually diminish to zero as the battery charge is replenished. If the battery or batteries are in a discharged condition, the ammeter should indicate a good rate of charge until the batteries approach a fully charged condition.

OIL PRESSURE GAUGE

The oil pressure gauge is located on the instrument panel and indicates the engine oil pump is circulating oil through the engine oiling system. With engine at operating temperature the gauge should register near the "O", "R" OR "M" in the word "NORMAL".

CAUTION: If no oil pressure is indicated by gauge, stop engine immediately. Determine and correct the cause. Consult your "Allis-Chalmers" dealer.

TEMPERATURE GAUGE

The temperature gauge is located on the instrument panel and indicates the operating temperature of the engine cooling solution. Normal operating temperature is from 170° to 220°F., which is in the green section of gauge. Engine temperature will vary in accordance with the air temperatures and climate conditions.

FUEL GAUGE

A float type fuel gauge is located at the rear of fuel tank and indicates the fuel level. The gauge is always in view of the operator, showing the available fuel supply.

LIGHT SWITCH

The light switch is the pull and push type and is

located on instrument panel. Pull the switch out turns the lights on. Push the switch in turns the lights off. The head lamps, instrument panel lamp and rear lamps (if so equipped) are controlled by this switch.

If the lamps fail to light, check the lighting circuit fuse located on the L.H. side sheet ahead of instrument panel. If fuse is not burned out, check the lamp as the lamp may be burned out. If light fuse continues to burn out when lights are turned on, it indicates there is a short circuit in the lighting system and must be repaired.

OPERATION METER - OPTIONAL

The operation meter is located on the instrument panel and records the hours of operation based on the full load speed of the engine. Hours of engine operation is recorded near center of meter. The scale reads the engine R. P. M. in hundreds.

BRAKE LOCK LEVERS

The brake lock levers provide a means of holding the brake pedals in the applied position. To engage the brake lock levers, depress the brake pedals and move the lock levers downward. To disengage the parking brake lock levers, further depress the brake pedals and move the lock levers upward.

STARTING AND STOPPING H-3 GASOLINE ENGINE

STARTING THE ENGINE

Before starting the engine, make certain that all points of lubrication and service have been checked as outlined in the lubrication and service guide. Check the radiator for coolant, check the crankcase for oil and check the fuel supply in tank.

Place the transmission gear shift lever in the neutral position, lock brakes and depress the clutch pedal. The fuel must be turned on at tank. Open throttle slightly. Pull back on choke control knob. Turn the key switch to the "ON" position and depress starting switch to crank engine.

When engine starts, release the starting switch. Also, when engine starts, move the choke control forward to the "OFF" position. In cold weather more choking will be required than in warm weather. Experience will determine the amount of choking necessary.

AFTER ENGINE HAS STARTED

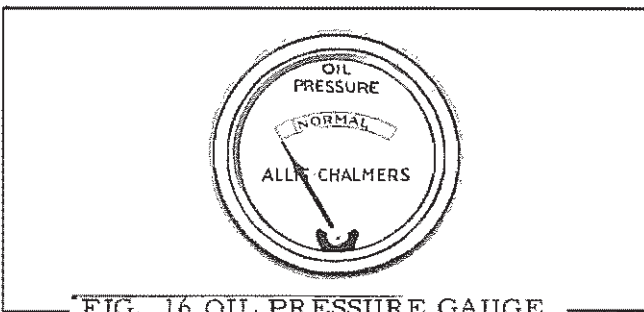


FIG. 16 OIL PRESSURE GAUGE

CHECK OIL PRESSURE (Fig. 16)

When operating engine, look at oil pressure gauge at frequent intervals to ascertain that oil is being circulated. The indicator needle should remain in the word "Normal" when the engine is hot and running at its full governed speed. A slight decrease in pressure should be noted when engine idles. Do not operate unless pressure is shown on gauge.

FAST WARM UP

It is a well known fact that condensation accumulates in any engine during the initial warm-up period. The engine is equipped with a thermostat by-pass system to provide a fast warm-up; however, the engine should not be run too fast until the oil is warm enough to circulate freely. Neither should it be idled excessively.

Even though the engine is equipped with a thermostat by-pass system the warm-up period can be further reduced by keeping the engine at approximately 1000 R. P. M. and loading the engine lightly for the first five or ten minutes.

Condensation occurs at temperatures below 140°F. Above this temperature, condensation is driven out of the exhaust pipe. When the oil temperature is above 140°F, any accumulation in the crankcase is boiled or driven out the engine crankcase breather.

To guard against condensation, the engine should be operated at least as long after it reaches normal temperature, as it took to reach normal range.

While the results of condensation may cause immediate failure, it is also certain to cause overall decrease in engine life, when it is allowed to accumulate due to poor warm-up on short periods of operation.

For best engine life, practice fast warm-up.

STOPPING THE ENGINE

Never shut off a hot engine. Let it run at low idle for one minute, then turn the key switch to the "OFF" position. This will allow engine to cool off gradually. If the low idle is set correctly, this will prevent engine from backfiring or dieseling.

STARTING AND STOPPING DIESEL ENGINE

STARTING ENGINE

Before starting the engine, make certain all points of service and lubrication have been checked. Check the radiator for coolant, crankcase for oil level and check fuel supply in tank.

Place the injection pump fuel shut-off control knob in the run position. (Fig. 17). Place the gear shift lever in the neutral position and depress engine clutch. Place the throttle lever at a position that will give 900 to 1000 RPM. Turn the key switch to the "ON" position and depress starting switch to crank engine. In warm temperatures the engine will start.

In cooler temperatures use of the manifold air heater will aid in starting. Use of the air heater should be started when temperatures drop below 60°F. To operate the manifold air heater, turn the key switch past the "ON" position and hold for approximately one minute to allow the heating element to become hot. Then depress starting switch to crank engine.

If the temperature is near freezing, it may be necessary to depress the air heater switch while the engine is cranking. Do not crank the engine over five or six seconds if it does not attempt to start. Allow starter to cool between each interval, while continuing with use of air heater.

If cranking speed increases after five to six seconds of cranking, which indicates engine is attempting to start, continue with use of air heater and crank until engine starts. Check the heating element to see if it is working properly. The battery must be kept in a full charged condition.

After the engine has started, keep at 900 to 1000 RPM and allow engine to run until temperature reaches 120° before placing a load on the tractor. Check oil pressure when engine starts.

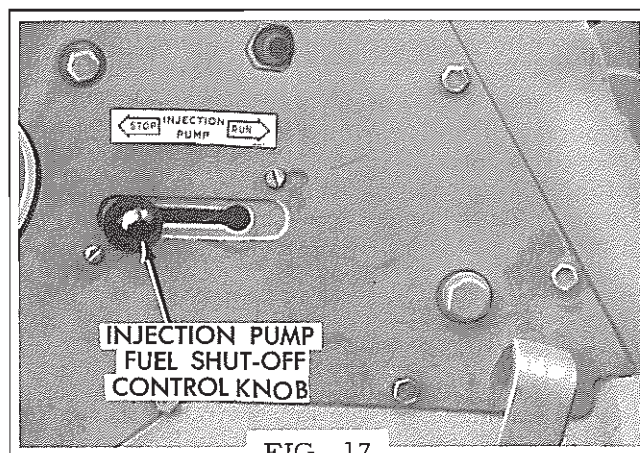


FIG. 17

DIESEL STARTING FLUID

If it is desired to use starting fluid, it should be used in conjunction with the diesel engine starting aid which is available as optional miscellaneous equipment. This starting aid injects metered amounts of starting fluid through a nozzle into the intake air stream of the intake manifold. If the ether primer is installed, the wire to air heater must be disconnected.

Do not inject starting fluid into the air cleaner intake as this requires excessive starting fluid and creates the possibility of burning the air cleaner element if the air heater is accidentally or purposely used.

If the element is burned, dirt can be drawn into the engine.

Never use the engine air heater and starting fluid at the same time. Do not use starting fluid unless the engine is cranking. If starting fluid has been used, do not use the air heater until engine has been purged of all starting fluid. If the air heater has been used, crank engine for 15 seconds, without use of air heater before using starting fluid.

AFTER ENGINE HAS STARTED

CHECK OIL PRESSURE (Fig. 18)

When operating engine, look at the oil pressure gauge at frequent intervals to make certain oil is being circulated by the oil pump. The gauge should register in the word "NORMAL" when the engine is hot and operating at its normal speed. A decrease in pressure will be noted when engine idles. Do not operate unless gauge registers.

FAST WARM-UP

Even though the engine is equipped with a thermostat by-pass system, the warm-up period can be further reduced by keeping the engine at approximately 1000 R. P. M. and loading the engine lightly for the first five or ten minutes.

Condensation occurs at temperatures below 140°F. Above this temperature condensation is driven out of the exhaust pipe. When the oil temperature is above 140°F., any accumulation in the crankcase is boiled or driven out the engine crankcase breather.

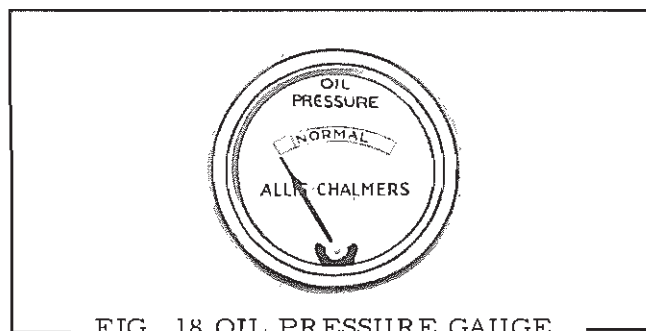


FIG. 18 OIL PRESSURE GAUGE

To guard against condensation, the engine should be operated at least as long after it reaches normal temperature as it took to reach normal range.

STOPPING THE ENGINE

Never shut off a hot engine, or an engine at high speed. After the load is released from the engine, allow it to idle for a few minutes to gradually cool all parts evenly. Then shut off engine by moving the fuel shut-off control knob at left side of instrument panel to the stop position.

OPERATION & ADJUSTMENT

ENGINE CLUTCH

The engine clutch release pedal is located at the left hand side of the torque housing. The clutch is provided for engaging or disengaging the power of the engine from the tractor. It disengages power from the engine clutch shaft.

The clutch is adequate for many hours of normal use, but if abused or incorrectly used in any manner, its life can be drastically shortened. The clutch should never be slipped more than necessary, if used as a speed reducer or for starting loads under full engine power, the life of the clutch will be drastically shortened.

In normal use of the clutch, it should only be engaged with the engine at reduced speed, and engaged as fast as possible to acquire a gentle start with the least amount of slipping. Therefore, the fastest engagement possible under the existing circumstances gives the best clutch life. Increase engine speed after the clutch is engaged.

ADJUSTMENT - ENGINE CLUTCH (Fig. 19)

As the clutch lining wears, the clutch pedal free movement will gradually diminish. There must always be some free pedal movement before starting to release the clutch, otherwise it will lead to clutch slippage or failure of the clutch release bearing.

To adjust the pedal free movement, disconnect the clutch rod from the pedal. Shorten clutch rod by turning clockwise until there is 1/2" free movement of the pedal link rod when measured at the side of the torque housing. This must be checked by reattaching rod and moving pedal downward to the limit of free movement.

If it is difficult to check or feel the free movement due to the spring pressure of the linkage return spring, the cotter pin may be removed from link rod releasing the spring pressure.

When the 1/2" measurement is obtained, install cotter pin in link rod. This adjustment will give approximately 1/4" clearance between clutch release bearing and the release levers.

GEAR SHIFTING - TRANSMISSION

The transmission has a shift lever to select the proper gear speed for the work being done. Before shifting into any gear, release the engine clutch fully and allow it to almost stop rotating. At this instant move the shift lever from neutral to the desired gear position. With a little practice, the operator will be able to shift gears without clashing, or having difficulty of gears engaging.

Always stop the forward motion of tractor before changing from one gear to another. Never attempt to shift gears on the go as excessive gear clashing may result. To shift from one gear to another, shift directly to the neutral position, then move lever to desired position before shifting to the next gear, never force lever from one gear to another.

To shift from neutral to low gear, follow the diagram, and move lever to left and downward. Move upward to neutral. To shift to second gear, move lever to right and upward. Move downward to neutral. To shift to third gear, move lever to right and downward, move upward to neutral. To shift to fourth gear, move lever to left and upward. Move downward to neutral. To shift to reverse gear, move lever to center of neutral position and upward. Move downward to neutral.

NOTE: If tractor is equipped with "Shuttle Clutch" the reverse gear is left out, as the reverse gear is not necessary.

Transmission shift lever should always be in the neutral position before starting engine, or before dismounting from tractor. Gear shifting should be made at reduced engine speed. This will make shifting easier and reduce clashing. Increase engine speed sufficiently to start load. After clutch is engaged, increase engine speed to full speed, especially on loads.

SHUTTLE CLUTCH

The shuttle clutch is provided as standard equipment for industrial tractors to control the forward and reverse movement of tractor in any forward gear. The shuttle clutch is similar to the power director clutch, but consists of a change in the gear train which provides a reverse of direction instead of low range when the control lever is shifted rearward.

The transmission reverse gear is left out whenever a shuttle clutch is installed. This gear is left out, as it is not needed, and to eliminate confusion in direction of travel. The forward travel is controlled by shifting the control lever forward. The reverse travel is controlled by shifting control lever rearward.

The shuttle clutch is convenient for operations where a continued forward and reverse movement of tractor is necessary, such as in loading operations. The direction of travel is changed without stopping or gear shifting.

To operate, select one of the forward transmission gears that is most desirable for the work being done. With shuttle clutch control lever in the neutral position, disengage engine

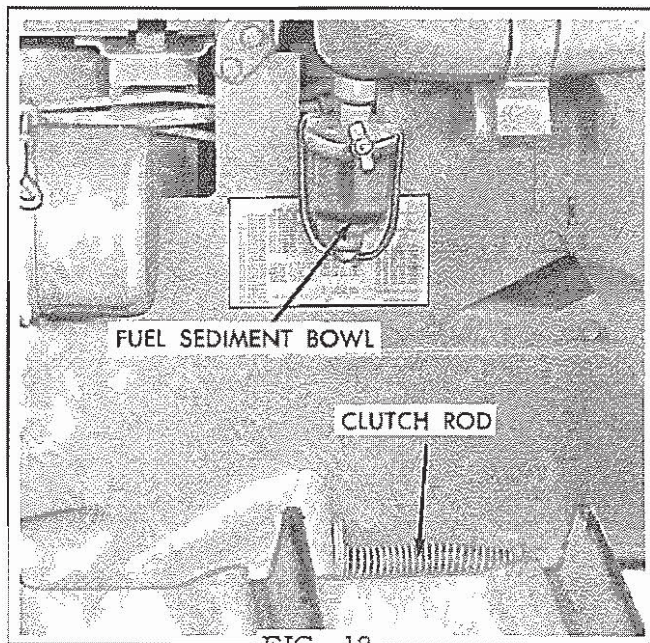


FIG. 19

clutch and shift transmission into the desired gear and engage engine clutch.

To engage forward travel, depress hand grip on control lever and lock in the forward position. To reverse direction of travel, depress hand grip on clutch control lever and shift rearward, locking lever in the rearward position. To stop travel in either direction, move lever midway and latch in the neutral position. Apply brakes and shift transmission to neutral before dismounting from tractor.

POWER DIRECTOR CLUTCH

The power director is provided to give a dual range of speeds in all gears and also to release the power to the track drive sprockets, without releasing the power to the hydraulic pump.

The forward position provides the high range. The rear position provides the low range. The center position is neutral and stops power to the drive wheels. This lever may be shifted without stopping tractor. To shift lever, depress hand grip at top of lever.

Operate the engine at full throttle and select the desired transmission speed to suit the work being done. Severe overloads may be thrown on engine if operated at reduced engine RPM on heavy loads. Avoid lugging engine.

ADJUSTMENT - POWER DIRECTOR CLUTCH (Fig. 20)

The clutch lever quadrant must be adjusted so

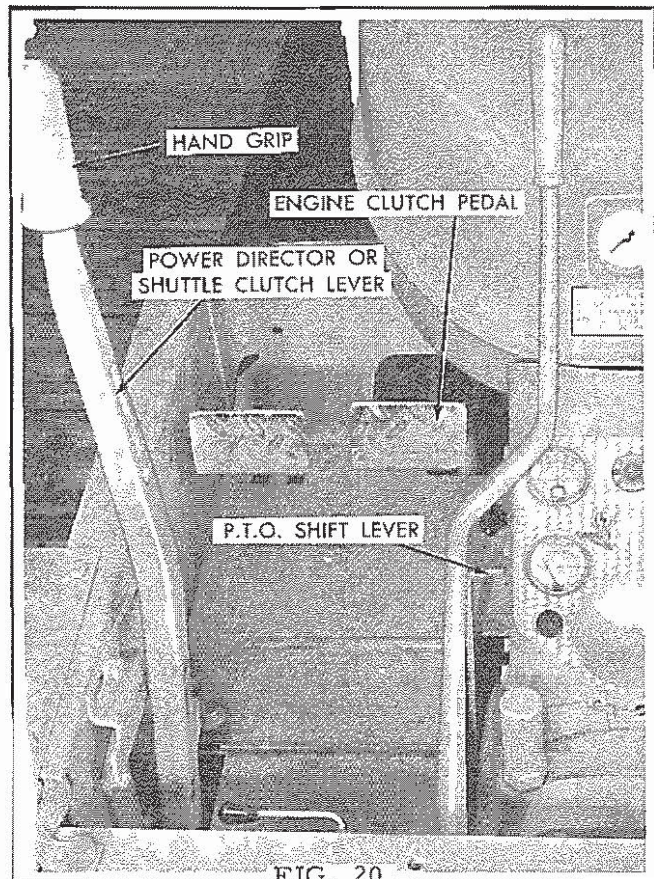


FIG. 20

that it will hold the clutch lever in the neutral position so that both ranges of clutch is released equally. This can be checked by holding the hand grip depressed and moving the lever slightly forward and rearward between the start of engagement of both ranges and adjust lever quadrant to hold lever exactly half way between the two clutch engagements.

The holes in quadrant are slotted. To adjust, loosen two nuts and move quadrant forward or rearward to the desired position and retighten nuts. The shuttle clutch lever quadrant is adjusted in this same manner.

POWER TAKE-OFF (OPTIONAL) (Tractor Equipped with Power Director Clutch)

The P. T. O. is used to provide power to P. T. O. operated machines. The shaft turns 540 R. P. M. at 1650 R. P. M. of engine. The speed of the P. T. O. shaft remains at 540 regardless of the transmission gear used.

The P. T. O. shift lever is located at left side of torque housing near the engine clutch pedal. (Fig. 20).

To shift the P. T. O. shaft in gear, depress the engine clutch pedal and at the same time move the P. T. O. shift lever to the forward position while the clutch shaft is still rotating slightly.

If the clutch shaft is allowed to stop rotating it will be difficult to engage the P. T. O. shift collar as clutch jaws may not be in alignment. By shifting while the shaft is still rotating the jaws will align and engage easily.

Before attempting to shift the P. T. O. shaft in gear, allow both tractor and driven machine to come to a full stop.

The forward motion of the tractor may be stopped while the P. T. O. shaft continues to run, by simply moving the power director or shuttle clutch lever to the center or neutral position.



Do not operate P. T. O. driven machines unless all power line shielding is in place.

Before hitching a P. T. O. operated machine to this tractor, it will be necessary to change the drawbar as shown in Fig. 21. Remove the two capscrews from rear of drawbar and move the drawbar extension rearward approximately 10-1/2" and bolt in place.

Install short capscrew in front position, install a

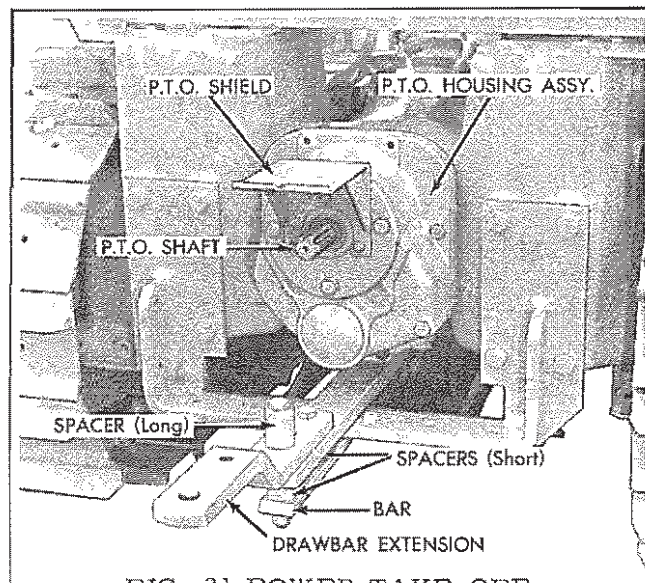


FIG. 21 POWER TAKE-OFF

short spacer under drawbar and install the retaining bar, using the center hole. Install lock washer and nut.

Install long capscrew in rear position, placing the long spacer on top of drawbar extension. Place the second short spacer between drawbar and the retaining bar. Enter capscrew through and install lockwasher and nut. Tighten both nuts securely. Pin drawbar rigid in the center position.

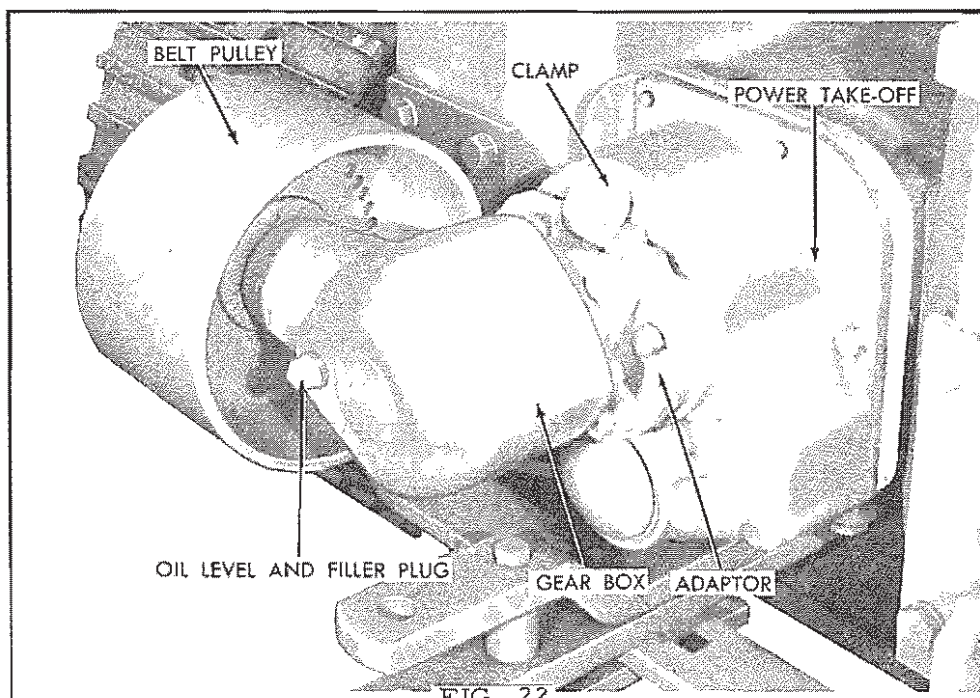


FIG. 22

BELT PULLEY - P. T. O. DRIVEN (OPTIONAL) (Fig. 22)

The belt pulley is available as optional equipment and is field installed. It is driven from the power take-off shaft, therefore, tractor must be equipped with a power take-off which is also optional equipment.

To operate the belt pulley, disengage the engine clutch and shift the power take-off into gear. Refer to Power Take-Off for further instructions. Check oil level and keep gear box filled to level of filler plug opening located at rear of gear box with SAE 80 E. P. transmission oil.

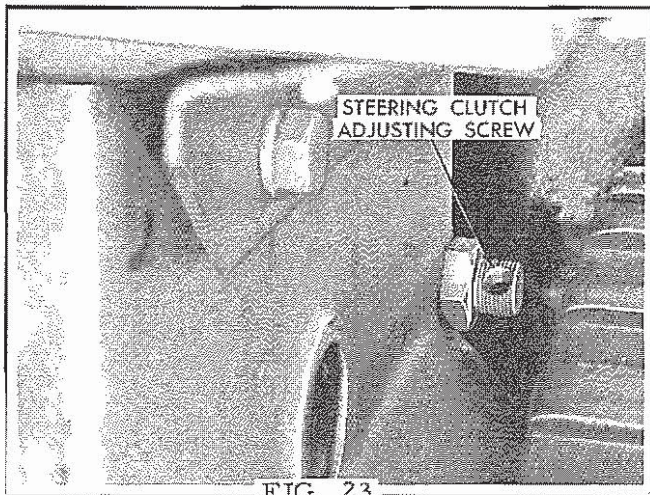


FIG. 23

STEERING OF TRACTOR

The tractor is steered by disengaging the steering clutch on the side of the tractor toward which the turn is to be made. This is done by using the steering levers located directly in front of the operator. To make a right turn, pull back the R.H. steering lever; to make a left turn, pull back the L.H. steering lever. With the left steering clutch disengaged, power is not delivered to the left track and the track will slow down or stop. Since power is still being delivered to the right track, the right track will keep turning and cause the tractor to turn to the left. When the right steering clutch is disengaged, the tractor will turn to the right in a similar manner.

If a short turn is to be made, pull the steering lever back on the side toward which the turn is to be made and press down on the corresponding brake pedal; this will stop the track completely. Always pull the steering lever all the way back when turning. When the tractor has turned as desired, return the lever immediately to its forward position. Do not let the levers fly forward from the disengaged position, keep hold of levers and return them manually to their forward position. Disengage and engage the steering clutches smoothly and completely to avoid excessive wear on the clutch friction discs.

When steering the tractor down steep grades with the load pushing the tractor, the use of the steering levers is opposite to that when pulling a load. In this case, the L.H. steering lever is used to make a right turn and the R.H. steering lever to make a left turn. Disengaging either steering clutch will allow the track on that side to travel faster, since the braking power of the engine is released from it, while the steering clutch remaining engaged will act as a brake for the opposite track.

During operation, observe the amount of free travel of the steering levers (the distance the levers move before pressing is felt and dis-

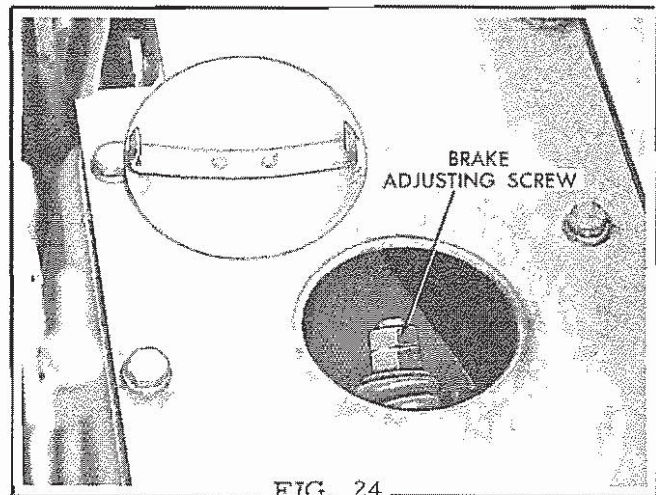


FIG. 24

engagement of clutch begins). This free travel, which assures complete engagement of the steering clutches, should be from 1-1/2" to 3-1/2". When the free travel of either steering lever becomes less than 1-1/2", the steering clutch linkage requires adjustment (Refer to "Steering Clutch Adjustments").

STEERING CLUTCH - ADJUSTMENT

The clutches are properly adjusted when the control levers have 3-1/2" of free movement. This amount of free lever travel will provide approximately 1/8" clearance between the release bearing and the clutch release levers. As the clutches wear this free movement diminishes and should be readjusted when the free movement has decreased to 1-1/2".

(Fig. 23) A clutch adjusting screw is located at the outside of the final drive housings and inside of track and is accessible from the rear of tractor. To increase the lever free travel, loosen the locknut and turn the adjusting screw out of housing until the lever free travel is 3-1/2" and tighten locknut. Adjust the opposite clutch in a similar manner.

STEERING BRAKES - ADJUSTMENT (Fig. 24)

To adjust or tighten the steering brakes, remove the small covers at top of final drive housings. With the brake latch levers in the upward or off position, adjust brake bands by turning the adjusting nuts clockwise until the brake pedal pads have 2-1/2" of travel. The two adjusting nuts are locked together, loosen nuts to make adjustment, lock nuts together after adjustment is made.

With this adjustment and the brake lock levers in the downward or applied position, the brakes should latch in the first notch with a reasonable amount of pedal pressure. With a heavy pressure on brake pedal it must latch into the second notch, otherwise brakes are too tight.

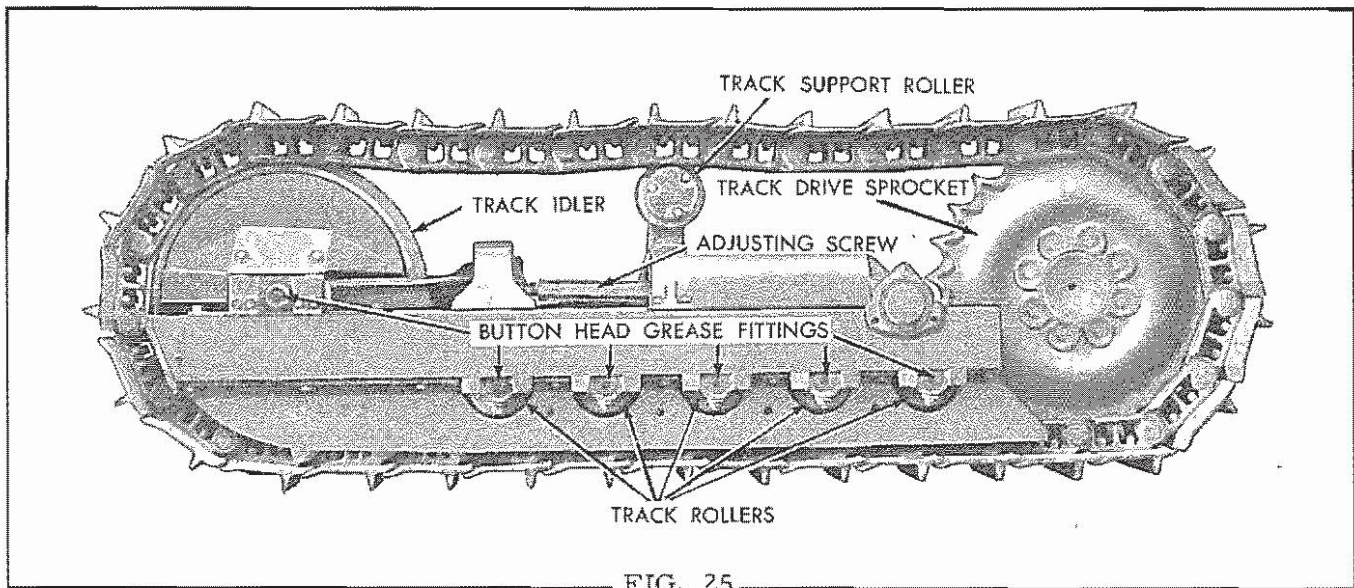


FIG. 25

TRACK SAG ADJUSTMENT (Fig. 25)

To minimize movement of the tractor on its blocking while in transit, the tracks are purposely adjusted "TIGHT" at the factory. Before unloading the tractor from its carrier, the tracks must be adjusted. Loosen capscrews in lock plate and turn the adjusting screw into the track release yoke as necessary to obtain 1-1/2" sag between the track support roller and the front track idler. Tighten capscrews in the adjusting screw lock plate.

All future track adjustments should be made in the following manner and with a reasonably clean track.

Run the tractor backward and forward a few times before checking the sag measurement of track. The last movement of the tractor must always be forward. The track sag measurement is to be made with a grouser pin directly over the centerline of the track support roller.

Place a straight edge on top of the track and measure the sag from the straight edge to the grousers midway between the front idler and the track support roller. The track is correctly adjusted when the sag is 1-1/2" to 2-1/2". If the track sag exceeds 2-1/2", readjust the sag to 1-1/2". Proper adjustment is important because rapid wear of tracks and other affected parts will occur if the tracks are too tight or too loose.

To adjust each track, loosen capscrews in lock plate and turn the adjusting screw out of the track release yoke as necessary to force the track idler ahead until the proper sag of 1-1/2" is obtained. When the correct adjustment of the track is ob-

tained, tighten the capscrews in the adjusting screw lock plate.

TRACK AND TRACK SHOES (Fig. 26)

Track type tractors operate in all kinds of soil conditions, such as mud, sand, gravel, snow and ice. Therefore, a variety of track shoe equipment is necessary and available. When changing or installing track shoes the bolts must be tightened 100 to 110 ft. lbs. torque.

The standard grouser shoes are most commonly used for average conditions and can be equipped with street plates where tractor is to be operated on paved roads or streets. Cut-out grousers are available where track packing is encountered.

When operating on ice or snow, cut-out ice and snow grousers are available. Street plates may be used on the ice and snow, or any of the full grouser shoes. Semi-grousers shoes are available and can be used on pavement, or in soil conditions where it is not desired to dig up the soil surface, or in operations where a slight track slippage is desired.

When operating in muddy conditions and freezing temperatures, it is recommended that the mud be cleaned from the track assemblies, at the end of the days work and that tractor be parked on dry solid ground to prevent track freezing down. If impossible to park tractor on solid ground, it should be driven upon planks.

If track assemblies are allowed to freeze down in muddy conditions without any precautions, a severe strain will be put on gear train and housings when attempting to move or operate tractor and severe damage could result.

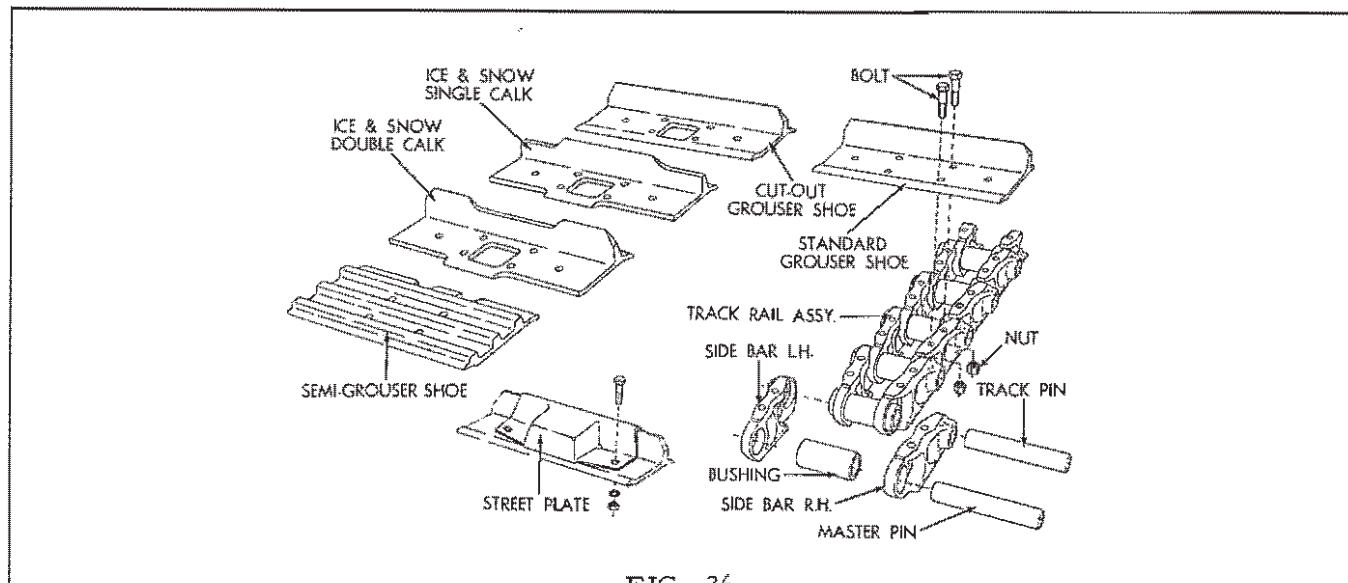


FIG. 26

VALVE TAPPET CLEARANCE H-3 GASOLINE

(Fig. 27). Correct clearance between valve stems and rocker arms should be maintained at all times. The engine must be heated to its normal operating temperature before making this adjustment. Adjust the intake valve clearance from .008" to .010". Adjust the exhaust valve clearance from .014" to .016".

To adjust clearance, first, rotate engine until No. 4 exhaust valve closes and adjust both valves on No. 1 cylinder. Second, rotate engine until No. 3 exhaust valve closes and adjust both valves on No. 2 cylinder. Third, rotate engine until No. 1 exhaust valve closes and adjust both valves on No. 4 cylinder. Fourth, rotate engine until No. 2 exhaust valve closes and adjust both valves on No. 3 cylinder.

This method of adjusting tappets eliminates the necessity of adjusting one valve on a cylinder, then having to go back to the same cylinder to adjust the other valve, therefore, saving time and simplifying the procedure. Starting with No. 1 cylinder and following the firing order of the engine, only four "One Half" turns of the engine is necessary for a complete job of adjusting valves.

Loosen the locknut on the adjusting screw and turn adjusting screw until there is .008" to .010" clearance between the valve stem and rocker arm on intake valves and .014" to .016" on exhaust valves when measured with a feeler gauge. Tighten locknut and recheck.

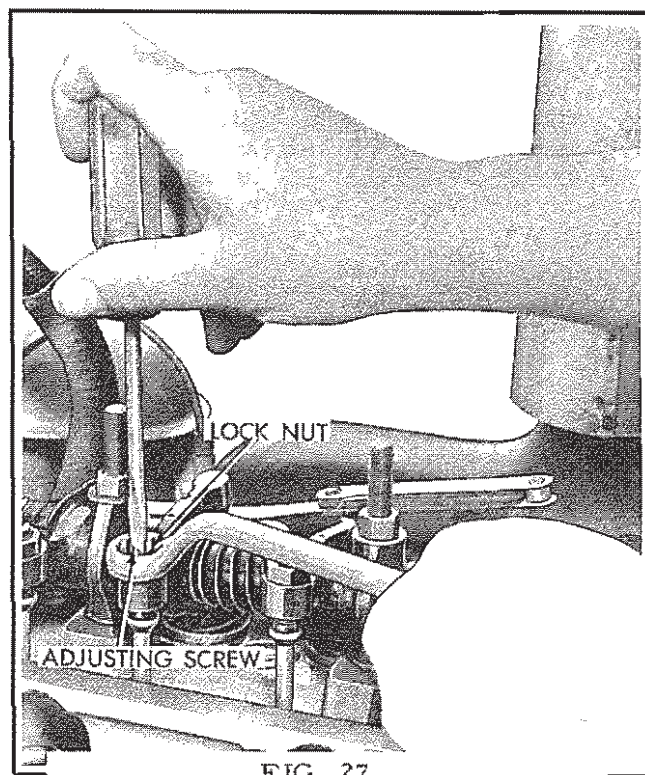


FIG. 27

Lack of compression because of leaky valves may be caused by either insufficient clearance between rocker arms and valve stems, or by carbon or gummy substance on the valve stems or seats, preventing the valves from closing.

VALVE TAPPET CLEARANCE

HD-3 DIESEL

(Fig. 28) Correct clearance between valve stems and rocker arms should be maintained at all times. The engine must be heated to its normal operating temperature before making this adjustment.

Loosen the locknut and turn the valve adjusting screw until there is .010" clearance between valve stems and rocker arms on the intake valves, and .019" clearance on exhaust valves, when measured with a feeler gauge. Tighten locknut and recheck clearance.

To adjust clearance, first, rotate engine until No. 4 exhaust valve closes and adjust both valves on No. 1 cylinder. Second, rotate engine until No. 2 exhaust valve closes and adjust both valves on No. 3 cylinder. Third, rotate engine until No. 1 exhaust valve closes and adjust both valves on No. 4 cylinder. Fourth, rotate engine until No. 3 exhaust valve closes and adjust both valves on No. 2 cylinder.

This method of adjusting tappets eliminates the necessity of adjusting one valve on a cylinder, then having to go back to the same cylinder to adjust the other valve, therefore, saving time and simplifying the procedure. Starting with No. 1 cylinder and following the firing order of the engine, only four "One Half" turns of the engine is necessary for a complete job of adjusting valves.

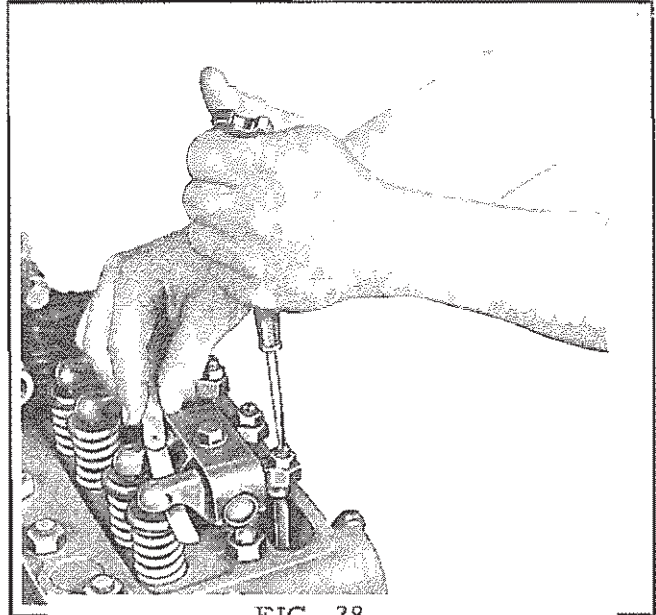


FIG. 28

Lack of compression because of leaky valves may be caused by either insufficient clearance between rocker arms and valve stems, or by carbon or gummy substance on the valve stems or seats, preventing the valves from closing.

BATTERY

Check the electrolyte solution in the battery at least once a week (50 hours) to see that it is at the proper level. This level should be maintained to lower edge of filler tube, which is about 3/8" above top of separators.



Keep all open flame away from battery as an explosive gas is liberated when battery is being charged or discharged.

The battery supplied with your tractor has a lead washer type valve in the filler tube to prevent over filling. Never add anything to the battery solution except DISTILLED OR RAIN WATER. Boiled water will not do. The supply of water should be kept in clean covered vessels of glass, china, rubber or lead.

The need for frequent addition of water to battery, indicates the charging rate maintained is too high. In cold weather, add water only immediately before running the engine so that the charging will mix the electrolyte and water to prevent freezing.

A fully charged battery will not freeze in cold temperatures, but if only partly charged, will freeze and be ruined at much higher temperatures. Weekly readings of each battery cell should be taken with a battery hydrometer. The readings indicate as follows:

1.260 full charge, 1.225 half charge, 1.150 discharged.

When taking the readings, return the electrolyte solution to the cell from which it was taken. The specific gravity of a fully charged cell should be 1.260.

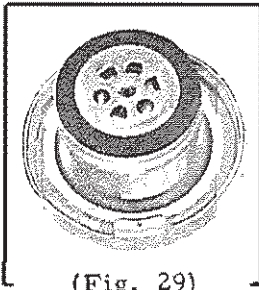
Keep the battery clean by using a stiff bristle brush. Do not use a metal brush. If terminals are corroded or if the battery is acid soaked, wash with a soda, mix 1/4 lb. of baking soda to one quart of water. The vent plugs must be kept in place when cleaning battery.

After washing battery, check the gas escape holes in vent caps making sure they are open. If battery is removed from tractor, disconnect the positive ground terminal first. When reinstalling be sure the ground cable is installed last, and connected to the positive terminal of battery.

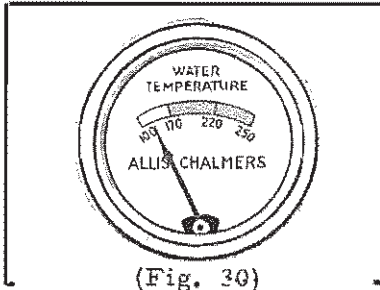
The battery retainer should be in place and tightened snugly, to prevent battery from being damaged by vibration. Any non-insulated metal across the top of battery will short circuit, and cause it to lose its charge.

In the event the tractor is not in use for a period of time, it is advisable to remove the battery, have it fully charged and stored in a basement or some similar place, where the temperature will be as low as possible, but above freezing.

ENGINE COOLING SYSTEM



(Fig. 29)



(Fig. 30)

PRESSURE RADIATOR CAP (Fig. 29)

The pressure radiator permits the use of a higher operating temperature. The cooling solution (pure water) will not boil in the pressure radiator until a temperature of 221°F. is reached.

To remove the radiator cap, turn to the left until it stops. Push down and continue to turn to the left until the cap is released.



Do not remove the cap when the temperature is above 212°F. as the cooling solution will break into a violent boil which may splash onto person removing cap.

Never pour cold water in a hot engine. Clean rain or soft water should be used in the cooling system if available. Hard or alkaline water will form a scale which will impair radiation if allowed to build up in the cooling system.

Soluble oil is beneficial to the cooling system. It will not prevent the accumulation of lime, but will retard such formation. This water soluble oil may be secured from your "Allis-Chalmers" Dealer.

OPERATING TEMPERATURE (Fig. 30)

The operating temperature of the engine coolant is shown on the temperature gauge. The pointer should operate in the green portion of gauge, with a range of 170°F. to 220°F. If pointer moves into the red portion of gauge, the engine is overheated. If engine does become overheated for some reason or other, allow time to cool for a few minutes then add water slowly to radiator while engine is idling.

Low engine operating temperatures cause condensation, sludge and corrosion. Keep engine hot. The temperature is thermostatically controlled, but to prevent damage to engine by cold

operating temperatures the engine must be operated in the operating range on gauge long enough to boil or drive off the moisture collected in the initial warm up period.

Operate engine in the normal range for a period of time equal to the time it took the indicator needle to reach the operating range before shutting off engine. This will prevent moisture from condensing and damaging vital engine parts.

Under abnormal or cold engine temperature operation, the oil change interval should be performed more frequently than under normal operation temperature conditions.

TO DRAIN COOLING SYSTEM

On gasoline engines, open the drain cocks at front of radiator and on left hand side of cylinder block near carburetor. On diesel engines, open the drain cocks at front of radiator, the right hand side of cylinder block and water pump.

CAUTION: In freezing weather be sure to drain all places. Loosen radiator cap to prevent system from air locking, which will retard draining. Stay near tractor and make sure system is completely drained.

ANTI-FREEZE SOLUTION

If tractor is used during freezing weather, it is advisable to fill the cooling system with anti-freeze solution. If tractor is operated on heavy loads, a good grade of permanent type anti-freeze is recommended. This type of anti-freeze has a high boiling point and will permit the engine to be operated at its normal operating temperature. (Green section of gauge).

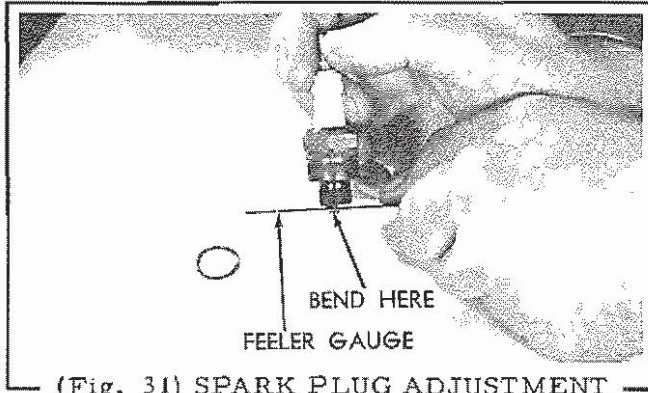
FAN BELT ADJUSTMENT

To adjust or tighten the fan drive belt, loosen the adjusting screw on the generator brace, and move the generator away from the engine block until there is approximately 1/4" belt deflection midway between the generator and fan pulleys, and using a 10 lb. pull or scale reading. Retighten adjusting capscrew.

Extreme tightness will reduce the life of belt, generator bearings and fan shaft bearing. Belt slippage will cause excessive belt wear and also prevent the pump and fan from delivering the proper amount of water and air. If the belt bottoms in sheaves it will cause slippage and must be replaced.

IGNITION SYSTEM

H-3 GASOLINE



(Fig. 31) SPARK PLUG ADJUSTMENT

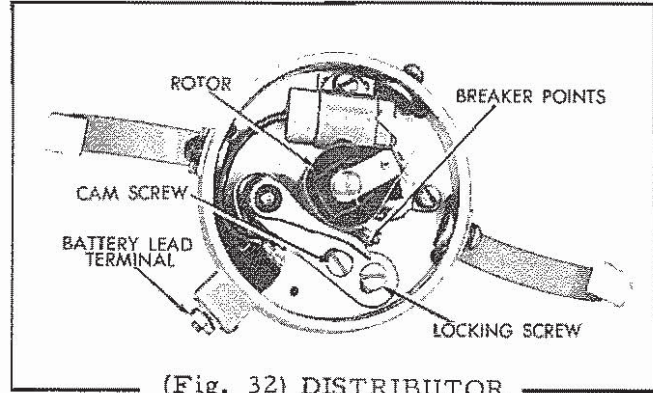
SPARK PLUGS (Fig. 31)

The spark plugs should be removed every 200 hours of operation, cleaned and the points re-spaced. The point gap should be set at .025". If spark plug gap is set too wide it will induce engine to miss under load. If set too close the engine will not idle properly. Adjust the point gap by bending the outside electrode. Never bend the center electrode.

CAUTION: Failure to service spark plugs as recommended causes increased fuel consumption and lack of power. Always use spark plug wrench when removing plugs to prevent cracking insulator. When replacing plugs make certain gaskets are in good condition and the plugs are tight.

The tractor is equipped with plugs suitable for average operating conditions. When necessary to replace plugs, it may be advisable to use a heat range according to your operating condition. Incorrect plugs are shorter lived and cause poor engine performance. Use plugs specified, or equivalent heat range. Auto-Lite A-7, AC-C45 or Champion J-8.

Spark plugs and cables should be maintained in good condition and free of dirt and grease. It may seem unwise to discard a spark plug that has operated successfully for a long period of time, but poor plugs cause hard starting and excessive fuel consumption. For this reason it is ad-



(Fig. 32) DISTRIBUTOR

visable to change plugs regularly.

IGNITION COIL

The ignition coil does not require special service other than to keep all terminals tight and clean. The distributor lead wire must be attached to positive terminal.

DISTRIBUTOR (Fig. 32)

The distributor requires very little attention or service, however, the point gap should be checked periodically and points replaced when necessary. The point gap should be adjusted to .022". To adjust, remove distributor cap, rotor and dust cover. Rotate engine until the peak of cam lobe is contacting the breaker arm, and points are at their widest position. Loosen the locking screw, and turn the cam screw to get the .022" point gap. Retighten locking screw and measure point gap with feeler gauge.

When the contact points become burned, worn or pitted, they should be replaced with a new set. When replacing a point set, always replace the cam lubricator. It is also a good practice to replace the condenser at the same time, unless testing shows it to be in perfect condition. Never use emery cloth or sand paper to clean points, only in case of emergency. Timing should be checked and reset if necessary when installing new points.

CARBURETOR (H-3 GASOLINE) (Fig. 33)

The carburetor has three adjustments, one for controlling the idling speed of the engine, one to correct for changes in fuels and atmospheric conditions at idling speed and one to get maximum power without excessive fuel consumption.

To regulate the idling speed of the engine, have the engine at operating temperature and adjust the idling stop screw on the throttle shaft on inner side of carburetor. The idle speed should be approximately 550-575 RPM.

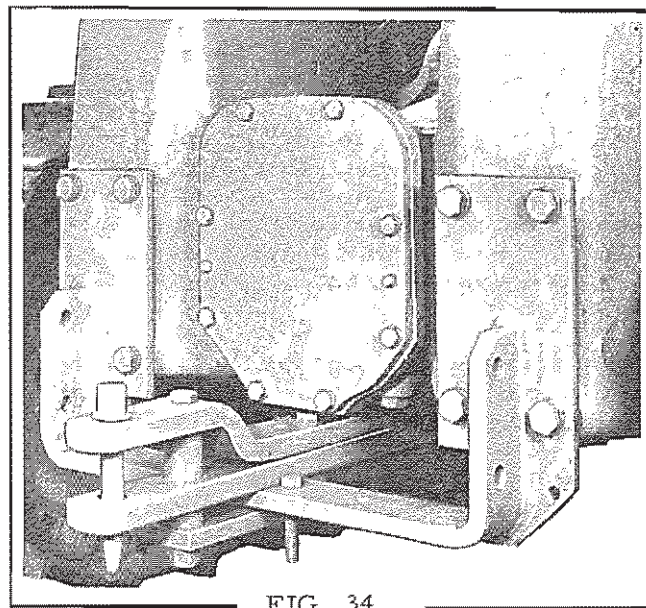
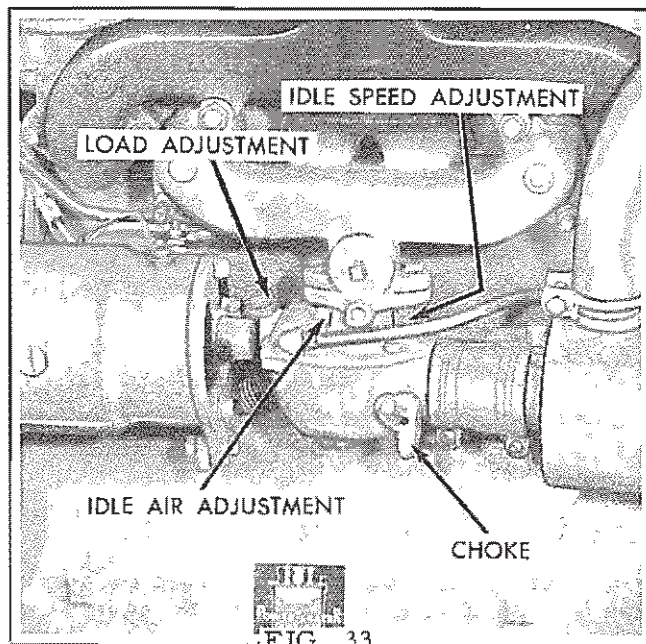
For correct air fuel mixture at idling speed of engine, adjust the idling adjusting screw located at the front of the top portion of the carburetor. Turn the adjusting screw inward for richer mixture and outward for leaner mixture. The normal setting is approximately one and one half turns outward.

The main load adjustment located at the front portion of carburetor is for the purpose of obtaining the proper air fuel mixture for full load operation. Turn inward for leaner mixture and outward for richer mixture. To adjust, have engine at normal operating temperature and if possible under load.

If impossible to load engine, set throttle to the high idle position, turn inward on adjusting screw until engine loses speed or misses, then turn outward until the engine resumes speed and runs smooth. An extra $1/8$ to $1/4$ turn will then give engine all the fuel it requires under load.

DRAWBAR

(Fig. 34) The drawbar is of the heavy duty type and the height of the hitch point may be varied by hitching to the lower bar or the upper bar, or in some cases it may be desired to hitch between the two bars. The height of drawbar above ground is approximately 12-1/2" midway between the two hitch bars, add 2" if tractor is on a solid floor. The drawbar has a swing of approximately 22" from side to side and may be pinned in the center position if a rigid drawbar is desired.



HYDRAULICS

HYDRAULIC PUMP (Fig. 35)

Mounted on the R.H. side of the tractor torque housing is a gear type hydraulic pump. The pump is driven from the engine clutch shaft and is operating at all times when engine is running and the engine clutch is engaged. Disengaging the engine clutch will stop the hydraulic pump. If one desires to have the hydraulic pump in operation when the movement of tractor is stopped, shift the shuttle clutch (or power director clutch) control lever to the neutral position.

One of the two available hydraulic pumps may be installed on the tractor torque housing, depending upon the volume of oil needed to operate the hydraulic systems of equipment mounted on tractor. Pump sizes are 11.5 and 25 gallons. The 25 gallon pump consists of two sections - 11.5 gal. and 13.5 gal.

The pump may obtain its oil supply from the torque housing or a fender mounted reservoir depending upon hydraulic system requirements.

HYDRAULIC RESERVOIRS (Fig. 36)

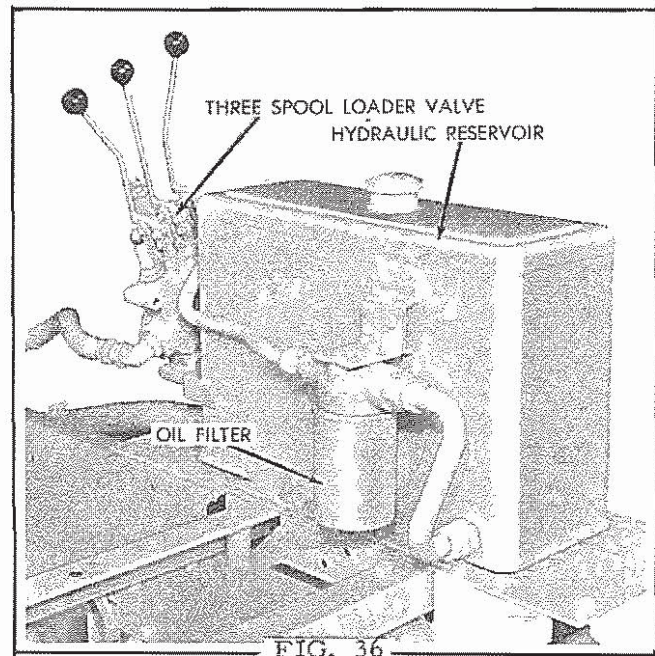
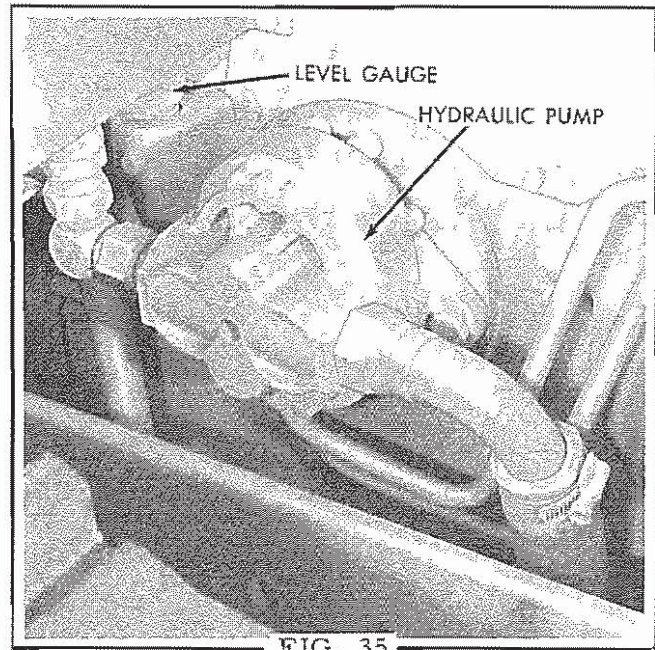
The tractor torque housing reservoir provides an oil supply for the 11.5 G.P.M. pump when used with a single spool or three spool dozer valve.

The fender mounted reservoir is used when tractor is equipped with the 11.5 G.P.M. or 25 G.P.M. pump and three spool loader valve.

Hydraulic reservoir oil should be changed twice yearly.

HYDRAULIC OIL FILTER (Fig. 36)

The hydraulic oil filter is mounted to the right of operators seat. The filter should be changed at every 200 hours of operation. Use only an "Allis-Chalmers" filter provided specifically for this purpose.



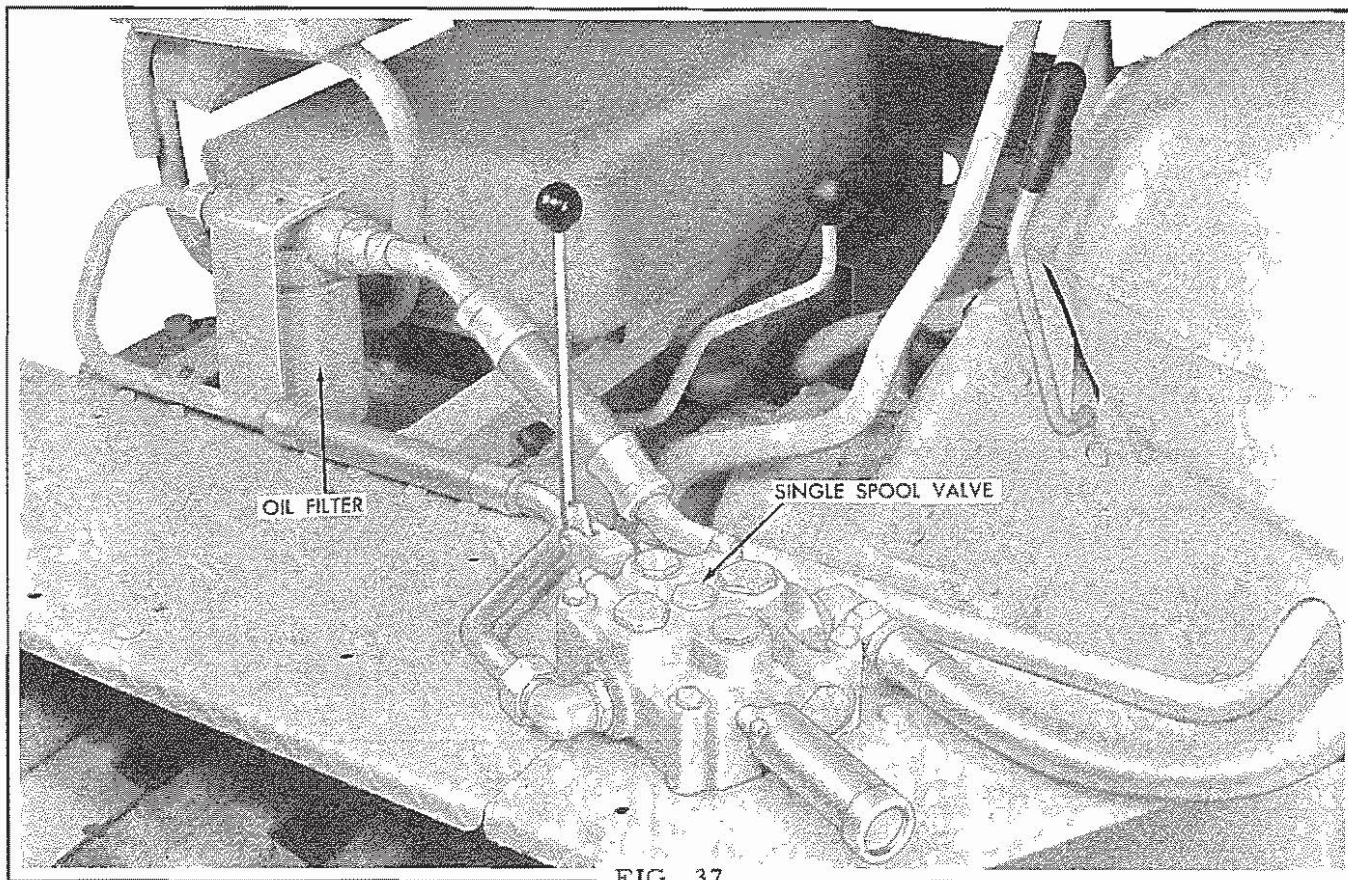


FIG. 37

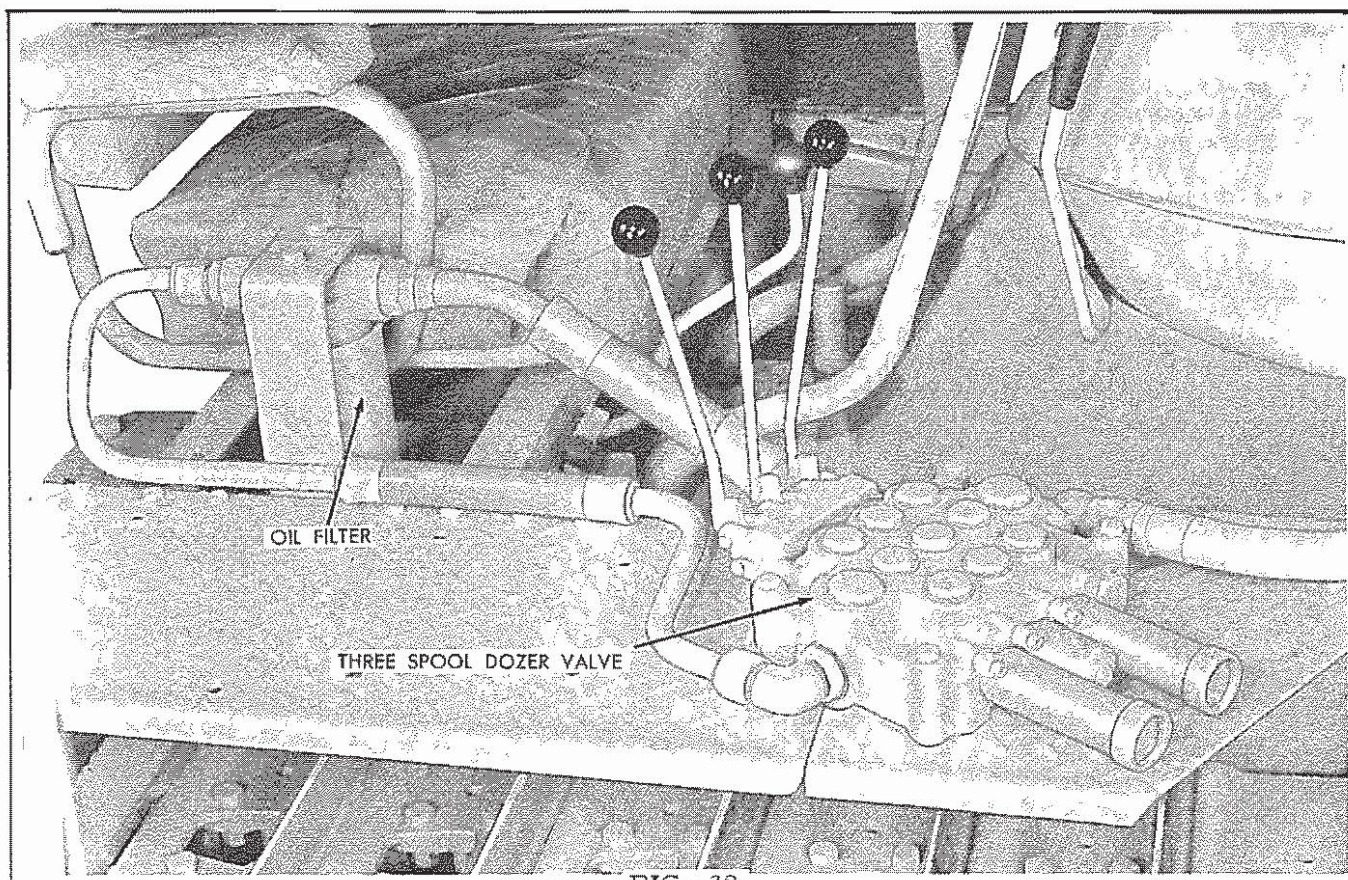


FIG. 38

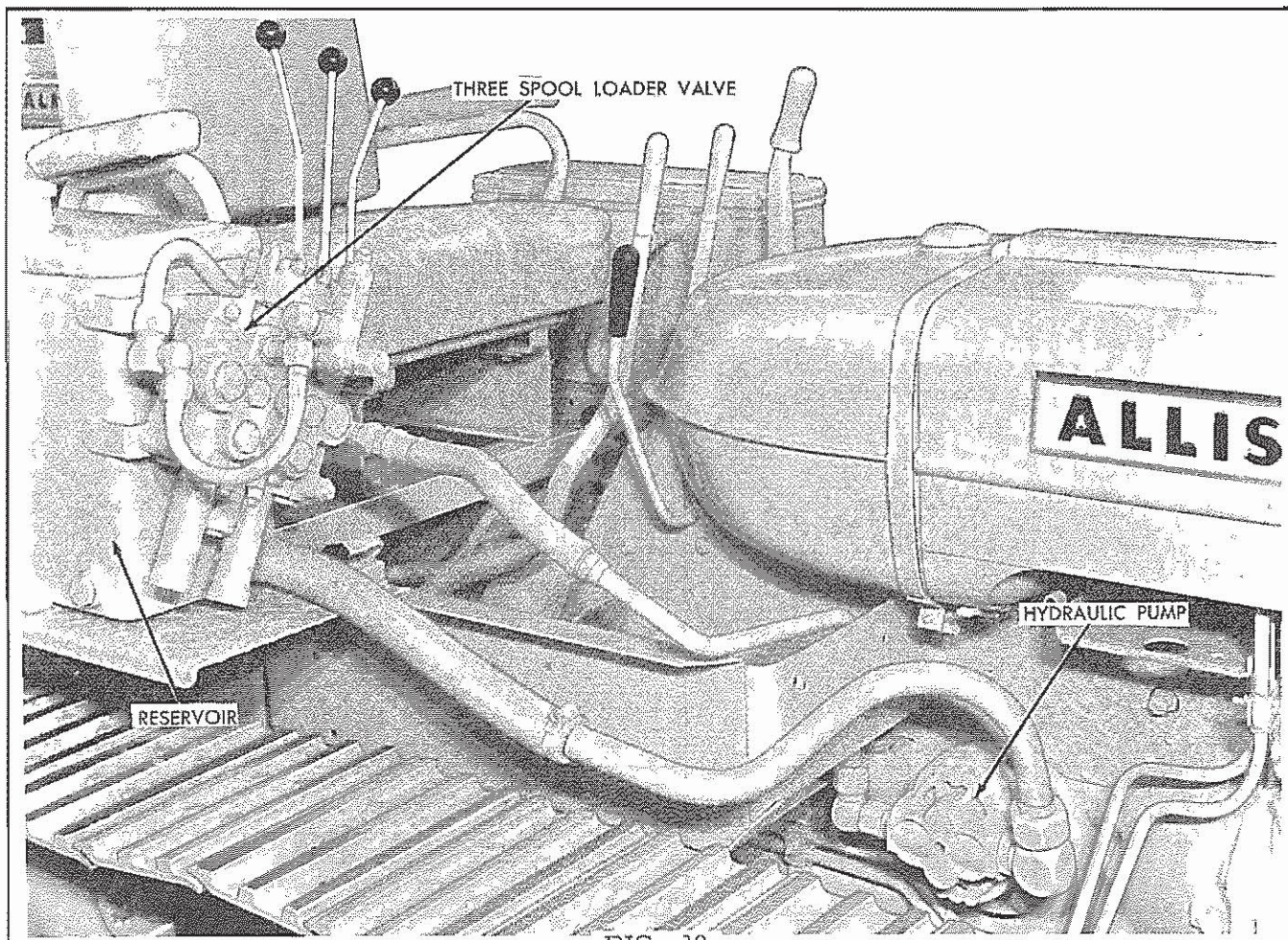


FIG. 39

CONTROL VALVES (Figs. 37, 38 and 39)

The control valve is mounted to the right of the operator. The hydraulic system may be equipped with a single spool (Fig. 37), three spool dozer

valve (Fig. 38) or a three spool loader valve (Fig. 39) depending upon requirements needed. (See "Hydraulic System Arrangements" on following page).

HYDRAULIC SYSTEM ARRANGEMENTS

PUMP SIZE	CONTROL SPOOL	RESERVOIR	RECOMMENDED EQUIPMENT
11.5 G. P. M.	Single Spool	Torque housing	1081 Dozer (Inside push beam with mechanical angle and tilt)
			1090 Dozer (Outside push beam with mechanical angle and tilt)
	Three Spool Dozer Valve	Torque housing	1080 Dozer (Inside push beam with hydraulic angle, tilt and lift)
			1081 Dozer and Scarifier 1090 Dozer and Scarifier
	Three Spool Loader Valve	Fender mounted	1080 Dozer (Inside push beam with hydraulic angle, tilt and lift)
			H-3 Loader and Scarifier
25 G. P. M.	Three Spool Loader Valve	Fender mounted	H-3 Loader and Backhoe
			Backhoe and Dozer

DIAGNOSING ENGINE DIFFICULTY

H-3 GASOLINE

The following suggestions are listed for your assistance. You can make simple adjustments on your tractor that will improve its operation and save you the time and expense of calling a Serviceman.

Always make one adjustment at a time and if the adjustment made does not improve the condition, return to the original setting before proceeding to the next adjustment.

ENGINE FAILS TO START OR RUNS UNEVENLY

1. Fuel valve shut off.
2. Incorrect fuel in tank.
3. Float valve sticking.
4. Fuel tank empty.
5. Clogged fuel filter or fuel lines.
6. Dirty or clogged air cleaner.
7. Leaking or loose manifold.
8. Engine flooded.
9. Broken wires from distributor to engine.
10. Wires not in proper position.
11. Switch not turned on or defective.
12. Spark plugs wet, dirty, or broken.
13. Distributor weak, or out of time.
14. Spark plug points not properly spaced.
15. Distributor points pitted, dirty or improperly spaced.

ENGINE OVERHEATED

1. Low water level in cooling system.
2. Radiator clogged.
3. Fan belt slipping.
4. Collapsed radiator hose.
5. Thermostat stuck.
6. Tractor overloaded.
7. Ignition timed late.
8. Fuel mixture too lean.
9. Weak spark.
10. Diluted lubricating oil.
11. Pulling heavy load at reduced engine R. P. M.
12. Water pump impeller vanes broken.

STORAGE OF TRACTOR

TRACTOR PROTECTION IS POCKET-BOOK PROTECTION

If tractor is stored for any length of time, a few precautionary measures are helpful in preserving various parts, also in avoiding future difficulty.

1. Store tractor under cover. If impossible to place tractor under cover, be sure to cover air stack and exhaust pipe.
2. Drain radiator and engine block.
3. To avoid gum content collections, drain both fuel tanks and carburetor.
4. Leave radiator and fuel caps slightly loose to protect gaskets.
5. Remove battery and store as recommended under electrical equipment.
6. Remove spark plugs and pour a small quantity of light motor oil on piston tops. Crank engine over a few times and replace spark plugs.
7. When tractor is removed from storage it should be serviced throughout, including draining and refilling the oil sump with fresh oil.

DIAGNOSING ENGINE DIFFICULTY HD-3 DIESEL

The following suggestions are listed for your assistance. You can make simple adjustments on your tractor that will improve its operation, and save you the time and expense of calling a Serviceman.

Always make one adjustment at a time, and if the adjustment made does not improve the condition, return to the original setting before proceeding to next adjustment.

HARD STARTING

Cold air temperatures
Insufficient fuel
Air traps
Incorrect timing
Loss of compression
Dirty nozzles
Battery charge low
Valve clearance incorrect
Fuel transfer pump faulty
Fuel injection pump faulty
Fuel injection pump out of time

ENGINE OVERHEATING

Low water level in cooling system
Radiator clogged
Fan belt slipping
Collapsed radiator hose
Thermostat stuck
Engine overloaded
Diluted lubricating oil
Pulling heavy load at reduced RPM
Water pump impeller vanes broken

LOSS OF POWER

Insufficient fuel

Air in fuel line
Restriction in fuel line
Clogged fuel filters
Transfer pump defective
Late injection pump timing
Loss of compression
Clogged air cleaner
Sticking valves
Valve clearance incorrect
Faulty nozzles
High idle RPM too slow

IRREGULAR OPERATION

Governor control linkage binding
Compression pressure uneven
Valves not seating properly
Faulty fuel nozzles
Low fuel pressure
Low operating temperature
Fuel injection pump out of time

EXCESSIVE EXHAUST SMOKE

Engine overloaded
Clogged air cleaner
Too much fuel to engine
Faulty fuel nozzles
Oil consumption

ENGINE KNOCKING

Engine overloaded
Incorrect fuel
Incorrect timing
Air cell plugged or leaking
Engine RPM too slow

All adjustments on the fuel system must be made by a competent mechanic.

STORAGE OF TRACTOR TRACTOR PROTECTION IS POCKET-BOOK PROTECTION

If tractor is stored for any length of time, a few precautionary measures are helpful in preserving various parts, also in avoiding future difficulty.

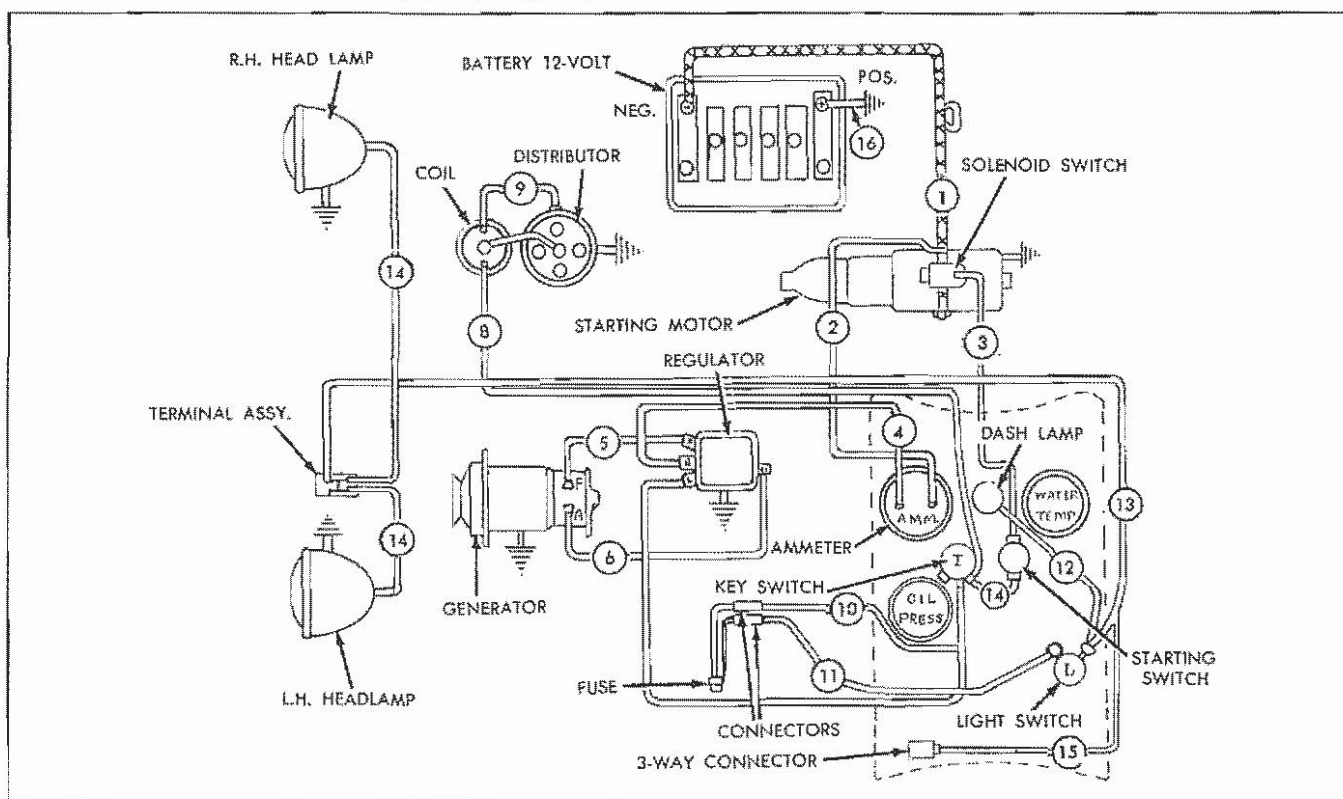
1. Store tractor under cover. If impossible to place tractor under cover, be sure to cover the air stack and exhaust pipe.
2. Drain radiator and engine block.
3. To avoid gum content collections, drain fuel tank.
4. Leave radiator and fuel caps slightly loose to protect gaskets.
5. Remove battery and store in a cool dry place. Keep battery fully charged.
6. Remove nozzles and pour a small amount of motor oil on top of pistons, crank engine over a few times and replace nozzles.
7. Disconnect the fuel line from the main tank and connect it to a clean container of a mixture of rust preventive and perfection kerosene. Mix to a consistency of regular fuel. Operate engine until the entire filtering system and the injection pump are filled with the rust preventive mixture.
8. When tractor is removed from storage it should be serviced throughout, including draining and refilling the engine oil sump with fresh clean oil.

NOTE: If storage procedure is not followed, engine should be started once each three weeks and operated one hour after the engine temperature reaches 170°F.

WIRING DIAGRAM — GASOLINE

By following the diagram the wires may be successfully installed. The various wires are numbered, colors of the wires are given, and the terminals to which the wires are connected are named. Always disconnect the battery ground strap when working on any of the electrical system to prevent short circuits. The electrical system uses a 12 volt battery with the positive terminal grounded.

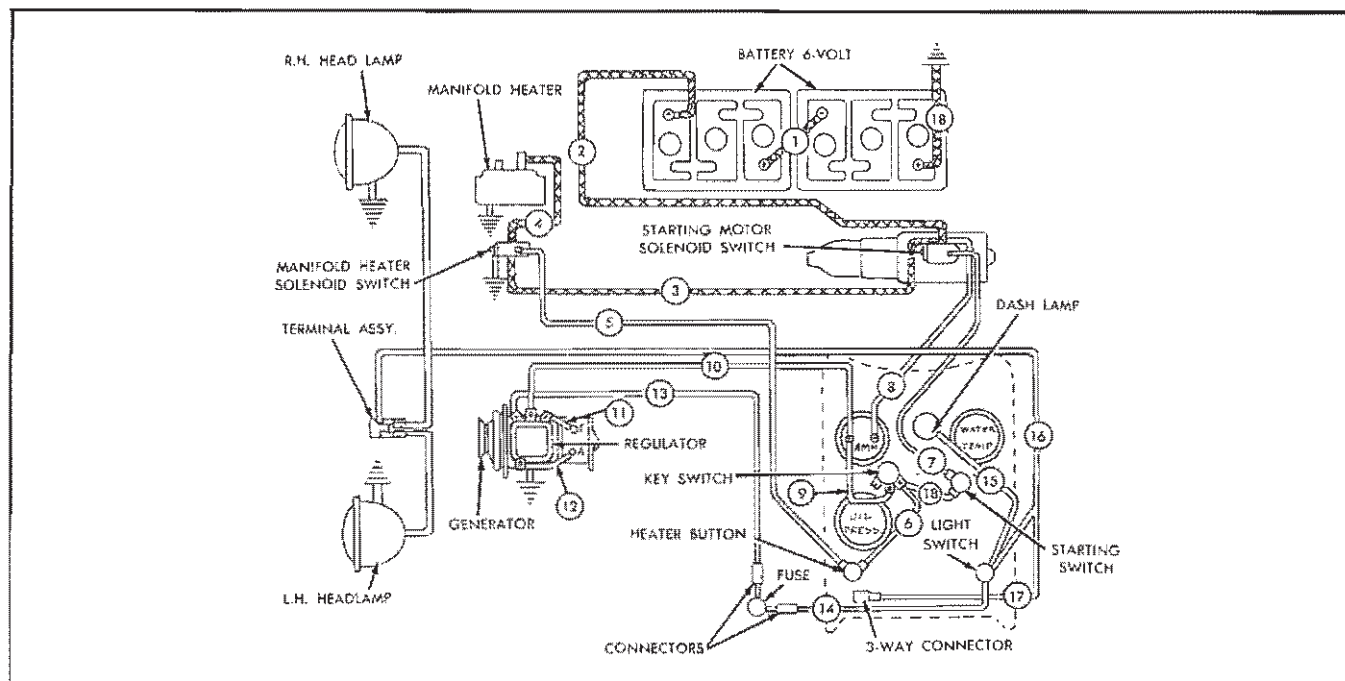
1. Heavy cable from negative terminal of battery to starting motor solenoid switch.
2. Blue wire from starting motor solenoid, switch to positive terminal (charge side) of ammeter.
3. White wire from small terminal of starting motor solenoid switch to push button starting switch.
4. Red wire from negative terminal (discharge side) of ammeter to voltage regulator terminal marked "BAT".
5. Green wire from field terminal "F" of voltage regulator to field terminal "F" (inner terminal) of generator.
6. Brown wire from terminal "G" of voltage regulator to armature terminal "A" (outer terminal) of generator.
7. Black wire from load terminal "L" of
8. Yellow wire from ignition terminal "IGN" of ignition and starting switch to negative terminal of ignition coil.
9. Wire from positive terminal of ignition coil to primary lead terminal of distributor.
10. Green wire from ignition and starting switch terminal "BAT" to light fuse holder.
11. Purple wire from fuse holder to light switch.
12. Wire from dash lamp to light switch terminal with wire adaptor.
13. Orange wire from adaptor terminal of light switch to head lamp terminal connector.
14. Jumper wire from ignition terminal of key switch to push button starting switch.
15. Orange wire from light switch terminal with wire adaptor to rear wiring harness connector. If rear lamps are installed, the wires will be connected to this three-way connector.
16. Battery ground strap from positive terminal of battery to ground. Connect last to avoid danger of short circuit.



WIRING DIAGRAM — DIESEL

By following the diagram the wires may be successfully installed. The various wires are numbered, colors of the wires are given, and the terminals to which the wires are named. Always disconnect the battery ground strap when working on any of the electrical system. The electrical system uses two six volt batteries, connected in series with the positive terminal grounded.

1. Jumper cable connected from the negative terminal of first battery to the positive terminal of second battery.
2. Heavy cable from negative terminal of second battery to starting motor solenoid switch.
3. Heavy cable from starting motor solenoid switch to manifold heater solenoid switch.
4. Heavy cable from manifold heater solenoid switch to manifold heater.
5. Green wire from the small terminal of manifold heater solenoid switch to heater push button switch on instrument panel.
6. Green wire from heater push button switch to "IGN" terminal of starting switch.
7. White wire from push button starting switch to small terminal of starting motor solenoid switch.
8. Blue wire from starting motor solenoid switch to positive terminal (charge side) of ammeter,
9. Red wire from negative terminal (discharge side) of ammeter to "BAT" terminal of starting switch.
10. Red wire from negative terminal (discharge side) of ammeter to "BAT" terminal of voltage regulator.
11. Wire from field terminal "F" of voltage regulator to field terminal of generator.
12. Wire from "GEN" terminal of voltage regulator to armature terminal of generator.
13. Black wire from load terminal "L" on voltage regulator to fuse holder.
14. Black wire from fuse holder to light switch.
15. Wire from dash lamp to wire adaptor of light switch.
16. Orange wire from wire adaptor of light switch to headlamp terminal connector. The headlamp wires are connected to this terminal assembly.
17. Orange wire lead from light switch with a three-way connector, and is used for connecting wires when rear lamps are installed.
18. White jumper wire from ignition terminal of key switch to push button starting switch.
19. Ground strap from positive terminal of first battery to ground. Connect last to avoid danger of short circuits.



PARTS SECTION

PARTS

Order all parts for this machine from your local Allis-Chalmers Dealer.

HOW TO ORDER PARTS

When ordering parts for your tractor, supply the following information:

1. The tractor and engine serial numbers.

The serial number of your tractor is located at the left front end of torque housing.

The engine serial number is located on the left hand side of the engine block.

2. State the common name of the part you wish to order, or a description of the part and its location on the tractor.

3. Always print your name and post office address, where parts are to be shipped; also specify whether material is to be shipped by freight, express or parcel post.

IMPORTANT

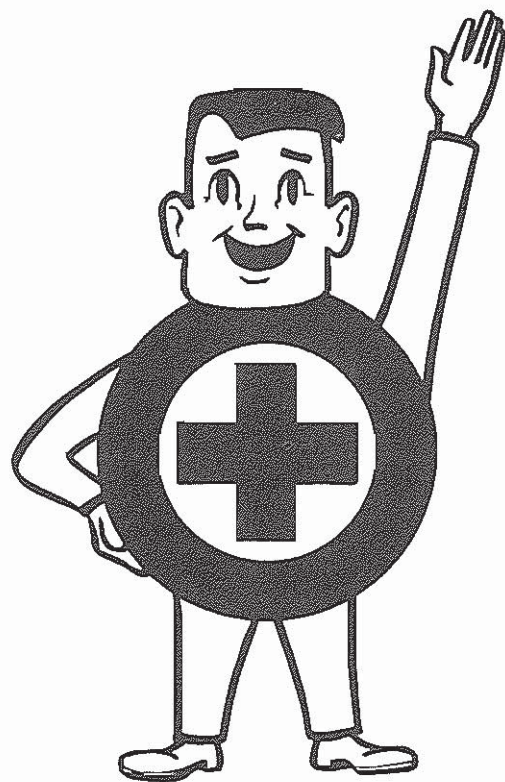
Unless claims for shortages or errors are made immediately upon receipt of goods they will not be considered.

When broken goods are received, a full description of the damage should be made by the carrier agent on the freight bill. If this description is insisted upon full damage can always be collected from the transportation company.

No responsibility is assumed for delay or damage to merchandise while in transit. Our responsi-

bility ceases upon delivery of shipment to the transportation company, from whom a receipt is received showing that shipment was in good condition when delivered to them; therefore, claims (if any) should be filed with the transportation company and not with Allis-Chalmers Manufacturing Company.

The right is reserved to change the construction or material of any parts where it seems desirable to do so, without incurring the obligation of installing such changes on units already delivered.



"YES, MR DEALER, I'VE
STUDIED THE MANUAL"