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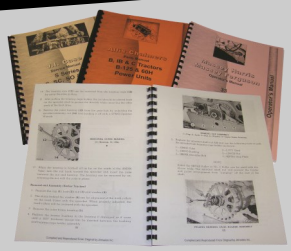

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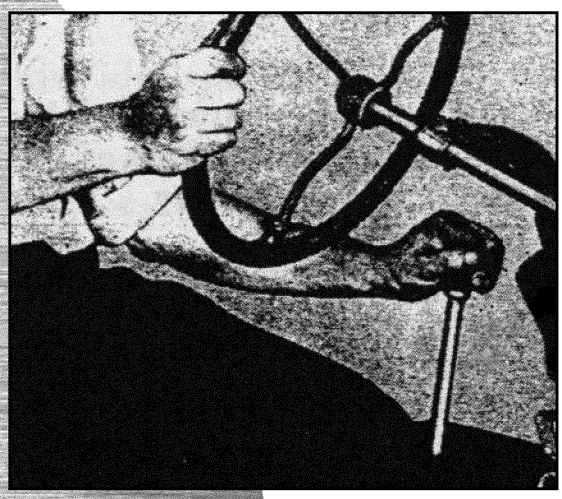


Massey Harris
Massey Ferguson

Operator's Manual

MF1030 & MF1035

Operator's Manual

MH-O-MF1030+

NOTES

MASSEY HARRIS
MASSEY FERGUSON

OPERATOR'S MANUAL

MF 1030, MF 1035

SAFETY PRECAUTIONS

The safety of the operator is one of the main concerns in designing and developing a new Tractor. Designers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling machinery and implements. You, the operator, can avoid many accidents by observing the following precautions.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with the safety shield removed. However, a machine should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace shield prior to machine operation.

Replace any Caution, Warning or Instruction Decal that is not readable or is missing. Location of such decals is indicated within this section of the manual.

GENERAL SAFETY RULES

- Keep all shields in place.
- DO NOT bypass starter safety switches. Consult M-F Dealer if starter safety switches should malfunction.
- DO NOT start Tractor unless seated in operator's seat. Do not attempt to start while standing alongside.
- On Tractors equipped with safety frame, use the seat belt. Do not use seat belt without safety frame.
- Loose clothing which can catch in moving parts should be avoided.
- Only you, the operator, should be permitted on Tractor when it is in operation. Never allow anyone to ride on Tractor or equipment.
- To avoid rearward upset, do not pull by hitching to axle housing or any other point except an approved M-F drawbar.
- Be sure hydraulic connections are tight. Before disconnecting lines and hoses of Tractor hydraulic system, be sure to relieve all pressures. Escaping hydraulic oil under pressure can cause injury.
- Do not weld, bend, or straighten a safety frame. To do so reduces the protection it offers.
- Fluid escaping under pressure from a very small hole can be almost invisible. Use a piece of cardboard or wood to search for possible leaks. NEVER use your hands to detect pressure leaks.
- If you are injured by escaping fluids, see a doctor at once. Serious infection or reactions can develop if proper medical treatment is not administered immediately.
- When driving Tractor and implement, on a road or highway, whether at night or during the day, use flashing amber warning lights and SMV Identification Emblem. The use of flashing amber lights is acceptable in most localities, however, some localities may prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- As a safety precaution, it is recommended that a fire extinguisher be carried on the Tractor at all times.
- Under NO circumstances should ether or other starting fluid be used to assist with engine starting. Use of starting fluid on engine equipped with glow plugs can cause severe engine and possible personal injury.

BEFORE OPERATING

- Check operation of controls before starting Tractor. Make sure brakes are adjusted evenly.
- Never attempt to start engine or operate any Tractor control unless seated in operator's seat.
- Make sure all on-lookers are in a safe position before starting to operate.
- When using certain mounted implements, add front or rear weights as recommended by M-F Dealer.
- Make sure all shields are in place before operating equipment.

DURING OPERATION

- Use care and caution when transporting on rough road or highway.
- Keep a firm grip on the steering wheel at all times.
- Latch brake pedals together when transporting.
- Reduce speed of Tractor on curves, rough ground and hillsides to reduce chance of overturning.
- Sudden uphill turns on steep slopes should be avoided.
- Always keep Tractor in gear to provide engine braking when going down steep hills or grades. Do not depress clutch pedal and allow Tractor to coast.
- Before dismounting from Tractor, place gearshift levers in lowest gear, engage parking brake, and shut engine off. Remove key from ignition switch.
- Disengage PTO, stop Tractor engine and remove key before:
  - Connecting or disconnecting PTO shaft.
  - Making adjustment to PTO drive line or PTO driven machine.
  - Cleaning, unclogging or servicing PTO driven machine.
- Always use head lamps and work lamps for night work.

AFTER OPERATION

- Do not leave an implement in raised position when not in use. Lower implement to ground.
- Always remove key from ignition switch before leaving Tractor unattended.

SERVICE PRECAUTIONS

- Never leave engine running while working on Tractor, or while equipment is being adjusted, unless specifically recommended.
- Never refuel Tractor when engine is running. Do not smoke while filling fuel tank or servicing fuel system.
- Add coolant to radiator only when engine is stopped or idling slowly. Turn radiator cap slowly to relieve pressure when removing cap.
- Before making repairs in electrical system, disconnect grounded (-) cable. This prevents sparks which create a dangerous fire hazard.
- Avoid sparks around battery that has been recently charged, as hydrogen gas is given off and may explode.
- Exercise care when working on or near battery as battery contains sulfuric acid electrolyte.
- Never use makeshift jacks when adjusting tread width settings.
- When preparing calcium choride solution for liquid tire ballast, never pour water on calcium chloride. A chlorine gas is generated which can be explosive. This can be avoided by slowly adding the calcium chloride flakes to the water and stirring until dissolved.
- Periodically check all nuts and bolts for tightness, especially wheels and hubs.
- Do not use Tractor hydraulic system as a support for working on mounted implements. Block up implement securely before working under it.

REMEMBER — "SAFETY" IS ONLY A WORD UNTIL IT IS PUT INTO PRACTICE.

Look for this symbol to point out important safety precautions. It means — ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.

⚠ WARNING

AVOID SERIOUS INJURY FROM A RUNAWAY MACHINE.

1. **DO NOT START ENGINE BY SHORTING ACROSS STARTER TERMINALS.**
2. **BYPASSING SAFETY START CIRCUIT MAY CAUSE THE MACHINE TO START AND MOVE IF LEFT IN GEAR.**
3. **START ONLY FROM OPERATOR'S SEAT.**

Located on starter solenoid.

⚠ CAUTION

540 P.T.O. RPM

TO AVOID POSSIBLE SERIOUS INJURY, KEEP ALL SHIELDS IN PLACE WHEN USING P.T.O. STAY CLEAR OF ROTATING P.T.O. SHAFTS. POSITION DRAWBAR HITCH HOLE 14 INCHES (356mm) FROM END OF P.T.O. SHAFT. CONSULT OPERATOR'S MANUAL FOR FURTHER INSTRUCTIONS.

773 285 MI

Located on ROPS, adjacent to rear PTO shield.

⚠ CAUTION

REFER TO OPERATOR'S MANUAL FOR COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS

1. KEEP ALL SHIELDS IN PLACE
2. MAKE CERTAIN EVERYONE IS CLEAR OF TRACTOR BEFORE STARTING ENGINE OR OPERATING
3. STOP ENGINE, LOWER EQUIPMENT TO GROUND AND SET PARKING LOCK OR BRAKE BEFORE DISMOUNTING OR SERVICING TRACTOR
4. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER DRIVEN PARTS
5. KEEP OTHERS OFF TRACTOR AND EQUIPMENT
6. REDUCE SPEED WHEN MOVING OVER ROUGH TERRAIN OR MAKING SHARP TURNS
7. COUPLE BRAKE PEDALS TOGETHER FOR TRANSPORT AND ENSURE EVEN BRAKE PEDAL ADJUSTMENT
8. USE SMV EMBLEM AND FLASHING WARNING LIGHTS ON PUBLIC ROADWAYS UNLESS PROHIBITED BY LAW

3283 438 M1

Located on top of left fender.

⚠ CAUTION

TO AVOID POSSIBLE INJURY OR PROPERTY DAMAGE, NEVER START ENGINE OR OPERATE ANY TRACTOR CONTROL UNLESS SEATED IN OPERATOR'S SEAT.

Located adjacent to transmission shift levers.

⚠ CAUTION

HOT PRESSURIZED SYSTEM
TO PREVENT BURN INJURY, REMOVE CAP SLOWLY.

2753 049 M1

Located on air baffle near radiator cap.

⚠ CAUTION

TO AVOID POSSIBLE TRACTOR OVERTURN, PULL ONLY FROM DRAWBAR OR LOWER LINKS OF THREE POINT HITCH.

2752 579 M1

Located above right lift arm, on rear of Tractor.

⚠ CAUTION

1. ON TRACTORS EQUIPPED WITH A SAFETY FRAME USE THE SEAT BELT AT ALL TIMES AND KEEP IT ADJUSTED SNUGLY.
2. DO NOT WELD, DRILL, BEND OR STRAIGHTEN SAFETY FRAME. DO NOT USE A DAMAGED SAFETY FRAME. TO DO SO REDUCES THE PROTECTION IT OFFERS.

773 385M1

Located on ROPS tube.

⚠ CAUTION

ALWAYS USE POSITION CONTROL WHEN ATTACHING OR DETACHING IMPLEMENTS.

Located on right-hand fender when draft control is installed.

⚠ CAUTION

BELT FOR USE ON TRACTORS ONLY AND SHOULD NOT BE USED UNLESS TRACTOR IS ALSO EQUIPPED WITH ROLL-OVER PROTECTION

Located on seat belt.

⚠ WARNING

STAY CLEAR OF FAN WHILE ENGINE IS RUNNING

539 531 M2

Located each side of engine, adjacent to fan.

IMPORTANT DIESEL FUEL PRECAUTIONS

THE FUEL INJECTION EQUIPMENT IS DESIGNED FOR EFFICIENCY, DURABILITY AND LONG LIFE. HOWEVER IT CAN BE SERIOUSLY DAMAGED BY WATER, SEDIMENT OR INCORRECT FUEL. THE EXTENT OF TROUBLE-FREE OPERATION AND THE ACTUAL LIFE OF THE COMPONENTS WILL DEPEND ON THE CARE GIVEN THE SYSTEM.

READ THE INFORMATION LISTED ON THIS PAGE THOROUGHLY AND ADOPT THE RECOMMENDED PRACTICES. ADHERENCE TO THESE PRACTICES WILL ASSURE ECONOMICAL, TROUBLE-FREE OPERATION AND SATISFACTION WITH A DIESEL TRACTOR.

1. Select a REPUTABLE SUPPLIER and buy only CLEAN diesel fuel which meets the REQUIRED SPECIFICATIONS.
2. Keep fuel clean by adhering to the following practices.
   a. Store fuel in tanks equipped with a WATER TRAP. DRAIN TRAP REGULARLY. Do not store diesel fuel in galvanized tanks.
   b. If it is necessary to store the fuel in drums, make sure they are free of WATER, GASOLINE AND SEDIMENT. Keep drums under cover away from direct sunlight and rain. Keep plugs in place and tight.
   c. Once in place, avoid moving the tank or drum.
   d. Do not use the last few gallons of fuel from the storage tank, as it is likely to contain water and sediment.
   e. Handle fuel as little as possible. AVOID USING CANS AND FUNNELS TO TRANSFER FUEL, AS THEY ARE DIFFICULT TO KEEP CLEAN.
3. Fill Tractor fuel tank at the end of each day's operation to prevent condensation.
4. Replace the fuel filters at the recommended hourly intervals. DIRTY FUEL FILTERS WILL REDUCE POWER. Make sure to CAREFULLY CLEAN the outside of the filters before removing. USE ONLY GENUINE M-F FILTER ELEMENTS.
5. If the injection pump, injectors or the fuel system should require adjustment or servicing. CALL YOUR MASSEY-FERGUSON DEALER. He has the special training and tools required to do the job properly.

FIG. 1: Access to fuel tank filler is gained by opening hinged door in hood, forward of the instrument panel and by removing filler cap, 1. Fine mesh screen, 2, is provided to strain coarse impurities from fuel and must be in place when tank is refilled.

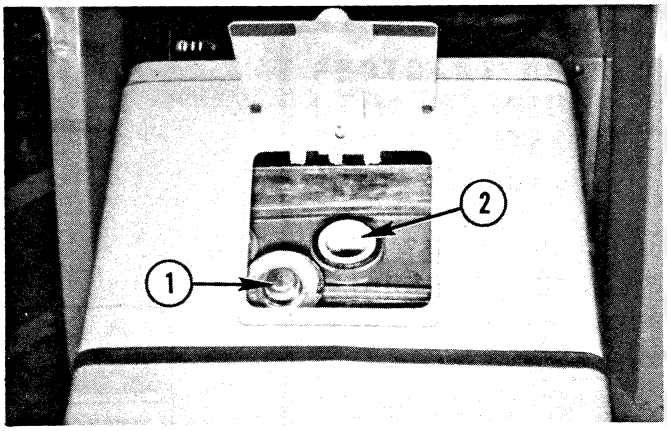


FIG. 1

FUEL SPECIFICATIONS

Diesel fuels are classified as either a No. 1 (No. 1-D) or No. 2 (No. 2-D) fuel. The grade No. 1 fuel, is recommended for service when the air temperature is below 32°F (0°C). The grade No. 2 fuel, which will produce more work per gallon; is recommended for service when the air temperature is 32°F (0°C) or above. See Chart for fuel requirements.

LIMITING REQUIREMENTS FOR DIESEL FUEL OILS

Grade of Diesel Fuel Oil	Flash Point deg F (deg C)	Pour Point deg F (deg C)	Water and Sediment, volume percent	Carbon Residue on, 10 percent Residuum, percent	Ash weight percent	Distillation Temperatures, deg F (deg C)		Viscosity at 100 F (37.8 C)		Sulfur weight percent	Copper Strip Corrosion	Cetane Number[e]
						90 percent Point		Kinematic, cSt (or SUS)				
	Min	Max	Max	Max	Max	Min	Max	Min	Max	Max	Max	Min
No. 1-D A volatile distillate fuel oil for engines in service requiring frequent speed and load changes.	100 or legal (37.8)	[b]	0.05	0.15	0.01	. . .	550 (287.8)	1.4	2.5 (34.4)	0.50 or legal	No. 3	40[f]
No. 2-D A distillate fuel oil of lower volatility for engines in industrial and heavy mobile service.	125 or legal (51.7)	[b]	0.05	0.35	0.01	540[c] (282.2)	640 (338)	2.0[c] (32.6)	4.3 (40.1)	0.50[d] or legal	No. 3	40[f]

a To meet special operating conditions, modifications of individual limiting requirements may be agreed upon between purchaser, seller, and manufacturer.
b For cold weather operation, the pour point should be specified 10°F (5.6°C) below the ambient temperature at which the engine is to be operated except where fuel oil heating facilities are provided.
c When pour point less than 0°F (-17.8°C) is specified, the minimum viscosity shall be 1.8 cSt (32.0 SUS) and the minimum 90 percent point shall be waived.
d In countries outside the U.S.A., other sulfur limits may apply.
e Where cetane number by Method D 613, is not available, ASTM Method D 976. Calculated Cetane Index of Distillate Fuels[2] may be used as an approximation. Where there is disagreement, Method D 613 shall be the referee method.
f Low atmospheric temperatures as well as engine operation at high altitudes may require use of fuels with higher cetane ratings.

TABLE OF CONTENTS

TRACTOR IDENTIFICATION

Each M-F Tractor is identified by means of a Tractor serial number. As a further identification, engine and transmission are provided with a serial number.

TO ENSURE PROMPT, EFFICIENT SERVICE WHEN ORDERING PARTS OR REQUESTING REPAIRS FROM AUTHORIZED M-F DEALER, RECORD THE SERIAL NUMBERS IN SPACES PROVIDED.

TRACTOR SERIAL NUMBER

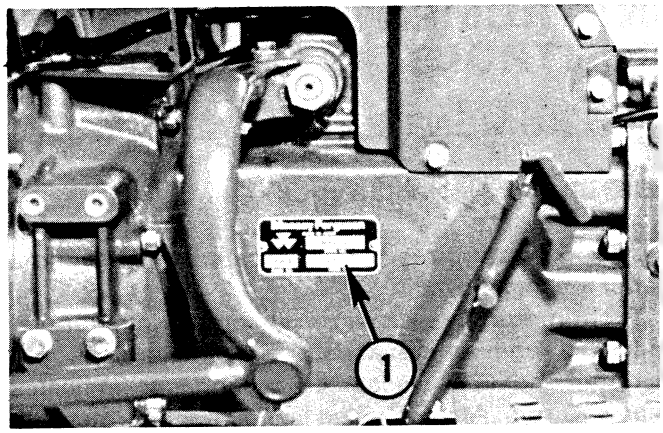


FIG. 2

FIG. 2: Serial number, 1, located on left side of Tractor below instrument panel and dash.

ENGINE SERIAL NUMBER

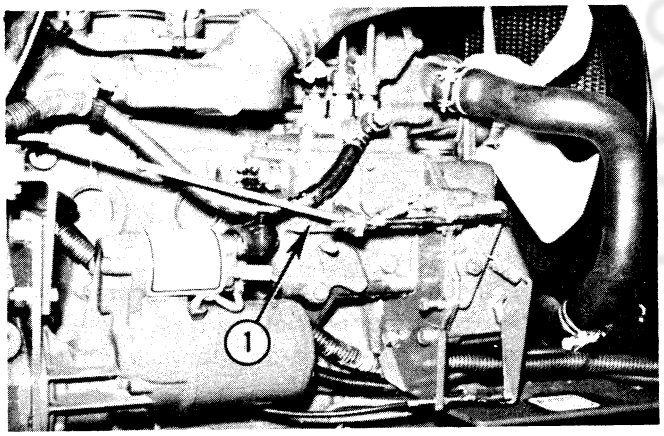


FIG. 3

FIG. 3: Engine serial number, 1, stamped in right side of engine block.

CHASSIS SERIAL NUMBER

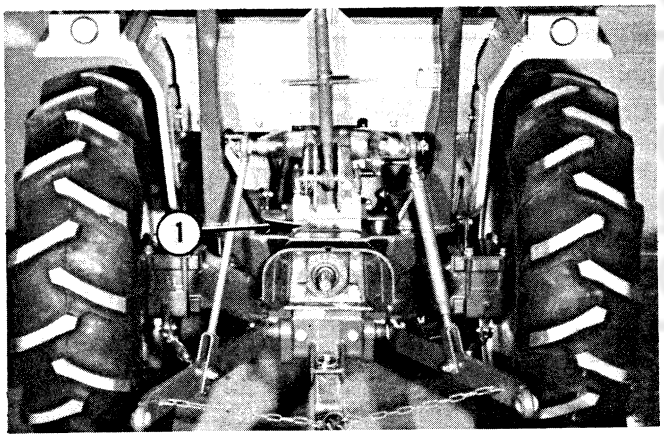


FIG. 4

FIG. 4: Chassis serial number, 1, stamped on rear of axle center housing.

NOTE: Reference to left-hand and right-hand used throughout this manual refers to the position when seated in operator's seat, facing forward.

Information in this manual applies to both M-F 1030 and M-F 1035 Tractors unless indicated otherwise. Appearances may vary slightly between models and variances in standard equipment (power steering, draft control etc.).

INSTRUMENTS & CONTROLS

INSTRUMENT PANEL

Instrument Panel Gauges

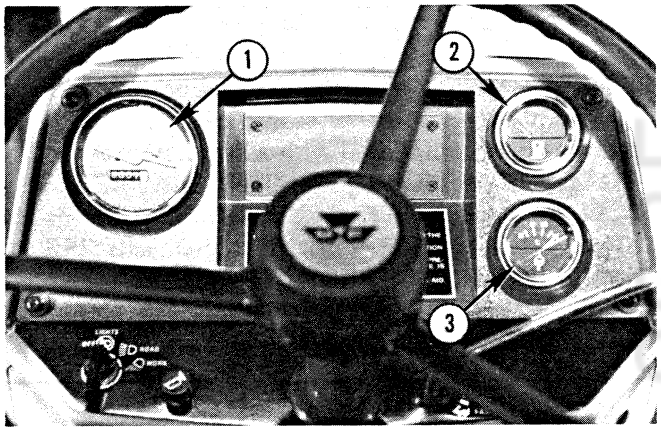


FIG. 5

FIG. 5: The three gauges located in instrument panel are as follows:

Tachometer, 1 — Lower scale on tachometer dial indicates engine crankshaft rpm (revolutions per minute) and upper scale on tachometer indicates rear PTO rpm. Also provided is a digital hourmeter to assist with Tractor maintenance intervals.

Fuel Gauge, 2 — Indicates level of fuel in fuel tank.

Temperature Gauge, 3 — Indicates temperature of engine coolant. Temperature gauge is calibrated in degrees centigrade (°C). Should overheating be indicated (above 100°C) shut off engine, allow it to cool and investigate cause of overheating.

NOTE: When ignition switch is turned to off, fuel gauge, 2, will indicate "E" and temperature gauge, 3, will indicate "115". This is normal.

Instrument Panel Switches

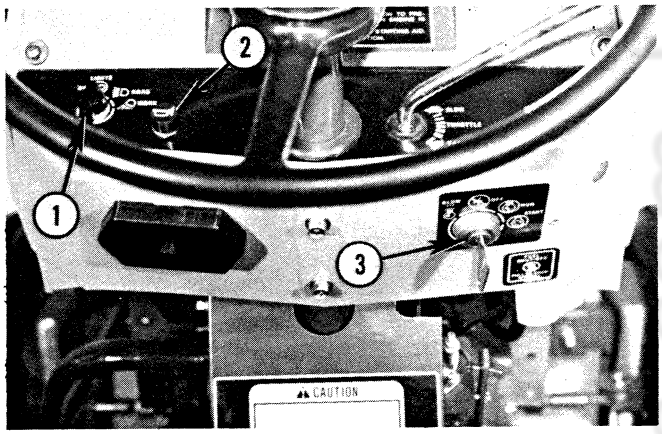


FIG. 6

FIG. 6: The following switches are located in or adjacent to the instrument panel:

Light Switch, 1 — Three-position switch with positions as follows:

OFF — All light circuits turned off.
ROAD — All lights (except accessory rear work light) including flashing warning lights and rear taillight.
WORK — Grille head lights, instrument lights, and rear work light (accessory) only.

Horn Switch, 2 — Depressing switch button will sound horn.

Ignition Switch, 3 — Incorporates the four following positions:

OFF — All circuits off. Key can be removed.
RUN — Power supplied to all circuits. Normal operating position.
START — Starter activated. This position spring-loaded to "run".
GLOW — Energizes glow plugs to preheat combustion chambers. Spring-loaded to "off".

NOTE: Ignition switch, 3, must be turned to "run" before any circuits (including lights and horn) will operate. Transmission shift lever must be selected to "S", rear PTO control lever must be off, and front PTO switch (accessory) must be off before engine can be started.

FIG. 7: Front PTO control switch (accessory). Engagement and disengagement of the accessory front PTO is controlled by switch, 1, located to the lower right of instrument panel. Raising switch lever will engage the front PTO clutch and lowering switch lever will switch off front PTO clutch.

NOTE: Reduce engine speed prior to engagement of front PTO. Front PTO switch must be off before the engine can be started.

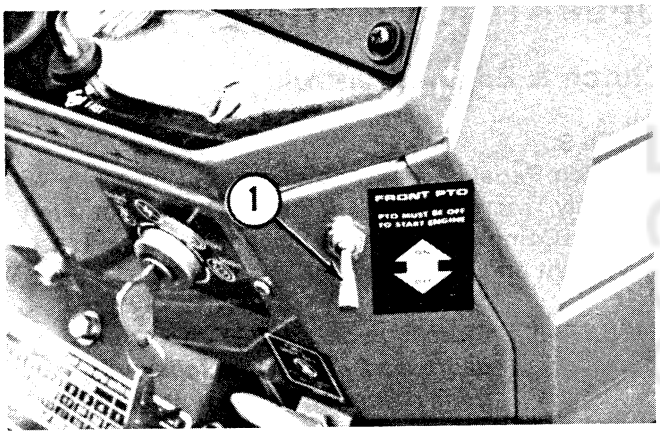


FIG. 7

Indicator Light Cluster

FIG. 8: The indicator light cluster in instrument panel provides the following functions:

Charge Indicator Lamp, 1 — Will light when ignition switch is turned "on" and will extinguish when engine is started and engine speed increased. Should lamp remain lit with engine running, stop engine and check for loose wiring, disconnections, etc.

Engine Oil Pressure Lamp, 2 — Will light when ignition switch is turned on and will extinguish when engine is started, indicating normal engine lubrication. If lamp should illuminate when engine is running, shut off engine immediately and investigate cause of insufficient engine oil pressure.

Glow Plug Indicator Lamp, 3 — Will light when ignition switch is turned to "Glow" to indicate engine preheating.

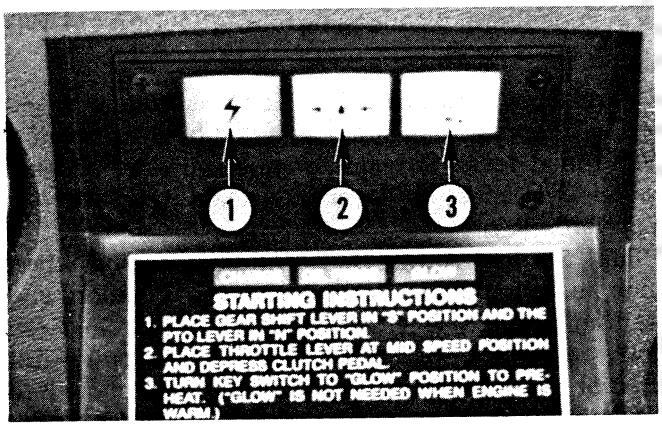


FIG. 8

OPERATING CONTROLS

Clutch & Engine Controls

FIG. 9:

Clutch Pedal, 1 — When depressed part way will stop only Tractor movement, but PTO will continue to operate. Completely depressing pedal will stop Tractor movement and PTO operation.

IMPORTANT: Clutch pedal MUST be completely depressed, prior to the following operations otherwise damage to gears could occur.

- Shifting transmission shift lever.
- Shifting range (Low-High) lever.
- Shifting reduction (Reduction-Standard) lever.
- Engaging or disengaging rear PTO shift lever.
- Engaging differential lock.
- Engaging or disengaging four-wheel drive (4-WD models only).

Hand Throttle Lever, 2 — Controls engine speed and will remain in position selected by the operator. With hand lever forward, engine will idle. Engine speed increases as lever is pulled progressively rearward.

Fuel Shutoff Knob, 3 — Will stop engine when knob is pulled out. Normal running position and starting position is when knob is pushed in fully. Knob has a lock feature to retain it in the pulled out position. Pushing knob will release it and allow it to be positioned into the run position.

NOTE: Turning ignition switch to off will not stop engine. Shutoff knob must be pulled out to the "no fuel position to stop engine.

Foot Throttle, 4 — Will override engine speed setting of the hand throttle lever for increased engine speed. When foot throttle is released, engine speed returns to the hand throttle lever setting.

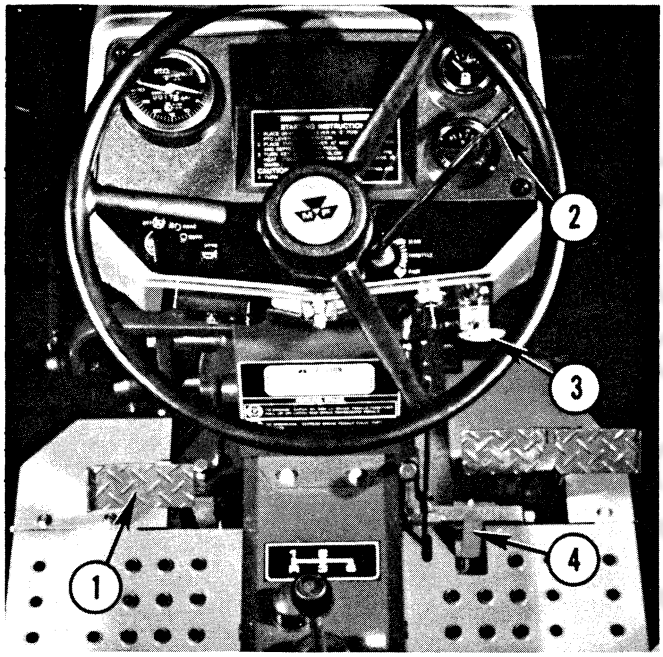


FIG. 9

Brake Controls

FIG. 10: The brakes on each rear axle are controlled as detailed:

Inner Brake Pedal, 1 — Depressing pedal will mechanically actuate the brake on the left rear axle to assist with left-hand turns.

Outer Brake Pedal, 2 — Depressing pedal will mechanially actuate the brake on the right rear axle to assist with right-hand turns.

Pedal Latch, 3 — Latches both brake pedals together for high speed operation or when transporting Tractor to apply both brakes simultaneously.

Parking Brake Latch Rod, 4 — Engages rachet mechanism to lock brake pedals downward for parking Tractor.

To engage parking brake, latch brake pedals together using latch, 3. Pull upward on latch rod, 4, and while holding latch rod in this position firmly depress both brake pedals to lock in the "applied" position.

To release parking brake, sharply depress brake pedals. Latch will automatically release and brake pedals will return to the upward position.

CAUTION: Do not use individual wheel brakes for transporting or operating at high speed. Always latch pedals together using pedal latch, 3. Make sure brakes are adjusted evenly.

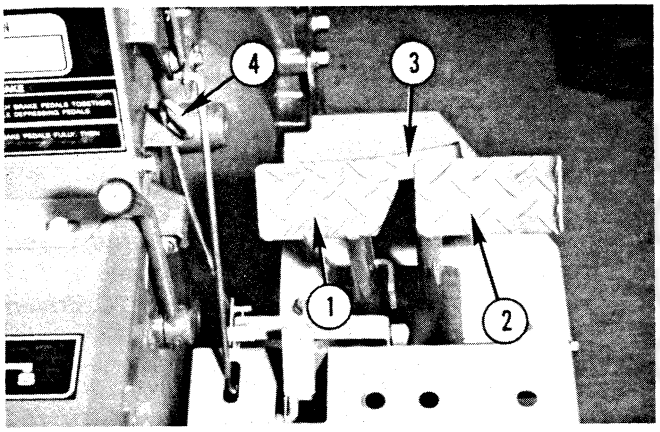


FIG. 10

Gear Shift Levers

FIG. 11: Shift levers, 1, 2 and 3, used together provide a total of twelve forward speeds and four reverse speeds.

Transmission Shift Lever, 1 — Allows selection of three forward gears and one reverse gear provided by transmission. Shift pattern identified on transmission top cover. Each of these gears are synchronized to permit gear changing with Tractor in motion.

NOTE: A "S" or start position for transmission shift lever is also provided. Lever, 1, must be in this position to actuate safety switch to permit operation of starter motor.

Range Shift Lever, 2 — Allows selection of a high or low gear range. Lever rearward is low range, and forward position is high range.

Reduction Shift Lever, 3 — Allows selection of "underdrive" gear speeds when an extremely slow ground speed is required (as when tilling, trenching, etc.). Lever forward is standard (normal) speed and rearward is reduction speed.

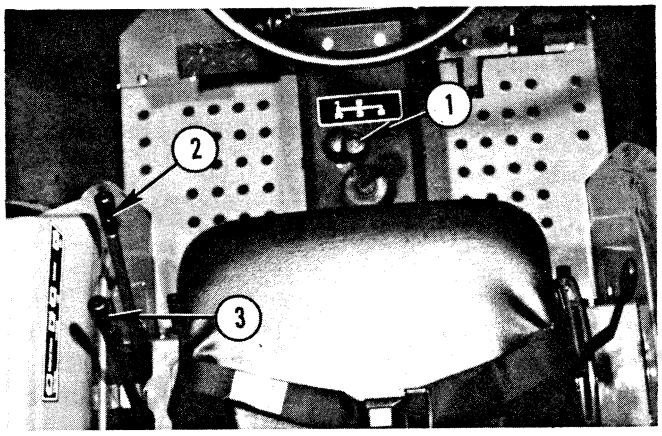


FIG. 11

NOTE: Before shifting range shift lever, 2, or reduction shift lever, 3, clutch pedal must be depressed and all movement of Tractor must cease prior to shifting gears. Transmission shift lever may be shifted with Tractor in motion provided the clutch pedal is depressed.

Rear PTO Shift Lever

FIG. 12: PTO shift lever, 1, controls engagement and disengagement of rear PTO on Tractor. When lever is rearward PTO is engaged (on) and when lever is pushed forward PTO is in off position.

IMPORTANT: Before shifting rear PTO shift lever, clutch pedal must be depressed and all movement of Tractor and PTO driven equipment must cease.

Lever, 1, must be in off position (forward) to actuate safety switch and permit operation of starter motor.

FIG. 12

Differential Lock Pedal

FIG. 13: Differential lock pedal, 1, when depressed, mechanically locks both rear axles together to provide equal traction to both rear wheels. This is especially important when operating in loose soil or slippery conditions.

IMPORTANT: Clutch pedal should be depressed and all rear wheel movement should cease before engaging differential lock.

CAUTION: When differential lock is engaged, steering ability of Tractor will be greatly reduced. Disengage before attempting a turn.

To disengage differential lock, release foot pedal. If lock does not immediately disengage, tap right and left brake pedals alternately until pedal is released.

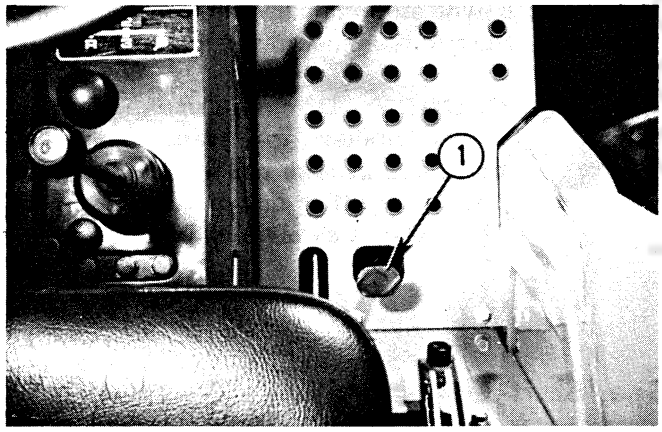


FIG. 13

Four-Wheel Drive Shift Lever

FIG. 14: Four-wheel drive models only. Shift lever, 1, engages and disengages drive for the front axle. Lever downward, the front axle (4-WD) is engaged. Lever upward, the front axle is disengaged and power is only available to rear axle.

IMPORTANT: Be sure to disengage clutch and allow all Tractor motion to stop before engaging or disengaging four-wheel drive.

Do not use 4-WD on hard surface as the front tires "over speed" slightly as compared to rear tires to assist in steering. Rapid wear of front tires will be experienced and possible drive line damage could occur if 4-WD is operated for prolonged periods on hard surface.

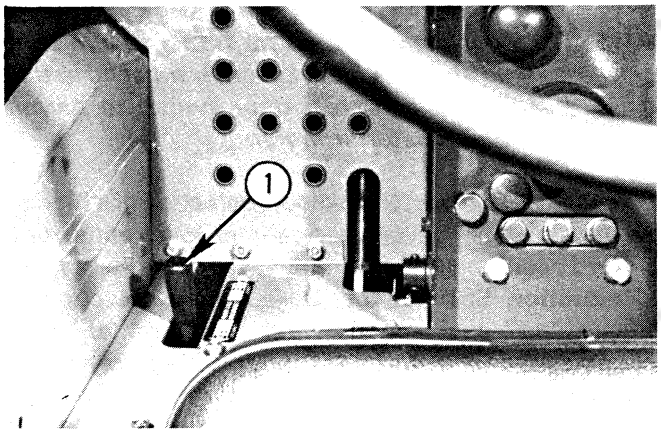


FIG. 14

Seat Adjustment

FIG. 15: Lifting seat latching lever, 1, will release seat latch permitting seat to be adjusted fore and aft. Ensure latching mechanism and lever are secure before operating Tractor after an adjustment has been made.

Seat can be adjusted for operator weight by turning the knob, 2, below the front of the seat. Turning the knob clockwise will provide a firmer ride. Turning it counterclockwise a softer ride.

Seat can be tipped forward when Tractor is not used.

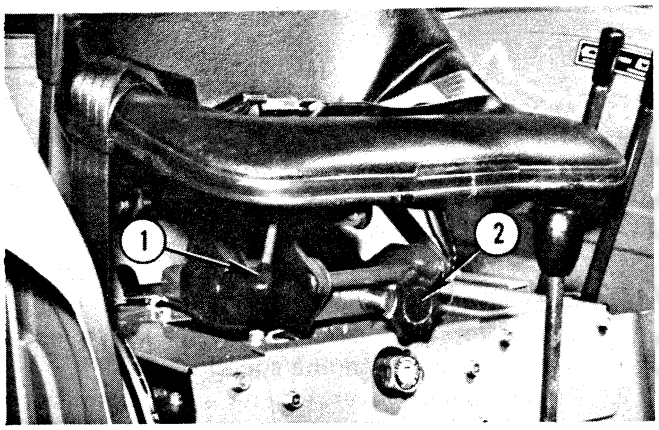


FIG. 15

Three-Point Hitch Control Lever(s)

CAUTION: If draft control is also installed, always use position control lever (draft lever fully forward) when attaching or detaching implements.

FIG. 16: Position control lever, 1, adjust height of three-point hitch on rear of Tractor. The lever also includes a FLOAT position. Setting lever in a particular position will set the height respectively. Full up position is with lever fully rearward and full down position (FLOAT) is with lever completely forward.

If draft control is installed, a second control lever (not shown) will be located to the inside of position control lever, 1. Draft control lever allows the hydraulic system to be operated in draft control mode. Draft control maintains a working depth and transfers weight for added traction, when using ground-engaging implements such as plows, cultivators, etc.

NOTE: When starting engine, ensure control lever(s) are all the way forward. This prevents abnormal load on starter due to three-point hitch trying to raise when engine is cranked.

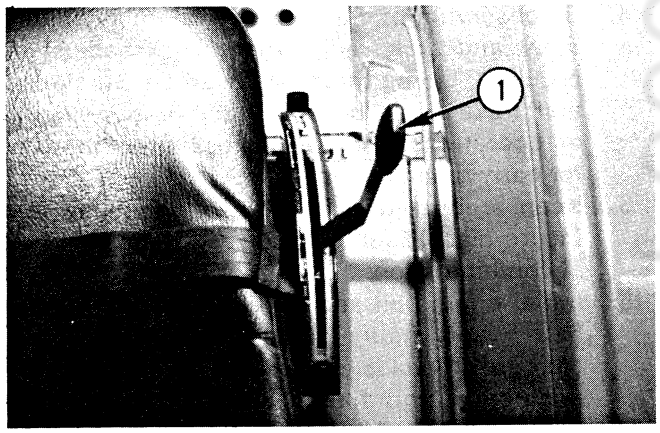


FIG. 16

Lowering Rate Control Knob

FIG. 17: Lowering rate knob, 1, adjust "rate of descent" of three-point linkage. Turning knob clockwise will increase lowering time and counterclockwise will decrease lowering time. Turning knob fully clockwise will lock implement (or hitch) in raised position for transport.

CAUTION: When working near or under mounted equipment, securely block in position and turn lowering rate clockwise to "stop".

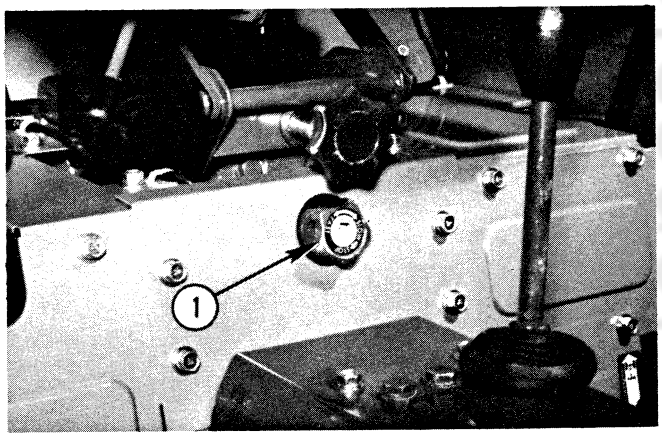


FIG. 17

OPERATION

BREAK-IN PERIOD

Operation of Tractor within the first fifty hours can be a major factor in determining the performance and life of the engine and Tractor.

1. The engine may be operated at full rpm but excessive load should be avoided. If engine begins to "lug", select a lower gear speed to maintain higher engine speed.
2. Check coolant lever, engine and transmission oil levels, and power steering reservoir level (as applicable) frequently during break-in period. Watch for evidence of leakage of above fluids. Replenish levels as required and repair any leaks that may have formed.
3. Tighten any nuts, bolts, or screws that may have loosened and retighten as necessary. This is especially true of wheel retaining bolts. **All fasteners on this Tractor are metric.**
4. Be observant of clutch pedal free-play adjustment and brake adjustment and readjust as required. Lining materials used on clutch disc and brake discs "bed in" in the first few hours of operation and may necessitate the need for early readjustment.
5. Keep area around fuel tank filler clean and insure diesel fuel is of correct grade and free of contamination.
6. Initial engine oil and oil filter change is after first twenty hours of operation. Subsequent change interval is every one hundred hours for engine oil and filter. Refer to "Lubrication & Maintenance" section in this manual.

STARTING

Pre-Start Inspection

Prior to startup of Tractor, a few basic procedures should be followed to ensure Tractor is in operating order to insure life and dependability.

1. Make sure all safety shields are in place and secured properly. Ensure operator is instructed on correct and safe operation of Tractor and related attachments or implements.
2. Check coolant, engine oil, transmission oil and power steering (as applicable) levels and replenish as necessary.
3. Check fan belt tension and adjust as required.
4. Ensure grille, radiator and radiator screen are clear of debris to provide adequate engine cooling.
5. Check operation of clutch, brake, and throttle controls. All controls must operate freely and be adjusted correctly.
6. General inspection of tires, tire pressure and wheel bolt torque. Observe for external signs of leakage and correct before operating Tractor.
7. Check operation of lights and warning flashers. If Tractor is to be transported on public road, ensure slow moving vehicle emblem is in place.

NOTE: Requirements may vary regarding use of warning flashers and slow moving vehicle emblem depending on locality. Check local safety codes.

Normal Starting

CAUTION: Do not attempt to start Tractor unless seated in operator's seat. Do not allow anyone on Tractor except for the operator when Tractor is started or operating.

If engine has not been started for considerable period of time (ex.: Tractor in storage), the engine should be cranked with fuel shutoff knob in no-fuel position to insure engine bearing lubrication.

FIG. 18: To start engine proceed as follows:

1. Latch brake pedals together and apply parking brake lock.
2. Place transmission shift lever in "S" position, rear PTO shift lever in "off" position, and front PTO switch (if equipped) in off position. These actions will actuate the safety switches.
3. Set position control lever (three-point hitch) in the down position.
4. Turn ignition switch to the left to "glow" position for 20-30 seconds.
5. Push fuel shutoff in fully to the run position.
6. Set hand throttle lever to half open throttle position.
7. Turn ignition switch to "start" position. Release switch the moment engine starts.
8. Once engine runs smoothly, set engine speed to approximately 1500 rpm and allow engine to warm for several minutes.

IMPORTANT: Do not crank engine for more than 10 seconds at a time. Allow starter to cool at least one minute between intervals of cranking.

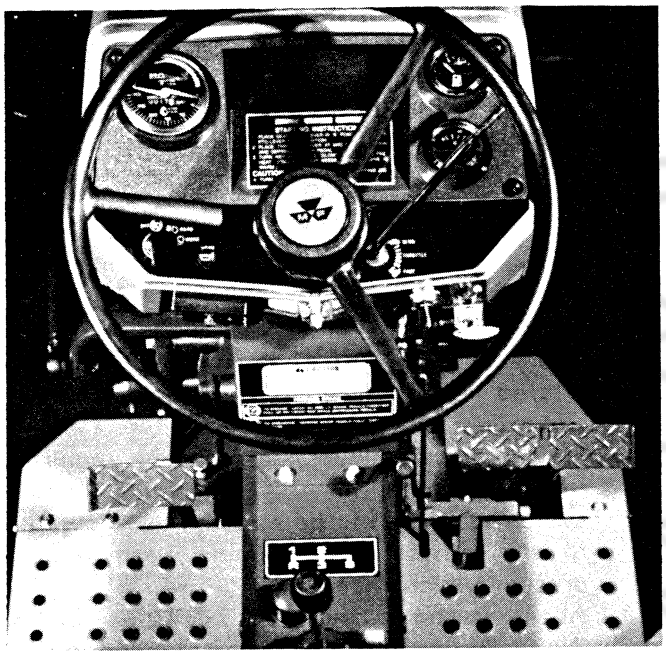


FIG. 18

FIG. 19: *Charge indicator lamp and engine oil pressure lamp indicator light cluster should go out once the engine starts. If either light remains lit, STOP ENGINE IMMEDIATELY and investigate source of problem.*

If the engine will not start and run after several attempts, refer to "Maintenance" section in this manual and bleed any air that may be present in the fuel system.

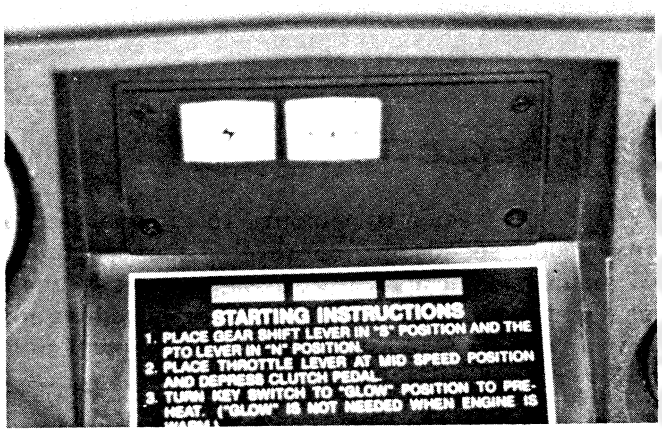


FIG. 19

Restarting Warm Engine

When restarting an engine that is still warm from previous use, the same procedure is used as with "Normal Starting" except step No. 4 may be omitted. Use of glow plugs is not necessary when starting a warm engine.

Cold Weather Starting

Procedure for starting an engine in colder ambient temperatures is identical to "Normal Starting" procedure except for the following:

1. Longer use of glow plugs may be required. Instead of the normal 20-30 seconds, ignition switch may need to be selected to "glow" up to one minute to adequately warm engine precombustion chambers.
2. At temperatures below 32°F (0°C) use of No. (No. 1-D) diesel fuel is recommended due to possible "fuel gelling" characteristics of No. 2 (No. 2-D) fuel at cold ambient temperature.

IMPORTANT

UNDER NO CIRCUMSTANCES SHOULD ETHER OR OTHER STARTING FLUID BE USED TO START ENGINES EQUIPPED WITH GLOW PLUGS, AS SEVERE ENGINE DAMAGE WILL RESULT SHOULD FLUID CONTACT A HOT GLOW PLUG.

If, for some reason, a booster battery be required to start Tractor, ensure booster battery is connected in parallel. When using booster battery and booster cables always connect positive (+) terminals together first. Then install booster cable on booster battery negative (-) terminal and ground final booster cable end on Tractor away from Tractor battery.

GEAR SELECTION

FIG. 20: Tractor is equipped to provide twelve forward gear speeds and four reverse gear speeds.

Transmission shift lever, 1, provides three forward gears and one reverse gear. These gear selections are compounded by range shift lever and reduction shift lever.

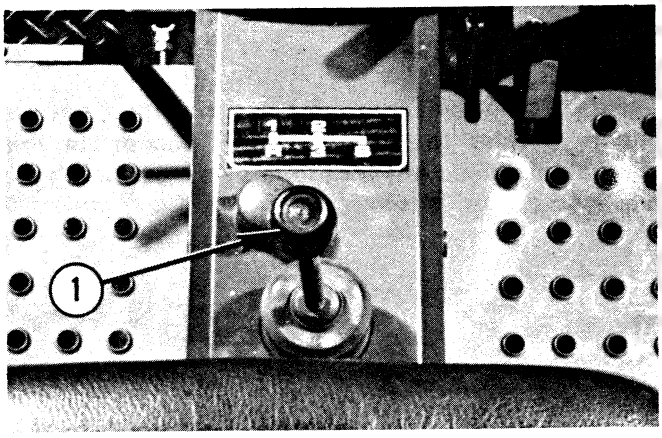


FIG. 20

FIG. 21: Range shift lever, 2, and reduction shift lever, 3, are located along left fender. These levers together provide four ranges in each transmission gear speed. These levers each offer major changes in ground speed.

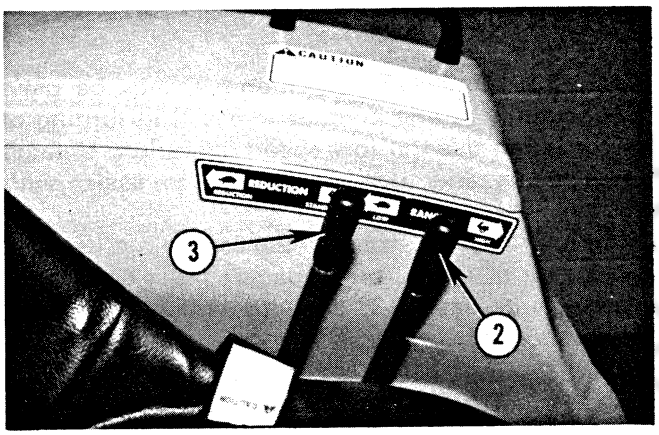


FIG. 21

FIG. 22: Arrangement of gears, in order from slow to fast, are as follows:

Shift Lever Position			Ground Speed*	
Reduction	**Range**	**Trans.**	**MPH**	**KPH**
FORWARD				
Reduction	Low	1	0.4	0.7
Reduction	Low	2	0.6	1.0
Reduction	Low	3	0.8	1.3
Reduction	High	1	1.0	1.5
Reduction	High	2	1.4	2.3
Reduction	High	3	2.0	3.2
Standard	Low	1	2.3	3.8
Standard	Low	2	3.5	5.6
Standard	Low	3	4.8	7.7
Standard	High	1	5.5	8.8
Standard	High	2	8.2	13.2
Standard	High	3	11.2	18.1
REVERSE				
Reduction	Low	R	0.5	0.8
Reduction	High	R	1.2	2.0
Standard	Low	R	3.0	4.8
Standard	High	R	7.0	11.2

**Ground speed for M-F 1030 Tractor indicated at 2500 engine rpm with 11.2-24 agricultural type rear tires. Speed chart on Tractor will vary with M-F 1035 Tractor and with turf tires. Refer to ground speed chart on Tractor.*

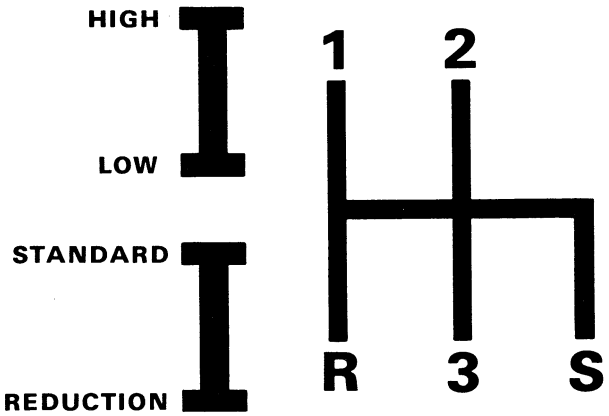


FIG. 22

Depress clutch pedal and position the shift levers in desired positions. Release parking brake lock and release brake pedals, then slowly release clutch pedal.

Should another transmission gear be desired, simply depress clutch pedal, select desired gear and continue with Tractor operation.

Should another range and/or reduction lever position be desired, depress clutch and brake pedals stopping the Tractor. Select desired range (or reduction) lever positions and continue with operation.

IMPORTANT: Depress clutch and allow Tractor to stop any movement before shifting range and/or reduction gear levers. It is also advisable to stop Tractor when shifting transmission lever from forward to reverse or vice versa.

BRAKE USAGE

FIG. 23: Brake pedals, 1 and 2, may be used independently of one another to assist in turning of Tractor when used at low speed operation. Unlatch brake pedals and use as required to assist with steering.

When Tractor is transported or being used at higher rate of speed, brake pedals must be latched together with latch, 3, so both brakes will apply simultaneously.

CAUTION: Do not use one wheel braking at high speed. Always latch brake pedals together when Tractor is being transported. Make sure brakes are adjusted evenly.

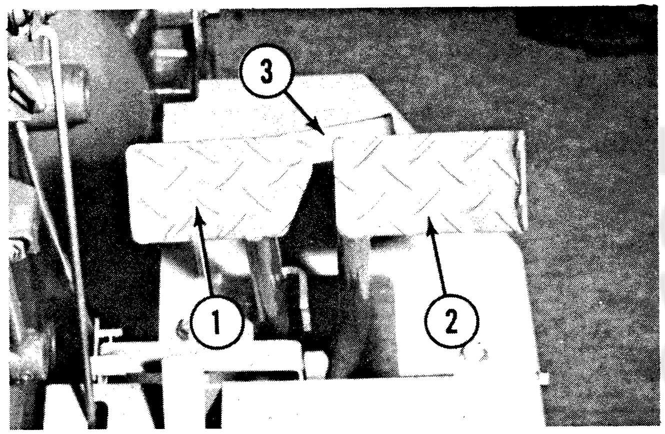


FIG. 23

STOPPING TRACTOR

Reduce engine speed and depress clutch and brake pedals. Position range shift lever in "low" range and transmission shift lever in "1". Latch brake pedals together, pull upward on parking brake latch rod, and firmly set brake pedals.

FIG. 24: Turn ignition switch, 1, to "off" position and pull fuel shutoff control, 2, out to the no-fuel position, shutting off the engine. Slowly lower three-point hitch and remove key from ignition.

CAUTION: Before leaving Tractor unattended, ensure parking brake is set, rear mounted implement is lowered to the ground and key is removed from the ignition.

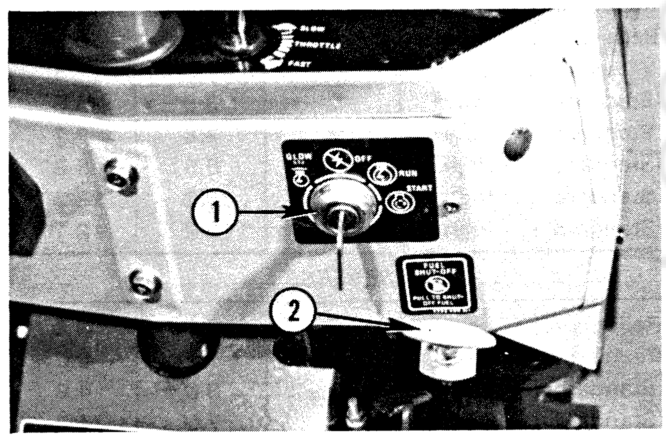


FIG. 24

DIFFERENTIAL LOCK OPERATION

FIG. 25: Differential lock pedal, 1, should only be depressed when required as effectiveness of the steering is greatly reduced. To engage differential lock, depress clutch pedal and allow all rear wheel movement to cease. Carefully depress lock pedal and slowly engage the clutch.

When further use of differential lock is not required, depress clutch pedal and release differential lock pedal. Lock pedal should normally return to the "off" position. On occasion the differential lock pedal may remain in engaged position after foot is removed from pedal due to a torque difference exerted by the rear wheels. In this case, release clutch pedal and tap the brake pedals alternatively while Tractor is in motion to release the differential lock pedal.

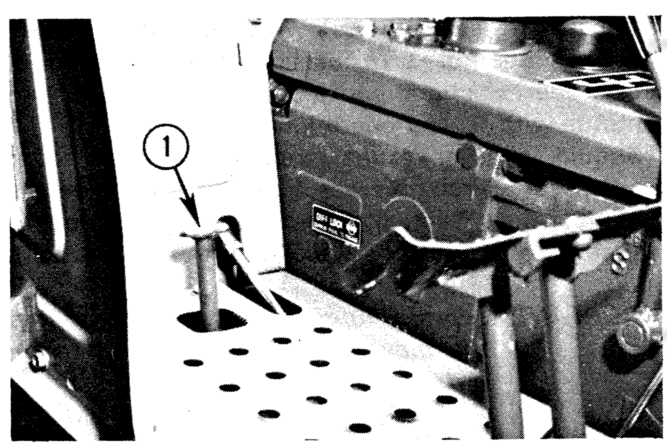


FIG. 25

FOUR-WHEEL DRIVE USAGE

FIG. 26: Four-wheel drive models incorporate a mechanically driven front axle. Engagement and disengagement of front drive axle is controlled by lever, 1, on left side of Tractor.

IMPORTANT: Prior to engaging or disengaging 4-WD control lever, clutch pedal must be depressed and all movement of Tractor be stopped.

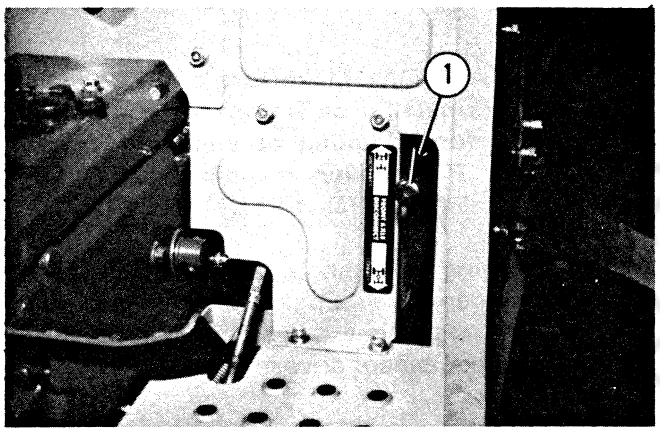


FIG. 26

FIG. 27: When front drive axle is engaged, the ground speed of the front tires is slightly faster than the ground speed of the rear tires. This is done to assist in Tractor control and steering when four-wheel drive is selected.

For this reason, the front axle must be disengaged when Tractor is transported or operated on a hard, dry surface. Failure to do so will result in rapid wear of front drive tires and possible drive line damage.

IMPORTANT: ALWAYS DISENGAGE FRONT DRIVE AXLE WHEN OPERATING IN CONDITIONS WITH MINIMAL WHEEL SLIPPAGE.

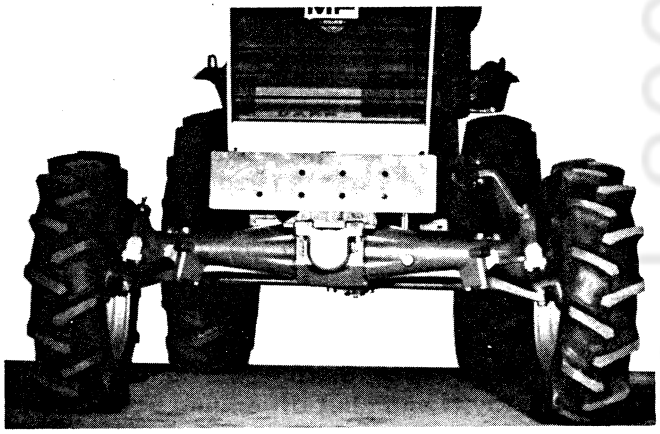


FIG. 27

REAR POWER TAKE-OFF (PTO)

CAUTION: Disengage rear PTO lever and shut off engine prior to connecting or disconnecting equipment to Tractor PTO shaft. Make certain drive shaft is securely locked in annular groove of Tractor PTO shaft before starting Tractor engine.

FIG. 28: A six-spline 1-3/8" (31 mm) PTO shaft, 1, is provided at rear of Tractor to provide power for mounted and other PTO driven equipment as required. Normal speed of shaft is 540 rpm at 2415 engine rpm. A protective cover is positioned over shaft splines when not in use.

Engagement and disengagement is controlled by dual clutch and PTO hand lever on right side of transmission housing.

IMPORTANT: When PTO is used with mounted equipment, it may be necessary to remove or alter position of drawbar, 2, at rear of Tractor. Some types of mounted equipment, when lowered, may allow PTO shaft to contact drawbar.

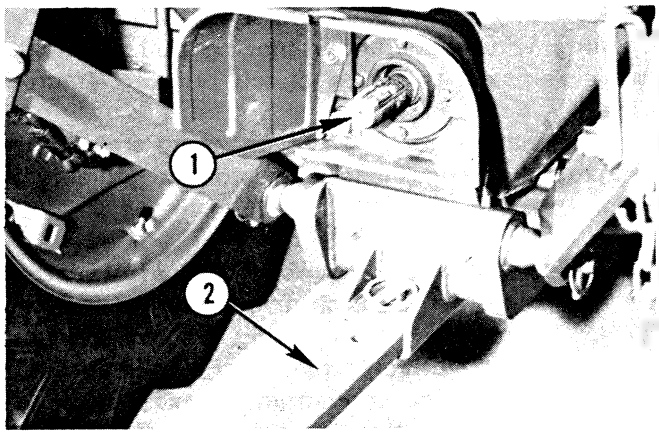


FIG. 28

FIG. 29:

CAUTION: Make sure all PTO shields are installed on Tractor and equipment. Before cleaning or adjusting Tractor or PTO driven machine, SHUT OFF ENGINE AND DISENGAGE PTO.

When engaging or disengaging rear PTO, clutch pedal must be depressed. Engage clutch slowly with PTO powered equipment to prevent abrupt shock on Tractor and equipment drives.

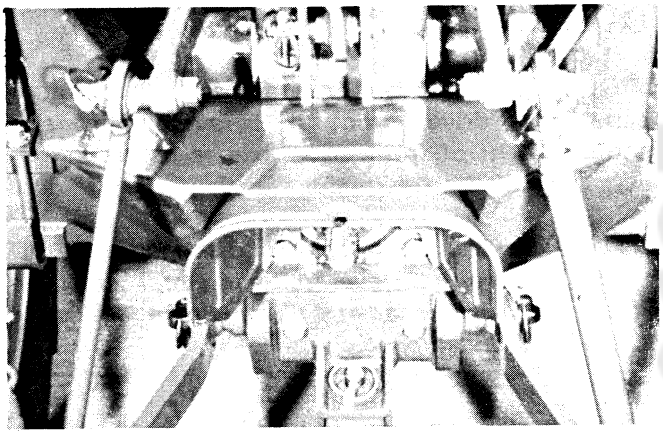


FIG. 29

FRONT PTO (ACCESSORY)

FIG. 30: Front PTO kit can be installed on Tractor to provide a power source for snow blowers, etc. Front PTO consists of a clutch and drive shaft assembly connected to the engine crankshaft pulley and control switch located in the instrument panel. The front PTO is driven at engine speed and is engaged by use of an electromagnetic clutch. Front PTO can be engaged and disengaged without depressing clutch pedal.

CAUTION: Switch PTO control switch to off and shut off engine before connecting or disconnecting drive belt to front PTO clutch pulley.

FIG. 30

FIG. 31: Access to clutch pulley is gained by loosening wing nuts and removing pulley shield. Always reinstall shield to clutch prior to Tractor usage.

Reduce engine rpm before engaging front PTO clutch to reduce shock load on Tractor and implement drives.

CAUTION: Switch PTO control switch to off and shuf off engine before cleaning or adjusting Tractor or front PTO driven equipment. Make sure all machine movement ceases prior to dismounting Tractor.

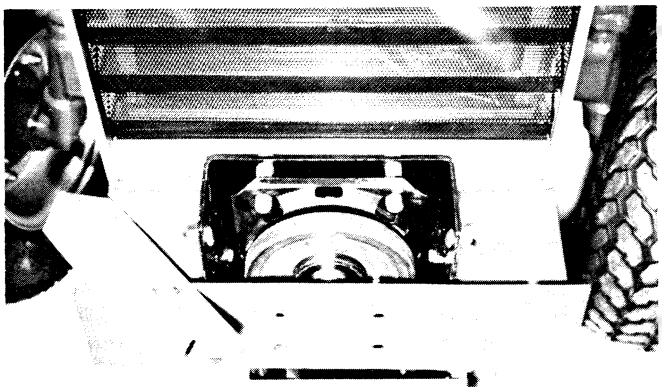


FIG. 31

THREE-POINT HITCH

FIG. 32: Tractor is equipped with a normal duty, Category I lift linkage at rear of Tractor. Maximum lift capacity of linkage is 1720 lbs. (780 kg) measured 24" (610 mm) behind link ends.

When use of the three-point hitch is not required, lower links should be secured together with chains, 1, to prevent links from swinging and interferring with rear tires. Top link, 2, is secured, as shown, with keeper, 3, when use of linkage is not required.

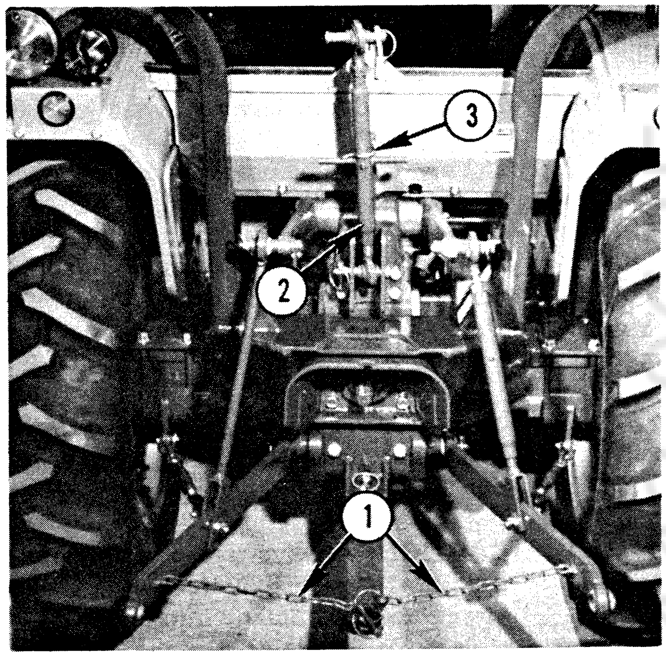


FIG. 32

FIG. 33: When attaching implement to three-point hitch, when possible, connect left lower link to implement first followed with right lower link. This permits use of levelling link, 1, on right side to ease hitching operation. Later models are equipped with crank adjustment on levelling link.

Once the lower links are connected and secured with pins, connect top link, 2, to implement. Top link can be lengthened or shortened, as required, by adjusting threaded barrel.

IMPORTANT: On some "mounted" implements it may be necessary to remove or alter position of drawbar at rear of Tractor to permit implement to be raised and lowered without obstruction.

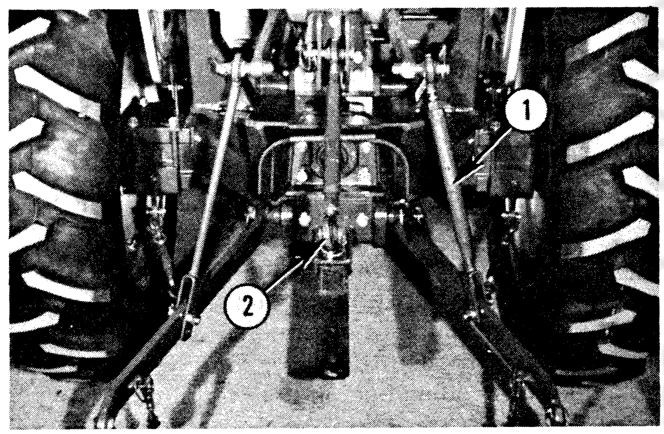


FIG. 33

After the implement is mounted, it may be necessary to vary to length of the top link and right vertical link to achieve desired implement position.

FIG. 34: Adjust length of check chains, 1, so implement is centered with Tractor and so implement is limited to a desired amount of side play. Do not shorten check chains enough to eliminate all side play. A small amount of looseness is desirable to reduce stress on lower links.

As with top link adjustments, secure lock nuts on completion of adjustment.

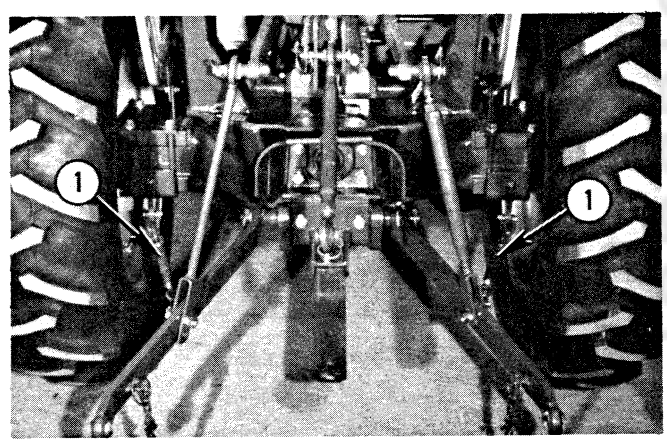


FIG. 34

FIG. 35: The position control lever, 1, adjusts height of three-point hitch to position implement at desired working position. Implement is fully raised with lever rearward, and fully lowered when lever is forward.

Lever stops, 2 and 3, can be preset at any position to limit travel of position control lever as desired.

Depending upon model, draft control, may be installed to provide draft control of ground engaging implements (plow, cultivators, etc.). Draft control may be desirable when using this type of implement to improve traction.

NOTE: Draft control is standard equipment on M-F 1035 Tractor. It may be Dealer installed as an accessory to M-F 1030 Tractor.

CAUTION: Always use position control (draft lever fully forward) when attaching or detaching implements.

To operate the system in draft control, move the position control lever, 1, to the lowered position. Then using draft control lever, 4, lower the implement until the desired working depth is achieved. Once the working depth is set, use the position control lever to raise and lower the implement.

If soil conditions change, slight movement of the draft control lever may be required to help maintain consistant implement working depth. If soil conditions are such that both hard and soft soils are encountered and the implement has a tendency to go to deep, moving position control lever up will prevent implement from going deeper than required.

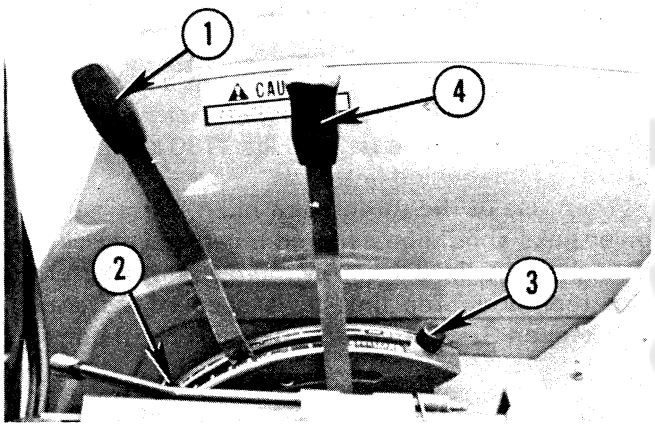


FIG. 35

FIG. 36: Draft loads are "sensed" by top link anchor bracket, 1, on Tractor. To permit utilization of draft control, pin and clip combination, 2, must be removed from location shown and stored in top bracket holes, 3. This will allow anchor bracket, 1, to move (against spring pressure) in stationary bracket.

To operate in position control, pin should be reinstalled at, 2, to prevent unnecessary spring actuation.

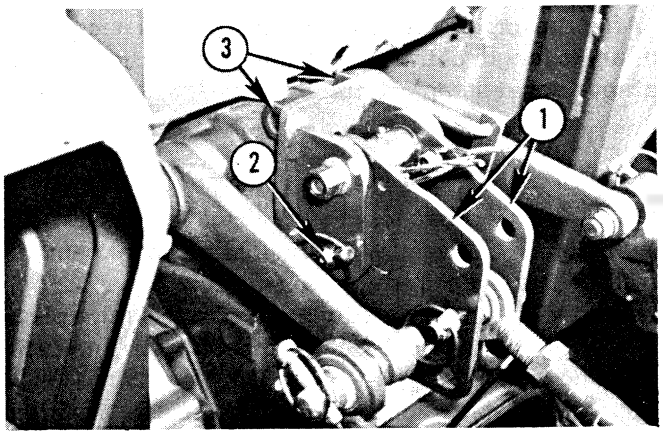


FIG. 36

FIG. 37: Adjust lowering rate knob, 1, to achieve desired lowering speed of three-point hitch and implement. Turning knob clockwise will slow descent and counterclockwise will speed up lowering rate. Knob has no effect during implement raising.

Turning knob in fully clockwise to "stop" will hold implement in any position no matter where the position control lever is set.

CAUTION: When working on or around mounted implements, always lower to ground prior to work. If implement must be raised, always block implement and lift links securely.

CAUTION: Before leaving Tractor unattended, lower implement to ground, set brakes, and remove key.

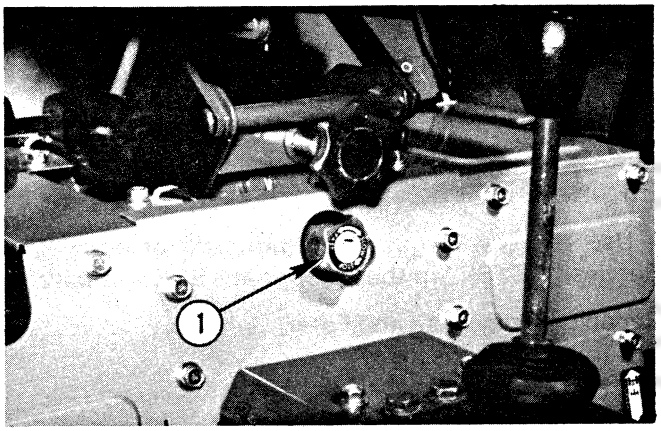


FIG. 37

FIG. 38: Three-point linkage provides for several positions of connecting top link, 1, to Tractor and attaching vertical lift link, 2, to left lower link.

For most implements, securing top link, 1, in center hole, B, and lift link in upper hole, D, is most satisfacatory, but positions may be varied, as shown.

If draft control is installed, three positions are also provided for attaching the top link to the tractor:

- Use the upper hole, A, for implements with high draft or for less sensitivity.
- Use middle position, B, for most implements and as suggested starting position.
- Use the lower hole, C, for lower draft implements or for more sensitivity.

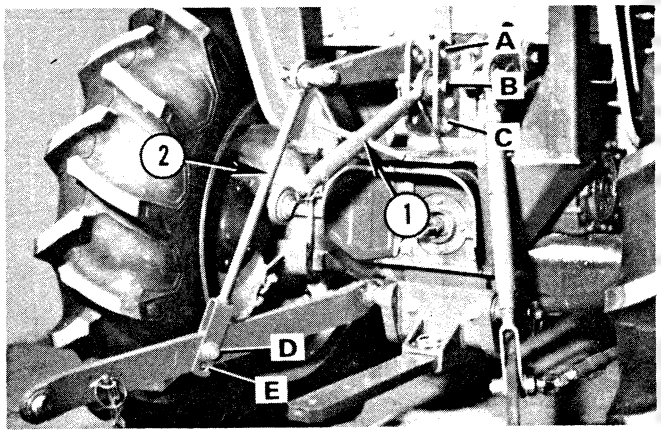


FIG. 38

DRAWBAR

FIG. 39: Drawbar at rear of Tractor allows two alternate drawbar positions, 1 and 2, in drawbar bracket. Remove clip and pin, reposition drawbar to desired position and reinsert pin and clip.

NOTE: When using certain implements mounted on three-point hitch it may be necessary to remove drawbar to improve operating clearance. This is particularly true of mounted implements utilizing PTO drive.

To provide the standard 14" (356 mm) measurement between end of PTO shaft and drawbar pin hole, the drawbar must be secured in the forward hole (drawbar extended) position.

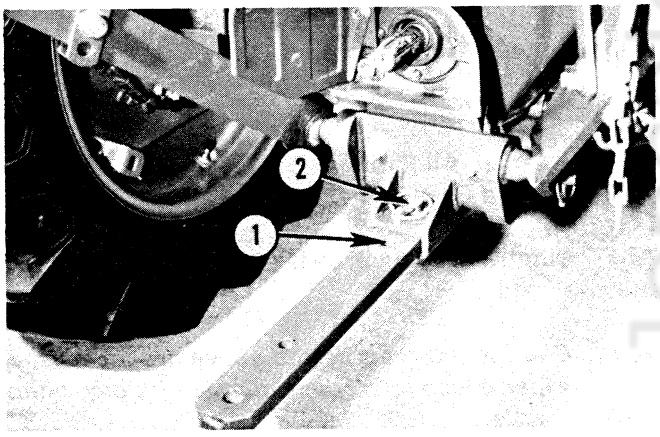


FIG. 39

LUBRICATION & PERIODIC MAINTENANCE

SPECIFICATIONS & CAPACITIES

Engine Oil

Use Massey-Ferguson Multiguard® or equivalent meeting or exceeding MIL-L-46152 requirements, API Service "CC/SE" in the appropriate SAE viscosity.

Capacity (Crankcase and Filter) ..... 3.7 U.S. qts. (3.5 litres)
Recommended Viscosity:
40°F (5°C) and Above ..... SAE 30W, 10W-30
Below 40°F (5°C) ..... SAE 10W-30

Multiguard® 15W-40 may be used in ambient temperatures above 14°F (-10°C).

Recommended Change Interval:
Initial Oil and Filter Change ..... 20 hours
Oil and Filter Change, Thereafter ..... Every 100 hours

Engine Coolant

Freezing Protection (Original Factory Fill) ..... -30°F (-34°C)
System Capacity ..... 4.2 U.S. qts. (4.0 litres)

Fuel Tank

Capacity ..... 7.1 U.S. gals. (27.0 litres)
Fuel Recommended, Above 32°F (0°C) ..... No. 2 or No. 2-D
Fuel Recommended, Below 32°F (0°C) ..... No. 1 or No. 1-D

Transmission & Differential Housing (Including Hydraulic System)

Capacity ..... 9.2 U.S. gals. (35.0 litres)
Recommended Lubricant ..... M-F Permatran III®* Only
Recommended Change Interval ..... First 50 hours, every 200 hours thereafter

Power Steering (As Applicable)

Recommended Lubricant ..... M-F Permatran III® Only

Front Axle (4-WD Only)

Capacity:
Front Differential ..... 2.1 U.S. qts. (2.0 litres)
Wheel Reduction Units (2) ..... 0.63 U.S. qts. (0.6 litres)
Recommended Lubricant ..... M-F Permatran III®* or SAE 80 GL-3 or GL-4
Recommended Change Interval ..... First 50 hours, every 200 hours thereafter

Grease Fittings

Grease Interval (All Fittings) ..... Every 20 hours
Recommended Grease ..... Massey-Ferguson M-1105 or equivalent lithium base grease No. 2

*M-F Permatran III® supercedes previous Massey-Ferguson Spec. M-1129A. If necessary, the previous lubricant may be used.

NOTE: Change intervals stated above are for normal usage. Due to adverse operating conditions that may be experienced (extremely dusty or muddy, change intervals may need to be more frequent.

PERIODIC MAINTENANCE SCHEDULES

Daily or Every 10 Hours

Component	Procedure	Figure Reference
Engine Crankcase	Check oil level and inspect for external leakage.	49
Radiator	Check coolant level in radiator. Ensure radiator and radiator screen are not plugged with debris.	67 & 68
Transmission, Differential and Hydraulic System	Check oil level. Replenish as required.	52
Power Steering Reservoir (as applicable)	Check oil level. Replenish as necessary.	61
Fan Belt	Check belt adjustment and tighten as required.	70 & 71
Fuel Supply and Valve	Ensure adequate fuel supply. Check that shutoff valve on fuel tank is turned downward to on position.	74
Air Cleaner	Remove air cleaner cap and baffle plate and remove dirt accumulation. Visually examine outer paper cleaner element.	63
Battery	Clean off top of battery as required. Ensure battery connections are clean and tight.	79
Clutch and Brakes	Check pedals for smooth operation. Ensure clutch pedal has free-play and that brakes are adjusted evenly.	85 & 88
Visual Inspection	Check operation of lights. Ensure wheel and chassis bolts are tight.	—

Weekly or Every 20 Hours

Component	Procedure	Figure Reference
Battery	Check cable connections and battery state-of-charge.	79 & 80
Electrical Connections	Check for clean and tight connections. Clean and tighten as required.	—
Tires	Check tire pressure and condition of tires.	See "Wheels & Tires"
Grease Fittings	Lubricate all grease fittings.	42 to 48

NOTE: After first twenty hours of operation, engine oil and engine oil filter should be changed. After this initial change, engine oil and filter are replaced every one hundred hours.

Every 50 Hours

Component	Procedure	Figure Reference
Clutch	Adjust clutch pedal free-play to 7/8" to 1-1/8" (20 to 30 mm). Also adjust PTO clutch clearance.	85 & 86
Brakes	Adjust brakes evenly. Pedal free-play should be 1-9/16" to 2" (40 to 50 mm).	87 & 88
Air Cleaner	Disassemble and clean or replace air filter element(s).	63 to 66
Front Differential and Wheel Reduction Units (4-WD Only)	Check oil level in each of the three locations. Replenish as necessary.	57 & 58

NOTE: After first fifty hours of operation, the oil used in transmission, differential, and hydraulic system should be replaced. Change hydraulic filter after first fifty hours.

Four-wheel drive Tractor should also have oil in front differential and each wheel reduction unit drained and replaced after first fifty hours.

Subsequent change intervals are normally carried out every two hundred hours thereafter.

Every 100 Hours

Component	Procedure	Figure Reference
Engine Crankcase	Drain and install new engine oil in crankcase. See NOTE under "Every 20 Hours" for initial engine oil and filter change.	50
Engine Oil Filter	Replace filter with every engine oil change. See NOTE under "Every 20 Hours" for initial filter change.	51
Front Wheels	Check toe-in of front wheels and adjust as required. Examine all steering rods and bushings for excessive wear.	91 to 94

Every 200 Hours

Component	Procedure	Figure Reference
Transmission, Differential and Hydraulic System	Drain and replace lubricant. Replace hydraulic oil filter. See NOTE under "Every 50 Hours" for initial oil change.	53 to 55
Front Differential and Wheel Reduction Units (4-WD Only)	Drain and replace oil in front differential and each wheel reduction unit. See NOTE under "Every 50 Hours" for initial oil change.	57 & 58
Front Wheel Bearings (2-WD Only)	Check front wheel hubs for looseness and tighten front wheel bearings as required.	59
Fuel Filter	Replace filter element.	73

Every 400 Hours

Component	Procedure	Figure Reference
Injection Pump	Drain and refill injection pump with clean lubricating oil.	78
Front Wheel Bearings (2-WD Only)	Repack with new grease.	60

EXTENDED STORAGE OF TRACTOR

Component	Procedure	Figure Reference
Implements and Additional Weights	Remove prior to Tractor storage.	—
Fuel Tank	Fill fuel tank to prevent condensation. Shut off valve on fuel tank.	99
Radiator	Check for adequate anti-freeze protection. Increase protection or drain radiator and cylinder block.	67 or 69
Battery	Remove battery and store in cool dry place. Recharge battery monthly.	80
Tires	When possible, block up Tractor to remove weight from tires.	—
Grease Fittings	Lubricate all grease fittings and lubricate moving parts and sliding surfaces (PTO shaft, etc.).	42 to 48
Clutch	Depress clutch pedal and lock in disengaged position to prevent clutch disc seizure during long storage.	100
Tractor	Touch up scratches in paint and store Tractor indoors preferrably. If Tractor is stored outside, cover open end of exhaust pipe and cover entire Tractor.	—

ACCESS

FIG. 40: To gain access to engine, radiator and battery, depress hood release button, 1, and tilt hood forward. Hood will remain in the open position.

Close hood by pushing rear of hood downward until hood automatically latches.

NOTE: If difficulty is encountered in latching hood, check adjoining ledge on front edge of instrument panel shroud and also hood hinge area to be sure hood movement is not restricted by buildup of dirt or debris.

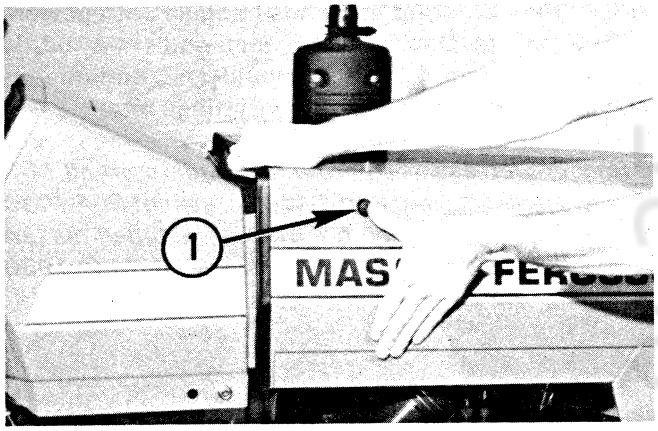


FIG. 40

FIG. 41: When necessary, hood may be removed from Tractor. Raise hood and unplug wiring connector, 1, for head lights. While supporting hood in open position, remove nuts, 2, securing hood hinge to Tractor frame. Lift hood from Tractor.

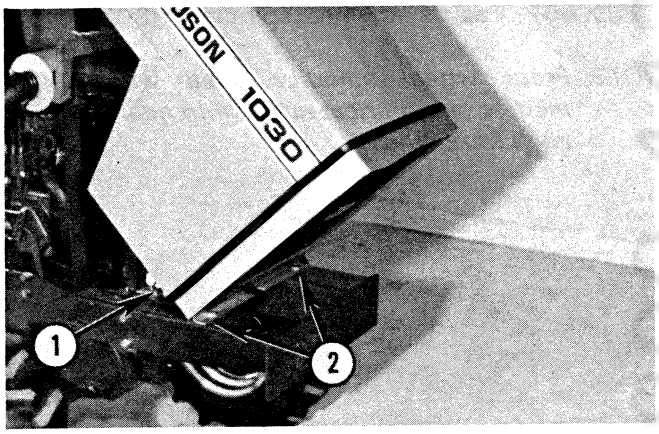


FIG. 41

LUBRICATION DETAILS

Grease Fittings

Lubrication of grease fittings is recommended every 20 hours of operation using M-1105 or similiar multi-purpose No. 2. lithium base grease.

NOTE: When operating in muddy or extremely wet conditions, more frequent lubrication of fittings is recommended.

FIG. 42: Clutch pedal pivot, 1, and brake pedal pivots, 2, (three fittings total) located on pedal shaft assembly under transmission.

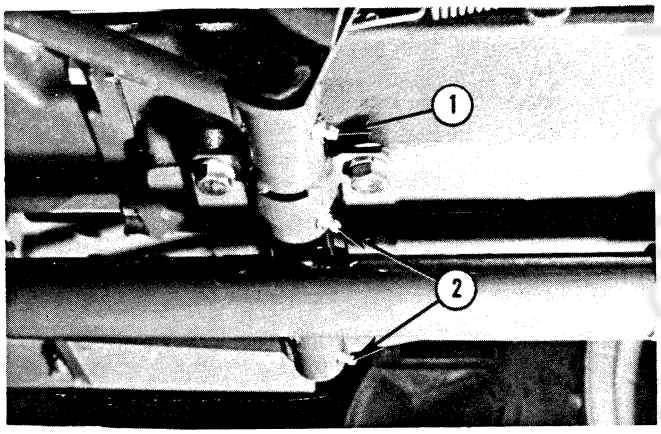


FIG. 42

FIG. 43: Steering ball ends (models with manual steering). One fitting on each end of drag link, 1, and one each end of tie-rod, 2.

NOTE: 2-WD models (with or without power steering) have additional grease fitting at steering bellcrank, 3, and at each end of intermediate tie-rod, 4.

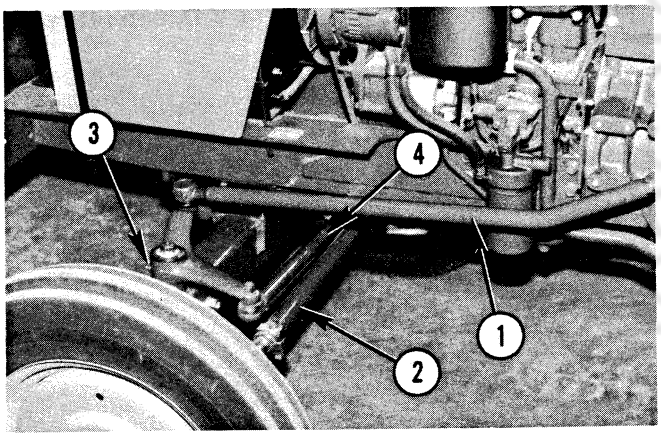


FIG. 43

FIG. 44: Steering ball ends (models with power-assist steering). One fitting on each end of tie-rod, 1, one on each end of steering cylinder, 2, and one on each end of actuating link, 3, (six fittings total).

NOTE: Power-assist steering is standard on all M-F 1035 Tractors and 4-WD version of M-F 1030 Tractor. It may be Dealer installed as an accessary to 2-WD versions of M-F 1030 Tractor.

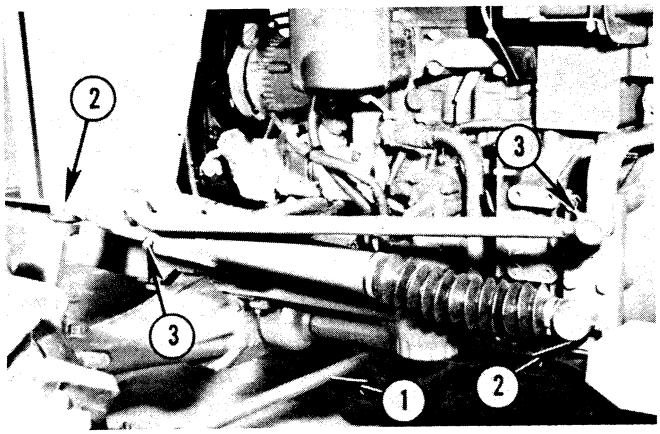


FIG. 44

FIG. 45: Each front wheel spindle, 1, (2-WD only).

NOTE: Front wheel spindles used with 4-WD models, are lubricated by oil in gear cases at each front wheel.

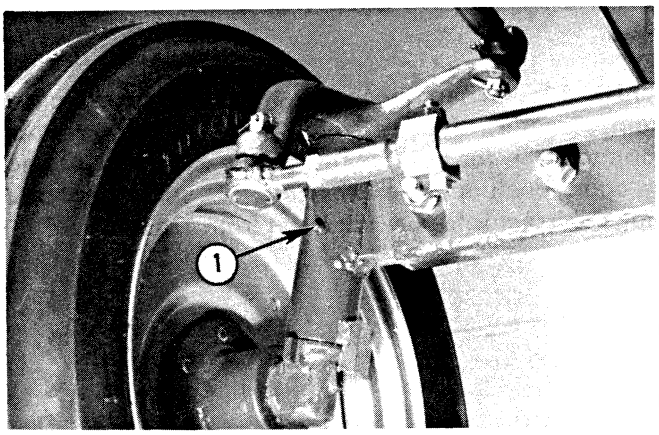


FIG. 45

FIG. 46: Front axle pivot, 1, (2-WD).

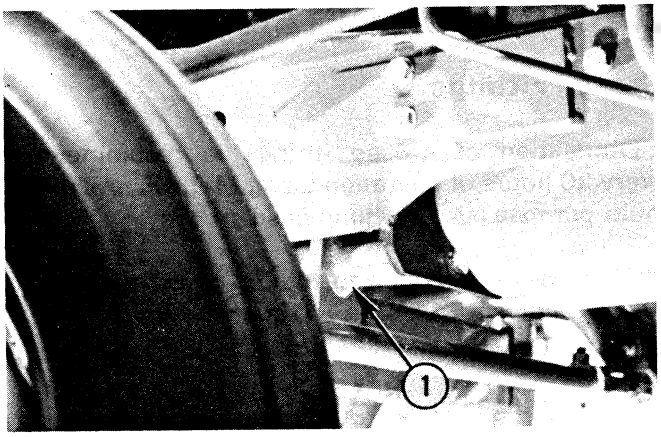


FIG. 46

FIG. 47: Front axle pivot, 1, (4-WD, two fittings).

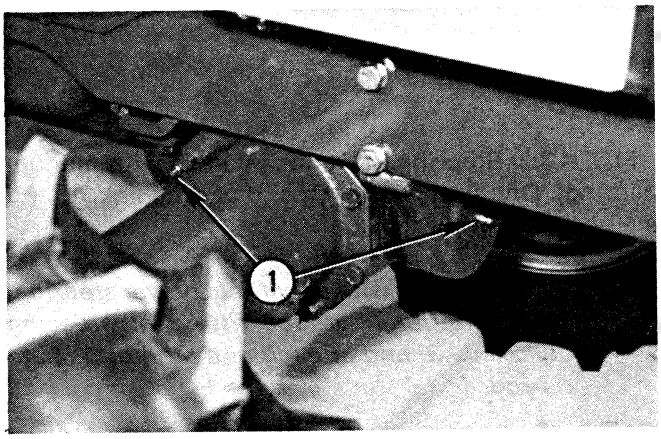


FIG. 47

FIG. 48: Three-point linkage. Top link adjusting threads, 1, and right-hand vertical lift link, 2. Models with draft control have additional fitting at sensing bracket pivot area, 3.

All sliding surfaces, such as PTO shaft, throttle and brake linkages, should be lubricated lightly periodically to insure freedom of movement and to prevent formation of rust and scale.

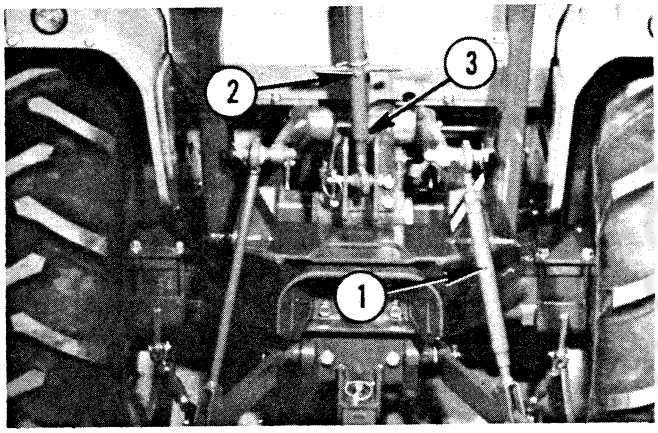


FIG. 48

Engine Oil & Filter

Engine oil and filter should be changed in accordance with "Periodic Maintenance Schedule".

FIG. 49: To check engine oil level, Tractor should be parked on level ground. Pull out dipstick, 1, and check that oil level is to "FULL" or "XXX" marking. Wipe off dipstick, momentarily reinstall in engine and check oil level again. Remove breather cap, 2, from valve cover and add oil as required.

NOTE: Add oil through breather opening slowly. Removing dipstick will assist in venting air from crankcase and permit quicker filling.

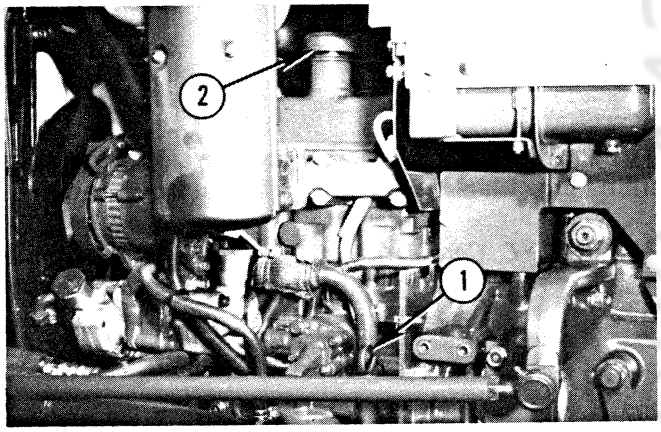


FIG. 49

FIG. 50: To change engine oil, operate Tractor until oil is adequately warmed. Remove **BOTH** drain plugs, 3, from engine and allow all oil to drain. Replace drain plugs. Fill engine crankcase to full mark on dipstick.

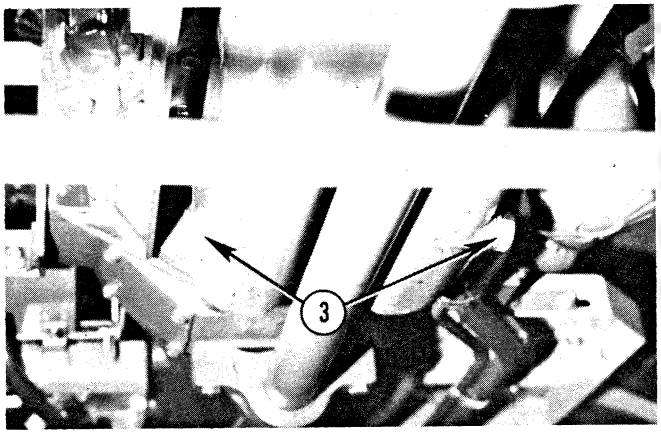


FIG. 50

FIG. 51: To replace engine oil filter, 1, simply unscrew element from engine and discard old element. When new element is installed, ensure original filter gasket has been removed. Lubricate new gasket, 2, on replacement element with clean engine oil and screw on new element. Tighten element until gasket contacts adapter and then tighten element 1/2 turn more.

Clean spilled oil and refill crankcase. Start engine, check for leaks and replenish oil level as required.

NOTE: Model with power-assist steering shown.

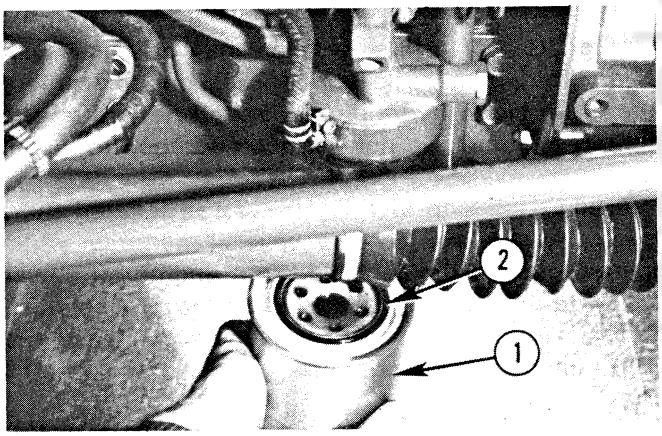


FIG. 51

Transmission Oil & Filter

Transmission oil lubricates transmission, center housing, and rear axles and also serves as hydraulic fluid. Transmission oil and filter should be changed after first 50 hours of operation and then every 200 hours thereafter.

FIG. 52: To check transmission oil level, park Tractor on level ground and remove dipstick, 1. Oil level should be indicated between marks on dipstick.

Oil level is replenished, as necessary, by removing filler plug, 2, and adding oil through fill hole.

NOTE: Adding oil to transmission will also maintain correct oil level in center housing and rear axles.

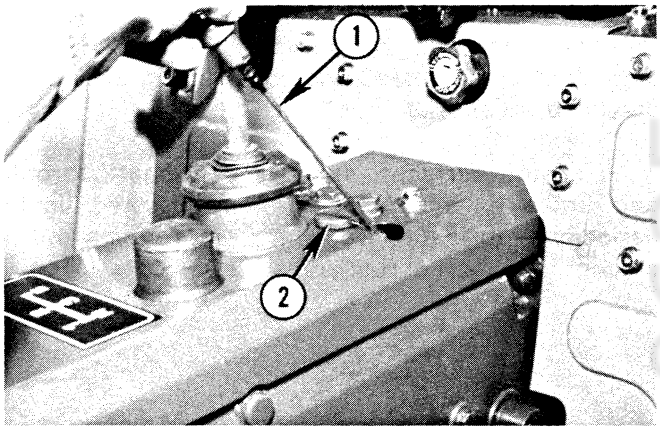


FIG. 52

FIG. 53: When replacing transmission oil, remove drain plug, 1, and completely drain oil from system.

IMPORTANT: Completely lower three-point hitch prior to draining transmission oil.

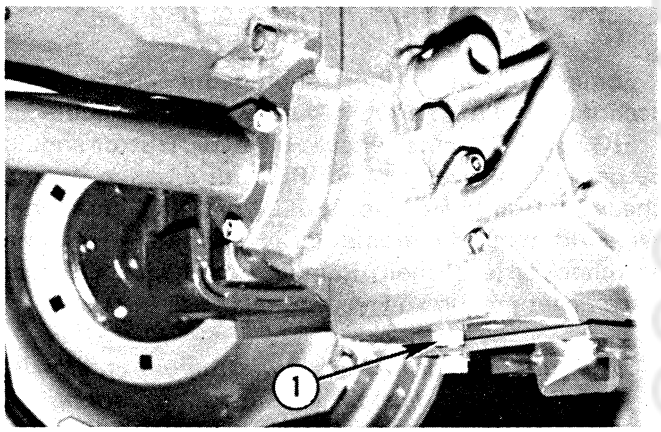


FIG. 53

FIG. 54: Always replace hydraulic oil filter when oil is changed. To access filter, remove four bolts, 1, and access cover, 2, from panel to rear of left footstep. Do not remove filter unless oil has been drained.

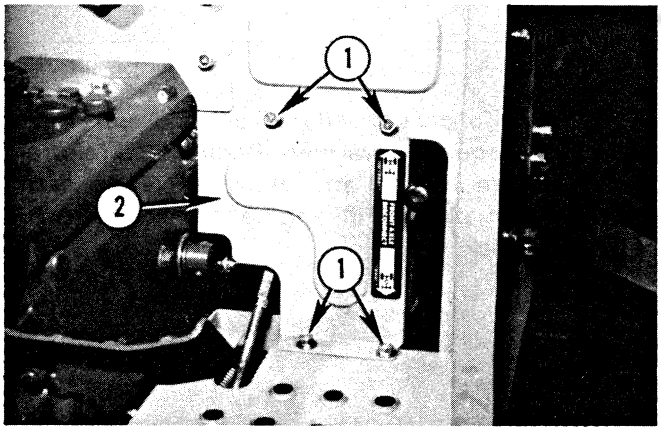


FIG. 54

FIG. 55: Carefully unscrew oil filter, 3, from its adapter. Use of a filter wrench may be necessary. Clean filter adapter and lubricate seal on replacement filter with clean hydraulic oil. Install new filter and tighten by hand. Do not use filter wrench to install filter.

Refill system with clean oil to level as detailed. Start Tractor and allow to idle several minutes while operating hydraulic controls. Shut engine off, lower the three-point hitch, and recheck oil level. Replenish transmission oil as necessary. Check for leaks and then reinstall filter access cover.

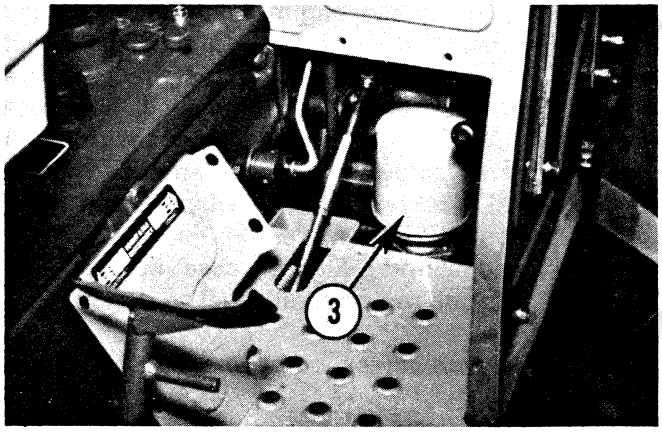


FIG. 55

Front Axle Oil (4-WD Only)

FIG. 56: The front drive axle has three separate oil levels — front differential housing, 1, and each wheel reduction unit, 2. Oil levels should be checked every 50 hours of Tractor operation.

NOTE: After first 50 hours, oil in each front axle location should be replaced and then replaced every 200 hours of normal operation.

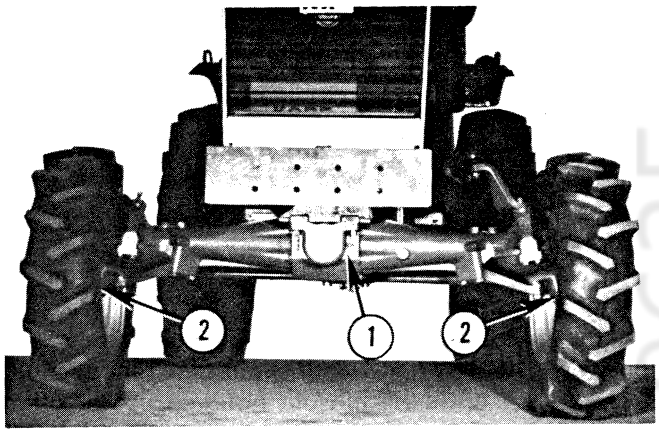


FIG. 56

FIG. 57: To check oil level in each wheel reduction unit, remove the small level plug, 1. Oil should be level with or slightly below level plug opening. Remove outboard fill plug,2, and add oil until oil is expressed from level plug opening. Replace level plug and fill plug.

To change oil, remove level plug, 1, fill plug, 2, and drain plug, 3. When all oil has drained, replace drain plug and fill housing to level plug opening. Replace level plug and fill plug.

Repeat for remaining reduction unit.

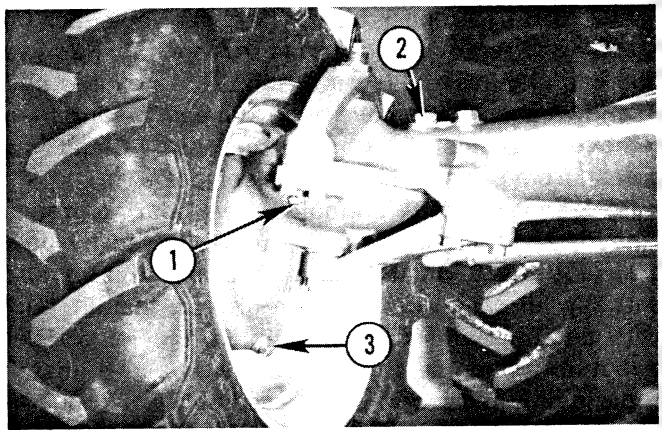


FIG. 57

FIG. 58: To check oil level in front differential, remove the small level plug, 1. Oil should be level with or slightly below level plug opening. Remove inboard fill plug, 2, and add oil until oil is expressed from level plug opening. Replace level plug and fill plug.

To change oil, remove level plug, 1, fill plug, 2, and drain plug, 3. When all oil has drained, replace drain plug and fill housing to level plug opening. Replace level plug and fill plug.

NOTE: Due to design of housings, reduction unit level plugs may be front or rear sides.

Also front differential has two fill plugs and two level plugs. Only one of each need be removed.

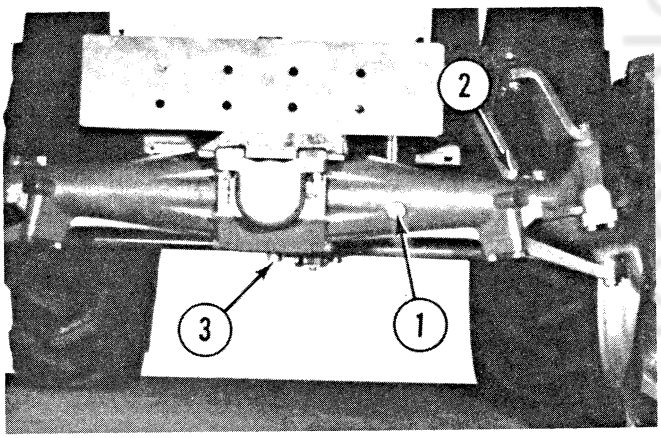


FIG. 58

Front Wheel Bearings (2-WD Only)

FIG. 59: Jack up Tractor front end and check wheel bearings for looseness every 200 hours of operation. Front wheel bearings should be removed, cleaned and repacked with grease once a year or more frequently when operating in extremely wet or muddy conditions.

To tighten front wheel bearings, jack up front of Tractor and remove hub cap.

Remove cotter pin. Tighten nut clockwise while spinning wheel by hand until slight resistance is felt. Back off nut until the closest notches in nut align with hole. Install new cotter pin, bend ends of pin, and install hub cab. Ensure hub cap does not rub on cotter pin when assembled.

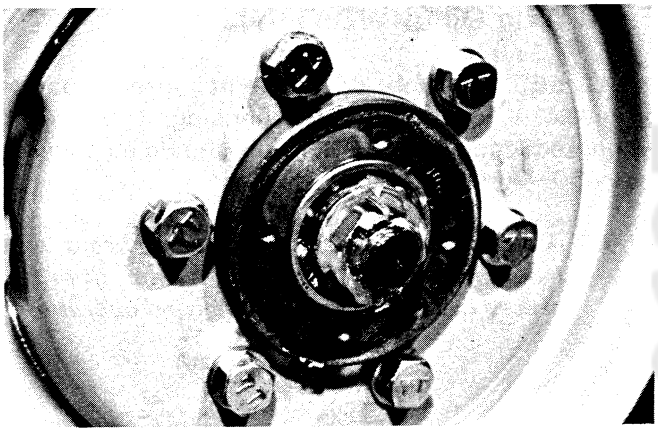


FIG. 59

FIG. 60: To repack front wheel bearings, jack up Tractor and remove wheel and tire from hub. Remove hub cap and gasket, 1, cotter pin, 2, castellated nut, 3, and washer, 4. Remove hub from spindle and then remove bearings, 5, from inside hub. Clean old grease from parts using suitable solvent.

Pack bearings with suitable wheel bearing grease and install inner bearing in hub, followed by new grease seal, 6. Install outer bearing in hub and partially fill cavity in hub with grease. Install hub, with bearings and seal, on spindle. Fit flat washer and nut and adjust wheel bearings as above. Install cotter pin, hub cap and wheel assembly.

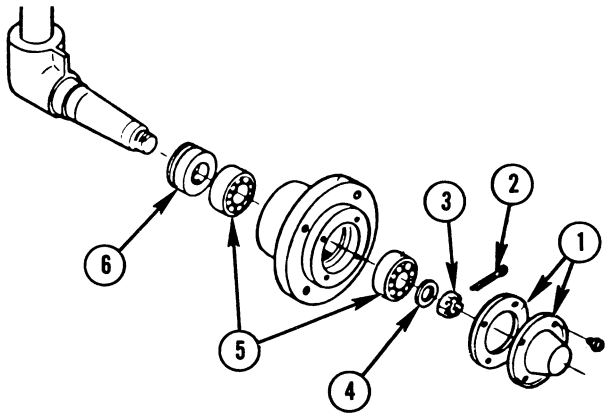


FIG. 60

Power Steering Reservoir (As Applicable)

FIG. 61: Periodically check fluid level in power steering reservoir, 1, located in forward area under hood. Fluid level should be even with, or slightly below, upper line on reservoir. Also check that steering cooler fins, 2, are free of debris to insure adequate cooling of power steering fluid.

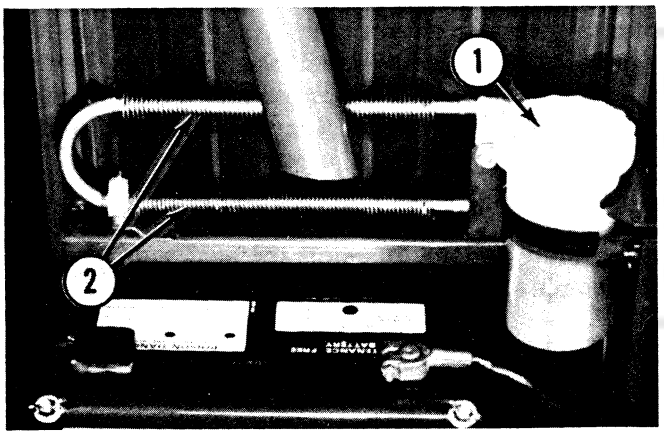


FIG. 61

ENGINE AIR CLEANER

FIG. 62:

IMPORTANT: Never remove air cleaner cap or air filters while engine is running. Do not start engine when air cleaner cap or air filters are removed.

Open hood to gain access to air cleaner, 1. Air cleaner consists of a cap fitted with a dust baffle and a dust ejector to filter larger particles from engine intake air. An outer dry paper element traps smaller dust particles not trapped by dust baffle. A safety inner element is installed to prevent engine damage should outer element become damaged or ruptured.

FIG. 63: Sufficiently loosen clamp, 1, and remove cap, 2, from air cleaner. Lift rubber baffle, 3, from cap and thoroughly clean cap and ensure dust ejector, 4, is not damaged.

NOTE: Correct operation of dust ejector and rubber baffle along with regular cleaning of air cleaner cap can reduce filter element maintenance.

Remove wing nut, 5, securing outer element in air cleaner.

FIG. 64: Withdraw outer element, 1. Examine element end seal for damage and brittleness. If element or element seal are damaged in any way, the outer element must be replaced.

Outer element may be cleaned, if in servicable condition using the following procedure:

1. Using compresed air (not to exceed 30 psi 200 kPa) from inside element, remove loose dirt, grass, chaff, etc. Be careful not to damage element pleats with air flow.
2. If outer element is impregnated with oil or soot, proceed as follows:
   a. Prepare solution of warm water and non-foaming detergent (or M-F Part No. 1900 726 M1 according to directions on box).
   b. Soak element in solution for thirty minutes.
   c. Agitate element in solution until oil and soot are loosened.
   d. Rinse element until rinse water is clear.
   e. Allow element to completely dry. Do not dry by using compressed air or heat.
3. After cleaning (or washing element) examine for pin holes, punctures, or tears. A lighted bulb may be placed inside to aid with visual inspection. If element paper, canister or seal show any signs of physical damage, the element must be replaced.

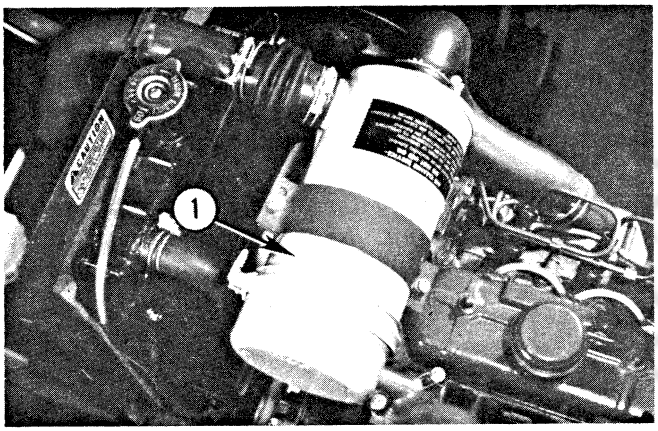


FIG. 62

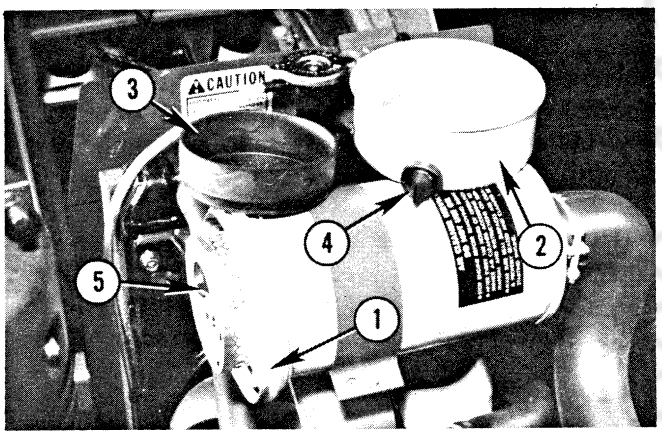


FIG. 63

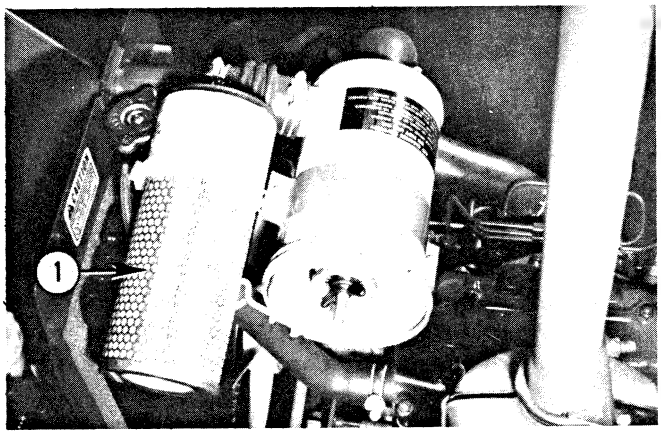


FIG. 64

FIG. 65: Remove second wing nut securing inner safety element in air cleaner. If inner element shows any discoloration (indicating dirt in element) or is damaged in any way, the inner element must be replaced and the outer element thoroughly inspected.

IMPORTANT: Do not attempt to clean inner safety element. Its primary purpose is to protect the engine from dust ingress should outer element fail.

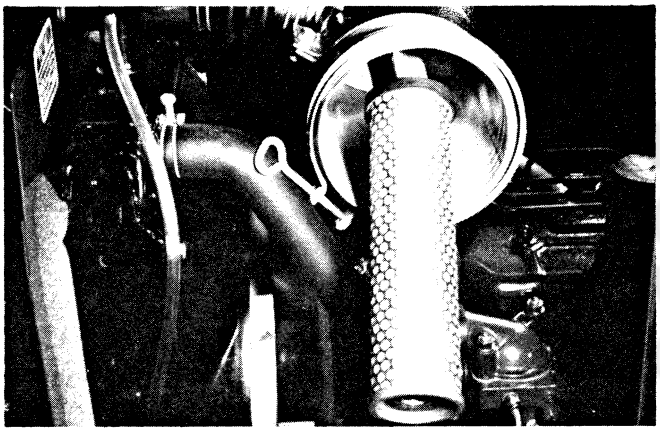


FIG. 65

FIG. 66: Reassemble elements into air cleaner making certain that each element seal is evenly compressed and that each element is secured by a separate wing nut. Tighten wing nuts hand tight only. Install rubber baffle into cap and then install cap onto air cleaner and tighten clamp.

NOTE: Arrows on end of cap must point upward when cap is secured. If not positioned properly the dust bowl in the cap and the dust ejector will not operate correctly.

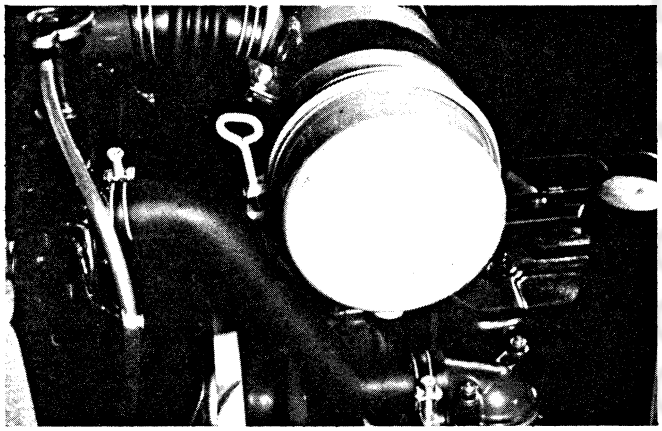


FIG. 66

COOLING SYSTEM

CAUTION: Exercise extreme caution when removing radiator cap when engine is hot. Rotate cap slowly to release pressure. When all pressure is released, cap can be safely removed.

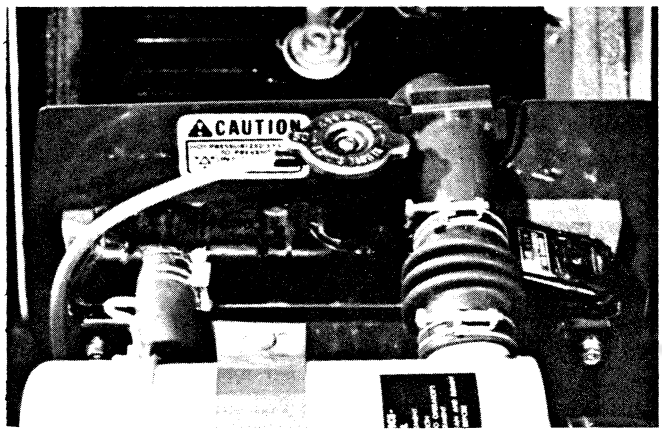


FIG. 67

FIG. 67: The cooling system is filled at the factory with permanent type anti-freeze solution which protects the engine and radiator to -30°F (-34°C). The coolant level should be maintained to 1/2" (12 mm) below the filler neck opening. Do not overfill the cooling system.

Periodically check condition of hoses, belt and clamps and tighten or replace as necessary. Check coolant protection from freezing annually.

FIG. 68: Keep radiator clean to help prevent engine overheating. Radiator screen, 1, may be removed for cleaning by lifting air cleaner intake tube, 2, from its secured position at, 3, and moving tube to the side. Screen may then be slid upward from its mountings.

Be sure to reposition intake tube prior to closing Tractor hood.

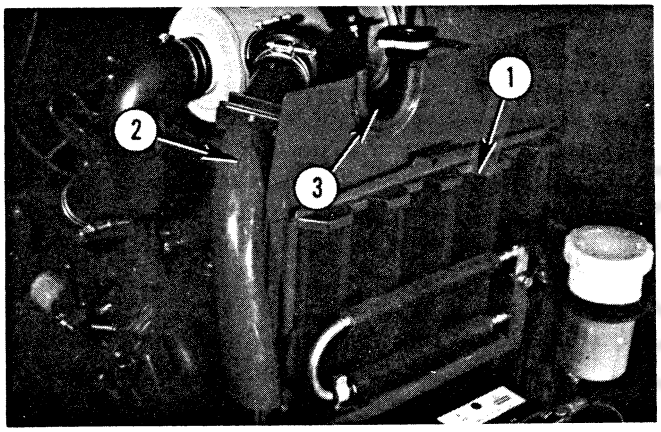


FIG. 68

FIG. 69: Opening drain cock, 1, will drain coolant from cylinder block and radiator. Drain cock located on right side of Tractor frame beneath radiator. Coolant should be replaced if it becomes contaminated with rust or sludge.

Radiator and engine should be drained if freezing temperatures are expected if cooling system is not filled with coolant having adequate protection from freezing.

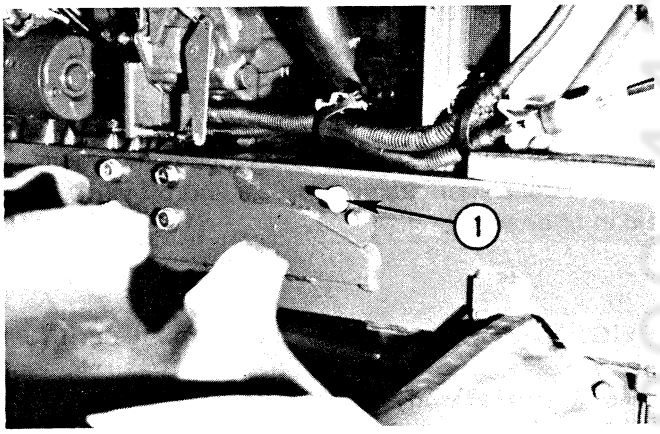


FIG. 69

FIG. 70: Correct fan belt tension helps to insure adequate coolant flow through cylinder block and radiator. Belt is correctly tensioned when belt deflection is approximately 3/8" (10 mm) when thumb pressure is exerted on longest span of belt.

NOTE: Model with power-assist steering shown with idler pulley above crankshaft pulley. Models less power-assist steering will have only three pulleys.

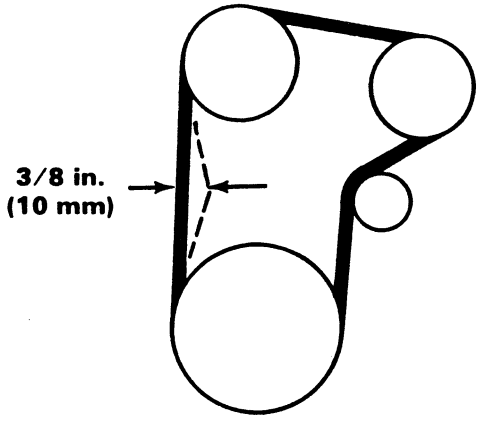


FIG. 70

FIG. 71: To adjust belt tension, loosen alternator pivot bolt, 1, and tensioning bracket bolt, 2. Pull outward on top of alternator to correctly tension belt and tighten bolt, 2, first followed by tightening of pivot bolt, 1.

IMPORTANT: Do not pry against alternator housing or drive pulley. Should prying be required, carefully pry against alternator mounting flange to prevent alternator damage.

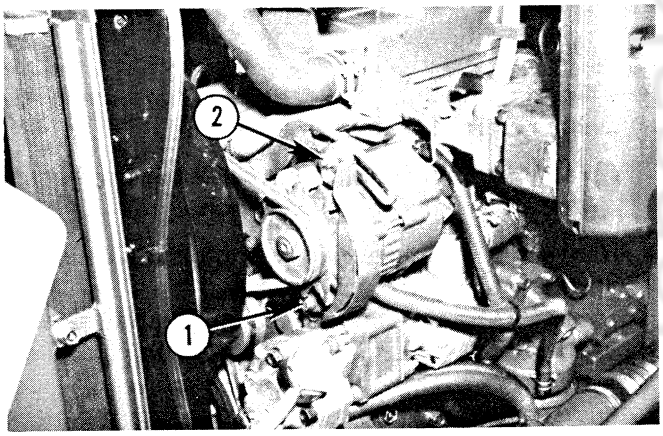


FIG. 71

FUEL SYSTEM

Make certain that only **clean diesel fuel** of correct grade is used in this Tractor. Introduction of water or dirt into fuel tank or other portion of fuel system can cause excessive fuel sediment, repeated plugging of fuel filter, and can cause possible injection pump and injector damage should contamination reach injection pump.

IMPORTANT: Do not tamper with injection pump or injector adjustments as doing so may render engine and/or Tractor warranty void and may cause severe engine damage. Refer to local M-F Dealer.

Fuel Filter

FIG. 72: Fuel filter assembly, 2, is used to strain impurities from fuel before fuel reaches the injection pump. Fuel system incorporates a shutoff valve, 1, to aid in filter servicing.

FIG. 73: To replace fuel filter element, turn fuel shutoff valve, 1, so handle is horizontal. Grasp element housing and carefully unscrew element, 2, from filter head. Make sure original gasket is removed with element. Lubricate gasket, 3, as new element with clean diesel fuel. Thread element onto filter head so gasket makes contact and then tighten 1/2 turn.

Turn shutoff downward to on position and bleed air from fuel system (details follow). Clean area of spilled fuel and check for leaks.

Air-Bleeding Fuel System

If any of the following conditions have occured, system should be bled:

- Fuel tank has been permitted to run dry.
- If fuel lines, filter element and other components within system have been disconnected or removed.
- If engine has not been operated for a considerable period of time.
- If engine fails to start, or if it starts but stops again after a few minutes of operation.

FIG. 74: Make sure the fuel shutoff valve handle, 1, is rotated, as shown, for fuel flow.

Loosen the bleed screw, 2, on the top side of the fuel filter 1-1/2 to 2 turns outward (counter-clockwise). DO NOT fully remove the screw.

Allow air bubbles and fuel to drain from the bleed screw until all signs of air bubbles disappear and fuel only drains out, then tighten bleed screw.

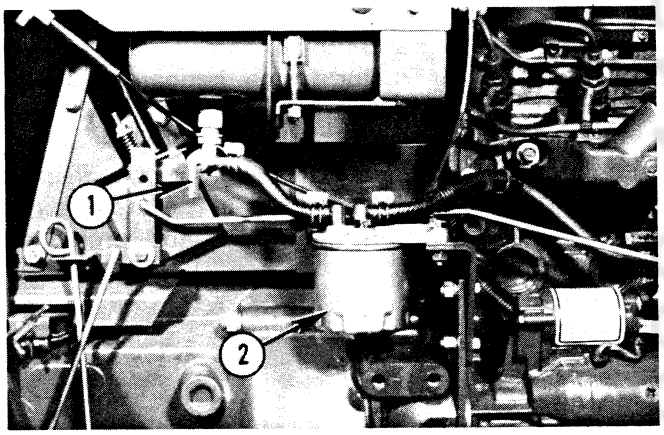


FIG. 72

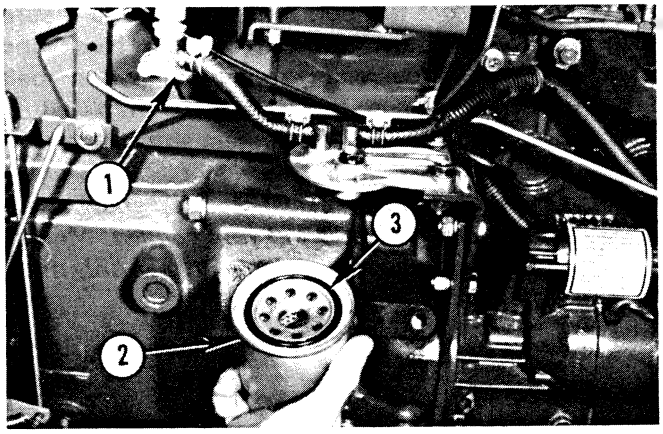


FIG. 73

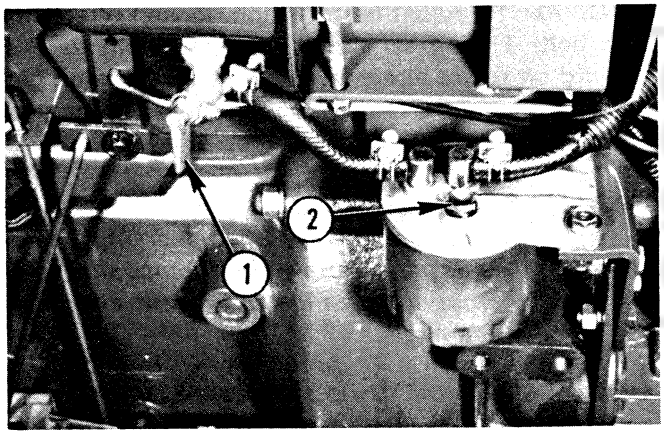


FIG. 74

FIG. 75: Loosen the small hex head screw, 3, on the right hand side of the fuel injection pump. Do not completely remove screw. When all air bubbles disappear and fuel only drains out, retighten screw.

IMPORTANT: DO NOT turn engine over in attempt to start it while bleed screw is loose.

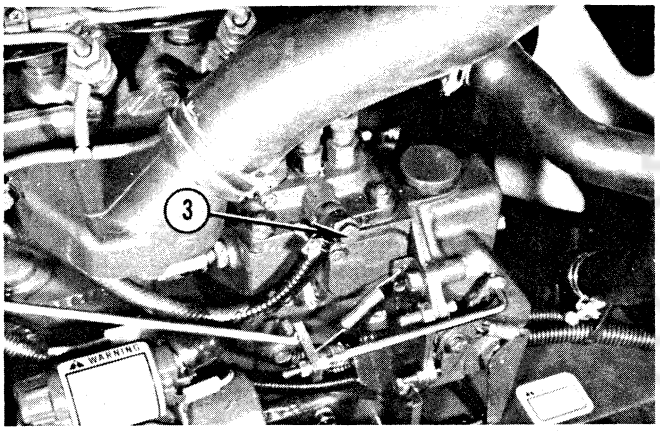


FIG. 75

FIG. 76: Start the engine. If engine fails to start after a reasonable cranking period, there may be some air in the high pressure injection lines. Partially loosen the high pressure lines, 4, where they attach to injectors and turn engine over several times. Tighten lines and start engine.

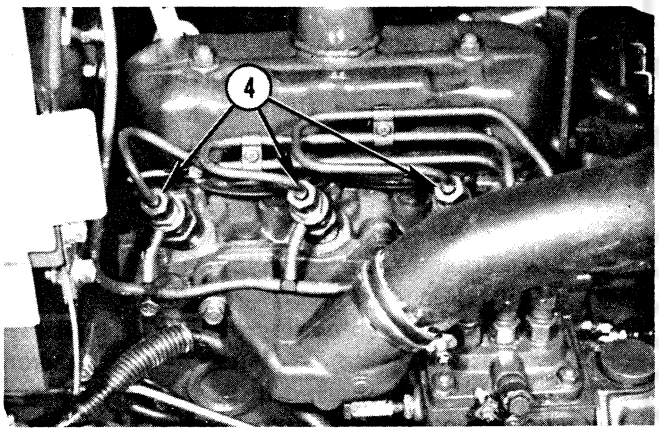


FIG. 76

Throttle Lever

FIG. 77: Hand throttle lever should remain in position selected by operator. Through normal use, friction against lever may decrease, causing lever to move out of selected position. Turn adjusting nut, 1, as required to retain throttle lever in position selected.

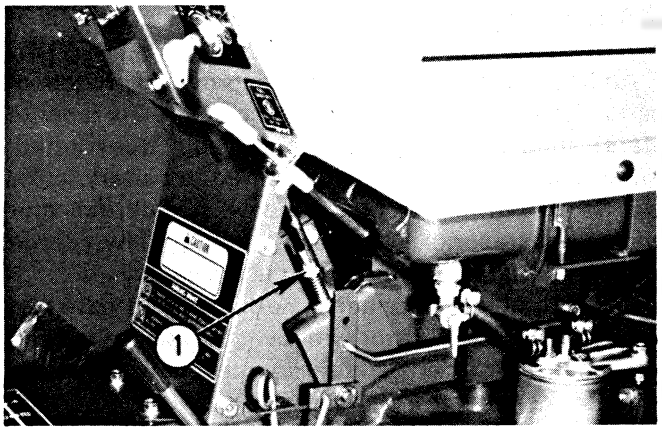


FIG. 77

Injection Pump Lubricating Oil

FIG. 78: Injection pump is lubricated internally with oil from self-contained supply within injection pump. After every 400 hours of Tractor operation, oil should be drained and replaced.

Operate engine to warm lubricating oil. Remove drain plug, 1, from injection pump and allow all oil to drain. Install plug.

Remove the two bolts securing side cover, 2, to injection pump and remove side cover. Add 6-3/4 oz. (200 c.c.) of clean engine oil through opening.

Reinstall cover.

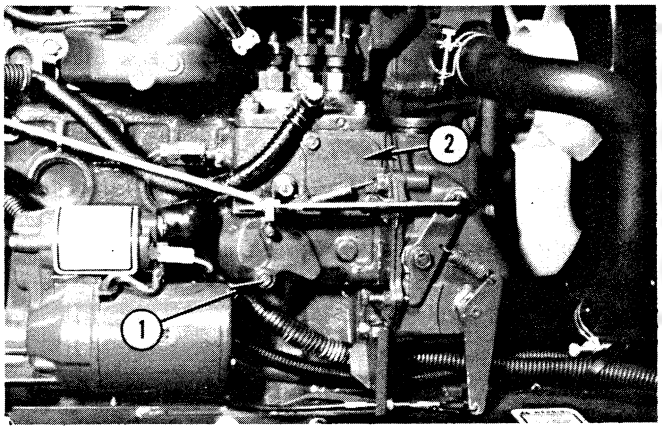


FIG. 78

ELECTRICAL SYSTEM

Battery

FIG. 79: Battery is located under engine hood in front of radiator. If battery requires other than minor servicing or charging, it is recommended that hood be removed to gain unrestricted access to battery.

Keep top of battery clean and ensure cable connections are clean and tight.

CAUTION: Batteries produce explosive hydrogen gas when charged. Keep all sparks and open flame away from battery.

When necessary to disconnect battery cables, always disconnect the grounded (-) cable first to prevent short circuits.

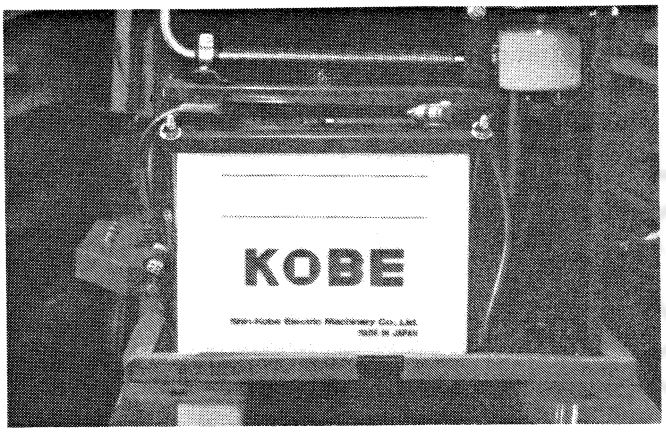


FIG. 79

FIG. 80: Tractors are shipped with battery and battery is installed during Tractor setup and predelivery. If battery replacement should become necessary, battery cable, 1, connected to starter solenoid should be connected to positive (+) battery terminal first then cable, 2, grounded to Tractor frame can be connected to negative (–) battery terminal.

Water need not be added to battery as battery is of maintenance-free type.

An indicator window may be provided in top of certain batteries for checking specific gravity (charge state) should battery performance be questioned. When sufficient charge is contained in battery, color will be shown in indicator window. A dark indicator window represents low specific gravity (low charge state) and that battery charging is necessary.

Should battery performance be questioned (batteries with or without indicator window), the battery should be recharged from an external source following battery charger instructions. Repeated battery charging may be due to a defect in Tractor charging system and/or a defective battery.

NOTE: Battery may vary in appearance and features from battery shown.

When charging battery from an external source, battery temperature must not exceed 120° (60°C). If overheating occurs, charge rate must be reduced or halted.

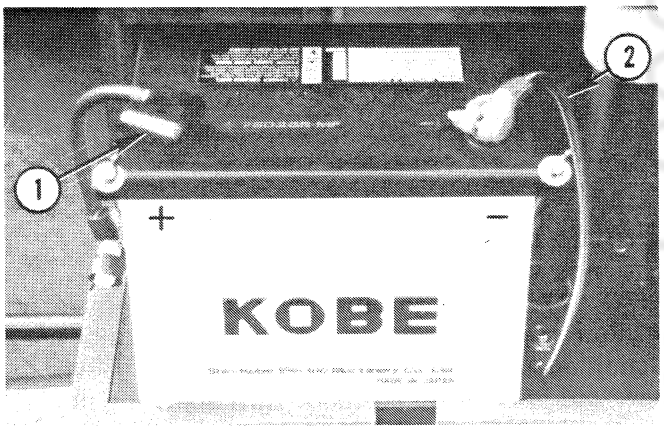


FIG. 80

Fuse Block

FIG. 81: Fuse block located on left rear side of instrument panel shroud. Fuse box cover contains an extra five and ten amp fuse.

Fuse, 1 — 10-amp, instrument lights, grille head lights.

Fuse, 2 — 10-amp, flashing warning lights and red taillight.

Fuse, 3 — 5-amp, rear work light (accessory).

Fuse, 4 — 10-amp, horn, temperature and fuel gauges, electric clutch (accessory), and charge and oil pressure indicator lights.

IMPORTANT: Do not replace fuse with fuse of higher amperage rating. If fuses repeatedly blow, examine electrical system for grounded or shorted circuits.

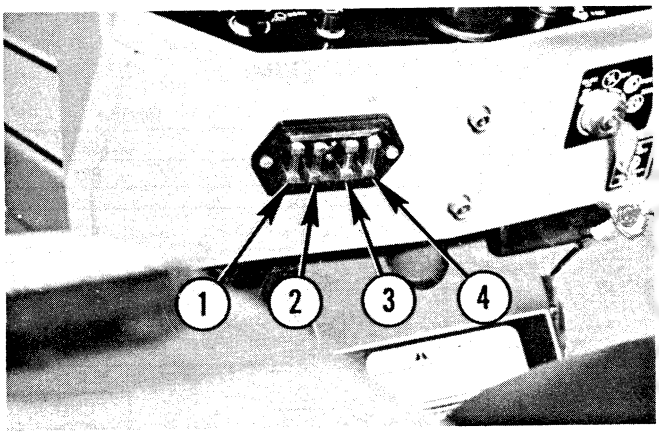


FIG. 81

Flasher Unit

FIG. 82: The flasher unit, 1, for the amber warning lights is located inside the right rear corner of the instrument panel shroud.

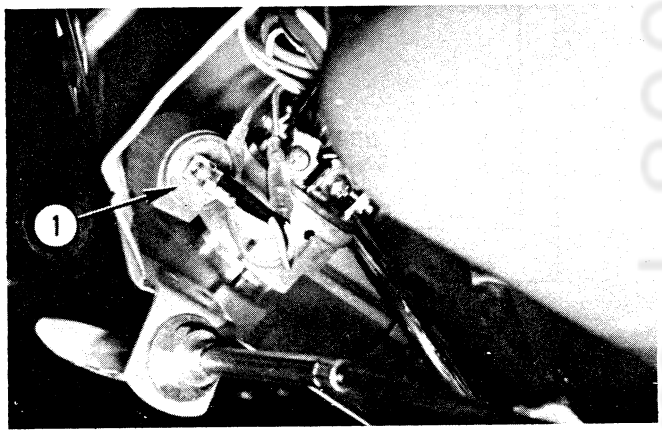


FIG. 82

Starter Safety Switches

FIG. 83: Safety switch, 1, is actuated by selecting transmission shift lever to the "S" position. Safety switch, 2, is actuated by positioning rear PTO control lever in the OFF (forward) position. Both starter safety switches must be actuated to "close" the electrical circuit between the ignition switch and starter solenoid to permit starter motor operation for starting engine.

A third safety switch is incorporated into the front PTO control switch (accessory). Front PTO must also be off before engine can be started.

CAUTION: Under no circumstances should starter safety switches be bypassed. They are installed for your protection.

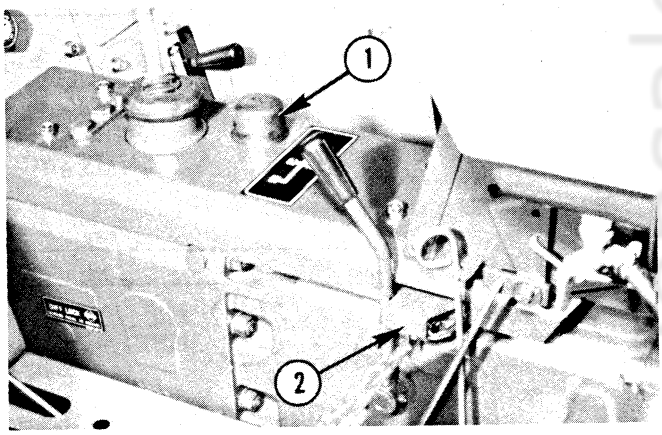
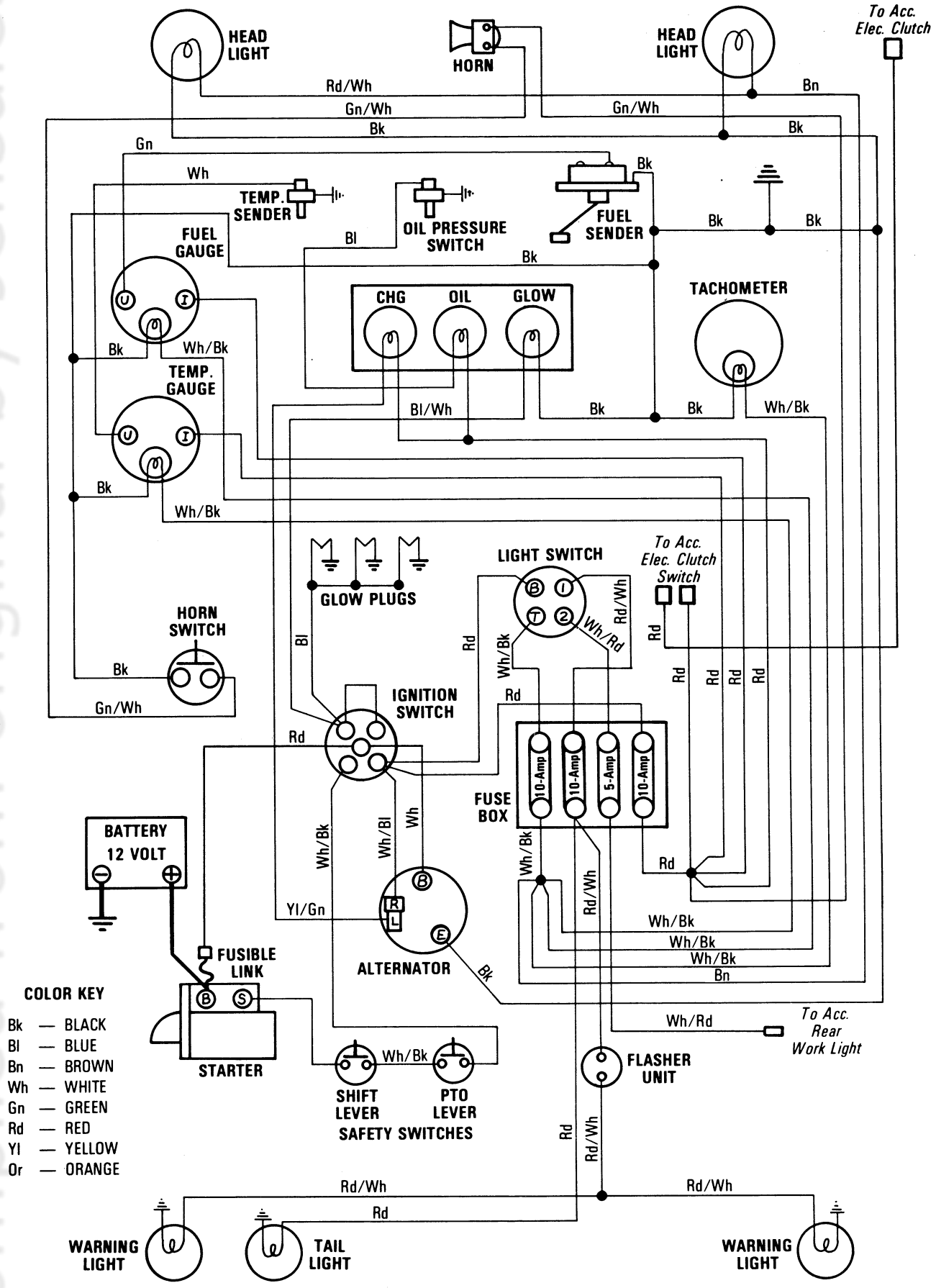


FIG. 83



M-F 1030/1035 WIRING DIAGRAM

FIG. 84

CLUTCH FREE-PLAY ADJUSTMENT

FIG. 85: Check clutch pedal free-play regularly and adjust as necessary. correct clutch pedal free-play, A, is 7/8" to 1-1/8" (20 to 30 mm) when measured at the end of the pedal as shown.

IMPORTANT: Clutch pedal free-play must be maintained to reduce excessive wear on clutch and clutch throwout bearing.

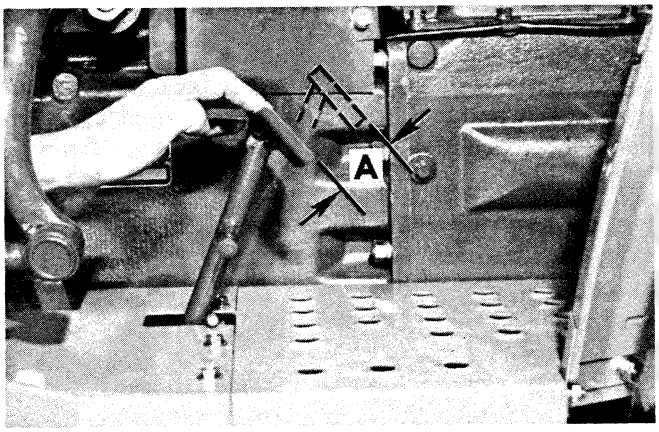


FIG. 85

FIG. 86: To adjust clutch pedal free-play, loosen lock nut, 1, and remove pin, 2, from clevis. Turn clevis on linkage as necessary and reinstall pin. Check free-play after adjustment is made. Lengthening linkage will reduce clutch pedal free-play and shortening linkage will increase free-play.

Secure pin with cotter pin and retighten lock nut once correct free-play is achieved.

NOTE: Clevis must be connected to clutch release arm using holes in end of linkage clevis. Holes in middle of clevis must not be used.

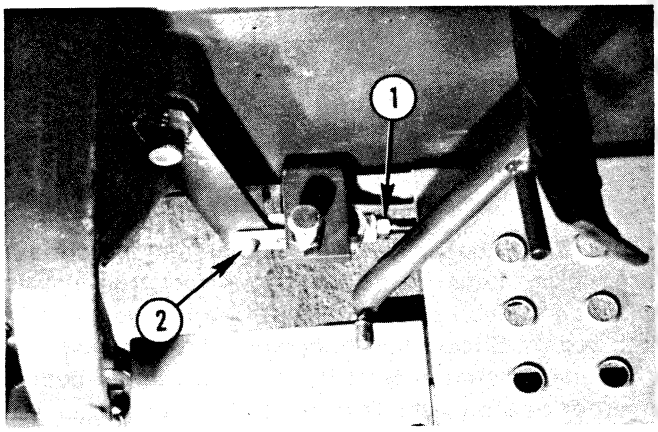


FIG. 86

PTO CLUTCH ADJUSTMENT

CAUTION: A potential safety hazard could develop if this procedure is not followed every time clutch pedal free-play is adjusted. As main clutch wears, linkage will reach a point where clutch pedal is fully depressed, the PTO clutch will not disengage. This in turn will leave PTO live if it is in gear.

FIG. 87: Remove cover plate, 1, from lower right side of clutch housing to gain access to PTO clutch adjusting bolts (3). Crank engine until one bolt shows. Loosen lock nut, 2, and adjust bolt, 3, until there is a gap of .040" (1.0 mm) between bolt head and main clutch pressure plate, 4. Tighten lock nut and repeat procedure for other two bolts. Replace cover.

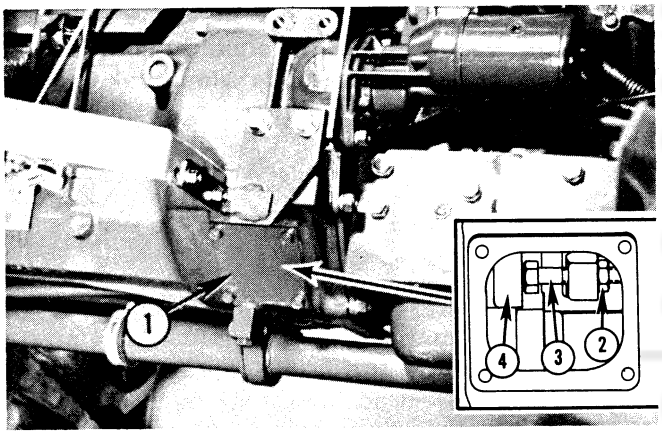


FIG. 87

BRAKE ADJUSTMENT

FIG. 88: Unlatch pedals and check free-play of each brake pedal. Correct free-play, A, of each individual brake pedal is 1-9/16" to 2" (40 to 50 mm).

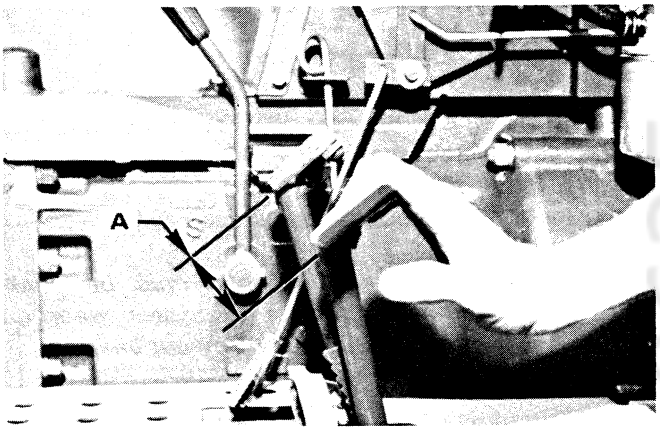


FIG. 88

FIG. 89: Loosen lock nuts and adjust appropriate turnbuckle, 1, as necessary, so correct free-play is achieved in each pedal and that free-play is same in both pedals. Secure lock nuts against turnbuckles.

When adjustment is complete, latch brake pedals together and operate Tractor at low speed. Depress brake pedals. If Tractor has tendency to "pull" to one side, slight readjustment of one of the brakes is required.

Ensure lock nuts are secured when brake adjustment is complete.

CAUTION: Brakes must be adjusted evenly to permit equal braking action at both rear wheels when brake pedals are latched together.

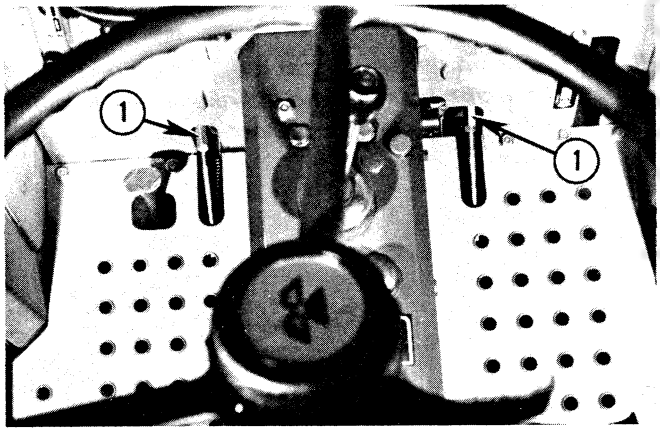


FIG. 89

FIG. 90: Latch brake pedals together. Lift upward on parking latch rod and firmly depress pedals into the locked or parked position. Park latch, 1, should engage in one of the lower teeth on racket, 2, when brakes are correctly adjusted.

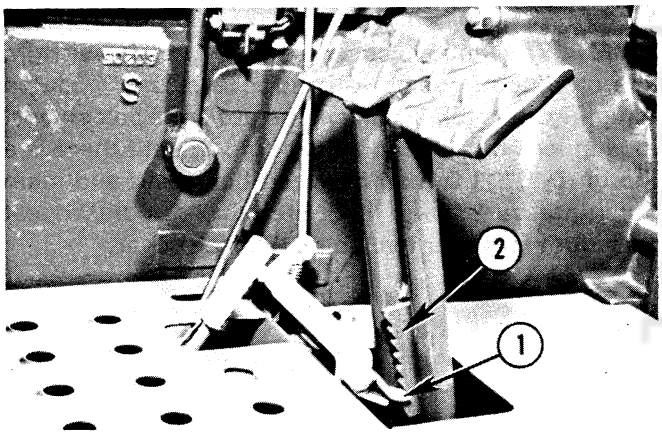


FIG. 90

WHEELS & TIRES

Examine wheels and tires periodically for correct inflation pressures, tight wheel bolts, and any physical damage that may be a detriment to Tractor operation and operator safety. Correct condition prior to Tractor operation.

Tire Inflation Pressures

TYPE	TIRE SIZE/PRESSURE	
	Front	Rear
M-F 1030 2-WD:		
Agri. Tires	5.00-15 F2 36 psi (248 kPa)	11.2-24 R1 18 psi (124 kPa)
Turf Tires	24 x 8.50-12 R3 23 psi (159 kPa)	13.6-16 R3 14 psi (97 kPa)
M-F 1030 4-WD:		
Agri. Tires	7.00-14 R1 26 psi (179 kPa)	11.2-24 R1 18 psi (124 kPa)
Turf Tires	24 x 8.50-12 R3 23 psi (159 kPa)	13.6-16 R3 14 psi (97 kPa)
M-F 1035 2-WD:		
Agri. Tires	5.00-15 F2 36 psi (248 kPa)	13.6-24 R1 14 psi (97 kPa)
Turf Tires	27 x 8.50-15 R3 23 psi (159 kPa)	43 x 13.50-22 R3 20 psi (138 kPa)
M-F 1035 4-WD:		
Agri. Tires	7.00-16 R1 26 psi (179 kPa)	13.6-24 R1 14 psi (97 kPa)
Turf Tires	27 x 8.50-15 R3 23 psi (159 kPa)	43 x 13.50-22 R3 20 psi (138 kPa)

Maintaining correct tire pressure will help insure tire longevity. If tires have deep scratches, cuts or punctures the respective tire should be repaired or replaced by qualified personnel as soon as possible.

IMPORTANT: If necessary to replace any tire(s), ensure original tire size is used. This is particularly true on 4-WD models to ensure correct amount of front axle overspeed (or "lead") is maintained.

Wheel Bolt Torque

FIG. 91: Periodically check wheel bolt torques, front and rear.

Correct bolt torques:

Front Wheel Bolts, 1 ..... 65 ft.-lbs. (88 N.m)
Rear Wheel Bolts, 2 ..... 90 ft.-lbs. (122 N.m)
Rear Hub to Axle Bolts, 3..... 90 ft.-lbs. (122 N.m)
Rear Wheel Center to
Rim Bolts, 4 (Ag. Tires Only) ... 90 ft.-lbs. (122 N.m)

Bolt torques above apply to all models whether two or four-wheel drive, agricultural or turf tires unless stated otherwise.

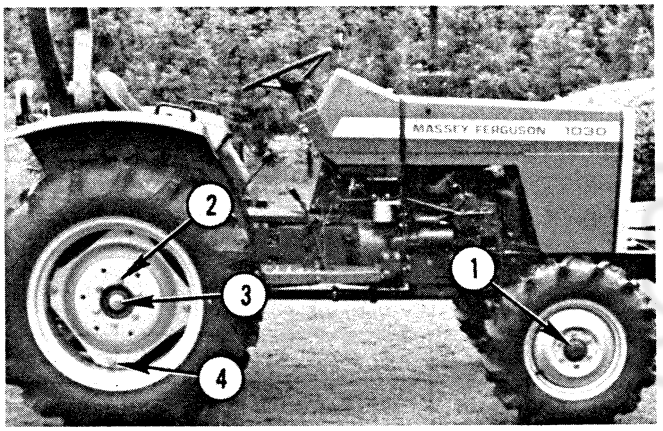


FIG. 91

Front Wheel Alignment

FIG. 92: "Toe-in" of front wheels is set at the factory and normally rechecked during pre-delivery operation. Toe-in dimensions (A minus B) are as follows:

2-WD ..... 1/8" to 3/8" (3 to 10 mm)
4-WD ..... 0" ± 3/16" (0 ± 5 mm)

Always measure toe-in from tire center to tire center at a point halfway up on face of each tire being measured.

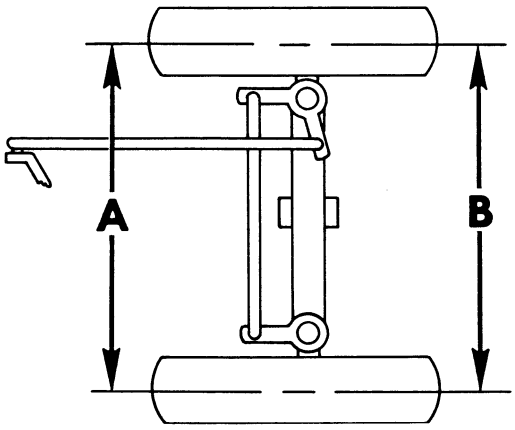


FIG. 92

2-WD Toe-In

FIG. 93: Toe-in is adjusted by loosening lock nuts, 1, on each end of tie-rod. Rotate center tube portion, 2, of tie-rod to achieve desired toe-in. Retighten both lock nuts.

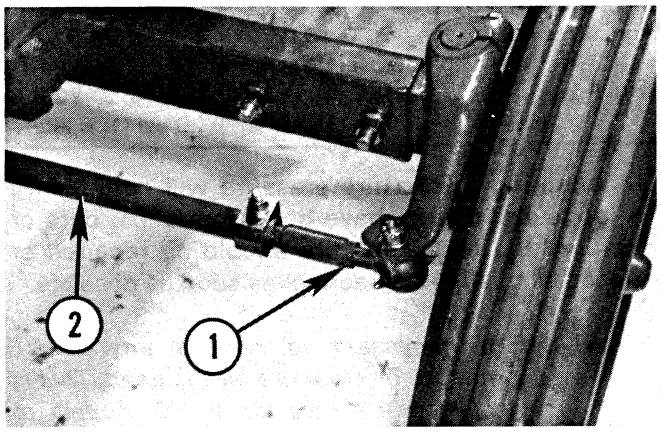


FIG. 93

4-WD Toe-In

FIG. 94: Toe-in is adjusted by loosening lock nut, 1, on right end of tie-rod, removing tie-rod end from spindle arm, 2, and screwing tie-rod end in or out as required. Securely tighten tie-rod in spindle arm and secure nut, 3, with new cotter pin. Tighten lock nut, 1, on tie-rod.

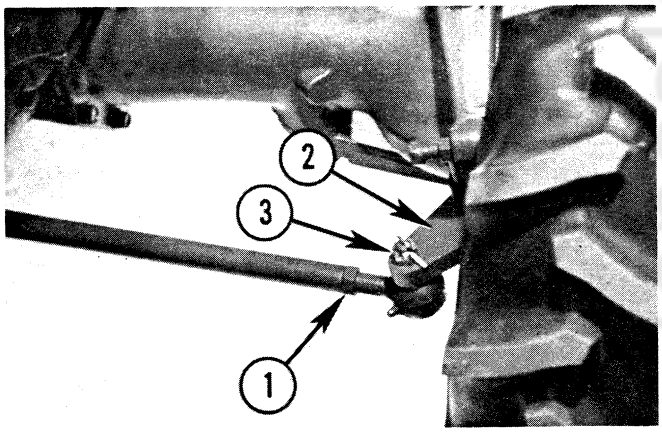


FIG. 94

Wheel Spacing

In some cases the tread widths may be varied by using the following methods, as applicable (tread widths are measured tire center to tire center as close to the ground as possible):

- Adjustable front axle on 2-WD Tractors — Telescoping axle extensions may be positioned in four different positions in front axle tube. This adjustment may be used with agricultural-type tires or turf tires.
- Adjustable wheel centers on agricultural-type rear wheels (2 or 4-WD) — Up to six different rear tread width settings may be achieved by reversing wheel centers, switching rear tires and wheels from side to side, and/or by repositioning wheel rim on the wheel center.

NOTE: Rear Agricultural-type tires must always be installed so when viewed from the rear, the "V" pattern of the tread points upward.

Due to rim offset, front turf tires (2-WD or 4-WD) cannot be reversed to the "dished in" position as interference will occur. Front ag. tires (2-WD or 4-WD) should not be reversed to "dished out" position for stability reasons.

When changing tread width, make certain the desired setting is compatible with implements to be used on Tractor to prevent clearance and interference problems.

Adjustable Front Axle (2-WD)

FIG. 95: To adjust the front axle on 2-WD Tractors, raise front of Tractor and securely block in raised position. Remove bolt, 1, securing telescoping sections of tie-rod. Remove bolts, 2, securing axle extension in front axle tube. Slide axle extension to desired position and reinstall bolts, 1 and 2. The number of exposed holes in axle extension should correlate to the number of exposed notches in tie-rod. Repeat procedure with remaining side.

IMPORTANT: Front axle bolts and wheel bolts must be securely tightened and rechecked after short period of operation. It is advisable to check front wheel toe-in after the 2-WD front axle width is adjusted.

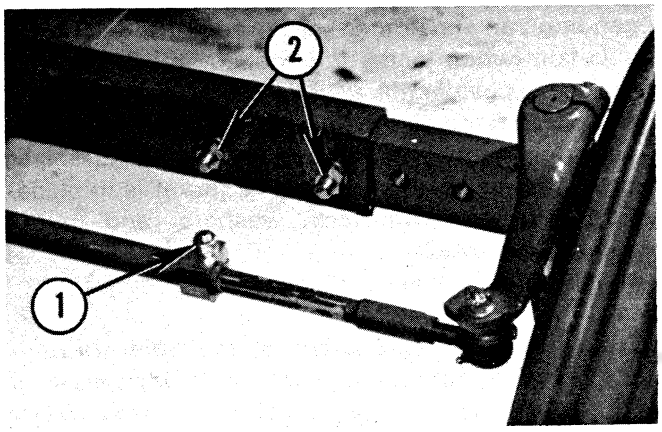


FIG. 95

Adjustable Rear Wheels
(Agricultural-Type Tires Only)

FIG. 96: Six different rear tread widths are possible when agricultural-type wheel and tires are installed. Jack Tractor sufficiently and block in raised position.

To reverse wheel centers, 1 — Remove rim and tire assembly, 2, from wheel center, 1. Remove wheel center from rear axle hub, turn wheel center 180° (to opposite "dish" position), and reinstall wheel center followed by installation of rim and tire assembly in either the "set out" or "set in" position. Repeat procedure with remaining side.

To reposition rim, 2 — Remove bolts securing rim and tire assembly, 2, to wheel center, 1. Rotate rim and tire slightly (so rim brackets can move past outer edge of wheel center) and reposition tire and rim assembly on opposite side of wheel center. Secure bolts in second set of holes in rim brackets. Repeat procedure with remaining side.

To reverse entire wheel and tire assembly — Raise both rear tires of Tractor and BLOCK TRACTOR IN RAISED POSITION AND ALSO TO PREVENT PIVOTING OF FRONT AXLE. Remove bolts securing both rear wheel assemblies to rear axle hubs and switch wheel assemblies to opposite sides of Tractor. Secure with bolts.

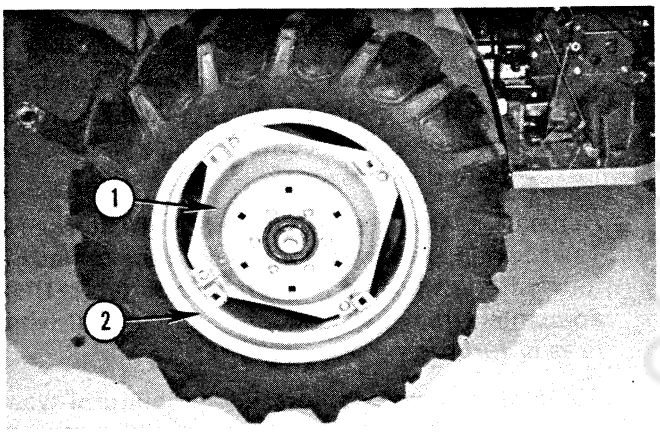


FIG. 96

MUFFLER POSITION

Muffler may be positioned horizontally or vertically depending on customer preference and Tractor application (when loader is installed, muffler should be vertically positioned).

FIG. 97: Remove the four nuts and lock washers, 1, securing muffler to exhaust manifold and select desired muffler position. Ensuring gasket is in place, secure muffler with lock washers and nuts previously removed.

Muffler shown in vertical position.

NOTE: A muffler extension is available through Massey-Ferguson Dealer to replace existing muffler outlet pipe. When muffler is vertically positioned, muffler extension is highly recommended.

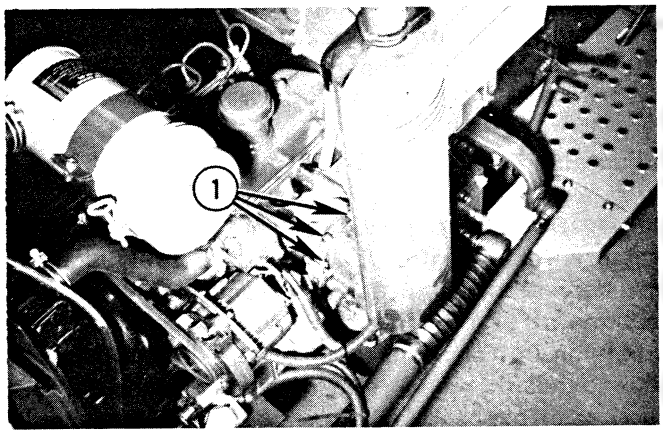


FIG. 97

FIG. 98: Muffler shown in horizontal position.

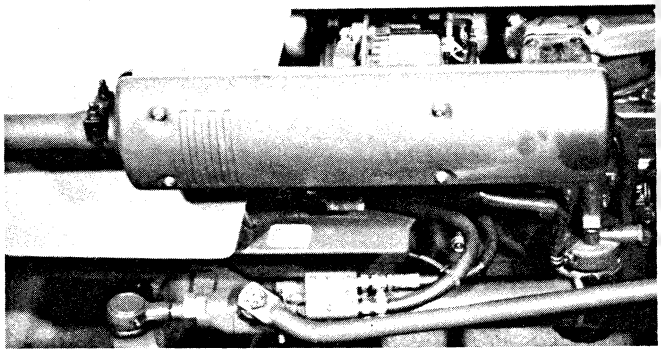


FIG. 98

STORAGE

FIG. 99: If Tractor is to be stored for extended periods, such as off-season non-use, certain measures can be taken for its preservation during such periods. These measures will vary according to geographical area and storage season.

1. Store Tractor in enclosed area, if possible, for protection from weather.
2. Block up Tractor to remove weight from tires and to protect tires from oily or damp floor.
3. Fill fuel tank to top to prevent condensation from forming on inside of tank. Turn valve, 1, to no-fuel position, as shown.
4. Raise and lock lift linkage in up position.

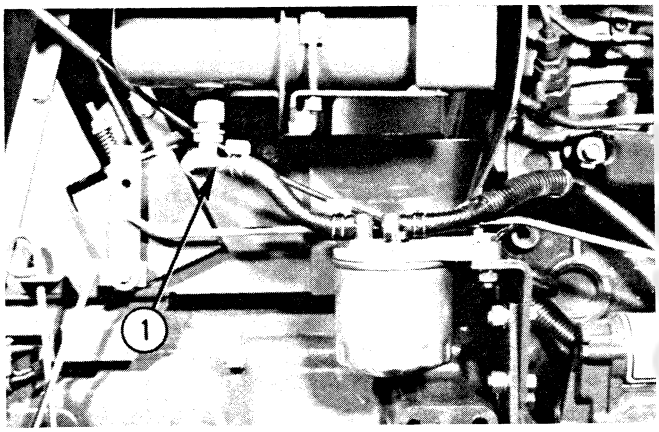


FIG. 99

FIG. 100:

5. Remove battery and store in cool dry place. Maintain charge during storage period.
6. If Tractor is stored during cold weather season insure that anti-freeze is adequate. Alternatively, radiator and engine block may be drained.
7. Check with your diesel fuel supplier on the availability of a diesel fuel additive to place in the fuel system during storage period.
8. If Tractor cannot be placed in an enclosed area place it under some sort of cover and cover exhaust pipe to prevent entrance of rain or snow.
9. Depress clutch pedal and secure in the disengaged position with hook, 2.

NOTE: This is to prevent clutch seizure during long periods of Tractor storage.

10. At the end of storage period, perform appropriate lubrication and maintenance before placing Tractor back in service. See "Lubrication and Maintenance" section.

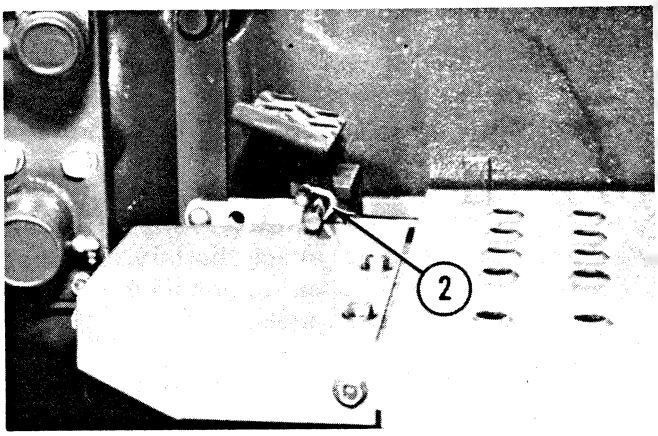


FIG. 100

ASSEMBLY & PRE-DELIVERY INSPECTION

IMPORTANT: Do not commence assembly of this Tractor until reading these instructions completely and carefully.

NOTE: For certain lubrication, adjustments, etc., refer to appropriate section of this manual. ALSO, ALL NUTS, BOLTS, ETC., ON THESE TRACTORS ARE IN METRIC DIMENSIONS.

Tractors will be shipped individual containers. The Tractor will be partially disassembled however, to make containers as compact as possible. Wheels, ROPS, seat, steering wheel, lift linkage, drawbar and some attaching hardware, etc. will be removed.

Wheels will be fastened within the container and the remainder of the items will be found in sundry boxes also fastened within the container.

Gauges and fuel tank cap area may be covered with a thin film of protective wax. It may be removed by steam cleaner and detergent solution at whenever is the most convenient time in the assembly and pre-delivery process.

Tractors will arrive with battery secured inside shipping container.

To assemble and pre-deliver these Tractors proceed as follows:

CAUTION: Be observant of loose components (wheels, battery, etc.) that may be attached to, or held in position by container panels.

1. Remove wheels, battery and sundry boxes from container.
2. Remove tractor from container and block securely.
3. Inspect Tractor for damage and any evidence of coolant, fuel or lubricant leaks.
4. Install ROPS at this time (refer to Figs. 101 to 103). Install rear fenders. Fenders are attached to step plates and rear panel with bolts, flat washers, lock washers and nuts. Fenders are attached to center trim panels with bolts and captive lock and flat washers. Fenders are attached to rear axle housing with check chain brackets.
5. Remove solid plug from end of rear housing breather hose (refer to Fig. 104). Check breather hose routing and exchange temporary vented transmission filler plug with solid plug supplied in sundry box.
6. Install wheels and torque as follows:
   a. Front wheel cap screws, 65 ft.-lbs. (88 N.m).
   b. Rear wheel hub to axle cap screws, 90 ft.-lbs. (122 N.m).
   c. Rear wheel disc to hub cap screws, 90 ft.-lbs. (122 N.m).
7. Install steering wheel, tighten nut to 32 ft.-lbs. (42 N.m) and install center cap.
8. Install seat, rear taillight and amber flashing lights.
9. Install lift linkage, top link and drawbar.
10. Check to see that engine oil level is adequate.
11. Check to see that fuel injection pump lubricating oil level is adequate.
12. Check to see that coolant level is adequate, 1/2" (12 mm) below filler pipe.
13. Check fan belt tension, 3/8" (10 mm), when subjected to a force of thumb pressure.
14. Check to see that transmission oil level is adequate. Also check level in power steering reservoir (as applicable).
15. Install a sufficient amount of No. 2 diesel fuel to complete pre-delivery service.
16. Install battery as detailed in "Electrical System".
17. Check air cleaner elements, hoses and clamps for correct installation.
18. Check steering linkage, brake linkage and clutch linkage cotter pins for secure installation.
19. Check brake and clutch pedal linkage for correct free-travel, 1-9/16" to 2" (40 to 50 mm) for brakes and 7/8" to 1-1/8" (20 to 30 mm) for clutch.
20. On 4-WD, check oil level in front axle differential and wheel reduction units.
21. Place filter shutoff valve in the ON position.
22. Take up position in operator's seat and engage parking brake.
23. Place gearshift lever in "S" and rear PTO lever in OFF.

NOTE: Engine will not start unless gearshift lever is in "S" and rear PTO lever is in off (Neutral) position.

24. Set throttle lever at half throttle and turn ignition switch counterclockwise 20-40 seconds.
25. Turn ignition switch clockwise to "ON" and then "START' positions and note that engine oil pressure warning light and alternator warning light on the instrument panel turn red at the "ON" position and then go out after the engine starts.
26. Allow engine to warm up to operating temperature at about 1500 rpm.
27. Operate Tractor to see that it shifts and operates smoothly in all gears including four-wheel drive (if so equipped).
28. Operate PTO to see that it functions properly.
29. Check all lights and instruments to see that they operate properly.
30. Check brakes for correct operation.
31. Check safety start system to see that it functions correctly.
32. Check warm engine low idle speed, it should be 850 to 900 rpm.
33. Check warm engine high idle speed, it should not exceed 2700 rpm for M-F 1030, 2800 rpm for M-F 1035.
34. Set throttle lever at idle, shut off engine and check Tractor over for coolant, lubricating oil or fuel leaks.
35. Lubricate all fittings.
36. Check tire inflation pressure. (See tire inflation chart).
37. Check front wheel toe-in:

    2-WD ..... 1/8" to 3/8" (3 to 10 mm)
    4-WD ..... 0" ± 3/16" (0 ± 5 mm)

38. Test anti-freeze to see that it is adequate for local climate conditions.

NOTE: Factory fill is set to -30°F (-34°C).

39. Install safety equipment as applicable.
40. Check to see that all safety decals are in place.
41. Check hydraulics to see that they function correctly.

NOTE: Lift links may tend to stay in raised position when no weight is on them regardless of position of control lever.

42. Clean and polish sheet metal as necessary.
43. Fill fuel tank to prevent moisture accumulation.
44. Read Operator's Manual thoroughly before using or demonstrating Tractor.

TROUBLE-SHOOTING

NOTE: Since all fuel injection system adjustments and repairs must be performed by your M-F Dealer, no trouble-shooting other than that which follows is suggested to the operator.

Hard Starting

1. Cold air temperature.
2. Fuel filter restricted.
3. Air in lines.
4. Battery low.
5. Battery to starter, and/or ground cables loose.

Engine Overheating

1. Dirty radiator and grille.
2. Fan belt slipping.
3. Low engine coolant.
4. Engine lugging.
5. Obstruction in coolant flow.
6. Faulty radiator cap.

Loss of Power

1. Air in lines.
2. Fuel filter restricted.
3. Clogged air cleaner.

Engine Knocking

It is an inherent characteristic of a diesel engine to make a "knocking" sound during the normal course of its operation. The fewer cylinders the engine has and the lower the engine speed the more pronounced this "knocking" noise will be. Once accustomed to this normal characteristic, an operator will notice any unusual knocking. If unusual knocking is noticed, shut off engine and notify your M-F Dealer.

ROPS INSTALLATION

IMPORTANT: This Tractor is shipped with a rollover protective structure (ROPS) and seat belts. To ensure optimum operator safety, BOTH of these must be installed and the importance of usage be instructed to all operators of this Tractor.

FIG. 101: Install ROPS to Tractor prior to installation of three-point linkage. Rear PTO shield is installed following installation of ROPS. Using floor crane or hoist, install safety frame from the rear positioning frame bracket, 1, on rear of Tractor center housing.

Align safety frame plate holes and tapped center housing holes and install four 16 mm x 40 mm bolts, 2, with lock washers. Brackets, 3, for rear PTO shield must be secured beneath ROPS securing bolts as shown. Tighten to 159 ft.-lbs (216 N.m).

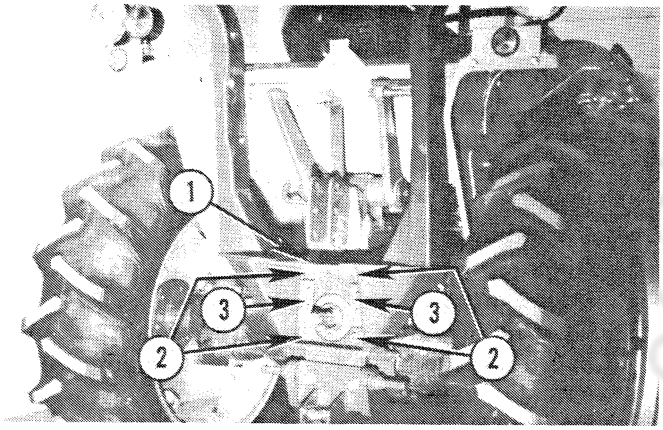


FIG. 101

FIG. 102: Install PTO shield, 1, to brackets previously installed using four 10 mm x 16 mm bolts, 2, with lock washers and flat washers. Tighten to 29 ft.-lbs. (39 N.m).

Check that caution decal is secured to ROPS tube.

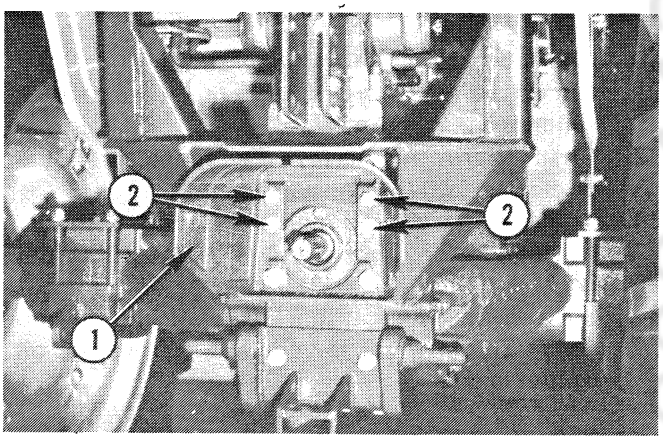


FIG. 102

FIG. 103: Seat belts must be installed. Proceed as follows.

Locate mounting areas for seat belts at underside of seat toward rear of seat mounting frame.

Attach belt with buckle, 2, to left side and attach belt with latch, 1, to right side using bolt, 3, lock washer and nut at each location. Check inset for positioning of seat belt brackets and then tighten bolts, 3, to 43 ft.-lbs. (58 N.m).

CAUTION: Seat belt must be used when ROPS in installed on Tractor.

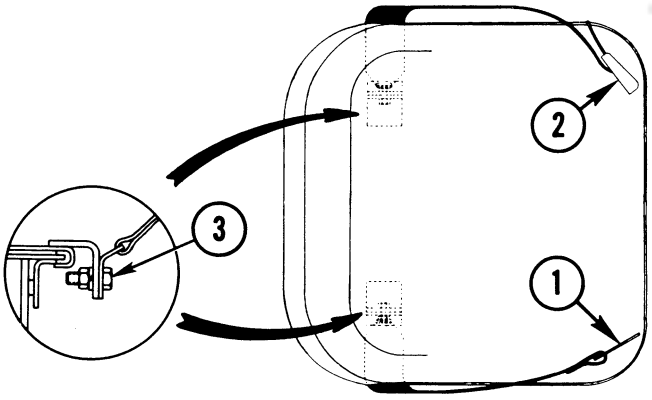


FIG. 103

REAR HOUSING VENT

FIG. 104: Solid plug, 1, is installed for shipping purposes only. Remove plug and make sure hose, 2, is routed, as shown, clear of moving linkage, etc.

In addition, the vented transmission filler plug (located next to dipstick) must be discarded and the solid filler plug, supplied in the sundry box, be installed in its place. Failure to do so may result in oil leakage and/or seal damage due to improper venting.

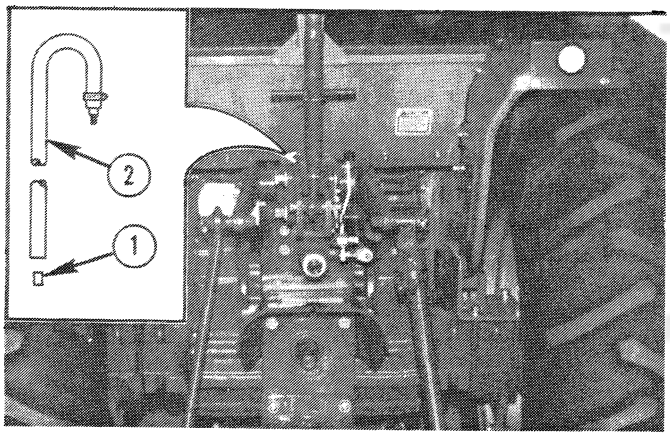


FIG. 104

SPECIFICATIONS

ENGINE:

Make	Toyosha Diesel
Model:	
M-F 1030	MS142
M-F 1035	MS150
Type	Indirect injection, overhead valve
Displacement:	
M-F 1030	87.0 cu. in. (1425 cc)
M-F 1035	91.8 cu. in. (1505 cc)
Number of Cylinders	3
Bore	3.228" (82 mm)
Stroke:	
M-F 1030	3.54" (90 mm)
M-F 1035	3.74" (95 mm)
Engine Horsepower (Gross):	
M-F 1030	26 @ 2500 rpm
M-F 1035	31 @ 2600 rpm
PTO Horsepower (Estimate):	
M-F 1030	23 @ 559 PTO rpm
M-F 1035	26 @ 582 PTO rpm
Firing Order	1-3-2
Compression Ratio	23:1
Low Idle Speed	850-900 rpm
High Idle Speed:	
M-F 1030	2650-2700 rpm
M-F 1035	2750-2800 rpm
Valve Clearance, Cold:	
Intake	0.012" (0.30 mm)
Exhaust	0.014" (0.35 mm)
Air Cleaner	Dual stage, dry element
Engine Cooling	Liquid, forced circulation
Cold Starting Aid	Glow plugs (3)

TRANSMISSION:

Type	Synchronized constant mesh primary/sliding gear range and reduction
Speed Ranges	12 gears forward, 4 reverse
Clutch	Two stage dry with two 8.46" (215 mm) disc
Brakes	Mechanically actuated sealed wet disc. May be used individually or together (for road use).
Steering:	
M-F 1030 2-WD	Manual with spur gear and pinion
M-F 1030 4-WD and all M-F 1035	Spur gear and pinion, hydraulic assist
Hydraulic System	Engine mounted gear pump with maximum output of 4.76 U.S. gals./min. (18.0 litre/min.) for the M-F 1030 and 5.9 U.S. gal./min. (22.5 litre/min.) for M-F 1035. (System relieve valve setting 2030 psi (14,000 kPa).
Three-Point Linkage	Category I three-point hitch operated by single position control lever and also by top link sensing draft control when installed. Maximum lift capacity of 1720 lbs. (780 kg) measured 24" (610 mm) behind link ends (SAE J-283) with top link positioned in top hole.
Rear PTO	Rear PTO speed of 540 rpm at 2415 engine rpm. Driven by second stage of the dual clutch, live type drive.

ELECTRICAL SYSTEM:

System Voltage ..... 12 volt, negative (-) ground
Battery ..... 490 CCA @ 0°F (-18°C)
Charging ..... 35 amp alternator with internal regulator/rectifier

CAPACITIES:

Engine Crankcase with Filter ..... 3.7 U.S. qts. (3.5 litres)
Transmission ..... 9.2 U.S. gals. (35.0 litres)
Fuel Tank ..... 7.1 U.S. gals. (27.0 litres)
Cooling System ..... 4.2. U.S. qts. (4.0 litres)
Front Differential (4-WD Only) ..... 2.1 U.S. qts. (2.0 litres)
Wheel Reduction Units, Each (4-WD Only) ..... 0.63 U.S. qts. (0.6 litres)

TREAD WIDTH SETTINGS:

M-F 1030 (Early — prior to s.n. 02965 (2-WD) or 42476 (4-WD):

Front:

2-WD:

Adjustable Axle w/Ag. Tires ("Dished In" Only) ..... 48.0", 52.4", 56.5", 60.8" (1220, 1330, 1435, 1545 mm)
Adjustable Axle w/Turf Tires ("Dished In" Only) ..... 52.0", 56.3", 60.4", 64.8" (1320, 1430, 1535, 1645 mm)

4-WD:

W/Ag. Tires ("Dished In" Only) ..... 48" (1220 mm)
W/Turf Tires ("Dished Out" Only) ..... 55.5" (1410 mm)

Rear:

2-WD & 4-WD Adjustable Wheels W/Ag. Tires ..... 44.5", 48.4", 52.0", 55.7", 59.1", 62.8" (1130, 1230, 1320, 1415, 1500, 1595 mm)
2-WD & 4-WD W/Turf Tires ("Dished Out" Only) ..... 50.8 (1290 mm)

M-F 1030 (Late — s.n. 02965 (2-WD) or 42476 (4-WD) and up:

Front:

2-WD:

Adjustable Axle w/Ag. Tires ("Dished In" Only) ..... 48.0", 52.4", 56.5", 60.8" (1220, 1330, 1435, 1545 mm)
Adjustable Axle w/Turf Tires ("Dished In" Only) ..... 52.0", 56.3", 60.4", 64.8" (1320, 1430, 1535, 1645 mm)

4-WD:

W/Ag. Tires ("Dished In" Only) ..... 42.7" (1085 mm)
W/Turf Tires ("Dished Out" Only) ..... 50.2" (1275 mm)

Rear:

2-WD & 4-WD Adjustable Wheels W/Ag. Tires ..... 44.5", 48.4", 52.0", 55.7", 59.1", 62.8" (1130, 1230, 1320, 1415, 1500, 1595 mm)
2-WD & 4-WD W/Turf Tires ("Dished Out" Only) ..... 46.1 (1170 mm)

M-F 1035:

Front:

2-WD:

Adjustable Axle w/Ag. Tires ("Dished In" Only) ..... 48.0", 52.4", 56.5", 60.8" (1220, 1330, 1435, 1545 mm)
Adjustable Axle w/Turf Tires ("Dished Out" Only) ..... 51.2", 55.5", 59.6", 64.0" (1300, 1400, 1515, 1625 mm)

4-WD:

W/Ag. Tires ("Dished In" Only) ..... 48" (1220 mm)
W/Turf Tires ("Dished In" Only) ..... 53.0" (1345 mm)

Rear:

2-WD & 4-WD Adjustable Wheels W/Ag. Tires ..... 45.3", 49.2", 51.2", 54.9", 59.8", 63.6" (1150, 1250, 1300, 1395, 1520, 1615 mm)
2-WD & 4-WD W/Turf Tires ("Dished Out" Only) ..... 53.3 (1355 mm)

DIMENSIONS (May vary slightly due to tire size):

M-F 1030:

- Overall Length:
  - 2-WD ..... 105" (2670 mm)
  - 4-WD ..... 105.3" (2675 mm)
- Overall Height Over Steering Wheel:
  - 2-WD ..... 60.6" (1540 mm)
  - 4-WD ..... 58.3" (1480 mm)
- Overall Height Over Vertical Exhaust:
  - 2-WD ..... 74.0" (1880 mm)
  - 4-WD ..... 71.1" (1805 mm)
- Overall Height Over ROPS ..... 86.1" (2188 mm)
- Wheel Base:
  - 2-WD ..... 67.5" (1715 mm)
  - 4-WD ..... 67.3" (1710 mm)
- Minimum Ground Clearance (Under Drawbar Bracket) ..... 12.4" (315 mm)
- Weight (Including Battery):
  - 2-WD ..... 2613 lbs. (1185 kg)
  - 4-WD ..... 2723 lbs. (1235 kg)

M-F 1035:

- Overall Length:
  - 2-WD ..... 107" (2725 mm)
  - 4-WD ..... 108" (2730 mm)
- Overall Height Over Steering Wheel:
  - 2-WD ..... 60.6" (1540 mm)
  - 4-WD ..... 59.4" (1510 mm)
- Overall Height Over Vertical Exhaust:
  - 2-WD ..... 74.0" (1880 mm)
  - 4-WD ..... 72.6" (1845 mm)
- Overall Height Over ROPS ..... 88.2" (2240 mm)
- Wheel Base ..... 67.3" (1710 mm)
- Minimum Ground Clearance:
  - 2-WD (Under Drawbar Bracket) ..... 14.6" (370 mm)
  - 4-WD (Under Front Axle) ..... 13.8" (350 mm)
- Weight (Including Battery):
  - 2-WD ..... 2602 lbs. (1180 kg)
  - 4-WD ..... 2723 lbs. (1235 kg)

ACCESSORIES

Slow Moving Vehicle (SMV) Emblem and Bracket — Attaches to rear of seat for transporting Tractor on public roadway. Required in most areas.

Exhaust Extension — Extends exhaust to improve operator comfort when muffler is attached in vertical position.

Spark Arrestor Muffler — Restricts engine exhaust emission of sparks or hot carbon particles for use in forest, orchard areas, etc.

Engine Block Heater — Installed into engine block coolant cavity, through expansion plug opening, to assist starting in colder ambient temperatures.

Rear Work Light — Attaches to rear of right fender to illuminate implement for night use.

Electric Front Clutch Kit — Provides electrically controlled drive at front of Tractor. May be required when front mounted snow blower is installed.

Front Weight Frame — Attaches to front of Tractor, enabling a maximum of ten (10) hang-on weights (below) to be installed.

Rear Weight Frame — Attaches to rear of Tractor on 3-point hitch, allowing hang-on weights (below) to be installed. Maximum of twelve (12) weights recommended.

Hang-On Weights — For installation on front or rear frames above. Each weight weighs 25 lbs. (11.3 kg).

Front Wheel Weights — For use on front wheels of 2-WD Tractor with agricultural-type tires and wheels only. Four half sections (two for each wheel) attached to wheels adding 176 lbs. (80 kg) of front ballast.

Rear Wheel Weights — For use on rear agricultural-type wheels and tires, 2 or 4-WD Tractors. Each kit contains two weights (one for each side adding 144 lbs. (65 kg) weight to rear of Tractor. Up to three (3) kits may be installed. Securing hardware for rear wheel weights are supplied as separate accessories depending if initial set is being installed to wheels or if weights are being secured to existing weights (previously installed).

Single or Two Spool Auxiliary Valve — Valve installed on right side of Tractor and incorporated into existing Tractor hydraulic system to provide one or two double-acting remote hydraulic circuits for implement operation.

Manifold Block — Enable Tractor hydraulic system to be utilized for other hydraulic requirements using an external control valve (not supplied).

Extra Turf Wheels and Tires — For Tractors originally equipped with agricultural-type tires.

Draft Control — For M-F 1030 — Provides upper link sensing draft control for ground engaging, three-point hitch mounted implements. Draft control is standard equipment on M-F 1035.

Power-Assist Steering — For 2-WD M-F 1030 — Power-assist steering kit similar to that factory installed on 4-WD M-F 1030 and all M-F 1035 Tractors. Reduces steering effort appreciably, especially when loader is installed. Features independent hydraulic pump.

Implements and Attachments — Your Massey-Ferguson Dealer offers a complete line of implements and attachments, such as; mowers, loaders, backhoes, tillers and numerous ground-engaging tools, to fulfill your needs. Please check with him on your requirements and he will be happy to show you his full line of "matched" equipment.

FACTORY RECOMMENDED
NEW TRACTOR PRE-DELIVERY INSPECTION CHECKLIST

MASSEY-FERGUSON

R.O. _____ R.O. CODE ☐☐ DEALER CODE ☐☐☐☐☐ DATE _____

DEALER _____ ADDRESS _____

TRACTOR MODEL _____ SERIAL NO. _____

ENGINE NO. _____ MACHINE CODE _____

TRANSMISSION NO. _____

THIS PRE-DELIVERY INSPECTION CHECKLIST IS PROVIDED TO IDENTIFY THE ITEMS CHECKED AND IF NECESSARY ADJUSTED BY THE DEALER PRIOR TO DELIVERY OF THIS MACHINE.

Inspect the following and adjust if necessary.

ENGINE

- ☐ Radiator Filled with Solution
- ☐ Cooling System Connections
- ☐ Fan and Alternator Belt Tension
- ☐ Engine Oil
- ☐ All Oil Drain Plugs
- ☐ Oil Pressure
- ☐ Engine RPM (Idle)
- ☐ Engine RPM (Full Throttle)
- ☐ Governor Performance
- ☐ Electrical Connections
- ☐ Service Air Cleaner
- ☐ Air Cleaner Connections
- ☐ Fuel Line Connections
- ☐ Injection Pump Oil

CHASSIS

- ☐ Tire Inflation
- ☐ Front Wheel Hub Bolts
- ☐ Wheel Rim and Hub Bolts (Rear)
- ☐ Torque All Chassis Bolts
- ☐ Central Hydraulic Oil Reservoir
- ☐ Brake Pedal Free-Travel
- ☐ Clutch Pedal Free-Travel
- ☐ Hydraulic System Performance
- ☐ Drive Test
- ☐ Lubricate All Fittings
- ☐ Is Operator's Manual with Tractor
- ☐ Power Steering Operation (As Applicable)
- ☐ Front Axle Oil Reservoirs (4-WD)
- ☐ Front Axle Operation (4-WD)

INSPECTION PERFORMED BY: **Signature** _____

Explained the following to the Owner.

- ☐ Operator's Manual
- ☐ Safety
- ☐ Instruments and Controls
- ☐ Breaking in the New Tractor
- ☐ Power Take-Off Operation
- ☐ Lubrication and Maintenance Schedule
- ☐ Fuel System
- ☐ Draining of Engine and Radiator
- ☐ Air Cleaner Filter Service
- ☐ Tire Care
- ☐ Wheel Tread Adjustment
- ☐ Storage

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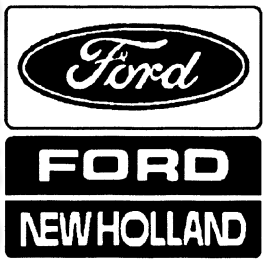
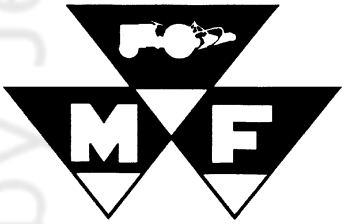
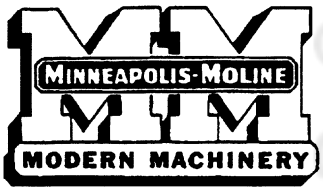
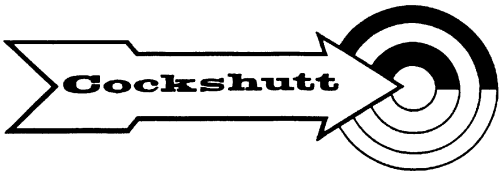
NOTES









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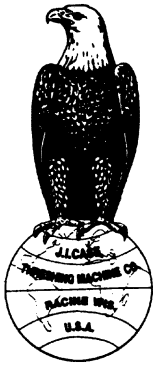

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