JOHN DEERE 720 SERIES SPARK IGNITION TRACTORS

JOHN DEERE

SERVICE MANUAL

JOHN DEERE 720 SERIES SPARK IGNITION TRACTORS

SM2025 (01SEP58) English

JOHN DEERE TRACTOR WORKS
SM2025 (01SEP58)

LITHO IN THE U.S.A.
ENGLISH

SERVICE MANUAL FOR JOHN DEERE DEALERS

720 SERIES SPARK IGNITION TRACTORS

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SM-2025 (9-58)

TO THE JOHN DEERE SERVICEMAN

This Service Manual contains maintenance instructions for the John Deere "720" Series, Spark Ignition Tractors. Included are complete instructions for removal, disassembly, inspection, repair, assembly and installation of the major parts and assemblies of the tractor. In addition, the manual contains brief descriptions of the more complicated systems of the tractor, and tells how they operate. Dimensions of many new wearing parts are given as an aid in determining when parts replacement is necessary. Tests and adjustments, required to keep the tractor operating efficiently, are explained in detail.

The manual also contains complete instructions for performing the predelivery, delivery, after-delivery and 150-hour services outlined in the Service Policy which accompanies each tractor. By using this information, you will be sure that the tractor is ready to perform efficiently and economically when it is delivered to its new owner and that it will be restored to peak efficiency when it is brought into your shop for after-delivery services. A section on "Tune-Up and Adjustment" contains instructions for performing the services necessary to help the tractor perform efficiently and economically after it has been in the field for some time.

The sections in this manual concerning the power steering mechanism, carburetors, electrical equipment and Powr-Trol are limited mainly to removal and installation instructions.

Full maintenance instructions for the power steering mechanism are given in *Service Manual SM-2016, "Power Steering for John Deere Tractors."*

Complete information concerning the gasoline, All-Fuel and LP-Gas carburetors used on the "720" Tractor is contained in *Service Manual SM-2024, "Carburetors for John Deere Tractors and Engines."*

Complete instructions for all components of the electrical and ignition systems of the tractor are being prepared at the present time and will be published in *Service Manual SM-2026, "John Deere Electrical Systems."* Similar information is currently available in *Service Manual SM-2000, "Tractors and Engines (General)."* SM-2000 can be referred to in case of electrical and ignition problems until such time as SM-2026 becomes available.

For additional information concerning the Custom Powr-Trol mechanism, consult *Service Manual SM-2022, "Custom Powr-Trol."*

This manual is written specifically for "720" Series, Spark Ignition Tractors. However, most of the information it contains applies equally to Model "70" Tractors, and also to "730" Series Tractors. Most of the components of the three tractors are similar or identical, as are also the service procedures applicable to the components. Where variations exist in the components and procedures, they are of such a minor nature that the serviceman will be able to apply the information in this manual to "70" and "730" Tractors without difficulty.

This manual was planned and written for the Service Department; its place is in the shop. Use the manual whenever in doubt about correct maintenance procedures. Use it as a text book for training new Service Department personnel who are unfamiliar with John Deere Tractors.

Daily use of the Service Manual as a guide for any and all service problems will reduce error and costly delay to a minimum and assure you the best in finished service work. In many instances your customer's confidence in your work will be improved when he sees you using the Service Manual. He knows you are following approved maintenance procedures and making proper adjustments. There is no guesswork when you use the manual.

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Section 10
DESCRIPTION, OPERATION, AND SPECIFICATIONS

Group 5
DESCRIPTION

The John Deere "720" Series Tractor is a general-purpose tractor with sufficient power to pull five 14-inch plow bottoms or the equivalent under most soil conditions. The tractor has six forward speeds and one reverse speed.

The features of the tractor are described briefly in the paragraphs which follow. Full descriptions of each of the components or assemblies are contained in the various Sections throughout this Manual.

Serial Numbers

Each tractor bears a serial number located on the right side of the main case just in front of the pulley (Figure 10-5-1).

The distributor and the Powr-Trol valve housing also bear serial numbers.

Engine

The tractor is powered by a two-cylinder, cast-in-block, valve-in-head engine with a displacement of 360.5 cubic inches. Rotation is counterclockwise when viewed from the flywheel side.

The engine has aluminum alloy, sleeve-type main bearings and replaceable, precision-type connecting rod bearings. All bearings and other parts of the engine are pressure lubricated by a force-feed pressure system with a full flow oil filter. The system includes a replaceable filter element. The crankcase is ventilated by a pump located on the rear end of the fan shaft. Engine speeds are controlled by a flyweight type governor driven by the camshaft.

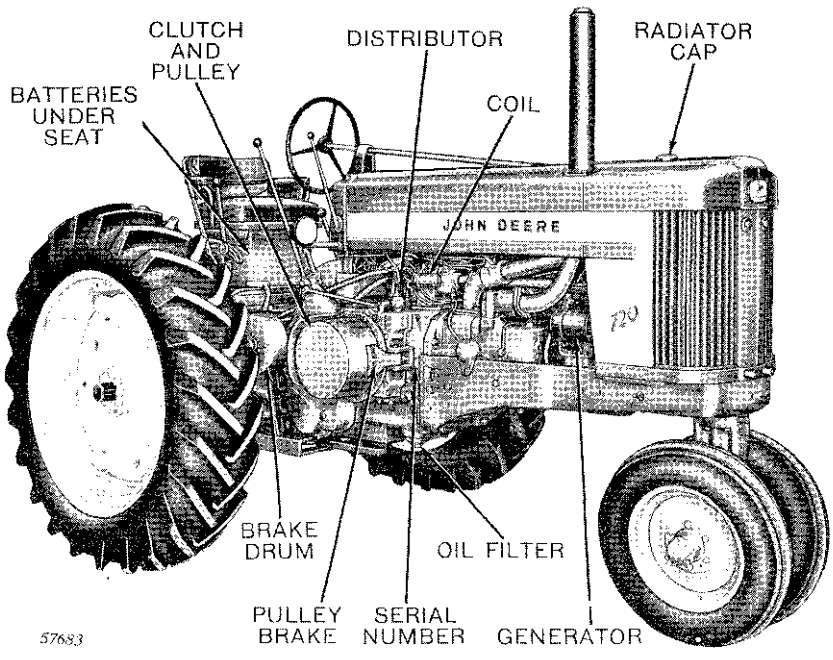


Figure 10-5-1—John Deere "720" Series General-Purpose Tractor—Pulley Side

Fuel System

Gasoline, LP-Gas and All-Fuel tractors are available.

Tractors are equipped with a dual-induction carbureting system using a gravity-fed, natural-draft, double-barrel carburetor and individually ported valves. The All-Fuel tractor has two fuel tanks—a large tank for fuel and a small auxiliary tank for gasoline which is used when starting the All-Fuel engine.

An oil-wash air cleaner assures clean air for the engine.

Ignition

The tractor has a battery-distributor type ignition system with automatic spark advance. A 12-volt battery, generator, starter and lights are standard equipment. The lights consist of two front lights which can be made bright or dim, and a rear combination white and red warning light.

Cooling System

The engine is water cooled. The cooling system includes a centrifugal-type water pump, thermostat, and a by-pass system for quick warm-up.

Clutch

A dry disk, hand-operated clutch is enclosed within the belt pulley. The clutch contains six 10-inch dry disks. The belt pulley is engaged by the clutch lever and rotates at crankshaft speed whenever the clutch is engaged. When the clutch is disengaged, an adjustable pulley brake prevents pulley rotation.

Transmission and Differential

The transmission lies crosswise in the main case. Shifting through the entire range of six forward speeds and one reverse speed is accomplished by one shift lever.

The differential is of the conventional type with a ring gear and spider driven directly by a spur gear in the transmission.

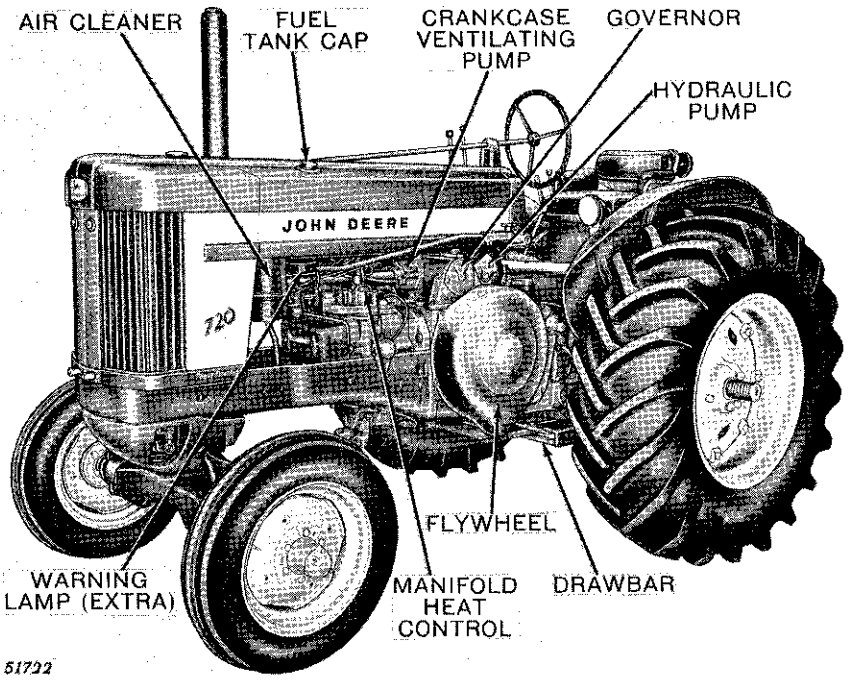


Figure 10-5-2—John Deere "720" Series Standard Tractor—Flywheel Side

BRAKES

Two individually operated foot brakes are provided to stop the tractor, hold it on inclines, or assist in making short turns. Each brake has two internal-expanding shoes and a drum with a shaft and gear which meshes with the final drive gear. The brakes can be held in the engaged position by brake latches.

STEERING MECHANISM

The tractor may be equipped with manual steering or optional hydraulic power steering. The manual system utilizes a worm and gear with adjustments provided to compensate for all wear. The power system contains a gear-type hydraulic pump driven by the fanshaft, a valve assembly controlled by the steering shaft, and a hydraulic cylinder and vane which impart turning motion to the steering spindle and front wheels.

FRONT WHEEL ASSEMBLIES

The tractor may be equipped with a variety of front-end assemblies. For the general-purpose tractor these include Roll-O-Matic, dual front wheels, wide adjustable front axle, single front wheel, and 38-inch fixed tread. The standard tractor may be equipped with fixed or adjustable front ends.

REAR WHEELS

On both general-purpose and standard tractors rear wheel tread adjustment is made by a pinion located in the wheel hub which engages a rack on the axle. Extreme adjustments are made by changing the position of the rim and tire on the wheel. General-purpose tractors may be equipped with regular-length, long, or extra-long rear axles.

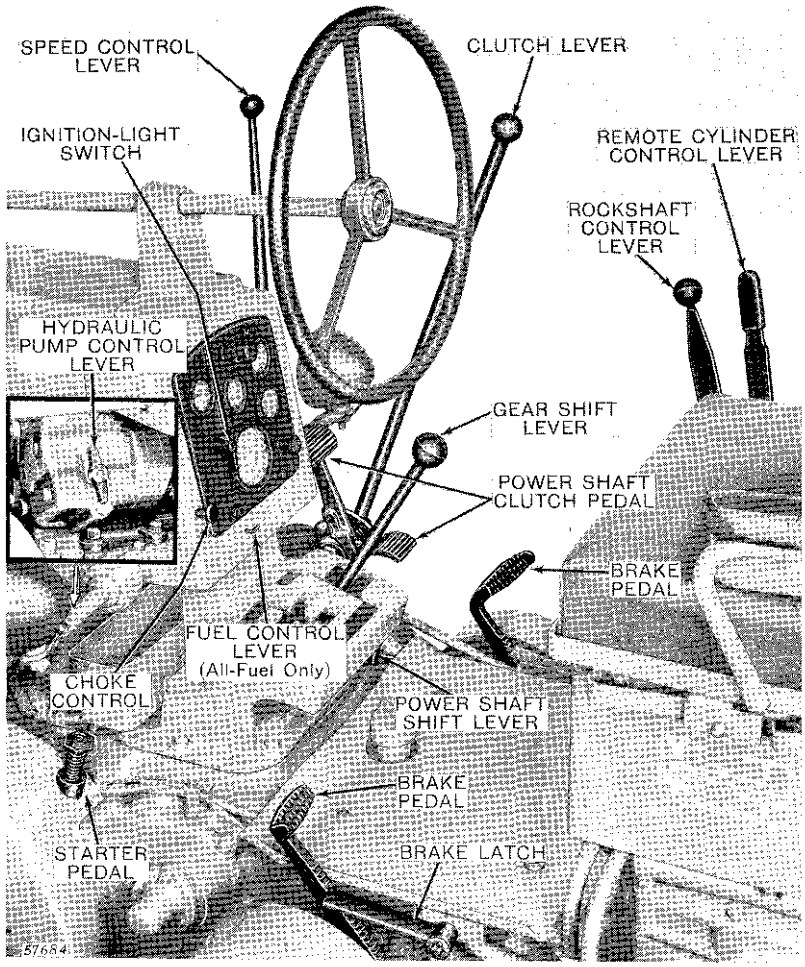


Figure 10-5-3—Operating Controls

General-purpose tractors may also be equipped with power-adjusted rear wheels which make it possible to change rear wheel tread width by engine power without jacking up the tractor. The wheel disks have six "jack screws" which clamp the disks to spiral rails on the rims. Tread adjustment is changed by loosening the jack screws and, by means of engine power, rotating the wheel disk within the rim. As the disk rotates, the jack screws slide along the spiral rails, causing the wheel rim to shift in or out.

POWER TAKE-OFF SHAFT

Tractors can be furnished with an engine-driven "live" type power take-off shaft with self-contained clutch, permitting operation of PTO equipment independent of tractor ground travel. The powershaft conforms to ASAE-SAE standards.

HYDRAULIC SYSTEM

Both general-purpose and standard tractors may be equipped with Custom Powr-Trol to provide effortless control of all types of equipment. The system may consist of a "position-responsive" rockshaft, or a combination of rockshaft with one or two remote cylinders, and also a choice of "solid" or "split" front-mounted rockshaft. Standard tractors may or may not be equipped with rockshaft.

A tractor with position-responsive rockshaft may have a Universal 3-Point Hitch for use with integral implements and Load-and-Depth Control which improves performance. For complete description of the Powr-Trol system, see *Service Manual SM-2022, "Custom Powr-Trol."*

The gear-type Powr-Trol hydraulic pump is attached to the governor case and is driven through an idler gear by the cam gear.

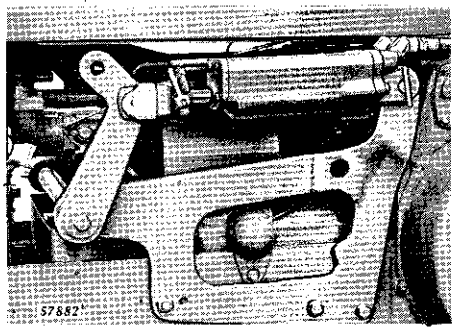


Figure 10-5-4—Left-Hand Side of Both "Solid" and "Split" Front-Mounted Rockshafts

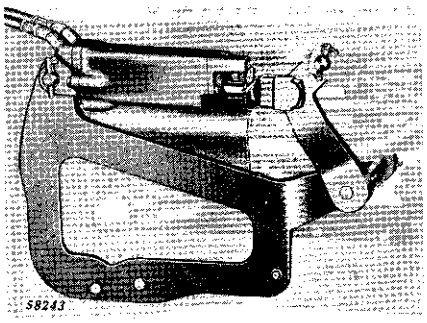


Figure 10-5-5—Right-Hand Side of "Split" Front-Mounted Rockshaft Operated by Two Remote Cylinders

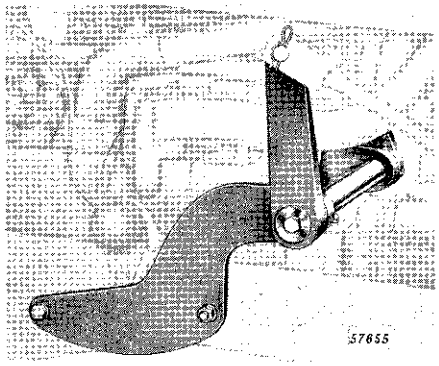


Figure 10-5-6—Right-Hand Side of "Solid" Front-Mounted Rockshaft Operated by One Remote Cylinder

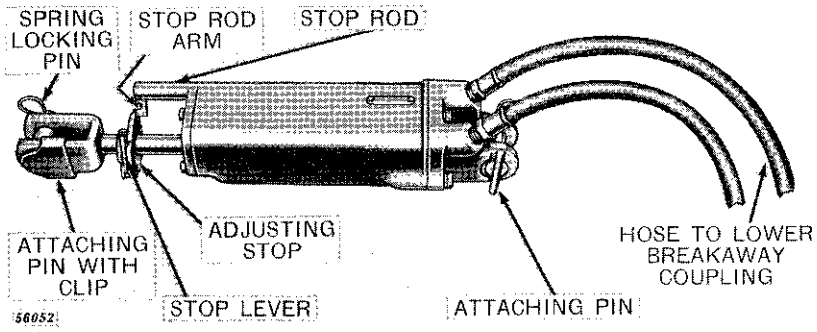


Figure 10-5-7—Remote Cylinder Attaching and Adjusting Parts

Group 10
STARTING AND STOPPING THE ENGINE

ALL ENGINES

Set gearshift lever in neutral and disengage engine clutch (Figure 10-10-1).

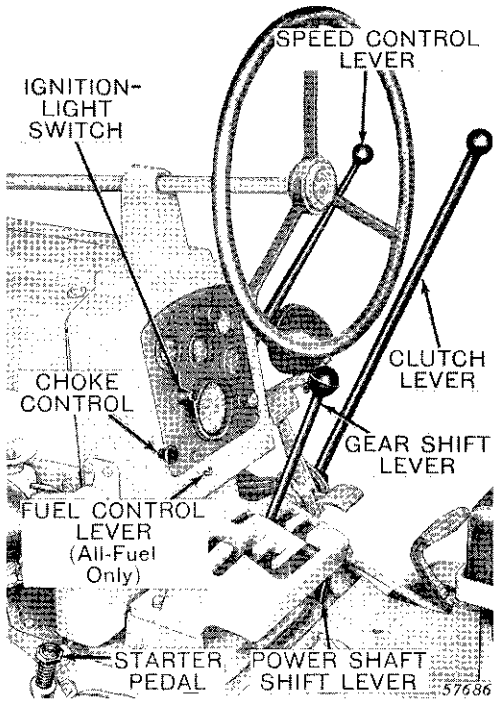


Figure 10-10-1—Starting Controls

In cold weather disengage hydraulic pump and powershaft shift lever to relieve drag on cranking motor caused by cold oil.

Pull speed control lever all the way to the rear.

GASOLINE ENGINES

Turn ignition-light switch to "I" position.

Pull out the choke control.

Crank engine with cranking motor.

ALL-FUEL ENGINES

Close carburetor drain cock.

Turn on gasoline by turning fuel control lever to mark "G."

Turn ignition-light switch to "I" position.

Pull out choke control.

Crank engine with cranking motor.

For satisfactory operation of All-Fuel engines on tractor fuel, the engine should be up to operating temperature before turning fuel control lever to mark "F" to switch from gasoline to tractor fuel.

LP-GAS ENGINES

Open vapor withdrawal valve slowly (Figure 10-10-2). If the valve is opened too fast, it may cause the excess flow valve to close and prevent normal flow of vapor. If this happens, close vapor withdrawal valve to reset excess flow valve, then open vapor withdrawal valve slowly.

Turn ignition-light switch to "I" position.

Step on the starter pedal.

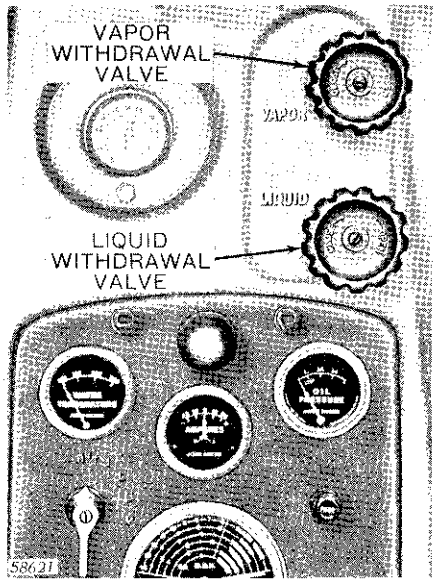


Figure 10-10-2—Liquid and Vapor Withdrawal Valves

In cold weather, if the engine fails to start immediately, pull fuel choke control lever all the way out, then gradually push it in until engine starts. Normal running position of fuel choke control lever is all the way in.

After the engine is started, operate it on vapor until the coolant in the cooling system is warm, then slowly open liquid withdrawal valve and close vapor withdrawal valve.

ALL ENGINES

As soon as engine starts, push choke control in except in cold weather when it may be necessary to leave choke control partially out for the first few minutes.

Regulate engine speed with the speed control lever. The engine is set to run at the correct speed when the tractor leaves the factory; 600 rpm for slow idle; 1125 rpm for rated load, and approximately 1260 for fast idle. **Caution: Under no circumstances should the engine be operated at a fast idle speed in excess of 1270 rpm.**

Watch the oil pressure gauge when the engine starts. If the hand on the gauge does not register between "M" and "H" when the speed control lever is pushed all the way forward, **stop the engine immediately** and determine the cause of low pressure.

STOPPING THE ENGINES

ALL ENGINES

Operate the engine at 1000 rpm for at least one or two minutes before stopping. This will allow the engine to cool off gradually preventing extreme contraction of parts, possible backfiring, and coking of lubricating oil on piston rings, valve guides, etc.

Never drain water immediately after the engine is stopped.

GASOLINE ENGINE

Set the speed control lever to run the engine at 1000 rpm and allow to run at least 1-1/2 minutes. Without moving the speed control lever, turn ignition-light switch to the "OFF" position.

ALL-FUEL ENGINES

Set the speed control lever to run the engine at 1000 rpm. Turn the fuel control lever to the "O" position and allow the engine to run until it stops. Turn ignition-light switch to "OFF" position. Drain carburetor bowl.

CAUTION: Do not turn ignition-light switch to the "OFF" position until the engine stops. Otherwise several charges of unburned low-cost fuel will remain in the cylinders to foul the spark plugs and wash the lubricating oil off the piston rings and cylinders. This can cause hard starting and premature engine wear.

LP-GAS ENGINES

Set the speed control lever to run the engine at 1000 rpm. Close the withdrawal valves and allow engine to run until the fuel in the convertor is exhausted and the engine stops. Turn ignition-light switch to the "OFF" position.

If liquid fuel is left in the lines when the engine is stopped, hard starting can result as this liquid will tend to flood the engine. **Be sure withdrawal valves are left closed.**

Group 15
SPECIFICATIONS

PERFORMANCE:

Capacity for Work:
Five 14-inch plow bottoms or the equivalent under normal conditions.

Maximum Belt Horsepower:

Gasoline	59.12
LP-Gas	59.61
All-Fuel	45.33

Maximum Drawbar Horsepower:

Gasoline	53.05
LP-Gas	54.17
All-Fuel	41.29

Maximum Pull:
(2nd Gear)

Gasoline	6600
LP-Gas	6697
All-Fuel	6552

CAPACITIES (U.S. MEASUREMENTS):

Gasoline Tank:

Gasoline Tractor	26-1/2 Gals.
All-Fuel Tractor	1 Gal.
Fuel Tank (All-Fuel)	24-1/2 Gals.
LP-Fuel Tank (85% Full)	33 Gals.
Crankcase	10 Qts.
Transmission	8 Gals.
Powr-Trol	13 Qts.
Powershaft Clutch	4-1/2 Qts.
Remote Cylinder	1 Qt.
Cooling System	7 Gals.
First Reduction Gear Cover	1-1/2 Qts.
Power Steering	5 Qts.

SPEEDS:

Gear	13.6-38 Tires	15-30 Tires
1	1-1/3 mph	1-1/3 mph
2	2-1/4 mph	2-1/4 mph
3	3-1/2 mph	3-1/2 mph
4	4-1/3 mph	4-1/3 mph
5	5-3/4 mph	5-1/2 mph
6	11-1/4 mph	11 mph
Reverse	3-1/3 mph	3-1/4 mph

ENGINE:

Type... Two-cylinder, cast-in-block, valves-in-head.

Engine Speeds:

Load	1125 rpm
Idle	1260 rpm
Slow Idle	600 rpm
Bore and Stroke	6 x 6-3/8
Displacement	360.5 cubic inches

Compression Ratio:

Gasoline	6.39 to 1
LP-Gas	7.94 to 1
All-Fuel	4.6 to 1

LUBRICATION SYSTEM:

Type... Full force-feed pressure system with replaceable oil filter element.

FUEL SYSTEM:

Type..... Pressure regulated, gravity feed.
Carburetor.. Natural-draft duplex type.
Air Cleaner.. Oil-wash type.

COOLING SYSTEM:

Type... Pressure system centrifugal pump with engine temperature controlled by heavy-duty thermostat.

IGNITION SYSTEM:

Type	Battery-Distributor
Distributor Point Gap	.022″
Spark Plugs:	
Size	18 mm
Spark Plug Gap	.030″

ELECTRICAL SYSTEM:

Battery Voltage	12 Volts
Generator Regulation	Voltage Regulator
Battery	Group 1

CLUTCH:

Type.. Hand-operated, six 10-inch dry disks.

BELT PULLEY:

Diameter	12-7/8″
Width	7-3/8″
Rpm (Load)	1125
Belt Speed	3790 feet per minute

TRANSMISSION:

Type..... Six speeds forward and one in reverse.
Gears..... Selective-type, straight spur-cut gears, forged and heat-treated.
Bearings... Shafts operate on four roller bearings, four tapered roller bearings and four ball bearings.

REAR AXLES:

Diameter	3-1/8″
Bearings	Four tapered roller bearings.
Types Available	Regular, long and extra long.

REAR WHEELS AND TIRES:

General-Purpose	13.6-38 6-ply tires on cast disk wheels (Recommended for average field conditions). 15.5-38,6-ply tires also available.
Standard	15-30, 6-ply tires mounted on cast disk wheels. 6-ply and 18-26, 8-ply tires also available.

REAR WHEEL BRAKES:

Type... Two automotive-type internal-expanding rear wheel brakes.

FRONT WHEELS AND TIRES:

General-Purpose.

Double and Adjustable Type:

Reversible for added clearance.

Bearings	Four tapered roller bearings.
Tires	6.00 x 16″, 4-ply. 6.00 x 16″, 6-ply, also available.

Single Type:

Bearings	Two tapered roller bearings.
Tires	7.50 x 16″, 10-ply

Standard:

Bearings	Four tapered roller bearings.
Tires	6.50 x 18, 4-ply 7.50 x 18, 4-ply 7.50 x 18, 6-ply

	Double Front Wheel	Single Front Wheel	Adjustable Tread Front Axle (42″ Rear Wheel)	Standard
POWER TAKE-OFF:				
Shaft Diameter	1-3/8″	1-3/8″	1-3/8″	1-3/8″
Shaft rpm	547	547	547	547
Splined End Ahead of Hitch	14″	14″	14″	14″
Splined Shaft Above Ground	25″	25″	25″	22-5/8″
DIMENSIONS:				
Wheel-Base	91-3/8″	90-5/8″	93-7/8″	82-3/8″
Over-All Length	135-1/4″	135-1/4″	135-1/4″	130-1/4″
Over-All Height	88-1/4″	88-1/4″	88-1/4″	87-3/8″
Height to Top of Steering Wheel	81-1/4″	81-1/4″	81-1/4″	81″
Width Over Axles	86-5/8″	86-5/8″	86-5/8″	86-5/8″
Tread Adjustments	60-88″*	60-88″*	60-88″*	62-80″*
Clearance	26″	26″	Front 23″ Rear 26″	Front 13″ Rear 25-1/4″
Turning Radius	9′ 6″	9′ 6″	14′ 9″	14′
SHIPPING WEIGHT	6790 Lbs.	6470 Lbs.	7090 Lbs.	7380 Lbs.

(Weights are for Tractors dry and with wheel equipment as shown under "Front Wheels" and "Rear Wheels.")

*Available with long axles providing tread of 62-1/2″ to 97-1/4″ and with offset wheels, a tread of 60″ to 104″ is provided.

Extra long axles provide a tread of 66-1/2″ to 105-1/4″ and with offset wheels, a tread of 60″ to 112″.

Power-Adjusted Rear Wheels on long axles provide a tread of 63″ to 104″, on extra long axles provide a tread of 63″ to 112″.

Group 20
FUELS AND OILS

FUELS

GASOLINE

The gasoline engine is designed to operate economically on regular grade gasoline as designated by ASTM Designation 439-53T.

The gasoline should have a minimum octane number rating of 80 (Motor Method) or 86 (Research Method).

The distillation range, or volatility is adjusted by the petroleum producers for local climatic conditions and also for seasonal variations.

Avoid carrying over gasoline purchased in one season for another season's work. For example, gasoline furnished for summer use is less volatile than that sold in the winter season. Attempts to use summer grade of gasoline in cold weather can result in poor starting of the engine.

LP-GAS

Many companies furnish LP-Gas fuel of different composition for winter or summer use. The fuel is properly blended to give best performance during the prevailing season. Avoid carry-over of summer grade fuel into the winter season.

LP-Gas burning engines are designed to use a mixture of propane and butane LP-Gas not to exceed 60% butane. A greater percentage of butane can result in excessive detonation under heavy loads in hot weather due to lower octane rating of this fuel. Also, difficult starting in cold weather can result due to lack of vapor pressure.

ALL-FUEL

All-Fuel burning engines are designed to operate on gasoline or "farm tractor fuel" as defined by ASTM Designation D-1215-52T. This includes either the "Light Grade" or "Regular Grade" having ASTM distillation 10% point recovered at 40°F. maximum and a 95% point recovered at 518°F. maximum and a minimum octane number of 35 (Motor Method) or 38 (Research Method).

OILS

It is impossible to determine from the appearance of an oil whether it is best suited to the engine.

The petroleum industry markets several types of crankcase oils. These types are defined by the American Petroleum Institute as follows:

SERVICE ML

Oil suitable for service typical of gasoline and other spark ignition engines operating under light loads and favorable service conditions.

SERVICE MM

Oil suitable for service typical of gasoline and other spark ignition engines operating under moderate to severe service conditions.

SERVICE MS

Oil suitable for service typical of gasoline and other spark ignition engines operating under unfavorable or severe types of service conditions.

For average service conditions, oil specified "**For Service MM**" is recommended for use in the "720" Series, spark ignition, engine.

For exceptionally severe service, combinations of heavy loads and high temperatures, or low temperature start and stop service, engine life can be greatly extended by use of oils specified "**For Service MS.**"

In some cases where owners have had successful experience with certain brands of oils specified "**For Service ML,**" it is possible to continue the use of these oils but, due to wide variations likely to be encountered between various brands, their use cannot be generally recommended.

Section 20
PREDELIVERY, DELIVERY, AFTER-DELIVERY, AND 150-HOUR SERVICES

Group 5
DESCRIPTION

These instructions have been written to assist in performing Predelivery, Delivery, After-Delivery, and 150-Hour Services on new "720" Series Spark Ignition Tractors as outlined in the John Deere Service Policy (Figure 20-5-1), which accompanies each new tractor.

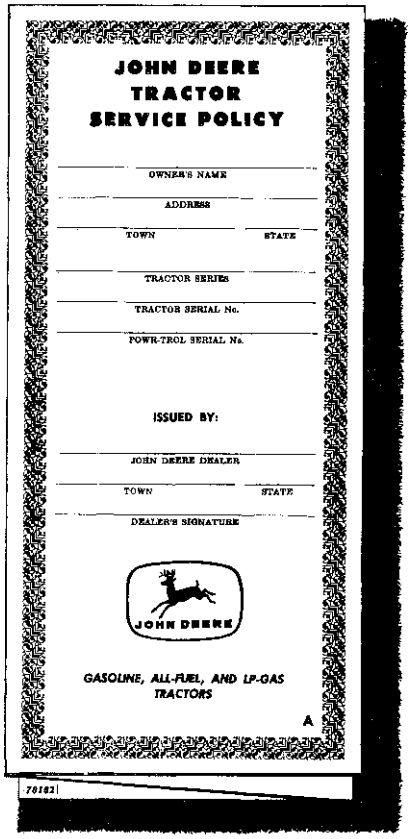
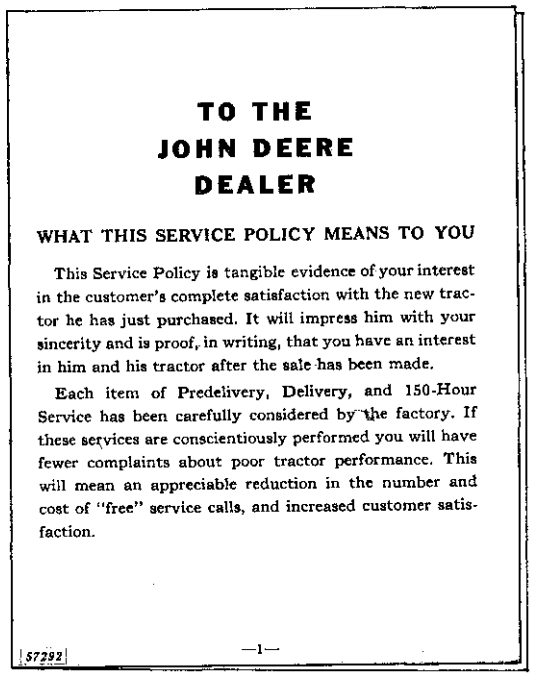


Figure 20-5-1—John Deere Tractor Service Policy

The Service Policy, together with an instruction booklet covering the proper use of the policy (Figure 20-5-2), is inserted in the Operator's Manual envelope of each new tractor leaving the factory. This Service Policy contains detailed check lists for these specific inspections: Predelivery, Delivery, and 150-Hour Inspection. Each item in these check lists has been carefully considered by the factory. If these services are conscientiously performed, there will be fewer complaints about poor tractor performance. This will mean an appreciable reduction in the number and cost of "free" service calls. Increased customer satisfaction will be further assured.


TO THE
JOHN DEERE
DEALER

WHAT THIS SERVICE POLICY MEANS TO YOU

This Service Policy is tangible evidence of your interest in the customer's complete satisfaction with the new tractor he has just purchased. It will impress him with your sincerity and is proof, in writing, that you have an interest in him and his tractor after the sale has been made.

Each item of Predelivery, Delivery, and 150-Hour Service has been carefully considered by the factory. If these services are conscientiously performed you will have fewer complaints about poor tractor performance. This will mean an appreciable reduction in the number and cost of "free" service calls, and increased customer satisfaction.

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Figure 20-5-2—Service Policy Instruction Booklet

This Service Policy is tangible evidence of your interest in the customer's complete satisfaction with the new tractor he has just purchased. It will impress him with your sincerity and is proof, in writing, that you have an interest in him and his tractor after the sale is made.

This Section is divided into three major groups: Group 5—Description; Group 10—Predelivery and 150-Hour Services; and Group 15—Delivery and After-Delivery Services. Figures 20-10-1 and 20-10-2 in Group 10 are reproductions of the Predelivery and 150-Hour Service check list as they appear in the Service Policy. These illustrations serve as quick reminders of all points on "720" Series Spark Ignition Tractors which should be serviced by the dealer's serviceman.

Figure 20-15-1 in Group 15 is a reproduction of the Delivery Service check list as it appears in the Service Policy. This service interval has been separated from the Predelivery and 150-Hour Service since it covers discussion of tractor operation and service between deliveryman and customer.

Detailed instructions follow each check list. Note that each point on every illustration is numbered. For complete instructions regarding any item, refer to the like-numbered paragraph in the detailed instructions which follow the illustration.

Each tractor is manufactured with care and precision. Before the tractor leaves the factory, it is thoroughly inspected, adjusted, and tested. However, during shipment and storage, many situations exist which may affect the general condition of the tractor. Also certain services (such as filling fuel tank and inflating tires to proper pressure), which cannot be done at the factory, must be performed at the dealership. It is, therefore, important that the tractor be serviced and inspected before delivery to the customer.

Group 10
PREDELIVERY AND 150-HOUR SERVICES

Due to similarity between Predelivery and 150-Hour Services, these two service intervals have been combined into one group. Figure 20-10-1 is a reproduction of the Predelivery Service check list and Figure 20-10-2 is a reproduction of the 150-Hour Service check list as they appear in the service policy. Detailed instructions follow the illustrations of the check lists. Note that each group of check points on the illustrations is numbered for complete instructions regarding any item. Refer to the like-numbered paragraph in detailed instructions which follow the illustrations.

PREDELIVERY SERVICES

By performing the services shown on the illustration below, you can be certain that the tractor is delivered to your customer in tip-top condition, ready to perform the work for which it was built. You will save time and money by avoiding after-delivery complaints and service calls which will result if the tractor is not correctly adjusted before it leaves your shop. Above all, you can be assured of a satisfied customer when he puts the tractor to work.

To perform the Predelivery Service, proceed as follows:

Remove service policy from Operator's Manual envelope. Insert carbon paper between pages A and B of the policy. Fill out the information about the owner and tractor identification. Have dealer sign policy and remove carbon paper. As each service item under the Predelivery Service is performed, check off that item.

PREDELIVERY SERVICE

PERFORM ALL INSPECTIONS AND MAKE NECESSARY ADJUSTMENTS

BEFORE MOVING THE TRACTOR (1)
- ☐ Deflate tires to operating pressure.
- ☐ Check coolant level in radiator.
- ☐ Check oil level in crankcase.
- ☐ Put fuel in tank or tanks.
- ☐ Connect batteries or install electrolyte if they are dry batteries.

COOLING SYSTEM (2)
- ☐ Check for anti-freeze protection.....
- ☐ Check for leaks at connections.
- ☐ If coolant is changed, add sealer and rust inhibitor.

FUEL SYSTEM (GASOLINE AND ALL-FUEL) (3)
- ☐ Check sediment bowl for cleanliness.
- ☐ Check fuel line connections for leaks.
- ☐ Operation of fuel control valve (All-Fuel only).
- ☐ Make sure air intake connections are tight.
- ☐ Check air cleaner oil level.
- ☐ Check manifold heat control valve setting.
- ☐ Check governor linkage adjustment and free operation.

FUEL SYSTEM (LP-GAS) (3)
- ☐ Check valves for operation.
- ☐ Check system for leaks.
- ☐ Make sure air intake connections are tight.
- ☐ Check air cleaner oil level.
- ☐ Check fuel gauge operation.
- ☐ Check governor linkage adjustment and free operation.

ELECTRICAL SYSTEM (4)
- ☐ Check electrical connections.
- ☐ Check battery specific gravity and electrolyte level.
- ☐ Check generator belt tension.
- ☐ Check operation of ignition light switch, and lights.
- ☐ Check operation of cranking motor.

IGNITION SYSTEM (5)
- ☐ Check spark plug and distributor point gap.
- ☐ Be sure electrical connections are tight.

TIRES, WHEELS AND BALLAST (6)
- ☐ Carefully inspect tires for damage.
- ☐ Front wheel toe-in (wide front end).
- ☐ Rear wheel spacing.
- ☐ Tighten wheel hub cap screws and rim clamp nuts.
- ☐ Add liquid ballast to rear tires as required.
- ☐ Add cast-iron ballast to rear wheels as required.
- ☐ Add front end ballast as required.

GENERAL (7)
- ☐ Check adjustment of engine clutch and pulley brake.
- ☐ Check engagement of Powr-Trol pump.
- ☐ Check engagement of PTO shift lever.
- ☐ Check adjustment of PTO clutch.
- ☐ Check brake adjustment.
- ☐ Check seat for free movement.
- ☐ Check steering gear backlash.
- ☐ Tighten all accessible nuts and cap screws.
- ☐ Is drawbar in proper position?

LUBRICATION (8)
- ☐ Check oil level in:
  - ☐ Transmission
  - ☐ Hydraulic system
  - ☐ PTO clutch housing
  - ☐ Power steering reservoir
  - ☐ Manual steering gear housing
- ☐ Lubricate all grease fittings.
- ☐ Lubricate rear axle outer bearings.
- ☐ Lubricate generator and distributor sparingly.
- ☐ Lubricate and adjust front wheel bearings.

ENGINE (9)
- ☐ Start engine and bring up to operating temperature.
- ☐ Check oil pressure.
- ☐ Check generator operation.
- ☐ Check ignition timing with engine running.
- ☐ Check idle speeds: Slow idle.....R.P.M.
  Fast idle.....R.P.M.
- ☐ Check carburetor adjustment.
- ☐ Check cylinder head stud nut tightness with a torque wrench.
- ☐ Check cylinder head to block stud nut tightness with a torque wrench.
- ☐ Adjust tappet lever clearance.

OPERATION (10)
- ☐ Check clutch and pulley brake operation.
- ☐ Shift through all transmission gears.
- ☐ Test steering.
- ☐ Test brakes.
- ☐ Test hydraulic system operation. Bleed remote cylinder if used.
- ☐ Test PTO operation.

APPEARANCE (11)
- ☐ Clean tractor.
- ☐ Touch up paint.
- ☐ Polish tractor.

SERVICEMAN'S SIGNATURE _____ DATE _____

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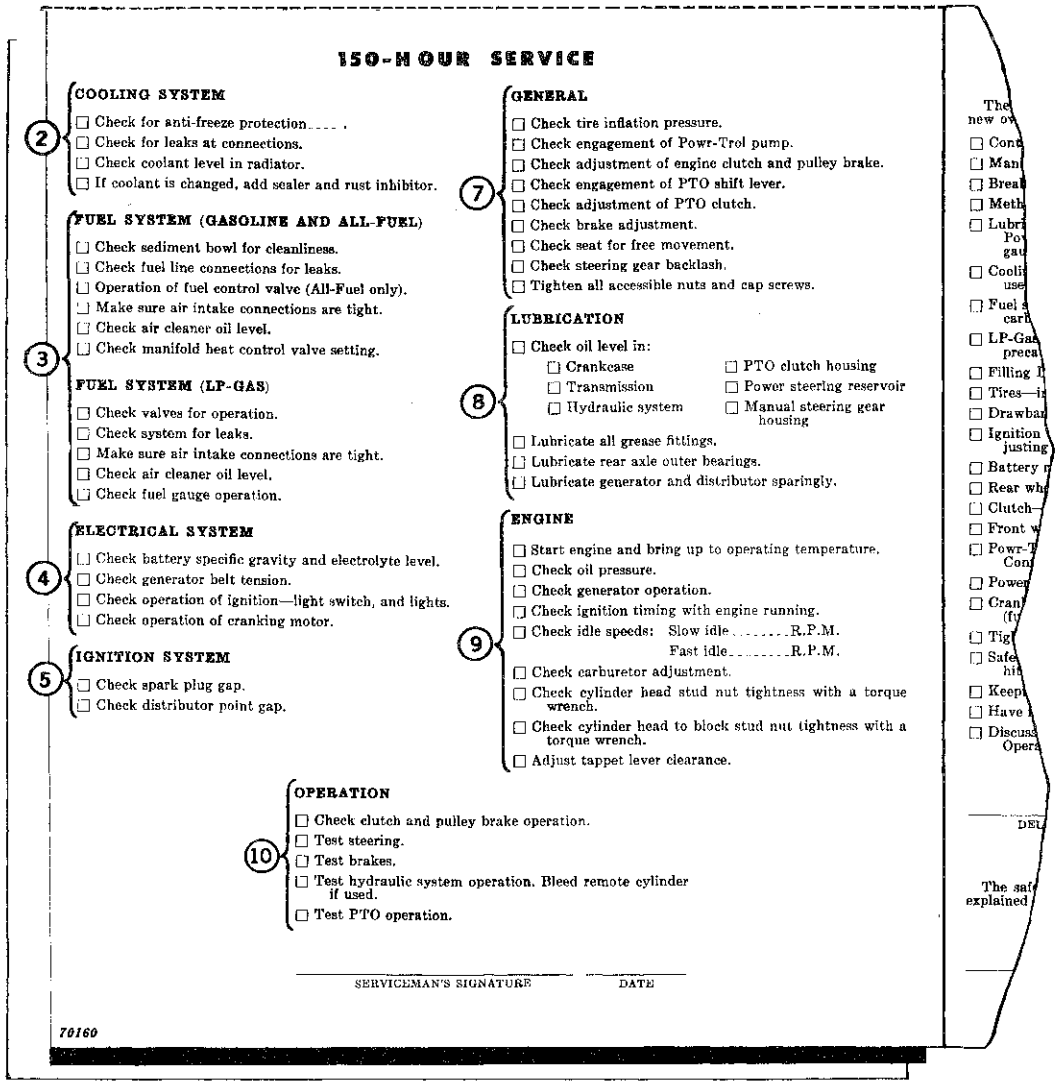
Figure 20-10-1—Predelivery Check List of Service Policy

150-HOUR SERVICES

An important phase of delivery of a tractor to a customer occurs after 150 hours of operation by the customer. At this time the tractor should be brought into the shop and the services outlined in the Service Policy performed. Figure 20-10-2 is a reproduction of 150-Hour Service check list as it appears in the Service Policy. Detailed instructions follow the illustration of the check list. Note that each group of check points on the illustration is numbered. For complete instructions regarding any item refer to the like-numbered paragraph in the detailed instructions which follow the illustration.

To insure customer satisfaction, perform all services in the 150-Hour Service check list, checking off each item on the Service Policy as you go. To prepare the Service Policy, position Page D over Page B with carbon paper between them. After completing all services, sign and date the form and return customer's copy to him. File the dealer's copy.

It is very important that this 150-Hour Service be performed. The tractor has been operated long enough to be partially broken-in and long enough for any irregularities to show up. It is in such condition that, after this service is performed, it should operate at high efficiency for a long time with ordinary day-to-day service.



150-HOUR SERVICE

(2) COOLING SYSTEM
- ☐ Check for anti-freeze protection.....
- ☐ Check for leaks at connections.
- ☐ Check coolant level in radiator.
- ☐ If coolant is changed, add sealer and rust inhibitor.

(3) FUEL SYSTEM (GASOLINE AND ALL-FUEL)
- ☐ Check sediment bowl for cleanliness.
- ☐ Check fuel line connections for leaks.
- ☐ Operation of fuel control valve (All-Fuel only).
- ☐ Make sure air intake connections are tight.
- ☐ Check air cleaner oil level.
- ☐ Check manifold heat control valve setting.

FUEL SYSTEM (LP-GAS)
- ☐ Check valves for operation.
- ☐ Check system for leaks.
- ☐ Make sure air intake connections are tight.
- ☐ Check air cleaner oil level.
- ☐ Check fuel gauge operation.

(4) ELECTRICAL SYSTEM
- ☐ Check battery specific gravity and electrolyte level.
- ☐ Check generator belt tension.
- ☐ Check operation of ignition—light switch, and lights.
- ☐ Check operation of cranking motor.

(5) IGNITION SYSTEM
- ☐ Check spark plug gap.
- ☐ Check distributor point gap.

(7) GENERAL
- ☐ Check tire inflation pressure.
- ☐ Check engagement of Powr-Trol pump.
- ☐ Check adjustment of engine clutch and pulley brake.
- ☐ Check engagement of PTO shift lever.
- ☐ Check adjustment of PTO clutch.
- ☐ Check brake adjustment.
- ☐ Check seat for free movement.
- ☐ Check steering gear backlash.
- ☐ Tighten all accessible nuts and cap screws.

(8) LUBRICATION
- ☐ Check oil level in:
  - ☐ Crankcase
  - ☐ Transmission
  - ☐ Hydraulic system
  - ☐ PTO clutch housing
  - ☐ Power steering reservoir
  - ☐ Manual steering gear housing
- ☐ Lubricate all grease fittings.
- ☐ Lubricate rear axle outer bearings.
- ☐ Lubricate generator and distributor sparingly.

(9) ENGINE
- ☐ Start engine and bring up to operating temperature.
- ☐ Check oil pressure.
- ☐ Check generator operation.
- ☐ Check ignition timing with engine running.
- ☐ Check idle speeds: Slow idle.....R.P.M.
  Fast idle.....R.P.M.
- ☐ Check carburetor adjustment.
- ☐ Check cylinder head stud nut tightness with a torque wrench.
- ☐ Check cylinder head to block stud nut tightness with a torque wrench.
- ☐ Adjust tappet lever clearance.

(10) OPERATION
- ☐ Check clutch and pulley brake operation.
- ☐ Test steering.
- ☐ Test brakes.
- ☐ Test hydraulic system operation. Bleed remote cylinder if used.
- ☐ Test PTO operation.

SERVICEMAN'S SIGNATURE DATE

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Figure 20-10-2—150-Hour Check List of Service Policy

DETAILED INSTRUCTIONS FOR PREDELIVERY AND 150-HOUR SERVICES

I. BEFORE MOVING THE TRACTOR (PREDELIVERY ONLY)

NOTE: Before unloading the tractor from the car or truck, inspect it carefully for loss of any parts, for dents, scratches or any other damage that may have occurred during transit. Make a note of any damage or shortage on the freight bill and initiate claim immediately. Otherwise, it may be difficult to collect from the carrier.

Deflate Tires to Operating Pressure

When tractors are shipped from the factory, tires are over-inflated to prevent possible damage to the tractors while in transit. Check the pressure and deflate tires to correct pressure as shown in *Section 160 of this Manual.*

Over- or under-inflation will shorten tire life. While deflating tires, inspect for cuts, breaks or other damage.

Coolant in Radiator

See that the radiator is filled to proper level with water or anti-freeze solution.

Oil Level in Crankcase

Check crankcase oil level with dip stick (Figure 20-10-3). Rest filler cap on filler tube to obtain correct level. Add oil if necessary.

Use a good grade of oil classified for "Service MM" in the crankcase.

The chart on the next page shows weight of oil to use in the engine, depending on prevailing temperatures.

Figure 20-10-4 illustrates location of crankcase filler opening.

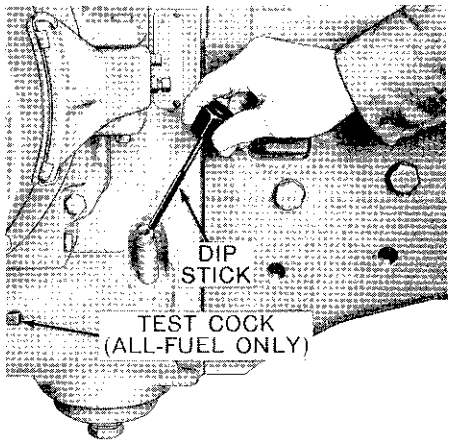

Figure 20-10-3—Checking Crankcase Oil Level on Dip Stick

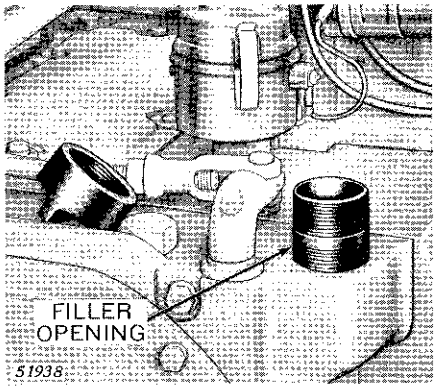

Figure 20-10-4—Crankcase Filler Opening

Oil classified for "Service MM or MS" is suitable for the engine. For average service conditions, "Service MM" is recommended. For severe conditions, such as extensive use during cold weather or heavy loading in hot weather, engine life can be greatly extended by using oil designated for "Service MS."

Fuel Tank

GASOLINE TRACTORS

Use regular gasoline having a minimum octane rating of 80 (Motor Method) or 86 (Research Method). Capacity of tank is 26-1/2 U.S. gallons.

TEMPERATURE—OIL WEIGHT CHART

Air Temperature	Weight of Oil to Use in Engine Crankcase and Air Cleaner	
	Viscosity No. for Single-Viscosity Oil	*Viscosity Range If Multi-Viscosity Oils Are Used*
Above 90°F.	SAE 20-20W	SAE 10W-30
0 to 90°F.	SAE 10W*	SAE 10W-30
Below 0°F.	SAE 5W	SAE 5W-20

**In areas where SAE10W is not readily available, SAE 20-20W oil can be used above 32°F.*

CAUTION: Use of SAE 5W motor oil will likely result in some increase in oil consumption. Check oil level more frequently when using this oil. Do not use SAE 5W oil except during the extremely cold weather conditions specified above.

ALL-FUEL TRACTORS

Fill small tank with regular gasoline. Capacity 1 U.S. gallon.

Use regular gasoline or "farm tractor fuel" of quality specified in *Section 10, Group 20 of this Manual.* Capacity of main tank is 24-1/2 U.S. gallons.

LP-GAS

Put fuel in tank according to instructions given in the Operator's Manual. A small auxiliary tank can be attached to the fuel system at point shown in Figure 20-10-5 for operation of engine while in shop.

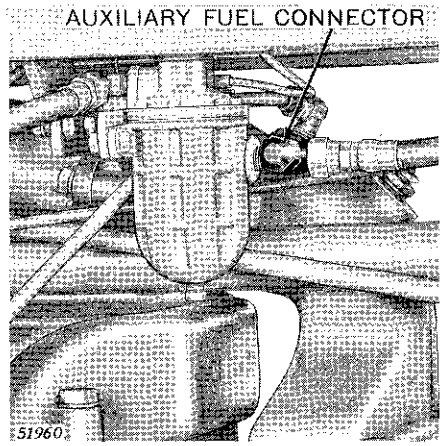

Figure 20-10-5—Auxiliary Fuel Connector

BATTERIES

Tractors are shipped with dry-charged batteries and slave batteries should be used to start the engine to unload the tractor and also for starting while performing the predelivery services. After the engine is started, it will run (at fast idle) off generator current without damage to the batteries or the generator.

NOTE: The electrolyte should not be installed into a dry-charged battery until a short time before the tractor is to be delivered to the customer.

When servicing dry-charged batteries, the following procedure should be used.

Date-code the batteries (Figure 20-10-6).

With a light hammer and the date-coding ring, mark the negative terminal post of the battery. For example, if delivery is made in May, 1958, use "8E," "8" for 1958 and "E" for May. Tap lightly to avoid damage to the battery. Each following month move to the next letter in the alphabet, like "F" for June, etc., following through to "M" for December. The letter "I" is not used.

Remove the identification strip from filler caps and remove caps. Follow the detailed instructions with the cartoned electrolyte for adding electrolyte to the battery cells.

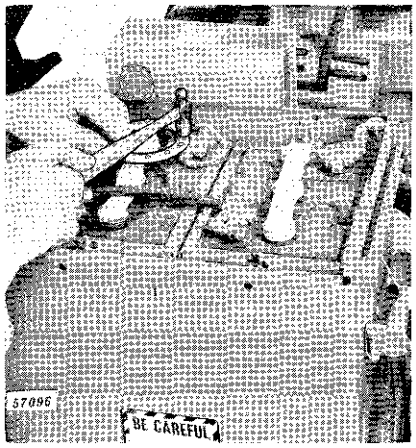

Figure 20-10-6—Date-Coding Battery

Observe all safety precautions to avoid danger of acid burns or other damage.

If the tractor is to be put to immediate use, no charging is required as the generator will take care of the battery.

If, for some unforeseen reason, the tractor is not delivered to the customer for several days, the batteries should be slow charged at the rate of 1/2 ampere per plate per cell for 8 hours. No tractor should be delivered to a customer with batteries that are not fully charged.

2. COOLING SYSTEM

In cold weather use an anti-freeze tester to check the strength of the anti-freeze solution in the cooling system. Adjust the solution strength to anticipated temperatures.

Tractors, shipped from the factory from September 15 through April or when freezing temperatures are anticipated, have Ethylene-Glycol base permanent anti-freeze solution in the cooling system. The solution is adjusted to withstand temperatures of −34°F.

Check for leaks at all connections.

3. FUEL SYSTEM

Leaks

Check fuel lines and connections for leaks (Figure 20-10-7). Make sure air cleaner connections are tight.

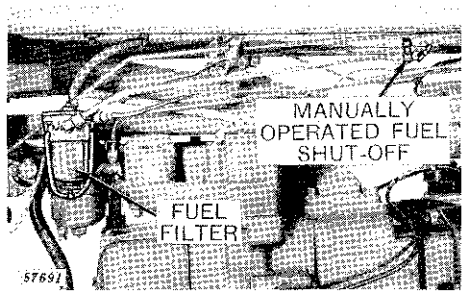

Figure 20-10-7—Fuel Filter, Fuel Pipe and Manual Shut-Off

Fuel Control Valve (All-Fuel Only)

Check fuel control valve for proper operation.

Air Cleaner Cup

Remove air cleaner cup. Check condition and level of oil (Figure 20-10-8). If dirty, clean cup. If oil level is low or oil has been removed, fill cup to oil level mark, using oil of proper weight for prevailing temperatures according to chart below.

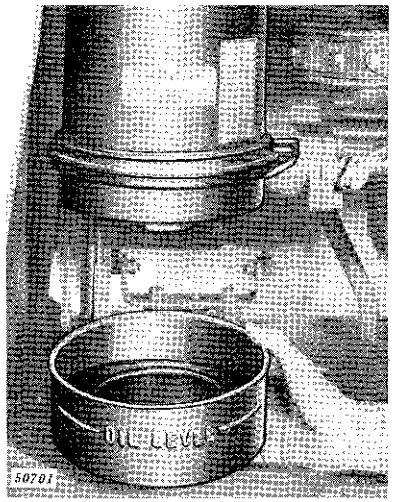

Figure 20-10-8—Air Cleaner Cup

Manifold Heat Valve (Gasoline and All-Fuel Tractors)

Check manifold heat valve for proper setting for anticipated operating conditions. Normally the heat valve is set in the "cold" position.

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

Fuel Gauge

Turn ignition-light switch to "I" position and check operation of fuel gauge.

Governor Linkage

Check governor linkage for proper adjustment according to instructions in *Section 40 of this Manual.*

4. ELECTRICAL SYSTEM

Connections

Check all electrical connections for good contact and tightness.

Batteries (150-Hour Service)

Check batteries with a hydrometer (Figure 20-10-9). If electrolyte level is low, add water to proper level. Avoid adding too much water during freezing temperatures as engines will have to operate several hours before the water will mix thoroughly with the electrolyte. Until it is mixed, there is danger of the water freezing and causing damage to the batteries.

If the specific gravity of the batteries is below 1.225 (half-charge), recharge the battery.

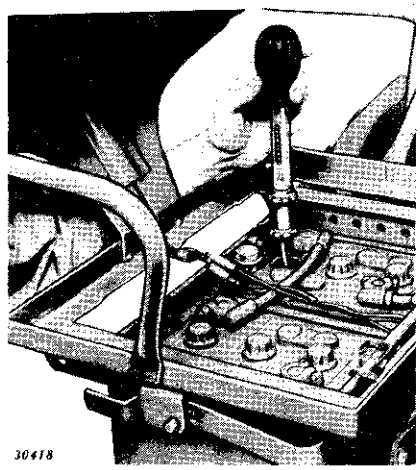

Figure 20-10-9—Checking Specific Gravity

Generator Belt

Check generator and water pump belt for proper adjustment. There should be 1-inch up and down movement at the center of the belt between fan and generator drive pulleys. If tension is incorrect, adjust by loosening cap screw in slotted strap and two mounting bolt nuts (Figure 20-10-10) and move generator out or in to give correct adjustment. After adjustment is made, tighten screw and nuts. **CAUTION: Do not use voltage regulator as a handhold to move generator.**

During the 150-Hour Service inspect generator belt for fraying, excessive wear or other damage.

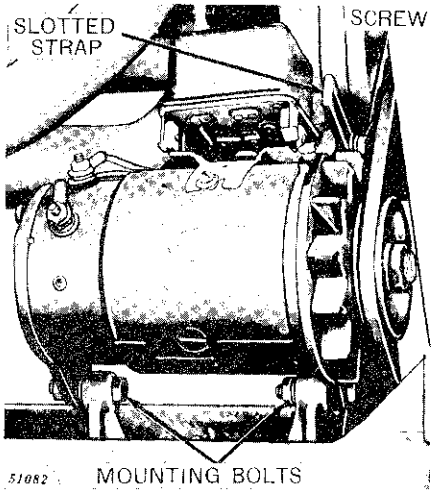

Figure 20-10-10—Generator Mounting Bolts and Strap Cap Screw for Belt Adjustment

Cranking Motor

Check operation of cranking motor by cranking engine with ignition-light switch in "OFF" position.

Start engine and check operation of ignition-light switch, generator output and lights.

5. IGNITION SYSTEM

Check spark plug and distributor point gap (*Section 40*).

Be sure electrical connections are tight.