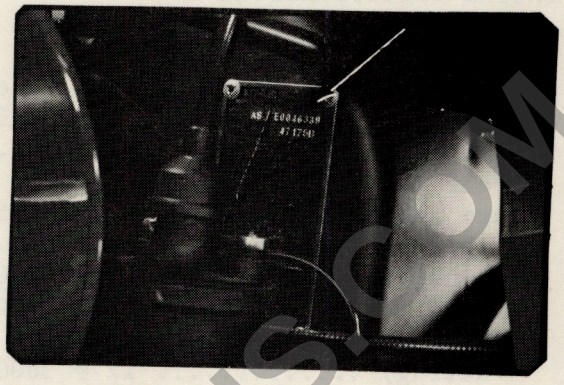
The serial number plate for the engine contains several groups of numbers. The serial number of the engine is the number which is immediately below the words serial number on the serial plate. This number is valuable to the factory and should appear on warranty claims and correspondence referring to engine problems.

120 ENG 2



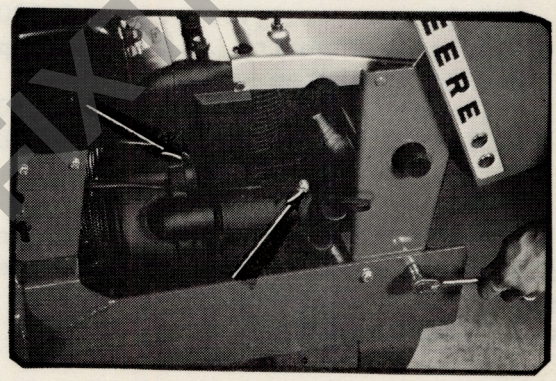
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ENGINE REMOVAL

Remove the (4) bolts holding the hood cowls to the frame and remove the hood and grille components as an assembly.

Disconnect the positive and negative battery cables at the engine.

120 ENG 3

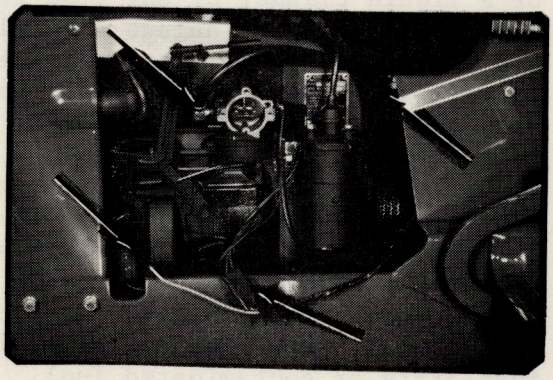


* *

Disconnect the wiring harness at the three prong connector and electromagnetic clutch connection. Shut off fuel valve and remove gas line. Disconnect throttle and choke control cables. (Air filter and carburetor back plate removed for clarity.)

Remove the two bolts holding the flex coupling to the drive shaft. Remove the (4) bolts connecting the engine to the frame and lift the engine up and out of the tractor.

120 ENG 4



For assembly, reverse the removal procedure.

The 120 Tractor will have its own Service Manual. Until the time you receive your Service Manual, you may refer to SM 2086 140 Hydrostatic Tractor for most of the engine disassembly and reassembly procedures, trouble shooting and diagnosis.

* *

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120 HYDROSTATIC TRACTOR

120 GEN 1



INTRODUCTION

New for 1970 is the 120 Lawn and Garden Tractor. The 120 is a 12 HP Hydrostatic Drive Tractor. This tractor will fill the gap between the 112 and 140 Tractors.

The 120 has the general appearance of the 140 H1 Tractor and should appeal to the homeowner.

The following service program will cover the 120 Tractor. There are items which will be similar to the 140, however, the 140 Tractor has a printed Service Manual available (SM 2086). The 120 Tractor will have a separate Service Manual (SM 2090).

SPECIFICATIONS:

Dimensions
- Wheel Base ..... 46 in.
- Over-all Length ..... 67-1/2 in.
- Over-all Height ..... 43 in.
- Over-all Width (Min) ..... 38 in.
- (Max) ..... 42-1/2 in.

Wheel Tread (Center-to-Center)
- Front (GT-3, GT-5 and GT-6) ..... 31-1/4 in.
- Front (GT-4) ..... 29-1/2 in.
- Rear (GT-3, GT-4 and GT-6) .... 30-1/2 or 32-1/2 in.

Tire Sizes
- GT-3, GT-5 and GT-6 Front 16x6.50-8 2-ply
- GT-3 Rear 23x8.50-12 2-ply
- GT-4 Front 4.80/4.00-8 4-ply
- GT-4 and GT-6 Rear 23x8.50-12 2-ply
- GT-5 Rear 23x10.50-12 2-ply

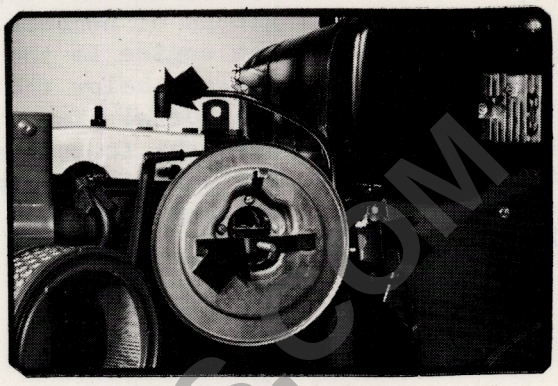
Tire Inflation
- GT-3, GT-5 and GT-6 Front ..... 6 to 16 psi
- GT-3 Rear ..... 5 to 10 psi
- GT-4 Front ..... 12 to 40 psi
- GT-4 and GT-6 Rear ..... 5 to 10 psi
- GT-5 Rear ..... 5 to 10 psi

Curb Weight ..... 736 lbs.

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ENGINE SPECIFICATIONS

120 ENG 1



ENGINE

Manufacturer	Kohler
Model	K301AS
Cylinder	One
Cycle	Four
Bore and Stroke	3.38x3.25 in.
Displacement	29.07 cu. in.
Speeds Fast - (No load)	3800 rpm
Speeds Idle - (No load)	1200 rpm
Horsepower (Engine Manufacturers Rating)	12 @ 3600 rpm
Valve Clearance (Intake) Cold	0.010 in.
Valve Clearance (Exhaust) Cold	0.020 in.
Crankcase Capacity	3 US pints
Engine Crankcase Summer	SAE 30 (AM 30730)
Winter	SAE 5W-20 (AM 30710)

There are three requirements for an engine to operate. They are air, fuel and spark. A deficiency of any one of these will cause trouble.

Air .... be sure the air filter is serviced properly. Tap filter lightly to remove dirt. Never use compressed air or a liquid cleaner of any type to clean filter as these may damage air filter and result in damage to the engine. Replace filter every 100 hours of service or sooner if it becomes extremely dirty.

Fuel .... use only regular grade gasoline, never use a premium grade gasoline. Maintain a clean fuel tank, line and strainer. Caution customer about the common practice of contamination with gasoline. Nothing will interrupt operation faster than dirty or contaminated fuel.

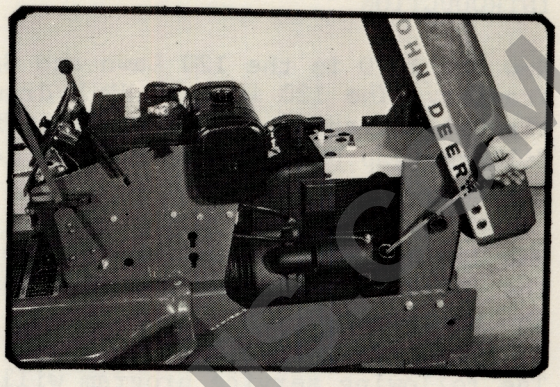
Spark .... maintain a clean spark plug. Proper spark plug gap is .025-inch. If the electrodes have burned short or have become pitted install a new spark plug of the proper size. (Notice not just any spark plug.)

* *

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PREDELIVERY

120 GEN 2



The 120 Tractor will be shipped assembled, less the hood and seat (colored tractors only) and rear tires on the GT-5 option.

Assemble the tractor and attachments according to the PDI instructions in the Operator's Manual. Be sure to remove the battery for activation. Battery acid is not shipped with the tractor and is available from the parts depot.

* *

120 GEN 3

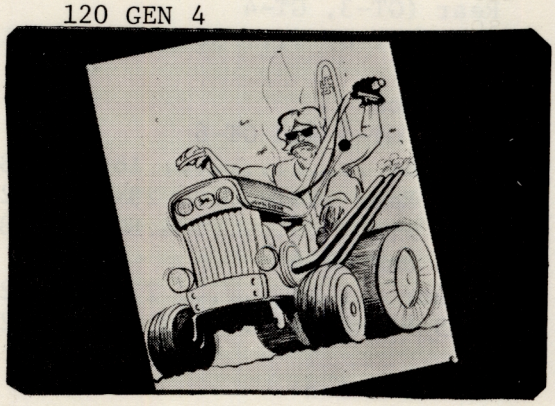


The free wheeling valve is open when the tractor is shipped from the factory. With the valve open the tractor can be moved without starting the engine.

To close the free wheeling valve, turn the knob counterclockwise about 10 revolutions. If the tractor will not move with the engine running be sure the free wheeling valve is closed.

* *

120 GEN 4



Be sure the customer has his Operator's Manual at the time of delivery.

Explain periodic maintenance checks.

Instruct the customer of safe operation practice.

* *

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Brush Service

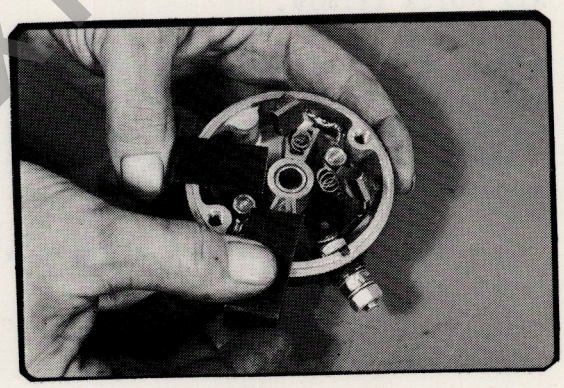
Replace brushes whenever they show any appreciable amount of wear. To replace input brush assembly, remove nuts and washers from terminal and pull out thru the inside of cap. The input brushes are to be placed into the insulated brush holders when assembling.

The leads from the ground brushes are attached to the metal screws which secure the insulated brush holders to the end cap.

* *

The preparation of the starter end cap is the first step in the assembly of the starter.

120 ELECT 8



First place brush springs into brush holders, then in succession place a brush in its respective holder with the beveled side up.

Compress brush springs and place U-shaped clips made of banding steel onto each brush.

Wipe commutator clean with a dry cloth and lubricate armature shaft with a small amount of light grease.

Place armature into end cap, and remove brush retaining clips.

* *

Place starter housing over armature while holding down pressure on the armature. This prevents the brush springs from pushing armature up and away from end cap. If this occurs, re-load brushes into end cap and reassemble.

120 ELECT 9



Align housing to end cap using the index marks on cap and housing as a guide.

NOTE: The starter housing has a mark and an indentation on the inside which must fit into the two indentures on the end cap.

* *

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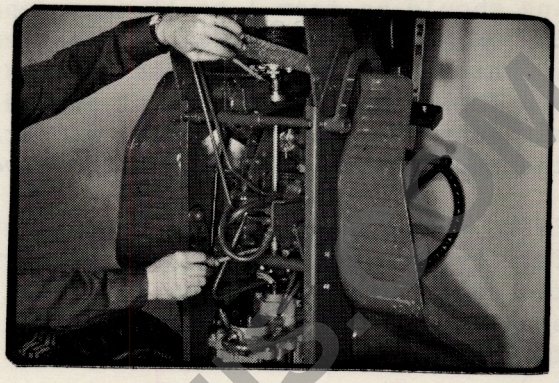
SPECIFICATIONS:

Brakes
Type .. Double-Acting, Pedal-Operated
Parking ..... Hand Lock to Foot Brake

Transmission
Manufacturer ..... Sundstrand
Model ..... No. 15-15 Series
Oil Reservoir ..... Rear Axle Housing
Capacity ..... 5 US Quarts
Lubricant ..... JOHN DEERE Type 303 Special-Purpose (R34690R) or Automatic Transmission - Fluid Type "A"

Travel Speeds
Forward ..... 1/2 to 6-3/4 mph
Reverse ..... 1/2 to 3-3/4 mph

120 PT 1



DRIVESHAFT SERVICING
Remove roll pins which attach drive shaft yokes to drive shaft. Remove capscrews that retain the rear yoke to flexible disk. Slide shaft forward and remove rear yoke. With the rear yoke removed it is possible to slip drive shaft out with ease.

After the drive shaft has been removed the flex-coupling can be removed from the clutch cone by removing the two retaining capscrews.

To service the clutch assembly it is suggested that the engine and clutch assembly be removed as an assembly. This provides for a better inspection and repair procedure.

Remove engine and clutch assembly by removing engine mounting bolts, disconnecting fuel and electrical wiring and finally unbolting flex-coupling from clutch cone. Attach hoist and lift complete engine assembly forward and up.

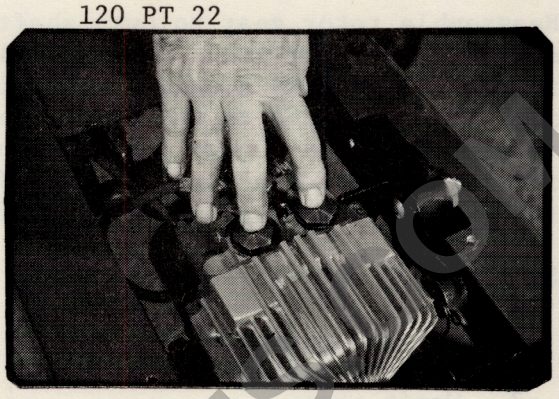
Remove clutch assembly from engine by removing the four attaching capscrews. Disassemble and inspect internal components.

* *

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CHECK VALVES

120 PT 22

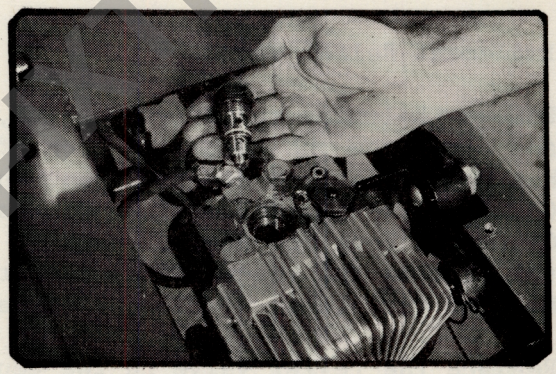


Again, it is not necessary to remove the transmission from the tractor to service the check valve.

A quick external check of the check valves would be to push the pins in the center of the plugs down (with the engine running) and observe to see if they rise rapidly. It may still be necessary to remove the valves to be sure of their condition.

* *

120 PT 23



Remove the check valve from the center housing. Wash valves in clean solvent and air dry. These valves are completely interchangeable.

Check valves for dirt, corrosion and free plunger movement.

The valves are serviced as an assembly only. Replace the valve if in doubtful condition. Always replace the O-ring and back-up washer when reassembling check valves. These parts are serviced separately from the check valves.

Lubricate all parts with hydraulic fluid and reinstall in center housing section.

Symptoms:

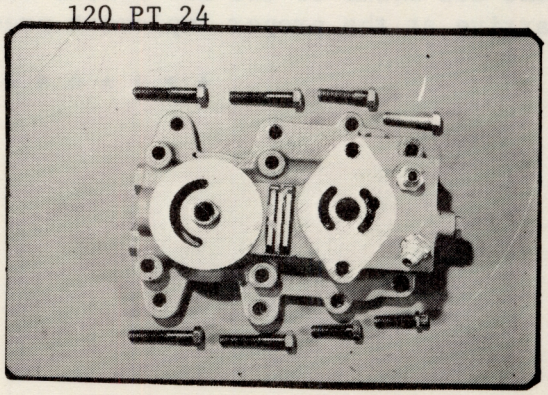
1. Won't move one direction or other.

2. Erratic (maybe).

* *

HYDROSTATIC DISASSEMBLY

120 PT 24



Be sure the outside surfaces of the transmission have been thoroughly cleaned. Place the transmission assembly in the holding fixture.

Remove the charge pump assembly. Remove the oil filter. The oil filter union is to be 1/2-inch from the filter mounting surface.

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Remove the bolt used to install the drum and reinstall the bolt and washer, which was originally removed from assembly. Torque the bolt 30 to 40 ft. lbs.

* *

AXLE SHAFT, SEAL OR BEARING SERVICE

120 PT 48



Remove the rear wheel, axle hub or brake drum as was explained in the brake service section. It is not necessary to remove the differential from the tractor.

Remove the (4) bolts holding the oil seal and retainer plate on the axle tube. Notice the position of the retainer plate as it is removed. The rounded surface of the retainer plate goes to the outside next to the seal.

* *

120 PT 49

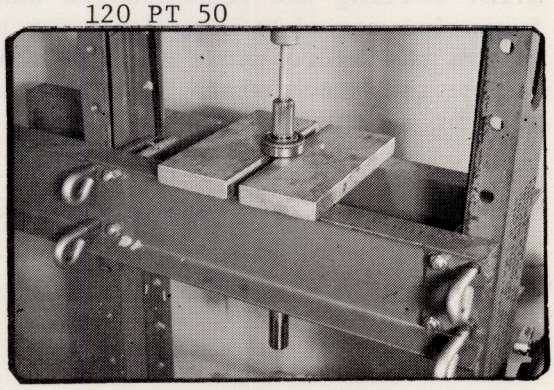


Pull the axle shaft out of the extension tube.

Note the O-ring on the shaft. If the O-ring is removed from the shaft, it will be necessary to install a new O-ring. This O-ring seats against the wheel hub.

* *

120 PT 50



The bearing on the axle shaft can be replaced by pressing it off the shaft as shown.

When installing the new bearing, be sure to press on the inner race only. Seat the bearing tight against the shoulder. Be sure to install a new O-ring on the axle shaft.

The cup may come loose from the bearing. If this occurs, clean the bearing and cup and reinstall in the axle tube.

* *

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