
Wheel Horse Service Bulletins 1961 - 1990: **#84** Issued: February 1967

Recommended Oil and Filter Change Period - Hydro-Gear Transmissions

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The following applies to all hydro-gear transmissions and supercedes all previous recommendations on this subject.

FILTER CHANGE PERIOD

The oil filter should be replaced after the first ten (10) hours of operation, and thereafter once a year or after every one hundred (100) hours whichever occurs first. USE FILTER PART #5990.

OIL CHANGE PERIOD

The oil should be changed once a year or after every one hundred (100) hours of operation, whichever occurs first. **USE ONLY TYPE "A" AUTOMATIC TRANSMISSION FLUID.**

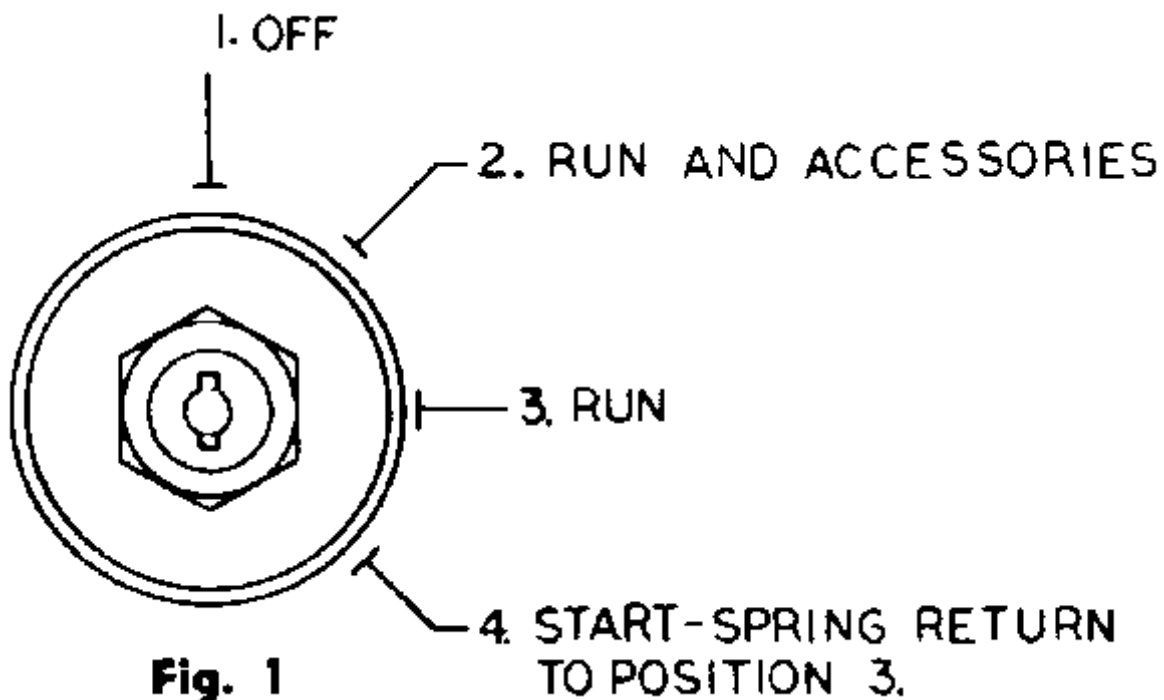
Wheel Horse Service Bulletins 1961 - 1990: **#102** Issued: August 1968

**Ignition Switch and Wire Kit #6083 - 1968 10 & 12 H.P. Models with
10 AMP. Alternators**

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A new improved Ignition Switch, Part #8362 has been developed and is now available in a kit making it adaptable to all 1968 10 and 12 H.P. model tractors with 10 Amp. alternator.

This switch provides 4 positions as shown in Fig 1.



The key must be manually moved from the Run position to the Run and Accessories position before current is supplied to the lights, cigar lighter, or electric clutch, if so equipped. The battery is charged in both the Run and the Run and Accessory position.

In the OFF position the system provides protection from the battery running down due to any accessory being left on and from any possible drain through the rectifier-regulator to ground.

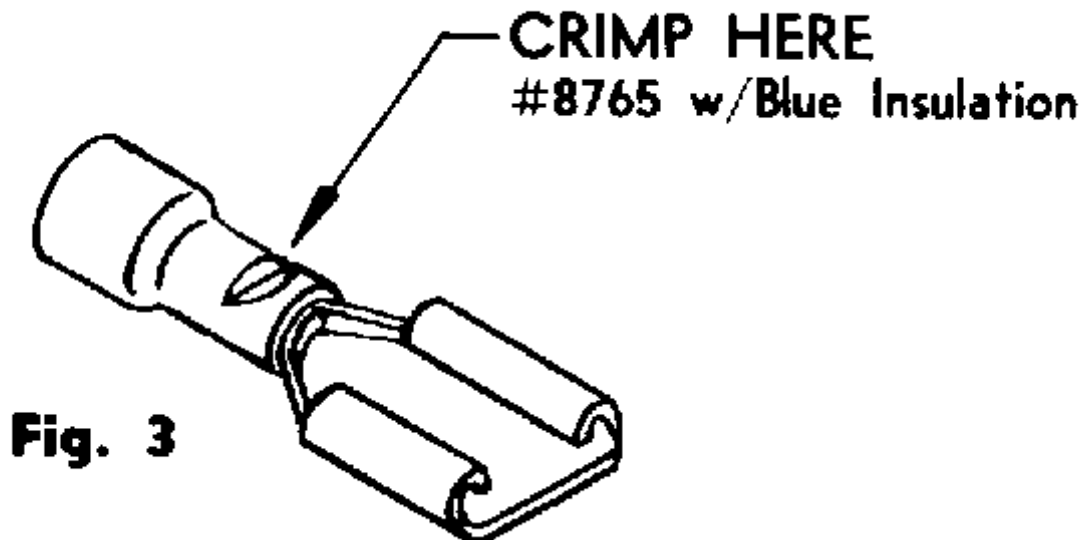
If it is determined that abnormal battery drainage exists through the rectifier-regulator unit we recommend that the ignition switch and wire kit #6083 be installed. NOTE: Make sure that the charging system charges properly as the new type switch will not correct a faulty unit such as a bad battery, regulator or stator. Refer to Wheel Horse Service Bulletin #95 and the related Kohler and Lauson Service Bulletins.

#6083 KIT CONSISTS OF:
One #8362 Switch w/Key

One #8683 Wire
One #8772 Connector (Plastic)
Two #8765 Connector

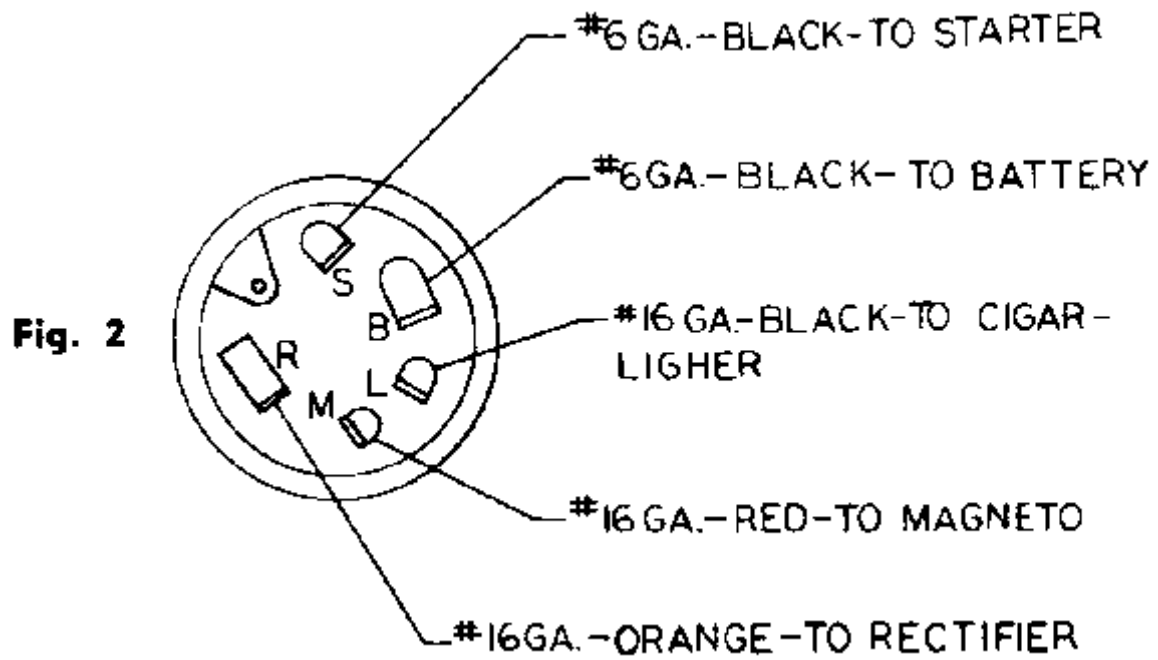
INSTALLATION PROCEDURE FOR #6083 IGNITION SWITCH AND WIRE KIT:

1. Disconnect negative battery cable.
2. Disconnect gas tank clamp and move tank forward to allow working clearance behind instrument panel.
3. Remove the ignition switch retaining nut and pull the switch forward. Remove the plastic insulator and the lockwasher. Remove the 4 wires from switch and discard the switch. (Identify the wires when removed as to "Battery", "Starter", "Magneto" and "Cigar Lighter".)
4. Remove the 3 wire connector from the Rectifier-Regulator unit and remove the center green wire terminal from the connector. (The wire terminal may easily be removed from the connector by slipping a knife blade between the metal terminal and the plastic connector to release the retaining tab.)
5. Clip the green wire from the positive battery cable as close to the battery terminal clamp as possible..Discard the green wire.
6. Connect the two heavy black wires, "Battery" and "Starter" wires to their respective terminals, "B" and "S" on the new switch part #8362. Position the wires so they approach the terminals from a side angle, so they will not tend to misalign the switch when it is installed, and tighten the screws securely.
7. Install the furnished plastic connector #8772 over the terminal on one end of the new orange wire #8683. Connect this end of the orange wire with the plastic connector to the "R" terminal of the switch and route the wire down through the grommet in the gas tank support. Insert the terminal on the other end of the wire into the center of the rectifier-regulator connector assembly and connect the assembly to the rectifier-regulator assembly.
8. Clip off the spade connector from the ignition switch end of the black cigar lighter wire and install in its place, one of the furnished female quick connectors #8765. To install quick connectors. strip 1/4" insulation from the end of the wire, push wire into connector and crimp securely (as shown in Fig. 3 of the accompanying sketch) with a crimping tool or "diagonal" pliers. Connect wire to the "L" terminal of the new switch.



9. Clip off the spade connector from the end of the red magneto wire and install in its place the other furnished female quick connector #8765. Refer to step 8 for crimping procedure. Connect wire to the "M" terminal of the new switch.

10. Install the 9/16" diameter lock washer and the plastic insulator over the threaded switch hub and position the switch in the instrument panel. Install the switch retaining nut and tighten securely while holding the switch body from turning, making sure switch key slot is vertical. NOTE: The large #6 Battery and Starter wires have a tendency to distort the switch terminals if they are misaligned. Make sure all terminals are tight and insulated from each other. Recheck wiring making sure it checks with Fig. 2.



11. Reposition the gas tank and secure with the clamp, screw and nut.

12. Connect the battery cables.

Wheel Horse Service Bulletins 1961 - 1990: **#104** Issued: November 1968

Hydrogear Service

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This bulletin is for your guidance whenever- and only after -trouble shooting procedures indicate Hydrogear assembly replacement is necessary. Three Hydrogear assemblies, part numbers 6200, 7880, and 8061, are available for service replacement purposes depending on tractor model. Application, price and warranty data for each is listed below.

APPLICATION

Part No. 6200: (Rear mounted towing valve)

These units replace all 1965, 1966 and early 1967 Hydrogears. They are rebuilt assemblies. Sundstrand Hydro-Transmission, LaSalle, Illinois, the original manufacturer, has checked all internal parts against manufacturing tolerances and reassembled them using all new seals and gaskets. They can be expected to perform like new in all respects.

Part No. 7880: (Top mounted towing valve)

These are original equipment on 1967 models (except a few early models with #6200) and all 1968 and 1969 long frame 10 and 12 H.P. models. They are available only as new units.

Part No. 8061:

These are used only on the 14 H.P. 1969 tractor model 1-7441. They, too, are available only as new units.

Part numbers 6200 and 7880 are basically the same, interchangeable, and distinguished mainly by the location of the towing valve-rear mounted on 6200-top mounted on 7880. Part number 8061 resembles 7880, but, because of gearing differences, can not be installed in place of it. It will install only on the 14 H.P. transaxle.

PRICE INFORMATION

Part Number 6200 (rebuilt) \$120.00 List*
Part Number 7880 (new) \$201.65 List*
Part Number 8061 (new) \$206.75 List*

* Prices subject to change without notice

WARRANTY DATA

Part No. 6200:

The rebuilt #6200 is fully warranted for ninety days from the date - of installation on a tractor.

Part Nos. 7880 & 8061:

New #7880 and #8061 units are fully warranted for the duration of the new tractor warranty or for six months from the installation date, whichever length of time is greater.

Each new #7880 and #8061 installed on an out-of-warranty tractor is fully warranted for six months from the date of installation.

A self-addressed information return card is attached to each assembly shipped by the parts department. Our receipt of the filled out card puts the guarantee into effect. The stub of the card stays with the tractor as a warranty receipt.

| | | |
|--|---|----------------------------------|
| MODEL <input type="checkbox"/> 6200 <input type="checkbox"/> 7880 <input type="checkbox"/> 8061 HYDROGEAR SERIAL NO. HYDROGEAR SERIAL NO. | INSTALLATION DATE DETACH HERE AND MAIL | INSTALLATION DATE: _____ |
| | | TRACTOR SERIAL _____ MODEL _____ |
| OWNER'S NAME _____ | | ADDRESS _____ |
| CITY _____ STATE _____ | | DEALER _____ |
| CITY _____ STATE _____ | | DISTRIBUTOR _____ |
| Mr. Dealer: Please fill out card, detach and mail when this Hydrogear assembly is installed on a Wheel Horse tractor. Our receipt of this card puts the guarantee of this unit into effect. The stub should be attached to a protected area of the tractor (tool box) as a warranty receipt. | | |
| WHEEL HORSE PRODUCTS, INC., SOUTH BEND, INDIANA | | |
| | | FORM NO. 5031-C |

Important:

Only in the case of warranty replacements should Hydrogear assemblies be returned for credit. Otherwise, failed units should be scrapped locally.

Wheel Horse Service Bulletins 1961 - 1990: **#126** Issued: November 1970
Service Replacement Electric Clutch - 1968-70 Electro and GT 14 Tractors

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Current production clutch, Part No. 101473, has also been released as the service replacement for Part Nos. 7915, 8278 & 9656 which were original equipment clutches on 1968-1970 Electro and GT 14 tractors. Special instructions for installing the new clutch are given below by original clutch number and tractor model.

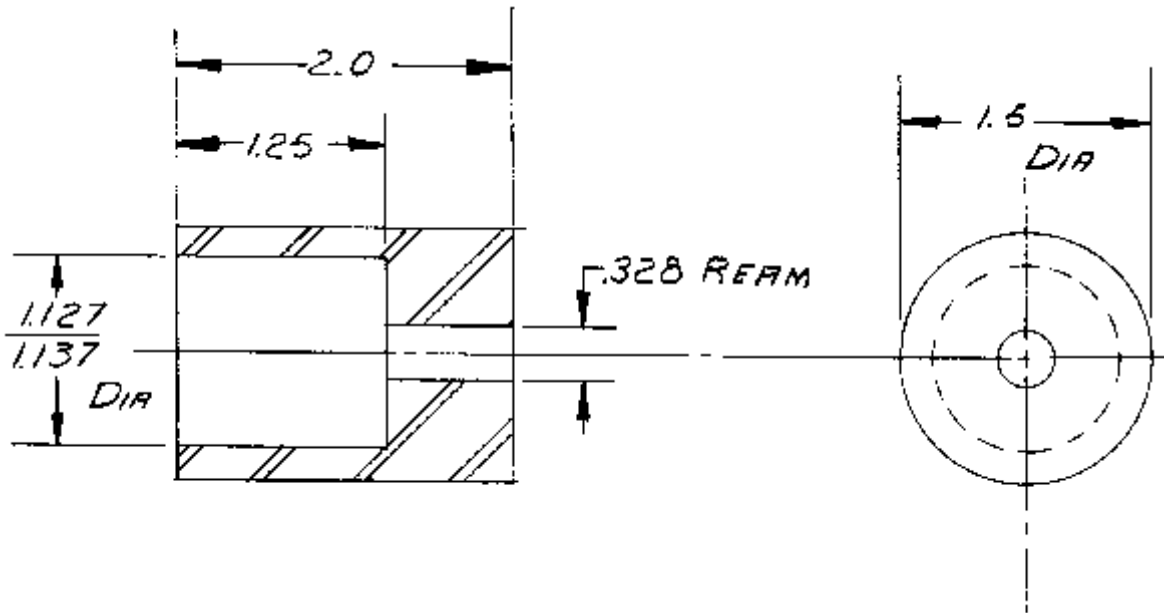
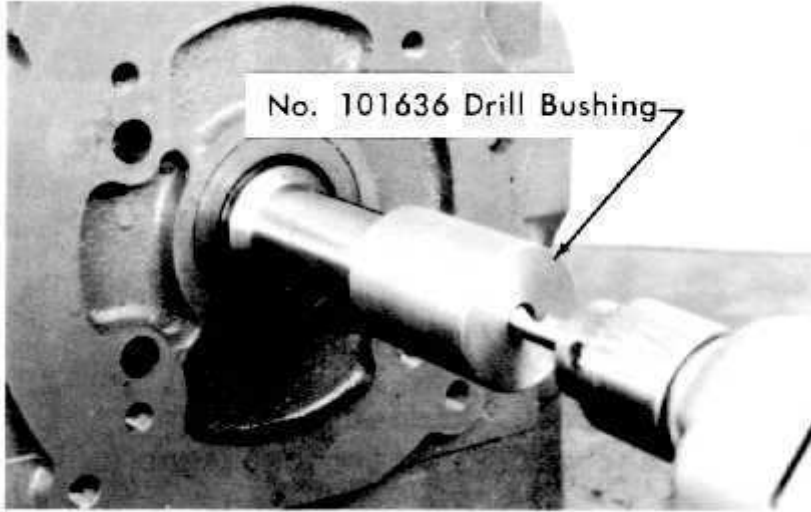
| CLUTCH NUMBER | TRACTOR MODEL | A. SPECIAL INSTALLATION INSTRUCTIONS B. ADDITIONAL PARTS REQUIREMENTS |
|---------------|------------------------|---|
| 9656 | 1-7452, 1-7451, 1-7255 | A. Straight part-for-part replacement None |
| 8278 | 1-7441 | A. Replace clutch to switch wire B. #9654 wire (two-wire harness) |
| 7915 | 1-7235, 1-7245 | A. (1) Drill and tap engine crankshaft (2) Replace clutch to switch wire (3) Replace clutch bracket B. #8694 bracket, #932121-4 clevis pin, #933504-4 hairpin cotter, #9892 wire, #908038-4 bolt, #920244-4 washer, #920124-4 Lockwasher |

CRANKSHAFT DRILLING INSTRUCTIONS - To replace #7915 clutch with #101473

1. Remove electric clutch, engine pulley and crankshaft key.
2. Fit trill bushing on end of crankshaft and trill crankshaft to a depth of 1 3/8" with 5/16" dia. drill.
3. Tap hole 3/8-16 thread to a usable depth of 1".

The drill bushing illustrated here can be made up locally from the shop drawing reproduced below or purchased through your Wheel Horse distributor.

Order Part No. 101636.



WARRANTY FLAT RATE ALLOWANCE

| OPR. NO. | DESCRIPTION | HRS. |
|----------|-----------------------------------|------|
| 15151 | Replace #7915 clutch with #101473 | 1 |

Note: For additional electric clutch information, see Serv. Bulletins 127 & 128

Atwood S. Kidder

Customer Relations Manager

Form No. A-5283

Wheel Horse Service Bulletins 1961 - 1990: **#127** Issued: November 1970
Replacement of Field (Outer) Bearing - #7915, #8278, #9656 Electric Clutches

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NOTE: These service procedures apply only to replacement of failed field bearings on #7915, #8278 and #9656 Electric Clutches which were original equipment on 1968-70 Electro and GT 14 tractors and a few other early 1971 model long frame tractors.

Service procedures for current production clutches, Numbers 101472 and 101473, are entirely different and are given in Service Bulletin Number 128.

Bearing Replacement Procedure

1. Remove clutch from engine crankshaft using a 1"-8 threaded bolt 5" long as a puller screw.
2. Remove the small external retaining ring as shown in figure 1 (#7915 only).

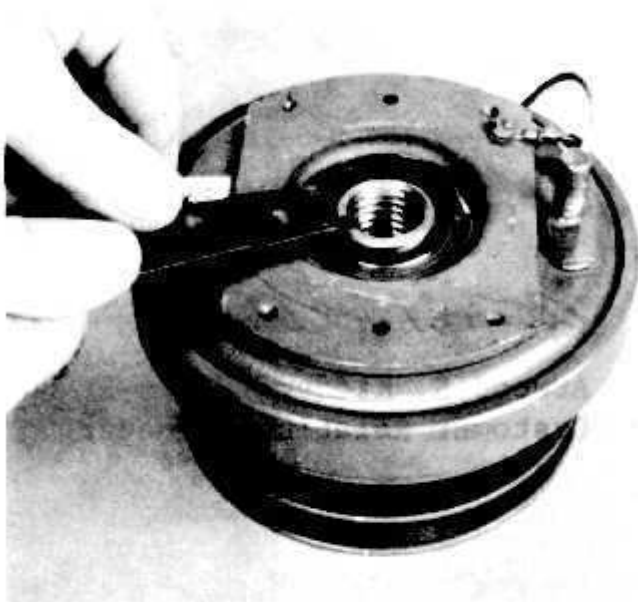


Figure 1

3. Screw the 1"-8 x 5" bolt into the clutch far enough to contact all the threads in the hub (figure 2).



Figure 2

4. Rap the head of the bolt on a solid surface such as a concrete floor until the field assembly breaks free as shown in figure 3.



Figure 3

5. Remove the inside bearing snap ring (figure 4) and press the bearing out from the other side of the field assembly.

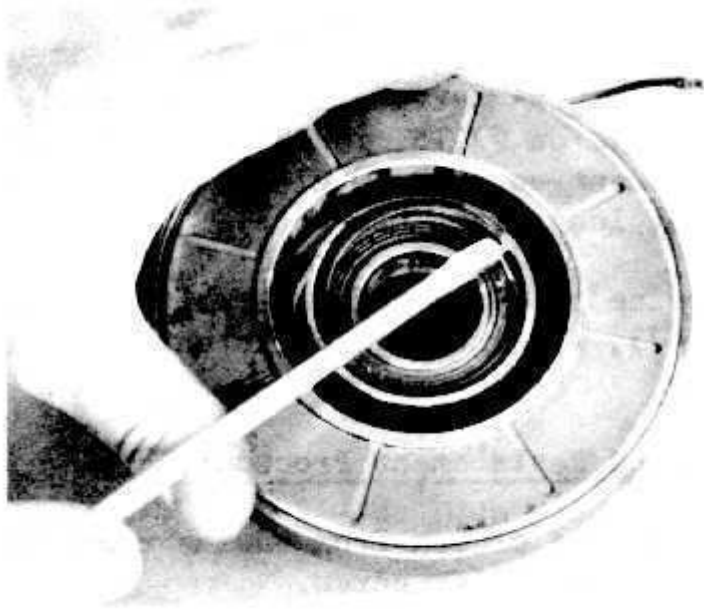


Figure 4

6. Press the new bearing, Part No. 101380, into place and reinstall the snap ring. Using an arbor that contacts only the inner bearing race, press the clutch halves together until the inner race stops against the hub shoulder. If #7915 reinstall the external retaining ring.

Atwood S. Kidder

Customer Relations Manager

Form No. A-5285

Wheel Horse Service Bulletins 1961 - 1990: **#128** Issued: November 1970
**Electric P.T.O. Clutch Component Service Procedures - #101472,
#101473 Clutches - 1971 Tractors**

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If a breakdown occurs on a #101472 or #101473 electric clutch (1971 original equipment), instead of replacing the complete assembly, it must be determined which of two major replaceable assemblies is at fault - and only that component replaced. The components are: (1) Housing and Pulley Assembly, (2) Field and Bearing Assembly.

TROUBLE SHOOTING

Diagnosing mechanical difficulties is a relatively simple matter of determining which of the two components contains the offending part and replacing that component.

Electrical difficulties such as failure to engage requires diagnosis to determine that the clutch is actually at fault as follows:

1. Check tractor electrical system for broken wires, bad connections, burned out fuse or faulty switch.
2. Check voltage at clutch wire. Voltmeter should read more than 8 volts. If voltmeter does not register a reading, recheck tractor wiring for broken wires, etc. If voltmeter reads over 8 volts, disconnect the clutch wire and check resistance of the clutch coil. A normal reading should be between 3.6 and 2.75 ohms. A reading outside these values indicates a faulty coil, and the field and bearing assembly which includes the coil should be replaced.

COMPONENT REPLACEMENT PROCEDURES

1. Disconnect the clutch wire and remove the clevis pin.
2. Remove the center bolt and washer, and screw a 5/8-11 UNC-2B bolt at least 4" long into the clutch hub. Turn the bolt against the end of the engine crankshaft until the clutch is forced off the shaft.
3. Leave the bolt in place in the clutch hub and rap the head of the bolt sharply against a solid surface such as a concrete floor until the field assembly separates from the clutch housing.
4. Substitute a new component for the one being replaced (see list below) and, using an arbor that contacts only the inner race of the field bearing, press the components together until the inner race stops against the shoulder of the clutch housing hub.

Special Note: A bar and screw type puller may be used to remove the field assembly for replacement without pulling the entire clutch off the engine crankshaft. To adapt a bar and screw puller for this purpose, make two puller hooks which will fit in the holes on the field assembly face plate and a puller screw center button which will fit either the outer end or the

bottom of the clutch hub counterbore.

COMPONENT PARTS LIST

| <u>Part Number</u> | <u>Description</u> | <u>Application</u> |
|--------------------|-----------------------------|--------------------|
| 101489 | Housing and Pulley Assembly | Clutch #101472 |
| 101490 | Housing and Pulley Assembly | Clutch #101473 |
| 101491 | Field and Bearing Assembly | All |

WARRANTY FLAT RATE ALLOWANCE

| <u>Operation Number</u> | <u>Description</u> | <u>Hours</u> |
|-------------------------|---|--------------|
| 10150 | Electric P.T.O. Clutch R & R | .5 |
| | (B) Field Assembly/Clutch Housing Replace | .2 |

Atwood S. Kidder

Customer Relations Manager

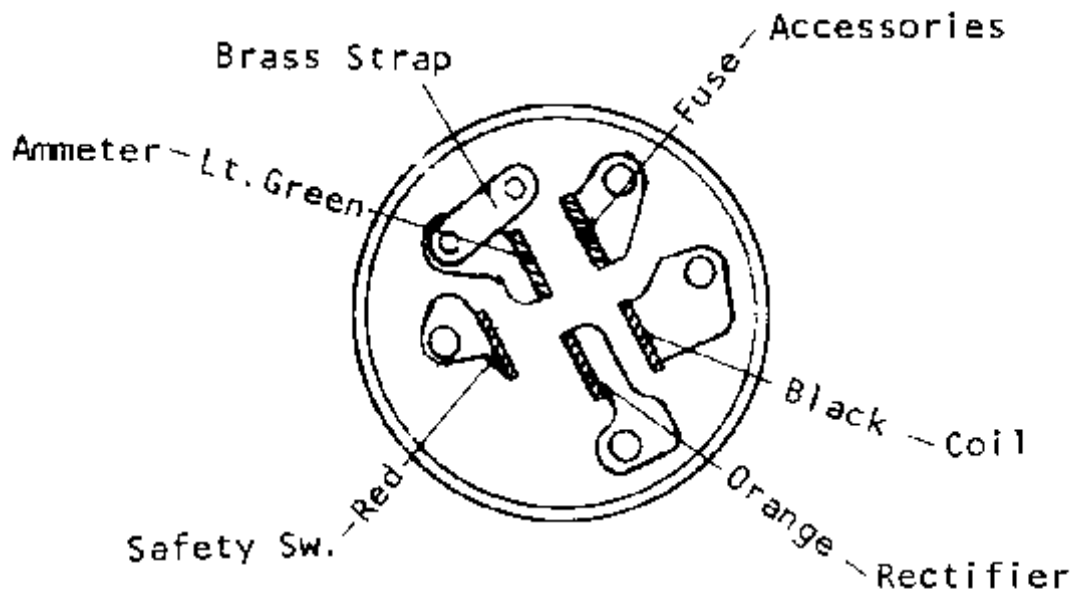
Wheel Horse Service Bulletins 1961 - 1990: #134 Issued: February 1972

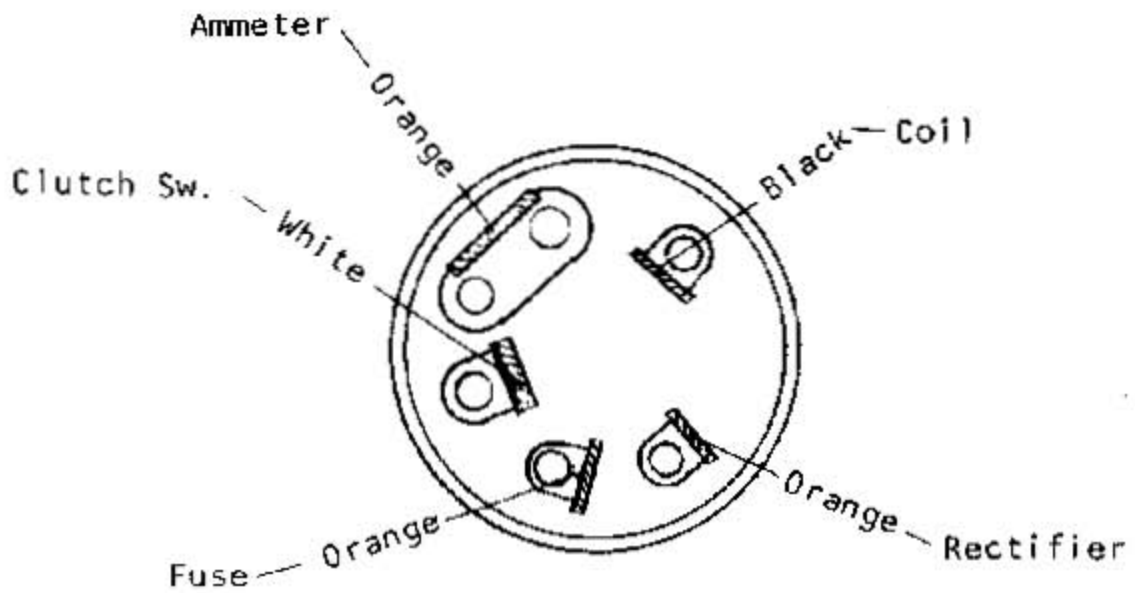
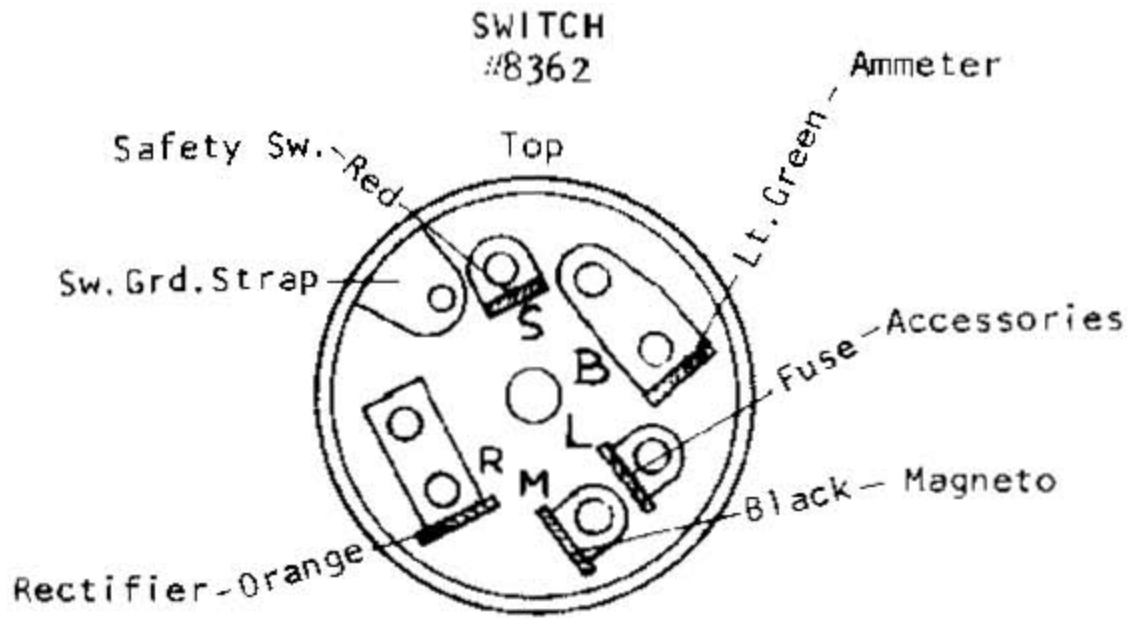
Ignition Switches - 1972 Models

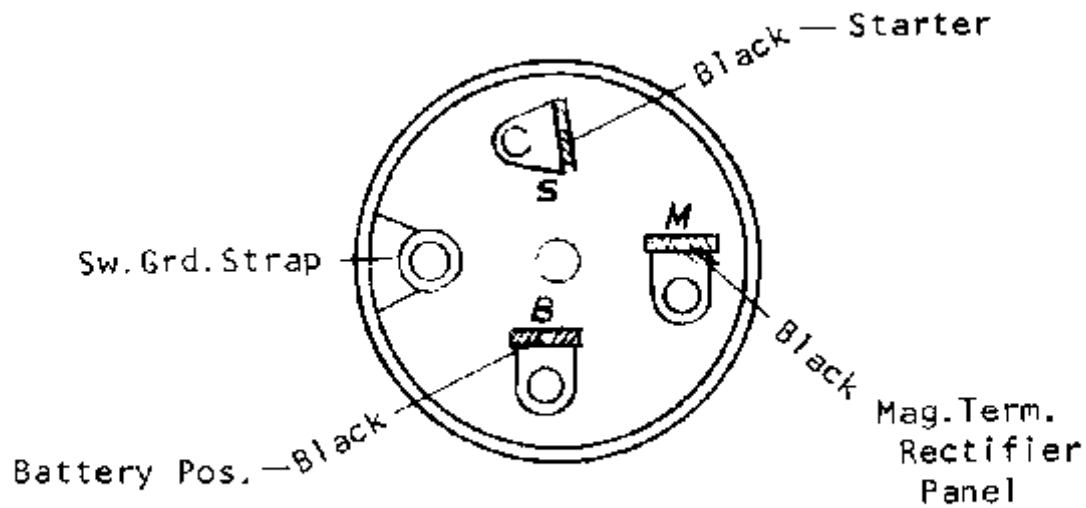
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As four (4) different Ignition Switches are used on 1972 models it is extremely important that replacement switches be identified properly to avoid damage to the electrical system.

The four (4) switches are pictured below as seen from the terminal side of the switch. The terminals are identified on the pictures as some of the switch terminals are not marked correctly or are not marked at all.







3. Be sure the front snow thrower belt is tight. Belt should deflect approximately 1 inch when pushed halfway between the pulleys with approximately 20 pounds force.

4. Be sure attachment drive belt is properly installed on all pulleys and properly positioned in all belt guides. Tighten the attachment drive belt so that snow thrower drives satisfactorily in the down position. This adjustment is made on the connecting springlink on the engaging arm of the idler pulley hanger. This will have to be adjusted from the place used with the mower, if previously used with mower

Atwood S. Kidder
 Manager,
 Technical & Engineering Services

Wheel Horse Service Bulletins 1961 - 1990: **#437b** Issued: August 1989
Sundstrand Automatic Transmission Service And Repair Parts

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This bulletin supersedes bulletin 437A, dated May 1989

1. Subject:

1.1 Toro Wheel Horse has depleted supplies of complete Sundstrand Automatic Transmissions. The following Sundstrand Hydrogear, Sundstrand Piston-Piston Hydrostatic and Conversion Kits for : transmissions are obsolete and no longer available.

PART NUMBERS: 6200, 6201, 7880, 8061, 101631, 101632, 102676, 102677, 102678, 102866, 103203, 105184, 105185, 105186, 105187, 106458, 106459

2. Service Action:

2.1 Sundstrand Hydrogear (Fig. 1)-Contact the following company for rebuilding services and repair parts needed.

B. J. Hydraulics, Inc.
6590 Wall Lake Rd.
Delton, Michigan 49046

Phone 616-623-5136

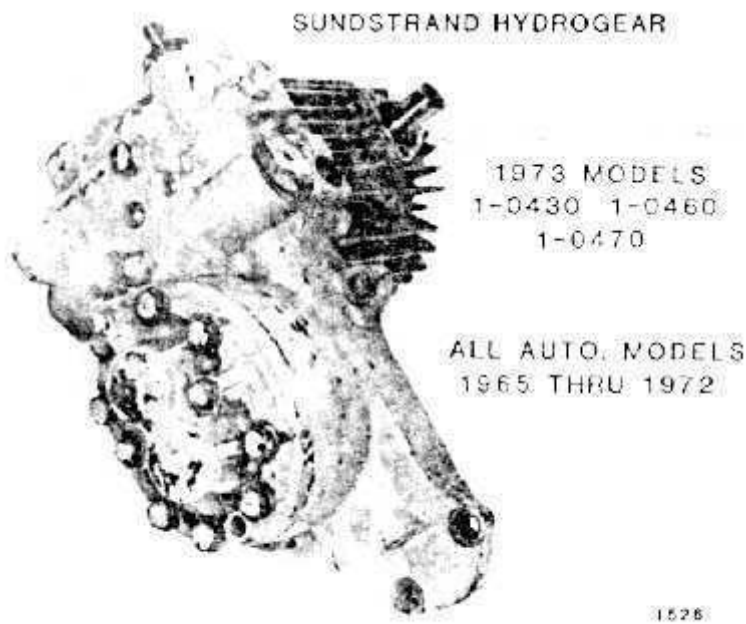


FIG.1

2.2 Sundstrand Piston-Piston Hydrostatic (Fig. 2)-Repair parts are available from Toro Wheel Horse. For part numbers refer to Automatic Transmission Repair Manual (Microfiche Blue Card #23 for 1973-77 Models and Tractor VIN Microfiche Cards (Red) for 1978-81 Models. Rebuilding Service is available from B. J. Hydraulics as listed above.



FIG. 2

2.3 If you have any unrepaired Sundstrand Transmissions (Figs. 1 or 2), B. J. Hydraulics is interested in purchasing them as "Cores" for rebuilding. Please contact John Carpenter for details.

| ROUTED | SERVICE MANAGER | SALES MANAGER | PARTS MANAGER | CHIEF MECHANIC | MECHANIC NO 1 | MECHANIC NO 2 | MECHANIC NO 3 | MECHANIC NO 4 | RETURN THIS TO. |
|--------------|-----------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|-----------------|
| INITIAL HERE | | | | | | | | | |

Toro Service Bulletins 1991 - Present: **Garden Tractors #12** Issued: June 1992
Sundstrand Hydrostatic Transmission

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TO: North American Distributors and Dealers

PRODUCT: Garden Tractors

UNITS AFFECTED: 1965-1980 Garden Tractors, 1973-1982 18 HP

Automatic and D-Series Estate Tractors

SITUATION: Complete replacement hydrostatic transmissions for older Wheel Horse tractors have not been available for some time. Depending upon the type of unit (Hydrogear or Piston to Piston), some or all of the component parts to service the units are available.

A rebuilding service is also available, through an independent hydraulic service dealer. This dealer also purchases rebuildable Wheel Horse Hydrogear or Piston to Piston Sundstrand transmissions for use in the rebuilding program. The primary interest is that the housings be in good condition.

If you have any old Sundstrand units you would like to sell as "cores" for rebuilding, please contact:

John Carpenter
BJ Hydraulics
6590 Wall Lake Road
Delton, MI 49046
Phone: 616-623-5136

NOTE: For more complete information on transmission service, please refer to Wheel Horse Service Bulletin 437B. The bulletin identifies the dealer as M & P Services, Inc. Their business name has recently changed to BJ Hydraulics.