GENERAL SPECIFICATIONS

	MZ14H	MZ16H	MZ18H
ENGINE			
Type	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
Model	280H070	286H770	31H777
Horsepower	10.8 kw (14.5)@3600 RPM	11.9 kw (16.0)@3600 RPM	13.4 kw (18.0)@3600 RPM
Cylinders	Single	Single	Single
Displacement	465CC	465CC	500CC
Low Idle Speed	N/A	N/A	N/A
Maximum Speed: High Idle	3300 ±100 RPM	3300 ±100 RPM	3300 ±100 RPM
Oil Capacity	1.75 qt. (1.7 L)	1.75 qt. (1.7 L)	1.75 qt. (1.7 L)
Serial Number	0166E1	0165E1	0168E1
Fuel Unleaded Gasoline	87 octane min.	87 octane min.	87 octane min.
Vertical Shaft	1 in. (2.54 cm) Dia	1 in. (2.54 cm) Dia	1 in. (2.54 cm) Dia
Charge Coil	12v - 9 amp	12v - 9 amp	12v - 16 amp
Other	Air cooled, Dual element air cleaner, Overhead valve, Four cycle, Solid state ignition	Air cooled, Dual element air cleaner, Overhead valve, Four cycle, Solid state ignition, Pressure lubricated with oil filter	Air cooled, Dual element air cleaner, Overhead valve, Four cycle, Solid state ignition, Full pressure lubricated with oil filter
CONSTRUCTION			
Frame	Drawn 10 ga. steel	Drawn 10 ga. steel	Drawn 10 ga. steel
FUEL SYSTEM			
Capacity	2 Gallon (7.6 L)	2 gallons (7.6 L)	2 Gallon (7.6 L)
Type	Single	Single	Single
Other	Fuel tank shut-off, Fuel filter (replaceable in-line type), Large diameter vented fuel cap	Fuel tank shut-off, Fuel filter (replaceable in-line type), Large diameter vented fuel cap	Fuel tank shut-off, Fuel filter (replaceable in-line type), Large diameter vented fuel cap
TRACTION SYSTEM			
Transaxles	Twin Hydro-Gear EZT Hydrostatic Transaxles	Twin Hydro-Gear EZT Hydrostatic Transaxles	Twin Hydro-Gear EZT Hydrostatic Transaxles
Transaxle Drive	Belt Drive with self-tensioning system	Belt Drive with self-tensioning system	Belt Drive with self-tensioning system
Ground Speed	Infinite, 0 to 6.0-MPH (9.7-km/hr) forward, 0 to 3-MPH (5.0-km/hr) reverse	Infinite, 0 to 6.0-MPH (9.7-km/hr) forward, 0 to 3-MPH (5.0-km/hr) reverse	Infinite, 0 to 6.0-MPH (9.7-km/hr) forward, 0 to 3-MPH (5.0-km/hr) reverse

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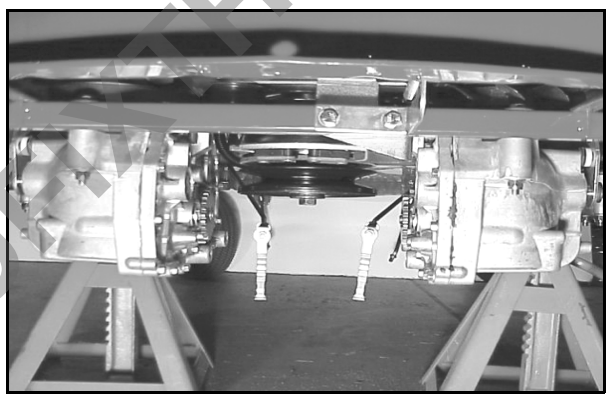
NEUTRAL ADJUSTMENT

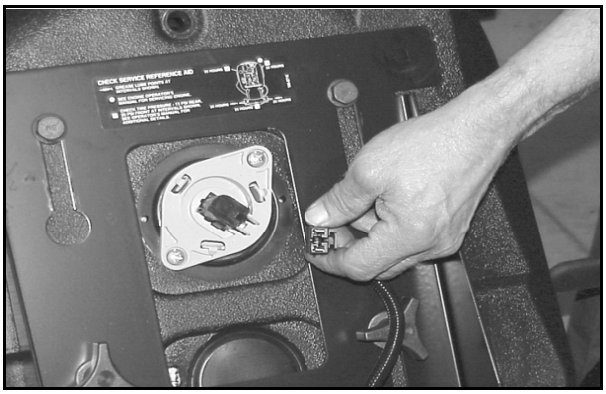
Before making a neutral adjustment, the transaxles must be warmed up, usually 5 to 10 minutes. Steps to perform neutral adjustment:

1. Jack-up and support the rear end of the unit. Place jack stands at the rear to stabilize the unit.

2. Remove the brake arm on the tranaxle, you are performing the neutral adjustment on. In this case, we are performing a neutral adjustment on both transaxles. Make sure the brake arms are clear of the cog brake system disc.



3. Unplug the seat switch and temporarily connect a jumper wire across the plug connector on the harness.



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TOOLS AND TORQUES

REQUIRED TOOLS

MISCELLANEOUS	SOCKETS
MZ14H, MZ16H, MZ18H Repair Manual	1/2” - 3/8” Adapter
Flat Blade Screw Driver (2)	3/8” Deep
Torque Wrench	1/2” Deep
Air Impact Wrench	7/16” Deep
Rubber Mallet	9/16” Deep
Breaker Bar	3/4” Deep
Side Cutters/Snips	13/16” Deep
PLIERS	7/8”
Needle Nose	T-25 Torx Head
Large External Snap Ring	T-40 Torx Head
Small External Snap Ring	Apex AN-08

REQUIRED TORQUE VALUES

OPERATION	TORQUE	ITEM	DESCRIPTION
Side Housing Screws	135-185 lb-in [15-21 Nm]	9	Screw, 1/4-20 x 1.25
Control Arm Screws	230-310 lb-in [26-35 Nm]	25	Screw, 5/16-24 x 1
Control Arm Stop Stud	50-120 lb-in [6-13 Nm]	21	Stud, 5/16-24
Center Section Bolts	525-700 lb-in [60-80 Nm]	12	Screw, 3/8-24 x 2.5
Check Plugs	200-360 lb-in [23-41 Nm]	56	Check Plug Assembly
Expansion Plate Screws	25-50 lb-in [3-6 Nm]	53	Screw, 10-32 x 0.50
Fan/Pulley Lock Nut	360-520 lb-in [41-59 Nm]	122	Lock Nut, 1/2 x 20
Cog Brake Bolt	80-120 lb-in [9-13 Nm]	55	Bolt, 1/4-20 x 1

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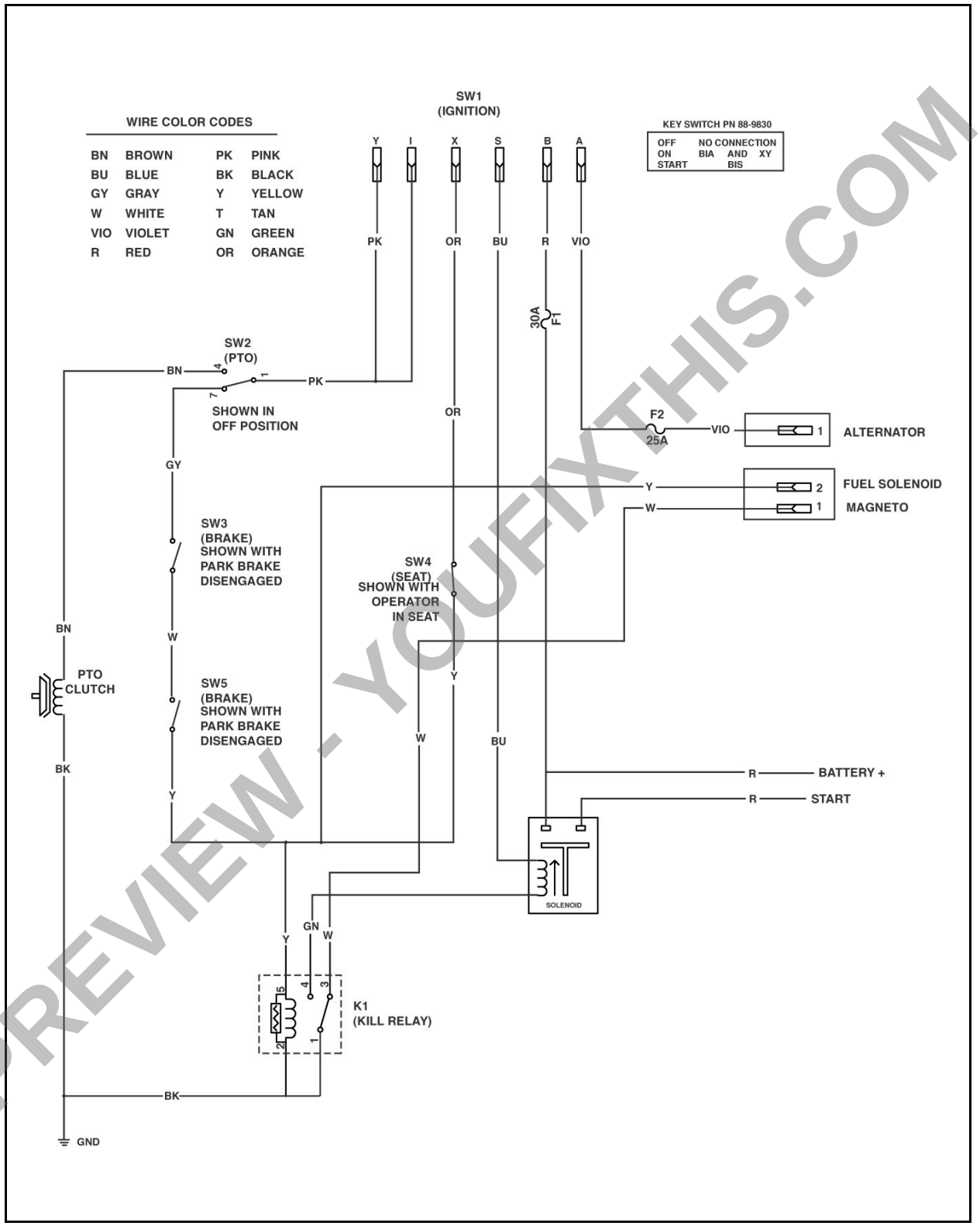
Wiring Diagram - MZ14H, MZ16H



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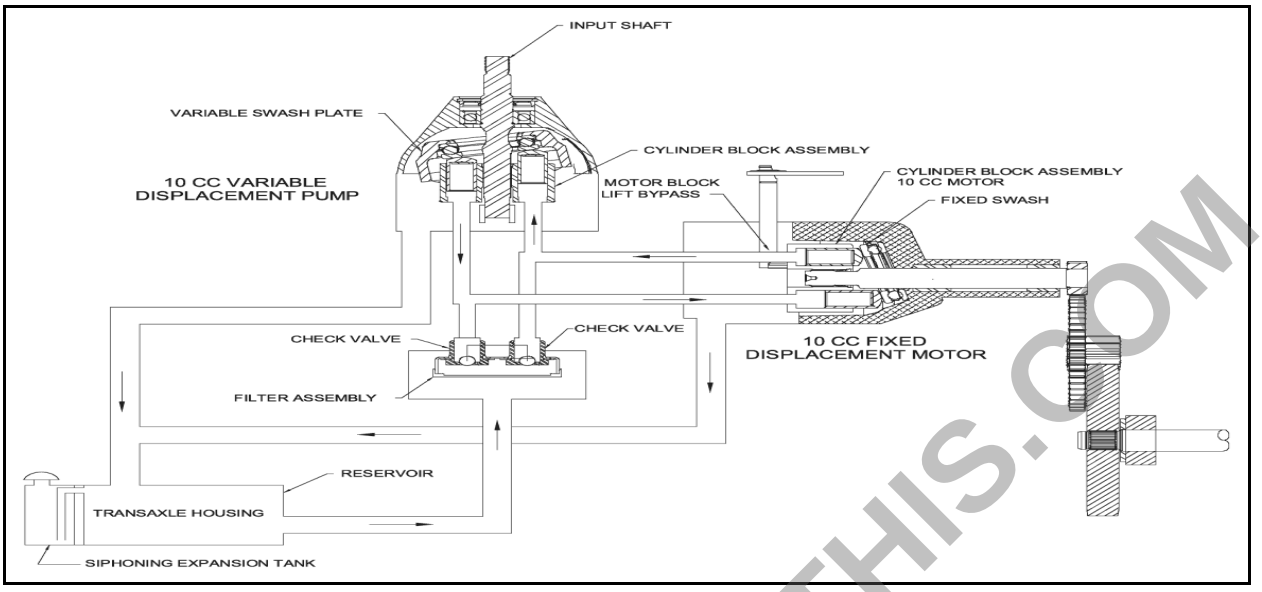

HYDRAULIC SCHEMATIC

The illustration above provides a flow diagram of the hydraulic oil circuit. The oil supply for the hydraulic system of the transaxle is also utilized for lubricating the components of the final drive assembly.

The input shaft and pump cylinder block are turned in one direction only by the engine/drive belt/pulley combination. Output of the oil flow is controlled by the direction and amount that the variable swashplate is angled. As the pump pistons compress they force the oil to flow through one of two passageways (forward or reverse) in the center section to the motor cylinder block and motor shaft. Since the motor has fixed displacement angle it is forced to turn with the flow of oil. As the angle of the pump swashplate is increased the amount of oil being pumped will increase and cause a higher speed output of the motor. Reversing the angle of the swashplate will reverse the direction of oil flow.

During the operation of the transaxle, fluid is “lost” from the hydraulic loop through leak paths designed into the product for lubrication purposes (around pistons, under the rotating cylinder blocks, etc.). This “lost” fluid returns to the transaxle housing, then is pulled back into one of the check valves depending upon the direction of vehicle operation. All of this oil must pass through an internal filter.

The motor cylinder block mounts onto a splined motor shaft which drives the gear train.

The bypass feature in the transaxle has a mechanical lever which lifts the motor block off of the center section running surface. This allows oil flow from the cylinder blocks to be discharged.

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SECTION 1 - GENERAL INFORMATION

SECTION 2 - MODEL/SERIAL NUMBER LOCATION

SECTION 3 - GREASING AND LUBRICATION

SECTION 4 - TRANSAXLE

SECTION 5 - CHASSIS

SECTION 6 - MOWER DECKS

SECTION 7 - ELECTRICAL SYSTEM

The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in the each book.

The sections listed above are the sections utilized for the MZ14H, MZ16H, and MZ18H series tractors.

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This symbol means WARNING or PERSONAL SAFETY INSTRUCTION - read the instruction because it has to do with your safety. Failure to comply with the instruction may result in personal injury or even death.

This manual is intended as a service and repair manual only. The safety instructions provided herein are for troubleshooting, service, and repair of the MZ14H, MZ16H, MZ18H zero radius tractor. The MZ14H, MZ16H, MZ18H zero radius tractor and attachment operator's manuals contain safety information and operating tips for safe operating practices. Operator's manuals are available through your New Holland dealer.

THINK SAFETY FIRST

AVOID UNEXPECTED STARTING OF ENGINE...

Always turn off the engine and disconnect the spark plug wire(s) before cleaning, adjusting, or repair.

AVOID LACERATIONS AND AMPUTATIONS...

Stay clear of all moving parts whenever the engine is running. Treat all normally moving parts as if they were moving whenever the engine is running or has the potential to start.

AVOID BURNS...

Do not touch the engine, muffler, or other components which may increase in temperature during operation, while the unit is running or shortly after it has been running.

AVOID FIRES AND EXPLOSIONS...

Avoid spilling fuel and never smoke while working with any type of fuel or lubricant. Wipe up any spilled fuel or oil immediately. Never remove the fuel cap or add fuel when the engine is running. Always use approved, labeled containers for storing or transporting fuel and lubricants.

AVOID ASPHYXIATION...

Never operate an engine in a confined area without proper ventilation.

AVOID INJURY FROM BATTERIES...

Battery acid is poisonous and can cause burns. Avoid contact with skin, eyes, and clothing. Battery gases can explode. Keep cigarettes, sparks, and flames away from the battery.

AVOID INJURY DUE TO INFERIOR PARTS...

Use only original equipment parts to ensure that important safety criteria are met.

AVOID INJURY TO BYSTANDERS...

Always clear the area of bystanders before starting or testing powered equipment.

AVOID INJURY DUE TO PROJECTILES...

Always clear the area of sticks, rocks, or any other debris that could be picked up and thrown by the powered equipment.

AVOID MODIFICATIONS...

Never alter or modify any part unless it is a factory approved procedure.

AVOID UNSAFE OPERATION...

Always test the safety interlock system after making adjustments or repairs on the machine. Refer to the Electrical section in this manual for more information.

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SECTION 4 - TRANSAXLE

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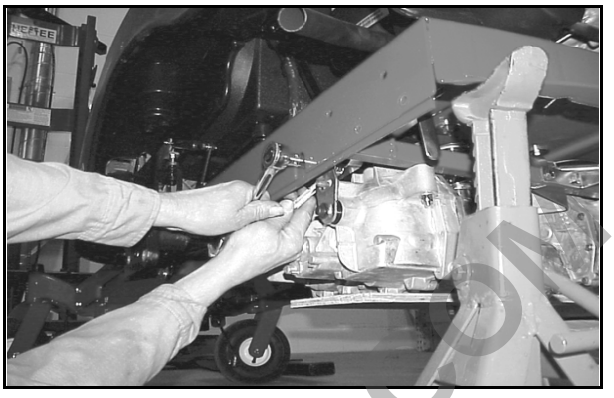
5. Connect the rear of the hydro rod to the transaxle control arm and tighten.



6. Install the hydro rod to the actuator.

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HYDRAULIC COMPONENTS

Disassembly

1. Remove the bypass arm and control arm. Refer to Control Arm and Bypass Arm in this section.

2. Drain the oil from the transaxle. Refer to Fluid Change Procedure in this section.

3. Remove the side housing. Refer to Cog Brake and Side Housing in this section.

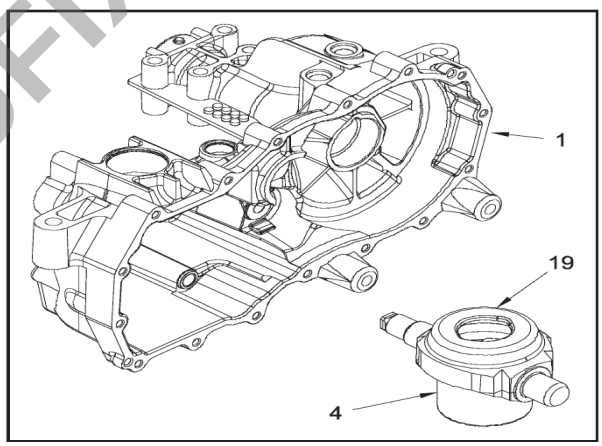
4. Remove the reduction gears. Refer to Axle Shaft, Reduction Gears and Expansion Plate in this section.

5. Remove the motor shaft. Refer to Motor Shaft in this section.

6. Remove the input shaft and bypass rod. Refer to Input Shaft and Bypass Rod in this section.

7. Remove the swashplate, 19, and pump cylinder block, 4, as one assembly. While gently removing the swashplate and block assembly, keep the block face flush with the center section to minimize damage to the running surface.

NOTE: *Removal will be aided by applying a small amount of pressure on the trunnion mounted swashplate towards the center section. Also note that the control arm may be loosely assembled at this point to assist in swashplate removal.*



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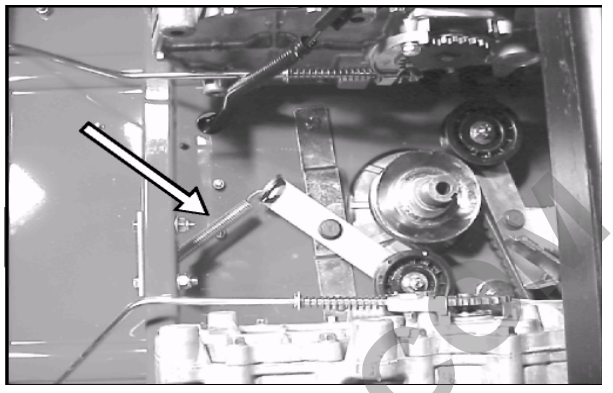
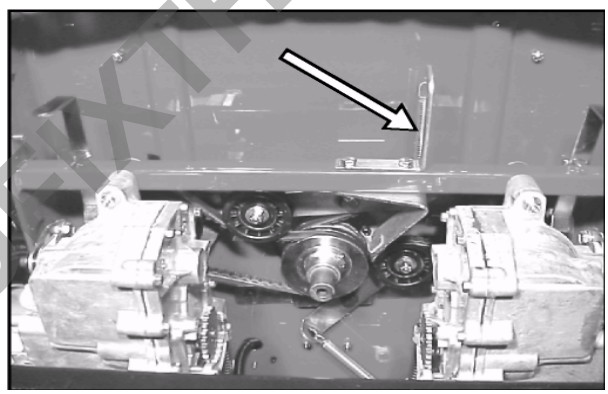
BELT INSTALLATION

1. Install belt around the upper groove of the engine drive pulley and then around the right side transaxle pulley. Install idler spring to the front spring bracket.

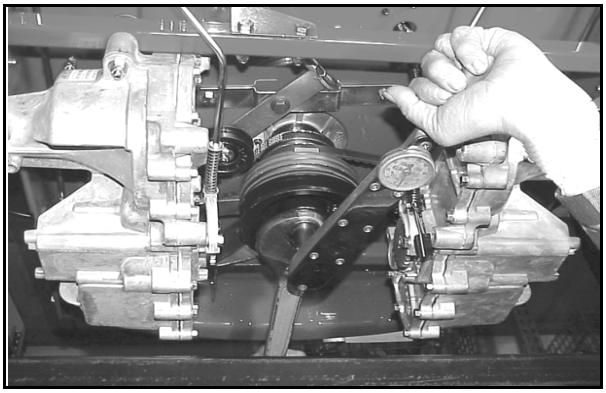


2. Install the second drive belt around the left side transaxle pulley and then work it around the engine drive pulley. Install idler spring to the rear spring bracket.



3. Apply anti-seize lubricant on the crankshaft and install the electric PTO clutch on the engine crankshaft; make sure the slot on the clutch goes into the clutch stop bracket.

NOTE: *Loctite 242 should be applied to the threads of the clutch bolt before installing. Torque the clutch bolt to 50 - 60 ft. lbs. Reinstall the electric plug connection into the clutch.*



4. Install the mower drive belt around the electric PTO clutch.

5. Reconnect the negative battery cable and turn the fuel ON at the fuel valve, located under the fuel tank.

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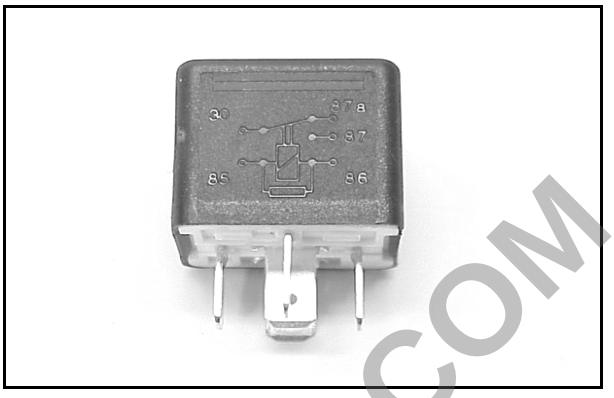
2. Switch: Terminals 30, 87, and 87a are actually part of a single pole, double throw (SPDT) switch. Terminal 30 is the common lead. The switch is spring loaded so that 30 and 87a are connected when the coil is not energized. When the coil is energized, the switch is “thrown” and 30 and 87 are connected.



Testing

1. Disconnect the relay from the harness.

2. Verify the coil resistance between terminals 85 and 86 with a multimeter (ohms setting). Resistance should be from 70 to 90 ohms. There should be continuity between terminals 87a and 30.

3. Connect multimeter (ohms setting) leads to relay terminals 30 and 87. Ground terminal 86 and apply +12 VDC to 85. The relay should make and break continuity between terminals 30 and 87 as 12 VDC is applied and removed from terminal 85.

4. Connect multimeter (ohms setting) leads to relay terminals 30 and 87a. Apply +12 VDC to terminal 85. With terminal 86 still grounded, the relay should break and make continuity between terminals 30 and 87a as 12 VDC is applied and removed from terminal.

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