SWISHER

REPAIR MANUAL

ZT18542

ZT2350

Swisher Mower Co
Warrensburg, MO

This manual was produced at the beginning of our 2006 production. It was specifically written for those models built after January, 2006. For those models built before that time refer to the owners manuals for specific parts or call the Swisher Mower factory for assistance.

For warranty issues or ordering parts for the engines or the hydro units, contact the authorized dealer in your area.

For additional assistance on service

Contact Swisher Mower Co., Inc.

Phone 1-800-222-8183

Fax 1-660-747-8650

E-mail cust.serv@swisherinc.com

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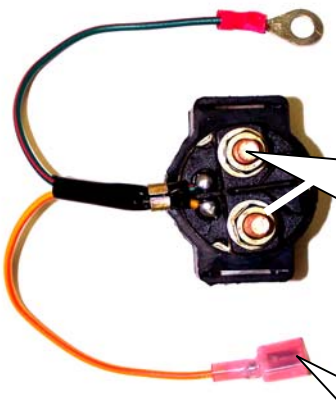
IF ENGINE WON'T CRANK

ALWAYS CHECK FUSE FIRST



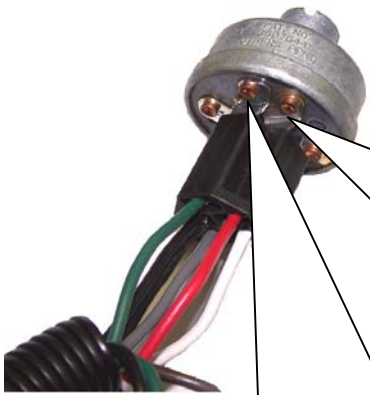
TEST #1

Using a remote starter switch or a suitable device, make a connection between the large terminals on the solenoid. If engine does **not** crank!!!

- Battery may be weak or dead
- Starter may be bad
- Battery cables may have bad connections
- Do **not** go to Test #2 until this test gives results

TEST #2

If engine **did** crank in test #1, disconnect green wire at spade connector and apply positive voltage from the battery to the primary wire on the solenoid. Make sure the one with the eyelet is grounded. If engine doesn't crank now, replace the solenoid**.** ***Remember, all other tests are useless unless these two tests make the engine turn over*****.**

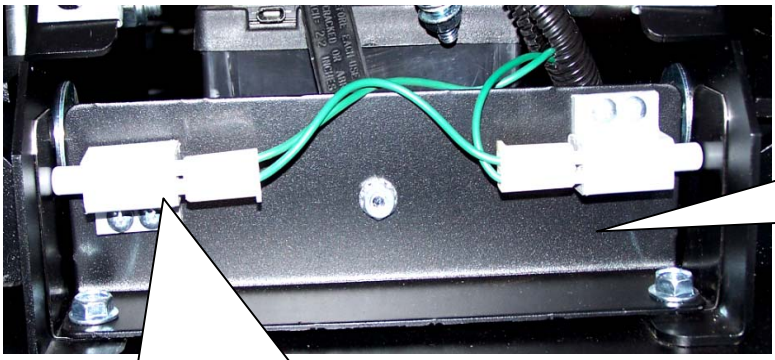


TEST #3

If engine **did** crank in the first part of test #2, reconnect green wire to solenoid. Make sure the drive controls are out in neutral position. Using a jumper wire attached to the positive terminal of the battery, apply 12 volts to the red wire on terminal **B** of the ignition switch. Try to crank, using the ignition switch. If engine cranks, the fuse or the fuse holder, or related wiring is defective somewhere back to the solenoid.

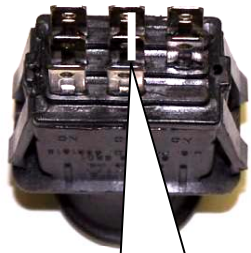
TEST #4

If engine **did not** crank in test #3, make sure the drive controls are in neutral position. This time move the jumper wire attached to the positive terminal of the battery, to the green wire on **S** terminal of the ignition switch. If all components in the circuit are working, the engine should crank. If it doesn't, move on to next test.



This panel is located right in front of the battery. It is accessible by removing the plate below the front edge of the seat.

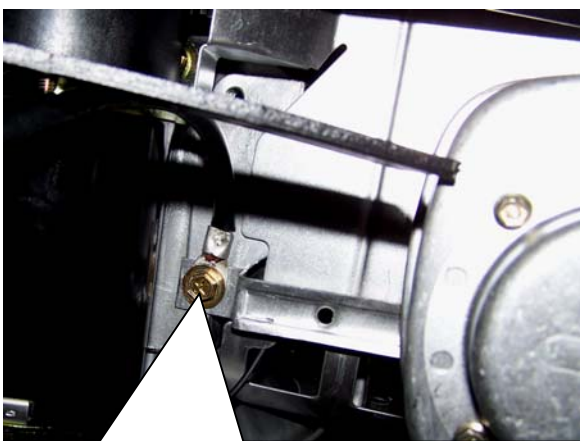
A neutral switch is located at the lower end of both drive control handles and is activated when the handles are outward in the neutral position. Check that the plunger buttons on both switches are depressed at least 3/8 inch. Loosening the two mounting screws and sliding the switch to the side can adjust these. Ohmmeter should go to zero when checking continuity across switch terminals with plungers depressed.



With PTO switch in the off position, meter should go to zero when checking continuity across these two terminals.

If any of the switches in this circuit tested bad, install a new one and perform Test #4 again. If all switches are good, a connecting wire must be at fault. Don't move past Test #4 until it assures a good circuit. When you do get good results, hook all wires back to original position and try the ignition switch again. If no results, you will need to replace the ignition switch.

BATTERY GROUND CONNECTION AT ENGINE



Negative battery ground on ZT18542

Negative battery ground on ZT2350

ENGINE CRANKS BUT WON'T START

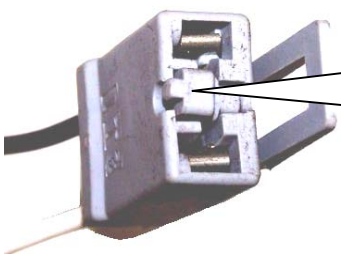
Checks for electrical problems

- While turning ignition switch to its first position, listen for the fuel solenoid on the carburetor to click. It must click to supply fuel to the carburetor.
- Try a new spark plug.
- Check for spark at plug when it is removed and the threaded end is grounded.
- Unplug the six-position socket that connects engine wiring to mower wiring harness. Engine will still crank. If plug doesn't have a spark now, ignition module is probably defective.

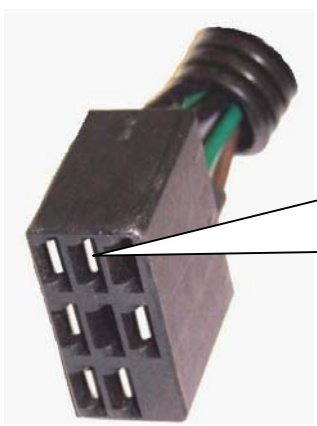
Checks for mechanical problems

- Make sure the tank gas valve is turned on.
- Remove air filter element to check for signs of gas in the throat of the carburetor.
- If no gas, check to see if choke is working properly.
- If all above checks show positive, carburetor must have an internal problem. Remove and clean the carburetor.

ENGINE STALLS WHEN PTO IS ENGAGED



The seat safety switch plug not being properly inserted, or a defective plug can cause this problem. If the plug is not inserted or is defective, the spark plug is grounded out when the PTO is engage.



To check, remove plug from the PTO switch. Using an ohmmeter, place one probe on the terminal connected to the black wire going to the seat safety switch plug. Place the other probe on a good chassis ground. The meter should be on zero with no weight on the seat. Pulling the seat down should open the circuit.

IF PTO CLUTCH WILL NOT ENGAGE

Apply a negative ground to this terminal

Apply 12Volts to this terminal. Clutch should activate, if it doesn't, clutch is defective.

Used on ZT2350

If clutch checks OK, use a voltmeter to measure for 12 volts at the brown wire's terminal. First turn ignition switch to the **ON** position but don't start the engine. Now engage the PTO switch. For the first test put the negative probe on a good ground, not on the white wire's terminal in the plug. If no voltage is measured, move on to next test.

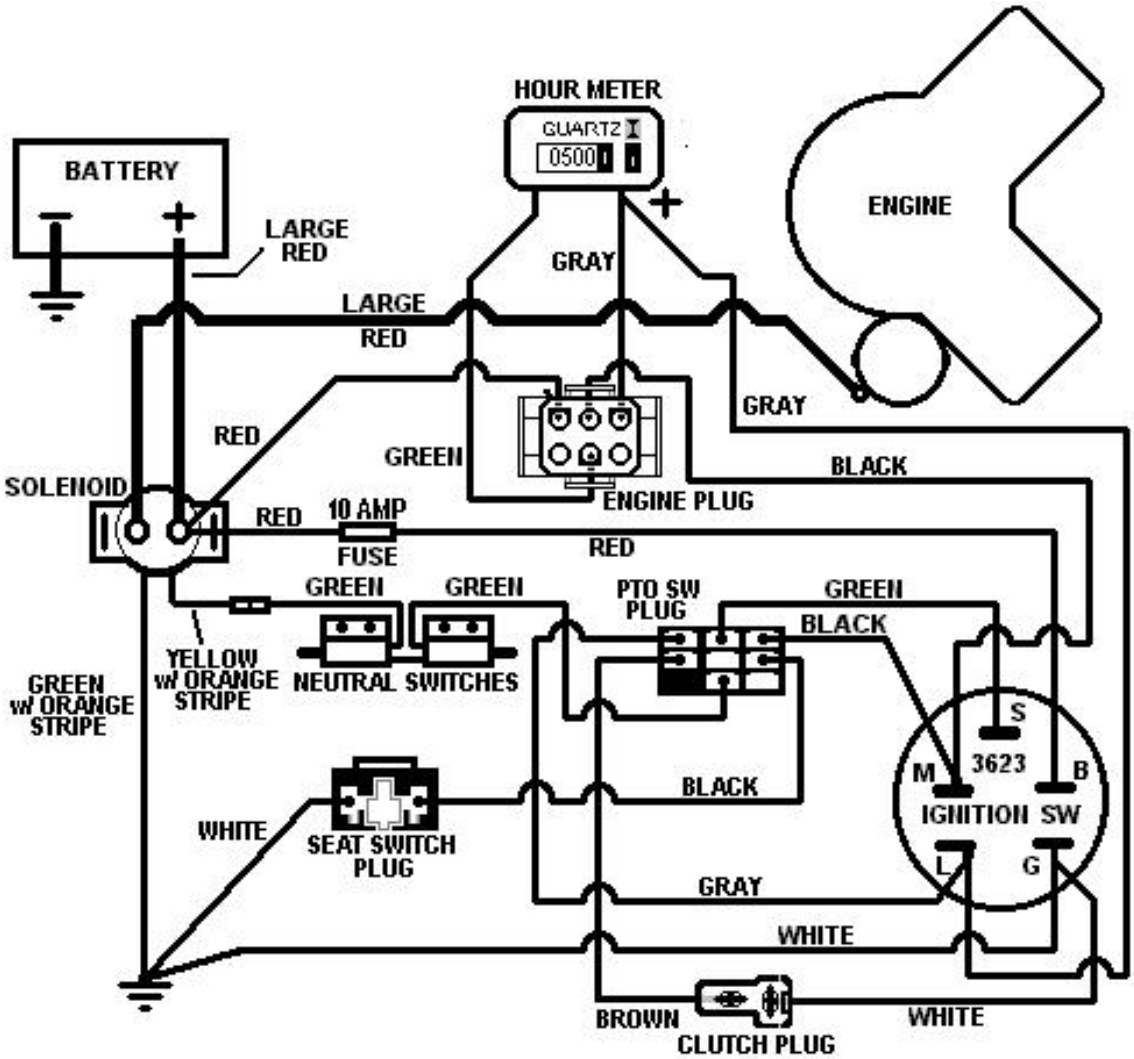
Used on ZT18542

The problem may be a poor ground on the white wire in the clutch plug. Check by testing for continuity to ground or check for voltage between the two terminals. If no voltage is measured, move on to next test.

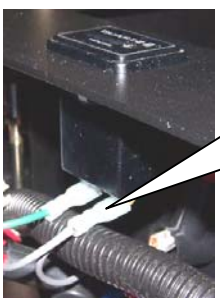
With the PTO switch ON there should be continuity between these two connectors, if not, replace switch. If switch tested good, check wires and connectors back to ignition switch and back to clutch plug.

WIRING DIAGRAM

HOUR METER USED ONLY ON ZT2350



HOUR METER NOT OPERATING

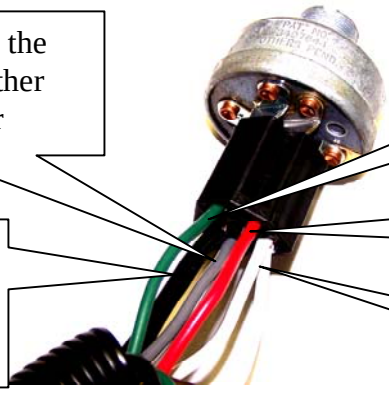


Hour meter has a **positive** and a **negative** post. Gray wire should go on the positive. Power is supplied from the ignition switch.

Green wire from hour meter is grounded by the oil pressure switch, therefore only has a ground when the engine is running.

WIRE IDENTIFICATION AT SWITCHES

3623 IGNITION SWITCH



One gray wire goes to the PTO switch and the other goes to the hour meter

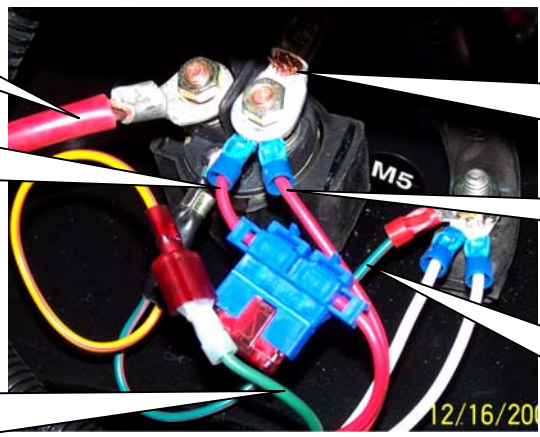
Green wire goes to PTO switch

Red wire goes to fuse and on to battery positive at the solenoid terminal.

One black wire goes to PTO switch and the other goes to the engine plug

One white wire goes to clutch and other one goes to ground.

STARTER SOLENOID



Heavy red cable goes to the starter.

Heavy red cable goes to the positive post of the battery.

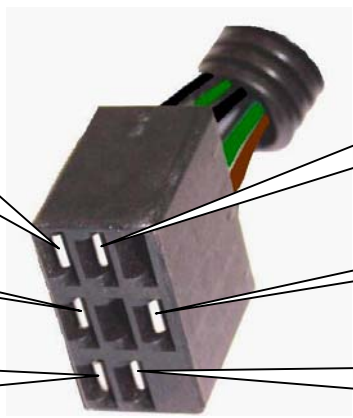
Red wire goes through fuse and onto ignition switch.

Red wire goes to engine plug.

Green wire goes to neutral switches and on to the ignition switch.

Green wire with orange stripe goes to the ground.

PTO SWITCH PLUG



Black wire goes to the ignition switch.

Black wire goes to the seat switch.

Green wire goes to the ignition switch.

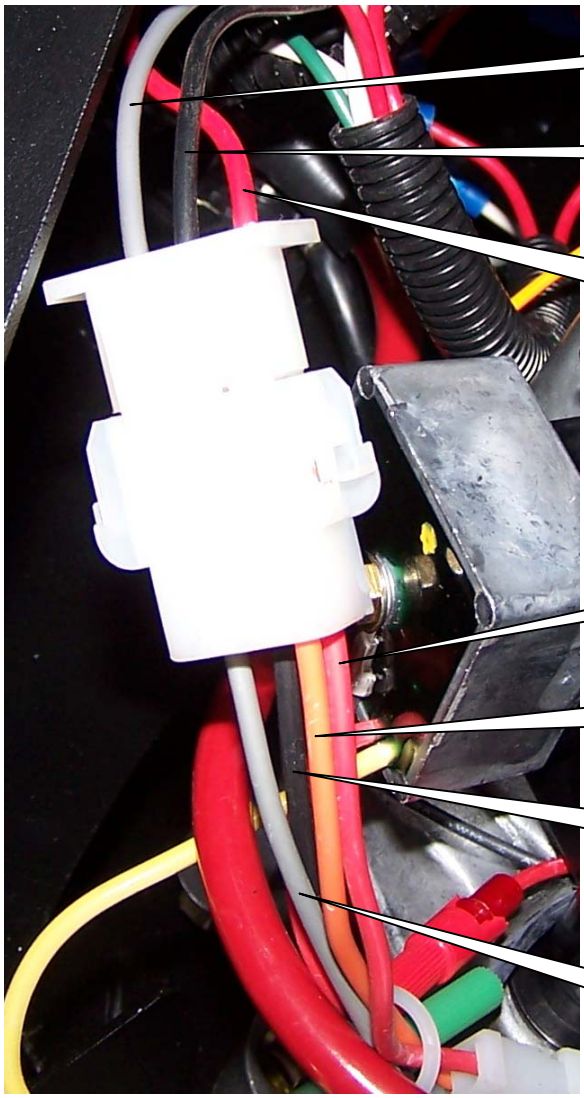
Green wire goes to the neutral switches.

Gray wire goes to the ignition switch.

Brown wire goes to the clutch.

WIRE IDENTIFICATION ON ZT18542

WIRING HARNESS TO ENGINE PLUG CONNECTION



Gray wire goes to ignition switch

Black wire goes to ignition switch

Red wire goes to terminal on solenoid with the positive battery cable

Red wire goes to engine charging system

Orange wire is not used on this application

Black wire goes to engine ignition module

Gray wire goes to carburetor fuel solenoid

WIRING HARNESS PLUG TO ENGINE

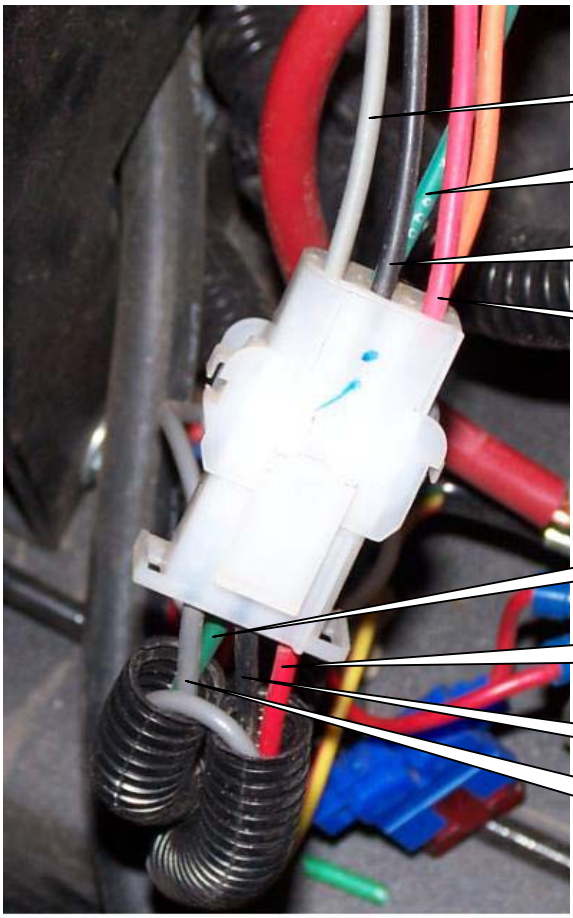
Red wire goes to terminal on solenoid with the positive battery cable

Black wire goes to the ignition switch

Gray wire to the ignition switch

WIRE IDENTIFICATION ON ZT2350

WIRING HARNESS TO ENGINE PLUG CONNECTION



Gray wire goes to carburetor fuel solenoid

Green wire goes to oil pressure switch

Black wire goes to engine ignition module

Red wire goes to engine charging system

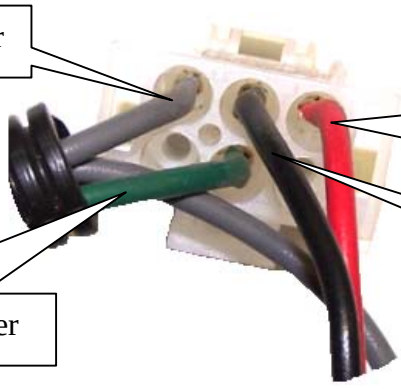
Green wire goes to hour meter

Red wire goes to terminal on solenoid with the positive battery cable.

Black wire goes to the ignition switch.

Gray wire goes to hour meter

WIRING HARNESS PLUG TO ENGINE



Gray wire goes to hour meter

Red wire goes to terminal on solenoid with the positive battery cable.

Green wire goes to hour meter

Black wire goes to the ignition switch.

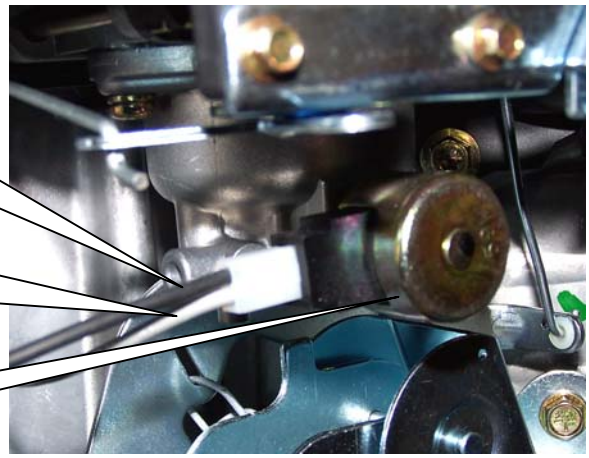
CARBURETOR FUEL SOLENOID

USED ON ZT2350

Black wire goes to engine ground.

Gray wire goes to the engine plug, then on to the ignition switch where it receives power to activate the fuel shut off valve.

Fuel shut off solenoid is a Briggs part and is available through them only.



USED ON ZT18542

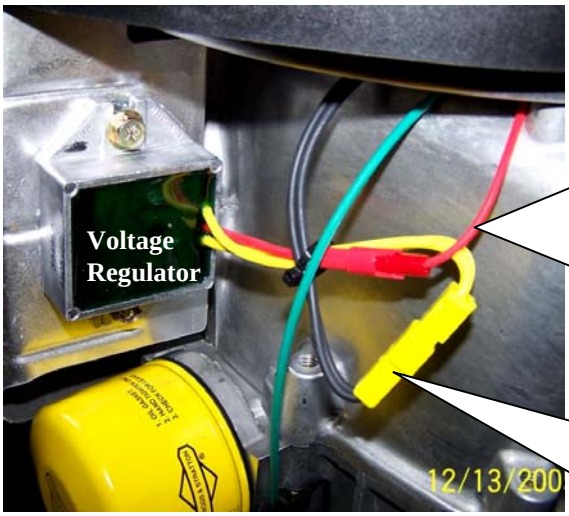
Fuel shut off solenoid is a Briggs part and is available through them only.

Gray wire goes to the engine plug, then on to the ignition switch where it receives power to activate the fuel shut off valve.

Black wire goes to ground.

BATTERY CHARGING SYSTEMS

USED ON THE ZT2350

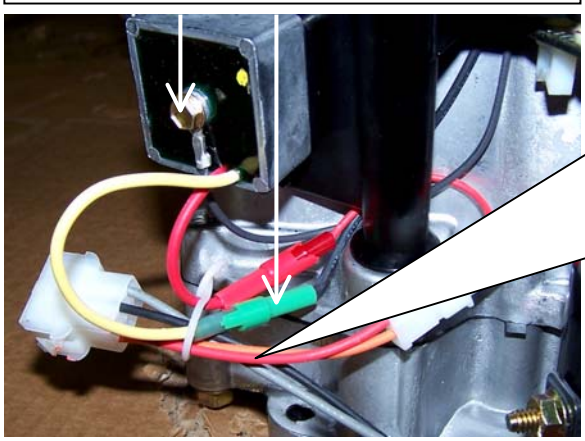


Red wire goes to the engine plug and then on to the positive terminal of the solenoid to keep the battery charged. Easiest way to check if the charging is taking place is to measure the DC voltage of the battery before you start the engine. Then start the engine. Measure the voltage at the battery with the engine running. The voltage should be at least one volt higher right after the engine is started. This voltage will drop a little as the battery gets recharged.

To test alternator before it goes to the regulator, unplug the yellow connector and measure the AC voltage across the the two gray wires inside this connector.There should be at least 20 volts AC.

USED ON ZT18542

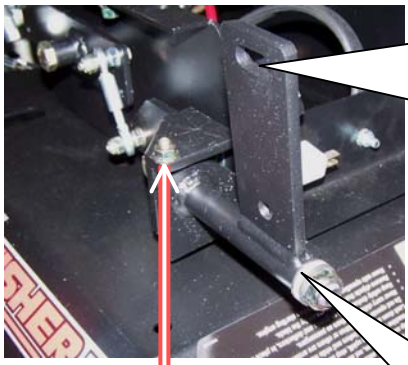
To test alternator, first disconnect the green plug. Then measure for AC voltage between the terminal end on the gray wire and the bolt in the regulator There should be around 40 volts AC.



Red wire goes to the engine plug and then on to the positive terminal of the solenoid to keep the battery charged. Easiest way to check if the charging is taking place is to measure the DC voltage of the battery before you start the engine. Then start the engine. Measure the voltage at the battery with the engine running. The voltage should be at least one volt higher right after the engine is started. This voltage will drop a little as the battery gets recharged.

ADJUSTING THE DRIVE CONTROLS

Remove left and right instrument covers for access



Once the tracking adjustments have been made on the previous page, the handles can now adjusted straight across from each other by loosening both nuts that mount handles and rotate them forward or backwards.This adjustment can also be used to bring both handles closer or farther forward for the comfort of the operator.

The bolt that joins the handle mount to the pivot weldment has a nylon bushing that provides friction to control the effort needed to move the control arms in or out. The proper adjustment is achieved when arms stay put in any position and a slight effort is required to reposition them.

Adjusting this screw and its locking nut can move the handles left or right to avoid contact between them.

ADJUSTMENT OF STEERING PIVOT PLATE

View by removing right side instrument cover

This turnbuckle should be adjusted to position the front of the pivot plate slightly lower than the rear. Make sure the handle is out in its neutral position while making the adjustment.

ADJUSTMENT OF STEERING

View by removing right side instrument cover

When replacing this ball linkage assembly, a sequence needs to be followed. Put the control handle out in the neutral position. Fasten the top end first. Then since the control lever on the front of the hydro unit self-centers, lengthen or shorten the ball linkage assembly until the lower stud falls freely into the hole on the control.

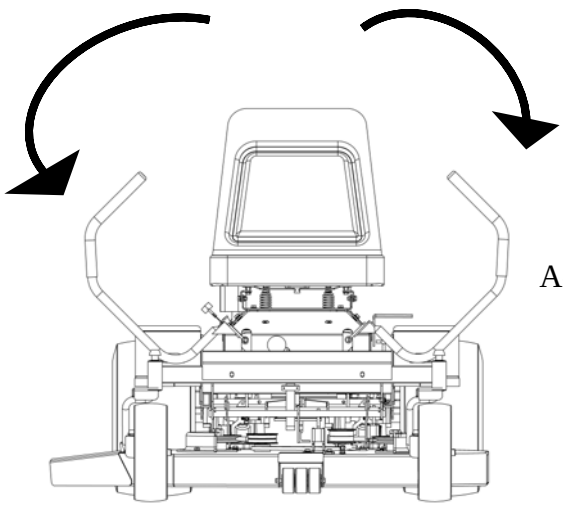
TRACKING ADJUSTMENTS

Adjustments to the unit may need to be made if the unit does not track in a straight line. The primary reason for the unit not tracking straight is incorrect or unbalanced tire pressure. Before making any adjustments first check and adjust the tire pressure. DO NOT EXCEED MAXIMUM RECOMMENDED TIRE PRESSUE.

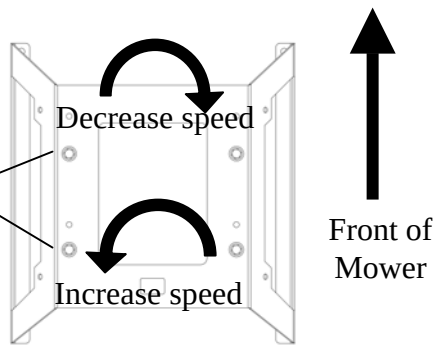
ADJUST LINKAGE: Place steering levers outward locking them in the neutral position. Turn off engine and raise seat. Under the seat are (4) adjustment bolts. The two adjustment bolts toward the seat mount are adjustments for the forward travel. The two bolts toward the engine are for the reverse travel. Clockwise movement for these will decrease or slow the travel speed of the individual side. Counterclockwise movement will increase the travel of the individual side. The linkage is factory set to maximum performance. Adjustment is made by, first loosening the locking nuts, then rotating the adjustment bolt clockwise on the opposite side that the unit tracks toward. Adjust forward and reverse to track straight as needed. When accomplished, adjustment to the steering levers may need to be done. This is made by loosening the two bolts on the steering lever and aligning with the other. Travel of the steering levers from front to rear may be accomplished in the same manner, to adjust for the comfort of the operator.

Neutral-Lock position

Steering levers out

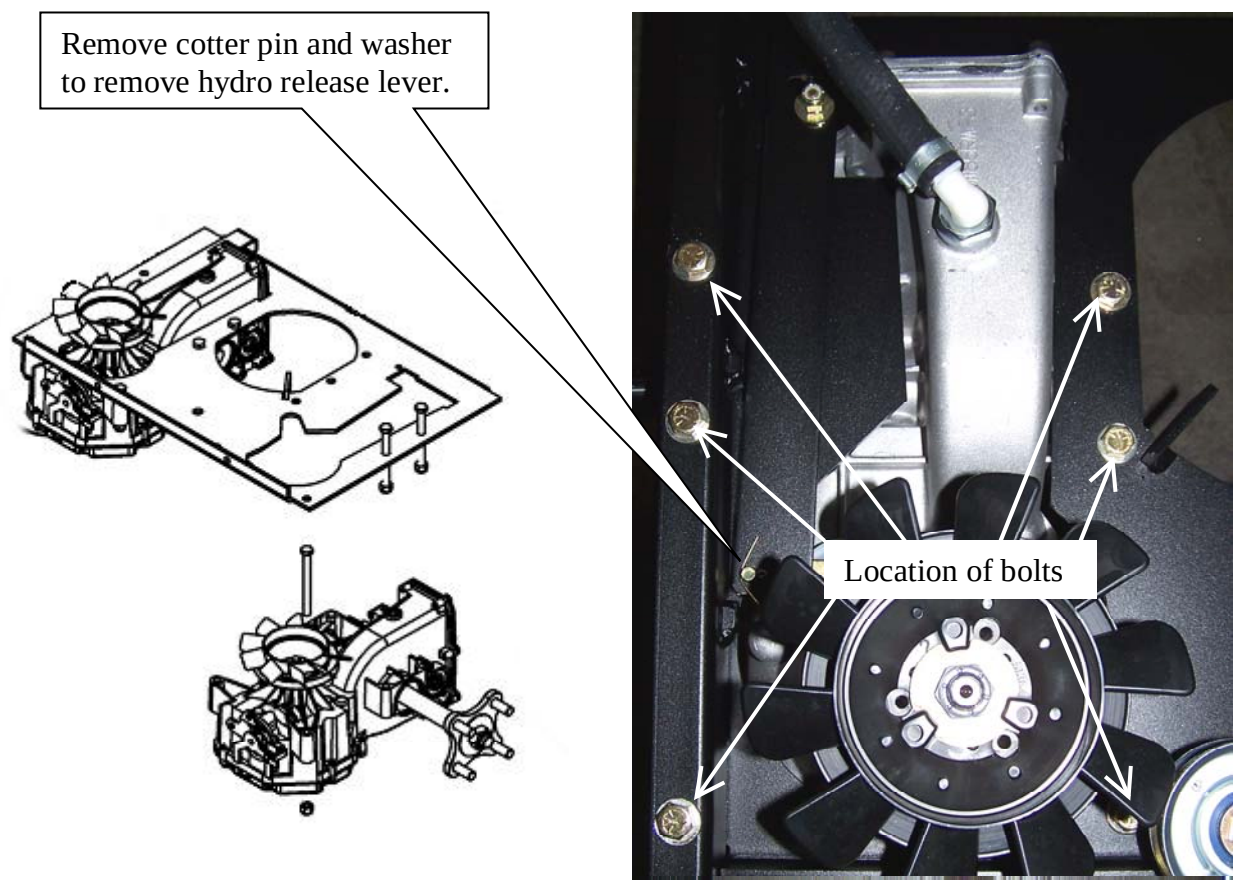


Tracking Adjustment Diagram

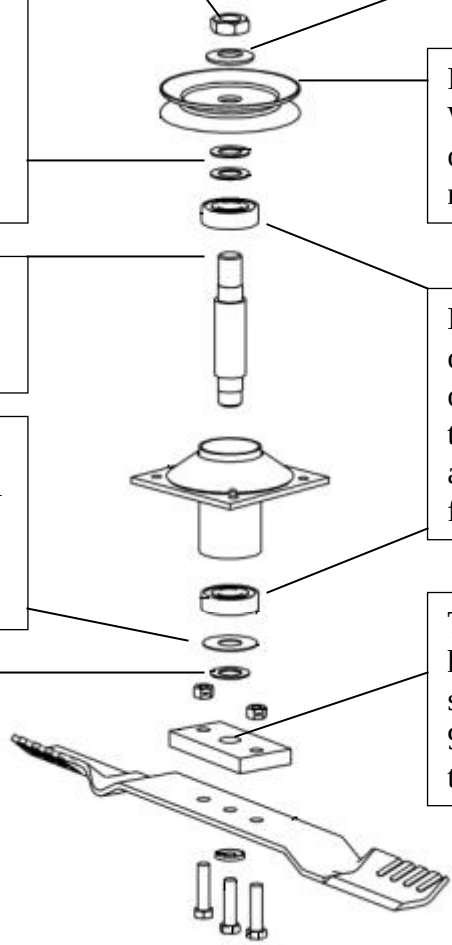


REPLACEMENT OF THE HYDRO UNIT

Prepare to replace the unit by jacking the mower up on the side where the defective unit is located. Use a jack stand to support the mower while you are working. Remove the wheel on the defective unit. Remove the rear cover behind the clutch and remove the deck belt. Remove the transmission idler spring from its mounting bolt on the transmission plate allowing the transmission belt to be removed from the defective unit. Dropping the electric clutch will give more room to work under the engine compartment. The hydro release lever will need to be unhooked from the transmission. Remove enough of the parking brake weldment to get it out of the way. Six bolts hold the hydro unit to the mount plate. The bolts come down from the top, putting the nuts on the bottom for easy removal. The opening in the mount plate is large enough to drop the unit out without removing the pulley and fan blade. Use the pictures below to help locate the parts. Install the new unit in reverse order of removal. Referring to the sections on “Adjusting the Drive Controls” and “Tracking Adjustments” get the new unit working in coordination with opposite side.



REPAIRING OR REPLACING BLADE DRIVER



Torque top nut to 90 ft/lbs Replacing this nut each time is recommended.

Machine washers are used to keep the pulley from contacting the outer race of the bearing. When applying torque to the top nut the pressure is to the inner race only and onto the shank on the inner shaft.

Bottom end of the shaft has the same ¾ in. SAE threads as the top end.

This washer is wide enough to to cover the full bottom of the housing and is used as a protector for the seal in the bearing.

Machine washer used as a spacer just like those on top of the upper bearing.

Since there are no hubs on our pulleys, this Belleville washer is important to apply friction to the pulley to turn the shaft. Make sure the outer lip is down to best contact the pulley.

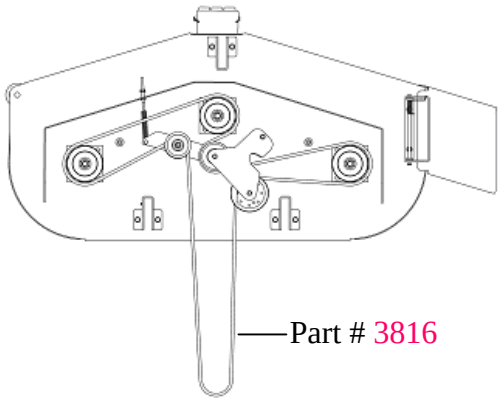
Pulley does not have a hub. When removing, just lift it off like a washer, no puller is needed.

Bearings are sealed. They can be driven out and new ones pressed in for repairing the spindle assembly. It can also be purchased as a unit for easier repair.

This adaptor block is right hand threaded onto the ¾ in. shaft. Torque this block to 90 ft/lbs just like the nut at the top of the shaft.

Install the blade adaptor block to the bottom of the shaft. Before applying torque, install the blade to the block using only the outer two bolts. Leave the center bolt out for now. Block the blade to outer deck edge by using a 4x4 or similar stop. Using a torque wrench on the top nut above the pulley, apply 90 ft/lbs. The top nut and the adaptor block will equally receive the tightening. Now put the washer on the center bolt and install into the shaft. Torque the three bolts to 35 ft/lbs. The center bolt will lock the block so it won't come off.

BELT REPLACEMENT ROUTING



•Clutch drive belt replacement

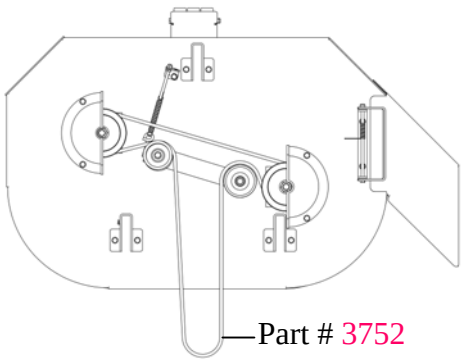
•Remove belt covers

•Disconnect tension idler from tension bracket

•Remove belt from mower pulley and electric clutch

•Install new belt onto electric clutch and mower pulley and check for proper routing and clearance.

•Reconnect idler tension bolt to tension bracket



Hydrostats belt replacement

•Remove clutch drive belt. *See clutch belt replacement.*

•Disconnect wiring from electric clutch.

•Disconnect idler spring from tension bracket.

•Remove bolt and washer from bottom of electric clutch and slide clutch from engine crankshaft, set aside.

•Remove belt from transaxles and engine pulley.

•Install new belt. Check for proper routing and clearance.

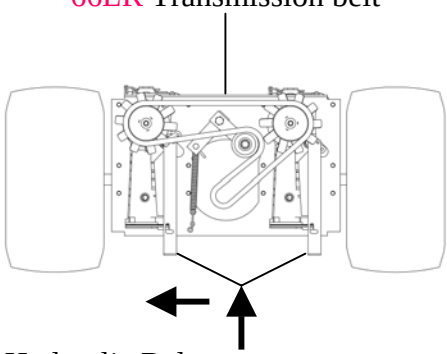
•Reinstall electric clutch carefully aligning keyed portion of clutch and keyway in crankshaft. Reinstall bolt and washer. Washer is "*cupped*" be sure to place "*cupped*" side of washer towards the clutch body.

•Reconnect tension idler to tension bracket.

•Reconnect wiring harness to electric clutch.

•Reinstall clutch drive belt. *See clutch drive belt replacement.*

66LR Transmission belt



Hydraulic Release

Push in and lock to the left.

REPLACEMENT PARTS

Quick Reference

Swisher Part#	Description
•66LR	Hydro belt
•3752	Deck belt for 42”
•3816	Deck belt for 50”
•9004 and 9005	Blades for 42” (1 of each)
•10099	Set of Blades for 50”
•9018	Blade driver assembly
•B98	Blade driver bearing
•9076	Blade shaft
•3785	Blade pulley for 42”deck
•B4104TK	Blade pulley for 50”deck
•3623	Ignition switch
•9043	Starter solenoid
•3605	PTO switch
•6102NC	Gas cap
•TZ2S	Deck idler spring

swisherinc.com

REPAIR MANUAL

MODEL NO.
ZT2350
ZT18542

"Z" SERIES
ZERO TURN HYDROSTATIC DRIVE

Each mower has its own model number. Each engine has its own model number. The model number for the mower will be found under the seat. The model number for the engine will be found on the top of the blower fan housing.
All mower parts listed herein may be ordered directly from Swisher Mower & Machine Co. Inc. or your nearest Swisher dealer.
All engine parts may be ordered from the nearest dealer of the engine supplied with your mower.

WHEN ORDERING PARTS, PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE:

* PRODUCT – Zero Turn Rider ("Z" Series)
* SERIAL NUMBER - _____
* MODEL NUMBER - _____
* ENGINE MODEL NUMBER - _____
  TYPE - _____
* PART NUMBER WITH PAINT CODE
* PART DESCRIPTION

TELEPHONE - 1-800-222-8183
FAX - 1-660-747-8650

SWISHER MOWER & MACHINE CO. INC.
1602 CORPORATE DRIVE
P.O. BOX 67
WARRENSBURG, MO 64093