SWISHER

REPAIR MANUAL

ZT2452A

Swisher Mower Co
Warrensburg, MO

LIMITED WARRANTY

The manufacturer's warranty to the original consumer purchaser is: This product is free from defects in materials and workmanship for a period of two (2) years from the date of purchase by the original consumer purchaser. We will repair or replace, at our discretion, parts found to be defective due to materials or workmanship. This warranty is subject to the following limitations and exclusions:

1) Engine Warranty

All engines utilized on our products have a separate warranty extended to them by the individual engine manufacturer. Any engine service difficulty is the responsibility of the engine manufacturer and in no way is Swisher Mower Co., Inc. or its agents responsible for the engine warranty. The Briggs & Stratton Engine Service Hot-Line is 1-800-233-3723.

2) Commercial Use

This product is not intended for commercial use and carries no commercial warranty.

3) Limitation

This warranty applies only to products which have been properly assembled, adjusted, and operated in accordance with the instructions contained within this manual. This warranty does not apply to any product of Swisher Mower Co., Inc., that has been subject to alteration, misuse,abuse, improper assembly or installation, shipping damage, or to normal wear of the product.

4) Exclusions

Excluded from this warranty are normal wear, normal adjustments, normal maintenance, and battery*(see battery section.)

In the event you have a claim under this warranty, you must return the product to an authorized service dealer. All transportation charges, damage, or loss incurred during transportation of parts submitted for replacement or repair under this warranty shall be borne by the purchaser. Should you have any questions concerning this warranty, please contact us toll-free at 1-800-222-8183. **The model number, serial number, date of purchase, and the name of the authorized Swisher dealer from whom you purchased the mower will be needed before any warranty claim can be processed.**

THIS WARRANTY DOES NOT APPLY TO ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AND ANY IMPLIED WARRANTIES ARE LIMITED TO THE SAME TIME PERIODS STATED HEREIN FOR ALL EXPRESSED WARRANTIES. Some states do not allow the limitation of consequential damages or limitations on how long an implied warranty may last, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights, which vary from state-to-state. This is a limited warranty as defined by the Magnuson-Moss Act of 1975.

Table of Contents

Belt Routing ……. 4

Wiring Diagram …….. 4

Diagnosing Starting Problems …….. 5

Diagnosing PTO Clutch Problems ……..6

Engine Running in Normal Mode ……..7

Battery Charging System ……8

Seat Switch – Ignition Kill Circuit …….. 8

Wiring Harness to Engine Plug Connection ……. 9

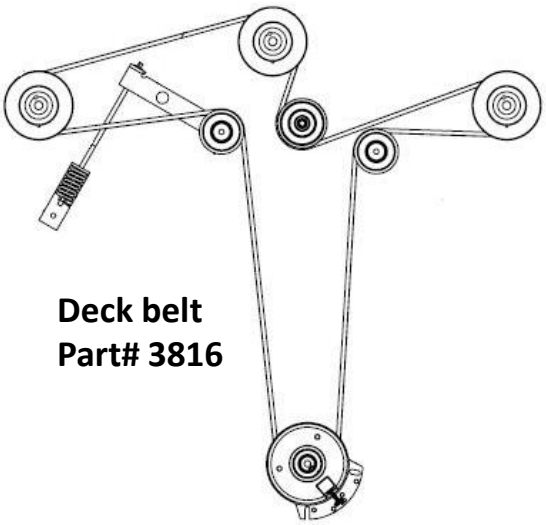
Drive Control Handle Adjustment ……. 10

Parking Brake Adjustment …….. 10

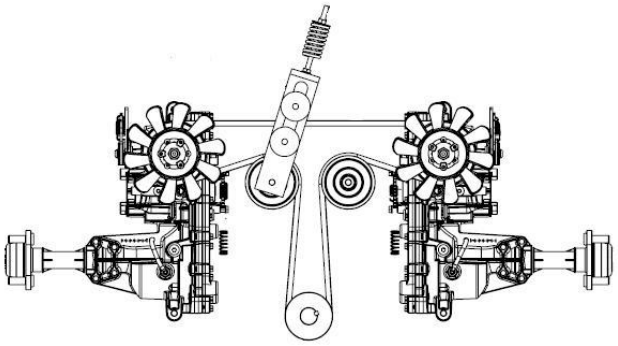
Deck Repairs …….. 11

Replacement Parts – Quick Reference …… 12

BELT ROUTING

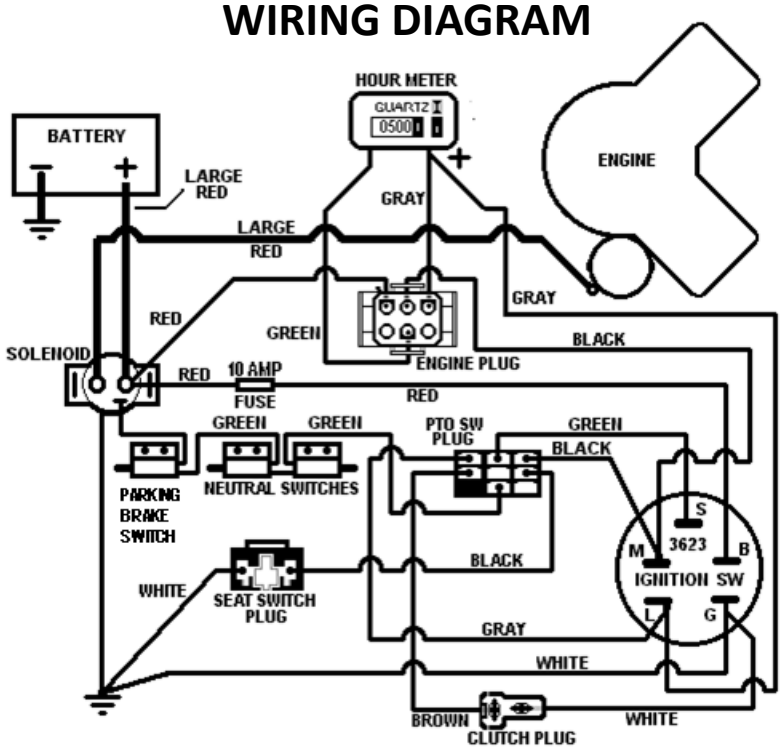


Deck belt
Part# 3816



Transmission Belt# 4220

WIRING DIAGRAM

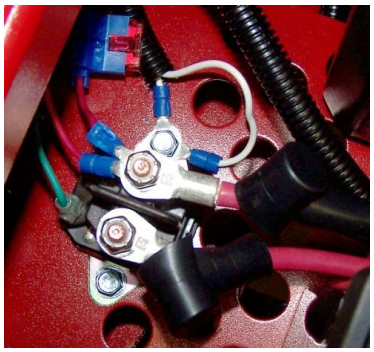


DIAGNOSING STARTING PROBLEMS

You will notice that each position on the ignition switch sets up a certain section of the total wiring diagram. This section is energized by turning the ignition switch to the start position. The final purpose is to start the engine. The main components are the battery and the starter; the other components are sub-switches to allow the current to get from the battery to the starter. The solenoid is a heavy duty switch, designed to handle the large amount of current needed to crank the engine. That's why the cables are so big; to handle that current. The other switches are for safety purposes to keep the mower from moving; or the blades from turning; until the engine is running and ready to safely start the mowing process.

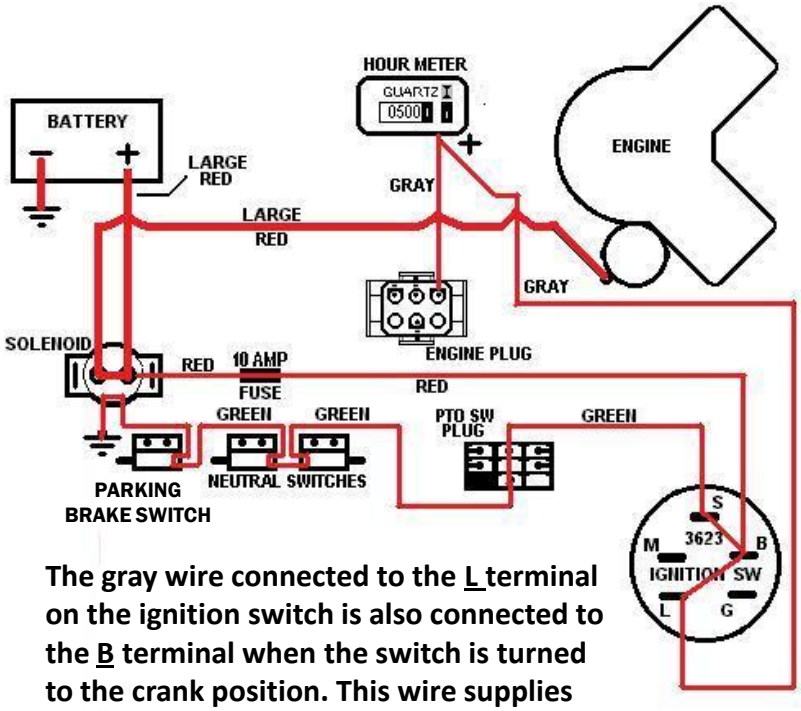
The current needed to energize the solenoid is picked up at one of the large terminals on the solenoid where the positive battery cable is connected. The current travels to the ignition switch by going through the fuse. The B and S contacts are connected inside the switch only when the switch is turned to the crank position. In order to close the contacts inside, the PTO switch has to be turned off; the steering control arms must be pushed outward to close both of the neutral switches; and the parking brake must be engaged to close the brake switch. The current can then energize the coil inside the solenoid to engage the contacts that short against the backside of the two large terminals on the solenoid. This then passes the current from the battery to the starter.

Diagnosing a problem then involves making sure that the fuse is good, that all the wires are connected and all switches are activated and making connection to pass the current.



STARTER SOLENOID

NEUTRAL SWITCH ON CONTROL ARM

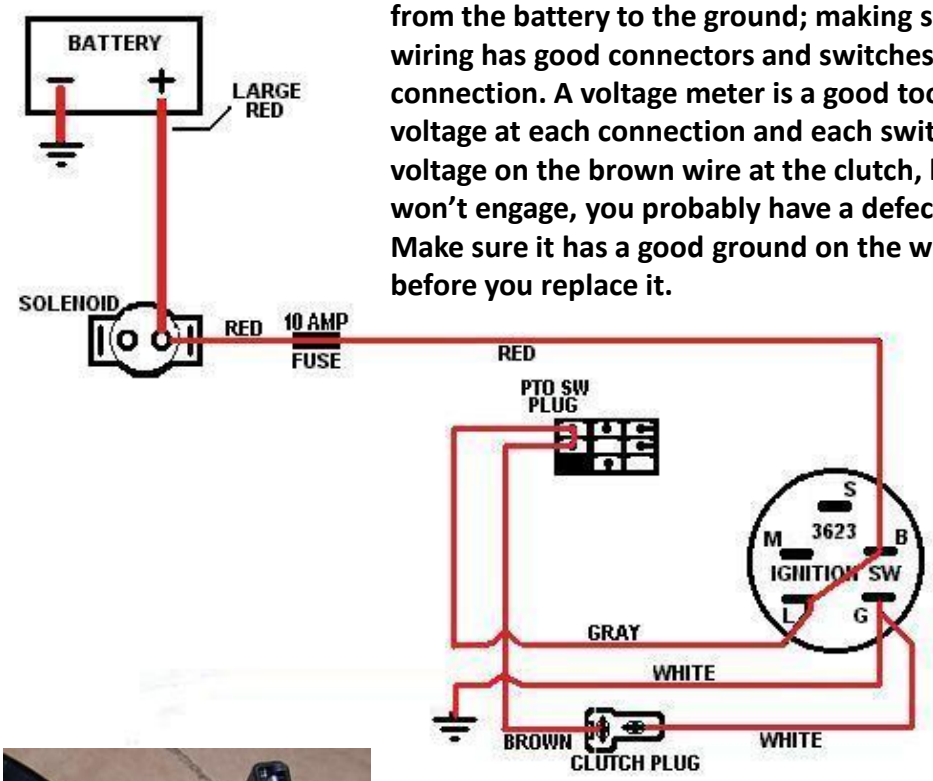


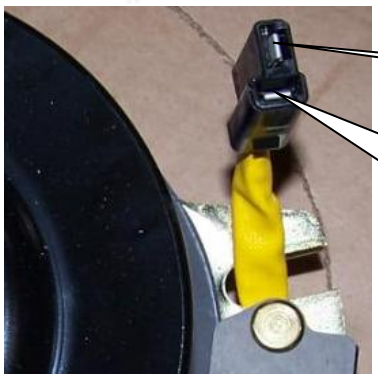
The gray wire connected to the L terminal on the ignition switch is also connected to the B terminal when the switch is turned to the crank position. This wire supplies current to the engine plug where it is sent to the fuel solenoid on the carburetor. This allow fuel to be pulled into the engine.

DIAGNOSING PTO CLUTCH PROBLEMS

The electric clutch can be activated when the ignition switch is in the run position. For the purpose of checking out a problem with the circuit; the engine doesn't have to be running; the switch just needs to be in the run position.
First the battery has to have a full charge. Current will flow from the battery to the connecting point at the solenoid. From there it flows through the red wire, through the fuse and onto the ignition switch. If the switch is in the run position, current will flow on to PTO switch. When the PTO switch is pulled on; a connection is made to pass the current to the clutch. For the current to continue on; there must be a good ground connection for the white wire.

Checking the circuit is done by following the circuit from the battery to the ground; making sure that all wiring has good connectors and switches are making connection. A voltage meter is a good tool to check for voltage at each connection and each switch. If there is voltage on the brown wire at the clutch, but it still won't engage, you probably have a defective clutch. Make sure it has a good ground on the white wire before you replace it.

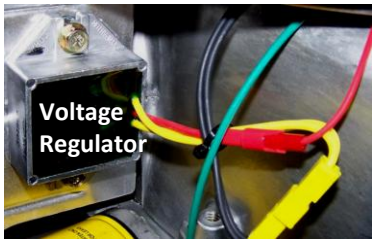




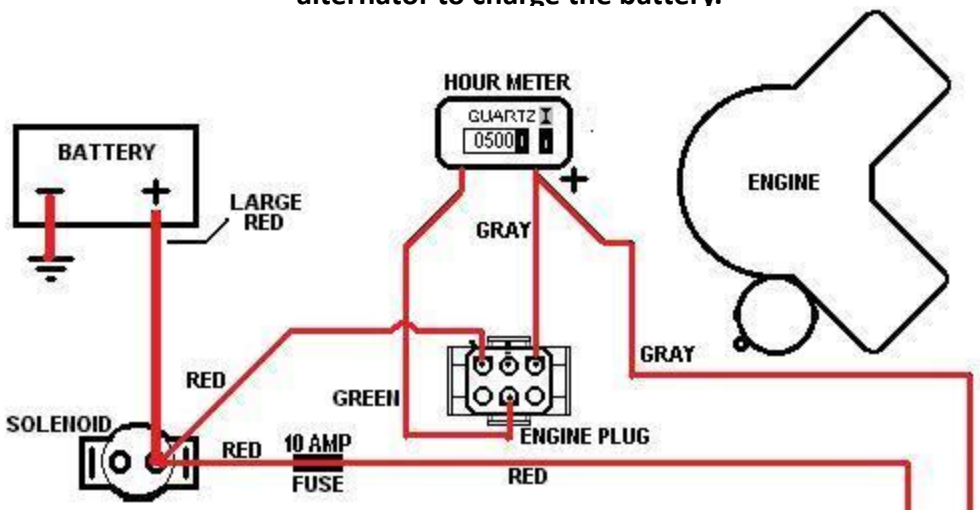
Apply a negative ground to this terminal

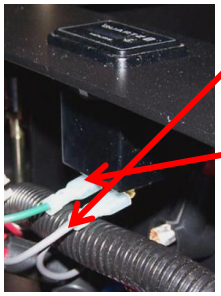
Apply 12 volts to this terminal. Clutch should activate, if it doesn't, clutch is defective.

ENGINE IN NORMAL RUNNING MODE

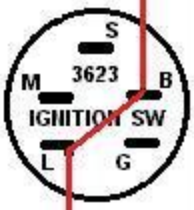


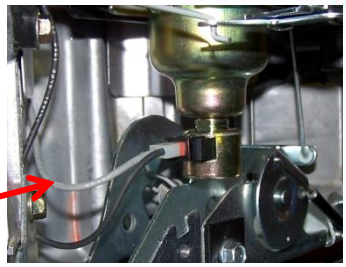
First the battery was used to start the engine; and later it will be used to engage the PTO; but with the ignition switch in the run position, and the engine running, the battery is involved in three other function. The red wire coming from the engine plug to the terminal on the solenoid is used by the engine's alternator to charge the battery.





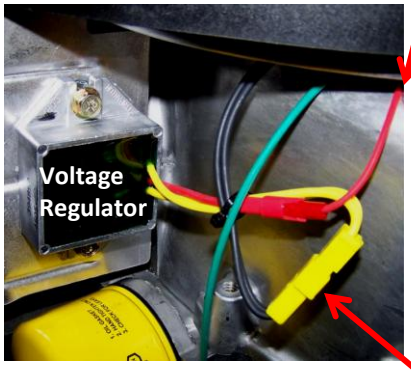
The gray wire coming from the L terminal on the ignition switch to the hour meter will drive the meter; but first the green wire has to be grounded. This is done by the pressure switch in the engine; next to the oil filter. When the oil pressure is created by the oil pump; this switch closes and makes a connection to ground for the green wire. Only then does the meter begin to run.





Also attached to the gray wire at the hour meter is another gray wire going to the engine plug. It will connect to a gray wire going to the rear of the engine , to the carburetor. It powers the solenoid that opens the carburetor jet. The black wire gives the circuit a ground .

BATTERY CHARGING SYSTEM



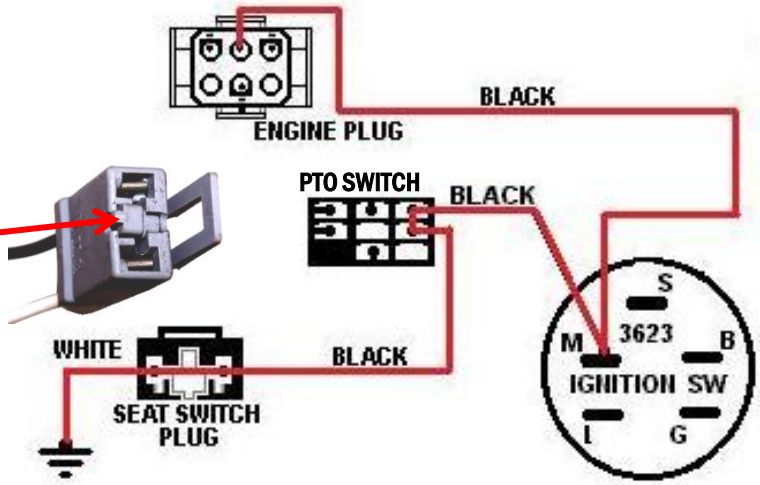
Red wire goes to the engine plug and then on to the positive terminal of the solenoid to keep the battery charged. Easiest way to check if charging is taking place is to measure the DC voltage of the battery before you start the engine. Then start the engine. Measure the voltage at the battery with the 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 two gray wires inside this connecter. There should be at least 20 volts AC while the engine is running.

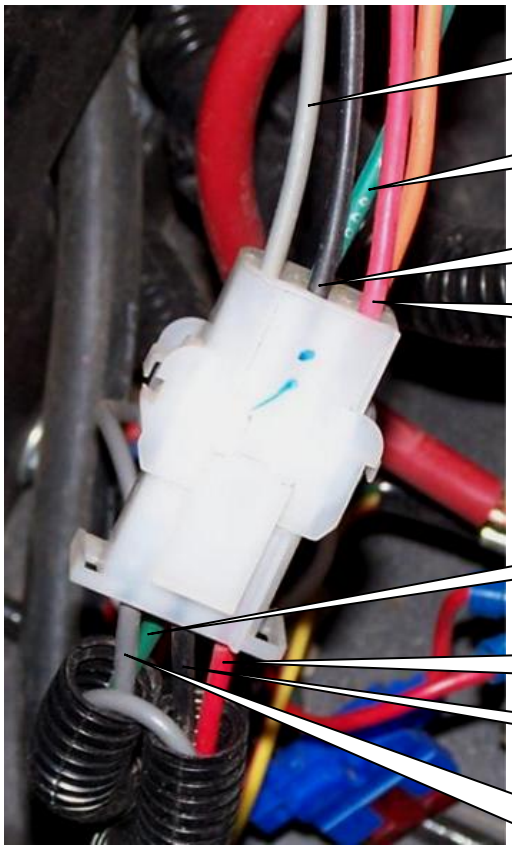
SEAT SWITCH – IGNITION KILL CIRCUIT

The seat switch is designed to kill the ignition on the engine, if the operator leaves the seat, with the PTO engaged. The black wire at the engine plug is connected to the kill wire that goes to the ignition module. Since the M terminal on the ignition switch is also used to kill the engine when the switch is turned off; the seat switch circuit is also connected there. When the PTO is on, a connection is made at that switch to join the M terminal to the seat switch. Now if he leaves the seat, the circuit is completed to ground the ignition module; and the engine shuts down.

Whether the operator is on the seat or not, the engine won't start if the seat plug is not completely inserted. The small trigger in the center must be flush with the end of the plug; or the plug itself will cause a short to ground to kill the ignition.



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

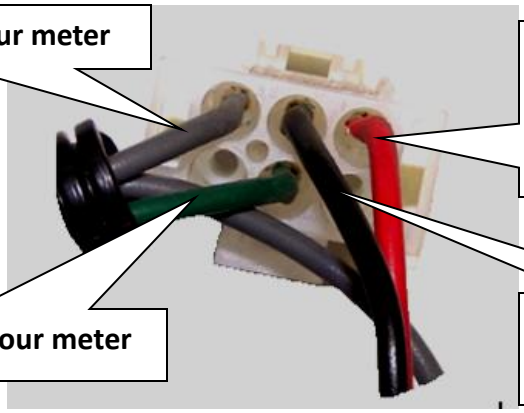
Green wire goes to hour meter

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

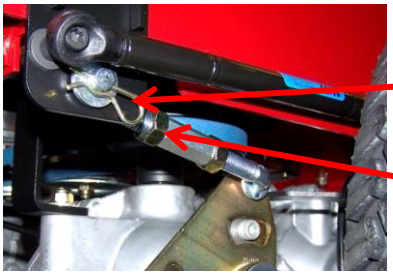
Red wire goes to terminal on solenoid with the positive battery cable.

Green wire goes to hour meter

Black wire goes to the ignition switch.

DRIVE CONTROL HANDLE ADJUSTMENT

Before any adjustments are made to the drive control arms; put an equal amount of air pressure in both rear wheel. If you push both handles forward as far as they will go and they are straight across from each other; but one side is traveling faster than the other; shorten the linkage on the side that is going the fastest.
If when you push both handles forward as far as they will go and the traveling speed is the same on both sides so that you are going in a straight line; but one handle is further forward than the other; shorten the linkage on the handle that is further ahead.

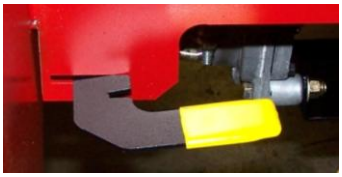


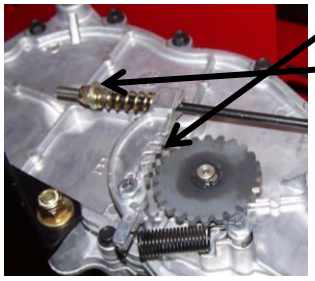
The adjustment linkage is between the bottom of the control arm and the hydro. There is one on each side of the mower. To adjust, remove the hair pin at the bottom of the control arm. Loosen the jam nut and turn the threads in to shorten the linkage. Reconnect the rod and hair pin and tighten the jam nut. Test drive, and further adjust if needed.

PARKING BRAKE ADJUSTMENT

The parking brake is a positive lock on the transaxle to keep the mower stable when parked. It is not designed to be used to stop the moving mower. Compare it to the Park position on an automatic transmission in a car or pickup. If it is used to stop the mower while in motion, the cog system will be damaged. It is replaceable; but not a part that will be covered under warranty. It does need to be adjusted periodically.

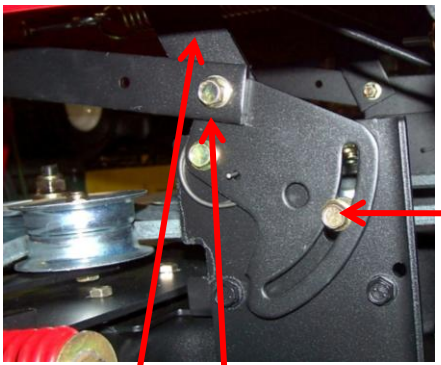
To adjust; jack up one of the rear wheel. Disengage the hydro by pulling back on the yellow handle down below the rear of the engine mounting plate.





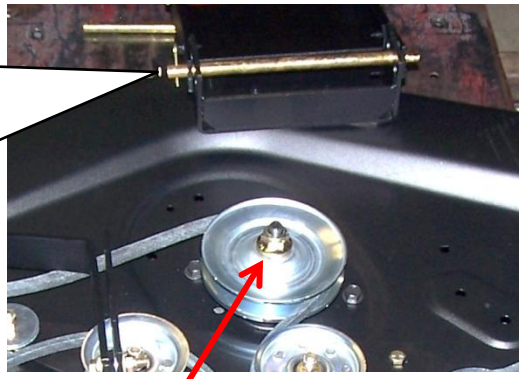
With the parking brake off; make sure the tooth arm and the cog wheel are close to each other without touching. Adjust the nut on the rod to achieve the clearance. Turn the wheel by hand to see that there is no contact. Now engage the parking brake to see if the two mate to keep the wheel from turning. When adjustment is done; engage the hydro and lower the jack. Repeat the adjustment for the opposite side. Order new parts if tooth arm or cog wheel are damaged.

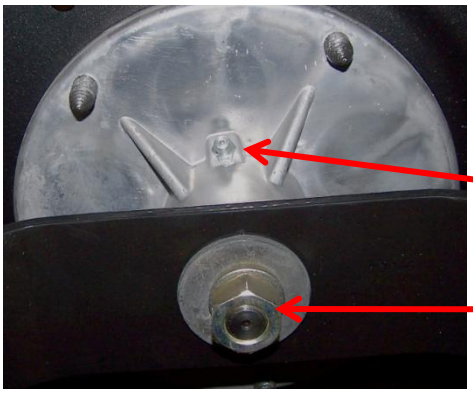
DECK REPAIRS



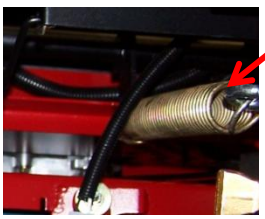
A properly adjusted deck should have the blades about 3/8” lower in the front compared to the rear. This adjustment can be made by parking your mower on a level surface and measuring the distance from the blade’s cutting edge to the ground. To adjust, loosen the nuts on these bolts. One is located on each of the left and right deck brackets. Position the rear of the deck to achieve the desired 3/8” difference and then retighten the nuts.

The deck can be removed by unhooking these bars from the rear deck brackets. By putting the bolts back only into the bars, you can raise the deck lift handle and get these bars out of the way. Also remove this pin from the front of the deck. Unhook the belt from the engine pulley and you can now slide the deck out from under the mower for repairs.

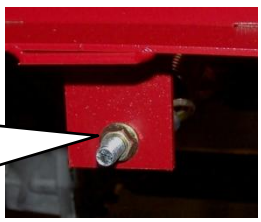




If the pulley nut is removed for replacement of the blade spindle assembly; the nut should be re-torque to 60 ft/lbs. Each of the blade spindle assemblies has a grease fitting; they should be greased about every 10 hours of use. When blades are removed for sharpening or replacement; the bottom nut should be torque to 60 ft/lbs.



This spring, visible from in front and above the deck, can be tightened to make the deck lift easier. Don’t tighten too much or the deck will tend to bounce when mowing rough ground.



REPLACEMENT PARTS

QUICK REFERENCE

Swisher Part #	Part Description
3816	Engine to Deck Belt
4220	Hydro Belt
1001200	Jackshaft Assembly
13046	Blade - 17 11/16" Mulching
1002004	Solenoid - 3 Pole
3623	Ignition Switch
3605	PTO Switch
4226	Throttle Control
9914	Choke Control
3695	Switch - Return to Neutral
AS003	Roller - Anti Scalping 1/2" ID

For additional assistance on service

Contact Swisher Mower Co., Inc.

Phone 1-800-222-8183

Fax 1-660-747-3160

E-mail cust.serv@swisherinc.com