SWISHER®

Response - Big Mow

Commercial Pro

with

Patented

RAPID RESPONSE CONTROL SYSTEM

ZTR28BT Shown

Model #: ZTR28BT
Description: 28HP B&S Vanguard Tractor

Model #: Z31KT
Description: 31HP Kawasaki Tractor

SWISHER ACQUISITION INC.
1602 Corporate Drive, Warrensburg Missouri 64093
Phone: 660-747-8183 FAX: 660-747-8650
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Manufacturing quality lawn care equipment since 1945,
Celebrating over 70 years of innovation

MADE IN THE U.S.A
OF U.S. AND GLOBAL PARTS

8/22/2019

OWNER'S MANUAL

STARTING SERIAL # L116-172001

20384 REV 16-172

TABLE OF CONTENTS

LIMITED WARRANTY	3
INTRODUCTION	4-5
- GENERAL	4
- BEFORE OPERATING	4
- UNCRATING & ASSEMBLY	5
SYMBOLS & DECALS	6
SAFETY INSTRUCTION	7-9
- GENERAL USE & SAFETY RULES	7-9
- CHILD SAFETY, SLOPE OPERATION, “ROPS”	10
CUSTOMER RESPONSIBILITY	11-14
- OPERATOR PRESENCE, TIRES, BATTERY	11
- CHARGING TIPS	12
- BELT, ENGINE, OVERALL UNIT CARE	13
- DRIVING AND TRANSPORT ON PUBLIC ROADS	13
- SPECIFICATIONS	13
- MAINTENANCE SCHEDULE	14
OPERATION & FEATURES	15-20
- FEATURES	15-16
- FUEL SHUT-OFF VALVES	16
- FOLDABLE FLOOR PAN	17
- STARTING INSTRUCTIONS	18
- HANDLE NEUTRAL LOCKOUT OPERATION	18
- STEERING CONTROLS	19
- BRAKE & BYPASS OPERATION	20
SERVICE & ADJUSTMENT	21-25
- PARKING BRAKE	21
- TRANSMISSION TRACKING ADJUSTMENT	22
- ENGINE-TO-GEARBOX BELT REPLACEMENT	23
- HYDRO BELT REPLACEMENT	24
- SEAT ADJUSTMENT	25
- HYDRO EXPANSION RESERVOIR	25
TROUBLESHOOTING	26-27
MOWER IDENTIFICATION	28
REPLACEMENT PARTS	29
LIST OF APPROVED ATTACHEMENTS	30

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 three (3) years for residential use and one (1) year for commercial use from the date of purchase by the original consumer purchaser.

A Commercial Warranty is defined as the machine exceeding **250** hours of use within the first year from the date of purchase by the original purchaser. If the machine does not exceed **250** hours of use within the first year it is subject to fall under a Residential Warranty.

As required by CFR § 1060.120, the fuel system related components, which have been certified to this equipment by SAI are to be free of defects in material 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 warranty is the responsibility of the engine manufacturer and in no way is Swisher or its agents responsible for the engine warranty. The Briggs & Stratton Engine Service Hotline is 1-800-233-3723. The Kawasaki Engine Service Hotline is 1-877-364-6404 or email kawpower-website@kmc-usa.com.

2) Limitations — 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 that has been subject to alteration, misuse, abuse, improper assembly or installation, shipping damage, or to normal wear of the product.

3) 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.

INTRODUCTION

Congratulations!

Thank you for purchasing Swisher's Zero Turn tractor. This machine is built for the greatest efficiency for multiple tasks. Innovative handle control design and dual commercial grade hydrostatic transmissions regulated by steering levers contribute to the machine's performance.

This manual is a valuable document. Following the instructions for use, service, maintenance, etc. can greatly increase the performance and life of your machine.

> **NOTE:**
>
> If you have never used a Zero Turn mower before, refer to the Operation Controls section of this manual before attempting to operate one for the first time.

General:

In this operator's manual, left and right, backward and forward are used in relation to the normal operator's position.

Read Before Operating:

- This machine is constructed to operate on smooth and relatively flat terrain. The manufacturer's directions concerning operation, maintenance and repairs must be carefully followed.
- This machine must only be operated, maintained, and repaired by persons that are familiar with the machine's special characteristics and who are well versed in safety instructions.
- Accident prevention regulations, other general safety regulations, occupational safety rules, and traffic regulations must be followed without fail.
- Unauthorized modifications to the design of the machine may absolve the manufacturer from liability for any resulting personal injury or property damage and void all warranties.
- Read engine manufacturer's operating and maintenance instructions.
- Read and observe all safety instructions on your mower and in the manual.
- Check engine oil.
- Check fuel caps to ensure that they are in place and securely tightened.
- Know how to set the parking brake.
- Be sure mower blades are turned off – PTO switch pushed down.
- Know how to stop the engine – Turn key to off.
- Know how to stop the unit – Return control handles to neutral.

> **IMPORTANT:**
>
> This engine is not equipped with a spark arrester muffler. It is a violation of California Public Resource Code Section 4442 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land. Other states or federal areas may have similar laws.

INTRODUCTION

Uncrating & Assembly:

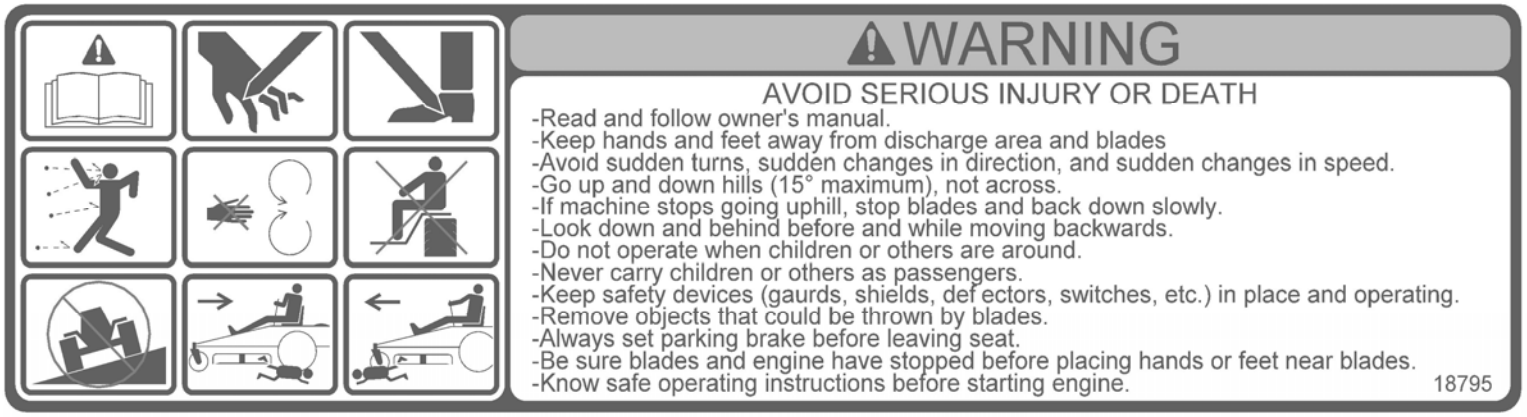
Tools Required:

- Tire pressure gauge
- Nail bar or claw hammer
- Wire snips

To remove the tractor from the crate:

- Position crate on a flat, level surface
- Dispose of top and side panels of the crate.
- Remove packing material.
- Cut any banding or strapping that may be holding the tractor to the crate.
- Disconnect the spark plug wire and place where it cannot make a connection.
- Disengage the parking brake by releasing the lock plates and lowering the handle down to the “Disengaged” position. **SEE INSTRUCTION DECAL ON FLOOR PAN OR ON PAGE 20.**
- Remove and dispose of all wheel chocks that are holding the machine in place.
- Open the transmission bypasses by pulling up on the outside (straight) handle located below the left side of the seat. **SEE INSTRUCTION DECAL ON FLOOR PAN OR ON PAGE 20.**
- Carefully push the tractor off the crate to a safe and level area.
- Check engine oil. All engines are filled with oil and tested at the factory. Verify oil level and add if necessary before starting engine. **SEE ENGINE OWNER’S MANUAL FOR OIL GRADE AND PROCEDURES.**
- Check the battery; It may need to be charged with a 12 volt charger for a minimum of one hour, but no more than 2 hours at a rate of 6 to 10 amps. **REFER TO CHARGING TIPS ON PAGE 12.**
- Close the transmission bypasses by releasing the lock plate and lowering the handle down to the “Disengaged” position. **SEE INSTRUCTION DECAL ON FLOOR PAN OR ON PAGE 20.**
- Reconnect spark plug wire.
- Check tire pressure on all four wheels. **REFER TO UNIT SPECIFICATIONS TABLE ON PAGE 13.**
- Before attempting to operate the tractor there must be a front attachment properly connected. **SEE LIST OF APPROVED FRONT ATTACHMENTS ON PAGE 30.**
- **Read all operating instructions, safety instructions, and customer responsibilities before operating this machinery.**

SYMBOLS & DECALS



18795 - Warning Decal

ROPS Warning Decal

Operator must be Seated Decal - OD73

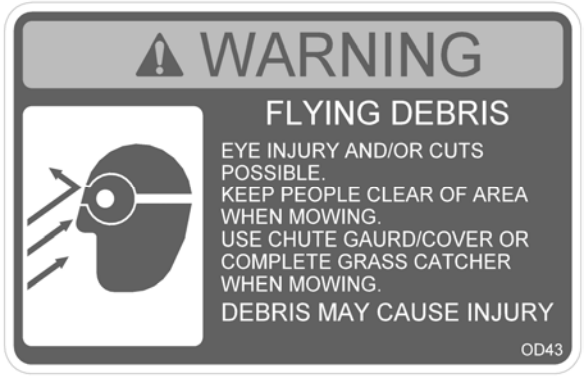
Before Exiting Decal - 18797

Notice Do Not Alter Wiring Decal - OD74

No Step Decal - OD11

Triangle Danger Decal - OD55

Danger / Entanglement - 19486



Flying Debris Decal - OD43

Brake / Bypass Decal - 19484

Serial # ID Tag

EPA Certification Decal – 19853

SAFETY INSTRUCTIONS

These instructions are for your safety. Read them carefully.

This Safety Alert Symbol indicates important messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury.

General Use:

WARNING:

Refer to the Operation Controls section of this manual before attempting to operate the mower for the first time.

- Read all instructions in this operator's manual and on the machine before starting it. Ensure that you understand them and then abide by them.
- **DO NOT use this machine without the proper attachment in place.**
- Learn how to use the machine, operate its controls safely, how to stop quickly, and to recognize safety decals.
- Only allow the machine to be used by adults who are familiar with its use and operation.
- Make sure no one else is in the area of the machine when you start the engine, engage the drive, or operate the machine.
- Stop the machine if someone enters the work area.
- Clear the area of objects such as stones, toys, steel wire, branches etc. that may become caught in the blades or thrown.
- Stop the engine and disconnect the spark plug before cleaning the machine or any attachments.
- Never take passengers. The machine is only intended for use by one person.
- Always look around before and during reversing maneuvers.
- Slow down before turning.
- Disengage the attachment mechanism (blades, etc.) when transporting.
- Be careful when rounding fixed obstacles so that the attachment mechanism (blades, etc.) does not hit them.
- Extreme caution should be used when utilizing the equipped lights in low light conditions.
- Keep the machine a safe distance from holes or other irregularities in the ground.
- Never use the machine if you are tired, if you have consumed alcohol or if you are taking other drugs or medications that can affect your vision, judgment or coordination.
- Beware of traffic when working near or crossing a road.
- Never leave the machine unsupervised with the engine running.
- Always shut down the blades, engage the parking brake, stop the engine and remove the ignition key before leaving the machine.
- Never allow children or other persons not trained in the use of the machine to use or service it. Local laws may regulate the age of the user.
- Make sure that you have first aid equipment close at hand when using the machine.
- Never use the machine when barefoot. Always wear protective shoes or boots.
- Always wear protective glasses or a full visor when assembling and/or driving.
- Always wear hearing protection.
- Never wear loose clothing that can get caught in moving parts.
- Always make sure long hair is not left down when servicing and/or operating the machine. Make sure hair is out of the way of any moving parts or pinch points.

SAFETY INSTRUCTIONS

Mowing Safety:

- WARNING – Gasoline is highly flammable.
  - Store fuel in approved containers specifically designed for this purpose.
  - Refuel outdoors only and do not smoke while refueling.
  - Add fuel before starting the engine. Never remove the cap of the fuel tank or add gasoline while the engine is running or when the engine is hot.
  - If gasoline is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until gasoline vapors have dissipated.
  - Replace all fuel tanks and container caps securely.
- Replace faulty or damaged muffler.
- Before using, always visually inspect to see that all bolts and nuts are secure.

Maintenance & Storage:

- Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
- Never store equipment with gasoline in the tank inside a building(s) where fumes can reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.
- To reduce the risk of fire, keep the engine, muffler, battery compartment and gas tanks free of grass, leaves or excessive grease.
- Check the grass chute frequently for wear or deterioration.
- Replace worn or damaged parts for safety.
- If the fuel tank has to be drained, this should be done outdoors in an approved gasoline container and/or properly disposed of.
- When machine is to be parked, stored or left unattended the parking brake should be set and any attachments should not be left in the tilted position unless a positive lock is used to properly secure the attachment. Refer to the appropriate attachment operators manual for instructions on properly attaching the safety chains.

WARNING

When it is necessary to raise the mower for any repair or service, use jackstands to provide adequate support. DO NOT rely on hydraulic or mechanical jacks.

SAFETY INSTRUCTIONS

General Use Continued…

Training:

Important: All drivers should seek & obtain professional & practical instruction. Such instruction should emphasize:

- The need for care and concentration when working with ride-on machines.
- Control of a ride-on machine sliding on a slope will not be regained by the application of the parking brake. The main reasons for loss of control are:
  - Insufficient wheel grip.
  - Slick ground condition (wet).
  - Being driven too fast.
  - Inadequate braking.
  - The type of machine is unsuitable for its task.
  - Lack of awareness of the effect of ground conditions, especially slopes.
  - Slope is too steep.
  - Incorrect hitching and load distribution.

Operation:

- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Always disengage PTO switch, set the parking brake, turn the engine off, and remove the key when leaving the machine during operation.
- When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
- Never operate machine near bodies of water, retaining walls, cliffs or tall curbs. Give the machine ample room to operate, turn around and/or come to a complete stop.
- Engaging the transmission bypass will allow the drive wheels to turn freely. Only engage the bypass on level ground. DO NOT engage the bypass on an inclined surface.
- Never operate the machine with defective guards or without safety protective devices in place.
- Do not change the engine governor settings or over-speed the engine. Operating the engine at excessive speed can increase the hazard of personal injury. This may also void the warranty.
- Disengage drive to attachments, stop the engine, disconnect the spark plug wire(s) and remove the ignition key:
  - Before checking, clearing or working on the machine.
  - Before placing the attachment into the maintenance or tilted position.
  - Before clearing blockages or unclogging chute.
  - After striking a foreign object, inspect the machine immediately for damage and make repairs before restarting and operating the equipment.
  - If the machine starts to vibrate abnormally, check immediately.
  - Before refueling.
  - Before removing the safety shields.
  - Before making height adjustment unless adjustment can be made from the operator's position.

SAFETY INSTRUCTIONS

Children:

- Children are often attracted to the machine and mowing work. Serious accidents may occur if you fail to be cautious for children in the area of the machine.
- Never assume that children will stay put where you last saw them.
- Keep children away from the mowing area and under close supervision by another adult.
- Shut off the machine if children enter the work area.
- Never allow a child to ride with you.
- Never allow children to operate the machine.
- Be extra cautious near corners, bushes, trees or other objects that block your view.

Remember:

The operator is responsible for avoiding dangers or accidents.

WARNING

When using the machine, approved personal protective equipment shall be used. Personal protective equipment cannot eliminate the risk of injury, but it will reduce the degree of injury if an accident does occur. Ask your retailer for help in choosing the right equipment.

Slope Operation:

- Remove obstacles such as stones, tree branches, etc.
- Mow up and down, not side to side. Never drive the mower on terrain that slopes more than 15 degrees.
- Avoid starting or stopping on a slope. If the tires begin to slip, disengage the blades and drive slowly down the slope.
- Always drive evenly and slowly on slopes.
- Do not make sudden changes in speed or direction.
- Avoid unnecessary turns on slopes, if it become necessary, turn slowly and gradually downward, if possible.
- Watch for holes, ruts or bumps. On uneven terrain, the machine can tip more easily. Long grass can hide obstacles.
- Drive slowly and use small movements of the steering controls.
- Do not mow wet grass. It is slippery, and the tires can lose traction, allowing the machine to slide.
- Do not try to stabilize the machine by putting a foot on the ground.

Roll Over Protective Structure (ROPS) & Seat Belt Use:

- ALWAYS use the seat belt when the ROPS is in the upright and locked position.
- Do not jump if machine tips.
- If ROPS is foldable:
  - Always keep the ROPS fully extended.
  - WHEN ROPS MUST BE DOWN:
    - Do not use seat belt.
    - Drive with extra care.
- If equipped with foldable seat platform, do not operate machine without seat platform locks in place.

CUSTOMER RESPONSIBILITIES

Operator Presence System:

Be sure check that the operator presence and safety interlock systems are working properly before every use. If your tractor and attachment do not function together as described, the machine should not be used until repaired.

- The engine should not start unless the parking brake is engaged and the PTO (Blade Engagement Switch) is disengaged (pressed down). – See OPERATION FEATURES section of this manual.
- When the engine is running and the brake is disengaged, the operator should never leave the seat without first setting the parking brake and shutting off the engine. If the operator attempts to leave the seat without first setting the brake, the engine should shut off.
- When the engine is running and the PTO switch is engaged, any attempt by the operator to leave the seat without first disengaging the PTO switch should shut off the engine.
    - The PTO switch should never engage without the operator on the seat.
- If using a finish cut mower attachment, any attempt to tilt the deck into the maintenance position with the engine still running should shut off the engine. If this happens tilt the deck back down to a level position before attempting to re-start the engine.
- Some attachment height/tilt switches will cut out at the top of the height adjustment as well as the end of the tilt function. This is to prevent overloading of the winch. When these positions are reached the winch should not be able to continue lifting. However the attachment can be let down, which should reset the switch operation.

Tires:

- Maintain proper air pressure in all tires (SEE SPECIFICATIONS section)
- Keep tires free of gasoline, oil or insect control chemicals which can harm rubber.
- Avoid stumps, stones, deep ruts, sharp objects and other hazards that may cause tire damage.

Battery:

WARNING

- When it is necessary to raise the mower for any repair or service, use jackstands to provide adequate support. DO NOT rely on hydraulic or mechanical jacks.
- The battery contains sulfuric acid and electrolytes which are poisonous and corrosive.

To clean battery and terminals:

- Always were proper protective gear when working on batteries.
- Open the battery compartment and place lid to the side.
- Remove the BLACK terminal guard.
- Disconnect the BLACK battery cable and locate it where it cannot come into contact with the battery.
- Remove the RED terminal guard.
- Disconnect the RED battery cable and other wires. Locate it where it cannot come into contact with the battery.
- Remove the battery hold down bracket and remove battery.
- Rinse the battery with plain water and dry.
- Clean terminals and battery cable ends with wire brush until shiny.
- Coat terminals with Dielectric Grease or Petroleum Jelly. (This helps seal and prevent corrosion.)
- Reinstall battery and secure the battery hold down bracket.
- Reconnect the battery cables. Attach the RED cable first then the BLACK cable.
- Reinstall the battery covers for each cable and terminal.
- Reinstall the battery compartment lid.

CUSTOMER RESPONSIBILITIES

Charging Tips:

- To avoid a battery damage/explosion, never attempt to charge a frozen battery.
- **Warning:** Gel and AGM (Absorbed Glass Mat) batteries require a voltage-limited charger. Charging a Gel or AGM battery on a typical shop charger, even one time, may greatly reduce its life.
- **Important:** Never overcharge batteries. Excessive charging will reduce battery life or could result in the battery exploding
- Prior to charging, read the manufacturer's instructions for proper charger hook-up and use.
- Turn off charger prior to hookup to avoid dangerous sparks. **PROTECT YOUR EYES!** Safety glasses and gloves should be worn.
- **Warning:** If the electrolyte is accessible, verify that plates are covered before beginning to charge. At the end of charge, add distilled water as needed to bring levels to the proper height. If water is added, charge for an additional 30 minutes to mix. If electrolyte levels are low but battery is not accessible, remove battery from service.
- The maximum charge rate in amperes should be no more than 1/3 of the battery's reserve capacity minute rating. If the terminal voltage exceeds 16.0 volts while charging, reduce the charge rate.
- Continue charging and reduce the rate as needed until a 2 hour period results in no increase in voltage or decrease in current.
- If violent gassing or spewing of electrolyte occurs or the battery case feels hot to the touch, temporarily reduce or halt charging.

VOLTAGE		STATE OF CHARGE	APPROX. BATTERY CHARGING TIME * TO FULL CHARGE AT 80°F/27°C			
STANDARD BATTERY			MAXIMUM RATE AT			
6 V	12 V		50 AMPS	30 AMPS	20 AMPS	10 AMPS
6.3	12.6	100%	FULL CHARGE			
6.2	12.4	75%	20 MIN.	35 MIN.	48 MIN.	90 MIN.
6.1	12.2	50%	45 MIN.	75 MIN.	95 MIN.	180 MIN.
6	12	25%	65 MIN.	115 MIN.	145 MIN.	280 MIN.
5.9	11.8	0%	85 MIN.	150 MIN.	195 MIN.	370 MIN.

* Test wet batteries every 4-6 months and recharge if necessary.
Always test and charge if necessary before installation.

CUSTOMER RESPONSIBILITIES

V-Belts:

Check V-belts for deterioration and wear before each use and replace if necessary. Replace belts if they begin to slip from wear. SEE SPECIFICATION for belt part numbers and SERVICE section of this manual for instructions on how to replace the belt.

Engine:

REFER TO YOUR ENGINE OWNERS MANUAL.

Overall Unit Care:

- Reduce the risk of fire by removing grass, leaves and other debris that may have accumulated on the machine.
- Allow the machine time to cool before cleaning or putting it in storage.
- Wash mower periodically. Clean above and below deck.
- Keep all electrical connections clean and tight.

Driving & Transport on Public Roads:

- Check applicable road traffic regulations before driving and transporting on public roads.
- If the machine is transported, you should always use approved fastening equipment and ensure that the machine is well anchored to the towing vehicle.
- The attachment should also be lowered to the lowest position and the parking brake engaged during transport.

Specifications

GASOLINE CAPACITY AND TYPE	DUAL 4.0 GAL TANKS; UNLEADED REGULAR
OIL TYPE (SPI-SF-SJ):	SEE ENGINE MANUAL
SPARK PLUG	SEE ENGINE MANUAL
GROUND SPEED	0 – 10 mph
CASTER WHEEL SIZE (REAR)	11 X 6 - 5 Smooth w/ 5/8 Bearing
DRIVE WHEEL SIZE	23 X 10 – 10 Chevron Tread
TIRE PRESSURE	FRONT: 40 psi Max / REAR: 22 psi Max
BATTERY	12V / Heavy Duty 340 CCA / Type U1L
HYDRO BOLT TORQUE	27 ±3 ft. lbs
PARKING BRAKE	Manual Lever
REAR AXLE	Pivoting; Welded 2 x 2 x 1/8” Wall Steel Tubing
SEAT	Suspension; 18” Back w/ Adjustable Arm Rest / 6” Adjustable Slide / Seat Belt / Adjustable Lumbar Tilt
TRANSMISSION	Commercial Grade Hydro-Gear ZT-3400
ATTACHMENT HEIGHT ADJUST	Electric Hand & Foot Operated Switches
STRAP DRUM WINCH	12V / 45 AMP Max: 600 lbs. Line Pull Max
UNIT MEASUREMENTS	LENGTH: 81” WIDTH: 68” (Including Grass Chute) HEIGHT: 66 ½” / 46” (w/ ROPS folded down) WEIGHT: 890 lbs (B&S) / 975 lbs (Kawasaki)

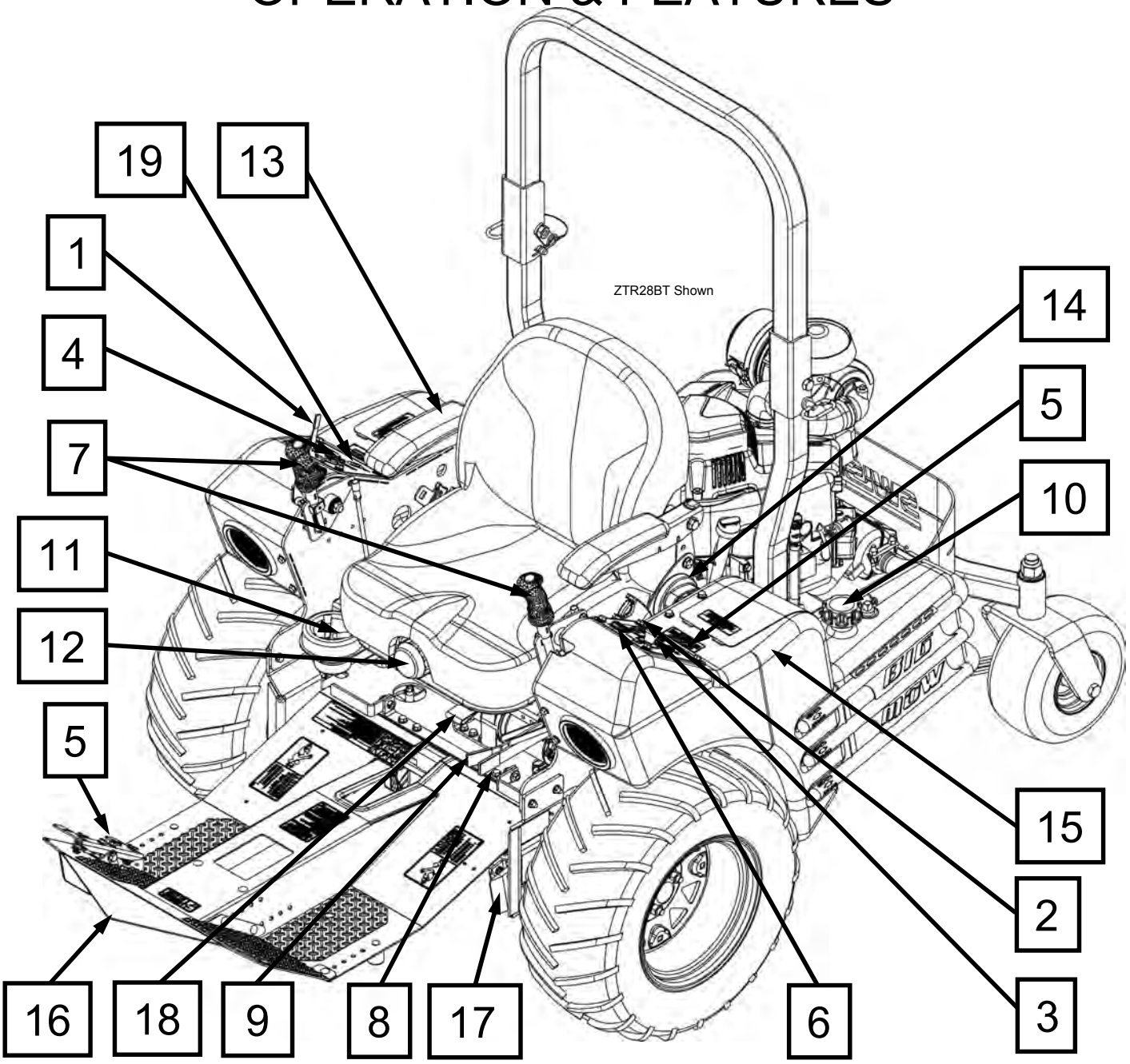
CUSTOMER RESPONSIBILITIES

Maintenance Schedule

	Before Each Use	8 Hours	25 Hours	50 Hours	100 Hours	Season	Before Storage
Check Brake Operation	X	X					
Check Tire Pressure	X	X					
Check Operator Presence	X						
Parking Brake	X						
Check for Loose Fasteners	X				X		X
Check Battery			X				X
Clean Battery & Terminals			X				X
Check Belts	X						
Check Engine Oil	X	X					
Change Engine Oil w/ Filter				X1,2			
Change Engine Oil w/o Filter			X1,2				
Clean Air Filter			X2				
Inspect Muffler				X			
Inspect Winch Strap	X		X				
Clean Engine & Hydro Cooling Fins					X2		
Replace Spark Plug					X	X	
Replace Fuel Filter						X	
Remove Debris	X3					X	X

1 – Change more often when operating under a heavy load or in high ambient temperatures.
2 – Service more often when operating in dirty or dusty conditions.
3 – Clean off more frequent when mowing in tall or dry grass conditions or with excessive debris.

OPERATION & FEATURES

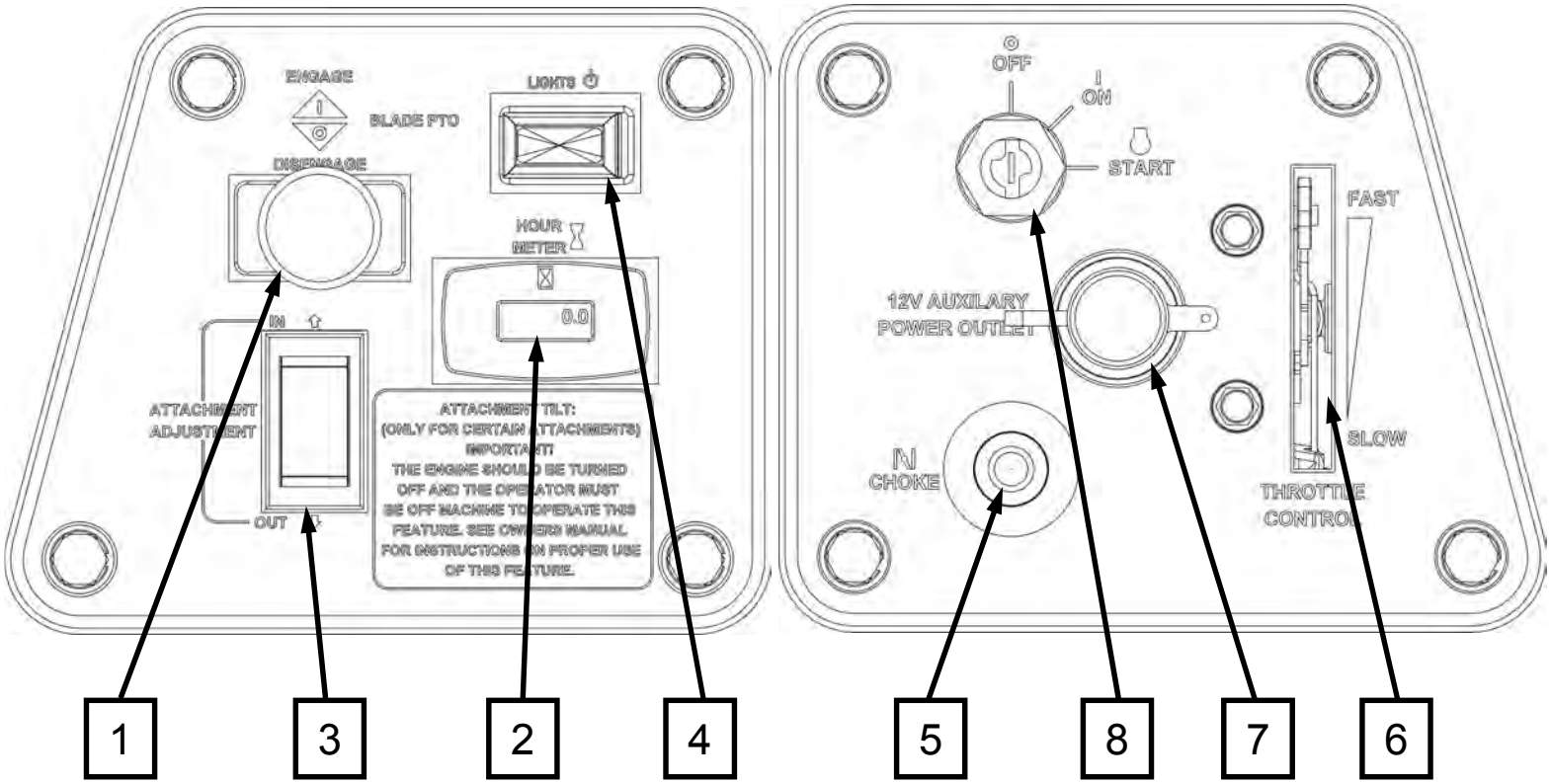


1. Throttle Control – Used to control engine speed.
2. Hour Meter – Indicates hours of operation.
3. PTO Switch – Used to engage or disengage the attachment mechanism.
4. Ignition Switch – Used to start or stop the engine.
5. Attachment Lift Switch – Used to raise and lower the attachment (if equipped).
6. Light Switch – Turns lights on and off
7. Control Lever – Sets the speed of the mower in both the forward and reverse directions and also turns the mower.
8. Hydro Bypass – Allows transmissions to be moved manually by pushing and pulling.
9. Brake Lever – Engages the parking brakes.
10. Fuel Tanks – Dual 4.0 gal.
11. Seat Slide – Adjusts the seat front to back
12. Seat Weight Adjustment – Adjusts the stiffness of the seat suspension.
13. Adjustable Arm Rests – Raise and lower
14. Seat Lumbar Adjustment – Adjust the seat back angle.
15. Battery – Power the machine
16. Adjustable Foot Switch Plate - Moves the position of the foot switch.
17. Attachment Receiver – Connects to attachment
18. Winch & Strap
19. Choke Cable – Kawasaki Only

OPERATION & FEATURES

Left Control Panel

Right Control Panel



1.	PTO / Attachment Engagement Switch
2.	Hour Meter – Indicates hours of operation
3.	Attachment Height/Tilt Adjustment Switch
4.	Light Power Switch

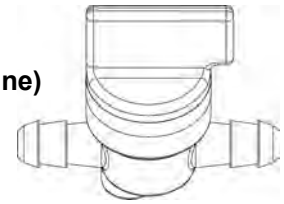
5.	Choke Cable (Not on 28HP Vanguard EFI Engine)
6.	Throttle Control Cable
7.	12V Accessory Outlet Plug
8.	Starting Key Switch

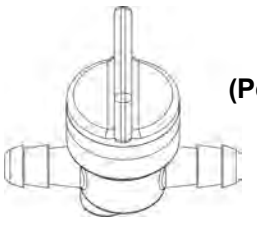
NOTE:
If you have never used a Zero Turn mower before, refer to the Operation Controls section of this manual before attempting to operate one for the first time.

Fuel Shut-Off Valves

- The Swisher Big Mow is equipped with two shut-off valves, one for each tank. These are located behind the seat and in front of the engine.
- Only one tank should be used while operating the machine. When that tank runs empty or is close to running empty, turn off that fuel shut-off valve and turn on the opposite shut-off valve. Operating the machine with both valves open could cause the system to pull air from an empty tank.

"ON" Position
(Parallel with fuel line)





"OFF" Position
(Perpendicular with fuel line)

OPERATION & FEATURES

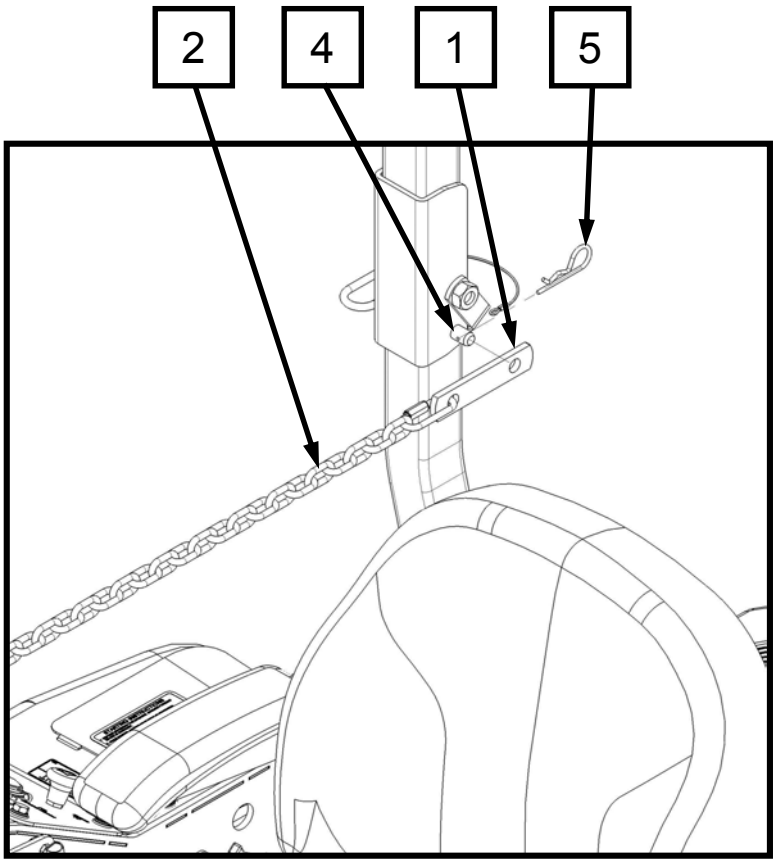
Foldable Floor Pan:

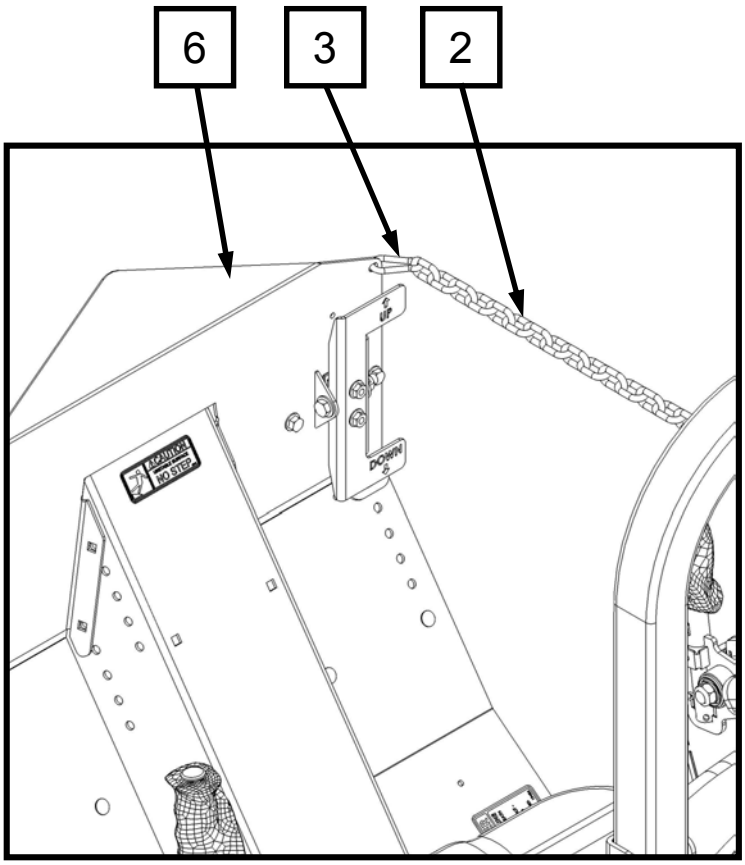
- The Swisher Big Mow is equipped with a foldable floor pan. It is used for resting your feet while operating the machine.
- The floor pan is foldable to allow it to be raised up and out of the way while adding or removing an attachment or while servicing the machine.
- Two safety chains with plates and clips should be installed on the machine in the crate and is used for supporting the floor pan when folded up.
- Always use both safety chains when working underneath the floor pan. Failure to follow this could result in injury.

Steps for attaching the safety chain:

- Attach the chain support plate to the ROPS pin and secure it using the ROPS clip pin.
- Once the chain plate is connected to the ROPS, check the positioning of the carbine clip. It should be located on the 36th chain link when counting from the chain plate.
- Lift the floor pan up and attach the carbine clip to the floor pan.
- Repeat these steps for the opposite side.

1. Chain Support Plate
2. Support Chain
3. Carbine Clip
4. ROPS Pin
5. ROPS Clip Pin
6. Floor Pan





OPERATION

Starting:

Starting Instructions are also included on the right side fender compartment decal.

➢Before starting the vehicle, be sure the area is clear of any people or animals.

➢Operator must first be sitting in the seat (with seat belt fastened only with ROPS in the upright position).
-Control handles must be in the neutral lockout position.
-PTO switch must be in the disengaged position (pushed down).
-Brake must be engaged.
-Front attachment must be in an operating position, not in the maintenance/tilt position.
-Throttle should be in “slow” position.

➢Turn ignition key until engine runs. If the engine struggles to start, engage the choke until the engine fires, then disengage the choke before operating.
➢The 28HP Vanguard EFI engine is not equipped with a choke cable.

➢Once started, set engine RPM to maximum (Fast) and then engage the blades to begin mowing.

Control Handle Operation:

To engage the neutral lockout position for starting, lift both control handles up and lay them towards the outside of the mower until they are resting in the notched area and out of travel.

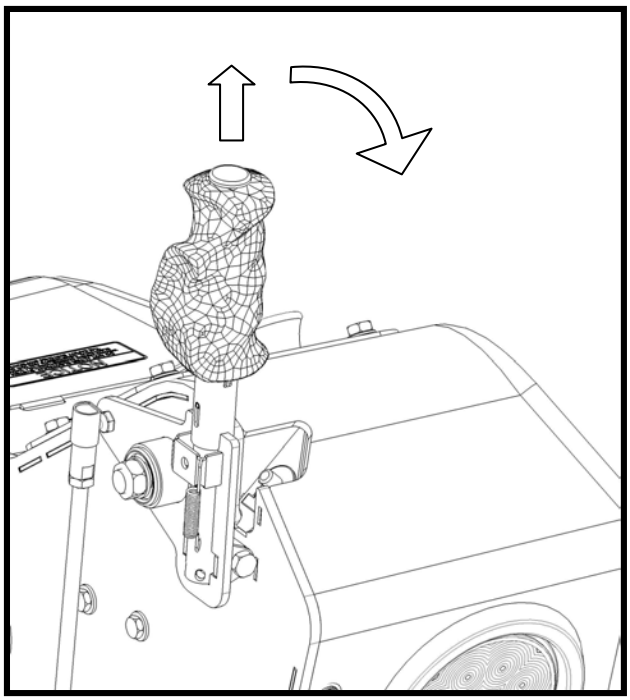
➢The machine will only start if the control handles are placed in the neutral lockout position.

➢The handles are spring loaded so some force will be needed to lift the handles up.

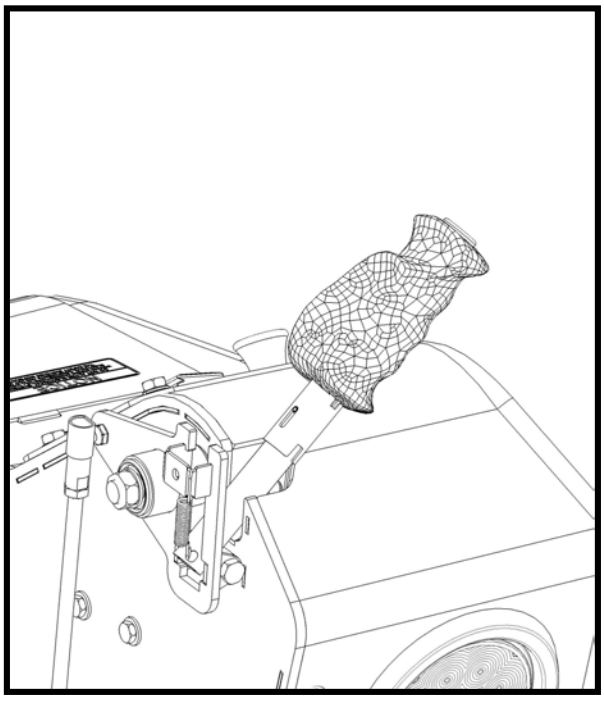
➢The spring that is visible helps assist the handles into the neutral lockout position.

When bringing the handles back to the operating position some force will be needed to lift the handles upward and also inward until they are locked on the handle plate.

Operating Position



Neutral Lockout Position

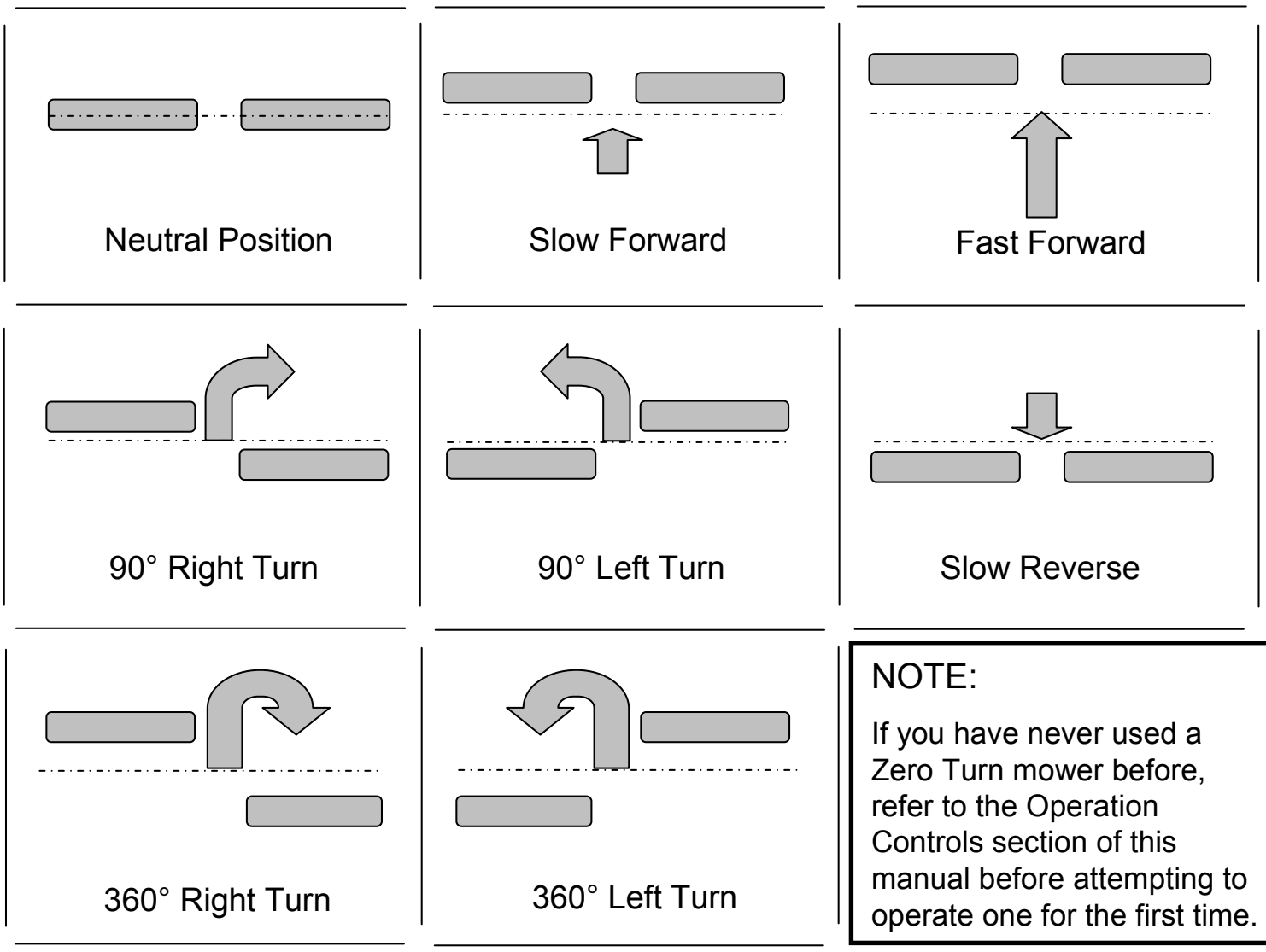


OPERATION

Controls

- Be familiar with all controls, their functions and how to operate them before starting the machine.
- Motion control levers on each side of the seat control the direction of movement. SEE FIGURE BELOW
- When operating use smooth, controlled movements on the control handles. Using quick, erratic movements can cause the machine to become out of control.

Control Handles



NOTE:

If you have never used a Zero Turn mower before, refer to the Operation Controls section of this manual before attempting to operate one for the first time.

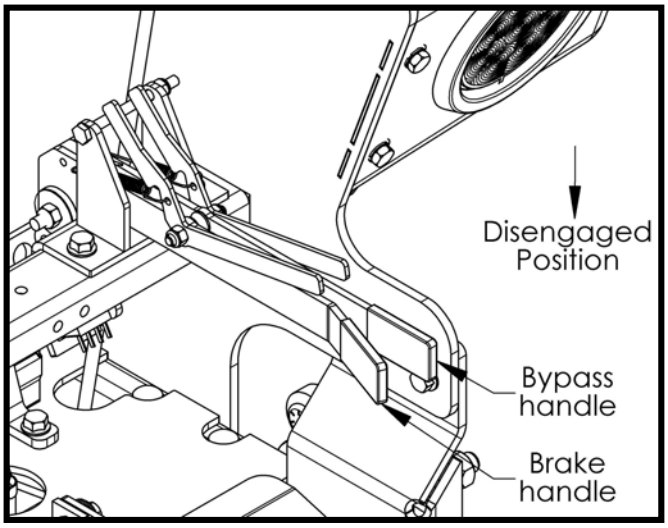
Note: The force required to operate the mower control handles is minimal.

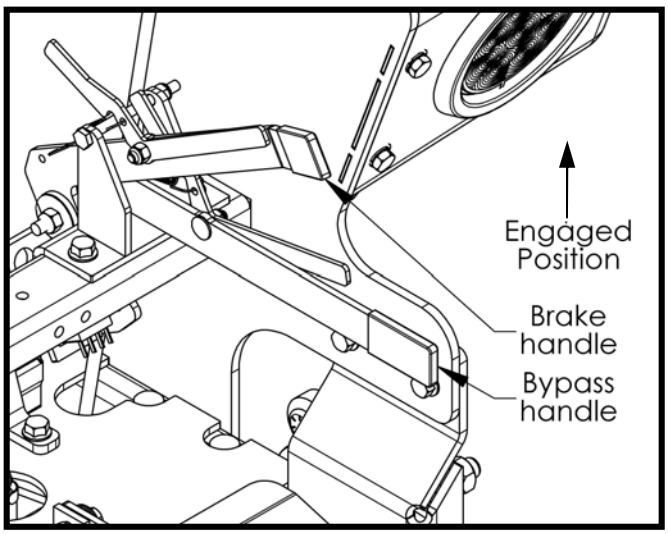
OPERATION

Parking Brake / Transmission Bypass Operation

Parking Brake:

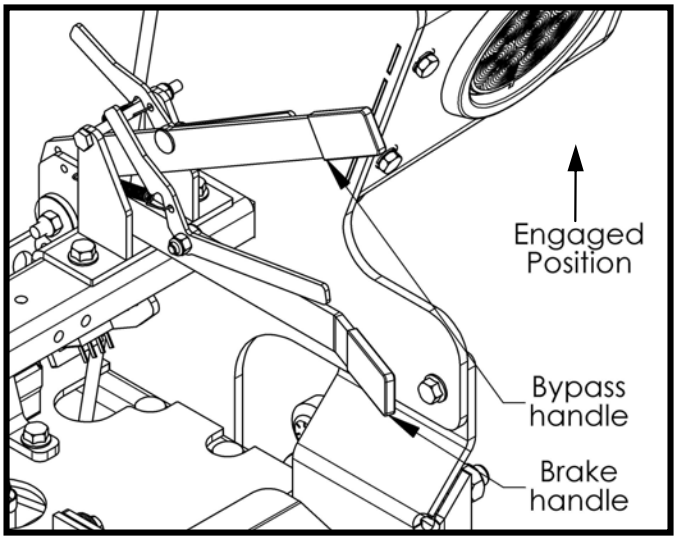
- Be sure the vehicle is not moving before engaging the brake. Only engage the parking brake on level ground. DO NOT engage the brake on an inclined surface.
- To engage, pull up on the brake handle (inside lever) until the locking plate is seated in the locked position.
- To disengage, push down on the lock plate until it is released from the locked position. Once unlocked, push the brake handle down until it is out of travel.





Bypass:

- Engaging the transmission bypass will allow the drive wheels to turn freely. Only engage the bypass on level ground. DO NOT engage the bypass on an inclined surface.
- To engage the transmission bypass, pull up on the bypass handle (outside lever) only. Note only this handle should come up.
- To disengage, push down on the lock plate until it is released from the locked position. Once unlocked, push the bypass handle down until it is out of travel.



Parking Brakes / Transmission Bypass Adjustments

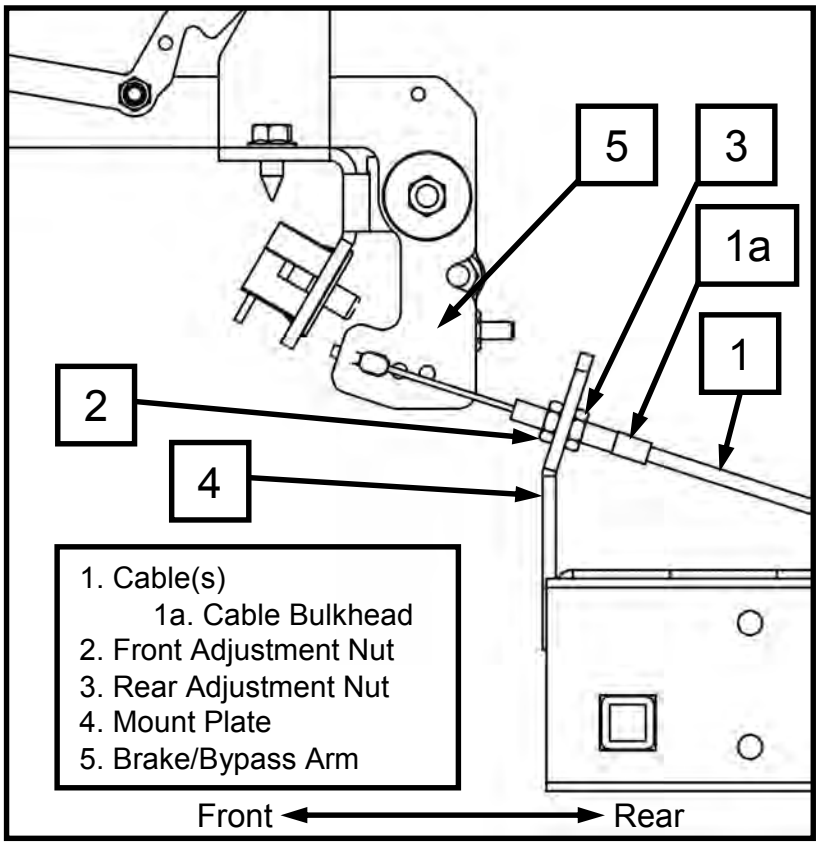
- The Swisher Big Mow is equipped with a manual parking brake and transmission bypasses levers. This system must be engaged by the operator before starting the vehicle and also before exiting the vehicle.
- Only when the control handles are in the neutral position and the machine is not moving should the brakes be engaged. DO NOT attempt to engage the brake while the vehicle is moving or on an inclined surface.
- Adjustments for the system are located on the left side underneath the seat and brake/bypass levers.

Checking if adjustments are needed:

- Raise wheels off the ground and place jack stands underneath the vehicle.
- Engage the brakes. To see if the brakes are fully engaged, spin the rear wheel by hand.
- If the rear wheels spin more than 10° while the brake is set to engaged then adjustments are needed.

Making Adjustments:

- Disengage the brake before performing adjustments.
- Start by loosening the front adjustment nut.
- Tighten the rear adjustment nut while making sure the cable bulkhead does not spin. Pliers may be needed to keep the bulkhead from spinning.
  - Make small adjustments approximately an ⅛" to a ¼" at a time.
- Tighten the front adjustment nut once all adjustments are made.
- Re-engage the brake to check if the adjustments were enough to fully engage the brakes. If not repeat the previous steps until the wheels can no longer spin more than 10° while the brake lever is set to engaged.



WARNING

When it is necessary to raise the tractor for any repair or service, use jack stands to provide adequate support. DO NOT rely on hydraulic, pneumatic or mechanical jacks.

SERVICE & ADJUSTMENTS

Hydro Transmission Tracking Adjustment:

Note: Operating the machine at full speed is not recommended. Rough terrain could cause the machine to become out of control, resulting in injury or loss.

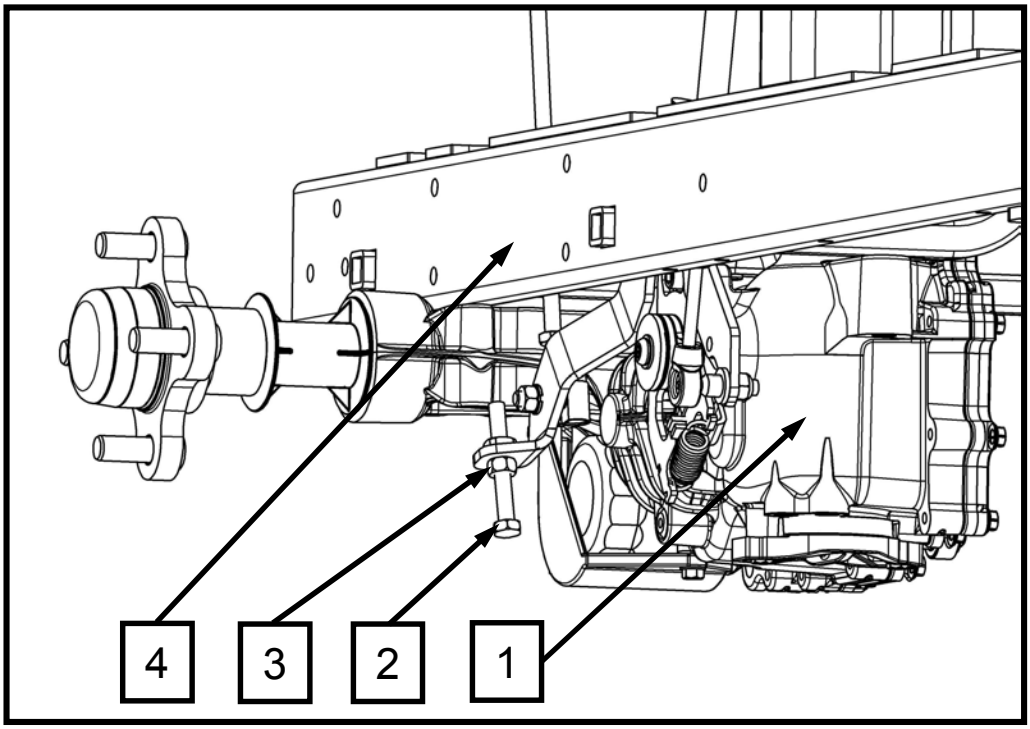
When operating the machine in a straight line with both handles pushed fully forward, if the machine pulls to one side over an extended length the hydrostatic transmissions may be in need of a tracking adjusting. Before making any adjustments, first check the tracking of the machine on a smooth level surface like a cement or paved surface. Uneven terrain makes it difficult to determine if a machine is tracking properly.

Example: If the machine pulls to the right this means the left side transmission is spinning faster than the right transmission. Follow the steps to properly adjust the tracking.

- Determine which side needs to be adjusted (see example above).
- Turn off the engine, apply the parking brake, and remove the key from the ignition
- Disconnect spark plug wire.
- Once it is determined which transmission needs to be adjusted, find the adjustment bolt (2).
- Loosen the locking nut (3).
- Have a second person hold the handle of the transmission needing the adjustment all the way forward.
- Turn the adjustment bolt clockwise until it comes into contact with the frame tube.
- Once the adjustment bolt is touching the frame tube, continue to turn it clockwise ¼ to ½ turn.
- Release the handle and tighten the locking nut.
- Operate the machine in a straight line to test the adjustment made.
- If needed, continue repeating the steps above on the same transmission until the problem is corrected and the machine will operate in a straight line.

Note: this view is looking underneath the left side of the machine. Some parts have been hidden for clarity.

1. Hydro Transmission
2. Adjustment Bolt
3. Locking Nut
4. Frame Tube



WARNING

When it is necessary to raise the machine for any repair or service, use jack stands to provide adequate support. DO NOT rely on hydraulic, pneumatic or mechanical jacks.

SERVICE & ADJUSTMENTS

Engine-to-Gearbox Belt Routing & Replacement

For replacement belt part number refer to Replacement Parts Quick Reference Chart in this manual.

Removal

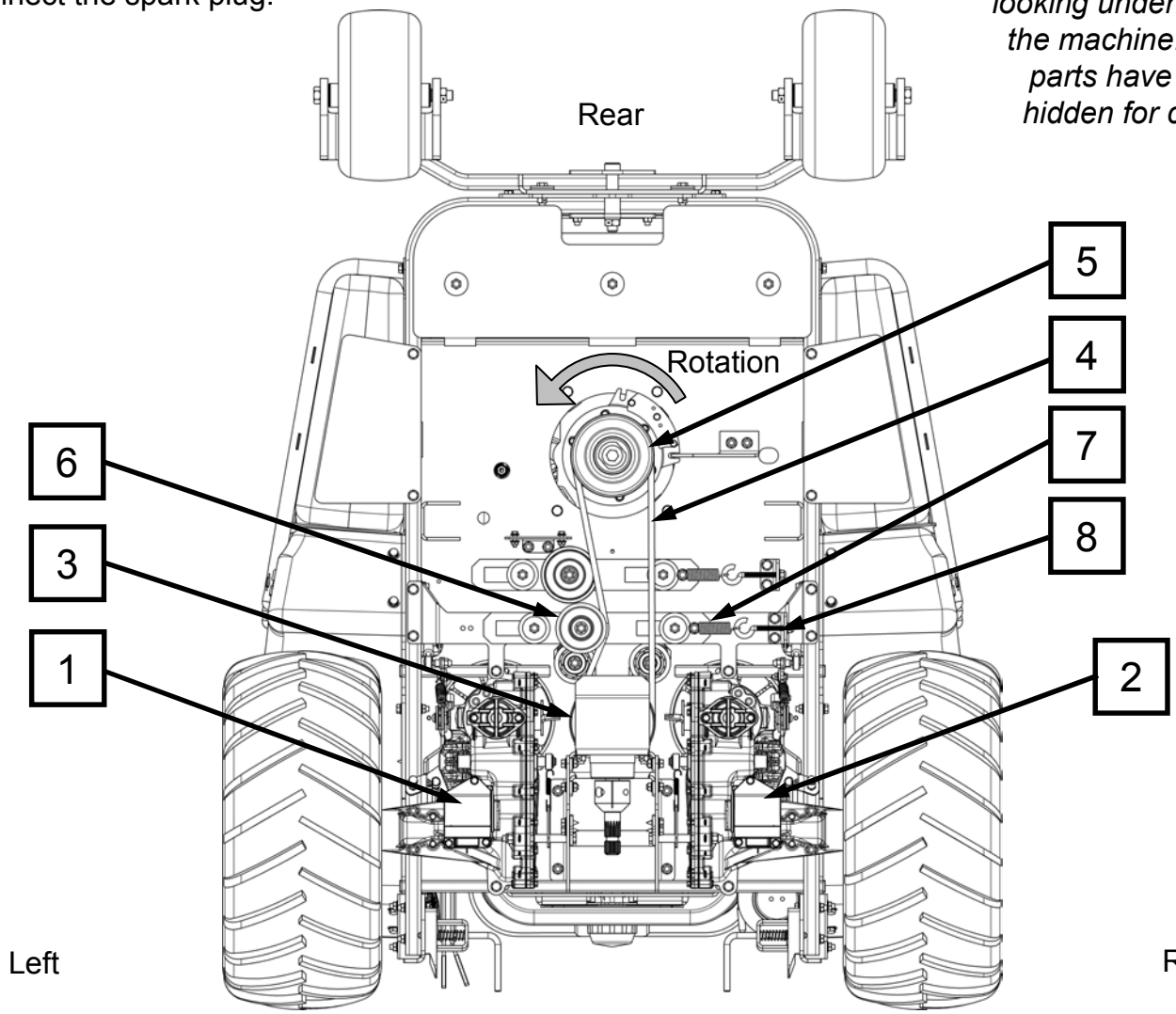
- Disconnect spark plug wire.
- Apply parking brake.
- Loosen the nut on the idler eyebolt.
- Remove the idler spring from the idler eyebolt to relieve tension in the belt.
- Slide the tension idler pulley to the end of the travel.
- Roll the belt over the top of the gearbox pulley.
- Remove the belt from the clutch pulley.

1. Left Side Hydro
2. Right Side Hydro
3. Gearbox Pulley
4. Engine-to-Gearbox Belt
5. Clutch Pulley
6. Sliding Tension Idler Pulley
7. Idler Spring
8. Idler Eyebolt

Replacement

- Install new belt by placing it around the engine-to-gearbox pulley.
- Roll the belt onto the clutch pulley. Refer to routing diagram below.
- The belt will be loose at this time.
- Reconnect the idler spring to the idler eyebolt.
- Tightly secure the belt tension back to its original position.
- Check for sufficient tension on all belts.
- Reconnect the spark plug.

Note: this view is looking underneath of the machine. Some parts have been hidden for clarity.



SERVICE & ADJUSTMENTS

Hydro Belt Routing & Replacement

For replacement belt part number refer to Replacement Parts Quick Reference Chart in this manual.

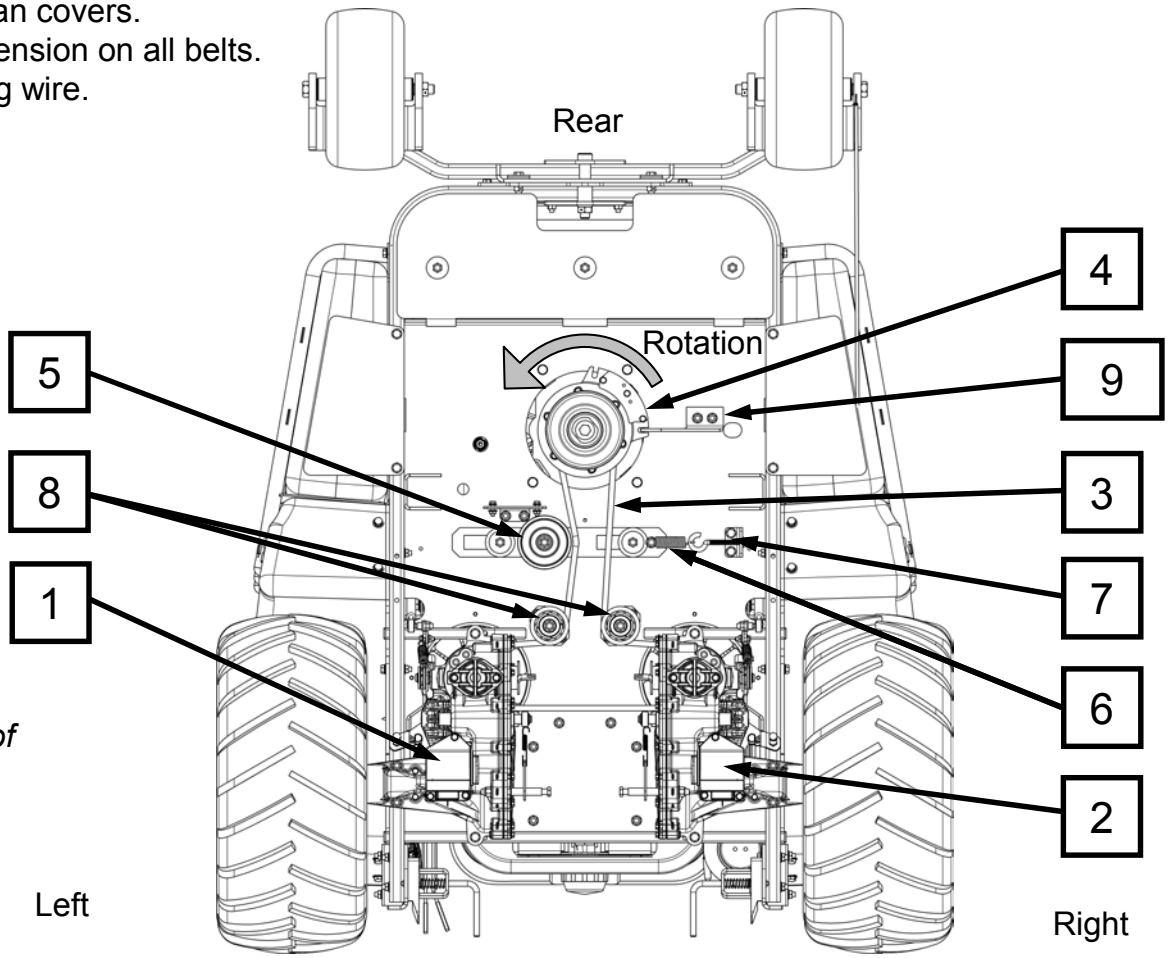
Removal

1. Left Side Hydro
2. Right Side Hydro
3. Hydro Belt
4. Engine Pulley / Clutch
5. Sliding Idler
6. Idler Spring
7. Idler Eyebolt
8. Backside Stationary Idler
9. Clutch Stop

- Disconnect spark plug wire.
- Apply parking brake.
- Remove both hydro fan covers.
- Remove the engine-to-gearbox belt (refer to page 23).
- Disconnect wiring from electric clutch.
- Remove clutch stop.
- Loosen the nut on the idler eyebolt.
- Remove the idler spring from the idler eyebolt to relieve tension in the belt.
- Slide the tension idler pulley to the end of the travel.
- Remove belt from the engine pulley and from the hydro pulleys.

Replacement

- Install new belt by placing it around the hydro pulleys first, then around the idler pulleys and engine pulley. Refer to routing diagram below. The belt should be loose.
- Reconnect the Idler spring to the idler eyebolt
- Tightly secure the belt tension back to its original position.
- Reinstall the engine-to-gearbox belt (refer to page 23).
- Reconnect wiring to the electric clutch.
- Reattach the clutch stop in the groove of the clutch.
- Reattach the hydro fan covers.
- Check for sufficient tension on all belts.
- Reconnect spark plug wire.



Note: this view is looking underneath of the machine. Some parts have been hidden for clarity.

SERVICE & ADJUSTMENTS

Seat Adjustment

- The Swisher Big Mow is equipped with a 6” range sliding seat.
  - Release the tension on the seat adjustment lever by pushing the handle lever to the left. SEE FEATURES section in this manual.
  - Using your own weight, slide the seat to the desired position.
  - Release the lever and be certain you feel the seat slide lock into place.
- The seat also includes adjustable weight setting for different size operators.
  - To adjust, turn the dial on the front of the seat clockwise or counter-clockwise to set the dial to a similar weight as the operator for ideal comfort.
- The seat also includes adjustable arm rests.
  - Lift the arm rests up and turn the dial underneath the arm pads clockwise or counter-clockwise to adjust the preferred height of the arm rests for ideal comfort.
- The seat also includes adjustable lumbar.
  - Turn the dial on either side in the lower corner of the seat clockwise or counter-clockwise to adjust the backrest to the preferred angle for ideal comfort.

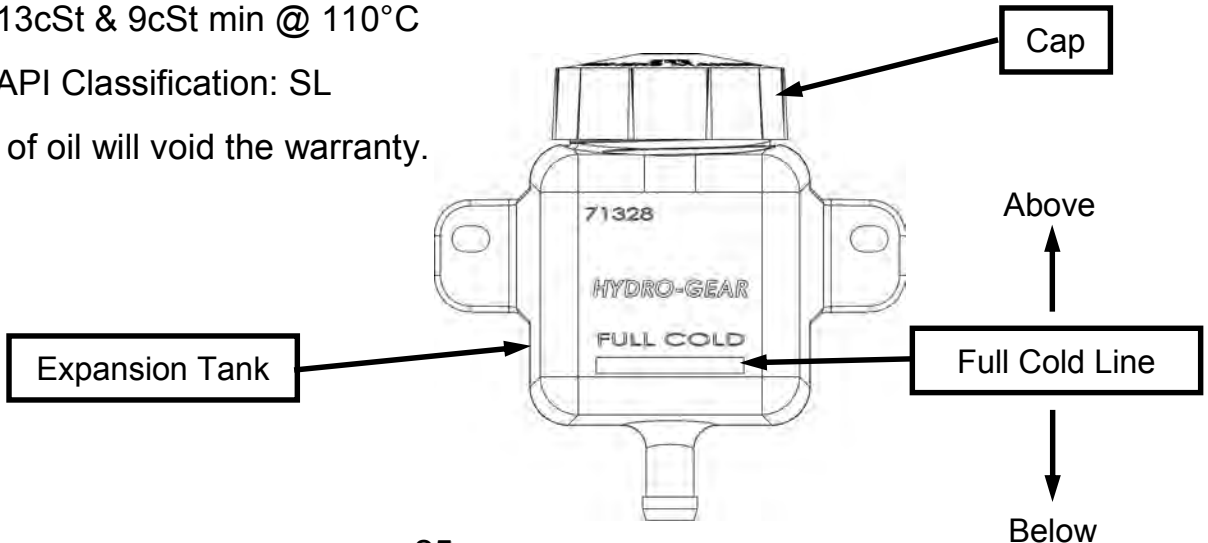
Hydro Expansion Tank Oil Levels

- The Swisher Big Mow is equipped with one hydrostatic transmission expansion tank to allow for oil expansion during regular use. This tank is located inside the storage compartment in the right fender.
- Oil levels in the expansion tank (when oil is cold or at ambient temperature) should always be kept at the “full cold” line. Note: Oil levels could rise above this line once the oil has been used and has increased in temperature. Wait until the oil has cooled back to the ambient temperature before checking the oil levels. See image below for reference.
- If oil level in the tank is below the “full cold” line, remove the cap and add *oil to the tank until it reaches the “full cold” line.

*Only use SAE 20w-50 engine oil; preferably with the following specifications:

- Viscosity Rating: 162 @ 40°C / 18.1 @100°C
- 13cSt & 9cSt min @ 110°C
- API Classification: SL

- Using another type of oil will void the warranty.



TROUBLESHOOTING

Problem	Cause	Correction
Engine Will Not Start	1. Out of fuel. 2. Engine flooded. 3. Bad spark plug. 4. Dirty air filter. 5. Dirty fuel filter. 6. Water in fuel. 7. Loose or damaged wiring. 8. Carburetor out of adjustment. 9. Engine valves out of adjustment. 10. Extreme cold conditions.	1. Fill fuel tank. 2. Wait several minutes before attempting to restart. 3. Replace spark plug. 4. Clean or replace air filter. 5. Replace fuel filter. 6. Drain fuel tank & carburetor, refill tank with fresh gas and replace fuel filter. 7. Check all wiring. 8. Contact an authorized service center. 9. See Engine Manual.
Engine Hard To Start	1. Bad spark plug. 2. Dirty air filter. 3. Dirty fuel filter. 4. Weak or dead battery. 5. Carburetor out of adjustment. 6. Engine valves out of adjustment. 7. Loose or damaged wiring. 8. Stale or dirty fuel.	1. Replace spark plug. 2. Clean or replace air filter. 3. Replace fuel filter. 4. Recharge or replace battery. 5. See Engine Manual. 6. Contact an authorized service center. 7. Check all wiring. 8. Drain fuel tank & refill with fresh gasoline.
Engine Will Not Turn Over	1. Brake not engaged or needs adjustment. 2. PTO switch is engaged. 3. Weak or dead battery. 4. Blown fuse. 5. Corroded battery terminals. 6. Loose or damaged wiring. 7. Faulty ignition switch. 8. Faulty solenoid. 9. Faulty operator presence switch/switches. 10. Attachment is in maintenance/tilted position.	1. Engage Brake or check to make sure safety interlock switch is engaged. 2. Push PTO switch down to disengage. 3. Recharge or replace battery. 4. Replace fuse. 5. Clean battery terminals – See Battery section of this manual. 6. Check all wiring. 7. Check/replace ignition switch. 8. Check/replace solenoid. 9. Contact an authorized service center. 10. Lower attachment to the operating position.
Engine Clicks but Will Not Start	1. Weak or dead battery. 2. Corroded battery terminals. 3. Loose or damaged wiring. 4. Faulty solenoid.	1. Recharge or replace battery. 2. Clean battery terminals – See Battery. section of this manual. 3. Check all wiring. 4. Check/replace solenoid.
Unit Does Not Travel in a Straight Line	1. Incorrect tire pressure. 2. Drive wheels rotating at different speeds.	1. Check tire pressure (See Specifications). 2. Tracking adjustments are needed or Return-to-Neutral assembly may need adjustments. 3. Contact an authorized service center.
Excessive Vibration	1. Worn, bent or loose PTO Shaft. 2. Loose drive wheel hardware. 3. Bent or damaged wheel/tire. 4. Loose/damaged part or parts.	1. Replace PTO Shaft if bent or damaged. 2. Tighten and torque down wheel hardware. 3. Replace wheel/tire. 4. Tighten loose part or parts. Replace damaged parts.

TROUBLESHOOTING

Problem	Cause	Correction
Loss Of Power	1. Cutting too much grass/ too fast. 2. Buildup of grass, leaves and trash under attachment. 3. Dirty air filter. 4. Low oil level/dirty oil. 5. Faulty spark plug. 6. Dirty fuel filter. 7. Stale or dirty fuel. 8. Water in fuel. 9. Spark plug wire loose. 10. Dirty engine air screen/fins. 11. Dirty/clogged muffler. 12. Loose or damaged wiring. 13. Carburetor out of adjustment. 14. Engine valves out of adjustment. 15. Loose drive belt. 16. Front attachment tilted to maintenance mode during operation. 17. Fuel tank runs out of fuel.	1. Set in highest cut setting and reduce speed. 2. Clean underside of mower deck. 3. Clean or replace air filter. 4. Check oil level/change oil. 5. Clean and re-gap or change plug. 6. Replace fuel filter. 7. Drain fuel tank & refill tank with fresh gas. 8. Drain fuel tank & carburetor, refill tank with fresh gas and replace fuel filter. 9. Connect and tighten spark plug wire. 10. Clean engine air screen/fins. 11. Clean/replace muffler. 12. Check all wiring. 13. See Engine Manual. 14. Contact an authorized service center. 15. Adjust idler/replace belt. 16. Lower front attachment to operating position. 17. Switch tanks using fuel shut off valves or refill tanks if both are empty.
Engine Backfires When Turning Off	1. Engine throttle control not set at “SLOW” position for 30 seconds before stopping engine. 2. Throttle control placed into “SLOW” from “FAST” setting too rapid.	1. Move throttle control to “SLOW” position and allow engine to idle for 30 seconds before stopping engine. 2. Move throttle control to half throttle and let engine run for 30 seconds before moving throttle control to slow. Once in “SLOW” then shut engine off.
Battery Will Not Charge	1. Bad battery. 2. Poor cable connections. 3. Faulty solenoid. 4. Faulty engine charging system	1. Replace battery. 2. Check/clean all connections. See section in this manual. 3. Replace solenoid. 4. Contact engine manufacturer for service/repairs.
Loss Of Drive	1. Bypass linkages in the “Engaged” position. 2. Hydro belt worn, damaged, or broken. 3. Idler spring loose or broken. 4. Low transmission fluid level.	1. Make sure that the bypass handle is in the drive or disengaged position. Refer to page 20 2. Replace Hydro belt. 3. Replace Idler spring. 4. Add specified transmission fluid. Refer to page 25

MOWER IDENTIFICATION

Mower Identification

Each mower has its own model number. Each engine has its own model number. The model number for the mower will be found behind 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 or your nearest Swisher dealer. All engine parts may be ordered from the nearest dealer of the engine supplied with your mower.

Unauthorized Replacement Parts

Use only Swisher replacement parts. The replacement of any part on this unit with anything other than Swisher authorized replacement part may adversely affect the performance, durability and safety of this unit and may void the warranty. Swisher disclaims liability for any claims or damages, whether warranty, property damage, personal injury or death arising out of the use of unauthorized replacement parts.

WHEN ORDERING PARTS, PLEASE HAVE THE FOLLOWING INORMATION AVAILABLE:

•MODEL NUMBER - _____

•SERIAL NUMBER - _____

•DATE PURCHASED - _____

•PURCHASED FROM - _____

•ENGINE MODEL NUMBER - _____

•ENGINE TYPE -_____

•PART NUMBER (W/ PAINT CODE) -_____

•PART DESCRIPTION - _____

SWISHER ACQUISITION INC.
1602 CORPORATE DRIVE
WARRENSBURG, MO 64093

www.swisherinc.com
TELEPHONE - 1-800-222-8183
FAX - 1-660-747-3160

cust.serv@swisherinc.com

REPLACEMENT PARTS

Quick Reference

Swisher Part #	Part Description
19423	Belt – Hydro, ½ x 76”
19424	Belt – Gearbox Idler, ½ x 50”
19429R	Tire/Wheel – 23 x 10-10, Chevron; Right
19429L	Tire/Wheel – 23 x 10-10, Chevron; Left
19290	Tire/Wheel – 11 x 6 – 5, 4 Ply
AS069	Fuse – 10 Amp
15710	Fuse – 30 Amp
20374	Fuse – Maxi, 40 Amp

CAUTION

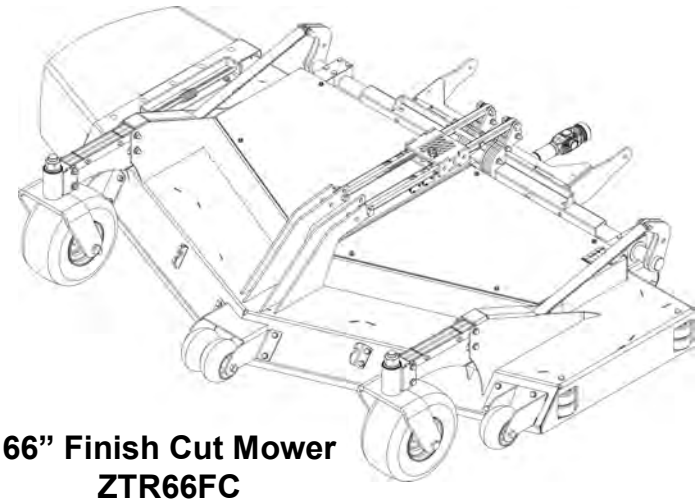
Use extreme care when working on machinery.

Before performing any maintenance, turn off engine, allow the unit to cool and remove the key. Disconnect spark plug wire.

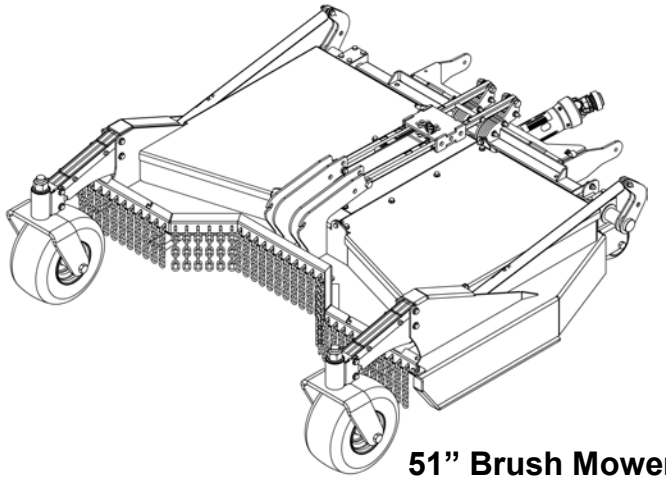
Set Parking Brake by pulling up on brake arm until locked into the “engaged” position. **SEE PAGE 20 FOR BRAKE OPERATION INSTRUCTIONS.**

Do not wear watch or jewelry. Do not wear loose fitting clothes. Observe all common safety practices with tools.

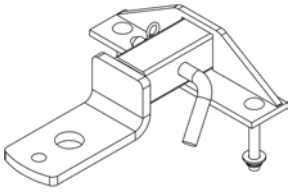
SWISHER TRACTOR ATTACHMENTS



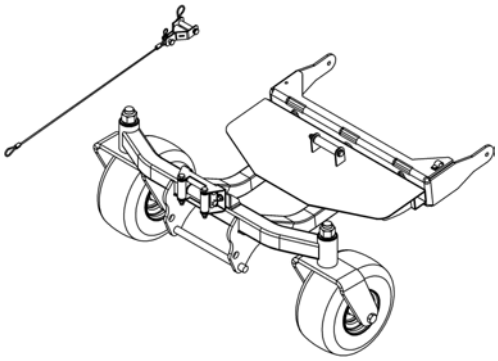
66” Finish Cut Mower
ZTR66FC



51” Brush Mower
ZTR51RC



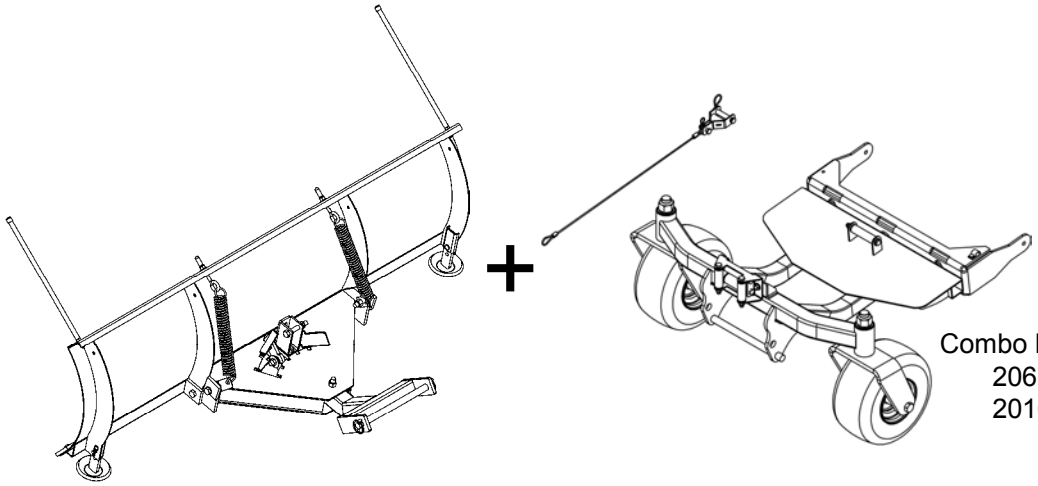
Rear Hitch Kit
20620



Plow Mount Accessory
20670

Compatible with Plow Blades:

2645R	50”
2850	62”
20099	50” Commercial Pro
20100	62” Commercial Pro



Plow Mount Combo
21000

Combo Package Contains:

20670	Plow Mount Accessory
20100	62” Commercial Pro

NOTES

SWISHER HISTORY

Back before electricity came to rural Missouri Max Swisher was producing lawn mowers from his mother's chicken house. Max never liked to mow grass. He installed a gearbox on his family's lawn mower creating a self-propelled unit. By tying one end of a rope to the mower and the other end to a tree in the center of the yard the mower circled the tree, shortening the rope and guiding the mower in concentric circles. Max enjoyed relaxing under a shade tree while his invention did all the work.

Max had designed his first self-propelled rotary lawn mower to do his dirty work for him. Neighbors noticed his new invention and began asking him to make more. Today, over 70 years later, Swisher is still producing innovative lawn and garden and ATV/UTV equipment designed to give us all more "relaxing in the shade" time.

Swisher products have been featured nationally on television programs such as Regis and Kathie Lee and seen in publications like ATV Magazine, Country Journal, Popular Mechanics Magazine and others. In January 2000 Popular Mechanics Magazine named Max's zero turning radius riding mower one of the 20th century's top household inventions.

Swisher offers value and function in its products to meet your grounds maintenance needs.

CELEBRATING OVER 70 YEARS OF INNOVATION

SINCE 1945

MADE IN THE U.S.A
OF U.S. AND GLOBAL PARTS