



MODEL:
642214E

2200ES 20HP B&S W/52 SIDE DISCHARGE

MAN 4156224
Rev. B 8-2007

OPERATOR'S MANUAL 4156225



PARTS MANUAL

**CALIFORNIA
Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**Californie Proposition 65
Avertissement**

Les échappements des moteurs diesel et certains de leurs composés sont reconnus par l'Etat de Californie pour être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.



AVERTISSEMENT

L'émission du moteur de ce matériel contient des produits chimiques que l'Etat de Californie considère être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

**California Advertencia
de la Proposicion 65**

El estado de California hace saber que los gases de escape de los motores diesel y algunos de sus componentes producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.



ADVERTENCIA

El estado de California hace saber que los gases de escape de este producto contienen productos químicos que producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

**CALIFORNIA
Proposition 65 Warning**

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.

IMPORTANT MESSAGE

Thank you for purchasing this CGC, Inc. product. You have purchased a world class mowing product, one of the best designed and built anywhere.

This machine comes with an Operation and Safety Manual and a separate Setup, Parts and Maintenance Manual. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand these manuals. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this CGC, Inc. product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manuals thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a CGC, Inc. dealer for any service or parts needed. CGC, Inc. service ensures that you continue to receive the best results possible from CGC, Inc. products. You can trust CGC, Inc. replacement parts because they are manufactured with the same high precision and quality as the original parts.

CGC, Inc. designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manuals, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Commercial Grounds Care, Inc.
One Bob Cat Lane
Johnson Creek, WI 53038-0469

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NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Commercial Grounds Care, Inc. strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by CGC, Inc. Engineering Department. Any CGC, Inc. product that is altered, modified or changed in any manner not specifically authorized after original manufacture-including the addition of "after-market" accessories or component parts not specifically approved by CGC, Inc.-will result in the CGC, Inc. Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by CGC, Inc. will be considered the responsibility of the individual(s) or company designing and/or making such changes. CGC, Inc. will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This Operator's Manual should be regarded as part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine.

**¡LEA EL INSTRUCTIVO!**

Si no lee Ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.



This symbol means:

**ATTENTION!
BECOME ALERT!**

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to CGC, Inc. machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage.

CGC**COMMERCIAL GROUNDS CARE, INC.****MODEL NUMBER****SERIAL NUMBER****JOHNSON CREEK, WI MADE IN U.S.A.**

MODEL NUMBER: This number appears on sales literature, technical manuals and price lists.

SERIAL NUMBER: This number appears only on your mower. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

TOOLS REQUIRED FOR ASSEMBLY

- Wrecking bar
- Claw hammer
- Ratchets: 3/8"
- Sockets: 3/8", 1/2", 17 mm
- Wrenches: 13 mm, 15 mm, 17 mm, 18 mm, 1-1/16", 1-1/8"
- Straight edge
- Tire pressure gauge
- Blocks (for deck leveling)

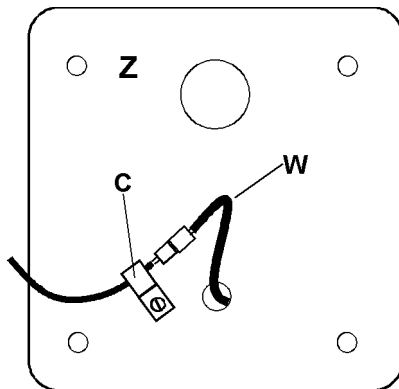
NOTE: All references below to the "right" or "left" are with respect to an operator at the controls.

1. UNCRATE UNIT

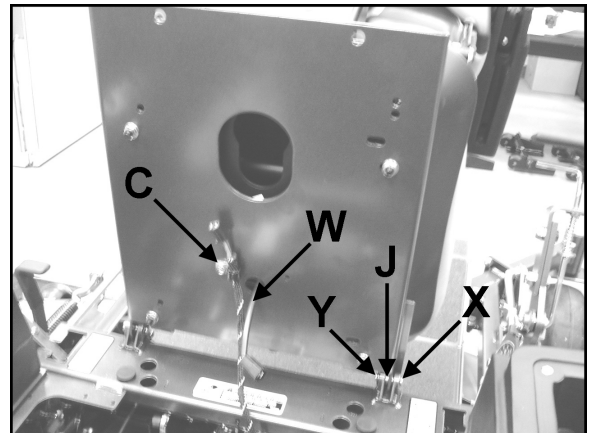
- a) Discard packing materials. Remove and discard shipping brackets. Tighten caster wheel axle bolts against caster axle spanner bushings.

2. INSTALL SEAT

- a) Install bushings **J** in seat plate **Z**.
- b) Install seat assembly onto the unit using (2) pins **X** and (2) E-clips **Y**.
- c) Secure seat wire **W** on the bottom of the seat plate with clip **C** and a 1/4-20 X 3/8 thread forming screw.
- d) Connect the tractor harness to the seat wire.



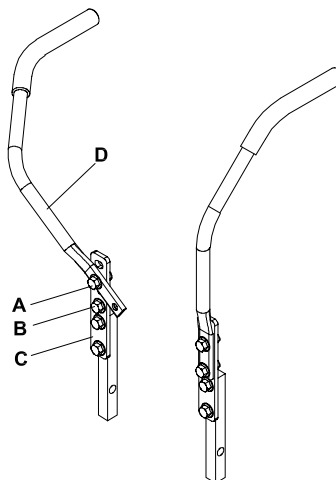
Bottom of seat plate **Z** showing clip **C**



3. Set tire pressures to 14 lbs/in² (1.0 kg/cm²). Tires are overinflated for shipping.

4. TRACTION LEVERS

- Loosen bolt **A** and remove bolt **B**.
- Rotate traction lever **D** into position and secure with bolts **A** and **B**. Repeat for the other lever.
- Tighten all fasteners.
- Sit on the machine. Levers may be adjusted in bracket **C** for a more comfortable reach, or moved to upper set of holes for a better operator fit.



5. DECK LEVELING

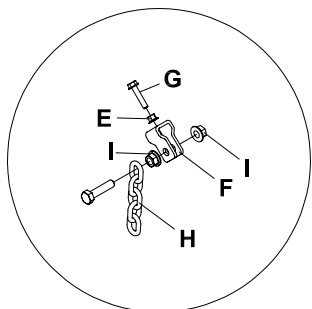
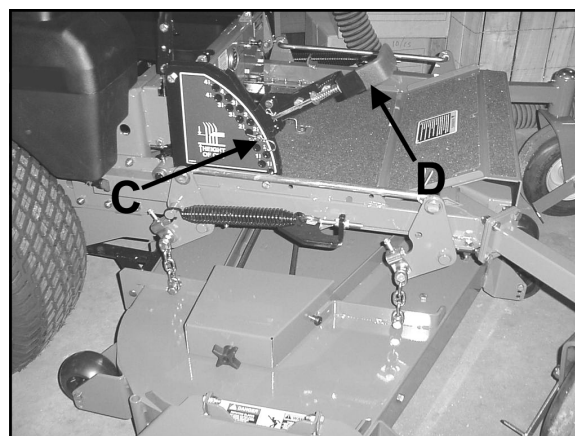
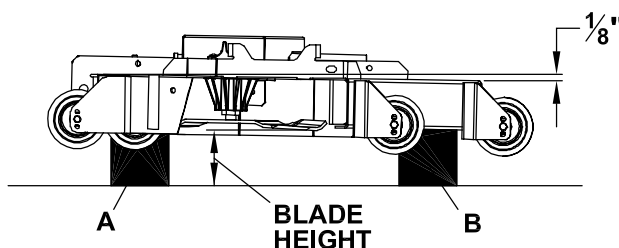
- Park the machine on a smooth, level surface. Raise the deck to the transport position.
- Lower the deck onto a set of equal height blocks **A** under the rear corners of the deck. Place another set of blocks **B** under the front of the deck so that the deck top is pitched forward 1/8".

NOTE: The front and rear of the deck are at different heights.

- Measure the height of the blade cutting edge above the ground. Remove pin **C** and set the height of cut lever **D** to that height.
- Loosen nuts **I** at all four corners of the deck.

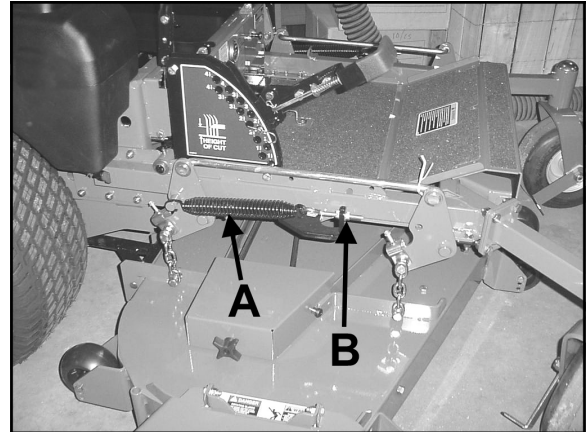
NOTE: This will relieve tension on chains **H**.

- Loosen the jam nuts **E** on the height of cut clips **F** and adjusting screws **G**. Turn the adjusting screws **G** until the play is taken out of the chains **H** at all four corners. Tighten the jam nuts **E** against the clips **F** and at the adjusting screws **G**. Retighten nuts **I** at this time.



6. COUNTERBALANCE SPRINGS

- a) Raise the cutterdeck all the way.
- b) Adjust the spring **A** with nut **B**:
52" cutterdecks to a length of 9-1/8" (232 mm)



7. FINAL PREPARATIONS

- Check the engine and hydraulic oil levels. Top off with the correct oil if necessary. Use 10W30 motor oil for the engine. Use fresh, clean 15W40 or 20W50 motor oil or 15W50 synthetic motor oil for the hydraulic system.
- Remove the battery from the machine. Fill the battery to the bottom of the vent wells with acid and trickle charge for several hours.

⚠ WARNING

Battery acid is caustic and fumes are explosive and can cause serious injury or death.

Use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. Read and obey the battery manufacturer's instructions.

Be certain the ignition switch is OFF and the key has been removed before servicing the battery.

- a) Verify battery polarity before connecting or disconnecting the battery cables.
 - b) When installing the battery, always assemble the RED, positive (+) battery cable first and the ground, BLACK, negative (-) cable last.
 - c) Tighten cables securely to battery terminals and apply a light coat of silicone dielectric grease to terminals and cable ends to prevent corrosion. Keep terminal covers in place.
- Read Operation and Safety Manual before starting.
 - Run engine at full RPM for 5 minutes before engaging blades to allow the engine to be fully lubricated before load is applied.
 - Check the hydrostat neutral adjustment. Neutral is set at the factory but may require readjustment if air trapped during the initial oil fill has worked out of the system. See adjustments section later in this manual.
 - Do not use the machine without an approved grass collector, the grass discharge chute or mulching plates correctly fitted.

MAINTENANCE CHART

**Estate
Series**

MAINTENANCE OPERATION	Maintenance is an ongoing job. These intervals are maximum times between maintenance operations. Perform more often under severe conditions.						
	FIRST 5 HOURS	DAILY	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 200 HOURS	EVERY 500 HOURS
ENGINE							
Consult the engine manual for additional information and instructions							
Check/Top Off Engine Coolant Level (Where Applicable)		X					
Check/Top Off Oil Level		X					
Check For Leaks		X					
Clean Air Intake Screen		X					
Clean Air Cleaner Precleaner			X*				
Clean Air Cleaner Element					X	X**	
Clean Cooling Fins					X		
Change Oil And Filter	X	See engine manufacturer's manual					
Check/Replace Spark Plugs						X	
* N/A IF EQUIPPED WITH HEAVY DUTY CYCLONIC AIR CLEANER							
**IF EQUIPPED WITH HEAVY DUTY CYCLONIC AIR CLEANER							
HYDRAULICS							
Check For Leaks		X					
Check/Top Off Oil Level					X		
Change Oil And Filter	X						X
MACHINE							
Check Interlock Operation		X					
Check Tire Pressures		X					
Check/Top Off Battery					X		
Lubricate All Points				X			

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

NOTE: After first 5 hours of operation replace engine oil, hydraulic oil and both filters.

CHECK DAILY

Operator Presence Interlock System - Start Operation

For the engine to crank, the parking brake must be on, the PTO (blades) off and traction levers in the neutral lock position. Sit in the seat and check, one by one, if the engine will crank with the parking brake off, the blades on, and either traction lever out of neutral lock.

Operator Presence Interlock System - Run Operation

The operator must be in the seat for the engine to run with the parking brake off, the traction levers moved out of the neutral lock position, or the blades on. To check:

- 1. Start the engine and run at 1/2 throttle with the operator on the machine but raised off the seat.
- 2. One by one: move the parking brake to the OFF position, traction levers out of the neutral lock position (check each independently), and turn the blades on. Each check should kill the engine after 1/2 second. (A 1/2 second delay is built into the system to prevent engine cutout when traversing rough terrain.)

Repair machine before using if the Operator Presence Interlock System does not operate correctly in start or run. Contact your authorized CGC, Inc. dealer.

Hardware

Tighten any nuts and bolts found loose. Replace any broken or missing cotter pins. Repair any other problems before operating.

Tire pressure

Tires should be kept inflated at 14 lbs/in² (1.0 kg/cm²). Improper tire inflation can cause rapid tire wear and poor traction. Uneven inflation can cause uneven cutting.

BATTERY

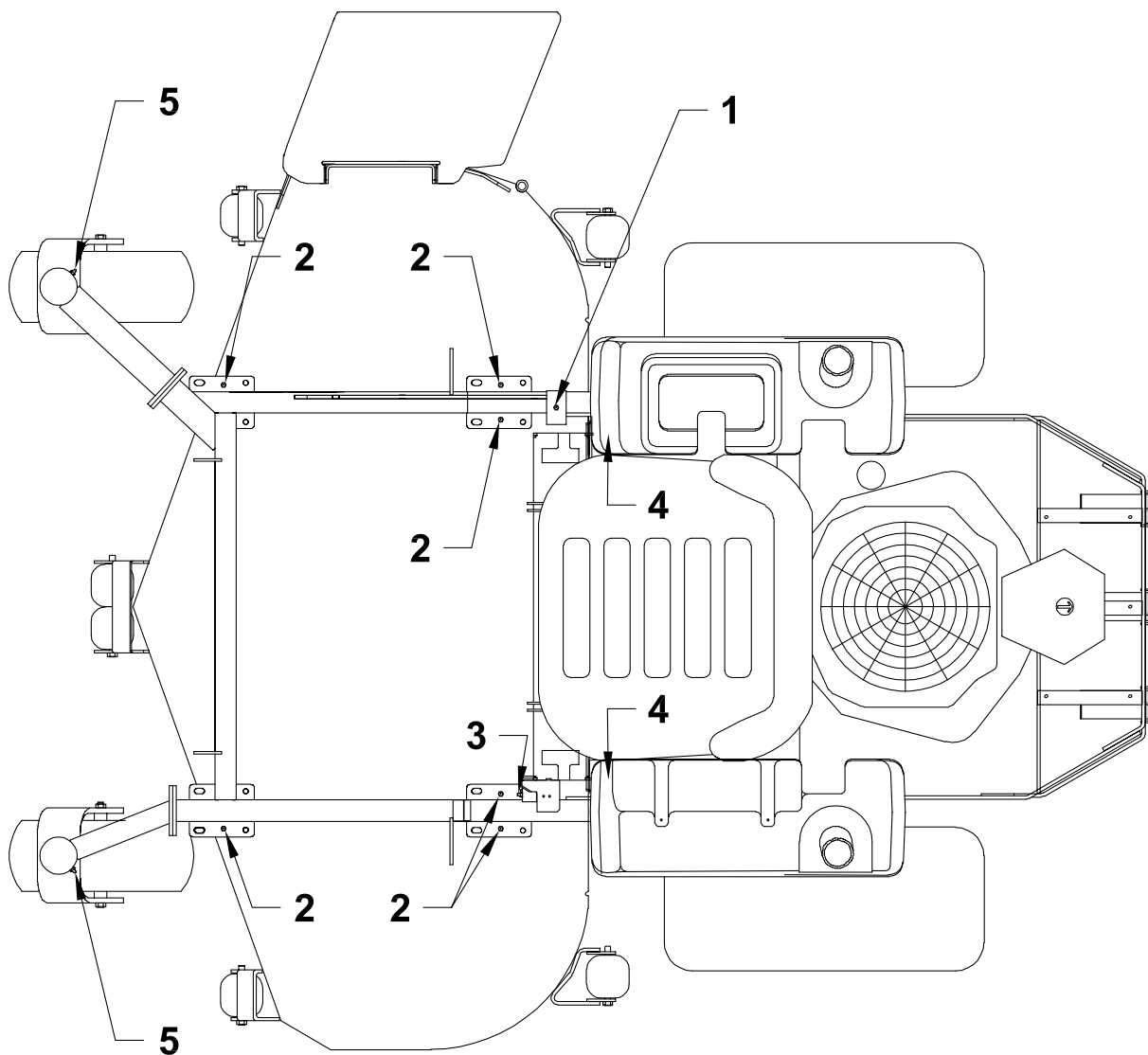
⚠ WARNING Battery acid is caustic and fumes are explosive and can cause serious injury or death.

Use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. Read and obey the battery manufacturer's instructions.

Be certain the ignition switch is OFF and the key has been removed before servicing the battery.

- 1. Verify battery polarity before connecting or disconnecting the battery cables.
- 2. When installing the battery, always assemble the RED, positive (+) battery cable first and the ground, BLACK, negative (-) cable last.
- 3. When removing the battery, always remove the ground, negative (-) cable first and the red, positive (+) cable last.

- 4. Check the electrolyte level every 100 hours of operation.
- 5. Clean the cable ends and battery posts with steel wool. Use a solution of baking soda and water to clean the battery. Do not allow the solution to enter into the battery cells.
- 6. Tighten cables securely to battery terminals and apply a light coat of silicone dielectric grease to terminals and cable ends to prevent corrosion. Keep terminal covers in place.



LUBRICATION

Every 50 hours of operation, lubricate the following points (1-4) with grease:

1. Deck lift rockshaft (1 point)
2. Deck lift pivots (6 points)
3. Brake lever pivot (1 point)
4. Push arms (2 points located at rear of cutterdeck under each fuel tank)
5. Caster wheel pivots (2 points)
(Lubricate every 500 hours or once a year)

NOTE ON BLADE SPINDLES - The blade spindles on these machines use a superior sealed bearing that does not require relubrication.

HYDRAULIC SYSTEM

Fluid level in the hydraulic system should be checked after the first 5 hours of operation, and every 100 hours thereafter, or when a leak has occurred. If the fluid is low, check all components for leaks.

To check, remove reservoir cap **M**. The fluid level should be at the bottom of the filler tube. If low, top off (do not overfill). Use one of the oils listed below:

- SAE 15W40 motor oil
- SAE 20W50 motor oil
- 15W50 synthetic motor oil

AFTER FIRST FIVE (5) HOURS

1. Remove plug **N** to drain hydraulic reservoir. Dispose of used oil in accordance with local requirements.
2. Clean and replace the plug.
3. Change hydraulic oil filter **G**.
4. Fill the reservoir with fresh oil to the bottom of the reservoir filler tube, using an oil from the list above. Do not overfill.

PERIODIC OIL CHANGES

Change the hydraulic fluid and hydraulic filter after each 500 hours of operation using the same procedure given above.

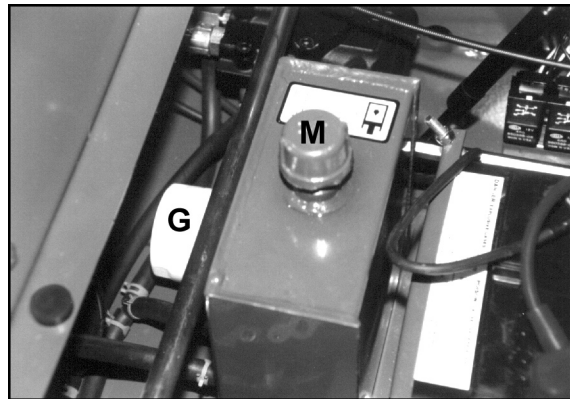
NOTES:

Before servicing the hydraulic system, stop the engine, disconnect spark plug wires and disengage the PTO.

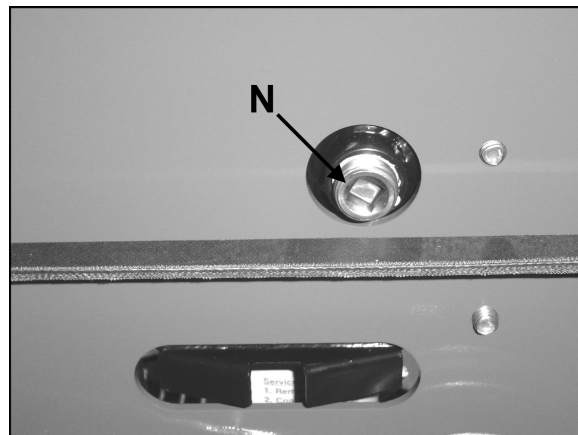
- After any hydraulic line is opened, plug or cap it promptly to reduce the risk of contamination.
- Do not use sealant tape on hydraulic pipe fittings. Use a liquid sealant that will dissolve into the system.
- Make sure all hydraulic connections are tight and hydraulic hoses and lines are in good condition before applying pressure to system.

⚠ WARNING

The machine's hydraulic system operates under high pressure. When checking for leaks, do not use your hands to attempt to find a leak. Instead, use cardboard or paper. Escaping hydraulic fluid can be under sufficient pressure to penetrate skin and cause serious injury. If hydraulic fluid is injected into the skin, it must be promptly removed by a doctor familiar with this form of injury or gangrene may result.



View from right side



View from below machine

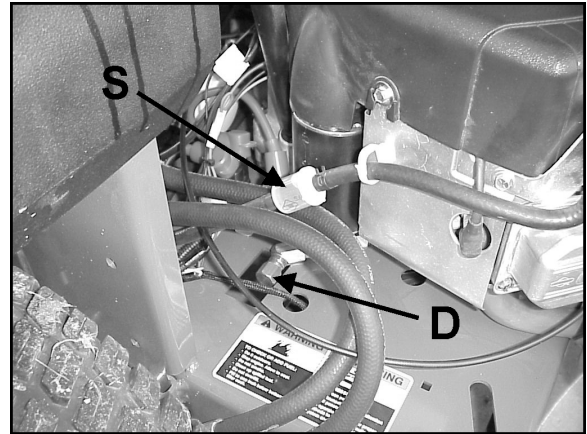
ENGINE OIL

Do not perform engine maintenance without the engine off, spark plug wires disconnected and PTO disengaged.

AFTER FIRST FIVE (5) HOURS

While the engine is warm:

1. Remove drain cap **D** and drain the crankcase. Dispose of used oil in accordance with local requirements.
2. Clean and replace the cap.
3. Change oil filter.
4. Fill the crankcase with fresh oil to the full mark. Do not overfill. See engine manual for oil specifications.



DAILY

1. Check oil level with the dipstick.
2. If oil is needed, add fresh oil of proper viscosity and grade. See engine manual for oil specifications. Do not overfill.
3. Replace dipstick before starting engine.

PERIODIC OIL CHANGES

1. See engine manual for oil and filter change intervals after the break-in period.
2. Follow instructions for first oil change, above.

FUEL FILTER

An inline fuel filter **S** is located in the fuel supply line. Inspect at every oil change to make sure it is clean and unobstructed. Replace if dirty.

SPARK PLUGS

Remove each plug and check condition.

- Good operating conditions are indicated if the plug has a light coating of grey or tan deposit.
- A white blistered coating indicates overheating. A black coating indicates an "over rich" fuel mixture. Both may be caused by a clogged air cleaner or improper carburetor adjustment.
- Do not sandblast, wire brush or otherwise attempt to repair a plug in poor condition. Best results are obtained with a new plug.
- Set plug gap as specified in engine manual.

DUAL ELEMENT AIR CLEANER

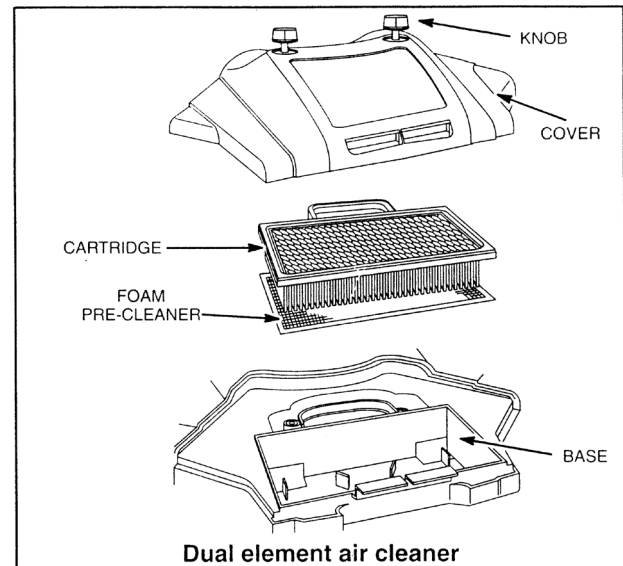
Engines equipped with dual element air cleaners have a paper air cleaner element with an oiled, foam pre-cleaner element on the dirty side of the paper element. Both should be inspected regularly and maintained.

Clean and re-oil pre-cleaner element every 25 hours (more often under dusty conditions).

1. Disassemble air cleaner cover.
2. Remove pre-cleaner by sliding it off the paper cartridge.
3. Wash pre-cleaner in kerosene or liquid detergent and water.
4. Wrap pre-cleaner in cloth and squeeze to remove cleaner.
5. Saturate pre-cleaner in engine oil. Squeeze to remove excess oil.
6. Re-install pre-cleaner over paper cartridge. Reassemble air cleaner components and screw assembly down tight.

Every 100 hours (more often under very dusty or dirty conditions), check the paper cartridge.

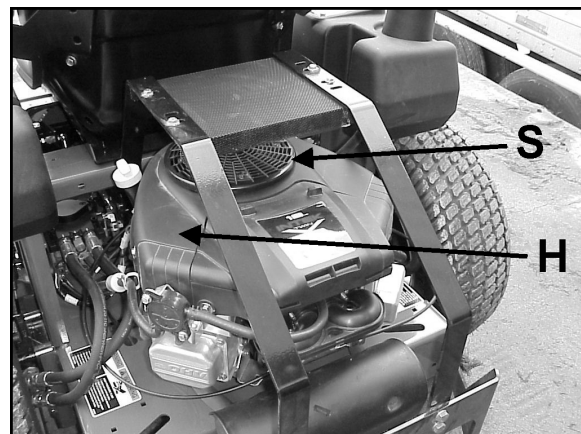
- Clean by tapping gently.
- Do not wash the cartridge or use compressed air which can cause damage.
- Replace when cartridge is dirty, bent or damaged.



ENGINE COOLING

Continued operation with a clogged cooling system will cause severe overheating and can result in engine damage.

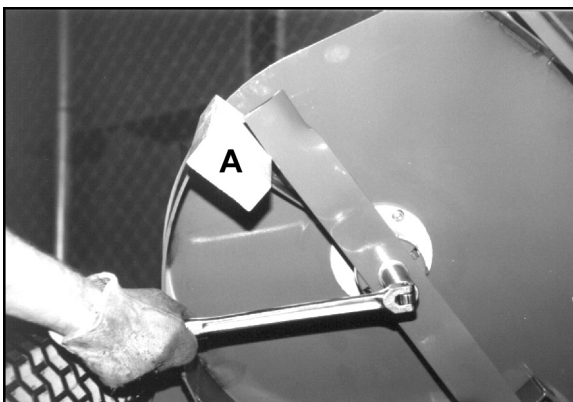
- **Daily:** Clean air intake screen **S**.
- **Every 100 hours:** Clean cooling fins beneath blower housing **H** with reference to information in the engine manufacturer's manual.



BLADE REMOVAL

Follow these instructions to prevent injury during blade removal:

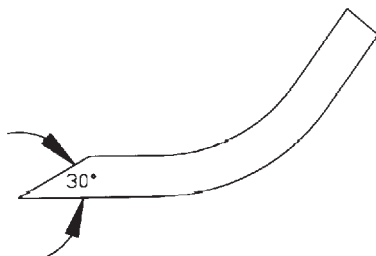
1. Loosen with a box wrench or a socket and long breaker bar. To gain additional leverage, slip a long pipe or thick-walled tube over breaker bar or wrench.
2. Insert wood block **A** as shown, with grain perpendicular to blade, to prevent blade from turning when loosening.
3. Wear thickly padded gloves. Keep hands clear of blade path. Blades may rotate when bolt releases.



SHARPENING

Blades may be sharpened by filing or grinding.

- Inspect blades before sharpening.
- Replace bent or cracked blades.
- Replace blades when the lift portion has worn thin.
- Maintain cut angle at 30°.
- Do not overheat blades when sharpening.
- Always use CGC, Inc. blades. Use of another manufacturer's blades may be dangerous.



BLADE BALANCE

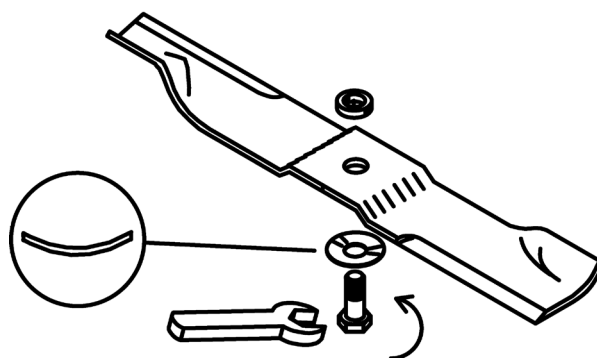
Blade balance must be maintained at 5/8 oz-in (19.4 g-cm) or less. Failure to keep blades balanced causes excess vibration, wear, and shortened life of most components of the machine.

To balance a blade:

1. Sharpen blade first.
2. Balance the blade at the center.
3. Attach a 1/8 oz (3.9 g) weight at a distance 5" (127 mm) from center on the light end. This should make the light end the heavy end:
 - If it does, the blade is balanced.
 - If does not, file or grind the heavy end until the addition of the weight makes the light end the heavy end.

BLADE INSTALLATION

1. Wear thickly padded gloves to prevent cuts from the sharp blade.
2. Insert the blade bolt, in order, through the conical washer (cup side toward the blade, as shown), the blade, and the blade spacer.
3. Install assembly on the blade spindle.
4. Torque the blade bolt to 70 ft-lbs.



DECK LEVELING

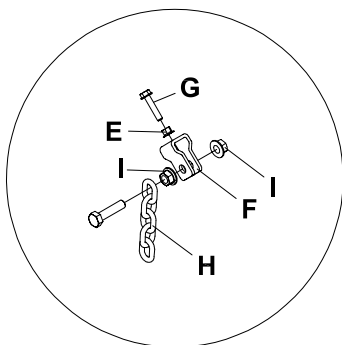
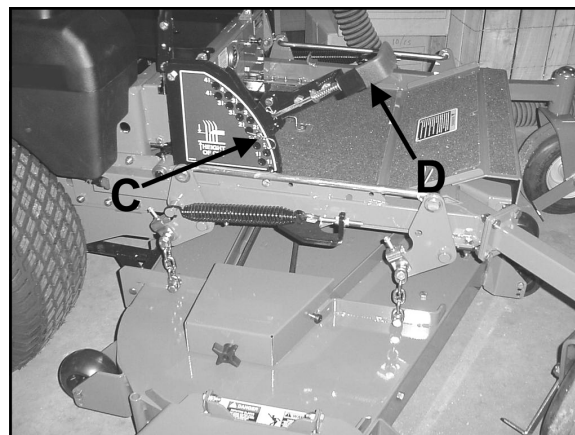
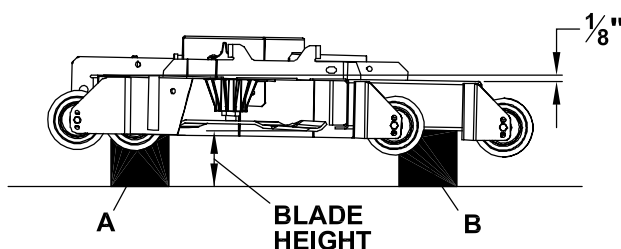
- Park the machine on a smooth, level surface. Raise the deck to the transport position.
- Lower the deck onto a set of equal height blocks **A** under the rear corners of the deck. Place another set of blocks **B** under the front of the deck so that the deck top is pitched forward $\frac{1}{8}$ ".

NOTE: The front and rear of the deck are at different heights.

- Measure the height of the blade cutting edge above the ground. Remove pin **C** and set the height of cut lever **D** to that height.
- Loosen nuts **I** at all four corners of the deck.

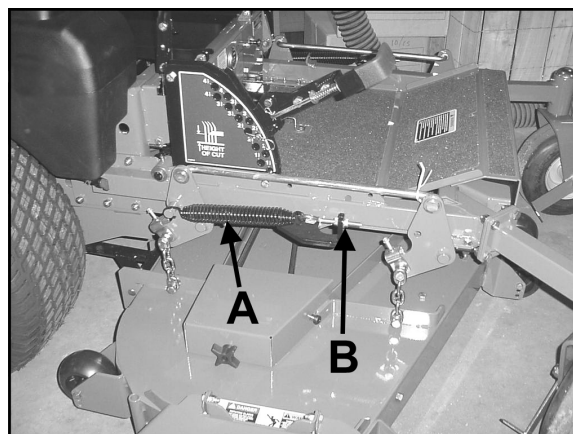
NOTE: This will relieve tension on chains **H**.

- Loosen the jam nuts **E** on the height of cut clips **F** and adjusting screws **G**. Turn the adjusting screws **G** until the play is taken out of the chains **H** at all four corners. Tighten the jam nuts **E** against the clips **F** and at the adjusting screws **G**. Retighten nuts **I** at this time.



COUNTERBALANCE SPRINGS

- Raise the cutterdeck all the way.
- Adjust the spring **A** with nut **B**:
52" cutterdecks to a length of 9-1/8" (232 mm)



HEIGHT OF CUT

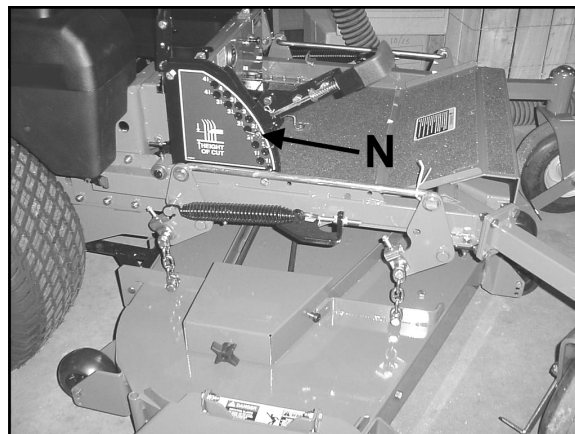
The height of cut is set by moving height of cut pin **N** to the hole designated for the height of cut desired.

To change the height of cut:

1. Lift the deck to the highest position.
2. Move pin **N** to the selected hole.
3. Lower the deck until the lift lever is stopped by the pin.

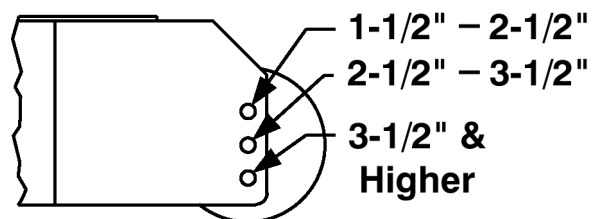
NOTES:

- Height of cut may vary due to the amount of tread on the tires, tire diameter or inflation pressure.
- For best results, adjust the rear deck rollers for the height of cut to be used (see below).



REAR DECK ROLLERS

The rear outside deck rollers are adjustable up and down to provide improved deck flotation and scalping protection at various heights of cut. They are not intended to ride continuously on the ground. Adjust no closer than 3/8" (10mm) to the ground.



Height of cut ranges for roller adjustment

BELTS

All belts are tensioned by spring loaded idlers. No adjustment is required.

CONTROL LEVERS

There are two mounting positions for the control levers, upper and lower. The lower position works well for most people. Taller operators may need the upper position.

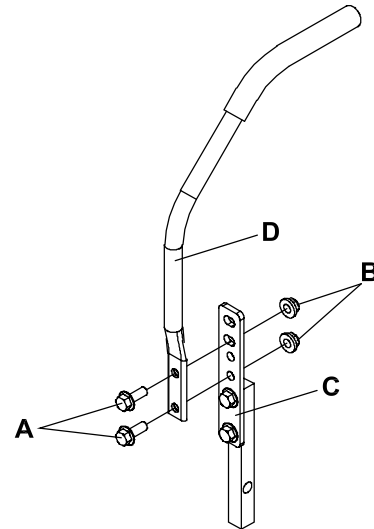
To adjust the height of the control levers:

- Remove bolts **A** and nuts **B**.
- Align holes in control lever **D** with appropriate holes in traction lever bracket **C**.
- Install bolts **A** and nuts **B**.

The upper mounting hole for the control levers is slotted to allow fore-aft adjustment and to allow alignment of the levers.

To adjust or align the control levers:

- Loosen nuts **B**.
- Adjust control lever position.
- Tighten nuts **B**.



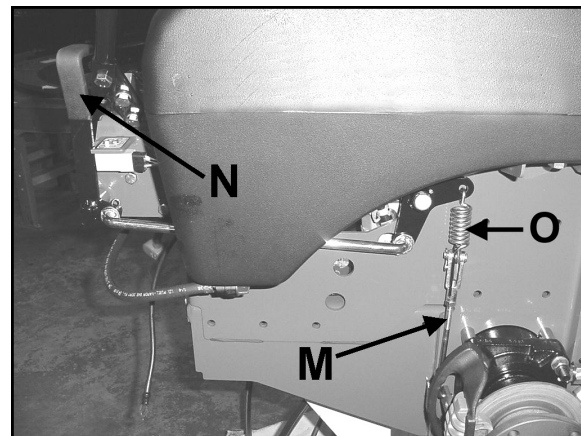
PARKING BRAKE

Park machine on a smooth level surface.

Support the machine with the rear wheels off the ground, using jack stands or equivalent. **DO NOT** rely on mechanical or hydraulic jacks.

1. Remove rear wheels.
2. Measure spring length **O** with parking brake **N** in the OFF position.
3. Move parking brake **N** to the ON position and measure length of spring **O** again. When spring deflects 3/8" it is properly adjusted.
4. If adjustment is required, return parking brake **N** to the OFF position.
5. Disconnect one end of rod **M** at the brake and loosen jam nut.
6. Adjust rod **M** in or out as required until 3/8" deflection in brake spring **O** is achieved with parking brake **N** in the ON position.
7. Reconnect rod **M** and retighten jam nut.
8. Repeat steps 2-7 on opposite side of machine.
9. Replace wheels and tighten wheel nuts.

NOTE: Parking brake must be in the OFF position to properly seat brake drums.



Parking brake assembly (tire and deck not shown for clarity - brake in ON position).

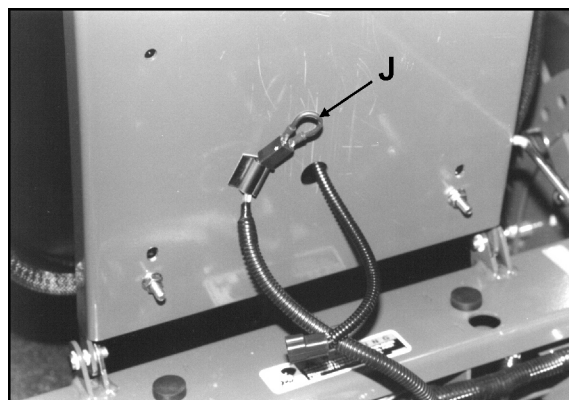
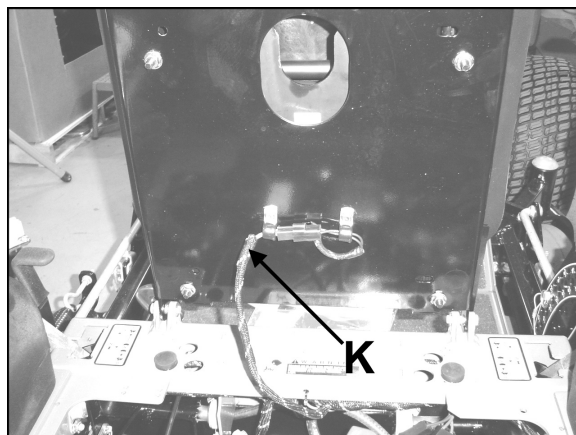
This adjustment will cause the brake springs to stretch 3/8" when the parking brake is in the ON position, providing the correct parking brake force without overloading the brake arm.

HYDROSTAT ADJUSTMENTS

A turnbuckle-style hydrostat neutral adjustment is provided.

Neutral:

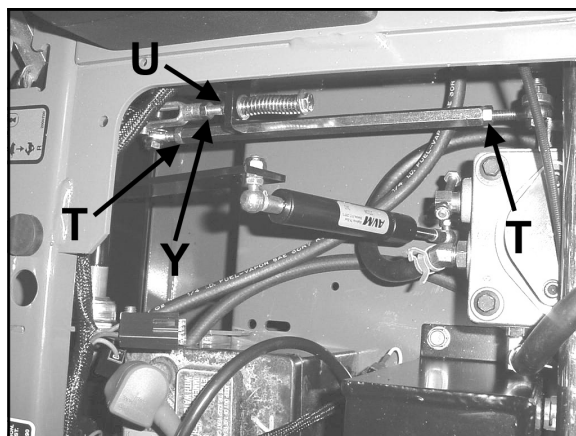
1. Support the machine with the rear wheels off the ground. Use jackstands or equivalent support. Do not rely only on mechanical or hydraulic jacks.
2. Move the traction levers out into the neutral lock position and raise the seat.
3. Disconnect the seat switch wire **K** and temporarily connect the two terminals with jumper wire **J** as shown.
4. Start the engine and run at low speed.
5. Loosen jam nuts **T** at both ends of the turnbuckle.
6. Rotate the turnbuckle until the corresponding wheel stops turning. Lock the turnbuckle jam nuts. Run the engine up to high idle to check the adjustment. Readjust if necessary.
7. Repeat steps 5 and 6 for the opposite side.
8. Remove the jumper wire and reconnect the seat switch.



Reverse Return:

1. Move traction levers out to the neutral lock position and raise the seat.
2. Locknut **U** should be run on the bolt as far as it will go.
3. Loosen jam nut **Y**. Adjust the clevis yoke by turning the head of the bolt until the clevis pin just makes contact with the rear of the slot in the lever it connects with. Tighten jam nut **Y**.
4. Repeat steps 2 and 3 for the opposite side.

NOTE: A slight creep in reverse is acceptable provided the wheel does not turn and the hydrostat pump does not whine when the parking brake is on.

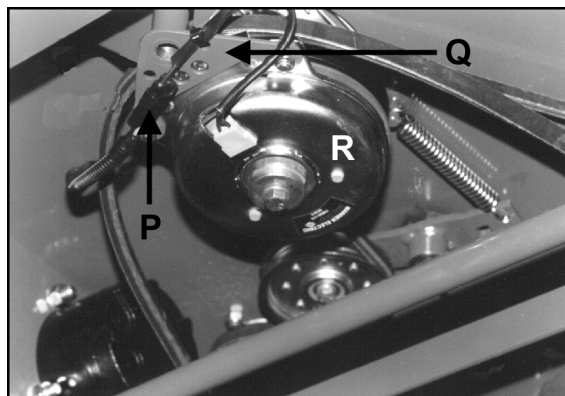


Right side adjustments
(wiring harness and seat rod removed for clarity)

Note: Always use CGC, Inc. replacement belts, not general purpose belts. CGC, Inc. belts are specially designed for use on commercial mowers and will normally last longer.

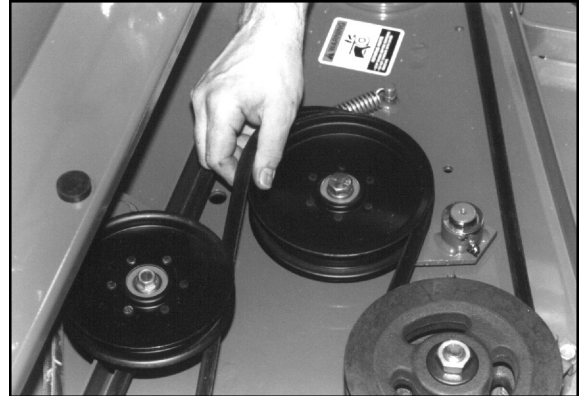
ENGINE-CUTTERDECK (PTO) BELT

1. Set the cutterdeck in the lowest height-of-cut position.
2. Attach a short extension to a 3/8" drive ratchet. Insert the ratchet extension into the square hole in the idler arm and use the ratchet to rotate the idler assembly enough to remove the belt. Remove the belt from the idlers and center cutterdeck pulley. Push belt back under engine deck.
3. Disconnect the electric clutch from the wire harness at plug **P**.
4. Remove the bolts securing torque restraint **Q** to clutch **R**. Remove torque restraint.
5. Remove old belt from the machine.
6. Install a new belt by performing the these steps in reverse order.



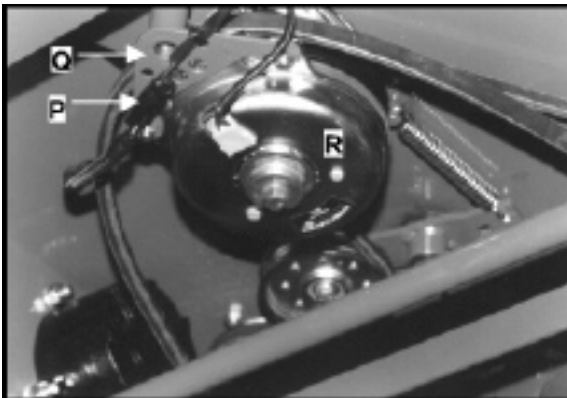
CUTTERDECK BELT

1. Set the cutterdeck in the lowest height-of-cut position.
2. Remove the engine-cutterdeck belt from the deck idlers and pulley (see engine-cutterdeck belt replacement). Push it aside but don't remove it from the machine.
3. Run the cutterdeck belt off the idler as shown. Remove it from the deck.
4. Install the new belt by performing these steps in reverse order. Take care to get the new belt on the correct side of the belt guides.
5. Re-install engine-cutterdeck belt (see engine-cutterdeck belt replacement).



PUMP-DRIVE BELT

1. Remove engine-cutterdeck belt (see engine-cutterdeck belt replacement).
2. Attach an extension to a 3/8" drive ratchet. Insert the ratchet extension in the square hole of the pump drive idler arm. Use the ratchet handle to rotate it enough to remove the pump drive belt.
3. Install a new pump drive belt in the same manner as it was removed.
4. Re-install engine-cutterdeck belt (see engine-cutterdeck belt replacement).



POWER UNITS

ENGINES:

Construction: Aluminum block with cast-in cast iron sleeves. Aluminum head.

Configuration: 4-stroke, vertical shaft, V-twin cylinder, overhead valve, air-cooled.

DRIVE SYSTEM:

Full hydrostatic pump and wheel motor combination for independently controlled drive wheels.

Pump: Hydrogear BDP-10A with shock valves 10cc variable displacement piston pump.

Motors: Parker/Ross 15 cu.in. displacement MB series. Direct drive 1-1/4" (31.8mm) diameter output shaft.

Turn Radius: True Zero

OPERATOR PRESENCE

INTERLOCK SYSTEM:

Start: The PTO (blades) must be off, traction levers in neutral lock, and parking brake on for engine to crank.

Run: Operator must be in seat to take parking brake off, to move traction levers out of the neutral lock position, or to turn the PTO (blades) on or the engine will kill. The parking brake must be off for the traction levers to move out of the neutral lock position.

The operator may leave the seat with the engine running if the parking brake is on, the PTO (blades) is off, and the traction levers are in the neutral lock position. A time delay eliminates annoying engine cutout from operation over rough terrain.

WEIGHT:

1025 lbs (465 kg)

CONTROLS:

Throttle; choke; power takeoff (PTO) clutch switch; traction levers; parking brake lever; lift lever.

FUEL SYSTEM:

One tank on each side of operator, each with a shut-off (1/4 turn). Total capacity 12 gallons (46 liters). Fuel selector/shutoff switch on front panel (1/4 turn). Replaceable fuel filter.

MAXIMUM GROUND SPEEDS:

Forward: 8.5 mph (13.7 km/h)

Reverse: 4 mph (6.4 km/h)

WHEELS & TIRES:

Drive wheels:

642214E: 23 X 8.50-12 4-Ply Turf
Tread Tires

Casters: 13 X 5.00-6 4-Ply Smooth Tread Tires

Pressure: 14 p.s.i. (1 kg/cm²)

BRAKING:

Hayes disc type parking brakes. Spring applied for overload protection.

SEAT:

High back, foam padded with standard armrests. Fore and aft adjusters, hinged for easy tilt-up access to pumps and battery. Internally mounted seat switch.

ENGINE	
MODEL NUMBERS	642214E
MANUFACTURER	Briggs & Stratton
MODEL	405777
CYLINDERS	2
COOLING	Air
BORE/STROKE	2.97 X 2.89" (75.44 X 73.4 mm)
DISPLACEMENT	40 cu.in. (656 cc)
COMPRESSION	8.1:1
OUTPUT POWER	20 hp (13.4 kw) @ 3600 rpm
HIGH IDLE SPEED	3600 + 100 rpm
OUTPUT TORQUE	31.7 ft-lb (43 J) @ 2550 rpm
LUBRICATION	FULL PRESSURE
GOVERNOR	Mechanical
AIR CLEANER	Dual element
IGNITION SYSTEM	Electronic
CHARGING SYSTEM	16 amp, regulated
BATTERY	BCI group U1
FUSES	Two, 20 amp blade
FUEL CONSUMPTION @ MAX LOAD/ SPEED	1.88 gal/hr (7.1 l/hr)

FLUID CAPACITIES	QUANTITY	TYPE	FILTER
FUEL	9.5 gal. (40 l)	REGULAR, UNLEADED GASOLINE	REPLACEABLE
ENGINE OIL	2.0 qts (1.9 l)	SAE 10W30	SPIN-ON REPLACEABLE
HYDRAULIC OIL	2.6 qts (2.46 l)	SAE 15W40 MOTOR OIL SAE 20W50 MOTOR OIL 15W50 SYNTHETIC	25 MICRON SPIN-ON REPLACEABLE

CUTTERDECK	
MODEL NUMBER	642214E
TYPE	Side Discharge
CUTTING WIDTH	52.5" (133 cm)
WIDTH	N/A
WIDTH (CHUTE UP)	56.25" (143 cm)
WIDTH (CHUTE DOWN)	64.5" (164 cm)
BLADE	High Lift (low lift optional)
NUMBER OF CUTTING BLADES	3
BLADE LENGTH	18" (46 cm)
BLADE THICKNESS	.205" (5.2 mm)
TIP SPEED	18585 ft/min 5665 m/min @ 3600 Engine RPM
DAILY PRODUCTION (8 hr @ 6 mph)	Up to 25.5 acres (10.3 ha)

CONSTRUCTION:

Fabricated and welded 10-gauge, double-layer steel top with 7-gauge side skirts. Full floating design.

CUTTERDECK DRIVE SYSTEM:

Electric clutch/brake drives belt directly from engine to center spindle of cutterdeck. No twists in drive belt.

SPINDLES:

Top mounted and maintenance free, with 1" shaft in precision machined, aluminum housing

ANTI-SCALP ROLLERS:

52" Cutterdecks - 6 Rollers

CUTTING HEIGHT & PRODUCTION:

Height: Spring assisted lift lever allows easy setting of cut heights from 1-1/2" to 4-1/2" in 1/4" increments. "Set and forget" feature allows height of cut to be set and returned to without searching from operator position.

SPECIFIC TORQUES

BLADE BOLT TORQUE: 70 FT-LBS (95 Nm)
WHEEL HUB NUTS: 225 FT-LBS (237 Nm)
ENGINE CRANKSHAFT BOLT: 50 FT-LBS (68 Nm)

PARTS SECTION

UPPER ENGINE DECK ASSY

Estate
Series

FIGURE 1

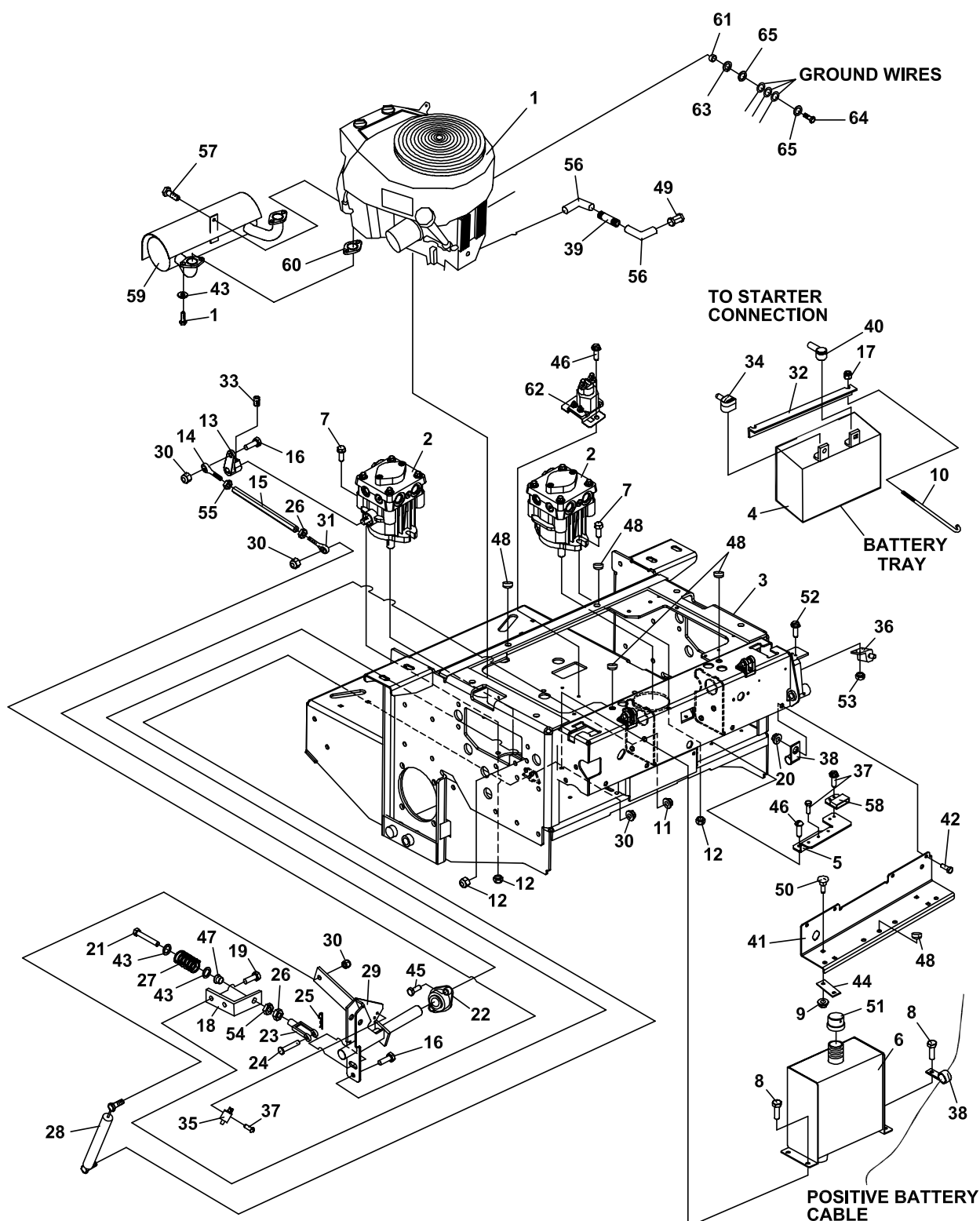


FIGURE 1

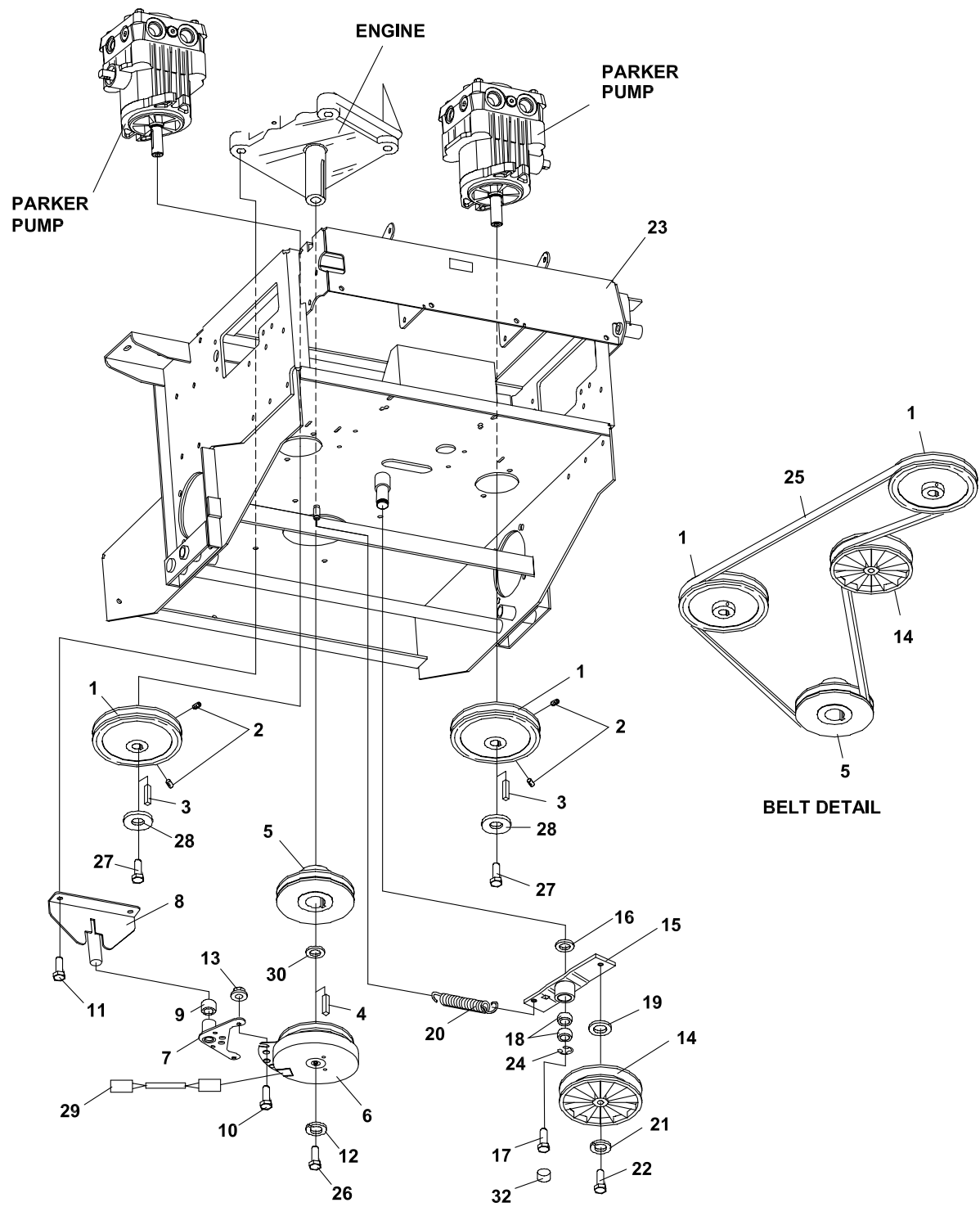
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	4135885	ENG-BRIGGS INTEK 20HP	1	1-42	64263-011	BLT-FLG HD M10-1.5 X 20	4
	2722461	AIR FILTER CARTRIDGE	1	1-43	64163-55	WASHER .328X.75X14 GA	8
	2722462	FOAM PRE-CLEANER	1	1-44	2188146	STRIP, WEAR	2
	2722463	OIL FILTER	1	1-45	64123-15	BLT-HEX 3/8-16X3/4	8
	2722464	FUEL FILTER	1	1-46	64152-23	SCREW 1/4-20X3/8	4
	(EXHAUST BOLTS SUPPLIED WITH ENGINE)			1-47	38304-02	S BRG FLGD PLASTIC	2
1-2	4157241	PUMP-PARKER	2	1-48	810149	BUMPER-RUBBER	8
	(SEE FIGURE 7 FOR BREAKDOWN)			1-49	118036	HEX CAP 3/8 PIPE	1
1-3	4136781	S-ENGINE DECK W/LABS	1	1-50	64018-23	BLT-CRG 3/8-16X3/4	4
1-4		BATTERY	1	1-51	69216.7	CAP-RESERVOIR	1
	(OBTAIN LOCALLY)			1-52	64152-46	SCR-SLT HH #10-24	2
1-5	4138859.7	BRKT-RELAY MTG	1	1-53	64025-15	NUT-HEX #10-24 KEPS	2
1-6	2186211	S HYD RESERVOIR W/LAB	1	1-54	64229-08	LOCKNUT-NYLON 5/16-24	2
1-7	64263-013	BLT-FLG HD M10-1.5 X 30	4	1-55	64025-33	NUT- 5/16-24 LH	2
1-8	64197-016	BLT-TR 3/8-16X1 1/2	4	1-56	2722175	FTG-45DEGSTREL3/8 NPTF	2
1-9	64268-03	NUT-FL NYLN LOCK 3/8-16	4	1-57	64197-019	BLT-TDFM 12-24 X 5/8	1
1-10	831861	BOLT-BENT BATT HOOK	2	1-58	2188154	MODULE-DELAY	1
1-11	64141-4	NUT-WLF 3/8-16	8	1-59	2722034	ASSY-MUFFLER	1
1-12	64237-03	LOCKNUT-NYLON M10-1.5	8	1-60		GASKET-MUFFLER	2
1-13	4118430	ARM-PUMP	2		(OBTAIN THROUGH BRIGGS & STRATTON DEALER)		
1-14	38369-02	ROD END BALL JOINT	2	1-61	2722459	SPCR-.375ODX.259IDX.16LG1	
1-15	2188140	TURNBUCKLE	2	1-62	38665	SOLENOID	1
1-16	64205-003	BLT-MET M8-1.25 X 30	4	1-63	64006-01	LOCKWSHR-HELICAL 1/4	1
1-17	64229-02	LOCKNUT-NYLON 5/16-18	2	1-64	64123-89	BLT-HEX 1/4-20X3/4	1
1-18	2182405.7	BRKT-REVERSE RETURN	2	1-65	64163-03	WSHR-.256IDX.62ODX18GA	2
1-19	A1104057	BLT-M10-1.50 X 25	4				
1-20	64246-03	WIZ NUT-MET M10-1.5	4				
1-21	64123-205	BLT-HEX 5/16-24 X 4	2				
1-22	2188145	BEARING-SELF ALIGNED	4				
1-23	38020N	CLEVIS-YOKE PLATE	2				
1-24	64188-02	PIN-CLEVIS 5/16 X 1	2				
1-25	64168-2	HAIRPIN COTTER	2				
1-26	64025-03	NUT-HEX 5/16-24	4				
1-27	2188139	SPRING-COMPRESSION	2				
1-28	2722384	DAMPENER	2				
1-29	4112105.7	WLDMT-MTN CTRL RH	1				
	* 4112104.7	WLDMT-MTN CTRL LH	1				
1-30	64237-05	LOCKNUT-NYLON M8-1.25	8				
1-31	38369-01	ROD END BALL JOINT	2				
1-32	2182427.7	HOLD DOWN, BATTERY	1				
1-33	64192-06	SETSCR SQHD 5/16-18X3/4	2				
1-34	112386	BOOT, BAT TERM POS	1				
1-35	108208	SWITCH, DBL POLE	2				
1-36	2188156	SWITCH NONO DBL POLE	1				
1-37	64197-015	BLT-TDFM #10-32X1/2 TRX	8				
1-38	48228-2A	CABLE CLIP 3/4 W/INSTN	2				
1-39	48024-22A	NIPPLE-PIPE 3/8NPTF X 2.5	1				
1-40	2308095	COVER-TERMINAL	1				
1-41	4158086.7	PLATE, KICK	1				

* NOT ILLUSTRATED

LOWER ENGINE DECK ASSY/CLUTCH

Estate
Series

FIGURE 2



TORQUE TO 50 FT/LBS +/-10%

FIGURE 2

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	4158360	PULLEY-PUMP	2				
2-2	64044-18	SCREW-SET 5/16-18 x 5/16	4				
2-3	64238-03	KEY-MET 5mm SQX28mm	2				
2-4	64164-12	KEY-1/4X1/4X1 SQ END	1				
2-5	4157860	PULLEY-5.25 ENGINE	1				
2-6	2722016	CLUTCH-ELECTRIC 19HP (INCLUDES ITEMS 29 & 31)	1				
2-7	2721331.7	WLDMT-CLUTCH STOP	1				
2-8	2186147.7	WLDMT-BRKT CLUTCH	1				
2-9	38304-03	BEARING-PLASTIC	1				
2-10	64205-001	BLT-MET M8-1.25X20	2				
2-11	64197-005	BLT-TR 3/8-16X1 1/4	4				
2-12	64006-06	LCKWSHR-HELICAL 7/16	1				
2-13	64265-04	NUT-FL NYL LOCK M8-1.25	2				
2-14	2308000	PULLEY-IDLER 4.00 E.O.D.	1				
2-15	4128923	S-ASSY-IDLER ARM PUMP (INCLUDES ITEMS 16, 18 & 24)	1				
2-16	4127999	SEAL-16 X 24 X 7	1				
2-17	64270-01	BLT-MET HEX M10-1.5x30	1				
2-18	4128004	BEARING-BALL 10 X 26 X 8	2				
2-19	33148-01	SPACER-0.379X0.750X0.25	1				
2-20	2188131	SPRING-EXTENSION	1				
2-21	64006-03	WSHR, 3/8 HELICAL LOCK	1				
2-22	64123-21	BLT-HEX 3/8-24X1-1/4	1				
2-23	4136781	S-ENGINE DECK W/LABS	1				
2-24	64144-40	SNAP RING-26MM INTRNL	1				
2-25	4162583	BELT-TRACTION DRIVE	1				
2-26	64123-78	BLT-HEX 7/16-20X2-1/2	1				
2-27	64205-013	BLT-MET M6-1X12	2				
2-28	64209-09	WASHER-CONICAL SPRING	2				
2-29	2720949	ASSY-CLUTCH WIRE	1				
2-30	64163-44	WSHR 1.75X1.140X14GA	1				
2-31	*4121560	KIT-BRAKE POLE RPLCMNT	1				
2-32	4128002	END CAP-26 X 7	1				

* NOT ILLUSTRATED

FIGURE 3

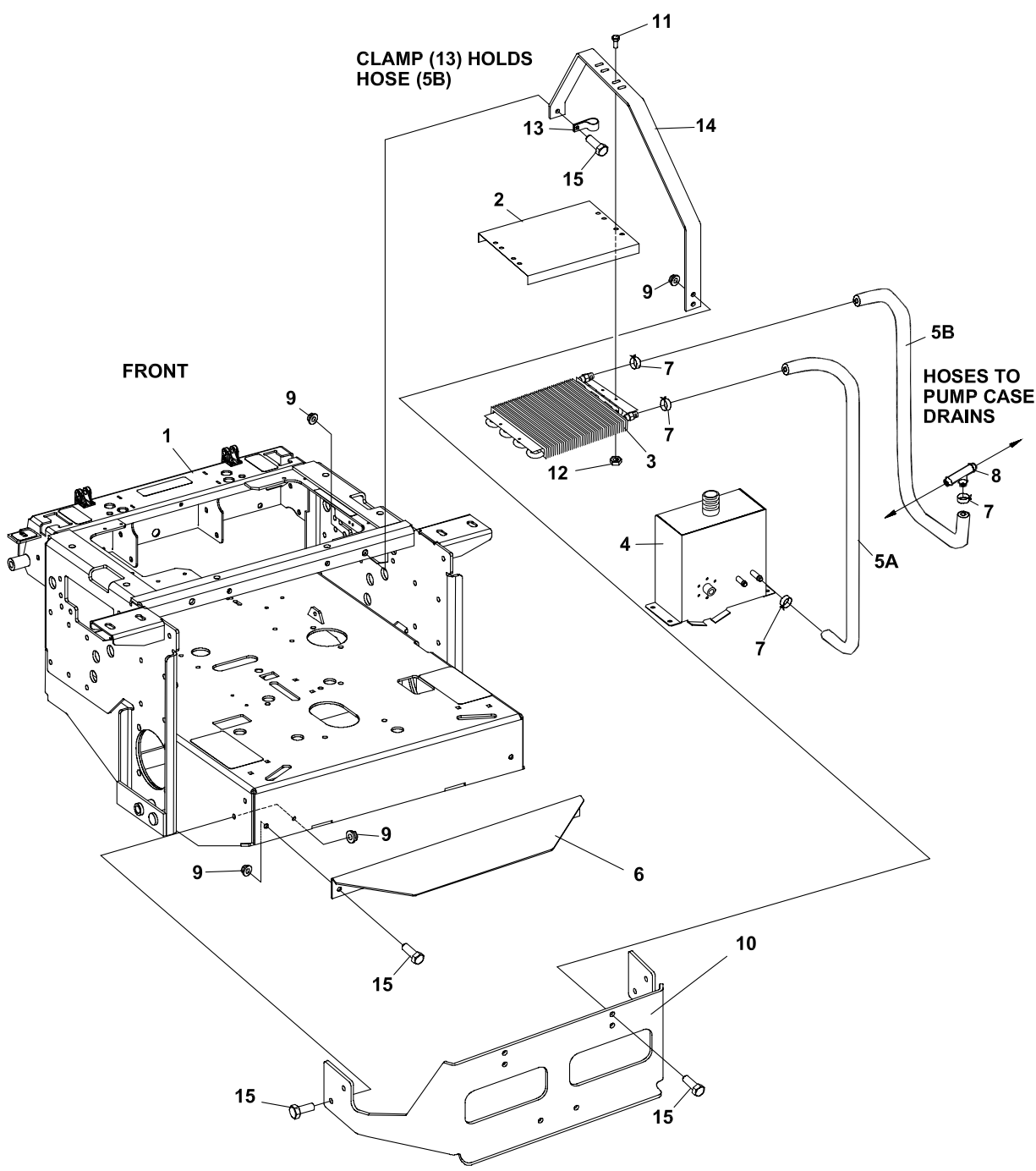


FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
3-1	4136781	S ENGINE DECK W/LABS	1				
3-2	2720891.7	SCREEN-OIL COOLER	1				
3-3	2188173	COOLER-OIL	1				
3-4	2186211	S HYD RSRVR W/LABS	1				
(69053-05 IS A SERVICEABLE LENGTH OF 55")							
3-5A	69053-05	3/8 HIGH TEMP HOSE 26"	1				
3-5B	69053-05	3/8 HIGH TEMP HOSE 22"	1				
3-6	2722467.7	ANGLE-HEAT SHIELD	1				
3-7	88042-04	CLAMP-HOSE 5/8	4				
3-8	58026-01	3 WAY CONNECTOR 3/8	1				
3-9	64265-05	NUT-FL NYL LOCK M10-1.5	12				
3-10	2721934.7	BUMPER-REAR	1				
3-11	64263-002	BLT-FLG HD M6-1.0 X 16	4				
3-12	64237-02	LOCKNUT-NYLON M6-1.00	4				
3-13	48228-2A	CABLE-CLIP 3/4 W/INSTN	2				
3-14	2722170.7	BRKT-COOLER SUPPORT	2				
3-15	64263-013	BLT-FLG HD M10-1.5 X 30	12				

FIGURE 4

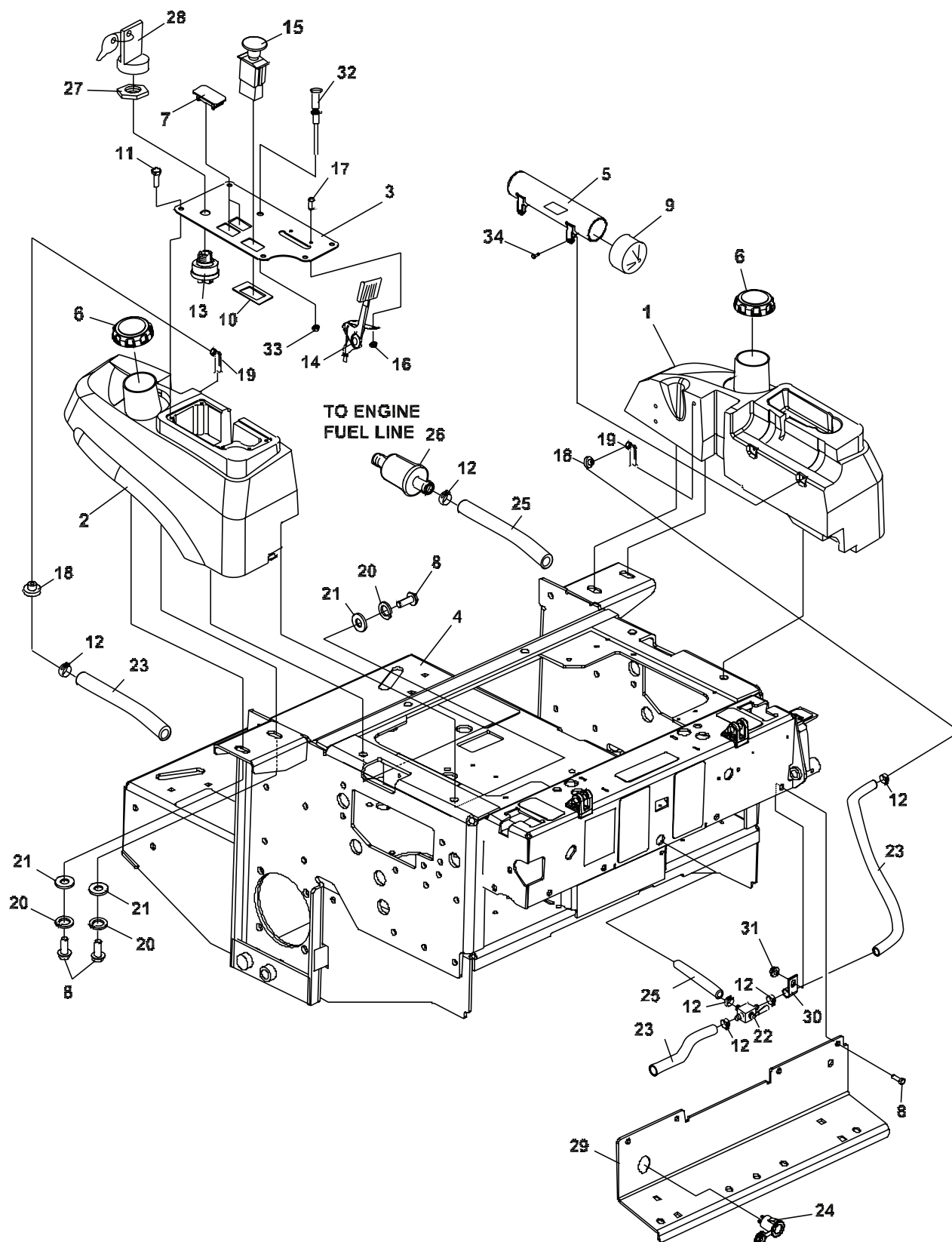


FIGURE 4

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
4-1	4162992	TANK-FUEL LH (INCLUDES ITEMS 18 & 19)	1				
4-2	4162993	TANK-FUEL RH (INCLUDES ITEMS 18 & 19)	1				
4-3	4159162	S-CONTROL PANEL	1				
4-4	4136780	S ENG DECK W/LABS	1				
4-5	4160281	S DOC TUBE W/LABEL	1				
4-6	4130320	CAP-FUEL GASOLINE 3.5	2				
4-7	4110023	PLUG-SWITCH HOLE	2				
4-8	64205-007	BLT MET M10-1.50X20	12				
4-9	38061A	VINYL CAP	1				
4-10	2188178	SWITCH-RETAINER	1				
4-11	64263-001	BLT-FLG HD M6-1.0 X 12	5				
4-12	88042N	HOSE CLAMP	6				
4-13	128010	KEY-SWITCH	1				
4-14	118020-14	CONTROL-THROTTLE 53.	1				
4-15	2721505	SWITCH-PTO	1				
4-16	64025-15	NUT-HEX #10-24 KEPS	2				
4-17	64152-46	SCR.-SLT HH #10-24X1/2	2				
4-18	4132325	GROMMET-FUEL TANK	2				
4-19	4162991-001	TUBE, FUEL FEED	2				
4-20	800488	LOCKWASHER M10	8				
4-21	64251-004	WASHER-M10	8				
4-22	2188161	VALVE-TANK SELECTOR	1				
4-23	4162977-016	HOSE,.25IDX.50ODX48"	2				
4-24	4142266	CONNECTOR-12V RECEPT	1				
4-25	4162977-009	HOSE-.25IDX.50ODX24"	1				
4-26	38666	FILTER, FUEL B&S	1				
4-27	128010-01	S-KEY SWITCH NYLON NUT	1				
4-28	128010-03	S-COVERED KEY	1				
4-29	4158086.7	PLATE-KICK	1				
4-30	48228-2A	CLAMP-3/4 CLIP	1				
4-31	64246-03	NUT-WHIZ M10-1.50	4				
4-32	108009-05	CONTROL-CHOKE 55	1				
4-33	64025-04	NUT-3/8-24 HEX	1				
4-34	64263-002	BLT-FLG HD M6-1.0 X 16	2				

FIGURE 5

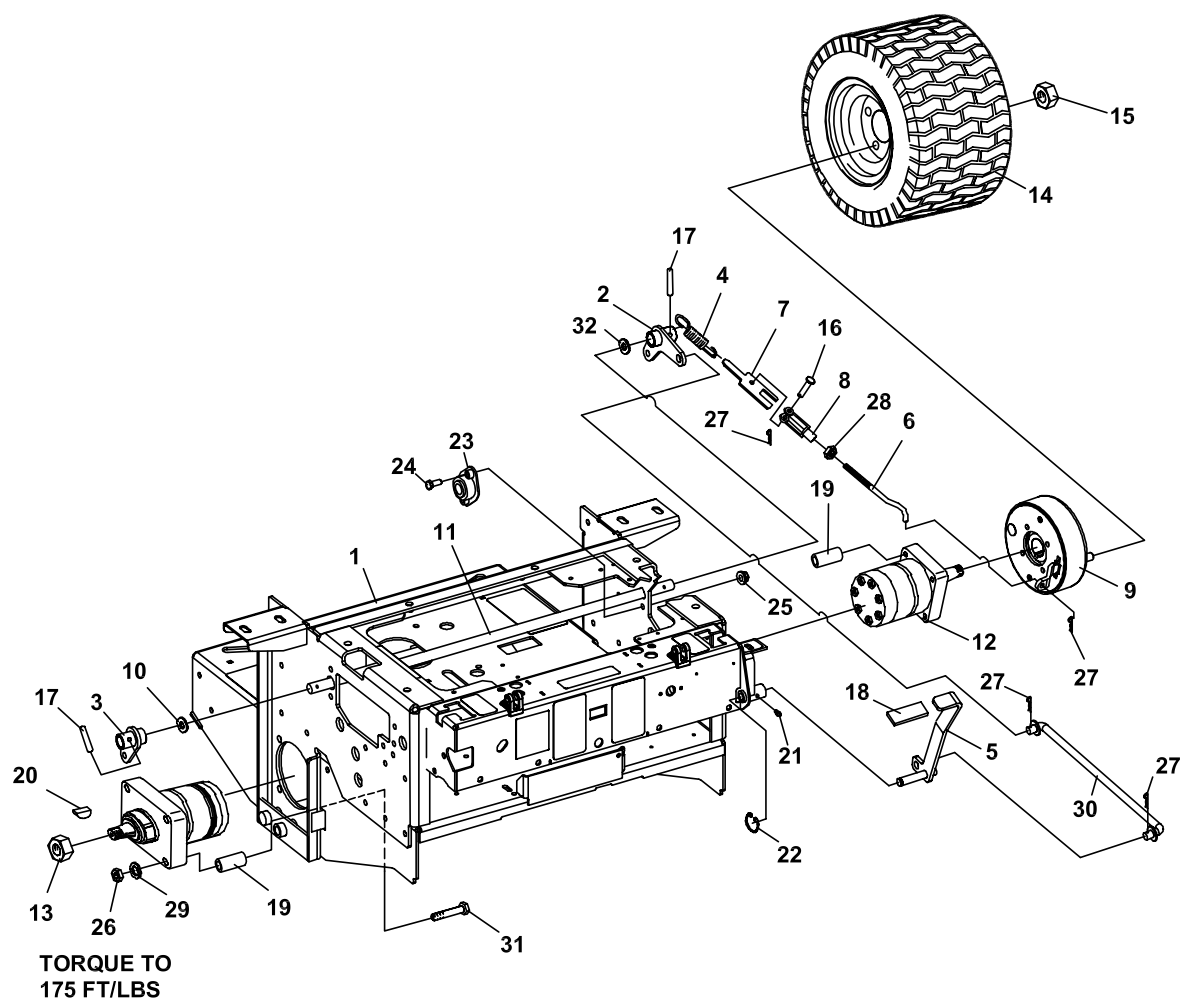


FIGURE 5

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
5-1	4136781	S-ENGINE DECK W/LABS	1				
5-2	4158803.7	WLDMT-BRAKE ARM LH	1				
5-3	4158801.7	WLDMT-BRAKE ARM RH	1				
5-4	128102	SPRING,EXTENSION	2				
5-5	4159241.7	WLDMT-BRAKE LEVER	1				
5-6	4159701	ROD-SPD CTRL UPPER	2				
5-7	2182387.7	GUIDE-SPRING	2				
5-8	38020N	CLEVIS YOKE, 5/16 PLATE	2				
5-9	4159281	BRAKE-PARKER	2				
5-9A*	4159281-001	Brake-Back Plate w/ Pads	1				
5-9B*	4159281-002	Brake-Drum	1				
5-9C*	4159281-003	Brake-Screw	4				
5-9D*	4159281-004	Brake-Hub	1				
5-10	64163-06	WSHR,.768/.756X1.25X14	A/R				
5-11	4159000	BAR-PARKING BRAKE	1				
5-12	4159280	MOTOR-PARKER	2				
		(INCLUDES ITEMS 13 & 20)					
5-13	64025-31	NUT 1-20 UNSLOTTED TRW	2				
5-14	4158460	ASSY-WHEEL 23 X 8.5-12	2				
5-15	64187-03	WHEEL NUT 1/2-20	10				
5-16	64188-02	PIN, CLEVIS 5/16X1	2				
5-17	64061-25	ROLL PIN-1/4X1-1/4	2				
5-18	2188155	GRIP, 1/4X1X4-1/2	1				
5-19	2183063-01	SPACER, 32MM LONG	8				
5-20	64164-08	S-KEY FOR WHEEL MOTOR	2				
5-21	85010N	ZERK, 1/4-28 STR SLFTHRD	1				
5-22	64144-34	SNAP RING.50	1				
5-23	2188145	BEARING-.75ID SELF ALIGN	2				
5-24	64123-15	BOLT-3/8-16X3/4 HEX	4				
5-25	64141-4	NUT-WLF 3/8-16	4				
5-26	64207-07	NUT-HEX M12-1.75	8				
5-27	64168-2	COTTER-HAIRPIN.08X1.19	6				
5-28	64025-03	NUT-HEX 5/16-24	2				
5-29	64006-05	LOCKWSHR-HELICAL 1/2	8				
5-30	4113530	WLDMT-PRK BRAKE ROD	1				
5-31	450767	CAPSCREW 12-1.75X110	8				
5-32	99-B34	WASHER	1				

*NOT ILLUSTRATED

FIGURE 6

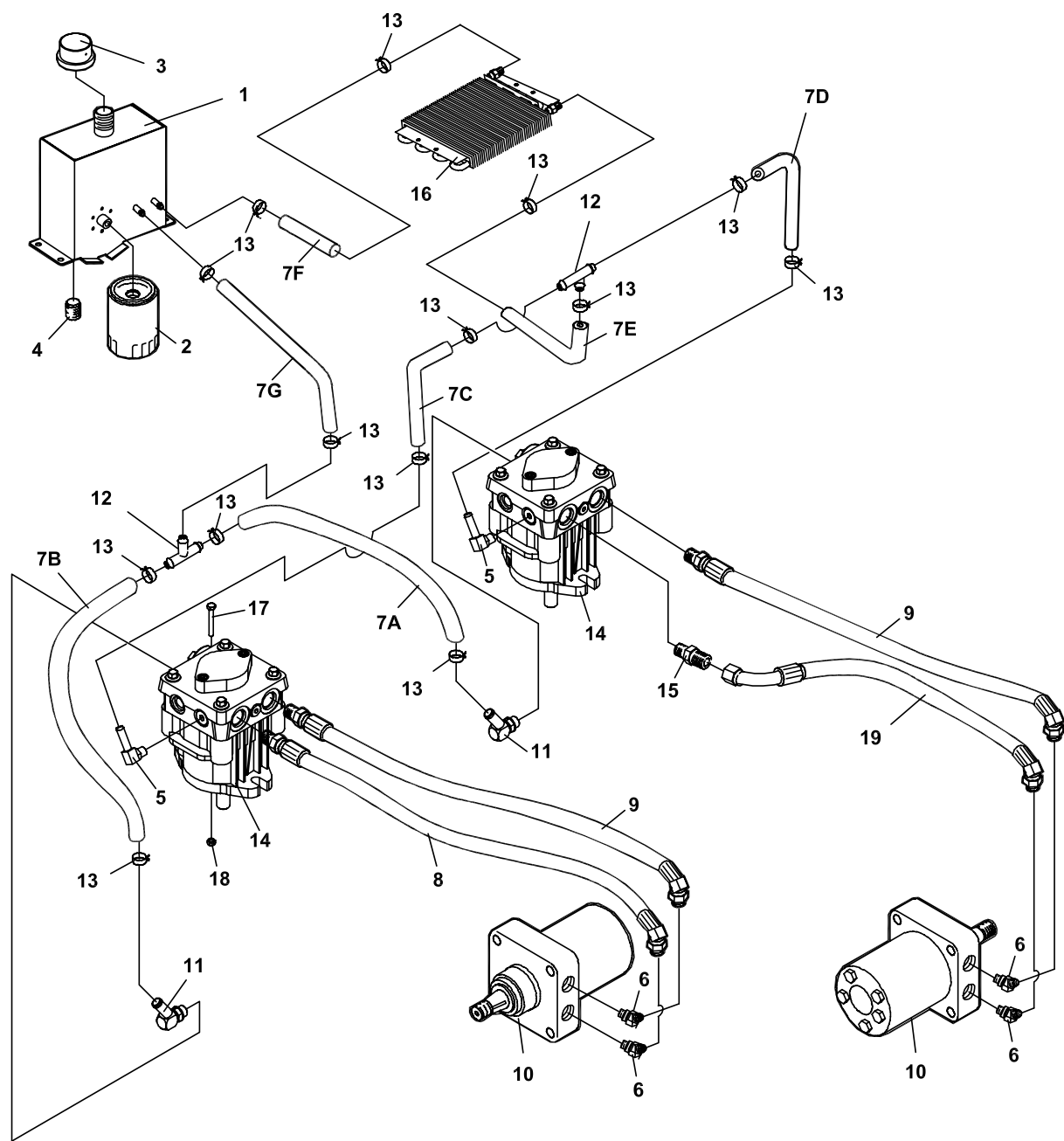


FIGURE 6

ITEM	PART NO.	DESCRIPTION	QTY
6-1	2186211	S HYD RESERVOIR W/LAB	1
6-2	2720396	FILTER 25 MICRON	1
6-3	69216.7	CAP-RESERVOIR	1
6-4	4160243	PLUG-MAGNETIC	1
6-5	158058-18	FITTING-90 BARB, ADJ	2
6-6	108205-03	ELBOW-MALE 45 37-ORB	4
(69053-05 IS A SERVICEABLE LENGTH OF 55")			
6-7A	69053-05	3/8 HIGH TEMP HSE 18"	1
6-7B	69053-05	3/8 HIGH TEMP HSE 15"	1
6-7C	69053-05	3/8 HIGH TEMP HSE 19"	1
6-7D	69053-05	3/8 HIGH TEMP HSE 12"	1
6-7E	69053-05	3/8 HIGH TEMP HSE 22"	1
6-7F	69053-05	3/8 HIGH TEMP HSE 26"	1
6-7G	69053-05	3/8 HIGH TEMP HSE 5"	1
6-8	2188157-02	HOSE HYD ORB 37-25.00	1
6-9	2188157-01	HOSE HYD ORB 37-22.38	2
6-10	4159280	MOTOR-PARKER	2
6-11	2690030-01	FTG 9/16-18 ORB X 3/8	2
6-12	58026-01	3 WAY CONNECTOR 3/8	2
6-13	88042-04	CLAMP-HOSE 5/8	14
6-14	4157241	PUMP-PARKER	2
6-15	48089-03	FTG-STRAIGHT	1
6-16	2188173	OIL COOLER	1
6-17	64123-60	BOLT, 1/4-20X2 HEX	2
6-18	64229-01	LOCKNUT-NYL 1/4-20	2
6-19	2720320-01	HOSE-1/2 37/45 37 26.25	1

SAE PORT 'O' RING		
PART NUMBER	THREAD SIZE	AS-568#
158061-10	9/16-18	-906
158061-11	3/4-16	-908
158061-12	7/8-14	-910
158061-13	1-1/16-12	-912
158061-14	1-5/16-12	-916
158061-16	1-5/8-12	-920
158061-03	1-7/8-12	-924

FIGURE 7

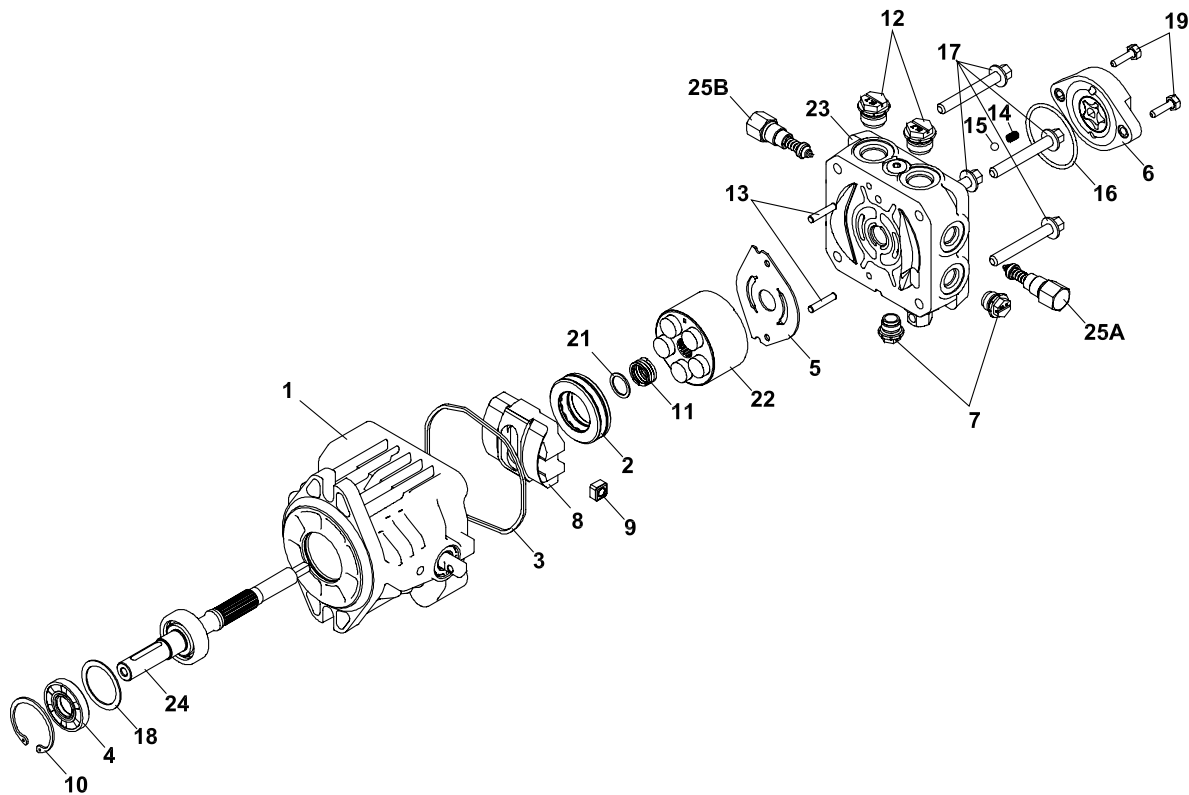


FIGURE 7

ITEM	PARKER PART NO.	CGC, Inc. PART NO.	DESCRIPTION	QTY
7-1	H1012000A1	4157241-001	HOUSING ASSEMBLY	1
7-2	066011	4157241-002	THRUST BEARING ASSY	1
7-3	032006	4157241-003	SEAL RING	1
7-4	478003	4157241-004	SHAFT SEAL	1
7-5	477005	4157241-005	PORT PLATE	1
7-6	H1018002A1	4157241-006	CHARGE PUMP ASSY (2.1cc)	1
7-7	036247	4157241-007	HEX PLUG-9/16-18	2
7-8	H1013000	4157241-008	SWASH BLOCK	1
7-9	452004	4157241-009	CONTROL BLOCK	1
7-10	401201	4157241-010	RETAINING RING (INTERNAL)	1
7-11	401310	4157241-011	SPRING (CENTRAL)	1
7-12	036137	4157241-012	HEX PLUG (3/4-16)	2
7-13	040003	4157241-013	DOWEL PIN	2
7-14	401305	4157241-014	SPRING	1
7-15	409032	4157241-015	BALL	1
7-16	032011	4157241-016	O-RING	1
7-17	022003	4157241-017	SCREW-HEX M8 X 1.25 X 60.0	4
7-18	028010	4157241-018	WASHER	1
7-19	022002	4157241-019	SCREW-HEX M8 X 1.25 X 25.0	2
7-21	028011	4157241-021	WASHER (CENTRAL)	1
7-22	H1107000	4157241-022	PISTON & BARREL ASSY (10cc)	1
7-23	H1016012A1	4157241-023	END BLOCK ASSY	1
7-24	H1019010A1	4157241-024	SHAFT ASSY (15mm STR KEY)	1
7-25A	410048	4157241-025	SHOCK VALVE ("A" SIDE)	1
7-25B	410046	4157241-026	SHOCK VALVE ("B" SIDE)	1

WIRE HARNESS

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Series

FIGURE 8

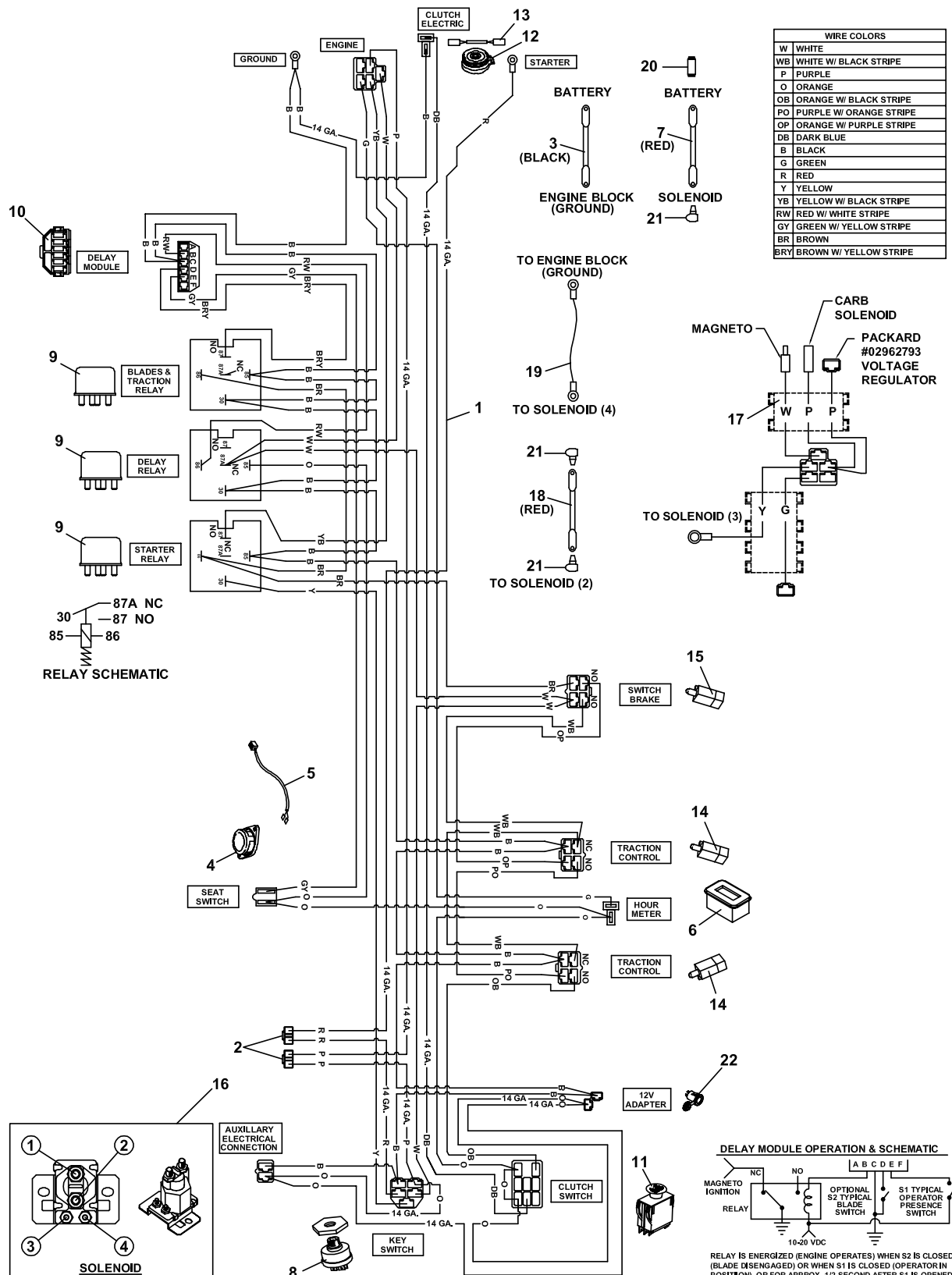


FIGURE 8

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
8-1	4158085	HARNESS-WIRING MAIN	1				
8-2	148082-20	FUSE-20 AMP	2				
8-3	108061-13	CABLE-BATTERY 36 BLACK	1				
8-4	4124009	SWITCH-SEAT, NO	1				
8-5	4143068	JUMPER-SEAT SWITCH	1				
8-6	4136792	METER-HOUR	1				
8-7	2722227-01	CABLE-BATT W/CONDUIT (INCLUDES ITEMS 20 & 21)	1				
8-8	128010	KEY-SWITCH	1				
8-9	2722325	RELAY-40AMP SEALED	3				
8-10	2188154	MODULE-DELAY	1				
8-11	2721505	SWITCH-PTO	1				
8-12	2722016	CLUTCH-ELECTRIC 19HP (INCLUDES ITEM 13)	1				
8-13	2720949	ASSY-CLUTCH WIRE	1				
8-14	108208	SWITCH-DBL POLE	2				
8-15	2188156	SWITCH-NONO DBL POLE	1				
8-16	38665	SOLENOID	1				
8-17	2188224	HARNESS-JUMPER	1				
8-18	108061-04	CABLE-BATTERY 20 RED	1				
8-19	2188225	WIRE-GROUND	1				
8-20	112386	BOOT-BAT TERM POS	1				
8-21	2308095	COVER-TERMINAL	3				
8-22	4142266	CONNECTOR-12V RECEP	1				

FIGURE 9

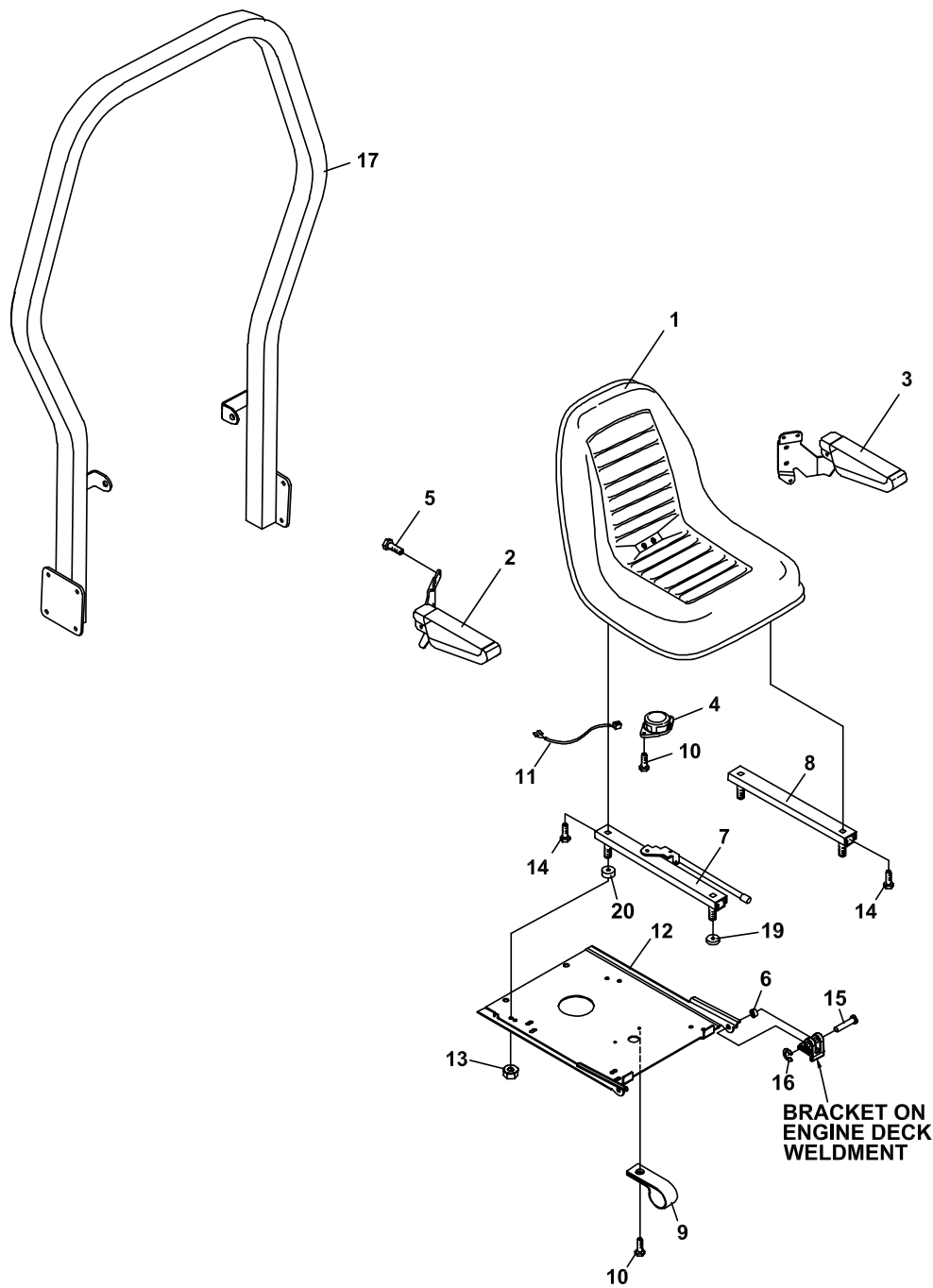
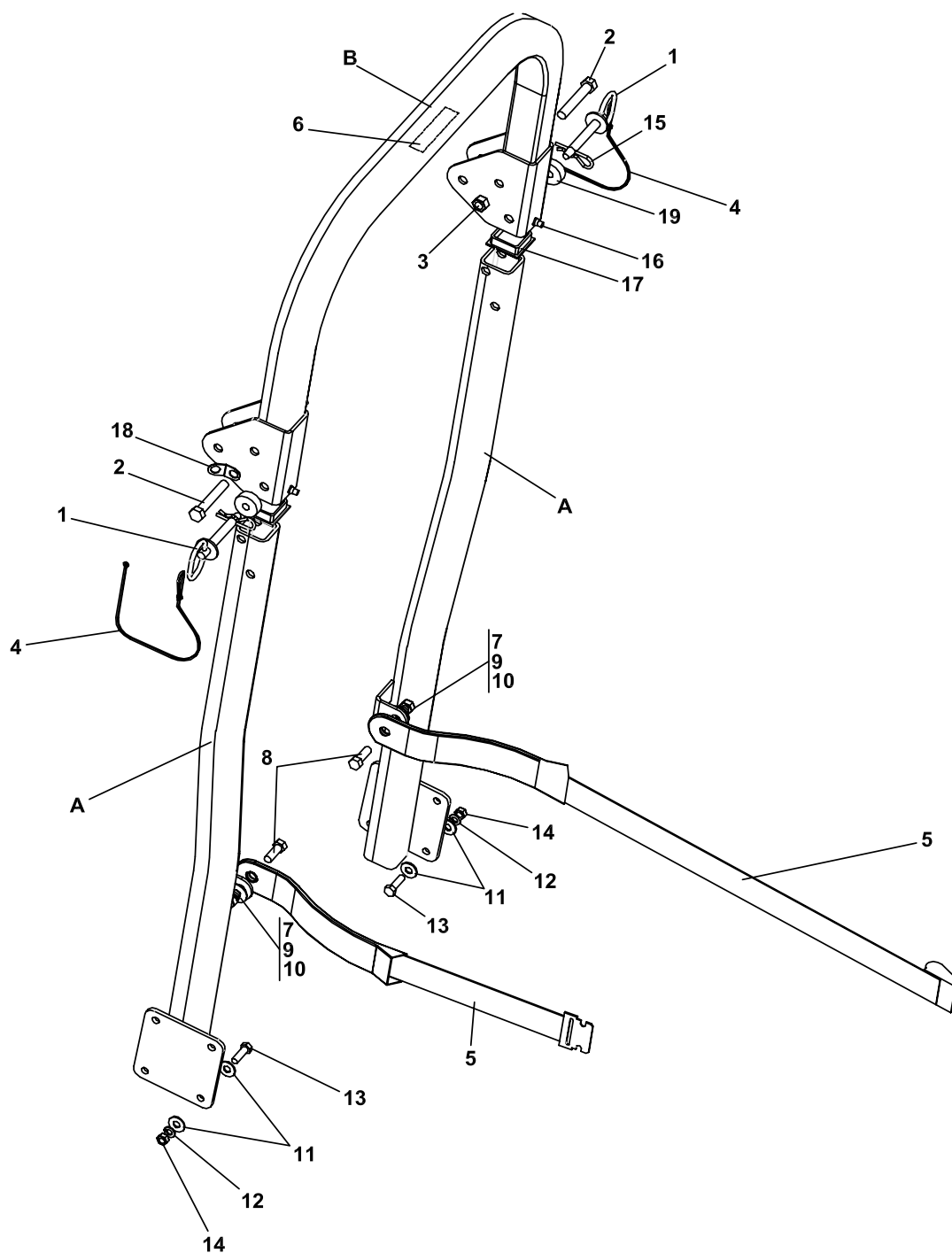


FIGURE 9

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
9-1	198057	SEAT	1				
9-2	198066	RH ARM REST	1				
9-3	198059	LH ARM REST	1				
9-4	158135-01	SWITCH, SEAT NO	1				
9-5	64139-16	BLT-WLF 5/16-18 X 3/4	6				
9-6	38371-01	BRG-NYLINER 3/8	2				
9-7	198063	SLIDE RAIL-ADJ	1				
9-8	198062	SLIDE RAIL-SLAVE	1				
9-9	48228A	CABLE CLIP-INSULATED	1				
9-10	64152-23	SCREW 1/4-20X3/8	3				
9-11	158136	WIRE-SEAT SWITCH	1				
9-12	4121386.7	PLATE-SEAT	1				
9-13	64141-6	NUT-WLF 5/16-18	4				
9-14	2198096	SCREW-CAP WSHR HD	4				
9-15	33138-09	PIN-CLEVIS GRVD	2				
9-16	64144-30	SNAP RING.375	2				
OPTIONAL ROPS:							
9-17	970162	ATT-ROPS (INCLUDES ITEM 19)					
9-18 *	2208260	S-SEAT BELT	1				
9-19	2720975-07	SPACER-NYLON 3/8"	2				
9-20	2720975-09	SPACER-NYLON 1/4"	2				

* NOT ILLUSTRATED

FIGURE 10



Estate Series

OPTIONAL-FOLDING ROPS (970354)

FIGURE 10

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
10-1	4162879	PIN-HITCH 1/2	2				
10-2	64123-31	BOLT-1/2-13 X 3	2				
10-3	64151-7	LOCKNUT- 1/2-13	2				
10-4	4162880	LANYARD-NYLON	2				
10-5	4162882	SEATBELT	1				
10-6	4160347	LABEL-WARNING ROPS	1				
10-7	64163-19	WASHER-FLAT 7/16	2				
10-8	64123-28	BOLT-7/16 X 1-1/4	2				
10-9	64006-06	LOCKWASHER-7/16	2				
10-10	64151-11	LOCKNUT-7/16	2				
10-11	64163-31	WASHER-3/8	16				
10-12	64006-03	LOCKWASHER-3/8	8				
10-13	64123-16	BOLT-3/8-16 X 1-1/4	8				
10-14	64025-05	NUT-3/8-16 HEX	8				
10-15	64168-1	PIN-COTTER	2				
10-16	4160343	BUMPER RUBBER	2				
10-17	4160344	PLUG	2				
10-18	4160348	WASHER-FORMED	2				
10-19	4162878	WASHER-RUBBER	2				

FIGURE 11

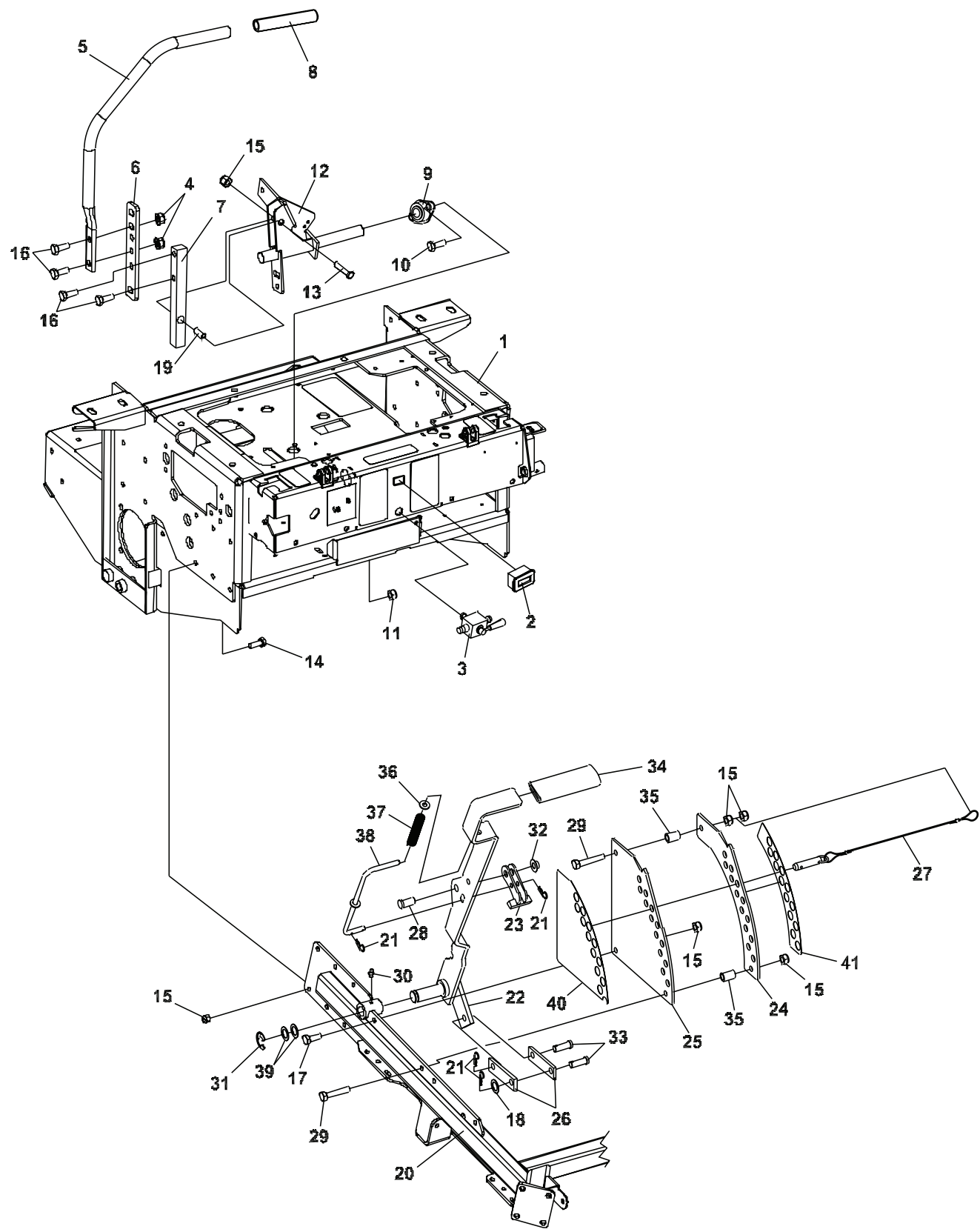


FIGURE 11

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
11-1	4136781	S ENGINE DECK W/LABS	1				
11-2	4136792	METER-HOUR	1				
11-3	2188161	VALVE-TANK SELECTOR	1				
11-4	64265-05	LOCKNUT-FL NY M10-1.5	4				
11-5	4122172.7	LEVER-TRACTION CNTRL	2				
11-6	4122173.7	BRKT-TRACTION LEVER	2				
11-7	2183074	BRKT-HANDLE	2				
11-8	4144705	GRIP-HANDLE	2				
11-9	2188145	BEARING-.75ID SELF ALIGN	4				
11-10	64123-15	BOLT-3/8-16X3/4 HEX	8				
11-11	64141-4	NUT-WLF 3/8-16	8				
11-12	4112105.7	WLDMT-MTN CONTRL RH	1				
	* 4112104.7	WLDMT-MTN CONTRL LH	1				
11-13	64205-011	BLT-MET M10-1.50X40	2				
11-14	A110406	SCREW,M10X1.5X30 HH	12				
11-15	64237-03	LOCKNUT-NYLON M10-1.5	18				
11-16	64263-013	BLT-FLG HD M10-1.5 X 30	8				
11-17	A1104057	BOLT-M10-1.50X25	1				
11-18	64163-43	WSHR.443/.454X1X11GA	1				
11-19	2183073	SPACER	2				
11-20	4159920.7	WLDMT-CRADLE	1				
11-21	64168-2	COTTER-HAIRPIN.08X1.19	4				
11-22	2720551.7	WLDMT-DECK LIFT LEVER	1				
11-23	24162904.7	WLDMT-LVR STOP LATCH	1				
11-24	2720517.7	BRKT-INNER DECK LIFT	1				
11-25	2720516.7	BRKT-OUTER DECK LIFT	1				
11-26	4116590.7	BRACKET-LIFT LINK	1				
11-27	4159060	ASSY, PIN & LANYARD	1				
11-28	64188-53	PIN-CLEVIS 1/2X1.0	1				
11-29	64205-008	BLT-MET M10-1.50X55	2				
11-30	85010N	ZERK, 1/4-28 STR SELF TH	1				
11-31	64221-04	E-RING .875	1				
11-32	64175-05	NUT-PUSH 1/2	1				
11-33	64188-36	PIN, CLEVIS 7/16X1-1/4	2				
11-34	2188143	GRIP	1				
11-35	2183071-03	SPACER-15.88X10.32X24	2				
11-36	64163-29	WASHER-21/64 X 1 X 11GA	1				
11-37	2720544	SPRING-COMPRESSION	1				
11-38	4159284	ROD-LIFT STOP	1				
11-39	64163-65	WSHR .890X1.375X18GA	2				
11-40	2720742	LBL-ZT200 HT CUT OUTER	1				
11-41	2720743	LBL-ZT200 HT CUT INNER	1				

* NOT ILLUSTRATED

FIGURE 12

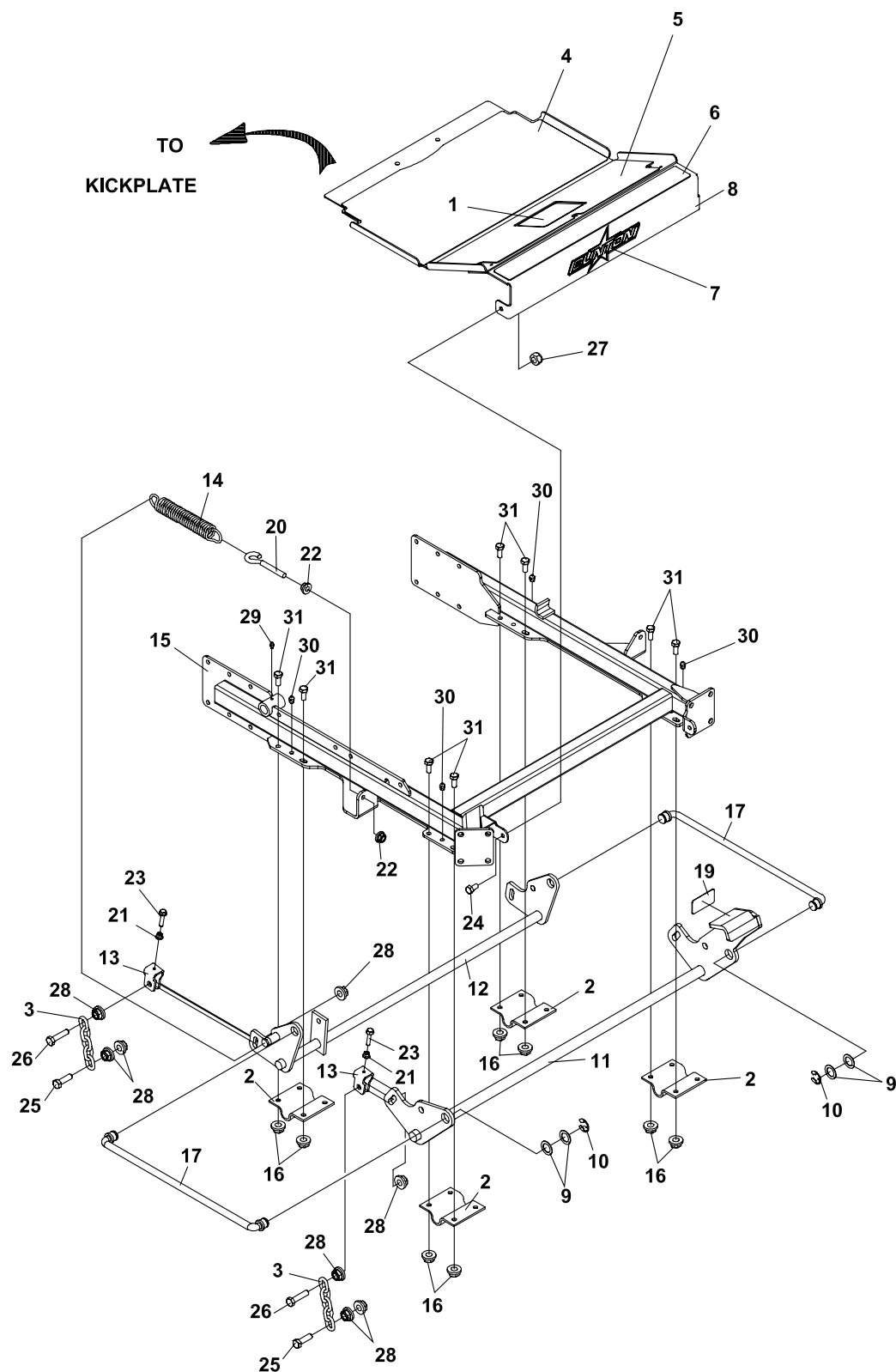


FIGURE 12

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
12-1	4118843	LABEL-WARNING	1				
12-2	2182356.7	BRACKET-SHAFT HANGER	4				
12-3	2188127	CHAIN-6.35 (.250) 5 LINKS	4				
12-4	4139065	MAT-FOOT PLATE LOWER	1				
12-5	4129955	MAT-FOOT PLATE MIDDLE	1				
12-6	2721861	MAT-FOOT PLATE UPPER	1				
12-7	4158440	LABEL-BUNTON	1				
12-8	4109800	S-FOOT PLATE (2180ES) (INCLUDES 4-7, 9 & 16)	1				
12-9	64163-65	WASHER-.890X1.375X18GA	8				
12-10	64221-04	E-RING.875	4				
12-11	4159283.7	WLDMT-DECK LIFT, FRONT	1				
12-12	2722559.7	WLDMT-DECK LIFT, REAR	1				
12-13	2722630	CLIP-DECK HEIGHT ADJ	4				
12-14	2722719	SPRING-DECK LIFT	2				
12-15	4159920.7	WLDMT-CRADLE	1				
12-16	64265-05	NUT-FL NYLN LCK M10-1.5	15				
12-17	4109960	WLDMT-DECK LIFT ROD	2				
12-18	*4111842.7	BRKT-SPRING ANCHOR LH	1				
12-19	4139785	MAT-FOOT LIFT	1				
12-20	4113682	ROD-SPRING MOUNT	2				
12-21	64141-2	NUT-WLF 1/4-20	4				
12-22	64141-4	NUT-WLF 3/8-16	4				
12-23	64197-020	BLT-TDFM 1/4-20X1-1/2	4				
12-24	64205-007	BLT MET M10-1.50X20	2				
12-25	64205-029	BLT-MET M12X1.75X40	4				
12-26	64205-060	BOLT-MET M12-1.75X50	4				
12-27	64237-03	LOCKNUT-NYLON M10-1.5	2				
12-28	64246-04	NUT-WHIZ M12-1.75	16				
12-29	85010N	ZERK, 1/4-28 STR SLFTHRD	1				
12-30	85051	ZERK-1/8 PIPE	6				
12-31	64263-013	BLT-FLG HD M10-1.5 X 30	15				

*NOT ILLUSTRATED

CRADLE & CASTER ASSEMBLY

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FIGURE 13

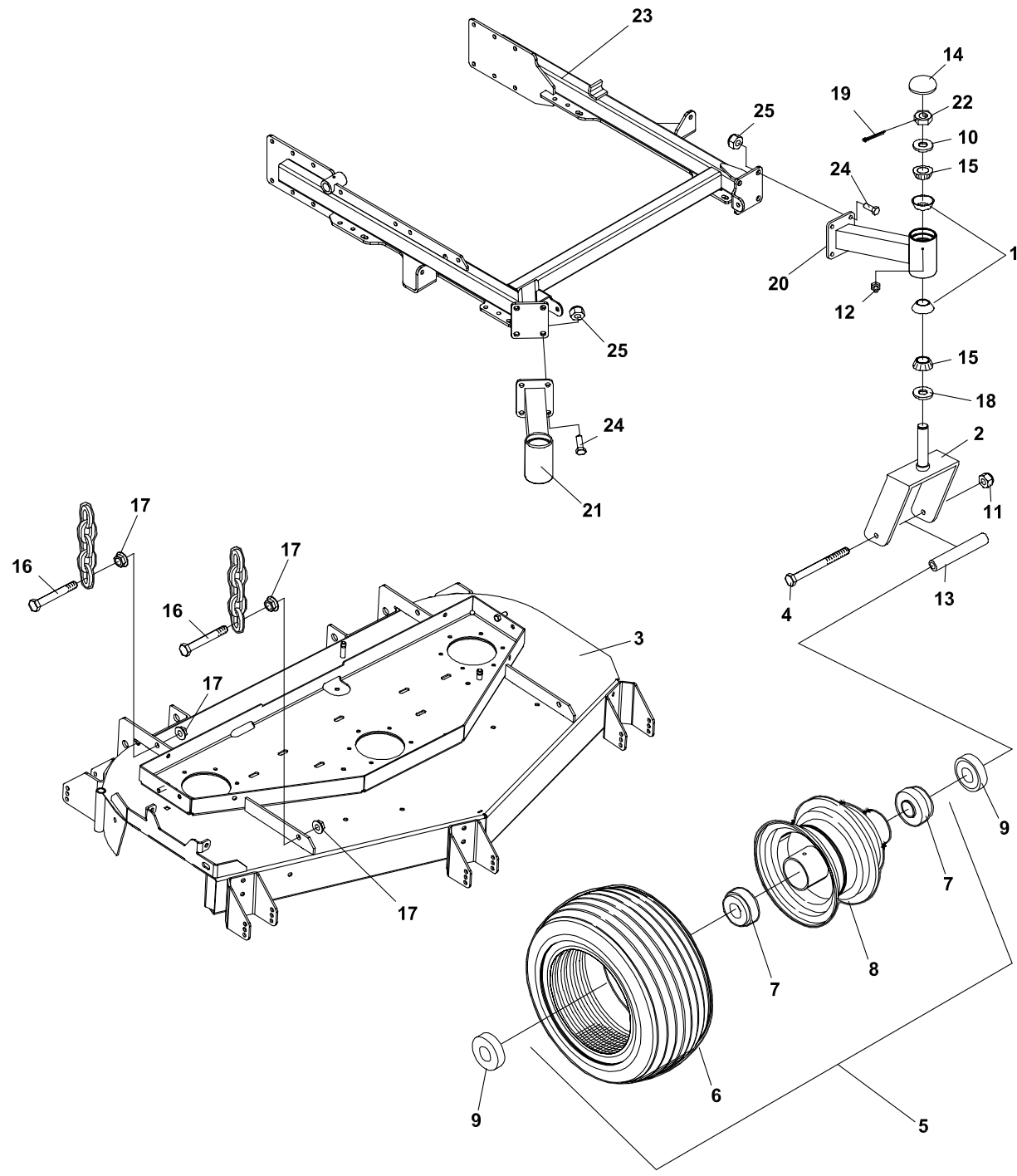


FIGURE 13

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
13-1	48043-03C	CUP, OUTER BEARING	4				
13-2	2721306.7	WLDMT-CASTER YOKE	2				
13-3		DECK/W LABS					
13-4	64123-215	BOLT-HEX 3/4-10X7 1/2	2				
13-5	2722228	WHEEL-13X5.00-6 ASSY (INCLUDES ITEMS 6-8)	2				
13-6	2720475-01	TIRE-13X5.00-6 SMOOTH	1				
13-7	2722228-03	BEARING	2				
13-8	2722228-01	RIM-13" ASSY W/VALVE	1				
13-9	2722231	SPACER-END	4				
13-10	64163-26	WASHER, .766 ID X 1.625	2				
13-11	64229-07	LOCKNUT-NYLON 3/4-10	2				
13-12	85010N	ZERK, 1/4-28 STR SLF THD	2				
13-13	2722230-02	SPANNER-13" WHEEL	2				
13-14	2188135	DUST COVER	2				
13-15	48043-04C	CONE, OUTER BEARING	4				
13-16	64205-029	BLT-MET M12X1.75X40	4				
13-17	64246-04	NUT-WHIZ M12-1.75	8				
13-18	48480	SEAL CR 12411	2				
13-19	64140-5	COTTER PIN	2				
13-20	2722399.7	WLDMT-CASTER ARM 52LH	1				
13-21	2722398.7	WLDMT-CASTER ARM 52RH	1				
13-22	64025-20	NUT-HEX 3/4-16 SLOT U	2				
13-23	4159920.7	WLDMT-CRADLE	1				
13-24	A1105061	BOLT-M12-1.75X30	8				
13-25	64237-06	LOCKNUT-NYLON M12-1.75	8				

FIGURE 14

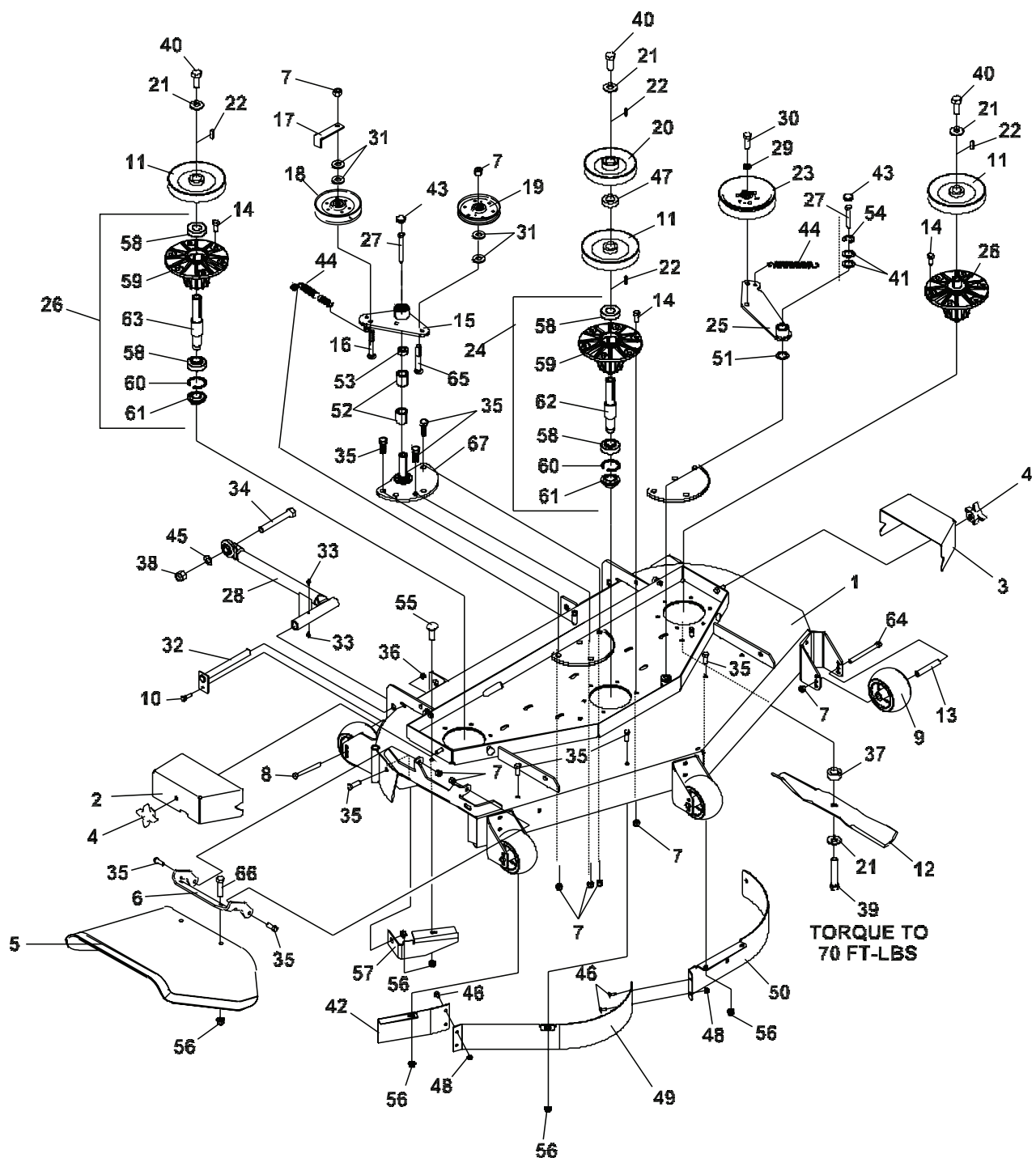
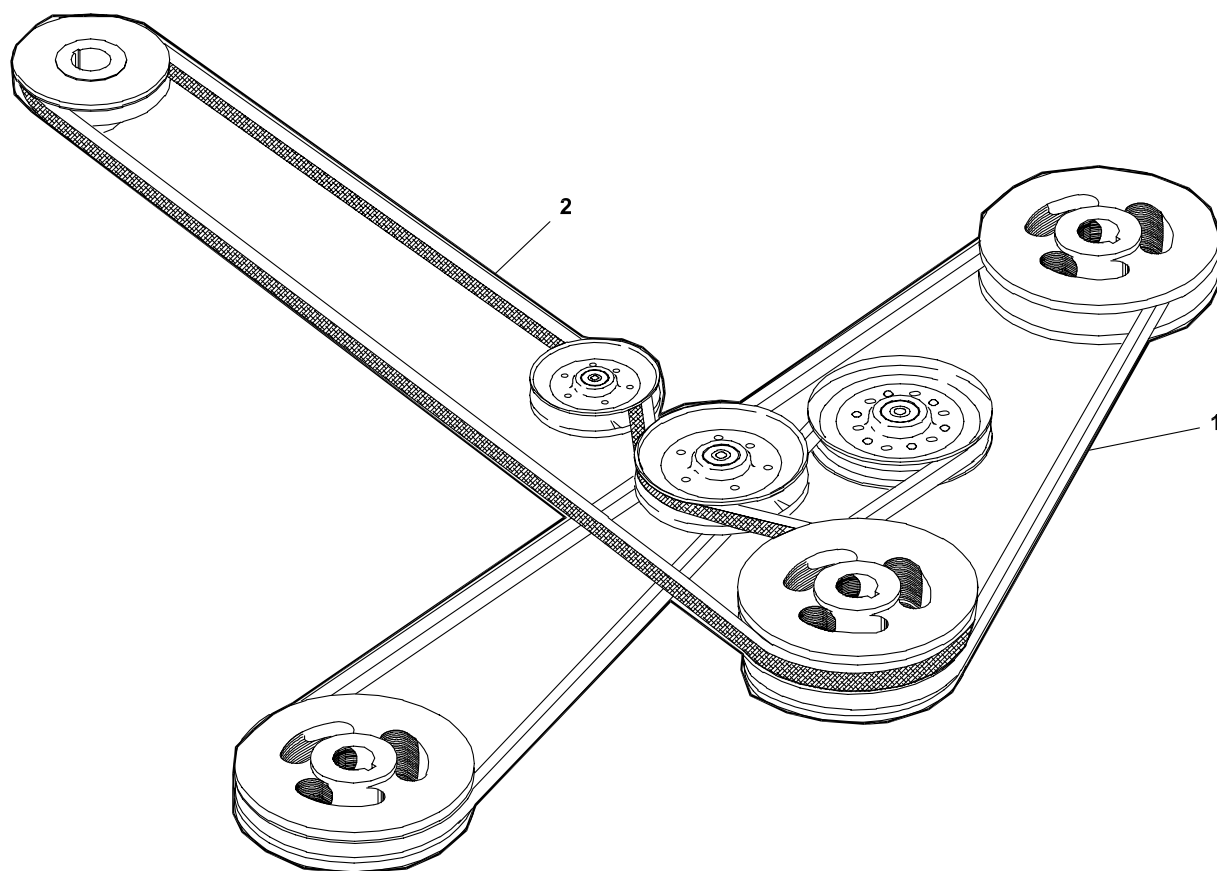


FIGURE 14

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
14-1	4131502	S-52INCH DECK W/LABELS	1	14-43	4128002	END CAP	2
14-2	2722574.5	COVER-BELT RH	1	14-44	2188131	SPRING-EXTENSION	2
14-3	2722575.5	COVER-BELT LH	1	14-45	64163-73	WSHR-.625IDX1.12ODX.06A/R	
14-4	38524	KNOB-4 PRONG 3/8-16	2	14-46	64018-2	BLT-CRG 1/4-20X3/4	4
14-5	4147115	CHUTE-RUBBER ASSY	1	14-47	64163-64	WSHR 1.015X1.500X14	1
14-6	4149017.7	HINGE-CHUTE_RUBBER	1	14-48	64229-01	LOCKNUT-1/4-20 NYLON	4
14-7	64229-03	LOCKNUT NYLON 3/8-16	35	14-49	4134338.7	BAFFLE-FRT CTR 52-54	1
14-8	64123-173	BLT-HEX 3/8-16X4-1/2	2	14-50	4118427.7	BAFFLE-FRONT LH	1
14-9	2721512	ROLLER	6	14-51	4127999	SEAL	1
14-10	64123-68	BOLT-HEX 5/17-18X1	2	14-52	4163155	INNER RING	2
14-11	2308140	PULLEY ENGINE	3	14-53	4163041	SPACER	1
14-12	112111-02	BLADE 18.00 OFFST HLFT	3	14-54	64144-40	SNAP RING	2
14-13	2720685	SPACER-ROLLER	6	14-55	64018-3	BOLT-3/8-16X1 CARRIAGE	1
14-14	64262-012	BLT-FLG HD 3/8-16 X 1-1/4	18	14-56	64268-03	NUT-FL NYLN LOCK 3/8-16	8
14-15	4163028	ASSY-IDLER ARM PTO	1	14-57	4115864.7	BAFFLE-DISCHARGE	1
14-16	64018-18	BOLT-CARRIAGE 3/8-16X2	1	14-58	38348-01	BEARING-SPINDLE SEALED	6
14-17	2302125.7	GUIDE-BELT	1	14-59	2721096	HOUSING-SPINDLE 6 HOLE	3
14-18	48393	PULLEY, V IDLER	1	14-60	64144-38	SNAP RING	3
14-19	38297	IDLER, 5.0 OD FLNGD	1	14-61	38315	NUT-SPINDLE	3
14-20	2228034	PULLEY-5.25 DEEP GRV	1	14-62	2183070-01	SHAFT-SPINDLE LONG	1
14-21	64209-03	SPRING WSHR .67 ID	6	(USED ON 4115849 CENTER SPINDLE ONLY)			
14-22	64164-12	1/4X1/4X1 SQ END KEY	4	14-63	2183070-02	SHAFT-SPINDLE	2
14-23	128169	PULLEY, IDLER 5.50	1	(USED ON 4115850 OUTER SPINDLE ONLY)			
14-24	4115849	S-ASSYSPNDL ZT200 CNTR	1				
		(INCLUDES ITEMS 58-62)		14-64	64018-30	BOLT-CRG 3/8-16 X 4-1/2	3
14-25	4129075	ASSY-DECK IDLER 48-52	1	14-65	64018-5	BLT-CRG 3/8-16X1-3/4	1
		(INCLUDES ITEMS 41, 51, 43 & 54)		14-66	64262-013	BLT-FLG HD 3/8-16 X 1-1/2	2
14-26	4115850	S-ASSYSPNDL ZT200 OUTR	2	14-67	4163030.7	WLDMT-IDLER PIN	1
		(INCLUDES ITEMS 58-61 & 63)		14-68 *	64123-217	BLT-HEX 3/8-16X4-1/4 CTR	1
14-27	64270-02	BOLT-HEX M10-1.5x30 ISO					
	CL10.9		2				
14-28	4133155.7	WLDMT-PUSHBAR	2				
14-29	64006-05	LOCKWSHR-HELICAL 1/2	1				
14-30	64123-05	BLT-HEX 1/2-20X1-1/2	1				
14-31	64163-46	WASHER.383/.393X.88X7	4				
14-32	2186125	WLDMT-LOCK, PUSHBAR	2				
14-33	85010N	ZERK, 1/4-28 STR SLF THD	5				
14-34	64123-152	BLT-HEX 5/8-11X5	2				
14-35	64123-50	BOLT-HEX 3/8-16X1	12				
14-36	64229-02	LOCKNUT-NYLON 5/16-18	2				
14-37	4118314	SPACER-BLADE 16MM	3				
14-38	64229-06	LOCKNUT, NYLON 5/8-11	2				
14-39	64123-187	BLT-HEX 5/8-18X3.75	3				
14-40	64123-208	BLT-HEX 5/8-18X1.5	3				
14-41	4128004	BEARING	3				
14-42	4134343.7	BAFFLE-RT FRT 52-54	1				

* NOT ILLUSTRATED

FIGURE 15



Estate Series

BELTS-CUTTERDECK

FIGURE 15

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
15-1	2188176	BELT-CUTTERDECK 52	1				
15-2	2720815	BELT-PTO	1				

FIGURE 16

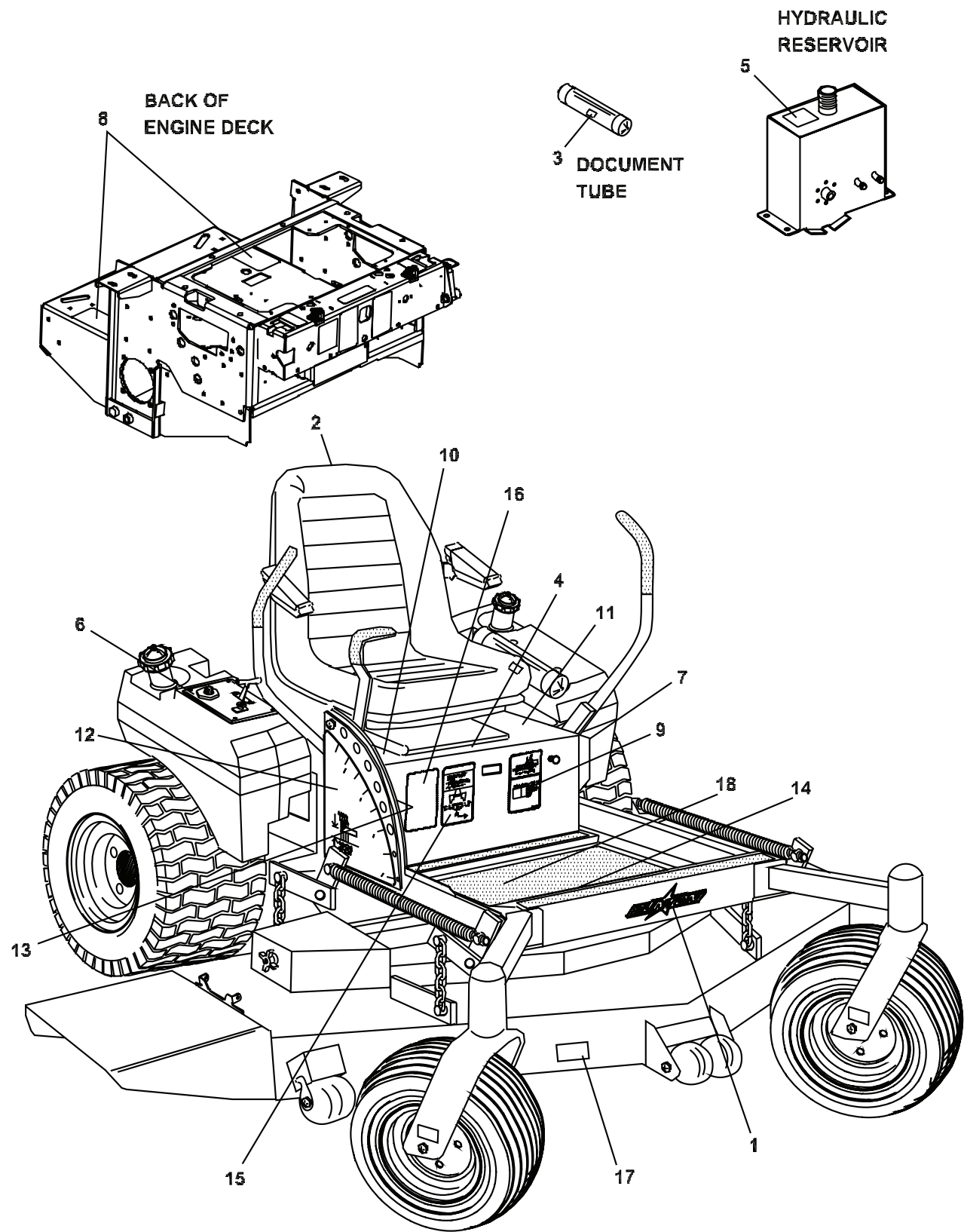


FIGURE 16

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
16-1	4158440	LABEL-BUNTON	1				
16-2	4158441	LABEL-BUNTON DIECUT	1				
16-3	2000735	LABEL-OPER MAN	1				
16-4	2000590	LABEL, WARN BATTERY	1				
16-5	2000691	LABEL - HYDR OIL FILL	1				
16-6	4124415	LABEL-CONTROL PANEL	1				
16-7	2000693	LABEL - PARK BRAKE	1				
16-8	2000698	LABEL(DBL) - FUEL/LEAKS	2				
16-9	4114158	LABEL-TIRES	1				
16-10	2000700	LABEL - RH TRACTION	1				
16-11	2000701	LABEL - LH TRACTION	1				
16-12	2720742	LABEL - OUTSIDE H.O.C.	1				
16-13	2720743	LABEL - INSIDE H.O.C.	1				
16-14	4118843	LABEL - WARN/USING	1				
16-15	2000706	LABEL-FUEL	1				
16-16	340830	DECAL-CAUTION SPANISH	1				
16-17	4162915	LABEL-DECK SIZE, 52"	1				
16-18	4163355	LABEL-BELT ROUTING	1				

FIGURE 17

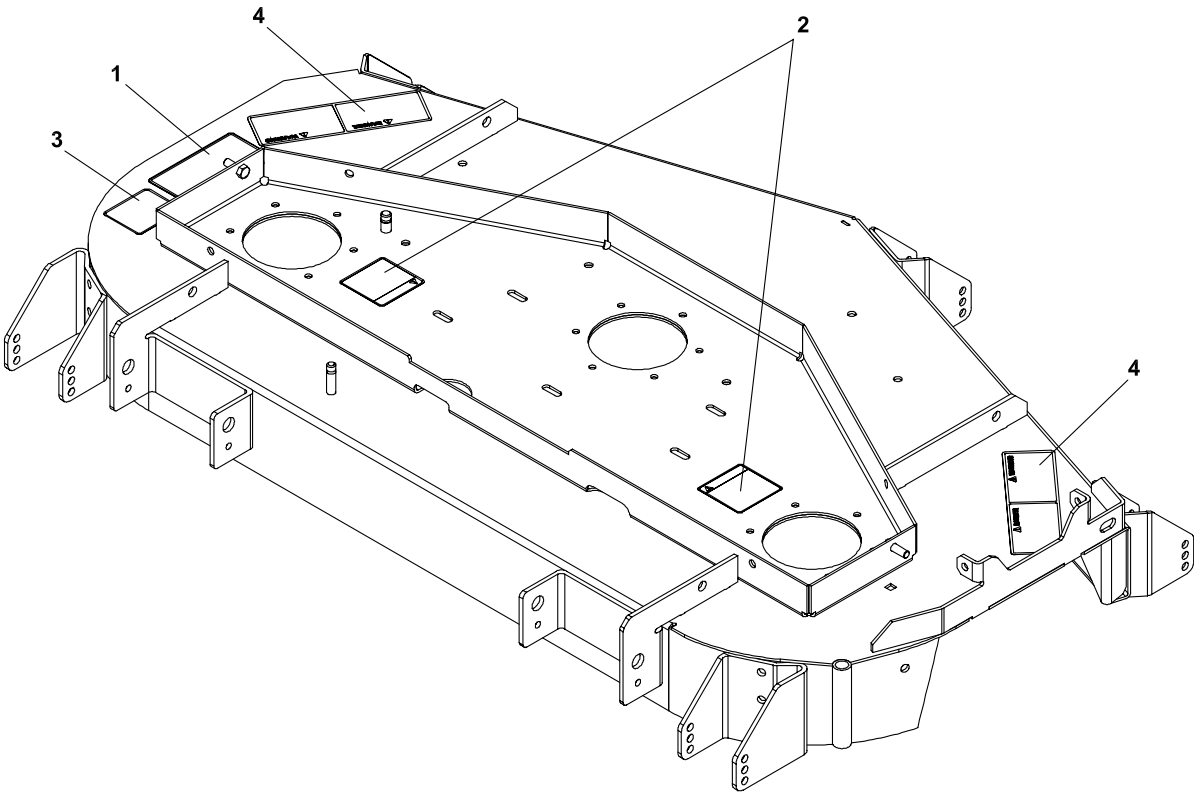


FIGURE 17

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
17-1	2000572	LABEL-WARNING BLADES	1				
17-2	2000577	LABEL-WARNING	2				
17-3	2000696	LABEL-BLADE INSTALL	1				
17-4	2000677	LABEL-DANGER/WARNING	2				

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