

MAN 4158508
Rev. B 8-2007

POWER UNIT MODEL
930024A
EC POWER UNIT 15HP KAWASAKI GEAR DRIVE
(OPERATOR'S MANUAL 4158511)



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.

EC Gear Drive Midsize

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 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.



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.

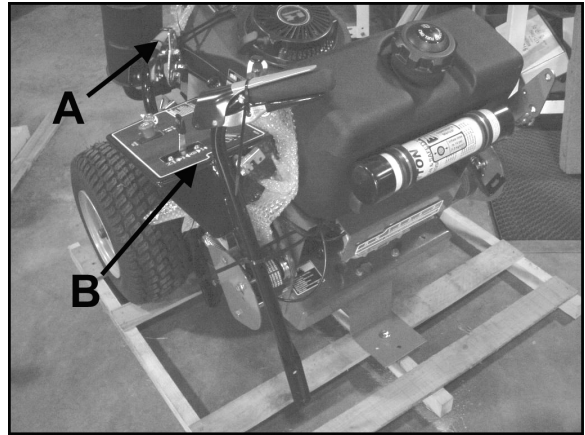
EC Gear Drive Midsize

ASSEMBLY/SET-UP INSTRUCTIONS

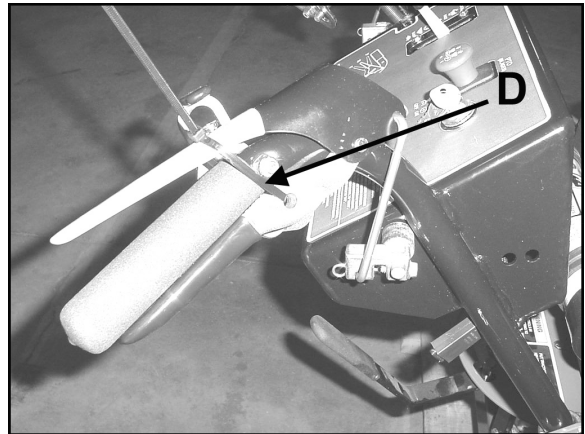
GENERAL NOTE: FRONT, REAR, RIGHT HAND AND LEFT HAND REFERENCES BELOW ARE WITH RESPECT TO AN OPERATOR AT THE CONTROLS.

1. UNCRATE - Place both power unit and cutterdeck crates on a level surface. Remove sides and top from both the power unit and cutterdeck crates.

2. Remove gear selector handle **A** from the power unit and set aside for later use.
3. Remove the upper handle **B**, by cutting the tie wraps securing the upper handle to the power unit.

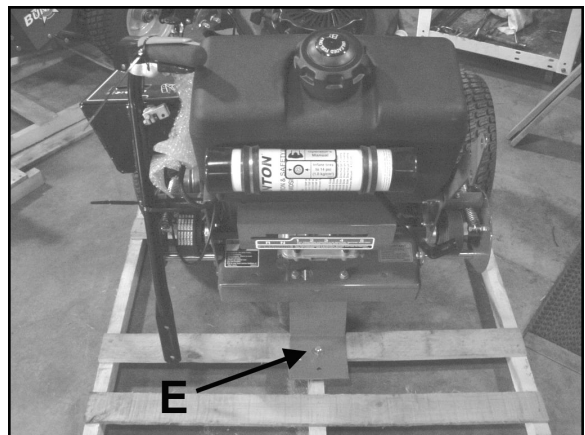


4. Attach the upper handle to the lower handle using the 3/8"-16 X 1" bolts and 3/8"-16 nuts removed in Step 3 as shown.
5. Remove tie wrap **D** from the traction control lever.



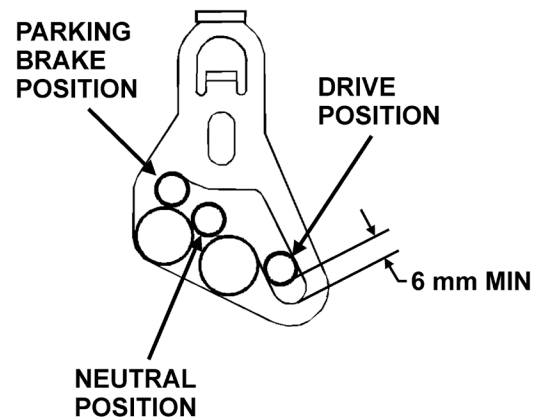
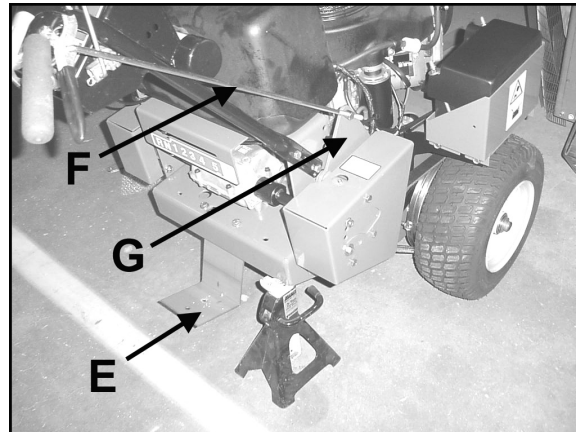
6. Unbolt shipping bracket **E** from the crate.

NOTE: It will be necessary to support the rear of the power unit and level it for attachment to the cutterdeck.



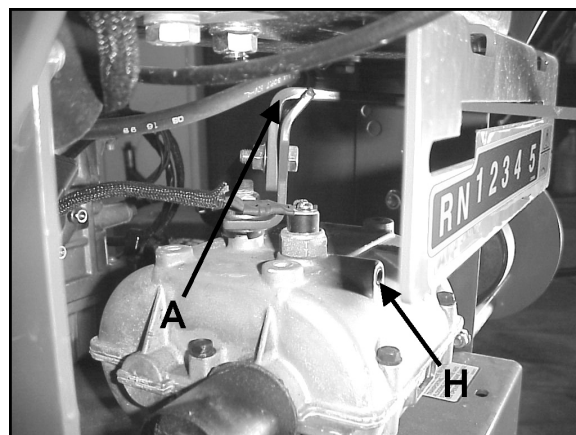
7. Remove the power unit from the crate and support the rear of the power unit using a jackstand.
8. Remove shipping bracket **E**.
9. Attach traction control rods **F** by inserting the swivel through the upper hole in the bellcranks **G** and the other end of the traction control rods through the traction control lever on the handlebar. Secure with washers and hairpins.
10. To adjust traction control rods, remove the traction control rod swivel and the brake rod from the bellcrank **G** and adjust swivel up or down the control rod so that once reinstalled there is a 6 mm gap between the bottom of the rod and the bottom of the traction lock.
11. To adjust the brakes, remove the brake rod from the bottom of bellcrank **G** and set the traction lever in the neutral position. Adjust the brake rod by turning it in or out of the swivel in the brake arm until it just goes into the hole on the bellcrank. Secure with hairpin.

NOTE: The machine should not move with the traction levers in the parking brake position. If machine moves in the parking brake position, readjust brake rod length. Verify that machine can be moved easily when the traction levers are placed in the neutral position.



12. Attach gear shift lever **A** removed in Step 2 to the lower shift arm with (1) 5/16-18 X 1 Bolt and (1) 5/16-18 whizlock nut. Shift the lever to the neutral position and verify that the lever is centered side to side in the slot. If not, loosen bolt and reposition the lever. Retighten bolt.

GEARBOX ADJUSTMENT NOTE: The detents between gears and at neutral may be made more positive by turning set screw **H** clockwise. Do not turn set screw more than two turns below flush with the housing.



13. Attach cutterdeck per the instructions on the following pages then return to Step 15 of this section.

14. Remove the battery cover and the battery from the machine. Fill the battery to the bottom of the vent wells with electrolyte and trickle charge for several hours. Replace the battery in the machine and make the connections, red to positive first, then black (ground) to negative. Install battery cover and secure with previously removed nuts.

Batteries Produce
Explosive Gases

- Keep sparks and flame away.
- Disconnect negative terminal first.
- Reconnect negative terminal last.



15. Fill engine with oil. (See engine manual for specifications.)

16. Fill fuel tank with clean, fresh unleaded fuel.

⚠ WARNING GASOLINE IS HIGHLY FLAMMABLE!

- Fill fuel tank with good quality, clean, regular unleaded gasoline.
- Do not use hi-test fuel.
- Do not smoke.
- Do not spill fuel.
- Fill outdoors.
- Do not overfill. Fill to 25mm below bottom of filler neck to allow room for expansion.
- USE A FUNNEL TO FILL GAS TANK

17. Adjust tire pressure in drive wheels to 1 kg/cm².

18. Before attempting to start the mower, read and understand all sections of the Operation & Safety manual.

NOTICE: Special setup instructions.

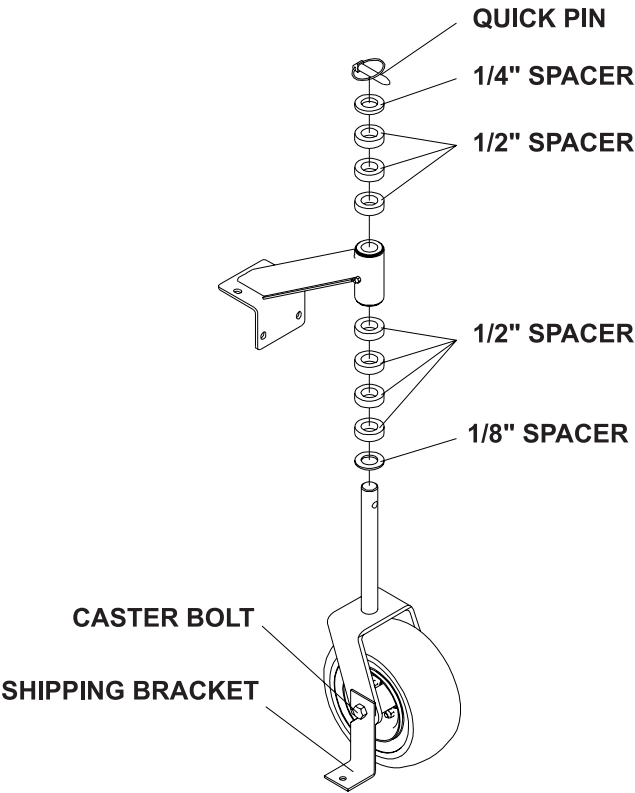
- Before engaging the cutterdeck, run the engine for five minutes at full RPM. This is recommended for new engine installation to permit complete engine lubrication prior to load.
- Do not engage the cutterdeck at full throttle. Set the throttle half way between the highest and lowest engine speed, engage the PTO switch and increase the engine speed to full before cutting.

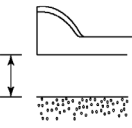
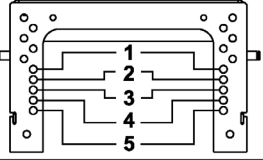
⚠ WARNING

Do not use this machine without an approved grasscatcher, grass discharge chute or mulching plate(s) correctly fitted.

FIXED CUTTERDECK ATTACHMENT

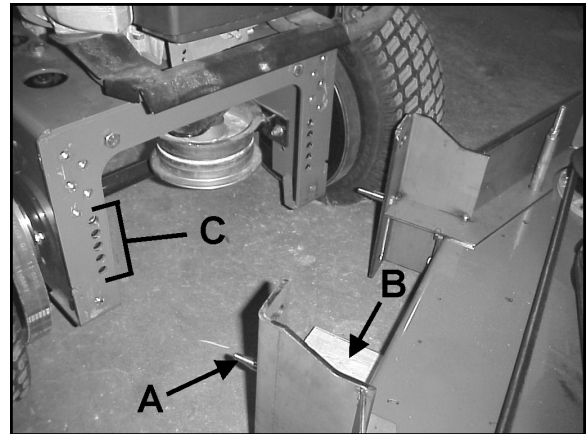
1. Remove the cutterdeck from the crate.
 2. Unbolt the caster wheels and the shipping brackets from the crate.
 3. Remove the shipping bracket from the caster wheel by loosening the caster bolt and sliding the shipping bracket off and retighten caster bolt.
 4. Remove quick pin and remove the appropriate number of spacers for the desired height of cut. See height of cut chart below.
- NOTE:** Height of cut chart is also located on bottom of belt cover or in the Operation & Safety Manual.
5. Repeat for other caster wheel assembly.



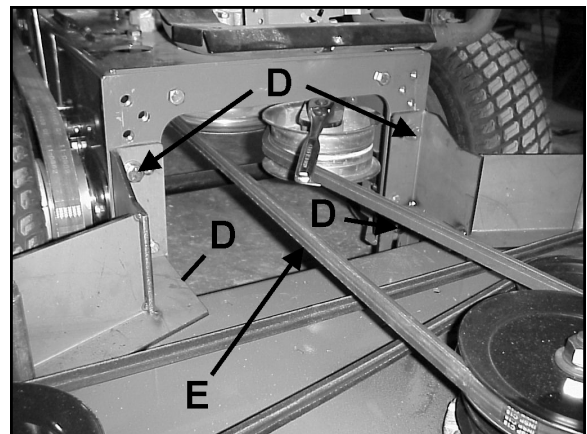
 CUTTING HEIGHT					 DECK PIN POSITION		4109861 NUMBER OF SPACERS BETWEEN SPINDLE AND BLADE (1/4" THICK)
IN	MM	A	B	C			
1.375	35	1	1	0	5		2
1.625	41	1	1	0	5		1
1.875	48	1	1	0	5		0
2.125	54	1	0	2	4		2
2.375	60	1	0	2	4		1
2.625	67	1	0	2	4		0
2.875	73	1	1	3	3		2
3.125	79	1	1	3	3		1
3.375	86	1	1	3	3		0
3.625	92	1	0	5	2		2
3.875	98	1	0	5	2		1
4.125	105	1	0	5	2		0
4.375	111	1	1	6	1		2
4.625	118	1	1	6	1		1

6. Remove belt cover and set aside.
7. Block the rear of the cutterdeck with the appropriate height block for the desired height of cut **B**. See Support Block Chart below.

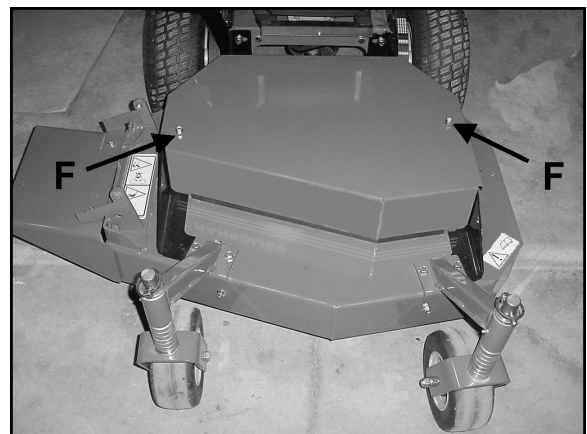
CUTTING HEIGHT	HOLE POSITION ON ENGINE DECK*	BLOCK HEIGHT AT REAR OF DECK (B)
1.375" - 1.625"	5	1.25"
1.875" - 2.375"	4	2.00"
2.625" - 3.125"	3	2.75"
3.375" - 3.875"	2	3.50"
4.125" - 4.625"	1	4.25"
* Position 1 is the highest hole on the engine deck.		



8. Position the power unit behind the cutterdeck.
9. Move the power unit towards the cutterdeck until the guide pins **A** engage the appropriate hole **C** on the power unit for the desired height of cut. Fasten with (4) M12-1.75 X 30 bolts at **D**.
10. Loop the PTO belt **E** around the electric clutch pulley. Using a 3/8" ratchet wrench or 3/8" breaker bar rotate the PTO belt idler while looping the PTO belt around the cutterdeck pulley.



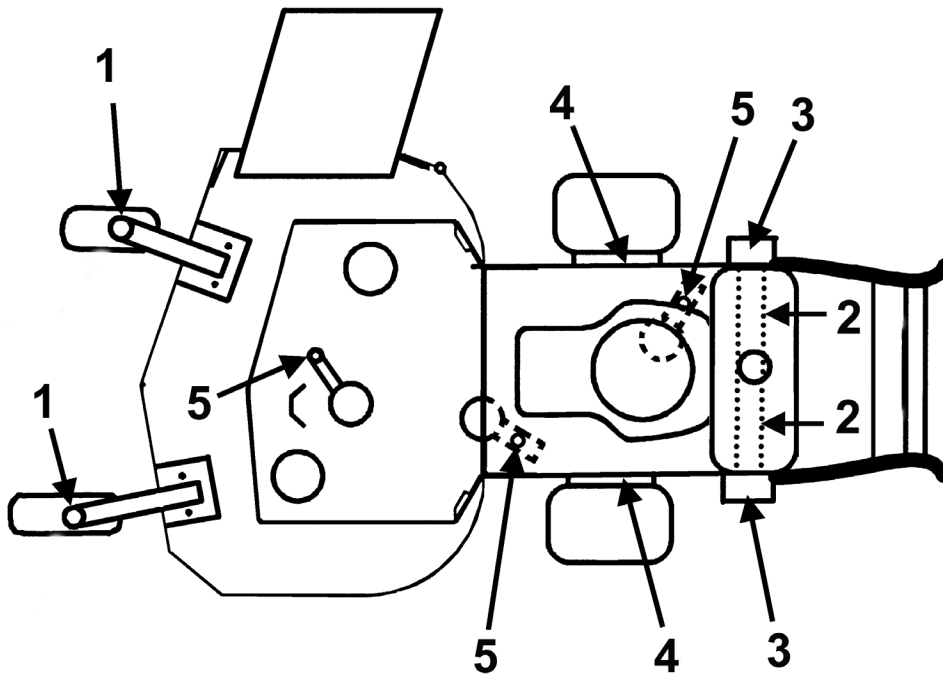
11. Reinstall belt cover and fasten in place with nuts previously removed.
12. Remove support block from the rear of cutterdeck.
13. Remove support from the rear of the power unit.



MACHINE LUBRICATION

Every 50 Working Hours - Lubricate the following points with grease:

- 1) Caster wheel pivots (2 points)
- 2) Shaft Couplers (2 points)
- 3) Drive Wheel Bellcranks (2 points)
- 4) Brake Levers (2 points)
- 5) Idler pivot bearings:
 - a) Engine to cutterdeck belt tensioner
 - b) Cutterdeck belt tensioner
 - c) Transmission drive belt tensioner



ENGINE

DAILY

Remove the dipstick **S** and check that the oil level reaches the full mark. If necessary, top off with fresh oil. To obtain the correct oil level, the machine must be level. See engine manufacturer's manual for proper oil viscosity and grade.

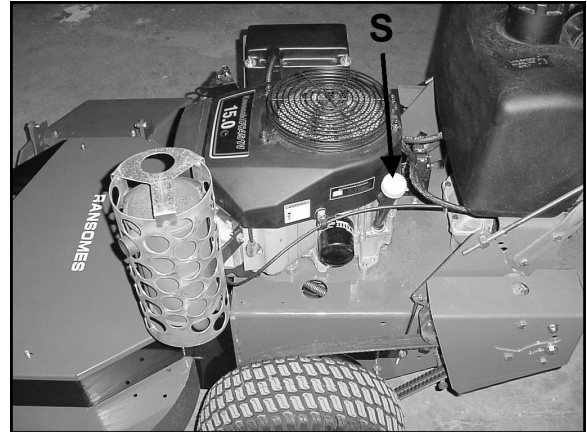
DO NOT OVER FILL!

AFTER THE FIRST 5 WORKING HOURS

While the engine is warm, remove the drain plug **P** and drain the crankcase. Replace oil filter. Clean and replace the plug. Fill the crankcase through the filler hole with fresh oil to the full mark. See engine manufacturers manuals for oil and filter change intervals.

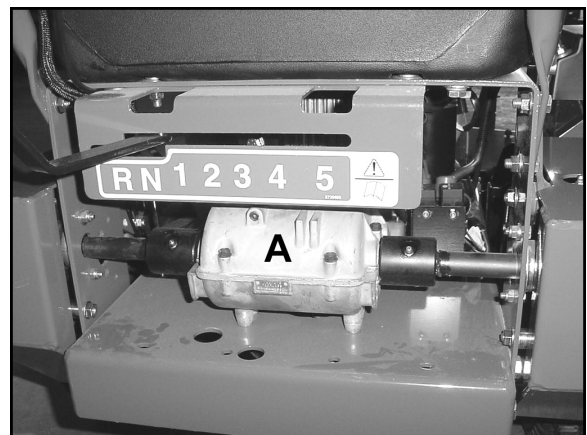
Engine operator's manuals are shipped with each machine. Shop manuals for the engines are available from your local engine dealer/distributor.

- For Kawasaki FH451V, order: 99920-2129-03.



GEARBOX

Check every 500 hours to ensure proper lubrication. 12 oz. is capacity of gearbox. To check level: Remove top cover **A**, 12 oz. of grease will fill 1/3-1/2 of the bottom 1/2 of gearbox. Only add Bentonite grease-available from your Peerless dealer. Lubricate each grease fitting on either side of gearbox.



The maintenance schedule detailed is for average operating conditions. Under extreme conditions (dusty, dirty or more than 8 hrs continuous use) maintain more frequently.

Engine (daily)

Check the engine for oil leaks.

Cooling Fins and Air Intake screen (daily)

Ensure that the cooling fins and air intake screen **I** are cleaned daily. Continued operation with a clogged cooling system will cause severe overheating and result in engine damage.

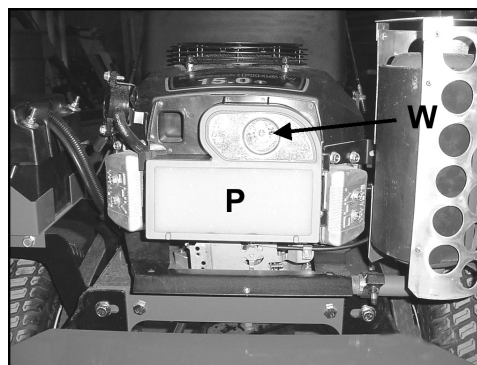
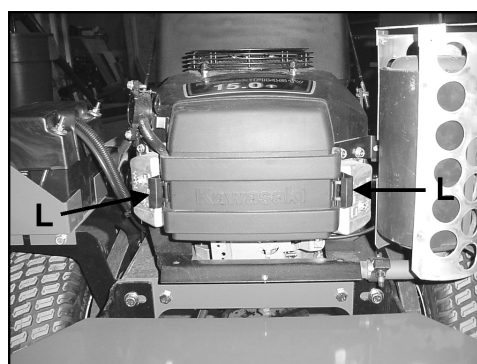
Air Cleaner (every 25 hours)

Service more frequently if operating in very dusty or dry conditions. Extensive damage will result from operating with a dirty air cleaner.

1. Remove the air cleaner cover by releasing latches **L**.
2. Remove the foam precleaner **P** by sliding it off the paper cartridge. Wash in kerosene or detergent and water. Dry thoroughly. Saturate in engine oil. Squeeze to remove excess oil.
3. Reinstall all parts.

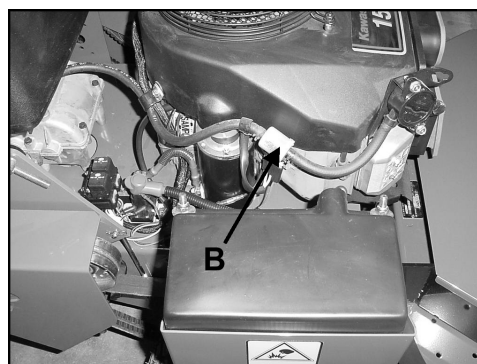
NOTES:

- Every 50 hours remove the paper element by loosening wing nut **W**. If dirty, replace.
- DO NOT use petroleum solvents to clean the paper element. They may cause it to deteriorate.
- DO NOT use pressurized air to clean or dry element.
- See the Setup, Parts & Maintenance manual for service part numbers.



In-Line Fuel Filter

When required, the fuel filter **B** may be replaced. See the Setup, Parts & Maintenance manual for service part numbers.



Blade Sharpening

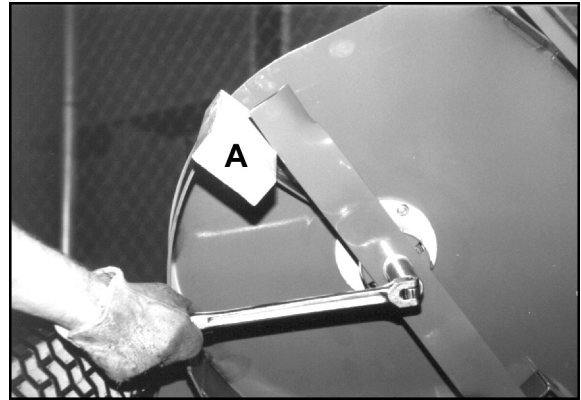
Blades may be sharpened by filing or grinding, but with either method the balance of the blades must be maintained at 0.004 Nm or less. Failure to maintain balance causes excess vibration, wear and shortened life of not only the blades, but most all components of the machine. To balance a blade after sharpening: attach 3.9 g of weight 127mm from center on the light end. This should make the light end the heavy end. If it does not: File or grind the heavy end until the addition of weight makes the light end the heavy end.

NOTE:

- Do not overheat or weaken the blades.
- Do not straighten bent blades. Replace with new CGC, Inc. blades.
If lift portion of blade is worn thin replace with a new CGC, Inc. blade.
- ALWAYS replace with CGC, Inc. blades—do not use another manufacturer's blades as this could be dangerous.
- Replace cracked or bent blades.

BLADE REMOVAL

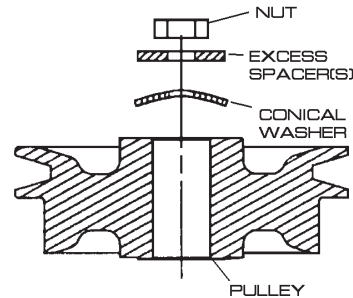
1. Use a box wrench or socket with a long breaker bar to remove spindle bolt under cutterdeck.
2. Slip tube over breaker bar or wrench if necessary to gain leverage.
3. Keep hands clear as blades may rotate when bolt releases.
4. When changing blades, wear thickly padded gloves.
5. Block blades from turning by using a piece of wood.
6. Follow these instructions to prevent injury when bolt releases.



NOTE: To prevent blade from turning, place block of wood at **A**, with grain perpendicular to blade.

BLADE RE-INSTALLATION

1. Place the desired number of spacers (no more than 2) on the spindle bolt below the cutterdeck between the blade and spindle shaft.
2. Insert the cutter spindle bolt (from bottom) complete with washer, blade and spacers.
3. Place remaining spacer(s) on the spindle bolt above the cutterdeck between the conical washer and nut (as shown). Replace nut and tighten to 95 Nm.



Cutterdeck Pulley Assembly

SPARK PLUG

- Remove plug and check condition.
- Good operating conditions are indicated if the plug has a light grey or tan deposit. A white blistered coating may indicate overheating. A black coating usually means an "over rich" fuel mixture caused by a clogged air cleaner or improper carburetor adjustment. Do not sandblast, wire brush or otherwise try to clean a dirty plug. Best results are obtained with a new plug.
- See engine manufacturers manual for proper spark plug gap.

SERVICE CHART

EC Gear Drive Midsized

NOTE: CHANGE ENGINE OIL AND FILTER AFTER FIRST 5 HOURS OF OPERATION.

SERVICE OPERATION	FIRST 5 HOURS	DAILY	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 500 HOURS
ENGINE						
Check Oil Level		X				
Check for Oil & Air Leaks		X				
Clean Air Intake		X				
Clean Air Cleaner		X				
Change Oil & Filter*	X	SEE ENGINE MANUFACTURER'S MANUAL*				
Clean Fuel Sediment Bowl				X		
Replace/Adjust Spark Plug	SEE ENGINE MANUFACTURER'S MANUAL					
GEARBOX						
Check Oil Level						X
MACHINE						
Check Tire Pressures		X				
Check Belt Tensions	CHECK AFTER FIRST 1/2 HR AND AFTER FIRST 4 HRS			X		
Lubricate All Points				X		

Consult the manufacturer's manual for your engine for further information and instructions.

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 and filters.

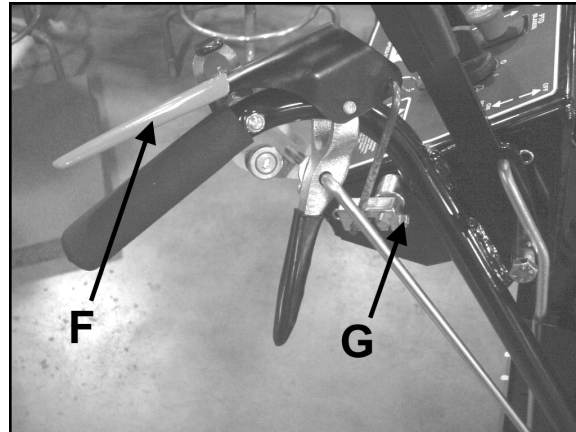
Make all adjustments with the engine shut off, spark plug wire disconnected and mower drive disengaged.

OPERATOR PRESENT CONTROLS

The operator present (OP) controls should be adjusted to control the operation of the plunger of the operator present switch (located under the right side of the control panel). Depressing OP levers **F** should depress the plunger; releasing the levers should extend it.

TO ADJUST:

1. Loosen clamp bolts **G** on both ends so clamps can rotate on shaft.
2. Rotate actuator lever to depress switch plunger. Keep OP levers against handles and tighten bolts **G**.
3. When released, the OP levers should rise and the actuator lever should rotate away from the switch, allowing the switch plunger to extend completely.

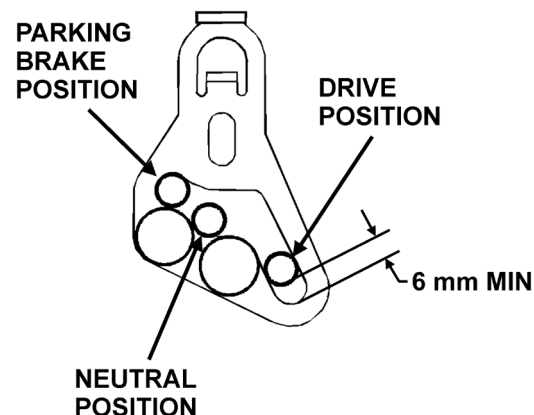


TRACTION RODS AND WHEEL BELT TENSION

- There should be a 6 mm minimum gap between the traction control rod and the bottom of the neutral latch slot when the drive is engaged. If there is no gap the rod will hold the wheel belt idler up and the belt may slip. Too much gap makes it difficult to get adequate braking and free-wheeling neutral when traction lever locks are in the neutral position. The gap may be increased from 6 mm as long as the machine will free wheel in neutral. Increasing the gap reduces the reach to the traction lever.

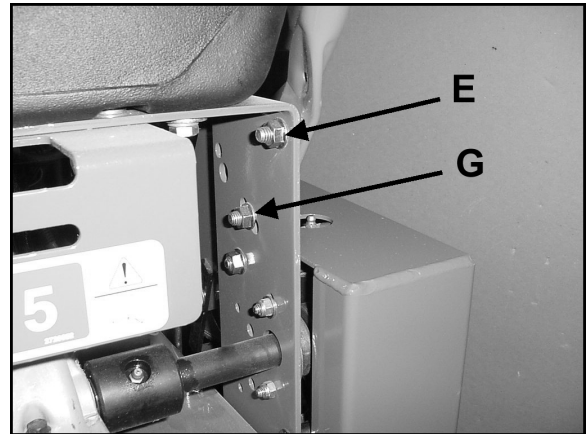
TO ADJUST:

1. Disconnect the brake rod.
2. Remove hairpin cotter from the traction control rod next to the traction control lever.
3. Lift out the rod and turn in or out of the turnbuckle in the required direction.
4. Refit the rod to the lever and replace the hairpin.
5. Check the gap. If it is still not 6 mm, repeat the procedure until an approximate 6 mm gap is obtained.



HANDLE BAR HEIGHT ADJUSTMENT

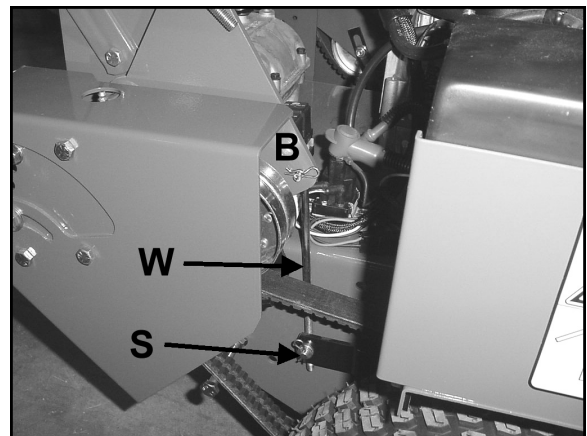
To adjust handle bar height: Remove bolts **G** and loosen bolts **E** on each side of handlebars. Raise or lower as required. Reposition upper handle and reinsert bolts **G** into appropriate hole in lower handle and tighten. Readjust traction control rods, brakes and parking brakes.



TRACTION BRAKES/PARKING BRAKES - With the traction rods properly adjusted, apply both parking brakes and try to push the machine forward. If one or both wheels rotate, adjust the corresponding brake(s).

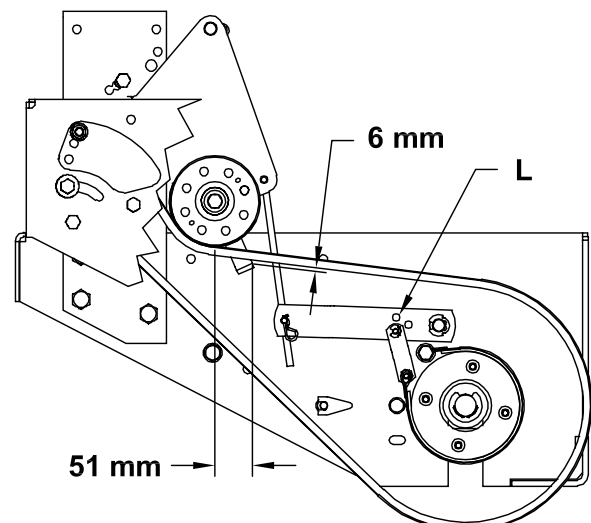
TO ADJUST:

1. Remove the hairpin cotter from the brake rod **W** on idler bellcrank **B**.
2. Slide the brake rod out of the bellcrank and turn the rod in or out of brake end swivel **S** as needed.
3. Reassemble the brake rod to the bellcrank.
4. Check the adjustment. **DO NOT OVER ADJUST.** If necessary, repeat the procedure until the correct adjustment is achieved.
5. If adequate adjustment can not be achieved with the brake rod, the links between the brake arm and brake band may be moved to a different hole **L** in the brake arm.
6. Adjust drive idler belt guide so that with the traction lever in the drive position the guide is a 6 mm from the underside of the belt and 51 mm from the point where the belt exits the idler pulley as shown.



When the brakes are properly adjusted the machine can be freely maneuvered with the traction levers in the neutral position. If not, the brakes have been over-adjusted and have to be backed off.

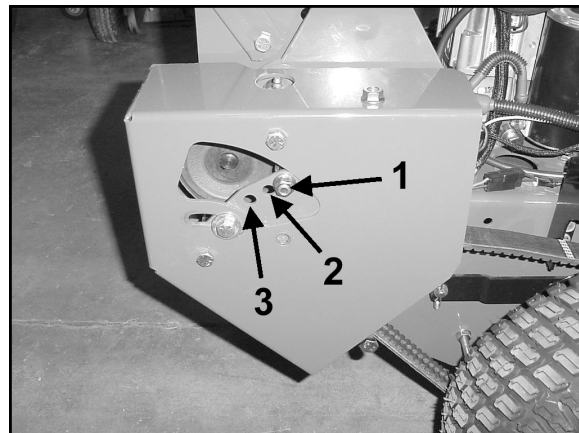
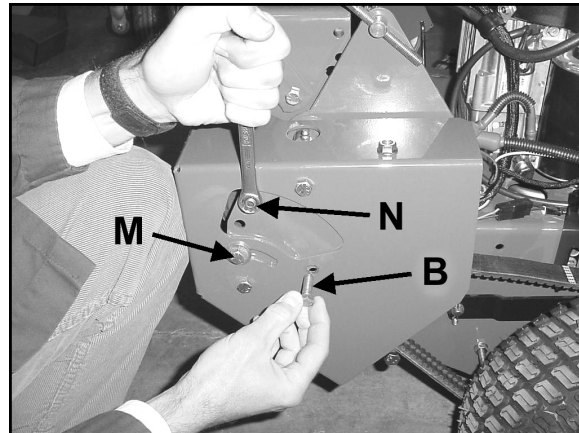
NOTE: Clean inner groove of wheel drive pulley daily for better drive and neutral. Accumulation of grass, mud or other debris in pulley groove can affect declutching. Set mud scraper at each wheel drive pulley to angle down to catch debris.



DRIVE BELT TENSION ADJUSTMENT

Drive belt tension can be adjusted to one of three settings to account for various mowing conditions.

1. Loosen bolt **M**.
2. Remove nut on back side of belt cover on bolt **B**.
3. Place a wrench on nut **N** as shown and slightly rotate wrench towards the rear of the machine and remove bolt **B** allowing pivot arm to rotate down relieving spring tension.
4. Adjust by removing nut **N** and relocate spring anchor bolt to position 1, 2 or 3.
 - Position 1 will provide the least amount of hand effort and wheel traction.
 - Position 3 will provide the highest amount of hand effort and wheel traction.
5. Reassemble by reversing Steps.



TIRE PRESSURE ADJUSTMENT

Tire pressures should be maintained at 1.0 kg/cm².

NOTE: Adjusting tire pressure between .7 kg/cm² and 2 kg/cm² can improve tracking. Increase pressure on the side the machine tracks toward and decrease it on the other side.



PTO BELT

1. Rotate idler arm using a 3/8" ratchet or breaker bar and remove belt.



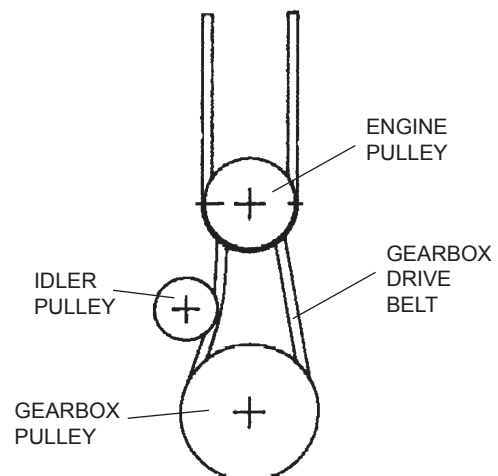
CUTTERDECK BELT

1. Remove PTO belt.
2. Rotate idler arm using a 3/8" ratchet or breaker bar and remove belt.
3. Replace in the reverse order.



GEARBOX-DRIVE BELT

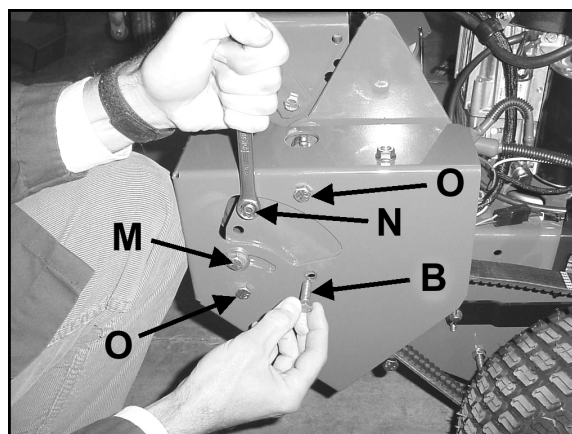
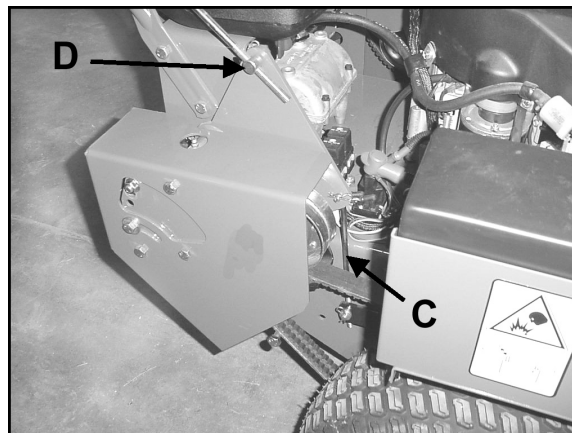
1. Remove PTO belt from engine clutch.
2. Unbolt clutch stop pin.
3. Rotate idler arm using a 3/8" ratchet or breaker bar.
4. Remove gearbox drive belt.
5. Replace by following steps in reverse order.



View under engine deck

WHEEL-DRIVE BELT

1. Remove brake rod **C** and traction control rod **D** from bellcrank.
2. Loosen bolt **M**.
3. Remove nut on back side of belt cover on bolt **B**.
4. Place a wrench on nut **N** as shown and slightly rotate wrench towards the rear of the machine and remove bolt **B** allowing pivot arm to rotate down relieving spring tension.
5. Disconnect spring from idler pulley shaft.
6. Remove bottom and top bolts, spacers and nuts **O** and remove belt cover assembly.
7. The wheel drive belt will be slack enough to be removed from its pulleys and passed over the drive wheel.
8. Replace in the reverse order.
9. Readjust traction control rod and brake rod. (Also see Traction Rods and Wheel Belt Tension in ADJUSTMENTS section.)

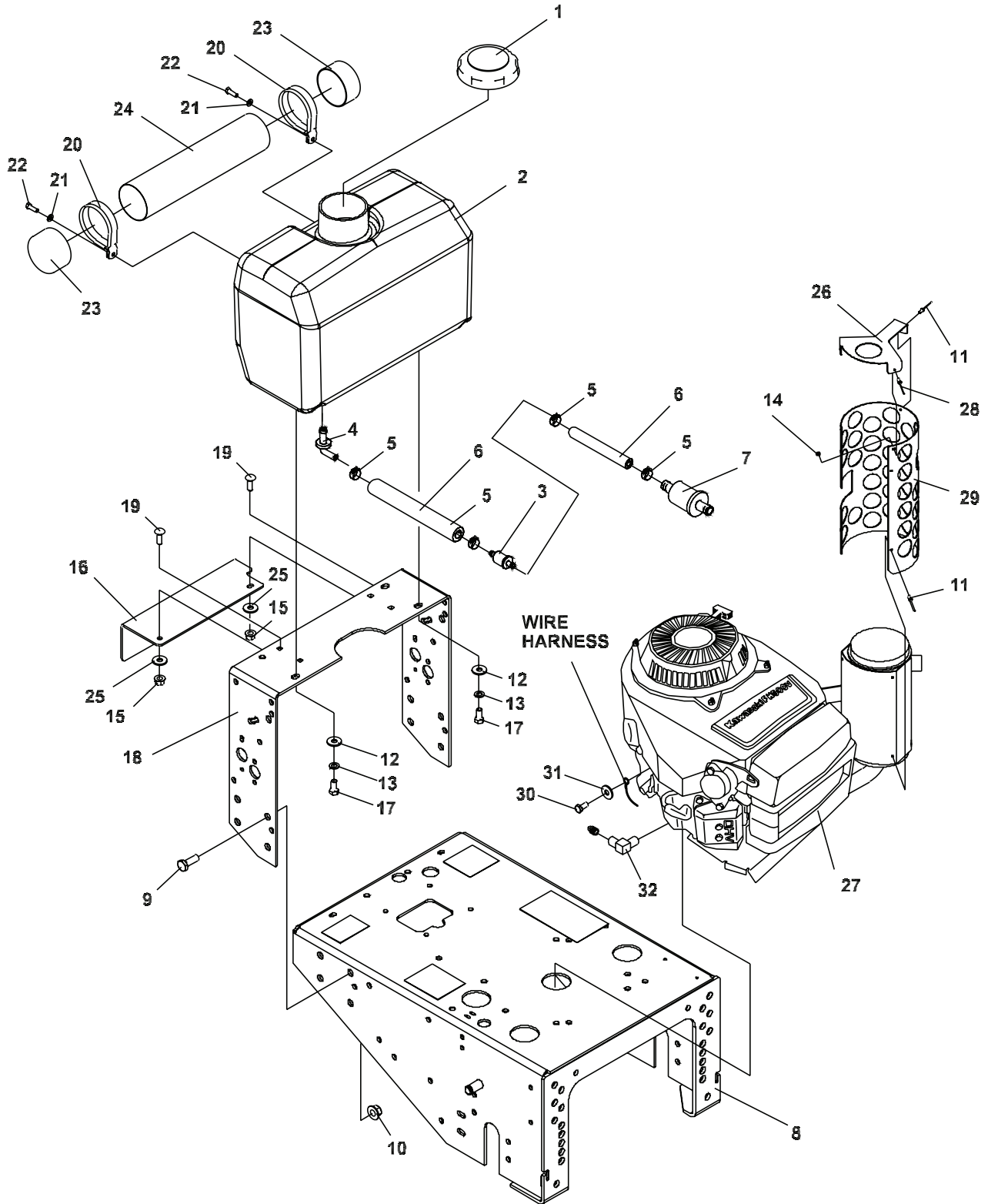


PARTS SECTION

UPPER ENGINE DECK ASSY

FIGURE 1

EC Gear
Drive
Midsize



EC Gear Drive Midsize

UPPER ENGINE DECK ASSY

FIGURE 1

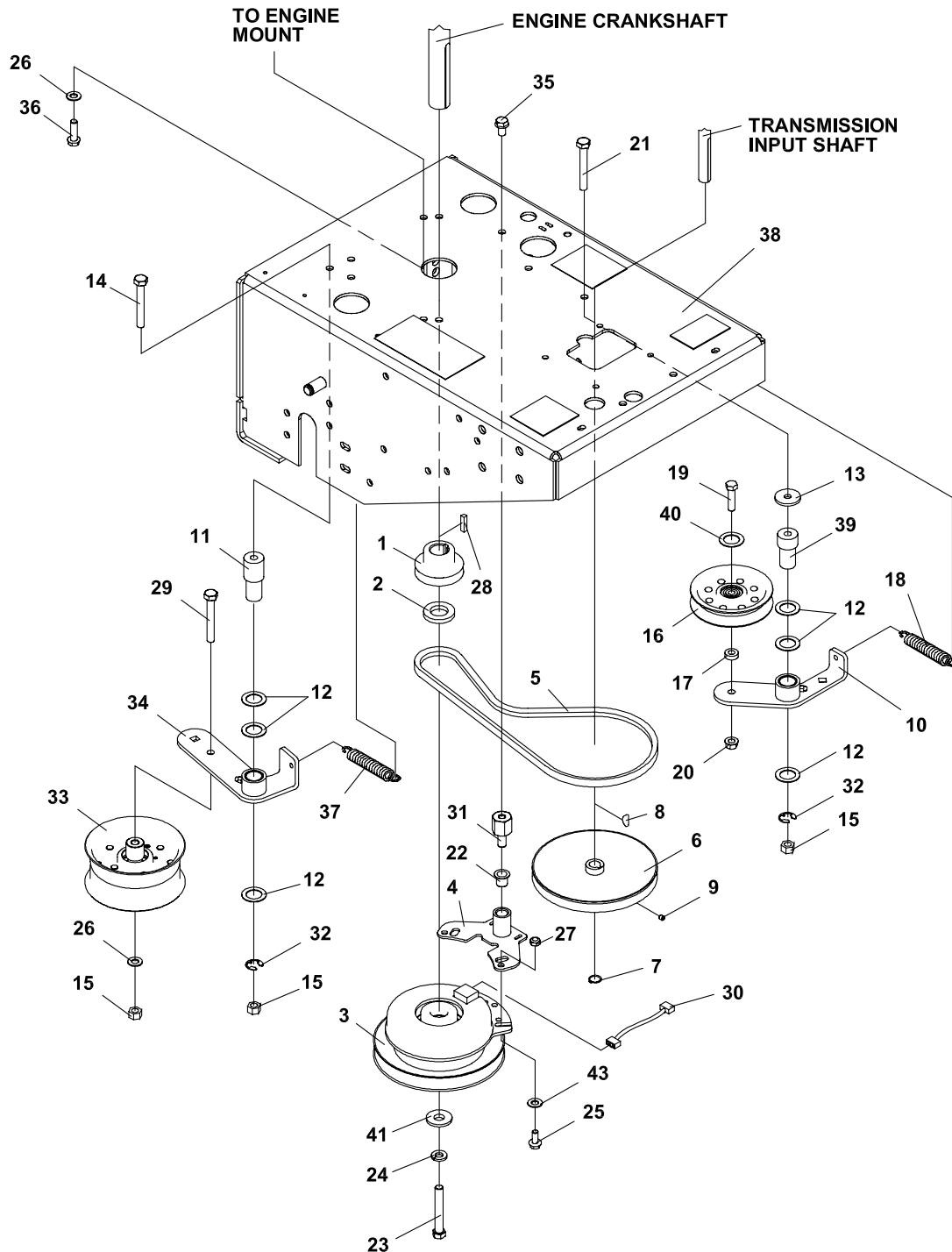
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	4130320	CAP-FUEL GASOLINE 3.5	1				
1-2	4163068	TANK-FUEL	1				
		(INCLUDES ITEMS 3 & 4)					
1-3	4163016	GROMMET-FUEL TANK	1				
1-4	4163012	S FUEL SHUT-OFF VALV	1				
1-5	88042N	HOSE CLAMP	4				
1-6	4162977-007	HOSE,.25IDX.50OD X 8"	1				
1-7	38666	FILTER, FUEL	1				
1-8	2721392.2	WLDMT-ENGINE DECK GD	1				
1-9	64123-39	BOLT-HEX 1/2-13X1-1/4	8				
1-10	64229-05	LOCKNUT, 1/2-13 NYLON	8				
1-11	64215-04	RIVET-POP IFI# 42	5				
1-12	64163-31	WASHER	4				
1-13	64006-03	LOCKWSHR-HELICAL 3/8	4				
1-14	64211-01	WSHR-ALUM,BACKING	2				
1-15	64229-02	LOCKNUT-NYLON 5/16-18	2				
1-16	4115080	S-GEAR SELECT PLATE EC	1				
1-17	64123-15	BLT-HEX 3/8-16X3/4	4				
1-18	2721394.2	HANDLE-LOWER	1				
1-19	64018-15	BLT-CRG 5/16-18 X 1	2				
1-20	38542	CLAMP-DOCU TUBE	2				
1-21	64006-01	LOCKWSHR-HELICAL 1/4	2				
1-22	64123-89	BLT-HEX 1/4-20 X 3/4	2				
1-23	38061A	COVER	2				
1-24	2306144	S DOCU TUBE W/LAB	1				
1-25	64163-29	21/64X1X11GA.WASHER	2				
1-26	4116243	COVER-MUFFLER	1				
1-27 *	4114119	ENGINE-15HP KAW ES	1				
	2722214	OIL FILTER					
	2722207	AIR FILTER PAPER ELEMENT					
	2722208	FILTER FOAM PRECLEANER					
		(SERVICE MANUAL 15 HP & KAW #99920-2129-03)					
1-28	64215-02	RIVET-POP IFI# 44	2				
1-29	4116244	GUARD-MUFFLER	1				
1-30	64205-018	BLT MET M8-1.25X15	1				
1-31	64002-04	LOCKWASHER, EXT. 5/16	1				
1-32	48255-01	STREET ELBOW 90DEG 3/8	1				

* AVAILABLE THROUGH KAWASAKI DEALER

LOWER ENGINE DECK ASSY/CLUTCH

EC Gear
Drive
Midsize

FIGURE 2



EC Gear Drive Midsize

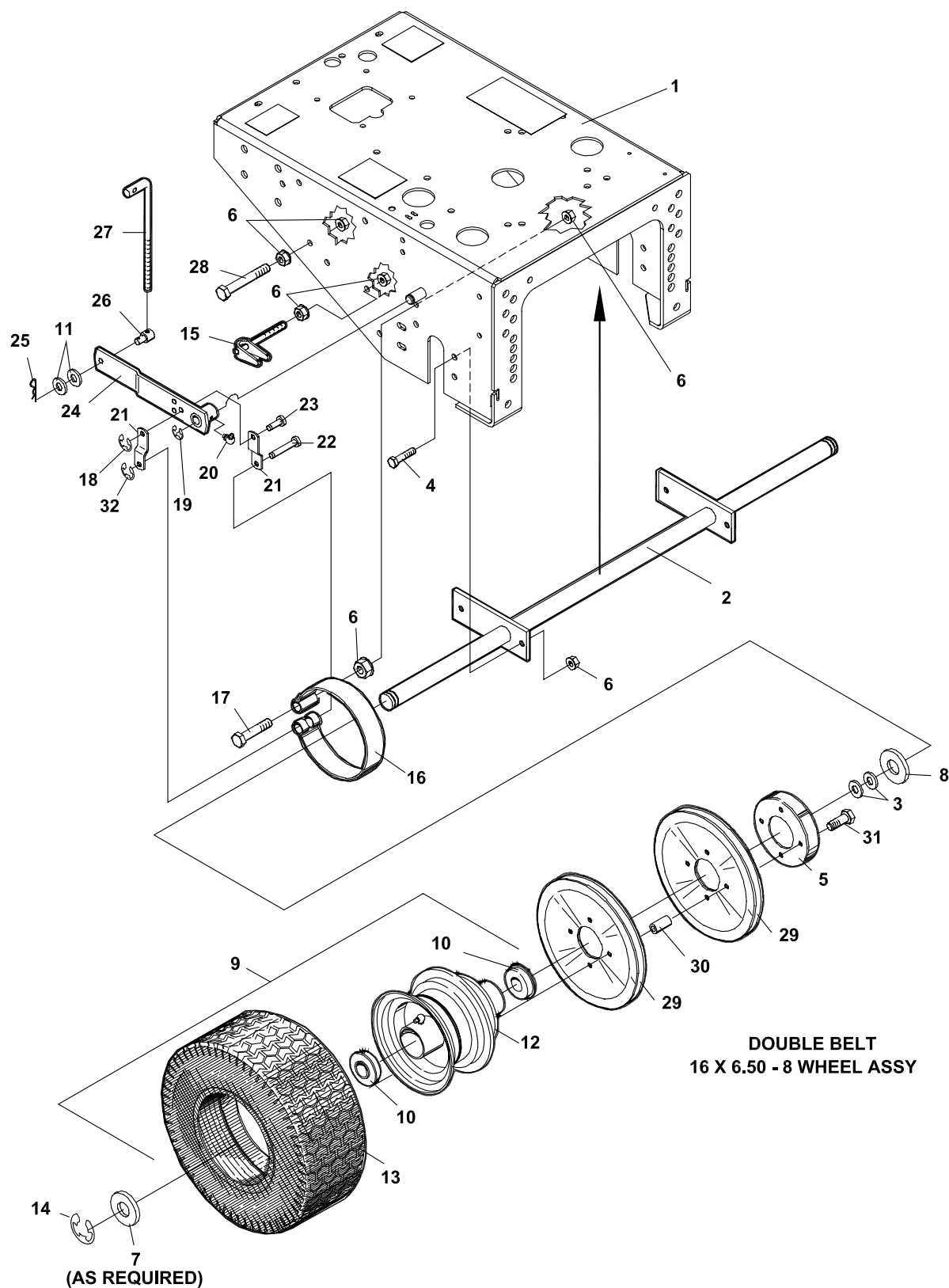
LOWER ENGINE DECK ASSY/CLUTCH

FIGURE 2

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	38460	PULLEY-ENGINE	1				
2-2	64163-07	1-1/32X1-3/4X1/4 WASH	1				
2-3	2721110	CLUTCH-ELECTRIC (INCLUDES ITEMS 30 & 42)	1				
2-4	2721331.7	WLDMT-CLUTCH STOP MID	1				
2-5	2721410	BELT-HA 41.00	1				
2-6	128175	PULLEY-SNGL GRV 7 ED	1				
2-7	64144-01	SNAP RING 5/8	1				
2-8	64164-19	KEY WOODRUFF.19X.75 #9	1				
2-9	64044-1	SCREW-SET 1/4-20X1/4	2				
2-10	2721403.7	WLDMT-IDLER ARM TRCTN	1				
2-11	4116712	PIN-PIVOT	1				
2-12	64163-65	WASHER 0.890 X 1.375	6				
2-13	64163-82	WSHR-FLAT.406X1.44X9GA	1				
2-14	64123-138	BLT-HEX 3/8-16X3-3/4	1				
2-15	64229-03	LOCKNUT-NYLON 3/8-16	3				
2-16	2308000	PULLEY-IDLER 4.00 EOD	1				
2-17	33148-01	SPACER	1				
2-18	38219	SPRING-TENSION	1				
2-19	64123-70	BLT-HEX 3/8-16X1-1/2	1				
2-20	64141-4	NUT-WLF 3/8-16	1				
2-21	64123-79	BLT-HEX 3/8-16X3-1/4	1				
2-22	38304-03	BRG-FLANGED PLASTIC	1				
2-23	64123-155	BLT-HEX 7/16-20 X 3	1				
2-24	64006-06	LOCKWSHR-HELICAL 7/1	1				
2-25	64123-54	BOLT, 5/16-18X3/4 HEX	2				
2-26	64163-31	WASHER .25/64 X 1 X 12GA	5				
2-27	64229-02	LOCKNUT-NYLON 5/16-18	2				
2-28	64164-12	1/4X1/4X1 SQ END KEY	1				
2-29	64123-75	BOLT, 3/8-16X3 HEX	1				
2-30	2720949	ASSY-CLUTCH WIRE	1				
2-31	4121540	PIN-CLUTCH	1				
2-32	64221-04	E-RING.875	2				
2-33	2721541	PULLEY-IDLER 5 IN	1				
2-34	2721401.7	WLDMT-IDLER ARM	1				
2-35	64139-21	BLT-WLF 3/8-16X3/4	1				
2-36	64197-005	BLT-TDFM 3/8-16X1-1/4	4				
2-37	2188131	SPRING-EXTENSION	1				
2-38	2721392.2	WLDMT-ENGINE DECK GD	1				
2-39	4116691	PIN-PIVOT	1				
2-40	64163-61	WASHER .81 X .406 X 16GA	1				
2-41	64163-51	WASHER.453 X 1.38 X 7GA	1				
2-42	*	4121560					
	KIT-BRAKE POLE	RPLCMNT	1				
2-43	64163-55	WASHER .328X.75X14 GA	2				

* NOT ILLUSTRATED

FIGURE 3



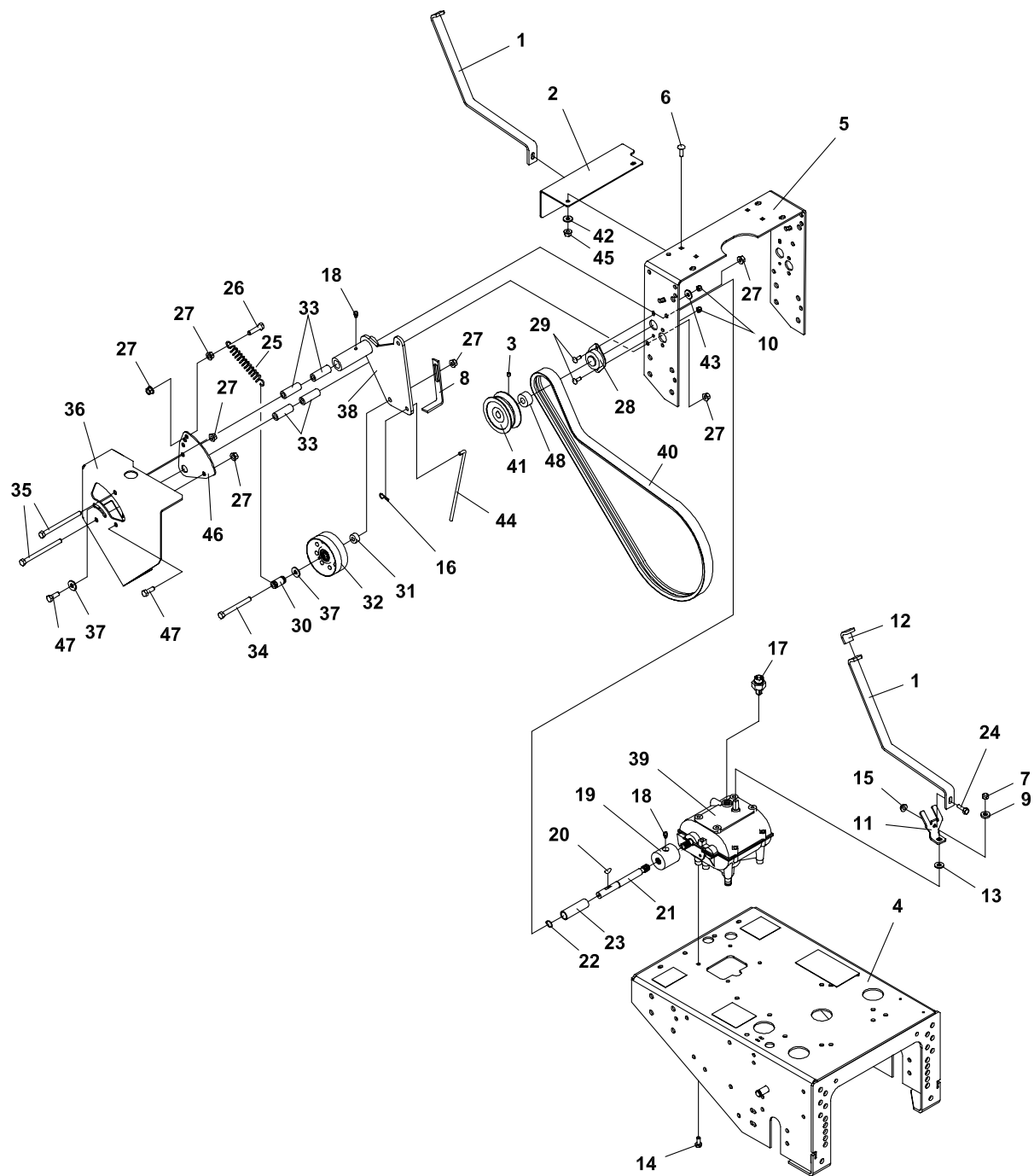
EC Gear Drive Midsize

DRIVE WHEELS & BRAKES

FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
3-1	2721392.2	WLDMT-ENGINE DECK GD	1				
3-2	2722491.7	WLDMT-AXLE GD	1				
3-3	64163-07	WASHER	4				
3-4	64197-005	BLT-TDFM 3/8-16X1-1/4	4				
3-5	4124853	BRAKE-DRUM	2				
3-6	64141-4	NUT-WLF 3/8-16	16				
3-7	64163-64	WASHER					
A/R							
3-8	64163-25	WASHER	2				
3-9	2721432	WHL ASSY-4PLY 16 X 6.5-8 (INCLUDES ITEMS 10, 12 & 13)	2				
3-10	2721432-3	S BALL BRG 1.00	2				
3-11	64163-02	WASHER-11GA	4				
3-12	2721432-2	S RIM ASSY	1				
3-13	2721432-1	S TIRE 16 X 6.5 - 8 4 PLY	1				
3-14	64221-1	E CLIP	2				
3-15	36896	SCRAPER	2				
3-16	38534	BAND-BRAKE	2				
3-17	64123-87	BOLT-HEX 3/8-16X1-3/4	2				
3-18	64144-31	SNAP RING	2				
3-19	64144-36	SNAP RING	2				
3-20	85010N	ZERK, 1/4-28 STR SELF THRD	2				
3-21	4117094	LINK, BRAKE	4				
3-22	33138-07	PIN-CLVS GRVD .38 X 1.25	2				
3-23	33138-01	PIN, CLEVIS .47	2				
3-24	36853.7	WLDMT BRAKE ARM	2				
3-25	64168-2	HAIRPIN COTTER	2				
3-26	33004A	SWIVEL	2				
3-27	33135-01	ROD-BRAKE	2				
3-28	64123-171	BOLT-HEX 3/8-16X3-1/2	2				
3-29	2721532	PULLEY-A BELT 11.00 IN	4				
3-30	103044	SPACER, F.R. BEARING	8				
3-31	64197-021	BLT-TDFM 5/16-18X1.75	8				
3-32	64144-30	SNAP RING.375	2				

FIGURE 4



EC Gear Drive Midsize

TRANSMISSION DRIVE

FIGURE 4

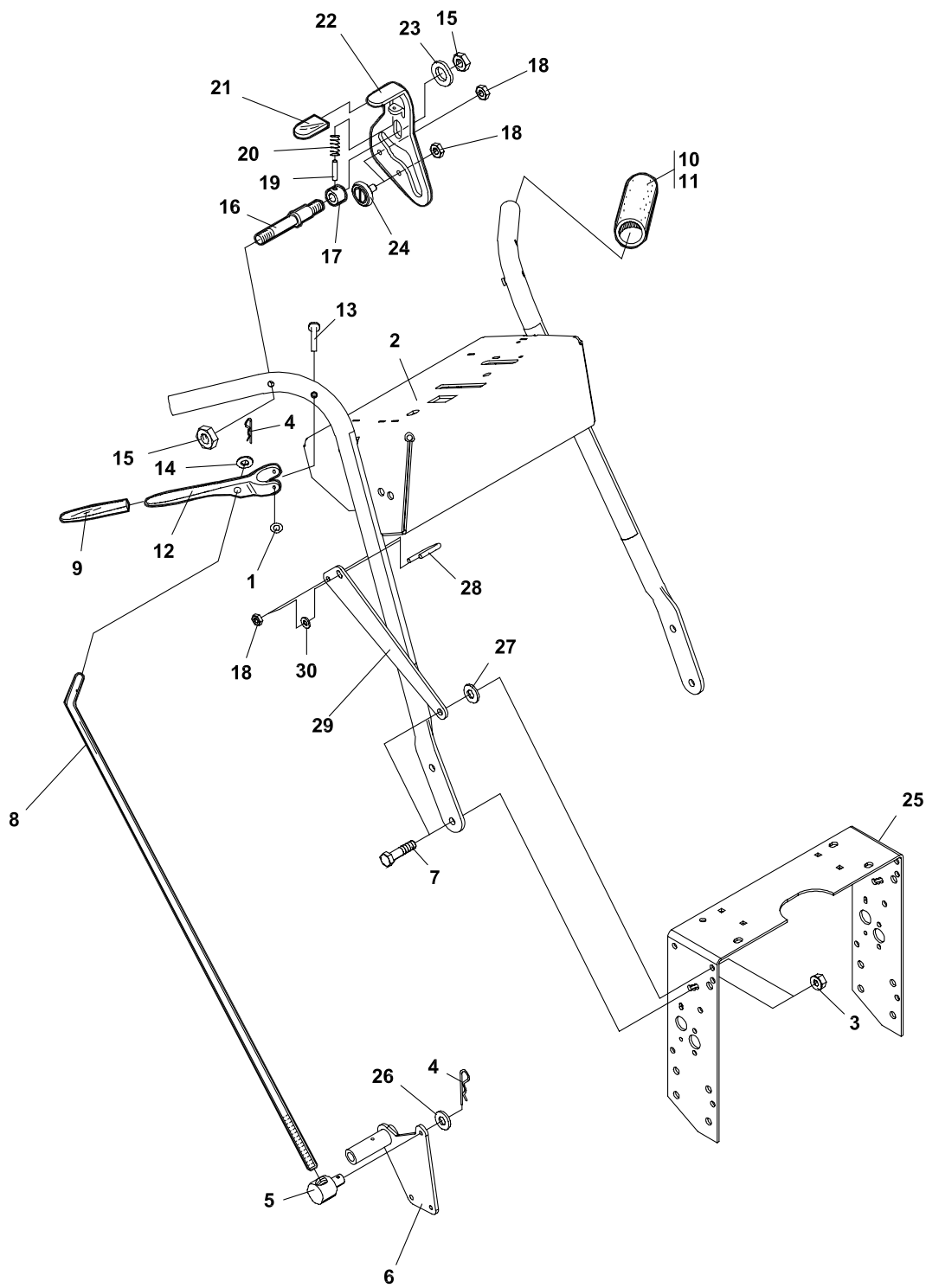
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
4-1	2721382.7	LEVER-SHIFT	1	4-42	64163-29	21/64X1X11GA.WASHER	2
4-2	4115080	S-GEAR SELECT PLATE EC	1	4-43	64163-03	WSHR-.256IDX.62ODX18GA.	2
4-3	64044-6	SCREW-SET 5/16-18X1/4	4	4-44	33135-01	ROD-BRAKE	2
4-4	2721392.2	WLDMT-ENGINE DECK GD	1	4-45	64229-02	LOCKNUT-NYLON 5/16-18	2
4-5	2721394.2	LOWER-HANDLE	1	4-46	4115714.2	PLATE-SPRING TENSION	2
4-6	64018-15	BLT-CRG 5/16-18 X 1	2	4-47	64123-50	BOLT-HEX 3/8-16 X 1	4
4-7	64151-3	3/8-24 HH LOCKNUT	1	4-48	4130974	SPACER-.625/.635x.88x.38	2
4-8	2722031.7	GUIDE-BELT	2				
4-9	64163-46	WSHR.383/.393X.88X7GA	1				
4-10	64229-01	LOCKNUT-NYLON 1/4-20	4				
4-11	2721381.7	LEVER-SHIFT LOWER	1				
4-12	2188155	GRIP-1/4X1X4-1/2	1				
4-13	128108	WASHER PEERLESS	1				
4-14	64139-08	BLT-WLF 5/16-18X3/4	4				
4-15	64141-6	NUT, 5/16-18	1				
4-16	64168-2	COTTER-HAIRPIN .08X1.19	2				
4-17	PL8033	SWITCH TRANS NEUTRAL	1				
4-18	85010N	ZERK, 1/4-28 SELF THREAD	4				
4-19	2308135	COUPLER	2				
4-20	64164-19	KEY WOODRUFF.19X.75 #9	2				
4-21	2308134	SHAFT-CONNECTOR	2				
4-22	64144-01	SNAP RING 5/8	2				
4-23	35033-5A	JACKSHAFT SHLD 3	2				
4-24	64123-68	BOLT-HEX 5/16-18X1	1				
4-25	2308133	SPRING-EXTENSION	2				
4-26	64123-70	BLT-HEX 3/8-16X1-1/2	2				
4-27	64141-4	NUT-WLF 3/8-16	14				
4-28	4130975	BRG-BALL FLUSH MT	2				
4-29	64123-89	BLT-HEX 1/4-20 X 3/4	4				
4-30	2303056	SPACER-SPRING	2				
4-31	33030-07	BUSHING-IDLER	2				
4-32	38184-2	IDLER PULLEY-FLAT-4.0	2				
4-33	4136715	SPACER-FENDER	8				
4-34	64123-138	BLT-HEX 3/8-16 X 3-3/4	2				
4-35	64123-93	BLT-HEX 3/8-16 X 5	4				
4-36	4114678.2	COVER-BELT EC RH	1				
	* 4114677.2	COVER-BELT EC LH	1				
4-37	64163-31	WASH.25/64X1X12 GA	4				
4-38	2721364.2	WLDMT-BELLCRANK RH	1				
	* 2721365.2	WLDMT-BELLCRANK LH	1				
4-39	4127203	TRNSMSN-5 SPD W/ REV (SEE FIGURE 8 FOR PARTS BREAKDOWN)	1				
4-40	2721409	BELT-HA DOUBLE 59.75	2				
4-41	4121312	PULLEY-DOUBLE GROOVE	2				

* NOT ILLUSTRATED

UPPER HANDLE/ROLLER LATCH

EC Gear
Drive
Midsize

FIGURE 5



EC Gear Drive Midsize

UPPER HANDLE/ROLLER LATCH

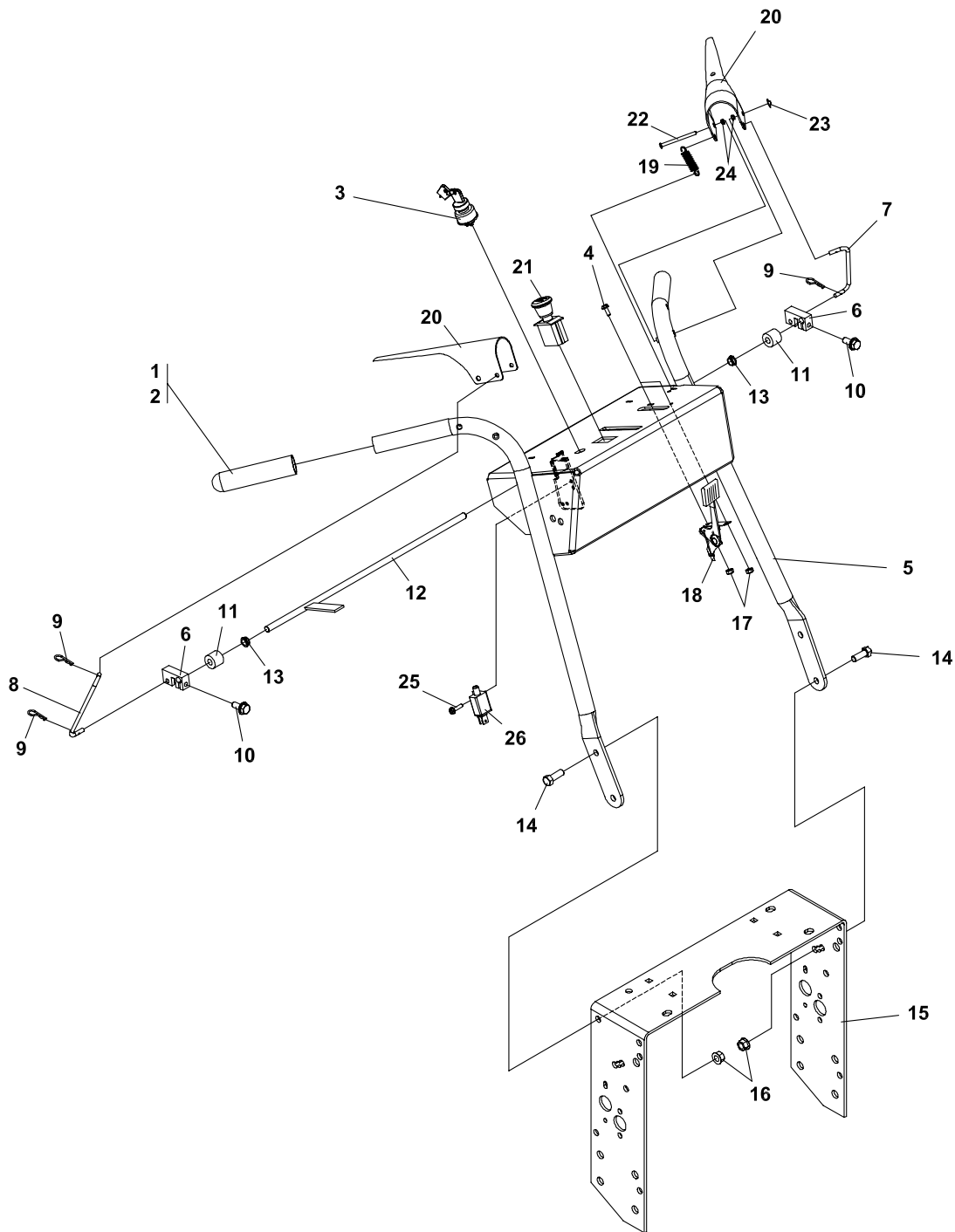
FIGURE 5

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
5-1	64175-01	PUSHNUT-3/16 ROD	2				
5-2	4122156	S UPR HNDL W/LABS GD	1				
5-3	64141-4	NUT-WLF 3/8-16	4				
5-4	64168-2	HAIRPIN COTTER	4				
5-5	33103	SWIVEL	2				
5-6	2721364.2	WLDMT-BELLCRANK RH	1				
	* 2721365.2	WLDMT-BELLCRANK LH	1				
5-7	64123-50	BLT-HEX 3/8-16 X 1	4				
5-8	4122110	ROD-TRACTION CNTRL GD	2				
5-9	38009N	GRIP, TRACTION CNTRL	2				
5-10	PL5029	GRIP-HANDLE	2				
5-11	*	2308121					
	ADHESIVE-3 GRAM TUBE		1				
	(USE WITH PL5029 GRIP)						
5-12	31032	LEVER,TRACTION CNTRL	2				
5-13	64188-44	PIN-CLEVIS 3/16 X 2.25	2				
5-14	64163-31	WASHER	2				
5-15	64229-02	LOCKNUT-NYL 5/16-18	4				
5-16	2303076	STUD-DOUBLE ENDED	2				
5-17	33243	SPACER	2				
5-18	64229-01	LOCKNUT NYL 1/4-20	4				
5-19	64061-37	PIN-ROLL	2				
5-20	38189	SPRING COMPRESSION	2				
5-21	2722426	GRIP-TRACTION LOCK	2				
5-22	2722722	LATCH-ROLLER RH GD	1				
	* 2722721	LATCH-ROLLER LH GD	1				
5-23	62464-5A	WASHER THRUST 5/16	2				
5-24	2308002	BRG-RADIAL W/THD STD	4				
5-25	2721394.2	LOWER-HANDLE	1				
5-26	64163-55	WASHER .328X.75X14 GA	2				
5-27	64163-83	WASHER-.406 X 1.00 X.25	2				
5-28	64225-03	U-BOLT	2				
5-29	2722062.7	BRACE-HANDLE	2				
5-30	64163-03	WSR-.256IDX.620ODX18GA	2				

* NOT ILLUSTRATED

TRACTION LOCK ASSY'S ARE ALSO AVAILABLE
P/N **2722685** RH & P/N **2722684** LH
(INCLUDES ITEMS 15-24)

FIGURE 6



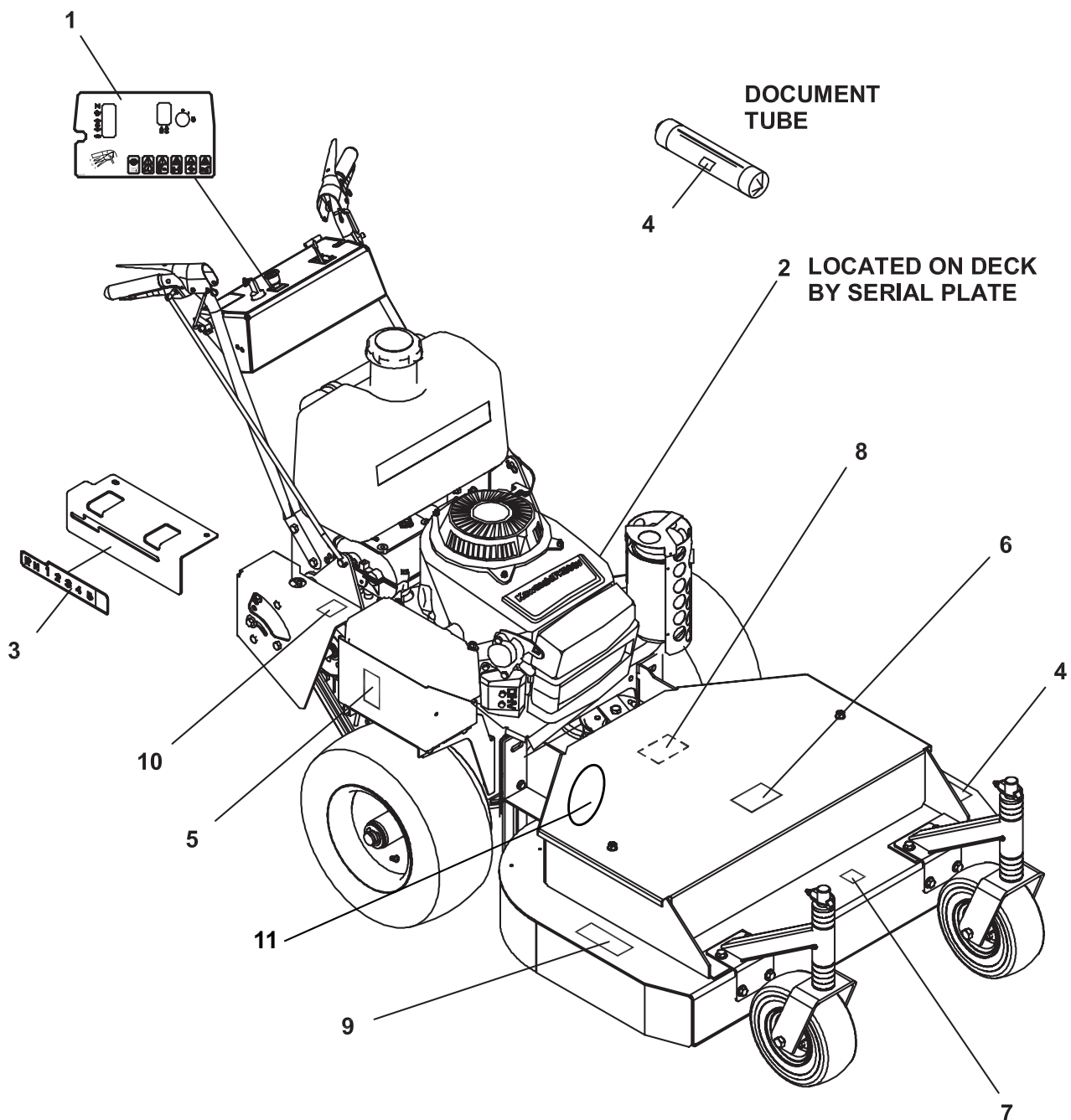
EC Gear Drive Midsize

OPERATOR PRESENT

FIGURE 6

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
6-1	PL5029	GRIP-HANDLE	2				
6-2	*2308121	ADHESIVE-3 GRAM TUBE (USE WITH PL5029 GRIP)	1				
6-3	128010	SWITCH, KEY	1				
6-4	64152-46	SCREW-SLT HH 10-24X1/2	2				
6-5	4122155	S UPR HNDL W/LABS GD	1				
6-6	2303023	CONNECTOR-OP	2				
6-7	4122104	ROD-HANDLE LINK, LH	1				
6-8	4122107	ROD-HANDLE LINK, RH	1				
6-9	64168-2	COTTER-HAIRPIN.08X1.19	4				
6-10	64197-002	BLT-TR 1/4-20 X 3/4	2				
6-11	33030-09	IDLER BUSHING	2				
6-12	4122056	WLDMT-OP PRESENCE	1				
6-13	38371-01	BRG-NYLINER 3/8	2				
6-14	64123-50	BOLT-HEX 3/8-16X1	4				
6-15	2722269.2	HANDLE-LOWER	1				
6-16	64141-4	NUT-WLF 3/8-16	4				
6-17	64025-15	NUT-HEX #10-24 KEPS	2				
6-18	38357-09	CONTROL-THROTTLE	1				
6-19	2308065	SPRING-TENSION	1				
6-20	2302152.7	HANDLE-OP PRESENT	2				
6-21	2721505	SWITCH-PTO	1				
6-22	64188-44	PIN-CLEVIS 3/16 X 2.25	2				
6-23	64175-01	PUSHNUT-3/16 ROD	2				
6-24	38371-03	BRG-NYLINER 3/16	4				
6-25	64197-015	BLT-TDFM 10-32X1/2	2				
6-26	2308094	SWITCH-NCNC DBL POLE	1				

FIGURE 7



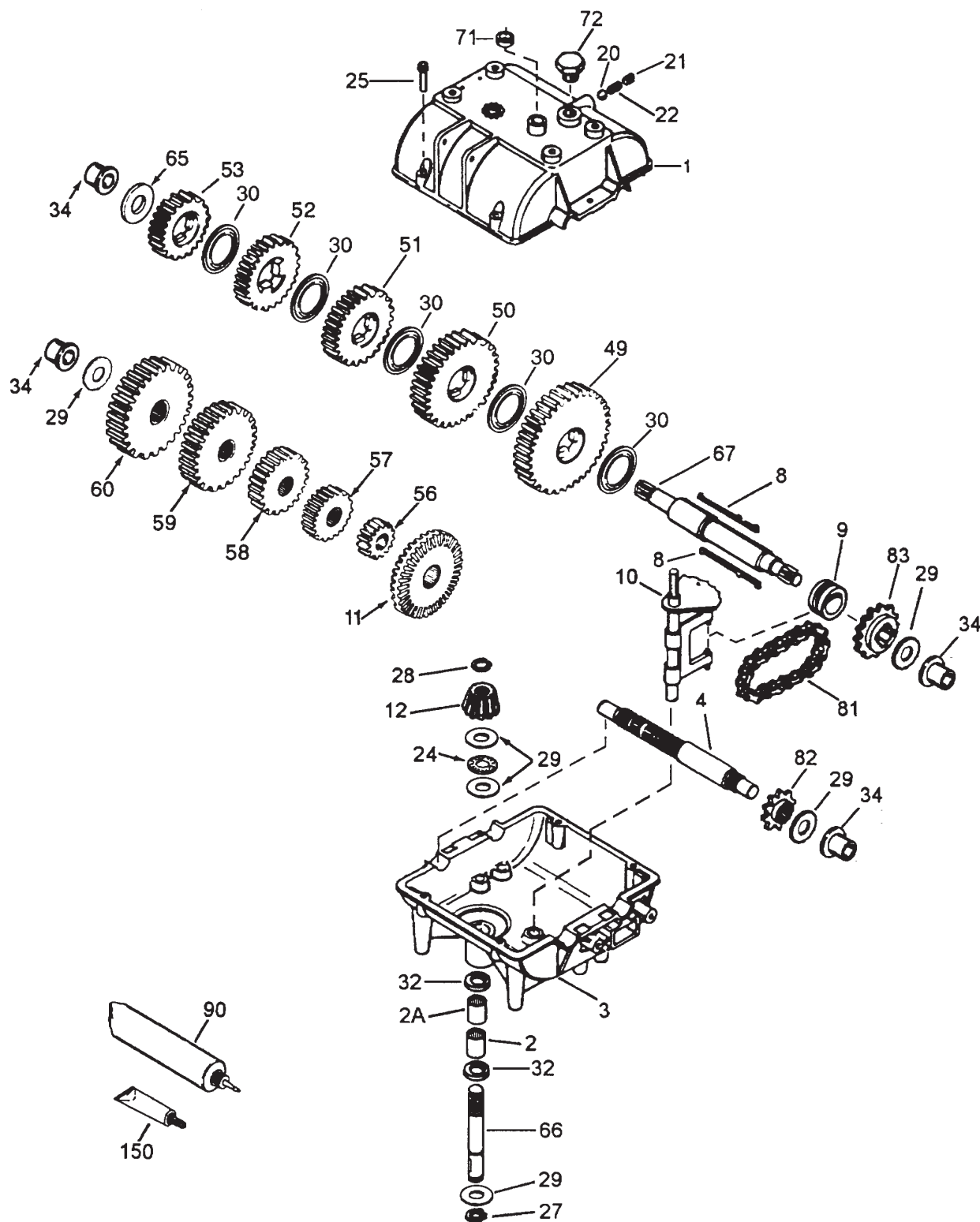
EC Gear Drive Midsize

DECALS

FIGURE 7

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
7-1	4122170	LABEL-CNTRL PNL EC GD	1				
7-2	2000704	LABEL-MIDSIZE PATENT	1				
7-3	2720652	LABEL-GEAR SELECT EC	1				
7-4	2000655	LABEL-READ OPRTRS EEC	1				
7-5	2000650	LABEL-BATTERY EEC	1				
7-6	4116761	LABEL-MADE IN USA	1				
7-7	009034760	DECAL-NOISE 100	1				
7-8	2000638	LABEL-CON WASHER EEC	1				
7-9	2000760	LABEL-HANDS/ROCKS EC (SIDE DISCHARGE DECKS ONLY)	1				
7-10	2000642	LABEL-FUEL VALVE	1				
7-11	4163037	LABEL-DURADECK	1				

FIGURE 8



EC Gear Drive Midsize

PEERLESS TRANSMISSION

FIGURE 8

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
4127203 PEERLESS TRANS MODEL 700-070A (COMPLETE UNIT AVAILABLE THRU CGC, INC.)				8-60	778127A	GEAR, SPUR (23 TEETH)	1
(INDIVIDUAL COMPONENTS AVAILABLE THROUGH PEERLESS 1-800-558-5402)				8-65	780139	WASHER, THRUST	1
8-1	772083A	COVER, TRANSMISSION	1	8-66	776135	SHAFT, INPUT (3-11/16")	1
8-2	780086A	BEARING, NEEDLE	1	8-67	776402	SHIFTER & BRAKE SHAFT	1
8-2A	780142	BEARING, NEEDLE	1	8-71	788069	SEAL, SQUARE CUT	1
8-3	770061A	CASE, TRANSMISSION	1	8-72	792074	THREADED PLUG	1
8-4	776134	COUNTERSHAFT	1	8-81	786081	CHAIN, ROLLER #41	1
8-8	792089A	SHIFT KEY	4	8-82	786082	SPROCKET (9 TEETH)	1
8-9	784266	COLLAR, SHIFT	1	8-83	786083	SPROCKET (18 TEETH)	1
8-10	784376	ROD & FORK ASSY, SHIFT	1	8-90	788067B	GREASE (32 OZ BENTONITE)	
8-11	778154	GEAR, BEVEL (42 TEETH)	1	8-150	510334	GASKET ELIMINATOR (LOCTITE #515)	
8-12	778176	PINION, BEVEL (14 TH ST)	1	* (NOT ILLUSTRATED)			
8-20	792077A	BALL, STEEL, 5/16"	1	SEE YOUR PEERLESS DEALER FOR REPLACEMENT PARTS.			
8-21	792078	SET SCREW, 3/8-16 X 3/8	1				
8-22	792079	SPRING	1				
8-24	780071	BEARING, THRUST	1				
8-25	792073A	SCREW, 1/4-20 X 1-1/4	6				
8-27	792035	RING, RETAINING	1				
8-28	788040	RING, RETAINING	1				
8-29	780072	WASHER	6				
8-30	780108	WASHER	5				
8-32	792001	"O" RING	2				
8-34	780105A	BUSHING, FLANGED	4				
8-45	*	2308007					
NEUTRAL SWITCH NC			1				
8-49	778146A	GEAR, SPUR (37 TEETH)	1				
8-50	778125	GEAR, SPUR (35 TEETH)	1				
8-51	778239A	GEAR, SPUR (32 TH ST)	1				
8-52	778124A	GEAR, SPUR (30 TEETH)	1				
8-53	778123A	GEAR, SPUR (27 TEETH)	1				
8-56	778145	GEAR, SPUR (12 TH ST)	1				
8-57	778151	GEAR, SPUR (15 TEETH)	1				
8-58	778240	GEAR, SPUR (18 TH ST)	1				
8-59	778126A	GEAR, SPUR (20 TEETH)	1				

EC Gear Drive Midsize

FIGURE 9



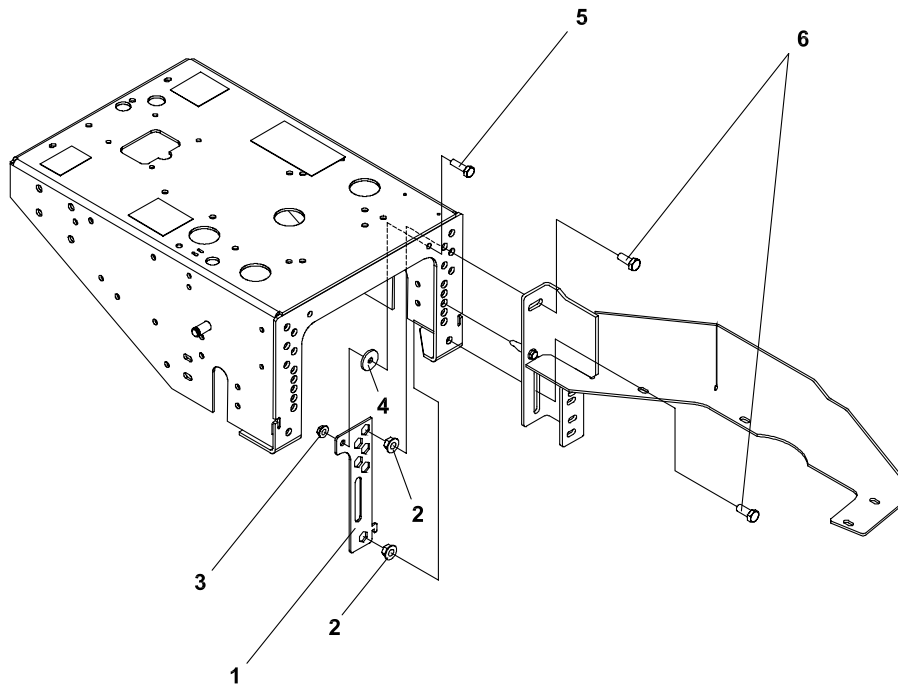
EC Gear Drive Midsize

ELECTRIC START BATTERY

FIGURE 9

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
9-1	64229-02	LOCKNUT-NYLON 5/16-18	2				
9-2	64163-29	WASHER	2				
9-3	128035	COVER-BATTERY	1				
9-4	2721392.2	WLDMT-ENGINE DECK GD	1				
9-5	64123-54	BOLT, 5/16-18X3/4 HEX	2				
9-6	112386	BOOT-BATTERY TERM POS	1				
9-7	108055	BATTERY	1				
9-8	108061-16	CABLE-BTTRY 31.5 BLACK	1				
9-9	64025-02	NUT-HEX 5/16-18	2				
9-10	4115331	S-TRAY BATTERY EC	1				
9-11	2722227-03	CABLE-BTTRY W/CONDUIT	1				
9-12	2722202.7	SUPPORT-BATT TRAY	1				
9-13	64197-016	BLT-TDFM 3/8-16X1/2	8				
9-14	123026	ROD,BATTERY HOLD DOWN	1				
9-15	38665	SOLENOID	1				
9-16	64152-23	1/4-20X3/8 LG SP SCREW	2				
9-17	108061-16	CABLE-BATTERY 31.5 BLK	1				
9-18	64025-15	NUT-HEX #10-24 KEPS	2				
9-19	64141-2	NUT-WLF 1/4-20	1				
9-20	4114789.7	SUPPORT-BATT TRAY EC	1				
9-21	4115136.7	BRKT-RELAY MTG	1				
9-22	2722325	RELAY-40 AMP SEALED	2				
9-23	64152-06	10-24X1/2 MACH SCREW	2				

FIGURE 10



EC Gear Drive Midsize

CUTTERDECK MOUNTING

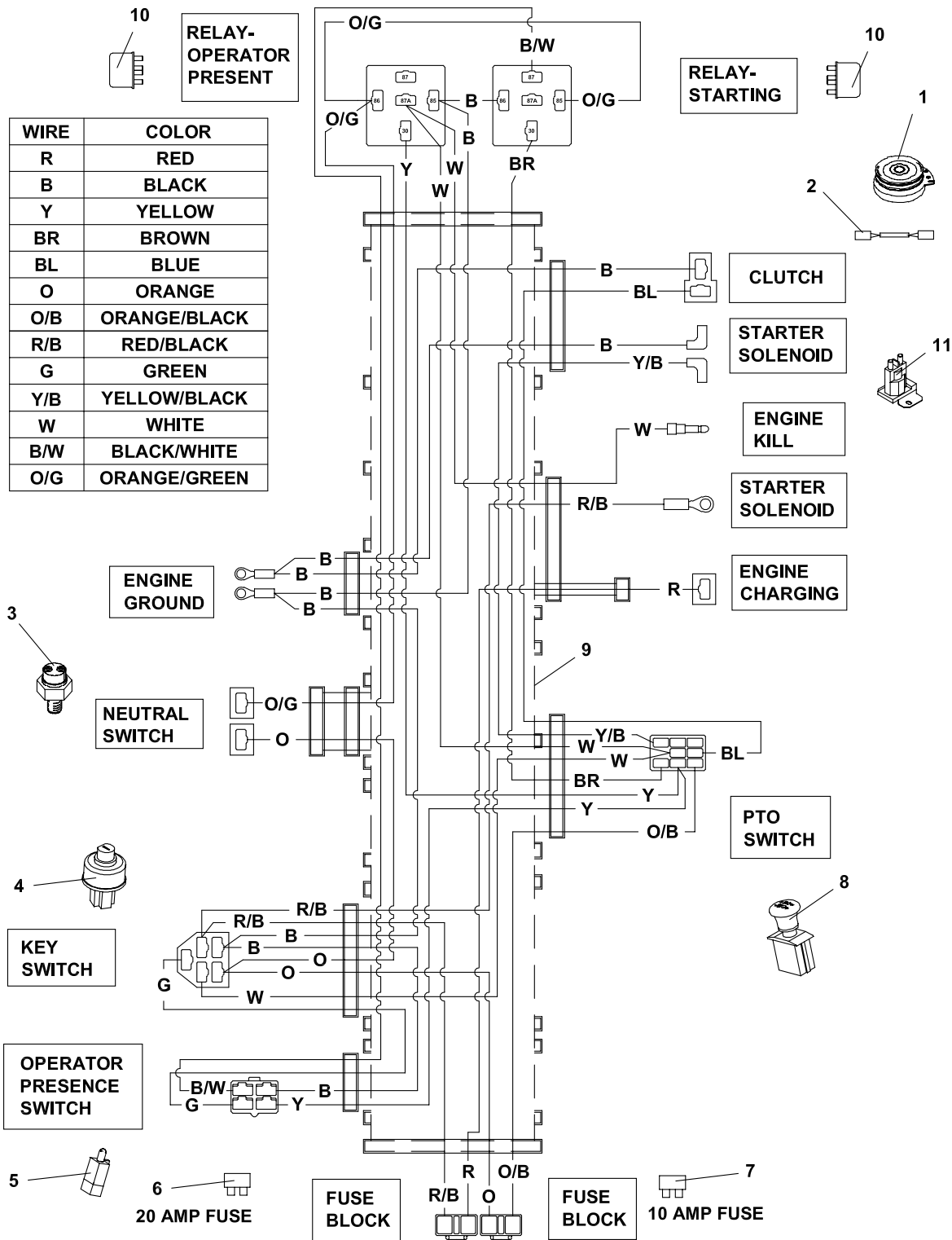
FIGURE 10

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
10-1	2721991.7	PLATE-NUT	2				
10-2	64246-04	NUT-WHIZ M12-1.75	12				
10-3	64141-4	NUT-WLF 3/8-16	2				
10-4	64163-82	WASHER-.406 X 1.44 X 9GA	2				
10-5	64123-50	BOLT-HEX 3/8-16X1	2				
10-6	64263-018	BLT-FLG HD M12-1.75 X 30	4				

ELECTRICAL DIAGRAM

FIGURE 11

EC Gear Drive Midsize



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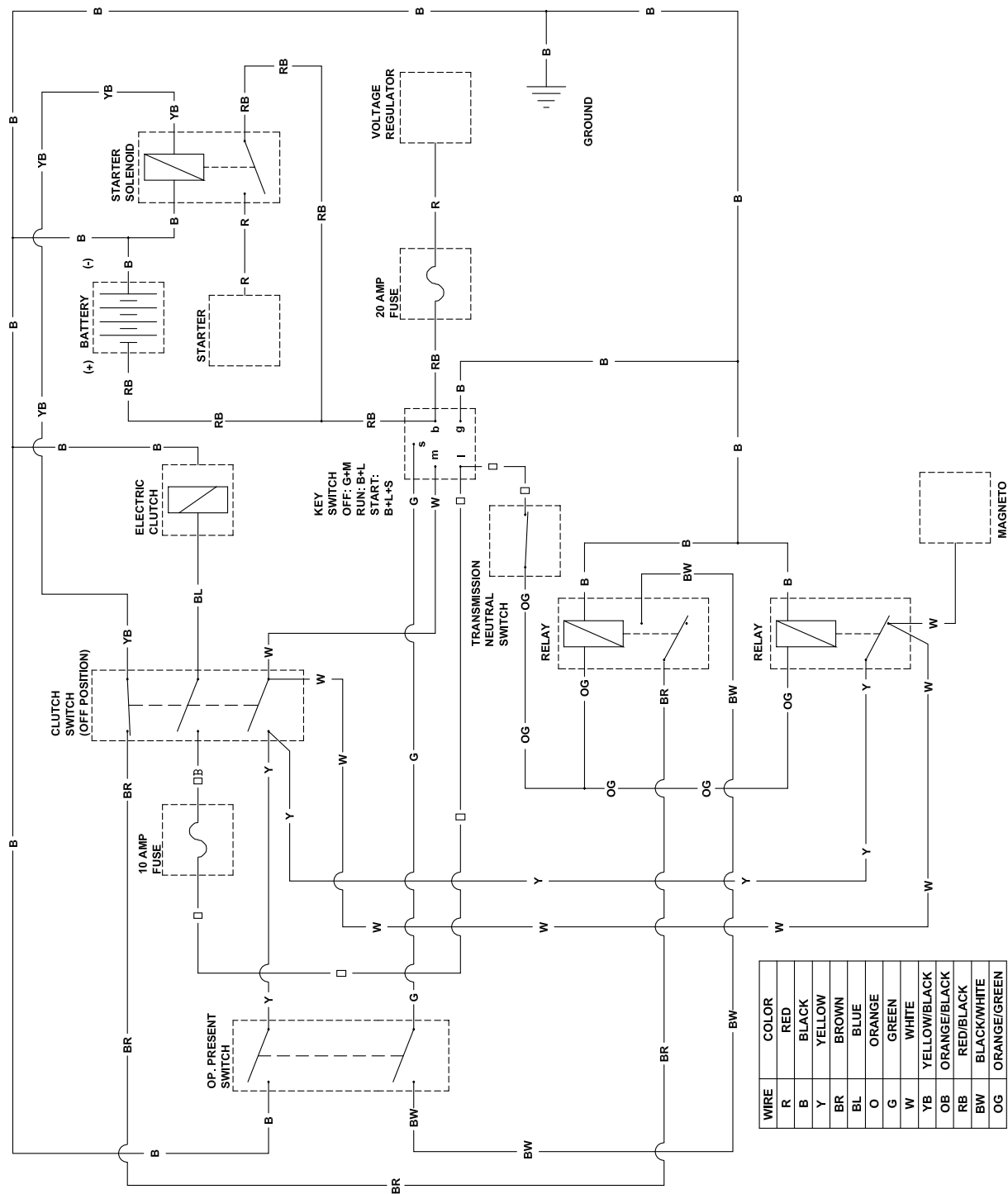
ELECTRICAL DIAGRAM

FIGURE 11

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
11-1	2721110	CLUTCH-ELECTRIC (INCLUDES ITEM 2)	1				
11-2	2720949	ASSY-CLUTCH WIRE	1				
11-3	PL8033	SWITCH TRANS NEUTRAL	1				
11-4	38148	SWITCH-ENGINE STOP	1				
11-5	2308094	SWITCH-NCNC DBL POLE	1				
11-6	148082-10	FUSE 10 AMP	1				
11-7	148082-20	FUSE 20 AMP	1				
11-8	2721505	SWITCH-PTO	1				
11-9	4128562	HARNESS-EC GD (INCLUDES ITEM 6 & 7)	1				
11-10	2722325	RELAY-40 AMP SEALED	2				
11-11	38665	SOLENOID	1				

ELECTRICAL SCHEMATIC

FIGURE 12



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