LINEWARD

TRENCHLESS UNDERGROUND EQUIPMENT

L2 Operating & Safety Manual

VIDEO LINK: Intro to Your New Line Ward

https://www.youtube.com/watch?v=vFme8O8lGZg&list=PLA6cLxSjdTaPVMDhFtUBsv-E8cWXbPIj5

Section 1. Safety

Safe Operating Practices - Training

Read this Operator's Manual and all other training materials. If the operator(s) or mechanic(s) cannot read or understand English, it is the owner's responsibility to explain this material to them.

- Become familiar with the safe operation of the equipment, operator controls, and safety features
- All operators and mechanics must be properly trained. The owner is responsible for this training.
- Never let children or untrained people operate this equipment.

The owner / user can prevent and is responsible for accidents or injuries occurring to himself or herself, other people, or property.

The L2 Line-Layer is equipped with an 'emergency shutdown switch'. Push the large red button (located on top of the handlebar assembly) down to shut the engine off, in any emergency situation.

Danger: In certain conditions gasoline is extremely flammable and vapors are explosive. Always use proper handling of gasoline. A fire or explosion from gasoline can burn you, others, and cause property damage.

- Fill the fuel tank outdoors on level ground and in an open area. Wipe up any spills.
- Do not refill or drain the tank indoors or in an enclosed trailer.
- Do not overfill tank. Leave empty space for fuel expansion.
- Ensure that the fuel cap is in good condition (seals tightly) and is properly installed.
- Never smoke when handling gasoline.
- Store gasoline in an approved container.
- Add fuel before starting engine. Do not remove fuel cap when engine is running.

Operating:

- Check that the machine's controls, safety switches, and guards are attached and working properly. Never operate with any damaged component. Never operate if controls and safety switches are not functioning properly.
- Engine parts, especially the muffler, become extremely hot during operation. Severe burns can occur on contact. Debris such as leaves, grass, brush, etc., can catch fire.
- Engine exhaust contains carbon monoxide, which is an odorless, deadly poison that can kill you. Do not run engine indoors or in a confined area where fumes can accumulate.
- Hands, hair, clothing, or accessories can become entangled in rotating parts. Contact with rotating parts can cause traumatic amputation or severe lacerations. Keep clear of moving and rotating parts.
- Check all bolts, nuts, and screws frequently to maintain proper tightness.
- Frequently check for worn or deteriorating components that may create a hazard and replace.

Removing standard original equipment parts and accessories may alter warranty, operation, and safety of the machine. Failure to use original Line Ward parts could cause serious injury or death. Replace all parts with original Line Ward parts only.

- Ensure that all labels (instructive and safety) are in place, clean, and legible.
- Replace all warn, damaged, or illegible labels.
- New labels may be obtained from your authorized Line Ward dealer or directly from Line Ward Corporation.

Preparation:

- Always call your local underground locating service to mark any underground utilities on the work site before performing any digging.
- Evaluate the terrain to determine what accessories or attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by Line Ward Corporation.
- Wear appropriate clothing, including: substantial footwear and safety apparel.
- Caution: This machine may produce sound levels in excess of 85DBA at the operator's ear and can cause hearing loss through extended periods of exposure. Wear hearing protection when operating this equipment.

Specifications:

Engine - Kohler Command Pro 22.5

- See your Engine manufacturer's manual for all specific information including precautions, specifications, maintenance, fuel requirements etc.
- Warranty Period - 3 Years (see Kohler manual for restrictions)

Fuel System:

- Capacity: 1.25 gals.
- Type: Regular unleaded gasoline, 87 octane or higher; containing no more that 10% methanol or ethanol. Use only fresh fuel.
- Fuel shut off valve is located at bottom of fuel tank.
- Fuel filter is Line Ward part #KC2405013

Lubrication (Oil) System:

- Pressure w/low pressure shutdown
- Capacity - 1.8 US qt.
- Type - 10W30
- Oil Filter is Line Ward part #KC1205001
- Engine is equipped with an oil sentry switch. Prevents starting when level is low.

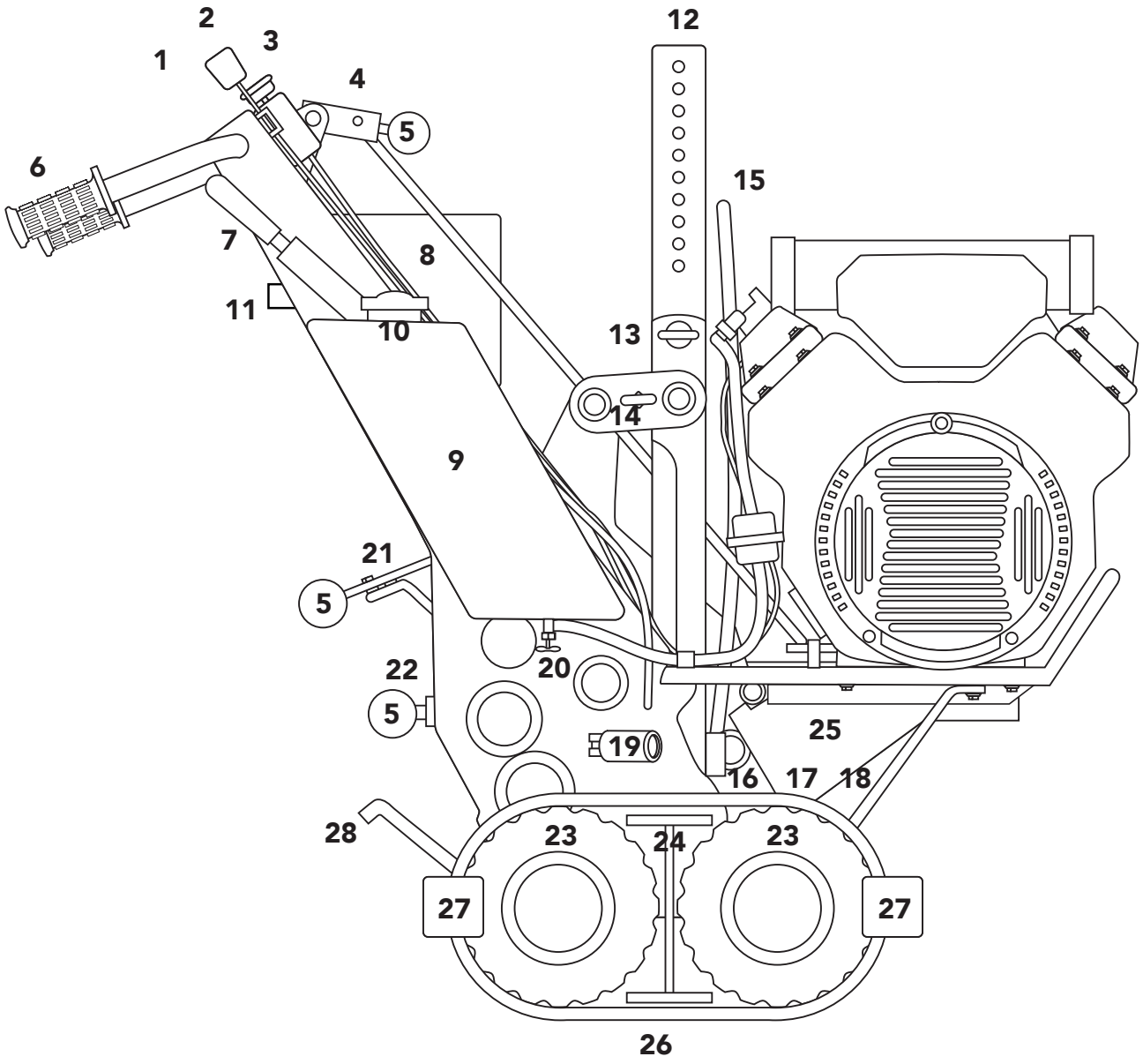
Electrical System:

- Charging system: Flywheel alternator
- Charging capacity: 15 amps
- Battery voltage: 12 Volt
- Polarity: Negative ground
- Battery: 12 volt - 14 amp (sealed)

L2 Line Layer Specifications:

- Weight: 825 approx.
- Height: 45"
- Width: 25.5"
- Length: 50"
- Minimum burying depth: 4"
- Maximum burying depth: 16" (ground conditions permitting)
- Gear Case - all mechanical drive
- Lubrication: 2 (only) US quarts 90W gear lube (80-90W acceptable)

Product Overview



1. TC314 / TC122 throttle cable
2. CC122 choke cable
3. SW22PP2N0 emergency switch
4. 112W main drive control
5. 44E knob(s)
6. HW78 handlebar grip{s}
7. lROD cleanout rod
8. 12VES battery
9. 290WC gas tank
10. 291WC gas cap
11. Ignition key
12. Blade
13. 133W blade pin
14. 140W wire guide
15. 63XW blade lock handle
16. 6QXW blade lock
17. 61W blade lock spring(s)
18. LF1428 lube fitting(s}
19. 27W blade drive handle
20. 293WC gas shutoff valve
21. 70W shift tever
22. 170W range shift lever
23. 34W wheel
24. 152W track scraper (R)
25. 151 W track scraper (L) (not shown}
26. 150W track(s)
27. 156W track retainer(s}
28. 131W ground runner

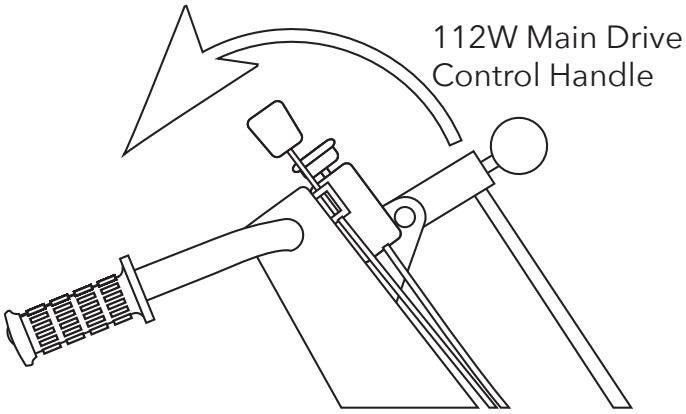
Operating the L2

Starting: Be certain that the 112W Main Drive Control Handle is disengaged (forward), and gear shift lever is in one of the neutral positions. Place throttle lever midway between slow and fast positions. Turn ignition key. It may be necessary to use the choke when starting a cold engine.

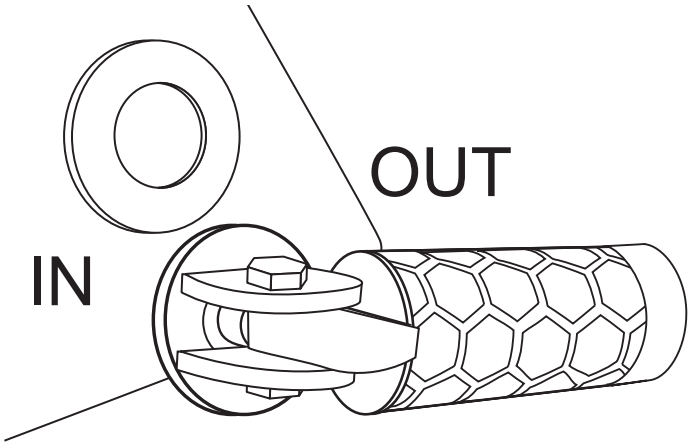
Note: *Make sure the emergency shutdown switch (large red button) is in the 'UP' position.*

Main Drive Control: The 112W Main Drive Control engages the gear case through the two V belts from the engine. The Main Drive Control Handle should be engaged slowly to reduce stress on internal parts such as chains, gears and shafts. When the V belts are properly adjusted for tension, the Main Drive Control Handle will lock into place with resistance, as it is pulled rearward, over center.

Note: *The 112W Main Drive Control Handle is disengaged when in 'forward' position.*



Blade Drive Handle: This lever (27W) engages the blade drive system. Before engaging the 27W Blade Drive Handle (from the 'OUT' to the 'IN' position), make sure the 112W Main Drive Control Handle is 'disengaged', so as to prevent damage to the blade drive gears.



27W Blade Drive Handle

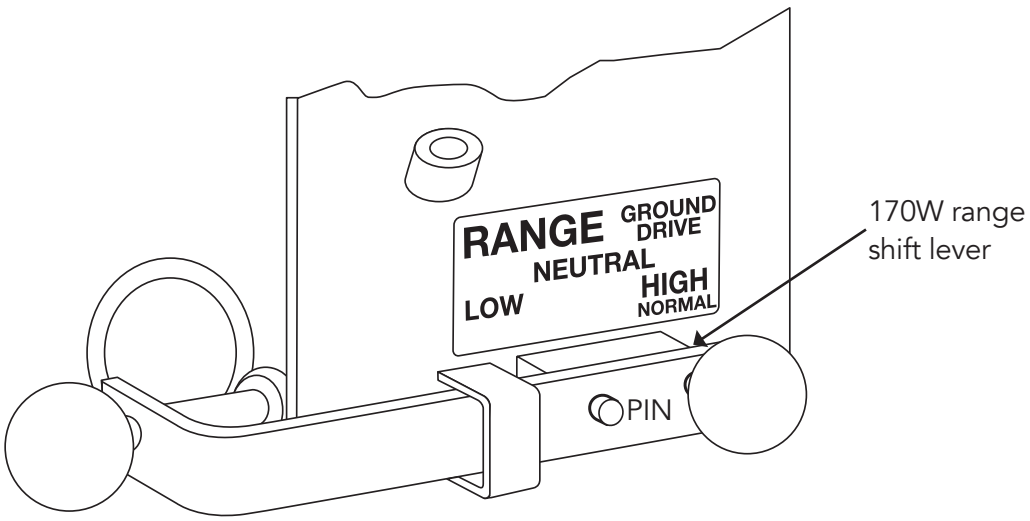
Gear Selection: Proper gear selection is the key to efficient line installation. Gear selection is determined by several factors. Some are listed here.

- Low Range / Low Gear - approx. 15 fpm. For burying in extremely hard ground conditions and/or deeper depths. Also, a good ground speed when boring with the optional Line Ward Boring Attachment.
- Low Range / High Gear - approx. 30 fpm. Best speed for burying services at any depth, as it allows the L2 to work efficiently through the ground under control and limits track spinning if underground obstacles are encountered.
- High Range / Low Gear - approx. 60 fpm. Can be used when burying at shallower depths and/or good ground conditions. Also used when loading L2 for transport.
- High Range / High Gear - approx. 120 fpm. Should only be used when transporting the machine from truck to job site and back. Also, when compacting the ground slit over the installed line.

Note: *The shifting gear(s) may need to be rotated a bit, for alignment with their corresponding gear(s). Use the following procedure to bring them into alignment for shifting. Gently, but not fully, slightly engage the drive belts with the 112W Main Drive Control Handle. This will rotate the gearing to allow for engagement. This procedure must be done with care and with the engine at idle speed.*

SHIFTING: To shift the upper 70W Gear Shift Lever, lift the lever slightly to disengage the pin and move the lever to the hole of the desired gear position.

Range Shift Lever: As noted above, the 170W Range Shift Lever will provide two additional, slower ground speeds, when in the 'LOW' position. To shift from high to low range, it may be necessary to follow the procedure described above. Gently engaging and disengaging the Main Drive Control Handle to align the gears. Pull and slide the lever until the pin is in the desired range, as per the label.



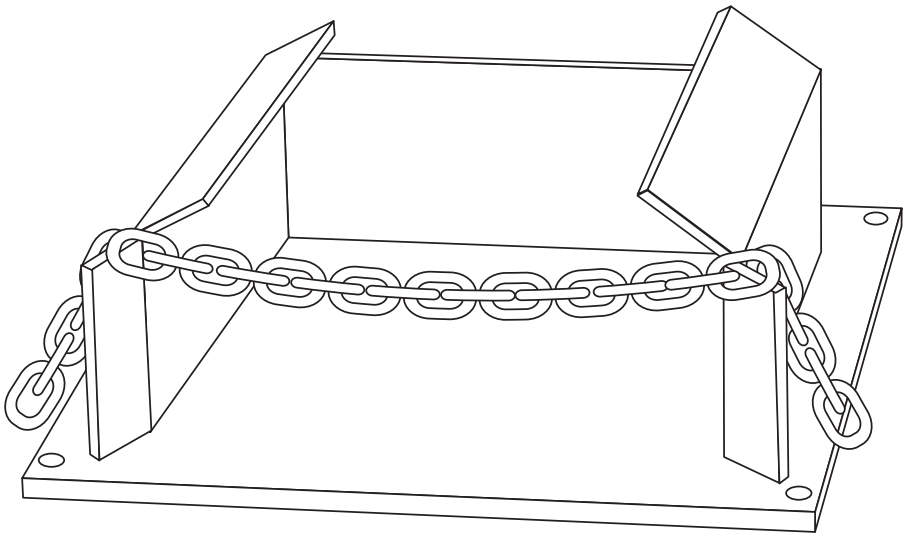
How to Shift Lineward L2 Linelayer
https://www.youtube.com/watch?v=15UFwZ9HX7U&t=16s

Loading & Transporting

Transport Carrier: The 191W Transport Carrier allows your machine to be safely transported in your vehicle or trailer, without time consuming tie down(s). When loading, carefully drive your machine completely into the Transport Carrier, until it starts to spin in place. Then turn the ignition key "Off'. Leave the machine in gear with the 112W Main Drive Control Handle 'engaged'. This will ensure that it does not roll while in the Transport Carrier. Make sure to attach the safety chain for added security.

Note: *Always load and unload your machine in 'LOW' gear.*

Note: *The 191W transport carrier must be secured to the bed or floor of the vehicle in which it is being transported.*

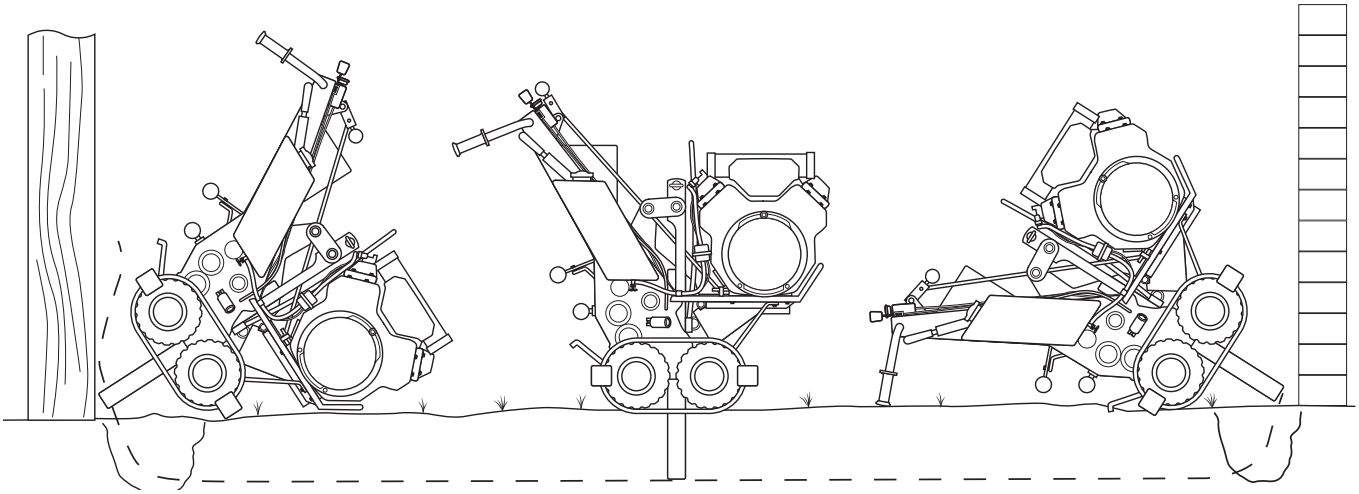


Ramps: Line Ward offers heavy duty, non-slip, galvanized, steel ramps for loading and unloading your machine. Use 'LOW' gear only, and reduce engine speed, when loading or unloading. This will help the operator maintain control of the machine as it ascends or descends the ramps. When loading or unloading, it helps to pull up on the handlebars slightly, adding some additional pressure to the front wheels.

FOR SAFETY: It is recommended that wood or aluminum ramps not be used to load or unload your machine.

VIDEO LINK: How to safely load and unload the L2
https://www.youtube.com/watch?v=vaQ4NHtG-n4&list=PLA6cLxSjdTaNycbu5pyrudwOOvKwxBc1A&index=17

Basic Wire Burying Instructions (using Feed Blade)



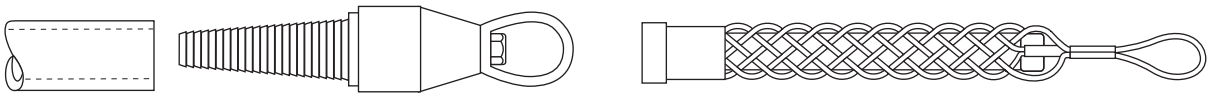
1. Determine the route to be used. Dig a starting hole or trench approximately 15" from the pole or pedestal. Do the same at the end point (i.e. house). Lay the wire or cable along the predetermined route, compensating for any utilities or obstacles that may present a problem along the way.
2. Carefully back your machine to the pole or pedestal (starting point) and disengage the 112W Main Drive Control Handle..
3. Select an appropriate 'FORWARD' gear.
4. Engage the 27W Blade Drive Clutch Handle by turning it to the 'IN' position.
5. Shut the engine off.
6. Tip the machine forward. Release the 63XW Blade Lock Handle from the 133W Blade Pin. Remove the blade pin and lower the blade to the desired depth. Insert the pin and lock the handle.
7. Insert the wire or cable through the 140W Wire Guide and down the chute in the feed blade. Pull enough extra wire or cable through the blade to accommodate installation at the start point.
8. Secure the wire or cable, by wrapping it around the pole or pedestal a couple of times and tying it off.
9. Tip the machine back to its upright and level position.
10. Start the engine, and slowly engage the 112W Main Drive Control Handle to initiate forward movement.
11. Proceed along the chosen route to the end point.
12. Upon reaching the end point, disengage the 112W Main Drive Control Handle.
13. Disengage the 27W Blade Drive Clutch Handle by turning it to the 'OUT' position.
14. Shift the machine into 'REVERSE' and shut the engine 'off'.
15. Gently tip the machine rearward onto the handlebars. Do not 'drop' onto the handlebars.
16. Cut the wire or cable, allowing enough length for installation at this end. Remove the wire or cable from the bottom of the feed blade.
17. Raise the blade to the transport position and pin in place. Raise the machine to its upright and level position, start the engine, and carefully back away from the house.
18. Running one of the tracks over the slight rise of earth created by the blade motion will help to tamp down and flatten the ground for restoration.

VIDEO LINK: How to bury a cable with the L2
https://www.youtube.com/watch?v=KqIjbwhuPzg&t=23s

Pulling Pipe & Larger Cable (using pull blade)

1. Dig a hole or short trench at the start and end points. Determine the route to be used, compensating for any utilities or obstacles. A more direct route will help to reduce drag.
2. Position the machine over the start hole, and select an appropriate forward gear. Engage the 27W Blade Clutch Handle to the 'IN' position and turn the engine off.
3. Tip the machine forward. Lower the blade to the desired depth and connect the cable or pipe to a grip or holding device and attach to the chain on the pull blade).

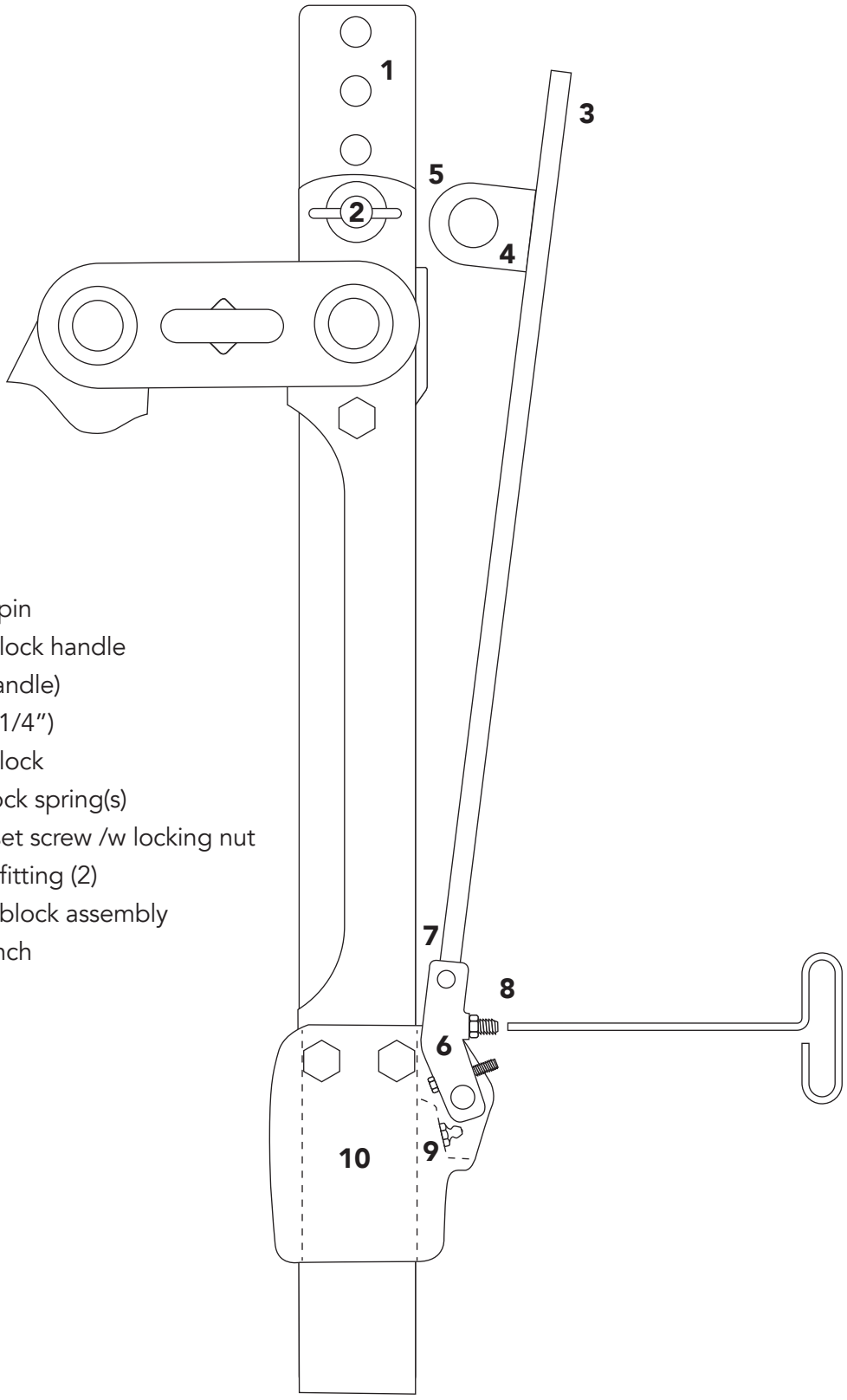
GRIP TYPE EXAMPLES



4. Return the machine to the upright position and start the engine. Adjust the throttle accordingly and slowly engage the main drive control handle to initiate forward movement.
5. Follow the predetermined route to the end point, going just beyond the hole and shut the engine off.
6. Tilt the machine forward. This should expose the pulling grip. Detach the pipe or cable. Raise and pin the blade in the transport position. Secure the grip and chain so that it does not drag on the ground. Bring the machine back to the upright position.
7. Finish by following step 18. In the feed blade directions, if desired.

VIDEO LINK: How To Use a Pull Blade
https://www.youtube.com/watch?v=e950IP02cr8

GREASING AND TENSION OVERVIEW



1. blade
2. 133W blade pin
3. 63XW blade lock handle
4. tab (63XW handle)
5. gap (1/2” to 1/4”)
6. 60XW blade lock
7. 61W blade lock spring(s)
8. SC38134SS set screw /w locking nut
9. LF1428 lube fitting (2)
10. 38WX blade block assembly
11. 3169T T wrench

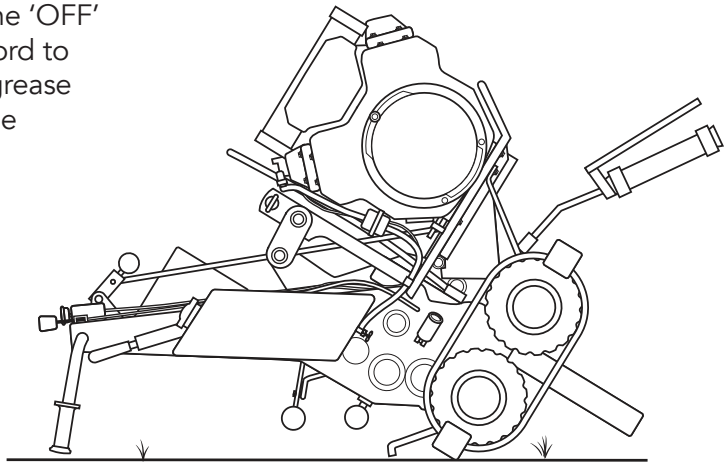
Basic Machine Maintenance

1. Keep your machine as clean as possible. Pay special attention to the areas in and around the blade drive block, wheels, tracks, and track scrapers. Clear of any mud buildup, stones, or any other debris.
2. Occasionally, put a few drops of oil on control pivots and linkages, as good sense would dictate.
3. Check for loose bolts and screws and tighten or replace as needed.
4. Make sure all parts are in place and in working order.

DETAILED GREASING INSTRUCTIONS:

38W Blade Drive Block:

1. Your machine 'MUST' be greased every working day. Our LWEP2 Line Ward Grease is a high quality lithium based grease that lubricates and displaces any dirt, water or debris from the blade drive system. It has a 'high shear stability', which helps to prevent the grease from being thrown from the system during operation, due to the centrifugal force generated during operation. It also has a water-proof quality to help prevent moisture from entering the system.
2. There are only (2) grease fittings on the machine and these are both located on the 38W Blade Drive Block. To expose these fittings for greasing, the blade drive system must be raised to the top of its stroke, by doing the following:
   a. If your machine is equipped with our HTK hub kit, engage the 27W Blade Drive Handle to the 'IN' position. Using the HTK2 hub tool, rotate the blade drive system until the grease fittings are exposed. Disengage the 27W after greasing.
   b. If not equipped with the HTK2 hub kit, engage both the 112W Main Drive Control Handle and the 27W Blade Drive Handle. With the ignition key in the 'OFF' position, pull the engine recoil starter cord to rotate the blade drive system until the grease fittings are exposed. Disengage both the 112W and 27W after greasing.



NOTE: *Clean the area around the grease fittings and wipe off the fittings, before greasing. Pump about 10-12 shots of grease into each fitting. You should see or hear the grease as it squeezes out from the sides of the blade block.*

VIDEO LINK: How to grease
https://www.youtube.com/watch?v=Z2Fs5fale2g

DETAILED TENSION ADJUSTMENT INSTRUCTIONS:

1. Blade tension is as important to the maintenance of your machine, as is the greasing. While you will only have to adjust the blade tension when needed, it should be checked each day. When adjusted properly, the 60XW Blade Lock secures the blade against the back of the 38W Blade Block while in operation. This keeps the blade from moving back and forth within the blade block, which can cause excessive wear and possible damage to both the block and blade.

2. Tip the machine rearward. Release the 63XW Blade Lock Handle and pull the 133W Blade Pin. Lower the blade to the normal working depth and replace the blade pin, but not the 63XW Handle.

3. As the 63XW Blade Lock Handle is moved towards the 133W Blade Pin, you should start to feel tension on the Handle as you near the blade, anywhere from about 1/2 to 1/4 inch from the front of the tab on the handle, to the front edge of the blade. As shown on the Greasing / Tension Overview page.

4. If the tension needs to be increased, follow these steps:

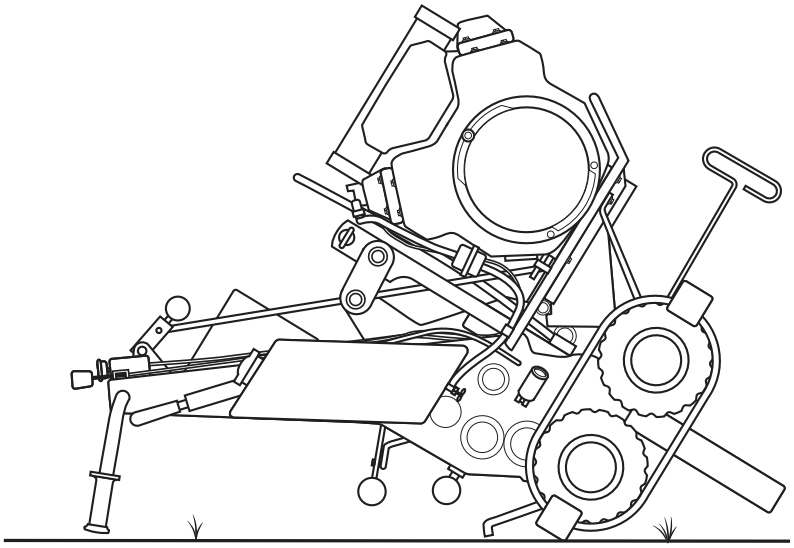
   a. Make sure the 61W Blade Lock Spring(s), attached to the rear of the 60XW Blade Lock, are in place and unbroken. Replace if necessary.

   b. Loosen the 3/8 locking nut on the set screw of the blade lock.

   c. Using the 3169T Hex-Key Wrench (located on the side of the machine), tighten the set screw until the proper tension is attained. RETIGHTEN the locking nut.

Note: *Adjusting tension with the set screw is quick and easy when stressed for time or when in the field. A more permanent fix, is to add another 61W blade lock spring or springs. Loosen the set screw accordingly. This will distribute the tension on the 61W springs more evenly, as opposed to the pointed end of the set screw.*

5. Raise the blade to the transport position, pin and secure with the 63XW handle.



VIDEO LINK: How to adjust blade tension
https://www.youtube.com/watch?v=oK-naql84rM

MAINTENANCE - WEAR ITEMS:

NOTE: *The following items will need to be replaced when worn or damaged.*

45W Deflector

1. The plastic 45W Deflector helps to deflect dirt and debris from the blade block area. It helps to protect the cast ridge on the blade block (below the grease fittings), to prevent damage to the fittings.
2. Secured with (4) 10-24 slotted screws, 45W should face downward.

90W Ground Runner Bracket

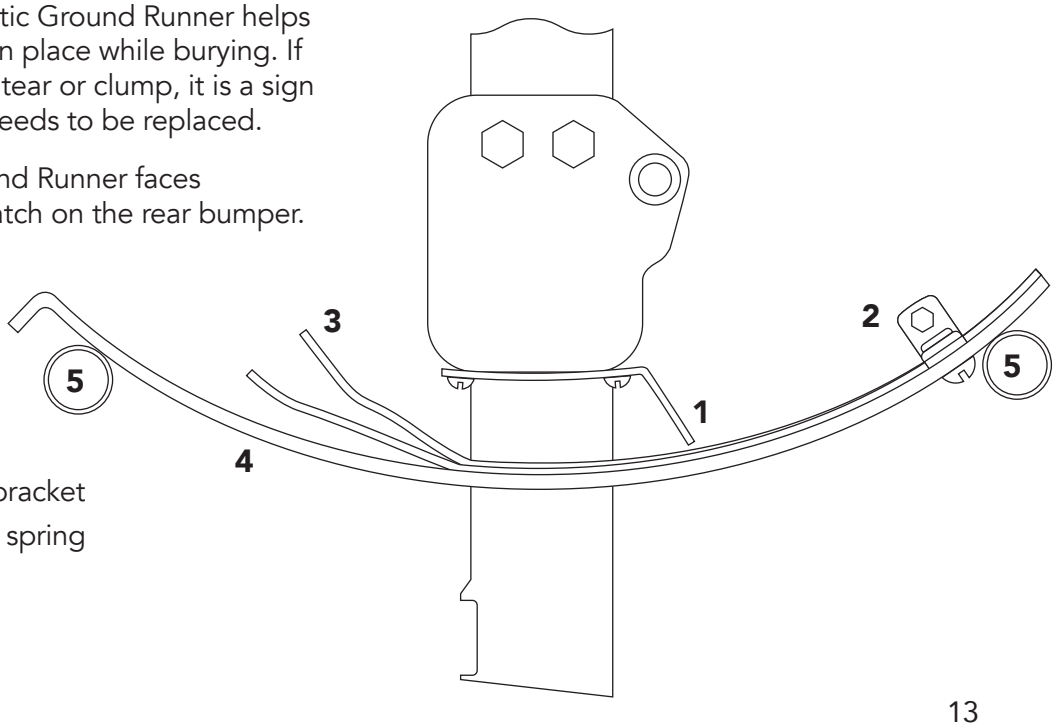
1. The 90W Bracket is located between the front bumper brackets. The 130W Spring and 131W Runner are attached to this bracket.
2. The 90W Bracket is attached to the bumper with (2) 5/16-18 X 5/8 bolts and 5/16-18 lock nuts. Do not completely tighten the lock nuts, as the 90W must swivel within the bumper brackets.

130W Ground Runner Spring

1. The 130W steel Spring assists in pressing the 131W Ground Runner to the ground, to help hold the turf in place while burying your wire, cable, or pipe.
2. The 130W Spring faces upward.

131W Ground Runner

1. The flexible plastic Ground Runner helps to hold the turf in place while burying. If the turf starts to tear or clump, it is a sign that the 131W needs to be replaced.
2. The 131W Ground Runner faces downward, to catch on the rear bumper.



1. 45W deflector
2. 90W ground runner bracket
3. 130W ground runner spring
4. 131W ground runner
5. bumper(s)

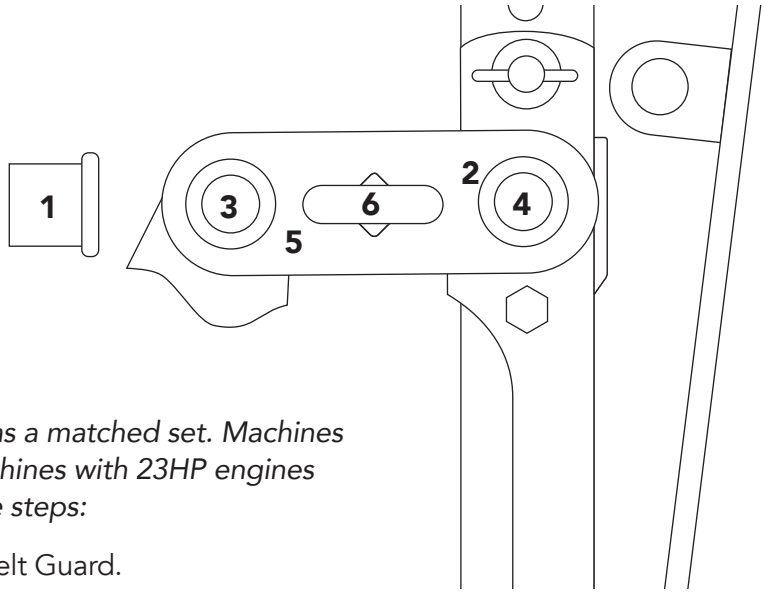
MAINTENANCE – WEAR ITEMS cont.

16L16 Nyliner

1. The (4) 16L16 Nyliners are plastic lube-infused bushings. They fit over the 54W Pivot Pin and the 55W Swivel, along with the 56W Pivot Arms.
2. To replace the Nyliners, follow these steps:
    a. Remove the (4) RR51100 Retaining Rings and the WAS3332 Spacers from the 54W Pivot Pin and 55W Swivel.
    b. Remove the 140W Wire Guide and 59W Bushing between the 56W Pivot Arms.
    c. Apply anti-seize grease to the surfaces of the 54W, 55W, and 56Ws.
    d. Reinstall all of the above items, making sure to tighten the 3/8 locknut on the 140W wire guide.

NOTE: *It is recommended that the Nyliners be replaced about once a year.*

1. 16L16 nyliner (4)
2. retaining rings / spacers
3. 54W pivot pin
4. 55W swivel
5. 56W pivot arm (2)
6. 140W wire guide / 59W bushing



Drive Belts

NOTE: *Drive belts should be replaced as a matched set. Machines with 16HP engines use AP53 belts. Machines with 23HP engines use AP54 belts. Replace following these steps:*

1. Remove the 126W or 126XW Belt Guard.
2. Remove the 119W Belt Guide.
3. Remove the 153W Belt / Track Guard and loosen the 124W Bracket.
4. Remove the old belts and replace with new.
5. Replace and tighten the above items. The 119W Belt Guide must be in place for the belts to disengage.
6. Readjust belt tension, if necessary. Loosen the nut above the 118W Clevis Yoke and remove the (2) 114W Bolts from the main drive control bracket. Turn the 115W Idler Arm Control Rod counter-clockwise to decrease tension. Clockwise to increase tension. Once properly adjusted, replace the 114W Bolts and retighten the nut above the 118W Clevis Yoke.

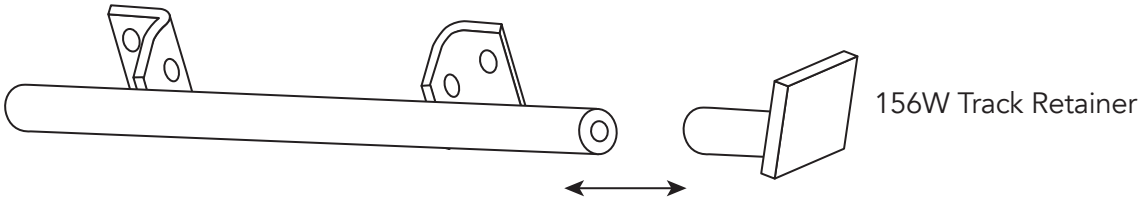
NOTE: *Make sure the belts stop turning when the 112W Main Drive Control is disengaged.*

VIDEO LINK: How to adjust belt tension
https://www.youtube.com/watch?v=PDxEZe66x0E

150W Track(s)

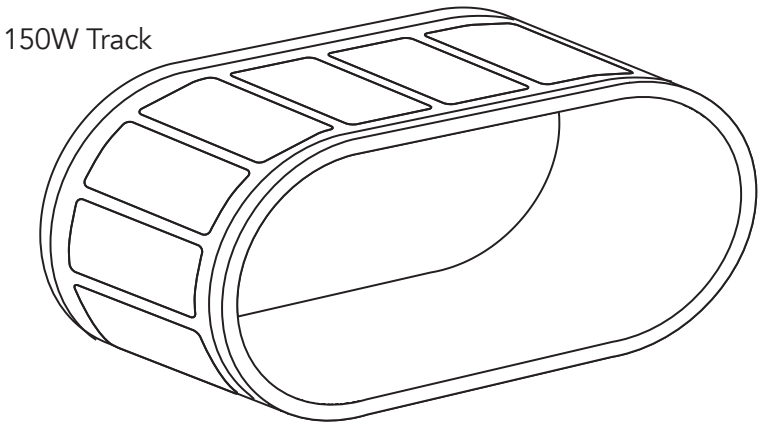
NOTE: *After much wear and tear, older tracks may start to slip and will need to be replaced to avoid wear to the wheels. There is no adjustment for stretched tracks. To replace worn or damaged tracks, follow these steps.*

1. Remove the 156W Track Retainer(s), as necessary, from the ends of the bumpers. Do not remove bumpers.



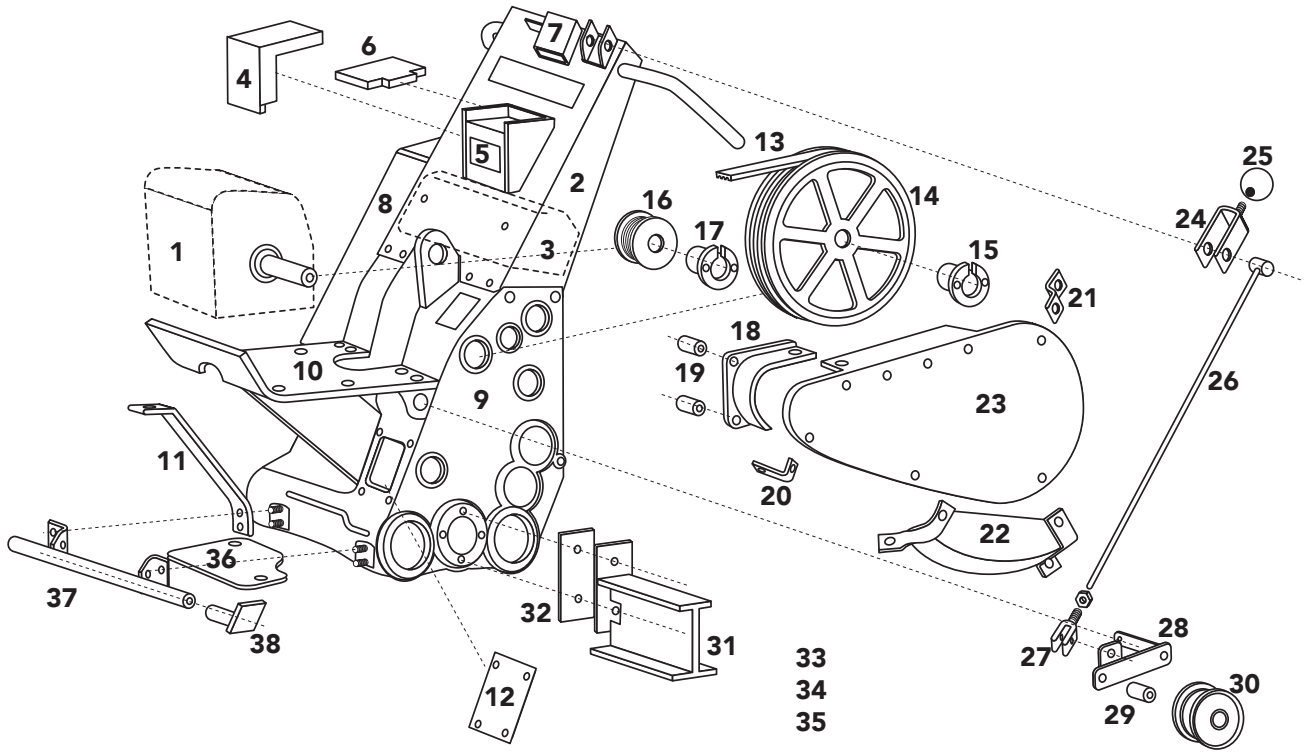
2. The tracks may need to be walked off. That is – they will need to be driven off the wheels by alternately tipping the machine forward on its nose and then rearward on its handlebars. Use care not to drop the machine when tipping forward or rearward, so as to avoid any damage to the 98W Motor Mount or 101XW Handlebar Assembly.
3. After removing the track(s), clean the wheels of any stones or debris, as well as the 151W and 152W Track Scraper areas.
4. Tip the machine forward and place the new track over the front wheel about an inch or so. Hold in place with your foot, while stretching the other end of the track over the rear wheel. Use a 4 - 5 pound hammer to alternately (front to back) drive the track onto the wheels until they are fully seated.

NOTE: *Spraying the wheels with water will help with the installation of the track(s).*



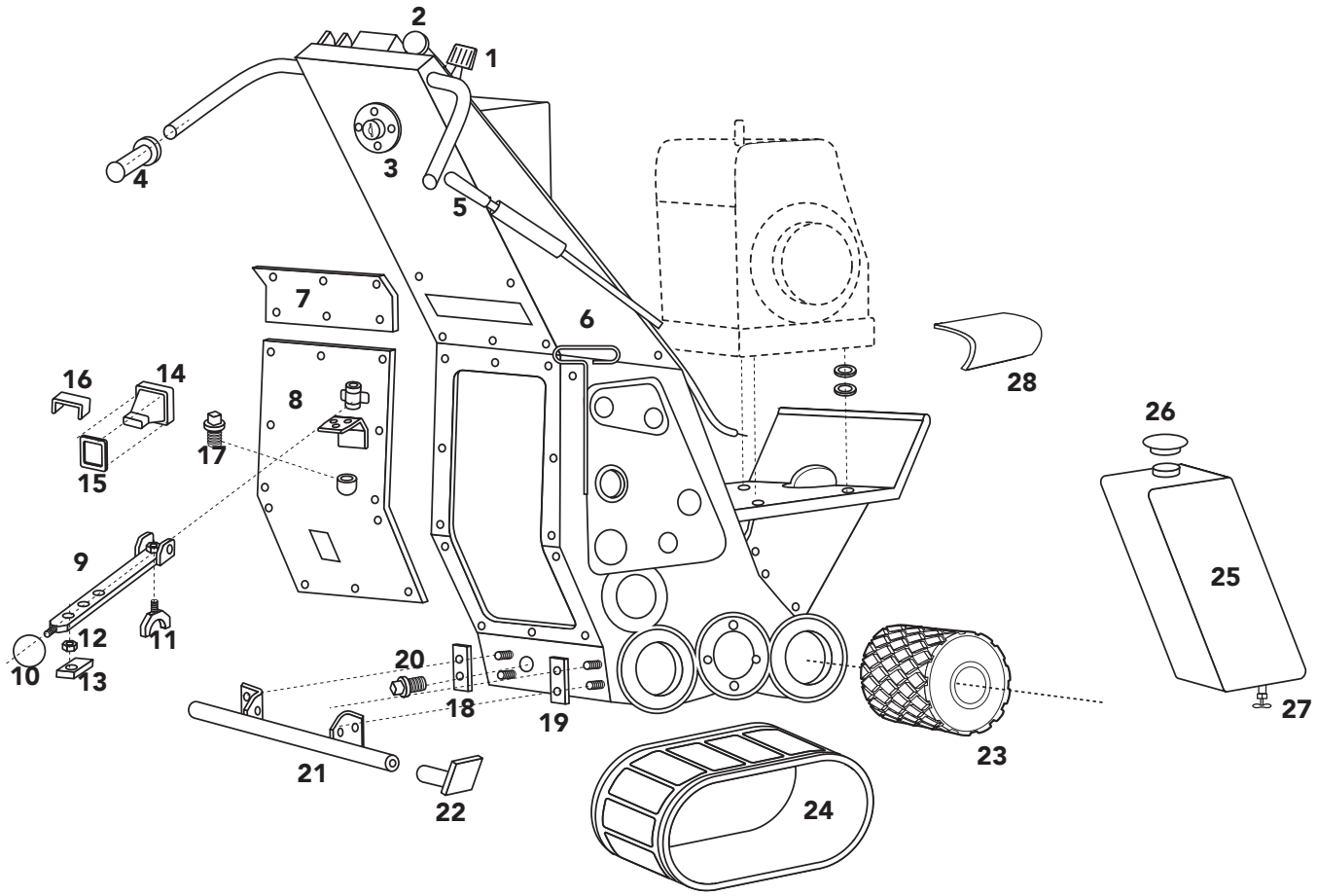
VIDEO LINK: How to remove/install 150W track
https://www.youtube.com/watch?v=8o-NeKntgDk

MACHINE OVERVIEW (LEFT SIDE)



1. Engine, Kohler 23HP twin cylinder or Kohler-16HP single cylinder
2. 101XW handlebar assembly
3. 108XW weight, counter balance
4. 189W cover, battery box
5. 12VES battery
6. 260W wood spacer, battery
7. 265W box, shutdown switch
8. 290WC-A gas tank assembly
9. 1XW gear case
10. 98W engine mount
11. 85W brace, engine mount
12. 84W front cover
13. AP54 belt(s) (23HP) / AP53 belt(s) (16HP)
14. AK124 drive sheave
15. H1 bushing
16. AK46 engine sheave
17. H118 bushing, AK46
18. 119W belt guide
19. 120WC spacer (2) (23HP) / 120W spacer (2) (16HP)
20. 122W bracket, front guard (not used with boring attachment)
21. 124W bracket, top rear guard
22. 153W guard, belt / track
23. 126W guard, belt / 126XW guard belt (used w/ boring attachment)
24. 112W control handle, main drive
25. 44E knob
26. 115W rod, idler control
27. 118W clevis yoke assembly
28. 93W idler arm
29. 97W spacer, idler pulley
30. FI92 idler pulley
31. 151W scraper, track (L)
32. 181W spacer (L)
33. 152W scraper, track (R) not shown
34. 183W spacer (R) not shown
35. 184W spacer (R) not shown
36. 129W front shield
37. 86W bumper, front
38. 156W retainer, track

MACHINE OVERVIEW (RIGHT SIDE)

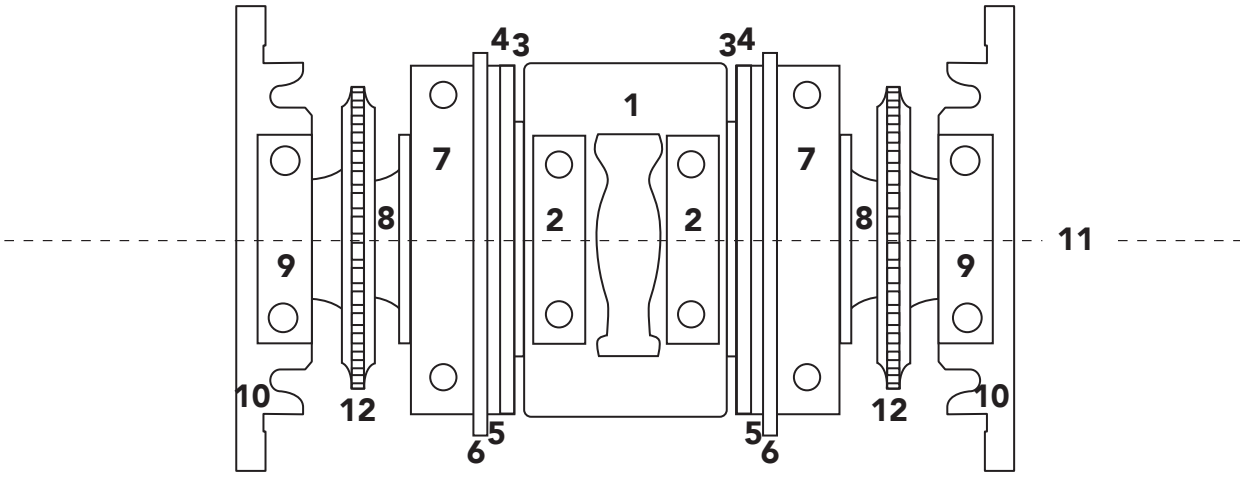


1. TC314 throttle cable (23HP) / TC122 throttle cable (16HP)
2. CC122 choke cable
3. KMC2509937 keyswitch w/ keys
4. HW78 grip (2), handlebar
5. 1ROD cleanout rod (for feed blades only)
6. 316-9T wrench – hex T
7. 109W tie, handlebar
8. 66XW rear cover
9. 70W lever assembly, shift
10. 44E knob
11. 77W fork, shifting
12. 76XW spacer, shift lever
13. 7X6W lug, shift lever
14. 80W boot, shift lever
15. 81W retainer, boot
16. 82W clip, boot
17. 83W plug, vent / fill
18. 154W wear pad (L)
19. 155W wear pad (R)
20. PL12SH plug, drain
21. 91W bumper, rear
22. retainer, track
23. 34W wheel
24. 150W track
25. 290WC tank, gas
26. 291WC cap, gas
27. 293WC valve, shutoff
28. 295WC front cover, wiring harness

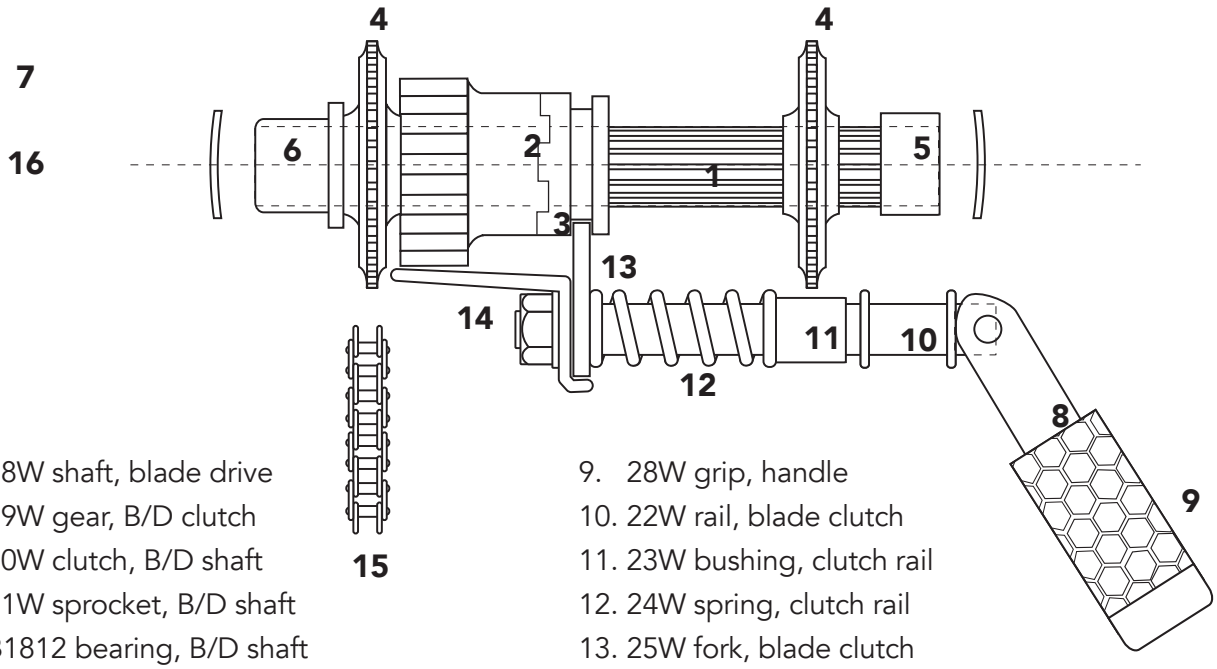
LABELS used:

50W warning, maintenance
110W shift pattern
172W range shift pattern
173W nameplate, L2
LWESD emergency shutdown
LW7996 engine shut down instructions
LW7997 gasoline only

BLADE DRIVE OVERVIEW

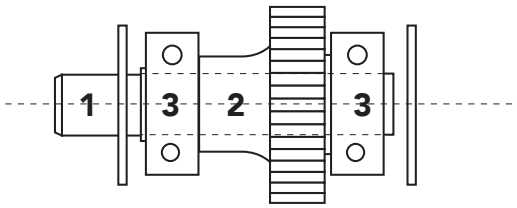


1. 38WX blade block assembly
2. B305 bearing, blade block
3. 46W labyrinth disk, block
4. 47W labyrinth disk, case
5. 36W seal assembly, crank
6. RR50393 retaining ring
7. B6013 bearing, crank / case
8. 48W crank, blade drive
9. B206 bearing, cap
10. 53W cap, blade crank
11. SC3814SS set screw, cap
12. C5044 chain, blade drive



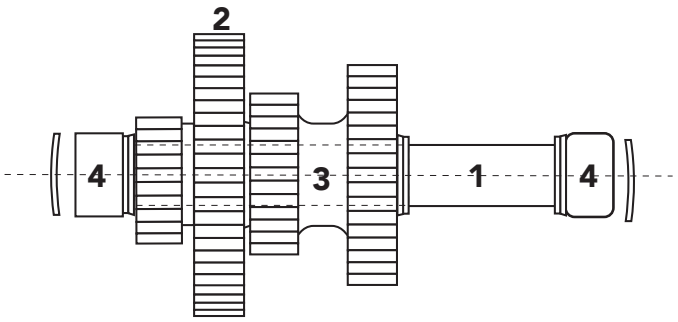
1. 18W shaft, blade drive
2. 19W gear, B/D clutch
3. 20W clutch, B/D shaft
4. 21W sprocket, B/D shaft
5. B1812 bearing, B/D shaft
6. B1416 bearing, B/D shaft
7. HDWE. Used: RP316114 roll pin, RR51112 retaining ring (3), EP1316 & EP158 expansion plug, WAS2932 & WAS3732 spacer(s)
8. 27W handle, blade clutch
9. 28W grip, handle
10. 22W rail, blade clutch
11. 23W bushing, clutch rail
12. 24W spring, clutch rail
13. 25W fork, blade clutch
14. 26W deflector blade/ chain
15. C5044 chain, blade drive (2)
16. HDWE. Used: BT14114 bolt, NT1420L nut, OR712 O ring, WA58 & WA38 washer(s), NT3816 nut

SHAFT(S) OVERVIEW



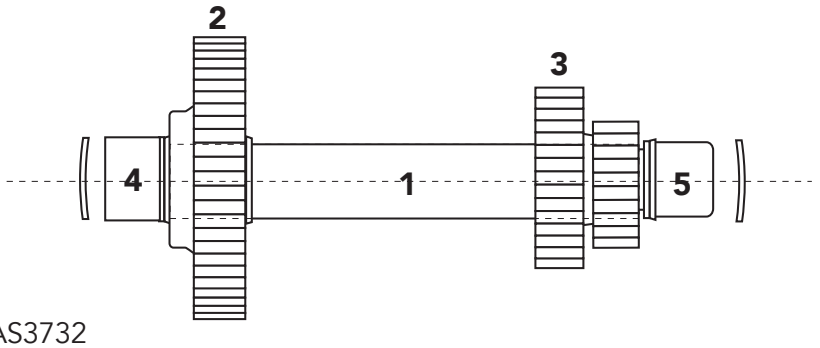
SHAFT 1

1. 2W shaft
2. 3W gear, input
3. B6305-2 bearing
4. HDWE. used: KY808 key, RR51100 (2) & RR50244 (2) retaining ring



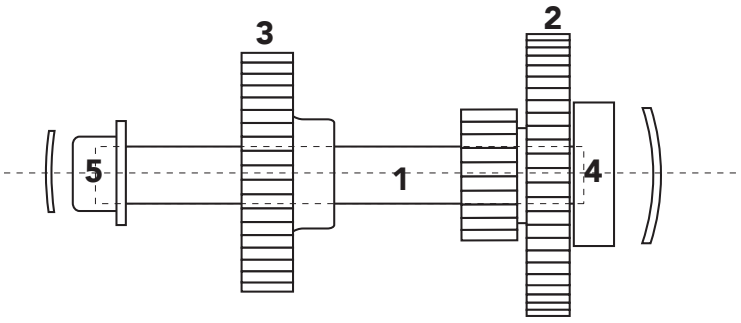
SHAFT 2

1. 4W shaft
2. 5W gear, driven drive
3. 6W gear, reverse idler
4. B1612 bearing
5. HDWE. used: KY808 key, RR51100 retaining ring (3), WAS3332 spacer(s), EP138 (2) expansion plug



SHAFT 3

1. 7w shaft
2. 8W gear, driven
3. 9W gear, shifting drive
4. B1812 bearing
5. B1416 bearing
6. HDWE. used: RR51112 retaining ring, WAS3732 & WAS2932 spacer(s), EP158 & EP1316 expansion plug



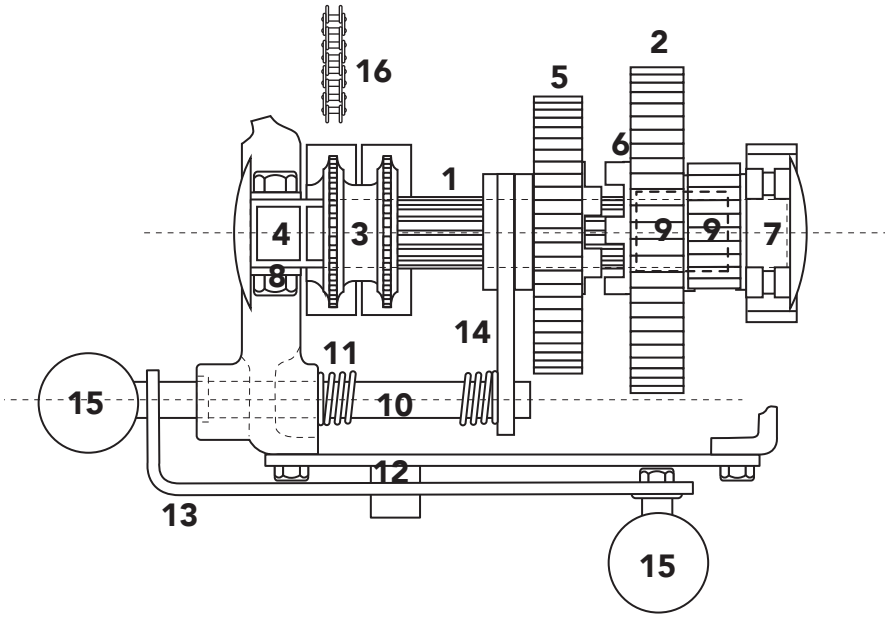
SHAFT 4

1. 10W shaft
2. 11W gear, driven drive
3. 12W gear, high reverse
4. B21305 bearing
5. B1612 bearing
6. HDWE. used: KY808 (2) key, RR51100 (4) retaining ring, EP138 & EP212 expansion plug SHAFT(S) OVERVIEW…CON'T.

SHAFT(S) OVERVIEW... CON'T.

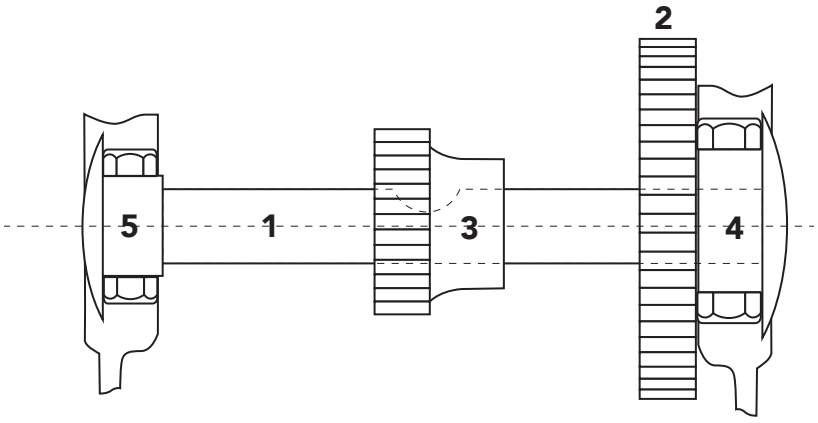
SHAFT 5

1. 13XW shaft
2. 14XW gear, driven drive
3. 15XW sprocket
4. 160W bushing
5. 161W gear, clutch driven
6. 162W bearing, gear thrust
7. B21305 bearing
8. B22206 bearing
9. B1612 bearing (2)
10. 166W rail, range shift
11. 167W spring, range shift
12. 169W block, range shift
13. 170W lever, range shift
14. 25W fork, range shift
15. 44E knob
16. C5042 chain, rear drive
17. HDWE. used: RR51112 retaining ring, WAS3732 spacer(s), EP212 (2) expansion plug, BT38114F bolt, NT3824F (2) nut, WA38 & WAU38 washer(s)



SHAFT 5X

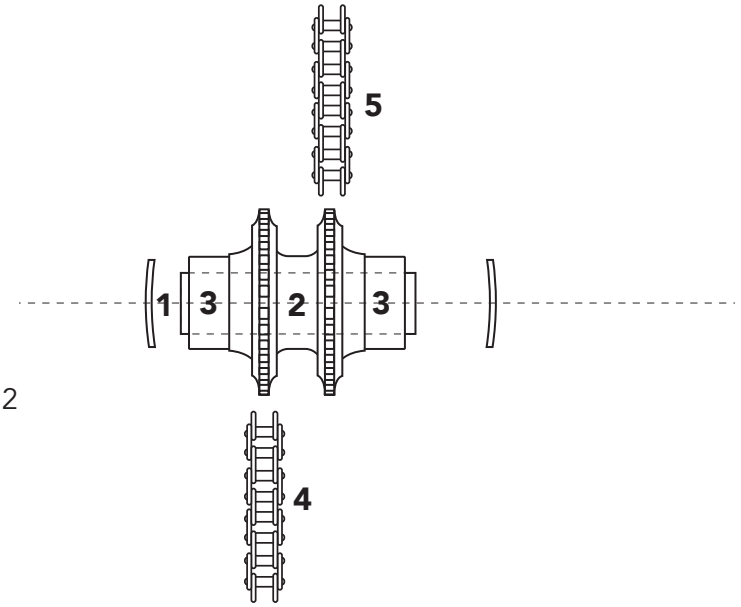
1. 163W shaft
2. 164W gear, driven
3. 165W gear, drive
4. B21305 bearing
5. B22206 bearing
6. HDWE. used: KY808 (2) key, RR51100 (4) retaining ring, EP212 & EP312 expansion plug

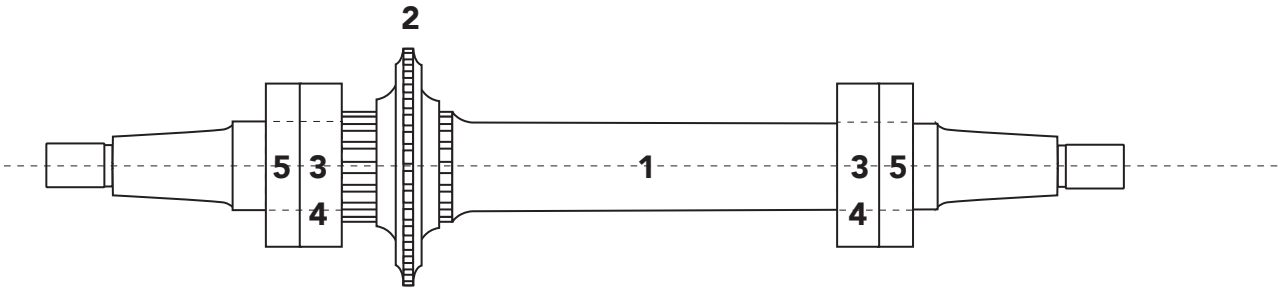


SHAFT(S) OVERVIEW... CON'T.

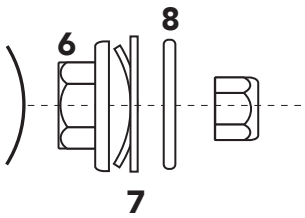
SHAFT 6

1. 16W Shaft
2. 17W sprocket, idler
3. B1610 bearing (2)
4. C5032HD chain, front drive
5. C5046HD chain, cross drive
6. HDWE. used: RP14112 roll pin, WAS3332 spacer(s), EP138 (2) expansion plug





AXLE OVERVIEW...FRONT & REAR



1. 29XW axle wheel
2. 30W sprocket, wheel axle
3. B48510 cup, axle bearing (2 per axle)
4. B48548 bearing, axle (2 per axle)
5. SLC315 seal, axle (2 per axle)
6. 31W axle seal nut (2 per axle)
7. 32W washer, lock tab (2 per axle)
8. 33W axle lock nut
9. HDWE. used: NT3416NS nylon stop nut (2 per axle), RR08177 retaining ring (2 per axle)

ELECTRIC SYSTEM OVERVIEW

NOTE: *Line-Ward machines use a 12 volt – 14 amp YTX14AHL-BS motorcycle type battery (#12VES). Any replacement must be identical in size, performance, and terminal location. When replacing your battery, be sure to replace all items and hardware, as they were originally installed. Clean the grounding stud on the battery box and tighten the wingnut for the ground cable.*

KMC2509937 KEY SWITCH

S yellow 14 ga. wire to solenoid

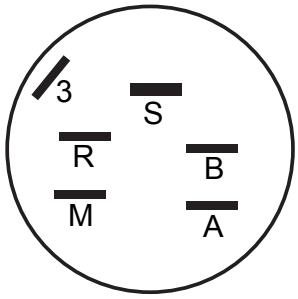
B red 14 ga. wire to battery (+ terminal)

A black 14 ga. wire to hour meter (+ terminal)

M white 14 ga. wire to ignition module (shut down), and (A) terminal on SW22PP2N0 emergency shutdown switch

R purple 14 ga. wire to regulator/rectifier (charging)

G black 14 ga. wire to hour meter (- terminal) and (B) terminal on SW22PP2N0 emergency shutdown switch

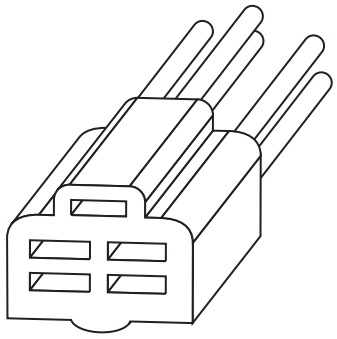


KC2515506 TERMINAL, CONNECTING (from key switch)

Y. yellow wire (solenoid)

P. purple wire (regulator/rectifier) (charging)

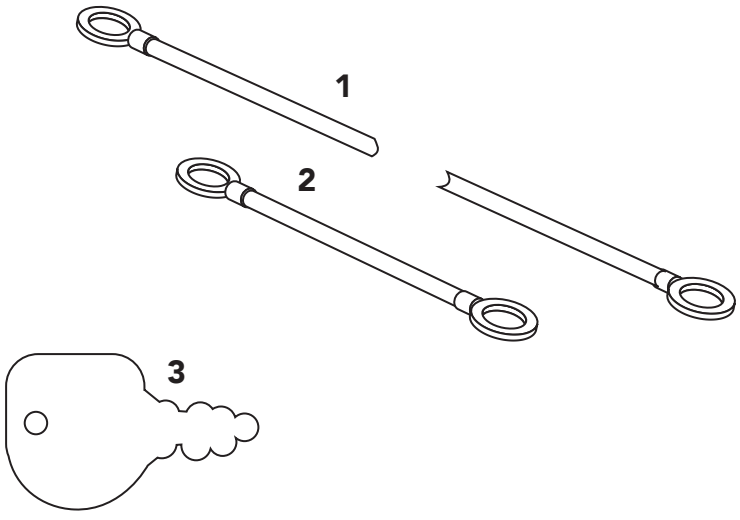
W. white wire (ignition module) (shutdown)



KC4815501 terminal (from engine)

WIRE(S) & KEY(S)

1. black 6 ga. stranded wire from (+) battery terminal to KC2509821 electric starter solenoid (54")
2. GC66ES ground cable
3. K4834001 Ignition key



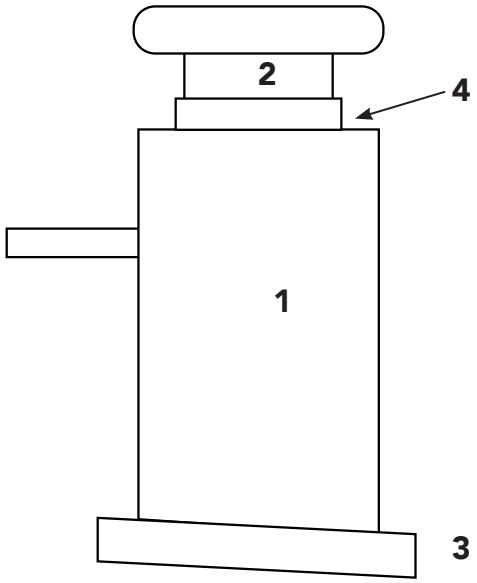
ELECTRIC SYSTEM OVERVIEW... CON'T.

SW87944 EMERGENCY SHUTDOWN SWITCH

NOTE: The emergency shutdown switch is designed to shut the machine off in any emergency situation. Simply push down the large RED button to disengage power to the engine. The operator must make sure that this shutdown switch is in working order at all times.

265WX EMERGENCY SHUTDOWN KIT includes:

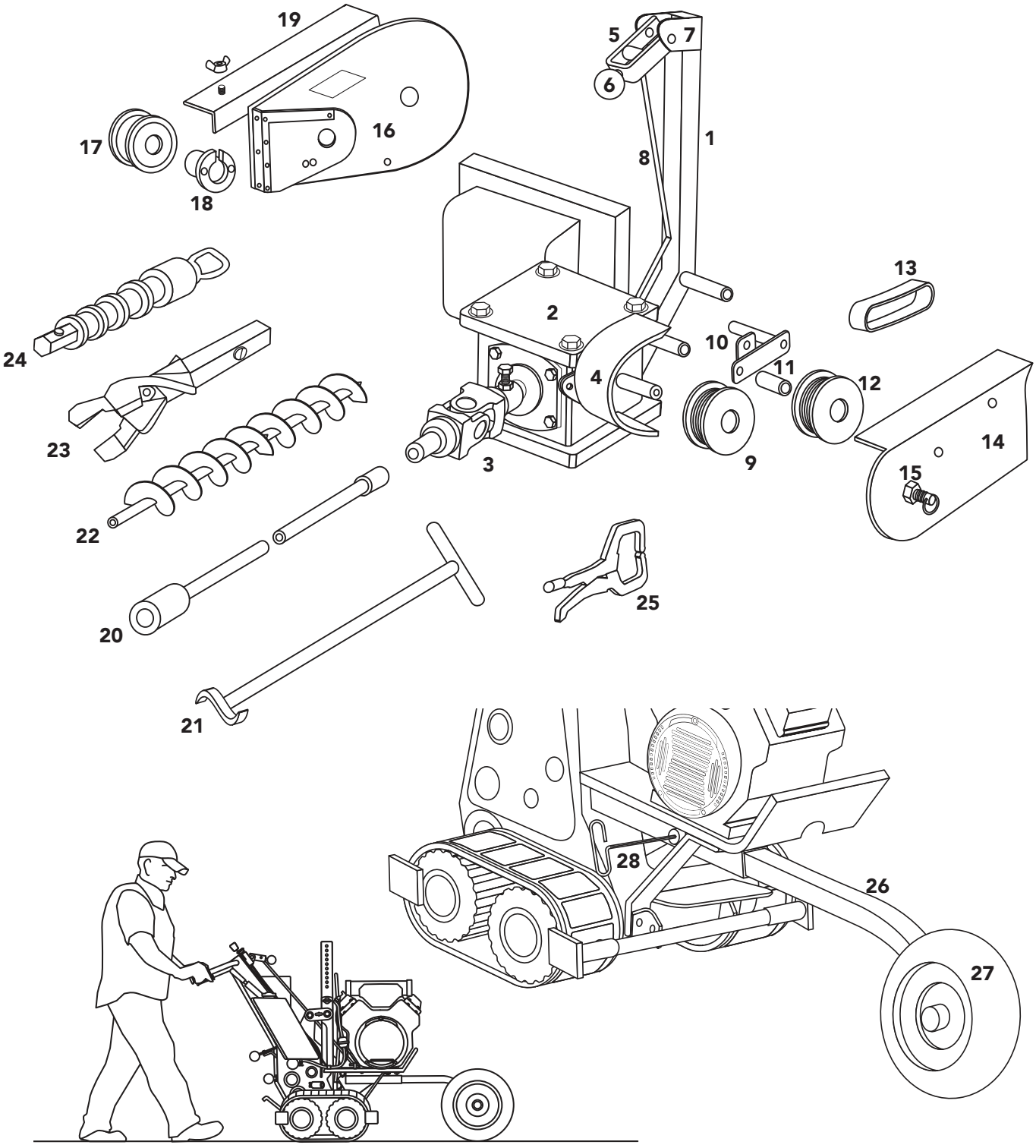
1. 265W box, shutdown switch
2. SW22PP2N0 shutdown switch
3. 266W cap plug
4. LWESD label, emergency shutdown



NOTE: *Before starting the engine, make sure that the RED shutdown button is in the 'UP' (on) position. Avoid using the shutdown button to shut your machine off. Use the ignition key.*

ATTACHMENT(S) OVERVIEW

BA2C BORING ATTACHMENT W/ BWA1 BALANCE WHEEL



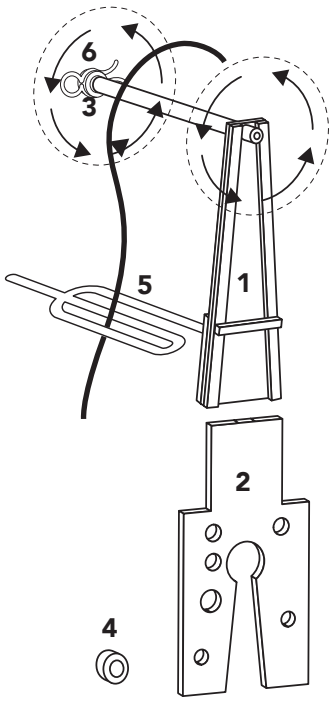
NOTE: *Through the years, Line-Ward has used three different gear boxes. They are in order: BA3CV Winsmith, BA920DN Winsmith, and BA20S15L Dodge. The Winsmith gear boxes are no longer available. Older boring attachments were made for the 16HP machines and will not fit the newer 23HP machines. Newer boring attachments will fit the 23HP and the 16HP machines. The BA20S15L Dodge gear box can fit older attachments with the use of the 132W mounting adaptor kit.*

Parts list for previous page.

1. 232WC frame, boring attachment
2. BA2XC (Dodge gear box) / BA2X (Winsmith gear box), boring unit w/ frame, gear box & universal
3. BAUNV universal
4. 119W belt guide
5. 112W handle, drive control
6. 44E knob
7. 114W bolt, drive control (2)
8. 115XWC (23HP) / 115XW (16HP) idler control rod
9. BAAK44X58 (23HP) / BAAK44X34 (16hp) sheave
10. 241 idler arm
11. spacer, idler arm
12. BAFI64 idler pulley
13. AP43 belt, boring
14. 246W guard, belt
15. 257W safety lockout pin
16. 126XW guard assembly, belt
17. BAAK046 sheave (single groove)
18. H118 bushing
19. LW7998 label, caution – rotating parts
    19a. BAJ140 label, rotating rods
    19b. BAJ060 label, avoid death / injury
20. BAR5 boring rod (5')
21. BARG guide, boring rod
22. BAM112 bit, mole / compaction (1 ½")
23. BARB178 rock bit (1 7/8")
24. 283W retriever, back-reaming (1 ¾")
25. BAPL pliers, uncoupling
26. 215W arm, balance wheel
27. BWWHL wheel & tire
28. 213W clamp, T-handle

RCA1 REEL CARRIER ATTACHMENT

1. 198W mounting, reel carrier
2. 209W plate, reel carrier mounting
3. 207W collar, stop
4. 262W spacer(s) (4)
5. RC1WG wire guide
6. QA1 hairpin cotter



Video Links

How to Bury a Cable (or Fiber)
https://www.youtube.com/watch?v=KqIjbwhuPzg

Lineward Boring Unit Introduction
https://www.youtube.com/watch?v=g59FwkylQ_A

How to Adjust Belt Tension on Lineward L2 Linelayer
https://www.youtube.com/watch?v=PDxEZe66x0E

How To Grease The L2 Line Ward (Without Recoil Engine)
https://www.youtube.com/watch?v=Z2Fs5fale2g

How to Shift Lineward L2 Linelayer
https://www.youtube.com/watch?v=15UFwZ9HX7U&t=16s

How to Adjust Blade Tension on Lineward L2 Line Layer
https://www.youtube.com/watch?v=oK-naql84rM

How To Safely Load & Unload Line Ward L2 Line Layer
https://www.youtube.com/watch?v=vaQ4NHtG-n4

Routine Engine Maintenance
https://www.youtube.com/watch?v=k9fctC8ysqY&list=PLA6cLxSjdTaNycbu-5pyrudwOOvKwxBc1A&index=4&t=9s

Line Ward L2 Line Layer Warranty Information

Line Ward Corporation ensures each Line Ward L2 Line Layer is built with attention to detail and craftsmanship as we have since 1972. Each L2 Line Layer is assembled by hand with parts that were specifically designed or selected for the product.

Warranty Period

Line Ward L2 Line Layer – 1-year Limited Parts and Authorized Labor – Covering defects in manufacturing:
*Excluding Tracks, Blades, and wear items. Excludes parts damaged or worn due to lack of maintenance, neglect, or abuse.

Engine – Kohler Engines – 3 years – Go to kohlerengines.com for warranty information.

The manufacturer's warranty and conditions shall apply to all claims and repairs made at approved service centers.

Supplier will repair or replace, at its option and discretion, any part covered under manufacturers warranty that is proven to be defective in material or workmanship under normal use during the applicable warranty period. Anything replaced under warranty becomes the property of Line Ward Corporation. All parts replaced will be considered as part of the original product and any warranty on those parts will expire coincident with the original factory warranty. Any warranty claims and reimbursements shall be approved by the manufacturer as will be repairs made at approved service centers. To obtain a warranty service, you must at your expense take the equipment to any authorized servicing dealer or return it to the manufacturer.