

LIGHTNING[™] Deluxe



PROPANE POWERED HIGH SPEED BURNISHER



Operating Instructions

MODEL: L21K/L24K/L28K

QUEST[®] ... for Continuous Improvement.
Windsor's Quality Management System is Certified ISO 9001.

Read these instructions before operating the machine



MACHINE DATA LOG/OVERVIEW

MODEL _____

DATE OF PURCHASE _____

SERIAL NUMBER _____

SALES REPRESENTATIVE # _____

DEALER NAME _____

OPERATIONS GUIDE NUMBER _____

PUBLISHED _____

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YOUR DEALER

Name: _____

Address: _____

Phone Number: _____

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HOW TO USE THIS MANUAL

This manual contains the following sections:

- HOW TO USE THIS MANUAL
- SAFETY
- OPERATIONS
- MAINTENANCE
- PARTS LIST

The HOW TO USE THIS MANUAL section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized Windsor dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.

MODEL _____
DATE OF PURCHASE _____
SERIAL NUMBER _____
SALES REPRESENTATIVE # _____
DEALER NAME _____
OPERATIONS GUIDE NUMBER _____
PUBLISHED _____

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The model and serial number of your machine is on the bottom back-end of the machine.

The SAFETY section contains important information regarding hazard or unsafe practices of the machine. Levels of hazards is identified that could result in product or personal injury, or severe injury resulting in death.

The OPERATIONS section is to familiarize the operator with the operation and function of the machine.

The MAINTENANCE section contains preventive maintenance to keep the machine and its components in good working condition. They are listed in this general order:

- Preventive
- Carbon Monoxide Detector
- Tank Storage
-

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF** – column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **DESCRIPTION** – column is a brief description of the part.
- **SERIAL NO. FROM** – column indicates the first machine the part number is applicable to. When the machine design has changed, this column will indicate serial number of applicable machine. The main illustration shows the most current design of the machine. The boxed illustrations show older designs.
- **NOTES** – column for information not noted by the other columns.

NOTE: If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.

IMPORTANT SAFETY INSTRUCTIONS

When using an propane powered appliance, basic precaution must always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE.



To reduce the risk of fire, electric shock, or injury:

Use only indoors. Do not use outdoors or expose to rain.

Use only as described in this manual. Use only manufacturer's recommended components and attachments.

If the machine is **not working properly**, has been dropped, damaged, left outdoors, or dropped into water, return it to an authorized service center.

Do not operate the machine with any openings blocked. Keep openings free of debris that may reduce airflow.

Machine can cause a fire when operating near flammable vapors or materials. Do not operate this machine near flammable fluids, dust or vapors.

This machine is suitable for commercial use, for example in hotels, schools, hospitals, factories, shops and offices for more than normal housekeeping purposes.

Maintenance and repairs **must be done** by qualified personnel.

During operation, attention shall be paid to other persons, especially children.

When leaving unattended, secure against unintentional movement.

The machine shall only be operated by instructed and authorized persons.

When leaving unattended, switch off or lock the main power switch to prevent unauthorized use.

The **exhaust system gets very hot**, keep hands, clothing and any items that can burn away from the engine while hot.

This machine emits **lethal exhaust gas**. Ensure the working area is well ventilated.

Keep hands, feet, strings and ties away from all moving parts while the machine is in operation.

Keep hair, loose clothing, fingers and all parts of the body away from openings.

Do not use machine as a step.

SAVE THESE INSTRUCTIONS

HAZARD INTENSITY LEVEL

The following symbols are used throughout this guide as indicated in their descriptions:

HAZARD INTENSITY LEVEL

There are three levels of hazard intensity identified by signal words -**WARNING** and **CAUTION** and **FOR SAFETY**. The level of hazard intensity is determined by the following definitions:

⚠ WARNING

WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠ CAUTION

CAUTION - Hazards or unsafe practices which could result in minor personal injury or product or property damage.

FOR SAFETY: To Identify actions which must be followed for safe operation of equipment.

Report machine damage or faulty operation immediately. Do not use the machine if it is not in proper operating condition. Following is information that signals some potentially dangerous conditions to the operator or the equipment. Read this information carefully. Know when these conditions can exist. Locate all safety devices on the machine. Please take the necessary steps to train the machine operating personnel.

FOR SAFETY:

DO NOT OPERATE MACHINE:

Unless Trained and Authorized.

Unless Operation Guide is Read and understood.

In Flammable or Explosive areas.

In areas with possible falling objects.

WHEN SERVICING MACHINE:

Avoid moving parts. Do not wear loose clothing; jackets, shirts, or sleeves when working on the machine. Use Windsor approved replacement parts.

⚠ WARNING

Warning: Lethal Exhaust Gases

Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, tasteless, and cause death if inhaled. Avoid inhaling exhaust fumes and never run the engine in an enclosed building or confined area without proper ventilation.

Although LPG burns more efficiently and emits less carbon monoxide than gasoline, some carbon monoxide is produced. Avoid inhaling exhaust gases - especially over prolonged periods of time.

OPERATIONS

Thank you for taking the time to select the best propane powered floor care equipment being manufactured today. Windsor machines are built tough and durable, however do not abuse the machine. With proper care and maintenance, this machine will give you trouble free operation for years to come.

Before any operations begins, you should first read your Engine Operation Manual and this Owner's Guide.

OPERATING INSTRUCTIONS

Your machine is shipped ready for operation, however there is no fuel in the tank. When having the tank filled, you must make sure that the tank is never over filled. The best way to do this is to tell the filling station to weigh the tank full. On an aluminum tank, it should weigh no more than 36 pounds and on a steel tank no more than 43 pounds.

Adjustable Handle: Adjust the handle for comfortable operation. Use two 3/4" wrenches and loosen handle. Adjust to comfortable height and retighten bolts to 40-50 ft/lbs.

Check Oil Level: The importance of checking and maintaining the proper oil level in the crank case cannot be overemphasized. Check oil **before each use** as follows:

1. Make sure the engine is stopped, level and cool so that the oil has had time to drain into the sump.
2. To keep dirt, spraybuff, wax, etc. out of the engine, clean the area around the oil fill cap/dipstick before removing it.
3. Unthread and remove the oil fill cap/dipstick. Wipe oil off. Reinsert the dipstick into the tube and rest oil fill cap on the tube. Do not thread cap onto the tube.
4. Remove the dipstick and check the oil level. The oil level should be up to, but not over, the "F" mark on the dipstick.
5. If the level is low, add the proper oil type up to the "F" mark on the dipstick. Always check the level with the dipstick before adding more oil.

NOTE: To prevent extensive engine wear or damage, always maintain the proper oil level in the crankcase. Never operate the engine with the oil level below the "L" mark or over the "F" mark on the dipstick.

Connect Fuel Hose: Connect fuel hose to tank by screwing the hose fitting to the tank. You must tighten all the way down to make fuel connection. Turn tank knob slowly until you hear the flow of fuel into the system.

STARTING PROCEDURES

The Lightning Deluxe is furnished with a 12 volt starter and a key switch start.

Tilt machine back so floor pad is off the floor.

NOTE: If buffer unit does not have a clutch to disengage load, push handles down to raise buffer pad off the floor for starting. Keep hands and feet away from turning pad.

Push the equipment throttle to the mid throttle.

Turn the ignition-start switch to its *start* position and hold it there until the engine starts. Do not crank for more than 30 seconds at a time and wait at least one minute between tries when cranking. See troubleshooting guide if the engine does not start after several tries.

Operate the equipment as intended after diagnostics light on the electronic control unit goes off (approximately 30 seconds). Check the vacuum hose if the light blinks during the first 30 seconds and re-attach if it is loose.

The engine will shut down in 2 (two) minutes if the diagnostics light comes on and stays on. **If this happens - you MUST get the engine serviced immediately.** Service will also be required if the light blinks or comes on intermittently while the engine is running.

If the engine develops sufficient speed to disengage the starter but does not keep running (a false start), the engine rotation must be allowed to come to a complete stop before attempting to re-start the engine. If the starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter.

After the engine starts, move throttle control to the desired operating speed between slow and fast.

OPERATIONS

WARNING

Warning: Accidental Starts!

Before extending and checking retractable starter rope, remove the spark plug lead to prevent the engine from starting accidentally . make sure the equipment is in neutral.

STOPPING ENGINE

Turn fuel valve on LPG to fully closed position and allow the engine to continue running until it runs out of fuel.

In an emergency, hold down throttle cable to the stop position.

NOTE: Backfiring may occur when using the emergency stop method.

MAINTENANCE PROCEDURES

Kawasaki Engine: Read Owner's Manual

Good maintenance is essential for safe, economical and trouble free operation. It will also help reduce air pollution.

Daily or Before Starting Engine:

1. Inspect Buffer and Engine for oil, fuel and exhaust leaks, loose parts and unusual noises and vibration.
2. Check Oil Level (add if necessary).
3. Clean Bonnet Filter (P/N 190059). Do not oil after cleaning.
4. Clean Air Cleaner (P/N 190055) and Foam Filter (P/N 190054).

After 25 Hours: (Break in Period)

1. Have valves adjusted, if necessary, by an authorized mechanic.
2. Change Oil and Oil Filter (new engine only). Use SAE viscosity grade 10W30 or 10W40 oil. Requires 2 (two) quarts when replacing oil filter (P/N 190050).

Every 50 Hours:

1. Clean Cylinder Cooling Fins
2. Check Battery
3. Change Engine Oil and Oil Filter (P/N 190050).

Every 200 Hours:

1. Replace Air Cleaner Element and Foam Filter.
2. Replace Spark Plug (gap .035)
3. Adjust Engine Valves, if necessary.

Service more often in dusty conditions.

Maintenance should be only done by qualified personnel.

"CO" - CARBON MONOXIDE DETECTOR (P/N 191125)

The "CO" carbon monoxide detector detects carbon monoxide before it reaches dangerous levels. This detector is a must for those who run propane-powered equipment in or around enclosed areas.

The CO Detector is for Everyone's Protection Against Carbon Monoxide Poisoning.

The Detector is Effective for 30 Days After Package has been Opened.

Mount with Self-Adhesive Strip on the Side of your Handle or Locate it Around the Operator's Collar.

If the Orange Disk on the Detector Changes to Gray or Black - your Carbon Monoxide Levels are at a Dangerous Level.

If the orange disk changes to gray or black you must turn your buffer off immediately and return it to your nearest authorized engine service technician for an emissions test. Do not restart the buffer or stripper until the emissions have been checked and corrected. For replacement CO detectors, contact your Windsor Industries, Inc., distributor for availability and pricing.

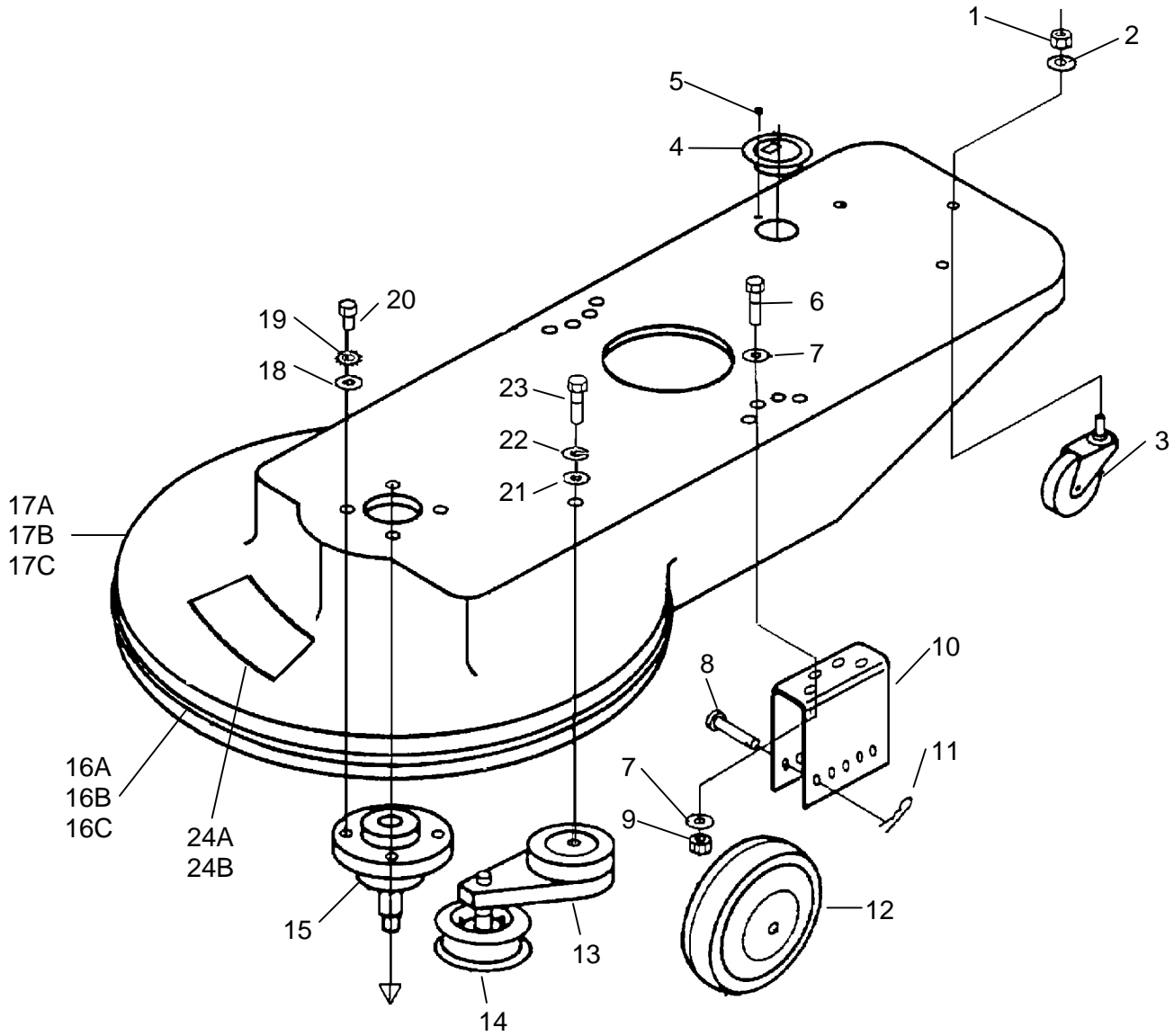
This is for your protection as well as your customers. A must for safe operation and maximum efficiency on your equipment.

TANK STORAGE AND MAINTENANCE

The Worthington gas cylinders are designed for vapor withdraw. The fuel lockoffs, regulators, and engines are also designed for vapor withdraw. "Fuel freeze-ups" or "frozen regulators" are a result of liquid propane being introduced into the system. To prevent "freeze-ups" from occurring, follow this important procedure:

1. Always store tanks in the upright position (valves up) outside and in a well-ventilated area.
2. Do not overfill - the best gauge is a scale - never allow tank to weigh over 36 pounds if aluminum and 43 pounds if steel.

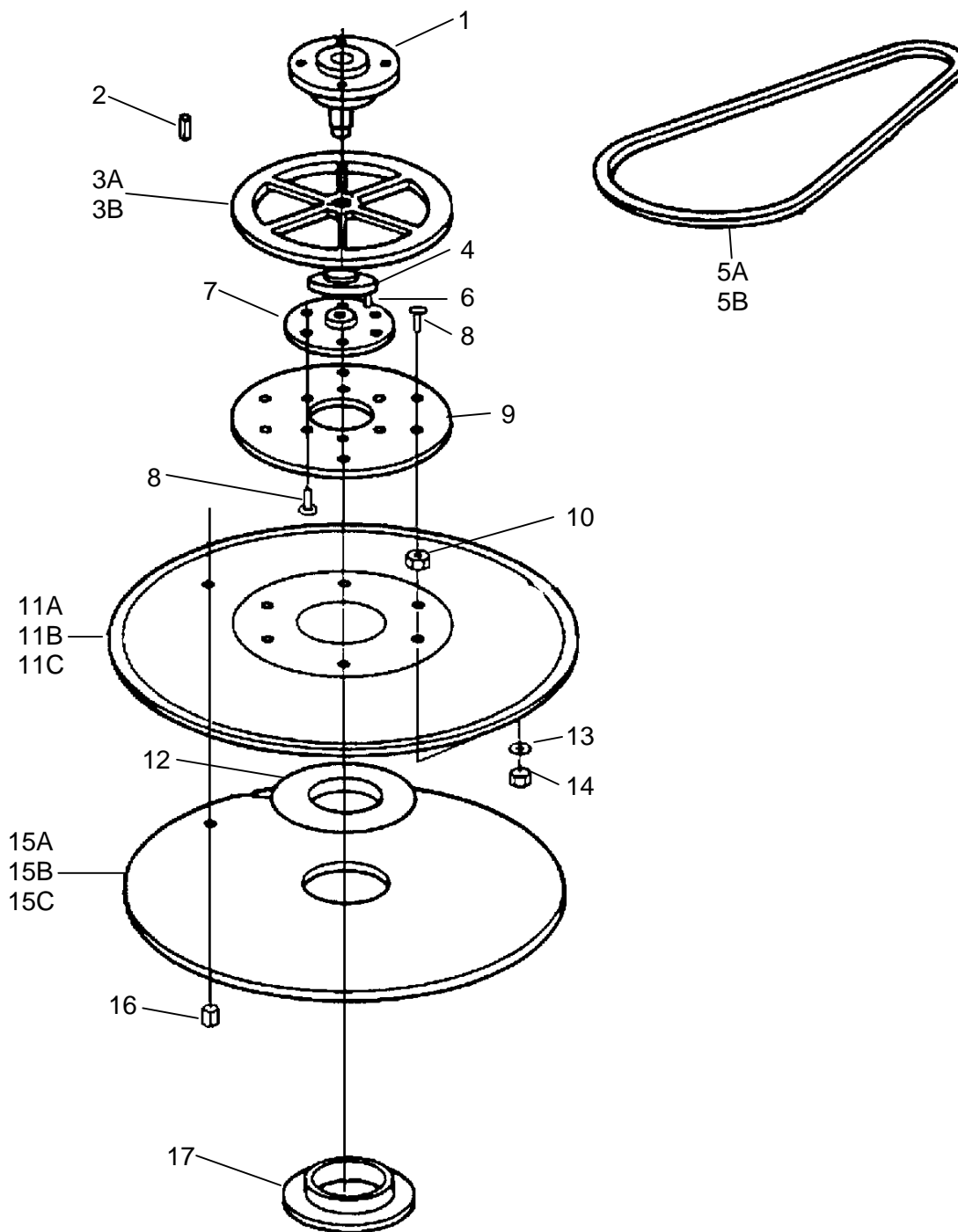
FRAME ASSEMBLY PARTS



FRAME ASSEMBLY PARTS LIST

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	57022	NUT, 3/8-16 HEX NYLOCK THIN SS		
2	87029	WASHER, 5/16 FLAT SS		
3	191074	CASTER, SWIVEL		
4	191076	HOUR METER		
5	67418	RIVET, 1/8 X .6 ALUM		
6	70325	SCR, 5/16-18 X 1.25 HHCS GR5 PLTD		
7	87196	WASHER, 5/16 FLAT SAE GR8 ZC/YW		
8	66313	PIN, CLEVIS 5/16 X 2.5 UNPLTD		
9	57113	NUT, 5/16-18 HEX NYLOCK		
10	191051	WHEEL BRACKET		
11	66314	PIN, HITCH		
12	191073	WHEEL, 6"		
13	191071	BELT TENSIONER		
14	191025	IDLER PULLEY		
15	191050	FRONT END, COMPLETE		
16A	191143	BUMPER GUARD, 76"		L28K
16B	191141	BUMPER GUARD, 52"		L21K
16C	191142	BUMPER GUARD, 63"		L24K
17A	191004	DECK, 28"		L28K
17B	191002	DECK, 21"		L21K
17C	1910022	DECK, 24"		L24K
18	87197	WASHER, 7/16 FLAT GR8 ZINC/YLW		
19	87176	WASHER, 7/16 SPLIT LOCK PLTD		
20	70666	SCR, 7/16 X 1.25 HHCS GR5 PLTD		
21	87148	WASHER, 1/2 FLAT SAE GR8 ZC/YW		
22	87194	WASHER, 1/2 SPLIT LOCK PLTD		
23	70340	SCR, 1/2-13 X 1.25 HHCS GR5 PLTD		
24A	190046	LABEL, MAIN		L21K
24B	190047	LABEL, MAIN		L24K, L28K

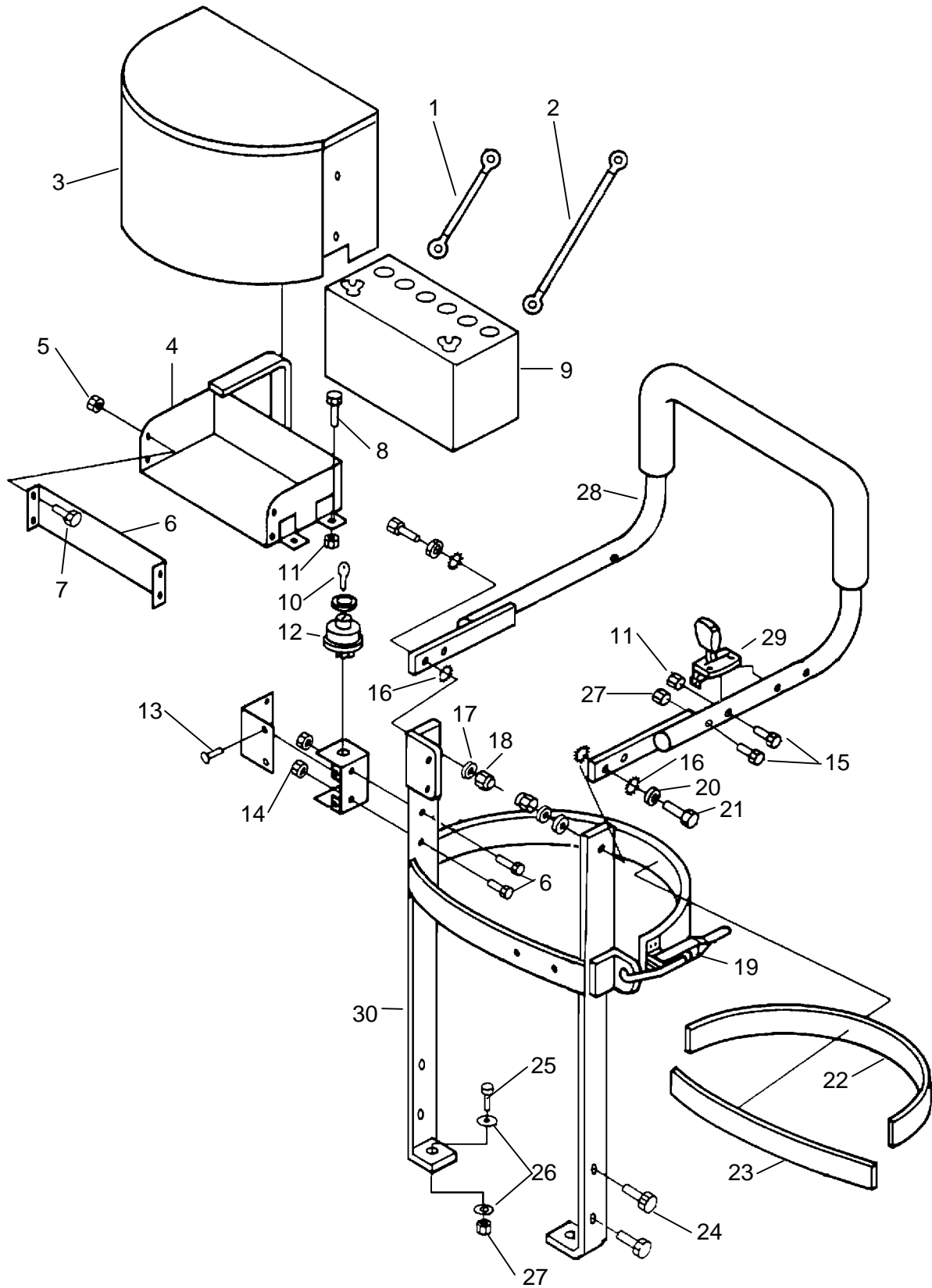
DRIVE ASSEMBLY PARTS



DRIVE ASSEMBLY PARTS LIST

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	191050	FRONT END, COMPLETE		
2	191136	KEY, 7MM X 8 MM		
3A	191020	PULLEY, 7.5"		L21K
3B	191021	PULLEY, 8.5"		L24K, L28K
4	191017	BUSHING, 25MM		
5A	191106	BELT, B41		L21K
5B	191115	BELT, B50		L24K, L28K
6	70558	SCR, 1/4-20 X 5/8 HHCS PLTD		
7	191047	PLATE		
8	70669	SCR, 5/16 X 1.25 ELEV, FLDG, SA		
9	191061	FLEX COUPLER		
10	191062	FLEX SPACER		
11A	191058	PAD DRIVER, 28"		L28K
11B	191057	PAD DRIVER, 21"		L21K
11C	1910574	PAD DRIVER, 24"		L24K
12	191066	CENTER DEVICE (MALE)		
13	87196	WASHER, 5/16 FLAT SAE GR8 ZC/YW		
14	57113	NUT, 5/16-18 HEX NYLOCK		
15A	1910654	GRIPPER RING, 27"		L28K
15B	1910652	GRIPPER RING, 22"		L24K
15C	191065	GRIPPER RING, 20"		L21K
16	67419	RIVET, 3/16 X .6 ALUM		
17	191066F	CENTER DEVICE (FEMALE)		

HANDLE ASSEMBLY PARTS



HANDLE ASSEMBLY PARTS LIST

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	1911339	BATTERY CABLE X 9"		
2	19113320	BATTERY CABLE X 20"		
3	191053	BATTERY COVER		
4	191054	BATTERY TRAY		
5	57030	NUT, 10-32 HEX NYLOCK		
6	1910541	BATTERY BRACKET		
7	70160	SCR, 10-32 X 5/8 PPHMS		
8	70505	SCR, 1/4-20 X 1 HHCS GR5 PLTD		
9	191133	BATTERY		
10	194834	KEY		
11	57047	NUT, 1/4-20 HEX NYLOCK		
12	193080	KEY SWITCH		
13	67417	RIVET, 1/8 X .4 ALUM		
14	192044	NUT, M6 JAM LOCK		
15	87104	WASHER, 1/2 EXT. STAR		
16	70105	SCR, 1/4-20 X 1.75 HHCS PLTD		
17	87194	WASHER, 1/2 SPLIT LOCK PLTD		
18	57118	NUT, 1/2-13 HEX NYLOCK		
19	191130	LATCH SCREW		
20	87148	WASHER, 1/2 FLAT SAE GR8 ZC/YW		
21	70520	SCR, 1/2-13 X 1.75 HHCS GR5 PLTD		
22	192011	FELT, 24"		
23	192012	FELT, 13"		
24	70668	SCR, 1/4 X 1 HX TEK WH PLTD		
25	70325	SCR, 5/16-18 X 1.25 HHCS GR5 PLTD		
26	87196	WASHER, 5/16 FLAT SAE GR8 ZC/YW		
27	57113	NUT, 5/16-18 HEX NYLOCK		
28	191063	UPPER HANDLE (STD)		
29	1910684	THROTTLE CABLE (LD)		
30	191064L	LOWER HANDLE ASM, LD		
31	98721	SERVICE TAG		NOT SHOWN
32	14382	BAND, SERVICE TAG		NOT SHOWN

ENGINE ASSEMBLY PARTS LIST
(Not Shown)

PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
190049	SWITCH, OIL PRESSURE KAWASAKI		
190057	ENGINE, KAWASAKI		
190053	12V STARTER, KAWASAKI		
190054	FILTER, PRE-CARB KAWASAKI		
190055	FILTER, CARB KAWASAKI		
190059	FILTER, BONNET KAWASAKI		
190052	SPARK PLUG, KAWASAKI		
190050	OIL FILTER, KAWASAKI		
190056	SOLENOID, STARTER KAWASAKI		
190051	IGNITION COIL, KAWASAKI		

SUGGESTED SPARE PARTS

PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
190054	FILTER, PRE-CARB KAWASAKI		
190055	FILTER, CARB KAWASAKI		
190059	FILTER, BONNET KAWASAKI		
190052	SPARK PLUG, KAWASAKI		
190050	OIL FILTER, KAWASAKI		
191074	CASTER, SWIVEL		
191073	WHEEL		
191106	BELT, B41		L21K
191115	BELT, B50		L24K, L28K
191066F	CENTER DEVICE (FEMALE)		
1910684	THROTTLE CABLE		



LIMITED WARRANTY

Windsor Industries, Inc. warrants new machines against defects in material and workmanship under normal use and service to the original purchaser. The warranty period is subject to the conditions stated below.

3 YEARS FOR PARTS AND 1 YEAR FOR SERVICE LABOR

Exceptions: Rotationally molded polyethylene tanks carry a **6 year** parts and 1 year service labor warranty. VERSAMATIC® models carry a 3 year warranty on brush motors, vacuum motors, and belts, and a 1 year service labor warranty. SENSOR® models carry a 2 year warranty on vacuum motors and belts, and a 1 year service labor warranty. Extractor brush motors, pump motors, pc boards and electronics, vac motors (other than VERSAMATIC® and SENSOR®), pumps, and FLEXSOL™ diaphragms, all RADIUS™, all ACCESS™ and TITAN™1 carry a 1 year parts and service labor warranty. Propane equipment has a 1 year parts and service warranty. The Onan® engines have a 3 year manufacturers' warranty. The Honda® engines have a 2 year manufacturers' warranty. The engine warranty is administered through the engine manufacturer and must be repaired at an authorized service center.

Normal wear items including, but not limited to, belts, brushes, capacitors, carbon brushes, casters, clutches, cords, filters, finishes, gaskets, hoses, light bulbs, rectifiers, switches, squeegees, bearings, pulleys, relays, actuating cables, tires and wheels will be warranted for manufacturing defects for 90 days from the purchase date.

The warranty commences on the purchase date by the original end user from an authorized Windsor Agent, subject to proof of purchase. The Machine Registration Card must be completed and returned immediately at the time of purchase. If proof of purchase cannot be identified, the warranty start date is 90 days after date of sale to an authorized Windsor distributor. Parts replaced or repaired under warranty are guaranteed for the remainder of the original warranty period.

90 DAY WARRANTY EXTENSION AVAILABLE

Upon receipt of the Machine Registration Card, Windsor will extend the warranty period an additional 90 days from the purchase date. Does not include items warranted 90 days for manufacturing defects.

STATED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED.

Any statutory implied warranties, including any warranty of merchantability or fitness for a particular purpose, are expressly limited to the duration of this written warranty. Windsor will not be liable for any other damages, including but not limited to indirect or special consequential damages arising out of or in connection with the furnishing; performance, use or inability to use the machine. This remedy shall be the exclusive remedy of the buyer.

This warranty shall not apply to: 1.damage in transit; 2.misuse or abuse(including the use of incompatible or corrosive chemicals or overloading of capacity); 3. failure due to lack of proper maintenance and care (including cleaning); 4.any design alterations performed by an organization not authorized or specified by Windsor; 5.batteries and chargers. 6. high pressure washing. 7.electrical components exposed to moisture.

If difficulty develops during the warranty period, contact the authorized Windsor Agent from whom the product was purchased. Windsor, Inc. may elect to require the return of components to validate a claim. Any defective part to be returned must be shipped freight pre-paid to an authorized Windsor Distributor/Service Center or to the Windsor factory.

USE OF PARTS NOT APPROVED BY WINDSOR, INC. WILL VOID ALL WARRANTIES.

This warranty is valid only for all products sold after July 1, 1995. A product sold before that date shall be covered by the limited Warranty in effect at the date of sale to the original purchaser.



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