



E88398-00



# LIL BERTHA™ XSM 24

24" Extreme Strip  
and Scrub Machine



Operator and Parts  
Manual

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## **WARNING - CARBON MONOXIDE LETHAL EXHAUST GAS - MUST READ THIS! -**



### **Never Run The Engine In A Closed Building Or Confined Area**

Exhaust gases contain poisonous carbon monoxide.  
Carbon monoxide is odorless, colorless, and can cause death if inhaled.

### **Carbon Monoxide Poisoning Symptoms**

Train your employees to know the warning signs of carbon monoxide poisoning.

Mild carbon monoxide poisoning may cause any of the following:  
Headache, drowsiness, faintness, poor coordination, nausea, and vomiting.  
Turn the engine off and immediately get to fresh air if you have any of these symptoms.

Do not run the machine until it is given an emissions test and repairs made by an authorized distributor.

- Local emissions testing is available at a fork-lift service department.

Moderate or severe carbon monoxide poisoning causes confusion, unconsciousness, chest pain, shortness of breath, and coma. Thus, most victims are not able to move themselves and must be rescued. Severe poisoning is often fatal.

Carbon monoxide is dangerous because a person may not recognize drowsiness as a symptom of poisoning. Consequently, someone with mild poisoning can go to sleep and continue to breathe the carbon monoxide until severe poisoning or death occurs. Some people with long-standing, mild carbon monoxide poisoning caused by furnaces or heaters may mistake their symptoms for other conditions, such as the flu or other viral infections.

### **Carbon Monoxide Detectors**

CO detectors are a must for safe operation of your equipment. Various types are available. A “CO” carbon monoxide detector detects carbon monoxide before it reaches dangerous levels. Detectors are a must for those who run propane powered equipment. The CO Detector is for everyone’s protection against Carbon Monoxide Poisoning.

- Carbon Monoxide Detector - Passive
  - Effective for 30 days after package has been opened.
  - Write the date opened on the detector.
  - Mount with self-adhesive strip on the machine handle.
  - Train machine operator to check detector regularly.
  - If the **orange disk 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 distributor for an emissions test.
  - **Do Not Restart** the machine until the emissions have been checked and corrected.
  - This is for your protection as well as your customers. CO detectors are a must for safe operation and maximum efficiency of your equipment.
  - For replacement CO detectors, contact your distributor. Ask for the **carbon monoxide detector, part# E012426.**
- Carbon Monoxide Detector - battery operated with alarm
  - Available from various sources

# SAFETY

## Important Safety Information

All LPG (Liquid Propane Gas) powered engines, including this engine, produce Carbon Monoxide (CO). It is a **Lethal Poison** that is colorless, odorless, tasteless, and non-irritating gas. You must read “Danger: Lethal Exhaust Gas” information below.

Keep hands, feet, and loose clothing away from all moving parts while the machine is in operation. The exhaust system gets very hot so keep hands, clothing and any items that can burn away from the engine, engine manifold, and muffler.

These machines are tough and durable, however do not abuse the machine. With proper care and maintenance this unit will give you years of trouble free operation.

## Carbon Monoxide Safety Information

Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless, tasteless, and can cause death if inhaled. Failure to provide proper venting of CO, failure to properly maintain the engine, or failure to properly train personnel of the dangers and warning signs of carbon monoxide exposure may result in **Serious Injury Or Death** to the operator and others in the area.

- Any equipment with the potential to produce carbon monoxide presents a significant hazard when used indoors. They must be used with great caution. Opening a door or window, or running an exhaust fan will not necessarily supply adequate ventilation. Avoid inhaling exhaust fumes and never run the engine in a closed building or confined area without proper ventilation.
- Do not allow engine to run unattended.
- If you have any indication that the engine is not running properly, immediately shut the machine off and have it checked over and repaired by qualified maintenance personnel.
- Workers should be trained to recognize the hazards of carbon monoxide and the early symptoms of carbon monoxide poisoning.
- A carbon monoxide detector and alarm should be available to alert workers of emissions.
- Have a carbon monoxide detector attached to machine handle or have machine operator wear a carbon monoxide detector. (See carbon monoxide detector page).
- Use only as described in this manual.
- Use only manufacturer’s recommended components.
- Maintenance and repairs must be done by qualified personnel.
- Only trained operators should be allowed to operate propane powered floor machines.
- If the machine is not working properly, have it serviced by an authorized service center.
- Install fuel cylinder in a well ventilated place.
- Be aware of possible leaks of propane gas if odor is present.
- If the machine is stored inside a building, remove the fuel cylinder and store properly outside.
- Secure fuel cylinders when being transported.
- If tank is left attached to the machine then valve should be OFF.
- Never store fuel cylinders in a vehicle, building, or area where they may be exposed to high temperature.
- Do not operate the machine with any openings blocked.
- Keep openings free of debris that may reduce airflow.
- Remove fuel cylinder and disconnect battery before servicing.

# TANK USE AND STORAGE

## Propane Tank Use

We use the Worthington gas cylinders designed for vapor withdrawal. The fuel lock offs, regulators, and engines are also designed for vapor withdrawal.

- We recommend that you use the OPD (Overflow Protection Device) vapor withdrawal type cylinder. These style tanks have a triangle shaped valve handle.
- Do not overfill - the best gauge is a scale - never allow tank to weigh over **36 pounds** for an aluminum tank and **43 pounds** for a steel tank.
- Connect fuel cylinder to machine in a well ventilated place.
- Be aware of possible leaks of propane gas if odor is present.
- Use propane tanks designed for vertical use only.

## Propane Tank Storage

- Store tanks outside in a well-ventilated area.
- Never store fuel cylinders in a vehicle, building, or area where they may be exposed to high temperature.
- If the machine is stored inside a building, remove the fuel cylinder and store properly outside.
- Secure fuel cylinders when being transported.
- If tank is left attached to the machine then valve should be OFF.
- Store tanks in the upright position (valves up).
- Be aware of possible leaks of propane gas if odor is present.

# STARTING AND STOPPING THE HONDA ENGINE

## Starting The Honda Engine

The Honda engine is equipped with a 110 volt starter and a push button start.

1. Place propane tank into handle assembly and close propane tank strap clamp to secure tank.
2. Attach propane hose coupling and fully tighten.
3. Tilt machine back so that pad is off the floor.
4. Open propane tank valve (turn counterclockwise) and check for any leaks.
5. Plug cord into starter connection and plug into wall outlet.
6. Push and hold throttle cable in the "Choke" position.
7. Push the red start button and hold until engine starts. Do not crank for more than 20 seconds at one time. Wait at least one minute between tries when cranking. See troubleshooting guide if the engine does not start after several tries.
8. After engine starts, set throttle to a slow operating speed until the motor warms up. Engine speed may be increased after 3 to 5 minutes.
9. Unplug the cord from the wall and the machine and return the cord to its storage position.
10. Check for frost on the regulator and fuel line. Frost will indicate that the machine is drawing liquid propane from an overfilled or incorrect tank.

## Stopping The Honda Engine

1. Turn propane tank valve to the closed position (turn clockwise) and allow the engine to continue running until it runs out of fuel.

# OPERATOR PREPARATION

## **Before Starting the Machine**

### **Read the Owner's Manual and the Engine Operation Manual.**

Your machine is shipped ready for operation; however there is no fuel in the tank. When having the tank filled, you must make sure 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**. (See more information at "Tank Storage and Maintenance" page.)

Adjust the handle for comfortable operation. Remove hairpin cotter pins from clevis pins, remove pins, and adjust to the hole alignment that gives the most comfortable height. Replace clevis pins and hairpin cotter pins. Tighten nuts and bolts if needed.

**Check Oil Level:** Starting the engine without the proper amount of oil will cause severe engine damage. Always keep the engine oil level between the full and add marks on the dipstick. Do not loosen oil fill cap or remove dipstick while engine is running.

- Park your machine on a level surface.
- Turn the oil fill cap counter clockwise and then lift from the fill tube.
- Wipe the dip stick clean and push it back into the oil fill tube until the cap seats and then withdraw it to check the oil level. (Do not screw cap on to check oil). Add if necessary. If the oil level is low, add API Class SM oil having a SAE viscosity grade appropriate for the expected temperatures as indicated in the Operators Manual (Usually a HD30 or 10W30).
- Important Note: **Do Not Overfill**
- Replace oil cap.

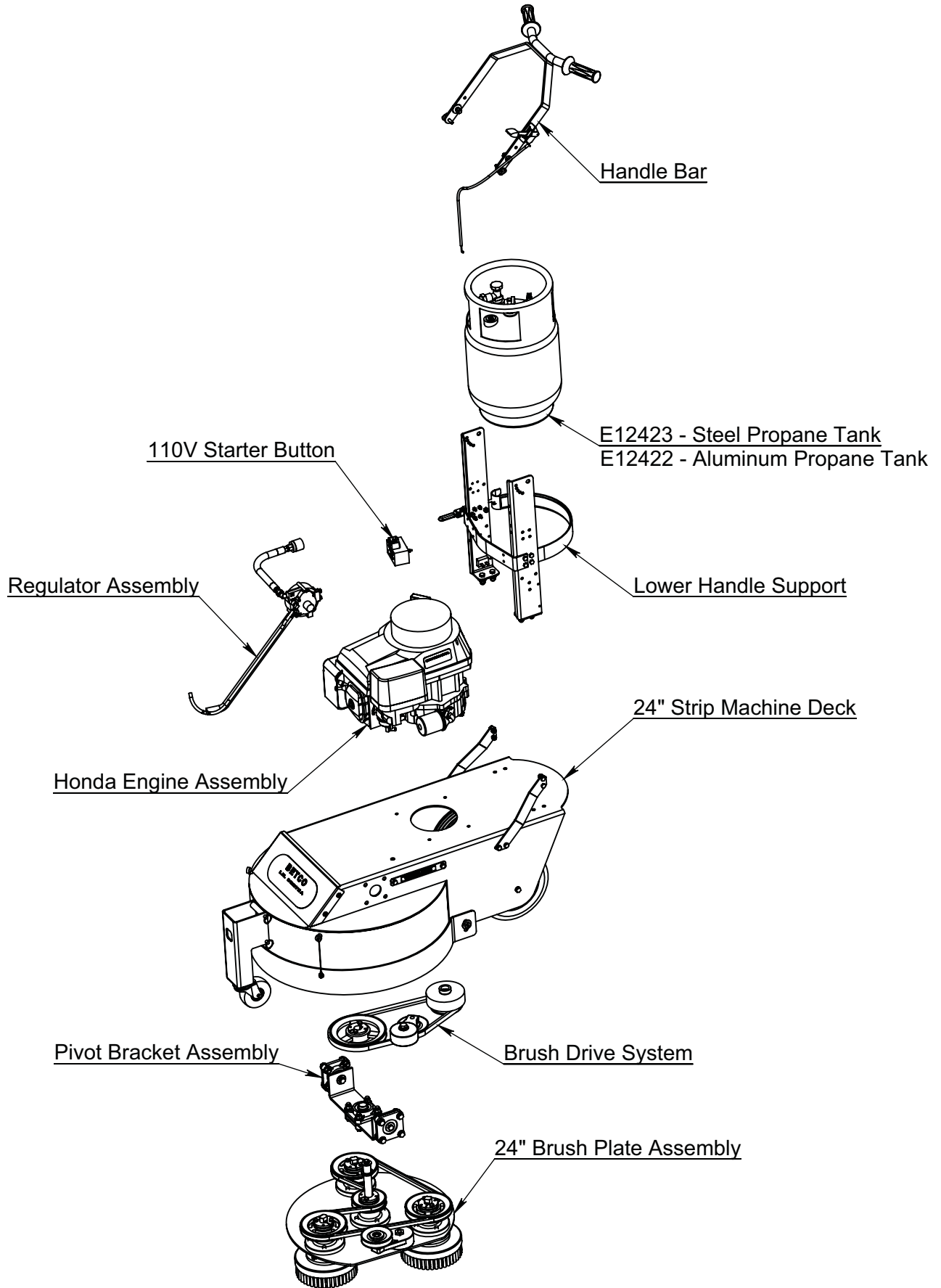
Inspect fuel hoses and fittings for wear and leaks. Have all worn hoses and leaks repaired before operating.

Look and listen for exhaust leaks. Have all leaks repaired before operating.

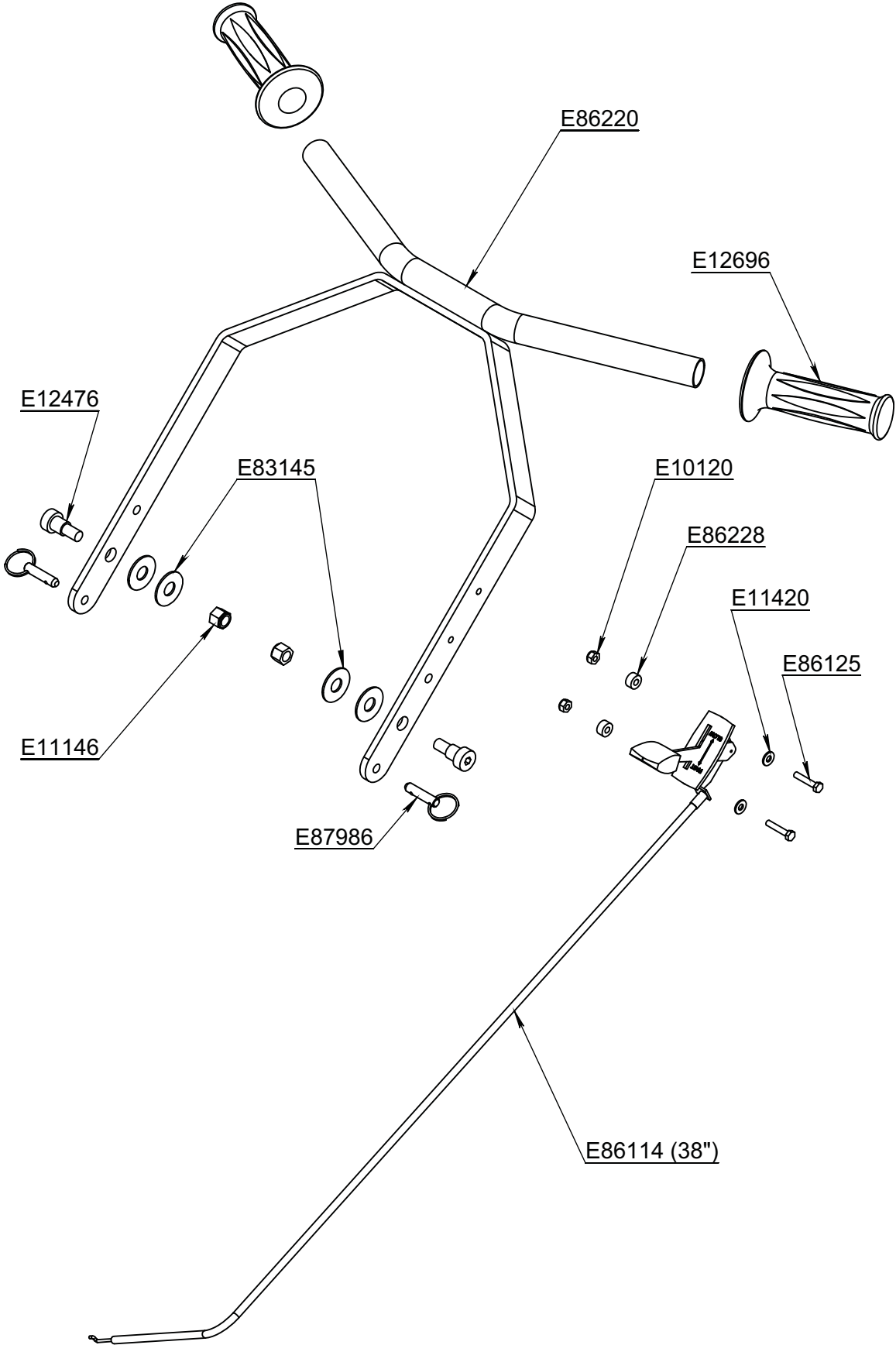
Check the carburetor filter and air filter for debris. Clean and replace if necessary.

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

# MAJOR ASSEMBLIES



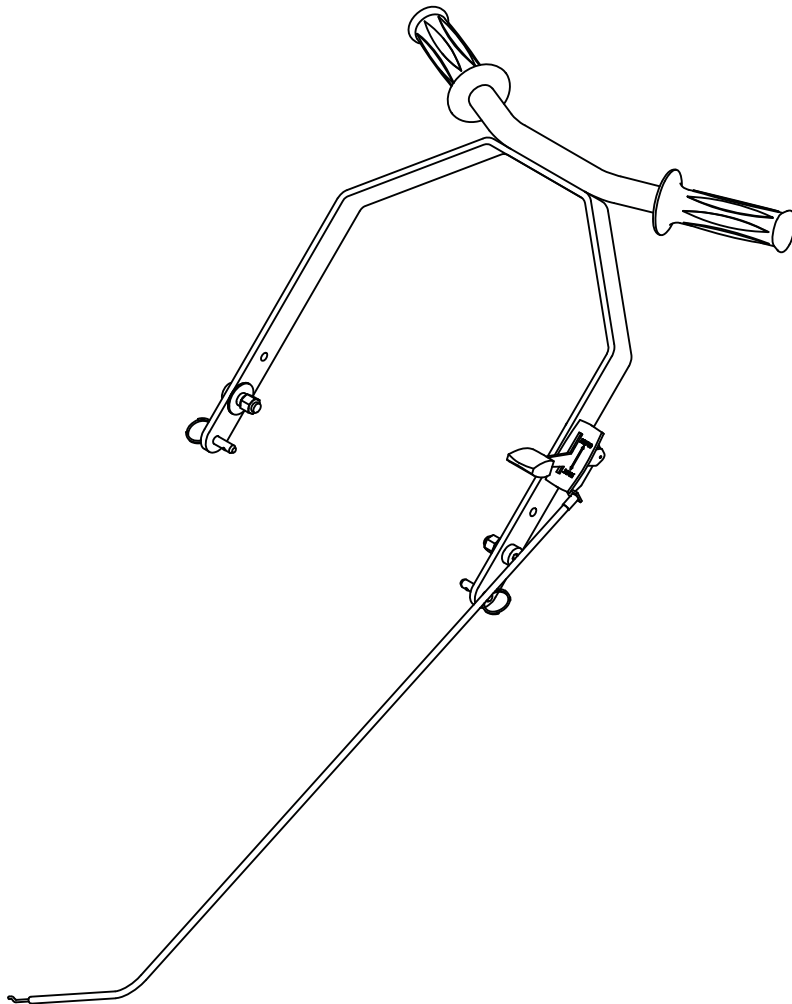
# HANDLE BAR



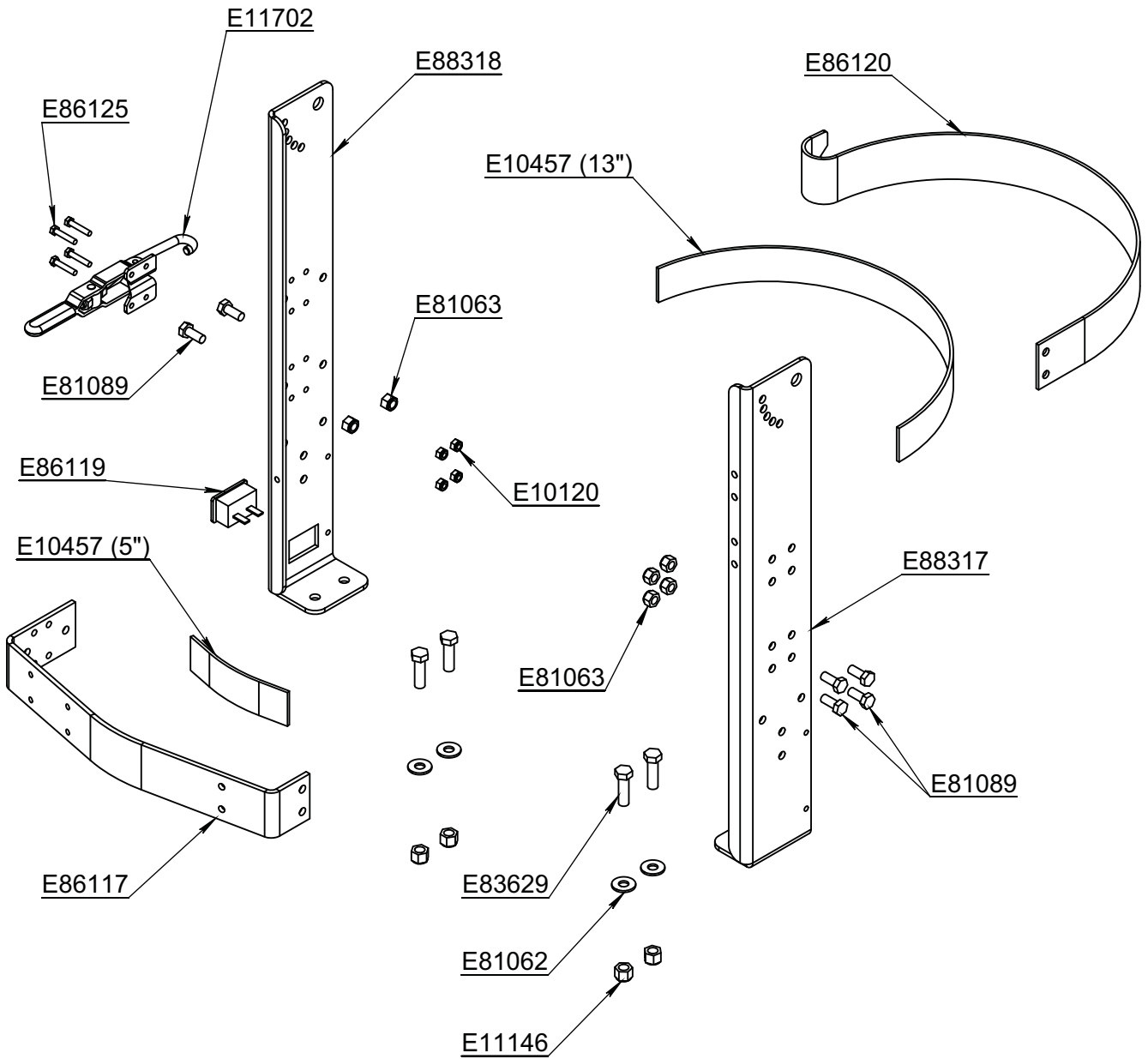


PART NUMBER	Description	QTY.
E10120	Nut, #10-32, Nylon Lock, Grade 5, Zinc	2
E11146	Nut, 3/8"-16, Nylon Lock, Grade 5, Zinc	2
E11420	Washer, #10 SAE, Zinc	2
E12476	Screw, Shoulder 1/2" x 1/2" Socket Head	2
E12696	Hand Grip	2
E83145	Washer, Nylon 1/2" ID X 1.25" OD	4
E86114	Kawasaki Throttle Cable 38" L	1
E86125	Screw, #10-32 x 1.000 Hex Head, Zinc	2
E86220	Handle Bar Weldment	1
E86228	Spacer, #10 ID x 1/2" OD x 1/4" Long, Black Nylon	2
E87986	Pin, 5/16" x 3/4" Detent with Ring	2

Note: Not available for purchase assembled.

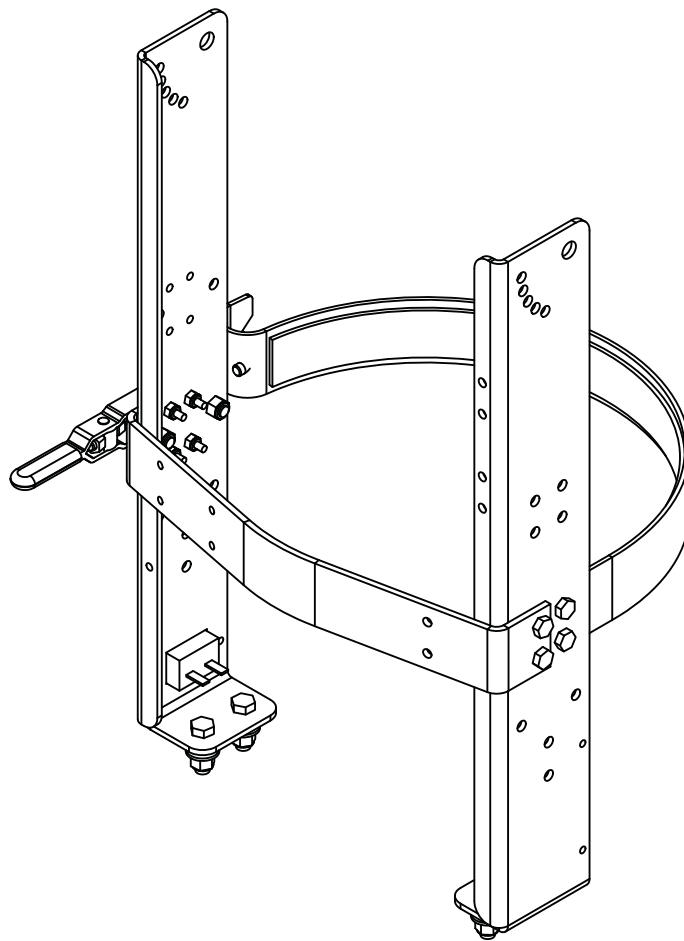


# LOWER HANDLE SUPPORT

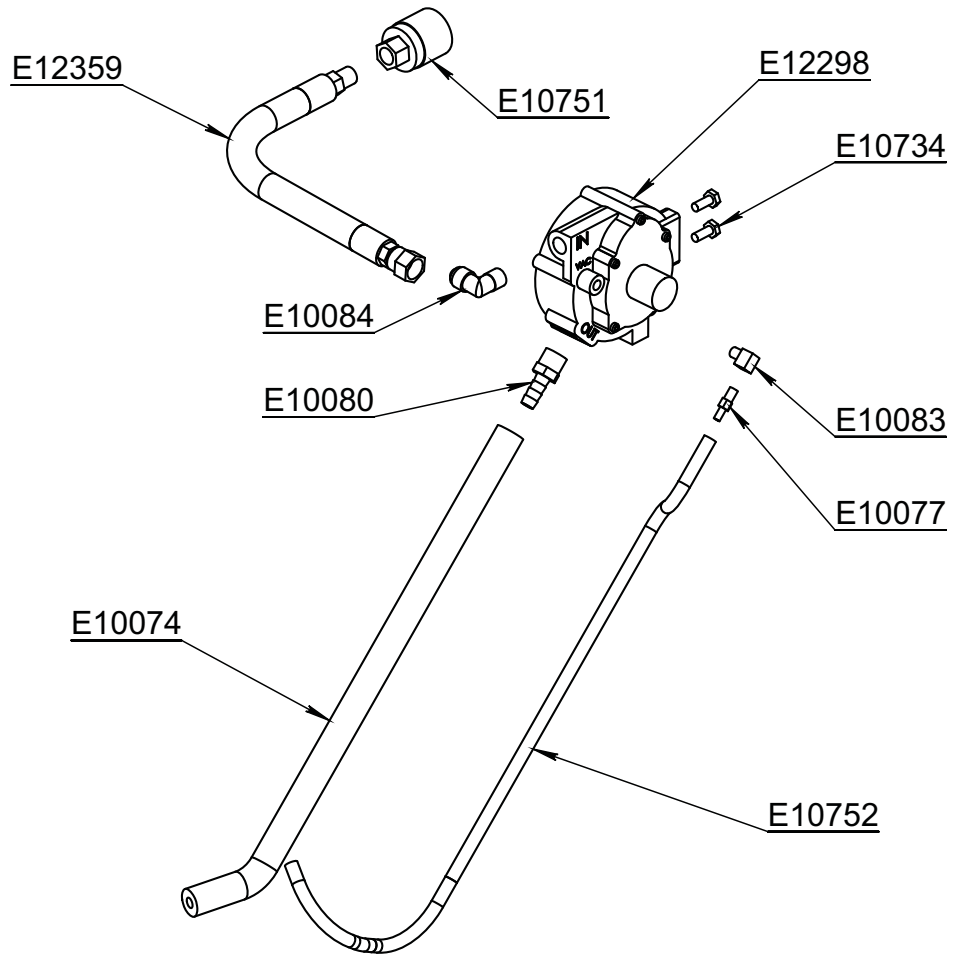


PART NUMBER	Description	QTY.
E10120	Nut, #10-32, Nylon Lock, Grade 5, Zinc	4
E10457	Felt, 1.500 W x 0.125 Thick, Adhesive Back	2
E11146	Nut, 3/8"-16, Nylon Lock, Grade 5, Zinc	4
E11702	Propane Tank Strap Latch	1
E81062	Washer, 5/16" USS, Zinc	4
E81063	Nut, 5/16"-18, Nylon Lock, Grade 5, Zinc	6
E81089	Screw, 5/16"-18 x 0.750 Hex Head, Grade 5, Zinc	6
E83629	Screw, 3/8"-16 x 1.250 Hex Head, Grade 5, Zinc	4
E86117	Propane Tank Strap Front	1
E86119	Hour Meter, SenDEC 5-80V	1
E86120	Propane Tank Strap Back	1
E86125	Screw, #10-32 x 1.000 Hex Head, Zinc	4
E88317	Lower Handle Leg Left	1
E88318	Lower Handle Leg Right	1

Note: Not available for purchase assembled.

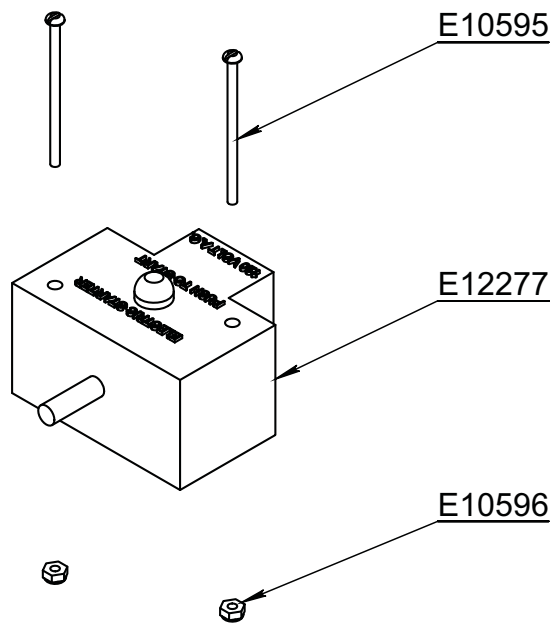


# REGULATOR ASSEMBLY



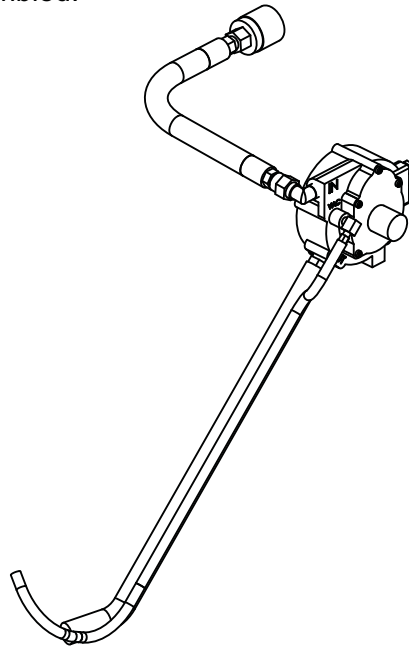
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# 110V STARTER SWITCH



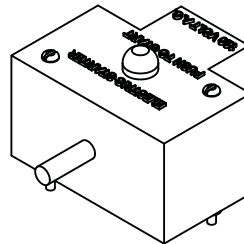
PART NUMBER	Description	QTY.
E10074	Hose, 6 LOLA Fuel Line 9.5mm ID x 16mm OD	1
E10077	Fitting, 1/8" MNPT x 1/8" Barb, Hose Barb	1
E10080	Fitting, 3/8 MNPT x 3/8 Barb, Hose Barb, Brass	1
E10083	Fitting, 1/8" MNPT x 1/8" FNPT, Street Elbow, Brass	1
E10084	Fitting, 3/8 MNPT x 3/8 MJIC, 90 Elbow, Brass	1
E10708	Cable Tie, Nylon AF525	3
E10734	Screw, 1/4"-20 x 0.625 Hex Head, Grade 5, Zinc	2
E10751	Propane Tank Coupling 7141F	1
E10752	Vacuum Hose, 5/32" ID x 19" Long	1
E12298	Fuel Regulator 60B	1
E12359	Fuel Hose	1

Note: Not available for purchase assembled.



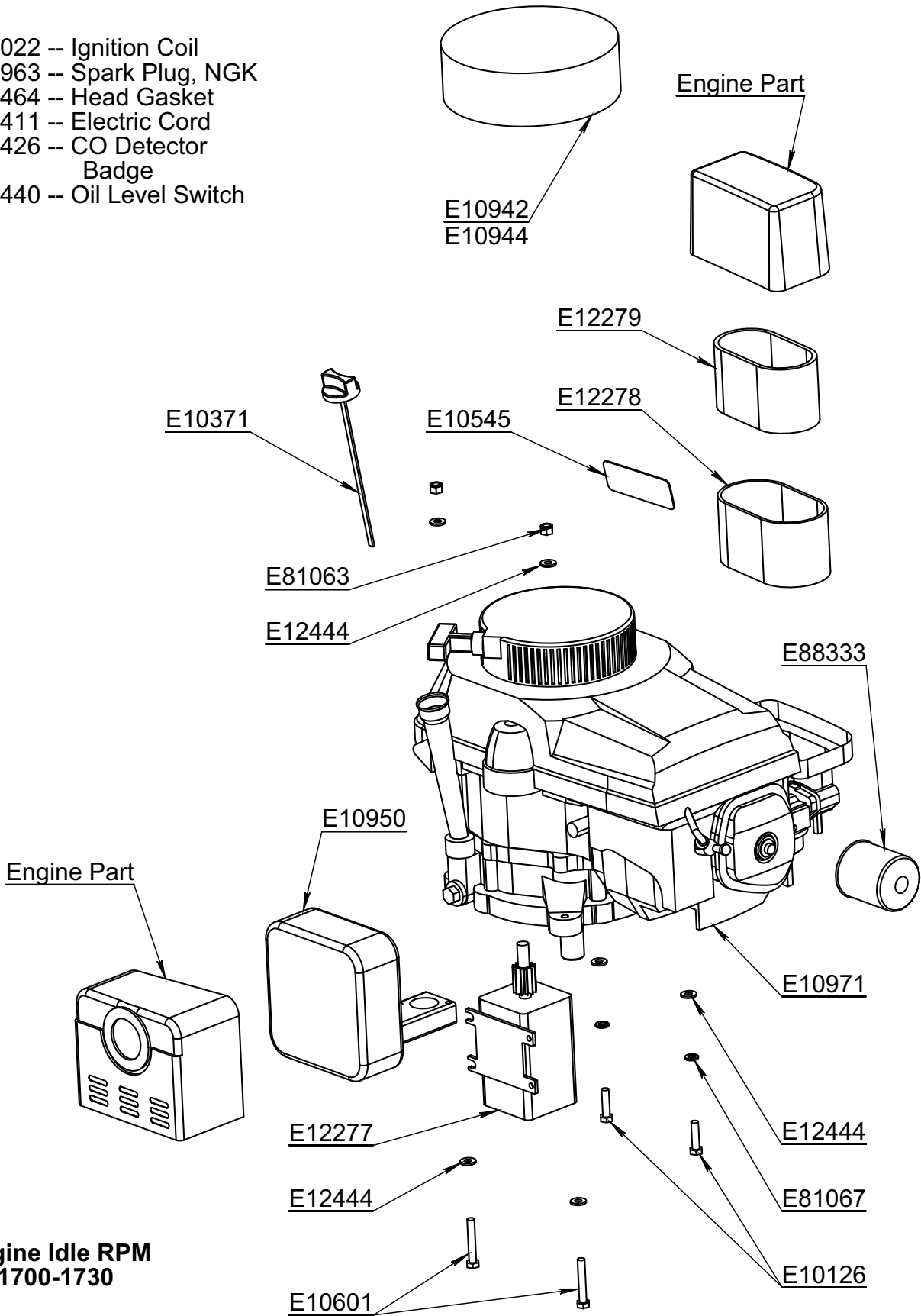
PART NUMBER	Description	QTY.
E10595	Screw #6-32 x 2.500 Pan Head, Slot, Zinc	2
E10596	Nut, #6-32, Nylon Lock, Grade 5, Zinc	2
E12277	Starter Button	1

Note: Starter button and Starter come as one part and are attached by the wire.



# HONDA ENGINE ASSEMBLY

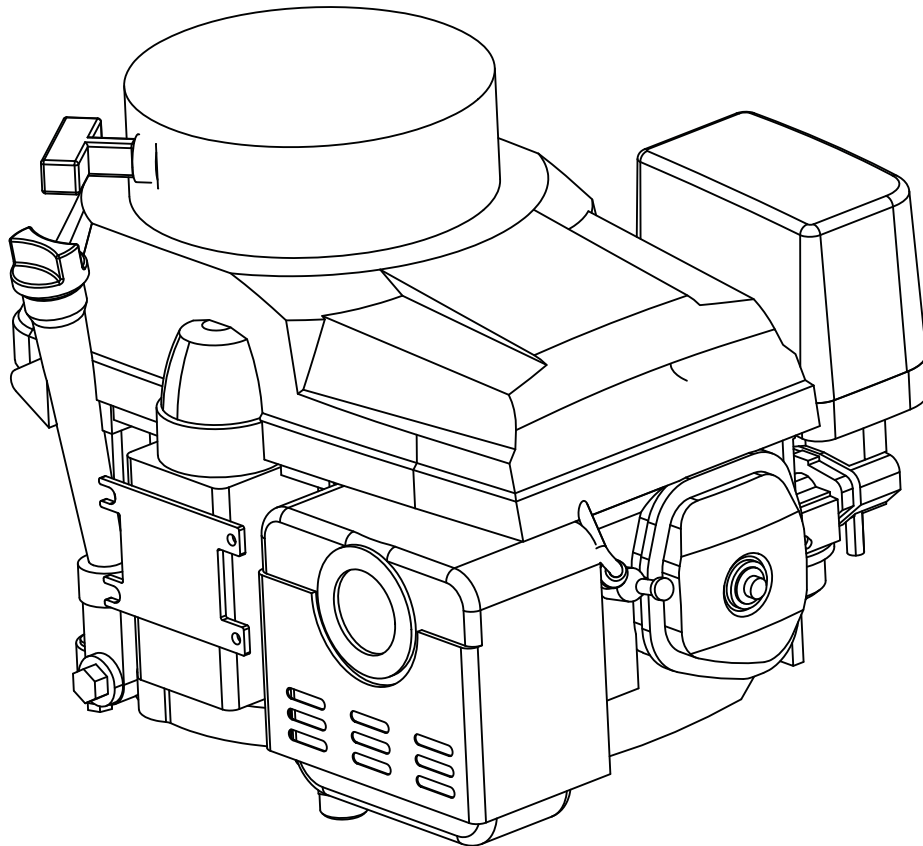
- E10022 -- Ignition Coil
- E10963 -- Spark Plug, NGK
- E11464 -- Head Gasket
- E12411 -- Electric Cord
- E12426 -- CO Detector Badge
- E12440 -- Oil Level Switch



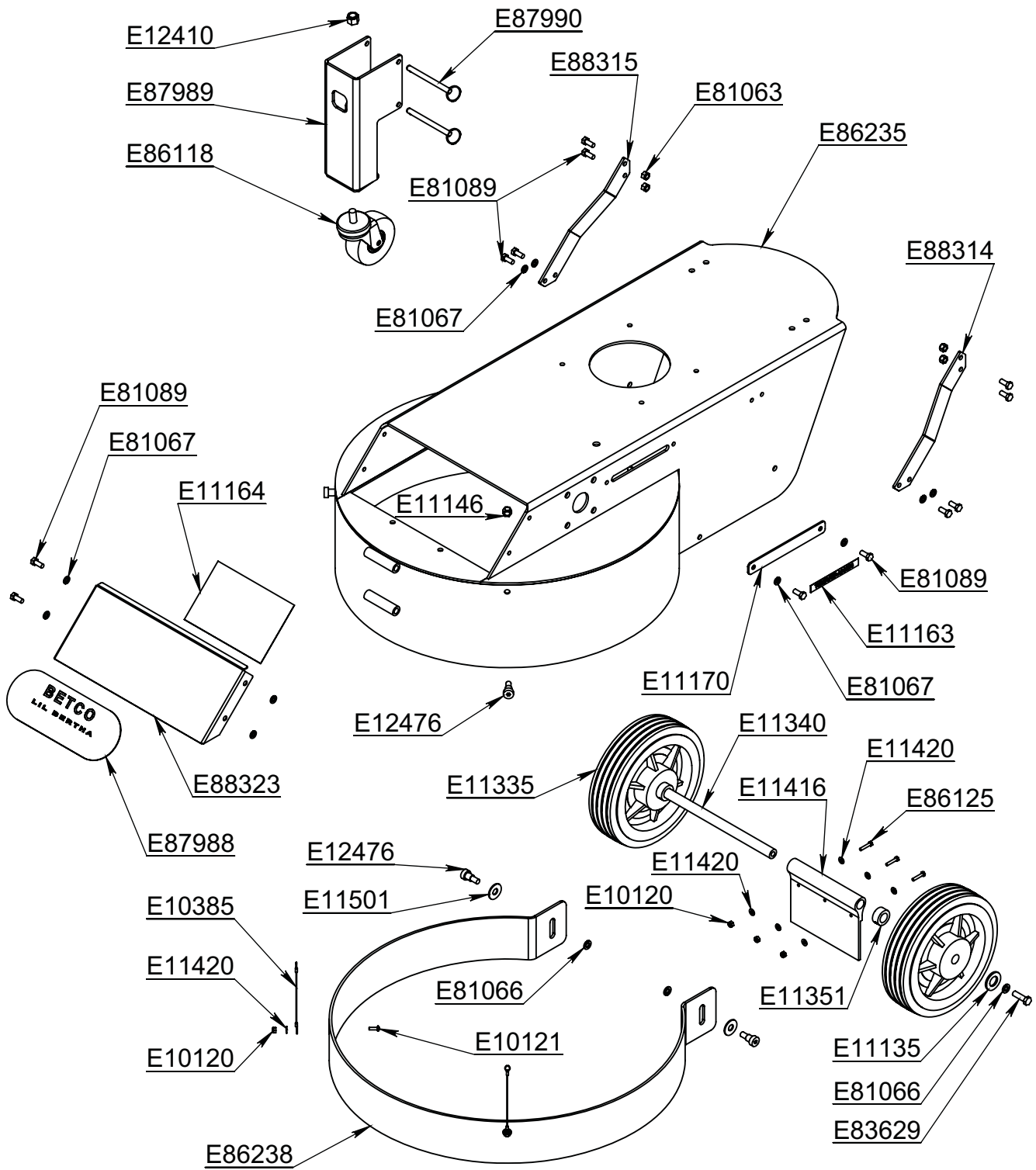
**Engine Idle RPM  
1700-1730**

<b>PART NUMBER</b>	<b>Description</b>	<b>QTY.</b>
E10022	Voltage Regulator	1
E10126	Screw, 5/16"-24 x 1.250 Hex Head Grade 5, Zinc	2
E10371	Honda Oil Dipstick	1
E10544	Decal, Centrifugal Clutch	1
E10545	Decal, Read Owner's Manual	1
E10601	Screw, 5/16"-18 x 2.000 Hex Head, Grade 5, Zinc	2
E10942	Honda Intake Filter, 13HP	1
E10950	Honda Muffler	1
E10963	Spark Plug, NGK	1
E10971	LP Ready Honda Engine, 13HP	1
E11464	Gasket, Engine Head	1
E12277	Honda 110V Starter	1
E12278	Honda Foam Air Filter	1
E12279	Honda Paper Air Filter	2
E12411	Electric Cord	1
E12426	CO Detector Badge	1
E12440	Oil Level Switch	1
E12444	Washer, 5/16" SAE, Zinc	6
E81063	Nut, 5/16"-18, Nylon Lock, Grade 5, Zinc	2
E81067	Washer, 5/16" Split Lock, Zinc	2
E88333	Oil Filter, Honda	1

Note: Starter button and Starter come as one part and are attached by the wire.



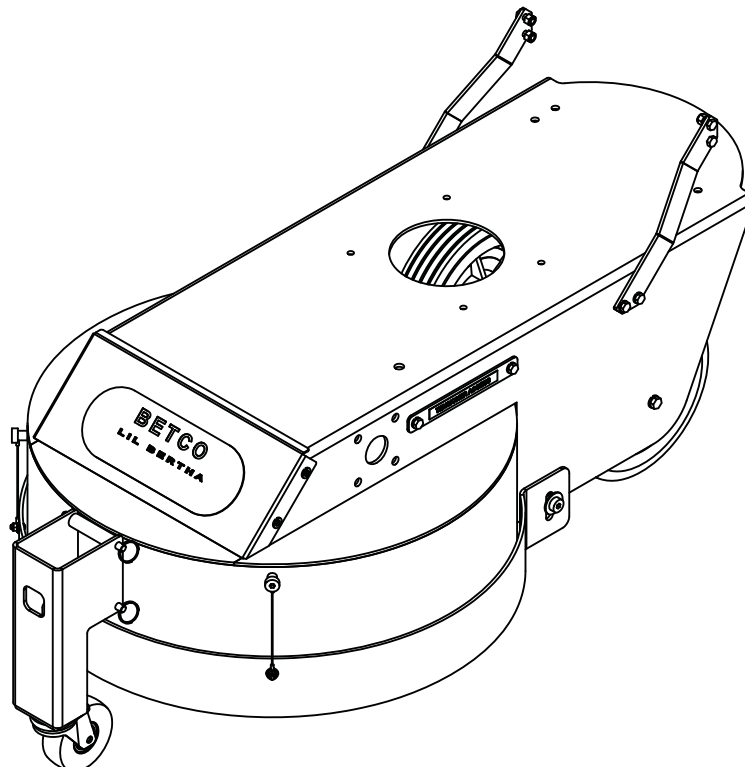
# DECK ASSEMBLY



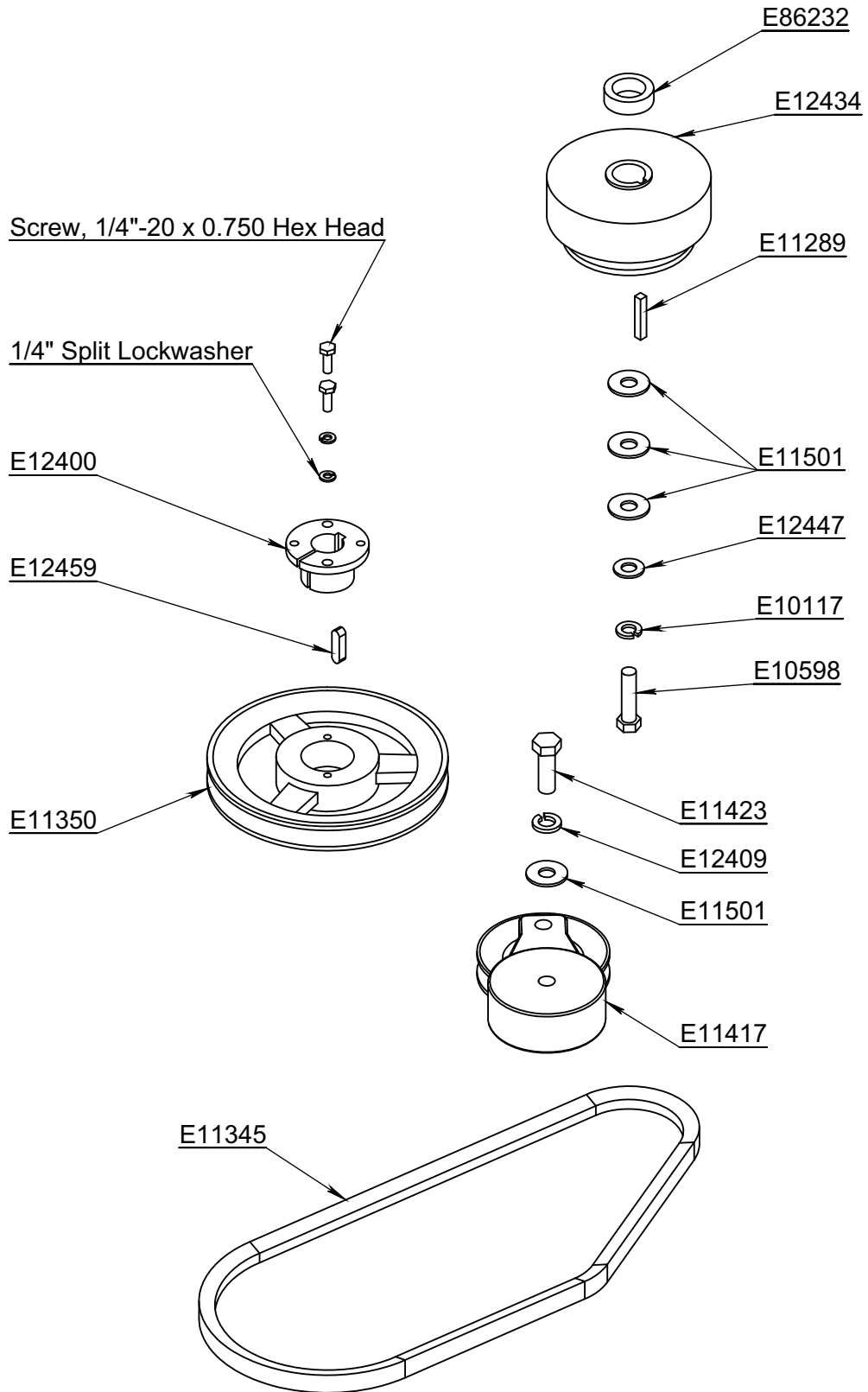


PART NUMBER	Description	QTY.
E10120	Nut, #10-32, Nylon Lock, Grade 5, Zinc	5
E10121	Screw, #10 x 0.625 Pan Head, Zinc	2
E10385	Lanyard, 3/64" x 6.000"	2
E11135	Washer, 3/4" SAE, Zinc	2
E11146	Nut, 3/8"-16, Nylon Lock, Grade 5, Zinc	2
E11163	Decal Tensioner Access	1
E11164	Decal, Belt Path	1
E11170	Tensioner Access Cover	1
E11335	Wheel 10" x 2.50 W	2
E11340	3/4" OD Wheel Axle	1
E11351	Shaft Collar 3/4" ID	2
E11416	Rubber Splash Guard	1
E11420	Washer, #10 SAE, Zinc	8
E11501	Washer, 7/16" USS, Zinc	2
E12410	Nut, 1/2"-13, Nylon Lock, Grade 5, Zinc	1
E12476	Screw, Shoulder 1/2" x 1/2" Socket Head	4
E81063	Nut, 5/16"-18, Nylon Lock, Grade 5, Zinc	4
E81066	Washer, 3/8" Split Lock, Zinc	4
E81067	Washer, 5/16" Split Lock, Zinc	10
E81089	Screw, 5/16"-18 x 0.750 Hex Head, Grade 5, Zinc	14
E83629	Screw, 3/8"-16 x 1.250 Hex Head, Grade 5, Zinc	2
E86118	Swivel Caster 1/2"-13 x 1.000" Stud	1
E86125	Screw, #10-32 x 1.000 Hex Head, Zinc	3
E86235	Deck 24" Strip Machine	1
E86238	Splash Skirt, 24" Model	1
E87988	Decal, BETCO Lil Bertha	1
E87989	Transport Wheel Bracket	1
E87990	Pin, 3/8" x 4" Detent with Ring	2
E88314	Handle Support Left	1
E88315	Handle Support Right	1
E88323	Front Access Panel	1

Note: Not available for purchase assembled.

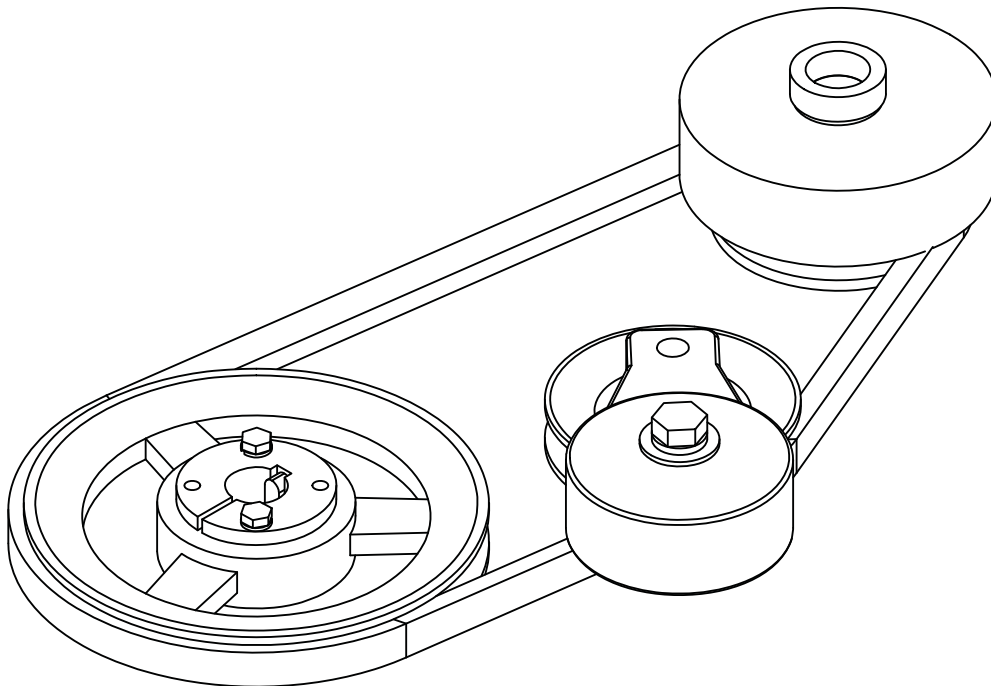


# MAIN DRIVE SYSTEM

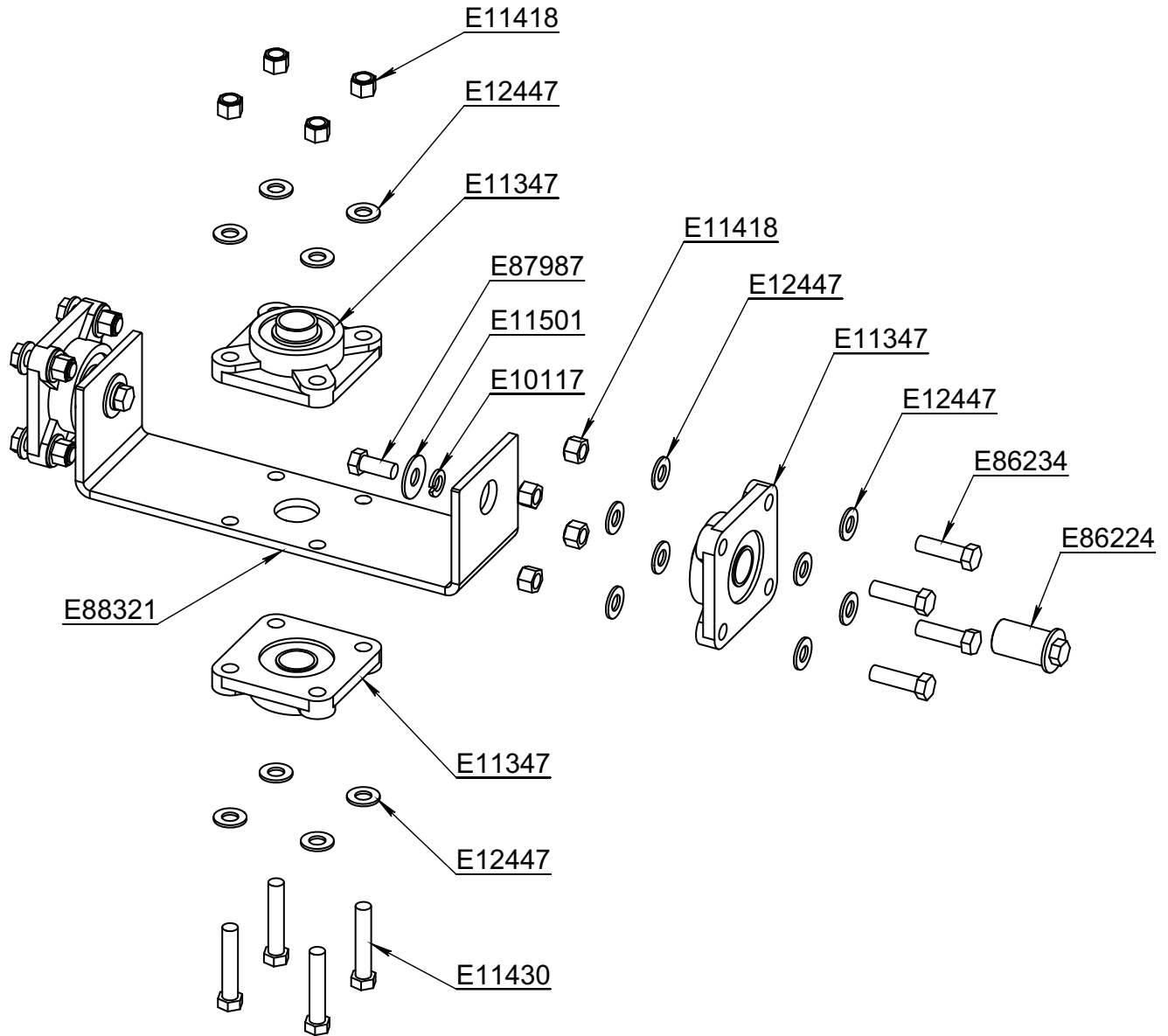


PART NUMBER	Description	QTY.
Bushing Part 2	1/4" Split Lockwasher	2
Bushing Part 3	Screw, 1/4"-20 x 0.750 Hex Head	2
E10117	Washer, 7/16" Split Lock, Zinc	1
E10598	Screw 7/16"-20 x 1.750 Hex Head, Grade 5, Zinc	1
E11289	Key 1/4" x 1/4" x 1.500"	1
E11345	Belt, B44 V-Belt, 44"	1
E11350	Pulley, BK90H - 8.75 OD	1
E11417	Tensioner Large For Engine	1
E11423	Screw, 1/2"-13 x 1.500 Hex Head, Grade 5, Zinc	1
E11501	Washer, 7/16" USS, Zinc	4
E12400	Bushing, QT 25mm Taper Lock	1
E12409	Washer, 1/2" Split Lock, Zinc	1
E12434	Clutch, Centrifugal 1750 RPM 4" Dia.	1
E12447	Washer, 7/16" SAE, Zinc	1
E12459	Key 8mm x 7mm x 30mm	1
E86232	Spacer, Clutch Strip Kaw Top 1.000 ID x 0.470 L	1

Note: Not available for purchase assembled.

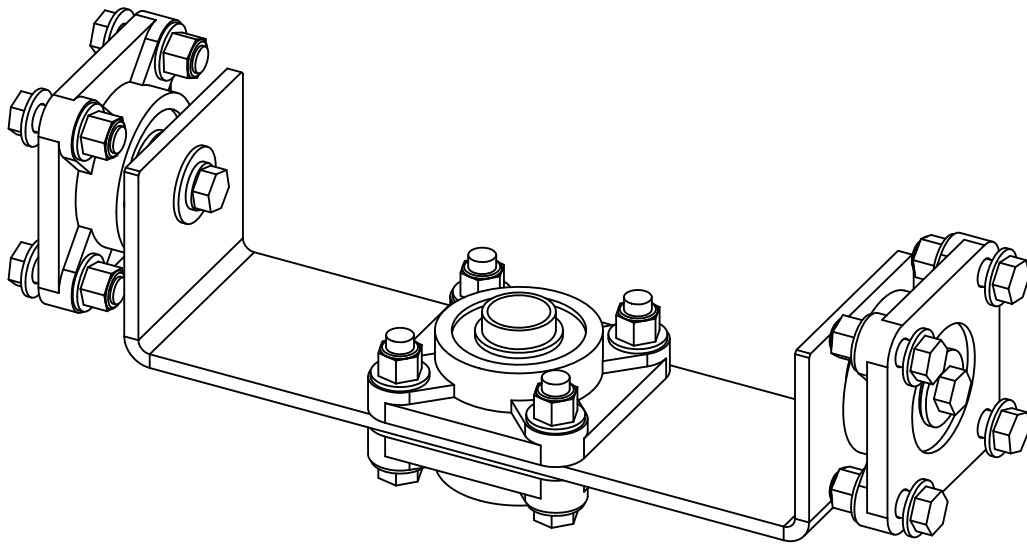


# PIVOT BRACKET ASSEMBLY

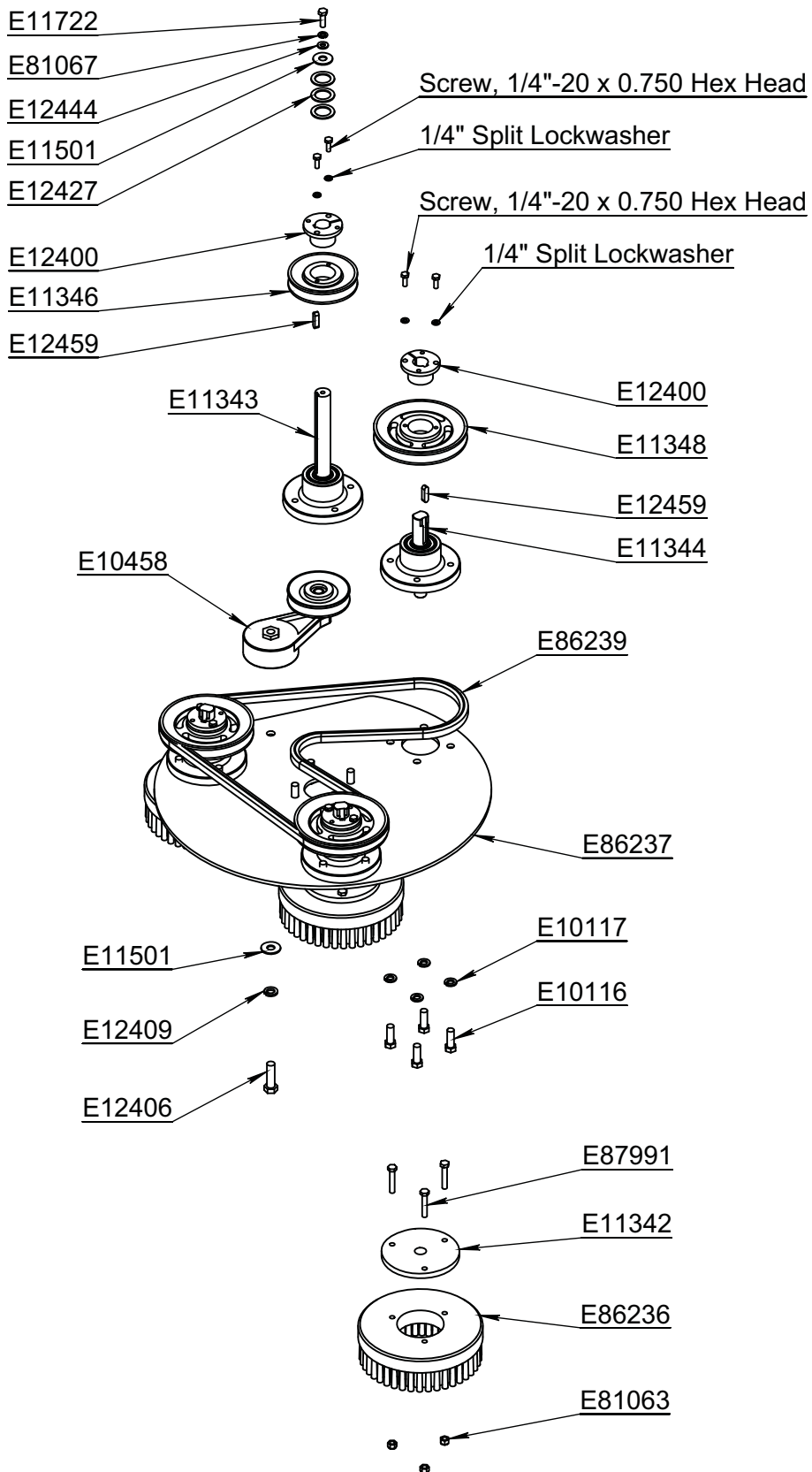


PART NUMBER	Description	QTY.
E10117	Washer, 7/16" Split Lock, Zinc	2
E11347	Flange Bearing AMI UCF 205 Set Screws 2.75 Bolt Spacing	4
E11418	Nut, 7/16"-14, Nylon Lock, Grade 5, Zinc	12
E11430	Screw, 7/16"-14 x 2.250 Hex Head, Grade 5, Zinc	4
E11501	Washer, 7/16" USS, Zinc	2
E12447	Washer, 7/16" SAE, Zinc	24
E86224	Axle, Pivot, 25mm OD x 2.0" L	2
E86234	Screw, 7/16"-14 x 1.500 Hex Head, Grade 5, Zinc	8
E87987	Screw, 7/16"-14 x 1.000 Hex Head, Grade 5, Zinc	2
E88321	Pivot Bracket	1

Note: Not available for purchase assembled.

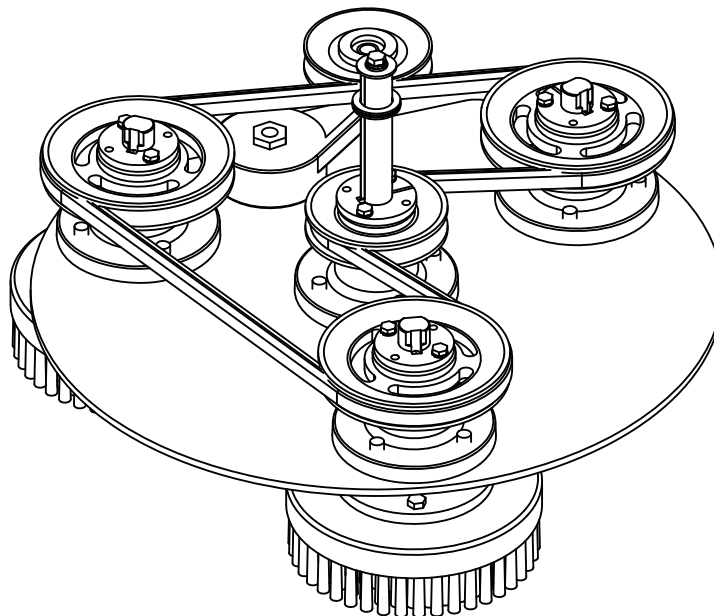


# BRUSH PLATE ASSEMBLY



PART NUMBER	Description	QTY.
Bushing Part 1	1/4" Split Lockwasher	8
Bushing Part 3	Screw, 1/4"-20 x 0.750 Hex Head	8
E10116	Screw, 7/16"-14 x 1.250 Hex Head, Grade 5, Zinc	16
E10117	Washer, 7/16" Split Lock, Zinc	16
E10458	Tensioner Large For Brushes	1
E11342	Brush Mounting Plate LH	3
E11343	Stripper Center Drive Hub Assembly	1
E11344	Stripper Brush Drive Hub Assembly	3
E11346	Pulley, BK47H - 4.45 OD	1
E11348	Pulley, BK62H - 5.95 OD	3
E11501	Washer, 7/16" USS, Zinc	2
E11722	Screw, 5/16"-18 x 1.000 Hex Head, Grade 5, Zinc	1
E12400	Bushing, QT 25mm Taper Lock	4
E12406	Screw, 1/2"-13 x 1.750 Hex Head, Grade 5, Zinc	1
E12409	Washer, 1/2" Split Lock, Zinc	1
E12427	Washer, 1" ID x 14 Gauge, Zinc	3
E12444	Washer, 5/16" SAE, Zinc	1
E12459	Key 8mm x 7mm x 30mm	4
E81063	Nut, 5/16"-18, Nylon Lock, Grade 5, Zinc	9
E81067	Washer, 5/16" Split Lock, Zinc	1
E86236	Strip Brush 8" Flared 3" Hole	3
E86237	24" Brush Mounting Plate	1
E86239	Belt, BB68 Double V-Belt 68"	1
E87991	Screw, 5/16"-18 x 1.750 Hex Head, Grade 5, Zinc	9

Note: Not available for purchase assembled.



# PARTS LIST

Page	Part #	Description
15	E10022	Honda Voltage Regulator
13	E10074	Hose, 6 LOLA Fuel Line 9.5mm ID x 16mm OD x 17" L
13	E10077	Fitting, 1/8" MNPT x 1/8" Barb, Hose Barb
13	E10080	Fitting, 3/8 MNPT x 3/8 Barb, Hose Barb, Brass
13	E10083	Fitting, 1/8" MNPT x 1/8" FNPT, Street Elbow, Brass
13	E10084	Fitting, 3/8 MNPT x 3/8 MJIC, 90 Elbow, Brass
23	E10116	Screw, 7/16"-14 x 1.250 Hex Head, Grade 5, Zinc
19,21, 23	E10117	Washer, 7/16" Split Lock, Zinc
9,11, 17	E10120	Nut, #10-32, Nylon Lock, Grade 5, Zinc
17	E10121	Screw, #10 x 0.625 Pan Head
15	E10126	Screw, 5/16"-24 x 1.250 Hex Head Grade 5, Zinc
	E10235	Connector, Ring 16-14 x 3/8" Ring
15	E10371	Honda Oil Dipstick
17	E10385	Lanyard, 3/64" x 6.000"
11	E10457	Felt, 1.500 W x 0.125 Thick, Adhesive Back
23	E10458	Tensioner Large For Brushes
	E10544	Decal, Centrifugal Clutch
15	E10545	Decal, Read Owner's Manual
	E10553	Wire, 14 Gauge Black
	E10557	Loom, 1/4"
13	E10595	Screw #6-32 x 2.500 Pan Head, Slot, Zinc
13	E10596	Nut, #6-32, Nylon Lock, Grade 5, Zinc
19	E10598	Screw 7/16"-20 x 1.750 Hex Head, Grade 5, Zinc
15	E10601	Screw, 5/16"-18 x 2.000 Hex Head, Grade 5, Zinc
13	E10708	Cable Tie, Nylon AF525
13	E10734	Screw, 1/4"-20 x 0.625 Hex Head, Grade 5, Zinc
13	E10751	Propane Tank Coupling 7141F
13	E10752	Vacuum Hose, 5/32" ID x 19" Long
15	E10942	Honda Intake Filter, 13HP
15	E10950	Honda Muffler
15	E10963	Spark Plug, NGK
15	E10971	LP Ready Honda Engine, 13HP
17	E11135	Washer, 3/4" SAE, Zinc
9,11	E11146	Nut, 3/8"-16, Nylon Lock, Grade 5, Zinc
17	E11163	Decal Tensioner Access
17	E11164	Decal, Belt Path

Page	Part #	Description
17	E11170	Tensioner Access Cover
19	E11289	Key 1/4" x 1/4" x 1.500"
17	E11335	Wheel 10 inch 2.50 W
17	E11340	3/4" OD Wheel Axle
23	E11342	Brush Mounting Plate LH
23	E11343	Stripper Center Drive Hub Assembly
23	E11344	Stripper Brush Drive Hub Assembly
19	E11345	Belt, B44 V-Belt, 44"
23	E11346	Pulley, BK47H - 4.45 OD
21	E11347	Flange Bearing AMI UCF 205 Set Screws 2.75 Bolt Spacing
23	E11348	Pulley, BK62H - 5.95 OD
19	E11350	Pulley, BK90H - 8.75 OD
17	E11351	Shaft Collar 0.750 ID
17	E11416	Rubber Splash Guard
19	E11417	Tensioner Large For Engine
21	E11418	Nut, 7/16"-14, Nylon Lock, Grade 5, Zinc
9,17	E11420	Washer, #10 SAE, Zinc
21	E11430	Screw, 7/16"-14 x 2.250 Hex Head, Grade 5, Zinc
15	E11464	Gasket, Engine Head
17,19 21,23	E11501	Washer, 7/16" USS, Zinc
	E11663	Decal, Steel 43 lbs. for Propane Tank Fill Limit
	E11664	Decal, Aluminum 36 lbs. for Propane Tank Fill Limit
11	E11702	Propane Tank Strap Latch
23	E11722	Screw, 5/16"-18 x 1.000 Hex Head, Grade 5, Zinc
	E12254	Connector, Female Quick Disconnect
13,15	E12277	Honda 110V Starter
15	E12278	Honda Foam Air Filter
15	E12279	Honda Paper Air Filter
13	E12298	Fuel Regulator 60B
13	E12359	Fuel Hose
19,23	E12400	Bushing, QT 25mm Taper Lock
19,23	E12406	Screw, 1/2"-13 x 1.750 Hex Head, Grade 5, Zinc
19,23	E12409	Washer, 1/2" Split Lock, Zinc
17	E12410	Nut, 1/2"-13, Nylon Lock, Grade 5, Zinc
15	E12411	Starter Cord 10'-0"
	E12422	Tank, Aluminum Propane 36 lb.
7	E12423	Tank, Steel Propane 43 lb.
15	E12426	CO Detector Badge
23	E12427	Washer, 1" ID x 14 Gauge, Zinc



Page	Part #	Description
19	E12434	Clutch, Centrifugal 1750 RPM 4" Dia.
15	E12440	Oil Level Switch
15,23	E12444	Washer, 5/16" SAE, Zinc
19,21	E12447	Washer, 7/16" SAE, Zinc
19,23	E12459	Key 8mm x 7mm x 30mm
9,17	E12476	Screw, Shoulder 1/2" x 1/2" Socket Head
9	E12696	Hand Grip
9,11	E81062	Washer, 5/16" USS, Zinc
11,15, 23	E81063	Nut, 5/16"-18, Nylon Lock, Grade 5, Zinc
17	E81066	Washer, 3/8" Split Lock, Zinc
15,17, 23	E81067	Washer, 5/16" Split Lock, Zinc
11,17	E81089	Screw, 5/16"-18 x 0.750 Hex Head, Grade 5, Zinc
9	E83145	Washer, Nylon 1/2" ID X 1.25" OD
11,17	E83629	Screw, 3/8"-16 x 1.250 Hex Head, Grade 5, Zinc
11	E86117	Propane Tank Strap Front
17	E86118	Swivel Caster 1/2"-13 x 1.000" Stud
11	E86119	Hour Meter, SenDEC 5-80V
11	E86120	Propane Tank Strap Back
9,11 17	E86125	Screw, #10-32 x 1.000 Hex Head, Zinc
9	E86220	Handle Bar Weldment
21	E86224	1" OD x 1.75" L Pivot Axle
9	E86226	Honda Throttle Cable 20" L
9	E86228	Spacer, #10 ID x 1/2" OD x 1/4" Long, Black Nylon
19	E86232	Spacer, Clutch Strip Kaw Top 1.000 ID x 0.470 L
21	E86234	Screw, 7/16"-14 x 1.500 Hex Head, Grade 5, Zinc
17	E86235	Deck 24" Strip Machine
23	E86236	Strip Brush 8" Flared 3" Hole
23	E86237	24" Brush Mounting Plate
17	E86238	Splash Skirt Plastic
23	E86239	Belt, BB68 Double V
9	E87986	Pin, 5/16" x 3/4" Detent with Ring
21	E87987	Screw, 7/16"-14 x 1.000 Hex Head, Grade 5, Zinc
17	E87988	Decal, BETCO Lil Bertha
17	E87989	Transport Wheel Bracket
17	E87990	Pin, 3/8" x 4" Detent with Ring
23	E87991	Screw, 5/16"-18 x 1.750 Hex Head, Grade 5, Zinc
17	E88314	Handle Support Left
17	E88315	Handle Support Right

Page	Part #	Description
11	E88317	Lower Handle Leg Left
11	E88318	Lower Handle Leg Right
21	E88321	Pivot Bracket
17	E88323	Front Access Panel
15	E88333	Oil Filter, Honda

# ENGINE MAINTENANCE

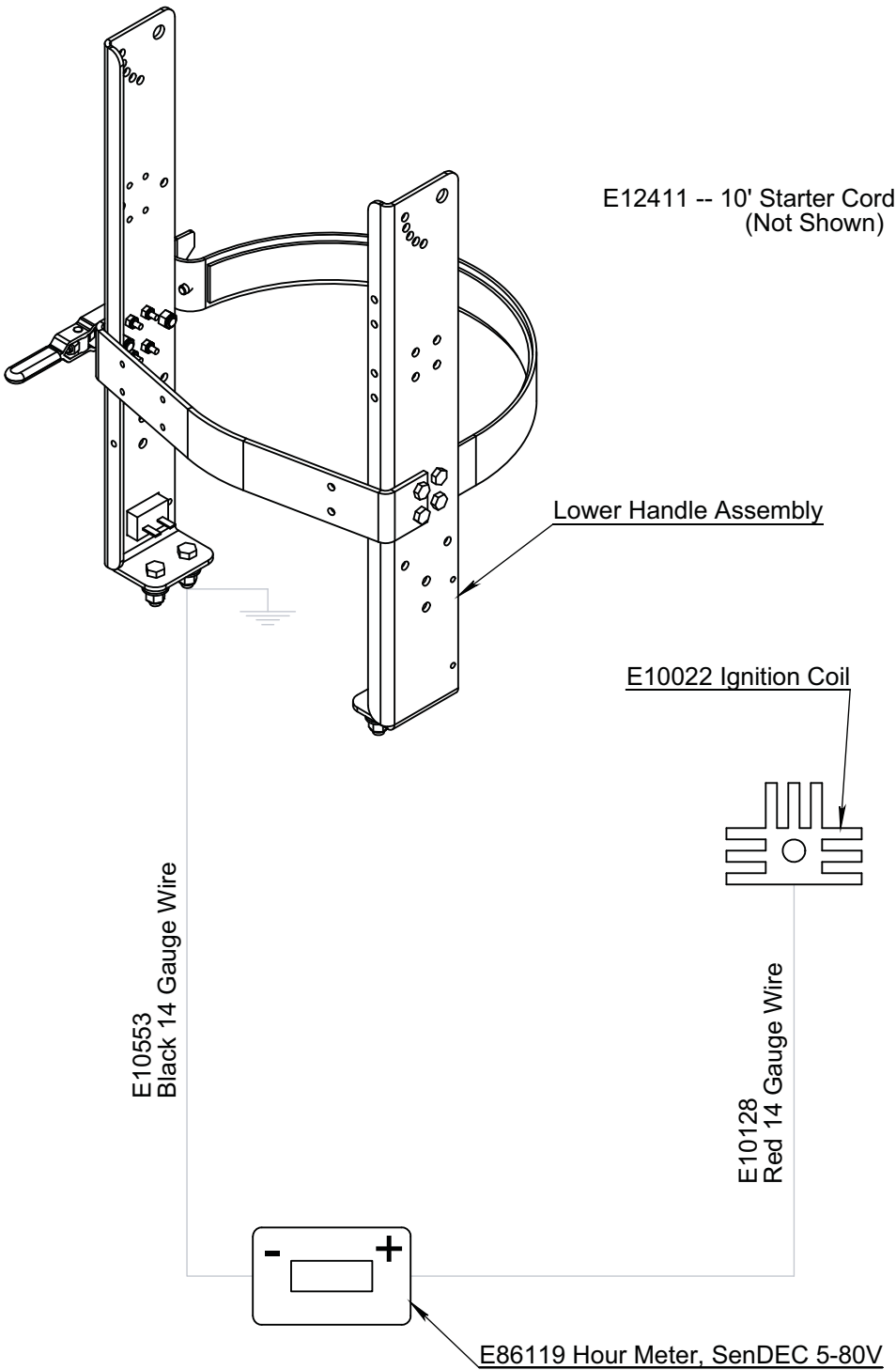
## HONDA 13 HP

<b>PERIODIC MAINTENANCE</b> PLEASE REFER TO ENGINE OWNERS MANUAL FOR MORE INFORMATION	DAILY	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 200 HOURS
Check engine oil level and add if needed	*				
Check and clean engine intake filter	*				
General check for loose or lost nuts, screws, oil leakage, fuel hose connection, etc.	*				
Clean air cleaner foam element		*			
Clean air cleaner paper element		*			
Check belt tension		*			
Change engine oil			*		
Change oil filter				*	
Clean dust and dirt from cylinder and cylinder head cooling fins				*	
Tighten nuts and screws				*	
Clean and regap spark plugs				*	
Replace air cleaner paper element					*
Replace air cleaner foam element					*
Replace spark plugs					*
Check and adjust valve clearance					*
Clean combustion chamber					*
Clean and lap valve seating surface					*

**IMPORTANT NOTES:**

- 1) Change engine oil and filter after first 8 hours of operation.
- 2) Maintenance should be done by qualified personnel only.

# ELECTRICAL SCHEMATIC



# MAIN DRIVE BELT

## Removal

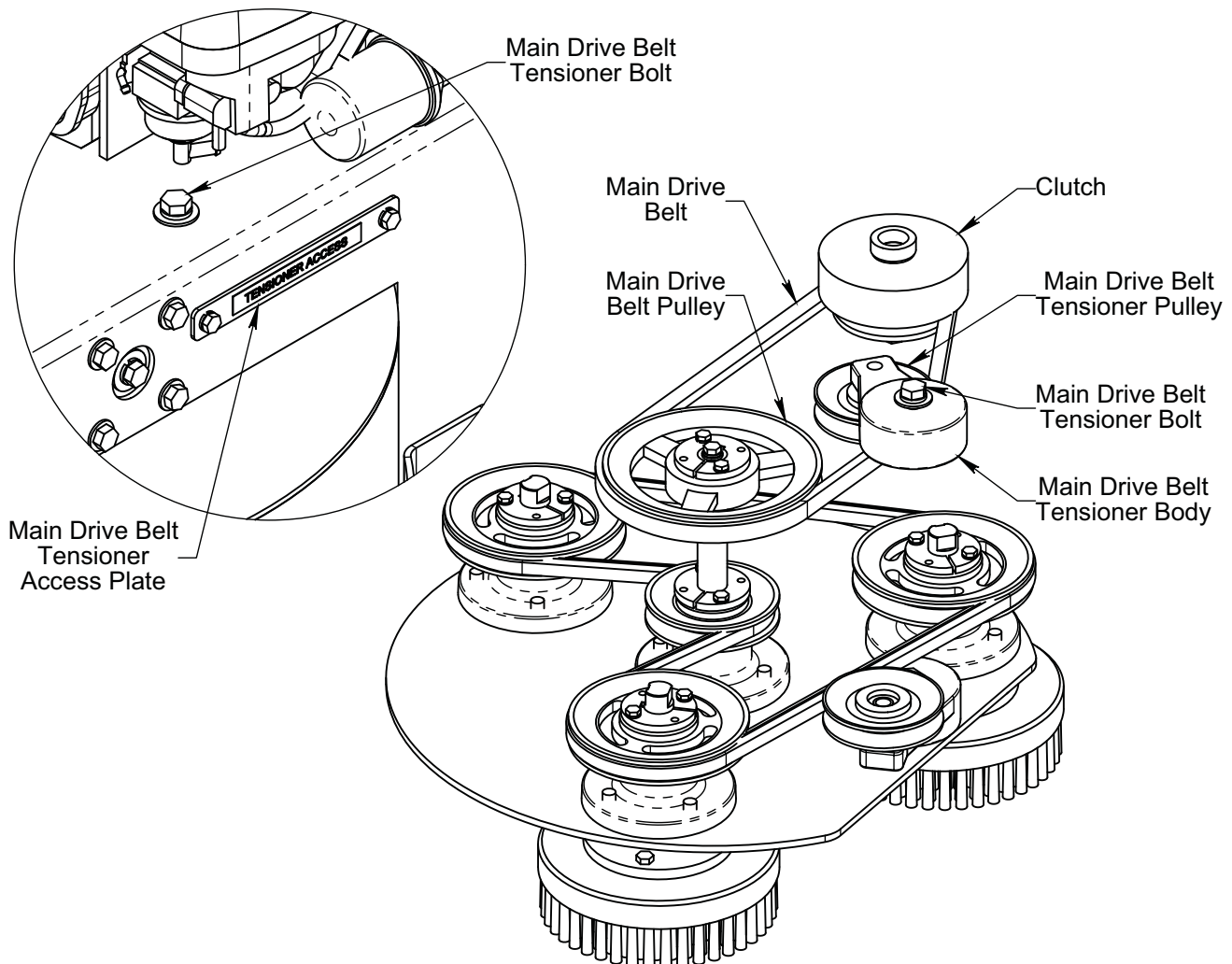
1. Remove main drive belt tensioner access plate.
2. Remove front access panel bolts and panel.
3. Loosen main drive belt tensioner bolt using a 3/4" wrench.
4. Through the front access slip the belt up over the main drive pulley of the brush drive plate.
5. You can finish removing the main drive belt through the rear opening of the machine under the handle.

## Installation

1. Insert the new main drive belt through the rear opening of the machine under the handle.
2. Place the main drive belt around the clutch while ensuring the main drive belt tensioner pulley is in the correct location.
3. Put the opposite end of the main drive belt on top of the main drive belt pulley of the brush drive plate.
4. Through the front access finish inserting the main drive belt into the main drive belt pulley groove.

## Tensioning

1. Insert a 1" wrench into the tensioner access slot onto the main drive belt tensioner hex on the main drive belt tensioner body.
2. Pull the wrench toward the front of the machine to tension the main drive belt.
3. While holding the 1" wrench in place tighten the main drive belt tensioner bolt with a 3/4" wrench.
4. Reposition the 1" wrench to add more tension to the main drive belt.
5. While holding the 1" wrench in place then loosen the main drive belt tensioner bolt with the 3/4" wrench.
6. Repeat steps 2 and 3.
7. Repeat steps 5 and 6 until the main drive belt is tensioned properly. (2 or 3 repetitions)



# BRUSH PLATE & BELT

## Brush Drive Plate Removal

1. Remove front access panel bolts and panel.
2. Loosen main drive belt tensioner bolt using a 3/4" wrench.
3. Through the front access slip the main drive belt up over the main drive pulley of the brush drive plate.
4. Remove pivot bracket axle bolts.
5. Slide pivot bracket axles out from both sides.
6. Tilt machine back at handle and pull backward until it clears the brush drive unit.

## Brush Drive Belt Removal

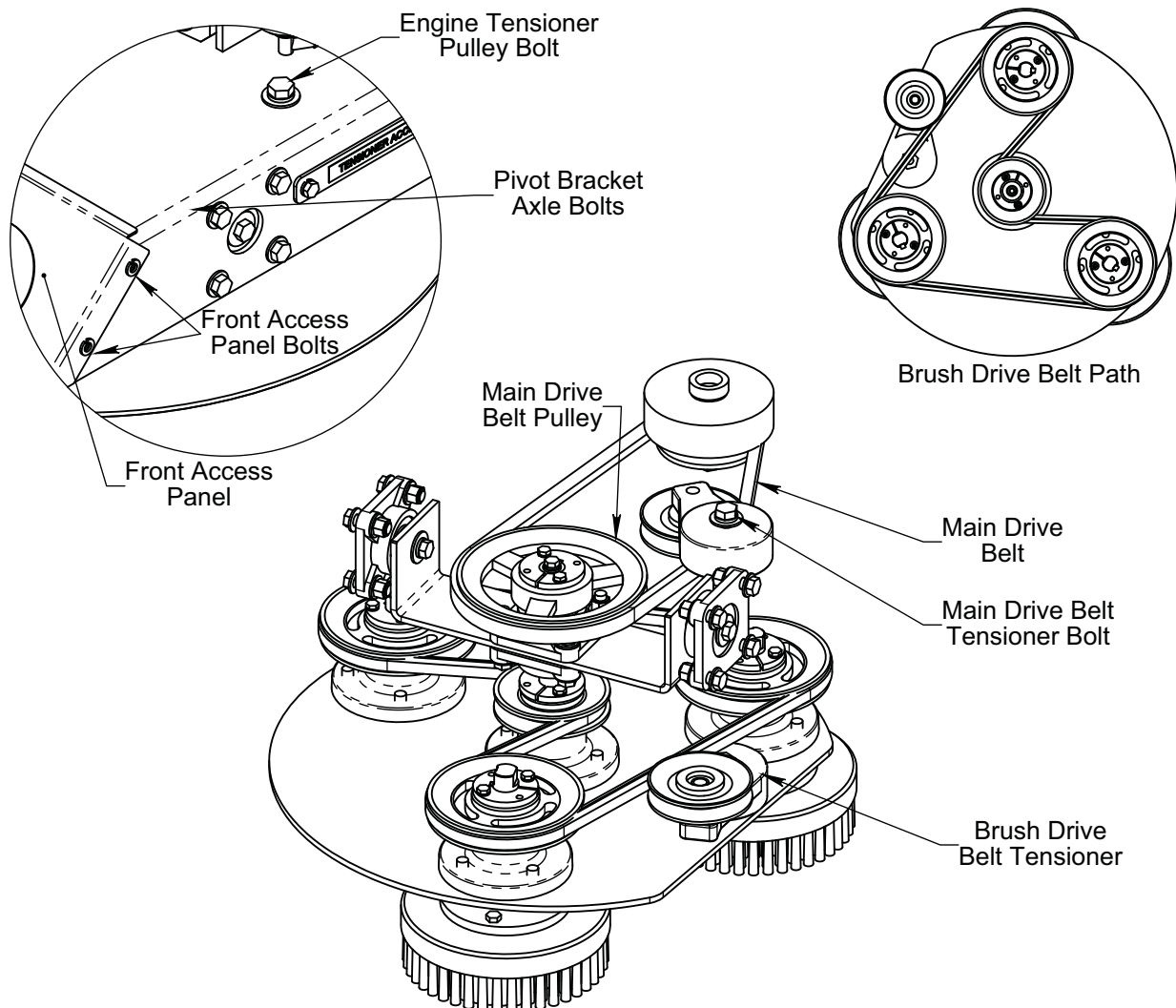
1. Loosen brush drive belt tensioner pulley bolt, located on brush side of plate, using a 3/4" wrench.
2. Slide the belt off one of the three brush pulleys.
3. Finish removing the belt from the rest of the pulleys.

## Brush Drive Belt Installation

1. Place the new belt around the center pulley as shown below.
2. Now route the belt around each of the brush drive pulleys as shown below.

## Brush Drive Belt Tensioning

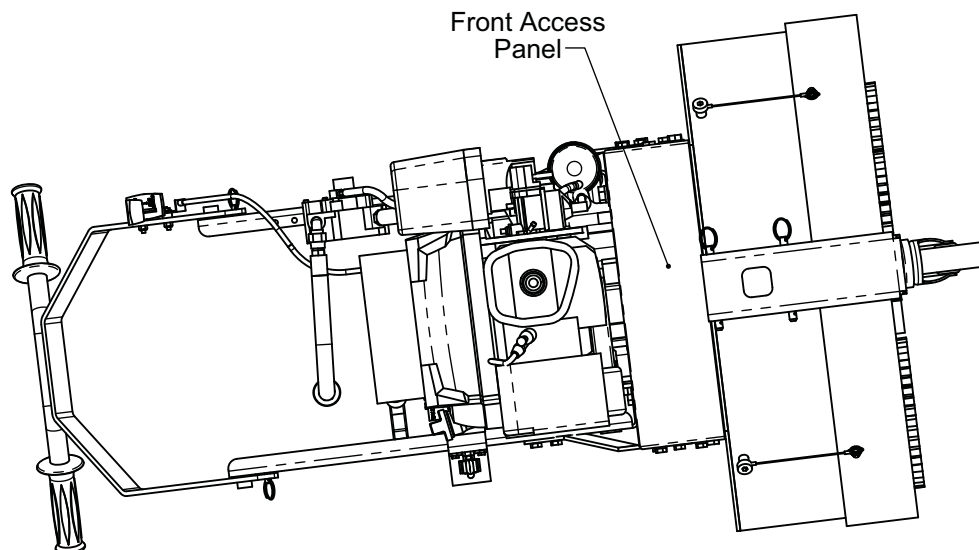
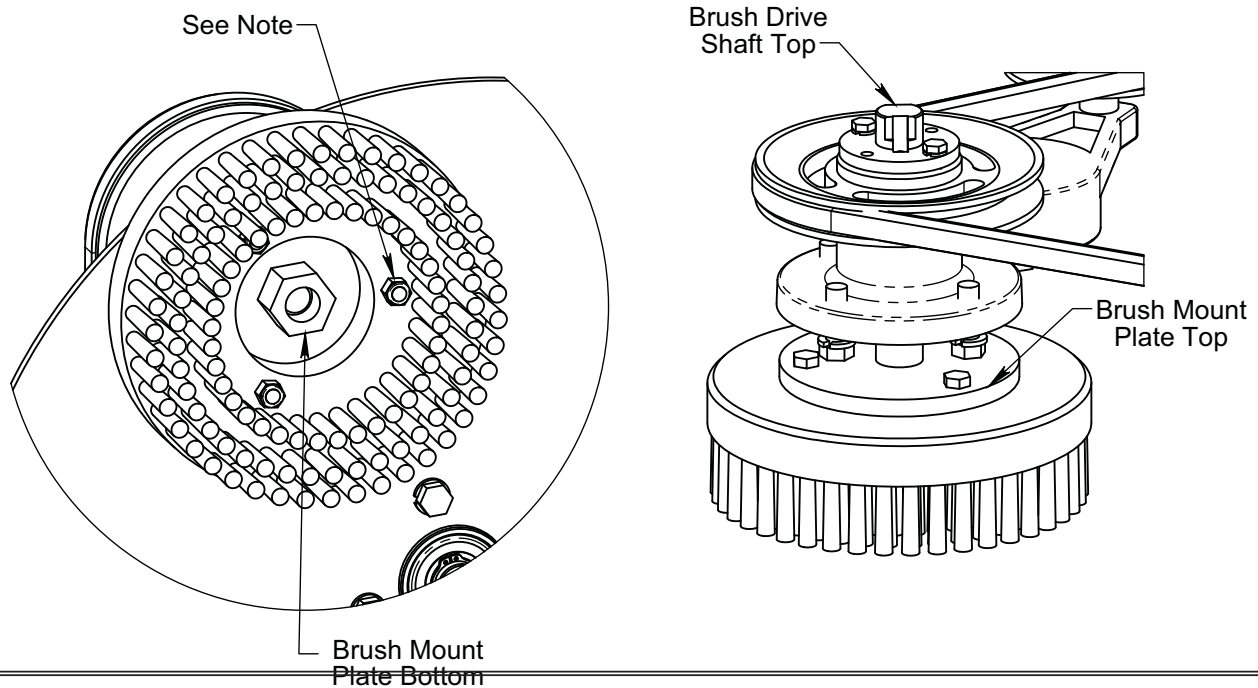
1. Place a 1" wrench on the tensioner hex on the top of the brush drive belt tensioner body.
2. Pull the wrench toward the brush drive belt tensioner pulley to tension the belt.
3. While holding the 1" wrench in place tighten the brush drive belt tensioner bolt, on the brush side of the plate, using a 3/4" wrench.



# BRUSH CHANGE

1. Remove propane tank.
2. Remove front access panel to gain access to the brush drive shaft tops.
3. Lay the machine on its side with the brush drive plate installed.
4. The brush drive shaft and brush mount plate are LEFT HAND THREADS.
5. Using a 3/4" open end wrench place it on the wrench flats of the brush drive shaft top.
6. Place an 1 1/4" socket in the center of the brush mount plate on the bristle side.
7. Unscrew the brush mount plate from the brush drive shaft while securing the brush drive shaft with the 3/4" wrench.
8. Now you'll need to remove the brush from the brush mount plate.
9. Using a 1/2" wrench and 1/2" socket unscrew the nuts which hold the brush onto the brush mount plate.

Note: When reassembling brush and brush mounting plate place bolts in through the brush mount plate down through brush and put nuts on the bristle side of the brush.



# TROUBLESHOOTING

PROBLEM	CAUSE	POSSIBLE SOLUTION
Engine will not turn over	Loose wire or bad connection	Check wires and connections
	Bad electrical component	Replace bad component
	Fuel system problem	Refer to engine owner's manual and read <b>IMPORTANT</b> below
Engine turns over, but will not start	Propane tank shut off valve in off position	Open propane tank shut off valve completely
	Low oil	Add oil
	Fuel system problem	Refer to engine owner's manual and read <b>IMPORTANT</b> below
	Propane tank empty	Fill propane tank
	Engine problem	Refer to engine owner's manual and read <b>IMPORTANT</b> below
Hard to start	Throttle lever in slow position	Push throttle lever to fast position
	Propane tank shut off valve not fully open	Open propane tank shut off valve completely
	Some type of engine problem	Refer to engine owner's manual and read <b>IMPORTANT</b> below
Engine stops suddenly and will not restart	Out of propane	Replace propane tank with full propane tank
	Low oil	Add oil
Engine overheats	Intake air filter is dirty	Remove air intake filter and clean
	Incorrect oil level	Add or remove oil to achieve proper oil level
Can't remove brushes	Turning brushes the wrong direction	Turn clockwise to remove. Threads are <b>LEFT HAND</b>
Poor stripping performance or leaves wax on the floor	Brushes worn and have 3/4" bristle length or less	Change the brushes
	Brush or main drive belt slipping	Tension belts or replace belts if worn out
	Problem with stripper	Check dilution ratio or try alternative stripper
Excessive splashing	Splash guard too high off floor	Adjust splash guard down
Solution pushed by splash guard	Splash guard too low	Adjust splash guard up
	Brush or main drive belt slipping	Tension belts or replace belts if worn out
	Floor too rough to overcome friction, may happen on rough concrete surface	Check belts for proper tensioning or for excessive wear and ensure there is plenty of liquid on the floor.
Lacks power	Some type of engine problem	Refer to engine owner's manual and read <b>IMPORTANT</b> below
Nothing here fixes the problem	Problem could have several causes	Read <b>IMPORTANT</b> below

**IMPORTANT:** Propane fueled combustion engines produce dangerous gases and must be serviced by authorized service personnel trained specifically to service propane fueled engines and fuel systems. The troubleshooting tips are not intended to take the place of authorized service personnel. If you are unsure of what to do contact an authorized service personnel. Before working on this machine you must be familiar with the safety instructions in this manual.

# BETCO US WARRANTY POLICY

## 10 year coverage

Subject to the conditions stated below, Betco warrants parts and labor on rotationally molded polyethylene tanks/housings and injection molded vacuum head assemblies to be free from defects in materials and workmanship for a period of ten years to the original purchaser.

## 3 Year Coverage

Subject to the conditions stated below, Betco warrants parts and labor on all other Betco components to be free from defects in materials and workmanship for a period of three years to the original purchaser.

## 1 Year Coverage

Subject to the conditions stated below, Betco offers a limited warranty on parts and labor on the following equipment: parts and accessories to be free from defects in materials and workmanship for a period of one year to the original purchaser.

- DM Series Vacuums: #85506-00, #85507-00
- Bac Pac Lite Vacuum: #85903-00
- FiberPRO® Floor Dryer: #85507-00
- WORKMAN™ Series Vacuums: #85024-00, #85025-00, #85026-00, #85027-00
- CV100T Vacuum: #85023-00
- All Tools and Accessories
- All Battery Chargers
- All Batteries are pro-rated for 1 year

### **Allowable Travel Time Warranty Reimbursement:**

Eligible equipment: All battery and propane powered equipment products. Warranty period: 90 days from date of sale to the original purchaser. A maximum 60 mile round trip at 44 cents per mile will be allowed for warranty consideration.

### **Propane Machine Warranty:**

Honda engines are warranted by Honda for a period of 2 years against manufacturer defects. Kawasaki engines are warranted by Kawasaki for a period of 2 years against manufacturer defects. All other components (except wear items)\* are warranted by Betco for a period of 3 years.

**\*Wear Items exempt from Warranty consideration include but may not be limited to: power cords, transport wheels, vacuum bags, belts, squeegee blades, pad drivers, clutch plates, handle grips, filters, screens, throttle cables, brushes and carbon brushes.**

Subject to the conditions and exceptions stated in this warranty, Betco warrants the Betco products to be free from defects in material and workmanship, under normal use and service, for the periods listed under the warranty policy to the original purchaser. At any time during the warranty period, Betco will furnish replacement parts for the Betco parts to the original purchaser. Such parts will be furnished and charged including transportation costs, to the original owner through any Betco authorized Service Distributor. If the original part is returned within the warranty policy period from date of delivery for inspection by Betco and is found to be defective the owner will be credited for the cost of replacement parts plus shipping and handling. Replacement parts that have become defective through wear or abuse are not included in this warranty.

This warranty does not apply to damage or defect caused by accident, misuse, negligence, fire, or to any Betco product which has been serviced or repaired by other than an authorized Betco Service Distributor or Betco factory personnel. This warranty is void if products are used for any purpose other than that which was intended. There are no other warranties expressed or implied. In no event shall Betco be liable for incidental or consequential damages or any damage to person or property. (Please note some states do not allow the exclusion or limitations for incidental and consequential damages)

