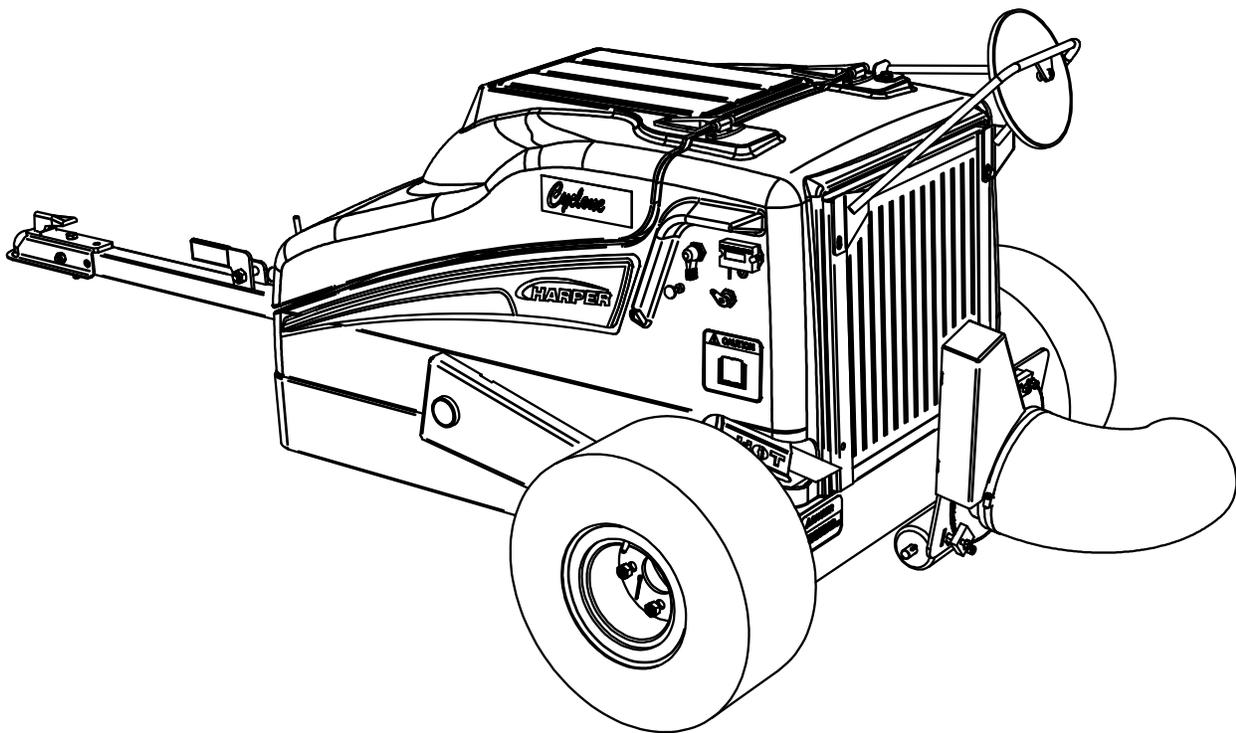


HARPER[®]

DEBRIS BLOWER



DB1800

Operator's Manual

LIMITED WARRANTY

The Harper Debris Blower is warranted against defects in workmanship and materials for a period of **TWELVE MONTHS** from the original date of retail purchase to the original purchaser.

Harper Industries will repair or replace, at our option, any part which our examination shows to be defective. Warranty is limited to parts, labor and ground freight delivery of replacement parts. The user will pay freight charges for parts submitted under this warranty.

No product or part may be returned for warranty consideration without prior approval from Harper Industries.

This warranty does not apply to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear.

Gasoline engines are not covered under this warranty. Refer to manufacturer's warranty for specific warranty information. Harper Industries, its agents or representatives, make or imply no other warranties.

RECORDS

Date of Purchase _____ / _____ / _____

Dealer's Name _____

Dealer's Phone _____

Serial Number - Machine _____

Serial Number - Engine _____

Thank you for purchasing a Harper Debris Blower.

As with all Harper products, the Harper Debris Blower was developed through tough design and testing procedures to produce a machine that can be relied on. This manual gives assembly, operating, and service information for Model **DB1800** Debris Blowers. Please read and understand all instructional material included with the Debris Blower or its components before assembling and operating the equipment.

A Debris Blower can present hazards to an operator who follows unsafe procedures in either the operation or maintenance of the unit. Therefore, **SAFETY WARNINGS** are presented at certain locations in the text.

SYMBOL:  **SAFETY WARNING!**

MEANING: Failure to understand and obey this warning may result in injury to you or others.

Whenever this symbol is used, please pay very close attention to the information presented, and make sure you fully understand. If you do not understand any part of this manual, contact your dealer or Harper Industries, Inc. for clarification.

 **SAFETY WARNING!**

THE HOOD IS REMOVED IN THIS MANUAL FOR PURPOSES OF ILLUSTRATION AND INSTRUCTION ONLY. DO NOT OPERATE THIS EQUIPMENT UNLESS THE HOOD IS IN PLACE AND SECURED.

Harper Industries, Inc. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specifications and design without thereby incurring any obligation relative to previously manufactured products.

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Specifications

Engine	18 hp Kohler – Gasoline
Weight	425 lbs.
Dimensions	Length – 103”, Width – 48”, Height – 40” min to 55” max
Blower	19” diameter, 10 fins
Output	185 mph, 9000 CFM
Blower Drive	Direct drive from engine shaft
Nozzle	Rotates 360 degrees
Noise	Sound control technology limits noise to 84 dB at driver’s seat
Hood and Shroud	Double-melt high-density polyethylene
Pin Hitch	Towable with any utility vehicle
Warranty	One year

The manufacturer reserves the right to make changes in engineering, design and specifications or add improvements at any time without notice or obligation.

Torque Chart

Size	In.-Lb.	Ft.-Lb.	N-m
No. 10-24	25-35	5-7	2.8-4.0
¼ in.	60-80	18-20	7-9
⁵ / ₁₆ in.	120-140	28-30	14-16
³ / ₈ in.	340-360	64-74	24-27
½ in.	---	126-150	90-100

NOTE:

When tightening two or more screws on the same part, DO NOT tighten screws completely right away, or one at a time. To avoid distortion, first tighten all screws in sequence to one-third of torque value, then tighten to two-thirds of torque value, then tighten to full value.



DB1800 – Operating Position

Leveling Link – Adjust the leveling link so that the Debris Blower is horizontal while in the tow position.

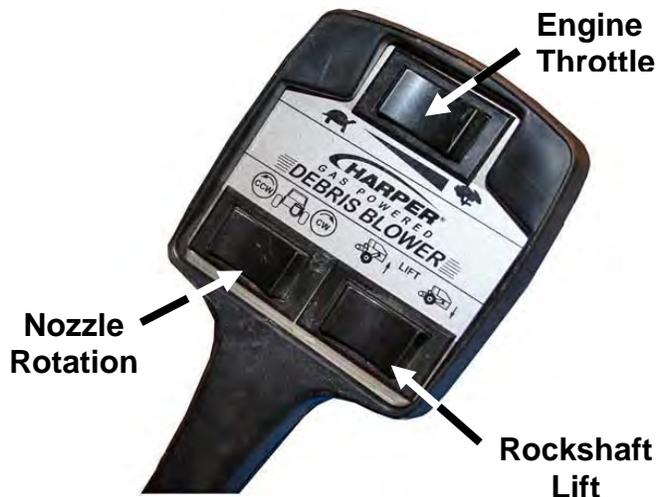
Nozzle – The nozzle rotates 360 degrees and gives direction to the air flow.

Rockshaft – The rockshaft raises the unit to allow clearance during transport.

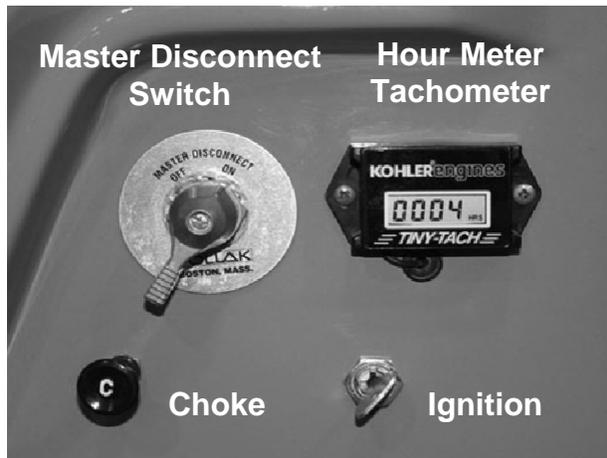
Hood Vent – The hood vent filters the air that is exhausted through the Debris Blower nozzle at the same time cooling the engine (keep clear at all times).

Mirror– The convex mirror allows the operator to see the nozzle.

Control Cable – The engine controls are on the control panel (refer to close-up).



DB1800 – Control Panel



Master Disconnect Switch – Use master disconnect to shut off unit in case of an emergency and when in storage.

Hour Meter/Tachometer – Registers engine RPM when engine is running and hours used when engine is off.

Choke – Use choke to start cold engine.

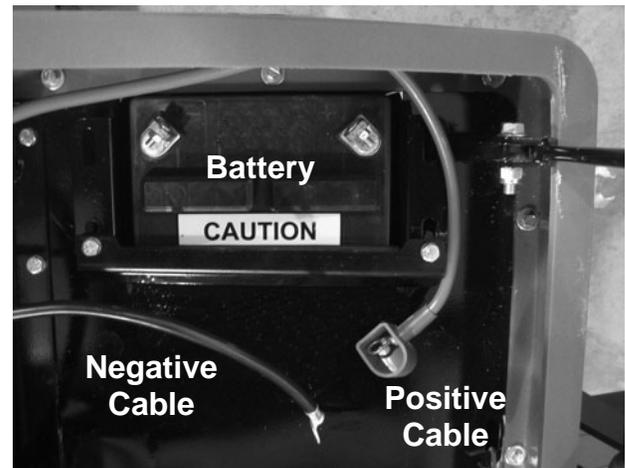
Ignition – Use to start and stop engine. Partially turn the ignition key clock-wise to energize all functions of the unit.

DB1800 – Battery

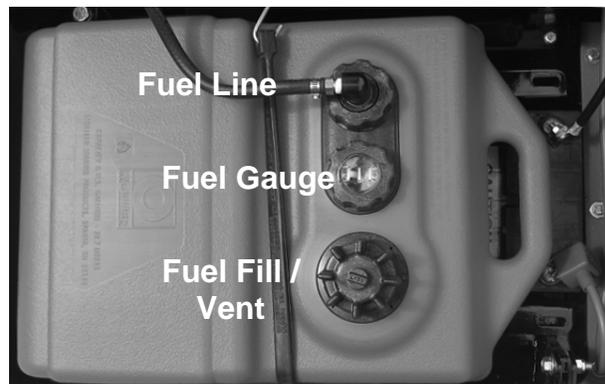
Battery – The 12-volt, lead-acid battery is shipped dry (without acid) and with the battery cables disconnected. Before using unit, remove plastic covers (2) and fill with battery acid.

Positive Cable – Before using unit, attach the Positive Cable (red) to the positive post (+) of the battery.

Negative Cable – Before using unit, attach the Negative Cable (black) to the negative post (-) of the battery.



DB1800 – Fuel Tank



Fuel Tank – 10-gallon capacity – Refer to the Kohler engine manual for fuel specifications.

Fuel Gauge – Measures fuel level in tank.

Fuel Fill / Vent – Fill tank at this location. Make sure that vent is open during operation.

General Safety Guidelines



SAFETY WARNING!

To prevent possible eye injury, always wear **SAFETY GLASSES** while operating or servicing the equipment.



SAFETY WARNING!

Use genuine factory parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or others.

Fasteners

- Replace locknuts and locking screws if you can tighten them without feeling considerable resistance for several turns before they are completely tight. Replace them with factory authorized parts or their equivalent.
- If hardware / fasteners are not secure, or if some of the hardware is over-tightened, equipment failure may result, posing possible safety hazards.

Gasoline



SAFETY WARNING!

Gasoline is extremely flammable and can be highly explosive.

- Allow engine to cool sufficiently before refueling.
- Do not allow smoking, open flames or sparks while performing maintenance or refueling.

- Never remove the fuel tank cap or add gasoline when the engine is running or while it is hot.
- Never fill the fuel tank indoors (fumes can collect).
- Wipe up spilled gasoline immediately and completely.
- Do not store gasoline in a room with an appliance that has a pilot light to where electrical appliances or switches may cause sparks.
- Always store gasoline outdoors in a safety can (a can which has a flame arrestor and pressure relief valve in pour spout).
- Gasoline fumes are heavy and will sink to the lowest point, collecting and becoming more and more hazardous. 1 part gasoline in 20 parts air will explode easily and violently.
- Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
- Be certain to provide adequate ventilation if an engine must be run indoors - exhaust fumes are dangerous.

Guards & Shields

- Keep all guards, shields and safety devices in place at all times, removing only when necessary for service.
- Replace all worn, damaged, unusable, missing or lost safety shields and guards before operating equipment.

 **SAFETY WARNING!**

Keep all guards and shields in place and the hood closed during operation to prevent possible injury or death.

Safety Decals

- If safety related or instructional decals become illegible or are removed, replace them immediately.
- If parts that have such decals attached are replaced, make sure the current versions of the decals are on the replacement parts before the machine is operated again.
- Order new decals from your local Harper Dealer.

Equipment & Controls

- **READ AND UNDERSTAND THE OWNER'S MANUAL.**
- Altering this equipment in any manner which adversely affects its operation, performance, durability, or use will void the warranty and may cause hazardous conditions.
- Know the location and function of all controls and how to stop this equipment quickly in an emergency before you operate the equipment.
- Keep all nuts, bolts and screws tight to help ensure safe operation of this equipment.

 **SAFETY WARNING!**

The DB1800 is not designed for towing at highway speeds.

Before Operation

- Before operating this equipment, read and understand the Owner's Manual.
- Replace damaged or missing safety decals.
- Wear approved eye and ear protection and other appropriate safety equipment while operating the machine.
- Make sure bolt holding the tongue to the tow vehicle is secure.
- Before starting the machine, visually inspect all nuts, bolts and other fasteners to see that they are properly secured.
- Make sure both tires are inflated to manufacturer's specifications given on sidewall and wheel lug nuts are tight.

During Operation

- Do not allow children to operate this machine.
- If a foreign object should strike the fan assembly of the machine and cause an unusual noise or vibration, shut the engine off immediately and allow it to come to a complete stop. Disconnect the spark plug wire from the spark plug on the engine, and then do the following:
 1. Inspect for damage.
 2. Repair or replace any damaged parts.
 3. Check for and tighten any loose bolts, nuts, fasteners or parts.

 **SAFETY WARNING!**

Keep clothing and all body parts away from rotating parts.

- Keep the engine area free of oil, debris and other accumulations.
- Keep all safety shields and guards in place and in good working condition.
- Be sure to provide adequate ventilation if the engine must be run indoors – exhaust fumes are very dangerous.
- Periodically clean area around engine to lessen the possibility of fire.
- Engine governor settings are preset and should not be altered. Any change can damage moving parts and void warranty.

Battery



SAFETY WARNING!

Observe all safety warnings printed on the battery. Keep away from children.

- Ventilate when charging battery or using in an enclosed space.
- DO NOT produce sparks from cable clamps, tools, or other sources; and DO NOT allow flames or smoking in the vicinity of the battery.
- Always wear safety glasses and gloves when working with acid or near the battery.



SAFETY WARNING!

Accidental engine starts can cause severe injury or death. Before working on the engine or equipment, disable the engine as follows:

- Disconnect the spark plug wires.
- Disconnect the negative (-) battery cable from battery.



SAFETY WARNING!

Do not leave machine unattended, or attempt service or inspection unless the machine has come to a complete stop, the engine is off, and the Master Disconnect is turned off.



SAFETY WARNING!

Contact your local Goossen Dealer or Harper Industries for assistance if any part of this manual requires further explanation. Your safety and the performance of the Debris Blower may depend on a clear understanding of the material contained in this manual.

For technical assistance or additional information contact:

Harper Industries, Inc.
151 E. Highway 160
Harper, Kansas 67058
Tel. 1-800-835-1042

Or, visit our website at:

www.harperindustries.com

Set - Up

- Before initial operation, fill the battery with acid and connect the battery cables. Unit is shipped without acid and with cables disconnected.
- Open vent on fuel tank. The engine will run briefly even if vent is closed.
- Place the control cable onto the tow vehicle. Be careful not to drag cable.



SAFETY WARNING!

Use protective gear such as gloves and safety glasses when servicing unit.

Operation

Standard Procedure

1. Wear eye and ear protection at all times during operation.
2. Fill the tank with unleaded gasoline. Make sure vent on fuel tank is open. (Refer to engine manual for gasoline specs.)
3. With the DB1800 attached to the tow vehicle, use the leveling link to level the unit as close to horizontal as possible. The engine is designed to operate for extended periods at an angle of 25 degrees or less.
4. Check engine oil and perform other routine maintenance as recommended in the Maintenance section.
5. If necessary, squeeze the primer bulb to fill the fuel filter with fuel.
6. Before starting engine, turn the Master Disconnect to the ON position, and partially turn ignition key clock-wise. Move the Engine Throttle between low (Turtle) and high (Rabbit). Point the nozzle away from any bystanders, animals or fragile objects.
7. If engine is cold, pull out the choke. When restarting a warm engine, it may not be necessary to use the choke.
8. Turn the ignition key fully to the start position and release as soon as the engine starts. **DO NOT TURN THE STARTER OVER FOR MORE THAN 10 SECONDS.**
9. Once the engine is running, gradually push in the choke and allow engine to warm up.

10. To maximize blower efficiency:
 - Raise Engine Throttle to high (Rabbit).
 - Lower the unit when blowing to the side.
 - Raise the unit when blowing downward.
11. Keep unit in the raised position when the nozzle is pointed downward to prevent damage by dragging.



SAFETY WARNING!

Keep by-standers and animals out of the area of operation to prevent them from being hit by the air stream or flying objects.

Operating On a Slope

1. Run up and down steep slopes, never across the face.
2. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control.
3. Use extreme caution when changing directions on slopes.

Stopping Operation

1. Move Engine Throttle to low (Turtle).
2. Allow engine to idle briefly (30 to 60 seconds) before turning off.
3. Turn the ignition key and the Master Disconnect to the OFF positions.

Initial Break-in

After first few hours of use, inspect the unit for any loose fasteners or fittings. Tighten according to the Torque Chart.

Maintenance

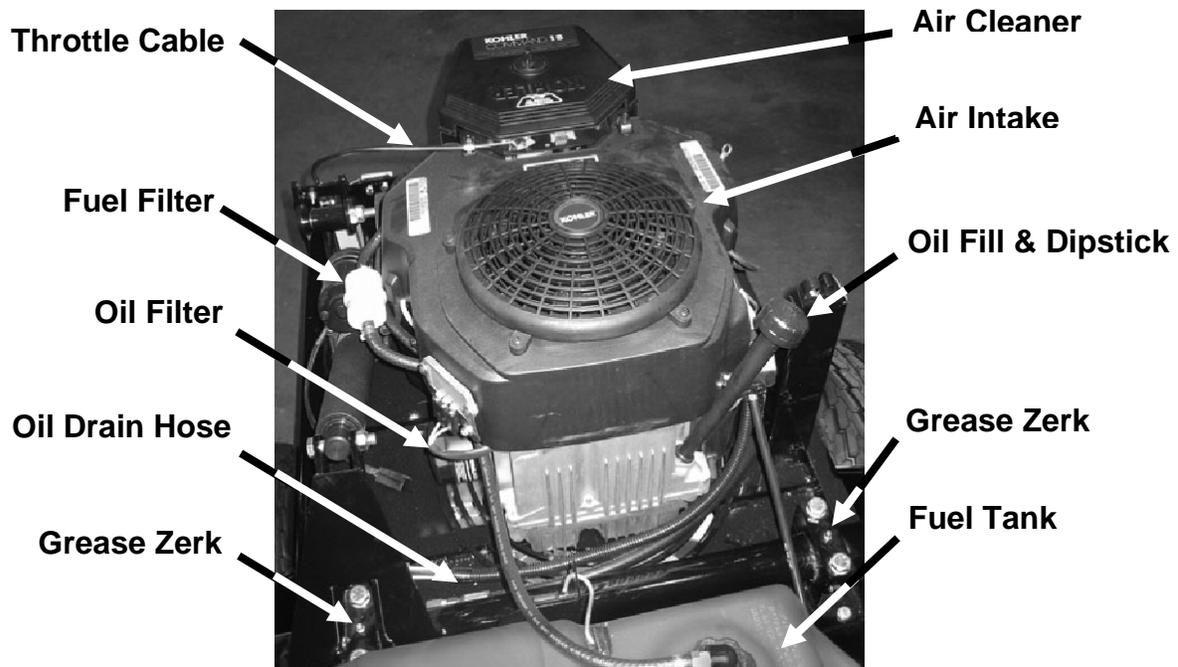
Frequency	Maintenance Required
Daily or Before Starting Engine	<ul style="list-style-type: none"> • Fill fuel tank. Refer to Kohler engine manual for fuel specs. • Check oil level. Refer to Kohler engine manual for oil specs. • Check air cleaner for dirty¹, loose, or damaged parts. • Check air intake and cooling areas, clean as necessary¹.
Every 25 Hours	<ul style="list-style-type: none"> • Service pre-cleaner element¹.
Weekly or Every 40 Hours	<ul style="list-style-type: none"> • Grease zerks with standard automotive grease (2 locations). • Check level of acid in battery. Add distilled water when necessary.
Every 100 Hours	<ul style="list-style-type: none"> • Replace air cleaner element¹. • Change oil (more frequently under severe conditions). <u>Do not over-fill.</u> • Remove cooling shrouds and clean cooling areas^{1,3}. • Check oil cooler fins, clean as necessary (if equipped).
Every 200 Hours	<ul style="list-style-type: none"> • Change oil filter. • Check spark plug condition and gap. • Replace fuel filter (Carbureted engines).
Every 250 Hours	<ul style="list-style-type: none"> • Replace heavy-duty air cleaner element and check inner element¹.
Annually or Every 500 Hours	<ul style="list-style-type: none"> • Have Bendix starter drive serviced². • Have solenoid shift starter disassembled and cleaned².
Every 1500 Hours	<ul style="list-style-type: none"> • Replace fuel filter¹ (EFI engines).

¹Perform these maintenance procedures more frequently under extremely dusty, dirty conditions.

²Have a Kohler Engine Servicing Dealer perform these services.

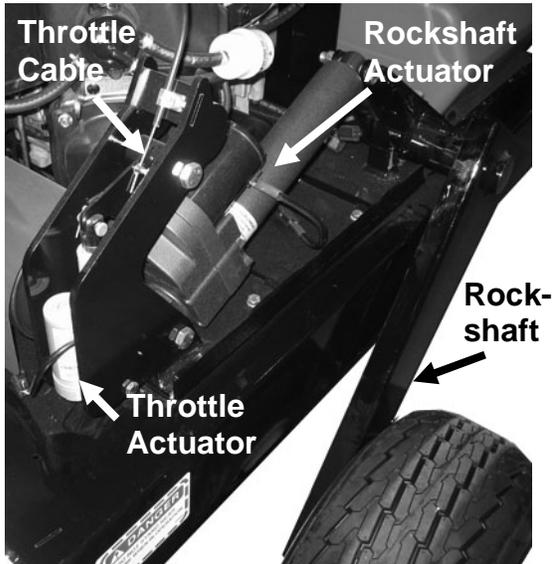
³Cleanout kits 25 755 20-S (black) or 25 755 21-S (gold), available from Kohler, allow cooling areas to be cleaned without removing shrouds.

Maintenance Locations



Adjustments

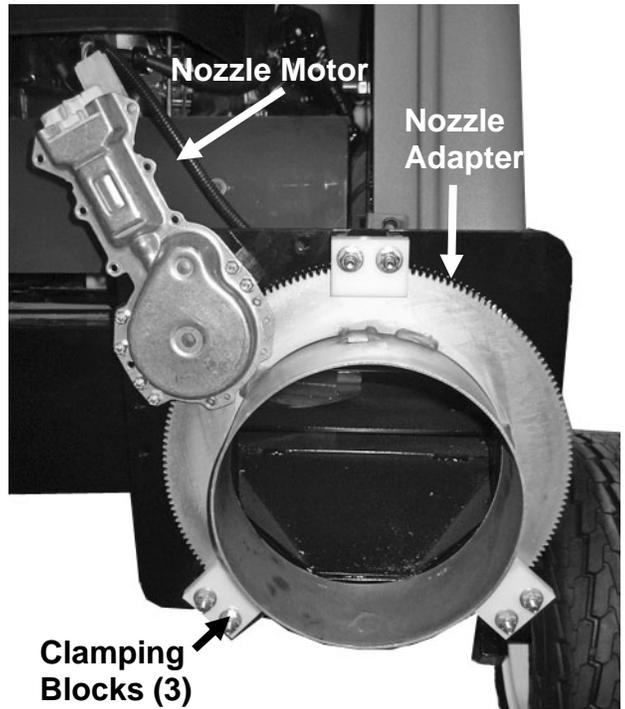
Throttle and Rockshaft Actuators



The Throttle Cable is pre-set at the factory to allow the Throttle Actuator to move the engine throttle from idle to full. If the cable should ever need replaced, use the setscrew at the end of the cable to secure it to the Actuator linkage. Make sure the Actuator is able to move the throttle from idle to full.

The Rockshaft Actuator does not require adjustment.

Nozzle Adapter and Motor



The three Clamping Blocks are held with two bolts each (tighten evenly). The bolts should be loose enough to allow the Nozzle Adapter to rotate freely, yet tight enough to hold the rubber nozzle securely without shaking or bouncing.

Troubleshooting

Engine:

Problem:	What to Check:
Engine will not start or shuts off during operation.	<ul style="list-style-type: none"> • Improper control settings. • Engine may be low on fuel. • Fuel tank vent may be closed. • Engine may be too low or too full of oil. • Battery charge may be too low. • Possible internal problems. • Air breather may be clogged.

The logo for Harper, featuring the word "HARPER" in a bold, italicized, sans-serif font. A thick, black, curved swoosh arches over the letters, starting from the left and ending with a thin tail pointing to the right. A registered trademark symbol (®) is located at the top right of the word.

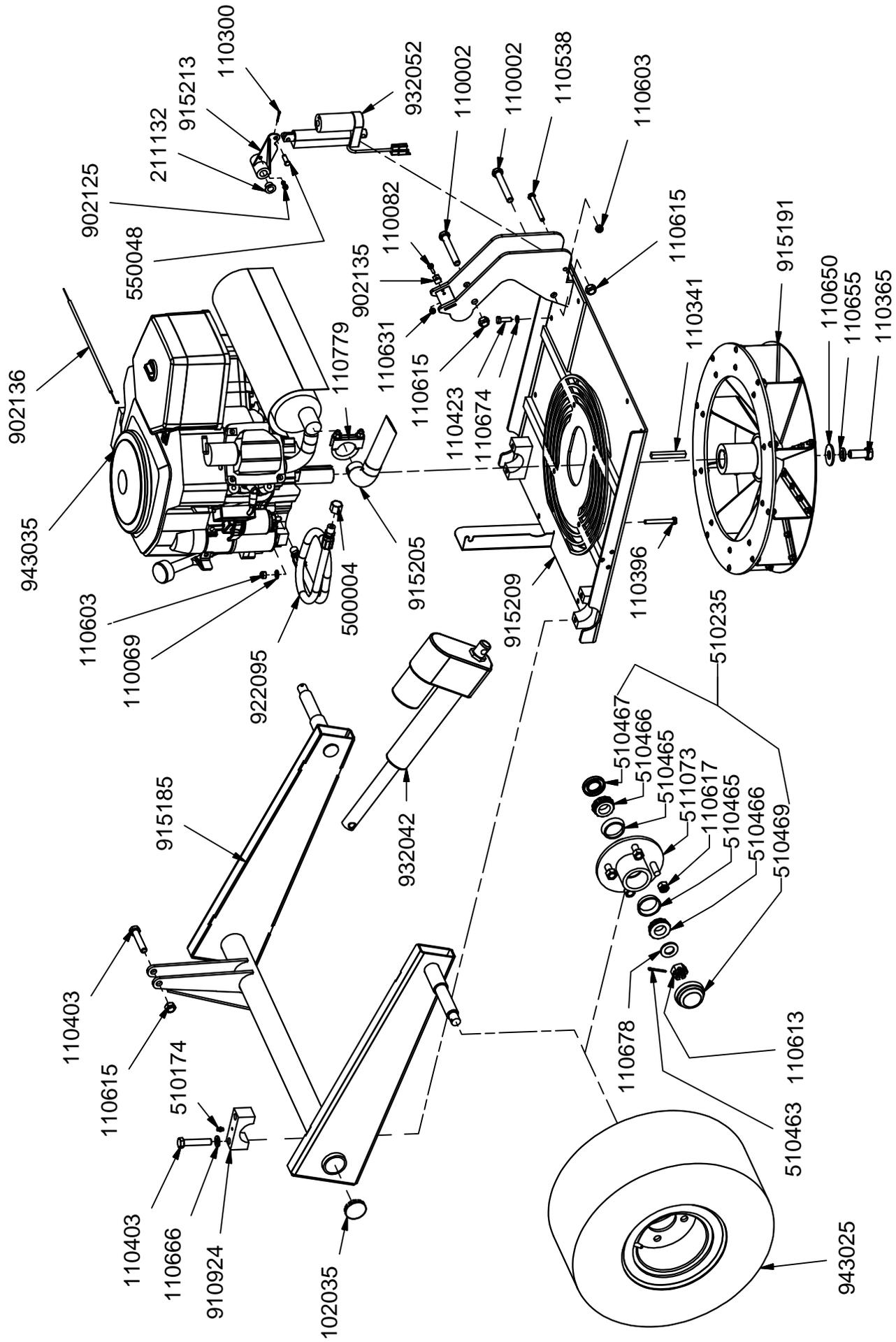
HARPER[®]

DEBRIS BLOWER

DB1800

PARTS

ENGINE AND ROCKSHAFT



ENGINE AND ROCKSHAFT

PART NO.	QTY.	DESCRIPTION
102035	2	PLUG, 1.625
110002	2	BOLT, 1/2-13 X 3.5,
110069	4	WASHER, 5/16 FLAT SAE
110082	1	SCREW, 10-24 X 3/4 HEX, FLG
110300	1	COTTER PIN, 3/32 X .75
110341	1	KEY, 3/8 X 3/8 X 3
110365	1	BOLT, 5/8-18 X 1.5, HHCS
110396	4	BOLT, 5/16-18 X 2.5
110403	5	BOLT, 1/2-13 X 2.5 HHCS
110423	12	BOLT, 5/16-18 X 1 HHCS
110538	1	BOLT, 5/16-18 X 3
110603	5	NUT, 5/16-18, NYLOCK
110615	3	NUT, 1/2-13, LOCK
110631	1	NUT, 10-24 NYLOCK
110650	1	WASHER, 5/8 FLAT STANDARD
110655	1	WASHER, 5/8 LOCK
110666	4	WASHER, 1/2 LOCK
110674	12	WASHER, 5/16 LOCK
110779	1	CLAMP, 1 1/2 EXHAUST
211132	2	BUSHING, .625X.5X.062 FLG
500004	1	CAP, ENGINE OIL DRAIN
510174	2	GREASE ZERK
510235	2	HUB, STABILIZER W/L
110617	8	NUT, 1/2-20, LUG
510466	4	BEARING CONE, TAPER
510467	2	SEAL, CR12407
510469	2	DUST CAP, 1428600
511073	2	HUB W/RACES USE 510235
550048	2	PIN
902125	1	SWIVEL ASSY
902135	1	CLAMP, BOWDEN CABLE
902136	1	THROTTLE CABLE
910924	2	BUSHING TOP HALF
915185	1	WELDMENT, ROCKSHAFT
915191	1	FAN ASSY
915205	1	WELDMENT, MUFFLER EXHAUST
915209	1	WELDMENT, ENGINE MOUNT
915213	1	WELDMENT, THROTTLE LEVER
922095	1	HOSE, .375 X 30, 6MP-6MP
932042	1	ACTUATOR, LINEAR 6"
932052	1	HIWIN ACTUATOR
943025	2	TIRE & WHEEL COMPLETE
943035	1	ENGINE, 18HP KOHLER

4/25/2007

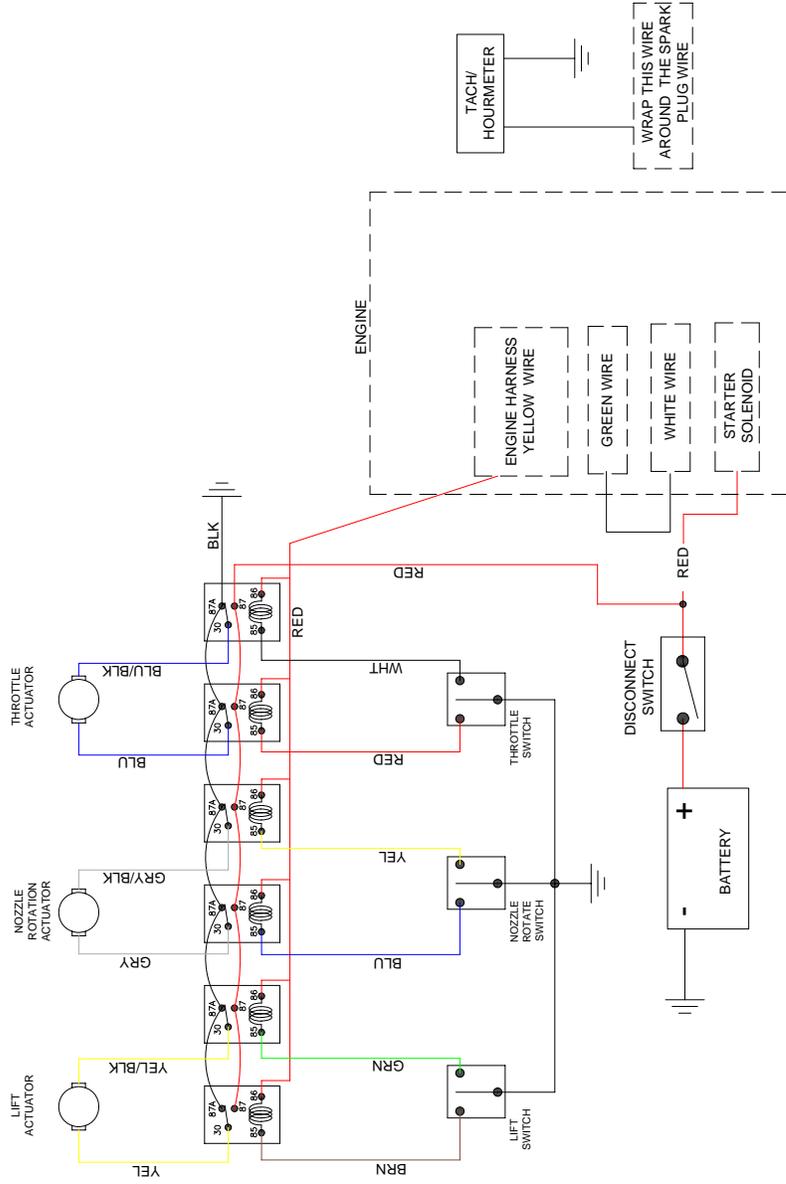
HOOD AND SHROUD

PART NO.	QTY.	DESCRIPTION
100623	8 FT.	SEAL, "D"W/ADHESIVE
110082	7	SCREW, 10-24 X 3/4 HEX, FLG
110083	1	NUT, 3/8-24
110090	16	WASHER, #10 FLAT
110150	2	BOLT, 3/8-16 X 1.5 WZ FLG
110155	5	WASHER, 3/8 FLAT SAE
110199	17	SCREW, 1/4-20 X .75 SLF TP
110257	8	POP RIVET, 3/16
110259	8	WASHER, 3/16 RIVET BURR
110400	4	BOLT, 3/8-16 X 2
110423	3	BOLT, 5/16-18 X 1 HH
110603	3	NUT, 5/16-18, NYLOCK
110618	2	NUT, 3/8 NYLOCK
110631	23	NUT, 10-24 NYLOCK
110672	1	WASHER, 3/8 LOCK
110673	17	WASHER, 1/4 FLAT STD
110803	16	SCRW,10-24X1 OVL HD P SS
110804	4	NUT, 3/8-16 U-TYPE .75 L
132003	2	CLAMP, ADEL 1/2"
150014	3	SCREW, #6 X 1 SHEET
150040	1	HAND CONTROL ASSY, DB1800
160010	1	DECAL: CAUTION READ
500307	2	LATCH, HOOD
530016	1	SWITCH, IGNITION (KOHLER)
550072	1	CHOKE, COMPLETE
810625	1	TOP SCREEN
832014	1	SWITCH, MASTER DISCONNECT
832015	1	FACE PLATE FOR 83201
902120	1	MIRROR, 8" CONVEX
902127	1	DECAL, LEFT STRIPE
902128	1	DECAL, RIGHT STRIPE(NOT SHOWN)
902129	2	DECAL, CYCLONE
902130	2	HINGE
902131	2	STANCHION
902132	1	GROMMET
902134	2	PLUG, HANDLE
902137	1	PROP ROD CATCH
910922	1	PROP ROD HOLDER
910937	1	PROP ROD CATCH
910942	1	HANDLE TUBE
912004	1	SHROUD, DB1800
912005	1	HOOD, DB1800
915210	1	WELDMENT, MIRROR MOUNT
915211	1	WELDMENT, PROP ROD
915212	1	WELDMENT, SCREEN DB1800
932043	1	HARNESS, DB1800(NOT SHOWN)
932045	1	SWITCH HARNESS, DB1800(NOT SHOWN)

FAN HOUSING

PART NO.	QTY.	DESCRIPTION
100361	2	CLAMP, HOSE 1/4"
100623	4	SEAL, "D"W/ADHESIVE
100644	2.5	HOSE, 1/4" BULK, LOW PERM
102004	2	SEAL,RUBBER,"D" SHAPE
110002	2	BOLT, 1/2-13 X 3.5,
110069	9	WASHER, 5/16 FLAT SAE
110311	1	CLAMP, HOSE 8"
110344	6	SCREW, 8-32 X 1.5
110345	6	NUT, 8-32 LOCK NYLON
110377	2	BOLT, 5/16-18 X 1.5
110378	6	BOLT, 5/16-18 X 2 HHCS
110423	5	BOLT, 5/16-18 X 1 HHCS
110510	2	BOLT, 5/8-11 X 3.75
110513	1	BOLT, 5/8-11 X 2.5
110603	9	NUT, 5/16-18, NYLOCK
110608	2	NUT, 5/16-18
110615	2	NUT, 1/2-13, LOCK
110616	2	NUT, 5/16 J
110639	3	NUT, 5/8-11, LOCK
110674	2	WASHER, 5/16 LOCK
110766	6	SCREW, 1/4-20 X 1.0 FL
120237	1	ADAPTER, 4BH-4MP
132014	1	INSULATOR CAP, RED
160010	1	DECAL: CAUTION READ
300002	1	DECAL, FEMA
400014	1	DECAL, GUARD REMOVED
500036	1	DECAL, DO NOT STAND
500233	2	ROLL PIN, 3/16 X 1.5
800195	1	DECAL, RECYCLE BATTE
830063	1	CABLE, BATTERY, POSITIVE
900221	1	FUEL TANK, 6 GALLON
902039	1	DECAL, DO NOT START
902116	1	LINK, LEVELING, 11"-16"
902117	1	ELBOW, NOZZLE 7" TO 8"
902118	1	WEAR RING, NOZZLE
902119	3	CLAMPING BLOCK, NOZZLE
902122	1	MOTOR, NOZZLE DB1800
910044	1	COVER, VINYL GRIP
910237	1	TURF ROLLER, 8"
910897	1	SHAFT, ROLLER DB1800
910898	2	SPACER
910899	1	SPACER
910909	1	RETAINER, BATTERY DB1800
910916	2	PIN HITCH
915186	1	WELDMENT, HITCH DB1800
915189	1	NOZZLE ADAPTER
915203	1	WELDMENT, MOTOR COVER
915208	1	WELDMENT, FAN HOUSING
930001	1	BATTERY, 12V DRYPACK
932001	1	BATTERY TERMINAL COVER
932050	2	BATTERY CABLE, 20"
972005	1	HOLD DOWN STRAP 15"

DB 1800 ELECTRICAL SCHEMATIC



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