



Hurricane Manual



SASE Company, Inc.
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2475 Stock Creek Blvd.
Rockford, TN 37853

SASE Company, Inc. SASE manufactures and distributes concrete polishing, preparation equipment and tooling directly to our customers. SASE offers the most complete line of concrete polishing equipment and tooling in the industry. Our products range consists of planetary diamond grinders, industrial vacuums, scarifiers, floor scrapers, hand held tools, and an extremely wide variety of high quality diamond tooling at an everyday low price. SASE is committed to excellence in both the quality of products we sell as well as in the service and support we provide after the sale. Our goal is to never let you down, which is why SASE services what it sells. This is not just a tag line. We have built our reputation upon providing unsurpassed customer service and support. Our technical service staff answers all calls and e-mails in a timely manner. When you call 800.522.2606, a live person will answer the phone. We look forward to serving you our customer.

Sincerely,

SASE Company, Inc.

A handwritten signature in black ink, appearing to read "J. Weder". The signature is fluid and cursive, with a large initial "J" and a long horizontal stroke at the end.

Jim Weder, President

SASE Company Inc. Equipment Safety Policy Statement

SASE Company, Inc. is adamant that safety is one of the highest priorities for both our employees and customers. When considering set-up and operation of any piece of equipment supplied, manufactured, distributed, rented or serviced by SASE Company, Inc., the safety and protection of people should always be a top priority.

All customers and employees should follow all OSHA and local safety standards, requirements and regulations.

The use of the following safety equipments are both recommended and required when operating any piece of equipment supplied, manufactured, distributed, rented or serviced by SASE Company, Inc.

- OSHA approved/certified eye protection (safety glasses).
- OSHA approved/certified hearing and ear protection.
- OSHA approved/certified foot protection (steel toed boots).
- OSHA approved/certified respirator or breathing device.
- OSHA approved head protection (hard hat).
- Proper protective work gloves.
- Proper protective clothing limiting skin exposure.

(The list is not meant to be all inclusive. Please exercise sound judgments during operation.)

The work area must always have proper ventilation to minimize the health and safety risks of propane and gasoline emissions and airborne dust.

All SASE Company Equipment is engineered, designed and provided with dust control shrouds and vacuum ports. It is strongly recommended that an approved dust containment system be connected to and used in conjunction with all SASE Company equipment during operational use. SASE Company supplies, distributes, rents and services dust control systems with HEPA filtration.

Extreme caution must be exercised at all times when electrical power is considered. All SASE employees are prohibited from working on or hard wiring our equipments to any power source that has not been provided by SASE Company Inc. Any such work must be performed by a certified electrical technician. No SASE employee is permitted or authorized to work on, operate, or connect our equipment or equipment belonging to our customers to an electrical source that does not meet OSHA approved specifications. There are no exceptions to this policy! SASE Company, Inc. also strongly recommends that only certified electricians be permitted to deal with or manipulate electrical power sources within our customers' facilities or on their job-sites.

Finally, we at SASE Company, Inc. cannot stress enough the importance of following general safety practices, the utilization of appropriate safety equipment and the application of common sense when operating equipment supplied, manufactured, distributed, rented or serviced by SASE Company, Inc. both on the job-site and in the field.

(JL 07/2010)

**OPERATIONS
AND
MAINTENANCE MANUAL**

CUSTOMER

SERIAL NUMBER

DATE SHIPPED

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SECTION I

GENERAL DESCRIPTION

The *Hurricane* is operated by a propane-powered engine, driving a tandem hydrostatic pump system, creating a (skid-steer) zero turn radius drive train.

Surface covering and coatings are removed by lowering a weighted blade onto the surface and moving forward under a high torque drive system. The surface coating is removed by a flexible sharpened blade conforming to the floor surface, with the weight of the machine holding the blade firmly to the floor. The weight does not allow the blade to lift or ride over well-adhered surface coating material, thus lifting the off the floor coating.

After layers of carpet or laminates are removed the machine can be connected to a grinder or slicer attachment to either clean up adhesives or remove stubborn coatings.

SECTION II

SPECIFICATIONS

Weight	2750 lbs
Removable weight	1000 lbs
Height with Propane Tank	58 inches
Width	25 inches
Length with blade	51 inches
Length without blade	41 inches
Engine	25 Hp Kohler
Max Ground Speed	440 ft per min.
Torque per Wheel	1000 ft. lbs.
Fuel capacity	20 lb liquid propane
Hydraulic fluid capacity	4 gallons



SAFETY

WARNING

**CARBON MONOXIDE
can cause severe nausea,
fainting or death.**

**Do not operate engine in
closed or confined area
without proper ventilation.**

SECTION III

SAFETY AND PRECAUTIONS

Before operating the **Hurricane** please read the entire operation and safety manual with complete understanding of the safety section. If you have any questions on safety and precautions please call 1-800.522.2606.

There are several advantages to an effective safety program which include: lower operating costs, lower workman compensations, less work time lost, high employee morale, and less problems. No one can work safely without knowing what precautions to take to insure personal safety. Operators must know what equipment to wear, which job practices are safe and which are not, and must be aware of what hazards are possible in the work area. A regular schedule of Preventive Maintenance on your equipment is the best protection against unpleasant surprises that slow production and sometimes result in injuries. Here are a few suggested safety tips.

1. The first step before any maintenance or inspection takes place should be to stop the engine and disconnect the battery terminals.
2. Wear proper eye and ear protection and heavy duty work gloves at all times.
3. Practice good Preventive Maintenance.
4. Practice good housekeeping.
5. Allow the **Hurricane** to come to a complete stop, turn off engine, and chock rear wheels before performing any maintenance procedures.
6. Replace worn parts when necessary.
7. Do not reach into blade or control arm areas while machine is in operation.
8. Do not attempt to open any access door until the machine has come to a complete stop and the engine and propane is turned off.
9. Be sure all electrical inspections or changes are done by a qualified electrician.
10. Loose surface coating can cause dangerous footing. Always be alert and careful.
11. After replacing parts be sure all tools used are removed from the machine. Be sure all bolts and nuts are tightened. The loose connection of a rotating part could cause the part to fly off with explosive force, causing serious damage to the equipment and possible injury to the operator.
12. Always lower blade to the ground when the machine is unoccupied by the operator. Serious bodily injury may result if arms are not in the lowered position when not occupied.
13. Never allow unauthorized personnel or the general public into the work area.
14. The work area should be barricaded off to adequately keep all untrained persons out of the work site. If an unauthorized person enters the work area, stop the machine immediately and do not restart the machinery until they have left the work area.

15. Always allow a 200-foot buffer safety zone around all surface preparation activity.
16. Always run the **Hurricane** in a well-ventilated area, with an approved OSHA air-monitoring system in place at all times.
17. Read and obey all safety labels placed on the machinery at all times. If safety labels have been destroyed or removed call 1-800.522.2606 for free replacement prior to operating the machinery.
18. The **Hurricane** is **not a toy**. All operators must be over 18 years of age and must have read and reviewed the safety and procedures manual before operating the machinery.
19. The **Hurricane** is designed for surface preparation *ONLY*. It is not intended for towing, pushing or any other procedure not described in this manual.
20. Propane systems should be checked and documented twice yearly by a certified propane professional for leaks or damaged parts. If a propane leak is detected leave the machine immediately and seek assistance from propane professional. Do not use or restart machinery until it is determined safe.
21. Horseplay and or high speed cornering is not allowed with this machine and could cause rollover resulting in injury or death.
22. No smoking or open flame is allowed while machinery is running or within 50 feet of the machine.
23. Operator must be sober and not under the influence of drugs or medication and under full control of all bodily senses while operating this or any machinery.
24. When transporting the **Hurricane**, it is recommended to use a low bed tilt trailer. This procedure insures the wheels do not leave a stable surface.

SECTION IV

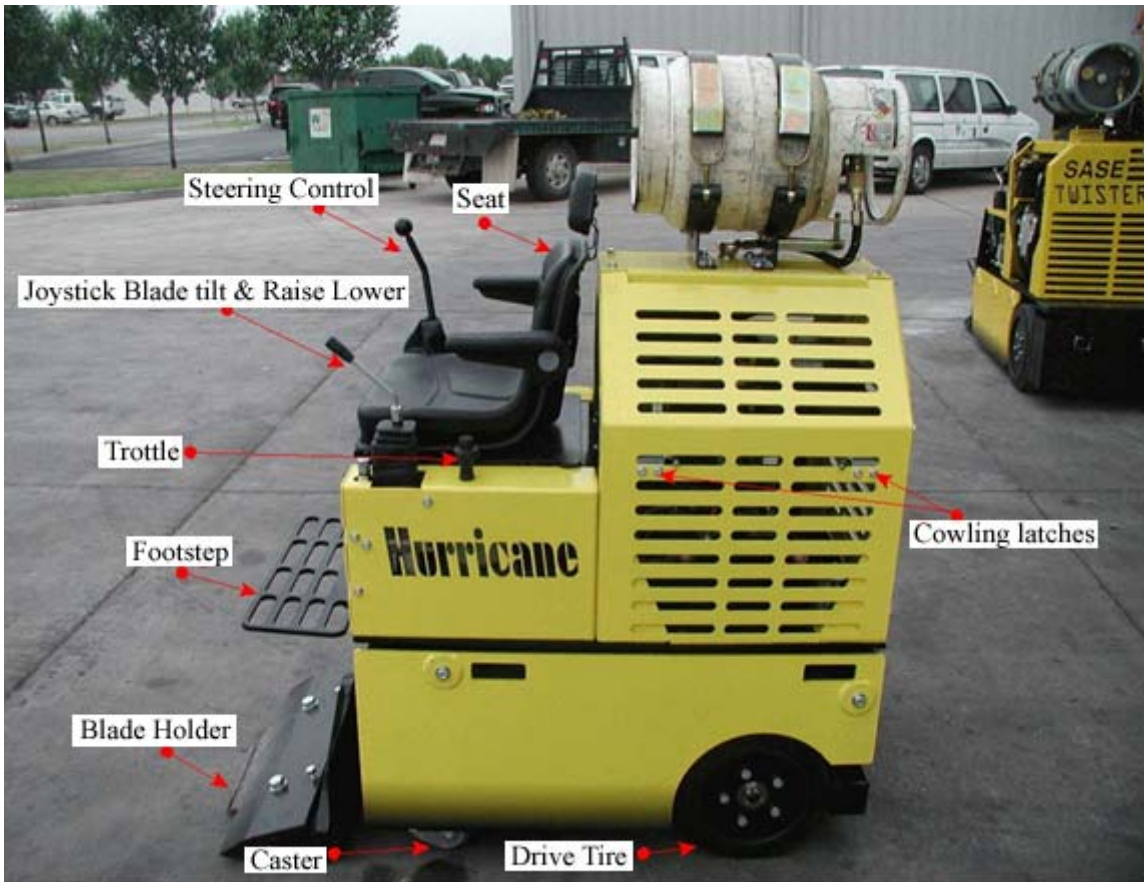
INSTRUMENTS AND CONTROLS

- View # 1:** Top view of Hurricane machine
View # 2: Left side view of Hurricane machine
View # 3: Right side view of Hurricane machine
View # 4: Front view of Hurricane machine

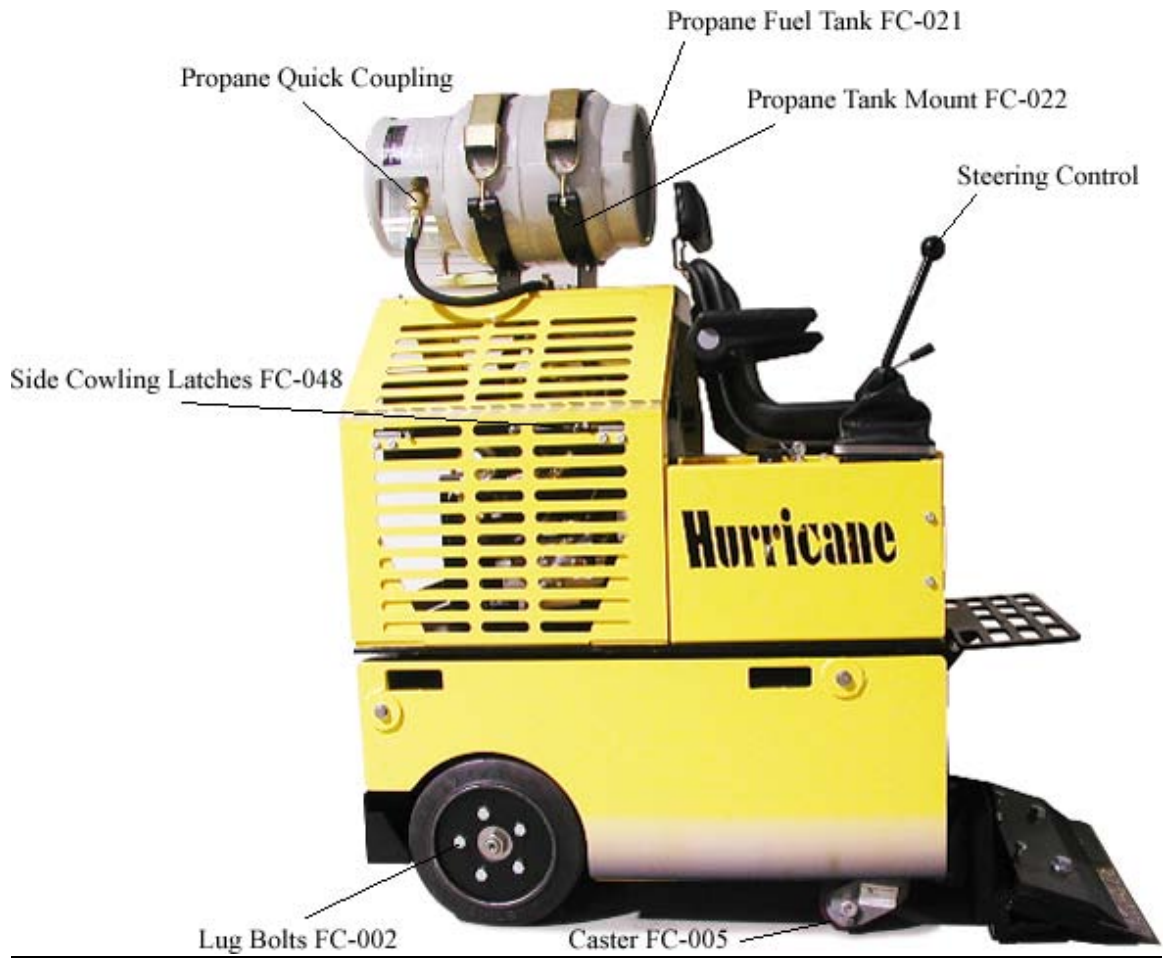
View #1: Top View



View #2: Left Side Detail



View #3: Right Side Detail



SECTION V

START-UP AND BREAK-IN

The **Hurricane** has been safety tested and run at our factory prior to shipping. All fluid levels have been topped off; however, no propane has been added to the tanks for safety shipment purposes. Before running the **Hurricane** please check the following items that may have shifted or changed during shipping.

1. Raise engine covers and check oil level.
2. Check air cleaner filter element for snug fit.
3. All battery cable connections are snug.
4. Inspect for major hydraulic oil leaks. Snug hydraulic fittings using two wrenches. Use caution not to over tighten.
5. Fill propane tank.
6. Mount propane bottle in brackets, be sure bracket alignment pin corresponds with alignment slot on bottle.
7. Attach propane hose to liquid side of bottle by attaching to the handle valve. Snug fit the female connector attached to hose and slowly turn valve on. You should hear gas briefly enter the propane hose. Immediately check for propane leaks with soapy water solution. If leak persists after retightening the knurled female connector: **STOP**, turn off the bottle at valve and seek assistance from certified propane professional. Serious damage and or an explosion could occur.
8. Check lug bolts for tightness, torque 85-100 lbs.
9. Return all engine guards to proper position.
10. You are now ready to start the engine.
11. Crank the engine by turning the key in the on position. The engine will crank for 3 to 5 seconds while the propane enter the carburetor. If the engine does not start, turn the key off, wait 1 minute and try again. If again unsuccessful, check propane valve to be sure it is open. If still unsuccessful turn off propane valve and seek assistance or call 1-800.522.2606.
12. Once the engine is warming and running, and the operator is safely in the seat, the machine can be driven.

Please turn to Section VI for Machinery Operation.

New Machine Break-In

Since the Hurricane is a very low maintenance and user-friendly machine, the only break-in is for the Kohler engine. Please refer to the owners manual, included is the manual and the maintenance schedule found inside the air cleaner plastic cover supplied by Kohler.

SECTION VI

MACHINERY OPERATION

Before reading the machinery operation section, new operators should familiarize themselves with the 3 diagrams depicting the TOP, LEFT, and RIGHT views of machine. These drawings show the activation of all moving parts of the Hurricane.

1. To move the machine: Using the right hand, slowly move the shifter lever in the desired direction. Forward and left moves the machine to the left, backward and right reverses the machine to the right. It is just that simple to drive. Speed is controlled by amount of movement on the joy stick and also by moving travel speed lever.
2. The left joystick lever is used to position the blade to the surface. Moving the lever forward and backward moves the blade up and down. Left and right movement changes the blade pitch.
3. Throttle control is on the left side of the seat, taking the unit from idle to 3400 RPM. The most optimum speed is 2600 to 3200 RPM. To change RPM of engine turn throttle knob clockwise to lower RPM and counterclockwise to raise RPM.
4. A cooling fan will run behind the seat when engine is running to keep hydraulic oil cool.
5. Hydraulic reservoir is accessed by removing right cowling and removing fill cap.
6. To change scraping blades: Stop engine. Loosen the set bolt at the rear of the Blade holder block using a ¾" open-end wrench. Slide the dull blade out and insert a new blade up against the shim stop. Retighten the set bolt and raise the control arms to remove wooden block. Lower control arms and resume scraping. The large 1 1'8" blade holder bolt should not need to be more that hand tight. With a little practice you should be able to change blades in 15 seconds. Dull blades can be resharpened and reused many times.

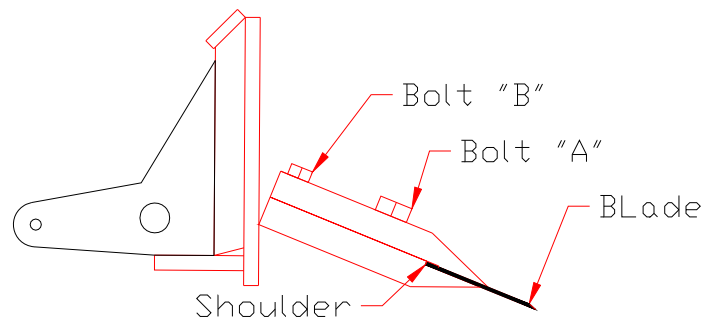
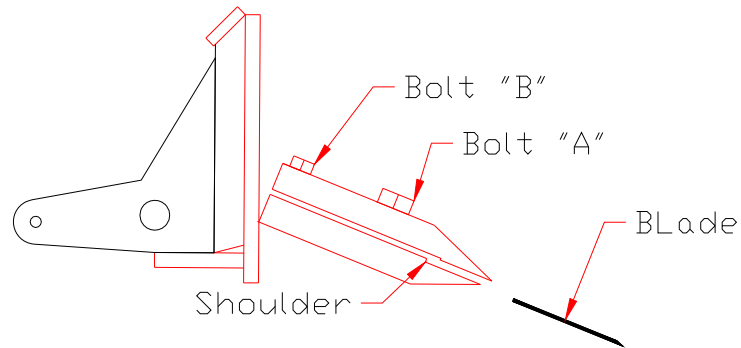
See drawing of blade change procedure

7. Operators should lower the blade by pressing the left hand lever forward each time they get off the machine. This safety practice eliminates possible bodily injury from lowering the blade by unauthorized operators.
8. The transport caster should not be in contact with the floor while scraping. It will lift off the floor when blade is lowered. Caster contact with the floor while scraping will negatively affect scraper productivity and steering.
9. Do not transport machine with front of machine off the surface of floor higher than 1/2" or irreparable damage to lift cylinder will result.

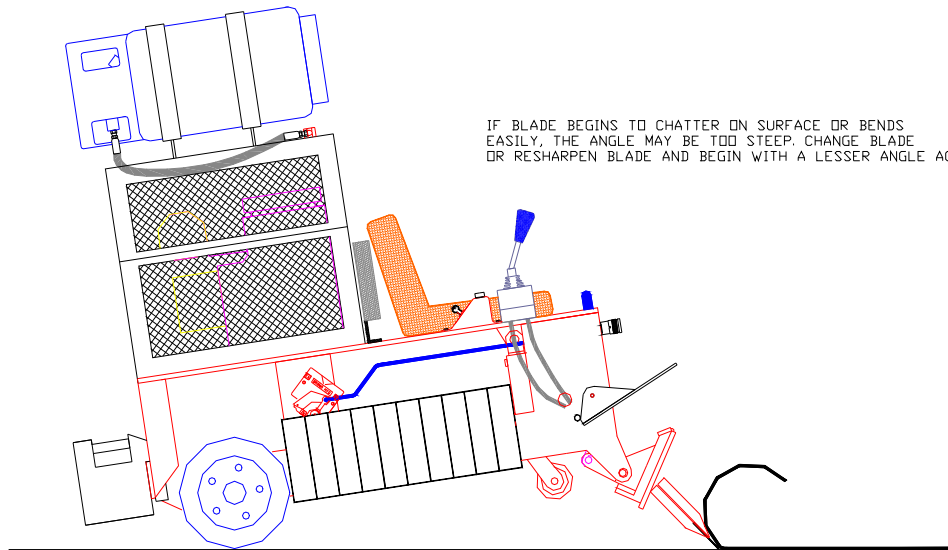
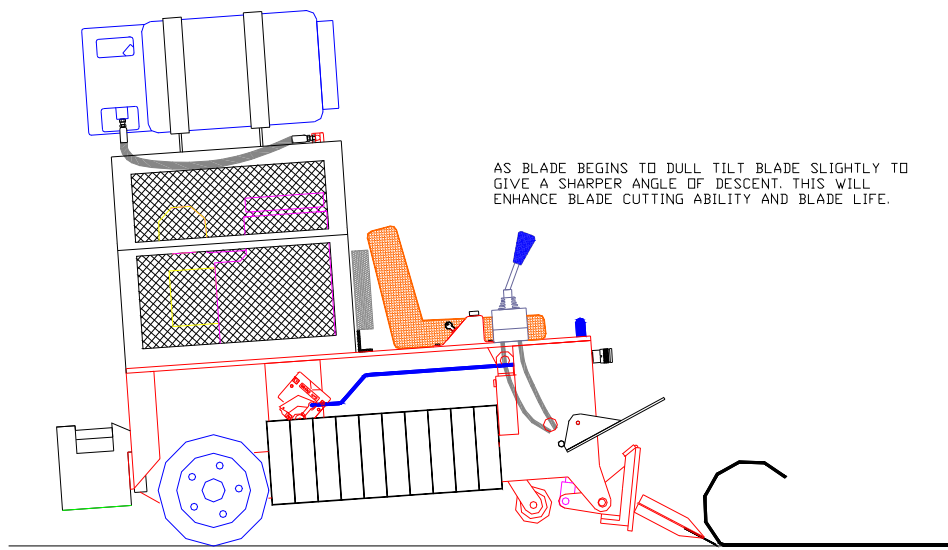
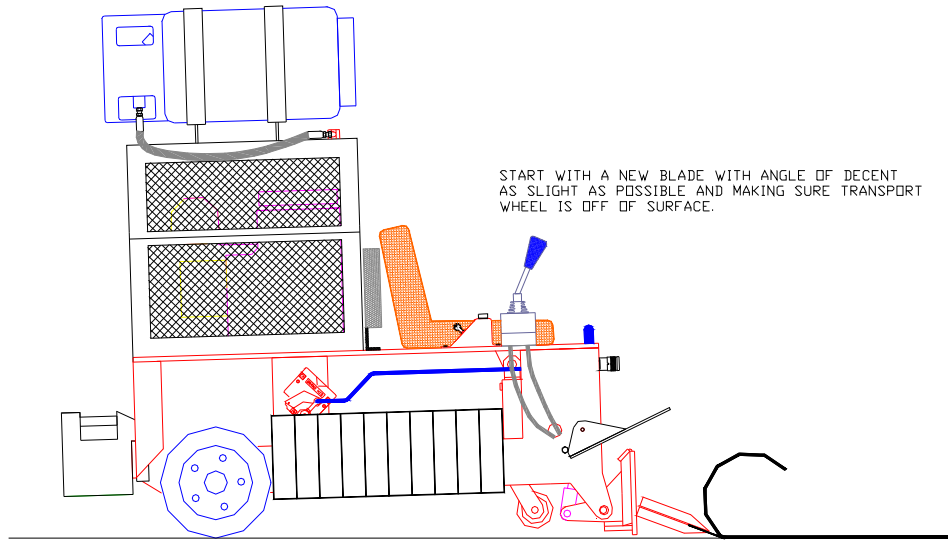
See drawing of correct scraping procedures.

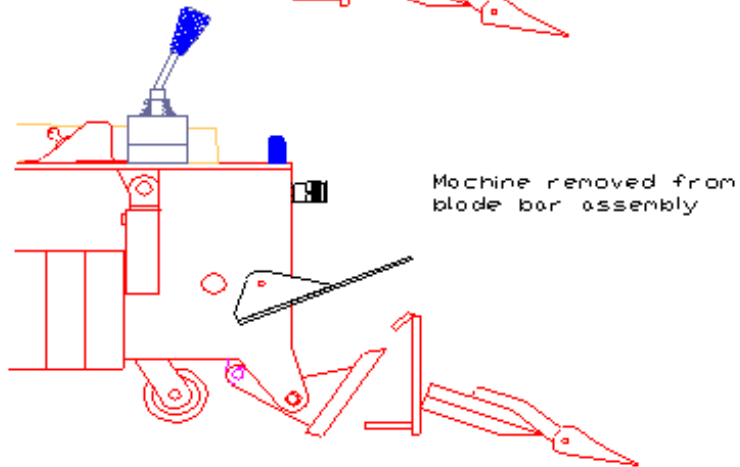
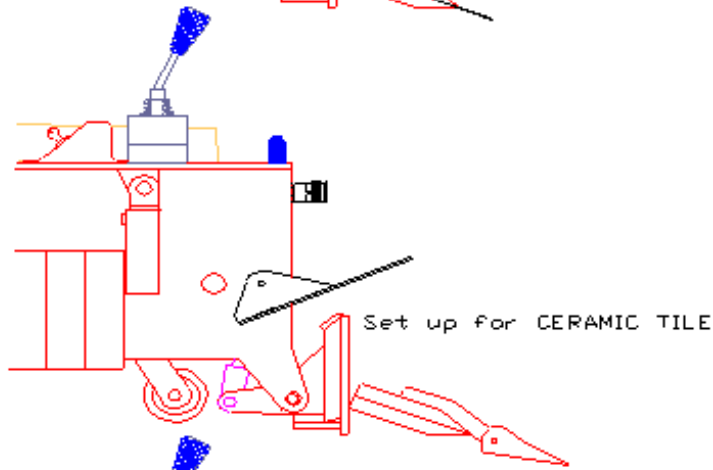
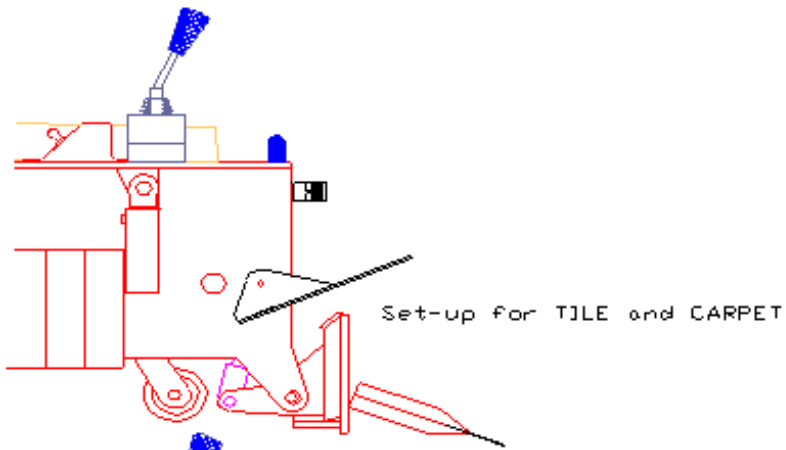
BLADE INSTALLATION

Loosen bolt "A" until blade will fit into jaws
Place blade into Jaws until against shoulder
Hand tighten bolt "A"
Wrench tighten bolt "B"



BLADE POSITIONING





SECTION VII

PREVENTATIVE MAINTENANCE

Follow Kohler suggested schedule for engine maintenance.

Daily Maintenance:

- Check hydraulic oil
- Inspect for hydraulic oil leaks
- Inspect for propane system leaks
- Service engine air cleaner
- Retorque wheel lug bolts

100 Hr Maintenance:

- Grease caster bearings
- Inspect all bolts and nuts and tighten as needed

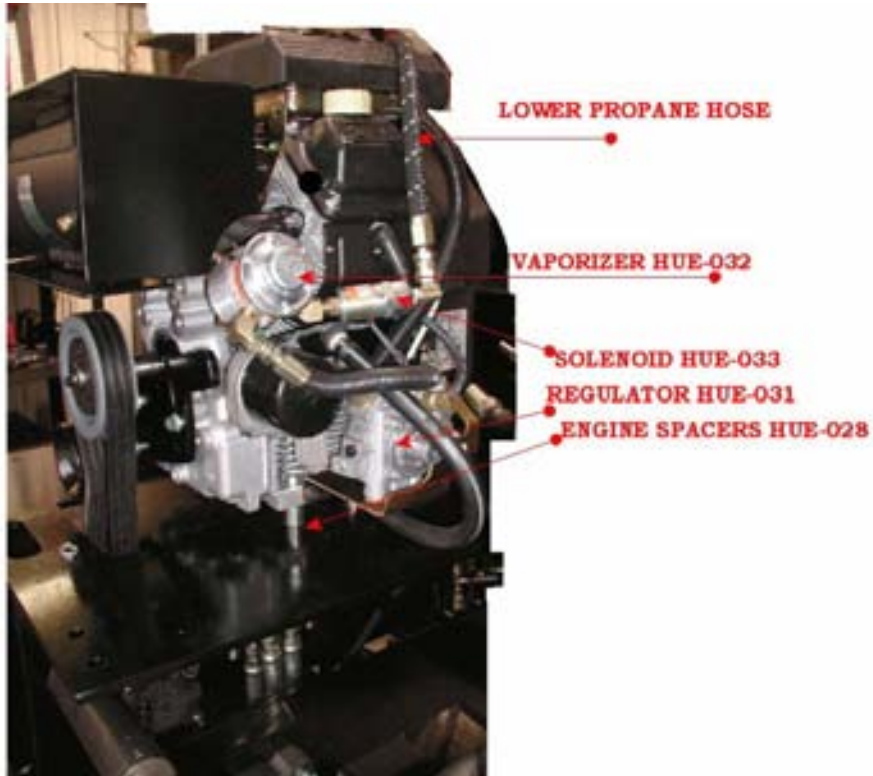
400 Hr Maintenance:

- Change hydraulic oil with:
 - Mobile DTE -15M
 - Mobile 424 Tractor Oil
 - Sunoco 2105
- Use approximately 8 gallons
- Change hydraulic oil filter

SECTION VIII

ENGINE COMPONENTS LIST

<u>KEY</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>
1	ENGINE	1	HUE-001
9	ENGINE MOUNT BOLTS	4	HUE-009
10	ENGINE AIR CLEANER	1	HUE-010
11	ENGINE AIR PRE-CLEANER	1	HUE-011
12	ENGINE OIL FILTER	1	HUE-012
13	ENGINE SPARK PLUGS	2	HUE-013
14	OIL DRAIN HOSE ASSEMBLY	1	HUE-014
15	EXHAUST PURIFIER	1	HUE-015
16	IGNITION SWITCH	1	HUE-016
17	IGNITION WIRING	1	HUE-017
21	ENGINE STARTER	1	HUE-021
22	EXHAUST MANIFOLD GASKET	2	HUE-022
23	IDLER PULLEY	1	HUE-023
24	3 PUMP DRIVE BELTS	1	HUE-024
25	IGNITION COIL	2	HUE-025
26	ENGINE SPACERS	41	HUE-028
27	DIODE KIT	1	HUE-029
29	PROPANE REGULATOR (T-60)	1	HUE-031
30	PROPANE VAPORIZER	1	HUE-032
31	PROPANE SOLENOID	1	HUE-033



SECTION IX

FRAME AND COWLINGS

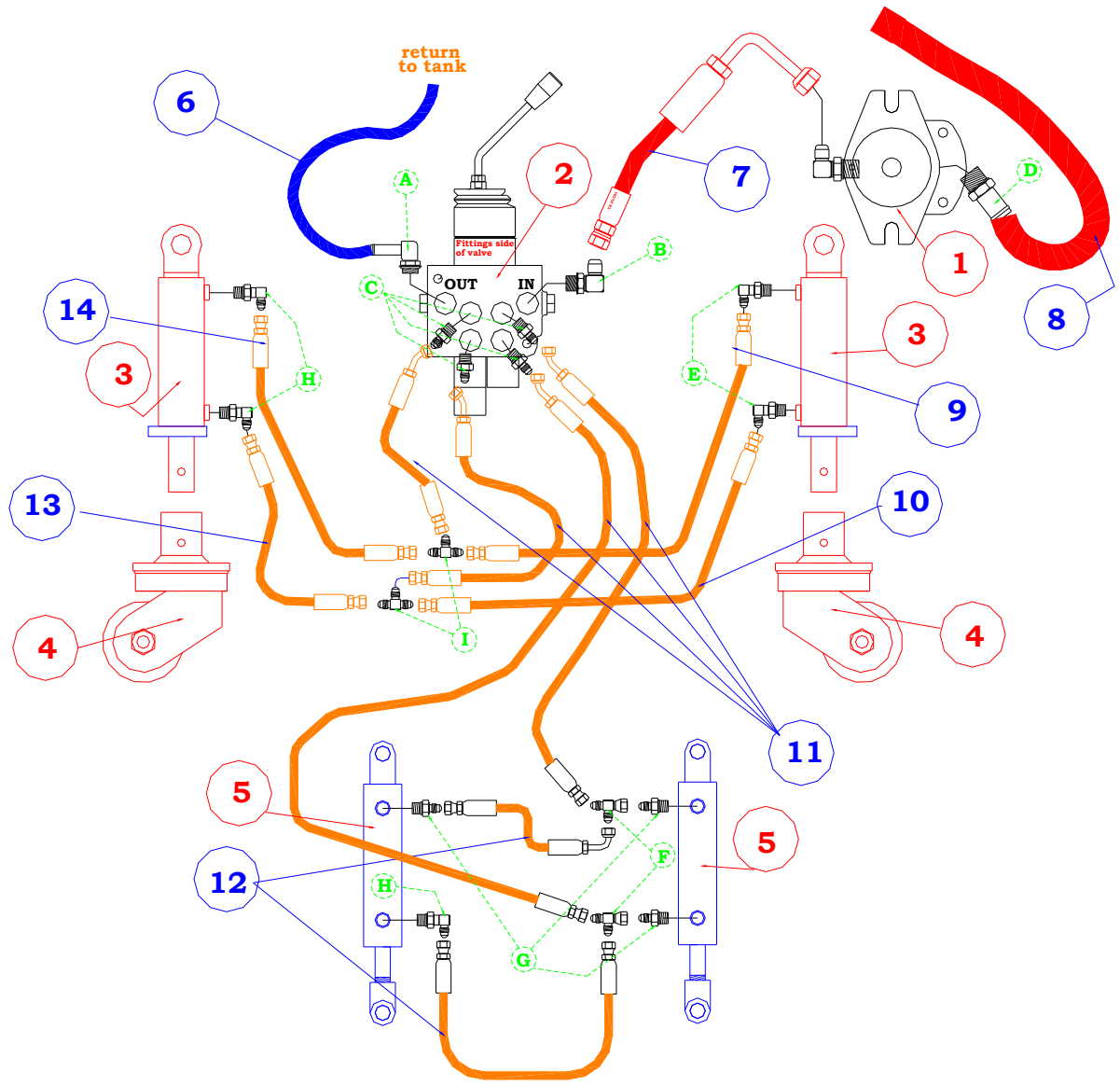
<u>KEY DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>
1. TIRES	2	FC-001
2. LUG BOLTS	10	FC-002
3. WHEEL HUB	2	FC-003
4. WEIGHTS	28	HFC-004
5. CASTER	2	FC-005
6. BLADE BAR ASSY	1	HFC-006
7. BLADE BAR TOP	1	FC-007
8. BLADE BAR BOLTS	2	FC-008
9. BLADE BAR PINS	2	FC-009
10. SEAT	1	FC-015
11. ATTACHMENT BAR	1	HFC-019
12. D-RING	1	FC-020
13. PROPANE TANK -20LB	1	FC-021
14. PROPANE TANK MOUNT	1	FC-022
15. PROPANE HOSE UPPER	1	HFC-023
16. PROPANE HOSE LOWER	1	HFC-024
17. PROPANE BULKHEAD	1	FC-025
18. HYDROSTATIC VALVE	1	FC-026
19. FRONT COWL	1	HFC-027
20. BACK COWL	1	HFC-028
21. BACK COWL COVER	1	FC-030
22. LEFT COWL	1	HFC-031
23. RIGHT COWL	1	HFC-032
24. TOP COWL	1	HFC-033
25. 8" BLADE BAR ASSY	1	HFC-036
26. 8" BLADE BAR TOP ONLY	1	HFC-037
27. GENERAL PURPOSE TIRE	2	FC-038
28. THROTTLE CABLE	1	HFC-039
29. CASTER WHEEL ONLY	1	FC-040
30. OIL COOLER MOUNT	1	HFC-041
31. IGNITION KEYS	1	FC-042
32. WHEEL MOTOR NUT	2	FC-045
33. WHEEL MOTOR KEY	2	FC-046
34. SIDE COWLING LATCHES	4	FC-048



SECTION X

HYDRAULIC COMPONENTS PARTS LIST

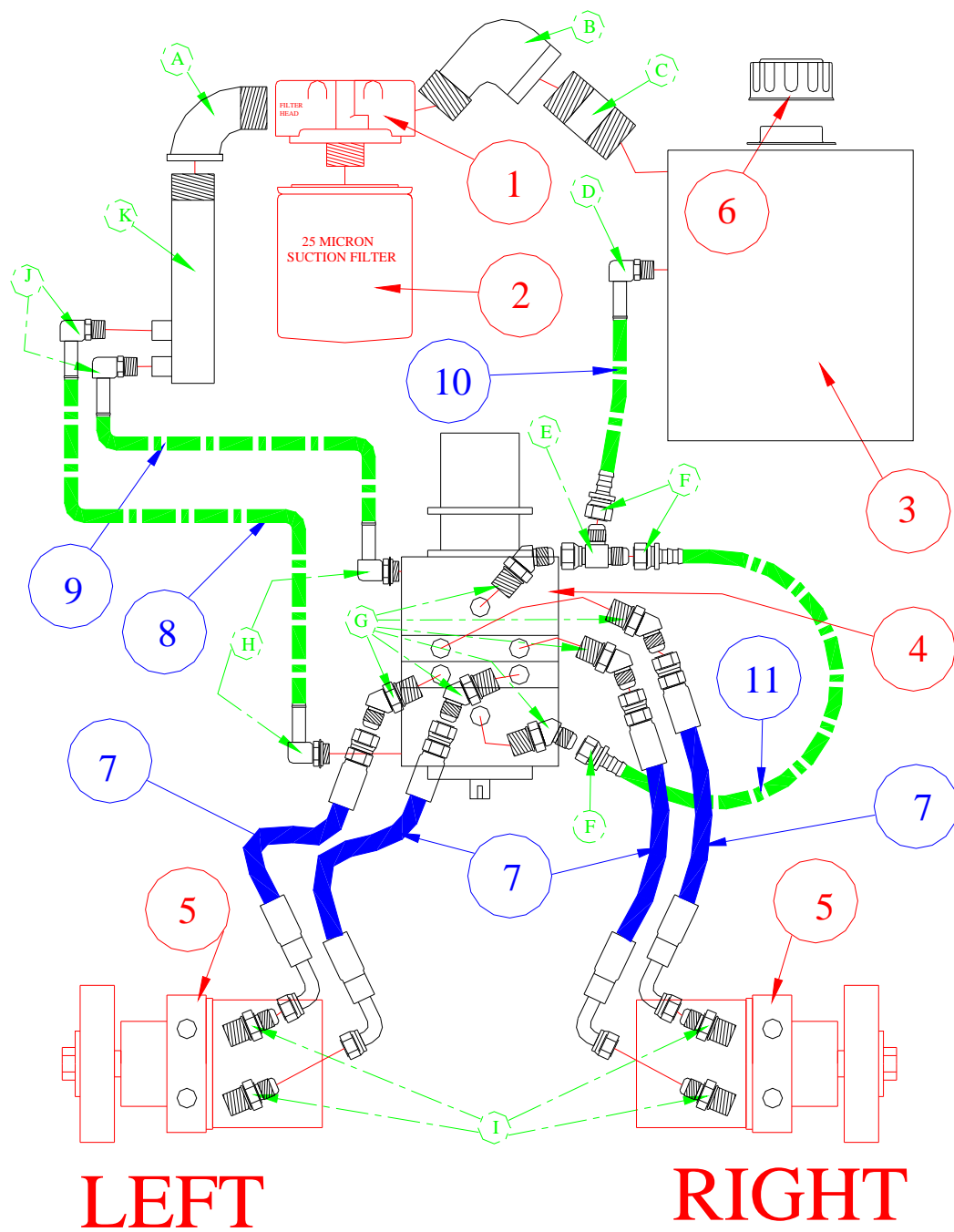
<u>KEY</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>
1	GEAR PUMP	1	HUH-001
2	JOYSTICK VALVE	1	HUH-042
3	LIFT CYLINDER	2	HUH-041
4	CASTER	2	FC-005
5	TILT CYLINDER	2	HUH-010
6	RETURN HOSE	1	HUH-020
7	PUMP PRESSURE HOSE	1	HUH-002
8	SUCTION HOSE	1	HUH-021
9	UPPER LIFT CYLINDER HOSE	1	HUH-004
10	LOWER LIFT CYLINDER HOSE	1	HUH-003
11	LIFT CYLINDER SUPPLY HOSE	4	HUH-022
12	TILT CYLINDER CROSSOVER HOSE	2	HUH-023
13	LOWER LIFT CYLINDER HOSE	1	HUH-003
14	UPPER LIFT CYLINDER HOSE	1	HUH-004
A	MB-M BARBED 8-8 90°	1	HUH-030
B	8MB- 8MJ	1	HUH-031
C	8MB- 4MJ	4	HUH-032
D	MB-M BARB 12-16	1	HUH-033
E	6MB-4MJ 90°	2	HUH-035
F	4 TEE W/ FJX ON RUN	2	HUH-034
G	6MB- 4MJ	3	HUH-036
H	6MB-4MJ 90°	3	HUH-035
I	4MJT	2	HUH-037



SECTION XI

HYDROSTAT COMPONENTS PARTS LIST

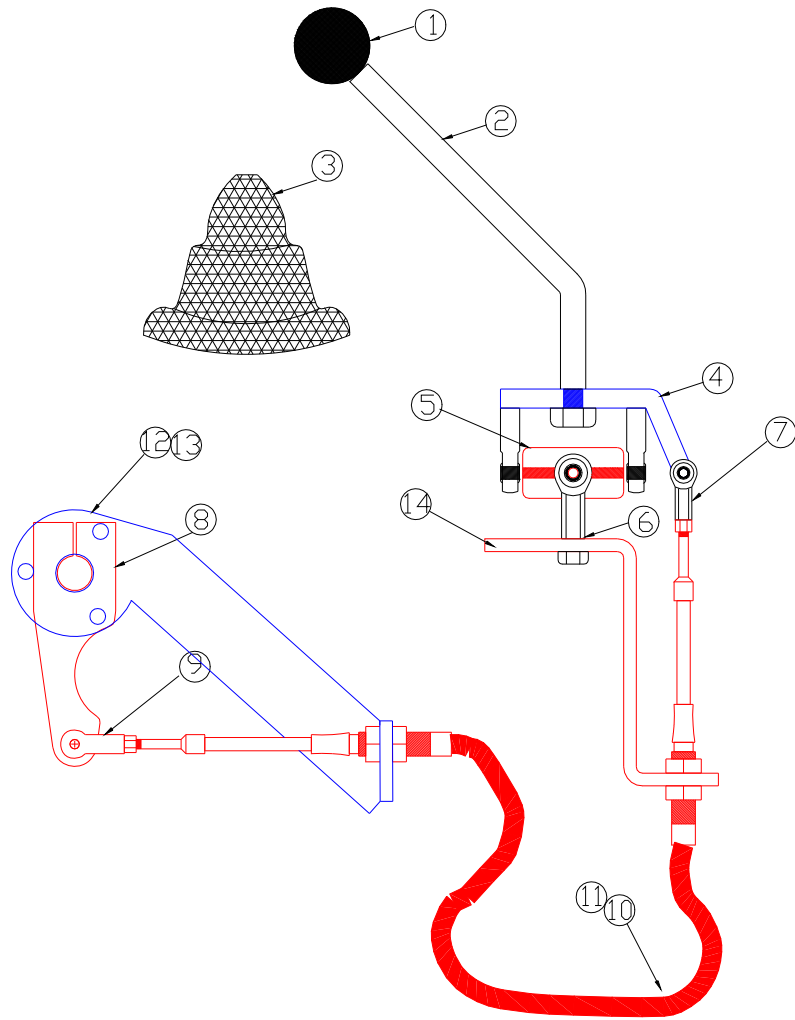
<u>KEY</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>
1	FILTER HEAD	1	HUH-043
2	FILTER ELEMENT	1	HUH-044
3	TANK	1	HUH-045
4	HYDROSTAT ASSEMBLY	1	HUH-046
5	WHEEL MOTOR	2	HUH-047
6	FILLER CAP	1	HUH-048
7	WHEEL MOTOR HOSE	4	HUH-049
8	1/2" PUSH LOC	1	HUH-050
9	1/2" PUSH LOC	1	HUH-050
10	1/2" PUSH LOC	1	HUH-050
11	1/2" PUSH LOC	1	HUH-050
A	3/4" STREET 90°	1	HUH-051
B	1 1/4" STREET 90°	1	HUH-052
C	1 1/4" CLOSE NIPPLE	1	HUH-053
D	8RLA-8MP 90°	2	HUH-054
E	8MJ-8MJ- 8FXT	1	HUH-055
F	8LOC-8RFJSX	3	HUH-056
G	8MB- 8MJ 45°	6	HUH-057
H	MB-M BARBED 8-8-90°	2	HUH-058
I	10MB- 8MJ	4	HUH-059
J	8RLA-8MP	2	HUH-060
K	1 1/4" X 8 PIPE NIPPLE (SUCTION "Y")	1	HUH-061



SECTION XII

STEERING JOYSTICK ASSEMBLY AND CABLES

<u>KEY</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>PART NUMBER</u>
1.	BALL KNOB	1	SJ-001
2.	HANDLE	1	SJ-002
3.	BOOT	1	SJ-003
4.	CONTROL ARM	1	SJ-004
5.	BASE	1	SJ-005
6.	1/4"-28 ROD END	4	SJ-006
7.	10-32 ROD END W/STUD	2	SJ-007
8.	TRUNION MOUNT	2	SJ-008
9.	10-32 ROD END W/STUD	2	SJ-009
10.	CONTROL CABLE LEFT	1	SJ-010
11.	CONTROL CABLE RIGHT	1	SJ-011
12.	CABLE MOUNT REAR	1	SJ-012
13.	CABLE MOUNT FRONT	1	SJ-013
14.	DOUBLE CABLE MOUNT	1	SJ-014
15.	BOOT CLAMP	1	SJ-015





Propane Safety Checklist

Applies to: Propane PDG8000, Propane Bull1250, Tri-Force, Burnisher, Hurricane, Lightning, and Twister

Start and Operation

- Gas on/ off
- Power on/ off
- Choke on/off, if applicable
- Throttle on/ off
- Emergency stop
- Check oil level and air filter before starting
- Keep nuts and bolts tightened and hose connections snug as applicable
- Proper tilting of machine, if applicable

Maintenance

- Air filter cleaning/ replacement
- Oil filling/ changing
- Owner's manual

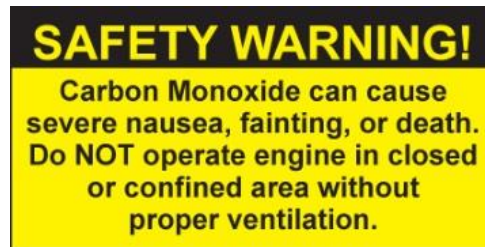
Safety of Propane Cylinders

- Owner's manual
- Do not smoke or use any device with an open flame when handling, filling or transporting propane cylinders.
- 20-lb. propane outdoor grill cylinders are not legal for use on propane floor care equipment.
- Vapor powered machines do not have an evaporating system and will freeze up if liquid propane is introduced.
- Always wear gloves when filling a propane cylinder. Propane boils at -44 degrees F (-42 degrees C).
- Store cylinders outside in an upright position in a secure, tamper-proof, steel mesh storage cabinet.
- There must be at least 5 ft (1.5 m) of space between the cabinet and the nearest building opening, like a door or window.
- Do not store cylinders inside a building or vehicle.
- Avoid dropping or banding cylinders against sharp objects.
- Any cylinder that has ever been filled is always considered full. The only time that a cylinder is considered empty is when it is new, before it is filled with propane.
- When transporting a propane powered machine, the propane cylinder may be strapped onto the machine as long as the machine itself is firmly secured in the vehicle.
- When transporting, the cylinders, if not strapped onto the machine, should be securely fastened and standing in an upright position with the service valve closed.



- Always install propane cylinders onto machinery in a well-ventilated area with no source of ignition within 10 ft (3 m).
- Use only UL, CTC/ DOT listed cylinders, like the EnviroGard Safe-Fill cylinder.
- Never leave the machine running unattended.
- Operate in a well-ventilated area.
- If you smell gas:
 - Do not operate appliances, telephones, or cell phones. Do not turn lights or flashlights on or off. Flames or sparks from these sources can trigger a fire or explosion.
 - Evacuate the area immediately.
 - Shut off the gas if it is safe to do so.
 - Report the leak from a safe location.
 - Do not return to the building until you are told it is safe to do so.

Emissions Awareness



- Carbon Monoxide (CO) poisoning can be caused by excessive exhaust emissions. The symptoms include headache, dizziness and nausea. Causes include:
 - Engines with poor preventative maintenance practices, usually those with dirty air filters.
 - Machines operated in confined areas without adequate ventilation.
 - Substandard machines with no emissions control technology and improperly set carburetion.
- CO is an invisible, odorless, colorless gas.
- CO can be lethal within as little as 30 minutes exposure at 3,000 part per million (ppm).
- The Canadian Gas Association (CGA) has set a limit of 1,500 ppm CO in exhaust flow.
- The Occupational Safety and Health Administration (OSHA) has established a limit of 35 ppm CO for an 8-hour time weighted average in ambient air and is considering a limit of 800 ppm CO in exhaust flow.

PPM	Risk
9	CO Max prolonged exposure (ASHRAW standard)
35	CO Max exposure for 8 hour work day (OSHA standard)
800	CO Death within 2 to 3 hours
1,500	CO limit in exhaust flow per CSA standard (Canada)
12,800	CO Death within 1 to 3 minutes



Acknowledgement

I, _____ on behalf of
(Print Name)

_____ and future operators, hereby acknowledge that I have been
(Company Name)

trained on the proper operation of the _____ as per the
(Equipment Purchased)

checklist above. In addition, I have carefully read and have been instructed on the safety and hazards of

operating a propane powered machine.

Signature

Date

PLEASE FILL OUT IN FULL AND SUBMIT TO: SASE COMPANY, INC. 2475 STOCK CREEK BLVD. ROCKFORD TN, 37853

FAX: 865.745.4110 OR EMAIL: JohnA@SASECompany.com