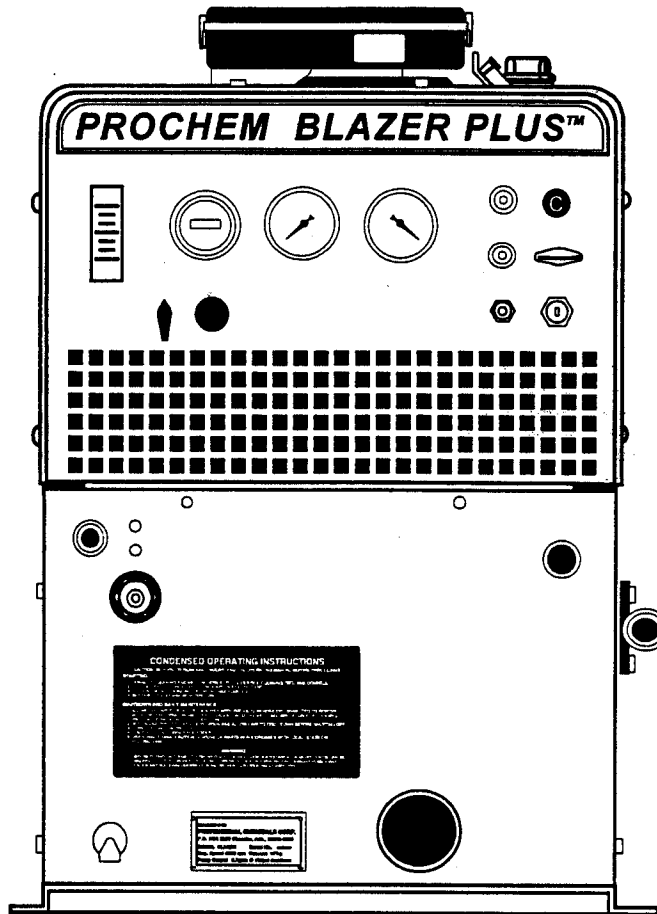


PROCHEM BLAZER & BLAZER PLUS

Mobile Cleaning Unit



August 2000

OPERATION & SERVICE MANUAL

Welcome and congratulations on your purchase of the **BLAZER/BLAZER PLUS** Mobile Cleaning Unit. This instruction manual is a guide for operating and servicing your **PROCHEM** unit. **Read this manual completely before installing or operating this unit.**

This unit offers you personal convenience. All of your instrumentation and controls have been positioned to give you easy access for operation and daily maintenance.

Proper operation and service are essential to the efficient functioning of this unit. When maintained correctly, this unit will have a long, trouble-free life.

The service methods described in this manual are explained in such a manner that servicing may be performed accurately and safely. Proper service varies with the choice of procedure, the skill of the mechanic, and the tools or parts available. Before attempting any repair, make certain that you are thoroughly familiar with this equipment and are equipped with the proper tools. Any questions pertaining to operating or servicing this unit should be directed to your nearest **PROCHEM** dealer.

The headings: **CAUTION** or **WARNING** are used to warn you that steps must be taken to prevent damage to the unit and/or personal injury. Make certain that you read all instructions entirely before proceeding with the operation of the unit.

THIS UNIT MUST BE INSTALLED BY THE DEALER FROM WHOM YOU PURCHASED IT IN ACCORDANCE WITH PRESCRIBED PROCHEM INSTALLATION PROCEDURES.

PLEASE CERTAIN THE UNIT CARD IS FILLED OUT BY THE DISTRIBUTOR FROM WHOM YOU PURCHASED THIS UNIT AND RETURNED TO PROCHEM!

Please record your unit serial number here for future information or if you should need to contact the factory for any reason.

--

This operation and service manual is written specifically for the **PROCHEM BLAZER & BLAZER PLUS** Mobile Cleaning Units which are manufactured by:

**PROFESSIONAL CHEMICALS
CORPORATION
325 SOUTH PRICE ROAD
CHANDLER, ARIZONA 85224**

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**BLAZER/BLAZER PLUS
MANUAL
#67-945579**

LIMITED WARRANTY

PROCHEM warrants your machine to be free of defects in material and workmanship. This warranty shall extend to the designated parts for the specific time period listed from the date of delivery to the user. If PROCHEM receives notice of such defects during the warranty period, PROCHEM will either, at its option, repair or replace products which prove to be defective. Any local or distant transportation, related service labor, normal maintenance, and diagnostic calls are not included.

Gasoline Engine (through manufacturer or local dealer)	2 years
Vacuum Pump (through manufacturer or local dealer)	18 months
Engine Heat Exchanger	1 year
Water Pump	2 years
Waste Pump	1 year
Wands (Except shut off valve and orifices)	1 year
Waste & Water Tanks	1 year
Pressure Regulator	1 year
All other components	1 year
Battery (through dealer only, pro-rated)	1 year (1-800-350-8068)

This warranty shall not apply to defects resulting from improper installation or operation, inadequate maintenance by the customer, unauthorized modification, misuse, a unit which is improperly repaired, exposure to freezing temperature conditions, or damage due to hard water scaling.

Disposable filters, electrical components, belts, fittings, hoses, o-rings, and other maintenance items are not under warranty. Components provided by PROCHEM, but supplied by other manufacturers, will only be warranted to the extent that they shall be warranted to PROCHEM.

To obtain warranty service, products must be returned to a service facility designated by PROCHEM. Customer shall prepay shipping charges for products returned to PROCHEM for warranty service and PROCHEM shall pay for return of the products to customer.

PROCHEM makes no other warranty, either expressed or implied, with respect to this product. PROCHEM disclaims the implied warranties of merchantability and fitness for a particular purpose. Any implied warranty of merchantability or fitness is limited to the specific duration of this limited warranty.

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state, or province to province.

The remedies provided herein are the customer's sole and exclusive remedies. In no event shall PROCHEM be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Your PROCHEM unit is designed to give you years of reliable service. However, if a problem should arise after the warranty period, follow the troubleshooting procedures in the Operation and Service Manual. If you are still unable to determine the cause and solution to the problem, contact your nearest PROCHEM Service Center for details of the services available.

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SECTION 1: GENERAL INFORMATION

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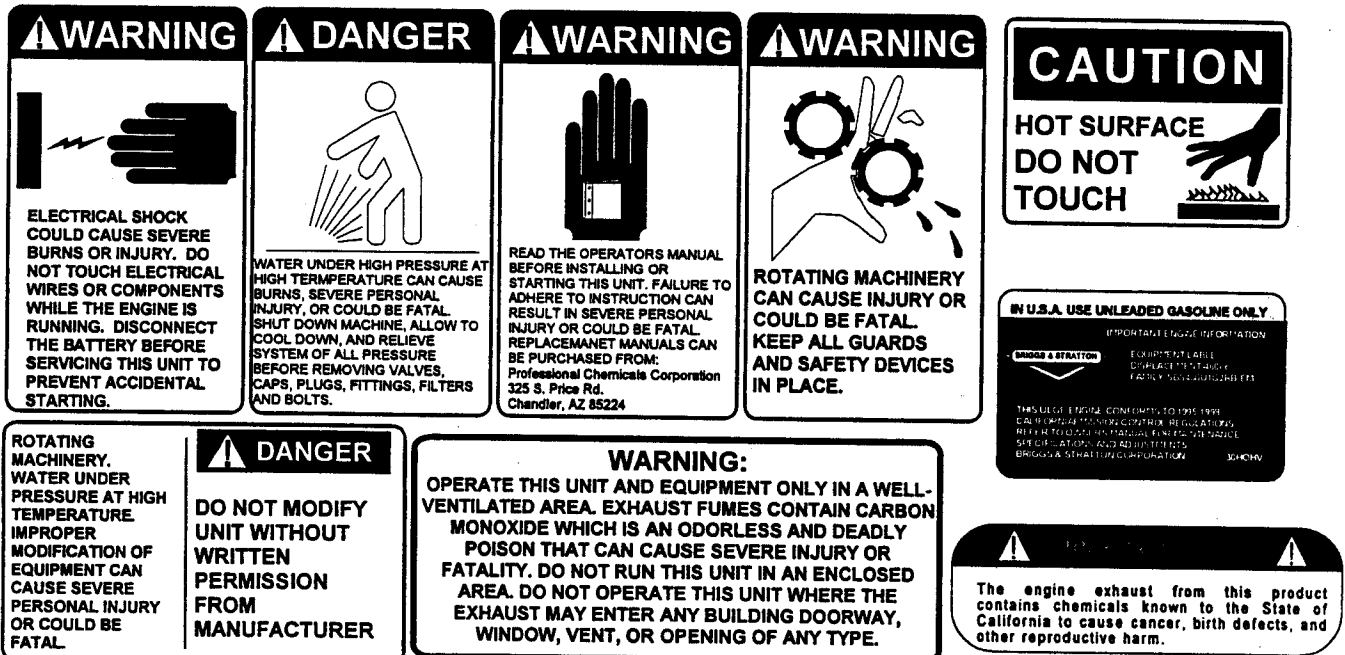
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1 SAFETY



WARNING: For Your Safety!

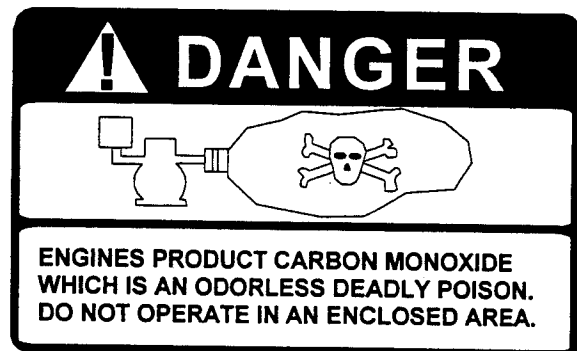
The following **WARNING LABELS** are found on your **BLAZER/BLAZER PLUS** console. These labels point out important **Warnings and Cautions** which should be followed at **all times**. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property damage. Follow these instructions carefully! **DO NOT** remove these labels.



Order Part #48-941212 to get a complete set of decals (safety and instrumentation) for your Prochem **BLAZER/BLAZER PLUS** cleaning unit. The following decals must be placed in a prominent spot on the vehicle that your unit is to be installed in where access is given to operate the unit. See Figure 11 on page 20 for suggested locations for these decals.



Decal, Fuel Clean-up
Part #48-941317



Decal, Carbon Monoxide
Part #48-941316



This symbol means **WARNING** or **CAUTION**. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property damage. Follow these instructions carefully!



WARNING!

1. Read the operator's manual before installing or starting this unit. Failure to adhere to instructions could result in severe personal injury or could be fatal.

2. Operate this unit and equipment only in a well-ventilated area. Exhaust fumes contain carbon monoxide which is an odorless and deadly poison that can cause severe injury or fatality. **DO NOT** run this unit in an enclosed area. **DO NOT** operate this unit where the exhaust may enter any building doorway, window, vent, or opening of any type.

3. Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers, in well-ventilated, unoccupied buildings away from sparks or flames. Never carry any gasoline or flammable material in the vehicle. Fumes may accumulate inside the vehicle and ignite, causing an explosion. **DO NOT** store any type of flammable material in the vehicle.

4. This unit must be operated with the vehicle or trailer doors open in order to ensure adequate engine ventilation.

5. DO NOT operate engine if gasoline is spilled. Avoid creating any ignition until the gasoline has been cleaned up. Never use gasoline as a cleaning agent.

6. DO NOT place hands, feet, hair, or clothing near rotating or moving parts. Avoid

any contact with moving parts! Rotating machinery can cause injury or fatality.

7. Never operate this unit without belt guards. The high speed moving parts, such as belts and pulleys, should be avoided while this unit is running. Severe injury, damage, or fatality may result.

8. DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury or severed limbs.

9. Never touch electrical wires or components while the engine is running. They can be sources of electrical shock.

10. Engine components can get extremely hot from operation. To prevent severe burns, **DO NOT** touch these areas while the engine is running - or immediately after the engine is turned off.

11. DO NOT touch any part of the exhaust system while this unit is running. Severe burns may result.

12. Before servicing this unit, allow it to "cool down." This will prevent burns from occurring.

13. Water under high pressure at high temperature can cause burns, severe personal injury, or fatality. Shut down machine, allow to cool down, and relieve system of all pressure before removing valves, caps, plugs, fittings, filters, and bolts.

14. DO NOT leave the vehicle engine running while operating this unit.

15. Dangerous Acid, Explosive Gases! Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or

explosion, charge batteries only in well ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times. Keep batteries out of the reach of children. Remove all jewelry when servicing batteries.

Before disconnecting the negative (-) ground cable, make sure all switches are OFF. If ON, a spark will occur at the ground cable terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. When disconnecting the battery, **ALWAYS** disconnect the negative (-) terminal **FIRST**.

16. DO NOT smoke around the unit. Gas fumes may accumulate and be ignited. The battery is also extremely flammable. This will prevent possible explosions.

17. DO NOT damage the vehicle in any manner during installation. When routing fuel lines **DO NOT** place the hose in any location where damage may occur to the hose or vehicle. Avoid any contact with moving parts, areas of high temperature, brake lines, fuel lines, muffler, catalytic converter, or sharp objects.

18. DO NOT cut or splice any of the vehicle fuel lines during fuel line installation. This may result in fuel leaks and potentially dangerous conditions. There is no fuel solenoid shut off on this unit. Use only the provided abrasion resistant fuel hose for fuel lines. When traversing the vehicle floor with fuel lines, always use a bulkhead adapter. This will prevent leakage and ensure that the hose is not punctured by vehicle vibration abrasion.

19. DO NOT exceed your vehicle's weight limit. The console with waste tank and accessories weighs approximately 670 lbs. Make certain that the vehicle has the correct axle rating. This will prevent unsafe vehicle driving conditions.

20. We require high-back seats on all vehicles in which units are to be installed for head and neck protection. We recommend using a metal partition between the seats and equipment.

21. DO NOT operate this unit without the water supply attached and turned on. The water pump and other vital components may be seriously damaged if this unit is permitted to operate dry without water.

22. Keep your vehicle work area clean. Wands, stair tools, and other accessories must be securely fastened before driving the vehicle. This will prevent damage to yourselves or your equipment in the event of sudden stops.

23. All high pressure hoses must be rated for 3000 PSI at 250°F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.

24. The winterizing loop hose assembly, Part #10-805380, is for winterizing use only. If used improperly, live steam may escape from this hose, causing it to whip around. Burns or injury may result.

25. Make certain that you receive complete training by the distributor from whom you purchased this unit.

26. This unit uses high pressure and temperature. Improper or irresponsible use may result in serious injury.

27. Do not modify this unit in any manner. Improper modification can cause severe personal injury or fatality.

28. CALIFORNIA PROPOSITION 65
WARNING: Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

SPECIFICATIONS:

Engine speed	3200 rpm (high speed) 1400 rpm (idle speed)
Water pump rpm	1480 rpm
Vacuum pump rpm	3200 rpm
Water flow rate	3.5 GPM (Blazer Plus), 2.8 GPM (Blazer)
Water pump pressure	1000 PSI (maximum)
Vacuum relief valve	13" Hg (Blazer Plus), 14" Hg (Blazer)
Waste tank capacity	52 Gallons (at shut off)
Console weight	486 lbs.
Console weight (with waste tank and accessories)	670 lbs. (1103 lbs. if waste tank is full)

TORQUE VALUES

Component	inch/lbs	foot/lbs
Engine hub	264	22
Vacuum pump hub	192	16

JET SIZING

Prochem recommends **floor tool** tip sizing not exceed a total of ".04". Using larger jet sizes on your BLAZER/BLAZER PLUS may reduce cleaning temperatures.

Example: Dual jet wand uses two 11002 jets. (110° spray angle w/ 02 orifice)

$$02 \times 2 = 04$$

Upholstery tool jet size: 80015

Stair tool jet size: 9502

1. INSTALLATION REQUIREMENTS

Prior to starting the installation, first read the **ENTIRE** "Installation Section," section 2 of this manual. Since the BLAZER/BLAZER PLUS cleaning unit (with waste tank and accessories) weighs 670 pounds, consider the following recommendations before installing this unit.

1. The unit should **NOT** be mounted in any motor vehicle of less than 1/2 ton capacity.



CAUTION:

The console with waste tank and accessories must **NOT** exceed the vehicle's axle weight limit.

2. If mounting in a trailer, make certain that the trailer is rated for the total weight of the **UNIT AND TRAILER**. Electric or hydraulic brakes should be provided, and a strict compliance with any State and Federal vehicle laws must be maintained.

3. The vehicle tires should have a load rating above the combined vehicle and unit weight.

4. We do not recommend using flooring materials that absorb water. This could result in rust and corrosion of the vehicle floor and equipment.

5. Padding under rubber floor mats should be removed before installing this unit.

6. We highly recommend using a galvanized drip tray under the console (Part #56-501607).

7. If using a trailer, the BLAZER/BLAZER PLUS console should be positioned so that it balances properly with respect to the axle. Ten percent (10%) of the overall unit weight (without accessories or water) should be on the tongue.

2. FUEL REQUIREMENTS

Use **unleaded gasoline ONLY**. **DO NOT** use any gasoline additives. We recommend the use of clean, fresh, unleaded gasoline intended for automotive use. High octane gasoline should **NOT** be used with the engine on this unit.

3. ENGINE OIL REQUIREMENTS

Use high quality detergent oil of API (American Petroleum Institute) service class SF or SG. Select the viscosity based on the air temperature at the time of operation as shown in the following table. **NOTE:** Using other than service class SF or SG oil or extending oil change intervals longer than recommended can cause engine damage.

RECOMMENDED SAE VISCOSITY GRADE

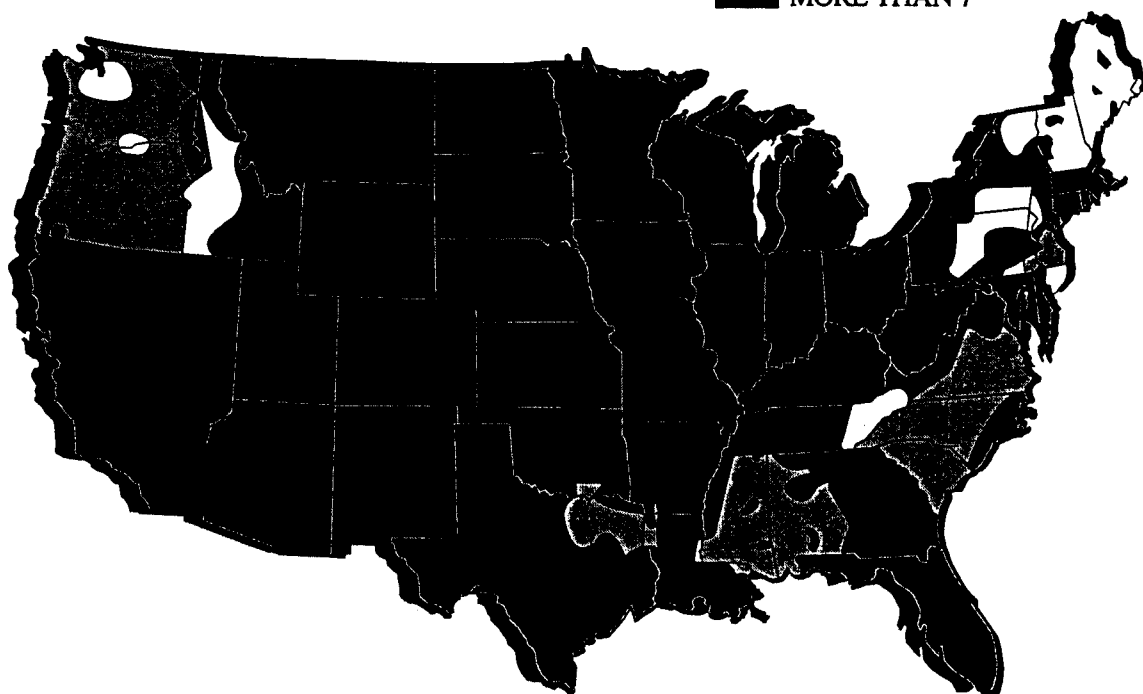
4. CHEMICAL REQUIREMENTS

The PROCHEM BLAZER/BLAZER PLUS, due to its chemical injection pump design, can be used with a variety of water-diluted chemical compounds (either acidic or alkaline), depending on the job to be done. However, to obtain optimum results with this unit, we recommend using the PROCHEM line of chemicals. For information on using the cleaning compounds, refer to the PROCHEM chemical manual.

5. WATER REQUIREMENTS

Hard water deposits will adversely affect the plumbing and heat exchange systems on this unit. The map below will give you an idea of where areas of high water hardness may occur. However, any water supply obtained from a well is almost always hard water and a water softener will be needed to protect your equipment.

Figure 1 HARD WATER MAP



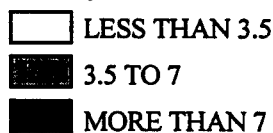
NOTE:

Equipment malfunction or component failure caused by hard water scaling is NOT covered under the warranty.

If you are operating this unit in an area where the unit will be using water in which the hardness exceeds 3-1/2 grains, we highly recommend a suitable water softener be installed. If using a water softener, it must have a five (5) GPM (or greater) flow capacity without any hose constrictions.

PROCHEM **does not** recommend using magnets for conditioning water. Using a water softener will reduce maintenance and decrease down time caused by hard water scaling. It will also allow cleaning chemicals to be more effective in lower concentrations.

If you require a water softener, PROCHEM has a model to meet your needs. Please contact your nearest distributor for information, price, and availability.



2 RECEIVING YOUR UNIT

This chapter of the manual contains information on receiving your PROCHEM BLAZER/BLAZER PLUS.

1. DEALER RESPONSIBILITY

THE PROCHEM DISTRIBUTOR FROM WHOM YOU PURCHASED THIS MOBILE CLEANING UNIT IS RESPONSIBLE FOR THE CORRECT INSTALLATION OF THIS MACHINE. THE DEALER IS ALSO RESPONSIBLE FOR INITIAL TRAINING OF YOUR OPERATORS AND MAINTENANCE PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF THIS UNIT.

2. ACCEPTANCE OF SHIPMENT

Every part of your PROCHEM BLAZER/BLAZER PLUS cleaning unit was carefully checked, tested, and inspected before it left our manufacturing plant. Upon receiving the unit, make the following acceptance check:

1. The unit should not show any outward signs of damage. If damaged, notify the common carrier immediately.
2. Check your equipment and packing list. The standard PROCHEM BLAZER/BLAZER PLUS unit should arrive equipped with the following items (unless otherwise specified) and any optional accessories which were ordered:

3. EQUIPMENT LIST

- A) PROCHEM BLAZER/BLAZER PLUS console.
- B) Operation and service manual with engine, water pump, and vacuum pump manuals.
- C) Installation bolting kit.
- D) Installation mounting plates.
- E) Fittings and hoses for fuel supply installation.
- F) Hose clamps for fuel & vacuum hoses.
- G) External fuel pump installation kit.
- H) Carpet wand.
- I) Waste tank w/float switch.
- J) Waste tank filter and strainer basket.
- K) 100 ft. vacuum hose.
- L) 1 vacuum hose connector.
- M) 100 ft. of 1/4" high pressure hose with quick connects.
- N) 50 ft. water supply hose with quick connect.

4. OPTIONAL EQUIPMENT

- O) Winterizing loop hose. Part #10-805380.
- P) Upholstery tool and stair tool.
- Q) Extra wands.
- R) Hose reel.

S) Extra vacuum hoses. Part #10-805060.

T) Extra vacuum hose connectors. Part #12-800078.

U) Extra high pressure water hoses. Part #10-805122.

V) Dual auxiliary water tanks with demand pump. Part #66-945260.

W) Automatic waste pump kit. Part #66-945193 (Blazer) or #66-945530 (Blazer Plus).

X) Galvanized drip tray. Part #56-501607.

Y) Van storage unit. Part #65-950392.

Z) Water softener. Part #66-945430.

N O T E S

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3 INSTALLATION



WARNING!

All units must be bolted to the floor of the vehicle by a **PROCHEM DISTRIBUTOR**.

1. LIFTING THE UNIT ONTO THE VEHICLE

Since the PROCHEM BLAZER/BLAZER PLUS console weighs approximately 486 pounds, we recommend using a fork lift to lift the unit onto the vehicle. Position the forks under the unit from the front and make **CERTAIN** that the forks are spread to the width of the base.

2. POSITIONING THE UNIT IN THE VEHICLE

Because vehicles vary in size and openings, individuals have their own preference as to where they want their units installed. We strongly recommend a side door installation for the BLAZER/BLAZER PLUS and **DO NOT** recommend a rear door installation.

1. Enough space should be provided to assure adequate engine ventilation and room for service and maintenance.
2. The unit with waste tank and accessories must **NOT** exceed the vehicle's axle weight limit.
3. **DO NOT** position the console closer than 12" from the bottom of driver and passenger seats.

NOTE: For individuals who wish to make an engineering layout prior to positioning the unit,

refer to Figure 2 for waste tank and console dimensions.

3. BOLTING DOWN THE UNIT AND WASTE TANK

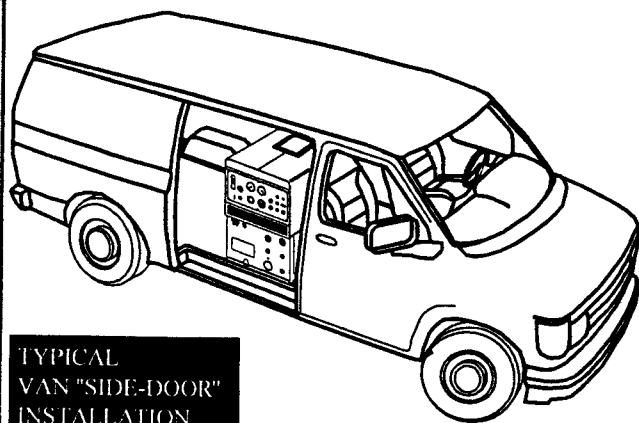
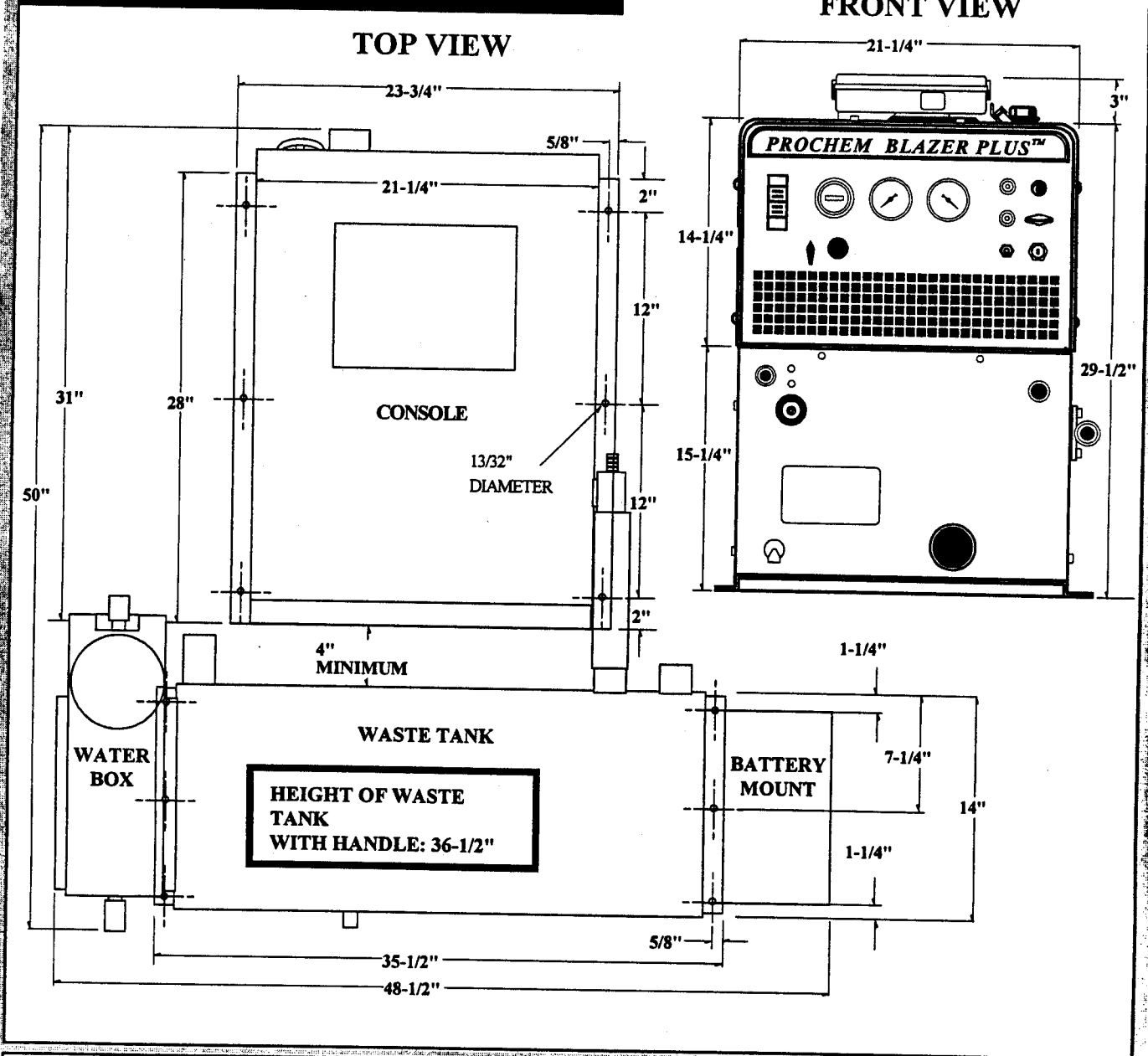
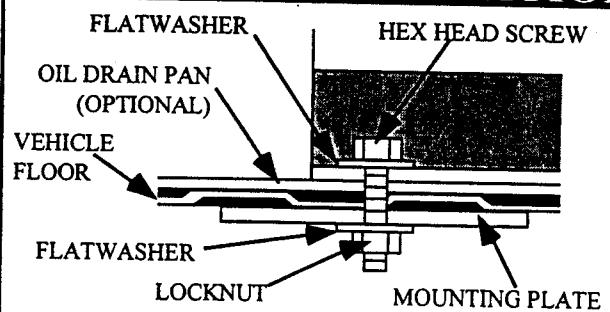
NOTE: When positioning the waste tank with respect to the console, hook up the vacuum hoses to the waste tank. This will ensure that the waste tank is positioned correctly. Once the unit and waste tank are positioned in the vehicle in the desired location, you may proceed.



CAUTION:

Before drilling any mounting holes in the vehicle floor, make certain that when drilling, you will not do any damage to the fuel tank, fuel lines, or any vital component which might affect the operation or safety of the vehicle.

1. Using the console and waste tank mounting holes as a template, drill six 13/32" diameter holes for mounting the console and six more 13/32" diameter holes for mounting the waste tank.
2. Using the installation hardware kit:
 - a) Insert six 3/8-16 x 2" hex head cap screws with flat washers through the mounting holes in the PROCHEM BLAZER/BLAZER PLUS console, and six 3/8-16 x 2" hex head cap screws with flat washers through the mounting holes in the waste tank.
 - b) Install the mounting plates underneath the vehicle floor.
 - c) Screw the 3/8-16 hex head locknuts on the mounting screws and tighten them until the console and the waste tank are firmly secured to the vehicle floor.

Figure 2 DIMENSIONAL DATA**TYPICAL VAN "SIDE-DOOR" INSTALLATION****Figure 3 MOUNTING PLATE INSTALLATION**

4. INSTALLING FUEL LINE ON THE VEHICLE

READ THESE INSTRUCTIONS ENTIRELY BEFORE PROCEEDING.



WARNING:

Under **NO** circumstances should you splice any of the vehicle fuel lines. Severe injury or fatality may result.



CAUTION:

DO NOT damage the vehicle in any manner during installation. When routing fuel lines **DO NOT** place the hose in any location where damage may occur to the hose or vehicle. Avoid any contact with moving parts, areas of high temperature, brake lines, fuel lines, muffler, catalytic converter, or sharp objects.

The following text applies to vehicles other than 1992 (or later) Fords. See Figure 8 for 1992 (or later) Ford fuel line installation.

1. Select a location on the vehicle floor to drill a hole for the bulkhead adapter. This location should be situated in a position that eliminates the possibility of fuel line contact by either the operator(s) or accessories during the working hours or maintenance periods. We supply steel braid fuel hose. Make certain that the hose will reach the location you choose.



CAUTION:

Before drilling the fuel line hole in the vehicle floor, make certain that when drilling you will not do any damage to the fuel tank(s), fuel lines, brake lines, or any other vital component which might affect the operation or safety of the vehicle.

2. Drill a 5/8" (.625) diameter hole through the vehicle floor.

3. Install the 1/8P bulkhead adapter by inserting the adapter and tightening the nut on the opposite side of the van floor (Figure 4).

4. Attach a 1/8P x 1/4T elbow to the bulkhead adapter on one end (Figure 4). Attach a 1/8P street elbow and a 1/8P x 5/16H barb fitting to the other end of the bulkhead adapter.

5. Connect one 45-1/2" stainless steel hose from the fuel inlet on the console to the bulkhead adapter.

6. Disconnect from the filler neck the 2 hoses which connect the filler neck and the fuel tank by loosening the hose clamps.

7. Remove the filler neck from the vehicle. Refer to the vehicle manual for instructions and cautions.

8. Select a suitable location for drilling the hole in the filler neck. The desired location for this hole may vary. It is important that you are able to re-install the filler neck without interference from the fittings which you are adding. Therefore, choose this location wisely before proceeding.

9. Drill a 1/2" diameter hole in the filler neck after you are certain that you have chosen the proper location (Figure 5).



NOTE:

When assembling pipe fittings, Teflon thread sealant must be used.

10. Attach a 1/8P x 1/4T elbow to one end of the short bulkhead adapter (Figure 6).

Slide one of the seals over the threads of the bulkhead adapter against the hexagon area.

FUEL LINE INSTALLATION

FUEL LINE INSTALLATION KIT
Part # 66-945153 (For Vehicles other
than 1992 or Later Fords)

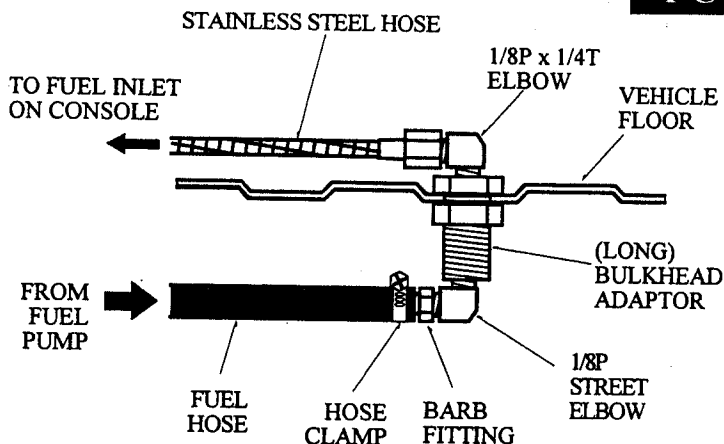


FIGURE 4

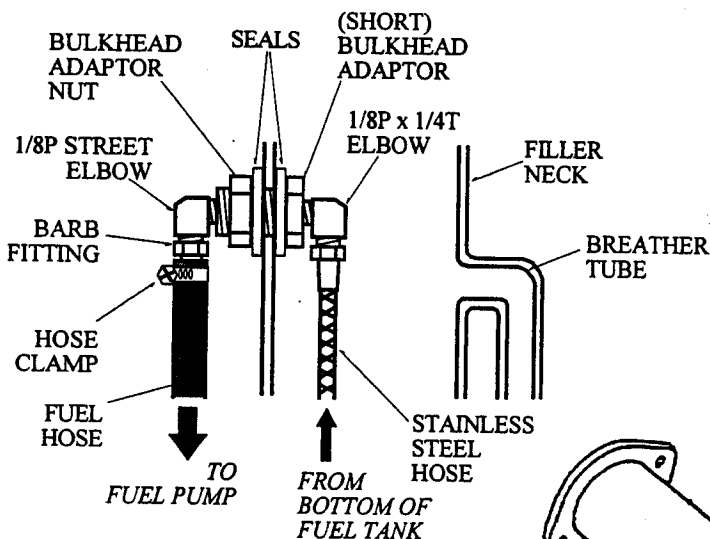


FIGURE 6

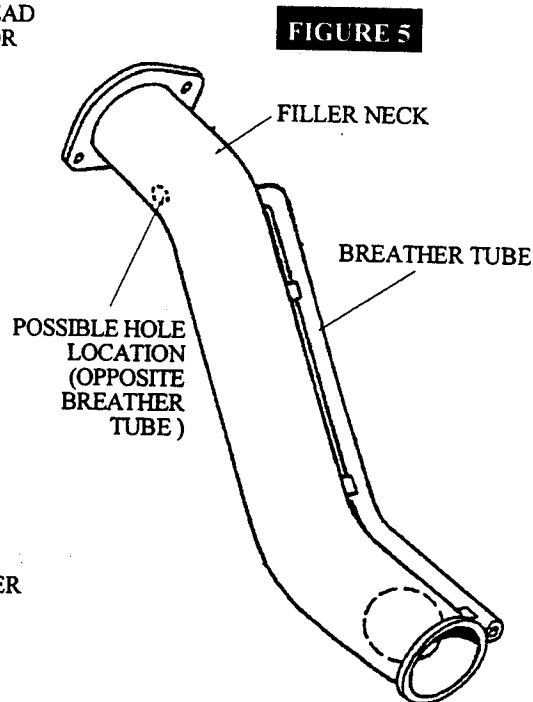


FIGURE 5

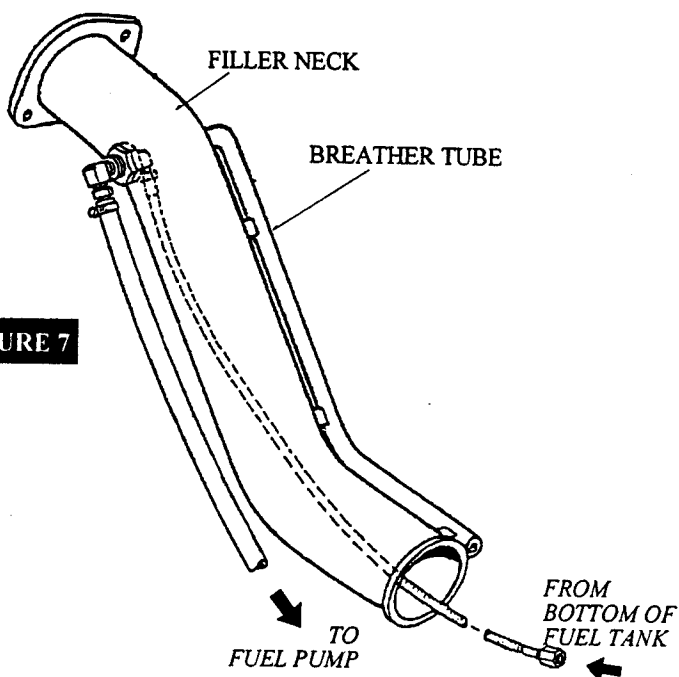
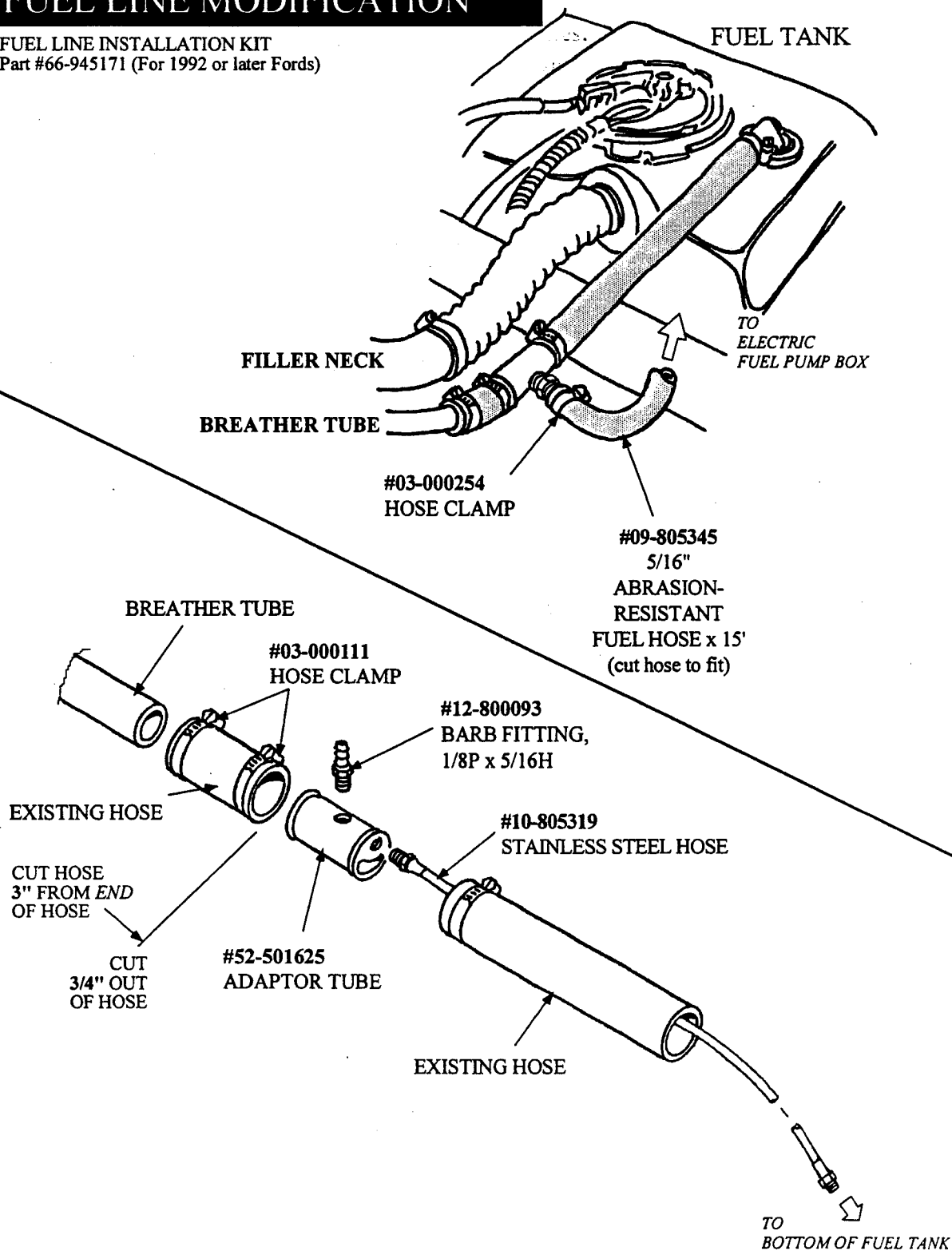


FIGURE 7

IF THE VEHICLE IN WHICH YOU ARE
INSTALLING YOUR UNIT IS A 1992 (or later)
FORD, IT WILL BE NECESSARY TO FOLLOW
THE FOLLOWING INSTRUCTIONS:

Figure 8 1992 (or later) FORD FUEL LINE MODIFICATION

FUEL LINE INSTALLATION KIT
Part #66-945171 (For 1992 or later Fords)



Next, attach the 25", 36" or 45" stainless steel hose to the 1/8P x 1/4T elbow. Choose a length that will reach through the filler neck to the bottom of the fuel tank. If the selected hose is too short or too long, the unit will run out of fuel before the vehicle fuel tank is empty.

11. Insert the stainless steel hose (bulkhead connector first) into the filler neck until the male threads on the bulkhead connector are protruding through the 1/2" hole.

Slide the other seal over the threads and tighten the hex head nut over the seal (Figure 6).

Attach the 1/8P street elbow and 1/8P x 5/16H barb fitting to the bulkhead connector, outside the filler neck.

Make certain the fuel hose and fittings remain positioned parallel to the filler neck (Figure 7).

12. Using a hose clamp, connect one end of the 5/16" fuel hose to the fitting on the outside of the filler neck (Figure 6).

13. Re-install the filler neck on the vehicle.

14. Insert the filler neck fuel hose into the fuel tank and make certain the end is at the bottom of the tank.

15. Re-connect the 2 hoses which connect the filler neck and the fuel tank. Make certain they are clamped correctly.

16. Route the 5/16" fuel hose underneath the van from the filler neck to the inlet side of the external electric fuel pump (Figure 9). Use the cable ties to secure the hose. Cut off any excess hose and attach to the barb fitting with hose clamp.

17. Attach the remaining hose to the outlet side of the external electric fuel pump with a hose clamp.

18. Using the 5/16" hose and hose clamps connect the fuel pump box to the bulkhead adapter.



CAUTION:

When routing this hose underneath the vehicle, make certain that you DO NOT place the hose in any location where damage may occur to the hose or vehicle. AVOID any contact with moving parts, areas of high temperature, muffler, catalytic converter, or sharp objects.

5. INSTALLING THE FUEL TANK AND FUEL LINE (TRAILER)

For trailer installations we recommend the following.

1. Strict compliance with all Federal and State law must be maintained.

2. Use a safe fuel tank which is manufactured specifically for gasoline, has a proper vented filling cap, and an outlet connection that is the same size as the inlet connection on the unit.

3. **DO NOT** mount the fuel tank inside an enclosed trailer or van.



WARNING!

Never carry any gasoline or flammable material in the vehicle. NEVER store any type of flammable material in the vehicle.

4. Mount the fuel tank where it will be protected from any vehicle collision.

5. When installing the fuel line from the tank to the unit, use the proper size fuel line.

Figure 9 EXTERNAL ELECTRIC FUEL PUMP MOUNTING INSTRUCTIONS

**STUDY ALL FUEL LINE
INSTALLATION INSTRUCTIONS
COMPLETELY BEFORE
PROCEEDING**

⚠ WARNING!

DO NOT INSTALL THIS ASSEMBLY IN ANY MANNER OR POSITION WHICH, IN SO DOING, MAY CAUSE DAMAGE TO THE VEHICLE OR ANY COMPONENT WHICH MIGHT AFFECT THE OPERATION OR SAFETY OF THE VEHICLE.

1. DETERMINE THE POSITION WHERE THE BOX ASSEMBLY WILL BE MOUNTED.

WARNING! DO NOT MOUNT THIS ASSEMBLY NEAR THE CATALYTIC CONVERTER, EXHAUST, OR ANY AREAS OF HIGH-TEMPERATURE.

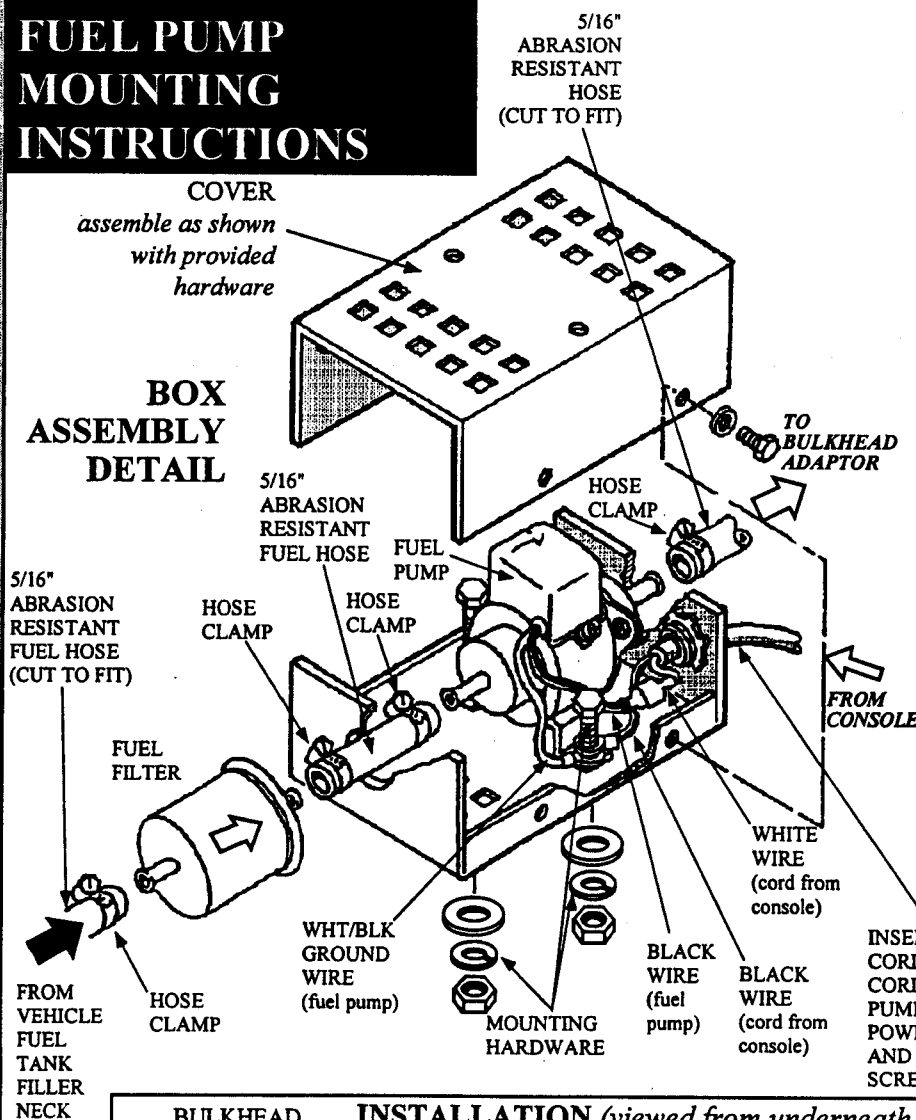
2. USING THE COVER AS A TEMPLATE, DRILL TWO 5/16" DIA. HOLES IN THE VEHICLE FRAME

3. MOUNT THE COVER TO THE VEHICLE FLOOR.

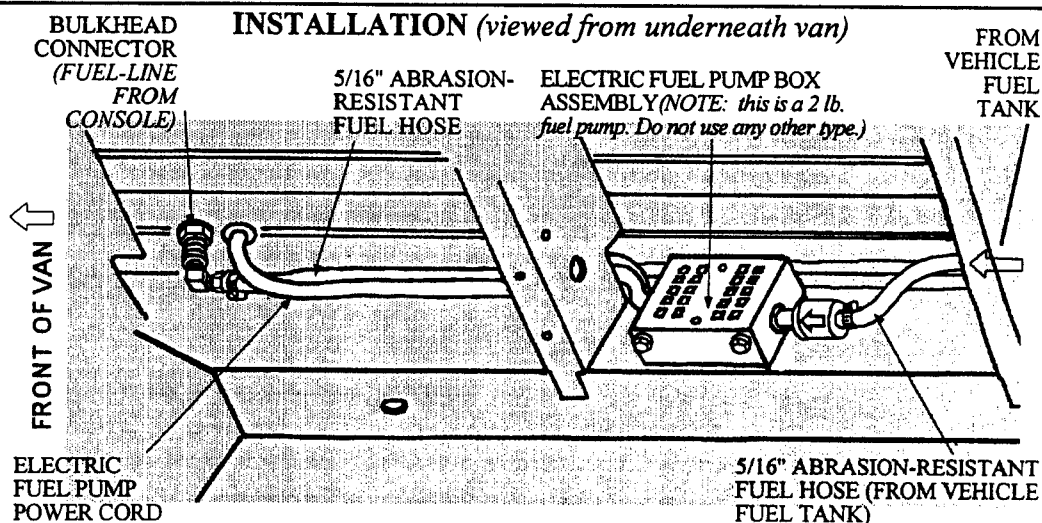
4. CONNECT THE HOSES AND CORD AS SHOWN. TIGHTEN HOSE CLAMPS.

CAUTION: WHEN ROUTING THE HOSE AND CORD UNDERNEATH THE VEHICLE, MAKE CERTAIN THAT YOU DO NOT PLACE THEM IN ANY LOCATION WHERE DAMAGE MAY OCCUR TO THE HOSE, CORD, OR VEHICLE. AVOID ANY CONTACT WITH MOVING PARTS, AREAS OF HIGH TEMPERATURE OR SHARP OBJECTS.

5. INSTALL THE FUEL PUMP ASSEMBLY ON TO THE COVER WITH THE PROVIDED HARDWARE.



INSTALLATION (viewed from underneath van)



6. WASTE TANK TO CONSOLE CONNECTION

NOTE: Before connecting any hoses to the waste tanks, make certain the hose clamps are on each hose.

1. See Figure 10. Connect the 3/4" I.D. water hose from the water pump on the console to the fitting on the bottom of the water box. Tighten the hose clamps.
2. Connect the 3/16" sst hose from the bypass manifold on the console to the fitting on the bottom of the water box.
3. Connect the long section of 2-7/8" I.D. (for Blazer Plus) or 2" I.D. (for Blazer) internal vacuum hose to the vacuum outlet tube on the waste tank and to the vacuum pump relief valve on the console. Tighten the hose clamps.
4. Connect the 2" I.D. waste removal hose to the 2" dia. tube at the bottom of the waste tank. Tighten the hose clamps.
5. Connect the 5/8" I.D. water hose from the vacuum heat exchanger on the console to the fitting on the front bottom of the water box. Tighten the hose clamps.
6. Connect the 3/4" I.D. water hose from the water inlet on the console to the fitting on the front top of the water box. Tighten the hose clamps.
7. Connect the console engine shut-off cord to the waste tank level sensor cord.

7. BATTERY CONNECTION



WARNING!

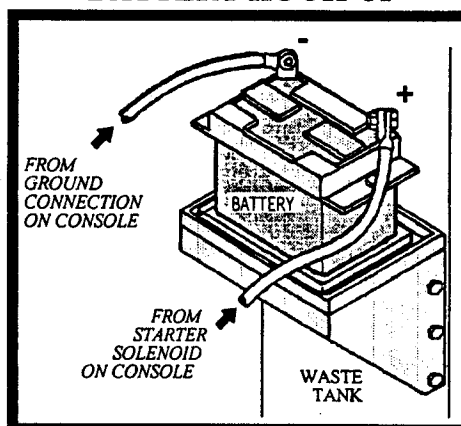
Dangerous Acid, Explosive Gases!
Batteries contain sulfuric acid. To prevent

acid burns, avoid contact with skin, eyes, and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well-ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times. Keep batteries out of the reach of children. Remove all jewelry when servicing batteries.

Before disconnecting the negative (-) ground cable, make sure all switches are OFF. If ON, a spark will occur at the ground cable terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. When disconnecting the battery, **ALWAYS** disconnect the negative (-) lug **FIRST**.

1. Attach the red positive (+) battery cable from the console starter solenoid to the positive (+) lug on the battery and tighten the holding nut.
2. Next, attach the black negative (-) battery cable from the console ground to the negative (-) lug on the battery and tighten the holding nut.

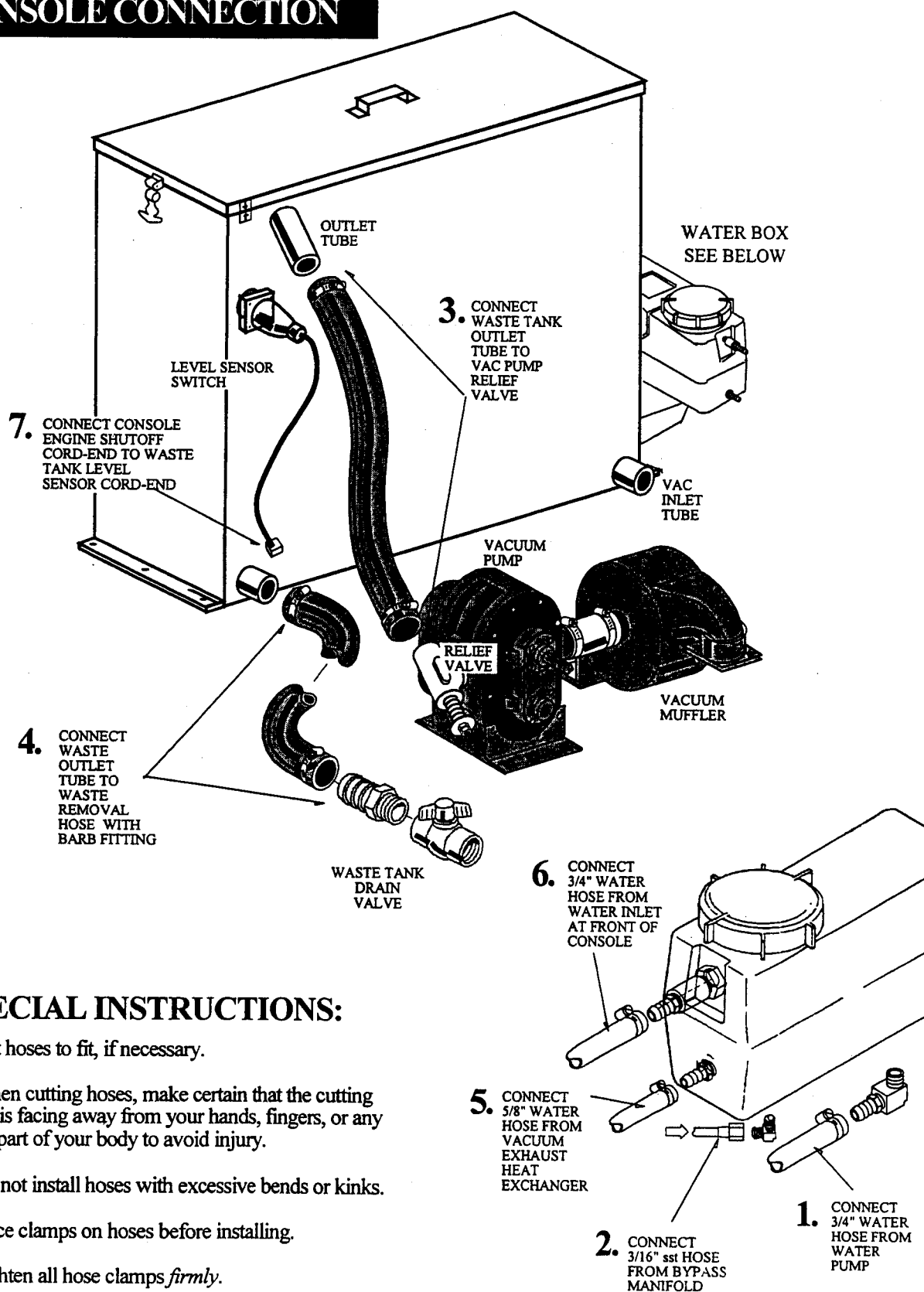
BATTERY HOOK-UP



8. FIRE EXTINGUISHER

We recommend that a fire extinguisher, preferably rated for A, B, & C type fires, be installed inside the vehicle.

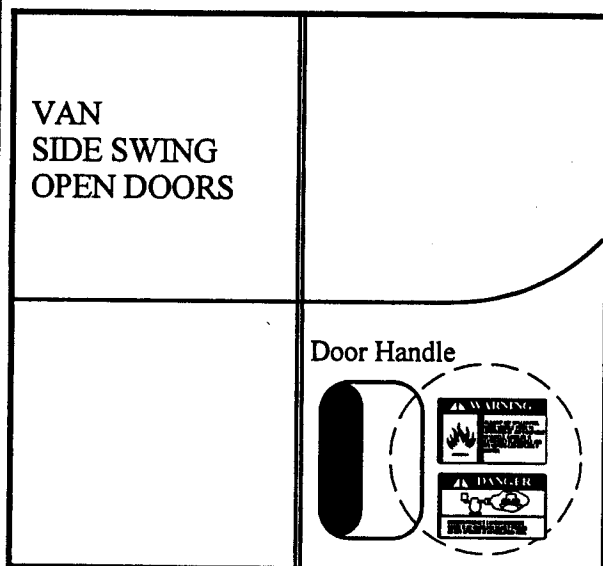
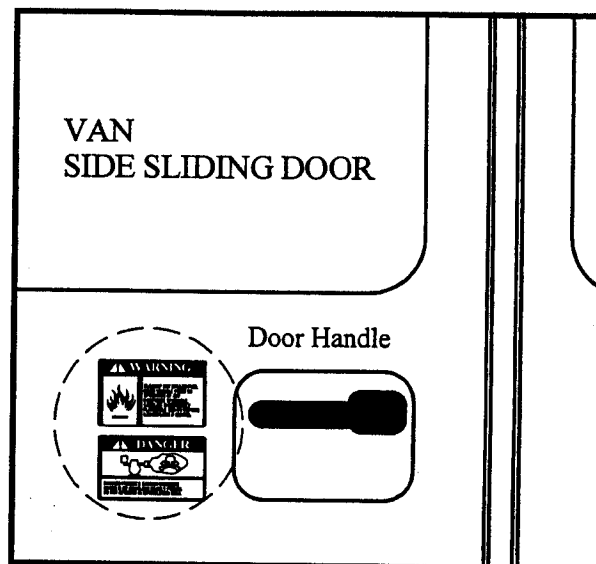
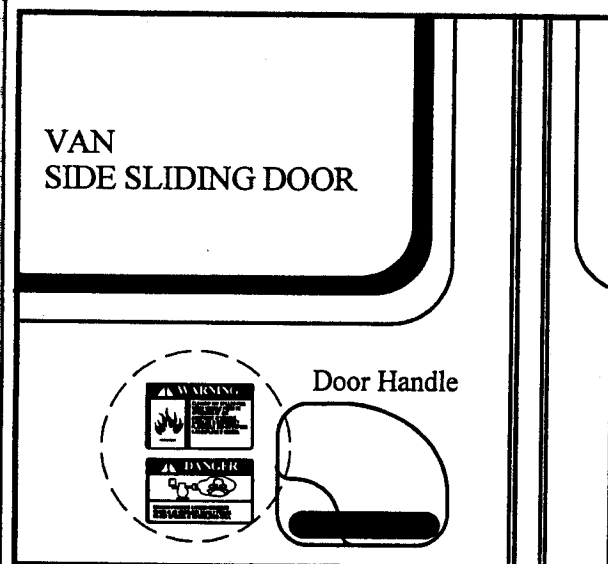
Figure 10 WASTE TANK TO CONSOLE CONNECTION



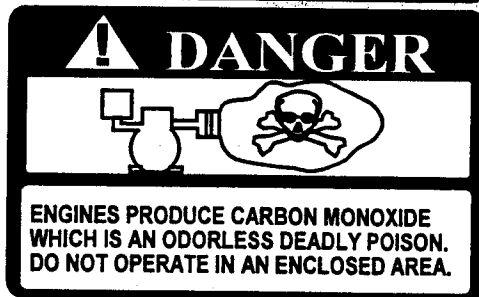
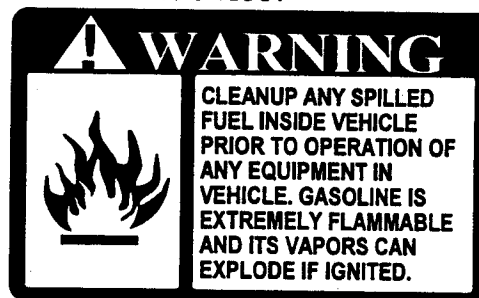
SPECIAL INSTRUCTIONS:

1. Cut hoses to fit, if necessary.
2. When cutting hoses, make certain that the cutting blade is facing away from your hands, fingers, or any other part of your body to avoid injury.
3. Do not install hoses with excessive bends or kinks.
4. Place clamps on hoses before installing.
5. Tighten all hose clamps *firmly*.

Figure 11 PLACEMENT OF EXTERNAL WARNING DECALS



Decal, Fuel Clean-up
Part# 48-941317



Decal, Carbon Monoxide
Part# 48-941316

The decals should be placed in a prominent spot on the vehicle where access is given to operate the unit. The illustrations above suggest the location and placement of the decals.

When placing the decals, be sure the area is clean of any dirt and possible wax build-up. Place the decal by starting at one edge and smoothing the decal over to the other edge. This will help eliminate air bubbles and allow the decal to adhere better. After a time the decals may become damaged or worn. If they become unreadable, they should be replaced. The part numbers are shown above to help in ordering new decals.

SECTION 3: OPERATION

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5 OPERATION

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4 SYSTEMS

This chapter of the operator's manual divides the unit up into systems and explains how each system works. Before proceeding into the operation and maintenance sections of this manual, we recommend acquiring a basic knowledge of how this unit functions. Read the next section of this manual carefully and completely.

1. WATER PUMPING SYSTEM

See Figures 12 and 13.

Cold water enters the console through the water inlet connection located on the lower front panel. The water flows to the water box through a float valve, which shuts off water flow when the water box is full.

Water then flows from the water box, through a strainer, into the water pump where it is pressurized. This pressurized water is pumped to the pressure regulator which provides and maintains the desired pressure setting.

Any volume of water not used in the cleaning process flows from the pressure regulator to the vacuum exhaust heat exchanger.

Water flows through the pre-heat radiator-type heat exchanger where heat is transferred from the vacuum pump exhaust. The heated water then returns from the vacuum exhaust heat exchanger to the water box.

If the temperature in the water box exceeds 180°F (for Blazer Plus) or 145°F (for Blazer), a temperature relief valve will open and bleed a small amount of hot water into the waste tank, allowing cool water to flow into the water box.

When the operator opens the tool valve, water flows through the engine exhaust heat exchanger coils, where it is heated from engine exhaust flowing through it.

Next, the hot water flows from the engine exhaust heat exchanger, through a check valve and Y-strainer, to the outlet manifold. This is where chemical injection occurs. The hot solution then flows into the cleaning tool.

A small amount of hot water constantly bleeds through the bypass manifold, which contains a small orifice, to the water box.

A temperature switch on the heat exchanger outlet will shut down the engine if the water temperature exceeds 275°F. If this occurs, consult the Troubleshooting section of this manual to determine the cause of overheating before restarting your unit.

2. HEAT TRANSFER SYSTEM

See Figures 12 and 13.

Water is heated through a two stage heat exchange system which utilizes engine exhaust and vacuum pump exhaust.

Water flows through an inlet hose to the water box and then to the water pump where it is pressurized. It then travels to the pressure regulator manifold. This manifold contains a nitrogen-charged accumulator which helps reduce pressure fluctuations and dampen water pump pulsations.

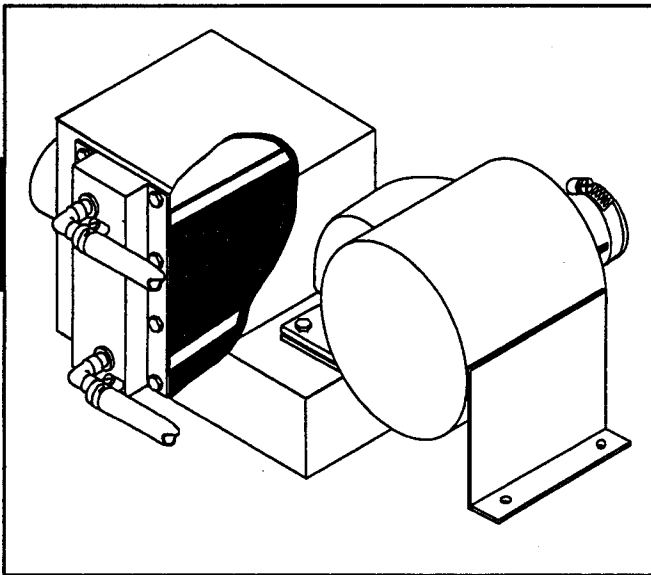
Any volume of pressurized water not used in the cleaning process bypasses from the pressure regulator manifold to the vacuum exhaust heat exchanger.

The vacuum exhaust heat exchanger utilizes vacuum pump exhaust as it leaves the vacuum pump. The warm air flows through a radiator-type heat exchanger prior to discharging out to the atmosphere. The water is heated as it flows through this heat exchanger. From the vacuum exhaust heat exchanger, the warm water flows back to the water box.

When the operator opens the tool valve, the water flows through the engine exhaust heat

exchanger where it is heated by extremely hot engine exhaust.

The primary heat exchanger is an engine exhaust chamber containing a stainless steel heating coil. Water flows through the coil and is heated by the engine exhaust as it leaves the engine. The water, still under pressure and hot, is piped to the outlet manifold where chemical is injected, and then the mixture flows to the cleaning tool.



**VACUUM EXHAUST
HEAT EXCHANGER**

**ENGINE EXHAUST
HEAT EXCHANGER**

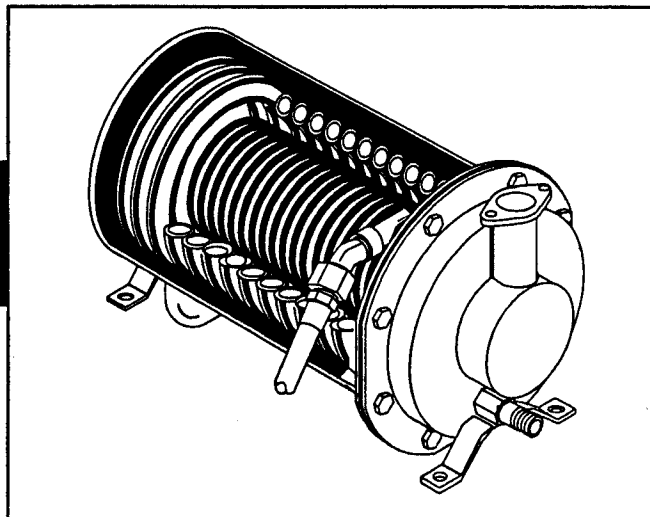
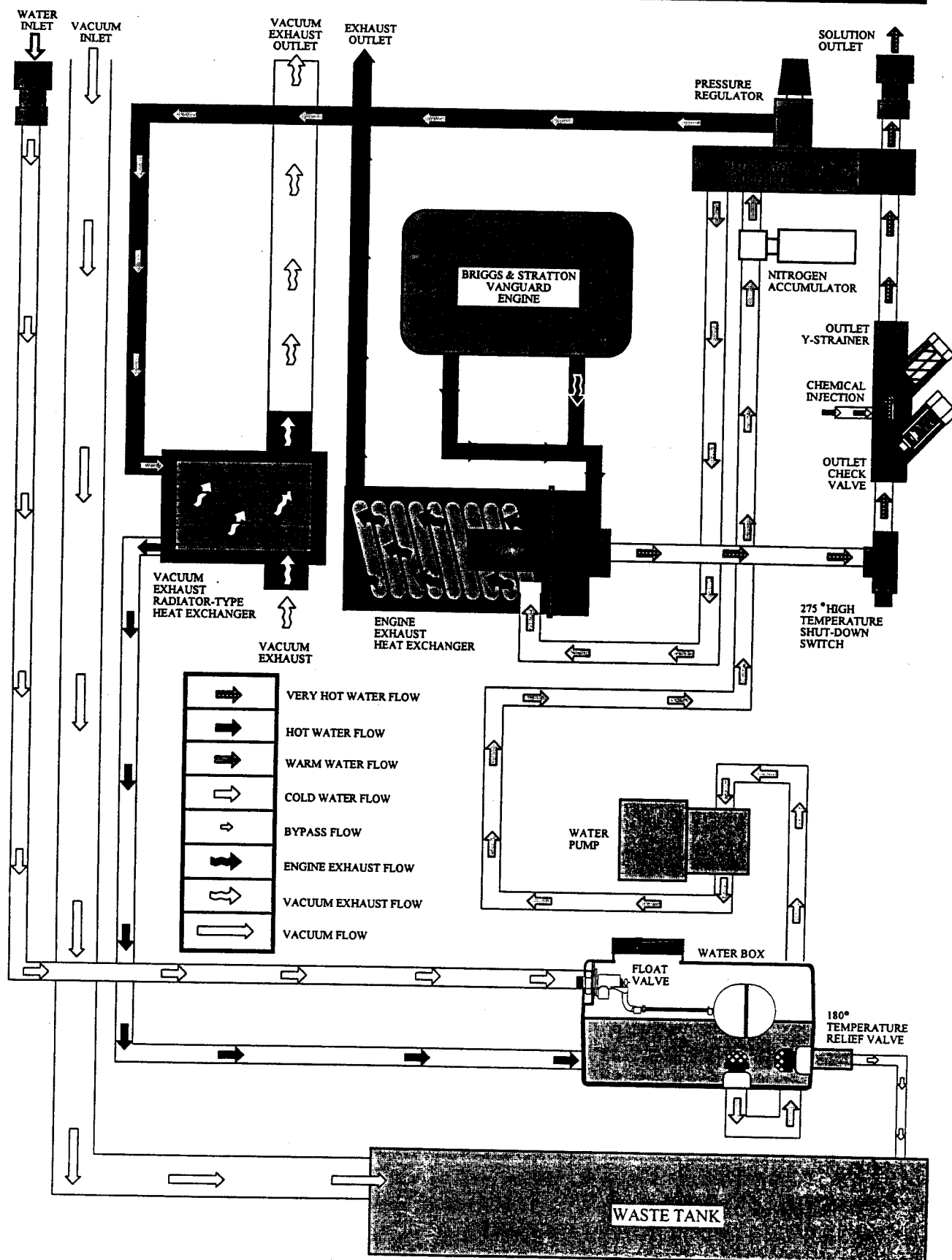
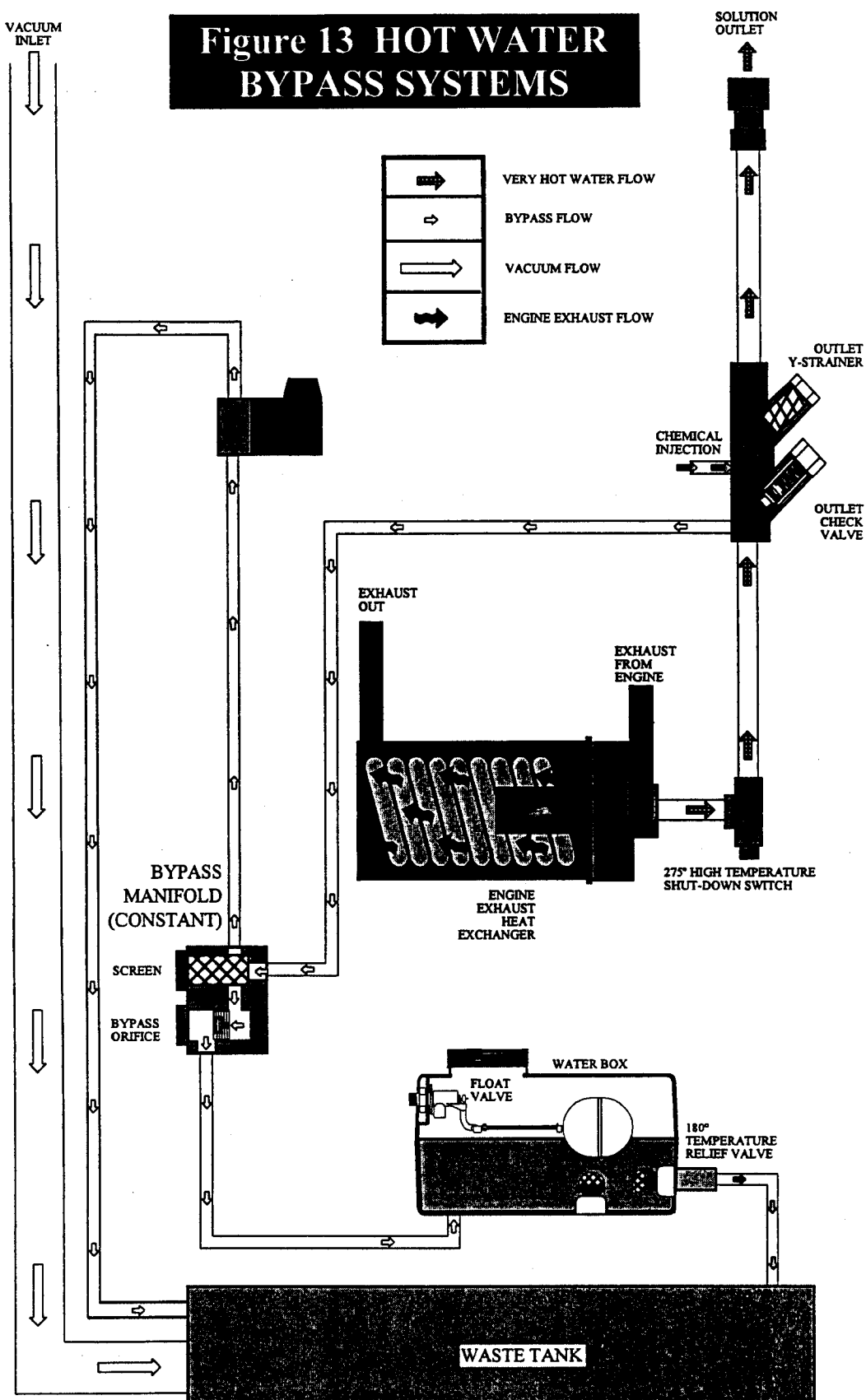


Figure 12 HEAT TRANSFER & WATER PUMPING SYSTEM





3. VACUUM SYSTEM

Vacuum flow is initiated by the vacuum pump, with air and water being drawn into the vacuum inlet at the front of the console.

The mixture then flows through a strainer basket into the waste tank. Air exits the waste tank through a 100-mesh filter, and then flows into the vacuum pump. A vacuum pump relief valve has been provided for vacuum pump protection.

The air is discharged from the vacuum pump through the stage one heat exchanger where the heated vacuum exhaust blows across a radia-

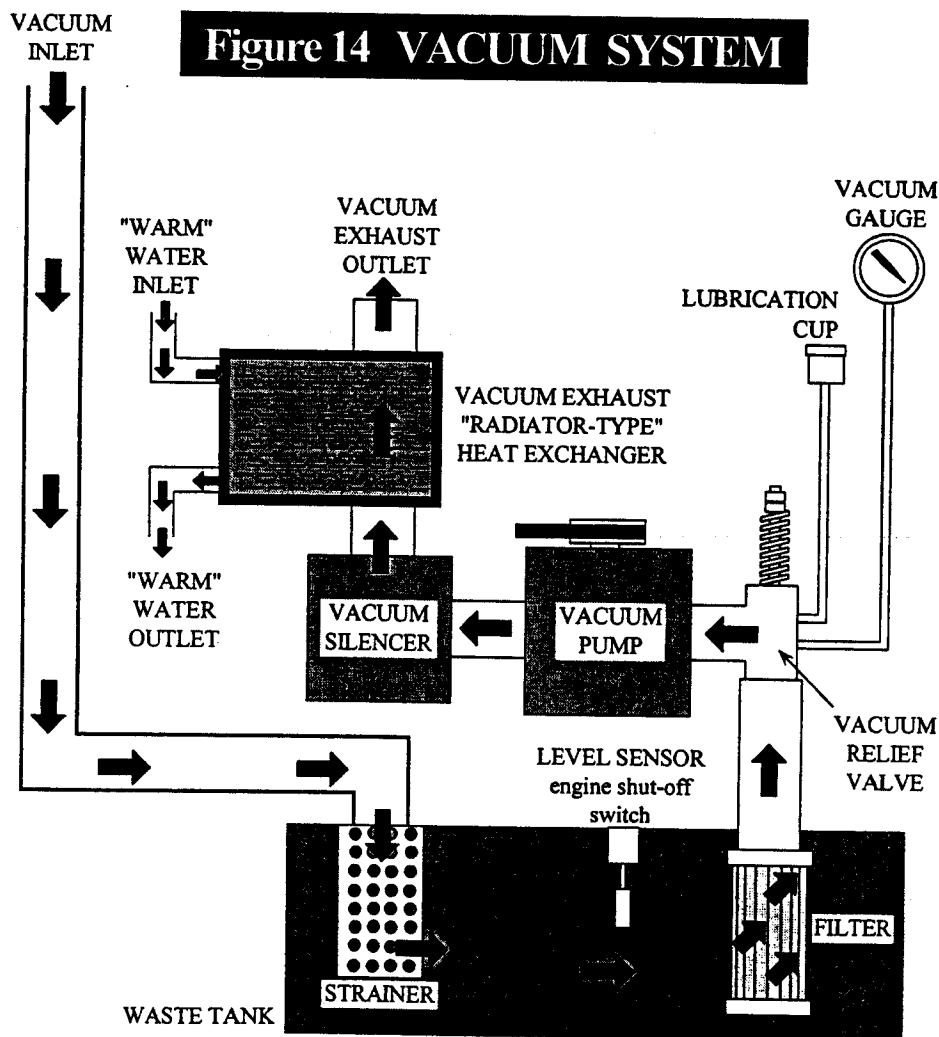
tor-type heat exchanger before discharging into the atmosphere.

A level sensor switch located near the top of the waste tank will shut the unit down before the waste tank reaches its full capacity. This protects the vacuum pump from water damage.



CAUTION:

Use of a DEFOAMER will help prevent damage to the unit by a build-up of foam in the waste tank, which may be caused by some chemicals (foam build-up will not activate float switches).



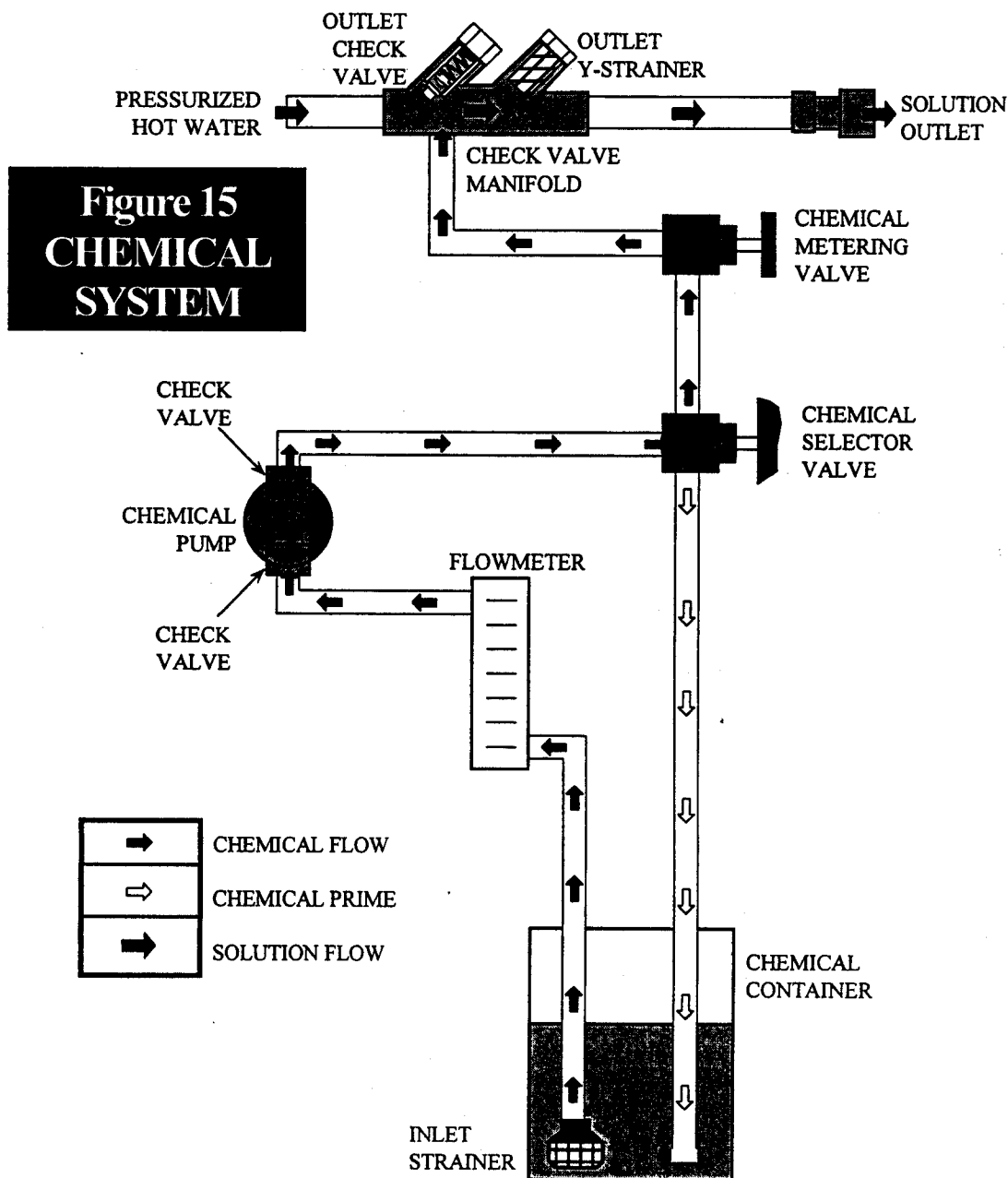
4. CHEMICAL PUMPING SYSTEM

The chemical is drawn from the chemical container through a strainer into the flow meter. The flow meter indicates the rate of chemical flow.

The chemical then flows through a check valve into a pulse-powered chemical pump.

Next, the chemical pump injects the chemical through a check valve to the 3-way selector valve on the control panel. This valve may turn the chemical flow ON, OFF, or PRIME the chemical pump.

The chemical then flows through a metering valve to the solution outlet. This valve controls the rate of flow of chemical injection into the cleaning solution which is indicated on the flow meter.



5 OPERATION

This chapter of the operator's manual explains how to prepare, start, operate, shut down, and maintain the PROCHEM BLAZER/BLAZER PLUS cleaning unit. Operation of the BLAZER/BLAZER PLUS is simple. However, only trained personnel should proceed.



WARNING!

Operate this unit and equipment only in a well-ventilated area. Exhaust fumes contain carbon monoxide which is an odorless and deadly poison that can cause severe injury or fatality. **DO NOT** operate this unit where the exhaust may enter any building doorway, window, vent, or opening of any type.

1. CHECK FOR ADEQUATE FUEL

Check the fuel tank to be certain there is adequate fuel to complete the job. This unit uses approximately 1.0 gallons of fuel per hour at the full RPM cleaning speed.

2. REMOVE TOOLS FROM VEHICLE

Remove any tools or hoses from the van which you will require.

3. WATER SUPPLY CONNECTION

NOTE: Before connecting your water hose to the supply faucet, flush out the faucet until the water is free of any debris. Flush out any debris which may be in your water inlet hose.

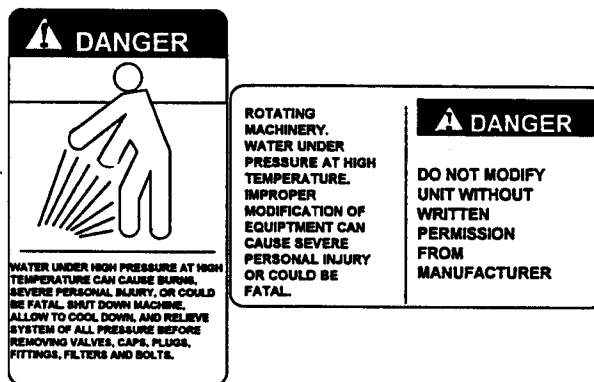
1. Connect the **water supply hose** to the **water inlet quick-connect** at the front of the unit. Connect the hose to the water supply faucet.

NOTE: Never use your waste pump outlet hose as a water inlet hose. Use only clean hoses for water inlet.

2. Turn the **water supply faucet** on. The water will fill the **water box**.

4. HIGH PRESSURE HOSE

Connect the **pressure hose** to the **outlet connection** at the front of the unit. Connect the **cleaning tool** to the **pressure hose**.



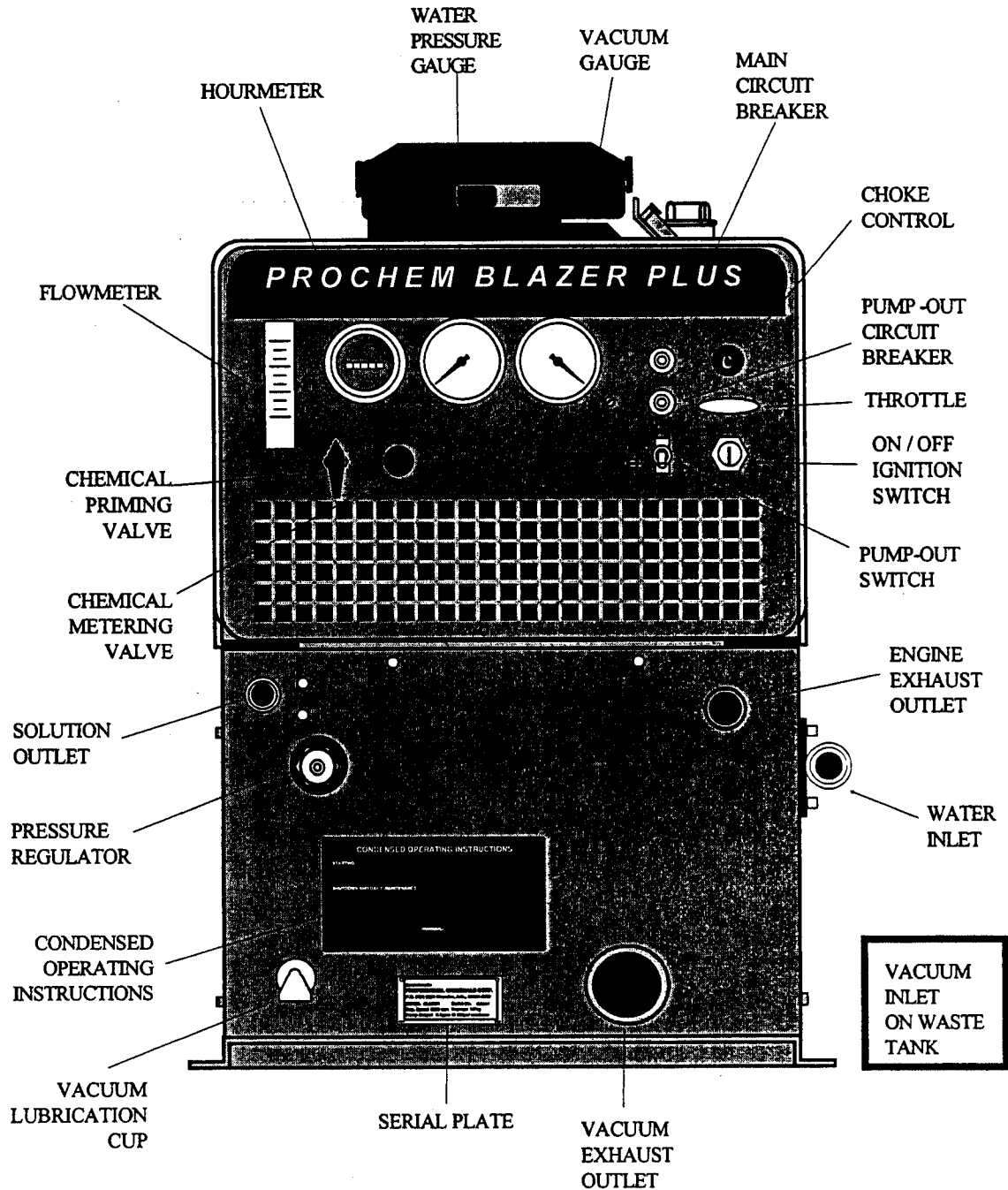
5. VACUUM HOSE

Connect the **vacuum hose** to the **vacuum inlet connection** at the front of the unit. Connect the other end of the **vacuum hose** to the **cleaning tool**.

6. JET SIZING

Prochem recommends **floor tool** tip sizing not exceed a total of "04". Using larger jet sizes on your BLAZER/BLAZER PLUS may reduce cleaning temperatures.

Figure 16 INSTRUMENTATION



Example: Dual jet wand uses two 11002 jets.
(110° spray angle w/ 02 orifice)

$$02 \times 2 = 04$$

Upholstery tool jet size: 80015

Stair tool jet size: 9502

7. STARTING THE UNIT (CLEANING MODE)

1. Connect the water supply to the water inlet on the console. **NEVER** use your automatic waste pump outlet hose as a water inlet hose.
2. Turn on the water supply and check the water box to see that it is filling.
3. Connect the vacuum hose to the waste tank. Before proceeding, be certain that the control panel indicators are at the following settings:

Engine ---IDLE (throttle in)
Engine choke - PULL OUT

NOTE: It may not be necessary to pull the choke out if the engine is already warmed up.

4. Turn the **ignition switch** to the **START** position. The engine should start. If not, see "Engine Will Not Start" in the Troubleshooting section of this manual.

NOTE: If your unit fails to build water pressure after 15 seconds, check for adequate water supply. If necessary, see "Loss of Water Pump Pressure" in the Troubleshooting section of this manual.

5. After starting the engine, push the **choke** in. After the engine has warmed up, pull the **throttle** all the way out and turn it counterclockwise to lock it in the full throttle position. Allow adequate time for the your unit

to warm up before beginning the cleaning operation, approximately 5-15 minutes.

8. PRIMING THE CHEMICAL PUMP

NOTE: PROCHEM recommends that the chemical pump be primed whenever operating this unit. This will eliminate possible pressure fluctuations and water pump pulsations related to a dry chemical pump.

1. Place the **chemical inlet tube** and the **chemical prime tube** into the chemical container.

NOTE: When placing the **chemical inlet tube** into the **chemical container**, make certain that it stays fully submerged since the chemical pump will not function if air is allowed to enter the inlet line. **DO NOT** operate the chemical pump without the inlet strainer properly installed.

2. Turn the **chemical selector valve** on the control panel to the **PRIME** position. The chemical will then flow from the chemical container through the chemical prime tube.

If the chemical does not flow, then:

a) Put the **chemical prime tube** into the **vacuum inlet** on the unit and seal off the vacuum inlet. The vacuum will quickly pull chemical from the chemical container. When the chemical starts to flow, turn the **chemical selector valve** to **OFF**, place the **chemical prime tube** back into the container, and turn the **chemical selector valve** back to **PRIME** to continue the procedure.

b) Once continuous chemical flow without air bubbles has been achieved, turn the **chemical selector valve** from **PRIME** to **METER**. With the **cleaning tool** open, observe the **flow meter**

and adjust the **chemical metering valve** until the desired rate of chemical flow is obtained (the **chemical metering valve** is located on the control panel below the flow meter).

9. WASTE PUMP

1. If your unit is equipped with an **automatic waste pump**, connect one end of a garden hose to the **pump-out connection** on the console and the other end to an **appropriate waste disposal**.

2. Turn the **pump-out switch** on the control panel to the ON position. The waste pump will operate automatically throughout the cleaning operation.

We recommend that you use a 3/4" I.D. water hose as a waste pump outlet hose. DO NOT use a hose smaller than 5/8" I.D.

NEVER use your automatic waste pump outlet hose as a water inlet hose.



WARNING!

NEVER dispose of waste in storm drains, water ways, or on ground areas. Always dispose of waste in accordance with Local, State, or Federal law.

10. OPERATION

Once you have completed steps 1 through 9, proceed with the cleaning operation. Your unit should be in the full throttle position when cleaning or extracting. A **float switch** located inside the waste tank will automatically shut down the unit when it reaches its full capacity. When this occurs, empty the waste tank before continuing.

11. CLEANING

Observe the following guidelines, while cleaning:

1. Before proceeding make sure the nozzles are functioning properly.

a. To check, hold the wand about one foot above the surface to be cleaned and open the wand valve. A full spray should be observed from the cleaning nozzles.

b. If the nozzles are not showing a full spray pattern, adjust nozzles for proper pattern, clean, or replace nozzles.

2. Normally, chemical is applied on the push stroke of the wand when cleaning, and vacuuming is done on the pull stroke. For heavily soiled carpets the wand may be used in a scrubbing manner, applying chemical in both push and pull strokes. Always finish up an area with a vacuum pull stroke.

3. When cleaning, keep the working opening (mouth) flat on the surface being cleaned. Keep the wand moving when the valve is open.

4. The unit will automatically shut-down when the waste tank is full. This will prevent water being drawn into the vacuum pump. If shut-down occurs, empty the waste tank before proceeding.



WARNING!

NEVER dispose of waste in storm drains, waterways, or onto the ground. Always dispose of waste in accordance with Local, State, and Federal laws.

12. UPHOLSTERY CLEANING

Upholstery Tool, Part #60-950422
Multi-Head Tool, Part #60-950464

1. Use one (1) "80015" spray tip in either tool.
2. Fine pressure adjustments should be made at the tool itself, by using the adjusting knob located on the valve.

13. STAIR TOOL CLEANING

Stair Tool, Long, Part #60-950421
Stair Tool, Short, Part #60-950450

1. Use one (1) "9502" spray tip in your stair tool.

14. FLOOD RESTORATION

NOTE: If the unit is equipped, use the automatic waste pump-out system. This will compensate for the extra water flow to the waste tank.

15. SHUTDOWN AND DAILY MAINTENANCE

1. Run fresh water through the **chemical injection system** to flush out chemicals.
2. We recommend removing as much moisture from your **vacuum hoses** as is reasonable. This will prevent spillage of solution in your vehicle when replacing hoses.
3. Position the throttle control to approximately $\frac{3}{4}$ of the way out, but no less than $\frac{1}{2}$ out.
4. Disconnect the **vacuum hoses** from the unit.

5. Push the throttle all the way in to idle and allow the unit to run for **1 minute** in order to remove all moisture from the **vacuum pump**.

NOTE: If finishing for the day: Pull throttle all the way out, plug the **vacuum inlet** and spray WD-40 (or equivalent) into the **vacuum lubrication cup** (located at front of console) for **5 seconds**. This will lubricate the **vacuum pump**. Push the throttle back to idle and continue to step #6.

6. Turn the **ignition switch** to the OFF position.

7. Turn the **water supply faucet** off. Bleed the pressure out of the **water supply hose** by loosening the hose at the water supply. Unhook **water supply hose** and store in vehicle.

8. Relieve pressure from the **cleaning tools** and **pressure hoses** by activating the valve on the tool. Disconnect the **tools and pressure hoses** from the unit and store all items.

9. Drain the **waste tank** and dispose of waste in a proper manner.



WARNING!

NEVER dispose of waste in storm drains, water ways, or on ground areas. Always dispose of waste in accordance with Local, State, or Federal law.

10. Remove the **strainer basket** from the waste tank, clean out any accumulated debris, and re-install. Inspect the **vacuum inlet filter** inside the **waste tank**. If there is any lint or debris, remove and clean filter.

NOTE: When removing the **vacuum inlet filter**, grip the plastic hexagonal section of filter. Grasping filter by the screen may collapse or ruin the filter. Re-install the filter

hand-tight. **NEVER** operate this unit with this filter removed, damaged or improperly installed.

NOTE: When replacing this filter, we recommend using the stainless steel PROCHEM filter (Part #14-806518 for Blazer Plus, #14-806509 for Blazer) only. This will prevent rust and corrosion from entering the vacuum system.

11. At the end of your work day, rinse out the waste tank with fresh water. DUO Deodorizer may be added to the waste tank to inhibit the growth of bacteria.

12. Clean the unit, tools, hoses, van interior, etc., as needed. Inspect ALL equipment for any damage, wear, leaks, etc.

16. FREEZING PROTECTION



CAUTION:

If the unit is exposed to freezing weather the water in the unit may freeze, causing **SERIOUS DAMAGE** to the unit. To avoid this, the following is recommended during the cold weather season:

When the unit is not in use, always park it in a heated building.

While in operation, avoid long shutdowns as the unit provides heat while running. Shut it down just prior to leaving for the next job.

If a heated building is not available, we recommend that you winterize the unit with anti-freeze. At present, it is only possible to winterize units which do not have an auxiliary water tank. Units with auxiliary water tanks must be stored in a heated building when not in use.

ADDING ANTI-FREEZE TO YOUR UNIT:

1. Shut off the water supply. Disconnect the water inlet hose from the front of your console.
2. Connect all high pressure hoses and tools that may have water in them.
3. Start the unit, and open the tool valve until the pressure begins to drop on the pressure gauge. Then shut-down the unit.
4. Fill the water box with approximately two gallons of 100% glycol base anti-freeze.
5. Restart the unit.
6. Open the tool valve until anti-freeze begins to come out of the tool. Recover **ALL** anti-freeze that comes out of the tools into an approved container. We strongly recommend that you re-cycle and re-use the anti-freeze.

Repeat this procedure with all the remaining tools. After all tools and pressure hoses have been filled with anti-freeze, disconnect and store them.

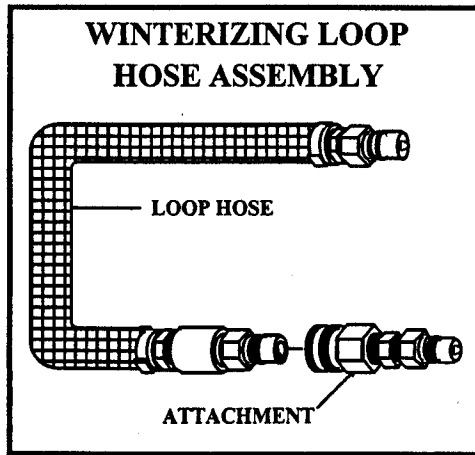
7. Shut-down the unit. Attach the winterizing loop hose with attachment, Part #10-805380, to the solution outlet connection and the water inlet connection. Restart the unit.

Allow the unit to run for approximately 3 minutes with the winterizing loop hose attached.

8. Prime the chemical system with a 50/50 anti-freeze/water mix. Insert the chemical inlet and prime tubes into the anti-freeze container. Turn the chemical valve to PRIME until antifreeze begins to flow out of the prime hose. Turn the valve to the ON position, making certain that the flow meter indicates flow. Make

certain that all anti-freeze drains out of the chemical hose into an approved container.

After 20 seconds, turn the chemical valve to the OFF position.



After completing these procedures, shut the unit down. The unit is now "winterized".

REMOVING ANTI-FREEZE FROM THE UNIT:

1. Connect one end of the loop hose to the solution outlet connection. Place the other end of the loop hose, without the attachment, into an approved container.
2. Start the unit. Allow the anti-freeze to flow into the container until the pressure begins to drop on the pressure gauge. Then shut-down the unit.
3. Fill the water box with fresh water and repeat step #2.
4. Connect the water inlet hose to the water inlet connection on the console. Turn the water supply on.
5. Connect all solution hoses and any tools which require purging of anti-freeze to the solution outlet connection.

6. Open the tool valve and drain the anti-freeze into an approved container until the flow is clear and all anti-freeze is purged from the tools and hoses.

7. Place the chemical prime hose into the approved container. Submerge the chemical inlet hose in water. Turn the chemical valve to the PRIME position until clear water comes through the prime hose, and then remove the prime hose from the container.

Turn the chemical valve to the ON position. This will allow water to flow into the other side of the system.

Once all of the anti-freeze is removed, the unit is ready to use.

Eventually, the anti-freeze in your storage container will become diluted with water. If the anti-freeze level drops below 50% of the total, dispose of it and start with fresh 100% anti-freeze.



WARNING!

When disposing of used anti-freeze, observe local laws and regulations. Where permitted, we recommend disposal in sanitary sewer systems. Do not drain onto the ground or into storm drainage systems.

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MAINTENANCE CHART

daily maintenance	Engine	daily	Check engine oil level.*** Fill to proper level.
	Vacuum Pump	daily	Spray WD-40 in lubrication cup at front of console for 5 sec.
	Water Pump	daily	Check oil level.** Fill to proper level.
	Vacuum Inlet Filter (in waste tank)	daily*	Clean filter
	Vacuum Hoses	daily	Wash out with clean water
	(Optional) Automatic Waste pump	daily*	Inspect and remove any debris or sediment

Vacuum Pump	weekly*	Check oil level. Fill to proper level.
Engine	weekly	Examine air intake and cooling areas. Clean, if required.
Engine	weekly	Check air cleaner for dirty, damaged, or loose parts
Water Pump Inlet Filter (in water box)	weekly*	Check for debris and clean
Battery	weekly*	Check for proper fluid level. Fill with distilled water only.
Bypass Manifold Orifice & Strainer	weekly*	Inspect & remove any debris or blockage
Solution Outlet Y-Strainer	monthly*	Inspect & remove any debris or blockage
High Pressure Hoses	25*	Inspect for damage or impending damage
Engine	25	Service pre-cleaner element
Pressure Regulator	50	Lubricate O-rings
Engine	50	Change engine oil***
Engine	100	Service air cleaner element*
Battery	100*	Clean battery terminals
Engine	100	Clean cooling system
Engine	100	Check condition & re-set gap on spark plugs
Engine	100	Change oil filter***
Chemical Valves	200*	Inspect and/or adjust packing nuts
Water Pump	500	Change oil**
Vacuum Pump	500	Lubricate bearing on pulley end with grease
Pulley Set Screws & Hub Cap Screws	500	Check for proper torque values. Re-torque, if required.****
Drive Pulleys	500	Inspect, clean and check for pulley groove wear****
Drive Pulleys	500	Check pulley alignment****
Drive Belts	500	Inspect and clean****
Drive Belts	500	Check belt tension****
Chemical Pump and Check Valves	1000	Replace diaphragm and check valves
Check Valve (Solution Outlet)	1000	Inspect, clean and repair as needed
Vacuum Pump	yearly	Drain, flush, and replace oil*****
Vacuum Inlet Filter(in waste tank)	yearly*	Replace
Nitrogen Accumulator	yearly*	Check and have re-charged with nitrogen, if required

* Or as often as required.

** Change water pump crankcase oil after the first 50 hours of operation.

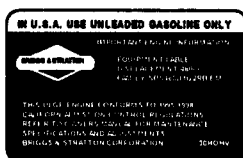
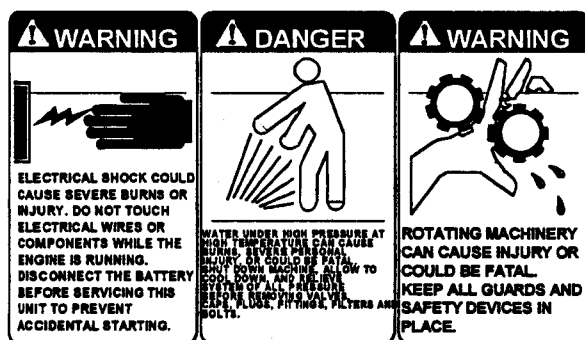
*** Change engine crankcase oil and filter after the first 5 hours of operation.

**** Perform drive belt, pulley, & hub maintenance after first 25 hours of operation, and then again at 100 hours.

***** If using AEON PD synthetic lubricant, 4500 hours or every 2 years, whichever comes first.

6 MAINTENANCE

This chapter of the operator's manual contains the maintenance information for this unit. Initiation of a planned preventative maintenance program will assure that your PROCHEM BLAZER/BLAZER PLUS has optimum performance, a long operating life, and a minimal amount of "down" time.



WARNING!

DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury, severed limbs, or fatality.

NOTE: Use the hour meter as a guide for coordinating the maintenance schedule.

1. ENGINE

Major engine repairs should **NOT** be attempted without a thorough knowledge of all components of the engine. Therefore, we strongly recommend having service or repairs performed by an authorized engine dealer.

General maintenance, filter changes, oil change, etc., should be performed as recommended by the **Briggs & Stratton Vanguard Service and Repair Instructions**. Use the engine manual as a detailed guide for **ALL** matters concerning the engine. The following is a condensed version of maintenance procedures:

1. Check the engine oil level **daily**, when in use. Use high quality detergent oil of API (American Petroleum Institute) service class SF or SG. Select the viscosity based on the air temperature at the time of operation as shown in the following table. **NOTE:** Using other than service class SF or SG oil or extending oil change intervals longer than recommended can cause engine damage.

RECOMMENDED SAE VISCOSITY GRADE

TEMPERATURE RANGE EXPECTED BEFORE NEXT OIL CHANGE									
5W-30, 10W-30*					30**				
Synthetic 5W-20, 5W-30									
°F -20	0	20	32	40	60	80	100		
°C -30	-20	-10	0	10	20	30	40		
TEMPERATURE RANGE EXPECTED BEFORE NEXT OIL CHANGE									

*Air cooled engines run hotter than automotive engines. The use of multi-viscosity oil such as 10W-30, etc., in ambient temperatures above 40°F (4°C) will result in higher than normal oil consumption. If multi-viscosity oil is used, check the oil level more frequently to prevent any possible engine damage due to lack of lubrication.

**Use of SAE 30 oil below 40°F (4°C) will result in hard starting and possible engine damage due to inadequate lubrication.

2. It is important that the engine break-in oil is changed after the **first five (5) hours** of operation. Afterwards, change the engine oil **every 50 hours**.

3. Examine air intake and cooling areas **weekly**. Clean if required.
4. Check the air cleaner **weekly** for dirty, damaged, or loose parts.
5. Service the precleaner element **every 25 hours**.
6. Service the air cleaner element **every 100 hours**.
7. Check condition of the spark plugs and gap **every 100 hours**.
8. Remove the cooling shrouds and clean the cooling areas **every 100 hours**.
9. Change the oil filter **every 100 hours**.

NOTE: Perform these maintenance operations more frequently under extremely dirty or dusty conditions.

2. VACUUM PUMP

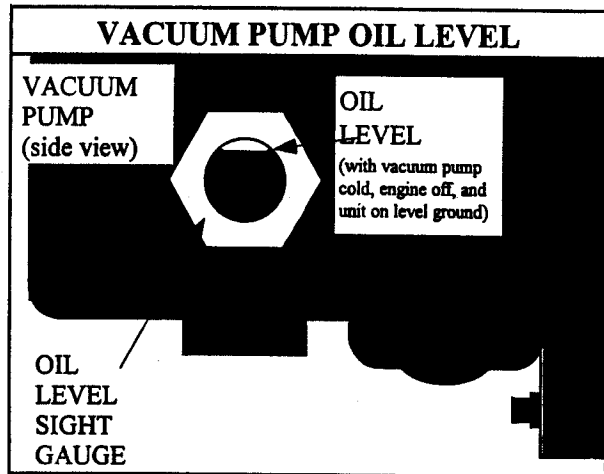
Refer to **Vacuum Pump Operation and Service Manual** for specific instructions.

Lubrication: We recommend that you use AEON PD Synthetic Blower Lubricant in the gear end of the vacuum pump for ALL operating temperatures. AEON PD is formulated especially for positive displacement blower service to provide maximum blower protection at any temperature. One filling of AEON PD will last a minimum of 2 times longer than a premium mineral oil.

NOTE: AEON PD (Part# 05-008039) is the oil which Prochem puts in the vacuum pump at the factory. Topping off or adding petroleum oil to synthetic oil is **NOT** recommended.

If not using AEON PD synthetic blower lubricant, use oils with rust and oxidation inhibitors, anti-foam additives and the viscosities listed on the chart on the next page.

1. Check the oil level **weekly** to assure the proper level. **PROPER LEVEL** cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating. Use the chart provided on this page as a guide when adding oil.



2. To prevent rust from building up inside the vacuum pump (if moisture exists) we have provided a lubrication cup on the front of the unit.

First run the unit at least **1 minute** to remove any moisture from the vacuum pump. Next, fill the lubrication cup with WD-40, or a similar lubricant, for **5 seconds** while the unit is running and the vacuum inlet is sealed. Do this at the end of **each working day**.

3. Drain, flush and replace oil **every 1500 hours or yearly, whichever comes first**. Change oil more frequently if inspection so indicates. With AEON PD synthetic lubricant, perform the oil change maintenance **every 4500 hours or every 2 years, whichever comes first**.

VACUUM PUMP LUBRICANT

Blower Discharge Temperature	Oil Grade U.S.A.*	Oil viscosity, Centistokes @ 40° C
-40° to 32°F (-40° to 0°C)	SAE 10W	45
32° to 100°F (0° to 38°C)	SAE 20	100
100° to 275° F (38° to 135°C)	SAE 40	200
over 275° F (135° C)	SAE 50	250

* In applications with extreme variations in ambient temperature a 20W-50W multiple viscosity oil is recommended.

For Grease Lubricated Bearings Service every 500 hours of operation	
Blower Discharge Temperature	Type Grease
-40° to 275° F (-40° to 120° C)	No. 2 Non-Corrosive Bearing Grease

4. The bearings on the pulley end of the vacuum pump requires grease lubrication **every 500 hours**. Pack the bearings until grease comes out of the vent holes. Use extreme pressure bearing grease of the specification NLGI Grade 2 EP.

3. WATER PUMP

Refer to the **Water Pump Operation and Service Manual** for specific instructions.

1. Check the crankcase oil level **daily** to assure the proper level. If the level has dropped, check for the source of leakage and repair.

2. Change the crankcase oil with Cat Pump Crankcase Oil, Part #05-008016, after the first

50 hours of operation. Drain and refill the crankcase oil with Cat Pump Crankcase Oil every **500 hours** thereafter.

4. VACUUM INLET FILTER
(IN WASTE TANK)

1. The vacuum filter in the waste tank should be removed and cleaned **daily**. If this is done, the filter will last for a long period of time.

2. Inspect the vacuum inlet filter inside the waste tank. If there is any lint or debris, remove and clean filter. Re-install the filter **hand-tight**. Replace this filter at least **once per year**.



CAUTION:

When removing the vacuum inlet filter, grip the plastic hexagonal section of filter. Grasping filter by the screen may collapse or ruin the filter.

NOTE: When replacing this filter, we recommend using a stainless steel PROCHEM filter (#14-806518 for Blazer Plus, #14-806509 for Blazer) only. This will prevent rust and corrosion from entering the vacuum system.

5. DRIVE BELTS, PULLEYS, & HUBS

1. Check pulley set screws and/or hub cap screws after the **first 25 hours** and then again at **100 hours**. Re-torque these screws with a torque wrench, using the values on the following chart. Check pulley set screws and/or hub cap screws **every 500 hours** thereafter.



WARNING!

Make certain that when you re-torque these screws, that you use a clockwise pattern and continue until proper torque is achieved.

TORQUE VALUES		
Component	inch/lbs	foot/lbs
Engine hub	264	22
Vacuum pump hub	192	16

2. Check for pulley groove wear, clean belts and pulley grooves, check for worn belts, proper belt tension, and pulley alignment after the **first 25 hours** and then again at **100 hours**. Check for belt ride in the groove. In multiple groove drives, belt ride should be uniform, not more than 1/16" above or below top of pulley groove.

Check groove wear area for wear. Side wall of groove should be straight, not dished out. Bottom of groove should show no signs of belt contact.

Inspect belts for contaminants, such as oil or grease. Wipe belts clean with detergent and water. Inspect pulley grooves for buildup of such material and remove, if necessary.

Check wear surfaces of belt for excessive wear. If they have a slick, glazed look, belts are slipping. Check belt tension. Never replace one belt in a used set, as used belts will elongate. Replace entire set if replacement is necessary.

Place a straight-edge across the top of belt. There should be no more than 1/2" deflection in the center of the belt, halfway between the pulleys. If there is too much slack, tighten belt, making sure that it stays properly aligned.

See the "General Service Adjustments" section in this manual for details.

Check alignment with straight-edge, string, or machinist level. Correct alignment to as near perfect as possible.

6. FLOAT VALVE (WATER BOX)

Check the float valve at least once a month for proper operation. If overfilling is a problem, check the plunger for a proper seat. Replace tip on plunger if needed or damaged. Water level in the water box should be about 6-1/2".

For the procedure, see the "General Service Adjustments" section in this manual for details.

7. INLET FILTER (TO WATER PUMP)

The filter inside and on the bottom of the water box is rubber with a stainless steel screen. This should be inspected and cleaned on a **weekly** basis. Replace, if damaged.

NOTE: Vacuum all excess water and debris from water box prior to removing strainer.

8. WASTE TANK STRAINER BASKET

The strainer basket located inside the waste tank should be removed and cleaned whenever it is full of debris. This should be done on at least a **daily** basis.

9. BYPASS MANIFOLD (STRAINER AND JET BLOCK)

Check the strainer and the jet **weekly**. Remove any debris or blockage.

For the procedure, see the "General Service Adjustments" section in this manual for details.

10. Y-STRAINER (OUTLET)

Inspect the Y-strainer **after the first week** of running the unit by unscrewing the screen and remove any accumulated debris. Inspect the strainer again at **2 and 4 weeks**.

The Y-strainer should then be inspected **every month**. However, if the Y-strainer has a frequent build-up of debris it should be inspected and cleaned more often.

11. CHECK VALVE (OUTLET)

Inspect the check valve when rebuilding the chemical pump or as needed. Remove and disassemble the check valve. Check the Teflon seat for debris or abnormal wear. Clean or replace seat if needed.

NOTE: Improper seating of the check valve poppet, damaged spring or o-rings will cause poor operation of the chemical system.

For the procedure, see the "General Service Adjustments" section in this manual for details.

12. CHEMICAL PUMP

Rebuild the chemical pump **every 1000 hours**. This involves changing the diaphragm and check valves.

For the procedure, see the "General Service Adjustments" section in this manual for details.

13. CHEMICAL AND HEAT BYPASS VALVES

Examine the packing nut on the chemical selector valve, heat bypass valve, and chemical

metering valve **every 200 hours**. Keeping these valve packings properly adjusted will eliminate possible leakage from the valve stems and add to overall valve life.

For the procedure, see the "General Service Adjustments" section in this manual for details.

14. NITROGEN ACCUMULATOR

Check the nitrogen pre-charge **at least once a year**. Recharge the accumulator and replace the bladder, when needed. This should be performed by an Authorized Service Center.



WARNING!

Recharge accumulator with nitrogen ONLY. DO NOT charge accumulator over 250 PSI.

15. PRESSURE REGULATOR

Lubricate the o-rings **every 50 hours**. Use o-ring lubricant Part #05-008035.

For the procedure, see the "General Service Adjustments" section in this manual for details.

16. VACUUM HOSES

To assure maximum hose life, we recommend that the hoses be washed out with clean water at the end of **each working day**.

17. BATTERY



WARNING!

Dangerous Acid, Explosive Gases!

Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times.

Keep batteries out of the reach of children. Remove all jewelry when servicing batteries. Before disconnecting the negative (-) ground cable, make sure all switches are OFF. If ON, a spark will occur at the ground cable terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. When disconnecting the battery, ALWAYS disconnect the negative (-) terminal FIRST.

1. Check the fluid level in the battery every 25 hours or once a week. If low, fill to the recommended level with distilled water ONLY.

NOTE: DO NOT overfill the battery. Poor performance or early failure due to loss of electrolyte will result.

2. Keep the cables, terminals, and external surfaces of the battery clean. A buildup of corrosive acid or grime on the external surfaces can cause the battery to self-discharge. Self discharge occurs rapidly when moisture is present.

The battery terminals should be cleaned every 100 hours to prevent corrosion build-up. Wash the cables, terminals and external surfaces with a mild baking soda and water solution. Rinse thoroughly with clear water.

NOTE: DO NOT allow the baking soda to enter the battery cells as this will destroy the electrolyte.

18. ENGINE EXHAUST HEAT EXCHANGER

If an engine is not properly maintained, the exhaust gases may deposit carbon on the outside of the heat exchanger coil and affect the cleaning solution temperature. If this condition exists, remove the heat exchanger from the unit and clean the carbon off the coil. This may be done by taking it to a radiator dealer and having it boiled out.

Proper maintenance of the unit, such as regular tune-ups, and proper fuel will help prevent carbon build-up on the coil and increase the life of the unit.

Using A212 ULTRA CLEAN INDUSTRIAL CLEANER or A217-1 ULTRAPAC RENOVATE will also greatly enhance the removal of carbon deposits. Soak the coil and casing ONLY. This should be performed as needed.

19. VACUUM EXHAUST HEAT EXCHANGER

Removing and cleaning the vacuum exhaust pre-heater core is recommended as needed or if the unit was operated with the vacuum inlet filter damaged, removed, or improperly installed. Pull out the core and remove all debris, being careful not to drive debris deeper into the core. We recommend removing the debris with water by either submerging the core and moving it back and forth until the debris loosens and falls off or by spraying the debris out of the core. Allow the core to dry before reinstalling.

20. HIGH PRESSURE HOSES

Inspect your high pressure hoses for wear after the first 100 hours of use. Inspect every 25 hours thereafter. If hoses show any signs of

damage or impending rupture, replace the hose.



WARNING!

DO NOT attempt to repair high pressure hoses! Repairing high pressure hoses may result in severe burns and serious injury!

All high pressure hoses must be rated for 3000 PSI at 250°F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.

21. OPTIONAL WASTE PUMP-OUT

At the end of each work day, make certain that you remove any debris or sediment which may be inside the waste pump.

Remove waste pump unit from waste tank and clean inside underneath screen at least once a week, or more frequently if required.

7 GENERAL SERVICE ADJUSTMENTS



WARNING!

DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury, severed limbs, or fatality.

1. ENGINE SPEED

To adjust the engine RPM, refer to the **Briggs & Stratton Vanguard Service and Repair Instructions** for specific instructions.



CAUTION:

DO NOT attempt to adjust without a tachometer and **NEVER** adjust the engine above 3200 RPM.

2. VACUUM RELIEF VALVE

While the unit is running at full RPM, block the air flow at the vacuum inlet connection and read the vacuum gauge. If adjustment is required, shut the unit down and adjust the locking nut tension. Start your unit and read the vacuum gauge. Repeat this process until the relief valve opens at 13" Hg (Blazer Plus) or 14" Hg (Blazer).

3. VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the four bolts which hold the vac-

uum pump mount in place.

2. Turn the adjusting bolts until the proper belt tension is achieved (1/2" deflection in the center of the belt, halfway between the pulleys).

NOTE: When adjusting belt tension, make certain that the engine shaft and vacuum pump shaft remain parallel, and the belt tension is equal throughout the belt width.

3. After adjusting, re-tighten the four bolts which hold the vacuum pump in position. Check pulley alignment with straight edge.

4. WATER PUMP DRIVE BELT

To tighten the water pump belt:

1. Loosen the nuts which hold the water pump mount to base.
2. Adjust the belt tension adjusting bolt until the proper belt tension is achieved. (1/2" deflection in the center of the belt, halfway between the pulleys).

3. While checking the alignment, tighten the pump mount hold-down nuts.

5. FLOAT VALVE (WATER BOX)

The float valve should only be adjusted if the water box is overflowing or the water level in the box is lower than 5-1/2":

1. If the box is overflowing, remove, and check the float valve for debris or damage.

NOTE: If the float ball has any water inside it must be replaced.



CAUTION:

When replacing float ball, **DO NOT** over tighten, the rod can puncture ball. Make sure to tighten nuts on rod.

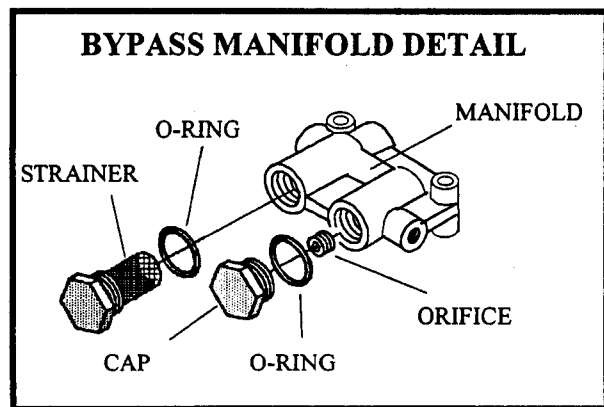
2. Disassemble the valve and check the piston and seat for damage, replace if needed. See the Illustrated Parts Listing for a parts break-down.

6. BYPASS MANIFOLD

Clean the bypass strainer and orifice weekly, using the following guidelines:

1. Remove the **strainer**. Clean and re-install. **DO NOT** over tighten **strainer**.

2. Remove the **cap**. Remove the **orifice**, using a 3/16" Allen wrench (the 3/16" Allen wrench is provided with the Part #66-945280, the bypass maintenance kit).



3. Re-install the **cap** and run the unit with the water pump ON for 15 seconds to flush out the bypass manifold.

4. Remove the **cap** and re-install the cleaned **orifice**, using the 3/16" Allen wrench. Tighten **orifice** just enough to seat. **DO NOT** over tighten. Re-install **cap**. **DO NOT** over-tighten **cap**.

NOTE: If o-ring seals leak, replace them. If strainer is damaged, replace strainer.

7. CHECK VALVE (SOLUTION OUTLET)

Inspect the check valve whenever doing service on the chemical pump or if flow problems occur in the chemical system:

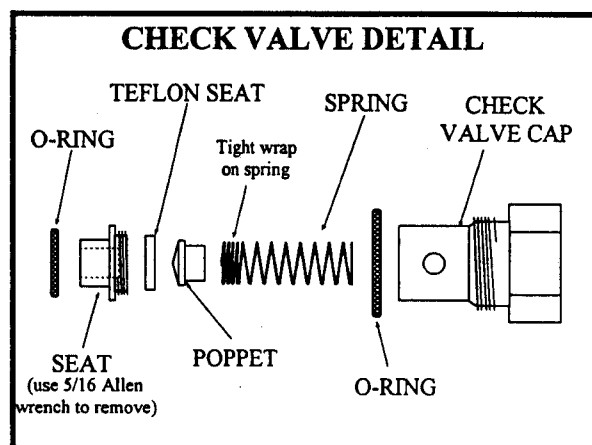
1. Remove the **check valve**. Be sure the small o-ring for the seat comes out with the check valve.

2. Remove the **seat**, using a 5/16" Allen wrench.

3. Check the Teflon seat for debris or wear. Clean or replace Teflon seat if needed.

4. Clean the poppet and spring, inspect for wear or damage, replace as needed.

5. Re-assemble the check valve. Start the seat by hand, tighten using a 5/16" Allen wrench. **DO NOT** over-tighten seat.



NOTE: Improper seating of the check valve poppet, damaged spring or o-rings will cause poor operation of the chemical system.

6. Lubricate the o-rings with o-ring lubricant Part #05-008035 and reinstall.

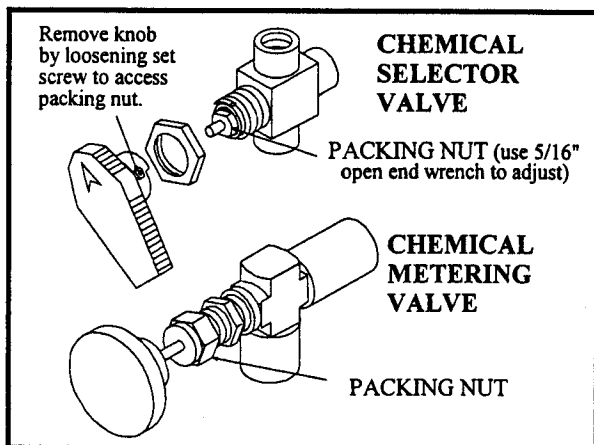
8. CHEMICAL PUMP

The only repairs which the chemical pump may require is the replacement of the diaphragm or check valves. To replace the diaphragm, unscrew the cover from the body. When replacing the diaphragm, lubricate the outer edges of the diaphragm with o-ring lubricant Part #05-008035 and reassemble. To replace the check valves, unscrew the check valve caps. Replace the check valves and reassemble, using new o-rings.

DO NOT attempt to re-use o-rings once the check valves have been removed. See the Illustrated Parts Listing for a parts breakdown on the chemical pump.

9. PACKING NUT ADJUSTMENT FOR CHEMICAL METERING AND CHEMICAL SELECTOR VALVES

Examine the packing nut on the metering and selector valves for proper tension every **200 hours**. When turning the knob, there should be a small amount of resistance. If not, slightly tighten the packing nut. **DO NOT** over tighten. Keeping the valve packings properly adjusted



will eliminate possible leakage from the valve stem and add to overall valve life.

10. PRESSURE REGULATOR

The pressure regulator serves only to hold locked up water pressure at a preset point and to bypass this water back to the water box.

To adjust:

1. With your unit running, close the cleaning tool. Check the pressure gauge. Open the tool valve. We recommend setting the pressure regulator so that the pressure gauge reads 350 PSI with the tool valve **open**.

When the tool valve is opened, there is an approximate drop of 50 PSI in pressure. **If there is a pressure drop greater than 100 PSI, it may be necessary to lubricate the o-ring in the pressure regulator.**

2. If the pressure regulator requires adjustment, loosen the locking nut, then turn the adjusting body (cap) (while observing the pressure gauge on the control panel) until the desired pressure is obtained. Retighten the locking nut.



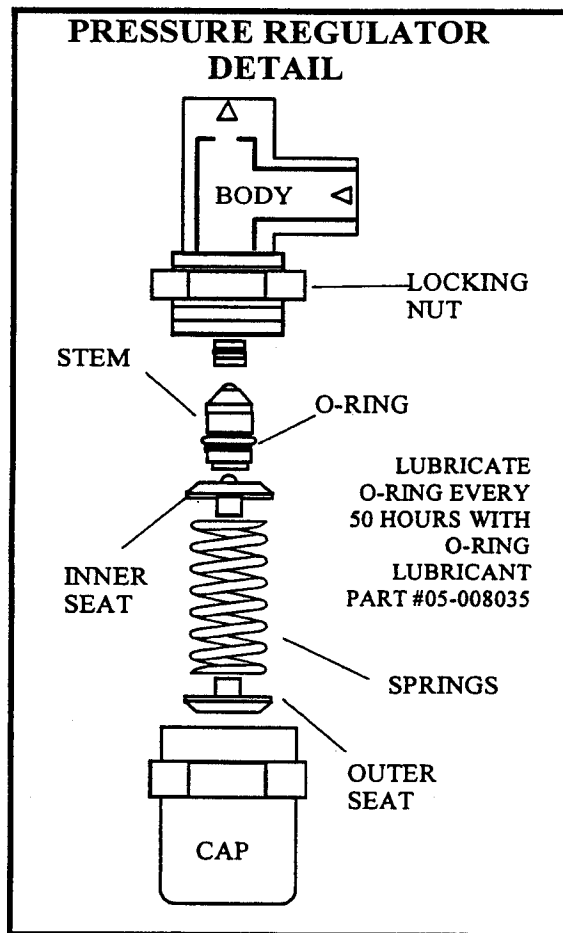
WARNING!

DO NOT loosen the adjusting body (cap) all the way (counterclockwise) or remove it while the unit is running.

We recommend that you lubricate the pressure regulator o-ring every **50 hours**, or whenever required. If you do not, the stem may become seized due to inadequate lubrication. If this occurs:

- a) Shut-down the unit.
- b) Relieve all pressure from the water system.

- c) Remove the cap from the pressure regulator and remove the stem with long nose pliers.
- d) Clean and lubricate stem.
- e) Reassemble pressure regulator.



SPECIFIC PROBLEMS

1. LOSS OF WATER PUMP PRESSURE

With the cleaning tool open, the water pressure gauge reads below the normal operating pressure.

PROBABLE CAUSES	CORRECTIVE ACTION
Water supply is turned off or the float valve is stuck or improperly adjusted.	Turn the water supply on or up. Check for kinks in the water supply hose. Examine the float valve and adjust or replace.
Water pump inlet supply line is plugged or drawing air.	Examine the water inlet filter inside the water box. Remove accumulated debris and replace if required. Check for suction leaks and loose clamps or fittings. Tighten any loose fittings or clamps. Replace any ruptured hose(s).
Improper engine speed.	Using a tachometer, check the engine speed. Full throttle engine speed is 3200 RPM. Re-adjust in accordance with the Briggs & Stratton Vanguard Service and Repair Instructions.
Pressure regulator o-ring is dry.	Lubricate o-ring, using o-ring lubricant Part #05-008035.
Pressure regulator has worn o-ring.	Check o-ring. If necessary, replace.
Pressure regulator is dirty, stuck open, or improperly adjusted.	Clean or repair pressure regulator. Adjust to working pressure. Lubricate o-rings, using o-ring lubricant Part #05-008035.
Low pump volume. (Measure the amount of water being returned to the water box from the pressure regulator. It should fill a gallon container about every 20 seconds.)	Examine the discharge valve as well as plunger cups and cylinder on the water pump. Repair, whenever required. (Refer to the water pump service manual.)
Defective water pressure gauge.	Replace gauge.
Orifice (spray nozzle) in the cleaning tool is worn, defective, or the wrong size.	Replace nozzle or change nozzle size.
Bypass manifold orifice not installed or installed improperly (threads damaged in manifold).	Check bypass manifold and orifice for proper installation and repair, if necessary.
Debris clogging water lines or water inlet disconnect.	Clean or replace as needed.
Belt loose or broken.	Re-tension or replace as needed.

2. LOSS OF SOLUTION VOLUME AT CLEANING TOOL ORIFICE

Water pressure gauge reads normal.

PROBABLE CAUSES	CORRECTIVE ACTION
Plugged orifice or screens in the cleaning tool.	Unplug orifice. Clean screens.
Internal block between the pressure regulator manifold and the outlet Y- strainer, or the Y-strainer screen is clogged.	Inspect all lines, remove accumulated debris which is blocking proper flow. Replace any defective hoses. Remove, inspect, and clean the Y-strainer screen. De-scale unit and install a water softener, if necessary.
Outlet check valve is plugged.	Examine the check valve, remove any debris.
Defective quick-connect on one of more of the high pressure hoses.	Replace defective quick-connect(s) on high pressure hose(s).
Cleaning tool valve is malfunctioning.	Repair or replace valve.
Hose inner lining is constricted.	Remove restriction or replace hose.
Heat exchanger is scaled on inside of coil.	De-scale coil, and install the water softener, if necessary, to protect the equipment. If water contains 3-1/2 grains or more of water hardness, a water softener is needed.

3. LOSS OF VACUUM

While cleaning, the vacuum is not up to par. Engine RPM is normal.

PROBABLE CAUSES	CORRECTIVE ACTION
Vacuum gauge is giving an improper reading.	Examine the tubing between the vacuum relief valve and the vacuum gauge and remove any blockage.
Vacuum hose(s) is damaged, causing a suction leak.	Inspect the vacuum hose(s). Repair any damage or replace.
Waste tank gasket not sealing properly, not positioned properly.	Inspect the gasket. Repair seal or replace. Re-position lid.
Plugged vacuum hose or vacuum plumbing between vacuum inlet and strainer basket.	Unplug vacuum hose or inlet plumbing.
Waste tank filter or strainer basket is plugged.	Clean or replace filter. Clean strainer basket.
Loose vacuum pump drive belts.	Tighten the drive belts.
Waste tank drain valve is damaged or left open, or loose clamps on drain hose cause a vacuum leak.	Drain the waste tank. Close drain valve, if open. Remove the dump valve and, after inspecting, replace the defective components. Inspect clamps.

3. LOSS OF VACUUM *(continued from previous page)**While cleaning, the vacuum is not up to par. Engine RPM is normal.*

PROBABLE CAUSES	CORRECTIVE ACTION
Vacuum relief valve requires adjustment or has a vacuum leak due to damaged diaphragm.	Re-adjust the vacuum relief valve. If the vacuum does not increase, remove and inspect the relief valve diaphragm. If damaged, replace.
Vacuum exhaust heat exchangers are plugged with lint.	Remove and clean.
Vacuum pump is worn out.	Replace the vacuum pump.

4. LOSS OF CHEMICAL*With the cleaning tool valve open, no chemical.*

PROBABLE CAUSES	CORRECTIVE ACTION
Chemical pump is improperly primed.	Refer to chemical pump priming instructions.
The strainer at the inlet end of the chemical inlet line is clogged.	Unclog the strainer. If damaged, replace.
Suction leak in the inlet line leading into the chemical pump.	Inspect inlet lines and flow meter for damage and replace, if required.
Chemical pump check valve(s) is clogged.	Remove any debris from the chemical check valve(s). Replace chemical check valve(s) or seals, if necessary.
Chemical prime/on-off valve or chemical metering valve is defective.	Replace valve(s).
Chemical pump diaphragm is ruptured.	Disassemble the chemical pump and replace the damaged diaphragm.
Defective cylinder in the water pump.	Measure the pump volume. If the pump volume is less than normal, refer to "Loss of Pump Volume" in the Troubleshooting section in this manual.

5. CHEMICAL FLOW METER INDICATES FLOW WITH THE TOOL VALVE CLOSED

PROBABLE CAUSES	CORRECTIVE ACTION
External leak in piping.	Tighten fittings. Re-apply thread sealant where required. If any fittings are damaged, replace.

5. CHEMICAL FLOW METER INDICATES FLOW WITH THE TOOL VALVE CLOSED (continued from previous page)

PROBABLE CAUSES	CORRECTIVE ACTION
Check valve is full of debris or damaged, not allowing it to close properly.	Close the chemical valve on the instrument panel. If the flow meter does not indicate flow, remove debris or replace check valve, if necessary.
Chemical pump diaphragm is ruptured.	Close the chemical valve on the instrument panel. If the flow meter still indicates flow, replace the chemical pump diaphragm.
Internal leak in chemical prime valve causing continual flow through prime tube returning to container.	Tighten valve packing nut (see General Service Adjustments section in this manual). Replace valve, if necessary.
Worn chemical metering valve.	Replace valve.

6. ENGINE WILL NOT START

The engine does not turn over.

PROBABLE CAUSES	CORRECTIVE ACTION
Main circuit breaker on the control panel has been tripped.	After inspecting the unit to determine the cause of the tripped circuit breaker, press the reset button.
Loose or corroded battery.	Clean, tighten, or replace the battery terminals.
Dead battery.	Recharge or replace battery.
Defective ignition switch.	Test ignition switch for power going into the switch. If there is power going in but NO power going out, replace the switch.
Defective starter motor.	Test the starter motor. If necessary, replace.
Engine problem.	Refer to the Briggs & Stratton Vanguard Service and Repair Instructions.
Vacuum pump is seized (rusty).	Refer to Sutorbilt Service & Repair manual.

7. STARTER TURNS OVER ENGINE, BUT ENGINE WILL NOT START

PROBABLE CAUSES	CORRECTIVE ACTION
Waste tank is full.	Empty the waste tank.

7. STARTER TURNS OVER ENGINE, BUT ENGINE WILL NOT START *(continued from previous page)*

PROBABLE CAUSES	CORRECTIVE ACTION
Engine temperature has exceeded 275°F, triggering the high temperature switch to shut the unit down.	Determine the cause of overheating before restarting the unit. See "Excessive Heating" in the Troubleshooting section of this manual.
Defective fuel pump.	Replace the fuel pump.
Defective upper float switch in the waste tank.	Disconnect the float switch plugs and bypass the float switch. If the unit starts, replace the defective float switch.
Fuel shut-off solenoid, (located on engine) not operating properly.	Test, and replace if defective. Refer to the Briggs & Stratton Vanguard Service and Repair Instructions.
Defective 275° engine high-temperature shutdown switch	Test switch. If necessary, replace.
Engine is malfunctioning.	Refer to the Briggs & Stratton Vanguard Service and Repair Instructions.

8. ENGINE STOPS RUNNING

While doing normal cleaning, the engine stops running.

PROBABLE CAUSES	CORRECTIVE ACTION
Engine is out of gasoline.	Add gasoline to the fuel tank.
Waste tank is full.	Empty waste tank.
Main circuit breaker on the control panel has been tripped.	After inspecting the unit to determine the cause of the tripped circuit breaker, press the reset button.
Engine temperature has exceeded 275°F, triggering the high temperature switch to shut the unit down.	Determine the cause of overheating before restarting the unit. See "Excessive Heating" in the Troubleshooting section of this manual.
Defective fuel pump.	Replace fuel pump.
Defective float switch inside the waste tank.	Disconnect the float switch plug and bypass the float switch. If the unit starts, repair or replace the defective float switch.
Defective 275° engine high-temperature shutdown switch.	Test switch. If necessary, replace.
No ignition in the engine or engine is malfunctioning.	Refer to the Briggs & Stratton Vanguard Service and Repair Instructions.

9. EXCESSIVE HEATING

PROBABLE CAUSES	CORRECTIVE ACTION
Strainer or orifice in bypass manifold is plugged.	Clean strainer screen and orifice. Replace, if necessary.
Plugged outlet Y-strainer filter.	Remove and clean strainer. Replace, if necessary.
Jets too small in extraction tool.	Install proper size tips or clean, if clogged.
Quick-connect couplers are worn out or damaged and are not allowing water to pass readily.	Inspect couplers and replace, if necessary.
Flow restriction caused by hard water scaling.	Descale unit, repair or replace damaged plumbing components as necessary. Install water softener.

10. HEAT EXCHANGER LEAKS

PROBABLE CAUSES	CORRECTIVE ACTION
Engine and vacuum exhaust heat exchanger are damaged from frozen water.	Inspect heat exchangers for leaks. On pre-heaters visually inspect for damage. Pressure check both styles after removing them from the unit. (Maximum test pressure engine exhaust H.E. 1200 PSI, vacuum pre-heaters 300 PSI.)

NOTE: The engine exhaust heat exchanger will produce water condensation discharge at times during normal operation. DO NOT confuse this with a water leak.

11. LOSS OF TEMPERATURE

The heat output of the unit is LESS than normal.

PROBABLE CAUSES	CORRECTIVE ACTION
Temperature relief valve on water box is defective, or stuck.	Clean temperature relief valve and test. Replace, if necessary.
Engine RPM is low.	Reset engine RPM. Refer to the Briggs & Stratton Vanguard Service and Repair Instructions.
Engine exhaust heat exchanger is carbon-coated on outside of coil.	Soak coil section at a radiator shop. Boil tank or soak in PROCHEM Industrial cleaner.
Damaged or plugged radiator core in vacuum exhaust heat exchanger.	Remove and inspect cores. Replace, if necessary.
Engine exhaust heat exchanger is scaled on inside of coil.	De-scale coil. Install water softener if needed.

11. LOSS OF TEMPERATURE (continued from previous page)

The heat output of the unit is LESS than normal.

PROBABLE CAUSES	CORRECTIVE ACTION
Worn bypass manifold, worn or improperly installed bypass orifice.	Inspect bypass manifold. Repair as needed.

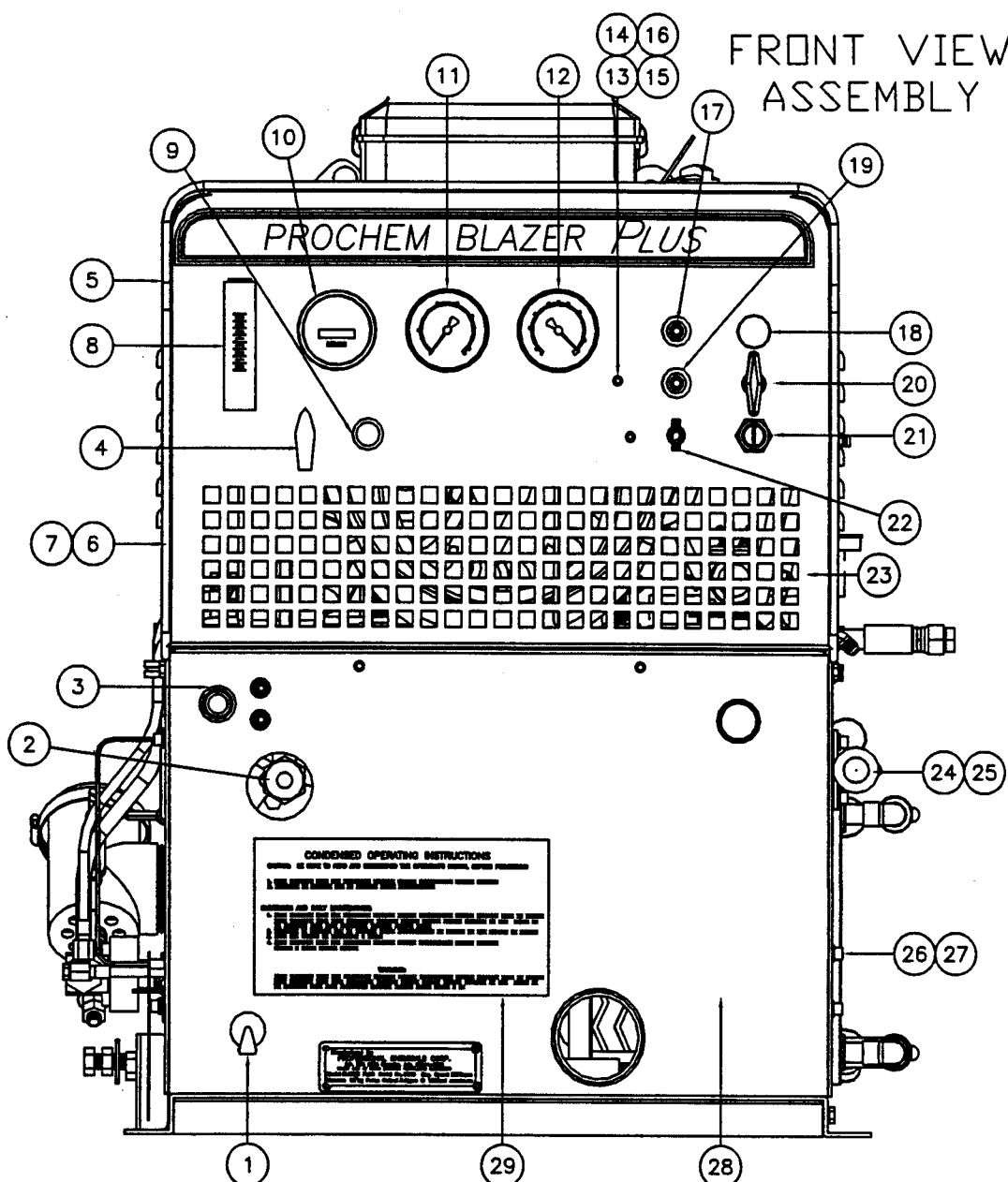
12. AUTOMATIC WASTE PUMP IS MALFUNCTIONING OR NOT OPERATING NORMALLY

(for units equipped with an automatic waste pump)

PROBABLE CAUSES	CORRECTIVE ACTION
Debris interfering in the normal operation of pump, pump check valve, or float switch.	Remove pump-out from waste tank, thoroughly check all components. Inspect for proper operation.
Pump-out circuit breaker on the control panel has been tripped.	After inspecting the waste pump to determine the cause of the tripped circuit breaker, press the reset button. (Check for debris in the impeller inside the pump head.)
Defective waste pump float switch.	Replace float switch.
Worn out waste pump.	Check for voltage at the pump. If there is voltage and the pump does not run, replace the pump.
NOTE: When replacing either the pump or float switch, use new electrical connectors and heat shrink. Inspect connection for water tight seal.	
Water has penetrated the electrical connectors.	Reseal or replace electrical connectors.
Broken wiring leading to the waste pump.	Check for voltage at the pump. If no voltage, find the broken connection and repair.
Weak battery. Battery charge too low to maintain pump-out operation.	Charge or replace battery if needed.
Pump wired incorrectly. Pump impeller rotates backwards.	Verify rotation using arrow marking on bottom of pump housing. Inspect wiring using a voltage meter.
Swing check valve at front of console is blocked.	Remove debris.

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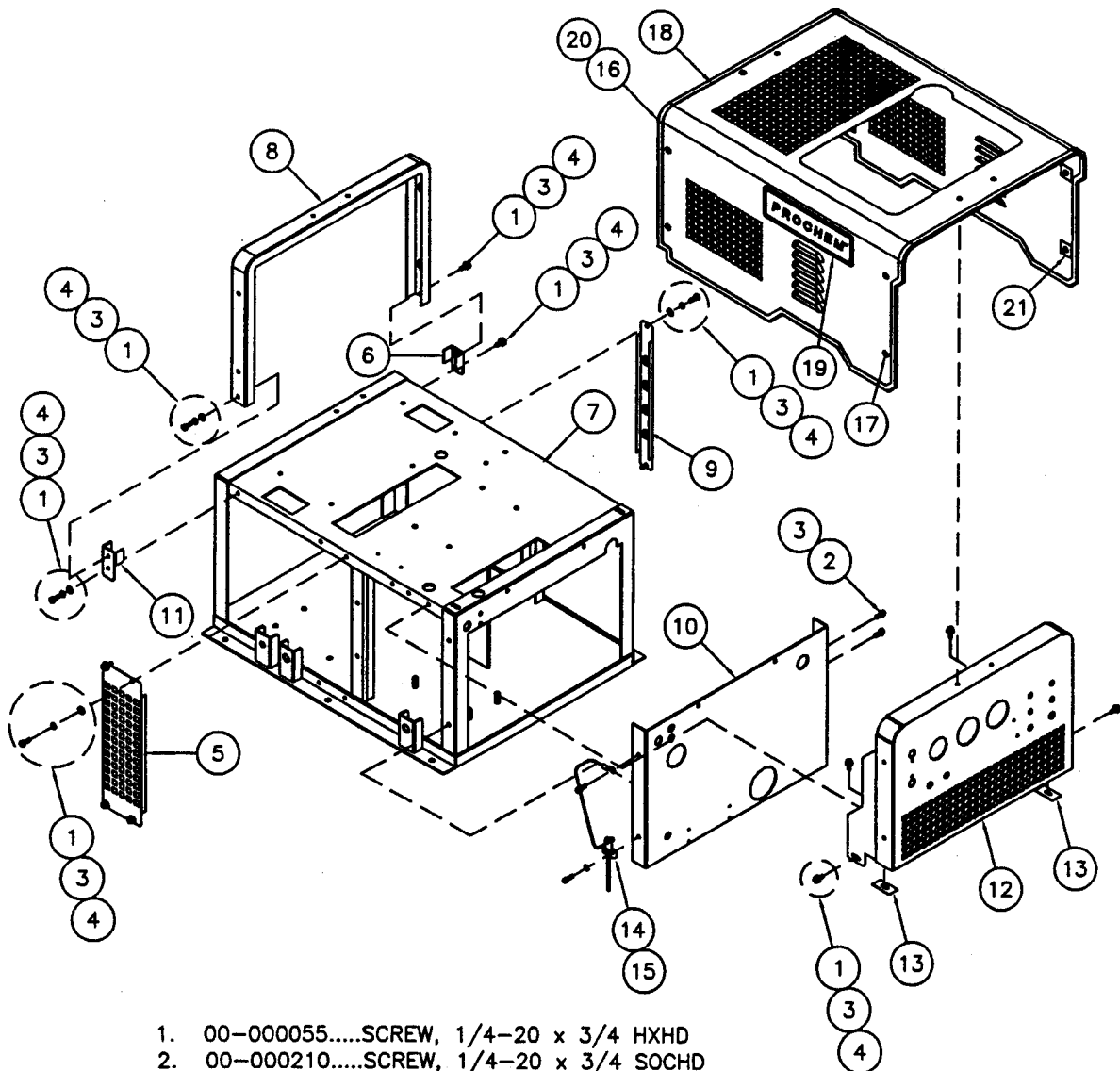
1. 19-800075.....CUP, OIL FILL 1/8P
2. 15-808081.....REG, PRESSURE
3. 13-806001.....DSC, 1/4Fx1/4FP
4. 15-808022.....VALVE, 3-WAY BALL
5. 50-501851.....HOOD, BLAZER
6. 00-000400.....SCREW, 1/4-20 x 1/2"
7. 58-700023.....PAD, 1/4 TURN VIBR
8. 18-808513.....FLOWMETER, 1/8FP
9. 15-808106.....VALVE, METER 1/8FP
10. 34-903000.....HOURMETER
11. 18-808526.....GAUGE, WATER PRESSURE
12. 18-808525.....GAUGE, VACUUM 30" Hg
13. 00-000337.....SCREW, 10-32x1" SOCHD
14. 01-000019.....LOCKNUT, 10-32
15. 33-900168.....BOARD, TERMINAL
16. 31-900172.....JUMPER, TERM BOARD
17. 33-900161.....BREAKER, CIRC 30A
18. 49-802518.....CABLE, CHOKE

19. 33-900163.....BREAKER, CIRC 20A
20. 49-802505.....CABLE, THROTTLE
21. 32-900174.....SWITCH, IGNITION W/KEY
22. 32-900087.....SWITCH, TOGGLE
23. 56-502074.....MT, CONTROL PANEL
24. 13-806008.....DSC, 3/8Fx3/8FP
25. 56-500522.....NIP, WATER INLET
26. 00-000210.....SCREW, 1/4-20x3/4" SOCHD
27. 02-000038.....LOCKWASHER, 1/4
28. 56-502120.....ASSY, LWR FR PNL
29. 48-941197.....DECAL, CONDENSED INSTRUCT

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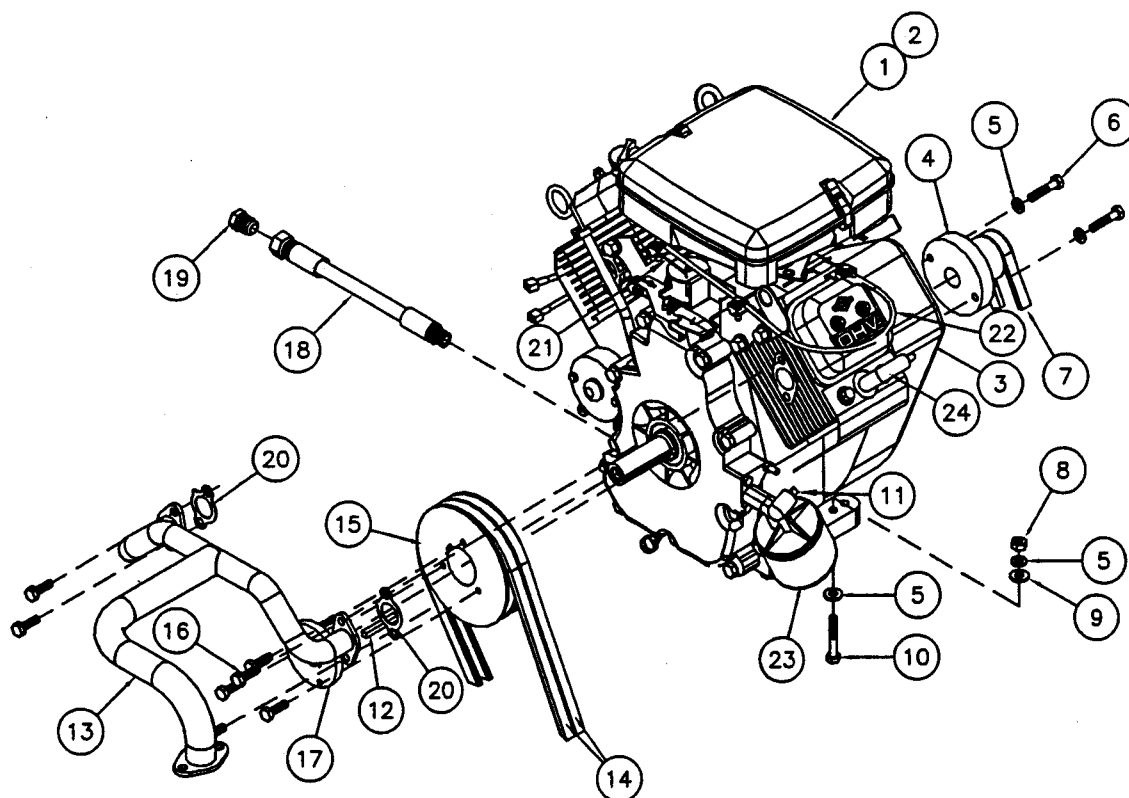
- 48-941195.....DECAL, HOOD
- 48-941212.....DEC, WARN & INSTRUMNT
- 48-941391.....DECAL, PANEL BLAZER+
- 48-941306.....DECAL, PANEL BLAZER+

STRUCTURAL FRAMEWORK ASSEMBLY



1. 00-000055.....SCREW, 1/4-20 x 3/4 HXHD
2. 00-000210.....SCREW, 1/4-20 x 3/4 SOCHD
3. 02-000038.....LOCKWASHER, 1/4
4. 02-000066.....FLATWASHER, 1/4
5. 50-501855.....PANEL, BELT GUARD
6. 56-502050.....BRKT, HOOD MTG RT SD
7. 56-502073.....ASSY, BASE
8. 56-502075.....BRKT, REAR HOOD
9. 56-502094.....MT, HOSE CLAMP SUPT
10. 56-502120.....ASSY, LOWER FRT PNL
11. 56-502274.....BRKT, HOOD MTG
12. 56-502074.....MT, CONTROL PANEL
13. 58-700024.....PAD, VIBR CONTROL
14. 61-951194.....ASSY, DIPSTICK & CABLE
15. 50-501998.....CLIP, DIPSTICK
16. 61-951446.....ASSY, HOOD (INCLUDES PARTS 17-21)
17. 00-000400.....SCREW, 1/4-20 x 1/2 TRUSHD PHIL
18. 27-100221.....TRIM FLEX
19. 48-941195.....DECAL, HOOD PROCHEM
20. 50-501851.....HOOD, BLAZER
21. 58-700023.....PAD, 1/4 TURN FAST VIBR

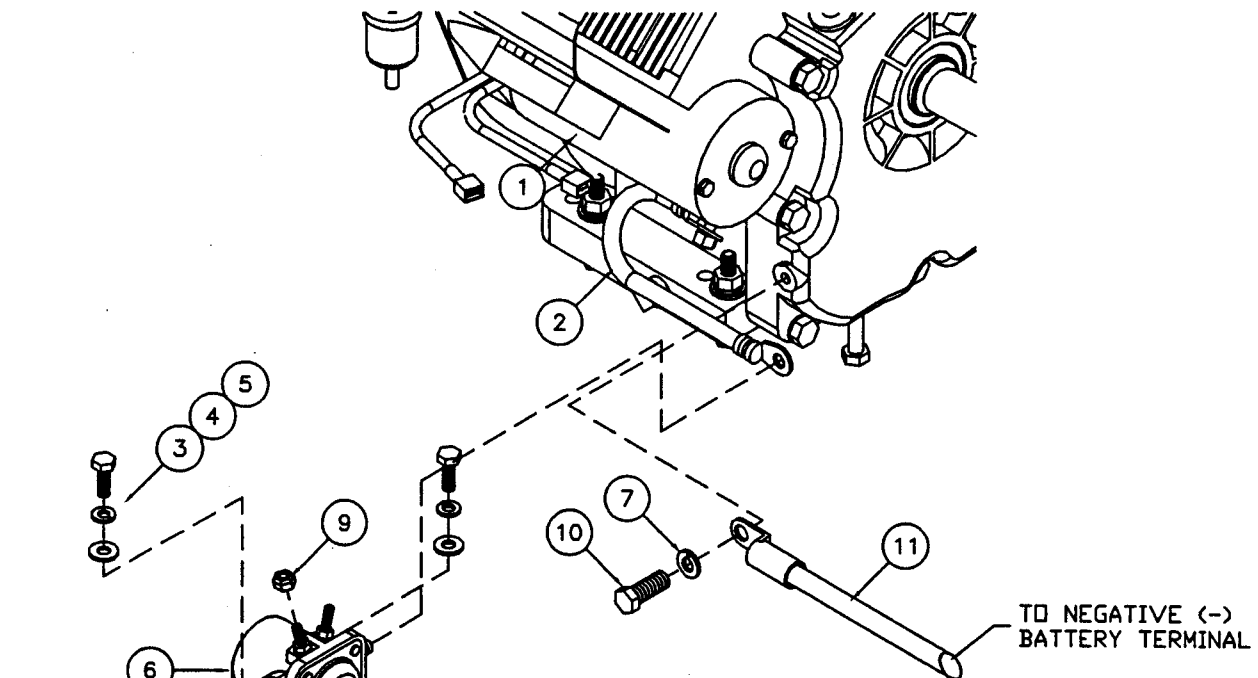
ENGINE ASSEMBLY 61-950872



- | | |
|---|--|
| 1. 42-902005.....CARTRIDGE (INNER), AIR CLEANER | 14. 44-802315.....BELT, AX40 |
| 2. 42-902006.....ELEMENT (OUTER), AIR CLEANER | 15. 44-802213.....PULLEY, 2TA54 |
| 3. 40-902110.....ENGINE, B&S 16HP | 16. 00-000340.....SCREW, 5/16-18 x 1" GRD8 |
| 4. 52-501746.....PULLEY, ENGINE | 17. 00-000340.....HUB, P1 x 1 |
| 5. 02-000040.....LOCKWASHER, 5/16 | 18. 44-802202.....HOSE, HP 3/8 x 10" |
| 6. 00-000144.....SCREW, 5/16-18 x 1-1/2" | 19. 12-800062.....PLUG, 1/2T |
| 7. 44-802313.....BELT, AX36 | 20. 42-902174.....GASKET, EXHAUST MNFLD |
| 8. 01-000041.....NUT, 5/16-18 HXHD | 21. 49-802505.....CABLE, THROTTLE |
| 9. 02-000143.....FLATWASHER, 5/16 | 22. 49-802518.....CABLE, CHOKE |
| 10. 00-000287.....SCREW, 5/16-18 x 2-3/4" | 23. 42-902158.....FILTER, OIL |
| 11. 11-800101.....PLUG, 1/8P | 24. 42-902169.....PLUG, SPARK |
| 12. 54-500412.....KEYSTOCK, 1/4 x 1-7/8" | |
| 13. 56-502077.....MANIFOLD, ENGINE EXH | |

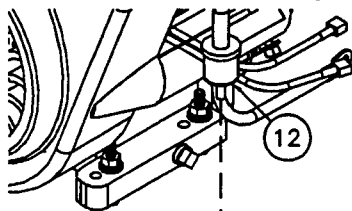
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- 42-902307.....REGULATOR, VOLTAGE
42-902173.....SOLENOID, FUEL



ENGINE STARTER SOLENOID DETAIL

1. 42-902176.....B&S MOTOR, START
2. 64-950060.....CABLE, BATx8" BLK
3. 02-000066.....FLATWASHER, 1/4
4. 02-000038.....LOCKWASHER, 1/4
5. 00-000055.....SCREW, 1/4-20 x 3/4"
6. 35-901002.....SOLENOID, STARTER
7. 02-000040.....LOCKWASHER, 5/16
8. 64-950499.....CABLE, BATx61" RED
9. 01-000019.....LOCKNUT, 10-32
10. 00-000226.....SCREW, 8mm x 1.25 x 20mm
11. 64-950593.....CABLE, BATx61" BLK

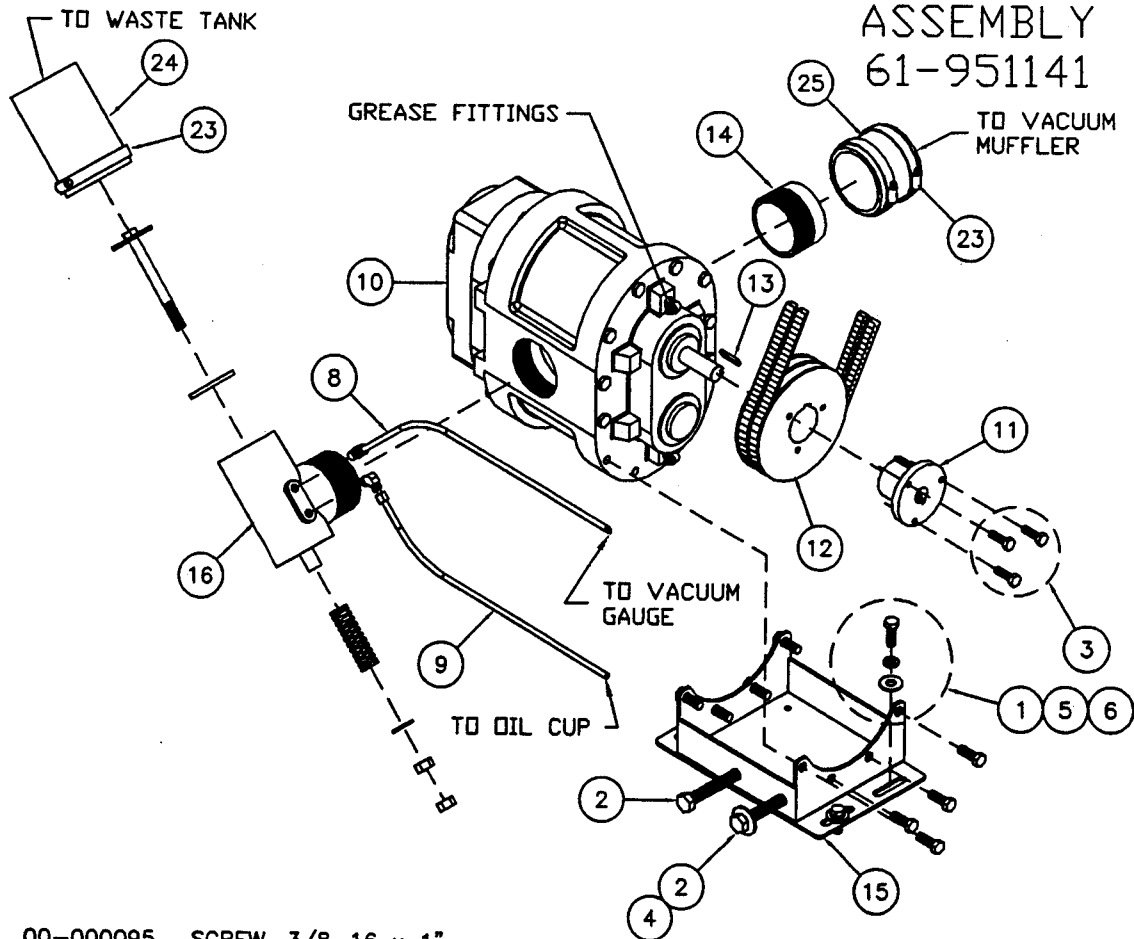


ENGINE FUEL LINE BRACKET DETAIL

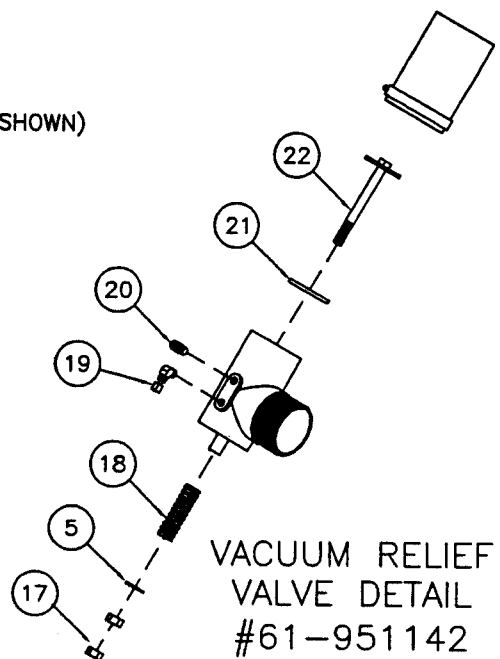
12. 42-902172.....B&S FILTER, FUEL
13. 03-000065.....CLAMP, HOSE, #4
14. 09-805351.....HOSE, FUEL 1/4 x 7-1/4"
15. 12-800041.....FTTG, BARB 1/8P x 1/4H
16. 11-800112.....ELL, STREET 1/8P x 1/4T 45°
17. 56-501857.....BRKT, FUEL LINE
18. 12-800261.....ELL, 1/8P x 1/4T 45°
19. 10-805273.....HOSE, 3/16 x 25-1/2"
20. 03-000261.....CLAMP, CABLE 1/2I.D. 1/4BLT

TO BULKHEAD ADAPTER ON VEHICLE FLOOR

VACUUM PUMP ASSEMBLY 61-951141

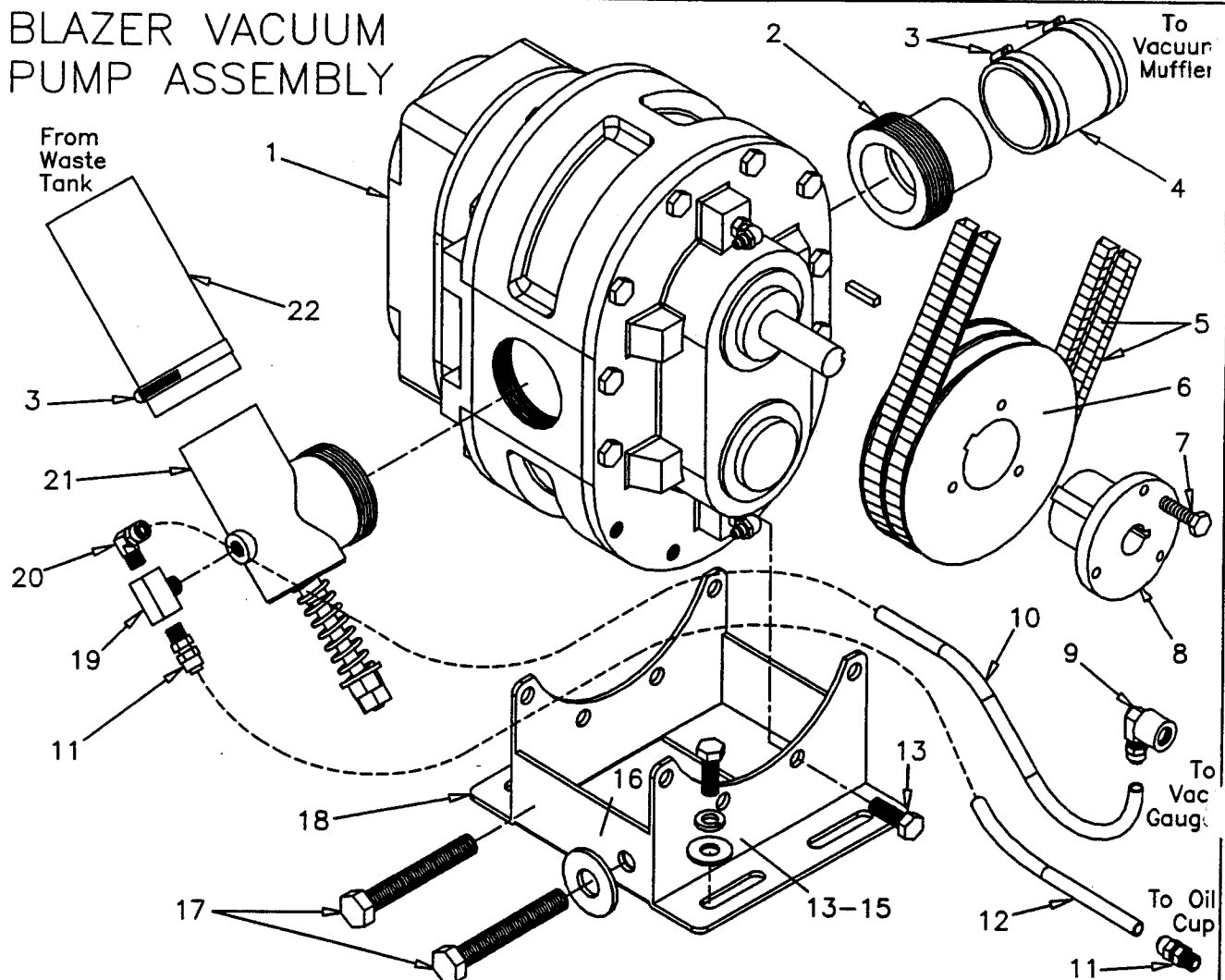


1. 00-000095.....SCREW, 3/8-16 x 1"
2. 00-000324.....SCREW, 1/2-13 x 3" ALL TRD
3. 00-000340.....SCREW, 5/16-18 x 1"
4. 02-000057.....FLATWASHER, 1/2" HEAVY
5. 02-000074.....FLATWASHER, 3/8"
6. 02-000075.....LOCKWASHER, 3/8"
7. 05-008039.....OIL, AEON PD (28G24 SUTORBILT) (NOT SHOWN)
8. 09-805440.....TUBING, IMPOLENE x 35"
9. 09-805483.....TUBING, IMPOLENE x 22"
10. 41-905024.....PUMP, VAC 3LVLTCH
11. 44-802204.....HUB, P1 x 3/4"
12. 44-802212.....PULLEY, 2TA54
13. 54-500680.....KEYSTOCK, 3/16 x 7/8
14. 54-501593.....NIP, VAC EXH OUTL
15. 56-501816.....BRKT, VAC ADJ
16. 61-951142.....ASSY, VAC REL VLV
17. 01-000224.....NUT, 7/16-14
18. 04-000091.....SPRING, VAC REL VLV
19. 12-800059.....CONN, 1/8P x 1/4POLY BR
20. 12-800099.....ELL, 1/8P x 1/4POLY BR
21. 43-807074.....DIAPHRAM, VAC REL VLV
22. 56-501615.....STEM, VAC REL VLV #4 VAC
23. 03-000112.....CLAMP, HOSE #48
24. 09-805341.....HOSE, VAC 2-7/8" x 25"
25. 09-805474.....HOSE, 2-7/8" x 2-1/2"



VACUUM RELIEF VALVE DETAIL #61-951142

BLAZER VACUUM PUMP ASSEMBLY



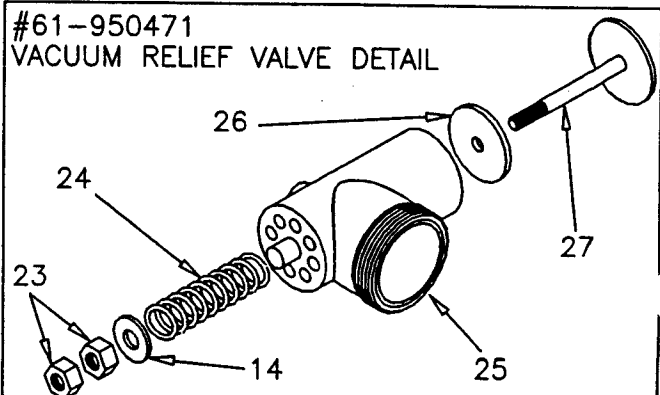
- 1 41-905012.....PUMP, VAC 3MP
- 2 52-501607.....FTTG, VAC OUTLET
- 3 03-000054.....CLAMP, HOSE #32
- 4 09-805439.....HOS, INT VAC 2x2-1/2"
- 5 44-802232.....BELT, AP40
- 6 44-802212.....PULLEY, 2TA54
- 7 00-000340.....SCR, 5/16-18x1" GR8
- 8 44-802204.....HUB, P1X3/4
- 9 12-800101.....ELL, 1/4FPx1/4POLY
- 10 09-805440.....TBG, IMPOL 1/4x35"
- 11 12-800059.....CONN, 1/8Px1/4POLY
- 12 09-805483.....TBG, IMPOL 1/4x22"
- 13 00-000095.....SCR, 3/8-16x1"
- 14 02-000074.....FLAT WASHER, 3/8
- 15 02-000075.....LOCK WASHER, 3/8
- 16 02-000057.....FLAT WASHER, 1/2
- 17 00-000324.....SCR, 1/2-13x3"
- 18 56-501909.....BRKT, VAC ADJ
- 19 11-800113.....TEE, M BRAN 1/8
- 20 12-800099.....ELL, 1/8Px1/4POLY
- 21 61-950471.....ASSY, VAC REL VLV
- 22 09-805480.....HOS, INT VAC 2x28"
- 23 01-000224.....NUT, 7/16-14 HXHD

- 24 04-000091.....SPRING, VAC REL VLV
- 25 52-501567.....ELL, VAC REL VLV
- 26 43-807073.....DIAPHRAGM, VAC REL VLV
- 27 56-501614.....STEM, VAC REL VLV

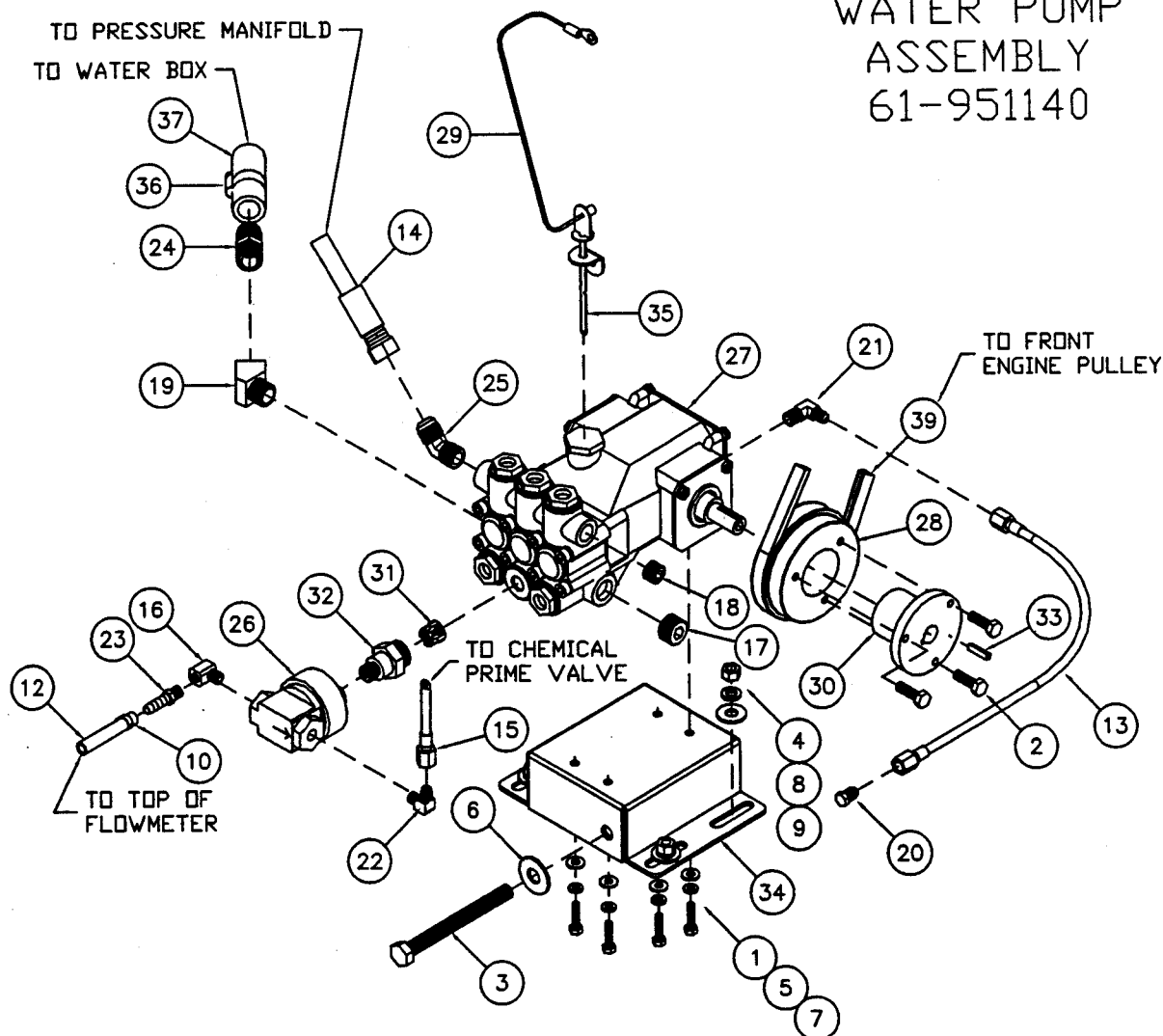
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- 05-008039.....OIL, AEON PD 28G24
- 05-008032.....GREASE, LUBRIPLATE

#61-950471 VACUUM RELIEF VALVE DETAIL

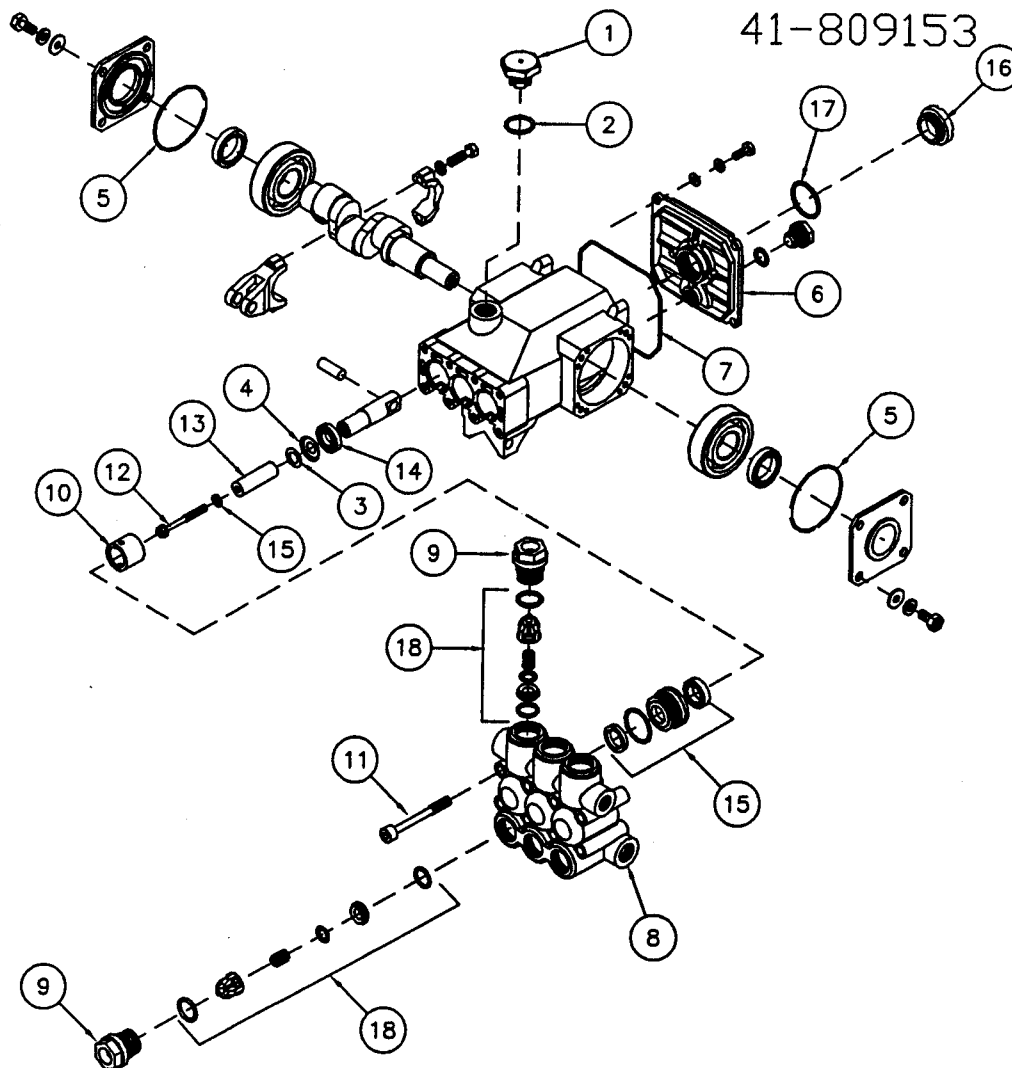


WATER PUMP ASSEMBLY 61-951140



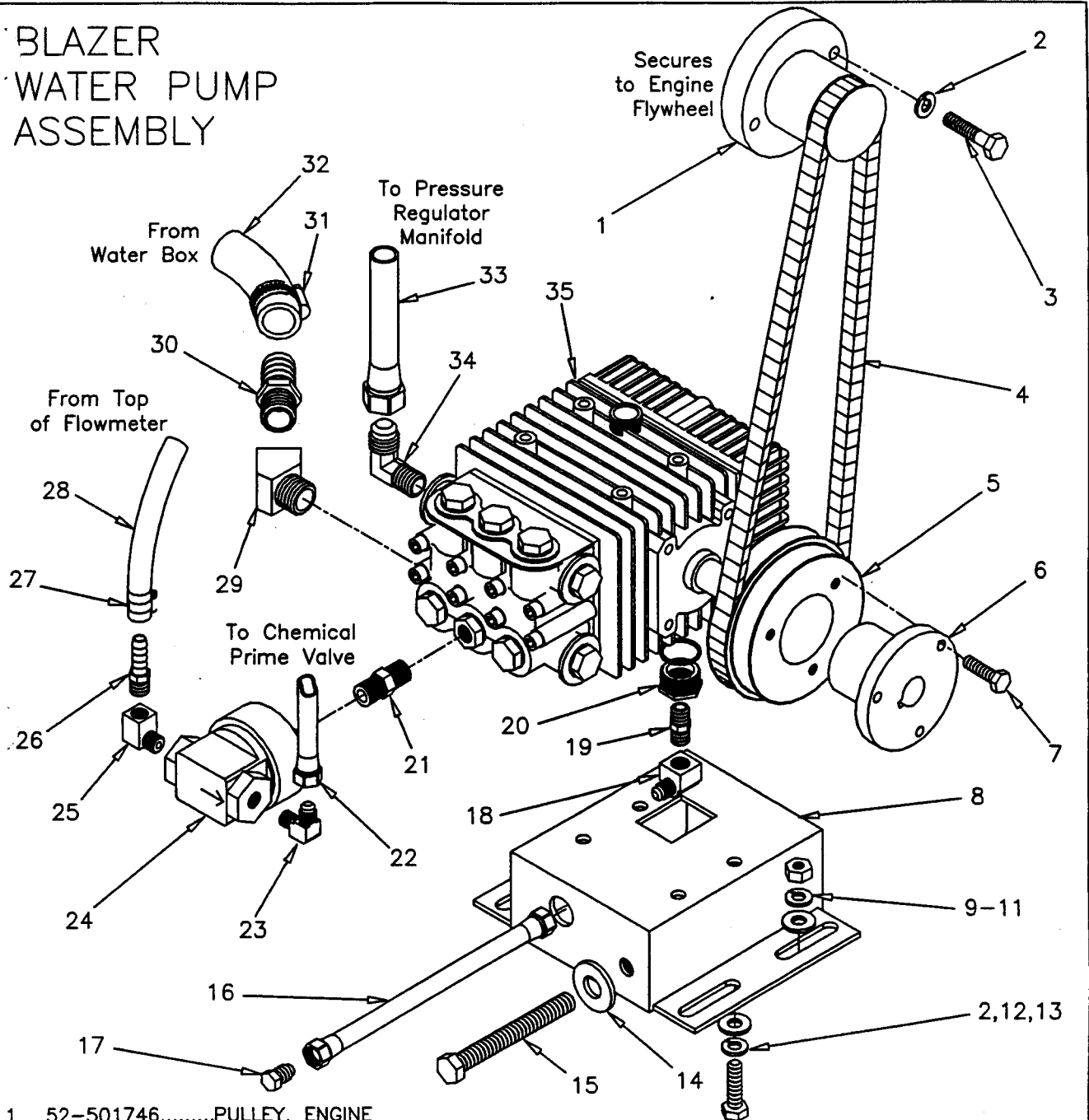
- | | |
|--|--|
| 1. 00-000277.....SCREW, MACH 6mm x 14mm | 22. 12-800040.....ELL, 1/8P x 1/4T BR |
| 2. 00-000340.....SCREW, MACH 5/16-18 x 1 GRD8 | 23. 12-800093.....FTTG, BRB 1/8P x 5/16H |
| 3. 00-000472.....SCREW, 1/2-13 x 5 GR2 | 24. 12-800278.....FTTG, BRB 1/2P x 3/4H BR |
| 4. 01-000073.....NUT, 3/8-16 HXHD | 25. 12-800347.....ELL, 3/8P x 1/2T 45° BR |
| 5. 02-000038.....LOCKWASHER, 1/4 | 26. 41-809144.....PMP, CHEM (O-RING CAP) |
| 6. 02-000057.....FLATWASHER, 1/2 HVY | 27. 41-809153.....PMP WTR CAT 3CP1140 |
| 7. 02-000066.....FLATWASHER, 1/4 | 28. 44-802252.....PULL, 1TA40 |
| 8. 02-000074.....FLATWASHER, 3/8 | 29. 50-501988.....CLIP, DIPSTICK |
| 9. 02-000075.....LOCKWASHER, 3/8 | 30. 52-501925.....HUB, PMP WTR |
| 10. 03-000065.....CLAMP, HOS #4 | 31. 52-809123.....RETAIN, VLV SPRING |
| 11. 05-008016.....OIL, CAT-WTR PMP (NOT SHOWN) | 32. 52-809125.....ADPT, CAT CHEM PMP |
| 12. 09-805347.....HOSE, BRD 5/16 x 26-1/2 | 33. 54-500680.....KEYSTOCK, 3/16 x 7/8 |
| 13. 10-805131.....HOSE, 3/16 x 20-1/2 | 34. 56-502244.....BRKT, PMP MT |
| 14. 10-805361.....HOSE, HP 3/8 x 14-1/2 | 35. 61-951194.....ASSY, DIPSTICK & CABLE |
| 15. 10-805372.....HOSE, 3/16 x 21-3/4 | 36. 03-000113.....CLAMP, HOSE #12 |
| 16. 11-800014.....ELL, STREET 1/8 BR | 37. 09-805061.....HOSE, WATER 3/4 x 63" |
| 17. 11-800069.....PLUG, 1/2 SOCHD BR | 38. 44-802313.....BELT, AX36 |
| 18. 11-800224.....PLUG, 3/8 SOCHD BR | |
| 19. 11-800299.....ELL, STREET 1/2 45° BR | |
| 20. 12-800029.....PLUG, 1/4T BR | |
| 21. 12-800031.....ELL, 1/4P x 1/4T BR | |

WATER PUMP DETAIL 41-809153



- | | |
|--|--|
| 1. 42-809238.....CAP, OIL FILLER | 12. 42-809407.....RETAINER, PNLGR W/STUD |
| 2. 42-809239.....O-RING, OIL FILL CAP | 13. 42-809408.....PLUNGER |
| 3. 42-809249.....WASHER, KEYHOLE M18 | 14. 42-809409.....SEAL, OIL CRANKCASE |
| 4. 42-809381.....SLINGER, BARRIER | 15. 42-809410.....KIT, SEAL (ORDER 1 EACH
TO REPLACE ALL SEALS) |
| 5. 42-809394.....O-RING, BEARING CVR | 16. 42-902380.....GAUGE, OIL LEVEL |
| 6. 42-809401.....COVER, CRANKCASE | 17. 43-807063.....GASKET, OIL GAUGE |
| 7. 42-809402.....O-RING, CRANK CVR | 18. 66-950441.....KIT, VALVE (ORDER 1 EACH
TO REPLACE ALL VALVES) |
| 8. 42-809403.....MANIFOLD, HEAD | |
| 9. 42-809404.....PLUG, VALVE | |
| 10. 42-809405.....RETAINER, SEAL | |
| 11. 42-809406.....BOLT, MNFLD HD M8 x 65 | |

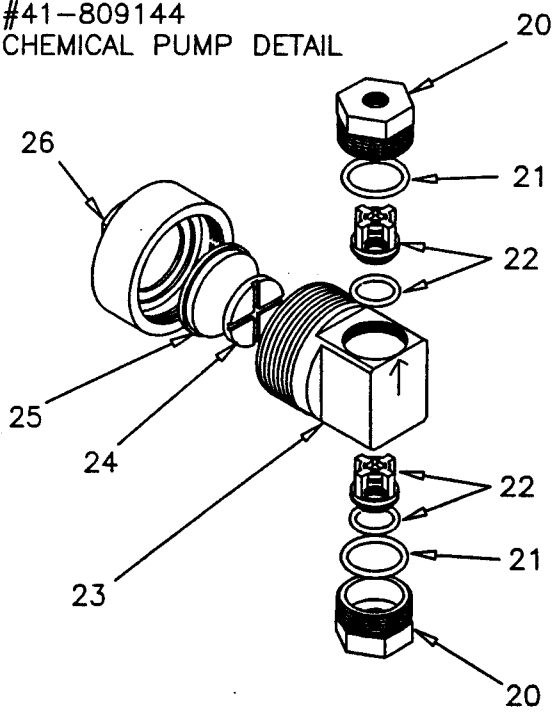
BLAZER WATER PUMP ASSEMBLY



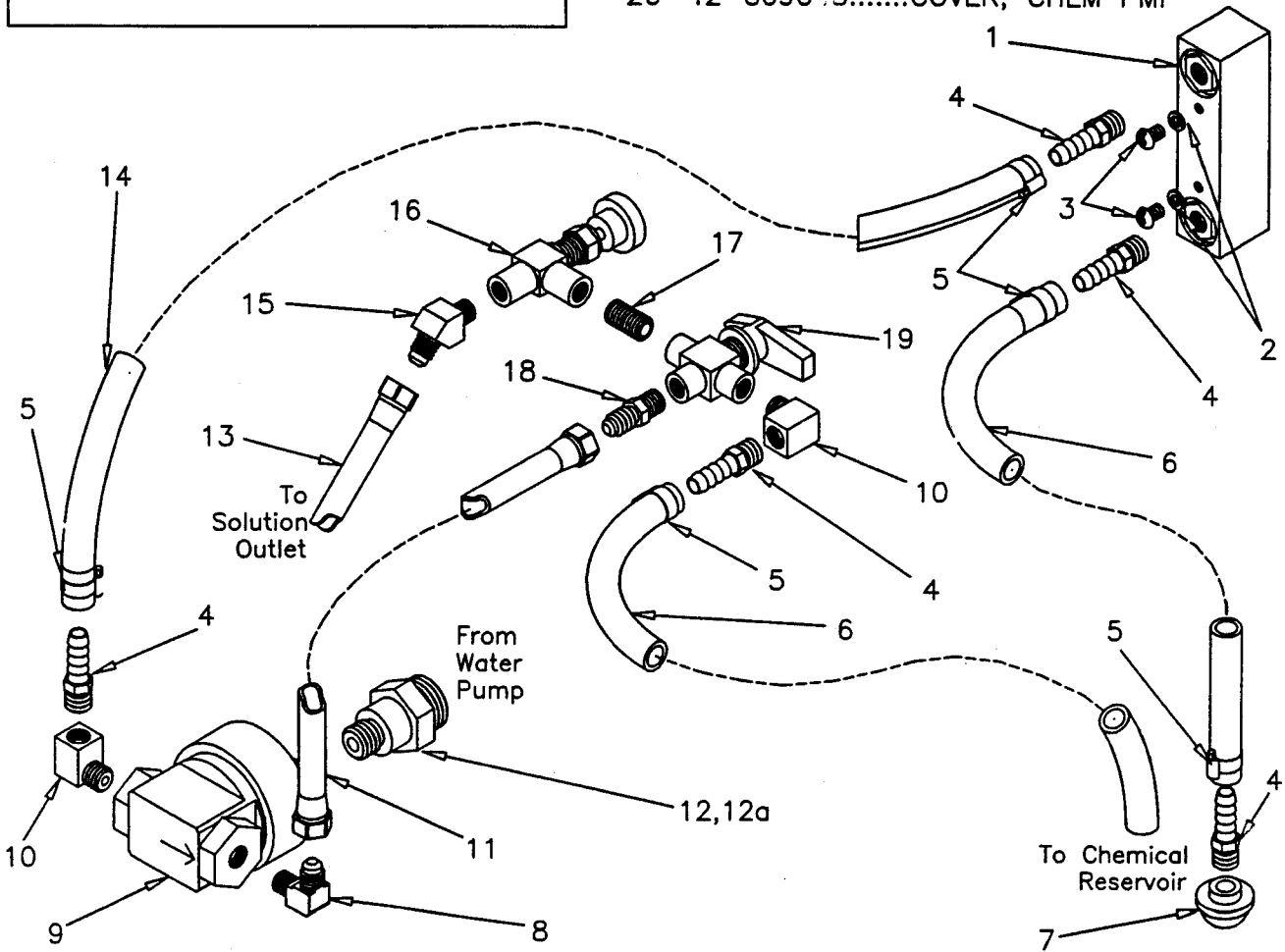
- | | |
|----|---|
| 1 | 52-501746.....PULLEY, ENGINE |
| 2 | 02-000040.....LOCK WASHER, 5/16 |
| 3 | 00-000144.....SCREW, 5/16-18x1-1/2" |
| 4 | 44-802250.....BELT, AP38 |
| 5 | 44-802252.....PULLEY, 1TA40 |
| 6 | 44-802204.....HUB, P1X3/4 |
| 7 | 00-000340.....SCR, 5/16-18x1" GR8 |
| 8 | 56-502076.....BRACKET, PUMP MOUNTING |
| 9 | 02-000074.....FLAT WASHER, 3/8 |
| 10 | 02-000075.....LOCK WASHER, 3/8 |
| 11 | 01-000073.....NUT, 3/8-16 HXHD |
| 12 | 02-000143.....FLAT WASHER, 5/16 |
| 13 | 00-000226.....SCREW, 8MMx1.25x20MM |
| 14 | 02-000057.....FLAT WASHER, 1/2 |
| 15 | 00-000138.....SCREW, VAC BELT TIGHTENER |
| 16 | 10-805000.....HOSE, 3/16x9" |
| 17 | 12-800029.....PLUG, 1/4T |
| 18 | 12-800142.....ELL, 1/8FPx1/4T |

- | | |
|----|--|
| 19 | 11-800022.....NIP, HEX 1/8 |
| 20 | 52-809118.....ADAPTER, DRAIN HOSE |
| 21 | 11-800128.....NIP, HEX 1/4 SST |
| 22 | 10-805372.....HOSE, 3/16x21-3/4" |
| 23 | 12-800040.....ELL, 1/8P1/4T |
| 24 | 41-809144.....PUMP, CHEMICAL |
| 25 | 11-800014.....ELL, STREET 1/8 |
| 26 | 12-800093.....FITTING, BARB 1/8Px5/16H |
| 27 | 03-000065.....CLAMP, HOSE #4 |
| 28 | 09-805347.....HOSE, BRAID 5/16x26-1/2" |
| 29 | 11-800299.....ELL, STREET 1/2 45deg |
| 30 | 12-800278.....FITTING, BARB 1/2Px3/4H |
| 31 | 03-000113.....CLAMP, HOSE #12 |
| 32 | 09-805061.....HOSE, WATER 3/4x63" |
| 33 | 10-805323.....HOSE, HP 3/8x11" |
| 34 | 12-800225.....ELL, 3/8P1/2T |
| 35 | 41-809133.....PUMP, WATER HYPRO #2258B |

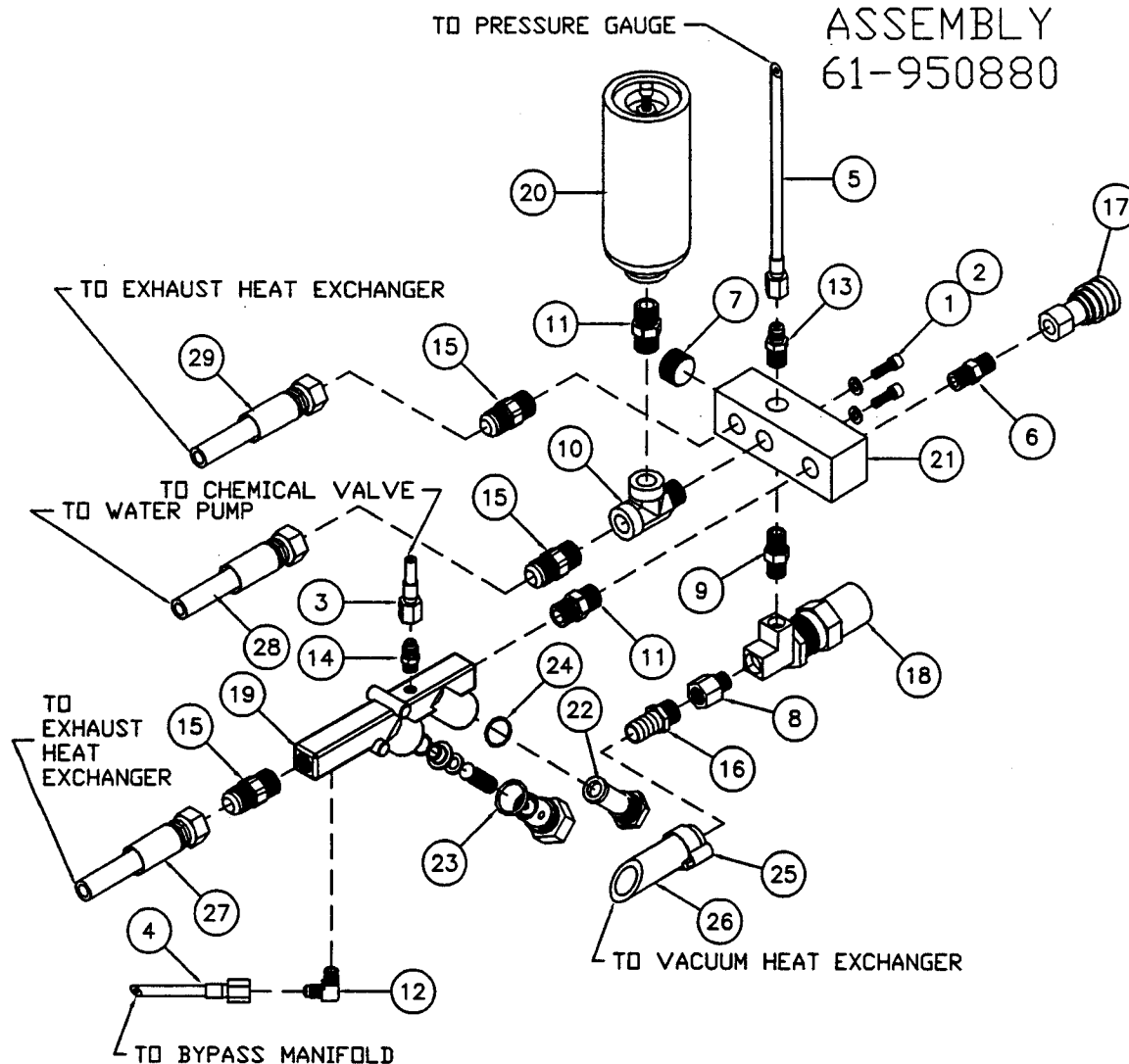
CHEMICAL SYSTEM

#41-809144
CHEMICAL PUMP DETAIL

- | | |
|-----|---------------------------------------|
| 1 | 18-808513.....FLOW METER, 1/8FP |
| 2 | 02-000032.....LOCK WASHER, #10 |
| 3 | 00-000065.....SCREW, 10-32x3/8" |
| 4 | 12-800093.....FTTG, BARB 1/8Px5/16H |
| 5 | 03-000065.....CLAMP, HOSE #4 |
| 6 | 09-805421.....HOSE, BRAID 5/16x54" |
| 7 | 14-806506.....STRNR, SUC END 1/8FP |
| 8 | 12-800040.....ELL, 1/8Px1/4T |
| 9 | 41-809144.....PUMP, CHEMICAL |
| 10 | 11-800014.....ELL, STREET 1/8 |
| 11 | 10-805372.....HOSE, 3/16x21-3/4" |
| 12 | 52-809125.....ADP, CHEM PMP (Blazer+) |
| 12a | 11-800128.....NIP, HEX 1/4 (Blazer) |
| 13 | 10-805311.....HOSE, 3/16x10-1/2" |
| 14 | 09-805347.....HOSE, BRD 5/16x26-1/2" |
| 15 | 12-800261.....ELL, 1/8Px1/4T 45deg |
| 16 | 15-808106.....VALVE, METERING 1/8FP |
| 17 | 11-800105.....NIP, 1/8 CLOSE |
| 18 | 12-800065.....CONN, 1/8Px1/4T |
| 19 | 15-808022.....VLV, 3-WAY BALL 1/8FP |
| 20 | 16-808237.....CAP, CHK VLV CHEM PMP |
| 21 | 43-810079.....O-RING, 7/8IDx1-1/16OD |
| 22 | 42-809265.....CHECK VALVE, CHEM PMP |
| 23 | 42-809358.....BODY, CHEM PUMP |
| 24 | 42-809264.....DISK, CHEM PUMP |
| 25 | 42-809047.....DIAPHRAGM, CHEM PUMP |
| 26 | 42-809045.....COVER, CHEM PMP |

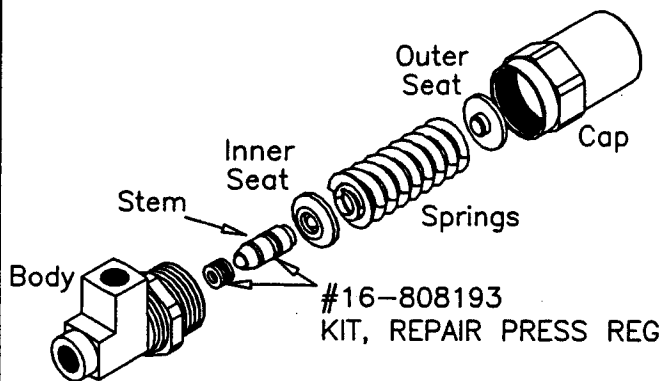


PRESSURE MANIFOLD ASSEMBLY 61-950880

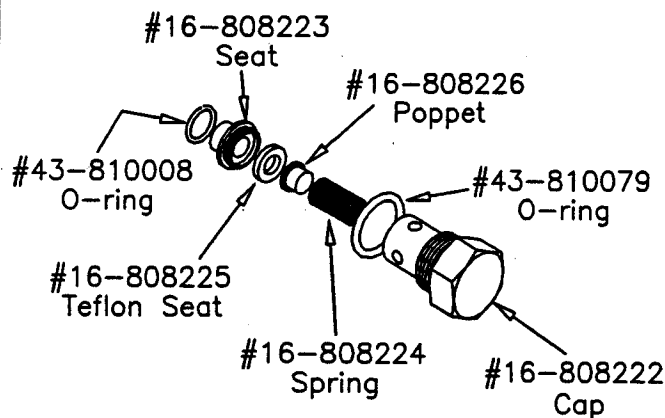


- | | |
|---|--|
| 1. 00-000210.....SCREW, MACH 1/4-20x3/4 SST | 15. 12-800282.....CONN, 3/8P x 1/2T BR |
| 2. 02-000038.....LOCKWASHER, 1/4 | 16. 12-800345.....FTTG, BRB 3/8P x 5/8H BR |
| 3. 10-805311.....HOSE, 3/16 x 10-1/2" | 17. 13-806001.....DSC, 1/4F x 1/4FP BR |
| 4. 10-805372.....HOSE, 3/16 x 21-3/4" | 18. 15-808081.....REG, PRESS (SUTTNER) |
| 5. 10-805426.....HOSE, 3/16 x 12" | 19. 15-808131.....ASSY, CHK VLV MNFLD |
| 6. 11-800029.....NIP, HEX 1/4 BR | 20. 41-809119.....ACCUMULATOR |
| 7. 11-800069.....PLUG, 1/2 SOCHD BR | 21. 52-501761.....MNFLD, PRESS REG |
| 8. 11-800090.....CONN, 3/8FP x 1/4P BR | 22. 14-806549.....SCREEN, CHECK VALVE |
| 9. 11-800128.....NIP, HEX 1/4 SST | 23. 15-808094.....VALVE, CHECK |
| 10. 11-800362.....TEE, SERVICE 3/8 | 24. 43-810053.....O-RING, .676ID x .816OD |
| 11. 11-800429.....NIP, HEX 3/8 SST | 25. 03-000246.....CLAMP, HOSE, #8 |
| 12. 12-800040.....ELL, 1/8P x 1/4T BR | 26. 09-805330.....HOSE, WTR 5/8 x 53" |
| 13. 12-800060.....CONN, 1/4P x 1/4T BR | 27. 10-805323.....HOSE, HP 3/8 x 11" |
| 14. 12-800065.....CONN, 1/8P x 1/4T BR | 28. 10-805361.....HOSE, HP 3/8 x 14-1/2" |
| | 29. 10-805424.....HOSE, HP 3/8 x 55" |

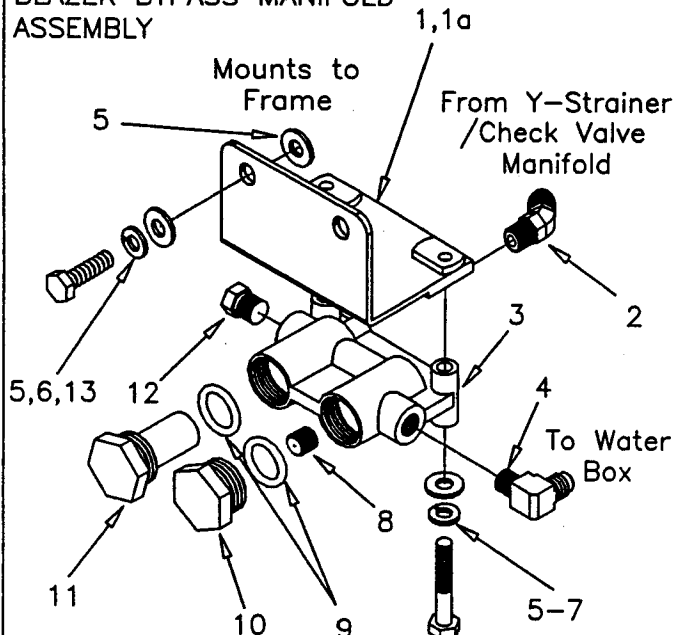
#15-808081
PRESSURE REGULATOR DETAIL



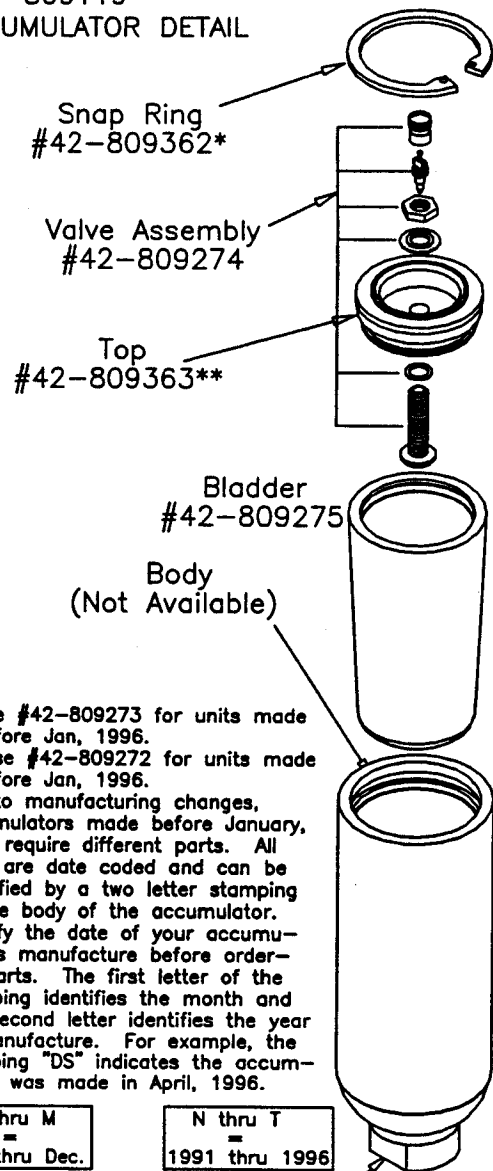
#15-808094
CHECK VALVE DETAIL



BLAZER BYPASS MANIFOLD
ASSEMBLY



#41-809119
ACCUMULATOR DETAIL



* Use #42-809273 for units made before Jan, 1996.

** Use #42-809272 for units made before Jan, 1996.

Due to manufacturing changes, accumulators made before January, 1996 require different parts. All units are date coded and can be identified by a two letter stamping on the body of the accumulator. Identify the date of your accumulator's manufacture before ordering parts. The first letter of the stamping identifies the month and the second letter identifies the year of manufacture. For example, the stamping "DS" indicates the accumulator was made in April, 1996.

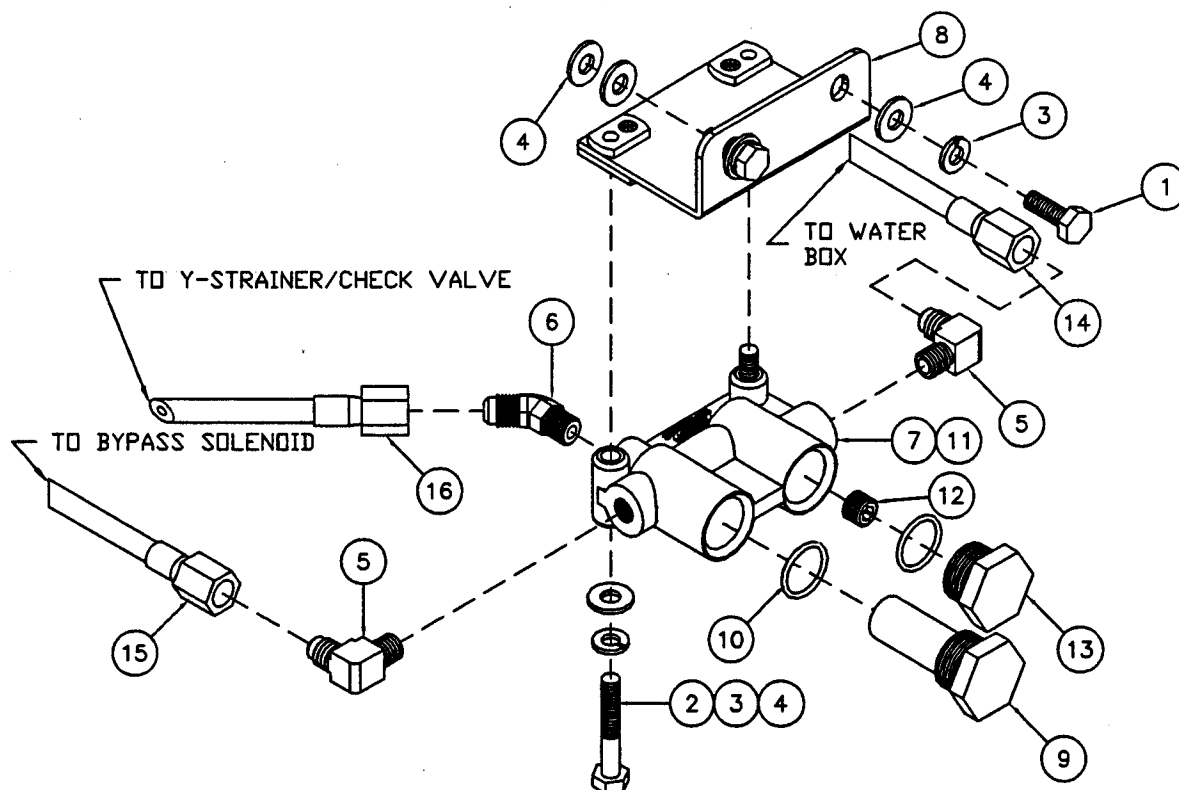
A thru M
Jan. thru Dec.
("I" not used)

N thru T
1991 thru 1996
("Q" not used)

Identifying Mark will
be Stamped Here

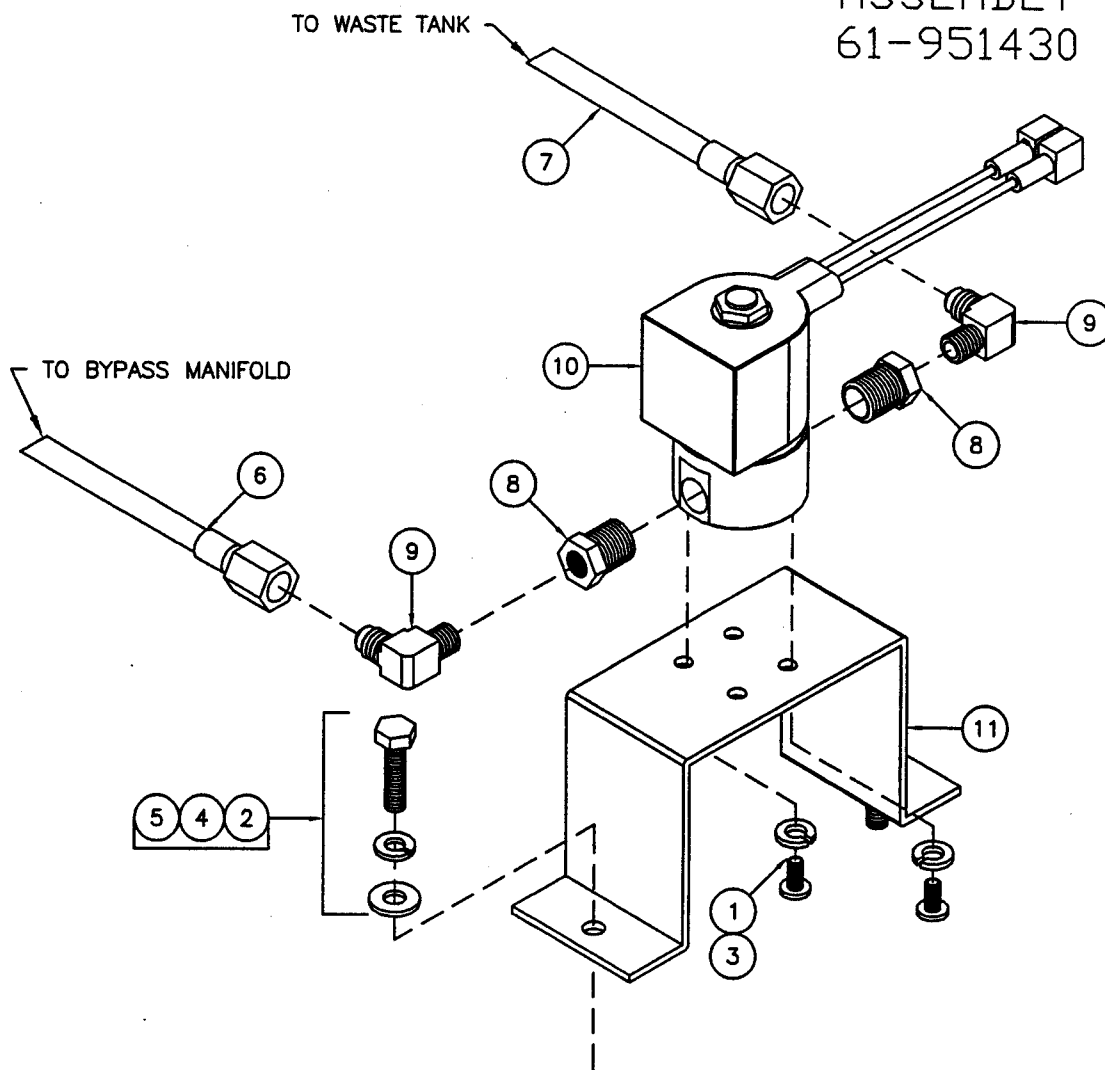
- 1 56-502254.....BRKT, BYPAS (Blazer+)
- 1a 56-501906.....BRKT, BYPAS (Blazer)
- 2 12-800261.....ELL, 1/8Px1/4T 45deg
- 3 52-501659.....MANIFOLD, BYPASS
- 4 12-800040.....ELL, 1/8Px1/4T
- 5 02-000066.....FLAT WASHER, 1/4
- 6 02-000038.....LOCK WASHER, 1/4
- 7 00-000132.....SCR, 1/4-20x1-1/2"
- 8 52-501665.....ORIF, BYPASS BLUE
- 9 43-810053.....O-RING, .676IDx.816OD
- 10 53-501523.....CAP, CHECK VALVE
- 11 14-806552.....SCREEN, BYPASS
- 12 11-800101.....PLUG, 1/8
- 13 00-000055.....SCR, 1/4-20x3/4"

BYPASS MANIFOLD ASSEMBLY 61-951157



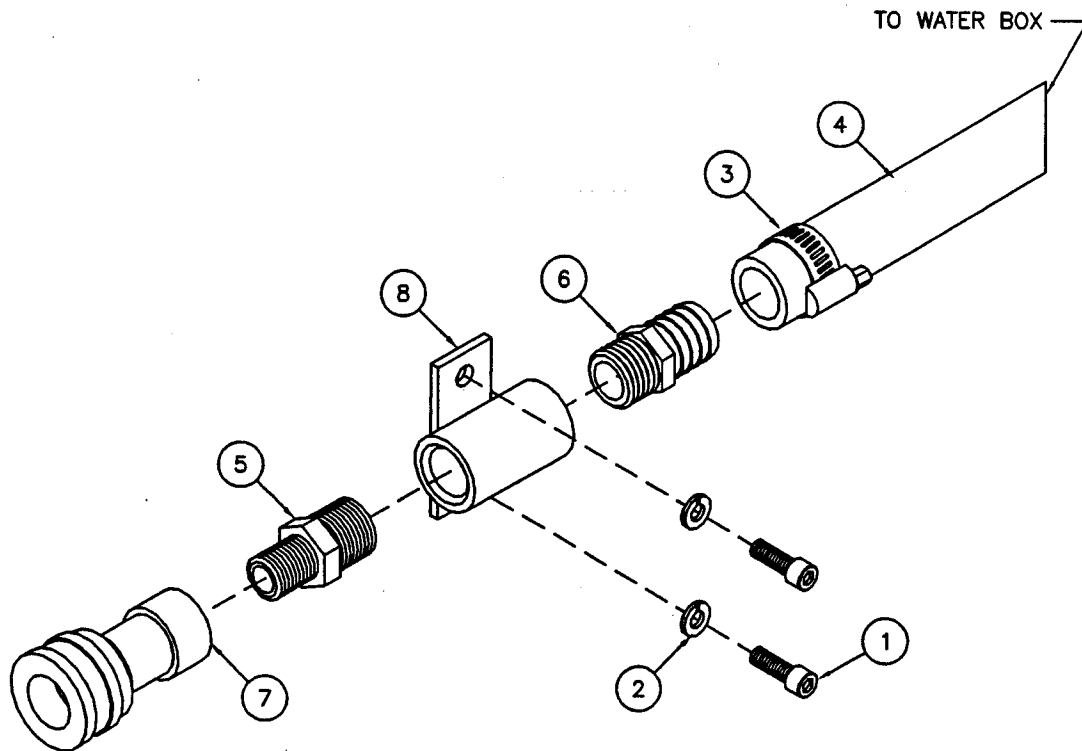
1. 00-000055.....SCREW, 1/4-20 x 3/4 HXHD
2. 00-000132.....SCREW, 1/4-20 x 1-1/2 HXHD
3. 02-000038.....LOCKWASHER, 1/4
4. 02-000066.....FLATWASHER, 1/4
5. 12-800040.....ELL, 1/8P x 1/4T BR
6. 12-800261.....ELL, 1/8P x 1/4T 45° BR
7. 15-808111.....ASSY, BYPASS MANIFOLD
(INCLUDES PARTS 9-13)
8. 56-502254.....BRKT, BYPASS MTG FORG
9. 14-806552.....SCREEN, BYPASS MANIFOLD
10. 43-810053.....O-RING, .676ID .816OD
11. 52-501659.....MANIFOLD, BYPASS
12. 52-501665.....ORIF, BYPASS MNFLD (BLUE)
13. 53-501523.....CAP, CHK VLV MNFLD STRNR
14. 10-805150.....HOSE, 3/16 x 30"
15. 10-805288.....HOSE, 3/16 x 17"
16. 10-805372.....HOSE, 3/16 x 21-3/4"

BYPASS SOLENOID ASSEMBLY 61-951430



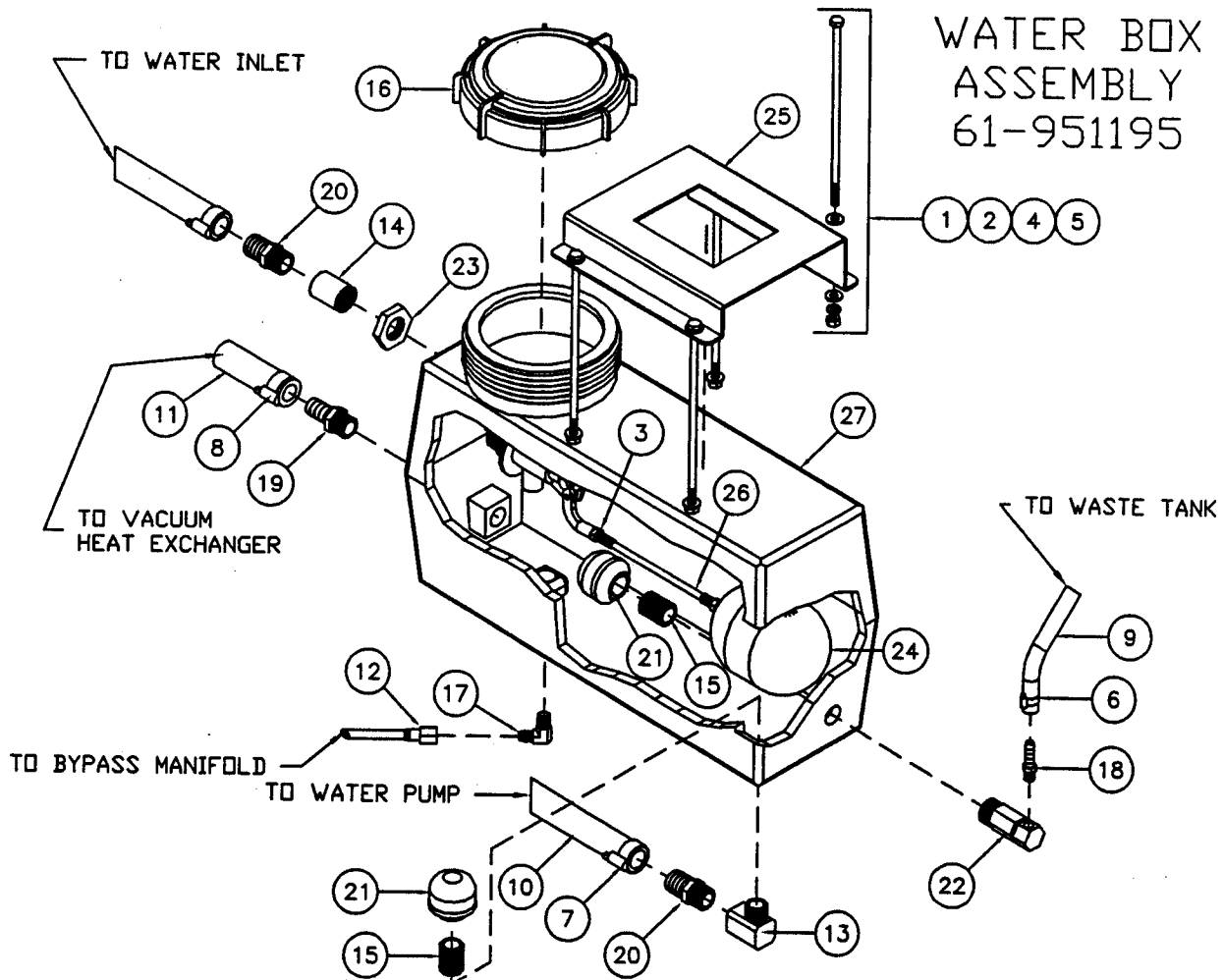
1. 00-000065.....SCREW, 10-32 x 3/8" PNHD
2. 00-000078.....SCREW, 1/4-20 x 1" HXHD GRD8
3. 02-000032.....LOCKWASHER, #10
4. 02-000038.....LOCKWASHER, 1/4
5. 02-000066.....FLATWASHER, 1/4
6. 10-805288.....HOSE, HP 3/16 x 17"
7. 10-805382.....HOSE, HP 3/16 x 16"
8. 11-800039.....BUSH, 1/4 x 1/8 BR
9. 12-800040.....ELL, 1/8P x 1/4T BR
10. 15-808105.....VLV, SOLEN 1/4FP x 1/4FP
11. 50-501744.....BRKT, SOLEN

WATER INLET ASSEMBLY 61-951429

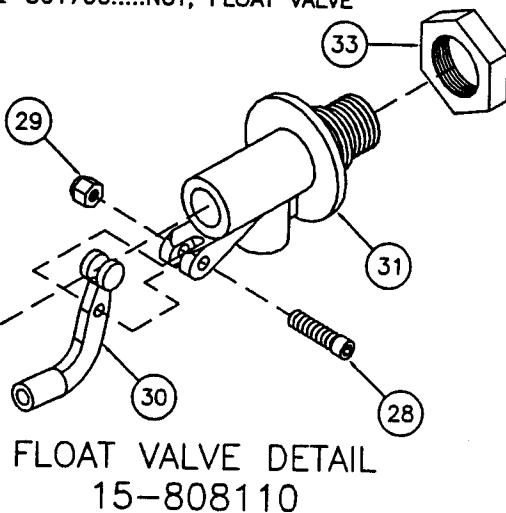


1. 00-000210.....SCREW, 1/4-20 x 3/4 SOCHD SST
2. 02-000038.....LOCKWASHER, 1/4
3. 03-000113.....CLAMP, HOSE #12 SST
4. 09-805105.....HOSE, WATER 3/4 x 41"
5. 11-800354.....NIP, 1/2 x 3/8 HEX BR
6. 12-800278.....FTTG, BRB 1/2P x 3/4H BR
7. 13-806008.....DSC, 3/8F x 3/8FP BR
8. 56-500522.....NIP, WATER INLET

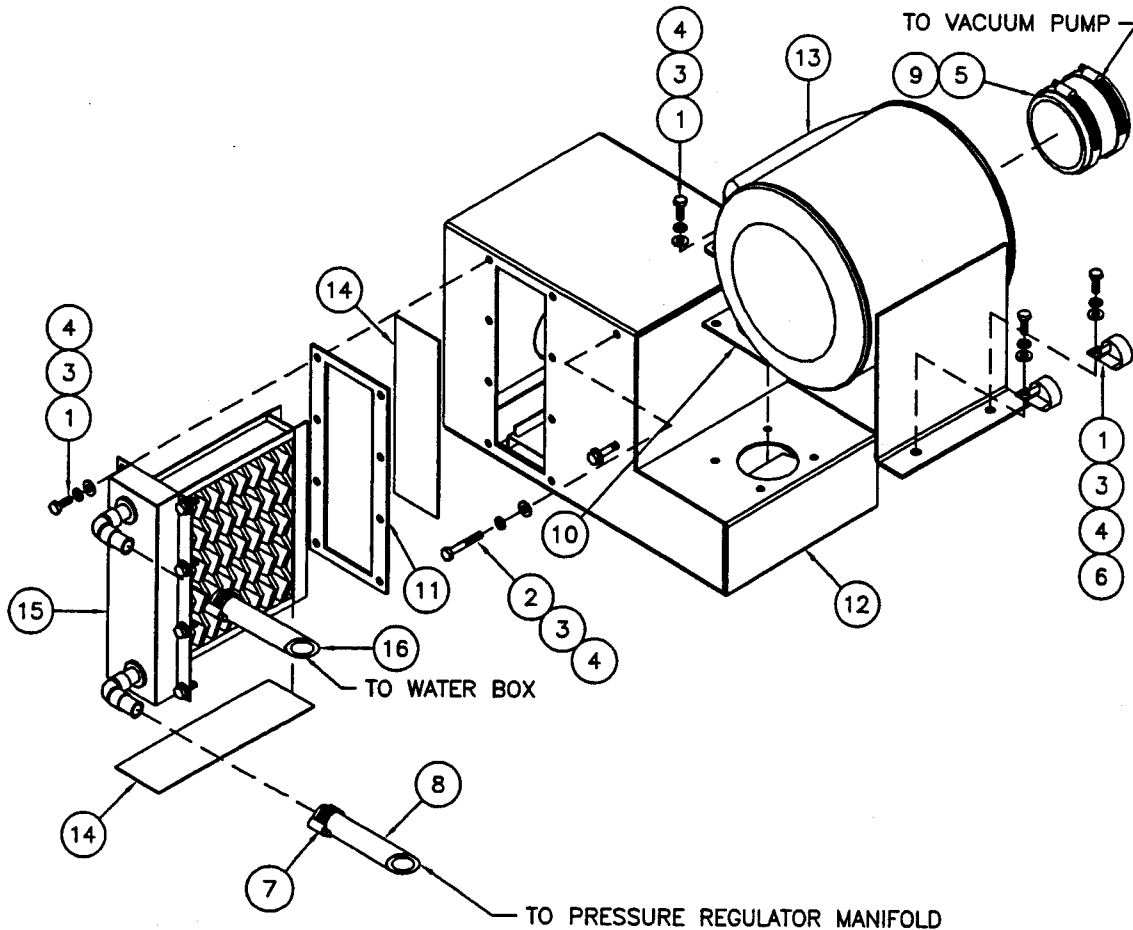
WATER BOX ASSEMBLY 61-951195



- | | |
|---|---|
| 1. 00-000335.....SCREW, 1/4-20 x 8 HXHD | 26. 54-501715.....ROD, FLOAT (1/4-20 x 6) SST |
| 2. 01-000037.....NUT, 1/4-20 HXHD | 27. 58-800781.....MOLDING, WATER BOX |
| 3. 01-000045.....NUT, 1/4-20 HXHD SST | 28. 00-000337.....SCREW, 10-32 x 1" SOCHD SST |
| 4. 02-000038.....LOCKWASHER, 1/4 | 29. 01-000241.....LOCKNUT, 10-32 HXHD SST |
| 5. 02-000066.....FLATWASHER, 1/4 | 30. 16-808216.....ARM, PIVOT-FLOAT VALVE |
| 6. 03-000065.....CLAMP, HOSE #4 SST | 31. 16-808217.....BODY, FLOAT VALVE |
| 7. 03-000113.....CLAMP, HOSE #12 SST | 32. 16-808219.....PISTON, FLOAT VALVE |
| 8. 03-000246.....CLAMP, HOSE #8 SST | 33. 52-501706.....NUT, FLOAT VALVE |
| 9. 09-805040.....HOSE, BRD 5/16 x 32" | |
| 10. 09-805061.....HOSE, WTR 3/4 x 63" | |
| 11. 09-805234.....HOSE, WTR 5/8 x 36" | |
| 12. 10-805150.....HOSE 3/16 x 30" | |
| 13. 11-800041.....ELL, STREET 1/2 BR | |
| 14. 11-800006.....CLPG, 1/2 ALUM | |
| 15. 11-800300.....NIP, 1/2 x CL | |
| 16. 11-800432.....CAP, WATER BOX | |
| 17. 12-800031.....ELL, 1/4P x 1/4T BR | |
| 18. 12-800093.....FTTG, BRB 1/8P x 5/16H BR | |
| 19. 12-800269.....FTTG, BRB 1/2P x 5/8H BR | |
| 20. 12-800278.....FTTG, BRB 1/2P x 3/4H BR | |
| 21. 14-806540.....STRAINER, SUC END 1/2FP | |
| 22. 15-808083.....VALVE, TEMP REL 180° | |
| 23. 15-808110.....VALVE, FLOAT | |
| (INCLUDES PARTS 28-33) | |
| 24. 19-807014.....BALL, FLOAT | |
| 25. 50-501856.....HOLD DOWN, WATER BOX | |

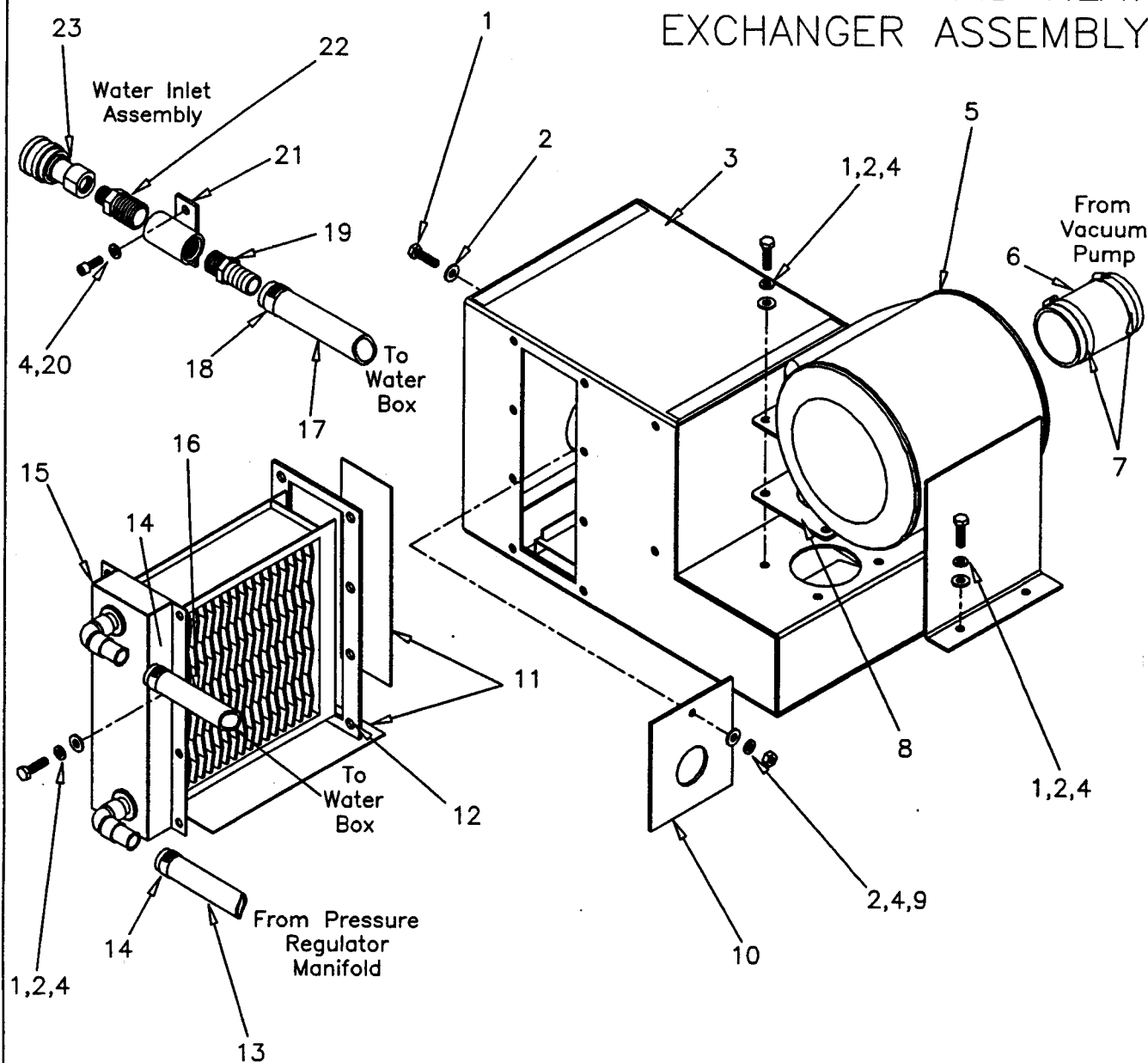


VACUUM EXHAUST HEAT EXCHANGER ASSEMBLY 61-951428



1. 00-000055.....SCREW, 1/4-20 x 3/4 HXHD
2. 00-000122.....SCREW, 1/4-20 x 1-3/4 HXHD
3. 02-000038.....LOCKWASHER, 1/4
4. 02-000066.....FLATWASHER, 1/4
5. 03-000112.....CLAMP, HOSE #48 SST
6. 03-000149.....CLAMP, CABLE 1-1/4 ID 5/16 BLT
7. 03-000246.....CLAMP, HOSE #8 SST
8. 09-805330.....HOSE, WATER 5/8 x 53"
9. 09-805478.....HOSE, VAC 2-7/8 x 2-1/2"
10. 43-807080.....GASKET, VAC HE INLET
11. 43-807081.....GASKET, VAC HE CORE
12. 56-502078.....HOUSING, VAC HEAT EXCHANGER
13. 57-520082.....MUFFLER, VAC BACK
14. 58-700027.....PAD, VAC HE CORE
15. 61-950886.....ASSY, VAC HE COVER
16. 09-805234.....HOSE, WATER 5/8 x 36"

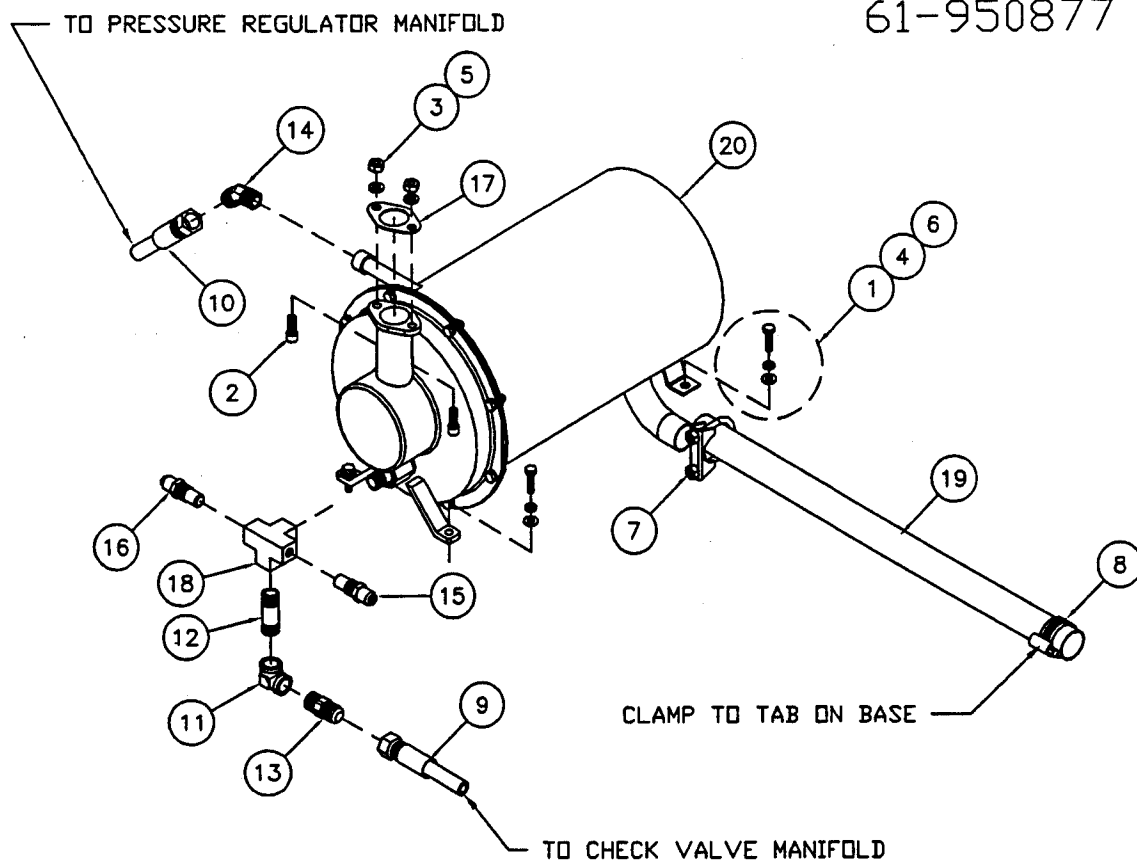
BLAZER VACUUM MUFFLER AND HEAT EXCHANGER ASSEMBLY



- 1 00-000055.....SCR, 1/4-20x3/4"
- 2 02-000066.....FLAT WASHER, 1/4
- 3 56-502078.....HOUSING, VAC EXH
- 4 02-000038.....LOCK WASHER, 1/4
- 5 57-520084.....MUFFLER, VAC 3MVL
- 6 09-805439.....HOSE, VAC 2x2-1/2"
- 7 03-000054.....CLAMP, HOSE #32
- 8 43-807080.....GASKET, VAC HE INLET
- 9 01-000037.....NUT, 1/4-20 HXHD
- 10 50-501791.....SHIELD, HEAT VAC HE
- 11 58-700027.....PAD, VAC HE CORE
- 12 43-807081.....GASKET, VAC HE CORE

- 13 09-805330.....HOSE, WTR 5/8x53"
- 14 03-000246.....CLAMP, HOSE #8
- 15 61-950886.....ASSY, VAC HE CVR
- 16 09-805234.....HOSE, WTR 5/8x36"
- 17 09-805105.....HOSE, WTR 3/4x41"
- 18 03-000113.....CLAMP, HOSE #12
- 19 12-800278.....FTTG, BARB 1/2Px3/4H
- 20 00-000210.....SCR, 1/4-20x3/4" SOC
- 21 56-500522.....NIP, WATER INLET
- 22 11-800354.....NIP, HEX 1/2x3/8
- 23 13-806008.....DSC, 3/8Fx3/8FP

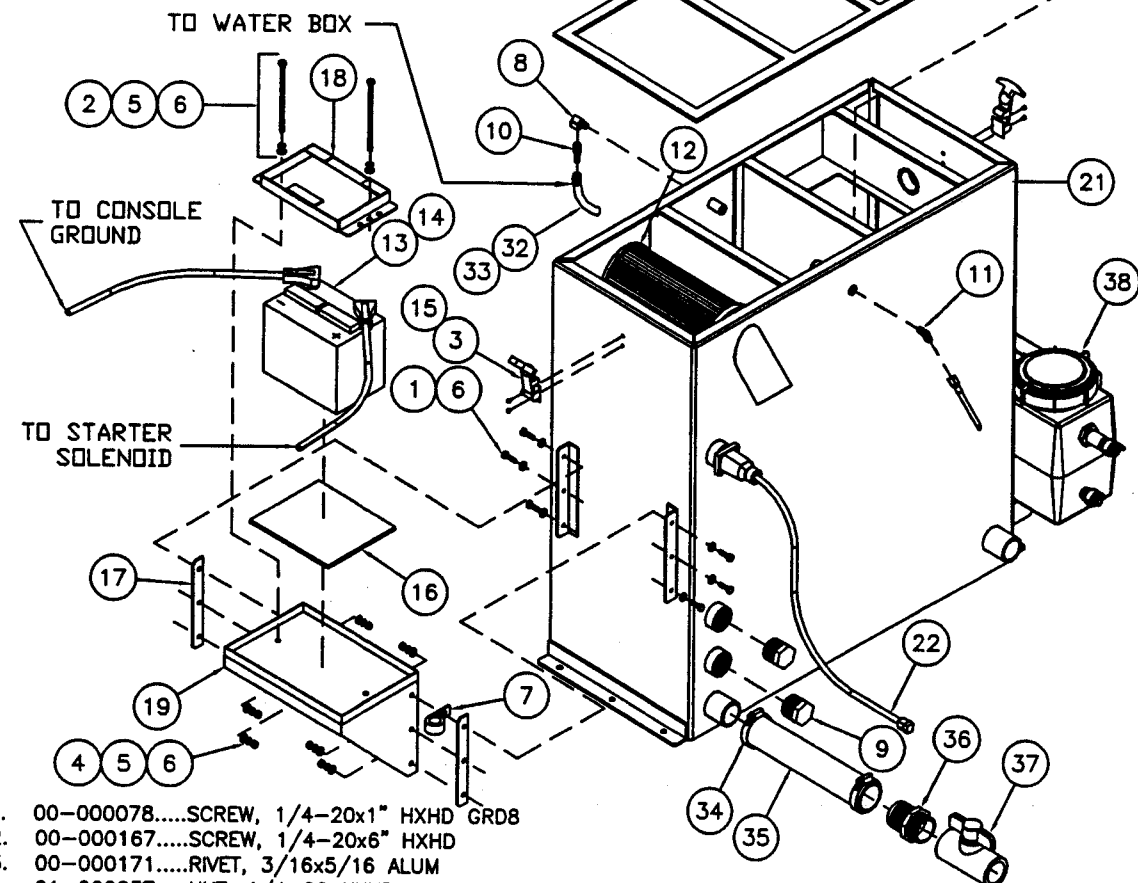
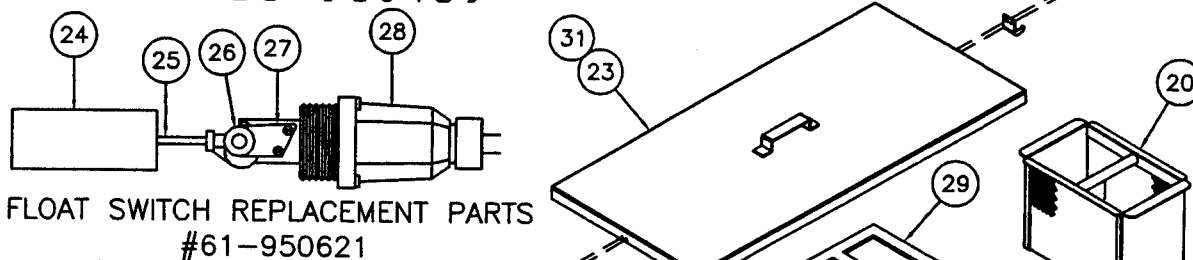
EXHAUST HEAT EXCHANGER ASSEMBLY 61-950877



1. 00-000078.....SCR, CAP 1/4-20 x 1 HXHD GRD8
2. 00-000315.....SCR, CAP 5/16-18 x 7/8 SOCHD
3. 01-000041.....NUT, 5/16-18 HXHD
4. 02-000038.....LKWSR, 1/4
5. 02-000040.....LKWSR, 5/16
6. 02-000066.....FLTWSR, 1/4
7. 03-000086.....CLMP, MFLR 1-1/4
8. 03-000248.....CLMP, HOS #16 1-1/2 MIN 1-3/4 MAX SST
9. 10-805423.....HOS, HP 3/8 x 10-1/2"
10. 10-805424.....HOS, HP 3/8 x 10-1/2"
11. 11-800276.....ELL, 3/8 BR
12. 11-800392.....NIP, 3/8P x 1/2T SST
13. 12-800282.....CONN, 3/8P x 1/2T BR
14. 12-800347.....ELL, 3/8P x 1/2T 45° BR
15. 35-900050.....SENS, TEMP 240° (AIRPAX)
16. 35-900170.....SENS, TEMP 275° C20CAA275B-235Y
17. 42-902212.....ONAN GSKT, EXH #154-2747
18. 52-501998.....TEE, SOL OUTL 3/8 BR
19. 55-501801.....TB, EXH HE
20. 57-520093.....HEAT EXCHNG, EXH

WASTE TANK ASSEMBLY

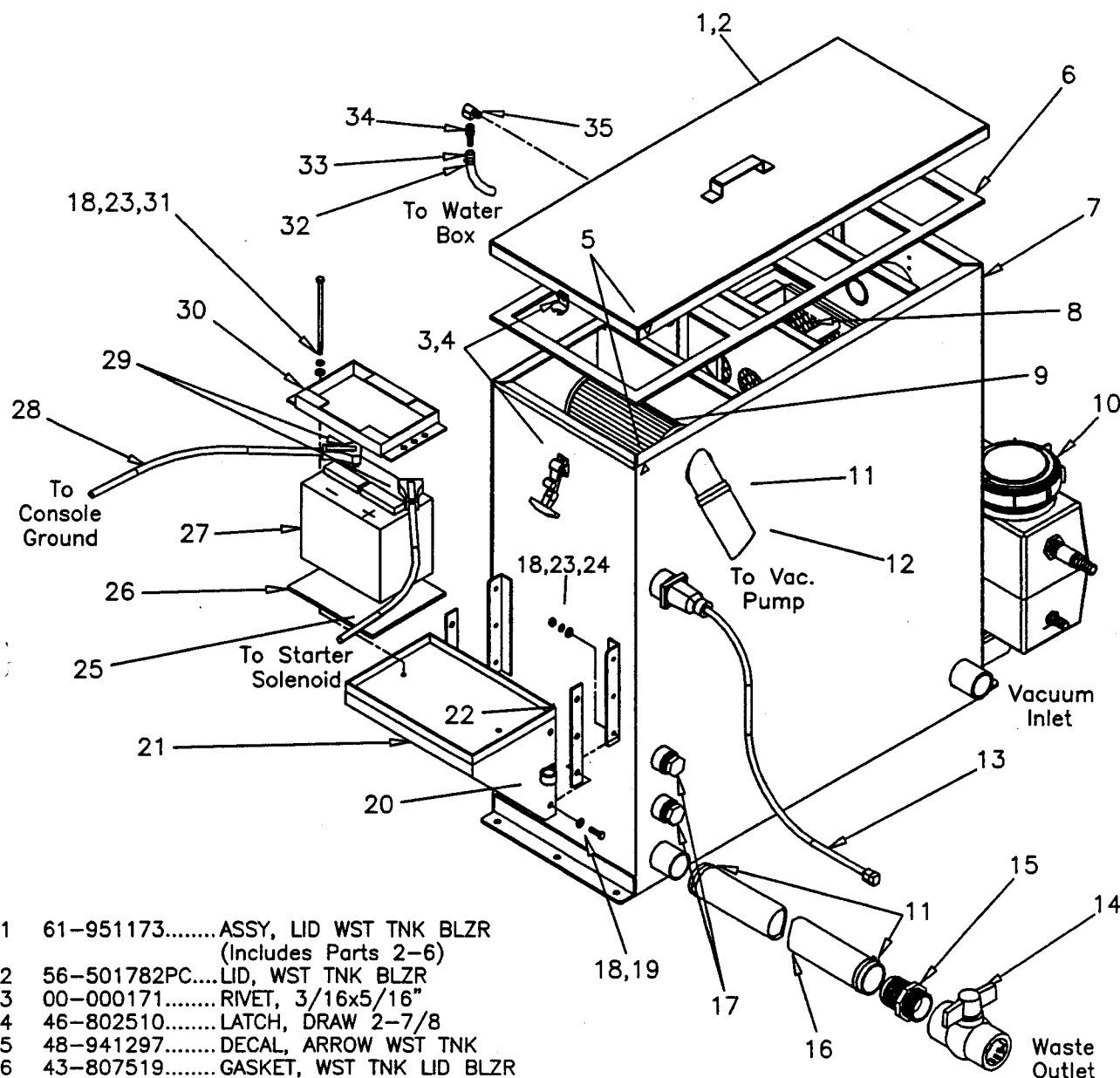
63-950439



1. 00-000078.....SCREW, 1/4-20x1" HXHD GRD8
2. 00-000167.....SCREW, 1/4-20x6" HXHD
3. 00-000171.....RIVET, 3/16x5/16 ALUM
4. 01-000037.....NUT, 1/4-20 HXHD
5. 02-000038.....LOCKWASHER, 1/4
6. 02-000066.....FLATWASHER, 1/4
7. 03-000242.....CLAMP, CABLE 3/4ID 1/4BLT
8. 11-800045.....ELL, STREET 1/4 BR
9. 11-800402.....PLUG, 1-1/4 HXHD PVC
10. 12-800092.....FTTG, BRB 1/4Px5/16H BR
11. 12-800261.....ELL, 1/8Px1/4T 45° BR
12. 14-806518.....STRAINER, WASTE TANK 2-1/2"
13. 31-900179.....COVER, BATTERY TERMINAL
14. 36-900056.....BATTERY
15. 46-802510.....LATCH, DRAW 2-7/8 SST
16. 47-700007.....SHIELD, BAT MT HT
17. 50-501697.....SPACER, BAT SHLF MTG
18. 56-500188.....COVER, BATTERY
19. 56-501779.....TRAY, BATTERY
20. 56-501793.....BASKET, STRAINER
21. 56-502235.....TANK, WASTE

22. 61-950621.....ASSY, LEVEL SENS SHTOFF (INCLUDES PARTS 24-28)
23. 61-951174.....ASSY, LID WASTE TANK (INCLUDES PARTS 29-31)
24. 33-900194.....FLOAT
25. 33-900195.....SHAFT, FLOAT
26. 33-900200.....HOUSING, MAGNET
27. 33-900201.....SUPPORT, PIVOT
28. 33-900214.....SWITCH, MICRO
29. 43-807541.....GASKET, WASTE TANK LID
30. 48-941297.....DECAL, ARROW-WST TNK LID
31. 56-501855.....LID, WASTE TANK
32. 03-000065.....CLAMP, HOSE #4
33. 09-805040.....HOSE, BRAID 5/16 x 32"
34. 03-000054.....CLAMP, HOSE #4
35. 09-805040.....HOSE, VAC 2 x 10'
36. 12-800357.....FTTG, VARB 1-1/2Px2H
37. 15-808080.....VALVE, BALL PVC 1-1/2FP
38. 61-951195.....ASSY, WATER BOX

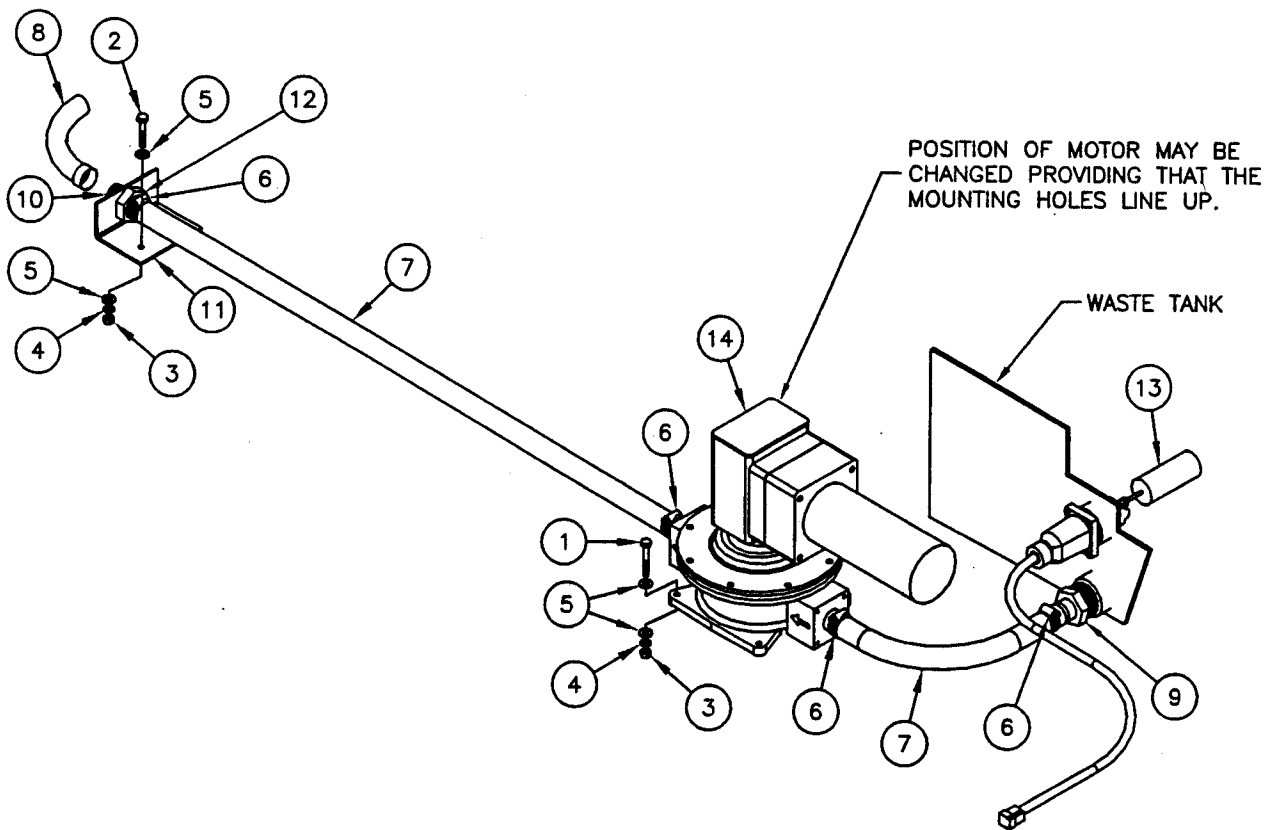
BLAZER WASTE TANK ASSEMBLY



- 1 61-951173.....ASSY, LID WST TNK BLZR
(Includes Parts 2-6)
- 2 56-501782PC....LID, WST TNK BLZR
- 3 00-000171.....RIVET, 3/16x5/16"
- 4 46-802510.....LATCH, DRAW 2-7/8
- 5 48-941297.....DECAL, ARROW WST TNK
- 6 43-807519.....GASKET, WST TNK LID BLZR
- 7 56-502082PC....TANK, WASTE BLZR
- 8 56-501793.....BASKET, STRAINER
- 9 14-806509.....STRAINER, WST TNK 2"
- 10 61-950884.....ASSY, WATER BOX BLZR
- 11 03-000054.....CLAMP, HOSE #32
- 12 09-805480.....HOSE, INT VAC 2x28"
- 13 61-950621.....ASSY, LEVEL SENS SHTOFF
- 14 15-808080.....VALVE, BALL PVC 1-1/2FP
- 15 12-800357.....FTTG, BARB 1-1/2Px2H
- 16 09-805332.....HOSE, INT VAC 2x10"
- 17 11-800402.....PLUG, 1-1/4 HXHD PVC
- 18 02-000066.....FLAT WASHER, 1/4
- 19 00-000078.....SCR, 1/4-20x1" GR8
- 20 03-000242.....CLAMP, CABLE 3/4ID
- 21 56-501779.....HOLDER, BATTERY
- 22 50-501697.....SPACER, BATT SHELF
- 23 02-000038.....LOCK WASHER, 1/4

- 24 01-000037.....NUT, 1/4-20 HXHD
- 25 64-950499.....CABLE, BATTx61" RED
- 26 47-700007.....SHIELD, BATT MT HEAT
- 27 36-900056.....BATTERY
- 28 64-950593.....CABLE, BATTx61" BLACK
- 29 31-900179.....COVER, BATTERY TERM
- 30 56-500188.....COVER, BATTERY
- 31 00-000167.....SCR, 1/4-20x6" HXHD
- 32 09-805040.....HOSE, BRAID 5/16x32"
- 33 03-000065.....CLAMP, HOSE #4
- 34 12-800092.....FTTG, BARB 1/4Px5/16H
- 35 11-800045.....ELL, STREET 1/4

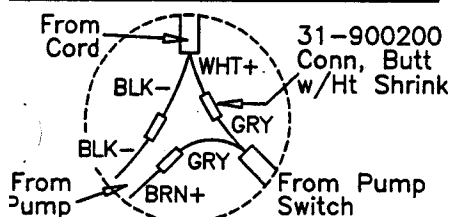
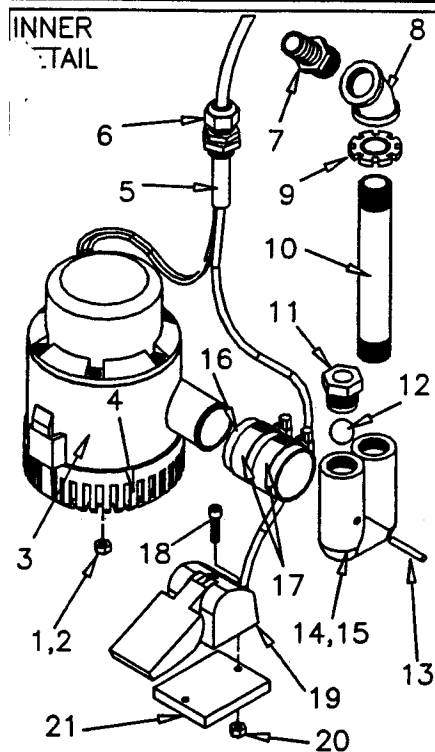
AUTOMATIC PUMPOUT ASSEMBLY 66-945533



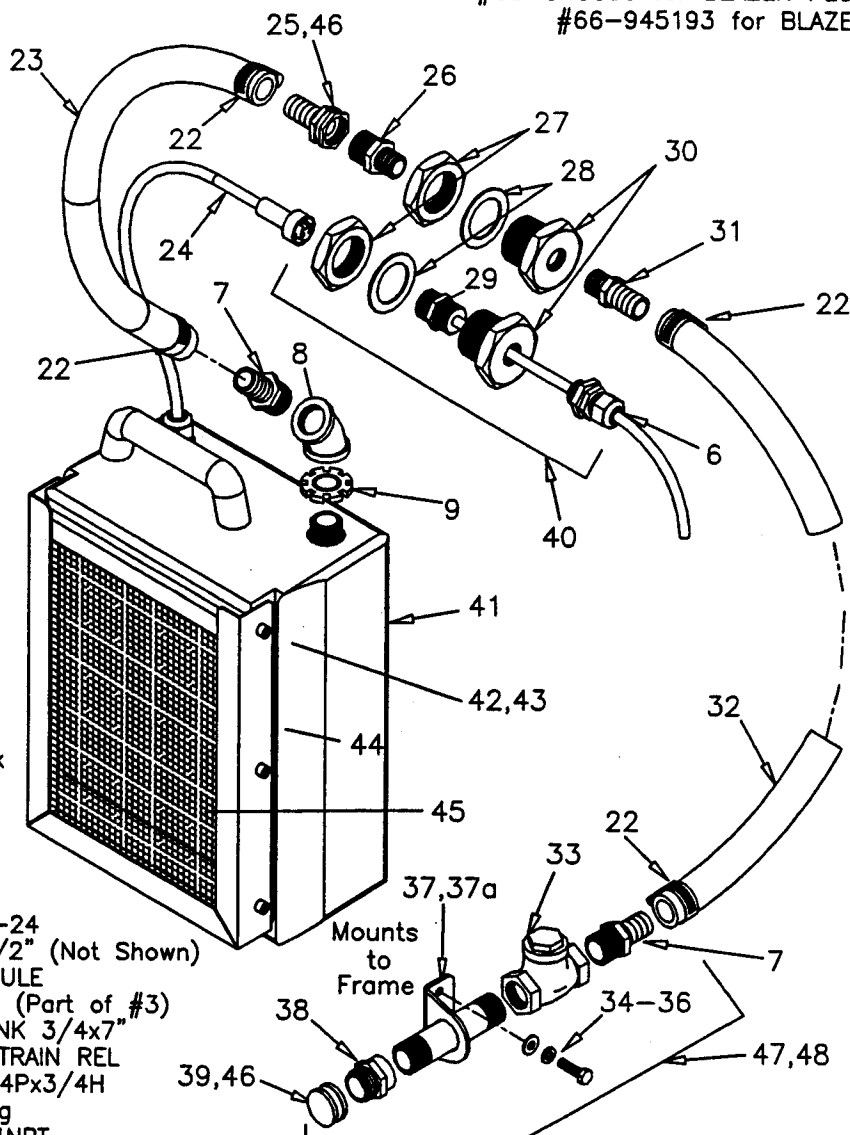
1. 00-000122.....SCR, CAP 1/4-20 x 1-3/4 HXHD
2. 00-000132.....SCR, CAP 1/4-20 x 1-1/2 HXHD
3. 01-000037.....NUT, 1/4-20 HXHD
4. 02-000038.....LKWSR, 1/4
5. 02-000066.....FLTWSR, 1/4
6. 03-000176.....CLMP, HOS #16
7. 09-805591.....HOS, WST PMP 1" x 8'
8. 10-805484.....HOS, GARDEN 3/4 x 75'
9. 12-800444.....FTTG, 1-1/4P x 1"H BR
10. 52-501993.....CONN, HOSE WTR OUTL
11. 50-502955.....BRKT, PMP-OUT HOS CONN
12. 52-000123.....NUT, 1-3/16-12 UN HXHD BR
13. 61-951319.....ASSY, LVL SENS SHTOF SW
14. 61-951306.....ASSY, WST PMP

WASTE PUMP

#66-945530 for BLAZER PLUS
#66-945193 for BLAZER

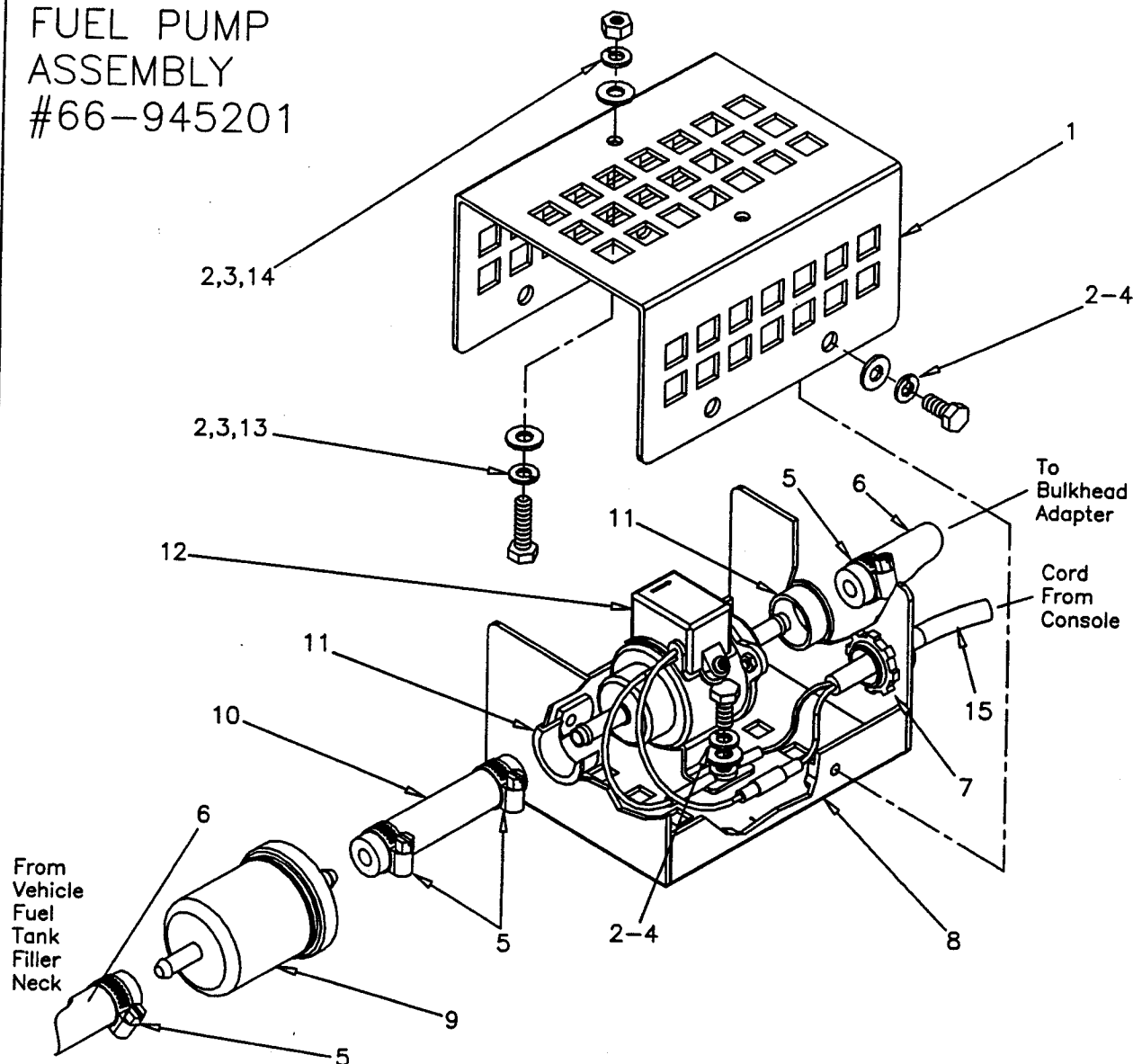


- 1 01-000188..... LOCK NUT, 10-24
- 2 00-000071..... SCR, 10-24x1/2" (Not Shown)
- 3 41-809128..... PUMP, BILGE RULE
- 4 42-809267..... BASKET, STRNR (Part of #3)
- 5 09-805563..... TUBE, HT SHRINK 3/4x7"
- 6 31-900194..... CONN, CORD STRAIN REL
- 7 12-800095..... FTTG, BARB 3/4Px3/4H
- 8 11-800434..... ELL, 3/4 45deg
- 9 01-000119..... LOCK NUT, 3/4NPT
- 10 11-800419..... NIP, 3/4x6-5/8" PVC
- 11 52-501666..... SEAT, 1.00-20x1/2P
- 12 04-000291..... BALL, NYLON 3/4dia
- 13 04-000290..... PIN, 3/16x1-3/8"
- 14 52-501662..... BODY, WASTE PUMP VLV
- 15 15-808101..... ASSY, WASTE PUMP VLV
(Includes Parts 11-14)
- 16 08-805262..... CUFF, WASTE PUMP
- 17 03-000110..... CLAMP, HOSE #24
- 18 00-000317..... SCREW, 10-32x1-1/4"
- 19 32-900183..... SWITCH, PUMP RULE
- 20 01-000241..... LOCK NUT, 10-32
- 21 50-501730..... SPACER, WASTE PUMP
- 22 03-000113..... CLAMP, HOSE #12
- 23 09-805436..... HOSE, WATER 3/4x21"
- 24 31-900197..... CONN, WASTE PUMP F
- 25 12-800370..... CONN, 3/4SWIVx3/4BARB
- 12-800051..... CONN, 1/2Px3/4H
- 52-501651..... NUT, HOS&CD FITTING
- 28 43-807092..... SEAL, WASTE PUMP
- 29 31-900198..... CONN, WASTE PUMP M
- 30 52-501649..... FTTG, CORD WASTE PUMP



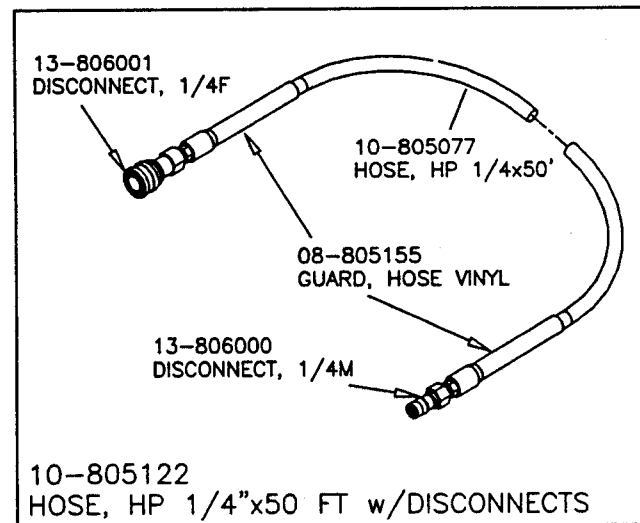
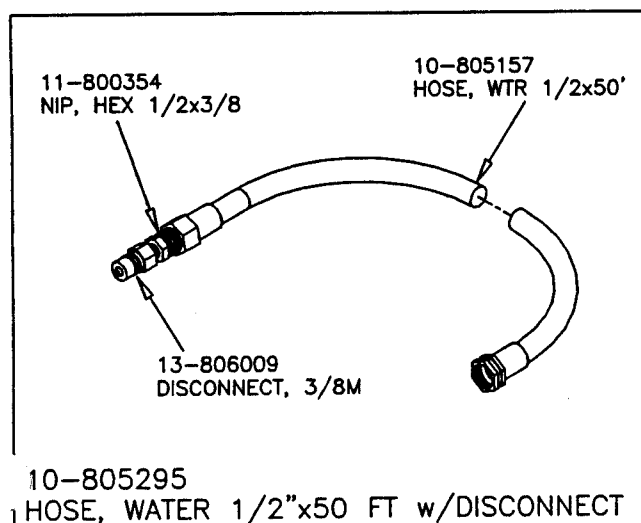
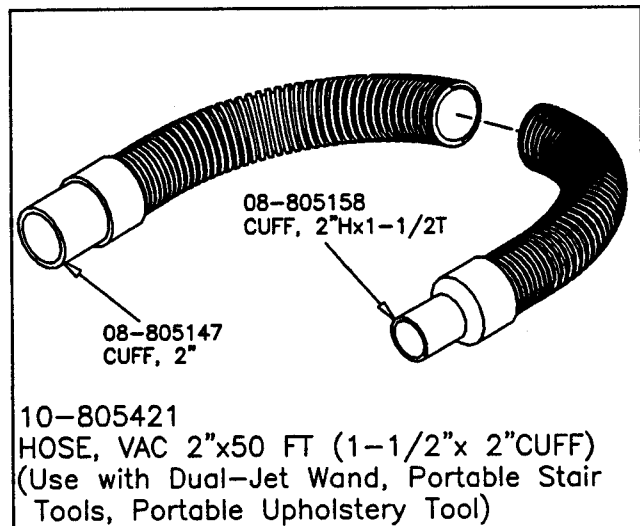
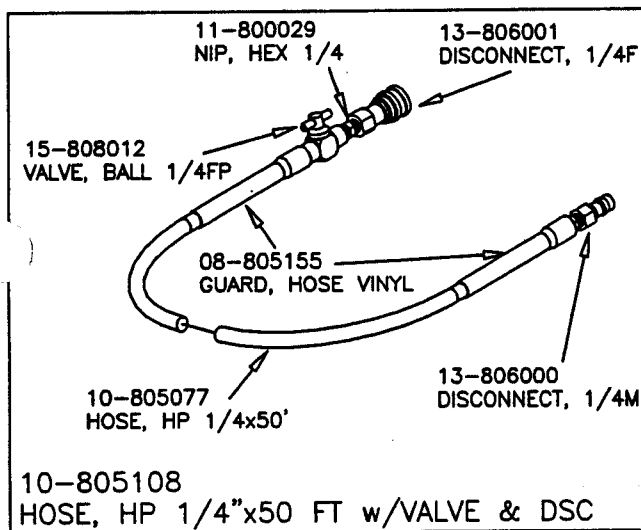
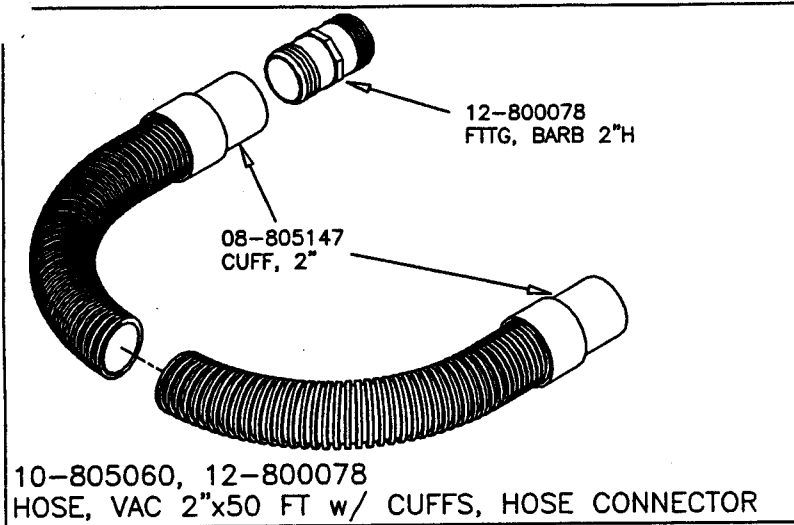
- 31 12-800278..... FTTG, BARB 1/2Px3/4H
- 32 09-805320..... HOSE, WATER 3/4x85"
- 33 15-808065..... VALVE, SWING CHECK 3/4FP
- 34 00-000078..... SCREW, 1/4-20x1" GR8
- 35 02-000038..... LOCK WASHER, 1/4
- 36 02-000066..... FLAT WASHER, 1/4
- 37 56-502266..... BRKT, OUTL WST PMP (Blazer+)
- 37a 56-501794..... BRKT, OUTL WST PMP (Blazer)
- 38 12-800360..... CONN, 3/4FxHOSE CONN
- 39 12-800052..... CAP, HOSE 3/4
- 40 64-950541..... ASSY, WASTE PUMP CORD
(Includes Parts 6 and 27-30)
- 41 58-500643..... MOLDING, WASTE PUMP
- 42 00-000210..... SCREW, 1/4-20x3/4"
- 43 01-000023..... LOCK NUT, 1/4-20
- 44 50-501706..... GUIDE, STRAINER
- 45 14-806550..... STRAINER, WASTE PUMP
- 46 43-807008..... WASHER, HOSE 5/8IDx1"OD
- 47 66-950442..... ASSY, OUTL WST PMP (Blazer+)
(Parts 7, 33, 37-39, and 46)
- 48 66-950412..... ASSY, OUTL WST PMP (Blazer)
(Parts 7, 33, 37a, 38-39, and 46)

EXTERNAL ELECTRIC FUEL PUMP ASSEMBLY #66-945201



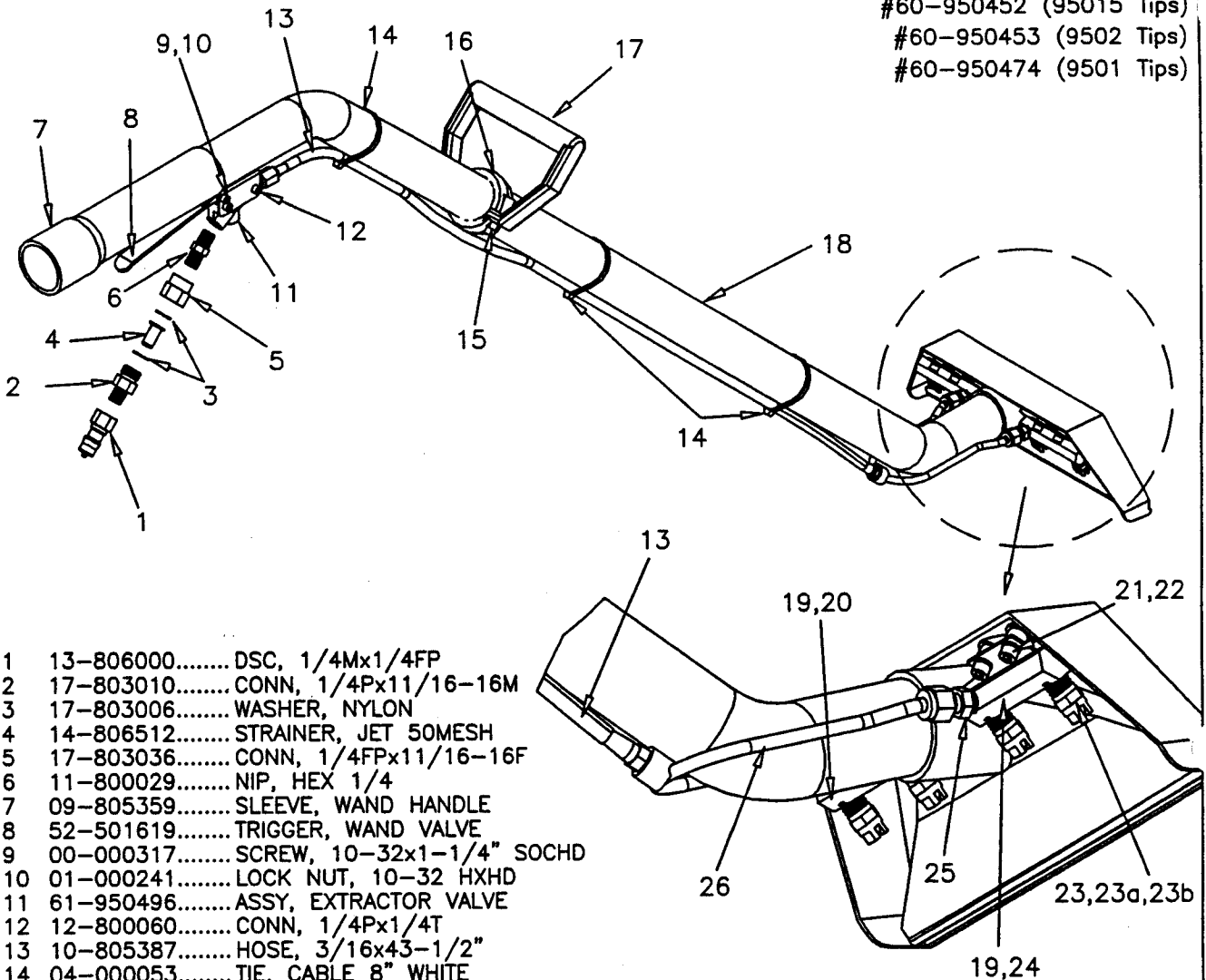
- 1 50-501739.....COVER, FUEL PUMP BRACKET
- 2 02-000066.....FLAT WASHER, 1/4
- 3 02-000038.....LOCK WASHER, 1/4
- 4 00-000055.....SCREW, 1/4-20x3/4" HXHD
- 5 03-000254.....CLAMP, HOSE #6
- 6 09-805345.....HOSE, FUEL 5/16x15' ABRASION RESIST (cut to fit)
- 7 31-900017.....CONN, CORD 1/2
- 8 56-501880.....BRACKET, FUEL PUMP MTG
- 9 42-902311.....FUEL FILTER
- 10 09-805417.....HOSE, FUEL 5/16x3-1/2" ABRASION RESIST
- 11 31-900067.....BUSHING, SNAP
- 12 41-809132.....PUMP, FUEL
- 13 00-000078.....SCREW, 1/4-20x1" HXHD GR 8
- 14 01-000037.....NUT, 1/4-20 HXHD
- 15 64-950548.....CORD, FUEL PUMP

HOSE ACCESSORIES



QUAD-JET WAND

#60-950452 (95015 Tips)
 #60-950453 (9502 Tips)
 #60-950474 (9501 Tips)



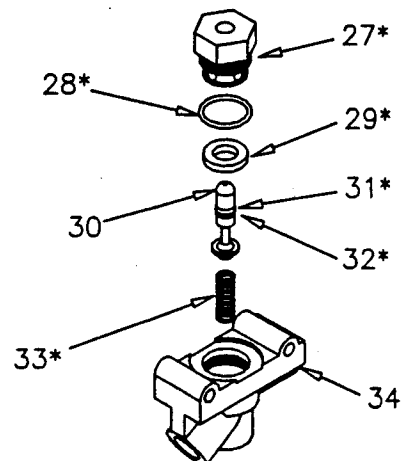
- | | | |
|-----|----------------|-----------------------------------|
| 1 | 13-806000..... | DSC, 1/4Mx1/4FP |
| 2 | 17-803010..... | CONN, 1/4Px11/16-16M |
| 3 | 17-803006..... | WASHER, NYLON |
| 4 | 14-806512..... | STRAINER, JET 50MESH |
| 5 | 17-803036..... | CONN, 1/4FPx11/16-16F |
| 6 | 11-800029..... | NIP, HEX 1/4 |
| 7 | 09-805359..... | SLEEVE, WAND HANDLE |
| 8 | 52-501619..... | TRIGGER, WAND VALVE |
| 9 | 00-000317..... | SCREW, 10-32x1-1/4" SOCHD |
| 10 | 01-000241..... | LOCK NUT, 10-32 HXHD |
| 11 | 61-950496..... | ASSY, EXTRACTOR VALVE |
| 12 | 12-800060..... | CONN, 1/4Px1/4T |
| 13 | 10-805387..... | HOSE, 3/16x43-1/2" |
| 14 | 04-000053..... | TIE, CABLE 8" WHITE |
| 15 | 00-000282..... | SCREW, 1/4-20x1-1/4" |
| 16 | 52-501569..... | HOLD DOWN, WAND HANDLE |
| 17 | 52-501568..... | BODY, WAND HANDLE |
| 18 | 56-501940..... | WAND&HEAD, CAST SST |
| 19 | 11-800206..... | PLUG, 1/8 SOCHD |
| 20 | 56-501966..... | ASSY, LEFT S-BEND MNFLD |
| 21 | 00-000347..... | SCREW, 10-24x1/4" SOCHD |
| 22 | 02-000032..... | LOCK WASHER, #10 |
| 23 | 17-803001..... | TIP, SPRAY 95015x1/8P (60-950452) |
| 23a | 17-803002..... | TIP, SPRAY 9502x1/8P (60-950453) |
| 23b | 17-803018..... | TIP, SPRAY 9501x1/8P (60-950474) |
| 24 | 56-501986..... | ASSY, RIGHT S-BEND MNFLD |
| 25 | 12-800322..... | CONN, 1/8Px1/4T COMP |
| 26 | 56-501967..... | ASSY, S-BEND MANIFOLD |
| 27 | 16-808229..... | HOLDER, VALVE STEM |
| 28 | 43-810063..... | O-RING, .551IDx.691OD |
| 29 | 16-808228..... | SEAT, EXTRACTOR VALVE |
| 30 | 16-808189..... | STEM, EXTRACTOR VALVE |
| 31 | 43-810064..... | BACK-UP, .250DIA |
| 32 | 43-810062..... | O-RING, .114IDx.254OD |
| 33 | 16-808190..... | SPRING, EXTRACTOR VALVE |
| 34 | 52-501590..... | BODY, EXTRACTOR VALVE |

NOT SHOWN

48-941186..... DECAL, WAND HEAD (CAST SST)

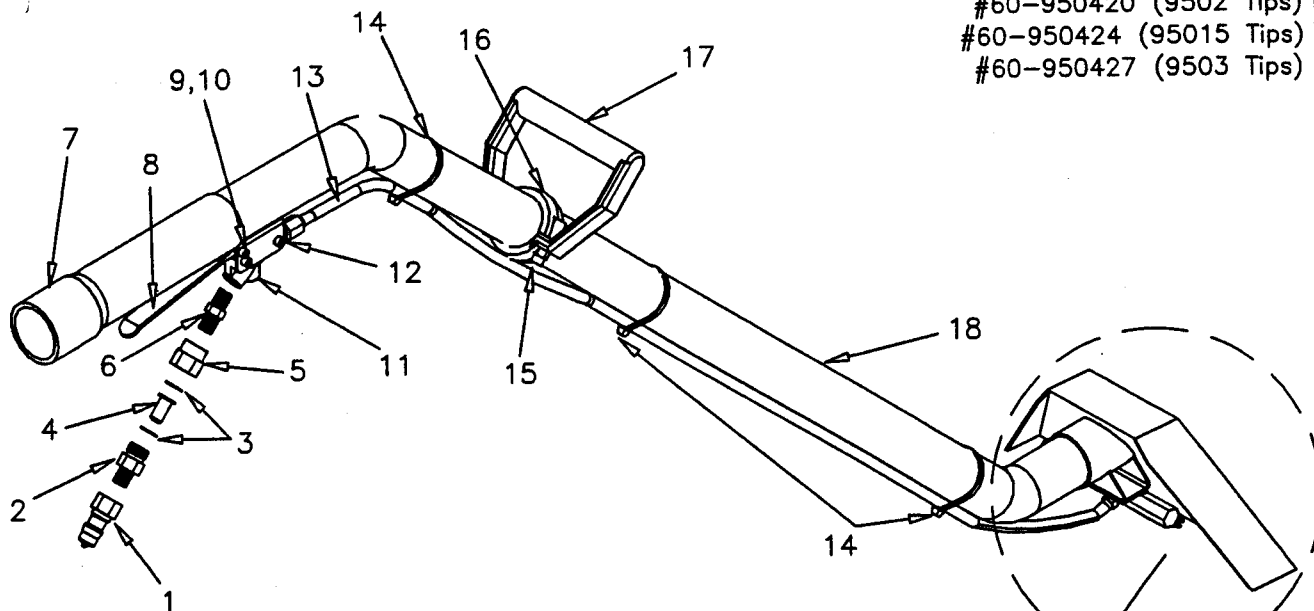
#61-950496 EXTRACTOR VALVE DETAIL

REPAIR KIT, PART #66-808169
 (Includes parts with "**")



TRI-JET WAND

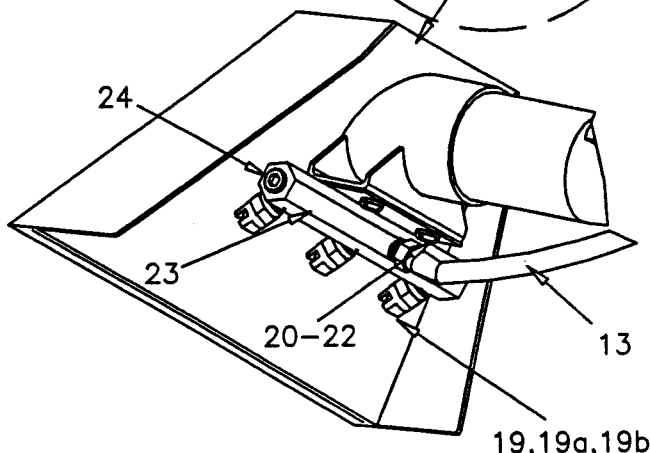
#60-950420 (9502 Tips)
 #60-950424 (95015 Tips)
 #60-950427 (9503 Tips)



- 1 13-806000.....DSC, 1/4Mx1/4FP
- 2 17-803010.....CONN, 1/4Px11/16-16M
- 3 17-803006.....WASHER, NYLON
- 4 14-806512.....STRAINER, JET 50MESH
- 5 17-803036.....CONN, 1/4FPx11/16-16F
- 6 11-800029.....NIP, HEX 1/4
- 7 09-805359.....SLEEVE, WAND HANDLE
- 8 52-501619.....TRIGGER, WAND VALVE
- 9 00-000317.....SCREW, 10-32x1-1/4"
- 10 01-000241.....LOCK NUT, 10-32 HXHD
- 11 61-950496.....ASSY, EXTRACTOR VALVE
- 12 12-800060.....CONN, 1/4Px1/4T
- 13 10-805253.....HOSE, 3/16x49"
- 14 04-000053.....TIE, CABLE 8" WHITE
- 15 00-000282.....SCREW, 1/4-20x1-1/4"
- 16 52-501569.....HOLD DOWN, WAND HANDLE
- 17 52-501568.....BODY, WAND HANDLE
- 18 56-501712.....WAND&HEAD, TRI-JET WAND
- 19 17-803002.....TIP, SPRAY 9502x1/8P (60-950420)
- 19a 17-803001.....TIP, SPRAY 95015x1/8P (60-950424)
- 19b 17-803046.....TIP, SPRAY 9503x1/8P (60-950427)
- 20 00-000331.....SCREW, 10-32x3/8" SST
- 21 02-000032.....LOCK WASHER, #10
- 22 01-000018.....NUT, 10-32 HXHD SST
- 23 56-501739.....MANIFOLD, WAND TRI-JET
- 24 11-800206.....PLUG, 1/8 SOCHD
- 25 16-808229.....HOLDER, VALVE STEM
- 26 43-810063.....O-RING, .551IDx.691OD
- 27 16-808228.....SEAT, EXTRACTOR VALVE
- 28 16-808189.....STEM, EXTRACTOR VALVE
- 29 43-810064.....BACK-UP, .25ODIA
- 30 43-810062.....O-RING, .114IDx.254OD
- 31 16-808190.....SPRING, EXTRACTOR VALVE
- 32 52-501590.....BODY, EXTRACTOR VALVE

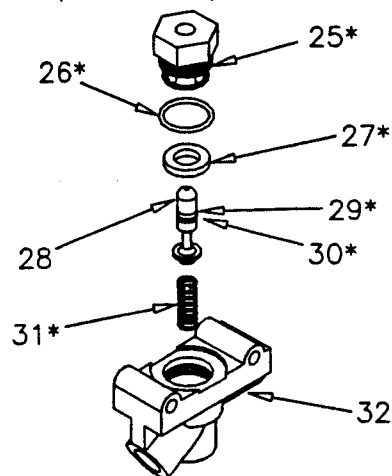
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48-941166.....DECAL, WAND HEAD

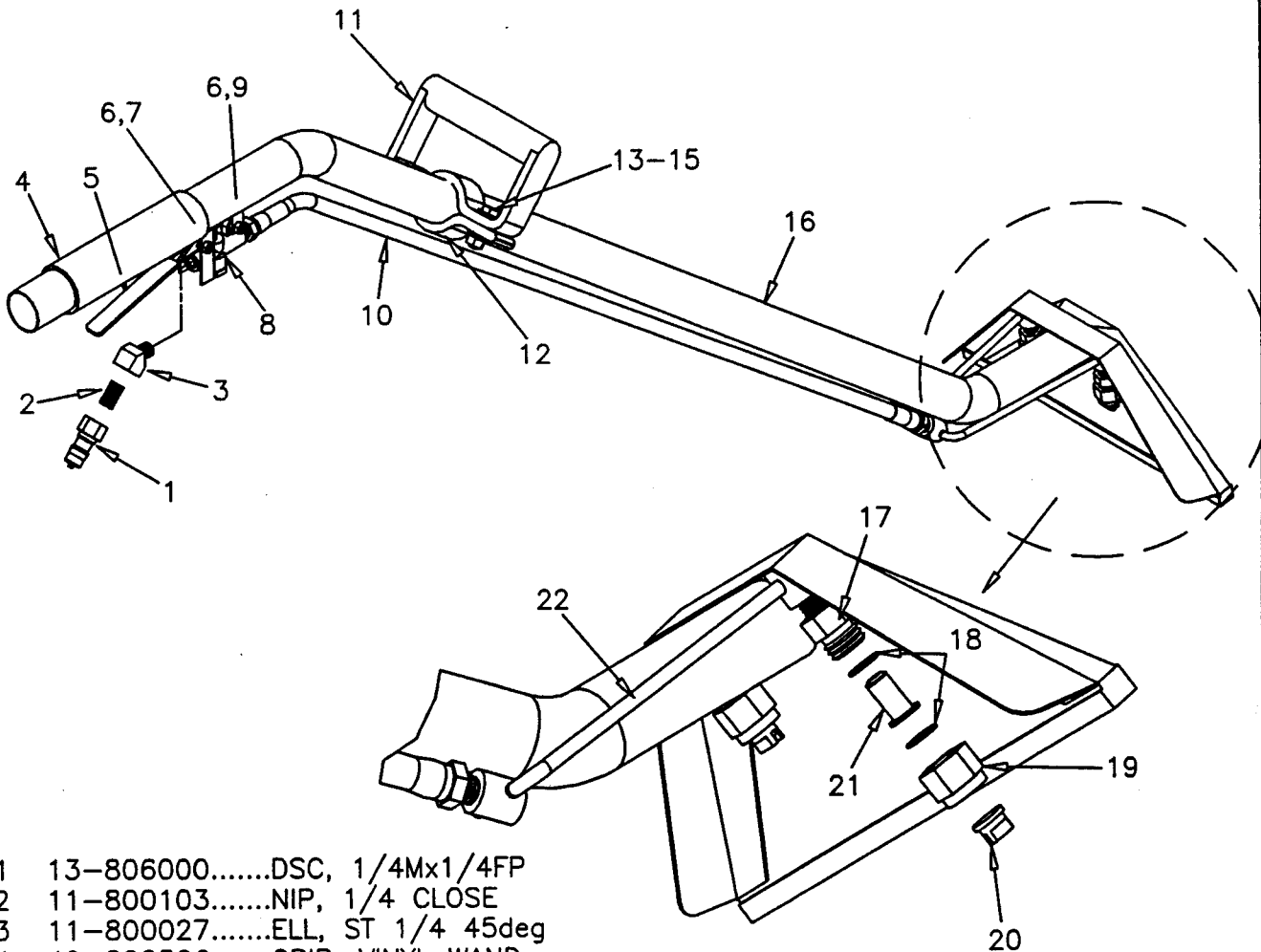


#61-950496 EXTRACTOR VALVE DETAIL

REPAIR KIT, PART #66-808169
 (Includes parts with "**")

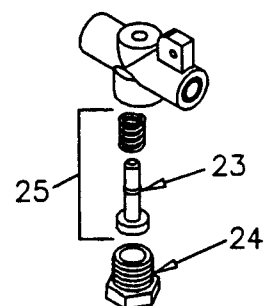


DUAL-JET WAND #60-950467 (11002 Tips)



- 1 13-806000.....DSC, 1/4Mx1/4FP
- 2 11-800103.....NIP, 1/4 CLOSE
- 3 11-800027.....ELL, ST 1/4 45deg
- 4 49-802526.....GRIP, VINYL WAND
- 5 56-500128.....TRIGGER, WAND VLV PORT
- 6 00-000393.....SCREW, 10-32x1-1/4"
- 7 01-000241.....LOCK NUT, 10-32 HXHD
- 8 15-808124.....VALVE, WAND PORT
- 9 00-000392.....SCREW, 10-32x3/4"
- 10 10-805425.....HOSE, HP 1/4x38-1/2"
- 11 49-876168.....HANDLE, WAND PORT
- 12 49-876176.....BRACKET, WAND HANDLE
- 13 00-000187.....SCREW, 5/16-18x1-1/4"
- 14 02-000143.....FLAT WASHER, 5/16
- 15 01-000282.....NUT, 5/16-18 HXHD
- 16 56-502095.....WAND&HEAD, DUAL JET PORT
- 17 17-803010.....CONN, 1/4Px11/16-16M
- 18 17-803006.....WASHER, NYLON
- 19 17-803004.....CAP, NOZZLE BODY
- 20 17-803059.....TIP, SPRAY 11002
- 21 14-806545.....STRAINER, JET 100MESH
- 22 56-502081.....MANIFOLD, WAND DUAL-JET (Requires Welding)
- 23 43-810001.....O-RING, 1/8IDx1/4OD
- 24 16-808114.....CAP, VALVE WAND
- 25 66-808113.....KIT, REPAIR VALVE WAND

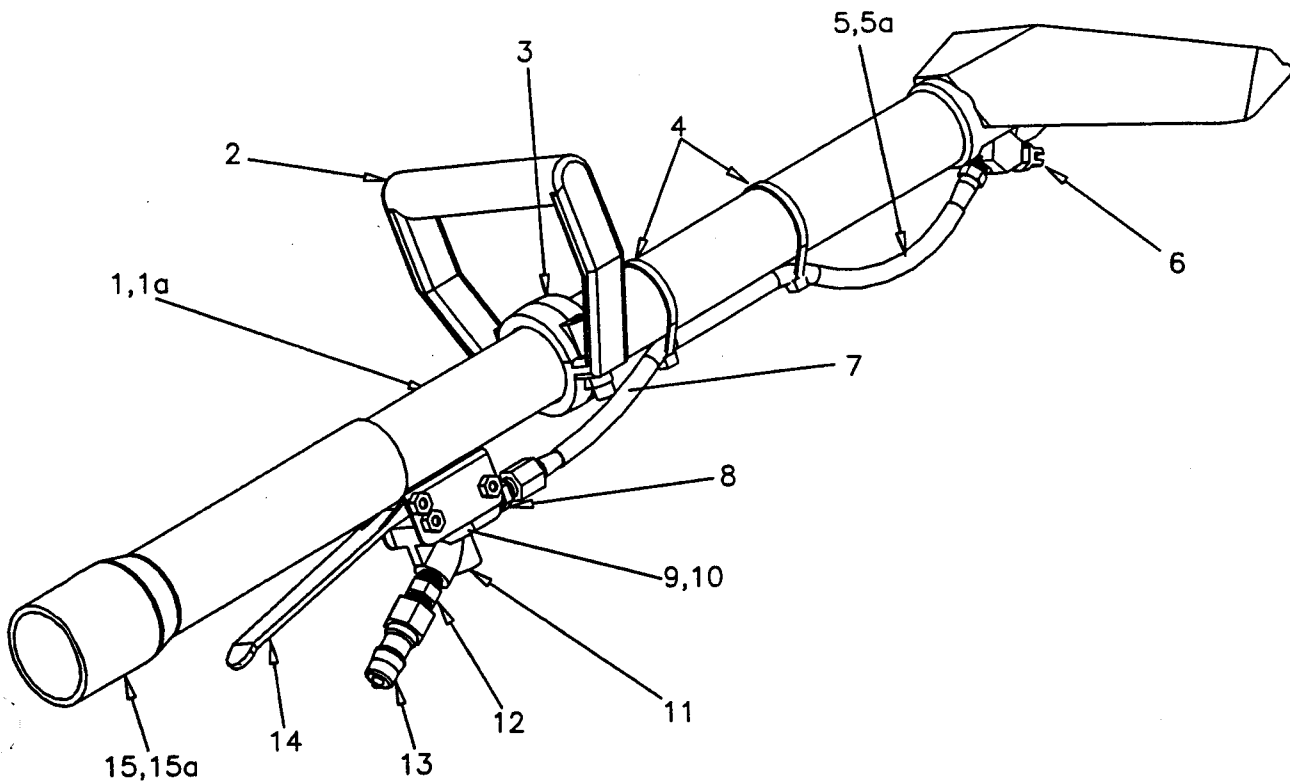
#15-808124 WAND VALVE DETAIL



Truck Mount STAIR TOOL

Long (28-1/2") Truck Mt #60-950421

Short (20") Truck Mt #60-950450



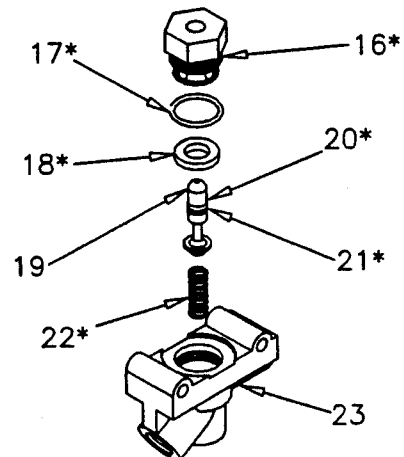
- 1 56-501715.....WD&HD, STAIR TL (Long)
- 1a 56-501907.....WD&HD, STAIR TL (Short)
- 2 52-501576.....BODY, WAND HANDLE
- 3 52-501577.....HOLD DOWN, WAND HDL
- 4 04-000053.....TIE, CABLE 8" WHITE (Long)
- 5 10-805330.....HOSE, 3/16x13-1/2" (Long)
- 5a 10-805397.....HOSE, 3/16x7-1/2" (Short)
- 6 17-803002.....TIP, SPRAY 9502x1/8P
- 7 00-000282.....SCREW, 1/4-20x1-1/4"
- 8 12-800060.....CONN, 1/4Px1/4T
- 9 00-000317.....SCREW, 10-32x1-1/4"
- 10 01-000241.....LOCK NUT, 10-32 HXHD
- 11 61-950496.....ASSY, EXTRACTOR VALVE
- 12 11-800029.....NIP, HEX 1/4
- 13 13-806000.....DSC, 1/4Mx1/4FP
- 14 52-501619.....TRIGGER, WAND VALVE
- 15 09-805359.....SLEEVE, WAND HANDLE (Long)
- 15a 09-805504.....SLEEVE, WAND HANDLE (Short)
- 16 16-808229.....HOLDER, VALVE STEM
- 17 43-810063.....O-RING, .551IDx.691OD
- 18 16-808228.....SEAT, EXTRACTOR VALVE
- 19 16-808189.....STEM, EXTRACTOR VALVE
- 20 43-810064.....BACK-UP, .250DIA
- 21 43-810062.....O-RING, .114IDx.254OD
- 22 16-808190.....SPRING, EXTRACTOR VALVE
- 23 52-501590.....BODY, EXTRACTOR VALVE

NOT SHOWN

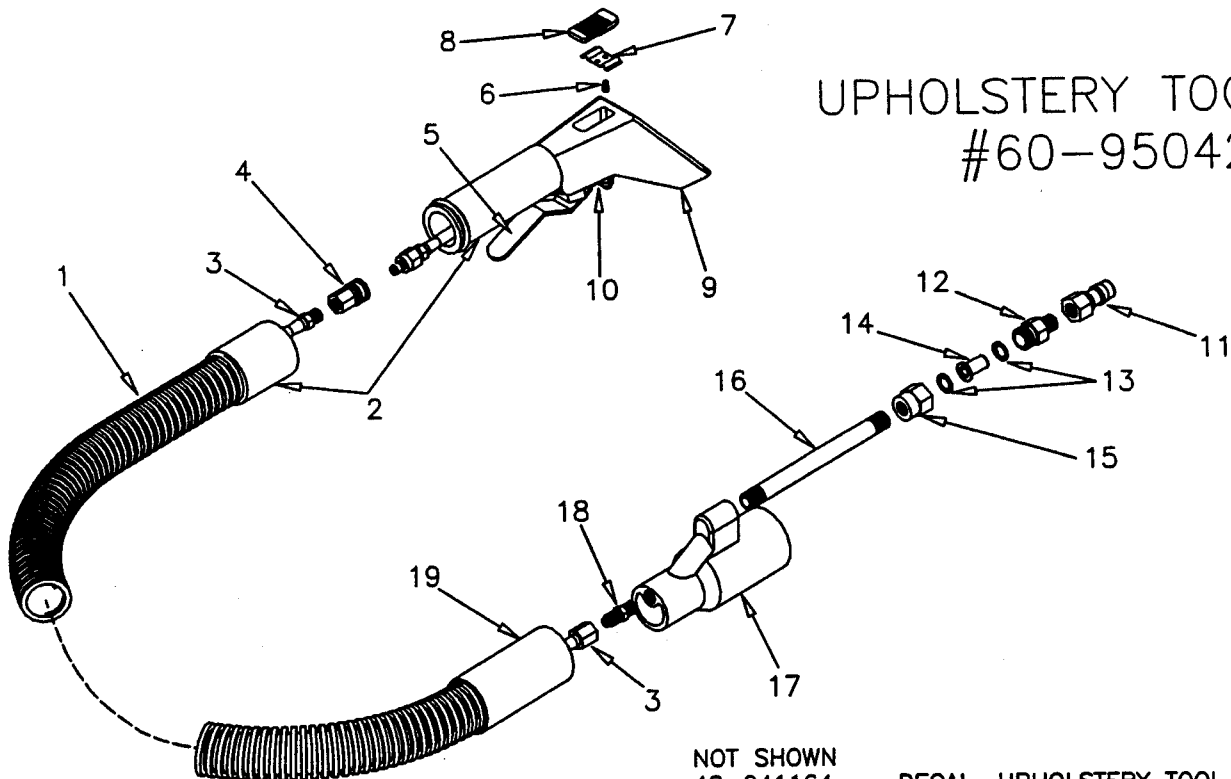
48-941163.....DECAL, STAIR TOOL

#61-950496 EXTRACTOR VALVE DETAIL

REPAIR KIT, PART #66-808169
(Includes parts with "**")



UPHOLSTERY TOOL #60-950422

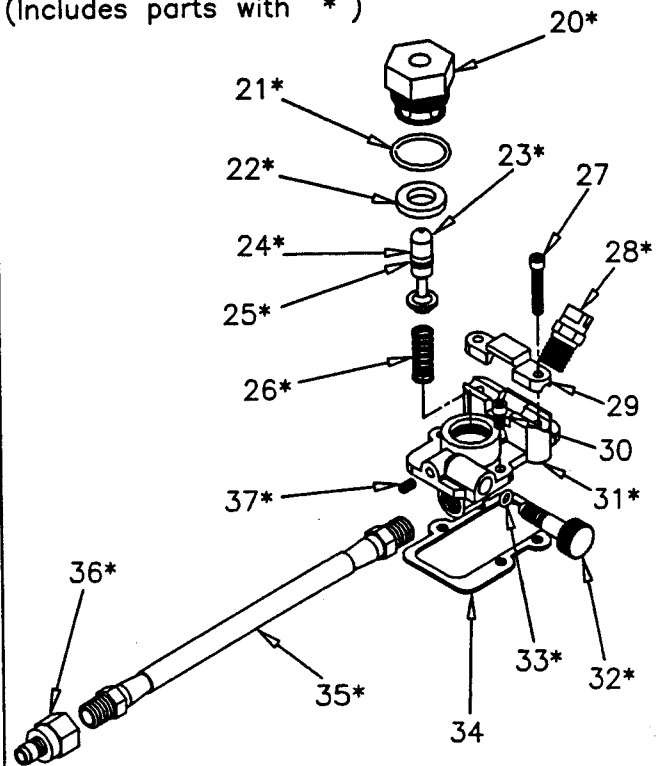


- 1 09-805131.....HOSE, VAC 1-1/4x10'
- 2 08-805243.....CUFF, SWIV 1-1/4Hx1-1/4T
- 3 10-805347.....HOSE, 3/16x119-1/2"
- 4 13-806023.....DSC, 1/8Fx1/8FP
- 5 58-500639.....CASTING, UPHLST TL TRIG
- 6 00-000310.....SCREW, 4-40x7/32"
- 7 04-000282.....SPRING, VAC ADJUST
- 8 52-501624.....BUTTON, VAC ADJUST
- 9 52-501842.....TOOL, UPHOLSTERY
- 10 61-950570.....ASSY, UPHLST TOOL VALVE
- 11 13-806000.....DSC, 1/4Mx1/4FP
- 12 17-803010.....CONN, 1/4MPx11/16-16M
- 13 17-803006.....WASHER, NYLON
- 14 14-806512.....STRAINER, JET 50MESH
- 15 17-803036.....CONN, 1/4FPx11/16-16F
- 16 11-800404.....NIP, 1/4x5" SST
- 17 52-501585.....COUPLER, UPHOLSTERY TL
- 18 12-800065.....CONN, 1/8Px1/4T
- 19 08-805138.....CUFF, 1-1/4Hx1-1/2T
- 20 16-808229.....HOLDER, VALVE STEM
- 21 43-810063.....O-RING, .551IDx.691OD
- 22 16-808228.....SEAT, EXTRACTOR VALVE
- 23 16-808189.....STEM, EXTRACTOR VALVE
- 24 43-810064.....BACK-UP, .250DIA
- 25 43-810062.....O-RING, .114IDx.254OD
- 26 16-808190.....SPRING, EXTRACTOR VALVE
- 27 00-000306.....SCREW, 6-32x1"
- 28 17-803033.....TIP, SPRAY 80015x1/8P
- 29 58-500638.....CASTING, TRIGGER CLAMP
- 30 00-000307.....SCREW, 6-32x3/8"
- 31 52-501623.....VALVE, UPHOLSTERY TOOL
- 32 52-501626.....VALVE, ADJUST UPHLST TL
- 33 43-810016.....O-RING, 5/32IDx9/32OD
- 34 43-807513.....GASKET, UPHLST TOOL VLV
- 35 10-805348.....HOSE, 3/16x6-1/2"
- 36 13-806030.....DSC, 1/8Mx1/8FP
- 37 00-000408.....SCREW, SET 8-32x1/4"

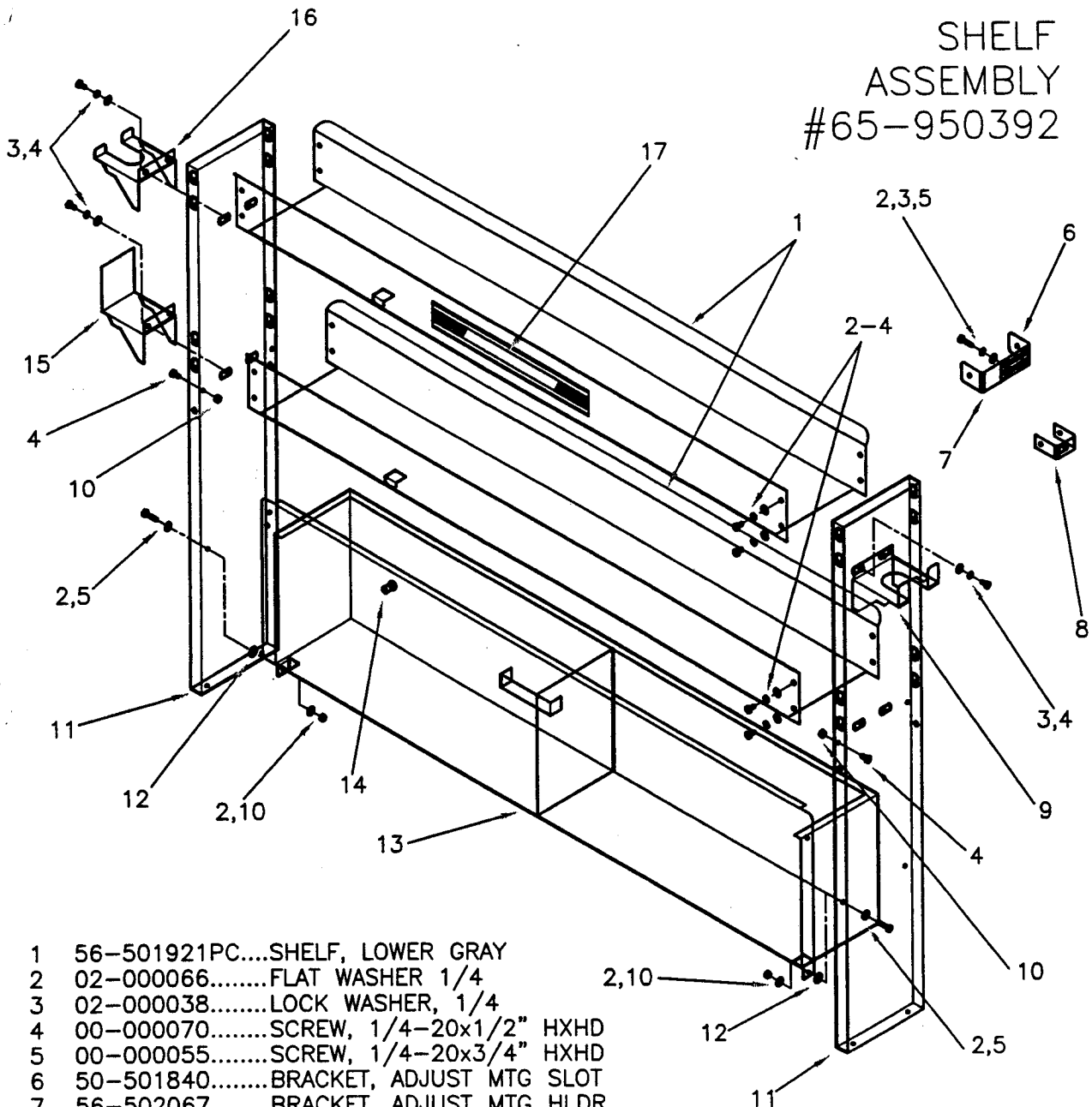
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- 48-941164.....DECAL, UPHOLSTERY TOOL
- 66-808169.....KIT, REPAIR WAND VALVE
(Includes Parts 20-22, and
24-26)

#61-950570 UPHOLSTERY TOOL VALVE DETAIL (Includes parts with "*")



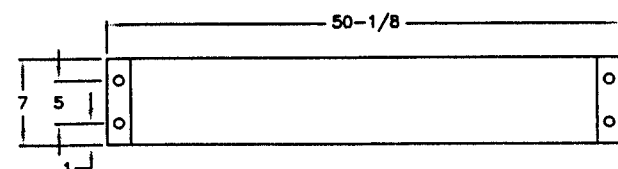
SHELF ASSEMBLY #65-950392



- 1 56-501921PC....SHELF, LOWER GRAY
- 2 02-000066.....FLAT WASHER 1/4
- 3 02-000038.....LOCK WASHER, 1/4
- 4 00-000070.....SCREW, 1/4-20x1/2" HXHD
- 5 00-000055.....SCREW, 1/4-20x3/4" HXHD
- 6 50-501840.....BRACKET, ADJUST MTG SLOT
- 7 56-502067.....BRACKET, ADJUST MTG HLDR
- 8 56-501942.....BRACKET, SHELF MOUNTING
- 9 50-501753.....HOLDER, STAIR TOOL
- 10 01-000105.....LOCK NUT, 1/4-20 HXHD
- 11 56-501922PC....PANEL, SHELF END GRAY
- 12 50-501749.....WASHER, NYLON
- 13 56-501920PC....DRWR, SHLF GRAY
- 14 46-802506.....LATCH, ADJ GRIP
- 15 50-501755.....HLDR, UP TL HOS
- 16 50-501754.....HLDR, UPHLST TL
- 17 48-941152.....DECAL, PROCHEM
- NOT SHOWN
- 66-945424.....KIT, ADJ BRACKET
(Includes items 6,7
& mtg hardware)

OVERALL DIMENSIONS:
41-1/2" TALL
50-1/8" WIDE
57" WIDE (with tool holders)
7-7/8" DEEP

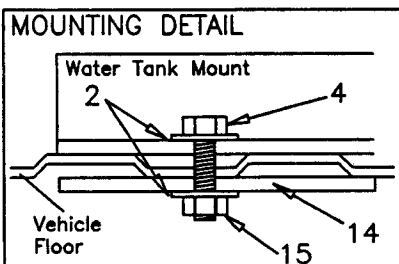
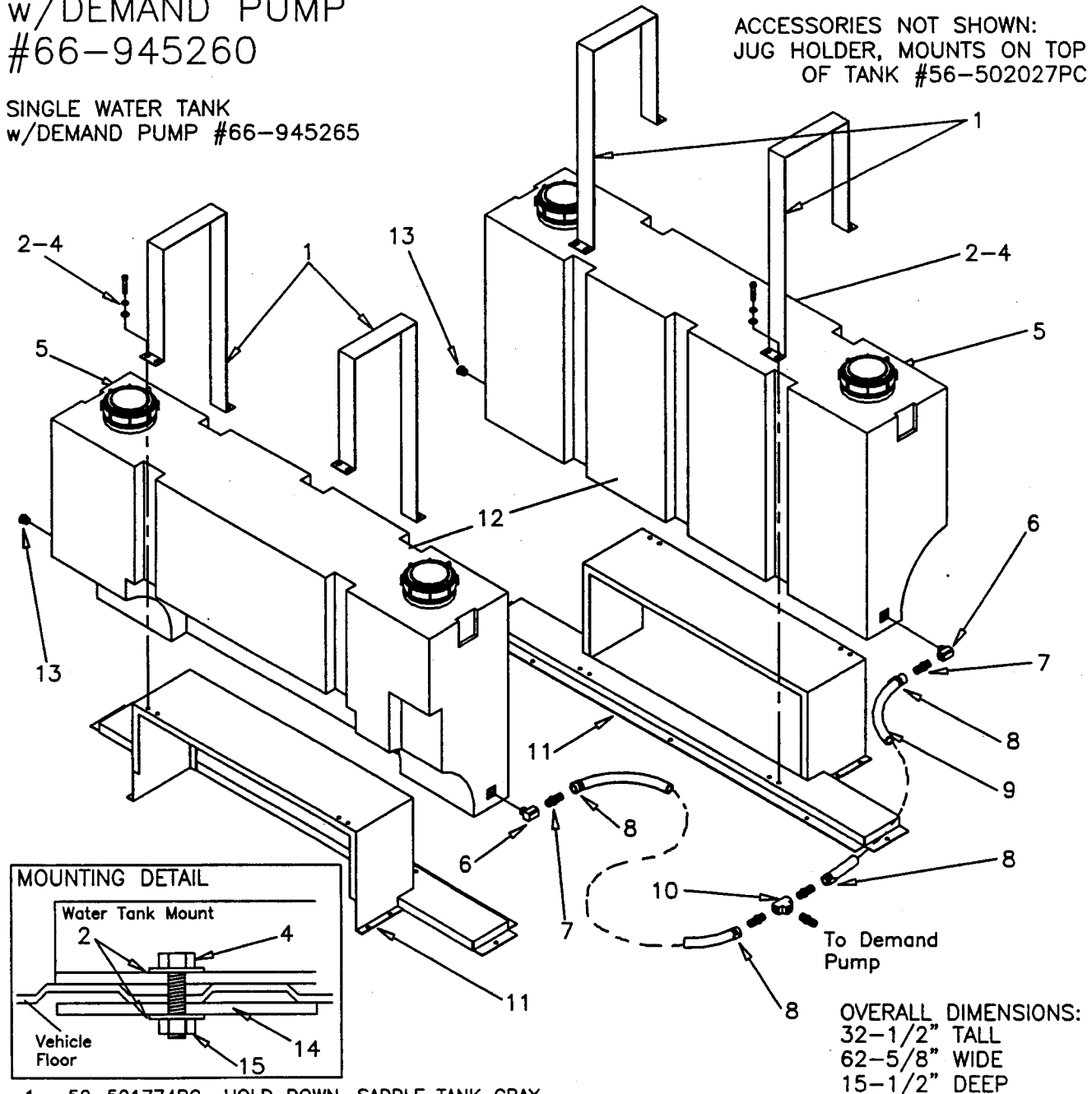
DIMENSIONAL DATA



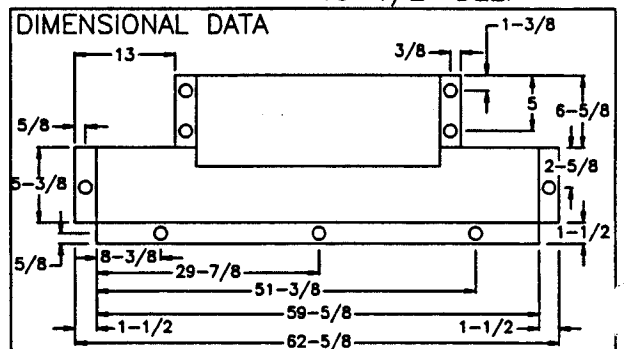
DUAL WATER TANK w/DEMAND PUMP #66-945260

SINGLE WATER TANK
w/DEMAND PUMP #66-945265

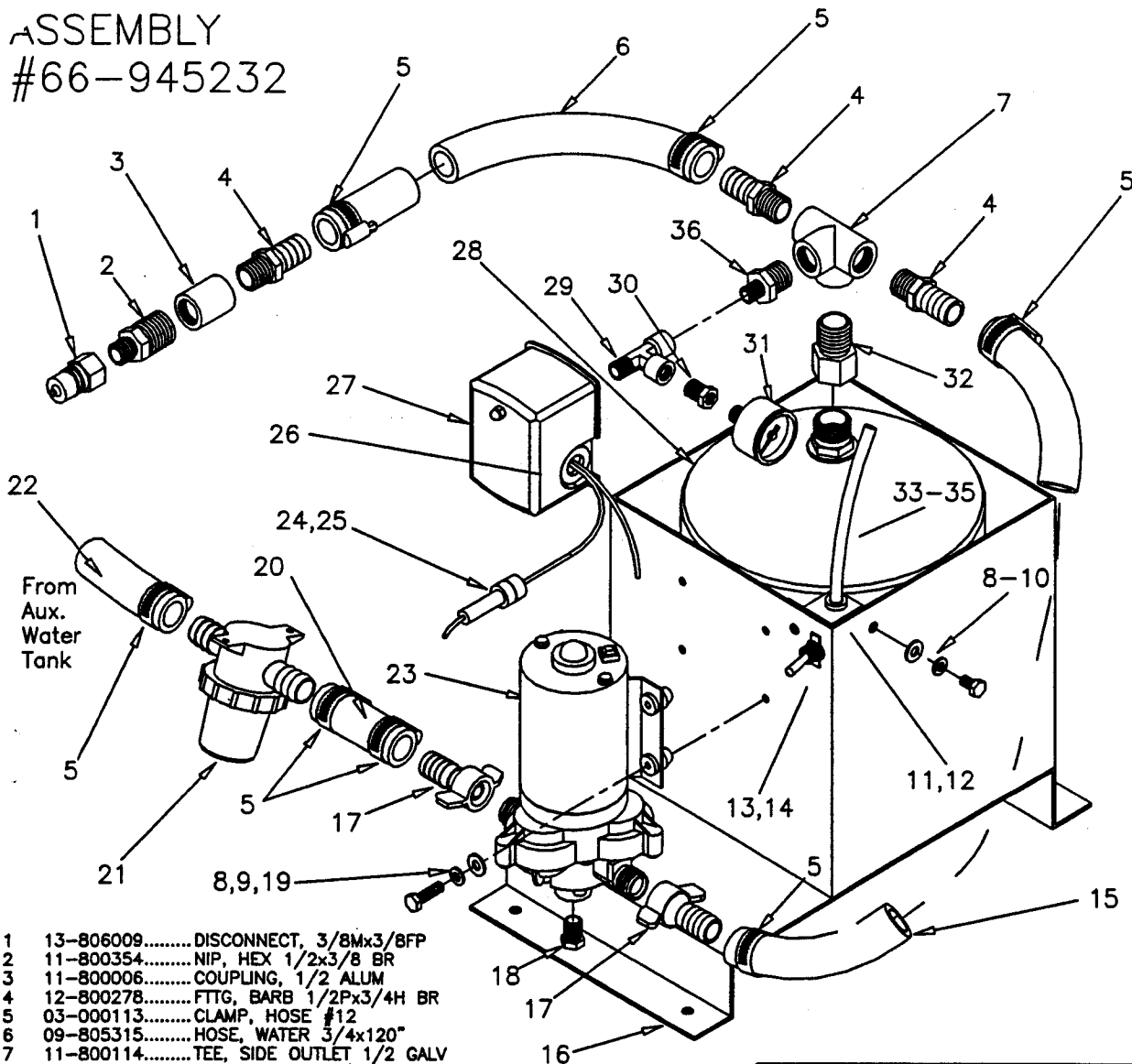
ACCESSORIES NOT SHOWN:
JUG HOLDER, MOUNTS ON TOP
OF TANK #56-502027PC



- 1 50-501774PC...HOLD DOWN, SADDLE TANK GRAY
- 2 02-000074.....FLAT WASHER, 3/8
- 3 02-000075.....LOCK WASHER, 3/8
- 4 00-000072.....SCREW, 3/8-16x2\"
- 5 11-800432.....CAP, WATER BOX
- 6 11-800041.....ELL, STREET 1/2 BRASS
- 7 12-800278.....FITTING, BARB 1/2Px3/4H BR
- 8 03-000113.....CLAMP, HOSE #12
- 9 09-805456.....HOSE, WTR 3/4x8' (cut to fit)
- 10 11-800085.....TEE, 1/2 BRASS
- 11 56-502000PC...ASSY, BASE SADDL TNK GRY
- 12 58-500661.....MOLDING, WATER TANK
- 13 11-800168.....PLUG, 1/2 BRASS HXHD
- 14 50-500511.....PLATE, INSTALL MT
- 15 01-000158.....LOCK NUT, 3/8-16 HXHD NYLOK

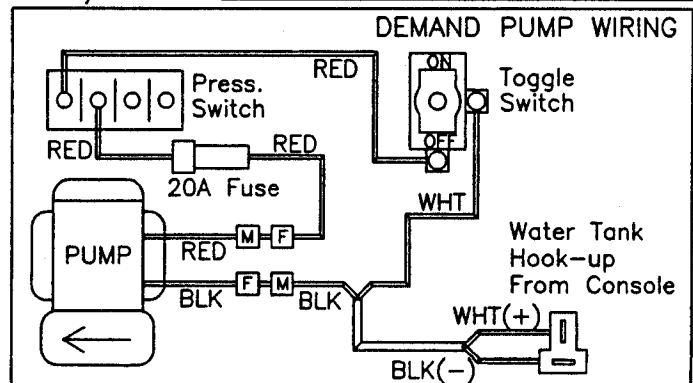
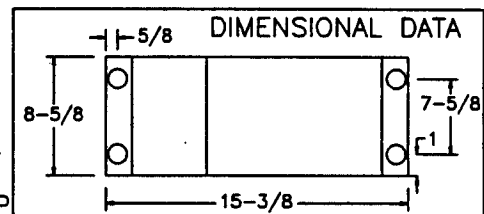


DEMAND PUMP ASSEMBLY #66-945232



- | | |
|----|--|
| 1 | 13-806009.....DISCONNECT, 3/8Mx3/8FP |
| 2 | 11-800354.....NIP, HEX 1/2x3/8 BR |
| 3 | 11-800006.....COUPLING, 1/2 ALUM |
| 4 | 12-800278.....FTTG, BARB 1/2Px3/4H BR |
| 5 | 03-000113.....CLAMP, HOSE #12 |
| 6 | 09-805315.....HOSE, WATER 3/4x120" |
| 7 | 11-800114.....TEE, SIDE OUTLET 1/2 GALV |
| 8 | 02-000066.....FLAT WASHER, 1/4 |
| 9 | 02-000038.....LOCK WASHER, 1/4 |
| 10 | 00-000070.....SCREW, 1/4-20x1/2" HXHD |
| 11 | 56-501954.....HOLDER, SWITCH-DEMAND PUMP |
| 12 | 43-807502.....GROMMET, 3/8IDx5/8OD |
| 13 | 32-900087.....SWITCH |
| 14 | 49-876249.....PLATE, SWITCH ON/OFF |
| 15 | 09-805291.....HOSE, WATER 3/4x19" |
| 16 | 56-501950PC.....HOLDER, DEMAND PUMP GRAY |
| 17 | 12-800392.....FTTG, BARB 1/2Px3/4H PLSTC |
| 18 | 11-800169.....PLUG, 1/4 BR |
| 19 | 00-000078.....SCREW, 1/4-20x1 HXHD GR 8 |
| 20 | 09-805278.....HOSE, WATER 3/4x3" |
| 21 | 14-806553.....FILTER, DEMAND PUMP |
| 22 | 09-805061.....HOSE, WATER 3/4x63" |
| 23 | 41-809145.....PUMP, SHURFLO 2088-343-500 |
| 24 | 31-900171.....HOLDER, FUSE |
| 25 | 33-900167.....FUSE, AGW 20AMP |
| 26 | 43-807506.....GROMMET, 5/8IDx1-1/8OD |
| 27 | 35-900187.....SWITCH, WATER PRESSURE |
| 28 | 41-700001.....VESSEL, PRESSURE |
| 29 | 11-800472.....TEE, 1/4FxMxF BR |
| 30 | 11-800039.....BUSHING, 1/4x1/8 BR |
| 31 | 18-808536.....GAUGE, PRESSURE 0-60PSI |
| 32 | 12-800369.....CONNECTOR, 3/4FPx1/2P |
| 33 | 64-950641.....CORD, 14-2x10 FT |
| 34 | 31-900187.....CONNECTOR, 2 TERM FEMALE |
| 35 | 31-900157.....TERM, DSC 1/4F 14-16 WIR |
| 36 | 11-800284.....NIP, HEX 1/2x1/4 BR |

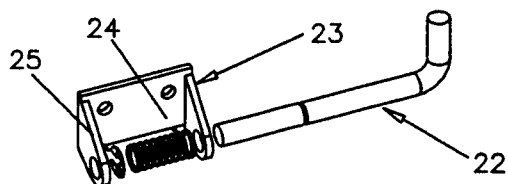
OVERALL
DIMENSIONS:
16-1/2" TALL
8-5/8" WIDE
15-3/8" DEEP



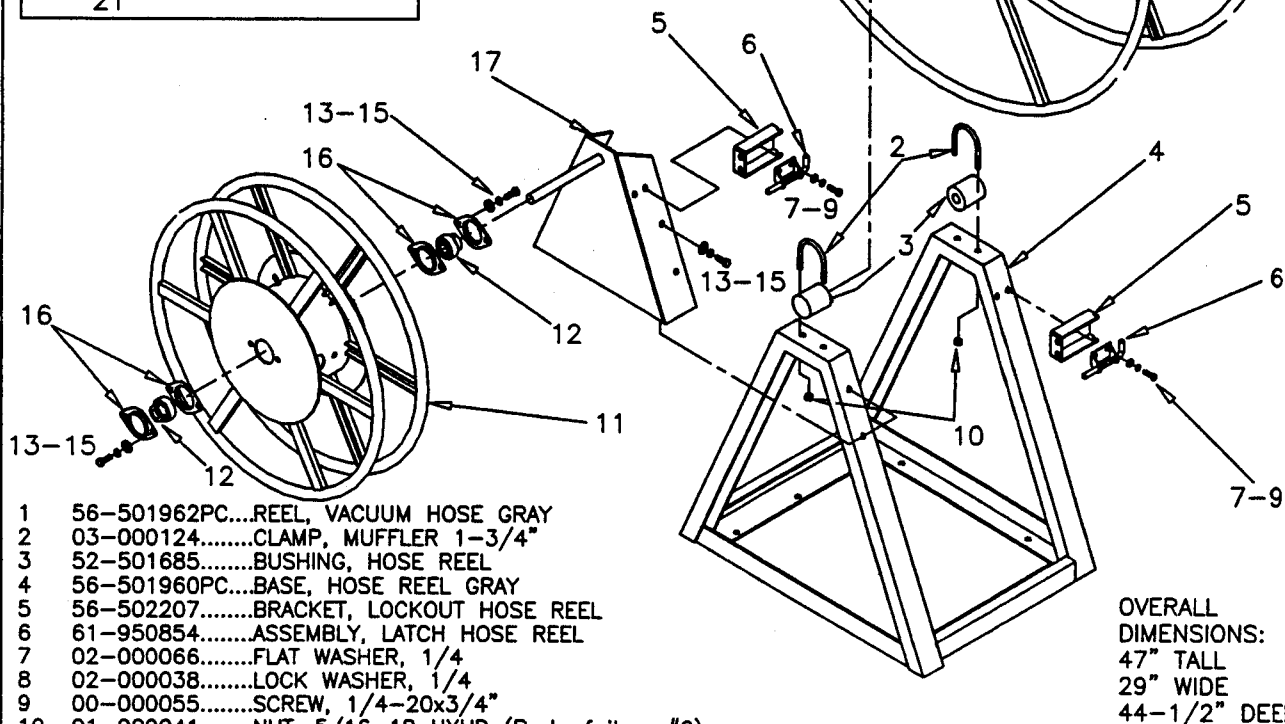
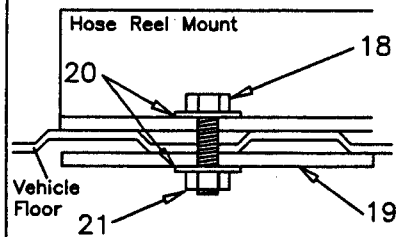
ACCESSORIES NOT SHOWN:
HOSE REEL, VACUUM HOSE ONLY #65-950438
DOOR-MOUNT HP HOSE REEL #65-950482

HOSE REEL ASSEMBLY #65-950393

#61-950854 LATCH ASSEMBLY DETAIL

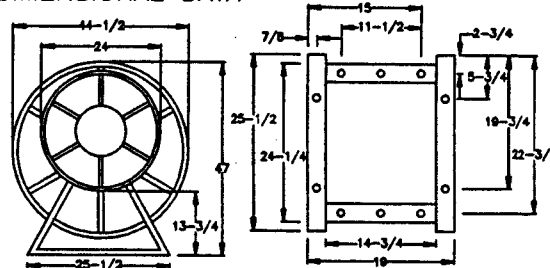


MOUNTING DETAIL



OVERALL
DIMENSIONS:
47" TALL
29" WIDE
44-1/2" DEEP

DIMENSIONAL DATA



- 1 56-501962PC...REEL, VACUUM HOSE GRAY
- 2 03-000124.....CLAMP, MUFFLER 1-3/4"
- 3 52-501685.....BUSHING, HOSE REEL
- 4 56-501960PC...BASE, HOSE REEL GRAY
- 5 56-502207.....BRACKET, LOCKOUT HOSE REEL
- 6 61-950854.....ASSEMBLY, LATCH HOSE REEL
- 7 02-000066.....FLAT WASHER, 1/4
- 8 02-000038.....LOCK WASHER, 1/4
- 9 00-000055.....SCREW, 1/4-20x3/4"
- 10 01-000041.....NUT, 5/16-18 HXHD (Part of item #2)
- 11 56-501968PC...REEL, HP HOSE GRAY
- 12 45-802138.....BEARING, HOSE REEL
- 13 02-000143.....FLAT WASHER, 5/16
- 14 02-000040.....LOCK WASHER, 5/16
- 15 00-000039.....SCREW, 5/16-18x1"
- 16 44-802122.....FLANGE, 47MST
- 17 56-501961PC...BODY, HP HOSE GRAY
- 18 00-000072.....SCREW, 3/8-16x2"
- 19 50-500511.....PLATE, INSTALL MOUNT
- 20 02-000074.....FLAT WASHER, 3/8
- 21 01-000158.....LOCK NUT, 3/8-16 HXHD NYLOK
- 22 55-501789.....PIN, LOCK HOSE REEL
- 23 50-501812.....BRACKET, HOSE REEL LOCK
- 24 04-000302.....SPRING, LOCK-LOCK PIN ASSY
- 25 04-000303.....CLIP, RETAINER-LOCK PIN ASSY



BLAZER WIRING DIAGRAM

