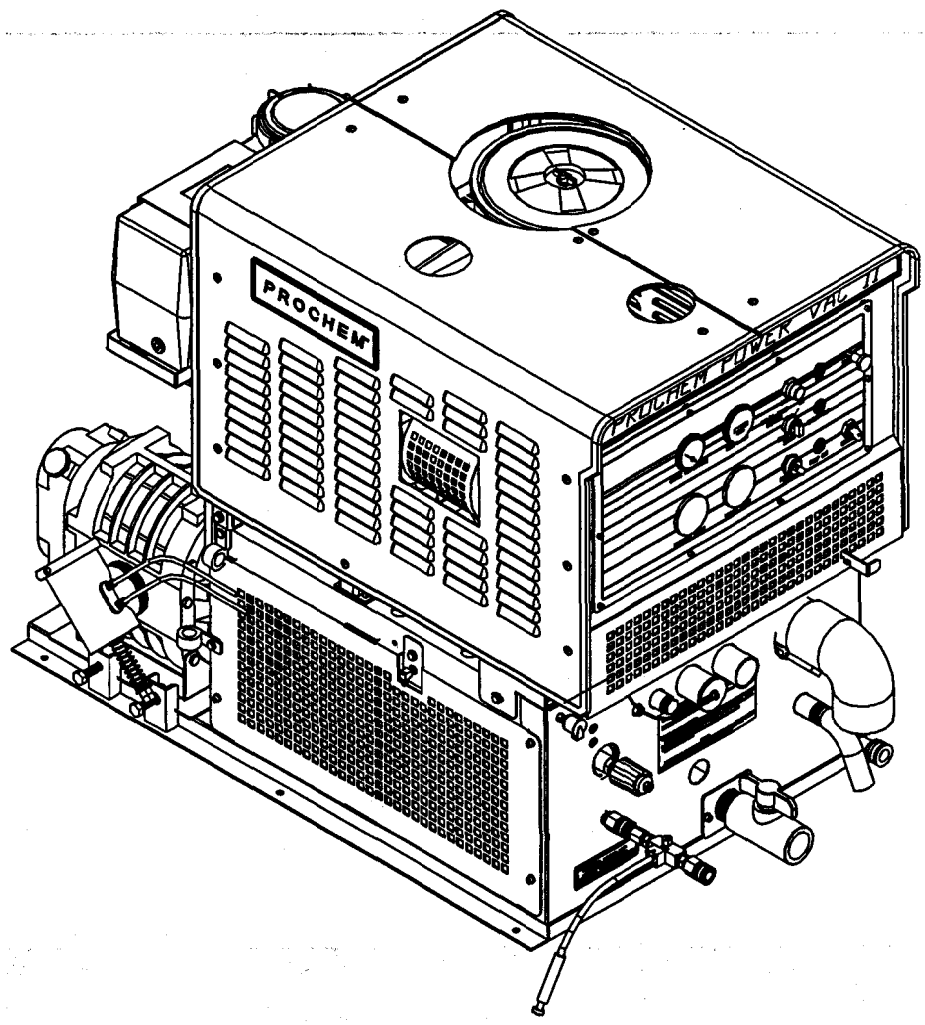
PROCHEM
POWER VAC II

Mobile Cleaning Unit



DECEMBER 2001

OPERATION & SERVICE MANUAL

Welcome. . . and congratulations on your purchase of the **POWER VAC 2** 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.

MARE CERTAIN THAT THE WARRANTY 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 POWER VAC 2** Mobile Cleaning Units, which are manufactured by:

PROFESSIONAL CHEMICALS
CORPORATION
325 SOUTH PRICE ROAD
CHANDLER, ARIZONA 85224

Information in this document is subject to change without notice and does not represent a commitment on the part of Professional Chemicals Corporation.

Published by Professional Chemicals Corporation.
First printing August 1998
Second printing: December 2001
Printed in USA

POWER VAC 2 MANUAL #67-945735

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 (l-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.

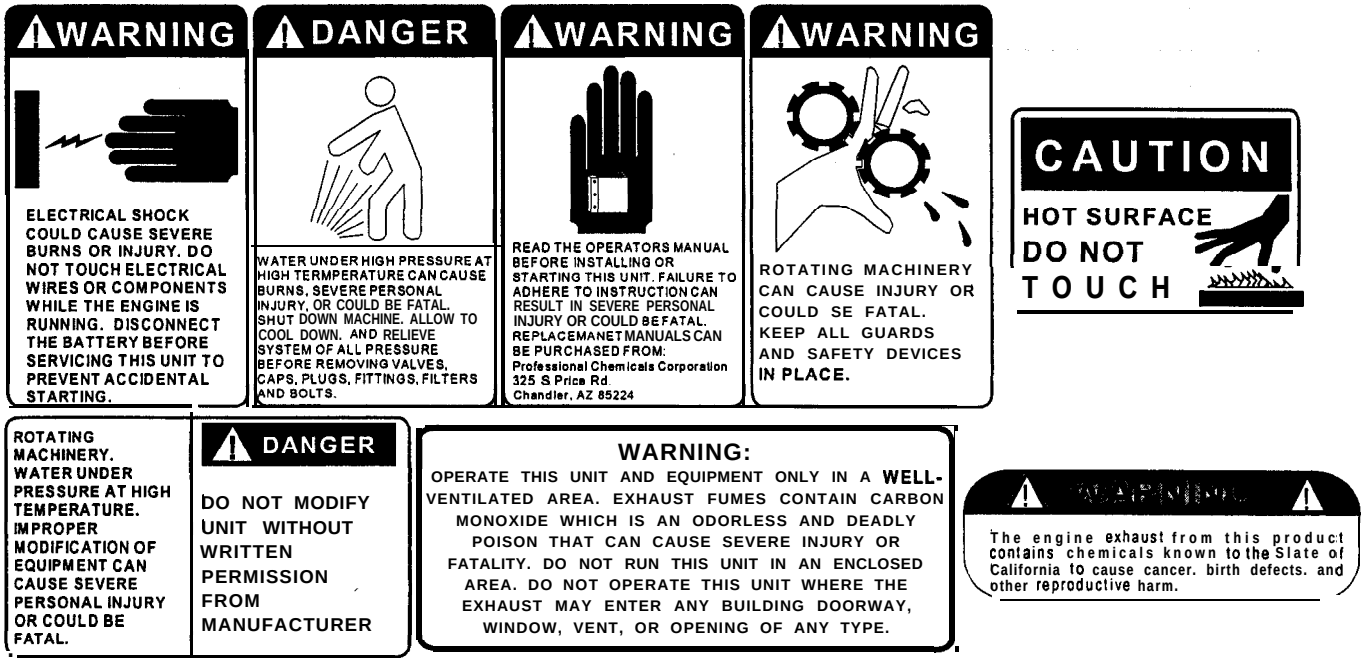
Your PROCHEM unit is designed to give you years of reliable service. However, if a problem should arise after the warranty period, follow the troubleshooting procedures in the Operation and Service Manual. If you are still unable to determine the cause and solution to the problem, contact your nearest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

TABLE OF CONTENTS

1 SAFETY

A WARNING: For Your Safety!

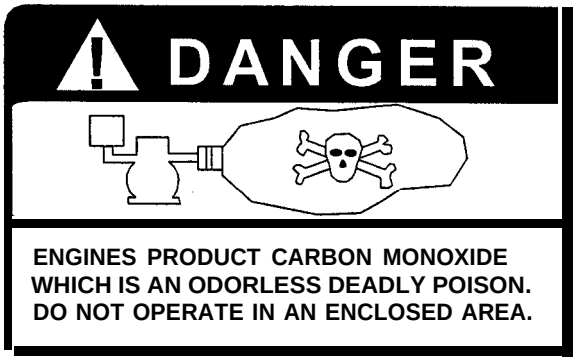
*The following **WARNING LABELS** are found on your POWER VAC II console. These labels point out important **Warnings** and **Cautions,** which should be followed at **all** times. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property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



Order #48-9412 12 to get a complete set of decals (safety and instrumentation) for your Power Vac II cleaning unit.

The following decals must be placed in a prominent spot on the vehicle that this unit is to be installed in.

Decal, Fuel Clean-up,
Part #48-941317



Decal, Carbon Monoxide
Part #48-941316

SECTION 1: GENERAL INFORMATION

A

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!

A WARNING!

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

2. This unit uses high pressure. Improper or irresponsible use may result in serious injury.

3. 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.*

4. 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 extra gasoline in the vehicle. Fumes may accumulate inside the vehicle and ignite, causing an explosion.* ***DO NOT*** *store any flammable containers in the vehicle.*

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

6. 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.*

7. 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 could be fatal.*

8. 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.*

9. 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.*

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

11. 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.*

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

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

14. 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, AL WAYS disconnect the negative (-) terminal FIRST

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

16. 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.*

17. 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 the provided abrasion resistant fuel hose only for fuel lines. When transversing 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.*

18. DO NOT exceed your vehicle's weight limit. *The console with waste tank and accessories weighs approximately 1134 lbs. Make certain that the vehicle has the correct axle rating. This will prevent unsafe vehicle driving conditions.*

19. 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.*

20. Keep your vehicle work area clean. *Wands, cleaning 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.*

21. All high pressure hoses must be rated for *3500* ***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.*

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

23. Do not modify this unit in any manner. *Improper modification can cause severe personal injury or could be fatal.*

24. 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	2600 rpm (high speed) 2300 rpm (medium speed) 900 rpm (idle speed, water pump off)
Water pump rpm	1575 rpm
Water flow rate	4.5 GPM (maximum)
Water pump pressure	3500 PSI (maximum)
Vacuum pump rpm	2870 rpm
Vacuum relief valve	12" Hg
Waste tank	66 Gallons
Console weight	889 lbs.
Console weight (with waste tank and accessories)	1134 lbs. (1551 lbs. if waste tank is full)

TORQUE VALUES:

Component	inch/lbs	foot/lbs
Engine hub	720	60
Vacuum pump hub	192	16

INSTALLATION REQUIREMENTS

Prior to starting the installation, first read the **ENTIRE "Installation,"** Section 2 of this manual. Since the **Power Vac II cleaning unit** (with waste tank and accessories) weighs 1134 pounds, consider the following recommendations *before* installing this unit.

1. The unit should **not** be mounted in any motor vehicle of less than **3/4-ton capacity.**

A CAUTION:

The unit 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.

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 (#56-501845.)

7. If using a trailer, the Power Vac II 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.

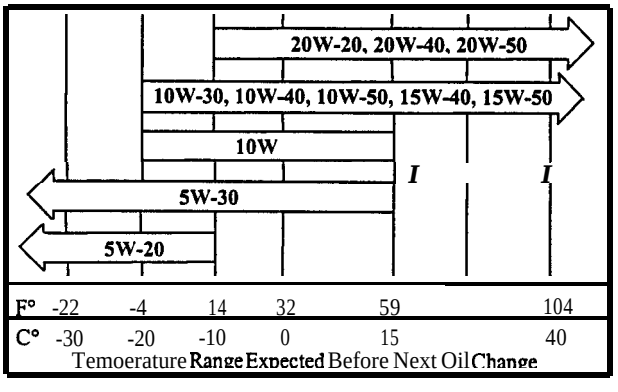
FUEL REQUIREMENTS

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 gasoline engine on this unit.

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



CHEMICAL REQUIREMENTS

The PROCHEM POWER VAC II cleaning unit, due to its chemical injection 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.

2 RECEIVING YOUR UNIT

This chapter of the manual contains information on receiving your PROCHEM POWER VAC II cleaning unit.

DEALER RESPONSIBILITY

THE PROCHEM DEALER 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.

ACCEPTANCE OF SHIPMENT

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

1. Check the unit for any outward signs of damage. If damaged, notify the common carrier IMMEDIATELY.

2. Check your equipment and packing list. The standard PROCHEM POWER VAC II cleaning unit should arrive equipped with the following items (unless otherwise specified) and any optional equipment which was ordered:

EQUIPMENT LIST

A) PROCHEM POWER VAC II cleaning unit 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 standard fuel supply installation.

F) Hose clamps for fuel & vacuum hoses.

G) External fuel pump installation kit.

H) Waste tank w/float switches.

I) Waste tank filters and strainer basket.

J) 100 ft. of 2" vacuum hose.

K) 1 vacuum hose connector.

L) 100 ft. of 3/8" high-pressure hose with quick connects.

M) 50 ft. water supply hose with quick connect.

N) 13 ft. waste dump hose with quick connect.

OPTIONAL EQUIPMENT

0) Hose reel.

P) Hard Surface Cleaner tool. Part #60-950462 (blue) or #60-950504 (black).

Q) Dual-lance pressure wash gun. Part #60-950505.

R) Oil-fired solution heater. Part #65-950496.

S) Van Storage Unit. Part #65-950392.

T) Galvanized drip pan. Part #56-501845.

U) Auxiliary water tank w/demand pump. Part #66-945265.

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

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

X) Extra high-pressure water hoses. Part #10-805334.

Y) 1992 (or later) Ford fuel line installation kit. Part #66-945171.

Z) Winterizing loop hose. Part #10-805453.

SECTION 2: INSTALLATION

3 INSTALLATION 10

3 INSTALLATION

A WARNING!

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

1. LIFTING THE UNIT ON THE VEHICLE

Since the PROCHEM POWER VAC II console weighs approximately 889 pounds, we recommend using a forklift 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 POWER VAC II cleaning unit 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 1 for console and waste tank dimensions.

3. BOLTING DOWN THE UNIT AND WASTE TANK

NOTE: When positioning the waste tank with respect to the console, first hook up the vacuum hoses to the waste tank. This will ensure that the waste tank is positioned CORRECTLY.

Once the console and waste tank are positioned in the vehicle in the desired location, you may proceed.

A 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.

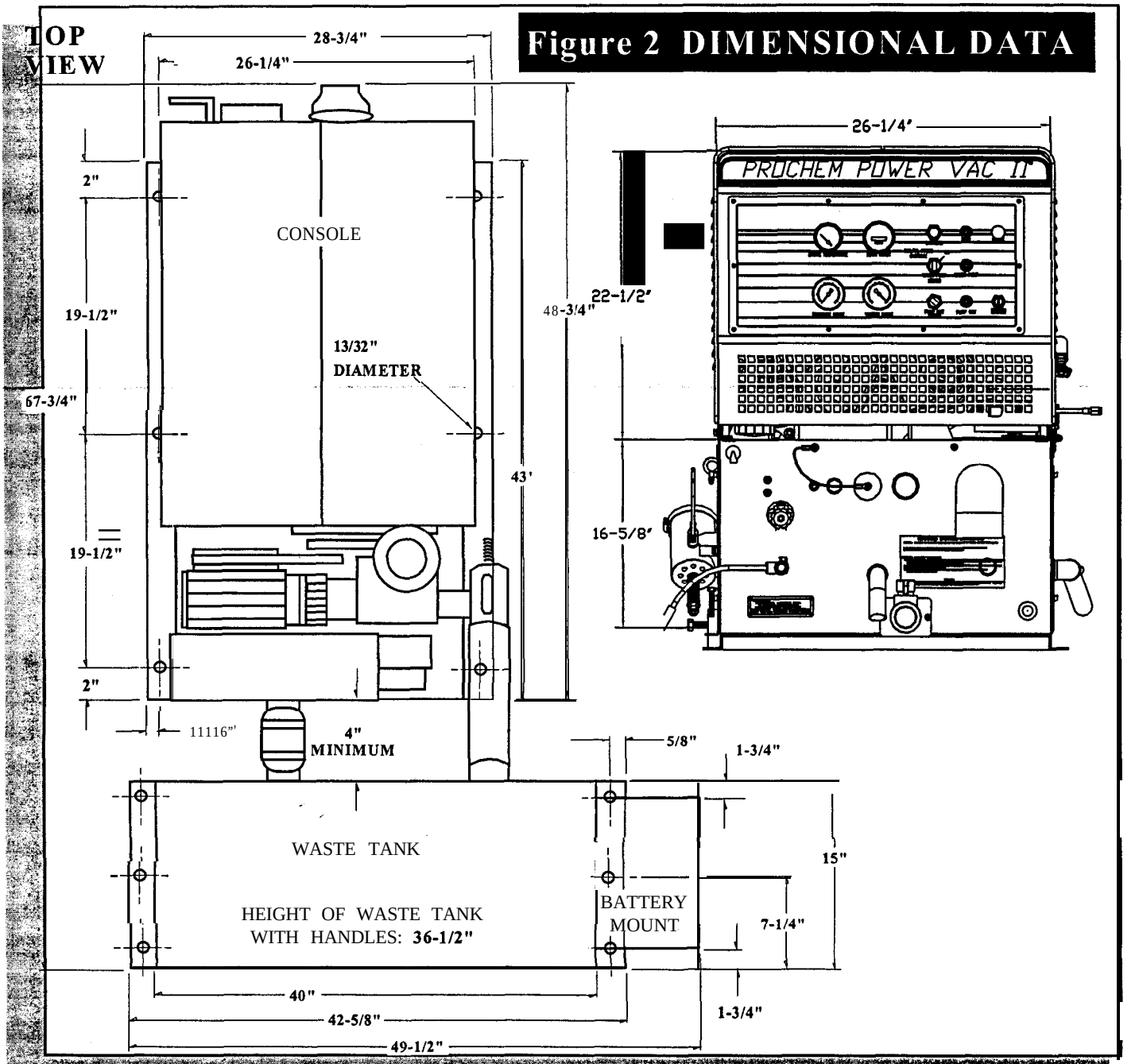
2. Using the installation hardware kit:

a) Insert six 3/8-16x2" hex head cap screws with flat washers through the mounting holes in the PROCHEM POWER VAC II console, and six 3/8-16 hex head cap screws with flat washers through the mounting holes in the waste tank.

b) Install the mounting plates underneath the vehicle floor. See Figure 2.

c) Screw the 3/8-16 hex head locknuts on the mounting screws and tighten them until the console and waste tank are firmly secured to the vehicle floor.

Figure 2 DIMENSIONAL DATA



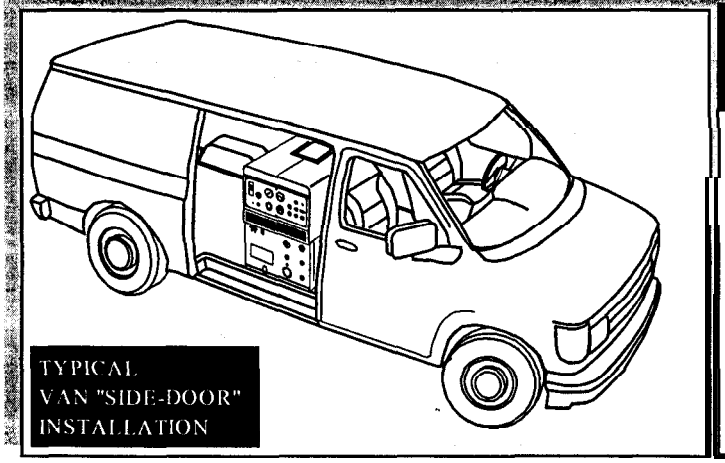
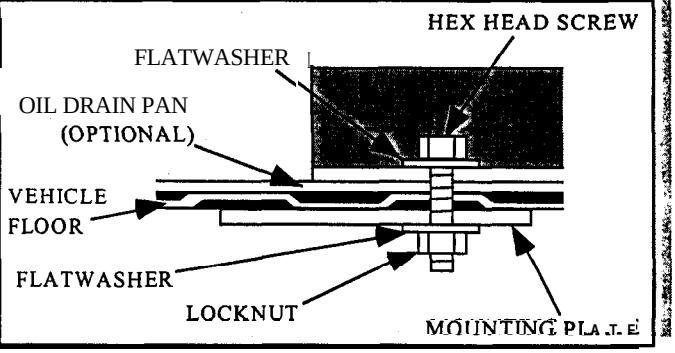


Figure 3 MOUNTING PLATE INSTALLATION



4. INSTALLING FUREL LINE ON THE VEHICLE

READ THESE INSTRUCTIONS ENTIRELY BEFORE PROCEEDING.

A WARNING!

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

A 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 7 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.

A CAUTION:

Before drilling the fuel line hole in the vehicle floor, make certain 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 1/8" bulkhead adapter by inserting the adapter and tightening the nut on the opposite side of the van floor (Figure 3).

4. Attach a 1/8P x 1/4T elbow to the bulkhead adapter on one end (Figure 3). Attach a 1/8" 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 tank.

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 4).

A CAUTION:

When assembling pipefittings, Teflon thread sealant must be used.

10. Attach a 1/8" street elbow to one end of the short bulkhead adapter (Figure 5).

FUEL LINE INSTALLATION

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

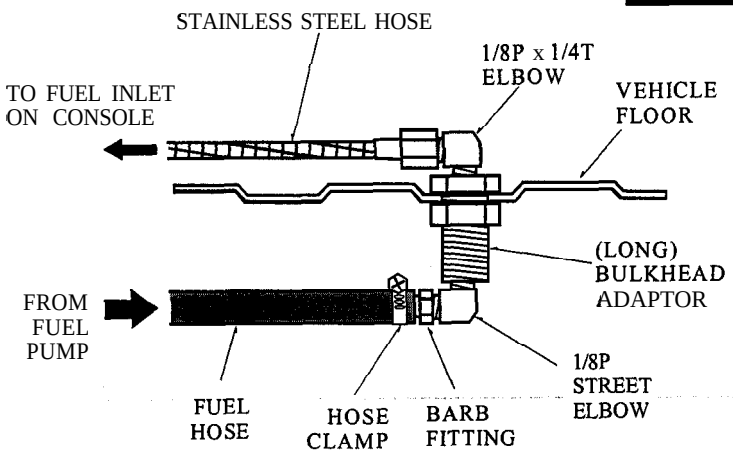


FIGURE 4

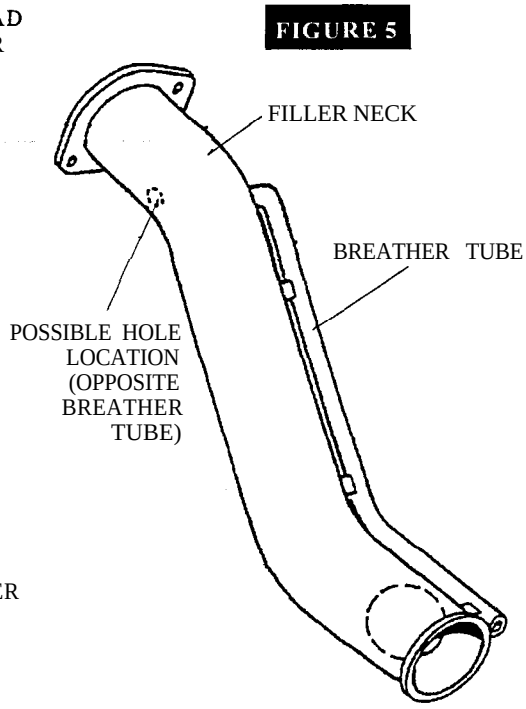


FIGURE 5

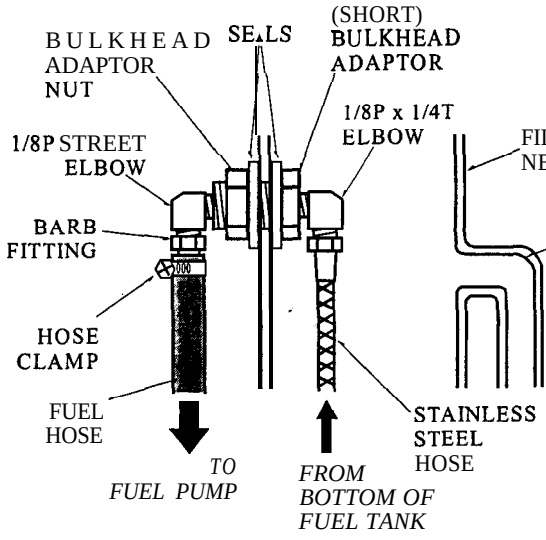


FIGURE 6

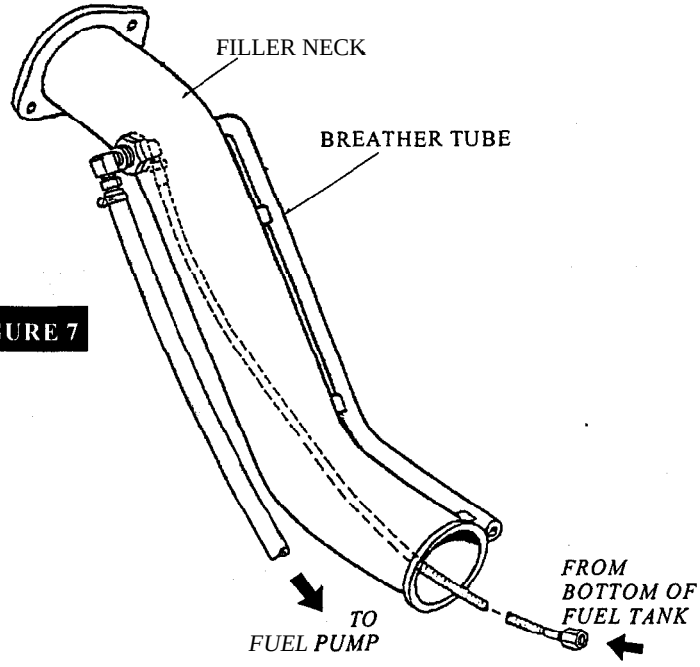
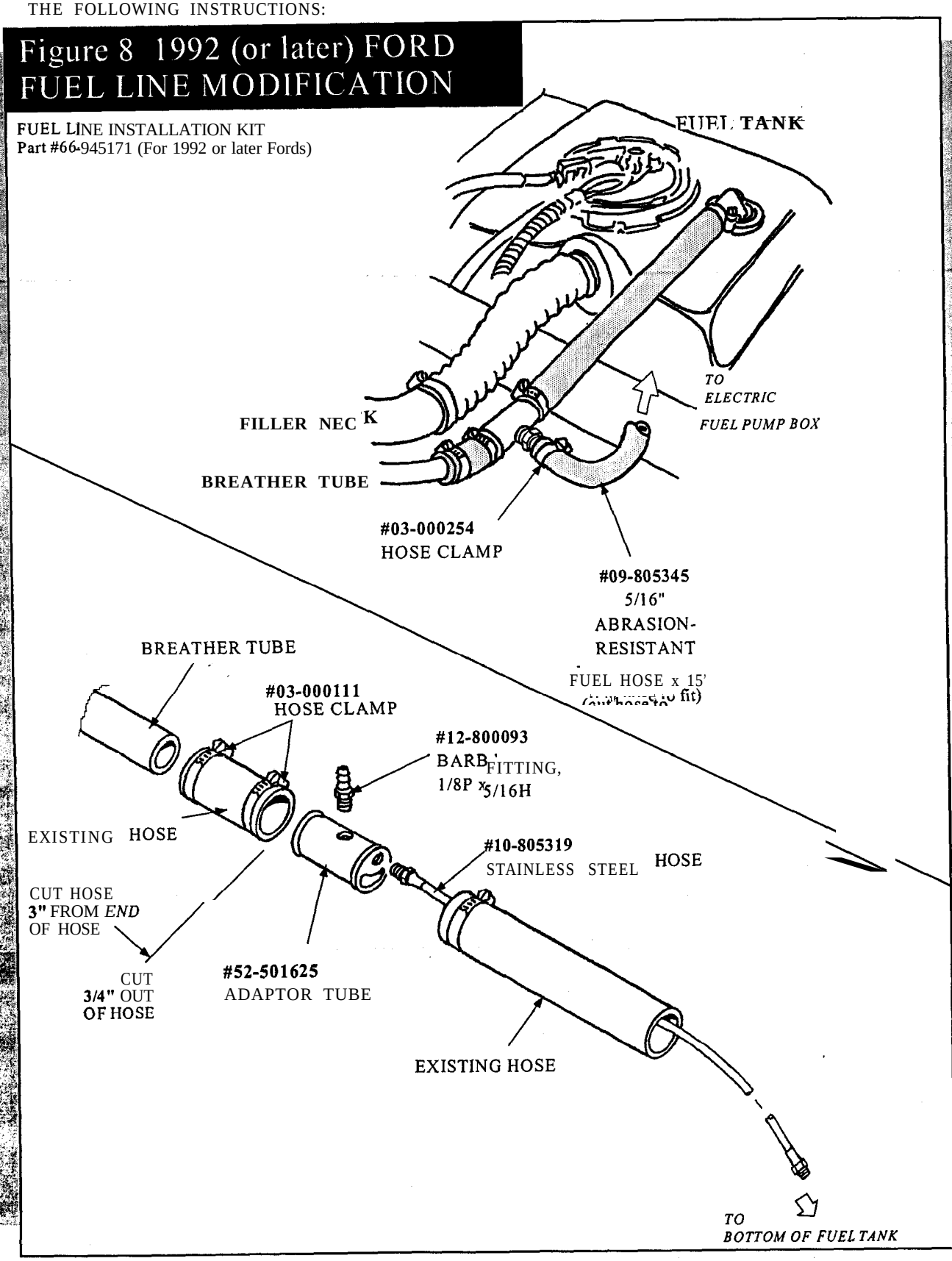


FIGURE 7

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)



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

Next, attach the 25", 36", or 45" stainless steel hose to the 1/8" steel 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 5).

Attach the 1/8" 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 6).

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

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 hoses that 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 8). 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.

A 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 State and Federal laws must be maintained.

2. Provide a safe fuel tank, which is manufactured specifically for gasoline, has a proper filling cap, and an outlet connection that is the same size as the inlet connection on the unit. The minimum size outlet connection is 1/8 NPT.

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

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 F'ROCEEDING

⚠ WARNING!

DO NOTINSTALL 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 ASSEMBL Y 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

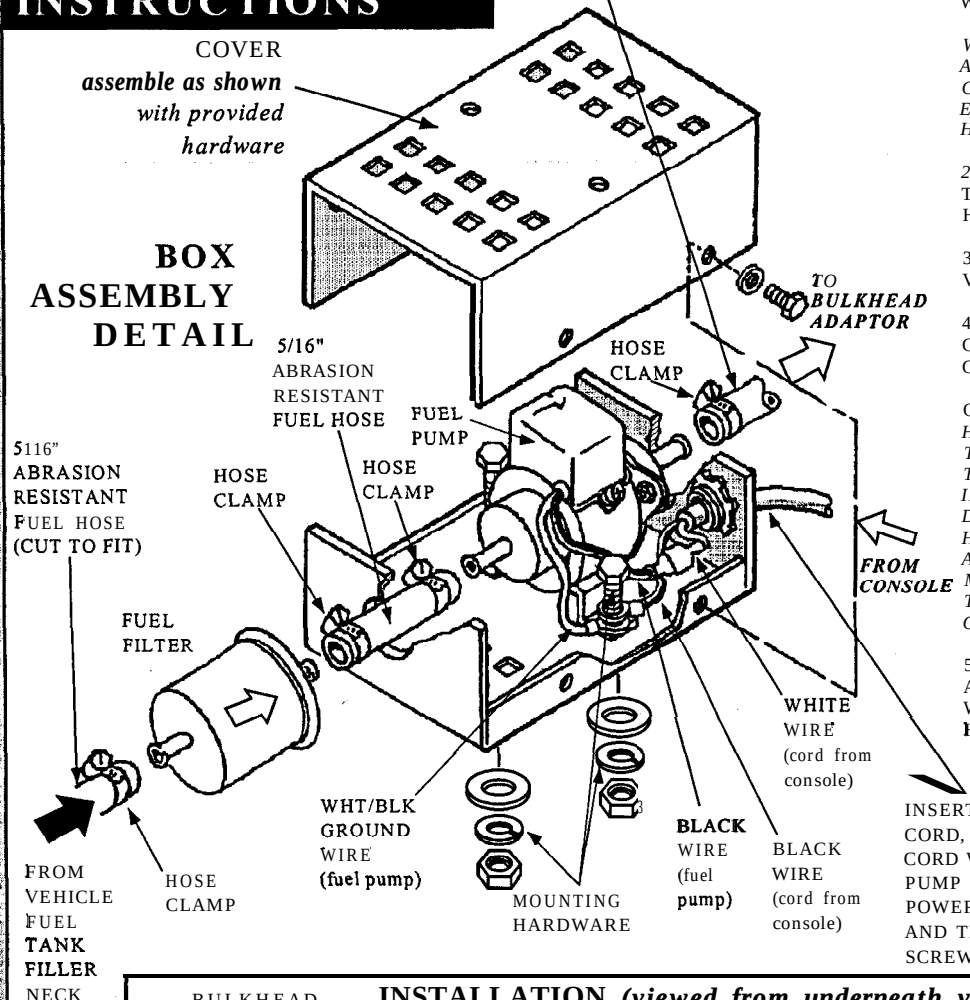
3. MOUNT THE COVER TO THE VEHICLE FLOOR.

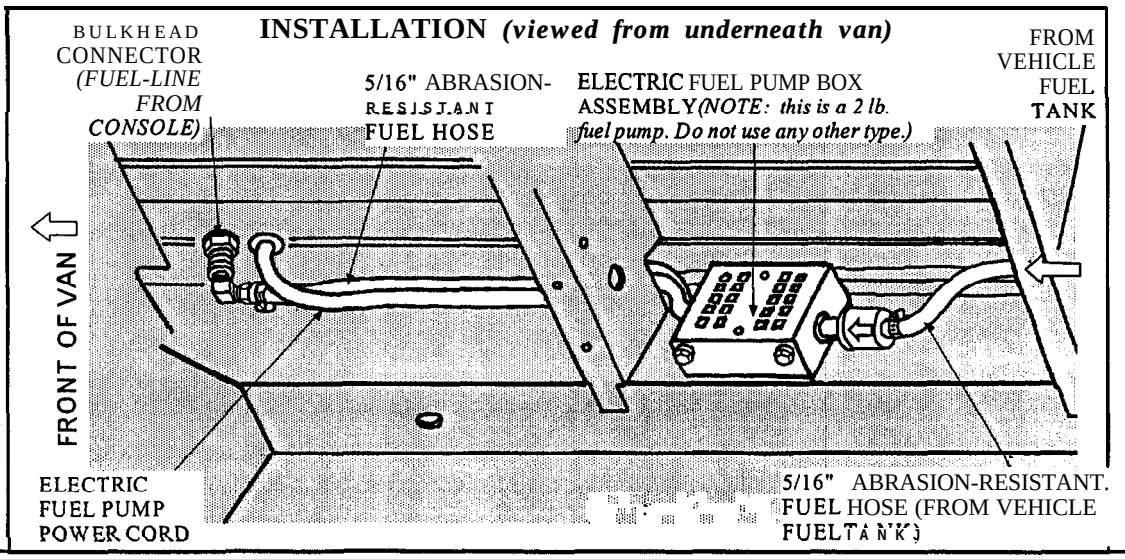
4. CONNECT THE HOSES AND CORD AS SHOWN. TIGHTEN HOSE CLAMPS.

CAUTION: *WHEN ROUTING THE HOSE AND CORD UNDERNEATH THE VEHICLE, MAKE CER TA IN 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

INSERT FUEL PUMP POWER CORD, CONNECT POWER CORD WHITE WIRE TO FUEL PUMP BLACK WIRE, GROUND POWER CORD BLACK WIRE, AND TIGHTEN CORD HOLDER SCREWS.





6. WASTE TANK TO CONSOLE CONNECTION

See Figure 9.

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

1. Connect the 6-1/2" long section of 3" I.D. internal vacuum hose to the 3" diameter vacuum inlet tube on the console and the 3" diameter inlet tube on the waste tank. Tighten the hose clamps.

2. Connect the 25" long section of 3-1/2" I.D. internal vacuum hose to the 3-1/2" diameter vacuum outlet tube on the waste tank and to the vacuum pump relief valve on the console. It may be necessary to cut this hose to fit. Tighten the hose clamps.

3. Connect the 2" I.D. waste removal hose to the 2" diameter tube at the bottom of the waste tank. Tighten the hose clamps.

4. Connect the console engine shut-off cord to the upper waste tank level sensor cord.

5. Connect the console waste pump cord to the lower waste tank level sensor cord.

7. BATTERY CONNECTION

A WARNING!

Dangerous Acid, Explosive Gases!

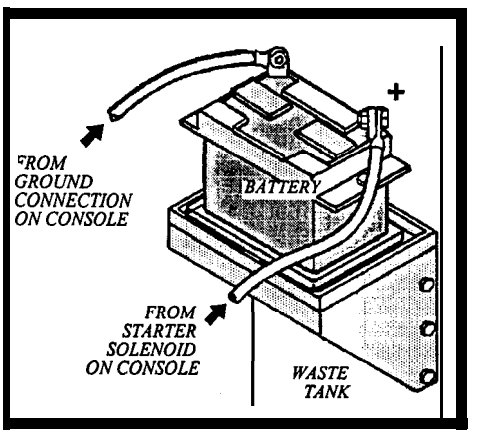
Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well-ventilated areas. Keep sparks, open flames, and other sources of ignition away 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. Attach the red positive (+) battery cable from the console starter solenoid to the positive (+) terminal on the battery and tighten the holding nut.

2. Next, attach the black negative (-) battery cable from the console ground to the negative (-) terminal on the battery and tighten the holding nut.

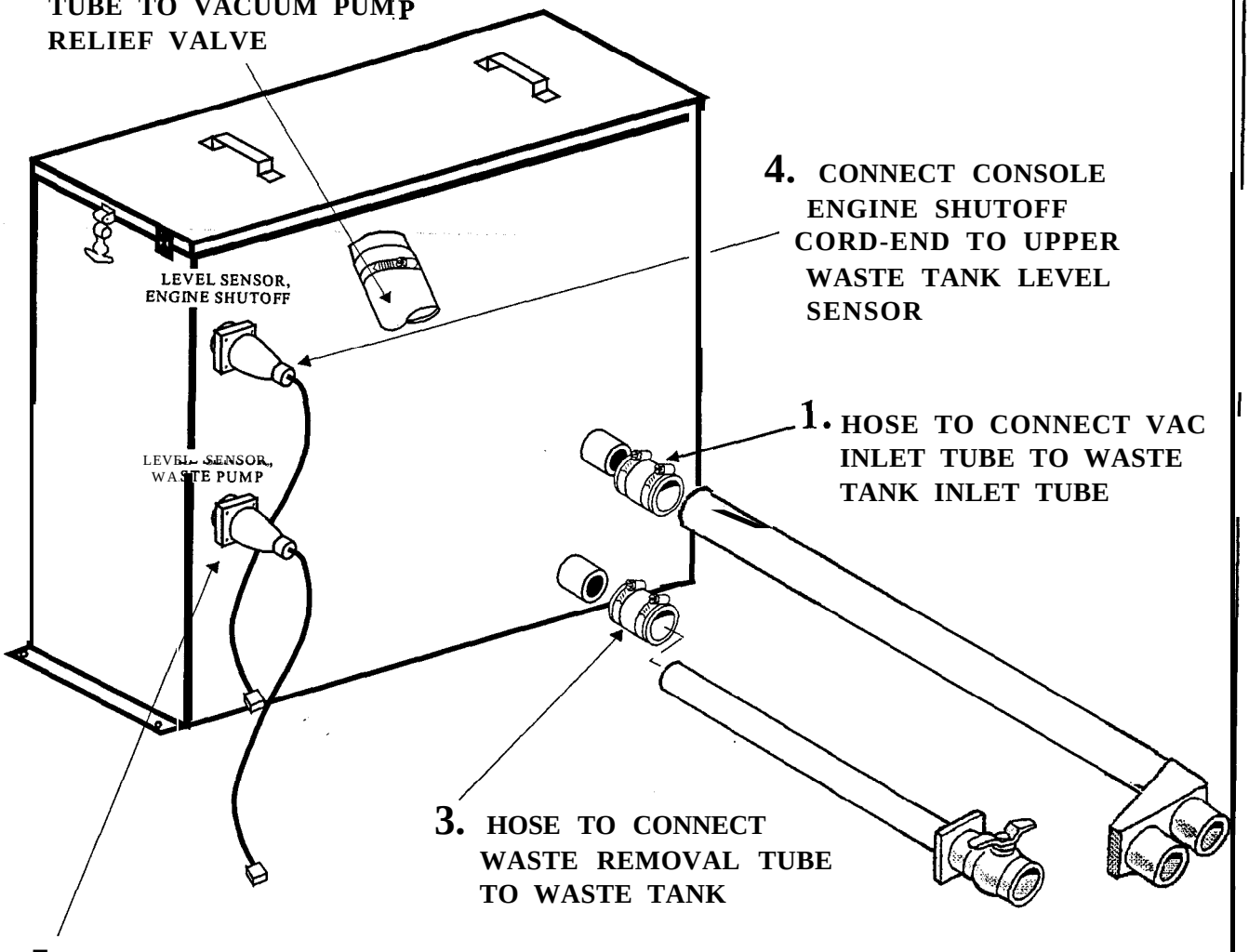
BATTERY HOOK-UP



8. FIRE EXTINGUISHER

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

Figure 9 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*.

SECTION 3: OPERATION

4 SYSTEM

5 OPERATIO

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 section 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 illustrations on the following pages.

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 box is full.

Water then flows through a strainer into the water pump -where it is pressurized. This pressurized water is pumped to the pressure manifold where the unloader provides and maintains the desired pressure setting.

If the tool valve is closed, water flows from the unloader bypass back to the water box. When the tool valve is opened, water flows from the pressure manifold through a chemical injection orifice. This is where chemical injection occurs. The solution then flows to the cleaning tool.

2. VACUUM SYSTEM

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

From the vacuum inlet tube at the front of the console the air and water mixture flows through a strainer basket in the waste tank. Air then exits the waste tank through two 100-mesh filters and flows into the vacuum pump, vacuum silencer, and is discharged at the console lower front panel.

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.

A 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.)

3. CHEMICAL SYSTEM

The chemical is drawn from the chemical container through a strainer into the chemical injector.

A pressure differential at the chemical injector draws chemical into the pressurized water stream. The pressure differential is increased, and the chemical flow is started, by screwing in the differential screw on the chemical injector. Once a steady chemical flow has begun, the rate of chemical flow is adjusted with the flow screw on the chemical injector. Chemical flow is increased by backing out the flow screw.

The operator can stop the chemical flow by backing out the differential screw to decrease the pressure differential at the chemical injector orifice. The chemical injector is attached to a quick disconnect which plugs into the solution outlet on the console lower front panel. The unit can be operated with or without chemical injection.

Figure 10 WATER PUMPING SYSTEM

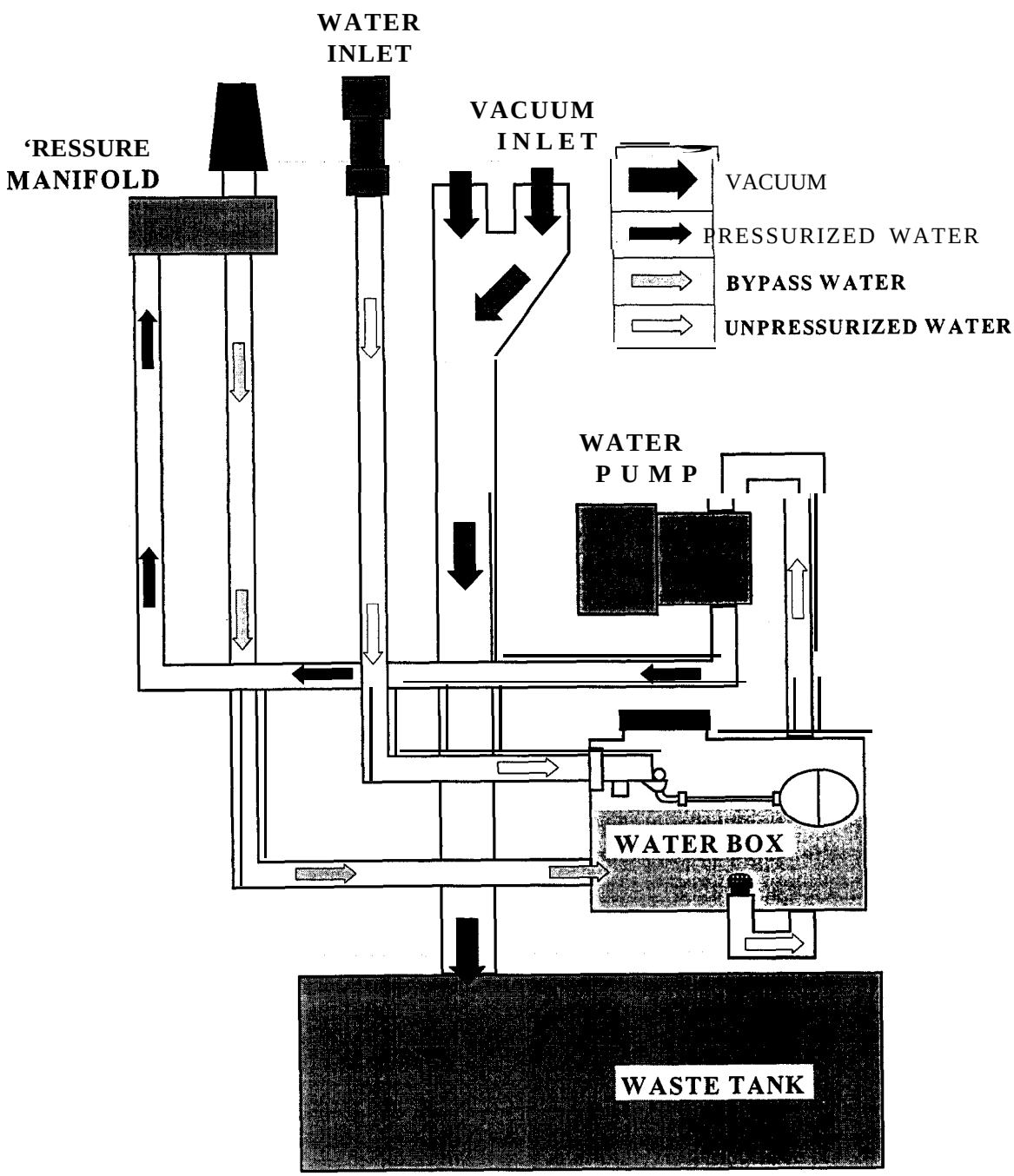


Figure 11 VACUUM SYSTEM

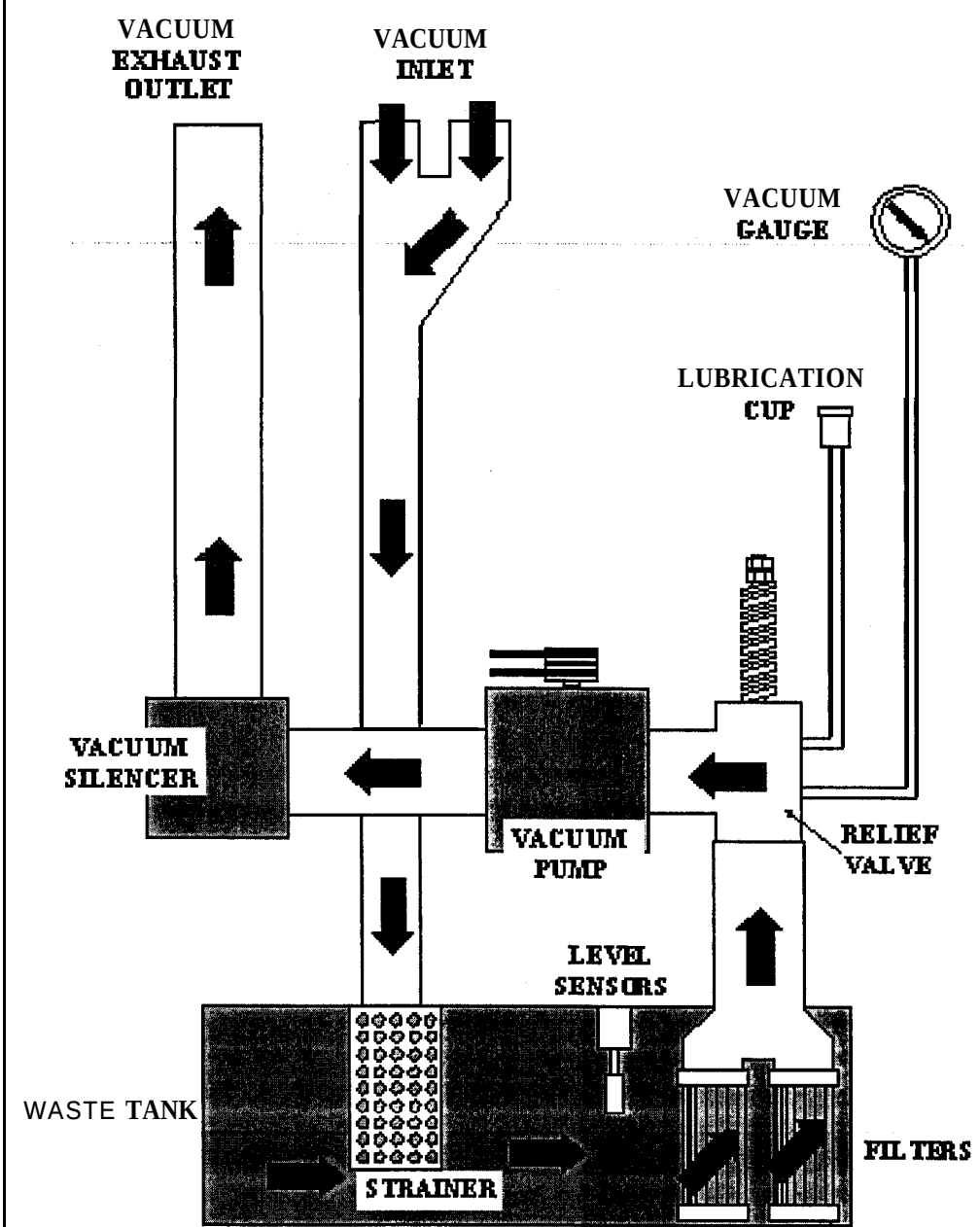
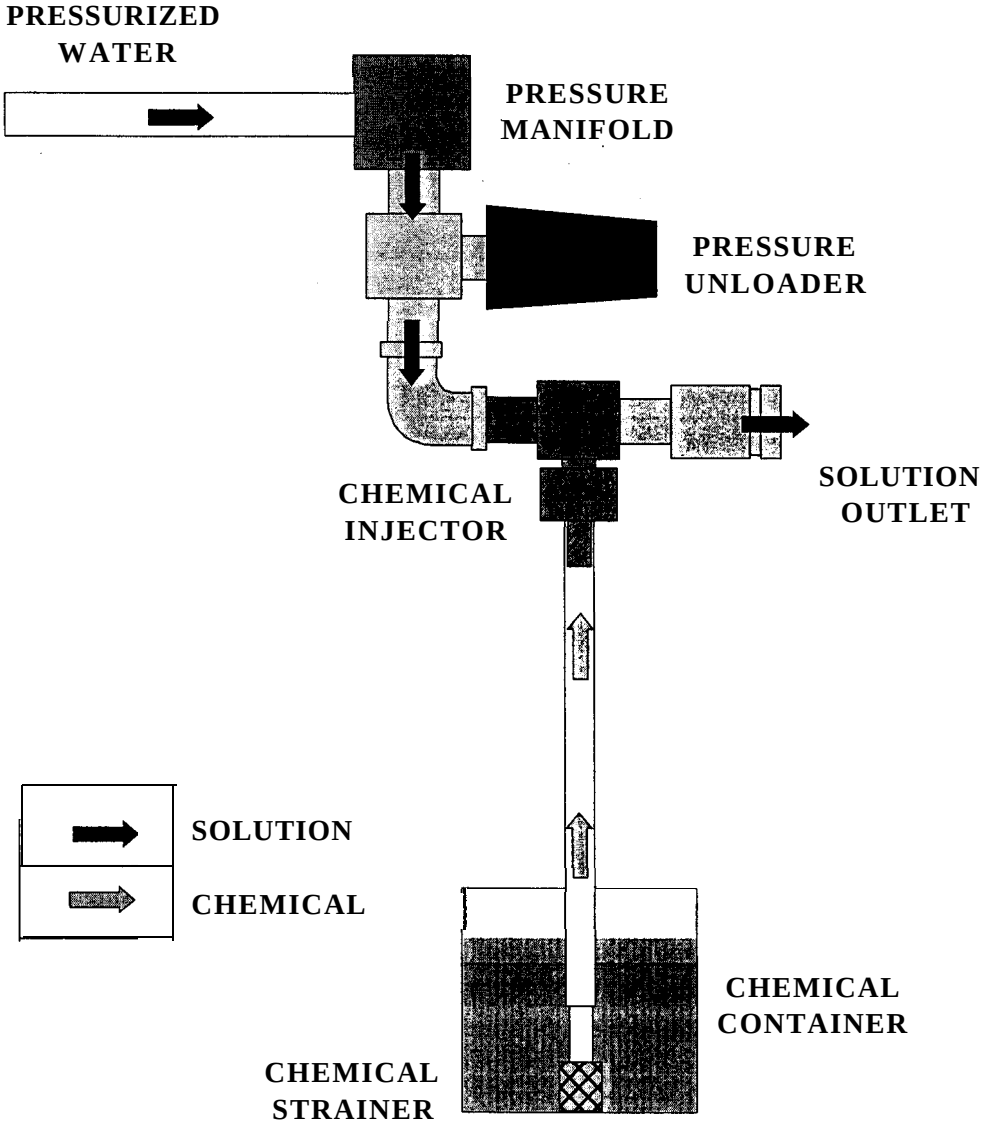


Figure 12 CHEMICAL SYSTEM



4. WASTE PUMP SYSTEM

The recovered waste flows through the waste pump and a check valve before exiting the console lower front panel.

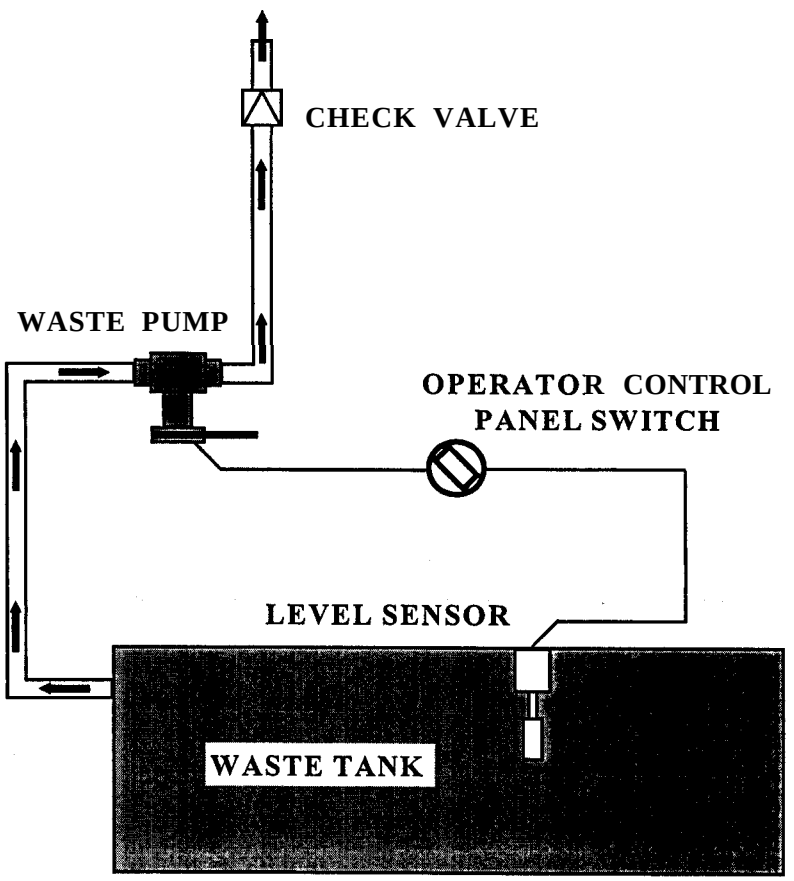
The waste pump is belt-driven by the engine, through an electric clutch.

The operator begins waste pump operation using a control panel switch. A level sensor switch located near the lower part of the waste tank will disable the waste pump before the waste tank is completely emptied. This protects the waste pump from running dry and being damaged.

A WARNING!

DO NOT dispose of waste in any manner, which, in so doing, would violate any Local, State, or Federal Law.

Figure 13 WASTE PUMP SYSTEM



5 OPERATION

This chapter of the operators manual explains how to prepare, start, operate, shut down, and maintain the PROCHEM POWER VAC II cleaning unit. Operation of the unit is simple. However, only trained personnel should proceed.

A CAUTION:

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 to 1.25 gallons per hour, depending on the speed setting.

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.

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

4. HIGH PRESSURE HOSE

BEFORE STARTING THE UNIT, 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 one of the **vacuum inlet connections** at the front of the console. Plug the other vacuum inlet connection. Connect the other end of the vacuum hose to the hard surface-cleaning tool.

6. STARTING THE UNIT

1. Before proceeding, be certain that the control panel indicators are at the following settings:

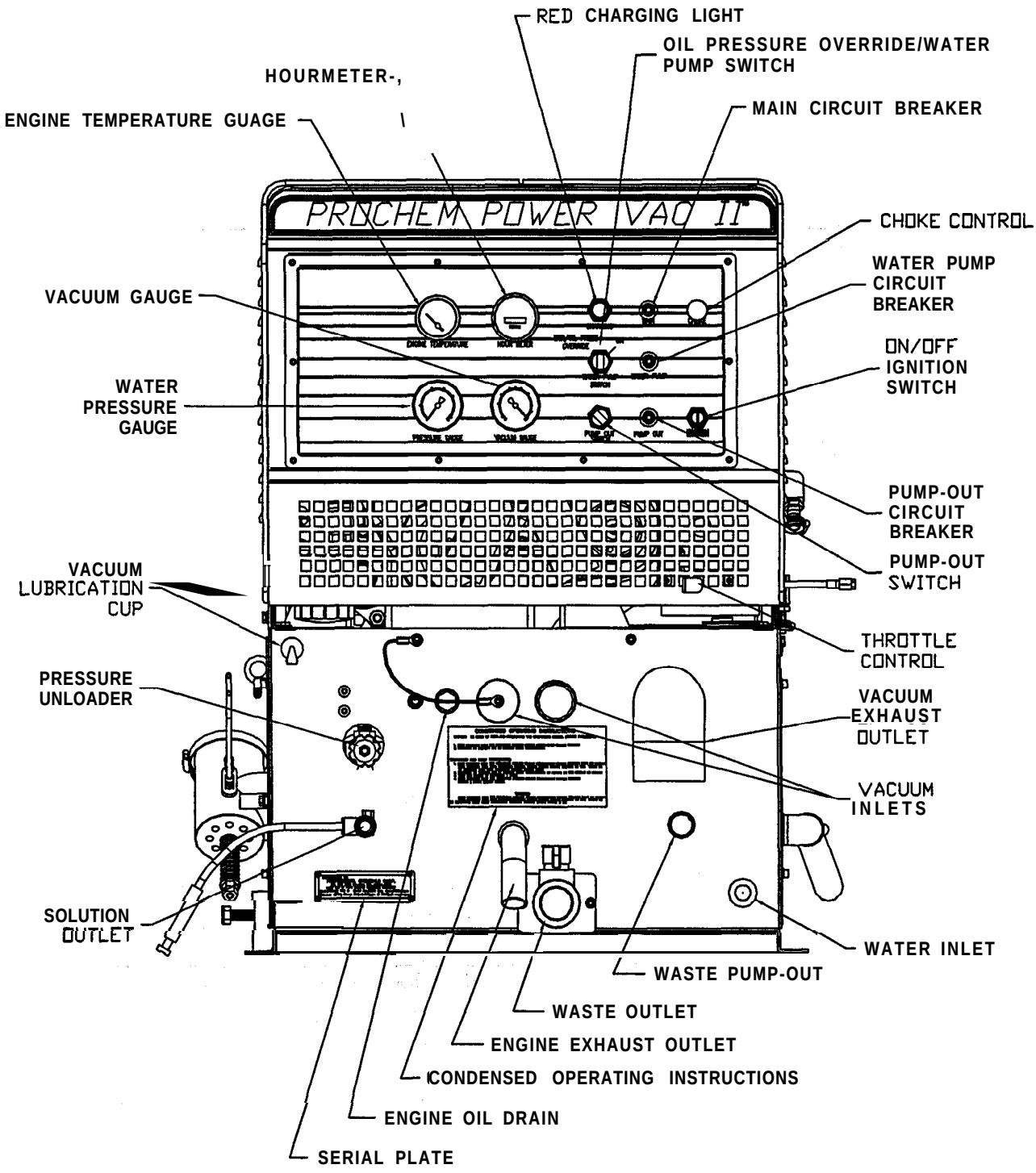
Engine ---IDLE (Throttle Lever Out)
Engine choke - PULL OUT

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

2. Turn the **ignition switch** to the **START** position while holding **the water pump switch** to the left (override position). The engine will start.

NOTE: If your unit shuts down after 15 seconds, check for adequate oil pressure.

INSTRUMENTATION



3. After starting the engine, push the **choke** in. After the engine has warmed up, push in the **throttle lever** to the third notch and lock it in the full throttle position.

7. WASTE PUMP

Connect one end of the 1" ID waste pump hose to the **pump-out connection** on the console and the other end to an **appropriate waste disposal.**

Turn the pump out switch on the control panel to the ON position. The waste pump will operate automatically throughout the cleaning operation. The waste pump will cease operating when the waste level falls below that of the bottom level sensor on the waste tank. This will protect the waste pump from damage by running dry. The waste pump can be turned off at any time, by turning the pump out switch on the control panel to the OFF position.

A WARNING!

DO NOT dispose of waste in any manner, which, in so doing, would violate any Local, State, or Federal law.

8. OPERATION

Once you have completed steps 1 through 7, proceed with the cleaning operation. The upper **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.

9. CLEANING

Observe the following guidelines, while cleaning:

1. If you intend to operate the hard surface cleaner, make sure the hard surface cleaner nozzles are functioning properly before proceeding. If the nozzles are not showing a full spray pattern, adjust nozzles for proper pattern, clean, or replace nozzles, if required.

2. When cleaning, keep the working opening (mouth) flat on the surface being cleaned. **KEEP THE TOOL MOVING WHEN THE VALVE IS OPEN.**

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

A WARNING!

DO NOT dispose of waste in any manner, which, in so doing, would violate any Local, State, or Federal law.

10. SHUTDOWN AND DAILY MAINTENANCE

1. 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.

2. Pull the throttle control all the way out to idle speed.

3. Disconnect the **vacuum hoses** from the unit,

4. Allow the unit to run at idle speed **for 1 minute** in order to remove all moisture from the **vacuum pump.**

NOTE: If finishing for the day:
Push the throttle control all the way in to the third notch (full speed), plug all vacuum inlets, and spray WD-40 (or equivalent) into the **vacuum lubrication cup** (located at front of

the console) for 5 seconds. This will lubricate **the vacuum pump.** Pull the throttle control all the way out to idle speed and continue to step #5.

5. Turn the **ignition switch** to the "OFF" position.

6. 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.

7. Relieve pressure from **the cleaning tools and pressure hoses** by activating the valve on the tools. Disconnect the **tools and pressure hoses** from the unit and store away all equipment.

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

A WARNING!

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

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

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

NOTE: When replacing these filters, we recommend using the stainless steel #14-806509 filters. This will prevent rust and corrosion from entering the vacuum system.

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

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

11. FREEZING PROTECTION

A 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. 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 that **do not** have an auxiliary water tank. Units with auxiliary water tanks must be stored in a heated building or completely drained when not in use.

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

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 contain water in the lines, hoses, or valves.

3. Start your unit.

4. Open the tool valve until the water in the water box is exhausted.

5. Shut the unit down.

6. Fill the water box with approximately two gallons of 100% glycol base anti-freeze.

7. Turn the oil pressure override switch to the override position and start the unit. **Turn** the water pump switch ON.

8. 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.

A WARNING!

The pressure unloader must be at its lowest pressure setting, and the water box float valve must be open, before the winterizing loop hose is attached to the unit. This will prevent excessive pressure from rupturing the loop hose and possibly causing serious injury.

9. Turn the water pump switch **OFF. Set the pressure unloader to its lowest pressure setting.** Add approximately two gallons of 100% glycol base anti-freeze to the water box. DO NOT add so much anti-freeze that the float valve closes. **The float valve must remain open.** Attach the loop hose (#10-805453) to the solution outlet connection and the water inlet connection. Turn the water pump switch ON. Allow the unit to run for approximately 3 minutes with the loop hose attached.

10. Remove chemicals from the chemical injector lines.

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

REMOVING THE ANTI-FREEZE FROM YOUR UNIT:

1. Connect one end of the loop hose to the solution outlet connection. Connect the female quick disconnect attachment to the male quick disconnect on the other end of the loop hose. Place this end of the loop hose into an approved container.

2. Start the unit. Turn the water pump switch ON. Allow anti-freeze to flow into the container until the supply in the water box is exhausted. Turn the water pump switch **OFF.**

3. Fill the water box with fresh water and repeat step #2 as necessary until anti-freeze is completely removed from the system.

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. Turn the water pump switch ON. Open the tool valves and drains the anti-freeze into an approved container until anti-freeze is purged from the tools and hoses and the flow is clear.

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

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

A WARNING!

When disposing of used anti-freeze, observe local laws and regulations. We recommend that you recycle. Do not drain on to the ground or into storm drainage systems.

SECTION 4: MAINTENANCE & SERVICE

MAINTENANCE CHART

Daily maintenance	Engine	daily	Check engine oil level. *** Fill to proper level.
	Engine	daily	Check coolant level in overflow bottle
	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, inspect, replace if damaged.
	Vacuum Hoses	daily	Wash out with clean water
	Automatic Waste Pump	daily*	Inspect and remove any debris or sediment

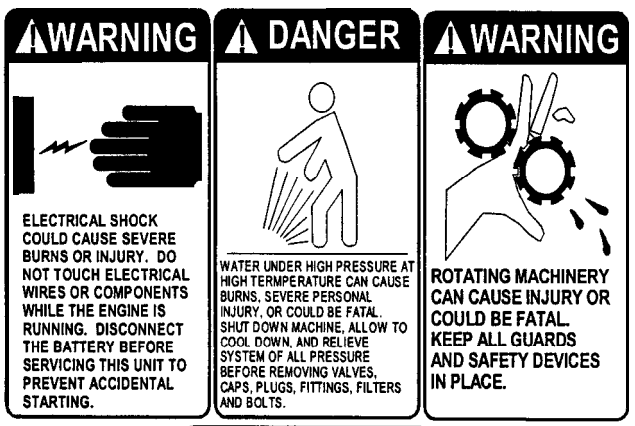
Vacuum Pump	weekly*	Check oil level. Fill to proper level.
Water Pump Inlet Filter (in water box)	weekly*	Check for debris and clean.
Battery	weekly*	Check for proper fluid level. Fill with distilled water only.
Drive Belts	25	Check for proper drive belt tension after first 25 hours.****
High Pressure Hoses	25*	Inspect for damage or impending damage.
Pressure Unloader	100*	Lubricate o-rings.
Engine	100	Change engine oil. ***
Engine	100	Change oil filter. ***
Batter-v	100	Clean batterv terminals.
Engine	100	Check fan belt tightness
Engine	200	Service air cleaner element. *
Engine	200	Check radiator hoses and clamp tightness.
Engine	200	Check spark plugs for carbon deposit and proper gap
Water Pump	500	Change oil. **
Vacuum Pump	500	Lubricate bearing on pulley end with grease.
Pulley Set Screws & Hub Screws	500	Check for proper torque values. Re-torque, if required. ****
Drive Pulleys	500	Inspect, clean, and check for pulley groove wear. ****
Drive Pullevs	500	Check nullev alignment. ****
Drive belts	500	Inspect and clean. ****
Drive Belts	500	Check belt tension. ****
Engine	1000	Replace spark plugs.
Engine	1000	Flush radiator and change engine coolant.
Engine	1000	Drain and refill engine governor oil.
Vacuum Pump	1500	Drain, flush, and replace oil. *****
Engine	yearly*	Replace in-line fuel filter on engine.
Engine	yearly*	Replace air cleaner element.
Engine	2 years	Replace radiator hoses and hose clamps.
Engine	2 years	Replace ignition wires.

* 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 50 **hours** of operation.
**** Perform drive belt, pulley, & hub maintenance after the 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 operators manual contains the maintenance information for this unit.

Initiation of a planned preventative maintenance program will assure that your PROCHEM POWER VAC II cleaning unit has optimal performance, a long operating life, and a minimal amount of "down" time.



A 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.

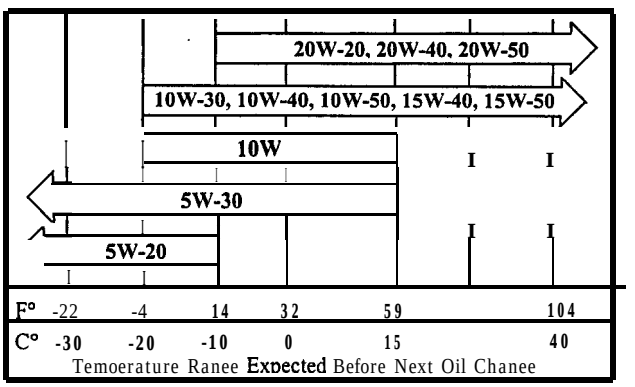
1. GASOLINE ENGINE

1. Check the engine oil level daily, when in use. MARE CERTAIN THAT PROPER OIL LEVEL IS MAINTAINED. **NEVER** overfill.

2. Change the break-in oil after the **first 50 hours** of operation. Thereafter, change oil **every 100 hours** of operation.

Oil Recommendation. 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:

RECOMMENDED SAE VISCOSITY GRADE



NOTE: Using other than service class SF or SG oil or extending oil change intervals longer than recommended can cause engine damage.

3. Change the oil filter after the **first 50 hours** of operation. Afterwards, change the engine oil **every 100 hours.** USE ONLY NISSAN BRAND OIL FILTERS. USING ANY OTHER TYPE OIL FILTER WILL VOID YOUR ENGINE WARRANTY.

4. Re-torque the manifold and exhaust tube nuts, cylinder head bolts, and carburetor attaching nuts after the **first 200 hours** of use.

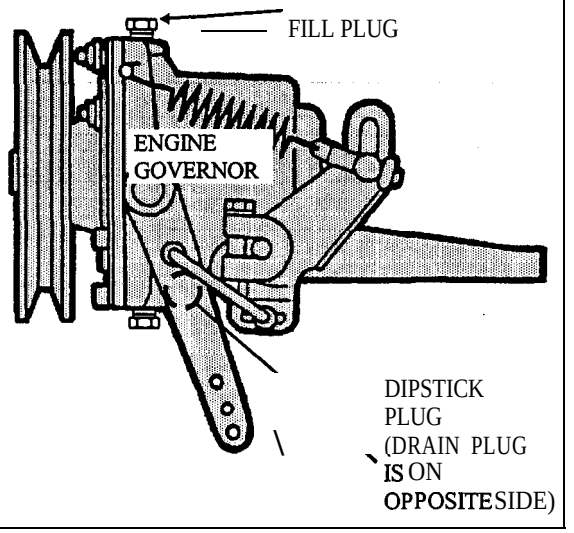
5. Check the oil level in the engine governor **every 250 hours.** When empty, the governor requires approximately 1-1/2 fluid ounces of 30 weight non-detergent oil (see Figure 15).

Drain and refill the engine governor **every 500 hours.**

Figure 15 ENGINE GOVERNOR

CHECK ENGINE GOVERNOR OIL LEVEL EVERY 250 HOURS

WHEN PILLING, REMOVE THE GOVERNOR FLLL PLUG AND, USING A SYRINGE OR OTHER MEASURABLE FILLING DEVICE, ADD 30-WEIGHT NON-DETERGENT OIL. REPLACE THE FILL PLUG. WHEN EMPTY, THE GOVERNOR REQUIRES 1-1/2 FLUID oz.



6. Check the spark 'plugs every 200 **hours.** Clean, if necessary. Replace every **1000 hours.**

NOTE: Never sandblast spark plugs. Spark plugs should be cleaned by scraping or wire brushing.

7. Clean the air cleaner element every 200 **hours.** Replace the element **every 2 years.**

8. Check the engine idle RPM every 200 **hours** and adjust, if necessary. Never adjust engine *RPM without a tachometer. (Refer to Nissan Engine Operation and Service Manual).*

9. Check the coolant level in the radiator overflow container on a **daily** basis. If no coolant is seen, remove the radiator cap and add coolant.

Change the coolant with" **70:30** coolant:water ratio **every 1000 hours.**

10. Replace in-line fuel filter **yearly.**

NOTE: For additional engine service information, obtain a ***"Nissan A-15 Service and Repair Manual"*** from any authorized Nissan Service Center. If service or repair is required, contact an authorized Nissan Service Center. You will need **model, type,** and **code number** on the engine.

2. VACUUM PUMP

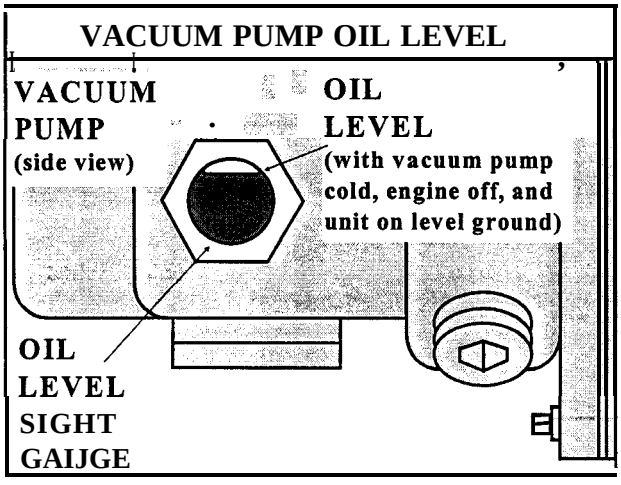
Refer to *Vacuum Pump Operation and Service Manual* for specific instructions.

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.

AEON PD (Part #OS-008039) is the oil that the manufacturer 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 following page.

Check the oil level **weekly** to assure the proper level. With the vacuum pump cold, the engine off, and the unit on level ground, the oil level should be slightly below the top of the oil level sight gauge. Use the following illustration as a guide when adding oil. **PROPER LEVEL** cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating.



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, plug all vacuum inlets. Then fill the lubrication cup with WD-40 or a similar lubricant while the unit is running. 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 required. With AEON PD synthetic lubricant, perform the oil change maintenance **every 4500 hours or every 2 years, whichever comes first.**

4. The bearings on the pulley end of the vacuum pump require grease lubrication **every 500 hours.** Re-pack the bearings until grease comes out of the vent holes. (Use extreme pressure bearing grease of the specification NLGI Grade 2 EP)

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 is recommended.

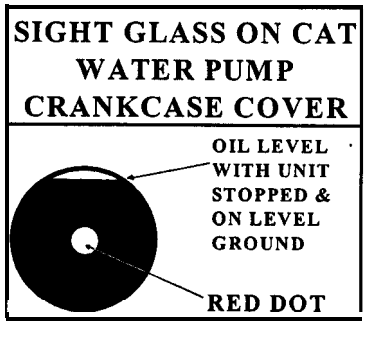
For Grease Lubricated Bearings
Service every 500 hours** of **operation

Blower Discharge Temuerature	Type Grease
-40° to 275° F (-40° to 120° C)	No. 2 Non-Corrosive Bearing Grease

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. With the unit stopped and on level ground, the oil level should be slightly below the top of the oil sight glass. Use the following illustration as a guide when adding oil. If the level has dropped, check for the source of leakage and repair.



2. Refill the oil to the proper level, if required, with Cat Pump Crankcase Oil, SPECIAL FORMULA PREMIUM 10W30 GRADE NON-DETERGENT HYDRAULIC Oil. Other CAT approved oil equivalents are:
Mobil DTE 16
Amoco Rykow 68
Shell Tellus T68

3. Change the crankcase oil with Cat Pump Crankcase Oil 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)

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

Inspect the vacuum inlet filters inside the waste tank. If there is any lint or debris, remove and clean filters. Re-install the filters *hand-tight.*

A CAUTION:

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

Replace these filters at least **once a year.**

NOTE: When replacing these filters, we recommend using the stainless steel filter #14-806509. This will prevent rust and corrosion from entering the vacuum system.

5. DRIVE BELTS, SHEAVES, & BUSHINGS

1. Check sheave set screws and/or bushing (hub) cap screws after the **first 25 hours** and then again at **100 hours.** Check sheave set screws and/or bushing (hub) cap screws every **500 hours** thereafter.

Re-torque these screws with a torque wrench, using the values on the chart below.

A 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	720	60
Vacuum pump hub	192	16

2. Check for sheave groove wear, clean belts and sheave grooves, check for worn belts, proper belt tension, and sheave 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 sheave groove.

Check groove area for wear. Sidewall 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 sheave 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 straightedge across the top of belt. There should be no more than 1/2" deflection in the center of the belt, halfway between the sheaves. If there is too much slack, tighten belt, making sure that it stays properly aligned.,

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

Check alignment with straightedge, 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".

7. INLET FILTER (to water pump)

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

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. PRESSURE UNLOADER

Lubricate the O-rings **every 100 hours.** Use O-ring lubricant #05-008035.

10. 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.**

11. BATTERY

- A 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.

A CAUTION:

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.

A CAUTION:

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

12. HIGH PRESSURE HOSES

Inspect your high pressure hoses for wear after the **first 100 hours** of use, and **every 25 hours thereafter.** If hoses show any signs of damage or impending rupture, **replace the hose.**

A WARNING!

DO NOT attempt to repair high pressure hoses! Repairing high pressure hoses may result in serious injury!
All high-pressure hoses must be rated for 3500 PSI at 250°F. Thermoplastic hoses do not meet these specifications and should not be used. Injury may result if the hoses do not meet these requirements.

13. WASTE PUMP

At the end of each work day, make certain that you remove any debris or sediment which may be inside the waste pump. After the waste tank has been emptied, partially fill the waste tank with fresh water. Drain the fresh water with the waste pump to remove sediment from the waste pump.

7 GENERAL SERVICE ADJUSTMENTS

A 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

The PROCHEM POWER VAC II cleaning unit utilizes a governor to set and maintain the engine speed. The engine speed is adjusted by shifting the throttle adjustment lever located on the front panel. The adjustment lever has four positions. First position is idle (900 RPM). At this position the adjustment lever is pulled all the way out and remains unlocked. Push in the lever to the first of the three notches and lock in position for low speed (approx. 1800 RPM). Push and lock in lever at the second notch for medium speed (approx. 2300 RPM). Push and lock in lever at the third notch for high speed **(2600** RPM).

The throttle adjustment lever is attached to a governor. The governor has internal weights that apply pressure to a shaft gear with an extending arm. Attached to the arm is the carburetor linkage, adjusting engine speed. **NOTE:** Units are pre-set at the factory.

Engine RPM should drop approximately 150-200 RPM when the vacuum inlets are covered.

LINKAGE ADJUSTMENT (Engine Off)

Unsnap the tip of the linkage from the throttle arm ball (Figure 16). Pull the throttle adjustment lever all the way out (idle position).

While holding the throttle arm down with your finger, position the linkage underneath the ball. The ball should barely touch the top of the adjustment arm.

If adjustment is required, loosen the locking nut, adjust the linkage to the proper length, and re-tighten the locking nut.

THROTTLE ARM ADJUSTMENT (Engine Off)
Push the throttle adjustment lever and lock at the third notch position (high speed). The lever should lock firmly.

Check the limit screw. If the screw is not positioned firmly against the arm, tighten the screw and locking nut until firm. Do not over tighten.

IDLE SPEED ADJUSTMENT (Engine Running with the Water Pump Off)
Pull the throttle adjustment lever all the way out to the idle position.

Using a tachometer, turn the idle adjustment screw until 900 RPM is indicated.

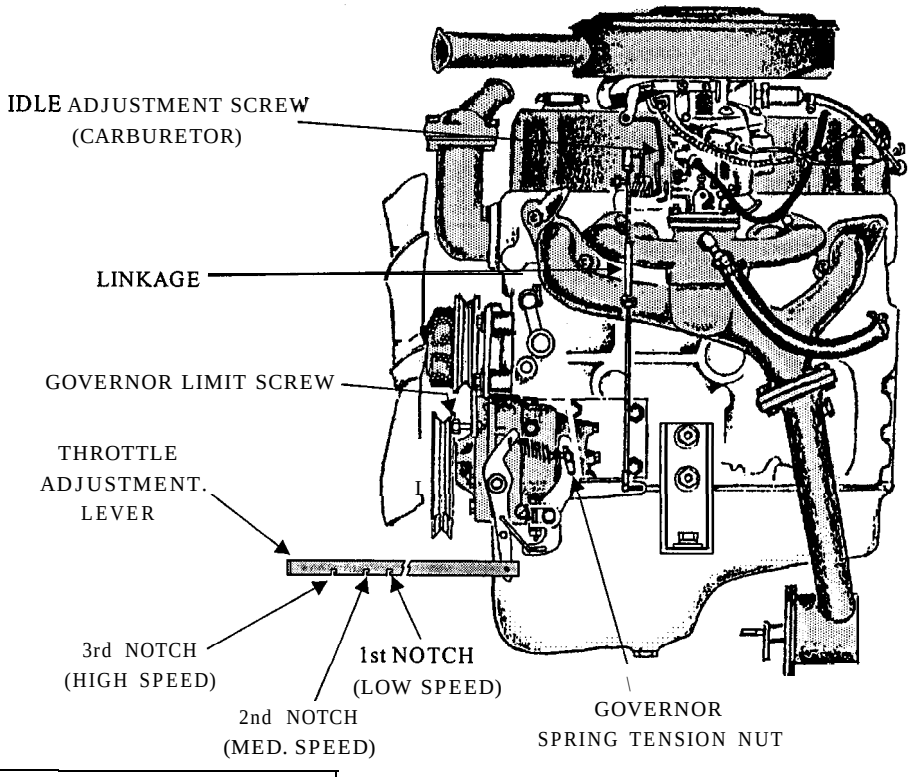
HIGH SPEED ADJUSTMENT (Engine Running with the Water Pump On)
Push the throttle adjustment lever and lock at the third notch position (high speed).

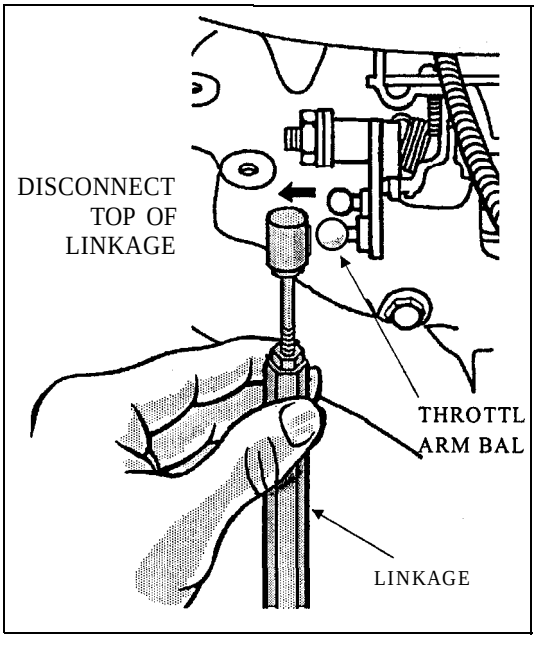
Using a tachometer, adjust the spring tension nut until 2600 RPM is indicated.

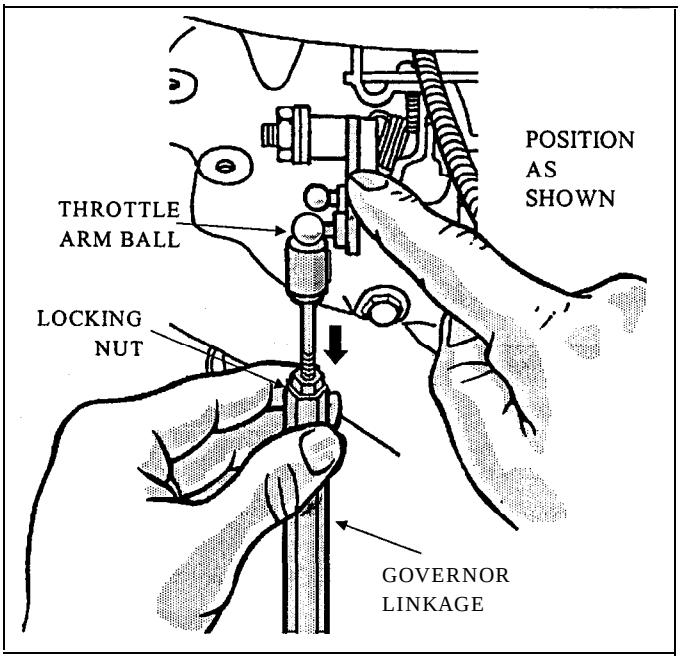
A CAUTION:

Under no circumstance should this unit operate over 2600 RPM. Permanent damage may occur.

NISSAN ENGINE SPEED CONTROL ADJUSTMENT







A CAUTION:

DO NOT attempt to adjust without a tachometer and NEVER adjust the engine above 2600 RPM. Permanent damage may occur.

2. VACUUM RELIEF VALVE

While the unit is running at full RPM, block the air flow at all vacuum inlet connections 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 12" Hg.

3. VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the 4 nuts that hold the vacuum pump mount in place and the 2 clamps that hold the hose leading to the vacuum muffler.

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

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 4 nuts that hold the vacuum pump in position. Check pulley alignment with straight edge.

4. Adjust the alignment of the hose leading to the vacuum muffler and tighten the 2 clamps.

4. WATER PUMP DRIVE BELTS

To tighten the water pump belts:

1. Loosen the nuts that 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 sheaves).

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

5. WASTE PUMP DRIVE BELT

To tighten the waste pump belt:

1. Loosen the nuts that hold the waste pump mount to the console base.

2. Adjust the position of the waste pump until the proper belt tension is achieved. (1/2" deflection in the center of the belt halfway between the sheaves).

3. While checking the alignment, tighten the nuts on the mounting.

6. PRESSURE UNLOADER

The pressure unloader unloads water pump pressure whenever the cleaning tool is closed, and allows water to bypass the pressure manifold and return to the water box. Adjust as follows:

To adjust:

With your unit running, open the cleaning tool valve. Check the pressure gauge. We *recommend* setting the pressure unloader so

that the console pressure gauge reads 3000 PSI with the tool valve open.

When the chemical injector is used and the tool valve is open, there is an approximate drop of 500 PSI in pressure across the chemical injector. This drop is necessary for the chemical injector to operate. *If there is a pressure drop of greater than 500 PSI, it may be necessary to lubricate the O-rings in the pressure unloader.*

7. ADDING/DRAINING ENGINE COOLANT

Use 70:30 coolant:water ratio in this unit's cooling system. **NOTE:** For the maintenance schedule, see page 3 1 for specific details.

1. To drain the coolant, remove the radiator cap and turn the lower engine radiator draincock counterclockwise.

2. To add coolant, first turn the lower engine radiator draincock clockwise until it is closed. Next, fill the radiator with the coolant/water mixture. Then add to the overflow container (fill **ONLY** halfway between the add and full marks). After running the unit, add more coolant, if necessary, into the overflow container only.

TROUBLESHOOTING

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.

This chapter of the operator's manual explains how to look for and fix malfunctions, which may occur.

Intelligent, accurate troubleshooting is based on a complete and thorough understanding of the WATER, **VACUUM, CHEMICAL, SAFETY, and** WIRING systems on this unit.

If there is a malfunction occurring in a system that you do not fully understand, turn back to **"OPERATION,"** section 3 of this manual and review **"SYSTEMS".**

In addition, prior to proceeding, you can save time by checking that:

1. The water supply is ON.

2. The engine speed at full throttle at full speed is 2600 RPM.

3. To check if water pump volume is correct, check the pump volume with the cleaning tool closed. Measure the water flow returning to the water box from the pressure unloader. The flow rate should be approximately 4.5 GPM.

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.	Turn the water supply on or up. Check for kinks in the water supply hose. Examine the float valve and adjust or replace.
Water inlet supply line is plugged or drawing air.	Examine the water inlet filter inside the water tank. 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 2600 RPM. Idle speed is 900 RPM. Re-adjust in accordance with instructions on pages 38-40 in this manual.
Pressure unloader O-rings are dry.	Lubricate **O-rings,** using **O-ring lubricant #05-008035.**
Pressure unloader has worn O-rings.	Check O-rings. If necessary, replace.
Pressure unloader is dirty, stuck open, or improperly adjusted.	Clean or repair the pressure unloader. Adjust to working pressure. Lubricate O-rings, using **O-ring lubricant #05-008035.**
Low pump volume. (Measure the amount of water being returned to the water box from the pressure unloader. It should till a gallon container every 13.3 seconds.)	Examine the check valves, plunger cups, and cylinder head 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.
Debris clogging water lines or water inlet disconnect.	Clean or replace as needed.
Belts 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 in the cleaning tool.	Unplug orifice.
Outlet 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.

0 [redacted]

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

PROBABLE CAUSES	CORRECTIVE ACTION
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 or replace if required. Re-position lid.
Debris and lint is trapped in vacuum line between cleaning tool & waste tank.	Locate obstruction and remove.
Plugged vacuum line leading to vacuum gauge.	Unplug or replace the vacuum line.
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, causing a vacuum leak.	Drain the waste tank. Close drain valve, if open. Remove the dump valve and, after inspecting, replace the defective components.
Vacuum relief requires adjustment or has a vacuum leak due to damaged gasket.	Re-adjust the vacuum relief valve. If the vacuum does not increase, remove and inspect the relief valve gasket. If damaged, replace.
Vacuum pump is worn out.	Replace the vacuum pump.

OSSIO

With the cleaning tool valve open, no chemical.

PROBABLE CAUSES	CORRECTIVE ACTION
The strainer at the inlet end of the chemical inlet line is clogged.	Unclog the strainer. If damaged, replace.
Obstruction in chemical injector orifice.	Unclog the orifice.
Suction leak in the inlet line leading into the chemical injector.	Inspect inlet line for damage and replace, if required.
Defective cylinder in the water pump.	Measure the pump volume. If the pump volume is less than normal, examine the check valves, plunger cups, and cylinder head on water pump. Repair as required.

5. WATER PUMP DOES NOT ENGAGE

PROBABLE CAUSES	CORRECTIVE ACTION
Water pump clutch circuit breaker has been tripped.	If the blue light is OFF, check the "water pump clutch" circuit breaker on the control panel. Press RESET button.
Defective electrical connection in the console wiring or defective switch.	If the blue light is OFF and the circuit breaker is not tripped, examine switch, electrical connections, and wiring. Repair any defective connections. If there is power going to the switch but not going out, replace the defective switch.
Defective water pump clutch.*	If the blue light is ON, check the white wire which leads from the switch to the clutch. If there is power in the switch, but no power at the clutch, replace the defective wire. If there is power at the clutch, replace the defective switch.
Belts loose or broken.	Re-tension or replace as needed.

*** NOTE:** The clutch may be MANUALLY set by inserting two 1/4-20 x 1/2" bolts. Line up the holes and insert the bolts. To disengage the pump, remove the bolts.

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 Nissan Engine Operation and Maintenance Manual.**
Vacuum pump is seized.	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.
Engine coolant temperature has exceeded 240°F, triggering the high temperature switch to shut the unit down.	Determine the cause of overheating *before* restarting the unit. Test switch. Replace switch if defective.
Defective fuel pump.	Replace the fuel pump.
Loose or broken wires leading to upper waste tank level sensor.	Repair or replace any broken electrical connections.
Defective upper waste tank level sensor.	Disconnect the upper level sensor plugs and bypass the sensor. If the unit starts, replace the defective level sensor (float switch).
Oil pressure switch, (located on engine) anti-diesel solenoid, (located on engine) high temperature switch (located on engine).	Test these components, if any are defective? replace. Consult engine service manual.
Engine is malfunctioning.	Refer to **the Nissan Engine Operation and Maintenance Manual.**

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 coolant temperature has exceeded 240°F, triggering the high-temperature switch to shut the unit down.	Determine the cause of overheating *before* restarting the unit. Refer to **Nissan Engine Operation and Maintenance Manual.**
Defective fuel pump.	Replace fuel pump.
Defective upper level sensor inside the waste tank.	Disconnect the upper level sensor plugs and bypass the switch. If the unit starts, replace the defective upper level sensor (float switch).
Defective 240" engine coolant high-temperature shutdown switch.	Test switch. If necessary, replace.
Oil pressure switch has shut down engine due to insufficient oil pressure.	Refer to **Nissan Engine Operation and *Maintenance Manual.*** **DO NOT** restart the engine until the cause is determined and corrected.
No ignition in the engine or engine is malfunctioning.	Refer to **Nissan Engine Operation and Maintenance Manual.**

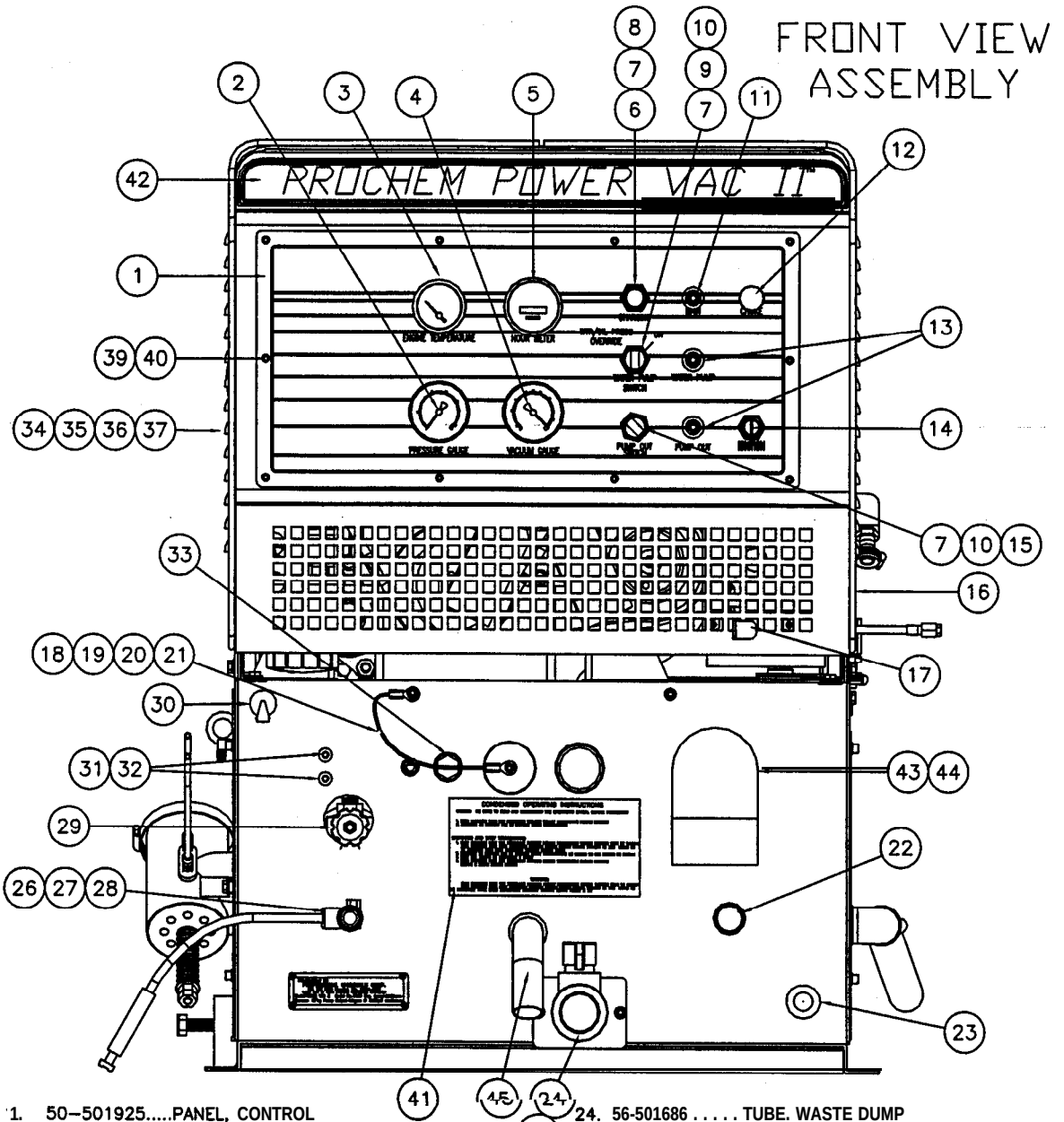
9. WASTE PUMP IS MALFUNCTIONING OR NOT OPERATING NORMALLY

PROBABLE CAUSES	CORRECTIVE ACTION
Debris interfering in the normal operation of pump or check valve.	Remove obstructions from pump and check valve.
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.
Broken wiring leading to the waste pump.	Check for voltage at the pump. If no voltage, find the broken connection and repair.
Worn out waste pump.	Check for voltage at the pump. If there is voltage and the pump does not run, replace the pump.

9. WASTE PUMP IS MALFUNCTIONING OR NOT OPERATING NORMALLY (continued from previous page)

PROBABLE CAUSES	CORRECTIVE ACTION
Check valve is stuck open or closed.	Inspect and clean check valve. If damaged, replace check valve.
Belt loose or broken.	Re-tension or replace as needed.

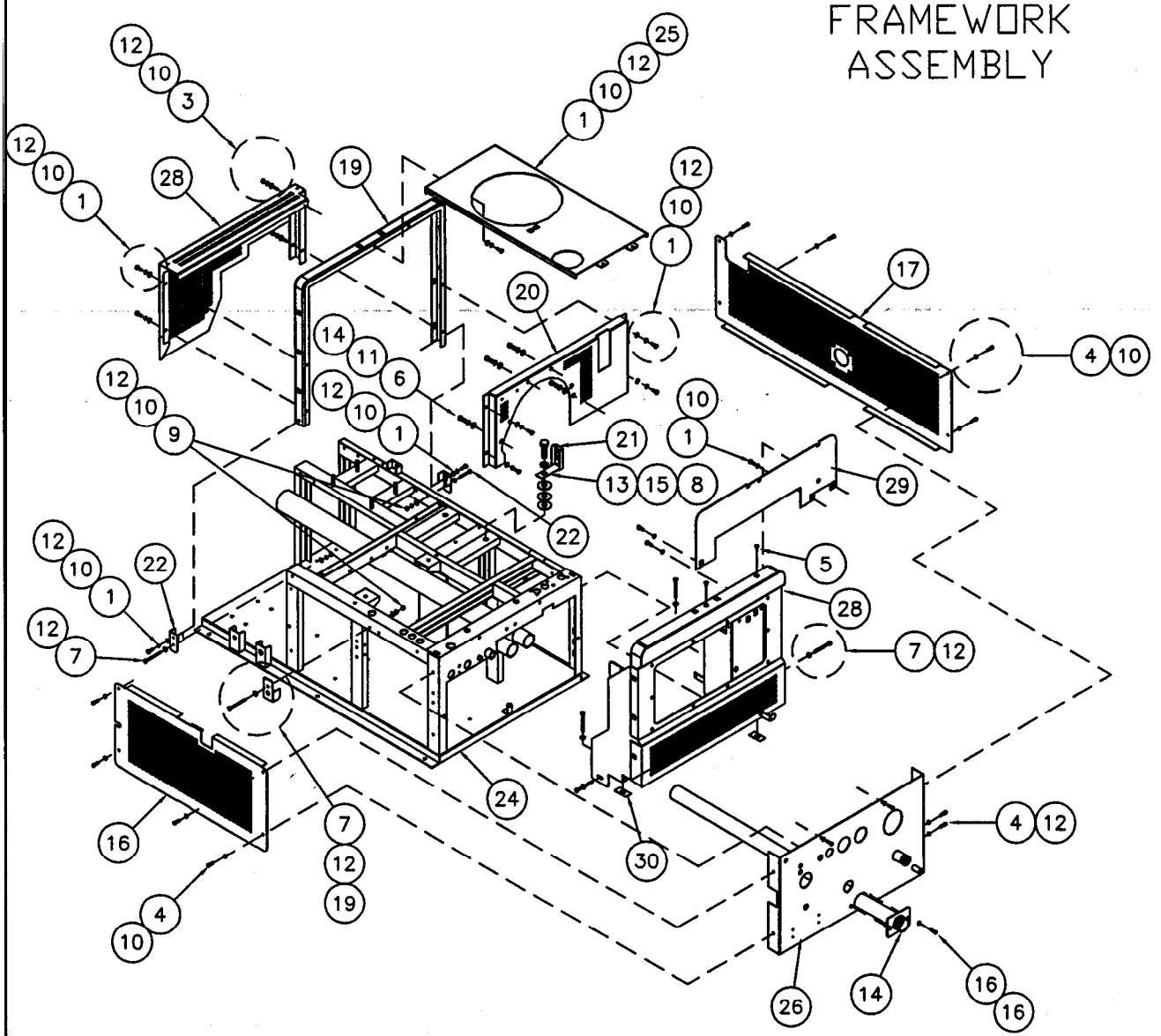
ILLUSTRATION INDEX (in alphabetical order)



1. 50–501925.....PANEL, CONTROL
2. 18–808534.....GAUGE, WATER PRESSURE 5000PSI
3. 18–808530.....GAUGE, WATER TEMP 320° ENGINE
4. [illegible]
5. 34–903000.....18–8085.VACUUM 30" Hg
   000.....HOURMETER
6. 34–900099.....LIGHT, INDICATR (DOME) RED
7. 33-900169 ..... BULB, ROTARY SWITCH
a. 34–900103.COVER,LENS RED
9. 61–950739...ASSEMBLY,OVERRIDE SWITCH
10. 34–900101..... COVER, LENS RETRY SWITCH
11. 33–900161..... BREAKER, CIRCUIT 30 AMP
12. 49-802516 ..... CABLE. CHOKE
13. 33-900163 ..... BREAKER, CIRCUIT 20 AMP
14. 32-900198 ..... SWITCH, START W/KM
15. 32–900180.....SWITCH, RETRY ILLUMINATED
16. 50-501955 ..... HOOD, RIGHT
17. 50–501949.....LEVER, THROTTLE CONTROL J-NOTCH
18. 64–950383.....CABLE, RETAIN VACUUM PLUG
19. 52-501679 ..... PLUG. VACUUM INLET
20. 43–810081 .....O–RING, 1–3/8ID x 1–3/4OD
21. 66-945236 ..... KIT, VAC INLET PLUG
    (INCLUDES #la, 19, & 20)
22. 13–806035.....DISCONNECT, 1"M x 1 "FP PLASTIC
23. 13–806008.....DISCONNECT, 3/8F x 3/8FP BRASS
24. 56-501686 ..... TUBE. WASTE DUMP
25. 15–808080.....VALVE, BALL PVC 1–1/2FP BS
26. 13–806037.....DISCONNECT, 3/8FP x 3/8FP LO THRU
27. 11–800429.....NIPPLE, HEX 3/8SST
26. 02-000088 ..... FLATWASHER, 5/8 HEAVY
29. 15–808139.....UNLOADER, PRESSURE
30. 19-800075 ..... cup, OIL FILL 1/8P
31. 00–000210.....SCREW, 1/4–20 x 3/4" SOCHD
32. 02–000038.....LOCKWASHER, 1/4"
33. 1 1–800168.....PLUG, 1/2" BR HXHD
34. 50-501956 ..... HOOD, LEFT
35. 01–000259.....RECEPTACLE, SNAP-IN 1/4 TURN
36. 00–000272.....STUD, 1/4 TURN FASTENER
37. 02–000268.....RETAINER, SPLIT RING 1/4 TURN
38. 58–700023.....PAD, 1/4 TURN FASTENER
39. 00-000337 ..... SCREW. 10–32 x 1" SOCHD
40. 01–000273.....NUT, WELL 10–32
41. 48–941285.....DECAL, CONDENSED OPER INSTRUCT
42. 48-941369 ..... DECAL. CONSOLE POWER VAC 2
43. 52–502019.....ELBOW. VACUUM EXHAUST
44. 00–000410.....SCREW, SET 1/4–20 x 3/8"
45. 55–501672.....TUBE, EXHAUST DEFLECTOR

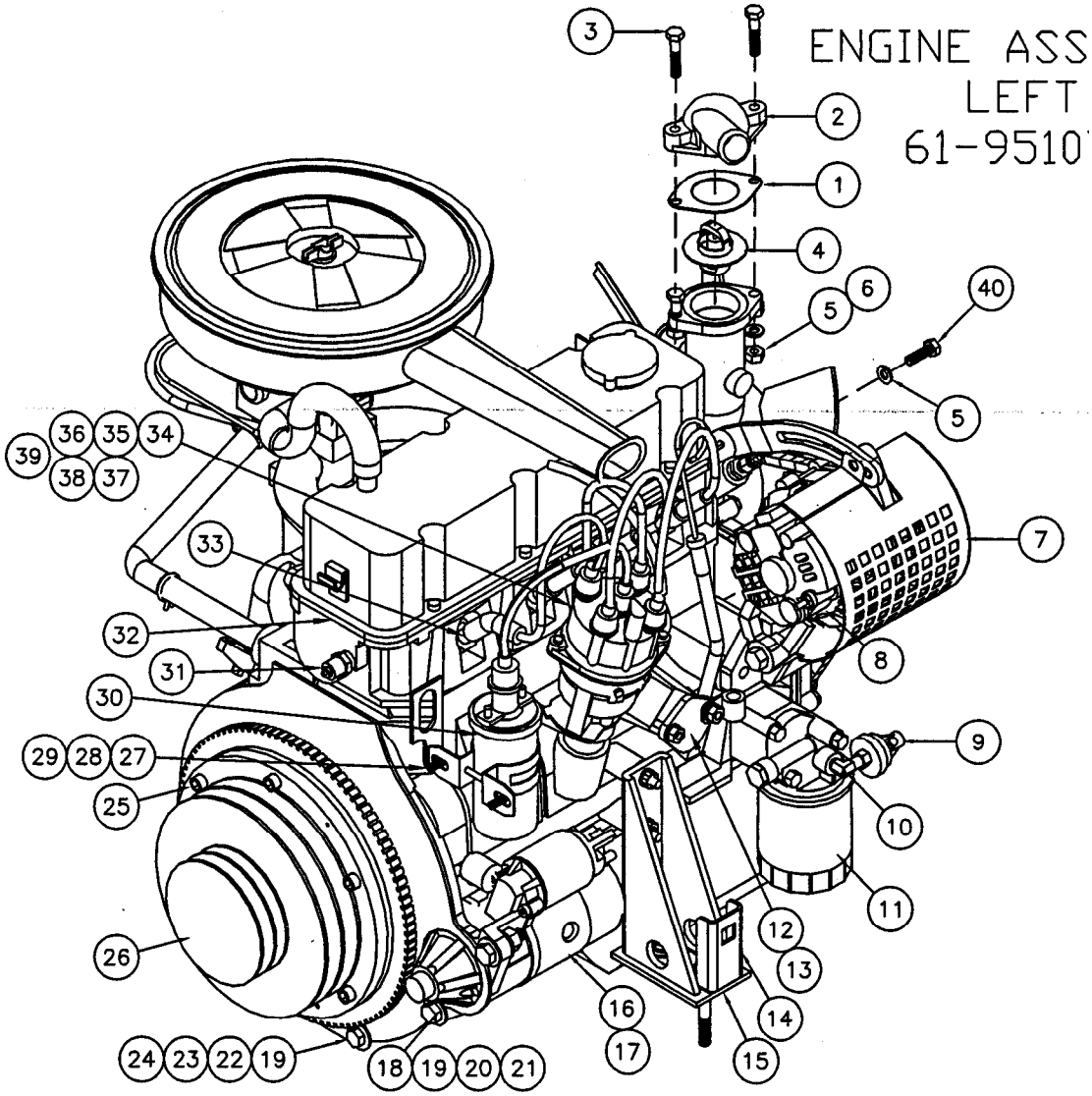
NOT SHOWN
48–941212.....SHEET, COMPLETE UNIT DECAL
56–501845.....PAN, DRIP

STRUCTURAL FRAMEWORK ASSEMBLY



1. 00-000055.....SCREW, 1/4-20 x 3/4" HXHD
2. 00-000122.....SCREW, 1/4-20 x 1-3/4" H X H D
3. 00-000142.....SCREW, 1/4-20 x 2-1/2" H X H D
4. 00-000210.....SCREW, 1/4-20 x 3/4" SOCHD SST
5. 00-000216.....SCREW, 1/4-20 x 1/2" FLTSOCHD
6. 00-000226 . . . . . SCREW, 6mm x 1.25 x 20mm HXHD
7. 00-000286.....SCREW, 1/4-20 x 2-3/4" H X H D
6. 00-000363.....SCREW, CAP 5/8-11 x 2" HXHD
9. 01-000037 . . . . . NUT, 1/4-20 HXHD
10. 02-000038.....LOCKWASHER, 1/4"
11. 02-000040 . . . . . LOCKWASHER, 5/16"
12. 02-000066 . . . . . FLATWASHER, 1/4"
13. 02-000088.....FLATWASHER, 5/8" HEAW
14. 02-000143 . . . . . FM-WASHER, 5/16"
15. 02-000232.....LOCKWASHER 5/8"
16. 50-501944 . . . . . PNL, CVR L LWR BASE
17. 50-501950 . . . . . PNL. CVR RT LWR BASE
18. 56-501686 . . . . . TUBE, WASTE DUMP
19. 56-501857 . . . . . BRACKET. FUEL LINE
20. 56-501904 . . . . . MOUNT, BELT GUARD
21. 56-502005 . . . . . BRKT. RIGHT HOOD
22. 56-502050 . . . . . BRACKET, HOOD MTG RT SD
23. 56-502179.....PANEL, LOWER FRONT
24. 56-502183 . . . . . BASE, POWER VAC 2
25. 56-502187.....BRACKET. CENTER HQQD
26. 56-502230.....MOUNT, CONTROL PANEL
27. 56-502231....BRACKET, REAR HOOD
28. 56-502438 . . . . . GUARD, BELT
29. 56-502466.....PNL, RADIATOR CLOSE-OUT
30. 58-700024 . . . . . PAD, VIBR CONTR PNL MT

ENGINE ASSEMBLY LEFT 61-951074

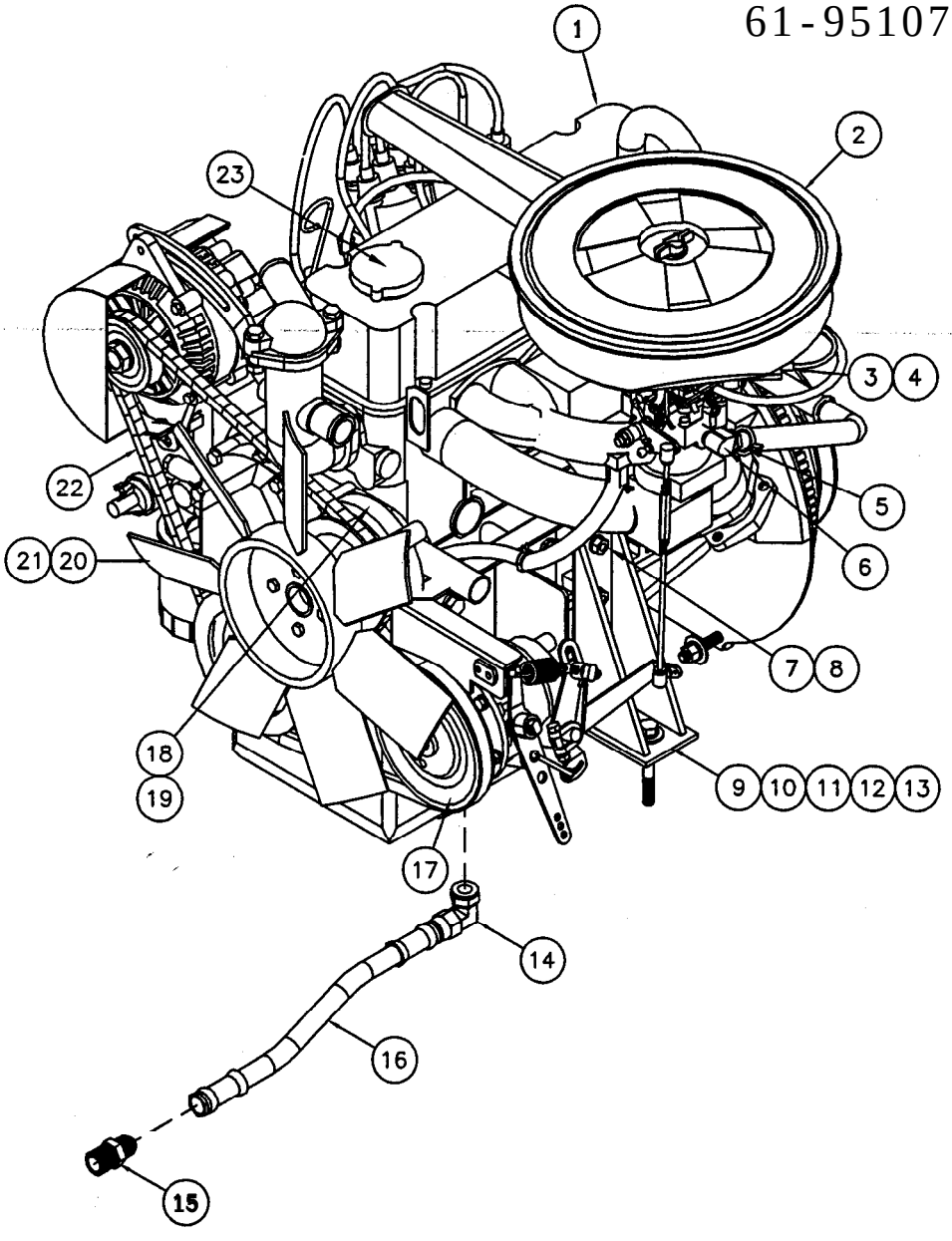


1. 42-902132.....HOUSING, THERMOSTAT NISSAN
2. 42-902132.....HOUSING, THERMOSTAT
3. 00-000144.....SCREW, 5/18-18 x 1-1/2" HXHD
4. 35-900202.....THERMOSTAT, 195 W/HOLE
5. 02-000040.....LOCKWASHER, 5/16
6. 01-000041 . . . . 5/16 NUT, 8 HXHD
7. 56-501740.....GUARD, ALTERNATOR
8. 42-902188.....ALTERNATOR
9. 32-900029.....SWITCH, OIL PRESSURE
10. 11-800014 . . . . . ELL, STREET 1/8
11. 42-902139 . . . . . FILTER. OIL
12. 50-501915.....PLATE, FUEL PUMP COVER
13. 42-902152 . . . . . GASKET, FUEL PUMP
14. 56-502006 . . . . . BRACKET, LEFT HOOD
15. 56-502007.....MOUNT, LEFT ENGINE
16. 42-902146.....STARTER
17. 42-902147.....SOLENOID, STARTER
18. 00-000222.....SCREW, 7/16-14 HXHD
19. 02-000074 . . . . . FLATWASHER, 3/8
20. 02-000225.....LOCKWASHER, 7/16
21. 01-000224 . . . . . NUT, 7/16-14 HXHD
22. 00-000072.....SCREW, 3/8-16 HXHD
23. 02-000075.....LOCKWASHER, 3/8
24. 01-000073 . . . . . NUT, 3/8-16 HXHD
23. 02-000075.....LOCKWASHER, 3/8
24. 01-000073 . . . . . 3/8-16 HXHD
25. 00-000428.....SCREW, 8mm-1.25x25mm SOCHD
26. 52-501806 PULLEY, ENGINE PV2
27. 02-000066 . . . . . FLAT WASHER, 1/4
28. 02-000038 LOCK WASHER, 1/4
29. 00-000055.....SCREW, 1/4-20 x 3/4" HXHD
30. 42-902144.....COIL
31. 35-900050.....SENSOR, TEMPERATURE 240deg
32. 42-902137.....GASKET, VALVE COVER
33. 42-902148.....SPARK PLUG
34. 42-902196.....DISTRIBUTOR
35. 42-902271 . . . . .CAP, DISTRIBUTOR
36. 42-902153.....SEAL, DISTRIBUTOR CAP
37. 42-902272.....ROTOR
38. 42-902352.....MODULE, IGNITION
39. 42-902143 WIRE SET, SPARK PLUG
40. 00-000237 . . . . . SCREW, 8mm-1.25 x 25mm

NOT SHOWN

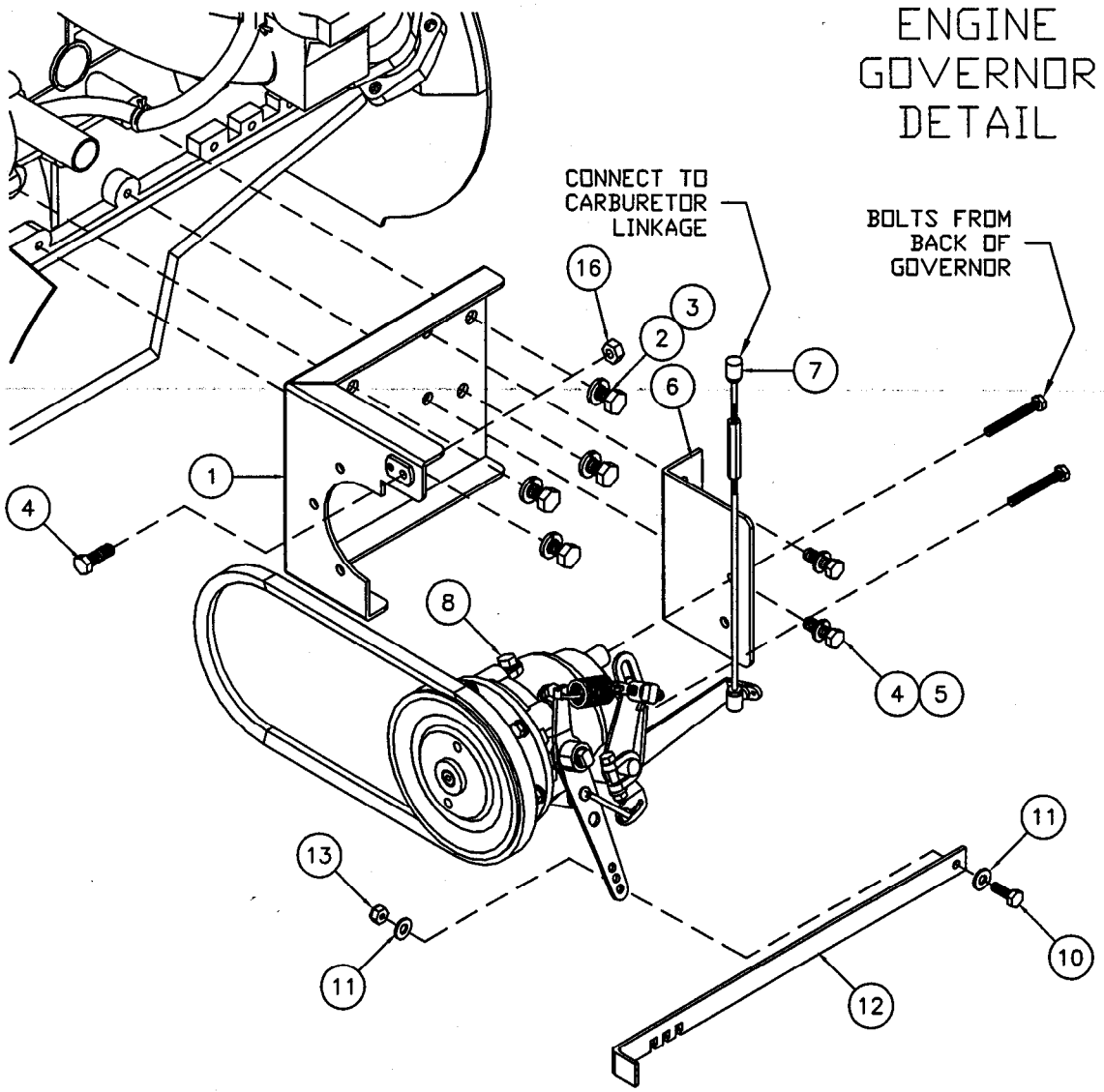
10-805357.....FUEL HOSE, 3/16 x 38"
03-000249.....CLAMP, CABLE 1/4 ID
42-902134.....GASKET, OIL PAN
04-000350.....CAP, VACUUM (MOUNTS TO UNDERSIDE OF AIR CLEANER)

ENGINE ASSEMBLY
RIGHT
61-951074



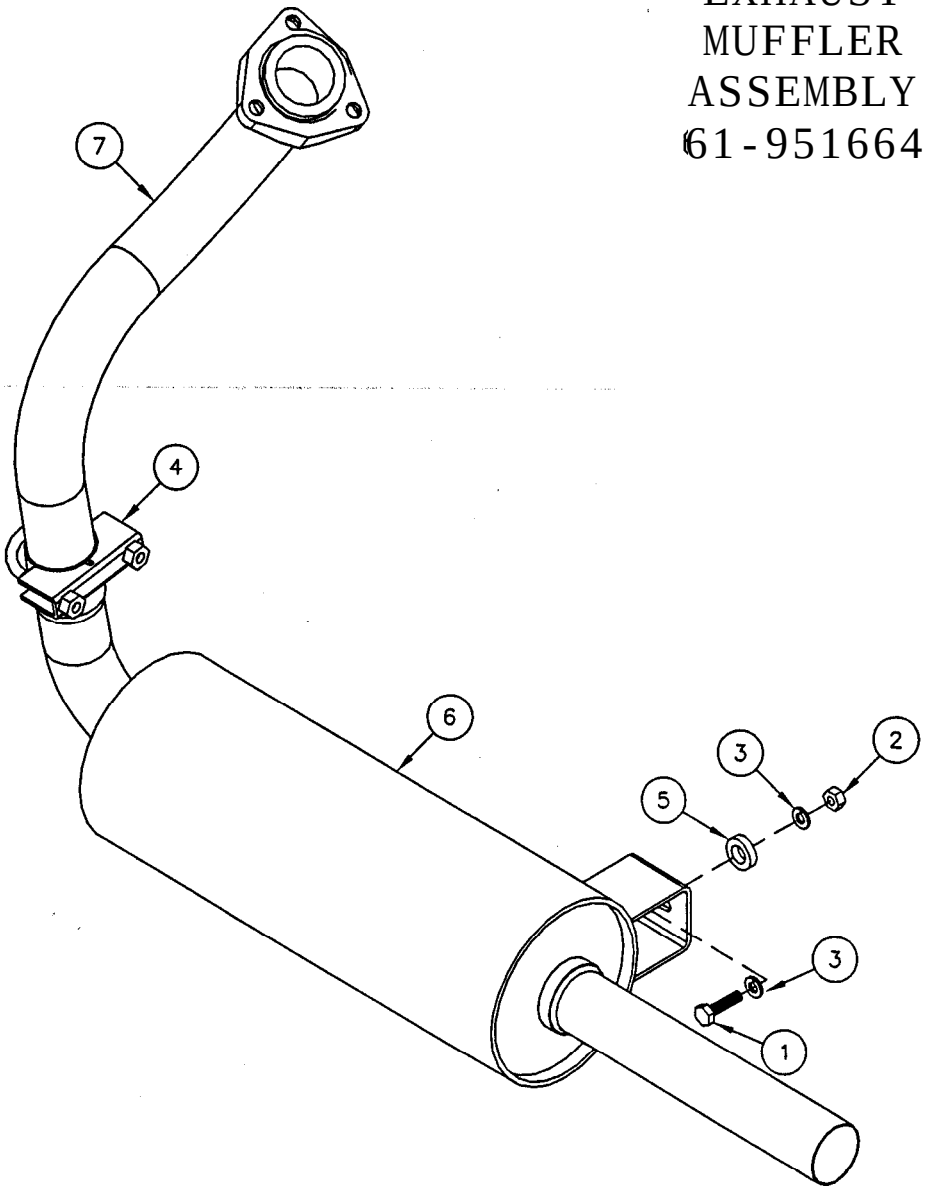
1. 42-902145...ENGINE NISSAN A-15
2. 42-902140.....FILTER, AIR
3. 42-902381 . . . ..CARBURETOR, A-15
4. 42-902149.....SOLENOID, ANTI-DIESEL
5. 42-902138 . . ... VALVE, PCV
6. 11-800045.....ELL, STREET 1/4
7. 02-000040.....LOCKWASHER, 5/16
8. 01-000210 . . . . . NUT, 8mm-1.25 HXHD
9. 56-501953.....MOUNT, RIGHT ENGINE
10. 00-000095 . . . . . SCREW, 3/8-16 x 1"
11. 00-000295 . . . . . SCREW, 3/8-16 x 3"
12. 02-000074 . . . . . FLATWASHER, 3/8
13. 02-000075 . . . . . LOCKWASHER, 3/8
14. 12-800177 . . . . . ELL, #6BST x 1/2T
15. 12-800141 . . . . .CONN, 1/2P x 1/2T
16. lo-805315 . . . . . HOSE, HP 3/8 x 13"
17. 42-902199.....GOVERNOR
18. 42-902349 . . . . . PUMP, WATER
19. 42-902350 . . . . . GASKET, WATER PUMP
20. 42-902209.....BLADE, FAN
21. 42-902253 . . . . . BOLT, FAN
22. 44-802230.....BELT, 11720-77702
23. 42-902258 . . . . . CAP, OIL FILLER

NOT SHOWN
42-902198.....KIT, CARBURETOR REPAIR

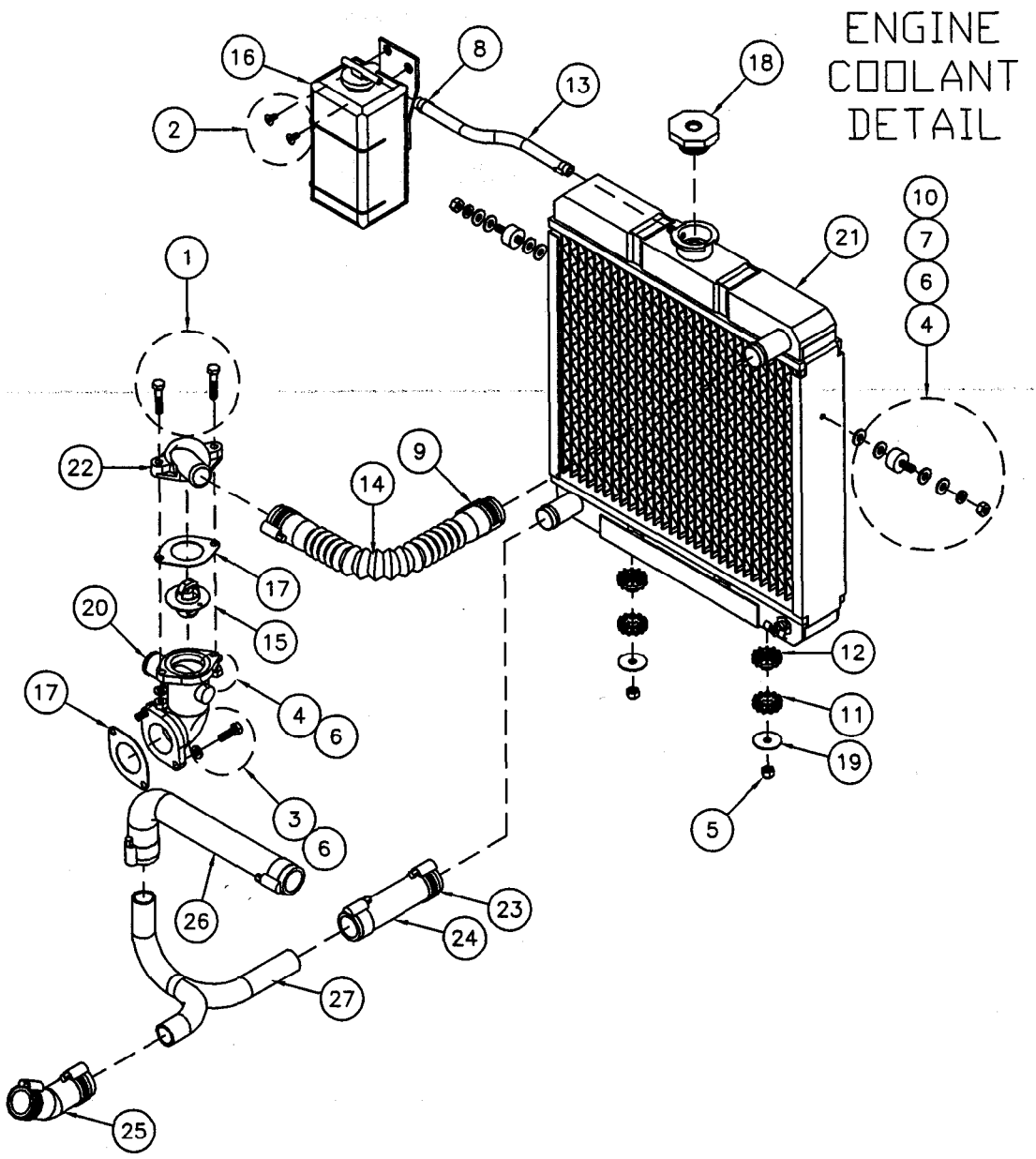


1. 56–501869.....BRACKET, GOVERNOR
2. 02–000225.....LOCKWASHER, 7/16
3. 00–000298.....SCREW, 10mm x 20mm
4. 02–000040.....LOCKWASHER, 5/16
5. 00-000039 . . . . . SCREW, 5/16-16 x 1"
6. 56–501870.....BRACKET, REAR GOV
7. 42-902411 . . . ..ASSY. ROD GOV LINK
8. 04–000288.....SPRING, GOVERNOR
9. 42–902199.....GOVERNOR
10. 00–000055.....SCREW, 1/4–20 x 3/4"
11. 02-000066 . . . . . FIATWASHER. 1/4
12. 50–501949.....LEVER, THROTTLE CONTROL
13. 01–000023.....LOCKNUT, 1/4–20
14. 44-802221 . . . ..PULLEY, GOVERNOR (PART OF GOVERNOR)
15. 44–802311..... BELT. AX29
16. 01-000041....NUT, 5/16-18 HXHD

EXHAUST MUFFLER ASSEMBLY 61-951664

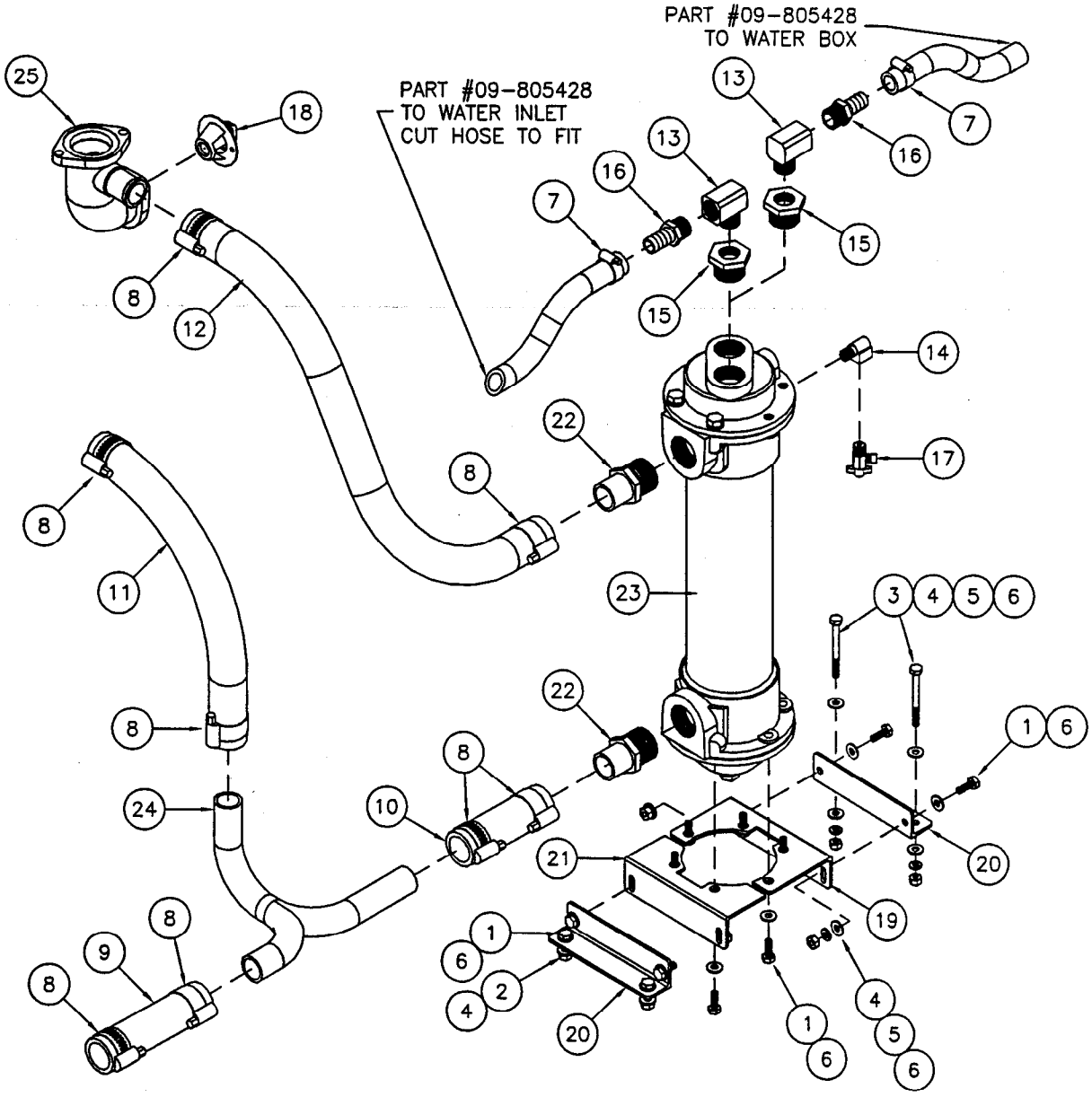


1. 00–000078.....SCREW, CAP 1/4–20 x 1" HXHD GRD 8
2. 01-000037 . . . . . NUT, 1/4–20 HXHD
3. 02-000038 . . . . . LOCKWASHER, 1/4
4. 03-000081.....CLAMP, MUFFLER I - 1/2"
5. 54–501650.....SPACER
6. 56–502186.....RISER,EXHAUST NISSAN A- 15
7. 57–520102.....MUFFLER, EXHAUST



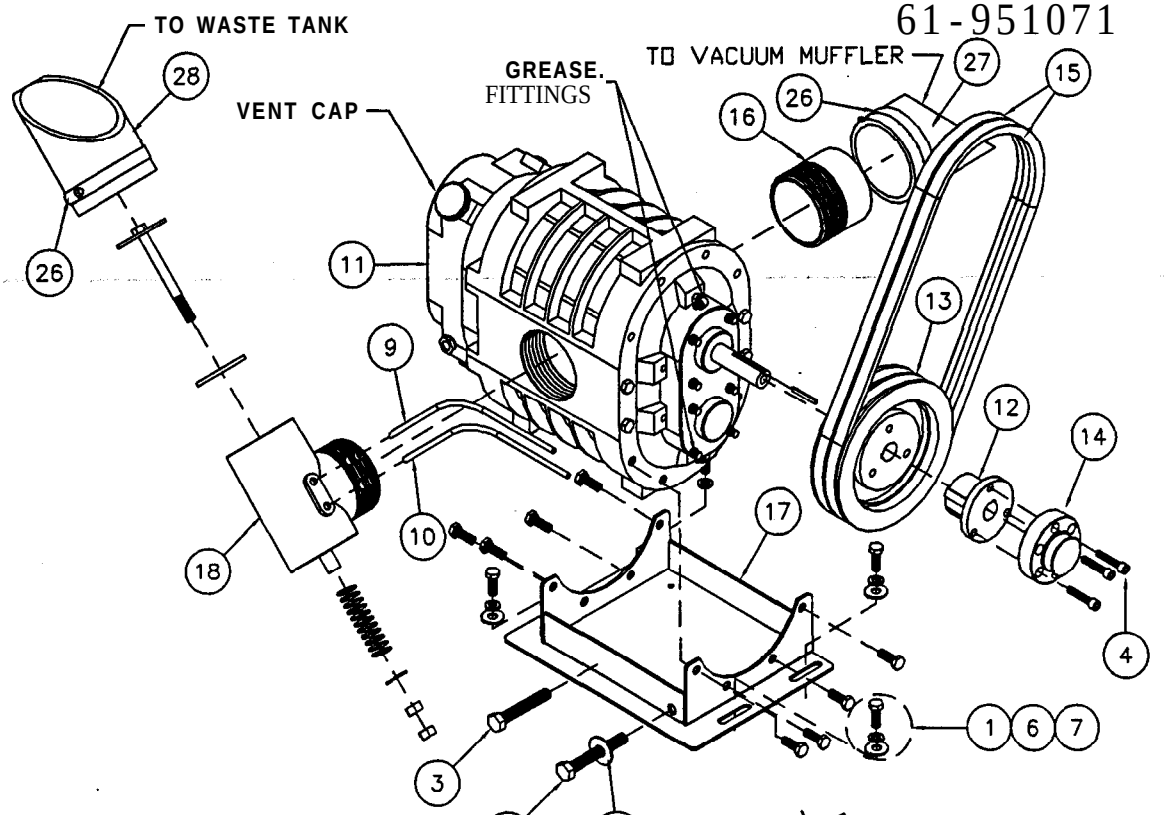
1. 00–000144.....SCREW, 5/16–18 x 1–1/2" HXHD
2. 00–000216.....SCREW, 1/4–20x 1/2" FLTSOCHD
3. 00–000237 . . . . . SCREW, 8mm x 1.25 x 25mm HXHD
4. 01-000041 . . . ..NUT. 5/1 6-18 HXHD
5. 01–000186.....LOCKNUT, 5/1 6-18 HXHD
6. 02–000040.....LOCKWASHER, 5/16
7. 02-000143 . . . . . FLATWASHER, 5/16
8. 03–000065.....CLAMP, HOSE #4
9. 03-000248 . . . . . CLAMP, HOSE #16
10. 52–502038.....MT, RADIATOR (MACHINED) (ECN 110–001 REV 'C')
11. 04–000295.....FLEX, FINGER (RING)
12. 04–000296..... FLEX, FINGER (BUSH)
13. 09–805159.....HOSE, BRAID 5/16 x 13–1/2"
14. 09-805281 . . . ..HOSE, RADIATOR 1–1/8 x 9–1/2"
15. 35–900052.....THERM, 195' W/HOLE (ECN 110–001 REV 'C')
16. 42–902308.....BOTTLE, OVERFLOW
17. 42–807067.....GASKET, THERM-NISSAN
18. 49–802010.....CAP, RADIATOR
19. 50-501761 . . . ..WASHER. RADIATOR
20. 52–502020.....ADPT, COOLANT OUTLET
21. 57–520035.....RADIATOR
22. 42–902132.....HOUSING, THERMOSTAT
23. 03–000248.....CLAMP, HOSE #16
24. 09–805375.....HOSE, RAD 1–1/8 x 5–1/2"
25. 09–805423.....HOSE, RAD 1–1/8 x 4–1/2"
26. 09–805432.....HOSE, RAD 1–1/8 x 13–1/2"
27. 58–500654.....CSTG, COOLANT MANIFOLD

HEAT EXCHANGER ASSEMBLY 61-951227

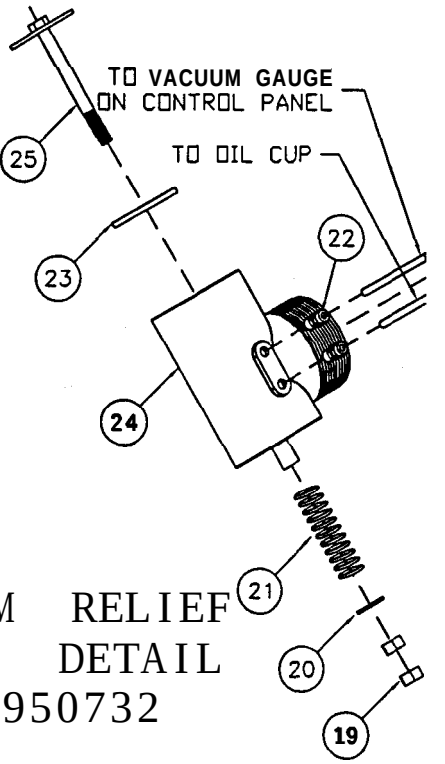


1. 00-000055.....SCREW, CAP 1/4-20 x 3/4 HXHD
2. 00-000078.....SCREW, CAP 1/4-20 x 1 HXHD GRD8
3. 00-000142.....SCREW, CAP 1/4-20 x 2-1/2 HXHD
4. 01-000037 . . . . . NUT, 1/4-20 HXHD
5. 02-000038 . . . . . LOCKWASHER, 1/4
6. 02-000066 . . . . . FLATWASHER, 1/4
7. 03-000246 . . . . . CLAMP, HOSE #8
8. 03-000248 . . . . . CLAMP. HOSE #16
9. 09-805375.....HOSE, RADIATOR 1-1/8 x 5-1/2"
10. 09-805423.....HOSE, RADIATOR 1-1/8 x 4-1/2"
11. 09-805432.....HOSE, RADIATOR 1-1/8 x 13-1/2"
12. 09-805552.....HOSE, RADIATOR 1-1/8 x 18"
13. 1 l-800041.....ELBOW, ST 1/2 BR
14. 1 l-800045 . . . . . ELBOW, ST 1/4 BR
15. 11-800427.....BUSHING, 1 x 1/2 BR
16. 12-800269.....FITTING, BARB 1/2P x 5/8H BR
17. 15-808073.....COCK, DRAIN 1/4P x 1/4 HOS ELBOW BR
18. 35-900202.....THERMOSTAT, 195' W/HOLE
19. 50-501729.....MOUNT, TUBE & SHELL HEAT 'EXCHANGER
20. 50-501966.....ANGLE, MOUNTING HEAT EXCHANGER
21. 50-501967.....MOUNT, TUBE & SHELL HEAT EXCHANGER
22. 52-501813.....FITTING, BARB I"P x 1-H
23. 57-520085.....HEAT EXCHANGER, TUBE & SHELL-HYDRAFLUID
24. 58-500654.....CASTING, COOLANT MANIFOLD
25. 52-502020.....ADAPTOR, COOLANT

PERFORMER 405 VACUUM PUMP ASSEMBLY 61-951071

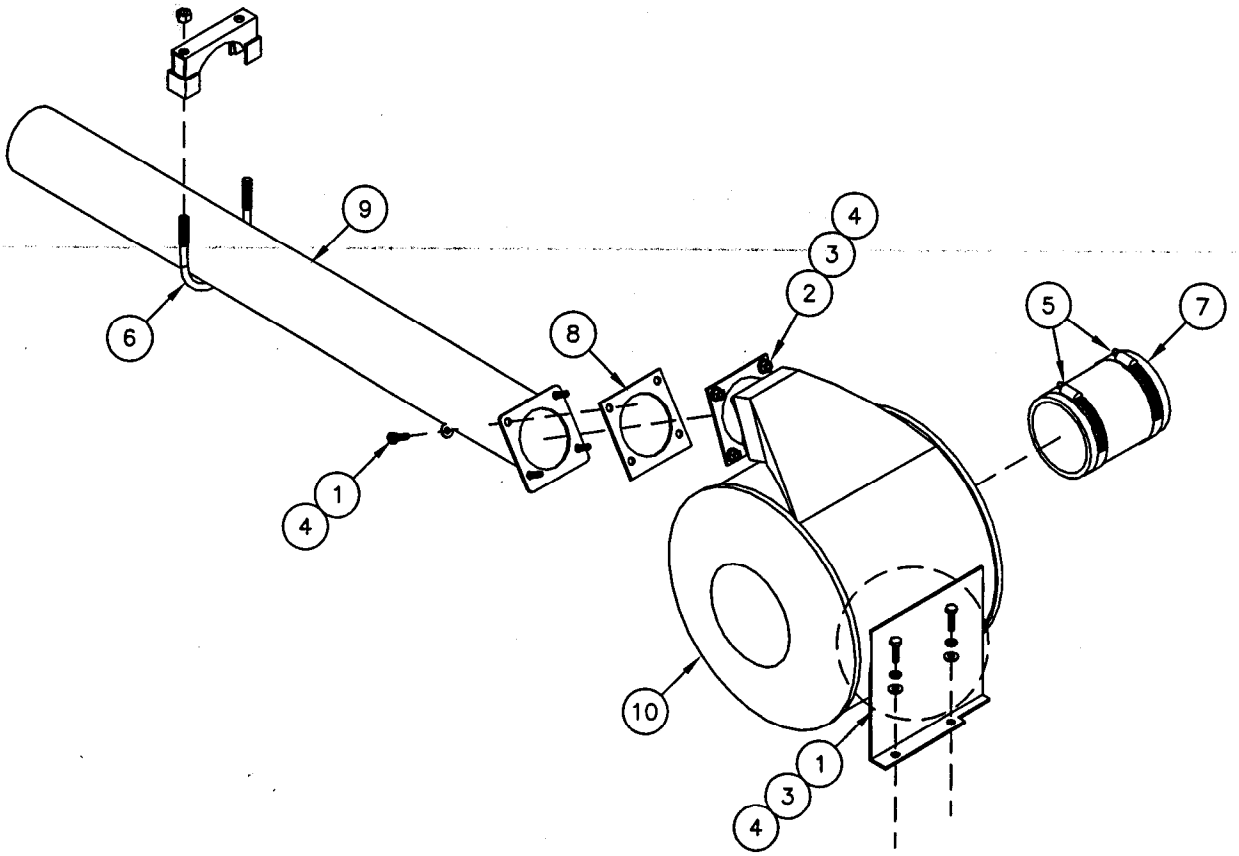


1. 00-000095.....SCREW, 3/8-16 x 1
2. 00-000323.....SCREW, 1/2-13 x 3-1/2"
3. 00-000324 . . . . . SCREW, 1/2-13 x 3"
4. 00-000420.....SCREW, 5/16-18 x 1-1/2" SOCHD
5. 02-000057 . . . ..FLATWASHER, 1/2 HEAVY
6. 02-000074.....FLATWASHER, 3/8
7. 02-000075.....LOCKWASHER, 3/8
8. 05-008039.....OIL, AEON PD (28G24 SUTORBILT) (NOT SHOWN)
9. 09-805566.....TUBING, IMPOLENE 1/4 x 57"
10. 09-805429 . . . ..TUBING, IMPOLENE 1/4 x 42"
11. 41-905026 . . . ..PUMP, VAC 4LL
12. 44-802196 . . . . . HUB, P1 x 7/8
13. 44-802245 . . . . . PULLEY, 2TB58
14. 44-802254.....PULLEY, VACUUM PUMP-LEFT
15. 44-802307 . . . . . BELT, BX42
16. 54-501642 . . . ..NIP, VAC OUTL (4LL)
17. 56-502386 . . . . . BRKT, VAC ADJ 4LL
18. 61-950732 . . . . . ASSY, VAC RELIEF VLV (INCLUDES PARTS # 19-25)
19. 01-000224 . . . . . NUT, 7/16-14 HXHD
20. 02-000074 . . . . . FIATWASHER, 3/8
21. 04-000091 . . . ..SPRING, VAC RELIEF VLV
22. 12-800059.....CONN, 1/8P x 1/4POLY BR
23. 43-807106.....DIAPHRAM, VAC RELIEF VLV
24. 52-501684.....ELL, VAC RELIEF VLV 4LL
25. 56-501994.....STEM, VAC RELIEF VLV 4LL
26. 03-000250 ..... CLAMP, HOSE #SO
27. 09-805425.....HOSE, INT VAC 3-1/2 x 5"
28. 09-805426.....HOSE, INT VAC 3-1/2 x 25"



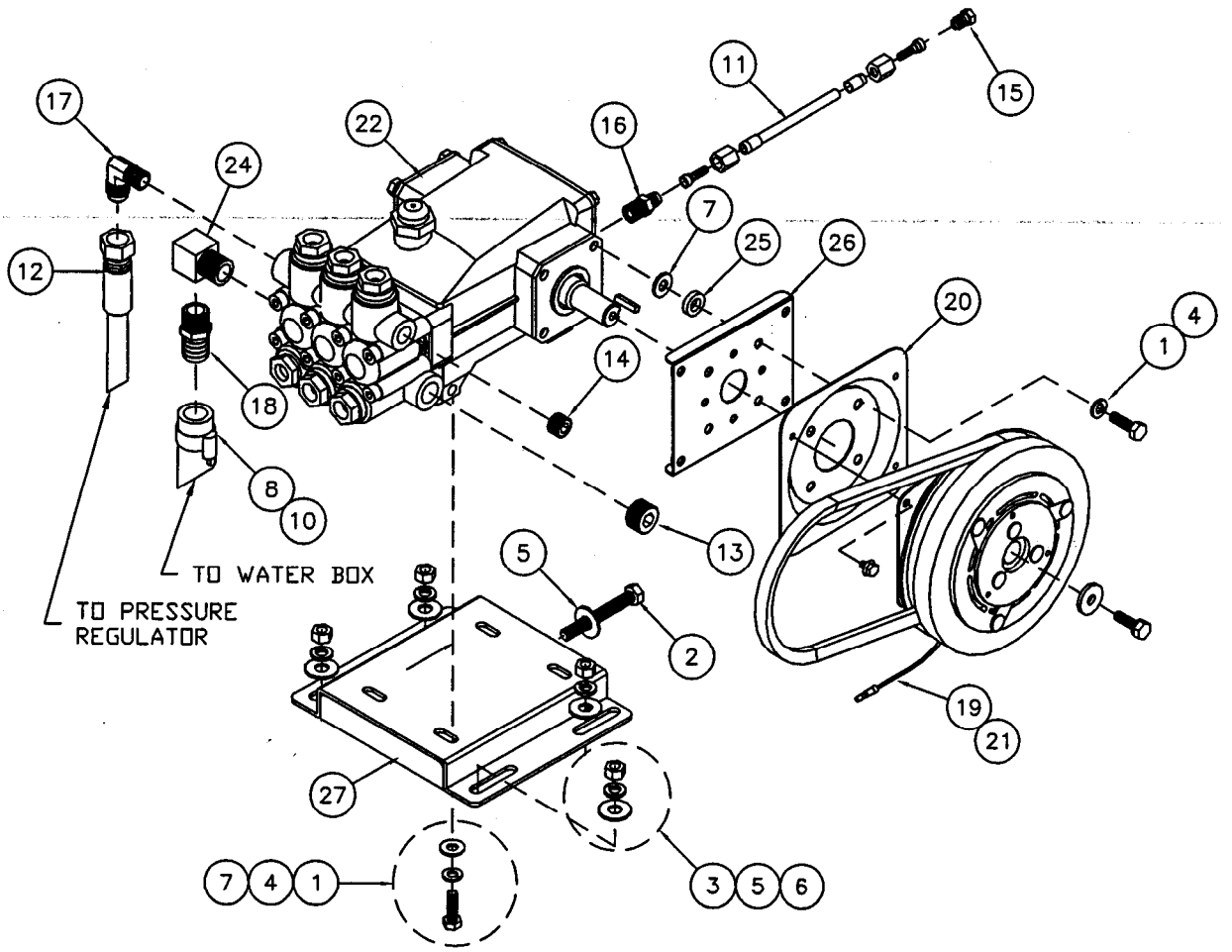
VACUUM RELIEF VALVE DETAIL 61-950732

VACUUM EXHAUST OUTLET ASSEMBLY 61-951663



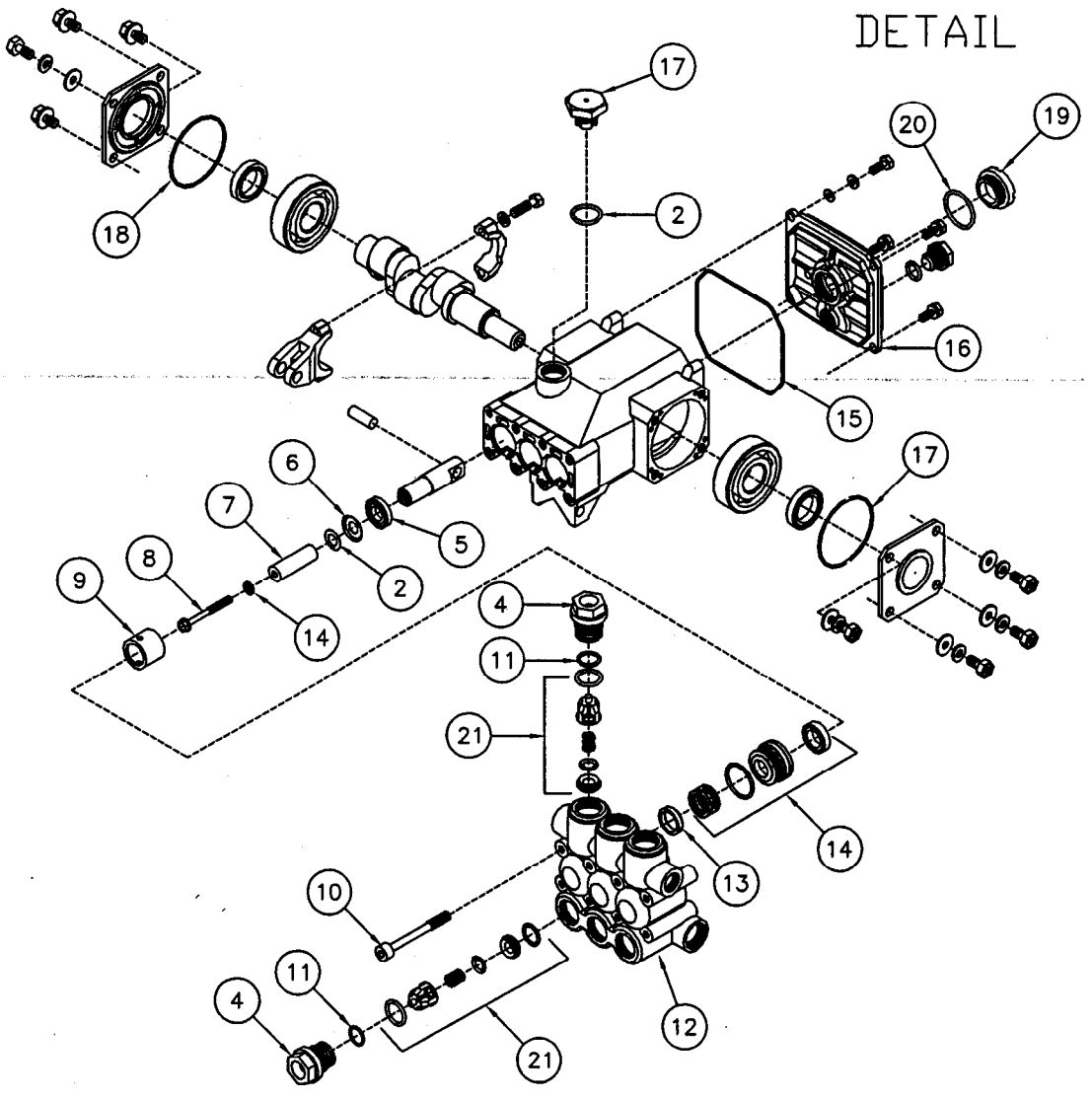
1. 00-000078.....SCREW, CAP 1/4-20 x 1" HXHD
2. 01-000037 . . . . . NUT, 1/4-20 HXHD
3. 02-000038 . . . . . LOCKWASHER, 1/4
4. 02-000066.....FLATWASHER. 1/4
5. 03-000250 . . . . . CLAMP, HOSE #60
8. 03-000257.....CLAMP, MUFFLER 3-I /4"
7. 09-505425.....HOSE, INT VAC 3-1/2 x 5"
8. 43-807108.....GASKET, VAC HEAT EXCHANGER INLET
9. 56-502184.....ASSEMBLY, VACUUM EXHAUST OUTLET
10. 57-520101.....MUFFLER, VACUUM

-WATER PUMP ASSEMBLY 61-951075



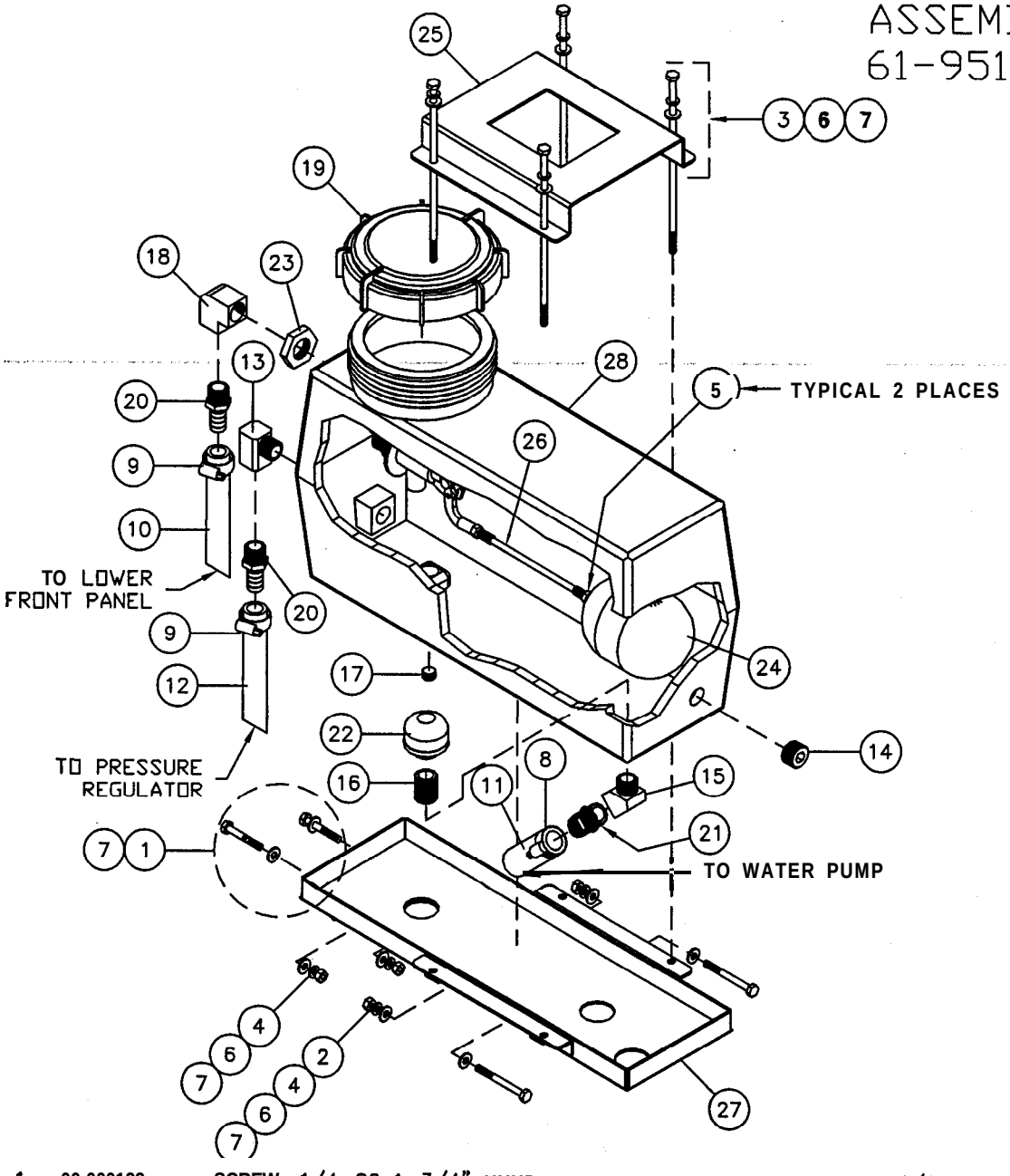
1. 00-000237 . . . . . SCREW, 8mm x 1.25 x 25mm HXHD
2. 00-000336.....SCREW, 3/8-1 8 x3 ALL THREAD
3. 01-000073.....NUT, 3/8-1 6 HXHD
4. 02-000040.....LOCKWASHER, 5/1 6
5. 02-000074.....FLATWASHER, 3/8
6. 02-000075.....LOCKWASHER, 3/8
7. 02-000143.....FLATWASHER, 5/1 6
8. 03-000113.....CLAMP, HOSE #12
9. 05-008016.....OIL, 21 oz CAT PUMP (NOT SHOWN)
10. 09-805436.....HOSE, BRAID 3/4 x 21"
11. lo-80531 6.....HOSE, 3/1 6 x 5"
12. 10-805448.....HOSE, HP 1/2 x 55" (1/2FT BS) 4000P.S.I.
13. 11-800069.....PLUG, 1/2 SOCHD BR
15. 12-800029.....PLUG, 1/4T B R
16. 12-800060.....CONN, 1/4P x 1/4T B R
17. 12-800225.....ELBOW, 3/8P x 1/2T B R
18. 12-800278.....FITTING, BRB 1/2P x 3/4H B R
19. 31-900185 . . . . . CONN, BULLET M (.156)
20. 36-900141 . . . ..CLUTCH. ELECTRIC WTR PMP (5CP)
21. 37-900140.....LOOM, 1/4" FAB HIGH TEMP
22. 41-809150.....PUMP, WATER CAT 5CP3120
23. 44-80231 6.....BELT, AX41 GOODYEAR MATCHMAKER
24. 52-800315.....ELBOW, ST 1/2 (CAP PUMP)
25. 54-501650.....SPACER, BELT GUARD
26. 56-500753.....BRACKET, CLUTCH MOUNT-WATER PUMP
27. 56-502233.....BRACKET, PUMP ADJ

WATER PUMP DETAIL



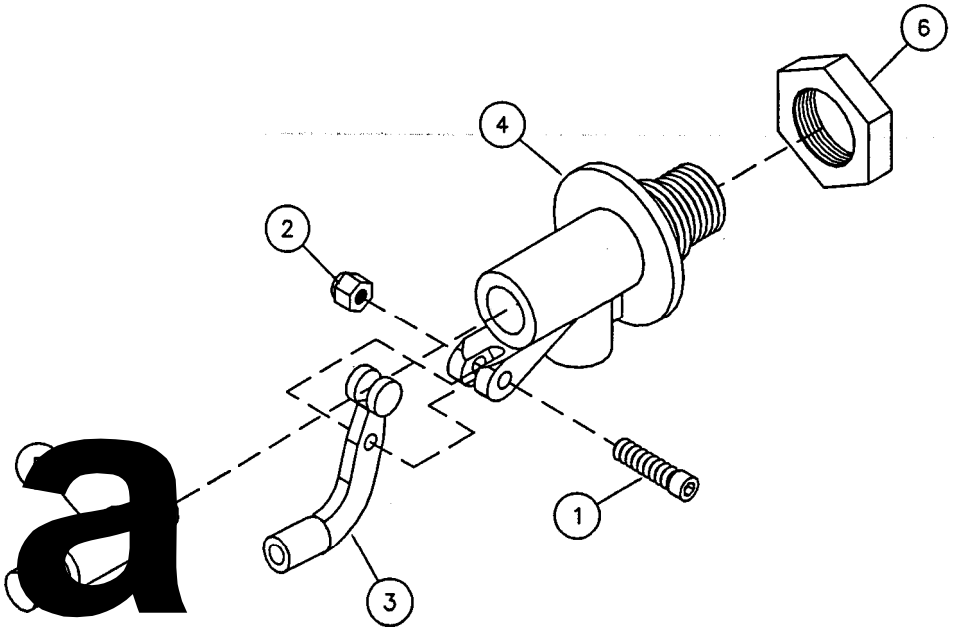
1. 05-008016.....OIL, CAT WATER PUMP (NOT SHOWN)
2. 42-809239.....O-RING, OIL FILL CAP
3. 42-809249..... WASHER, KEYHOLE MI 8
4. 42-809320..... PLUG. VALVE
5. 42-809380.....SEAL, OIL CRANKCASE
6. 42-809381..SLINGER, BARRIER
7. 42-809382.....PLUNGER
8. 42-809383.....RETAINER, PLNGR W/STUD
9. 42-809384.....RETAINER, SEAL
10. 42-809385.....BOLT, MNFLD HD M8x70
11. 42-809386.....RING, BACK-UP VALVE PLG
12. 42-809387 ..... MANIFOLD, HEAD
13. 42-809388.....ADAPTER, MALE
14. 42-809390.....KIT, SEAL
15. 42-809391. . . ..O-RING. CRANK COVER
16. 42-809392.....COVER, CRANKCASE
17. 42-809393.....CAP, OILL FILLER
18. 42-809394.....O-RING, BEARING COVER
19. 42-809398.....RING, BACK-UP SEAT
20. 42-902380.....GAUGE, OIL LEVEL
21. 43-807063.....GASKET, OIL GAUGE
22. 66-950440 ..... KIT. VALVE

WATER BOX ASSEMBLY 61-95107'6



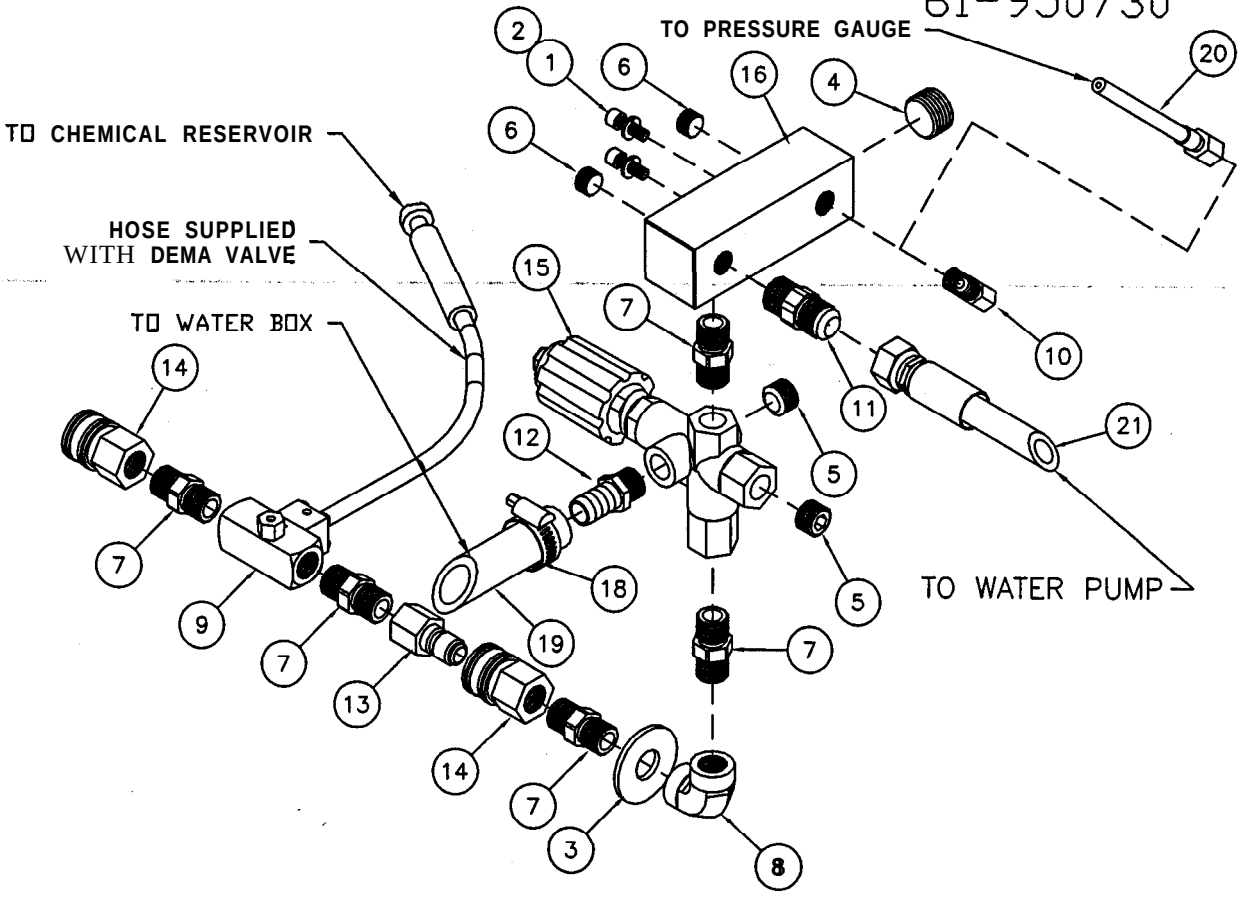
1. 00-000122 . . . . . SCREW, 1/4–20x1–3/4" HXHD
2. 00–000142.....SCREW, 1/4–20x2–1/2" H X H D
3. 00–000335.....SCREW, 1/4–20x8" H X H D
4. 01-000037 . . . . . NUT, 1/4–20 HXHD
5. 01-000045 . . . . . NUT, 1/4–20 HXHD SST
6. 02–000038.....LOCKWASHER, 1/4
7. 02-000066 . . . . . FLATWASHER, 1/4
8. 03-000113 . . . . . CLAMP, HOSE #12
9. 03-000246 . . . . . CLAMP, HOSE #8
10. 09–805428 . . . . . HOSE, WTR 5/8 x 58"
11. 09–805436 . . ..HOSE, WTR 3/4 x 21"
12. 09–805544.....HOSE, WTR 5/8 x 56–1/2"
13. 1 l-800041. . . ..ELBOW. ST 1/2 BR
14. 1 l-800069 . . . . . PLUG, 1/2 SOCHD BR
15. 1 l-800299 . . . . . ELBOW, ST 1/2 45° BR
16. 11-800300 . . . . . NIPPLE, 1/2 x CLOSE BR
17. 1 l-800345 . . . . . PLUG, 1/4 SOCHD BR
18. 11–800361. . . ..ELBOW. 1/2 B R
19. 1 l-800432 . . . . . CAP, WATER BOX
20. 12–800269 . . . . . FTTG, BRB 1/2P x 5/8H BR
21. 12–800278 . . . . . FTTG, BRB 1/2P x 3/4H BR
22. 14–806540.....STRNR, SUC END 1/2FP
23. 15–808110.....VALVE, FLOAT
24. 1g-807014 . . . . . BALL, FLOAT
25. 50–501763.....HOLD DOWN, WATER BOX
26. 54–501715.....ROD, FLOAT 1/4–20x6" SST
27. 56-501902 . . . . . TRAY, WATER BOX
28. 58–500781. . . ..MLDG, WATER BOX

FLOAT VALVE DETAIL 15-808110

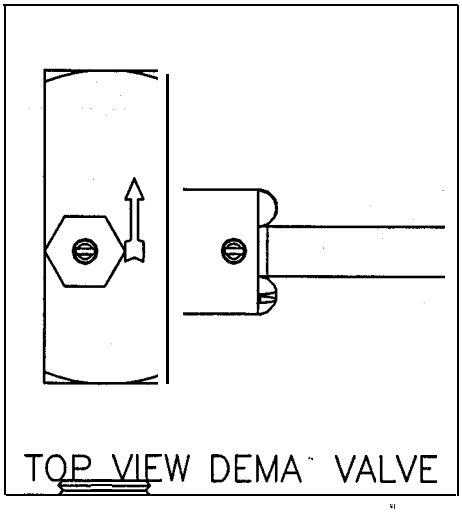


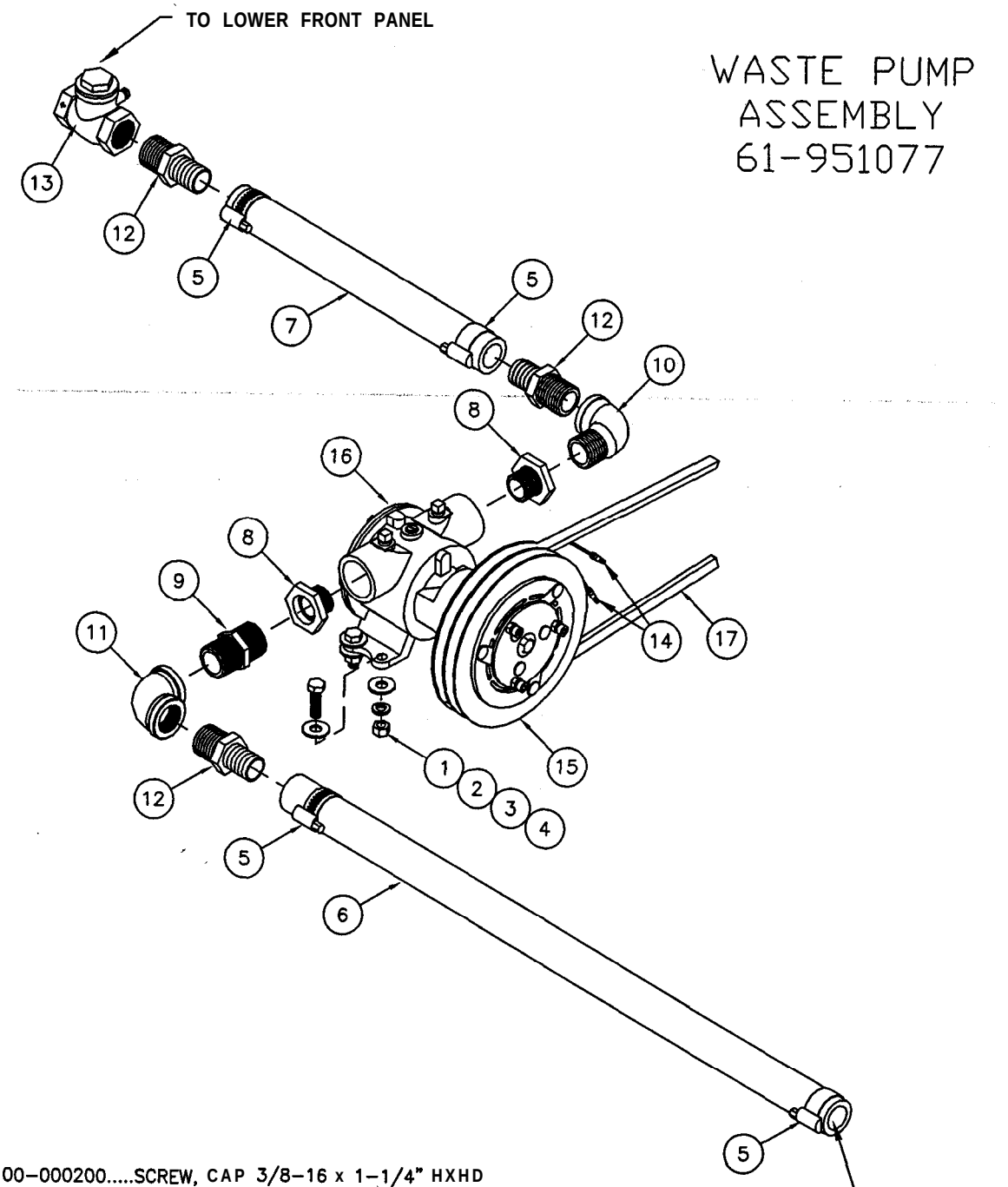
1. 00-000337....SCREW 10-32 x 1" SOCHD SST
2. 01-000241.....LOCKNUT 10-32 HEX HD SST
3. 16-808216.....ARM, PIVOT-FLOAT VALVE
4. 16-808217.....BODY, FLOAT VALVE-FLOAT VALVE
5. 16-808219..PISTON ,FLOAT VALVE
6. 52-501706.....NUT, FLOAT VALVE

PRESSURE REGULATOR ASSEMBLY 61-950730

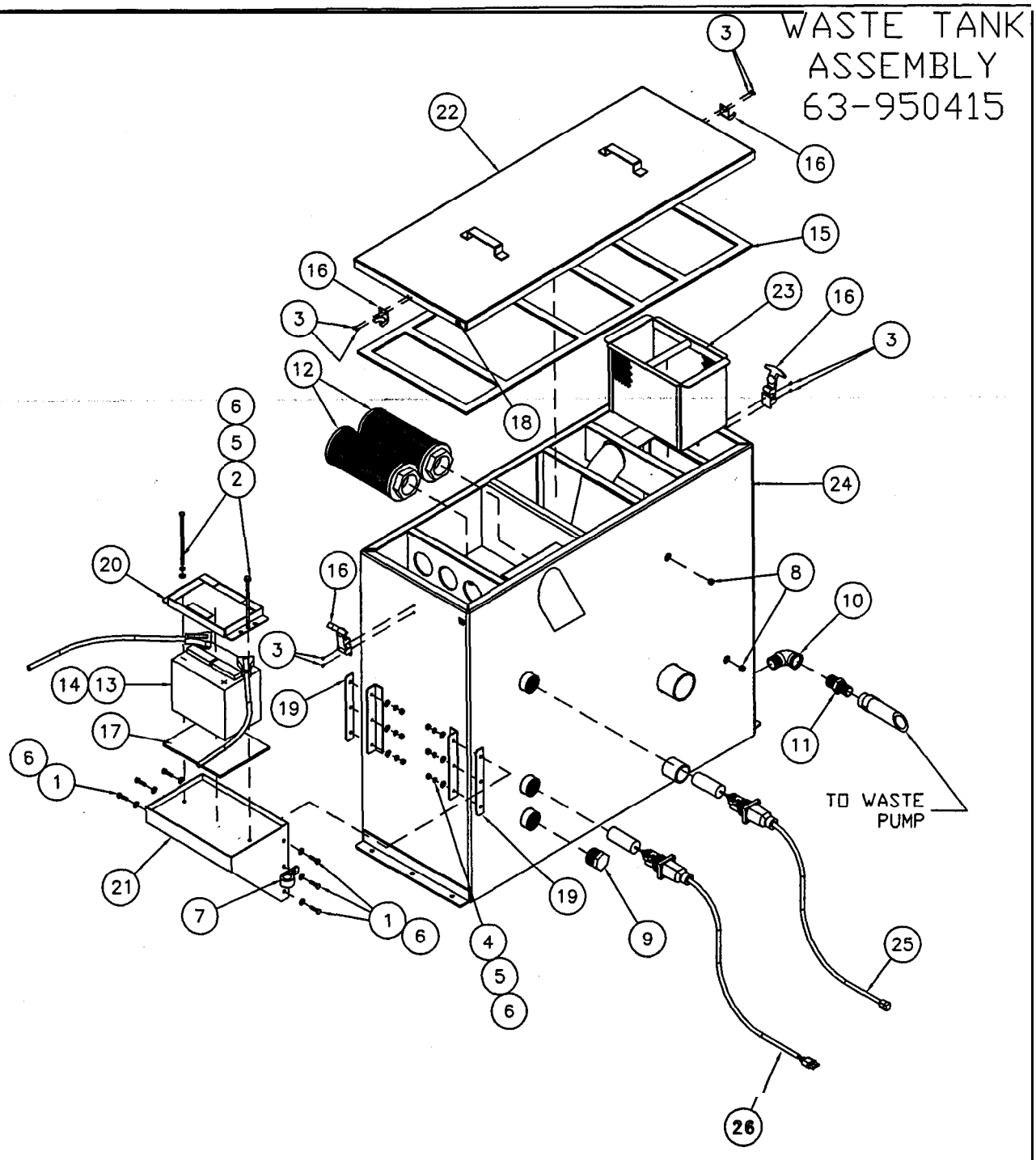


1. 00-000210.....SCREW, 1/4-20 x 3/4" SOCHD
2. 02-000038.....LOCKWASHER, 1/4
3. 02-000088.....FLATWASHER, 5/8 HEAVY
4. 11-800069.....PLUG, 1/2 SOCHD BR
5. 11-800224.....PLUG, 3/8 SOCHD BR
6. 11-800345.....PLUG, 1/4 SOCHD BR
7. 11-800429.....NIP, HEX 3/8 SST
8. 11-800464.....ELBOW, 3/B ZINC PLATED
9. 11-800492.....INJ, CHEMICAL DEMA 202BS
10. 12-800031 . . ..ELBOW. 1/4P x 1/4T BR
11. 12-800282.....CONN, 3/8P x 1/2T BR
12. 12-800345.....FTTG, BRB 3/8P x 5/8H BR
13. 13-806033.....DISCONNECT, 3/8M x 3/8FP (ST) SST
14. 13-806037.....DISCONNECT, 3/8F x 3/8FP (ST) SST
15. 15-808147.....REGULATOR, PRESSURE
16. 52-501807.....MANIFOLD, REGULATOR
17. 67-645660.....INSTRUCT, PRESSURE REGULATOR (NOT SHOWN)
18. 03-000246 ..... CLAMP, HOSE #B
19. 09-805544.....HOSE, WATER 5/8 x 56-1/2"
20. 10-805131.....HOSE, 3/16 x 20-1/2" (1/4FT BS) MET
21. 10-805448.....HOSE, HP 3/8 x 55" (1/2FT BS) 4000 P.S.I.



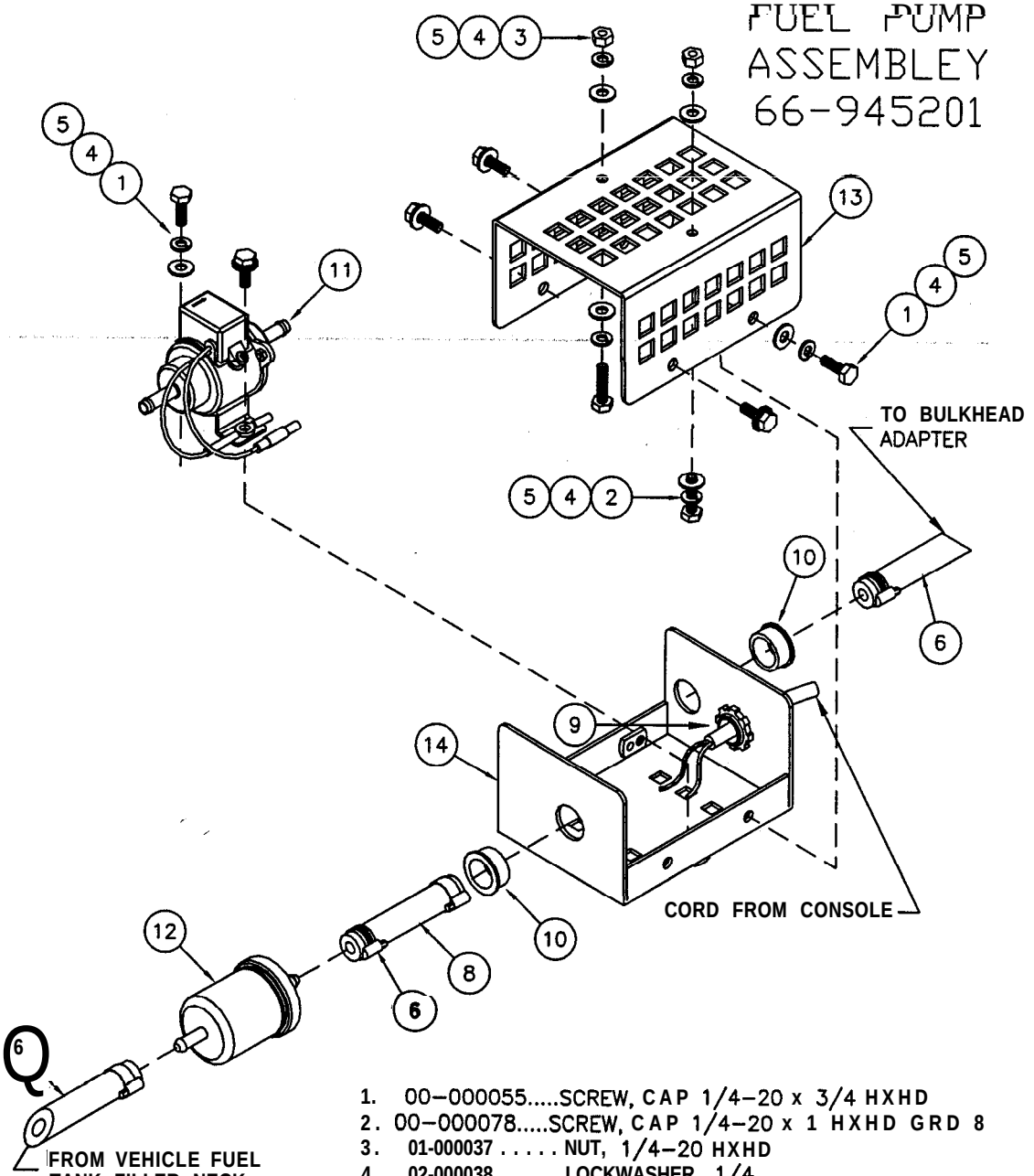


1. 00–000200.....SCREW, CAP 3/8–16 x 1–1/4" HXHD
2. 01–000073.....NUT, 3/8–16 HXHD
3. 02–000074.....FLATWASHER, 3/8
4. 02–000075.....LOCKWASHER, 3/8
5. 03–000248.....CLAMP, HOSE #16
6. 09–805473.....HOSE, WATER 1" x 29" BLACK
7. 09-805538 . . . . . HOSE, WATER 1" x 13–1/2" BLACK
8. 1 l-800455 . . . . . BUSHING, 1–1/4 x 1 BRASS
9. 11–800459.....NIPPLE, 1" HEX BRASS
10. 11–800484.....ELBOW, ST 1" BRASS
11. 11–800493.....ELBOW, 1" BRASS
12. 12–800367.....FITTINH, BARB 1"P x 1 "H BRASS
13. 15–808126.....VALVE, SWING CHECK 1 "FP BRASS
14. 31–900185.....CONNECTOR, BULLET M (156)
15. 36–900138.....CLUTCH, JABSCO PUMP 11870–005
16. 41-809141 . . . . .PUMP, WASTE JABSCO #11870–0005
17. 44–802317.....BELT, AX45 GOODYEAR MATCHMAKER ONLY



1. 00-000078.....SCREW, CAP 1/4-20 x 1 HXHD GRD 8
2. 00-000167.....SCREW, MACH 1/4-20 x 6 HXHD
3. 00-000171 . . . ..RIVET, 3/16 x 5/1 6 ALUM
4. 01-000037 . . . . . NUT, 1/4-20 HXHD
5. 02-000038 . . . . . LOCKWASHER, 1/4
6. 02-000066 . . . . . FM-WASHER, 1/4
7. 03-000242.....CLAMP, CABLE 3/4ID 1/4BLT
9. 1 1-800345.....PLUG, 1/4 SOCHD BR
10. 11-800402.....PLUG1-8004ELBOW-1/41 BR HXHD PVC
11. 12-500367.....FITTING. BARB 1P x 1 H BR
12. 14-806509.....STRAINER, WST TNK 2in 100MESH
13. 31-900179.....COVER, BATTERY TERMINAL
14. 36-900056.....BATTERY, 300 CCA
15. 43-807559.....GASKET, WASTE TANK LID
16. 46-80251 0.....LATCH, DRAW 2-7/8 SST'
17. 47-700007.....SHIELD. BATTERY MOUNT HEAT
18. 48-941297.....DECAL, ARROW-WASTE TANK LID
19. 50-501697.....SPACER, BATTERY SHELF MOUNTING
20. 56-500188.....COVER, BATTERY
21. 56-501779.....TRAY, BATTERY
22. 56-501788.....LID, WASTE TANK
23. 56-501793.....BASKET, STRAINER
24. 56-502189.....TANK, WASTE
25. 61-950621 . . . ..ASSY, LEVEL SENSOR SHUTOFF SWITCH
26. 61-951132.....ASSY, LEVEL SENSOR SHUTOFF SWITCH

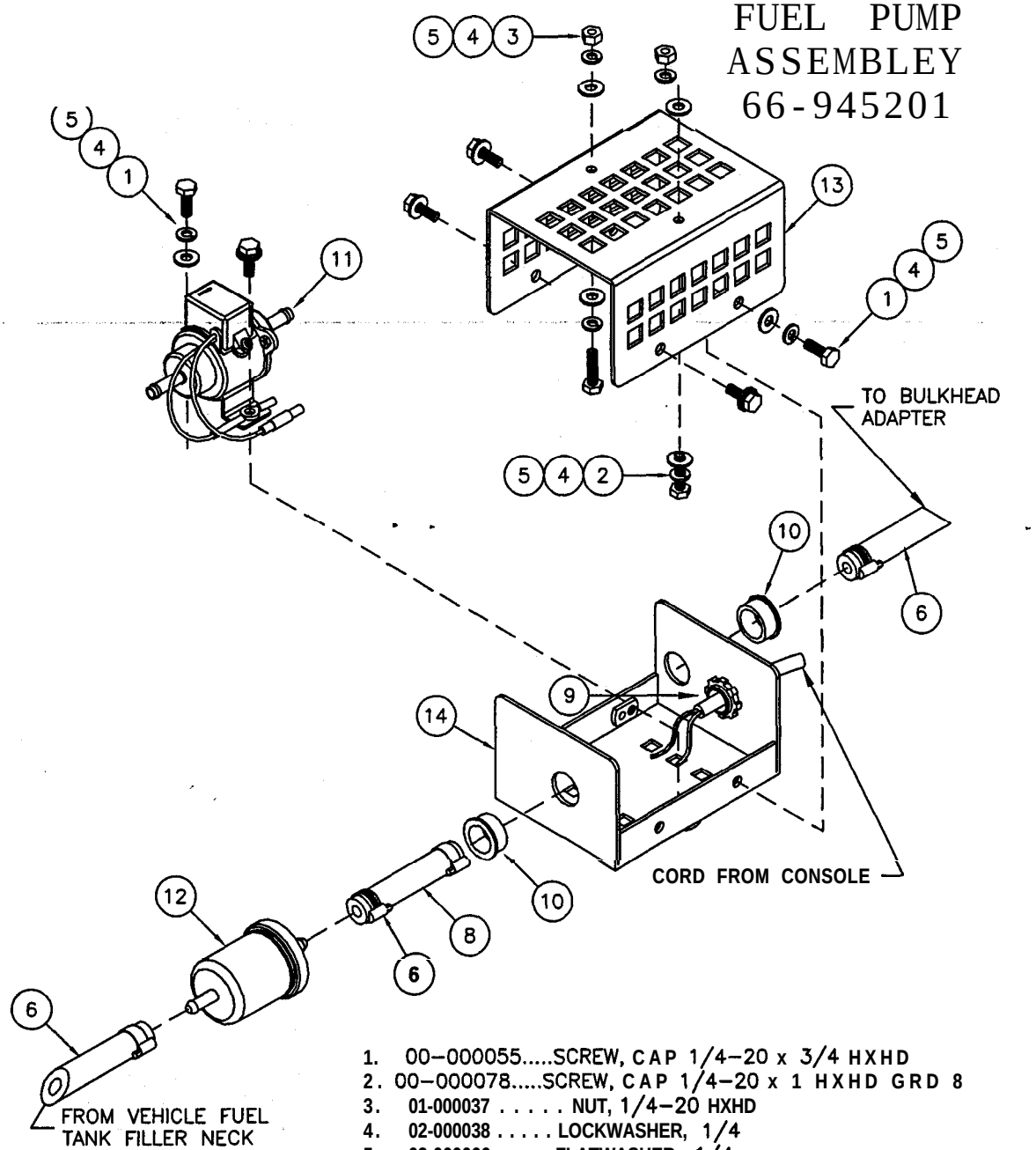
EXTERNAL ELECTRIC FUEL PUMP ASSEMBLEY 66-945201



1. 00–000055.....SCREW, CAP 1/4–20 x 3/4 HXHD
2. 00–000078.....SCREW, CAP 1/4–20 x 1 HXHD GRD 8
3. 01-000037 . . . . . NUT, 1/4–20 HXHD
4. 02-000038 . . . . . LOCKWASHER, 1/4
5. 02-000066 . . . . . FLATWASHER, 1/4
6. 03-000254 . . . . . CLAMP, HOSE #6
7. 09–805345.....HOSE, FUEL 5/16 x 15' (ABR RESIST)
8. 09–805417.....HOSE, FUEL 5/16 x 3–1/2"
9. 31–900017. . . .CONN.C, O R D 1/2
10. 31–900067.....BUSHING, SNAP HEYCO2140
11. 41-809132 . . . . . KBT PMP, FUEL #101
12. 42-902311. . . ..KBT ASSY. FUEL FILTER #12581-43012
13. 50–501739.....COVER, FUEL PUMP BRACKET
14. 56–501880.....BRACKET, FUEL PUMP MOUNTING
15. 67–945340.....INSTRUCT, EXTERNAL FUEL PUMP KIT

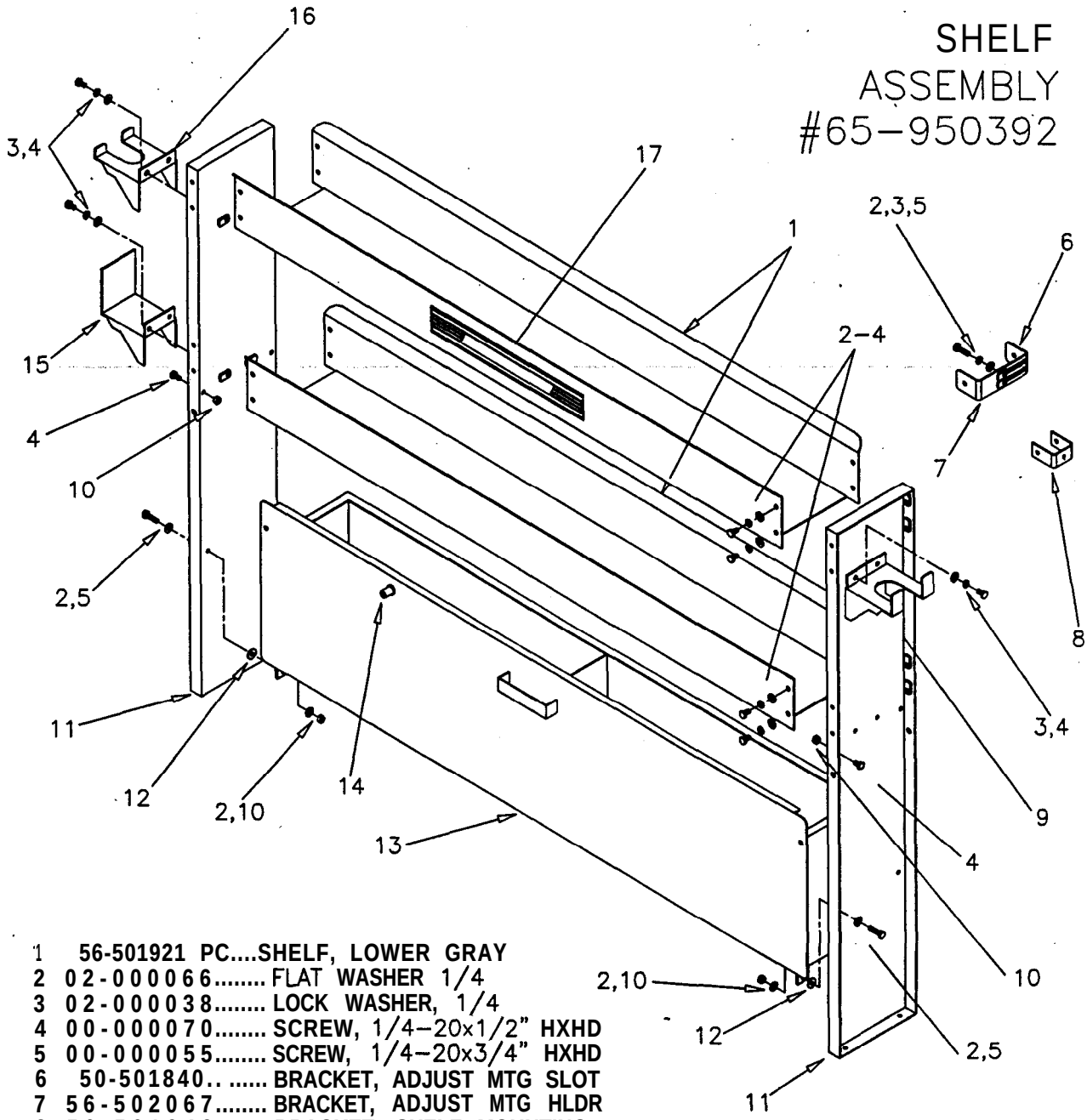
(NOT SHOWN)

EXTERNAL ELECTRIC FUEL PUMP ASSEMBLEY 66-945201



1. 00–000055.....SCREW, CAP 1/4–20 x 3/4 HXHD
2. 00–000078.....SCREW, CAP 1/4–20 x 1 HXHD GRD 8
3. 01-000037 . . . . . NUT, 1/4–20 HXHD
4. 02-000038 . . . . . LOCKWASHER, 1/4
5. 02-000066 . . . . . FLATWASHER, 1/4
6. 03-000254 . . . . . CLAMP, HOSE #6
7. 09–805345.....HOSE, FUEL 5/16 x 15' (ABR RESIST)
8. 09–805417.....HOSE, FUEL 5/16 x 3–1/2"
9. 31-900017 . . . . . CONN, CORD 1/2
10. 31–900067.....BUSHING, SNAP HEYCO2140
11. 41-809132 . . . . . KBT PMP. FUEL #101
12. 42-902311. . . ..KBT ASSY, FUEL FILTER #12581–43012
13. 50-501739. . . ..COVER. FUEL PUMP BRACKET
14. 56–501880.....BRACKET, FUEL PUMP MOUNTING
15. 67–945340.....INSTRUCT, EXTERNAL FUEL PUMP KIT (NOT SHOWN)

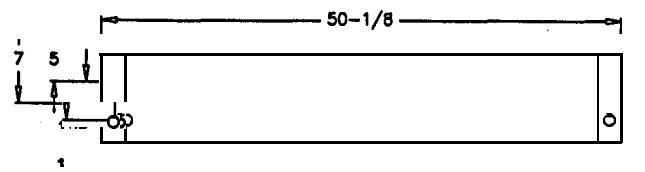
SHELF ASSEMBLY #65–950392



1	56-501921 PC....	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	50-50 1749.....	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	48-941 152.....	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

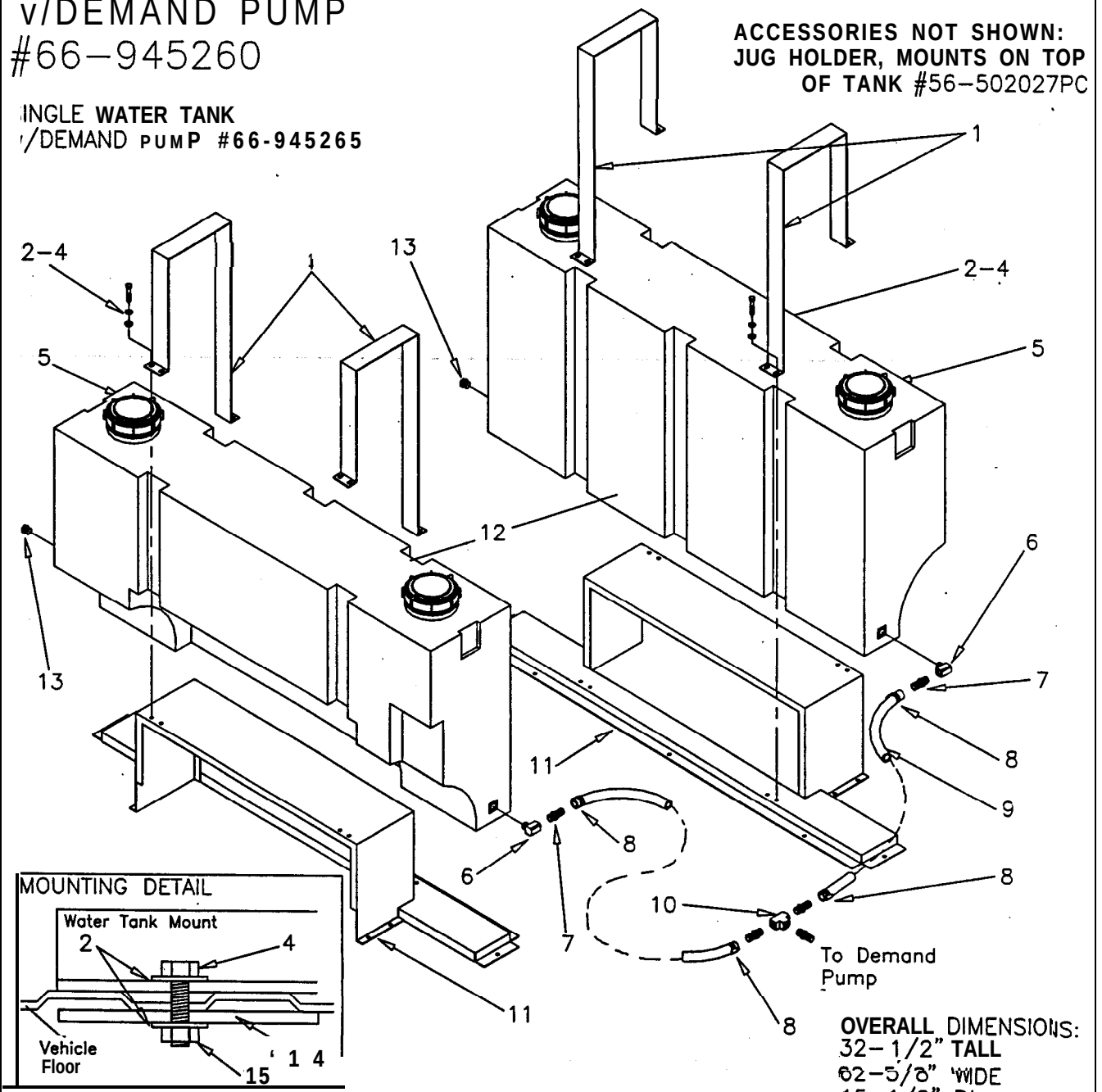
DIMENSIONAL DATA



)UAL WATER TANK v/DEMAND PUMP #66–945260

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

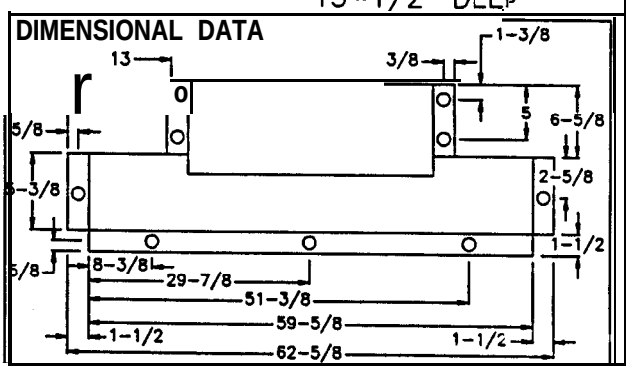
INGLE WATER TANK '/DEMAND PUMP #66-945265



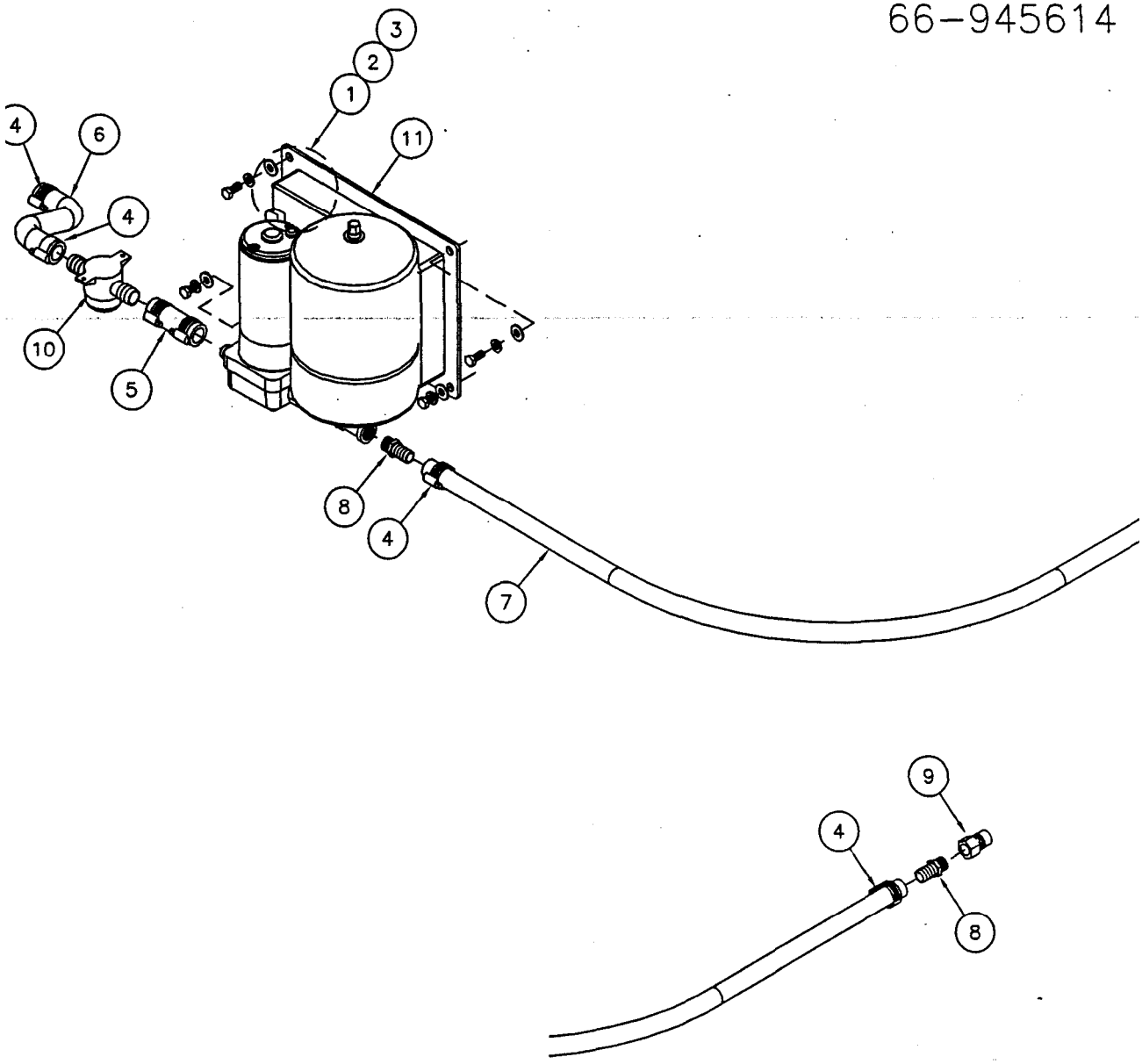
OVERALL DIMENSIONS:
32–1/2" TALL
62–5/8" WIDE
15–1/2" DEEP

1	50–501774PC	HOL D DOWN SADDLE TANK GRAY
2	02-000074	FLAT WASHIER, 3/8
3	02-000075	LOCK WASHER. 3/8
4	00-000072	SCREW, 3/8–16x2" HXHD
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	58-50066 1	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

DIMENSIONAL DATA



DEMAND PUMP ASSEMBLY 66-945614

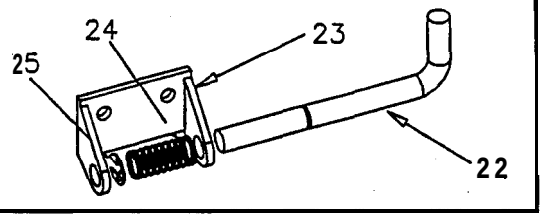


1. 00-00021 5.....SCREW, 5/16- 18 x 3/4"
2. 02-000040.....LOCKWASHER, 5/16"
3. 02-000143 . . . . . FLATWASHER. 5/16"
4. 03-000113 . . . . . CLAMP, HOSE #12
5. 09-805278 . . . . . HOSE. WATER 3/4 x 3"
6. 09-805357.....HOSE, WATER 3/4 x 5-1/2"
7. 09-805446.....HOSE, WATER 5/8 x 55"
8. 12-800345.....FITTING, BRB 3/8P x 5/8H BR
9. 13-806009.....DISCONNECT, 3/8M x 3/8FP B R
10. 14-806553.....FILTER, DEMAND PUMP
11. 41-905049.....PUMP, WATER BOOSTER FLOJET 2840-100A

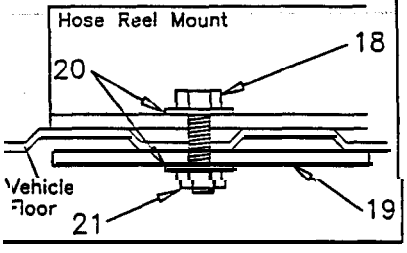
CCESSORIES NOT **SHOWN:**
OSE REEL, VACUUM HOSE ONLY #65-950438
OOR-MOUNT **HP HOSE REEL #65-950482**

HOSE REEL ASSEMBLY #65-950393

#6 I-950854
LATCH ASSEMBLY DETAIL



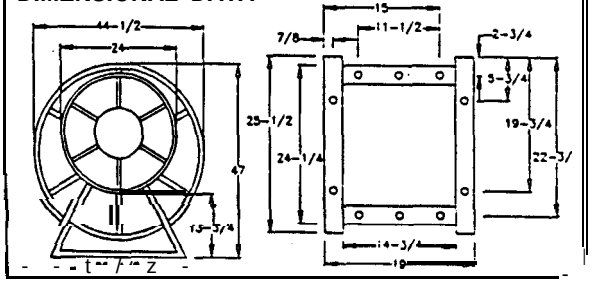
MOUNTING DETAIL



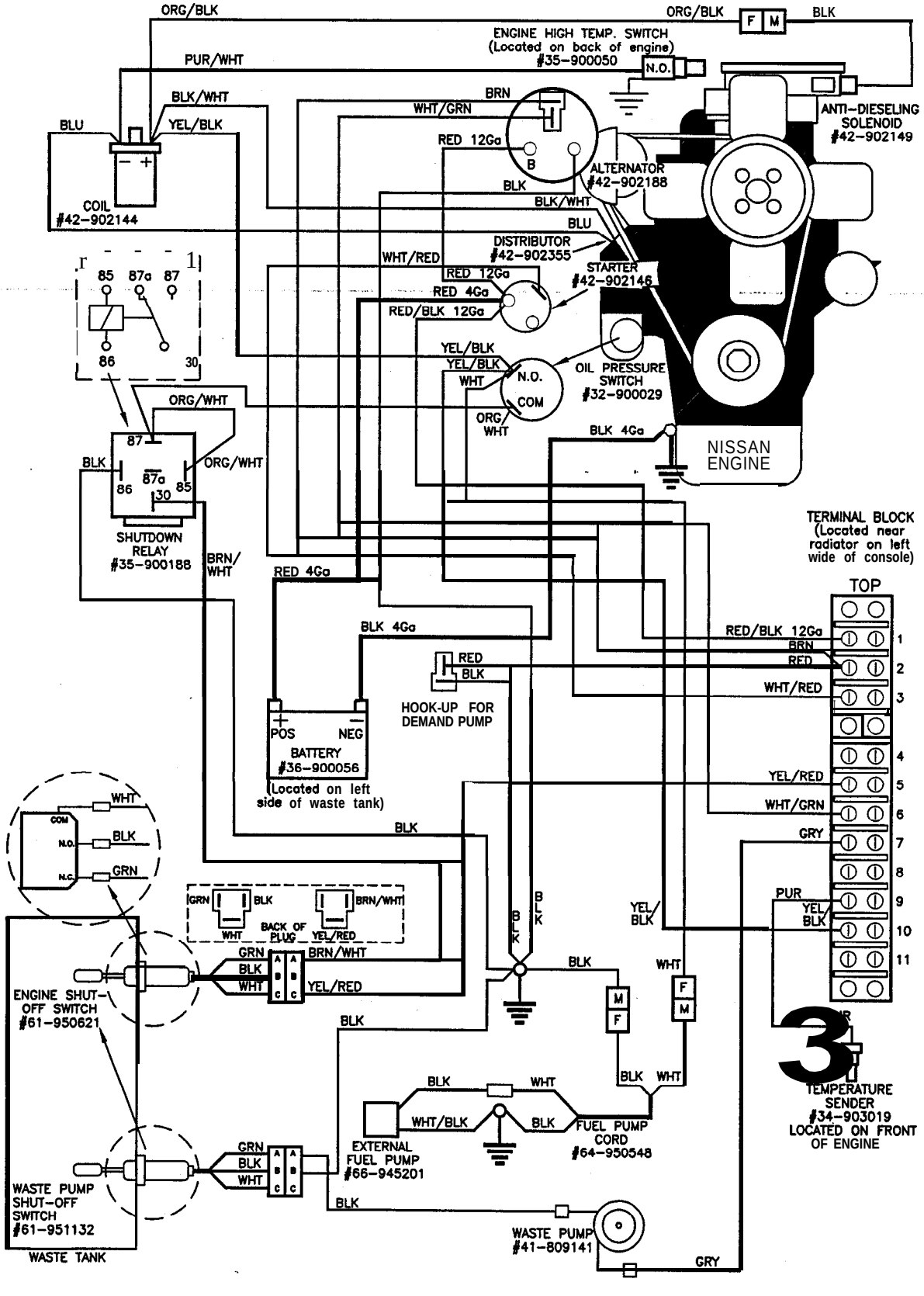
	56-501962PC	REEL, VACUUM HOSE GRAY
-	03-000124	CLAMP, MUFFLER I-3/4"
3	52-501685	BUSHING. HOSE REEL
4	56-501960PC	BASE, HOSE REEL GRAY
5	56-502207	BRACKET, LOCKOUT HOSE REEL
6	6 I-950854	ASSEMBLY. LATCH HOSE REEL
7	02-000066	FLAT WASHER, 1/4
8	02-000038	LOCK WASHER, 1/4
9	00-000055	SCREW, 1/4-20x3/4"
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	56-501961 PC	BODY, HP HOSE GRAY
18	00-000072	SCREW, 3/8-16x2"
19	50-5005 11	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	04-000303	SPRING, LOCK-LOCK PIN ASSY
25	04-000303	CLIP, RETAINER-LOCK PIN ASSY

OVERALL DIMENSIONS:
47" TALL
Z9" WIDE
44-1/2" DEEP

DIMENSIONAL DATA



WIRING DIAGRAM



CONSOLE WIRING