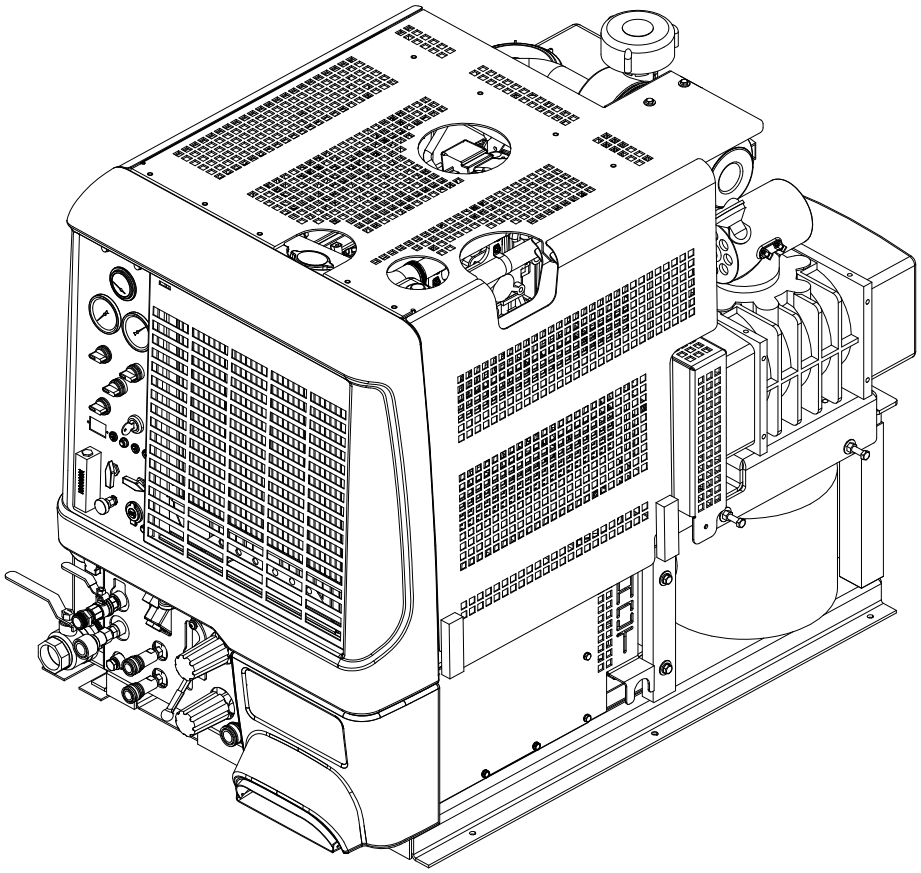
MODELS: ***EV408***
10011080

EVHP408
10011070

EV650
10011060

EVHP650
10011050



Operating Instructions (ENG)

Read instructions before operating the machine.

86011970-BN
01/26/11

MODEL _____

DATE OF PURCHASE _____

SERIAL NUMBER _____

SALES REPRESENTATIVE # _____

YOUR DEALER

NAME: _____

ADDRESS: _____

PHONE NUMBER: _____

Welcome…and congratulations on the purchase of your Mobile Cleaning Unit. This instruction manual is a guide for operating and servicing your 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 dealer.

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

MAKE CERTAIN THAT THE WARRANTY CARD IS FILLED OUT AT THE TIME OF INSTALLATION AND IS RETURNED TO YOUR DEALER.

PROFESSIONAL CHEMICALS CORPORATION
325 SOUTH PRICE ROAD
CHANDLER, ARIZONA 85224

TABLE OF CONTENTS

PARTS LIST

RECEIVING YOUR UNIT

ACCEPTANCE OF SHIPMENT

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

1. The unit should not show any outward signs of damage. If damaged, notify the delivering carrier immediately.

2. Check your equipment and packing list. The cleaning unit should arrive equipped with the following items (unless otherwise specified).

NOTE: Your distributor from whom you purchased this mobile cleaning unit is responsible for the correct installation of this machine. The dealer is also responsible for initial training of your operators and maintenance personnel in the proper operation and maintenance of this unit.

NOTE: Do not modify unit without written permission from manufacturer.

EQUIPMENT LIST:

1. Console.
2. Waste tank.
3. Filter box.
4. Hose clamps for vacuum hoses.
5. 150 ft. of 2” vacuum hose.
6. 2 vacuum hose connectors.
7. 150 ft. of 1/4" solution pressure hose with quick connects.
8. 50 ft. water supply hose with quick connect.
9. Installation bolting kit.
10. Installation mounting plates.
11. Operation and service manuals for engine, water pump, and vacuum pump.
12. Fuel Pump Assembly, Power and Regulator Cord.

This manual contains the following sections:

- HOW TO USE THIS MANUAL
- SAFETY
- SYSTEMS
- OPERATIONS
- MAINTENANCE & SERVICE
- PARTS LIST

The HOW TO USE THIS MANUAL section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.

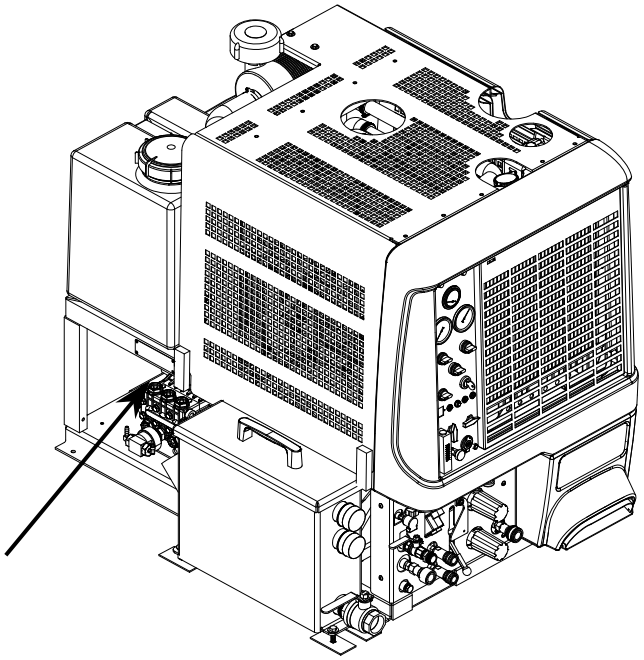
MODEL _____

DATE OF PURCHASE _____

SERIAL NUMBER _____

SALES REPRESENTATIVE # _____

The model and serial number of your machine is on the side approximately where shown.



The SAFETY section contains important information regarding hazardous or unsafe practices of the machine. Levels of hazards are identified that could result in product damage, personal injury, or severe injury resulting in death.
The OPERATIONS section is to familiarize the operator with the operation and function of the machine.

The MAINTENANCE section contains preventive maintenance to keep the machine and its components in good working condition. They are listed in this general order:

- Engine
- Vacuum Pump
- Water Pump
- Drive Belts, Pulleys & Hub
- Chemical Pump
- Hoses
- Vac/Exhaust Heat Exchanger
- General Service Adjustments
- Troubleshooting

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF –** column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **PRV NO.** – Reference No.
- **DESCRIPTION** – column is a brief description of the part.
- **SERIAL NO. FROM** – If this column has an (*) and a Reference number, see the SERIAL NUMBERS page in the back of your manual. If column has two asterisk (**), call manufacturer for serial number. The serial number indicates the first machine the part number is applicable to. The main illustration shows the most current design of the machine. When a boxed illustration is shown, it displays the older design.
- **NOTES** – column for information not noted by the other columns.

NOTE: If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.

NOTE: The part number for this manual is in the lower left corner of the cover page.

IMPORTANT SAFETY INSTRUCTIONS

When using this machine, basic precautions must always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE.

⚠ WARNING:

⚠ CAUTION:

These symbols mean 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!

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

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.

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

This unit must be operated with all vehicle cargo area or trailer rear doors open in order to ensure adequate engine ventilation.

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

DO NOT place hands, feet, hair, or clothing near rotating or moving parts. Avoid any contact with moving parts! Rotating machinery can cause injury or fatality.

Never operate this unit without belt guards or heat 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.

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.

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

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.

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

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

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

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

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.

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

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.

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

DO NOT exceed your vehicle's weight limit:

WEIGHT OF CONSOLE AND WASTE TANK	
408	**1215 lbs**
650	**1300 lbs**

Make certain to account for any additional accessories in your weight and balance calculations. Make certain that the vehicle has the correct axle rating. This will prevent unsafe vehicle driving conditions.

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.

DO NOT operate this unit without the filter installed in the waste tank.

Keep your vehicle work area clean. Wands, stair tools, and other accessories must be securely fastened before driving the vehicle.

All solution hose must be rated for 3000 PSI at 250°F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements. **Pressure wash hoses must be rated at 4000 PSI.**

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

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

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

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

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.

SAFETY

The following symbols are used throughout this guide as indicated in their descriptions:

HAZARD INTENSITY LEVEL

There are three levels of hazard intensity identified by signal words -**WARNING** and **CAUTION** and ***FOR SAFETY.*** The level of hazard intensity is determined by the following definitions:

⚠ WARNING:

WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠ CAUTION:

CAUTION - Hazards or unsafe practices which could result in minor personal injury or product or property damage.

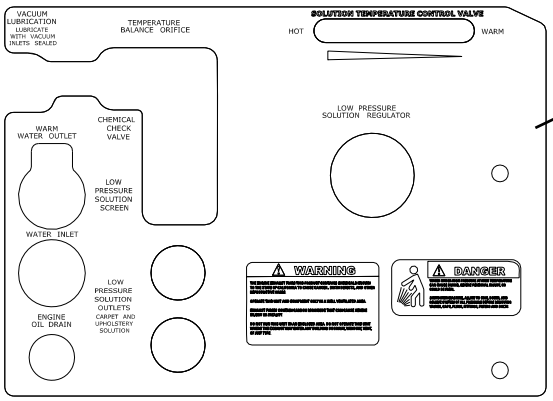
FOR SAFETY: To Identify actions which must be followed for safe operation of equipment.
Report machine damage or faulty operation immediately. Do not use the machine if it is not in proper operating condition. Following is information that signals some potentially dangerous conditions to the operator or the equipment. Read this information carefully. Know when these conditions can exist. Locate all safety devices on the machine. Please take the necessary steps to train the machine operating personnel.

FOR SAFETY:
DO NOT OPERATE MACHINE:
Unless Trained and Authorized.
Unless Operation Guide is Read and understood.
In Flammable or Explosive areas.
In areas with possible falling objects.

WHEN SERVICING MACHINE:
Avoid moving parts. Do not wear loose clothing; jackets, shirts, or sleeves when working on the machine. Use ProChem approved replacement parts.

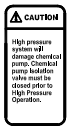
*The following **WARNING LABELS** are found on your cleaning unit. These labels point out important **Warnings** and **Cautions** which should be followed at **all** times. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property damage.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

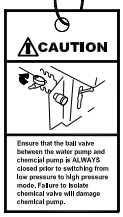
NOTE: If at any time the labels become illegible, promptly replace them.



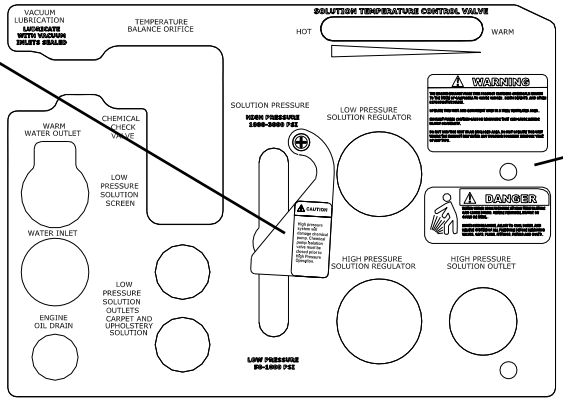
Front panel decal
Model 408 & 650
P/N 86179470
PRV NO. 791288

Caution label
P/N 86186510
PRV NO.500707

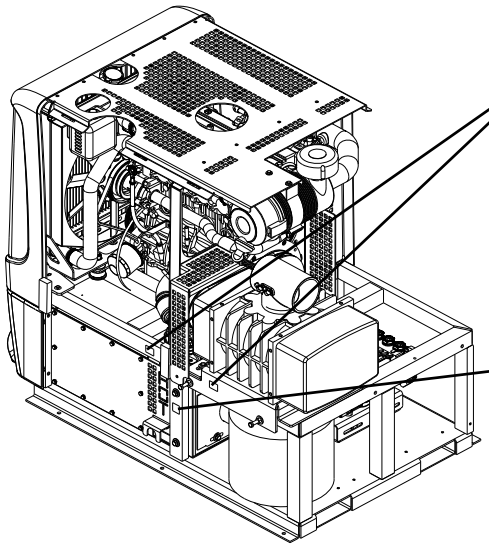




Caution Tag
P/N 86186500
PRV NO. 500706

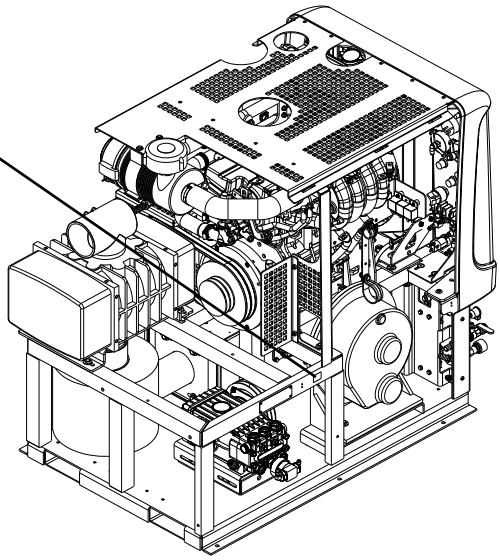


Front panel decal
HP Model 408 & HP 650
P/N 86179480
PRV NO.791289



Warning label
P/N 86186520
PRV NO.500769

Caution label
Part # 86012220



TECHNICAL SPECIFICATIONS

ITEM	DIMENSION/CAPACITY
Engine speed	2200 rpm (high speed) 900 rpm (idle speed)
Water pump rpm	1357 rpm
Vacuum pump rpm	3125 rpm
Water flow rate	5 GPM (maximum)
Water pump pressure (low pressure)	1200 PSI (maximum)
Water pump pressure (high pressure) (Optional)	3000 PSI (maximum)
Vacuum relief valve	13" Hg
Waste tank capacity	100 gallons
Console weight (Model 408 &HP 408)	1065 lbs
Console weight (Model 650 & HP 650)	1150 lbs
Console weight (with waste tank & waste tank accessories) Model 408 &HP 408)	1215 lbs
Console weight (with waste tank & waste tank accessories) (Model 650 & HP 650)	1300 lbs
TORQUE VALUES	
Engine pulley	420 inch lbs 35 foot/lbs
Vacuum pump hub	300 inch/lbs 25 foot/lbs

JET SIZING:
Recommended **floor tool** tip sizing not exceed a total of ".06". Using larger jet sizes on your cleaning unit may reduce cleaning temperatures.

Example: Quad-jet wand uses four 95015 jets (95° spray angle w/ 15 orifice).
02 x 3 = 06

When using two floor tools while cleaning with this unit, it is recommended that each tool tip size does not exceed a total of ".045".

Example: Quad-jet wand uses four 95015 jets (95° spray angle w/ 015 orifice).
015 x 4 = 060…….06 x 2 tools = 12

Upholstery tool jet size: 80015
Stair tool jet size: 9502

INSTALLATION REQUIREMENTS DEALER RESPONSIBILITY

NOTE: Your distributor from whom you purchased this mobile cleaning unit is responsible for the correct installation of this machine. The dealer is also responsible for initial training of your operators and maintenance personnel in the proper operation and maintenance of this unit.

1. If using a trailer, the console should be positioned so that it balances properly with respect to the axle. Ten percent (10%) of the overall unit weight should be on the tongue.

   Example: If loaded trailer weight is 2,000 lbs., tongue weight needs to be a minimum of 200 lbs. to tow properly.

2. The unit should **NOT** be mounted in any motor vehicle of less than **3/4 ton capacity**.

⚠ CAUTION:

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

3. 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. Install unit on tandem axle trailer only. Single axle trailers are not recommended.

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

5. Flooring materials that absorb water are not recommended. This could result in rust and corrosion of the vehicle floor.

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

7. It is highly recommend that a drip tray is used under the console.

FUEL REQUIREMENTS

Use unleaded gasoline ONLY. DO NOT use any gasoline additives. We recommend the use of clean, fresh, unleaded gasoline intended for automotive use. High-octane gasoline should **NOT** be used with the engine on this unit. This unit is not compatible with E-85 fuel.

ENGINE OIL REQUIREMENTS

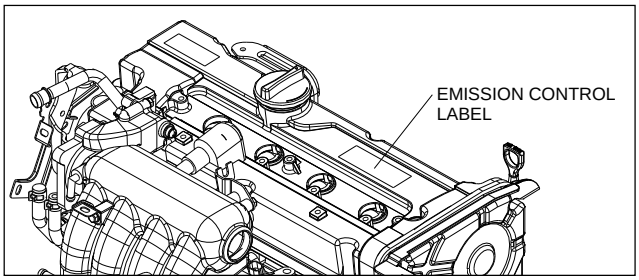
Use high quality detergent oil of at least API (American Petroleum Institute) service class SH. **NOTE:** Using less than service class SH oil or extending oil change intervals longer than recommended can cause engine damage. The recommended SAE viscosity grade is 15-W40.

ELECTRONIC FUEL INJECTION SYSTEM

This unit is equipped with the latest port fuel Electronic Fuel Injection (EFI) technology. The EFI technology provides more effective fuel distribution and improved power management through the use of an electronic “brain” called the electronic control unit (ECU). The ECU also provides improved engine emissions through more effective combustion of the fuel/air mixture. The fuel system, engine set up, and exhaust system are systems approved by the Environmental Protection Agency (EPA). Any alteration or modification to the system must receive approval from the EPA.

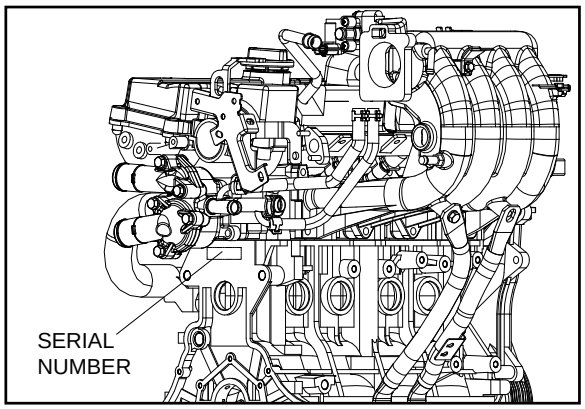
EMISSION CONTROL INFORMATION

The Zenith Power Products (ZPP) Emission control label is located on the valve cover of the engine near the oil fill cap.



DATE STAMP LOCATION

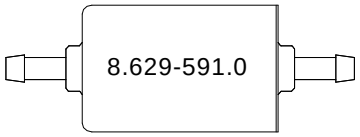
When referring to an engine for assistance from your dealer, ProChem, or ZPP please identify your engine by the serial # and date code stamped on the surface on the back of the engine block, approximately where indicated.



FUEL PUMP AND FILTER

Your Everest console was shipped to the dealer with a specific fuel pump and fuel filter. Ensure that ONLY these items are used in the installation of your unit. The system is much more sensitive to unwanted material in the fuel stream. Contamination of the fuel stream may clog the injectors and adversely affect performance. Please be sure to adhere to the filter maintenance schedule located in the Operations Section of this manual.

FUEL PUMP



FUEL FILTER

TROUBLE CODES

A feature of the ZPP 416 ECM is that DTC's = Diagnostic Trouble Codes can be displayed to a technician to indicate what historic faults are present without requiring the use of a personal computer. The DTC's can be flashed over the MIL output while the RS232 serial receive input (PC RX) is grounded. This input may be grounded at the diagnostic connector (pin A-brown/white wire). This connector is located behind the intake manifold near the front cylinder. Once the ECM recognizes that the user is requesting flash codes, ignition key on-engine off, it will flash or blink a leader code (111) x 3 times in a row. If the machine has been shut down due to a full waste tank you will also observe flash code 552 (DTC1552) and 554 (DTC1554). After the leader code has been flashed for 3 times, the first flash code in the active faults category will be flashed at the same rate. This will repeat depending on the number of faults retained in memory. Once all faults have been flashed the leader flash code (111) will be repeated. The codes are retained in memory. Once any issue is resolved and the machine started-run-stopped for 3 times without a fault detected the light will go out on the 4th start. If an issue has not been resolved the light will remain on and another code stored in history.

History faults will clear automatically after 20 start-run-stop cycles if the fault has not been detected.

#	DTC/ Pcode	Fault Description	CAN SPN	CAN FMI	Turns on MIL?	MIL Flash Code
		Leader/Trailer Code				111
1	P0016	CRANK or CAM could not synchronize during start	636	8	Yes	216
2	P0091	Fuel Pressure low voltage	94	4	Yes	291
3	P0092	Fuel Pressure high voltage	94	3	Yes	292
4	P0107	MAP Signal open or shorted to ground	106	4	Yes	127
5	P0108	MAP signal shorted high	106	16	Yes	128
6	P0112	IAT signal Low/Shorted to GND	105	4	Yes	112
7	P0113	IAT signal High/Open	105	3	Yes	113
8	P0116	ECT higher than warning threshold	110	15	Yes	116
9	P0117	ECT Sensor Low/Shorted Input	110	4	Yes	117
10	P0118	ECT Sensor High/Open Input	110	3	Yes	118
11	P0121	TPS1 voltage lower than TPS2 voltage	51	1	Yes	121
12	P0122	Throttle Position Signal 1 low voltage	51	4	Yes	122
13	P0123	Throttle Position Signal 1 high voltage	51	3	Yes	123
14	P0134	Pre-Cat O2 Signal No Activity	724	10	Yes	134
15	P0154	Post-Cat O2 Signal No Activity	520208	10	Yes	154
16	P0171	Gasoline bank 1 A/F is lean (adaptive learn)	520200	0	Yes	171
17	P0172	Gasoline bank 1 A/F is rich (adaptive learn)	520200	1	Yes	172
18	P0182	Gasoline Fuel Temp Low Voltage	174	4	Yes	182
19	P0183	Gasoline Fuel Temp High Voltage	174	3	Yes	183
22	P0217	ECT higher than engine shutdown threshold	110	0	Yes	217
23	P0219	Engine Over speed Condition	515	15	Yes	219
24	P0221	TPS1 voltage higher than TPS2 voltage	51	0	Yes	221
25	P0222	Throttle Position Signal 2 low voltage	520251	4	Yes	222
26	P0223	Throttle Position Signal 2 high voltage	520251	3	Yes	223
27	P0261	Injector 1 Low/Open	651	5	Yes	261
28	P0262	Injector 1 High/Short	651	6	Yes	262
29	P0264	Injector 2 Low/Open	652	5	Yes	264
30	P0265	Injector 2 High/Short	652	6	Yes	265
31	P0267	Injector 3 Low/Open	653	5	Yes	267
32	P0268	Injector 3 High/Short	653	6	Yes	268

#	DTC/ Pcode	Fault Description	CAN SPN	CAN FMI	Turns on MIL?	MIL Flash Code
33	P0270	Injector 4 Low/Open	654	5	Yes	269
34	P0271	Injector 4 High/Short	654	6	Yes	271
35	P0326	Knock signal excessive or erratic	731	2	Yes	326
36	P0327	Knock signal open or not present	731	4	Yes	327
37	P0336	CRANK signal noise	636	2	Yes	336
38	P0337	No CRANK signal	636	4	Yes	337
39	P0341	CAM signal noise	723	2	Yes	341
40	P0342	No CAM signal	723	4	Yes	342
41	P0420	Catalyst inactive on gasoline	520211	10	Yes	421
42	P0524	Engine Oil Pressure Too Low	100	1	Yes	524
43	P0562	Battery Voltage Low	168	17	Yes	562
44	P0563	Battery Voltage High	168	15	Yes	563
45	P0601	Microprocessor failure - FLASH	628	13	Yes	621
46	P0604	Microprocessor failure - RAM	630	12	Yes	624
47	P0606	Microprocessor failure - COP	629	31	Yes	626
48	P0615	Starter relay coil open	1321	5	Yes	615
49	P0616	Starter relay control short to GND	1321	4	Yes	616
50	P0617	Starter relay coil short to 12V	1321	3	Yes	617
51	P0642	5V Reference #1 voltage low	1079	4	Yes	642
52	P0643	5V reference #1 voltage high	1079	3	Yes	643
53	P0650	Malfunction Indicator Lamp open	1213	5	Yes	651
54	P0652	5V Reference #2 voltage low	1080	4	Yes	652
55	P0653	5V Reference #2 voltage high	1080	3	Yes	653
56	P0685	Power relay coil open	1485	5	Yes	685
57	P0686	Power relay short to GND	1485	4	Yes	686
58	P0687	Power relay short to 12V	1485	3	Yes	687
63	P1155	Closed-loop gasoline bank 1 A/F is too lean	520204	0	Yes	155
64	P1156	Closed-loop gasoline bank 1 A/F is too rich	520204	1	Yes	156
86	P1551	Aux Digital Input 1 High (Float Switch Voltage High)	-	-	Yes	1551
87	P1552	AUX DIGITAL INPUT 1 low voltage-force idle-waste tank full.	520222	3	Yes	552
88	P1553	Aux Digital Input 2 High (Float Switch Voltage High Engine Shut Down) 1553	-	-	Yes	1553
89	P1554	AUX DIGITAL INPUT 2 low voltage-after 15 seconds-engine shut-down-waste tank full	520223	4	Yes	554
94	P1612	Watchdog processor blocked outputs (RTI 1)	629	31	Yes	712
95	P1613	Microprocessor failure - RTI 2	P0629	P0031	Yes	713
96	P1614	Microprocessor failure - RTI 3	P0629	P0031	Yes	714
97	P1615	Microprocessor failure - A/D	P0629	P0031	Yes	715
98	P1616	Microprocessor failure - Interrupt	P0629	P0031	Yes	716
99	P1644	MIL control short to GND	P1213	P0004	No	644
100	P1645	MIL control short to 12V	P1213	P0003	No	645
101	P2111	Unable to reach Lower TPS	P0051	P0007	Yes	211
102	P2112	Unable to reach higher TPS	P0051	P0007	Yes	212
110	P2300	Ignition coil A low current	P1268	P0005	Yes	411
111	P2301	Ignition coil A high current	P1268	P0006	Yes	412
112	P2303	Ignition coil B low current	P1269	P0005	Yes	421
113	P2304	Ignition coil B high current	P1269	P0006	Yes	422

OBD = On Board diagnostics (Nomenclature)

DTC = Diagnostic Trouble Code
MIL = Malfunction Indicator Light
TPS1 = Throttle Position Sensor
EGO = Exhaust Gas Oxygen
ECT = Engine Coolant Temperature
CAM = Cam Sensor Input
CAN = Controller Ares Network
CPS = Crank Position Sensor
MAP = Manifold Absolute Pressure
Pcode= Powertrain Code

ZENITH DISTRIBUTOR LOCATIONS

- **ITAL ENGINE COMPANY (09046)**
  97 CYPRESS ST. SW
  REYNOLDSBURG, OHIO 43068
  OH, IN, KY, WV, PA (WESTERN)
  PHONE: 740/964-0089
- **CULLUM & BROWN, INC. (09045)**
  1607 WABASH
  WICHITA, KS 67214
  KS, MO
  PHONE: 316/262-5156
  800/362-3222
- **DIESEL ELECTRIC SERVICE & SUPPLY (09116)**
  652 W. 1700 SOUTH
  SALT LAKE CITY, UT 84104
  UT
  PHONE: 801/972-1836
- **POWER EQUIPMENT COMPANY (09117)**
  15225 INDUSTRIAL RD.
  OMAHA, NE 68144
  NE, IA
  PHONE: 402/330-5100
- **ENGINE WORKS, INC. (09178)**
  1345 PARAMOUNT PKWY.
  BATAVIA, IL 60510
  IL
  PHONE: 630/879-7977
  800-832-7217
- **FRONTIER EQUIPMENT, LTD. (09185)**
  8029 RIVER WAY
  DELTA, BC CANADA V4G IL3
  BC, AB
  PHONE: 604/946-5531
- **GULF ENGINE & EQUIPMENT (09229)**
  2306 ENGINEERS RD.
  BELLE CHASSE, LA 70037
  LA, MS
  PHONE: 504/393-1701
- **HAMILTON ENGINE SALES, INC. (09287)**
  5540 N. E. COLUMBIA BLVD.
  PORTLAND, OR 97218
  WA, OR, AK
  PHONE: 503/288-6714
  800/437-3644
- **H. G. MAKELIM COMPANY (09480)**
  219 SHAW RD.
  SOUTH SAN FRANCISCO, CA 94080
  CA
  PHONE: 650/873-4757
- **LOFTIN EQUIPMENT COMPANY, INC. (09490)**
  12TH NORTH 45TH AVE.
  PHOENIX, AZ 85043
  AZ
  PHONE: 602/272-9466
- **M.G. BRYAN EQUIPMENT COMPANY (09503)**
  4834 READING ST.
  DALLAS, TX 75247
  TX, OK
  PHONE: 214/631-9787
- **NORPRO ISUZU ENGINES, INC. (09505)**
  385 TOWN ST.
  HADDAM, CT 06423
  CT, MA, VT, NH, ME, RI
  PHONE: 860/873-0100
- **SOUTHEAST SERVICE & SUPPLY (09698)**
  1721-E OAKBROOK DR.
  NORCROSS, GA 30093
  GA
  PHONE: 770/448-4251
  800/241-4595
- **TOTAL POWER LTD**
  6670 EXCEISIOR COURT
  MISSISSAUGA, ON CANADA L5T 2J2
  ON
  PHONE: 905/670-1535

CHEMICAL REQUIREMENTS

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

WATER REQUIREMENTS

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

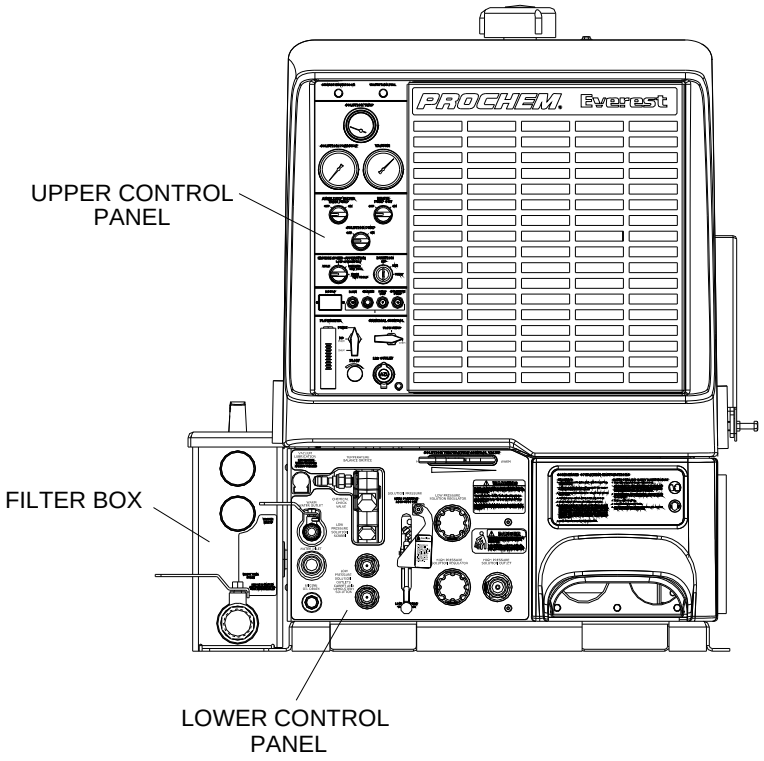
NOTE: Equipment malfunction or component failure caused by hard water scaling is NOT covered under the warranty.

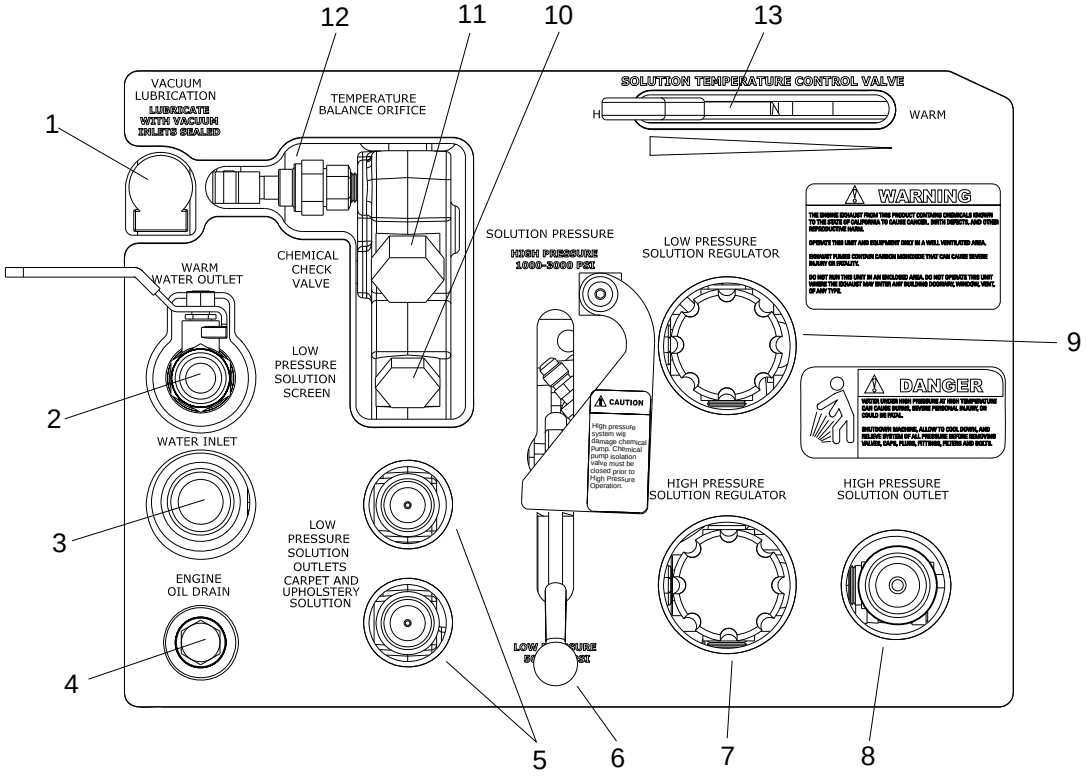
If you are operating this unit in an area where the unit will be using water in which the hardness exceeds 3-1/2 grains, we highly recommend a suitable water softener be installed. If using a water softener, it must have a five (5) GPM (or greater) flow capacity without any hose constrictions.

Using a water softener will reduce maintenance and decrease down time caused by hard water scaling. It will also allow cleaning chemicals to be more effective in lower concentrations.

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

HARD WATER MAP





LOWER CONTROL PANEL

LOWER CONTROL PANEL

1. LUBE CUP

The cup allows lubricant spray to reach the vacuum blower.

2. WARM WATER OUTLET

The warm water outlet allows the cleaning technician to drain warm water from the water box for mixing chemical.

3. WATER INLET

This quick connect allows the water supply hose to be connected to the unit.

4. ENGINE OIL DRAIN

The engine oil drain cap is removed to allow the engine oil to be drained.

5. SOLUTION OUTLETS

The solution outlets are the connecting point for the solution cleaning hoses. These outlets are quick disconnects that allow hoses to be plugged into the unit.

6. PRESSURE SYSTEM VALVE (OPTION)

This lever when in the up position actuates the high-pressure system and regulator. When in the down position the low pressure cleaning system and regulator are actuated.

7. HIGH PRESSURE SOLUTION REGULATOR (HP ONLY)

The regulating valve controls the amount of pressure in the pressure washing circuit. By turning the handle clockwise, the pressure will increase. By turning counter clockwise the pressure will decrease.

8. HIGH PRESSURE SOLUTION OUTLET (OPTION)

The high-pressure solution outlet is the connecting point for the high-pressure hose. This outlet is a quick disconnect that allows pressure wash hose to be plugged into the unit.

9. LOW PRESSURE SOLUTION REGULATOR

This pressure-regulating valve allows the low-pressure circuit to be adjusted. By turning the handle clockwise, the pressure will increase. By turning counter clockwise the pressure will decrease.

10. SOLUTION SCREEN

The solution screen is located on the front of the machine. The function of this screen is to trap foreign particles from exiting the machine and plugging the orifices of the cleaning tool.

11. CHEMICAL CHECK VALVE

The chemical check valve allows chemicals to enter the system and travel in a singular direction to the wand. The chemical check valve prevents chemicals from traveling upstream into the solution system of the unit.

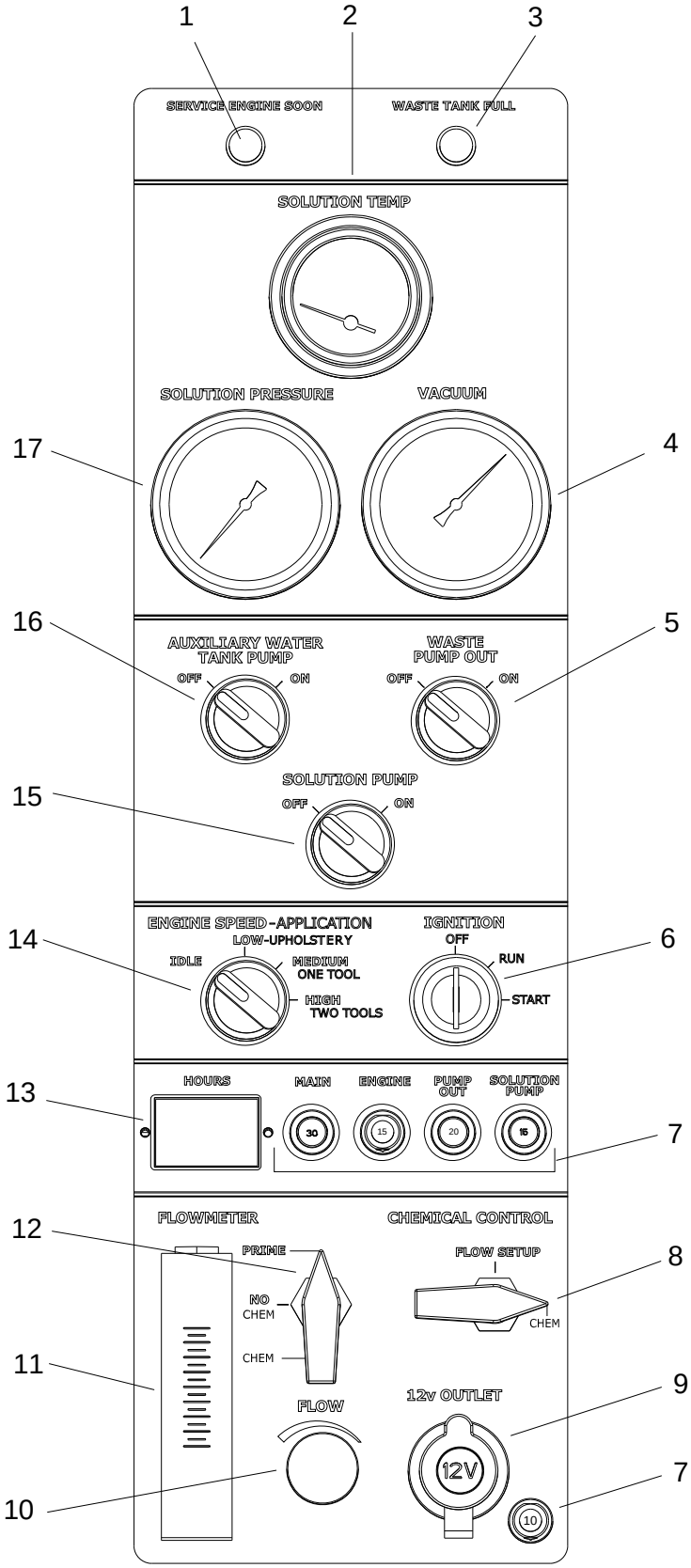
12. TEMPERATURE BALANCE ORIFICE

The temperature balance orifice helps to balance and stabilize the solution temperature within the system.

13. SOLUTION TEMPERATURE CONTROL LEVER

This lever directs hot engine and blower exhaust gases through or around the heat exchangers.

UPPER CONTROL PANEL



UPPER CONTROL PANEL

1. SERVICE ENGINE SOON (AMBER)

This light, when flashing, signals a problem with the unit. When this occurs, troubleshooting is required.

2. SOLUTION TEMPERATURE GAUGE

This gauge measures the temperature of the cleaning solution as it exits the machine.

3. WASTE TANK FULL INDICATOR LIGHT (RED)

This indicator light is activated when the waste tank is full. This unit is equipped with a slow down feature. This feature will help to protect the engine from damage by causing a slow down for 15 seconds prior to shutting down the engine. When this indicator light is on, it indicates that the waste tank must be emptied before the unit can be brought back into service.
NOTE: Never dispose of wastewater in storm drains, waterways or on ground areas. Always dispose of waste in accordance with local state and federal law.

4. VACUUM GAUGE

This gauge indicates in inches of mercury how much vacuum the system is producing at any given time.

5. WASTE PUMPOUT (OPTIONAL)

This switch actuates the optional waste pumpout.

6. IGNITION SWITCH

The key switch controls the power for the machine. To turn the machine on, rotate the key clockwise until the starter engages the engine. When machine is running let off the switch and engine will continue to run. To turn power off, rotate key counter clockwise to stop position, engine will then stop.

7. CIRCUIT BREAKERS

These serve to protect the circuits from electrical spike and over loads and protects wires from damage and fire.

8. FLOW SIMULATOR VALVE

This valve allows solution to move through the machine and chemical to be injected simulating the cleaning process. This allows the operator to set the chemical flow level without connecting tools to the machine. It is also useful in troubleshooting. The valve is turned off by rotating the knob clockwise and opened by turning the knob counter clockwise.

9. 12 VOLT OUTLET

The 12 volt outlet is used for accessories such as auxiliary lighting.

10. CHEMICAL METERING VALVE

The chemical metering valve regulates the amount of chemical that is injected into the system. Clockwise rotation of the knob closes the valve. Counter clockwise rotation opens the valve, allowing more chemical to enter the system.

11. FLOW METER

The flow meter is a gauge to indicate how much liquid chemical is being introduced in the water system. The quantity can be increased by turning the chemical metering valve knob counter clockwise.

12. CHEMICAL SELECTOR VALVE

This valve allows the chemical to circulate through the chemical system with little or no restriction. It also purges out air that may be trapped in the lines and cavities of the chemical pump. By turning the valve counter clockwise the injection system is enabled.

13. HOUR METER

The hour meter records the number of hours the unit has run. This serves as a time recorder for servicing the machine.

14. ENGINE SPEED CONTROL

This serves to set the engine speed and operating parameters. The 'Low', 'Medium' and 'High' settings are set for upholstery cleaning, single wand cleaning, and dual wand cleaning respectively.

15. SOLUTION PUMP SWITCH

This switch serves to energize the magnetic clutch to turn the water pump on or off. Turn clockwise for activating the pump and counter clockwise for deactivating the pump.

16. AUXILIARY WATER PUMP SWITCH

The Auxiliary Water Pump Switch is used to actuate an optional fresh water demand pump

17. PRESSURE GAUGE

This gauge indicates in Pounds per Square Inch how much pressure the system is producing at any given time.

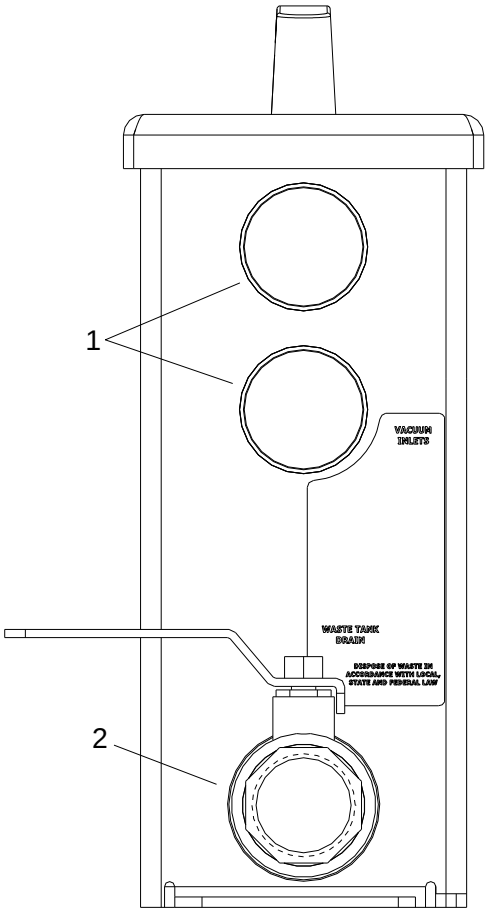
FILTER BOX

1. VACUUM INLETS

The vacuum inlets serve as the connecting point for vacuum hoses.

2. WASTE TANK DRAIN

This allows the waste tank to be emptied**.** Must be closed for operation.



FILTER BOX

WATER PUMPING AND HEAT TRANSFER SYSTEM

Cold water enters the console through the water inlet. When the water box is full the valve will automatically shut off.

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

A certain amount of water is by-passed from the pressure regulator due to over pumping capacity of the water pump. Water that is not called for in the cleaning process is channeled through a heater core in the exchanger box. This bypass water may circulate several times through the bypass heat exchanger allowing the water to be pre-warmed.

The next stage of heating and water flow is to the helicoil, when water is called for in the cleaning process it flows to the helicoil under pressure. Heat from the engine coolant is exchanged to the cleaning solution through a series of coiled copper tubing. This allows the engine coolant to travel in a counter rotating direction to the cleaning water during the exchange process creating a very efficient transfer of heat out of the engine and into the cleaning solution.

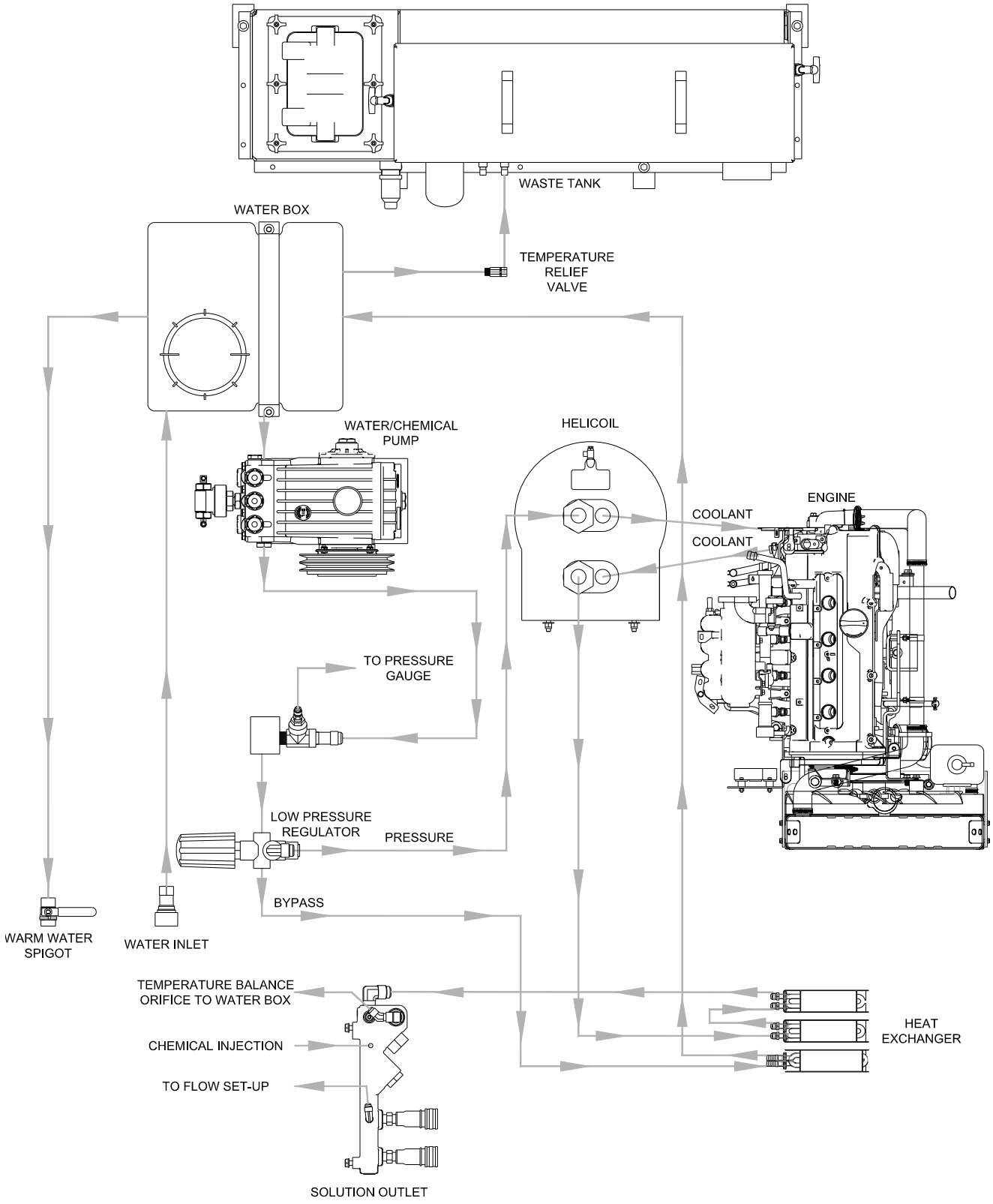
The third stage of plumbing and heat exchange takes place in the 2nd and 3rd heater core located in the heater box. The hot engine/vacuum exhaust gases are forced through the heater core creating the third stage of heat transfer to the cleaning solution.

Finally, the hot solution passes to the solution outlet manifold where cleaning chemicals are injected from the chemical pulse pump. This manifold serves as a temperature sensing point and a connecting point for the solution hoses. Also a check valve is located in this outlet manifold prohibiting chemicals from backing up into the system.

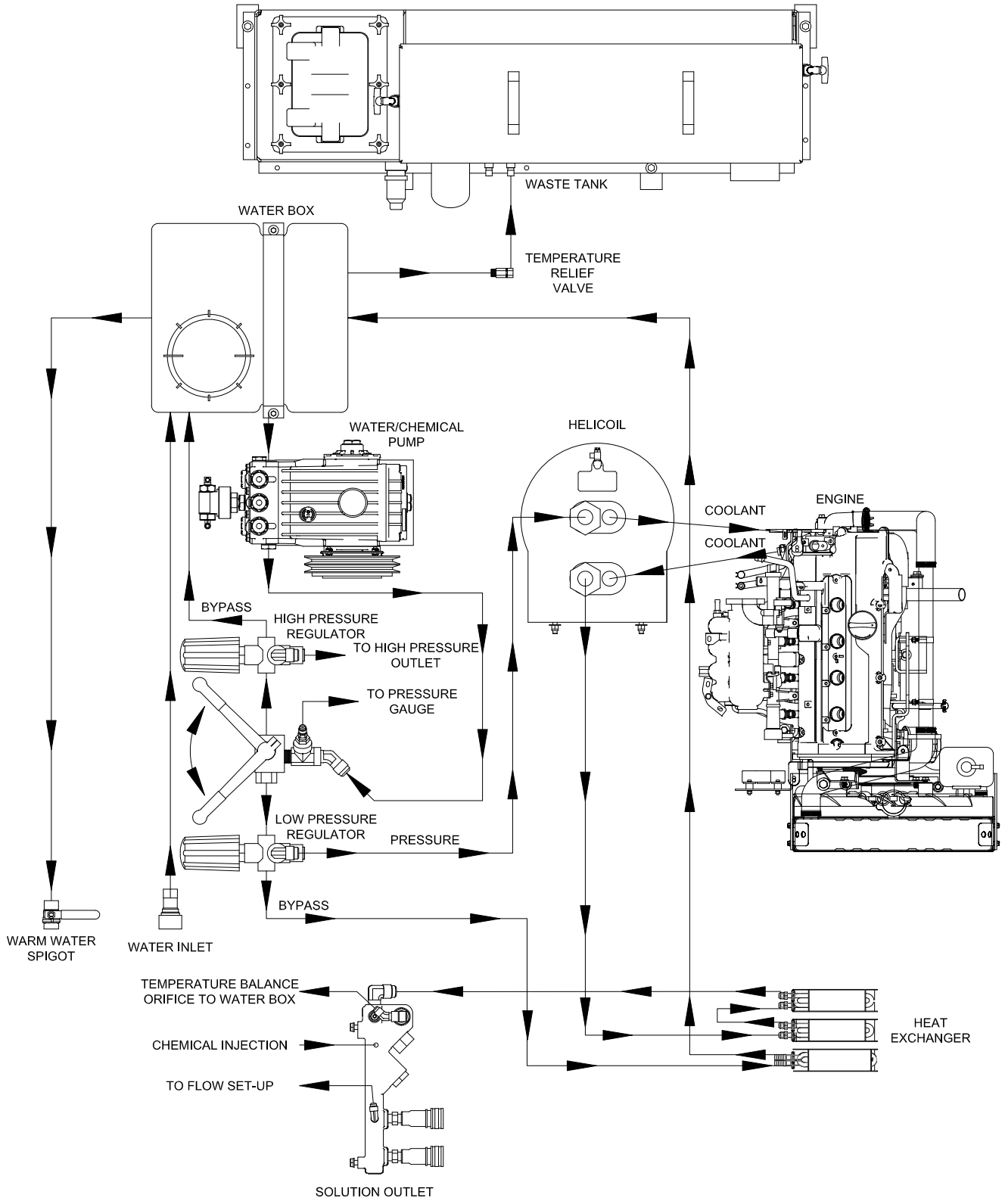
The cleaning solution then passes through solution hoses and is distributed by the cleaning tool to a surface that is being cleaned, completing the water pumping and heating cycle of the cleaning unit.

In the optional high-pressure model, water is routed directly to the high-pressure outlet through the regulator when the lever is in the up position.

WATER FLOW DIAGRAM LOW PRESSURE



WATER FLOW DIAGRAM W/HIGH PRESSURE OPTION



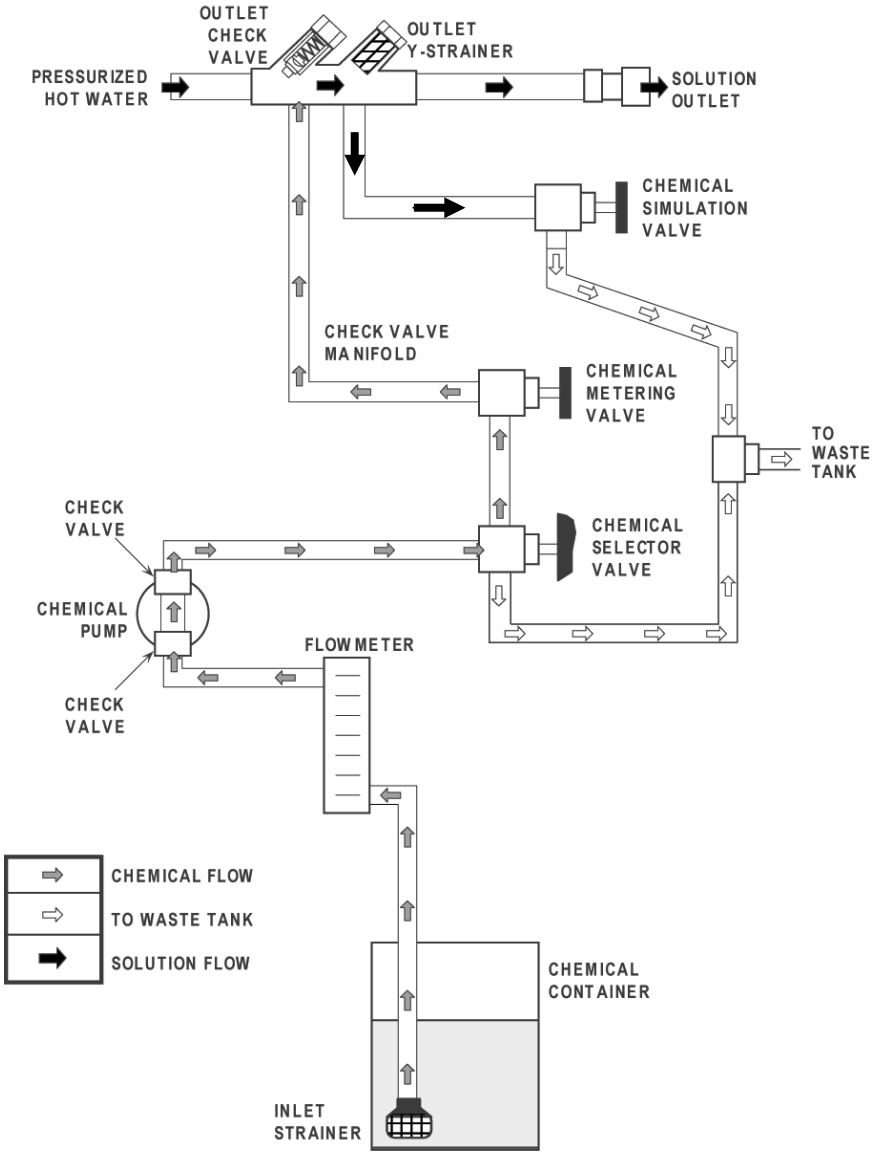
CHEMICAL INJECTION SYSTEM

The chemical is picked up from the container and fed through the flow meter to the chemical pulse pump where it is then pressurized.

The chemical injection system is unique in that it utilizes the pressure spikes generated by the high-pressure water pump to move chemical into the main solution stream. The high pressure spikes move the diaphram in the chemical pulse pump forcing small amounts of liquid chemical to be moved in a single direction of flow with the aid of two check valves.

After reaching the chemical pulse pump the chemicals can either go into the waste tank to purge air from the system or the chemical can be directed by the chemical selector valve to the metering valve. The metering valve creates an orifice allowing the correct amount of chemical to enter the outlet manifold. The outlet manifold assembly is complete with a check valve that will not allow the chemicals to travel upstream into the plumbing system of the unit.

The chemicals are then mixed with hot pressurized water that make up a solution for the cleaning application.

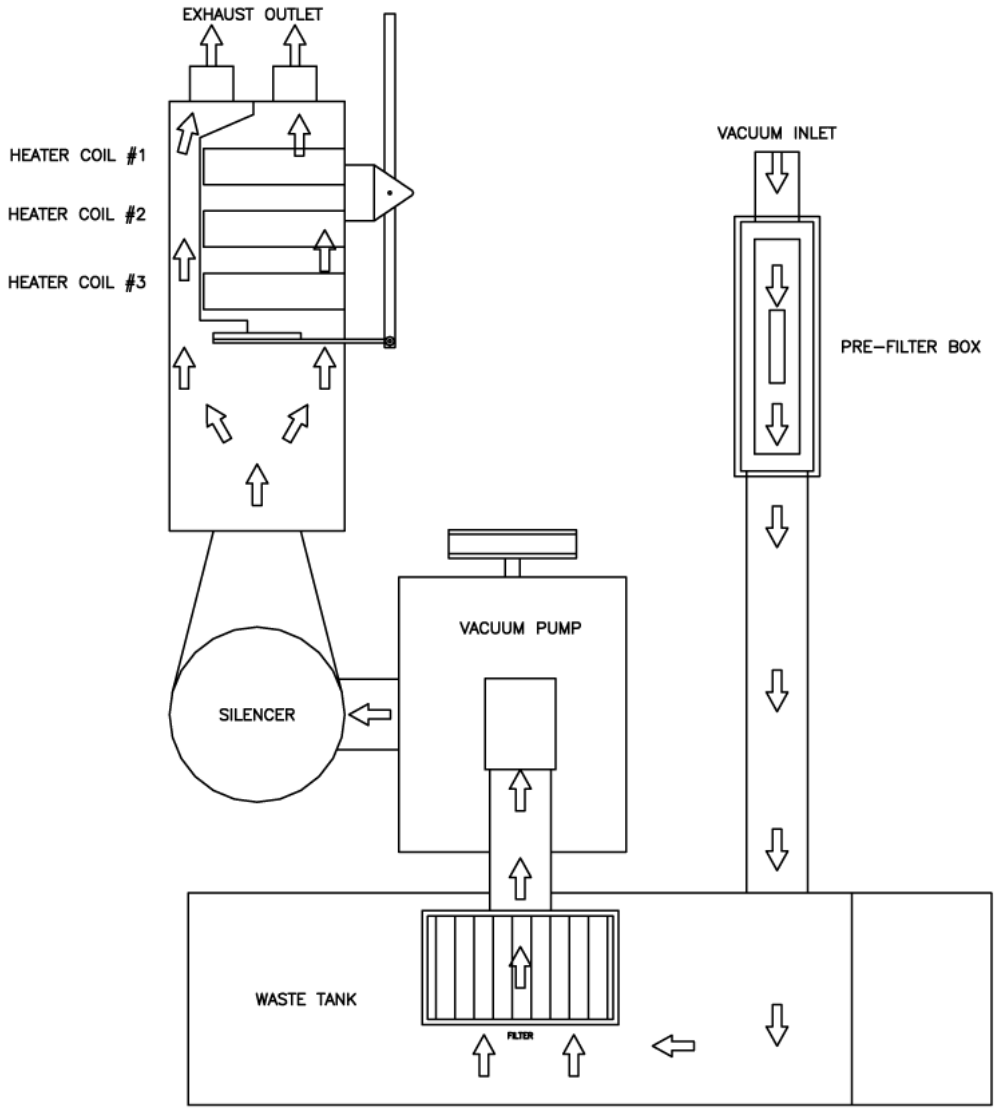


VACUUM SYSTEM

The engine turns an air pump that generates vacuum. The air is channeled in one side of the vacuum pump, compressed and discharged on the opposite side, creating airflow.

The movement of air is used to do the work necessary for the extraction process. A vacuum nozzle applied to the cleaning surface removes moisture, dirt and spent chemicals. These elements are conveyed back to a separating tank utilizing hoses and the force of air. Particles of moisture and dirt are separated in the vacuum tank using a series of changes in direction and velocity. The air is then filtered and rushes into the vacuum pump.

The vacuum pump compresses and heats the incoming air. The hot discharged air is forced down stream into a silencer for noise abatement. After exiting the silencer, this hot air is mixed with hot gases from the engine. This mixture of hot gases may be then forced through 3 radiators serving as heat collectors. Heat from the engine and vacuum pump is then transferred into the plumbing system raising the water temperature for better cleaning.



PRE-RUN INSPECTION

NOTE: Operation of this unit is simple. However, only trained personnel should proceed.

⚠ WARNING:

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

CHECK FOR ADEQUATE FUEL

Check the fuel tank to be certain there is adequate fuel to complete the job. This unit uses approximately 1.00 to 1.50 gallons of fuel per hour, depending on the speed setting and vacuum load.

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 that may be in your water inlet hose.

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

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

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

PRESSURE HOSE

Before starting the unit, connect the **pressure hose(s)** to the **outlet connection(s)** at the front of the unit. Connect the **cleaning tool(s)** to the **pressure hose(s)**.

⚠ WARNING:

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

VACUUM HOSE

Connect the **vacuum hose(s)** to the **vacuum inlet** connection(s) at the front of the Filter Box. Connect the other end of the **vacuum hose(s)** to the **cleaning tool(s)**.

PRIMING THE CHEMICAL PUMP

1. Connect water hose to water inlet connection and turn on water supply.

2. Fill chemical container and inspect chemical filter.

3. Connect solution and vacuum hoses to the desired cleaning tool and Filter Box.

4. Insert chemical inlet hose into chemical container.

5. Turn ignition key to start.

6. Set throttle to low speed.

7. Turn water pump on.

8. Turn Chemical Prime valve to prime and allow chemical to circulate. After all air bubbles have been removed from chemical hose, turn the valve to the Chem position. Turn Chemical Flow Setup Valve to the vertical position. Set the desired chemical flow rate while observing the flow meter indicator. When desired flow is reached, turn setup valve to Chem position.

WASTE PUMP (OPTIONAL)

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

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

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

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

⚠ WARNING:

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

Your unit should be in the correct throttle position for your cleaning operation or extracting. A float switch located inside the waste tank will automatically shut down the unit when it reaches its full capacity. When this occurs, empty the waste tank before continuing.

CLEANING

Observe the following guidelines, while cleaning:

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

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

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

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

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

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

UPHOLSTERY CLEANING

Upholstery tool (See Options in Parts Lists)

1. Set engine speed control to “Low/Upholstery” setting to minimize excess heat.
2. Set temperature control to desired position.
3. Use one (1) spray tip in tool.

SHUTDOWN AND DAILY MAINTENANCE

1. Turn chemical selector valve to off.
2. Allow the unit to run for 2 minutes with the vacuum hose disconnected to remove moisture. Spray water-displacing lubricant into the vacuum lubrication cup. This will prevent corrosion due to moisture.
3. Set engine speed control to idle position and allow the water temperature to cool down, utilizing the simulator valve in the open position to bleed off residual hot water left in the system.
4. Turn off ignition switch.
5. Disconnect all hoses and tools.
6. Drain waste tank.
7. Clean the filter box.

HIGH PRESSURE (3000 PSI) SYSTEM OPERATION (OPTIONAL)

⚠ CAUTION:

The high-pressure water system can produce water pressures in excess of 3000psi. Water at these pressures will cause severe injury. DO NOT direct any discharges at persons. If contact with a person does occur and penetration of the skin does seem possible, contact medical personnel immediately. This machine is to be used by trained cleaning professionals only. Ensure all operators are trained in the operation of this equipment. Keep cleaning area clear of all persons and objects.

Ensure that proper Personal Protective Equipment (PPE) is used during the operation of this equipment. Failure to use proper PPE could result in injury. Ensure required ventilation and/or breathing apparatuses are used with a chemical injection system. Check with your chemical vendor for proper safety requirements.

Pro-Chem also recommends the use of Pro-Chem high-pressure spray wands. Pro-Chem offers a dual barrel wand. Contact your Pro-Chem dealer for recommendations in your particular application.

The operation of the high-pressure system also requires a high-pressure hose capable of handling the increased pressure loads of the high-pressure system. NEVER use your low-pressure system hoses with the high-pressure system. Pro-Chem offers a special high pressure hose rated for pressure washer activities. Only use Pro-Chem approved hoses and fittings. Ensure that your hoses and fittings are rated for your operational pressures.

OPERATION

The “HP” units are equipped with a water pump and water delivery system that can support pressure-washing operations up to 5 gallons per minute at 3000 PSI. This system is normally used for high-pressure washing and hard surface cleaning.

1. Move the temperature control lever from the “hot” position to the “warm” position.
2. Allow water temperature to cool to below 160 deg F.
3. Close ball valve located between the chemical pump and the water pump.

⚠ CAUTION:

Failure to close this valve will result in severe damage to the chemical pump diaphragms.

4. Connect HP hose to either pressure wash gun or hard surface cleaning tool for high pressure cleaning. Connect other end of hose to high-pressure solution outlet.
5. Move the pressure selection valve from the “low pressure” position to the “high pressure” position.
6. Adjust high-pressure regulator to desired operational pressure.

HIGH PRESSURE SHUTDOWN & RETURN TO LOW PRESSURE SYSTEM

1. Turn off water pump and release pressure.
2. Bleed off excessive pressure build-up by operating pressure washer gun for 5 seconds.
3. Move solution selector control valve from “High Pressure” operations to “Low Pressure” operation.
4. Squeeze pressure washer gun trigger again to remove any residual pressure
5. Disconnect high pressure gun and hose from high pressure disconnect.
6. Open ball valve, located between the chemical pump and water pump.
7. Operate under normal low-pressure instruction or follow normal shutdown procedures.

DE-FLOODING OPERATIONS

De-flooding operations involve removal of water from carpet and flooring. This differs from normal cleaning operations in that no water or solution is required. An automatic waste pump-out is highly recommended for all de-flooding operations due to the large amount of water removal often required.

1. Move the temperature control lever from the “hot” position to the “warm” position.
2. Ensure that the solution pump switch is in the off position.
3. Operate with all side and rear cargo doors open.

FREEZING PROTECTION

⚠ CAUTION:

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

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

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

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

WINTERIZING YOUR UNIT

1. Shut off the water supply. Disconnect the **water inlet hose** from the front of your console.

2. Connect all **pressure hoses and tools** that may have water in them.

3. Start the unit and turn solution pump on. Open the tool valve until water pressure drops and water stops flowing.

4. Turn solution pump off.

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

6. Turn the solution pump on.

7. 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.

8. Turn the **solution pump switch** OFF. Attach the **winterizing loop hose** with attachment to the bottom solution outlet connection and the water inlet connection. Turn the **solution pump switch** ON.

Allow the unit to run for approximately 3 minutes with the winterizing loop hose attached. (Contact your dealer for winterizing loop hose.)

8. Prime the chemical system with 50/50 anti-freeze/water mix. Insert the chemical inlet hose into the anti-freeze container. Turn the chemical valve to PRIME until anti-freeze is visible in flow meter.

9. Now turn the chemical valve and Flow Setup Valve to the run position, making certain that the flow meter indicates flow. Turn Chemical Valve to off position.

HIGH PRESSURE (OPTIONAL)

Move pressure selector valve to high-pressure position and key tool until antifreeze is visible. Recover all anti-freeze into an approved container. We strongly recommend that you recycle and re-use the anti-freeze.

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

REMOVING ANTI-FREEZE FROM THE UNIT

1. Connect one end of the **winterizing loop hose** to the bottom solution outlet connection. Place the other end of the loop hose, without the attachment, into an approved container.

2. Start the unit. Allow the anti-freeze to flow into the container until flow stops.

3. Fill the water box with fresh water and repeat step #2.

4. Connect the **water inlet hose** to the water inlet connection on the console. Turn the water supply on.

5. Connect all **solution hoses and any tools** that require purging of anti-freeze to the solution outlet connection(s).

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

7. Submerge the chemical inlet hose in water. Turn the **chemical valve** to the PRIME position until clear water is observed in the Flow meter.

Turn the **chemical valve** to the Run position and turn Flow meter valve to vertical position. This will allow water to flow into the other side of the system.

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

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

⚠ WARNING:

When disposing of used anti-freeze, observe local laws and regulations. Do not drain onto the ground or into storm drainage systems.

MAINTENANCE

SERVICE SCHEDULE

Engine	Daily	Check engine oil level. *** Fill to proper level
Engine	Daily	Check coolant level in overflow bottle
Vacuum Pump	Daily	Spray lubricant in lube cup at front of console for 5 sec.
Water Pump	Daily	Check oil level. ** Fill to proper level
Pre Filter and 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
Chemical Filter	Daily	Inspect daily
Vacuum Pump	Daily	Check oil level. Fill to proper level
Water Box Float Valve	Weekly	Check for proper seating and shut-off
Water Pump Inlet Filter	Weekly*	Check for debris and clean
Temperature Balance Orifice	Weekly	Remove, clean and check screen (as needed)
Battery	Weekly*	Check for proper fluid level. Fill with distilled water only
Solution Outlet Y-Strainer	Bi-Weekly*	Inspect and remove any debris or blockage
High Pressure Hoses	100 hrs	Inspect for damage or impending damage
Pressure Regulators	50 hrs	Lubricate o-rings
Engine	100 hrs	Change engine oil***
Engine	100 hrs	Change oil filter***
Engine	100 hrs	Check fan belt tightness
Battery	100 hrs*	Clean battery terminals
Chemical Pump & Check Valves	1000 hrs	Replace diaphragm, plastic disc and check valves.
Float Valve Seal	200 hrs	Replace seal
All Belts	200 hrs	Inspect for damage - cracking and wear
Engine	200 hrs	Check radiator hoses and clamp tightness
Fuel Pump	200 hrs	Check hose connections and wire connections
Chemical Metering Valve	200 hrs	Inspect and/or adjust packing nut
Engine	250 hrs	Service air cleaner elements*

Vacuum	50 hrs	Retighten belts
Vacuum	100 hrs	Check belt tension
Heat Exchanger Box	500 hrs	Inspect & clean door guides (as needed)
Water Pump	500 hrs	Change oil**
Pulley Set Screws & Hub Cap Screws	500 hrs	Check for proper torque valves. Re-torque, if required****
Drive Pulley	500 hrs	Inspect, clean and check for pulley groove wear****
Drive Pulley	500 hrs	Check pulley alignment****
Drive Belts	500 hrs	Replace
Drive Belts	500 hrs	Check belt tension****
PCV Valve/hoses	750 hrs	Inspect
Check Valve (Solution Outlet)	1000 hrs	Inspect, clean, and repair, if needed.
Vacuum Exhaust Heat Exchanger	1000 hrs	Inspect cores and remove debris.
Vacuum Pump	1500 hrs	Drain, flush, and replace oil *****
Fuel Filter	1500 hrs	Replace
Engine	2500 hrs	Replace spark plugs.
Engine	Yearly*	Replace air cleaner elements.
Waste Tank Filters/Strainers	Yearly	Check for damage and blockage. Replace if needed.
Engine	2 years	Flush radiator and change engine coolant.
Engine	2 years	Replace radiator hoses and hose clamps.
Engine	4 years	Replace timing belt. ******
Engine	5 years	Replace ignition wires.

* Or as often as required
** Change water pump crankcase oil after the first 50 hours
***Change engine crankcase oil and filter after the first 50 hours
****Perform drive belt, pulley and 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.
****** Replace after 4 years or 4000 hours, whichever comes first.

MAINTENANCE

KEY CHECKPOINTS

Note: Initiation of a planned preventative maintenance program will assure that your unit has optimum performance, a long operating life, and a minimal amount of "down" time.

ENGINE COOLANT SYSTEM (RADIATOR) MAINTENANCE

Your engine radiator coolant system is an important part of the power plant operation. In addition, the heat exchange system is used to provide heat for cleaning operations is also highly dependent on the engine coolant system. Follow the recommended maintenance in the Maintenance Schedule in this manual and your ZPP416 engine owner's manual. Refer any additional questions to your dealer.

EXTERNAL FUEL PUMP MAINTENANCE

The power plant for your unit receives fuel from the main gas tank of your van/truck. An external fuel pump that provides this fuel is located on the underside of the van/truck. Loose fittings and hose connections will cause your unit to perform poorly. Follow the recommended maintenance in the Maintenance Schedule in this manual. Refer any additional questions to your dealer.

SOLUTION SUPPLY SYSTEM MAINTENANCE

The chemical supply system pulls chemicals from your chemical bottle utilizing a pump that works off the water pump pulsing. Any clogged filters or loose connections will result in a chemical supply system malfunction or a malfunction at the cleaning tool. Maintenance of the solution outlet check valve and strainer are vital to effective cleaning operation and minimal unit downtime. Additionally, the hoses related to supplying water and chemical to the outlet manifold are under high pressures and experience thermal expansion and contraction. Periodic inspections of these hoses are necessary to avoid unwanted failure. To keep your solution supply system functioning properly, follow the chemical pump and solution outlet maintenance in the Maintenance Schedule in this manual. Refer any additional questions to your dealer.

HEAT EXCHANGER SYSTEM MAINTENANCE

The heat exchange system in your unit transfers energy between the heat of the power plant and the solution supply system of the unit. The heat transfer of this system is highly dependent on the surface area contact in the heat exchanger cores located in the heat exchanger box. This surface area amount is adversely minimized when the supplied water is not softened to recommended levels. Hard water will result in scaling on the inside walls of the heat exchanger tubes. It is recommended that you use a dealer-approved water softener to avoid premature heat exchanger core failure. Contact your local dealer for advice on the water hardness levels in your area.

Additionally, the heat exchanger tubes are very sensitive to freezing conditions. As the water freezes during cold conditions, it expands in the heat exchanger tubes and causes damage. Refer to the Freeze Protection instructions section in this manual. Refer any additional questions to your dealer.

VACUUM PUMP MAINTENANCE

The total function of the unit is based around the performance of the vacuum pump. Heat transfer used to raise the temperature of the solution is gained from the air drawn by the vacuum pump and solution is removed from the carpet with the vacuum suction of the vacuum pump. General maintenance actions for the vacuum pump as listed in this manual are vital to prolonged vacuum pump operations. Daily lubrication of the pump is required to avoid seizure of the system. Also, waste tank filters and strainers must be maintained to prevent unwanted debris from entering the vacuum pump.

⚠ WARNING:

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

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

ENGINE

1. Check the engine oil level **daily**. Make 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. Use only approved ZPP416 filters.

Oil Recommendation. Use high-quality detergent oil of at least API (American Petroleum Institute) service class SH. The recommended SAE viscosity grade is **15-W40.**

NOTE: Using less than service class SH oil or extending oil change intervals longer than recommended can cause engine damage.

Check the air cleaner element every **250 hours**. Replace the element annually.

3. Check the coolant level in the radiator overflow container daily. If no coolant is seen, remove the cap and add coolant. Change the coolant with a 50/50 coolant to water ratio every 1000 hours or 2 years.

4. Replace the in-line gas filter under the vehicle every 1500 hours.

NOTE: For additional engine service information, obtain a "ZPP416" service manual from any authorized Zenith Power Products Service Center. If service or repair is required, contact an authorized Zenith Power Products Service Center. You will need to provide the serial number of the engine.

VACUUM PUMP

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

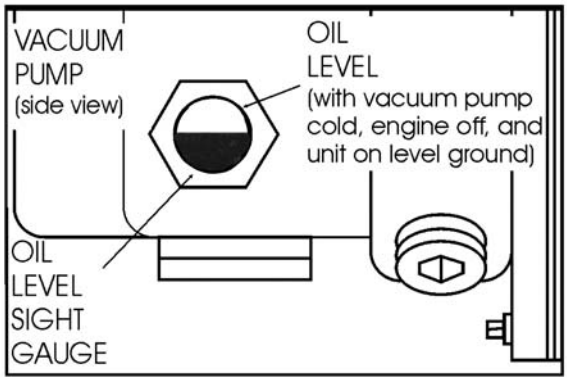
Lubrication: It is recommend that you use AEON PD Synthetic Blower Lubricant in the vacuum pump for all operating temperatures. AEON PD is formulated especially for positive displacement blower service to provide maximum blower protection at any temperature. One filling of AEON PD will last several times longer than a premium mineral oil.
NOTE: AEON PD is the oil that PROCHEM puts in the vacuum pump at the factory. Topping off or adding petroleum oil to synthetic oil is NOT recommended.

If not using AEON PD synthetic blower lubricant, use oils with rust, oxidation inhibitors and anti-foam additives.

1. Check the oil level **daily** to assure the proper level. **PROPER LEVEL** cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating. Use the illustration as a guide when adding oil.

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

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



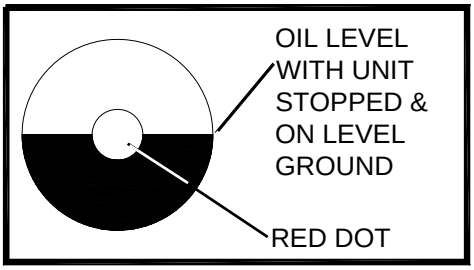
3. Drain, flush and replace oil every 1500 hours or **yearly, whichever comes first.** Change oil more frequently if inspection so indicates. With AEON PD synthetic lubricant, perform the oil change maintenance **every 4500 hours or every 2 years, whichever comes first.**

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. Use the illustration as a guide when checking the oil level. If the level has dropped, check for the source of leakage and repair.

2. Remove yellow filler cap. Oil level should be



between marks on the dipstick or use a mirror and refer to the illustration.

Change the crankcase oil with GP Pump Crankcase Oil, after the **first 50 hours** of operation. Drain and refill the crankcase oil with General Pump Crankcase Oil **every 500** hours thereafter.

VACUUM INLET FILTER (IN WASTE TANK)

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

VACUUM RELIEF VALVE

1. While the unit is running at full RPM, block the airflow at the vacuum inlet connection and read the vacuum gauge. If adjustment is required, shut the unit down and adjust the vacuum relief valve locking nut tension. Start your unit and repeat above procedure. Repeat this process until the relief valve opens at 13" Hg.

VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the four bolts that hold the adjusting plate to the frame.

2. Loosen the 4 bolts at the vacuum muffler outlet to heat exchanger box and loosen the 2 bolts at the back of the belt guard.

3. Turn the adjusting bolts until the proper belt tension is achieved (1/4" deflection in the center of the belt, halfway between the pulleys).

4. Retighten all bolts previously loosened.

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

5. Check belt alignment with straightedge.

⚠ CAUTION:

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 pulley	420	35
Vacuum pump hub	300	25

6. Check for pulley groove wear, clean belts and pulley grooves, check for worn belts, proper belt tension, and pulley alignment after the **first 25 hours** and then again at **100 hours**.
Check for belt ride in the groove.

MAINTENANCE

WATER PUMP DRIVE BELT

To tighten the water pump belt:

1. Loosen the bolts that hold the water pump mount to base.

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

3. While checking the alignment, tighten the bolts that hold the water pump mount to base.

WATER PUMP CLUTCH

⚠ CAUTION:

After removing or replacing water pump clutch, make certain that set screws are tight.

FLOAT VALVE (WATER BOX)

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

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

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

⚠ CAUTION:

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

2. Disassemble the valve and check the piston and seat for damage, replace if needed. See the “Illustrated Parts Listing” for a parts breakdown.

PRE-FILTER STRAINER

The strainer basket located inside the pre-filter should be removed and cleaned whenever it is full of debris. This should be done at the end of each job.

To remove any water remaining in the pre-filter, run unit at medium or high speed for 10 seconds with strainer removed and box top open.

Y-STRAINER (OUTLET)

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

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

TEMPERATURE BALANCE ORIFICE

Inspect the Temperature Balance Orifice every week. Be sure to drain the water box below ½ full. Clean as necessary. The orifice and screen need to be kept clean. Cleaning frequency will be dependent on the water hardness you are using.

CHECK VALVE (OUTLET)

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

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

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

CHEMICAL PUMP

Rebuild the chemical pump **every 500 hours**. This involves changing the diaphragm and check valves.

For the procedure, see the "Chemical Pump” section in this manual for details.

NOTE: Inspect chemical filter daily.

GENERAL SERVICE ADJUSTMENTS:

PRESSURE REGULATOR

Lubricate the o-rings **every 100 hours.** Use o-ring lubricant.

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

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**.

PRESSURE HOSES AND SOLUTION HOSES

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

⚠ WARNING:

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

All solution hose must be rated for 3000 PSI at 250°F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements. **Pressure wash hoses must be rated at 4000 PSI.**

WASTE PUMP-OUT (OPTIONAL)

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

ENGINE COOLANT REPLACEMENT

The coolant should be replaced every 2 years. This coolant is an integral part of the heating system and needs to be maintained as any other working part of the system. We recommend that this procedure be accomplished by the following steps.

DRAINING COOLANT:

1. Add 5/16" hose onto the radiator drain petcock. Turn counter clockwise to open and drain coolant.

NOTE: Be sure that used coolant is collected in a proper container and disposed of in accordance with local laws.

2. After draining is complete, close the radiator petcock.

REPLACING COOLANT:

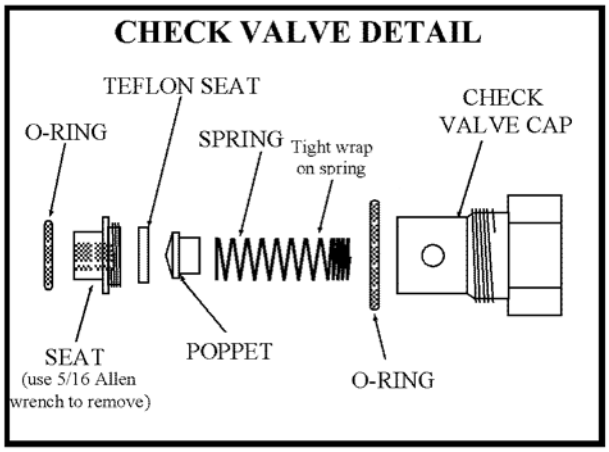
1. Fill radiator with 50/50 anti-freeze water mix.
2. Start unit and run on low speed.
3. As the unit warms up, maintain a full radiator with a 50/50 mix.
4. Open petcock slightly on helicoil to allow any trapped air to escape. When coolant runs out of helicoil, close petcock.
5. Top off radiator with 50/50 coolant mix.
6. Re-install radiator cap.
7. Shutdown unit.

Check radiator overflow bottle. Add coolant to proper "cold" level.

CHECK VALVE (SOLUTION OUTLET)

Inspect the check valves whenever doing service or if flow problems occur in the chemical system:

1. Remove the check valve. Be sure the small o-ring for the seat comes out with the check valve.
2. Remove the seat, using a 5/16" Allen wrench.
3. Check the Teflon seat for debris or wear. Clean or replace Teflon seat if needed.
4. Clean the poppet and spring, inspect for wear or damage, and replace as needed.
5. Re-assemble the check valve. Start the seat by hand; tighten using a 5/16" Allen wrench. **DO NOT** over-tighten seat.



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

6. Lubricate the o-rings with o-ring lubricant and reinstall. (See Suggested Spare Parts list)

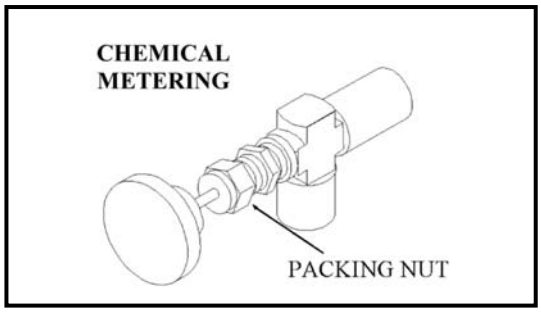
CHEMICAL PUMP

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

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

PACKING NUT ADJUSTMENT FOR CHEMICAL METERING

Examine the packing nut on the chemical metering valve for proper tension every **200 hours**. When turning the knob, there should be a small amount of resistance. If not, slightly tighten the packing nut. **DO NOT** over-tighten. Keeping the valve packings properly adjusted will eliminate possible leakage from the valve stems and add to overall valve life.



CHEMICAL METERING VALVE

Examine the packing nut on the chemical prime metering valve, flow simulator valve, and chemical metering valve every 2000 hours

PRESSURE REGULATORS

The pressure regulators hold water pressure at a preset point and bypass excess water back to the water box.

LOW PRESSURE REGULATOR

To adjust:

1. With your unit running, tool valve open and solution pump on, check the pressure gauge. We recommend setting the pressure regulator so that the pressure gauge reads 450 PSI with the tool valve **closed**.

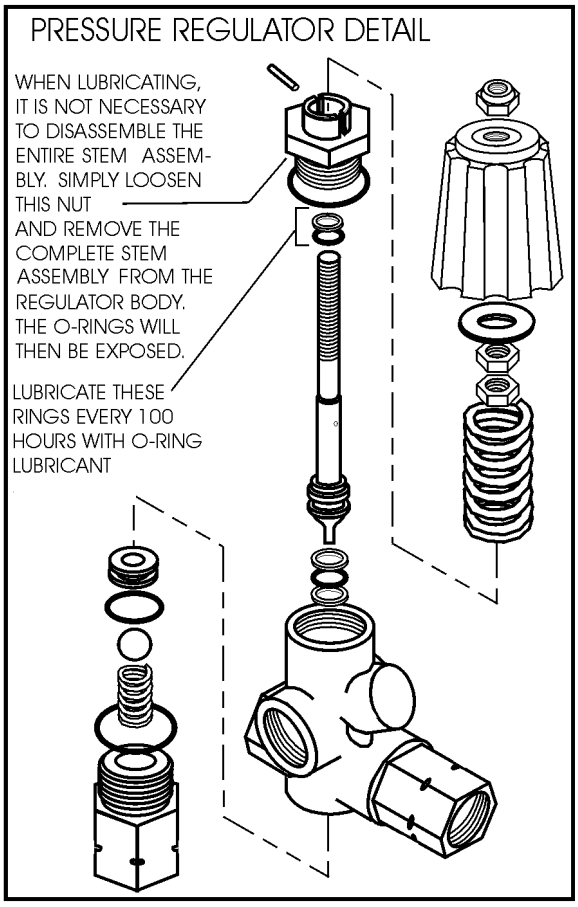
   When the tool valve is opened, there is an approximate drop of 100 PSI in pressure. **If there is a pressure drop greater than 100 PSI, it may be necessary to lubricate the o-rings in the pressure regulator.**

2. If the pressure regulator requires adjustment, turn the adjusting knob (while observing the pressure gauge on the control panel) until the desired pressure is obtained.

HIGH PRESSURE REGULATOR (OPTIONAL)

To adjust:

Set the high-pressure regulator to desired pressure, up to 3000 PSI. Adjust as necessary to meet you cleaning needs.



PROBLEM	CAUSE	SOLUTION
Loss of water pump pressure. With the cleaning tool open, the water pressure gauge reads below the normal operating pressure.	Water supply is turned off or the float valve is stuck or improperly adjusted.	Turn the water supply on or up. Check for kinks in the water supply hose. Examine the float valve and adjust or replace.
	Water pump inlet supply line is plugged or drawing air.	Examine the water inlet filter inside the water box. Remove accumulated debris and replace if required. Check for suction leaks and loose clamps or fittings. Tighten any loose fittings or clamps. Replace any ruptured hose(s).
	Improper engine speed.	Using a tachometer, check the engine speed. Full throttle engine speed is 2200 RPM. Idle engine speed is 900 RPM.
	Pressure regulator o-rings are dry.	Lubricate o-rings, using o-ring lubricant
	Pressure regulator has worn o-rings	Check o-rings. If necessary, replace.
	Pressure regulator is dirty, stuck open, or improperly adjusted.	Clean or repair regulator. Adjust to working pressure. Lubricate o-rings, using o-ring lubricant
	Low pump volume. (Measure the amount of water being returned to the water box from the pressure regulator. It should fill a gallon container about every 17 seconds) at high speed.	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 wrong size.	Replace Nozzle or change nozzle size.
	Debris clogging water lines.	Clean or replace as needed.
	Belts loose or broken	Re-tension or replace as needed.
Loss of solution volume at cleaning tool orifice. Water gauge reads normal.	Plugged orifice and/or screen in the cleaning tool.	Unplug or replace orifice and/or screen
	Internal block between the pressure regulator manifold and the outlet Y-strainer, or the Y-strainer screen is clogged.	Inspect all lines, remove accumulated debris which is blocking proper flow. Replace any defective hoses. Remove, inspect, and clean the Y-strainer screen. De-scale unit and install a water softener, if necessary.
	Outlet check valve is plugged.	Examine the check valve, remove any debris
	Defective quick-connect on one or more of the high-pressure hoses.	Replace defective quick-connects(s) on high pressure hoses(s).
	Cleaning tool valve is malfunctioning.	Repair or replace valve.
	Hose inner lining is constricted.	Remove restriction or replace hose.

PROBLEM	CAUSE	SOLUTION
Loss of vacuum While cleaning, the vacuum is not up to specification. Engine RPM is normal.	Waste tank filter or pre-filter basket is plugged.	Clean or replace filter. Clean strainer basket.
	Vacuum gauge is giving an improper reading.	Examine the tubing between the vacuum relief valve and the vacuum gauge and remove any blockage.
	Vacuum hose(s) damaged, causing a suction leak.	Inspect hose(s), repair or replace.
	Pre-filter or Waste tank gaskets not sealing properly, not positioned properly.	Inspect the gasket. Repair seal or replace Re-position lid(s).
	Plugged vacuum hose or vacuum plumbing between vacuum inlet and strainer basket.	Unplug vacuum hose or inlet plumbing.
	Loose vacuum pump drive belts.	Tighten the drive belts
	Waste tank drain valve is damaged or left open, causing a vacuum leak.	Repair valve.
	Vacuum relief valve requires adjustment or has a vacuum leak due to damaged diaphragm.	Re-adjust the vacuum relief valve. If the vacuum does not increase, remove and inspect the relief valve diaphragm. If damaged, replace.
	Vacuum exhaust heat exchangers are plugged.	Remove and clean.
	Vacuum pump is worn out.	Replace the vacuum pump.
Loss of chemical With the cleaning tool valve open, no chemical	Chemical pump is improperly primed.	Refer to chemical pump priming instructions.
	The strainer at the inlet end of the chemical inlet line is clogged.	Unclog the strainer. If damaged, replace.
	Suction leak in the inlet line leading into the chemical pump.	Inspect inlet lines and flow meter for damage and replace, if required.
	Chemical pump check valve(s) is clogged or defective.	Remove any debris from the chemical check valve(s). Replace chemical check valve(s) or seals, if necessary.
	Chemical prime/on-off valve or chemical metering valve is defective.	Replace valve(s).
	Chemical pump diaphragm is ruptured.	Disassemble the chemical pump and replace the damaged diaphragm.
	Defective cylinder in the water pump.	Measure the pump volume. If the pump volume is less than normal, refer to “Loss of Pump Volume” in the Troubleshooting section in this manual.
	HP model, ball valve is closed.	Open valve.
	Hose is kinked or damaged.	Inspect and/or replace hoses
Chemical flow meter indicates flow with the tool valve closed	External leak in chemical piping.	Tighten fittings. Re-apply thread sealant where required. If any fittings are damaged, replace.
	Outlet check valve is full of debris or damaged, not allowing it to close properly.	Close the chemical valve on the instrument panel. If the flow meter does not indicate flow, remove debris or replace check valve, if necessary.
	Chemical pump diaphragm is ruptured.	Close the chemical valve on the instrument panel. If the flow meter still indicates flow, replace the chemical pump diaphragm.
	Internal leak in chemical valve causing continual flow through prime tube returning to container.	Tighten valve packing nut (see “General Service Adjustments” section in this manual). Replace valve, if necessary.
	Flow setup valve open.	Close valve.

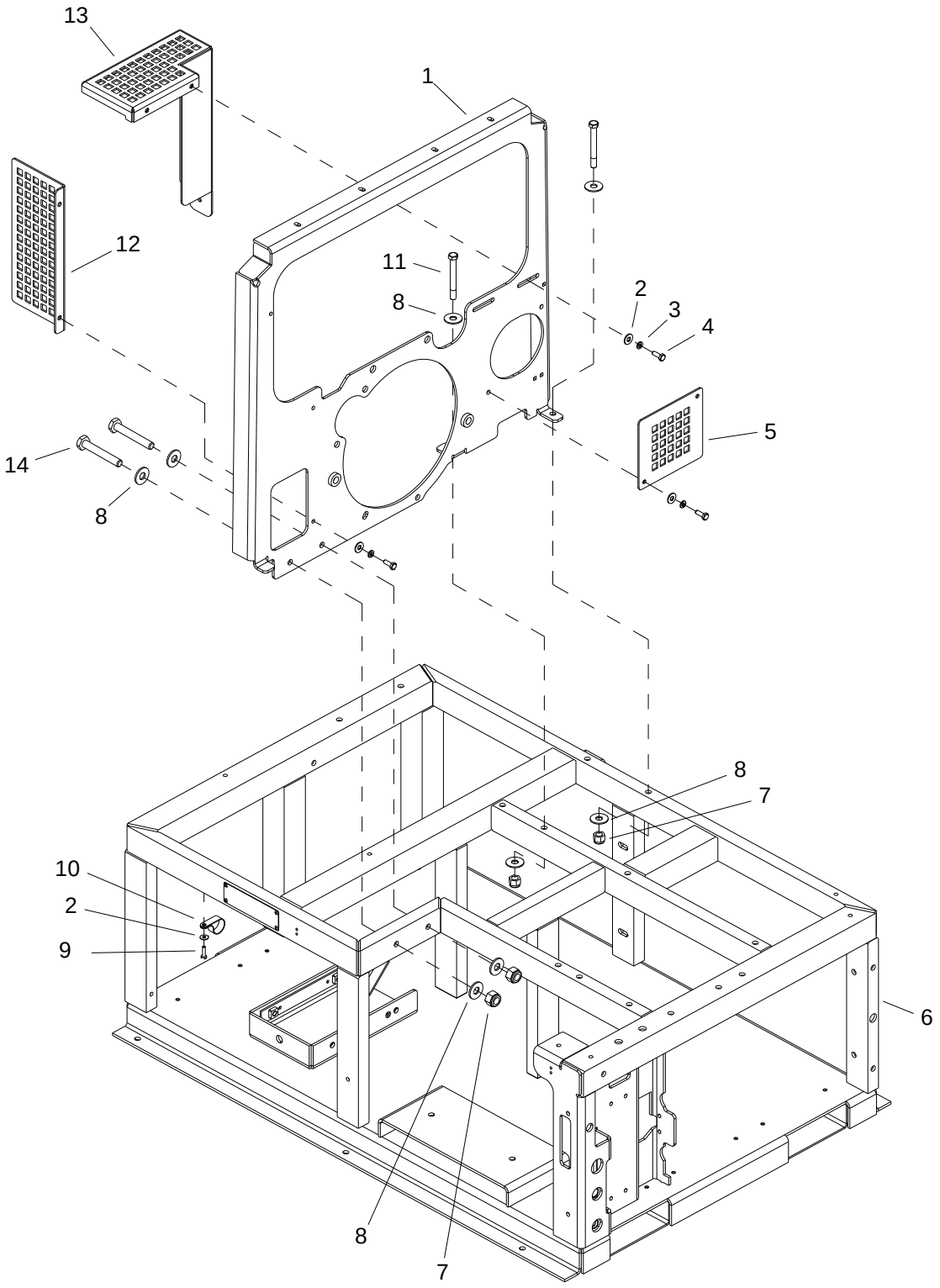
PROBLEM	CAUSE	SOLUTION
Water pump does not engage	Water pump has not been activated	Turn solution pump switch to on.
	Solution pump circuit breaker has been tripped	Check the solution pump circuit breaker on the control panel. Press the ciruit breaker reset button.
	Defective electrical connection in the console wiring or defective switch.	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 there is power in the switch, but not power at the clutch, replace the defective wire. If there is power at the clutch, replace the defective switch.
	Loose or broken water pump belts.	Tighten or replace belts.
Engine will not start The engine does not turn over	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.
	Vacuum pump seized.	Refer to Sutorbilt Service & Repair Manual.
Starter turns over engine, but will not start	Defective fuel pump.	Replace the fuel pump.
	Out of fuel.	Add fuel.
	Engine is malfunctioning	Refer to ZZP416 Engine Operation and Maintenance Manual.
While doing normal cleaning, the engine stops running	Engine is out of gasoline	Add gasoline to the fuel tank.
	Waste tank is full	Empty waste tank.
	Main or engine 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 230°F, triggering the high temperature switch to shut the unit down.	Determine the cause of the overheating before restarting the unit. Refer to the ZZP416 Engine Operation and Maintenance Manual.
	Defective fuel pump.	Replace fuel pump.
	Defective float switch inside the waste tank.	Check switch for proper operaton. Replace as necessary.
	Defective 230°F engine coolant high-temperature shudown switch.	Test switch. If necessary, replace.
	Oil pressure switch on engine has shut down, due to insufficient oil pressure.	Refer to the ZZP416 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 the ZPP416 Engine Operation and Maintenance Manual.

PROBLEM	CAUSE	SOLUTION
Excessive heating	Flow restriction caused by hard water scaling.	Descale unit, repair or replace damaged plumbing components as necessary. Install water softener.
	Not enough water flow.	Check jet size of tool.
Heat exchanger leaks. **NOTE:** The exhaust heat exchanger will produce water condensation discharge at times during normal operation. **DO NOT** confuse this with a leak.	Engine/vacuum exhaust heat exchangers are damaged from frozen water.	Inspect heat exchangers for leaks. Visually inspect for damage. Pressure check after removing from the unit. (Maximum test pressure 1200 PSI).
Loss of temperature The heat output of the unit is LESS than normal.	Temperature relief valve on water box is stuck open.	Clean temperature relief valve and test. Replace, if necessary.
	Defective temperature gauge.	Test gauge and sensor. Replace failed component.
	Improper tool jet sizing	Refer to manual for proper sizing
	Bypass orifice missing	Replace orifice
	Temperature control lever improperly set	Adjust lever
Automatic waste pump is malfunctioning or not operating normally **NOTE:** When replacing the pump or float switch, use new electrical connectors and heat shrink. Inspect connection for watertight seal.	Defective waste pump float switch.	Replace float switch.
	Broken diaphragm.	Replace diaphragm.
	Weak battery.	Charge or replace battery if needed. Check charging station.
	Clogged valves.	Clean valves.
	Pump-out circuit breaker on control panel has been tripped.	After inspecting waste pump to determine the cause of the tripped circuit breaker, press the reset button.

NOTES

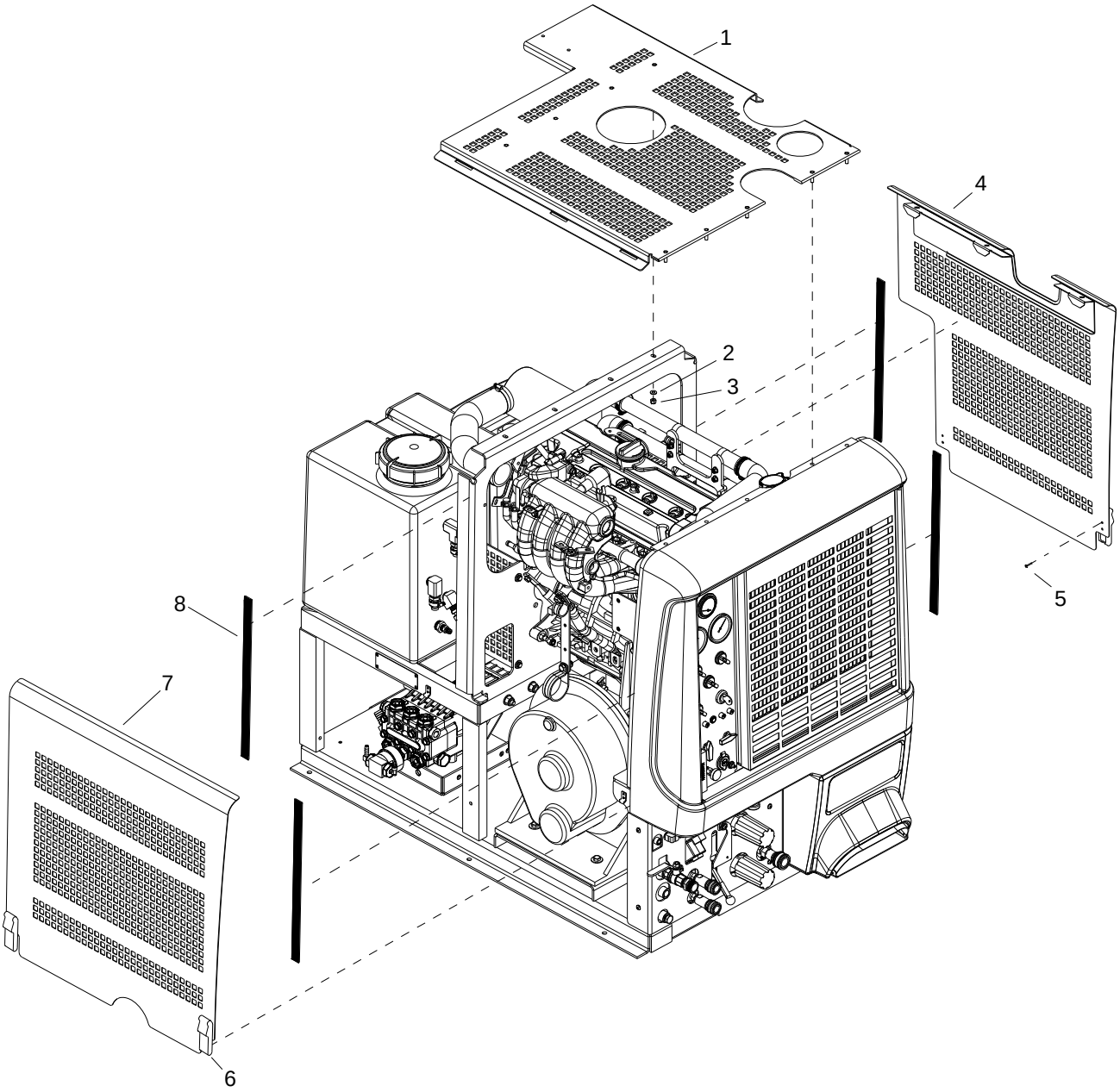
PARTS LIST

FRAME



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86291430	-	1	ASSEBMBLY, REAR MTR MTG	*(1)	WAS 86012750
2	86270330	02-000066	8	FLATWASHER, 1/4		
3	86010780	87162	7	WASHER, 1/4 SPLIT LOCK		
4	86274750	70270	7	SCR, 1/4-20 X 3/4 HHCS PLTD		
5	86047960	791215	1	GUARD, BLOWER HUB		
6	86291540	-	1	ASSY, FRAME	*(1)	WAS 791192
7	86005770	57119	4	NUT, 3/8-16 HEX NYLOCK		
8	86279510	87171	8	WASHER, 3/8 FLAT		
9	86175380	791393	1	BLT, 1/4-20 X 1 SHWH TYPE F TC		
10	86177040	03-000149	1	CLAMP, CABLE 1-1/4 ID 5/16 BLT		
11	86274000	70069	2	SCR, 3/8-16 X 3.0 HHCS GR5		
12	86047980	791218	1	GUARD, BELT		
13	86297450	-	1	GUARD, BELT, RIGHT	*(1)	WAS 791216
14	86277830	00-000072	2	SCR, 3/8-16 X 2.0 HXHD		

* SEE SERIAL NUMBER PAGE.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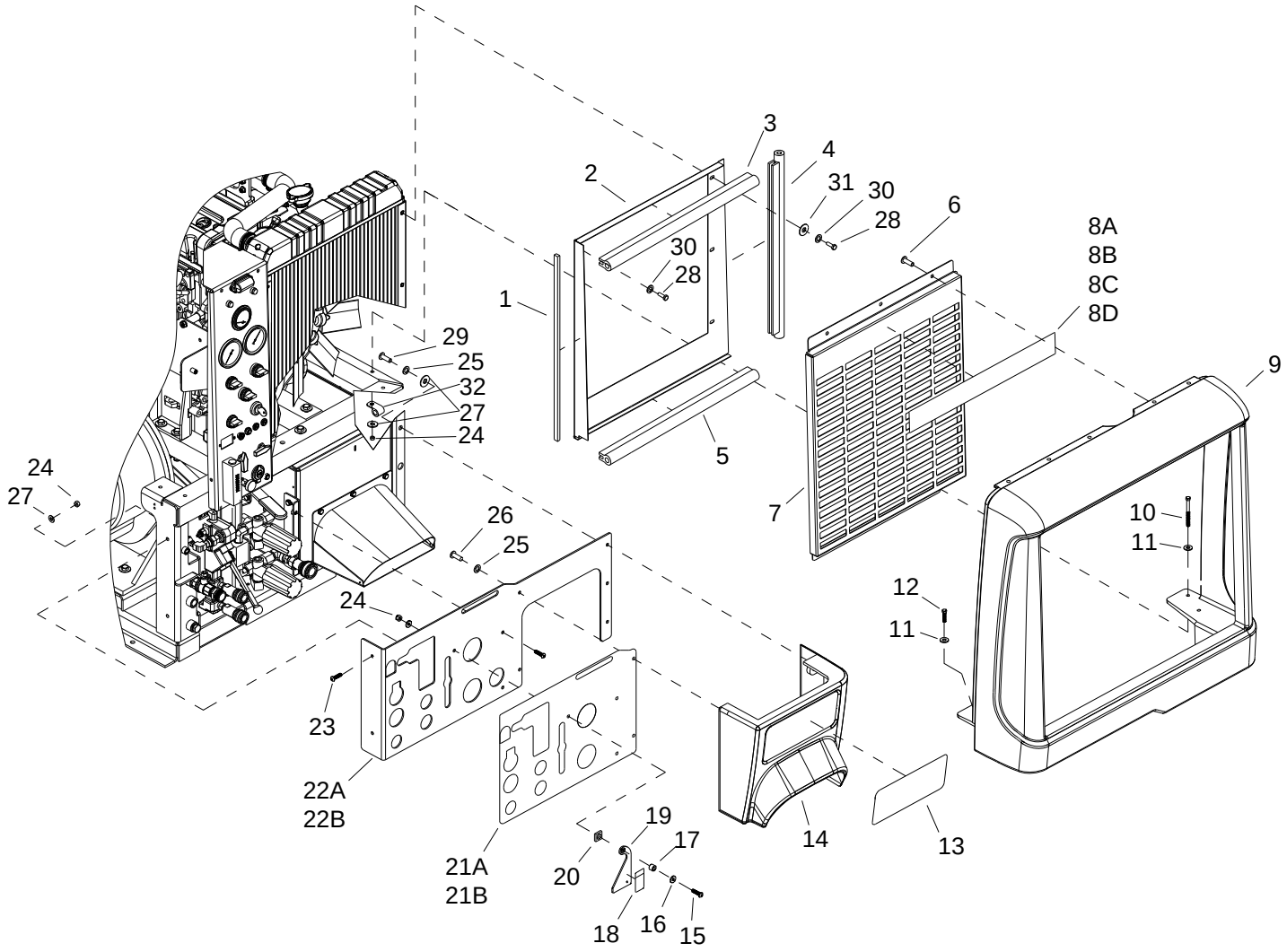
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86056210	791341	1	PNL, CENTER HOOD		
2	86270330	02-000066	9	FLATWASHER, 1/4		
3	86005680	57047	9	NUT, 1/4-20 HEX NYLOCK		
4	86012110	-	1	ASSY, HOOD, RIGHT		
5	86191800	791414	8	RIVET, 5/32OD X .188-.250 GL AL		
6	86161800	46-802531	4	CATCH, CONCEALED KEEPER		
7	86012120	-	1	ASSY, HOOD, LEFT		
8	86315490	-	4	GASKET, HOOD VIBE DAMPNR		
9	86306600	-	1	ASM, EV LEFT HOOD SERVICE		INCLUDES 5, 6, 7
10	86306620	-	1	ASM, EV RIGHT HOOD SERVICE		INCLUDES 4, 5, 6

FRONT PANEL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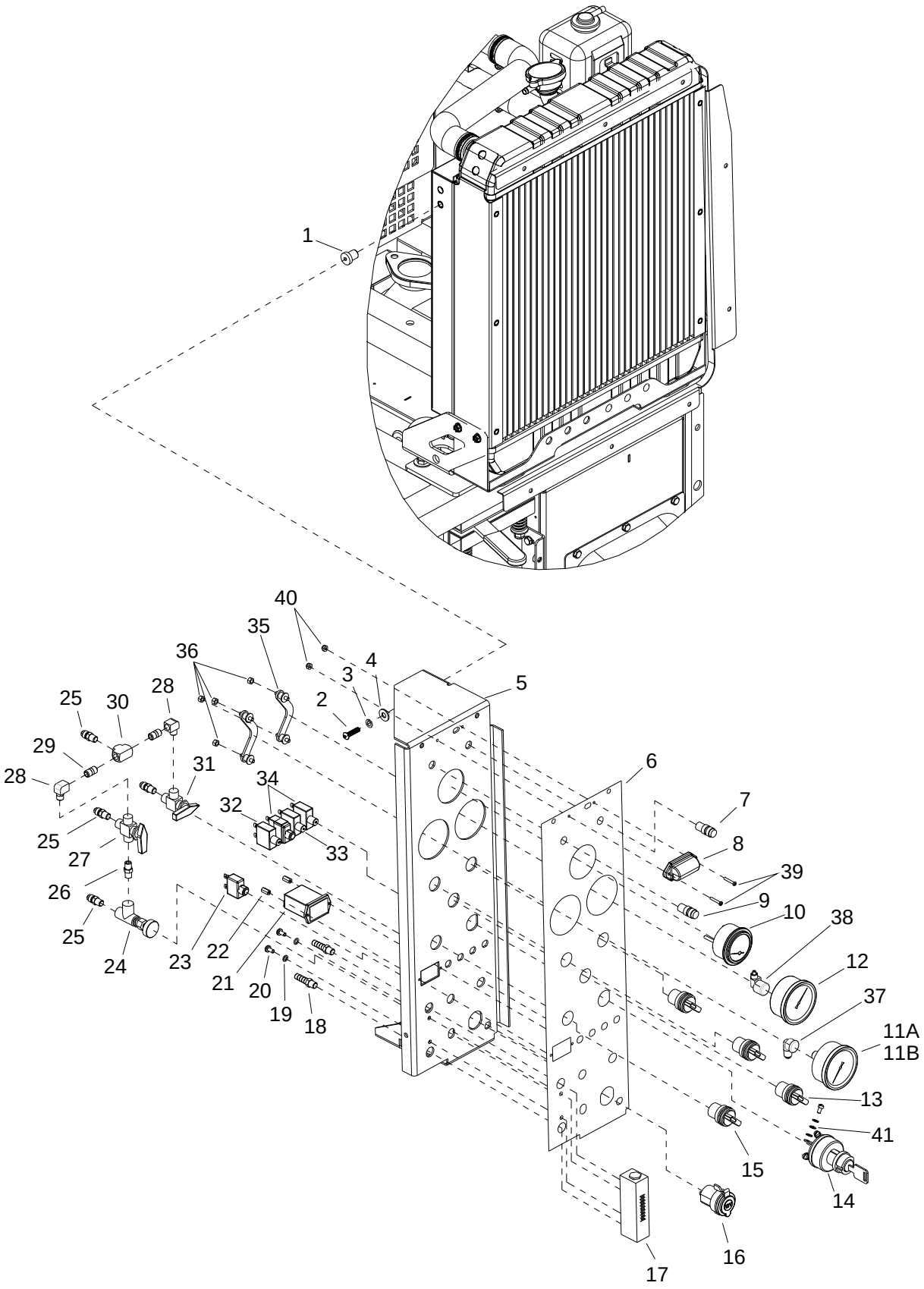
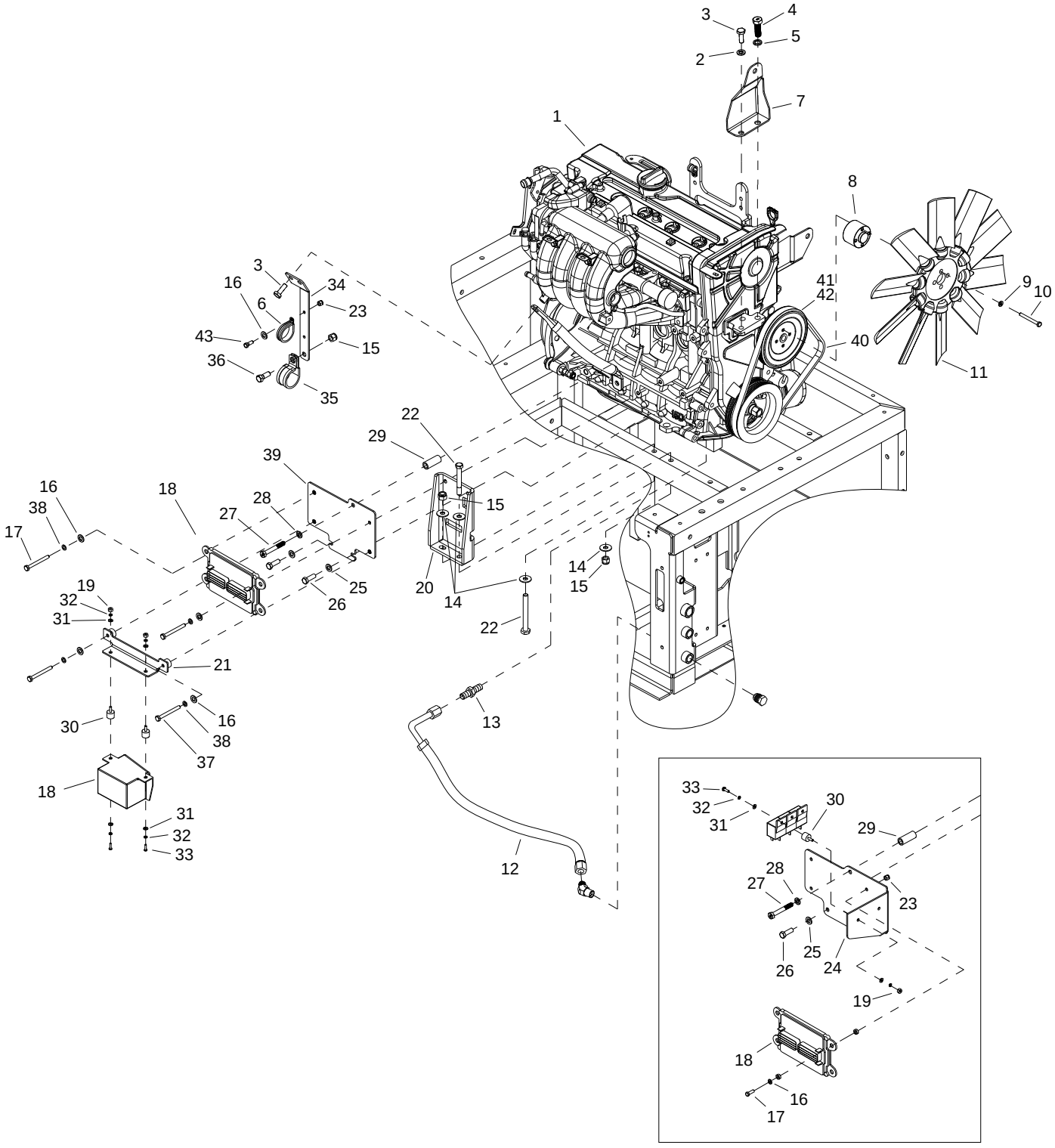
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86133380	99843	1	GASKET, 1/8 X 1/2 1SDA FOAM BLK		
2	86012770	-	1	PANEL, RADIATOR CLOSEOUT		
3	86014730	-	1	SEAL, STRT BULB SD168 X 17.5		
4	86014760	-	1	SEAL, STRT BULB SD168 X 20.5		
5	86014750	-	1	SEAL, STRT BULB SD168 X 19.5		
6	86275210	70384	8	SCR, 1/4-20 X 1/2 PHTR BLK DL		
7	86050660	791293	1	PANEL, GRILLE		
8A	86179440	791285	1	DECAL, FRONT HOOD 650		650 ONLY
8B	86179420	791283	1	DECAL, FRONT HOOD		408 ONLY
8C	86179430	791284	1	DECAL, FRONT HOOD HP		408 HP ONLY
8D	86179450	791286	1	DECAL, FRONT HOOD HP650		650 HP ONLY
9	86178280	791299	1	COVER, FRONT END		
10	86277430	70843	3	SCR, 1/4-20 X 3 SHCS SS		
11	86279150	87087	4	WASHER, M6 X 25 FLAT BN732 PLT		
12	86273180	00-000078	1	SCR, 1/4-20 X 1 HXHD GRD8		
13	86179490	791290	1	DECAL, CONDENSED OPERATING		
14	86189620	791298	1	OUTLET, EXHAUST		
15	86275490	70489	1	SCR, 1/4-20 X 1.0 BH BLK PLATE		HP ONLY
16	86279520	87172	5	WASHER, 1/4 ID FLAT BLK		HP ONLY
17	86007820	73698	1	SPACER, 0.50D X 0.28ID X 0.38L NYL		HP ONLY
18	86186510	500707	1	LABEL, CAUTION HP		HP ONLY
19	86051540	790551	1	PLT, HIGH PRESSURE LCK		HP ONLY
20	86189660	58-700023	1	PAD, 1/4 TURN VIBR		HP ONLY
21A	86179470	791288	1	DECAL, LOWER FRONT LP		LP ONLY
21B	86179480	791289	1	DECAL, LOWER FRONT HP		HP ONLY
22A	86056140	791257	1	PNL, LOWER FRONT, LP		LP ONLY
22B	86056130	791256	1	PNL, LOWER FRONT, HP		HP ONLY
23	86275460	70481	4	SCR, 1/4-20 X 3/4 BHCS BLK PLATE		
24	86005680	57047	7	NUT, 1/4-20 HEX NYLOCK		
25	86010780	87162	5	WASHER, 1/4 SPLIT LOCK PLTD		
26	86274760	70271	3	SCR, 1/4-20 X 1/2 HHCS PLTD		
27	86270330	02-000066	2	FLATWASHER, 1/4		
28	86276410	70643	6	SCR, 1/4-20 X 3/8 PPHMS BLK ZC NP		
29	86277730	790465	2	SCR, 1/4-20 X 2.75 BHCS BLK		
30	86279400	87151	6	WASHER, 1/4 SPLIT LOCK BLK		
31	86279520	87172	3	WASHER, 1/4 ID FLAT BLK		
32	86177090	03-000261	1	CLAMP, CABLE 1/2 I.D. 1/4 BLT		

CONTROL PANEL



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86189050	790464	3	NUT, WELL 1/4-20 HD		
2	86273180	00-000078	3	SCR, 1/4-20 X 1” HXHD GRD8		
3	86010780	87162	3	WASHER, 1/4 SPLIT LOCK PLTD		
4	86270330	02-000066	3	FLATWASHER, 1/4		
5	86050670	791294	1	PANEL, CONTROL		
6	86179460	791287	1	DECAL, CONTROL PANEL		
7	86186930	51387	1	LIGHT, WARNING, IDEC AP2M		
8	86187070	34-903026	1	LT, INST PRF805		
9	86186940	790787	1	LIGHT, WARNING, AMBER, IDEC		
10	86181960	36229	1	GAUGE, TEMP, DATCON		
11A	86181940	36226	1	GAUGE, 0-4000 PSI		HP ONLY
11B	86181930	36225	1	GAUGE, 0-1500 PSI		LP ONLY
12	86181950	36227	1	GAUGE, VACUUM 30” HG		
13	86193750	32-900205	3	SW, RTRY NON-ILLUM TM		
14	86193770	32-900201	1	SW, START W/KEY 3 POS TM		
15	86295690	-	1	SWITCH, 4-WAY SPEED EV		
16	86189630	791340	1	OUTLET, 12 VOLT AUXILLARY		
17	86181170	18-808513	1	FLOWMETER 1/8 FP		
18	86181300	12-800093	2	FTTG, BRB 1/8P X 5/16H		
19	86279470	87165	2	WASHER, #10 SPLIT LOCK PLTD		
20	86274290	70162	2	SCR, 10-32 X 3/8 PPHMS SS		
21	86246890	54092	1	METER, 0-60VDC HOUR		
22	86255920	73811	2	STANDOFF, 6-32 X 1/2 HEX NYL		
23	86298370	-	1	BRKR, CIRCUIT, 10A		
24	86195050	15-808106	1	VALVE, METER 1/8FP		
25	86177660	12-800065	3	CONN, 1/8P X 1/4T		
26	86188000	11-800022	1	NIP, 1/8 HX BR		
27	86297070	-	1	VALVE, 3-WAY BALL 1/8P		
28	86180140	11-800014	1	ELL, STREET 1/8 BR		
29	86247720	56032	2	NIPPLE, 1/8 CLOSE		
30	86194160	11-800133	1	TEE, 1/8 BR		
31	86195160	791339	1	VALVE, 2-WAY BALL 1/8FP		
32	86175610	140625	1	BRKR, CIRCUIT, 30A		
33	86298280	-	1	BRKR, CIRCUIT, 20A		
34	86175600	140624	2	BRKR, CIRCUIT, 15A		
35	86175680	140702	2	BRKT, WIKA MOUNTING		
36	86136310	57086	4	NUT, M5 HEX		
37	86180350	12-800035	1	ELL, 1/4 FP X 1/4 T BR		
38	86180380	12-800101	1	ELL, 1/4 FP X 1/4 POLY BR		
39	86273790	70016	2	SCR, 6-32 X 3/4 PPHMS		
40	86270920	57049	2	SP NUT, 6-32 HEX NYLOCK SS		
41	86278930	87007	4	WASHER, #8 LOCK EXT. STAR PLT		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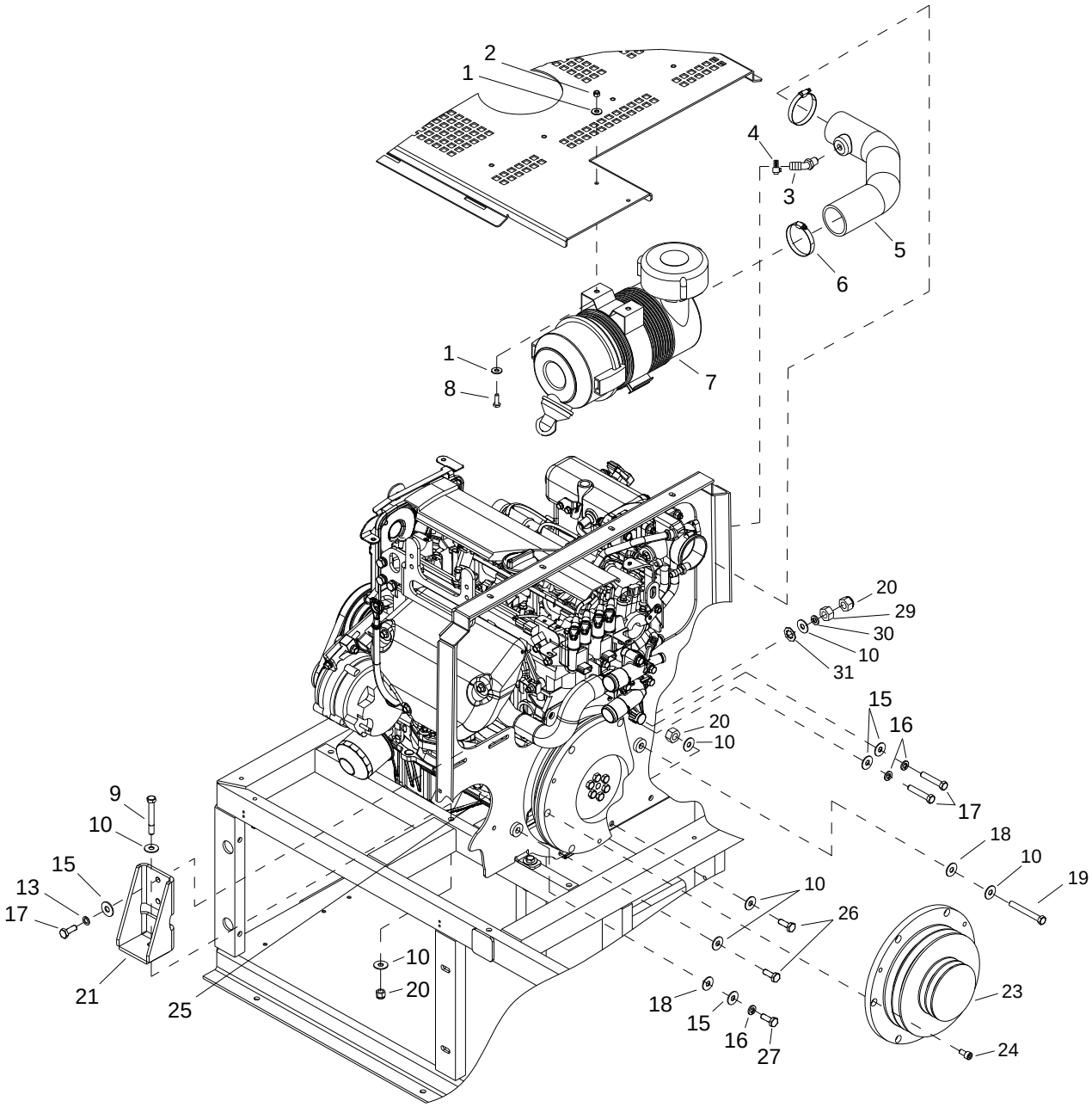
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86293490	-	1	ENG, HYUNDAI, 1.6L W/ALUM PAN	**	WAS 791265
2	86279500	87168	1	WASHER, M10 SPLIT LOCK PLTD		
3	86277790	791274	1	SCR, M10 X 1.25 X 25 MM HXHD DIN933		
4	86277800	791275	1	SCR, M12 X 1.25 X 25 MM HXHD		
5	86259440	87486	1	WASHER, M12 SPRING LOCK		
6	86177370	03-000266	1	CLMP,FUEL LINE 5/16x1/4B		
7	86292180	-	1	BRKT, RAD TO ENG MTG	**	WAS 791389
8	86192960	791297	1	SPACER, FAN, HYUNDAI 1.6L		
9	86279140	87085	4	WASHER, M6 SPLIT LOCK DIN 127B		
10	86277820	791296	4	SCR, M6 X 1.00MM X 55MM HXHD GR8.8		
11	86180890	791263	1	FAN, SUCTION, HYUNDAI 1.6L		
12	86185220	791410	1	HOSE, OIL DRAIN		
13	86042720	791259	1	ADPTR, OIL DRAIN PLUG		
14	86279510	87171	4	WASHER, 3/8 FLAT		
15	86005770	57119	3	NUT, 3/8-16 HEX NYLOCK		
16	86270330	02-000066	5	FLATWASHER, 1/4		
17	86273190	00-000132	2	SCR, 1/4-20 X 1-1/2 HXHD		
18	86011980	-	1	ECU, ZPP 416		
19	86270780	57008	2	NUT, 8-32 HEX		
20	86046270	791243	1	BRKT, LEFT MOTOR MOUNT		
21	86293980	-	1	BRKT, ECU	**	
22	86274000	70069	2	SCR, 3/8-16 X 3 HHCS GR5		
23	86005680	57047	3	NUT, 1/4-20 HEX NYLOCK		
24	86288590	791246	1	BRKT, COMP/RELAY MTG		
25	86137280	87054	2	WASHER, M8 FLAT DIN125A PLT		
26	86273590	00-000428	2	SCR, CAP 8MM X 1.25MM X 20MM		
27	86277810	791276	1	SCR, M8 X 1.25 X 60MM HXHD PLTD		
28	86137310	87098	1	WASHER, M8 SPLIT LOCK		
29	86089650	78524	1	TUBE, 5/8OD X .357ID X 1.57		
30	86014590	-	2	ISOLATOR, RUBBER, RELAY		
31	86278990	87017	4	WASHER, #8 FLAT		
32	86288600	02-000015	4	LKWSR, #8		
33	86273930	70051	2	SCR, 8-32 X 1/2 PPHMS		
34	86046310	791272	1	BRKT, HOSE MOUNT		
35	86177420	791278	1	CLMP, 2-1/8ID X 3/8 BLT		
36	86006740	70266	2	SCR, 3/8-16 X 1” HHCS BR5 PLT DL		
37	86273100	00-000004	2	SCR, CAP1/4-20 X 2-1/4 HXD		
38	86010780	87162	4	WASHER, 1/4 SPLIT LOC		
39	86294050	-	1	BRKT, ECU MTG	**	WAS 791246
40	86303730	-	1	BELT, FAN HYUNDAI 1.6L		
41	86332040	-	1	PULLEY-WATER PUMP OUTER ZPP		
42	86332050	-	1	PULLEY-WATER PUMP, P/S		
43	86274750	70270	1	SCR, 1/4-20 X 3/4 HHCS PLTD		

* SEE SERIAL NUMBER PAGE.
** CALL MANUFACTURER FOR SERIAL NUMBER.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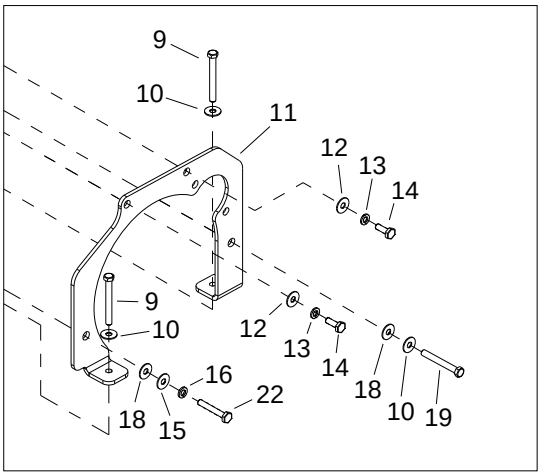
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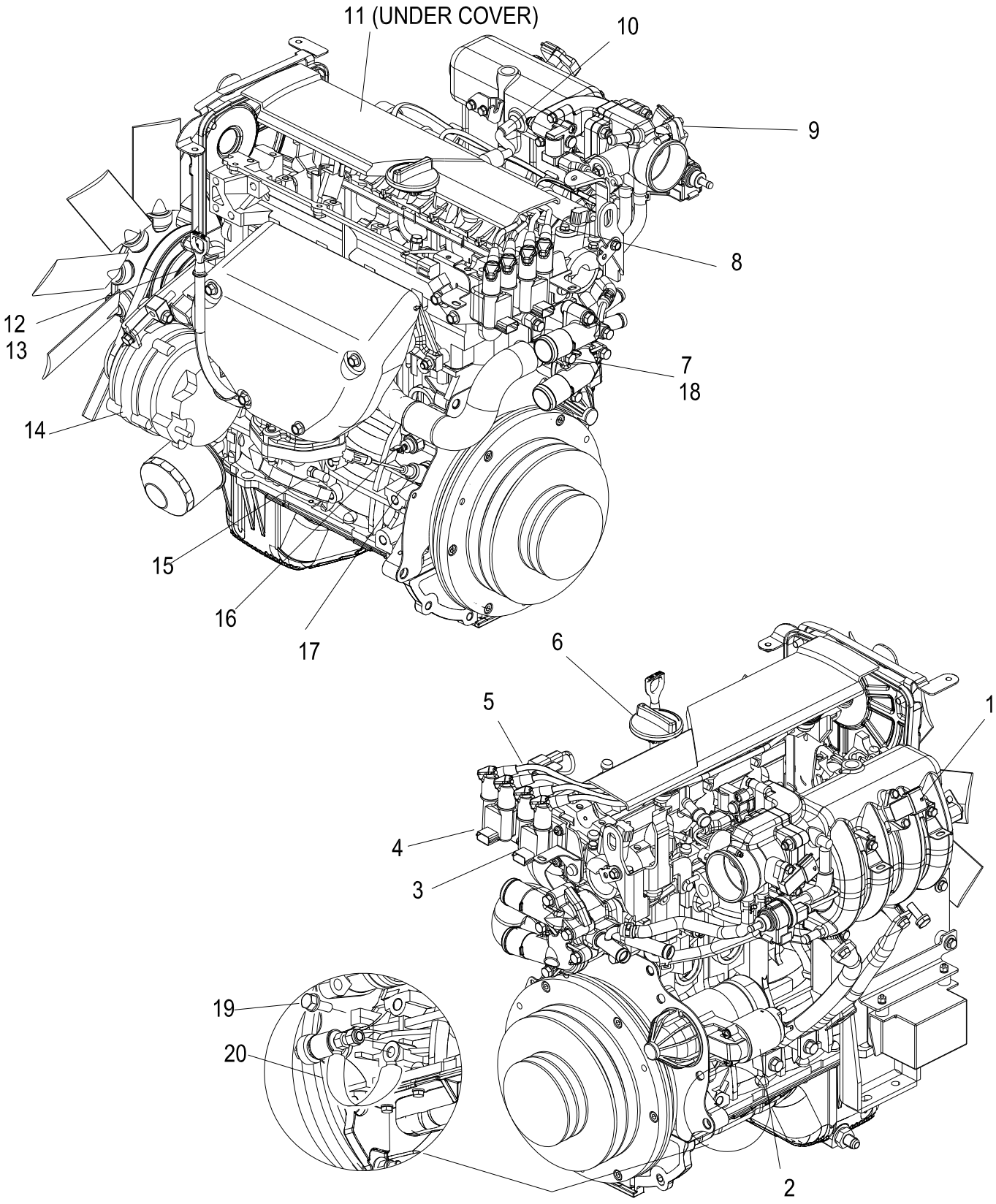
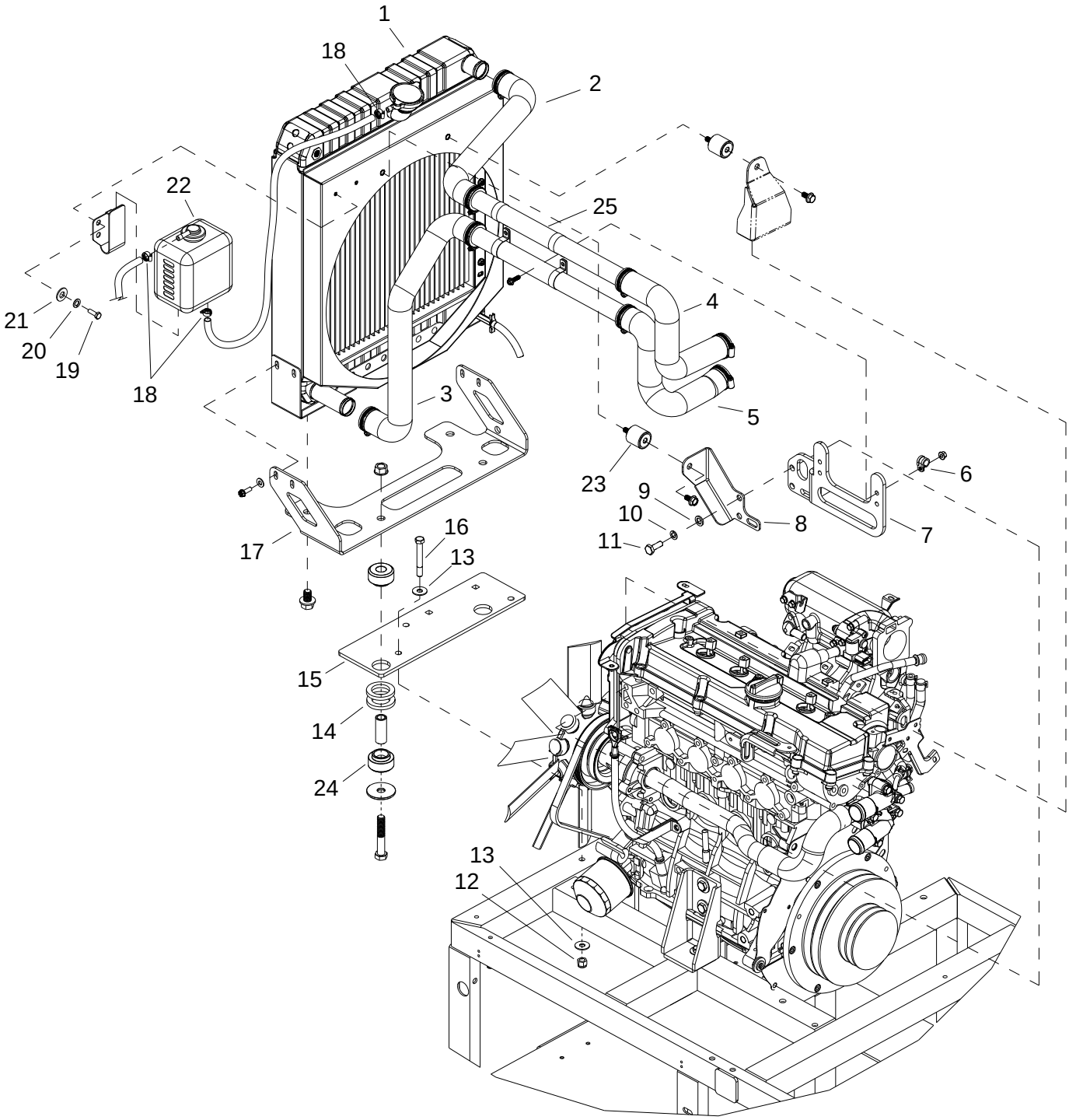
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86270330	02-000066	4	FLATWASHER, 1/4		
2	86005680	57047	2	NUT, 1/4-20 HEX NYLOCK		
3	86197620	40038	1	HOSEBARB, 1/4MPT X 3/8 45D DL		
4	86176990	03-000065	1	CLAMP, HOSE #4 SST		
5	86185090	791241	1	HOSE, AIR INLET		
6	86177220	03-000054	2	CLMP, HOS #32 1.5625/2.5, SST		
7	86173910	790780	1	ASMBLY, FLTR, AIR, ZEEMS		
8	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
9	86274000	70069	2	SCR, 3/8-16 X 3 HHCS GR5		
10	86279510	87171	7	WASHER, 3/8 FLAT		
11	86051670	791258	1	PLT, MTR MNT STIFFENER		
12	86259430	87485	2	WASHER, M12 FLAT		
13	86259440	87486	5	WASHER, M12 SPRING LOCK		
14	86277800	791275	2	SCR, M12 X 1.25 X 25MM HXHD		
15	86010720	87086	6	WASHER, M10 X 30 PLTD		
16	86279500	87168	3	WASHER, M10 SPLIT LOCK PLTD		
17	86277790	791274	4	SCR, M10 X 1.25 X 25MM HXHD DIN 933		
18	86270320	02-000057	2	FLATWASHER, 1/2” HEAVY		
19	86273420	00-000336	1	SCR, CAP 3/8-16X3 ALL THD		
20	86005770	57119	3	NUT, 3/8-16 HEX NYLOCK		
21	86046260	791242	1	BRKT, RIGHT MOTOR MOUNT		
22	86014850	-	2	SCR, M10 X 1.25 X 40MM HXHD		
23	86191330	791240	1	PULLEY, HYUNDAI, REAR, ENGINE		
24	86277780	791273	6	SCR, M8 X 1.25 X 16MM SOCHD GR12.9		
25	86290720	-	1	SWITCH, OIL PRESSURE, HYUNDAI		
26	86274660	70255	2	SCR, 3/8-16 X 1.5 HHCS GR5 PLT		
27	86014850	-	1	SCR, M10 X 1.25 X 40MM HXHD		
28	86279440	87160	1	WASHER, 1/2 FLAT PLTD		
29	86005730	57111	1	NUT, 3/8-16 HEX		
30	86010790	87163	1	WASHER, 3/8 SPLIT LOCK PLTD		
31	86295800	-	1	WASHER, 3/8 INT & EXT STAR		

ELECTRONIC FUEL IGNITION



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86304360	-	1	SENSOR, MANIFOLD/AIR, HYUNDAI 1.6L		
2	86304350	-	1	STARTER, HYUNDAI 1.6L		
3	86304060	-	1	COIL PACK, 4 & 1, HYUNDAI 1.6L		
4	86304050	-	1	COIL PACK, 2 & 3, HYUNDAI 1.6L		
5	86304630	-	1	WIRES, SPARK PLUG, HYUNDAI 1.6L		
6	86304770	-	1	CAP, OIL, HYUNDAI 1.6L		
7	86304800	-	1	THERMOSTAT, HYUNDAI 1.6L		
8	86304760	-	1	SENSOR, CAM, HYUNDAI 1.6L		
9	86304850	-	1	BODY, BOSCH THROTTLE, HYUNDAI		
10	86304910	-	1	VALVE, PCV, HYUNDAI 1.6L		
11	86304650	-	4	SPARK PLUG, HYUNDAI 1.6L		
12	86304660	-	1	PUMP, WATER, HYUNDAI 1.6L		
13	86304790	-	1	GASKET, WATER PUMP, HYUNDAI 1.6L		
14	86303860	-	1	ALTERNATOR, HYUNDAI 1.6L		
15	86304740	-	1	SENSOR, OXYGEN, PRE-CAT HYUNDAI		
16	86290720	-	1	SWITCH, OIL PRESSURE, HYUNDAI		
17	86304880	-	1	SENSOR, CRANK, HYUNDAI 1.6L		
18	86304810	-	1	GASKET, THERMOSTAT, HYUNDAI 1.6L		
19	86306830	-	1	SCR, M12 X 1.25 X 20MM HXHD		
20	86306630	-	1	STRAP, FLEX BRAID 4GA TIN GRND		
-	86303830	-	1	HOSE, WATER PUMP, HYUNDAI 1.6L		NOT SHOWN
-	86304900	-	4	INJECTOR, FUEL, HYUNDAI 1.6L		NOT SHOWN
-	86325410	-	1	HARNESS, HYUNDAI 1.6L, EV		NOT SHOWN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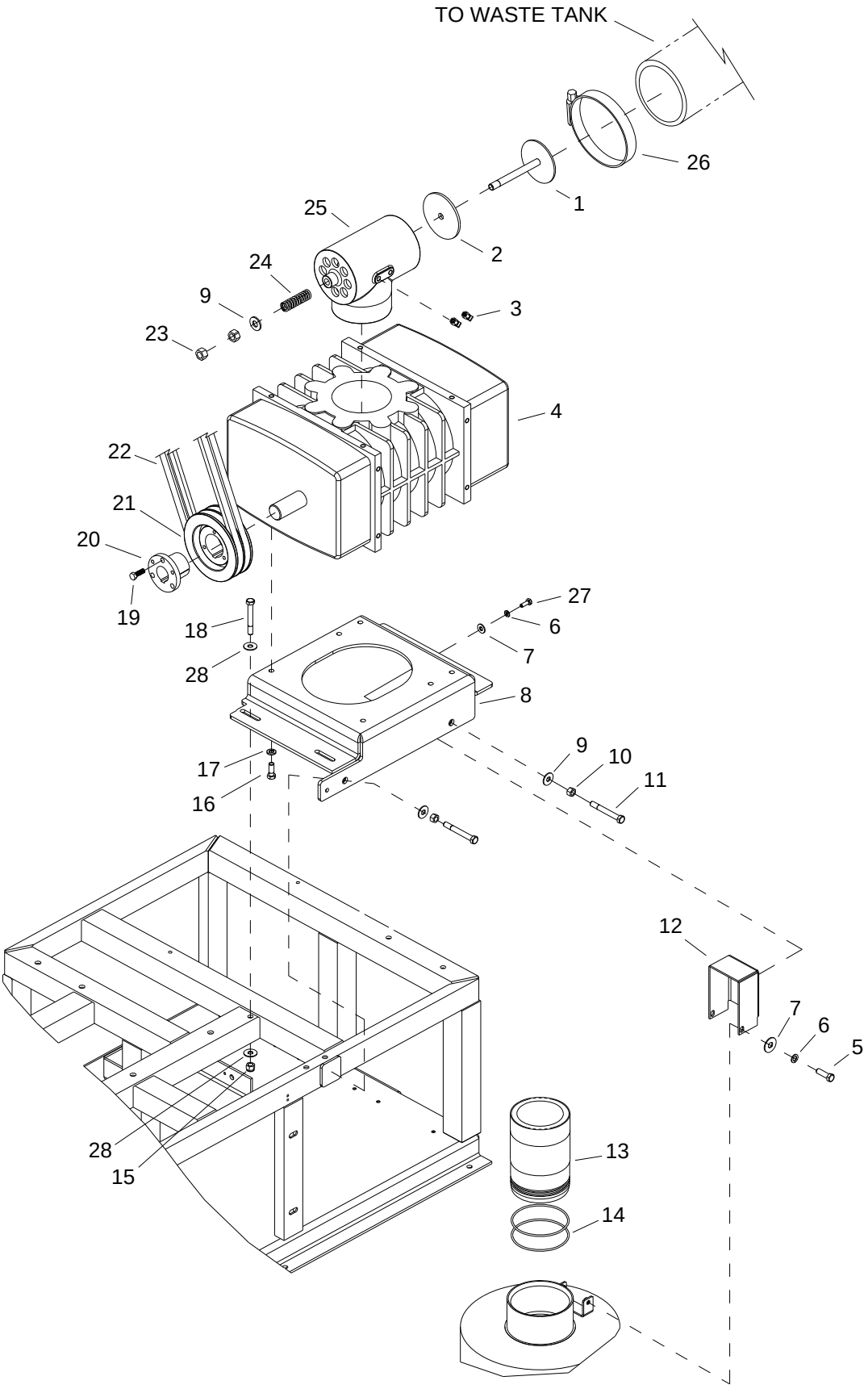
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86191540	791334	1	RADIATOR, HYUNDAI, W/SHROUD		
2	86185100	-	1	HOSE, UPPER, RADIATOR, HYUNDAI		
3	86185110	-	1	HOSE, LOWER, RADIATOR, HYUNDAI		
4	86185120	-	1	HOSE, UPPER ENGINE COOLANT		
5	86185130	-	1	HOSE, LOWER ENGINE COOLANT		
6	86177090	03-000261	1	CLAMP, CABLE 1/2ID 1/4BLT		
7	86046370	791412	1	BRKT, RAD TUBE SUPT		
8	86292170	-	1	BRKT, RAD SUPT RIGHT	*(1)	WAS 791411
9	86279700	87244	3	WASHER, M10 X 18 FLAT		
10	86279500	87168	3	WASHER, M10 SPLIT LOCK PLTD		
11	86277790	791274	3	SCR, M10 X 1.25 X 25MM HXHD DIN933		
12	86005770	57119	3	NUT, 3/8-16 HEX NYLOCK		
13	86279510	87171	6	WASHER, 3/8 FLAT		
14	86012610	-	4	SPACER, RADIATOR ISOLATOR		
15	86291660	-	1	BRKT, RADIATOR MOUNTING	*(1)	WAS 791245
16	86274000	70069	3	SCR, 3/8-16 X 3 HHCS GR5		
17	86046280	791244	1	BRKT, RADIATOR MOUNT		
18	86176990	03-000065	3	CLAMP, HOSE #4 SST		
19	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
20	86010780	87162	2	WASHER, 1/4 SPLIT LOCK PLTD		
21	86270330	02-000066	2	FLATWASHER, 1/4		
22	86175820	140642	1	BTL, CLNT RECIV, PIN, 1 LTR		
23	86303790	-	2	ISOLATOR, 32 X 32, M8-1.25		
24	86303780	-	2	ISOLATOR, 46.4MM 51.21MM 1/2-13		
25	86303740	-	2	CONN, 410 X 32 DIA RADIATOR		

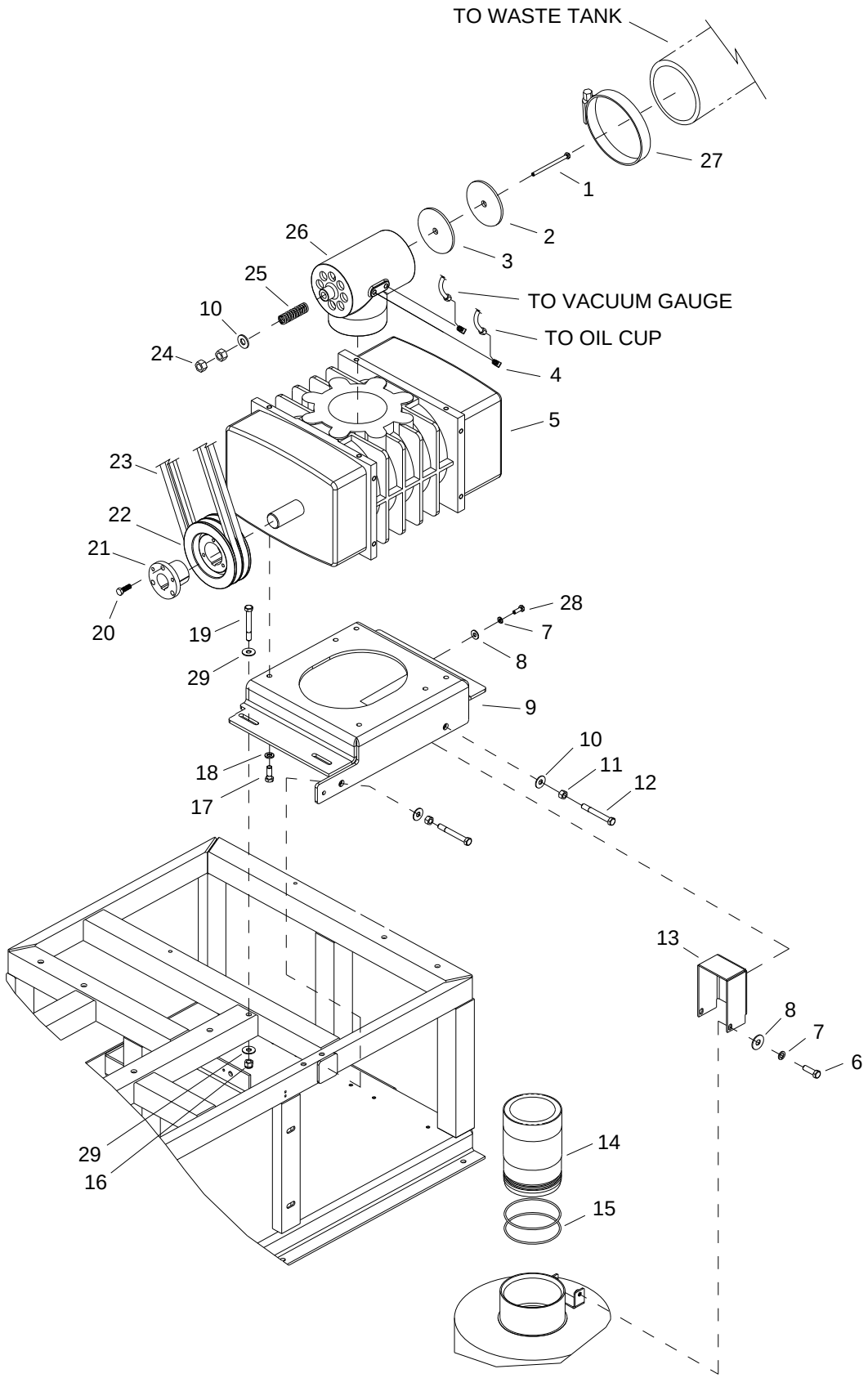
*** SEE SERIAL NUMBER PAGE**
**** CALL MANUFACTURER FOR SERIAL NUMBER**

VACUUM BLOWER - 408/408HP



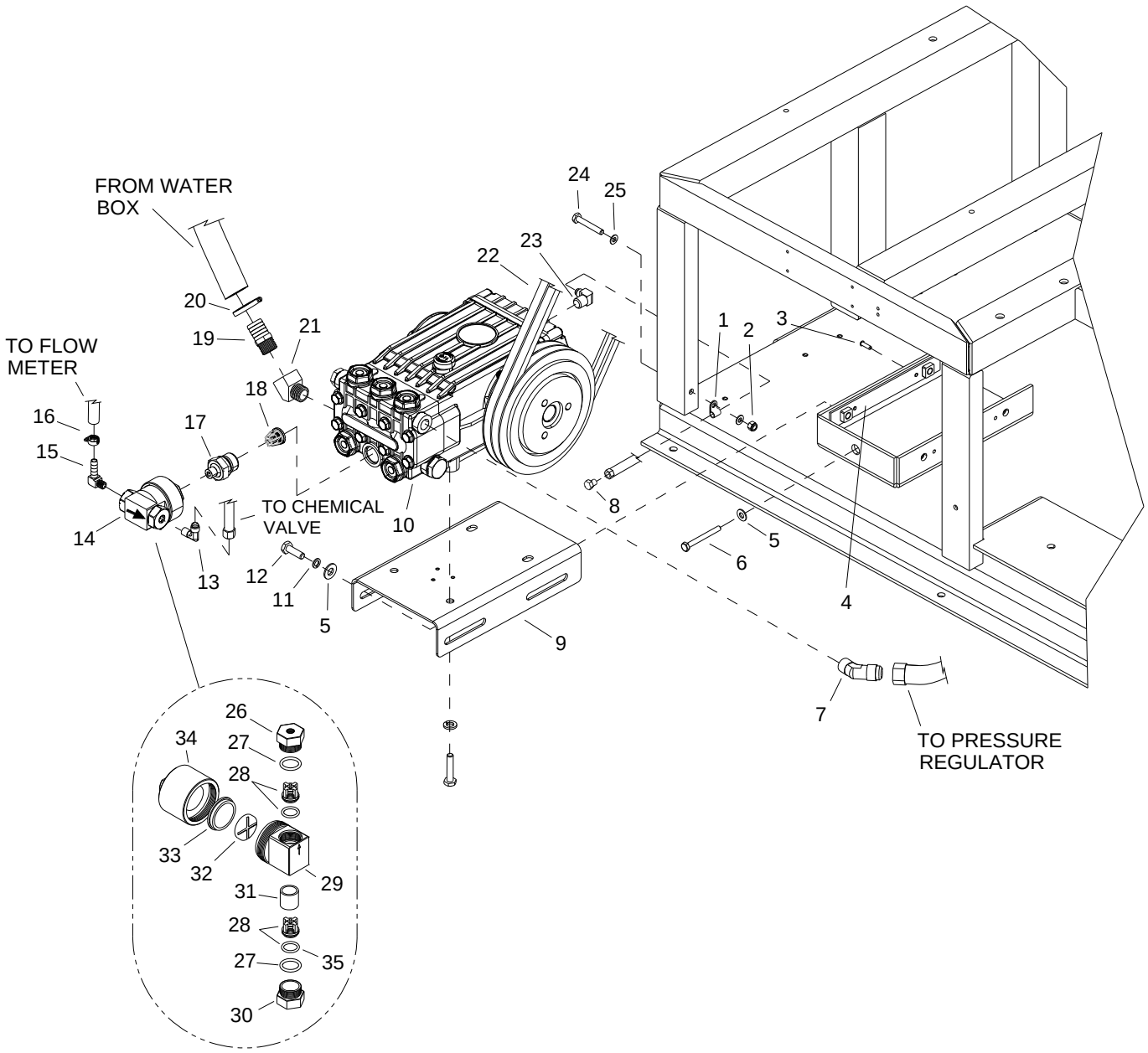
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86057090	56-501994	1	STM-VAC REL VLV		
2	86179590	43-807106	1	DIAPH, VAC REL VLV		
3	86180370	12-800099	2	ELL, 1/8P X 1/4 POLY BR		
4	86175390	140611	1	BLWR, TRI-FLOW, 4L TI 408		
5	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
6	86010780	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
7	86270330	02-000066	4	FLATWASHER, 1/4		
8	86051660	791250	1	PLT, BLOWER MOUNT, ADJUST		
9	86279510	87171	3	WASHER, 3/8 FLAT		
10	86005730	57111	2	NUT, 3/8-16 HEX		
11	86277830	00-000072	2	SCR, 3/8-16 X 2” HXHD		
12	86046250	791238	1	BRKT, MFLR BRACE		
13	86188610	791235	1	NIPPLE, 408 VAC OUTLET		
14	86189360	791236	2	O-RING, 3-1/8ID X 3-3/8OD		
15	86005770	57119	4	NUT, 3/8-16 HEX NYLOCK		
16	86006740	70266	4	SCR, 3/8-16 X 1” HHCS GRD5 PLT DL		
17	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
18	86274000	70069	4	SCR, 3/8-16 X 3 HHCS GR5		
19	86273440	00-000340	3	SCR, MACH 5/16-18 X 1” GR8		
20	86185390	790444	1	HUB, P1 X 1-1/4		
21	86191290	790842	1	PULLEY, BLOWER 2TB52		
22	86175240	791370	2	BELT, GATES BP40 PREDATOR		
23	86271070	57114	2	NUT, 7/16-14 HEX		
24	86193230	04-000091	1	SPRING, VAC REL VLV		
25	86195150	791332	1	VALVE, VACUUM RELIEF		
26	86177280	03-000137	1	CLMP, HOS#72 4-1/16MIN 5		
27	86273180	00-000078	2	SCR, 1/4-20 X 1” HXHD GRD8		
28	86310690	-	8	WASH, 3/8 ID X 1.0 OD X 1/8 THK SS		

VACUUM BLOWER - 650/650HP



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86273660	00-000493	1	SCR, CAP 1/2-13 X 5 HXHD		
2	86059340	50-502107	1	WSR, VAC REL VLV PRF805		
3	86179600	43-807579	1	DIAHP, VAC REL VLV PRF805		
4	86180370	12-800099	2	ELL, 1/8P X 1/4 POLY BR		
5	86175370	791249	1	BLOWER, TRI-FLOW 650 CFM		
6	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
7	86010780	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
8	86270330	02-000066	4	FLATWASHER, 1/4		
9	86051660	791250	1	PLT, BLOWER MOUNT, ADJUST		
10	86279510	87171	3	WASHER, 3/8 FLAT		
11	86005730	57111	2	NUT, 3/8-16 HEX		
12	86277830	00-000072	2	SCR, 3/8-16 X 2” HXHD		
13	86046250	791238	1	BRKT, MFLR BRACE		
14	86188610	791227	1	NIPPLE, 650 VAC OUTLET		
15	86189360	791236	2	O-RING, 3-1/8ID X 3-3/8OD		
16	86005770	57119	4	NUT, 3/8-16 HEX NYLOCK		
17	86006740	70266	4	SCR, 3/8-16 X 1” HHCS GRD5 PLT DL		
18	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
19	86274000	70069	4	SCR, 3/8-16 X 3 HHCS GR5		
20	86273440	00-000340	3	SCR, MACH 5/16-18 X 1” GR8		
21	86185390	790444	1	HUB, P1 X 1-1/4		
22	86191290	790842	1	PULLEY, BLOWER 2TB52		
23	86175240	791370	2	BELT, GATES BP40 PREDATOR		
24	86271070	57114	2	NUT, 7/16-14 HEX		
25	86193230	04-000091	1	SPRING, VAC REL VLV		
26	86180620	52-501977	1	ELL, VAC REL VLV		
27	86177280	03-000137	1	CLMP, HOS#72 4-1/16MIN 5		
28	86273180	00-000078	2	SCR, 1/4-20 X 1” HXHD GRD8		
29	86310690	-	8	WASH, 3/8 ID X 1.0 OD X 1/8 THK SS		

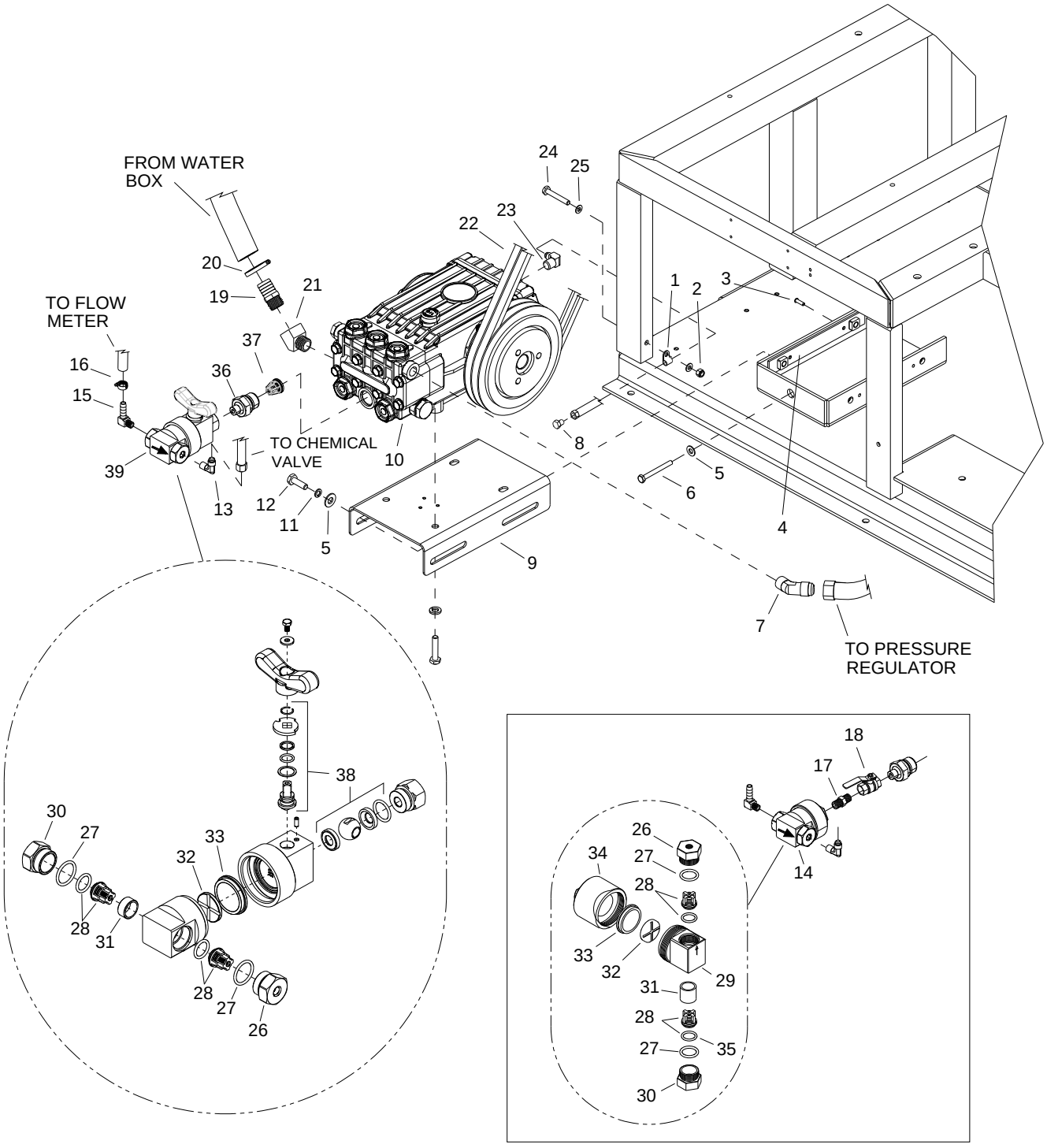
WATER PUMP – LOW PRESSURE



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86177210	03-000051	1	CLMP, CABL 7/16ID 1/4BLT		
2	86005680	57047	1	NUT, 1/4-20 HEX NYLOCK		
3	86273020	67006	4	RIVET, 3/16OD X 5/8 AL		
4	86050310	791214	2	NUTPLATE, WTR PMP MOUNT		
5	86279510	87171	5	WASHER, 3/8 FLAT		
6	86277510	70857	1	SCR, 3/8-16 X 5.0 HHCS SS FT		
7	86180450	12-800347	1	ELL, 3/8P X 1/2T 45 DEG BR		
8	86190540	12-800029	1	PLUG, 1/4T BR		
9	86046220	791211	1	BRKT, UPPER WTR PMP MTG		
10	86191450	791268	1	PUMP, ASSY, GEN, 5.6GPM		
11	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
12	86006740	70266	4	SCR, 3/8-16 X 1” HHC SGR		
13	86180360	12-800040	1	ELL, 1/8P X 1/4T BR		
14	86191440	791173	1	PUMP, CHEM, PULSE, GP		
15	86179920	790605	1	EL, 90DEG 1/8 X 5/16HB		
16	86176990	03-000065	1	CLAMP, HOSE #4 SST		
17	86173620	04102	1	ADPTR, PULSE PUMP, GEN PUMP		
18	86329450	-	1	SOLN. PUMP CHECK VALVE		
19	86181370	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
20	86177020	03-000113	1	CLAMP, HOSE #12 SST		
21	86180230	11-800299	1	ELL, STREET 1/2 45 DEG		
22	86174950	44-802217	2	BELT, AX43 GOODYEAR MATCH		
23	86180340	12-800031	1	ELL, 1/4P X 1/4T BR		
24	86273330	00-000286	1	SCR, CAP 1/4-20 X 2.75 HXHD		
25	86273330	02-000066	2	FLATWASHER, 1/4		
26	86195120	65248	1	VALVE CAP, 303SST, OUTPUT		
27	86189290	65249	2	O-RING, DURO, .862ID X .103CS		
28	86195110	65247	2	VALVE KIT ASM, CHEM PULSE PUMP		
29	86191340	65253	1	PULSE PUMP, BODY		
30	86195100	65245	1	VALVE CAP, 303SST, INPUT		
31	86192920	65246	1	SPACER RING, 303SST		
32	86249220	65252	1	PLASTIC DISC		
33	86179550	42-809047	1	DIAPHRAM, CHEM PUMP		
34	86194630	65250	1	TOP COVER, PULSE PUMP INLET		
35	86290720	-	1	O-RING, CHK VLV		

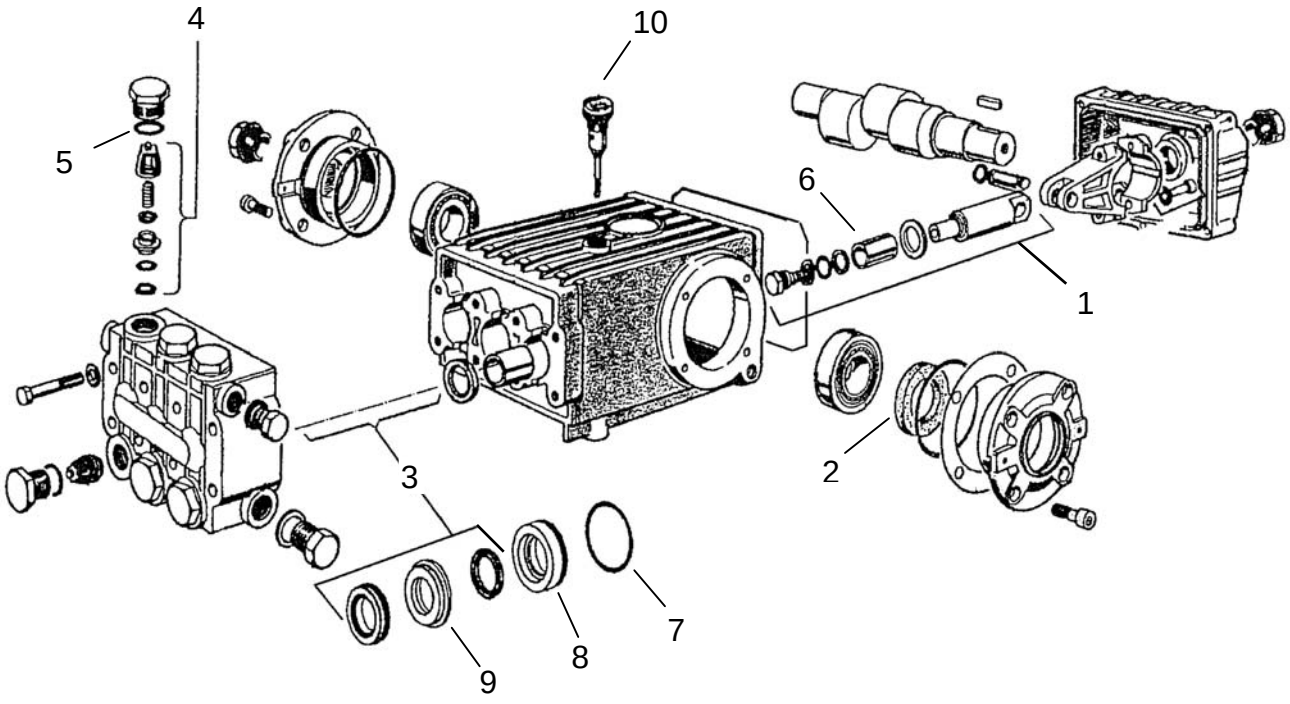
*SEE SERIAL NUMBER PAGE.
**CALL MANUFACTURER FOR SERIAL NUMBER.

WATER PUMP – HIGH PRESSURE



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86177210	03-000051	1	CLMP, CABL 7/16ID 1/4BLT		
2	86005680	57047	1	NUT, 1/4-20 HEX NYLOCK		
3	86273020	67006	4	RIVET, 3/16OD X 5/8 AL		
4	86050310	791214	2	NUTPLATE, WTR PMP MOUNT		
5	86279510	87171	5	WASHER, 3/8 FLAT		
6	86277510	70857	1	SCR, 3/8-16 X 5.0 HHCS SS FT		
7	86180450	12-800347	1	ELL, 3/8P X 1/2T 45 DEG BR		
8	86190540	12-800029	1	PLUG, 1/4T BR		
9	86046220	791211	1	BRKT, UPPER WTR PMP MTG		
10	86191450	791268	1	PUMP, ASSY, GEN, 5.6GPM		
11	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
12	86006740	70266	4	SCR, 3/8-16 X 1” HHC SGR		
13	86180360	12-800040	1	ELL, 1/8P X 1/4T BR		
14	86191440	791173	1	PUMP, CHEM, PULSE, GP		
15	86179920	790605	1	EL, 90DEG 1/8 X 5/16HB		
16	86176990	03-000065	1	CLAMP, HOSE #4 SST		
17	86188230	11-800369	1	NIP, 1/4 X CL SST		
18	86195080	15-808169	1	VALVE, BALL, 6000 PSI		
19	86181370	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
20	86177020	03-000113	1	CLAMP, HOSE #12 SST		
21	86180230	11-800299	1	ELL, STREET 1/2 45 DEG		
22	86174950	44-802217	2	BELT, AX43 GOODYEAR MATCH		
23	86180340	12-800031	1	ELL, 1/4P X 1/4T BR		
24	86273330	00-000286	1	SCR, CAP 1/4-20 X 2.75 HXHD		
25	86273330	02-000066	2	FLATWASHER, 1/4		
26	86195120	65248	1	VALVE CAP, 303SST, OUTPUT		
27	86189290	65249	2	O-RING, DURO, .862ID X .103CS		
28	86195110	65247	2	VALVE KIT ASM, CHEM PULSE PUMP		
29	86191340	65253	1	PULSE PUMP, BODY		
30	86195100	65245	1	VALVE CAP, 303SST, INPUT		
31	86192920	65246	1	SPACER RING, 303SST		
32	86249220	65252	1	PLASTIC DISC		
33	86179550	42-809047	1	DIAPHRAM, CHEM PUMP		
34	86194630	65250	1	TOP COVER, PULSE PUMP INLET		
35	86290720	-	1	O-RING, CHK VLV		
36	86329370	-	1	3/8" HIGH PRESSURE ADAPTOR	*(2)	
37	86329450	-	1	SOLN. PUMP CHECK VALVE	*(2)	
38	86329330	-	1	SHUT-OFF VALVE REBUILD KIT	*(2)	
39	86329320	-	1	PMP, CHEM, PULSE, GP, HP	*(2)	

*SEE SERIAL NUMBER PAGE.
**CALL MANUFACTURER FOR SERIAL NUMBER.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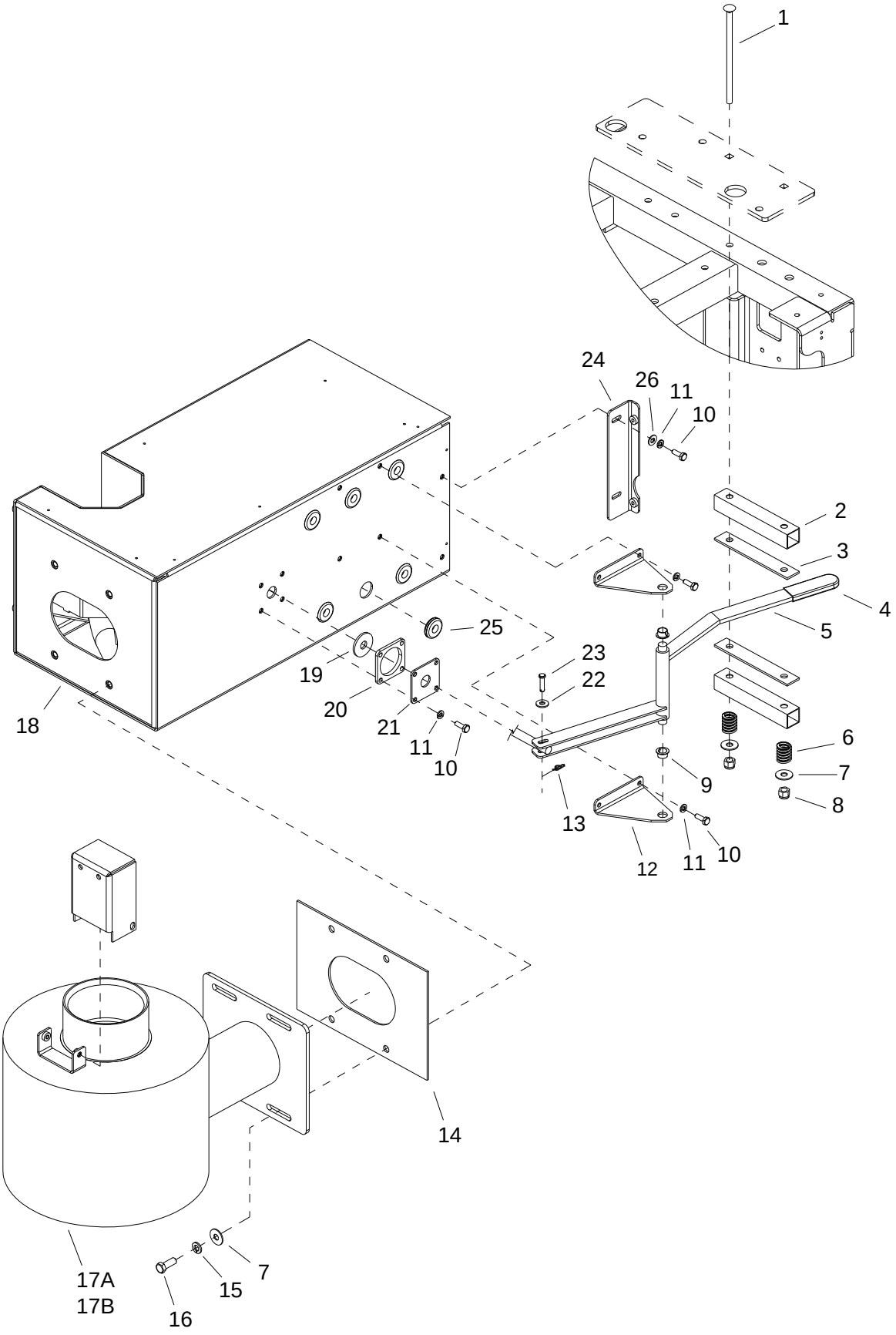
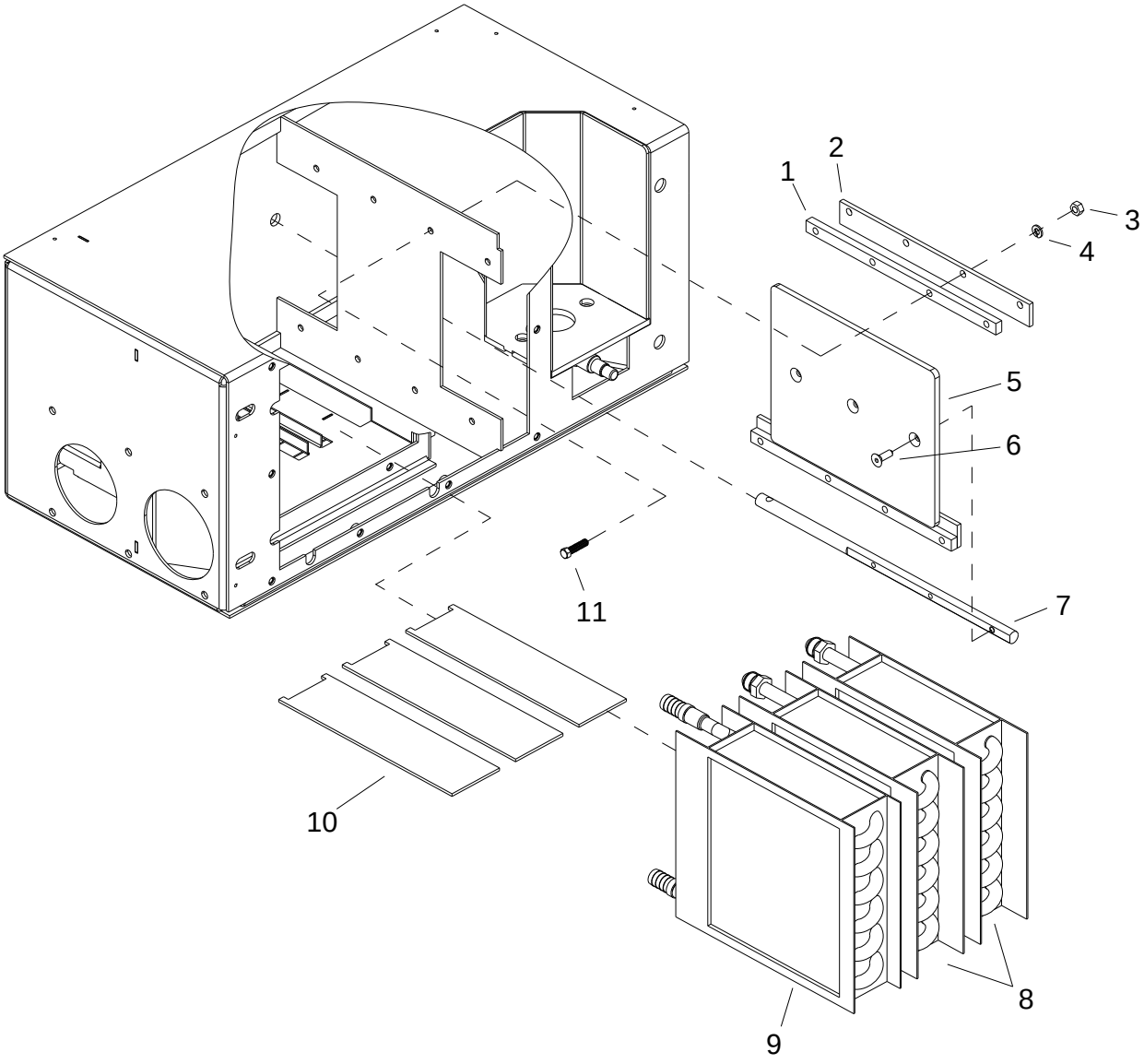
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86014860	-	1	KIT, PLUNGER MAINTENANCE, 20MM		
2	86186220	791030	1	KIT, SEALS CRANKCASE		
3	86014870	-	1	KIT, PLUNGER SEALS, 20MM GP		
4	86186250	791035	6	KIT, CHK VALVE, GEN PMP, 6PC		
5	86189320	791036	6	O-RING, CAP, GEN PMP		
6	86014880	-	3	PLUNGER, 20MM GP		
7	86014890	-	3	O-RING, PLUNGER SEAL GP		
8	86014900	-	3	SEAL RETAINER, 20MM GP		
9	86014910	-	3	RING, INTERMEDIATE, 20MM GP		
10	86300440	-	1	DIPSTICK, VENTED GP		
-	86189110	791106	1	OIL, GEN PUMP, SERIES 100		NOT SHOWN

HEAT EXCHANGER



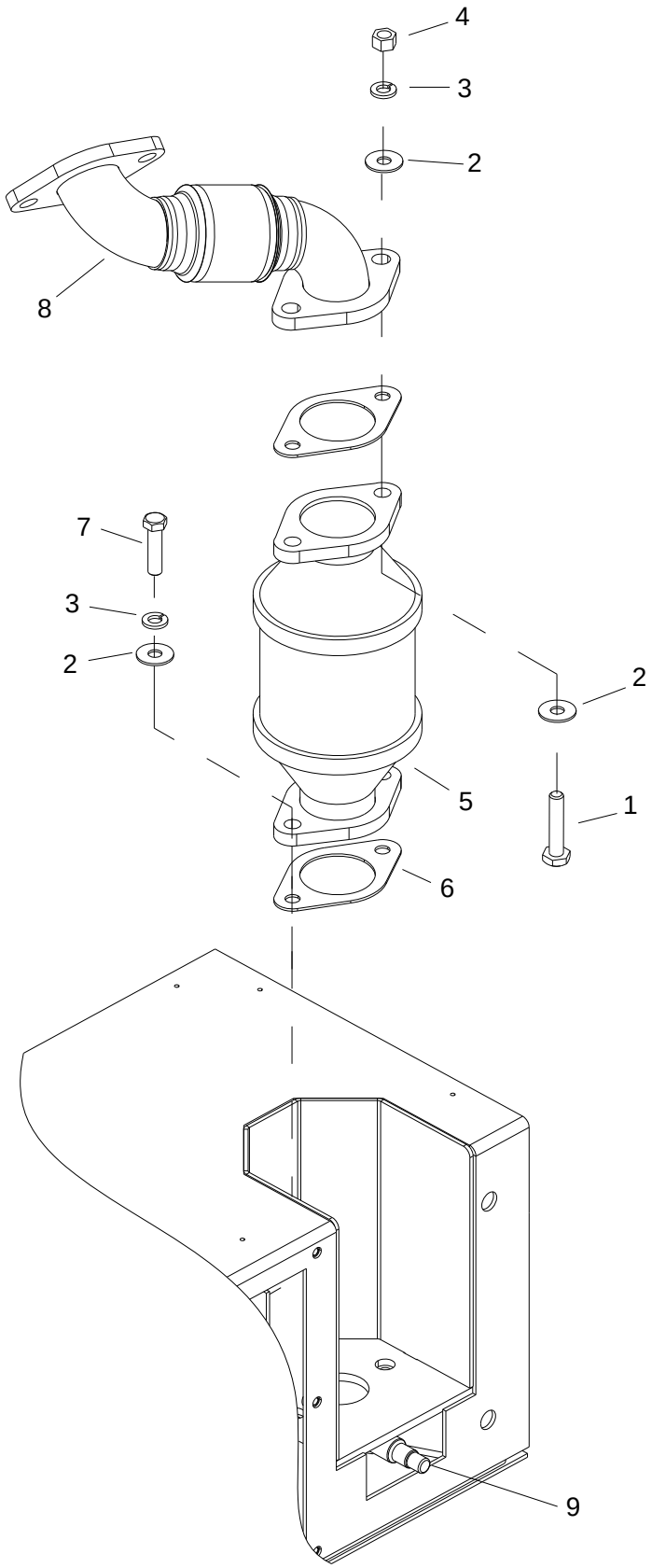
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86192130	791219	2	SCR, 3/8-16 X 7 CARRIAGE PLTD		
2	86059190	791261	2	TUBE, HT EXH LEVER BRACE		
3	86047880	791262	2	GLIDE, HT EXH LEVER		
4	86182130	791328	1	GRIP, ADJUSTING LEVER		
5	86049300	791317	1	LEVER, HEAT ADJUSTING		
6	86193280	791264	2	SPRING, COMP .71D X 1.0L X .12W		
7	86279510	87171	6	WASHER, 3/8 FLAT		
8	86005770	57119	2	NUT, 3/8-16 HEX NYLOCK		
9	86009050	81324	2	BEARING, 1/2 ID X 11/32L NYLON		
10	86274750	70270	10	SCR, 1/4-20 X 3/4 HHCS PLTD		
11	86010780	87162	10	WASHER, 1/4 SPLIT LOCK PLTD		
12	86046330	791320	2	BRKT, HT CONTROL PIVOT		
13	86008650	80604	1	COTTER, 1/4" RING		
14	86182760	791237	1	GSKT, VAC HE BOX TO MFLR		
15	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
16	86006740	70266	4	SCR, 3/8-16 X 1” HHCS GR5 PLT DL		
17A	86187930	791221	1	MUFFLER, 650 BLOWER		650 MODEL ONLY
17B	86187950	791231	1	MUFFLER, 408 BLOWER		408 MODEL ONLY
18	86043960	791300	1	ASSY, HOUSING, HEAT EXCH BOX		
19	86011840	-	1	GASKET, DOOR ROD		
20	86011850	-	1	SPACER, DOOR ROD GASKET		
21	86011860	-	1	PLT, DOOR ROD COVER		
22	86270330	02-000066	1	FLATWASHER, 1/4		
23	86008690	80612	1	PIN, CLEVIS 1/4 X 1.00 PLTD		
24	86044670	791260	2	BRACE, FRONT PANEL		
25	86182190	36238	6	GROMT, 1/2ID X 1-1/4OD 1/8G 5/16W		
26	86279150	87087	2	WASHER, M6 X 25 FLAT BN732 PLT		

HEAT EXCHANGER



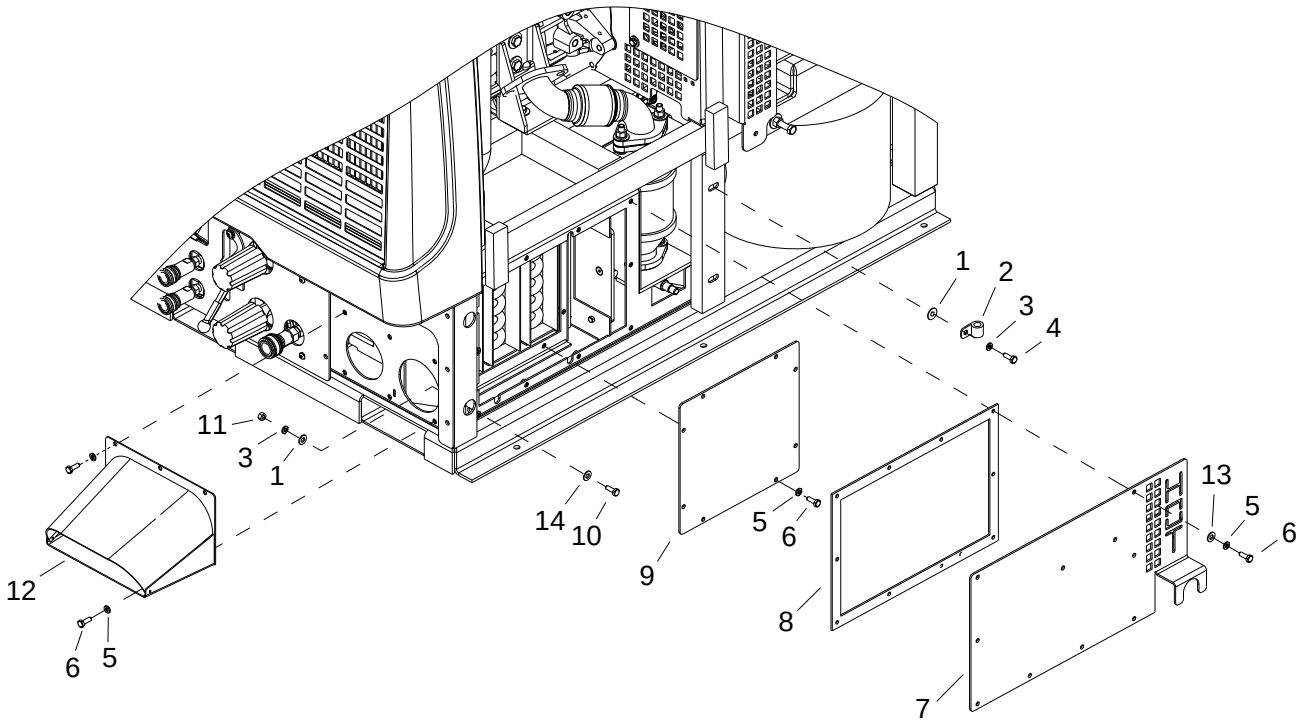
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86056840	791318	2	SPACER, HT EXH DOOR GLIDE		
2	86047890	791319	2	GLIDE, HT EXH DOOR		
3	86270770	57006	8	NUT, 1/4-20 HEX		
4	86010780	87162	8	WASHER, 1/4 SPLIT LOCK PLTD		
5	86047490	791322	1	DOOR, EXHAUST DIRECT		
6	86006670	70201	3	SCR, 1/4-20 X 3/4 FHCS		
7	86056670	791325	1	ROD, HT EXH DOOR		
8	86173940	791189	2	ASSEMBLY, SST HEATER CORE		
9	86293680	-	1	ASSEMBLY, COPPER HEATER CORE		
10	86189720	790343	3	PAD, BTM VAC HTR CORE		
11	86273810	70018	8	SCR, 1/4-20 X 1 HHCS SS		

HEAT EXCHANGER



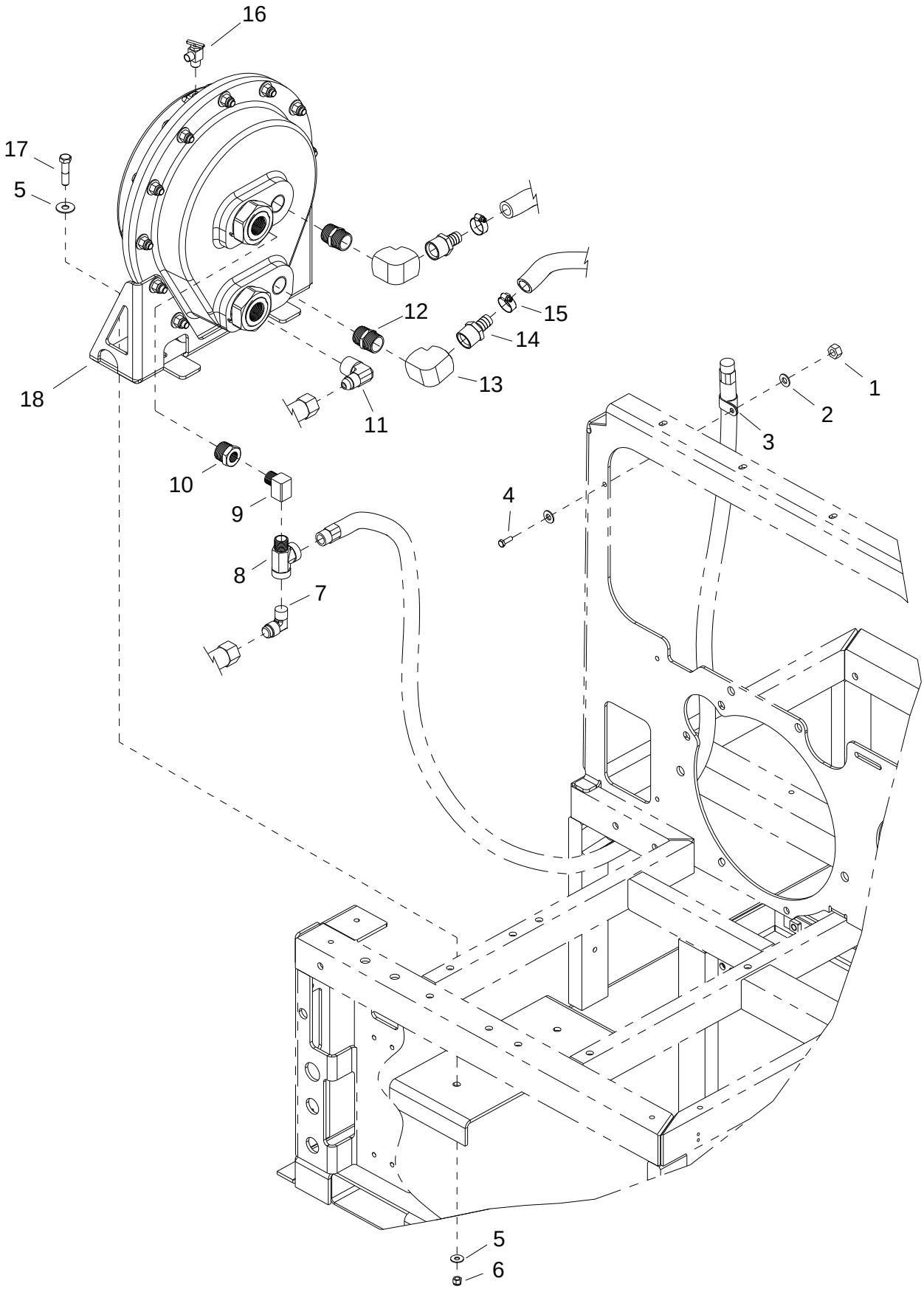
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86274660	70255	2	SCR, 3/8-16 X 1.5 HHCS GR5 PLT		
2	86279510	87171	6	WASHER, 3/8 FLAT		
3	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
4	86005730	57111	2	NUT, 3/8-16 HEX		
5	86178190	791352	1	CONV, CAT, HYUNDAI		
6	86181890	791353	2	GASKET, EXHAUST, HYUNDAI 1.6L		
7	86274660	70255	2	SCR, 3/8-16 X 1.5 HHCS GR5 PLT		
8	86194900	791416	1	TUBE, EXHAUST, HYUNDAI 1.6L		
9	86293090	-	1	SENSOR, OXYGEN HYUNDAI 1.6L		

HEAT EXCHANGER

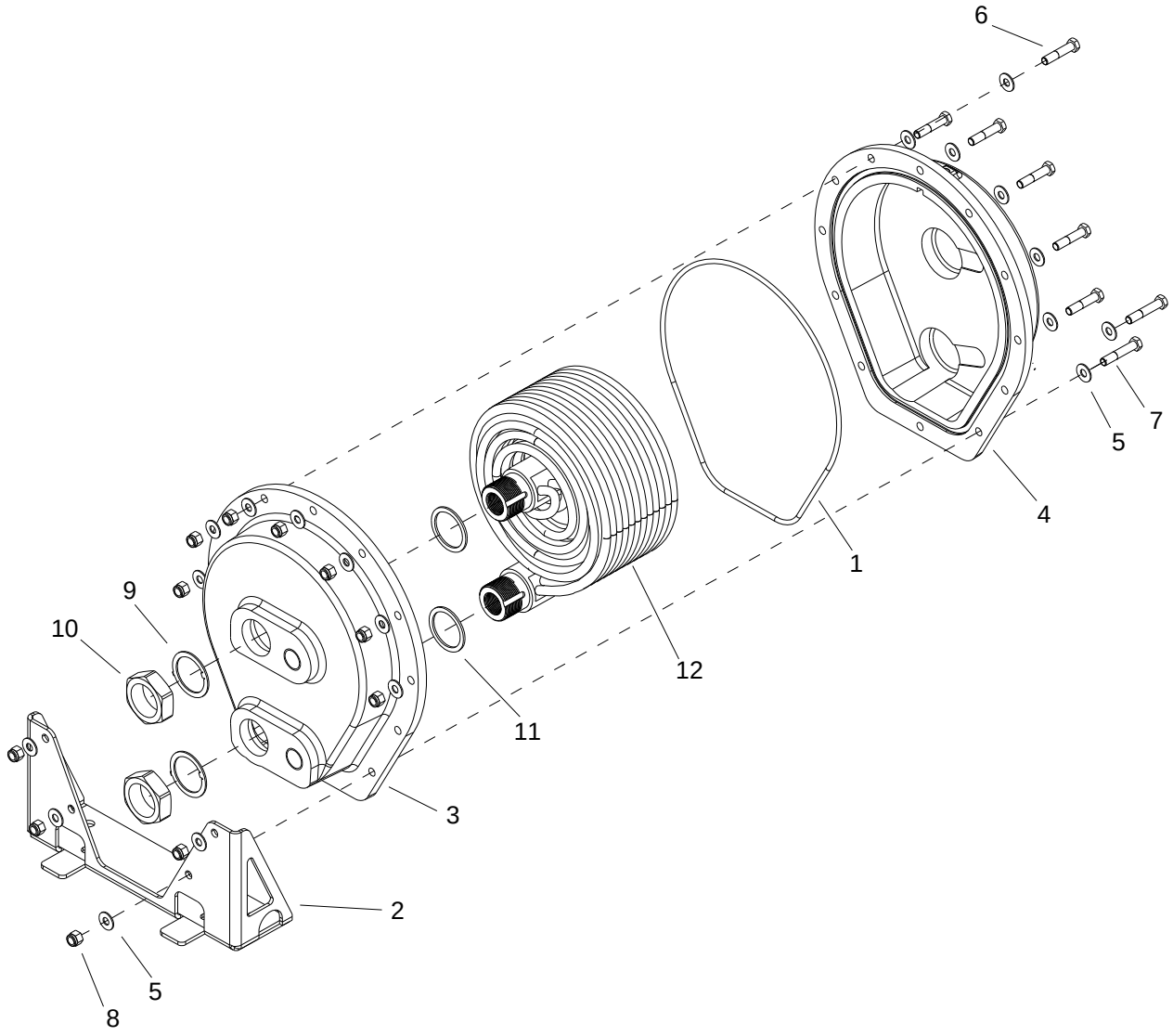


REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86279510	87171	4	WASHER, 3/8 FLAT		
2	86177320	03-000249	1	CLMP, CABL 1/4ID 3/8BLT		
3	86010790	87163	4	WASHER, 3/8 SPLIT LOCK PLTD		
4	86275150	70368	2	SCR, 3/8-16 X 1 3/4 HHCS PLT		
5	86010780	87162	24	WASHER, 1/4 SPLIT LOCK PLTD		
6	86274750	70270	24	SCR, 1/4-20 X 3/4 HHCS PLTD		
7	86050340	791324	1	OUTER COVER, HE BOX		
8	86181880	791321	1	GASKET, HE, OUTER COVER		
9	86056200	791323	1	PNL, HT EXH INNER CVR		
10	86275190	70377	2	SCR, 3/8-16 X 1.25 HHCS SS		
11	86005730	57111	2	NUT, 3/8-16 HEX		
12	86043980	791314	1	ASSY, EXHAUST DEFLECTOR		
13	86270330	02-000066	10	FLATWASHER, 1/4		
14	86278830	02-000143	2	WASHER, 5/16 FLAT PLTD		

HELICOIL



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86005680	57047	1	NUT, 1/4-20 HEX NYLOCK		
2	86270330	02-000066	2	FLATWASHER, 1/4		
3	86233390	80887	1	CLAMP, 7/8 DIA “P” CUSHIONED		
4	86274750	70270	1	SCR, 1/4-20 X 3/4 HHCS PLTD		
5	86279510	87171	4	WASHER, 3/8 FLAT		
6	86005770	57119	2	NUT, 3/8-16 HEX NYLOCK		
7	86180410	12-800225	1	ELL, 3/8P X 1/2T BR		
8	86194180	11-800362	1	TEE, SERVICE 3/8		
9	86180210	11-800275	1	ELL, ST 3/8 BR		
10	86176060	791279	1	BUSH, 3/4MPT X 3/8FPT BR		
11	86180430	12-800326	1	ELL, 3/4P X 1/2T BR		
12	86188530	791280	2	NIP, 3/4 HEX BR		
13	86180680	791281	2	ELL, 3/4 BR		
14	86181590	791282	2	FTTG, BRB 3/4MPT X 5/8H BR		
15	86177260	03-000111	2	CLMP, HOS #10 9/16MIN 1-1		
16	86177560	15-808073	1	COCK, DRN 1/4P X 1/4HOS ELL		
17	86274660	70255	2	SCR, 3/8-16 X 1.5 HHCS GR5 PLT		
18	86342100	-	1	ASSEMBLY, HELICOIL		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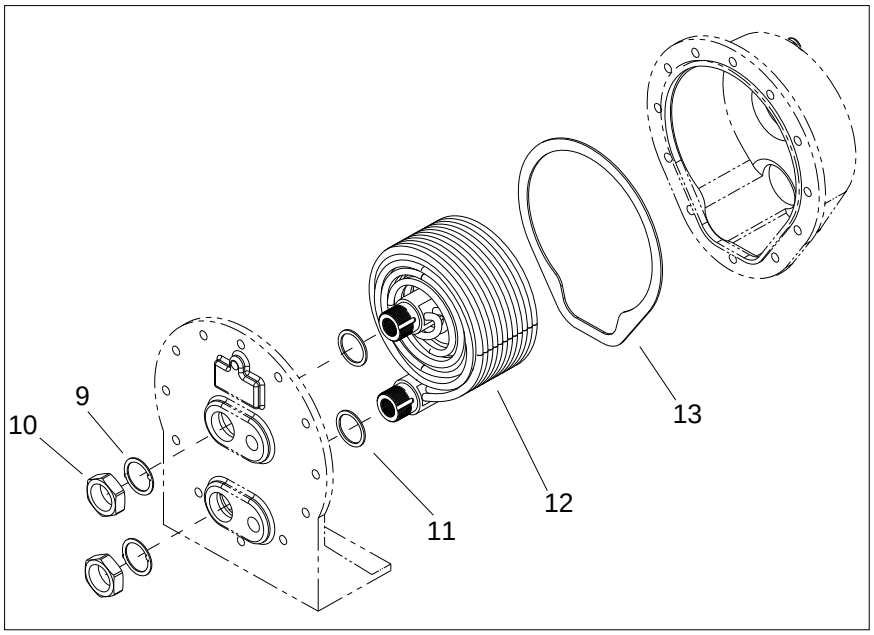
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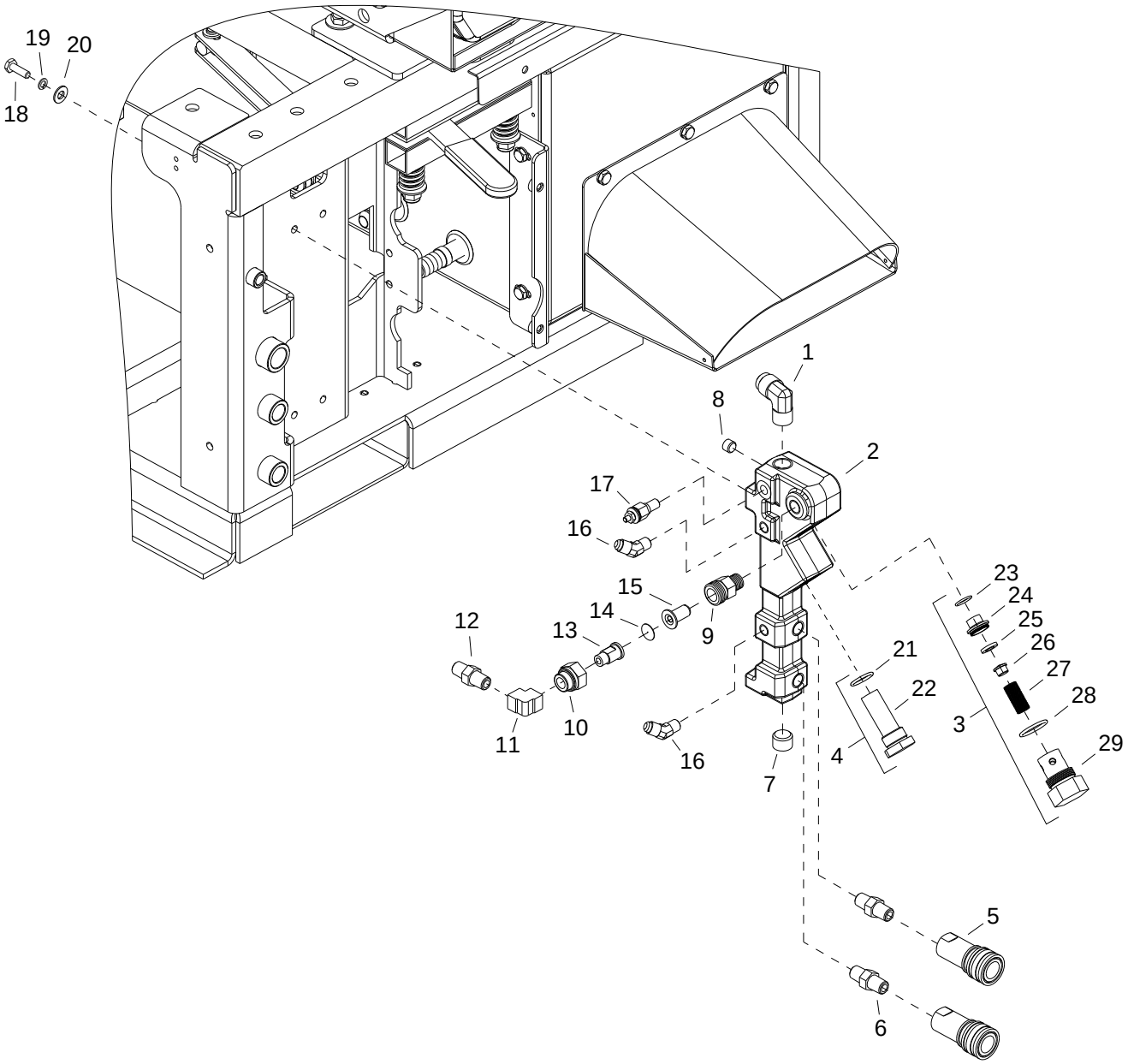
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86344980	-	1	O-RING, HELICOIL	*(3)	
2	86342090	-	1	BRKT, HELICOIL MTG	*(3)	
3	86342080	-	1	SHELL, FRONT, HELICOIL	*(3)	
4	86342070	-	1	SHELL, REAR, HELICOIL	*(3)	
5	86278910	87003	24	WASHER, 3/8 X 7/8 FLAT SS		
6	86276430	70647	8	SCR, 3/8-16 X 1.75 HHCS SS		
7	86274010	70070	4	SCR, 3/8-16 X 2.00 HHCS SS		
8	86271930	57297	12	NUT, 3/8-16 HEX NYLOCK SS		
9	86191900	56-501505	2	RNG, LOCK, MNFLD, HE		
10	86188980	52-000124	2	NUT,1-3/4-12HXHD HE		
11	86182370	43-807051	2	GSKT,MNFLD HE		
12	86047190	57-520033	1	COIL, HE		
13	86182350	43-807049	1	GSKT, HEAT EXCHANGER		

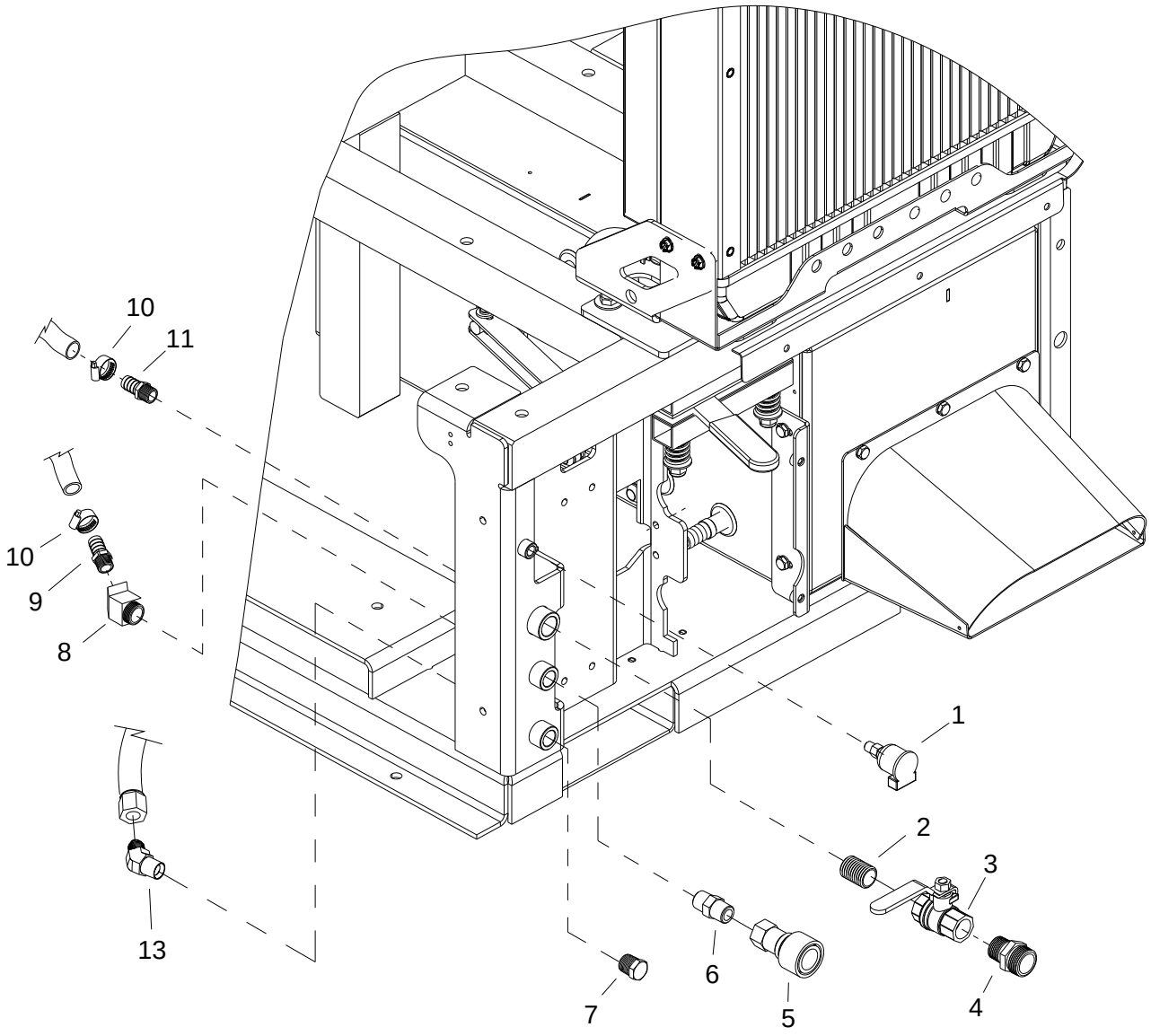
*** SEE SERIAL NUMBER PAGE**
**** CALL MANUFACTURER FOR SERIAL NUMBER**

SOLUTION OUTLET



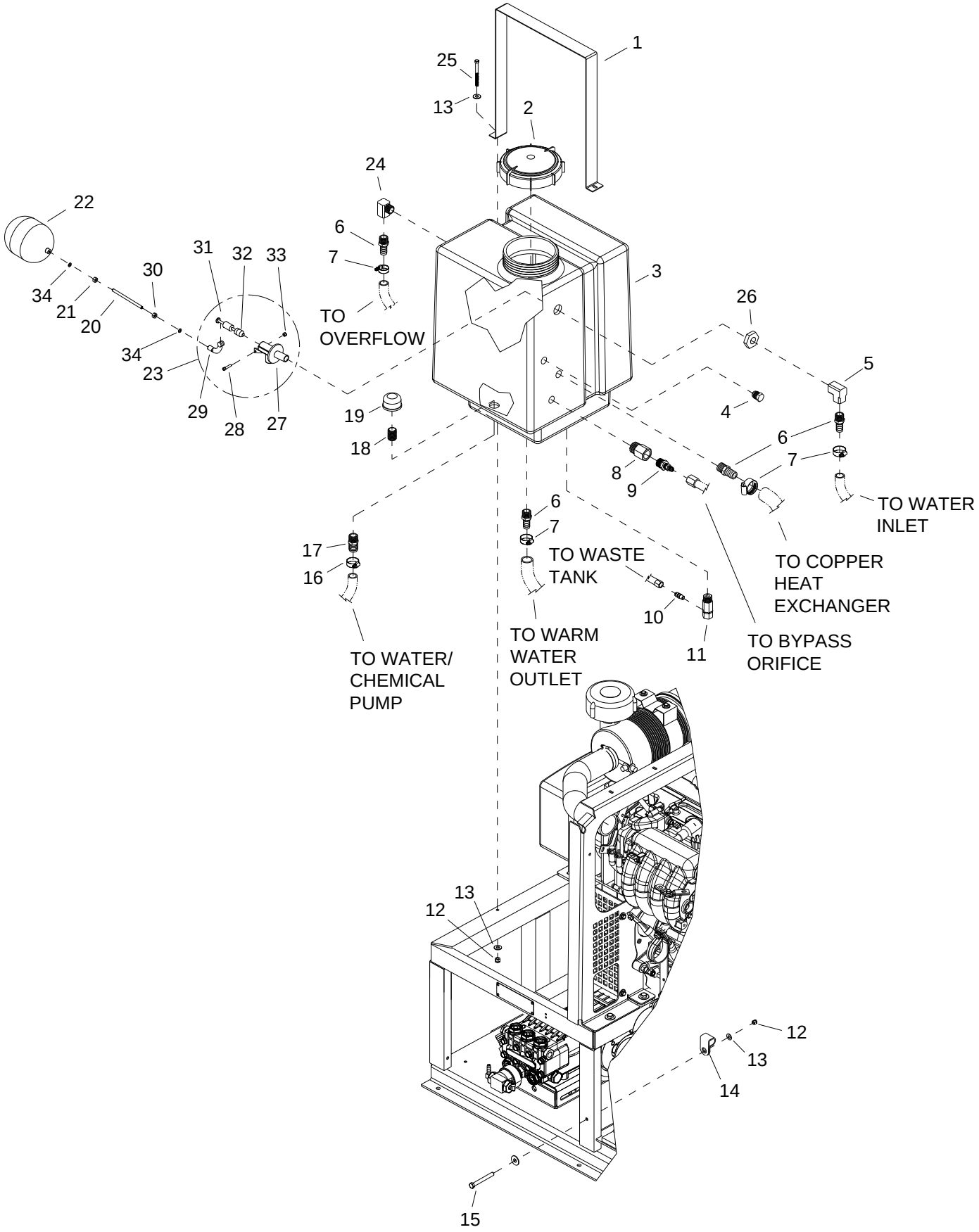
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86180410	12-800225	1	ELL, 3/8P X 1/2T BR		
2	86187260	790844	1	MANIFOLD, SOLUTION		
3	86195030	15-808094	1	VALVE, CHECK		
4	86192240	730224	1	SCRN, MESH W/O-RNG, SOL MNFLD		
5	86002450	22015	2	COUPLER, 1/4 QD		
6	86247680	56015	2	NIPPLE, 1/4 HEX		
7	86190520	11-800224	1	PLUG, 3/8 SOCHD BR		
8	86190180	11-800206	1	PLUG, 1/8 SOCHD BR		
9	86177860	17-803010	1	CONN, 1/4P X 11/16-16M		
10	86002820	27074	1	CAP, NOZZLE		
11	86180670	791267	1	ELL, 1/8 FEMALE NPT, BR		
12	86177660	12-800065	1	CONN, 1/8FPT X 1/4TUBE FLARE		
13	86173580	790839	1	ADAPTER, HOSE BYPASS		
14	86189190	790836	1	ORFICE PLATE, EVEREST BYPASS		
15	86193490	14-806512	1	STRNR, JET 50MESH		
16	86180420	12-800261	1	ELL, 1/8P X 1/4T 45 DEG		
17	86192490	34-903019	1	SENDER, TEMP 140-320 DEG		
18	86274750	70270	4	SCR, 1/4-20 X 3/4 HHCS PLTD		
19	86010770	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
20	86270330	02-000066	4	FLATWASHER, 1/4		
21	86189260	43-810053	1	O-RING		
22	86192210	14-806549	1	SCREEN, CHECK VALVE		
23	86189230	43-810008	1	O-RING		
24	86192390	16-808223	1	SEAT, CHK VLV ASSY		
25	86194250	16-808225	1	TEFLON SEAT		
26	86190910	16-808226	1	POPPET, CHK VLV ASSY		
27	86193260	16-808224	1	SPRING		
28	86189270	43-810079	1	O-RING, 7/8 ID 1-1/16 OD		
29	86176350	16-808222	1	CAP		

SIDE PANEL



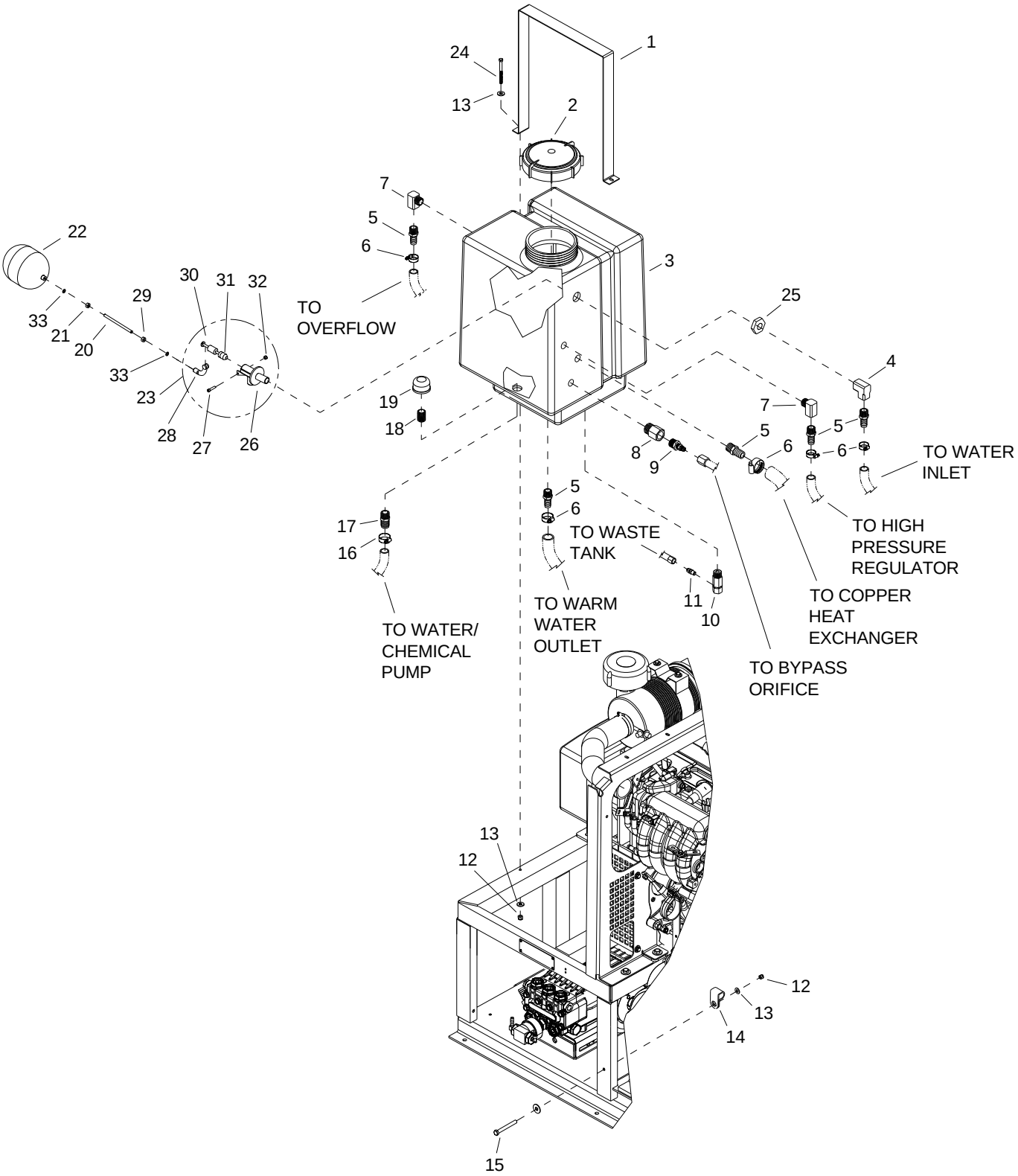
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86178700	19-800075	1	CUP, OIL FILL 1/8P		
2	86188180	11-800300	1	NIP, 1/2 X CL		
3	86195230	15-808008	1	VLV, BALL 1/2FP BS		
4	86173530	790506	1	ADAPTER, HOSE 1/2M X 3/4 MGT		
5	86179710	13-806008	1	DSC, 3/8F X 3/8FP		
6	86188080	11-800102	1	NIP, 3/8 HX BR		
7	86197720	66029	1	PLUG, 3/8 NPT		
8	86180240	11-800341	1	ELL, ST 3/8 45DEG BR		
9	86181400	12-800345	1	FTTG, BRB 3/8P X 5/8H BR		
10	86177260	03-000111	2	CLMP, HOS #10 9/16MIN		
11	86181360	12-800269	1	FTTG, BRB 1/2P X 5/8H BR		
12	86177640	12-800059	1	CONN, 1/8P X 1/4POLY BR		
13	86180690	791345	1	ELL, 3/8MPT X #6 JIC 45 DEG BR		

WATER BOX – LOW PRESSURE



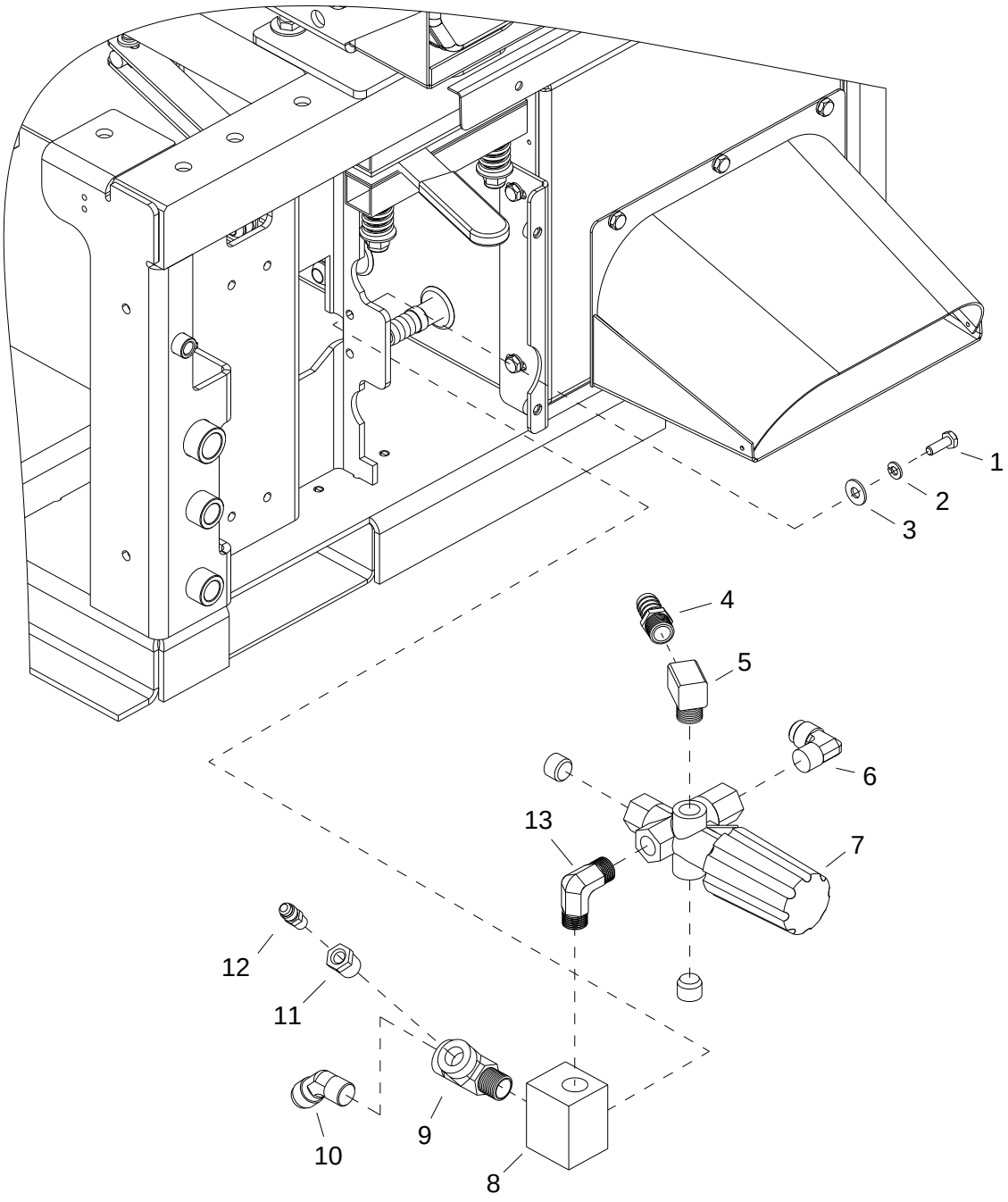
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86057180	791187	1	STRAP, WTR BOX HOLDDOWN		
2	86176400	11-800432	1	CAP, WATER BOX		
3	86187470	791186	1	MLDG, WATER BOX		
4	86190480	11-800069	1	PLUG, 1/2 SOCHD BR		
5	86180250	11-800361	1	ELL, 1/2 BR		
6	86181360	12-800269	4	FTTG, BRB 1/2P X 5/8H BR		
7	86177260	03-000111	4	CLMP, HOS #10 9/16 MIN		
8	86175860	11-800020	1	BUSH, 1/2 X 1/4 BR		
9	86177650	12-800060	1	CONN, 1/4P X 1/4T BR		
10	86177660	12-800065	1	CONN, 1/8FPT X 1/4TUBE FLARE		
11	86195340	15-808075	1	VLV, TEMP REL 145DEG		
12	86005680	57047	3	NUT, 1/4-20 HEX NYLOCK		
13	86270330	02-000066	5	FLATWASHER, 1/4		
14	86177370	03-000266	1	CLMP, FUEL LINE 5/16 X 1/4B		
15	86273190	00-000132	1	SCR, 1/4-20 X 1-1/2 HXHD		
16	86177020	03-000113	1	CLAMP, HOSE #12 SST		
17	86181370	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
18	86188180	11-800300	1	NIP, 1/2 X CL		
19	86193440	14-806540	1	STAINER, SUC END 1/2FP		
20	86056660	790411	1	ROD, FLOAT (1/4-20 X 4") SS		
21	86270770	57006	2	NUT, 1/4-20 HEX		
22	86348200	-	1	BALL, 4" DIA X 5" L, WHITE FLOAT		
23	86195060	15-808110	1	VALVE, FLOAT, TM		
24	86180170	11-800041	1	ELL, STREET 1/2 BR MACH		
25	86273330	00-000286	2	SCR, CAP 1/4-20 X 2.75 HXHD		
26	86189010	52-501706	1	NUT, FLOAT VALVE		
27	86309160	-	1	BDY, FLOAT VALVE		WAS 16-808217
28	86308950	-	1	SCR, HHSS, M5 X 20MM, SS		WAS 00-000337
29	86309140	-	1	ARM, PIVOT-FH VALVE		WAS 16-808216
30	86270770	57006	1	NUT, 1/4-20 HEX		
31	86189870	16-808219	1	PISTON, FH VALVE		
32	86192380	16-808164	1	SEAT, FLOAT VALVE TM		
33	86024750	94028	1	NUT, M5 HEX NYLOCK SS		WAS 57090
34	86010660	87025	2	WASHER 1/4 LOCK EXT STAR SS		

WATER BOX – HIGH PRESSURE



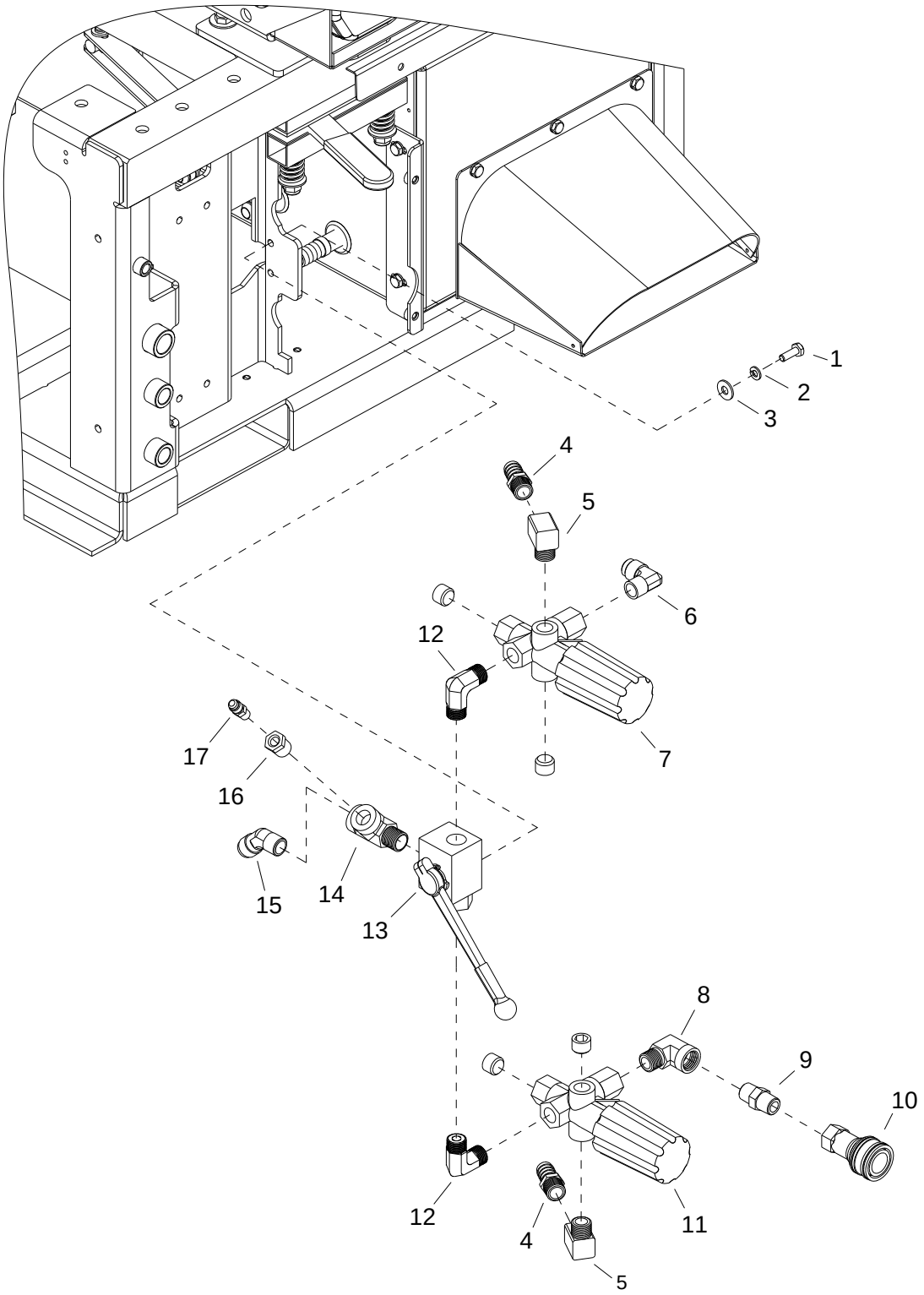
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86057180	791187	1	STRAP, WTR BOX HOLDDOWN		
2	86176400	11-800432	1	CAP, WATER BOX		
3	86187470	791186	1	MLDG, WATER BOX		
4	86180250	11-800361	1	ELL, 1/2 BR		
5	86181360	12-800269	5	FTTG, BRB 1/2P X 5/8H BR		
6	86177260	03-000111	5	CLMP, HOS #10 9/16 MIN		
7	86180170	11-800041	2	ELL, STREET 1/2 BR MACH		
8	86175860	11-800020	1	BUSH, 1/2 X 1/4 BR		
9	86177650	12-800060	1	CONN, 1/4P X 1/4T BR		
10	86195340	15-808075	1	VLV, TEMP REL 145DEG		
11	86177660	12-800065	1	CONN, 1/8FPT X 1/4TUBE FLARE		
12	86005680	57047	3	NUT, 1/4-20 HEX NYLOCK		
13	86270330	02-000066	5	FLATWASHER, 1/4		
14	86177370	03-000266	1	CLMP, FUEL LINE 5/16 X 1/4B		
15	86273190	00-000132	1	SCR, 1/4-20 X 1-1/2 HXHD		
16	86177020	03-000113	1	CLAMP, HOSE #12 SST		
17	86181370	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
18	86188180	11-800300	1	NIP, 1/2 X CL		
19	86193440	14-806540	1	STAINER, SUC END 1/2FP		
20	86056660	790411	1	ROD, FLOAT (1/4-20 X 4”) SS		
21	86270770	57006	2	NUT, 1/4-20 HEX		
22	86348200	-	1	BALL, 4” DIA X 5” L, WHITE FLOAT		
23	86195060	15-808110	1	VALVE, FLOAT, TM		
24	86273330	00-000286	2	SCR, CAP 1/4-20 X 2.75 HXHD		
25	86189010	52-501706	1	NUT, FLOAT VALVE		
26	86309160	-	1	BDY, FLOAT VALVE		WAS 16-808217
27	86308950	-	1	SCR, HHSS, M5 X 20MM, SS		WAS 00-000337
28	86309140	-	1	ARM, PIVOT-FH VALVE		WAS 16-808216
29	86270770	57006	1	NUT, 1/4-20 HEX		
30	86189870	16-808219	1	PISTON, FH VALVE		
31	86192380	16-808164	1	SEAT, FLOAT VALVE TM		
32	86024750	94028	1	NUT, M5 HEX NYLOCK SS		WAS 57090
33	86010660	87025	2	WASHER 1/4 LOCK EXT STAR SS		

PRESSURE REGULATOR – LOW PRESSURE



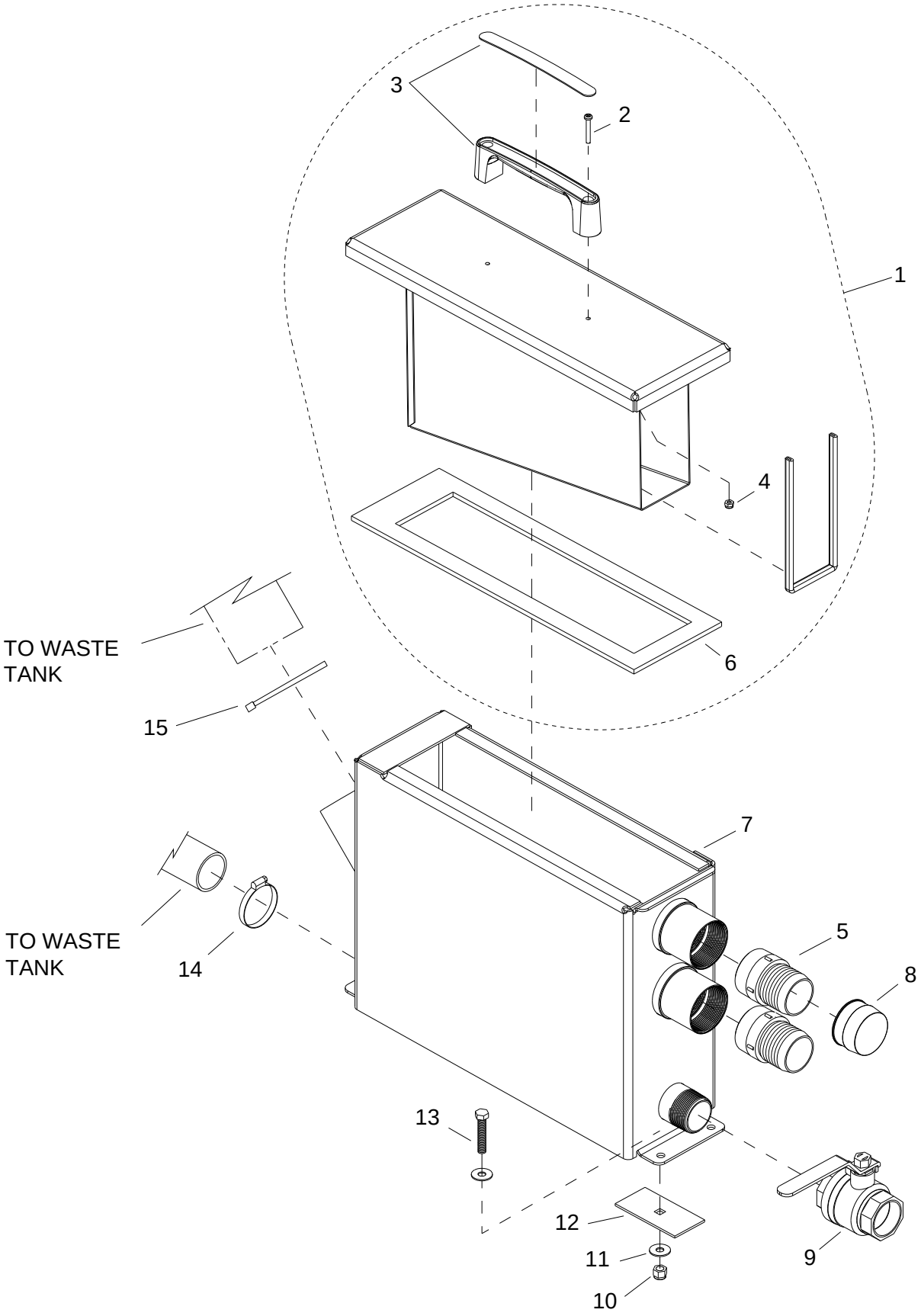
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
2	86010780	87162	2	WASHER, 1/4 SPLIT LOCK PLTD		
3	86270330	02-000066	2	FLATWASHER, 1/4		
4	86181400	12-800345	1	FTTG, BRB 3/8P X 5/8H BR		
5	86180210	11-800275	1	ELL, ST 3/8 BR		
6	86180410	12-800225	1	ELL, 3/8P X 1/2T BR		
7	86191660	790067	1	REGULATOR, LOW PRESSURE SOLUTION		
8	86175360	791413	1	MANIFOLD, LOW PRESSURE		
9	86194180	11-800362	1	TEE, SERVICE 3/8		
10	86180450	12-800347	1	ELL, 3/8P X 1/2T, 45 DEG. BR		
11	86175920	11-800118	1	BUSH, 3/8 X 1/8 BR		
12	86177660	12-800065	1	CONN, 1/8FPT X 1/4 TUBE FLARE		
13	86180660	791266	1	ELL, 3/8 MALE NPT SST		

PRESSURE REGULATORS – HIGH PRESSURE



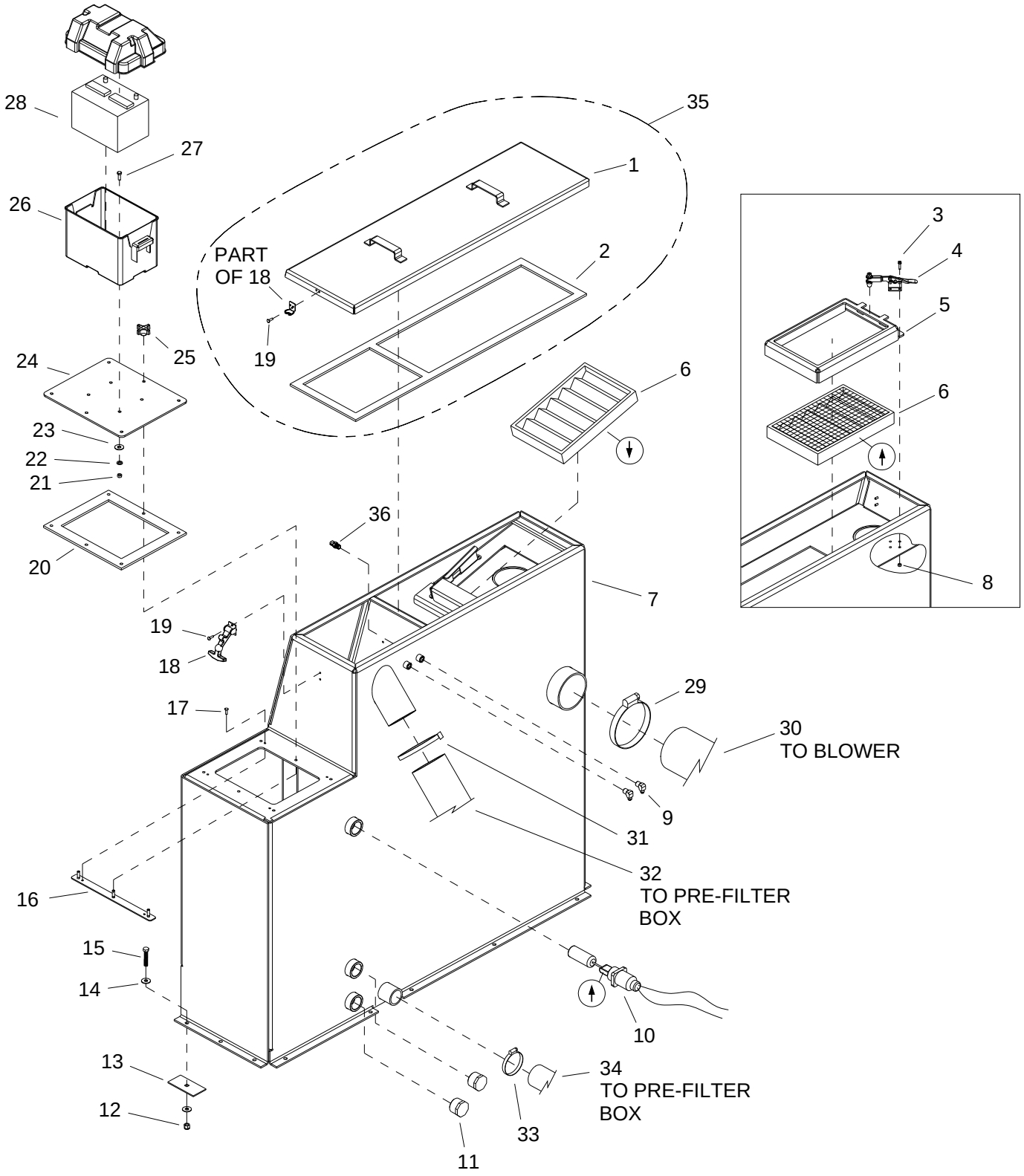
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
2	86010780	87162	2	WASHER, 1/4 SPLIT LOCK PLTD		
3	86270330	02-000066	2	FLATWASHER, 1/4		
4	86181400	12-800345	2	FTTG, BRB 3/8P X 5/8H BR		
5	86180210	11-800275	2	ELL, ST 3/8 BR		
6	86180410	12-800225	1	ELL, 3/8P X 1/2T BR		
7	86191660	790067	1	REGULATOR, LOW PRESSURE SOLUTION		
8	86180190	11-800240	1	ELL, ST 3/8 SST		
9	86188390	11-800429	1	NIP, HEX 3/8 SST		
10	86179800	13-806040	1	DSC, 3/8F X 3/8FP SST		
11	86191650	15-808147	1	REGULATOR, HIGH PRESSURE SOLUTION		
12	86180660	791266	2	ELL, 3/8 MALE NPT SST		
13	86195540	84192	1	VLV, BALL, 3-WAY, HI-TEMP/PRES		
14	86194180	11-800362	1	TEE, SERVICE 3/8		
15	86180450	12-800347	1	ELL, 3/8P X 1/2T, 45 DEG. BR		
16	86175920	11-800118	1	BUSH, 3/8 X 1/8 BR		
17	86177660	12-800065	1	CONN, 1/8FPT X 1/4TUBE FLARE		

FILTER BOX



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86294290	-	1	KIT, PREFILTER BOX		COMPLETE
1	86318250	-	1	ASM, PRE-FLTR BOX LID, COMPLETE		
2	86274280	70161	2	SCR, 10-32 X 1-3/8 PPHMS		
3	86182870	791357	1	HANDLE, PREFILTER BOX		
4	86270990	57090	2	NUT, 10-32 HEX NYLOCK SS		
5	86331170	-	2	FITTING, 2" NPT X 2" HB		
6	86288620	791364	1	GSKT, PREFILTER BOX		
7	86331160	791359	1	BOX, PREFILTER		
8	86180700	32064	1	END CAP, VAC INLET, 1-1/2”		
9	86195180	84196	1	VALVE, BALL 1.5 FNPT		
10	86005770	57119	3	NUT, 3/8-16 HEX NYLOCK		
11	86279510	87171	6	WASHER, 3/8 FLAT		
12	86249550	62986	3	PLATE, TRUCKMOUNT SHIPPING		
13	86277830	00-000072	3	SCR, 3/8-16 X 2” HXHD		
14	86177220	03-000054	1	CLMP, HOSE #32 1.5625/2.5, SST		
15	86177070	03-000250	1	CLMP, HOSE #60 3.3125/4.5, SST		
-	86264850	05-008002	1	ADH, GSKT (ADHESIVE)		NOT SHOWN

WASTE TANK


28
27
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1
PART
OF 18
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TO BLOWER
9
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32
TO PRE-FILTER
BOX
16
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13
12
10
34
TO PRE-FILTER
BOX
33
11
3
4
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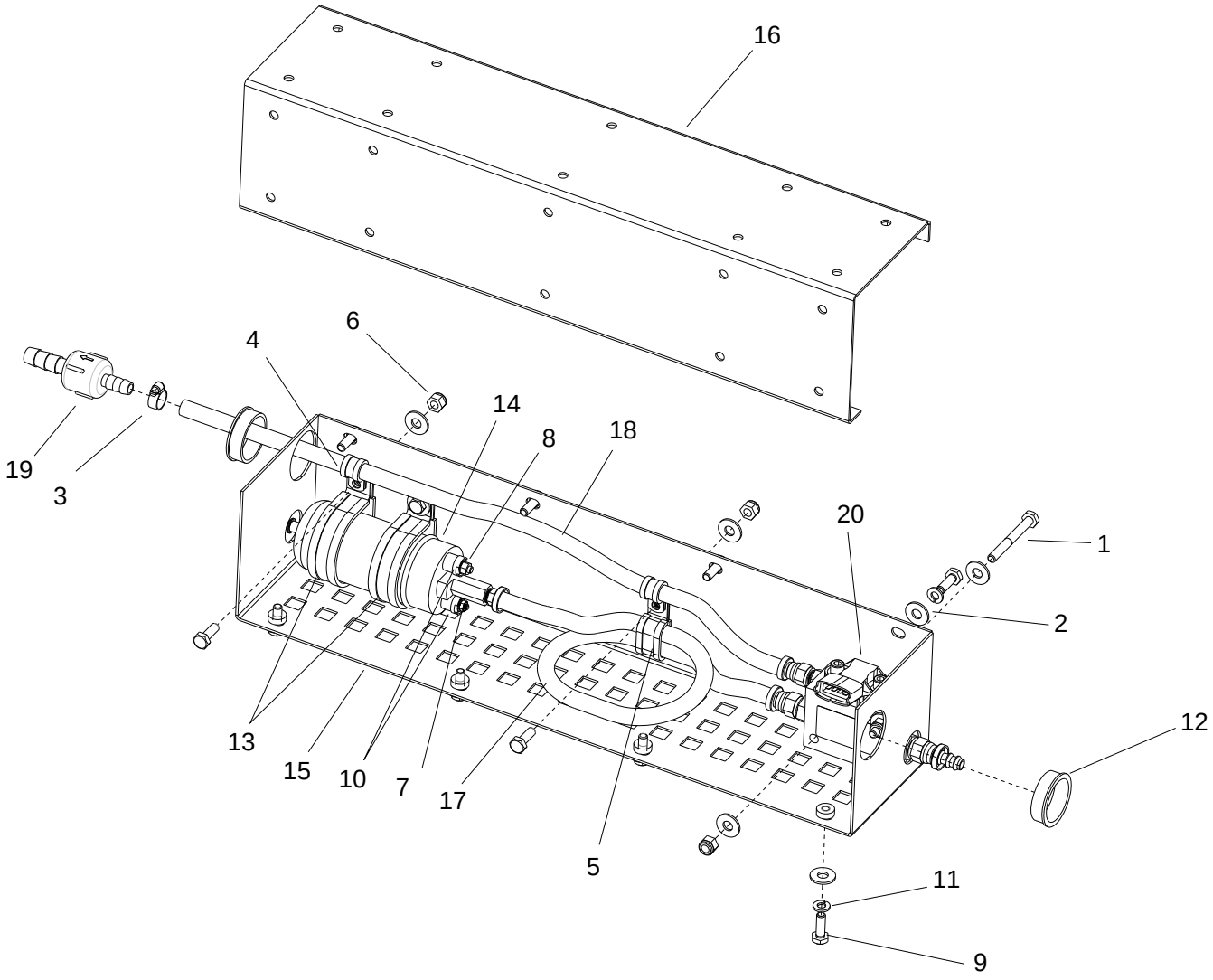
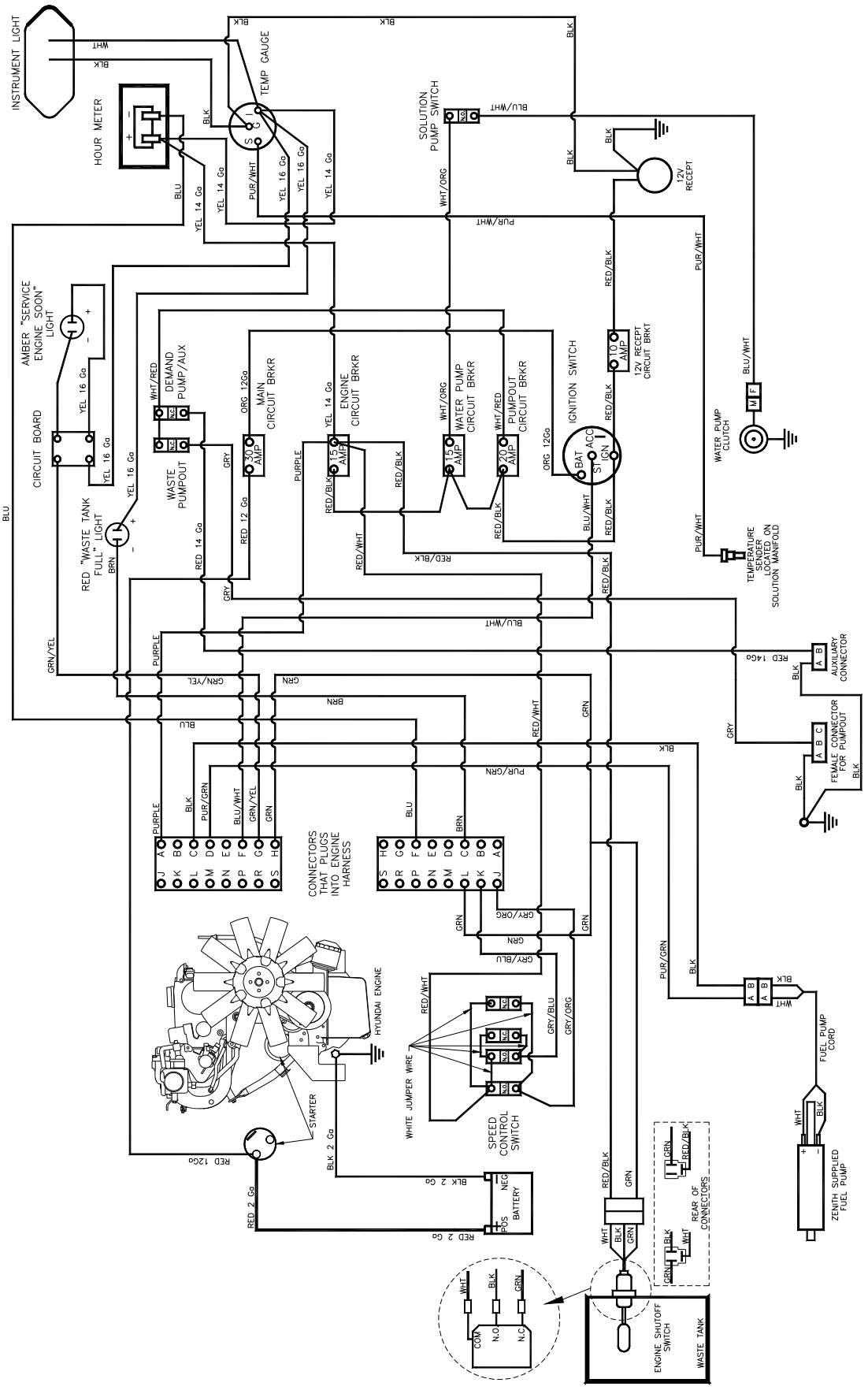
6
8

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86288660	791384	1	LID, WASTE TANK		
2	86182780	791386	1	GSKT, WST TNK		
3	86275080	70353	4	SCR, 10-32 X 3/4 SHCS SS		
4	86177180	791403	1	CLAMP, FILTER MOUNTING		
5	86048390	791388	1	HOLDDOWN, WST TNK FILTER		
6	86193540	14-806569	1	STRNT, WST TNK, RECT, 1/5”		
7	86057340	791373	1	TANK, WASTE, 100 GAL		
8	86270990	57090	4	NUT, 10-32 HEX NYLOCK SS		
9	86180340	12-800031	2	ELL, 1/4P X 1/4T BR		
10	86193870	791066	1	SWITCH, FLOAT, N.C., HARWIL		
11	86190530	11-800402	2	PLUG, 1-1/4 HXHD PVC		
12	86005770	57119	4	NUT, 3/8-16 HEX NYLOCK		
13	86249550	62986	4	PLATE, TRUCKMOUNT SHIPPING		
14	86279510	87171	8	WASHER, 3/8 FLAT		
15	86277830	00-000072	4	SCR, 3/8-16 X 2” HXHD		
16	86011870	-	2	PLT, WST TNK/BATT BOX MTG		
17	86273020	67006	4	RIVET, 3/16 OD X 5/8 AL		
18	86186860	46-802510	2	LATCH, DRAW 2-7/8 SST		
19	86273020	67006	8	RIVET, 3/16 OD X 5/8 AL		
20	86011460	-	1	GSKT, WST TNK ACCESS		
21	86270770	57006	4	NUT, 1/4-20 HEX		
22	86010780	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
23	86270330	02-000066	4	FLATWASHER		
24	86011450	-	1	PNL, WST TNK ACCESS		
25	86242170	82811	6	KNOB, 1/4-20 4 PRONG		
26	86012060	-	1	BOX, BATTERY, MODIFIED		
27	86011470	-	4	BOLT, ELEVATOR, 1/4-20 X 1		
28	86174580	36-900056	1	BATTERY		
29	86177280	03-000137	1	CLMP, HOS#72 4-1/16MIN 5		
30	86049070	791405	1	HOSE, INT VAC 4.5 X 8.0 BLK		
31	86177070	03-000250	1	CLMP, HOSE #60 3.3125/4.5, SST		
32	86049080	791408	1	HOSE, INT VAC 3.5 X 40.0 BLK		
33	86177220	03-000054	1	CLMP, HOS#32 1.5625/2.5, SST		
34	86049060	791404	1	HOSE, INT VAC 2.0 X 40.0 BLK		
35	86350780	-	1	ASSY, WASTE TANK LID, EV100G		
36	86202180	160-41	1	VV-JET 1/4 8006		
-	86264850	05-008002	1	ADH, GSKT (ADHESIVE)		NOT SHOWN

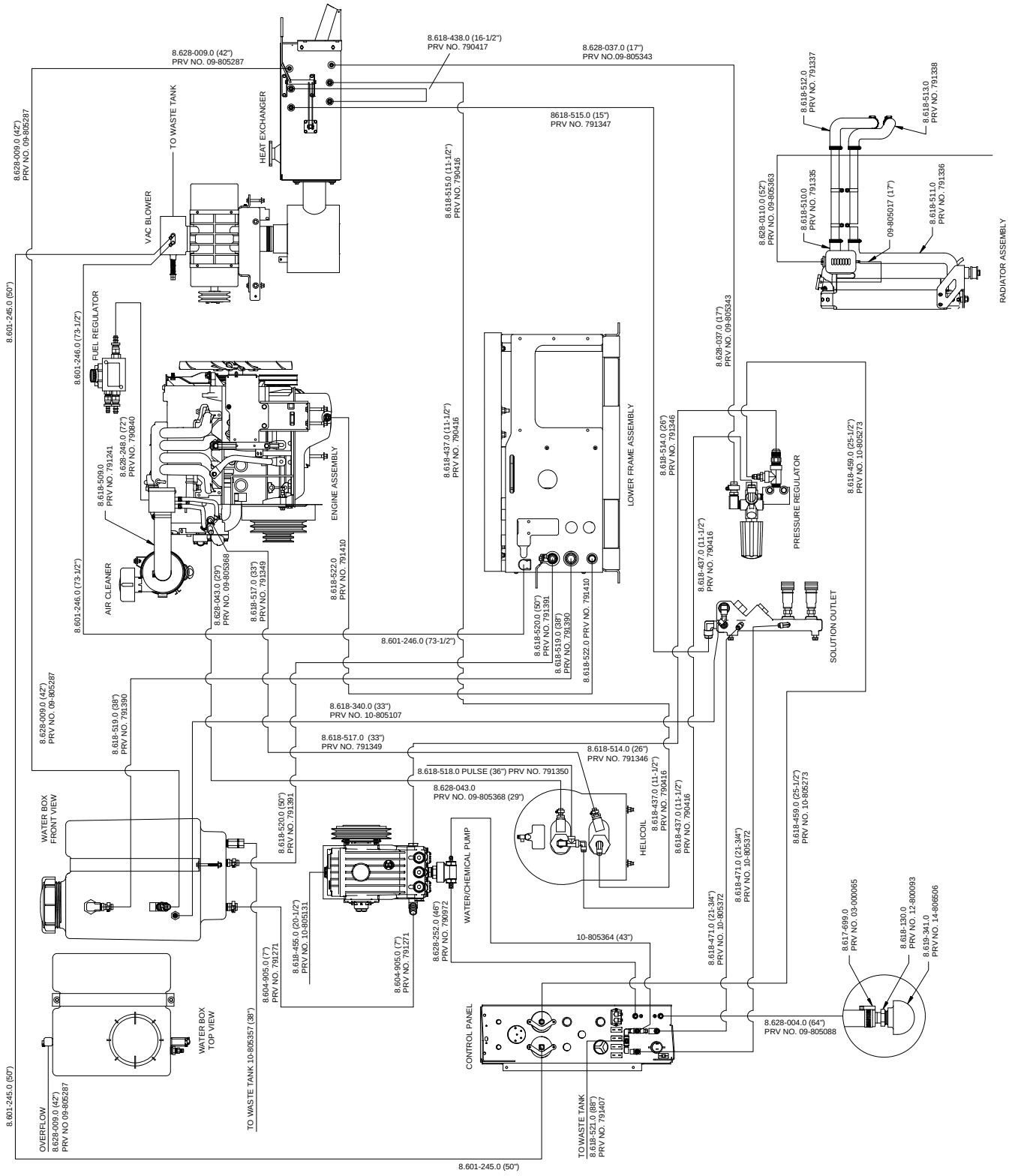
FUEL PUMP



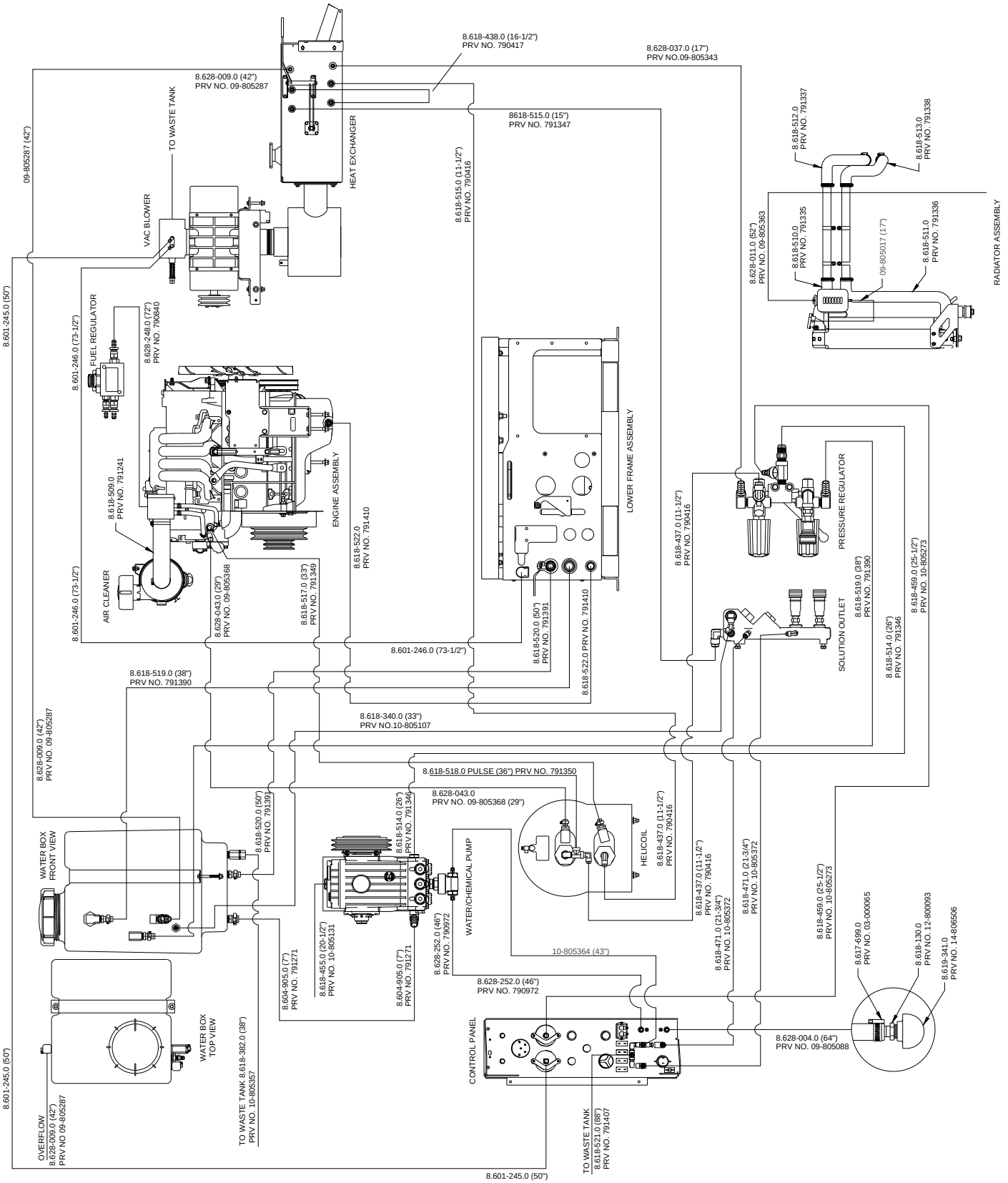
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86273100	00-000004	2	SCR, ¼-20X2-1/4 HXHD CAP		
2	86270330	02-000066	25	FLATWASHER, 1/4		
3	86176990	03-000065	1	CLAMP, HOSE #4 SST		
4	86177090	03-000261	2	CLAMP, CABLE 1/2 I.D. 1/4 BLT		
5	86177370	03-000266	1	CLMP, FUEL LINE 5/16X1/4B		
6	86005680	57047	9	NUT, 1/4-20 HEX NYLOCK		
7	86288500	57062	1	NUT, M4 HEX		
8	86136310	57086	1	NUT, M5 HEX		
9	86274750	70270	11	SCR, 1/4-20 X 3/4 HHCS PLTD		
10	86010640	87016	2	WASHER, #10 LOCK EXT STAR SS		
11	86010780	87162	8	WASHER, 1/4 SPLIT LOCK PLTD		
12	86231210	140317	2	BUSHING, 1.5 HOLE SNAP		
13	86177420	791278	4	CLMP, 2-1/8 ID X 3/8 BLT		
14	86191470	791355	1	PUMP, FUEL, HYUNDAI 1.6L		
15	86012070	-	1	HOUSING, FUEL SYSTEM		
16	86012080	-	1	COVER, FUEL SYSTEM HOUSING		
17	86012240	-	1	HOSE, FUEL, 5/16 X 20” SAE30R9		
18	86012250	-	1	HOSE, FUEL, 1/4 X 20” SAE30R9		
19	86339630	-	1	VALVE, CHECK, 1/4H X 5/16H FUEL		
20	86293080	-	1	REGULATOR, FUEL PRESS, HYUNDAI		
-	86176940	790810	1	CD, FUEL PUMP, ZEEMS		
-	86012380	-	1	CD, FUEL PRESS REG, HYUNDAI		
-	86012230	-	2	FTTG, 1/8P X 5/16 PUSH ON HB		
-	86175380	791393	4	BLT, 1/4-20 X 1 SHWH TYPE F TC		FORD ONLY
-	86175850	11-800091	1	BULKHEAD		
-	86175980	43-807500	1	BUSH,OPEN/CLSD 5/8HOL		
-	86177080	03-000254	9	CLAMP, HOS #6 5/16MIN 7/8MAX		
-	86182460	43-807095	1	GSKT, BLKHD-FUEL LINE HKU		
-	86295910	-	1	FILTER, FUEL HYUNDAI 1.6L		
-	86274620	70249	4	SCR, 1/4-20 X 1.25 HHCS PLTD		GM ONLY
-	86177310	03-000248	2	CLMP, HOSE #16 1-1/2 MIN 1-3/4		
-	86282480	790840	1	HOSE, FUEL INJ 5/16 X 72” J30R9		
-	86012360	-	1	FUEL KIT, EVEREST 408/650		COMPLETE


INSTRUMENT LIGHT
HOUR METER
TEMP GAUGE
SOLUTION PUMP SWITCH
12V RECEPT
AMBER "SERVICE ENGINE SOON" LIGHT
CIRCUIT BOARD
DEMAND PUMP/AUX
WASTE PUMPOUT
MAIN CIRCUIT BRKR
ENGINE CIRCUIT BRKR
WATER PUMP CIRCUIT BRKR
PUMPOUT CIRCUIT BRKR
IGNITION SWITCH
12V RECEPT CIRCUIT BRKT
WATER PUMP CLUTCH
RED "WASTE TANK FULL" LIGHT
TEMPERATURE SENDER LOCATED ON SOLUTION MANIFOLD
AUXILIARY CONNECTOR
FEMALE CONNECTOR FOR PUMPOUT
CONNECTORS THAT PLUGS INTO ENGINE HARNESS
HYUNDAI ENGINE
STARTER
WHITE JUMPER WIRE
SPEED CONTROL SWITCH
FUEL PUMP CORD
ZENITH SUPPLIED FUEL PUMP
REAR OF CONNECTORS
ENGINE SHUTOFF SWITCH
WASTE TANK
BATTERY

HOSE DIAGRAM - LP

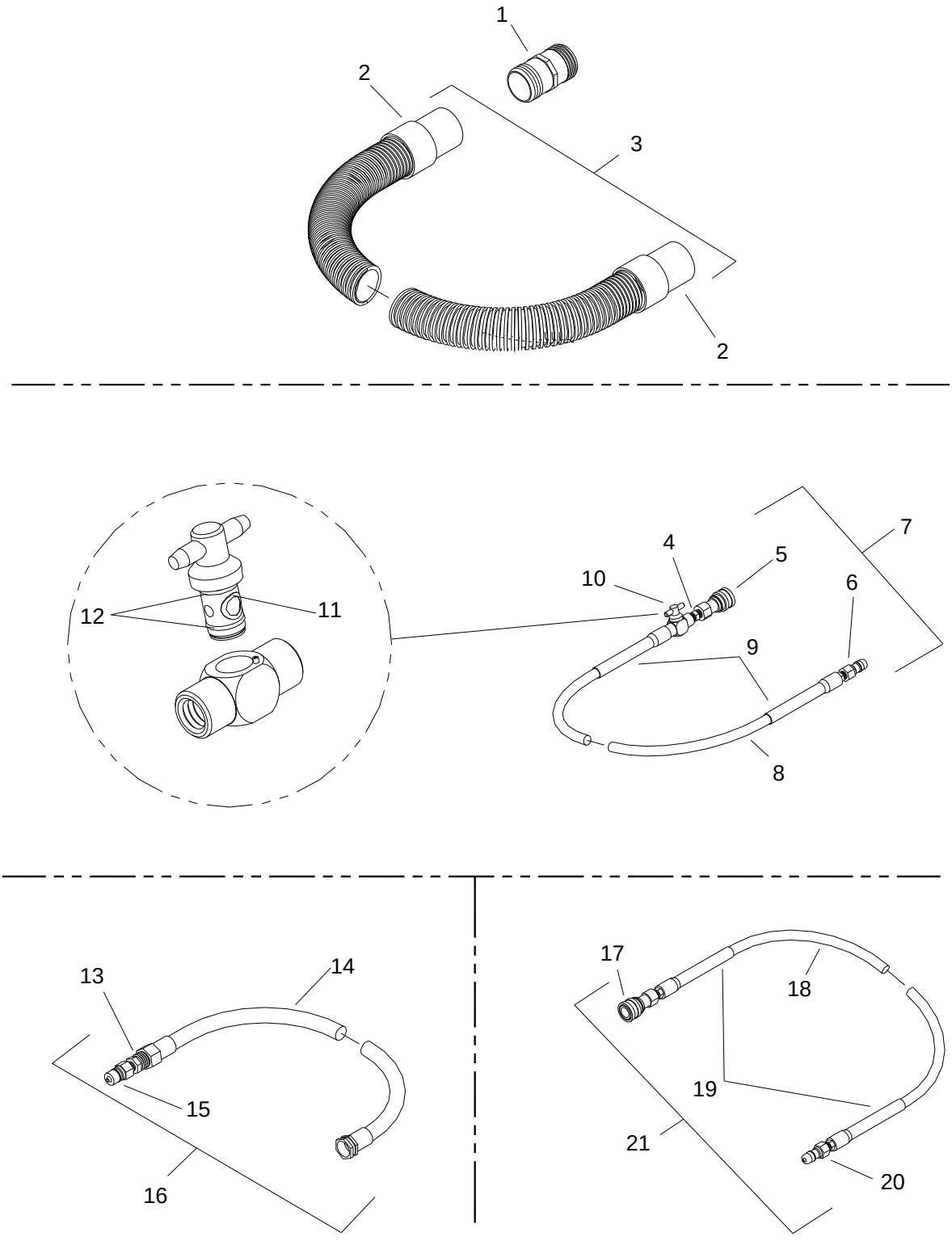


HOSE DIAGRAM - HP



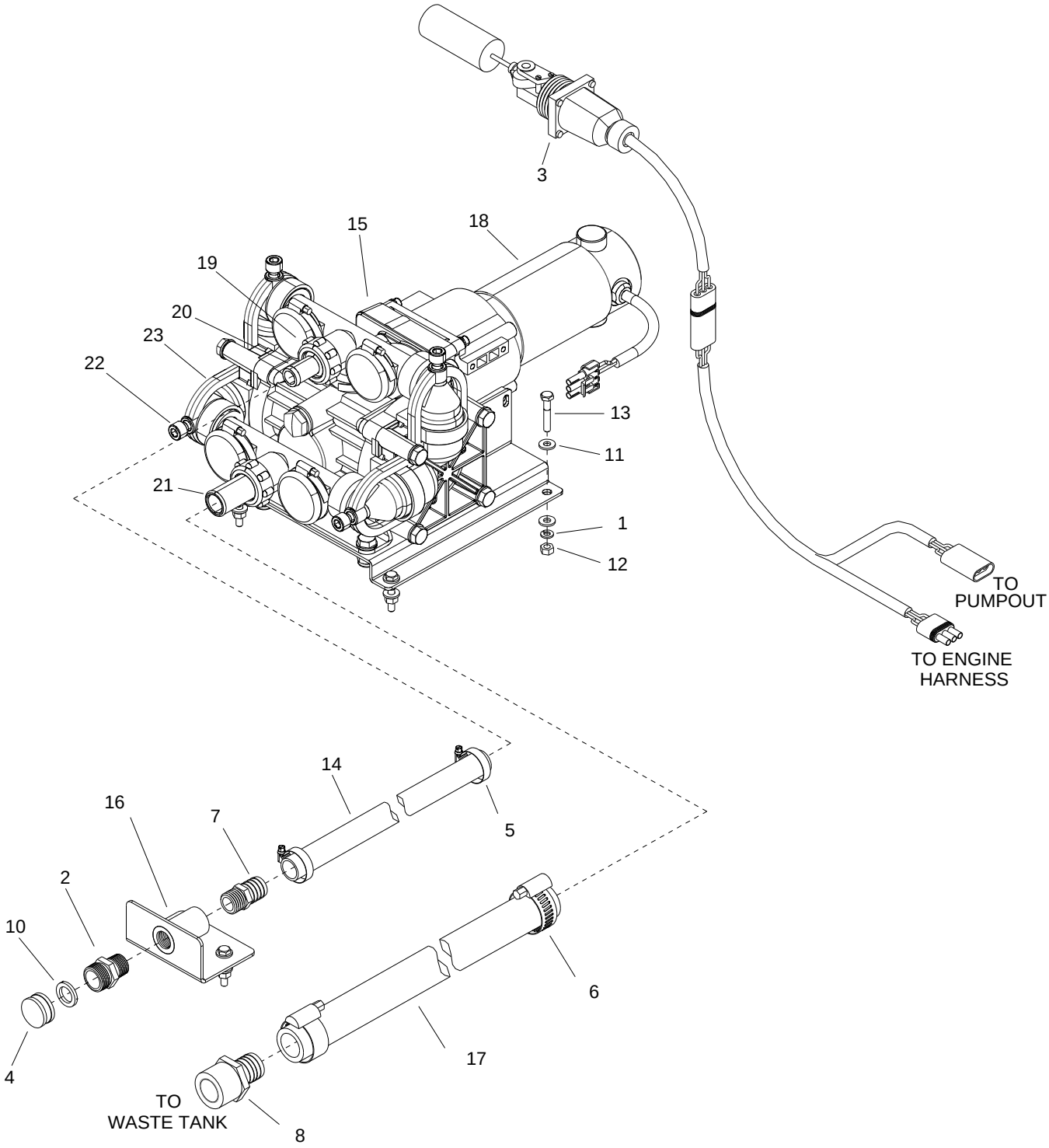
REF	PART NO.	PRV NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86260700	10-805380	HOSE ASM, LOOP-WNTRZ KIT		OPTION
2	86055040	790552	PNL, DRIP PAN		OPTION
3	86290170	-	KIT, EXHAUST DIVERTOR		OPTION
4	86189090	05-008039	OIL, AEON PD (28G24 SUTORBILT)		
5	86189110	791106	OIL, GEN PUMP, SERIES 100		
6	86265430	05-008035	LUBE, SUPER (TEFLON)		
7	86285260	78513	TL, UPHOLST, TM PC (80015)		OPTION
8	86189130	791402	OIL, ENGINE 15W-40		
9	86175240	791370	BELTS, VACUUM BLOWER (2 EA)		
10	86174950	44-802217	BELTS, WATER PUMP (2 EA)		
11	86179550	42-809047	CHEMICAL PUMP DIAPHRAM		
12	86195110	65247	CHEMICAL PUMP CHECK VALVES		
13	86014870	-	CHEMICAL PUMP “O” RINGS		
14	86295910	-	FILTER, FUEL HYUNDAI 1.6L		
15	86303650	-	FILTER ASM-OIL, HYUNDAI 1.6L		

HOSE ACCESSORIES



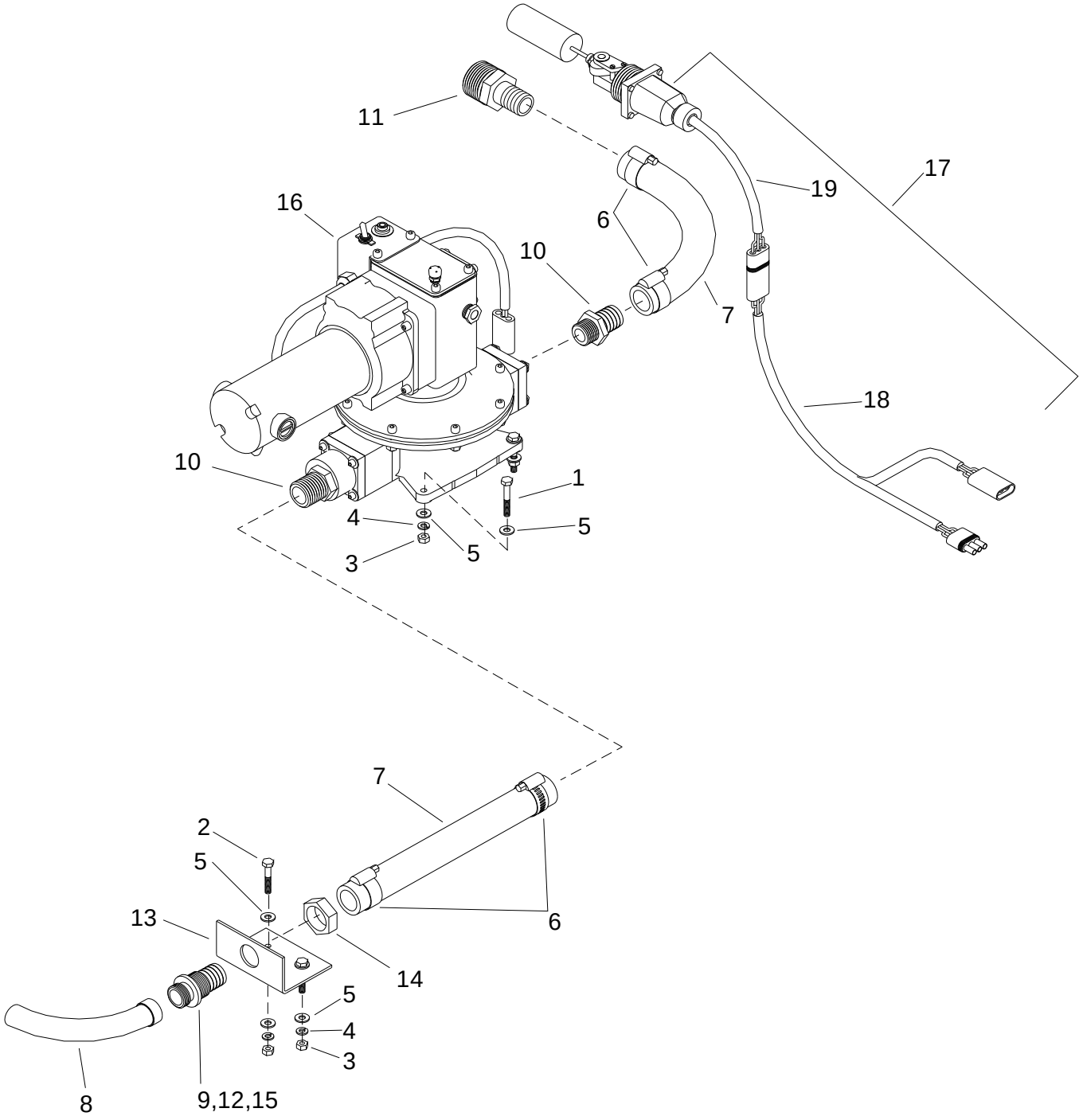
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86180980	12-800078	1	FITTING, BRB 2H BS PVC		
2	86178640	08-805147	2	CUFF, 2”		
3	86184510	10-805060	1	HOSE, VAC 2”X50’ W/ CUFFS & HOSE		
4	86247680	56015	1	NIPPLE, 1/4 HEX		
5	86002450	22015	1	COUPLER, 1/4 QD		
6	86005580	56012	1	NIPPLE, 1/4 FPT QD		
7	86184530	10-805108	1	HOSE, HP 1/4 X 50FT W/QD & VLVE		
8	86184520	10-805077	1	HOSE, HP 1/4 X 50’		
9	86182800	08-805155	2	GUARD, HOSE VINYL		
10	86194990	15-808012	1	VALVE, BALL 1/4FP		
11	86189240	43-810014	2	O-RING, 7/32ID X 11/32OD		
12	86189250	43-810019	2	O-RING, 3/8 ID X 1/2 OD		
13	86188210	11-800354	1	NIP, 1/2 X 3/8 HEX BR		
14	86184570	10-805157	1	HOSE, WATER 1/2 X 50’		
15	86179630	13-806009	1	DISCONNECT 3/8M X 3/8FP		
16	86184620	10-805295	1	HOSE, WATER 1/2 X 50’		
17	86002450	22015	1	COUPLER, 1/4 QD		
18	86184520	10-805077	1	HOSE, HP 1/4 X 50’		
19	86182800	08-805155	2	GUARD, HOSE VINYL		
20	86005580	56012	1	NIPPLE, 1/4 FPT QD		
21	86184540	10-805122	1	HOSE, HP 1/4 X 50FT W/QD		

AUTOMATIC PUMPOUT – DUAL DIAPHRAGM - OPTIONAL



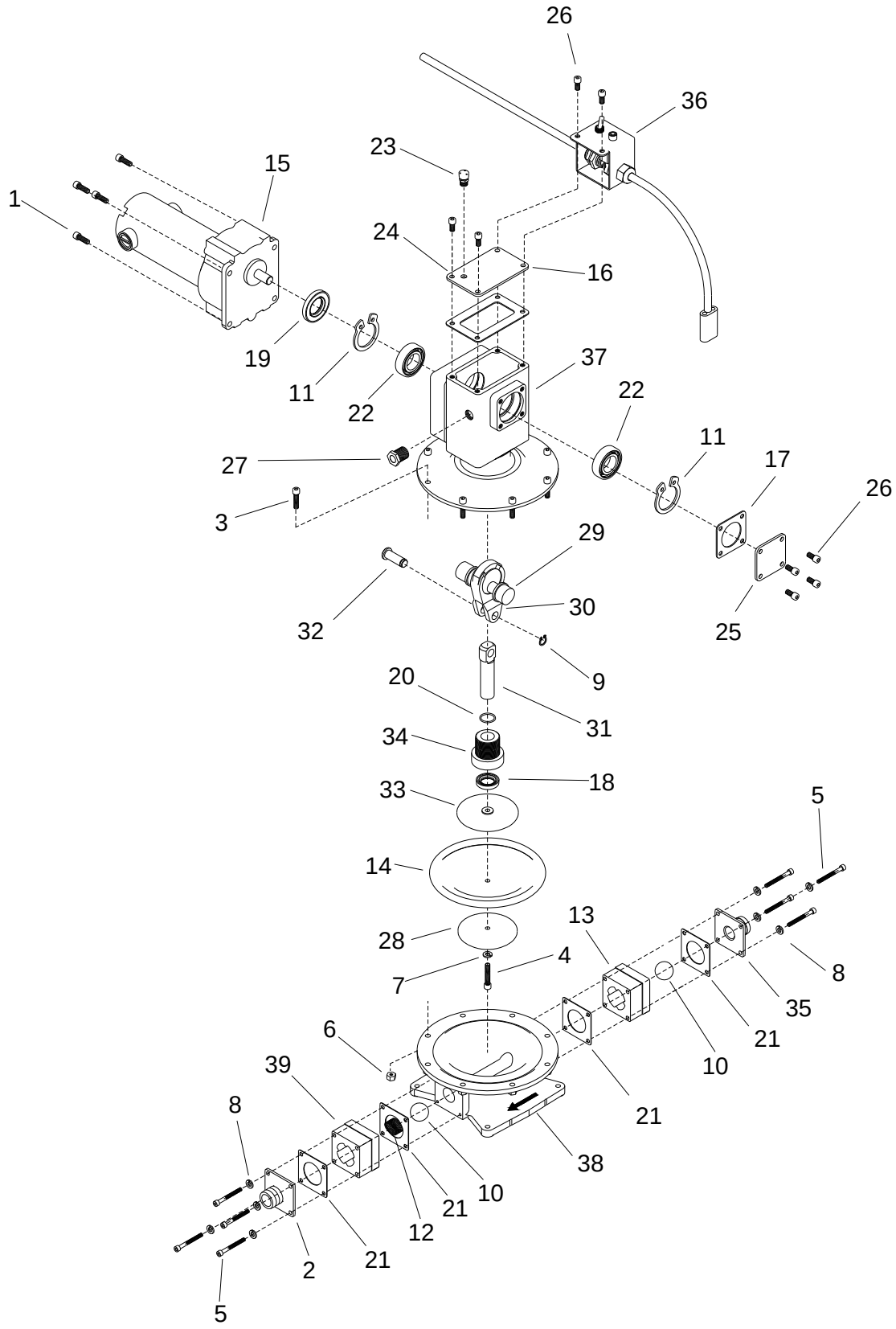
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86335970	-	1	ASSY, PUMPOUT, DUAL DIAPHRAGM		COMPLETE ASSEMBLY
1	86010780	87162	1	WASHER, 1/4 SPLIT LOCK, PLTD		
2	86173530	790506	1	ADAPTER, HOSE 1/2M X 3/4 MGT		
3	86174260	61-951319	1	ASSY, LVL SW WASTE PUMPOUT		
4	86176420	12-800052	1	CAP, HOS 3/4 BR		
5	86177020	03-000113	2	CLAMP, HOSE #12 SST		
6	86177050	03-000176	2	CLAMP, HOSE #20		
7	86181370	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
8	86181440	12-800444	1	FTTG, 1-1/4P X 1"H BR		
9	86184780	10-805484	1	HOSE, GARDEN 3/4 X 75'		
10	86195820	43-807008	1	WSR, HOS 5/8 ID 1"OD		
11	86270330	02-000066	12	FLATWASHER, 1/4		
12	86270770	57006	6	NUT, 1/4-20 HEX		
13	86273190	00-000132	6	SCR, 1/4-20 X 1-1/2 HXHD		
14	86280590	09-805456	1	HOSE, 3/4ID WTR X 96"		
15	86333880	-	1	PUMPOUT, WASTE, DUAL DIAPHRAGM		
16	86335950	-	1	BRKT, HOSE CONNECTING		
17	86335960	-	1	HOSE, 1" ID X 18" BLACK EXHAUST		
18	86336370	-	1	MOTOR, BISON PUMP 12V		
19	86336350	-	1	NUT, 3/4" DIA OUTLET, DUAL PUMPOUT		
20	86336360	-	1	FTTG, BARB, 3/4"DIA, DUAL PUMPOUT		
21	86336380	-	1	FTTG, BARB, OUTLET, DUAL PUMPOUT		
22	86336410	-	4	SCR, CLAMP SHCS, DUAL PUMPOUT		
23	86336420	-	4	CLAMP, DUAL PUMPOUT		
-	86336300	-	2	DIAPHRAGM, PUMP OUT, DUAL		NOT SHOWN
-	86336310	-	2	BOLT, DIAPH RETAINING		NOT SHOWN
-	86336320	-	2	WASHER, DIAPH RETAINING		NOT SHOWN
-	86336340	-	4	VALVE, DUAL PUMPOUT, CHECK		NOT SHOWN
-	86336390	-	4	O-RING, DUAL PUMPOUT, MANIFOLD		NOT SHOWN
-	86336400	-	4	O-RING, BARB FTTG, DUAL PUMPOUT		NOT SHOWN
-	86336430	-	4	O-RING, DUAL PUMPOUT, ELBOW		NOT SHOWN
-	86336440	-	1	KIT, DUAL PUMPOUT, REBUILD		NOT SHOWN

AUTOMATIC PUMPOUT - OPTIONAL



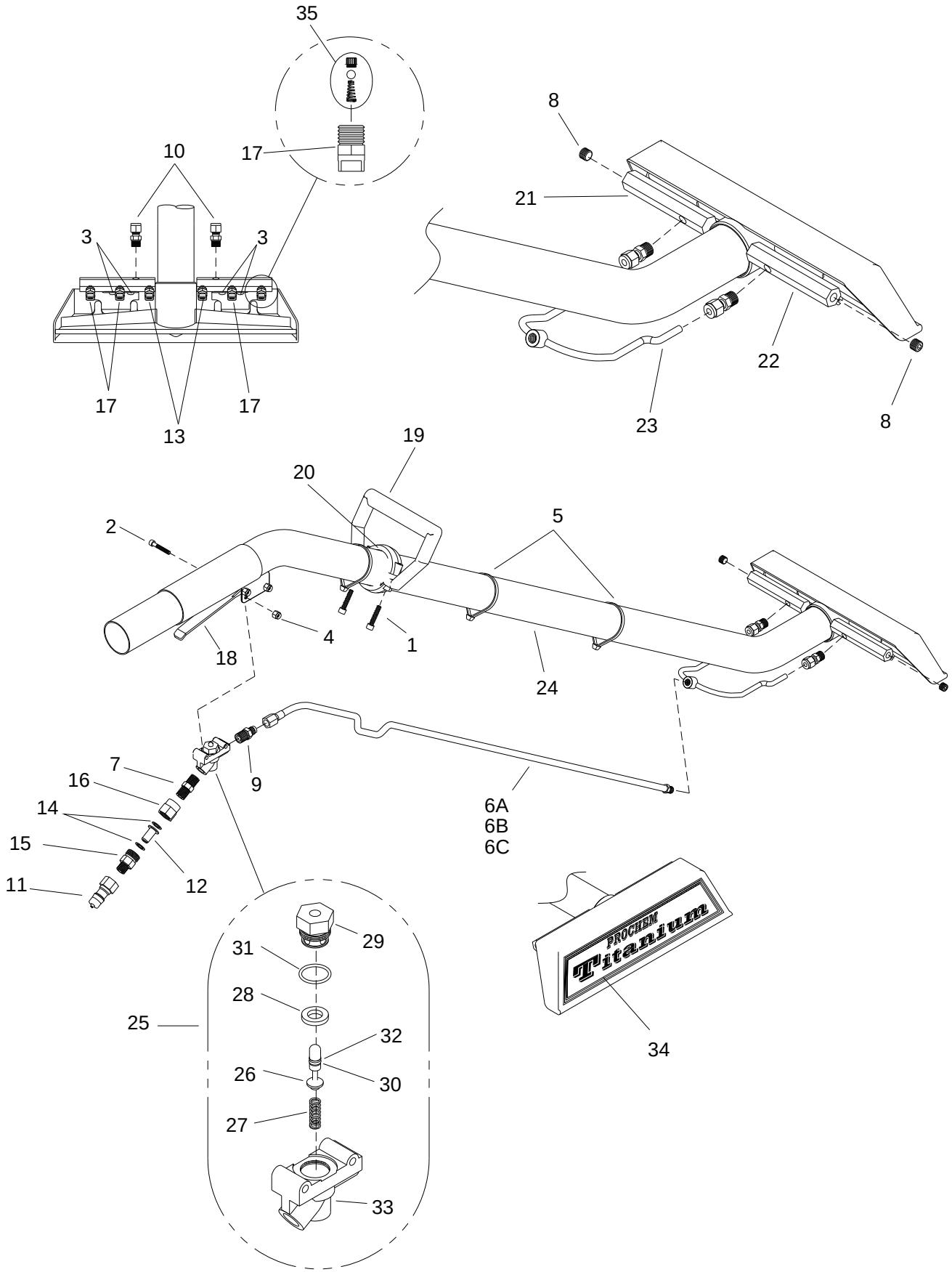
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86274150	70105	4	SCR, M4 X 60 PH		
2	86272190	00-000132	2	SCR, 1/4-20 X 1/ 1/2 HXHD		
3	86270770	57006	4	NUT, 1/4-20 HEX		
4	86010780	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
5	86270330	02-000066	4	FLATWASHER, 1/4		
6	86177050	03-000176	4	CLAMP, HOSE #16		
7	86280680	09-805591	1	HOSE, WASTE PUMP 1” X 8’		
8	86184780	10-805484	1	HOSE, GARDEN 3/4 X 75’		
9	86176420	12-800052	1	CAP, HOSE 3/4 BR		
10	86181430	12-800367	1	FTTG, BRB 1PX1H BR		
11	86181440	12-800444	1	FTTG, 1-1/4P X 1” H BR		
12	86195820	43-807008	1	WASHER, HOSE 5/8 ID 1” OD		
13	86175720	50-502055	1	BRKT, CTR HOOD FR		
14	86188970	52-000123	1	NUT, 1-3/16-12 UN HXHD		
15	86162270	52-501993	1	CONN, HOSE WATER OUTL		
16	86191380	61-951306	1	PUMP ONLY, HD AUTO PUMP OUT		
17	86174260	61-951319	1	ASSY, LVL SENS SHUT OFF SW		
18	86195860	23719	1	CORD ASM, CNCTN SIDE		
19	86195910	72185	1	SWITCH ASSEMBLY		
-	86284990	66-945533	1	H. D. WASTE PUMP OUT		COMPLETE ASSY

AUTOMATIC PUMPOUT - OPTIONAL



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86273250	00-000210	4	SCR, 1/4-20 X 3/4 SOCHD		
2	86178820	52-502064	1	CVR, OUTLET WST PMP-OUT		
3	86192020	00-000312	8	SCR, CAP 1/4 X 1 SOCHD		
4	86273550	00-000399	1	SCR, CAP 1/4 X 1 3/8 SOC		
5	86273280	00-000241	8	SCR, CAP 10-32 X 2 SOCHD SS		
6	86005810	57245	8	NUT, 1/4-20 HEX NYLOCK SS		
7	86010780	87162	1	WASHER, 1/4 SPLIT LOCK		
8	86279470	87165	8	WASHER, #10 SPLIT LOCK		
9	86024840	04-000312	1	RING, RETAIN EXT 1/2		
10	86174520	04-000334	2	BALL, NYL ID		
11	86024850	04-000335	2	RING, SNAP 1-7/8D		
12	86193250	04-000342	1	SPRING, PUMP-OUT BALL PRESS		
13	86174700	52-502061	1	BDY, INLET WST PMP-OUT		
14	86179530	16-808241	1	DIAPH, WST TNK PMP-OUT		
15	86187870	40-902151	1	MOTOR, 1/8HP 12V		
16	86182540	43-807117	1	GSKT, CVR TOP PMPOUT		
17	86182550	43-807118	1	GSKT, CVR SD PMPOUT		
18	86192300	43-810091	1	SEAL, PUMPOUT SHFT		
19	86192350	43-810100	1	SEAL PUMPOUT CAM		
20	86189600	43-810101	1	O-RING, 800/1000 .072		
21	86189280	43-810106	4	O-RING, 1-13/16 ID X 2 OD HDWP		
22	86175530	45-801927	4	BRG, SHFT PUMP-OUT		
23	86195190	49-876301	1	VENT, UPR SHFT BRNG HSG		
24	86050890	50-502025	1	PL, CVR TOP PUMP-OUT		
25	86024860	50-502026	1	PL, CVR SD PUMP-OUT		
26	86274110	70094	8	SCR, 1/4-20 X 1/2 SHCS SS		
27	86181680	11-800504	1	GA, FLOW SIGHT 3/8 NPT		
28	86175830	52-501828	1	BTM, PLNGR WST TNK PMP-OUT		
29	86192690	52-501829	1	SHT, 3/4” STROKE WST TNK		
30	86191550	52-501914	1	RD, CONNECT WST PMP-OUT		PART OF 31
31	86182810	52-501915	1	GUIDE, PLNGR WST PUMP-OUT		INCL. 32, 18, 30
32	86024870	52-501921	1	PIN, WRIST PUMP-OUT		
33	86194640	52-501934	1	TOP, PLNGR PUMP-OUT		
34	86176020	52-501950	1	BUSH, THREADED		
35	86178810	52-502062	1	CVR, INLET WST PMP-OUT		
36	86045790	56-502428	1	BRKT, PMP-OUT SW/CCT BRKR		
37	86024880	52-501821	1	TOP, WST TNK PUMP-OUT		
38	86174550	52-501820	1	BASE, WST TANK PMP-OUT		
39	86174710	52-502063	1	BDY, INLET WST PMP-OUT		

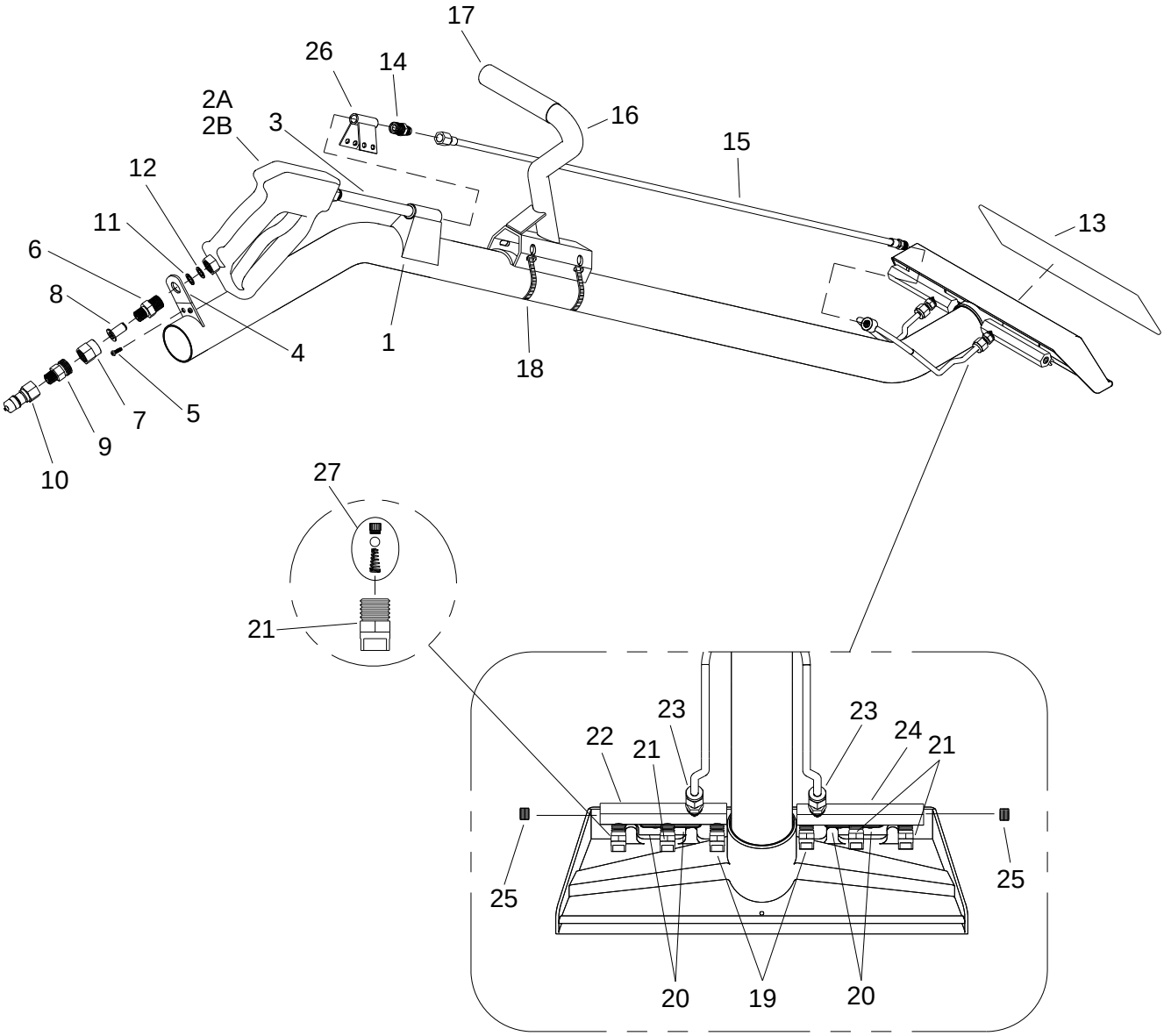
WAND - TITANIUM SIX JET - OPTIONAL



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86288350	89248	1	WD, TM, 6 JET, TITANIUM (8001) PC		COMPLETE
1	86273310	00-000282	2	SCR, CAP 1/4-20 X 1 1/4 SOC		
2	86192030	00-000317	2	SCR, CAP 10-32 X 1 1/4 SOCH		
3	86006680	70228	4	SCR, 10-32 X 1/4 PPHMS SS		
4	86270990	57090	2	NUT, 10-32 HEX NYLOCK SS		
5	86264910	04-000093	2	TIE, CABLE 13”		
6A	86184270	10-805504	1	HOSE, 3/16 X 46 (1/8P X 1/4FT) MET		▲
6B	86337360	-	1	HOSE, 3/16 X 47 (1/8P X 1/4FT) MET		▲
6C	86183720	-	1	HOSE, 3/16 X 47 5/8 (1/8P X 1/4FT) MET		▲
7	86247680	56015	1	NIPPLE, 1/4 HEX		
8	86190180	11-800206	2	PLUG, 1/8 SOCHD BR		
9	86177650	12-800060	1	CONN, 1/4P X 1/4T BR		
10	86177710	12-800322	2	CONN, 1/8P X 1/4T COMP BR		
11	86005580	56012	1	NIPPLE, 1/4 FPT QD		
12	86193490	14-806512	1	STRAINER, JET 50 MESH		
13	86194450	17-803018	2	TIP, SPRAY 9501 X 1/8P SST		
14	86195570	17-803006	2	WASHER, NYLON		
15	86177860	17-803010	1	CONN, 1/4P X 11/16-16M		
16	86177870	17-803036	1	CONN, 1/4FP X 11/16-16F BR		
17	86194580	17-803078	4	TIP, SPRAY 8001 SST \1/8 VJET		
18	86340720	-	1	TRIGGER, WD VLV, 9 DEG		
19	86174680	52-502008BK	1	BODY, WD HDL, 2” TB, BK		
20	86198180	52-502009	1	HOLD DN-WD HDL 2” TUBE		
21	86187610	52-502057	1	MANIFOLD, LEFT		
22	86187620	52-502058	1	MANIFOLD, RIGHT		
23	86174060	56-502548	1	ASSY, MNFLD S-BEND		
24	86285440	56-502534	1	WD & HD, TITANIUM		
25	86174120	61-950496	1	ASSY, EXTRACTOR VALVE		
26	86193360	16-808189	1	STEM, EXTRACTOR VALVE		
27	86193200	16-808190	1	SPRING, EXTRACTOR VALVE		
28	86192410	16-808228	1	SEAT, EXTRACTOR VALVE		
29	86183160	16-808229	1	HLDR, VLV STEM-EXTRACTOR VL		
30	86189510	43-810062	1	O-RING, .114 ID .254OD		
31	86189520	43-810063	1	O-RING, .551ID .691OD		
32	86174500	43-810064	1	BACK-UP, .250DIA		
33	86174630	52-501590	1	BDY, EXTRACTOR VLV		
34	86179250	48-941462	1	DEC, WD HD TITANIUM		
35	86341590	-	6	CHECK VALVE, NOZZLE WD		

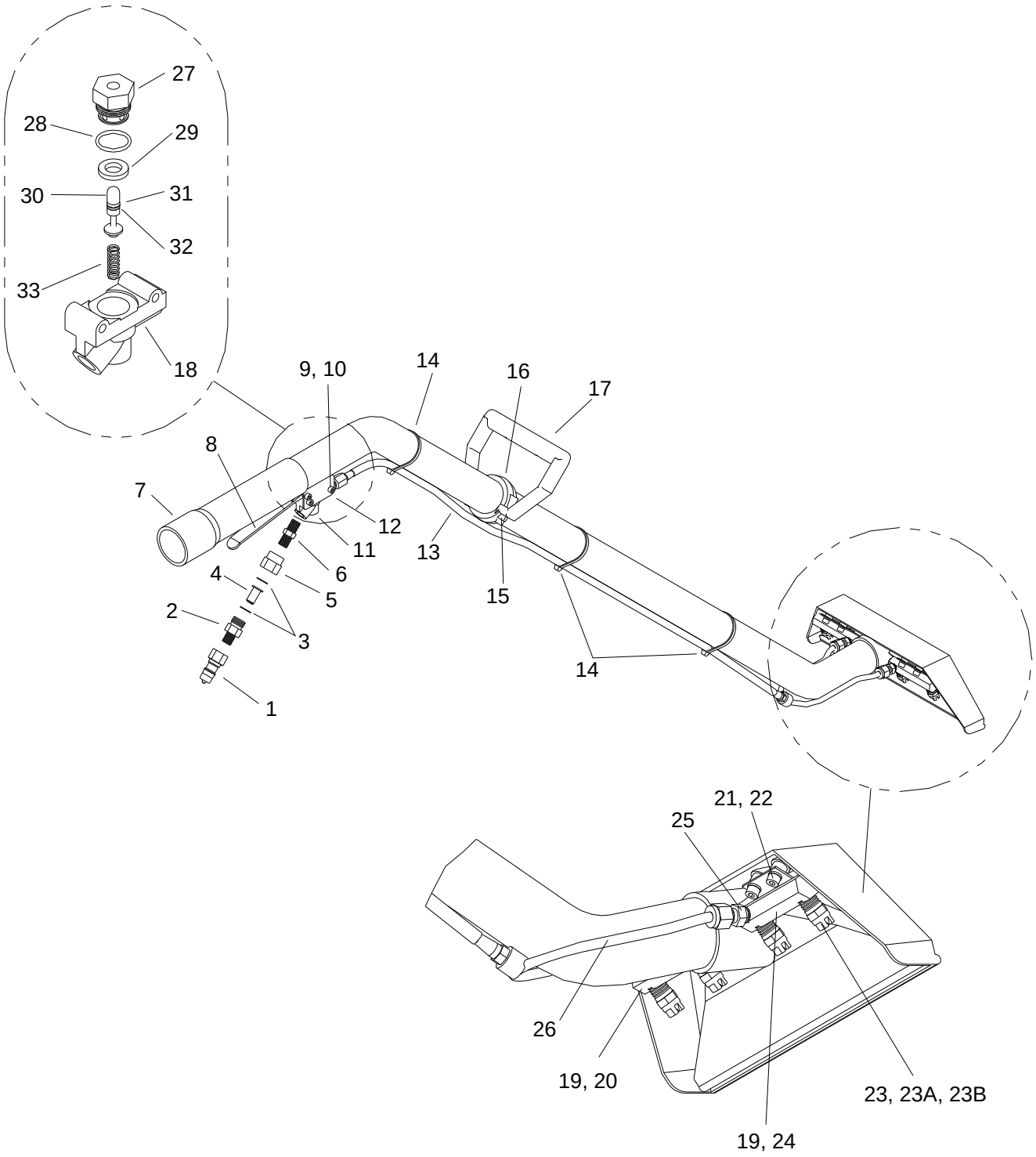
▲ MEASURE AND MATCH EXISTING HOSE LENGTH.

WAND – ERGO TITANIUM SIX JET - OPTIONAL



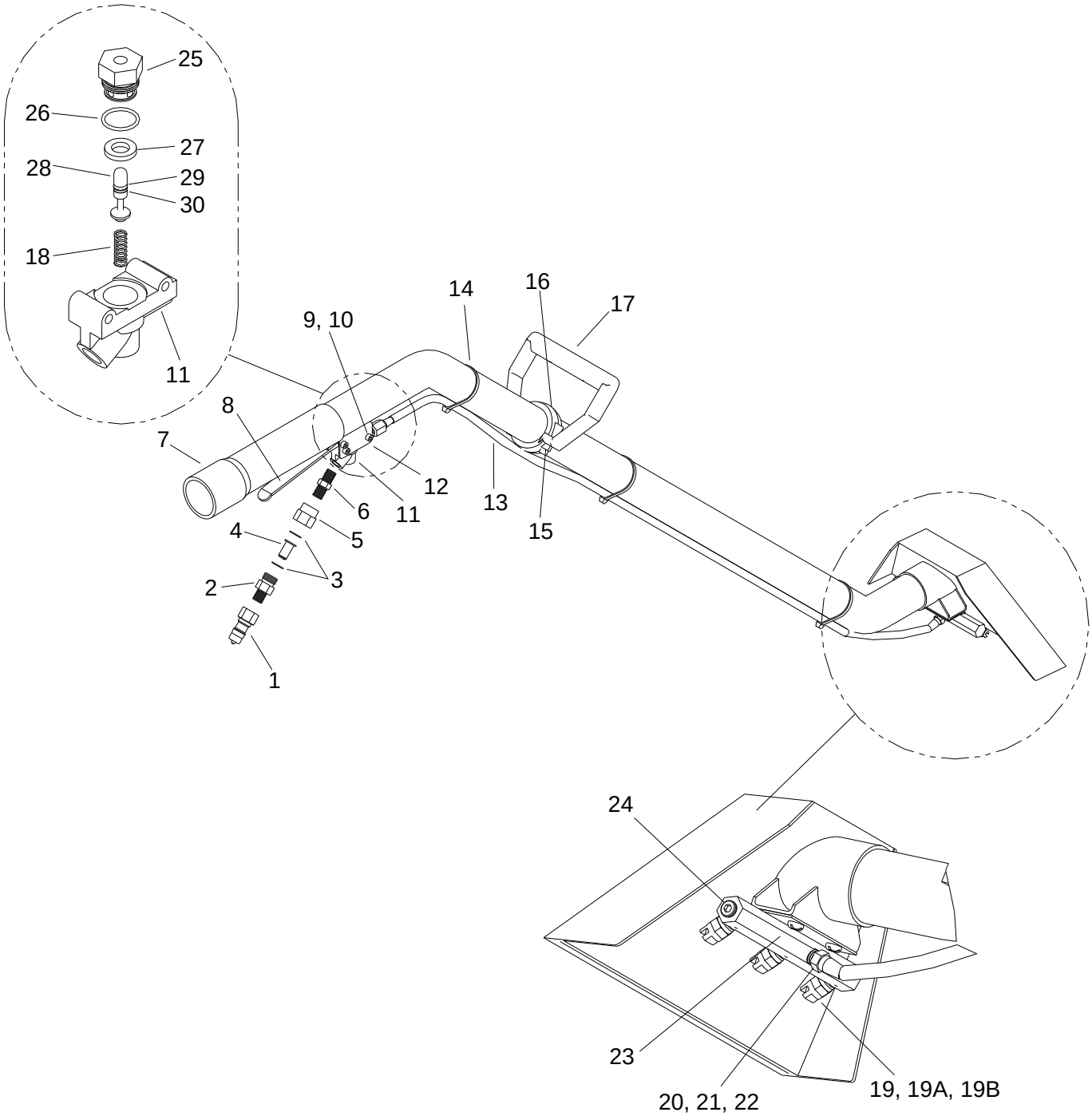
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86326900	-	1	WAND, ERGO TI		COMPLETE
1	86195560	791121	1	WAND/HEAD WELDMENT		
2A	86182820	17-803025	1	GUN, PRESS WASH TM		
2B	86011740	-	1	YG5000 SPRAY GUN ASM		
3	86188590	791122	1	NIPPLE, 1/4 X 5 SS		
4	86175760	791123	1	BRKT, HNDL, CLMP		
5	86277760	791124	2	SCR, 8-32 X 1/4 SHCS SS		
6	86188280	11-800381	1	NIP, 3/8 X 1/4 HX SST		
7	86177870	17-803036	1	CONN, 1/4FP X 11/16-16F BR		
8	86193490	14-806512	1	STRNR, JET 50 MESH		
9	86177860	17-803010	1	CONN, 1/4 X 11/16-16M		
10	86005580	56012	1	NIP, 1/4 FPT QD		
11	86195600	791127	1	WASHER, BLK WD		
12	86195610	791128	1	WASHER, FLAT SS WD		
13	86179020	48-941186	1	DEC, WD HD (CAST SST) TM		
14	86177650	12-800060	1	CONN, 1/4P X 1/4T BR		
15	86031580	10-805245	1	HOSE, 3/16 X 40-1/2		
16	86183110	46-802553	1	HDL, TITANIUM WND W/SPYR		
17	86182120	791125	1	GRIP, BLU HANDLE		
18	86177150	791126	2	CLAMP, #38 HOSE SS		
19	86194450	17-803018	2	TIP, SPRY 9501 X 1/8P SST		
20	86270990	57090	4	NUT, 10-32 HEX SS NYLOCK		
21	86194580	17-803078	4	TIP, SPRAY 8001 SST 1/8 VJE		
22	86187620	52-502058	1	MNFLD, LT TITAN		
23	86177710	12-800322	2	CONN, 1/8P X 1/4T COMP BR		
24	86187610	52-502057	1	MNFLD, RT TITAN		
25	86190180	11-800206	2	PLG, 1/8 SOCHD BR		
26	86175660	140160	1	BRKT, MANIFOLD, WAND		
27	86341590	-	6	CHECK VALVE, NOZZLE WD		
-	86186100	47453	1	KIT, REPAIR 17-803025		NOT SHOWN

WAND - QUAD-JET - OPTIONAL



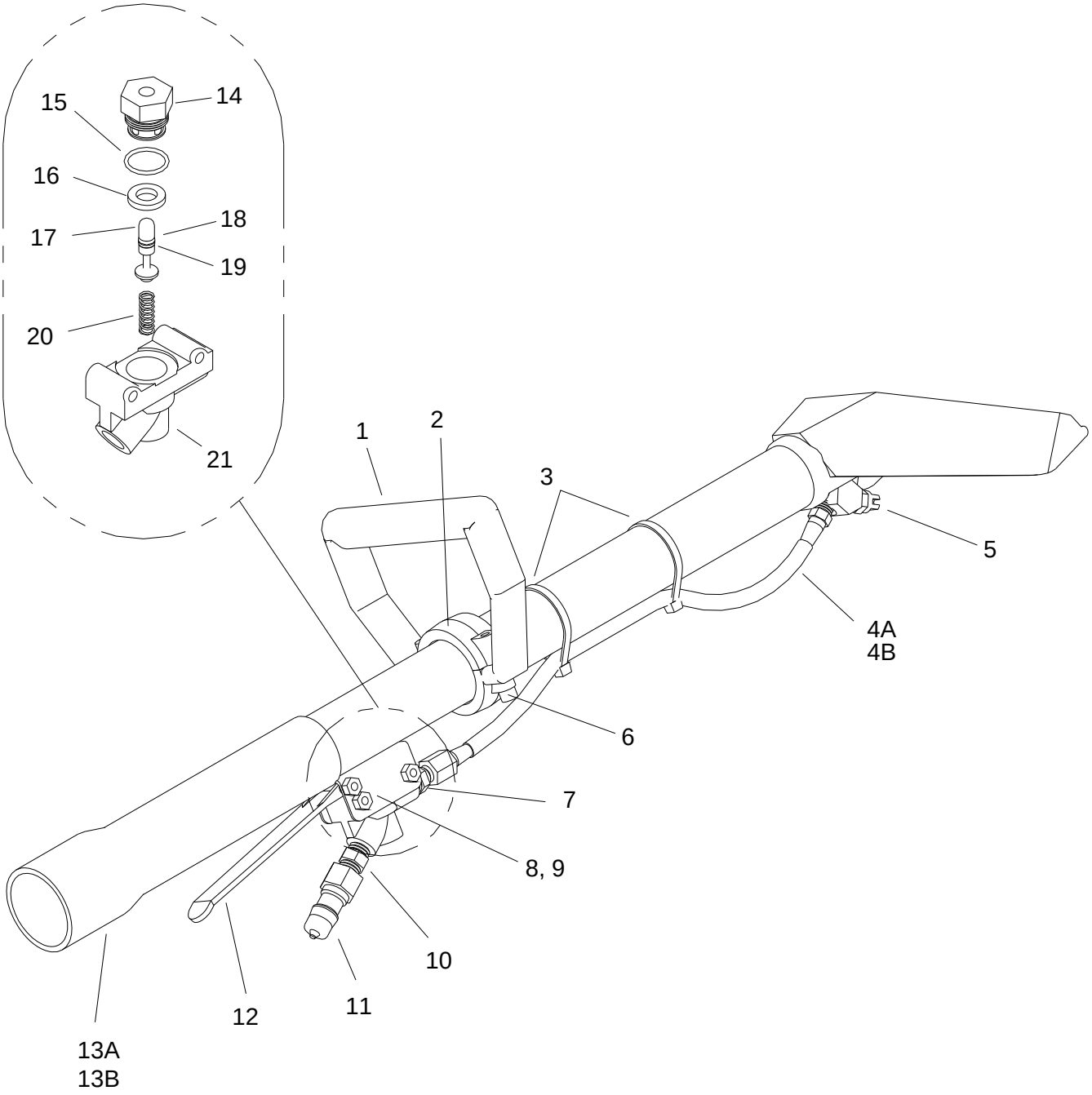
REF	PART NO.	PRV NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86285570	89238	WAND, TM, QJW (95015) PC		COMPLETE
-	86285580	89239	WAND, TM, QJW (9502) PC		COMPLETE
-	86285560	89237	WAND, TM QJW (9501) PC		COMPLETE
-	86285540	89235	WAND, TM, QJW, (9501) NO DECAL		COMPLETE
1	86005580	56012	NIPPLE, 1/4 FPT QD		
2	86177860	17-803010	CONN, 1/4P X 11/16-16M		
3	86195570	17-803006	WASHER, NYLON		
4	86193490	14-806512	STRAINER, JET 50 MESH		
5	86177870	17-803036	CONN, 1/4FP, 11/16-16R BR		
6	86247680	56015	NIPPLE, 1/4 HEX		
7	86280020	09-805359	SLEEVE, WD HDL 9.5		
8	86194650	52-501619	TRIGGER, WD VLV		
9	86192030	00-000317	SCR, CAP 10-32X 1-1/4 SOCH		
10	86270990	57090	NUT, 10-32 HEX NYLOCK SS		
11	86174120	61-950496	ASSY, EXTRCTR VLV		
12	86177650	12-800060	CONN, 1/4P X 1/4T BR		
13	86183970	10-805387	HOSE, 3/16 X 43-1/2 (1/8P X 1/4)		
14	86265730	04-000053	TIE, CABLE 8” WHT		
15	86273310	00-000282	SCR, CAP 1/4-20 X 1-1/4 SOC		
16	86198160	52-501569	HOLD DOWN, WD HDL		
17	86182840	52-501568	BODY, WD HDL		
18	86174630	52-501590	BODY, EXTRCTR VLV		
19	86190180	11-800206	PLUG, 1/8 SOCHD BR		
20	86043300	56-501966	ASSY, L S-BEND MNFLD		
21	86273450	00-000347	SCR, CAP 10-24 X1/4 SOCHD		
22	86279470	87165	WASHER, #10 SPLIT LOCK		
23	86194400	17-803001	TIP, SPRY 95015X1/8P SST		89238
23A	86194410	17-803002	TIP, SPRY 9502X1/8P SST		89239
23B	86194450	17-803018	TIP, SPRY 9501X1/8P SST		89237 89235 (NO DECAL)
24	86043310	56-501986	ASSY, RT S-BEND MNFLD		
25	86177710	12-800322	CONN, 1/8PX1/4T COMP BR		
26	86174030	56-501967	ASSY, S-BEND MNFLD		
27	86183160	16-808229	HOLDER, VLV STEM-EXTRCTR VL		
28	86189520	43-810063	O-RING, .551 ID .691 OD		
29	86192410	16-808228	SEAT, EXTRCTR VLV		
30	86193360	16-808189	STEM, EXTRCTR VLV		
31	86174500	43-810064	BACK-UP, .250 DIA		
32	86189510	43-810062	O-RING, .144 ID .254 OD		
33	86193200	16-808190	SPRING, EXTRCTR VLV		
-	86179020	48-941186	DECAL, WD HD (CAST SS)		NOT SHOWN
-	86186160	66-808169	KIT, REP-WD VLV		NOT SHOWN INCLUDES PARTS 27-29 & 31-33

WAND - TRI-JET - OPTIONAL



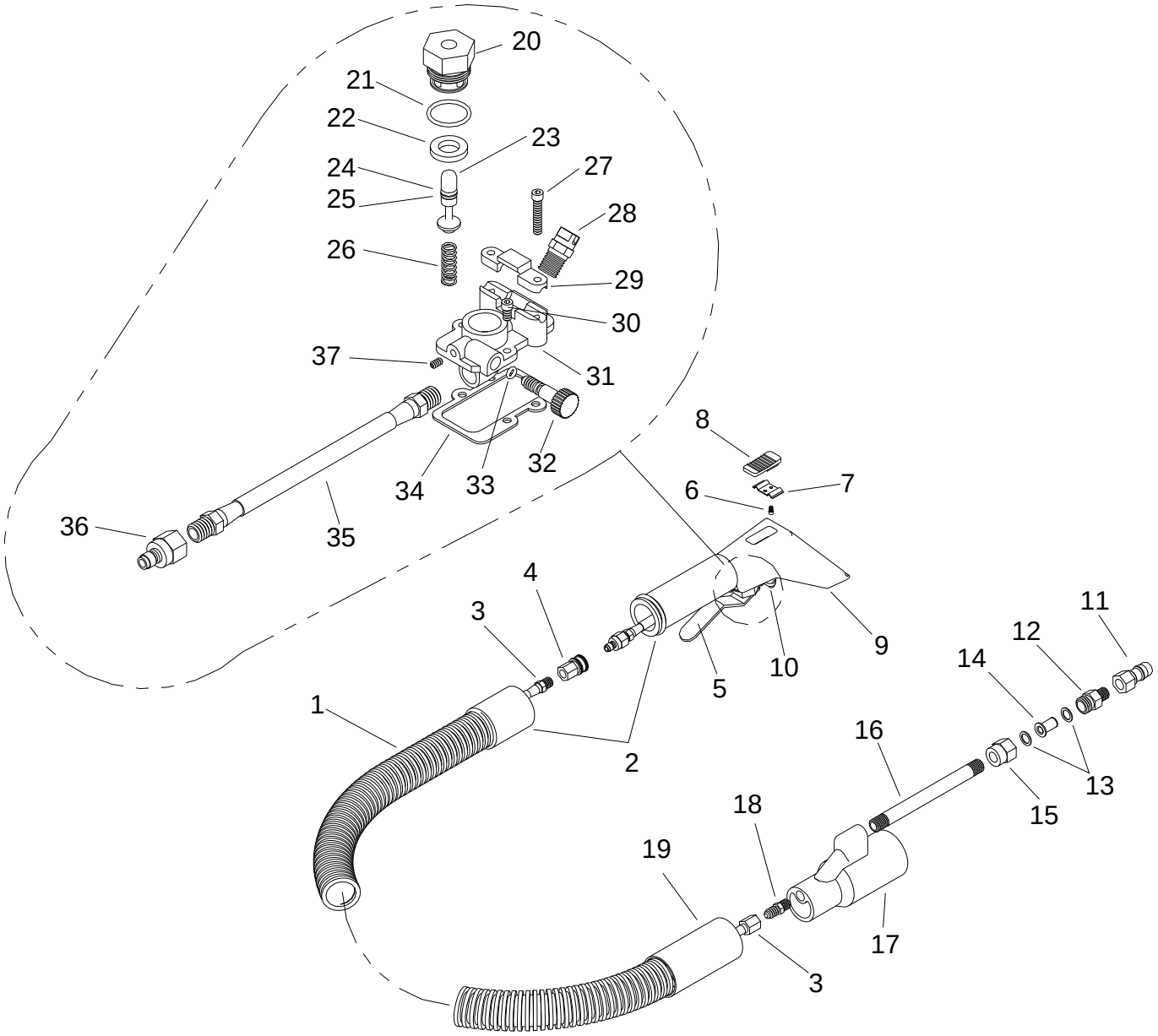
REF	PART NO.	PRV NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86285520	89233	WAND, TJW (9502) PC		COMPLETE
-	86285510	89232	WAND, TJW, (95015) CUBXL		COMPLETE
-	86285530	89234	WAND, TJW, (9503) PC		COMPLETE
1	86005580	56012	NIPPLE, 1/4 FPT QD		
2	86177860	17-803010	CONN, 1/4P X 11/16-16M		
3	86195570	17-803006	WASHER, NYLON		
4	86193490	14-806512	STRAINER, JET 50MESH		
5	86177870	17-803036	CONN, 1/4FP, 11/16-16R BR		
6	86247680	56015	NIPPLE, 1/4 HEX		
7	86280020	09-805359	SLEEVE, WD HDL 9.5		
8	86194650	52-501619	TRIGGER, WD VLV		
9	86192030	00-000317	SCR, CAP 10-32X 1-1/4 SOCH		
10	86270990	57090	NUT, 10-32 HEX NYLOCK SS		
11	86174630	52-501590	BODY, EXTRCTR VLV		
12	86177650	12-800060	CONN, 1/4P X 1/4T BR		
13	86183510	10-805253	HOSE, 3/16X49 (1/8P X 1/4FT)		
14	86265730	04-000053	TIE, CABLE 8” WHT		
15	86273310	00-000282	SCR, CAP 1/4-20 X 1-1/4 SOC		
16	86198160	52-501569	HOLD DOWN, WD HDL		
17	86182840	52-501568	BODY, WD HDL		
18	86193200	16-808190	SPRING, EXTRCTR VLV		
19	86194410	17-803002	TIP, SPRY 9502X1/8P SST		89233
19A	86194400	17-803001	TIP, SPRY 9501X1/8P SST		89232
19B	86194520	17-803046	TIP, SPRY 9503X1/8P SST		89234
20	86274290	70162	SCR, 10-32 X 3/8 PPHMS SS		
21	86279470	87165	WASHER, #10 SPLIT LOCK		
22	86270800	57014	NUT, 10-32 HEX SS		
23	86187700	56-501739	MANIFOLD, WD TRI-JET		
24	86190180	11-800206	PLUG, 1/8 SOCHD BR		
25	86183160	16-808229	HOLDER, VLV STEM-EXTRCTR VL		
26	86189520	43-810063	O-RING, .551 ID .691 OD		
27	86192410	16-808228	SEAT, EXTRCTR VLV		
28	86193360	16-808189	STEM, EXTRCT VLV		
29	86174500	43-810064	BACK-UP, .250DIA		
30	86189510	43-810062	O-RING, .114ID .254OD		
-	86178990	48-941166	DECAL, WD HD		
-	86186160	66-808169	KIT, REP-WD VLV		INCLUDES PARTS 25-27 & 29-31

STAIR TOOL - OPTIONAL



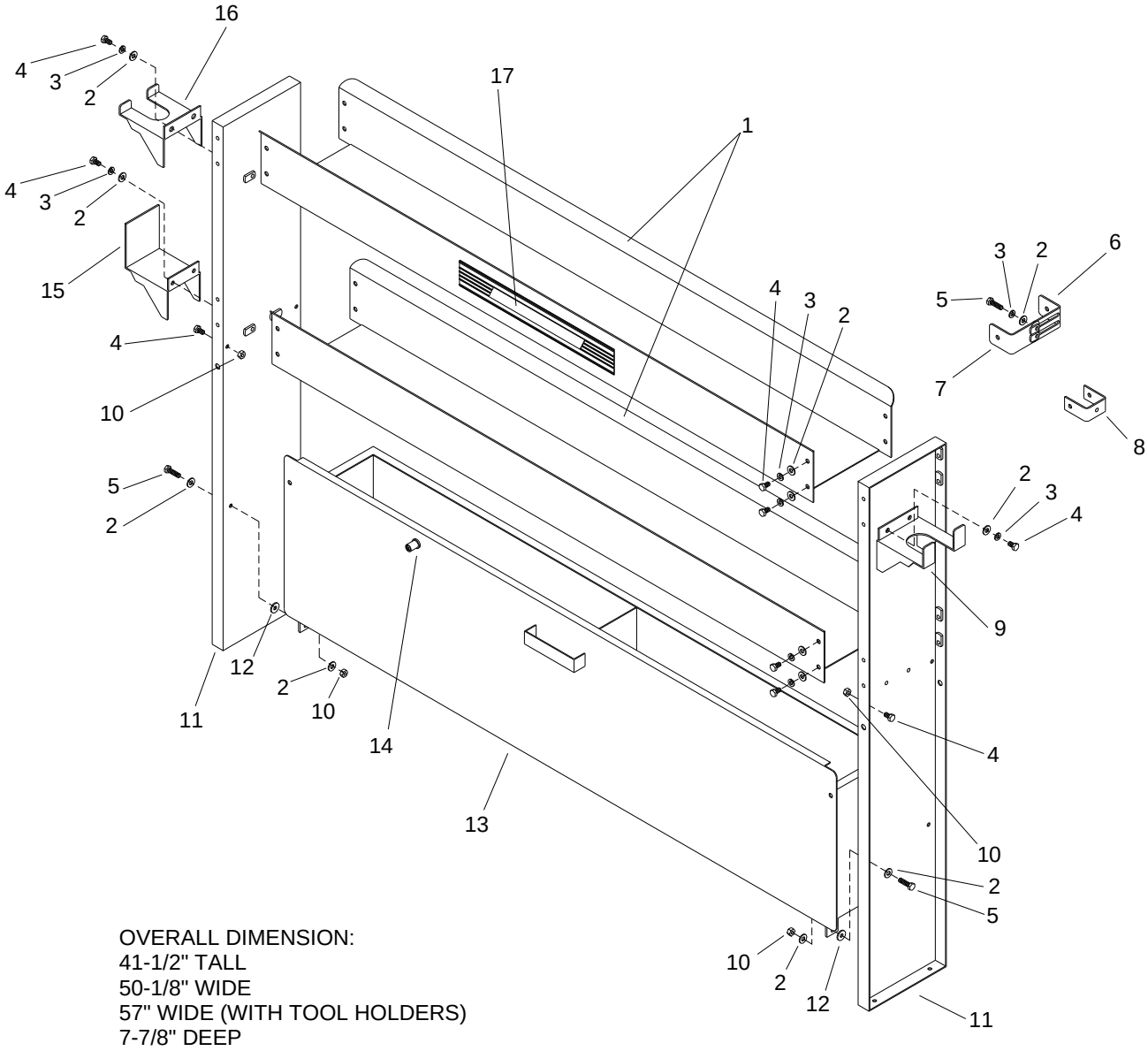
REF	PART NO.	PRV NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86285350	78519	TL, STAIR, LNG, TM DJ (80015)		COMPLETE
-	86285290	78521	TL, STAIR, SHT, TM (80015)		COMPLETE
1	86198080	52-501576	BODY, WD HDL PORT		
2	86198170	52-501577	HOLD DOWN, WD HDL PORT		
3	86265730	04-000053	TIE, CABLE 8” WHT		
4A	10-805330	10-805330	HOSE, 3/16X13-3/4 (1/8PX1/4)		
4B	86184000	10-805397	HOSE, 3/16X7-1/2 (1/8P X 1/4F)		
5	86194410	17-803002	TIP, SPRY 9502X1/8P SST		
6	86273310	00-000282	SCR, CAP 1/4-20 X 1-1/4 SOC		
7	86177650	12-800060	CONN, 1/4P X 1/4T BR		
8	86192030	00-000317	SCR, CAP 10-32X1-1/4 SOCH		
9	86270990	57090	NUT, 10-32 HEX NYLOCK SS		
10	86247680	56015	NIPPLE, 1/4 HEX		
11	86005580	56012	NIPPLE, 1/4 FPT QD		
12	86194650	52-501619	TRIGGER, WD VLV		
13A	86280020	09-805359	SLEEVE, WD HDL 9.5		
13B	86040950	09-805504	SLEEVE, STAIR TL HDL 7-1/8		
14	86183160	16-808229	HOLDER, VLV STEM-EXTRCTR VL		
15	86189520	43-810063	O-RING, .551 ID .691 OD		
16	86192410	16-808228	SEAT, EXTRCTR VLV		
17	86193360	16-808189	STEM, EXTRCTR VLV		
18	86174500	43-810064	BACK-UP, .250DIA		
19	86189510	43-810062	O-RING, .114 ID .254 OD		
20	86193200	16-808190	SPRING, EXTRCTR VLV		
21	86174630	52-501590	BODY, EXTRCTR VLV		
-	86178970	48-941163	DECAL, STAIR TL		
-	86186160	66-808169	KIT, REP-WD VLV		INCLUDES PARTS 16-19 & 20-22

UPHOLSTERY TOOL - OPTIONAL



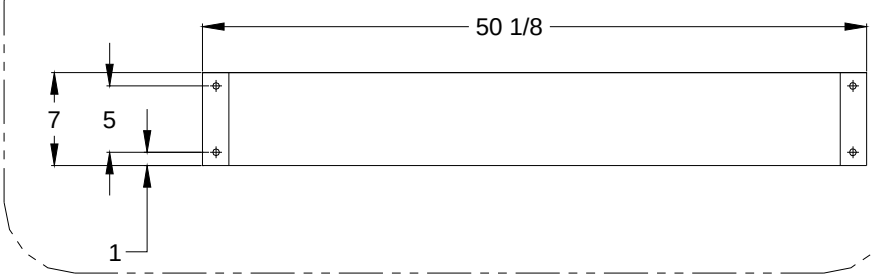
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86285260	78513	1	TL, UPHOLST, PC (80015)		COMPLETE
1	86280240	09-805131	2	HOSE, VAC 1-1/4X10' BLU		
2	86178660	08-805243	1	CUFF, SWIV 1-1/4HX1-1/4T		
3	86184670	10-805347	1	HOSE, 3/16X119-1/2 (1/8PX1/4FT)		
4	86179720	13-806023	1	DSC, 1/8FC1/8FP SST		
5	86178550	58-500639	1	UPHOLSTERY TL TRIGGER		
6	86273370	00-000310	1	SCR, CAP 4-40 X7/32 SHCS SS		
7	86193050	04-000282	1	SPRING, VAC ADJ BUTT		
8	86176080	52-501624	1	BUTTON, VAC ADJ		
9	86194590	52-501842	1	TOOL, UPHOLSTERY		
10	86174140	61-950570	1	ASSY, UPHLST TL VLV		INCLUDES PARTS 20-26, 28, & 31- 37
11	86005580	56012	1	NIPPLE, 1/4 NPT QD		
12	86177860	17-803010	1	CONN, 1/4P X 11/16-16M		
13	86195570	17-803006	1	WASHER, NYLON		
14	86193490	14-806512	1	STRAINER, JET 50MESH		
15	86177870	17-803036	1	CONN, 1/4FPX11/16-16F BR		
16	86188320	11-800404	1	NIP, 1/4X5 SST		
17	86178520	52-501585	1	COUPLER, UPHLST TL		
18	86177660	12-800065	1	CONN, 1/8P X 1/4T		
19	86178630	08-805138	1	CUFF, 1 1/4H X 1 1/2T GRY		
20	86183160	16-808229	1	HOLDER, VLV STEM-EXTRCTR VL		
21	86189520	43-810063	1	O-RING, .551 ID .691 OD		
22	86192410	16-808228	1	SEAT, EXTRCTR VLV		
23	86193360	16-808189	1	STEM, EXTRCTR VLV		
24	86174500	43-810064	1	BACK-UP, 250DIA		
25	86189510	43-810062	1	O-RING, .144 ID .254 OD		
26	86193200	16-808190	1	SPRING, EXTRCTR VLV		
27	86273350	00-000306	2	SCR, 6-32 X 1 SCHD SS		
28	86194500	17-803033	1	TIP, SPRY 80015X1/8P SST		
29	86178540	58-500638	1	CSTG, TRIGGER CLMP		
30	86273360	00-000307	2	SCR, CAP 6-32X3/8 SOCHD		
31	86195210	52-501623	1	VALVE, UPHLST TL		
32	86195530	52-501626	1	VALVE, ADJ-UPHLST TL VLV		
33	86189460	43-810016	1	O-RING, 5/32IDX9/32OD VIT		
34	86182570	43-807513	1	GASKET, UPHLST TL VLV		
35	86183770	10-805348	1	HOSE, 3/16X6-1/2 (1/8P BS)		
36	86179740	13-806030	1	DSC, 1/8MX1/8FP SST		
37	86192070	00-000408	1	SCR, SET 3-32 X 1/4 SOCHD		
-	86178980	48-941164	1	DECAL, UPHLST TL		
-	86186160	66-808169	1	KIT, REPAIR-WAND VLV		INCLUDES PARTS 20-22 & 24-26

SHELF ASSEMBLY - OPTIONAL



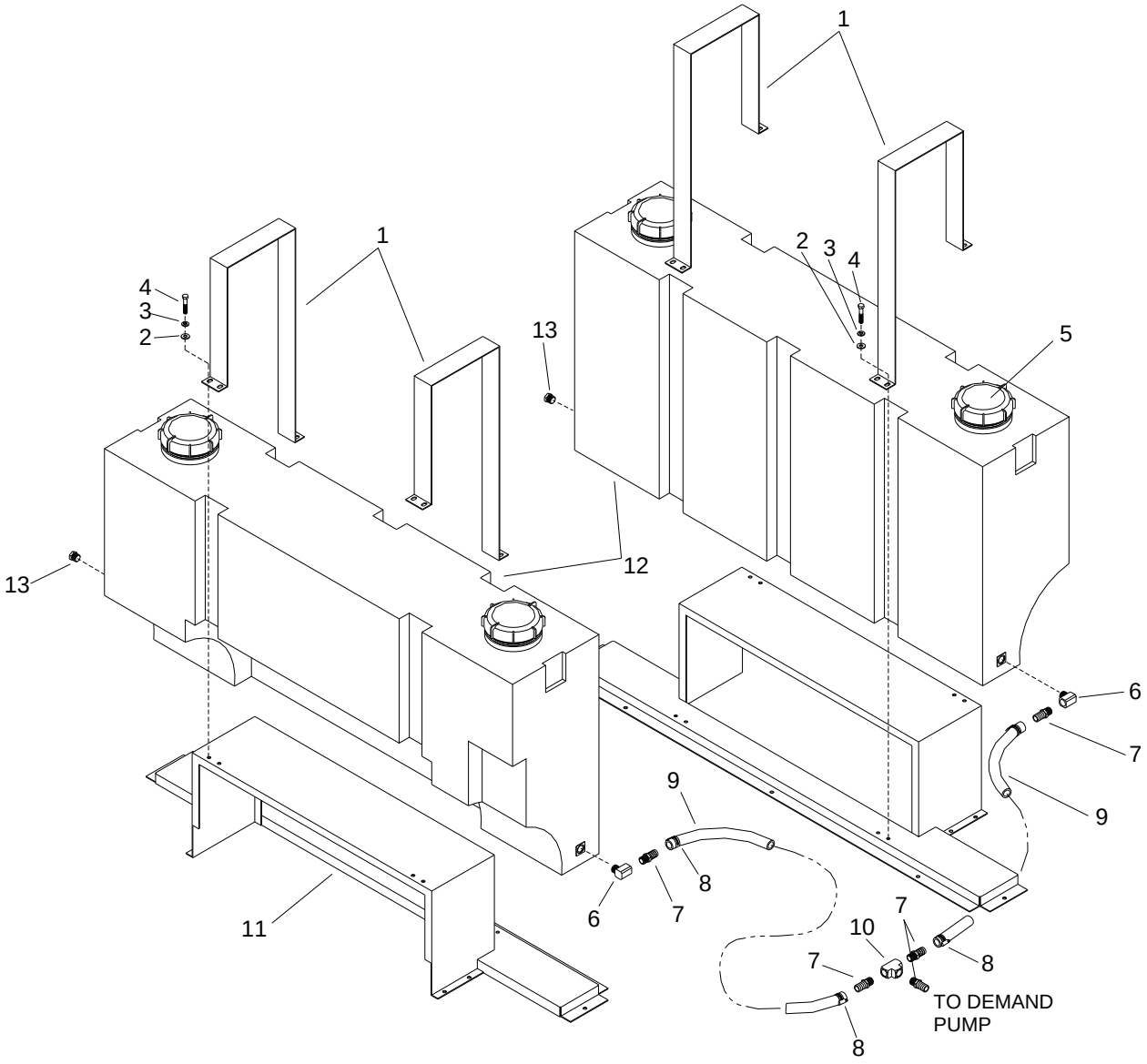
OVERALL DIMENSION:
41-1/2" TALL
50-1/8" WIDE
57" WIDE (WITH TOOL HOLDERS)
7-7/8" DEEP

DIMENSIONAL DATA

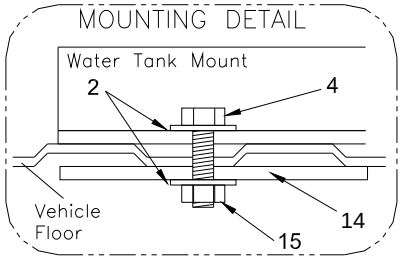


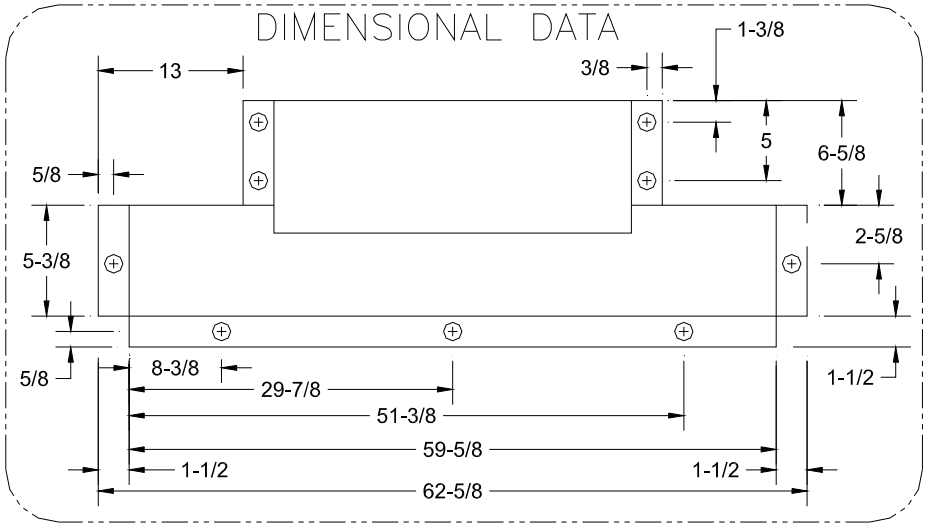
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86285410	65-950392	1	VAN STORAGE UNIT		COMPLETE
1	86192680	56-501921	1	SHELF, LWR		
2	86270330	02-000066	20	FLATWASHER, 1/4		
3	86010780	87162	20	WASHER, 1/4 SPLIT LOCK		
4	86274760	70271	20	SCR, 1/4-20 X 1/2 HHCS PLTD		
5	86274750	70270	4	SCR, 1/4-20 X 3/4 HHCS PLTD		
6	86175710	50-501840	1	BRKT, ADJUST MTG SLOT		
7	86175730	56-502067	1	BRKT, ADJUST MTF HLDR		
8	86198090	56-501942	1	BRKT, SHELF MOUNTING		
9	86285120	41460	1	HOLDER, STAIR TOOL		
10	86270620	01-000105	4	LOCK NUT, 1/4-20 HXHD		
11	86024890	56-501922	2	PANEL, SHLF END		
12	86278840	50-501749	2	WASHER, NYLON		
13	86021920	56-501920	1	DRAWER, SHELF GRAY		
14	86186850	46-802506	1	LATCH, ADJ GRIP		
15	86183180	50-501755	1	HOLDER, UP TL HOSE		
16	86183170	50-501754	1	HOLDER, UPHST TL		
17	86179350	48-941152	1	DECAL, PROCHEM		
-	86162440	66-945424	1	KIT, ADJ BRKT.		INCLUDES PARTS 6,7 & MOUNTING HARDWARE

WATER TANK, DUAL WITH DEMAND PUMP - OPTIONAL



OVERALL DIMNSION:
32-1/2" TALL
62-5/8" WIDE
15-1/2" DEEP

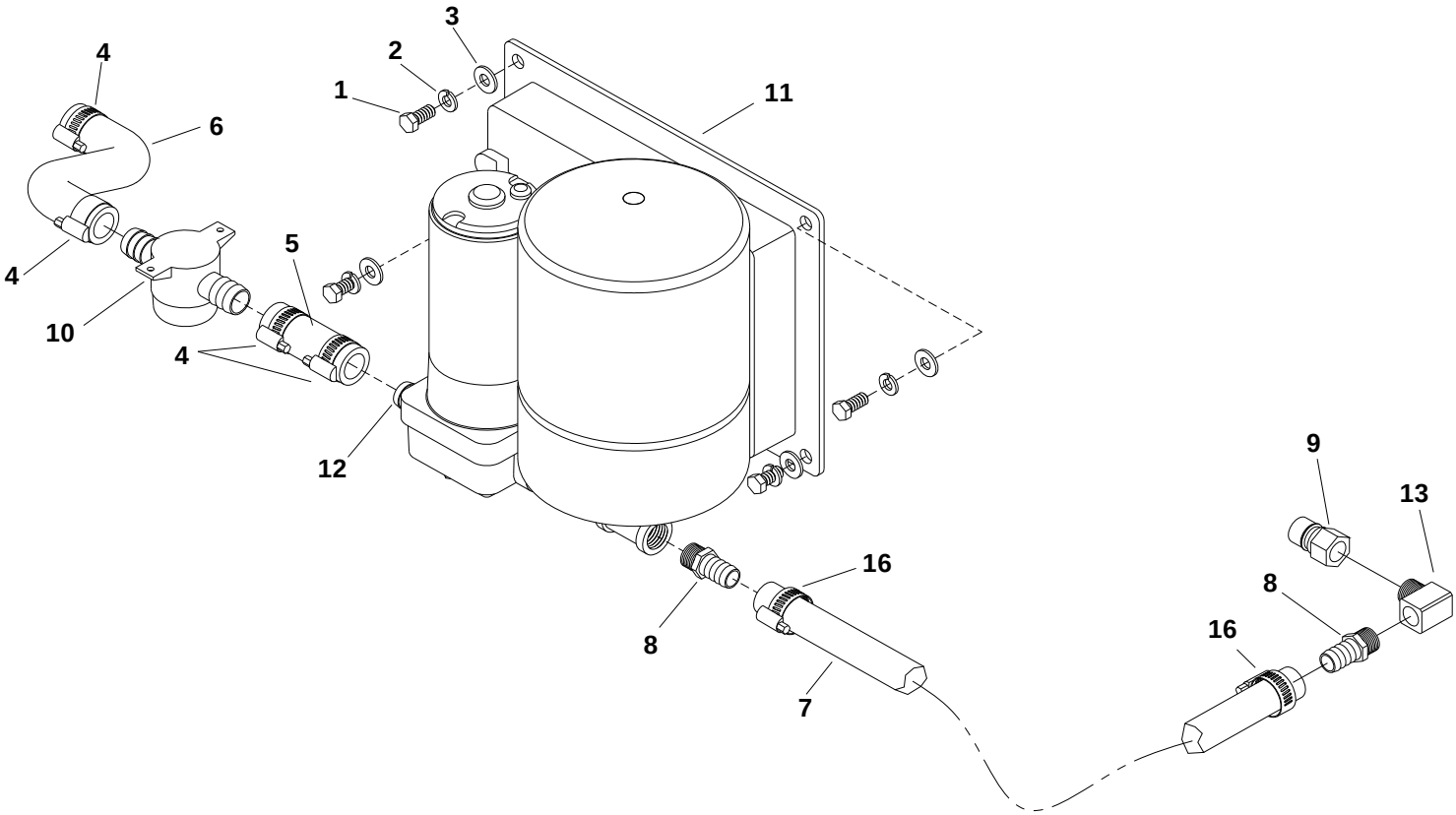




WATER TANK, DUAL WITH DEMAND PUMP - OPTIONAL

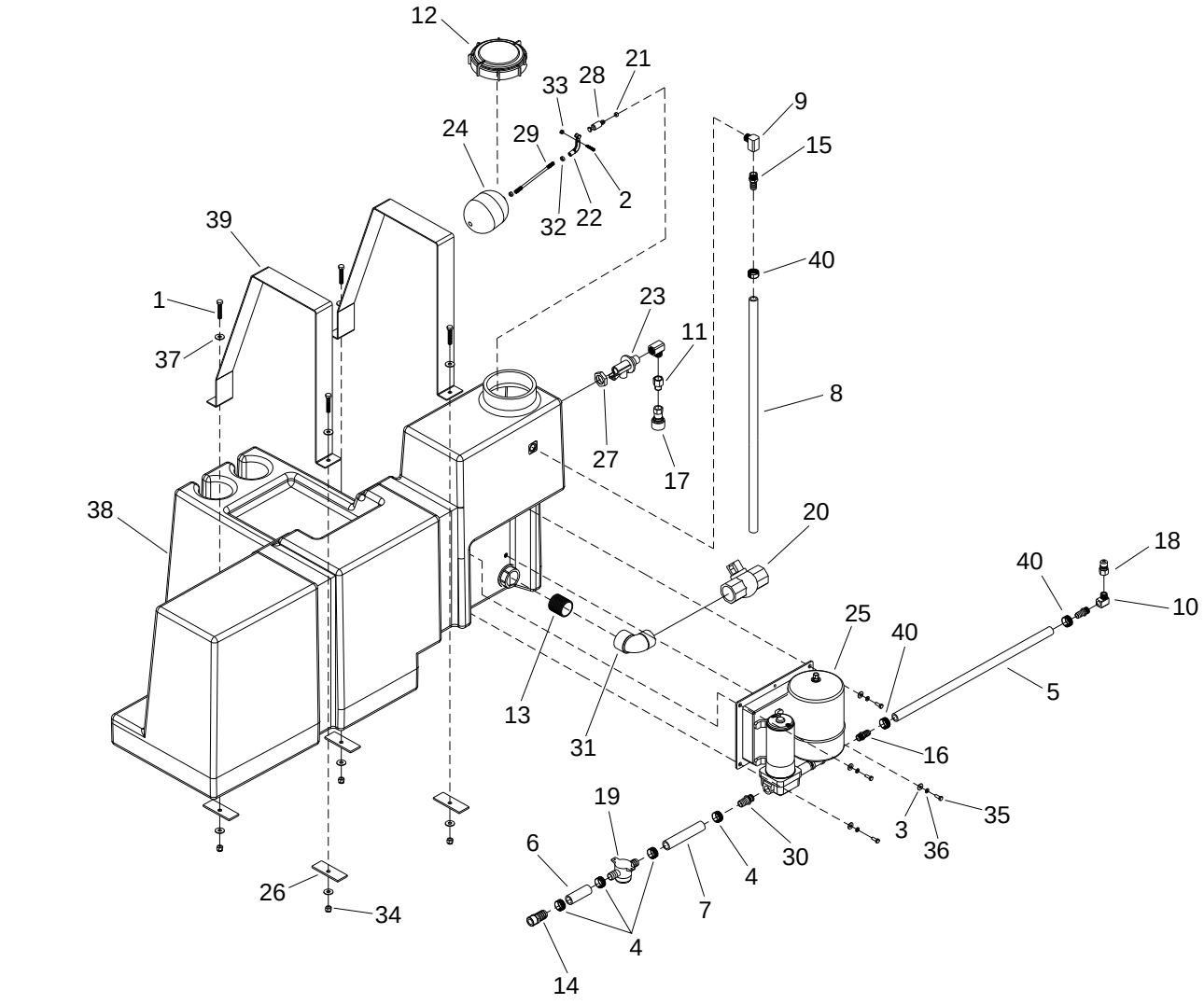
REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	86041730	66-945260	-	TANK, DUAL SADDLE W/DMD PUMP		COMPLETE
-	86041710	66-945265	-	SINGLE SADDLE TANK W/DMND PMP		COMPLETE
1	86048310	50-501774	4	HOLD DOWN, SADDLE TANK GRAY		
2	86279510	87171	16	WASHER, 3/8 FLAT		
3	86010790	87163	16	WASHER 3/8 SPLIT LOCK		
4	86277830	00-000072	16	SCR, 3/8-16 X 2’ HXHD		
5	86176400	11-800432	4	CAP, WATER BOX		
6	86180170	11-800041	2	ELL, STREET 1/2 BR		
7	86181370	12-800278	4	FTTG, BRB 1/2P X 3/4H BR		
8	86177020	03-000113	4	CLAMP, HOSE #12 SST		
9	86280590	09-805456	1	HOSE, WTR 3/4 X 96”		
10	86194120	11-800085	1	TEE, 1/2 BRASS		
11	86043320	56-502000	2	ASSY, BASE SADDLE TANK GRAY		
12	86030990	58-500661	2	MOLDING, WATER TANK		
13	86190500	11-800168	2	PLUG, 1/2 BRASS HXHD		
14	86190170	50-500511	1	PLATE, INSTALL MT		
15	86005770	57119	9	NUT, 3/8-16 HEX NYLOCK		
-	86285190	41458	1	SHLR, CHEM, 10-GAL JUG		

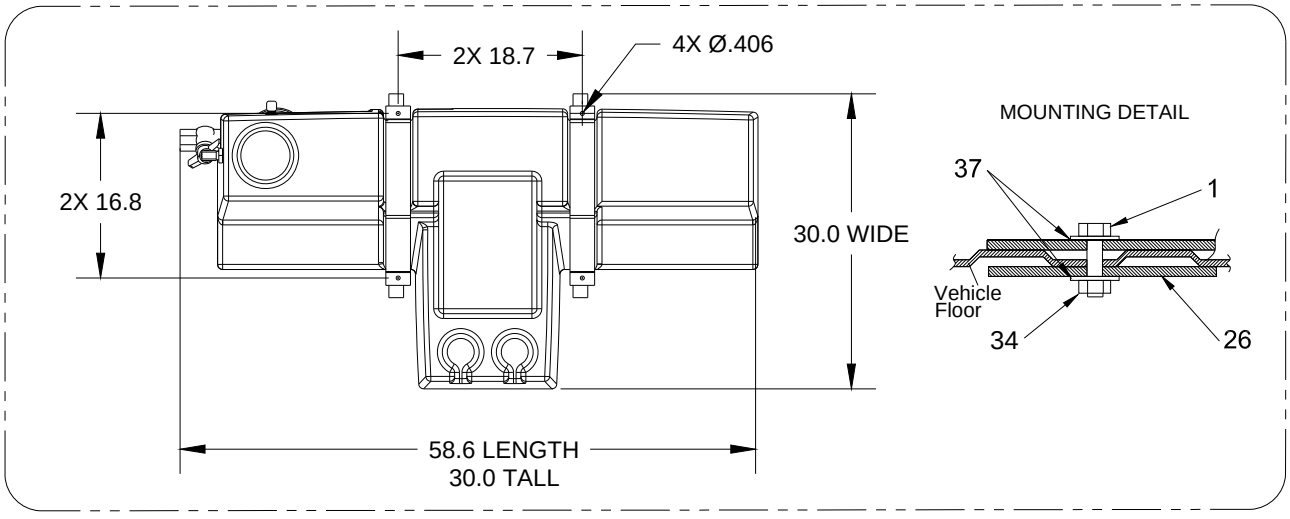
WATER TANK - DEMAND PUMP - OPTIONAL



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86006760	70305	4	SCR, 5/16-18 X 3/4 HHCS GR5 PL TDL		
2	86279130	87083	4	WASHER, 5/16 SPLIT LOCK PLTD		
3	86278830	02-000143	4	WASHER, 5/16 FLAT		
4	86177020	03-000113	4	CLAMP, HOSE #12 SST		
5	86280290	09-805278	1	HOSE, WATER 3/4 X 3”		
6	86280420	09-805357	1	HOSE, WATER .75 X 5.5		
7	86280550	09-805446	1	HOSE, WATER 5/8ID BLU X 55”		
8	86181400	12-800345	1	FTTG, BRB 3/8P X 5/8H BR		
9	86179630	13-806009	1	DISCONNECT, 3/8M X 3/8FP		
10	86180900	14-806553	1	FILTER, DEMAND PUMP		
11	86190740	41-905049	1	PUMP, WATER BOOSTER FLOJET 2		
12	86186120	48-809423	1	KIT, PORT		
13	86180210	11-800275	1	ELBOW, ST 3/8 BR		
14	86191390	65240	1	PUMP ONLY, TM DEMAND		NOT SHOWN
15	86186030	47449	1	KIT SERVICE DEMAND PMP FJ		NOT SHOWN
16	86177060	03-000246	2	CLAMP, HOSE, #8 SST		

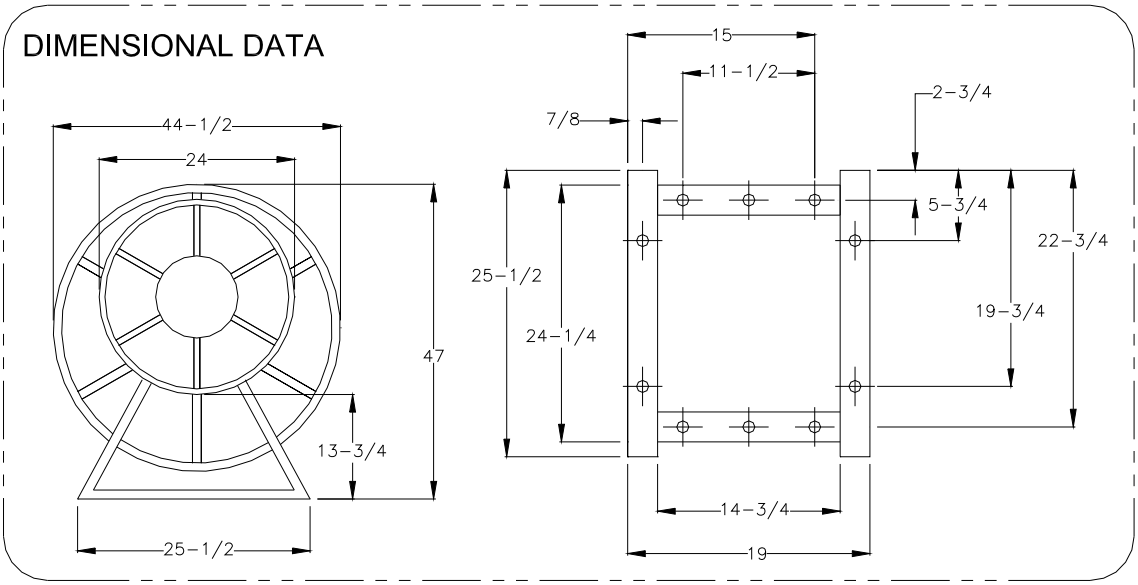
AUXILIARY WATER TANK WITH PUMP



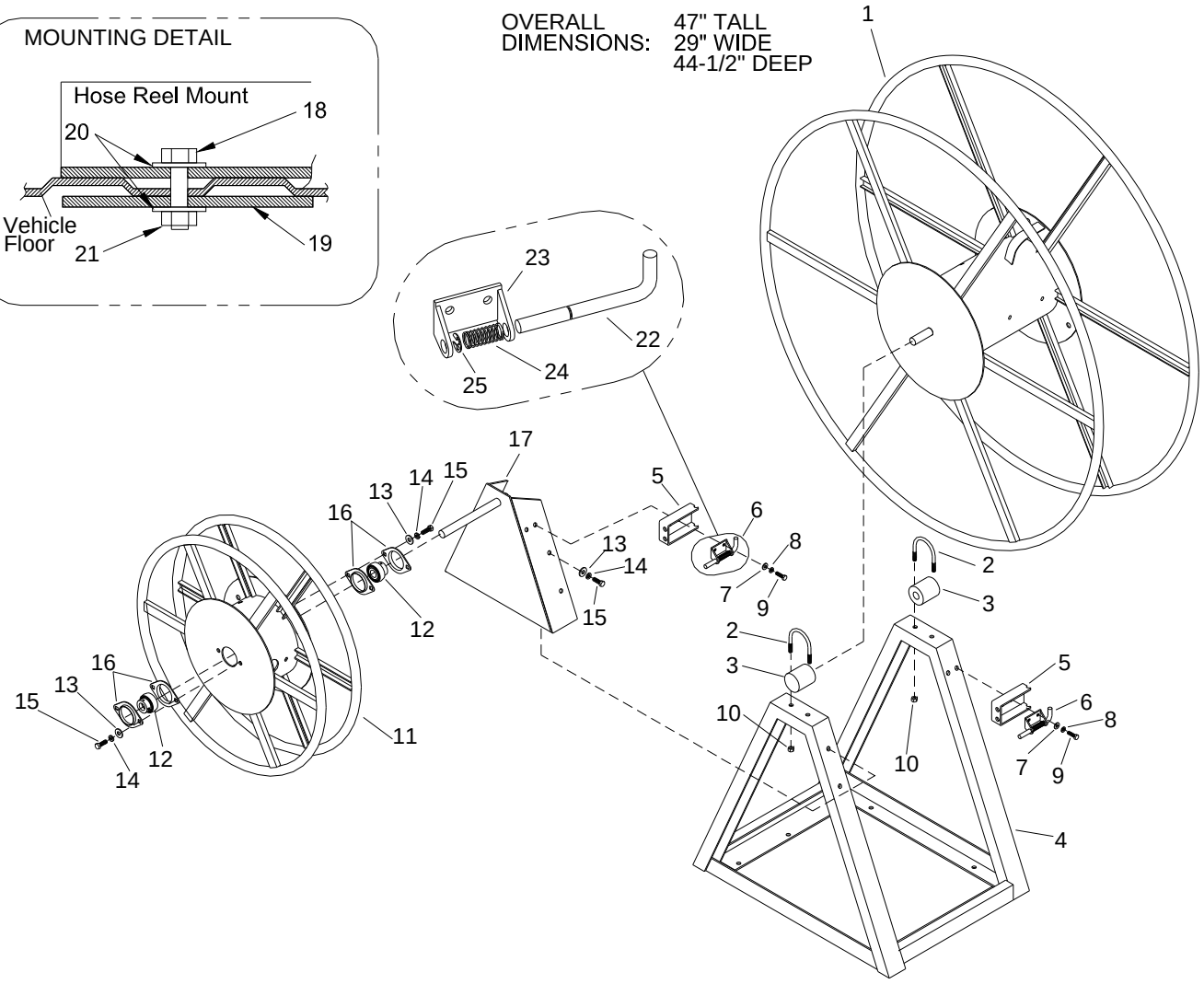


REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86277830	00-000072	4	SCR, 3/8-16 X 2” HXHD		
2	86277850	00-000337	1	SCR, 10-32 X 1” SOCHD SST		
3	86270330	02-000066	4	FLATWASHER, 1/4		
4	86177020	03-000113	4	CLAMP, HOSE #12 SST		
5	86280550	09-805446	1	HOSE, 5/8 ID BLU X 55”		
6	86280290	09-805278	1	HOSE, 3/4 ID WTR X 3”		
7	86280420	09-805357	1	HOSE, 3/4 ID WTR X5.5”		
8	86280140	09-805406	1	HOSE, 5/8 ID BLU X 30 1/2		
9	86180170	11-800041	2	ELL, STREET 1/2 BR MACH		
10	86180210	11-800275	1	ELL, ST 3/8 BR		
11	86191600	11-800283	1	RED, 1/2FP X 3/8P BR		
12	86176400	11-800432	1	CAP, WATER BOX		
13	86188470	11-800524	1	NIP, 1-1/2XCL PVC (SCH80)		
14	86181320	12-800095	1	FTTG, BRB 3/4PX3/4H BR		
15	86181360	12-800269	1	FTTG, BRB 1/2 X 5/8H BR		
16	86181400	12-800345	2	FTTG, BRB 3/8P X 5/8 BR		
17	86179710	13-806008	1	DISCONNECT 3/8F X 3/8FP		
18	86179630	13-806009	1	DISCONNECT 3/8M X 3/8FP		
19	86180900	14-806553	1	FILTER, DEMAND PUMP		
20	86195010	15-808080	1	VALVE, BALL PVC 1-1/2FP		
21	86192380	16-808164	1	SEAT, FLOAT VLV TM		
22	86173820	16-808216	1	ARM, PIVOT-FH VLV		
23	86174610	16-808217	1	BDY, FLOAT VLV		
24	86174540	19-807014	1	BALL, FLOAT		
25	86190740	41-905049	1	PMP, WTR BOOSTER FLOJET 2		
26	86190170	50-500511	4	PLATE, INSTALL MT		
27	86189010	52-501706	1	NUT, FLOAT VALVE		
28	86028860	52-800314	1	PISTON, FLOAT VLV PISTON		
29	86181150	54-501715	1	FLOAT ROD, TM		
30	86186120	48-809423	1	KIT, PORT DEMAND PUMP		
31	86180010	31100	1	ELBOW, 1.5 STREET PVC MP X FP		
32	86270770	57006	2	NUT, 1/4-20 HEX		
33	86270990	57090	1	NUT, 10-32 HEX NYLOCK SS		
34	86005770	57119	4	NUT, 3/8-16 HEX NYLOCK		
35	86274750	70270	4	SCR, 1/4-20 X 3/4 HHCS PLTD		
36	86010780	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
37	86279510	87171	8	WASHER, 3/8 FLAT		
38	86031000	790617	1	TANK, FRESH WATER 70GAL		
39	86057170	790666	2	STRAP, WTR TNK HOLD DOWN		
40	86177060	03-000246	3	CLAMP, HOSE #8 SST		

HOSE REEL - OPTIONAL

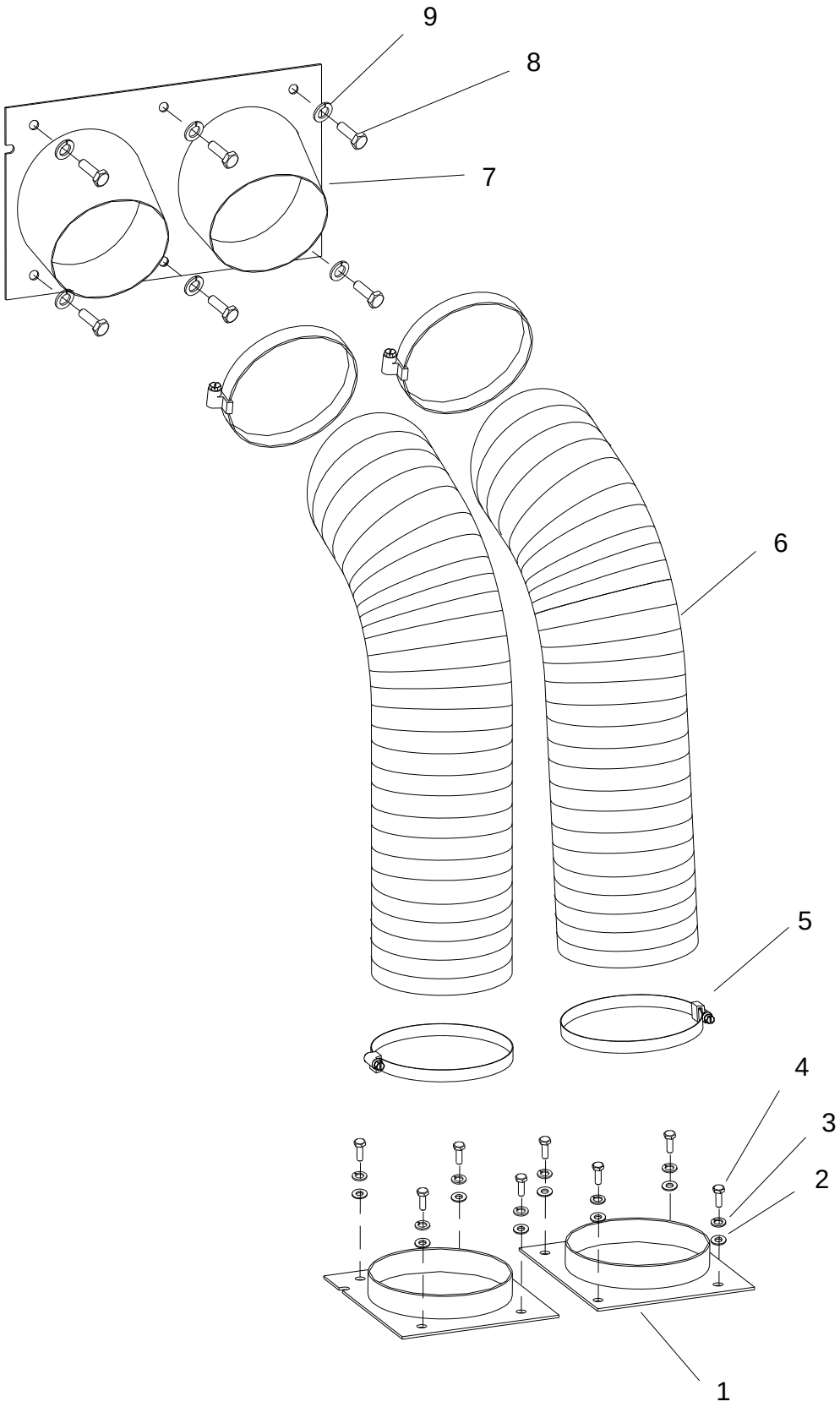


OVERALL DIMENSIONS: 47" TALL
29" WIDE
44-1/2" DEEP



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86191620	56-501962	1	REEL, VACUUM HOSE GRAY		
2	86177030	03-000124	2	CLAMP, MFLR 1-3/4		
3	86175990	52-501685	2	BUSHING, HOSE REEL		
4	86174560	56-501960	1	BASE, HOSE RL (250')		
5	86175740	56-502207	1	BRKT, LOCKOUT HOSE REEL		
6	86186870	61-950854	1	LATCH ASSEMBLY		
7	86270330	02-000066	2	FLATWASHER, 1/4		
8	86010780	87162	2	WASHER, 1/4 SLPIT LOCK		
9	86274750	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
10	86005650	57031	2	NUT, 5/16-18 HEX		
11	86191820	56-501968	1	REEL, HP HOSE GRAY		
12	86174740	45-802138	2	BEARING HOSE REEL		
13	86278830	02-000143	4	FLATWASHER, 5/16		
14	86279130	87083	4	WASHER, 5/16 SPLIT LOCK PLTD		
15	86006750	70302	4	SCR, 5/16-18 X 1" HHCSGR5PLT		
16	86181030	44-802122	4	FLANGE, 47MST		
17	86174730	56-501961	1	BODY, HP HOSE GRAY		
18	86277830	00-000072	10	SCR, 3/8-16 X 2" HXHD		
19	86190170	50-500511	10	PLATE, INSTALL MT		
20	86279510	87171	10	WASHER, 3/8 FLAT		
21	86005770	57119	10	NUT, 3/8-16 HEX NYLOCK		
22	86189850	55-501789	1	PIN, LOCK HOSE REEL		
23	86175700	50-501812	1	BRKT, HOSE REEL LOCK		
24	86193240	04-000302	1	SPRING, LOCK-LOCK PIN ASSY		
25	86177190	04-000303	1	CLIP, RETAINER-LOCK PIN ASSY		

FLEXIBLE EXHAUST DIVERTER KIT



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86300940	-	1	BRKT, LOWER EXH DIVERTER		
2	86279520	87172	8	WASHER, 1/4 ID FLAT BLK		
3	86279400	87151	8	WASHER, 1/4 SPLIT LOCK BLK		
4	86275210	70384	8	SCR, 1/4-20 X 1/2PHTR BLK DL		
5	86177070	03-000250	4	CLAMP, HOSE #60 3.3125/4.5, SST		
6	86300970	-	2	TUBING, FLEXIBLE EXHAUST		
7	86300920	-	1	BRKT, UPPER EXH DIVERTER		
8	86274750	70270	6	SCR, 1/4-20 X 3/4 HHCS PLTD		
9	86010780	87162	6	WASHER, 1/4 SPLIT LOCK PLTD		
10	86300980	-	1	KIT, FLEXIBLE EXHAUST DIVERTER		COMPLETE KIT

SERIAL NUMBERS

REF. NO.	MODEL: SERIAL #
1	EV650: 10010107000004
2	EV408, EVHP408: 10011080000060, 10011070000043 EV650, EVHP650: 10011060000077, 10011050000334
3	EV408, EVHP408: 10011080000075, 10011070000049 EV650, EVHP650: 10011060000086, 10011050000423