

INSTALLATION INSTRUCTIONS FOR THE DIGITAL TAPER ADDITIVE INJECTION SYSTEM GTP-9076D-N

This additive injection system was designed to be used with a remotely located additive supply tank, which we can supply. The system is supplied with an additive injection pump, a mounting bracket, a sight flow indicator, a three-way valve (test, off and inject), a pulse counter and a combination air pressure regulator and lubricator. Installation is simple; all that is required is a compressed air supply capable of at least 1 scfm, a 1/4" n.p.t. port in your piping after the filter and after any control valves for our exclusive injector nozzle and installing a pulse counter in the line from the electronic pulse transmitter on your existing Veeder Root register. We include all of the compression fittings, tubing and electrical cable that are needed for the installation. An insulated NEMA 4 enclosure complete with a thin film heater is provided for the pulse counter.

Installation

1. Install the mounting bracket in a convenient location.
2. Mount the additive pump on the mounting bracket with the 3/8" bolts supplied by Gammon. Be sure to mount the pump with the outlet facing up. Refer to the diagram attached.
3. Mount the NEMA 4 enclosure.
4. Wire the counter to the pulse transmitter on your register and to the solenoid on the additive pump. Refer to the attached wiring diagram. If you are using the LC LectroCount LCR refer to the attached wiring diagrams.
5. Wire the heater in such a way that it will have power when the ignition is on. This heater was designed with a built in thermostat that will only operate if the temperature inside the enclosure drops below 40 degrees.
6. Install the pressure gauge in the regulator. Be sure to install the plug in the port behind the regulator. Mount the combination air pressure regulator lubricator in a convenient location. Leave sufficient room to fill and adjust the regulator and lubricator.
7. Mount the sight flow indicator on the fueling side of the truck, where it can be observed while fueling.

8. Install the three-way selector valve into the outlet port of the pump or after the sight flow indicator, this is a special selector valve the test port having a restricted orifice. This port must be used for testing and calibration but not for injection. Install a 3/8" stainless steel compression fitting into the test port and install a bent piece of 3/8" tubing into the fitting. This piece of tubing is used for taking samples while calibrating. The three-way test valve has no closed position. Do not leave it in the center position as it may cause damage to the sight flow indicator or the additive pump seals.
9. Install the injection nozzle into a 1/4" n.p.t. port in your piping, after the filter.
10. Install 3/8" S/S tubing from the injection nozzle to the outlet of the check valve and then from the inlet of the check valve to the outlet of the sight flow indicator or injection port on the three-way test valve. Use the Gammon supplied 3/8" stainless steel tubing and stainless steel compression fittings. Refer to the attached flow diagram.
11. Install 3/8" S/S tubing from the inlet of the additive pump to your additive supply tank. Use the Gammon supplied 3/8" stainless steel tubing and compression fittings. Refer to the enclosed flow diagram.
12. Install 3/8" S/S tubing from the outlet of the injection pump or the injection port on the three-way valve to the inlet of the sight flow indicator. Use the Gammon supplied 3/8" stainless steel tubing and compression fittings.
13. Install 3/8" Synflex tubing from your compressed air supply to the inlet of the air regulator. We supply 3/8" Synflex tubing and brass compression fittings for this connection. Refer to the attached flow diagram.
14. Install 3/8" Synflex tubing from the outlet of the air regulator to the supply port on the four-way pilot valve. Use the supplied 3/8" Synflex tubing and brass compression fittings. Refer to the attached flow diagram.
15. Install the two GTP-5855 filter silencers into the two vent ports in the four-way pilot valve. Refer to the attached flow diagram.
16. Fill the lubricator with SAE 5 or 10 weight non detergent oil up to the full mark on the plastic bowl.
17. Set the lubricator to the minimum setting.

Testing: We recommend that neoprene gloves and an eye shield be used.

NOTE: This pump is supplied with neoprene seals. These seals are not compatible with jet fuels. This pump should be tested and calibrated with anti icing additive only.

1. Open your compressed air supply valve.
2. Set the air pressure to 80 psi using the air regulator.
3. Place a calibrated container under the tubing on the test port of the three- way selector valve.
4. Turn the handle on the three-way selector valve to test.
5. Start the flow of fuel and allow the system to prime into the test container. Each time the pump cycles there will be a noticeable thump. This will be the adjusting wheels hitting their bumpers and is normal.
6. If the system has a problem priming. Stop the flow of fuel and close the air valve. Remove the two 1/8" npt plugs on the outlet of the pump and then fill the pump with additive. Replace the plugs using Teflon tape to seal the threads. Turn your air supply valve on and start the flow of fuel.
7. Once all of the air has been forced from the system, stop the flow of fuel.
8. Reset the meter and then restart the fuel flow to check the calibration of the system. The system has been adjusted to deliver 1000 ppm. That is equivalent to 380 ml of additive per 100 gallons of fuel pumped. To change or adjust the injection rate of the system, refer to the section on calibration.

Final adjustment: This adjustment causes the Viper to operate smoothly, injecting additive continuously for perfect blending.
Our pump is double-acting, and is capable of excellent blending.

1. Once calibrated correctly, adjust your fuel system to operate at the maximum normal pressure.
2. Reduce the air pressure until the systems stops injecting correctly.
3. Slowly increase the air pressure until the Viper just injects correctly. Raise the air pressure about 5 psi higher.

Calibration: There are two ways to calibrate this system. Use one method only.

- A. Change the presets in the pulse counter, to increase the amount of additive decrease the preset values and to decrease the amount of additive increase the preset values. Refer to the section of this manual on programming the counter presets.
- B. Adjust the stroke of the Viper piston.
 1. Close your air supply valve.
 2. Remove the two socket head screws from the guard to expose the calibrating wheels. Located below the four-way pilot valve.
 3. To increase the flow of additive, first remove the two upper set screws on both of the calibration wheels C and D, refer to the diagram attached for identification. Next loosen the two lower set screws on each wheel. Next turn each wheel away from each other. This will increase the stroke of the piston. Each 360 degrees of rotation will equal .005 gallons or 19 ml of additive pumped.
 4. To decrease the flow of additive, first remove the two upper set screws on both of the calibration wheels. Next loosen the two lower set screws on each wheel. Next turn each wheel toward each other. This will decrease the stroke of the piston.
 5. Once adjusted, tighten the lower set screws insuring they are in the shaft groove, install and tighten the upper set screws and replace the guard.
 6. Retest and re-calibrate as needed.

Programming the presets into pulse counter.

The pulse counter presets have been set by Gammon Tech. to 50 and 100, this is for a whole gallon register with a 100-1 pulse transmitter. The Viper pump is now set to inject once for every 5 gallons of fuel pumped, at a rate of 1000 ppm. The example below is to demonstrate how to set the presets to 50 and 100.

1. Turn on the power, the screen should read 0. If the screen does not read 0 hold down both the "4" key and "6" key to reset.
2. Hold down both the Edit "E" key and the "1" key and release. The screen should read 000050. If it does not, press the "1" key until

the last number on the screen reads 0. If you go past 0 continue pressing the "1" key until you get to 0.

3. Press the "2" key until the last two numbers on the screen reads 50. If you go past 50 continue pressing the "2" key until you get to 50. If the screen now reads 000050 press the E key. Proceed to step 8.
4. Press the "3" key until the last three numbers on the screen read 050.
5. Press the "4" key until the last four numbers on the screen read 0050.
6. Press the "5" key until the last five numbers on the screen read 00050.
7. Press the "6" key until the six numbers on the screen read 000050. Press the "E" key. The screen will read 0.
8. Hold down both the Edit "E" key and the "2" key and release. The screen should read 000100. If it does not, press the "1" key until the last number on the screen reads 0.
9. Press the "2" key until the last two numbers on the screen reads 00.
10. Press the "3" key until the last three numbers on the screen read 100.
11. Press the "4" key until the last four numbers on the screen read 0100.
12. Press the "5" key until the last five numbers on the screen read 00100.
13. Press the "6" key until the six numbers on the screen read 000100. Press the "E" key. The screen will read 0. The pulse counter is now ready to operate the Viper pump once every 5 gallons.

The Viper can be calibrated to inject more or less additive by changing these presets. Preset 1 should be half of preset 2, the closest whole number should be used. For example, if the preset 1 is 50 and preset 2 is 100 and you want to increase the amount of additive injected you must lower the number in the presets such as; set preset 1 to 43 and preset 2 to 86. If you need to decrease the amount of additive, raise the presets.

The examples above are for a whole gallon register with a 100-1 pulse transmitter. There are many combinations of registers and pulse transmitters and the presets are different with each one. Refer to the table below for the most common presets. If you do not know the number of pulses your pulse transmitter puts out, change the presets to 10,000 and 20,000. Reset the display to 0 and

then run 100 gallons or liters thru your system. Divide the number on the display by 100. This will tell you how many pulses per gallon or liter.

TABLE OF PRESETS

| Type Of Pulse Transmitter | | Veeder Root Model 7697 10 to 1 | | | | Veeder Root Model 7671 100 to 1 | | | |
|---------------------------|--------------|-----------------------------------|----|----------|-----|------------------------------------|-----|----------|------|
| Type Of Register | Whole Gallon | Preset 1 | 5 | Preset 2 | 10 | Preset 1 | 50 | Preset 2 | 100 |
| | 1/10 Gallon | Preset 1 | 50 | Preset 2 | 100 | Preset 1 | 500 | Preset 2 | 1000 |
| | Liter | Preset 1 | 18 | Preset 2 | 36 | Preset 1 | 180 | Preset 2 | 360 |
| | Dekaliter | Preset 1 | 2 | Preset 2 | 4 | Preset 1 | 18 | Preset 2 | 36 |

TABLE OF PULSES PER UNIT

| Type Of Pulse Transmitter | | Veeder Root Model 7697 10 to 1 | | Veeder Root Model 7671 100 to 1 | |
|---------------------------|--------------|-----------------------------------|----|------------------------------------|-----|
| Type Of Register | Whole Gallon | Pulses Per Gallon | 1 | Pulses Per Gallon | 10 |
| | 1/10 Gallon | Pulses Per Gallon | 10 | Pulses Per Gallon | 100 |
| | Liter | Pulses Per Liter | 1 | Pulses Per Liter | 10 |
| | Dekaliter | Pulses Per 10 Liters | 1 | Pulses Per Liter | 1 |

The LC LectroCount LCR will pulse once per least significant digit of the display, i.e., a system set to read in 1/10 gallon will provide 1 pulse per 1/10 gallon (10 pulses per gallon). A system set to read in gallons will pulse once per gallon. Dual channel pulse transmitters transmit 1/2 of their total number of pulses per channel. For example, a dual channel pulse transmitter that transmits 100 pulses per gallon will transmit 50 pulses per channel. Two channels at 50 pulses per gallon each equals 100 pulses per gallon.

VIPER PUMP COMPLETE REBUILD

Drawing required: GTP-8776-1.50

Tools required for complete rebuild: 1-3/8" wrench or large adjustable wrench
5/8" wrench
11/16" wrench
15/16" wrench
1/4" wrench
3/4" wrench
7/16" wrench
1/2" wrench
7/8" wrench
9/16" wrench
Set of Allen wrenches
Flat blade screwdriver
Needle nose pliers

Materials required: Teflon tape
Petroleum jelly
Loctite 242

CHECK VALVE AND STRAINER REPAIR PROCEDURE.

1. Remove the Viper pump assembly from it's mounting location. Be sure to shut off and vent the air supply, disconnect the power and close all inlet and outlet ball valves.
2. Remove the four valve port plugs, GTP-8689-3. Be careful not to loose the inlet and outlet check valve springs. Remove and replace the valve port plug o-rings, GTP-2200-914C. Lightly coat these o-rings with petroleum jelly.
3. Remove the four check valve poppets, GTP-8689-4. There are two style check valve poppets. One style has a 3/8"-16 female thread in the center, use and 3/8"-16 bolt to remove this type. The other style has a 5/16" counterbore in the center, use an internal snap ring pliers to remove this type. Remove and replace the four poppet o-rings, GTP-2200-206C. Lightly coat these o-rings with petroleum jelly.
4. Reinstall the four poppets.
5. Inspect the inlet poppet springs and replace as required. Install the inlet springs, GTP-8720-7. These are the lighter of the two springs.
6. Install the two inlet valve port plugs. Tighten securely.
7. Inspect the outlet poppet springs and replace as required. Install the two outlet springs, GTP-8720-8.
8. Install the two outlet valve port plugs. Tighten securely.
9. Remove the strainer port plug. Remove and replace the o-ring, GTP-2200-017C. Lightly coat the o-ring with petroleum jelly.
10. Remove the strainer, GTP-8689-14. Remove and replace the o-ring, GTP-2200-014C. Lightly coat the o-ring with petroleum jelly.
11. Reinstall the strainer assembly. Be sure the strainer snaps into place below the level of the inlet port.

12. Install the strainer port plug. Tighten securely.

PISTON SEAL AND GLAND BODY REPAIR PROCEDURE

1. Remove the copper tubing from between the four way pilot valve, GTP-8695, and the air cylinder, GTP-8689-16.
2. Unthread the cylinder joint, GTP-8689-17, from the pump drive rod, GTP-8689-6.
3. Remove the four 5/16"-24 bolts that secure the cylinder support assembly, GTP-8689-10, to the pump body.
4. Remove the cylinder support assembly.
5. Remove the screws that secure the gland body to the pump body. There are two style gland bodies. One type has four screws to secure it to the pump body and the second type has three screws to secure it to the pump body.
6. Remove the gland body, pump drive rod and piston assembly from the pump body.
7. Remove the cotter pin from the pump drive rod.
8. Remove the 1/4"-28 castle nut and washer from the pump drive rod.
9. Unthread the piston, GTP-8689-5, from the pump drive rod.
10. Pull the pump drive rod from the gland body assembly.
11. Remove the three Allen head screws that secure the seal carrier to the gland body. Remove the seal carrier.
12. Remove the pump drive rod seal, GTP-8776-26, from the gland body.
13. Remove and replace the gland body o-rings, GTP-2200-110C and either GTP-2200-129C for the four screw gland body or GTP-2200-126C for the three screw gland body. Lightly coat these o-rings with petroleum jelly.
14. Install the new pump drive rod seal into the gland body. This is a special seal and must be handled and installed with extreme care. To install this seal; 1. Coat the inside of the gland body with petroleum jelly. 2. Insert one of the cupped halves into the gland body cupped end into the gland body. Be sure the seal half bottoms in the counter-bore. 3. Install the spring over the seal half. The spring should rest in the groove in the seal. 4. Carefully insert the second seal half into the gland body, cupped end facing out. The cupped end will protrude from the gland body.
15. Install the seal carrier on the gland body. Align the three hole in the seal carrier with the three holes in the gland body. Place a drop of *Loctite 242* on the threads of each socket head screw. Thread the three screws into the gland body. Do not tighten. The seal carrier should just touch the pump drive rod seal without compressing it.
16. Install the gland body cover on the gland body.
17. Coat the pump drive rod end and the inside of the pump drive rod seal with petroleum jelly.
18. Insert the pump drive rod thru the gland body cover gland body and rotate the pump drive rod to push it thru the pump drive rod seal.
19. Now tighten the three socket head screws into the gland body.
20. Install the piston half with the machined recess on the pump drive rod. The recess should face toward the threaded end of the pump drive rod.
21. Install the new piston seal on the installed piston half. The cupped end of one half against the piston then the spring and then the other half over the spring.
22. Thread the second half of the piston on the pump drive rod. Tighten securely by hand.

23. Install the flat washer, castle nut, tightened securely, and the cotter pin on the pump drive rod.
24. Lightly coat the piston seal with petroleum jelly.
25. Install the gland body into the pump body. Be sure to align the holes in gland body with the holes in the pump body.
26. Install the gland body screws. Tighten securely.
27. Position the cylinder support assembly on the pump body. The air cylinder compression fittings should face out toward the valve port plugs.
28. Install the four 5/16" flat washers and 5/16"-24 bolts to secure the cylinder support assembly to the pump body.
29. Thread the pump drive rod into the cylinder joint. Tighten securely.
30. Install the brass tubing into the compression fittings on the air cylinder and four way air valve. Tighten snug.

AIR CYLINDER REPAIR PROCEDURES

1. Remove the copper tubing from between the four way pilot valve, GTP-8695, and the air cylinder, GTP-8689-16.
2. Unthread the cylinder joint, GTP-8689-17, from the pump drive rod, GTP-8689-6.
3. Remove the four 5/16"-24 bolts that secure the cylinder support assembly, GTP-8689-10, to the pump body.
4. Remove the cylinder support assembly.
5. Remove the plastic enclosure, GTP-9124, from the solenoid on the four way air valve.
6. Remove the three socket head screws that secure the four way air valve to the cylinder support assembly.
7. Remove the four way air valve. Remove and replace the two air stones, GTP-5855.
8. Remove the guard assembly, GTP-8689-11A and assembly brackets, GTP-8689-11B, from the cylinder support.
9. Loosen the two set screws on the adjusting collar, GTP-8689-8 closest to the air cylinder.
10. Thread the adjusting collar that is closest to the air cylinder toward the air cylinder.
11. Unthread the adjusting rod, GTP-8689-7, from the air cylinder, GTP-8689-16.
12. Remove the eight truss head screws that secure the air cylinder to the support bracket.
13. Remove the air cylinder from the air cylinder support bracket.
14. Remove the two compression elbows from the air cylinder. Clean any remaining Teflon tape from the threads of the compression fittings. Remove the cylinder joint from the air cylinder shaft.
15. Install Teflon tape on the N.P.T. threads of the compression fittings. Coat the threads with petroleum jelly.
16. Reinstall the compression fittings into the new air cylinder. The ends of the compression fittings should face toward each end of the air cylinder. Do not over tighten. Install the cylinder joint on the air cylinder shaft.
17. Reinstall the air cylinder into the air cylinder support assembly.
18. Thread the adjustment rod into the air cylinder. Tighten securely.
19. Install the guard brackets on the cylinder support bracket.

20. Thread the adjusting collar away from the air cylinder until it is in approximately the same location it was before moving. Be sure to align the set screws with the flats machined on the adjustment rod. Tighten the set screws.
21. Install the four way air valve on the air cylinder support assembly. Tighten the three screws securely.
22. Install the copper tubing into the compression fittings and tighten the compression nuts snug.
23. Install the plastic enclosure on the four way air valve.
24. Install the guard on the air cylinder support assembly.

FOUR WAY AIR VALVE REPAIR PROCEDURES

1. Remove the copper tubing from between the four way pilot valve, GTP-8695, and the air cylinder, GTP-8689-16.
2. Remove the plastic enclosure, GTP-9124, from the solenoid on the four way air valve.
3. Remove the three socket head screws that secure the four way air valve to the cylinder support assembly.
4. Remove the four way air valve.
5. Remove the all of the compression fittings from the air valve Clean any remaining Teflon tape from the threads of the compression fitting.
6. Install Teflon tape on the N.P.T. threads of the compression fittings. Coat the threads with petroleum jelly.
7. Install the compression fittings into the new air valve.
8. Install the air stones, GTP-5855, in the new air valve.
9. Install the air valve on the air cylinder support assembly. Tighten three socket head screws securely.
10. Install the copper tubing into the compression fittings and tighten the compression nuts snug.
11. Install the plastic enclosure on the four way air valve.

Troubleshooting

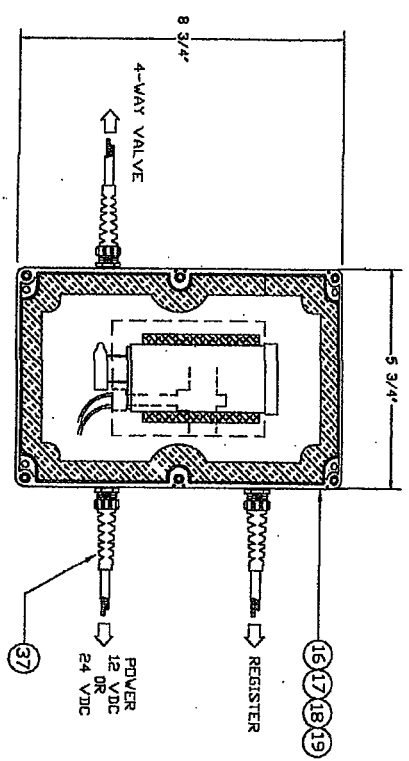
| PROBLEM | CAUSE | SOLUTION |
|----------------------------|---|--|
| <p>Pump will not cycle</p> | <p>1. Low or no air pressure</p> | <p>Turn on air supply Increase air pressure to 50psi</p> |
| | <p>2. No power</p> | <p>Turn on the power Check the wiring and correct as required</p> |
| | <p>3. Outlet ball valve is closed</p> | <p>Open outlet ball valve</p> |
| | <p>4. Pulse counter is not counting</p> | <p>Check the wiring and correct as required Check the pulse counter program reprogram as required Check pulse transmitter repair as needed Replace pulse counter</p> |
| | <p>5. Pulse counter presets set too high or not entered</p> | <p>Check the presets adjust as needed</p> |
| | <p>6. Presets in pulse counter were changed and counter was not reset</p> | <p>Reset pulse counter</p> |
| | <p>7. Four way air valve or solenoid bad</p> | <p>Repair or replace as needed</p> |

| PROBLEM | CAUSE | SOLUTION |
|--------------------------------------|--|--|
| <p>Pump cycles but does not pump</p> | <ol style="list-style-type: none"> 1. Inlet ball valve closed 2. Additive fluid level is low 3. Pump was not primed 4. Air leak in the suction line 5. Pump strainer clogged 6. Additive tank not vented | <p>Open the inlet ball valve</p> <p>Refill additive tank</p> <p>Remove the prime port plugs and prime the pump</p> <p>Check suction line for loose fittings and repair as required</p> <p>Remove strainer and clean</p> <p>Vent the tank</p> |
| <p>Pump cycles but does not pump</p> | <ol style="list-style-type: none"> 1. Inlet ball valve closed 2. Additive fluid level is low 3. Pump was not primed 4. Air leak in the suction line 5. Pump strainer clogged 6. Additive tank not vented | <p>Open the inlet ball valve</p> <p>Refill additive tank</p> <p>Remove the prime port plugs and prime the pump</p> <p>Check suction line for loose fittings and repair as required</p> <p>Remove strainer and clean</p> <p>Vent the tank</p> |

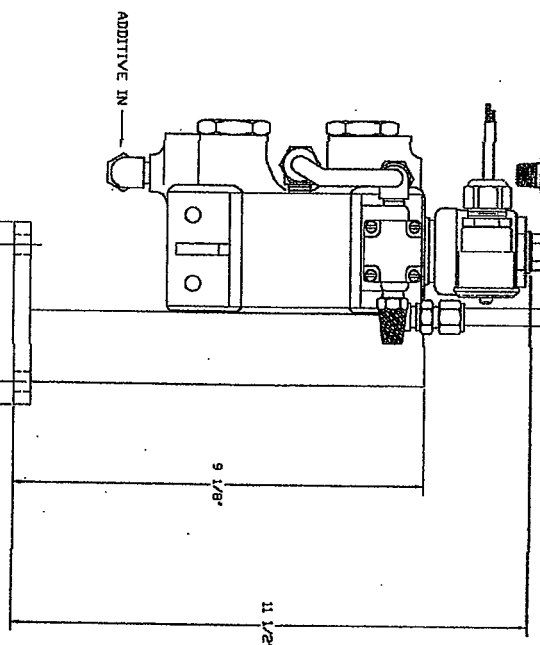
| | | |
|--|--|--|
| Pump injects the incorrect amount of additive | 1. Presets in the pulse counter not set correctly | Check presets in pulse counter and adjust as required. Refer to calibration section of manual |
| | 2. Calibration wheels not set correctly. | Check and adjust calibration wheels as required. Refer to calibration section of manual |
| | 3. Three way test inject valve is oriented incorrectly. | Verify the three way valve is oriented as per the installation instructions |
| | 4. Worn or dirty check valve o-rings in the pump | Check the check valve o-rings for wear or debris replace or clean as required |
| | 5. Air pressure set to low | Increase air pressure to 50 psi |
| | 6. Pump was not primed | Remove the prime port plugs and prime the pump |
| | 7. Air leak in the suction line | Check suction line for loose fittings and repair as required |

Revised 3-5-02

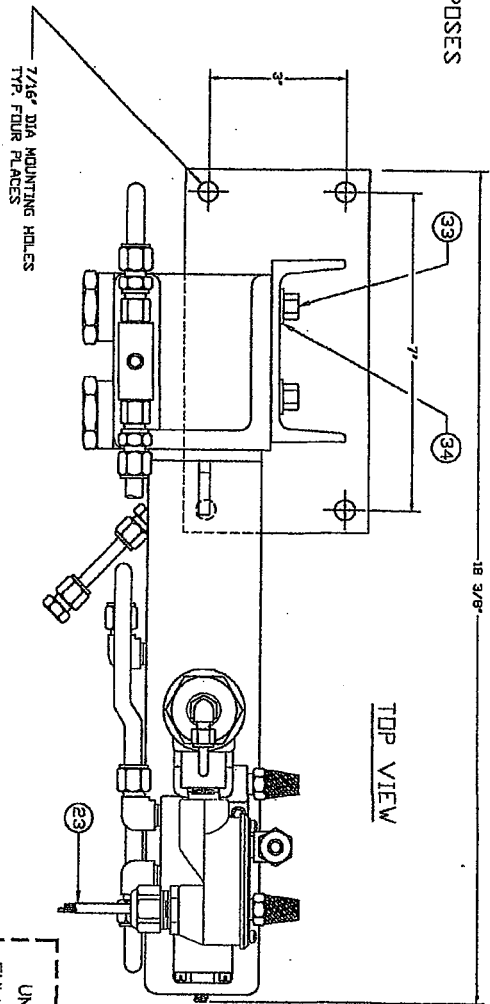
THIS DRAWING IS FOR GENERAL DESCRIPTION PURPOSES



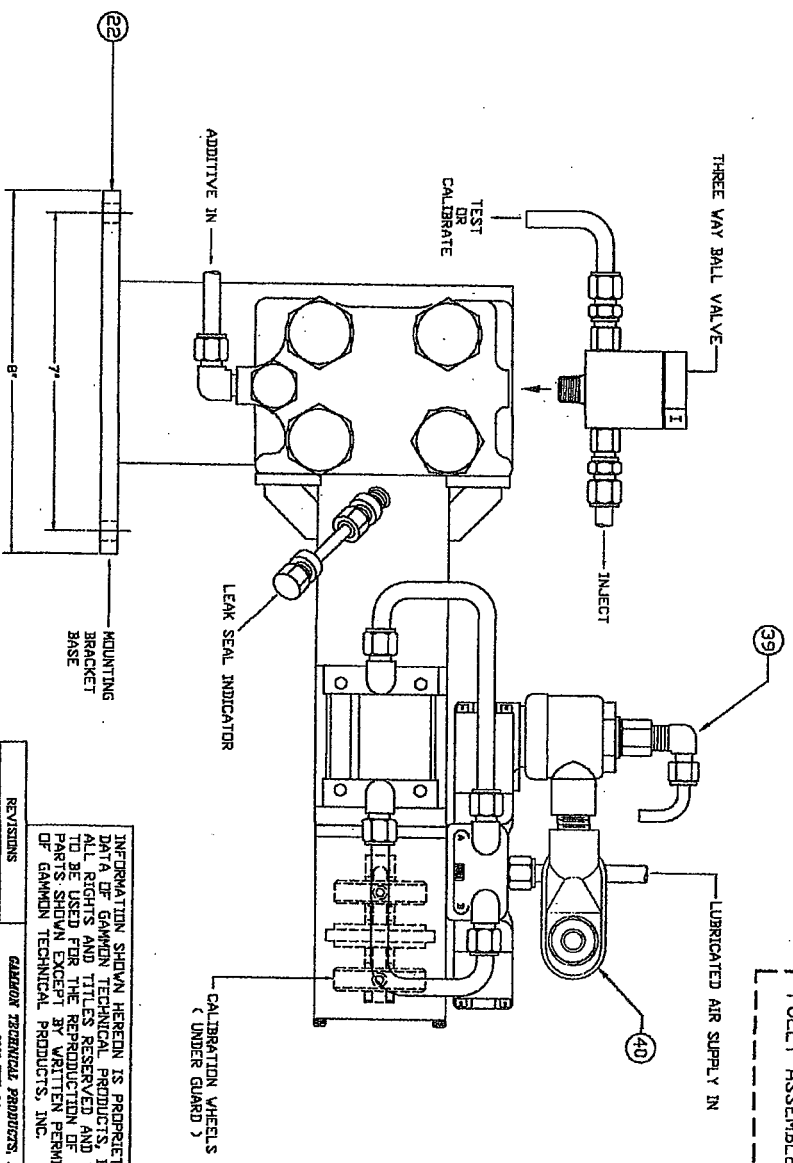
NEMA ENCLOSURE FRONT VIEW



SIDE VIEW



TOP VIEW



FRONT VIEW

- NOTES:
- 1- MOUNTING FASTENERS AND LOCATION BY CUSTOMER.
 - 2- USE TEFLON TAPE ON ALL TAPERED THREADS.
 - 3- USE BLUE LOC-TITE ON ALL THREADED FASTENERS.
 - 4- FOR ADD-ONS AND OPTIONS SEE SHEET 4 OF 4.
 - 5- SYSTEM PART NUMBER HERE.
 - 6- ELEC. DWG. SEE SHEET 3 OF 4

UNIT SHIPPED FULLY ASSEMBLED

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REVISIONS

| NO. | REVISION | DATE | BY |
|-----|----------|---------|-----|
| 1 | REVISED | 4/01/81 | MMB |
| 2 | | | |
| 3 | | | |
| 4 | | | |

GAMMON TECHNICAL PRODUCTS, INC.
2400 HWY. 34
MUSKOGEE, ALA. 36550

DESIGN BY: JAM
CHECKED BY: FULL
DATE: 10/10/01
SHEET: 1 OF 4
DRAWING NO.: GTP-9076D

TERMINALS UNLESS OTHERWISE NOTED
ANALOG 24VDC
SERIAL 24VDC
SERIAL 24VDC
SERIAL 24VDC

GTP-9076D-PARTS

NOTE

* 1- THE ENCLOSURE BOX ASSEMBLY AND THE 4-WAY VALVE HAVE DIFFERENT VOLTAGES. ONE EACH IS REQ'D PER APPLICATION ACCORDING TO WHAT VOLTAGE IS SPECIFIED ON THE VIPER PART NUMBER. ACCORDING TO WHAT VOLTAGE IS SPECIFIED PICK 1 EACH AS SHOWN IN THE EXAMPLE

| QTY. | ITEM | PART No. | DESCRIPTION | MATERIAL |
|-------|------|----------------|---|-----------------|
| 1 | 1 | GTP-8776-300 | PUMP | |
| | 2 | GTP-8776-301 | PUMP | |
| | 3 | GTP-8776-301 | PUMP | |
| | 4 | GTP-8715-3 | PUMP | |
| 1 | 5 | GTP-8726-L | FLOW INDICATOR | |
| | 6 | GTP-8726-C | FLOW INDICATOR | |
| 1 | 7 | GTP-8726-VG | FLOW INDICATOR | |
| | 8 | GTP-2305-2-070 | 3-WAY INJECTION VALVE | STAINLESS STEEL |
| | 9 | GTP-2305-1-070 | 3-WAY INJECTION VALVE | STAINLESS STEEL |
| | 10 | GTP-2305-4-070 | 3-WAY INJECTION VALVE | STAINLESS STEEL |
| 2 | 11 | SS-600-1-6 | MALE ELBOW - 3/8" TUBING x 3/8" NPT | STAINLESS STEEL |
| 1* | 12 | GTP-8695-E | 4-WAY VALVE | 12 VDC |
| 1* | 13 | GTP-8695-24 | 4-WAY VALVE | 24 VDC |
| 1* | 14 | GTP-8695-120 | 4-WAY VALVE | 120 VDC |
| 1* | 15 | GTP-8695-240 | 4-WAY VALVE | 240 VDC |
| 1* | 16 | GTP-9094 | ENCLOSURE BOX ASSEMBLY | 12 VDC |
| 1* | 17 | GTP-9094-1 | ENCLOSURE BOX ASSEMBLY | 24 VDC |
| 1* | 18 | GTP-9094-2 | ENCLOSURE BOX ASSEMBLY | 120 VDC |
| 1* | 19 | GTP-9094-3 | ENCLOSURE BOX ASSEMBLY | 240 VDC |
| 1 | 20 | GTP-8725 | AIR REGULATOR / LUBRICATOR | |
| 1 | 21 | GTP-8866 | INJECTOR - 1/4" NPT | |
| 1 | 22 | GTP-8757-7 | PUMP MOUNTING FRAME | STEEL |
| 1 | 23 | GTP-9132 | 18-3 CABLE | |
| 1 | 24 | GTP-2223 | BALL VALVE - 1/4" NPT | BRASS |
| 20 FT | 25 | | 3/8" O.D. TUBING - COIL | STAINLESS STEEL |
| 20 FT | 26 | | 3/8" O.D. TUBING | SYNPLEX |
| 2 FT | 27 | | 3/8" O.D. TUBING | STAINLESS STEEL |
| 1 | 28 | SE-4B | STREET ELBOW - 1/4" NPT | BRASS |
| 2 | 29 | 1469-4-6 | MALE ELBOW - 3/8" TUBING x 1/4" NPT | BRASS |
| 2 | 30 | SS-600-2-4 | MALE ELBOW - 3/8" TUBING x 1/4" NPT | STAINLESS STEEL |
| 7 | 31 | SS-600-1-4 | MALE CONNECTOR - 3/8" TUBING x 1/4" NPT | STAINLESS STEEL |
| 2 | 32 | 1468-4-6 | MALE CONNECTOR - 3/8" TUBING x 1/4" NPT | BRASS |
| 4 | 33 | | HEX BOLT - 3/8-16 x 1 | STAINLESS STEEL |
| 4 | 34 | | FLAT WASHER - 3/8 | STAINLESS STEEL |
| 1 | 35 | 2401-0250 | SQUEEZE BOTTLE | |
| 1 | 36 | HN-4B | HEX NIPPLE - 1/4" NPT | BRASS |
| 5 | 37 | GTP-8987 | STRAIN RELIEF | |
| 1 | 38 | R88-4B | REDUCING BUSHING - 1/2" NPT x 1/4" NPT | BRASS |
| 1 | 39 | GTP-8876-55 | VENT ASSEMBLY | |
| 1 | 40 | GTP-9124-1 | CONDUIT BODY ASSEMBLY | |
| 1 | 41 | GTP-9163 | CALIBRATED BOTTLE - 1000 ML | |
| 1 | 42 | GTP-9345 | CHECK VALVE | POLYPROPYLENE |
| 1 | 43 | GTP-6346-N | INSTRUCTIONS | |
| 1 | 44 | GTP-6346-D | INSTRUCTIONS | |
| 1 | 45 | GTP-6346-F | INSTRUCTIONS | |
| 1 | 46 | GTP-6346-Q | INSTRUCTIONS | |

SEE NOTE 1

INFORMATION SHOWN HEREIN IS PROPRIETARY AND NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF GAMMON TECHNICAL PRODUCTS, INC.

REFERENCE

| VIPER ASSEMBLY | O-RING MATERIAL |
|----------------|--------------------------|
| GTP-9076D-N | NEOPRENE |
| GTP-9076D-0 | FLOURISILICONE |
| GTP-9076D-F | PARKER COMPOUND L1120-70 |
| GTP-9076D-Q | VITON/GLT |

REFERENCE

| |
|---|
| UNIVERSAL INSTALLATION KIT FOR VIPER SYSTEMS GTP-9130 |
| OPTIONAL FLOW AND LIGHT PANEL FOR VIPER SYSTEMS GTP-9131 |

REFERENCE

| LETTER CODE | VOLTAGE |
|-------------|---------|
| R | 12 VDC |
| S | 24 VDC |
| T | 120 VAC |
| U | 240 VAC |

| NO. | DESCRIPTION | DATE BY |
|-----|--------------|-----------|
| 1 | REVISE PUMPS | 5/6/91 JH |
| 2 | | |
| 3 | | |
| 4 | | |

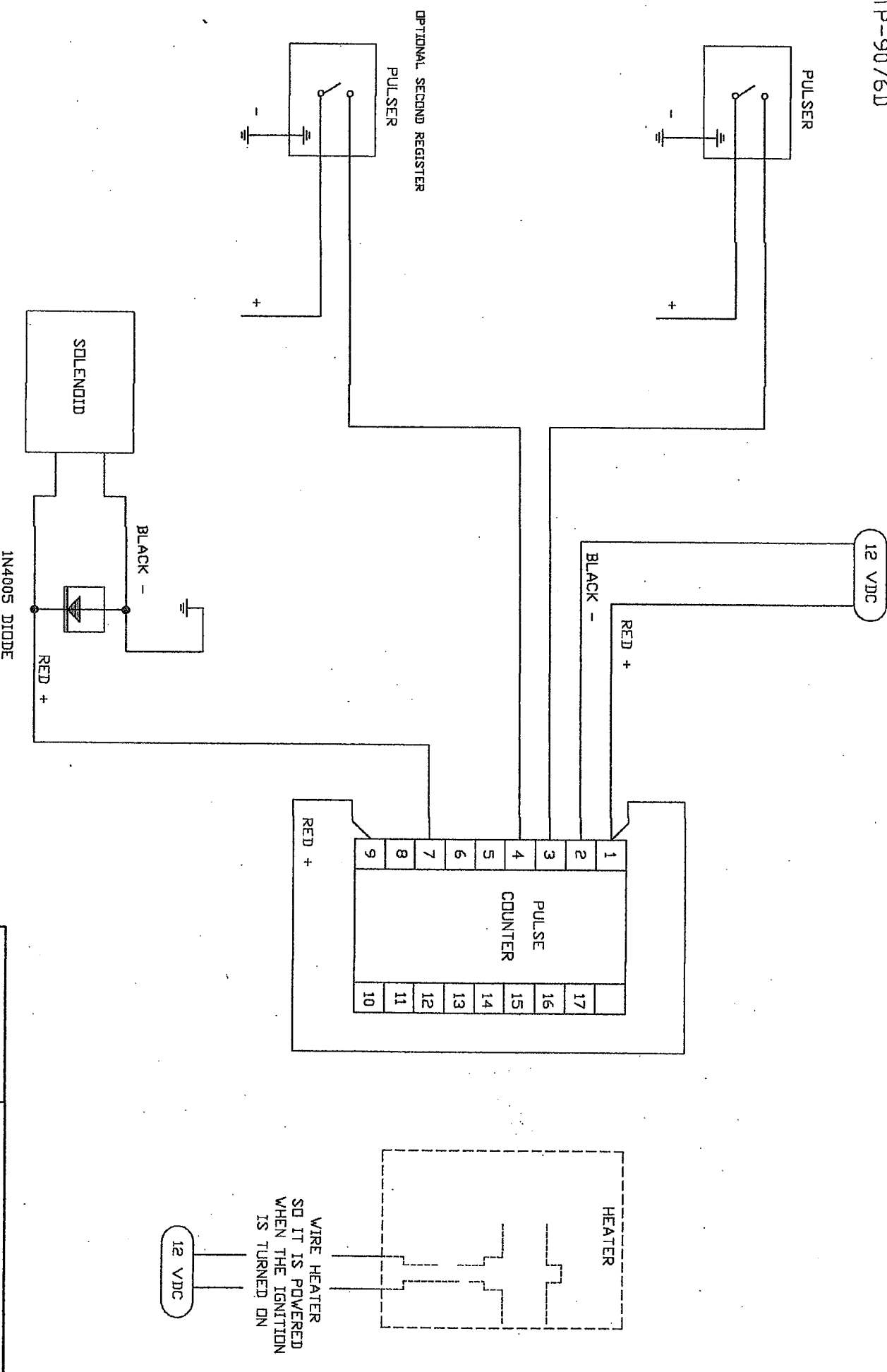
EXAMPLE

| | | |
|--|--|--|
| VIPER ASSEMBLY GTP-9076D-N-T 120 VAC | ENCLOSURE BOX GTP-9094-2 120 VAC | 4-WAY VALVE GTP-8695-120 120 VAC |
|--|--|--|

| | |
|--|---|
| GAMMON TECHNICAL PRODUCTS, INC 2900 HWY 84 MARLTON, NEW JERSEY - U.S.A. 08058 | |
| TITLE | DIGITAL VIPER SYSTEM ADDITIVE INJECTION SYSTEM PARTS LIST FOR 9076D |
| DRAWN BY | JAM |
| SCALE | NONE |
| MATERIAL | |
| DATE | 03/06/02 |
| DRAWING NO. | 2 OF 4 |
| SHEET | GTP-9076D-PARTS |

VIPER ASSEMBLY

| | | |
|-------------|-------------|-------------|
| GTP-9076D-N | GTP-9076D-F | GTP-9076D-Q |
|-------------|-------------|-------------|

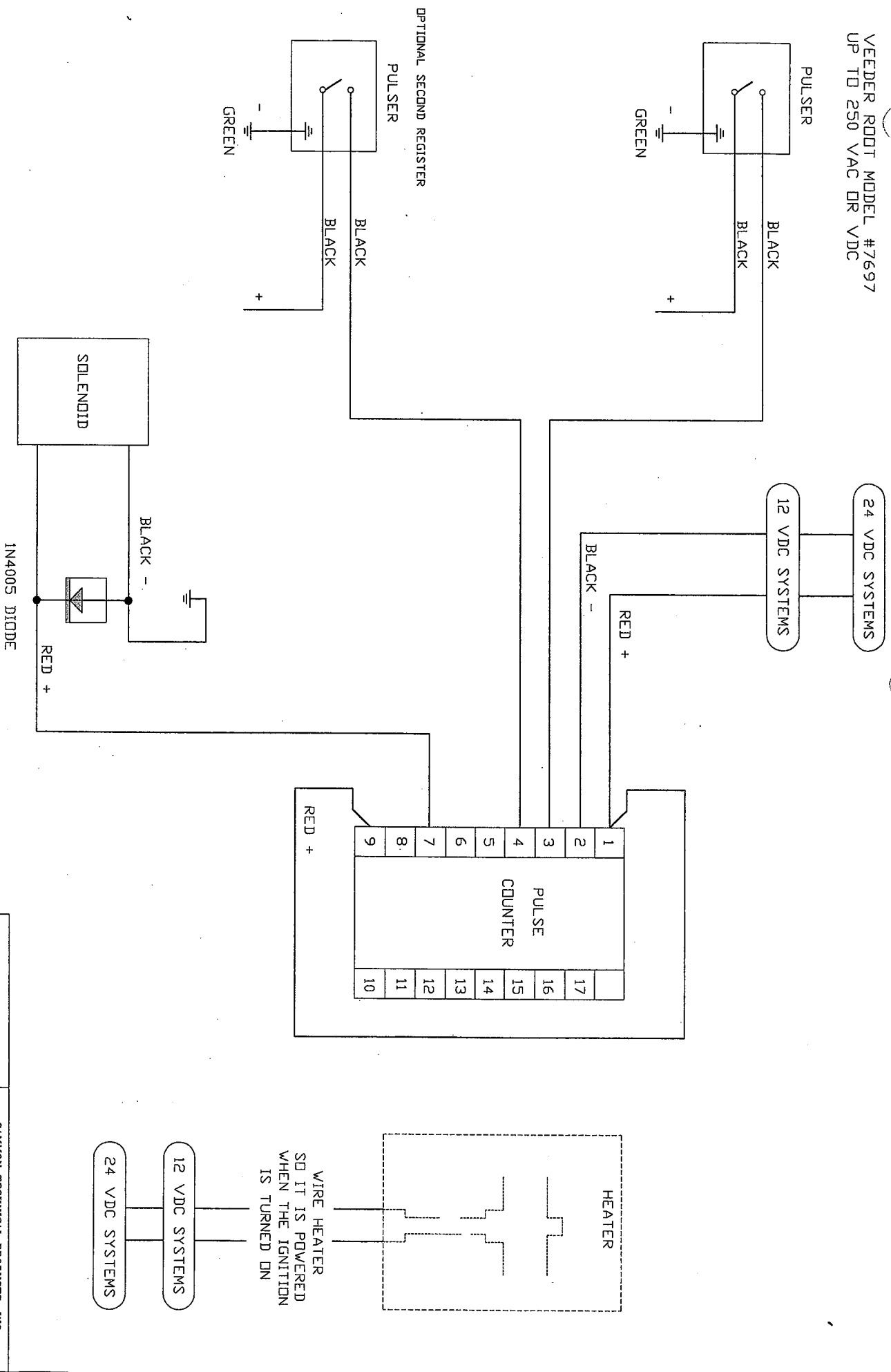


INFORMATION SHOWN HEREON IS PROPRIETARY AND ALL RIGHTS ARE RESERVED AND ITS USE IS LIMITED TO THE REPRODUCTION OF THE PARTS SHOWN EXCEPT BY WRITTEN PERMISSION OF GAMMON TECHNICAL PRODUCTS, INC.

| REVISIONS | |
|-----------|-------------|
| NO. | DESCRIPTION |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

| | |
|--|-------------------------|
| GAMMON TECHNICAL PRODUCTS, INC. 2900 RTX, S4 MANASSAQUE, NEW JERSEY - U.S.A. 08796 | |
| TITLE: DIGITAL VIPER SYSTEM BASIC ADDITIVE INJECTION SYSTEM ELECTRICAL DIAGRAM | |
| DESIGNED BY: JAM | SCALE: NONE |
| DATE: 10/10/01 | SHEET: 3 OF 4 |
| DRAWING NO.: GTP-9076D | |

WIRE HEATER
 SO IT IS POWERED
 WHEN THE IGNITION
 IS TURNED ON



INFORMATION SHOWN HEREON IS PROPRIETARY
 DATA OF GAMMON TECHNICAL PRODUCTS, INC.
 ALL RIGHTS AND TITLES RESERVED AND IS NOT
 TO BE USED FOR THE REPRODUCTION OF THE
 PARTS SHOWN EXCEPT BY WRITTEN PERMISSION
 OF GAMMON TECHNICAL PRODUCTS, INC.

REVISIONS

| NO. | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

GAMMON TECHNICAL PRODUCTS, INC.
 2300 HTX 34
 MANASSAUX, NEW JERSEY - U.S.A.
 08726

TITLE: DIGITAL VIPER SYSTEM
 ADDITIVE INJECTION SYSTEM
 ELECTRICAL DIAGRAM

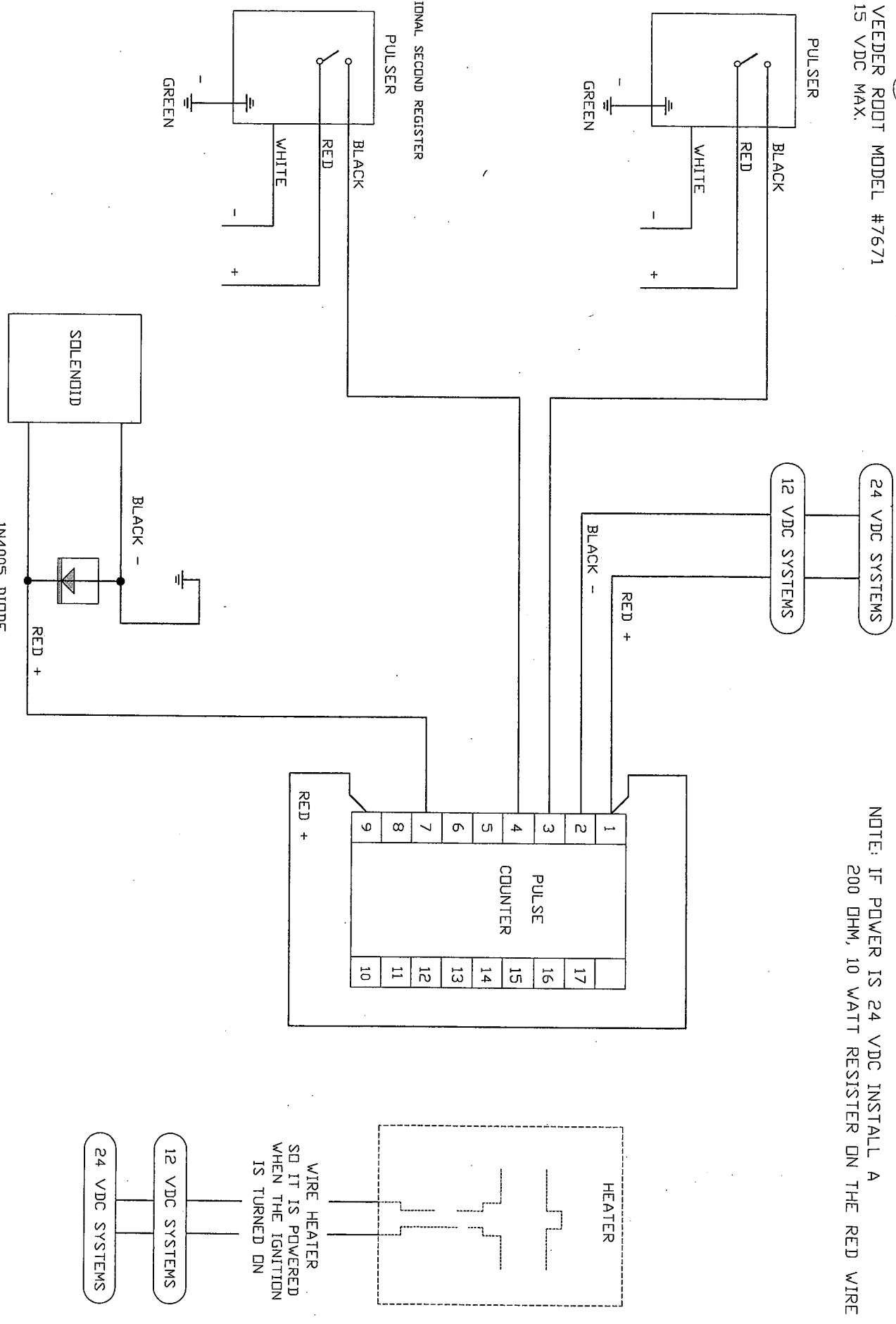
DRAWN BY: JAM
 SCALE: NONE
 DATE: 06/18/01

SHEET: 1 OF 2
 DRAWING NO.: GTP-9076-ELEC1

WIRE HEATER
 SO IT IS POWERED
 WHEN THE IGNITION
 IS TURNED ON

VEEDER ROOT MODEL #7671
15 VDC MAX.

NOTE: IF POWER IS 24 VDC INSTALL A
200 OHM, 10 WATT RESISTOR ON THE RED WIRE



INFORMATION SHOWN HEREON IS PROPRIETARY
DATA OF GAMMON TECHNICAL PRODUCTS, INC.
ALL RIGHTS AND TITLES RESERVED AND IS NOT
TO BE USED FOR THE REPRODUCTION OF THE
PARTS SHOWN EXCEPT BY WRITTEN PERMISSION
OF GAMMON TECHNICAL PRODUCTS, INC.

REVISIONS

| No. | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| 1 | | | |
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GAMMON TECHNICAL PRODUCTS, INC
2900 HWY. 34
MANASSAS, VA 20108

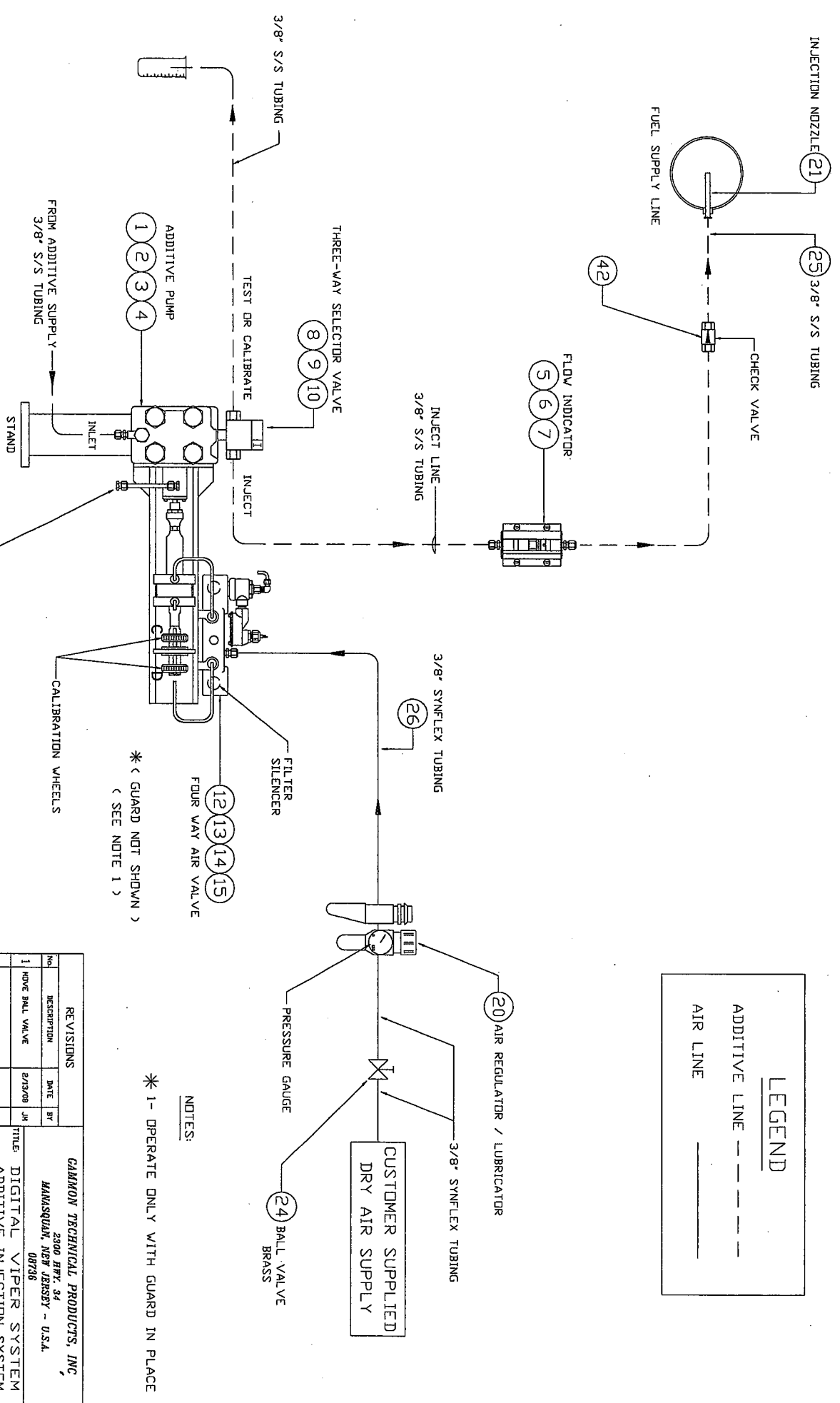
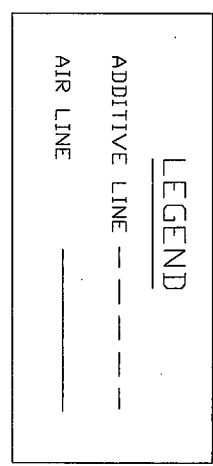
TITLE: DIGITAL VIPER SYSTEM
ADDITIVE INJECTION SYSTEM
ELECTRICAL DIAGRAM

DRAWN BY: JAM
SCALE: NONE
DATE: 06/18/01

SHEET: 2 OF 2
DRAWING No. GTP-9076-ELEC1

WIRE HEATER
SO IT IS POWERED
WHEN THE IGNITION
IS TURNED ON

INFORMATION SHOWN HEREON IS PROPRIETARY DATA OF GAMMON TECHNICAL PRODUCTS, INC. ALL RIGHTS AND TITLES RESERVED AND IS NOT TO BE USED FOR THE REPRODUCTION OF THE PARTS SHOWN EXCEPT BY WRITTEN PERMISSION OF GAMMON TECHNICAL PRODUCTS, INC.



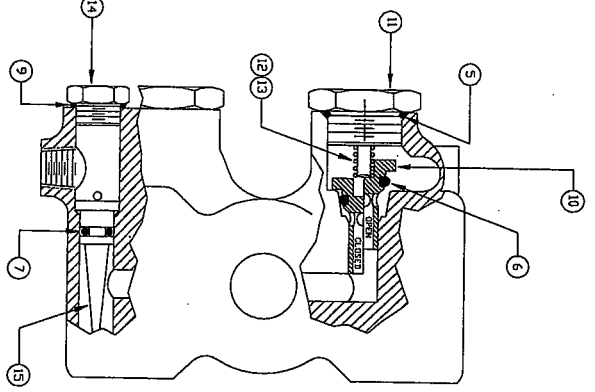
* (GUARD NOT SHOWN)
(SEE NOTE 1)

NOTES:
* 1- OPERATE ONLY WITH GUARD IN PLACE

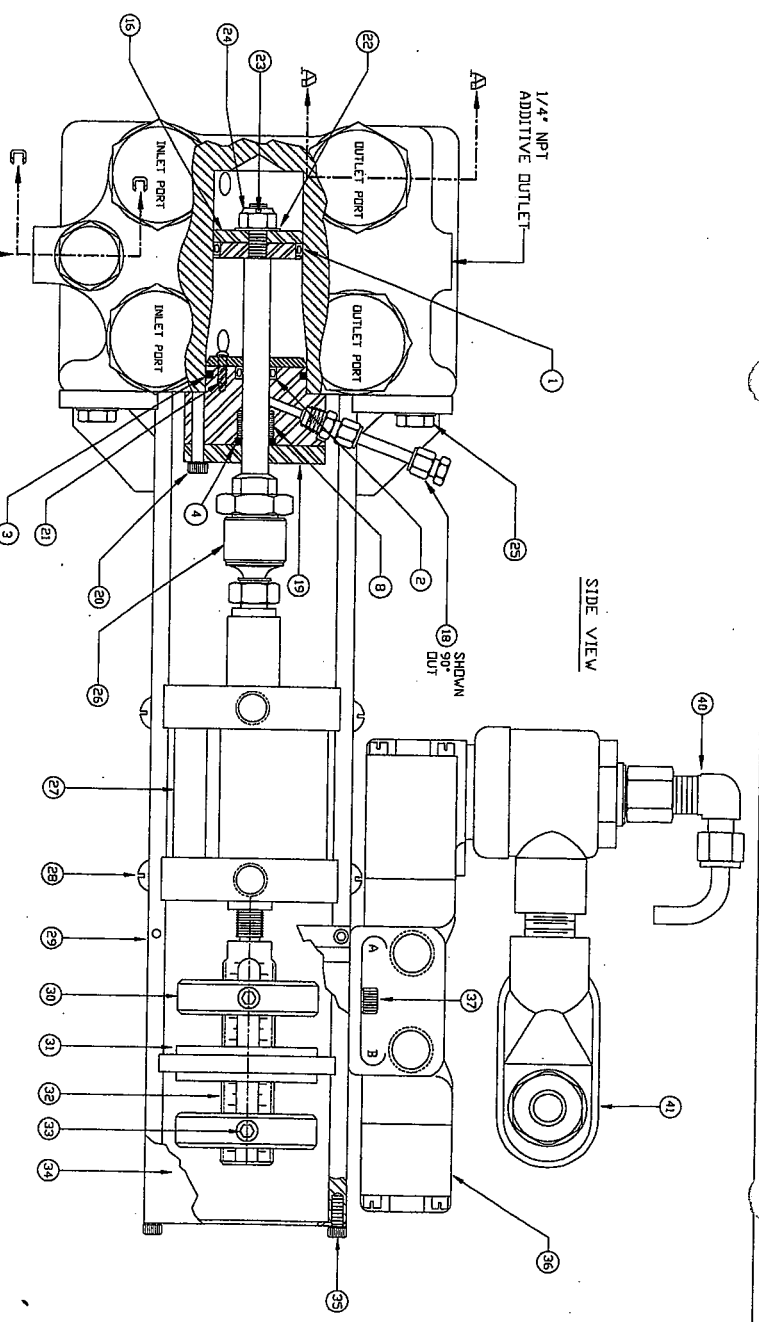
| REVISIONS | | DATE | | BY | |
|-----------|----------------|---------|----|----|--|
| 1 | ADD BALL VALVE | 2/13/08 | JH | | |
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|---|--|---------------|--|-----------------------------|--|
| GAMMON TECHNICAL PRODUCTS, INC. | | | | | |
| 2900 HWY. 34 MANSQUAN NEW JERSEY - U.S.A. 08736 | | | | | |
| TITLE: DIGITAL VIPER SYSTEM | | | | | |
| ADDITIVE INJECTION SYSTEM | | | | | |
| PIPING DIAGRAM / FLOW DIAGRAM | | | | | |
| DRAWN BY: JAM | | SCALE: NONE | | MATERIAL: | |
| DATE: 06/15/06 | | SHEET: 1 OF 1 | | DRAWING NO.: GTP-9076D-FLOW | |

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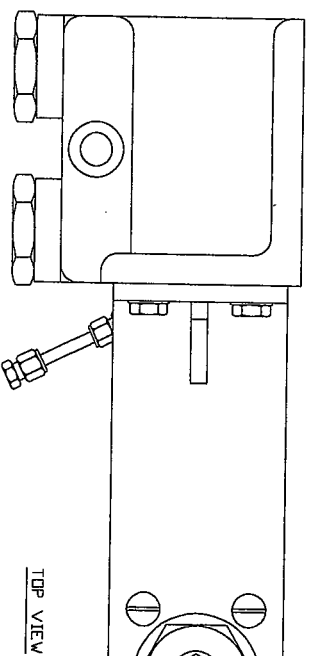


SECTION A A



SECTION C C

| EM | PUMP | GTP - NUMBER | DESCRIPTION |
|-----|--------|--------------|---|
| 1 | 8757-4 | 8757-25 | PISTON SEAL |
| 2 | | 8776-26 | SHAFT SEAL |
| 3 | | 2200-126 | O-RING |
| 4 | | 2200-110 | O-RING |
| 5 | | 2200-914 | O-RING |
| 6 | | 2200-206 | O-RING |
| 7 | | 2200-014 | O-RING |
| 8 | | REF. BEARING | SHAFT BEARING |
| 9 | | 2200-017 | O-RING |
| 10 | | 8689-3 | PISTON |
| 11 | | 8689-4 | VALVE PORT PLUG |
| 12 | | 8689-5 | SPRING - INLET |
| 13 | | 8720-8 | SPRING - OUTLET |
| 14 | | 8689-14 | PIPE PLUG - 1/2" NPS |
| 15 | | 8797-5 | STRAINER ASSY. |
| 16 | | 8689-6 | PISTON (TWO PARTS) |
| 17 | | 8689-8 | PUMP DRIVE ROD |
| 18 | | 876-6K | LEAK SEAL INDICATOR |
| 19 | | 8797-2 | SHAFT GLAND BODY, END & COVER |
| 20 | | | SOCKET HEAD CAP SCREW - 10/32 x 1 1/4 |
| 21 | | | FLAT WASHER |
| 22 | | | FLAT WASHER |
| 23 | | | COILER PIN |
| 24 | | | CASTLE NUT |
| 25 | | | HEX HD CAP SCREW - 5/16-24 x 3/4 |
| 26 | | | AND 5/16 FLAT WASHER |
| 27 | | | CYLINDER JOINT |
| 28 | | | AIR CYLINDER |
| 29 | | | TRUSS HD MACH SCREW - 1/4-20 x 1/2 |
| 30 | | | CYLINDER SUPPORT ASSY |
| 31 | | | ADJUSTING COLLAR |
| 32 | | | BUMPER |
| 33 | | | ADJUSTMENT ROD |
| 34 | | | SOCKET HEAD CAP SCREW - 1/4-20 x 5/8 |
| 35 | | | AND 5/16 FLAT WASHER |
| 36 | | | GUARD |
| 37 | | | SOCKET HEAD CAP SCREW - 8-32 x 3/8 LG |
| 38 | | | FOUR WAY AIR VALVE - REF. VOLT. TABLE |
| 39 | | | SOCKET HEAD CAP SCREW - 1/4-20 x 3/8 LG |
| 40 | | | FILTER/SILENCER |
| 41 | | | CLIP |
| 42 | | | VENT ASSEMBLY |
| 43 | | | CONDUIT THE ASSEMBLY |
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TOP VIEW

| VIPER ASSEMBLY | D-RING MATERIAL | D-RING DESIGNATION | ADDITIVE TYPE | PUMP |
|----------------|---|--------------------|-----------------------------------|----------|
| GTP-9076 -N | NEOPRENE | C | DIEGME | 8776-300 |
| GTP-9076 -D | FLUOROSILICONE PARKER COMPOUND L1120-70 | L | BIDBOR | 8776-301 |
| GTP-9076 -F | VITON/GLT | VG | BETZ + 100 | 8776-301 |
| GTP-9076 -Q | VITON/GLT | VG | STABIS 450 / FRODOFINI INDUSTRIES | 8776-301 |

REFERENCE

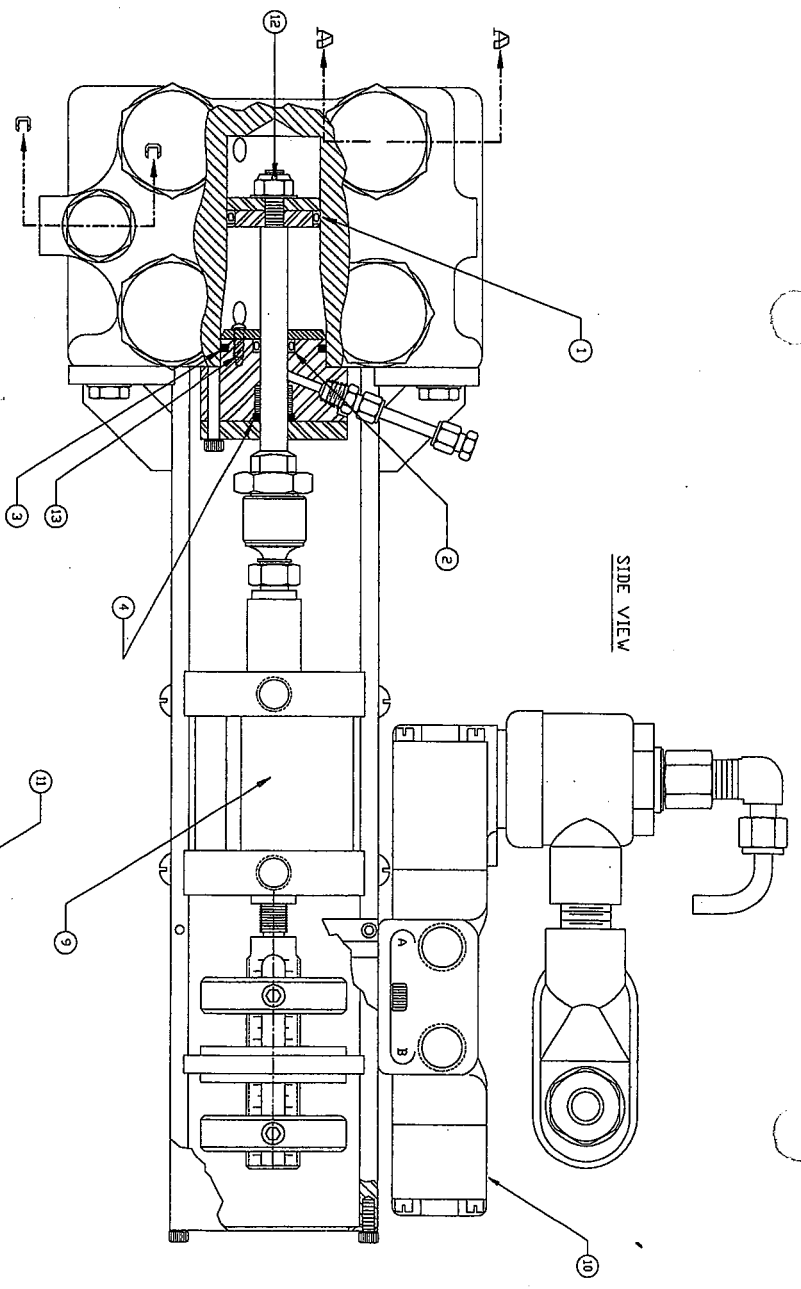
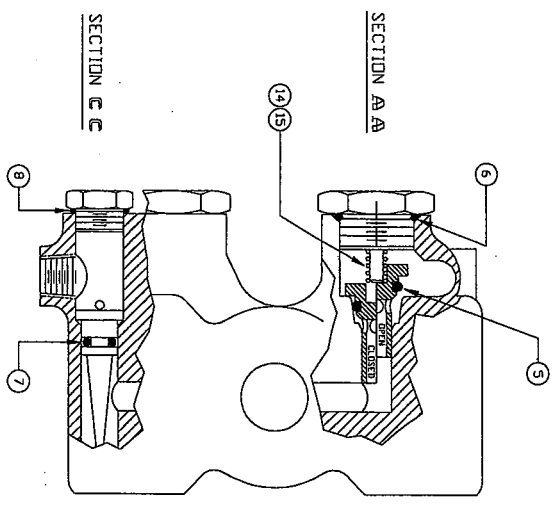
| LETTER CODE | VOLTAGE |
|-------------|---------|
| R | 12 VDC |
| S | 24 VDC |
| T | 120 VAC |
| U | 240 VAC |

| REVISIONS | DATE | BY | DESCRIPTION |
|-----------|------|----|---|
| 1 | | | NO CHANGE EXCEPTING THE 1/4" DIA. DIMENSION |
| 2 | | | |
| 3 | | | |

| TITLE | DATE | BY | SCALE | DRAWING NO. | ISSUE |
|---|------|----|-------|-------------|-------|
| DIGITAL VIPER PUMP PARTS LIST FOR VIPER PUMP 8776 | JAN | | NDIVE | | |

| EM | PUMP | GTP - NUMBER | DESCRIPTION |
|-----|--------|--------------|---|
| 1 | 8757-4 | 8757-25 | PISTON SEAL |
| 2 | | 8776-26 | SHAFT SEAL |
| 3 | | 2200-126 | O-RING |
| 4 | | 2200-110 | O-RING |
| 5 | | 2200-914 | O-RING |
| 6 | | 2200-206 | O-RING |
| 7 | | 2200-014 | O-RING |
| 8 | | REF. BEARING | SHAFT BEARING |
| 9 | | 2200-017 | O-RING |
| 10 | | 8689-3 | PISTON |
| 11 | | 8689-4 | VALVE PORT PLUG |
| 12 | | 8689-5 | SPRING - INLET |
| 13 | | 8720-8 | SPRING - OUTLET |
| 14 | | 8689-14 | PIPE PLUG - 1/2" NPS |
| 15 | | 8797-5 | STRAINER ASSY. |
| 16 | | 8689-6 | PISTON (TWO PARTS) |
| 17 | | 8689-8 | PUMP DRIVE ROD |
| 18 | | 876-6K | LEAK SEAL INDICATOR |
| 19 | | 8797-2 | SHAFT GLAND BODY, END & COVER |
| 20 | | | SOCKET HEAD CAP SCREW - 10/32 x 1 1/4 |
| 21 | | | FLAT WASHER |
| 22 | | | FLAT WASHER |
| 23 | | | COILER PIN |
| 24 | | | CASTLE NUT |
| 25 | | | HEX HD CAP SCREW - 5/16-24 x 3/4 |
| 26 | | | AND 5/16 FLAT WASHER |
| 27 | | | CYLINDER JOINT |
| 28 | | | AIR CYLINDER |
| 29 | | | TRUSS HD MACH SCREW - 1/4-20 x 1/2 |
| 30 | | | CYLINDER SUPPORT ASSY |
| 31 | | | ADJUSTING COLLAR |
| 32 | | | BUMPER |
| 33 | | | ADJUSTMENT ROD |
| 34 | | | SOCKET HEAD CAP SCREW - 1/4-20 x 5/8 |
| 35 | | | AND 5/16 FLAT WASHER |
| 36 | | | GUARD |
| 37 | | | SOCKET HEAD CAP SCREW - 8-32 x 3/8 LG |
| 38 | | | FOUR WAY AIR VALVE - REF. VOLT. TABLE |
| 39 | | | SOCKET HEAD CAP SCREW - 1/4-20 x 3/8 LG |
| 40 | | | FILTER/SILENCER |
| 41 | | | CLIP |
| 42 | | | VENT ASSEMBLY |
| 43 | | | CONDUIT THE ASSEMBLY |
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| EM | PUMP | GTP- NUMBER | DESCRIPTION |
|--------|------|-------------|--------------------------------------|
| 8720-4 | | | |
| 1 | | 8757-25 | PISTON SEAL |
| 1 | | 8776-26 | SHAFT SEAL |
| 1 | | 2200-126 | D-RING |
| 1 | | 2200-110 | D-RING |
| 1 | | 2200-206 | D-RING |
| 4 | | 2200-914 | D-RING |
| 1 | | 2200-014 | D-RING |
| 1 | | 2200-017 | D-RING |
| 1 | | 8689-16 | AIR CYLINDER |
| 1 | | 8695- | FOUR WAY AIR VALVE - REF. VOL. TABLE |
| 2 | | 5855 | FILTER/SILENCER |
| 1 | | | CUTTER PIN |
| 2 | | | BUITTON HEAD SOCKET SCREW |
| 3 | | | SPRING - INLET |
| 2 | | 8720-7 | |
| 1 | | 8720-8 | |

| LETTER CODE | VOLTAGE |
|-------------|---------|
| R | 12 VDC |
| S | 24 VDC |
| T | 120 VAC |

| REV | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| 1 | | | |
| 2 | | | |
| 3 | | | |

| TOLERANCES | UNLESS OTHERWISE NOTED |
|------------|------------------------|
| ANGULAR | 1/2° |
| FRACTIONAL | 1/64" |
| DECIMAL | 0.005" |

| REV | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| 1 | | | |
| 2 | | | |
| 3 | | | |

NOTE
D-RING MATERIAL - NEOPRENE

CAMMON TECHNICAL PRODUCTS, INC.
MANUFACTURED BY CAMMON
2800 HWY 24
MAYAGUEZ, P.R. 00725
U.S.A.

TITLE: 8776-4 PUMP OVERHAUL KIT
FOR 1.500 DIA BORE

DESIGNED BY: JHM
SCALE: NONE
CHECKED BY: JHM
DATE: 11/11/77