

# USER MANUAL

**GlasCraft**  
DISPENSING EXCELLENCE

## Mini III

### Dispensing System

#### *INCLUDES:*

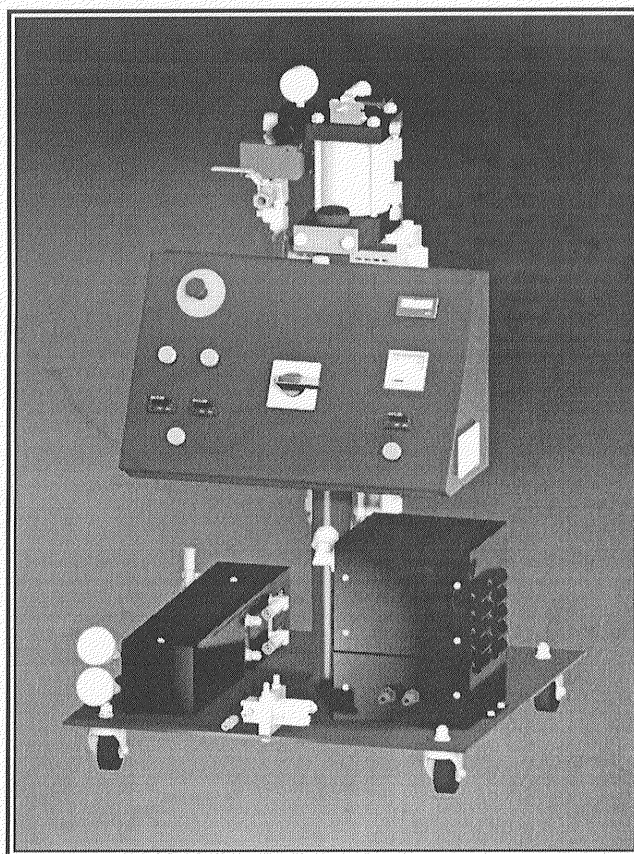
17254-02  
PROBLER GUN  
ASSEMBLY

19254-01  
MANUAL HOSE  
ASSEMBLY

19852-511  
PROPORTIONING UNIT  
ASSEMBLY

19875-00  
1:1 PUMP  
ASSEMBLY

22075-00  
ISO/POLY  
HEAT EXCHANGER  
ASSEMBLY



**GlasCraft**  
DISPENSING EXCELLENCE

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CE  
CERTIFIED

**GlasCraft**  
DISPENSING EXCELLENCE  
An ISO 9001  
Approved  
Company

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# INTRODUCTION

## About This Manual

Before operating, maintaining or servicing any **GlasCraft** system, read and understand all of the technical and safety literature provided with **GlasCraft** products. If you do not have the manuals and safety literature for your **GlasCraft** system, contact your **GlasCraft** distributor or **GlasCraft, Inc.**

In this **GlasCraft** technical and safety publication, the following advisories will be provided where appropriate:

### NOTE

*Is information about the procedure in progress.*

### CAUTION

*Is imperative information about equipment protection.*

### WARNING

*Is imperative information about personnel safety.*

The information in this document is intended only to indicate the components and their normal working relationship typical use. Each assembly should be directed by a **GlasCraft** distributor or made from the **GlasCraft** assembly instructions provided.

This manual provides information for the assembly, operation, maintenance and service of this **GlasCraft** product as used in a typical configuration. While it lists standard specifications and procedures, some deviations may be found.

In order to provide our users with the most up-to-date technology possible, we are constantly seeking to improve products. If technological change occurs after a product is on the market, we will implement that technology in future production and, if practical, make it available to current users as a retrofit, up-date or supplement. If you find some discrepancy between your unit and the available documentation, contact your **GlasCraft** distributor to resolve the difference. **GlasCraft, Inc.** reserves the right to change or modify this product as it deems necessary.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier trouble-shooting.

# PARTS & ILLUSTRATION

## Mini III Dispensing System

20 lbs.(9.0 kg.)/min., Spray or Pour Dispensing System

Base Plate

CE Rated

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### Includes

|           |  |
|-----------|--|
| 22800-00  | Mini III DISPENSING SYSTEM                       |
|           | * 5" AIR MOTOR, SINGLE PHASE, 220 VAC, 50/60 HZ. |
| 17254-02  | PROBLER GUN ASSEMBLY                             |
|           | * w/ROUND SPRAY MIXING CHAMBER                   |
| 18006-00  | WHIP HOSE ASSEMBLY                               |
| 19524-01  | MANUAL HEATED HOSE ASSEMBLY, 50 FT.              |
|           | OVER PRESSURE PROTECTION DEVICES                 |
| 19852-511 | PROPORTIONING UNIT ASSEMBLY                      |
| 19875-00  | FLUID SECTION, 1;1                               |
| 22075-00  | ISO / POLY HEAT EXCHANGER ASSEMBLY               |
| 59934-04  | DIOCTYL PHTHALATE, 1 QT.                         |
| 17661-03  | GUN SERVICE KIT                                  |
| 21845-00  | PUMP FLUID SECTION REPAIR KIT (TWO SUPPLIED)     |
| 18467-01  | FLUID FILTER (TWO SUPPLIED)                      |
|           | USER MANUALS                                     |
| 22094-00  | JUMPER ASSY.                                     |

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### Service Kits

|          |                |
|----------|----------------|
| 17661-03 | GUN            |
| 21845-00 | FLUID SECTION  |
| 21063-00 | HEAT EXCHANGER |

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### Optional Equipment

|               |                             |          |                               |
|---------------|-----------------------------|----------|-------------------------------|
| AD-100        | DESICCANT AIR DRYER KIT     |          |                               |
| FM-494        | PROTECTIVE SLEEVING         |          |                               |
| LPA2-147-XXXX | SPRAY NOZZLE                |          |                               |
| PG-06         | EXTERNAL MIXING CHAMBER KIT |          |                               |
| PG-10-XX      | FLAT SPRAY CONVERSION KIT   |          |                               |
| PG-21         | POUR ADAPTER                |          |                               |
| PG-25-01      | POUR CONVERSION KIT         | 19940-PG | DISPENSE TIMER KIT            |
| PG-26         | AIR NUCLEATION POUR ADAPTER | 19950-00 | FLUID SECTION ASSY, 3:1 RATIO |
| 16300-00      | TRANSFER PUMP ASSY, 2:1     | 19975-00 | FLUID SECTION ASSY, 2:1 RATIO |
| 16801-01      | ROUND SPRAY MIXING CHAMBER  | 19994-00 | MIXING CHAMBER MIXER ELEMENT  |
| 17254-XX      | PROBLER GUN ASSEMBLY        | 19996-00 | EXT'L MIXING CHAMBER BODY     |
| 17666-01      | TRANSFER KIT                | 20169-00 | FREON PUMP KIT                |
| 17667-00      | NITROGEN KIT                | 9704-11  | POUR TUBING (PER FOOT)        |
| 18219-01      | PUMP CYLINDER, HARDENED     |          |                               |
| 18374-XX      | PROBLER GUN ASSEMBLY        |          |                               |
| 18467-01      | FLUID FILTER                |          |                               |

NOTE: -XXXX INDICATES THE USER MANUAL MUST BE CONSULTED FOR CORRECT SIZE.



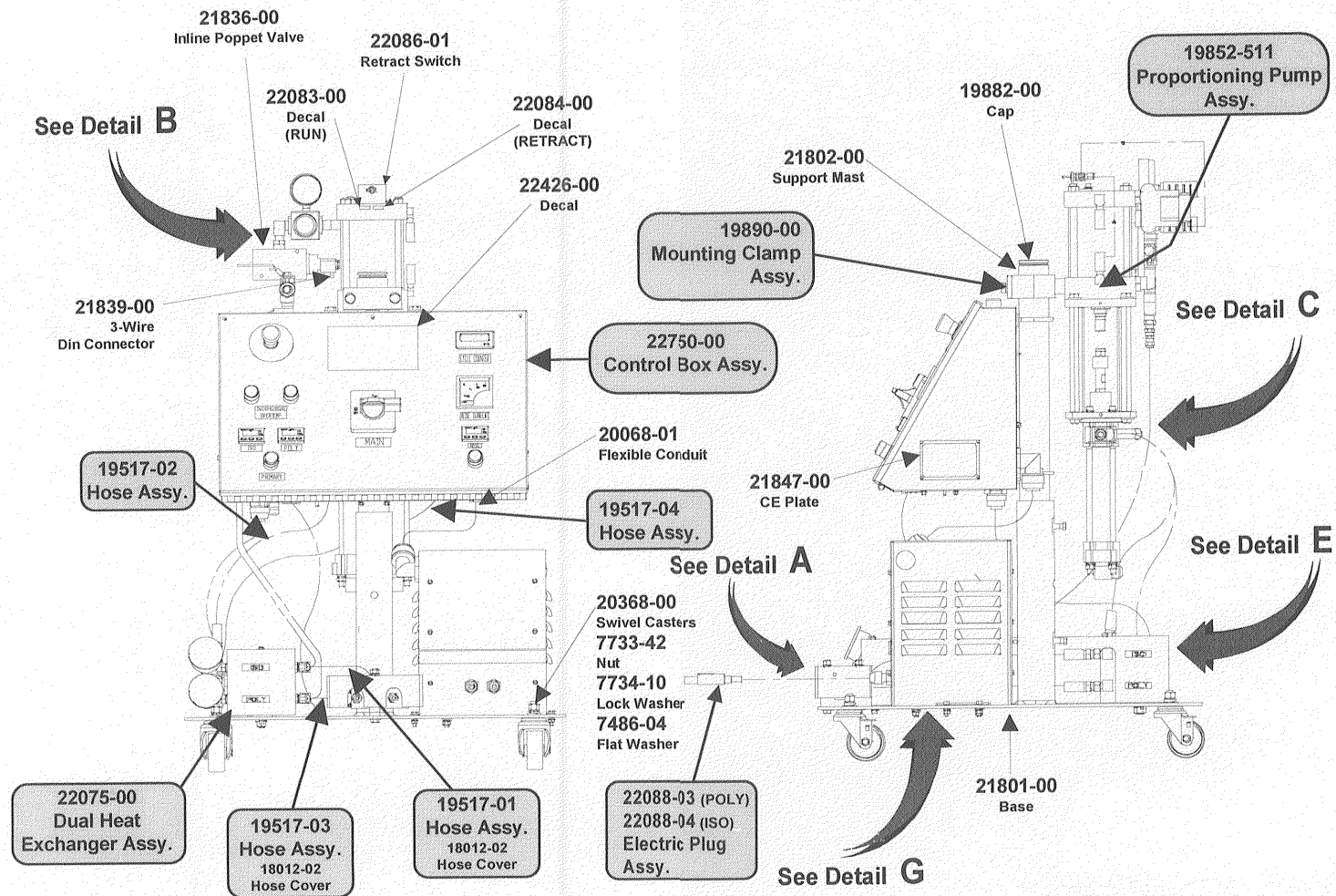
## MINI III SYSTEM SPECIFICATIONS

|                              |  |
|------------------------------|--|
| MATERIAL RATIO:              | 1:1 (FIXED)  |
| MATERIAL VISCOSITY:          | 200-2000 CENTIPOISE (CPS) *<br>AT OPERATING TEMPERATURES |
| OUTPUT:                      | 20 POUNDS PER MINUTE<br>9 KILOGRAMS PER MINUTE           |
| OPERATING TEMPERATURES:      | 32° F (0° C )- 190° F (88°C) VARIABLE                    |
| PURGING:                     | AUTOMATIC PNEUMATIC, SOLVENT-FREE, CONSTANT              |
| ELECTRICAL requirements:     | 220V, SINGLE PHASE<br>220V, 3 PHASE<br>380V, 3 PHASE     |
| HEATER:                      | WATTS: 3000 WATTS PER SIDE<br>6000 WATTS TOTAL           |
| MAXIMUM HOSE LENGTH:         | 300' HEATED W/ 6' WHIP HOSE = 306' TOTAL                 |
| COMPRESSED AIR REQUIREMENTS: | 25 CFM @ 100 PSI<br>708 LITERS @ 7 BAR                   |
| OVERALL DIMENSIONS:          | IN / CM WIDE<br>IN / CM DEEP<br>IN / CM HIGH             |
| SHIPPING WEIGHT:             | LBS / KG   |

NOTE: \*

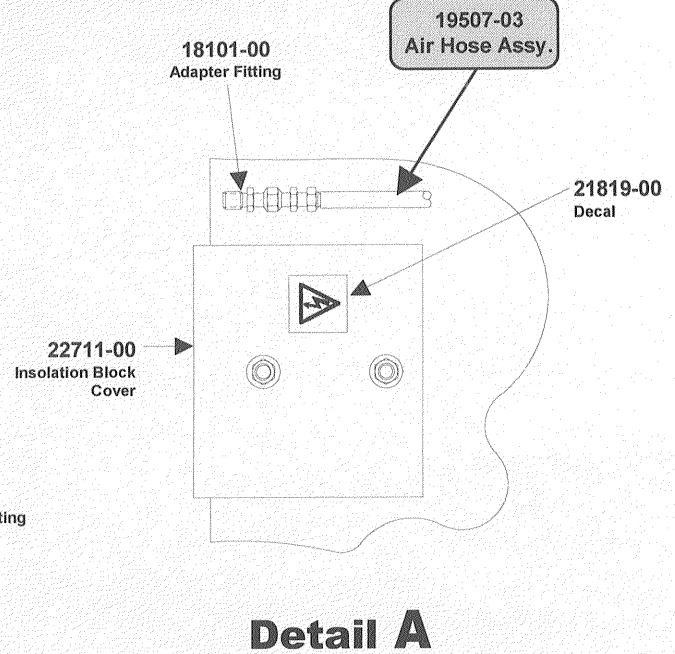
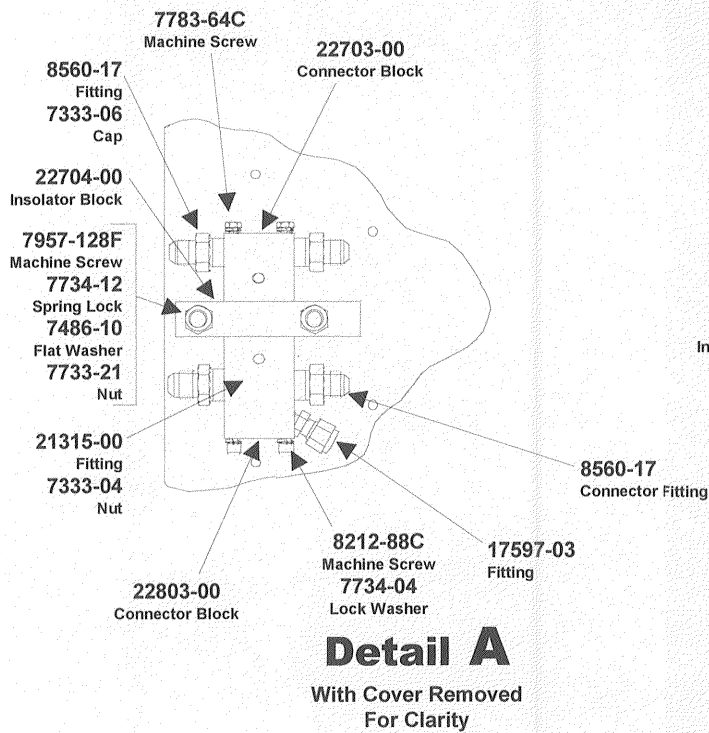
- SYSTEM SET UP STANDARD FOR GRAVITY FEED.
- TRANSFER PUMPS REQUIRED FOR HIGH OUTPUT APPLICATIONS / OR MATERIALS EXCEEDING 800 CPS @ 70° F.

# 22800-00 MINI III UNIT ASSEMBLY

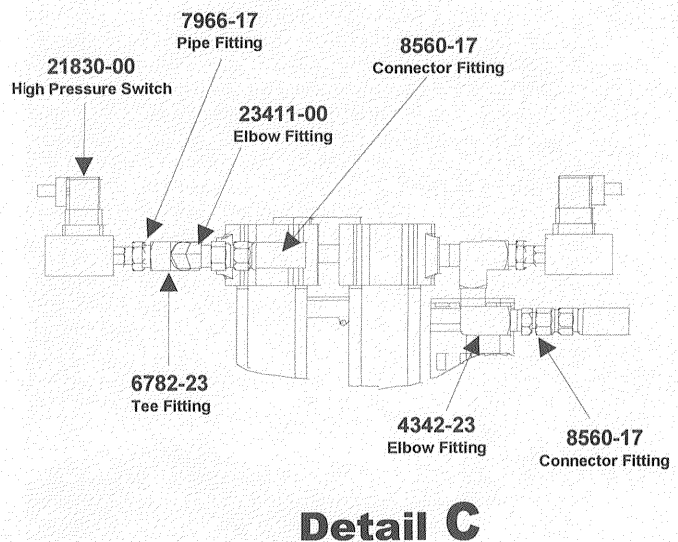
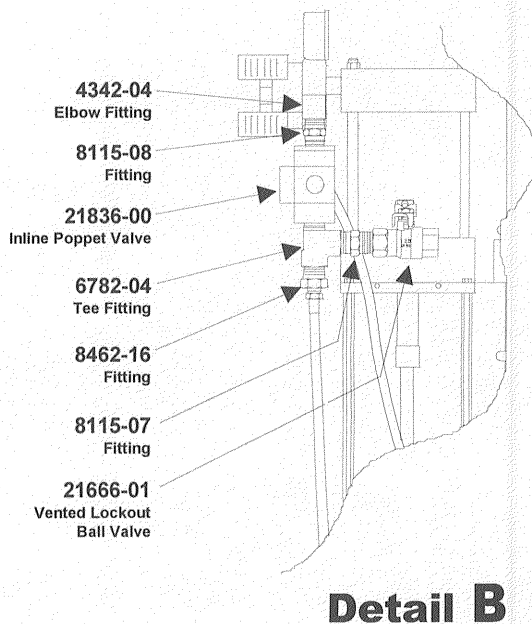


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# ISOLATION BLOCK ASSEMBLY

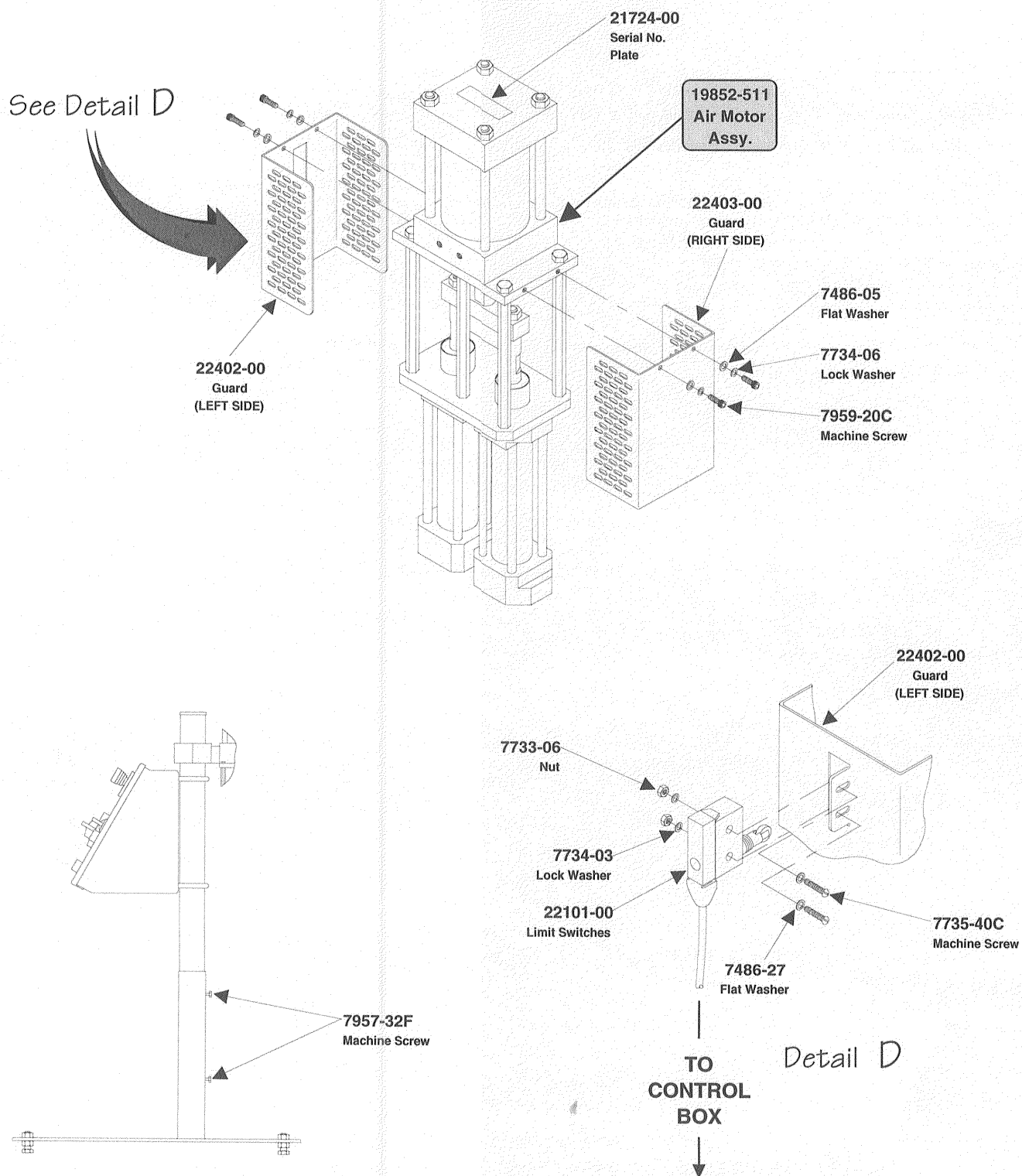


# SYSTEM DETAIL



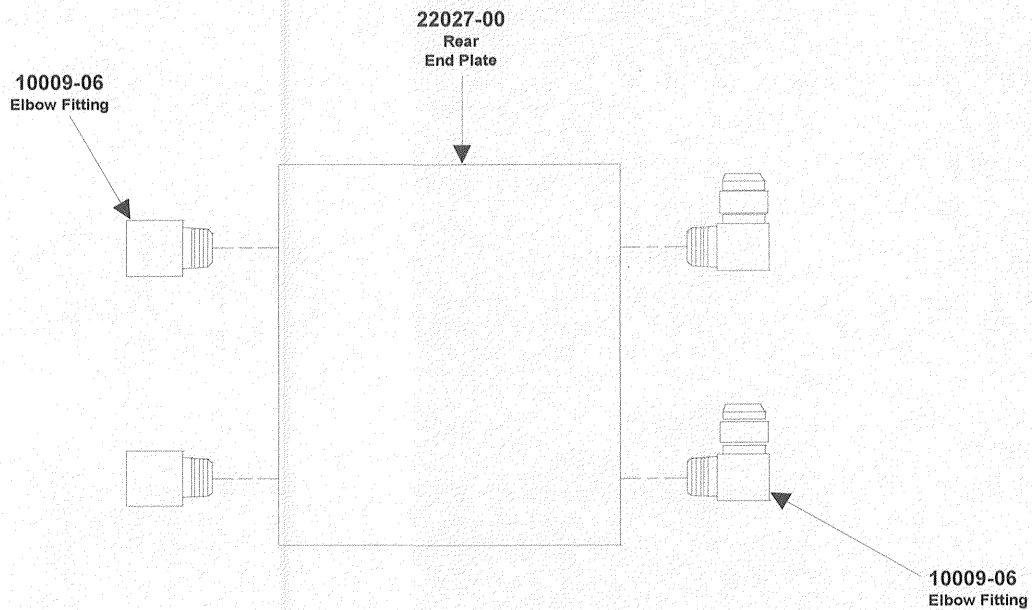
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# SYSTEM DETAIL

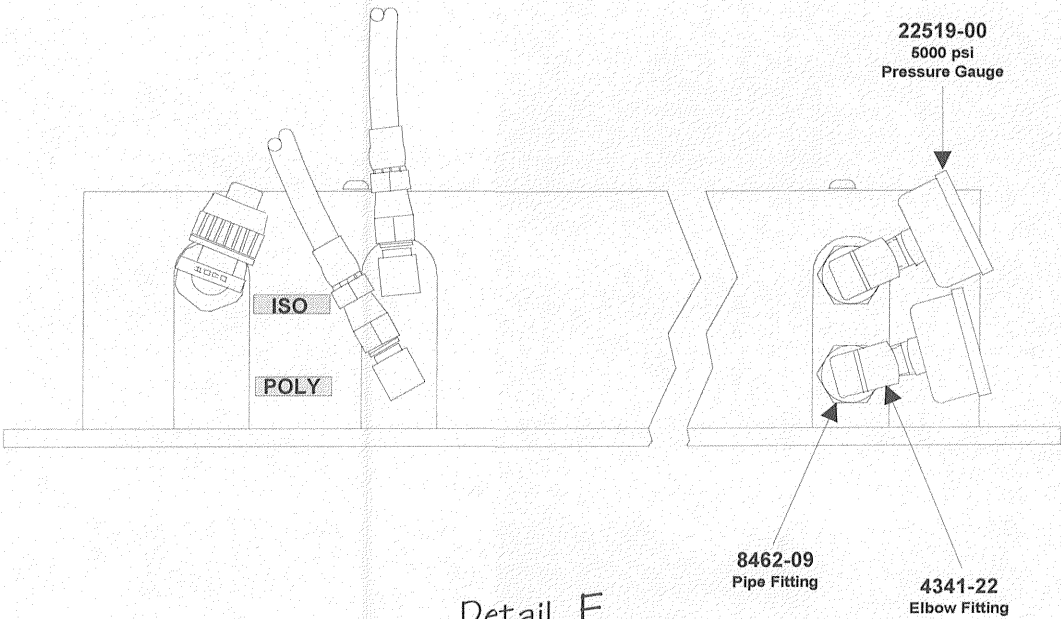


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# SYSTEM DETAIL



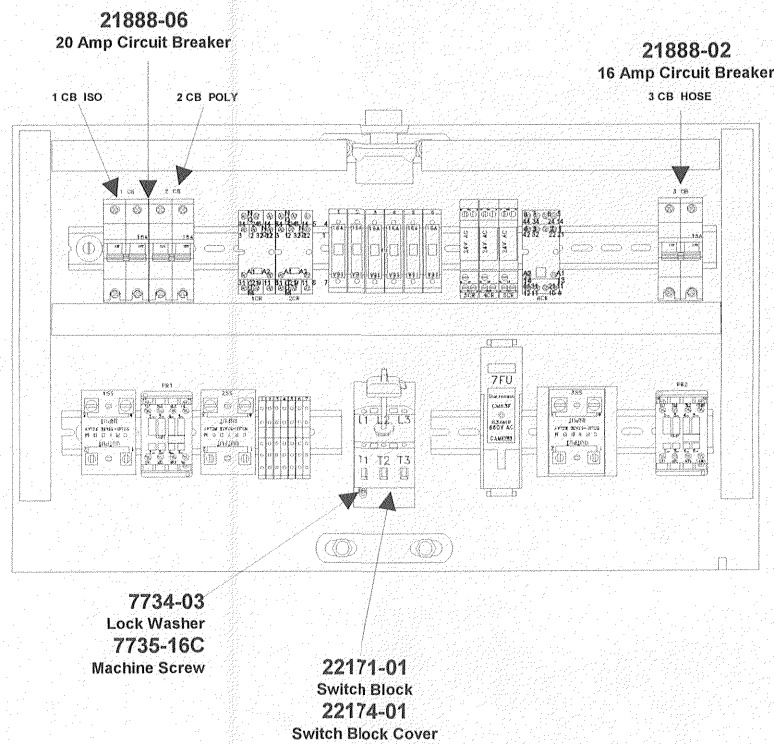
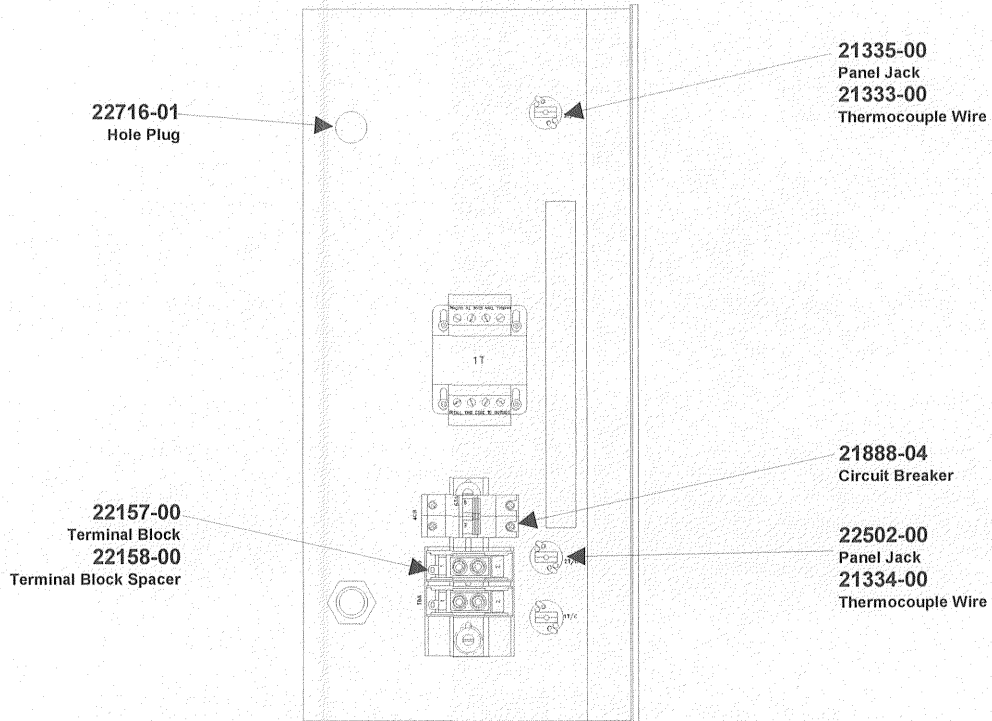
Detail E



Detail F

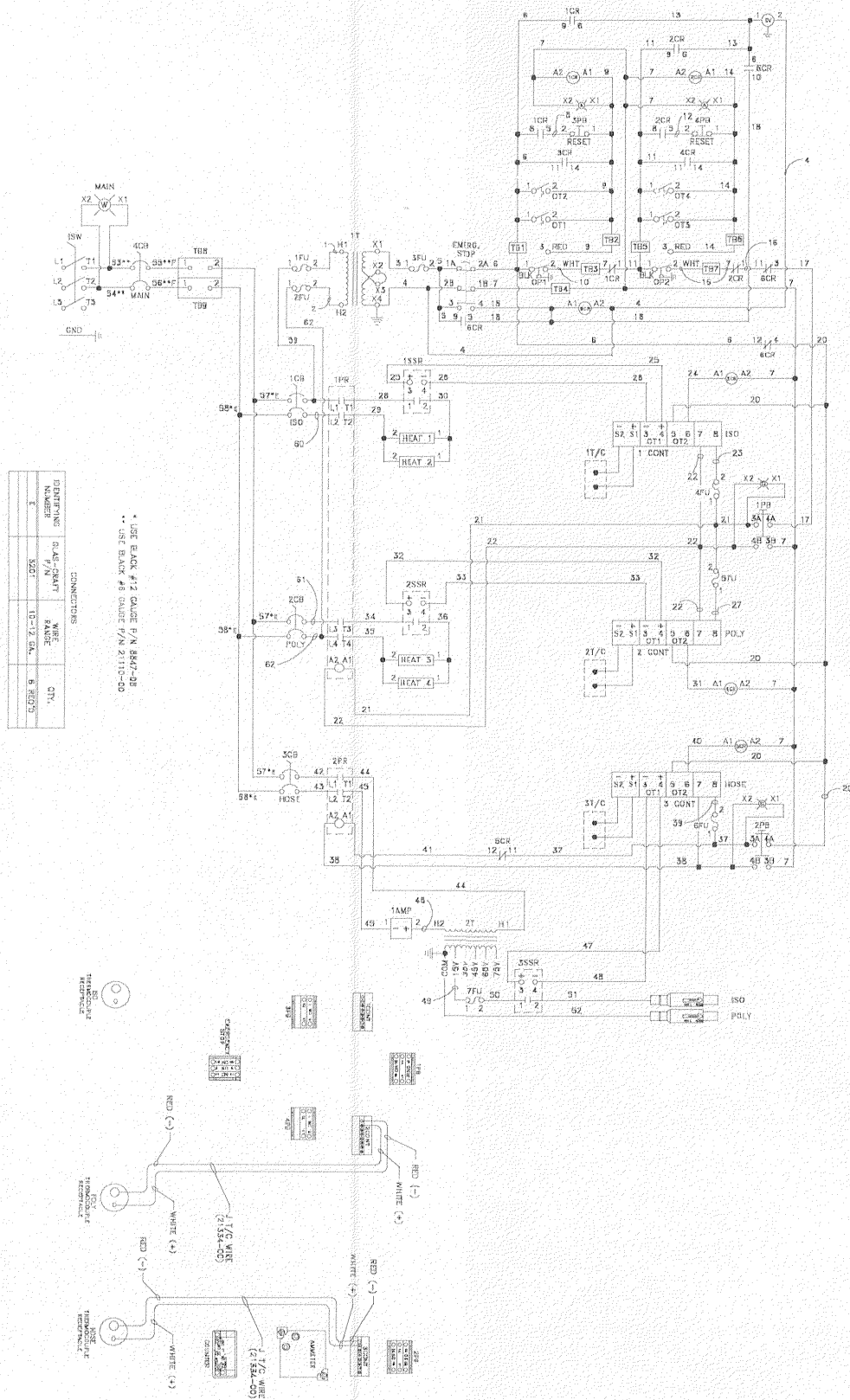


# 22800-01 220V SINGLE PHASE PARTS



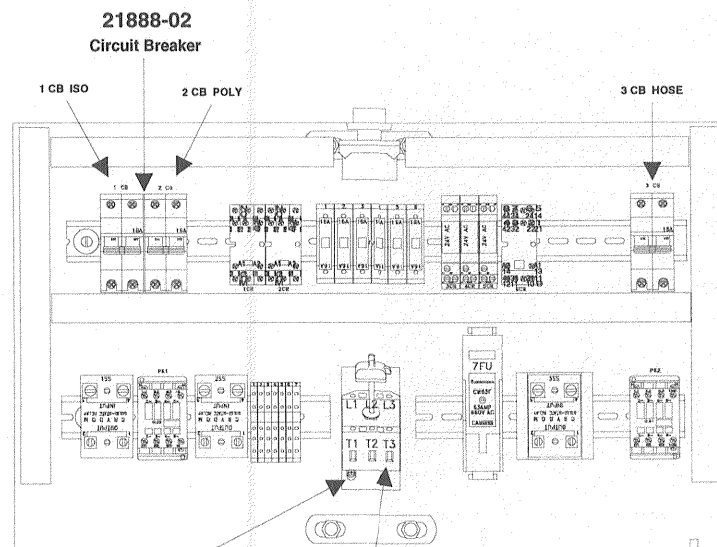
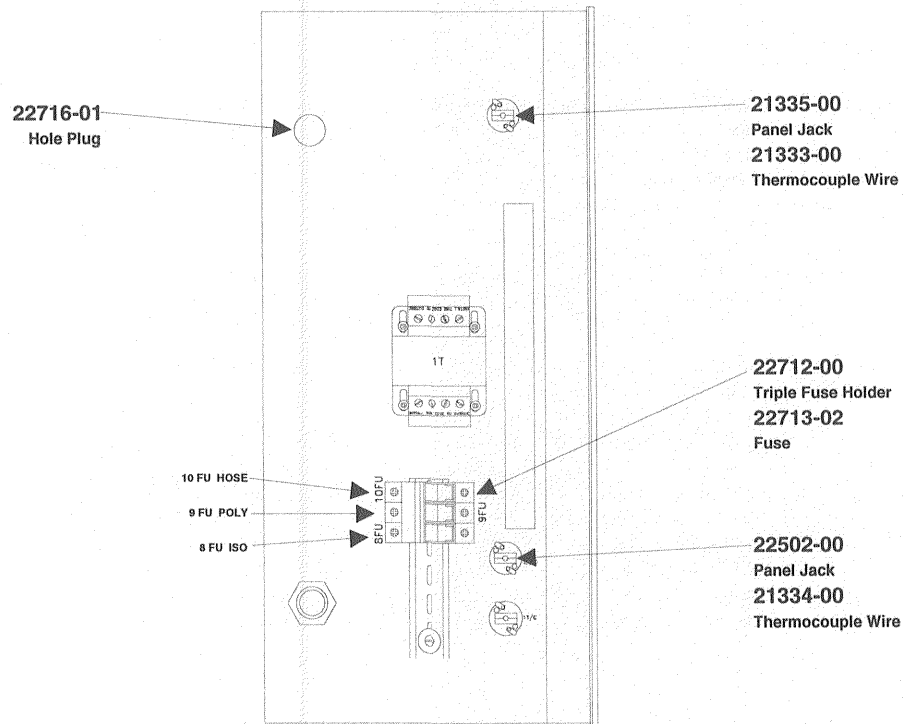
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# 22800-01 220V SINGLE PHASE SCHEMATIC



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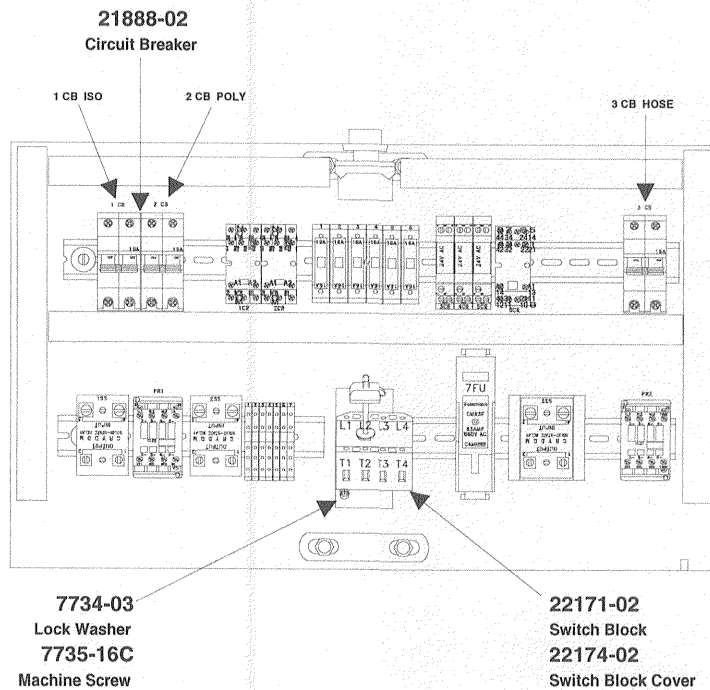
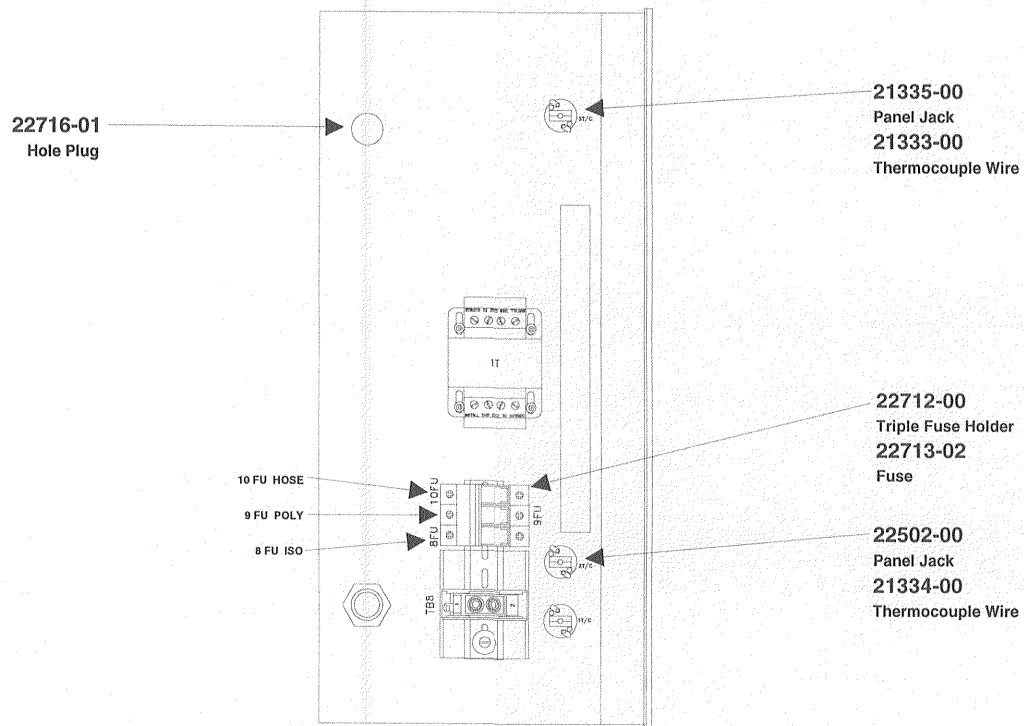
# 22800-02 220V 3 PHASE PARTS



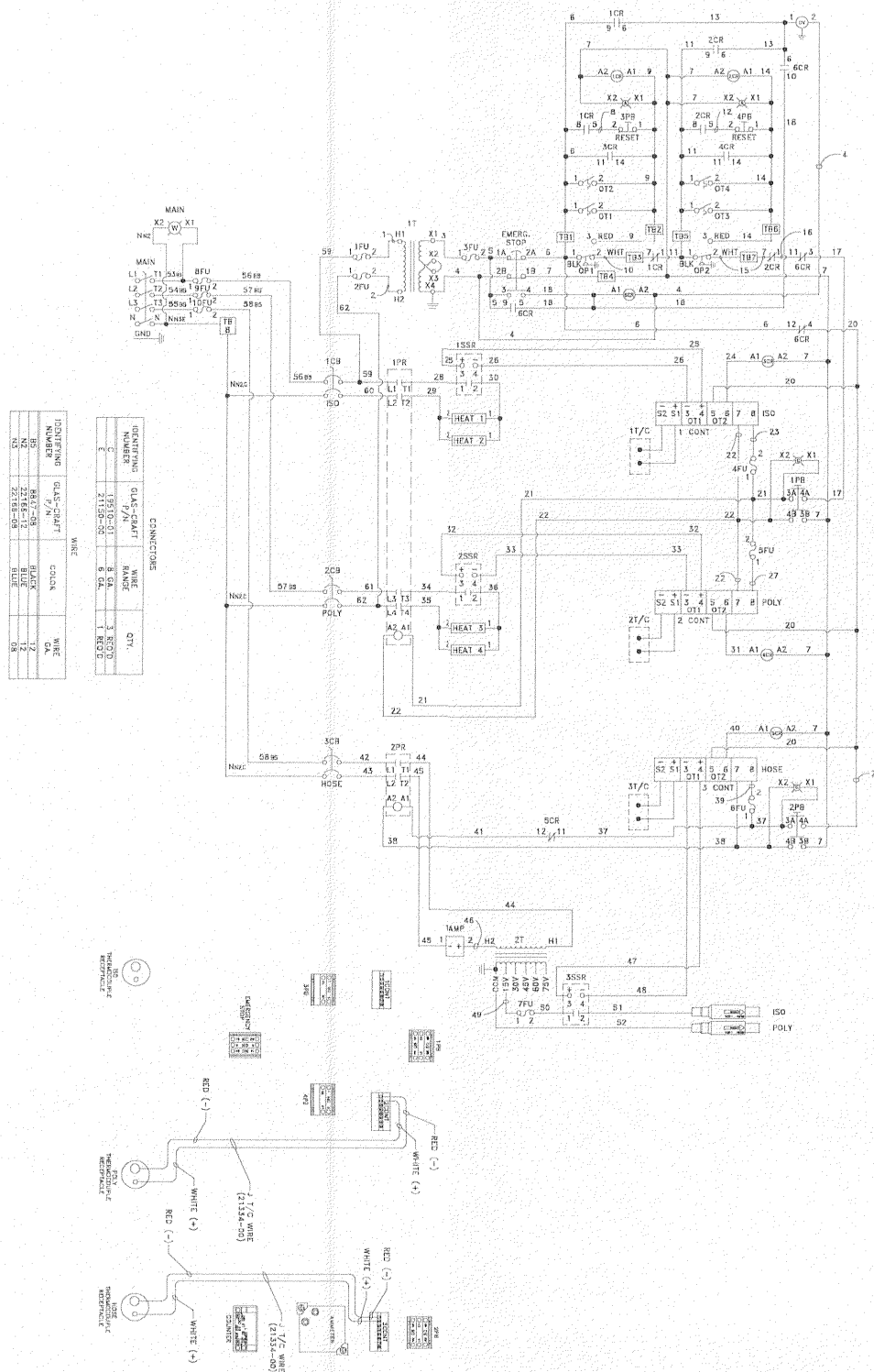
# 22800-02 220V 3 PHASE SCHEMATIC



# 22800-03 380V 3 PHASE PARTS

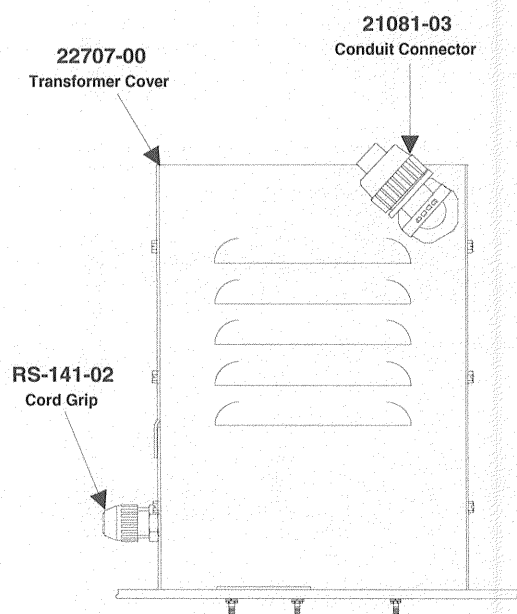






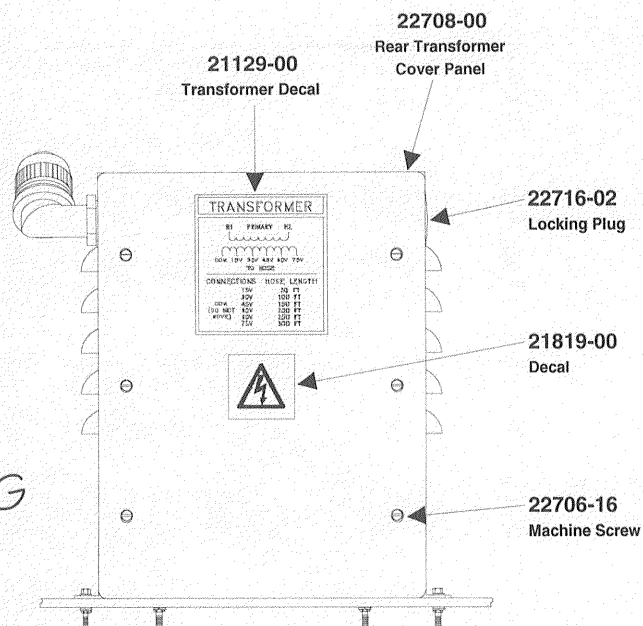
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# 22800-XX MINI III TRANSFORMER

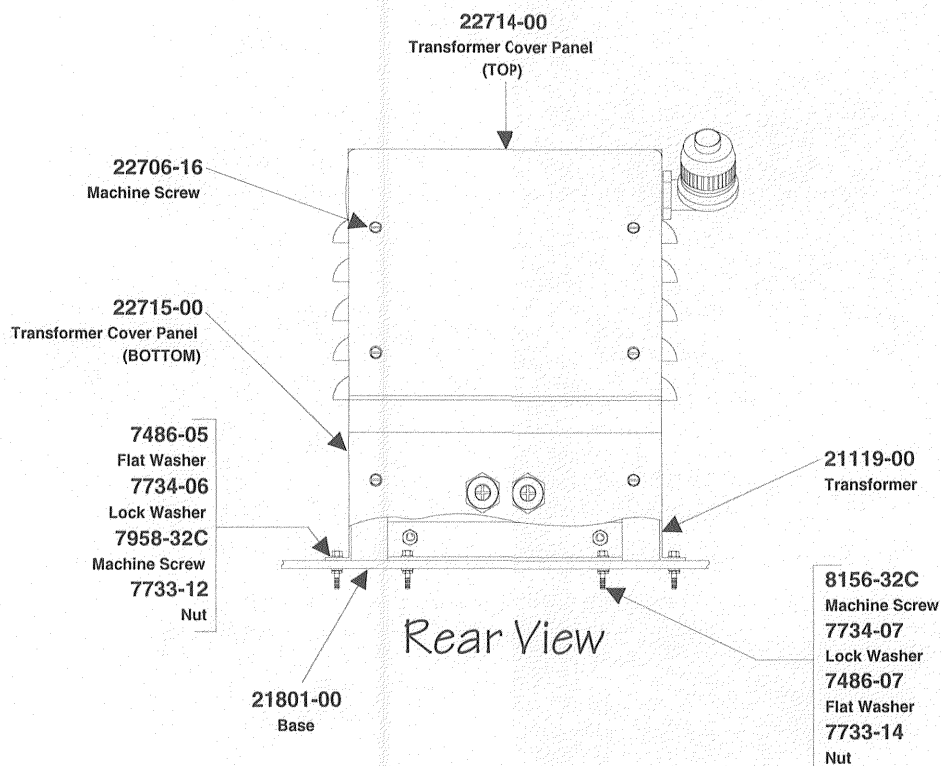


Side View

Detail G



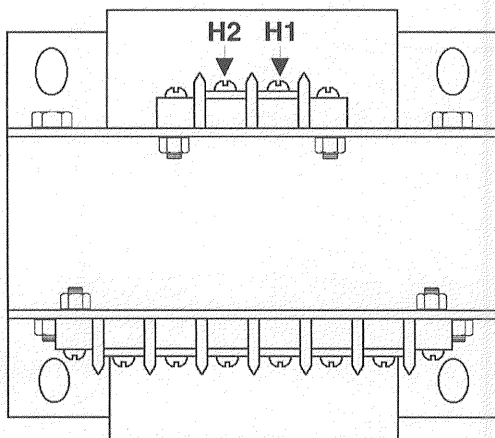
Front View



Rear View

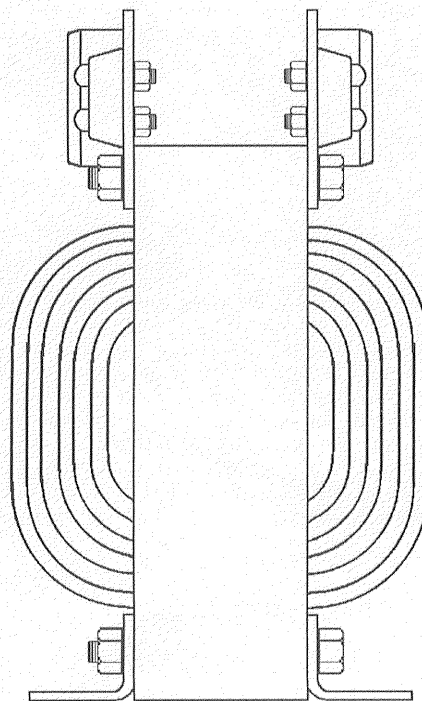
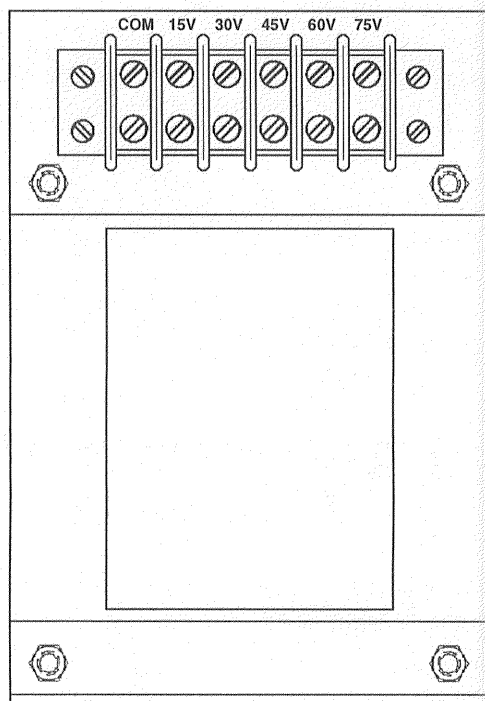
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# TRANSFORMER HOSE ELECTRICAL CIRCUIT CONNECTIONS

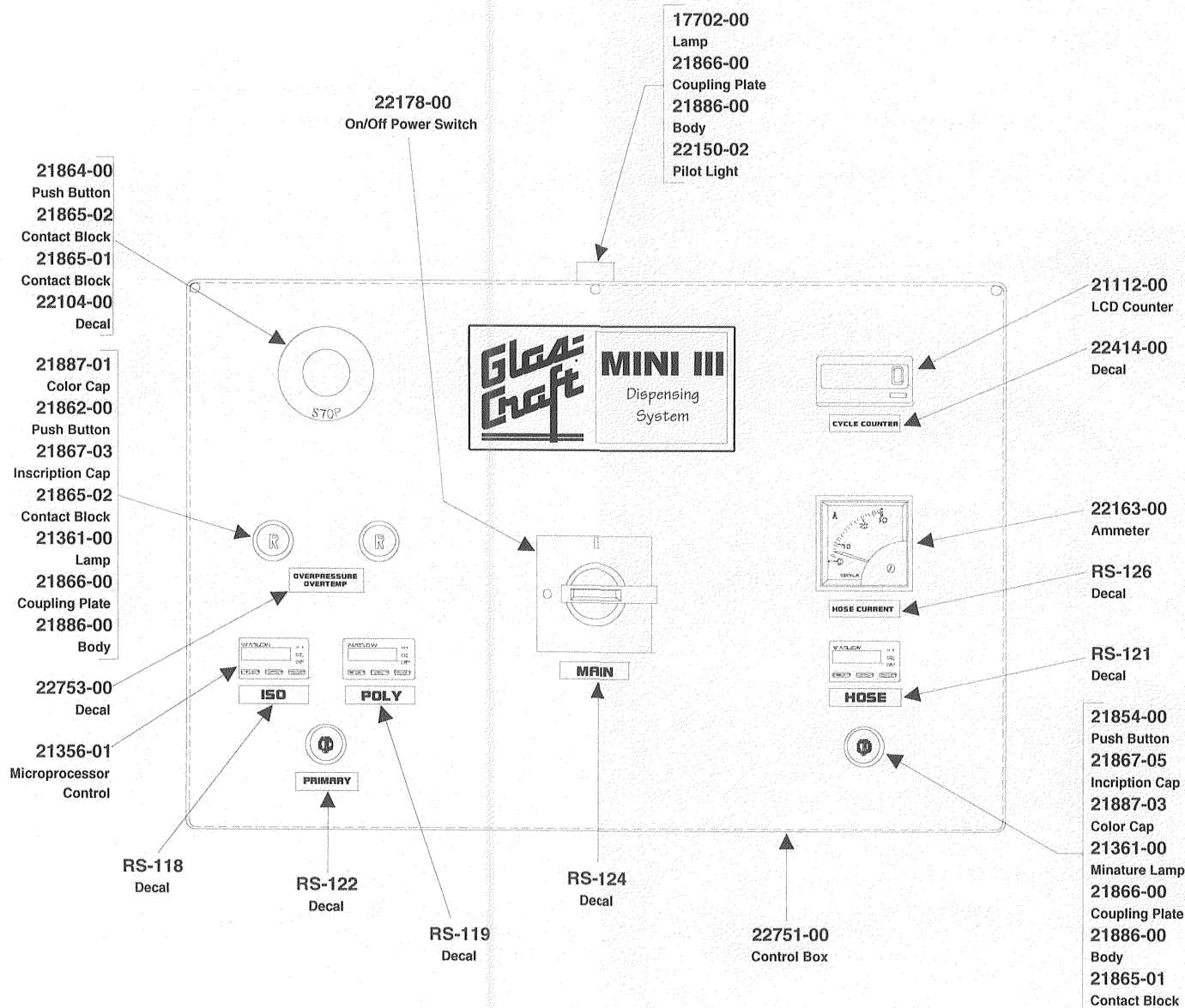


| TRANSFORMER             |             |    |
|-------------------------|-------------|----|
| H1                      | PRIMARY     | H2 |
|                         |             |    |
| TO HOSE                 |             |    |
| CONNECTIONS             | HOSE LENGTH |    |
| 15V                     | 50 FT       |    |
| 30V                     | 100 FT      |    |
| 45V                     | 150 FT      |    |
| 60V                     | 200 FT      |    |
| 60V                     | 250 FT      |    |
| 75V                     | 300 FT      |    |
| COM<br>(DO NOT<br>MOVE) |             |    |

21119-00

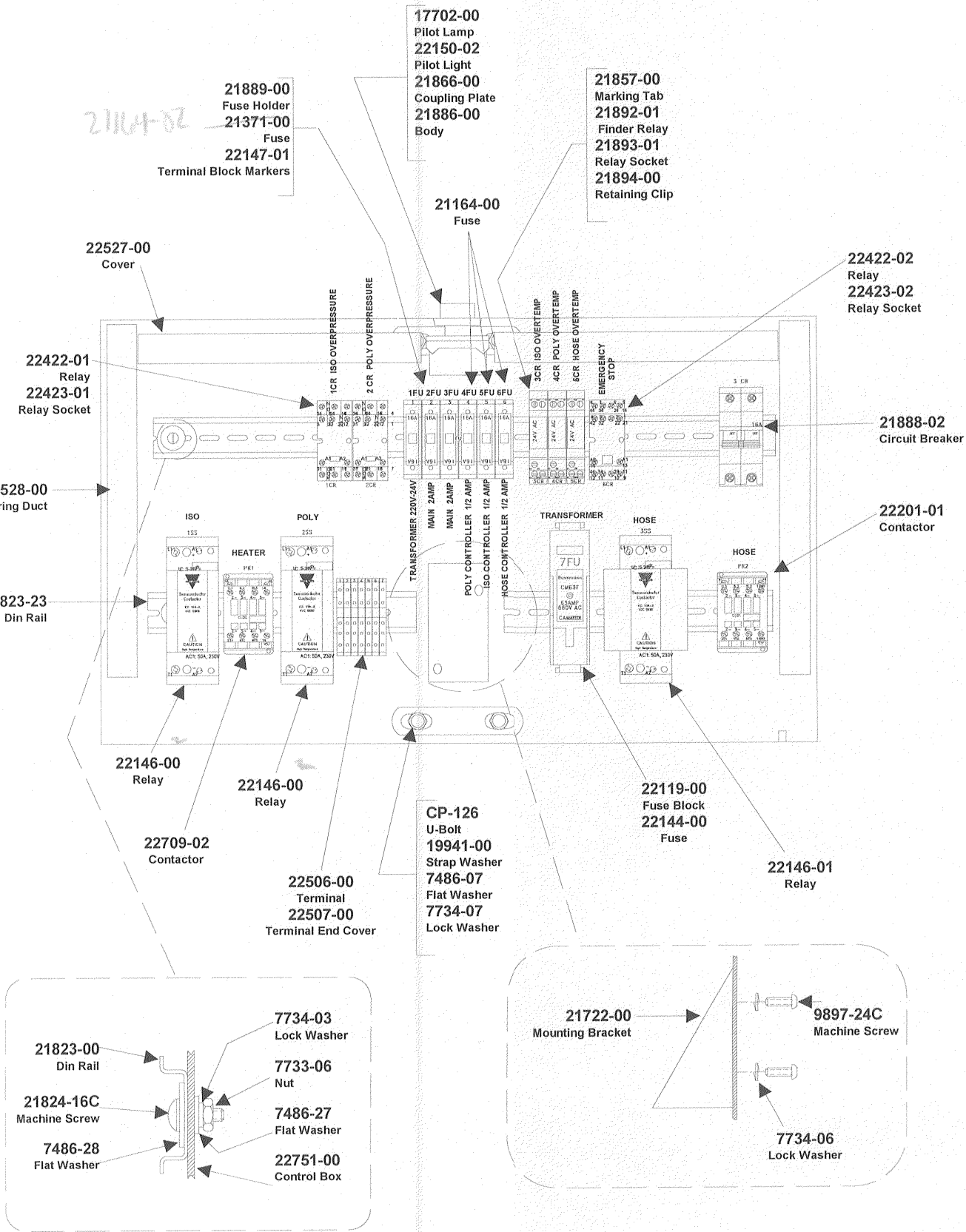


# 22750-00 MINI III CONTROL BOX ASSEMBLY



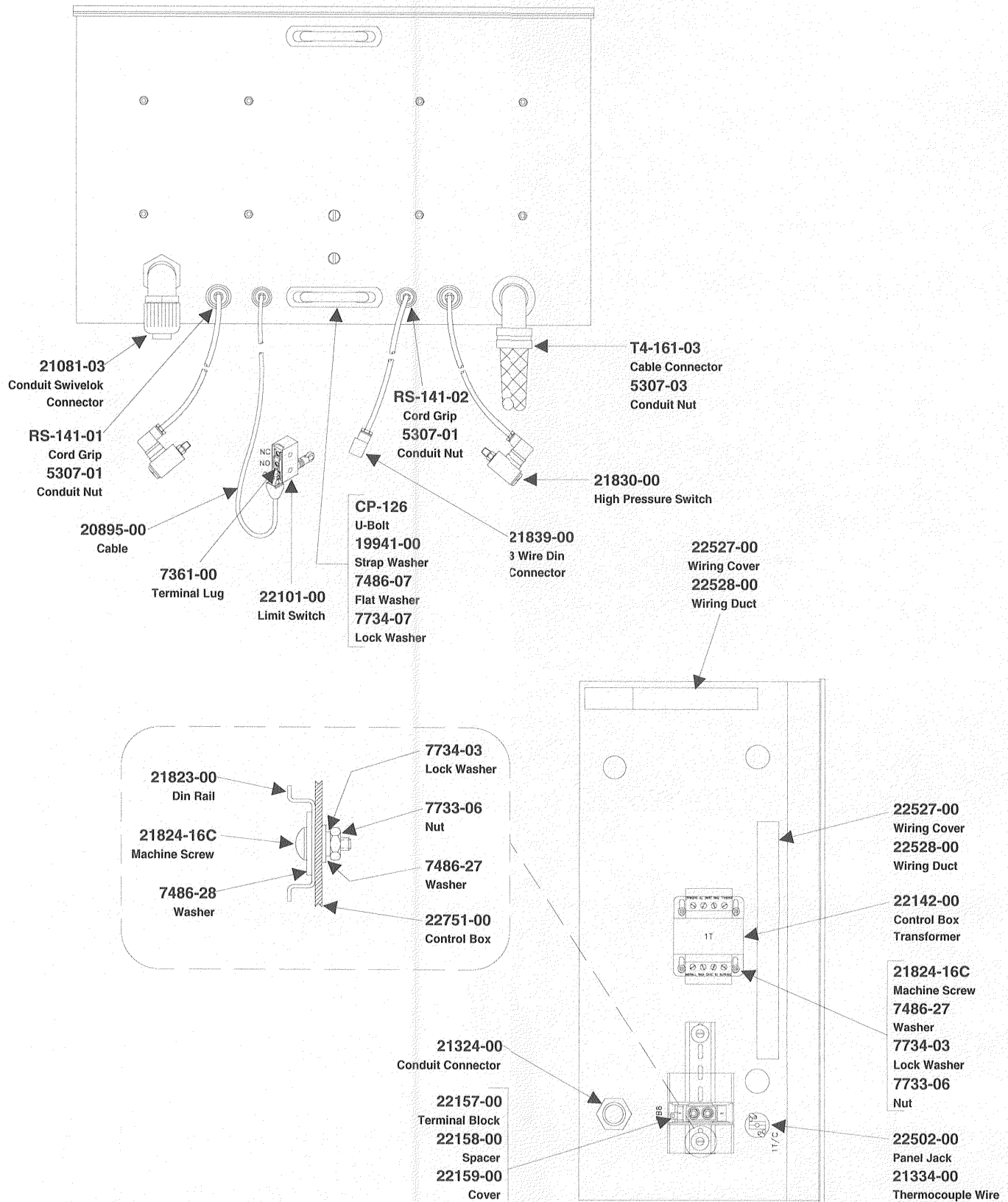
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## 22750-00 MINI III CONTROL BOX DETAILS





# 22750-00 MINI III CONTROL BOX DETAILS



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# 22750-00 MINI III CONTROL BOX SCHEMATIC

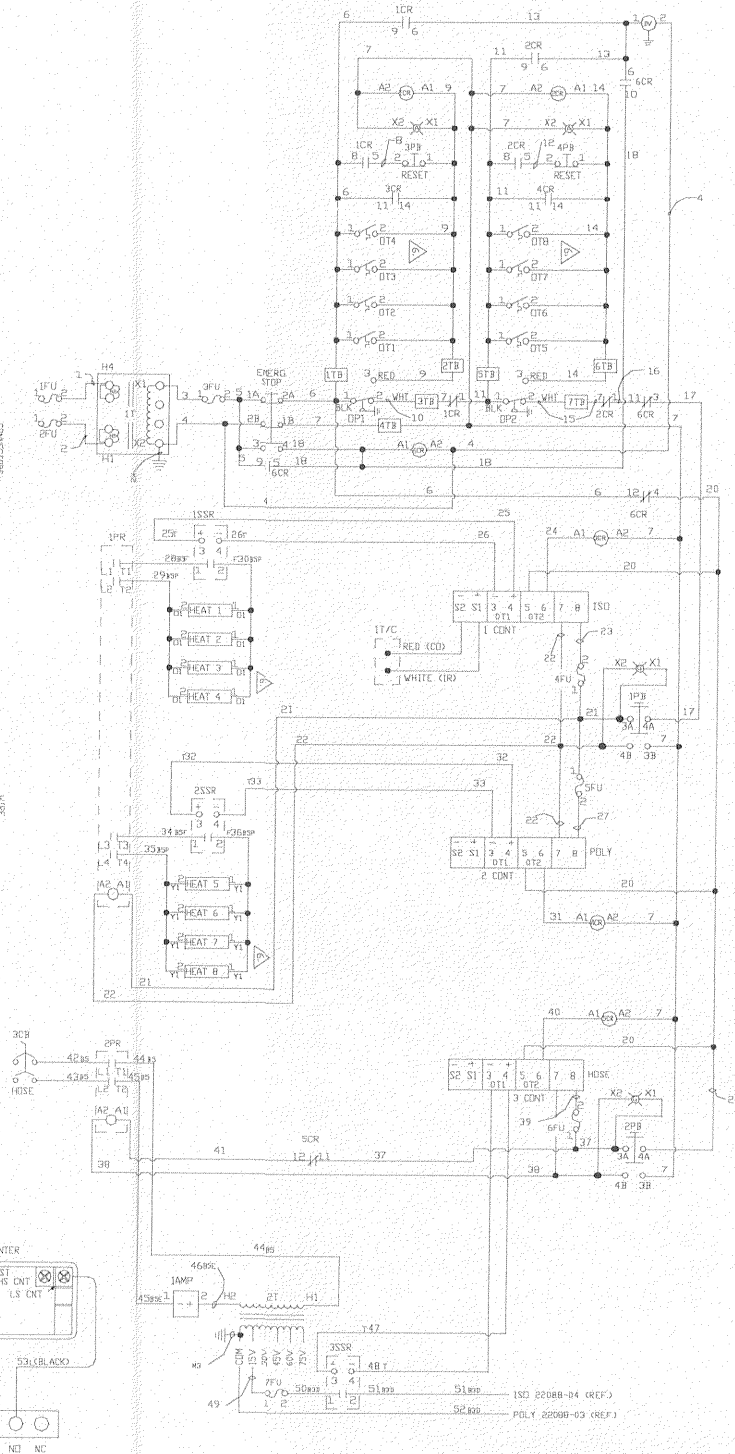
22750-00 MINI III CONTROL BOX SCHEMATIC

| IDENTIFYING<br>NUMBER | LOC-CHART<br>P/N | WIRE<br>NAME | QTY      |
|-----------------------|------------------|--------------|----------|
| D                     | 2115-00          | 6 GA         | 4 RED/3  |
| E                     | 2001             | 10-12 GA     | 2 RED/3  |
| F                     | 7361-00          | 22-16 GA     | 10 RED/3 |
| G                     | 4086-00          | 14-10 GA     | 4 RED/3  |
| H                     | 3795-00          | 12-10 GA     | 4 RED/3  |

| IDENTIFYING<br>NUMBER | LOC-CHART<br>P/N | COLOR | WIRE<br>GA |
|-----------------------|------------------|-------|------------|
| B3                    | 2115-00          | BLACK | 6          |
| B2                    | 2001             | BLACK | 12         |
| B1                    | 2001             | BLACK | 12         |
| B4                    | 2001             | BLACK | 12         |
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| B100                  | 2001             | BLACK | 12         |

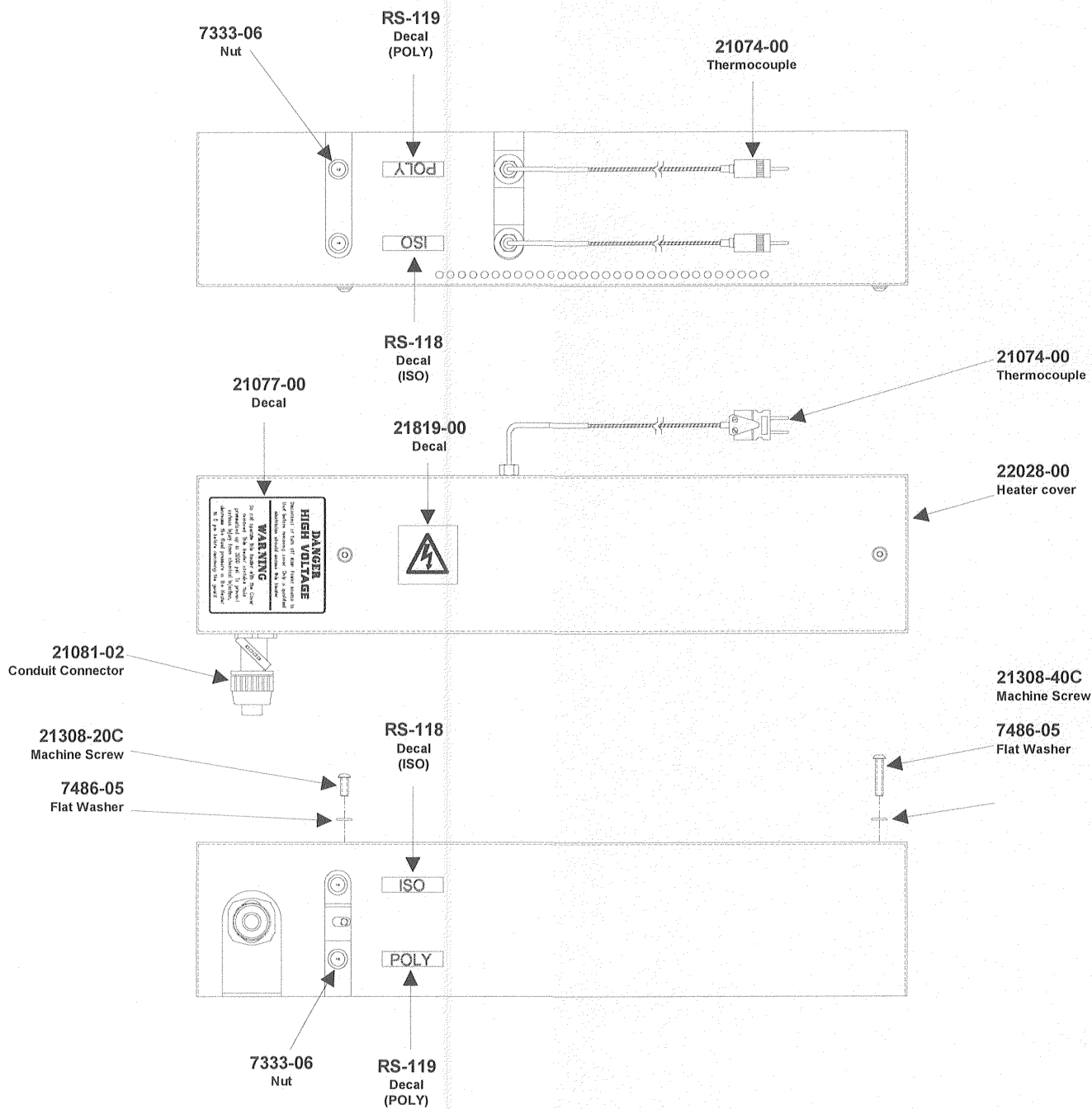
CONNECTORS

WIRE



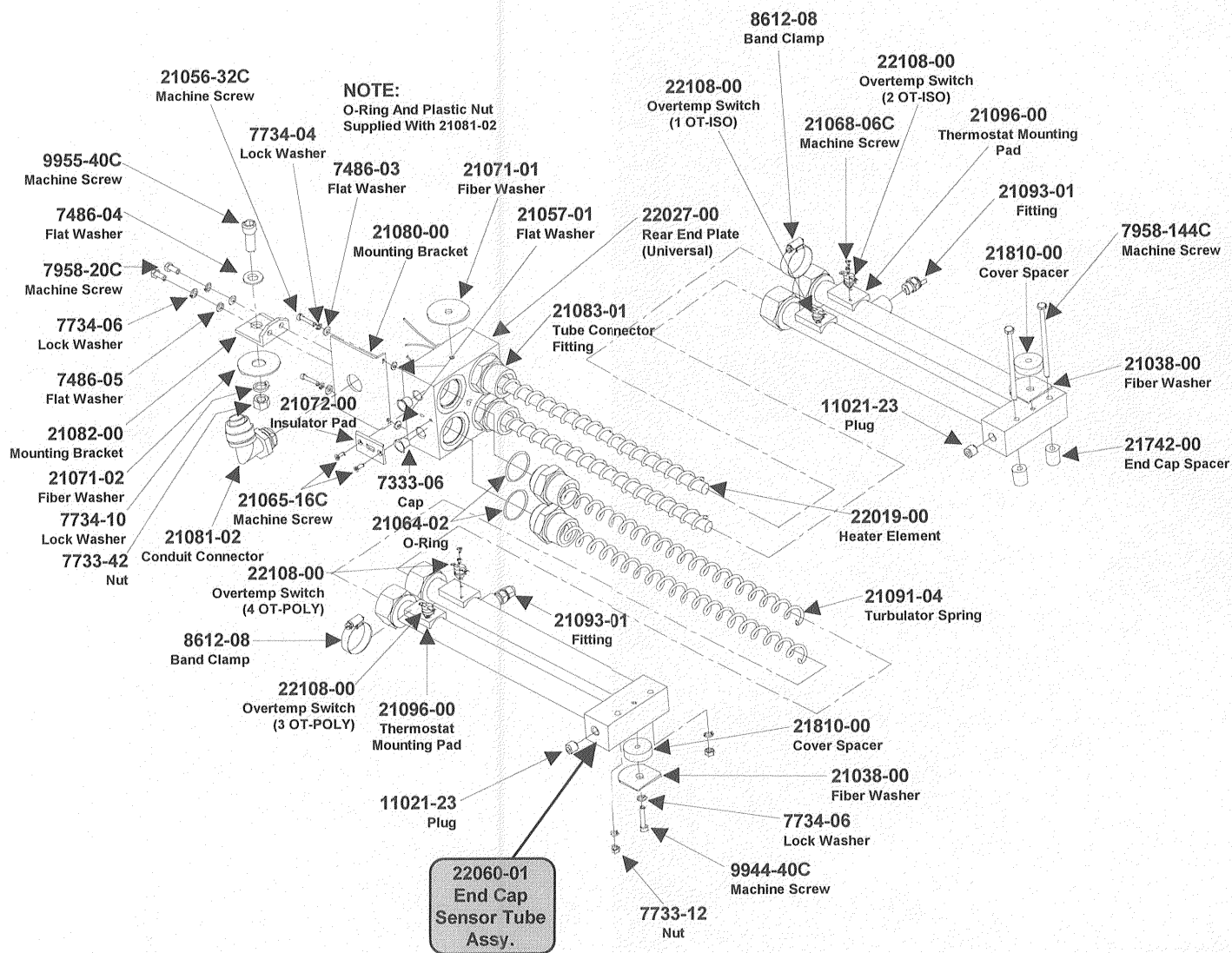
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# 22075-00 DUAL HEAT EXCHANGER ASSEMBLY

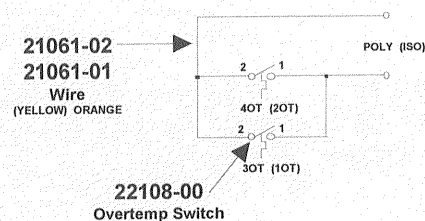


REVISED 7/03

# 22075-00 DUAL HEAT EXCHANGER ASSEMBLY

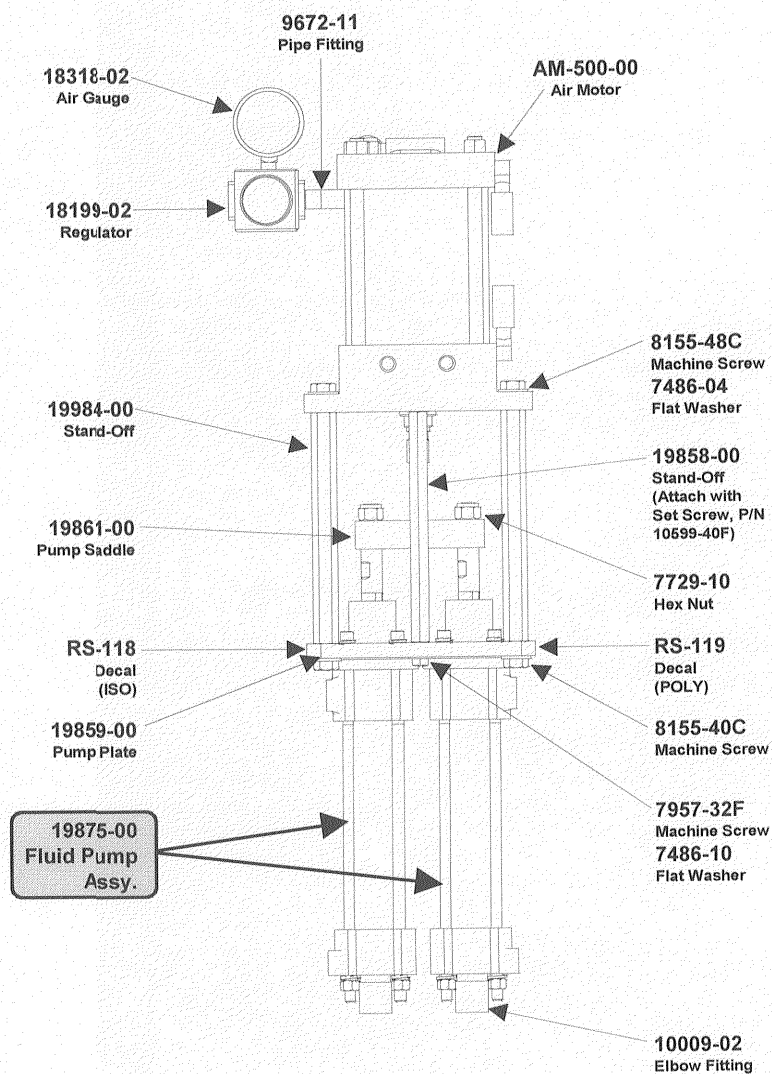
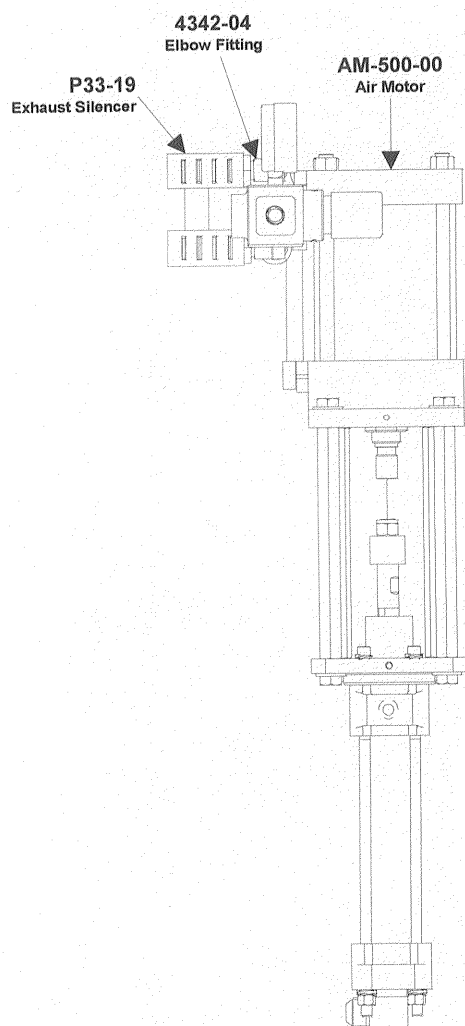


## HEATER WIRING DIAGRAM



REVISED 7/03

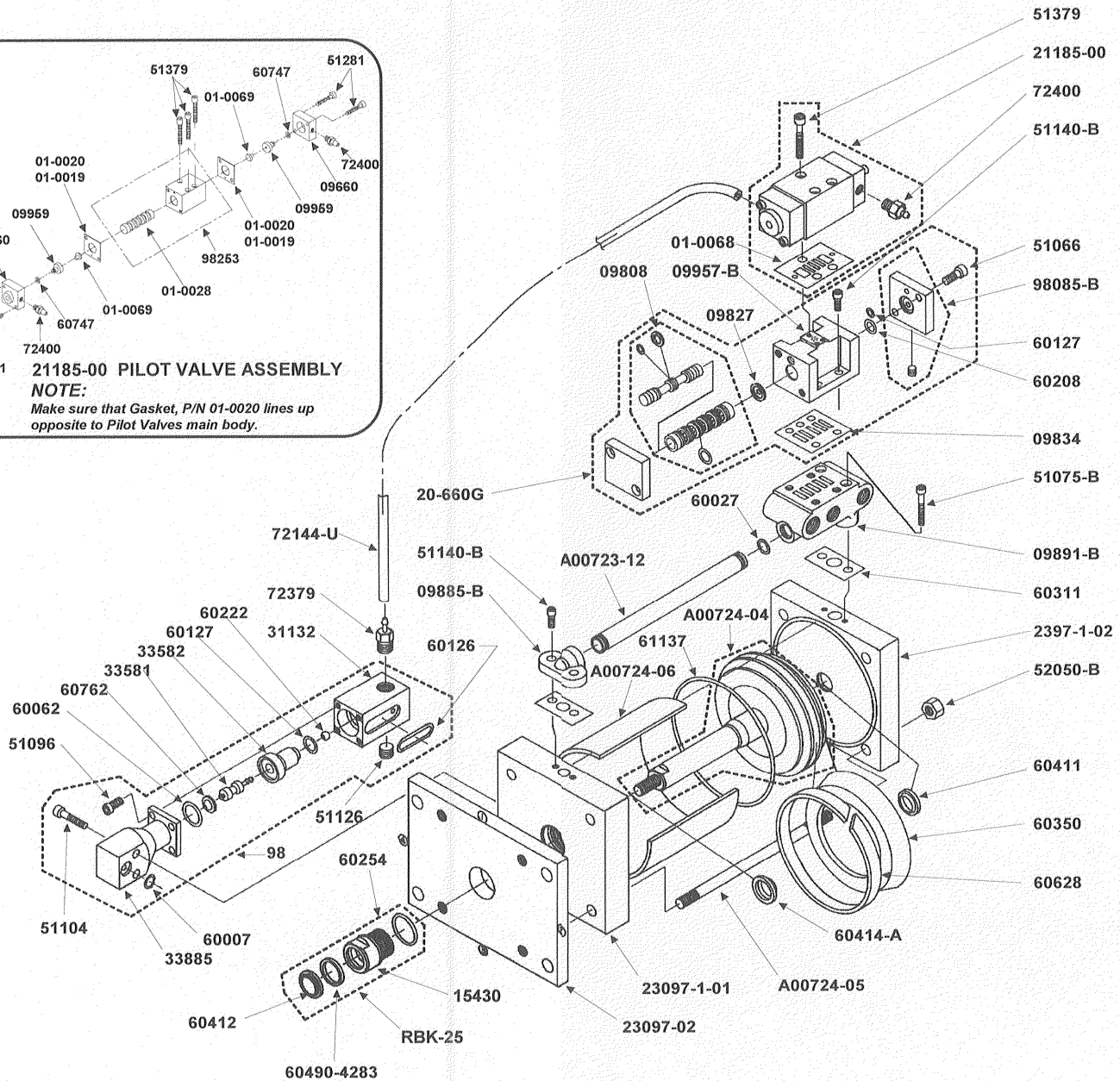
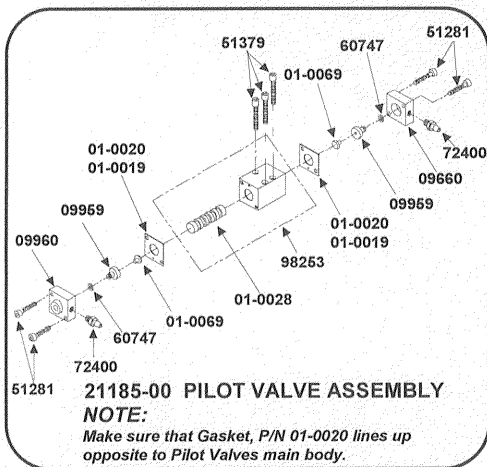
# 19852-511 PROPORTIONING UNIT ASSEMBLY



REVISED 1/99



## AM-500-00 AIR MOTOR



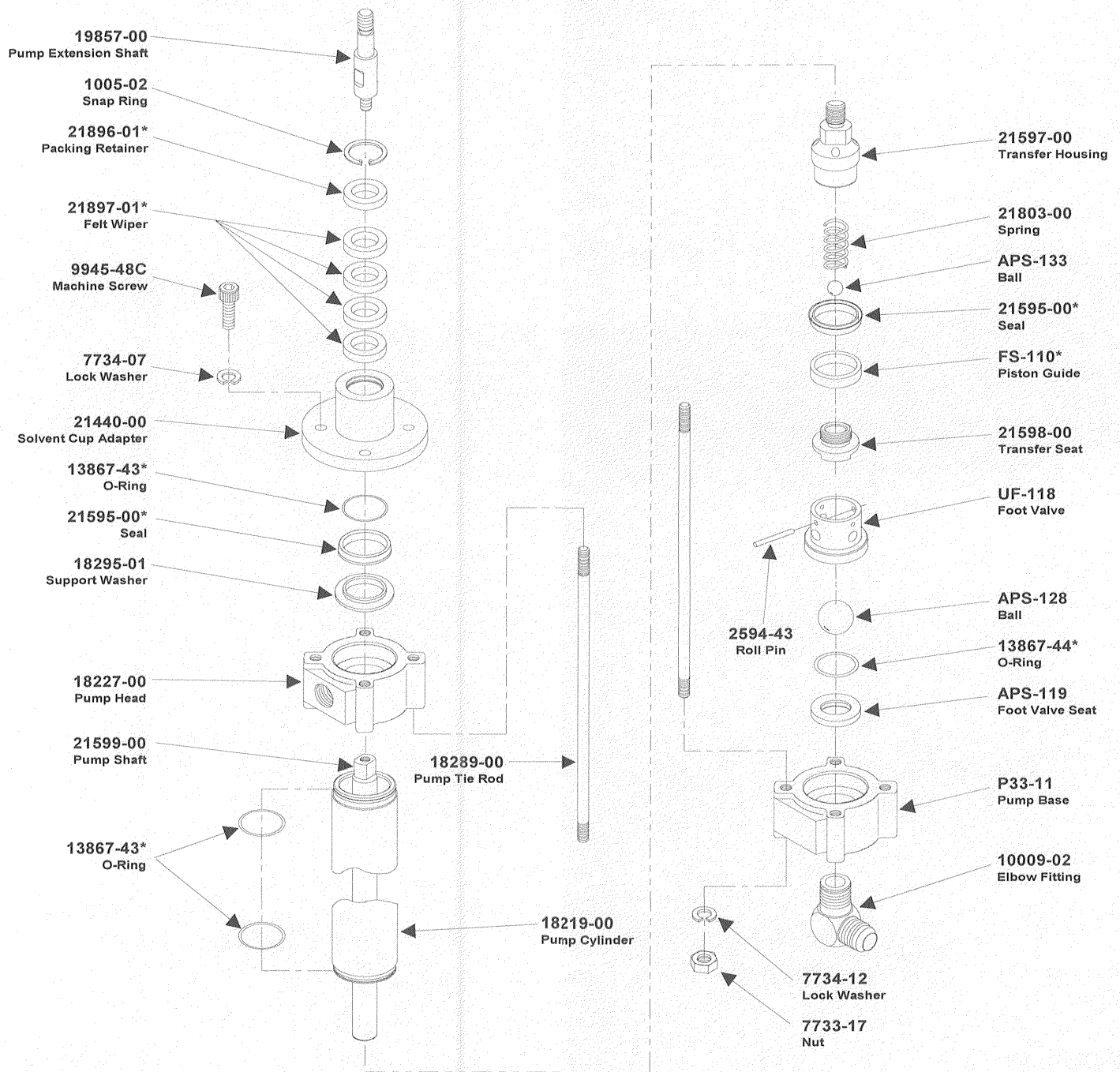
## REPAIR KITS

|                          |                                |                          |                                 |                        |                               |                                |
|--------------------------|--------------------------------|--------------------------|---------------------------------|------------------------|-------------------------------|--------------------------------|
| 20101-00<br>OVERHAUL KIT | 20102-00<br>PISTON SEAL<br>KIT | 20103-00<br>ROD SEAL KIT | 20104-00<br>SIGNAL VALVE<br>KIT | 20105-00<br>GASKET KIT | 20106-00<br>MAIN VALVE<br>KIT | 20107-00<br>PILOT VALVE<br>KIT |
| 20102-00                 | 60325                          | 60254                    | 33581                           | 01-0068                | 09808                         | 01-0020                        |
| 20103-00                 | 60327-80                       | 60412                    | 60007                           | 09834                  | 09827                         | 01-0028                        |
| 20104-00                 | 50-TSH                         | 60490-4283               | 60062                           | 60027                  | 60127                         | 01-0069                        |
| 20105-00                 | 60628                          |                          | 60126                           | 60311                  | 60208                         | 60747                          |
| 20106-00                 |                                |                          | 60127                           |                        |                               |                                |
| 20107-00                 |                                |                          | 60905                           |                        |                               |                                |
| 20189-00                 |                                |                          | 60222                           |                        |                               |                                |
|                          |                                |                          | 60762                           |                        |                               |                                |
|                          |                                |                          | A-00723-13                      |                        |                               |                                |

# 19875-00 FLUID SECTION

RATIO: 1:1

VOLUME: .021 gals. Displacement per cycle

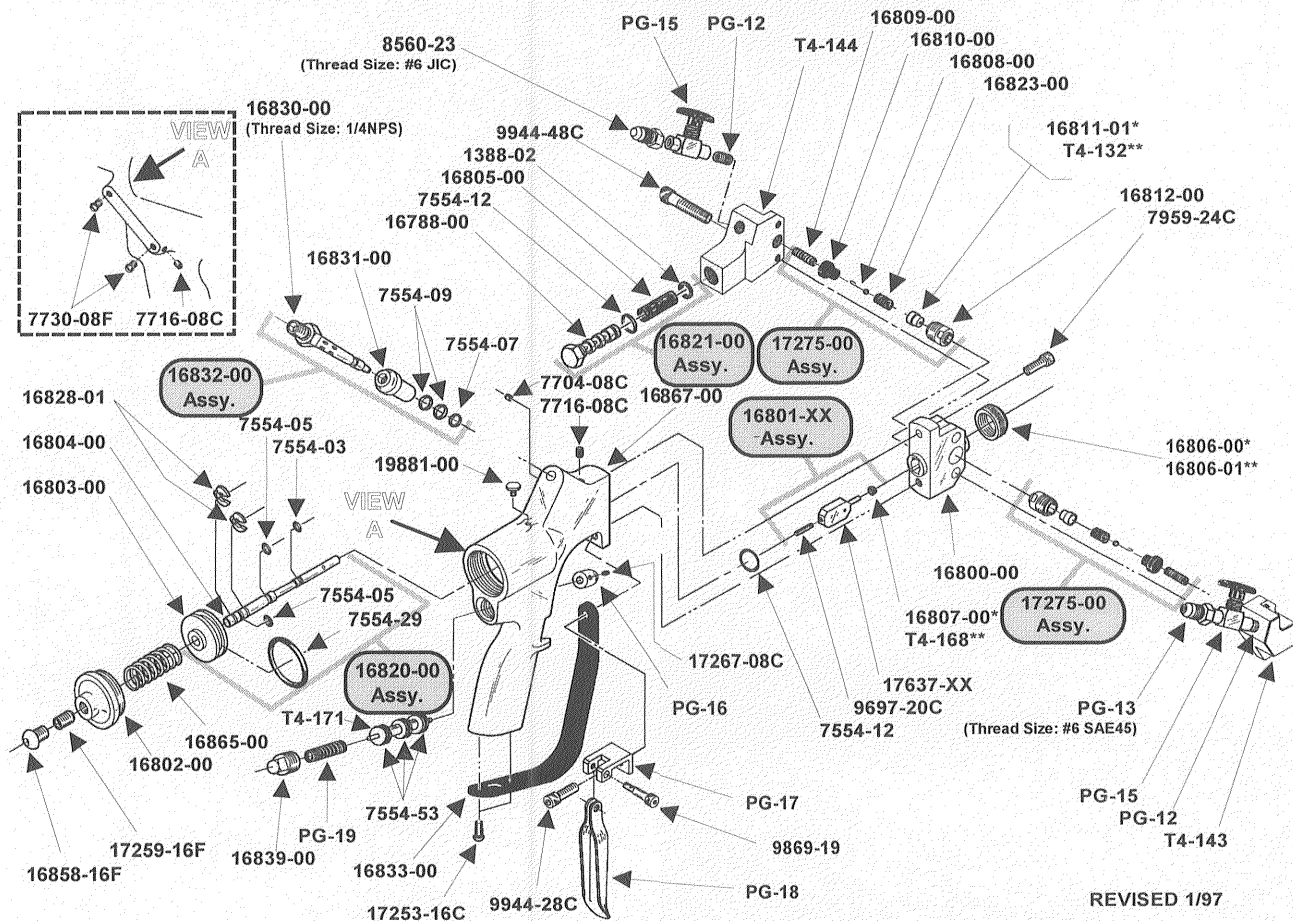


REVISED 8/98

## REPAIR KIT: 21845-00

(\*) Indicates parts included in Repair Kit.

# 17254 DISPENSE GUN



REVISED 1/97

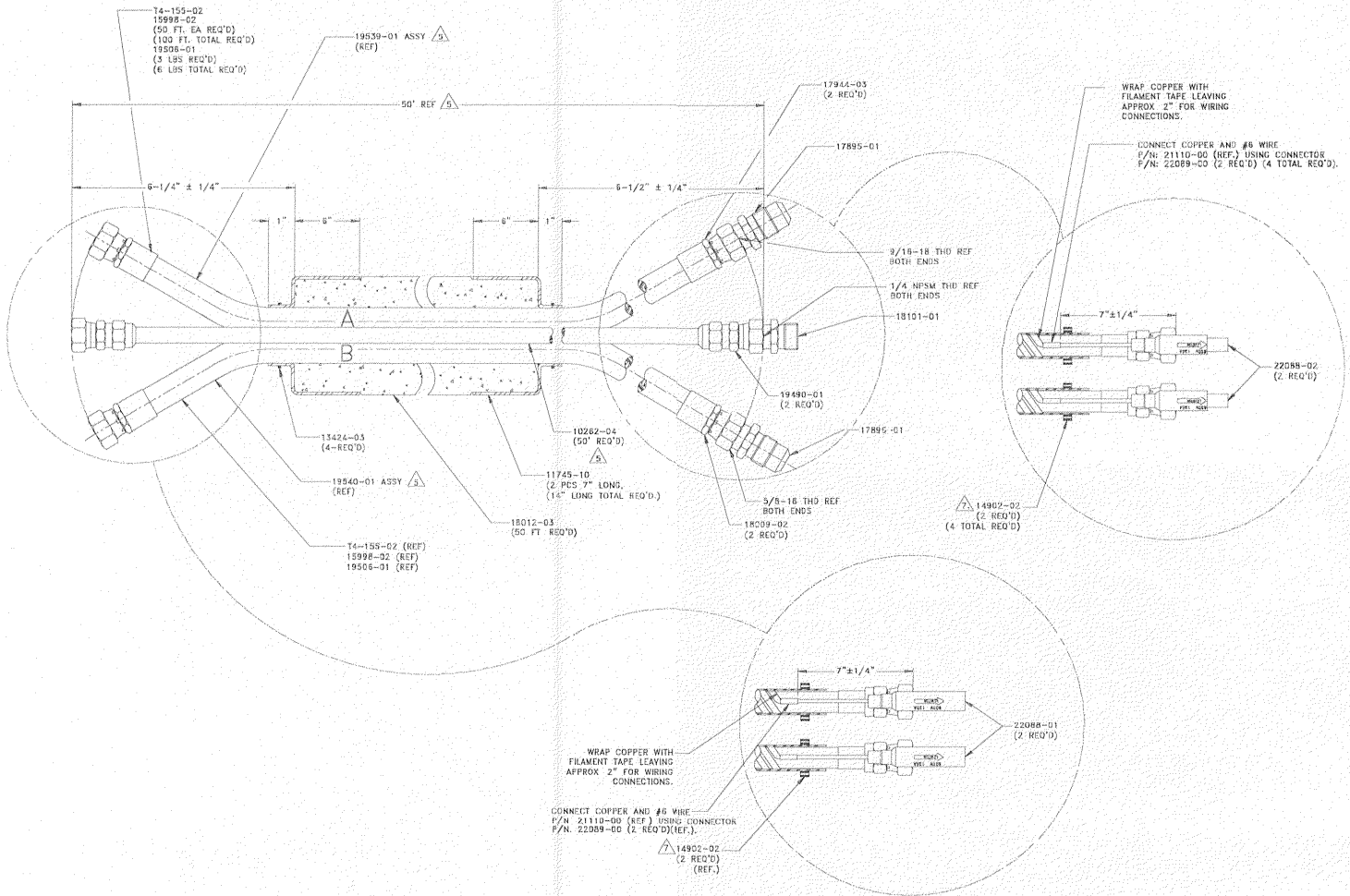
\* USED WITH P/N 17254-00, 01, -02, -03 GUN ASSEMBLY  
ASSEMBLY

\*\* USED WITH 17254-04, -05 GUN

|          |                      |           |                   |           |                 |
|----------|----------------------|-----------|-------------------|-----------|-----------------|
| 1388-02  | SNAP RING            | 16833-00  | TRIGGER GUARD     | 7716-08C  | MACHINE SCREW   |
| 16788-00 | FILTER SUPPORT       | 16839-00  | TRIGGER PLUG      | 7730-08F  | MACHINE SCREW   |
| 16800-00 | MIXING CHAMBER HSG.  | 16839-00  | AIR SWITCH TUBE   | 7959-24C  | MACHINE SCREW   |
| 16801-XX | MIXING CHAMBER ASSY. | 16858-16F | MACHINE SCREW     | 8560-23   | FITTING         |
| 16802-00 | REAR CAP             | 16865-00  | SPRING            | 9697-20C  | MACHINE SCREW   |
| 16803-00 | PISTON               | 16867-00  | HANDLE            | 9869-19   | MACHINE SCREW   |
| 16804-00 | PISTON SHAFT         | 17253-16C | MACHINE SCREW     | 9944-28C  | MACHINE SCREW   |
| 16805-00 | FILTER SCREEN        | 17259-16F | MACHINE SCREW     | 9944-48C  | MACHINE SCREW   |
| 16806-00 | CAP*                 | 17267-08C | MACHINE SCREW     | PG-12     | NIPPLE FITTING  |
| 16806-01 | CAP**                | 17275-00  | CHECK VALVE ASSY. | PG-13     | FITTING         |
| 16807-00 | AIR CAP SEAL*        | 17637-XX  | MIXING CHAMBER    | PG-15     | BALL VALVE      |
| 16808-00 | BALL                 | 19881-00  | PLUG FITTING      | PG-16     | TRIGGER BUTTON  |
| 16809-00 | SPRING               | 7554-03   | O-RING            | PG-17     | TRIGGER BRACKET |
| 16810-00 | BODY                 | 7554-05   | O-RING            | PG-18     | TRIGGER         |
| 16811-00 | SEAL                 | 7554-07   | O-RING            | PG-19     | SPRING          |
| 16812-00 | CHECK VALVE          | 7554-09   | O-RING            | T4-132    | SEAL            |
| 16820-00 | PISTON ASSY.         | 7554-12   | O-RING            | T4-143    | SIDE BLOCK      |
| 16821-00 | FILTER ASSY.         | 7554-12   | O-RING            | T4-144    | SIDE BLOCK      |
| 16823-00 | SPRING               | 7554-29   | O-RING            | T4-168-00 | AIR CAP SEAL**  |
| 16828-01 | RETAINER RING        | 7554-53   | O-RING            |           |                 |
| 16831-00 | AIR SWITCH SPOOL     | 7704-08C  | MACHINE SCREW     |           |                 |
| 16832-00 | AIR SWITCH ASSY.     | 7716-08C  | MACHINE SCREW     |           |                 |

REPAIR KIT: 19134-00

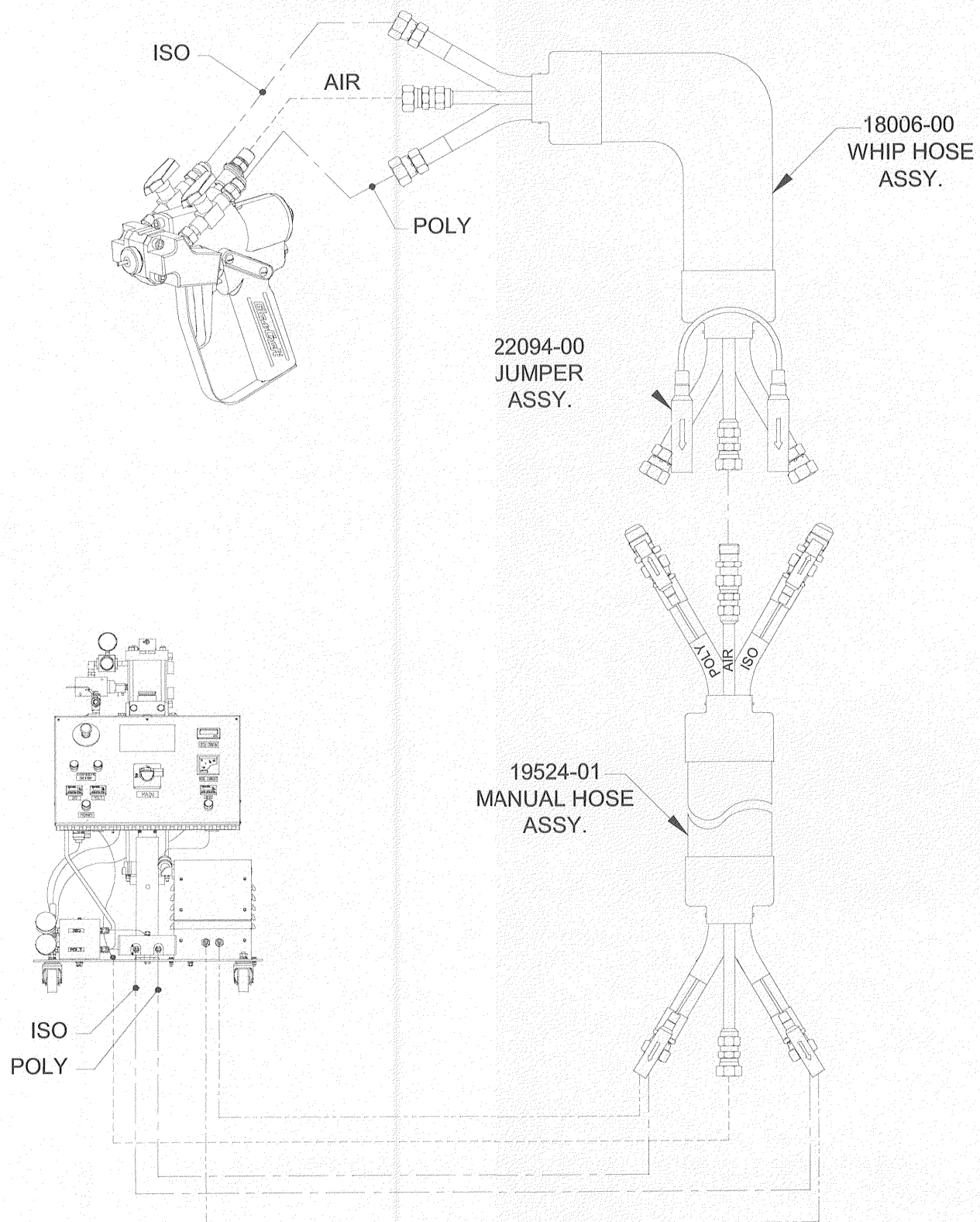
# 19524-01 HOSE ASSEMBLY



REVISED 5/04

# TYPICAL SYSTEM HOSE CONNECTION DIAGRAM

## For 50 ft. Applications





22094-00  
JUMPER  
ASSY.

6ft.-30ft. TOTAL

18006-00  
WHIP HOSE  
ASSY.

50ft.-250' TOTAL

19524-01  
MANUAL HOSE  
ASSY.

50ft.-200' TOTAL

19524-01  
MANUAL HOSE  
ASSY.

50ft.-100' TOTAL

22074-00  
THERMOCOUPLE

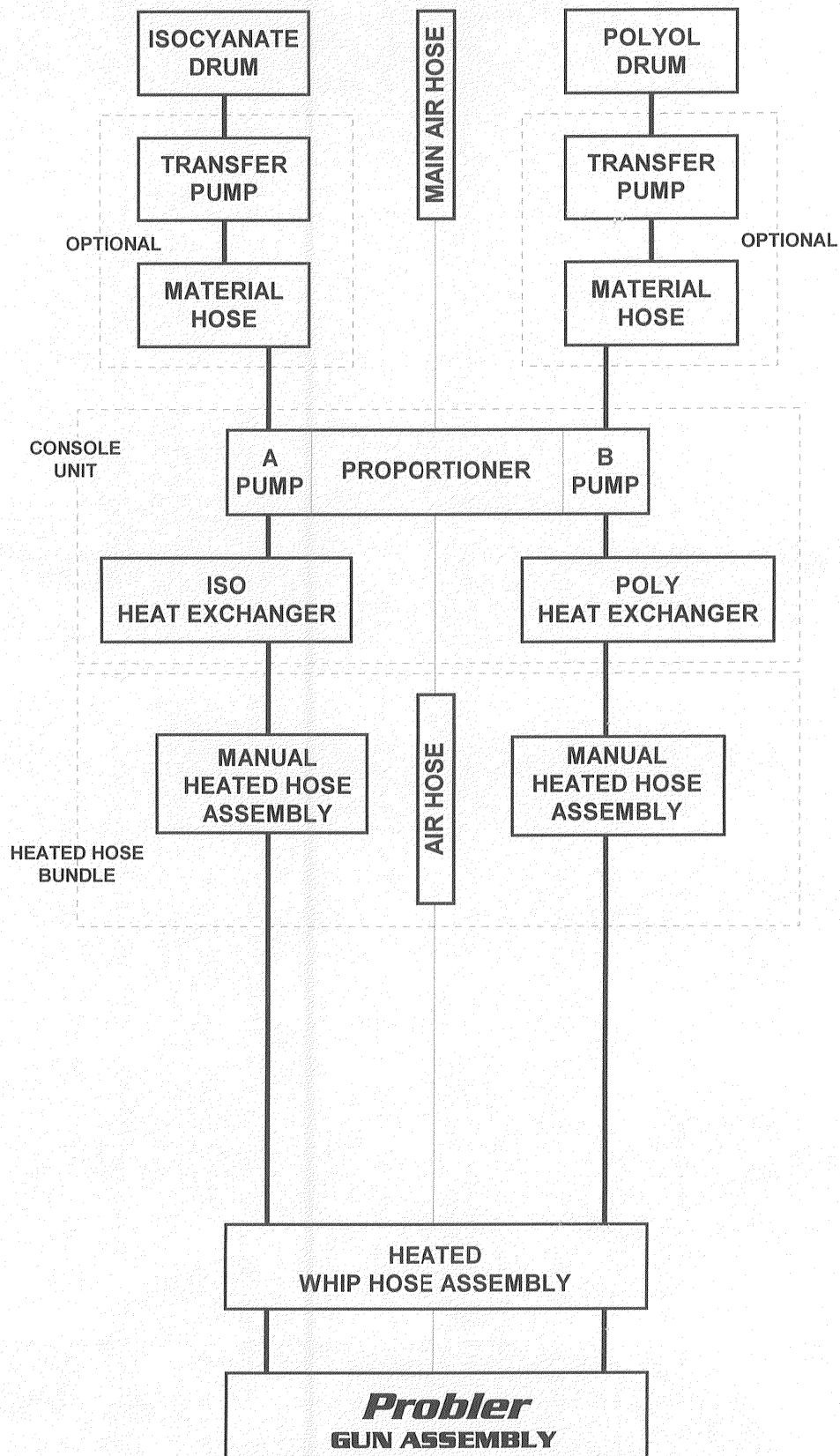
UNIT

ISOLATION  
BLOCK

PLUG

POLY  
AIR  
ISO

# MATERIAL FLOW SCHEMATIC





# SAFETY

## Safe Handling And Use Of Urethane Foam Equipment

### Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safely.

All personnel involved in dispensing operations should read and understand this manual. It is most important that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation.

This manual cannot answer every circumstance; each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures. GlasCraft hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program.

Urethane foam systems are comprised of several different chemical compounds, some of which may be hazardous if improperly used.

### CAUTION

*Particular caution must be taken with respect to the vapors released during the use of urethane foam systems.*

Isocyanate compounds are used in urethane foaming operations. The medical history of persons who may be exposed to such isocyanates should be examined. It is recommended that individuals with a history of chronic respiratory ailments should avoid exposure to all isocyanates.

In addition to the manual, GlasCraft recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

- 1910.94 Pertaining to ventilation.
- 1910.106 Pertaining to flammable liquids.
- 1910.107 Pertaining to spray finishing operations, particularly Paragraph (m) Organic Peroxides and Dual Component Coatings.

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Chemical manufacturer's recommendations should be obtained and considered. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

## Personnel Safety Equipment

GlasCraft recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:



EYE PROTECTION



HEARING PROTECTION



BREATHING PROTECTION

GlasCraft recommends that the user consult the state and local regulations established for all Safety equipment listed.

### Operating Safely

In operating urethane foam equipment safely, user should make every effort to:

1. Handle chemicals safely.
2. Provide adequate ventilation.
3. Provide adequate safety equipment (gloves, respirators, safety glasses, protective clothing, etc.) for operators and all others working in areas where they may be exposed to the chemicals or their vapors.
4. Avoid operating equipment which has given any indication of malfunction.
5. Become fully acquainted with the equipment and chemicals used.

### Handling Chemicals Safely

Storage of polyisocyanates, diamines, and organic solvents should be isolated and restricted to specially constructed storage rooms. Store chemicals in original containers and according to manufacturer's recommendations listed on the container. Maximum ambient temperatures to which such chemicals should be exposed are specified by the manufacturer and **MUST NOT** be exceeded either in the storage area or in the spraying or pouring area.

To avoid moisture contamination, do not open containers until ready for use. After use, the remaining material should be re-sealed in the original container and stored in areas away from moisture.

During clean-up of spilled isocyanate-component, respirators, gloves and eye protection must be worn. Isocyanates which have been spilled can be controlled by covering them with dry saw dust and/or other absorbent inert materials. Care should be taken to avoid skin contact. The absorbent material and the absorbed isocyanate should be collected promptly, placed in an open-top container, and treated with dilute solutions of ammonium hydroxide and/or alcohol. While being treated in this manner, the material should be in an adequately ventilated area. Clothing on which any material has been spilled should be removed immediately, and cleaned before being worn again.

## Clean-Up Solvents

### WARNING

*A hazardous situation may be present in your pressurized fluid system!*

*Halogenated Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pumps, heaters, filters, valves, spray guns, tanks, etc.).*

*The explosion could cause serious injury, death and/or substantial property damage.*

*Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon Solvents.*

*Some GlasCraft spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon Solvents.*

A. There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.

1. **The presence of HHC solvents.** 1,1,1-Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up or flushing.

2. **Aluminum or Galvanized Parts.** Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.

3. **Equipment capable of withstanding pressure.** When HHC solvents contact aluminum or galvanized parts inside a closed container, such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions.

When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal: **any amount of aluminum is too much.**

B. The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does **NOT** mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component of a coating material. There is no known inhibitor that is effective under all circumstances. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEK, alcohol, and toluene, may render the inhibitors ineffective.

C. The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors, or may add incorrect amounts of inhibitors, or may add improper types of inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.

D. Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys, which will safely prevent the chemical reaction under all circumstances.

E. Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many State Implementation Plans as Volatile Organic Compounds (VOC's), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.

### WARNING

*If you are now using Halogenated Hydrocarbon solvents in pressurized fluid systems having aluminum or galvanized wetted parts, IMMEDIATELY TAKE THE FOLLOWING STEPS:*

- > Empty system, shut-off, completely depressurize in accordance with equipment service instructions.
- > Remove equipment from service, disassemble in accordance with equipment servicing instructions.
- > Inspect all parts for corrosion and/or wear. Replace any damaged parts.
- > Thoroughly clean all parts of the equipment with a non-halogenated solvent and reassemble in accordance with equipment servicing instructions.
- > Flush equipment with non-halogenated solvent.
- > Do NOT reuse equipment with HHC solvents or with materials containing such solvents.
- > Material suppliers and/or container labels should be consulted to ensure that the solvents used are compatible with your equipment.

### NOTE

*GlasCraft is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in a closed fluid system.*

**TAKE IMMEDIATE ACTION...**

*Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.*

F. Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

G. GlasCraft recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.

H. If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.

I. Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.

J. You should allow only enough solvent for one day's use in your laminating area.

K. "NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.

L. Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No. 91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.

M. Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

### Toxicity of Chemicals

A. GlasCraft recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No. 33, Chapter 14, and NFPA No. 91.

B. Contact your chemical supplier(s) and determine the toxicity of the various chemicals used, as well as the best methods to prevent injury, irritation and danger to personnel.

C. Also determine the best methods of first aid treatment for each chemical used in your plant.

### First Aid

If chemicals containing isocyanates are splashed on the skin, they can produce ill effects. Steps to counteract such effects should be started immediately.

1. Apply Tincture of Green Soap, full strength, to the contaminated area. If Tincture of Green Soap is not immediately available, wash the exposed area repeatedly with soap and water. Soap and water is not as desirable as using Tincture of Green Soap because many isocyanate components are not easily dissolved in water. In addition, soap and water does not form a barrier to the isocyanates.

2. After approximately two to four minutes, wash off the Tincture of Green Soap with water. If there is still an indication of isocyanate present, repeat the application. If the isocyanate contamination is on the facial area, care must be taken to avoid getting the Tincture of Green Soap in the eyes.

3. If the person develops breathing difficulties, oxygen should be administered. Quite often the exposed person will experience residual effects such as coughing spells. **CONTACT PHYSICIAN IMMEDIATELY.**

## WARNING

*Contact a doctor immediately in the event of an injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting the doctor.*

4. If a person accidentally swallows isocyanates, large amounts of water should be swallowed immediately. Vomiting should then be induced by patient sticking his finger down his throat, or by swallowing large quantities of warm salt water or warm soapy water. After vomiting, more water should be taken to dilute isocyanate further. **CONTACT PHYSICIAN IMMEDIATELY.**

## Ventilation

## WARNING

*Hazardous concentrations of some chemical vapors exist before they can be smelled. Chemical component suppliers should be contacted to determine at what concentrations the vapors of the chemicals they supply become dangerous, and the procedures and equipment needed to detect such dangerous concentrations. Such equipment should be obtained.*

*Adequate ventilation must be provided in any area where foam chemicals are sprayed or poured, and wherever the material containers are opened.*

In industrial applications, foaming operations should be restricted to specific areas, and proper ventilation should be provided in these areas to prevent chemical vapors from spreading. Spray foaming operations **MUST** be restricted to a spray booth where a minimum exhaust of 100 feet per minute at the face of the booth is provided. Special care should be taken to prevent unsuspecting personnel both inside and outside of the plant from being exposed to chemical vapors. The chemical vapors should be exhausted to atmosphere in such a manner and at a sufficiently low concentration that personnel outside the plant are not exposed to dangerous concentrations of chemical vapors. Refer to OSHA Standards, sub-part G, 1910.107 and particularly sub-section (m) for Federal standards. State and local authorities may have applicable statutes or regulations concerning ventilation.

In contractor applications (for example, at a construction site, inside building or other enclosed space), the forced ventilation normally provided is likely to be inadequate. These applications, therefore, usually **REQUIRE** the use of forced, fresh air respirators for all persons in the areas where foaming operations are conducted or where the chemical vapors are likely to spread.

In industrial and contractor applications, it is advisable to run frequent tests to determine the exact concentration of isocyanate vapor in the air. Industrial equipment is available for making such determinations. Your chemical supplier can recommend such equipment and procedures.

## Proper Safety Equipment

All persons spraying or working in areas where forced air ventilation is not adequate to remove isocyanate vapors from the air **MUST** use an approved (U.S. Bureau of Mines) fresh air supplied respirator.

Respirators should be regularly inspected, cleaned and disinfected according to good practices. Records must be kept of the inspections. The user **MUST** have a medical clearance indicating that he can safely use a respirator.

Respirators must fit securely; beards prevent a tight seal around the face. Eye glasses have to be given special attention and contact lenses are prohibited.

Safety goggles, gloves and other protective devices are suggested for operators of foaming equipment. Refer to OSHA Standards, sub-part 1, 1910.132, 1910.133 and 1910.134 for Federal standards.

IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE PRECAUTIONS OR ANY SERVICE OR OPERATION PROCEDURES, CALL YOUR GLASCRAFT DISTRIBUTOR OR GLASCRAFT, INC.

## Notice

All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind expressed or implied. The user should not assume that all safety measures are indicated or that other measures are not required.

**GlasCraft**  
DISPENSING EXCELLENCE

**5845 WEST 82nd STREET, SUITE 102  
INDIANAPOLIS, INDIANA 46278 U.S.A.**

**PHONE (317) 875-5592**

**FAX (317) 875-5456**

# INSTALLATION

## Assembly Instructions

### NOTE

Refer to "Typical System Connection Diagram" illustration during assembly steps.

## Hose Installation on Base Unit

(See Typical System Diagram in Manual.)

The fluid lines that bring Isocyanate and Polyol from the drums to the pump inlets, and the hoses that take the chemicals and air from the isolation block to the gun should be connected as follows:

### WARNING

Main power from power source should be disconnected or turned off to console before making hose connections.

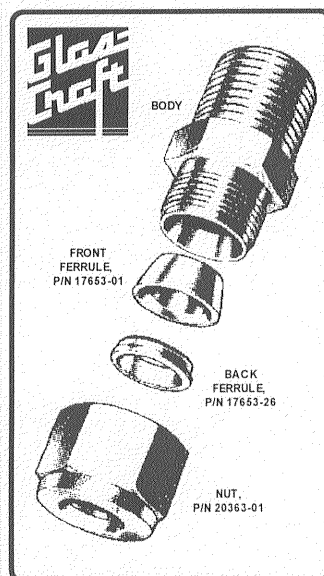
1. Determine the length of the hose to be installed.
2. Connect Hose assembly, P/N 19524-01 to Isolation Block on base at of unit. The swivel fittings on the Hose assembly are sized differently and will attach only one way. (Match like sized fittings.) Also connect the Air Hose assembly at this time. It should be attached to the fitting located on the lower left side of the isolation block.
3. Plug hoses together.  
The TRU-FLOW HOSE PLUGS are a Turn Lock design. The plugs will need to be pushed together and turned into lock position.  
Once connections are made, tape up connections well enough to:
  - a). Keep plugs from coming undone
  - b). Protect plugs and wires from damage, ...becoming snagged etc.
4. *Optional Extension Hose Installation*  
Whether you are installing 50' of heated hose or 300', proceed by using P/N 19524-01 w/ standard fittings, P/N 18101-00, P/N 17896-01, P/N 17895-01 up to the end.  
Attach P/N 22094-00 Jumper Assembly to last section of Heated Hose before Whip Hose to complete the circuit.

5. Install thermocouple in back side of B- side junction block. ( See ISOLATION BLOCK ASSEMBLY).

6. Install Nut, P/N 20363-01, Back Ferrule, P/N 17653-26, Front Ferrule, P/N 17653-01 on body of Thermocouple. Turn nut down hand tight, then using a 9/16" wrench, turn nut 450° (1 ¼ turn).

7. Install cover, P/N 22711-00.

8. Plug thermocouple into bottom of control box.



### INSTALLATION INSTRUCTIONS

#### TUBE FITTINGS

##### Step 1

Simply insert the tubing into the Tube Fitting. Make sure that the tubing rests firmly on the shoulder of the fitting and that the nut is finger-tight.



##### Step 2

Before tightening the nut, scribe the nut at the 6 o'clock position.



##### Step 3

Now, while holding the fitting body steady with a back-up wrench, tighten the nut 1 1/4 turns\*. Watch the scribe; it will make one complete revolution and continue to the 9 o'clock position.



By scribing the nut at the 6 o'clock position as it appears to you, there will be no doubt as to the starting position. When tightened 1 1/4 turns\* to the 9 o'clock position you can easily see that the fitting has been properly installed.

Use of the Gap Inspection Cage (1 1/4 turns\* from finger-tight) assures sufficient pull-up.

\* For 1/16", 1/8" and 3/16" size tube fittings, only 3/4 turn from finger-tight is necessary.

**Gla-Craft, Inc.**

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INDIANAPOLIS, IN 46278

Phone (317) 875-5592 Fax (317) 875-5456

21255-05

## CAUTION

When using optional Hose assemblies, transformer wiring **must** be altered. Transformer is factory wired for **50 feet of hose only**. (see Fig. 6, Hose Transformer Connection illustration)

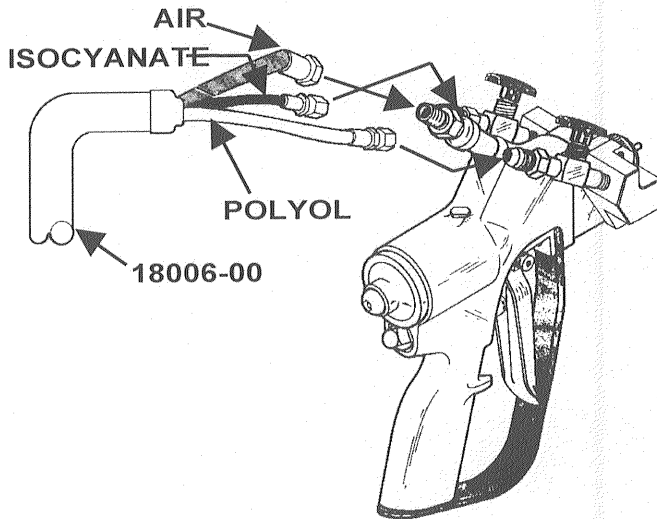


Fig. 4

8. The Whip Hose assembly should now be attached to the Gun. The swivel fittings on the Whip Hose assembly are sized differently and will attach only one way. (Match like sized fittings.) Also connect the Air Hose assembly to the Gun at this time. (see Fig. 4)

9. Fluid Hose connections between Console and Gun should now be complete. The following should be checked before preceeding:

- A. All fittings tight from Isolation Block to Gun.
- B. All Union Fittings and Air Line Unions used between Hose sections wrapped individually with several layers of electrical tape to prevent short circuiting of Hose.
- C. Air Line Union Fitting and Hose Union assembly used between last Hose section and Whip Hose wrapped individually with several layers of electrical tape to prevent short circuiting of Hose.

## WARNING

Transformer is factory wired at 15 volts output for up to 150' foot Hose assembly. For 200' and higher, the Transformer wiring **must** be changed to higher output taps.

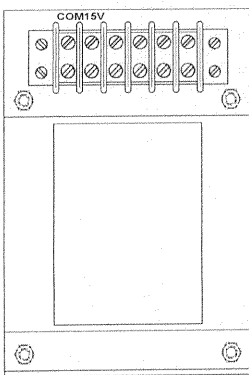
## NOTE

Electrical connections must be checked on a periodic basis.

⊖ Connection for a maximum fifty (50) foot Hose length.

⊖ Connection for (300) foot Hose length

CAUTION: 220 VOLTS



## WARNING

### 220 VOLT INPUT TO PRIMARY

Disconnect or shut off Main Power Supply to Unit before changing taps on Transformer

CAUTION: 220 VOLTS

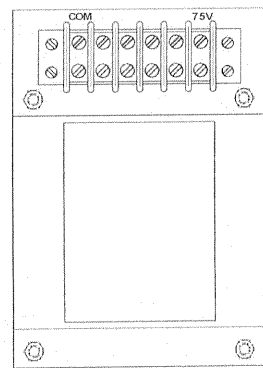


Fig. 6



## CAUTION

Hose assemblies are constructed of durable, rugged materials. However, they are not indestructible. To provide precisely-controlled heated material, the Hoses have electrical wiring wrapped between layers. Avoid dragging hoses over or around sharp, abrasive edges and corners. Exercising caution and common sense will give long, reliable service from the Hoses.

## WARNING

A shock hazard exists between the Polyol hose connector fittings and the Isocyanate hose connector fittings at the Mini III Console assembly, when the main power source is connected and the Main Power Circuit Breaker is **on**. Therefore, whenever power is on, **never** touch hose connector fittings on either side of Insulator Block, P/N 19471-00 with your hands or tools. You must disconnect or turn off the electrical power source and turn off the Main Power Circuit Breaker **before** you tighten or disconnect Hose Fittings, or **before** you begin any repair work on Mini III Console assembly.

## WARNING

If temperature is **over 75 degrees F**, Polyol with Blowing Agent may expand vigorously when material drum is opened. This could result in material spewing from the drum. It is recommended that a cover (ie: cloth, rag, etc.) be placed over the bung as it is **slowly** opened to help prevent injury.



### 6. Optional Transfer Pump Installation

Remove large drum bung-hole cover and install Material Transfer Pump Bung Adapter. Carefully lower Material Transfer Pump, P/N 16300-00 into drum.

### 7. Optional Transfer Hose Kit Installation

Connect Material Transfer Pumps to Console Proportioning Pumps using the Material Transfer Hose Kit, P/N 17666-01. Assemble Hoses and Filters as Make certain that all fittings are tighten securely.

8. With all fluid lines connected, an *optional* Nitrogen Kit, P/N 17667-00 or an *optional* Air Dryer Kit, P/N AD-100-1 should be installed on the material drums. (see Fig 8.

## NOTE

**GlasCraft** strongly recommends the use of nitrogen or dry air as an atmosphere in the material drums. Either Kit provides a moisture-free atmosphere in the drums, thus reducing the chance of producing crystals in the isocyanate (A side) drum which can clog filters and hoses in the system.

## Air Supply Connection

An air source which delivers a constant 25 CFM @ 90-110 PSI (708 liters @ 6.3-7.7 BAR) and does not exceed 160 PSI (11.2 BAR) should be connected directly to the Fitting, P/N 6782-03, mounted on the Proportioning Unit Air Motor Regulator, P/N 18199-02 and/or Proportioning Unit Assembly illustration)

The air line to the Console should be a minimum 1/2 inch inside diameter (I.D.) if it is 25 feet or less in length. Should it be over 25 feet in length, the air line should be a minimum 3/4 inch I.D.

## Electrical Connection

## WARNING

When Main Power to Mini III console is on, the white and black wires in the console are **always live!** Disconnect or turn **off** Main Power source before opening console to make any repairs or before making any electrical repair of any type to the system.

## CAUTION

If you **do not** understand the electrical hook-up described above, consult your local **GlasCraft** distributor OR a **qualified** electrician.

## NOTE

Electrical connections must be checked on a periodic basis.

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## Mini III Panel Controls

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### 1. Air Motor Regulator & Gauge

1. The Air Motor Regulator and Gauge are mounted directly on the Air Motor air inlet. This Regulator is used to control the air pressure to the Air Motor. The Air Motor is connected in-line by a saddle to each positive displacement Proportioning Pump on the *Mini III* Proportioner. Rotating the Regulator in a clockwise direction will increase air pressure to the Motor, thus increasing spray pressure. Rotating the Regulator counter-clockwise reduces spray pressure. The Air Motor Regulator is normally adjusted for an air pressure of 60-100 PSI (4.2-5.6 BAR) for normal spraying operation.

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### 2. Main Power Circuits

1. Located in the center of the Control Box is the Main Power Switch. The Main Power indicator lamp is on top of the Control Box.

2. The Emergency Stop Switch is on the top left side of the Box Panel, when depressed, it will shut down power and activate Air Dump Valve.

To reset, rotate button ¼ turn and allow to release.

## WARNING

*The Main Breaker in the **OFF** position indicates that all power is off to other electrical components in the Control Console. Incoming power wires (white and black) from the power cord and the black and gray wires from incoming power to the line side of the Main Breaker are **still energized (HOT)** even when the Main Breaker is in the OFF position. Disconnect or turn off Main Power source before opening console to make any repairs or before making any electrical repair of any type to the Mini II system.*



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### 3. Hose Current (Temperature) Control

1. The right hand side of the console operates the hose heating circuit.

2. The Green Push Button will power up circuit.

3. Controller will momentarily show Actual Temperature when first turned on, then will show Set Temperature.

4. Adjust temperature to desired setting by depressing the blue "SET" button and press either  or  button on the Controller simultaneously until desired temperature setting is achieved.

5. The Hose Circuit is a positive ON/OFF Circuit. (Unregulated power or Line Voltage on the Primary side of the Transformer is cycled ON/OFF for Hose Heat.)

6. ER 4 (CODE) indicates open Thermocouple circuit.

7. The Amp Meter shows current draw on the primary side of Transformer.

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### 4. Heater Circuit & Controls

1. The Heater Circuit and controls are located on the left lower side of the Control Panel.

2. The Green Button will Power up Circuit to both Heaters.

3. The Left Controller controls the ISO Heater. (Top 2 Rods on the Heater Assy.)

4. The Right Controller controls the Poly Heater. (Bottom 2 Rods on the Heater Assy.)

5. When powered up, both controllers will momentarily show actual temperature and then show set temperature.

6. Adjust temperature to desired setting. ISO and POLY Controllers function exactly the same as the Hose Controller.

7. The Amber Lamps / Push Buttons above the primary controllers indicate an Over PSI or Over Temperature problem. (Left for ISO, Right for POLY).

8. The Over Pressure circuit is set at 2200 PSI.

9. The Over Temperature circuit is set at 190 F. (88 C).

10. ER 4 (CODE) indicates open thermocouple circuit.

11. If Amber light is lit, air will be dumped off, The controllers will be shut off.

12. Observe which lamp is lit. Check that side gauge to diagnose system. (for further insight on diagnosing system, See Problem Trouble Shooting Guide.)



# OPERATION

## WARNING

*Never leave machine unattended while system power is on or system is running.*

*System running is defined as the pre-heat cycle of the hose heat, primary heaters, or any pump operation.*

*Machine Operators must be familiar with the component functions and operation of the machine.*

## Pre-Operation Check List

- A. Check that **all** fittings are securely tight.
- B. Check electrical hook-up (*qualified* electrician recommended).
- C. Main power switch is in **OFF** position.
- D. Air Regulator turned to **OFF** position.
- E. Hose Push Button and Primary Heater Button is in the **OFF** position. (ZERO).

## WARNING

*Do not place any part of the body in the path of the material spray.*

*Do not point the gun at or near other personnel.*

*Do not look into the Mixing Chamber orifice at any time.*

*Because of the hazardous materials used in this equipment, it is recommended that the operator use an air mask, goggles, protective clothing, and other safety equipment as prescribed by current regulations, recommendations of the chemical suppliers, and the laws in the area where the equipment is being used*

## Initial Start-Up Procedure

With all material and air lines connected and power cable attached, the system is now ready for start-up. The section on the Control Box. Mini III PANEL CONTROLS, (steps 1-4) should be read and thoroughly understood by operator *before* proceeding.

### 1. FILLING THE SYSTEM

1. With optional Transfer Pumps in place, adjust air regulators on Transfer Pumps to 30-50 PSI to fill system. Transfer Pumps will cycle to fill Pumps, Heaters and Hoses and stop.

2. Remove the Side Blocks, P/Ns T4-143 and T4-144, on the front housing of the Gun, by removing Screws, P/N 9944-48C.

3. Adjust Transfer Pumps air to 100 psi.

4. Place separate clean containers under each individual Side Block. Open manual Material Valves (black arrow forward, see Fig. 13 & 14) on each Side Block simultaneously to allow trapped air to escape the Hose and material to flow into the containers until all air is purged from the material system. (see Fig. 12)

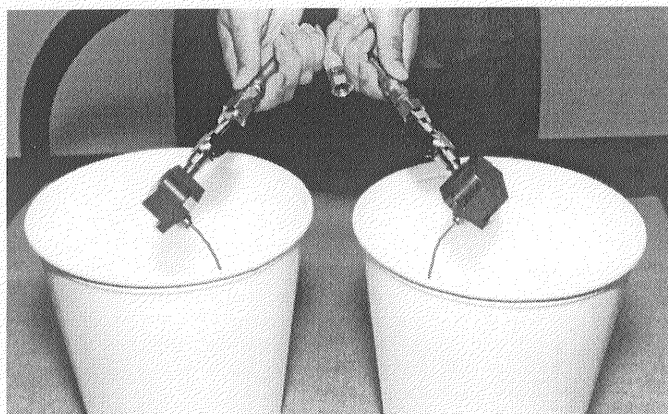


Fig. 12

5. Close manual Material Valves simultaneously. Material pressures gauges on each Heater should now register approximately equal pressure. If one side registers considerably more pressure than the other side, go to the high pressure side and bleed off some pressure by slightly opening the manual Material Valve on the Side Block over the container. Bleed pressure until both sides are approximately the same pressure.

6. Dispose of waste material properly and in accordance with chemical suppliers instructions and local, state and federal regulations.

## NOTE

*Before re-assembling Side Blocks, lubrication can be applied by dabbing a white lithium grease into holes inside of Gun Front Housing and wiping grease over Side Block Seals. Grease will purge itself when air valve is turned on at Gun and Gun is triggered.*

7. Clean and lubricate Side Blocks and Seals thoroughly and re-assemble on Gun. Make certain that Side Block Screws are tighten securely.
8. Adjust Main Air Regulator to 20 PSI to establish fluid pressure in Proportioner.
9. Switch MAIN Breaker to ON position. The clear light on top of control box indicates incoming voltage to unit.

## WARNING

*Straighten hose out flat to avoid uneven heating and damage to internal wiring of the hose assembly.*

10. Turn Hose Power On and adjust to desired temperature; See # 3 (HOSE CURRENT CONTROL). The hose temperature is monitored by the thermocouple in the TSM Block.

## NOTE

*Allow proper time for hose to warm up (approximately 15-20 minutes). Remember that the heated hose does not have a delta rating. The heated hose's function is to maintain the heat generated by the primary heaters during system operation, and preheat material during initial start up. The hose should be set to maintain a temperature close to the set point of the primary heaters.*

11. Turn on the Primary Heaters and adjust to desired temperature. See #4 HEATER CONTROLS).

## CAUTION

*Due to the expansion of urethanes when heated, it is imperative that on cold start-up of the Mini III that the heaters be turned on and allowed to reach operating temperatures before the Main Pump Air Regulator is adjusted to the desired spray pressure. If you do not allow the heaters to reach operating temperature before adjusting air pressure, the material pressure will exceed the range causing the Over Pressure circuit to activate.*

12. Adjust Main Air Regulator to 60-100 PSI for spraying. Pouring operations will require less Main Air pressure.

13. Turn Purge Air and Material Valves ON at Gun. (see Fig. 13 & 14)

14. The system is now ready for operation.

## NOTE

*Remember to dispense one to two gallons of material to clear the system of grease and plasticizer that was used during factory testing.*

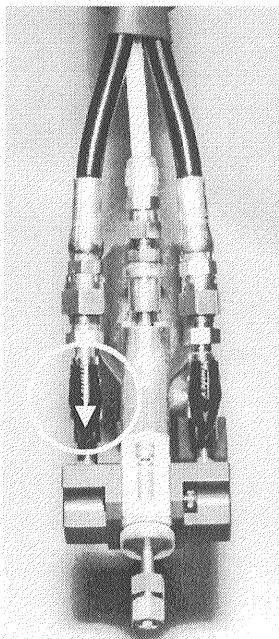


Fig. 13

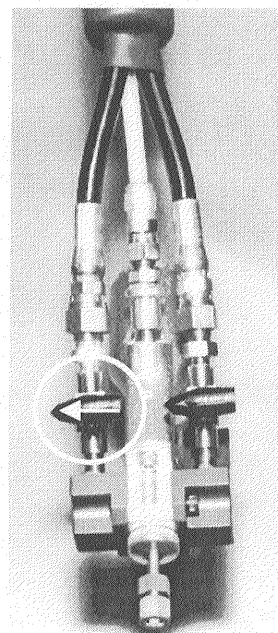


Fig. 14

## WARNING

*Do not place any part of the body in the path of the material spray.*

*Do not point the gun at or near other personnel.*

*Do not look into the Mixing Chamber orifice at any time.*

*Because of the hazardous materials used in this equipment, it is recommended that the operator use an air mask, goggles, protective clothing, and other safety equipment as prescribed by current regulations, recommendations of the chemical suppliers, and the laws in the area where the equipment is being used.*

## CAUTION

*The Polyol will expand in the Hose if any normal operating pressures are bled off whenever the material is above approximately 75 degrees F. Hot Polyol hoses should never be bled, by any method, to zero pressure for two reasons.*

1. The seals in the Gun rely on high pressure to make their seal. The high pressure cannot be maintained if the pumps are attempting to apply this pressure through a hose full of expanded froth; therefore, the Gun seal may leak.

2. Re-starting immediately after hot Polyol has expanded in the system may result in spraying substantial amounts of "bad" foam. This will continue until the expanded Polyol in the primary Heater and the Hose has been completely purged.

## Storing the Hose

Coil hose with a minimum 4' diameter, to avoid kinking and subsequent damage to the internal wiring of the hose assembly.

## Over Pressure System Protection

The Mini III system incorporates monitors for high pressure monitoring. These monitoring devices will prevent the Mini III system from continued operation if high pressure situations develop.

There are pressure sensors located on each proportioning pump. The high pressure sensor is located at the outbound of the fluid section.

The high pressure monitoring sensor will engage if fluid pressure increases above 2200 psi.

If a high pressure situation develops, the sensor will detect this and immediately engage the hold-in circuit.

This will disengage power to the air motor and it will stop cycling. It will also turn the heater off.

In the over pressure situation, the system will remain shutdown until it is manually reset.

At this point, it is necessary to determine if the problem is an over pressure situation.

When the sensor engages, the system will be frozen, giving you the pressure readings at the time the problem was detected.

Inspect the fluid pressure gauges, in an over pressure situation, one of the fluid pressure gauges will be significantly higher than the other gauge.

## WARNING

*When main power to unit is on, the console will have wires that are live. Disconnect or turn off main power source before opening console to make any repairs.*

## WARNING

Before performing any repairs on the system, ALL AIR and FLUID PRESSURES SHOULD BE RELIEVED TO ZERO (BLEED-OFF)!

## Over Pressure Problem Correction

1. Determine if the problem is high pressure related.
2. Relieve system hydraulic pressure.
3. Turn off main power
4. Fix the problem area:
  - a. Potential high pressure causes:
    - Restriction
    - Overheating material in static position
    - ISO filter at gun
5. Re-start system for operation

## Daily Shut-Down Procedure

1. Turn Power Button off.
2. Perform Gun maintenance as follows:
  - a. Check for leaking Seals, P/N 16811-00:
    - > Turn OFF Gun incoming air by closing Gun Air Switch.
    - > Wait approximately 10-20 seconds, then turn ON incoming air by opening Gun Air Switch.
    - > Repeat two or three times.
    - > If any material has been purged from the Gun, the Seals, P/N 16811-00 are leaking.
    - > Correct leaks by replacing seals and re-checking.
  - b. Check for leaking Material Valve, P/N PG-15:
    - > Turn OFF both Material Valves.
    - > Trigger Gun several times.
    - > Turn OFF Gun incoming air by closing Gun Air Switch.

- > Trigger Gun several times.
- > If additional material is purged, the Material Valves are leaking.
- > Correct leaks by taking off Black Knobs and turning packing 1/8 to 1/4 turns at a time until leak has stopped. Re-check.
- c. Check Side Blocks:  
Turn OFF the Air Switch on Gun.

## WARNING

***Before removing Side Blocks make certain that both Gun Material Valves are in the fully OFF positions!***

*If Material Valves are on when Side Blocks are removed, the Gun will quickly become encased in urethane!*

## WARNING

*Point Gun Side Blocks down, away from all personnel. Existing fluid pressures could cause material to exit the Side Blocks with considerable force.*

- > Take off Side Blocks by removing Screws, P/N 9944-48C.
  - > Examine the sides of the Mixing Chamber, P/N 17637-XX for scratches and/or material build-up. Carefully, without scratching the seal surfaces (sides), remove any accumulated material. Solvent can be used to wash accumulated material off of Chamber, Side Blocks, etc. Keep Gun Chamber tilted toward the ground so that solvent does not run back into Gun. Certain solvents will attack O-Rings on Chamber Shaft causing swelling and deterioration of O-Rings.
  - > Place generous amounts of high quality, white lithium grease in each side of the Gun Front Housing and on the Side Block Seals.
  - > Use a No. 50 Drill Bit to clean out the Mixing Chamber exit passage. Use a No. 55 Drill Bit to clean the inlet side holes of the Mixing Chamber taking care not to scratch the Mixing Chamber's polished surfaces.
  - > Re-assemble the Side Blocks and tighten Screws securely. Grease should appear at the tip of the Mixing Chamber. DO NOT open Air Switch on Gun because this will purge grease from the Gun. The grease should be allowed to remain in the Gun overnight.
3. Reduce Main Air Regulator setting to ZERO.
  4. Visually inspect entire system for leaks.
  5. Turn OFF Main Air Supply and Main Power to unit.

6. Close the nitrogen or dry air valves in the small drum bung holes of the material drums.
7. Coil heated Hoses with a minimum two foot bend-radius to avoid kinking and subsequent damage to the internal electrical wiring.
8. Refill the Solvent Cup Adapter, P/N 21440-00 with Dibutyl Phthalate Plasticizer, P/N 59934-04 supplied with system.

## CAUTION

*Do not bleed fluid pressure from the system.*

## Extended Shut-Down Procedure

This procedure should be performed when the system is to be stored for an extended period of time (i.e. winter shut-down, etc.).

1. Place Main Circuit Breaker in OFF position and disconnect electrical cable from Main Power source.
2. If optional nitrogen kit installed:  
> close valve on top of nitrogen cylinder .
3. If optional Transfer Pumps installed:  
> close air valve to Transfer Pump Regulators.  
> remove Transfer Pumps from material drums.  
> clean outside of fluid section with a clean solvent.  
> place Transfer Pumps in a five gallon container of clean solvent.  
> open air valve to Transfer Pump Regulators.  
> reduce Transfer Pump Regulator pressure setting to 25 PSI.
4. Reduce Main Air Regulator to 30 PSI.
5. Spray material from Gun, directing spray into a clean, suitable container, until clean solvent exits the Gun.
6. If optional Transfer Pumps installed:  
> place in a five gallon container of Plasticizer (Dibutyl Phthalate or Dioctylphthalate).
7. Resume spraying until all solvent has been purged from the system and only plasticizer is exiting the Gun.
8. Perform *DAILY SHUT-DOWN PROCEDURE* steps D-1 to D-8.
9. If optional Transfer Pumps installed:

- > place fluid ball valves on Transfer Pumps in OFF position.

10. Dispose of waste material properly and in accordance with chemical suppliers instructions and local, state and federal regulations.
11. Remove Bung Adapters from material drums, clean with solvent and coat with a multi-purpose grease.
12. Clean large bung openings of material drums with solvent and coat with a multi-purpose grease before re-installing the original drum bung caps.
13. If optional nitrogen kit installed:
  - > open valve on nitrogen cylinder and pressurize material drums with 1 1/2-2 PSI **MAXIMUM** of nitrogen. Close Stopcock Valves on nitrogen supply lines at drum, leaving the drums pressurized. Close valve on top of nitrogen cylinder.

## NOTE

*Do not bleed nitrogen pressure from drums!*

*Do not bleed fluid pressure from the system!*

14. Turn OFF Main Air source and remove air supply line from inlet fitting on Air Motor.
15. Generously coat shafts of Transfer Pump Air Motor, Main Air Motor, and Proportioning Pumps with a multi-purpose grease.
16. Coil heated Hoses with a minimum two foot bend-radius to avoid kinking and subsequent damage to the internal electrical wiring.

## Routine Maintenance

### 1. DAILY

Check amount and color of plasticizer in Pump Lubrication Cups. Change badly discolored material to prevent damage to Pump Packings. Use a plastic siphon bottle to remove the discolored plasticizer from the Cups. Refill the Solvent Cup Adapter with Dibutyl Phthalate Plasticizer, P/N 59934-04 supplied with system.

## CAUTION

*If plasticizer discolors rapidly, replace the Pump Packings.*

### 2. WEEKLY

Place a small amount of grease on Air Motor Shaft and rub over Shaft.



# TROUBLESHOOTING

## Material Or Mechanical Problem

### Troubleshooting Procedure

By following this procedure, you should be able to locate and cure problems easily. Remember, however, that a successful operator must know:

- ❑ **WHAT GOOD MATERIAL LOOKS LIKE.**
- ❑ **HOW THE EQUIPMENT NORMALLY OPERATES.**
- ❑ **WHAT PATH THE MATERIALS FOLLOW THROUGH THE EQUIPMENT.**
- ❑ **KNOWLEDGE OF THESE TROUBLESHOOTING PROCEDURES.**

### NOTE

*Always start with step one, never skip any portion of these procedures. The hydraulic pressure gauges are to be used for troubleshooting purposes only. The pressures registered on one gauge will not necessarily match the other. This difference can be caused by variance in materials, temperatures, viscosities, etc.*

1. Identify the *missing* material.
2. Check the hydraulic pressure gauge on the *missing* material side.
  - a. If the *missing* material gauge reads HIGHER than normal, there is a RESTRICTION problem between the gauge and the Mixing Chamber tip in the Gun.
  - b. If the *missing* material gauge reads LOWER than normal, there is a STARVATION problem between the gauge and the material supply system.

### NOTE

Problems may be cyclic in that they will appear first on only one stroke of the Proportioning Pump. Check the hydraulic pressure gauges during one of these bursts of missing materials and always stop spraying while you are getting a burst of good material.

3. Concern yourself only with the hydraulic pressure on the *missing* material side. In troubleshooting a STARVATION problem where the hydraulic pressure gauge on the *missing* material side is LOWER than normal, start at the point farthest from the unit and work forward. Check the obvious and easy things first.

#### A. NITROGEN SYSTEM

1. Bottle turned on?
2. Bottle has nitrogen in it?
3. Pressure dialed in for drums?
4. Air Valves on drums open?

#### B. MATERIAL DRUMS

1. Material in drums?
2. Material temperature?
  - a. No nitrogen and too much heat will cause the fluorocarbon R-11 to pre-expand on the resin side.
  - b. Too cold a material, especially at the bottom of the drum, will raise viscosity of the material and stall Transfer Pumps.

#### C. OPTIONAL TRANSFER PUMP(S)

1. Is it operating?
2. Is air turned on to Transfer Pump?
3. Regulated pressure where it should be?
4. Severe contamination of pump shaft on isocyanate side. This indicates that the pump shaft is not being lubricated.
5. Check Filter of Transfer Pump.
6. Before diagnosing a faulty Transfer Pump, be sure and check all items just listed under Transfer Pump including step 3.B.b.

#### D. FILTER ASSEMBLY

1. Check fluid filter at inlet to Proportioning Pumps if applicable.

#### E. PROPORTIONING PUMPS

1. Determine whether the burst appears on the Pump's up or down stroke.
  - a. If burst appears on UP stroke, check UPPER Ball Seat and Cups.
  - b. If burst appears on DOWN stroke, check LOWER Ball Seat

### NOTE

*Follow the procedures in the order given. Remember that repairs should be made as soon as possible. Don't leave the unit open to air any longer than necessary, as this will lead to further problems, such as moisture entering the system and causing the isocyanate to crystallize.*

*After the unit has been exposed to the atmosphere, it should be run long enough to displace the material that was in the unit when it was opened up.*

**NEVER** inspect filter assemblies at time of shut-down!

2. In troubleshooting, a restriction problem where the hydraulic pressure gauge on the *missing* material side is higher than normal, start at the point farthest from the unit and work backward. Check obvious and easy things first.

### WARNING

*Before performing any repairs on the Gun, ALL AIR and FLUID PRESSURES SHOULD BE RELIEVED (BLEED-OFF)!*

#### C. HOSES

1. Make sure that the Hoses are not plugged.
3. Troubleshooting a poor spray pattern.

### NOTE

*To troubleshoot a poor spray pattern, you must understand the four factors that affect the spray pattern.*

#### A. TEMPERATURE

1. Too warm a material temperature will cause a separation (fingering) in the pattern.
2. Too cold a material temperature will cause a stream effect.

#### B. PRESSURE

1. Too high a pressure will cause excessive overspray and/or separation (fingering).
2. Too low a pressure will cause a stream effect.

#### C. CONTAMINATION IN THE MIXING CHAMBER

1. A foreign object in the Mixing Chamber will cause a poor pattern.

### NOTE

*Correct problem(s) immediately!*

#### A. GUN

1. Side Block Material Valve turned on?
2. Bore hole of Mixing Chamber clean?
3. Filter Strainer Screen clean?
4. Side hole in Mixing Chamber clean?

#### B. MATERIAL TEMPERATURE

1. Too high a temperature on resin side can cause the fluorocarbon R-11 to pre-expand in either the Hose or the Primary Heater.



# OVERHAUL PROCEDURE

## 19875-00 (-01) Pumps 21835-00 Pumps

1. Dump pressure off system

### WARNING

*Be sure air and power are off to system.*

This is achieved by splitting side blocks off of gun, opening ball valves and purging materials into clean containers.

2. Flush system side to be rebuilt with suitable solvent.

### NOTE

*This is optional, it makes the process easier.*

3. Disconnect inlet fitting from the bottom of the pump.
4. Disconnect outlet fitting from the top of the pump.
  - a. Systems with Over Pressure Valve: remove DIN connector from switch, Phillips screw.
  - b. Remove Over Pressure Switch from fitting.

### CAUTION

*Do not immerse Over Pressure Valve in solvents externally. (Flushing will not affect).*

5. Remove pump from base.
  1. Loosen and remove P/N 7729-10 Nylon Lock Nut from yoke.  
  
(Older MX Systems), loosen allen screw in yoke, remove Hitch Pin, pull out Clevis Pin.
  - b. Loosen and remove four bolts, P/N 9945-48C.

## Breaking Down Pump

1. Loosen four nuts, P/N 7733-17 at the base of pump and remove, break loose, in a criss-cross pattern.
2. Remove Base, P/N P33-11 from Tie Rods, P/N 18289-00.

### NOTE

*On P/N 21835-00 pumps, watch out for APS-119, APS-128, & 19633-00. The 19633-00 will push these parts out. Observe which side of the APS-119 comes out, Keep right side up for diagnostics.*

3. Remove Valve Housing from the cylinder.  
P/N UF-118 on 19875-00 pump.  
P/N, 19634-00 on 21835-00 pump.
4. Using a rubber mallet, tap shaft out through the bottom of the cylinder, P/N 18219-00.
5. Remove cylinder, P/N 18219-00 from Pump Head, P/N 18227-00.
6. Remove Cup Adapter, P/N 21440-00 from Pump Head, P/N 18227-00.

## Disassemble Sub-Assemblies

1. Cup Adapter, P/N 21440-00.
  - a. Remove Support Washer, P/N 18295-01.
  - b. Remove Seal, P/N 21595-00.
  - c. Remove Snap Ring, P/N 1005-02, Nylon Washer, P/N 21896-01, & Felt Wipers, P/N 21897-01.
2. Shaft Assembly:
  - a) Remove P/N 21598-00, Transfer Seat from P/N 21597-00, Transfer Housing. Watch for P/N APS-133, Ball and P/N 21803-00, Spring. The Ball is loaded with spring tension.
  - b. Remove FS-110, Piston Guide and P/N 21595-00 Pump Seal.

---

## Cleaning

1. Thoroughly wash all parts in suitable solvent.
2. If parts have any build-up of hardened material, it is acceptable to polish parts with fine sand paper,(1200 grit) or steel wool(000).
3. It is recommended that the cylinder be honed with a fine grit bead honer,(P/N RK5-2).

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## Inspection

1. The Pump Cylinder, P/N 18219-00 inner wall should be smooth. No pitting or scarring should be seen. If slight scars show in the wall, they must not be able to be felt with a finger nail.
2. The Pump Shaft, P/N 21599-00 must not have any scoring, pitting, or build up of any debris on the shaft.
3. Set the Ball, P/N APS-133 in the Seat, P/N 21598-00 and hold up to a light. Observe for light between seat surface and the ball.

### NOTE

*If a large sliver of light shows, check for debris or scarring on Seat or Ball.*

4. P/N APS-128 & P/N APS-119 repeat the above step.

### NOTE

*The APS-119 is reversible, you can use either side.*

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## Re-Assemble

### NOTE

*All parts underlined are contained in repair kit.*

5. Lubricate and install O-Ring, P/N 13867-43 on bottom groove.
6. Install P/N 18295-01 with lip facing toward P/N 21595-00 seal.
7. Place P/N 21595-00 Seal and P/N FS-110 guide on P/N 21597-00. The lips of the Seal will face away from P/N FS-110.
8. Set P/N 21803-00 Spring in P/N 21597-00 Housing and set APS-133 Ball on Spring.
9. Apply blue lock-tite to the threads of P/N 21598-00 and install on P/N 21597-00. Tighten these two parts!
10. Lubricate and install two P/N 13867-49 O- Rings on P/N 18219-00 cylinder.
11. Using a light weight non-detergent oil, coat the seal on the shaft assembly and the walls of the cylinder, then install the shaft assembly into the cylinder, leave approximately 4" of the shaft exposed on the top side.
12. Install cylinder/shaft assembly into P/N 18227-00 Pump Head, careful not to cut O-Ring for Pump P/N 21835-00.
13. With the Pump Assembly upside down, (easy if clamped in a vise) install Foot Valve Housing P/N 19634-00.
14. Set P/N 19633-00 Spring in place and set P/N APS-128 Ball on Spring.
15. Lubricate and install P/N 13867-44 O-Ring in groove of P/N 19634-00.
16. Lubricate the outer edge of P/N APS-119 and set top of ball, square and center flats of P/N APS-119 and P/N 19634-00.
17. Gently set P/N P33-11 through P/N 18289-00 Tie Rods and push down square and firm until it sets down over cylinder O-Ring.
18. Continue holding P33-11 down, install (4) P/N 7734-12 Lock Washers and hand thread (4) P/N 7733-17 Nuts.
19. Tighten P/N 7733-17 in a criss- cross pattern until tight.
2. Soak P/N 21897-01 in a light weight, non detergent oil, then install in P/N 21440-00.
3. Install P/N 21896-01, push down and install Snap Ring P/N 1005-02 in groove.
4. On bottom side of P/N 21440-00 install P/N 21595-00 in housings so that the lip faces out.

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## For 19875-00 Pumps:

1. Set UF-118 in cylinder.
2. Set P/N APS-128 in body.
3. Lubricate P/N 13867-44 and install in groove of UF-118.
4. Install P/N APS-119.
5. Gently set P/N P33-11 through P/N 18289-00 Tie Rods and push down square and firm until it sets down over cylinder O-Ring.
6. Continue holding P33-11 down, install 4 P/N 7734-12 Lock Washers and hand thread 4 P/N 7733-17 Nuts.
7. Tighten P/N 7733-17 in a criss- cross pattern until tight.
8. Lubricate P/N 21595-00 Seal (inside of P/N 21440-00 housing).
9. Gently push down over Pump Shaft P/N 21599-00 and set flush to P/N 18227-00 Pump Head.
10. Re-install pump in reverse order of removal.

# LIMITED WARRANTY POLICY

GLASCRAFT, INC. ("GlasCraft") warrants to the original Purchaser of GlasCraft manufactured equipment and parts, that all GlasCraft manufactured equipment and parts will conform to their published written specifications and be free of defects in workmanship and material for a period of one (1) year from the original date of installation. GlasCraft makes no warranty to anyone other than the original Purchaser.

If any GlasCraft manufactured part or equipment is found to be defective in workmanship or material within the one-year period from the date of installation, as determined solely by GlasCraft, GlasCraft, in its sole discretion, will either repair or replace the defective part or equipment at GlasCraft's cost, including freight charges both ways, or credit or refund the purchase price for the defective equipment or part.

A warranty claim will be honored only when:

1. GlasCraft has been informed, in writing, of any such defect in workmanship or material within ten (10) days after discovery by the original Purchaser;
2. An official of GlasCraft has issued a return authorization number; and
3. The claimed defective equipment or part has been returned to GlasCraft by the original Purchaser, freight prepaid (with proper return authorization number(s) attached), to: GlasCraft, Inc., 5845 West 82<sup>nd</sup> Street, Suite 102, Indianapolis, IN 46278, U.S.A.

This warranty shall not apply to any equipment or parts that have been altered or repaired by anyone other than GlasCraft or to defects or damage resulting from improper installation, misuse, negligence, accident, or use not specified by GlasCraft. This warranty shall not apply to any equipment where any parts or components were replaced by any parts or components not manufactured or supplied by GlasCraft. The decision by GlasCraft shall be conclusive and binding on Purchaser.

GlasCraft does not warrant that any equipment or parts sold to Purchaser meet or comply with any local, state, federal, or other jurisdiction's regulations or codes. GlasCraft does not warrant that any equipment or part sold to Purchaser, when used individually or in concert with any other part, equipment, device, component or process, does not infringe on any patent rights of any third party. GlasCraft only warrants that it has no specific knowledge of any such infringement.

GlasCraft makes no warranty as to any parts or equipment manufactured by others. Purchaser shall look solely and only to the manufacturer of such parts or equipment with respect to any warranty claims. GlasCraft hereby assigns to Purchaser the original manufacturer's warranties to all such equipment and parts, to the full extent permitted.

**THE AFORESAID WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. SPECIFICALLY THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH WARRANTIES ARE SPECIFICALLY DISCLAIMED.**

GlasCraft shall not be liable for any loss or expense resulting from damage or accidents caused by improper use or application of materials manufactured or sold by GlasCraft or its distributors or agents.

**UNDER NO CIRCUMSTANCES SHALL GLASCRAFT'S LIABILITY EXCEED THE AMOUNT PURCHASER PAID FOR THE CLAIMED DEFECTIVE EQUIPMENT OR PART. UNDER NO CIRCUMSTANCES SHALL GLASCRAFT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOST PROFITS.**

No action arising from or relating to any goods manufactured by or purchased from GlasCraft may be brought more than one (1) year after the cause of action accrues.

## This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

**NOTES**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

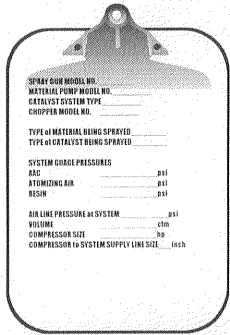
## NOTES

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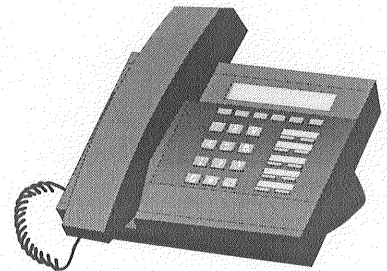
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# IF YOU HAVE AN EQUIPMENT PROBLEM...



SPRAY GUN MODEL NO. \_\_\_\_\_  
 MATERIAL PUMP MODEL NO. \_\_\_\_\_  
 CATALYST SYSTEM TYPE \_\_\_\_\_  
 CHOPPER MODEL NO. \_\_\_\_\_  
 TYPE of MATERIAL BEING SPRAYED \_\_\_\_\_  
 TYPE of CATALYST BEING SPRAYED \_\_\_\_\_  
 SYSTEM GAUGE PRESSURES \_\_\_\_\_  
 ISO \_\_\_\_\_ PSI  
 POLY \_\_\_\_\_ PSI  
 MATERIAL PUMP AIR MOTOR \_\_\_\_\_ PSI  
 MAIN AIR LINE PRESSURE at SYSTEM \_\_\_\_\_ PSI  
 MAIN AIR LINE VOLUME \_\_\_\_\_ CFM  
 COMPRESSOR SIZE \_\_\_\_\_ HP  
 COMPRESSOR to SYSTEM SUPPLY LINE SIZE \_\_\_\_\_ INCH

If you have a problem that requires Distributor or GlasCraft Service Department help, gather the following information BEFORE you pick-up the telephone.



|                                       | Model No. | Serial No. |
|---------------------------------------|-----------|------------|
| SPRAY GUN                             |           |            |
| SYSTEM                                |           |            |
|                                       |           |            |
|                                       |           |            |
| TYPE of MATERIAL BEING SPRAYED        |           |            |
|                                       |           |            |
|                                       |           |            |
| SYSTEM GAUGE PRESSURES                |           |            |
| ISO HEATER GAUGE                      |           | PSI        |
| POLY HEATER GAUGE                     |           | PSI        |
| MATERIAL PUMP AIR MOTOR               |           | PSI        |
| MAIN AIR LINE PRESSURE at SYSTEM      |           | PSI        |
| MAIN AIR LINE VOLUME                  |           | CFM        |
| COMPRESSOR SIZE                       |           | HP         |
| COMPRESSOR to SYSTEM SUPPLY LINE SIZE |           | INCHES     |

Have a general equipment or operation question? You can contact GlasCraft Service Department via E-Mail at [gciservice@glascraft.com](mailto:gciservice@glascraft.com)

# FOR YOUR REFERENCE

DATE PURCHASED \_\_\_\_\_

DISTRIBUTOR \_\_\_\_\_

CONTACT \_\_\_\_\_

PHONE \_\_\_\_\_

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Chopper & Pressure Fed Roller  
Systems and Equipment**

**For more information concerning any of these GlasCraft products,  
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