# INSTRUCTIONS AND PARTS MANUAL

# FRU-1000
## FLUX RECOVERY SYSTEM

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Model Number _____

Serial Number _____

Date of Purchase _____

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above.

LIT-FRU-IPM-0607

**CYPRESS WELDING EQUIPMENT INC.**

A DIVISION OF WELD TOOLING CORPORATION
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## SAFETY

**PROTECT YOURSELF AND OTHERS FROM SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.**

**ELECTRIC SHOCK CAN KILL.**

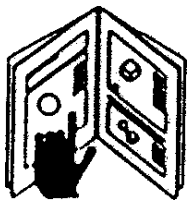
1) The equipment is not waterproof. Using the unit in a wet environment may result in serious injury. Do not touch equipment when wet or standing in a wet location.

2) The unused connectors have power on them. Always keep the unused connectors covered with the supplied protective panels. Operation of the machine without the protective panels may result in injury.

3) Never open the equipment without first unplugging the power cord or serious injury may result.

4) Verify the customer supplied power connections are made in accordance with all applicable local and national electrical safety codes. If none exist, use International Electric Code (IEC) 950.

5) Never remove or bypass the equipment power cord ground. Verify the equipment is grounded in accordance with al applicable local and national electrical safety codes. In none exist, use International Electric Code (IEC) 950.



**READ INSTRUCTIONS.**

Read the instruction manual before installing and using the equipment.

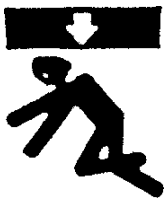
**EQUIPMENT DAMAGE POSSIBLE.**

1) Do not plug in the power cord with out first verifying the equipment is OFF and the cord input voltage is the same as required by the machine or serious damage may result.

2) Always verify both the pinion and wheels are fully engaged before applying power or equipment damage may occur.

3) Do not leave the equipment unattended.

4) Remove from the worksite and store in a safe location when not in use.



**FALLING EQUIPMENT can cause serious personal injury and equipment damage.**

Faulty or careless user installation is possible. As a result, never stand or walk underneath equipment.

**MOVING PARTS can cause serious injury.**

1) Never try to stop the pinion from moving except by removing power or by using the STOP control.

2) Do not remove any protective panels, covers or guards and operate equipment.

## HIGH FREQUENCY WARNINGS

**SPECIAL PRECAUTIONS ARE REQUIRED WHEN USING PLASMA, TIG OR ANY WELDING PROCESS THAT USES HIGH FREQUENCY TO STRIKE AN ARC.**


**WARNING:** HIGH FREQUENCY CAN EFFECT MACHINE OPERATION AND THEREFORE, WELD QUALITY.

**Read the precautions below before installing and using the equipment.**

**PRECAUTIONS:**

**1)** Some plasma or welding cables are strong sources of high frequency interference. NEVER lay a plasma or welding cable across the controls of the machine.

**2)** Always physically separate the plasma or welding cable leads from the machine cables. For example, the plasma or welding cable leads should NEVER be bundled with a pendant cable or the machine power cord. Maximize the separation between any machine cables and the plasma or welding cables.

**3)** Strictly follow the grounding procedures specified for the plasma or welding unit. NOTE: Some plasma and welding units produce exceptionally large amounts of high frequency noise. They may require a grounding rod be driven into the earth within six feet (2 meters) of the plasma or welding unit to become compatible with an automatic cutting or welding process.

**4)** If the high frequency is produced using a spark gap, adjust the points so the gap is as small as possible. The larger the gap, the higher the voltage and the higher the interference.

**5)** Some plasma or welding units will inject high frequency interference into the AC power line. Use separate power line branches whenever possible to power the plasma or welding source and the machine. Do not plug them into the same outlet box.

**6)** High frequency noise may enter the machine through the plasma or welding supply remote contactor leads. Some plasma and welding sources can produce noise spikes of up to several thousand volts. These sources are not compatible with automated cutting and welding equipment. It is recommended that the remote contactor leads on these plasma or welding sources not be connected to the machine. An alternate solution is to purchase a separate remote contactor isolation box.

# FRU-1000
# FLUX RECOVERY SYSTEM
## INSTRUCTIONS AND PARTS MANUAL

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Patents Pending

## INTRODUCTION

The FRU-1000 Flux Vac is a light-weight, aluminum flux recovery system designed for easy mounting to the BUG-O HDT-1000 submerged arc welding tractor.

## PURPOSE

The FRU-1000 flux Vac recovers flux while the tractor is welding. This eliminates the vacuuming of flux after welding, and the costly waste of discarded flux.

## LOADING FLUX

### CASE A: Empty FRU-1000 Flux Vac

1. Pour flux into “flux port” of flux hopper until it is filled to the top of the port.
2. Turn machine “ON” and open flux valve.
3. You are now ready to recycle flux.

### CASE B: FRU-1000 Flux Vac in operation....more flux needed.

1. Do not stop machine or interrupt the weld.
2. Push “flux valve lever” forward and transfer all the flux from the filtration chamber to the lower hopper.
3. Return lever to closed position.
4. When more flux is needed, pour new flux into “flux port” until hopper is full.
5. **Do not add new flux until Step 2 has been completed.**

**NOTE**: The dump valve must be tightly sealed while recovering flux, or the machine will not operate properly. Two major problems will occur:

1. The vacuum will be low.
2. The Fine Flux Filter will clog rapidly.

Refer to: Do and Do Not Chart (Page 9).
Trouble Shooting Chart (Page 10) .

## DUST BAG

1. The Dust Bag (Figure 1, Item 4) must be emptied after every eight (8) hours of continuous use, or sooner, depending on how dusty the recovered flux is.

2. Flashing Indicator Light (on front of FRU-1000) signals that Dust Bag is clogged. Turn machine off, open velcro closure (Item 20, Figure 5), shake Dust Bag, and discard dust.

3. When Dust Bag is completely free of dust, reverse the steps listed above and resume vacuuming.

4. **IF DUST BAG 15 NOT CLEANED AS RECOMMENDED, THE RECOVERY SYSTEM WILL NOT OPERATE PROPERLY!!**

   **** Vacuum will be greatly diminished.**

   **** Fine Flux Filter \Will clog rapidly.**

   **** Overheating of the motor can occur.**

## SAFETY PRECAUTIONS

1. Connect FRU-1000 flux vac to appropriate electrical outlet which will provide the voltage and amperage as indicated by the FRU-1000 nameplate.

2. Make sure your receptacle has appropriate earth ground connection. The motor must be connected to a proper and effective ground, or mounted in a manner that will guarantee electrical isolation and will insulate the user and others from electrical shock.

3. The FRU-1000 flux vac must not be used in an area contaminated by volatile or flammable material. Sparking can be expected in normal operation of the motor and could ignite the contaminants, causing a DANGEROUS EXPLOSION.

## GENERAL MAINTENANCE

1. **Brushes:** Should be changed before the brush-stunt touches the commutator. Upon reassembling, lead wines must be kept away from rotating parts and motor frame. To achieve best performance, new brushes should be seated on the commutator, before full rated voltage is applied.

   After brush is changed, apply 50 -75% of rated voltage for thirty (30) minutes to accomplish the seating. The motor will return to full performance after 30 -45 minutes of running at full rated voltage. The motor must not be run with vacuum air inlet sealed off.

   **NOTE:** Direct application of full rated voltage, after changing brushes, will cause arcing, commutator pitting, and reduce over-all life.

2. **Fine Flux Filter:** Should be kept clean and free of lint and dust particles. Use a dry, soft-bristle brush, and carefully brush the outside surface as needed. This will ensure maximum vacuum. (The filter is a fine, stainless steel cloth.)

3. **Slag Tray:** Must be emptied regularly.

4. **Dust Bag:** "Flashing Light" on front of FRU-1000 flux vac indicates Dust Bag is clogged. Turn machine off, open velcro closure, SHAKE out and discard dust. It is recommended that after eight (8) hours of continuous flux recovery, the Dust Bag be thoroughly shaken out. This will ensure proper air flow and maximum vacuum.

5. **Motor Filter:** The filter is located at the top of the motor box, over the motor. Inspect regularly and clean by gently blowing with an air gun. Replace if air filter is restricted. Air must be able' to flow freely to properly cool motor. Do not operate without filter. Premature motor wear will occur.

6. **Secondary Flux Filter:** This filter is located directly under the large Fine Flux Filter. The secondary filter prevents flux from damaging the vacuum motor impellers. The filter is designed to clog and restrict the vacuum when the large Fine Flux Filter is damaged or worn (with hole in filter). When the filter clogs, gently clean with a soft bristle brush, and replace the damaged Fine Flux Filter.

## CONSUMABLE PARTS

A. **Fine Flux Filter:** This filter has direct contact with recovered flux and eventually wears out. Its life is dependent upon the rate of flux recovered, and also the total quantity of flux recovered. When a hole appears, the filter must be replaced.

B. **Motor Filter:** This filler will eventually become too dirty to clean. Replace with a new filter to maximize the life of the motor.

C. **Dust Bag:** With use, the Dust Bag will eventually develop holes or the fabric will become clogged with flux dust. Replace with a new Dust Bag.

*** IMPORTANT OPERATING INSTRUCTIONS -READ CAREFULLY***

| DO NOT | DO |
|---|---|
| **Do not** over fill flux chamber. **Fill ONLY bottom flux hopper.** | Turn machine on. |
| **Do not** run with punctured or damaged Fine Flux Filter. Drawing flux through motor will damage motor. | Flux dump valve must be **closed** and **seat tightly** before vacuuming flux. |
| **Do not** run machine without motor filter. Clean or replace periodically, as needed. | While **motor** is **running**, transfer vacuumed flux from upper chamber to lower hopper by depressing flux valve handle. Release and **reset tightly.** (For very dusty fluxes, turn motor off before dumping.) |
| **Do not** vacuum flux unless flux dump valve is shut and tightly seated. | |
| **Do not** vacuum up molten slag. | Dump slag from slag tray as needed. |
| **Do not** use as an ordinary vacuum cleaner, use only for recovering flux. | **Clean** Dust Bag regularly. Open velcro closure, shake vigorously. |
| **Do not completely submerge nozzle** into flux. **Allow for air flow.** | **Clean** Fine Flux Filter periodically as needed. Use a soft bristle brush to clean. |

## TROUBLE SHOOTING

| PROBLEM | SOLUTION |
|---|---|
| **Poor Vacuum** | A. Fine Flux Filter is clogged. Brush clean with soft bristle brush. If badly clogged,-remove from machine and use soft bristle brush and air gun.<br><br>B. Dust Bag is clogged. Remove bag from machine. Shake vigorously until clean.<br><br>C. Air leak; make sure latches are secure and gasket areas are tight.<br><br>D. Flux dump valve not closed; shut valve while running.<br><br>E. Secondary flux filter is clogged. Remove Fine Flux Filter (secondary filter is located under large filter). Clean with soft bristle brush.<br><br>**NOTE:** Secondary filter is designed to clog when fine flux filter is damaged or worn (hole). Replace Fine Flux Filter. |
| **Fine Flux Filter Keeps Clogging** | A. Fine Flux Filter is clogged. Brush clean with soft bristle brush. If badly clogged,-remove from machine and use soft bristle brush and air gun.<br><br>B. Air leak. (See C & D above.)<br><br>C. Flux chamber is too full. Fill only to bottom of slag tray.<br><br>D. Flux hopper is too full. Fill only the flux hopper. Do not over fill into FRU-1000 flux chamber. This will cause the dump valve to improperly seat; the resulting turbulence will clog the Fine Flux Filter.<br><br>E. Turn off vacuum motor while dumping. If flux is very dusty, this will help eliminate clogging. (Low dust flux does not require turning off vacuum before dumping.)<br><br>**NOTE:** Some clogging of the Fine Flux Filter is normal. This will occur after extended use of the machine. Clean as described above. |

## FRU-1000 PARTS LIST

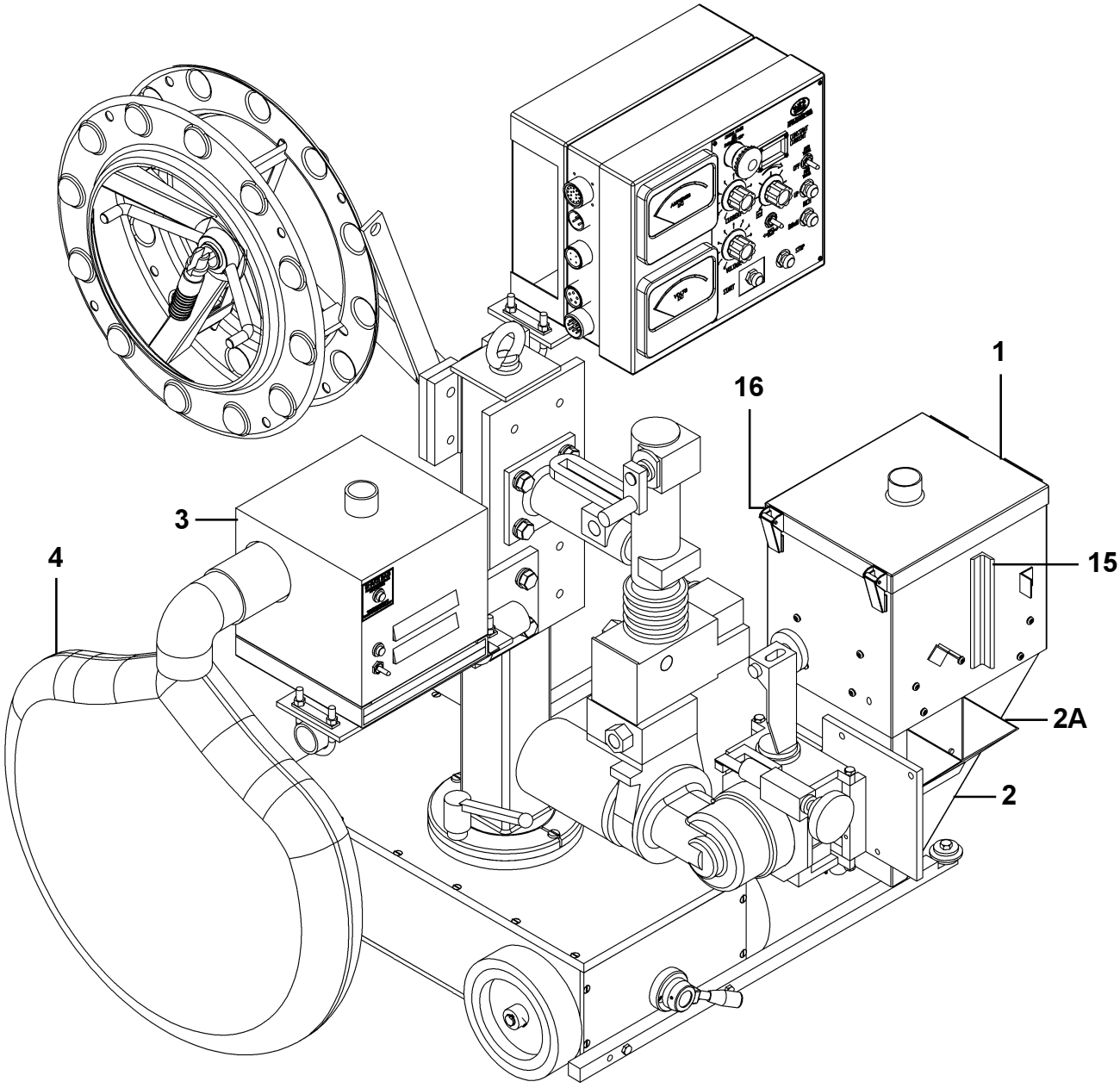
NOTE: When ordering, please specify parts list number and item description.

| ITEM # | ITEM DESCRIPTION |
|---|---|
| 1 | FLUX SEPARATION CHAMBER & FLUX HOPPER |
| 2 | FLUX HOPPER |
| 2A | FLUX PORT |
| 3 | VACUUM POWER SOURCE |
| 4 | DUST BAG |
| 7 | FLUX HOSE MOUNTING BRACKET |
| 8 | FLUX HOSE (1 1/2" X 5') |
| 8A | NOZZLE |
| 9 | VACUUM HOSE (1 1/2" X 4') |
| 9A | VACUUM HOSE ELBOW (2) |
| 10 | HOPPER MOUNTING BAR (2) |
| 11 | BRACKET SCREW |
| 12 | BRACKET CLAMP |
| 14 | BRACKET -VACUUM TO LT-7 CONTROL |
| 15 | DUMP VALVE LEVER |
| 16 | LATCH (2) |
| 18 | FLUX VALVE |
| 19 | LARGE HOSE CLAMP (5) |
| 21 | MOTOR (115V) OR (220V) |
| 22 | MOTOR BRUSHES (2) |
| 23 | MOTOR COVER |
| 24 | MOTOR FILTER |
| 25 | LOCKWASHER (4) |
| 26 | SCREW (4) |
| 27 | NUT (3) |
| 28 | LOCKWASHER (3) |
| 29 | MOTOR BOLT (3) |
| 30 | MOTOR SPACER BUSHING (3) |
| 31 | CORD STRAIN RELIEF CLAMP |
| 32 | INPUT POWER CORD |
| 33 | PLUG |
| 34 | RUNNING LIGHT |
| 35 | ON/OFF SWITCH |
| 36 | EXHAUST MANIFOLD |
| 37 | MOTOR CASE |
| 38 | FLUX CHAMBER COVER |
| 39 | CATCH (2) |
| 40 | GASKET |
| 41 | HINGE (2) |
| 42 | HINGE PIN (2) |
| 43 | FINE FLUX FILTER |
| 44 | LOCKWASHER (8) |
| 45 | SCREW (8) |

## FRU-1000 PARTS LIST CONT'D.

| ITEM # | ITEM DESCRIPTION |
|---|---|
| 46 | SLAG SCREEN TRAY ASSEMBLY |
| 47 | FLUX CHAMBER BOX |
| 48 | RETURN SPRING |
| 49 | DUMP VALVE ASSEMBLY |
| 53 | LIGHT - FLASHER |
| 54 | FLASHER CIRCUIT MODULE (Internal -not shown) |
| 55 | FLASHER -PRESSURE SWITCH (Internal-not shown) |
| 56 | EXHAUST BRACKET |
| 57 | EXHAUST BRACKET CLAMP |
| 58 | SECONDARY FLUX FILTER |

## FRU-1000 FIGURE 1 - EXPLODED VIEW



## FRU-1000 FIGURE 5 - EXPLODED VIEW

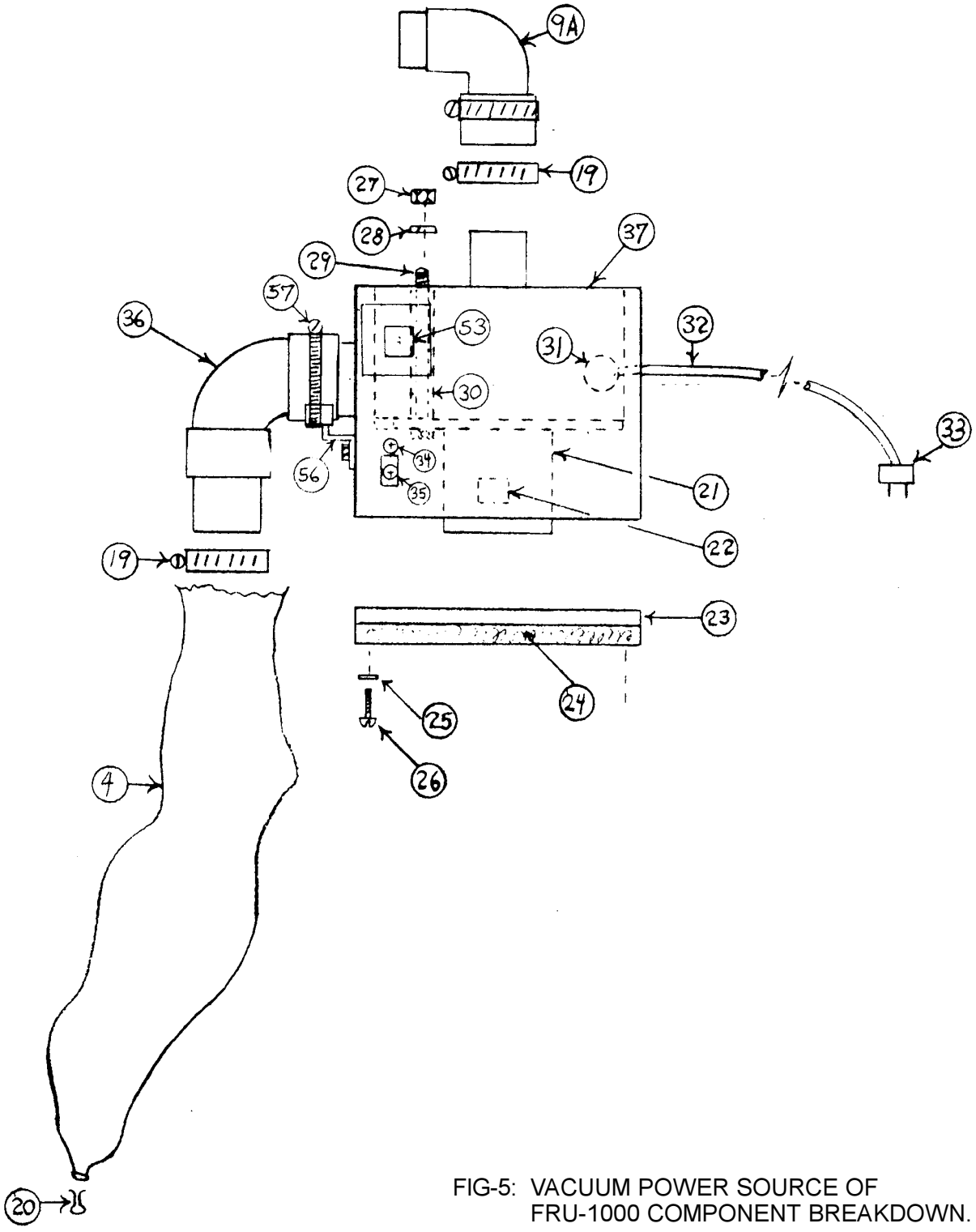



FIG-5: VACUUM POWER SOURCE OF
FRU-1000 COMPONENT BREAKDOWN.

## FRU-1000 FIGURE 6 - EXPLODED VIEW

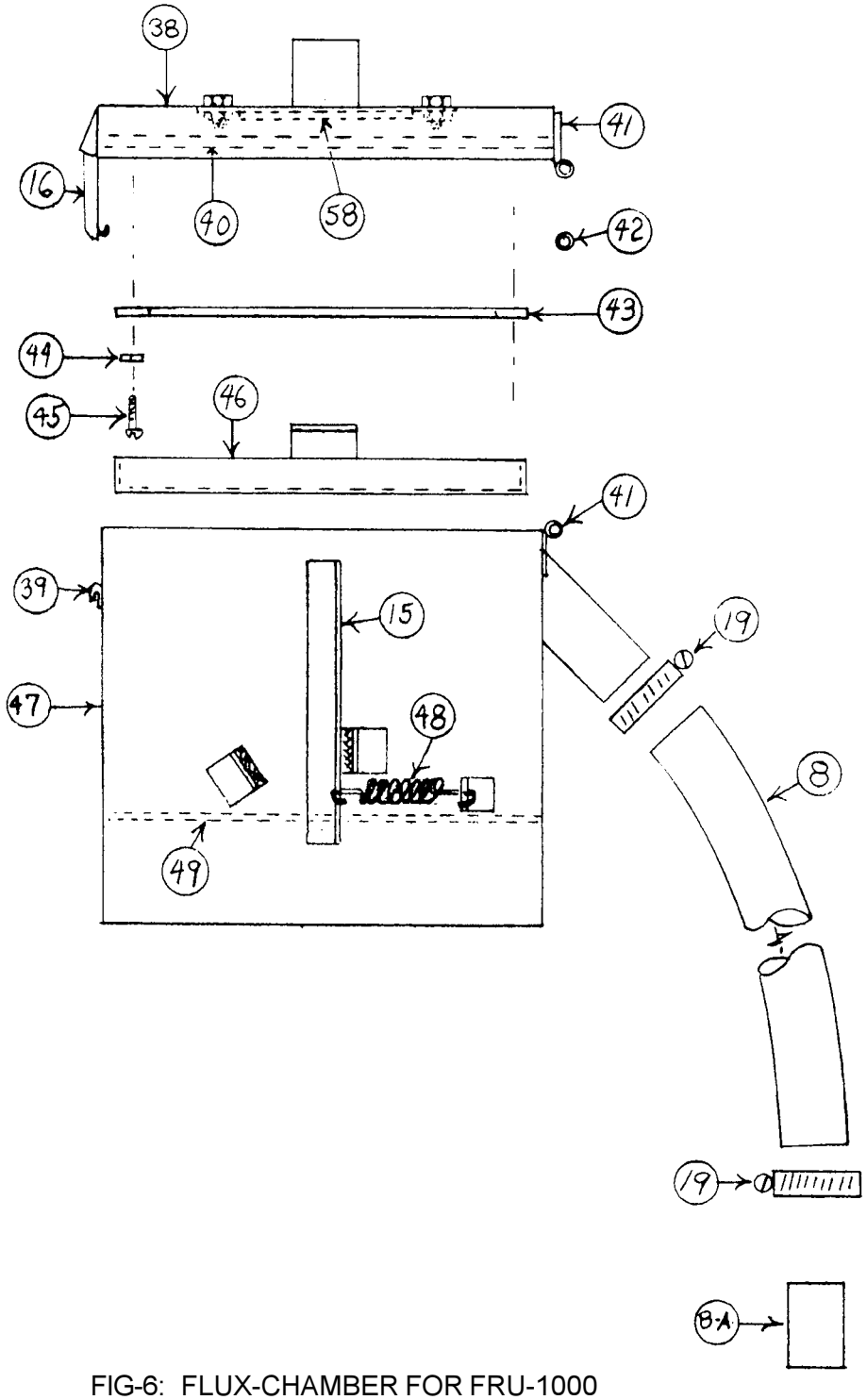
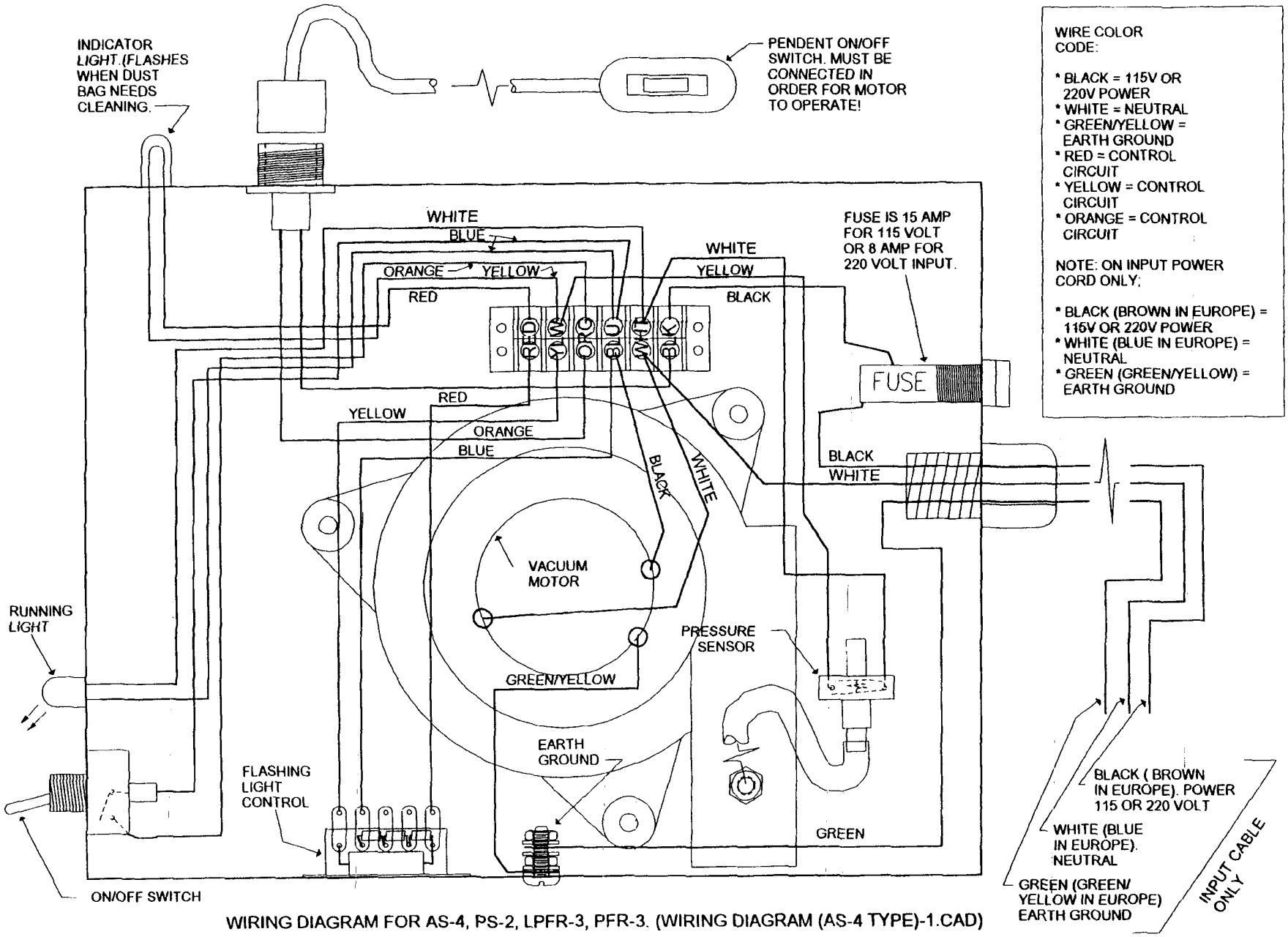



FIG-6: FLUX-CHAMBER FOR FRU-1000
COMPONENT BREAKDOWN.




WIRING DIAGRAM FOR AS-4, PS-2, LPFR-3, PFR-3. (WIRING DIAGRAM (AS-4 TYPE)-1.CAD)

# WARRANTY

## Limited Warranty

**Model** _____
**Serial No.** _____
**Date Purchased:** _____

For a period of twelve (12) months from delivery, Cypress Welding warrants to the original purchaser (does not include authorized distributors), that a new machine is free from defects in material and workmanship and agrees to repair or replace, at its option, any defective parts or machine. This warranty does not apply to machines, which after our inspection, are determined to have been damaged due to neglect, abuse, overloading, accident or improper usage. All shipping and handling charges will be paid by customer.

Cypress Welding makes no warranty of merchantability and makes no other warranty, expressed or implied, beyond the warranty expressly set forth above. Buyer's remedy for breach of warranty, hereunder, shall be limited to repair or replacement of non-conforming parts and machines. Under no circumstances shall consequential damages be recoverable.

***HOW TO OBTAIN SERVICE:***
***If you think this machine is not operating properly, re-read the instruction manual carefully, then call your Authorized Cypress dealer/distributor. If he cannot give you the necessary service, write or phone us to tell us exactly what difficulty you have experienced. BE SURE to mention the MODEL and SERIAL numbers.***

## NOTES: