Power Supply

EPS-2000 Power Supply Operations Manual

Version 1.01
Date: June 2005

EPS-2000 Power Supply

Chapter 1, Start-Up

Version 1.11.01
Revision Date: November 2001

Unpacking the Power Supply

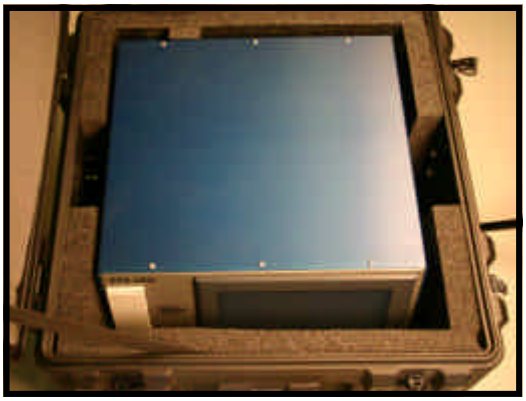
1.

The EPS-2000 Power Supply comes in a water tight, rolling carrying case. This case is suitable for shipment.

2.

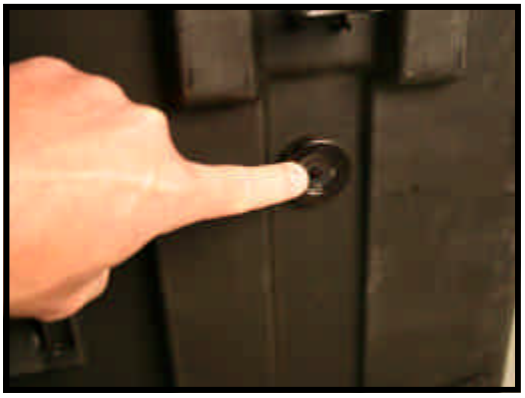
Open the case by unlatching the 6 latches.

3.



Open the lid of the case.

4.



If the lid does not open readily, there may be a vacuum inside due to air travel. Push the pressure release button then open the lid.

5.

In the bottom of the case is the power supply operations manual, the line cord and a purge connector.

6.

Place the power supply on a stable work surface.

Required Peripherals

1.

A welding head is required to operate the EPS-2000 Power Supply. Above is the Exel RDR-05 Rotor Driver.

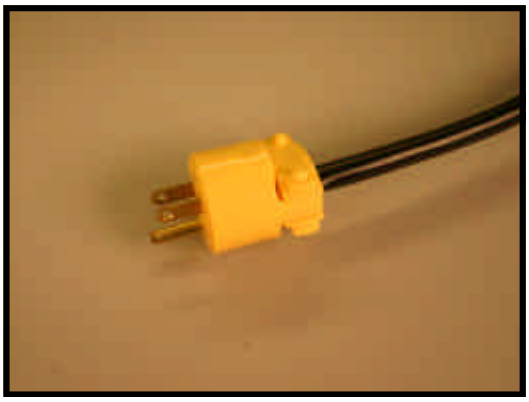
2.

The EPS-2000 Power Supply can operate Arc Machines orbital welding heads as well.

3.

The line cord provided is 20 amp rated for 250 volt service.

4.



It may be necessary to cut off the plug provided on the line cord and replace it with one suitable for the outlet intended.

5.

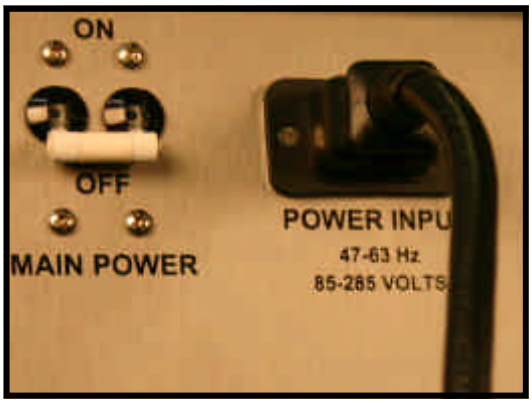
A source of purge for the power supply is required. Use the purge connector provided.

Power Supply Hook Up

1.

Above is a view of the back of the EPS-2000 Power Supply with all necessary connectors visible.

2.

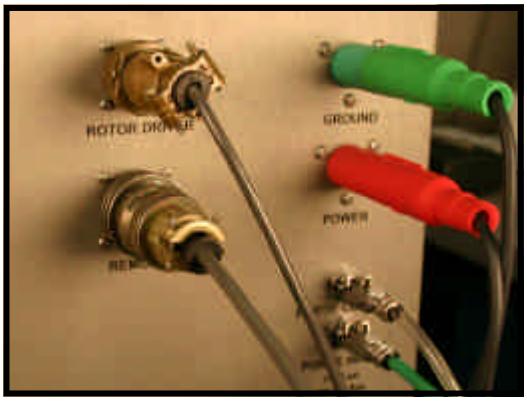


Start by inserting the A/C line plug into power ranging from 85 to 265 volts and from 47 to 63 hertz single phase.

3.

Connect the Argon or mixed gas purge inlet from the source to the power supply.

4.

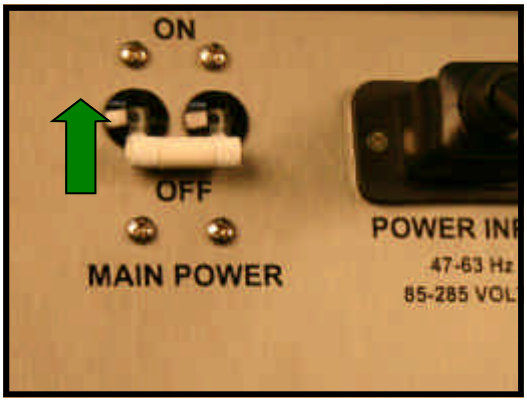


Connect the power, ground, motor, gas and remote (if applicable) of the welding head to the power supply.

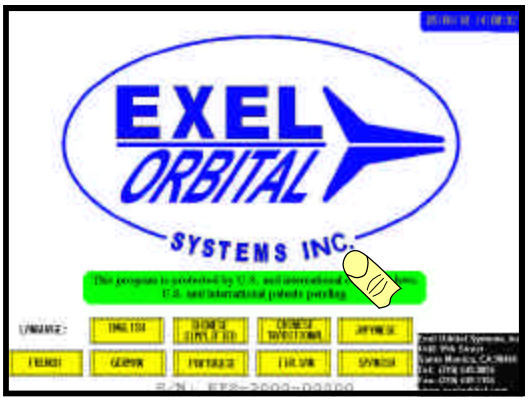
Notes:

1. The EPS-1000 does not require a dedicated circuit.
2. Power Input: 85 to 265 volts and 47 to 63 hertz.
3. Purge Input: 15 to 80 psi or 100 to 530 Kpa.

Power-Up

1. 

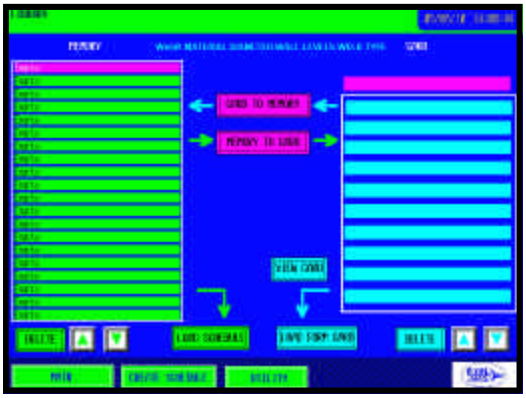
Turn the main power switch on.

2. 

The Main Screen will appear on the touch screen. Select the desired Language then touch any spot on the screen to continue.

3. 

If Password protection selected enter that password here.

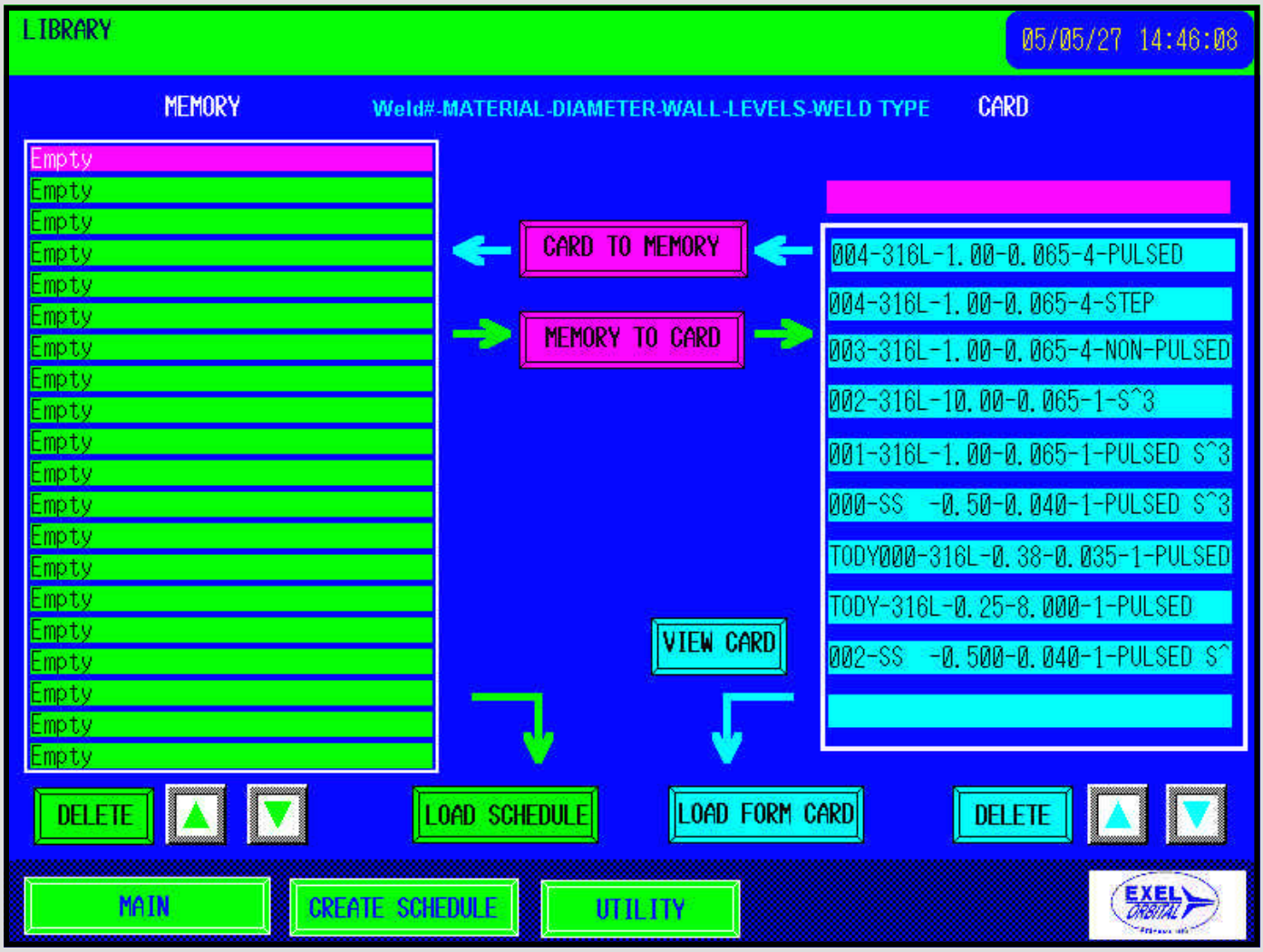
4. 

The Library Screen above appears so that a weld schedule may be created or loaded from memory.

EPS-2000 Power Supply

Chapter 2, Library and Memory

Version 1.11.01
Revision Date: June 2005

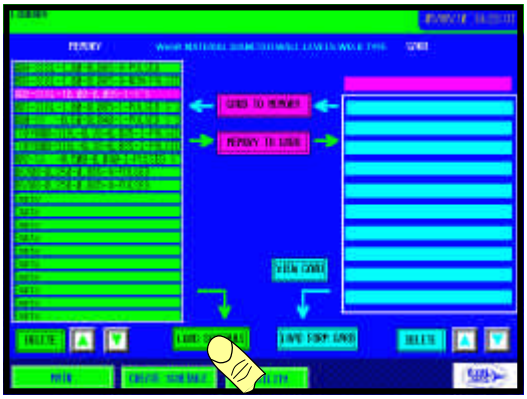


Loading a Weld Schedule from the Main Memory

1.

Select the desired weld schedule from the Main Memory in the left column.

2.



Select Load Schedule.

3.

The selected weld schedule appears on the screen.

Loading a Weld Schedule from the CF Card

1.

Orient the CF Card as shown.

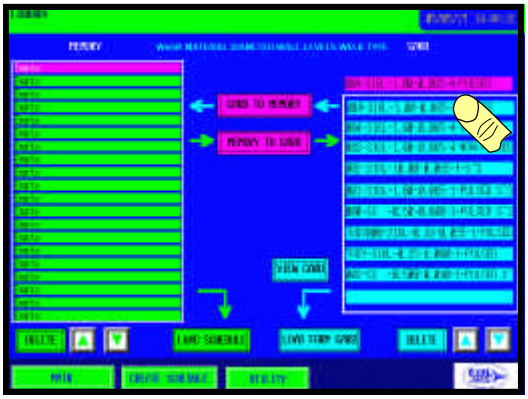
2.

Insert the CF Card, being sure that it is seated completely into the slot. The eject button should pop up.

3.

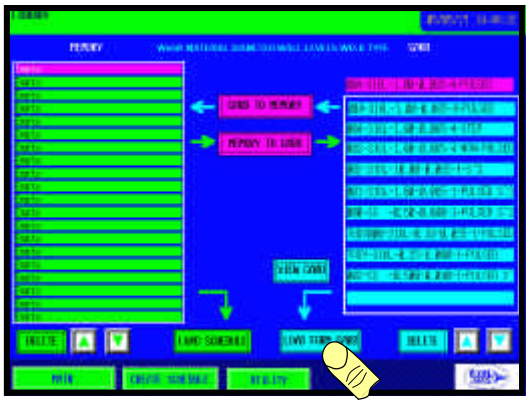
Touch the VIEW CARD button and all weld schedules in the card will be displayed in the right column.

4.



Select the desired schedule and the name will appear in the pink window above the right column.

5.

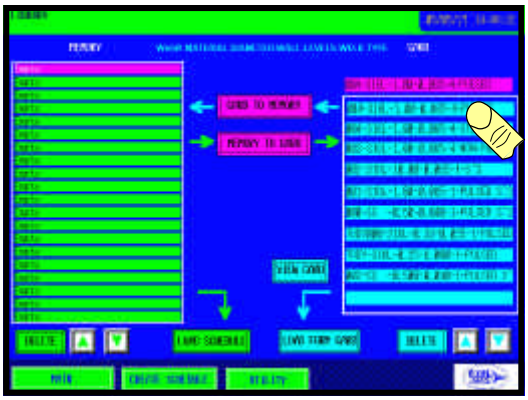


Touch LOAD FROM CARD and the weld schedule will load

6.

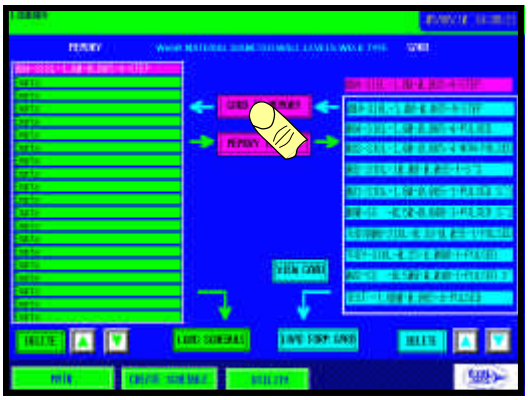
Moving a Weld Schedule from CF Card to Main Memory

1.



Select the desired weld schedule to transfer to main memory and it will appear in the pink window.

2.



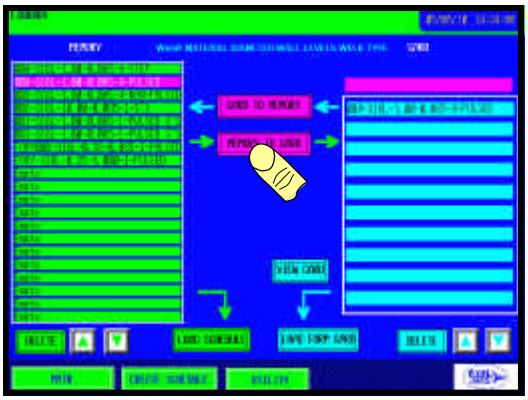
Select CARD TO MEMORY and the weld schedule will be copied to the Main Memory in the left column.

Moving a Weld Schedule from Main Memory to CF Card

1.

Select the desired weld schedule to transfer to the CF Card.

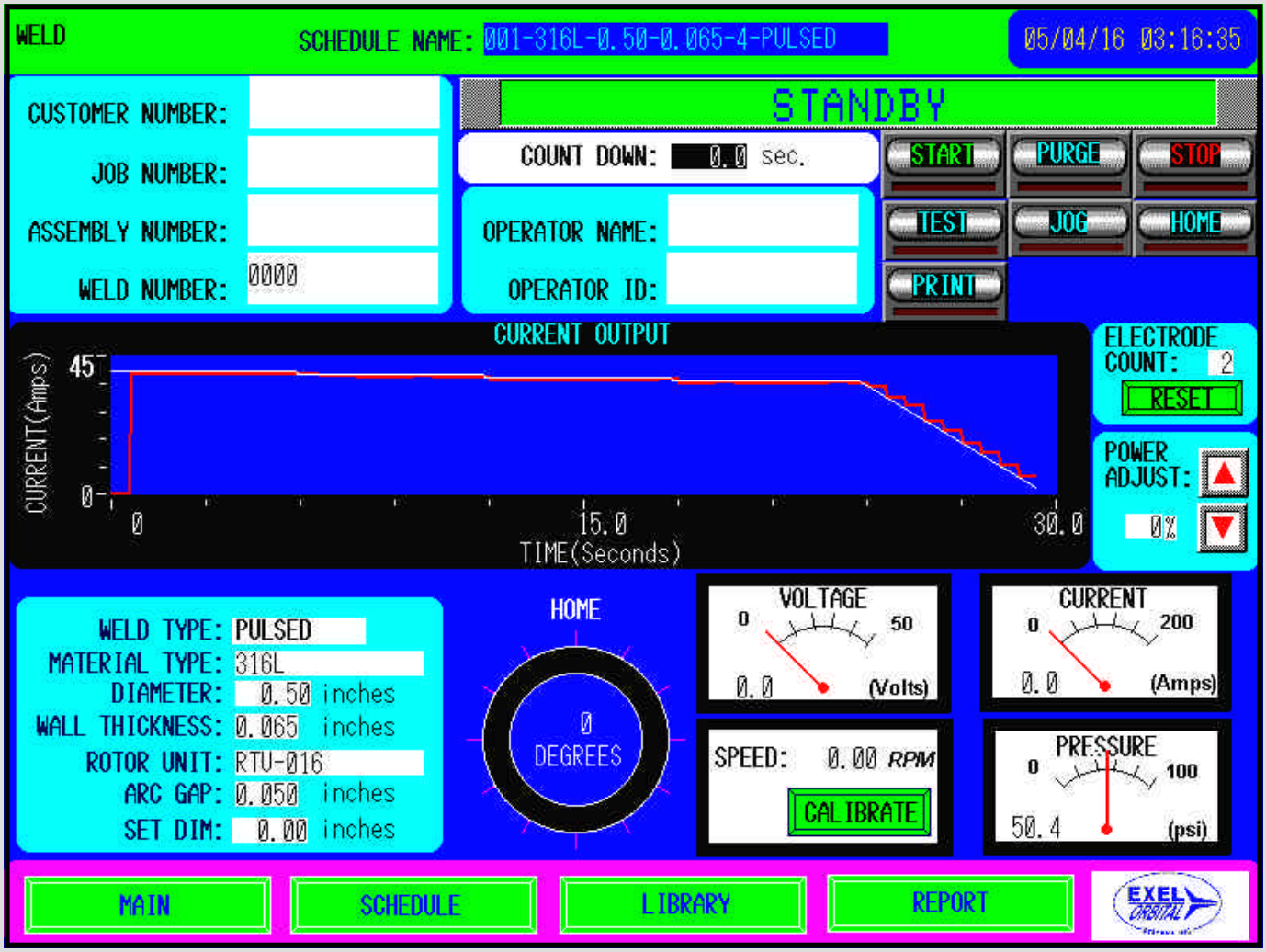
2.



Select MEMORY TO CARD and the weld schedule will be copied to the CF Card in the right column.

EPS-2000 Power Supply
Chapter 3, Create a Weld Schedule,

Version 1.11.01
Revision Date: June 2005



Creating a Weld Schedule - 4 Level Weld

1.

From the LIBRARY screen touch CREATE SCHEDULE.

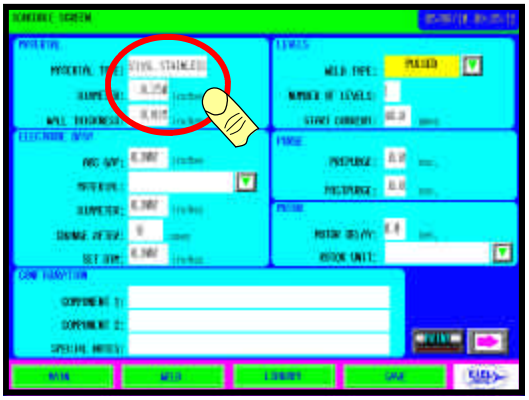
2.

The above screen appears.

3.

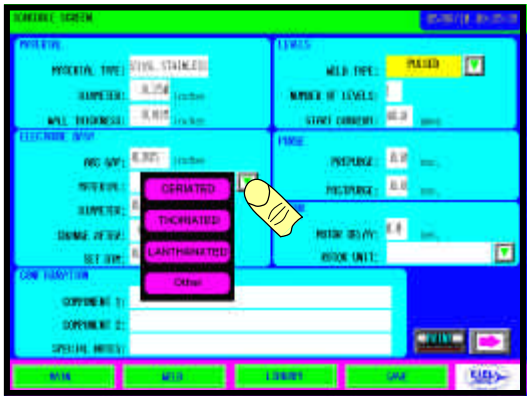
Enter the Material Type that will be welded by touching the field and using the QWRTY keypad that appears.

4.



Fill in all the Material Fields.

5.



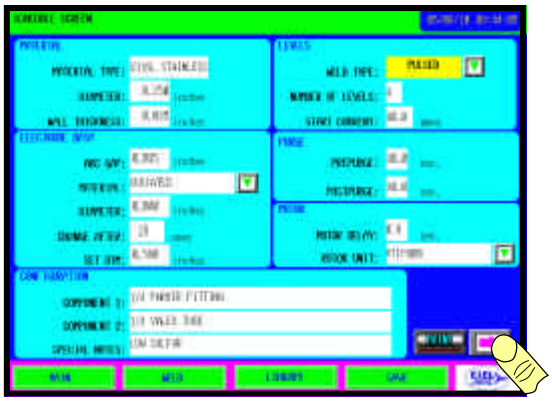
Enter the Electrode Data and select the electrode material from the pull down menu. CHANGE AFTER alarms the operator to change the electrode.

6.

In the Levels category select the Weld Type to be made.

Creating a Weld Schedule - 4 Level Weld

1.



After entering the data on the first screen push the right arrow to move to the second Schedule Screen

2.

The above screen appears.

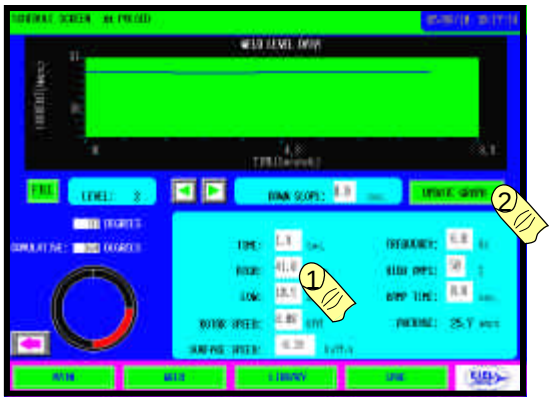
3.

Enter Level 1 data and click UPDATE GRAPH, both the polar and linear graph of time, current and rotation are shown.

4.

With a multi level weld it is convenient to click the fill button to copy Level 1 information to all subsequent levels.

5.



Level 2 contains the same information as level 1. Change the relevant field, in this case 41 High amps. UPDATE GRAPH.

6.

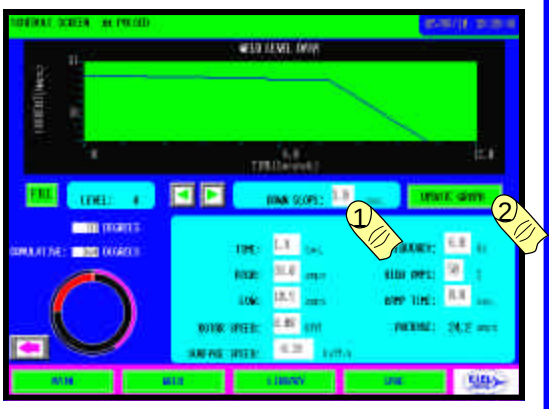
Edit Level 3 in the same manner as Level 2 and UPDATE GRAPH to conform changes.

Creating a Weld Schedule - 4 Level Weld

1.

Edit Level 4 and UPDATE GRAPH.

2.



Enter a Down Slope and UPDATE GRAPH. The 4 Level Pulsed Weld Schedule is now complete.

3.

To save the newly created weld schedule touch SAVE.

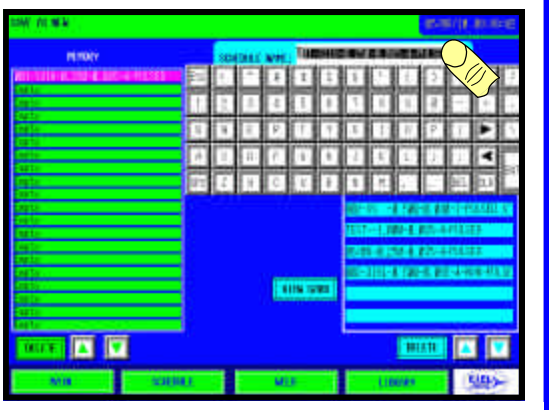
4.

The Library Menu appears in Save As mode. Displaying a default name in the Schedule Name field.

5.

Click SAVE TO MEMORY to save the schedule in internal memory or SAVE TO CARD to save to the CF Card.

6.



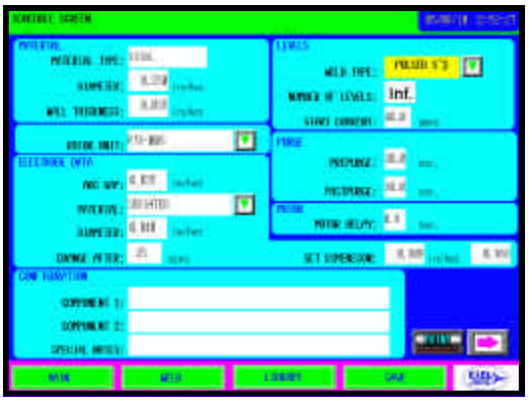
If the default name is undesired touch the SCHEDULE NAME field and a KWRTY keypad appears to rename.

Creating a Weld Schedule - S^3

1.

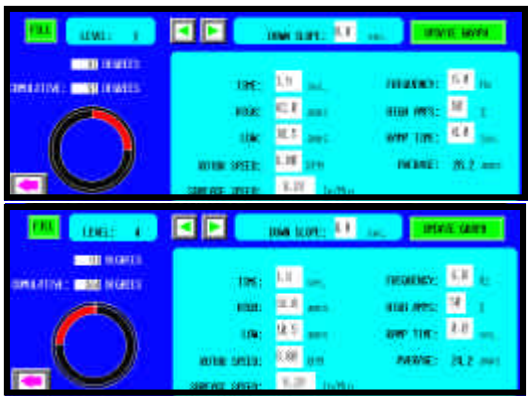
In SCHEDULE SCREEN 1 select PULSED S^3 as the Weld Type.

2.



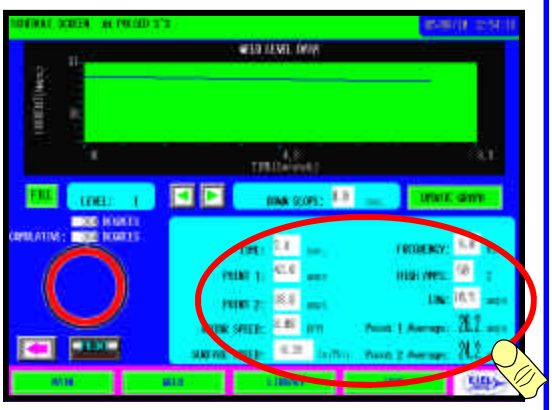
When PULSED S^3 is selected, notice that Number of Levels shows INF. This denotes that there are infinite levels.

3.



Referring back to the multi-level weld developed on the previous pages, use the settings for Level 1 and Level 4

4.



Input Level 1 High amps for Point 1 and Level 4 High amps for Point 2. Time is the total of Level 1,2,3 & 4 time from the Multi-Level weld.

5. Note: Below are the values entered for a 4 Level weld for 1/4" diameter, .035 wall 316L Stainless Steel.

Lev	Time	High	Low	Freq	% High	Speed
1	1.9	42	10.5	6	50	8
2	1.9	41	10.5	6	50	8
3	1.9	40	10.5	6	50	8
4	1.9	38	10.5	6	50	8

6.

The S^3 Weld is complete

Viewing or Modifying a Schedule

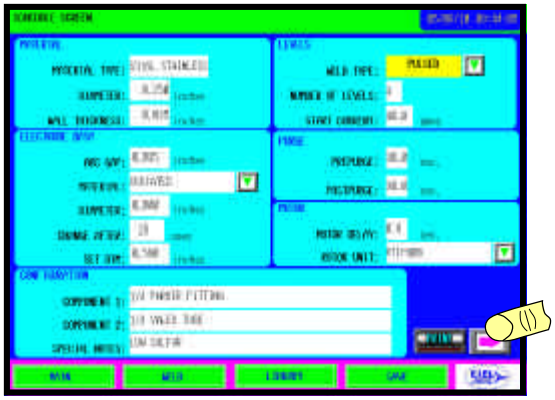
1.

From the WELD Screen touch the SCHEDULE button

2.

Enter the Programmer Password which gives access to the weld schedule. See Pass Words in the Utility Section.

3.



The first screen to appear is Schedule Screen 1. Click the Right Arrow to move to Schedule Screen 2

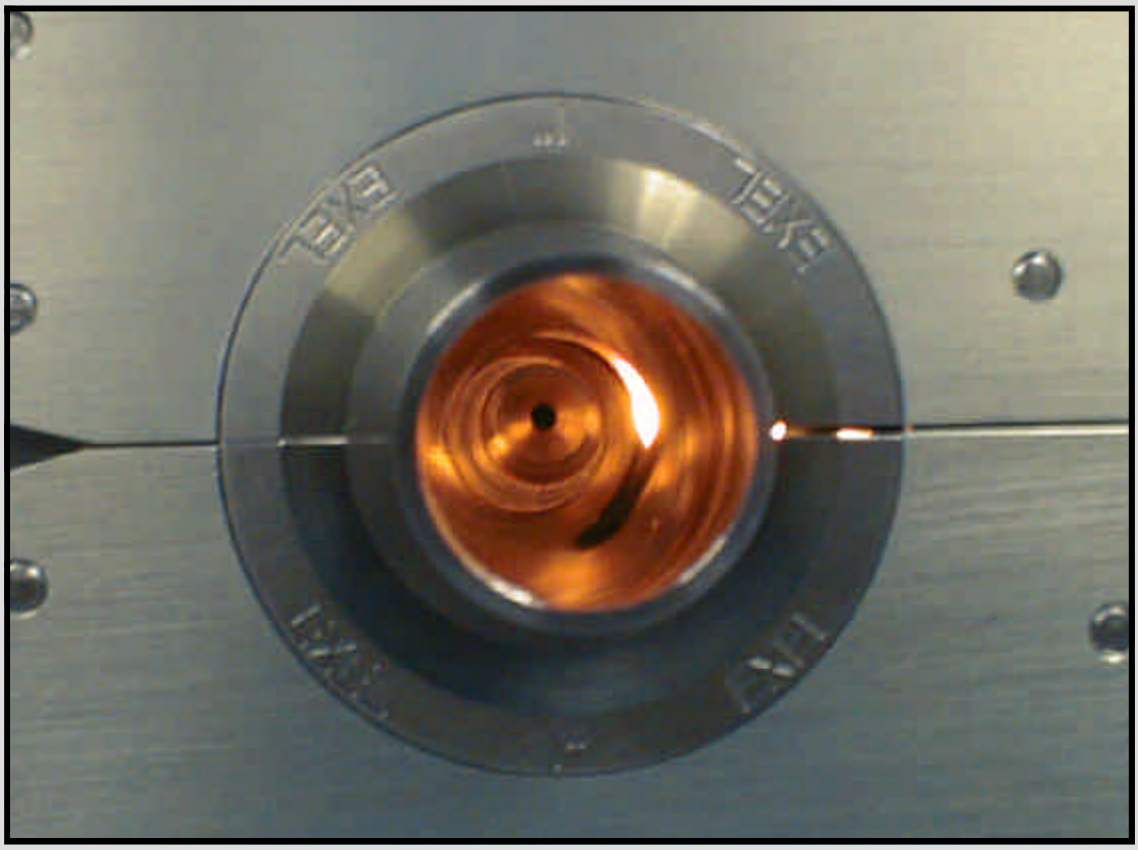
4.

Click the Left Arrow to move back to Schedule Screen 1

EPS-2000 Power Supply

Chapter 4, Making A Weld

Version 1.11.01
Revision Date: June 2005



Weld Tracking Information

1.

When a weld schedule loads there are several fields that can be filled which allow tracking of a weld in the REPORT.

2.

Touch the field where information is to be entered and a QRTY keypad appears

3.

Press ENTER when complete and the QRTY keypad disappears.

4.

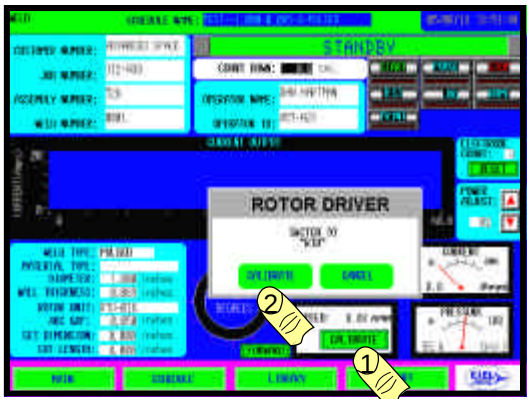
Continue filling in all remaining fields. This information will now appear on the Weld Report making tracking easier.

5. Note:

1. To open or create a weld schedule see Library and Memory or Create a Weld Schedule

Calibrating the Rotor Driver

1.

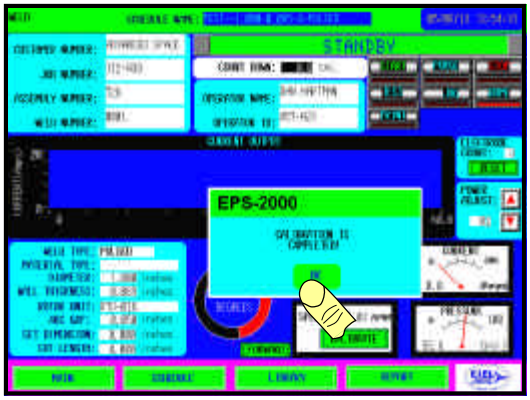


When loading a new weld schedule or turning power on, the Rotor Driver or motor must first be calibrated.

2.

Push the CALIBRATE button then select the proper switch setting on the Rotor Driver then push CALIBRATE.

3.



During calibration 4 revolutions will be made and timed. When calibration is complete, push OK.

Making a Test Weld

1.

After Rotor Driver calibration a test weld can be made to be certain of proper settings and calibration by pushing TEST.

2.

As the power supply cycles through the test sequence, it purges, rotates the weld head and graphs theoretical current.

3.

When TEST is complete the power supply will return to its STANDBY mode.

Making a Weld

1.

To make a weld be sure that the weld head is ready and properly fixtured then push START.

2.

The power supply will cycle through the weld sequence, displaying all critical operating variables.

3.

When the weld is complete the power supply returns to STANDBY mode.

Jog, Home, Purge and Stop

1.

Push the JOG button to rotate the weld head. The head will rotate only when the button is pushed.

2.

To home the weld head push the HOME button.

3.

Purge my be used at any time by pressing PURGE. Pressing PURGE prior to a weld does not affect weld purging.

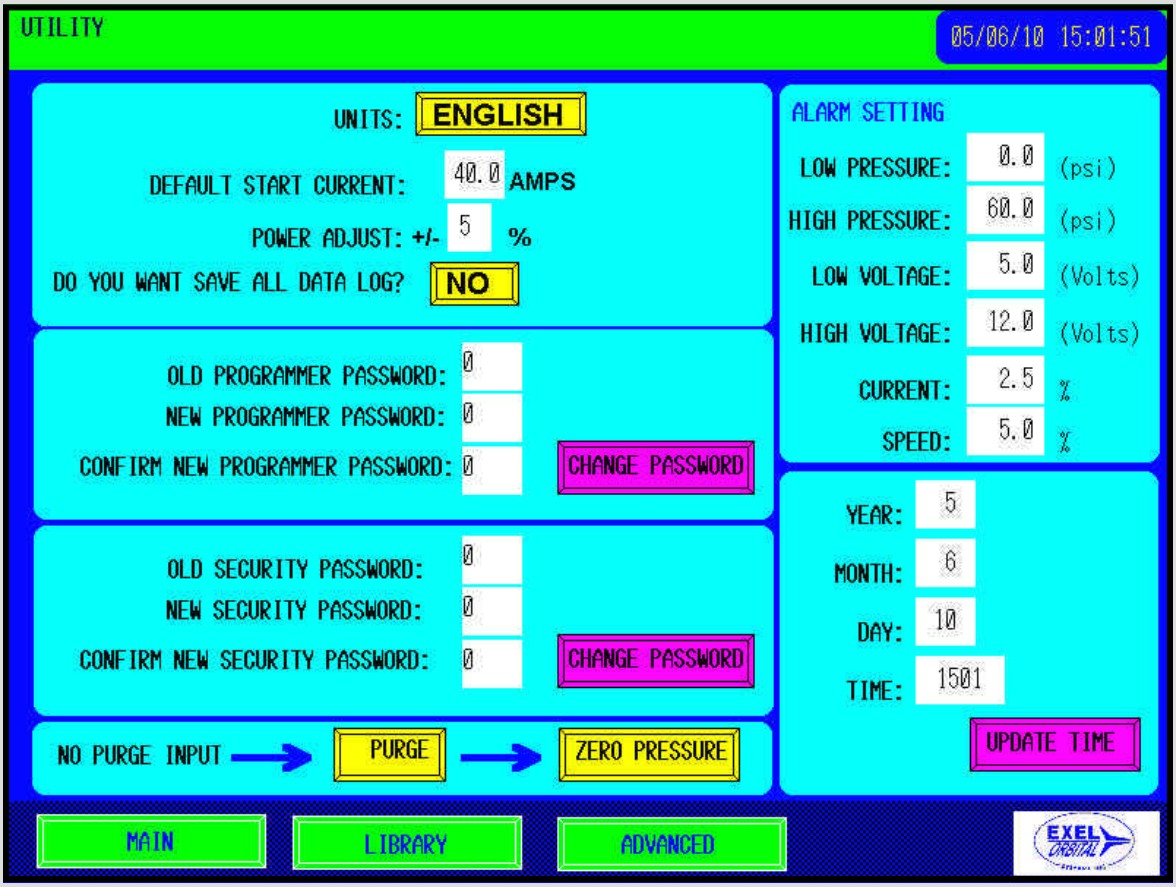
4.

STOP may be used at any time and will terminate any sequence started. During a weld, pre-purge will be the final sequence.

EPS-2000 Power Supply

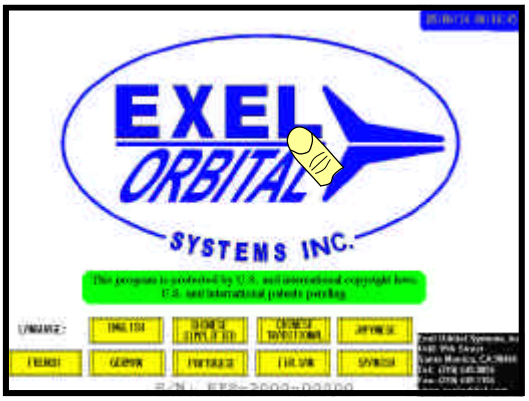
Chapter 5,
Utility, Passwords,
Printing, Reports and Faults

Version 1.11.01
Revision Date: June 2005



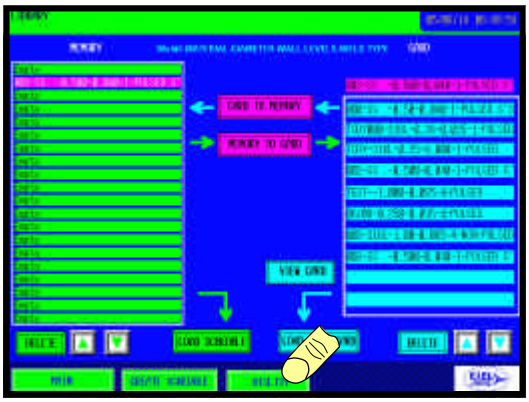
Utility

1.



Push anywhere on the MAIN Menu.

2.



Press UTILITY from the LIBRARY Menu.

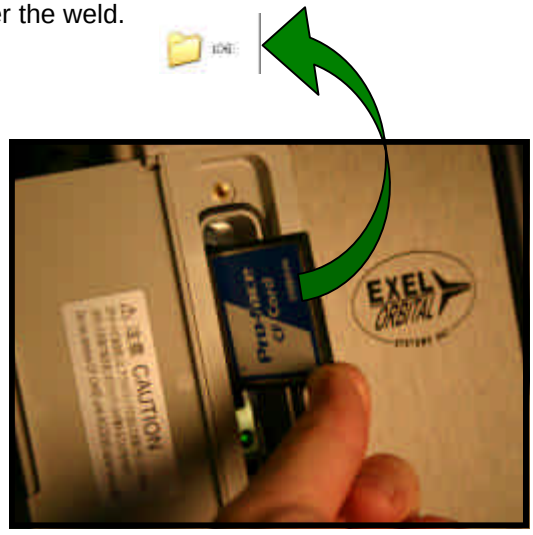
3.

UNITS: - ENGLISH or METRIC may be selected here when toggling from one to the next the units are changed throughout the program and conversions are automatically made.

DEFAULT START CURRENT: - The default current used to initiate the arc start of the weld is 40 amps. This is the instantaneous current to establish the arc from the electrode. This value can be adjusted from 25 to 40 Amps.

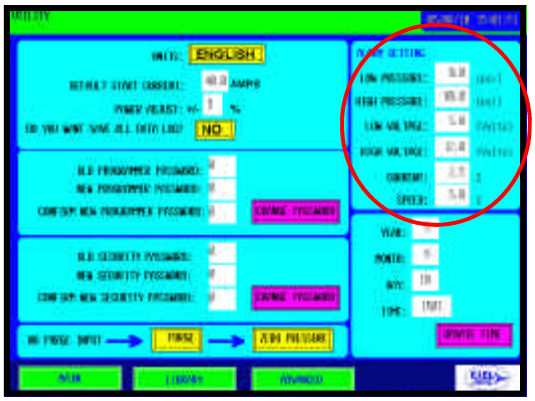
POWER ADJUST: - This value establishes the adjustment the operator is given during welding. This value is given as a % of the programmed current. The operator has the ability to adjust power in 1% increments up or down to the programmed limit in POWER ADJUST.

DO YOU WANT TO SAVE ALL DATA LOG? Answer YES or NO to this. If you answer NO weld reports will not be saved and can only be printed immediately following the weld, subsequent welds will overwrite the report. If you answer YES weld reports will be saved to the CF Card in Microsoft Excel format in the LOG Folder. Again the weld report may be printed after the weld.



Alarm Settings

1.



ALARM SETTINGS:

LOW PRESSURE: - Since the EPS-2000 has a pressure transducer a low alarm limit may be set. Should the pressure drop below this point the alarm will show on the touch screen.

HIGH PRESSURE: - The highest allowable pressure desired for the purge inlet of the power supply. This value should never exceed 80 psi (530 kpa).

LOW VOLTAGE: - The minimum allowable voltage. This setting is often used to indicate stub out or insufficient gap between the electrode and work. This value is usually set at 5 volts.

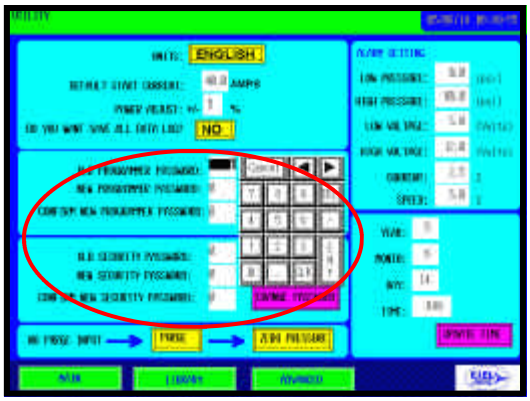
HIGH VOLTAGE: - The maximum allowable voltage. This settings is used to indicate excessive gap between the electrode and work and other anomalies such as insufficient or missing purge. This value is usually set at 12 volts.

CURRENT: - The tolerance in terms of % variation from the average current programmed. This should be set based on the requirements of the welding operation. In this case +/- 2.5% is set.

SPEED: - The tolerance in terms of % variation from the programmed speed. This should be set based on the requirements of the welding operation. In this case +/- 5% is set.

Passwords

1.



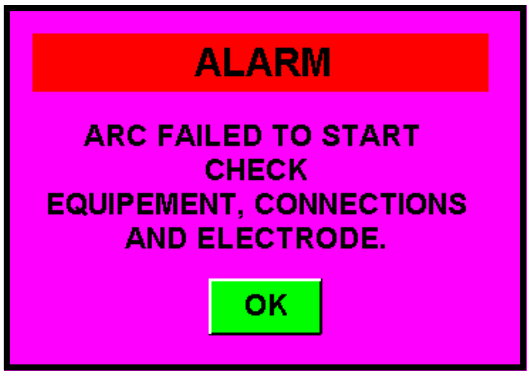
Enter the desired password for both Programmer and Security. Se list below for privileges.

The Security Screen shown above allows the user to enter either a Security Password of a Programmer Password.

Security Password Allows:
1. Access to the LIBRARY
2. Access to Weld Screen
3. % adjustment of the weld schedule.
4. Print weld schedule
5. Print weld report
6. View weld report
7. Memory copy to and from CF Card

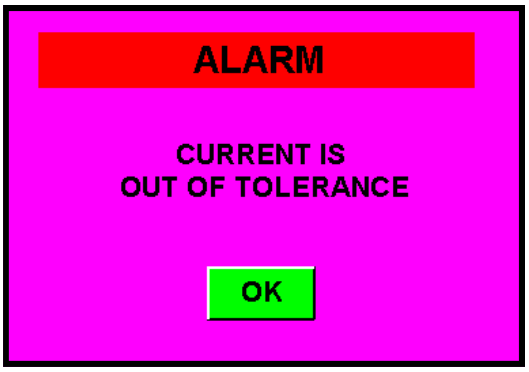
Security Password Allows:
1. All items on Security Password
2. Access to Weld Schedule Screen
3. Access to Utility Screen

1.



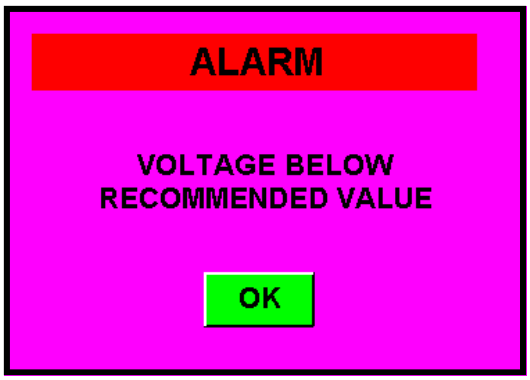
The above message will appear if current fails to flow through the electrode after an attempted arc start.

2.



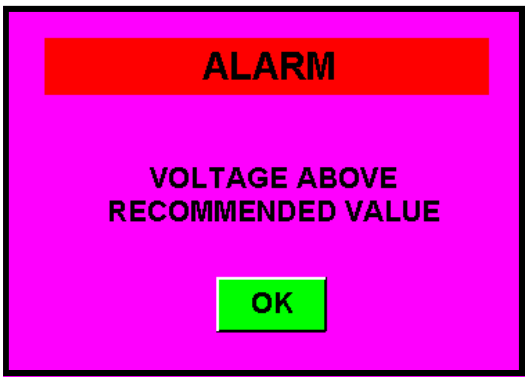
The above message will appear if current deviates outside the alarm set value, see Alarm Settings.

3.



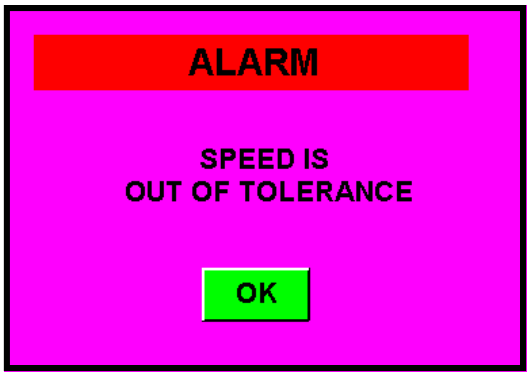
The above message will appear if voltage goes below the alarm set value, see Alarm Settings.

4.



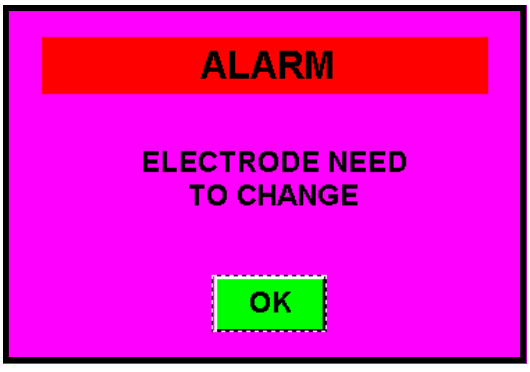
The above message will appear if voltage goes above the alarm set value, see Alarm Settings.

5.



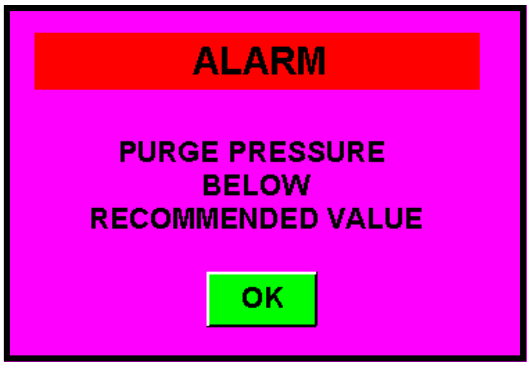
The above message will appear if speed deviates outside the alarm set value, see Alarm Settings.

6.



The above message will appear to alert the operator must change the electrode, see creating a weld schedule.

7.



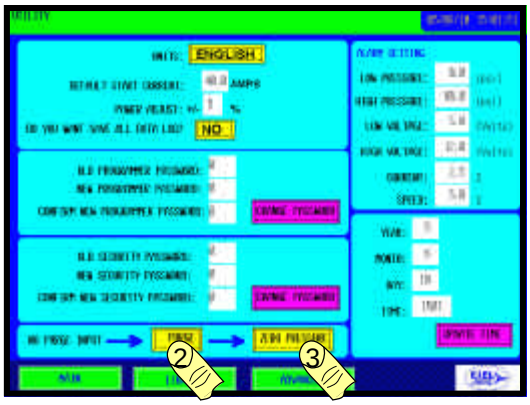
The above message will appear if pressure goes below the alarm set value, see Alarm Settings.

8.

The above message will appear if pressure goes above the alarm set value, see Alarm Settings.

Zero the Pressure Transducer

1.



If the pressure gauge on the welding screen does not read zero after the gas supply has been disconnected and the valve opened, it will be necessary to zero the pressure transducer.

First disconnect the gas supply.

Second push the PURGE button in the Utility Menu.

Third push ZERO PRESSURE.

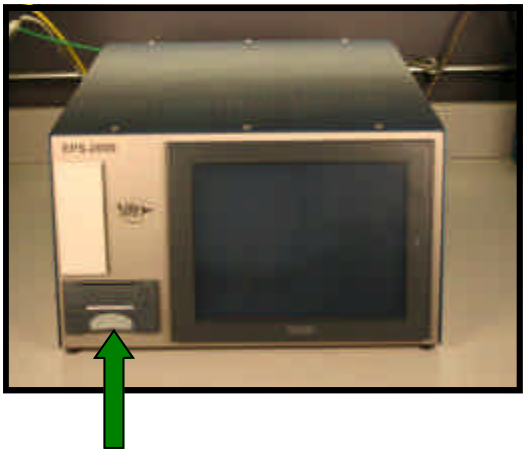
Go back to the Weld screen and the pressure gauge should read ‘0’ zero.

Printing

1.

To print from the power supply, select either PRINT SCHEDULE or PRINT REPORT the onboard printer will print the desired form.

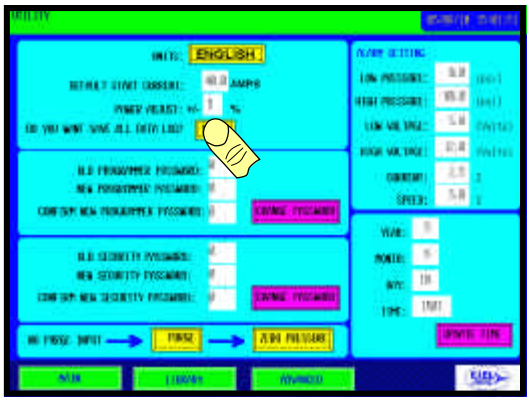
2.



Thermal Printer

Weld Report on Microsoft Excel

1.

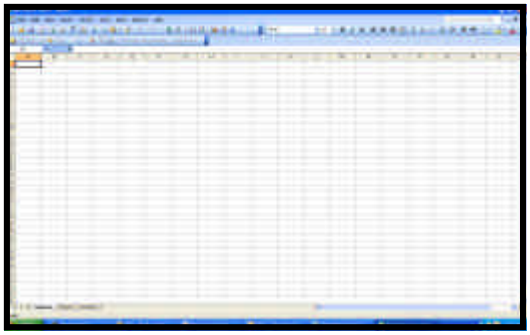


By selecting YES on “DO YOU WANT TO SAVE ALL DATA LOG?” all weld reports will be save to the CF Card.

2.

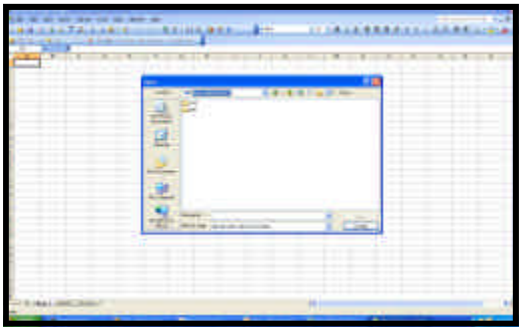
To view the weld reports simply remove the CF Card and insert into the CF Card reader of your computer.

3.



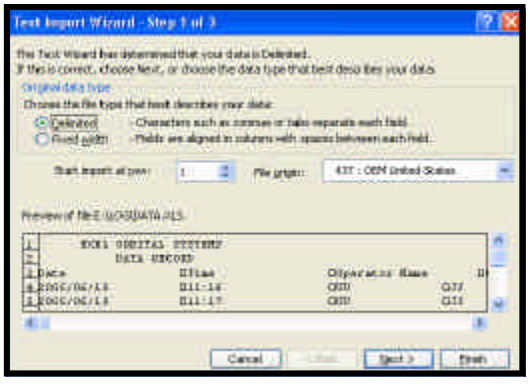
Open Microsoft Excel.

4.



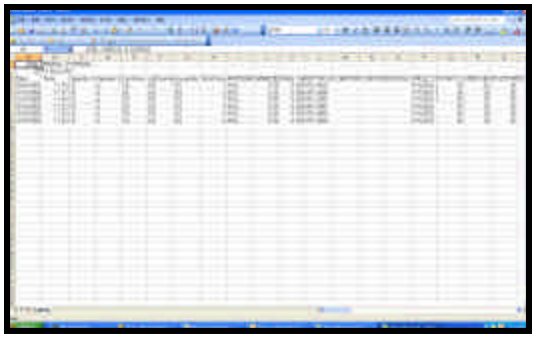
Click FILE then OPEN and go to the location of the CF Card the open LOG then the file called DATA

5.



The box above appears. Click NEXT and click NEXT again at the following box then click FINISH.

6.



Excel populates the spreadsheet with the weld report data.