



INSTRUCTION SHEET

EC242 REPLACEMENT CONTROL BOARD FOR EC4002(D) POWER UNITS

(EC242 Replaces EC225)
For EC3002(D) Power Unit, Order EC235

WARNING: AC line voltage is present inside power unit even when power switch is off. Refer service to qualified personnel.

NOTE: This replacement board is built with a ceramic substrate which can be broken if dropped or overstressed. Do not use excessive force when installing.

Access to internal parts may be gained by removing four bottom screws (on some units the screws will be under the rubber feet) and the case bottom.

1. Remove adjustment knob, locknut and mounting nut from the control potentiometer.
2. Cut the green lead from the tool socket to the ring terminal at the ring terminal end.
3. Desolder the black, red, and yellow leads (between display board and control board) at the control board, and desolder the red and yellow leads from the transformer.
4. Remove screw holding control board in case, then remove control board, socket and potentiometer.
5. Remove two screws from display board, remove display board from case, do not desolder blue lead. Remove glass window, set aside.
6. Bend flat cable 90 degrees. Bend close to control board and away from taped side. **CAUTION:** Support the wires close to board to prevent damage to soldered joints. Pre-position board in case (top half) with flat cable towards case side (see Fig. 2). Remove board from case and remove release paper from foam tape and position board in case and press tape.
7. Position potentiometer in hole, replace nuts & knob. Bend flat cable down to provide clearance for display board.
8. Position socket in case and fasten ring terminal on green lead to transformer with existing transformer screw.
9. Replace glass window, re-position display board in case taking care to avoid pinching flat cable, and fasten board in place with two screws.
10. Connect red lead from transformer to twisted leads, one red lead from socket and one from flat cable (4th lead from stripe end); use wire nut.
11. Connect yellow transformer lead and black lead from display board to twisted pair of leads from flat cable (1st & 2nd leads); use wire nut.
12. Connect the corner lead of the pair of leads from the control board to the yellow lead from the display board and the 2nd lead of the pair to the red lead from the display board; use wire nuts provided.

This completes the installation of the replacement control board. The display board must now be recalibrated.

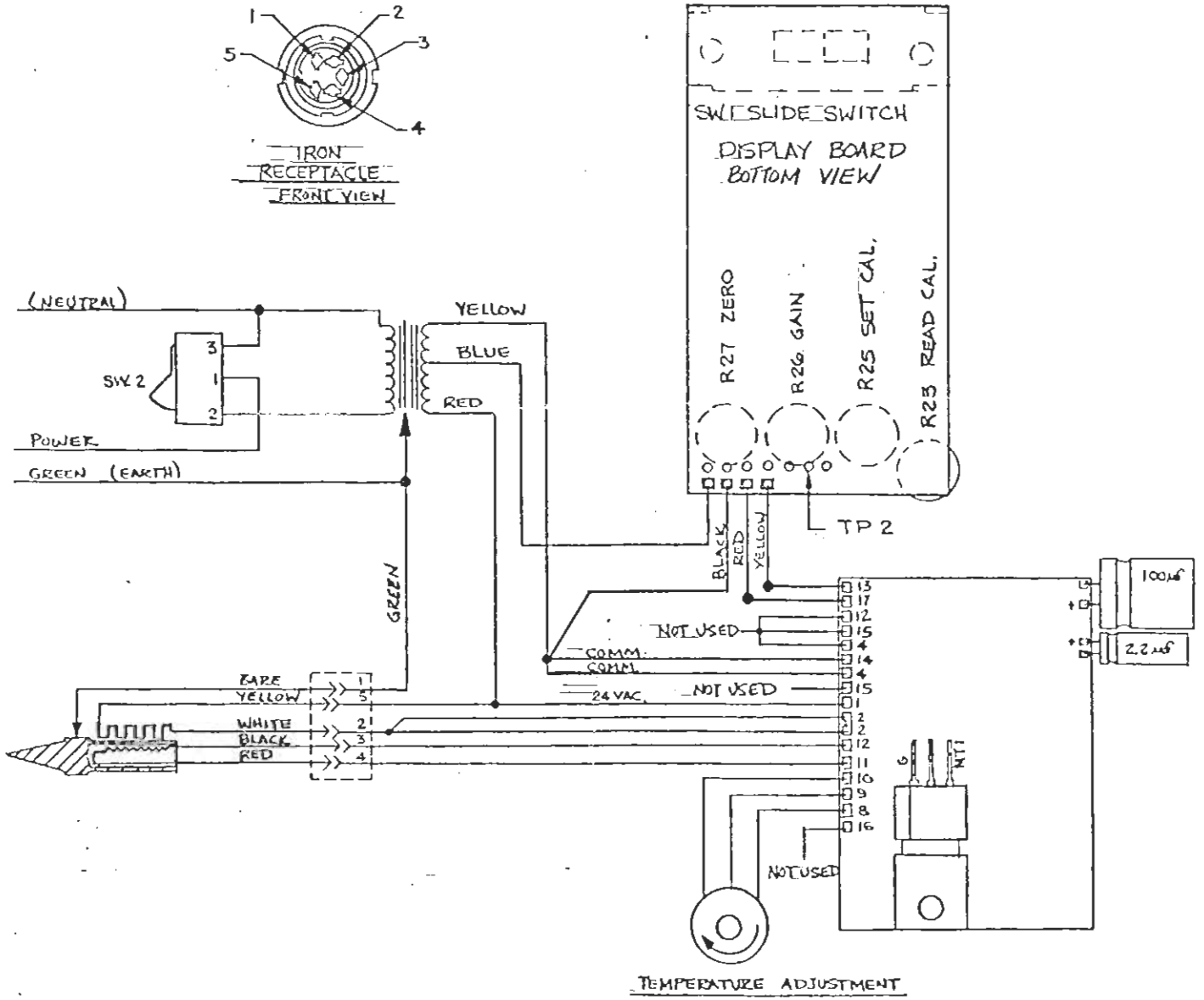
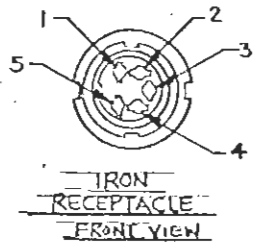
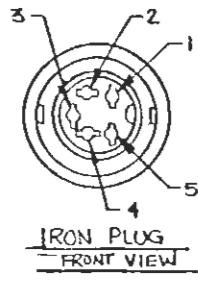


FIG 1
EC 4000

DISPLAY BOARD RECALIBRATION

A calibration reference unit (WC3000) is available as an accessory to speed up calibration verification and recalibration. The following may be substituted for the reference unit: Two precision resistors, resistor A = $36.8 \pm .1$ ohms and resistor B = $52.1 \pm .1$ ohms, and a 30 ohm 20 watt load with indicator lamp will be required. The 30 ohm 20 watt load may be a resistor with a 24 volt lamp connected in parallel. Alternatively, the EC1301 iron may be used in place of the 30 ohm resistor by using short jumper leads from pins 2 and 5 of the receptacle to pins 2 and 5 of the tool plug. The resistors must be attached to .057 dia. (1.45 mm) pins for connection to the socket (do not use long wires). Refer to wiring diagram for pin numbers and location.

CAUTION: Momentary contact with receptacle pins other than those indicated may damage the electronic components. To prevent this, turn unit off when removing or inserting resistors or indicators. Momentary shorts when connecting probes to test points will cause permanent damage to circuit components.

1. Insert resistor B in sockets 3 and 4 (gold color) and load in sockets 2 and 5 of the plug receptacle.
2. Turn power unit on. Set knob fully CCW and move "Set-Read" slide switch to "Read". Allow a 30 minute warm-up period.
3. Place a jumper wire between the black lead and yellow leads on the display board, adjust R27 (zero) for 000 on LED display.
4. Remove jumper. Attach a voltmeter, negative lead to black lead and positive lead to TP2, see Figure 1, or center lug of slide switch. Adjust R23 (read cal.) to 999 mv (or max. possible) on meter. Adjust R26 (gain) to match display reading to meter reading. (For degrees C models, adjust display reading 018 below meter reading.) Remove voltmeter.
5. Adjust R23 for a display reading of 760 degrees F (404 degrees C).
6. Rotate adjustment knob fully CW and the slowly CCW until a point is reached where the lamp just stops flashing (adjustment of knob must end with a CCW turn).
7. Move "Set-Read" slide switch to "Set" position. Adjust R25 (set cal.) for a display reading of 742 degrees F (394 degrees C).

This completes the display board recalibration.

To Verify The Accuracy Of The Control Board:

1. Replace Res. B with Res. A, rotate adjustment knob CW until lamp comes on fully, then rotate the knob CCW slowly until the lamp just stops flashing (adjustment of knob must end with a CCW turn).
2. With the "Set-Read" slide switch to "Read" position, the display should read 404 ± 5 degrees F (206 ± 3 degrees C). Note reading.
3. Move "Set-Read" slide switch to "Set" position, display should read within ± 5 degrees F (± 3 degrees C) of reading in step 2.

If the display readings are not found to be within the tolerances shown, repeat the display recalibration. If the readings cannot be adjusted to within specification, then the control board may be defective.

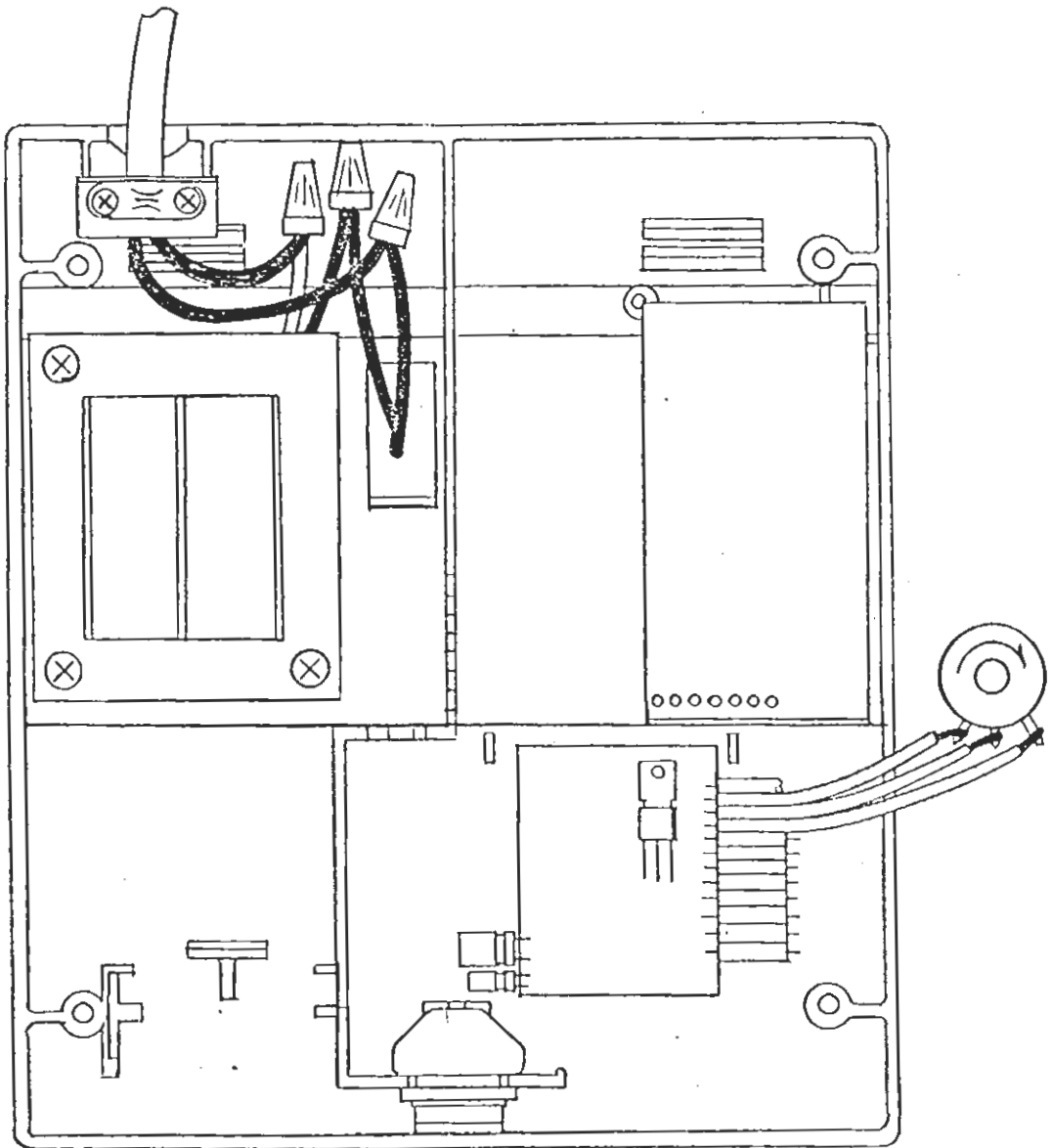


FIG. 2

EC4002 Power Unit

AMP: 207487-1

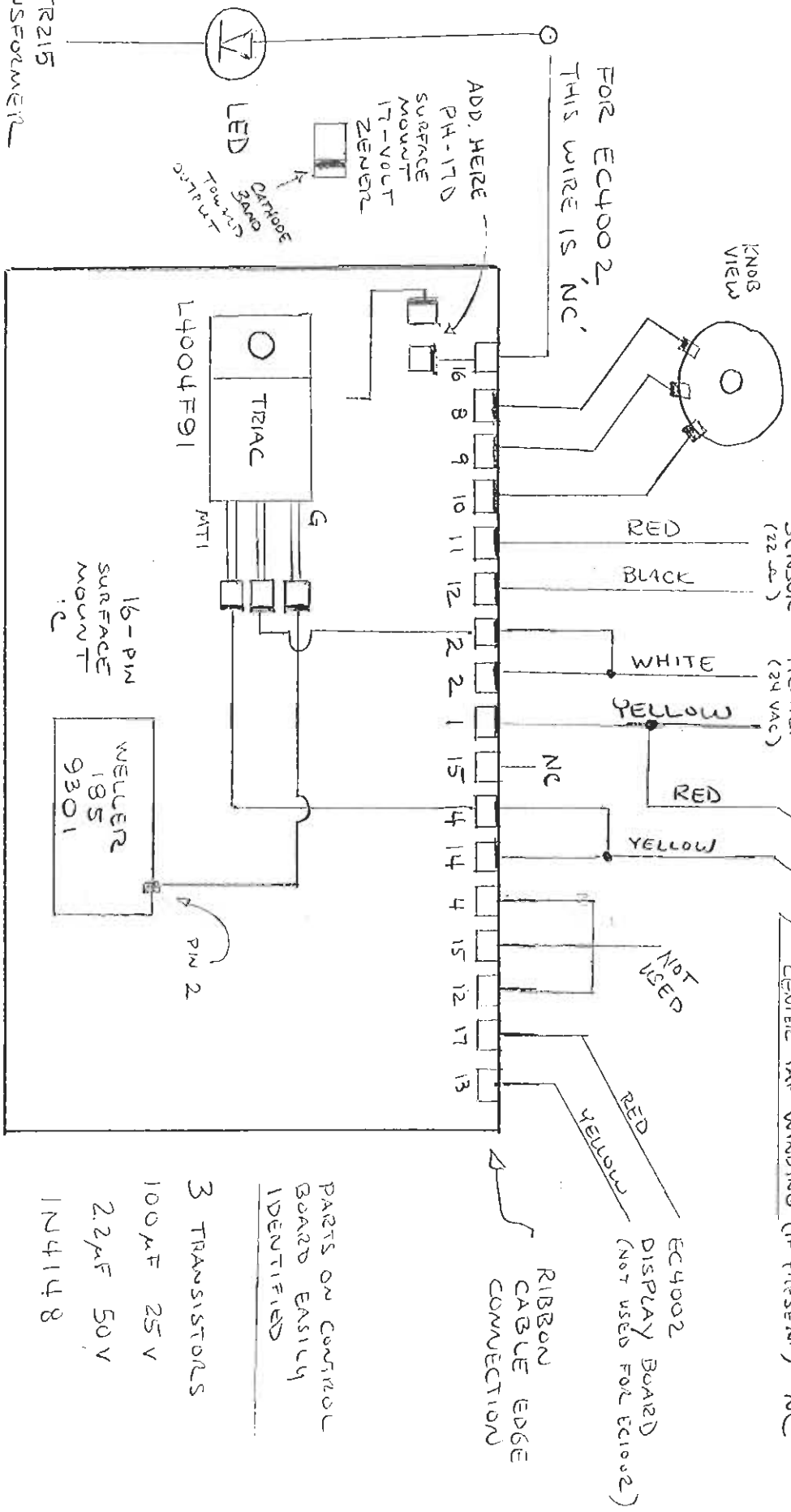
EC242 control board
REPLACES EC235

TEMPERATURE
ADJUSTMENT
KNOB

BASE UNIT
CONNECTOR

TR215 TRANSFORMER

CENTRAL TAP WINDING (IF PRESENT) - NC



TO ADAPT BOARD FOR
EC1001 and early
EC1002 STATIONS
+ ADD ZENER
+ ATTACH LED (as shown)
TO UNUSED RIBBON WIRE

EC242 REPLACEMENT CONTROL BOARD
FOR WELDER EC4002 (D)
POWER UNITS.

- PARTS ON CONTROL BOARD EASILY IDENTIFIED
- 3 TRANSISTORS
 - 100µF 25V
 - 2.2µF 50V
 - 1N4148