SERVICE BULLETIN

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Concerning 4500 and 6000 Series English Mark Dart Games

February 3, 1987

WARNING--DISCONNECT ELECTRICAL POWER BEFORE ATTEMPTING SERVICE

Due to an error in printed board circuit layout, there is a
problem which may cause short life with the **SC146D** triac in both
the 4500 and 6000 series game. The error causes the current to
drive the lamp to be supplied from the gate of the triac instead
of the normal terminals. Due to the fact that the device is
considerably oversized, in normal operation (with the 4500) the
gate would handle the current even though the device was electri-
cally mounted on the printed circuit board upside down. The
failures were caused when the bulb burns out with the filament
falling across itself shorting and drawing a much higher current.
If the device had been on the board correctly, the 120 amp surge
capability of the triac would have most often saved the device
from failing.

What to do:

The fix for the 4500 and 6000 is basically the same.

1. Unplug the game from the wall outlet1
2. Remove the power supply from the game.
3. Turning the power supply over, locate the small printed
    circuit board under the chassis.
4. Remove the board from the chassis by unscrewing three
    mounting screws.
5. The triac is held to the board with one screw and nut.
    Remove screw and carefully unsolder the triac from PC
    board.
6. Reinstall the triac in the same location but on the
    opposite side of the board. You must use an insulator
    (fig. 1) since the metal tab of the triac is now being
    mounted on the foil side of the board. Resolder triac
    and reinsert screw and nut.
7. Reinstall PC board into **chasis** with three screws being
    very careful not to pinch any wires as you are tightening
    them.
8. Place power supply back into cabinet, attach plugs from
    wire harnesses, fasten down with screws, and plug into
    wall outlet.

Fig. 2 and 3 show before and after for the printed circuit board for the 4500: fig. 4 and 5 show the 6000.

Remember, you are working with 120 volts AC circuitry. If there are any questions, please call before attempting this modification. This modification should only be attempted by qualified technicians.

ARACHNID, INC.
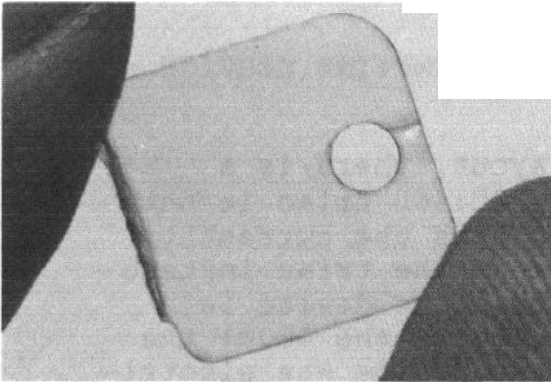
Gene Harlan
Chief Engineer

Fig. 1, Mica Insulator

Fig. 2, 4500 Series Before Modification
   Top Side of Board
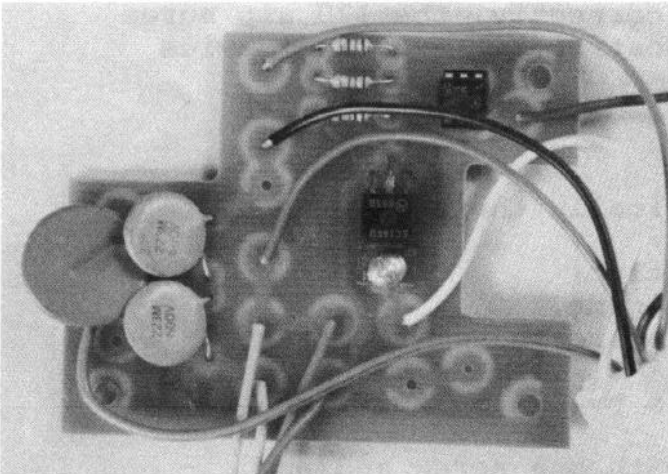
Fig. 3, 4500 Series After Modification
   Bottom Side of Board

Fig. 4, 6000 Series Before Modification
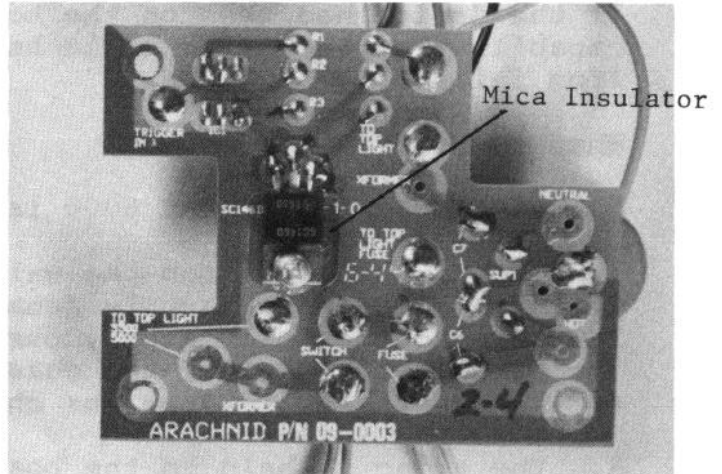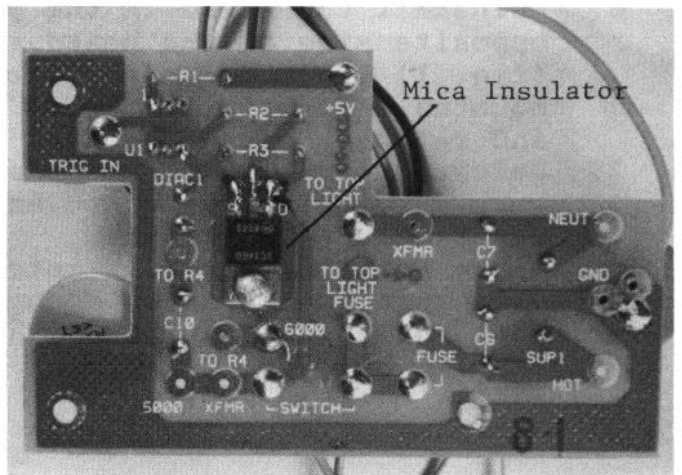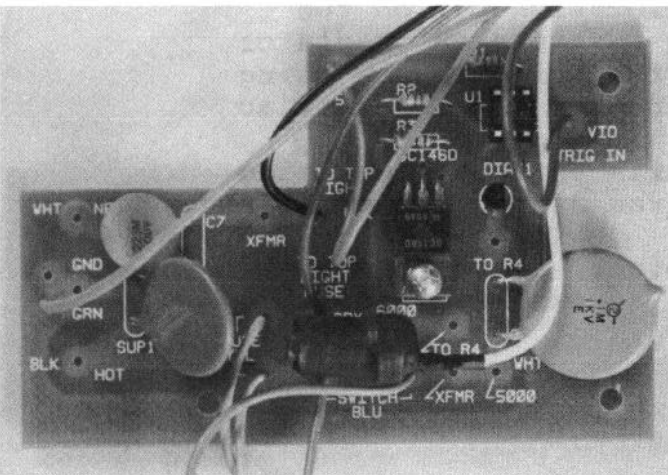   Top Side of Board

Fig. 5, 6000 Series After Modification
   Bottom Side of Board

SERVICE INFORMATION

CONCERNING THE 6000 SERIES GAME

3-26-87

To update the 6000 series game to use the shorter 5 1/2" T-10 40 watt lamps instead of the 11 1/2" T-8 40 watt lamps, you will need to do the following:

WARNING: UNPLUG THE GAME FROM THE WALL OUTLET BEFORE SERVICING!!!

1. Move the (2) lamp sockets located on the sides down to the lower end of the shadow box. The crimp-on connectors will have to be removed by cutting as close as possible to the connector located inside the back of the game. Wire nuts will be used to refasten these wires. The socket will bc pointing up instead of down. The screw for the socket should be located about one inch up from the lower edge. A new hole will have to be drilled into the back panel for the wires. This can be done from the back of the game (plan ahead to get the holes in the right spot). The Arachnid part number on this lamp is 11-0007.

2. Aluminum reflective foil with adhesive back (commonly available from an automotive supply store) <u>MUST</u> be installed between the lamp and the wood shadow box for two reasons:

> A: HEAT - The tape spreads the heat and protects the wood.

> B: LIGHT - It reflects the light giving twice the illumination on the target as compared to the long bulbs without the foil.

The foil that WC arc using is 2 5/8" x 9" and is bent into an "L" (the long direction) before inserting in the shadow box. The part number from Arachnid for the foil is 13-0069.

Although the short bulbs can be installed without moving the sockets down, the aluminum tape <u>MUST</u> bc used due to the increased heat of the shorter bulb. Moving the sockets down helps to distribute the light more evenly.

If there are any questions concerning this update, please call l-800-435-8319 (in Illinois l-815-654-0212).

Gene Harlan

Chief Engineer
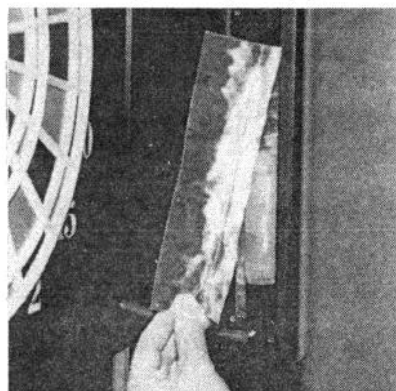
Aluminum being inserted

6000 lamp

Arachnid INC
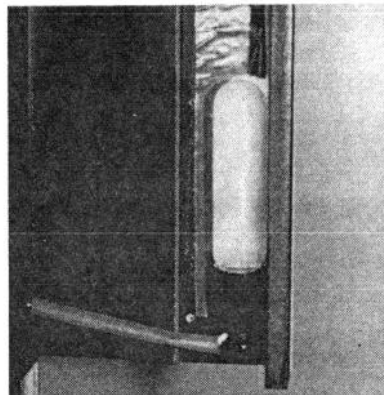
The Originator of Electronic Darts

SERVICE BULLETIN

SERVICE BULLETIN

Concerning 6000 Series English **Mark** Dart Gases

June 6, 1988

WARNING--DISCONNECT ELECTRICAL POWER BEFORE **ATTEMPTING** SERVICE

A problem has arisen concerning the location rhere the target inter-face board ribbon cable connects into the **main** P.C.board on the 6000 and Super 6 Plus games. Apparently, the trace that runs the control-ling voltage for the target **lamps** is located directly beneath the area where this ribbon cable **is** plugged in. There is a thin coating of insulating film covering this trace, but after a period of **time** this coating can rear off, leaving the copper trace exposed. Due to the construction of the Target Interface ribbon cable, vhen the coating is no longer present, the rav edges of the ribbon say make contact vith this copper trace, **vhich** can cause target **lamp flickering,** sinulate a stuck segment, or simulate a throvn dart. A stuck segment simulation locks up the **game** if the ribbon sakes constant contact, but **many times** the ribbon **vill** short momentarily when a vibration occurs to the P.C. board, such as vhen throving a dart or touching the Select or Player Change buttons. This type of short say result In the game shoving an extra dart throvn In a round, or the gase nay reset during play.

What to do:

1. Turn off gane, and unplug fros wall outlet!
2. Disconnect the ribbon cable **coming** from the T.I.board to the main **P.C.board.(see** fig.11
3. Locate the trace that runs **belov** the ribbon **connector.(see** fig.11
4. Using a piece of electrical tape, cover the trace completely at the connector location, and fold tape down over the P.C. board edge (to keep connector from catching on tape).
5. Re-insert the ribbon cable into the header on the main P.C.board.
6. Plug game into the **vall,** and turn it on.
7. When servicing the game in the future, periodically check the placement of the tape, to be sure it has not shifted.

FIG.1
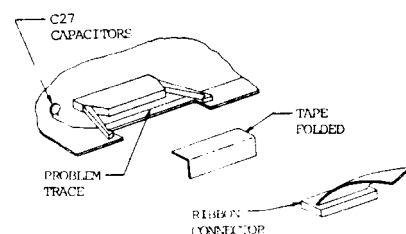
If there are any questions regarding this or any other service problem, please call ARACHNID, INC. at 800-435-8319 (in Illinois; 815-654-0212).

ARACHNID.. **INC.**

Connie **Reece**
Design Engineering Tech.

5.4 TARGET INTERFACE BOARD

The new switch matrix design requires a new target interface P.C. board. The target interface board reads the 19 conductors from the switch matrix and transfers it to the main board. For troubleshooting purposes it is important to know which pins on the target interface board will give a particular score. Thii information is listed in Table 1 and shown in Figure 12. With the game in Test mode (at the end of test when darthead is sensitive) or in game mode, pairs of pins can be shorted and opened with a jumper to simulate a dart hit (see Figure 11). This procedure can help determine whether a scoring problem is in the switch matrix or the game electronics.

NOTE: THE SCORE WILL NOT REGISTER UNTIL THE JUMPER WIRE IS REMOVED FROM ONE OF THE PINS.

If a game has a stuck segment, it can be opened electrically by disconnecting the 19 pin ribbon. The stuck segment's score will then register, and the darthead can be checked for the cause of the problem. Another method of opening the switch is to disconnect the ribbon cable from the Main P.C. board.
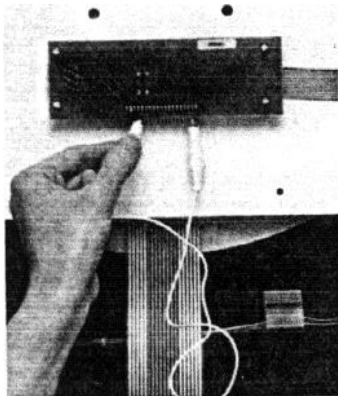
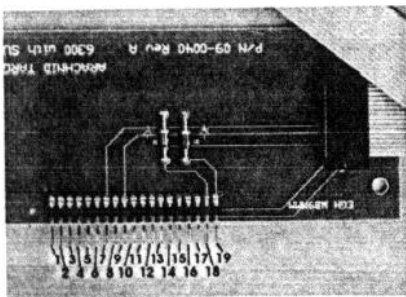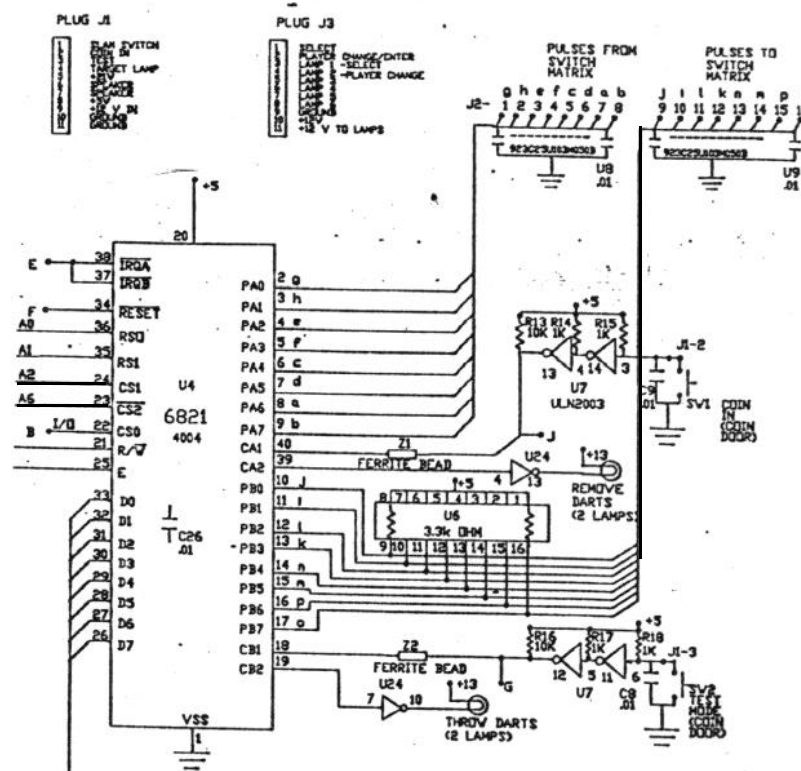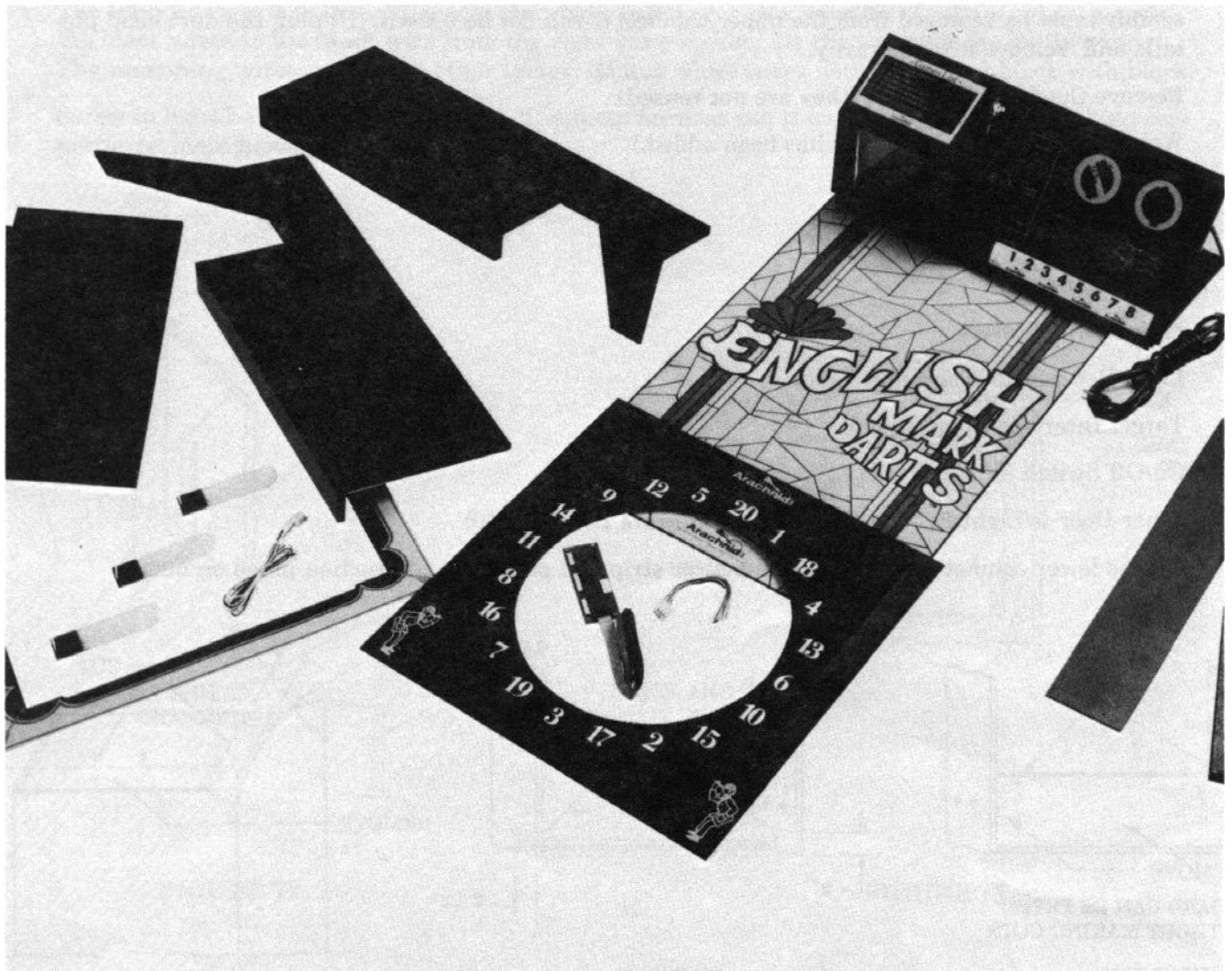### SWITCH MATRIX TEST CHART

IS = INNER SINGLE
OS = OUTER SINGLE
D = DOUBLE
T = TRIPLE
IB = INNER BULL
OB = OUTER BULL

To test, remove the switch matrix lead from JP8. Short two pins together and release. The LED should flash and the game should score as if the segment was hit.

	d	f	c	f	e	g	h	9
JP8 PIN #	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**
a 1	D11	OS11	T11	IS11	D10	OS10	T10	IS10
b 2	D8	OS8	T8	IS8	D15	OS15	T15	IS15
j 3	D16	OS16	T16	IS16	D2	OS2	T2	IS2
i 4	D7	OS7	T7	IS7	D17	OS17	T17	IS17
L 5	D19	OS19	T19	IS19	D3	OS3	T3	IS3
a-b 14	XXX	XXX	OB25	IB50	XXX	XXX	XXX	XXX
k 15	D14	OS14	T14	IS14	D13	OS13	T13	IS13
n 16	D9	OS9	T9	IS9	D4	OS4	T4	IS4
m 17		D12	T12	IS12	D18	OS18	T18	IS18
p 18		D5	OS5	T5	IS5	D6	OS6	IS6
o 19		D20	OS20	T20	IS20	D1	O S 1	T1	IS1

Table 1 .

Figure 11

Figure 12

SUPER 6 PLUS II KIT

This kit is designed to update a 4500 or 5000 Series English Mark Dart Game to a 6300 Series (Super 6 Plus II). It will add the monitor and light shadow box to your game. The appearance of your game, after the kit is installed, is similar to our 6000 to 6300 Series.

Tools required:

Hammer, Phillips and Straight Blade Screw Driver, 5/16, 1/4 & 3/32 Drill Bits, Wire Stripper, Solder Wick, Pry Bar, Adjustable Wrench, Saber (Jig) Saw, Soldering Iron, Channel Lock Pliers, Electric Drill, Wire Cutters, Solder.

STEP #1: SEPARATE THE UPPER CABINET AND THE LOWER CABINET, AND STRIP OUT THE OLD COMPONENTS.

Remove the four (2 each side) carriage bolts that connect the upper cabinet to the lower cabinet. Disconnect the coin door harness before disassembly. Remove the upper cabinet. The top light assembly must be removed from the upper cabinet; it will not be reused. Unplug the dart head pigtails and remove it temporarily.

Remove the following items (they are not reused):

Web - (if an Arachnid Web Kit has been added.)

Plexiglass Front Panel

Power Supply

Main PC Board

Main Wire Harness

Light Receptacle (Top Light Plug)

Target Interface Board (4500)

On/Off Switch (5000)

Inner Door w/Light PC Board & Target Interface Board (5000)

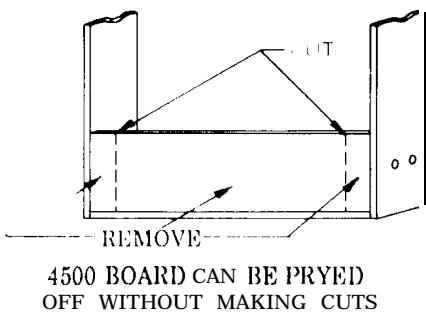On the lower cabinet remove the Competitor strip and plexiglass instruction panel on 5000.
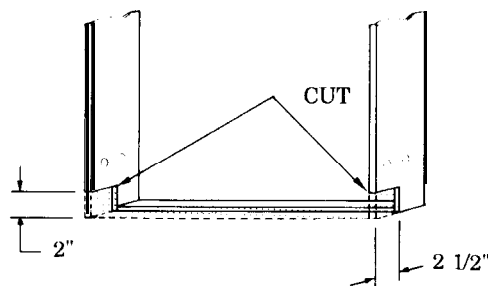

FIGURE 1
FRONT VIEW

4500 BOARD CAN BE PRYED OFF WITHOUT MAKING CUTS
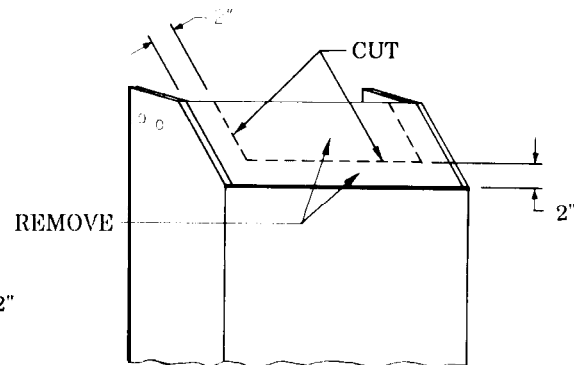
FIGURE 2
FRONT VIEW

FIGURE 3

STEP #2: CABINET MODIFICATIONS

(See Figure 1) Cut and remove the remaining lower front support panel from the upper cabinet.

(See Figure 2) Cut away a portion of the upper cabinet bottom.

(See Figure 3) Cut and remove the lower cabinet as shown and remove the support block underneath it.

Using the hammer and pry bar, clean out the remaining 2" of the instruction panel. Be careful not to damage the rest of the cabinet.

(See Figure 4) Pry off the side support blocks as shown in Figure 4. There is one block on each side. The front channel must have the glue and staples removed. It is a good idea to cut the staples flush on the inside. Trying to pull out staples may damage the appearance of the cabinet.
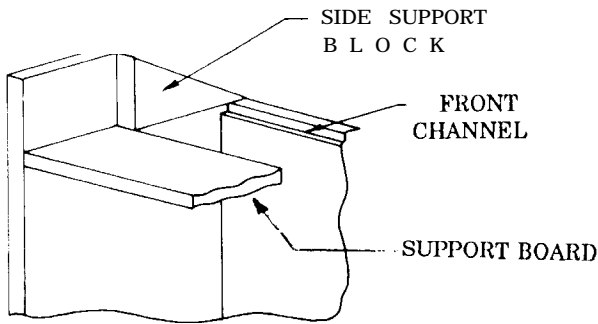
SIDE SUPPORT
B L O C K

FRONT
CHANNEL

SUPPORT BOARD

FIGURE 4

(6) 1/4"--20x2" CARRIAGE BOLT

(6) 1/4"--20 FLANGE NUT

CABINET

SIDE
PANEL

DRILL
5/16 DIA

BRACKET
BOTH SIDES

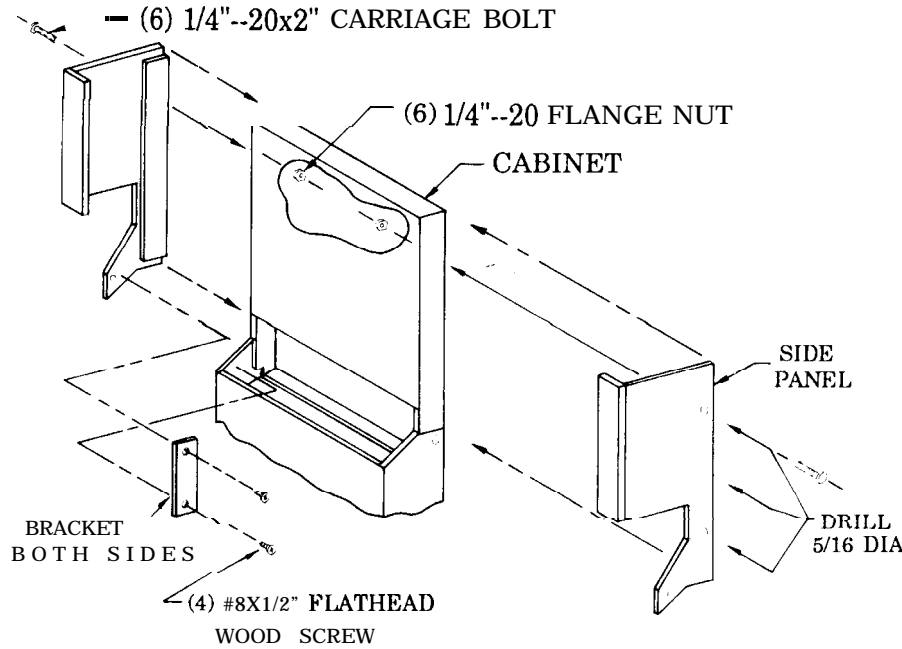(4) #8X1/2" FLATHEAD
WOOD SCREW

FIGURE 5

STEP #3: CABINET ASSEMBLY

Reassemble upper cabinet on lower cabinet (See Figure 5.) Using a side panel as a template, drill the side of the upper cabinet. Fasten the side panel to the upper cabinet. Fasten bracket to the lower cabinet and the new side panel approximately 5" from the front. Repeat procedure for the other side.

(See Figure 6) The tray support rests on the front panel of the lower cabinet (See Figure 7). Holding the tray support in place and flush with the front, drill (2) 3/32" pilot holes into the side of tray support using the counter sunk hole as a template. Drive (2) screws to attach pieces together. We recommend driving screws by hand to avoid splitting boards.
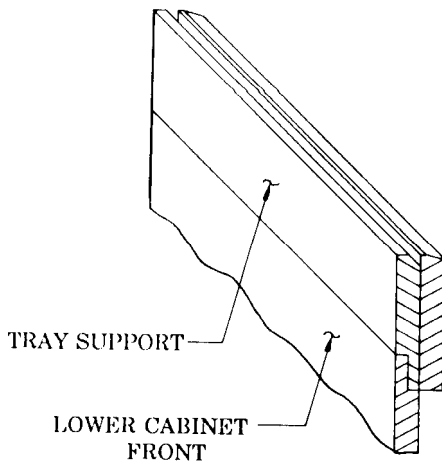
TRAY SUPPORT

LOWER CABINET
FRONT

FIGURE 6

TRAY SUPPORT

SIDE PANEL

DRILL

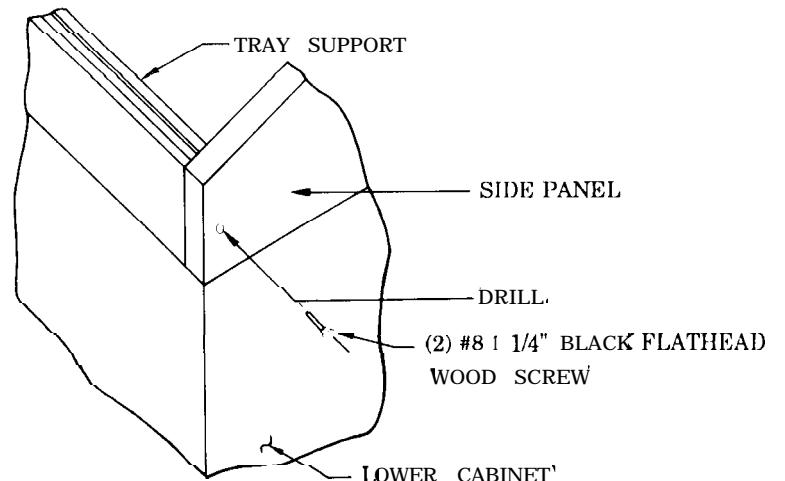(2) #8 1 1/4" BLACK FLATHEAD
WOOD SCREW

LOWER CABINET

FIGURE 7

(See Figure 8) Mount the front plastic panel as shown.

(See Figure 9) Slide the component tray in place above tray support. The coin door plug must go underneath the component tray to attach to the coin door. With the tray positioned flush in the front and without a gap on the sides, open tray and drill thru the three 5/16 dia. holes into the support board (See Figure 4). Use the hole behind the monitor and the two holes closest to the power supply (See Figure 10). Place the bolts thru the holes, using flange nuts thighten down the tray.
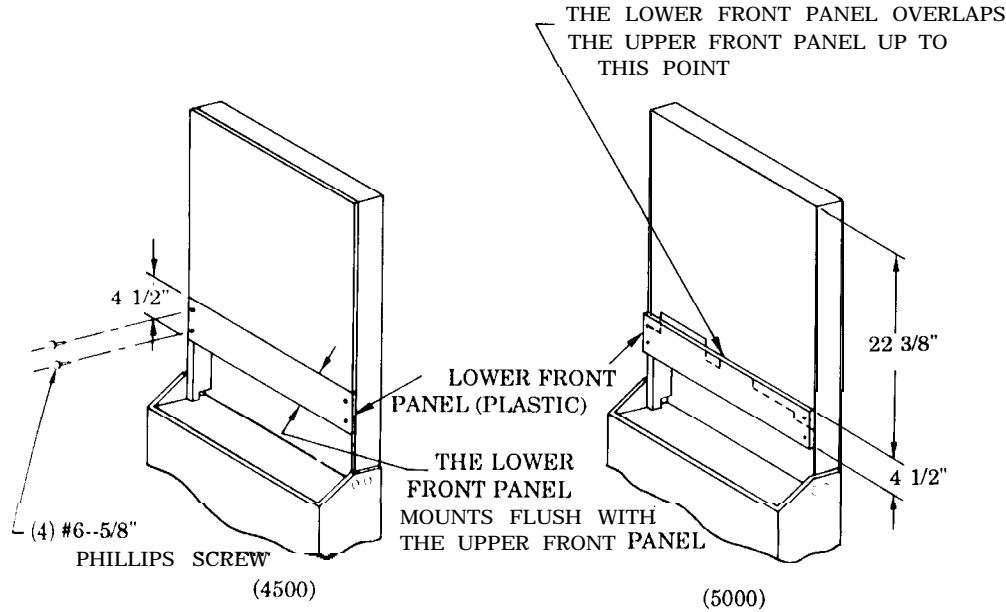
THE LOWER FRONT PANEL OVERLAPS
THE UPPER FRONT PANEL UP TO
THIS POINT

4 1/2"

22 3/8"

4 1/2"

LOWER FRONT
PANEL (PLASTIC)

THE LOWER
FRONT PANEL
MOUNTS FLUSH WITH
THE UPPER FRONT PANEL

(4) #6--5/8"
PHILLIPS SCREW

(4500)

(5000)

FIGURE 8

COMPONENT TRAY
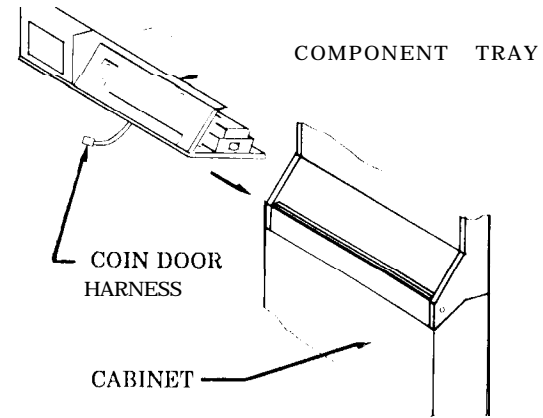
COIN DOOR
HARNESS

CABINET

FIGURE 9

(See Figure 11) Place top panel on cabinet, hold the front flush and drill holes. Fasten top panel to upper cabinet. Due to inconsistencies in cabinets, it may be necessary to shim the height of the top panel. Apply front shadow box decal.
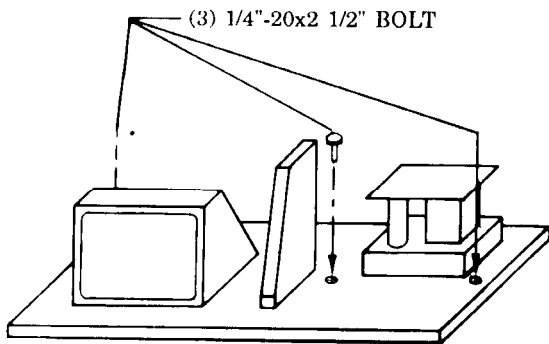
(3) 1/4"-20x2 1/2" BOLT

(2) 1/4" 20X2" CARRIAGE BOLT

DRILL
5/16 DIA.

TOP PANEL

(2) 1/4"--20 FLANGE NUT
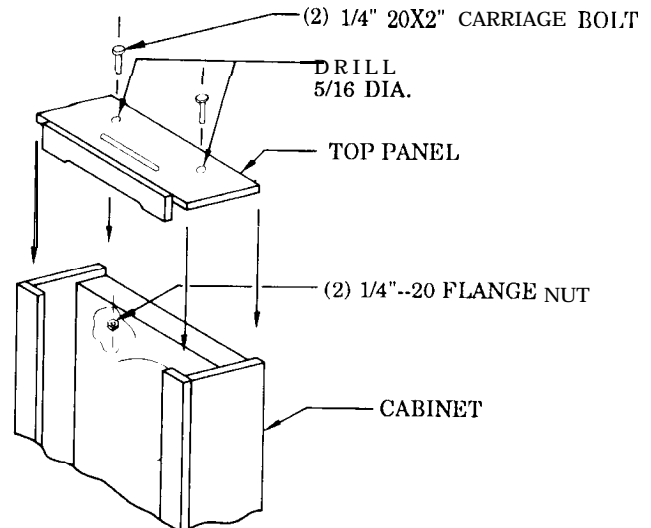
CABINET

FIGURE 10

FIGURE 11

STEP #4: LIGHT ASSEMBLY

(See Figure 12) Remove backing on foil and place it above pilot holes in cabinet. Be careful not to cover lamp shield channels or the vent slot in the top panel, then screw down lamp socket. Repeat procedure for the other lamp assemblies.

(See Figure 13) Drill (3) 1/4" holes as close to the sides as possible and in the approximate location of the lamp sockets. Run the black and white wire from the socket through the black tube then through the 1/4" drilled holes to the back of the cabinet.

The enclosed wire splices are used by placing stripped wires in and crushing with channel lock pliers.

The lamp harness has three stripped wires held together with a wire tie. Using a splice, attach the black wires to the black wire from the right lamp socket. Do the same for the white wires. The remaining wires are for the other lamps. Match white wires with white and black with black

Screw in light bulbs and put shield on. The lamp harness can then be plugged into matching connector on main harness.
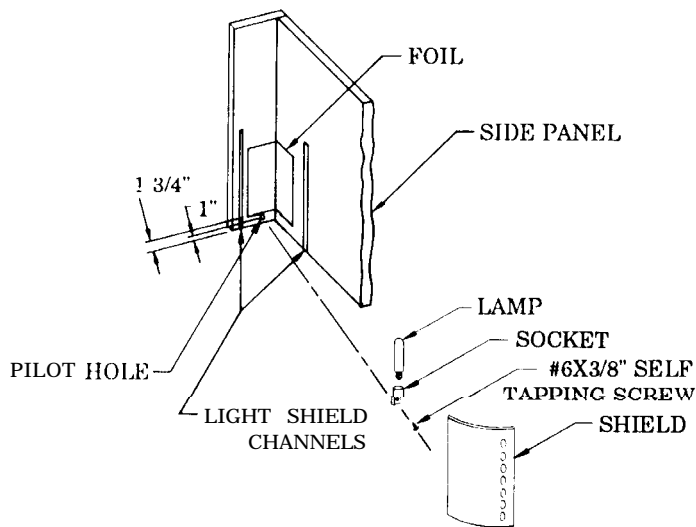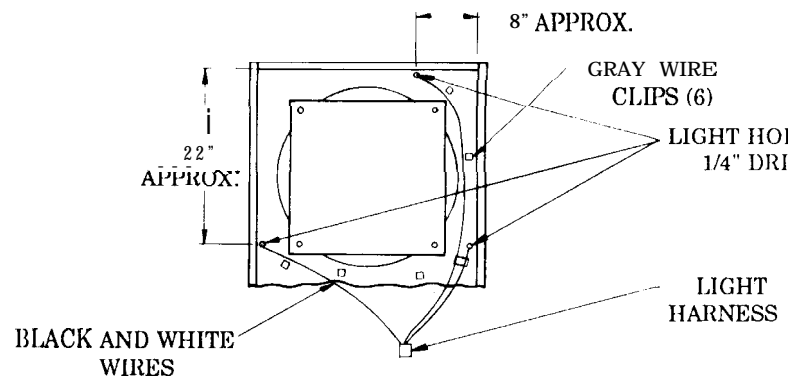

FIGURE 12

FIGURE 13

STEP #5: WEB & DART ASSEMBLY

NOTE: DO NOT attach threaded rod before web is put in place.

Put the web in place and add the threaded rod from behind. Thread nut onto threaded rod to hold web in place.

The Dart Head must be rotated 90 degrees. This will make the 11 become the 20. (See Figure 14) The 20 has red single segments, so to conform with the standard segment colors, take the Dart Head apart and rotate the segments one position. Do not rotate the switch matrix.

(Figure 15) Reassemble Dart Head and mount in game with the pigtails facing down. Using piece cut out of upper cabinet in figure 2 and supplied "L" brackets mount support behind plastic front panel, Plug pigtails into the Target Interface Board, install standoffs, and position board in the area shown. Be careful to find a position that puts minimum strain on the pigtails. Peel backing off the standoffs and attach below the Dart Head. (Figure 15) Optional speaker location may be used on 5000's without modification, on the 4500's drill ten 5/16 dia. holes within a 3" dia. circle to allow sound to come forward.

(Figure 16) The notch in the back door must be on the left side, looking from the rear of the game. To accomplish this, the back door must be reversed. Cut the 1/4" brace off flush with the bottom. Add the new brace to the opposite side. The lock and speaker must also be moved to the other side of the door. The newer 4500 series will not have the speaker on the door; leave it where it is. Attach FCC label where shown in Figure 16. Connect the lamps, Target Interface Board, and speaker to main harness and P.C. Board; close the cabinet back.

STEP #6: MODIFYING THE COIN DOOR
See the instructions on Coin Door Update.

ROTATE ALL SEGMENTS ONE POSITION

BLACK SEGMENTS

RED SEGMENTS

FIGURE 14

OPTIONAL SPEAKER LOCATION

DART HEAD

(8) #8 x 1/2 FLAT HEAD WOOD SCREW

BOARD CUT OUT IN FIG

(2) L BRACKETS

TARGET INTERFACE BOARD

FIGURE 15

RELOCATE LOCK, SPEAKER, AND NEW BRACE ON OPPOSITE SIDE

LOCK

SPEARER

ATTACH FCC LABEL HERE

THE NOTCH WILL HAVE TO BE ADDED TO SOME 5000's. IF YOU HAVE TO CUT A SLOT, REVERSING THE DOOR IS NOT NECESSARY.

CUT BRACE
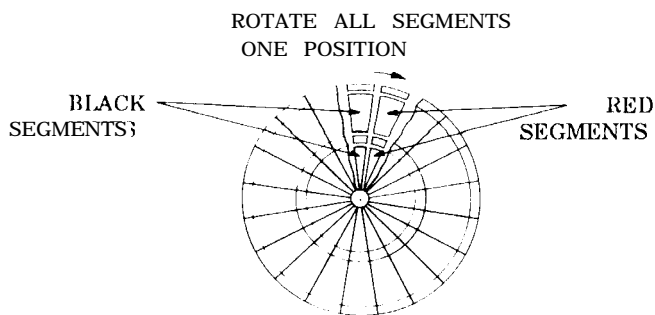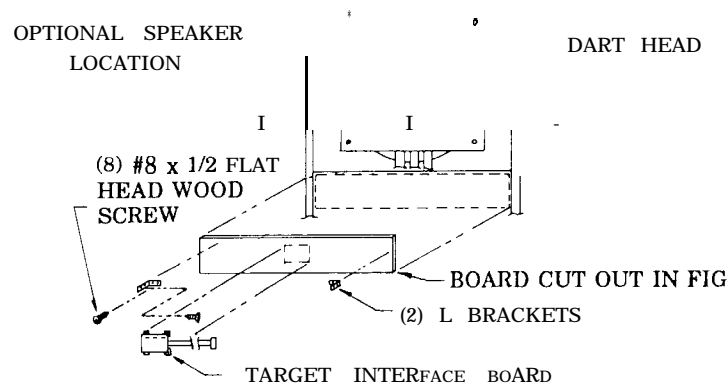
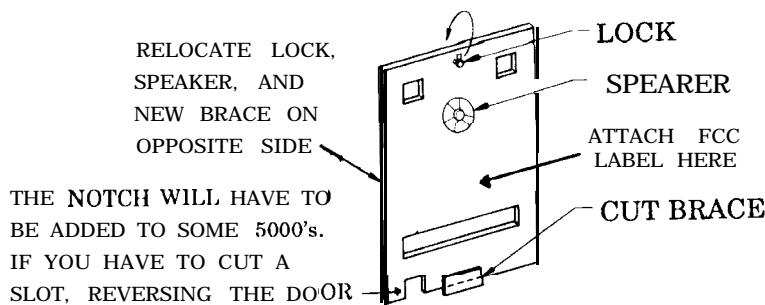**FIGURE 16**

If there are any questions regarding these instruction please call Arachnid, Inc. at l-800-435-8319 (in Illinois 1-815-654-0212).

37-0130 Rev. C

INSTALLATION INSTRUCTIONS FOR DOUBLE BULLSEYE - ALL GAMES

Your Double Bullseye Accessory Kit should contain the following items:

1. Inner Bull (Black)

2. Outer Bull (Red)

3. Decal

(4. New Switch Matrix (Matrix is already installed on new double bull games)

Carefully remove the dart head from your dart game by removing the 4 bolts holding the dart head in the game. Lay the dart head flat on a table, with the white backboard facing you.

HINT: Before removing the eight nuts holding the dart head together, place a piece of tape on the heads of the screws (segment side of dart head) to hold them in place after nuts are removed.

Refer to your game parts manual for illustrations on how this disassembly process is done.

Disassemble and reassemble dart head as follows:

a) Remove the 8 nuts holding the target back to the spider.

b) Remove the switch matrix.

c) Remove white molded matrix cushion (older dart heads use a clear vinyl gasket and a red rubber damper)

d) Check for dirt and broken tips between spider and cups. Install new double bullseye.

e) Clean and reinstall matrix cushion. The smooth side of the cushion comes in contact with the segments.

IMPORTANT

THERE SHOULD BE A SMALL U SHAPE CUTOUT ON THIS CUSHION. POSITION IT TO THE LEFT OF THE CENTER LOCATION HOLE AT THE "20" SEGMENT ON THE SPIDER (BEHIND THE "DOUBLE 1" SEGMENT).

f) If your kit includes a new Switch Matrix, install it with the tails on the left and the 9 pin connector on top. Store the old Matrix in a safe place. If your kit does not contain a new Matrix, simply reinstall the old one in the same manner.

g) Clean and reinstall target back and 8 nuts, tighten only finger tight.

NOTE

BOLTS MUST BE FINGER TIGHT ONLY. ANY TIGHTER COULD CLOSE CONTACTS IN THE MATRIX AND CAUSE INACCURATE SCORING OR NO SCORING AT ALL.

NOTE

IT IS IMPORTANT TO KEEP DIRT OUT OF THE AREA BETWEEN THE SPIDER AND SEGMENTS AS THIS CAN CAUSE NON-SCORING OR IMPROPER SCORING. ON A HEAVILY PLAY-EDGE GAME IT IS A GOOD IDEA TO DO PREVENTIVE MAINTENANCE ON A REGULAR BASIS IN THE FORM OF DISASSEMBLING THE DART HEAD, CLEANING AND REASSEMBLING. THIS CAN HELP PREVENT SERVICE CALLS IN BETWEEN REGULAR VISITS.

NOTE

ALTHOUGH THE DART HEAD IS DISASSEMBLED AND REASSEMBLED AS IN THE PAST (WITH 4500 AND 5000 SERIES GAMES), WITH NEWER 4850'S, 6000'S AND 7000'S IT IS INSTALLED WITH THE 3 LEADS IN THE DOWNWARD DIRECTION. THIS MEANS THAT THE "20" ON THE YELLOW SPIDER IS NOT AT THE TOP. THE PROGRAM WAS MODIFIED TO REFLECT THIS CHANGE. MAKE SURE THAT IF USING A DART HEAD FROM AN OLDER SERIES GAME THAT THE RED AND BLACK SEGMENTS ARE IN THEIR PROPER ORDER (SINGLE 20 IS RED).

ACTIVATING THE DOUBLE BULL OPTION

(Important--Skip Step A if modifying a 4800 series game. Go on to Step B.)

A. FOR 6000's AND 7000's

On 6000 and 7000 series games, there is a 4 position Dip Switch on the main P.C. Board. Some older 6000 games may not have this switch installed. It should be located just above U20 on your 6000 main P.C. Board (Above U18 on 7000 P.C. boards). Install one if it is not there already. Flipping SW3 of this Dip Switch (see Figure 1) will activate or deactivate the Double Bull. SW3 ON = Double Bull ON; SW3 OFF = Double Bull OFF (Single 50 point Bull is on). See your owners manual for other switch functions.
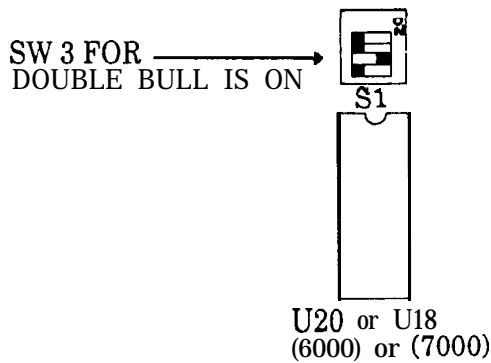

SW 3 FOR DOUBLE BULL IS ON

S1

U20 or U18 (6000) or (7000)

Figure 1
D.I.P. Switch Location on Main P.C. Board, CPS side, 6000 & 7000 Series Games-

SWITCH IN "ON" POSITION

U8   u12
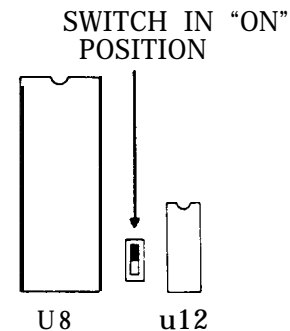
Figure 2
Switch location on P.C. Board, Solder Side, 4800 Series

U8
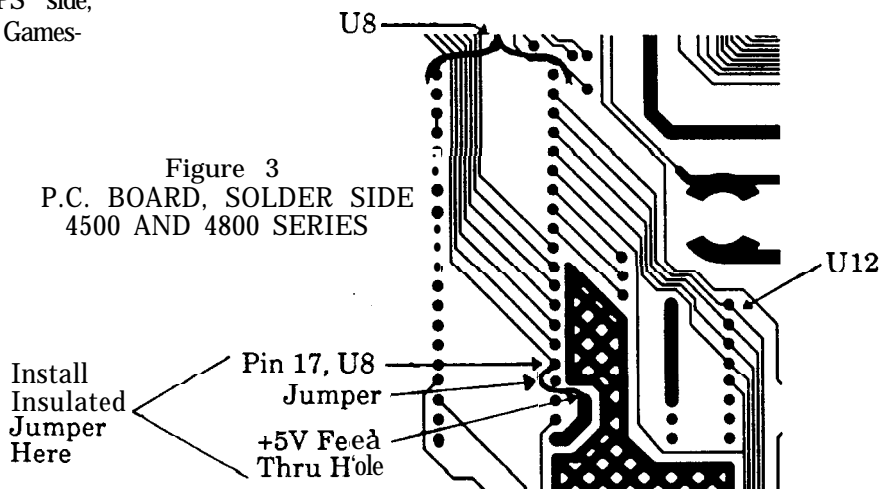
Figure 3
P.C. BOARD, SOLDER SIDE
4500 AND 4800 SERIES

U12

Install Insulated Jumper Here

Pin 17, U8
Jumper
+5V Feed
Thru Hole

Install the long decal strip underneath the Web above the component tray. It is not necessary to remove the old decal. You may skip Step B.

B. For 4800's:

To activate the Double Bull option, run a jumper from pin 17 of U8 to +5V. This can be done as shown in Figure 3. Some newer games (in 4800 Series) may have a switch installed on the P-C. Board. If so it will be located near U8, on the solder side. of the P.C. board. Simply flip it to the "on" or "up" position. Figure 2 illustrates this.

Install the decal strip in a convenient location above the competitor strip on the instruction panel.

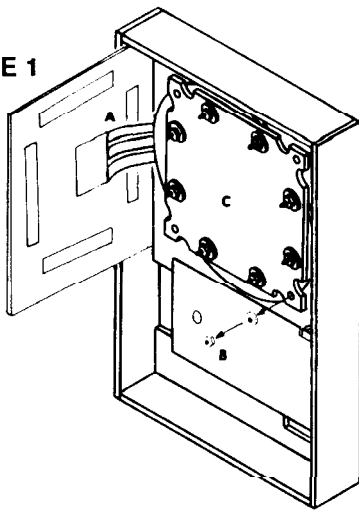If you have any questions, please call Arachnid, Inc. at l-800-435-8319 (In Illinois l-815-654-02 12).

Arachnid
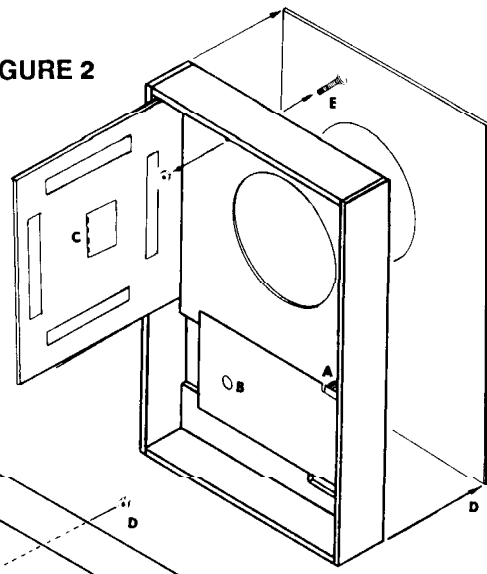The Originator of Electronic Darts

P O Box 2901 ● Rockford. IL 61
(IL) 815/654-0212 . 800/43!
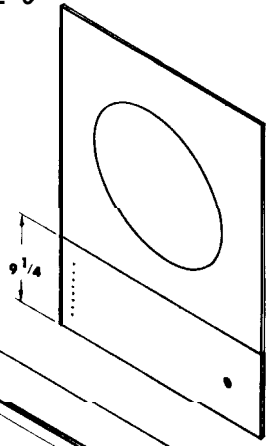
FIGURE 1

FIGURE 2
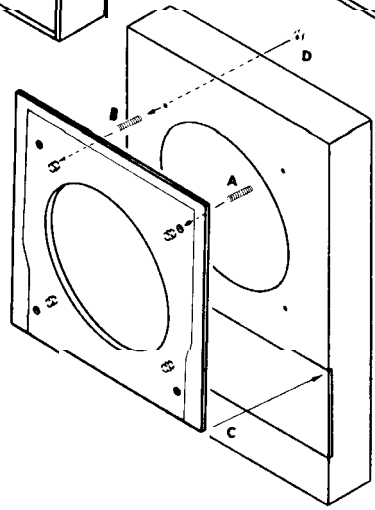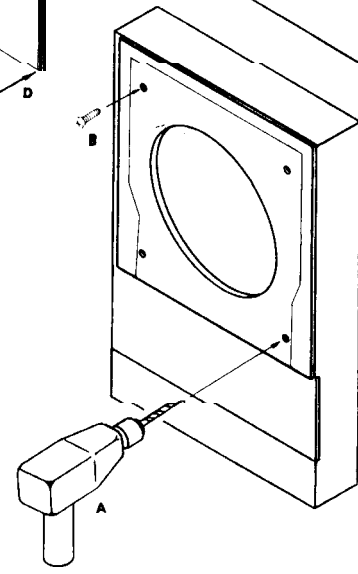
FIGURE 3

FIGURE 4

FIGURE 5

INSTRUCTIONS FOR 5000

STEP 1   TURN THE GAME OFF AND UNPLUG FROM THE WALL OUTLET. UNLOCK AND REMOVE THE BACK DOOR FROM THE TOP CABINET.

STEP 2   (SEE FIGURE 1) FROM THE BACK SIDE OF THE GAME: (A) DISCONNECT THE PIGTAIL RIBBONS FROM THE TARGET INTERFACE BOARD. (B) REMOVE THE NUTS AND WASHERS FROM THE FOUR CORNER BOLTS HOLDING THE DARTHEAD TO THE CABINET. (C) REMOVE THE DARTHEAD.

STEP 3   (SEE FIGURE 2) (A) DISCONNECT YELLOW PLUG TO GAME SWITCHES. (B) DISCONNECT PLAYER CHANGE SWITCH FROM MAIN CIR-CUIT BOARD. (C) REMOVE AND DISPOSE OF RIBBON CABLE BETWEEN LAMP BOARDS AND TARGET INTERFACE BOARD. (D) REMOVE PLEXIGLASS FRONT (IT WILL BE NECESSARY TO REMOVE THE UPPER CABINET FROM LOWER CABINET FIRST). (E) REMOVE REMAINING NUTS AND CARRIGE BOLTS THAT HELD THE DART HEAD TO THE TOP (THESE WILL NOT BE REUSED).

STEP 4   (SEE FIGURE 3) CUT 9 1/4" FROM THE BOTTOM OF THE PLEXIGLASS FRONT. BE CAREFUL NOT TO SCRATCH THE GRAPHICS. REINSTALL THE LOWER PORTION TO THE UPPER CABINET. THE TOP PORTION WILL NOT BE REUSED.

STEP 5   (SEE FIGURE 4) (A) SCREW TWO OF THE FOUR (1/4" X 2 1/4") THREADED RODS INTO THE LEFT SIDE OF THE WEB. (B) THE TWO LONGER (1/4" X 2 3/4") THREADED RODS SCREW INTO THE RIGHT SIDE OF THE WEB. (C) PLACE THE WEB AGAINST THE FRONT OF THE GAME, WITH THE RODS GOING THROUGH TO THE BACK. (D) USE THE 4 NUTS REMOVED IN STEP 3, FIGURE 2, TO SECURE THE WEB TO THE CABINET. IT IS POSSIBLE DUE TO MANUFACTURING TOLERANCES THAT THE 4 HOLES (FOR THE RODS) MIGHT HAVE TO BE ENLARGED TO CENTER THE WEB TO THE DART HEAD HOLE IN THE CABINET. REINSTALL THE DART HEAD USING ORIGINAL HARDWARE. RE-CONNECT THE 3 MATRIX LEADS TO THE TARGET INTERFACE BOARD, THE YELLOW PLUG FOR THE GAME SWITCHES, AND THE PLAYER CHANGE SWITCH.

STEP 6   (SEE FIGURE 5) USING THE 4 HOLES IN THE WEB AS GUIDES, (A) DRILL 4 HOLES (3/32" - .096") THROUGH THE TOP OF THE CABINET FROM THE FRONT. (B) INSTALL THE 4 WOOD SCREWS TO HOLD THE WEB CORNERS TO THE TOP CABINET.

STEP 7   REPLACE THE WING NUTS ON THE LONGER STUDS.REPLACE THE BACK DOOR,

WEB KIT BILL OF MATERIAL

QUANTITY	PART NO.	DESCRIPTION	SIZE	USAGE
1'	00-6000-33	WEB		6000 SERIES
1*	00-4500-33	WEB		4500 & 5000 SERIES
4	14-0082	WOOD SCREWS	#8 X 1 1/4"	ALL
4	14-0081	THREADED ROD	1/4" X 2 1/4"	4500 & 6000 5 0 0 0 USE 2 ONLY
2	14-0083	THREADED ROD	1/4" X 2 3/4"	5000 SERIES
1**	16-0071	DECAL		6000 SERIES
1	38-0038	INSTRUCTIONS		ALL

• ONLY ONE WEB IS SUPPLIED

• * SUPPLIED IN 6000 WEB KITS ONLY

Arachnid INC T.M.

Revision B 38-0008   © 1988 Arachnid, Inc.

FIGURE 1

FIGURE 2

4500

6000

4500

6000
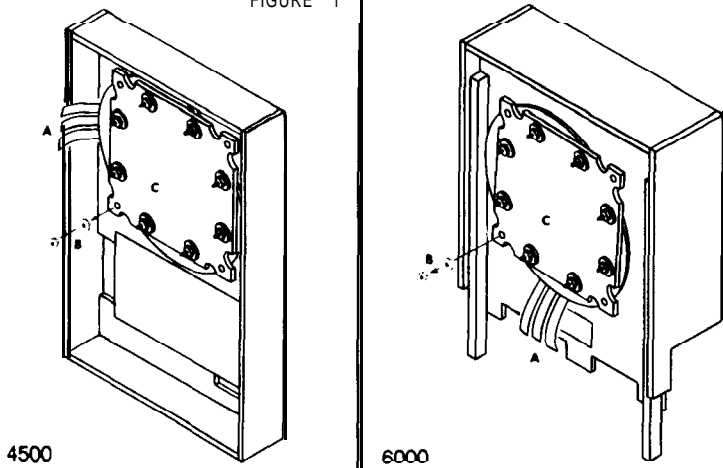
FIGURE
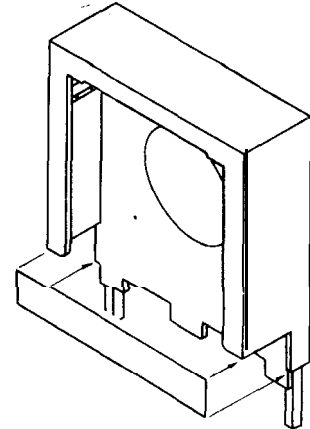
6000
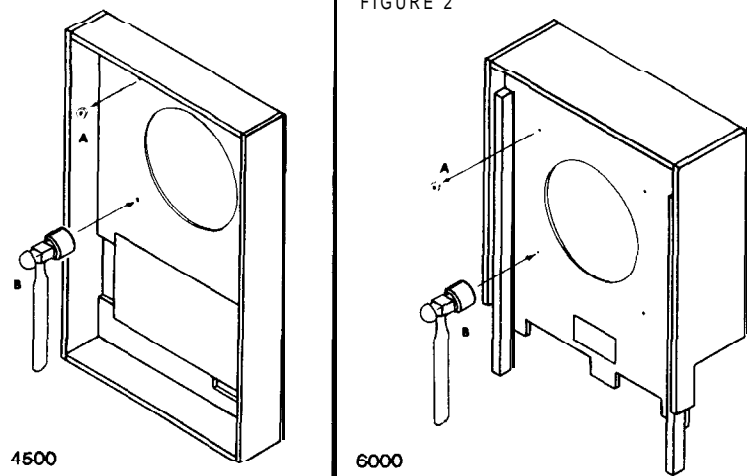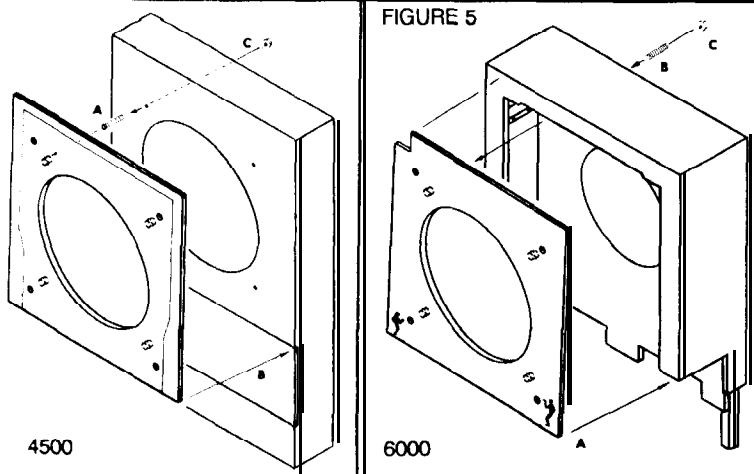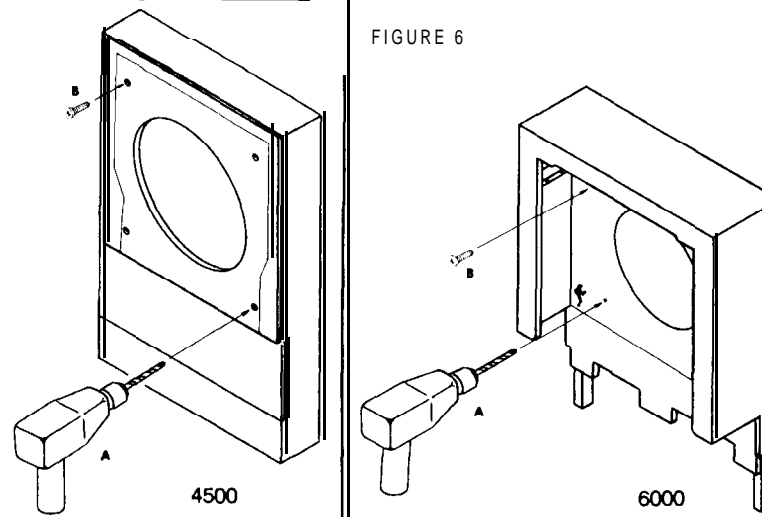
FIGURE 4
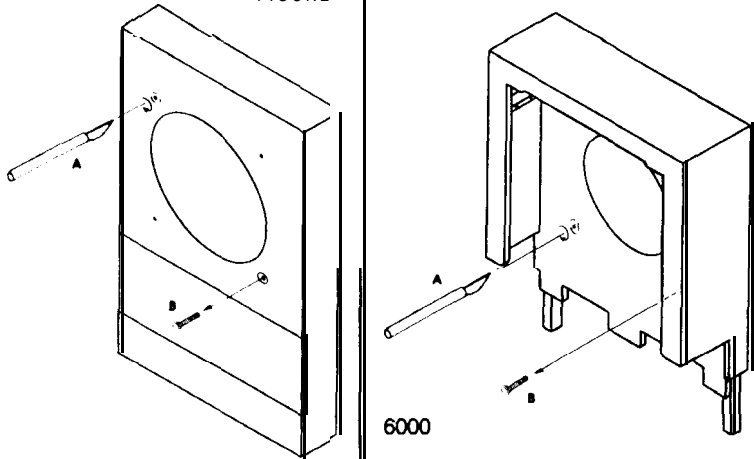
6000

FIGURE 5

4500

6000

FIGURE 6

4500

6000

INSTRUCTIONS FOR 4500 AND 6000

STEP 1   TURN THE GAME OFF AND UNPLUG FROM THE WALL OUTLET. UNLOCK AND REMOVE THE BACK DOOR FROM THE TOP CABINET.

STEP 2   (SEE FIGURE 1) FROM THE BACK SIDE OF THE GAME: (A) DISCONNECT THE PIGTAIL RIBBONS FROM THE TARGET INTERFACE BOARD. (B) REMOVE THE NUTS (WITH NYLON INSERTS) AND WASHER FROM THE FOUR CORNER BOLTS HOLDING THE DARTHEAD TO THE CABINET. (C) REMOVE THE DARTHEAD.

STEP 3   (SEE FIGURE 2) FROM THE BACK SIDE, (A) REMOVE THE REMAINING NUTS FROM THE CORNER BOLTS. (B) TAP THE ENDS OF THOSE CORNER BOLTS UNTIL THE HEADS BULGE UNDER THE DECAL ON THE FRONT. (SEE FIGURE 3) FROM THE FRONT SIDE, (A) CUT AP-PROXIMATELY 3/4" DIA. CIRCLES AROUND THE BOLT HEADS WHERE THEY BULGE. (B) REMOVE THE 4 BOLTS (THESE WILL NOT BE REUSED).

STEP 4   (FOR 6000 GAMES ONLY • SEE FIGURE 4) APPLY THE DECAL TO THE FRONT OF THE TOP CABINET. POSITION IT ALONG THE BOT-TOM, COVERING THE STRIPE AND THE "ARACHNID" NAME ON THE EXISTING DECAL.

STEP 5   (SEE FIGURE 5) (A) SCREW THE FOUR (1/4" X 2 1/4") THREADED RODS INTO THE WEB. (B) PLACE THE WEB AGAINST THE FRONT OF THE GAME, WITH THE RODS GOING THROUGH TO THE BACK (WITH THE 6000, THE WEB MUST BE PLACED AGAINST THE FRONT OF THE GAME BEFORE ATTACHING THE 4 RODS). (C) USE THE 4 NUTS AND WASHERS REMOVED IN STEP 3, FIGURE 2 TO SECURE THE WEB TO THE CABINET. IT IS POSSIBLE DUE TO MANUFACTURING TOLERANCES THAT THE 4 HOLES (FOR RODS) MIGHT HAVE TO BE ENLARGED TO CEN-TER THE WEB TO THE DART HEAD HOLE IN THE CABINET. REINSTALL THE DART HEAD USING ORIGINAL HARDWARE. RE-CONNECT THE 3 MATRIX LEADS TO THE TARGET INTERFACE BOARD.

STEP 6   (SEE FIGURE 6) USING THE 4 HOLES IN THE WEB AS GUIDES, (A) DRILL 4 HOLES (3/32" • .096") THROUGH THE TOP OF THE CABINET FROM THE FRONT. (B) INSTALL THE 4 WOOD SCREWS TO HOLD THE WEB CORNERS TO THE TOP CABINET.

STEP 7   REPLACE THE BACK DOOR.

INSTALLATION INSTRUCTIONS
(SUPER SPIDER DART HEAD ASSEMBLY)
6200 & 6300

GAME MUST BE A 6200 OR 6300 TO UPGRADE TO THE SUPER SPIDER
(MUST CONTAIN THE COIN P.C. BOARD>
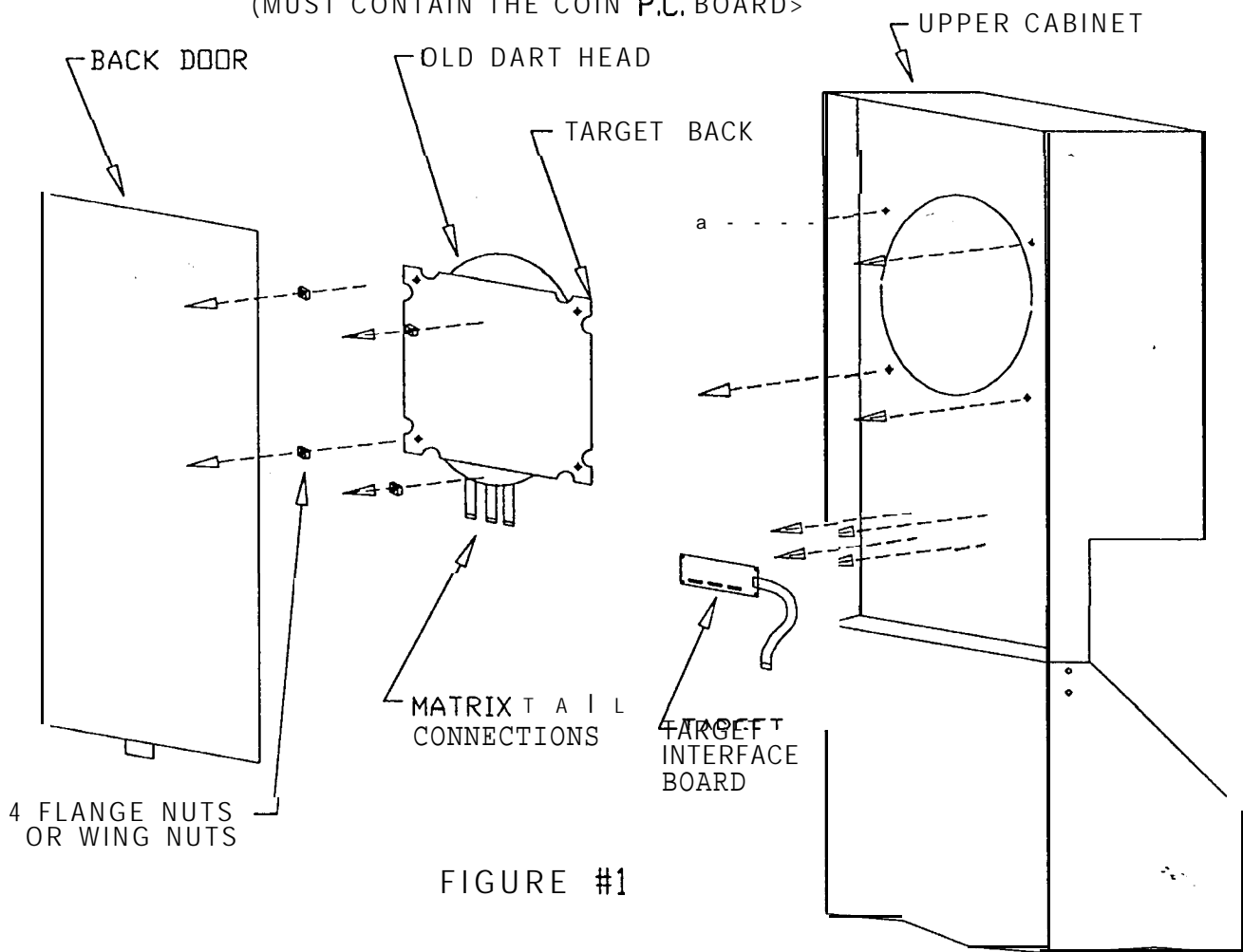
FIGURE #1

1. Turn game off and unplug it.

2. Remove the back door from the upper cabinet.

3, Disconnect the matrix tail connections, Remove the dart head by removing the four corner flange or wing nuts on the target back and firmly pulling the dart head out of the cabinet.

4. Disconnect the Target Interface board ribbon from the main board and remove the Target Interface board,

5, Install the new Target Interface board and Super Spider dart head assembly as shown in figure #2. (continued>

-1-

UPPER CABINET
(BACK VIEW>   MAIN BOARD .
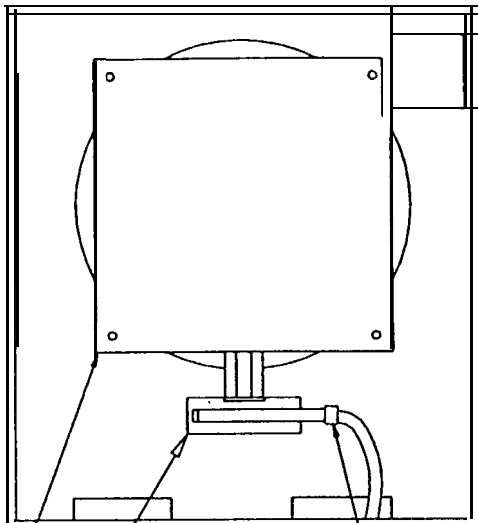
FIGURE #2

- SUPER SPIDER DART
  HEAD ASSEMBLY

                              GRAY CLIP

└─ NEW TARGET
   INTERFACE BOARD
THE NEW TARGET INTERFACE
BOARD MUST BE INSTALLED
SO THAT THE GRAY RIBBON
CONNECTOR IS ON THE LEFT,
AND THE CABLE OVERLAPS
THE P.C. BOARD. SECURE
IT IN PLACE WITH THE
GRAY CLIP PROVIDED.

U6
3.3K RESISTOR NETWORK
REPLACES DIODE NETWORK

U4

REMOVE U5 → U5   U6

U3   U15

U15
EPROM P/N 01-0188
6300T V3.0
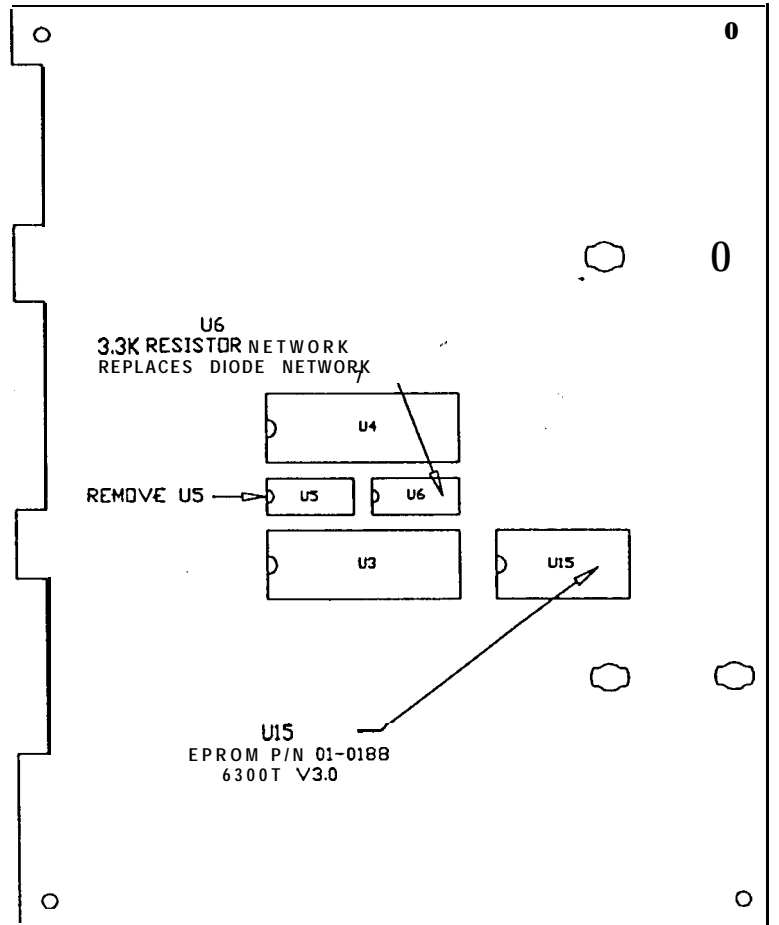
6.   **Take the main board out of the game.**

Remove resistor network U5 **and diode network** U6. **Most boards do not have sockets for these chips so they must be unsoldered, Using a** small **side cutting pliers, cut all the legs of each chip and remove the body, Each individual pin can then be unsoldered and removed,**

Install **the new** 3.3K **resistor network chip** U6.

Remove the original EPROM from U15 **and** install **the new** V3.0 **EPROM at** U15.

Reinstall the main board in the game and check for proper operation and scoring,

SERVICE BULLETIN

Concerning all Series 6000 and 7000 English Mark Dart Games

January 18, 1990

WARNING---DISCONNECT ELECTRICAL POWER BEFORE ATTEMPTING SERVICE

We are recommending that the main fuse FS3 be upgraded from a 1.5 Amp Slow Blow to a 2.0 Amp Slow Blow. Due to slight variances in components, some games draw more current than others. When these games are connected to high line voltage, the current draw gets even higher, close to the rating of the 1.5 Amp fuse. After a period of time, the fuse will blow, even though the rating may not have been exceeded.

Since all of the components in the power supply are rated at a minimum of 2 Amps, no damage will occur as a result of this change. Do not exceed the 2.0 Amp rating, however. If the 2.0 Amp fuse blows, there is a definite problem in the power supply, indicating it needs to be serviced by a qualified technician.

If there are any problems regarding this or any other service problem, please call ARACHNID, INC. at 800-435-83 19 or in Illinois at 8 15-654-02 12.

Arachnid, Inc.

John Farmer
Engineering Technician
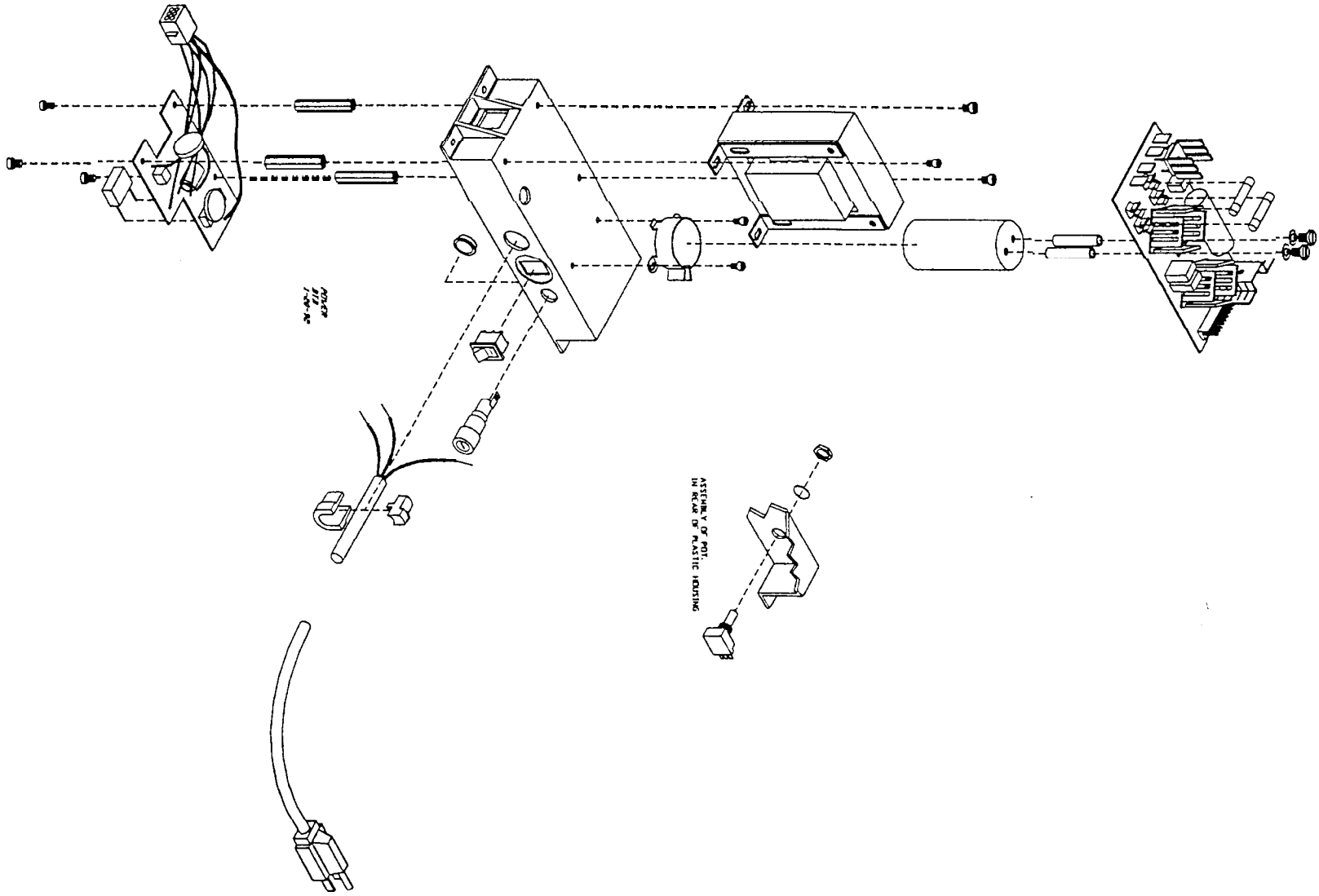
ASSEMBLY OF POT.
IN REAR OF PLASTIC HOUSING

CONNECT BLUE WIRE TO SWITCH (XFMR SIDE) —

CONNECT BLUE VIRE TO SVITCH HOT SIDE, —

US VERSION

CONNECT YELLOV WIRES CPP. SIDE TO FUSE —

CONNECT VHITE VIRE FROM THE XFMR

CONNECT BLACK TO HOT —

SOLDER CAP. TO NEUTAND HOT AS SHOWN —

CONNECT GREEN TO GND —

CONNECT VHITE TO NEUT —

CONNECT VIRE AT 'TO R4' TO TERM. #3 CN POT.

CONNECT THE BLACK VIRE FROM T H E XFMR —

ATTACH GREY WIRE FROM BOTTOM CF 'TO R4' TO CONNECTCR PIN #2 —

CONNECT VIRE AT 'TO R4' TO TERM. #2 CN POT. —
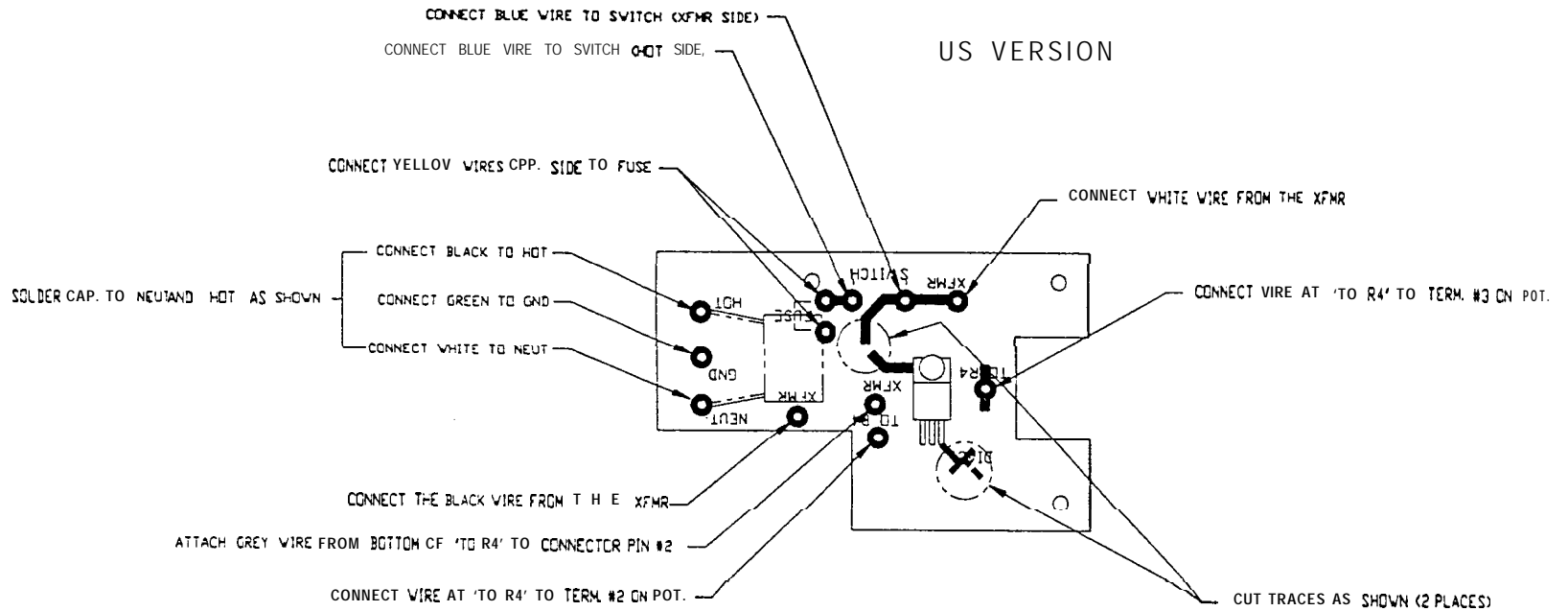
CUT TRACES AS SHOVN (2 PLACES)

CONNECTING POWER CORD LEADS TO PC BOARD;
CONNECT BLACK TO HOT
CONNECT GREEN TO GND
CONNECT VHITE TO NEUT
SOLDER ALL CONNECTICNS IN RACE.
SCLOER CAP. TO NEUT AND MT AS SHOWN

CONNECTING POT. USE GRANGE VIRES FROM SIDE
o f   BOARD OPP. THAT SHOWN ABOVE
CONNECT VIRE AT 'TO R4' NEAR CUT OUT TO TERM. #3 ON PO,.
CONNECT VIRE AT 'TO R4' TO TERM. 12 ON POT.
ATTACH GREY VIRE FROM BOTTCM OF 'TO R4' TO CONNECTOR PIN #2

CONNECTING THE TRANSFORMER TO THE BOARD
CONNECT VHITE VIRE FROM THE XFMR TO CONNECTICN NEAR THE SVITCH CONNECTION
CONNECT BLACK VIRE FROM THE XFMR TO CONNECTION NEAR THE CAP. TAGED ON TN POWER LEAD
CONNECT BLACK VIRE VITH VHITE STRIPE FRON THE XFRM TO THE CONNECTION NEAR THE CONNECTION MARKED 'TO R4'

CONNECTING THE FUSE TO THE BOARD
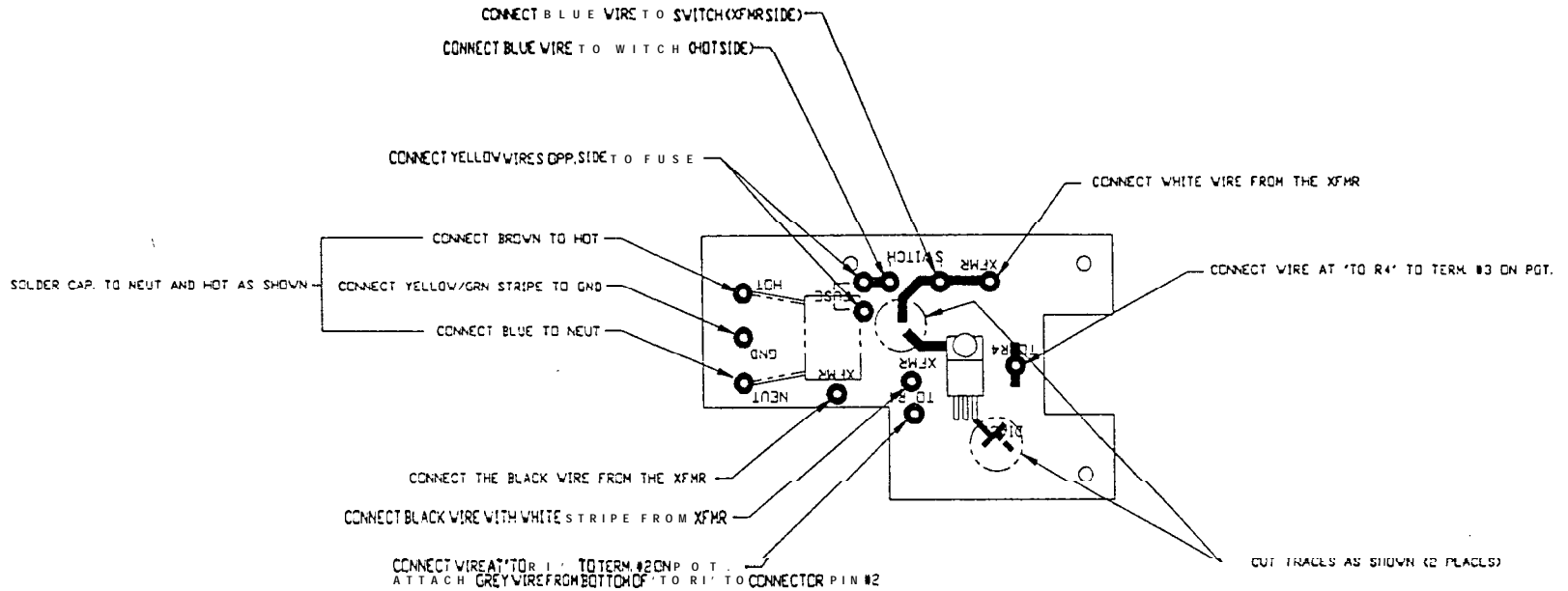CONNECT YELLOV VIRE TO FM CONNECTION ON BOARD AND TOP SIDE CF THE FUSE
CONNECT YELLOV VIRE TO FUSE CONNECTION ON BOARD AND BOTTOM SIDE SIDE OF THE FUSE

CONNECTING THE SVITCH TO THE BOARD
CONNECT BLUE VIRE FROM HOT SIDE OF SVITCH TO THE #2 TERMINAL ON THE SVITCH
CONNECT BLUE VIRE FROM XFMR SIDE TO TERN. #1 ON THE SVITCH

TRIM EXCESS VIRE FROM ALL ABOVE CONNECTIONS VHEN COMPLETED

OVERSEAS VERSION

CONNECT BLUE WIRE TO SWITCH(XFMR SIDE)

CONNECT BLUE WIRE TO WITCH (HOTSIDE)

CONNECT YELLOW WIRES OPP. SIDE TO FUSE

CONNECT WHITE WIRE FROM THE XFMR

CONNECT BROWN TO HOT

SOLDER CAP. TO NEUT AND HOT AS SHOWN

CONNECT YELLOW/GRN STRIPE TO GND

CONNECT BLUE TO NEUT

CONNECT WIRE AT 'TO R4' TO TERM #3 ON POT.

HOT

GND

NEUT

XFMR

SWITCH

TO R4

CONNECT THE BLACK WIRE FROM THE XFMR

CONNECT BLACK WIRE WITH WHITE STRIPE FROM XFMR

CUT TRACES AS SHOWN (2 PLACES)

CONNECT WIRE AT 'TO R I' TO TERM. #2 ON P O T .
ATTACH GREY WIRE FROM BOTTOM OF 'TO RI' TO CONNECTOR PIN #2

CONNECTING POWER CORD LEADS TO P C B O A R D :
CONNECT BROWN T O HOT
CONNECT YELLOW WITH GREEN S T R I P E TO GND
CONNECT BLUE TO NEUT
SOLDER ALL CONNECTIONS IN PLACE.
SOLDER CAP. T O NEUT AND HOT AS SHOWN

CONNECTING P O T. USE ORANGE WIRES F R O M SIDE
a BOARD OPP. THAT SHOWN ABOVE
CONNECT WIRE AT ' T O R4' M A R C U T N T TO TERM. #3 ON POT.
CONNECT WIRE A T ' T O R4' TO TERM. #2 ON POT.
ATTACH GREY WIRE F R M BOTTOM OF ' T O R I ' TO CONNECTOR P I N #2

CONNECTING THE TRANSFORMER T O THE BOARD
CONNECT WHITE WIRE FROM THE XFMR T O CONNECTION N E A R THE SWITCH C O N N E C T I O N
CONNECT BLACK WIRE FROM THE XFMR T O CONNECTION NEAR THE CAP. TAGED ON THE POWER L E A D
CONNECT BLACK WIRE WITH WHITE S T R I P E FROM T H E XFRM T O THE CONNECTION N E A R T H E CONNECTION MARKED ' T O R4'

CONNECTING THE FUSE TO THE BOARD
CONNECT YELLOW WIRE T O FUSE CONNECTION O H BOARD AND TOP SIDE OF THE F U S E
CONNECT YELLOW WIRE TO F U S E CONNECTION O H BOARD AND BOTTOM SIDE S I D E OF T H E FUSE

CONNECTING THE SWITCH T O THE BOARD
CONNECT B L U E WIRE FROM HOT S I D E OF SWITCH T O THE #2 TERMINAL ON THE WITCH
CONNECT BLUE WIRE FROM XFMR SIDE T O TERM O H T H E SWITCH

TRIM E X C E S S WIRE F R O M A L L ABOVE CONNECTIONS WHEN COMPLETED