

Jump Shot

PAC-PACK

Field Conversion Kit Instructions

For PAC-MAN U.R. &
MS. PAC-MAN U.R.

Bally

MIDWAY MFG. CO.

10601 W. Belmont Avenue
Franklin Park, Illinois 60131
U.S.A.



Phone (312) 451-9200 Cable Address MIDCO Telex No. 72-1596

WARNING

THIS GAME MUST BE GROUNDED. FAILURE TO DO SO MAY RESULT IN DESTRUCTION TO ELECTRONIC COMPONENTS.

WARNING: This equipment Generates, Uses and can Radiate Radio Frequency Energy and if not installed and used in accordance with the Instructions Manual, may cause interference to Radio Communications. As temporarily permitted by Regulation it has not been tested for compliance to Subpart J or Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a Residential Area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

ELECTRICAL BULLETIN: FOR ALL APPARATUS COVERED BY THE CANADIAN STANDARDS ASSOCIATION (CSA) STANDARD C22.2 NO. 1, WHICH EMPLOYS A SUPPLY CORD TERMINATED WITH A POLARIZED 2-PRONG ATTACHMENT PLUG.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

***Bally*/MIDWAY_{T.M.}**

Invites You To Use

**OUR TOLL FREE NUMBER FOR
SERVICE INFORMATION CONCERNING THIS GAME, OR ANY
OTHER BALLY/MIDWAY™ GAME YOU NOW HAVE ON LOCATION.**

**CALL US FOR PROMPT, COURTEOUS
ANSWERS TO YOUR PROBLEMS.**

Video or Pinball - Continental U.S. 800-323-7182

***Bally*/MIDWAY_{T.M.}**

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W A R N I N G

The parts contained in this field conversion kit must be installed without deviation from the instructions contained in this manual and kit. Failure to follow these instructions in every detail may result in the creation of illegal interference to radio and TV reception.

BALLY MIDWAY Mfg. Co. has verified that this field conversion kit, when installed in the game(s) specified in this manual, complies with the requirements in Part 15 of the FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

BALLY MIDWAY Mfg. Co. will not be responsible for incomplete or improper conversions, or installation in a game for which this field conversion kit is not intended. If this field conversion kit is installed in a game that is not specified in this manual or in a previously converted game, the operator is required to take whatever steps are necessary to insure compliance with the requirements in Part 15, Subpart J, of the FCC Rules for a Class A computing device.

S P E C I A L N O T E :

DO NOT DISCARD ANY OF THE PARTS YOU REMOVE
WHEN MAKING THE MODIFICATIONS EXPLAINED IN
THIS MANUAL.

THEY WILL BE RE-USED IN FUTURE CONVERSION KITS!

PAC-MAN TO "PAC-PACK" GAME CONVERSION PROCEDURE

PLEASE NOTE: NEW GAME Information (parts list, electrical drawings and option switch settings is provided in your conversion kit).

To convert your PAC-MAN game to the NEW GAME is a fairly simple operation. Just follow the steps below and the illustrations given in each figure.

1. **Turn the power off to your game** and disconnect it from its wall outlet.
2. Opening the cabinet: Unlock and open the rear access door.
3. Main Game Logic Board removal:
 - Disconnect the Main Game Logic Board from all its cabling (see Figure 1).
 - Remove the P.C.B. clamp indicated in Figure 2 and slide the Main Game Logic Board out of the cabinet.
4. Install the Potted CPU Module Support Bracket as indicated in Figure 3.
5. Cut the plastic securing strap and remove the "PIGGY BACK" module indicated in Figure 4, IF YOUR GAME IS EQUIPPED WITH ONE. IF IT IS NOT equipped with one, simply proceed to step 6 below.
6. Remove the Z-80 CPU from the Main Game Logic Board as shown in Figure 5. **BE CAREFUL NOT TO BEND ITS PINS!** Return this CPU to your stock. It may be used as a spare part.
7. Remove the six EPROMS and 2 PROMS located as shown in Figure 6 and set them aside. **BE CAREFUL NOT TO BEND THEIR PINS!** Replace the removed EPROMS and PROMS with the ones supplied in your conversion kit. They are installed as shown in Figure 6.
8. Install the ribbon cable on the Potted C.P.U. Module so that it dressed out on the side AWAY FROM THE POINT on the module (see Figure 7). Install the other end of the ribbon cable into the empty socket on the Main Game Logic Board that was left when you removed the Z-80 CPU from it in step 6 (see Figure 7).
9. If your game was equipped with a "PIGGY BACK" module that you removed in step 5, reinstall it at this time (see Figure 8). If it was not equipped with one, simply proceed to step 10.
10. Reinstall the Main Game Logic Board and the Potted C.P.U. Module (now attached to it by the ribbon cable) back into the game cabinet.
11. Install the Potted C.P.U. Module to the four plastic snap-in mounting stand-offs of the Potted C.P.U. Module Support Bracket as shown in Figure 9.

12. Reconnect all previously removed cabling to the Main Game Logic Board EXCEPT for the OLD MASTER CABLE and the OLD CONTROL PANEL CABLE.
13. Remove the existing Control Panel as explained in your OLD GAME manual.
14. Control Panel Mounting Brackets (left & right) **MUST** be installed in your PAC-MAN game cabinet. Refer to Figure 10 for installation instructions.
15. Replace the OLD GAME Main-Display-Glass with the Main-Display-Glass provided in your conversion kit. Follow the procedure as explained in your OLD GAME manual.
16. Secure the NEW GAME Control Panel by latching the two clamps on the Control Panel to the strikes of the game cabinet.

NOTE: A NEW GAME Master Adaptor Cable will supplement the existing Master Cable for wiring between the new Control Panel and the Main Game Logic Board. Refer to NEW GAME WIRING DIAGRAMS provided with your conversion kit for **any** necessary wiring modifications. Cut lead pins on new cabling wires where splicing is necessary.

17. Fasten the wires of the NEW GAME Master Adaptor Cable to the existing Master Cable's 44-pin connector. Run the cable along the existing master cable to the NEW GAME Control Panel by using the cable tie wraps provided in the kit. Secure the 44-pin connector to the Main Game Logic Board.
18. Secure the nine position connector of the new Control Panel's cable to that of the Master Adaptor Cable. Secure the twelve position connector of the new Control Panel's cable to that of the existing Master Cable.
19. Close and lock the game cabinet and plug it back into its wall outlet.
20. Turn the game on and let it warm up for a few minutes. Run a Self-Test on it and play a couple of games to be sure everything is working properly.

NOTE: DO NOT FORGET to save the six EPROMS and two PROMS you removed in step 7 of this procedure. Put them in the packaging that the new EPROMS and PROMS came in and store them in a dark place at room temperature. They will not be harmed if stored this way. Thus, by reversing this procedure, you could convert your game back to a PAC-MAN model if you ever wanted to.

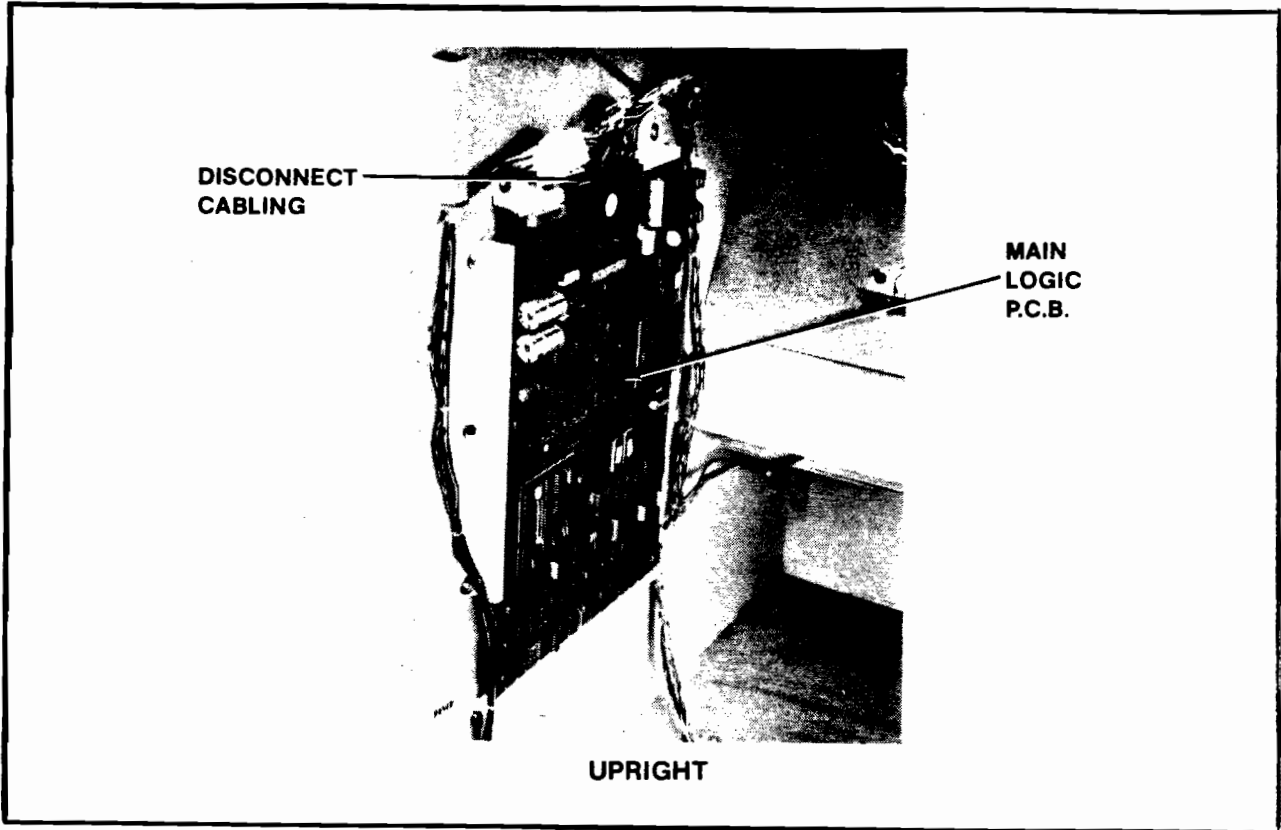


Figure 1

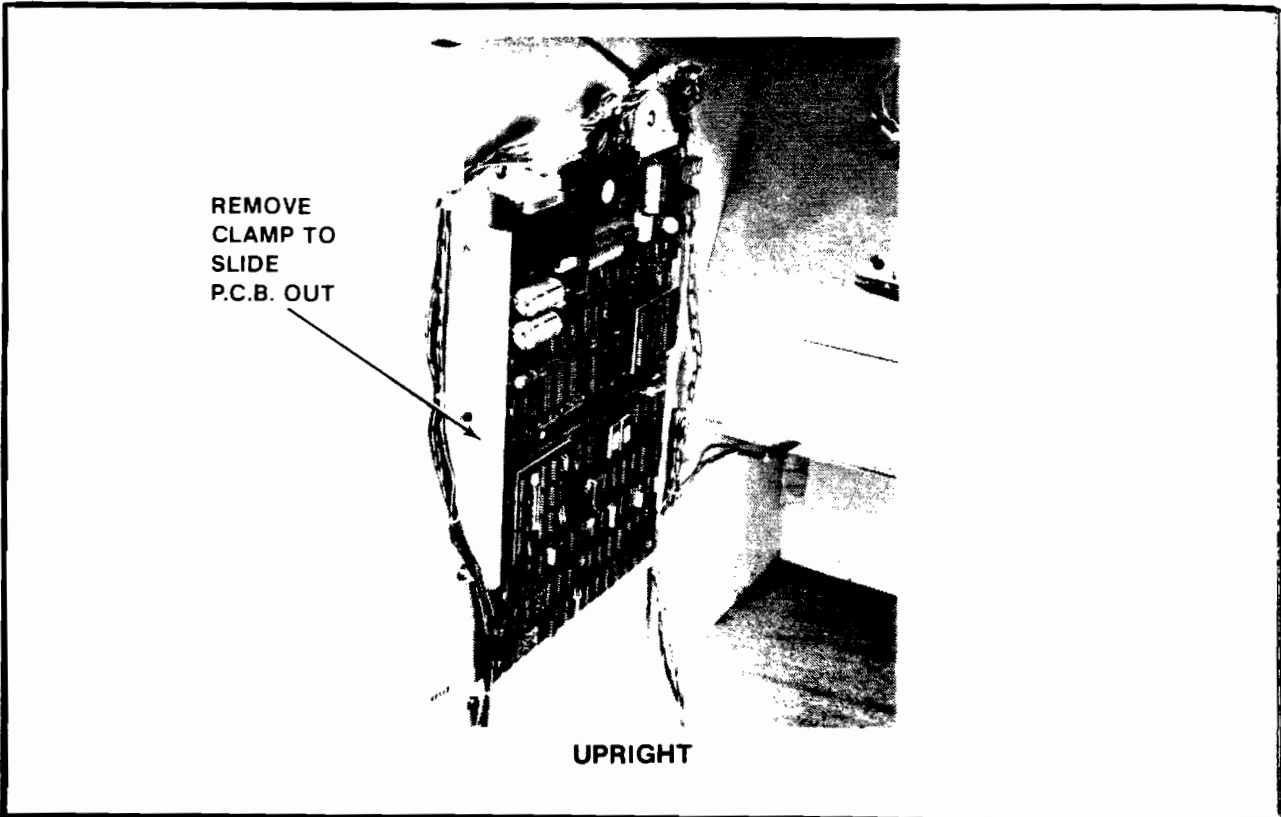


Figure 2

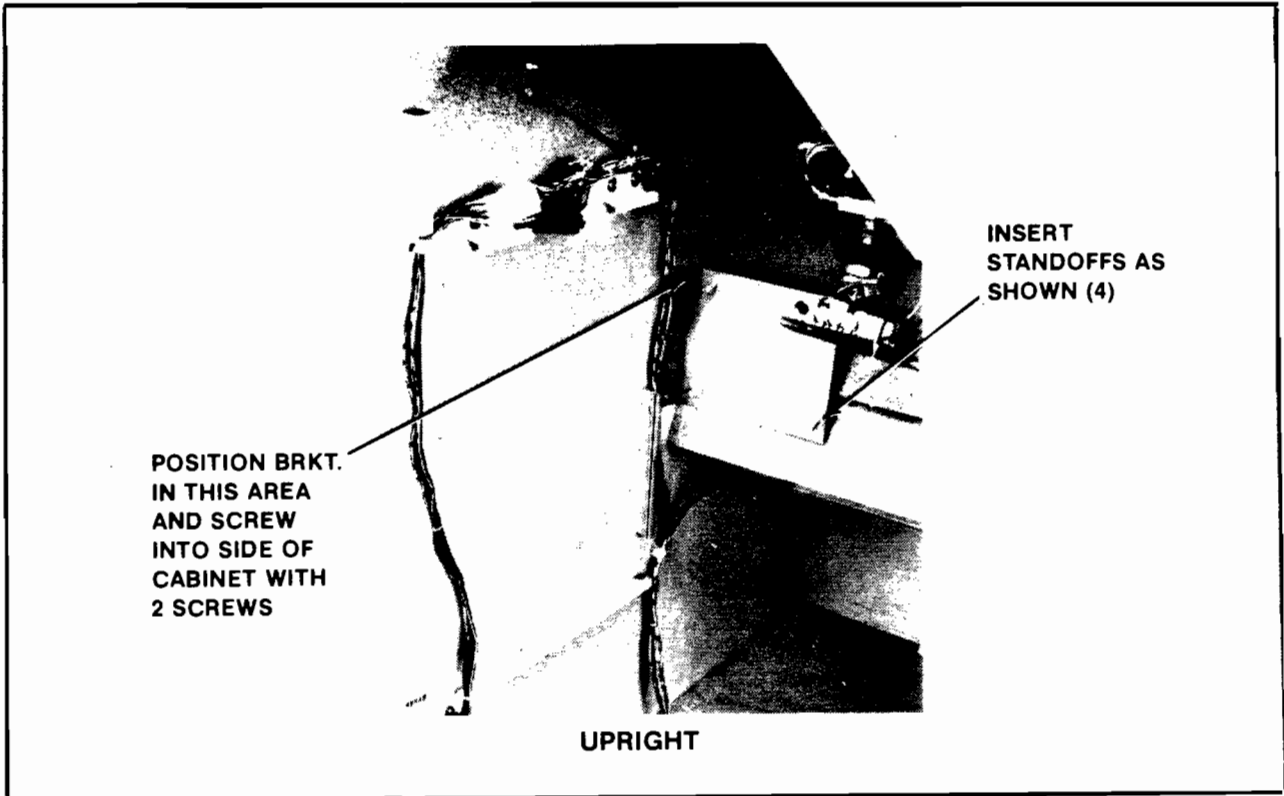
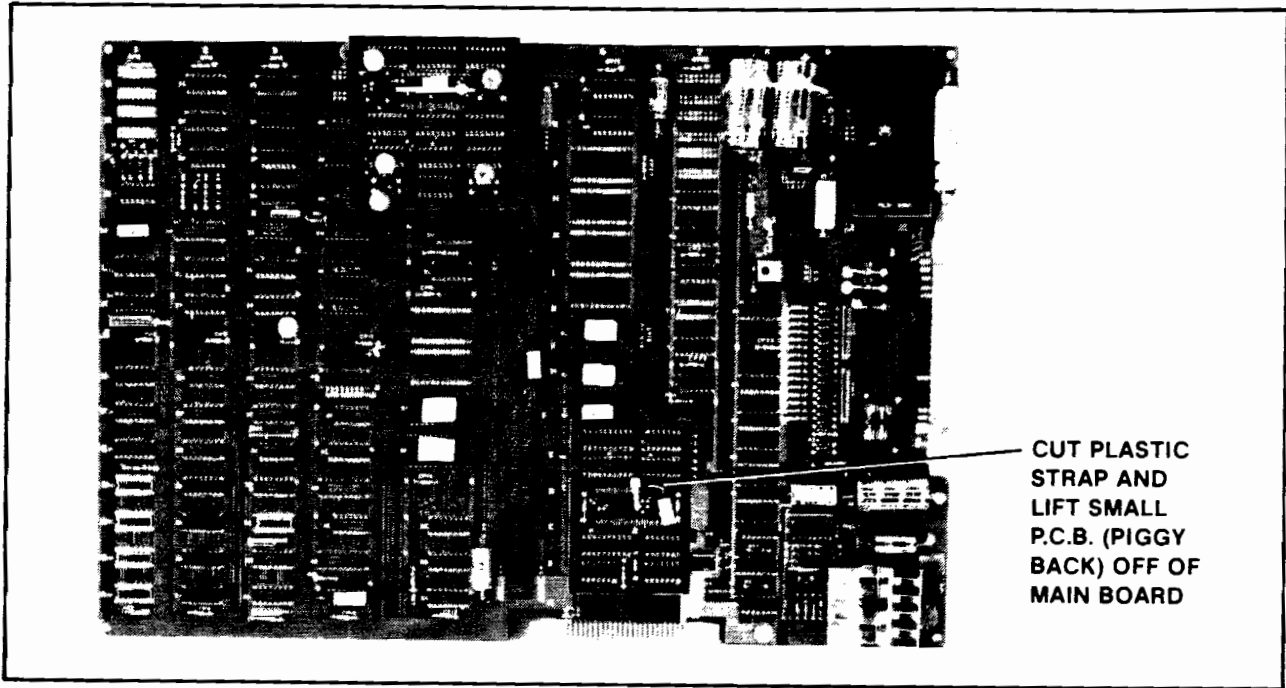
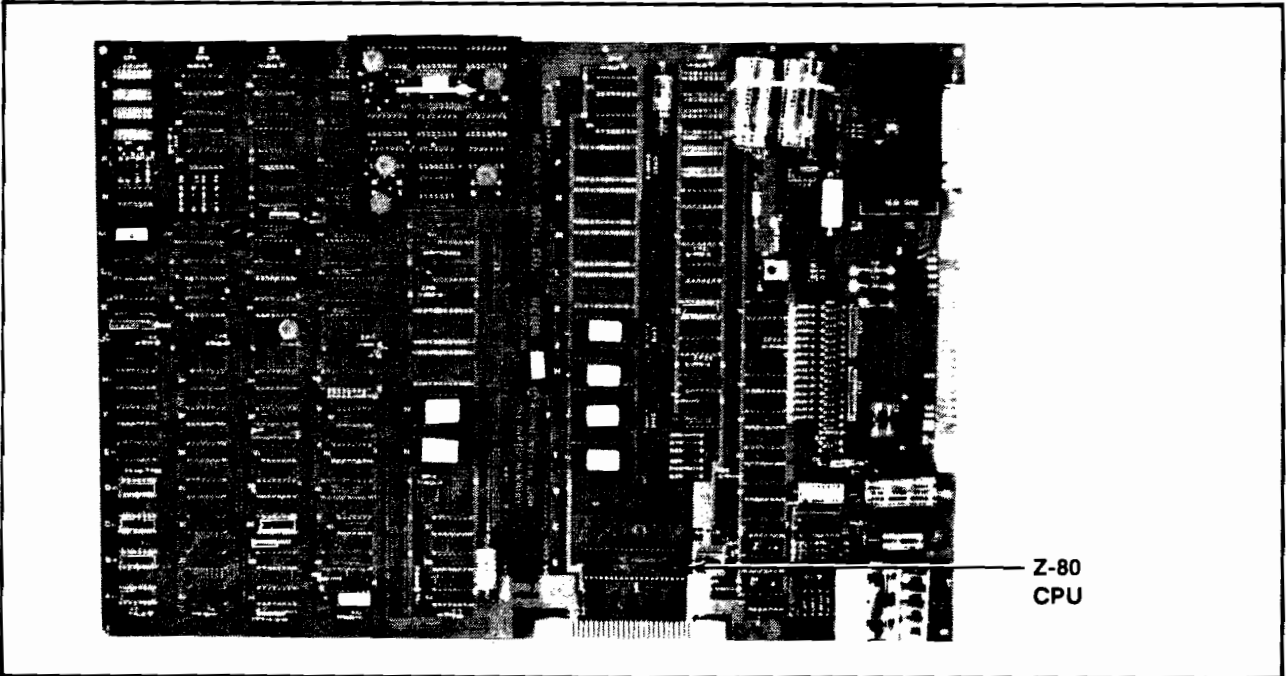


Figure 3



CUT PLASTIC STRAP AND LIFT SMALL P.C.B. (PIGGY BACK) OFF OF MAIN BOARD

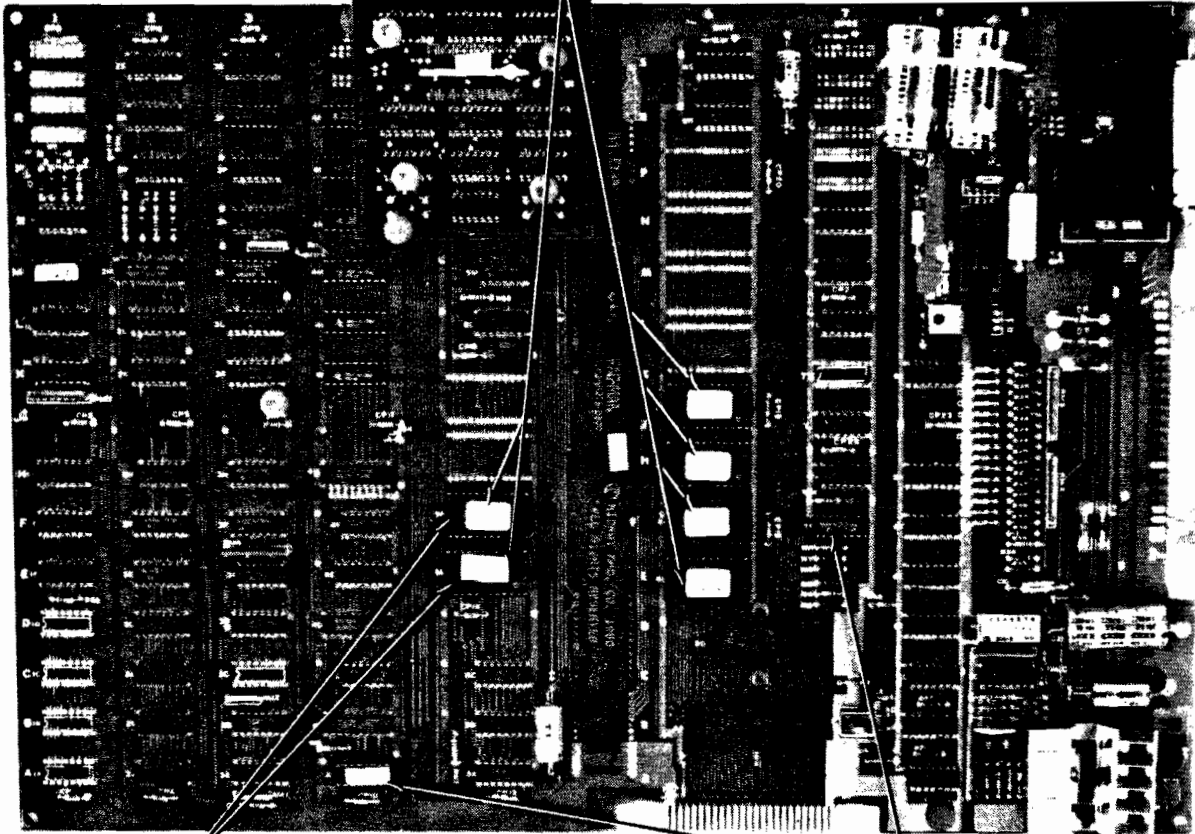
Figure 4



Z-80 CPU

Figure 5

**REMOVE (6) EPROMS
AND REINSERT NEW
EPROMS SUPPLIED
WITH KIT.
(LOCATIONS 5E, 5F, 6E, 6F, 6H & 6J)**



**IMPORTANT!
NOTE LOCATION
OF NOTCH ON
ALL I.C.s REMOVED
BEFORE INSERTING**

**REMOVE (2) PROMS
AND REINSERT NEW
PROMS SUPPLIED
WITH KIT.
(LOCATIONS 4A & 7F)**

Figure 6

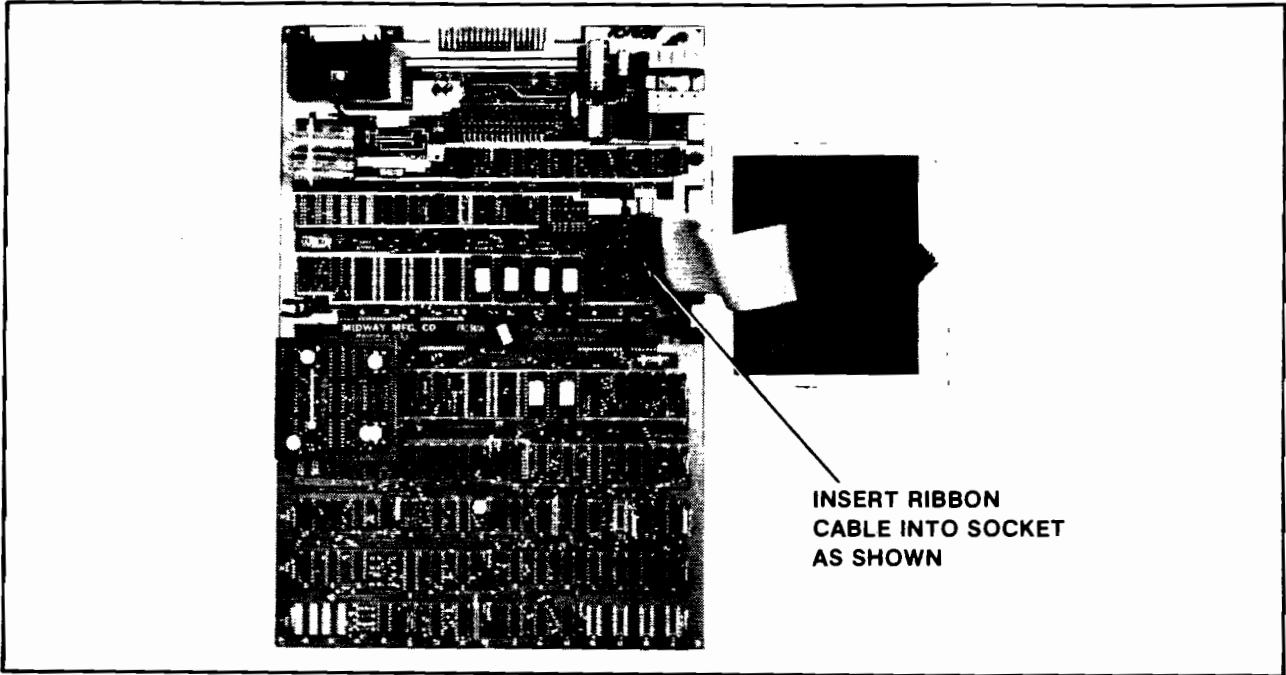


Figure 7

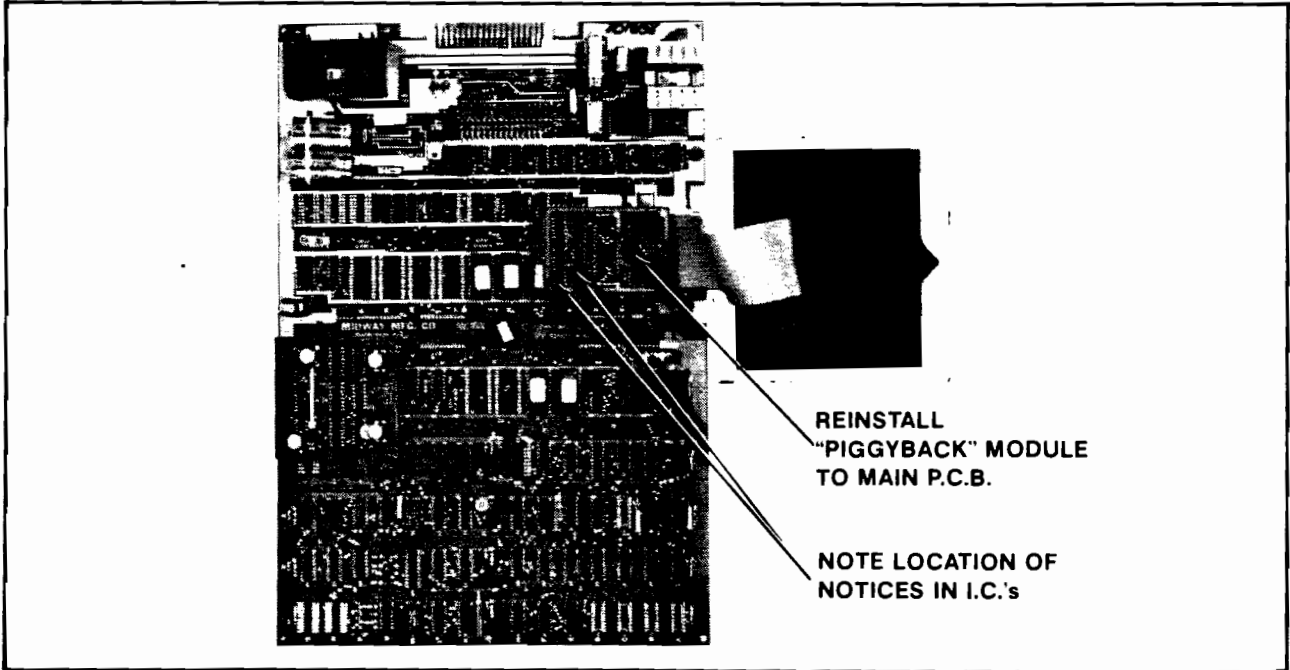
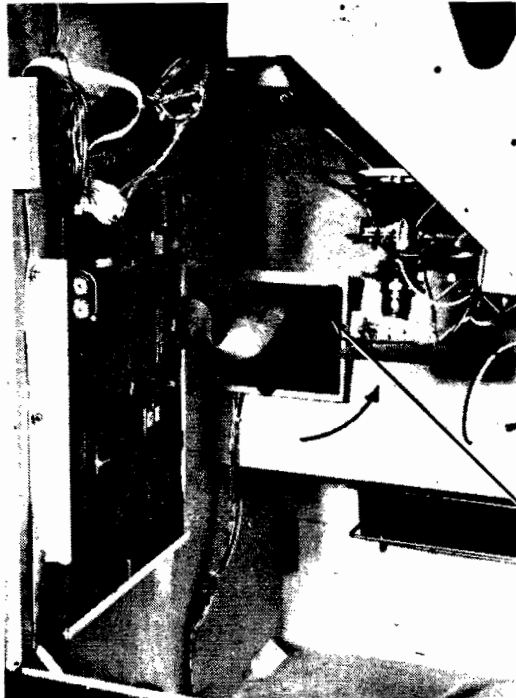


Figure 8



NOTE: MOUNT MODULE 90 DEGREES COUNTER-CLOCKWISE FROM POSITION SHOWN.

PUSH SECURE C.P.U. MODULE ONTO STANDOFFS AS SHOWN.

UPRIGHT

Figure 9

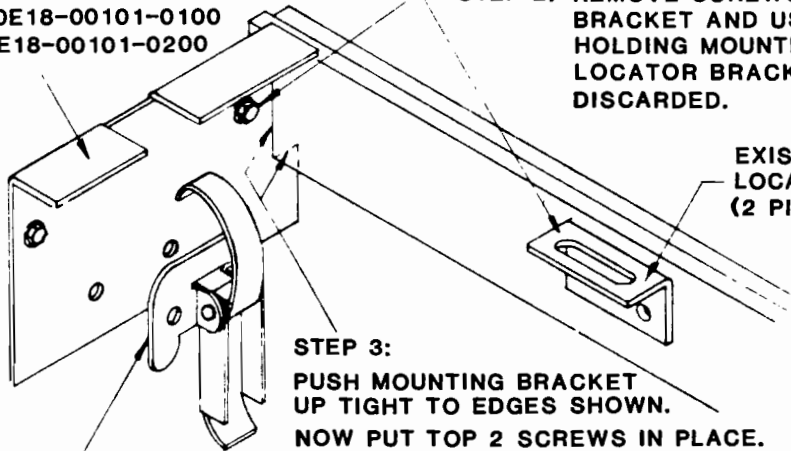
**CONTROL SHELF MOUNTING BRACKETS
- LEFT & RIGHT**

MOUNTING FOR PAC-MAN CABINET ONLY.

**CONTROL SHELF MOUNTING BRACKET
RIGHT SIDE: 0E18-00101-0100
LEFT SIDE: 0E18-00101-0200**

STEP 2: REMOVE SCREWS FROM LOCATOR BRACKET AND USE THEM FOR HOLDING MOUNTING BRACKET. LOCATOR BRACKET MAY BE DISCARDED.

**EXISTING LOCATOR BRACKET
(2 PIECES)**



**STEP 3:
PUSH MOUNTING BRACKET UP TIGHT TO EDGES SHOWN. NOW PUT TOP 2 SCREWS IN PLACE. FINALLY, SECURE CLAMP TO MOUNTING BRACKET WITH EXISTING SCREWS.**

EXISTING CLAMP

**STEP 1:
REMOVE CLAMP FROM CABINET AND SAVE ALL OF IT'S PARTS.**

STEP 4: REPEAT STEPS 1 THRU 3 TO INSTALL CONTROL PANEL MOUNTING BRACKET ON OTHER SIDE.

Figure 10

**INSTALLATION OF REMAINDER OF
CONVERSION KIT PARTS**

1. Turn the power to the game off.

Remove the OLD GAME Header Glass by removing the three screws which secure the top bracket in place. Install the Header Glass provided in your conversion kit.

*** DECAL INSTALLATION NOTES (Strongly Recommended):**

- A. APPLICATION NOTE: The use of the plastic squeegee provided in your kit is required to put on ALL decals.
- B. The cabinet's surface should be cleaned of ALL dirt and grime. This is necessary to insure proper adhesion.
- C. A foam type wetting agent should be applied to the cabinet's surface before mounting the decal.

2. Install the Front Decal* as indicated in Figure 11.

3. Install the two Side Decals *, referring to Figure 12, as follows (the left side & then the right side):

- A. Set the game cabinet on its side (for ease of decal application).
- B. Peel back the bottom of six inches of the liner (heavy waxed backing sheet) and apply the decal at the bottom of the game cabinet while lining up the decal with the rear edge of the cabinet. This is important as the Side Decal material is only 1/2 inch wider than the width of the game cabinet.
- C. Remove the liner while working out the air bubbles and lining up the decal with the rear edge of the cabinet.
- D. Lift the game upright and trim off the excess decal material.
- E. Repeat steps A through D for installation of the other Side Decal.

FRONT DECAL

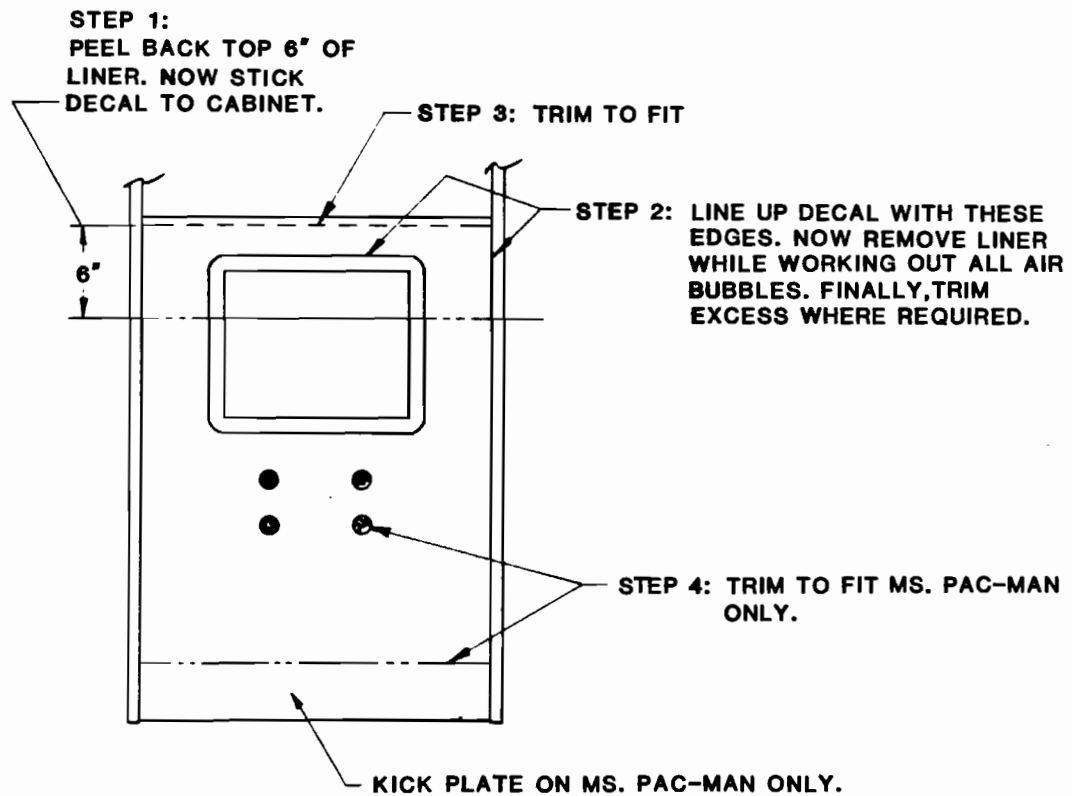


Figure 11

SIDE DECALS - LEFT & RIGHT

**MAKE SURE THAT 1/2" OF
BLACK DECAL MATERIAL
OVERLAPS AT THIS POINT.**

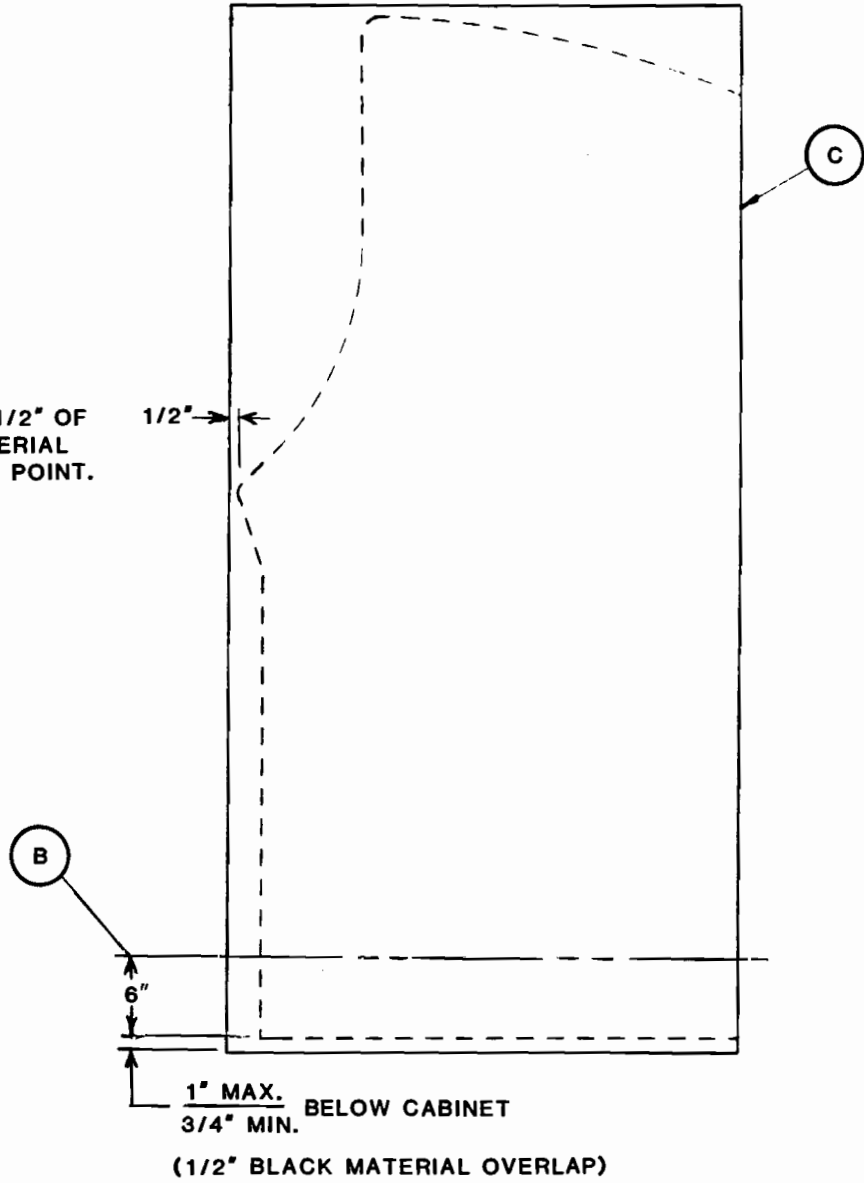


Figure 12

MS. PAC-MAN TO "PAC-PACK" GAME CONVERSION PROCEDURE

PLEASE NOTE: NEW GAME information (parts list, electrical drawings and option switch settings) is provided in your conversion kit.

To convert your PAC-MAN game to the NEW GAME is a fairly simple operation. Just follow the steps below and the illustrations given in each Figure.

1. **Turn the power off to your game** and disconnect it from its wall outlet.
2. Opening the cabinet: Unlock and open the rear access door.
3. Main Game Logic Board removal:
 - Disconnect the Main Game Logic Board from all its cabling (see Figure 1).
 - Cut the plastic securing strap and remove the "PIGGY BACK" module indicated in Figure 1, IF YOUR GAME IS EQUIPPED WITH ONE, and set it aside.
 - Remove the ribbon extension cable from the Main Game Logic Board.
 - Remove the P.C.B. clamps indicated in Figure 2 and slide the Main Game Logic Board out of the cabinet.
4. Remove the six EPROMS and 2 PROMS located as shown in Figure 3 and set them aside. **BE CAREFUL NOT TO BEND THEIR PINS!** Replace the removed EPROMS and PROMS with the ones supplied in your conversion kit. They are installed as shown in Figure 3.
5. Install the ribbon cable on the Potted C.P.U. Module so that it dressed out on the side AWAY FROM THE POINT on the module (see Figure 4). Install the other end of the ribbon cable into the empty socket on the Main Game Logic Board that was left when you removed the original ribbon cable in step 3 (see Figure 4).
6. If your game was equipped with a "PIGGY BACK" module that you removed in step 3, reinstall it at this time (see Figure 5). If it was not equipped with one, simply proceed to step 7.
7. Remove the Auxillary Game Logic Board from its support posts and return it to your stock for possible future use (see Figure 6).
8. Reinstall the Main Game Logic Board and the Potted C.P.U. Module (now attached to it by the ribbon cable) back into the game cabinet.
9. Install the Potted C.P.U. Module to the four plastic snap-in mounting stand-offs of the Potted C.P.U. Module Support Bracket as shown in Figure 7.

10. Reconnect all previously removed cabling to the Main Game Logic Board EXCEPT for the OLD MASTER CABLE and the OLD CONTROL PANEL CABLE.
11. Remove the existing Control Panel as explained in your OLD GAME manual.
12. Replace the OLD GAME Main-Display-Glass with the Main-Display-Glass provided in your conversion kit. Follow the procedure as explained in your OLD GAME manual.
13. Secure the NEW GAME Control Panel by latching the two clamps on the Control Panel to the strikes of the game cabinet.

NOTE: A NEW GAME Master Adaptor Cable will supplement the existing Master Cable for wiring between the new Control Panel and the Main Game Logic Board. Refer to NEW GAME WIRING DIAGRAMS provided with your conversion kit for **any** necessary wiring modifications. * Cut leaf pins on new cabling wires where splicing is necessary.

14. Fasten the wires of the NEW GAME Master Adaptor Cable to the existing Master Cable's 44-pin connector. Run the cable along the existing master cable to the NEW GAME Control Panel by using the cable tie wraps provided in the kit. Secure the 44-pin connector to the Main Game Logic Board.
15. Secure the nine position connector of the new Control Panel's cable to that of the Master Adaptor Cable. Secure the twelve position connector of the new Control Panel's cable to that of the existing Master Cable. *
16. Close and lock the game cabinet and plug it back into its wall outlet.
17. Turn the game on and let it warm up for a few minutes. Run a Self-Test on it and play a couple of games to be sure everything is working properly.

NOTE: DO NOT FORGET to save the six EPROMS and two PROMS you removed in step 7 of this procedure. Put them in the packaging that the new EPROMS and PROMS came in and store them in a dark place at room temperature. They will not be harmed if stored this way. Thus, by reversing this procedure, you could convert your game back to a PAC-MAN model if you ever wanted to.

* Two Versions of Ms. Pac-man exists. Version "A" is powered by a Transformer Board. Version "B" is powered by a 125VA Power Chassis. Please observe the wiring differences between the two Versions. The control panel cable is wired for Version "A" only. Rewiring of the control panel cable is necessary for Version "B". (Please refer to the appropriate wiring diagram for "repinning" of the twelve position connector.)

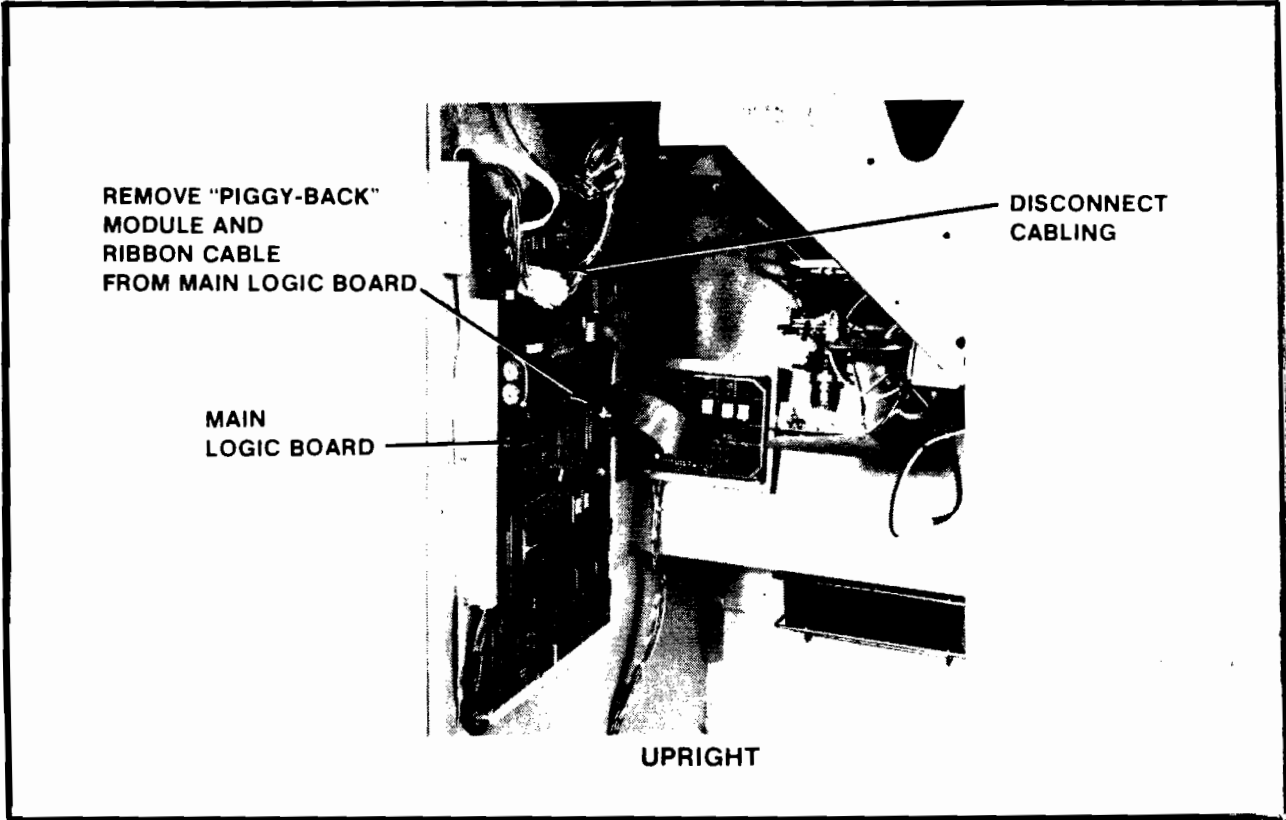


Figure 1

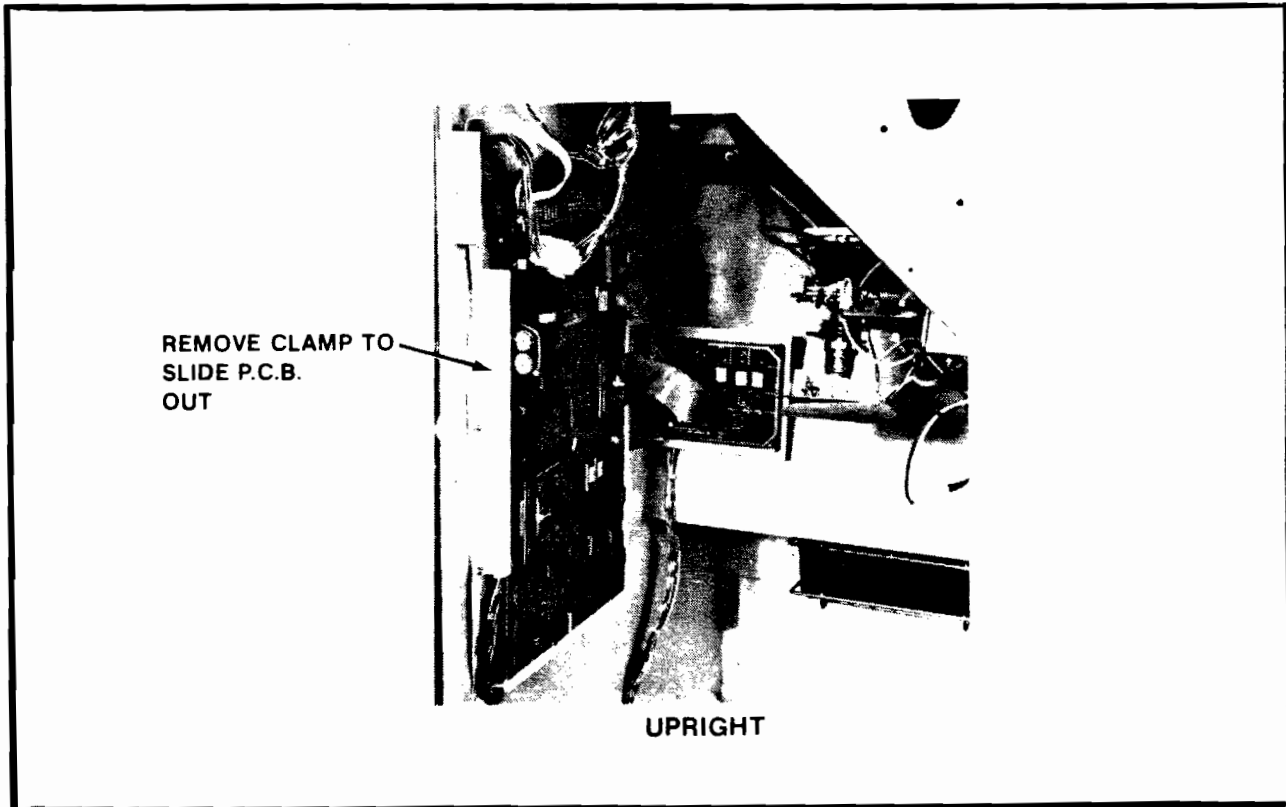
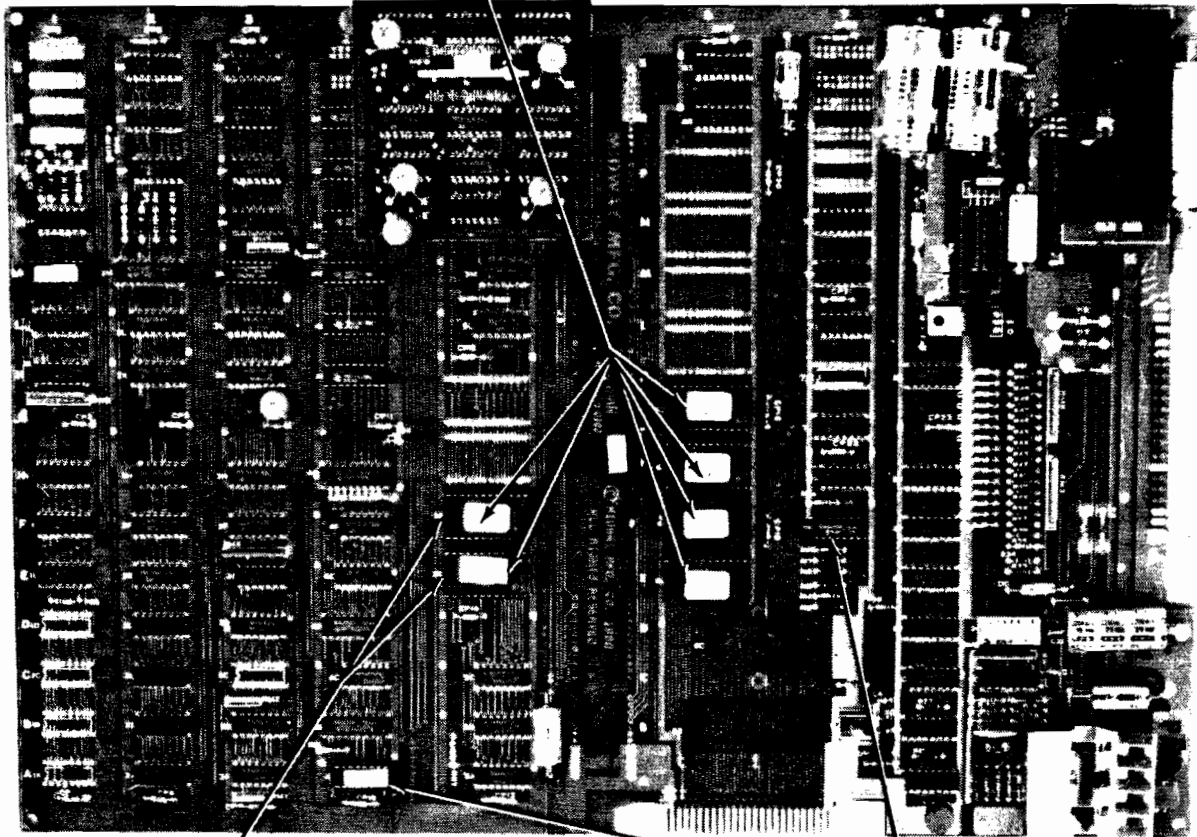


Figure 2

**REMOVE (6) EPROMS
AND REINSERT NEW
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WITH KIT.
(LOCATIONS 5E, 5F, 6E, 6F, 6H & 6J)**



**IMPORTANT!
NOTE LOCATION
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Figure 3

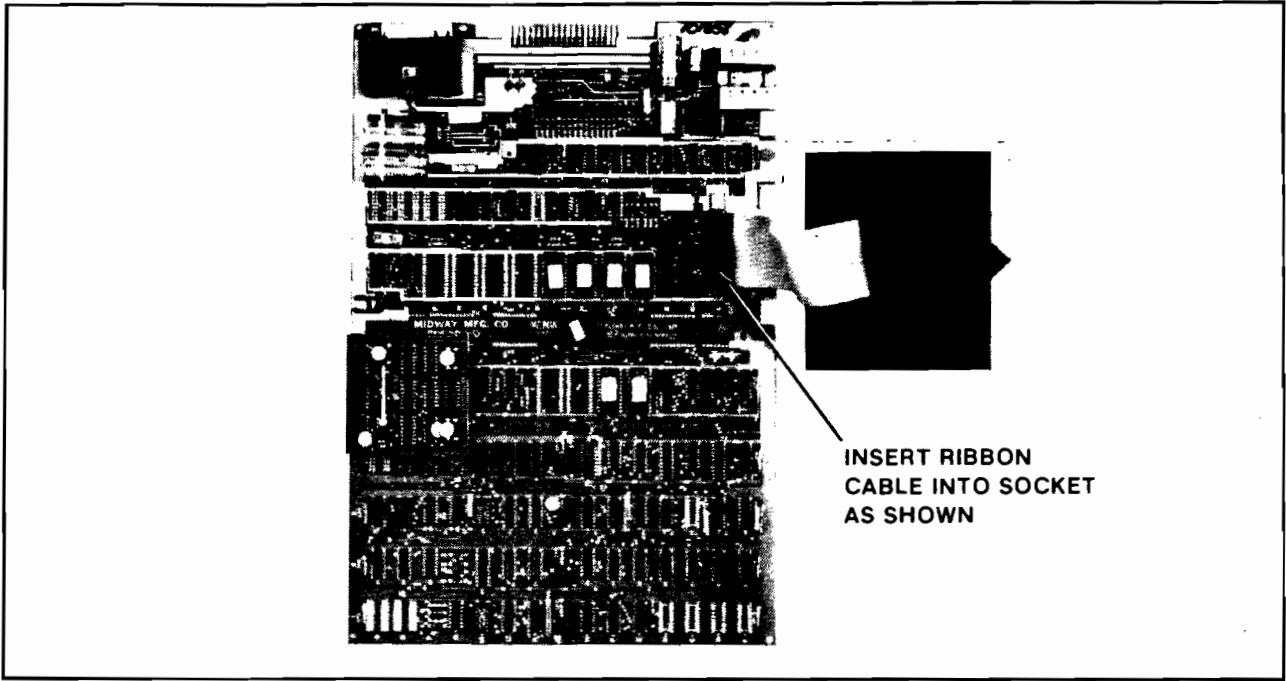


Figure 4

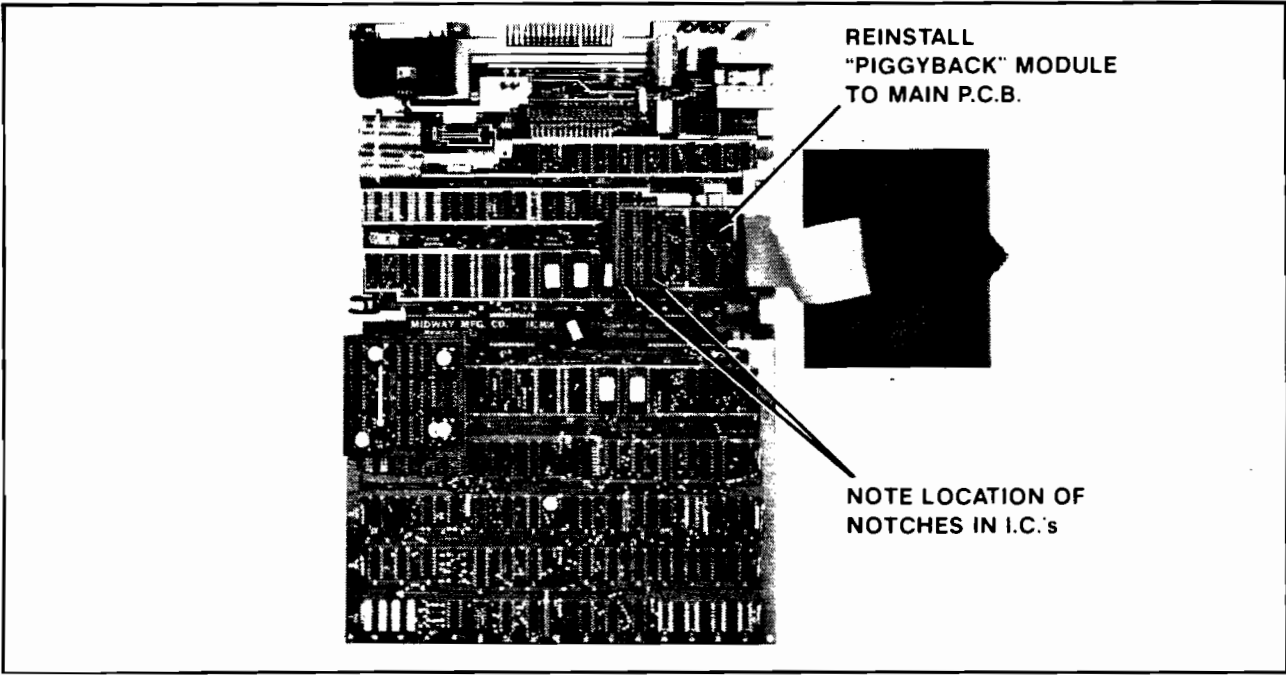


Figure 5

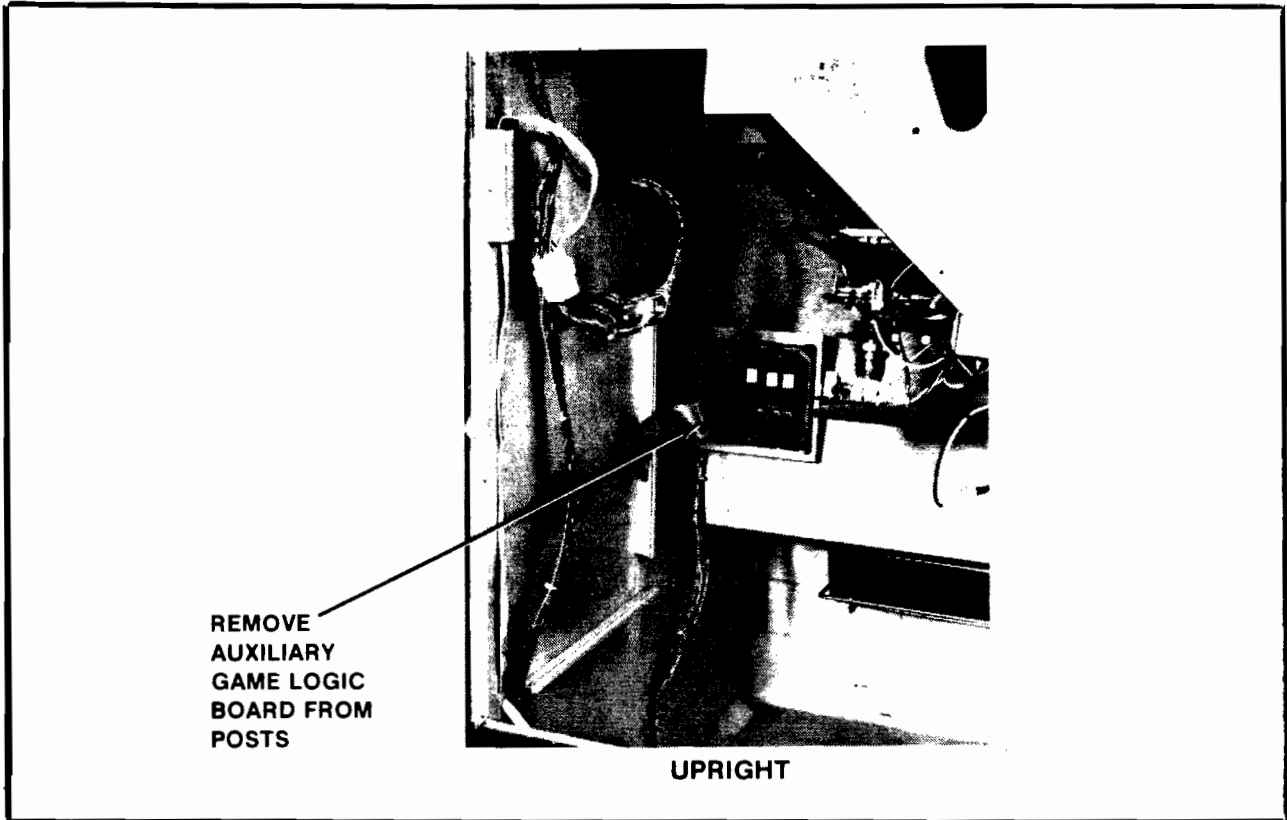


Figure 6

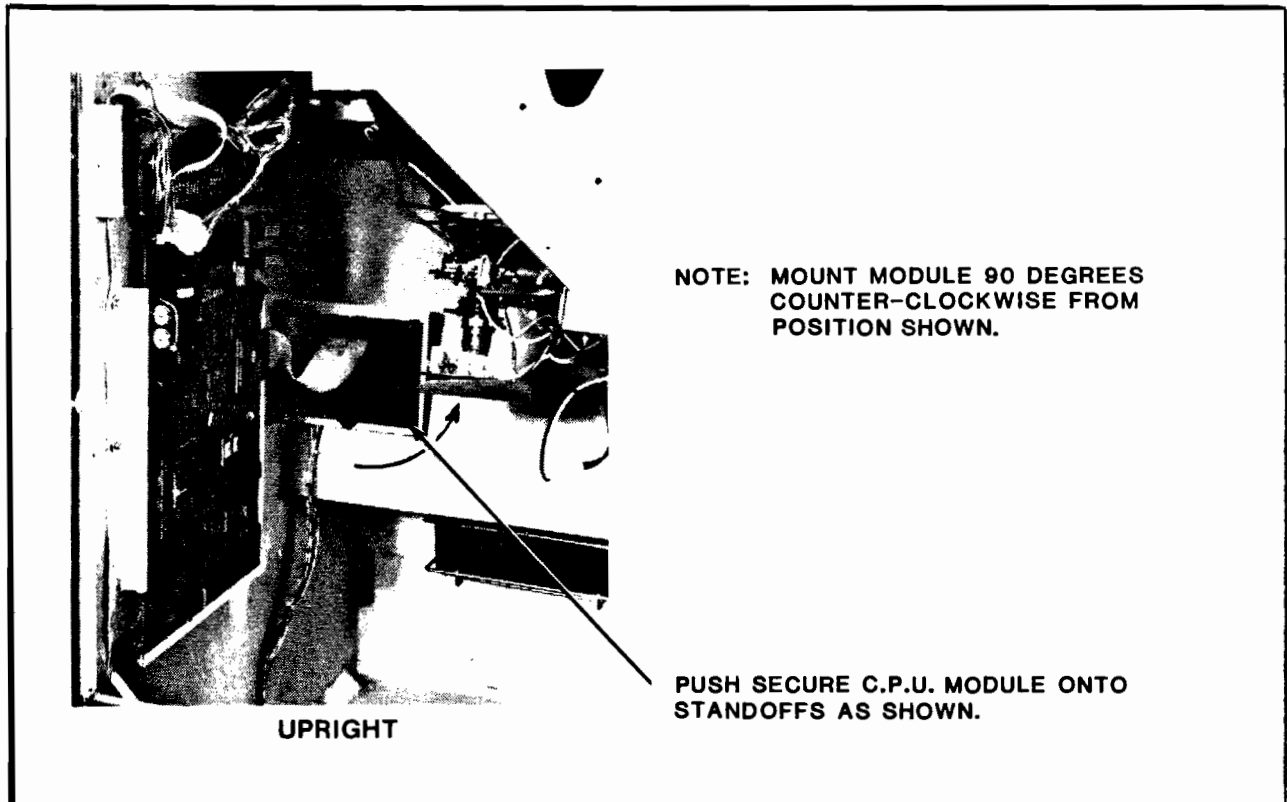


Figure 7

**INSTALLATION OF REMAINDER OF
CONVERSION KIT PARTS**

1. Turn the power to the game off.

Remove the OLD GAME Header Glass by removing the three screws which secure the top bracket in place. Install the Header Glass provided in your conversion kit.

*** DECAL INSTALLATION NOTES (Strongly Recommended):**

- A. APPLICATION NOTE: The use of the plastic squeegee provided in your kit is required to put on ALL decals.
- B. The cabinet's surface should be cleaned of ALL dirt and grime. This is necessary to insure proper adhesion.
- C. A foam type wetting agent should be applied to the cabinet's surface before mounting the decal.

2. Install the Front Decal* as indicated in Figure 8.

3. Install the two Side Decals *, referring to Figure 9, as follows (the left side & then the right side):

- A. Set the game cabinet on its side (for ease of decal application).
- B. Peel back the bottom of six inches of the liner (heavy waxed backing sheet) and apply the decal at the bottom of the game cabinet while lining up the decal with the rear edge of the cabinet. This is important as the Side Decal material is only 1/2 inch wider than the width of the game cabinet.
- C. Remove the liner while working out the air bubbles and lining up the decal with the rear edge of the cabinet.
- D. Lift the game upright and trim off the excess decal material.
- E. Repeat steps A through D for installation of the other Side Decal.

FRONT DECAL

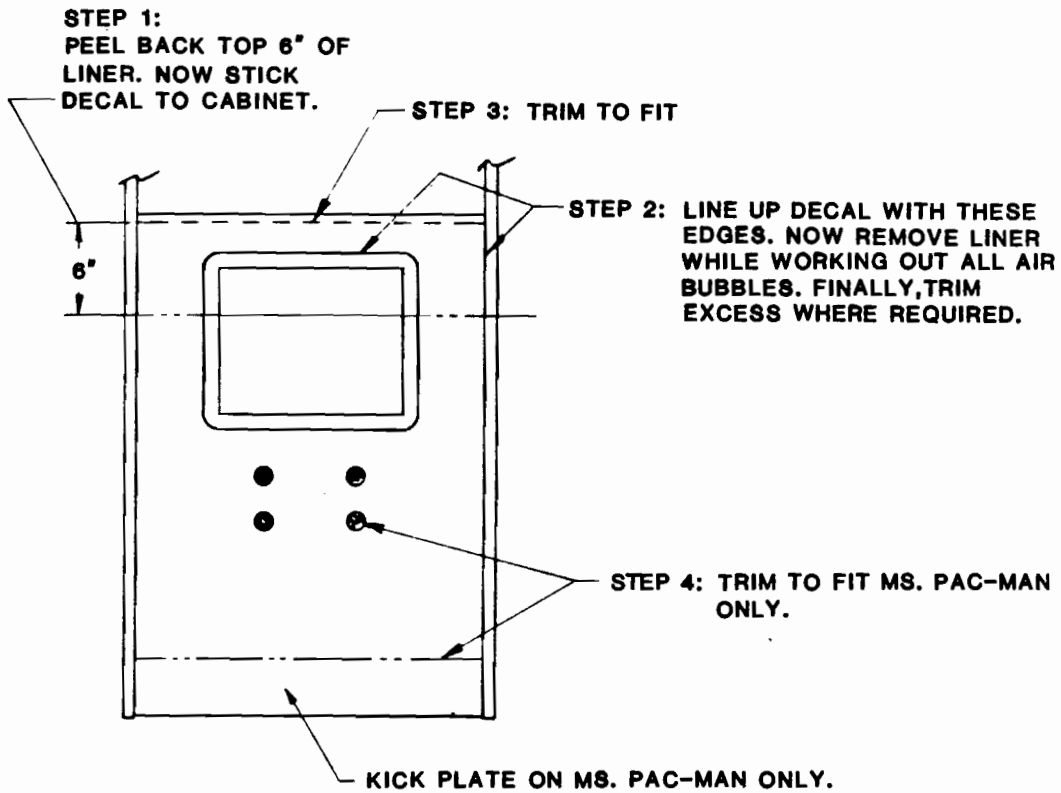


Figure 11

SIDE DECALS - LEFT & RIGHT

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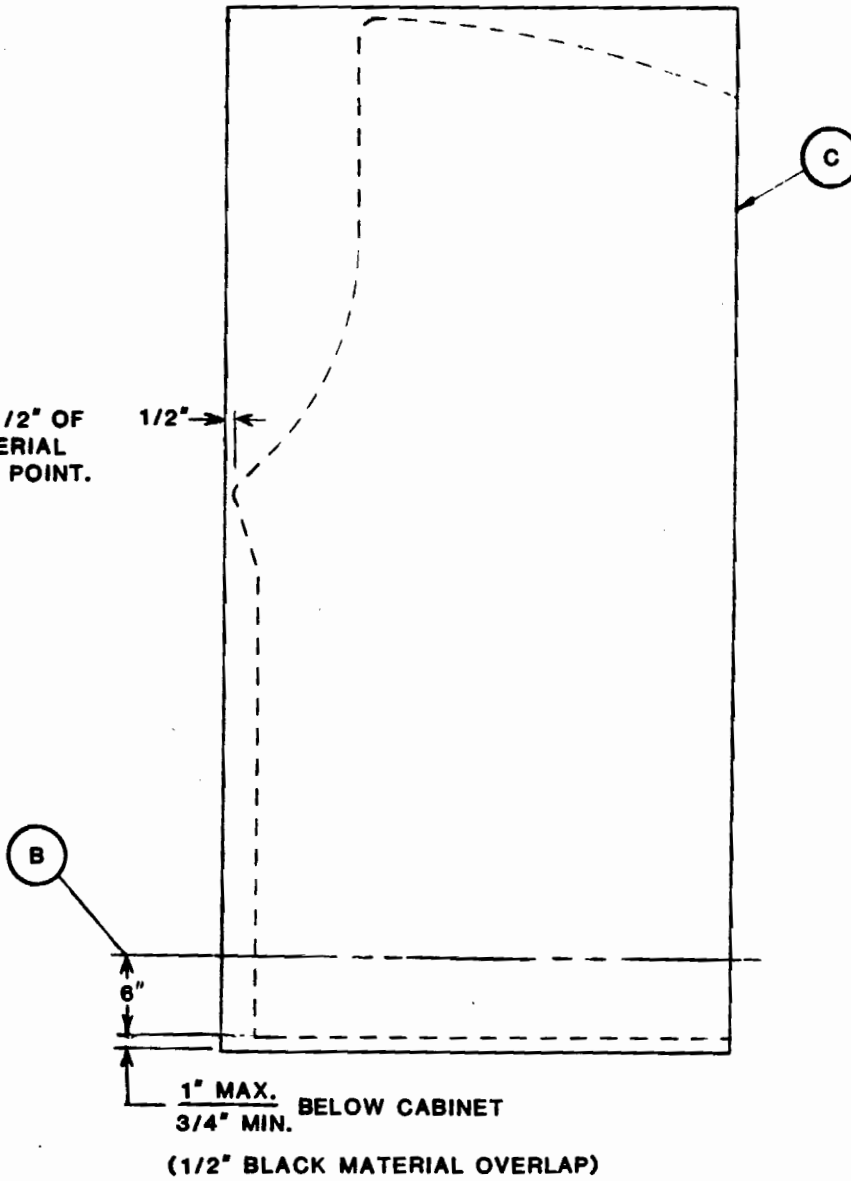


Figure 12