MODIFICATION INSTRUCTIONS

1. Replace the X-Y monitor with a modified monitor.

2. Do ECN 978 on the CPU board. See attached instructions.

3. Do ECN 991 on the X-Y timing board. See attached instructions.

4. Record the game and monitor serial numbers on the distributor record sheet.

5. Place the colored label on the top left corner of the kick plate.

6. Each team will have the number of games the distributor has purchased. There is a good possibility that number will not be in the distributor's location. Leave the correct number to make up the difference.

7. The removed monitors should be loaded on your truck and returned to Gremlin with you. There will be special cases when these instructions will change.

8. Provide the distributor with a copy of the Distributor Record Sheet, be sure to bring the original back with you.
September 17, 1981

To ensure that the vertical and horizontal outputs of the G-80 X-Y Timing Board do not exceed a preset level, the addition of 2 diodes is recommended. The diodes, type 1N914, are installed as follows:

1. Remove the G-80 Timing Board from the card cage.
2. Solder the **Anode** of one diode to **Pin 1** of the Molex connector located on the front edge of the Timing Board. It is recommended that the diode be installed on the underside of the board.
3. Solder the **Cathode** of the diode to a **+5 volt pad** on the back of the board. This can be found at the +5 volt pin on the closest IC.
4. Install the **Cathode** of the second diode to **+5**, in the same way. Then, solder the **Anode** of this diode to **Pin 4** of the Molex connector.

<table>
<thead>
<tr>
<th>Black Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode</td>
</tr>
<tr>
<td>Cathode</td>
</tr>
</tbody>
</table>

**DIODE 1N914**
REASON FOR VARIANCE

151-003 | CERAMIC CAPACITOR 22μF 16V IS NOT AVAILABLE IN THE TIME FRAME REQUIRED

WILL VARIANCE BE ACCEPTED ON FUTURE LOTS □ YES □ NO

IS ECR REQUIRED □ YES □ NO

ECR WRITTEN BY ______________________ DATE ______________________

CHECK APPLICABLE DOCUMENTS AFFECTED BY VARIANCE

□ ENGINEERING DRAWINGS □ MFG. PROCESS DETAIL □ PURCHASE ORDER
□ SCHEMATICS □ RECEIVING REPORT
□ BOM □ OTHER

AUTHORIZATION FOR SUBSTITUTE MATERIAL

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>REQUESTOR</th>
<th>DEPT.</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>151-003</td>
<td>CERAMIC CAPACITOR 22μF 16V REF DSC</td>
<td>CPU BOARD ASSY 800-0107</td>
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SUBSTITUTE MATERIAL USE GREENW P/N 152-0029 33μF 250V

CERAMIC CAPACITORS TO REPLACE 151-003 ON CPU BOARD 800-0107

QUANTITY OF END ITEM AFFECTED

AUTHORIZED BY T. R. J. DATE 8/21/81
**ENGINEERING CHANGE NOTICE**

**TE:** 8-22-81  
**ECN #** 978  
**SHEET:** 1 OF 1

**REF ECR #370**

<table>
<thead>
<tr>
<th>EFFECTIVE DATE</th>
<th>ASSEMBLY</th>
<th>PART NUMBER</th>
<th>DRAWING NUMBER</th>
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<tr>
<td>8-24-81</td>
<td>CPU BOARD</td>
<td>800-0107</td>
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**CHANGE: PARTS LIST:**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>P/N</th>
<th>QTY</th>
<th>C-Y</th>
<th>WAS</th>
<th>REIF DES</th>
<th>WASTS</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>150-0088</td>
<td>1</td>
<td>15</td>
<td>3</td>
<td>C93C45C46C62</td>
<td>C43C45C46C62</td>
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**ADD ITEM 58:**

| P/N 151-0024 | QTY 1 | CAP CER .22UF 16V C45 |

**CHANGE SHEET & ZONE 7A:**

<table>
<thead>
<tr>
<th>IS:</th>
<th>WAS:</th>
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<tbody>
<tr>
<td>C45</td>
<td>C45</td>
</tr>
<tr>
<td>.22UF</td>
<td>10 UF</td>
</tr>
<tr>
<td>16V</td>
<td>25V</td>
</tr>
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</table>

**REASON FOR CHANGE:**

REDUCE POWER ON DELAY FROM 1.5 SECS TO 20 MSECs  
TO ALLOW XV MONITOR OUTPUTS TO BE RESET IN 20 MSECs  
RESULTING REDUCING STRESS ON MONITOR OUTPUT CIRCUITS

**CLASS OF CHANGE - CHECK ONE ONLY**

<table>
<thead>
<tr>
<th>A</th>
<th>EMERGENCY, INCORPORATE IN PRODUCTION AT ONCE, ALL ASSEMBLIES, PARTS ISSUED TO ASSEMBLY AREAS AND PARTS IN STOCK AFFECTED.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>URGENT. AFFECTS PARTS FOR WHICH PRODUCTION ORDERS HAVE BEEN INITIATED BUT NOT COMPLETED, PURCHASE REQUISITIONS, FINISHED PARTS IN STOCK, PARTS ISSUED TO ASSEMBLY AREAS, AFFECTS SUB-ASSEMBLIES AND FINAL ASSEMBLIES.</td>
</tr>
<tr>
<td>C</td>
<td>AFFECTS ALL FUTURE PARTS FOR WHICH PRODUCTION ORDERS HAVE NOT YET BEEN INITIATED, BUT CHANGE NEED NOT BE CARRIED OUT UNTIL STOCK IS BALANCED.</td>
</tr>
<tr>
<td>D</td>
<td>AFFECTS NO PARTS OR ASSEMBLIES-FOR INFORMATION AND RECORDS ONLY.</td>
</tr>
</tbody>
</table>

**REQUESTED BY AND DATE:**  
G. HANSEN 8-22-81  
**APPROVED BY AND DATE:**  
E. STANLEY 8-22-81  
**DISTRIBUTION**

- MANUFACTURING
- DRAFTING
- TEST
- PURCHASING
- OUTSIDE VENDOR
- Q.C.
- C.S.
Monitor Removal

Release the fasteners on the control panel and swing it down. Directly under the front plexiglass, you will notice a small frame support piece. Grab it by the hand slot in the middle and pull it from the game. The front plexiglass can now be removed easily by lifting it on the bottom slightly and pulling it outward. Next, remove the interior graphics. The graphics frame, located directly behind the interior graphics, can be removed by gripping two sides and carefully lifting it out. Now open the the rear panel on the cabinet and disconnect the power cable and video cable to the monitor. Now go back to the front and remove the four bolts in each corner of the monitor board. Now grasp the board by the hand holds provided at the top and bottom and pull the monitor from the cabinet. To replace follow the same procedure in reverse except you will notice on the rear of the new monitor there is an extra board added. Mount this board on the cabinet with the tie wraps provided and the connector coming from this board is plugged into the video cable. Reconnect the power cable as usual. Before closing up, ensure that the heat sinks on the driver transistors are not touching each other.