# THE REAL GHOSTBUSTERS

DATA EAST

## INSTRUCTIONS



**BEAM** TO CAPTURE GHOSTS.



**SHOOT** TO KILL ENEMY.

- Insert coin(s) in proper coin slot and press the start button.
- Additional players may join game at any time.
- Shoot monsters with single shot to make them ghosts.
- Capture 100 ghosts with beam for bonus life.

- Pick up these items for special features:



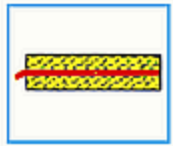
EXTENDED FIREPOWER



PROTECTS GHOST-BUSTER



SHIELD



BEAM ENERGY UP



LOSE ENERGY

# THE REAL GHOSTBUSTERS™

OPERATION & SERVICE MANUAL




DATA EAST USA, INC.

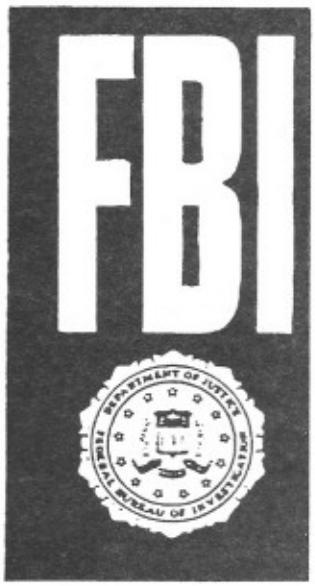
470 NEEDLES DRIVE
SAN JOSE, CA 95112
TELEPHONE: (408) 286-7074

780-0070-00

# WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device persuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

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.

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# THE REAL GHOSTBUSTERS™

## SERVICE & OPERATION MANUAL

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FIRST PRINTING
OCTOBER 1987

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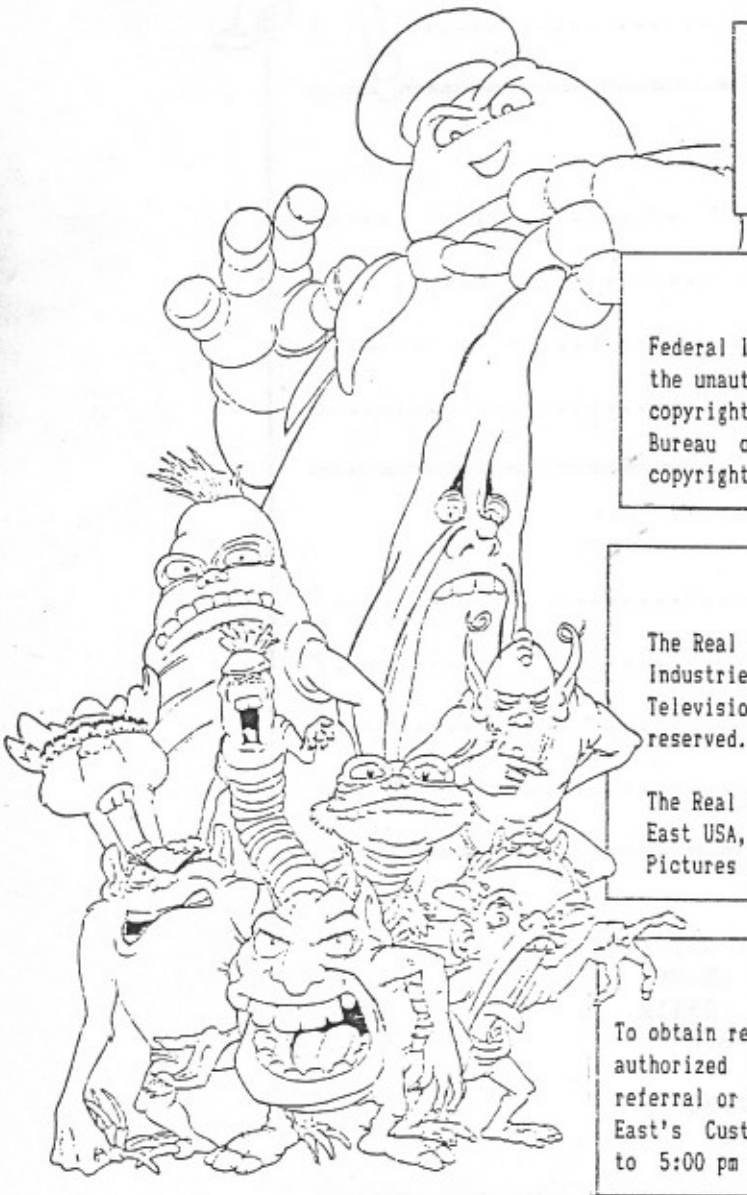

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## WHO YA GONNA CALL??

To obtain replacement parts or technical assistance, contact the authorized Data East distributor in your area. If you require referral or further technical assistance, you may contact Data East's Customer Service department during the hours of 8:00 am to 5:00 pm Pacific Time at (408) 286-7074.

# 1. GENERAL INFORMATION

## A. Installation and Set-Up.



The Real Ghostbusters™ video game is shipped with the control panel removed and bolted to the back door of the cabinet to prevent damage in shipment. Follow the instructions below to install the control panel and prepare the game for operation.

Locate the keys in the package on the front of the cabinet, open the Coin Door, and remove the shipping screws to remove the Rear Access Door. Remove the Control Panel from the Rear Access Door. The 2 bolts used to hold the Control Panel to the rear access door are also used to mount the control panel to the cabinet. The two remaining bolts required can be found threaded into nuts in the control panel.

The control panel has two (2) retaining clamps that hold down the hinged section of the panel. Release the clamps at this time. Position the control panel on the front of the cabinet. Raise up the hinged section of the panel and reach inside the cabinet to start threading in the four mounting bolts. Thread in the bolts until they are finger tight. Using a ratchet with a 7/16" socket, tighten the mounting bolts. This may be easier to reach from the rear of the cabinet.

Plug the three (3) connectors from the control panel into the main harness, matching the labels on the connectors. Check the rest of the game wiring for loose or unplugged connectors, and for secure mounting of the monitor, power supply, and game pcb. Stabilize the cabinet using the leg levelers in the floor of the cabinet to prevent the game from rocking.

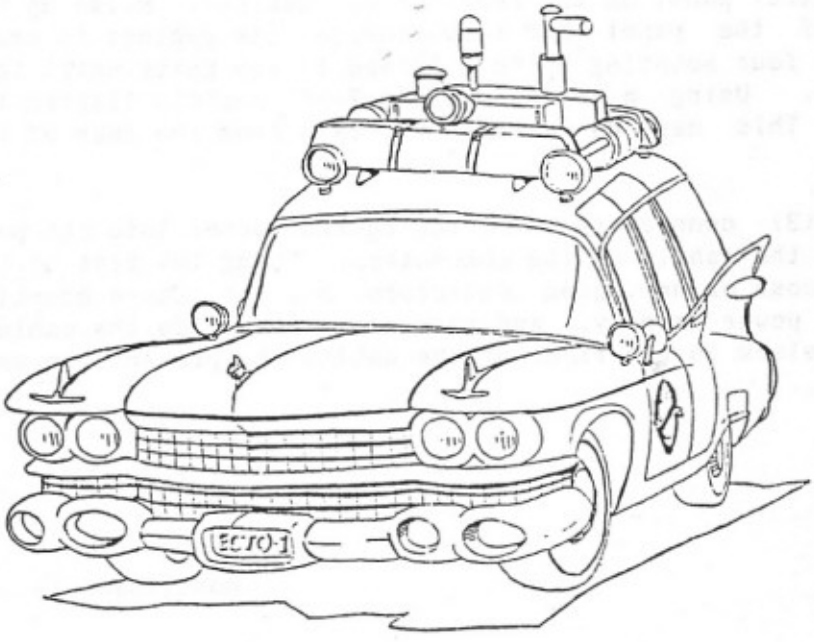
continued....

The selectable options have been pre-set at the factory for optimum player appeal, however, refer to Chapter 2, Section B: Dip Switch Options in this manual to set the game up for special requirements.

Remove the power cord from the inside of the cabinet and insert the strain relief plate into the slot at the bottom of the rear access door opening. Plug the AC cord into a grounded 117 VAC outlet and flip the power switch to the ON position. Allow 2 to 3 minutes for the monitor to warm up and check for proper demonstration mode video on the screen. Insert the proper coinage into a coin slot and start a game. Check for proper operation of all joystick controls and switches.



The game is now ready for operation! Please take a minute to fill out the reply form included with this manual. We welcome any comments or suggestions that you have regarding Data East's products and services.



## 2. GAME INFORMATION

### A. How to Play.



The Real Ghostbusters™ is a three player interactive video game, meaning that one, two, or three players may coin up and join the game at any time, even while a game is currently being played. Each of the three coin inputs is dedicated to one of the three sets of player controls to allow seperate coin credits per player. Each set of controls has an 8 way joystick, a Shoot (fire) button, and a Beam button. The Shoot button also functions as the Player Start button.



To begin play, a player must insert the proper coinage into the coin slot and press the respective Shoot/Start button. The player image will appear on the screen and can be manipulated up, down, right, and left using the joystick.

Aim the player image's gun at an enemy target and press the Shoot button. When hit, the enemy image will turn into a transparent ghost image. Press the Beam button and aim at the transparent ghost to 'capture' it (pull it into your gun). Find and pick up the key to complete the scene and the player image will deposit all the 'captured' ghosts into the Ghost Storage chamber in a computer animated sequence before going on the next scene.

The player must avoid being hit or touched by the enemy. Picking up special items can reward the player with additional firepower, shields, and lives. Capture and deposit 100 ghost images for an extra life.

To aid in destroying large enemies, two or more players can cross their beams while aiming at the enemy to create very intense firepower and will vanquish the enemy much quicker.

## B. Game Options.

The Real Ghostbusters™ game options can be fine tuned to suit the location via two sets of dip-switches on the DE-0273 pcb. Remove power to the game before changing the settings to avoid possible shock hazards. Unused switches indicated should be left in the OFF position as shown for proper operation. Factory settings are **boldface.**

### DIP SWITCH 1

| REMARKS | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| COIN | **1 COIN = 1 PLAY** | **OFF** | **OFF** | | | | | | |
| VS | 1 COIN = 2 PLAY | ON | OFF | | | | | | |
| CREDIT | 1 COIN = 3 PLAY | OFF | ON | | | | | | |
| | 2 COIN = 1 PLAY | ON | ON | | | | | | |
| NOT USED | **MUST BE OFF** | | | **OFF** | **OFF** | **OFF** | | | **OFF** |
| ATTRACT MODE | **YES** | | | | | | **OFF** | | |
| SOUND | NO | | | | | | ON | | |
| SCREEN | **NORMAL** | | | | | | | **OFF** | |
| FLIP | FLIP | | | | | | | ON | |



### DIP SWITCH 2

| REMARKS | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| NUMBER OF | **THREE** | **OFF** | **OFF** | | | | | | |
| LIVES | FIVE | ON | OFF | | | | | | |
| | ONE | OFF | ON | | | | | | |
| | INFINITE | ON | ON | | | | | | |
| LEVEL OF | **NORMAL** | | | **OFF** | **OFF** | | | | |
| DIFFICULTY | EASY | | | ON | OFF | | | | |
| | HARD | | | OFF | ON | | | | |
| | HARDEST | | | ON | ON | | | | |
| SCENE | **5:00** | | | | | **OFF** | **OFF** | | |
| TIME (MAX) | 6:00 | | | | | ON | OFF | | |
| IN | 4:30 | | | | | OFF | ON | | |
| MINUTES | 4:00 | | | | | ON | ON | | |
| CONTINUE | NO | | | | | | | OFF | |
| MODE | **YES** | | | | | | | **ON** | |
| BEAM ENERGY | NORMAL | | | | | | | | **OFF** |
| PICK-UP | UP 1.5% | | | | | | | | ON |

## C. System Adjustments.

The Volume Control, Coin Counter, and Service Switch are located on the Service Panel. The Service Panel is accessed by opening the Coin Door and locating it on the wall on the left side.

* The Coin Counter increments once for every coin dropped through any of the coin entry slots.

* The Volume Control is used to adjust the overall loudness of the game sounds. NOTE: The volume control potentiometer on the DE-0273 pcb is pre-set to mid-range at the factory and should not be adjusted.

* The Service Switch can be used to add credits to the game without incrementing the Coin Counter.



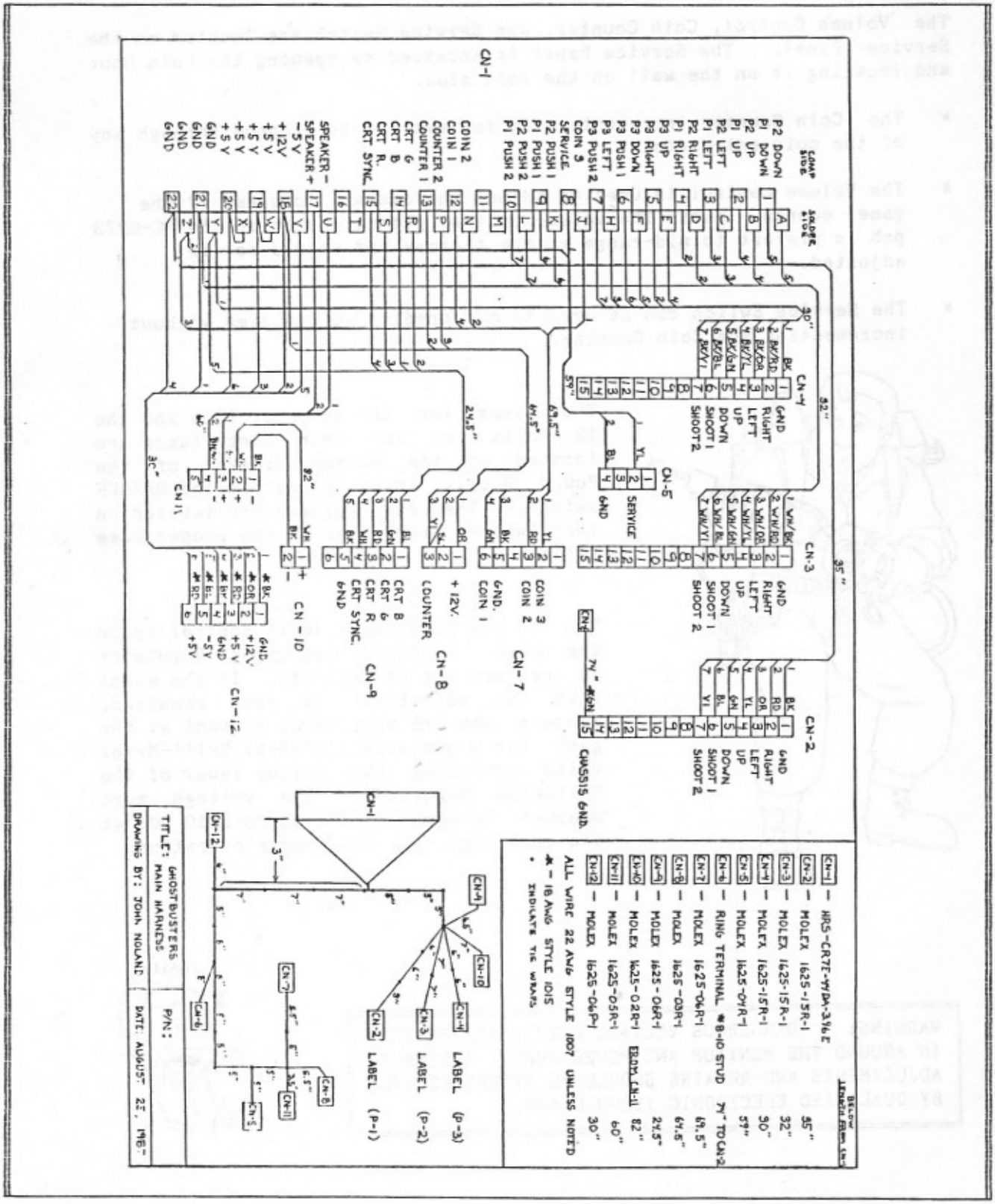
The fuses for the AC power line and the 12 volts for the Coin Door lamps are located on the Switch Bracket of the Power Supply assembly as is the ON/OFF switch. The fuse holders are labeled on the Switch Bracket as to the proper fuse ratings.

The +5 vdc adjustment level control is on the Power Supply's Switching Regulator is pre-set at the factory. In the event that an adjustment is ever required, measure the +5 volt level present at the game logic pcb with a Digital Multi-Meter while adjusting the output level of the Switching Regulator. The voltage must measure between +4.90 vdc to 5.10 vdc at the game logic pcb for proper operation.

WARNING: DANGEROUS VOLTAGE LEVELS ARE PRESENT IN AROUND THE MONITOR AND POWER SUPPLY ASSEMBLY. ADJUSTMENTS AND REPAIRS SHOULD BE ATTEMPTED ONLY BY QUALIFIED ELECTRONIC TECHNICIANS.



## D. Wiring Diagram.



# 3. REPLACEMENT PARTS LIST

The following section lists the replacement parts available for The Real Ghostbusters™ upright video game. When ordering replacement parts from your distributor, include the Data East part number to help expedite your order accurately.

## A. Final Assembly.

| | |
|---|---|
| CABINET, EMPTY, 1US30, GREY | 365-0012-00 |
| CONTROL PANEL ASSY., GHOSTBUSTERS | 510-0121-00 |
| COIN DOOR ASSY., 3 SLOT | 510-0119-00 |
| MONITOR ASSY., UNIVERSAL H/V | 510-0120-00 |
| POWER SUPPLY ASSY., 11AMP | 510-0002-01 |
| PCB SET, GHOSTBUSTERS | 510-0110-00 |
| PCB, EMI FILTER, DE-0239 | 520-0083-00 |
| RETAINER, PLEX, MONITOR | 535-0073-00 |
| PLEX, CLEAR, DISPLAY 23.75 X 23.75 | 660-0001-01 |
| UNDERLAY CARD, GHOSTBUSTERS | 810-0026-00 |
| DECAL, LEFT SIDE, GHOSTBUSTERS | 820-0041-01 |
| DECAL, RIGHT SIDE, GHOSTBUSTERS | 820-0041-02 |
| DECAL, COIN ENTRY DOOR | 820-0044-00 |
| PLEX, MARQUEE, GHOSTBUSTERS | 830-0033-00 |
| RETAINER, PLEX, MARQUEE | 535-0078-00 |
| SPEAKER, 4" RND., 4 OHM | 031-0004-00 |
| SPEAKER, 6 X 9" OVAL (REPLACES ABOVE) | 031-0006-00 |
| HARNESS, MAIN, GHOSTBUSTERS | 036-0152-00 |
| HARNESS, SPEAKER | 036-0033-01 |
| HARNESS, RGB PIGTAIL | 036-0027-00 |

## B. Control Panel.

| | |
|---|---|
| CONTROL PANEL, BARE | 535-0074-00 |
| OVERLAY, CTRL PNL, GHOSTBUSTERS | 800-0028-00 |
| PUSHBUTTON, SHORT, RED | 350-0001-02 |
| PUSHBUTTON, SHORT, YELLOW | 350-0001-04 |
| PUSHBUTTON, SHORT, BLUE | 350-0001-06 |
| PUSHBUTTON HOLDER W/SWITCH | 185-0001-00 |
| NUT, PAL, NYLON | 240-0001-01 |
| HARNESS, CTRL PNL, GHOSTBUSTERS | 036-0153-00 |
| JOYSTICK, 8 WAY, MICROSWITCH | 450-0014-01 |

## C. Power Supply.

| | |
|---|---|
| REGULATOR, 5V @ 11 A & 12V @ 1 A | 001-0012-00 |
| ISOLATION TRANSFORMER | 010-0001-00 |
| NOISE FILTER | 150-0004-00 |
| SWITCH BRACKET W/FUSEHOLDERS | 515-0004-00 |
| HARNESS, DC OUT, 11A | 036-0031-02 |

## D. Misc. Parts.

| | |
|---|---|
| CASHBOX WITH LID | 535-0076-00 |
| CASHBOX LOCKING BAR | 535-0077-00 |
| FIXTURE, LAMP, DUAL | 170-0002-00 |
| LAMP, 40 WATT, INCANDESCENT | 165-0004-01 |
| LAMP, 14 VDC .19 AMP WEDGE, #161 | 165-0009-00 |
| SERVICE PANEL ASSY. | 515-0029-00 |
| COIN COUNTER, 12 VOLT | 090-0002-00 |
| POT, WW, 50 OHM, 12.5 W | 123-0008-12 |
| SWITCH, PUSHBUTTON, MOM. | 180-0022-00 |
| RESTRICTOR PLATE, 8 WAY W/SWITCHES | 455-0038-01 |
| RESTRICTOR PLATE, 8 WAY W/O SWITCHES | 455-0037-01 |
| MICROSWITCH, MOM | 180-0017-00 |
| KNOB W/SHAFT, BLK | 455-0030-00 |

CUSTOMER REPLY CARD

To receive your copy of The Real Ghostbusters™ Technical Service manual (including schematic diagrams), return the form below to the Data East, please include the Serial Number of the game cabinet. No manuals will be sent without Serial Numbers. Indicate if you would like to be on our Direct Mail list for service information.

We welcome your feedback, so please include any comments you have regarding our products and services in the section below and mail this form to:

Data East USA, Inc.
470 Needles Drive
San Jose, CA. 95112

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**THE REAL GHOSTBUSTERS™ TECHNICAL SUPPORT MANUAL REQUEST FORM**

COMPANY NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

TELEPHONE: _____

YOUR NAME: _____ TITLE: _____

GAME CABINET SERIAL NUMBER: _____

ADD YOUR COMPANY TO OUR DIRECT MAIL LIST? (circle one) YES NO

COMMENTS: _____


STAY PUFT

## Warranty Information

Data East USA, Inc., ("Seller"), warrants only to the initial purchaser ("Buyer") of its products that the items listed below are free from defects in material and workmanship under normal use and service for the period specified:

| | |
|---|---|
| GAME LOGIC PRINTED CIRCUIT BOARD(S) | 90 DAYS |
| SWITCHING REGULATOR(S) | 30 DAYS |
| MONITOR PRINTED CIRCUIT BOARD(S) | 30 DAYS |

No other parts of Seller's products are warranted.

Warranty periods are effective from initial date of shipment from Seller to Buyer. Seller's sole liability shall be, at its option, to repair or replace products which are returned to Seller during the warranty periods specified, provided:

1. Seller is notified promptly upon discovery by Buyer that stated products are defective.

2. Such products are properly packaged and then returned freight pre-paid, to Seller's plant.

This warranty does not apply to any parts damaged during shipment and/or due to improper handling, or due to improper installation or usage, or alteration. In no event shall the Seller be liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages, or any other losses incurred by the customer in connection with the purchase of a Data East USA, Inc., product.

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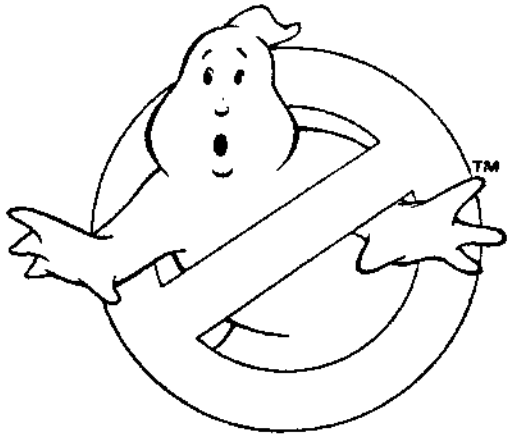
# THE REAL GHOSTBUSTERS™

2 PLAYER CONVERSION KIT

MODEL NUMBER 1US30K

INSTALLATION & SERVICE MANUAL

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MANUAL PART NUMBER: 780-0070-01

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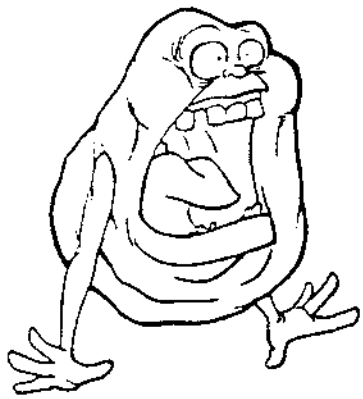



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# GHOSTBUSTERS 2P

MODEL NUMBER 1US30

## INSTALLATION & SERVICE MANUAL

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SAN JOSE, CA. 95112
(408) 286-7074



FIRST PRINTING
FEBRUARY 1988

PN: 780-0070-01

# 1. GENERAL INFORMATION

## A. Specific Requirements.

The Ghostbusters 2P game is a One or Two Player video game conversion kit. It is intended to be installed into an existing video game cabinet and comes with all the necessary components to make the converted game look and play like a new dedicated game!

THE GAME TO BE CONVERTED MUST MEET THE FOLLOWING REQUIREMENTS

| | |
|---|---|
| MONITOR | Horizontal, RGB, negative Composite Sync input. |
| POWER SUPPLY | + 5 vdc @ 7 amperes, and + 12 vdc @ 1 ampere (min) |

## B. List of Materials.

| QTY | DESCRIPTION | PART NUMBER |
|---|---|---|
| 1 | PCB, GHOSTBUSTERS 2P | 510-0110-01 |
| 1 | PCB, EMI FILTER, DE-0239 | 520-0083-00 |
| 1 | MAIN HARNESS, GENERIC KIT | 036-0154-00 |
| 2 | JOYSTICK, 8 WAY, MICROSW., CC | 450-0014-01 |
| 2 | PUSHBUTTON ASSY, RED | 350-0016-02 |
| 4 | PUSHBUTTON ASSY, YELLOW | 350-0016-04 |
| 4 | PUSHBUTTON ASSY, BLUE | 350-0016-06 |
| 1 | CONTROL PANEL OVERLAY, GENERIC | 800-0030-00 |
| 1 | UNDERLAY CARD, GENERIC, H-V | 810-0014-00 |
| 2 | LABEL, BUTTON ID, GENERIC | 406-0085-00 |
| 1 | LABEL, INSTRUCTIONS, GHOSTBUSTERS | 406-0078-00 |
| 2 | SIDE DECAL, GENERIC | 820-0040-00 |
| 1 | MARQUEE PLEX, GHOSTBUSTERS | 830-0033-00 |
| 1 | FCC WARNING LABEL | 406-0003-00 |
| 1 | MANUAL, INSTALLATION & SERVICE | 780-0070-01 |

## C. Installation Instructions.

When selecting a game to convert, make sure that the Power Supply, the Monitor, and the Coin Acceptors are functional. There is nothing more frustrating than installing a conversion kit and having it not operate due to a faulty Monitor or Power Supply. I know...we will all suspect that the new Logic PCB is defective, right?

It is mandatory that the cabinet be wired to conform with all National and Local Electric Code requirements before the conversion is attempted. The primary section must have adequate noise filtering on the AC line to prevent unwanted conducted radio frequency interference. 'Adequate' is defined as a filter with both common mode and differential mode filtering and a minimum current capacity of 1 ½ amperes.

According to the FCC and other regulatory agencies, every video game must have be clearly labeled with the Name and Address of the Original Manufacturer, Date of Manufacture (or serial number), Voltage Rating, Current Rating, Suitability for indoor or outdoor use, and Model Number. In addition, the FCC requires that after conversion, the unit must be labeled with a suitable warning stating that radio frequency interference may result from use in a residential area. An acceptable sticker is included in this kit.

IT IS THE RESPONSIBILITY OF THE PERSON PERFORMING THE INSTALLATION TO COMPLY WITH ALL LABELING REQUIREMENTS.

### TAKING IT APART...

Performing a few simple tasks when preparing a game to be converted can save you much time and effort when you are installing the conversion kit.

Find the wiring diagram of the game to be converted! You will need to identify the required DC power supply output wires and the monitor video and sync wires. Note the color coding of these wires or better yet, label them as to their function. This kit contains a new Main Harness, but you will need to splice it into the existing power supply and video wires.

Remove the existing game harness parts that will not be used in this conversion. NOTE: You are modifying only the secondary (DC from power supply) and I/O (video, speaker, and controls) section of the wiring. DO NOT MODIFY OR REMOVE THE PRIMARY AC WIRING. The primary AC wiring has been designed and built to comply with UL and FCC regulations and must not be altered.

Remove the game pcbs. Remove all exterior decals and repaint the cabinet if necessary. Repair any cabinet damage at this point. Remove the monitor plex (or glass). If your plex has silkscreened artwork on it, you will need to strip it off, or replace the plex with a piece cut to the same size. Using the Monitor Plex as a template, cut the supplied Underlay Card to the same size as the plex. **NOTE: Be certain that the opening in the Underlay Card lines up with the Monitor CRT.**

Remove the Marquee Plex from the game and use it as a template to cut the new Marquee Plex down to the correct size. Remove the control panel from the game and remove all controls and graphics from it.

## PUTTING IT TOGETHER...

**Control Panel:** This is never any fun, so lets do it first and get it out of the way. Select a button and joystick layout that fits your control panel size. Refer to figure 1 for the suggested panel layout.

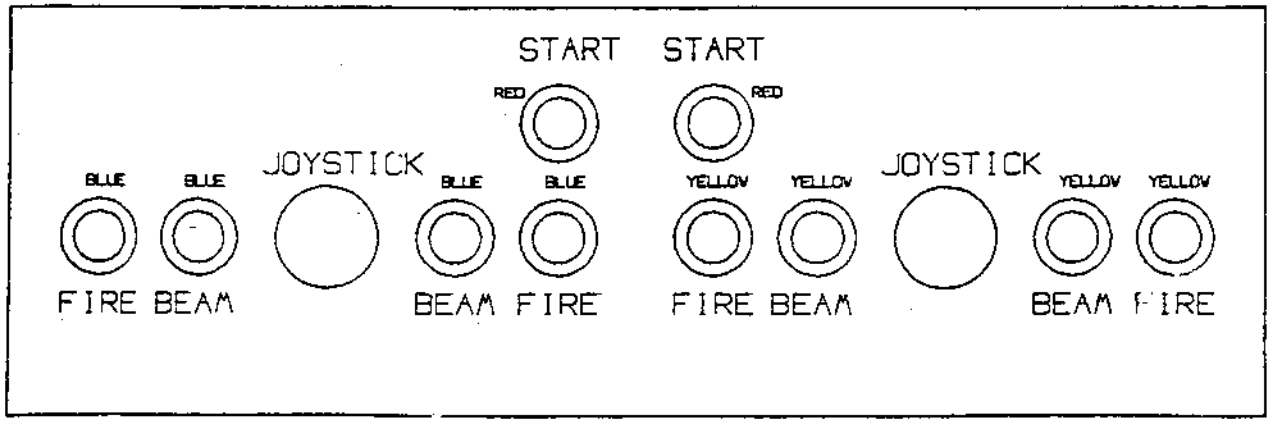


Figure 1

## C. Installation Instructions (cont.)

Install the Control Panel Overlay by peeling off the paper backing and carefully laying the overlay down onto the panel. Smooth it out starting in the center and working your way out to the edges, removing all of the trapped air pockets. If possible, cut the edges of the overlay oversize and fold the excess under the panel. Cut out the button and joystick holes. Install the Control Function Labels found on the sheet of labels supplied in your kit. NOTE: Install the Control Function Labels in the formation shown in figure 1.

Cover the Control Panel Overlay and Control Function Labels with a clear plex to protect the overlay and labels. Install the buttons and joystick at this time. Mount the completed control panel to the cabinet.

**Game PCB:** Mount the game PCB set to a convenient wall of the cabinet using the mounting feet and hardware supplied with the pcb. Plug the EMI Filter PCB onto the game PCB set.

**Power Supply Wiring:** Plug the Main Harness edge connector onto the EMI Filter PCB's edge connector. Separate the DC Power wires and route them through the cabinet to the Power Supply. Try to keep the length of these wires to a minimum for best results. **NOTE: Use a minimum of 2 wires EACH for the +5 Volts and the Ground lines between the power supply and the PCB.** Terminate them at the Power Supply as required.

NOTE: IMPROPER WIRING WILL DAMAGE THE PCB SET AND VOID YOUR WARRANTY!

**Player Control Wiring:** Route the Pushbutton and Joystick wires up to their proper destinations, cut to length, and terminate as required.

REFER TO THE EDGE CONNECTOR PIN-OUT ON PAGE 8 FOR WIRE COLOR AND FUNCTION INFORMATION.

## C. Installation Instructions (cont.)

**Monitor Wiring:** The game PCB set has outputs for Positive Red, Green, Blue, and Negative Composite Sync. If your monitor has separate Horizontal and Vertical sync inputs, hook the Composite sync to the negative Horizontal input. This method will work on most monitors, however some model Electrohome's require that the Composite sync signal be hooked up to both the negative Horizontal and Vertical inputs. Contact your distributor for more information if you are uncertain as to how to hook up the monitor wires.

**Coin Door:** The Coin Counter(s) may be the 12 volt or 6 volt type as the game PCB utilizes an open collector drive circuit. Hook one coin counter wire to the required voltage (+12v or +5v) and the other wire to the coin counter signal wire from the game PCB.

**Graphics:** Install the Game Instruction Labels onto the Underlay Card, either in the lower portion, or on one side of the picture tube cutout. Install the Underlay Card under a clear monitor plex (or glass). Mount the new Marquee Plex, and install the Side Decals. **NOTE: Install the FCC Warning label to the upper rear of the cabinet.**

## THE BIG TEST!

**REMOVE THE MAIN HARNESS EDGE CONNECTOR FROM THE GAME PCB!**

Apply power to the game. **Measure the +5 volts** at the edge connector and **adjust to +5.15 VDC** using a Digital Multi-Meter. Measure the +12 and -5 vdc wire to be certain they are connected properly and are on the correct terminals. Remove power to the game.

**RE-CONNECT THE MAIN HARNESS EDGE CONNECTOR!**

Apply power to the game once again. The attract mode video should appear on the screen. Adjust the picture size and colors on the monitor to get the optimum appearance. Adjust the Sync and Hold controls on the monitor for a stable picture. Coin it up and give it a try! Test all the controls and sound for proper operation.

Congratulations! You have successfully installed your Data East conversion kit! We hope that it gives you many years of successful operation.

# 2. GAME INFORMATION

## A. Game Options.

The Ghostbusters 2P game options can be fine tuned to suit the location via two sets of dip-switches on the Game PCB. Remove power to the game before changing the settings to avoid possible shock hazards. Unused switches indicated should be left in the OFF position as shown for proper operation. Factory settings are **boldface.**

### DIP SWITCH 1

| REMARKS | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| COIN | **1 COIN = 1 PLAY** | **OFF** | **OFF** | | | | | | |
| VS | 1 COIN = 2 PLAY | ON | OFF | | | | | | |
| CREDIT | 1 COIN = 3 PLAY | OFF | ON | | | | | | |
| | 2 COIN = 1 PLAY | ON | ON | | | | | | |
| NOT USED | **MUST BE OFF** | | | **OFF** | **OFF** | **OFF** | | | **OFF** |
| ATTRACT MODE | **YES** | | | | | | **OFF** | | |
| SOUND | NO | | | | | | ON | | |
| SCREEN | **NORMAL** | | | | | | | **OFF** | |
| FLIP | FLIP | | | | | | | ON | |

### DIP SWITCH 2

| REMARKS | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| NUMBER OF | **THREE** | **OFF** | **OFF** | | | | | | |
| LIVES | FIVE | ON | OFF | | | | | | |
| | ONE | OFF | ON | | | | | | |
| | INFINITE | ON | ON | | | | | | |
| LEVEL OF | **NORMAL** | | | **OFF** | **OFF** | | | | |
| DIFFICULTY | EASY | | | ON | OFF | | | | |
| | HARD | | | OFF | ON | | | | |
| | HARDEST | | | ON | ON | | | | |
| SCENE | **5:00** | | | | | **OFF** | **OFF** | | |
| TIME (MAX) | 6:00 | | | | | ON | OFF | | |
| IN | 4:30 | | | | | OFF | ON | | |
| MINUTES | 4:00 | | | | | ON | ON | | |
| CONTINUE | NO | | | | | | | OFF | |
| MODE | **YES** | | | | | | | **ON** | |
| BEAM ENERGY | **NORMAL** | | | | | | | | **OFF** |
| PICK-UP | UP 1.5% | | | | | | | | ON |

## B. PCB Edge Connector Pin-Out.

The game PCB set uses a 56 pin 'JAMMA' standard Edge Connector pin-out as shown below in figure 2. Please note that the Main Harness supplied in the kit utilizes the pin-out and wire colors shown in figure 3 on the following page.

| SOLDER SIDE | PIN # | | PARTS SIDE |
|---|---|---|---|
| GND | A | 1 | GND |
| GND | B | 2 | GND |
| +5V | C | 3 | +5V |
| +5V | D | 4 | +5V |
| | E | 5 | |
| +12V | F | 6 | +12V |
| MISTAKEN INPUT PREVENTION | H | 7 | MISTAKEN INPUT PREVENTION |
| COIN COUNTER 2 | J | 8 | COIN COUNTER 1 |
| | K | 9 | |
| SPEAKER(-) | L | 10 | SPEAKER (+) |
| | M | 11 | |
| VIDEO GREEN | N | 12 | VIDEO RED |
| VIDEO SYNC | P | 13 | VIDEO BLUE |
| SERVICE SWITCH | R | 14 | VIDEO GND |
| | S | 15 | |
| COIN SWITCH 2 | T | 16 | COIN SWITCH 1 |
| START SWITCH 2 | U | 17 | START SWITCH 1 |
| 2P CONTROL 1 UP | V | 18 | 1P CONTROL 1 UP |
| 2P CONTROL 2 DOWN | W | 19 | 1P CONTROL 2 DOWN |
| 2P CONTROL 3 LEFT | X | 20 | 1P CONTROL 3 LEFT |
| 2P CONTROL 4 RIGHT | Y | 21 | 1P CONTROL 4 RIGHT |
| 2P CONTROL 5 PUSH 1 | Z | 22 | 1P CONTROL 5 PUSH 1 |
| 2P CONTROL 6 PUSH 2 | a | 23 | 1P CONTROL 6 PUSH 2 |
| | b | 24 | |
| | c | 25 | |
| | d | 26 | |
| GND | e | 27 | GND |
| GND | f | 28 | GND |

Figure 2

## C. Main Harness Edge Connector Pin-Out.

The DE-0239 EMI Filter PCB uses a 44 pin DECO standard Edge Connector pin-out as shown below in figure 3.

| SOLDER SIDE | | | | COMPONENT SIDE | |
|---|---|---|---|---|---|
| WIRE COLOR | FUNCTION | PIN # | PIN # | FUNCTION | WIRE COLOR |
| GR/WH | 2P DOWN | A1 | B1 | 1P DOWN | GR |
| YL/WH | 2P UP | A2 | B2 | 1P UP | YL |
| OR/WH | 2P LEFT | A3 | B3 | 1P LEFT | OR |
| RD/WH | 2P RIGHT | A4 | B4 | 1P RIGHT | RD |
| PK/WH NOT USED | 2P PUSH3 | A5 | B5 | 1P PUSH3 NOT USED | PI |
| | NOT USED | A6 | B6 | NOT USED | |
| | NOT USED | A7 | B7 | NOT USED | |
| | NOT USED | A8 | B8 | NOT USED | |
| BL/WH | 2P PUSH1 (FIRE) | A9 | B9 | 1P PUSH1 (FIRE) | BL |
| VI/WH | 2P PUSH2 (BEAM) | A10 | B10 | 1P PUSH2 (BEAM) | VI |
| RD/WH | 2P START | A11 | B11 | 1P START | BR |
| RD | COIN 2 | A12 | B12 | COIN 1 | GR |
| SL | COUNTER 2 | A13 | B13 | COUNTER 1 | VI |
| GR/WH | VIDEO GREEN | A14 | B14 | VIDEO BLUE | BL/WH |
| RD/WH | VIDEO RED | A15 | B15 | VIDEO SYNC | WH/BK |
| | NOT USED | A16 | B16 | NOT USED | |
| BK/WH | SPEAKER (-) | A17 | B17 | SPEAKER (+) | WH |
| BL | - 5 VOLTS | A18 | B18 | + 12 VOLTS | OR |
| RD | + 5 VOLTS | A19 | B19 | + 5 VOLTS | RD |
| RD | + 5 VOLTS | A20 | B20 | + 5 VOLTS | RD |
| BK | GROUND | A21 | B21 | GROUND | BK |
| BK | GROUND | A22 | B22 | GROUND | BK |

Figure 3

# WARRANTY INFORMATION

Data East USA, Inc., ("Seller"), warrants only to the original purchaser ("Buyer"), of its products that the items listed below are free from defects in material and workmanship under normal use and service for the period specified:

| | |
|---|---|
| **GAME LOGIC PRINTED CIRCUIT BOARD(S)** | **90 DAYS** |

No other parts of the Seller's products are warranted.

Warranty periods are effective from date of initial shipment from Seller to Buyer. Seller's sole liability shall be, at its option, to repair or replace products which are returned to Seller during the warranty periods specified, provided:

1. Seller is notified promptly upon discovery by buyer that stated products are defective.
2. Such products are properly packaged and then returned freight pre-paid, to a place specified by Seller.

This warranty does not apply to products damaged during shipment and/or due to improper handling, or due to improper installation or usage, or alteration. In no event shall Seller be liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages, or any other losses incurred by the customer in connection with the purchase of a Data East USA, Inc., product.

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