PINBALLROM.COM
General ROM / NVRAM / IC Removal and Installation Instructions:

(DO NOT REMOVE YOUR CHIP UNTIL YOU READ THESE INSTRUCTIONS)

***The chips have <u>notches</u> in them, do not insert by the labels on the chips, insert by the <u>notches</u> in the chips (step 2)

PREPARATIONS:
Depending on the age and manufacturer of your game, replacing a chip may zero out all audit and adjustment information, and produce an "error" message when you power up the game after replacing the chip (such as "Totals reset", "Factory Settings", or "Volatile RAM Error").
If you need to retain any of the audit or adjustment information, make a record of it before removing the old chip.
Always remove and replace chips WITH POWER OFF!

Before changing ROM / NVRAM / IC chip(s) in your game, do the following 5 steps:

1. <u>Locate the chip you will be changing.</u>
Location of chips will vary depending on the game, manufacturer, age, etc.
If you are unsure about the location of the chip you are replacing, check the information written on the label on the chip, consult your game operation manual, or contact me (Dave) at:
pinballrom@rogers.com

2. <u>Locate the notch on the chip that is in your game.</u>
The notch is a semi-circle, or "half-moon" mark, and is always on one end of the chip.
Depending on the location and orientation of the chip in your particular game, the notch will be facing in the direction of up, down, left, or right.
Make note of this- the replacement chip will have to be installed in the SAME direction as the existing chip, otherwise it could be damaged or at least will not work. This step is most important.

3. <u>Remove the existing chip.</u>
    (Patience and caution are required for this step).
To do this, use a tool such as a small flat-blade screwdriver, knife, or an actual chip remover tool.
Insert tool carefully under one end of the chip and gently start to pry upward to extract the chip from the socket.

NOTE: The tool must go between the chip and the chip socket. Be careful not to put the tool underneath the chip socket, otherwise you could damage the socket, the PC board, and the chip if the socket is pried off the board.

As you pry the chip legs out of the chip socket, continue to work the tool underneath the chip. The idea is to try to pry the chip straight up and out of the socket, rather than bending it back as it comes out. Bending the chip back will bend and possibly break the chip legs, rendering it useless.

Once the chip is nearly free of the socket, grasp it with your fingers and gently work it the rest of the way out of the socket. Be sure not to bend the chip backwards and/or damage any chip legs.

4. Install the replacement chip.

The easiest way to successfully install a chip into a chip socket is to first line up one side of the chip legs with one side of the chip socket. Don't press the chip legs down into the socket yet -just allow them to rest lined-up on the one side of the chip socket.

Next, gently "roll" the chip over to line up the legs with the other side of the chip socket. You may need to gently press the chip back toward the other side of the socket in order to get the legs on the second side to line up just right with the chip socket. Watch carefully as you seat the chip into the socket. Make sure all chip legs are IN the socket and that none are hanging outside, or bent underneath the chip. If any legs do not go straight into the socket, then the game will not function and you could risk damage to the game, and the chip. This step is most important, and requires patience and caution.

Gently press down on the chip to push it into the socket. This may actually require a bit of force to ensure that the chip is fully seated.

 5. Once you have double-checked your work, power on the game, and verify that it boots up properly.

If you have replaced a CPU (game) ROM chip, your game's audits and settings may have to be reset.

Your game may give you an "error" message such as "Factory Settings Restored", "Totals Cleared", or even "Volatile RAM Error" on some Capcom games.

To clear this error, simply turn your game off, then back on, or go into your game's menu system and reset the audits and adjustments.

Data East, Sega, and Stern Pinball Display ROM Replacement:

Some late-model Data East, all Sega, and all new Stern Pinball games have a separate ROM chip for the display unit. This display ROM chip is located on the back side of the display unit itself (which is mounted to the speaker/display panel). To replace this chip, you will first need to remove the speaker/display panel.

3 STEPS:

1. Remove back box translite (backglass) assembly and set it aside to gain access to the speaker/display panel. This panel may be secured in place by two screws at either top end- check for these before trying to remove the panel.
This was usually done in Data East games -screws and grey plastic spacers were used. Remove these before attempting to remove the panel. Grasp panel with one or both hands and lift straight upward. Panel should come up about an inch.

2. Pull the top of the panel outward from the back box.

3. Lay the panel down on the playfield glass surface. This will allow you access to the back of the display unit. You should then be able to locate the ROM chip.

Data East, Sega, and late-model Stern Display ROM Jumper Info:
Single chip goes in ROMO position.

Some Data East, Sega, and late-model Stern pinball games may have shipped from the factory with TWO ROM chips used on the display unit.

Updates to the display ROM software may be available on ONE ROM chip, rather than TWO. When replacing an original TWO-CHIP ROM SET with ONE ROM chip, you must remove the jumper at location R11 on the display unit PC board, otherwise the replacement chip will not work.
Likewise, when replacing ONE ROM chip with TWO ROM chips, you must install a jumper at location R11, otherwise the replacement chips will not work.

***A jumper is basically just a wire that connects two points on the board. The points are labelled on the PC board -label is usually located in between the two points, or dotted lines will outline the two points as labelled. The jumper may be just a simple bare wire, or a wire with white ceramic around the middle of it, or may look like a resistor.

SPECIAL FUNHOUSE INSTRUCTIONS:
Setting WPC MPU Game ROM Jumpers

Note: For 512kb and 1mb chips, jumper W2 may be left OUT.
Both of these jumpers are located to the right of the U6 game ROM chip, when looking at the board as mounted in the back box.

***Remember if you have any questions you can always...contact me (Dave) at:
pinballrom@rogers.com