PAVSoftworks
Remember "It Ain't Eazy Being Eazy"

Pachinko Nail Adjustment Guide

Made in Dublin Ca, U.S.A.

Derived by work from
Hiroto Shimodai

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Company Goal:

As a user-based company, PAVSoftworks strives to produce useful and cost-conscious products. Our intent is to create products that you will use. All items we manufacture are used in our environment, and we update our products as we find new and better features to include. Thank you for considering our company's products. We know you have choices, and we hope you will continue to choose our products.

Comprehensive Overview

The Pachinko Pin Tool Kit is a meticulously crafted set designed to help enthusiasts and technicians fine-tune pachinko machines for optimal performance and playability. Inspired by the precision tools used by Japanese pin setters, this kit provides an affordable yet professional-grade solution for adjusting, measuring, and maintaining your machine. Whether you're a hobbyist or a seasoned pachinko technician, these tools will help ensure smooth gameplay, consistent ball movement, and proper pin alignment.

Each tool in the kit has been engineered to replicate traditional artisan techniques while offering modern durability and ease of use. By using these tools, you can customize your pachinko machine's difficulty, responsiveness, and overall play experience—just like the professionals in Japanese pachinko parlors.

Detailed Kit Contents:

Pachinko Adjustment Hammer

- A lightweight yet sturdy hammer designed specifically for gently tapping pins into place.
- Features a narrow head for precision adjustments without damaging delicate machine components.
- Ideal for loosening stuck pins or fine-tuning their positions for optimal ball deflection.

Gauge Blade Set

- A multi-functional measuring tool used to check pin spacing, tension, and alignment.
- Helps ensure pins are set at the correct angles for consistent gameplay.
- Useful for diagnosing ball flow issues and adjusting payout mechanics.

Six Double-Sided Ball Gauges

- Essential for verifying pachinko ball sizes, as even minor variations can affect gameplay.
- Each gauge has two different sizing standards to check for wear or inconsistencies.
- Ensures balls roll smoothly through the machine without jamming or erratic behavior.

Reversible Pin Alignment Tool with Handle

- A versatile tool for adjusting pin angles and ensuring uniform placement.
- The reversible design allows for quick switching between different alignment settings.
- The ergonomic handle provides a firm grip for precise adjustments.

Why This Kit is a Must-Have for Pachinko Owners:

- Authentic Craftsmanship – Based on traditional Japanese pin-setting techniques.
- Cost-Effective Maintenance – Saves money on professional servicing by enabling DIY adjustments.
- Enhanced Playability – Fine-tune your machine for the perfect balance of challenge and fun.
- Durable Construction – Built to last, ensuring long-term reliability.

Whether you're restoring a vintage machine or optimizing a modern pachinko setup, this tool kit provides everything you need to keep your game running at its best.

Thank You
Paul Viscovich

History of Pachinko Machines

Origins & Evolution of Pachinko Machines

- **1920s–1940s**: Early pachinko machines were inspired by the American game *Corinthian Bagatelle*. The first mechanical pachinko machines appeared in Nagoya, Japan, in the 1920s.
- **1950s–1970s**: Post-WWII, pachinko boomed as a cheap form of entertainment. Electromechanical machines replaced purely mechanical ones, introducing flashing lights and automated ball dispensing.
- **1980s–2000s**: Digital screens and computerized mechanisms transformed pachinko into a hybrid of pinball and slot machines. Video pachinko (*pachi-slot*) became popular.
- **2010s–Present**: Modern machines feature advanced RNG (random number generation), LCD screens, and tie-ins with anime/manga franchises.

Pin Maintenance Technicians (*Pin Heri* or *Pachi-Pro*)

- Role: Skilled technicians maintain, repair, and adjust pachinko machines to ensure proper functionality and regulatory compliance.
- Responsibilities:
  - Replacing worn-out pins, nails, and wiring.
  - Adjusting payout mechanisms to meet legal standards.
  - Troubleshooting electrical and mechanical failures.
- Training: Many learn through apprenticeships in pachinko parlors or technical schools specializing in gaming machines.
- Challenges: Strict Japanese gambling laws require machines to be finely tuned to avoid legal issues. Technicians must balance machine performance with regulatory compliance.

Cultural & Economic Impact

- Pachinko generates over **¥20 trillion** annually, making it one of Japan's largest industries.
- Pin technicians are essential to keeping parlors operational, though their work is often behind the scenes.

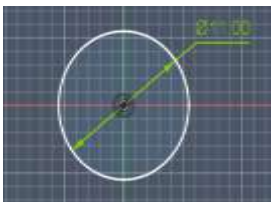
Pachinko remains a blend of nostalgia and modern gaming, with pin technicians ensuring its smooth operation.

The Play Field Board

- Thickness: 18mm (normally)
- Material: Hard beech wood grown in cold climates
- Properties:
    - Excellent elasticity and water absorption.
    - Not prone to slumping.
    - Does not produce resin (unlike pine).
- Construction:

- Made of veneer and plywood
- Up to 13 layers.
- Number of layers used Historically:
    - 13 layers: Second (Gen 2 Classic) type
    - 12 layers: First (Gen 1 Classic) type, third (Gen 3) type
    - 10 layers: CR machines
- More layers = Better ball retention and a more consistent trajectory.

The Ball



Official Pachinko Ball Specifications (Japan):

Diameter: 11.00 mm (strictly regulated).

Weight: 5.4 grams (standard, with minor tolerance allowed).

Surface:

Must be smooth (no protrusions or irregularities).
Engraving permitted (usually with the parlor's logo or ID marks). No other modifications (e.g., magnetic coatings, unbalanced weight distribution).

Material: Typically, steel (sometimes with anti-rust coating).

Additional Notes:

- Some parlors use slightly different weights (e.g., 5.3–5.5 g) due to manufacturing tolerances, but 5.4 g is the standard.
- The rules ensure fair play, preventing tampering (e.g., magnetic or weighted balls).
- *According to Japanese National Public Safety Commission regulations, Pachinko balls must have a diameter of 11.00 mm and weigh 5.4 grams. The balls must be smooth, but they may feature engraved identification marks from the parlor.*

Gaming Nails

Standard Dimensions

- Diameter: Typically, 1.0–1.9 mm (varies by machine and era).
    - Older mechanical machines: ~1.5 mm
    - Modern digital machines: ~1.0–1.2 mm (thinner for precision)
- Length: Usually 32mm to 34mm, 10–17 mm (protruding from the playfield).
- Material: Hardened brass, steel or stainless steel (for durability). The strength of the nail is 150HV to 230HV in Vickers hardness (HV) as stipulated by the National Public Safety Commission regulations.

Nail Types

Standard Smooth Nails (Straight Pins)

Used for: Windmills (spinners), deflectors, and ball guides

Features:

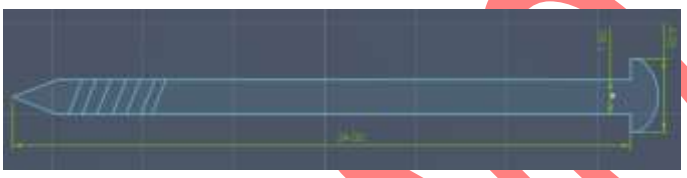
- Smooth surface (no grooves or threads)
- Allows free rotation of moving parts (e.g., spinners)
- Often slightly tapered for easier insertion

Screw Nails (Threaded Pins / Notched Nails)

Used for: Securing fixed components (e.g., metal plates, rails, frame attachments)

Features:

- Grooved or threaded (like a screw) for better grip
- Prevents loosening from vibrations during gameplay
- Often used in high-stress areas where nails might shake loose



Decorative / Specialized Nails

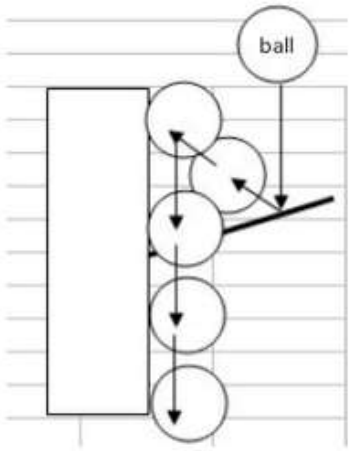
- Some machines use colored or capped nails for aesthetic purposes.
- Rarely structural, mostly for visual appeal.

Nail Angle

Relationship of the angle of the nail and the ball

If a ball falls at right angles onto a nail that is driven up, down, left, or right, there is no slight error on the surface of the nail or the surface of the ball, and if gravity acts from directly below, the ball will bounce off the nail and finally stop on the nail. Based on this theory, nail adjustment is the process of fine-tuning the angle of the nail to guide the ball in the desi red direction. In reality, there is a 50% chance that the ball will fall to the left or right.

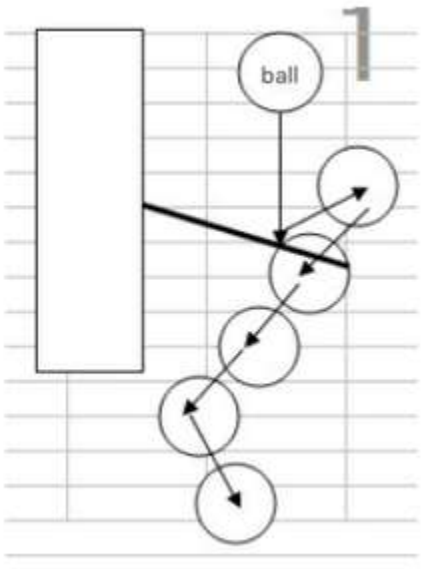
The action of the raised nail



When the nails are raised, a phenomenon called 'entanglement' occurs, where the ball falls as if it is entangled at the base of the nail. The ball bounces toward the surface of the game board and falls downwards, which is why the base of the winning hole of a chute is narrow. If the base was wider, it would be much easier to win. Also, raised nails cause the ball to rub against the surface of the game board as it falls, slowing down the ball's speed.

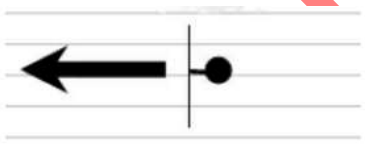
The effect of the above-mentioned raised pegs is only about 5°, but if the pegs are raised at 10° or more, the ball that bounces toward the surface of the board will bounce back onto the surface of the board, hit the glass, and fall down. In this case, the 'entanglement motion' does not occur.

The action of a hanging nail



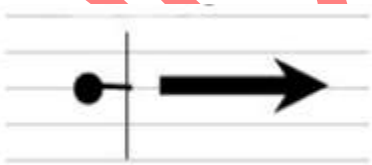
When the nail is lowered, the ball that hits the nail bounces off and hits the glass, and then falls back toward the board. Since the ball does not move toward the board, it appears to be floating, which is why it is called "floating ball motion." In this case, the ball does not get tangled in the nails and the momentum of the ball remains strong. However, if there is a winning hole below. And there is a nail above the upper pin, the winning rate will decrease, but if there is a nail below it, it can also have the effect of guiding the ball to the nail with force.

The action of the Right Swing (top view)



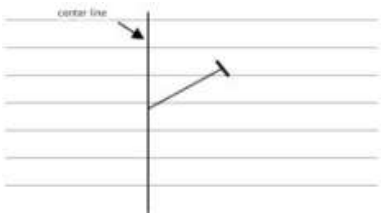
If the nail is swung to the right, the ball will fly in the opposite direction to the left. However, due to gravity, the ball will fly slightly downward and to the left.

The action of the Left swing (top view)



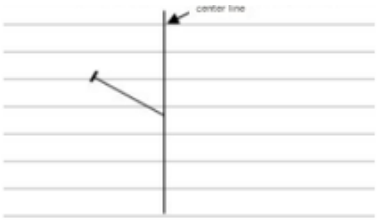
Whether swung to the right or left, the common principle is that the ball will fly in the direction of the wider angle of the nail.

Raised nail right swing action (side view)



If the ball is swung to the right by the raised nail, it bounces to the upper left side of the board, slows down, and hits the nail. They entangle and fall diagonally downward to the left.

Raised nail left swing action (side view)

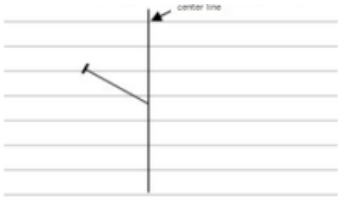


When the ball is swung to the left by the up-going nail, it bounces off the top right of the board, slows down, and falls diagonally down to the right while getting entangled with the nails.

Hanging (drop/down) nail right swing action

When the ball is swung to the right by the hanging nail, it bounces toward the upper left glass and hits it. With momentum still building, it returns to the left side of the board and falls.

Hanging (drop/down) nail left swing action



When the ball is swung to the left by the down-nail, it bounces toward the upper right glass, hits the glass, and then falls back toward the right side of the board with momentum.

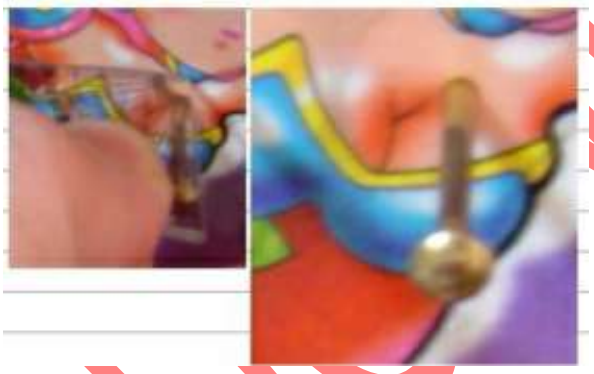
Right angle nails for up, down, left and right

The following images show the nails adjusted vertically, horizontally, and at right angles. The camera is centered over the nails in the middle, so you can see that the two nails on the right side are to the left of the nail head, and the left side is to the right of the nail head. Below are images of raising and lowering using this nail as the base.

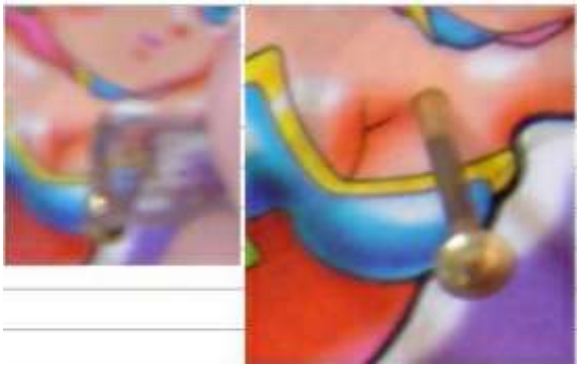
5° raise adjustment

5° lower adjustment

5° right swing/tilt adjustment



5° left swing/tilt adjustment



Pro Tips for Optimal Adjustments

Maintaining and fine-tuning a pachinko machine requires patience and precision. Here's how to get the most out of your Pachinko Pin Tool Kit for smooth, consistent gameplay:

Using the Pachinko Adjustment Hammer

Gentle Taps Only – The hammer is meant for subtle adjustments, not forceful strikes. Lightly tap pins to nudge them into place without bending or damaging them.

Loosening Stuck Pins – If a pin is jammed, tap it from the side (not the top) to avoid deformation.

Even Spacing – After adjusting one pin, check neighboring pins to ensure uniform spacing.

Mastering the Gauge Blade Set

Checking Pin Tension – Slide the gauge between pins to ensure they're not too tight (restricts ball flow) or too loose (causes erratic bounces).

Diagnosing Ball Jams – If balls frequently get stuck, use the blades to measure gaps between pins and widen/narrow as needed.
Consistency is Key – Test multiple areas of the playfield—pins should have uniform resistance.

Using the Double-Sided Ball Gauges

Regular Ball Checks – Over time, pachinko balls can wear down or deform. Use the gauges to verify they meet standard sizes (typically 11mm or ⅝" for vintage machines).

Sorting Balls – If some balls are undersized (fall through the gauge) or oversized (don't fit), remove them to prevent jams or unfair play.

Testing New Balls – Always gauge new balls before loading them into the machine—even small size variations affect gameplay.

Adjusting Pins with the Reversible Alignment Tool

Finding the Sweet Spot – Flip the tool to switch between alignment settings (e.g., tighter for skill-based play, looser for faster drops).

Uniform Angles Matter – Pins should lean slightly forward (≈5–10 degrees) for consistent ball deflection. Use the tool to check alignment across the playfield.

Fixing "Dead Zones" – If balls keep falling straight through certain areas, adjust nearby pins to redirect flow.

Bonus: Pro Maintenance Tips

Clean Pins Regularly – Dust and grime build up on pins, affecting ball movement. Wipe them down with a soft cloth and isopropyl alcohol.

Check for Bent Pins – Use the gauge blades to identify warped pins. Replace or carefully straighten them with pliers (wrap in cloth to avoid scratches).

Test After Adjustments – Run 10–20 balls through the machine after each tweak to see how changes affect gameplay before finalizing.

Final Thought

Like tuning a musical instrument, dialing in a pachinko machine is art. small adjustments make a big difference—take your time, experiment, and enjoy the process!

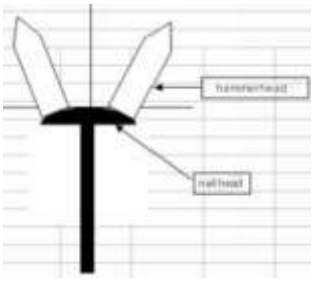
Nail Adjustment Props

Hammer

The heads of hammers used by Nailers come in a variety of materials, and can be any durable, hard, heavy metal. They can be made of iron, brass, stainless steel, etc. Sometimes, hard wood is used. The handles can be made of any material, but the highest quality ones are made of ebony.

The way to hold the hammer is as shown in the image above, with your thumb and index finger, and the rest of your fingers following. When hammering in a nail, use a snap of the wrist.

Hammer Core



To adjust the nails on a slingshot, you hit the head of the nail with a hammer. In this case, do not hammer the nail from directly above or directly to the side, as in carpentry. The nail is struck at a 45° angle to the head of the nail. Like the core of a baseball bat or the sweet spot of a tennis racket, When the ball hits the center, it makes a nice "crack, crack" sound.

When it hits, you hear a "Clang, clang" sound, and when it hits from the side, you hear a "Clang, Clang" sound. Also, nails in stores with poor Nailers often have damaged and dirty nail heads. Whether a store is truly knowledgeable about pachinko or not depends not only on the adjustment, but also on the quality of the nails.

Gauge Stick-bar / Ball Gauge-stick

Used by Nailers to measure the distance (pitch) between nails.

The gauge is a ball-like object attached to each end of a stick.

The size is the same as a game ball, 11.00mm, and larger sizes are available in 0.1mm increments. It is used to measure the distance under nails, etc. There are also 13.00mm versions. The gauge ball is used to rub the base of the nail against the board surface, and then it is pulled slightly. The gauge ball interval is set to the extent that it is hooked.

It takes some practice to get the hang of it.

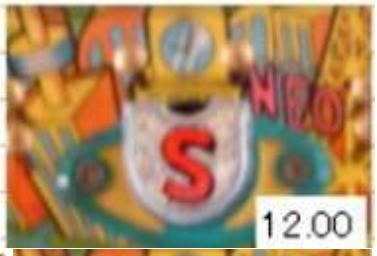
Board Gauge

The "board gauge" is also used to measure the distance between nails, just like the "gauge ball". These appeared after the appearance of the Fever machine and the Digital Pachinko. The board is fixed with screws, and is usually measured by the distance between the nails, as shown in Image A. You take out the size you want and use it like C, but when you fold it, it becomes like B. When expanded, it looks like D.

The measurement method differs from that of a "gauge ball" in that the distance between the undersides of the nail's tip is measured, and like the "gauge ball", the distance between the undersides of the nail is determined by the feeling of whether it is touching or not. Like in image C. "Plate gauge" sizes are in 0.25mm intervals (other sizes are also available).

Gauge Plate Adjustments

Here we will look at the actual spacing of the nails The spacing is 11.75 to 13.50



The distance between 11.75mm and 13.50mm is only 1.75mm, but when you zoom in, you can see this. (To make the difference easier to see, the angle of the left nail is larger than that of the right nail.) (Actually, the correct approach is to adjust it symmetrically.)

Notes: