

Cordless

SLOT MACHINE™

Motorized Hinge Slotting Tool

INSTRUCTION MANUAL



Congratulations on your purchase of the **CORDLESS** version of the Great Planes SLOT MACHINE™, the first truly easy way to cut hinge slots in your model airplanes.

The Slot Machine you have purchased is equipped with standard **BLADES FOR CA HINGES**, each having a thickness of .008" [0.2mm], which cut slots that are ideal for today's "CA hinges." If you need to cut thicker slots for pinned hinges or tailgear brackets, etc., you may want to purchase the **BLADES FOR NYLON HINGES**, which are .012" [0.3mm] thick, and which have larger teeth and more "set" in the teeth, which produce an ideal slot for a .040" [1mm] hinge. Or you can purchase the **BLADES FOR H.D. HINGES**, which are the same as the blades for Nylon hinges, but cut deeper to accommodate heavy-duty hinges. You will find the instructions for blade replacement in this pamphlet. If you are one of the fortunate modelers to have **both** the corded and cordless models, we suggest using the cordless version with the standard blades for CA hinges, and the corded version with the thicker replacement blades.

Please read all the instructions and safety precautions before cutting your first slot, and be sure to practice on balsa scraps to learn good technique before cutting slots in your model airplane.



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SAFETY PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. The exposed blades can inflict severe injury, so keep this tool out of the reach of children, and never allow the blades to contact any body part except when changing blades.

DO NOT DISASSEMBLE. No part of the Slot Machine should be disassembled, except for servicing the blades through the blade access hatch only.

FOR HOBBY USE ONLY. The slot machine is made for normal, intermittent personal hobby use. It is not designed for continuous use, such as in a manufacturing operation. Do not press hard. When operating the slot machine, apply just enough force to keep the blades cutting at a steady rate.

USE SAFETY GLASSES AND OTHER SAFETY EQUIPMENT. Use safety goggles or safety glasses with side shields, complying with applicable safety standards and, when needed, a face shield. This applies to all persons in the work area. Do not wear loose clothing or jewelry. They can be caught in moving parts. Wear protective hair covering to contain long hair.

SECURE THE WORK. Use clamps to hold your work. It's safer than using your hands and it frees both hands to operate the tool.

AVOID UNINTENTIONAL STARTING. When positioning the unit, do not hold your finger over the switch. Because the batteries have some charge in them from the factory, pressing the switch may activate the blades even before you charge the unit the first time.

CAUTION: If the Slot Machine is dropped, the saw blades may be bent. Remove the blades from the unit and insure the blades lie flat against a flat surface. If the blades are bent replace them. Even one bent blade may cause the unit to bind or cause the blades to wander from the intended cut area. **NEVER STRAIGHTEN BENT BLADES.**

DANGER: KEEP FINGERS AWAY FROM CUTTING AREA. Keep fingers away from blades. Never hold the part being cut around the area the blades are cutting the slot.

USE ONLY GENUINE GPM BLADES

Never substitute any blades for the GPM saw blades. Never use defective or incorrect blade mounting screws. Follow the suggested blade changing procedures. Select the proper blade for the Hinge you intend to install. Improper blades will cause the slot to be either too tight or too loose.

IF BLADES BIND OR MOTOR STALLS, RELEASE SWITCH IMMEDIATELY



SPECIFICATIONS

4.8 volts DC

Rechargeable nickel-cadmium batteries, 270-300mAh.

3-hour charger, 120 volt AC.

CHARGE THE BATTERY FIRST

Do not attempt to operate the Cordless Slot Machine before charging the battery.

Plug the charger into a 110-120 volt AC wall outlet, and insert the charger plug all the way into the charge jack on the Slot Machine until you feel the plug “click” into place. Charge for 3 to 4 hours the first time, and whenever the batteries have been run way down or have not been charged for several weeks. The battery will be fully charged in 3 to 4 hours, but the charger may be left plugged in for longer periods of time, up to several days. Unplug the charger from the Slot Machine and from the wall outlet during long periods (weeks or months) of inactivity. To maintain a high level of charge, providing maximum slotting power, it is recommended to leave the charger plugged into the Slot Machine between slotting sessions.

Starting with a run-down battery...

A 1 hour charge provides 60% capacity.

A 3 hour charge provides 95% capacity.

A 2 hour charge provides 90% capacity.

A 4 hour charge provides 100% capacity.

NOTE: *Fast charging with any charger other than the one provided with the Cordless Slot Machine is not recommended.*

OPERATION

The Slot Machine produces hinge slots in balsa wood by means of two thin saw blades that reciprocate in opposite directions, similar to an electric carving knife. The force caused by one blade is offset by the other blade, so the effect is a straight-in cut with minimal effort. If this is your first time using the Slot Machine, practice cutting slots in scraps of 3/8” or 1/4” balsa sheet until you are able to make consistently good slots that are in correct alignment on the hinge line. The tool may seem a bit awkward at first, because you’ve never used anything like it; but with a little practice you’ll soon be wondering how you ever got along without it. If you have a lot of difficulty making good slots, read the “Troubleshooting” section and look for problems in technique or blade alignment that may be causing the problem. You may also want to try the optional *Great Planes Slot Machine Cutting Guide (GPMR4013)*, which helps get your slots precisely started every time.

Note: *The Slot Machine is designed to cut hinge slots in balsa wood. Using it in “soft hardwood” such as basswood may be successful if care is used. Do not attempt to use it in very hard wood such as birch, maple or oak.*

Mark accurate hinge lines on your control surfaces and the structures to which they will be attached. Using the *Great Planes Precision Hinge Marking Tool™ (GPMR4005)* is recommended.



This photo shows the proper grip to use when operating the Slot Machine.

Notice the position of the index finger and thumb. The switch is operated by the middle finger.

Before pressing the switch, carefully align the Slot Machine blades on the hinge line and **apply slight pressure to start the teeth into the wood**. When first pressing the switch, the start-up torque of the electric motor will cause a slight sideways movement of the blades, and this will result in misalignment unless the teeth are partially embedded into the wood when pressing the button. Holding the unit as shown in the above photo, will minimize this movement.

Continue pressing the button and applying slight pressure to keep the blades cutting at a constant rate until the housing bottoms out against the balsa. It is important that you do not apply an up-down or sideways force, as this will bend the blades and result in a slot that does not go straight in; but you may find it helpful when cutting slots in very hard balsa to rock the unit slightly forward and back in the direction of the hinge line. Remove the blades from the slot and test fit the hinge. Components of The Slot Machine could be damaged by continuous use under strenuous cutting conditions. If you have just cut a particularly difficult slot in hard balsa, it's a good idea to give your Slot Machine 30 seconds to cool down before starting the next slot.

The number of slots you will be able to cut on a single charge will vary depending on the type of cutting being done. You may be able to cut up to 50 slots (25 hinges) in soft balsa with the standard blades for CA hinges. But using the blades for Nylon hinges to cut slots in medium or hard balsa will result in fewer cuts per charge. Be sure to read the section on battery charging.

MAINTENANCE

The motor and electronics are not user serviceable. Opening the unit other than at the blade access hatch may result in operational problems if not properly reassembled.

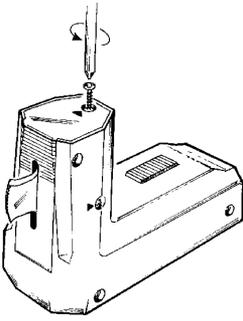
After cutting approximately 200 hinge slots, it is advised to blow compressed air into the unit (through the louvers and the blade access opening) to dislodge sawdust from the electric motor.

Wipe the outside of the unit clean with a soft dry cloth. Do not use water or any solvents or cleaning sprays.

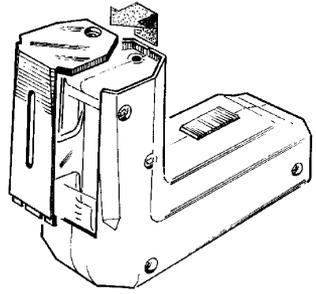
HOW TO CHANGE BLADES

It may be necessary to access the blades periodically, to change or replace them, or if the blade attachment screws loosen. Use the following sequence:

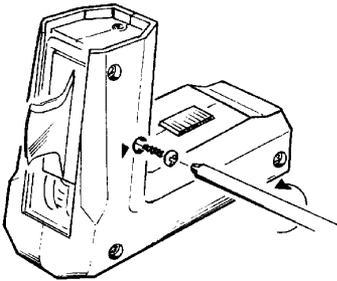
Tip: *The blades for nylon hinges and the blades for H.D. hinges are special blades in which every other tooth is set outward in one direction only. The alternate teeth have no set. This allows the two blades to press against each other without locking up. The 45-degree corner at the top of the blade ensures that the blades can only be installed in the correct orientation. The teeth with set must point away from each other.*



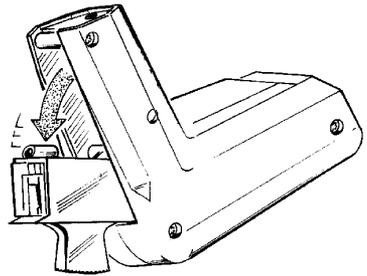
1. Remove the front Phillips head screw on the end of the housing.



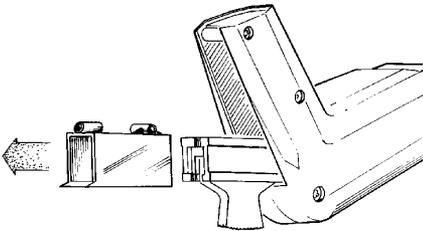
2. Remove the blade access hatch by sliding it forward and down.



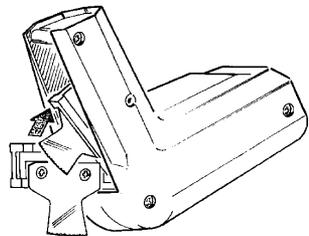
3. Remove the rear Phillips head screw (above and slightly to the rear of the blades). If this screw won't back out enough to pull it out, try pulling back on the blades slightly while unscrewing it.



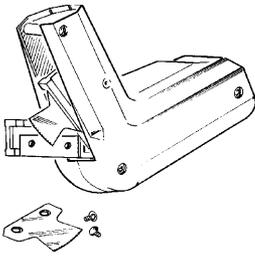
4. Pivot the blades and blade holders down and out of the housing.



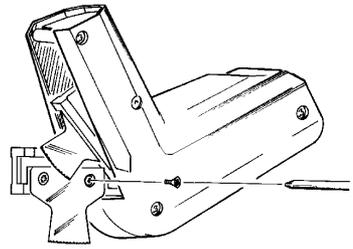
5. Slide the blade holder guide off of the blade holders.



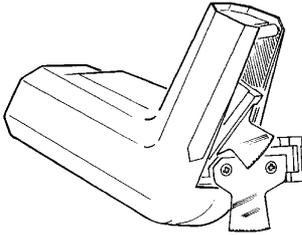
6. Pivot one of the blade holders up and out of the way, exposing the blade attachment screws. *If you see a dried, colored residue around the heads of the screws, that is thread locking compound used during assembly. You may need to touch a hot soldering iron to the head of the screw for 5 seconds to soften the compound, making it easier to loosen the screws.*



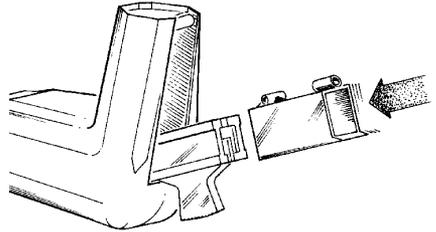
7. Remove the blade attachment screws and slide the blade out of its pocket in the blade holder. Notice that one corner of the blade has a 45-degree angle, and note the direction of that angled corner.



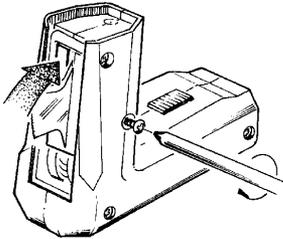
8. Insert a new blade into the blade holder with the 45-degree angled corner matching that of the pocket in the blade holder. Install the screws tightly.



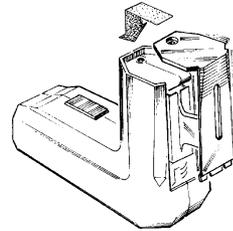
9. Repeat steps 8 - 11 to replace the other blade.



10. Press the blade holders together and slide the guide back over the blade holders.

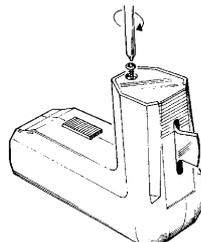


11. Pivot the blade assembly up into the housing, and wiggle the blade holder into position so the screws can be installed. Reinstall the rear Phillips head screw (larger diameter) through the housing and through the dog on the top of the rear blade holder guide. Tighten snugly, but do not over tighten.



12. Insert the blades through the slot in the blade access hatch and snap the hatch into place.

13. Reinstall the front Phillips head screw (smaller diameter). This screw must engage the dog on the top of the blade holder guide. Tighten securely, but do not over tighten.



TROUBLESHOOTING GUIDE

Problem: The slot is too small for the hinge.

Reason: You may be using the wrong blades.

Action: If using .040" [1mm] thick pinned hinges, it will be necessary to purchase and install the optional *BLADES FOR NYLON HINGES* or *BLADES FOR H.D. HINGES*. See "Replacement Blades".

Problem: When attempting to cut a slot, the unit jumps and shakes, but does not cut unless excessive pressure is applied.

Reason #1: One or both of the blades may be loose.

Action: Inspect the blades to determine if either of them are loose. If so, following the steps of How to Change Blades, access and tighten the blade attachment screws. Use a thread locking compound on the screw threads.

Reason #2: The blades may be out of alignment with each other.

Action: Attempt to realign the blades by loosening and retightening the blade attachment screws. **Note:** *Experiment with slightly different methods of starting the cut until you find one that works well for you. We like to press the teeth firmly into the wood before starting the cut, and then back off the inward pressure until the blades are cutting smoothly and evenly.*

Problem: Slots do not go straight in.

Reason: If sideways pressure is applied while cutting, the blades will bend and go in at an angle.

Action: Practice on scraps of 1/4" balsa sheet, cutting the slots open afterward to inspect the slot angle. A slot that angles upward may be the result of a downward force being applied while cutting. Practice makes perfect! Skilled users can cut slots in 1/16" balsa!

Problem: Cutting is slow and difficult.

Reason #1: The batteries are run down.

Action: Charge the batteries.

Reason #2: One or both of the blades may be loose.

Action: Inspect the blades to determine if either of them are loose. If so, following the steps of How to Change Blades, access and tighten the blade attachment screws. Use a thread locking compound on the screw threads.

Reason #3: The blade teeth may be getting dull. The blades are made of hard steel and the teeth should remain sharp for many cuts, but they will eventually become dull, especially if used in hardwood.

Action: Purchase and install new blades.

Reason #4: Wood is very hard and blades for nylon or H.D. hinges are being used.

Action: Cutting slots in hard wood with these blades can be difficult. Try going in slowly, rocking the unit forward and backward in the direction of the hinge line. Try removing the blades from the slot and blowing out the sawdust before continuing the cut. We've had success in difficult situations like this by first cutting the slot with the standard (thin) blades, and then following up with the replacement blades.

Problem: A thin tab of balsa remains in the hinge slot.

Reason: This is the result of the blades wandering apart as the cut is being made.

Action: This can be caused by applying too much force, rather than letting the teeth do the cutting. It may also be an indication that the teeth are becoming dull. Try relaxing the pressure early in the cut. Inspect the blade alignment and realign if needed. If these don't solve the problem, purchase and install new blades.

Problem: The unit gives off the odor of wood smoke.

Reason: There may be an excessive amount of sawdust inside the motor, and this may be smoldering.

Action: This is a potential fire hazard! Take the unit outdoors immediately. Stay outside with the unit until there is no more odor. Remove the blade access hatch and use compressed air to blow out all sawdust.

Problem: The unit gives off an odor of burning electrical components.

Reason: Electrical wires may be shorted, causing insulation or plastic to be getting hot inside the case.

Action: This is a potential fire hazard! If this happens while charging, unplug the charger from the wall outlet first, then unplug the charger from the Slot Machine. Take the Slot Machine and the charger outdoors immediately. Stay outside with the unit until there is no more odor. Call Hobby Services to arrange for repairs. (217) 398-8970

Problem: The motor runs, but the blades do not cut when pressed into balsa.

Reason #1: One or both of the blades may be loose.

Action: Inspect the blades to determine if either of them are loose. If so, following the steps of How to Change Blades, access and tighten the blade attachment screws. (Optional) Use a thread locking compound on the screw threads.

Reason #2: This may be an internal problem that is not user serviceable.

Action: Call Hobby Services to arrange for repairs. (217) 398-8970

Problem: The unit has insufficient power to cut hinge slots in medium-density balsa wood.

Reason: There may be a problem with the motor, battery or charger.

Action: If the unit is new and you have fully charged the battery, try cutting slots in scrap balsa until the battery is nearly discharged, then charge again. Cycling the battery in this way will often improve performance of a new NiCd battery. This technique also often works to rejuvenate batteries that have not been used for a long time. If this technique does not produce the desired results, Call Hobby Services to arrange for repairs or battery replacement. (217) 398-8970

1-YEAR LIMITED WARRANTY - *U.S.A and Canada Only

Great Planes warrants this product to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. During that period, Great Planes will, at its option, repair or replace without service charge any product deemed defective due to those causes. You will be required to provide proof of purchase (invoice or receipt). This warranty does not cover damage caused by abuse, misuse, alteration or accident. If there is damage stemming from these causes within the stated warranty period, Great Planes will, at its option, repair or replace it for a service charge not greater than 50% of its then current retail list price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty gives you specific rights. You may also have other rights, which vary from state to state.

*For warranty and service information if purchased outside the USA or Canada, see the additional warranty information insert (if applicable) or ask your retailer for more information.

HIGH QUALITY SLOT MACHINE ACCESSORIES AVAILABLE FROM YOUR HOBBY RETAILER:

REPLACEMENT BLADES

GPMR4015 Slot Machine Blades for CA Hinges (standard blades)

GPMR4016 Slot Machine Blades for Medium Nylon Hinges

GPMR4017 Slot Machine Blades for Heavy Duty Nylon Hinges

ACCESSORIES TO MAKE SLOTTING EASIER

GPMR4005 Precision Hinge Marking Tool

GPMR4013 Slot Machine Cutting Guide

CONTACTING GREAT PLANES

If you have any questions regarding the Great Planes SLOT MACHINE, please call us at (217) 398-8970 or e-mail us at productsupport@greatplanes.com and we'll be glad to help.