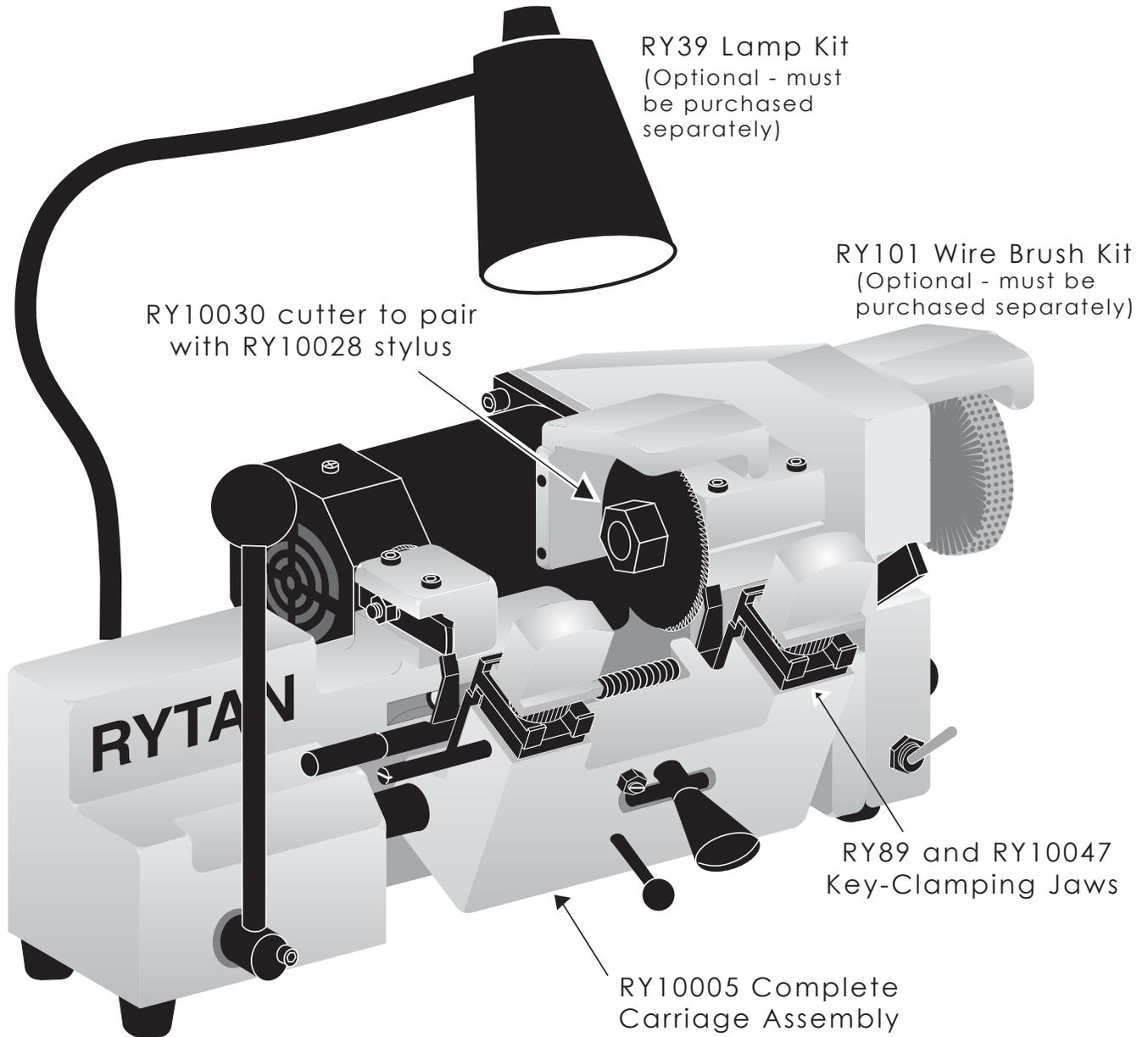


# RY100 KEY DUPLICATING MACHINE

*Rytan*  
INCORPORATED

1648 W 134th. St.  
Gardena, CA  
90249 U.S.A.  
www.rytan.com  
800-447-9826

## USER MANUAL



**READ AND UNDERSTAND THIS OPERATOR'S MANUAL AND  
BECOME FAMILIAR WITH YOUR NEW MACHINE BEFORE FIRST USE**

## TABLE OF CONTENTS

INTRODUCTION & SAFETY .....	2
MOUNTING THE MACHINE .....	2
WISE JAWS: STANDARD KEYS & DEEP CUTS.....	3
REPLACING WISE JAWS.....	4
KEY CLAMPING.....	5
KEY GAUGING.....	5
RELEASING THE CARRIAGE.....	6
CUTTER SHAFT LOCK.....	6
REMOVING/REPLACING THE CUTTER.....	6
DEPTH ADJUSTMENT.....	7
SPACE ADJUSTMENT.....	7
KEY GAUGE ADJUSTMENT.....	9
CARRIAGE OVER TRAVEL ADJUSTMENT.....	9
MAINTENANCE.....	10
TROUBLESHOOTING.....	10
REPLACING PARTS.....	10
REPAIR INFORMATION.....	13
WARRANTY.....	13
EXPLODED VIEW AND PARTS LIST .....	14

## INTRODUCTION

Thank you for purchasing our American-made Rytan, Inc. Model RY100 Universal Key Duplicating Machine. Your new key machine has been designed and built with heavy-duty components designed for the most demanding shop and service vehicle use. As you become familiar with your new machine you will find a new ease and confidence in key cutting.

## SAFETY

- Know your machine and read this manual carefully
- Keep guards in place at all times
- Keep your work area CLEAN, DRY, and WELL-LIT. The RY39 Lamp Kit is available for purchase from Rytan, and comes with necessary hardware to attach to your duplicating machine.
- Keep children and customers away from your machine
- Do not force the machine: It will do the job better and safer at the rate for which it was designed. Don't use anything but the key blanks for which it was intended. Cutting steel keys is NOT recommended.
- Wear proper apparel: Loose clothing and jewelry, as well as long hair, can get caught in moving parts.
- Use safety glasses: Flying chips, improperly secured keys and key blanks, and broken cutter wheel teeth can injure the eyes if not properly protected.
- Take extra care with the machines electrical components: Never yank the cord to disconnect. Never remove the ground connection from the plug. Be gentle with the power switch. Regularly examine the power cord for wear and replace if necessary. Remember that turning on the machine could ignite fumes, so use it in a safe environment.
- Secure keys properly: Do NOT hold the bow of the key for support while cutting. If it doesn't clamp properly, do not cut it.
- Maintain a sharp cutter wheel: This is both for efficiency and safety. A dull cutter could put undue pressure on a key blank and compromise the vise jaw clamping. Call to inquire about cutter sharpening.
- DISCONNECT THE MACHINE When not in use, while servicing, and while changing any parts.
- TURN OFF THE MACHINE: It is very important the machine is OFF when switching out keys and key blanks, and OFF as soon as you finish cutting a key. If you are handling any part of the machine near the cutting wheel, turn the machine OFF so the cutter is not spinning.
- Lock the carriage when not in use. SECURE the carriage when your machine is in transit/in a mobile unit. This can be accomplished by releasing the carriage, inserting a small piece of carboard between the vise jaw and cutter, and holding together with a rubberband.

## MOUNTING YOUR MACHINE

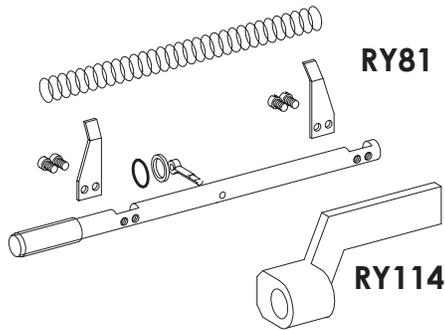
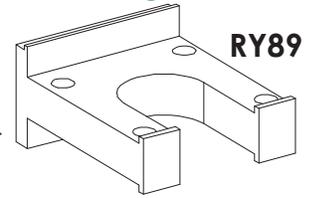
Carefully turn the machine upside down and measure the spacing of the two tapped holes on the bottom of your machine (take extra caution with the power switch). Turn the machine right side up and place the machine where you want it on your work bench. Mark the bench and drill the two oversized 1/2" holes. Use 1/2" 13 bolts.

# RY100 KEY DUPLICATING MACHINE

**Rytan**<sup>3</sup>  
INCORPORATED

## WISE JAWS: CUTTING STANDARD KEYS

- Most key clamping requirements use the standard top jaw configuration. The RY89 Top Jaw (pictured right) on your RY100 can be flipped over for "step" jaw requirements, to make deeper cuts in small keys.



- ALWAYS gauge your keys with the full function flip-up key gauges on the top shoulder of your key. We do **not** recommend bottom shoulder gauging.

- ALWAYS remember to flip down your key gauges (RY81 Key Gauge Assembly, pictured left) before cutting a key. Failure to do so may damage the key gauges, key gauge shaft, and/or cutter wheel. Purchase an RY114 Key Gauge Protector (pictured left) if needed. Call for pricing.

- ALWAYS cut **Bow to Tip**. NEVER make your first cut from tip to bow. This machine is designed to cut keys by operating the machines "stick-shift" lever smoothly, from **right to left**, bow to tip. It is okay to make a "clean up" cut from tip to bow after, but **ONLY after** the key has already been cut. NOTE: if an excessive amount of key blank material is removed on the "clean up" cut, your cutter may need to be replaced or sharpened.

## WISE JAWS: CUTTING DEEP CUTS IN SMALL KEYS

- Most key clamping requirements use the standard top jaw configuration. The RY89 Top Jaw on your RY100 can be flipped over for "step" jaw requirements, to make deeper cuts in small keys. You must flip over **both** the left and right RY89 Top Vise Jaws and clamp them into place with the RY10041 Knurled Knobs located below the painted key clamping knob. (see right)

- When clamping keys in the step jaws be sure to open the jaws **ONLY** enough to slide the key in place so it will be clamped against the top vise jaws step. Opening the vise jaw too wide will allow the key to pass the step, and the key will be clamped improperly.

- Make sure your vise jaws are clean and free of chips as you secure the top vise jaw in the "step" configuration. Push the back edge of the step top jaw firmly and flat back, and parallel against the stepped face of the RY10047 bottom vise jaw. Tighten the knurled knob the secure the top vise jaw.

- Always change both vise jaws on both sides to either the standard or the step configuration. If you change only one, your depth of cut will be off.

NOTE: Cutting steel keys is **NOT** recommended. They will accelerate cutter wear. Keep a small magnet nearby to identify steel keys.

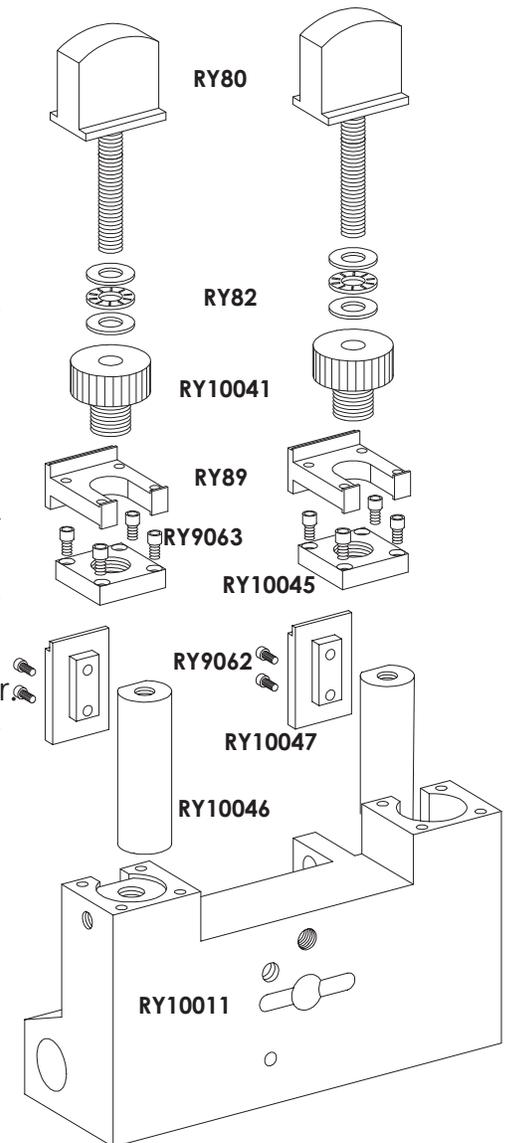


## REPLACING VISE JAWS: RY89 TOP VISE JAW

- Either RY89 Top Vise Jaw can be replaced at any time - you do not have to buy them in pairs or sets. Inspect your top vise jaws regularly for uneven key clamping. Replace when jaws appear worn, or are damaged by contact with the cutter wheel. See page 3 for directions on flipping jaws. Follow the same directions to remove and replace your RY89 Top Vise Jaw.

## REPLACING VISE JAWS: RY10047 BOTTOM VISE JAW

1. Begin by removing the RY89 Top Vise Jaw.
2. Remove the RY80 Key Clamping Knob assembly, the RY82 Thrust Bearing assembly, and the RY10041 Knurled Knob.
3. Remove the RY10045 Top Plate by loosening the 4 RY9063 Cap Screws with an Allen wrench. *Pay attention to the placement of the index mark and reinstall in the same direction.*
4. The bottom vise jaw is secured to the RY10046 Plunger by two RY9062 Cap Screws. Use an Allen hex wrench to remove the cap screws, removing the jaw.
5. Remove the RY10046 Plunger. Wipe the plunger and the carriage with a lint-free cloth to clean.
6. Loosely install your new RY10047 bottom jaw to the plunger using the RY9062 Cap Screws. **Do not tighten yet.**
7. Coat all steel sliding surfaces with grease: the back side of the bottom vise jaw, the plunger, the hole in the RY10011 Carriage, and the threaded hole in the center of the plunger.
8. Gently insert the RY10046 Plunger with the bottom jaw loosely attached into the carriage. Check that it slides smoothly.
9. Reinstall the RY10045 Top Plate, but do not tighten the RY9063 cap screws. Place the RY89 Top Jaw on top.
10. Hold the RY89 Top Jaw on top of the top plate, and raise up the RY10047 Bottom Jaw so that the two jaws engage as if clamping a key. With your free hand, grab the edges of the RY10045 Top Plate so it contacts the short tabs on the open "horseshoe" end of the RY89 Top Jaw. You want to take up as much of the slack between the vise jaws as possible. **NOW** tighten the four RY9063 Cap Screws.
11. Clean the RY82 Thrust Bearing assembly and reinstall the RY10041 Knurled Knob, RY82 Thrust Bearing Assembly, and RY80 Knob assembly. Be sure to secure the RY89 top jaw with the knurled knob.
12. Use the RY80 Key Clamp knob to close the vise jaws together with moderate force, without a key. **NOW** tighten the two RY9062 Cap screws to secure the RY10047 Bottom jaw to the RY10046 Plunger.



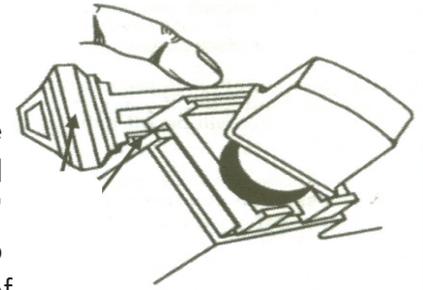
# RY100 KEY DUPLICATING MACHINE

## CLAMPING KEYS

Open the vise jaws only wide enough to slide the key between the top and bottom vise jaws. Use your index finger against the



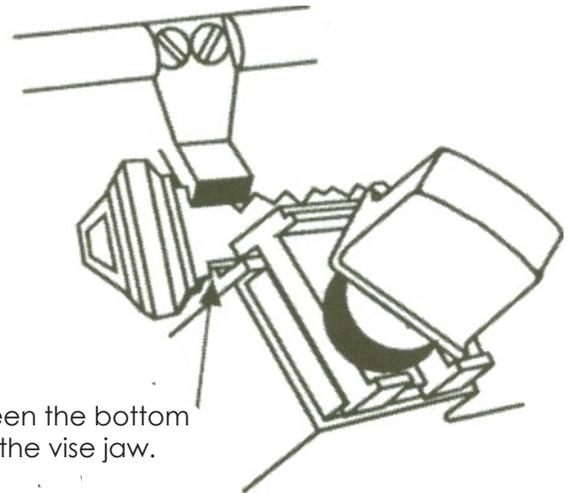
key blade as shown, and with moderate force against the key, press into the vise jaws and gently slide left and right a few times to "seat" the key. Remember to keep a small gap between the bottom shoulder and the edge of the vise jaw pictured below. Continue to press the blade of the key into the vise jaws as you tighten the key clamp knob, securing the key. **FOR DOUBLE SIDED KEYS:** Some keys do not have a top shoulder to gauge from. Open the vise jaws just enough to slide in the thinnest part of the key. Slide in the key blank and allow the full thickness "ridge" of the key to contact the face of the vise jaw. Clamp the key into the vise jaws so that the cuts are centered in the vise jaw. Ignition key "ridge" will contact the face of the top vise jaw. Door and trunk key "ridge" will contact the face of the bottom vise jaw.



## TOP SHOULDER GAUGING

Standard cylinder keys should always be top shoulder gauged. Use the machine's RY81 Key Gauge assembly. We do not recommend bottom shoulder gauging because key blank manufacturers are not always reliable with the position of the top and bottom shoulders correlating. Always remember to flip your key gauges **DOWN** before cutting a key. Failure to do so may damage the key gauge and/or cutter wheel.

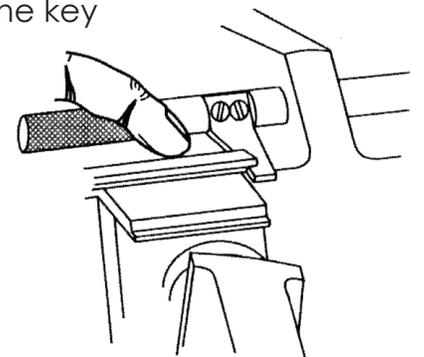
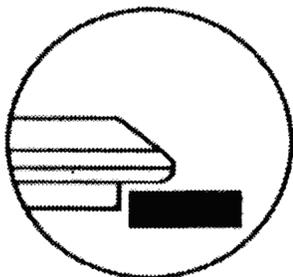
Leave a small gap of about 1/32" between the bottom shoulder of the key and the left edge of the vise jaw.



## BEST AND FALCON (BEHIND THE TIP) GAUGING

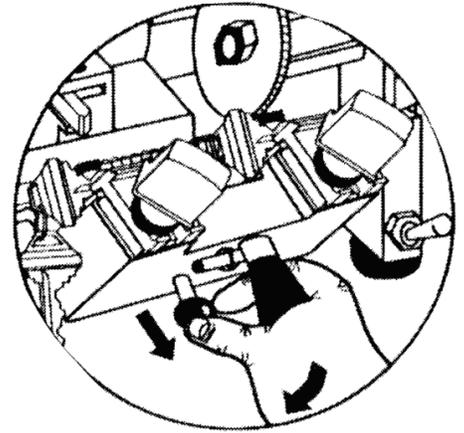
These keys must be gauged from a "tip" location that is behind the actual tip of the key. Position the key in the vise so that the "tip" edge of the key is no more than 1/32" from the right edge of the vise jaws. Operate the RY81 Key Gauge by rotating the key

gauge shaft toward you, then pushing it to the right. Continue to twist and push until the key gauge slides past the actual tip of the key. Slowly release the key gauge shaft and allow the key gauge to rest on the tip location behind the actual tip of the key, as pictured to the left.



## RELEASING THE CARRIAGE

Releasing the carriage requires two actions. With your right hand, push down gently on the large teardrop-shaped knob (RY9028) just enough to move the carriage down a small distance. While holding the carriage down, reach around with your thumb and index finger and grasp the small round black knob (RY9038) and pull it out, holding it there. When the small round knob is pulled out, gently lift up on the carriage from the teardrop knob and then let go of the small round knob. You have now released the carriage and can use the teardrop knob to position the carriage how you want. **NOTE:** You will not be able to pull the small black knob by itself to release the carriage. You are required to push down on the carriage first as instructed. After you cut a key, push **DOWN** on the large teardrop knob to click the carriage into the locked position.

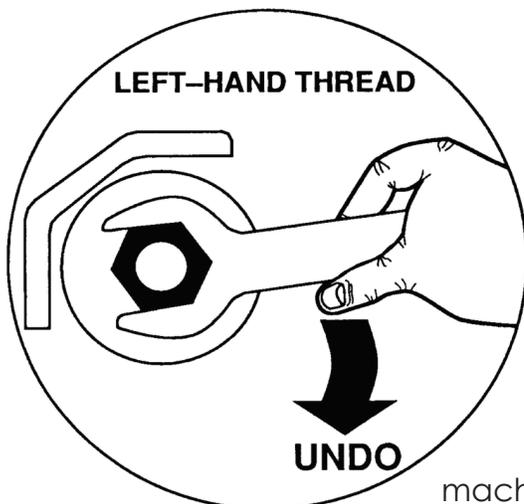


## CUTTER SHAFT LOCK

To remove the cutter you must first lock the cutter and cutter shaft into position. (See the exploded view at the end of this manual for location of the cutter shaft lock. It is part number 44) Press down firmly on the cutter shaft lock. While pressing down, rotate the cutter by hand until you hear the cutter shaft **CLICK** into the locked position - there is only one locking position to be found. You may now proceed to change the cutter. **After you change the cutter** (instructions below) do not forget to pull **UP** on the cutter shaft lock. This will release the cutter and cutter shaft from the locked position. Failure to unlock the cutter will cause it not to rotate when you turn the machine on. The motor may be powerful enough to slip the belt and permanently damage it.

## REMOVING/REPLACING THE CUTTER

The cutter wheel is secured to the cutter shaft with a **LEFT-HAND NUT**. You must turn the nut clockwise to remove it. Use a 1" open-end or hex wrench to remove the RY10036 Hex Nut.

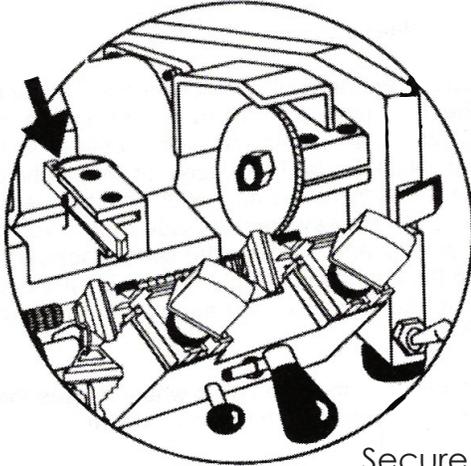
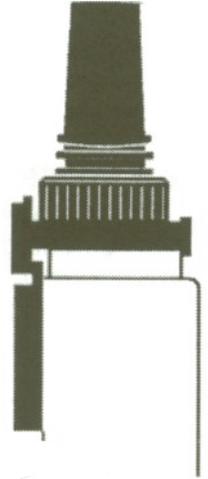


Slide off the cutting wheel. Before you reinstall your cutter and the left-hand nut, clean off any cuttings from the cutter shaft with a clean rag. Apply a small amount of white grease to the cutter shaft face, shank, and threads before installing your new cutter wheel and left hand nut. When reinstalling, **do not overtighten the cutter wheel nut**. Overtightening it may make it harder to remove later and may result in damaging the cutter shaft lock and/or pulley. **After you change the cutter** do not forget to pull **UP** on the cutter shaft lock. This will release the cutter and cutter shaft from the locked position. Failure to unlock the cutter will cause it not to rotate when you turn the machine on. The motor may be powerful enough to slip the belt and permanently damage it.

# RY100 KEY DUPLICATING MACHINE

## DEPTH ADJUSTMENT

Depth is adjusted at the back end of the stylus. To adjust the depth you will need a 5/32" Allen Hex Wrench, a piece of writing paper cut to approx. 1"x4" and two identical key blanks. Measure the width of the blank blade with a micrometer or calipers to ensure they match. Before you begin, make sure that both RY89 top jaws are in the standard configuration (see right).



Depth of cuts is adjusted by moving the stylus forward or backward by means of a knurled knob located at the back of the stylus. The stylus is secured by two #10-32 allen socket head cap screws at the top of the stylus holder (see left). To begin, you must loosen the two screws about one turn each with the allen hex wrench. Use your hand to turn the knob about 1 full turn (counter-clockwise when viewed from the front of the machine).

Secure the two matching key blanks, one in each vise jaw. See the section on KEY GAUGING to insert and gauge the keys properly. With the keys clamped properly and the stylus adjusted forward about one full turn, carefully release the carriage and position it so the key in the left jaw LIGHTLY contacts the stylus in the middle of the blank's blade. The cutter wheel should NOT make contact with the blank in the right jaw. Turn the cutter BACKWARDS (to protect the blank) and confirm they do not contact. You may now switch ON your machine.

Take the cut piece of paper and hold it between the spinning cutter wheel and the blade of the key blank. Use your other hand to SLOWLY and carefully back off the knurled adjustment knob, bringing the carriage closer to the cutter. While doing so, move the paper slowly from side to side to assist you in detecting when the cutter wheel first contacts the paper. When it does, paper will be shaved with nearly no sound. Make sure you are moving very slowly.

Once you have the cutter wheel touching the paper, slow your movements to very small increments, one knurl at a time as you bring the carriage closer to the cutting wheel. Stop when the paper is cut through to the last few fibers. Turn your machine OFF. You have now accurately adjusted the depth on your machine. Tighten the two screws moderately. Verify that tightening the screws did not alter the adjustment by turning the machine ON. The cutting wheel should just barely "tick" the blade of the key blank. Move the carriage lever very slightly to make sure you still hear a faint "tick." Turn your machine OFF.

## SPACE ADJUSTMENT

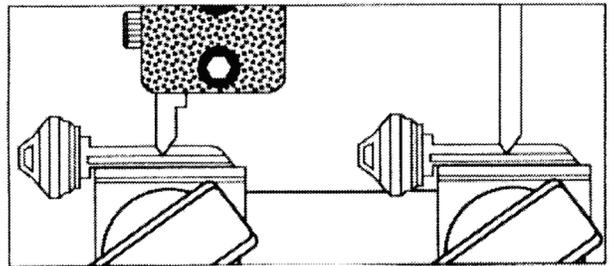
*Never adjust the spacing without first adjusting the depth. Always do depth adjustment first.* Spacing is adjusted by moving the cutter wheel and its cutter shaft assembly left or right. The cutter shaft assembly is secured to the main housing by two #10-32 Allen socket head cap screws (see image on next page). To adjust the spacing you will need a 5/32" Allen Hex Wrench, two identical key blanks, and a small plastic mallet. Before you begin, make sure that both RY89 top jaws are in the standard configuration (see top right image above).

## SPACE ADJUSTMENT (cont.)

Stack the two identical key blanks one on top of the other and clamp them BOTH in the right hand vise jaw (cutter side). See the section on KEY GAUGING to insert and gauge the keys properly. There should be NO key blank in the left vise jaw for this part of the space adjustment. Do not forget to flip down your key gauges. Failure to do so may result in damage to the key gauge shaft.

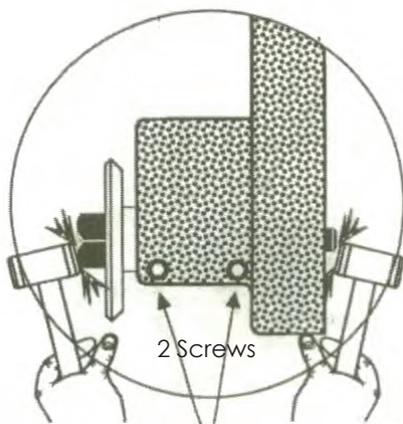
Switch ON your machine and carefully release the carriage. Position it so the cutting wheel makes a cut in the middle of the key blank blades. Hold the carriage lever steady and carefully make a straight V cut into the key blank stack about 1/8" deep. Be sure not to move the carriage sideways. Once the cut is made, lock the carriage back and switch OFF your machine. Remove the blanks, remembering which one was on top and which was on bottom.

Take the TOP key blank and install it in the right vise jaw. Take the BOTTOM key blank and install it in the left vise jaw. See the section on KEY GAUGING to insert and gauge the keys properly. Carefully release the carriage and align the left-hand blank's "V" cut with the machine's stylus. The "V" cut in the right-hand vise jaw should fall into place around the "V" profile



of the cutting wheel (see right). Manually and carefully turn the cutting wheel BACKWARDS (to protect the blank) to verify that the cutting wheel does not touch the "V" cut in the blank. Observe which way you must move the cutting wheel so that it falls into the "V" cut to the same degree the stylus sits in the "V" cut on the left-hand key blank. Remember this for the next step.

Loosen the two #10-32 screws securing the cutter shaft assembly in place using your 5/32" Allen Hex Wrench. Tighten them with LIGHT pressure. You want just enough pressure on the two screws to keep the cutter shaft assembly in place so you can't move it with your hand, but you CAN move it with gentle to moderate tapping with your small plastic mallet (see below).



Use your small plastic mallet to "nudge" the cutter shaft assembly in the direction you need it to go (see left). Verify the cutter position in the "V" cut after every tap of the small mallet, turning the cutting wheel backwards and ensuring it does not contact either side of the "V" cut. Make sure the stylus stays seated in the "V" cut of the left-hand key throughout this process.

Continue this process until you are satisfied with the position of the cutter. After you have verified that the cutting wheel is not contacting either side of the "V" cut, turn ON your machine and observe it spinning in the cut. Turn OFF your machine and tighten the two screws using the 5/32" Allen Hex Wrench.

Verify that your depth adjustment is still correct, and slightly readjust if necessary.

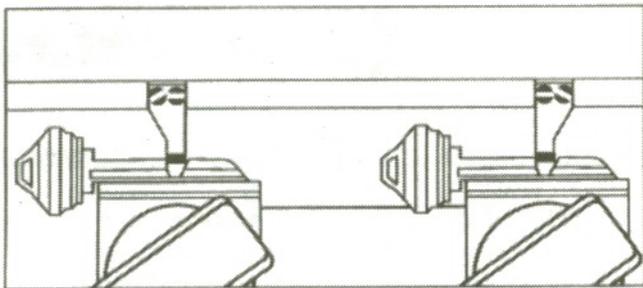
## KEY GAUGE ADJUSTMENT

Stack two identical key blanks one on top of the other and clamp them in the right-hand vise jaw. Be sure to BOTTOM shoulder gauge them. Do NOT use the machine's top shoulder gauges. There should be NO key blank in the left vise jaw for this part of the procedure.

Switch ON the key machine and carefully release the carriage. Make a cut in the middle of the stacked key blank blades. Steadily and carefully make a straight "V" cut into the blanks using the carriage lever. Make a wide cut, slightly larger than 1/4". Pull the carriage back and switch OFF your machine. Remove the blanks from the right-hand vise jaw.

Install one key blank in the right-hand vise jaw and the other in the left-hand vise jaw. Be sure to BOTTOM shoulder gauge them. Do NOT use the machine's top shoulder gauge assembly.

Once the keys are clamped and bottom gauged, flip up the machine's key gauge assembly and place them in the wide grooves you cut into the keys (see below). Adjust the key gauges



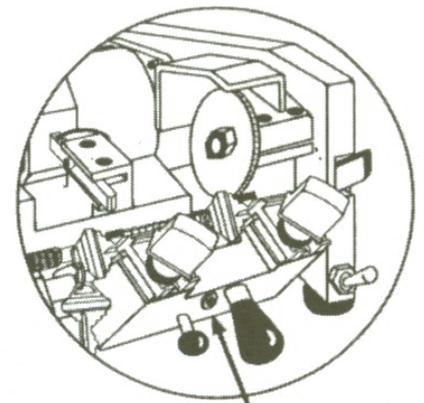
as necessary by loosening the screws holding the fingers to the key gauge shaft, adjusting, and tightening. The spacing of the key gauges now matches the spacing of the vise jaws.

Verify the machines depth and spacing. If necessary, readjust.

## CARRIAGE OVER TRAVEL DEPTH ADJUSTMENT

Your machine is equipped with a device to prevent the depth from over traveling. It prevents the cutter wheel from cutting into the vise jaws when there are no keys clamped in the machine. Setting the depth over travel device too high will prevent deep cuts from being made. To adjust the depth over travel you will need a slot head screwdriver, a 7/16" wrench, and three pieces of writing paper cut to approximately 1"x4" each.

Close both vise jaws without keys in them. Release the carriage and position it so the stylus and cutter wheel are centered at the vise jaws on both sides. Loosen the 7/6" hex jam nut on the front of the carriage (see right). Loosen the 1/4"-20 slotted screw stud about one full turn. Confirm that the stylus is touching the face of the closed vise jaw.



Gently turn the slotted screw stud with your screwdriver clockwise, and stop when you feel the stud contact the machine's main housing. The slotted screw stud will contact a 3" long hardened roll pin. After contact is made, turn it an additional 1/4 turn. Tighten the 7/16" hex jam nut using moderate tightness.

After tightening the hex jam nut, check the gap between the stylus and the face of the closed vise jaws. Stacking the three pieces of paper and insert them between the tip of the stylus and the face of the closed jaw. The combined thickness is the ideal depth. Readjust if needed.

If adjusted too low, your cutter wheel may cut into the right-hand vise jaw. If adjusted too high, your cutter wheel may not cut deep enough when duplicating.

## MAINTENANCE

Keep your machine clean and lubricated and it will remain a productive asset to your business for a very long time! Rytan also services our machines. Visit our website for more information!

### **ALWAYS UNPLUG YOUR MACHINE PRIOR TO ANY MAINTENANCE**

#### *LUBRICATION*

You do NOT need to lubricate the motor or the cutter shaft bearings. These assemblies are sealed and lubricated for their lifetime. To lubricate your machine, use number 30 non-detergent motor oil. Do NOT use LPS-1 or WD-40 in place of number 30 non-detergent motor oil. LPS-1 or WD-40 can be used as a rust preventative IN ADDITION TO the oil.

Apply oil with a brush to all black oxide processed steel surfaces. Let it stand overnight and wipe the oiled parts dry the next day with a clean rag or soft paper towel.

Turn the machine over on a soft surface to protect the power switch. Lubricate the RY83 Carriage Drive Linkage assembly. On this part of the machine **ONLY**, you can use a spray-on bicycle chain lubricant that foams and penetrates. Do NOT use this elsewhere.

Remove the key clamp knobs, large knurled knobs, and vise jaws. Remove the vise plunger and lubricate, as well as inside the hole in the carriage where the plunger goes.

Do NOT allow any grease or oil to get on the machine's drive belt or pulleys. When handling these parts, be sure your hands are clean and free of any lubricants.

#### *DRIVE BELT*

Belt tension on your machine is maintained by means of moving the motor. To adjust the belt tension, use your 7/16" Wrench and your 3/16" allen hex wrench to loosen the four cap screws securing the motor to the motor bracket. Push the motor hard against the belt to increase tension and tighten the 4 cap screws.

#### *GENERATION CUTTING*

Generation cutting is a process where a fresh cut key is used to make a duplicate, then that duplicate is used to make another duplicate, and so on. The goal is to cut as many "generations" as possible and still have a working key. If the depth adjustment is off by as little as 1-1/2 thousandths of an inch, however, they will accumulate generations. The key most likely won't work in as little as five generations. Keeping your machine well-adjusted, your cutter and stylus sharp, and all necessary parts well lubricated will keep your machine functioning properly. When parts start to wear, replace them.

## TROUBLESHOOTING

1. Depth is accurate but cuts aren't clean - Your cutter wheel may be dull. Replace or sharpen the cutter.
2. Cuts are a mix of deep and shallow - Your stylus may be worn. Check it carefully to see if there is a groove worn into it. If so, replace the stylus.
3. There is machine "wobble" at the carriage - the carriage shaft and bearings may be worn. Replace the RY10022 carriage shaft and RY9024 bronze bearings.
4. Cutter stalls out - there could be oil on the belt and pulleys. The left-hand nut securing the cutter may not be tight. Belt tension may need to be increased. Cutter may be dull. Most important: make sure you are cutting from BOW to TIP.

# RY100 KEY DUPLICATING MACHINE

## MACHINE MAKES WHIRRING SOUND

There are a few possible causes to an abnormal sound coming from your machine.

- If the sound is coming from the motor: Turn OFF the machine and grab the motor shaft, trying to wiggle it around. If there is up and down movement, the motor ball bearings are worn and the motor will need to be replaced soon.
- The RY9039 drive belt could be coming apart or is frayed. If so, replace it immediately.
- The ball bearing cutter wheel shaft assembly may be wearing out. Turn OFF the machine and grab the cutter wheel's left-hand nut and try to get some wiggle out of it. There should be absolutely no movement. If there is, you need to replace the RY84 Ball Bearing Spindle Assembly.
- The machine's cutter shaft lock may be partially depressed and rubbing against the drive pulley. Pull up on the RY10035 cutter shaft lock and the sound should disappear.

## MACHINE WON'T START

- Check that the machine is plugged in, the RY9040 power cord is not damaged, and the machine is switched on
- Key cuttings may be in the motor's capacitor. Unplug the machine, remove the capacitor's rubber cover, and blow out the chips.
- Remove the RY10017 Access Plate and check the wiring connections. Repair and replace any necessary parts.

## CUTTER WHEEL DIDN'T LAST LONG

NOTE: Think in terms of the amount of keys cut and not length of time.

- Cutter wheel will last longest if it only duplicates brass keys.
- Nickel-Silver blanks are abrasive to the cutting wheel and will dull it faster. Duplicate them slower to avoid added pressure to the cutting wheel.
- Steel keys are the most detrimental to the cutting wheel.
- Plated, hardened steel keys are rare but they are out there. Keep a magnet near your machine. If any key is magnetic, it is NOT brass or Nickel-Silver.

## CUTTER WOBBLER AND/OR LEAVES BURRS

There may be key cuttings on the cutter shaft that are preventing the cutting wheel from seating properly. Remove the left-hand nut and the cutting wheel, and clean all surfaces before reinstalling. If there are burrs, the cutter most likely needs to be replaced.

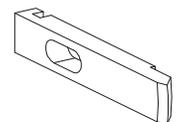
## SHOULDER SCREWS AND DRINK LINKAGE KEEPS BREAKING

If you are in a mobile unit, you need to secure the carriage to the main housing of the machine when not in use and while in motion. Place a piece of cardboard between the carriage and the cutter, and release the carriage, bringing it forward. Secure the carriage to the main housing of the machine with a tie, bungee cord, or rubber band.

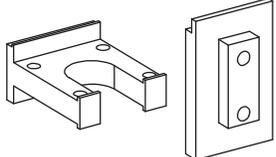
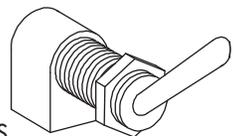
## REPLACING PARTS

The work load put on your machine will determine how often (if ever) the following parts need to be replaced. **ALWAYS TURN OFF YOUR MACHINE BEFORE REPLACING PARTS.**

- **STYLUS:** Replace your RY10028 Stylus when you can see a worn spot such as a groove and/or excessive rounding of the otherwise sharp stylus tip.



## REPLACING PARTS (cont.)

- **CUTTING WHEEL:** Replace your RY10030 Cutter when deburring the key seems to take longer than normal. If you find yourself assisting or force-feeding the carriage more often, replace it. Contact us to inquire about cutter resharpening.
- **VICE JAWS:** Replace your RY89 Top Jaws and/or RY10047 Bottom Jaws when the edges become rounded, flared, mushroomed, or when they have been cut into too many times. 
- **KEY GAUGE SHAFT:** Replace your RY81 Key Gauge Assembly when the key gauge shaft wobbles in the carriage excessively, or has been cut into too many times.
- **CARRIAGE SHAFT:** Replace the RY10022 Carriage Shaft and/or RY9024 Bronze Ollite Bearings when the carriage is noticeably wobbling.
- **DRIVE BELT:** Replace your RY9039 Drive Belt whenever you see worn spots.
- **CUTTER SHAFT:** Replace your RY84 Ball Bearing Spindle Assembly when you hear a whirring, grinding, or buzzing sound (different than the belt sound) or when you can feel any movement in your existing cutter shaft assembly.
- **POWER SWITCH:** Replace your RY9041 Power Switch if it gets hit, bumped, or damaged. 
- **POWER CORD:** Replace your RY9040 Power Cord when it begins to show signs of wear or cracking.
- **CARRIAGE SPRING:** Replace your RY10025 Carriage Extension Spring when worn, loose, or broken. Because of the application of this spring, it is a commonly replaced part.

## REPLACING PARTS (How-to)

- **STYLUS:** Remove the RY9042 cap screw going through the stylus. Use a 3/16" Allen wrench and a 7/16" socket wrench. Loosen the two RY9057 socket head cap screws on top of the stylus holder with a 5/32" Allen hex wrench. Pull out the stylus and install the new one, performing the previous steps in reverse order. Do not tighten it so much that you cannot move the stylus in and out via turning the knob. Do not leave it so loose that you can wobble the stylus from side to side. Refer to the section on DEPTH ADJUSTMENT to properly complete installing and adjusting your new stylus.
- **CUTTER SHAFT:** Remove the RY10036 left-hand nut and RY10030 cutter. Remove the RY10017 access plate, and loosen the four motor-mounting RY9069 screws to loosen and remove the RY9039 drive belt. Loosen the two RY9047 socket head cap screws located on the top front edge of the cutter head using a 3/16" Allen hex wrench about 1 full turn each. Remove the existing RY84 cutter shaft assembly and perform the previous steps in reverse order to install your new one.
- **CARRIAGE SPRING:** Turn the machine over on a soft surface to protect the power switch. Use a 3/16" allen hex wrench to remove the RY9047 cap screw connecting the drive linkages to the drive shaft. Drop the RY83 linkage assembly and pull out the carriage lever and drive shaft. Leave the two piece linkage assembly attached to the carriage shaft. If your RY10025 carriage spring is still attached, grasp the linkages with your left hand and use them as a lever to prevent the RY10022 carriage shaft from turning while you release the carriage with your right hand. When you've released the carriage, you will notice the tension released and the spring will most likely fall out on its own. At the bottom of the carriage is a 1/4" wide slot with the RY9200 retaining pin in it. Use a small hammer to bring the end of the pin flush with the bottom of the carriage. (cont. on next page)

## REPLACING PARTS (cont.)

- **CARRIAGE SPRING (CONT.):** From the front of the machine, install a new RY10025 carriage spring and RY9200 retaining pin. The pin will lay in a milled groove on the face of the carriage. Holding the spring and pin in place, hook the other end of the carriage spring onto the RY10026 grooved pin going through the carriage shaft. Remember to have the carriage released, and not locked back. Perform the steps you performed earlier in reverse to reassemble the RY83 drive linkage assembly.

## REPAIR INFORMATION

Rytan, Inc. happily repairs, refurbishes and upgrades all models of our key duplicating and key punch machines. Note: We do not sell refurbished machines. We cannot quote repairs without first seeing the machine.

Machines must be packaged VERY securely and shipped to our warehouse at **1648 W 134th Street, Gardena, CA 90249**. Please include a note with your name, contact information, and the issue you are having or what you would like done.

Once we receive the machine, our technicians will go through the entire machine and provide our office staff with a repair write-up. From the repair write-up, a quote will be generated and then you will be contacted.

Rytan, Inc. requires payment prior to beginning work on machines. Reminder: We cannot quote repairs without first seeing the machine. Replaced parts will be charged the same price listed on our website. Labor charges are additional, and include machine intake and diagnostic, removal of all old parts, installation of all new parts, depth and spacing adjustment, and a light cleaning.

If the machine isn't securely packaged upon delivery to our warehouse, there will be an additional charge for brand-new, secure packaging for return shipment. Shipping charges are at the customer's expense. We ship via UPS ground. Shipping charges will be added to the repair total.

Our typical turnaround is 24-48 hours as long as all necessary parts are in stock. If you have any further questions you'd like to discuss, please contact us at (310) 328 - 6553 or by emailing [customer\\_service@rytan.com](mailto:customer_service@rytan.com).

## WARRANTY INFORMATION

Rytan machines are warranted to be free from manufacturing defects for one year from date of purchase. During the first year, defective parts will be replaced without charge for parts or labor. If your machine is found NOT to be defective (no manufacturing error was found) you will be charged per the "REPAIR INFORMATION" above. Machines must be returned to the Rytan factory for all warranty work. This warranty is not applicable to the cutter wheel, machines that have been altered or repaired by unauthorized sources, or to machines that have been subject to neglect, abuse, misuse or accident, including shipping damages.

This warranty is exclusive and replaces all other warranties, including those of merchantability and fitness for a particular purpose. Rytan, Inc. will not be liable for any other damages or loss, including incidental or consequential damages from whatever cause, including breach of warranty or negligence.

# EXPLODED VIEW - RY100/RY200 *Rydan*

RY111 (100) or RY222 (200)  
OPTIONAL SLOTTER KIT  
INCORPORATED

## RY39 - OPTIONAL LAMP KIT

## RY118 (100) or RY218 (200) OPTIONAL QUICK-CHANGE STYLUS

## RY101 - STANDARD ON RY200 OPTIONAL ADD-ON FOR RY100

## RY20005 - STANDARD ON RY200 ORDER TO CONVERT YOUR RY100

## RY81 KEY GAUGE ASSEMBLY

## RY83 CARRIAGE DRIVE LINKAGE ASSEMBLY

## RY85 CARRIAGE SPRING ASSEMBLY

## RY86 CARRIAGE RELEASE ASSEMBLY

## RY100 & RY200 PARTS LIST

- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>1- RY39 Lamp Kit (Optional)</li> <li>2- RY9069 Cap Screw</li> <li>3- RY10038 A.C. Motor</li> <li>4- RY10033 Motor Mounting Plate</li> <li>5- RY111/222 Slotter Kit</li> <li>6- RY118/218 QC Stylus</li> <li>7- RY9048 Set Screw</li> <li>8- RY10037 Motor Pulley</li> <li>9- RY9039 Drive Belt</li> <li>10- RY118/218 Slotter Stylus</li> <li>11- RY115 Slotter Cutter</li> <li>12- RY9046 Phillips Screw</li> <li>13- RY10016 Belt Guard</li> <li>15- RY101 Wire Brush Kit</li> <li>16- RY9074 Wire Brush</li> <li>17- RY10101 Arbor</li> <li>18- RY10030 Cutter for RY100</li> <li>RY20030 Cutter for RY200</li> <li>19- RY10036 Cutter Hex Nut (Left)</li> <li>21- RY9054 Flat Head Screw</li> <li>22- RY10012 Motor Bracket</li> <li>23- RY9053 Strain Relief</li> <li>24- RY9052 Bushing</li> <li>25- RY10013 Guard</li> </ul> | <ul style="list-style-type: none"> <li>26- RY200375 Adjustable Stylus</li> <li>28- RY9042 Cap Screw</li> <li>29- RY9029 Set Screw</li> <li>30- RY10029 Stylus Adj Knob</li> <li>31- RY9056 Nylon Lock Nut</li> <li>32- RY10028 Stylus for RY100</li> <li>RY20028 Stylus for RY200</li> <li>33- RY9057 Cap Screw</li> <li>34- RY9145 Rubber Foot</li> <li>35- RY9058 Cap Screw</li> <li>36- RY9024 Bronze Bearing</li> <li>37- RY10010 Machine Base</li> <li>38- RY9044 Cap Screw</li> <li>39- RY10039 Capacitor Assembly</li> <li>40- RY9065 Cap Screw</li> <li>41- RY9055 Hex Jam Nut</li> <li>42- RY9041 Switch</li> <li>44- RY10035 Cutter Shaft Lock</li> <li>45- RY10017 Access Plate</li> <li>48- RY84 Ball Bearing Assembly</li> <li>49- RY80 Key Vise Knob &amp; Stud</li> <li>50- RY82 Thrust Bearing Assy.</li> <li>51- RY10041 Top Jaw Clamp Knob</li> <li>52- RY89 Top Jaw for RY100</li> <li>RY20089 Top Jaw for RY200</li> </ul> | <ul style="list-style-type: none"> <li>53- RY9063 Cap Screw</li> <li>54- RY10045 Top Plate</li> <li>55- RY10046 Vise Plunger for RY100</li> <li>RY20046 Vise Plunger for RY200</li> <li>56- RY9062 Cap Screw</li> <li>57- RY10047 Bottom Jaw for RY100</li> <li>RY20047 Bottom Jaw for RY200</li> <li>58- RY9107 Slot Head Screw</li> <li>59- RY10048 Key Gauge R.H.</li> <li>60- RY9108 O-Ring</li> <li>61- RY9279 Cotter Pin</li> <li>62- RY9061 Cap Screw</li> <li>63- RY10050 Key Gauge L.H.</li> <li>64- RY10061 Key Gauge Spring</li> <li>65- RY10049 Key Gauge Shaft</li> <li>66- RY9027 Lever Knob</li> <li>67- RY10018 Lever Shaft</li> <li>68- RY114 Key Gauge Protector</li> <li>69- RY9003 Set Screw</li> <li>70- RY9059 Shoulder Screw</li> <li>71- RY10020 Drive Link</li> <li>72- RY10019 Drive Shaft</li> <li>75- RY10022 Carriage Shaft</li> </ul> | <ul style="list-style-type: none"> <li>76- RY10021 Shaft Link</li> <li>77- RY10026 Shaft Spring Pin</li> <li>78- RY10025 Extension Spring</li> <li>79- RY9200 Retaining Pin</li> <li>80- RY10056 Key Ring Stud</li> <li>81- RY10023 Release Stud</li> <li>82- RY9025 Release Spring</li> <li>83- RY9038 Release Knob</li> <li>84- RY9028 Carriage Knob</li> <li>85- RY10086 Threaded Stud</li> <li>86- RY10060 Knob Spacer</li> <li>87- RY10087 O-Travel</li> <li>88- RY10011 Carriage RY100</li> <li>RY20011 Carriage RY200</li> <li>89- RY9278 Vinyl Cap</li> <li>90- RY10067 Flat Washer</li> <li>91- RY9047 Cap Screw</li> <li>92- RY9273 Plastic Washer</li> </ul> |
|--|--|---|---|