

JACO Designs  
MINI PISTOL  
.22 CALIBER SHORT SINGLE SHOT

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This pamphlet contains all the information you will need to construct the pistol. Study the plans carefully until you can easily picture the parts and how they work with each other. The pistol is a rolling block type and uses the hammer to lock the breech block. When the hammer is pulled back further than the full cock position, the curved surface of the hammer clears the ears on the breech block and allows the block to rotate back for loading or unloading. After you have studied the plans and are ready to start construction, you should have the following tools available. A drill press is the only power tool you need. Hand tools include a small 6 in. file, a 10 in. mill file, a small rat tail file, hacksaw, small pliers, hammer, center punch and vise. If you have more tools and equipment you can make the parts more easily. The material required for this pistol is all cold rolled steel except for the springs which must be music wire. You will need a bar of steel 1/2 x 1 x 4-1/2 inches, a plate 1/16 x 3 x 3 inches and a strip 1/8 x 1/2 x 6 inches. In addition, a rod 3/16 in. diameter about 6 inches long, a 1/8 in. diameter rod about 1-1/2 inches long and several 1/16 (16 gauge) diameter nails 1-1/2 in. long. The hammer spring is .045 diameter music wire about 12 in. long. The trigger spring is .025 diameter piano wire about 1 inch long.

You will have a completely satisfactory pistol if you build it as instructed. Because we have no control over the materials you will use, the workmanship or possible use of the pistol, JACO will not assume any responsibility for these items. Do not change the design of the pistol as the parts shown have been carefully proportioned to function properly.

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It is suggested that you make stiff paper templates of parts 1, 2, 3, 4, 13 and 14. By using a straight pin as a pivot point in parts 3, 4, and 14 you can make the parts function on top of the plans and better see how they work. Make your parts carefully and plan each step before cutting, filing or drilling.

1 - ROUGH PARTS - Arrange the stiff paper templates of parts 3, 4, 13 and 14 on the 1/2 inch thick steel bar. Note that the hammer (part 3) has the firing pin installed much later in the building process. Draw the outline of the parts on the steel. A sharp scribe is best. Center punch the location of the pivot hole (1/8 dia.) in parts 3, 4, and 14. Saw out the parts in block form leaving a little stock for clean up with a file. Do not chamfer the barrel block at the breech end because it is easier to drill if this surface is flat. At this time, part 3 should be a block 1/2 x 7/8 x 1, part 4 should be a block 1/2 x 7/16 x 1, part 14 should be 1/2 x 5/16 x 1-1/4 and part 13 should look like the letter "L". Cut out parts 1 and 2 from 1/16 sheet steel. Place the 3/16 dia. rod in the vise with about 1/2 sticking up. Hammer this over to the angle shown on part 12. You now have the rough stock for all the parts.

2 - BARREL BLOCK - Take the barrel block, part 13, and file the breech end flat and square with the top of the block. Locate the hole for the barrel, part 11, 1/4 in. from the top surface and the hole for the extractor, part 12, 5/8 from the top surface. Hold the barrel block firmly and square in the drill press. Drill the barrel hole through with a 1/4 inch diameter drill and the extractor hole through with a 3/16 inch diameter drill. File the muzzle end flat and square and add the chamfer to the breech end. Carefully saw and file the 3/32 wide groove across the breech end of part 13. This will be the extractor groove. Drill a 1/8 dia. hole directly over the 1/4 dia. hole in the barrel block for the front sight, part 15. Drill the barrel block 1/4 inch dia. hole out to accept the liner, part 11. Follow the liner manufacturers recommendations. Rifled .22 caliber liners are available from many sources. Look in the classified ad section of popular gun magazines and you will find them. Generally, the liner is about 5/16 in. dia. and is either soft soldered or epoxy bonded in place. Install a 1/8 in. dia., 3/16 long pin in the front sight hole at this time. After you have installed the liner, file it to match the groove in the breech block. The chamber may now be reamed with a chamber reamer, check with your local gunsmith, or it may be finished by drilling as follows. Take a #2 drill (.221 dia.) and drill into the liner 1/2 in. deep at the breech end with the extractor in place. Now drill to the same depth with a #1 drill (.228 dia.). Drill to a depth of about 3/64 with a 9/32 inch dia. drill for the case rim relief. Drill slowly and check the depth with an empty case. The end of the case should be flush with the breech when you finish. Polish the chamber with emery cloth on a small wood dowel in the drill press.

3 - EXTRACTOR - Slip the extractor, part 12, into the barrel block, part 13, and observe how much stock you have to file off to make it fit the groove in the barrel block. File part 12 to fit part 13 without binding. With the rat tail file, make the top of the extractor fit the bore of the liner. Locate

the hole for the pin which operates above the flat on the extractor. The center of this pin should be tangent to the 3/16 inch dia. hole in part 13. With the extractor in place, drill a 1/16 in. dia. hole through the barrel block and extractor. Remove the extractor and file it flat down to the hole you just drilled, which should have made a small half round notch in the extractor.

4 - HAMMER - Take the hammer block and saw and file to shape. Drill a 1/8 dia. hole for the pin, part 16. Do not drill the hole for the firing pin. The curved lock surface should be a 5/16 radius around the 1/8 dia. hole. Make this curved surface as true as possible. If you can set up a little filing fixture to swing the hammer around the 1/8 hole, you will get a perfect curve.

5 - BREECH BLOCK - Saw and file the breech block to shape. Drill a 1/8 dia. hole for part 17. Leave a little stock on the flat surface that will touch the curved surface of the hammer, part 3. Do not add the slot that becomes the rear sight and firing pin slot.

6 - TRIGGER - File the trigger, part 14, to shape and drill a 1/8 dia. hole for pin, part 17. Leave a little stock on the end of the trigger sear surface. This surface will be trimmed after you have fitted the breech block and hammer in the pistol.

7 - FRAME - Take the 1/8 x 1/2 strap and file two 90° grooves across the strap at the bend points of the frame. The grooves should be 1-1/8 apart. Be sure you leave enough strap on each end to bend for the remainder of the frame. Bend the frame to fit the shape shown on the plans. Trim the ends as necessary. Locate the three holes in the frame, part 8, which will be the rivet locations. Drill a 1/16 hole through at each location and in the center of the 1/8 width.

8 - ASSEMBLE SIDE PLATES - Clamp part 1 and 2 together and file them to match each other. Mark them part 1 and 2 so you can't interchange them. Lay part 1 on the plan and place part 8 on top of it. Use a sharpened No. 17 gauge nail as a center punch and when you have them lined up, put the nail in one of the holes in part 8 and tap once with a hammer. This should leave a mark on part 1 where you should drill a 1/16 dia. hole. Drill it and place a 1/16 dia. (No. 16 gauge) nail through part 1 and 8. Relocate the parts on the plan and spot the next hole the same way. It is best if you use the two holes closest to the hammer and trigger first and locate the remaining hole last. Place a 1/16 dia. pin in all three holes through part 1 and 8. Place a scrap piece of 1/2 inch thick stock between parts 1 and 2 and clamp part 1 and 2 together. Be very careful to get part 1 and 2 directly over each other. When you have part 1 and 2 aligned perfectly, pull out one of the pins and drill through part 2 using the hole in parts 1 and 8 as a guide. Replace the pin and repeat the operation until all three pins are through parts 1, 8, and 2. Remove all the pins and file off all burrs caused by the drilling. Enlarge the 1/16 holes in parts 1 and 2 with a 5/64 dia. drill, but only half way and from the surface that will be the outside surface of parts 1 and 2 when the gun is finished. Assemble the frame, parts 1, 8 and 2 with 1/16 dia. pins which stick out 1/16 inch on both sides of the frame when parts 1, 8 and 2 are clamped together. Hammer or squeeze the pins in a vise so that they upset into the 5/64 dia. holes on each side of the frame. File off the heads of all rivets flush with the side plates. Locate the two 1/8 dia. holes in the frame by measuring the plans. The holes should be exactly 7/16 inch apart. Drill the holes through both side plates in a drill press to keep them accurate.

9 - ASSEMBLE BREECH BLOCK - Make two 1/8 dia. pins, 1 inch long. Place the frame on the plans with the pins in the two 1/8 dia. holes. Slide the breech block, part 4 and the hammer, part 3 on the pins. Trim the two ears on the breech block where they touch the hammer until the breech block and hammer fit as shown on the plans. The barrel side of the breech block should be square with the top of the frame parts 1 and 2. Both ears on part 4 should touch the curved surface of the hammer. Cock the hammer and be sure the breech block will swing past it without binding.

10 - INSTALL TRIGGER - Install the trigger in the breech block with one of the 1/8 dia. pins. The part of the trigger that will hold the hammer cocked, the sear, should be trimmed to be 1/32 shorter than the 5/16 radius of the two ears on the breech block. Keep the release edge of the sear sharp and square. The top of the sear should be about 1/32 wide. Install the breech block, hammer and trigger on the outside of the frame and trim as necessary to get smooth, free action, install these parts in the frame and check for smooth operation.

11 - INSTALL BARREL BLOCK - Insert the barrel block, part 13, into the frame. Push it back until it fits flat against the breech block. The top of the barrel block should be parallel to the top of the side plates. Make sure that the barrel block is really flat against the breech block. Clamp the barrel block between the side plates so you can get to the three rivet holes in the side plates. Check the action of the breech block and hammer. With the hammer down in the fired position, the breech block should not move. Drill the three 1/16 dia. rivet holes through the side plates and the barrel block. Enlarge the three holes half way through each side plate with a 5/64 drill. Remove the barrel block and install a 1/16 pin in the block as the extractor key. Put the barrel block back in the frame and rivet the same way you did the frame. File off the rivet heads flush with the side plates. You should not be able to see where you have riveted if you have been careful. File the side plates to match the bottom of the barrel block. Now file the barrel block corners off at a 45° angle to make the barrel eight sided. Use a rat tailed file to get the shape shown at the end of the 45° chamfers.

12 - FIRING PIN SLOT - Make a rod about 3/16 dia. and at least 3-1/2 in. long with a sharp point on one end like a center punch. Insert this in the barrel and wiggle it around to make a mark on the breech block face. The center of the little circle you have is the center of the barrel. Cut a 1/16 slot for the firing pin in the breech block, down toward the little circle. Stop when you are 3/64 above the center of the mark.

13 - FIRING PIN - Put the hammer only in the frame with a 1/8 dia. pin. Hold the hammer 1/8 away from the barrel block in the fired position. Use the same rod to mark the center of the barrel on the hammer face. Locate the firing pin 1/16 above the center of the mark on the hammer face. Drill a 1/8 dia. hole 1/8 deep in the hammer at this spot. Make a pin slightly larger than the hole in the hammer so you have to press the pin in the hole. After you press the pin in the hammer trim it to stick out of the hammer 3/16 of an inch. Put the breech block and hammer in the gun and see how the firing pin aligns with the slot in the breech block. File the sides of the firing pin until it just fits in the slot. File the firing pin until it is only 3/64 longer than the thickness of the breech block. You may have to file the bottom of the firing pin to clear the bottom of the slot in the breech block. Chamfer the firing pin in the top view so that the face that hits the cartridge is about 1/32 wide. Trim the 1/8 dia. pins to be flush with the sides of the frames.

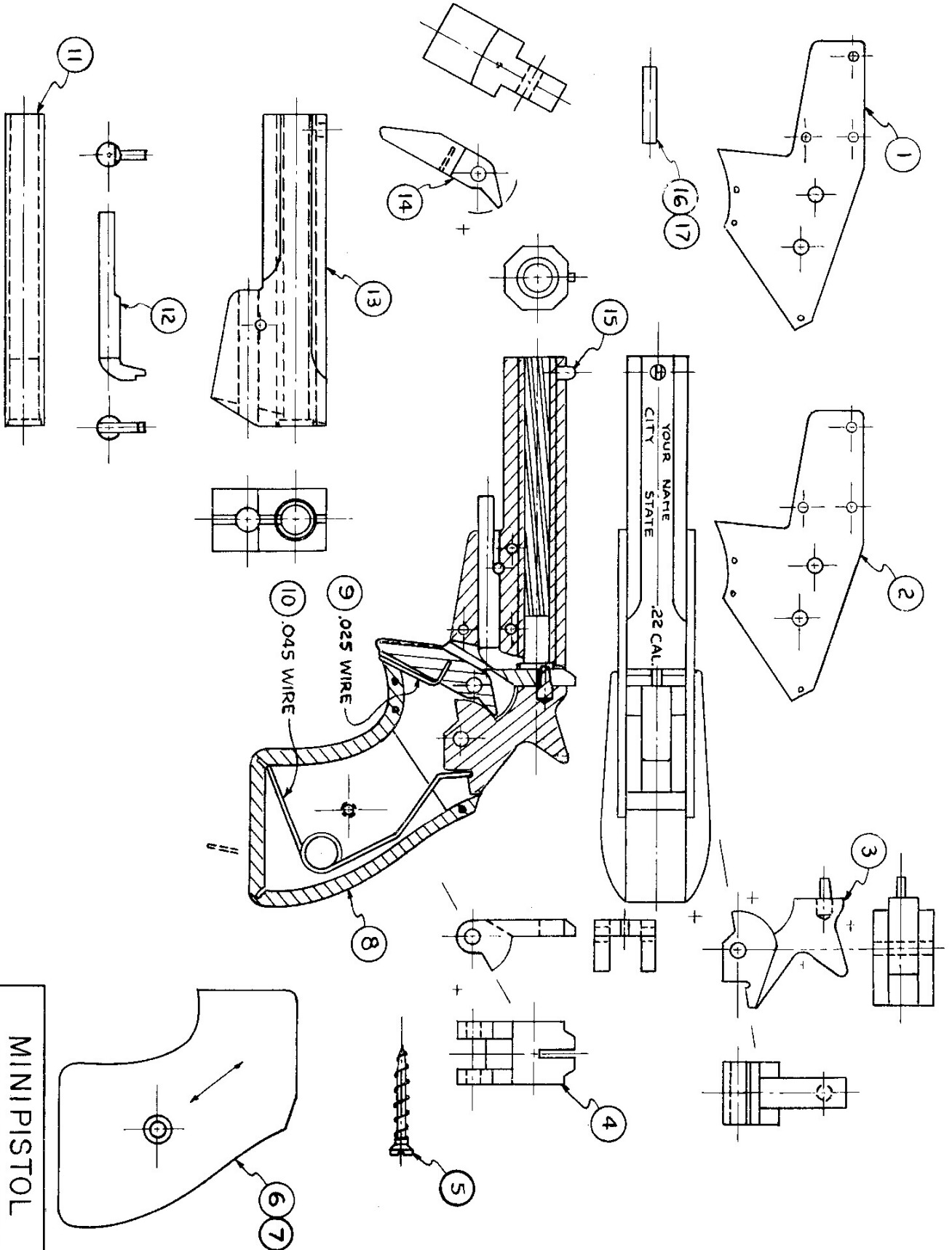
14 - CHECK FUNCTION OF TRIGGER AND HAMMER - Assemble the trigger, breech block and hammer in the gun. Check the action of the trigger. If the trigger motion is stopped by the strap, part 8, file off the back of the trigger until it moves enough to release the hammer. File a 1/32 x 1/32 notch in the center of the strap, part 8, for the trigger spring to fit into.

15 - TRIGGER SPRING - Bend the trigger spring out of piano wire .025 in. dia. and trim to correct length. It should take about 2 pounds of force to move the trigger when it is installed. Get a piece of music wire .045 in. dia. about 12 in. long. Bend it in the middle so it looks like a letter "U" with the legs 1/4 inch apart. The bottom of the "U" will fit into the notch in the hammer. Bend the two legs so that they match the shape on the plans. With the bottom of the "U" in the hammer, the ends of the spring should be on the dotted lines shown on the plans.

16 - FINAL ASSEMBLY - Assemble the gun by inserting the extractor first, then the hammer, the breech block and finally the trigger with the trigger spring in place. Insert the main spring and with a small pair of pliers, lift the ends of the spring and slip them inside the frame. Check the action of the gun. You should be able to cock the gun without releasing the breech block. By pulling the hammer all the way back you should release the breech block and by pushing on the extractor, the breech block will flip open.

17 - GRIPS - Make two wooden grips, parts 6 and 7, out of walnut with the grain in the direction shown. Carve or file a step in the wood where it touches the side plates. The grips should overlap the two 1/8 pins in the frame. Make the screw, part 5, out of a flat head wood screw about 7/8 long. Drill and countersink the left hand grip and screw the grips in place. Shape the grips so that they are about 1/8 thick at the top and rounded to fit the rest of the frame. Sand and varnish as necessary.

18 - FINISHING - Sight in the gun using only .22 short cartridges at a range of about 20 feet. If the gun shoots low, file off the top of the front sight. If the gun shoots to the right, file on the left side of the front sight. When you are through sighting in the gun, completely dismantle it and finish all the external surfaces with a smooth file and emery cloth. A light wire brushing gives a pleasing appearance. Stamp your name, city and state and .22 CAL and a serial number on your gun for identification purposes. The gun may be left white or it may be blued at this time. Use JACO blueing instructions for a simple, reliable gun blue like the old timers used. A box can be easily made from two pieces of clear pine 3-1/2 x 6 x 3/4 by routing out a cavity half the thickness of the gun in both pieces of wood. Two brass hinges and a clasp can be obtained from most hardware stores. Line the box with your favorite color of felt and varnish the outside of the box. You now have a JACO designed MINI PISTOL of which you can be proud and which will give you much pleasure in showing or shooting.



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 .22 CAL. SINGLE SHOT  
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