DIY SHEET METAL SELF-LOADING PISTOL MK.3

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SMSLP MK3 construction plans

Caliber: .32 / .380
Barrel length: 96mm
Overall length: 164mm
- Compatible with 8 round Makarov PM magazines

All pages included should be printed out on 8.5 x 11 US letter paper. Each component template is drawn to scale and can be cut out and glued to their respective thickness of material or used as a reference for measurements. Make sure the ruler at the bottom left of each sheet is 2 inches in length. Alternatively, take a screen-shot and enlarge the plans using a computer program until the ruler is the correct length, then trace the parts needed onto a sheet of paper taped over your computer's screen.

For academic study purposes only
Materials:

1mm thick mild steel sheet
2mm thick mild steel sheet
2.5mm thick mild steel sheet
6mm (1/4”) mild steel plate
8mm thick mild steel plate
12mm thick mild steel plate
16mm (5/8”) diameter mild steel square bar
16mm (5/8”) diameter mild steel round bar
4mm (1/6”) silver steel bar
Spring steel music wire, 19 and 20 gauge
M4 button head bolts, 13mm long
M6 button head bolts, 10mm long
3mm diameter pins, 18mm long

Tools:

Hacksaw
Hand files
Electric drill or drill press
Angle grinder
Dremel type rotery tool
Hand taps, 4mm - 0.7 and 6mm - 1.0
Arc welder
Frame plates

The 3 holes on the left (for trigger and barrel pins) are each 3mm in diameter, the two on the right (for hammer pack take down pins) are 4mm in diameter. Drill all holes once frame is welded together to ensure proper alignment.
Trigger guard / frame wall

Bend to profile from an 8" length of 12mm wide 2mm thick mild steel strap

Weld in place between frame plates using continuous beads each side. Grind edges to a smooth rounded profile using an angle grinder + flap disc.
Slide rails

The slide rails are made by cutting two strips of 2mm thick mild steel sheet which are welded either side in the position shown. Alternatively these can be formed from a thick weld bead ground to shape.

A length of 2mm thick, 12mm wide steel strip is bent to shape and welded in place to complete the recoil spring channel.
Hammer pack side plates

Holes 1 and 2 accept a 12mm long, 4mm dia take-down pin.

The three remaining holes on the right side plate are drilled with a 3mm bit then threaded to accept an M4 bolt each, sealed in place with high strength epoxy applied to the threads. These are then cut down to 12mm in length to create three fixed pivot posts.

Back strap
Weld or pin in place

Ejector - File down and bend to allow for mag clearance

Side plates: 2.5mm thick mild steel plate
Back strap: 8mm thick steel, aluminum or plastic plate
Hammer pack components

Hammer

Cut spring arm slot using a dremel + cutting disc

Main spring

Bend to profile from heavy 19 gauge+ spring steel music wire around a 6mm bar - 2 turns

Sear

Latch spring

(5mm x 13mm compression spring)

Back profile

13mm

Magazine latch

4mm

All holes are drilled with a 4mm dia bit

2 inches

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Hammer, sear and magazine latch: 8mm thick steel plate
Hammer pack assembled
Trigger

Compression spring
(Can be taken from a retractable pen)

Cut a slot for the trigger bar using an angle grinder fitted with a 1mm slitting disc

Drill from below using a 4mm bit to create a spring channel

Trigger bar

Cut from a 88mm length of 2mm thick steel plate

10mm

23mm

3mm hole

Bend on lines to profile below:

Sear contact point profile (Mirrored)

Cut to profile once bent

2 inches

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Trigger : 12mm thick aluminum, plastic or steel plate
Barrel assembly and recoil spring

.32: 7.5mm inner dia, 2.75 wall  
.380: 9mm inner dia, 3.5mm wall

Round or square stock

3 3/4”

16mm (5/8”)

Weld lug in place - grind smooth

Cut 6mm wide slot at top of barrel entrance to accommodate front of extractor

Barrel lug
12mm thick mild steel plate

7mm
20mm

Bevel entrance with 16mm + drill bit - form slight ramp profile on lower wall

Recoil spring

3.5”

10mm

Wire dia: .043 (1mm)

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Slide side plates

Cut from 6mm (1/4") thick mild steel plate

164mm

28mm

14mm

The slide rail cuts are formed on the inside of each plate by carefully using an angle grinder fitted with a 2mm grinding disc to form a shallow channel across the plate's entire length. Use a dremel and hand-file to neaten.

2 inches

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Bolt piece

The bolt piece is made from a 48mm long length of 16mm (5/8") mild steel square bar.

- Drill center with a 9.5mm drill bit until 3mm deep.
- Level hole flat using a 9.5mm drill bit having had its tip removed using an angle grinder.
- Drill firing pin hole from front with a 3mm drill bit.
- Drill from back using a 4.2mm drill bit, 43mm deep.
- Cut feed channels using an angle grinder fitted with a 1mm slitting disc until matching the profile on the right:

Front face

Bottom

Top

File notch for extractor

Firing pin retainer hole
- Drill 3.3mm and tap for M4 bolt

Angle grinder 'milling'

2 inches

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Firing pin & extractor

Firing pin

1/8" (4mm) dia silver steel bar. 48mm long.

Reduce tip to 2.5mm dia
(Can be spun in a drill and turned down using a file)

The firing pin return spring can be made from 3 or 4 coils cut from a small dia compression spring found inside a retractable pen.

Extractor
(Optional)

Bend from 55mm long, 5mm wide, 2mm thick steel strip.

Round off tip

Hand fit extractor so that front of claw is in contact with a cartridge rim when centered on bolt face. A cartridge should be able to slip under with ease. Retain using a 6mm long M3 bolt plus the firing pin retention bolt to the rear.
Slide assembly

Assemble together once alignment with frame and barrel has been established

Drill two 5mm holes each side and tap to accept four M6 allen head bolts. Bolt piece should be positioned centrally inline with barrel - can be temporarily tack welded to align before bolting in place.

Drill two 4mm holes through slide panels and lug to accept two 25mm long, 4mm dia steel roll pins. Seal over holes with weld and grind flush. Weld at front where in contact with slide plates to permanently secure lug.

10mm long M6 button head bolts
Removal will allow for slide disassembly from frame.
Completed slide

Side:

Add serrations to each panel using a jeweler's saw

Top:

Front:
Magazine template

Cut template out from 1mm thick mild steel sheet. Score on bend lines slightly using a dremel disc.

Form around a 10mm thick, 1" wide, 12" long steel block. Carefully weld together in spots along rear fold. Form feed lips around top of forming block to profile.

Base plate
(Cut from 10mm thick aluminum, plastic or steel)

Secure using two 11mm long pins

Heat formed magazine lips until cherry red and quench using kasenit or motor oil to harden

- Standard Makarov PM magazines may also be used
Magazine spring

Make a forming mandrel from a length of 4mm thick plate, 15mm wide, 12'' long. Drill a hole at one end to tie a knot through.

Tightly form spring from 20 gauge spring steel music wire. Leave 15mm between coils.

Once complete, use pliers to form each coil into the correct rectangular shape.
Grip panels

Cut from 1/2" plastic, aluminum or hardwood

Drill and tap through frame to accept four M4 button head bolts. Ensure surfaces inside magazine channel remain flush.

(Left side panel) Use a rotary tool + sanding bit to create a shallow channel to allow clearance for trigger bar.
A MK1 .25 ACP sheet metal pistol successfully built and fired, photos courtesy of Clinton (USA)