12 GAUGE PUMP-ACTION SHOTGUN

CONSTRUCTION PLANS
The following 12 gauge pump-action shotgun design can be manufactured in the home environment without the use of a lathe or milling machine. The majority of its components are constructed from standard sizes of steel box section and round tubing, including the barrel. 12 gauge being a cartridge which produces relatively low chamber pressures allows the use of a simple bolt locking mechanism, in this instance a spring loaded lug which is keyed in or out of a hole in the thick-walled upper receiver via the rearward or forward motion of the action bar.

Magazines can be fabricated from rectangular tubing or the design adapted to accept commercially available shotgun magazines such as those offered for the Saiga-12. Additionally, cheap widely available surplus battle rifle magazines such as those made for the FAL, SLR, BAR or G3 can all be easily made to accept and feed 12 gauge shells by simply modifying the feed lips and front wall to allow the cartridges to sit higher and be stripped by the bolt.
Land Maintenance Tool

Materials list:

- 38mm x 38mm (1 1/2" OD) x 3mm (.120) mild steel box section
- 30mm x 30mm x 2mm mild steel box section
- 30mm x 2mm (1" ID) mild steel round tube
- 25mm (1" OD) x 2.5mm (3/4" ID) seamless steel round tube
- 2mm thick, 20mm (3/4") wide steel strap
- 25mm (1") dia steel bar
- 30mm dia mild steel round or square bar
- 6mm (1/4") dia steel bar
- 10mm thick steel plate
- 6mm (1/4") thick steel plate
- 2" thick hardwood or plastic

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 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
Upper receiver
(Bottom)

281mm long

Cut out openings using a combination of chain-drilling holes around the inside of parts marked and slitting using a Dremel fitting with a reinforced cut-off disc.

Mild steel square box section
38mm x 3mm wall
(1 1/2” x .120 wall)
Mounting lugs

Can be made from solid blocks of 1” steel or folded from 3mm thick sheet to match inner dimensions of lower receiver.

Drill holes while mounted in the correct position with lower receiver to ensure accurate alignment. Take-down is achieved via two removable 30mm long 8mm diameter steel pins.
Lower receiver
(Right side)

30mm x 30mm x 2mm thick wall
mild steel square box section tubing

236mm long
Lower receiver
(Bottom)

85mm

115mm

25mm

10mm

Magazine well

Trigger slot
Magazine catch

1/4" thick steel or aluminum plate

Drill shallow pocket for spring

29mm

15mm

20mm

60mm

Catch housing

1" square tubing, 65mm long

Secure catch inside housing using a 1" long 3mm dia pin

Asembled

8mm

15mm

2 inches

Print on 8.5x11 US letter paper
Rear sight / lower receiver backplate

6mm (1/4”) mild steel plate

Sight hole: 6mm

88mm

25mm

Stock bracket
Bend from 3mm thick 1/2” steel strap

Weld
Lower receiver
(Assembled)

Weld on a piece of steel plate to enclose magwell

Drill lug hole through both pieces

74mm

15mm

63mm

Drill and tap for grip bolt

Weld

2 inches

Print on 8.5x11 US letter paper
Trigger & sear

10mm thick steel plate

Templates:

Drill and insert a 1” long 6mm dia steel bar through both trigger & sear to center each component in the lower receiver. Drill a pocket and insert a small compression spring in position shown on sear.
Weld or braze together from 4 pieces of 20 gauge (1mm thick) mild steel sheet.

Can also be made by modifying a length of 1" x 2.5" or 1" x 3" rectangular steel or aluminum box section tubing with a wall thickness of 1.5mm. Alternatively FAL, SLR, BAR or G3 magazines may be modified to accept and feed 12 gauge shells.
Magazine spring

Form from .025 flat spring steel strip, 3/4" wide

2"

6.5"

57mm

Bend around a 3mm dia bar to form bows - 7 bends
Magazine follower & assembly

Bend from 3mm thick, 20mm wide steel strip

Bend lips inwards

Weld a blob of steel and grind to profile using a dremel.

M4 bolts x2
Bolt locking / unlocking sequence

When the pump forearm is fully forward the spring loaded locking lug on the bolt is free to engage with the lug slot in the top of the receiver, securely locking the bolt in place. When the pump forearm is pulled rearward the locking lug is pushed out of engagement with the locking lug hole by the action bar, enabling the bolt to travel rearward when the bolt peg makes contact with the front of the first slot in the action bar.

Bolt locked:

Bolt unlocked:
Inner bolt piece

Firing pin channel is bored through a 133mm long length of 1” (25mm) mild steel bar.

An alternative bolt construction method consisting of multiple lengths of steel tube and bar stock welded together

1” + 5/8” + 1/2” steel tube + 3/4” steel bar stock welded in front
Firing pin

Turn to shape from 6mm dia steel bar stock

Can alternatively be constructed by sleeving a length of 4mm dia steel bar with an 84mm length of 6mm steel tubing.

Striker

30mm steel round or square bar

Insert and weld firing pin at rear

2 inches
Print on 8.5x11 US letter paper
Bolt body

30mm x 30mm x 2mm wall steel square box or round tube (1” ID)

Front

105mm

Bottom

18mm

Top

46mm

Drill 7mm and tap for M8 threads

2 inches

Print on 8.5x11 US letter paper
Bolt locking lug

Cut to shape from 10mm thick steel plate or flat bar. Drill hole for 5mm dia, 30mm long pivot pin.

Template

Drill a 5mm dia hole 6mm in from top and front of bolt body for lug pin. Grind out a pocket in bolt until the lug is able to pivot flush with top of bolt body.

Drill a 6mm dia pocket hole in lug to accommodate a strong compression spring.
Extractors

Cut from 2mm thick steel sheet. Harden.

Templates

Ejector

Modify from an M6 bolt, 10mm long

Cut ejector slot in bolt using an angle grinder fitted with a slitting disc. Slot should be 4mm wide, 7mm deep, 3” long

Drill 10mm from front / 4mm from sides
+
X2 4mm dia compression springs

2 inches

Print on 8.5x11 US letter paper
Bolt assembled

Side:

Drill a 4mm hole and insert a seloc pin to retain firing pin assembly

Front:

Bolt peg
M8 bolt - 15mm long

Weld bolt piece into bolt body
Action bar

20mm wide, 2mm thick steel strip.
290mm long.

Rear end:

Front end:

Pump tube
30mm x 2mm round tube (1” ID)

M8 nut (weld in place)

2 inches
Print on 8.5x11 US letter paper
Barrel

25mm x 2.5mm wall seamless steel tube (3/4" ID, 1" OD) - 20" long

Bevel both collar and barrel entrance

Barrel collar

30mm x 2mm wall (1" ID)

Cut relief slots for extractor claws

Weld

15mm

45mm
Front sight

3mm thick mild steel sheet

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Weld front sight collar to barrel 227mm from chamber collar
Pump forearm

2” thick hardwood or plastic

Front

Forearm is secured to pump tube via an M8 bolt
Pistol grip

Cut from 1 3/8” thick hardwood or plastic

Drill a 6mm dia hole to secure grip to mounting block on lower receiver using a 3” long m6 bolt

Alternatively weld in place a piece of steel plate and bolt on two grip panels either side to match the grip plate profile.