

# The Complete Machine Plans for Shpagin PPSH-41 submachine gun (USSR)

Researched and Compiled by:

Ghazali Zuberi



**Caliber:** 7.62x25 mm TT

**Weight:** 5.45 kg loaded with full 71 rds drum; 4.3 kg with full 35 rds magazine; 3.63 kg without magazine

**Length:** 843 mm

**Barrel length:** 269 mm

**Rate of fire:** 900 rounds per minute

**Magazine capacity:** 71 rounds in drum magazine or 35 rounds in curved box magazine

**Effective range:** 75 ~ 120 meters **Maximum range:** 150 ~ 200 meters

The PPSH-41 (Pistolet Pulemnot Shpagina model of 1941 = Shpagin submachine gun) was one of major infantry weapons of the Soviet troops during the World War 2. Total number of PPSH's manufactured during WW2 estimates to more than 6 millions. The gun became one of the symbols of the Great Patriotic War. Retired from Soviet Army service soon after the WW2, the PPSH was widely exported to some pro-Soviet countries around the world, including China, Vietnam and many African countries.

It was effective, but somewhat crude weapon, reliable in combat but not without certain flaws. It has somewhat excessive rate of fire, and its drums were uncomfortable to carry and prone to feed problems once spring is weakened.

The PPSch-41 was designed as a cheap and simple but effective war-time weapon. It featured simple blowback operated action, and fired from open bolt. To decrease the recoil stress, gun was fitted with bolt buffer at the rear of receiver. The buffer was made from fiber and was attached to the return spring guide rod. The striker was permanently fixed to the bolt face. PPSH-41 was a select-fire weapon, with fire selector switch located inside the trigger-guard, ahead of trigger. The safety was integrated into the charging handle and locked the bolt in forward or rearward position. The receiver and the barrel shroud were made from stamped steel. The front part of the barrel shroud extends beyond the muzzle and acted as a muzzle brake / muzzle flip compensator. Early PPSch-41's were issued with drum magazines with capacity of 71 round, similar to ones used in PPD-40.

Such high capacity increased the firepower but the magazines were too slow to refill and not too reliable, so in 1942 a curved box magazine was developed. This magazine held 35 rounds and was much more comfortable to carry in pouches. Early magazines were made from 0,5 mm sheet steel and were somewhat unreliable. Later magazines were made from 1 mm steel and were completely satisfactory. Usually, infantrymen carried one drum in the gun and some box magazines in the pouches or pockets.

Early guns featured elevation-adjustable rear sights, marked up to 500 meters; late production guns had flip-type "L"-shaped rear sights marked for 100 and 200 meters range.

# PPSh41

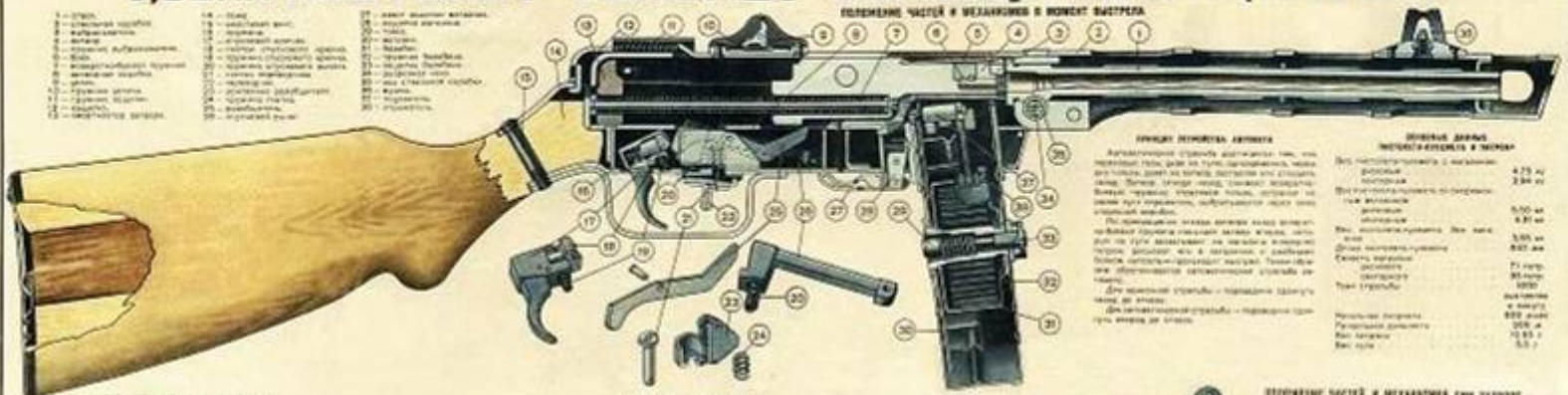


- Calibre:** 7.62 x 25mm Soviet  
**Length:** 838mm (33in)  
**Weight:** 3.64kg (8lb)  
**Feed:** 35-round detachable box magazine  
**System of operation:** Blow-back  
**Rate of fire (cyclic):** 900rpm  
**Muzzle velocity:** 500mps (1640fps)

# 7,62-ММ ПИСТОЛЕТ-ПУЛЕМЕТ ОБРАЗЦА 1941 г. (ППШ)

- 1 — ствол
- 2 — мушкетерский щиток
- 3 — мушкетерский щиток
- 4 — мушкетерский щиток
- 5 — мушкетерский щиток
- 6 — мушкетерский щиток
- 7 — мушкетерский щиток
- 8 — мушкетерский щиток
- 9 — мушкетерский щиток
- 10 — мушкетерский щиток
- 11 — мушкетерский щиток
- 12 — мушкетерский щиток
- 13 — мушкетерский щиток
- 14 — мушкетерский щиток
- 15 — мушкетерский щиток
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- 17 — мушкетерский щиток
- 18 — мушкетерский щиток
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- 44 — мушкетерский щиток
- 45 — мушкетерский щиток
- 46 — мушкетерский щиток
- 47 — мушкетерский щиток
- 48 — мушкетерский щиток
- 49 — мушкетерский щиток
- 50 — мушкетерский щиток

ПОДРОБНЫЕ ЧАСТИ И МЕХАНИЗМЫ В МОМЕНТ ВЫСТРЕЛА



**ОБЩИЕ ДАННЫЕ ОБОРУДОВАНИЯ**

Вспомогательный ствол предназначен для стрельбы по целям, расположенным выше или ниже, чем основной ствол. Он имеет длину 100 мм и калибр 7,62 мм. Стволы соединены между собой шарнирно. Вперед поворачиваясь, стволы, опираясь на рукоятку управления, образуют одну линию стрельбы.

При стрельбе из него ведется огонь одиночными выстрелами. При стрельбе из основного ствола производится стрельба очередями. При стрельбе из вспомогательного ствола производится стрельба одиночными выстрелами.

Для автоматической стрельбы — переводится рычажок на «АВТ».

Для полуавтоматической стрельбы — переводится рычажок вперед на «ПЛУ».

**ТЕХНИЧЕСКИЕ ДАННЫЕ**

ТЕХНИЧЕСКИЕ ДАННЫЕ	
Скорость стрельбы с магазина	475 к/с
Скорость стрельбы	230 к/с
Вместимость магазина	35 патронов
Длина ствола	570 мм
Длина с прикладом	950 мм
Длина с мушкетерским щитком	1050 мм
Масса без магазина	4,5 кг
Масса с магазином	5,5 кг

НЕОБРАБОТКА РАБОЧЕЙ ЧАСТИ

ОБРАБОТКА РАБОЧЕЙ ЧАСТИ

ПОДРОБНЫЕ ЧАСТИ И МЕХАНИЗМЫ ПРИ ЗАКРЫТОМ ЗАКРЕПЕ ИЛИ ОТКРЫТОМ ЗАКРЕПЕ



ВНЕШНИЙ ВИД



ОТКРЫТИЕ ЗАКРЕПКИ



ОТКРЫТИЕ ВЫСТРЕЛЕНИЯ



ОТКРЫТИЕ ЗАКРЕПКИ



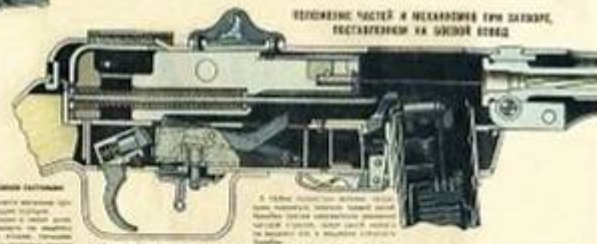
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ВНЕШНИЙ ВИД



ОТКРЫТИЕ ЗАКРЕПКИ



ОБЩИЕ ДАННЫЕ ОБОРУДОВАНИЯ



# PPSh 41

## PINS

USE	PIN DIA. (mm)	PIN LENGTH (mm)
Magazine latch	2.8	38
Firing pin	4.0	32
Receiver latch	5.0	40
Rear sight	3.0	24
Magazine latch pivot	2.5	9

## SPRINGS

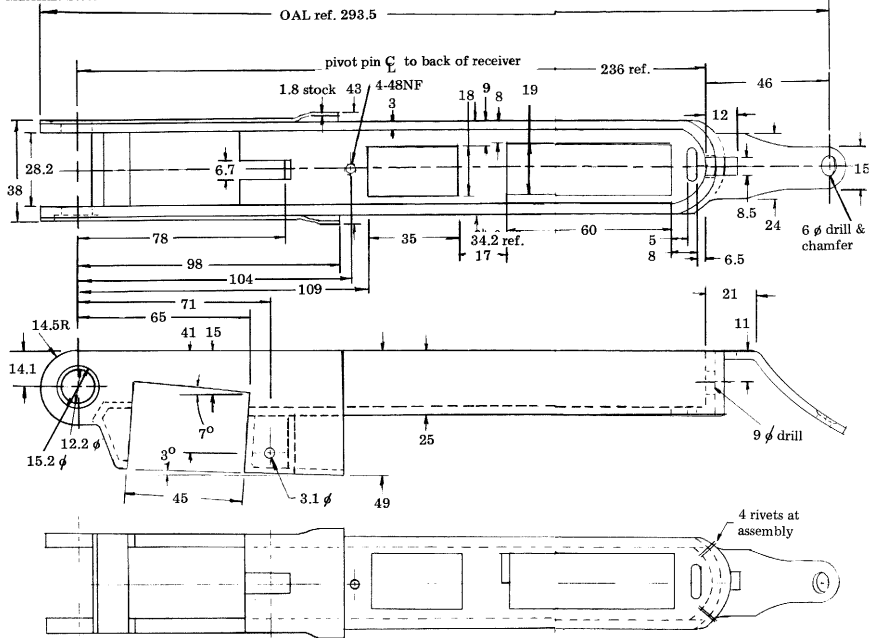
USE	WIRE DIA. (mm)	SPRING OD (mm)	OAL (mm)	No. COILS
Trigger	0.7	4.5	11.5	7
Trigger plunger	0.6	4.3	35	25
Sear	0.8	6.4	35	15
Selector	1.0	8.3	13	6
Magazine latch	0.5	4.2	13	8
Main	0.91	6.86	200	74
Safety	0.5	3.5	6.5	4
Receiver latch	1.0	4.0	52	

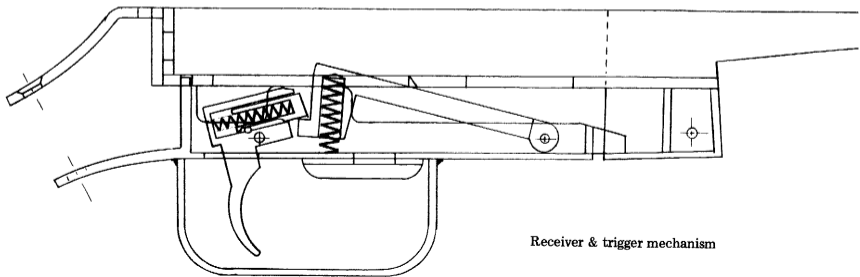
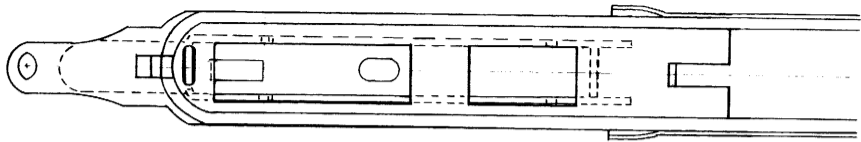
## SCREWS

USE		TYPE		REQUIRED
Sling plate	Wood	Flat head	6 $\phi$	2
		Body	3 $\phi$	
		Length	15	
Butt plate	Wood	Half round head	10 $\phi$	2
		Body	6 $\phi$	
		Length	25	
Receiver	Machine	Half round head	10 $\phi$	1
		Body	5 $\phi$	
		Length	40	

Receiver  
Material: Steel

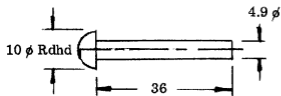
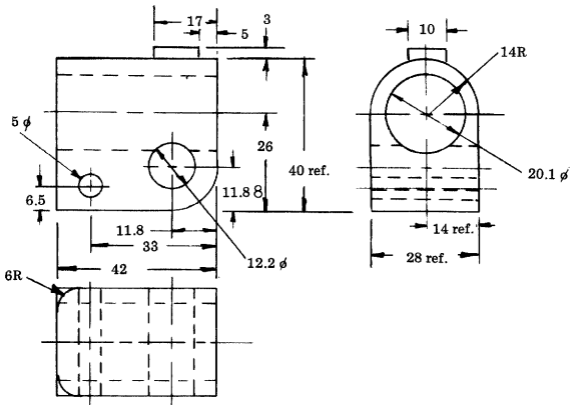
Scale: .7 : 1





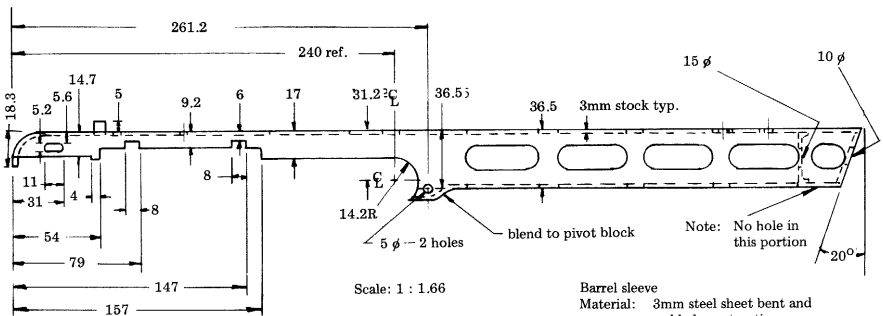
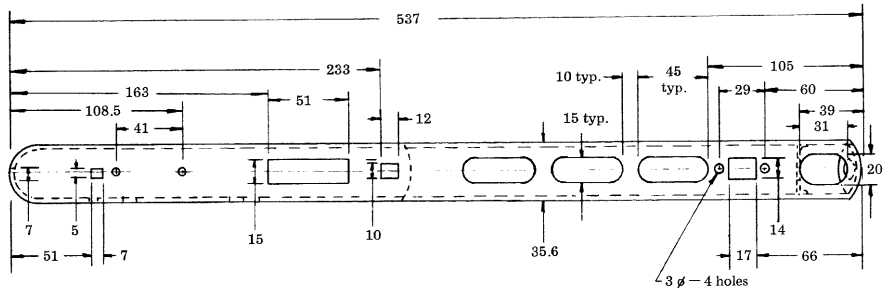
Receiver & trigger mechanism

Pivot block  
Material: steel  
Scale: 1 : 1



Barrel sleeve rivet  
Material: steel  
Scale: 1 : 1

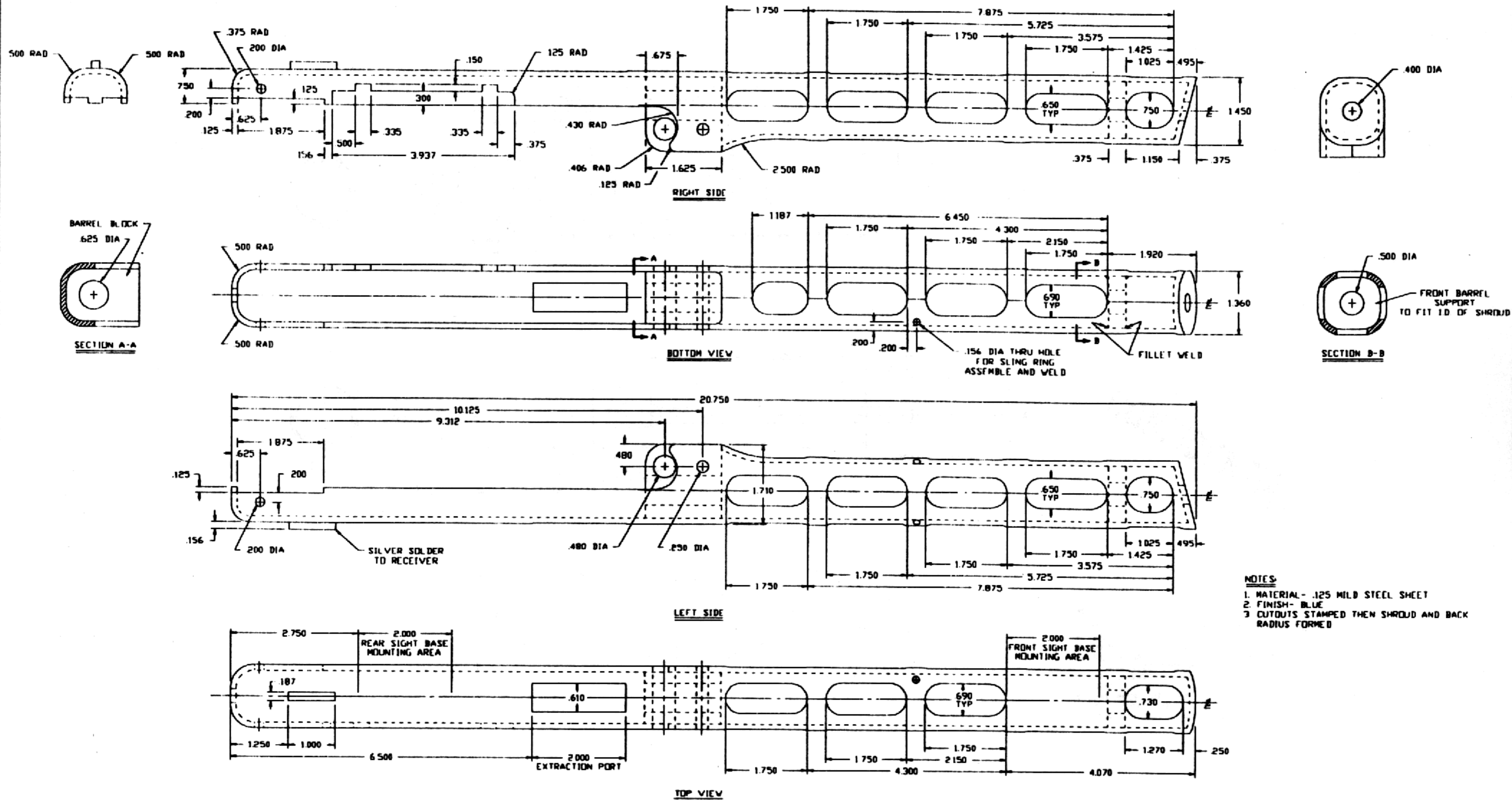




Scale: 1 : 1.66

Barrel sleeve

Material: 3mm steel sheet bent and welded construction

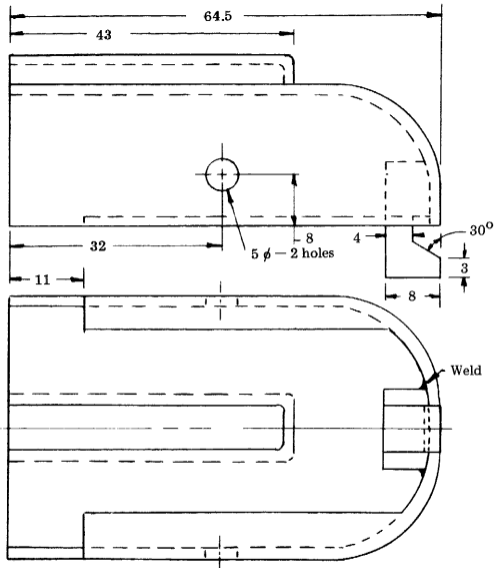
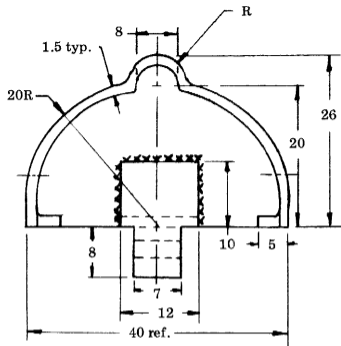


- NOTES:**
1. MATERIAL - .125 MILD STEEL SHEET
  2. FINISH - BLUE
  3. CUTOUTS STAMPED THEN SHROUD AND BACK RADIUS FORMED

**RESTRICTED MATERIAL**

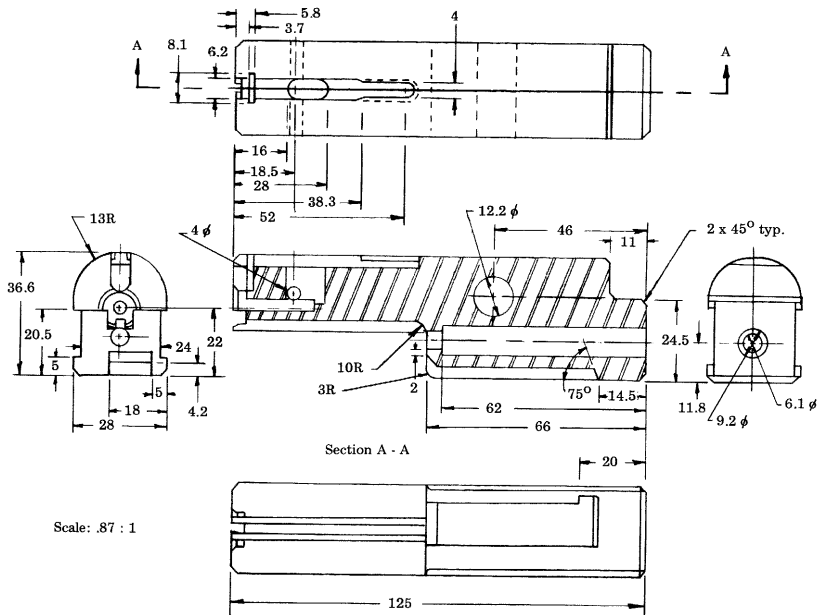
**CONFIDENTIAL**

SCALE: FULL	MATERIAL: SEE NOTE 1	CRD	TOLERANCES
DATE	FINISH: SEE NOTE 2	DATE	DEC PL: 31
TITLE: RUSSIAN SUBMACHINE GUN PPSH-41	REV.	REV.	DEC PL: 00
			ANGLES: 5°

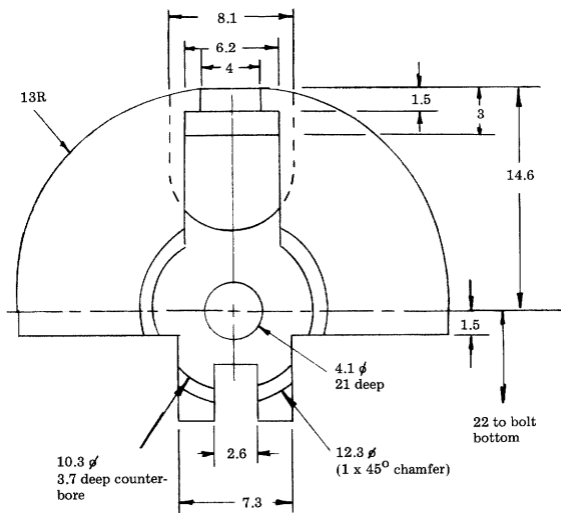


Receiver catch  
 Material: steel  
 Scale: 1.74 : 1

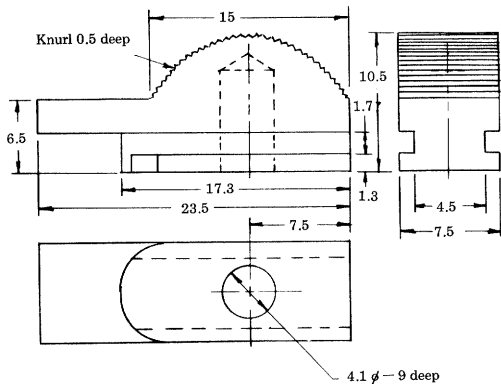
Bolt  
Material: steel



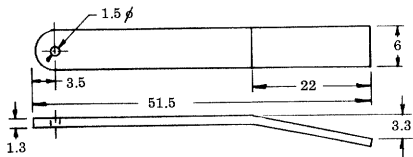
Bolt face detail



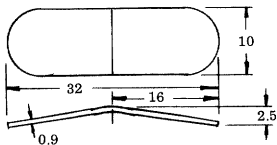




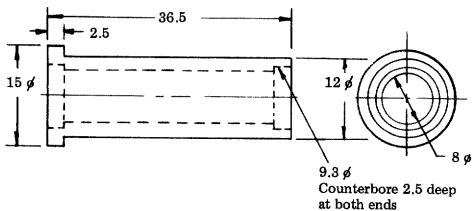
Safety  
Material: Steel  
Scale: 3.48 : 1



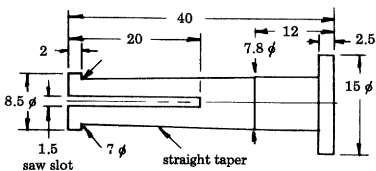
Extractor spring  
Material: spring stock  
Scale: 1.74 : 1



Rear sight spring  
Material: spring stock  
Scale: 1.74 : 1

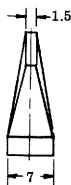
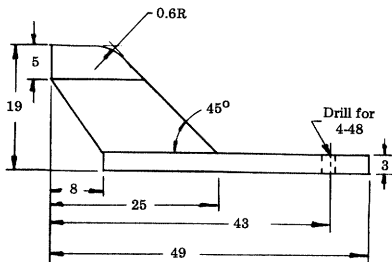


Barrel pivot pin  
Material: steel  
Scale: 1.74 : 1



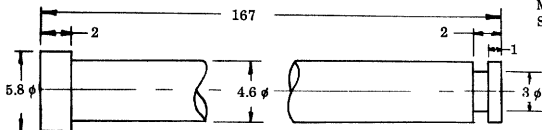
Barrel pivot pin lock  
Material: steel  
Scale: 1.74 : 1

Ejector  
Material: steel  
Scale: 1.74 : 1

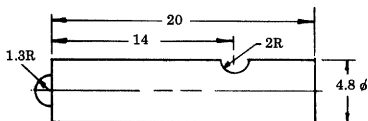
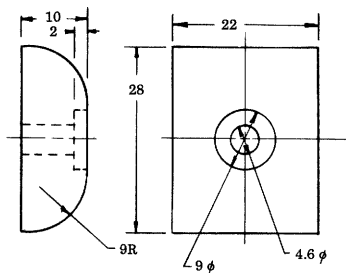




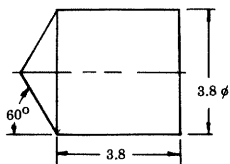
Main spring guide  
Material: steel  
Scale: 3.48 : 1



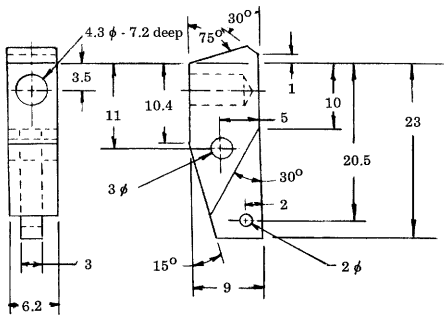
Bolt buffer  
Material: plastic  
Scale: 1.74 : 1



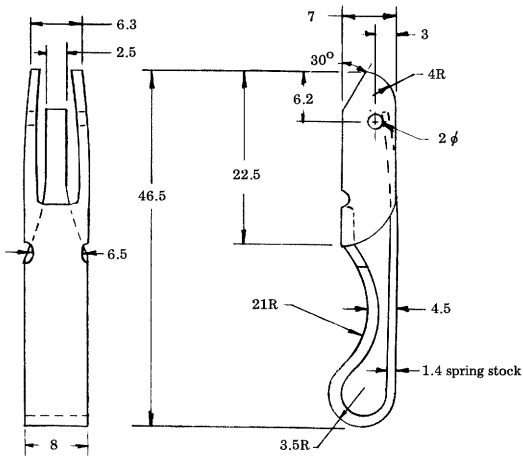
Firing pin  
Material: 4140 steel  
Rc 55-60  
Scale: 3.48 : 1



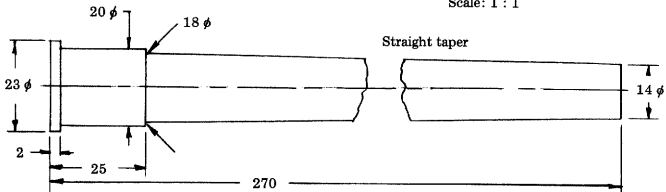
Safety plunger  
Material: 4140 steel  
Rc 55-60  
Scale: 8.7 : 1



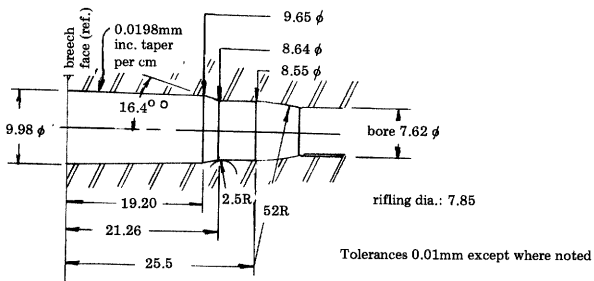
Magazine latch  
 Material: steel  
 Rc 50-55  
 Scale: 2:1



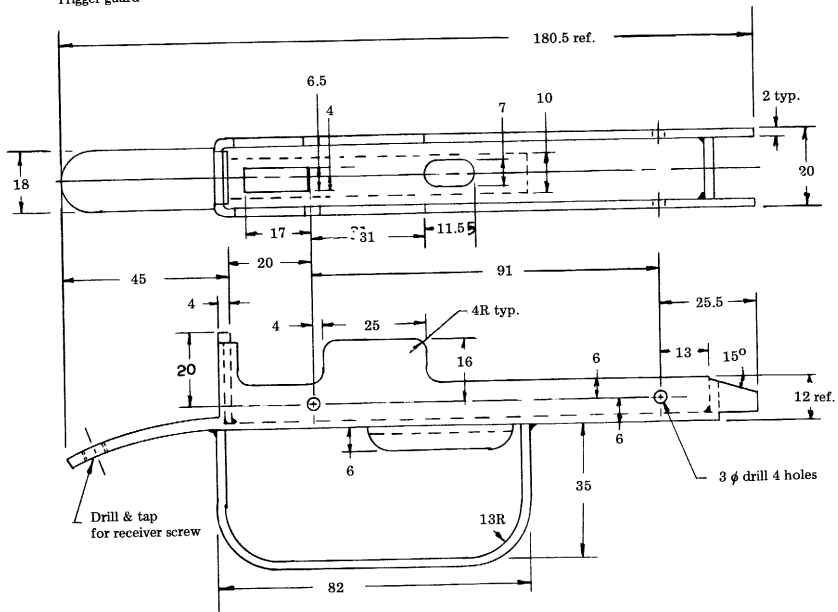
Barrel  
Material: 4140 steel or equivalent  
Scale: 1 : 1

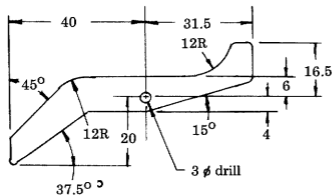


.30 Mauser - min. chamber

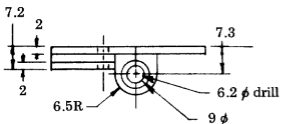


Trigger guard

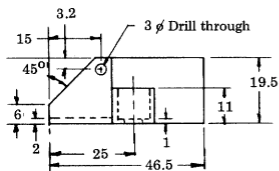




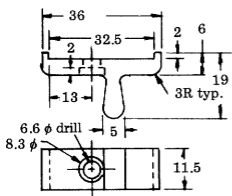
Disconnector  
Material: 3mm thick steel strip  
Scale: .87 : 1



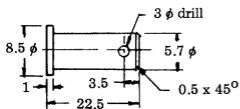
Selector housing  
Material: steel  
Scale: 1 : 1

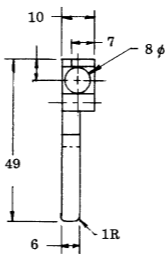
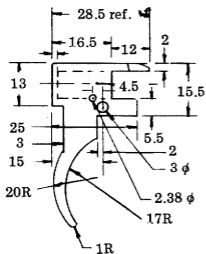


Selector  
Material: steel  
Scale: .87 : 1

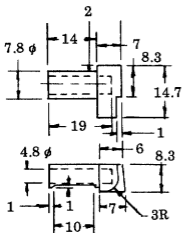


Selector plunger  
Material: steel  
Scale: .87 : 1

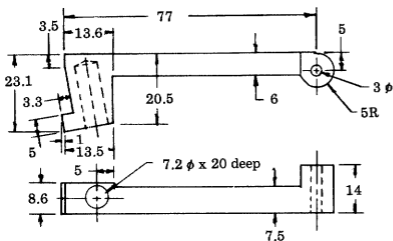




Trigger  
 Material: 4140 steel or equivalent  
 Scale: .87 : 1

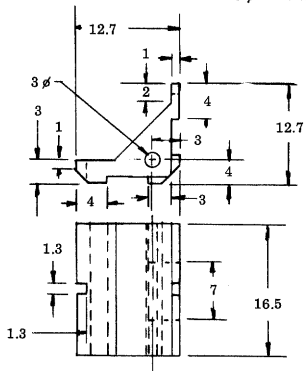
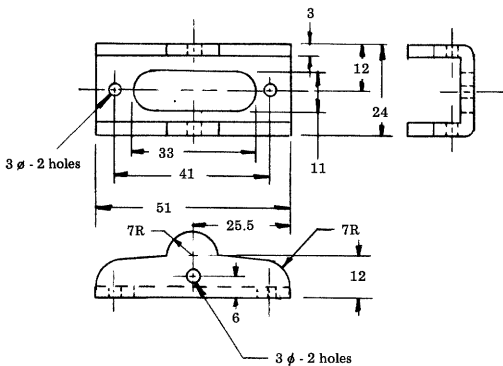


Trigger plunger  
 Material: 4140 steel or equivalent  
 Scale: .87 : 1

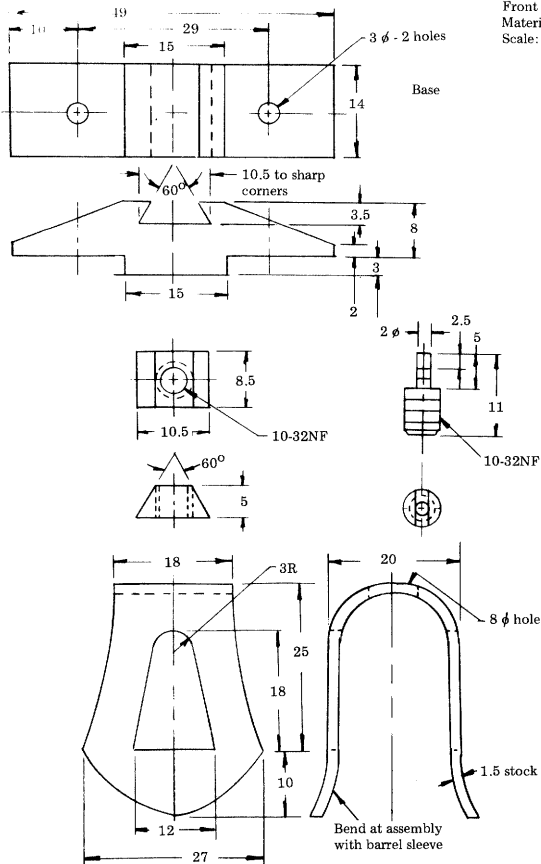


Sear  
 Material: 4140 steel or equivalent

Rear sight  
Material: steel

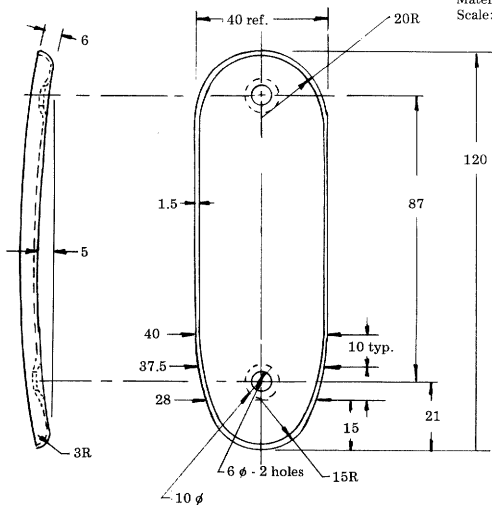


Front sight  
Material: steel  
Scale: 1.74 : 1





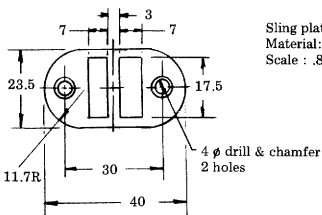
Buttplate  
 Material: steel  
 Scale: .87 : 1



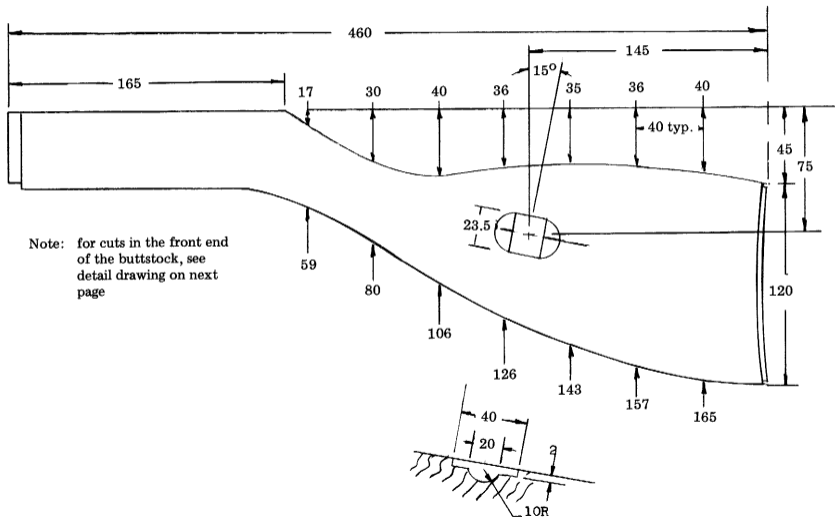
Buttplate screw  
 2 required  
 Half round head wood screw,  
 10  $\phi$  body; 6  $\phi$  x 25 long

Sling plate  
 Material: steel stock 1.5mm  
 Scale : .87 : 1

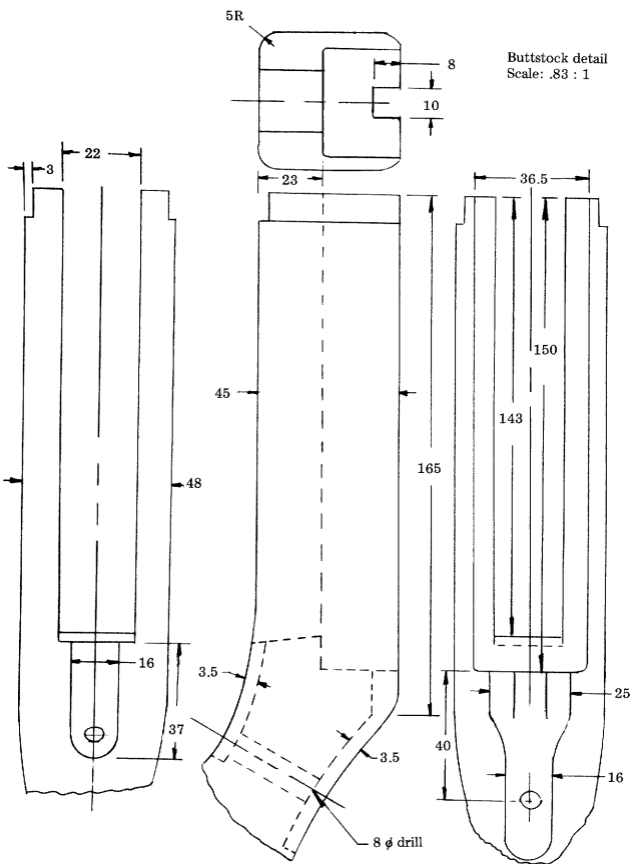
Sling plate screw  
 2 required  
 Flat head wood screw,  
 6  $\phi$  body, 3  $\phi$  x 15 long

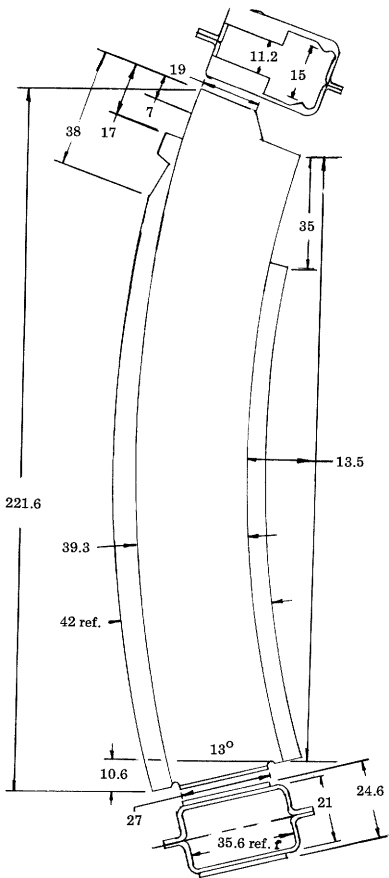


Buttstock  
Material: wood  
Scale: .87 : 2



Buttstock detail  
Scale: .83 : 1



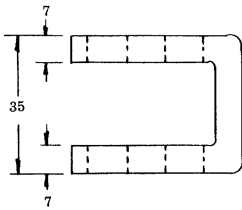


Magazine body

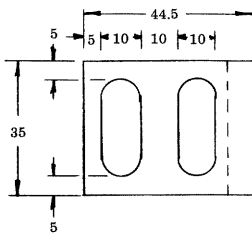
Material: 1mm steel sheet stock

Scale: .83 : 1

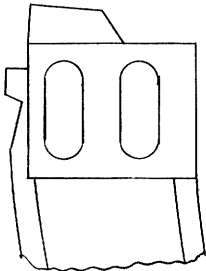




Magazine body filler  
Material: steel

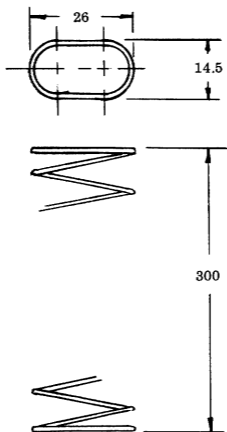


Note: welded to magazine  
body at assembly



Magazine spring  
Material: 1.3  $\phi$  music wire

Number of coils: 24  
Overall length: 300mm



# U.S. STANDARD/METRIC CONVERSION CHART

## Millimeters to Inches (Based on 1 inch = 25.4 millimeters, exactly)

Millimeters	Inches									
	0	1	2	3	4	5	6	7	8	9
0	...	0.03937	0.07874	0.11811	0.15748	0.19685	0.23622	0.27559	0.31496	0.35433
10	0.39370	0.43307	0.47244	0.51181	0.55118	0.59055	0.62992	0.66929	0.70866	0.74803
20	0.78740	0.82677	0.86614	0.90551	0.94488	0.98425	1.02362	1.06299	1.10236	1.14173
30	1.18110	1.22047	1.25984	1.29921	1.33858	1.37795	1.41732	1.45669	1.49606	1.53543
40	1.57480	1.61417	1.65354	1.69291	1.73228	1.77165	1.81102	1.85039	1.88976	1.92913
50	1.96850	2.00787	2.04724	2.08661	2.12598	2.16535	2.20472	2.24409	2.28346	2.32283
60	2.36220	2.40157	2.44094	2.48031	2.51968	2.55905	2.59842	2.63779	2.67716	2.71653
70	2.75591	2.79528	2.83465	2.87402	2.91339	2.95276	2.99213	3.03150	3.07087	3.11024
80	3.14961	3.18898	3.22835	3.26772	3.30709	3.34646	3.38583	3.42520	3.46457	3.50394
90	3.54331	3.58268	3.62205	3.66142	3.70079	3.74016	3.77953	3.81890	3.85827	3.89764
100	3.93701	3.97638	4.01575	4.05512	4.09449	4.13386	4.17323	4.21260	4.25197	4.29134
110	4.37071	4.41008	4.44945	4.48882	4.52819	4.56756	4.60693	4.64630	4.68567	4.72504
120	4.72441	4.76378	4.80315	4.84252	4.88189	4.92126	4.96063	5.00000	5.03937	5.07874
130	5.11811	5.15748	5.19685	5.23622	5.27559	5.31496	5.35433	5.39370	5.43307	5.47244
140	5.51181	5.55118	5.59055	5.62992	5.66929	5.70866	5.74803	5.78740	5.82677	5.86614
150	5.90551	5.94488	5.98425	6.02362	6.06299	6.10236	6.14173	6.18110	6.22047	6.25984
160	6.29921	6.33858	6.37795	6.41732	6.45669	6.49606	6.53543	6.57480	6.61417	6.65354
170	6.69291	6.73228	6.77165	6.81102	6.85039	6.88976	6.92913	6.96850	7.00787	7.04724
180	7.08661	7.12598	7.16535	7.20472	7.24409	7.28346	7.32283	7.36220	7.40157	7.44094
190	7.48031	7.51969	7.55906	7.59843	7.63780	7.67717	7.71654	7.75591	7.79528	7.83465
200	7.87402	7.91339	7.95276	7.99213	8.03150	8.07087	8.11024	8.14961	8.18898	8.22835
210	8.26772	8.30709	8.34646	8.38583	8.42520	8.46457	8.50394	8.54331	8.58268	8.62205
220	8.66142	8.70079	8.74016	8.77953	8.81890	8.85827	8.89764	8.93701	8.97638	9.01575
230	9.05512	9.09449	9.13386	9.17323	9.21260	9.25197	9.29134	9.33071	9.37008	9.40945
240	9.44882	9.48819	9.52756	9.56693	9.60630	9.64567	9.68504	9.72441	9.76378	9.80315
250	9.84252	9.88189	9.92126	9.96063	10.00000	10.03937	10.07874	10.11811	10.15748	10.19685
260	10.23622	10.27559	10.31496	10.35433	10.39370	10.43307	10.47244	10.51181	10.55118	10.59055
270	10.62992	10.66929	10.70866	10.74803	10.78740	10.82677	10.86614	10.90551	10.94488	10.98425
280	11.02362	11.06300	11.10237	11.14174	11.18111	11.22048	11.25985	11.29922	11.33859	11.37796
290	11.41732	11.45669	11.49606	11.53543	11.57480	11.61417	11.65354	11.69291	11.73228	11.77165
300	11.81102	11.85039	11.88976	11.92913	11.96850	12.00787	12.04724	12.08661	12.12600	12.16537
310	12.20472	12.24409	12.28346	12.32283	12.36220	12.40157	12.44094	12.48031	12.51968	12.55905
320	12.59842	12.63779	12.67716	12.71653	12.75590	12.79527	12.83464	12.87401	12.91338	12.95275
330	12.99213	13.03150	13.07087	13.11024	13.14961	13.18900	13.22837	13.26774	13.30711	13.34648
340	13.38583	13.42520	13.46457	13.50394	13.54331	13.58268	13.62205	13.66142	13.70079	13.74016
350	13.77953	13.81890	13.85827	13.89764	13.93701	13.97638	14.01575	14.05512	14.09449	14.13386
360	14.17323	14.21260	14.25200	14.29137	14.33074	14.37011	14.40948	14.44885	14.48822	14.52759
370	14.56693	14.60630	14.64567	14.68504	14.72441	14.76378	14.80315	14.84252	14.88189	14.92126
380	14.96063	15.00000	15.03937	15.07874	15.11811	15.15748	15.19685	15.23622	15.27559	15.31496
390	15.35433	15.39370	15.43307	15.47244	15.51181	15.55118	15.59055	15.62992	15.66929	15.70866
400	15.74803	15.78740	15.82677	15.86614	15.90551	15.94488	15.98425	16.02362	16.06300	16.10237
410	16.14173	16.18110	16.22047	16.25984	16.29921	16.33858	16.37795	16.41732	16.45669	16.49606
420	16.53543	16.57480	16.61417	16.65354	16.69291	16.73228	16.77165	16.81102	16.85039	16.88976
430	16.92913	16.96850	17.00787	17.04724	17.08661	17.12598	17.16535	17.20472	17.24409	17.28346
440	17.32283	17.36220	17.40157	17.44094	17.48031	17.51968	17.55905	17.59842	17.63779	17.67716
450	17.71653	17.75590	17.79527	17.83464	17.87401	17.91338	17.95275	17.99212	18.03149	18.07086
460	18.11024	18.14961	18.18898	18.22835	18.26772	18.30709	18.34646	18.38583	18.42520	18.46457
470	18.50394	18.54331	18.58268	18.62205	18.66142	18.70079	18.74016	18.77953	18.81890	18.85827
480	18.89764	18.93701	18.97638	19.01575	19.05512	19.09449	19.13386	19.17323	19.21260	19.25200
490	19.29137	19.33074	19.37011	19.40948	19.44885	19.48822	19.52759	19.56696	19.60633	19.64570

Fractional measurements: to convert metric fractional dimensions to inches, multiply the metric dimension X .03937008

Weights: 1 kilogram = 2.2046 lbs or 35.274 oz.  
1 gram = .03527 oz.  
1 gram = 15.432 grains