

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 Pulemjet 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

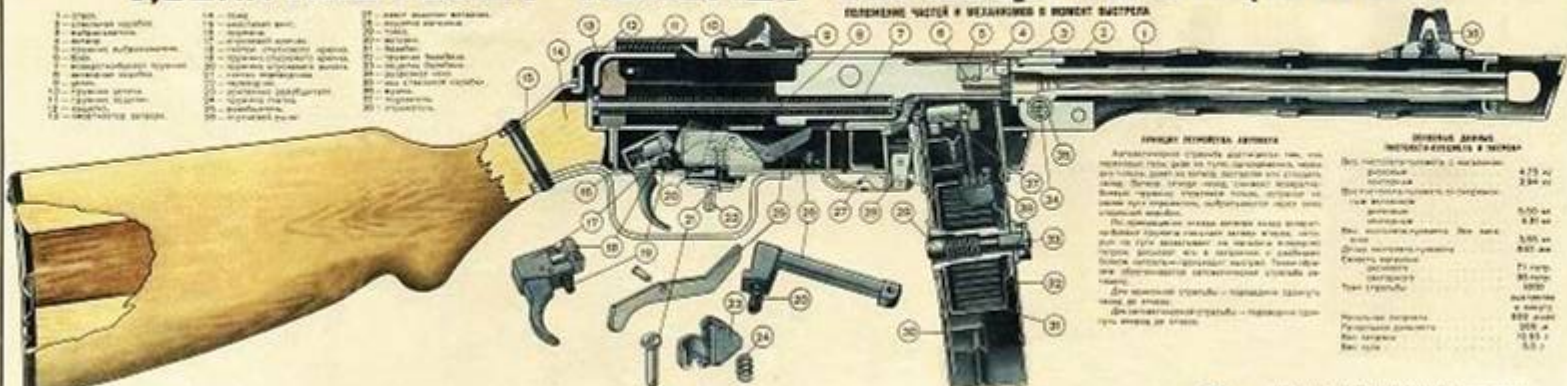


Calibre:	7.62 x 25mm Soviet
Length:	838mm (33in)
Weight:	3.64kg (8lb)
Feed:	35-round detachable box magazine
System of operation:	Blow-back
Rate of fire (cyclic):	900rpm
Muzzle velocity:	500mps (1640fps)

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

ПОДРОБНЫЕ ЧАСТИ И МЕХАНИЗМЫ В ПОЛОЖЕНИИ РАБОТЫ

- | | | |
|-----------------------------|----------------------|------------------------------|
| 1 - ствол. | 14 - удар. | 27 - газовый выключатель. |
| 2 - мушкетерский затворник. | 15 - затворный винт. | 28 - мушкетерский затворник. |
| 3 - затвор. | 16 - затворник. | 29 - затворник. |
| 4 - затворник. | 17 - затворник. | 30 - затворник. |
| 5 - затворник. | 18 - затворник. | 31 - затворник. |
| 6 - затворник. | 19 - затворник. | 32 - затворник. |
| 7 - затворник. | 20 - затворник. | 33 - затворник. |
| 8 - затворник. | 21 - затворник. | 34 - затворник. |
| 9 - затворник. | 22 - затворник. | 35 - затворник. |
| 10 - затворник. | 23 - затворник. | 36 - затворник. |
| 11 - затворник. | 24 - затворник. | 37 - затворник. |
| 12 - затворник. | 25 - затворник. | 38 - затворник. |
| 13 - затворник. | 26 - затворник. | 39 - затворник. |



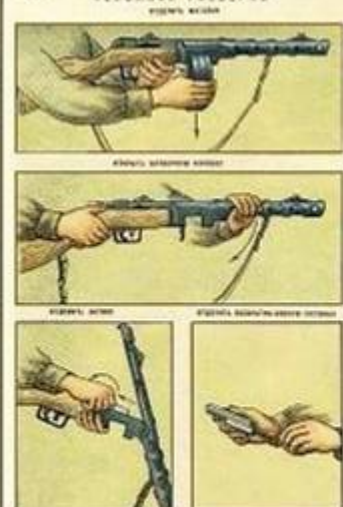
ОПИСАНИЕ РАБОТЫ РАБОТЫ

Работоспособность пулемета обеспечивается тем, что при нажатии на курок происходит движение затвора, который открывает ствол и вводит в него патрон. При этом происходит движение затвора, который открывает ствол и вводит в него патрон. При этом происходит движение затвора, который открывает ствол и вводит в него патрон.

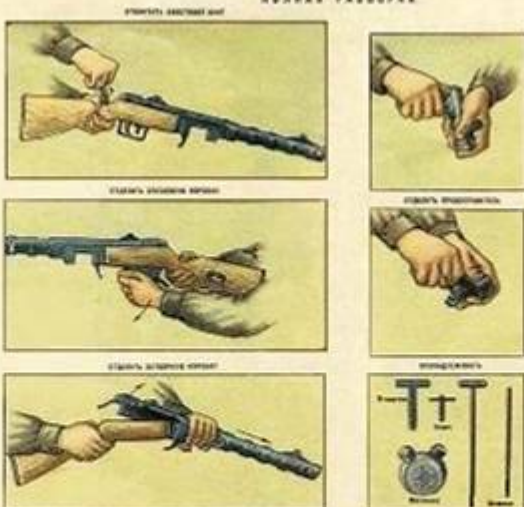
ТЕХНИЧЕСКИЕ ДАННЫЕ

Скорость стрельбы	420 к/с
Длина ствола	234 мм
Масса пулемета без магазина	5,00 кг
Масса пулемета с магазином	5,80 кг
Длина магазина	80 мм
Ширина магазина	15 мм
Высота магазина	100 мм
Ширина магазина	100 мм
Высота магазина	100 мм
Высота магазина	100 мм

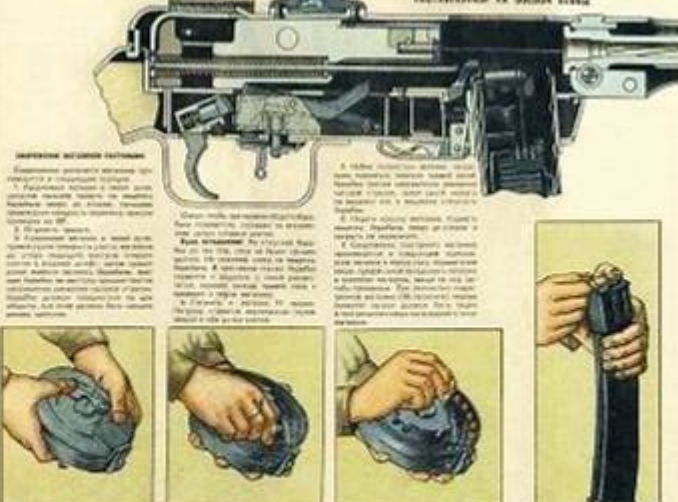
НЕПОДВИЖНАЯ РАЗБОРКА



ПОДВИЖНАЯ РАЗБОРКА



ПОДРОБНЫЕ ЧАСТИ И МЕХАНИЗМЫ В ПОЛОЖЕНИИ РАБОТЫ, ПОДСТАВЛЕННЫМ НА КУЛОНЕ РАБОТЫ



ОПИСАНИЕ РАБОТЫ РАБОТЫ

Работоспособность пулемета обеспечивается тем, что при нажатии на курок происходит движение затвора, который открывает ствол и вводит в него патрон. При этом происходит движение затвора, который открывает ствол и вводит в него патрон.

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ОПИСАНИЕ РАБОТЫ РАБОТЫ

Работоспособность пулемета обеспечивается тем, что при нажатии на курок происходит движение затвора, который открывает ствол и вводит в него патрон. При этом происходит движение затвора, который открывает ствол и вводит в него патрон.

PPSh 41

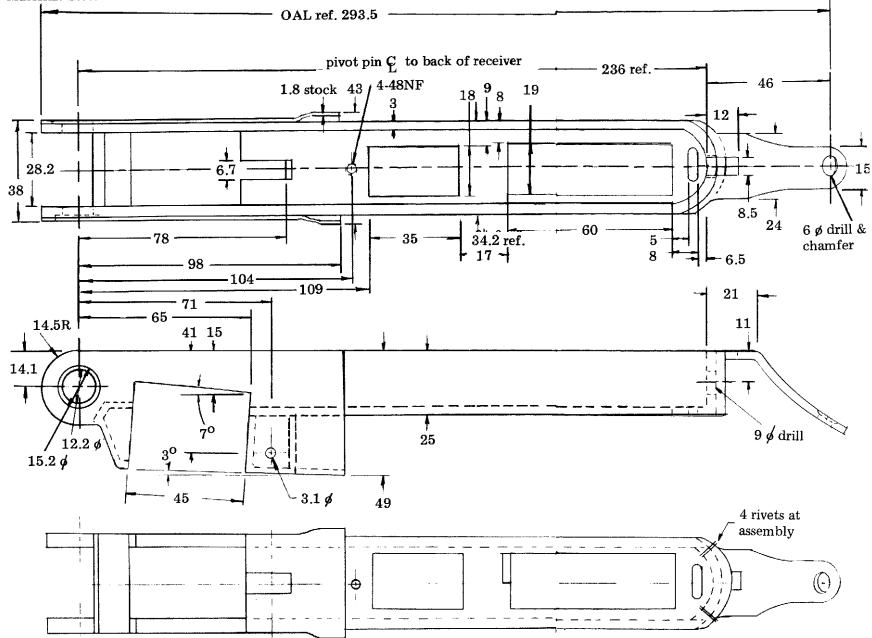
PINS		
USE	PIN DIA. (mm)	PIN LENGTH (mm)
Magazine latch	2.8	38
Firing pin	4.0	32
Receiver latch	5.0	40
Rear sight	3.0	24
Magazine latch pivot	2.5	9

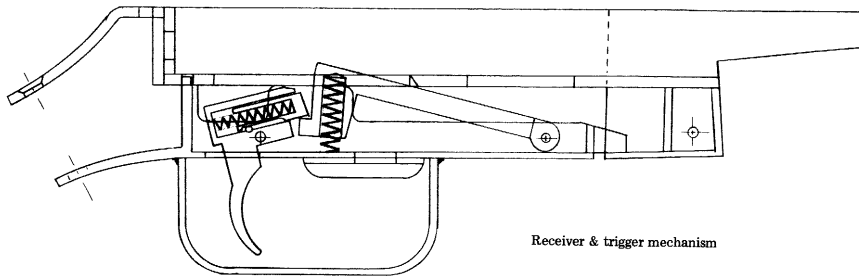
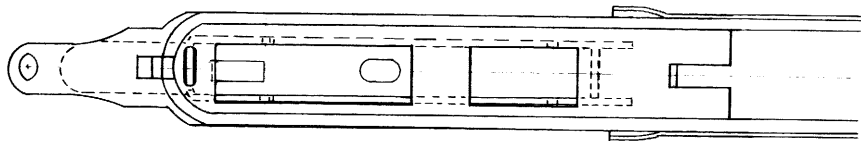
SPRINGS				
USE	WIRE DIA. (mm)	SPRING OD (mm)	OAL (mm)	No. COILS
Trigger	0.7	4.5	11.5	7
Trigger plunger	0.6	4.3	35	25
Sear	0.8	6.4	35	15
Selector	1.0	8.3	13	6
Magazine latch	0.5	4.2	13	8
Main	0.91	6.86	200	74
Safety	0.5	3.5	6.5	4
Receiver latch	1.0	4.0	52	

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

Receiver
Material: Steel

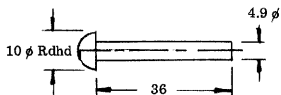
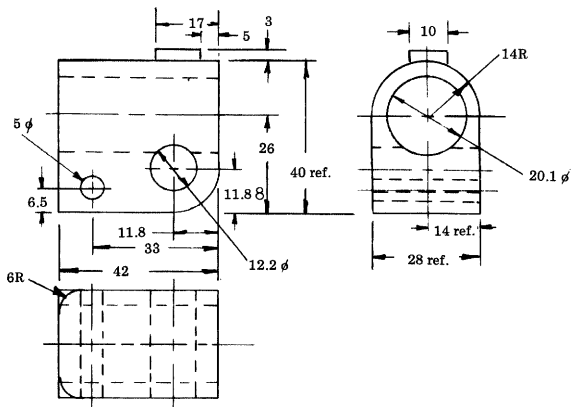
Scale: .7 : 1



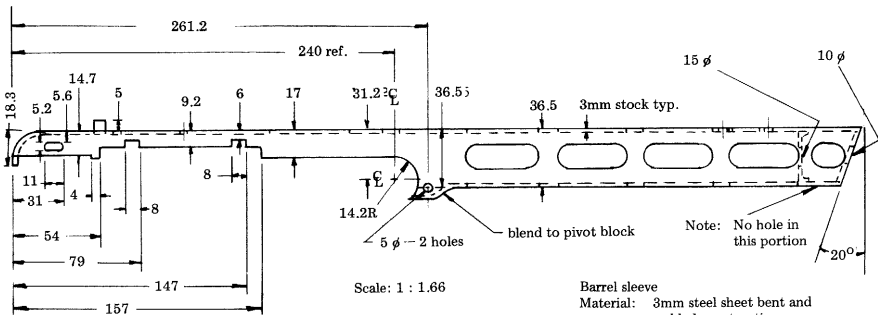
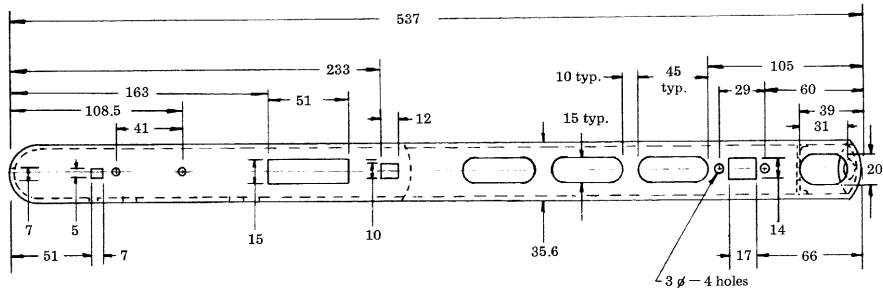


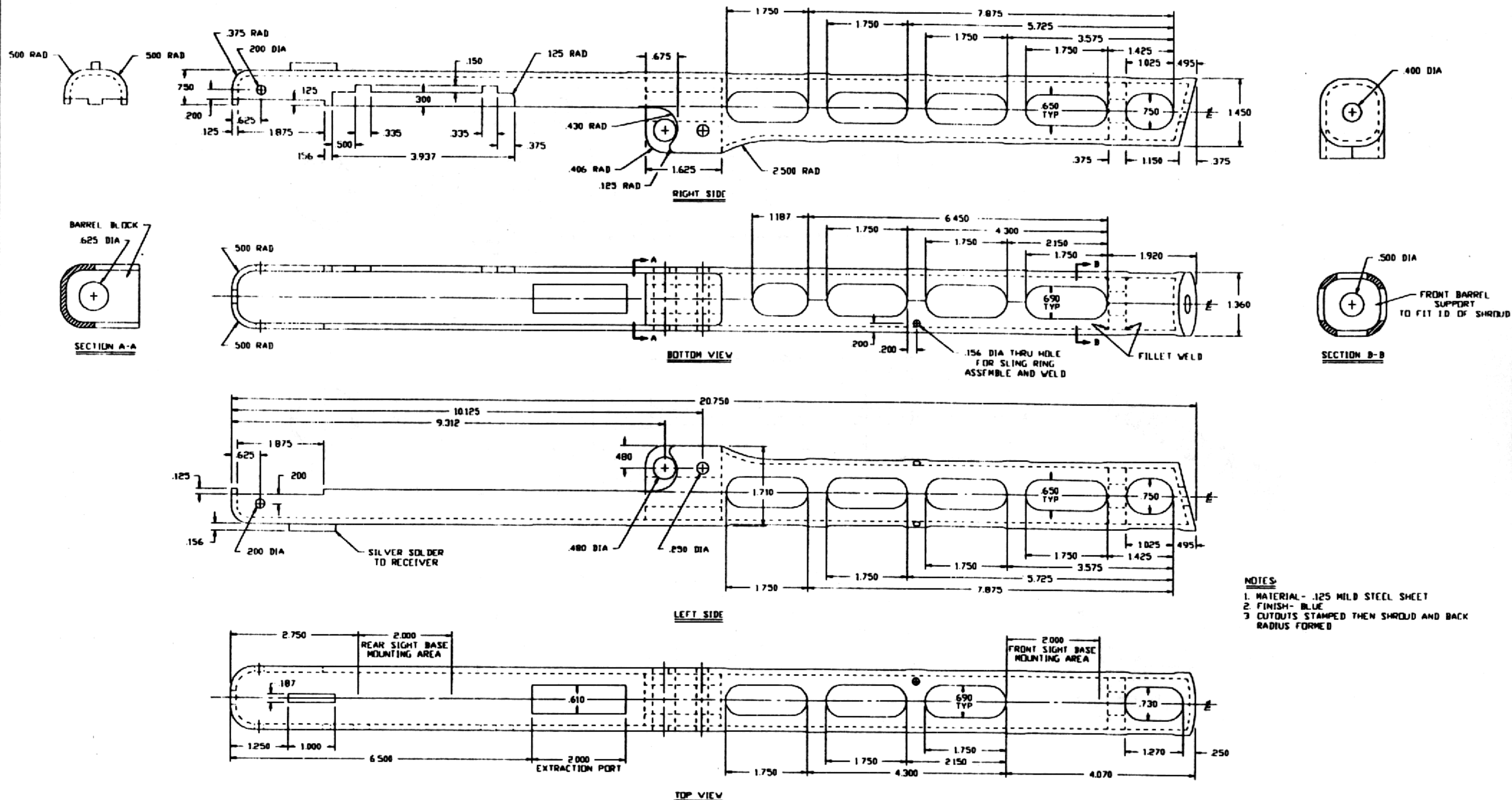
Receiver & trigger mechanism

Pivot block
Material: steel
Scale: 1 : 1

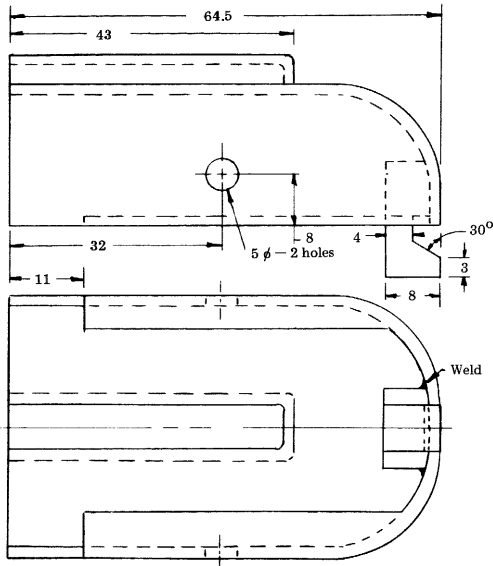
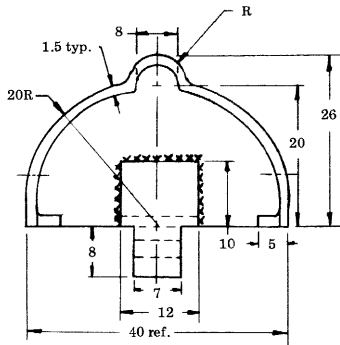


Barrel sleeve rivet
Material: steel
Scale: 1 : 1



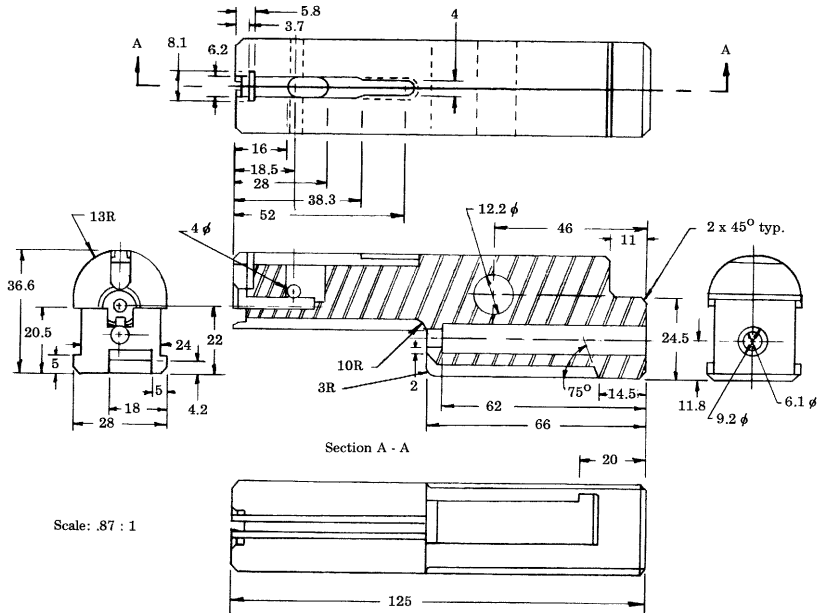


SCALE: FULL	MATERIAL: SEE NOTE 1	CRD	TOLERANCES
DWG	FINISH: SEE NOTE 2	DATE	REC'D PL: 25
TITLE: RUSSIAN SUBMACHINE GUN PPSH-41	REV.		REC'D PL: 25
			ANGLES: 5°

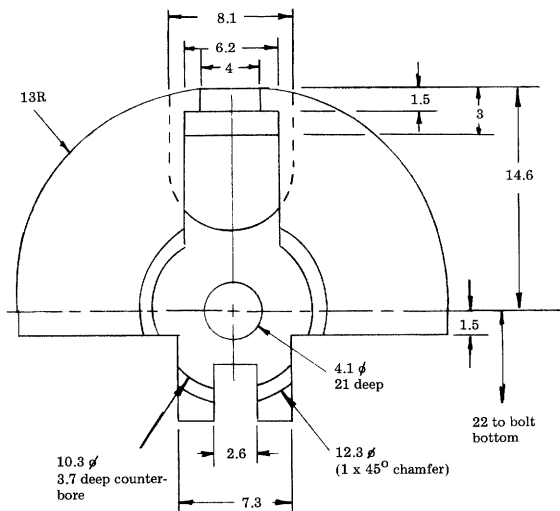


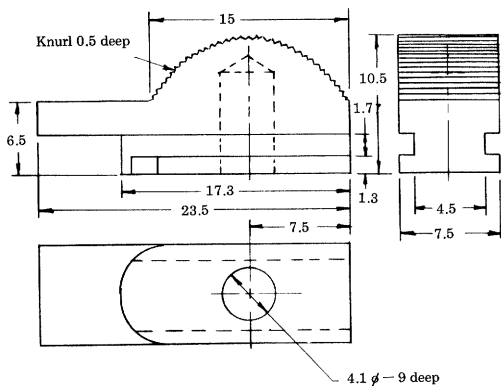
Receiver catch
 Material: steel
 Scale: 1.74 : 1

Bolt
Material: steel

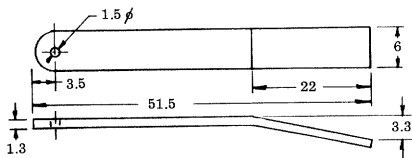


Bolt face detail

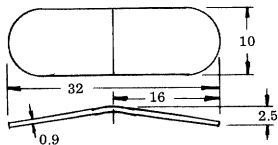




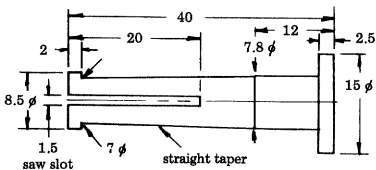
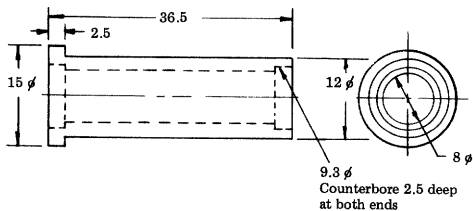
Safety
Material: Steel
Scale: 3.48 : 1



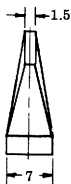
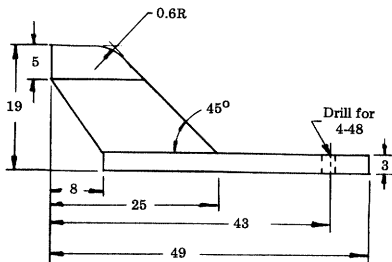
Extractor spring
Material: spring stock
Scale: 1.74 : 1



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



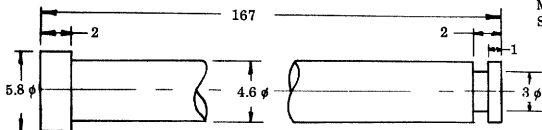
Ejector
Material: steel
Scale: 1.74 : 1



Main spring guide

Material: steel

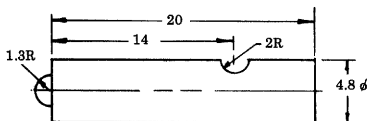
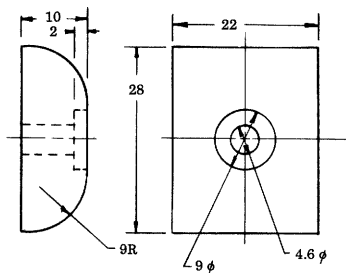
Scale: 3.48 : 1



Bolt buffer

Material: plastic

Scale: 1.74 : 1

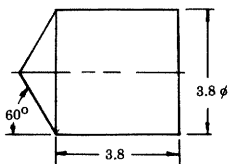


Firing pin

Material: 4140 steel

Rc 55-60

Scale: 3.48 : 1

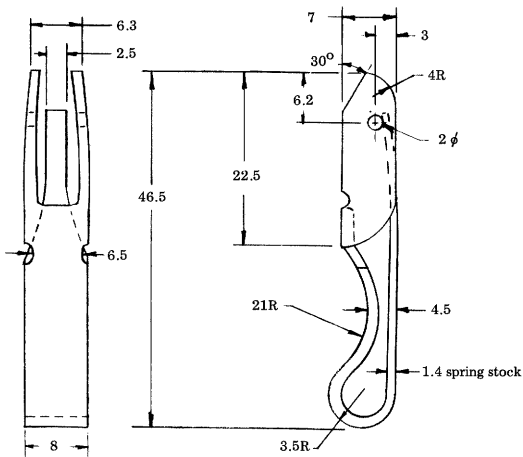
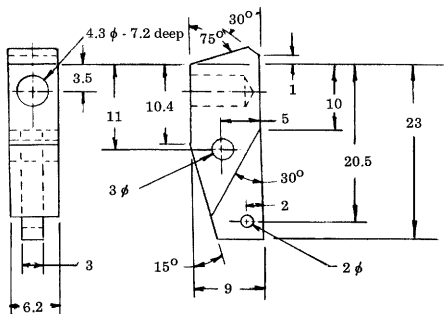


Safety plunger

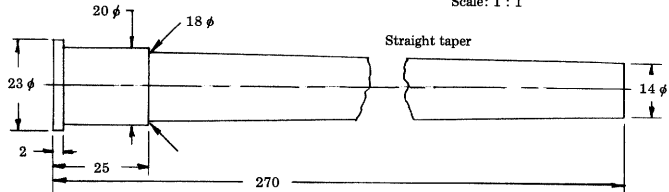
Material: 4140 steel

Rc 55-60

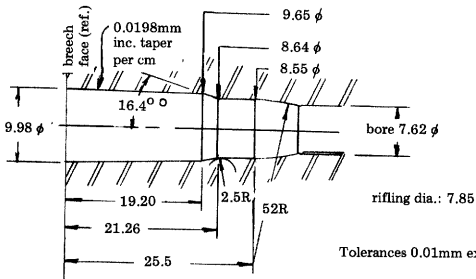
Scale: 8.7 : 1



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



.30 Mauser - min. chamber



Tolerances 0.01mm except where noted

Technical drawing of a mechanical part, likely a receiver, showing top and side views with dimensions and annotations.

Top View Dimensions:

- Overall length: 180.5 ref.
- Top edge thickness: 2 typ.
- Internal slot width: 6.5
- Slot depth: 4
- Slot length: 7
- Slot offset: 10
- Slot width: 11.55
- Slot depth: 17
- Slot width: 31
- Slot depth: 20
- Slot width: 45
- Slot depth: 20
- Slot width: 4
- Slot depth: 25
- Slot width: 16
- Slot depth: 25.5
- Slot width: 13
- Slot depth: 15°
- Slot width: 12 ref.
- Slot depth: 35
- Slot width: 82
- Slot depth: 13R

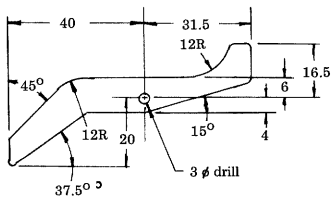
Side View Dimensions:

- Overall length: 91
- Top edge thickness: 2 typ.
- Internal slot width: 6.5
- Slot depth: 4
- Slot length: 7
- Slot offset: 10
- Slot width: 11.55
- Slot depth: 17
- Slot width: 31
- Slot depth: 20
- Slot width: 45
- Slot depth: 20
- Slot width: 4
- Slot depth: 25
- Slot width: 16
- Slot depth: 25.5
- Slot width: 13
- Slot depth: 15°
- Slot width: 12 ref.
- Slot depth: 35
- Slot width: 82
- Slot depth: 13R

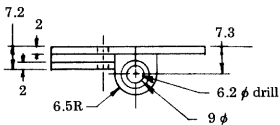
Annotations:

- Drill & tap for receiver screw
- 4R typ.
- 3 φ drill 4 holes

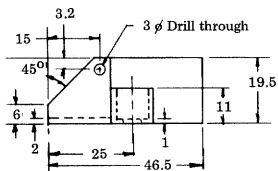
Drill & tap
for receiver screw



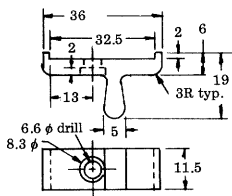
Disconnecter
Material: 3mm thick steel strip
Scale: .87 : 1



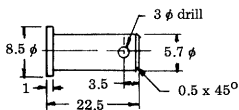
Selector housing
Material: steel
Scale: 1 : 1

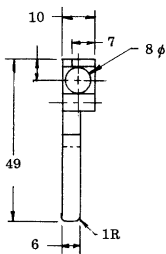
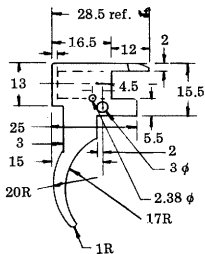


Selector
Material: steel
Scale: .87 : 1



Selector plunger
Material: steel
Scale: .87 : 1

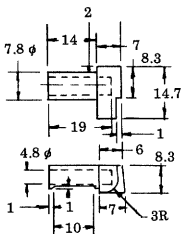




Trigger

Material: 4140 steel or equivalent

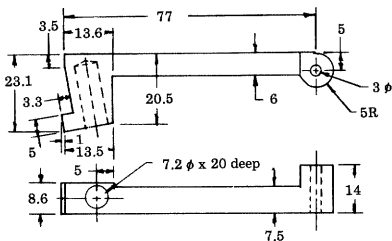
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Trigger plunger

Material: 4140 steel or equivalent

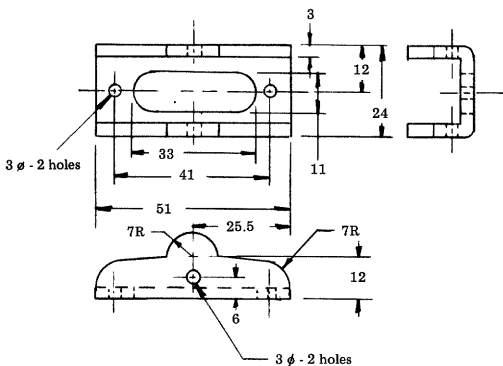
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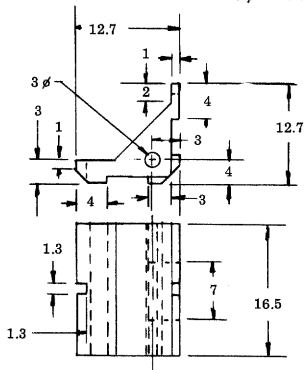
Sear

Material: 4140 steel or equivalent

Rear sight
Material: steel

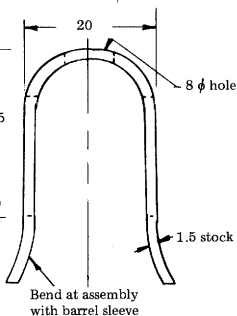
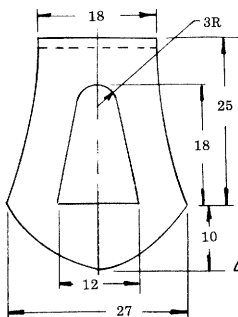
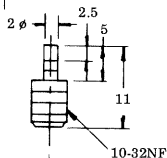
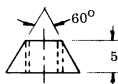
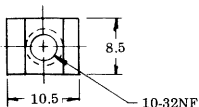
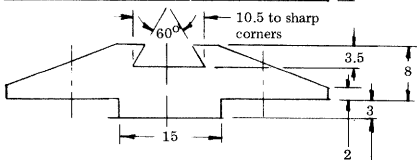
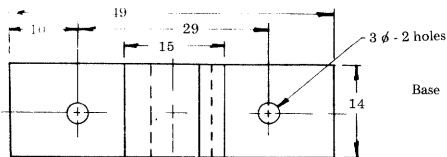


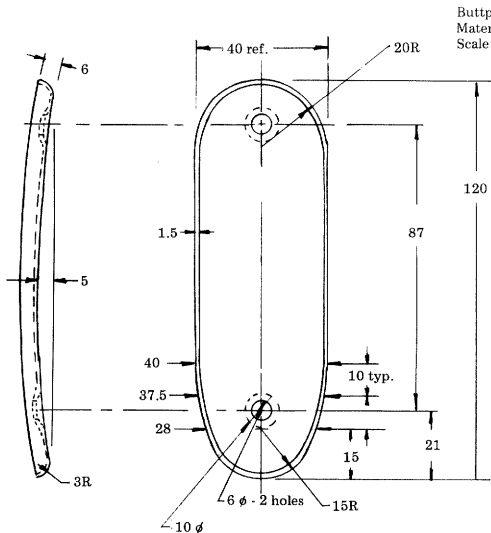
Base
Scale: 1 : 1



Sight
Scale: 2 : 1

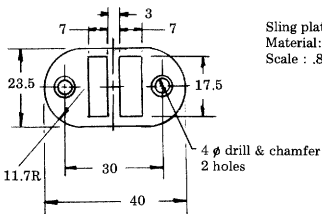
Front sight
Material: steel
Scale: 1.74 : 1





Buttplate
Material: steel
Scale: .87 : 1

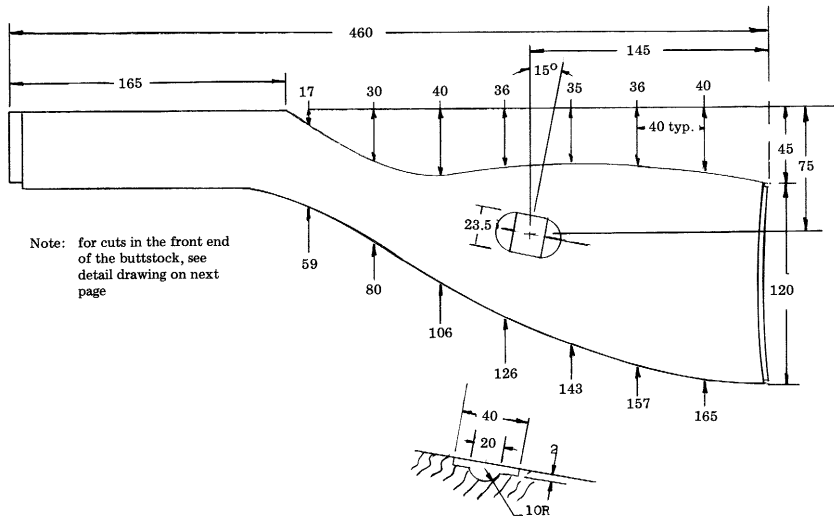
Buttplate screw
2 required
Half round head wood screw,
10 φ body; 6 φ x 25 long

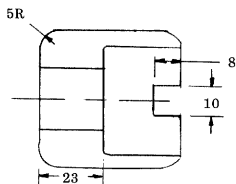


Sling plate
Material: steel stock 1.5mm
Scale : .87 : 1

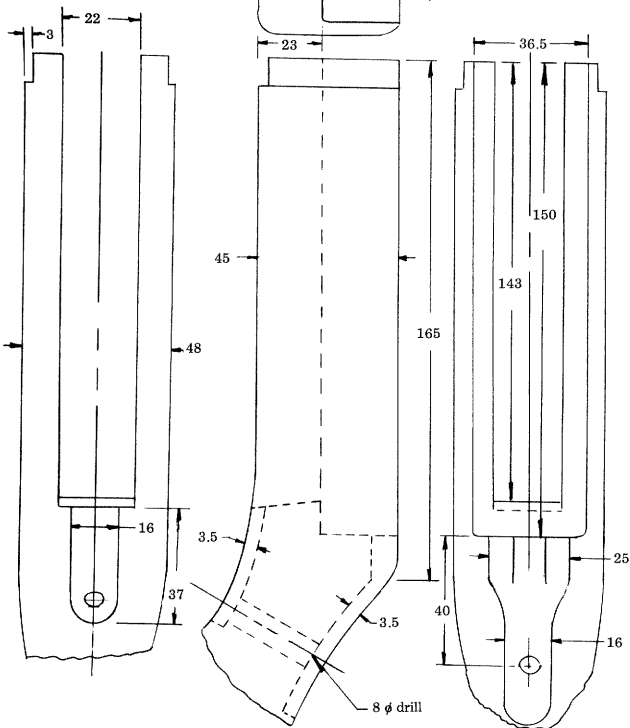
Sling plate screw
2 required
Flat head wood screw,
6 φ body, 3 φ x 15 long

Buttstock
Material: wood
Scale: .87 : 2





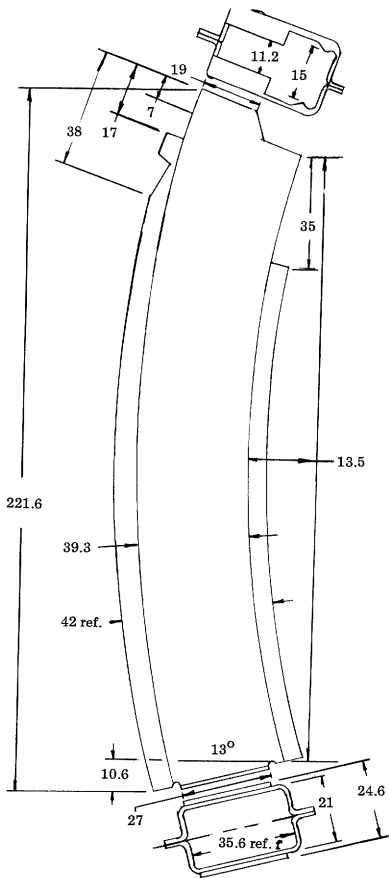
Buttstock detail
Scale: .83 : 1

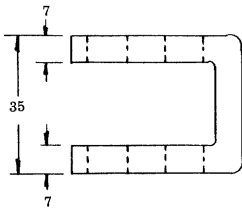


Magazine body

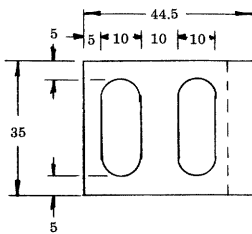
Material: 1mm steel sheet stock

Scale: .83 : 1

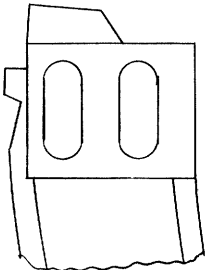




Magazine body filler
Material: steel

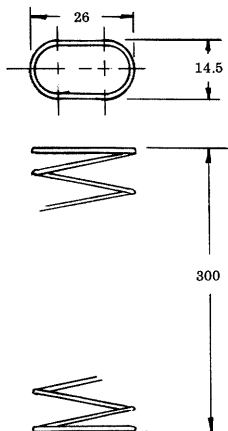


Note: welded to magazine
body at assembly



Magazine spring
Material: 1.3 ϕ 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)

Milli- meters	0	1	2	3	4	5	6	7	8	9
	Inches									
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	4.33071	4.37008	4.40945	4.44882	4.48819	4.52756	4.56693	4.60630	4.64567	4.68504
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	7.51968	7.55905	7.59842	7.63779	7.67716	7.71653	7.75590	7.79527	7.83464
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	11.06299	11.10236	11.14173	11.18110	11.22047	11.25984	11.29921	11.33858	11.37795
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	12.12598	12.16535
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	13.18898	13.22835	13.26772	13.30709	13.34646
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	14.56696	14.60633	14.64570	14.68507	14.72444	14.76381	14.80318	14.84255	14.88192	14.92129
380	14.96066	15.00003	15.03940	15.07877	15.11814	15.15751	15.19688	15.23625	15.27562	15.31499
390	15.35436	15.39373	15.43310	15.47247	15.51184	15.55121	15.59058	15.62995	15.66932	15.70869
400	15.74805	15.78742	15.82679	15.86616	15.90553	15.94490	15.98427	16.02364	16.06301	16.10238
410	16.14175	16.18112	16.22049	16.25986	16.29923	16.33860	16.37797	16.41734	16.45671	16.49608
420	16.53546	16.57483	16.61420	16.65357	16.69294	16.73231	16.77168	16.81105	16.85042	16.88979
430	16.92916	16.96853	17.00790	17.04727	17.08664	17.12601	17.16538	17.20475	17.24412	17.28349
440	17.32286	17.36223	17.40160	17.44097	17.48034	17.51971	17.55908	17.59845	17.63782	17.67719
450	17.71656	17.75593	17.79530	17.83467	17.87404	17.91341	17.95278	17.99215	18.03152	18.07089
460	18.11026	18.14963	18.18900	18.22837	18.26774	18.30711	18.34648	18.38585	18.42522	18.46459
470	18.50399	18.54336	18.58273	18.62210	18.66147	18.70084	18.74021	18.77958	18.81895	18.85832
480	18.89769	18.93706	18.97643	19.01580	19.05517	19.09454	19.13391	19.17328	19.21265	19.25202
490	19.29139	19.33076	19.37013	19.40950	19.44887	19.48824	19.52761	19.56698	19.60635	19.64572

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