

Tupolev SB-2M100A

A/C Type: Light Bomber
 Engine(s): 2x M-100A inline, non-F.I.
 Eng. Pwr: 1500-1720 hp
 A/C Crew: Pilot, Bombardier, Gunner

Maximum Speed: 255 mph at 13,125 ft
 Maximum Ceiling: 31,350 ft / 27,000 ft / 22,000 ft
 Defense factor: 6 Size Modifier: +0
 Damage Factor: 10/15 Endurance: 230
 Cockpit View: Fair Blind Area: Rear, low

Protection: Cockpit +0 Fuel +0 Engines +0

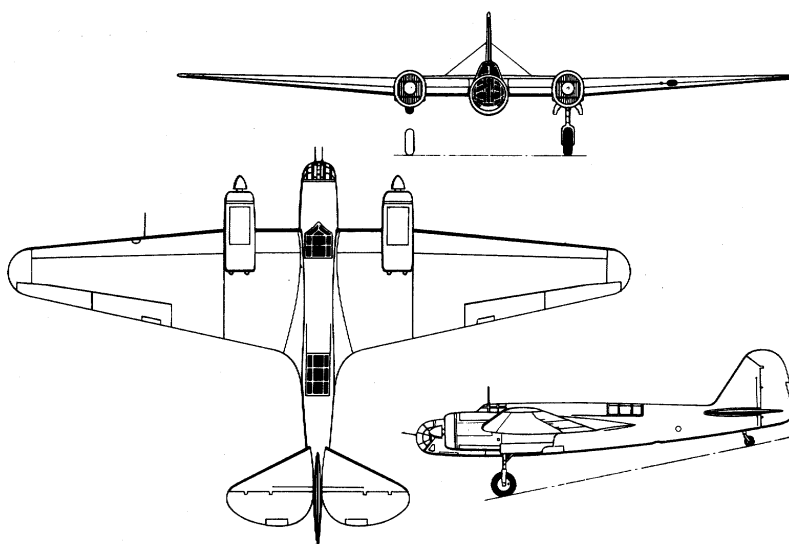
Climb Dece/ Dive Accel: 2.0 / 1.0

Weight and Load Limit: 1400 / 3-6

Wpn Stations Weight Allowed Loads
 1 Bombbay 1405 6x 100kg bombs
 or 2x 250 kg bomb
 or 1x 500 kg bomb

Country: USSR, China

Service Entry Date: Feb 1936



Class: L

Victory Points: 4-7

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(2)	Min HT(3)	Min BT(3)	Min ET(4)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	2.5	(4.0)	(7.5)	(4.0)	(5.5)	(6.5)	(7.5)	31-36	VH	(600)
25-30	HI	2.5	4.0 (4.5)	7.5	3.5	5.0	6.0	7.0	25-30	HI	1000
19-24	MH	2.0	4.5 (5.0)	8.0	3.0	4.5	5.5	6.5	19-24	MH	1500
13-18	ML	2.0	5.0 (5.5)	8.0	2.5	4.0	5.0	6.0	13-18	ML	2000
7-12	LO	1.5	4.5 (5.0)	7.5	2.0	3.5	4.5	5.5	7-12	LO	2100
1-6	VL	1.5	4.5	6.5	2.0	3.0	3.5	4.5	1-6	VL	2000

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
FG	2x 7.62 ShKAS MG	8	4
DG	1x 7.62 ShKAS MG	8	4
VG	1x 7.62 ShKAS MG	8	4

GUN ATTACK FACTORS

Range	FG	DG	VG
0	10	5	5
1	7	3	3
2	5	2	2
3	3	2	2
4	2	1	1
5	1	1	1
6	--	--	--
7	--	--	--

WEAPON STATION LOCATION

POWER VERSUS SPEED CHART

		(Per engine)				Band
Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	0.5	--	--	--	VH
25-30	HI	0.5	--	--	--	HI
19-24	MH	1.5	(0.5)	--	--	MH
13-18	ML	2.0	1.0	--	--	ML
7-12	LO	2.5	(1.5)	--	--	LO
1-6	VL	2.5	--	--	--	VL
Banking FPs		2	3	5	--	
Side Slip FPs		3	4	6	--	

NOTES AND VARIANTS

Defensive Gun Arcs

FG: Front, level

DG: L- or R - level/Rear high only

VG: Rear, low only

All SB-2: USSR's first all-metal bomber.

Successful in Spain and China, it did not fare well against the Finns due to it's lack of defenses. Still use in 1941. 2500+ built.

SB-2: Original production version. 200 sent to Spanish Republican Air Force. 200 Sent to China in September, 1937. Faster above 14000 ft than Bf109B. However, unarmored and undergunned. Flew as Czech B-71

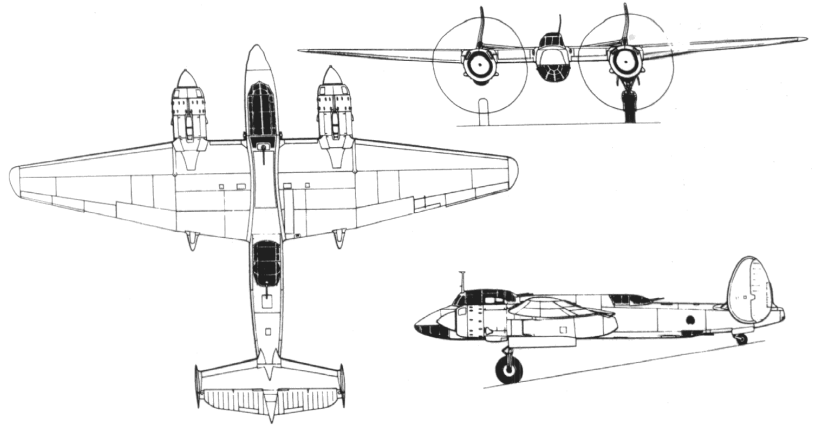
SB-2bis: Available 1939. Used 960 hp M-103 liquid-cooled engine, with 3-blade variable-pitch prop. Use speeds and power in parentheses. + 0.5 per engine. Used during Winter War. DG becomes DT: All level to high, 6:00 High only.

Tupolev Tu-2S

A/C Type: Light Bomber
 Engine(s): 2x Shvetsov ASH82FN radial
 Eng. Pwr: 3700 hp, aircooled
 A/C Crew: Pilot, Gunner/Radio op, Bombadier/Navigator, Gunner
 Maximum Speed: 342 mph at 17,100 ft
 Maximum Ceiling: 31,100 ft./27,000 ft./22,000 ft
 Defense factor: 6 Size Modifier: +1
 Damage Factor: 13/20 Endurance: 338
 Cockpit View: Fair Blind Area: None
 Protection: Cockpit +1 Fuel +1 Engines +2
 Climb Dece/ Dive Accel: 2.0 / 1.0
 Weight and Load Limit: 6600 / 6-10
 Wpn Stations Weight Allowed Loads
 1,3 1100 1 250/500kg bmb or 5x AS82 rkts
 2 (Bombbay) 4400 250 & 500 kg bombs

Country: USSR

Service Entry Date: July, 1943



Class: L

Victory Points: 5-8

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(3)	Min HT(4)	Min BT(5)	Min ET(6)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	3.0	6.0	10.0	4.5	6.0	7.0	8.0	31-36	VH	400
25-30	HI	2.5	6.5	10.0	4.0	5.5	6.5	7.5	25-30	HI	600
19-24	MH	2.5	6.5	10.0	3.5	5.0	6.0	7.0	19-24	MH	1,100
13-18	ML	2.0	7.0	10.0	3.0	4.5	5.5	6.5	13-18	ML	1,500
7-12	LO	2.0	6.5	9.5	2.5	4.0	5.0	6.0	7-12	LO	1,900
1-6	VL	2.0	6.0	8.5	2.5	3.5	4.5	5.5	1-6	VL	2,300

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
W1	1x 20mm ShVAK	5	2
W2	1x 20mm ShVAK	5	2
DG1	1x 12.7 UBT MG	10	3
DG2	1x 12.7 UBT MG	10	3
VG	1x 12.7 UBT MG	10	3

GUN ATTACK FACTORS

Range	WT	W2	DG1	DG2	VG	Total
0	27	27	5	5	5	54
1	20	20	4	4	4	40
2	13	13	3	3	3	26
3	9	9	2	2	2	18
4	6	6	1	1	1	12
5	4	4	1	1	1	8
6	3	3	1	1	1	6
7	--	--	--	--	--	--

WEAPON STATION LOCATION

1 2 3

POWER VERSUS SPEED CHART

		(per engine)				Band
Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	0.5	0.5	--	--	VH
25-30	HI	1.0	0.5	--	--	HI
19-24	MH	2.0	1.0	--	--	MH
13-18	ML	3.0	2.0	--	--	ML
7-12	LO	4.0	3.0	--	--	LO
1-6	VL	4.0	3.0	--	--	VL
Banking FPs		2	3	5	7	
Side Slip FPs		3	4	6	8	

NOTES AND VARIANTS

Defensive Gun Arcs

DG1: Rear, high
 DG2: Rear level; 6:00 High only
 VG: Rear, low
 DG2 & VG manned by same man

All Tu-2: Came into production after mass production was already set up for the Pe-2. It was produced at a rate of 1:10 vs Pe-2s. Extremely reliable in field conditions.

Postwar production; NATO codename 'Bat.' 2500+ built, including torpedo and recon versions.

Tu-2: Available August, 1942. Original production version. 1450-hp Mikulin M-82 engines: -1 power per engine; -200 roc. No wing guns (ignore W1 & W2). Max load 2200, no rockets.

Tu-2S: Available July 1943 (Kursk). Cannon used for ground attack - treat as R&B sight for AtA. Usual load 1000 kg. More than 1000 built during WW2.

Ilyushin DB-3B

A/C Type: Medium Bomber
 Engine(s): 2x Mikulin M-87A radial
 Eng. Pwr: 1900 hp, air-cooled
 A/C Crew: Pilot, Bombadier/Navigator,
 Gunner

Maximum Speed: 274 mph at 16,000 ft.
 Maximum Ceiling: 31,800 ft./26,000 ft./18,000 ft.
 Defense factor: 6 Size Modifier: +1
 Damage Factor: 15/23 Endurance: 575
 Cockpit View: fair Blind Area: None

Protection: Cockpit +0 Fuel +0 Engines +0

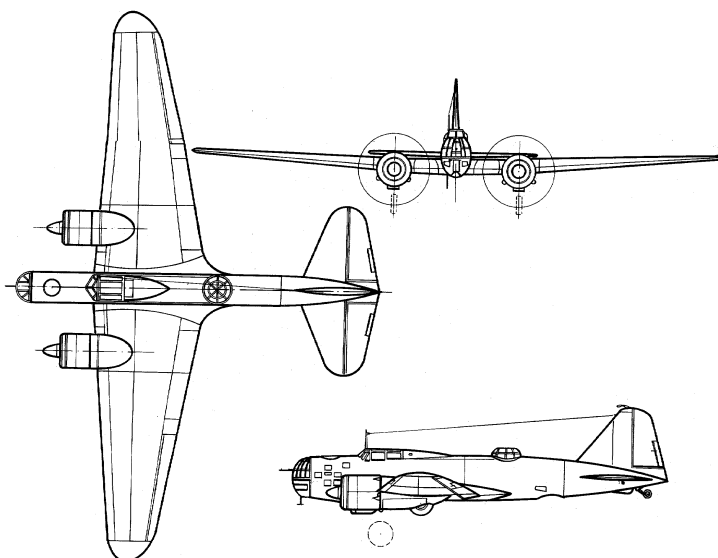
Climb Dece/ Dive Accel: 2.0 / 1.0

Weight and Load Limit: 3300 / 1.0

Wpn Stations	Weight	Allowed Loads
1	3300	all bombs or 1000 kg bombs + 1000kg torp extrn

Country: USSR

Service Entry Date: 1939



Class: M

Victory Points: 5-8

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(2)	Min HT(3)	Min BT(-)	Min ET(-)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	2.5	4.5	7.0	5.0	6.5	--	--	31-36	VH	500
25-30	HI	2.5	4.5	7.5	4.5	6.0	--	--	25-30	HI	800
19-24	MH	2.0	5.0	7.5	4.0	5.5	--	--	19-24	MH	1,100
13-18	ML	2.0	5.5	7.5	3.5	4.5	--	--	13-18	ML	1,300
7-12	LO	2.0	5.0	7.0	3.0	4.0	--	--	7-12	LO	1,300
1-6	VL	2.0	4.5	6.5	2.5	3.0	--	--	1-6	VL	1,300

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
FG	1x 7.62mm ShVAK MG	12	4
TT	1x 7.62mm ShVAK MG	12	4
VG	1x 7.62mm ShVAK MG	12	4

GUN ATTACK FACTORS

Range	FG	TT	VG
0	5	5	5
1	3	3	3
2	2	2	2
3	2	2	2
4	1	1	1
5	1	1	1
6	--	--	--
7	--	--	--

WEAPON STATION LOCATION

POWER VERSUS SPEED CHART

Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	Band
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	1.0	--	--	--	VH
25-30	HI	1.5	--	--	--	HI
19-24	MH	2.0	1.0	--	--	MH
13-18	ML	2.5	1.5	--	--	ML
7-12	LO	2.5	1.5	--	--	LO
1-6	VL	2.5	--	--	--	VL
Banking FPs		3	4	--	--	
Side Slip FPs		4	5	--	--	

NOTES AND VARIANTS

Defensive Gun Arcs

FG: Front, level
 TT: level to high (6:00 High only)*
 VG: Rear, low*
 VG & TT manned by same gunner.

DB-3B: "Big brother" to SB-2. 1939 fitted with variable pitch prop. Used during Winter War. Good bombload and speed, but poor defenses.

Mono-pitch prop: Original "featured" mono-pitch props: -.5 power per engine, -.5 max speed, Ceiling = 27,100, End=675, RoC -200 ML-HI. Available 1938. Used in Winter War on 3 or less on 1D10.

Ilyushin Il-4 (DB-3F)

A/C Type: Medium Bomber
 Engine(s): 2x Mikulin M-88 radial
 Eng. Pwr: 2200 hp, air-cooled
 A/C Crew: Pilot, Bombadier/Navigator,
 2 Gunners

Maximum Speed: 267 mph at
 Maximum Ceiling: 32,800 ft./26,000 ft./18,000 ft.
 Defense factor: 6 Size Modifier: +1
 Damage Factor: 17/26 Endurance: 550
 Cockpit View: fair Blind Area: None

Protection: Cockpit +0 Fuel +0 Engines +0

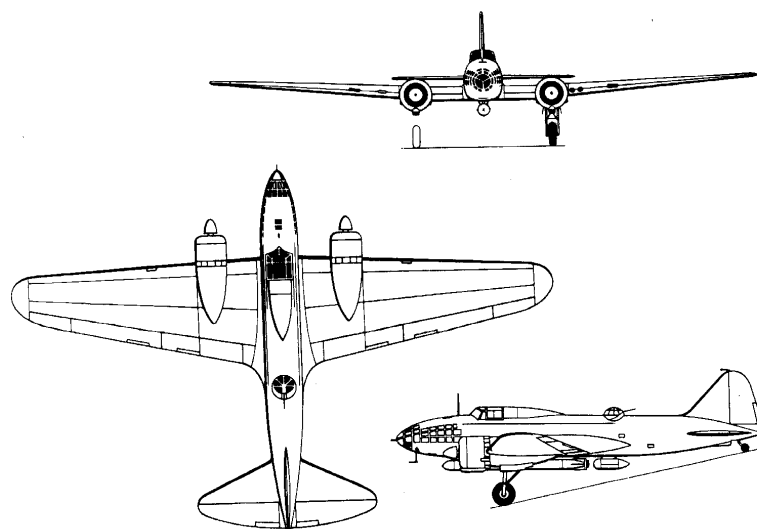
Climb Dece/ Dive Accel: 2.0 / 1.0

Weight and Load Limit: 5500 / 6-12

Wpn Stations	Weight	Allowed Loads
1,3	1100	2x 250/500 kg bb
2	3300	all bombs or 1000 kg bombs + 1000kg torp extrn

Country: USSR

Service Entry Date: February, 1940



Class: M

Victory Points: 6-9

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(3)	Min HT(4)	Min BT(-)	Min ET(-)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	2.5	4.5	7.5	5.5	7.0	--	--	31-36	VH	300
25-30	HI	2.5	5.0	8.0	5.0	6.5	--	--	25-30	HI	400
19-24	MH	2.0	5.5	8.0	4.5	6.0	--	--	19-24	MH	600
13-18	ML	2.0	5.0	7.6	4.0	5.0	--	--	13-18	ML	800
7-12	LO	2.0	5.0	7.0	3.5	4.5	--	--	7-12	LO	800
1-6	VL	2.0	4.5	6.5	3.5	4.0	--	--	1-6	VL	800

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
FG	1x 7.62mm ShVAK MG	12	4
TT	1x 12.7mm UBT MG	20	3
VG	1x 7.62mm ShVAK MG	12	4

GUN ATTACK FACTORS

Range	FG	TT	VG
0	5	5	5
1	3	4	3
2	2	3	2
3	2	2	2
4	1	1	1
5	1	1	1
6	--	1	--
7	--	--	--

WEAPON STATION LOCATION

1 2 3

POWER VERSUS SPEED CHART

		(per engine)				Band
Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	1.0	--	--	--	VH
25-30	HI	1.5	0.5	--	--	HI
19-24	MH	2.5	1.5	--	--	MH
13-18	ML	3.0	2.0	--	--	ML
7-12	LO	3.0	2.0	--	--	LO
1-6	VL	3.0	--	--	--	VL
Banking FPs		3	4	--	--	
Side Slip FPs		4	5	--	--	

NOTES AND VARIANTS

Defensive Gun Arcs

FG: Front, level
 TT: level to high (6:00 High only)
 VG: Rear, low

Il-4 (DB-3F): Updated DB-3B built in 1940-44. Backbone of the Soviet strategic bombing force through WW2. Raided Berlin Aug 8-9, 1941.

Gunners have +1 protection. Increasingly built of wood to preserve strategic metal, making a heavier a/c. Roll 1D10 at start of mission:

	As Is	-5 Pwr/Eng	-1 Pwr/Engine
1943	1-8	9-10	--
1944	1-7	8-9	10
1945	1-5	6-8	9-10

Petlyakov Pe-8

A/C Type: Heavy Bomber
 Engine(s): 4x Mikulin AM-35A inline V-12s
 Eng. Pwr: 5200 hp, liquid-cooled, non-F.I.
 A/C Crew: Pilot, Co-Pilot, Radio, Navigator, Bombadier, 5 Gunners

Maximum Speed: 276 mph
 Maximum Ceiling: 23,000 ft /
 Defense factor: 7 Size Modifier: +2
 Damage Factor: 20/30 Endurance: 430
 Cockpit View: Fair Blind Area: None

Protection: Cockpit +0 Fuel +1 Engines +1

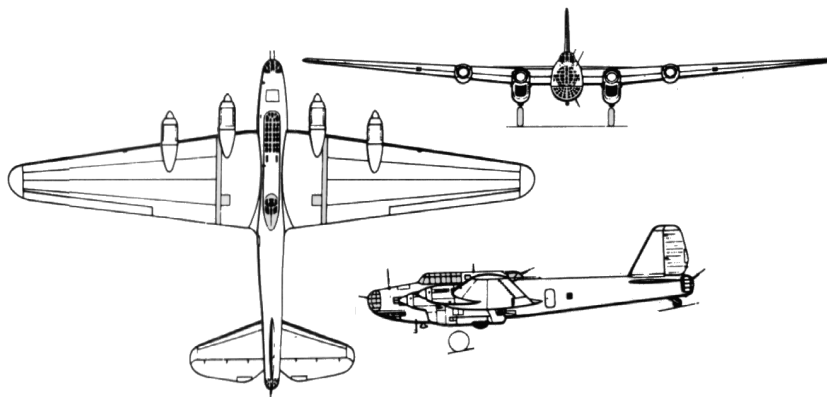
Climb Dece/ Dive Accel: 2.0 / 1.0

Weight and Load Limit: 8800 / 10-15

Wpn Stations	Weight	Allowed Loads
2 (bombbay)	8800	Bombs up to 2000kg.
(1,3)	(1250)	(bombs)

Country: USSR

Service Entry Date: May, 1940



Class: H

Victory Points: 7-10

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(2)	Min HT(3)	Min BT(-)	Min ET(-)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	--	--	--	--	--	--	--	31-36	VH	--
25-30	HI	(3.0)	(4.5)	(7.5)	(4.0)	(5.5)	--	--	25-30	HI	(600)
19-24	MH	2.5	5.0	8.0	3.5	5.0	--	--	19-24	MH	600
13-18	ML	2.0	5.5	8.0	3.0	4.5	--	--	13-18	ML	800
7-12	LO	2.0	5.0	7.5	2.5	4.0	--	--	7-12	LO	800
1-6	VL	2.0	4.5	6.5	2.5	3.5	--	--	1-6	VL	800

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
FG	1x 7.62mm ShKAS MG	12	4
R1	1x 12.7mm UBT MG	8	3
R2	1x 12.7mm UBT MG	8	3
DT	1x 20mm ShVAK cannon	10	2
TG	1x 20mm ShVAK cannon	10	2

GUN ATTACK FACTORS

Range	FG	R1	R2	TT	TG
0	10	5	5	15	15
1	7	4	4	10	10
2	5	3	3	7	7
3	3	2	2	5	5
4	2	1	1	3	3
5	1	1	1	2	2
6	--	1	1	1	1
7	--	--	--	--	--

WEAPON STATION LOCATION

1 2 3

POWER VERSUS SPEED CHART

		(per engine)				Band
Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	--	--	--	--	VH
25-30	HI	(.25)	(.25)	--	--	HI
19-24	MH	.5	.25	--	--	MH
13-18	ML	.75	.25	--	--	ML
7-12	LO	1.0	.5	--	--	LO
1-6	VL	1.0	--	--	--	VL
Banking FPs		4	5	--	--	
Side Slip FPs		4	6	--	--	

NOTES AND VARIANTS

Defensive Gun Arcs

FG: Front, level
 R1/R2: Rear left/right, low.
 DT: Rear, level to Hi; 6:00 High only
 TT: Rear, level

R1 & R2 mounted and crewed on rear of engine nacelles.

Pe-8: Original version built Feb-40 - 1941 with AM-35A engines. 79 built. Supplemented the Il-4, including accompanying it to Berlin on Aug 8-9, 1941. Known for its ability to fly long distances. Station 2 only.

Later model: 50 more built 43-44 with ASh-82 FNV fuel-injected engines: ceiling 29,000 ft, end = 348, VL-MH add .25 power per engine. Uses speeds & power in parentheses. R1 & R2 deleted. Stations 1 & 3 available.