

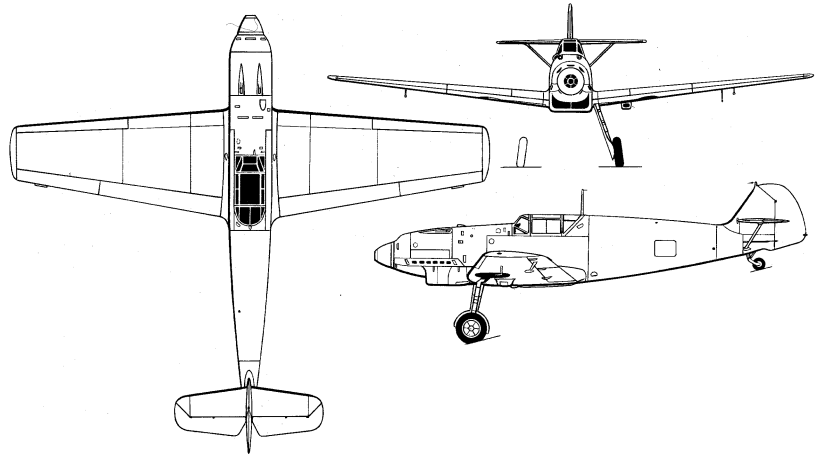
Messerschmitt Bf109B-2

Country: Germany

Service Entry Date: July, 1936

A/C Type: Day Fighter
 Engine(s): Jumo 210Da inline.
 Eng. Pwr: 610-720 hp, Liquid-cooled Non-F.I.
 A/C Crew: Pilot

Maximum Speed: 289 mph at 13,100
 Maximum Ceiling: 26,900
 Defense factor: 5 Size Modifier: +0
 Damage Factor: 7/10 Endurance: 118
 Cockpit View: Poor Blind Area: Rear
 Protection: Cockpit +0 Fuel +0 Engine +0
 Climb Dece/ Dive Accel: 3.0 / 1.0
 Weight and Load Limit: none
 Wpn Stations Weight Allowed Loads



Class: F

Victory Points: 3-5

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(2)	Min HT(3)	Min BT(4)	Min ET(5)	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	2.5	4.5	9.0	4.0	5.5	6.5	7.5	25-30	HI	500
19-24	MH	2.0	5.0	9.5	3.5	5.0	6.0	7.0	19-24	MH	1,000
13-18	ML	2.0	5.5	9.5	3.5	4.5	5.5	6.5	13-18	ML	1,600
7-12	LO	1.5	5.5	8.5	3.0	4.0	5.0	6.0	7-12	LO	2,000
1-6	VL	1.5	5.0	8.0	3.0	4.0	5.0	6.0	1-6	VL	2,300

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x 7.62mm MG17	15	4
N2	1x 7.62mm MG17	15	4
W1	1x 7.62mm MG17	12	4
W2	1x 7.62mm MG17	12	4

GUN ATTACK FACTORS

Range	N1	N2	W1	W2	Total
0	11	6	6	6	17/23
1	8	4	4	4	12/16
2	6	3	3	3	9/12
3	4	2	2	2	6/8
4	3	1	1	1	4/5
5	2	1	1	1	3/4
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	--	--	--	--	VH
25-30	HI	1	1	--	--	HI
19-24	MH	1	1	--	--	MH
13-18	ML	4	1	--	--	ML
7-12	LO	5	2	--	--	LO
1-6	VL	5	2	--	--	VL
Banking FPs		3	4	5	7	
Side Slip FPs		3	5	7	9	

NOTES AND VARIANTS

All Bf109s: Slatted wings. Hard to land (+1 on landing attrition rolls).

Bf109B-1: Available February, 1936. First operational Bf109. About dozen sent to Spain in April, 1936. Monopitch 2-blade wood propellor - reduce power by 1. About 40 built. Uses N1 weapons only. No radio.

Bf109B-2: Available July, 1936. Used in Spain by the Kondor Legion. About 140 built. N2 fires through propellor shaft. Use total to left of the slash.

Export Bf109D: Available 1938. To raise money, the German government exported to Switzerland 10 Bf109B-2 airframes armed as a C-1 (two nose MG17s, plus 2 wing MG17s) under the designation Bf109D. The aircraft engine was the Jumo 210Da, however, and the description does not match the Bf109D-1 that served with the Luftwaffe. Armed with N1, W1 and W2; use the total to right of the slash.

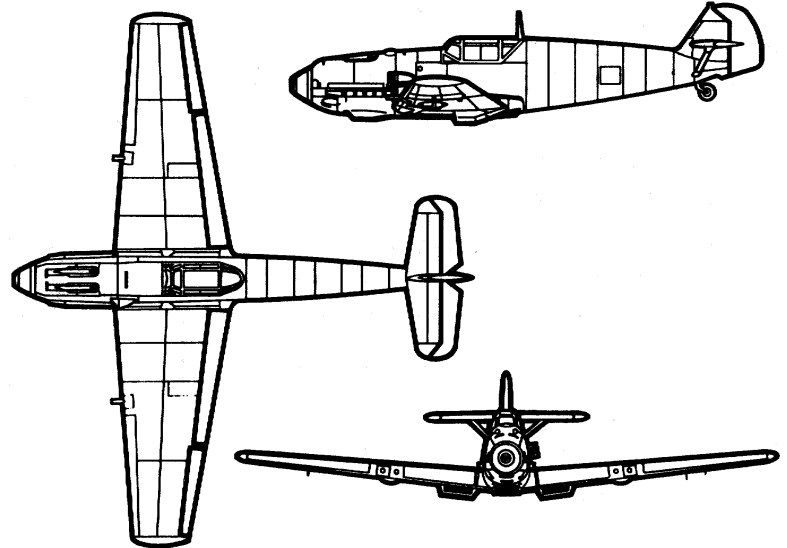
Messerschmitt Bf109C-1

Country: Germany

Service Entry Date: April 1937

A/C Type: Day Fighter
 Engine(s): Jumo 210Ga inline
 Eng. Pwr: 650-730 hp, liquid-cooled
 A/C Crew: Pilot

Maximum Speed: 292 mph at 14,700
 Maximum Ceiling: 27,500 ft
 Defense factor: 5 Size Modifier: +0
 Damage Factor: 7/11 Endurance: 118
 Cockpit View: Poor Blind Area: Rear
 Protection: Cockpit +0 Fuel +0 Engine +0
 Climb Dece/ Dive Accel: 3.0 / 1.0
 Weight and Load Limit: none
 Wpn Stations Weight Allowed Loads



Class: F

Victory Points: 3-6

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(2)	Min HT(3)	Min BT(4)	Min ET(5)	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	2.5	4.5	9.0	4.0	5.5	6.5	7.5	25-30	HI	300
19-24	MH	2.0	5.0	9.5	3.5	5.0	6.0	7.0	19-24	MH	800
13-18	ML	2.0	5.5	9.5	3.5	4.5	5.5	6.5	13-18	ML	1300
7-12	LO	1.5	5.5	8.5	3.0	4.0	5.0	6.0	7-12	LO	1800
1-6	VL	1.5	5.0	8.0	3.0	4.0	5.0	6.0	1-6	VL	2200

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x 7.62mm MG17	15	4
N2	1x 7.62mm MG17	12	4
W1	1x 7.62mm MG17	12	4
W2	1x 7.62mm MG17	12	4
W3	1x 20mm MGFF cannon	3	2
W4	1x 20mm MGFF cannon	3	2

GUN ATTACK FACTORS

Range	N1	N2	W1/2	W3/4
0	11	6	6	11
1	8	4	4	8
2	6	3	3	6
3	4	2	2	4
4	3	1	1	3
5	2	1	1	2
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	--	--	--	--	VH
25-30	HI	1	1	--	--	HI
19-24	MH	2	1	--	--	MH
13-18	ML	4	1	--	--	ML
7-12	LO	5	2	--	--	LO
1-6	VL	5	2	--	--	VL
Banking FPs		3	4	5	7	
Side Slip FPs		3	5	7	9	

NOTES AND VARIANTS

All Bf109s: Slatted wings. Hard to land (+1 on landing attrition rolls).

Bf109C: Used Jumo 211Ga FI engine. Battle-tested in Spain. Built in small numbers. Produced in 4 variants with different weapons:

Model	Weapons Used	Gun Factor Totals
Bf109C-1:	N1, W1, W2	23,16,12,8,5,4,-,-
Bf109C-2:	N1, N2, W1, W2	29,20,15,10,6,5,-,-
Bf109C-3:	N1, W3, W4	33,24,18,12,9,6,-,-
Bf109C-4:	N1, N3, W1, W2	44,32,24,18,12,8,-,-

The C-4 variant never served with a standing unit; nor were C-3s produced in great numbers.

Messerschmitt Bf109D-1

Country: Germany

Service Entry Date: June 1938

A/C Type: Day Fighter
 Engine(s): Daimler-Benz DB600A inline
 Eng. Pwr: 910-986 hp, liquid-cooled, Non-F.I.
 A/C Crew: Pilot

Maximum Speed: 298 mph at 14,700 ft
 Maximum Ceiling: 32,800 ft

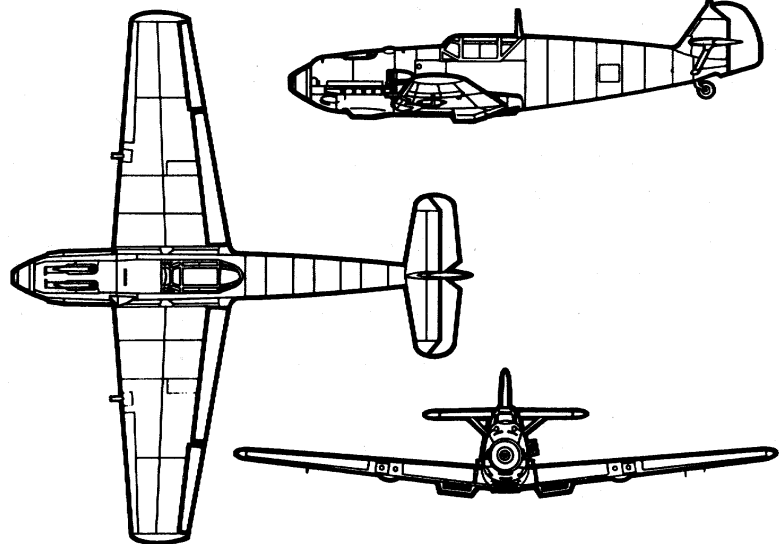
Defense factor: 5 Size Modifier: +0
 Damage Factor: 7/11 Endurance: 90
 Cockpit View: Poor Blind Area: Rear

Protection: Cockpit +0 Fuel +0 Engine +0

Climb Dece/ Dive Accel: 3.0 / 1.0

Weight and Load Limit: none

Wpn Stations Weight Allowed Loads



Class: F

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(4)	Min ET(5)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	2.5	4.5	9.5	4.5	6.0	7.5	--	31-36	VH	300
25-30	HI	2.5	5.0	9.5	4.0	5.5	7.0	--	25-30	HI	900
19-24	MH	2.0	5.5	10.0	3.5	4.5	5.5	6.5	19-24	MH	1,500
13-18	ML	2.0	6.0	10.5	3.0	4.0	5.0	6.0	13-18	ML	2,100
7-12	LO	1.5	5.5	10.0	2.5	3.5	4.5	5.5	7-12	LO	2,600
1-6	VL	1.5	5.0	9.0	2.5	3.5	4.5	5.0	1-6	VL	3,000

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x 7.62mm MG17	15	4
N2	1x 20mm MG-FFM	8	2

GUN ATTACK FACTORS

Range	N1	N2	Total
0	11	18	29
1	8	13	21
2	6	9	15
3	4	6	10
4	3	4	7
5	2	3	5
6	--	2	2
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	1	--	--	VH
25-30	HI	1	1	--	--	HI
19-24	MH	3	1	--	--	MH
13-18	ML	5	3	--	--	ML
7-12	LO	7	4	--	--	LO
1-6	VL	7	4	--	--	VL
Banking FPs		3	4	5	7	
Side Slip FPs		3	5	7	9	

NOTES AND VARIANTS

All Bf109s: Slatted wings; flaps. Hard to land (+1 on landing attrition rolls).

Bf109D-1: Used as interim service fighter while DB601 engine was developed. Less than 200 built. Still in service in September, 1939; by January 1940, still serving with night-fighter units that were awaiting aircraft still in development. The last Me109Ds were withdrawn from active service with night fighter units in northern Germany by September, 1940. 5 sold to Hungary for evaluation in early 1939.

Early batches were armed with 20mm FF-M cannon firing through propellor cap, but this proved problematic and was removed in later batches. 6- for availability. If available, jams on 7+. If removed, N1 ammo = 30.

The DB600 engine was rather unreliable: +1 for availability.

Messerschmitt Bf109E-1

A/C Type: Day Fighter
 Engine(s): Daimler-Benz DB 601A inline
 Eng. Pwr: 990-1100 hp, liquid-cooled
 A/C Crew: Pilot

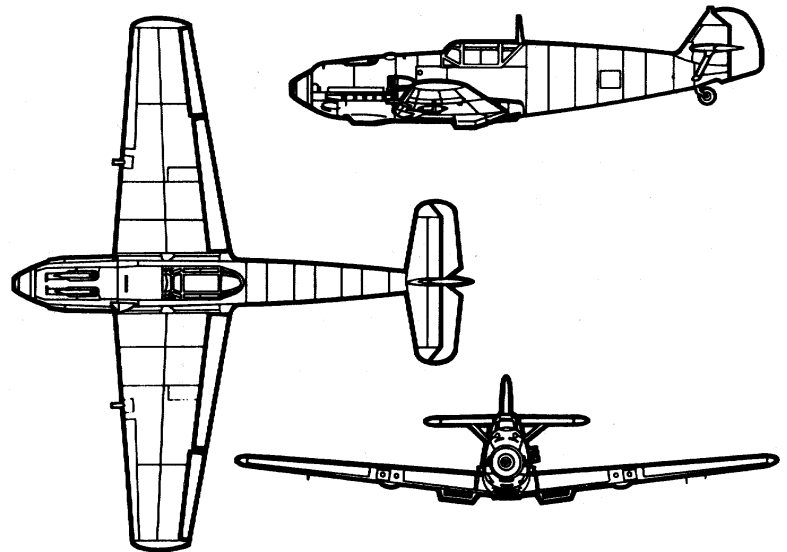
Maximum Speed: 342 mph at 13,120
 Maximum Ceiling: 34,450
 Defense factor: 5 Size Modifier: +0
 Damage Factor: 7/11 Endurance: 74
 Cockpit View: Poor Blind Area: Rear
 Protection: Cockpit +0 Fuel +0 Engine +0

Climb Dece/ Dive Accel: 3.0 / 1.0
 Weight and Load Limit: 550 / 1.0-2.0

Wpn Stations	Weight	Allowed Loads
1 (E-1/B only)	550	1 Bomb

Country: Germany

Service Entry Date: Feb 1939



Class: F

Victory Points: 4-7

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	3.5	6.5	10.0	4.5	6.5	7.5	--	31-36	VH	400
25-30	HI	3.0	6.5	10.0	4.0	5.5	7.0	--	25-30	HI	800
19-24	MH	2.5	7.0	10.5	3.5	5.0	6.0	7.0	19-24	MH	1,200
13-18	ML	2.5	7.0	11.0	3.5	4.5	5.5	6.5	13-18	ML	2,100
7-12	LO	2.0	6.5	10.5	3.0	4.0	5.0	6.0	7-12	LO	2,600
1-6	VL	2.0	6.0	9.5	3.0	4.0	5.0	5.5	1-6	VL	3,100

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x 7.62mm MG17	30	4
N2	1x20mm FF cannon	3	2
W1	1x 7.62mm MG17	24	4
W2	1x 7.62mm MG17	24	4

GUN ATTACK FACTORS

Range	N1	N2	W1	W2	Total
0	11	11	6	6	23/34
1	8	9	4	4	16/24
2	6	6	3	3	12/18
3	4	4	2	2	8/12
4	3	3	1	1	6/8
5	2	2	1	1	4/6
6	--	--	--	--	--
7	--	--	--	--	--

WEAPON STATION LOCATION



1

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	1	--	--	VH
25-30	HI	1	1	--	--	HI
19-24	MH	5	3	--	--	MH
13-18	ML	7	4	--	--	ML
7-12	LO	7	4	--	--	LO
1-6	VL	7	4	--	--	VL
Banking FPs		2	3	5	7	
Side Slip FPs		3	5	6	8	

NOTES AND VARIANTS

All Bf109s: Slatted wings. Hard to land (+1 on landing attrition rolls).

Bf 109E-1: First Emil. Some had N2: 20mm FF cannon firing through propeller shaft, but these were very troublesome and were removed; available on 2-; jams on 7+. Use totals to right of slash w/N2. Late batches were built armed as a Bf109E-3. About 600 in service in September, 1939. Fought in Poland (150), Norway (60) and Battle of France.

Switzerland bought 50 Bf109E-1s and 30 E-3s in 1939/40. 40 E-1s were sent to the Kondor Legion in March, 1939; they were transferred to Spanish Air Force (along with 27 B and C models) in April at the end of Spain's Civil War.

Bf 109E-1/B: Prewar "Jabo" version. Able to carry a 550 lb (250kg) bomb.

Messerschmitt Bf109T-1

A/C Type: Carrier-borne Day Fighter
 Engine(s): Daimler-Benz DB 601N inline
 Eng. Pwr: 1275-hp, Liquid-cooled
 A/C Crew: Pilot

Maximum Speed: 357 mph
 Maximum Ceiling: 34,400
 Defense factor: 5 Size Modifier: +0
 Damage Factor: 7/11 Endurance: 91
 Cockpit View: Poor Blind Area: Rear

Protection: Cockpit +1 Fuel +0 Engine +0

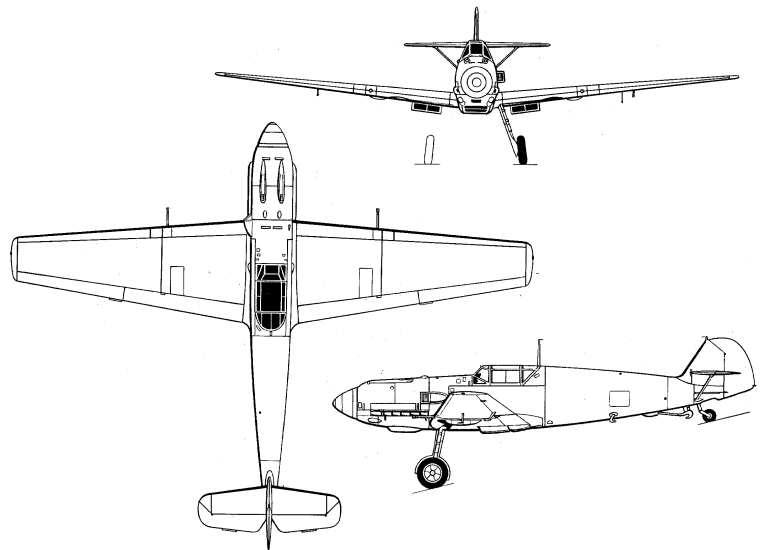
Climb Dece/ Dive Accel: 3.0 / 1.0

Weight and Load Limit: none

Wpn Stations	Weight	Allowed Loads
1	550	66-gal FT

Country: Germany

Service Entry Date: April, 1940



Class: F

Victory Points: 4-8

AIRCRAFT PERFORMANCE CHART

Altitude Levels	Bands	Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(4)	Min HT(5)	Min BT(6)	Min ET(7)	Altitude Levels	Bands	Average Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	3.5	6.5	10.0	5.5	6.5	7.5	--	31-36	VH	500
25-30	HI	3.0	6.5	10.0	5.0	6.0	7.0	8.0	25-30	HI	1,500
19-24	MH	2.5	7.0	10.5	4.5	5.5	6.5	7.5	19-24	MH	2,100
13-18	ML	2.5	7.0	11.0	4.0	5.0	6.0	7.0	13-18	ML	2,600
7-12	LO	2.0	6.5	10.5	3.5	4.5	5.5	6.5	7-12	LO	3,000
1-6	VL	2.0	6.0	9.5	3.0	4.0	5.0	6.0	1-6	VL	3,400

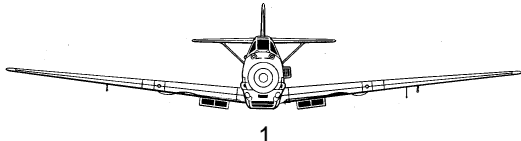
FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x 7.62mm MG17	20	4
W1	1x 20mm MG-FFM	3	2
W2	1x 20mm MG-FFM	3	2

GUN ATTACK FACTORS

Range	W1	W2	W3	Total
0	11	18	18	47
1	8	13	13	34
2	6	9	9	24
3	4	6	6	16
4	3	4	4	11
5	2	3	3	8
6	--	2	2	4
7	--	--	--	--

WEAPON STATION LOCATION



1

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/-	1/-	--	--	VH
25-30	HI	3/-	1/-	--	--	HI
19-24	MH	5/6	2/3	--	--	MH
13-18	ML	7/8	4/5	--	--	ML
7-12	LO	7/8	4/5	--	--	LO
1-6	VL	7/8	4/5	--	--	VL
Banking FPs		2	3	5	7	
Side Slip FPs		3	5	6	8	

NOTES AND VARIANTS

Bf109T-1: Available April 1940. Essentially a Bf109E-4/N with a larger wing and carrier equipment. 60 built and used to train what would have been the Air Wing (Trägergruppe) of the German Navy's *Graf Zeppelin*. But wrangling over operational control of the carrier was never resolved and it never sailed. In 1942, the carrier landing equipment was removed and the aircraft redesigned as T-2s. Slatted wings. Folding wings.

The *Graf Zeppelin's* air group would have consisted of 12 Bf109T-1 and 28 Ju87C.