

Flight checklist for normal operations

Massgebend ist das AFM (parameters, restrictions, emergency, etc.)

Cockpit preparation before starting engine

1	Aircraft + Cockpit inspection	<i>completed (according AFM)</i>	1
2	Seats	<i>adjust an locked</i>	2
3	Seat belts and shoulder harness	<i>fastened, adjusted</i>	3
4	Parking brake	<i>set</i>	4
5	El. Switches / Radio-master switch	<i>off</i>	5
6	Circuit breakers	<i>in</i>	6
7	Propeller control	<i>high RPM</i>	7
8	Mixture	<i>cut off</i>	8
9	Alternate air	<i>close</i>	9
10	Controls	<i>free and easy</i>	10
11	Elevator and rudder trim	<i>set for take off</i>	11
12	Flaps	<i>up</i>	12
13	STBY Altimeter	<i>set</i>	13
14	Auto pilot	<i>off</i>	14
15	Battery, Alternator	<i>on</i>	15
16	Gear control	<i>down, 3 greens</i>	16
17	Emergency gear lever	<i>Up</i>	17
18	Annunciator lights	<i>checked and test</i>	18
19	FLARM switch	<i>checked, on</i>	19
20	(ATIS, Startup clearance)	<i>received</i>	20
21	Radio master	<i>off</i>	21
22	Door	<i>latched</i>	22

Engine start, cold engine

1	Fuel pump	<i>on</i>	1
2	Throttle	<i>1 cm open</i>	2
3	Propeller area	<i>free</i>	3
4	Mixture	<i>rich, then cut off</i>	4
5	Starter	<i>engage</i>	5
6	Mixture	<i>rich</i>	6
7	Throttle	<i>1000 - 1200 RPM</i>	7

Engine start, warm engine

1	Fuel pump	<i>on</i>	1
2	Throttle	<i>1 cm open</i>	2
3	Mixture	<i>cut off</i>	3
4	Propeller area	<i>free</i>	4
5	Starter	<i>engage</i>	5
6	Mixture	<i>rich</i>	6
7	Throttle	<i>1000 - 1200 RPM</i>	7

Motorfluggruppe Langenthal	Checklist P28R ARROW	v1.2 JAN12	2
After engine start check			
1	Oil pressure > 25 psi (PFD)	<i>checked</i>	1
2	Fuel pump	<i>off</i>	2
3	Alternator output	<i>checked</i>	3
4	Annunciator lights	<i>off</i>	4
5	Ventilation, Heater	<i>set</i>	5
Before taxi			
1	Radio-master	<i>on</i>	1
2	El. trim	<i>on</i>	2
3	Autopilot	<i>on and test, off</i>	3
4	Audio panel	<i>set</i>	4
5	ATIS, ATC clearance	<i>received</i>	5
6	Avionics (Com, Nav, GPS)	<i>set (121,5 checked)</i>	6
7	PFD (Altimeter)	<i>set</i>	7
8	MFD (fuel)	<i>set</i>	8
9	Time	<i>noted</i>	9
10	Landing light	<i>on</i>	10
Taxi check			
1	Brake, steering	<i>checked</i>	1
2	AI, HSI, compass, Turn-coordinator	<i>checked, stable</i>	2
Run-up			
1	MFD	<i>set to engine page</i>	1
2	Parking brake	<i>set</i>	2
3	Landing light	<i>off</i>	3
4	Engine temperature	<i>within green</i>	4
5	Propeller	<i>high RPM</i>	5
6	Throttle	<i>2000 RPM</i>	6
7	Alternator output	<i>checked</i>	7
8	Engine instruments	<i>checked</i>	8
9	Annunciator	<i>checked</i>	9
10	Magnetos	<i>max. drop 175 RPM/ max. diff. 50 RPM</i>	10
11	Propeller	<i>checked (2x300 RPM)</i>	11
12	Mixture	<i>checked, EGT rising</i>	12
13	Alternate air	<i>checked</i>	13
14	Throttle	<i>fully idle (700-900 RPM)</i>	14
15	Throttle	<i>1000-1200 RPM set</i>	15

Departure check

1	Fuel quantity	<i>checked</i>	1
2	Tank selector	<i>fuller tank</i>	2
3	Fuel pump	<i>on, Alternator output increasing</i>	3
4	Propeller	<i>high RPM</i>	4
5	Mixture	<i>rich or acc. AFM</i>	5
6	Alternate air	<i>closed</i>	6
7	Ignition	<i>both</i>	7
8	Flaps	<i>up, short field Flaps 2</i>	8
9	Elevator and rudder trim	<i>set</i>	9
10	ATC clearance, SID	<i>read back</i>	10
11	Avionics (Com, Nav, GPS, Autopilot)	<i>set</i>	11
12	PFD	<i>checked, set for departure</i>	12
13	MFD	<i>checked and then to MAP page</i>	13
14	Flarm	<i>checked, 3 green lights</i>	14
15	Seat belts, shoulder harness	<i>fasten</i>	15
16	Seats	<i>locked</i>	16
17	Doors	<i>latched</i>	17
18	Controls	<i>free and easy</i>	18

Departure Briefing

- 1 Surface wind
- 2 Speeds: V rot 65-75, short field 50-60,
- 3 Routing, Altitudes, Restrictions
- 4 Emergency procedures, V best glide 79

Line-up

1	Approach sector, runway	<i>checked free</i>	1
2	Lights (Landing light, Anti-collision light)	<i>on</i>	2
3	Transponder	<i>Code checked and set to ALT</i>	3
4	Pitot Heat	<i>as required</i>	4
5	Wind, runway heading	<i>checked</i>	5
6	Time	<i>noted</i>	6

Take off

1	Power	<i>RPM & MP checked</i>	1
2	Speed	<i>rising</i>	2

Climb check

1	Gear	<i>up</i>	1
2	Flaps	<i>up</i>	2
3	Power	<i>25" / 2500 RPM</i>	3
5	Fuel pump	<i>off</i>	5
6	Altimeter	<i>QNE (1013 hPa)</i>	6

Motorfluggruppe Langenthal	Checklist P28R ARROW		v1.2 JAN12	4
Cruise check				
1	MFD	<i>set to engine page</i>	1	
2	Flight- / Engine instruments	<i>checked</i>	2	
3	Cruise power	<i>acc. AFM</i>	3	
4	Mixture / Fuel	<i>checked</i>	4	
Descent check				
1	ATIS	<i>received</i>	1	
2	Approach briefing	<i>completed</i>	2	
3	PFD + Avionics (Com, Nav, GPS)	<i>preselected</i>	3	
4	Cabin, Pax	<i>checked</i>	4	
Approach Briefing				
1	Runway in use			
2	Routing, Altitude, Restrictions			
3	Missed approach procedure			
4	Surface wind, Final approach speed			
Approach preparation				
1	Altimeters	<i>QNH</i>	1	
2	Auto pilot	<i>off</i>	2	
3	Landing lights	<i>checked, on</i>	3	
4	Fuel pump	<i>on</i>	4	
5	Fuel quantity	<i>checked</i>	5	
6	Fuel selector	<i>fuller tank</i>	6	
7	Mixture	<i>rich</i>	7	
8	Gear	<i>max. 129 kts down</i>	8	
9	Flaps	<i>max. 103 kts set</i>	9	
Final check				
1	Gear	<i>checked, 3 greens</i>	1	
2	Flaps	<i>checked</i>	2	
3	Propeller	<i>high RPM</i>	3	
Go around				
1	Propeller	<i>high RPM</i>	1	
2	Throttle	<i>full power</i>	2	
3	Attitude	<i>rotate (speed established > 65 Kts)</i>	3	
4	Flaps	<i>up (slowly retract if speed > 78 Kts)</i>	4	
5	Gear	<i>up</i>	5	

After landing

1	Electrical consumers	<i>as required</i>	1
2	Fuel pump	<i>off</i>	2
3	Flaps	<i>up</i>	3
4	Transponder	<i>stby</i>	4

Engine shut down

1	Parking brake	<i>set</i>	1
2	Throttle	<i>1200 RPM</i>	2
3	Electrical consumers	<i>off</i>	3
4	Radio Master	<i>no signal 121.5 / off</i>	4
5	Mixture	<i>cut off</i>	5
6	Ignition	<i>off</i>	6
7	Alternator, Battery	<i>off</i>	7
8	Flight time counter	<i>noted</i>	8

Speeds for operation at maximum take off mass (MTOM)

Rotate	<i>Flaps up</i>	65-75	CIAS
Rotate short field	<i>Flaps 2</i>	50-60	CIAS
Best angle	<i>Gear up,</i>	78	CIAS
Best rate	<i>Gear up,</i>	90	CIAS
Cruise climb	<i>Flaps up</i>	min. 104	CIAS
Gear down		max. 129	CIAS
Flaps extend		max. 103	CIAS
Initial approach speed	<i>Flaps 1</i>	100	CIAS
Intermediate approach speed	<i>Flaps 2</i>	90	CIAS
Final approach speed	<i>Flaps full</i>	75	CIAS
Go around / T+G	<i>before Flaps up</i>	min. 78	CIAS
Best glide	<i>Gear + Flaps</i>	79	CIAS
Max maneuvering speed	<i>Flaps up</i>	118 - 96	CIAS
Max. demonstrated crosswind		17	cts

Power settings

Take off	full power
Climb power	25" / 2500 RPM
Cruise: best economy / best power	acc. AFM
Circuit	18" / 2200 RPM

Loading HB-PQY

MTOM	1247 kg	
		Max. cabin load remaining
Empty (including 5 USG unusable fuel)	847 kg =>	400 kg
Usable fuel, filler neck 50 USG / 189lt	136 kg =>	264 kg
Usable fuel, full 72 USG / 272lt	196 kg =>	204 kg

Motorfluggruppe Langenthal		Checklist P28R ARROW								v1.2 JAN12	6
Power / Consumption / Cruisespeed at MTOM,						EGT = Peak -50°F to rich					
		ISA -20°C				ISA			ISA +20°C		
ALT(ft)	RPM	MAP	PWR	GpH	TAS	PWR	GpH	TAS	PWR	GpH	TAS
		-9°C				11°C			31°C		
2000	2300	21	64%	10.3	113	61%	9.5	110	59%	8.7	107
		22	67%	10.6	117	64%	9.8	113	62%	9.0	110
		23	70%	12.5	121	67%	11.6	117	65%	10.7	114
		24	73%	12.8	125	70%	11.9	122	68%	11.0	118
	2500	21	71%	11.5	123	68%	11.3	122	66%	11.1	121
		23	77%	12.3	132	75%	12.1	131	72%	11.8	129
		24	81%	12.6	137	78%	12.4	135	75%	12.1	134
		26.8	90%	13.5	139	87%	13.2	137	84%	12.9	136
4000	-13°C				7°C			27°C			
	2300	21	64%	10.2	118	61%	9.9	116	59%	9.6	113
		22	67%	10.5	122	64%	10.2	119	62%	9.9	117
		23	70%	11.0	126	67%	10.7	123	65%	10.3	121
		24	73%	11.4	129	70%	11.0	126	68%	10.7	124
	2500	22	74%	11.4	127	72%	11.0	125	69%	10.7	123
		23	77%	11.7	132	75%	11.4	129	72%	11.0	128
		24	81%	12.2	137	78%	11.8	134	75%	11.4	132
25		84%	12.6	137	81%	12.2	135	78%	11.8	132	
6000	-17°C				3°C			23°C			
	2300	20	61%	9.8	118	59%	9.5	115	56%	9.1	112
		21	64%	10.2	122	61%	9.8	119	59%	9.4	116
		22	67%	10.9	126	64%	10.5	123	62%	10.1	120
		23.2	70%	11.2	132	68%	10.8	128	65%	10.4	125
	2500	20	68%	10.6	125	65%	10.2	123	63%	9.9	120
		21	71%	10.9	130	68%	10.6	127	66%	10.2	125
		22	74%	11.4	135	72%	11.0	132	69%	10.7	129
23		78%	11.8	137	75%	11.4	134	72%	11.1	132	
8000	-21°C				-1°C			19°C			
	2300	18	55%	9.0	113	53%	8.7	110	51%	8.4	107
		19	58%	9.3	116	56%	9.0	113	54%	8.7	110
		20	61%	10.0	120	59%	9.7	117	56%	9.3	114
		21.5	65%	10.5	128	63%	10.1	125	61%	9.7	121
	2500	18	61%	10.0	120	59%	9.6	117	57%	9.2	114
		19	64%	10.3	124	62%	9.9	121	60%	9.6	117
		20	68%	10.8	129	65%	10.4	125	63%	10.1	122
21.3		72%	11.5	137	69%	11.1	133	67%	10.7	129	
10000	-25°C				-5°C			15°C			
	2300	17	52%	8.7	111	50%	8.3	108	48%	8.0	106
		18	55%	9.0	115	53%	8.6	112	51%	8.2	109
		19	58%	9.7	122	56%	9.3	118	54%	8.9	115
		19.7	60%	10.0	124	58%	9.5	121	56%	9.1	118
	2500	17	58%	9.6	120	56%	9.2	117	54%	8.9	114
		18	61%	9.9	124	59%	9.5	121	57%	9.2	117
		19	64%	10.4	129	62%	10.0	125	60%	9.7	122
19.7		67%	10.8	135	64%	10.4	131	62%	10.0	127	

Flight checklist for emergency

Massgebend ist das AFM

FIRE ON GROUND

1 Starter	<i>CRANK ENGINE</i>	1
2 Mixture	<i>IDLE CUT OFF</i>	2
3 Throttle	<i>FULL OPEN</i>	3
4 Fuel pump	<i>OFF</i>	4
5 Fuel selector	<i>OFF</i>	5
6 Battery / Alternator	<i>OFF</i>	6
7 Pax and Crew	<i>EVACUATE</i>	7

FIRE IN FLIGHT

1 Source of fire	<i>IDENTIFY</i>	1
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ELECTRICAL FIRE (Smoke in cabin)

1 Battery / Alternator	<i>OFF</i>	1
2 Vents	<i>OPEN</i>	2
3 Cabin heat	<i>OFF</i>	3

Land as soon as practical

ENGINE FIRE

1 Fuel selector	<i>OFF</i>	1
2 Throttle	<i>CLOSED</i>	2
3 Mixture	<i>IDLE CUT OFF</i>	3
4 Fuel pump	<i>OFF</i>	4
5 Cabin heater and defroster	<i>OFF</i>	5
6 Elevator trim	<i>BEST GLIDE 79 KIAS</i>	6

Prepare for power off emergency landing

ENGINE POWER LOSS IN FLIGHT

1 Attitude	<i>BEST GLIDE 79 KIAS</i>	1
2 Fuel selector	<i>SWITCH</i>	2
3 Fuel pump	<i>ON</i>	3
4 Mixture	<i>RICH</i>	4
5 Alternate Air	<i>OPEN</i>	5
6 Ignition	<i>BOTH</i>	6
7 Engine gauges	<i>CHECK CAUSE OF POWER LOSS</i>	7

When power is restored

8 Alternate Air	<i>CLOSE</i>	8
9 Fuel pump	<i>OFF</i>	9

When power is not restored

10 Elevator trim	<i>BEST GLIDE 79 KIAS</i>	10
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Prepare for power off emergency landing

EMERGENCY LANDING

Trim for best glide 79 KIAS

Locate suitable field

When the landing field can easily be reached

1 Gear Selector	<i>DOWN</i>	1
2 Flaps	<i>AS DESIRED</i>	2
3 Throttle	<i>CLOSED</i>	3
4 Mixture	<i>IDLE CUT OFF</i>	4
5 Ignition	<i>OFF</i>	5
6 Battery / Alternator	<i>OFF</i>	6
7 Fuel selector	<i>OFF</i>	7
8 Speed	<i>FINAL APPROACH, 72 KIAS</i>	8
9 Seat belts / shoulder harness	<i>TIGHT</i>	9

GEAR EMERGENCY DOWN

NO GEAR DOWN INDICATION (one or more green lights u/s)

1 Master	ON	1
2 Circuit breakers	IN	2
3 Day/Night switch	DAY	3
4 Green indicators	CHECKED, PUSH IN	4

If gear does not check down and lock continue with

GEAR EMERGENCY DOWN

1 Speed	BELOW 87 KIAS	1
2 Gear Selector	DOWN	2
3 Gear circuit breaker	PULL OUT	3
4 Emergency gear lever	PUSH DOWN & HOLD	4

If main gear has failed to lock down

5 YAW AIRPLANE WITH THE RUDDER ABRUPTLY FROM SIDE TO SIDE		5
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If nose gear has failed to lock down

6 Speed	REDUCE TO LOWEST SAFE	6
7 Power	LOWEST FOR SAFE OPERATION	7

If nose gear still failed to lock down

8 Gear circuit breaker	IN	8
9 Gear Selector	UP	9
10 Gear Selector	DOWN	10

If main or nose gear still does not check down

advise tower for "low passing and visual gear check"

11 Visual gear check positive	NORMAL LANDING	11
12 Visual gear check negative	PREPARE GEAR UP LDG (AFM)	12

Prefer concrete runway when ever possible

GEAR UNSAFE INDICATION IN FLIGHT

1 Emergency gear lever	CHECK, UP	1
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If GEAR UNSAFE INDICATION persists

2 Speed	BELOW 129 KIAS	2
3 Gear Selector	DOWN	3
4 Speed	BELOW 109 KIAS	4
5 Gear Selector	UP	5

ALTERNATOR FAILURE

NO ALTERNATOR OUTPUT

- | | | |
|-------------------------------------|-----------------|----------|
| 1 Alternator switch | CHECK ON | 1 |
| 2 Alternator circuit breaker | CHECK IN | 2 |

When checked and still not output

- | | | |
|-------------------------------|-------------------------------|----------|
| 3 Alternator switch | OFF | 3 |
| 4 Electrical consumers | OFF AS PRACTICABLE | 4 |
| 5 Alternator switch | ON (after > 10 sec) | 5 |

If still no output

- | | | |
|-------------------------------|---------------------------|----------|
| 6 Electrical consumers | OFF AS PRACTICABLE | 6 |
|-------------------------------|---------------------------|----------|

Land on the nearest airport as practicable

RADIO FAILURE

- | | | |
|-------------------------------|----------------|----------|
| 1 Radio | ON | 1 |
| 2 Volume | TEST | 2 |
| 3 Frequency | CHECKED | 3 |
| 4 Headset / Mike Plugs | CHECKED | 4 |

If no radio contact

- | | | |
|----------------------|----------------------------|----------|
| 5 Transponder | 7600 (if necessary) | 5 |
| 6 Procedure | ACCORDING AIP | 6 |