

Seneca III



PIPER PA34-220T

WEIGHTS:

250597

Maximum take-off weight (MTOW)	1999 kg	(= 4407 lbs)
Empty weight (according to weight record)	1480 kg	(= 3255 lbs)
Max. useful load	519 kg	(= 1152 lbs)
Payload of fuel filled up ACFT (PIC + PAX + baggage)	169 kg	(= 384 lbs)
incl. max. baggage compartment load (forward / aft)	45 kg / 45 kg	(= 100 lbs / 100 lbs)

QUANTITIES:

250597

Fuel AVGAS 100 LL (blue) or 100 / 130 (green)	485 l	(= 128 US gal)
useable fuel quantity	466 l	(= 123 US gal)
Engine oil per engine	7,6 l	(= 8 quart)

ENGINES:

250597

Type, number of cylinders	air cooled Boxer, 6	([L]TSIO 360 - KB)
Piston displacement	5916 cm ³	(= 360 cu.in.)
Take-off power (5 min. limit)	220 PS / 2800 RPM	(= 162 kW)
Maximum continuous power	200 PS / 2600 RPM	(= 147 kW)

ELECTRICAL SYSTEM:

250597

Alternators	14 V / 65 A
Maximum continuous power	14 V / 30 A
Battery	12 V / 35 Ah

LOAD FACTOR:

250597

Max. load factor .. + 3,8 g / no inverted maneuvers approved

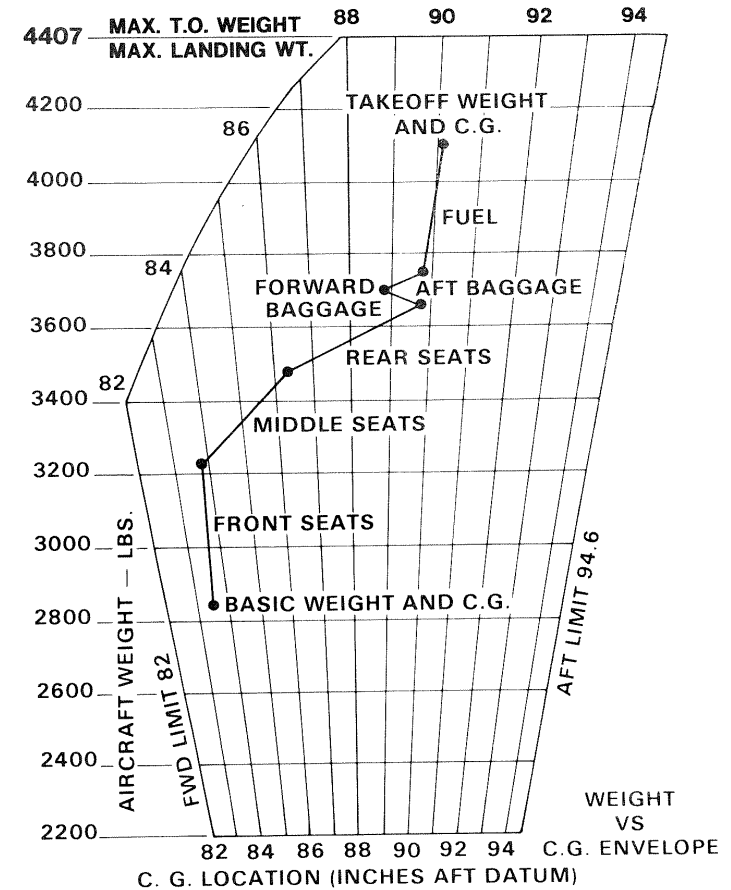
AIRSPEEDS FOR SAFE OPERATIONS:

250597

Never exceed speed	V _{ne} ... 205 KIAS	(= Red Line)	
Max. structural cruise speed (turbulent air) ..	V _{no} ... 166 KIAS		
Max. landing gear extended speed	V _{le} ... 130 KIAS		
Max. landing gear extending speed	V _{lo2} .. 130 KIAS		
Max. landing gear retracting speed	V _{lo1} .. 108 KIAS		
Max. flaps extended speed (40° / 25° / 10°) ..	V _{fe} .115 / 122 / 140 KIAS		
Manoeuvring speed	- 4407 lbs V _a 135 KIAS		
	- 3205 lbs V _a ... 114 KIAS		
Best rate of climb - twin engine	V _y 92 KIAS	(= Blue Line)	
	- single engine	V _{yse} 92 KIAS	(= Blue Line)
Best angle of climb	- twin engine V _x 76 KIAS		
	- single engine	V _{xse} 78 KIAS	
Intentional one engine inoperative speed	V _{sse} 85 KIAS		
Air minimum control speed	V _{mca se} ... 66 KIAS	(= Red Line)	
Stall speed	- clean configuration, MTOW V _{s1} 67 KIAS		
	- landing config., flaps 40° V _{s0} 62 KIAS		
Lift off speed	V _{lo} 85 KIAS		
Rotation speed	V _r 79 KIAS		
Max. demonstrated cross wind component	17 kts		

PIPER AIRCRAFT CORPORATION
PA-34-220T, SENECA III

SECTION 6
WEIGHT AND BALANCE



Moment change due to retracting Landing Gear = -32 in. -lbs.

SAMPLE PROBLEM

Figure 6-17

ISSUED: FEBRUARY 20, 1981
REVISED: OCTOBER 16, 1989

REPORT: VB-1150
6-17

PREFLIGHT INSPECTION:

250597

The entire check has to be executed for initial acceptance by a crew, or after irregularities on ground or during previous flight.

Approaching the aircraft:

- 1 ... Tow Bar, Chocks, Tie Down **REMOVED & STOWED** 1
- 2 ... General Cond. (Damage, Ice & Antennas) **CHECKED** 2
- 3 ... Windshield & Windows **CHECKED CLEAN** 3

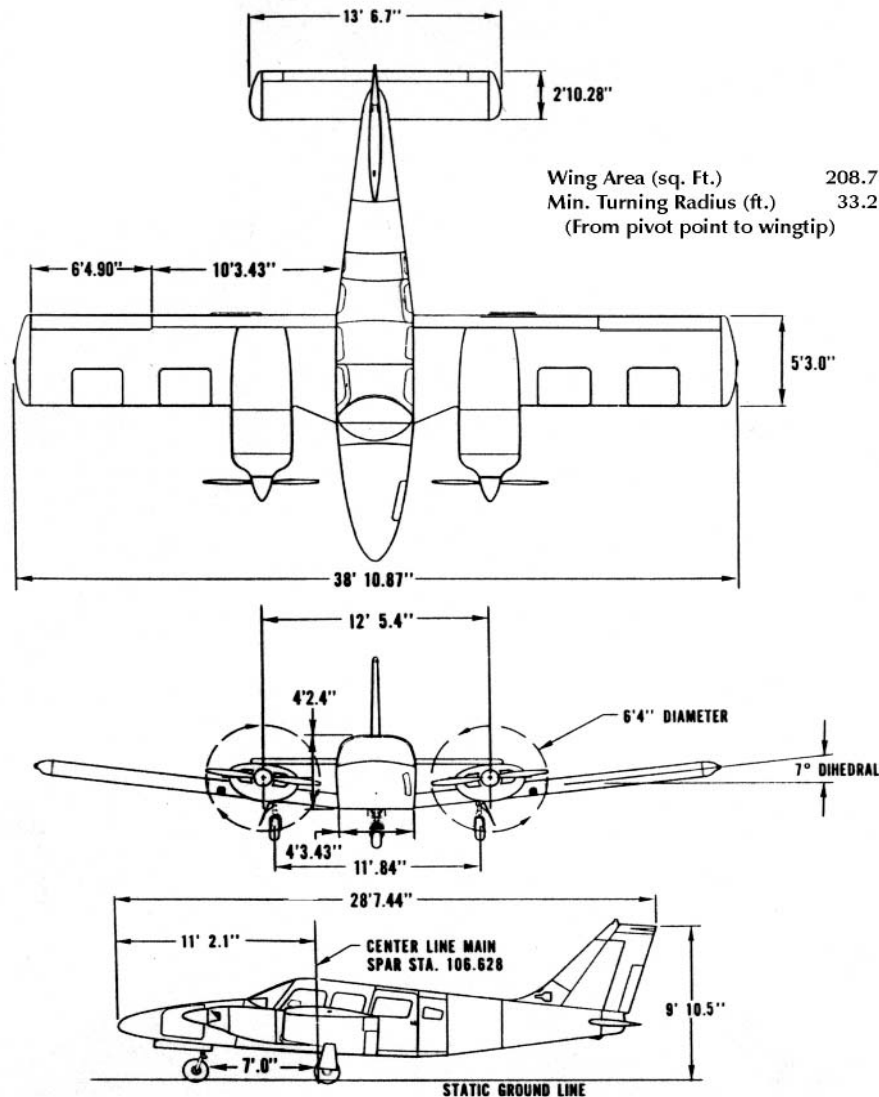
Cockpit:

- 1 ... Parking Brake **SET** 1
- 2 ... Control Lock **REMOVED** 2
- 3 ... Avionics **ALL OFF** 3
- 4 ... All Switches & Magnetos **OFF** 4
- 5 ... Gear **DOWN** 5
- 6 ... Mixtures **IDLE CUT-OFF** 6
- 7 ... Cowl Flaps **OPEN** 7
- 8 ... Circuit Brakers **ALL IN** 8
- 9 ... Battery Switch **ON** 9
- 10 ... Annunciator Panel Lights **CHECKED** 10
- 11 ... Fuel Quantity Gauges **CHECKED** 11
- 12 ... NAV-, Anti-Coll.- & Landing Lights ... **CHECKED** 12
- 13 ... Pitot Heat **CHECKED** 13
- 14 ... Stall Warnings **CHECKED** 14
- 15 ... 3 Greens **CHECKED** 15
- 16 ... Battery Switch **OFF** 16
- 17 ... Alternate Static Air **CHECKED** 17
- 18 ... Pitot & Static System **DRAINED** 18
- 19 ... Crossfeed Drains **DRAINED** 19

Outside:

- 1 ... Crossfeed Drains **CLOSED** 1
- 2 ... Right Wing Top Surface, Flap & Aileron **CHECKED** 2
- 3 ... Right Wing Tip **CHECKED** 3
- 4 ... Right Main Gear Strut **PROPER INFLATION** 4
- 5 ... Right Wing Leading Edge & Lower Surface **CHECKED** 5
- 6 ... Right Tank Fuel Quantity & Filler Cap **CHECKED** 6
- 7 ... Right Tank Sump & Fuel Vent **DRAINED & CHECKED** 7
- 8 ... Right Main Wheel Assembly & Brakes **CHECKED** 8

Continue next page



9 ... Right Cowl Flap	OPEN & SECURE	9
10 ... Right Engine Cowling	CHECK for security	10
11 ... Right Engine Oil Level & Dipstick	CHECKED (max. 8 Quart)	11
12 ... Right Prop & Spinner	CHECKED	12
13 ... All Right Air Inlets	CHECKED	13
14 ... Nose Section	CHECKED	14
15 ... Nose Gear Strut	PROPER INFLATION	15
16 ... Nose Wheel Assembly	CHECKED	16
17 ... Forward Baggage Door	SECURED & LOCKED	17
18 ... Left Engine Cowling	CHECK for security	18
19 ... Left Prop & Spinner	CHECKED	19
20 ... All Left Air Inlets	CHECKED	20
21 ... Left Engine Oil Level & Dipstick	CHECKED (max. 8 Quart)	21
22 ... Dorsal Fin Air Scoop	CLEAR	22
23 ... Left Cowl Flap	OPEN & SECURE	23
24 ... Left Main Wheel Assembly & Brakes ...	CHECKED	24
25 ... Left Tank Sump & Fuel Vent	DRAINED & CHECKED	25
26 ... Pitot Head	CHECKED	26
27 ... Left Tank Fuel Quantity & Filler Cap ...	CHECKED	27
28 ... Left Wing Leading Edge & Lower Surface	CHECKED	28
29 ... Left Main Gear Strut	PROPER INFLATION	29
30 ... Left Wing Tip	CHECKED	30
31 ... Left Aileron, Flap & Wing Top Surface	CHECKED	31
32 ... Fuselage, Rear Door & Left Static Source	CHECKED	32
33 ... Stabilizer Leading Edges & Left Elevator	CHECKED	33
34 ... Elevator Trim	CHECKED	34
35 ... Elevator & Rudder (Movement & Security)	CHECKED	35
36 ... Empennage Trailing Edges	CHECKED	36
37 ... Right Elevator & Right Static Source ...	CHECKED	37

PREFLIGHT INSPECTION COMPLETED — CREW AT STATIONS NEXT

CREW AT STATIONS:

250597

1 ... Preflight Inspection	COMPLETED	1
2 ... Equipment Check	COMPLETED	2
3 ... Manual, Aircraft & Crew Documents ..	CHECKED / ON BOARD	3
4 ... Seats	ADJUSTED & SECURED	4
5 ... Seat Belts & Shoulder Harness	FASTENED	5
6 ... Doors	CLOSED & LATCHED	6

CREW AT STATIONS COMPLETED — BEFORE STARTING ENGINES NEXT

BEFORE STARTING ENGINES:

250597

1 ... Parking Brake	SET	1
2 ... Alternate Air	CLOSED	2
3 ... Fuel Selectors	ON	3
4 ... Battery Switch	ON	4
5 ... Avionics	ON	5
6 ... ATIS / Startup Clearance	RECEIVED	6
7 ... Avionics	ALL OFF	7

READY TO START ENGINES

STARTING ENGINES WHEN COLD:

250597

1 ... Anti-Collision Light	ON	1
2 ... Mixtures	FULL RICH	2
3 ... Props	HIGH RPM	3
4 ... Throttles	HALF TRAVEL	4

Perform items 5-10 separately for each engine

5 ... Magnetos	ON	5
6 ... Primer	AS REQUIRED	6
7 ... Prop Area	CLEAR	7
8 ... Starter	ENGAGE	8
9 ... Throttle	ADJUST when engine fires	9
10 ... Oil Pressure	CHECKED	10

ENGINE START COMPLETED — AFTER ENGINE START NEXT

AFTER ENGINE START:

250597

1 ... Warm Up	1000 - 1200 RPM	1
2 ... Alternators	ON / CHARGING / Light OFF 2	
3 ... Suction	CHECKED	3
4 ... Lights	AS REQUIRED	4
5 ... Avionics & GPS / Transponder	ON & SET / STBY	5
6 ... Autopilot	CHECKED / OFF	6
7 ... Flight Instruments	SET & CHECKED	7
8 ... Engine Instruments	CHECKED	8

AFTER ENGINE START COMPLETED — TAXI CHECK NEXT

TAXI CHECK:

250597

1	... Taxi Clearance	RECEIVED	1
2	... Taxi Lights	ON	2
3	... Taxi Area	LEFT / RIGHT / FRONT CLEAR	
4	... Parking Brake	RELEASE	4
5	... Brakes	CHECKED	5
6	... Nosewheel Steering	CHECKED	6
7	... Flight Instruments / Gyros	CHECKED	7
8	... Flaps	CHECKED & SET for T/O	8
9	... Fuel Selectors	X-FEED CHECK (1 min)/ON	9
10	... Take-Off Speeds / Take-Off Briefing	COMPLETED	10
11	... ATC-Clearance / Departure Briefing	RECEIVED / COMPLETED	11
12	... NAV Instruments	SET for departure	12

TAXI CHECK COMPLETED — BEFORE DEPARTURE CHECK NEXT

BEFORE DEPARTURE CHECK:

030797

1	... Parking Brake	SET	1
2	... Prop Synchronizer / Synchrophaser	OFF	2
3	... Engine Run Up	COMPLETED	3
4	... Flight Controls	CORRECT & FREE	4
5	... Trim Tabs (Elevator & Rudder)	SET for T/O	5
6	... Seatbacks	UPRIGHT	6
7	... Doors & Windows	CLOSED & LATCHED	7

READY FOR DEPARTURE

When cleared for take-off:

7	... Parking Brake	RELEASE	7
8	... Strobe Lights	ON	8
9	... Pitot Heat	AS REQUIRED	9
10	... Ice Protection	AS REQUIRED	10
11	... Transponder	ALT	11
12	... Radio Altimeter	ON / 0 ft SET	12
13	... Approach Sector	CLEAR	13
14	... Runway / RWY-Heading	IDENTIFIED / CHECKED	14
15	... Timer	START	15
16	... T/O Power (max. 40" / 2800)	SET & CHECKED	16

CHECK COMPLETED — AFTER TAKE-OFF CHECK NEXT

AFTER TAKE-OFF CHECK:

250597

1	... Speed	92 KIAS - Blue Line	1
2	... Positive ROC / No chance to re-land	APPLY BRAKES	2
3	... Gear	UP	3
4	... Flaps	UP	4

When reaching safe altitude:

5	... Climb Power (33" / 2600 / FULL RICH)	SET	5
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AFTER TAKE-OFF CHECK COMPLETED — CLIMB CHECK NEXT

CLIMB CHECK:

250597

2500 ft AGL or passing transition altitude:

1	... Climb Power (33" / 2600 / FULL RICH)	RECHECKED	1
2	... Cowl Flaps	OPEN	2
3	... Altimeters	SET & COMPARED	3
4	... Radio Altimeter	2500 ft SET	4
5	... Taxi / Landing Lights	OFF	5
6	... Speed (En Route)	105 KIAS	6

CLIMB CHECK COMPLETED — CRUISE CHECK NEXT

CRUISE CHECK:

250597

1	... Cruise Power	SET according to power table	1
2	... Mixtures	LEANED	2
3	... Cowl Flaps	AS REQUIRED	3
4	... Instruments	CHECKED	4

CRUISE CHECK COMPLETED — DESCEND CHECK NEXT

DESCEND CHECK:

250597

1	... Power	AS REQUIRED	1
2	... Mixtures	ADJUSTED	2
3	... Cowl Flaps	CLOSED / AS REQUIRED	3
4	... Instruments	CHECKED	4
5	... Approach Briefing / Radios & NAV Instr.	COMPLETED / SET	5
6	... Seat Belts & Shoulder Harness	FASTENED	6

DESCEND CHECK COMPLETED — APPROACH CHECK NEXT

APPROACH CHECK: 250597

When established on the localizer:

1 ... Speed	below 140 KIAS	1
2 ... Flaps	10 °	2
3 ... Speed	below 130 KIAS	3
4 ... Gear	DOWN	4
5 ... By Heart Items	PERFORM	5
6 ... Speed	100 KIAS	6

APPROACH CHECK COMPLETED — FINAL CHECK NEXT

FINAL CHECK: 250597

½ dot below the glidepath:

1 ... Flaps	25 ° / AS REQUIRED	1
2 ... 3 Greens	CHECKED	2
3 ... Mixtures	FULL RICH	3
4 ... Props	HIGH RPM / AS REQUIRED	4
5 ... Final Approach Speed	92 KIAS - <i>Blue Line</i>	5

FINAL CHECK COMPLETED — AFTER LANDING CHECK NEXT

GO AROUND: 250597

1 ... Mixtures	FULL RICH	1
2 ... Props	HIGH RPM	2
3 ... T/O Power (<i>max. 40" / 2800</i>)	SET	3
4 ... Flaps	10 °	4
5 ... Positive ROC	APPLY BRAKES	5
6 ... Gear	UP	6
7 ... Speed	acc. to 92 KIAS - <i>Blue Line</i>	7
8 ... Flaps	UP	8
9 ... Cowl Flaps	OPEN	9

When reaching safe altitude:

10 ... Climb Power (<i>33" / 2600 / FULL RICH</i>)	SET	10
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GO AROUND COMPLETED — CLIMB CHECK NEXT

AFTER LANDING CHECK: 250597

At taxi speed when leaving the runway:

1 ... Transponder / WX-Radar	STBY / OFF	1
2 ... Pitot Heat / Deicing Equipment	OFF	2
3 ... Strobe Lights	OFF	3
4 ... Flaps	UP	4
5 ... Cowl Flaps	OPEN	5
6 ... Cabin Heater	FAN	6

AFTER LANDING CHECK COMPLETED — PARKING CHECK NEXT

PARKING CHECK: 250597

1 ... Parking Brake	SET	1
2 ... Throttles	1000 RPM SET (approx. 3 min)	2
3 ... Check Radio on 121.500	NO SIGNAL	3
4 ... Avionics, GPS & Radar Altimeter	ALL OFF	4
5 ... Alternators	CHECKED	5
6 ... All Lights except ACL	OFF	6
7 ... Cabin Heater / Fan	OFF	7
8 ... Mixtures	IDLE CUT-OFF	8
9 ... Throttles	CLOSED	9
10 ... Magnetos / Alternators	ALL OFF	10
11 ... Anti-Collision Light	OFF	11
12 ... Battery Switch	OFF	12
13 ... Control Lock	INSTALLED	13
14 ... Aircraft	SECURED	14
15 ... Parking Brake	AS REQUIRED	15

PARKING CHECK COMPLETED

REMARK:

↔ ↔ ↔The pilots must be able to perform all items, marked in this way, ↔
↔ ↔
without using the checklist.

TRANSIT PREFLIGHT INSPECTION:

250597

Performed only on normal transit stops, or when taking over the aircraft from previous crew (Crew change with contact at the aircraft).

Cockpit:

1 ... Parking Brake	SET	1
2 ... Control Lock	REMOVED	2
3 ... Avionics	ALL OFF	3
4 ... All Switches & Magnetos	OFF	4
5 ... Gear	DOWN	5
6 ... Mixtures	IDLE CUT-OFF	6
7 ... Cowl Flaps	OPEN	7
8 ... Circuit Brakers	ALL IN	8
9 ... Battery Switch	ON	9
10 ... Annunciator Panel Lights	CHECKED	10
11 ... Fuel Quantity Gauges	CHECKED	11
12 ... 3 Greens	CHECKED	12
13 ... Battery Switch	OFF	13

Outside:

1 ... Tow Bar, Chocks, Tie Down	REMOVED & STOWED	1
2 ... General Cond. (Damage, Ice & Antennas)	CHECKED	2
3 ... Windshield & Windows	CHECKED CLEAN	3
4 ... Engine Oil Levels & Dipsticks	CHECKED (max. 8 Quart)	4
5 ... Props & Spinners	CHECKED	5
6 ... Fuel Quantities & Filler Caps	CHECKED	6
7 ... Baggage Compartments	CHECK for security	7

TRANSIT PREFLIGHT INSPECTION COMPLETED — CREW AT STATIONS NEXT

STARTING ENGINES WHEN FLOODED:

250597

1 ... Anti-Collision Light	ON	1
2 ... Throttles	FULL FORWARD	2
3 ... Props	HIGH RPM	3
4 ... Mixtures	IDLE CUT-OFF	4

Continue next page

Perform items 5-11 separately for each engine

5 ... Magnetos	ON	5
6 ... Auxiliary Fuel Pump	OFF	6
7 ... Prop Area	CLEAR	7
8 ... Starter	ENGAGE	8
9 ... Throttle	RETARD when engine fires	9
10 ... Mixture	ADVANCE SLOWLY	10
11 ... Oil Pressure	CHECKED	11

ENGINE START COMPLETED — AFTER ENGINE START NEXT

STARTING ENGINES WITH EXTERNAL POWER SOURCE:

250597

1 ... Battery Switch	OFF	1
2 ... Anti-Collision Light	ON	2
3 ... All Electrical Equipment	OFF	3
4 ... Terminals	CONNECT	4
5 ... External Power Plug	INSERT in fuselage	5
6 ... Throttles	HALF TRAVEL	6
7 ... Props	HIGH RPM	7
8 ... Mixtures	FULL RICH	8

Perform items 9-14 separately for each engine

9 ... Magnetos	ON	9
10 ... Primer	AS REQUIRED	10
11 ... Prop Area	CLEAR	11
12 ... Starter	ENGAGE	12
13 ... Throttle	ADJUST when engine fires	13
14 ... Oil Pressure	CHECKED	14
15 ... Throttle	LOWEST POSSIBLE RPM	15
16 ... External Power Plug	DISCONNECT from fuselage	16
17 ... Battery Switch	ON	17
18 ... Ammeter	CHECKED	18

ENGINE START COMPLETED — AFTER ENGINE START NEXT

ENGINE RUN UP:

250597

1 ... Mixtures	FULL RICH CHECKED	1
2 ... Propellers	HIGH RPM CHECKED	2
3 ... Throttles	1000 RPM SET	3
4 ... Manifold Pressure Lines	DRAINED	4
5 ... Propellers	FEATHER (300 RPM max. drop)	5
6 ... Throttles	1500 RPM SET	6

Perform items 7-11 separately for each engine

7 ... Throttle	2300 RPM SET	7
8 ... Propeller	RETARD until RPM start dropping	8
9 ... Power / RPM	INCREASE to 35" / CHECKED	9
10 ... Throttle	RETARD to 1500 RPM	10
11 ... Propeller	HIGH RPM	11
12 ... Alternate Air	CHECKED & OFF	12
13 ... Throttles	2000 RPM SET	13
14 ... Magnetos	CHECKED (150 / 50 RPM)	14
15 ... Annunciator Panel Lights	CHECKED & CLEAR	15
16 ... Alternator Outputs	CHECKED	16
17 ... Suction	CHECKED (4,8 - 5,1" Hg)	17
18 ... Engine Instruments	CHECKED - <i>Green Arc</i>	18
19 ... Throttle	IDLE / 1000 RPM SET	19
20 ... Cowl Flaps	OPEN / AS REQUIRED	20
21 ... Fuel Selectors	ON	21

ENGINE RUN UP COMPLETED**BY HEART ITEMS:**

250597

1 ... Mixtures	FULL RICH	1
2 ... Propellers	2600 RPM	2
3 ... Prop Synchronizer / Synchrophaser ...	OFF	3
4 ... Altimeters	QNH CHECKED & COMPARED	4
5 ... Radio Altimeter	SET	5
6 ... Cabin	CHECKED	6
7 ... Taxi / Landing Light	ON	7

BY HEART ITEMS COMPLETED**TAKE-OFF SPEEDS:**

250597

- o **Normal speeds:** ROTATE AT 79 KIAS
LIFT OFF AT 85 KIAS
BEST RATE OF CLIMB *Blue Line* 92 KIAS
CRUISE CLIMB 105 KIAS
- o **Short / Soft field:** FLAPS 25 °
ROTATE AT *Red Line* 66 KIAS
ACCELERATE TO 76 KIAS
GEAR UP & IND.
ACC. TO (RETRACTING FLAPS) *Blue Line* 92 KIAS
CRUISE CLIMB 105 KIAS

TAKE-OFF BRIEFING:

250597

In case of engine failure or serious malfunction

- o **on ground:** CALL OUT „STOP“
THROTTLES CLOSE
APPLY BRAKES
FLAPS UP
- o **after T/O if relanding possible & gear still down:**
THROTTLES RETARD
LOWER THE NOSE
SPEED CHECKED (66 KIAS - *Red Line* - or above)
3 GREENS CHECKED
FLAPS AS REQUIRED
LAND ON REMAINING RUNWAY
- o **after T/O if relanding not possible, gear in transition or up:**
 - in VMC:** FOLLOW SINGLE ENGINE CLIMB OUT PROFILE (92 KIAS - *Blue Line*) FOR VISUAL CIRCUIT RWY
 - in IMC:** FOLLOW SINGLE ENGINE CLIMB OUT PROFILE (92 KIAS - *Blue Line*) AND PROCEED TO T/O ALTERNATE OR RELAND

TAKE-OFF BRIEFING COMPLETED

AIRSPEEDS FOR SAFE OPERATIONS:

250597

- One engine inoperative air minimum control **66 KIAS** *Red Line*
- One engine inoperative best rate of climb **92 KIAS** *Blue Line*
- One engine inoperative best angle of climb **78 KIAS**
- Maneuvering **136 KIAS**
- Never exceed **205 KIAS** *Red Line*

ENGINE INOPERATIVE PROCEDURES:

NOTE

The power on the operating engine should be reduced when safe to do so.

DETECTING DEAD ENGINE:

250597

Loss of thrust, nose of aircraft will yaw in direction of dead engine (with coordinated controls). **DEAD FOOT - DEAD ENGINE**

PROCEDURE COMPLETED

ENGINE SECURING PROCEDURE (FEATHERING PROCEDURE):

250597

Air minimum control speed $V_{mca se}$ **66 KIAS** *Red Line*

One engine inoperative best rate of climb V_{yse} **92 KIAS** *Blue Line*

Maintain heading and airspeed above 85 KIAS

- | | | | |
|---|------------|---------------------------|---|
| 1 | Mixture | FULL RICH | 1 |
| 2 | Propellers | HIGH RPM | 2 |
| 3 | Throttles | OPEN (max. 40" Hg) | 3 |
| 4 | Gear | UP | 4 |
| 5 | Flaps | UP | 5 |

Identify inoperative engine.

- 6 ... Throttle of Inoperative Engine **IDENTIFIED & RETARD** to verify .

To attempt restoring power prior to feathering:

- 7 Fuel Selectors **ON**7

Continue next page

- 8 ... Fuel Quantity Gauges **CHECKED** 8
- 9 ... Fuel Flow Gauges **CHECKED** 9
- 10 ... Auxiliary Fuel Pump of Inoperative Engine **IDENTIFIED & HI boost**

If power is not immediately restored:

- 11 ... Auxiliary Fuel Pump of Inoperative Engine **OFF** 11
- 12 ... Oil Pressures **CHECKED** 12
- 13 ... Alternate Air Inoperative Engine **ON** 13
- 14 ... Magnetos **CHECKED ON** 14

If power cannot be restored continue with feathering procedure:

- | | | | |
|----|-------------------------------------|--|----|
| 15 | Throttle of Inoperative Engine | IDENTIFIED & CLOSED | 15 |
| 16 | Propeller of Inoperative Engine | IDENTIFIED & FEATHERED | 16 |
| 17 | Mixture of Inoperative Engine | IDENTIFIED & IDLE CUT-OFF | 17 |
| 18 | Auxiliary Fuel Pumps | CHECKED OFF | 18 |
| 19 | Magnetos of Inoperative Engine | IDENTIFIED & OFF | 19 |
| 20 | Alternator of Inoperative Engine | IDENTIFIED & OFF | 20 |
| 21 | Cowl Flaps | AS REQUIRED | 21 |
| 22 | Fuel Selector of Inoperative Engine | IDENTIFIED & OFF (X-FEED) | 22 |
| 23 | Power of Operating Engine | AS REQUIRED | 23 |
| 24 | Trim | 5° BANK toward operative engine | 24 |
| 25 | Electrical Load | REDUCE | 25 |

PROCEDURE COMPLETED

AIR START (UNFEATHERING PROCEDURE):

250597

- 1 ... Fuel Selector of Inoperative Engine **ON** 1
- 2 ... Auxiliary Fuel Pump of Inoperative Engine **LO boost** 2
- 3 ... Throttle **¼" OPEN** 3
- 4 ... Mixture **FULL RICH** 4
- 5 ... Magnetos **ON** 5
- 6 ... Propeller **HIGH RPM** 6
- 7 ... Starter **ENGAGE** until propeller windmills . 7

If engine does not start, prime as required.

- 8 ... Power **REDUCE** until engine is warm .. 8
- 9 ... Auxiliary Fuel Pump **OFF** 9
- 10 ... Alternator **ON** 10

PROCEDURE COMPLETED

ENGINE FAILURE DURING TAKE-OFF (below 85 KIAS): 250597

- | | | |
|-----------------------|--------------------------------|--------|
| 1 ... Throttles | BOTH CLOSED immediately | 1 |
|-----------------------|--------------------------------|--------|
- Stop straight ahead. If inadequate runway remains to stop:
- | | | |
|----------------------------|-------------------------------|---------|
| 2 ... Brakes | MAXIMUM BRAKING ACTION | ... |
| 3 ... Battery Switch | OFF | 3 |
| 4 ... Fuel Selectors | OFF | 4 |

Continue straight ahead, turning to avoid obstacles.

PROCEDURE COMPLETED

ENGINE FAILURE DURING TAKE-OFF (85 KIAS or above): 250597

If engine failure occurs during take-off ground roll or after lift off with gear still down:

™ ADEQUATE RUNWAY REMAINING:

- | | | |
|-----------------------|--------------------------------|--------|
| 1 ... Throttles | BOTH CLOSED immediately | 1 |
|-----------------------|--------------------------------|--------|
- Land if airborne and stop straight ahead.

™ INADEQUATE RUNWAY REMAINING FOR STOPPING:

Decide whether to abort or continue. If decision is made to continue:

- | | | |
|--------------------------|------------------------------------|---------|
| 1 ... Mixtures | FULL RICH | 1 |
| 2 ... Propellers | HIGH RPM | 2 |
| 3 ... Throttles | OPEN (max. 40" Hg) | 3 |
| 4 ... Positive ROC | APPLY BRAKES | 4 |
| 5 ... Gear | UP | 5 |
| 6 .. Flaps | UP | 6 |
| 7 ... Heading | MAINTAIN | 7 |
| 8 ... Speed | acc. to 92 KIAS - Blue Line | 8 |

WARNING

In certain combinations of aircraft weight, configurations, ambient conditions and speeds, negative climb performance may result.

PROCEDURE COMPLETED — ENGINE SECURING PROCEDURE NEXT

ENGINE FAILURE DURING FLIGHT (below 66 KIAS): 250597

- | | | |
|------------------------------|--------------------------------------|---------|
| 1 ... Rudder | APPLY toward operative engine | 1 |
| 2 ... Throttles | RETARD BOTH to stop turn | 2 |
| 3 ... Pitch Attitude | LOWER NOSE | 3 |
| 4 ... Operative Engine | INCREASE POWER above 66 KIAS | |

If altitude permits, a restart may be attempted. If restart fails or if altitude does not permit a restart, proceed with ENGINE SECURING PROCEDURE.

PROCEDURE COMPLETED

ONE ENGINE INOPERATIVE LANDING: 250597

- | | | |
|---|-----------------------------------|--------|
| 1 ... Propeller of Inoperative Engine | IDENTIFIED & FEATHERED | 1 |
|---|-----------------------------------|--------|
- When certain of making field:*
- | | | |
|-------------------|------------------------------|---------|
| 2 ... Gear | DOWN (below 130 KIAS) | 2 |
| 3 ... Flaps | AS REQUIRED | 3 |

Maintain additional altitude and speed during approach.

- | | | |
|----------------------------------|----------------------------|---------|
| 4 ... Final Approach Speed | 92 KIAS - Blue Line | 4 |
|----------------------------------|----------------------------|---------|

PROCEDURE COMPLETED — AFTER LANDING CHECK NEXT

ONE ENGINE INOPERATIVE GO AROUND: 250597

(SHOULD BE AVOIDED IF AT ALL POSSIBLE)

- | | | |
|------------------------|-----------------------------------|---------|
| 1 ... Mixture | FULL RICH | 1 |
| 2 ... Propeller | HIGH RPM | 2 |
| 3 ... Throttle | OPEN SLOWLY to 40" Hg max. | 3 |
| 4 ... Flaps | UP | 4 |
| 5 ... Gear | UP | 5 |
| 6 ... Speed | 92 KIAS - Blue Line | 6 |
| 7 ... Cowl Flaps | AS REQUIRED | 7 |

PROCEDURE COMPLETED — CLIMB CHECK NEXT

FUEL MANAGEMENT DURING ONE ENGINE INOP. OPERATION:

CRUISING: 250597

When using fuel from the tank on the same side as the operating engine:

- 1 ... Fuel Selector Operating Engine **ON** 1
- 2 ... Fuel Selector Inoperative Engine **OFF** 2
- 3 ... Auxiliary Fuel Pumps **OFF** 3

When using fuel from the tank on the side opposite the operating engine:

- 4 ... Fuel Selector Operating Engine **X-FEED** 4
- 5 ... Fuel Selector Inoperative Engine **OFF** 5
- 6 ... Auxiliary Fuel Pumps **OFF** 6

Use crossfeed in level cruise flight only.

NOTE

Do not crossfeed with full fuel on same side as operating engine since vapor return fuel flow will be lost through vent system.

PROCEDURE COMPLETED

LANDING: 250597

- 1 ... Fuel Selector Operating Engine **ON** 1
- 2 ... Fuel Selector Inoperative Engine **OFF** 2

PROCEDURE COMPLETED

FIRE:

ENGINE FIRE ON GROUND: 250597

If engine has not started:

- 1 ... Mixture **IDLE CUT-OFF** 1
- 2 ... Throttle **FULL OPEN** 2
- 3 ... Starter **CRANK ENGINE** 3

If engine has already started and is running, continue operating to try pulling the fire into the engine.

If fire continues, extinguish with best available means.

If external fire extinguishing is to be applied:

- 4 ... Fuel Selectors **OFF** 4
- 5 ... Mixtures **IDLE CUT-OFF** 5

[Continue next page](#)

PROCEDURE COMPLETED

ENGINE FIRE IN FLIGHT: 250597

Affected engine:

- 1 ... Fuel Selector **IDENTIFIED & OFF** 1
- 2 ... Throttle **IDENTIFIED & CLOSED** 2
- 3 ... Propeller **IDENTIFIED & FEATHERED** 3
- 4 ... Mixture **IDENTIFIED & IDLE CUT-OFF** 4
- 5 ... Heater **OFF** 5
- 6 ... Defroster **OFF** 6

If terrain permits land immediately.

PROCEDURE COMPLETED

ENGINE DRIVEN FUEL PUMP FAILURE: 250597

- 1 ... Throttle **RETARD** 1
- 2 ... Auxiliary Fuel Pump **UNLATCH & HI boost** 2
- 3 ... Throttle **RESET** (75 % power or below) . 3

CAUTION

If normal engine operation and fuel flow is not immediately reestablished, the auxiliary fuel pump should be turned off.
The lack of a fuel flow indication while on the HI auxiliary fuel pump position could indicate a leak in the fuel system or fuel exhaustion.

CAUTION

Actuate the auxiliary fuel pumps if vapor suppression is required (LO position) or the engine driven fuel pump fails (HI position).
The auxiliary fuel pumps have no standby function. Actuation of the HI switch position when the engine fuel injection system is functioning normally may cause engine roughness due to excessively rich fuel air mixture.

PROCEDURE COMPLETED

LANDING GEAR UNSAFE WARNINGS: 250597

Red light indicates gear in transit.
Recycle gear if indication continues.

Light will illuminate when gear warning horn sounds at low throttle settings.

PROCEDURE COMPLETED

MANUAL EXTENSION OF LANDING GEAR: 250597

Check following before extending gear manually:

- 1 ... Circuit Brakers **CHECKED IN** 1
- 2 ... Battery Switch **CHECKED ON** 2
- 3 ... Alternators **CHECKED** 3
- 4 ... Nav Lights **OFF** at daytime 4

To extend, reposition clip downward clear of knob and proceed as follows:

- 5 ... Speed **REDUCE** (85 KIAS max.) 5
- 6 ... Landing Gear Switch **DOWN** 6
- 7 ... Emergency Gear Extend Knob **PULL** 7
- 8 ... 3 Greens **CHECKED** 8

Leave emergency gear extension knob out.

PROCEDURE COMPLETED

GEAR UP LANDING: 250597

- 1 ... Approach **NORMAL** 1
- 2 ... Flaps **AS REQUIRED** 2
- 3 ... Throttles **CLOSED** prior to touchdown 3
- 4 ... Battery Switch **OFF** 4
- 5 ... Fuel Selectors **OFF** 5

Contact ground at minimum possible airspeed.

PROCEDURE COMPLETED

ELECTRICAL FAILURES: 250597

ALTERNATOR WARNING LIGHT ILLUMINATED:

- 1 ... Ammeters **CHECKED** 1
- 2 ... Electrical Load **REDUCE** to minimum 2
- 3 ... Alternators **OFF**, then **ON** one at a time 3

If alternator outputs are not restored:

- 4 ... Alternators **OFF** 4
- 5 ... Battery Switch **AS REQUIRED** 5

If alternator output cannot be restored, reduce electrical load and land as soon as practical.

The battery is the only remaining source of electrical power.

WARNING

Compass error may exceed 10° with both alternators inoperative.

NOTE

If battery is depleted, the landing gear must be lowered using the emergency gear extension procedure. Gear indication lights will be inoperative.

PROCEDURE COMPLETED

ELECTRICAL OVERLOAD (alternators over 30 amps above known electrical load):

- 1 ... Electrical Load **REDUCE** 1
- If alternator loads cannot be reduced:
- 2 ... Battery Switch **OFF** 2

If alternator loads are not reduced, land as soon as possible. Anticipate complete electrical power failure.

PROCEDURE COMPLETED

GYRO SUCTION FAILURE: 250597

Pressure below 4,5“ Hg.

- 1 ... Propellers **2600 RPM SET** 1
- 2 ... Altitude **DESCENT** to maintain 4,5“ Hg .. 2

Use electric turn indicator to monitor directional indicator and attitude indicator performance.

PROCEDURE COMPLETED

SPIN RECOVERY: 250597

- 1 ... Throttles **RETARD to IDLE** 1
- 2 ... Ailerons **NEUTRAL** 2
- 3 ... Rudder **FULL OPPOSITE** to direction of spin 3
- 4 ... Control Wheel **RELEASE BACK PRESSURE** 4
- 5 ... Control Wheel **FULL FWD** if nose does not drop 5
- 6 ... Rudder **NEUTRALIZE** when rotation stops 6
- 7 ... Control Wheel **PULL** smooth to recover from dive 7

PROCEDURE COMPLETED

EMERGENCY DESCENT: 250597

- 1 ... Throttles **CLOSED** 1
- 2 ... Propellers **HIGH RPM** 2
- 3 ... Mixtures **AS REQ.** for smooth operation .. 3
- 4 ... Gear **DOWN** 4
- 5 ... Speed **130 KIAS** 5

PROCEDURE COMPLETED

PROPELLER OVERSPEED: 250597

- 1 ... Throttle **RETARD** 1
- 2 ... Propeller **FULL DECREASE RPM** 2

Try to set propeller again if any control available.

- 3 ... Speed **REDUCE** 3
- 4 ... Throttle **AS REQ.** to remain below 2600 RPM 4

PROCEDURE COMPLETED

OPEN DOOR (ENTRY DOOR ONLY): 250597

If both upper and side latches are open, the door will trail slightly open and airspeed will be reduced slightly.

To close the door in flight:

- 1 ... Speed **90 KIAS** 1
- 2 ... Cabin Vents **CLOSED** 2
- 3 ... Storm Window **OPEN** 3
- 4 ... Side Latch or Upper Latch **CLOSE** 4

If both latches are open:

Latch side latch first, then top latch.

PROCEDURE COMPLETED

COMBUSTION HEATER OVERHEAT: 250597

Unit will automatically cut-off.
Do not attempt to restart.

PROCEDURE COMPLETED