

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28R-180
CHECKED		
APPROVED		PAGE <u>1</u> of <u>8</u>

Piper Model PA-28R-180
Normal Category Only

AIRPLANE FLIGHT MANUAL

1. Limitations Section The following limitations must be observed in the operation of this airplane:
- Engine Lycoming IO-360-B1E
- Engine Limits For all operations 2700 rpm, 180 hp
- Fuel 100/130 minimum octane aviation fuel
- Propeller Hartzell HC-C2YK-1/7666A-0
Low pitch stop 13.0°
High pitch stop 29.0°
Maximum diameter 76 inches, minimum diameter 74.5 inches
Avoid continuous operation 2000 - 2200 rpm
- Power Instruments Oil Temperature: GREEN arc (normal operating range)
75° F to 245° F
RED line (maximum) 245° F
- Oil Pressure: GREEN arc (normal operating range)
60 psi to 90 psi
YELLOW arc (caution range) 25 psi to 60 psi
RED line (minimum) 60 psi
RED line (maximum) 90 psi
- Fuel Pressure: GREEN arc (normal operating range)
14 psi to 45 psi
RED line (minimum) 14 psi
RED line (maximum) 45 psi
- Tachometer: GREEN arc (normal operating range)
500 to 2000 and 2200 to 2700 rpm
RED arc 2000 to 2200 rpm
RED line (maximum continuous power)
2700 rpm

FAA APPROVED - June 8, 1967

REVISED _____

Airspeed Limits (Calibrated Airspeed) (Miles per Hour)	Never exceed	214
	Maximum structural cruise	170
	Maneuvering	134
	Flaps extended	125
	Maximum gear extension	150
	Maximum gear retraction.....	125
	Maximum positive load factor	3.8
	Maximum negative load factor	No inverted maneuvers approved

Maximum Weight 2500 lbs

Baggage Capacity 200 lbs

C.G. Range The datum used is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

Weight (Pounds)	Forward Limit (In. aft of datum)	Rearward Limit (In. aft of datum)
2500	91.0	95.9
1925	81.0	95.9

Straight line variation between points given.

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See weight and balance section for proper loading instructions.

Maneuvers All acrobatic maneuvers including spins prohibited.

- Placards
1. In full view of the pilot:
"THIS AIRCRAFT APPROVED FOR NIGHT IFR NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 FAR 135."

"THIS AIRCRAFT MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS."
 2. In full view of the pilot:
"NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED."

FAA APPROVED - June 8, 1967

REVISED _____

Placards
(Continued)

3. On the instrument panel in full view of the pilot:
"MANEUVERING SPEED - 134 MPH."
4. On the instrument panel in full view of the pilot:
"DEMONSTRATED CROSS WIND COMPONENT - 20 MPH."
5. Adjacent to upper door latch:
"ENGAGE LATCH BEFORE FLIGHT."
6. On the inside of the baggage compartment door:
"BAGGAGE MAX. 200 LBS. SEE WEIGHT AND BALANCE DATA FOR BAGGAGE LOADINGS BETWEEN 150 LBS AND 200 LBS."
7. Near EMERGENCY GEAR LEVER: "EMERGENCY DOWN"
"OVERRIDE UP"
8. Near landing gear selector switch:
"GEAR UP 125 MPH MAX"
"DOWN 150 MPH MAX"
9. In full view of the pilot when the autoflite is installed:
"FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING, RELEASE DISENGAGE SWITCH."

Airspeed
Instrument
Markings

RED radial line	Never exceed	214 mph (186 knots)
YELLOW arc	Caution range (Smooth air only)	170 to 214 mph (148 to 186 knots)
GREEN arc	Normal operating range	69 to 170 mph (60 to 148 knots)
WHITE arc	Flap down range	63 to 125 mph (55 to 109 knots)

FAA APPROVED - June 8, 1967

REVISED _____

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28R-180
CHECKED		
APPROVED		PAGE <u>4 of 8</u>

2. Procedures Section

1. The stall-warning system is inoperative with the master switch off.
2. The electric fuel pump must be on for both landing and takeoff.
3. This airplane is equipped with an airspeed-power sensing system (back-up gear extender) which extends the landing gear under low airspeed-power conditions* even though the pilot may not have selected gear down. This system will also prevent retraction of the landing gear by normal means when the airspeed power values are below a predetermined minimum. (See Item 5, Procedures Section)

For normal operation, the pilot should extend and retract the landing gear with the gear selector switch located on the instrument panel, just as he would if the back-up gear extender system were not installed.

* Approximately 105 mph IAS at any altitude, power off.

4. Landing gear position indication and warning lights:
 - (a) The red gear warning light on the instrument panel and the horn operate simultaneously when:
 - (1) In flight, when the throttle is reduced to where the manifold pressure is approximately 14 inches of mercury or below, and the gear selector switch is not in the down position.
 - (2) In flight, when the back-up gear extender system has lowered the landing gear and the gear selector switch is not in the down position and the throttle is not full open.
 - (3) On the ground, when the master switch is on and the gear selector switch is in the up position.
 - (b) The three green lights on the instrument panel operate individually as each associated gear is locked in the extended position.
 - (c) The yellow "In Transit" light on the instrument panel operates whenever any of the three gears is not in either the fully retracted position or the fully extended and locked position.

FAA APPROVED - June 8, 1967

REVISED _____

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28R-180
CHECKED		
APPROVED		PAGE 5 of 8

2. Procedures Section
(Continued)

5. Takeoff considerations:

During takeoff, if the gear selector switch is placed in the gear up position before reaching the airspeed at which the back up gear extender system no longer commands gear down, * the gear will not retract. For obstacle clearance on takeoff and for takeoffs from high altitude airports, the landing gear can be retracted at the pilot's discretion by placing the gear selector switch in the up position and then holding the emergency gear lever in the override up position. It is necessary to hold the lever in the override up position until the speed required for retraction by the back up gear extender system has been attained.

* Approximately 85 mph IAS at sea level to approximately 100 mph IAS at 10,000 ft, with a straight line variation between.

FAA APPROVED - June 8, 1967

REVISED _____

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28R-180
CHECKED		
APPROVED		PAGE 6 of 8

2. Procedures Section
(Continued)

6. Emergency landing gear extension instructions:
- (a) Reduce airspeed below 100 mph.
 - (b) Move landing gear selector switch to gear down position.
 - (c) If gear has failed to lock down, raise emergency gear lever to "Override Up" position.
 - (d) If gear has still failed to lock down, move emergency gear lever to "Emergency Down" position.
 - (e) If gear has still failed to lock down, yaw the airplane abruptly from side to side with the rudder.

7. Gear up emergency landing:

In the event a gear up landing is required, make an initial approach at not less than 110 mph to prevent the gear from free falling.

- (a) Leave flaps up (to reduce wing and flap damage).
- (b) Close the throttle and shut off the master and ignition switches.
- (c) Turn the fuel selector valve to off.
- (d) Hold the emergency gear lever in the override up position while reducing airspeed and until the airplane has come to rest. Contact the surface at minimum airspeed.

NOTE: With the master switch off, the landing gear cannot be retracted.

8. (Electric Pitch Trim Installation Only)

The following emergency information applies in case of electric pitch trim malfunction:

- (a) In case of malfunction, disengage electric pitch trim by pushing pitch trim switch on instrument panel to off position.
- (b) In an emergency, electric pitch trim may be overpowered using manual pitch trim.
- (c) In cruise configuration, malfunction results in 10° pitch change and 30 ft. altitude variation.

FAA APPROVED - June 8, 1967

REVISED _____

2. Procedures Section
(Continued)

9. (Automatic Pilot Installation Only)

- (a) Automatic pilot off during takeoff and landing.
- (b) For normal operation, refer to Manufacturer's Operation Manual.
- (c) For other than normal operation:
 - (1) In case of malfunction, disengage automatic pilot controls.
 - (2) In emergency, automatic pilot may be over-powered manually.
 - (3) Delay malfunctions in cruise or approach configurations result in bank and altitude loss as follows:

Automatic Pilot System	Cruise		Approach	
	3-Second Delay Bank	Altitude	1-Second Delay Bank	Altitude
Autoflite	60°	200'	10°	0'
Autocontrol III	60°	200'	10°	0'

FAA APPROVED - June 8, 1967

REVISED _____

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28R-180
CHECKED		
APPROVED		PAGE <u>8</u> of 8

3. Performance Section

The following performance figures were obtained during FAA type tests and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for 2500 pounds.

Loss of altitude during stalls varied from 100 to 310 feet, depending on configuration and power.

Stalling speeds, in mph, power off, versus angle of bank (Calibrated airspeed):

Angle of bank	0	20	40	50	60
Flaps up (gear down)	69	71	79	86	98
Flaps down (gear down)	63	65	72	79	89

FAA APPROVED - June 8, 1967

REVISED _____