PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

MODEL PA-20

REPORT NO. 649

AIRPLANE FLIGHT MANUAL - PIPER MODEL PA-20 "115"

DATE: FEB 7 1950

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Asst. Chief Engineer

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CHECKED
APPROVED

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

C.A.A. Approved
March 23, 1950

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

Piper PA-20 "115"
Normal Category

C.A.A. Identification No. _____

AIRPLANE FLIGHT MANUAL

1. LIMITATIONS

The following limitations must be observed in the operation of this airplane:

Engine	Lycoming O-235-C1
Engine Limits	Take-Off One (1) Minute 2800 RPM (115 HP) Max. Except Take-Off 2600 RPM (108 HP)
Fuel	80 Octane Minimum Aviation Gasoline
Propellers	Sensenich Model 74FM56, or any other fixed pitch wood propeller eligible for the engine power and speed which meets the following limits: Static RPM at maximum permissable throttle setting, not over 2400 RPM, not under 2200 RPM. No additional tolerance permitted. Diameter: Maximum 74" Minimum 70.5"
	McCauley Model 1C90-LM-7254 fixed pitch metal or any other Model 1C90-LM propeller which meets the following limits: Static RPM at maximum permissable throttle setting, not over 2290, not under 2270. No additional tolerance permitted. Diameter, maximum 72 inches, minimum 70.5 inches.
	Propeller - Koppers Aeromatic (1) F200/00-73E; Parts List Assembly No. 4368, -1, Koppers Installation Procedure and Operating Limitations No. 34. (2) F200/00-74E; Parts List Assembly No. 4292A, -1 Koppers Installation Procedure and Operating Limitations No. 16B. (3) F200-H/00-73E; Parts List Assembly No. 4368H, 4368H-1. Adjustment Instructions and Operating Limitations No. 52A. Altitude Control Assembly No. 4382. (4) F200-H/00-74E; Parts List Assembly No. 4292AH-1 Instructions and Operating Limitations No. 52A. Altitude Control Assy. No. 4382

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	Diameters - (1), (3) - Maximum 73 in., Minimum 71.5 in. (2), (4) - Maximum 74 in., Minimum 72.5 in. Low Pitch Settings at 24 in. Station: (1), (3) - 10.4° (2), (4) - 11.0° Static RPM at maximum permissible throttle setting: (No additional tolerance permitted): (1), (2) - Maximum 2750, Minimum 2700 (3), (4) - Maximum 2800, Minimum 2750 Propeller - Sensenich, fixed pitch metal, M76AM-2 or -3 with following diameter and static RPM limits at maximum permissible throttle setting (no additional tolerance permitted): Static RPM not over 2500, not under 2300 Diameter, not over 74 in., not under 71.5 in. Propeller - Sensenich Two-Position Controllable Hub CS-2FM6-1 with PC276A7-2 blades Diameter, not over 74 in., not under 72.5 in. Blade pitch settings at 3/4 radius (28.5 in. station); Low 11.8°, High 15.3°. Propeller control installation required as per Sensenich Dwg. D-3028.
Power Instruments	Oil Temperature - Unsafe if indicator exceeds RED Line (240°F) Yellow Arc: Caution (40°F to 120°F). Green Arc: Normal Operating Range (120°F to 240°F) Oil Pressure - Unsafe if indicator exceeds RED Line (100 lbs.) or is below the RED Line (25 lbs. minimum) Yellow Arc: Caution (85 lbs. to 100 lbs.) or (25 lbs. to 65 lbs.) Green Arc: Normal Operating Range (65 lbs. to 85 lbs.) Tachometer- Red Line: Rated Engine Speed Yellow Arc: 2450 RPM to 2600 RPM Green Arc: 2200 RPM to 2450 RPM Normal Operating Range

Airspeed Limits (True Ind. Airspeed)	Normal Category
Maneuvering	105
Maximum Cruising Speed	117
Never Exceed	140
Flaps Extended	80
Flight Load Factors	
Max. Positive	3.8
Max. Negative	(No inverted maneuvers approved.)
Airplane Loading	
Max. Wt. (Take-off and Landing)	1750 Pounds.

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C.G. Range (Normal Category)
Fwd. Limits: (+11.5") up to 1240 lbs. Straight Line to
(+12.0") at 1490 lbs. Straight Line to
(+16.6") at 1750 lbs.
Rwd. Limit: (+24.0") at 1750 lbs.
Datum Leading Edge of Wing
Maximum Baggage Allowed - 50 lbs. (Normal Category Only)
When three people are carried both front seats must be occupied.

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded (See Weight and Balance).

Placards

(a) On the instrument panel in full view of the pilot:
(1) "Operate in Normal Category in compliance with approved Flight Manual. Acrobatics (Including Spins) prohibited."
(2) "No Smoking".
(b) Adjacent to the fuel valve,
(1) "Use right tank level flight only."
(c) On the baggage compartment
(1) "Maximum Baggage 50 pounds."

Maneuvers

(a) No acrobatic maneuvers approved for Normal Category Operation.

Airspeed Instrument Markings and Their Significance

(a) Radial RED line marks the never exceed speed which is the maximum safe airspeed 140 MPH
(b) YELLOW ARC on indicator denotes range of speed in which operations should be conducted with caution and only in smooth air 117 MPH - 140 MPH
(c) GREEN ARC denotes normal operating speed range 54 MPH - 117 MPH
(d) WHITE ARC operating range flaps extended (when installed) 48 - 80 MPH.

II. PROCEDURES

(a) Except as noted above, all operating procedures for this airplane are conventional.

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III. PERFORMANCE

All performance given is for the following conditions:

1. A maximum gross weight 1750 lbs.
2. On level paved runways;
3. In still air:
4. With slowest-turning fixed-pitch wood propeller approved.
5. Performance with any approved alternate propeller will equal or exceed that shown herein.

In using the following data allowance for actual conditions must be made.

		Outside Air Temperature					
	Alt. Ft.	0°F	20°F	40°F	60°F	80°F	100°F
Take-Off Distance (In Feet)	Sea Level	1740	1880	2030	2180	2360	2520
Distance required to take-off and climb 50 ft. full throttle at 70 MPH T.I.A.S. Flaps Retracted	3000	2560	2800	3070	3360	3680	3990
	5000	3520	3920	4360	4850	5420	6060
	7000	5270	6040	6880	8060	9430	11090
Landing Distance (In Feet)	Sea Level	1480	1510	1540	1560	1580	1610
Distance required to land over 50 foot obstacle and stop. Approach at 70 MPH T.I.A.S. Flaps Retracted	3000	1550	1580	1610	1640	1660	1690
	5000	1600	1630	1660	1690	1720	1750
	7000	1660	1690	1720	1750	1790	1820
Normal Rate of Climb	Sea Level	600	575	550	530	505	490
(In Ft. Per Minute) 80 MPH T.I.A.S. Climbing Speed Flaps Retracted	3000	450	425	400	380	360	340
	5000	350	325	305	285	265	240
	7000	250	230	210	185	165	145

Power - Off Stalling Speeds vs. Angle of Bank	Angle	0°	10°	20°	30°	40°	50°	60°
MPH T.I.A.S. Flaps Retracted	Speed	54	54	55	58	62	67	76
MPH T.I.A.S. Flaps Extended		48						

Skiplane Performance:

Climb: Skiplane climb performance is essentially equal to that of the landplane.

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