

LUFTFAHRZEUG-FLUGHANDBUCH (AFM)
MANUEL DE VOL DE L'AERONEF

für das Luftfahrzeug HB - ORV
pour l'aéronef

Die den Betrieb des Luftfahrzeuges betreffenden Unterlagen sind vom Bundesamt für Zivilluftfahrt als Luftfahrzeug-Flughandbuch genehmigt oder anerkannt. Sie bilden eine Grundlage des Lufttüchtigkeitszeugnisses und dürfen nur durch das Bundesamt für Zivilluftfahrt oder in dessen Auftrag geändert werden.

Bei Änderungen in der Ausrüstung ist dem Bundesamt für Zivilluftfahrt unverzüglich ein Arbeitsbericht im Doppel unter Angabe von Masse und Hebelarm der ein- und ausgebauten Teile zusammen mit dem vorliegenden Flughandbuch zuzustellen.

Das Luftfahrzeug darf nur nach diesem Flughandbuch, das an Bord mitzuführen ist, betrieben werden.

Der Zulassungsbereich des Luftfahrzeuges ist im Anhang zum Flughandbuch festgelegt.

3003 Bern, den 30.10.87
3003 Berne, le

BUNDESAMT FUER ZIVILLUFTFAHRT
OFFICE FEDERAL DE L'AVIATION CIVILE
i.A. *B. Meisser*
B. MEISSER

Les documents relatifs à l'exploitation de l'aéronef sont approuvés ou reconnus par l'Office fédéral de l'aviation civile en tant que manuel de vol de l'aéronef. Ils forment une base du certificat de navigabilité et ne peuvent être modifiés que par l'Office fédéral de l'aviation civile ou sur son ordre.

Lors de changements dans l'équipement, il y a lieu d'envoyer immédiatement à l'Office fédéral de l'aviation civile, avec le présent manuel de vol, un rapport de travail en deux exemplaires, et d'indiquer la masse ainsi que le bras de levier des parties installées ou déposées.

L'aéronef ne peut être exploité que d'après le présent manuel de vol, qui doit se trouver à bord.

Le champ d'utilisation de l'aéronef est fixé dans l'annexe du manuel de vol.

Hauptsächlichste Daten des Luftfahrzeuges HB - ORV
Données principales de l'aéronef

1. Gewichte und Schwerpunktlage
Poids et position du centre de gravité

1.1 Höchstzulässiges Abfluggewicht Kat. ☒ * 794 kp 1750 lbs
Poids maximal autorisé au décollage Cat. ☒ 907 2000

* Andere Kategorien siehe Flughandbuch
Autres catégories voir manuel de vol

1.2 Höchstzulässiges Landegewicht 794 kp 1750 lbs
Poids maximal autorisé à l'atterrissage 861 1900

1.3 Rüstgewicht
Poids à vide

Im Rüstgewicht sind inbegriffen:
Dans le poids à vide sont compris:

☒ Ausrüstung gemäss Ausrüstungsliste
L'équipement selon la liste d'équipement

☒ Nicht verwendbarer Treibstoff
Le carburant non utilisable

☐ Nicht verwendbarer Schmierstoff
Le lubrifiant non utilisable

☐ Verwendbarer Schmierstoff
Le lubrifiant utilisable

☐ Hydraulikflüssigkeit
Le liquide hydraulique

☐ Ballast (sofern eingebaut)
Lest (si installé)

☐ Getriebeöl
Le lubrifiant de boîtes
de transmission

☒ SKI (am position neue)
25.10.06

Datum Date	Rüstgewicht Poids à vide	Schwerpunktlage Position du centre de gravité	Rüstgewichtsmoment Moment du poids à vide	Zuladung Charge utile
	kp / lbs	m / in	kp.m / lbs. in	kp / lbs
Wägung 15.7.87	1153.00	13.287	15320	597.0
Ski Inst. 30.10.87	1256.6	12.124	15236	493.4 FOGA FL/M
24.4.91	1153.00	13.287	15320	597.0 Hauptbuch C353
6.5.91	1272.5	12.95	92833.2	477.5 DZL
4.9.91	1270.24	12.98	16487.88	479.8 Hauptbuch C353
21.9.92	1263.82	13.03	16475.09	486.16 DK
9.5.96	1299	11.84	15390.1	451 FA SION

Plademe Fort 201
26.01.15
selon STC WIPARE n° 5A00997CH

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834

PAGE PA-18 "15"

MODEL PA-18A "15"

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

MODEL PA-18 "150"

MODEL PA-18A "150"

REPORT NO. 834

AIRPLANE FLIGHT MANUAL - PIPER MODEL PA-18 "150"
AND PA-18A "150" (1750 POUNDS GROSS WEIGHT)

DATE: OCTOBER 1, 1954.

Prepared by:

C. R. Smith
C. R. Smith
Engineering Dept.

PREPARED.....
CHECKED.....
APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT.....824

PAGE.....

PA-18"150"
MODEL PA-18A"150"

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA

MODEL PA-18"150" 160

Model PA-18A"150"

REPORT NO. 834

AIRPLANE FLIGHT MANUAL - PIPER MODEL

PA-18"150" AND PA-18A"150" (1750

POUNDS GROSS WEIGHT)

DATE: October 1, 1954

REV: August 20, 1976

REV: April 20, 1959

September 17, 1976

October 24, 1963

September 28, 1976

April 9, 1964

December 21, 1976

September 30, 1974

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

REPORT.....834
PAGE.....1
MODEL PA-18-150
PA-18A-150

TABLE OF CONTENTS

Airplane Flight Manual Log of Revisions	11
SECTION I	
Limitations	1
SECTION II	
Procedures	3

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834

PAGE 1 PA-18"150

MODEL PA-18A"150

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

C.A.A. Approved
Approval Basis CAR 3 and 410
October 1, 1954
PA-18"150"
PA-18A"150"
Normal and Utility Category

C.A.A. Identification No. HB-ORV 

AIRPLANE FLIGHT MANUAL

1. Limitations

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

Engine	Lycoming O-320 Series
Engine Limits	For all operations 2700 RPM
Fuel	80/87 Octane Minimum Aviation Gasoline
Propeller	Sensenich M74DM or 74DM6 Fixed Pitch Metal
	74.0" Maximum Diameter
	72.5" Minimum Diameter
	Static Limits: Maximum 2450
	Minimum 2350
	(Not over 2550, not under 2450 when operating as a Glider or Banner Tow.)
Power Instruments	Oil Temperature-Unsafe if indicator exceeds Red Line (245 degrees F) or is below the Red Line (40 degrees F Min.)
	Yellow Arc: Caution (40 degrees to 120 degrees F).
	Green Arc: Normal Operating Range (120 degrees F to 245 degrees 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.) and (25 lbs. to 60 lbs.)
	Green Arc: Normal Operating Range (60 lbs. to 85 lbs.)
	Tachometer-Red Line: Rated Engine Speed
	Green Arc: 500 RPM to 2700 RPM
	Normal Operating Range
Flap Position	Take-Off 0 Degrees Landing 50 Degrees

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834

PAGE 2
PA-18"150"

MODEL PA-18A"150"

Normal Category

Airspeed Limits
(True Ind. Airspeed)

Maneuvering

Max. Cruising Speed

Never Exceed

Flaps Extended

Flight Load Factors

Max. Positive

Max. Negative

Airplane Loading

Max. Wt. (Take-Off and
Landing)

96 MPH 83 Knots

121 MPH 106 Knots

153 MPH 133 Knots

85 MPH 74 Knots

3.8

(No inverted maneuvers approved)

voir AFM supp.

Wipaire

STC n° SA00997CH

en annexe

*AC Fourn 2101
26.01.2015*

1750 Pounds

C.G. Range Normal Category, Aft Wing Leading Edge

(+14.0) to (+20.0) at 1750 pounds

(+10.5) to (+20.0) at 1300 pounds or less

Utility Category

(+12.3) to (+19.0) at 1500 pounds

(+10.5) to (+19.0) at 1300 pounds or less

Straight line variation between points given.

Datum Leading Edge of Wing

Max. Baggage Allowed 50 pounds

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:

The following placards must be displayed:

- (a) On the instrument panel in full view of the pilot:
 - (1) "Operate in Normal or Utility Category in compliance with Approved Flight Manual. Airplane marked for Normal Category. Acrobatics (including spins) prohibited in Normal Category."
 - (2) "No Smoking"
- (b) On the baggage compartment:
 - (1) "Maximum Baggage - 50 Lbs."

Maneuvers:

- a. No Acrobatic Maneuvers Approved for Normal Category Operation.
- b. Intentional spinning with flaps down prohibited.
- c. The following maneuvers are approved for operation in the Utility Category only, with recommended entry speeds shown:

Maneuver	Entry Speed T.I.A.S.
Chandelles	100 MPH
Lazy Eights	100 MPH
Steep Turns	90 MPH
Spins	Stall
Stalls (Except Whip Stalls)	Stall

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT..... 834
PAGE..... 3
PA-18"150"
MODEL PA-18A"150"

Airspeed
Instrument
Markings and
Their Significance

- (a) Radial Red line marks the never exceed speed which is the maximum safe airspeed 153 MPH. (133 Knots)
- (b) Yellow Arc on indicator denotes range of speed in which operations should be conducted with caution and only in smooth air at 121 MPH to 153 MPH (106 Knots to 133 Knots)
- (c) Green Arc denotes normal operating speed range 47 MPH - 121 MPH (38 Knots to 106 Knots)
- (d) White Arc denotes normal operating speed range with flaps extended 43 MPH-85 MPH (35 Knots to 74 Knots)

II. PROCEDURES

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

Approved: _____

J. W. McNary
J. W. McNary
Asst. Chief Engineer
D.M.C.R. 1-1

Date: October 1, 1954.

PREPARED.....
CHECKED.....
APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
 PAGE iii
 PA-18"150"
 MODEL PA-18A"150"

LOG OF REVISIONS

<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
G	7	Vacuum Pump - Airborne Mechanisms 211CC Added under Engine and Engine Accessories		
	9	KS-2-SC Avionics Group Instl. per PAC Dwg. 09060 Added		
	10	NC-1-SC Avionics Group Instl. per PAC Dwg. 09062 and KS-1-SC Avionics Group Instl. per PAC Dwg. 09066 Added	10/14/77	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator October 14, 1977 DOA EA-1
H	10	KS-2-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09060-2 Added		
		R.C. Allen A2475-2 Electric Turn and Bank Added	11/15/77	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator November 15, 1977 DOA EA-1
I	11	KS-1-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09066-2 Added.	2/17/77	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator February 17, 1978 DOA EA-1
J	11	Emergency Locator Installation per PAC Dwg. 66081-2 Added.	10/10/78	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator October 10, 1978 DOA EA-1

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834

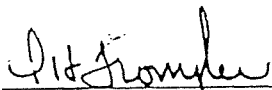
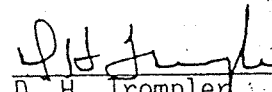
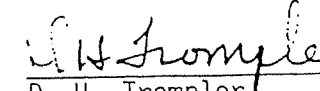
PAGE iv
PA-18"150"
MODEL PA-18A"150"

LOG OF REVISIONS

Rev.	Page	Change	Date	Approval
K	10	Added: Artificial Horizon, Outside Air Temp. Gauge, Eight Day Clock, Vertical Speed Indicator, Electric Fuel Gauge, Control Stick Lock and Dome Light	3/27/79	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator March 27, 1979 DOA EA-1
L	10	Added: CTM-1-SC Avionics Group Instl. per PAC Dwg. 09370; KS-2-SC Avionics Group Instl. per PAC Dwg. 09353-2; KS-2-SC Avionics Group Instl. (with trans- ponder) per PAC Dwg. 09353-3	6/5/79	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator June 5, 1979 DOA EA-1
M	2,3	Revised Maneuvers Permitted for Normal and Utility Category Operations	6/25/79	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator June 25, 1979
N	3	Noise Level Data and Statement Added	8/30/79	
	3a	Section II. <u>Procedures</u> Added Moved From Pg. 3 to New Pg. 3a	8/30/79	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator August 31, 1979 DOA EA-1
P	2	Baggage Compartment - Capacity - 50 Lbs. was Maximum baggage - 50 Lbs.	7/15/82	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator July 15, 1982

PREPARED	PIPER AIRCRAFT CORP.	Airplane Flight Manual
CHECKED		Model PA-18 "150" PA-18A "150"
APPROVED	Report 834	PAGE v

LOG OF REVISIONS

<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
Q	11	Added: NTC-1-18 Avionics Group Instl. per PAC Dwg. 06170-2; King KTS-1-18 Avionics Group Instl. per PAC Dwg. 06180-2; Narco Escort IIA Radio per PAC Dwg. 06192; King KY-97A Communications Transceiver per PAC Dwg. 06193-2; King KT-76A Transponder per PAC Dwg. 06194-2; Narco AT-150 Transponder per PAC Dwg. 06195-2; Narco AR-850 Altitude Reporter per PAC Dwg. 06179-2; Sigtronics Intercom Syst per CA Dwg. 18-3-071; Northstar Loran M1 per CA Dwg. 18-2-095	9/15/88	 D. H. Trompler DOA Coordinator September 15, 1988 DOA SO-1
R	1	Changed C.A.A. Identification No. to read F.A.A. Identification No.	10/7/88	 D. H. Trompler DOA Coordinator October 7, 1988 DOA SO-1
S	1	Deleted Flap Position limitation	12/1/88	 D. H. Trompler DOA Coordinator December 1, 1988 DOA SO-1

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
PAGE 1
MODEL PA-18"150
PA-18A"150"

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

DUPLICATE

C.A.A. Approved
Approval Basis CAR 3 and 410
October 1, 1954
PA-18"150"
PA-18A"150"
Normal and Utility Category

F.A.A. Identification No. HB ORU

AIRPLANE FLIGHT MANUAL

1. Limitations

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

Engine	Lycoming C-320 Series
Engine Limits	For all operations 2700 RPM
Fuel	80/87 Octane Minimum Aviation Gasoline
Propeller	Sensenich M74DM or 74DM6 Fixed Pitch Metal
	74.0" Maximum Diameter
	72.5" Minimum Diameter
	Static Limits: Maximum 2450
	Minimum 2350
	(Not over 2550, not under 2450 when operating as a Glider or Banner Tow.)
Power Instruments	Oil Temperature-Unsafe if indicator exceeds Red Line (245 degrees F) or is below the Red Line (40 degrees F Min.)
	Yellow Arc: Caution (40 degrees to 120 degrees F).
	Green Arc: Normal Operating Range (120 degrees F to 245 degrees 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.) and (25 lbs. to 60 lbs.)
	Green Arc: Normal Operating Range (60 lbs. to 85 lbs.)
	Tachometer-Red Line: Rated Engine Speed
	Green Arc: 500 RPM to 2700 RPM
	Normal Operating Range

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834

PAGE 4

PA-18"1

MODEL PA-18A"

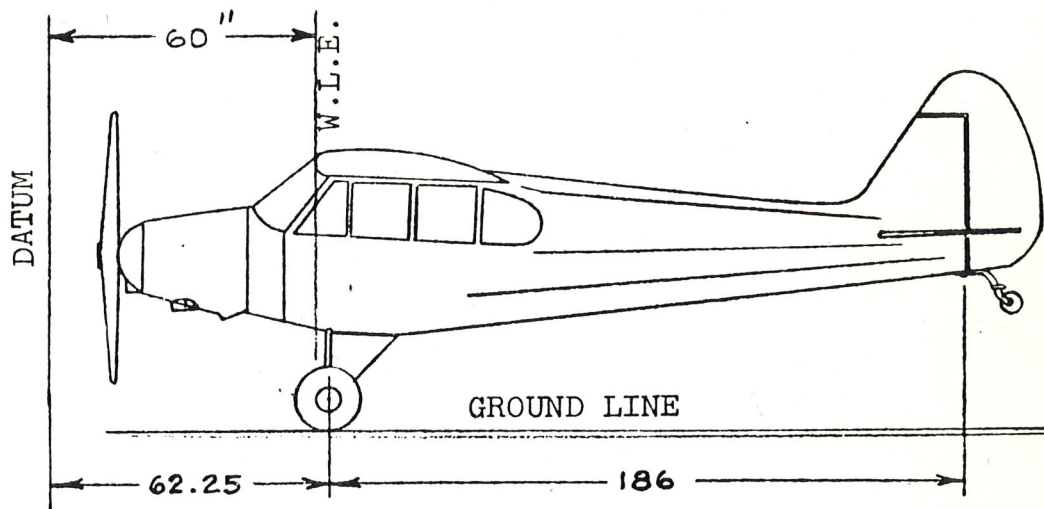
PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA

ACTUAL WEIGHT AND BALANCE

MODEL PA-18"150"¹⁶⁰, MODEL PA-18A"150"

SERIAL NO. 18-MDC 1040 CERTIFICATE NO. ~~N~~ HB-ORV DATE MAR 08, 78



AIRPLANE WEIGHING DIAGRAM

Empty Weight as Weighed (Includes items checked on Pages 7, 8, & 9.)

	<u>Scale Reading</u>	<u>Tare</u>	<u>Net</u>
Left Wheel	_____	_____	_____
Right Wheel	_____	_____	_____
Tail Scale (N)	_____	_____	_____
Total (T)	_____	_____	_____

1144.6

Revised: June 21, 1960.
November 15, 1960
August 23, 1963
August 28, 1963

580 820

PREPARED.....

CHECKED.....

APPROVED.....

August 12, 1974



HB- ORV

Muster Type PA 18-160

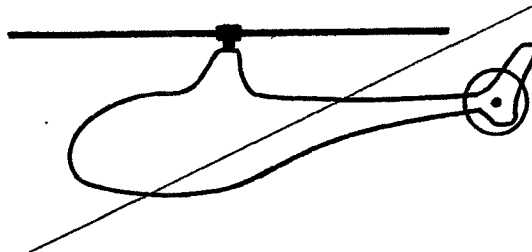
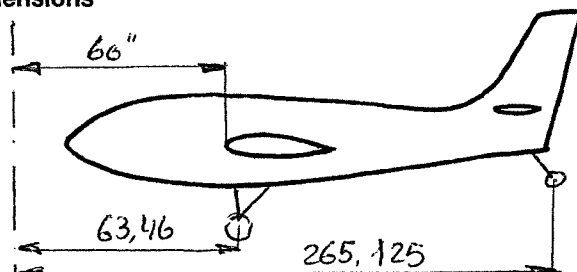
Ort und Datum
Lieu et date Bex 8.02.2017

Bezugsebene gemäss Geräte-Kennblatt
Plan de référence selon la fiche de navigabilité bord d'attaque de l'aile 60" en avant

Horizontallage gemäss Geräte-Kennblatt
Référence horizontale selon la fiche de navigabilité repères sur le cadre de porte

Grund der Wägung
Raison de la pesée Réparation

Abmessungen
Dimensions



Alle Masse sowie Bezugsebene in die Figur eintragen
Reporter le plan de référence et les cotes des points de pesée sur le croquis approprié

Wägung
Pesée

mit Ausrüstung gemäss Ausrüstungsliste des Luftfahrzeug-Flughandbuchs (AFM)
avec l'équipement installé selon la liste du manuel de vol de l'aéronef (AFM)

Verwendete Wagen Balances utilisées	Hersteller Constructeur	Werknummer No. de série	Eichdatum Date de calibr.
Links / A gauche	Evergreen	1754	03.2015
Rechts / A droite	Evergreen	1459	03.2015
Vorne/Hinten / En avant/En arrière	Evergreen	1460	03.2015

prochain étalonnage
03.2018

Wägung Nr.
Pesée no.

1

Wägepunkt Point de pesée	Masse brutto Masse brute	Tara Tare	Masse netto Masse net
Links / A gauche			560
Rechts / A droite			550
Vorne/Hinten / En avant/En arrière			67
Total			1177

Wägung Nr.
Pesée no.

2

Links / A gauche			559
Rechts / A droite			549
Vorne/Hinten / En avant/En arrière			67
Total			1175

Hinweis / Note

Ist die Abweichung in den Ergebnissen 1 und 2 grösser als 1%, ist eine 3. Wägung durchzuführen.
Au cas où la différence entre les résultats 1 et 2 est supérieure à 1%, effectuer une 3ème pesée.

Wägung Nr.
Pesée no.

3

Links / A gauche			
Rechts / A droite			
Vorne/Hinten / En avant/En arrière			
Total			

Schwerpunktbestimmung
Détermination du centrage

Durchschnittswerte aus den Wägungen / Valeurs moyennes des pesées	Masse	Arm/Bras	Moment
Wägepunkt links / Point de pesée gauche	559.5	63.46	35505.87
Wägepunkt rechts / Point de pesée droit	549.5	63.46	34871.27
Wägepunkt vorn/hinten / Point de pesée AV/AR	67	265.125	17763.38
Für die Auswertung massgebend / Valeurs à utiliser pour le dépouillement	1176	74.95	88140.52

Übertragen auf Blatt 2
A reporter sur la feuille 2

Verteilung: BAZL/OFAC
Distribution: Halter/Expl.
Insp.

weiss/blanc
gelb/jaune
rosa/rosé

Gewogen durch:
Pesée effectuée par:

Melanie CH.66-2101

Auswertung der Wägung (Motorflugzeuge und Helikopter) Dépouillement de la pesée (Avions à moteur et hélicoptères)

Tabelle I Gewogene, aber nicht zur Leermasse gehörende Teile
Equipements pesés, mais ne faisant pas partie de la masse à vide

Bezeichnung / Désignation	Masse	Arm/Bras	Moment
ski quaire	4.4	265.125	1166.55
Total Abzüge / Total à retrancher			

Tabelle II Nicht gewogene, aber zur Leermasse gehörende Teile
Equipements non pesés, mais faisant partie de la masse à vide

Bezeichnung / Désignation	Masse	Arm/Bras	Moment
Total Zuschläge / Total à ajouter			

Leermasse (Gemäss Definition des Luftfahrzeug-Flughandbuchs)
Masse à vide (Selon définition du Manuel de Vol de l'aéronef)

Leermasse (Gemäss Definition des Luftfahrzeug-Flughandbuchs) Masse à vide (Selon définition du Manuel de Vol de l'aéronef)			Masse	Arm/Bras	Moment
Übertrag Blatt 1:	/	Report feuille 1:	1176	74,95	88140,52
Öl	/	Huile SG:	- 15	24	- 360
Nicht verwendbarer Treibstoff	/	Essence non-consommable SG:			
Nicht verwendbarer Treibstoff	/	Essence non-consommable SG:			
Abzüge gemäss Tabelle I	/	A retrancher selon table I	- 4,4		- 1166,55
Zuschläge gemäss Tabelle II	/	A ajouter selon table II			
Leermasse	/	Masse à vide	1156,6	74,88	86613,97

Resultat zu übertragen in AFM Deckblatt B
Résultat à reporter à la page de garde B AFM

Schwerpunktlage leer / Centrage à vide (falls vorgeschrieben / si prescrit)

Leermasse-Schwerpunktbereich gemäss Gerätekenntblatt bei _____ kg/lbs von _____ m/in bis _____ m/in
 Domaine de centrage à vide selon fiche de navigabilité à _____ de _____ à _____

Anmerkung: Der Schwerpunktbereich hier muss eingehalten werden, andernfalls ist das Luftfahrzeug durch Zugabe oder Entfernen von Ballast auszutrimmen.
Note: Le domaine de centrage à vide doit être respecté, sinon l'aéronef doit être équilibré en ajoutant ou retranchant du lest.

Verteilung:	BAZL/OFAC	weiss/blanc
Distribution:	Halter/Expl.	gelb/jaune
	Insp.	rosa/rosé

Auswertung: Kalame
Dépouillement: (H.66-2101)

Eintragung AFM:
Report dans l'AFM: *Belame*
CH 55-201

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
 PAGE 6
 PA-18 "1"
 MODEL PA-18A "

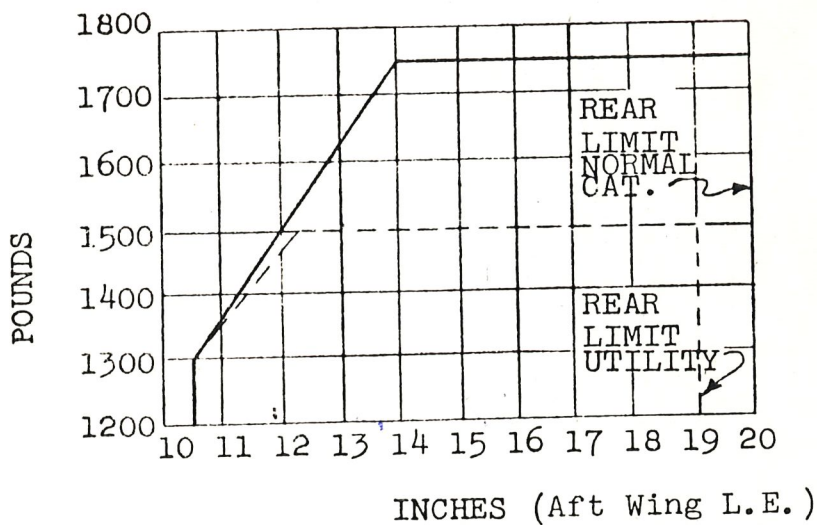
MOST REARWARD C. G. NORMAL CATEGORY

Item	Weight	Arm	Moment
Empty Weight	1444.6 <i>Var page B1</i>	72.14	82571
Oil (8 Qts.)	15	24	360
Fuel (36 Gal.) Wing	216	84	18144
Pilot (Rear Seat)	170	97	16490
Baggage	50	117	5850
TOTAL	1595.6	77.31	123361

MOST REARWARD C. G. IS 17.31 IN. AFT WING L.E.



APPROVED C. G. RANGE VS. WEIGHT



Normal Category _____

Utility Category -----

PREPARED.....
 CHECKED.....
 APPROVED.....

580 820 Revised Aug. 12, 1974

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
PAGE 5
MODEL PA-18

Empty Weight C.G. Aft Main Wheel Centerline is:

$$A. \frac{186 \times (N) \ 60.86}{(T) \ 1144.6} = \underline{9.89} \text{ In.}$$

Empty Weight C.G. Aft of Datum is:

$$B. 62.25 + A \ \underline{9.89} = \underline{72.14} \text{ In.}$$

MOST FORWARD C.G. (NORMAL CATEGORY AND UTILITY CATEGORY)

Item	Weight	Arm	Moment
Empty Weight	<u>1144.6</u>	<u>72.14</u>	<u>82571</u>
Oil (8 Qts.)	15	24	360
Fuel (12.5 Gal.) Wing	75	84	6300
Pilot and Chute (Front Seat)	<u>190</u>	<u>71</u>	<u>13490</u>
TOTAL	<u>1424.6</u>	<u>72.10</u>	<u>102721</u>

MOST FORWARD C.G. IS 12.10 IN. AFT OF WING L.E.



MOST REARWARD C.G. UTILITY CATEGORY

Item	Weight	Arm	Moment
Empty Weight			
Oil (8 Qts.)	15	24	360
Fuel () Wing		84	
Pilot and Chute (Front Seat)	190	71	13490
Passenger and Chute (rear Seat)	<u>190</u>	<u>97</u>	<u>18430</u>
TOTAL	1500		

MOST REARWARD C.G. IS _____ IN. AFT OF WING L.E.

580 820

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT..... 834

PAGE..... 7

MODEL..... PA-18"150"

MODEL..... PA-18A"150"

ACTUAL WEIGHT AND BALANCE

MODEL PA-18"150", AND MODEL PA-18A"150"

EQUIPMENT LIST

Revised:
11/6/61
8/23/63
9/10/65
2/21/66
11/12/68
8/20/76
9/17/76

	Item	Weight	Arm About W. L. E.
	<u>Propellers and Propeller Accessories</u>		
X	Propeller - Sensenich M74DM or 74DM6 Fixed Pitch Metal	30 lbs.	(-57)
X	a. Spinner Dome FAC Dwg. 14422 and Fulkhead Adaptors PAC Dwg. 14426 and 14424	2 lbs.	(-59)
	<u>Engine and Engine Accessories</u>		
O	Vacuum Pump - Pesco Model 3P-194-F, Type B-11	4 lbs.	(-30)
X	Starter, Delco Remy 12V.	17 lbs.	(-48)
O	Starter Prestolite Model MZ-4204	17 lbs.	(-48)
X	Oil Cooler - Harrison No. AP13SJ03-01 or AP12CU03-01 PAC Dwg. 13724 or 14368	6 lbs.	(-53)
O	Vacuum Pump - Airborne Mechanisms 113A5 or 200CC	4 lbs.	(-30)
	<u>Landing Gear</u>		
O	Two Main Wheel-Brake Assemblies 8.00 - 4, Type III	10 lbs.	(+2)
	a. Goodrich Model No. 841A Wheel Assembly No. D-3-13A-1 Brake Assembly No. D-2-113		
O	Two Main 4-Ply Rating Tires, 8.00 - 4 Type III with regular tubes	21 lbs.	(+2)
O	Two Main Wheel-Brake Assemblies 6.00 x 6 Type III Cleveland Model 20-119-40-60 / 30 60	17.4 lbs.	(+2)
X	Two Main 6.00 x 6 4 ply Type III Tires with regular tubes	17 lbs.	(+2)
O	Two Main 7.00 x 6 6 ply Type III Tires with regular tubes	21 lbs.	(+2)
X	Two Main 8.00 x 6 4 ply Type III Tires with regular tubes	26 lbs.	(+2)
	<u>Tail Wheels</u>		
X	a. Scott Model 3-24B 6.00	6 lbs.	(+200)
O	b. Scott Model 3200 8.00	+3 lbs.	(+200)
O	c. Maule Model SFS-1-4 6.00	6 lbs.	(+200)

58C 820

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT.....834
PAGE.....8
MODEL.....PA-18"1
PA-18A"1

FOCA
FL / Ms

30,10,87

25.91

FARMER AIR SERVICE NO 77

Belleay J. L. 1025
Lic. MCN 1025

	Item	Weight	Arm About W. L. E.
<u>Landing Gear (Continued)</u>			
X	Ski FLI-LITE 3000 A		
	Main Skis (2ea)	93.0 lbs	(-8)
	Rear Ski	4.0 lbs	(-198)
	Hand Pump	6.6 lbs	(-20)
	SKI Forward 2001C		
	Arr. 1200-01A GP500		
	Groupe hydraulique		
X	Scott Parking Brake Installation (Scott Aviation Corp., Lancaster, New York, Kit No. 2715 EK In- stallation in Accordance with their Bulletin I-169		
X	Wheel Streamlines	Neglect Wt. 6 lbs.	Change (+2)
O	Tandem Gear Model GW-100 In- stalled in Accordance with A.W. Whitaker, 5001 N.E. Union Ave., Portland, Oregon, Dwg. T-10 and Installation In- structions Dated June 8, 1949.	+46 lbs.	(+2)
<u>Electrical Equipment</u>			
X	Two Landing Lights, GE Model 4500 in W. L. E. PAC Dwg. 14442	4 lbs.	(+5)
X	a. Battery Reading R33 or R35 12 V. (PAC Dwg. 14241)	28 lbs.	(+84)
O	b. Battery Reading R33-12V (PAC Dwg. 14229)	28 lbs.	(+59)
X	Generator, Delco Remy. 12V., 20 Amp with Mounting Bracket	10.6 lbs.	(-49)
O	Generator, Delco Remy. 12V., 50 Amp with Mounting Bracket	16.6 lbs.	(-49)
X	Navigation Lights - Grimes	3 lbs.	(+65)
O	Alternator, Alco (PAC Dwg. 15500-2)	11 lbs.	(-49)
<u>Interior Equipment</u>			
X	Flight Manual and Supplements		
X	q. DMCR Approved Airplane Flight Manual Dated October 1, 1954, for Airplanes Equipped with Lycoming O-320 Engines.		
O	r. DMCR Approved Airplane Flight Manual Dated October 1, 1954, for Seaplanes Equipped with Lycoming O-320 Engines and EDO Model 89-2000 Floats.		
<u>Miscellaneous</u>			
X	Shoulder Harness Installation on Front and Rear Seats Per Piper Dwg. No. 12615		

Use Actual Wt. Change

580 820

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 034

PAGE 9 FA-18M

MODEL PA-18A

	Item	Weight	Arm About W. L.E.
	<u>Miscellaneous Equipment</u>		
X	Primary Group	5.0 lbs.	(-9)
X	ELT EBC-102A Depose le 07.10.83 FOLA 1214		
X	VHF King KY 197		
X	LHT Indicator		
X	Ammeter		
X	Pacific Wing Tips (STC SA 1678 NM)		
X	Strobe light Whelen HR, DF		
X	(Montre) Chrono Heuer Monte Carlo		
X	Air Filter Bracket (STC SA 71 GL)		
X	Sac à skis		
X	Enrouleurs de ceintures epaule		
X	INTERPHONE SOFTCOMM ATC-6P	NEGLIGIBLE	
X	STC Crosswinds STOL SA 682 AL		
X	XPDR KING KT 76 A	S/R 111397 3,1 Lbs.	-17 07.10.83 DK
X	ENCODER ACK A 30/8	S/R 51312 0,54 "	-24
X	ANTENNA KA 60	0,26 "	-14
X	Artex ME 406	2,2 lbs	+ 85 } installé 07.10.83
X	Garmin GTX 328	4,2 lbs	- 17 } DK
X	Pompe hydraulique		
X	Ski RF 3001 avant	2x 31,5 lbs	
X	Ski RF 3001 arrière	4,4 lbs	204,33
X	G-matic Falcon GH25-2	0,6 lbs	- 17 6.03.16

FAS
SIGN

B.R.

FAS
SIGN

SSC

DK

installé

DK

07.10.83

204,33

6.03.16

Relance FOLA 1214

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
PAGE ii
PA-18-150
MODEL PA-18A-150

LOG OF REVISIONS

<u>Rev.</u>	<u>Page</u>	<u>Change</u>	<u>Date</u>	<u>Approval</u>
A	8	Alcor Alternator Added	9/30/74	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1
B	7	Cleveland Model 20-119 Wheel-Brake Assembly, 6.00' x 6, 7.00 x 6 and 8.00 x 6 Tires Added	8/20/76	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1
	8	Retyped and Rearranged		
C	7	Changed Weight of Cleveland Model 20-119 Wheel-Brake Assembly from 12.6 lbs. to 17.4 lbs.	9/17/76	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1
D	1	Revise Static Limits	9/28/76	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1
E		Cover Revision Dates Added	12/21/76	<i>Paul E. Everly</i> Paul E. Everly DOA Coordinator December 21, 1976 DOA EA-1
	i	Table of Contents Added		
	ii	Authorized Signatures Added		
F	9	Tow Hook Added	10/5/77	<i>PE Everly</i> Paul E. Everly DOA Coordinator October 5, 1977 DOA EA-1

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT 834
 PAGE 10
 PA-18 "150"
 PA-18A "150"
 MODEL

Item	Weight	Arm About W. L.E.
<u>Miscellaneous Equipment (Continued)</u>		
NC-1-SC Avionics Group Instl. per PAC Dwg. 09062	10.0 lbs.	(+5.7)
KS-1-SC Avionics Group Instl. per PAC Dwg. 09066	7.3 lbs.	(+10.1)
KS-2-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09060-2	17.0 lbs.	(-0.7)
R.C. Allen A2475-2 Electric Turn and Bank	2.0 lbs.	(-11.0)
KS-1-SC Avionics Group Instl. (with KT-78A Transponder) per PAC Dwg. 09066-2	10.8 lbs.	(+11.6)
Emergency Locator Installa- tion per PAC Dwg. 66081-2	4.2 lbs.	(+100)
Artificial Horizon (Air)	1.8 lbs.	(-14.5)
Outside Air Temp. Gauge	.2 lbs.	(-11.0)
Eight Day Clock	.3 lbs.	(-11.0)
Vertical Speed Ind.	.7 lbs.	(-11.0)
Electric Fuel Gauge	.2 lbs.	(-12.0)
Control Stick Lock	.5 lbs.	(-10.0)
Dome Light	.2 lbs.	(+24.0)
CTM-1-SC Avionics Group Instl. per PAC Dwg. 09370	9.8 lbs.	(+ 1.6)
KS-2-SC Avionics Group Instl. per PAC Dwg. 09353-2	12.0 lbs.	(+10.4)
KS-2-SC Avionics Group Instl. (with transponder) per PAC Dwg. 09353-3	15.0 lbs.	(+ 5.0)

PREPARED	PIPER AIRCRAFT CORP.	Airplane Flight Manual Model PA-18 "150" PA-18A "150"
CHECKED		
APPROVED	Report 834	PAGE 11

<u>Item</u>	<u>Weight</u>	<u>Arm About W. L.E.</u>
<u>Miscellaneous Equipment (Continued)</u>		
Narco NTC-1-18 Avionics Group Instl. per PAC Dwg. 06170-2	14.7 lbs.	(+14.5)
King KTS-1-18 Avionics Group Instl. per PAC Dwg. 06180-2	14.5 lbs.	(+14.0)
Narco Escort IIA Radio per PAC Dwg. 06192	7.0 lbs.	(+35.3)
King KY-97A Communications Transceiver per PAC Dwg. 06193-2	5.3 lbs.	(-1.02)
King KT-76A Transponder per PAC Dwg. 06194-2	4.3 lbs.	(-3.14)
Narco AT-150 Transponder per PAC Dwg. 06195-2	3.8 lbs.	(+1.3)
Narco AR-850 Altitude Reporter per PAC Dwg. 06179-2	0.9 lbs.	(-23.0)
Sigtronics Intercom Syst. per CA Dwg. 18-3-071	0.28 lbs.	(-8.5)
Northstar Loran M1 per CA Dwg. 18-2-095	5.18 lbs.	(-8.5)



Schweizerische Eidgenossenschaft
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Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of the Environment, Transport, Energy and
Communications DETEC

Federal Office of Civil Aviation FOCA
Design and Production

Minor Change Approval

FOCA Reference: **MOD 15-036-mef**

Aircraft registration: **HB-ORV**

Applicability: **Piper PA-18-150 (160)
S/N 0**

Applicant: **Mobile Air Service
Route des Placettes
1880 Bex, Switzerland**

Date of Application: **10.01.2015**

Title/Description: **Increase of MTOM to 2000lbs with skis RF8001,
(FAA STC SA00997CH)**

Regulation basis: **Swiss VLL 748.215.1 (Chp 7); Art 44**

Approval statement

The Swiss Federal Office for Civil Aviation, Design and Production section, hereby confirms that the applicant has presented satisfactory evidence of compliance with the applicable airworthiness requirements in respect of the Change identified above.

Certification Basis:	CAR 3 (FAR 23 & Guidance from TSO c28 & NAS 808)
Reference documents:	AFM Supplement dated 10.01.2015
Limitations and conditions:	Prior to installation of this modification it must be determined that the interrelationship between this modification and any other previously installed modifications and/or repairs will introduce no adverse effect upon the airworthiness of the product.

This approval and associated data shall remain valid until surrendered, withdrawn or otherwise terminated.

Swiss Federal Office of Civil Aviation
FOCA Design and Production

Date of approval: **19.02.2015**

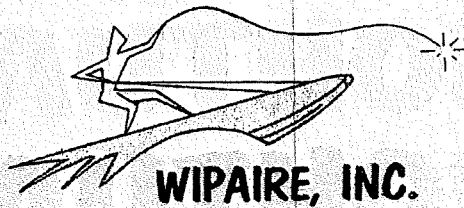
G. Giacomelli,
Manager Design and Production

Rolf Meier, Certification Engineer

FOCA Issuing Office to which any other communications with respect to the above should be sent:

Federal Office of Civil Aviation
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AIRPLANE FLIGHT MANUAL SUPPLEMENT 1

LANDPLANE

SUPER CUB MODEL PA-18-150, PA-18A-150

WITH STC SA682AL (160 BHP)

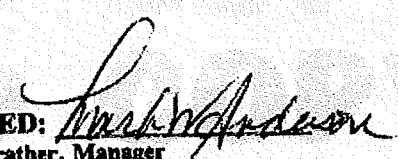
At a gross weight of 2000 pounds

REG. NO. HB-ORV

SER. NO. 18-MDC1040

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the airplane is modified in accordance with STC SA00997CH. The information contained herein supplements or supersedes the basic FAA Approved Airplane Flight Manual only in those areas listed. For limitations, procedures, and performance information not contained in this Supplement, consult the basic airplane placards, markings, and the AFM as applicable.

FAA APPROVED:


Royace Prather, Manager
Chicago Aircraft Certification Office
FAA Central Region

Date: JAN 25 1999

LANDPLANE
PA-18

[illegible]

NOTE: Revised text is indicated by a vertical black line along right margin.

DATE: 10/10/84

OPERATING LIMITATIONS

1. Airspeed Limitations (CAS)

SPEED	MPH	KNOTS
Maneuvering Speed (V_A)	103	89

Airspeed Indicator Markings

Green Arc - Normal Operating Range From Flaps Up Stall Speed to V_{NO} 52 to 121 mph
 White Arc - Flap operating Range From Flaps Down Stall Speed to V_{FE} 50 to 85 mph

2. Powerplant

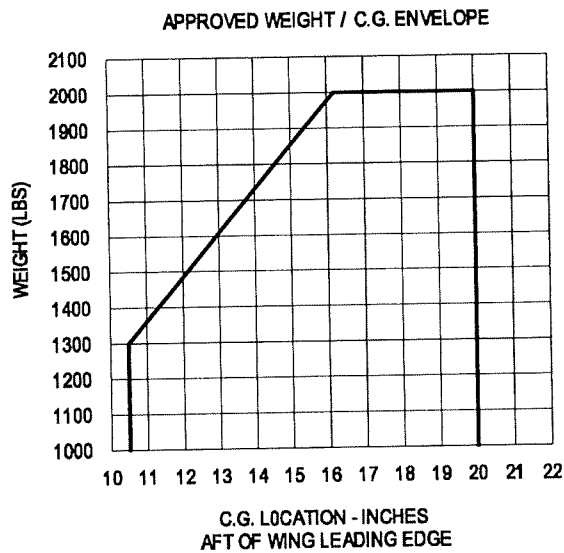
Engine..... Lycoming O-320-B2B or O-320-A2B as modified by STC
 SA682AL
 Power..... 160 BHP rated
 Maximum Oil Temperature..... 245°F
 Fuel Grade - Octane..... 100/130
 Propeller McCauley 1A175/GM8244
 Diameter - Maximum..... 82 inches
 Minimum..... 80.5 inches
 Static RPM at Full Throttle..... 2375 to 2475 RPM

3. Weight Limitations

Maximum Takeoff Weight..... 2000 pounds
 Maximum Landing Weight..... 1900 pounds

4. Load Distribution Limitations

Center of Gravity Limits (inches aft of wing leading edge)
 16.2 to 20.0 inches at 2000 pounds,
 10.5 to 20.0 inches at 1300 pounds or less,
 Straight line variation between points given above.



5. Maneuvers: NO CHANGE

6. Flight Load Factors: NO CHANGE

7. Other Limitations

For required propeller clearance, aircraft must be equipped with 8.50-6 tires, or larger.

8. PLACARDS

On aircraft modified with STC SA682AL (160 BHP) only -

In clear view of the pilot:

**THIS AIRPLANE MUST BE OPERATED IN
THE NORMAL CATEGORY ONLY. ALL
ACROBATIC MANEUVERS, INCLUDING
SPINS, ARE PROHIBITED.**

At the fuel tank filler caps:

100/130 OCTANE ONLY

In clear view of pilot

MANEUVERING SPEED 103 MPH (89 K)

OPERATING PROCEDURES

All operating procedures for this airplane are conventional.

Noise Level (160 BHP)

The corrected noise level of this airplane is 77.12 dB(a), determined for the Lycoming O-320 engine installation equipped with McCauley 1A175/GM8244 propeller.

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are, or should be, acceptable or unacceptable for operation at, into, or out of any airport.

The above statement notwithstanding, the noise level stated above was verified by, and approved by, the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36, Appendix G, Noise standards: Aircraft Type and Airworthiness Certification. The airplane noise is in compliance with all FAR 36 noise standards applicable to this type.

PERFORMANCE INFORMATION

INTRODUCTION

This section provides the performance information on the 160 BHP PA-18 Landplane required under CAR 3. All airspeeds are in terms of calibrated airspeed (CAS). The pilot must use available material for his particular airplane to determine the corresponding indicated airspeed. Under the original certification of the PA-18 at speeds between 1.3 times the stall speed with flaps up and V_{NO} and at 1.3 times the stall speed with flaps down the indicated airspeed was within ± 5 mph of the calibrated airspeed.

STALLING SPEEDS

Conditions:
Power Off
2000 Pounds

MOST FORWARD CENTER OF GRAVITY

WEIGHT LBS	FLAP POSITION	ANGLE OF BANK			
		0°	30°	45°	60°
		MCAS	MCAS	MCAS	MCAS
2000	0°	52	56	62	74
	25°	51	55	61	72
	50°	50	54	60	71

MOST REARWARD CENTER OF GRAVITY

WEIGHT LBS	FLAP POSITION	ANGLE OF BANK			
		0°	30°	45°	60°
		MCAS	MCAS	MCAS	MCAS
2000	0°	51	55	60	72
	25°	49	52	58	69
	50°	46	50	55	65

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JAN 10 1980

TAKEOFF DISTANCE OVER 50 FOOT OBSTACLE MAXIMUM WEIGHT 2000 LBS

SHORT FIELD

CONDITIONS:

Flaps 0°

Full Throttle, Mixture Rich (Below 3000') or Best Power (Above 3000')

Paved, Level, Dry Runway

No Wind

Obstacle Clearance Speed Is 63 MCAS

Notes:

1. Mixture may be leaned above 3000 feet for increased power.
2. Ground distance is estimated to be **approximately** 50% of total distance to obstacle height.
3. Brakes held until power is stabilized or distances apply from point of reaching full power.
4. Shorter distances may be achieved by using 25° flaps and an obstacle speed of approximately 61 MICAS.

PRESSURE ALTITUDE ft	STD. TEMP. °F	STD. TEMP. - 60°F	STD. TEMP. - 40°F	STD. TEMP. - 20°F	STD. TEMP.	STD. TEMP. + 20°F	STD. TEMP. + 40°F
		DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft
SL	59	994	1058	1124	1192	1262	1333
2000	52	1157	1236	1318	1402	1490	1580
4000	45	1363	1463	1567	1675	1787	1904
6000	38	1633	1762	1898	2040	2188	2344
8000	31	1995	2169	2353	2548	2754	2973

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LANDING DISTANCE OVER 50 FOOT OBSTACLE MAXIMUM WEIGHT 1900 LBS

SHORT FIELD

CONDITIONS:

Flaps 50°

Throttle Idle

Obstacle Clearance Speed Is 65 MCAS

No Wind

Paved, Level, Dry Runway

Note:

Ground distances are estimated to be **approximately** 45% of total landing distance from 50 foot obstacle height.

PRESSURE ALTITUDE ft	STD. TEMP. °F	STD. TEMP. - 60°F	STD. TEMP. - 40°F	STD. TEMP. - 20°F	STD. TEMP.	STD. TEMP. + 20°F	STD. TEMP. + 40°F
		DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft	DISTANCE TO CLEAR 50' OBSTACLE ft
SL	59	995	1023	1051	1079	1107	1136
2000	52	1033	1063	1093	1124	1154	1184
4000	45	1073	1106	1139	1171	1204	1237
6000	38	1117	1152	1188	1223	1258	1293
8000	31	1164	1202	1240	1278	1316	1354

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MAXIMUM RATE OF CLIMB
MAXIMUM WEIGHT 2000 LBS
CLEAN CONFIGURATION

CONDITIONS:

Flaps Up
Full Throttle
Mixture Rich

Note: Mixture leaned above 3000 feet for maximum RPM.

PRESS ALT FT	STD. TEMP. °F	CLIMB SPEED MCAS	RATE OF CLIMB - FPM					
			STD. TEMP. TEMP. - 60°F	STD. TEMP. TEMP. - 40°F	STD. TEMP. TEMP. - 20°F	STD. TEMP.	STD. TEMP. TEMP. + 20°F	STD. TEMP. TEMP. + 40°F
S.L.	59	74	813	791	771	752	733	718
2000	52	73	733	712	692	672	654	636
4000	45	72	654	633	612	593	575	557
6000	38	71	575	553	533	514	495	478
8000	31	70	495	474	453	434	416	398

TAKEOFF RATE OF CLIMB
MAXIMUM WEIGHT 2000 LBS
MAXIMUM TAKEOFF FLAPS

CONDITIONS:

Gear Down
Flaps 25°
Full Throttle
Mixture Rich

Note: Mixture leaned above 3000 feet for maximum RPM.

PRESS ALT FT	STD. TEMP. °F	CLIMB SPEED MCAS	RATE OF CLIMB - FPM					
			STD. TEMP. TEMP. - 60°F	STD. TEMP. TEMP. - 40°F	STD. TEMP. TEMP. - 20°F	STD. TEMP.	STD. TEMP. TEMP. + 20°F	STD. TEMP. TEMP. + 40°F
S.L.	59	70	751	730	710	691	672	655
2000	52	69	672	651	631	612	593	576
4000	45	67	593	572	552	533	514	497
6000	38	66	515	493	473	454	435	418
8000	31	65	436	414	394	375	357	339

BALKED LANDING RATE OF CLIMB
MAXIMUM WEIGHT 1900 LBS
MAXIMUM LANDING FLAPS

CONDITIONS:

Gear Down
Flaps 50°
Full Throttle
Mixture Rich

NOTE: Mixture leaned above 3000 feet for maximum RPM.

PRESS ALT FT	STD. TEMP. °F	CLIMB SPEED MCAS	RATE OF CLIMB - FPM					
			STD. TEMP. TEMP. - 60°F	STD. TEMP. TEMP. - 40°F	STD. TEMP. TEMP. - 20°F	STD. TEMP.	STD. TEMP. TEMP. + 20°F	STD. TEMP. TEMP. + 40°F
S.L.	59	64	664	641	619	599	579	561
2000	52	63	578	555	533	513	493	475
4000	45	62	492	469	447	427	408	389
6000	38	61	406	383	362	341	322	303
8000	31	60	320	297	276	256	236	218

FAA APPROVED

0000 1 0 1980

1) Généralités

Les informations contenues dans ce document concernent l'avion mentionné qui a été transformé par l'installation d'un moteur Lycoming O-320-B2B de 160 ch selon STC SA682AL et d'une hélice Sensenich 74DM6-0-56.

Ce supplément au manuel de vol remplace celui exigé par le STC SA682AL. Il est approuvé par l'OFAC et doit être incorporé à celui-ci et se trouver en permanence dans l'avion aussi longtemps que la modification ci-dessus est installée.

Les informations qu'il contient ne remplacent le manuel de vol original que pour les matières traitées. Pour toute limitation, procédure et information sur les performances consulter le manuel de vol original.

Approbation par
L'Office fédéral de l'aviation civile



2) Limitations

<u>Moteur</u>	Lycoming	O-320-B2B
<u>Limites</u>	160 ch à 2700 t/m	
<u>Carburant</u>	100-100LL oct. minimum	
<u>Hélice</u>	Sensenich	74DM6-0-56
<u>Catégorie</u>	Normale uniquement	
<u>Equipement</u>	L'installation du moteur doit être conforme aux indications de la page 1 du document "Descriptive information" de Crosswind STOL, selon STC SA682AL, à l'exception des données concernant l'hélice Mc Cauley.	
<u>Note</u>	L'exigence du STC SA682AL concernant la hauteur minimale des axes de roue est rendue caduque par l'installation de l'hélice Sensenich de 74" de diamètre.	
<u>Plaquettes</u>	Sur le tableau de bord en vue du pilote: "Cet avion ne doit être utilisé qu'en catégorie normale. Toute manoeuvre acrobatique, y compris la vrille est interdite". Près des orifices de remplissage de carburant: "100-100LL oct. minimum"	

3) *Procédures de secours*

Pas de modification.

4) *Procédures normales*

Pas de modification.

5) *Performances*

Performances égales ou supérieures à la version originale.

6) *Poids et centrage*

Voir le manuel de vol original contenant les données de masse et centrage actualisées.

7) *Description et fonctionnement*

Pas de modification.

8) *Maniement au sol, service et entretien*

L'entretien du moteur doit être conforme aux données publiées par Lycoming concernant cette version.

- Fin -

PIPER REPORT NO. 790

CAA Approved
Approval Basis CAR 3 and 410
December 29, 1952
Revised September 30, 1954

WINTERIZATION SUPPLEMENT TO

PIPER PA-18 "135", PA-18A "135", PA-18 "150",
PA-18A "150", PA-20 "135", PA-22 "135" AND
PA-22 "150" AIRPLANE FLIGHT MANUAL

Airplane Identification No. HB-ORV

Note: This Supplement must be attached to the C. A. A.
Approved Airplane Flight Manual when the
alternate equipment specified below is installed.
Information contained herein supplements or
supersedes corresponding information of the
basic manual.

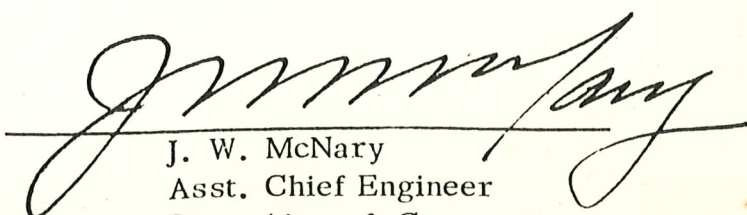
Alternate Equipment - Piper Winterization Kit

I. Installation Instructions

Winterization Kit consists of oil radiator cover, Piper
No. 14793, installed on the front of the oil radiator,
Placard, Piper No. 14090, installed in the cockpit in
front of and in full view of the pilot, and Winterization
Supplement, Piper Report No. 790, attached to the
C. A. A. Approved Airplane Flight Manual.

II. Limitations

Winterization Kit for use on airplanes operating in
outside air temperature below 40°F. Kit must be
removed when operating in temperatures above 40°F.


J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
DMCR 1-1

United States of America
Department of Transportation — Federal Aviation Administration
Supplemental Type Certificate

Number SA682AL

This certificate, issued to Crosswinds STOL
Wasilla, Alaska

HBORU

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 3 of the Civil Air Regulations.

Original Product — Type Certificate Number: 1A2

Make: Piper

Model: PA-18 "150" and PA-18A "150", Normal Category
Landplanes, Only.

Description of Type Design Change:

Installation of an AVCO Lycoming O-320-B2B engine or an AVCO Lycoming O-320-A2B engine modified by STC SE2315NM and a McCauley 1A175/GM8244 propeller in accordance with an FAA sealed copy each of Sheets 1 and 2 of Crosswinds STOL Descriptive Information No. 18-3DI, dated June 25, 1980, or later FAA approved revision, Sheets 1 and 2 of Crosswinds STOL Drawing No. 18-3, Revision A, dated March 20, 1991, or later FAA approved revision, and

Limitations and Conditions: (See Continuation Sheet Page 3 of 3)

The approval of this change in type design applies to the basic Piper PA-18 "150" and PA-18A "150" models only. This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship

(See Continuation Sheet Page 3 of 3)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 28, 1979

Date reissued:

Date of issuance: June 26, 1980

Date amended: April 17, 1991;
August 26, 1992; October 22, 1992

By direction of the Administrator

Robert L. Miller
Robert L. Miller, (Signature) Manager
Anchorage Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

United States of America
Department of Transportation—Federal Aviation Administration
Supplemental Type Certificate
(Continuation Sheet)

Number SA682AL

BORU

Description of Type Design Change: (Continued)

Crosswinds STOL Drawing No. 18-4, dated June 25, 1980, or Crosswinds STOL Drawing No. 18-4B, dated January 7, 1992, or later FAA approved revision.

FAA approved Airplane Flight Manual Supplement dated June 26, 1980, or later FAA approved revision, is required for Piper Model PA-18 "150" and PA-18A "150" airplanes equipped with this installation.

Limitations and Conditions: (Continued)

between this change and any of those previously approved modifications will introduce no adverse effect on the airworthiness of that aircraft. This determination should include consideration of significant changes in weight distribution, such as an increase in the fixed disposable weight in the fuselage.

This engine installation is approved for use on landplanes only.

Landplanes equipped with this engine installation must be operated in the Normal Category only. All acrobatic maneuvers, including spins, are prohibited. Airplanes incorporating this installation must be equipped with wheel/tire or ski installations which position the main gear axle centerlines at least 9 3/8 inches above the ground or bottom of the ski to insure adequate propeller clearances.

NOT VALID
EXPIRED

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Crosswinds STOL
SR Box 5223-E
Wasilla, Alaska 99687

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
PIPER MODEL PA-18 "150" AND PA-18A "150",
NORMAL CATEGORY ONLY

REG. NO. HB-ORV
SER. NO. _____

This Supplement must be attached to the DMCR Approved Flight Manual approved October 1, 1954, revised December 21, 1976, for landplane or skiplane equipped with Lycoming O-320 engine, when a 160-horsepower Lycoming O-320-B2B engine or a Lycoming O-320-A2B engine modified in accordance with STC SE2315NM and a McCauley 1A175/GM8244 propeller are installed in accordance with STC No. SA682AL. The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic airplane flight manual.

1. LIMITATIONS: The following limitations must be observed in the operation of this airplane: (Approved for Normal Category Operations only. All Utility Category limitations are deleted).

ENGINE	Avco Lycoming O-320-B2B or Avco Lycoming O-320-A2B as modified by STC SE2315NM
ENGINE LIMITS	160 HP AT 2700 rpm for all operations
FUEL	100/130 minimum grade aviation gasoline
PROPELLER	McCauley 1A175/GM8244 (metal -- fixed pitch) 82" Maximum diameter 80.5" Minimum diameter Static Limits: Maximum 2475 rpm Minimum 2375 rpm

NOTE: Airplane must be equipped with wheel/tire or ski installations which position the main gear axle centerlines at least 9 3/8 inches above the ground or bottom of the ski to insure adequate propeller clearances.

FAA APPROVED: Robert L. Niella

PAINTED STOL

Manager, Anchorage Aircraft Certification Office
Federal Aviation Administration
Anchorage, Alaska

DATE: June 26, 1980

REVISION 1, October 22, 1992

Crosswinds STOL
SR Box 5223-E
Wasilla, Alaska 99687

HBORV

PLACARDS

The following placards must be displayed:

(a) On the instrument panel in full view of the pilot:

(1) "THIS AIRPLANE MUST BE OPERATED IN THE NORMAL CATEGORY ONLY. ALL ACROBATIC MANEUVERS, INCLUDING SPINS, ARE PROHIBITED."

(2) "NO SMOKING."

(b) On the baggage compartment:

(1) "MAXIMUM BAGGAGE - 50 LBS" $\approx 22.6\text{kg}$

(c) Displayed at the fuel tank filler caps:

"100/130 OCTANE ONLY"

2. PROCEDURES: Unchanged

FAA APPROVED

DATE: June 26, 1980

Revision 1, October 22, 1992

130RV

CROSSWINDS STOL
SR BOX 5223-E
WASILLA, ALASKA 99687

DESCRIPTIVE INFORMATION NO. 18-3DI

INSTALLATION OF AVCO LYCOMING O-320-B2B ENGINE OR
AVCO LYCOMING O-320-A2B ENGINE AS MODIFIED BY
STC SE2315NM AND MCCAULEY 1A175/GM8244 PROPELLER
ON PIPER PA-18 "150" AND PA-18A "150" AIRCRAFT

June 25, 1980
Revision 1, August 26, 1992
Revision 2, October 22, 1992

This modification is to be performed only on those PA-18 "150" and PA-18A "150" airplanes with power plant installations conforming to Piper Aircraft Corporation Drawing No. 15013, and having the Piper P/N 13716-00 nose cowl assembly and Piper P/N 15012-00 bottom cowl assembly installed. The airplane to be modified must have the Piper P/N 14439-00 right front baffle assembly, Piper P/N 14458-05 right rear baffle assembly, Piper P/N 14467-05 left rear baffle assembly, and Piper P/N 15158-00 baffle reinforcement plate installed, and must have electrical generating equipment other than a 35-ampere generator, a 50-ampere generator, or a 60-ampere alternator installed. The airplane must be equipped with a wheel and tire combination that positions the main gear axle centerlines at least 9 3/8 inches above the ground, or with a ski installation that positions the main gear axle centerlines at least 9 3/8 inches above the bottom of the skis, to insure adequate propeller clearance.

The modification is performed by removing the existing power plant installation from the aircraft and replacing the existing engine with an AVCO Lycoming O-320-B2B engine or an Avco Lycoming O-320-A2B engine as modified by STC SE2315NM. All other power plant components are then re-installed in a manner identical to the original, except as noted below:

1. The original left rear baffle is replaced by Crosswinds P/N 18-301 and the original oil radiator installation is replaced by that shown on Crosswinds STOL Drawing No. 18-3, Revision A, dated 3-20-91, or later FAA approved revision. An oil radiator cover, Piper P/N 14073-00, is installed on the nose cowl. NOTE: The center holes on the flanges of the Niagara Oil Radiator are NOT to be used to attach the radiator.
2. The holes in the left and right rear baffles, and in the left and right front baffles, through which the original oil radiator lines passed, are sealed shut with AN931-6-10 grommets and General Electric, Dow Corning, or equivalent silicone sealant.

- HBORV
3. The Piper P/N 15012-00 bottom cowl assembly is modified by adding the cooling flange, Crosswinds P/N 18-401, as shown on Crosswinds STOL Drawing No. 18-4 dated 6-25-80, or Crosswinds P/N 18-401A as shown on Crosswinds STOL Drawing No. 18-4B dated 1-7-92.
 4. The original propeller is replaced by a McCauley 1A175/GM8244 propeller and accompanying mounting bolt kit. The mounting bolts are torqued to a recommended value of 25 foot-pounds (300 inch-pounds). The original propeller spinner assembly is re-installed without alteration.

In addition, the following must be accomplished in order to complete this installation.

A. PLACARDS

1. Remove all placards which relate to Utility Category operations.
2. Remove that portion of the wing fuel tank filler cap placards that specify, in effect, "80/87 Octane Only" (Do not remove those portions of the placards stating "Fuel" and "18 U.S. Gals.>").
3. The following placards must be displayed as specified:
 - a. On the instrument panel in full view of the pilot:
"THIS AIRPLANE MUST BE OPERATED IN NORMAL CATEGORY ONLY. ALL ACROBATIC MANEUVERS, INCLUDING SPINS, ARE PROHIBITED."
 - b. At each fuel tank filler cap: Napda Decal P/N PL-54, "100/130 OCTANE ONLY".

B. AIRCRAFT FLIGHT MANUAL

The aircraft must have, in addition to the original flight manual, a supplement to the flight manual that has been FAA approved for this installation. This document must be carried in the aircraft at all times.

C. AIRCRAFT RECORDS

Make proper entries in the log books, equipment list, and weight and balance records. NOTE: The aircraft weight change due to this installation is not significant.

Initiate FAA Form 337 (Major repair or alteration form) describing the change and listing the STC number.

June 25, 1980

Revision 1, August 26, 1992

Revision 2, October 22, 1992

Page 2 of 2