

CHIEFTAIN PA-31-350

PILOT'S OPERATING HANDBOOK


AND

FAA APPROVED AIRPLANE FLIGHT MANUAL

AIRPLANE
SERIAL NO. _____

AIRPLANE
REGIST. NO. _____

PA-31-350
REPORT: LK-1208 FAA APPROVED BY:



D. H. TROMPLER
D.O.A. NO. SO-2
PIPER AIRCRAFT CORPORATION
LAKELAND, FLORIDA

DATE OF APPROVAL:
SEPTEMBER 14, 1979

FAA APPROVED IN NORMAL CATEGORY BASED ON CAR 3 AND FAR PART 21, SUBPART J. THIS DOCUMENT INCLUDES THE MATERIAL REQUIRED TO BE FURNISHED TO THE PILOT BY CAR 3 AND FAR PART 21, SUBPART J AND CONSTITUTES THE APPROVED AIRPLANE FLIGHT MANUAL AND MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.



APPLICABILITY

Application of this handbook is limited to the specific Piper PA-31-350 model airplane designated by serial number and registration number on the face of the title page of this handbook.

This handbook cannot be used for operational purposes unless kept in a current status.

REVISIONS

The information compiled in the Pilot's Operating Handbook, with the exception of the equipment list, will be kept current by revisions distributed to the airplane owners. The equipment list was current at the time the airplane was licensed by the manufacturer and thereafter must be maintained by the owner.

Revision material will consist of information necessary to update the text of the present handbook and/or to add information to cover added airplane equipment.

I. Revisions

Revisions will be distributed whenever necessary as complete page replacements or additions and shall be inserted into the handbook in accordance with the instructions given below:

1. Revision pages will replace only pages with the same page number.
2. Insert all additional pages in proper numerical order within each section.
3. Page numbers followed by a small letter shall be inserted in direct sequence with the same common numbered page.

II. Identification of Revised Material

Revised text and illustrations shall be indicated by a black vertical line along the outside margin of the page, opposite revised, added or deleted material. A line along the outside margin of the page opposite the page number will indicate that an entire page was added.

Black lines will indicate only current revisions with changes and additions to or deletions of existing text and illustrations. Changes in capitalization, spelling, punctuation or the physical location of material on a page will not be identified by symbols.


ORIGINAL PAGES ISSUED

The original pages issued for this handbook prior to revision are given below:

Title, ii through vii, 1-1 through 1-22, 2-1 through 2-18, 3-1 through 3-28, 4-1 through 4-27, 5-1 through 5-39, 6-1 through 6-88, 7-1 through 7-69, 8-1 through 8-26, 9-1 through 9-135, and 10-1 through 10-3.

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS



Current Revisions to the PA-31-350 Chieftain Pilot's Operating Handbook,
REPORT: LK-1208 issued September 14, 1979.

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 1 (PR800129)	1-4 4-8 4-19 5-5 5-6 5-25 5-30 5-31 5-33 6-12 6-42 6-52 6-53 6-59 6-61 6-65 6-72 6-74 7-21 7-32 7-35, 7-36 8-10 8-14 8-15 thru 8-18	Added fuel additive info. Added 2400 RPM. Removed info. Revised cruise figures. Revised fuel required figure. Corrected spelling. Removed 2500 RPM column. Revised MP column. Corrected spelling. Revised rear baggage arm. Added item 189. Revised item 321. Revised item 327. Revised item 393. Revised item 415. Revised item 463. Revised item 535. Revised item 561. Corrected para. reference. Revised wording. Revised paragraph structure and wording. Corrected spelling. Added fuel additive info. Relocated info.	<div style="text-align: right;">  D.H. Trompler Jan. 29, 1980 </div>
Rev. 2 (PR800404)	2-i, 2-7 2-12, 2-14	Removed flap indicator markings & revised para. nos. Revised para. no.	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 2 (PR800404) (cont)	3-i	Revised engine failure during takeoff index.	
	3-3	Removed engine failure during takeoff info.	
	3-4	Revised engine failure during takeoff info.	
	3-5	Relocated material & added warning.	
	3-15, 3-16	Revised engine failure during takeoff info.	
	3-17, 3-18, 3-19	Relocated material.	
	4-i	Revised para. 4.23. Added para. 4.24.	
	4-2	Revised items (d), (g) & (h).	
	4-8	Revised Before Takeoff, Takeoff & Climb info.	
	4-9	Revised Before Landing & Balked Landing info.	
	4-18	Revised para. 4.21 & 4.23.	
	4-19	Revised material. Added para. 4.24. Relocated para. 4.25.	
	4-21	Revised para. 4.29.	
	4-25	Revised para. 4.41.	
	5-4	Revised takeoff distances.	
	5-6	Revised # to +.	
	5-7	Revised figure no.	
	5-9	Revised index.	
	5-11	Added temperature conversion chart.	
	5-12 thru 5-17 5-18, 5-19	Relocated charts. Revised charts.	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)


Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 2 (PR800404) (cont)	6-37 7-8 9-24, 9-34 9-44, 9-60	Revised item 119. Revised para. 7.9. Revised item (f). Revised item (b).	 D.H. Trompler April 4, 1980
Rev. 3 (PR800612)	2-17 2-18	Revised Windshield Wiper placard; deleted Synchrophaser placard. Revised Cargo Loading placard.	 D.H. Trompler June 12, 1980
Rev. 4 (PR800916)	1-4 2-1 3-1 4-1 4-2 4-7 5-4 5-5 5-19 5-22 5-24 5-34 5-37 6-11 6-35 6-42 6-43 6-44 6-49	Revised * note. Revised para. 2.1. Revised para. 3.1. Revised para. 4.1. Revised para. 4.3. Relocated material. Revised Figure no. Revised Cruise Fuel & Average Cruise Weight nos. Added Goodyear 9544482 Brake Assemblies to chart. Corrected example. Corrected note. Corrected engine no. Corrected note. Revised 8th seat arm. Revised item 99. Revised item 187. Revised items 211 & 213. Added item 229. Removed item 291.	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 4 (PR800916) (cont)	6-50	Removed items 293, 295, 297 & 299. Added items 290 and 291.	
	6-50a	Added pg. Added items 293, 295, 297 & 299.	
	6-50b	Added pg.	
	6-52	Revised item 321 to 317. Removed item 323.	
	6-52a,	Added pg. Added item 319.	
	6-52b,		
	6-52c		
	6-52d	Added pg. Added items 319 & 321.	
	6-52e,	Added pg. Added item 321.	
	6-52f		
	6-52g	Added pg. Added item 321 and item 323.	
	6-52h	Added pg.	
	6-53	Removed items 329 & 331.	
	6-53a	Added pg. Added items 328, 329 & 331.	
	6-53b	Added pg.	
	6-57	Revised item 371.	
	6-59	Added item 394. Removed item 395.	
	6-60	Added items 395 & 406.	
	6-62	Added item 422.	
	6-64	Revised item 447 to 446. Added new item 447. Removed material.	
6-64a	Added pg. Added item 448.		
6-64b	Added pg. Added new item 449. Added renumbered items.		
6-79	Revised item 661.		
6-88	Added item 691.		
7-24	Added 3 amp flap control breaker.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 4 (PR800916) (cont)	7-26	Corrected switch location statement.	
	7-28	Removed radio light switch & renumbered items.	
	7-29	Revised callouts.	
	7-32	Revised PA system & ground clearance energy saver info.	
	7-42	Revised para. 7.35.	
	7-43	Added optional chimes info.	
	7-52	Revised wording.	
	7-61	Revised para. 7.63 & 7.67.	
	7-62	Added fire extinguisher info. & relocated material.	
	7-63	Relocated material.	
	8-5	Revised wording.	
	8-7	Revised item (c) (3).	
	8-14	Revised para. 8.25.	
	8-16	Revised para. 8.27.	
	9-i	Revised Table of Contents.	
	9-4	Revised item (f) (3).	
	9-13	Revised item (b).	
	9-16	Added overhead switch.	
	9-17	Revised item (d).	
	9-82	Revised item (e).	
9-123 thru 9-136	Revised Supplement 11.		
9-137 thru 9-218		Added Supplements 12 through 17.	
ii		Revised Warning.	
2-10		Deleted item (a) (14).	
Rev. 5 (PR810130)	2-15	Deleted placard; revised spelling.	
	2-16	Revised placard locations.	


 D.H. Trompler
 Sept. 16, 1980

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
<p>Rev. 5 (PR810130) (cont)</p>	3-i	Revised Engine Inoperative Procedures; relocated info. to pg. 3-ii.	
	3-ii	Added info. from pg. 3-i.	
	3-4	Revised procedure headings.	
	3-4a,	Added Engine Failure During Short Field Takeoff procedures.	
	3-4b,		
	3-4c,		
	3-4d		
	3-5	Deleted Warning.	
	3-15	Revised procedure heading.	
	3-16	Revised procedure heading and Warning.	
	3-16a,	Added Engine Failure During Short Field Takeoff procedures.	
	3-16b,		
	3-16c,		
	3-16d		
	4-1	Revised pg. no.	
	4-8	Revised procedure heading, added Short Field Takeoff procedure, relocated info. to pg. 4-9.	
4-9	Added Short Field info.; added info. from pg. 4-8; relocated info. to pg. 4-10.		
4-10	Added info. from pg. 4-9; relocated info. to pg. 4-10a.		
4-10a,	Added pgs. (added info. from pg. 4-10).		
4-10b			
4-18	Revised para. 4.21; relocated para. 4.23 to pg. 4-18a.		
4-18a,	Added pgs. (added info. from pg. 4-18; added Short Field Takeoff procedures; added info. from pg. 4-19).		
4-18b			
4-19	Relocated info. to pg. 4-18a; added info. from pg. 4-20.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)


Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 5 (PR810130) (cont)	4-20	Relocated info. to pg. 4-19; added info. from pg. 4-21.	
	4-21	Relocated info. to pg. 4-20; added info. from pg. 4-22.	
	4-22	Relocated info. to pg. 4-21.	
	5-9	Revised Figures 5-15 and 5-17; added Figures 5-18 and 5-18a.	
	5-13	Revised Figure 5-5.	
	5-18	Revised Figure 5-15.	
	5-19	Revised Figure 5-17.	
	5-19a, 5-19b	Added pgs. (added Figures 5-18 and 5-18a).	
	6-31	Added item 50; relocated item 53 to pg. 6-32.	
	6-32	Added item 53 from pg. 6-31; relocated item 67 to pg. 6-33.	
	6-33	Added item 67 from pg. 6-32.	
	6-34	Added item 94.	
	6-37	Revised item 119.	
	6-42	Revised item 189.	
	6-64a	Revised item 448.	
	6-66	Added item 474.	
6-72	Revised item 537.		
6-83	Revised item 673 i and j.		
Rev. 6 (PR810824)	2-i	Added new para. no.	
	2-5	Added new para. 2.12.	
	4-19	Revised para. 4.25.	
	5-19	Revised Figure 5-17.	
	6-30	Revised item 29.	
	6-38	Removed item 129.	
	6-45	Added new item 243.	
	6-47	Added new item 266.	
	6-48	Added new items 275 thru 279.	


 D.H. Trompler
 Jan. 30, 1981

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 6 (PR810824) (cont)	6-50	Revised equipment list heading.	
	6-52b	Revised item 319.	
	6-52c	Revised item 319.	
	6-52d	Revised item 319.	
	6-68	Added new item 490.	
	6-80	Revised item 663; added new item 664.	
	6-82	Revised item 673 (a) thru (e).	
	6-83	Revised item 673 (f) thru (i) and (k).	
	6-84	Revised item 673 (l) thru (p).	
	7-1	Revised para. 7.3.	
	7-2	Revised para. 7.3; moved info. to pg. 7-4.	
	7-4	Relocated info. from pg. 7-2; moved info. to pg. 7-5.	
	7-5	Relocated info. from pg. 7-4.	
	7-6	Revised para. 7.7.	
	7-17	Revised para. 7.17.	
	7-39	Revised para. 7.33; added Note; moved info. to pg. 7-40.	
	7-46	Revised para. 7.43.	
	7-62	Revised para. 7.73; moved info. to pg. 7-63.	
	7-63	Relocated info. from pg. 7-62; revised para. 7.75; moved info. to pg. 7-64.	
	7-66	Relocated info. from pg. 7-63.	
	8-i	Changed pg. nos.	
	8-7	Revised para. 8.9.	
	8-15	Revised para. 8.25; moved Note to pg. 8-16.	
8-16	Relocated Note from pg. 8-15; moved para. 8.27 to pg. 8-17.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 6 (PR810824) (cont)	8-17	Relocated para. 8.27 from pg. 8-16; moved para. 8.31 to pg. 8-18.	 D.H. Trompler Aug. 20, 1981
	8-18	Relocated para. 8.31 from pg. 8-17.	
	9-140	Revised Section 1 (d) (2).	
	9-157	Revised Section 1, step 9.	
	9-213	Revised Appch. Button Function.	
Rev. 7 (PR820917)	iii	Revised para.	
	1-i	Revised Table of Contents.	
	1-9	Corrected spelling.	
	1-13 thru 1-22	Deleted pgs.; deleted para. 1.21.	
	2-8, 2-9	Revised para. 2.25 info.	
	3-i	Relocated info. to pg. 3-ii; revised Table of Contents.	
	3-ii	Added info. from pg. 3-i.	
	3-27	Revised para. 3.33 info.	
	4-i	Relocated info. to new pg. 4-ii; revised Table of Contents.	
	4-ii	Added pg.; added info. from pg. 4-i.	
	5-3	Revised para. 5.5 (b) info.	
	5-20, 5-23	Revised fig. no.	
	5-25, 5-26	Added Note.	
	6-i	Revised Table of Contents.	
	6-1	Revised para. 6.1.	
6-2	Revised para. 6.3.		
6-5	Revised para. 6.5.		
6-6	Revised fig. 6-7.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 7 (PR820917) (cont)	6-7	Revised fig. 6-9.	
	6-19	Corrected spelling.	
	6-22	Revised para. 6.15.	
	6-23	Revised para. 6.15 info.	
	6-25	Revised example.	
	7-i,	Revised Table of Contents.	
	7-ii		
	7-1	Revised para. 7.3.	
	7-2	Relocated info. to pg. 7-4; revised para. 7.3 info.	
	7-3		Revised fig. 7-1.
	7-4	Relocated para. 7.5 info. to pg. 7-5; added info. from pg. 7-2.	
	7-5		Relocated info. to pg. 7-6; added para. 7.5 info. from pg. 7-4.
	7-6	Added info. from pg. 7-5.	
	7-10	Revised para. 7.9 info.	
	7-21	Relocated para. 7.19 to pg. 7-22.	
	7-22		Relocated info. to pg. 7-23; added para. 7.19 from pg. 7-21.
	7-23	Relocated fig. 7-19 to pg. 7-24; added para. 7.19 info. from pg. 7-22 and pg. 7-26.	
	7-24		Relocated fig. 7-21 to pg. 7-25; added fig. 7-19 from pg. 7-23.
	7-25	Relocated fig. 7-23 to pg. 7-26; added fig. 7-21 from pg. 7-24.	
	7-26		Relocated info. to pg. 7-23 and new pg. 7-26b; added fig. 7-23 from pg. 7-25.
7-26a	Added pg.; added new fig. 7-24.		


PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 7 (PR820917) (cont)	7-26b	Added pg.; added info. from pgs. 7-26 and 7-27; revised info.	
	7-27	Relocated info. to pg. 7-26b; corrected typo.	
	7-33	Revised para. 7.27.	
	7-45	Revised para. 7.37 info.; revised para. 7.39.	
	7-46	Deleted fig. 7-37 (Oxygen Duration Chart); added para. 7.45 from pg. 7-47.	
	7-47	Relocated para. 7.45 to pg. 7-46 and pg. 7-48; added new fig. 7-37 (Oxygen Duration Table).	
	7-48	Revised size of fig. 7-39 (Oxygen System); added para. 7.45 info. from pg. 7-47.	
	7-52	Revised para. 7.49.	
	7-53	Revised para. 7.49 info.	
	7-60	Revised para. 7.61.	
	7-61	Revised para. 7.63.	
	7-64	Revised fig. 7-43.	
	8-2	Revised para. 8.3.	
	8-3	Revised para. 8.3 info.; revised para. 8.5.	
	8-4	Revised para. 8.5 info.; added para. 8.7 info. from pg. 8-5.	
	8-5	Relocated para. 8.7 info. to pg. 8-4.	
	8-10	Revised para. 8.17.	
8-11	Added Note.		
8-25	Corrected spelling.		
9-i	Revised Table of Contents; relocated Supplement 17 to new pg. 9-ii.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 7 (PR820917) (cont)	9-ii	Added pg.; added Supplement 17 from pg. 9-i; added new Supplements 18 and 19 to Table of Contents.	
	9-3	Revised Section 1.	
	9-4	Relocated Section 4 items (g) and (h) to pg. 9-5; revised Section 4 items (a) and (b).	
	9-5	Relocated Section 5 to pg. 9-6; added Section 4 items (g) and (h) from pg. 9-4; revised in-flight oxygen table.	
	9-6	Added Section 5 from pg. 9-5	
	9-12	Revised Section 6.	
	9-15	Revised Section 7 (c).	
	9-21	Revised Section 7 (h).	
	9-23	Revised Section 1.	
	9-28	Corrected typo.	
	9-33	Revised Section 1.	
	9-35	Revised Format.	
	9-37	Corrected typo.	
	9-43,	Revised Section 1.	
	9-55		
	9-59,	Revised Section 1.	
	9-75,		
	9-93,		
	9-109,		
	9-123,		
9-137,			
9-149			
9-155	Revised supplement title; revised Section 1.		
9-156	Revised info. and illust.		
9-157	Revised item 9.		
9-159	Revised Section 5.		
9-161	Revised supplement title; revised Section 1.		


PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
<p>Rev. 7 (PR820917) (cont)</p>	<p>9-162 9-163 9-167 9-169 9-183 9-184 9-191 9-207 9-219 thru 9-254 9-255 thru 9-260</p>	<p>Revised info. Revised illust. Revised Section 5. Revised Section 1. Revised Section 6.5. Revised Section 6.5 info. Revised Section 1. Revised Section 6. Added pgs.; added new Supplement 18 (Edo-Aire Mitchell Century 41 Autopilot Model AK847 or Century 41 Flight Director Autopilot Model AK847/FD). Added pgs.; added new Supplement 19 (Bendix RDR-160XD and RDR-230HP Color Weather Radar).</p>	<p align="right">  D.H. Trompler Oct. 12, 1982 </p>
<p>Rev. 8 (PR831118)</p>	<p>vii 1-2 1-5 1-7 3-20 3-22 4-i 4-7 4-11</p>	<p>Revised Table of Contents. Revised Turn Radius and Towing Turn Radius. Revised para. 1.13. Corrected spelling. Revised Single Engine Go-Around procedure. Revised para. 3.19. Revised Table of Contents. Revised Engine Run-Up procedure. Revised para. 4.9; added info. from pg. 4-12.</p>	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 8 (PR831118) (cont)	4-12	Relocated info. to pg. 4-11; revised info.	
	4-18	Revised para. 4.21.	
	5-14	Revised Fig. 5-7.	
	5-15	Revised Fig. 5-9.	
	7-5	Revised info.	
	7-26b	Revised info.	
	7-27	Revised para. 7.21.	
	7-62	Revised para. 7.69 title; added note.	
	7-64	Revised Fig. 7-43.	
	8-i	Revised Table of Contents.	
	8-2	Revised para. 8.3.	
	8-11	Deleted info.; revised info.; added para. 8.19 and para. 8.21 from pg. 8-12; revised para. 8.21.	
	8-12	Deleted info.; relocated para. 8.19 and para. 8.21 to pg. 8-11; added para. 8.21 info. and para. 8.23 from pg. 8-13.	
	8-13	Relocated para. 8.21 and para. 8.23 info. to pg. 8-12; added para. 8.23 info. from pg. 8-14.	
	8-14	Relocated para. 8.23 info. to pg. 8-13; added para. 8.25 (b) from pg. 8-15.	
	8-15	Relocated para. 8.25 (b) to pg. 8-14; added Note from pg. 8-16.	
	8-16	Relocated Note to pg. 8-15.	
	8-26	Revised para. (h).	
	9-44	Revised Section 2 (a).	
	9-46	Relocated items (e) (5) thru (e) (7) to pg. 9-47; revised item (b).	
9-47	Added item (e) (5) thru (e) (7) from pg. 9-46.		

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
<p>Rev. 8 (PR831118) (cont)</p>	<p>9-60 9-61 9-66 9-73 9-74 9-77 9-90 9-95 9-100 9-132 9-133 9-163 9-164 9-220 9-221 9-225 9-229 9-259 10-i 10-1 10-2, 10-3</p>	<p>Revised Section 2 (a). Revised items (b) (2) and (c) (2) and (c) (3). Revised item (k). Revised para. 4.7. Revised Section 5. Revised Abbreviations. Corrected typo. Revised Abbreviations. Revised item (d) (1). Revised item (a). Revised item (1) (a). Revised item (2). Revised Abbreviations. Revised Section 2 (h). Revised item (e) (2). Revised Note. Corrected spelling. Revised Table of Contents. Revised Title; para. 10.1, 10.3 and 10.3 (a). Revised Title.</p>	<p align="right">  D.H. Trompler Nov. 18, 1983 </p>
<p>Rev. 9 (PR840504)</p>	<p>1-4 1-9 1-10</p>	<p>Revised para. 1.7. Relocated para. 1.19 (b) info. to pg. 1-10; revised para. 1.19 (b) info. Relocated para. 1.19 (e) info. to pg. 1-11; deleted MEA; added para. 1.19 (b) info. from pg. 1-9.</p>	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 9 (PR840504) (cont)	1-11	Relocated para. 1.19 (f) info. to pg. 1-12; added para. 1.19 (c) info. from pg. 1-10; added new terminology.	
	1-12	Added para. 1.19 (f) from pg. 1-11.	
	2-4	Revised para. 2.7 (g).	
	2-9	Revised para. 2.25 info.	
	2-15	Revised para. 2.29 info.; relocated para. 2.29 info. to pg. 2-16; added placard.	
	2-16	Added para. 2.29 info. from pg. 2-15; added placard.	
	2-17	Added placard.	
	4-i	Revised Table of Contents.	
	4-4	Revised para. 4.5 info.	
	4-5	Relocated para. 4.5 info. to pg. 4-6; revised para. 4.5 info.	
	4-6	Relocated para. 4.5 info. to pg. 4-7; added para. 4.5 info. from pg. 4-5.	
	4-7	Relocated para. 4.5 info. to pg. 4-8; added para. 4.5 info. from pg. 4-6; revised para. 4.5 info.	
	4-8	Relocated para. 4.5 info. to pg. 4-9; added para. 4.5 info. from pg. 4-7.	
	4-9	Relocated para. 4.5 info. to pg. 4-10; added para. 4.5 info. from pg. 4-8; revised para. 4.5 info.	
	4-10	Relocated para. 4.5 info. to pg. 4-10a; added para. 4.5 info. from pg. 4-9.	

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 9 (PR840504) (cont)	4-10a	Added para. 4.5 info. from pg. 4-10.	
	4-12, 4-13 4-14 4-15	Revised para. 4.9 info. Revised para. 4.11. Relocated para. 4.13 info. to pg. 4-16; revised para. 4.11 info.	
	4-16	Relocated para. 4.15 info. to pg. 4-17; added para. 4.13 info. from pg. 4-15.	
	4-17	Relocated para. 4.19 info. to pg. 4-18; revised para. 4.19; added para. 4.15 from pg. 4-16.	
	4-18	Added para. 4.19 info. from pg. 4-17.	
	5-19	Revised Fig. 5-17.	
	5-38	Revised Fig. 5-55.	
	7-i	Revised Table of Contents.	
	7-3	Revised Fig. 7-3.	
	7-12	Relocated para. 7.15 to pg. 7-13; revised para. 7.13.	
	7-13	Added para. 7.15 from pg. 7-12.	
	7-54	Revised para. 7.51.	
	8-3	Revised para. 8.5.	
	8-5	Added para. 8.9 (b) (3), (4) from pg. 8-6.	
	8-6	Relocated para. 8.9 (b) (3), (4) to pg. 8-5; revised para. 8.9 (c) (2).	
	8-14	Revised para. 8.25 (a).	
	9-14	Revised Supplement 2 (Ice Protection System).	


D.H. Trompler
May 4, 1984

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GENERAL

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**SECTION 1
GENERAL**

1.1 INTRODUCTION

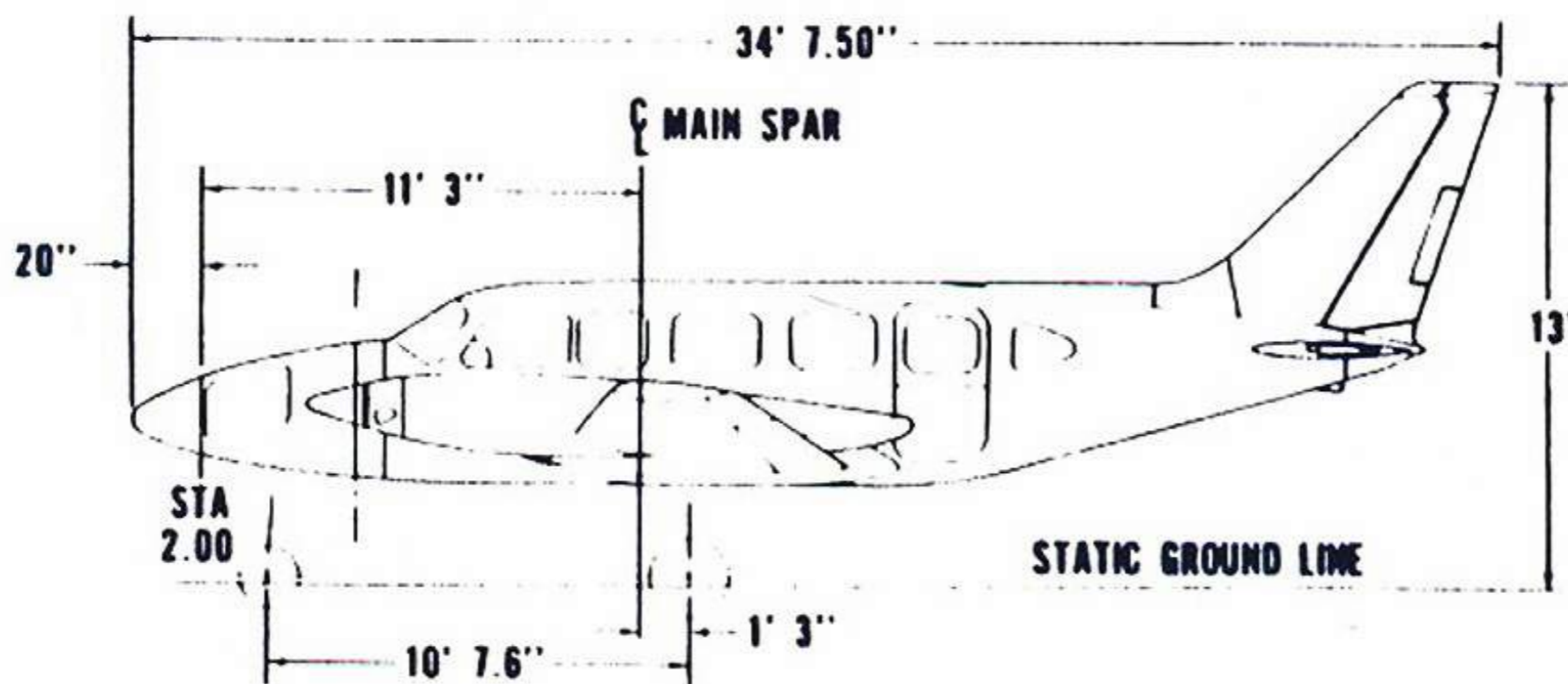
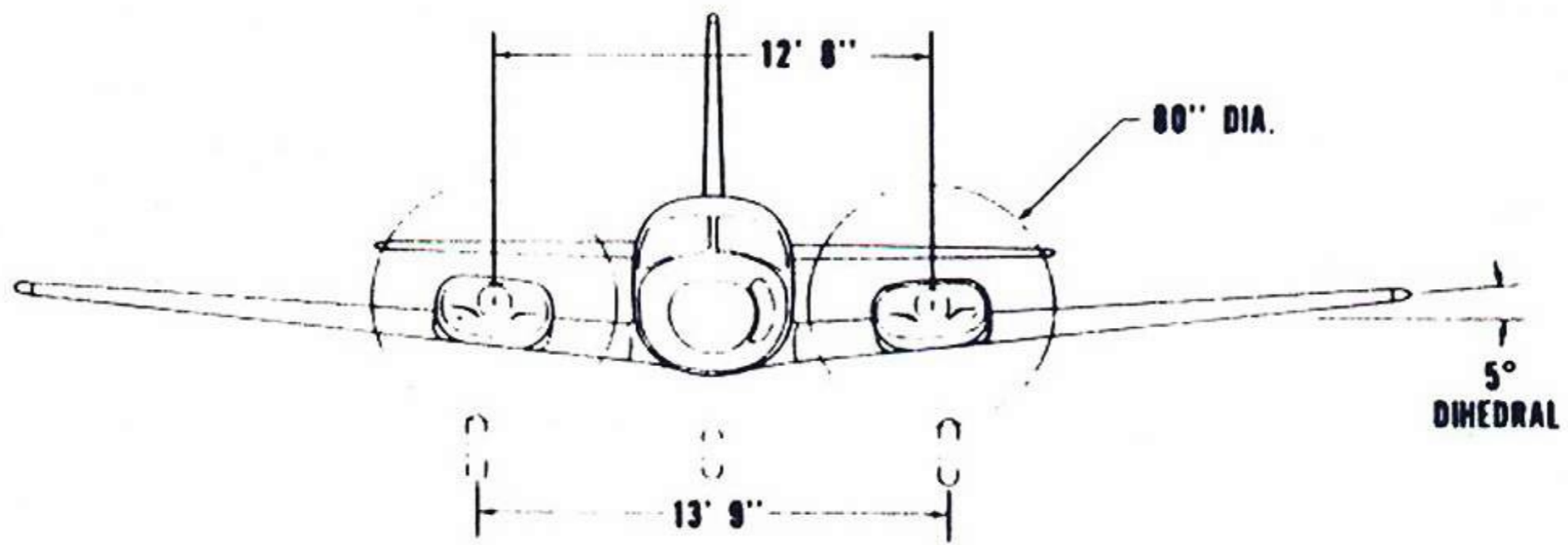
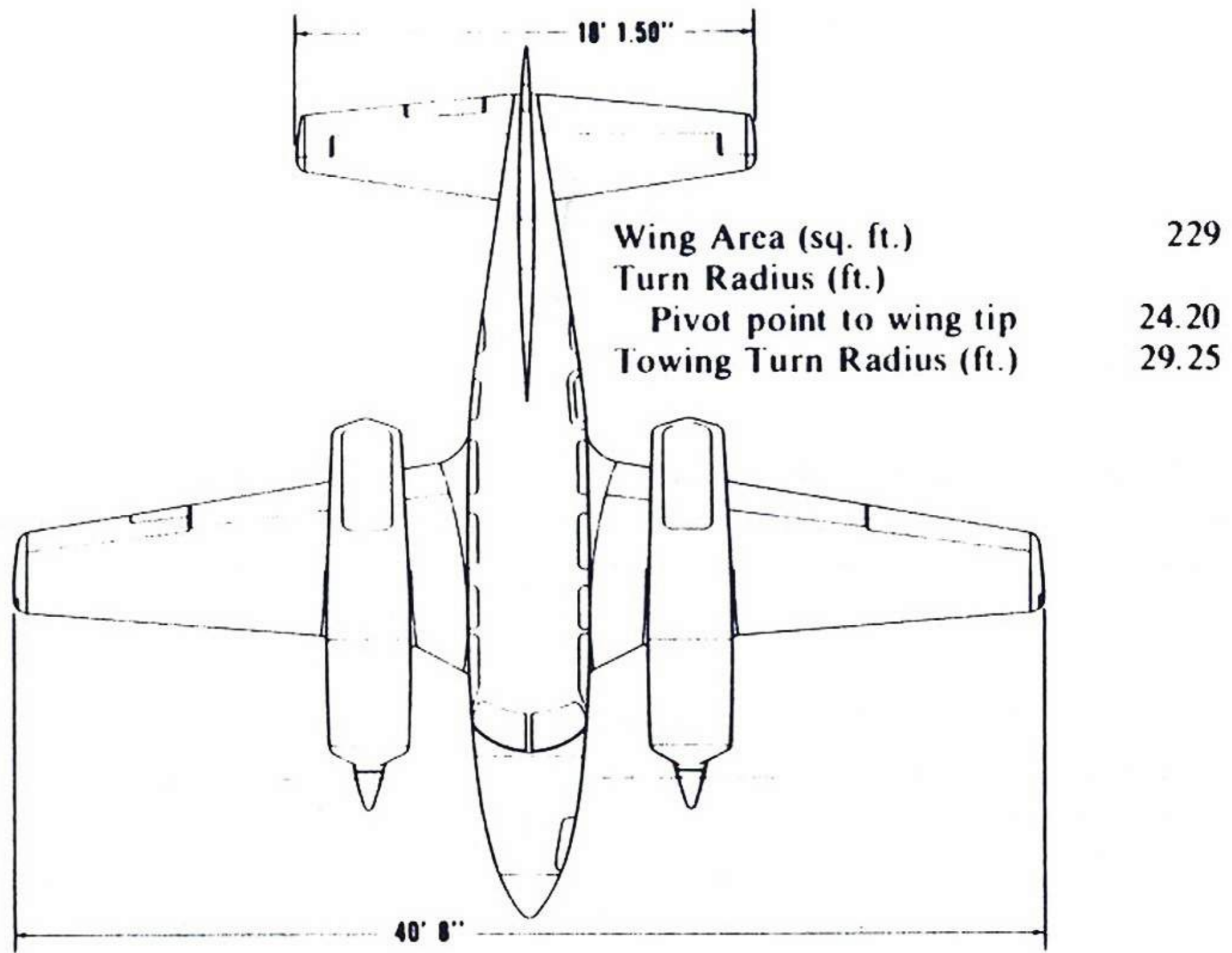
This Pilot's Operating Handbook is designed for maximum utilization as an operating guide for the pilot. It includes the material required to be furnished to the pilot by C.A.R. 3 and FAR Part 21 Subpart J. It also contains supplemental data supplied by the airplane manufacturer.

This handbook is not designed as a substitute for adequate and competent flight instruction, knowledge of current airworthiness directives, applicable federal air regulations or advisory circulars. It is not intended to be a guide for basic flight instruction or a training manual and should not be used for operational purposes unless kept in a current status.

Assurance that the airplane is in an airworthy condition is the responsibility of the owner. The pilot in command is responsible for determining that the airplane is safe for flight. The pilot is also responsible for remaining within the operating limitations as outlined by instrument markings, placards, and this handbook.

Although the arrangement of this handbook is intended to increase its in-flight capabilities, it should not be used solely as an occasional operating reference. The pilot should study the entire handbook to familiarize himself with the limitations, performance, procedures and operational handling characteristics of the airplane before flight.

The handbook has been divided into numbered (arabic) sections each provided with a "finger-tip" tab divider for quick reference. The limitations and emergency procedures have been placed ahead of the normal procedures, performance and other sections to provide easier access to information that may be required in flight. The Emergency Procedures Section has been furnished with a red tab divider to present an instant reference to the section. Provisions for expansion of the handbook have been made by the deliberate omission of certain paragraph numbers, figure numbers, item numbers and pages noted as being intentionally left blank.



THREE VIEW
Figure 1-1

1.3 ENGINES

(a) Number of Engines	2
(b) Engine Manufacturer	Lycoming
(c) Engine Model Number	
(1) Left	TIO-540-J2BD
(2) Right	LTIO-540-J2BD
(d) Rated Horsepower	350
(e) Rated Speed (rpm)	2575
(f) Bore (inches)	5.125
(g) Stroke (inches)	4.375
(h) Displacement (cubic inches)	541.5
(i) Compression Ratio	7.3:1
(j) Engine Type	Six Cylinder, Direct Drive, Fuel Inj., Turbocharged, Horizontally Opposed, Air Cooled

1.5 PROPELLERS

(a) Number of Propellers	2
(b) Propeller Manufacturer	Hartzell
(c) Blade Model	
(1) Left	FC8468-6R
(2) Right	FJC8468-6R
(d) Number of Blades	3
(e) Hub Model	
(1) Left	HC-E3YR-2ATF
(2) Right	HC-E3YR-2ALTF
(f) Propeller Diameter (inches)	
(1) Maximum	80
(2) Minimum	78
(g) Propeller Type	Feathering Constant Speed, Hydraulically Actuated

1.7 FUEL

AVGAS ONLY

(a) Fuel Capacity (U.S. gal) (total)	192
(b) Usable Fuel (U.S. gal) (total)	182
(c) Fuel Grade Aviation*	
(1) Minimum Octane	100/130 - Green
(2) Specified Octane	100/130 - Green 100 - Green 100 I.L. - Blue
(3) Alternate Fuels**	115/145 - Purple

Refer to Lycoming Service Instruction 1070, Revision J or later.

1.9 OIL

(a) Oil Capacity (U.S. quarts) (each engine)	12
(b) Oil Specification	Refer to latest issue of Avco-Lycoming Service Instruction 1014.
(c) Oil Viscosity per Average Ambient Temp. for Starting	Refer to Section 8, Paragraph 8.23.

1.11 MAXIMUM WEIGHTS

(a) Maximum Ramp Weight (lbs)	7045
(b) Maximum Takeoff Weight (lbs)	7000
(c) Maximum Landing Weight (lbs)	7000
(d) Maximum Weights in Baggage Compartments (lbs)	
(1) Forward (Nose)	200
(2) Aft	200
(3) Nacelle Compartment (each)	150

*Anti-icing additive per MIL-I-27686 is approved for use in the above fuels in the amount by volume of 0.15% maximum. (See Section 8 for blending and handling procedures.)

**Alternate fuels refers to military grade with 4.6 ml of TEL. See Section 8.25 concerning use of alternate fuel grades.

1.13 STANDARD AIRPLANE WEIGHT*

(a) Standard Empty Weight (lbs): Weight of a standard airplane including unusable fuel, full operating fluids and full oil.	4319
(b) Maximum Useful Load (lbs): The difference between the Maximum Ramp Weight and the Standard Empty Weight.	2726

1.15 BAGGAGE SPACE

	FORWARD	AFT	NACELLE
(a) Compartment Volume (cubic feet)	14	22	13.25 (ea.)
(b) Entry Width (inches)	26.5	27.5**	20
(c) Entry Height (inches)	20	47	40

1.17 SPECIFIC LOADINGS

(a) Wing Loading (lbs per sq ft)	30.6
(b) Power Loading (lbs per hp)	10.0

*These values are approximate and vary from one aircraft to another. Refer to Figure 6-7 for the Basic Empty Weight value and the Useful Load value to be used for C.G. calculations for the aircraft specified.

**Aft cargo entry width is increased to 45 inches when optional cargo door is installed.

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1.19 SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following definitions are of symbols, abbreviations and terminology used throughout the handbook and those which may be of added operational significance to the pilot.

(a) General Airspeed Terminology and Symbols

CAS	Calibrated Airspeed means the indicated speed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.
KCAS	Calibrated Airspeed expressed in Knots.
GS	Ground Speed is the speed of an airplane relative to the ground.
IAS	Indicated Airspeed is the speed of an aircraft as shown on the airspeed indicator when corrected for instrument error. IAS values published in this handbook assume zero instrument error.
KIAS	Indicated Airspeed expressed in Knots.
M	Mach Number is the ratio of true airspeed to the speed of sound.
TAS	True Airspeed is the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature and compressibility.
V_A	Maneuvering Speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.
V_{FE}	Maximum Flap Extended Speed is the highest speed permissible with wing flaps in a prescribed extended position.

V_{LE}	Maximum Landing Gear Extended Speed is the maximum speed at which an aircraft can be safely flown with the landing gear extended.
V_{LO}	Maximum Landing Gear Operating Speed is the maximum speed at which the landing gear can be safely extended or retracted.
V_{MCA}	Air Minimum Control Speed is the minimum flight speed at which the airplane is directionally controllable as determined in accordance with Federal Aviation Regulations. Airplane certification conditions include one engine becoming inoperative and windmilling; not more than a 5° bank towards the operative engine; takeoff power on operative engine; landing gear up; flaps in takeoff position; and most rearward C.G.
V_{NE}/M_{NE}	Never Exceed Speed or Mach Number is the speed limit that may not be exceeded at any time.
V_{NO}	Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air and then only with caution.
V_S	Stalling Speed or the minimum steady flight speed at which the airplane is controllable.
V_{SO}	Stalling Speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration.
V_{SSE}	Intentional One Engine Inoperative Speed is a minimum speed selected by the manufacturer for intentionally rendering one engine inoperative in flight for pilot training.

V_x Best Angle-of-Climb Speed is the airspeed which delivers the greatest gain of altitude in the shortest possible horizontal distance.

V_y Best Rate-of-Climb Speed is the airspeed which delivers the greatest gain in altitude in the shortest possible time.

(b) Meteorological Terminology

ISA International Standard Atmosphere in which:

- (1) The air is a dry perfect gas;
- (2) The temperature at sea level is 15° Celsius (59° Fahrenheit);
- (3) The pressure at sea level is 29.92 inches hg (1013.2 mb);
- (4) The temperature gradient from sea level to the altitude at which the temperature is -56.5° C (-69.7° F) is -0.00198° C (-0.003564° F) per foot and zero above that altitude.

OAT Outside Air Temperature is the free air static temperature, obtained either from inflight temperature indications or ground meteorological sources, adjusted for instrument error and compressibility effects.

Indicated Pressure Altitude The number actually read from an altimeter when the barometric subscale has been set to 29.92 inches of mercury (1013.2 millibars).

Pressure Altitude Altitude measured from standard sea-level pressure (29.92 in. Hg) by a pressure or barometric altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this handbook, altimeter instrument errors are assumed to be zero.

Station Pressure Actual atmospheric pressure at field elevation.

Wind The wind velocities recorded as variables on the charts of this handbook are to be understood as the headwind or tailwind components of the reported winds.

**(c) Power Terminology
(Specific)**

Maximum Continuous Power Maximum power permissible continuously during takeoff, one engine inoperative, and emergency operations only.

Maximum Normal Operating Power Maximum power permissible continuously during all normal operations.

(d) Engine Instruments

EGT Gauge Exhaust Gas Temperature Gauge

(e) Airplane Performance and Flight Planning Terminology

Climb Gradient The demonstrated ratio of the change in height during a portion of a climb, to the horizontal distance traversed in the same time interval.

Demonstrated Crosswind Velocity The demonstrated crosswind velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests.

Accelerate-Stop Distance The distance required to accelerate an airplane to a specified speed and, assuming failure of an engine at the instant that speed is attained, to bring the airplane to a stop.

Route Segment A part of a route. Each end of that part is identified by: (1) a geographical location; or (2) a point at which a definite radio fix can be established.

BSFC Brake Specific Fuel Consumption (BSFC) is the number of pounds of fuel burned per hour to produce one horsepower.

(f) Weight and Balance Terminology

Reference Datum An imaginary vertical plane from which all horizontal distances are measured for balance purposes.

Station A location along the airplane fuselage usually given in terms of distance from the reference datum.

Arm The horizontal distance from the reference datum to the center of gravity (C.G.) of an item.

Moment The product of the weight of an item multiplied by its arm. (Moment divided by a constant is used to simplify balance calculations by reducing the number of digits.)

Center of Gravity (C.G.) The point at which an airplane would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.

C.G. Arm The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.

C.G. Limits The extreme center of gravity locations within which the airplane must be operated at a given weight.

Usable Fuel	Fuel available for flight planning.
Unusable Fuel	Fuel remaining after a runout test has been completed in accordance with governmental regulations.
Standard Empty Weight	Weight of a standard airplane including unusable fuel, full operating fluids and full oil.
Basic Empty Weight	Standard empty weight plus optional equipment.
Payload	Weight of occupants, cargo and baggage.
Useful Load	Difference between takeoff weight, or ramp weight if applicable, and basic empty weight.
Maximum Ramp Weight	Maximum weight approved for ground maneuver. (It includes weight of start, taxi and run-up fuel.)
Maximum Takeoff Weight	Maximum weight approved for the start of the takeoff run.
Maximum Landing Weight	Maximum weight approved for the landing touchdown.
Maximum Zero Fuel Weight	Maximum weight exclusive of usable fuel.

1.21 CONVERSION FACTORS

MULTIPLY	BY	TO OBTAIN
acres	0.4047	ha
	43560	sq. ft.
	0.0015625	sq. mi.
atmospheres (atm)	76	cm Hg
	29.92	in. Hg
	1.0133	bar
	1.033	kg/cm ²
	14.70	lb./sq. in.
	2116	lb./sq. ft.
bars (bar)	0.98692	atm.
	14.503768	lb./sq. in.
British Thermal Unit (BTU)	0.2519958	kg-cal
centimeters (cm)	0.3937	in.
	0.032808	ft.
centimeters of mercury at 0°C (cm Hg)	0.01316	atm
	0.3937	in. Hg
	0.1934	lb./sq. in.
	27.85	lb./sq. ft.
	135.95	kg/m ²
centimeters per second (cm/sec.)	0.032808	ft./sec.
	1.9685	ft./min.
	0.02237	mph
cubic centimeters (cm ³)	0.03381	fl. oz.
	0.06102	cu. in.
	3.531 x 10 ⁻⁵	cu. ft.
	0.001	l
	2.642 x 10 ⁻⁴	U.S. gal.

**SECTION 1
GENERAL****PIPER AIRCRAFT CORPORATION
PA-31-350, CHIEFTAIN**

MULTIPLY	BY	TO OBTAIN
cubic feet (cu. ft.)	28317	cm ³
	0.028317	m ³
	1728	cu. in.
	0.037037	cu. yd.
	7.481	U.S. gal.
	28.32	l
cubic feet per minute (cu. ft./min.)	0.472	l/sec.
	0.028317	m ³ /min.
cubic inches (cu. in.)	16.39	cm ³
	1.639 x 10 ⁻⁵	m ³
	5.787 x 10 ⁻⁴	cu. ft.
	0.5541	fl. oz.
	0.01639	l
	4.329 x 10 ⁻³	U.S. gal.
	0.01732	U.S. qt.
cubic meters (m ³)	61024	cu. in.
	1.308	cu. yd.
	35.3147	cu. ft.
	264.2	U.S. gal.
cubic meters per minute (m ³ /min.)	35.3147	cu. ft./min.
cubic yards (cu. yd.)	27	cu. ft.
	0.7646	m ³
	202	U.S. gal.
degrees (arc)	0.01745	radians
degrees per second (deg./sec.)	0.01745	radians/sec.
drams, fluid (dr. fl.)	0.125	fl. oz.
drams, avdp. (dr. avdp.)	0.0625	oz. avdp.

MULTIPLY	BY	TO OBTAIN
feet (ft.)	30.48	cm
	0.3048	m
	12	in.
	0.33333	yd.
	0.0606061	rod
	1.894×10^{-4}	mi.
	1.645×10^{-4}	NM
feet per minute (ft./min.)	0.01136	mph
	0.01829	km/hr.
	0.508	cm/sec.
	0.00508	m/sec.
feet per second (ft./sec.)	0.6818	mph
	1.097	km/hr.
	30.48	cm/sec.
	0.5921	kts.
foot-pounds (ft.-lb.)	0.138255	m-kg
	3.24×10^{-4}	kg-cal
foot-pounds per minute (ft.-lb./min.)	3.030×10^{-5}	hp
foot-pounds per second (ft.-lb./sec.)	1.818×10^{-5}	hp
gallons, Imperial (Imperial gal.)	277.4	cu. in.
	1.201	U.S. gal.
	4.546	l
gallons, U.S. dry (U.S. gal. dry)	268.8	cu. in
	1.556×10^{-1}	cu. ft.
	1.164	U.S. gal.
	4.405	l

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MULTIPLY	BY	TO OBTAIN
gallons, U.S. liquid (U.S. gal.)	231	cu. in.
	0.1337	cu. ft.
	4.951×10^{-3}	cu. yd.
	3785.4	cm ³
	3.785×10^{-3}	m ³
	3.785	l
	0.83268	Imperial gal.
	128	fl. oz.
gallons per acre (gal./acre)	9.353	l/ha
grams (g)	0.001	kg
	0.3527	oz. avdp.
	2.205×10^{-3}	lb.
grams per centimeter (g/cm)	0.1	kg/m
	6.721×10^{-2}	lb./ft.
	5.601×10^{-3}	lb./in.
grams per cubic centimeter (g/cm ³)	1000	kg/m ³
	0.03613	lb./cu. in.
	62.43	lb./cu. ft.
hectares (ha)	2.471	acres
	107639	sq. ft.
	10000	m ²
horsepower (hp)	33000	ft.-lb./min.
	550	ft.-lb./sec.
	76.04	m-kg/sec.
	1.014	metric hp
horsepower, metric	75	m-kg/sec.
	0.9863	hp
inches (in.)	25.40	mm
	2.540	cm
	0.0254	m
	0.08333	ft.
	0.027777	yd.

MULTIPLY	BY	TO OBTAIN
inches of mercury at 0° C (in. Hg)	0.033421	atm
	0.4912	lb./sq. in.
	70.73	lb./sq. ft.
	345.3	kg/m ²
	2.540	cm Hg
	25.40	mm Hg
inch-pounds (in.-lb.)	0.011521	m-kg
kilograms (kg)	2.204622	lb.
	35.27	oz. avdp.
	1000	g
kilogram-calories (kg-cal)	3.9683	BTU
	3087	ft.-lb.
	426.9	m-kg
kilograms per cubic meter (kg/m ³)	0.06243	lb./cu. ft.
	0.001	g/cm ³
kilograms per hectare (kg/ha)	0.892	lb./acre
kilograms per square centimeter (kg/cm ²)	0.9678	atm
	28.96	in. Hg
	14.22	lb./sq. in.
	2048	lb./sq. ft.
kilograms per square meter (kg/m ²)	2.896 x 10 ⁻³	in. Hg
	1.422 x 10 ⁻³	lb./sq. in.
	0.2048	lb./sq. ft.
kilometers (km)	1 x 10 ⁻⁵	cm
	3280.8	ft.
	0.6214	mi.
	0.53996	NM

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MULTIPLY	BY	TO OBTAIN
kilometers per hour (km/hr.)	0.9113	ft./sec.
	58.68	ft./min.
	0.53996	kt
	0.6214	mph
	0.27778	m/sec.
	16.67	m/min.
knots (kt)	1	nautical mph
	1.689	ft./sec.
	1.1516	statute mph
	1.852	km/hr.
	51.48	m/sec.
liters (l)	1000	cm ³
	61.02	cu. in.
	0.03531	cu. ft.
	33.814	fl. oz.
	0.264172	U.S. gal.
	0.2200	Imperial gal.
	1.05669	qt.
liters per hectare (l/ha)	13.69	fl. oz./acre
	0.107	gal./acre
liters per second (l/sec.)	2.12	cu. ft./min.
meters (m)	39.37	in.
	3.280840	ft.
	1.0936	yd.
	0.198838	rod
	6.214 x 10 ⁻⁴	mi.
	5.3996 x 10 ⁻⁴	NM
meter-kilogram (m-kg)	7.23301	ft.-lb.
	86.798	in.-lb.
meters per minute (m/min.)	0.06	km/hr.

MULTIPLY	BY	TO OBTAIN
meters per second (m/sec.)	3.280840	ft./sec.
	196.8504	ft./min.
	2.237	mph
	3.6	km/hr.
microns	3.937×10^{-5}	in.
miles, statute (mi.)	5280	ft.
	1.6093	km
	1609.3	m
	0.8684	NM
miles per hour (mph)	44.7041	cm/sec.
	4.470×10^{-1}	m/sec.
	1.467	ft./sec.
	88	ft./min.
	1.6093	km/hr.
	0.8684	kt
miles per hour square (m/hr.sq.)	2.151	ft./sec. sq.
millibars	2.953×10^{-2}	in. Hg
millimeters (mm)	0.03937	in.
millimeters of mercury at 0°C (mm Hg)	0.03937	in. Hg
nautical miles (NM)	6080	ft.
	1.1516	statute mi.
	1852	m
	1.852	km
ounces, avdp. (oz. avdp.)	28.35	g
	16	dr. avdp.

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MULTIPLY	BY	TO OBTAIN
ounces, fluid (fl. oz.)	8	dr. fl.
	29.57	cm ³
	1.805	cu. in.
	0.0296	l
	0.0078	U.S. gal.
ounces, fluid per acre (fl. oz./ acre)	0.073	l/ha
pounds (lb.)	0.453592	kg
	453.6	g
	3.108 x 10 ⁻²	slug
pounds per acre (lb./acre)	1.121	kg/ha
pounds per cubic foot (lb./cu. ft.)	16.02	kg/m ³
pounds per cubic inch (lb./cu. in.)	1728	lb./cu. ft.
	27.68	g/cm ³
pounds per square foot (lb./sq. ft.)	0.1414	in. Hg
	4.88243	kg/m ²
	4.725 x 10 ⁻⁴	atm
pounds per square inch (psi or lb./sq. in.)	5.1715	cm Hg
	2.036	in. Hg
	0.06804	atm
	0.0689476	bar
	703.1	kg/m ²
quart, U.S. (qt.)	0.94635	l
	57.749	cu. in.
radians	57.30	deg. (arc)
	0.1592	rev.

MULTIPLY	BY	TO OBTAIN
radians per second (radians/sec.)	57.30	deg./sec.
	0.1592	rev./sec.
	9.549	rpm
revolutions (rev.)	6.283	radians
revolutions per minute (rpm or rev./min.)	0.1047	radians/sec.
revolutions per second (rev./sec.)	6.283	radians/sec.
rod	16.5	ft.
	5.5	yd.
	5.029	m
slug	32.174	lb.
square centimeters (cm ²)	0.1550	sq. in.
	0.001076	sq. ft.
square feet (sq. ft.)	929	cm ²
	0.092903	m ²
	144	sq. in.
	0.1111	sq. yd.
	2.296 x 10 ⁻⁵	acres
square inches (sq. in.)	6.4516	cm ²
	6.944 x 10 ⁻³	sq. ft.
square kilometers (km ²)	0.3861	sq. mi.
square meters (m ²)	10.76391	sq. ft.
	1.196	sq. yd.
	0.0001	ha
square miles (sq. mi.)	2.590	km ²
	640	acres
square rods (sq. rods)	30.25	sq. yd.

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MULTIPLY	BY	TO OBTAIN
square yards (sq. yd.)	0.8361	m ²
	9	sq. ft.
	0.0330579	sq. rods
yards (yd.)	0.9144	m
	3	ft.
	36	in.
	0.181818	rod