 Criptografia: Fred Mesquita

Beechcraft®

Baron®

(Serials TH-773 thru TH-1395, except TH-1389)

58

And

58A*

**** Special Reduced Gross Weight Configuration***

Pilot's Operating Handbook

and

FAA Approved Airplane Flight Manual

FAA Approved in the Normal Category based on CAR 3. This document must be carried in the airplane at all times and be kept within reach of the pilot during all flight operations.

This handbook includes the material required to be furnished to the pilot by CAR 3.

Airplane Serial Number: TH-1318

Airplane Registration Number: N-188M

FAA Approved: _____

A. C. Jackson
Beech Aircraft Corporation
DOA CE-2

P/N 58-590000-21
Issued: October, 1976

P/N 58-590000-21A13
Revised: July, 1994

 Criptografia: Fred Mesquita

Published By
RAYTHEON AIRCRAFT COMPANY
P.O. Box 85
Wichita, Kansas 67201
U.S.A.

NOTE

Where Beech Aircraft Corporation or Beechcraft is referred to in this publication, it will be taken to read Raytheon Aircraft Company.

Raytheon Aircraft

Beech
Hawker

Member of GAMA
General Aviation Manufacturers Association

Raytheon Aircraft

Baron 58 and 58A
Log of Temporary Changes
to the
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
P/N 58-590000-21

Temporary Changes to this Pilot's Operating Handbook and FAA Approved Airplane Flight Manual must be in the airplane for all flight operations.

Part Number	Subject	Date
58-590000-21TC1	Fuel Selector Placard Installation (affects Limitations section)	10/21/97

Note: This page shall be filed in the front of the *Pilot's Operating Handbook and FAA Approved Airplane Flight Manual* immediately in front of the latest *Log of Revisions* page(s). This page replaces any *Log of Temporary Changes* page dated prior to the date in the lower left corner of this page.

 Criptografia: Fred Mesquita

BARON 58 AND 58A
(TH-773 THRU TH-1395, EXCEPT TH-1389)
PILOT'S OPERATING HANDBOOK
AND
FAA APPROVED AIRPLANE FLIGHT MANUAL

A13 Revision . . . . . .July, 1994

LOG OF REVISIONS

Page	Description
Title Page	Updated
Page A (A13)	New
10-1 thru 10-64	Revised Section X, Safety Information (May, 1994)

A13

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BARON 58 AND 58A
(TH-773 THRU TH-1395 EXCEPT TH-1389)
PILOT'S OPERATING HANDBOOK
AND
FAA APPROVED AIRPLANE FLIGHT MANUAL

A12 Revision . . . . . .Cctober, 1990

LOG OF REVISIONS

Page	Description
Title Page	Updated
Page A (A12)	New
10-1 thru 10-68	Revised Section X, Safety Information (October, 1990)

A12

(TH-773 thru TH-1395, except TH-1389)
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Log of Revisions
P/N 58-590000-21A11

A11 ..... March, 1988

Page	Description
Title Page	Updated
Page A (A11)	New
2-10	Revised: "KINDS OF OPERATION" and "WARNING"
4-21	Revised: "ICE PROTECTION SYSTEMS"
8-48	Revised: "OVERHAUL OR REPLACEMENT SCHEDULE"

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(TH-773 thru TH-1395, except TH-1389)
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Log of Revisions

A10 .....August, 1984

Page	Description
Title Page	Update
Page A(A10)	Added
Page B (A10)	Added
1-4A and 1-4B	Revised: "Important Notice"
1-10	Revised: "Propellers"
2-2	Revised: "Table of Contents"
2-6	Revised: "Propellers"
2-10 and 2-11	Shifted Material; Relocated Page 2-20 to Pages 2-10 and 2-11, and Revised: "Oxygen Requirements"
2-12 thru 2-23	Relocated: "Placards" from Pages 2-21 thru 2-32 to Pages 2-12 thru 2-23
2-24 thru 2-30	Revised: "Required Equipment for Various Conditions of Flight" title to "Kinds of Operations Equipment List"; Revised: System and/or Component List of Same; Relocated: Same from Pages 2-10 thru 2-19 to Pages 2-24 thru 2-30.
2-31 and 2-32	Deleted
3-1	Revised: "Table of Contents"
3-6 and 3-7	Revised: "Air Start", and Shifted Material
3-11	Added: Serialization to "Illumination of Alternator-Out Light"
3-12, 3-12A, and 3-12B	Added: "Illumination of Alternator-Out Light (TH-1377 and after, and Airplanes Equipped With Kit No. 55-3024)"; Shifted Material; and Added: "Intentionally Left Blank Page"
4-1	Revised: "Table of Contents"
4-4, 4-4A, 4-4B, 4-5, and 4-6	Revised: "Preflight Inspection"; Shifted Material; Added "Intentionally Left Blank Page"
4-9 and 4-10	Revised: "Before Takeoff"
4-15	Revised: "Oxygen Duration Graph"
7-2 and 7-3	Revised: "Table of Contents"
7-10 and 7-11	Revised: "Control Switch"; Shifted Material
7-28	Added: Serialization to "Alternators"
7-30 and 7-31	Added: "Alternators (TH-1377 and after, and Airplanes Equipped With Kit No. 55-3024)"; Revised: "External Power"; Shifted Material

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Page	Description
7-43 and 7-44	Revised: "Engine Break-In Information"; Shifted Material
8-1 and 8-2	Revised: "Table of Contents"
8-6, 8-6A, and 8-6B	Revised: "Publications" and Shifted Material
8-7	Revised: "Alterations to Airplane"
8-13 and 8-14	Deleted: "Recharging the Battery" and Shifted Material
8-16 thru 8-18	Revised: "Oil System", "Battery", and "Tires"; Shifted Material

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A9 .....April, 1984

LOG OF REVISIONS

Page	Description
Title Page	Update
Page A (A9)	New

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A8 . . . . . March 1983

LOG OF REVISIONS

PAGES	DESCRIPTION
Title Page	Update
Page A (A8)	New
a & b	Revise "Introduction" and Add "Warning"
1-4, 1-4A, 1-4B, 1-5 & 1-6	Revise "NOTE" and Shfit Material
2-27 & 2-28	Revise "Placards"
3-1 & 3-2	Update Table of Contents
3-3 & 3-4	Revise "Emergency Airspeeds", Add Stall Warning Horn Advisory and Shift Material
3-9	Revise "One Engine Inoperative Landing"
3-16 & 3-17	Revise "Emergency Exits"
4-1	Update Table of Contents
4-3	Revise "Airspeeds For Safe Operation"
4-8A & 4-8B	Revise "Starting" and "After Starting and Taxi" and Shift Material
4-13	Revise "Balked Landing"
5-27	Revise "Climb-Two Engine (3-Blade Propeller)" Graph
7-2	Update Table of Contents
7-17 & 7-18	Revise "Openable Cabin Windows"
7-18A	Add "Emergency Exits"
8-2	Update Table of Contents
8-23	Revise "Heating and Ventilating System"
8-25, 8-26, 8-26A & 8-26B	Revise "Cleaning - Exterior Painted Surfaces" and Shift Material
8-31	Revise "Lubrication Points"
8-36	Revise "Recommended Servicing Schedule"
8-41, 8-42, 8-42A, 8-42B & 8-43	Revise "Consumable Materials"
	A8

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Baron 58 (TH773 and After)
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

A7 ..... September, 1981

LOG OF REVISIONS

Page	Description
Title Page	Added Revision Date
Page A (A7)	New
7-2	Revised "Table of Contents"
7-3	Revised "Table of Contents"
7-28	Revised "Alternators"
7-31	Shifted Material
7-32	Revised "Interior Lighting"
7-32A	Added Page, Revised "Exterior Lighting"
7-32B	Added Page
7-33	Shifted Material

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A6 ..... February, 1981

LOG OF REVISIONS

Page	Description
Title Page	Added Revision Date
Logo Page	Added
A Page (A6)	Update
7-32	Revised "Cabin Heating"
7-33	Revised "Environmental Schematic"
7-34	Revised "Heater Operation"
7-35	Revised "Heat Regulation"
7-36	Revised "Cabin Ventilation"
	10-1 Thru 10-67 Revised Safety Section Dated March 1981.

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A5 ..... September, 1980

LOG OF REVISIONS

Page	Description
Title Page	Add Revision Date
Page A (A5)	Update
1-5	Revised "Use of Handbook"
1-6	Shifted Material
1-9	Revised "Engines"
1-12	Revised "Airspeed Terminology"
1-16	Revised "Power Terminology"
2-1	Revised "Table of Contents"
2-5	Revised "Engines"
2-7	Revised "Power Plant Instrument Markings"
2-8	Shifted Material
2-11	Revised "Required Equipment for Various Conditions of Flight"
2-12	Revised "Electrical Power"
2-30 and 2-31	Revised "Placards"
3-1	Revised "Table of Contents"
3-11	Added "Starter Energized Warning Light Illuminated"
3-12 and 3-13	Shifted Material
4-7	Revised "Before Starting"
4-8 and 4-8A	Revised "Starting"
4-9 and 4-10	Revised "Before Take-Off"
4-10A	Revised "Maximum Normal Operating Power"
4-21	Revised "Ice Protection System"
4-27	Revised "Noise Characteristics"
5-29	Revised "Time, Fuel and Distance to Climb" Graph
5-33	Revised "Fuel Flow" vs "Horsepower"
6-9	Revised "Seating, Baggage and Equipment Arrangement"

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LOG OF REVISIONS

Page	Description
7-2	Revised "Table of Contents"
7-13	Revised "Aft Baggage/Cargo Compartment"
7-17	Revised "Utility Door"
7-21 and 7-22	Shifted Material
7-22A	Revised "Fuel Flow and Pressure Indicator"
7-22B	Revised "Fuel Flow and Pressure Indicator" and Added "Fuel Flow Indicator"
7-23	Added "Fuel Flow Indicator"
7-27	Shifted Material
7-28	Revised "Battery" and "Alternator"
7-29	Revised "Power Distribution Schematic"
7-30	Revised "Alternator" and "Starters"
7-31	Revised "Starters"
7-32	Shifted Material

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PILOT'S OPERATING HANDBOOK
and
FAA APPROVED AIRPLANE FLIGHT MANUAL
LOG OF REVISIONS

A4 . . . . . September, 1979

Page	Description
Title Page	Add Revision Date and Letter
Page A (A4)	Update
Page B (A4)	Update
a	Revise "Introduction"
1-1	Revise "Table of Contents"
1-4	Revise "Important Notice"
1-5	Revise "Use of the Handbook"
1-6	Revise "Supplements Revision Record" and Add "Vendor-Issued STC Supplements"
1-9	Revise "Engines"
1-10	Revise "Propellers" and "Fuel"
1-16	Revise "Power Terminology"
1-17 thru 1-20	Shifted Material
2-1 and 2-2	Revise "Table of Contents"
2-3	Revise "Airspeed Limitations"
2-4	Revise "Airspeed Indicator Markings"
2-5	Revise "Engines" and "Fuel"
2-6	Revise "Propellers"
2-7	Revise "Tachometer"
2-10	Revise "Flight Load Factors" and "Required Equipment for Various Conditions of Flight"
2-12	Revise "Electrical Power"
2-16	Revise "Lights"
2-18	Revise "Engine Indicating Instruments"
2-21 thru 2-32	Revise "Placards" and Shifted Material
4-1 and 4-2	Revise "Table of Contents"
4-3	Revise "Speeds for Safe Operation"
4-5 and 4-6	Revise "Preflight Inspection"
4-7	Revise "Before Starting"
4-8 and 4-8A	Revise "Starting" and Shifted Material
4-10	Revise "Maximum Performance Climb"
4-10A	Add "Normal Operating Power Climb"
4-11 and 4-12	Shifted Material
4-22A	Shifted Material
4-23	Add "Windshield Anti-ice System (Electro-thermal)"
4-24 and 4-25	Shifted Material
4-26 and 4-27	Add "Noise Characteristics"
5-1 and 5-2	Revise "Table of Contents"

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LOG OF REVISIONS

Page	Description
5-13	Revise "Comments Pertinent to the Use of Performance Graphs"
5-26A	Revise "Climb-Two Engine (TH-773 thru TH-1089)"
5-26B	Add "Climb-Two Engine (TH-1090 and After) (2-blade propeller installed)"
5-27	Add "Climb-Two Engine (TH-1090 and After) (3-blade propeller installed)"
7-1 thru 7-3	Revise "Table of Contents"
7-5	Revise "Control Column"
7-6 and 7-7	Shifted Material
7-10 and 7-11	Shifted Material
7-12	Revise "Brakes"
7-23	Revise "Fuel Flow Indicator"
7-27	Revise "Fuel Off-loading"
7-30	Revise "Alternators"
7-31	Shifted Material
7-32	Revise "Exterior Lighting"
7-34	Revise "Heater Operation"
7-35	Revise "Heat Regulation"
7-39	Revise "Stall Warning"
7-40A	Add "Windshield Anti-ice (Electrothermal)" and Shifted Material
7-41	Shifted Material
8-1 thru 8-3	Revise "Table of Contents"
8-5	Revise "Introduction"
8-6	Revise "Publications" and "Airplane Inspection Periods"
8-8	Shifted Material
8-9	Revise "Parking"
8-12	Revise "Preparation for Service"
8-15	Revise "Fuel Drains"
8-16	Revise "Oil System"
8-18A	Shifted Material
8-19	Add "Shock Strut Shimmy Damper"
8-23	Revise "Oxygen Cylinder Retesting"
8-24	Revise "Magentos"
8-25	Revise "Exterior Painted Surfaces"
8-30 thru 8-33	Revise "Lubrication Points"
8-36 thru 8-39	Revise "Recommended Servicing Schedule"
8-41 thru 8-44	Revise "Consumable Materials" and "Approved Engine Oils"
8-45	Revise "Bulb Replacement Guide"
8-50	Revise "Overhaul or Replacement Schedule"

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BARON 58 (TH-773 and After)
PILOT'S OPERATING HANDBOOK
AND
FAA APPROVED AIRPLANE FLIGHT MANUAL

A3 . . . . . July 1979

LOG OF REVISIONS

Page	Description
Title Page	Add Revision Date and Letter
Page A (A3)	Update
2-26 and 2-27	Revise Placards
2-28 and 2-29	Shifted Material
2-30	Revise Placards
2-31	Shifted Material
3-16	Shifted Material
3-17	Revise Emergency Exit
3-18 and 3-19	Shifted Material
7-17 and 7-18	Revise Openable Cabin Windows
7-18A	Revise Openable Cabin Windows
7-18B	Shifted Material

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BARON 58 (TH-77) and after)

PILOT'S OPERATING HANDBOOK
AND
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A2.....October,1978

LOG OF REVISIONS

Page	Description
Title	Add Revision Date and Letter
1-9	Rev. "ENGINES"
1-12	Rev. "Vmca" Definition
1-13	Rev. "Vsse" Definition
2-2	Rev. Table of Contents
2-3	Rev. "AIRSPEED LIMITATIONS"
2-4	Rev. "AIRSPEED LIMITATIONS"
2-5	Rev. "OIL"
2-9	Rev. "MANEUVERS"
2-23	Shifted Data
2-26	Add Placard
2-29	Rev. Placard
3-2	Rev. Table of Contents
3-3	Rev. "EMERGENCY AIRSPEEDS"
3-18	Delete "PRACTICE DEMONSTRATION OF Vmca"
4-2	Rev. Table of Contents
4-3	Rev. "SPEEDS FOR SAFE OPERATION
4-25	Add "PRACTICE DEMONSTRATION of Vmca"
4-26	Add "PRACTICE DEMONSTRATION of Vmca"
7-18	Rev. "POWER PLANTS"
10-1 thru 10-37	Rev. "SAFETY SECTION"

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A2

A1 ..... October, 1977

LOG OF REVISIONS

Page	Description
Title Page	Update
Page A (A1)	Update
a and b	Renumbered Pages
1-5 and 1-6	Revise "General" Information
2-27	Revise "Placards"
2-29	Revise "Placards"
5-36	Revise "Performance"
7-16	Rearrange Material
7-17	Add "NOTE"
7-43 and 7-44	Revise "Engine Break-in Information
8-16	Revise "Oil System"
8-36	Revise "Recommended Servicing Schedule"
8-41	Revise "Consumable Materials"
8-45	Revise "Bulb Replacement Guide"

A1

Original . . . . . October 1976

LOG OF REVISIONS EFFECTIVE PAGE

Date	Page	Description of Revision
October 1976	Title Page	Original
October 1976	a thru c	Original
October 1976	1-1 thru 1-20	Original
October 1976	2-1 thru 2-30	Original
October 1976	3-1 thru 3-20	Original
October 1976	4-1 thru 4-26	Original
October 1976	5-1 thru 5-48	Original
October 1976	6-1 thru 6-22	Original
October 1976	7-1 thru 7-44	Original
October 1976	8-1 thru 8-52	Original
	Section 9	See Log of Supplements
October 1976	10-1 thru 10-34	Original

Original A

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Serial TH-773 and After

INTRODUCTION

The format and contents of this Pilot's Operating Handbook and FAA Approved Airplane Flight Manual conform to GAMA (General Aviation Manufacturers Association) Handbook Specification Number 1. Use of this specification by all manufacturers will provide the pilot with the same type of data in the same place in all handbooks.

Attention is called to Section X (SAFETY INFORMATION). BEECHCRAFT feels that it is very important to have SAFETY INFORMATION in a condensed form in the hands of the pilots. The SAFETY INFORMATION should be read and studied. Periodic review will serve as a reminder of good piloting techniques.

WARNING

Use only genuine BEECHCRAFT or BEECHCRAFT approved parts obtained from BEECHCRAFT approved sources, in connection with the maintenance and repair of Beech airplanes.

Genuine BEECHCRAFT parts are produced and inspected under rigorous procedures to ensure airworthiness and suitability for use in Beech airplane applications. Parts purchased from sources other than BEECHCRAFT, even though outwardly identical in appearance, may not have had the required tests and inspections performed, may be different in fabrication techniques and materials, and may be dangerous when installed in an airplane.

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SECTION I

GENERAL

TABLE OF CONTENTS

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THANK YOU . . . for displaying confidence in us by selecting a BEECHCRAFT airplane. Our design engineers, assemblers and inspectors have utilized their skills and years of experience to ensure that the BEECHCRAFT Baron meets the high standards of quality and performance for which BEECHCRAFT airplanes have become famous throughout the world.

IMPORTANT NOTICE

This handbook must be read carefully by the owner and operator in order to become familiar with the operation of the BEECHCRAFT Baron. The handbook presents suggestions and recommendations to help obtain safe and maximum performance without sacrificing economy. The BEECHCRAFT Baron must be operated according to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual, and/or placards located in the airplane.

As a further reminder, the owner and operator of this airplane should also be familiar with the applicable Federal Aviation Regulations concerning operation and maintenance of the airplane and FAR Part 91 General Operating and Flight Rules. Likewise this airplane must be operated and maintained in accordance with FAA Airworthiness Directives which may be issued against it.

The Federal Aviation Regulations place the responsibility for the maintenance of this airplane on the owner and the operator who must ensure that all maintenance is done by qualified mechanics in conformity with all airworthiness requirements established for this airplane.

All limits, procedures, safety practices, time limits, servicing, and maintenance requirements contained in this handbook are considered mandatory for the continued airworthiness of this airplane, in a condition equal to that of its original manufacture.

Authorized BEECHCRAFT Aero or Aviation Centers or International Distributors or Dealers can provide recommended modification, service, and operating procedures issued by both the FAA and Beech Aircraft Corporation, which are designed to get maximum utility and safety from the airplane.

USE OF THE HANDBOOK

The Pilot's Operating Handbook is designed to maintain documents necessary for the safe and efficient operation of the Baron. The handbook has been prepared in loose leaf form for ease in maintenance and in a convenient size for storage. The handbook has been arranged with quick reference tabs imprinted with the title of each section and contains ten basic divisions:

Section 1 General
Section 2 Limitations
Section 3 Emergency Procedures
Section 4 Normal Procedures
Section 5 Performance
Section 6 Weight and Balance/Equipment List
Section 7 Systems Description
Section 8 Handling, Servicing and Maintenance
Section 9 Supplements
Section 10 Safety Information

NOTE

Except as noted, all airspeeds quoted in this handbook are Indicated Airspeeds (IAS) and assume zero instrument error.

In an effort to provide as complete coverage as possible, applicable to any configuration of the airplane, some optional equipment has been included in the scope of the handbook. However, due to the variety of airplane appointments and arrangements available, optional equipment described and depicted herein may not be designated as such in every case.

The following information may be provided to the holder of this manual automatically:

1. Original issues and revisions of Beechcraft Service Bulletins

2. Original issues and revisions of FAA Approved Airplane Flight Manual Supplements

3. Reissues and revisions of FAA Approved Airplane Flight Manuals, Flight Handbooks, Owner's Manuals, Pilot's Operating Manuals, and Pilot's Operating Handbooks

This service is free and will be provided only to holders of this handbook who are listed on the FAA Aircraft Registration Branch List or the BEECHCRAFT International Owners Notification Service List, and then only if listed by airplane serial number for the model for which this handbook is applicable. For detailed information on how to obtain "Revision Service"

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applicable to this handbook or other BEECHCRAFT Service Publications, consult a BEECHCRAFT Aero or Aviation Center, International Distributor or Dealer, or refer to the latest revision of BEECHCRAFT Service Instructions No. 2001.

Beech Aircraft Corporation expressly reserves the right to supersede, cancel, and/or declare obsolete, without prior notice, any part, part number, kit, or publication referenced in this manual.

The owner/operator should always refer to all supplements, whether STC Supplements or Beech Supplements, for possible placards, limitations, normal, emergency and other operational procedures for proper operation of the airplane with optional equipment installed.

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REVISING THE HANDBOOK

Immediately following the Title Page is the "Log of Revisions" page(s). The Log of Revisions pages are used for maintaining a listing of all effective pages in the handbook (except the SUPPLEMENTS section), and as a record of revisions to these pages. In the lower right corner of the outlined portion of the Log of Revisions is a box containing a capital letter which denotes the issue or reissue of the handbook. This letter may be suffixed by a number which indicates the numerical revision. When a revision to any information in the handbook is made, a new Log of Revisions will be issued. All Logs of Revisions must be retained in the handbook to provide a current record of material status until a reissue is made.

WARNING

When this handbook is used for airplane operational purposes it is the pilot's responsibility to maintain it in current status.

SUPPLEMENTS REVISION RECORD

Section IX contains the FAA Approved Airplane Flight Manual Supplements headed by a Log of Supplements page. On the "Log" page is a listing of the FAA Approved Supplemental Equipment available for installation on the BEECHCRAFT Baron 58. When new supplements are received or existing supplements are revised, a new "Log" page will replace the previous one, since it contains a listing of all previous approvals, plus the new approval. The supplemental material will be added to the grouping in accordance with the descriptive listing.

NOTE

Upon receipt of a new or revised supplement, compare the "Log" page you have just received with the "Log" page in the manual. Retain the "Log" page with the latest date on the bottom of the page and discard the other log.

VENDOR-ISSUED STC SUPPLEMENTS

When a new airplane is delivered from the factory, the handbook will contain either an STC (Supplemental Type Certificate) Supplement or a Beech Flight Manual Supplement for all items requiring a supplement. If a new handbook is purchased at a later date for operation of the airplane, it is the responsibility of the owner/operator to see that all required STC Supplements (as well as weight and balance and other pertinent data) are retained for use in the new handbook.

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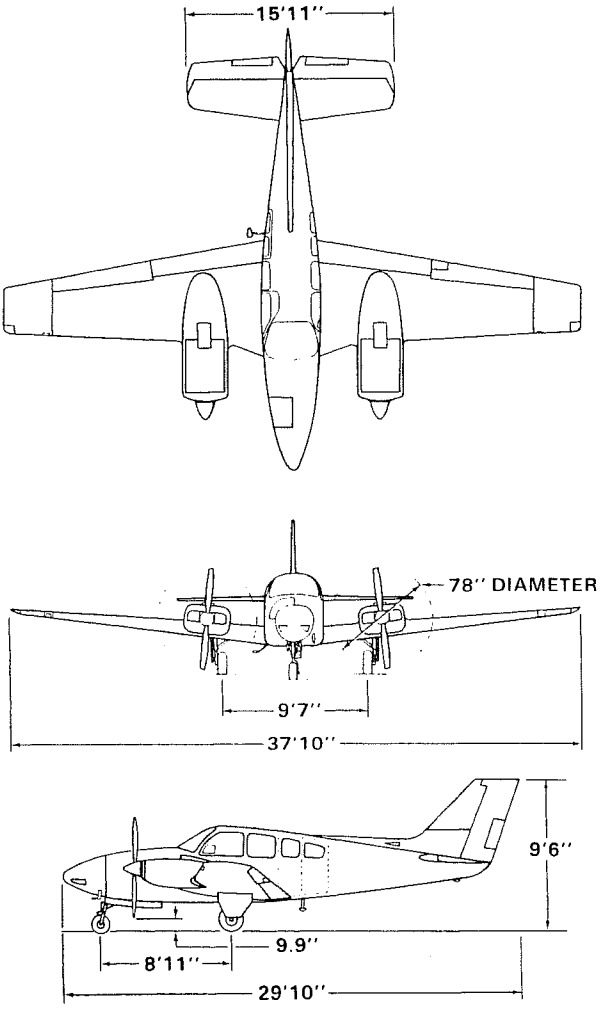
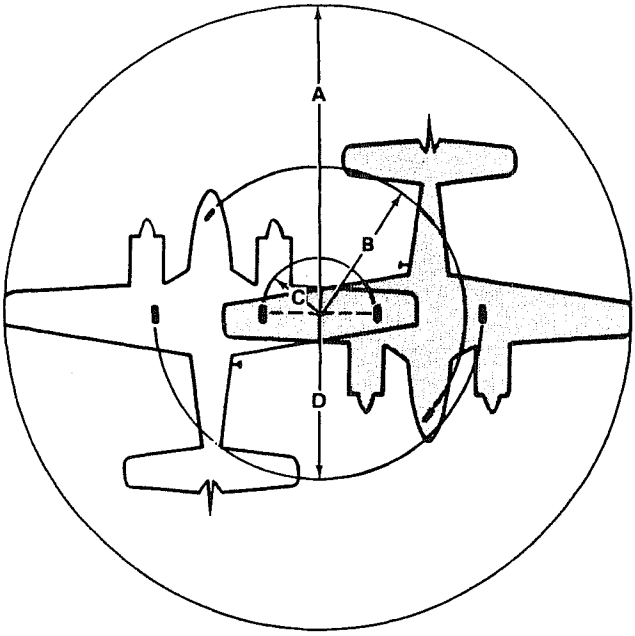


GROUND TURNING CLEARANCE



A	Radius for Wing Tip	31 feet 6 inches
B	Radius for Nose Wheel	15 feet 6 inches
C	Radius for Inside Gear	7 feet 11 inches
D	Radius for Outside Gear	17 feet 6 inches

TURNING RADII ARE PREDICATED ON THE USE OF PARTIAL BRAKING ACTION AND DIFFERENTIAL POWER.

DESCRIPTIVE DATA

ENGINES

Two Continental IO-520-C or IO-520-CB fuel-injected, air-cooled six-cylinder, horizontally opposed engines each rated at 285 horsepower at 2700 rpm.

Take-off and Maximum
Continuous Power ..... Full Throttle and 2700 rpm
Maximum Normal Operating Power (TH-1090 and After)
With 2-blade propellers
installed ..... Full Throttle and 2550 rpm
With 3-blade propellers
installed ..... Full Throttle and 2650 rpm
Maximum One-Engine
Inoperative Power ..... Full Throttle and 2700 rpm
Cruise Climb Power ..... 25.0 in. Hg at 2500 rpm
Maximum Cruise Power ..... 24.5 in. Hg at 2500 rpm

PROPELLERS

HARTZELL

2 Blade Hubs: BHC-J2YF-2CUF
Blades: FC8475-6
Spinner: C-2285-6P
Pitch Setting at 30 inch Station: Low 14.5°; Feathered 80.0°
Diameter: 78 inches maximum, 76 inches minimum

3 Blade Hubs: PHC-J3YF-2UF
Blades: FC7663-2R
Spinner: C-3567-1P
Pitch Setting at 30 inch Station: Low 13.0°; Feathered 82.0°
Diameter: 76 inches maximum, 74 inches minimum

McCAULEY (TH-773 thru TH-1089)

2 Blade Hubs: D2AF34C30
Blades: 78FF-0
Spinner: D-3953 or D-4046
Pitch Setting at 30 inch Station: Low 15.0°; Feathered 79.0°
Diameter: 78 inches maximum, 76 inches minimum

3 Blade Hubs: D3AF32C35
Blades: 82NB-6
Spinner: PD-4068 or PD-4069
Pitch Setting at 30 inch Station: Low 14.0°±.2°; Feathered 81.2° ± .3°
Diameter: 76 inches, no cut-off permitted

FUEL

Aviation Gasoline 100LL (blue) or 100 (green) minimum grade; 115/145 (purple) Aviation Gasoline alternate grade.

STANDARD SYSTEM:

Total Capacity	142 Gallons
Total Usable	136 Gallons

OPTIONAL SYSTEMS:

Total Capacity	172 Gallons
Total Usable	166 Gallons

or

Total Capacity	200 Gallons
Total Usable	194 Gallons

OIL

The oil capacity is 12 quarts for each engine.

WEIGHTS

58

Maximum Ramp Weight	5424 lbs
Maximum Take-Off Weight	5400 lbs
Maximum Landing Weight	5400 lbs

58A

Maximum Ramp Weight	5014 lbs
Maximum Take-Off Weight	4990 lbs
Maximum Landing Weight	4990 lbs

CABIN DIMENSIONS

Length	12 ft 7 in.
Height (Max.)	4 ft 2 in.
Width (Max.)	3 ft 6 in.
Entrance Door	37 in. x 36 in.
Utility Door Opening	45 in. x 35 in.

BAGGAGE

Aft cabin compartment	37 cu ft
Extended rear compartment	10 cu ft
Nose compartment	18 cu ft

SPECIFIC LOADINGS

Wing Loading	27.1 lbs/sq ft
Power Loading	9.47 lbs/hp

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following Abbreviations and Terminologies have been listed for convenience and ready interpretation where used within this handbook. Whenever possible, they have been categorized for ready reference.

AIRSPEED TERMINOLOGY AND SYMBOLS

CAS Calibrated Airspeed is the indicated speed of an airplane, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

GS Ground Speed is the speed of an airplane relative to the ground.

IAS Indicated Airspeed is the speed of an airplane as shown on the airspeed indicator. IAS values published in this handbook assume zero instrument error.

TAS True Airspeed is the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature, and compressibility.

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. The airplane certification conditions include one engine becoming inoperative and windmilling, a 5-degree bank towards the operative engine, take-off power on operative engine, landing gear up, flaps in take-off position, and most rearward C.G. For some conditions of weight and altitude, stall

can be encountered at speeds above V_{MCA} as established by the Certification procedure described above, in which event stall speed must be regarded as the limit of effective directional control.

V_{SSE} The Intentional One-Engine-Inoperative Speed is a speed above both V_{MCA} and stall speed, selected to provide a margin of lateral and directional control when one engine is suddenly rendered inoperative. Intentional failing of one engine below this speed is not recommended.

V_A Maneuvering Speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.

V_F Design flap speed is the highest speed permissible at which wing flaps may be actuated.

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 airplane can be safely flown with the landing gear extended.

V_{NE} Never Exceed Speed is the speed limit that may not be exceeded at any time.

V_{LO} Maximum Landing Gear Operating Speed is the maximum speed at which the landing gear can be safely extended or retracted.

V_{NO} or V_C 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_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.

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 millibars);
(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 (-0.003566° F) per foot and zero above that altitude.

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

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. Position errors may be obtained from the Altimeter Correction Chart.
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.

POWER TERMINOLOGY

Take-off and Maximum Continuous	The highest power rating not limited by time.
Cruise Climb	Power recommended for cruise climb.
Maximum Cruise	The highest power settings recommended for cruise.
Recommended Cruise	Intermediate power settings for which cruise power settings are presented.
Economy Cruise	The lowest power setting for which cruise power settings are presented.

Maximum Normal Operating Power (MNOP)	Highest power rating within the normal operating range. Noise characteristics requirements of FAR 36 have been demonstrated at this power rating.

ENGINE CONTROLS AND INSTRUMENTS TERMINOLOGY

Throttle Controls	The lever used to control the introduction of a fuel-air mixture into the intake passages of an engine.
Propeller Controls	This lever requests the governor to maintain rpm at a selected value and, in the maximum decrease rpm position, feathers the propellers.
Mixture Controls	This lever, in the idle cut-off position, stops the flow of fuel at the injectors and in the intermediate thru the full rich positions, regulates the fuel air mixture.
Propeller Governors	The governors maintain the selected rpm requested by the propeller control levers.
Manifold Pressure Gage	An instrument that measures the absolute pressure in the intake manifold of an engine, expressed in inches of mercury (in. Hg).

Tachometer	An instrument that indicates the rotational speed of the propeller (and engine) in revolutions per minute (rpm).

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Climb Gradient	The 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 take-off and landing was actually demonstrated during certification tests.
Accelerate-Stop Distance	The distance required to accelerate to a specified speed and, assuming failure of an engine at the instant that speed is attained, to bring the airplane to a stop.
Accelerate-Go Distance	The distance required to accelerate to a specified speed and, assuming failure of an engine at the instant that speed is attained, feather inoperative propeller and continue takeoff on the remaining engine to a height of 50 feet.
MEA	Minimum enroute IFR altitude.

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.
GPH	U.S. Gallons per hour.

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.)
Airplane 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 ramp weight and basic empty weight.
Maximum Ramp Weight	Maximum weight approved for ground maneuvering. (It includes weight of start, taxi, and run up fuel).
Maximum Take-off Weight	Maximum weight approved for the start of the take off run.

Maximum Landing Weight	Maximum weight approved for the landing touchdown.
Zero Fuel Weight	Weight exclusive of usable fuel.

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SECTION II

LIMITATIONS

TABLE OF CONTENTS

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TABLE OF CONTENTS (Continued)

Criptografia: Fred Mesquita

The limitations included in this section have been approved by the Federal Aviation Administration and must be observed in the operation of this airplane.

AIRSPEED LIMITATIONS

SPEED	CAS KNOTS	IAS KNOTS	REMARKS
Never Exceed V_{NE}	223	223	Do not exceed this speed in any operation
Maximum Structural Cruising V_{NO} or V_C	195	195	Do not exceed this speed except in smooth air and then only with caution
Maneuvering V_A	156	156	Do not make full or abrupt control movements above this speed
Maximum Flap Extension/ Extended V_{FE} (Approach 15°) (Full Down 30°)	152 122	152 122	Do not extend flaps or operate with flaps extended above this speed
Maximum Landing Gear Operating/ Extended V_{LO} and V_{LE}	152	152	Do not extend, retract or operate with gear extended above this speed
Air Minimum Control Speed V_{MCA}	81	81	Minimum speed for directional controllability after sudden loss of engine
Maximum With Utility Doors Removed	174	174	Utility door removal kit must be installed

***AIRSPEED INDICATOR MARKINGS**

MARKING	CAS KNOTS	IAS KNOTS	SIGNIFICANCE
White Arc	72-122	74-122	Full Flap Operating Range
White Triangle**	152	152	Maximum Flap Approach Position 15°
Blue Radial	100	100	Single-Engine Best Rate-of-Climb Speed
Red Radial	81	81	Minimum Single-Engine Control (V_{MCA})
Green Arc	83-195	84-195	Normal Operating Range
Yellow Arc	195-223	195-223	Operate with caution, only in smooth air
Red Radial	223	223	Maximum speed for ALL operations

*The Airspeed Indicator is marked in IAS values
**Series TH-1080 and After

POWER PLANT LIMITATIONS

ENGINES

Two Continental IO-520-C (Prior to TH-973) or IO-520-CB (TH-973 and after) fuel-injected, air-cooled, six-cylinder, horizontally opposed engines each rated at 285 horsepower at 2700 rpm.

Take-off and Maximum
Continuous Power ..... Full Throttle and 2700 rpm
Maximum Normal Operating Power (TH-1090 and After)
With 2-blade propellers
installed ..... Full Throttle and 2550 rpm
With 3-blade propellers
installed ..... Full Throttle and 2650 rpm
Maximum Cylinder Head Temperature ..... 460°F
Maximum Oil Temperature ..... 240°F
Minimum Take-off Oil Temperature ..... 75°F
Minimum Oil Pressure (idle) ..... 30 psi
Maximum Oil Pressure ..... 100 psi

FUEL

Aviation Gasoline 100LL (blue) preferred, 100 (green) minimum grade.

OIL

Ashless dispersant oils must meet Continental Motors Corporation Specification MHS-24B. Refer to APPROVED ENGINE OILS, Servicing Section.

PROPELLERS

HARTZELL

2 Blade Hubs: BHC-J2YF-2CUF
Blades: FC8475-6
Spinner: C-2285-6P
Pitch Setting at 30 inch Station: Low 14.5°; Feathered 80.0°
Diameter: 78 inches maximum, 76 inches minimum

3 Blade Hubs: PHC-J3YF-2UF
Blades: FC7663-2R
Spinner: C-3567-1P
Pitch Setting at 30 inch Station: Low 13.0°; Feathered 82.0°
Diameter: 76 inches maximum, 74 inches minimum

McCAULEY (TH-773 thru TH-1089)

2 Blade Hubs: D2AF34C30
Blades: 78FF-0
Spinner: D-3953 or D-4046
Pitch Setting at 30 inch Station: Low 15.0°; Feathered 79.0°
Diameter: 78 inches maximum, 76 inches minimum

3 Blade Hubs: D3AF32C35
Blades: 82NB-6
Spinner: PD-4068 or PD-4069
Pitch Setting at 30 inch Station: Low 14.0° ± .2°; Feathered 81.2° ± .3°
Diameter: 76 inches, no cut-off permitted

STARTERS - TIME FOR CRANKING

Do not operate starter continuously for more than 30 seconds. Allow starter to cool again before cranking.

POWER PLANT INSTRUMENT MARKINGS

OIL TEMPERATURE
- Caution (Yellow Radial) ..... 75°F
- Operating Range (Green Arc) ..... 75° to 240°F
- Maximum (Red Radial) ..... 240°F

OIL PRESSURE
- Minimum Pressure (Red Radial) ..... 30 psi
- Operating Range (Green Arc) ..... 30 to 60 psi
- Maximum Pressure (Red Radial) ..... 100 psi

FUEL FLOW AND PRESSURE
Serials TH-773 thru TH-1193:
- Minimum (Red Radial) ..... 1.5 psi
- Operating Range (Green Arc) ..... 1.5 psi to 24.3 gph
- Cruise Power (Green Arc) ..... 9.7 gph to 17.0 gph
- Take-off and Climb Power (Wide Green Arc) ..... 17.8 gph to 24.3 gph
- Maximum (Red Radial) ..... 17.5 psi

FUEL FLOW
Serials TH-1194 and after:
- Operating Range (Green Arc) ..... 6.9 to 24.3 gph
- Take-off and Climb Power (White Radials) ..... 17.8 to 24.3 gph
- Maximum (Red Radial) ..... 24.3 gph

MANIFOLD PRESSURE
- Operating Range (Green Arc) ..... 15 to 29.6 in. Hg
- Maximum (Red Radial) ..... 29.6 in. Hg

TACHOMETER
- Operating Range (Green Arc) (Serials TH-773 thru TH-1089) ..... 2000 to 2700 rpm
- Operating Range (Green Arc) (Serials TH-1090 and after)
  - With 2-blade propellers installed ..... 2000 to 2550 rpm
  - With 3-blade propellers installed ..... 2000 to 2650 rpm
- Maximum (Red Radial) ..... 2700 rpm

CYLINDER HEAD TEMPERATURE
Operating Range (Green Arc) ..... 200° to 460°F
Maximum Temperature (Red Radial) ..... 460°F

MISCELLANEOUS INSTRUMENT MARKINGS

INSTRUMENT PRESSURE
Normal (Green Arc) ..... 4.3 to 5.9 in. Hg
Red Button Source Failure Indicators

PROPELLER DEICE AMMETER
Normal Operating Range (Green Arc) ..... 7 to 12 amps (2 blade)
Normal Operating Range (Green Arc) ..... 14 to 18 amps (3 blade)

FUEL QUANTITY
Yellow Arc ..... E to 1/8 Full

WEIGHTS

58
Maximum Ramp Weight ..... 5424 lbs
Maximum Take-Off Weight ..... 5400 lbs
Maximum Landing Weight ..... 5400 lbs

58A
Maximum Ramp Weight ..... 5014 lbs
Maximum Take-Off Weight ..... 4990 lbs
Maximum Landing Weight ..... 4990 lbs

Maximum Baggage/Cargo Compartment Weights:
Aft Cabin compartment (less occupants and equipment) ..... 400 lbs
Extended Rear Compartment ..... 120 lbs
Nose Compartment (baggage less equipment) ..... 300 lbs
Refer to Weight and Balance section for additional information.

CG LIMITS

Baron 58

Forward Limits: 74 inches aft of datum at 4200 lbs and under, then straight line variation to 78.0 inches aft of datum at gross weight of 5400 lbs.

Aft Limits: 86 inches aft of datum at all weights.

Baron 58A

Forward Limits: 74 inches aft of datum at 4200 lbs and under, then straight line variation to 76.6 inches aft of datum at gross weight of 4990 lbs.

Aft Limits: 86 inches aft of datum at all weights.

Datum is 83.1 inches forward of center line through forward jack points.

MAC leading edge is 67.2 inches aft of datum.
MAC length is 63.1 inches.

MANEUVERS

This is a normal category airplane. Acrobatic maneuvers, including spins, are prohibited.

FLIGHT LOAD FACTORS (5400 POUNDS)

Positive maneuvering load factors:
Flaps Up . . . . . 4.2 G
Flaps Down . . . . . 2.0 G

MINIMUM FLIGHT CREW . . . . . One Pilot

KINDS OF OPERATION

This airplane is approved for the following type operations when the required equipment is installed and operational as defined herein:

1. VFR day and night
2. IFR day and night

WARNING

Ice protection equipment which may be installed on this airplane has not been demonstrated to meet requirements for flight into known icing conditions.

FUEL

TOTAL FUEL with left and right wing fuel systems full:

Standard Fuel System
Capacity . . . . . 142 Gallons
Usable . . . . . 136 Gallons

Criptografia: Fred Mesquita

Optional Fuel System

Capacity	172 Gallons
Usable	166 Gallons

or

Capacity	200 Gallons
Usable	194 Gallons

Do not take off if Fuel Quantity Gages indicate in Yellow Arc or with less than 13 gallons in each wing fuel system.

The fuel crossfeed system to be used during emergency conditions in level flight only.

Maximum slip duration: 30 seconds

OXYGEN REQUIREMENTS

One mask for minimum crew and one mask per passenger with an adequate supply of oxygen when operating above 12,500 feet (MSL). Refer to FAR 91 for variations concerning supplemental oxygen requirements for a particular flight.

MAXIMUM PASSENGER SEATING CONFIGURATION

Five (5) passengers and one (1) pilot

SEATING

All occupied seats must be in the upright position for take-off and landing.

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PLACARDS

On Left Side Panel:

TURN STROBE LIGHTS OFF WHEN TAXIING IN
VICINITY OF OTHER AIRCRAFT OR WHEN
FLYING IN FOG OR CLOUDS. STANDARD POSITION LIGHTS
TO BE USED FOR ALL NIGHT OPERATIONS

On Pilot's Left Sidewall Panel (58) (Serials TH-773 Thru TH-1079, Except TH-1027, TH-1062 and TH-1067):

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY
AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS
STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.
(PILOT'S CHECK LIST)
OCCUPIED SEATS MUST BE IN UPRIGHT POSITION DURING
TAKE-OFF AND LANDING
MAXIMUM WEIGHT 5400 LBS
NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED
AIRSPEED LIMITATIONS
MAX. SPEED WITH LDG GEAR EXTENDED (NORMAL) 152 KTS
MAX. SPEED WITH FLAPS EXTENDED (15° DOWN) 152 KTS
MAX. SPEED WITH FLAPS EXTENDED (NORMAL) 122 KTS
MAX. DESIGN MANEUVER SPEED 156 KTS
MIN CONTROL SPEED SINGLE ENGINE 81 KTS
NEVER EXCEED SPEED 223 KTS
MAX. STRUCTURAL CRUISE SPEED 195 KTS

On Pilot's Left Sidewall Panel (58A) (Serials TH-773 Thru TH-1079, Except TH-1027, TH-1062 and TH-1067):

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY
AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS
STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.
(PILOT'S CHECK LIST)
OCCUPIED SEATS MUST BE IN UPRIGHT POSITION DURING
TAKE-OFF AND LANDING
MAXIMUM WEIGHT 4990 LBS
NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED
AIRSPEED LIMITATIONS
MAX. SPEED WITH LDG GEAR EXTENDED (NORMAL) 152 KTS
MAX. SPEED WITH FLAPS EXTENDED (15° DOWN) 152 KTS
MAX. SPEED WITH FLAPS EXTENDED (NORMAL) 122 KTS
MAX. DESIGN MANEUVER SPEED 156 KTS
MIN CONTROL SPEED SINGLE ENGINE 81 KTS
NEVER EXCEED SPEED 223 KTS
MAX. STRUCTURAL CRUISE SPEED 195 KTS

Criptografia: Fred Mesquita

On Left Sidewall (58 & 58A) (Serials TH-1027, TH-1062, TH-1067, TH-1080 and after):

AIRSPEED LIMITATIONS

MAX. LDG GEAR EXTENDED (NORMAL)
----------152 KTS

MAX. FLAPS EXTENDED (15° DOWN)
---------152 KTS

MAX. FLAPS EXTENDED (NORMAL)
----------122 KTS

MAX. DESIGN MANEUVER SPEED ---156 KTS

MIN. CONTROL SPEED SINGLE ENGINE---81 KTS

NEVER EXCEED SPEED----------223 KTS

MAX. STRUCTURAL CRUISE SPEED ---195 KTS

On Upper Left Hand Side Panel (58) (Serials TH-1027, TH-1062, TH-1067, TH-1080 and after):

OPERATION LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. MAXIMUM WEIGHT IS 5400 LBS.

(PILOT'S CHECK LIST)
OCCUPIED SEATS MUST BE IN UPRIGHT POSITION FOR TAKEOFF AND LANDING.
NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED.

On Upper Left Hand Side Panel (58A) (Serials TH-1027, TH-1062, TH-1067, TH-1080 and after):

OPERATION LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. MAXIMUM WEIGHT IS 4990 LBS.

(PILOT'S CHECK LIST)
OCCUPIED SEATS MUST BE IN UPRIGHT POSITION FOR TAKEOFF AND LANDING.
NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED.

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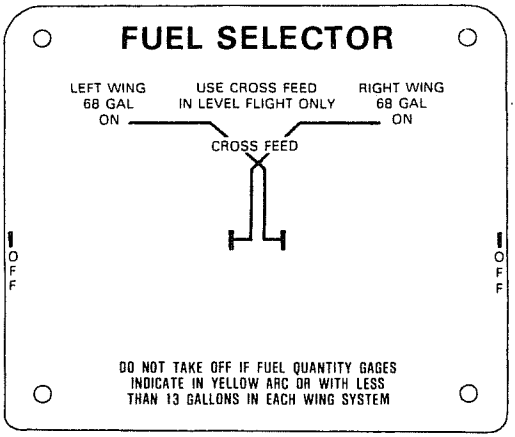
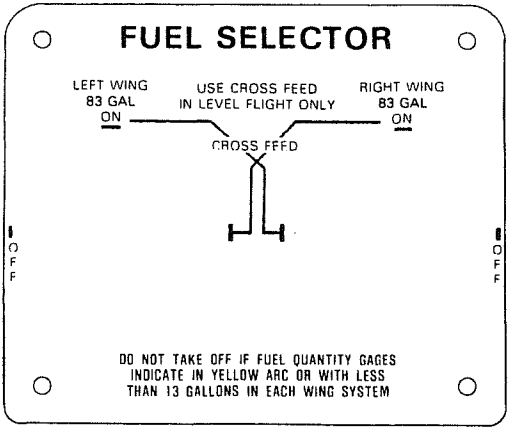
Between Fuel Selector Handles:

Standard 136 Gallon System



Optional 166 Gallon System



Temporary Change to the Pilot's Operating Handbook *and* FAA Approved Airplane Flight Manual

P/N 58-590000-21TC1

Publication Affected	58 and 58A Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (P/N 58-590000-21, Issued October, 1976 or Subsequent)
Airplane Serial Numbers Affected	TH-773 thru TH-1395, except TH-1389
Description of Change	The addition of a placard to the fuel selectors to warn of the no-flow condition that exists between the fuel selector detents.
Filing Instructions	Insert this temporary change into the 58 and 58A Pilot's Operating Handbook and FAA Approved Airplane Flight Manual immediately following page 2-14 (Section II, LIMITATIONS) and retain until rescinded or replaced.

LIMITATIONS

PLACARDS

Located On The Face Of The Fuel Selector Valves, For Those Airplanes In Compliance With S.B. 2670:

WARNING - POSITION SELECTORS IN DETENTS ONLY - NO FUEL FLOW TO ENGINES BETWEEN DETENTS

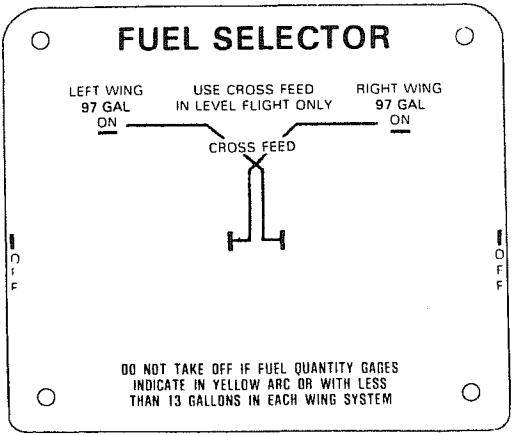
Approved:

A.C. Jackson
Raytheon Aircraft Company
DOA CE-2

Criptografia: Fred Mesquita

Between Fuel Selector Handles Con't.

Optional 194 Gallon System



On Inboard Side Of Seat Backs For 3rd And 4th Seats:

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On Top of Front Spar Carry-Thru Structure Between Front Seats:

EMERGENCY
LANDING GEAR
INSTRUCTIONS
TO EXTEND

ENGAGE HANDLE IN REAR OF FRONT SEAT AND TURN COUNTERCLOCKWISE AS FAR AS POSSIBLE (50 TURNS)

On Emergency Crank Access Cover:

LANDING GEAR EMERGENCY CRANK

PULL OUT

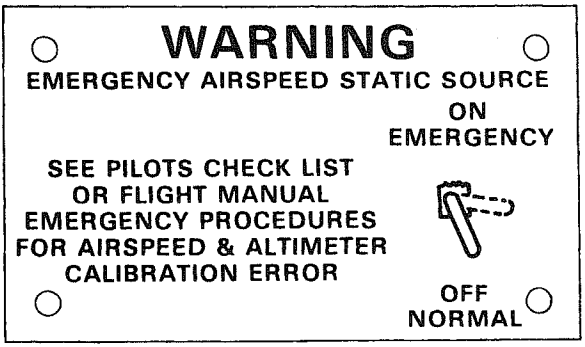
LIFT UP

On Instrument Panel When Anti-Collision Lights Are Not Installed:

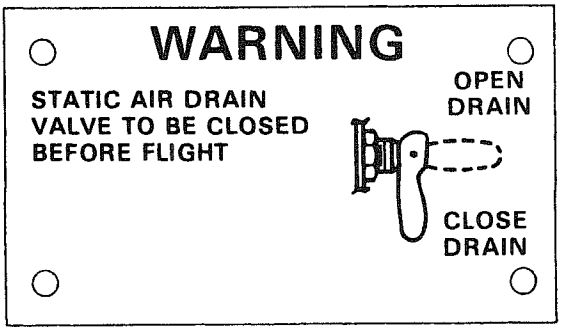
THIS AIRCRAFT NOT FULLY EQUIPPED FOR NIGHT FLIGHT

Criptografia: Fred Mesquita

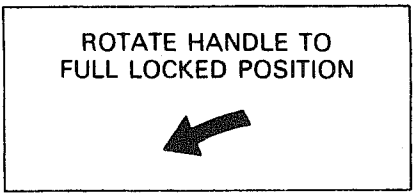
On Lower Sidewall Adjacent to Pilot:



OR



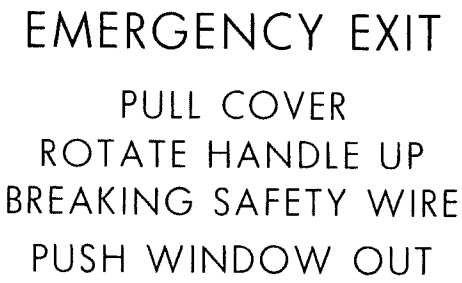
Adjacent To Cabin Door Handle:



Below Left and Right Openable Windows After Compliance with BEECHCRAFT Service Instructions 1241:

(Serials TH-773 thru TH-1079, Except TH-1027, TH-1062 and TH-1067):

On Face of Emergency Exit Latch Cover (Serials TH-1027, TH-1062, TH-1067, TH-1080 and After):



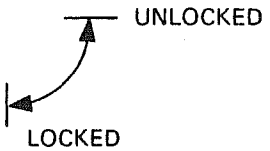
On Emergency Exit Handle (TH-1027, TH-1062, TH-1067, TH-1080 and After):

ROTATE HANDLE UP
BREAKING SAFETY
WIRE
PUSH WINDOW OUT

On Openable Cabin Windows:

DO NOT OPEN IN FLIGHT	LATCH WINDOW BEFORE TAKE-OFF

Adjacent to Openable Cabin Window Handles (Serials TH-1316 and after):



On Oxygen Console:

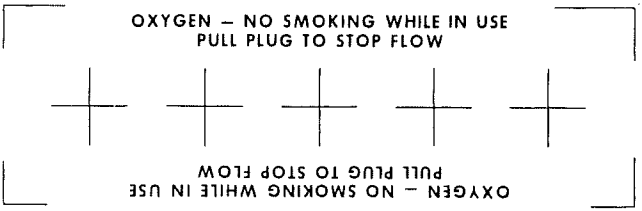
OXYGEN
NO SMOKING WHEN IN USE
HOSE PLUG MUST BE PULLED OUT TO STOP OXYGEN FLOW

On Each Oxygen Mask Stowage Container:

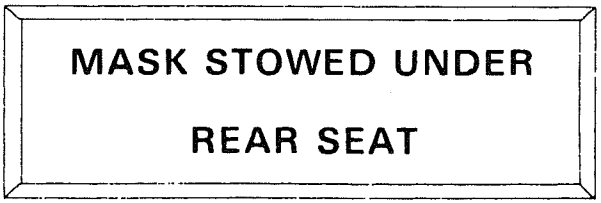
OXYGEN MASK

On Each Passenger Outlet (Serials TH-773 Thru TH-1079, Except TH-1027, TH-1062 and TH-1067) and On All Pilot and Copilot Outlets (All Serials):

On Oxygen Manifold (Serials TH-1027, TH-1062, TH-1067 and TH-1080 and after):



Adjacent to Oxygen Outlet when 5th & 6th Seats Are Installed:



On Windows Adjacent to Pilot's and Copilot's Seat:

SHOULDER HARNESS
MUST BE WORN AT
ALL TIMES WHILE AT
PILOT POSITIONS

On Windows Adjacent to 5th & 6th Seats And 3rd & 4th Forward Facing Seats:

SHOULDER HARNESS
MUST BE WORN DURING
TAKE-OFF AND LANDING
WITH SEAT BACK UPRIGHT

On Windows Adjacent to 3rd & 4th Aft Facing Club Seats:

SHOULDER HARNESS
MUST BE WORN DURING
TAKE-OFF AND LANDING
WITH SEAT BACK UPRIGHT
AND AFT FACING SEATS
MUST HAVE HEADREST
FULLY EXTENDED

On Inside of Utility Door, on Left Sidewall of Utility Compartment, or on Aft Bulkhead:

BAGGAGE COMPARTMENTS

LOAD IN ACCORDANCE WITH WEIGHT AND BALANCE DATA

– MAXIMUM STRUCTURAL CAPACITY
MAIN COMPARTMENT – 400 POUNDS
AFT COMPARTMENT – 120 POUNDS

On Left Sidewall of Utility Compartment or Aft Bulkhead (with utility door removal kit):

BAGGAGE COMPARTMENTS

LOAD IN ACCORDANCE WITH WEIGHT AND BALANCE DATA

MAXIMUM STRUCTURAL CAPACITY
MAIN COMPARTMENT - 400 POUNDS
AFT COMPARTMENT - 120 POUNDS

WHEN UTILITY DOORS ARE REMOVED THE FOLLOWING RESTRICTIONS APPLY TO CABIN AREA:

1. NO SMOKING
2. ALL LOOSE OBJECTS MUST BE SECURED
3. PERSONNEL NOT SECURED IN SEATS BY SAFETY BELTS MUST WEAR PARACHUTES

On Floating Panel when Utility Doors are Removed:

WHEN UTILITY DOORS ARE REMOVED AIR SPEED IS NOT TO EXCEED 174 KNOTS

In Plain View When Nose Baggage Compartment Door Is Open:

BAGGAGE COMPARTMENT

LOAD IN ACCORDANCE WITH AIRPLANE FLIGHT MANUAL

MAXIMUM STRUCTURAL CAPACITY — 300 POUNDS

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On Control Lock

INSTALLATION INSTRUCTIONS

INSTALL OTHER SIDE FACING PILOT

1. CLOSE THROTTLES, INSTALL PIN BETWEEN LEVERS, THROUGH COLLAR LOCK & CONTROL COLUMN. (ROTATE CONTROL WHEEL APPROX 12° TO THE RIGHT)
2. ROUTE CABLE & RUDDER LOCK AROUND RIGHT SIDE OF CONTROL COLUMN, POSITION PEDALS IN AFT POSITION & INSTALL LOCK IN RUDDER PEDALS.

CONTROLS LOCKED REMOVE BEFORE FLIGHT

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KINDS OF OPERATIONS EQUIPMENT LIST

This airplane may be operated in day or night VFR, day or night IFR when the appropriate equipment is installed and operable.

The following equipment list identifies the systems and equipment upon which type certification for each kind of operation was predicated. The following systems and items of equipment must be installed and operable for the particular kind of operation indicated unless:

1. The airplane is operated in accordance with a current Minimum Equipment List (MEL) issued by the FAA.

   Or:

2. An alternate procedure is provided in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual for the inoperative state of the listed equipment.

Numbers on the Kinds of Operations Equipment List refer to quantities required to be operative for a specified condition.

NOTE

The following Kinds of Operations Equipment List does not include all specific flight instruments and communications/navigation equipment required by the FAR Part 91 and 135 Operating Requirements. It also does not include components obviously required for the airplane to be airworthy such as wings, empennage, engines, etc.

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SYSTEM and/or COMPONENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT
ELECTRICAL POWER				
Battery	1	1	1	1
DC Alternator	2	2	2	2
DC Loadmeter	2	2	2	2
Alternator-Out Light	2	2	2	2
Starter Energized Warning Light (TH-1194 and after)	1	1	1	1
ENGINE INDICATING INSTRUMENTS				
Engine Tachometer (Dual Indicating)	1	1	1	1
Manifold Pressure Indicator (Dual Indicating)	1	1	1	1
Cylinder Head Temp Gage	2	2	2	2

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SYSTEM and/or COMPONENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT
ENGINE OIL				
Oil Pressure Indicator	2	2	2	2
Oil Temperature Indicator	2	2	2	2
FLIGHT CONTROLS				
Trim Tab Indicators (Rudder, Aileron, and Elevator)	3	3	3	3
Flap System	1	1	1	1
Flap Position Indicator	1	1	1	1
Stall Warning System	1	1	1	1

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FLIGHT INSTRUMENTS					
Altimeter	1	1	1	1	
Airspeed Indicator	1	1	1	1	
Magnetic Compass	1	1	1	1	
Attitude Indicator	0	0	1	1	
Turn and Slip Indicator	0	0	1	1	
Directional Gyro	0	0	1	1	
Clock	0	0	1	1	
Outside Air Temperature Indicator	1	1	1	1	
FUEL EQUIPMENT					
Engine Driven Fuel Pump	2	2	2	2	
Electrically Driven Aux Fuel Pump	2	2	2	2	
Fuel Quantity Indicator	2	2	2	2	
Fuel Flow Indicator	1	1	1	1	
Fuel Selector Valve	2	2	2	2	
ICE AND RAIN PROTECTION					
Emergency Static Air System (If Installed)	0	0	1	1	
Pitot Heater	0	0	1	1	
Heated Fuel Vent	0	0	2	2	

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SYSTEM and/or COMPONENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT
LIGHTS				
Cockpit and Instrument Light System	0	1	0	1
Landing Light	0	2	0	2
Landing Light (With Opt Wing Tip Fuel Tanks TH-773 thru TH-873)	0	1	0	1
Landing Light (With Opt Wing Tip Fuel Tanks TH-874 and after)	0	2	0	2
Rotating Beacon	0	1	0	1
Navigation Light	0	3	0	3

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LANDING GEAR					
Landing Gear Motor and Gearbox	1	1	1	1	
Landing Gear Position Indicating Lights	4	4	4	4	
Landing Gear Aural Warning Horn	1	1	1	1	
Emergency Landing Gear Extension System	1	1	1	1	
PNEUMATIC SYSTEM					
Instrument Air System	0	2	2	2	
Pressure Gage	0	1	1	1	
PUBLICATIONS					
Pilot's Operating Handbook and FAA Approved Airplane Flight Manual	1	1	1	1	

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SYSTEM and/or COMPONENT	VFR DAY	VFR NIGHT	IFR DAY	IFR NIGHT
RESTRAINT SYSTEM				
Seat Belts (Per Seat)	1	1	1	1
Shoulder Harness (Per Seat)	1	1	1	1

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SECTION III
EMERGENCY PROCEDURES

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All airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

EMERGENCY AIRSPEEDS (5400 LBS)

One-Engine-Inoperative Best Angle-of-Climb (V_X)	96 kts
One-Engine-Inoperative Best Rate-of-Climb (V_Y)	100 kts
Air Minimum Control Speed (V_{MCA})	81 kts
One-Engine-Inoperative Enroute Climb	100 kts
Emergency Descent	152 kts
One-Engine-Inoperative Landing:	
Maneuvering to Final Approach	100 kts
Final Approach (Flaps Down)	100 kts
Intentional One-Engine-Inoperative Speed (V_{SSE})	86 kts
Maximum Glide Range	120 kts

On Serials TH-973 and After, the stall warning horn is inoperative when the battery and alternator switches are turned off.

The following information is presented to enable the pilot to form, in advance, a definite plan of action for coping with the most probable emergency situations which could occur in the operation of the airplane. Where practicable, the emergencies requiring immediate corrective action are treated in check list form for easy reference and familiarization. Other situations, in which more time is usually permitted to decide on and execute a plan of action, are discussed at some length. In order to supply one safe speed for each type of emergency situation, the airspeeds presented were derived at 5400 lbs.

ONE ENGINE OPERATION

Two major factors govern one engine operations; airspeed and directional control. The airplane can be safely maneu-

vered or trimmed for normal hands-off operation and sustained in this configuration by the operative engine AS LONG AS SUFFICIENT AIRSPEED IS MAINTAINED.

DETERMINING INOPERATIVE ENGINE

The following checks will help determine which engine has failed.

1. DEAD FOOT - DEAD ENGINE. The rudder pressure required to maintain directional control will be on the side of the good engine.

2. THROTTLE. Partially retard the throttle for the engine that is believed to be inoperative; there should be no change in control pressures or in the sound of the engine if the correct throttle has been selected. AT LOW ALTITUDE AND AIRSPEED THIS CHECK MUST BE ACCOMPLISHED WITH EXTREME CAUTION.

Do not attempt to determine the inoperative engine by means of the tachometers or the manifold pressure gages. These instruments often indicate near normal readings.

ONE-ENGINE INOPERATIVE PROCEDURES

ENGINE FAILURE DURING TAKE-OFF

1. Throttles - CLOSED
2. Braking - MAXIMUM

If insufficient runway remains for stopping:

3. Fuel Selector Valves - OFF
4. Battery, Alternator, and Magneto/Start Switches - OFF

ENGINE FAILURE AFTER LIFT-OFF
AND IN FLIGHT

NOTE

The most important aspect of engine failure is the necessity to maintain lateral and directional control. If airspeed is below 81 kts, reduce power on the operative engine as required to maintain control.

An immediate landing is advisable regardless of take-off weight. Continued flight cannot be assured if take-off weight exceeds the weight determined from the TAKE-OFF WEIGHT graph. Higher take-off weights will result in a loss of altitude while retracting the landing gear and feathering the propeller. Continued flight requires immediate pilot response to the following procedures.

1. Landing Gear and Flaps - UP
2. Throttle (inoperative engine) - CLOSED
3. Propeller (inoperative engine) - FEATHER
4. Power (operative engine) - AS REQUIRED
5. Airspeed - MAINTAIN SPEED AT ENGINE FAILURE (100 KTS MAX.) UNTIL OBSTACLES ARE CLEARED.

After positive control of the airplane is established:

6. Secure inoperative engine:
   a. Mixture Control - IDLE CUT-OFF
   b. Fuel Selector - OFF
   c. Auxiliary Fuel Pump - OFF
   d. Magneto/Start Switch - OFF
   e. Alternator Switch - OFF
   f. Cowl Flap - CLOSED
7. Electrical Load - MONITOR (Maximum load of 1.0 on remaining engine)

AIR START

CAUTION

The pilot should determine the reason for engine failure before attempting an air start.

1. Fuel Selector Valve - ON
2. Throttle - SET approximately 1/4 travel
3. Mixture Control - FULL RICH, below 5000 ft (1/2 travel above 5,000 ft)
4. Aux Fuel Pump - LOW
5. Magnetos - CHECK ON
6. Propeller:

WITH UNFEATHERING ACCUMULATORS:

a. Move propeller control full forward to accomplish unfeathering. Use starter momentarily if necessary.
b. Return control to high pitch (low rpm) position, when windmilling starts, to avoid overspeed.

If propeller does not unfeather or engine does not turn, proceed to WITHOUT UNFEATHERING ACCUMULATORS procedure.

WITHOUT UNFEATHERING ACCUMULATORS;

a. Move propeller control forward of the feathering detent to midrange.
b. Engage Starter to accomplish unfeathering.
c. If engine fails to run, clear engine by allowing it to windmill with mixture in IDLE CUT-OFF. When engine fires, advance mixture to FULL RICH.

7. When Engine Starts - ADJUST THROTTLE, PROPELLER and MIXTURE CONTROLS
8. Aux Fuel Pump - OFF (when reliable power has been regained)

9. Alternator Switch - ON
10. Oil Pressure - CHECK
11. Warm Up Engine (approximately 2000 rpm and 15 in. Hg)
12. Set power as required and trim

ENGINE FIRE (GROUND)

1. Mixture Controls - IDLE CUT-OFF
2. Continue to crank affected engine
3. Fuel Selector Valves - OFF
4. Battery and Alternator Switches - OFF
5. Extinguish with Fire Extinguisher

ENGINE FIRE IN FLIGHT

Shut down the affected engine according to the following procedure and land immediately. Follow the applicable single-engine procedures in this section.

1. Fuel Selector Valve - OFF
2. Mixture Control - IDLE CUT-OFF
3. Propeller - FEATHERED
4. Aux Fuel Pump - OFF
5. Magneto/Start Switch - OFF
6. Alternator Switch - OFF

EMERGENCY DESCENT

1. Propellers - 2700 RPM
2. Throttles - CLOSED
3. Airspeed - 152 kts
4. Landing Gear - DOWN
5. Flaps - APPROACH (15°)

GLIDE

1. Propellers - FEATHER
2. Flaps - UP
3. Landing Gear - UP
4. Cowl Flaps - CLOSED

The glide ratio in this configuration is approximately 2 nautical miles of gliding distance for each 1000 feet of altitude above the terrain at an airspeed of 120 kts.

LANDING EMERGENCIES

GEAR-UP LANDING

If possible, choose firm sod or foamed runway. When assured of reaching landing site:

1. Cowl Flaps - CLOSED
2. Wing Flaps - AS DESIRED
3. Throttles - CLOSED
4. Fuel Selectors - OFF
5. Mixture Controls - IDLE CUT-OFF
6. Battery, Alternator and Magneto/Start Switches - OFF
7. Keep wings level during touchdown.
8. Get clear of the airplane as soon as possible after it stops.

NOTE

The gear up landing procedures are based on the best available information and no actual tests have been conducted.

ONE-ENGINE-INOPERATIVE LANDING

On final approach and when it is certain that the field can be reached:

1. Landing Gear - DOWN
2. Flaps - APPROACH (15°)
3. Airspeed - 100 kts
4. Power - AS REQUIRED to maintain 800 ft/min rate of descent

When it is certain there is no possibility of go-around:

5. Flaps - DOWN (30°)
6. Execute normal landing

ONE-ENGINE-INOPERATIVE GO-AROUND

WARNING

Level flight might not be possible for certain combinations of weight, temperature and altitude. In any event, DO NOT attempt a one engine inoperative go-around after flaps have been fully extended.

1. Power - MAXIMUM ALLOWABLE
2. Landing Gear - UP
3. Flaps - UP (0°)
4. Airspeed - MAINTAIN 100 KTS

SYSTEMS EMERGENCIES

ONE-ENGINE INOPERATIVE OPERATION
ON CROSSFEED

NOTE

The fuel crossfeed system is to be used only during emergency conditions in level flight only.

Left engine inoperative:

1. Right Aux Fuel Pump - LOW
2. Left Fuel Selector Valve - OFF
3. Right Fuel Selector Valve - CROSSFEED
4. Right Aux Fuel Pump - LOW or OFF as required

Right engine inoperative:

1. Left Aux Fuel Pump - LOW
2. Right Fuel Selector Valve - OFF
3. Left Fuel Selector Valve - CROSSFEED
4. Left Aux Fuel Pump - LOW or OFF as required

ELECTRICAL SMOKE OR FIRE

Action to be taken must consider existing conditions and equipment installed:

1. Battery and Alternator Switches - OFF

WARNING

Electrically driven flight instruments will become inoperative.

2. Oxygen - AS REQUIRED
3. All Electrical Switches - OFF
4. Battery and Alternator Switches - ON

5. Essential Electrical Equipment - ON (Isolate defective equipment)

NOTE

Ensure fire is out and will not be aggravated by draft. Turn off CABIN HEAT switch and push in the CABIN AIR control. Open pilot's storm window, if required.

STARTER ENERGIZED WARNING LIGHT ILLUMINATED (If installed)

After engine start, should the starter relay remain engaged, the starter will remain energized and the starter energized warning light will remain illuminated. Continuing to supply power to the starter will result in eventual loss of electrical power.

ON THE GROUND:

1. Battery Master and both Alternator Switches - OFF.
2. Do not take off.

IN FLIGHT AFTER AIR START

1. Battery Master and both Alternator Switches - OFF.
2. Land as soon as practical.

ILLUMINATION OF ALTERNATOR OUT LIGHT (TH-773 thru TH-1376)

In the event of the illumination of a single ALTERNATOR OUT light:

1. Check the respective loadmeter for load indication
   a. No Load - Turn off affected alternator
   b. Regulate load

In the event of the illumination of both ALTERNATOR OUT lights:

1. Check loadmeters for load indication
   a. No load indicates failure of regulator
      (1) Switch regulators
      (2) System should indicate normal

b. If condition recurs
   (1) Switch to original regulator
   (2) System returns to normal, indicates overload condition causing malfunction
   (3) Reduce load
c. If condition indicates malfunction of both alternator circuits
   (1) Both ALT Switches - OFF
   (2) Minimize electrical load since only battery power will be available

ILLUMINATION OF ALTERNATOR - OUT LIGHT (TH-1377 AND AFTER, AND AIRPLANES EQUIPPED WITH KIT NO. 55-3024)

In the event of the illumination of a single ALTERNATOR - OUT light:

1. Check the respective loadmeter for load indication.

   a. No Load - Turn off affected alternator.
   b. Regulate load to less than 100% of remaining alternator.
   c. Affected Alternator - ON. Check load indication.
   d. No Load - Turn affected alternator off and leave off.

In the event of the illumination of both ALTERNATOR - OUT lights:

1. Check loadmeters for load indication.

   a. No Load - Turn both alternator switches off.
   b. Reduce load to minimum (must be less than the rating of one alternator).
   c. Left Alternator - ON. If no indication on loadmeter, turn off and leave off.

d. Right Alternator - ON. If no indication on loadmeter, turn off and leave off.
e. Adjust electrical load.

2. If condition indicates malfunction of both alternator circuits:

a. Both ALT switches - OFF.
b. Minimize electrical load since only battery power will be available.

UNSCHEDULED ELECTRIC ELEVATOR TRIM

Incorporated in the system is an emergency release button located on the left handle grip of the pilot's control wheel. This button can be depressed to deactivate the system quickly in case of a malfunction in the system. The system will remain deactivated only while the release button is being held in the depressed position.

1. Airplane Attitude - MAINTAIN using elevator control
2. Trim Release (under pilot's thumb adjacent to control wheel trim switch) - HOLD IN DEPRESSED POSITION
3. Trim - MANUALLY RE-TRIM AIRPLANE
4. Electric Trim - OFF
5. Trim Release - RELEASE
6. Circuit Breaker - PULL

NOTE

Do not attempt to operate the electric trim system until the cause of the malfunction has been determined and corrected.

INTENTIONALLY LEFT BLANK

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LANDING GEAR MANUAL EXTENSION

Reduce airspeed before attempting manual extension of the landing gear.

1. LDG GR MOTOR Circuit Breaker - PULL
2. Landing Gear Handle - DOWN
3. Remove cover from handcrank at rear of front seats. Engage handcrank and turn counterclockwise as far as possible (approximately 50 turns). Stow handcrank.
4. If electrical system is operative, check landing gear position lights and warning horn (check LDG GR RELAY circuit breaker engaged.)

CAUTION

The manual extension system is designed only to lower the landing gear; do not attempt to retract the gear manually.

WARNING

Do not operate the landing gear electrically with the handcrank engaged, as damage to the mechanism could occur.

After emergency landing gear extension, do not move any landing gear controls or reset any switches or circuit breakers until airplane is on jacks, as failure may have been in the gear-up circuit and gear might retract with the airplane on the ground.

LANDING GEAR RETRACTION AFTER PRACTICE MANUAL EXTENSION

After practice manual extension of the landing gear, the gear may be retracted electrically, as follows:

1. Handcrank - CHECK, STOWED
2. Landing Gear Motor Circuit Breaker - IN
3. Landing Gear Handle - UP

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ICE PROTECTION

SURFACE DEICE SYSTEM

a. Failure of AUTO Operation
   (1) Surface Deice Switch - MANUAL (Do not hold more than 8 seconds)

CAUTION

The boots will inflate only as long as the switch is held in the MANUAL position. When the switch is released the boots will deflate.

b. Failure of boots to deflate
   (1) Pull circuit breaker on pilot's side panel.

ELECTROTHERMAL PROPELLER DEICE SYSTEM

1. Loss of one alternator; turn off unnecessary electrical equipment. Turn the prop deice system off while operating the cabin heater blower or the landing gear motor. Monitor electrical loads so as not to exceed alternator capacity of 1.0 on the loadmeter.

An abnormal reading on the Propeller Deice Ammeter indicates need for the following action:

a. Zero Amps:

Check prop deice circuit breaker. If the circuit breaker has tripped, a wait of approximately 30 seconds is necessary before resetting. If ammeter reads 0 and the circuit breaker has not tripped or if the ammeter still reads 0 after the circuit breaker has been reset, turn the switch off and consider the prop deice system inoperative.

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b. Zero to 7 Amps, 2 Blade Propeller; Zero to 14 Amps, 3 Blade Propeller:

If the prop deice system ammeter occasionally or regularly indicates less than 7 amps for 2 blade, (or 14 amps for 3 blade), operation of the prop deice system can continue unless serious propeller imbalance results from irregular ice throw-offs.

c. 12 to 15 Amps, 2 Blade Propeller; 18 to 23 Amps, 3 Blade Propeller:

If the prop deicing system ammeter occasionally or regularly indicates 12 to 15 amps for 2 blade (or 18 to 23 amps for 3 blade), operation of the prop deice system can continue unless serious propeller imbalance results from irregular ice throw-offs.

d. More than 15 Amps, 2 Blade Propeller, More than 23 amps, 3 Blade Propeller:

If the prop deice system ammeter occasionally or regularly indicates more than 15 amps for 2 blade, or more than 23 amps for 3 blade, the system should not be operated unless the need for prop deicing is urgent.

EMERGENCY STATIC AIR SOURCE SYSTEM

THE EMERGENCY STATIC AIR SOURCE SHOULD BE USED FOR CONDITIONS WHERE THE NORMAL STATIC SOURCE HAS BEEN OBSTRUCTED. When the airplane has been exposed to moisture and/or icing conditions (especially on the ground), the possibility of obstructed static ports should be considered. Partial obstructions will result in the rate of climb indication being sluggish during a climb or descent.

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Verification of suspected obstruction is possible by switching to the emergency system and noting a sudden sustained change in rate of climb. This may be accompanied by abnormal indicated airspeed and altitude changes beyond normal calibration differences.

Whenever any obstruction exists in the Normal Static Air System or the Emergency Static Air System is desired for use:

1. Emergency Static Air Source - Switch to ON EMERGENCY. (lower sidewall adjacent to pilot)

2. For Airspeed Calibration and Altimeter Corrections, refer to the PERFORMANCE section.

CAUTION

The emergency static air valve should remain in the OFF NORMAL position when system is not needed.

EMERGENCY EXITS

Emergency exits, provided by the openable window on each side of the cabin, may be used for egress in addition to the cabin door and the utility door.

NOTE

For access past the 3rd and/or 4th seats, rotate the red handle, located on the lower inboard side of the seat back, and fold the seat back over.

To Open Each Emergency Exit:

Serials TH-773 thru TH-1079, Except TH-1027, TH-1062, and TH-1067:

An emergency exit placard is installed below the left and right openable windows.

1. Lift the latch.
2. Pull out the emergency release pin and push the window out.

Serials TH-1027, TH-1062, TH-1067, TH-1080 and After:

1. Remove cover as indicated by placard in the center of the Ventilation/Emergency Exit latch.
2. Rotate handle up as indicated by placard, breaking safety wire, and push window out.

NOTE

Anytime the window has been opened by breaking the safety wire on the red emergency latch, the window must be reattached and wired by a qualified mechanic using QQ-W-343, Type S, .020 diameter copper wire prior to further airplane operation.

UNLATCHED DOOR IN FLIGHT

If the cabin door is not locked it may come unlatched in flight. This may occur during or just after take-off. The door will trail in a position approximately 3 to 4 inches open. Flight characteristics of the airplane will not be affected

except for a reduction in performance. Return to the field in a normal manner. If practicable, during the landing flare-out have a passenger hold the door to prevent it from swinging open.

SIMULATED ONE ENGINE INOPERATIVE

ZERO THRUST (Simulated Feather)

Use the following power setting (only on one engine at a time) to establish zero thrust. Use of this power setting avoids the difficulties of restarting an engine and preserves the availability of engine power.

The following procedure should be accomplished by alternating small reductions of propeller and then throttle, until the desired setting has been reached.

1. Propeller Lever - RETARD TO FEATHER DETENT
2. Throttle Lever - SET 12 in. Hg MANIFOLD PRESSURE

NOTE

This setting will approximate Zero Thrust using recommended One-Engine Inoperative Climb speeds.

SPINS

If a spin is entered inadvertently:

Immediately move the control column full forward, apply full rudder opposite to the direction of the spin and reduce power on both engines to idle. These three actions should

be done as near simultaneously as possible; then continue to hold this control position until rotation stops and then neutralize all controls and execute a smooth pullout. Ailerons should be neutral during recovery.

NOTE

Federal Aviation Administration Regulations do not require spin demonstration of airplanes of this weight; therefore, no spin tests have been conducted. The recovery technique is based on the best available information.

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SECTION IV

NORMAL PROCEDURES

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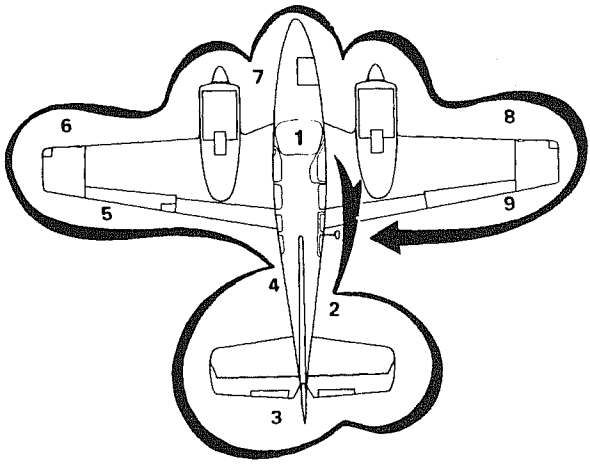
All airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

AIRSPEEDS FOR SAFE OPERATION (5400 LBS)

Maximum Demonstrated Crosswind Component	22 kts
Takeoff:	
Lift-off	86 kts
50-ft Speed	94 kts
Two-Engine Best Angle-of-Climb (V_X)	86 kts
Two-Engine Best Rate-of-Climb (V_Y)	104 kts
Cruise Climb	139 kts
Turbulent Air Penetration	156 kts
Landing Approach:	
Flaps DN	96 kts
Balked Landing Climb	96 kts
Intentional One-Engine-Inoperative Speed (V_{SSE})	86 kts
Air Minimum Control Speed (V_{MCA})	81 kts



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NOTE

Refer to all applicable Beech Supplements and STC Supplements for flight phase procedures for optional equipment installed in the airplane.

PREFLIGHT INSPECTION

1. COCKPIT:
   a. Control Lock - REMOVE AND STOW
   b. Parking Brake - SET
   c. All Switches - OFF
   d. Trim Tabs - SET TO ZERO

2. RIGHT FUSELAGE:
   a. Load Distribution - CHECK AND SECURED
   b. Utility Door - SECURE
   c. Static Port - UNOBSTRUCTED
   d. Emergency Locator Transmitter - ARMED

3. EMPENNAGE:
   a. Control Surfaces, Tabs and Deice Boots - CHECK CONDITION, SECURITY, AND ATTACHMENT
   b. Tail Cone, Tail Light, and Rudder Beacon - CHECK
   c. Tie Down - REMOVE
   d. Cabin Air Inlet - CHECK

4. LEFT FUSELAGE:
   a. Cabin Air Outlet - CHECK
   b. Static Port - UNOBSTRUCTED
   c. All Antennas and Lower Beacon - CHECK

5. LEFT WING TRAILING EDGE:
   a. Fuel Sump Aft of Wheel Well - DRAIN
   b. Fuel Vents - CHECK
   c. Flaps - CHECK GENERAL CONDITION
   d. Aileron - CHECK CONDITION AND FREEDOM OF MOVEMENT, TAB NEUTRAL WHEN AILERON NEUTRAL

6. LEFT WING LEADING EDGE
   a. Lights and Deice Boot - CHECK FOR CONDITION
   b. Stall Warning Vane - CHECK FREEDOM OF MOVEMENT
   c. Fuel - CHECK QUANTITY AND CAP(S) SECURE. ALWAYS CHECK WING TIP TANK FIRST (IF INSTALLED); DO NOT REMOVE INBOARD CAP IF FUEL IS VISIBLE IN TIP TANK.
   d. Wing Tip Tank (if installed) Sump - DRAIN
   e. Fuel Sight Gage - CHECK
   f. Tie Down, Chocks - REMOVE
   g. Engine Oil - CHECK QUANTITY, CAP AND DOOR SECURE
   h. Engine Cowling and Doors - CHECK CONDITION AND SECURITY
   i. Landing Light (if installed) - CHECK
   j. Engine Air Intake - REMOVE COVER AND EXAMINE FOR OBSTRUCTIONS

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k. Propeller - EXAMINE FOR NICKS, SECURITY AND OIL LEAKS
l. Cowl Flap - CHECK
m. Wheel Well Doors, Tire, Brake Line and Shock Strut - CHECK
n. Landing Gear Uplock Roller - CHECK
o. Fuel Drains - DRAIN

7. NOSE SECTION
   a. Wheel Well Doors, Tire and Shock Strut - CHECK
   b. Pitot(s) - REMOVE COVER, EXAMINE FOR OBSTRUCTIONS
   c. Taxi Light - CHECK (if installed)
   d. Heater Air Inlets - CLEAR
   e. Oxygen - CHECK
   f. Baggage Door - SECURE

8. RIGHT WING LEADING EDGE
   a. Wheel Well Doors, Tire, Brake Line, and Shock Strut - CHECK
   b. Landing Gear Uplock Roller - CHECK
   c. Cowl Flap - CHECK
   d. Fuel Drains - DRAIN
   e. Engine Oil - CHECK QUANTITY, CAP AND DOOR SECURE
   f. Engine Cowling and Doors - CHECK CONDITION AND SECURITY
   g. Landing Light (if installed) - CHECK
   h. Propeller - EXAMINE FOR NICKS, SECURITY, AND OIL LEAKS
   i. Engine Air Intake - REMOVE COVER AND EXAMINE FOR OBSTRUCTIONS
   j. Fuel Sight Gage - CHECK
   k. Fuel - CHECK QUANTITY AND CAP(S) SECURE. ALWAYS CHECK WING TIP TANK FIRST (IF INSTALLED); DO NOT REMOVE INBOARD CAP IF FUEL IS VISIBLE IN TIP TANK.

l. Wing Tip Tank (if installed) Sump - DRAIN
m. Tie Down and Chocks - REMOVE
n. Lights and Deice Boot - CHECK FOR CONDITION

9. RIGHT WING TRAILING EDGE
   a. Aileron - CHECK CONDITION AND FREEDOM OF MOVEMENT
   b. Fuel Vents - CHECK
   c. Fuel Sump Aft of Wheel Well - DRAIN
   d. Flaps - CHECK GENERAL CONDITION

NOTE

Check operation of lights if night flight is anticipated.

CAUTION

DO NOT TAXI WITH A FLAT SHOCK STRUT.

BEFORE STARTING

1. Seats - POSITION AND LOCK SEAT BACKS UPRIGHT
2. Seat Belts and Shoulder Harnesses - FASTEN
3. Parking Brakes - SET
4. All Avionics - OFF
5. Oxygen - CHECK QUANTITY AND OPERATION
6. Landing Gear Handle - DOWN
7. Cowl Flaps - CHECK, OPEN
8. Fuel Selector Valves - CHECK OPERATION THEN ON

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9. All Circuit Breakers, Switches and Equipment Controls - CHECK
10. Battery and Alternator Switches - ON (if external power is to be used, Alternator Switches - OFF)

11. Fuel Quantity Indicators - CHECK QUANTITY (See LIMITATIONS for take-off fuel)
12. Landing Gear Position Lights - CHECK

STARTING

1. Throttle Position - APPROXIMATELY 1 2 IN. OPEN
2. Propeller Control - LOW PITCH (high rpm)
3. Mixture Control - FULL RICH

NOTE

If the engine is hot, and the ambient temperature is 90°F or above, place mixture control in IDLE CUT-OFF, switch aux fuel pump to HIGH for 30 to 60 seconds, then OFF. Return mixture control to FULL RICH.

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4. Aux Fuel Pump - HIGH (until fuel flow stabilizes then - OFF)
5. Magneto/Start Switch - START (Observe Starter Limits)

CAUTION

Do not engage starter for more than 30 seconds in any 4-minute time period.

NOTE

In the event of a balked start (or overprime condition) place mixture control in IDLE CUT-OFF and open the throttle; operate the starter to remove excess fuel. As engine starts, reduce the throttle to idle rpm and place the mixture control in FULL RICH.

6. Warm-up - 1000 to 1200 RPM
7. Oil Pressure - 25 PSI WITHIN 30 SECONDS
8. External Power (if used) - DISCONNECT

WARNING

When using external power, start the right engine first, since the external power receptacle is on the left nacelle. Disconnect external power before starting left engine.

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9. Alternator Switch - ON
10. All Engine Indicators - CHECK
11. Starter Energized Warning Light (if installed) - CHECK for illumination during initial start. Should not be illuminated after starting.

CAUTION

If the starter energized warning light is not installed, or is inoperative and the total of both loadmeters exceeds .2 after two minutes at 1000-1200 rpm, with no additional electrical equipment on, and the indication shows no signs of decreasing, an electrical malfunction is indicated. The battery master and both alternator switches should be placed in the OFF position. Do not take off.

CAUTION

Low voltage, high ammeter or loadmeter readings, dimming of lights, or excessive noise in radio receivers could be indications that problems are developing in the starter system. A noted change in such normal conditions could indicate prolonged starter motor running and the engine should be shut down. No further flight operations should be attempted until the cause is determined and repaired.

12. Using the same procedure, start other engine.

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AFTER STARTING AND TAXI

CAUTION

Do not operate engine above 1200 RPM until oil temperature reaches 75°F.

1. Brakes - RELEASE AND CHECK
2. Avionics - ON, AS REQUIRED
3. Exterior Lights - AS REQUIRED

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BEFORE TAKEOFF

1. Parking Brake - SET
2. Seat Belts and Shoulder Harnesses - CHECK
3. Aux Fuel Pumps - OFF (If ambient temperature is 90°F or above, use LOW pressure boost)
4. All Instruments - CHECKED
5. Fuel Indicators - CHECK QUANTITY
6. Mixture - FULL RICH (or as required by field elevation)
7. Propellers - EXERCISE AT 2200 RPM

CAUTION

When exercising propellers in their governing range, do not move the control lever aft past the detent. To do so will allow the propeller to change rapidly to the full feathered position, imposing high stresses on the blade shank and engine.

8. Starter Energized Warning Light (if installed) - CHECK; should be illuminated during start and extinguished after start. If light is not installed or is inoperative, check loadmeters for proper indication.
9. Throttles - 1700 RPM
10. Magnetos - CHECK (Variance between individual magnetos should not exceed 50 rpm, max. drop 150 rpm)
11. Throttles - 1500 RPM
12. Propellers - FEATHERING CHECK (Do not allow an rpm drop of more than 500 rpm)
13. Throttles - IDLE
14. Electric Trim - CHECK OPERATION

15. Trim - AS REQUIRED FOR TAKEOFF
16. Flaps - CHECK AND SET FOR TAKEOFF
17. Flight Controls - CHECK PROPER DIRECTION, AND FREEDOM OF MOVEMENT
18. Doors and Windows - LOCKED
19. Parking Brake - OFF

TAKEOFF

Take-Off Power ..... Full throttle, 2700 rpm
Minimum Take-Off Oil Temperature ..... 75°F

1. Power - SET TAKE-OFF POWER (MIXTURE - SET FUEL FLOW TO ALTITUDE) BEFORE BRAKE RELEASE
2. Airspeed - ACCELERATE TO AND MAINTAIN RECOMMENDED SPEED
3. Landing Gear - RETRACT (when positive rate of climb is established)
4. Airspeed - ESTABLISH DESIRED CLIMB SPEED (when clear of obstacles)

MAXIMUM PERFORMANCE CLIMB (TH-773 thru TH-1089)

1. Power - SET MAXIMUM CONTINUOUS POWER
2. Mixtures - LEAN TO APPROPRIATE FUEL FLOW
3. Cowl Flaps - OPEN
4. Airspeed - ESTABLISH 104 KTS

CRUISE CLIMB

1. Power - SET (25.0 in. Hg or Full Throttle - 2500 RPM)
2. Mixture - LEAN TO APPROPRIATE FUEL FLOW
3. Airspeed - 139 KTS
4. Cowl Flaps - AS REQUIRED

NOTE

In high ambient temperatures, low pressure boost may be required to prevent excessive fuel flow fluctuations.

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MAXIMUM NORMAL OPERATING POWER CLIMB (TH-1090 and After)

1. Power - SET:
   a. With 2-blade propellers installed.....2550 RPM
   b. With 3-blade propellers installed.....2650 RPM
2. Mixtures - LEAN TO APPROPRIATE FUEL FLOW
3. Cowl Flaps - AS REQUIRED
4. Airspeed - 104 KTS

CRUISE

Maximum Cruise Power ..... 24.5 in. Hg at 2500 rpm
Recommended Cruise Power .. 24.0 in. Hg at 2300 rpm
Recommended Cruise Power .. 21.0 in. Hg at 2300 rpm
Economy Cruise Power ..... 20.5 in. Hg at 2100 rpm

1. Power - SET AS DESIRED (Use Tables in PERFORMANCE section)
2. Fuel Flow - LEAN AS REQUIRED
3. Cowl Flaps - AS REQUIRED

LEANING USING THE EXHAUST GAS TEMPERATURE INDICATOR (EGT)

The system consists of a thermocouple type exhaust gas temperature (EGT) probe mounted in the right side of each exhaust system. This probe is connected to an indicator on the right side of the instrument panel. The indicator is calibrated in degrees Fahrenheit. Use EGT system to lean the fuel/air mixture when cruising at maximum cruise power or less.

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1. Lean the mixture and note the point on the indicator that the temperature peaks and starts to fall.

   a. CRUISE (LEAN) MIXTURE - Increase the mixture until the EGT shows a drop of 25°F below peak on the rich side of peak.

   b. BEST POWER MIXTURE - Increase the mixture until the EGT shows a drop of 100°F below peak on the rich side of peak.

CAUTION

Do not continue to lean mixture beyond that necessary to establish peak temperature.

2. Continuous operation is recommended at 25°F or more below peak EGT only on the rich side of peak.

3. Changes in altitude and power settings require the peak EGT to be rechecked and the mixture reset.

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DESCENT

1. Altimeter - SET
2. Cowl Flaps - CLOSED
3. Windshield Defroster - AS REQUIRED
4. Power - AS REQUIRED (avoid prolonged idle settings and low cylinder head temperatures)

Recommended descent speeds:

Smooth air ..... 175 kts
Rough air ..... (Max.) 156 kts

BEFORE LANDING

1. Seat Belts and Shoulder Harnesses - FASTENED, SEAT BACKS UPRIGHT
2. Fuel Selector Valves - CHECK ON
3. Aux. Fuel Pumps - OFF, OR LOW AS PER AMBIENT TEMPERATURE
4. Cowl Flaps - AS REQUIRED
5. Mixture Controls - FULL RICH (or as required by field elevation)
6. Flaps - APPROACH 15° POSITION (Maximum extension speed 152 kts)
7. Landing Gear - DOWN (Gear extension speed 152 kts)
8. Flaps - FULL DOWN (30°) (Maximum extension speed, 122 kts.)
9. Airspeed - ESTABLISH NORMAL LANDING APPROACH SPEED.
10. Propellers - LOW PITCH (high rpm)

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BALKED LANDING

1. Propellers - LOW PITCH (high rpm)
2. Power - MAXIMUM ALLOWABLE
3. Airspeed - BALKED LANDING CLIMB SPEED (96 KTS)
4. Flaps - UP (0°)
5. Landing Gear - UP
6. Cowl Flaps - AS REQUIRED

AFTER LANDING

1. Landing and Taxi Lights - AS REQUIRED
2. Flaps - UP
3. Trim Tabs - SET TO ZERO.
4. Cowl Flaps - OPEN
5. Aux Fuel Pumps - AS REQUIRED

SHUT DOWN

1. Parking Brake - SET
2. Propellers - HIGH RPM
3. Throttles - 1000 RPM
4. Aux Fuel Pumps - OFF
5. Electrical and Avionics Equipment - OFF
6. Mixture Controls - IDLE CUT-OFF
7. Magneto/Start Switches - OFF, AFTER ENGINES STOP
8. Battery and Alternator Switches - OFF
9. Controls - LOCKED
10. If airplane is to be parked for an extended period of time, install wheel chocks and release the parking brake as greatly varying ambient temperatures may build excessive pressures on the hydraulic system.

NOTE

Induction air scoop covers, included in the loose tools and accessories, are to prevent foreign matter from entering the air scoops while the aircraft is parked.

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OXYGEN SYSTEM

WARNING

NO SMOKING permitted when using oxygen.

PREFLIGHT

1. Check Oxygen Pressure Gage for pressure reading.
2. Determine percent of full system.
3. Multiply oxygen duration in minutes by percent of full system.

EXAMPLE:

People	5
Gage Pressure	1500 psi
Percent Capacity (from chart)	80%
Cylinder Capacity (full)	49 cu ft
Altitude (planned flight)	15,000 feet
Duration (full cylinder)	149 minutes
Duration (80% full)	119 minutes

OXYGEN DURATION

Oxygen duration is computed for a Scott Altitude Compensated System assuming 90% of cylinder volume usable and using Scott oxygen masks rated at 3.0 Standard Liters Per Minute (SLPM). These masks are identified by a green color coded plug-in.

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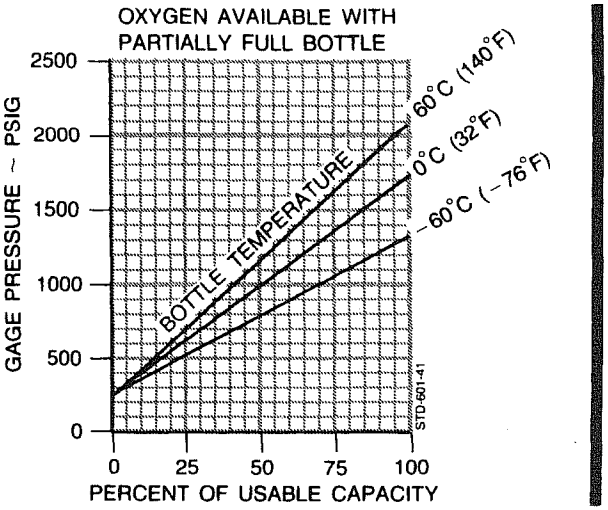

Duration in minutes at the following altitudes:

	Persons Using	12,500	15,000	20,000
49 cu ft	1	1014	746	507
	2	507	373	253
	3	338	248	169
	4	253	186	126
	5	202	149	101
	6	169	124	84
66 cu ft	1	1344	988	672
	2	672	494	336
	3	448	329	224
	4	336	247	168
	5	268	197	134
	6	224	164	112

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IN FLIGHT

The use of oxygen is recommended to be in accordance with current FAR operating rules.

1. Oxygen Control Valve - OPEN SLOWLY
2. Mask - INSERT FITTING, DON MASK (adjust mask for proper fit)
3. Oxygen Flow Indicator - CHECK (red plunger lifts from its seat when the hose is inserted into the oxygen coupling)

AFTER USING

1. Discontinue use by unplugging mask from outlet.

NOTE

Closing the control valve while in flight is not necessary due to automatic sealing of the outlet when the mask is unplugged.

2. Oxygen Control Valve - CLOSE (may be accomplished during shut-down).

ELECTRIC ELEVATOR TRIM

1. ON-OFF switch - ON
2. Control Wheel Trim Switch - Forward for nose down, aft for nose up, (when released the switch returns to the center - OFF position)

Malfunction procedures are given in the EMERGENCY PROCEDURES section.

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COLD WEATHER OPERATION

PREFLIGHT INSPECTION

In addition to the normal preflight exterior inspection, remove ice, snow and frost from the wings, tail, control surfaces and hinges, propellers, windshield, fuel cell filler caps and fuel vents. If you have no way of removing these formations of ice, snow, and frost leave the airplane on the ground, as these deposits will not blow off. The wing contour may be changed by these formations sufficiently that its lift qualities are considerably disturbed and sometimes completely destroyed. Complete your normal preflight procedures. Check the flight controls for complete freedom of movement.

Conditions for accumulating moisture in the fuel tanks are most favorable at low temperatures due to the condensation increase and the moisture that enters as the system is serviced. Therefore, close attention to draining the fuel system will assume particular importance during cold weather.

ENGINES

Use engine oil in accordance with Consumable Materials in the SERVICING section. Always pull the propeller through by hand several times to clear the engine and "limber up" the cold, heavy oil before using the starter. This will also lessen the load on the battery if an auxiliary power unit is not used.

Under very cold conditions, it may be necessary to preheat the engine prior to a start. Particular attention should be applied to the oil cooler, and engine sump to insure proper preheat. A start with congealed oil in the system may produce an indication of normal pressure immediately after

the start, but then the oil pressure may decrease when residual oil in the engine is pumped back with the congealed oil in the sump. If an engine heater capable of heating both the engine sump, and cooler is not available, the oil should be drained while the engines are hot and stored in a warm area until the next flight.

If there is no oil pressure within the first 30 seconds of running, or if oil pressure drops after a few minutes of ground operation, shut down and check for broken oil lines, oil cooler leaks or the possibility of congealed oil.

NOTE

It is advisable to use external power for starting in cold weather.

During warm-up, watch engine temperatures closely, since it is quite possible to exceed the cylinder head temperature limit in trying to bring up the oil temperature. Exercise the propellers several times to remove cold oil from the pitch change mechanisms. The propellers should also be cycled occasionally in flight.

During letdown and landing, give special attention to engine temperatures, since the engines will have a tendency toward overcooling.

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EXTERNAL POWER

It is very important that the following precautions be observed while using external power.

1. The airplane has a negative ground system. Be sure to connect the positive lead of the auxiliary power unit to the positive terminal of the airplane's external power receptacle and the negative lead of the auxiliary power unit to the negative terminal of the external power receptacle. A positive voltage must also be applied to the small guide pin.

2. To prevent arcing, make certain no power is being supplied when the connection is made.

3. Make certain that the battery switch is ON, all avionics and electrical switches OFF, and a battery is in the system before connecting an external power unit. This protects the voltage regulators and associated electrical equipment from voltage transients (power fluctuations).

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STARTING ENGINES USING AUXILIARY POWER UNIT

1. Battery switch - ON

2. Alternators, Electrical, and Avionics Equipment - OFF

3. Auxiliary Power Unit - CONNECT

4. Auxiliary Power Unit - SET OUTPUT (27.0 to 28.5 volts)

5. Auxiliary Power Unit - ON

6. Right Engine - START (use normal start procedures)

7. Auxiliary Power Unit - OFF (after engine has been started)

8. Auxiliary Power Unit - DISCONNECT (before starting left engine)

9. Alternator Switches - ON

TAXIING

Avoid taxiing through water, slush or muddy surfaces if possible. In cold weather, water, slush or mud, when splashed onto landing gear mechanisms or control surface hinges may freeze, preventing free movement and resulting in structural damage.

ICE PROTECTION SYSTEMS

The following equipment, when installed and operable, will provide a degree of protection when icing conditions are inadvertently encountered. Since this equipment has not been demonstrated to meet current requirements for flight into known icing conditions, the pilot must exit such conditions as soon as possible if ice accumulates on the airplane.

1. Equipment required for IFR flight
2. Beech approved emergency static air source
3. Beech approved surface deice system
4. Beech approved propeller deice or anti-ice system
5. Beech approved pitot heat
6. Beech approved heated stall warning
7. Beech approved heated fuel vents
8. Beech approved windshield defogging and openable storm window
9. Beech approved alternate induction air
10. Beech approved external antenna masts (capable of withstanding ice loads)

WARNING

Stalling airspeeds should be expected to increase due to the distortion of the wing airfoil when ice has accumulated on the airplane. For the same reason, stall warning devices are not accurate and should not be relied upon. With ice on the airplane, maintain a comfortable margin of airspeed above the normal stall airspeed.

1. EMERGENCY STATIC AIR SOURCE

   If the Emergency Static Air Source is desired for use:

   a. Emergency Static Air Source - ON EMERGENCY (lower sidewall adjacent to pilot)

   b. For Airspeed Calibration and Altimeter Corrections, refer to PERFORMANCE section

CAUTION

The emergency static air valve should be in the OFF NORMAL position when the system is not needed.

2. SURFACE DEICE SYSTEM

a. *BEFORE TAKE-OFF*
   (1) Throttles - 2000 RPM
   (2) Surface Deice Switch - AUTO (UP)
   (3) Deice Pressure - 9 to 20 PSI (while boots are inflating)
   (4) Wing Boots - CHECK VISUALLY FOR INFLATION AND HOLD DOWN

b. *IN FLIGHT*

When ice accumulates 1/2 to 1 inch

   (1) Surface Deice Switch - AUTO (UP)
   (2) Deice Pressure - 9 to 20 PSI (while boots are inflating)
   (3) Repeat - AS REQUIRED

CAUTION

Rapid cycles in succession or cycling before at least 1/2 inch of ice has accumulated may cause the ice to grow outside the contour of the inflated boots and prevent ice removal.

Stall speeds are increased 4 kts in all configurations with surface deice system operating.

NOTE

Either engine will supply sufficient vacuum and pressure for deice operation.

c. For Emergency Operation refer to the EMERGENCY PROCEDURES section.

3. ELECTROTHERMAL PROPELLER DEICE

CAUTION

Do not operate the propeller deice when propellers are static.

a. BEFORE TAKEOFF

(1) Propeller Deice Switch - ON
(2) Propeller Deice Ammeter - CHECK, 7 to 12 amps (2 Blade), 14 to 18 amps (3 Blade)

b. IN FLIGHT

(1) Propeller Deice Switch - ON. The system may be operated continuously in flight and will function automatically until the switch is turned OFF.

(2) Relieve propeller imbalance due to ice by increasing rpm briefly and returning to the desired setting. Repeat as necessary.

CAUTION

If the propeller deice ammeter indicates abnormal reading, refer to the Emergency Procedures section.

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4. WINDSHIELD ANTI-ICE SYSTEM (ELECTROTHERMAL)

a. BEFORE TAKEOFF

(1) WSHLD Heat Switch – ON (Note deflection on loadmeter)
(2) Windshield – CHECK (feel for warming)

CAUTION

Ground operation is limited to 10 minutes.

b. IN FLIGHT

NOTE

Continuous operation is permitted.

(1) WSHLD Heat Switch – AS REQUIRED (Heat should be applied before ice forms)

NOTE

If directional gyro is to be reset, turn off the electrothermal windshield heat for 15 seconds to allow a stable reading of the standby compass.

5. PROPELLER AND WINDSHIELD ANTI-ICE SYSTEM (FLUID FLOW)

CAUTION

This anti-ice system is designed to PREVENT the formation of ice. Always turn the system ON before entering icing conditions.

a. PREFLIGHT

(1) Check the quantity in reservoir
(2) Check slinger ring and lines for obstructions
(3) Check propeller boots for damage

b. IN FLIGHT

(1) Prop Anti-ice Switch - ON
(2) Windshield Anti-ice Switch - CYCLE AS REQUIRED
(3) Anti-ice Quantity Indicator - MONITOR

NOTE

See SYSTEM description for endurance.

6. PITOT HEAT AND HEATED STALL WARNING

a. Pitot Heat Switch(es) - ON (Note deflection on Loadmeter) Heated Stall Warning is activated by the left pitot heat switch.

NOTE

Switches may be left on throughout flight. Prolonged operation on the ground could damage the Pitot Heat System.

7. FUEL VENT HEAT

   a. Fuel Vent Switch - ON (If ice is encountered)

8. WINDSHIELD DEFOGGING

   a. Defrost Control - PUSH ON

   b. Pilot's Storm Window - OPEN, AS REQUIRED

ENGINE BREAK-IN INFORMATION

Refer to Systems section.

PRACTICE DEMONSTRATION OF V_{MCA}

V_{MCA} demonstration may be required for multi-engine pilot certification. The following procedure shall be used at a safe altitude of at least 5000 feet above the ground in clear air only.

WARNING

Inflight engine cuts below V_{sse} speed of 86 kts/99 mph are prohibited.

1. Landing Gear - UP
2. Flaps - UP
3. Airspeed - ABOVE 86 KNOTS/ 99 MPH (V_{sse})
4. Propeller Levers - HIGH RPM

5. Throttle (Simulated inoperative engine) - IDLE
6. Throttle (Other engine) - Maximum Manifold Pressure
7. Airspeed - REDUCE approximately 1 knot per second until either V_{MCA} or stall warning is obtained.

CAUTION

Use rudder to maintain directional control (heading) and ailerons to maintain 5° bank towards the operative engine (lateral attitude). At the first sign of either V_{MCA} or stall warning (which may be evidenced by: inability to maintain heading or lateral attitude, aerodynamic stall buffet, or stall warning horn sound) immediately initiate recovery: reduce power to idle on the operative engine and immediately lower the nose to regain V_{SSE}.

NOISE CHARACTERISTICS

Approach to and departure from an airport should be made so as to avoid prolonged flight at low altitude near noise-sensitive areas. Avoidance of noise-sensitive areas, if practical, is preferable to overflight at relatively low altitudes.

For VFR operations over outdoor assemblies of persons, recreational and park areas, and other noise-sensitive areas, pilots should make every effort to fly not less than 2000 feet above the surface, weather permitting, even though flight at a lower level may be consistent with the provisions of government regulations.

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NOTE

The preceding recommended procedures do not apply where they would conflict with Air Traffic Control clearances or instructions, or where, in the pilot's judgement, an altitude of less than 2000 feet is necessary to adequately exercise his duty to see and avoid other airplanes.

Flyover noise levels established in compliance with FAR 36 are:

For Serials TH-1090 and After:

2-Blade Propeller	Using MNOP	78.9 dB(A)
3-Blade Propeller	Using MNOP	78.8 dB(A)

NOTE

Flyover noise levels given are not applicable for Serials TH-773 thru TH-1089.

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

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SECTION V

PERFORMANCE

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

INTRODUCTION TO PERFORMANCE AND FLIGHT PLANNING

All airspeeds quoted in this section are indicated airspeeds (IAS) except as noted and assume zero instrument error.

The graphs and tables in this section present performance information for takeoff, climb, landing and flight planning at various parameters of weight, power, altitude, and temperature. FAA approved performance information is included in this section. Examples are presented on all performance graphs. In addition, the calculations for flight time, block speed, and fuel required are presented using the conditions listed.

Performance with a gross weight of 4990 lbs (Baron 58A) will be equal to or better than that of the higher gross weight Baron 58.

CONDITIONS

At Denver:

Outside Air Temperature	15°C (59°F)
Field Elevation	5330 ft
Altimeter Setting	29.60 in. Hg
Wind	270° at 10 kts
Runway 26L length	10,010 ft

Route of Trip

*DEN-V81-AMA

For VFR Cruise at 11,500 feet

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ROUTE SEGMENT	MAGNETIC COURSE	DIST NM	WIND 11500 FEET DIR/KTS	OAT 11500 FEET °C	ALT SETTING IN.HG
DEN-COS	161°	55	010/30	-5	29.60
COS-PUB	153°	40	010/30	-5	29.60
PUB-TBE	134°	74	100/20	0	29.56
TBE-DHT	132°	87	200/20	9	29.56
DHT-AMA	125°	65	200/20	10	29.56

*REFERENCE: Enroute Low Altitude Chart L-6

At Amarillo:

Outside Air Temperature ..... 25°C (77°F)
Field Elevation ..... 3605 ft
Altimeter Setting ..... 29.56 in. Hg
Wind ..... 180° at 10 kts
Runway 21 Length ..... 10,000 ft

To determine pressure altitude at origin and destination airports, add 100 feet to field elevation for each .1 in. Hg below 29.92, and subtract 100 feet from field elevation for each .1 in. Hg above 29.92.

Pressure Altitude at DEN:

29.92 - 29.60 = .32 in. Hg

The pressure altitude at DEN is 320 feet above the field elevation.

5330 + 320 = 5650 ft

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Pressure Altitude at AMA:

29.92 - 29.56 = .36 in. Hg

The pressure altitude at AMA is 360 feet above the field elevation.

3605 + 360 = 3965 ft

NOTE

For flight planning, the difference between cruise altitude and cruise pressure altitude has been ignored.

Maximum Allowable Take-off Weight = 5400 lbs

Ramp Weight = 5400 + 24 = 5424 lbs

NOTE

Fuel for start, taxi and take-off is normally 24 pounds.

Enter the Take-Off Weight graph at 5650 feet pressure altitude and 15°C.

The take-off weight to achieve a positive rate-of-climb at lift-off for one engine inoperative is:

Take-off Weight = 4850 pounds

Enter the Take-Off Distance graph at 15°C, 5650 feet pressure altitude, 5400 pounds, and 9.5 knots headwind component.

Ground Roll	1900 ft
Total Distance over 50 ft Obstacle	3090 ft
Lift-off Speed	86 kts
50 Foot Speed	94 kts

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Enter the Accelerate-Stop graph at 15°C, 5650 feet pressure altitude, 5400 pounds, and 9.5 knots headwind component:

Accelerate-Stop Distance ..... 3960 ft
Engine Failure Speed ..... 86 kts

NOTE

Since 3960 feet is less than the available field length (10,010 ft), the accelerate-stop procedure can be performed at any weight.

Take-off at 5400 lbs can be accomplished. However, if an engine failure occurs before becoming airborne, the accelerate-stop procedure must be performed.

The following example assumes the airplane is loaded so that the take-off weight is 4850 pounds.

Although not required by regulations, information has been presented to determine the take-off weight, field requirements and take-off flight path assuming an engine failure occurs during the take-off procedure. The following illustrates the use of these charts.

Enter the Accelerate-Go graph at 15°C, 5650 feet pressure altitude, 4850 pounds, and 9.5 knots headwind component:

Ground Roll ..... 1775 ft
Total Distance Over 50 ft Obstacle ..... 8071 ft
Lift-off Speed ..... 86 kts
50 Foot Speed ..... 94 kts

Enter the graph for Take-off Climb Gradient - One Engine Inoperative at 15°C, 5650 feet pressure altitude, and 4850 pounds.

Climb Gradient 2.1%
Climb Speed ..... 94 kts

A 2.1% climb gradient is 21 feet of vertical height per 1000 feet of horizontal distance.

NOTE

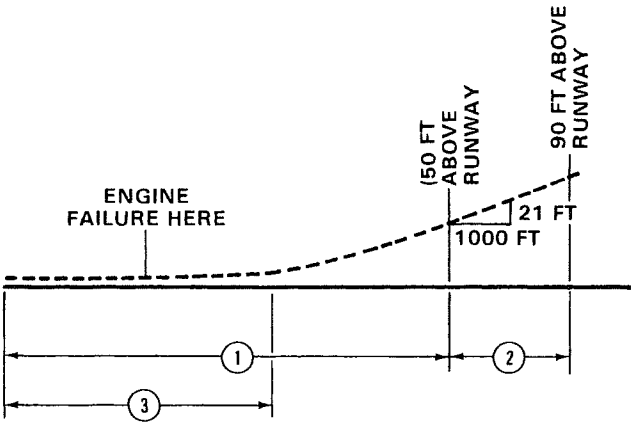
The Climb Gradient - One Engine Inoperative graph assumes zero wind conditions. Climbing into a headwind will result in higher angles of climb, and hence, better obstacle clearance capabilities.

Calculation of horizontal distance to clear an obstacle 90 feet above the runway surface:

Horizontal distance used to climb from 50 feet to 90 feet = (90-50) (1000 ÷ 21) = 1905 feet

Total Distance = 8071 + 1905 = 9976 feet

The above results are illustrated below:



(1) ACCELERATE - GO TAKE-OFF DISTANCE = 8071 FT

(2) DISTANCE TO CLIMB FROM 50 FT TO 90 FT ABOVE RUNWAY = 1905 FT

(3) ACCELERATE - STOP DISTANCE FOR 5400 LBS TAKE-OFF WEIGHT = 3960 FT

The following calculations provide information for the flight planning procedure. All examples are presented on the performance graphs. A take-off weight of 5400 pounds has been assumed.

Enter the Time, Fuel, and Distance to Climb graph at 15°C to 5650 feet and to 5400 pounds. Also enter at -5°C to 11,500 feet and to 5400 pounds. Read:

Time to Climb = (22 -7) = 15 min
Fuel Used to Climb = (12.7 -4.7) = 8 gal
Distance Traveled = (55 -17) = 38 NM

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The temperatures for cruise are presented for a standard day (ISA); 20°C (36°F) above a standard day (ISA + 20°C); and 20°C (36°F) below a standard day (ISA - 20°C). These should be used for flight planning. The IOAT values are true temperature values which have been adjusted for the compressibility effects. IOAT should be used for setting cruise power while enroute.

Enter the graph for ISA conversion at 11,500 feet and the temperature for the route segment:

DEN-PUB	OAT	=	-5°C
	ISA Condition	=	ISA + 3°C
PUB-TBE	OAT	=	0°C
	ISA Condition	=	ISA + 8°C
TBE-DHT	OAT	=	9°C
	ISA Condition	=	ISA + 17°C
DHT-AMA	OAT	=	10°C
	ISA Condition	=	ISA + 18°C

Enter the table for recommended cruise power - 24 in. Hg, 2300 rpm at 10,000 ft, 12,000 ft, ISA and ISA + 20°C.

	TEMPERATURE					
	ISA			ISA + 20°C		
ALTITUDE FEET	MAN. PRESS. IN. HG	FUEL FLOW GPH/ ENG	TAS KNOTS	MAN. PRESS. IN. HG	FUEL FLOW GPH/ ENG	TAS KNOTS
10000	20.1	12.3	187	20.1	11.8	187
12000	18.5	11.6	184	18.5	11.2	185

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Interpolate for 11,500 feet and the temperature for the appropriate route segment. Results of the interpolations are:

ROUTE SEGMENT	MAN. PRESS. IN. HG	FUEL FLOW GPH/ENG	TAS KNOTS
DEN-PUB	18.9	11.7	186
PUB-TBE	18.9	11.6	186
TBE-DHT	18.9	11.5	185
DHT-AMA	18.9	11.4	185

NOTE

The preceding are exact values for the assumed conditions.

Enter the graph for Descent at 11,500 feet to the descent line, and enter again at 3965 feet to the descent line, and read:

Time to Descend = (23-8) = 15 min
Fuel Used to Descend = (9.7 -3.3) = 6.4 gal
Descent Distance = (72-25) = 47 NM

Time and fuel used were calculated at Recommended Cruise Power - 24 in. Hg. 2300 RPM as follows:

$$\text{Time} = \frac{\text{Distance}}{\text{Ground Speed}}$$

Fuel Used = (Time) (Total Fuel Flow)

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Results are:

ROUTE SEGMENT	DISTANCE NM	EST GROUND SPEED KNOTS	TIME AT CRUISE ALTITUDE HRS: MIN	FUEL USED FOR CRUISE GAL
DEN-COS	*17	215	: 05	1.9
COS-PUB	40	213	: 11	4.4
PUB-TBE	74	171	: 26	10.0
TBE-DHT	87	173	: 30	11.6
DHT-AMA	*18	176	: 06	2.3

*Distance required to climb or descend has been subtracted from segment distance.

TIME - FUEL - DISTANCE

ITEM	TIME HRS: MINS	FUEL GAL	DISTANCE NM
Start, Runup, Taxi and Take-off	0:00	4.0	0
Climb	0:15	8.0	38
Cruise	1:18	30.2	236
Descent	0:15	6.4	47
Total	1:48	48.6	321

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Total Flight Time: 1 hour, 48 minutes

Block Speed: 321 NM ÷ 1 hour, 48 minutes = 178 knots

Reserve Fuel: (45 minutes at Economy Cruise Power):

Enter the cruise power settings table for Economy Cruise Power at 11,500 feet for ISA (assume ISA Fuel Flow Rate).

Fuel Flow Per Engine = 10.3 gal/hr

Total Fuel Flow = 20.6 gal/hr (124 lb/hr)

Reserve Fuel = (45 min) (124 lb/hr) = 93 lbs (15.5 gal)

Total Fuel = 48.6 + 15.5 = 64.1 gallons

The estimated landing weight is determined by subtracting the fuel required for the flight from the ramp weight:

Assumed ramp weight = 5424 lbs

Estimated fuel from DEN to AMA = 64.1 gal (385 lbs)

Estimated landing weight = 5424 -385 = 5039 lbs

Examples have been provided on the performance graphs. The above conditions have been used throughout. Rate of climb was determined for the initial cruise altitude conditions.

Enter the graph for Landing Distance - Flaps 30 degrees at 25°C, 3965 feet pressure altitude, 5039 pounds and 9.5 kts headwind component:

Ground Roll	1450 ft
Total Distance over 50 ft Obstacle	2500 ft
Approach Speed	91 kts

Enter the graph for Climb-Balked Landing at 25°C, 3965 feet pressure altitude and 5039 pounds:

Rate-of-Climb	640 ft/min
Climb Gradient	6.5%

COMMENTS PERTINENT TO THE USE OF PERFORMANCE GRAPHS

1. The example, in addition to presenting an answer for a particular set of conditions, also presents the order in which the graphs should normally be used, i.e., if the first item in the example is OAT, then enter the graph at the known OAT.
2. The reference lines indicate where to begin following guide lines. Always project to the reference line first, then follow the guide lines to the next known item.
3. Indicated airspeeds (IAS) were obtained by using the Airspeed Calibration-Normal System.
4. The associated conditions define the specific conditions from which performance parameters have been determined. They are not intended to be used as instructions; however, performance values determined from charts can only be achieved if specific conditions exist.
5. The full amount of usable fuel is available for all approved flight conditions.

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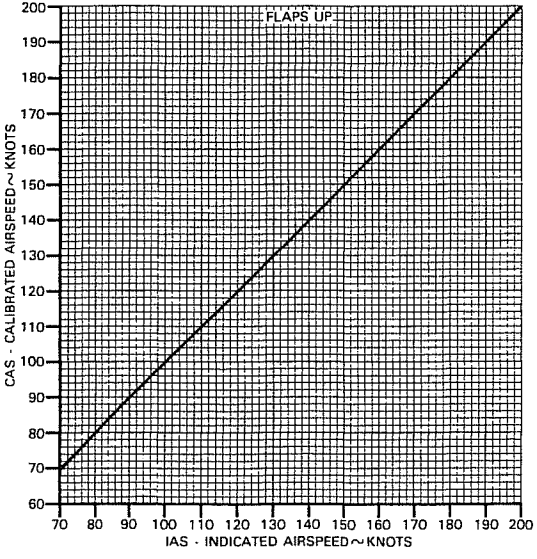
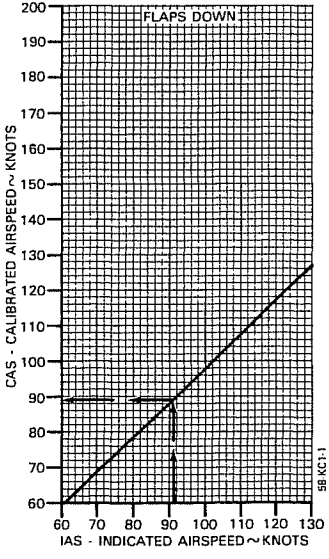
AIRSPEED CALIBRATION - NORMAL SYSTEM

NOTE INDICATED AIRSPEED ASSUMES ZERO INSTRUMENT ERROR

EXAMPLE

IAS	91 KNOTS
FLAPS	DOWN
CAS	89 KNOTS





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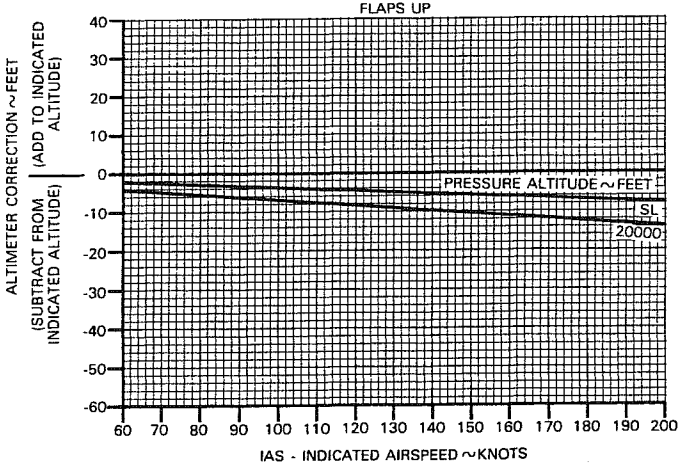
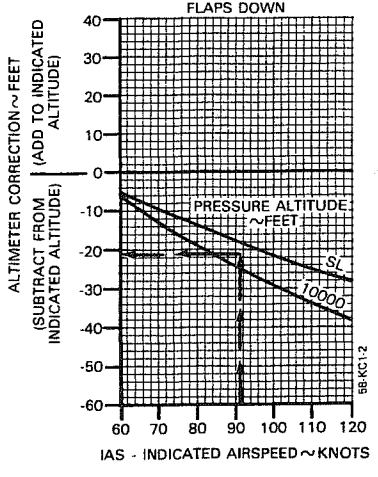
ALTIMETER CORRECTION - NORMAL SYSTEM

NOTE
INDICATED ALTITUDE AND INDICATED AIRSPEED ASSUME ZERO INSTRUMENT ERROR

EXAMPLE:

IAS	91 KTS
FLAPS	DOWN
INDICATED PRESSURE ALTITUDE	3965 FT
ALTIMETER CORRECTION	-21 FT
ACTUAL PRESSURE ALTITUDE	(3965-21) = 3944 FT





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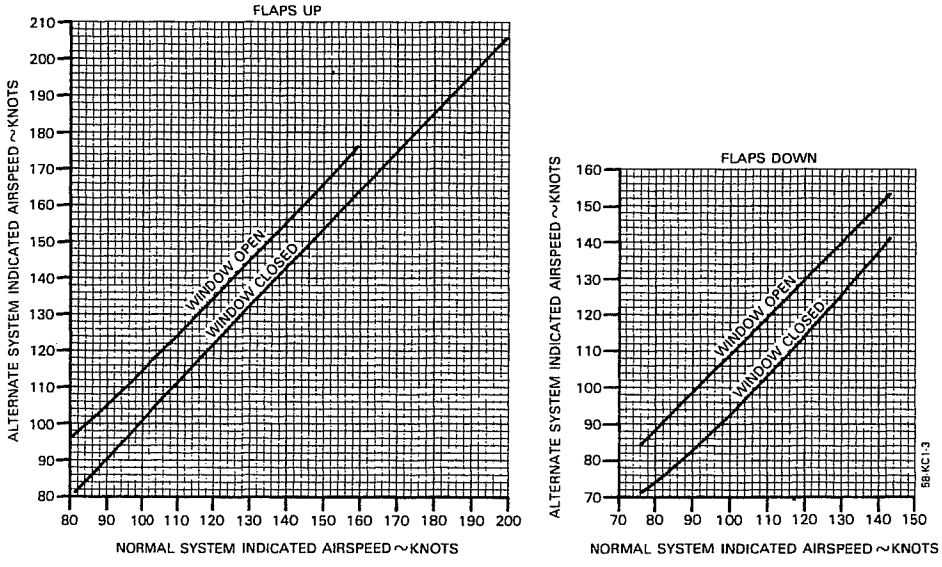
AIRSPEED CALIBRATION - ALTERNATE SYSTEM



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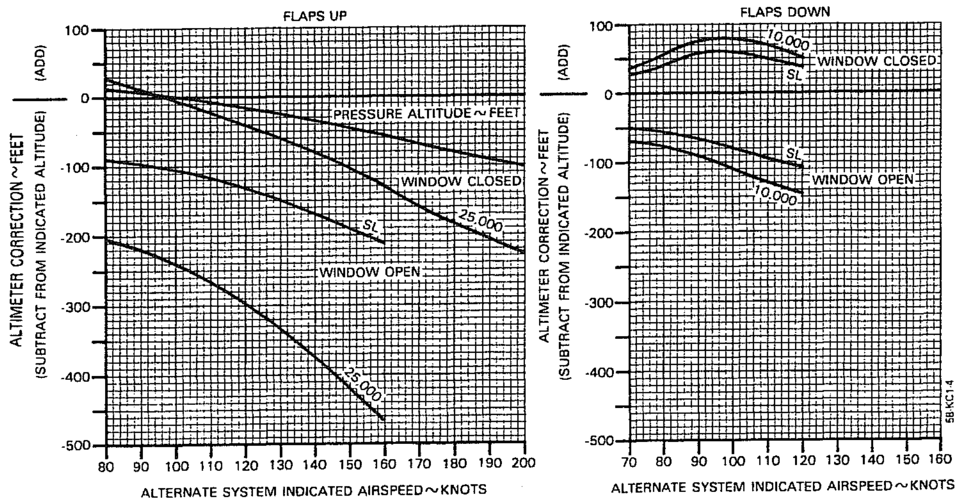
ALTIMETER CORRECTION - ALTERNATE SYSTEM



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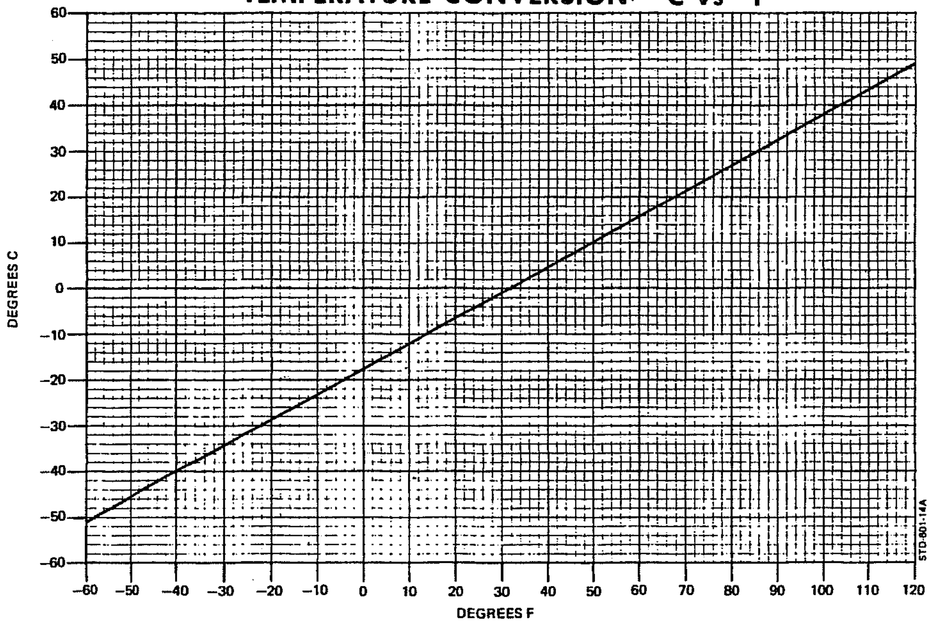
TEMPERATURE CONVERSION~°C vs °F



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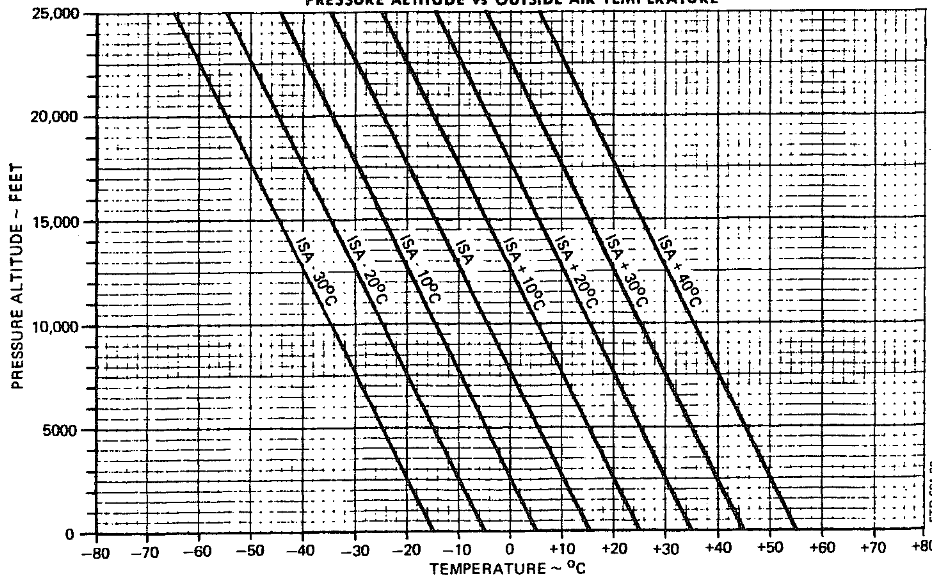
ISA CONVERSION

PRESSURE ALTITUDE vs OUTSIDE AIR TEMPERATURE



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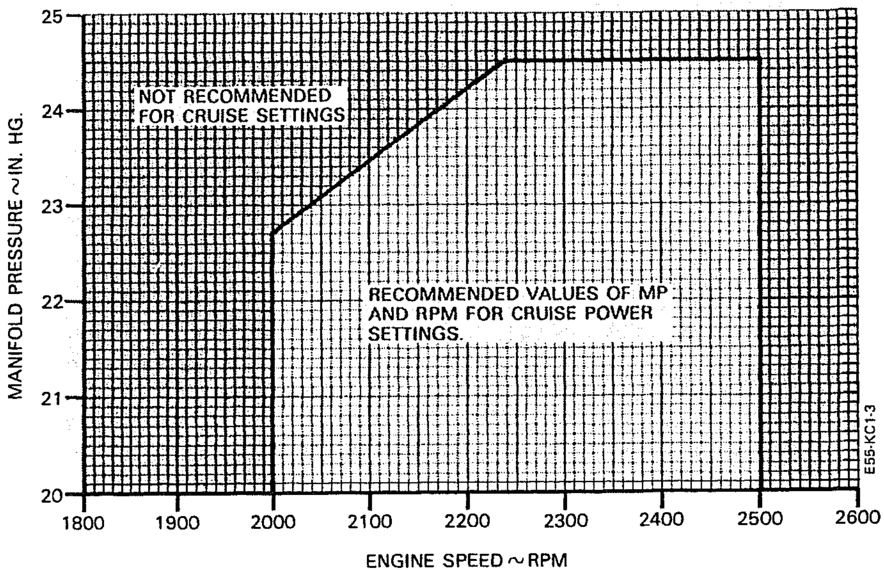
MANIFOLD PRESSURE vs RPM



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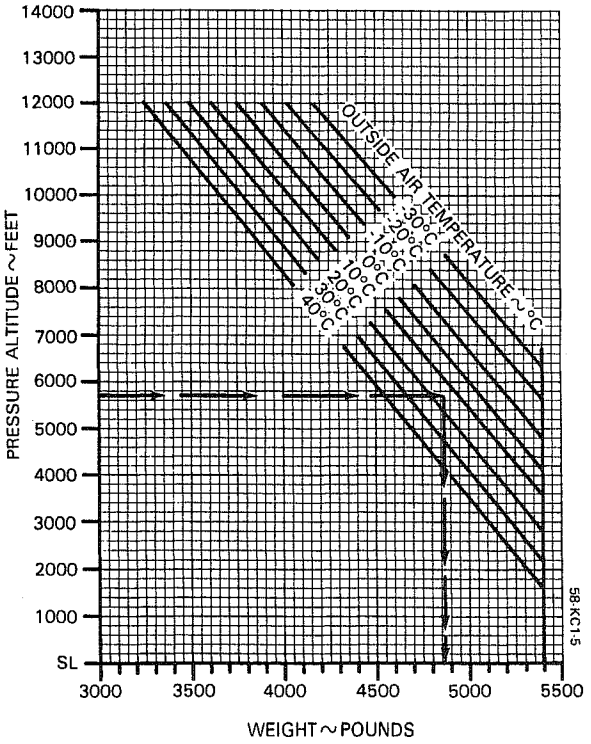
TAKE-OFF WEIGHT

TO ACHIEVE POSITIVE SINGLE ENGINE
RATE-OF-CLIMB AT LIFT-OFF

ASSOCIATED CONDITIONS	
AIRPLANE	AIRBORNE
POWER	TAKE-OFF
FLAPS	UP
LANDING GEAR	DOWN
INOPERATIVE PROPELLER	FEATHERED

EXAMPLE	
PRESSURE ALTITUDE	5650 FEET
OAT	15°C
TAKE-OFF WEIGHT	4850



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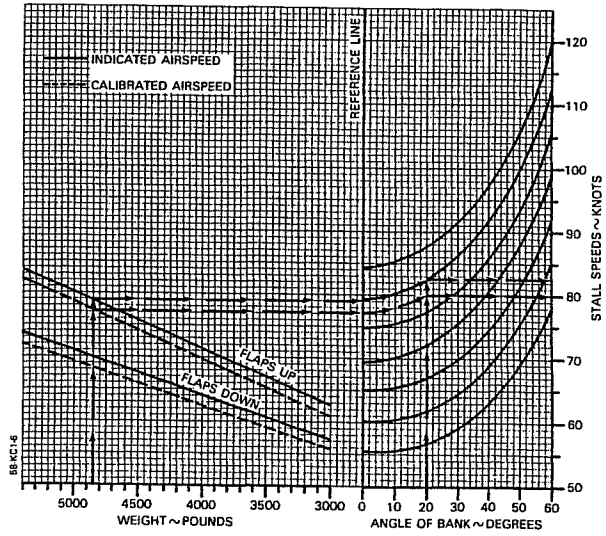
STALL SPEEDS - POWER IDLE

NOTES:

1. THE MAXIMUM ALTITUDE LOSS EXPERIENCED WHILE CONDUCTING STALLS IN ACCORDANCE WITH CAM 3.120 WAS 350 FT.
2. A NORMAL STALL RECOVERY TECHNIQUE MAY BE USED

EXAMPLE:

WEIGHT	4850 LBS
FLAPS	UP
ANGLE OF BANK	20°
STALL SPEED	82 KIAS 80 KCAS



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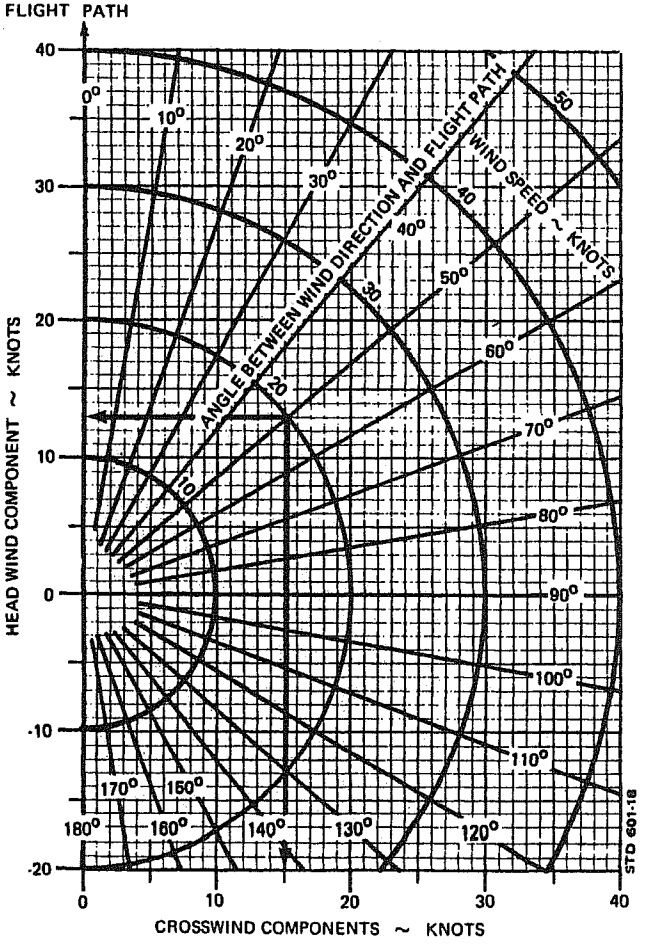
WIND COMPONENTS

Demonstrated Crosswind Component is 22 kts

EXAMPLE:

WIND SPEED	20 KTS
ANGLE BETWEEN WIND DIRECTION AND FLIGHT PATH	50°
HEADWIND COMPONENT	13 KTS
CROSSWIND COMPONENT	15 KTS



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TAKE-OFF DISTANCE

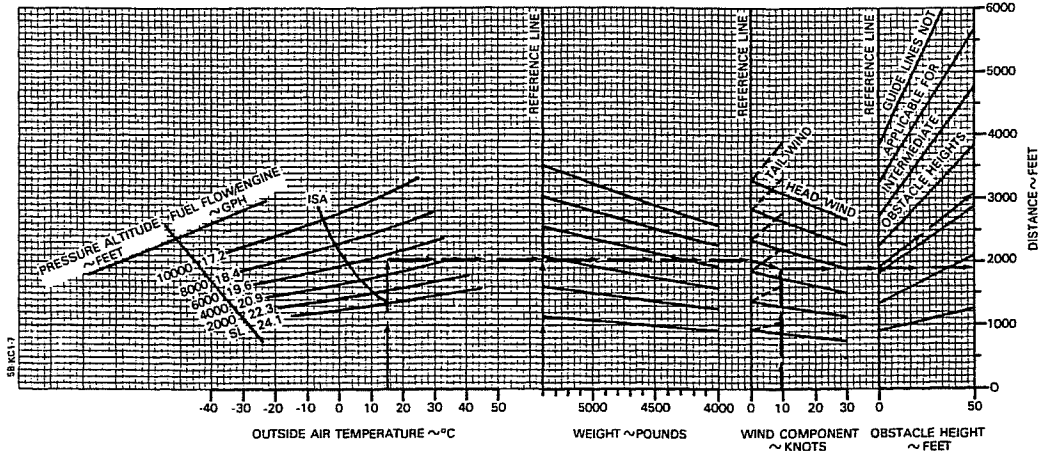
ASSOCIATED CONDITION:

POWER	TAKE-OFF POWER
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW
FLAPS	UP
LANDING GEAR	RETRACT AFTER POSITIVE CLIMB ESTABLISHED
COWL FLAPS	OPEN

TAKE-OFF SPEEDS (ALL WEIGHTS)
LIFT-OFF 86 KNOTS
50 FEET 94 KNOTS

EXAMPLE:

OAT	15°C (59°F)
PRESSURE ALTITUDE	5650 FEET
TAKE-OFF WEIGHT	5400 LBS
HEAD WIND COMPONENT	9.5 KNOTS
GROUND ROLL	1900 FEET
TOTAL DISTANCE OVER 50 FT OBSTACLE	3090 FEET
TAKE-OFF SPEED AT LIFT-OFF	86 KTS
50 FT	94 KTS



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ACCELERATE - STOP DISTANCE

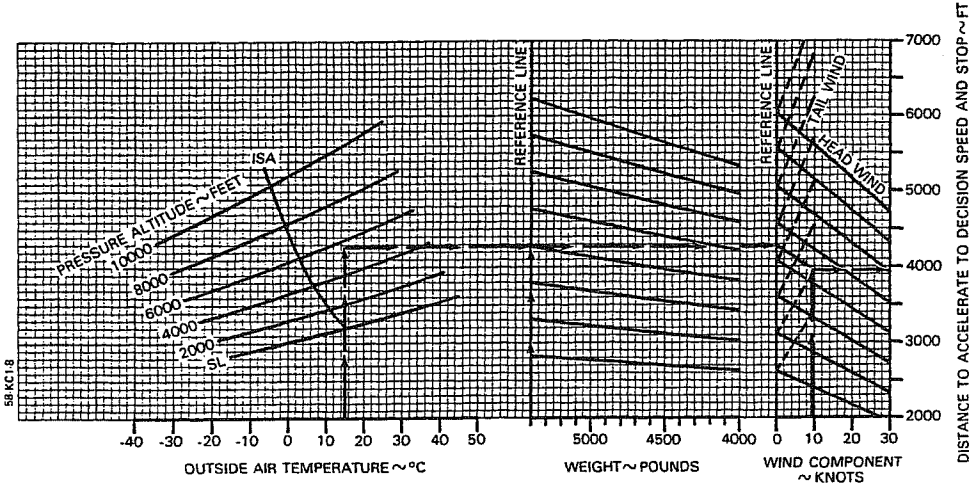
ASSOCIATED CONDITIONS:

POWER	1. TAKE-OFF POWER 2. ENGINE IDLE AT DECISION SPEED
FLAPS	UP
COWL FLAPS	OPEN

DECISION SPEED (ALL WEIGHTS)
86 KNOTS

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5650 FT
TAKE-OFF WEIGHT	5400 LBS
HEAD WIND	9.5 KTS
ACCELERATE - STOP DISTANCE	3960 FT
DECISION SPEED (IAS)	86 KTS



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ACCELERATE - GO DISTANCE

ASSOCIATED CONDITIONS:

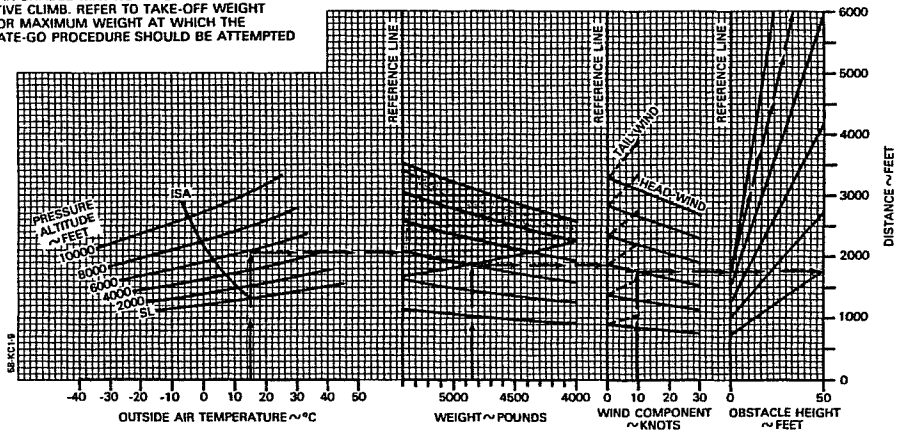
POWER	TAKE-OFF POWER
FLAPS	UP
LANDING GEAR	RETRACT AFTER LIFT-OFF
RUNWAY	PAVED, LEVEL, DRY SURFACE

TAKE-OFF SPEEDS (ALL WEIGHTS)
LIFT-OFF 86 KNOTS
50 FEET 94 KNOTS

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5650 FT
TAKE-OFF WEIGHT	4850 LBS
HEAD WIND COMPONENT	9.5 KTS
GROUND ROLL	
TOTAL DISTANCE OVER 50 FT OBSTACLE	1775 FT 8071 FT

NOTES:
1. DISTANCES ASSUME AN ENGINE FAILURE AT LIFT-OFF AND PROPELLER IMMEDIATELY FEATHERED
2. WEIGHTS IN SHADED MAY NOT PROVIDE ONE ENGINE INOPERATIVE CLIMB. REFER TO TAKE-OFF WEIGHT GRAPH FOR MAXIMUM WEIGHT AT WHICH THE ACCELERATE-GO PROCEDURE SHOULD BE ATTEMPTED



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CLIMB - TWO ENGINE

(TH-773 thru TH-1089)

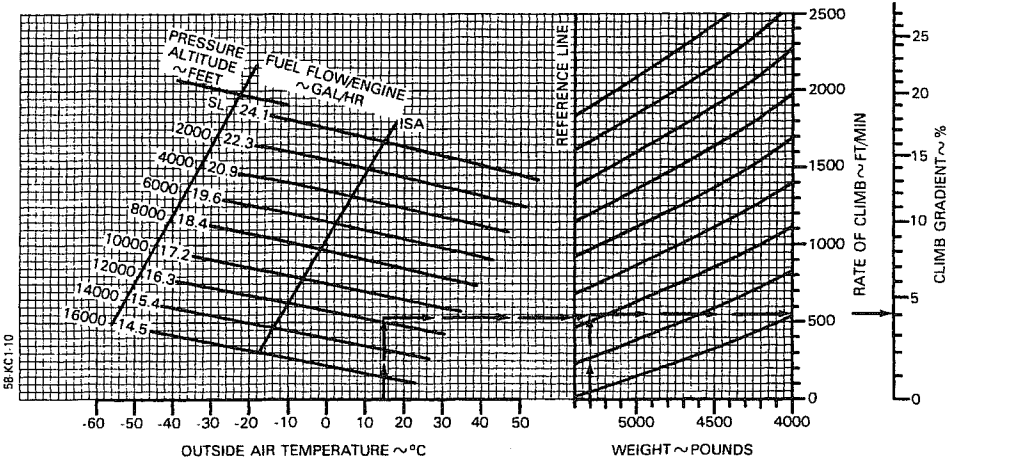
CLIMB SPEED 104 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS

POWER	MAXIMUM CONTINUOUS
FLAPS	UP
LANDING GEAR	UP
COWL FLAPS	OPEN
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW

EXAMPLE

OAT	15°C
PRESSURE ALTITUDE	11500 FEET
WEIGHT	5352 LBS
RATE OF CLIMB	550 FPM
CLIMB GRADIENT	4%



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CLIMB-TWO ENGINE (2-BLADE PROPELLER)

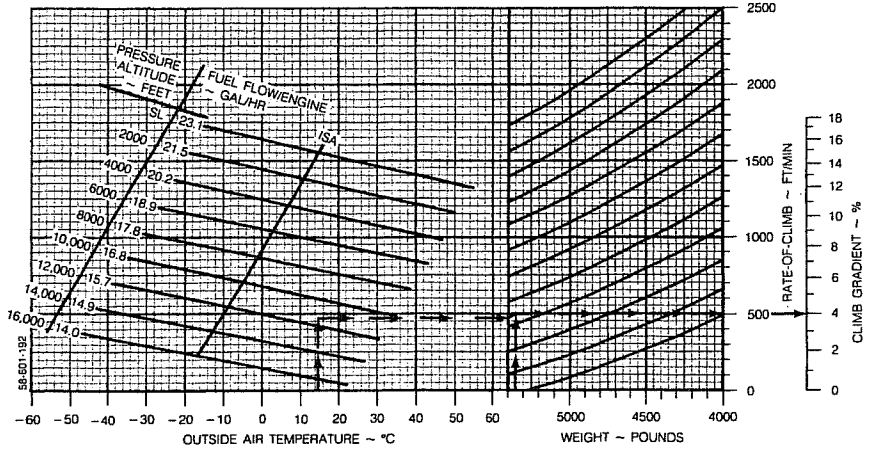
(TH-1090 and After)
CLIMB SPEED 104 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	FULL THROTTLE AT 2550 RPM
FLAPS	UP
LANDING GEAR	UP
COWL FLAPS	OPEN
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	11,500 FT
WEIGHT	5352 LBS
RATE OF CLIMB	500 FT/MIN
CLIMB GRADIENT	4%



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CLIMB-TWO ENGINE (3-BLADE PROPELLER)

(TH-1090 and After)

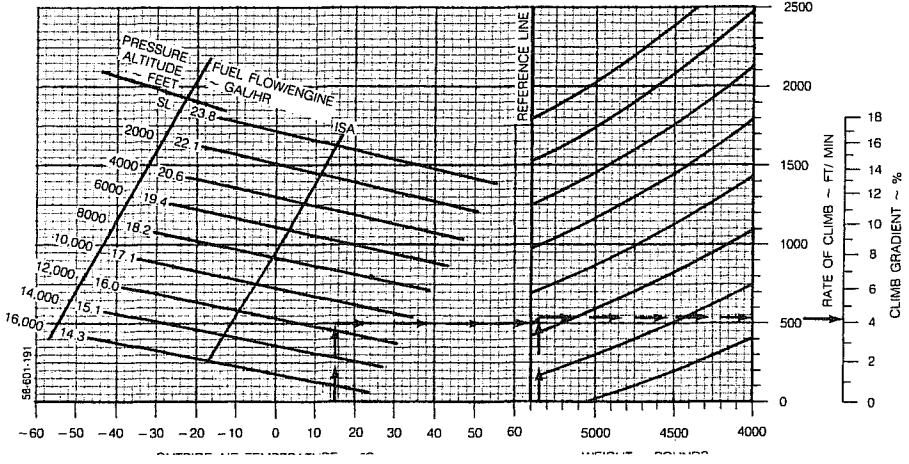
CLIMB SPEED 104 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	FULL THROTTLE AT 2650 RPM
FLAPS	UP
LANDING GEAR	UP
COWL FLAPS	OPEN
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	11,500 FT
WEIGHT	5352 LBS
RATE OF CLIMB	535 FT/MIN
CLIMB GRADIENT	4.2%



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TAKE-OFF CLIMB GRADIENT - ONE ENGINE INOPERATIVE

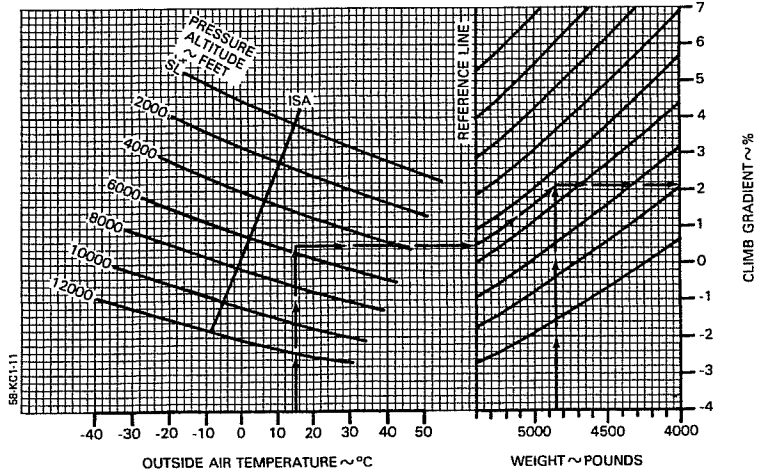
ASSOCIATED CONDITIONS:

POWER	TAKE-OFF
LANDING GEAR	UP
FLAPS	UP
INOPERATIVE PROPELLER	FEATHERED

CLIMB SPEED (ALL WEIGHTS)
94 KTS

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5650 FT
WEIGHT	4850 LBS
GRADIENT OF CLIMB	2.1%
CLIMB SPEED	94 KTS



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TIME, FUEL AND DISTANCE TO CLIMB

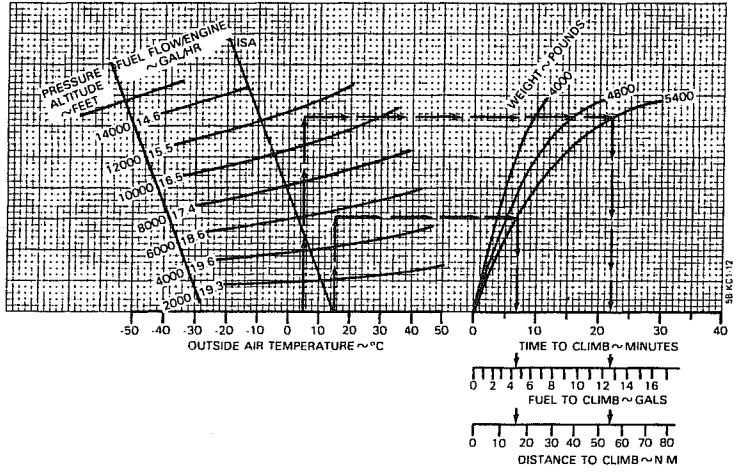
ASSOCIATED CONDITIONS:

POWER	25 IN. HG. OR FULL THROTTLE, 2500 RPM
FUEL DENSITY	6.0 LB/GAL
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW
COWL FLAPS	CLOSED

CLIMB SPEED 139 KNOTS

EXAMPLE:

OAT AT TAKE-OFF	15°C
OAT AT CRUISE	5°C
AIRPORT PRESSURE ALTITUDE	5650 FT
CRUISE PRESSURE ALTITUDE	11500 FT
INITIAL CLIMB WEIGHT	5400 LBS
TIME TO CLIMB	(22-7) = 15 MIN
FUEL TO CLIMB	(12.7-4.7) = 8 GAL
DISTANCE TO CLIMB	(55-17) = 38 NM



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CLIMB - ONE ENGINE INOPERATIVE

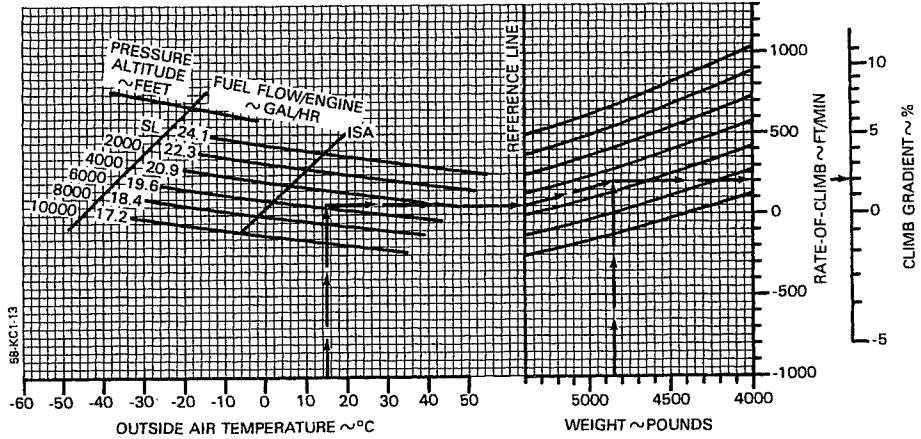
CLIMB SPEED 100 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	MAXIMUM CONTINUOUS
FLAPS	UP
LANDING GEAR	UP
INOPERATIVE PROPELLER	FEATHERED
COWL FLAPS	OPEN
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5650 FT
WEIGHT	4850 LBS
RATE-OF-CLIMB	200 FPM
CLIMB GRADIENT	2%



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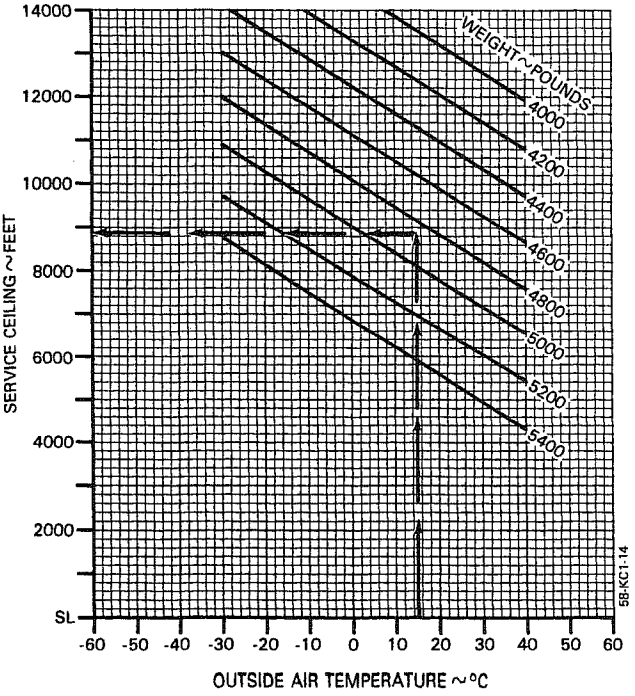
SERVICE CEILING - ONE ENGINE INOPERATIVE

ASSOCIATED CONDITIONS:	
POWER	MAXIMUM CONTINUOUS
LANDING GEAR	UP
INOPERATIVE PROPELLER	FEATHERED
FLAPS	UP

EXAMPLE:	
OAT	15°C
WEIGHT	4850
SERVICE CEILING	8425 FT

NOTE:
SERVICE CEILING IS THE PRESSURE ALTITUDE WHERE AIRPLANE HAS CAPABILITY OF CLIMBING 50 FT MINUTE WITH ONE PROPELLER FEATHERED



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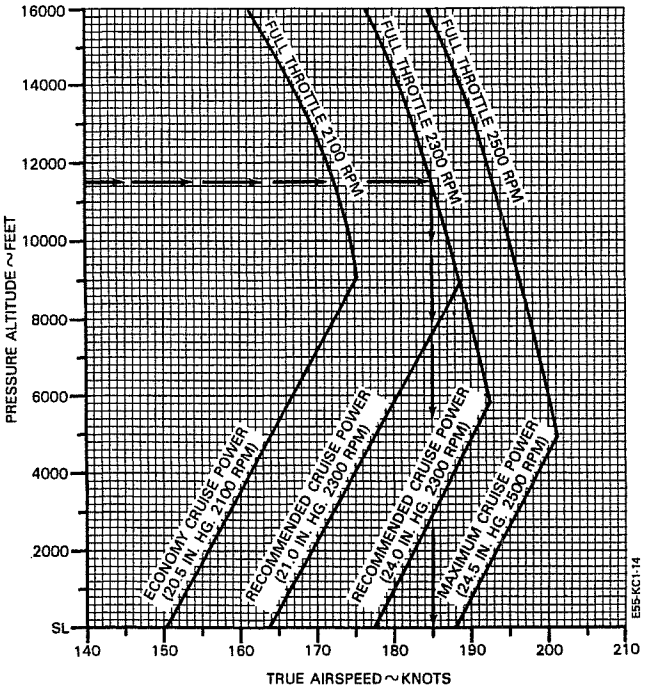
CRUISE SPEEDS

ASSOCIATED CONDITIONS:

AVERAGE CRUISE WEIGHT	5000 LBS
TEMPERATURE	STANDARD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
TRUE AIRSPEED	185 KNOTS

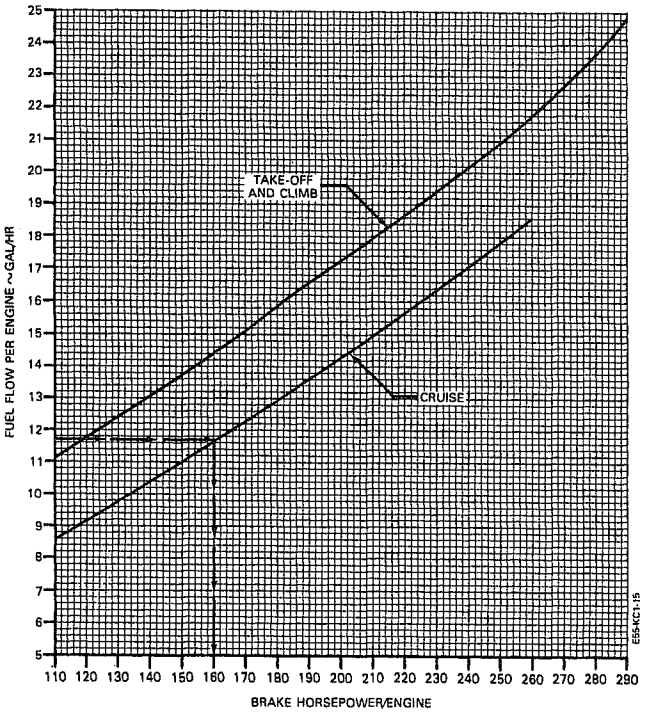


Criptografia: Fred Mesquita

FUEL FLOW vs BRAKE HORSEPOWER

EXAMPLE

FUEL FLOW/ENGINE	11.7 GAL/HR
CONDITIONS	LEVEL FLIGHT CRUISE LEAN
BRAKE HORSEPOWER PER ENGINE	160 HP



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CRUISE POWER SETTINGS

CRUISE POWER SETTINGS
MAXIMUM CRUISE POWER
24.5 IN. HG. @ 2500 RPM (OR FULL THROTTLE)
5200 LBS.

PRESS ALT.	ISA −36°F (−20°C)								STANDARD DAY (ISA)								ISA +36°F (+20°C)							
	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS
FEET	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS
SL	28	−2	2500	24.5	96	16.0	186	193	64	18	2500	24.5	93	15.4	188	188	100	38	2500	24.5	90	14.8	189	183
2000	21	−6	2500	24.5	98	15.9	192	193	57	14	2500	24.5	95	15.8	193	188	95	35	2500	24.5	91	15.2	195	183
4000	16	−9	2500	24.5	100	16.7	197	192	52	11	2500	24.5	96	16.1	199	187	88	31	2500	24.5	93	15.5	200	182
6000	9	−13	2500	23.4	97	16.2	198	188	45	7	2500	23.4	93	15.6	200	183	81	27	2500	23.4	90	15.0	201	178
8000	1	−17	2500	22.0	90	15.0	196	181	37	3	2500	22.0	87	14.5	197	176	73	23	2500	22.0	84	14.0	199	170
10000	−6	−21	2500	20.0	84	14.0	194	174	30	−1	2500	20.0	82	13.6	195	168	66	19	2500	20.0	79	13.1	196	163
12000	−13	−25	2500	18.3	78	13.1	191	166	23	−5	2500	18.3	76	12.7	192	161	59	15	2500	18.3	73	12.2	193	155
14000	−20	−29	2500	16.8	73	12.2	188	158	16	−9	2500	16.8	71	11.8	189	153	52	11	2500	16.8	69	11.4	189	148
16000	−29	−34	2500	15.5	68	11.3	184	150	7	−14	2500	15.5	66	11.0	195	145	43	6	2500	15.5	64	10.6	185	139

NOTES:
1. FULL THROTTLE MANIFOLD PRESSURE SETTINGS ARE APPROXIMATE
2. SHADED AREA REPRESENTS OPERATION WITH FULL THROTTLE

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CRUISE POWER SETTINGS

CRUISE POWER SETTINGS
RECOMMENDED CRUISE POWER
24.0 IN. HG. @ 2300 RPM (OR FULL THROTTLE)
5200 LBS.

PRESS ALT.	ISA −36°F (−20°C)								STANDARD DAY (ISA)								ISA +36°F (+20°C)							
	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS
FEET	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS
SL	27	−3	2300	24.0	83	13.9	176	183	64	18	2300	24.0	81	13.5	178	178	100	38	2300	24.0	78	13.0	179	173
2000	21	−6	2300	24.0	85	14.2	181	182	57	14	2300	24.0	82	13.7	183	177	93	34	2300	24.0	80	13.3	184	172
4000	14	−10	2300	24.0	87	14.5	187	183	50	10	2300	24.0	84	14.1	188	177	86	30	2300	24.0	81	13.6	189	172
6000	7	−14	2300	23.5	88	14.6	190	181	45	7	2300	23.6	85	14.1	192	176	81	27	2300	23.5	82	13.8	193	171
8000	0	−18	2300	21.8	82	13.6	188	174	36	2	2300	21.8	79	13.2	190	169	73	23	2300	21.8	76	12.7	191	164
10000	−8	−22	2300	20.1	76	12.7	185	166	28	−2	2300	20.1	74	12.3	187	161	64	18	2300	20.1	71	11.9	187	156
12000	−15	−26	2300	18.5	72	11.9	183	159	21	−6	2300	18.6	69	11.6	184	154	57	14	2300	18.5	67	11.2	185	149
14000	−22	−30	2300	17.1	62	10.3	171	144	14	−10	2300	17.1	59	9.9	171	139	50	10	2300	17.1	57	9.5	170	133
16000	−29	−34	2300	15.6	69	9.8	169	138	7	−14	2300	15.6	56	9.4	169	132	43	6	2300	15.6	54	9.1	167	126

NOTES:
1. FULL THROTTLE MANIFOLD PRESSURE SETTINGS ARE APPROXIMATE
2. SHADED AREA REPRESENTS OPERATION WITH FULL THROTTLE

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CRUISE POWER SETTINGS

CRUISE POWER SETTINGS
RECOMMENDED CRUISE POWER
21.0 IN. HG. @ 2300 RPM (OR FULL THROTTLE)
5200 LBS.

PRESS ALT.	ISA −36°F (−20°C)								STANDARD DAY (ISA)								ISA +36°F (+20°C)							
	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS
FEET	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS
SL	27	−3	2300	21.0	70	11.6	163	168	63	17	2300	21.0	68	11.3	164	164	99	37	2300	21.0	66	10.9	164	159
2000	21	−6	2300	21.0	72	12.0	168	169	57	14	2300	21.0	70	11.6	169	164	93	34	2300	21.0	67	11.2	169	159
4000	14	−10	2300	21.0	74	12.4	173	170	50	10	2300	21.0	72	12.0	175	165	86	30	2300	21.0	70	11.6	175	160
6000	7	−14	2300	21.0	76	12.7	179	170	93	6	2300	21.0	74	12.3	180	165	79	26	2300	21.0	72	11.9	181	160
8000	0	−18	2300	21.0	78	13.1	185	170	36	2	2300	21.0	76	12.7	186	165	72	22	2300	21.0	73	12.2	187	160
10000	−9	−22	2300	20.2	75	12.7	185	166	25	−2	2300	20.2	74	12.3	187	161	64	18	2300	20.2	71	11.9	187	156
12000	−18	−26	2300	18.5	72	12.0	183	159	21	−6	2300	18.6	69	11.6	184	154	57	14	2300	18.6	67	11.2	185	149
14000	−22	−30	2300	17.0	62	10.3	171	144	14	−10	2300	17.0	59	9.9	171	139	50	10	2300	17.0	57	9.5	170	133
16000	−29	−34	2300	15.7	56	9.8	169	139	7	−14	2300	15.7	56	9.4	169	132	43	6	2300	15.7	54	9.1	167	128

NOTES:
1. FULL THROTTLE MANIFOLD PRESSURE SETTINGS ARE APPROXIMATE
2. SHADED AREA REPRESENTS OPERATION WITH FULL THROTTLE

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CRUISE POWER SETTINGS

CRUISE POWER SETTINGS
ECONOMY CRUISE POWER
20.5 IN. HG. @ 2100 RPM (OR FULL THROTTLE)
5200 LBS.

PRESS ALT.	ISA −36°F (−20°C)								STANDARD DAY (ISA)								ISA +36°F (+20°C)							
	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS	OAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW/ ENGINE		TAS	CAS
FEET	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS	°F	°C	RPM	IN HG	PPH	GPH	KTS	KTS
SL	27	−3	2100	20.5	60	10.0	151	156	63	17	2100	20.5	58	9.6	151	151	99	37	2100	20.5	56	9.2	151	146
2000	19	−7	2100	20.5	62	10.3	156	157	55	13	2100	20.5	59	9.9	156	152	91	33	2100	20.5	57	9.5	156	146
4000	12	−11	2100	20.5	63	10.6	160	157	48	9	2100	20.5	61	10.2	161	152	84	29	2100	20.5	59	9.8	161	147
6000	7	−14	2100	20.5	66	10.9	166	158	43	6	2100	20.5	64	10.6	167	153	79	26	2100	20.5	62	10.3	167	148
8000	0	−18	2100	20.5	66	11.1	170	157	36	2	2100	20.5	64	10.7	171	152	72	22	2100	20.5	62	10.4	171	147
10000	−8	−22	2100	20.2	66	11.1	174	155	28	−2	2100	20.2	64	10.7	174	150	64	18	2100	20.2	62	10.4	174	144
12000	−15	−26	2100	18.6	63	10.5	171	149	21	−6	2100	18.6	61	10.1	171	143	57	14	2100	18.6	59	9.3	170	137
14000	−22	−30	2100	17.0	58	9.7	167	140	14	−10	2100	17.0	56	9.4	167	135	50	10	2100	17.0	54	9.0	165	128
16000	−29	−34	2100	15.7	54	9.0	162	132	7	−14	2100	15.7	52	8.7	160	125	43	6	2100	15.7	50	8.4	157	118

NOTES:
1. FULL THROTTLE MANIFOLD PRESSURE SETTINGS ARE APPROXIMATE
2. SHADED AREA REPRESENTS OPERATION WITH FULL THROTTLE

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RANGE PROFILE - 136 GALLONS

ASSOCIATED CONDITIONS:

WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	136 U.S. GALS (816 LBS)

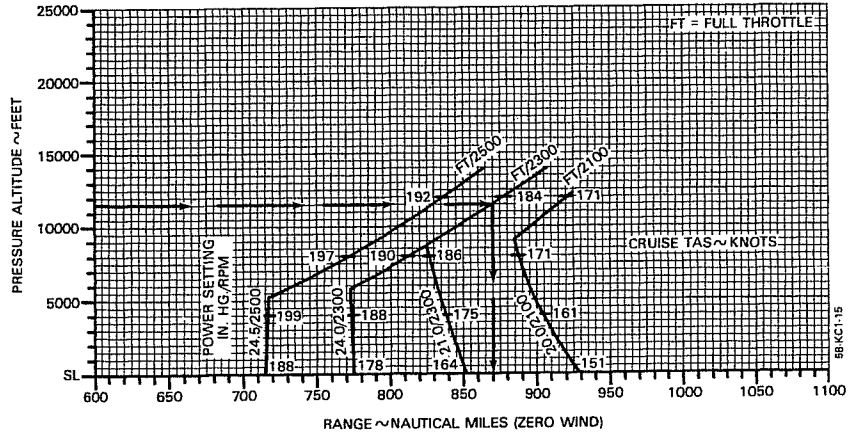
STANDARD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
RANGE	870 NM

NOTE:

RANGE INCLUDES START, TAXI, CLIMB, AND DESCENT
WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE



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ENDURANCE PROFILE - 136 GALLONS

ASSOCIATED CONDITIONS:

WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	136 U.S. GALS (816 LBS)

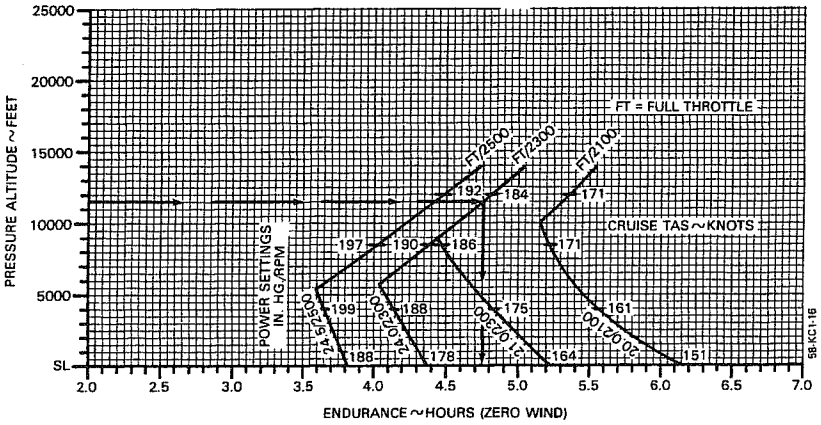
STANDARD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
ENDURANCE	4.75 HRS (4 HRS, 45 MIN)

NOTE:

ENDURANCE INCLUDES START, TAXI, CLIMB AND DESCENT
WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE



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RANGE PROFILE - 166 GALLONS

ASSOCIATED CONDITIONS:

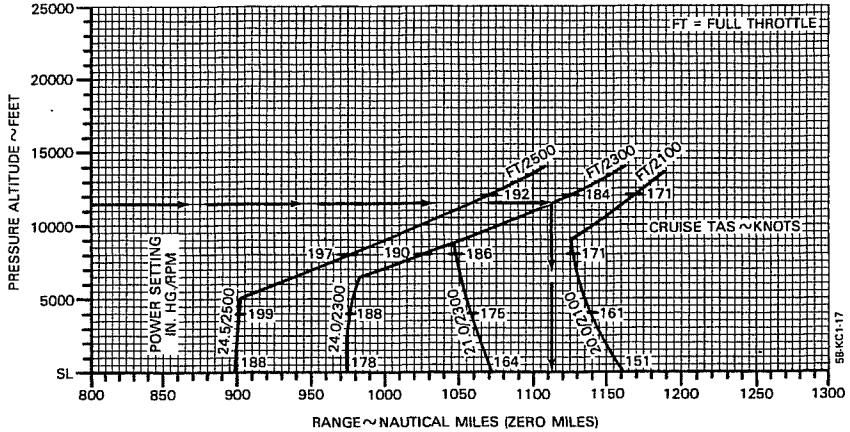
WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	166 U.S. GAL (996 LBS)

STANDARD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
RANGE	1115 NM

NOTE:
RANGE INCLUDES START, TAXI, CLIMB AND DESCENT
WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE



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ENDURANCE PROFILE - 166 GALLONS

ASSOCIATED CONDITIONS:

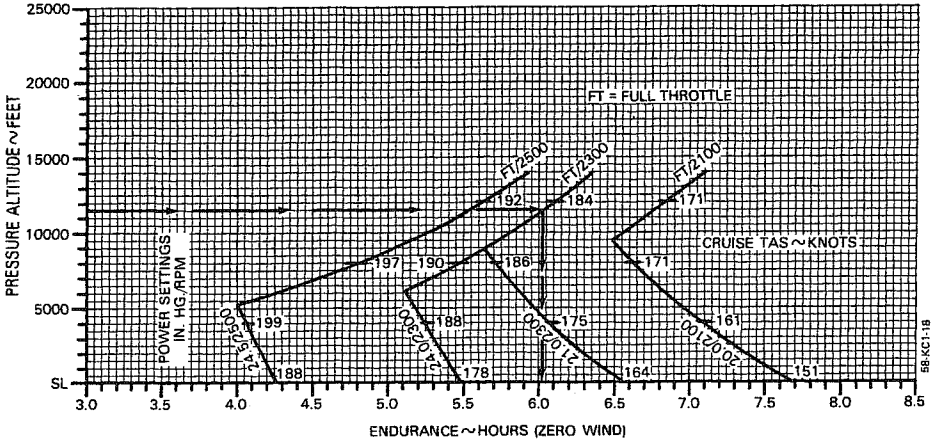
WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	166 U.S. GALS (996 LBS)

STANDARD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
ENDURANCE	6.0 HRS

NOTE:
ENDURANCE INCLUDES START, TAXI, CLIMB AND DESCENT WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE



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RANGE PROFILE - 194 GALLONS

STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

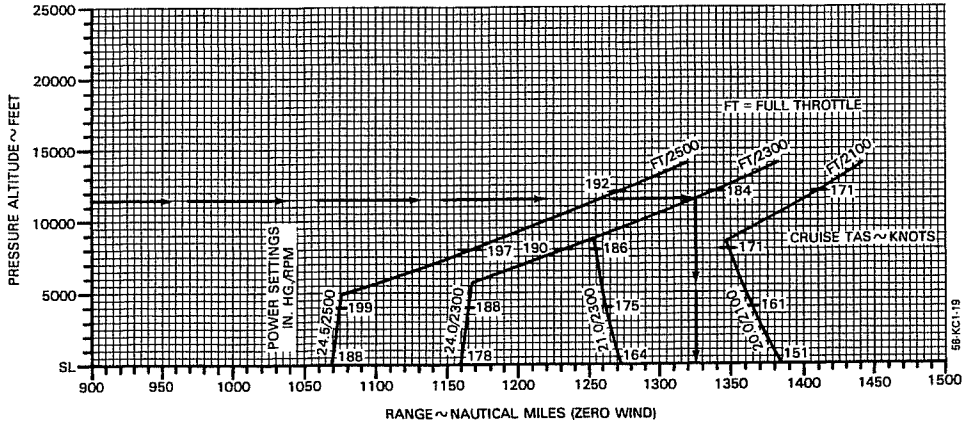
WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GAL (1164 LBS)

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
RANGE	1325 NM

NOTE:

RANGE INCLUDES START, TAXI, CLIMB AND DESCENT
WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE



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ENDURANCE PROFILE - 194 GALLONS

ASSOCIATED CONDITIONS:

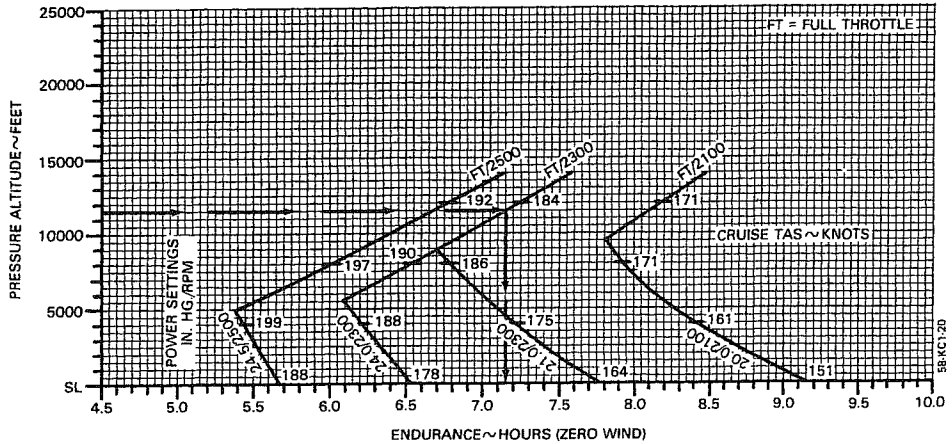
WEIGHT	5000 LBS
FUEL	AVIATION GASOLINE
FUEL DENSITY	6.0 LBS/GAL
INITIAL FUEL LOADING	194 U.S. GALS (1164 LBS)

STANDARD DAY (ISA)

NOTE:
ENDURANCE INCLUDES START, TAXI, CLIMB AND DESCENT WITH 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE

EXAMPLE:

PRESSURE ALTITUDE	11500 FEET
POWER SETTING	FULL THROTTLE 2300 RPM
ENDURANCE	7.15 HRS (7 HRS, 9 MIN)



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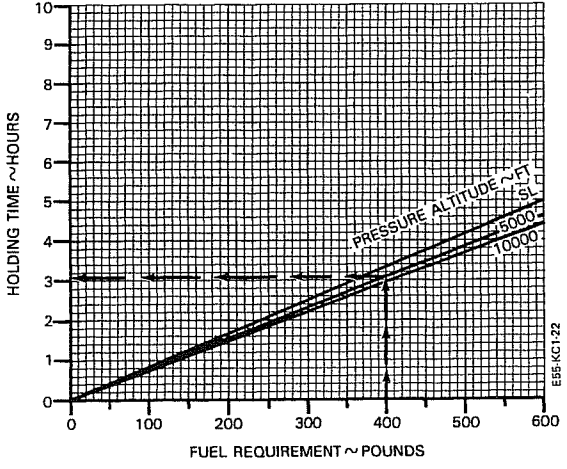
HOLDING TIME

ASSOCIATED CONDITIONS:

POWER SETTING	20.5 IN. HG OR FULL THROTTLE 2100 RPM

EXAMPLE:

FUEL AVAILABLE FOR HOLDING	400 LBS
PRESSURE ALTITUDE	5000 FT
HOLDING TIME	3.1 HR



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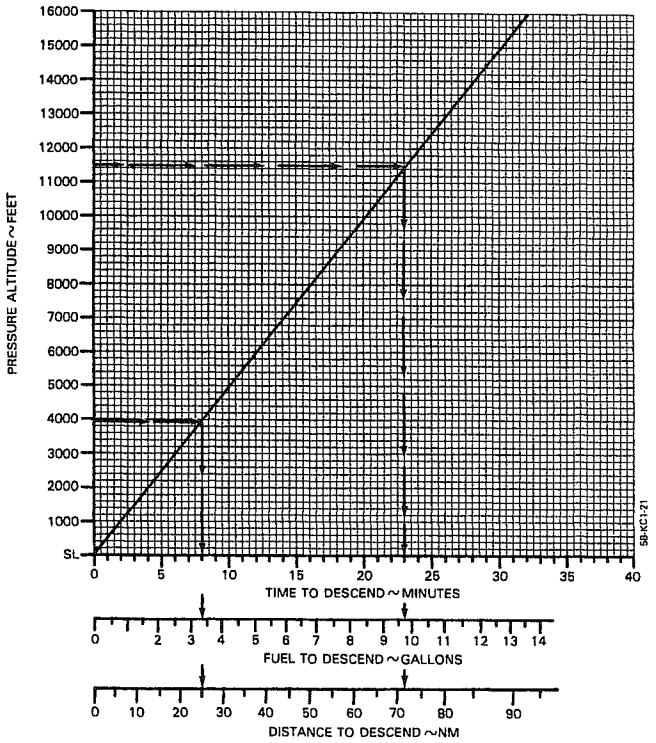
TIME, FUEL AND DISTANCE TO DESCEND

ASSOCIATED CONDITIONS:	
POWER	AS REQUIRED TO MAINTAIN 500 FT/MIN RATE-OF-DESCENT
LANDING GEAR	UP
FLAPS	UP

EXAMPLE:	
INITIAL ALTITUDE	11500 FT
FINAL ALTITUDE	3965 FT
TIME TO DESCEND	(23-8) = 15 MIN
FUEL TO DESCEND	(9.7-3.3) = 6.4 GAL
DISTANCE TO DESCEND	(72-25) = 47 NM

DESCENT SPEED
175 KNOTS



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CLIMB-BALKED LANDING

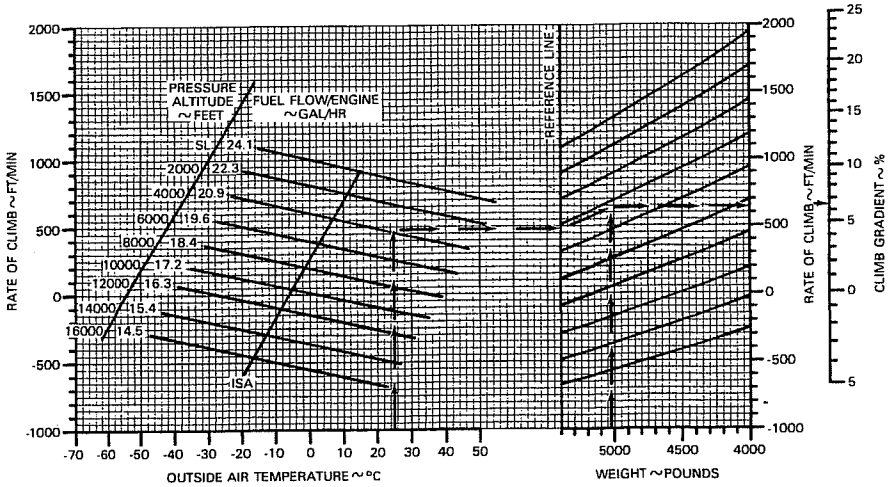
CLIMB SPEED 96 KNOTS (ALL WEIGHTS)

ASSOCIATED CONDITIONS:

POWER	TAKE-OFF
FLAPS	DOWN
LANDING GEAR	DOWN
MIXTURE	LEAN TO APPROPRIATE FUEL FLOW

EXAMPLE:

OAT	25°C
PRESSURE ALTITUDE	3965 FT
WEIGHT	5039
RATE OF CLIMB	640 FT/MIN
CLIMB GRADIENT	6.5%



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LANDING DISTANCE

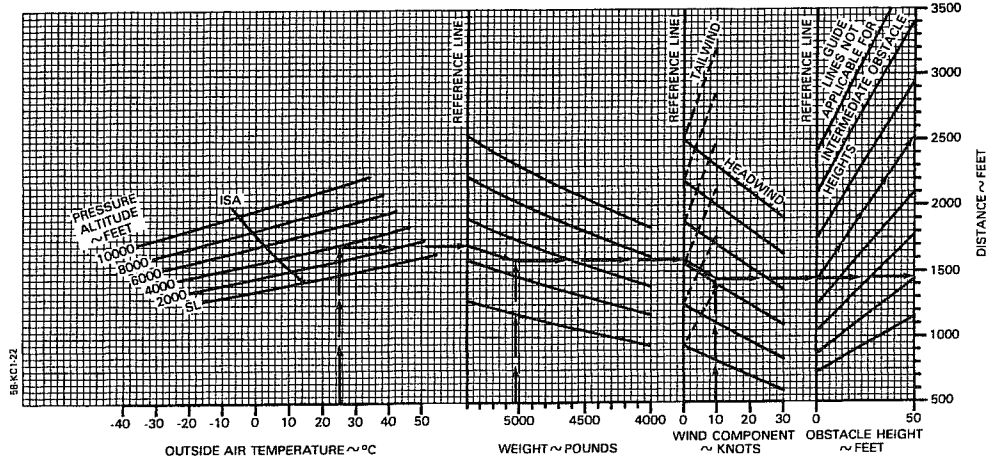
ASSOCIATED CONDITIONS:

POWER	RETARDED TO MAINTAIN 800 FT/MIN ON FINAL APPROACH
FLAPS	DOWN
LANDING GEAR	DOWN
APPROACH SPEED	IAS AS TABULATED
BRAKING	MAXIMUM
RUNWAY	PAVED, LEVEL, DRY SURFACE

WEIGHT ~ POUNDS	SPEED AT 50 FT KNOTS
5400	96
5000	91
4600	87
4000	81

EXAMPLE:

OAT	25°C
PRESSURE ALTITUDE	3965 FT
WEIGHT	5039 LBS
WIND COMPONENT	9.5 KTS
GROUND ROLL	1450 FT
TOTAL OVER 50 FT OBSTACLE	2500 FT
APPROACH SPEED	91 KTS



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SECTION VI

WEIGHT AND BALANCE/ EQUIPMENT LIST

TABLE OF CONTENTS

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WEIGHING INSTRUCTIONS

Periodic weighing of the airplane may be required to keep the Basic Empty Weight current. All changes to the airplane affecting weight and balance are the responsibility of the airplane's operator.

1. Three jack points are provided for weighing: two on the wing front spar at Fuselage Station 83.1 and one on the aft fuselage at Fuselage Station 271.0.

2. Fuel should be drained preparatory to weighing. Tanks are drained from the regular drain ports with the airplane in static ground attitude. When tanks are drained, 5.7 pounds of undrainable fuel remain in the airplane at Fuselage Station 81.6. The remainder of the unusable fuel to be added to a drained system is 30.3 pounds at Fuselage Station 78.5

3. Engine oil must be at the full level or completely drained. Total engine oil when full is 45 pounds at Fuselage Station 43.

4. To determine airplane configuration at time of weighing, installed equipment is checked against the airplane equipment list or superseding forms. All installed equipment must be in its proper place during weighing.

5. The airplane must be longitudinally and laterally level with the landing gear fully extended at the time of weighing. Leveling screws are located on the left side of the fuselage at Fuselage Station 152.25 (approximately). Longitudinally level attitude is determined with a plumb bob. Laterally level attitude is accomplished by having the vertical distance, from the left and right wingtips to the floor, equal.

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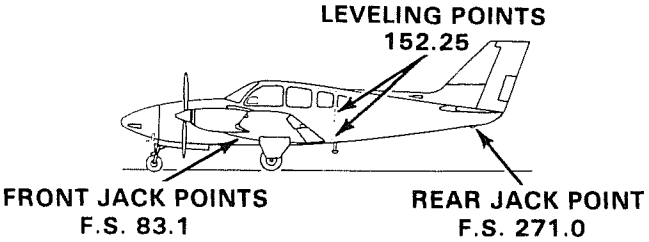
6. Measurement of the reaction arms for a wheel weighing is made using a steel measuring tape. Measurements are taken, with the airplane level on the scales, from the reference (a plumb bob dropped from the center of either main jack point) to the axle center line of the main gear and then to the nose wheel axle center line. The main wheel axle center line is best located by stretching a string across from one main wheel to the other. All measurements are to be taken with the tape level with the hangar floor and parallel to the fuselage center line. The locations of the wheel reactions will be approximately at Fuselage Station 96.7 for main wheels and Fuselage Station -10.3 for the nose wheel.

7. Jack point weighings are accomplished by placing scales at the jack points specified in step 1 above. Since the center of gravity of the airplane is forward of Fuselage Station 83.1, the tail reaction of the airplane will be in an up direction. This can be measured on regular scales by placing ballast of approximately 200 pounds on the scales and attached to the aft weighing point by cable of adjustable length. The up reaction will then be total ballast weight minus the scale reading and is entered in the weighing form as a negative quantity.

8. Weighing should always be made in an enclosed area which is free from air currents. The scales used should be properly calibrated and certified.



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BASIC EMPTY WEIGHT AND BALANCE

BARON 58 SER. NO. _____ REG. NO. _____ DATE _____

STRUT POSITION -	NOSE	MAIN	JACK POINT LOCATION		PREPARED BY
EXTENDED	-11.6	96	FORWARD	83.1	Company _____
COMPRESSED	-9.8	97	AFT	271.0	Signature _____

REACTION WHEEL - JACK POINTS	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN					
RIGHT MAIN					
NOSE OR TAIL					
TOTAL (AS WEIGHED)					
Space below provided for additions and subtractions to as weighed condition					
EMPTY WEIGHT (DRY)					
ENGINE OIL			45	-	1935
UNUSABLE FUEL			36	79	2844
BASIC EMPTY WEIGHT					

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NOTE

Each new airplane is delivered with a completed sample loading, empty weight and center of gravity, and equipment list, all pertinent to that specific airplane. It is the owner's responsibility to ensure that changes in equipment are reflected in a new weight and balance and in an addendum to the equipment list. There are many ways of doing this; it is suggested that a running tally of equipment changes and their effect on empty weight and c.g. is a suitable means for meeting both requirements.

The current equipment list and empty weight and c.g. information must be retained with the airplane when it changes ownership. Beech Aircraft Corporation cannot maintain this information; the current status is known only to the owner. If these papers become lost, the FAA will require that the airplane be re-weighed to establish the empty weight and c.g. and that an inventory of installed equipment be conducted to create a new equipment list.

Criptografia: Fred Mesquita

WEIGHT AND BALANCE RECORD

SERIAL NO. _____ REGISTRATION NO. _____ PAGE NO. 1

DATE	ITEM NO.		DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-)			RUNNING BASIC EMPTY WEIGHT	
	IN	OUT		WT (LBS)	ARM (IN.)	MOM / 100	WT (LBS)	MOM / 100

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WEIGHT AND BALANCE RECORD

SERIAL NO. _____ REGISTRATION NO. _____ PAGE NO. 2

DATE	ITEM NO.		DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-)			RUNNING BASIC EMPTY WEIGHT	
	IN	OUT		WT (LBS)	ARM (IN.)	MOM / 100	WT (LBS)	MOM / 100

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WEIGHT AND BALANCE RECORD

SERIAL NO. TH-1318 REGISTRATION NO. N6188M PAGE NO. 1

DATE	ITEM NO. IN	ITEM NO. OUT	DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-) WT (LBS)	ARM (IN.)	MOM 100	RUNNING BASIC EMPTY WEIGHT WT (LBS)	RUNNING BASIC EMPTY WEIGHT MOM 100
5-14-82	X		Avionics Installation				3744.5	280428.35
5-14-82	X		" " (Corrected)				3758.5	280565.8
10-7-83	X		TT9100 Installation				3767.7	281169.7
12-84	—	—	WEIGHED	3756.0	—	—	3756.0	280868.6
10-2-85	X		PNEU. DEICER SYSTEM	26.93	123.24	3318.91	3782.93	284187.41
7-15-88	X		ARGUS 5000	3.5	40.0	140.0	3786.4	284327.4
4-13-89	X		WINDSHIELD	8.0	64.0	512.0	3794.4	284839.4
10-20-89	X		YAW DAMPNER SYSTEM	5.8	135.81	787.75	3800.2	285625.15
6-6-91	X		KAS 297 RCA 346 ALT Pre-Select/Servo Enc	4.2	40.0	168.0	3804.40	285793.15

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WEIGHT AND BALANCE RECORD

SERIAL NO. _____ REGISTRATION NO. _____ PAGE NO. 2

DATE	ITEM NO. IN	ITEM NO. OUT	DESCRIPTION OF ARTICLE OR CHANGE	WEIGHT CHANGE ADDED (+) OR REMOVED (-) WT (LBS)	ARM (IN.)	MOM 100	RUNNING BASIC EMPTY WEIGHT WT (LBS)	MOM 100
5-14-92	X		Removed TI-9100 LORAN-C Installed KLN-88 LORAN-C	See W/B and Equip List Rev			3,804.1	295,633.6
7-25-97			And AA-80 Intercom Window Liners	"	"	"	3961.81	316117.73
3-12-98	X		NAT AA-85-001 INTERCOM	.7	57.0			
3-12-98		X	NAT AA 80-001 INTERCOM	.7	57.0		3961.81	316117.73
071604	X		TANIS TASKIN #2 Platforms	2.64	42		3936.33	

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LANDMARK AVIATION

EQUIPMENT CHANGE - WEIGHT & BALANCE

REG. NO.	MODEL	Serial No.
N6188M	58	TH-1318
WORK ORDER NUMBER	**TACH/ENGINE**	**HOBBS/FLIGHT**
A20-10-00155	n/a	4088.5

Items Removed	Part No.	Ser. No.	Weight	Arm	Moments
Honeywell KI525A H.S.I.	066-3046-01	35572	4.0	54.5	218.00
[illegible]neywell KI256 Attitude Indicator	060-0017-00	23434	3.3	54.5	179.85
[illegible]ywell KA51A Slaving Accssy	071-1053-04	17820	0.3	57.0	17.10
[illegible] RMI Indicator	01183-1	5014	1.6	56.5	90.40
Stec RMI Converter	01184-1	5019	3.0	31.0	93.00
Honeywell KI208 Nav Indicator	066-3056-00	27850	1.0	58.0	58.00
			0	0	0.00
			0	0	0.00

Items Installed			Weight	Arm	Moments
[illegible]en PFD1000 Display	910-00001-001	7185	2.6	53.8	139.88
[illegible]pen Remote Sensor Unit	910-00003-001	11466	0.5	117.0	58.50
Aspen Analog Converter Unit	910-00004-001	11115	0.8	34.0	27.20
Aspen Configuration Module	910-00005-004	10857	0.1	51.0	5.10
Aspen EA100 Adapter	910-00013-001	1064	1.3	34.0	44.20
Comant Glideslope Coupler	CI503	313141	0.2	40.0	8.00
Sandel EHSI	SN3308-00-BL	4110	3.0	48.5	145.50
Honeywell KI209 Nav Indicator	066-3056-01	19920	1.2	58.0	69.60
Honeywell KAS297 Preselector	065-0046-02	2951	1.2	69.6	83.52
			0.0	0.0	0.00

PREVIOUS WEIGHT & BALANCE DATA

A. Old Empty Weight	3952.00	Pounds
B. Old Empty CG	78.75	Inches
C. Old Empty Weight CG Moment	311220.00	Inch/Pounds
D. Certified Gross Weight	5400.00	Pounds
E. Old Useful Load	1448.00	Pounds

NEW WEIGHT & BALANCE DATA

[illegible]New Empty Weight	3949.70	Pounds
[illegible]New Empty CG	78.78	Inches
[illegible]. New Empty Weight CG Moment	311145.15	Inch/Pounds
D. Certified Gross Weight	5400.00	Pounds
E. New Useful Load	1450.30	Pounds

This new weight & balance information supersedes all previous weight and balance data.
For aircraft loading, see instructions in Weight & Balance Section of Aircraft Flight Manual.

[illegible]. Form 337 Completed?	Y
[illegible]uipment List Amended?	Y

By: [signature] Date: 01-07-2011

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LANDMARK AVIATION

Aircraft Weight and Balance Change Data and Equipment List Revision

Aircraft Registration:	N6188M	**Aircraft Model:**	58
Aircraft Manufacturer:	Beechcraft	**Aircraft Serial Number:**	TH-1318
Date:	9/16/2009	**Work Order:**	S20-09-00262

	Date	Weight	Arm	Moment
Previous Empty Weight Calculation:	1/28/2008	3936.3	78.76	310008.57
Previous Aircraft Useful Load:		1463.7		
Components Removed:				
Sky Tec Starter P/N C24St3		-6.4		0.00
TCM Starter P/N 655566F24V		-6.7		0.00
				0.00
Components Installed:				
(2) Teledyne Starters P/N 646275		28.8	42	1209.60
				0.00
				0.00

Superseded 01-07-2011

Computation Summary:

Aircraft Gross Weight:	5400
Revised Empty Weight:	3952
Revised Center of Gravity	78.75
Revised Useful Load:	1448

Prepared/Approved By: _____

Chief Inspector

Piedmont Hawthorne Leesburg CRS# YBJR768L

Criptografia: Fred Mesquita

LANDMARK AVIATION

TEMPORARY AIRCRAFT WEIGHT & BALANCE DATA AND EQUIPMENT LIST REVISION

Aircraft Registration #: N6188M
Aircraft Make: Beechcraft
Aircraft Model: 58

Aircraft Serial #: TH-1318
Date: 1/28/08
Work Order #: A003884

Description	Date	Weight (lb)	Arm	Moment
Previous Empty Figures :	10-Dec-07	3937.50	78.75	310078.17
Previous Useful Load :		1462.50		
Items Installed:				
				0.00
				0.00
				0.00
				0.00
				0.00
Total installed:		**0.00**		**0.00**
Items Removed:				
Honeywell KAS-297 Altitude Selector P/N: 065-0046-02 S/N: 2951		1.20	58.00	69.60
				0.00
				0.00
				0.00
				0.00
Total Removed:		**1.20**		**69.60**
New Empty Figures:		**3936.30**	**78.76**	**310008.57**

Superceded
09-16-2009

Summary:

Gross Weight:	**5400.00**
New Empty Weight:	**3936.30**
New CG :	**78.76**
New Useful Load :	**1463.70**
New Moments:	**310008.57**

Prepared By Chris Milewski
Authorized Signature: William B Hertz

CRS# YBJR768L

Leesburg Executive Airport
PH: (703) 771-0188
FX: (703) 779-0435

Criptografia: Fred Mesquita

LANDMARK AVIATION

AIRCRAFT WEIGHT & BALANCE DATA AND EQUIPMENT LIST REVISION

Aircraft Registration #: N6188M
Aircraft Make: Beechcraft
Aircraft Model: 58

Aircraft serial #: TH-1318
Date: 12/10/07
Work Order #: A003837

Description	Date	Weight (lb)	Arm	Moment
Previous Empty Figures :	3-Jan-07	3937.53	78.75	310081.68
Previous Useful Load :		1462.47		
Items Installed:				
Garmin GNS 530W P/N: 011-01064-45 S/N: 78411688		7.00	57.00	399.00
Garmin GA35 WAAS antenna P/N: 013-00235-00 S/N: 30126		0.47	117.00	54.99
				0.00
				0.00
				0.00
				0.00
				0.00
Total installed:		**7.47**		**453.99**
Items Removed:				
Garmin GNS 530 P/N: 011-00550-00 S/N: 78411688		7.00	57.00	399.00
Garmin GPS antenna GA56 P/N: 011-00147-00 S/N: 58096955		0.50	117.0	58.50
				0.00
				0.00
				0.00
Total Removed:		**7.50**		**457.50**
New Empty Figures:		**3937.50**	**78.75**	**310078.17**

Summary:

Gross Weight:	**5400.00**
New Empty Weight:	**3937.50**
New CG :	**78.75**
New Useful Load :	**1462.50**
New Moments:	**310078.17**

Superceded 01-28-2008

Prepared By Chris Milewski
Authorized Signature: William B Hertz

CRS# YBJR768L

Criptografia: Fred Mesquita

Criptografia: Fred Mesquita

LANDMARK AVIATION

AIRCRAFT WEIGHT & BALANCE DATA AND EQUIPMENT LIST REVISION

Aircraft Registration #:N6188M
Aircraft Make: BEECH
Aircraft Model: B58

Aircraft serial #: TH-1318
Date: 01/03/07
Work Order #: A003425

Description	Date	Weight (lb)	Arm	Moment
Previous Empty Figures :	24-Mar-05	3933.83	78.77	309867.08
Previous Useful Load :		1466.17		
Items Installed:				
Standby Horizon p/n 4300-411 s/n k06-11279		3.70	58.00	214.60
				0.00
				0.00
				0.00
				0.00
Total installed:		**3.70**		**214.60**
Items Removed:				
				0.00
				0.00
				0.00
				0.00
				0.00
Total Removed:		**0.00**		**0.00**
New Empty Figures:		**3937.53**	**78.75**	**310081.68**

Superseded

Summary:

Gross Weight:	**5400.00**
New Empty Weight:	**3937.53**
New CG :	**78.75**
New Useful Load :	**1462.47**
New Moments:	**310081.68**

Prepared By Thomas B Smith II
Authorized Signature: John Cogley Jr

CRS# YBJR768L

Leesburg Executive Airpo
PH: (703) 771-01
FX: (703) 779-04

Criptografia: Fred Mesquita

Criptografia: Fred Mesquita

PIEDMONT HAWTHORNE

AIRCRAFT WEIGHT & BALANCE DATA AND EQUIPMENT LIST REVISION

Aircraft Registration # : N6188M
Aircraft Make : Beechcraft
Aircraft Model: Baron B58

Aircraft Serial # : TH-1318
Date : 3/24/05
Work Order #: A002629

Description	Date	Weight	Arm	Moment
Previous Empty Figures :	18-Oct-04	3938.33	78.71	309985.03
Previous Useful Load :		1461.67		
Items Removed:				
COLLINS IND-451 P/N 622-3672-001 S/N 3096		1.00	58.50	58.5
COLLINS TRC-451 P/N 622-3670-001 S/N 3810		5.90	41.50	244.85
HONEYWELL KA-120 P/N 066-1089-00 S/N 2124		1.20	-19.00	-22.8
		8.10		**280.55**
Items Installed:				
HNYWELL KN63 P/N 066-1070-001 S/N 9848		2.80	41.50	116.20
HNYWELL KDI-572 P/N 066-1069-00 S/N 16235		0.80	58.00	46.40
		3.60		**162.60**
New Empty Figures:				
Summary:				
New Empty Weight:		**3933.83**		
New CG:		**78.77**		
New Moment:		**309867.08**		
New Useful Load:		~~1457.17~~ 1466.17 TBS		

Prepared By James H Hansen
Authorized Signature: _____
CRS# YBJR768L

Received 11/3/07 Due 765c

Piedmont Hawthorne Aviation
Leesburg Municipal Airport
1005 Sycolin Road
Leesburg, Virginia 20175

(703) 771-0188 Phone
(703) 771-1079 Fax
www.flypiedmont.com

Criptografia: Fred Mesquita

Criptografia: Fred Mesquita

PIEDMONT HAWTHORNE

Aircraft Weight and Balance Change Data and Equipment List Revision

Aircraft Registration:	N6188M	**Aircraft Model:**	58
Aircraft Manufacturer:	Beechcraft	**Aircraft Serial Number:**	TH-1318
Date:	10/18/04	**Work Order:**	S005128

	Date	Weight	Arm	Moment
Previous Empty Weight Calculation:	10/16/04	3935.65	78.73	309872.47
Previous Aircraft Useful Load:		1464.35		
Components Removed:				0.00
				0.00
				0.00
Components Installed: Tanis TAS100-12 Preheaters, s/n's 36260 &36261		2.68	42	112.56
				0.00
				0.00

SUPERCEDED 3/24/05

Computation Summary:

Aircraft Gross Weight:	5400
Revised Empty Weight:	3938.33
Revised Center of Gravity	78.71
Revised Useful Load:	1461.67

Prepared/Approved By: _____

Chief Inspector

Piedmont Hawthorne Leesburg CRS# YBJR768L

Piedmont Hawthorne Aviation
Leesburg Municipal Airport
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Criptografia: Fred Mesquita

PIEDMONT HAWTHORNE

AIRCRAFT WEIGHT & BALANCE DATA AND EQUIPMENT LIST REVISION

Aircraft Registration # : N6188M
Aircraft Make : Beechcraft
Aircraft Model: Baron B58

Aircraft Serial # : TH-1318
Date : 9/16/04
Work Order #: A002470

Description	Date	Weight	Arm	Moment
Previous Empty Figures :	19-Jun-95	3945.00	78.65	310299.42
Previous Useful Load :		1455.00		
Items Removed:				
AMR-350 P/N 622-2087-00 S/N 11974		1.60	58.00	92.8
TNL2000T P/N 80821-00-0218 S/N 5103154		2.70	57.00	153.9
ANS-351 P/N 622-3767-001 S/N 4001		3.80	57.00	216.6
VHF-251 P/N 622-2078-001 S/N 26630		3.40	57.00	193.8
VHF-251 P/N 622-2078-001 S/N 10150		3.4	57.00	193.8
VIR-351 P/N 622-2080-001 S/N 34427		2.70	57.00	153.9
VIR-351 P/N 622-2080-001 S/N 35996		2.7	57.00	153.9
IND-351A P/N 622-4478-001 S/N 4965		1.10	58.00	63.8
AA85 P/N AA85-001 S/N 1080		0.70	57.00	39.9
GLS-350 P/N 622-2084-001 S/N 14383		2.00	40.00	80
PWC-150 P/N 622-2093-001 S/N 19643		1.50	-16.00	-24
PWC-150 P/N 622-2093-001 S/N 19654		1.50	-19.00	-28.5
RSO8-001 S/N 14877		0.50	36.00	18
GPS Antenna P/N 16248-20, S/N 5040022		0.50	117.00	58.5
		28.10		**1366.40**
Items Installed:				
KX155A P/N 069-01032-0201 S/N 27178		4.80	57.00	273.60
GA-56 P/N 011-00134-00 S/N 59096955		0.50	117.00	58.50
GMA-340 P/N 011-00134-00 S/N 96270576		1.70	58.00	98.60
GNS-530 P/N 011-00550 S/N 78411688		8.50	57.00	484.50
KI-208 P/N 066-3056-00 S/N 27850		1.00	58.00	58.00
ADC-200 P/N 962820-1 S/N 3254		1.25	-16.00	-14.75
KA-120 P/N 066-1089-00 S/N 2124		1.00	-19.00	-19.00
		18.75		**939.45**

Superseded 10-18-04

New Empty Figures:
Summary:

New Empty Weight:	**3935.65**
New CG:	**78.73**
New Moment:	**309872.47**
New Useful Load:	**1464.35**

Prepared By James H Hansen
Authorized Signature:
CRS# YBJR768L

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Criptografia: Fred Mesquita

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U.S. DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B. and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed $1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft

Make	Model
BEECHCRAFT	58
Serial No.	**Nationality and Registration Mark**
TH1318	N6188M

2. Owner

Name *(As shown on registration certificate)*	Address *(As shown on registration certificate)*
CORNERSTONE AIR LLC	815 MEERY ACRES CT. WINSTON SALEM NC 27106

3. For FAA Use Only

4. Unit Identification / **5. Type**

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	----------(As described in Item 1 above)----------				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type / Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
PIEDMONT AVIATION SERVICES, INC. P.O.BOX 525 WINSTON-SALEM, N.C.	U.S. Certificated Mechanic Foreign Certificated Mechanic X Certificated Repair Station Manufacturer	PAIR208A

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date	Signature of Authorized Individual
JULY 25, 1997	

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY						
	FAA Flt. Standards Inspector		Manufacturer		Inspection Authorization	Other *(Specify)*
	FAA Designee	X	Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection	Certificate or Designation No.	Signature of Authorized Individual
JULY 25, 1997	PAIR208A	DAVID P. HERRMANN

Criptografia: Fred Mesquita
Criptografia: Fred Mesquita

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished
(if more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

ACTT : 2534.7

1. INSTALLED ACRYLIC WINDOW LINERS IN ACCORDANCE WITH FAA APPROVED STC # SA4486MN

2. REVISED EQUIPTMENT LIST AND WEIGHT & BALANCE IN AIRCRAFT RECORDS.

☒ **Additional Sheets Are Attached**

* U.S.GPO: 1989-0-663-171

Criptografia: Fred Mesquita

PAIR208A
REVISED WEIGHT AND BALANCE / EQUIPMENT LIST DATA

AIRCRAFT TYPE BEECH "N" NUMBER N6188M

SERIAL NUMBER TH1318 DATE 7/25/97

OLD AIRCRAFT EMPTY WEIGHT 3945.0 MOMENT 310299.42

NOMENCLATURE	WEIGHT	ARM	MOMEN
ADDED-			
WINDOW LINERS PER STC #SA4486NM			
FIRST ROW LINERS	+ 6.31	75.00	+ 473.25
SECOND ROW LINERS	+ 4.75	113.00	+ 536.75
THIRD ROW LINERS	+ 3.00	135.50	+ 406.50
FORTH ROW LINERS	+2.75	160.00	+ 440.00
	3961.81	79.79	316117.73

NEW AIRCRAFT EMPTY WEIGHT: 3961.81

NEW AIRCRAFT EMPTY C.G.: 79.79

NEW AIRCRAFT EMPTY MOMENT: 316117.73

INSPECTED BY: David P. Heumann 7/25/97

PAS-S-4

Criptografia: Fred Mesquita
Criptografia: Fred Mesquita

Criptografia: Fred Mesquita

SUMMIT AVIATION

Weight and Balance Record

A/C# N 6188M MODEL BEECH 58 S/N TH1318

DATE	DESCRIPTION	WEIGHT	LONGITUDE ARM	LONGITUDE MOMENT	LATERAL ARM	LATERAL MOMENT
	Previous Empty Weight	3800.20	77.79	295625.13		
June 6, 1991	Installed:					
	King Altitude Selector KAS 297,					
	P/N 065-0046-02, S/N 2951	1.20	40.00	48.00		
	King Servo Altimeter KEA 346,					
	P/N 066-3062-00, S/N 1146	3.00	40.00	120.00		
	Computed Empty Weight	3804.40				
	Center of Gravity		77.75			
	Moment			295793.13		
	Useful Load	1595.60				

F.A.A. APPROVED
REPAIR STATION SMTR208J
CLASS 3

Criptografia: Fred Mesquita

Criptografia: Fred Mesquita

AIRCRAFT WEIGHT/BALANCE & EQUIPMENT LIST REVISION

DATE: 05/14/92

A/C MAKE: Beech

A/C Model: 58

A/C Ser. No. TH-1318

A/C REG: N6188M

		WEIGHT	ARM	MOMENT
I.	PREVIOUS AIRCRAFT EMPTY (6/6/91)	3,804.4	77.75	295,793.13
II.	EQUIPMENT REMOVED:			
1.	Texas Instruments TI-9100 Loran-C Receiver	6.0	50.0	300.0
2.	Texas Instruments 2480191-1 Loran-C Antenna	0.5	177.0	88.5
3.	Texas Instruments 2584544-1 Loran-C Preamplifier	1.0	191.0	191.0
4.	Texas Instruments 279985-1 Autopilot Coupler	0.4	46.0	18.4
III.	EQUIPMENT INSTALLED:			
1.	Bendix/King KLN-88 Loran-C Receiver	6.2	51.0	316.2
2.	Bendix/King KA-83 Loran-C Antenna	0.6	177.0	106.2
3.	Bendix/King 031-00535-0036 Status Annunciator	0.1	59.0	5.9
~~4.~~	~~N.A.T. AA80-001 Audio Intercom~~	~~0.7~~	~~57.0~~	~~39.9~~
IV.	New Aircraft Empty Weight - Arm - Moment	3,804.1	77.7	295,663.4

Removed 3-12-98

Aircraft Gross Weight (ramp	5,400.0	lbs.
New Aircraft Empty Weight	3,804.1	lbs.
New Aircraft Empty Wt. C.G	77.7	inches
New Aircraft E.W. Moment	295,663.4	in. lbs.
New Aircraft Useful Load	1,595.9	lbs.

Aircraft Weight/Balance calculated by:
Palm Beach Avionics, Inc.
3950 Airport Road
Boca Raton, FL 33431
FAA CRS MI4R363M

Consult the Pilot's Operating Handbook for proper aircraft loading prior to flight.

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Approved
OMB No. 2120-0020

FOR FAA USE ONLY
OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9 - 1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed $1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. AIRCRAFT	MAKE: BEECHCRAFT	MODEL: B-58
	SERIAL NO: TH-1318	NATIONALITY AND REGISTRATION MARK: N6188M
2. OWNER	NAME (As shown on registration certificate): CORNERSTONE AIR LLC	ADDRESS (As shown on registration certificate): 815 MERRY CT WINSTON-SALEM, NC 27106-5752

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION / **5. TYPE**

UNIT	MAKE	MODEL	SERIAL NO.	5. REPAIR	5. ALTERATION
AIRFRAME	(As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE / MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
PIEDMONT AVIATION SERVICES, INC. P.O. BOX 525 WINSTON-SALEM, N.C. 27102	[ ] U.S. CERTIFICATED MECHANIC [ ] FOREIGN CERTIFICATED MECHANIC [X] CERTIFICATED REPAIR STATION [ ] MANUFACTURER	PAIR208A

D. I certify that the repair and / or alteration made to the unit (s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE	SIGNATURE OF AUTHORIZED INDIVIDUAL
MARCH 12,1998	Brian A. [illegible]

7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is [X] APPROVED [ ] REJECTED

BY							OTHER (Specify)
	[ ]	FAA FLT. STANDARDS INSPECTOR	[ ]	MANUFACTURER	[ ]	INSPECTION AUTHORIZATION	
	[ ]	FAA DESIGNEE	[X]	REPAIR STATION	[ ]	CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR REJECTION	CERTIFICATE OR DESIGNATION NO.	SIGNATURE OF AUTHORIZED INDIVIDUAL
MARCH 12,1998	PAIR208A	Todd W. [illegible]

FAA Form 337 (12-88) (8320)

Criptografia: Fred Mesquita

NOTICE

Weight and Balance or operation limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatatible with all previous to assure continued conformity with the application airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with air craft nationality and registration mark and date work completed.)

MARCH 12,1998

EQUIPMENT REMOVED:
NORTHERN AIRBORNE TECHNOLOGY AA80-001 FOUR PLACE INTERCOM AT FLIGHT STATION NUMBER 57.00.

EQUIPMENT INSTALLED:
NORTHERN AIRBORNE TECHNOLOGY AA85-001 SIX PLACE INTERCOM P/N AA85-001 AT FLIGHT STATION NUMBER 57.00. REFERENCE N.A.T. INSTALLATION MANUAL REV. 2.1 DATED JUNE, 1993.

PROPER OPERATION WAS CONFIRMED THROUGH THE SYSTEM CHECKOUT SECTION OF THE INSTALLATION MANUAL.

ALL WORK WAS PERFORMED IN ACCORDANCE WITH AC43.13-2A FIGURE 2.1. NO ELECTROMAGNETIC INTERFERENCE WAS NOTED BY THE EQUIPMENT INSTALLED OR BY THE EXISTING EQUIPMENT DURING GROUND OPERATIONAL CHECKS.

WEIGHT AND BALANCE CHANGE NEGLIGIBLE, EQUIPMENT LIST REVISED, AND LOG BOOK ENTRY MADE. REFERENCE PASI W.O. #A3545.

☐ ADDITIONAL SHEETS ARE ATTACHED

* U.S. GOVERMENT PRINTING OFFICE: 1977-771-021/344

Criptografia: Fred Mesquita

J A Air Center
DuPage Airport
West Chicago, Il 60185

Minor Alterations

DATE: June 19, 1995
OWNER: Richard Dewoskin
ADDRESS 77 Whittington Course
St. Charles IL 60174

AIRCRAFT MAKE: Beechcraft
YEAR: 1982
MODEL: 58
SERIAL NO.: TH-1318
REG. NO' N6188M

DESCRIPTION OF WORK:

Aircraft weighed with full fuel.

SUPERCEDED 9/17/04

ITEM	WEIGHT	ARM	MOMENT
OLD AIRCRAFT EMTY WEIGHT:			
Nose wheel	807.00	-10.3	-8312.10
LH main wheel	2134.00	96.7	206357.80
RH main wheel	2168.00	96.7	209645.60
Useable fuel	(1164.00)	83.67	(97391.88)
	3945.00		310299.42

AIRCRAFT GROSS WEIGHT: 5400.00
NEW A/C EMTY WEIGHT: 3945.00
NEW A/C E.W.C.G.: 78.65
NEW A/C USEFULL LOAD: 1455.00

FAA REPAIR STATION NO. NF2R029L CLASS III
SIGNATURE
PAGE 1 OF 1 PAGES
Chief Inspector

Criptografia: Fred Mesquita

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Criptografia: Fred Mesquita

BFGoodrich
AIRCRAFT SERVICE CENTER
Akron-Canton Reginal Airport
North Canton, Ohio 44720

216-784-5477
216-494-4447

Certified Repair Station #1524

MINOR ALTERATIONS

MAKE: Beech DATE: 10-2-85 REGISTRATION NO. N6188M

MODEL 58 TACH: 1315.0 SERIAL NUMBER: TH-1318

REGISTERED OWNER: Smith Stockton N

OWNER'S ADDRESS: 409 Susan Constant Drive
Virginia Beach VA 23451

DESCRIPTION OF WORK ACCOMPLISHED: Installed pneumatic surface deicer boots and system kit.

ITEM	WEIGHT	ARM	MOMENT
A/C Empty weight	3756.00	77.40	290868.60
Deicer system kit	26.93	123.24	3318.81
NEW	3782.93	77.77	294187.41

A/C Empty weight taken from weighing sheet dated 12-84

NEW AIRCRAFT EMPTY WEIGHT - 3782.93

NEW AIRCRAFT EMPTY WEIGHT C/G - 77.77

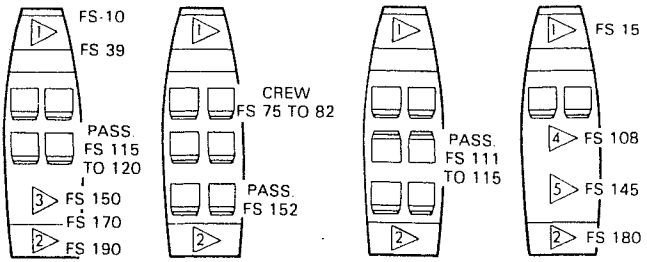
NEW USEFUL LOAD - 1617.07

SUPERSEDED 4-13-89

WORK ORDER NO. 1723

Criptografia: Fred Mesquita

SEATING, BAGGAGE AND EQUIPMENT ARRANGEMENTS



NOTE

The floor structure load limit is 100 pounds per square foot, except for the area between the front and rear spars, where the floor structure load limit is 50 pounds per square foot.

1. MAXIMUM WEIGHT 300 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
2. MAXIMUM WEIGHT 120 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
3. MAXIMUM WEIGHT 400 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
4. MAXIMUM WEIGHT 200 POUNDS FORWARD OF REAR SPAR INCLUDING EQUIPMENT AND CARGO WITH 3rd and 4th SEATS REMOVED. ALL CARGO MUST BE SECURED WITH APPROVED CARGO RETENTION NETS.
5. MAXIMUM WEIGHT 400 POUNDS AFT OF REAR SPAR INCLUDING EQUIPMENT AND CARGO WITH 3rd, 4th, 5th and 6th SEATS REMOVED.

LOADING INSTRUCTIONS

It is the responsibility of the airplane operator to ensure that the airplane is properly loaded. At the time of delivery, Beech Aircraft Corporation provides the necessary weight and balance data to compute individual loadings. All subsequent changes in airplane weight and balance are the responsibility of the airplane owner and/or operator.

The empty weight and moment of the airplane at the time of delivery are shown on the airplane Empty Weight and Balance form. Useful load items which may be loaded into the airplane are shown on the Useful Load Weight and Moment tables. The minimum and maximum moments are indicated on the Moment Limits vs Weight table. These moments correspond to the forward and aft center of gravity flight limits for a particular weight. All moments are divided by 100 to simplify computations.

MOMENT LIMITS vs WEIGHT

Moment limits are based on the following weight and center of gravity limit data (landing gear down).

WEIGHT CONDITION	FORWARD CG LIMIT	AFT CG LIMIT
5400 lb. (58 max. take-off or landing)	78.0	86.0
4990 lb. (58A max. take-off or landing)	76.6	86.0
4200 lb. or less	74.0	86.0

Weight	Minimum Moment 100	Maximum Moment 100
3400	2516	2924
3425	2535	2946
3450	2553	2967
3475	2572	2989
3500	2590	3010
3525	2609	3032
3550	2627	3053
3575	2646	3075
3600	2664	3096
3625	2683	3118
3650	2701	3139
3675	2720	3161
3700	2738	3182
3725	2757	3204
3750	2775	3225
3775	2794	3247
3800	2812	3268
3825	2831	3290
3850	2849	3311
3875	2868	3333
3900	2886	3354
3925	2905	3376
3950	2923	3397
3975	2942	3419
4000	2960	3440
4025	2979	3462
4050	2997	3483
4075	3016	3505

MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
4100	3034	3526
4125	3053	3548
4150	3071	3569
4175	3090	3591
4200	3108	3612
4225	3130	3634
4250	3152	3655
4275	3174	3677
4300	3196	3698
4325	3218	3720
4350	3240	3741
4375	3263	3763
4400	3285	3784
4425	3308	3806
4450	3330	3827
4475	3352	3849
4500	3374	3870
4525	3398	3892
4550	3420	3913
4575	3442	3935
4600	3465	3956
4625	3488	3978
4650	3510	3999
4675	3534	4021
4700	3556	4042
4725	3579	4064
4750	3602	4085
4775	3625	4107

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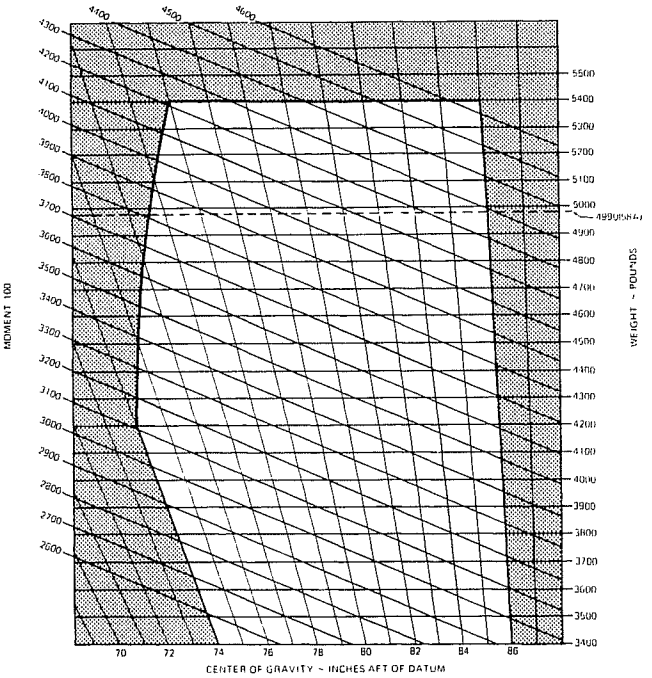
MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment / 100	Maximum Moment / 100
4800	3648	4128
4825	3671	4150
4850	3694	4171
4875	3717	4193
4900	3740	4214
4925	3764	4236
4950	3786	4257
4975	3810	4279
4990	3824	4291
5000	3833	4300
5025	3856	4322
5050	3880	4343
5075	3904	4365
5100	3926	4386
5125	3950	4408
5150	3974	4429
5175	3998	4451
5200	4021	4472
5225	4045	4494
5250	4068	4515
5275	4092	4537
5300	4116	4558
5325	4140	4580
5350	4164	4601
5375	4188	4622
5400	4212	4644

Criptografia: Fred Mesquita

MOMENT LIMITS vs WEIGHT



ENVELOPE BASED ON THE FOLLOWING WEIGHT AND CENTER OF GRAVITY LIMIT DATA (LANDING GEAR DOWN)

BARON 58

WEIGHT CONDITION	FORWARD C.G. LIMIT	AFT C.G. LIMIT
5400 LBS (MAXIMUM TAKE OFF OR LANDING)	78.0	86.0
4200 LBS	74.0	86.0

BARON 58A

WEIGHT CONDITION	FORWARD C.G. LIMIT	AFT C.G. LIMIT
4990 LBS (MAXIMUM TAKE OFF OR LANDING)	76.6	86.0
4200 LBS	74.0	86.0

COMPUTING PROCEDURE

1. Record the Basic Empty Weight and Moment from the Basic Empty Weight and Balance form (or from the latest superseding form) under the Basic Empty Condition block. The moment must be divided by 100 to correspond to Useful Load Weights and Moments tables.

2. Record the weight and corresponding moment from the appropriate table of each of the useful load items (except fuel) to be carried in the airplane.

3. Total the weight column and moment column. The SUB-TOTAL is the Zero Fuel Condition.

4. Determine the weight and corresponding moment for the fuel loading to be used. This fuel loading includes fuel for the flight, plus that required for start, taxi, and take-off. Add the Fuel to Zero Fuel Condition to obtain the SUB-TOTAL Ramp Condition.

5. Subtract the fuel to be used for start and taxi to arrive at the SUB-TOTAL Take-off Condition.

6. Subtract the weight and moment of the fuel to be used from the take-off weight and moment. (Determine the weight and moment of this fuel by subtracting the amount on board on landing from the amount on board on take-off.) The Zero Fuel Condition, the Take-Off Condition, and the Landing Condition moment must be within the minimum and maximum moments shown on the Moment Limit vs Weight table for that weight. If the total moment is less than the minimum moment allowed, useful load items must be shifted aft or forward load items reduced. If the total moment is greater than the maximum moment allowed, useful load items must be shifted forward or aft load items reduced. If the quantity or location of load items is changed, the calculations must be revised and the moments rechecked.

The following Sample Loading chart is presented to depict the sample method of computing a load. Weights used DO NOT reflect an actual airplane loading.

WEIGHT AND BALANCE LOADING FORM

BARON 58 **DATE** _____

SERIAL NO. TH-XXXX **REG NO.** NXXX

ITEM	WEIGHT	MOM/100
1. BASIC EMPTY CONDITION	3517	2763
2. FRONT SEAT OCCUPANTS	340	256
3. 3rd and 4th SEAT OCCUPANTS FWD FACING	-	-
4. 3rd and 4th SEAT OCCUPANTS AFT FACING	340	378
5. 5th and 6th SEAT OCCUPANTS	170	258
6. NOSE BAGGAGE	61	9
7. AFT BAGGAGE	-	-
8. CARGO	-	-
9. SUB TOTAL ZERO FUEL CONDITION	4428	3664
10. FUEL LOADING (166 GAL)	996	824
11. SUB TOTAL RAMP CONDITION	5424	4488
12. *LESS FUEL FOR START, TAXI, AND TAKE-OFF	-24	-20
13. SUB TOTAL TAKE-OFF CONDITION	5400	4468
14. LESS FUEL TO DESTINATION (142 GAL)	-852	-712
15. LANDING CONDITION	4548	3756

*Fuel for start, taxi and take-off is normally 24 lbs at an average mom/100 of 20.

WEIGHT AND BALANCE LOADING FORM

BARON _____ DATE _____

SERIAL NO. _____ REG NO. _____

ITEM	WEIGHT	MOM/100
1. BASIC EMPTY CONDITION		
2. FRONT SEAT OCCUPANTS		
3. 3rd and 4th SEAT OCCUPANTS FWD FACING		
4. 3rd and 4th SEAT OCCUPANTS AFT FACING		
5. 5th and 6th SEAT OCCUPANTS		
6. NOSE BAGGAGE		
7. AFT BAGGAGE		
8. CARGO		
9. SUB TOTAL ZERO FUEL CONDITION		
10. FUEL LOADING		
11. SUB TOTAL RAMP CONDITION		
12. *LESS FUEL FOR START, TAXI, AND TAKE-OFF		
13. SUB TOTAL TAKE-OFF CONDITION		
14. LESS FUEL TO DESTINATION		
15. LANDING CONDITION		

*Fuel for start, taxi and take-off is normally 24 lbs at an average mom/100 of 20.

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USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

	Front Seats		Standard Seating 3rd and 4th Fwd Facing		Club Seating 3rd and 4th Aft Facing		5th and 6th Seats
	Fwd Position	Aft Position	Fwd Position	Aft Position	Fwd Position	Aft Position	Standard or Club Seating
WEIGHT	ARM 75	ARM 82	ARM 115	ARM 120	ARM 111	ARM 115	ARM 152
	MOM/100						
100	75	82	115	120	111	115	152
110	82	90	126	132	122	126	167
120	90	98	138	144	133	138	182
130	98	106	150	156	144	150	198
140	105	114	161	168	155	161	212
150	112	123	172	180	166	172	228
160	120	131	184	192	178	184	243
170	128	139	196	204	188	196	258
180	135	148	207	216	200	207	274
190	142	156	218	228	210	218	288
200	150	164	230	240	222	230	304

NOTE: OCCUPANT POSITIONS SHOWN ARE FOR THE SEATS ADJUSTED THE MAXIMUM RANGE. INTERMEDIATE POSITIONS WILL REQUIRE INTERPOLATION OF THE MOM/100 VALUES.

Criptografia: Fred Mesquita
Criptografia: Fred Mesquita

BAGGAGE

Weight	NOSE COMPT	REAR FS 131 TO 170	AFT FS 170 TO 190
	ARM 15	ARM 150	ARM 180
	Mom/100	Mom/100	Mom/100
10	2	15	18
20	3	30	36
30	5	45	54
40	6	60	72
50	8	75	90
60	9	90	108
70	11	105	126
80	12	120	144
90	14	135	162
100	15	150	180
110	17	165	198
120	18	180	216
130	20	195	
140	21	210	
150	23	225	
160	24	240	
170	26	255	
180	27	270	
190	29	285	
200	30	300	
220	33	330	
240	37	360	
260	39	390	
280	42	420	
300	45	450	
320		480	
340		510	
360		540	
380		570	
400		600	

CARGO
FWD OF SPAR
(CENTER SEATS REMOVED)
ARM 108

Weight	Moment 100	Weight	Moment 100
10	11	110	119
20	22	120	130
30	32	130	140
40	43	140	151
50	54	150	162
60	65	160	173
70	76	170	184
80	86	180	194
90	97	190	205
100	108	200	216

CARGO
AFT OF SPAR
(CENTER & AFT SEATS REMOVED)
ARM 145

Weight	Moment 100	Weight	Moment 100
10	15	150	218
20	29	160	232
30	44	170	247
40	58	180	261
50	73	190	276
60	87	200	290
70	102	210	305
80	116	220	319
90	131	230	334
100	145	240	348
110	160	250	363
120	174	260	377
130	189	270	392
140	203	280	406

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Weight	Moment 100	Weight	Moment 100
290	421	350	508
300	435	360	522
310	450	370	537
320	464	380	551
330	479	390	566
340	493	400	580

USABLE FUEL

		136 GAL	166 GAL	194 GAL
Gallons	Weight	Mom/100		
10	60	46	46	46
20	120	92	92	92
30	180	140	140	140
40	240	189	189	189
50	300	238	238	238
60	360	288	288	288
70	420	338	338	338
80	480	388	388	388
90	540	439	439	439
100	600	489	489	489
110	660	539	539	539
120	720	590	590	590
130	780	641	641	641
136	816	671		
140	840		692	692
150	900		743	743
160	960		793	793
166	996		824	
170	1020			845
180	1080			899
190	1140			953
194	1164			974

Criptografia: Fred Mesquita

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US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
For FAA Use Only
Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed $1,000 for each violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft

Make	Model
BEECH	58
Serial No.	**Nationality and Registration Mark**
TH-1318	U.S.A. N6188M

2. Owner

Name *(As shown on registration certificate)*	Address *(As shown on registration certificate)*
SMITH, STOCKTON N.	Rte. 5, Box 427B Charlottesville, VA 22901

3. For FAA Use Only

4. Unit Identification / **5. Type**

	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	********** *(As described in Item 1 above)* **********				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type / Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
SUMMIT AVIATION, INC. SUMMIT AIRPORT MIDDLETOWN, DE 19709	U.S. Certificated Mechanic Foreign Certificated Mechanic X Certificated Repair Station Manufacturer	SMTR208I AIRFRAME CLASS 3

D. I certify that the repair and/or alteration made to the unit(s) identified in Item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information contained herein is true and correct to the best of my knowledge.

Date	Signature of Authorized Individual
JUNE 6, 1991	Billy J. Wheeler

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in Item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY						
	FAA Flt. Standards Inspector		Manufacturer		Inspection Authorization	Other *(Specify)*
	FAA Designee	X	Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection	Certificate or Designation No.	Signature of Authorized Individual
June 6, 1991	SMTR208I	Billy J. Wheeler

FAA Form 337 (4-87)

NOTICE

Weight and balance data and the equipment list shall be entered in the appropriate aircraft record. Any alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

6. Description of Work Accomplished
(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

A. Installed The Following Equipment/Components:

1. King KAS297 Altitude Selector, P/N 065-0046-02, Serial 2951.
2. King KEA346 Servo Altimeter, P/N 066-3062-00, Serial 1146.

B. Installation is an option to previously installed King KFC200 Flight Control System in accordance with STC SA 1134CE.

C. Installation of optional KFC200 System Altitude Selector was accomplished in accordance with STC SA1523CE-D and King Master Drawing List 155-9137-00 Rev. 6, dated January 6, 1984 and System Interconnect Drawing No. 155-9136-01, Rev. 3 and King Installation Manual No. 006-0200-01, Rev. 6, dated January 6, 1984.

D. King Flight Manual Supplement No. 006-0424-03 has been placed in Supplement Section of Pilot's Operating Handbook/FAA approved Airplane Flight Manual.

E. Aircraft is equipped with a standard barometric altimeter and must remain in aircraft while equipped with optional KFC200 System Altitude Selector.

F. Aircraft static system leak checked in accordance with FAR 43, Appendix E and altimeter/transponder correlation check in accordance with FAR 43, Appendix F.

G. Aircraft electrical load analysis complied with in accordance with AC43.13-1A, Chapter Eleven, Section 2.

H. Aircraft Equipment List and Weight and Balance revised.

---------- END ----------

☐ Additional Sheets Are Attached

United States of America
Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA1523CE-D

This certificate, issued to King Radio Corporation
400 N. Rogers Road
Olathe, Kansas 66062

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

Original Product—Type Certificate Number: 3A16
Make: Beech
Model: 95-55, 95-A55, 95-B55, 95-B55A, 95-C55, D55, E55, E55A, 56, 56A

Description of Type Design Change:
Installation of the King Model KAS 297 Altitude Selector Option in airplanes equipped with the KFC 200 Flight Control System with Flight Director. REQUIRED DATA: King Master Drawing List 155-9137-00, Rev. 2, dated 2-13-80 or later FAA approved revision.

Limitations and Conditions: The airplane must have the KFC 200 Flight Control System with Flight Director installed in accordance with STC SA1134CE or SA1781CE-D. This approval should not be extended to other specific airplanes of this model on which other previously approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that airplane.

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

Date of application: 10-9-79
Date issuance: 12-21-79
Date reissued:
Date amended: 1-14-80, 2-13-80, 3-27-80, 11-5-82, 1-12-84

By direction of the Administrator

(Signature)

Ralph V. Cole
Coordinator, DAS4CE
(Title)

Any violation 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.

FAA Form 8110-2 (10-68)

Criptografia: Fred Mesquita

FLIGHT EXPRESS

Initial and Recurrent
Flight Training Handbook

Beechcraft 58 Baron

2003 revision 2

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To prepare for Baron training:

- READ THE POH!
- Read this handbook.
- Complete the Baron take-home self-test (*available online*).
- Review general information on instrument, commercial and in particular multi-engine flying.
- Sit in a Baron, if one is available, to familiarize yourself with the cockpit layout.

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Part I. – Introduction to the Baron Fleet

Flight Express operates model E55 and 58 Beechcraft Barons. This is a list of all the Barons we have on line as of February 2003. **(The information contained in this list is subject to constant change and is presented here for training purposes only.)**

Registration number	Model	De-ice or Anti-ice Equipment	Known-Ice Approved?
N103GA	58	boots	NO
N112BS	58	boots	NO
N112KB	58	boots	NO
N159TH	58	TKS	YES
N18447	58	boots	NO
N1888W	58	boots	NO
N225TA	58	TKS	YES
N258TJ	58	TKS	YES
N31T	58	TKS	YES
N329H	58	none	NO
N4099S	E55	TKS	YES
N4174S	58	boots	NO
N4492F	E55	TKS	YES
N4626A	58	boots	NO
N4675S	58	TKS	YES
N46US	58	boots	NO
N6BW	58	TKS	YES
N703MC	E55	none	NO
N752P	58	none	NO
N796Q	58	boots	NO
N80AC	58	TKS	YES
N8195R	58	boots	NO
N9098Q	58	TKS	YES
N93DF	58	TKS	YES
N950JP	58	boots	NO
N955HE	58	none	NO

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Refer to the fleet table on the previous page to answer the following study questions.

1. How many Barons do we have?
2. How many *known-ice approved* Barons do we have?
3. How many TKS-equipped Barons do we have?
4. How many booted Barons do we have?
5. How many booted, *known-ice approved* Barons do we have?
6. How many model E55 Barons do we have?
7. How many model 58 Barons do we have?

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Part II. – Weight & Balance and Load Limits

Multi-engine airplanes are inherently more sensitive to lateral and longitudinal movement of the center of gravity. Federal Aviation Regulations reflect this:

§135.185 Empty weight and center of gravity: Currency requirement.

(a) No person may operate a multiengine aircraft unless the current empty weight and center of gravity are calculated from values established by actual weighing of the aircraft within the preceding 36 calendar months.

§135.63 Recordkeeping requirements.

(c) For multiengine aircraft, each certificate holder is responsible for the preparation and accuracy of a load manifest in duplicate containing information concerning the loading of the aircraft. The manifest must be prepared before each takeoff and must include:

(1) The total number of passengers;
(2) The total weight of the loaded aircraft;
(3) The maximum allowable takeoff weight for that flight;
(4) The center of gravity limits;
(5) The center of gravity of the loaded aircraft, except that the actual center of gravity need not be computed if the aircraft is loaded according to a loading schedule or other approved method that ensures that the center of gravity of the loaded aircraft is within approved limits. In those cases, an entry shall be made on the manifest indicating that the center of gravity is within limits according to a loading schedule or other approved method;
(6) The registration number of the aircraft or flight number;
(7) The origin and destination; and
(8) Identification of crew members and their crew position assignments.

(d) The pilot in command of an aircraft for which a load manifest must be prepared shall carry a copy of the completed load manifest in the aircraft to its destination. The certificate holder shall keep copies of completed load manifests for at least 30 days at its principal operations base, or at another location used by it and approved by the Administrator.

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Refer to the two regulations on the previous page to answer the following study questions.

1. How often does each Baron in the fleet have to be re-weighed?

2. How many copies of the multi-engine load manifest must be prepared?

3. What eight things must each copy of the multi-engine load manifest contain?
   (1)
   (2)
   (3)
   (4)
   (5)
   (6)
   (7)
   (8)

4. Does the pilot in command of an aircraft for which a load manifest must be prepared actually have to carry a copy of the completed load manifest in the aircraft to its destination?

5. For how at least how long does a copy of the load manifest have to be kept on file?

6. Where does it have to be kept?

7. **§135.63** requires that the load manifest be filled out in duplicate, but does it actually specify what must be done with the *second* copy?

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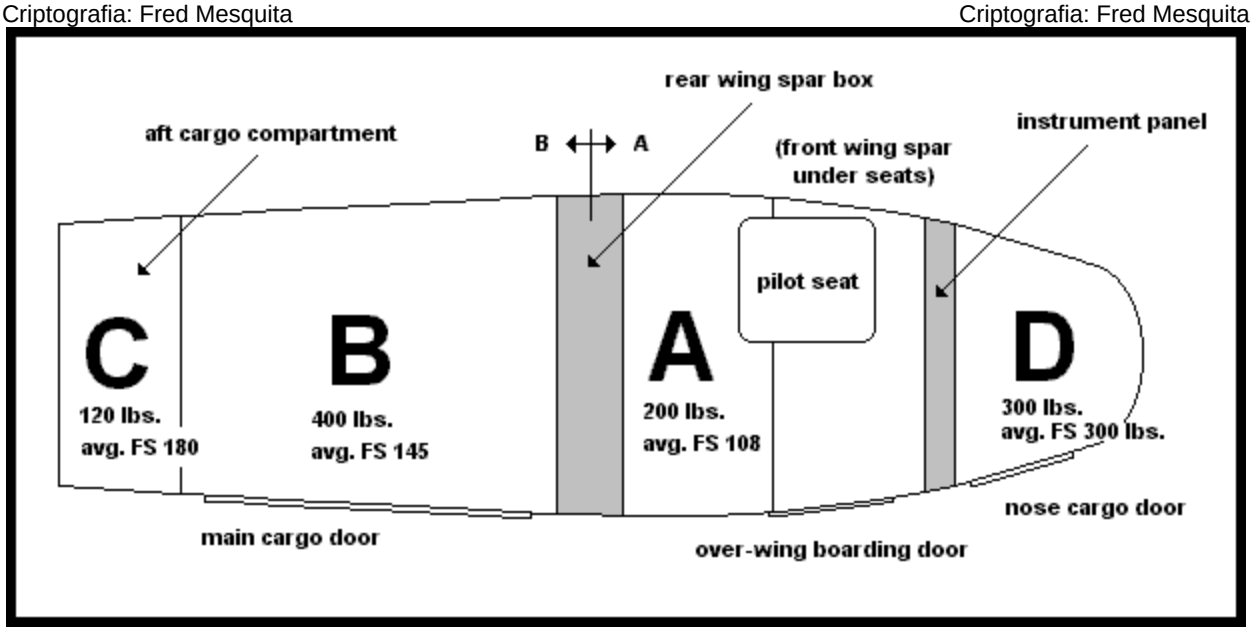

1. The diagram above is not exactly to scale.

2. "Average FS" means ***average fuselage station***, as measured in inches from the datum plane. For example, the average fuselage station for cargo area C (the aft cargo compartment) is 180. Cargo area C extends from FS 170 (170 inches aft of the datum plane) to FS 190 (190 inches aft of the datum plane).

3. All cargo in areas A and B must be fully secured using the cargo net so that it cannot shift under all normally anticipated flight conditions. (§135.87)

4. All cargo in area C must be secured behind the webbing retainer to prevent it from falling into area B.

5. Area D (in the nose) is an approved baggage compartment and so cargo placed there does not have to be tied down.

6. The weight limits for each area are *maximum structural capacities only*, meaning that they pertain to the strength of the deck and *not* to the center of gravity. It is possible to load the airplane within the limits for each area but still be outside the CG limits. It is also possible to load the airplane within the CG limits but exceed the maximum structural capacity for one or more of the cargo areas.

7. The maximum structural capacity for the deck is 100 pounds per square foot, *except* for the area between the front and rear spars, where the maximum structural capacity is only 50 pounds per square foot.

8. The dividing line between areas A and B crosses the rear wing spar box.

9. It is usually impossible to carry a full cargo load *and* a full fuel load; achieving the maximum possible useful load may require going with reduced fuel. Conversely, going with full fuel usually greatly reduces useful load.

10. Exceeding CG limits or maximum gross takeoff weight limits can be extremely dangerous, particularly in terms of the pilot's ability to deal with an engine failure, ice encounter, stall, unusual attitude or other emergency.

MAXIMUM RAMP WEIGHT:	**5,424 lbs.**
MAXIMUM TAKEOFF WEIGHT:	**5,400 lbs.**

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Refer to the table and facts on the previous page to answer the following study questions.

1. How much weight can be placed in cargo area A?

2. How much weight can be placed in cargo area B?

3. How much weight can be placed in cargo area C?

4. How much weight can be placed in cargo area D?

5. Where is cargo area A?

6. Where is cargo area B?

7. Where is cargo area C?

8. Where is cargo area D?

9. What is the only area in which cargo does *not* have to be secured using straps or netting?

10. The weight limits for each area:
    (A) are maximum structural capacities; they pertain to the strength of the deck.
    (B) are center-of-gravity limits; they ensure that the airplane is within its moment envelope.

11. The maximum structural capacity for the deck is _____ pounds per square foot, *except* for the area between the front and rear spars, where the maximum structural capacity is only _____ pounds per square foot.

12. True or false: It is almost always possible to carry a full load of fuel and a full load of cargo in a 58 Baron.

_____

13. Exceeding CG limits or maximum gross takeoff weight limits:
    (A) will make takeoff impossible.
    (B) will not necessarily make takeoff impossible, but will put the airplane in an extremely dangerous position in the event of an engine failure, ice encounter, stall, unusual attitude or other emergency.

14. What is the maximum *ramp* weight?

14. What is the maximum *takeoff* weight?

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Part III. – Managing the Baron's Engines in Operations

In 1966 Beechcraft introduced the C55 model, which was the first to use the **Continental IO-520-C** powerplant. This engine was rated to produce what **285** horsepower. The E55 and 58 model Barons – which are the ones we use – first appeared in the year **1970**.

Induction air for the engine was available from either **filtered ram air** or **unfiltered alternate air**. (In our airplanes, the pilot cannot select unfiltered alternate air.) Alternate air will still be supplied to the engine **automatically through a spring-loaded door if the normal air intake becomes obstructed** by a blockage (such as ice).

When operating in conditions conducive to the development of an air filter blockage, **a drop in manifold pressure** is a sign or symptom that the pilot might observe to indicate that one has occurred.

STUDY QUESTIONS

1. In 1966 Beechcraft introduced the C55 model, which was the first to use what make and model of engine?

2. This engine was rated to produce what horsepower?

3. The E55 and 58 model Barons – which are the ones we use – first appeared in what year?

4. Induction air for the engine was available from what two sources?

5. Alternate air will be supplied to the engine when and how?

6. When operating in conditions conducive to the development of an air filter blockage, what sign or symptom might the pilot observe to indicate that one has occurred?

MIXTURE CONTROL AND LEANING PROCEDURES

From a pilot's point of view, probably the most important contributing factor to achieving long engine life and avoiding costly repairs is **control of the fuel-air ratio**. The "ideal" fuel-air ratio in terms of producing the maximum amount of heat during the combustion process – also known as peak cylinder head temperature -- is **15 pounds of air to 1 pound of fuel or 6⅔%**.

As the pilot *leans* the mixture beyond the peak cylinder head temperature, excess *air* will have an immediate **cooling** effect on the engine. Likewise, as the pilot *enriches* the mixture beyond the peak cylinder head temperature, excess *fuel* will also have an immediate **cooling** effect on the engine.

Best *power* is achieved at a mixture setting slightly **richer** than peak CHT. At best power, **airspeed** is maximized per pound of fuel burned.

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According to research, most engines actually do not *require* leaning below about **5,000 feet MSL!** Leaning too much or too fast can cause the engine to starve and stop running. What not enough pilots seem to realize, however, is that leaning too much or too fast can lead to three other very bad things well prior to reaching that point: **high temperatures, pre-ignition and detonation.**

Operating the engine with an excessively *rich* mixture setting, on the other hand, can lead to **high fuel consumption, ignition fouling, loss of power and engine roughness.** So the pilot's job is to find a balance between these two extremes. Two of the simple keys to finding this balance are *always to adjust the mixture slowly* and also *pay attention to the engine's behavior!*

Detonation occurs when the fuel-air mixture explodes suddenly instead of burning evenly and progressively in the cylinder. It is analogous to hitting the piston with a sledgehammer instead of pushing it down with your hand.

Three signs or symptoms may suggest that detonation is occurring (aside from the noise, which may be masked by normal engine, prop and wind sounds): **a slight loss of power, high cylinder heat temperature and high exhaust gas temperature.** If detonation is occurring, you may be only moments away from **complete engine failure!**

The uncontrolled firing of the mixture before the normal spark ignition point is called **pre-ignition.** It can lead to **excessive pressures within the engine.** Three of the principal causes of this problem are **glowing spark plug electrodes, valve faces or edges heated to incandescence and carbon or lead particles glowing within the cylinder.**

After climbing up to your cruising altitude and leveling off, you should always wait at least two minutes before you even begin to lean the mixture. This is because **it allows the engines to adjust to the higher airspeed and gives their temperatures a chance to stabilize.**

Moreover, while leaning, movement of the mixture control levers should be *extremely slow!* How slow? **If you stop moving the levers at any time, the needles of the exhaust gas temperature gauges should instantly freeze in position. If the needles continue to move, you were moving the levers too fast.**

The PRIMARY INSTRUMENT to which you should refer for proper mixture control is **the EGT gauge.** A SECONDARY INSTRUMENT you can use to back it up is **the fuel flow gauge.** (In Barons, the probe for the EGT gauge is installed **in the exhaust stack.**)

In general, the leaning process should be accomplished **in the cruise configuration at power settings of 75% or less.**

STUDY QUESTIONS

1. From a pilot's point of view, what is probably the most important contributing factor to achieving long engine life and avoiding costly repairs?

2. What is the "ideal" fuel-air ratio in terms of producing the maximum amount of heat during the combustion process, also known as peak cylinder head temperature?

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3. As the pilot *leans* the mixture beyond the peak cylinder head temperature, excess *air* will have what immediate effect on the engine?

4. As the pilot *enriches* the mixture beyond the peak cylinder head temperature, excess *fuel* will have what immediate effect on the engine?

5. Best *power* is achieved at a mixture setting slightly richer or slightly leaner than peak CHT?

6. At best power, what is maximized per pound of fuel burned?

7. Most engines do not require leaning below about what altitude?

8. Excessive leaning can lead to what three very bad things, prior to reaching the point where the engine actually starves and stops running?

9. What four very bad things can happen if the engine is operated at an excessively rich mixture setting?

10. What three signs or symptoms (aside from the noise, which may be masked by normal engine, prop and wind sounds) may suggest that detonation is occurring?

11. If detonation is occurring, you may be only moments away from what?

12. The uncontrolled firing of the mixture before the normal spark ignition point is called what?

13. The problem described in question #12 above can lead to what?

14. What are three of the principal causes of this problem?

15. After climbing up to your cruising altitude and leveling off, you should wait how long before even beginning to lean the mixture?

16. Why should you do this?

17. When leaning, movement of the mixture control levers should be *extremely slow!* How does the video suggest you confirm that you are moving them slowly enough?

18. What is the PRIMARY INSTRUMENT to which you should refer for proper mixture control?

19. What SECONDARY INSTRUMENT can you use to back it up?

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20. Where is the probe for the EGT gauge installed?

21. In general, the leaning process should be accomplished when?

Now that we have outlined some of the broad guidelines regarding mixture management, let's briefly discuss the official Flight Express company policy on this subject.

- The official Flight Express company policy on mixture management is a conservative compromise between **performance**, **engine longevity** and **fuel economy**.

- Cracked, melted or otherwise damaged valves, pistons, cylinders, pushrods etc. are very expensive and time-consuming to repair or replace. Good mixture management practices can help to dramatically reduce these costs.

- Poor mixture management practices can lead to engine damage and engine damage can lead to power failures. Power failures are something that we all want to avoid!

- First, do not lean the mixture *AT ALL* at or below 3,000 feet MSL. Just leave the mixture fully rich all the time below this altitude.

- At cruising altitudes above 3,000 feet MSL, *WAIT* at least two to five minutes before you even *start* to lean the mixture. Give the engine temperature a chance to stabilize first.

- When you do begin to lean, *LEAN SLOWLY*. If you stop moving the lever, the needle of the EGT gauge for that engine should instantly freeze. If it continues to climb after you have stopped moving the lever, you were moving the lever too fast.

- Lean until you identify the peak exhaust gas temperature. Then pause to allow the temperature (and temperature indications) to settle.

- Now enrich slowly and smoothly until you are operating at 100 degrees F cooler (richer) than peak EGT.

- When descending, maintain a normal cruise power setting (24" MP / 2,400 RPM) and a moderately higher airspeed if possible. Avoid steep, fast, diving descents at low power settings.

- During your cruise descent, slowly and smoothly enrich the mixture to compensate for increasing atmospheric density while slowly and smoothly retarding the throttle to maintain 24" MP.

- Plan your rate of enrichment so that you are operating at nearly fully rich by the time you reach about 3,000 feet MSL.

- **DO NOT** bring the mixture all the way forward all at once as you descend.

- **DO NOT** forget to enrich the mixture as you descend.

- **DO NOT** forget to reduce throttle as you descend.

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Most of our Barons, unfortunately, do not have EGT gauges. In an airplane without an EGT, use the following procedure.

1. Consult the cruise performance chart in section V of the POH to determine the expected fuel flow based on the altitude and conditions.

2. Lean until you are operating somewhere *between* best economy and maximum power for that power setting.

3. As always, be sure to lean ***SLOWLY*** and ***SMOOTHLY*** to avoid placing excessive thermal stress on the engine. Remember that repetitive thermal stress is *cumulative*. Eventually it can lead to a major failure.

For example, if you were cruising at an altitude of 4,000 feet on a STANDARD DAY, the POH gives the following values for the following power settings:

RPM	**MP**	**fuel flow**	
2500	24.5" Hg	96 PPH / 16.1 GPH per engine	(maximum power)
2300	24" Hg	84 PPH / 14.1 GPH per engine	
2300	21" Hg	72 PPH / 12 GPH per engine	
2100	20.5" Hg	64 PPH / 10.6 GPH per engine	(economy cruise power)

We operate with a cruise power setting of 24" Hg and 2,400 RPM. Therefore . . .

AFTER WAITING AT LEAST TWO MINUTES AFTER LEVELING OFF IN CRUISE you would begin to ***SLOWLY*** and ***SMOOTHLY*** lean the mixture until your fuel flow gauge indicated a flow rate well above 10.6 GPH but below 16.1 GPH. *When in doubt, try to err on the rich side.*

Running with an excessively rich mixture does not hurt the engine. In fact, it helps to keep it cool and extend its life. Running with an excessively lean mixture dramatically increases wear, however, and should be avoided. Rapid changes to the fuel-air ratio – *in either direction* – should likewise be avoided.

WARNING

Think about this: Did Beechcraft create the guidelines above for a private pilot who flies occasionally or for a large, full-time freight operator who flies all day and all night, week after week, month after month?

The POH figures for leaning are quite aggressive. *Again, when in doubt, always try to err on the rich side.* Being too rich won't hurt anything. Being too lean will.

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STUDY QUESTIONS

1. Our official company policy is a compromise between what three things?

2. Cracked, melted or otherwise damaged valves, pistons, cylinders, pushrods etc. are very expensive and time-consuming to repair or replace. What can help to dramatically reduce these costs?

3. Do not lean the mixture *AT ALL* at or below what MSL altitude?

4. At altitudes above that, at least how long should you wait before you even *start* the process of leaning the mixture?

5. How can you tell if you are leaning the mixture too fast?

6. After identifying the peak EGT, slowly and smoothly adjust the mixture to what setting?

7. When descending, what power setting should you maintain if possible?

8. What two things must you do during the descent to prevent temperatures and pressures in the engine from changing too much or too fast?

9. You should plan your rate of enrichment so that you are operating at nearly fully rich by the time you reach about what altitude?

10. What three things should you *avoid* doing in the descent?

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Part IV – Flight Express Company Flows, Procedures and Checklists

(Lists of numbered items are ***flows***. A flow is a memorized series of immediate action items.)

CLEARED ONTO THE RUNWAY ("Lights, camera, action.")

1. Strobe lights – ON
2. Taxi and landing lights – ON
3. Transponder – MODE C
4. Wing flaps – UP
5. Cowl flaps – OPEN
6. Fuel – BOTH SIDES ON

CLIMB

1. Mixtures – RICH
2. Props – 2500 RPM
3. Throttles – 25" MP (or full, whichever is less)
4. Wing flaps – UP
5. Gear – UP
6. Lights – as needed (usually ON)
7. Cowl flaps – OPEN

(*No checklist.*)

CRUISE

1. Mixtures – TO DO (*See below.*)
2. Props – 2400 RPM
3. Throttles – 24" MP (or full, whichever is less)
4. Wing flaps – UP
5. Gear – UP
6. Lights – as needed (usually OFF)
7. Cowl flaps – CLOSED

(*Now refer to the CRUISE checklist. Read through it carefully* ***out loud***.)

After completing the CRUISE checklist, lean . . .
☞ **SLOWLY** ☜
and
☞ **CONSERVATIVELY** ☜
and
ONLY AFTER AT LEAST 2 MINUTES FROM THE TIME YOU LEVELED OFF.

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IN-RANGE

1. Mixtures – ENRICH SMOOTHLY AND GRADUALLY THROUGHOUT DESCENT.
2. Props – 2400 RPM
3. Throttles – 17" MP (until slowed to desired instrument or initial visual approach speed.)
4. Wing flaps – APPROACH
5. Gear – TO DO
6. Lights – as needed
7. Cowl flaps – CLOSED

(*Now refer to the IN-RANGE checklist. Read through it carefully* ***out loud****.*)

TBGUMPSS HR

1. Time – START at FAF
2. Brakes – CHECK
3. Gas – BOTH SIDES ON
4. Undercarriage – DOWN
5. Mixtures – RICH
6. Props – FORWARD
7. Switches – lights on or off as needed, including pilot-controlled airport lights, if applicable
8. Seatbelts – ADJUSTED AND SECURE

9. Heater – OFF
10. Radar – OFF

(*This is the same as the printed checklist* ***if done properly!***)

AFTER LANDING ("Lights, camera, action-action.")

- **DO NOT CLEAN UP THE AIRPLANE UNTIL YOU COME TO A COMPLETE STOP CLEAR OF THE RUNWAY!**
- **KEEP THE YOKE PULLED TO THE FULL-AFT POSITION UNTIL YOU COME TO A COMPLETE STOP CLEAR OF THE RUNWAY!**

1. Strobe lights – OFF
2. Taxi, landing and nav lights – as needed
3. Transponder – STANDBY
4. Wing flaps – UP
5. Cowl flaps – OPEN

(*Now refer to the AFTER LANDING checklist. Read through it carefully* ***out loud****.*)

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PRE-MANEUVER

Clearing turns – ASK INSTRUCTOR
Mixtures – RICH
Props – FORWARD
Throttles – 17" MP
Wing flaps – UP or APPROACH depending upon maneuver
Gear – UP or DOWN depending upon maneuver
Landing lights – ON Cowl flaps – OPEN
(*No checklist.*)

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ENGINE FAILURE IN FLIGHT

Fly the airplane! Maintain control!

1. Mixtures – FORWARD
2. Props – FORWARD
3. Throttles – FORWARD
4. Wing flaps – UP
5. Gear – UP
6. Identify – DEAD FOOT, DEAD ENGINE
   (Say **"LEFT"** or **"RIGHT"** each time.)
7. Verify – CAUTIOUSLY RETARD THROTTLE ON SUSPECT SIDE
   (Say **"LEFT"** or **"RIGHT"** each time.)
8. Feather – CAUTIOUSLY RETARD PROP ON SUSPECT SIDE
   (Say **"LEFT"** or **"RIGHT"** each time.)
9. Stabilize – Maintain airspeed, altitude and heading.

10. *Save – Retard power on good engine side.
    Pull prop back to 2400 RPM on good engine side.
    Open cowl flaps on good engine side.
11. *Secure – (*If applicable. Use your checklist.*)
12. *Crossfeed – (*If applicable. Use checklist.*)

*Only do this if performance allows. In the terminal area, you may elect to skip 9, 10 and 11.

UN-CROSSFEED AND AIR START

(*Checklist only, and not in the terminal area*.)

ENGINE FIRE ON THE GROUND

1. Starter – Contintue to operate on the affected side.
2. Mixtures – IDLE CUTOFF
3. Fuel Selectors – OFF
4. Battery and alternator switches – OFF

ENGINE FIRE IN FLIGHT / EMERGENCY DESCENT ("Right to left to right")

1. AFFECTED mixture – CLOSED
2. Throttles – CLOSED
3. Propellers – FORWARD
4. Airspeed – Dive hard to achieve 152 KIAS
5. Flaps – APPROACH
6. Gear – DOWN
7. Maintain 152 knots. This will require a steep nose-down attitude.

Note: This is a dramatic high-speed maneuver. Practice and be ready.

(*Now refer to the ENGINE FIRE IN FLIGHT checklist. Read through it carefully **out loud**.*)

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LANDING WITH ONE ENGINE INOPERATIVE

When landing is assured:

1. Gear – DOWN
2. Flaps – APPROACH
3. Airspeed – 90 KIAS
4. Throttles – Adjust for a stabilized 800 FPM descent.

When there is no more chance of a go-around:

5. Flaps – DOWN

GO-AROUND WITH ONE ENGINE INOPERATIVE

1. Throttles – FULL
2. Gear – UP
3. Flaps – UP
4. Airspeed – 100 KIAS or greater

WARNING! Single-engine go-arounds are extremely dangerous! Avoid if at all possible!

All other procedures are to be carried out using the appropriate checklists only.

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PREFLIGHT ACTION
Prop lock – OFF and STOWED
Fuel – Visually checked
Preflight inspection – Complete
Paperwork – Complete
ATIS and clearance – Obtained

BEFORE STARTING
Alternate static source valve – OFF
Emergency gear handle – STOWED and ACCESSIBLE
Beacon – ON
Seat belts – ADJUSTED and SECURE
Cargo straps – None hanging outside
Utility and cabin doors – CLOSED and LATCHED
Fuel selectors – BOTH ON
Circuit breakers – CHECK
Avionics master switch – OFF
Fuel boost pumps – OFF
Heater – OFF
Cowl flaps – OPEN
De-ice / anti-ice equipment – OFF
Nav lights – as needed
Taxi, landing and strobe lights – OFF
Gear lever – DOWN
Prop levers – FORWARD
Brakes – Check
"Clear left prop!"
Battery switch – ON
Landing gear and annunciator lights – TEST
Fuel gauge indications – CHECK

STARTING
Prop chain – Re-verify removed
Brakes – HOLD
Engine start – EXECUTE

AFTER EACH ENGINE START ("Light, load, nipple, pressure.")
RPM – No more than 1000
Alternator switch – ON
Alternator light – OUT
Loadmeter – showing draw
Instrument pressure – OK / other side red before 2nd engine start
Oil pressure – CHECK

AFTER BOTH ENGINES ARE RUNNING
Avionics – On
#2 comm radio – Company frequency

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BEFORE TAKEOFF
Taxi instrument check – COMPLETE
Prop blast area – CLEAR
Brakes – HOLD
Flight controls – FREE and CORRECT
Heading indicator – set to compass
Attitude indicator – adjust horizon
Altimeter – set and cross-checked
Elevator, aileron and rudder trim – SET
Transponder – CODE and STANDBY

ENGINE RUNUP
RPM – 2200
Prop – Cycle (Observe drop in RPM, rise in MP and slight momentary fluctuation in oil pressure.)
RPM – 1700
Mags – Check
Alternator – Check
Voltage regulators – Check
Engine instruments – Check
Instrument pressure – Check
RPM – 1500
Feather – Check, then restore smoothly and promptly
Throttle – Idle
RPM – OK
Mags – Ground check

Parking brake – OFF
Windows – CLOSED and LATCHED
Emergency plan – REVIEW **(See the last page of this handbook.)**

CRUISE
Engine instruments – CHECK
Instrument pressure – CHECK
Alternators – CHECK
Fuel boost pumps – OFF

IN-RANGE
Seat belts – ADJUSTED and SECURE
Shoulder harness (if installed) – ADJUSTED and SECURE
Altimeter – SET
HI or HSI – CHECK and SET
Alternators – CHECK
Engine instruments – CHECK
Instrument pressure – CHECK
Fuel selectors – ON

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ENGINE SHUTDOWN
Avionics master switch – OFF
RPM – Idle
Mags – Ground check
Mixtures – Cutoff
Mags – OFF
Beacon – ON
Other lights – OFF
Alternator switch – OFF
Battery switch – OFF

SECURING FAILED ENGINE
Mixture – CUTOFF
Fuel Selector – OFF
Fuel boost pump – OFF
Magneto switch – OFF
Alternator – OFF
Cowl flap – CLOSED
Electrical load – MONITOR

CROSSFEED

LEFT engine inop:

Right fuel boost pump – LOW
Left fuel selector – OFF
Right fuel selector – CROSSFEED
Right fuel boost pump -- OFF

RIGHT engine inop:

Left fuel boost pump – LOW
Right fuel selector – OFF
Left fuel selector – CROSSFEED
Left fuel boost pump – OFF

MANUAL LANDING GEAR EXTENSION
Landing gear circuit breaker – PULL
Landing gear lever – DOWN
Airspeed – 152 KIAS or below
Handcrank cover – Remove
Handcrank – Engage and turn counterclockwise until it will no longer move.
Gear down light – ON
Handcrank – Stow

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ENGINE AIR START
Fuel selector – ON
Throttle – ½ travel
Mixture – RICH
Fuel boost pump – LOW
Mags – BOTH

With unfeathering accumulators:
Prop – FORWARD
Prop – Retard smoothly as windmilling begins; this prevents overspeeding.

Without unfeathering accumulators:
Prop – MIDRANGE
Starter – ENGAGE

Throttle – Adjust as engine starts; keep power moderate at first because engine is cold.
Fuel boost pump – OFF
Alternator – ON
Oil pressure – CHECK
Engine – Warm up at 2000 RPM and 15" MP until readings are normal.

ELECTRICAL SYSTEM FAILURE – ONE ALTERNATOR INOP
Alternator switch – CHECK
If that does not work, turn the alternator switch OFF and reduce the electrical load as practical.

ELECTRICAL SYSTEM FAILURE – BOTH ALTERNATORS INOP
Voltage regulator switch – SELECT OTHER
If that does not work, turn both alternator switches OFF and reduce the electrical load as practical.

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BE-55 / BE-58 Preflight Procedures Checklist

A. Remove Prop Lock – stow in compartment C

B. Check fuel level and oil level – call for the fuel truck ***now*** if needed
Check all lights
In cold weather, check function of pitot heat, stall warning vane heat and fuel vent heat

C. Cockpit
Remove and stow control lock
Turn OFF all switches except the rotating beacon
Set the elevator trim tab to within the green (takeoff) arc

Cargo / cabin area
Emergency gear hand crank – STOWED but FREE and ACCESSIBLE
(Ensure crank handle is not trapped under spar cover)
Side window emergency exits – closed and securely latched
Shake out the cargo net; check for stray cargo and then fold neatly to permit loading
Check the aircraft registration and airworthiness certificates in compartment C
Fully extend cargo tiedown straps and thread through rear cargo net to get them out of the way

Exterior
Right static port – clear
Inventory antennas under belly
Inventory antennas on top of fuselage
Check right horizontal stabilizer – condition of aluminum, rivets and fasteners
Check right elevator – condition of aluminum, rivets and fasteners, freedom of movement, static wicks
Check right elevator trim tab – hinge bolts, cotter pins, excessive play
Untie tail
Check rudder – condition of aluminum, rivets and fasteners, freedom of movement, static wicks
Tailcone – condition of aluminum, rivets and fasteners
Nav light – secure
Rudder trim tab – hinge bolts, cotter pins, excessive play
Check for differential play between elevators
Check left horizontal stabilizer – condition of aluminum, rivets and fasteners
Check left elevator – condition of aluminum, rivets and fasteners, freedom of movement, static wicks
Check left elevator trim tab – hinge bolts, cotter pins, excessive play
Overhead cabin air vent inlet – unobstructed
Left static port – clear
Left flap – condition of aluminum
Left aft inboard fuel drain – sump (1st sump)
Left aileron trim tab – hinge bolts, cotter pins, excessive play
Aileron trim tab bellcrank – check for three **cotter** pins
Left aileron – condition of aluminum, rivets and fasteners, freedom of movement, static wicks
Left aileron actuator rod ends – check condition
Left aileron hinges and brackets – check condition and security
Outboard trailing edge – static wicks
Left nav and strobe lights and plastic cover – condition and security
Examine left wing leading edge for damage
Inspect underside of left wing for wrinkling, blue stains or other evidence of a fuel leak
Left landing light and plastic cover – condition and security
Check stall warning vane
Untie left wing
Check fuel vent for blockage
Confirm no obstructions in left engine air intakes
Check left propeller and spinner
Check left alternator wires and left alternator mounting
Check left exhaust stack and cowl flap for cracks or excessive play
Check **BOTH** left induction manifold fuel drains – *ensure that they protrude outside cowling*
Check left forward inboard fuel drain – sump (2nd sump)
Sump left fuel strainer (3rd sump)

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Check left main landing gear – axle nut, cotter pin
tire tread and inflation
both brake pads at least nickel thickness
squat switch
cotter pins on all visible castellated nuts
uplock roller – free and lubricated
main strut inflated*
* If main strut is flat, DO NOT MOVE the airplane! Strut damage could result.
Check pitot tube for blockages
Check nose wheel – axle nut, cotter pin
tire tread and inflation
taxi light
Battery box drain clear
Check nose compartment for stray cargo
Check brake fluid reservoir – verify that fluid is above the "add" mark
Check TKS or alcohol reservoir for fluid level in cold weather
Check quantity indicator wires for security
CAUTION: nose compartment door spring tends to allow the door to slam shut suddenly
When closing the door, ensure that *both* latches are properly aligned
Examine right wing leading edge for damage
Inspect underside of right wing for wrinkling, blue stains or other evidence of a fuel leak
Untie right wing
Check fuel vent for blockage
Confirm no obstructions in right engine air intakes
Check right propeller and spinner
Check right alternator wires and right alternator mounting
Check right exhaust stack and cowl flap for cracks or excessive play
Check **BOTH** right induction manifold fuel drains – *ensure that they protrude outside cowling*
Check right forward inboard fuel drain – sump (4)
Sump right fuel strainer (5^{th} sump)
Right landing light and plastic cover – condition and security
Outboard trailing edge – static wicks
Right aileron – condition of aluminum, rivets and fasteners, freedom of movement, static wicks
Right aileron actuator rod ends – check condition
Right aileron hinges and brackets – check condition and security
Right flap – condition of aluminum
Right aft inboard fuel drain – sump (6^{th} sump)

Note: Some Barons have 8 sump drains, not 6. The fourth sump drains on each wing will be located between the two front sump drains.

D. Start your paperwork, get ATIS and obtain your outbound IFR clearance

BE-55 / BE-58 Postflight Procedures

Conduct a walkaround inspection of the aircraft similar to your preflight
Check for stray cargo and remove all trash and personal items
Install control lock and prop lock
Record your ending Hobbs time
Write up any observed or known discrepancies; notify both Maintenance *and* Dispatch
Tie down the aircraft at all three points (if possible)

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Flight Lesson # 1

Preflight Walkaround Inspection
Normal Engine Start
Normal Taxi
Taxi Instrument Checks
Normal Takeoff
Climb
Transition to Cruise
- Steep Turns
- Slow Flight – Dirty
- Imminent Power-Off Stall
- Manual Gear Extension
- Engine Failure in Cruise (*complete shutdown*)
- Airborne Restart and Warm-Up
- Emergency Descent

Normal Landings (*until proficient*)
Engine Failure on Takeoff (*with abort*)
Engine Failure After Takeoff (*zero thrust*)
Single-Engine Landing
No-Flap Landing
Rejected Landing (*with go-around*)

Flight Lesson #2

Normal Engine Start
Normal Taxi
Taxi Instrument Checks
Instrument Takeoff
Instrument Climb
Transition to Instrument Cruise
- Steep Turns
- Slow Flight – Dirty
- Imminent Power-Off Stall
- Engine Failure in Cruise (*zero thrust*)
- Emergency Descent
- Unusual Attitude Recovery
- Partial Panel Maneuvering

Flight Lesson #3

Non-Precision Approach 1
Non-Precision Approach 2
Single-Engine Precision Approach

Checkride

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BEFORE TAKEOFF MULTI-ENGINE BRIEFING (*example*)

Temperature _____° C

Altimeter Setting _____" Hg

Available Runway Length _____ feet

MSA in this area is _____ feet within _____ nautical miles of _____.

Major obstacles in this area include: _____ _____ _____ _____

Computed accelerate-and-stop distance is: _____ feet

Computed accelerate-and-go distance is: _____ feet (*to clear a 50' obstacle*)

Computed single-engine service ceiling is: _____ feet

Engine failure prior to V_R – ABORT

Engine failure after V_R with sufficient runway remaining – LAND

Engine failure after V_R with insufficient runway remaining – Pitch for V_{YSE} ("blue line") 100 KIAS, maintain aircraft control and execute engine failure procedures. Advise ATC (if applicable) and return for a landing.

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