

Beechcraft.®

Musketeer
SUPER III



MODEL A23-24
OWNER'S MANUAL

Beech Aircraft Corporation



Wichita, Kansas

THANK YOU

for displaying your confidence in us by selecting a BEEHCRAFT airplane. Our design engineers, assemblers, and inspectors have utilized their skills to insure that your new BEEHCRAFT Musketeer excels all other airplanes in its class in structural integrity, performance, workmanship, economy, and comfort.

Read, this manual carefully to become familiar with the operation of your Musketeer. The suggestions and recommendations included will help you obtain maximum performance without sacrificing economy.

The operation, care and maintenance of your airplane after its delivery is your responsibility. However, we suggest that you visit your local BEEHCRAFT Certified Service Station soon. Our worldwide network of BEEHCRAFT Certified Service Stations are well versed in the latest recommended servicing, maintenance, operating and modification procedures designed to obtain maximum utility and safety from your airplane. Any questions you may have concerning your airplane will be gladly answered.

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GENERAL SPECIFICATIONS

POWER PLANT

Lycoming IO-360A2B engine rated at 200 horsepower at 2700 RPM

PERFORMANCE

Maximum speed at sea level, 2700 rpm . . . 158 mph TAS

CRUISING SPEEDS:

75% at 7,000 ft. 150 mph TAS
65% at 10,000 ft. 141 mph TAS
55% at 10,000 ft. 132 mph TAS

STALL SPEED, landing (Thrust - 35° flaps) . . . 61 mph TAS

*CRUISING RANGE: (Statute miles - 55% power)

132 mph TAS at 10,000 ft. - 339 miles on 28.8 gallons (Usable)
501 miles on 38.8 gallons (Usable)
823 miles on 58.8 gallons (Usable)

Rate of Climb (gross weight, sea level) 880 fpm.

Service Ceiling 14,850 ft.

Absolute Ceiling 16,750 ft.

Take-Off Distance - 15° flaps

Ground run 950 ft.

Total over 50 ft. obstacle 1,380 ft.

Landing Distance - 35° flaps

Ground roll 660 ft.

Total over 50 ft. obstacle 1,300 ft.

*Includes allowance for warm-up taxi, take-off, climb and a 45 minute reserve.

The above performance figures are based on a gross weight of 2550 pounds.

WEIGHTS

Gross weight - Normal Category	2550 lbs.
Gross weight - Utility Category	2200 lbs.
Empty weight - standard equipped (dry)	1410 lbs.
Useful load standard equipped	1140 lbs.
Standard useful load breakdown	
*Oil, fuel (28.8 useable), 4 people	240 lbs. baggage
*Oil, fuel (38.8 useable), 4 people	179 lbs. baggage
*Oil, fuel (58.8 useable), 4 people	60 lbs. baggage

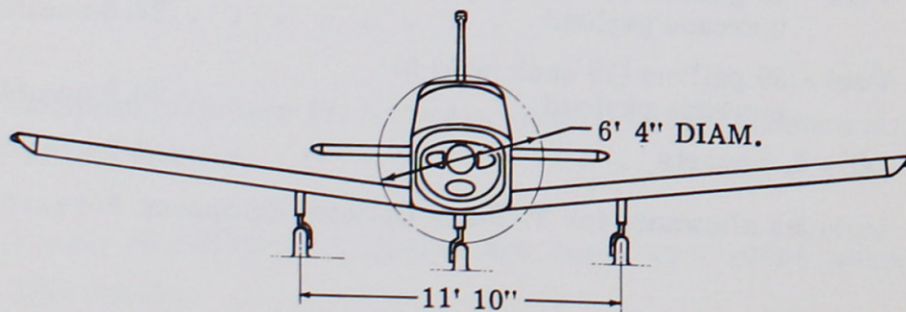
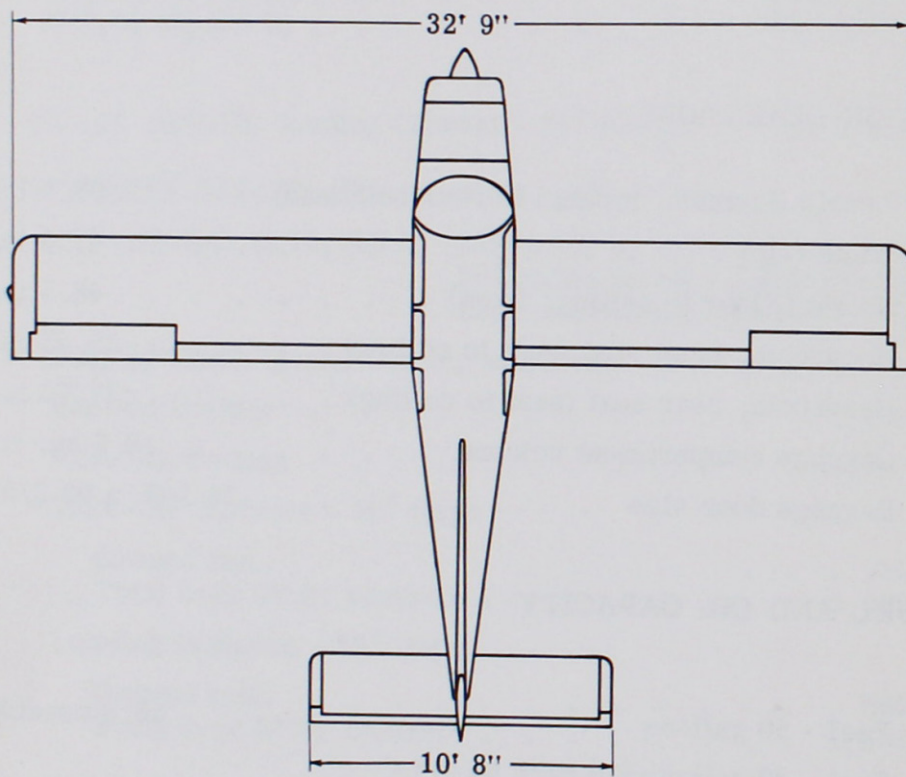
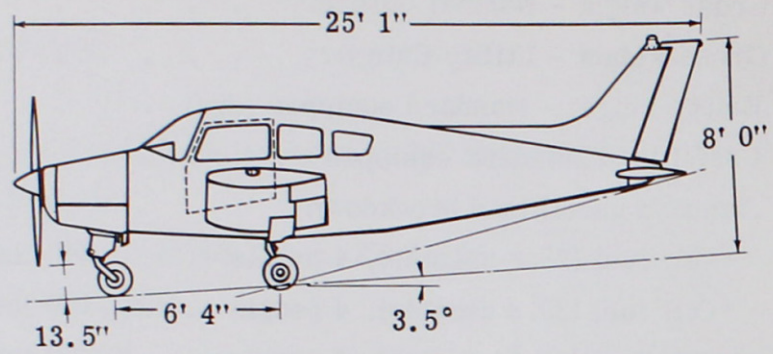
CABIN DIMENSIONS

Length (instrument panel to rear bulkhead)	95.0 in.
Width (hip)	41.0 in.
Height (Floor to ceiling, front)	48.5 in.
Headroom, front seat (seat to ceiling)	39.25 in.
Headroom, rear seat (seat to ceiling)	37.75 in.
Baggage compartment volume.	19.5 cu. ft.
Baggage door size	18 1/2" x 23 2/3"

FUEL AND OIL CAPACITY

Fuel - 60 gallons	58.8 useable
Fuel - 40 gallons (20 each tank) to increase payload	38.8 useable
Fuel - 30 gallons (15 each tank) to increase payload	28.8 useable
Oil - 8.0 quarts	6.0 useable

* Includes allowance for 25 lbs of Optional Equipment Forward



SECTION I

DESCRIPTIVE INFORMATION

SECTION
I

Your new Model A23-24 BEEHCRAFT MUSKETEER, powered by a Lycoming IO-360-A2B engine rated at 200 horsepower at 2700 rpm is an all metal four place, low wing monoplane with fixed tricycle landing gear. The engine drives a two bladed fixed-pitch forged aluminum propeller. The MUSKETEER is licensed in the Normal Category at 2550 pounds or in the Utility Category at 2200 pounds.

In the Normal Category, your airplane may be used for nonscheduled passenger and nonscheduled cargo operations. No acrobatics, whip stalls or turns exceeding 60° of bank, are approved.

In the Utility Category, the MUSKETEER may be flown for all normal operations and limited acrobatic maneuvers. The MUSKETEER may be operated in the Utility Category with a gross weight of 2200 pounds or less, and with proper C.G. limitations as set forth in the Aircraft Weight and Balance Sheet.

Standard equipment for the MUSKETEER includes all essential instrumentation, lighting systems for night flying, and a complete radio installation. The standard radio installation is a 90-channel crystal-controlled 3-watt transmitter and receiver, 100-channel crystal-controlled NAV receiver, and Airline Standard Omni and Localizer. When navigating with the omni, the transmitter is automatically tuned to 122.1 mc for flight service station communication.

FLIGHT CONTROLS

The flight control surfaces are of the conventional three-control type operated by the rudder pedal-control column combination.

ENGINE CONTROLS

The engine controls are centrally located for ease of operation from either the left or right seats. The throttle is a vernier type. The mixture control is locked with a clockwise turn of a friction nut located on the forward side of the knob.



A key ignition switch, located on the subpanel to the left of the pilot's control column, incorporates "Right," "Left," and "Both" magneto positions in addition to the normal "OFF" and "START" positions. After activation of the starter, the spring loaded switch returns to the "Both" position when released. Battery and alternator master switches and the fuel boost pump switch are grouped on the sub-panel to the right of the pilot's control column.

HEATING AND VENTILATING SYSTEMS

Hot air for warming the cabin and defrosting the windshield is picked up through an intake on the left side of the nose, passes through the heater, and into a mixer box where it is blended with cold air to obtain the desired cabin temperature. Pull out the Cabin

Heat knob for heat and push it in for fresh air. The knob marked Cabin Air regulates the quantity of air entering the cabin through the firewall outlet. Pull out the windshield defroster knob for maximum defrost.

Fresh air for the cabin enters two grill type vents immediately forward of the windshield. The air is ducted to four outlets; each outlet can be adjusted for volume and direction of airflow. An adjustable exhaust vent in the aft portion of the cabin provides continuous air circulation.

INSTRUMENTS

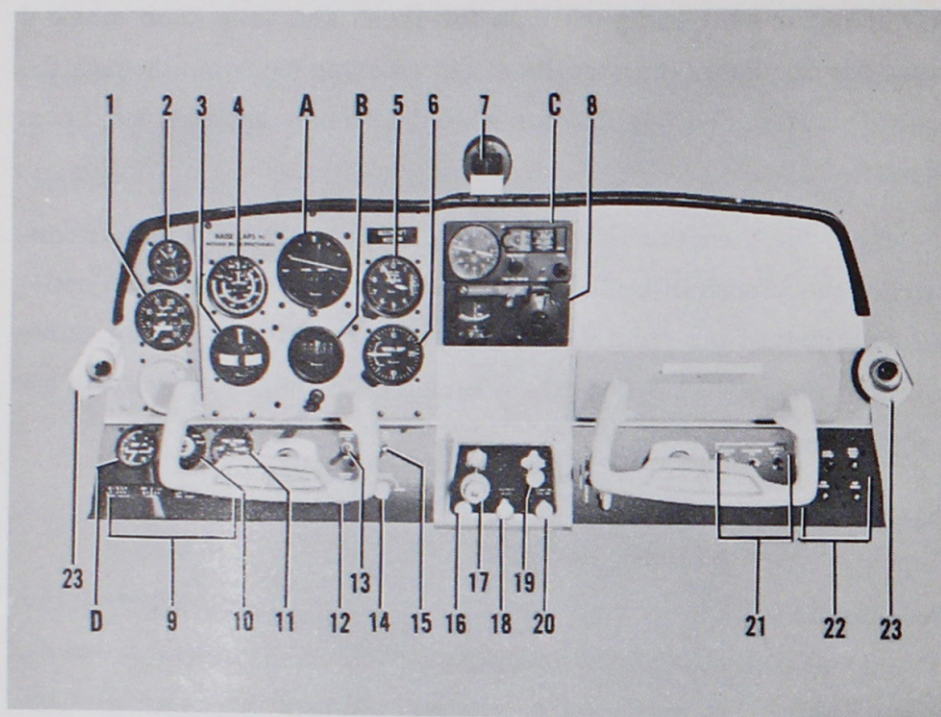
The standard flight instruments are grouped in a standard airline "T" on the left side of the main panel for easy viewing from the pilot's seat. The compass is located on top of the panel with the outside air temperature gage in the top of the windshield. Engine instruments are on the left side of the subpanel.

Ram air pressure for the airspeed indicator enters through the pitot tube under the left wing. Static air pressure for the altimeter, vertical speed, and airspeed indicator is supplied by a static port on each side of the fuselage, just aft of the baggage compartment.

Instrument lights are turned on and dimmed by a rheostat switch located slightly to the left of the subpanel center.

STALL WARNING INDICATOR

A stall warning buzzer, located in the overhead speaker console, sounds a warning 5 to 7 MPH above a stall condition and continues steadily as the airplane approaches a complete stall. The stall warning indicator, triggered by a sensing vane on the leading edge of the left wing, is equally effective in all flight configurations and at all weights.



STANDARD EQUIPMENT

1. Tachometer
2. 8-Day Clock
3. Turn and Bank
4. Airspeed Indicator
5. Altimeter
6. Vertical Speed Indicator
7. Magnetic Compass
8. VHF Radio
9. Engine Gage Cluster
10. Ignition Switch
11. Fuel Pressure Gage
12. Parking Brake
13. Battery and Alternator Master Switches
14. Instrument Light Switch
15. Boost Pump Switch

16. Cabin Heat
17. Throttle
18. Defrost
19. Mixture
20. Cabin Air
21. Exterior Light Switches
22. Circuit Breakers
23. Fresh Air Vent

OPTIONAL EQUIPMENT

- A. Horizon Gyro
- B. Directional Gyro
- C. ADF Receiver
- D. Suction Gage

FLAP OPERATION

The four position flaps are operated by a manual lever located between the front seats. In addition to the full flap down position of 35°, intermediate positions are incorporated for short field take-off purposes. As the handle is raised to lower the flaps, a definite detent and click of the thumb release button will be felt at the 15° and 25° flap extended positions. Another detent will indicate the 35° position. To retract the flaps, depress the thumb button and lower the handle to the floor. The thumb button does not need to nor should it be depressed to lower the flaps.

BAGGAGE

The MUSKETEEER has a 19.5 cu. ft. baggage compartment behind the rear seats. In addition, a hat shelf near the top of the cabin closure provides an out-of-the-way space for light miscellaneous articles. Both the baggage compartment and the hat shelf are readily accessible in flight. A large door with a key-type lock facilitates loading and unloading of the baggage compartment.

LANDING GEAR

The fixed tricycle landing gear fabricated from magnesium castings, uses rubber disks for shock absorption.

The gears are identical except for the pivoting and steering provisions on the nose gear and the brake attachment points on the main gear.

The nose wheel is steerable through a spring loaded linkage connected to the rudder pedals and has a maximum travel of $40^\circ \pm 2^\circ$ in either direction. A hydraulic dampener on the nose wheel strut

compensates for any tendency to shimmy. Toe brakes will aid in steering the airplane on the ground.

PARKING BRAKE

To set the parking brake, first depress the pilot's toe pedals and pull out on the parking brake knob, then release the toe pressure.

Release the parking brake by depressing the pilot's toe pedals, then release the pressure and check both wheels for free roll before applying take-off power.

NOTE

The parking brake should be left OFF and wheel chocks installed if the airplane is to be left unattended. Changes in ambient temperature can cause the brakes to release or exert excessive pressure.

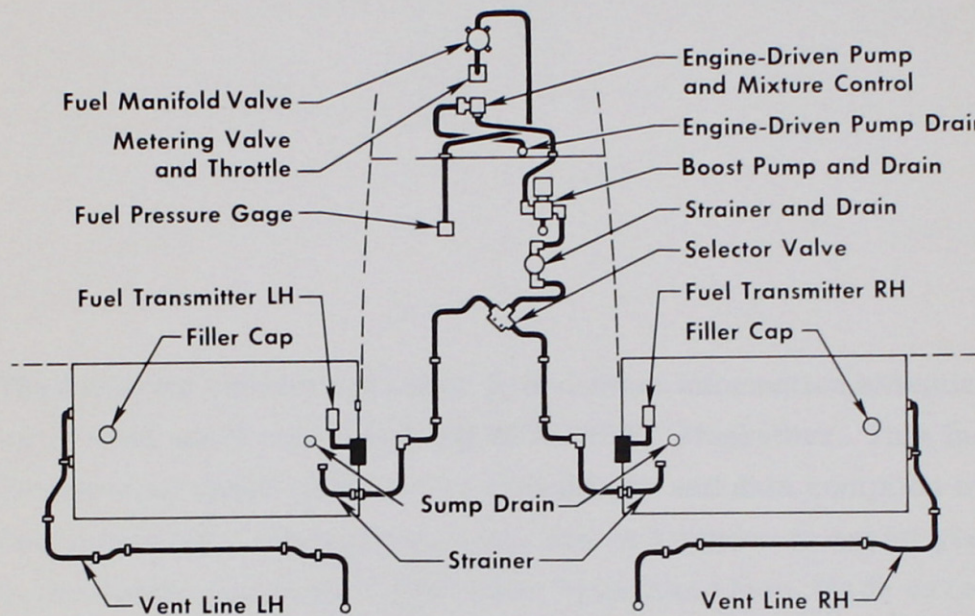
POWER PLANT

A four-cylinder Lycoming IO-360-A2B engine rated at 200 horsepower at 2700 rpm powers the MUSKETEER. Standard power plant accessories include fuel injection, 12-volt electrical system, battery, 40 ampere alternator, voltage regulator, starter, auxiliary fuel pump, induction air filter, muffler, and cabin heater. The engine drives an aluminum, fixed-pitch, 78-inch diameter propeller equipped with spinner.

FUEL AND OIL SYSTEMS

Fuel tanks located in each wing leading edge have a capacity of 30 gallons each for a total capacity of 60 gallons (58.8 usable). A visual measuring tab below the filler neck of each tank allows the

FUEL SYSTEM SCHEMATIC



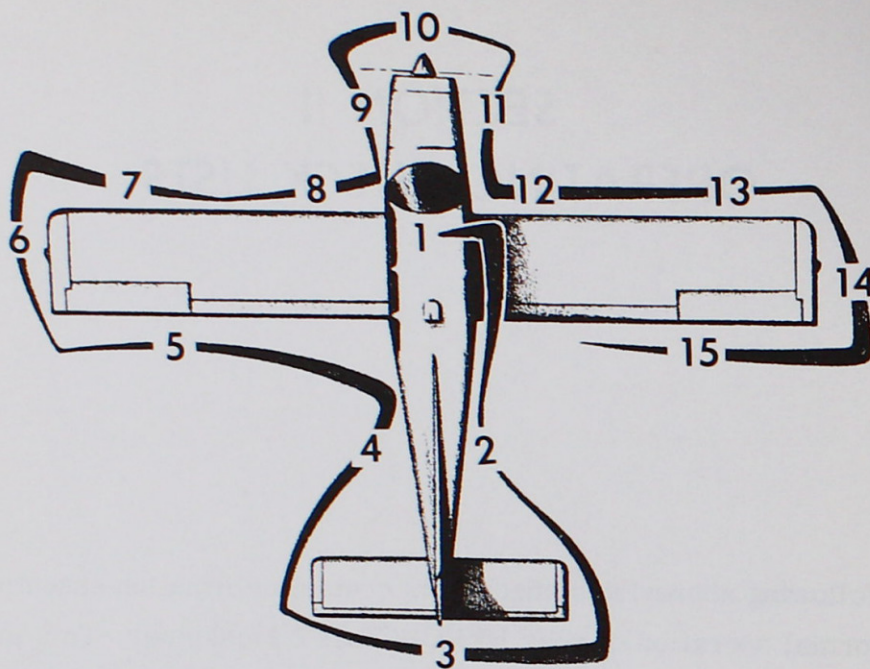
tank to be filled to a 15 or 20-gallon capacity. Fuel is fed from the desired tank to a fuel selector valve in the center floorboard and then through a strainer to the engine-driven fuel pump. A fuel pressure gage on the instrument subpanel registers metered fuel pressure at the fuel injection system fuel manifold valve. The Lycoming IO-360-A2B engine incorporates a wet sump oil system. Oil temperature and circulation are automatically controlled by thermostatic and pressure relief valves. The thermostatic valve diverts the flow around the oil cooler when the oil temperature is below a preset minimum. The pressure relief valve automatically opens if sludge or congealed oil blocks the flow through the cooler.

SECTION II

OPERATING CHECK LISTS

The following abbreviated check lists contain information essential for normal operation of your BEEHCRAFT Musketeer. This information is based on the recommendations and data compiled by Beech Aircraft Corporation pilots, and is intended to assist you in developing a systematic and safe flying technique. Made carefully, these checks will not only help prevent a mishap or malfunction, but will also aid in reducing maintenance costs.

SECTION II



PREFLIGHT INSPECTION

1. Parking Brake Set; Battery, Alternator, and Ignition Switches OFF.
2. Static Pressure Button unobstructed.
3. Inspect empennage and control surfaces - Remove tie down - Check stabilator tab and pivot points.
4. Static pressure button unobstructed.
5. Inspect wing, aileron, and flap.
6. Inspect wing tip, position light, and pitot tube.
7. Remove tie down line.
8. Drain fuel sump, check tire, check fuel tank, fuel tank cap secured.
9. Check cowling for oil leaks and security.
10. Check propeller, nose gear, tire, and nose cowl opening for obstruction.
11. Check engine oil; check cowling for security and oil leaks.
12. Drain fuel sump, check tire, check fuel tank, fuel tank cap secured.

13. Remove tie down line.
14. Inspect wing, aileron, and flap.

BEFORE STARTING

1. Parking brake - SET.
2. Check circuit breakers.
3. All radio equipment - OFF.
4. Battery master switch - ON (OFF when external power is used).

CAUTION

When using external power, exercise care to avoid reversed polarity.

5. Flaps - UP.
6. Flight controls - free, smooth operation through full travel.
7. Fuel selector valve - left tank first.

STARTING

1. Normal
 - a. Mixture full rich.
 - b. Throttle fast idle
 - c. Engage starter.

NOTE

If the engine fails to achieve a normal start assume it to be flooded and use standard clearing procedure, then repeat above procedure.

2. Hot Start
 - a. Mixture idle cut off.
 - b. Throttle fast idle.
 - c. Engage starter - advancing mixture slowly when engine fires.

3. Flooded Engine
 - a. Mixture idle cut off.
 - b. Throttle full open.
 - c. Engage starter.
 - d. When engine fires retard throttle to fast idle.
 - e. Slowly advance mixture to full rich.
4. Disconnect external power if used. Alternator master switch ON.
5. Warm up using 800 to 1300 rpm or until engine will accelerate without hesitation.
6. Check for normal reading on all gages.
7. Radio Equipment ON.

BEFORE TAKE-OFF

1. Wing flaps as required.
2. Stabilator trim - set for take-off range (Green mark).
3. Magnetos - 2000 rpm maximum drop of 125 rpm, maximum difference between magnetos 50 rpm. Do not run up on loose sand or dirt.
4. Mixture full rich or as required. (for altitude)
5. Door and window - properly latched.
6. Altimeter set to field elevation.
7. Directional and attitude gyros set (if installed).
8. Parking brake - OFF.

BEFORE LANDING

1. Mixture full rich or as required.
2. Fuel tank selector - fuller tank.
3. Flaps as required.

SHUT-DOWN

1. Parking brake - SET. (Release parking brake and install wheel chocks if airplane is to be parked for more than a few hours.) (Refer to Section I).
2. Radio and lights - OFF.
3. Throttle closed.
4. Mixture - IDLE CUT-OFF.
5. All accessory switches - OFF.
6. Battery and alternator switches - OFF.
7. Ignition switch - OFF, after propeller stops rotating.

NOTE

With the Master switch OFF the stall warning horn is inoperative.

SECTION III

FLYING YOUR MUSKETEER

Information in this section will help you develop a good flying technique for your BEECHCRAFT MUSKETEER. After becoming familiar with the following general information, your information needs will be confined to the abbreviated check lists in Section II and the specifications, limitations, and performance data in Section IV.

TAXIING

Do not attempt to turn the nose wheel with the airplane stationary. Normally, you can turn with the rudder pedals through the nose wheel. For shorter turns, use some brake on the inside wheel. Short turns should be made slowly.

BEFORE TAKE-OFF

Full throttle checks on the ground are not recommended unless the pilot has good reason to suspect that the engine is not turning up properly, or desires to adjust mixture for high altitude or hot weather.

TAKE-OFF

Avoid following multi-engine or jet aircraft too closely since extreme turbulence may be encountered. Check to be sure the door and window are closed before turning on to the runway.

For the take-off, start increasing the back pressure at about 45 to 50 mph and let the airplane fly off. After the airplane breaks

ground, lower the nose slightly and let the airplane accelerate to the desired climb speed (see Section IV).

CLIMB

Set the stabilator trim tab to relieve pressure on the column. The recommended cruising climb speed (Section IV) is higher than the best rate-of-climb speed, but results in better ground speed while climbing.

CRUISE

After reaching your desired altitude, set power and trim as desired. Refer to Cruise Performance Chart Section IV.

FUEL

Fuel is supplied from two 30-gallon wing tanks. Avoid using gasoline lower than the recommended 100/130 octane as indicated by the CONSUMABLE MATERIALS CHART and at the filler cap locations.

CAUTION

The fuel gage on the instrument subpanel registers full when the corresponding tank contains between 20 and 30 gallons of fuel.

The fuel selector valve is located on the floor ahead of the trim and flap controls.

MANEUVERS

You will find that your MUSKETEEER handles just as nicely in maneuvers as in cruising flight. Keep in mind that maneuver loads will increase as airspeed increases and that the same aerodynamic cleanness which gives efficiency also results in rapid increases in airspeed while you are in a nose-down attitude. You should become familiar with the loads you can impose on the airframe during maneuvers. Refer to Section IV for approved acrobatic maneuvers and entry speeds.

Your MUSKETEEER is gentle and well-behaved in a stall. The stall warning indicator starts sounding intermittently roughly 5 to 7 mph above stall speed in all flight attitudes. Aileron control remains exceptionally good throughout stalls.

DESCENT

Pilot preference and weather conditions will determine the rate of descent. During the let-down, watch your engine oil temperature. Since you will have a combination of relatively high airspeed and reduced power settings, the engine will run cooler than in level flight and, particularly in cold weather, temperature may go below a safe minimum for full power. Enrich mixture as required during descent.

LANDING

For normal landings, make a power-off, full flap approach at 80 to 85 mph IAS. Maintain this airspeed with an even rate of descent to a point 12 to 15 feet above the runway. At this point, bring the nose slightly above the level attitude and hold the airplane off by

continuing the back pressure as the airspeed slows. After the airplane is on the ground, raise the flaps to increase braking effectivity.

Short field landings are made with full flap with an approach speed of 75 to 80 mph IAS depending on the power and weight configuration. Since the forward speed is slower and the rate of descent faster, start the flare sooner than a normal landing.

Slips during landing with full flaps extended may be used to increase the airplane's rate of sink. When using slips during full flap approaches, keep the airspeed at 80 mph IAS or above.

SECTION IV

PERFORMANCE SPECIFICATIONS AND LIMITATIONS

This section groups together limitations and performance data, established by flight tests and engineering calculations, to assist you in operating your Musketeer. The limitations are FAA Approved and are mandatory. All data has been established under normal operating conditions with the flight tests accomplished under standard atmospheric conditions at a maximum gross weight of 2550 pounds; therefore, allowances for actual conditions must be made. Advance planning will assure you of safe, fast, comfortable and economical flight.

NOTE

The airspeed computations presented in this section are based on indicated airspeed except Airspeed Limitations and Maneuvers, which are calibrated airspeeds. Performance figures appearing as placards in the airplane are calibrated airspeeds.

SECTION
IV

AIRSPEED CHARTS

TAKE-OFF SPEEDS

Normal

Take-off	80 mph IAS
Climb-out at 50 feet	95 mph IAS

Minimum Run - 15° Flaps

Take-off	69 mph IAS
Climb-out at 50 feet	95 mph IAS

TAKE-OFF SPEEDS (CON'T)

Obstacle - 15° Flaps

Take-off	75 mph IAS
Climb-out at 50 feet	80 mph IAS

*Experience has shown that a flap setting of 25° can be quite effective in lift-off from a soft or rough field, or from any surface when clearing low obstacles.

CLIMB SPEEDS

Cruising climb speed

Normal rated power full throttle with flaps up, 110 mph IAS

5,000 Feet	Flaps Up	Flaps Down 35°
Best rate of climb	91 mph IAS	80 mph IAS
Best angle of climb	83 mph IAS	77 mph IAS

LANDING SPEEDS

Normal - 35° flaps

Approach	81 mph IAS
Contact	69 mph IAS

Obstacle - 35° Flaps

Approach	77 mph IAS
Contact	69 mph IAS

GLIDING DISTANCE TABLE

The Gliding Distance Table as shown gives the horizontal Distance you can glide for several different altitudes and wind conditions. The range listed is to ground contact.

GLIDE DISTANCE (Statute Miles)

Altitude Above Ground (ft)	Zero Wind	10 mph Head- Wind	20 mph Head- Wind	30 mph Head- Wind	30 mph Tail- Wind	20 mph Tail- Wind	10 mph Tail- Wind
1000	2.0	1.8	1.5	1.3	2.7	2.4	2.2
2000	4.0	3.6	3.0	2.6	5.4	4.8	4.4
3000	6.0	5.4	4.5	3.9	8.1	7.2	6.6
4000	8.0	7.2	6.0	5.2	10.8	9.6	8.8
5000	10.0	9.0	7.5	6.5	13.5	12.0	11.0
6000	12.0	10.8	9.0	7.8	16.2	14.4	13.2
7000	14.0	12.6	10.5	9.10	18.9	16.8	15.4
8000	16.0	14.4	12.0	10.4	21.6	19.2	17.6

Glide Ratio	10.5	9.36	8.2	7.1	14.12	12.87	11.72
IAS MPH	93.5	95	97	100	90	91	92.5

STALL SPEEDS, IAS

Configuration	0°	Angle of Bank		
		20°	40°	60°
Flaps Up - Power Off	73 mph	75 mph	84 mph	105 mph
Flaps Up - Power On	65 mph	68 mph	75 mph	95 mph
Flaps Down (35°)-Power Off	60 mph	62 mph	69 mph	89 mph
Flaps Down (35°)-Power On	53 mph	54 mph	61 mph	77 mph

AIRSPEED LIMITATIONS

Never exceed (glide or dive) (red line) 175 mph CAS
 Caution range (yellow arc) 155-175 mph CAS

AIRSPEED LIMITATIONS (CONT'D)

Maximum structural cruising speed.	155 mph CAS
(level flight or climb)	
Normal operating range (green arc)	74-155 mph CAS
Flap Operating range (white arc).	61-110 mph CAS
Maximum maneuvering speed.	140 mph CAS
Turbulent air penetration	140 mph CAS

ENGINE OPERATION LIMITATION

Maximum power and speed all operation . . .	200 hp @ 2700 rpm
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ENGINE INSTRUMENT MARKINGS

Oil temperature

Caution (yellow arc)	60° - 120°F
Normal (green arc)	120° - 245°F
Maximum (red line)	245° - 260°F

Oil pressure

Maximum pressure (red line).	100 PSI
Minimum pressure (yellow line)	25-60 PSI
Normal operation range (green arc).	60-90 PSI

Tachometer

Engine Warm-Up	800-1300 rpm
Normal Operation (green arc)	2200-2700 rpm
Maximum (red line)	2700 rpm

Fuel pressure

Operating range	0-12.0 PSI
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CLIMB PERFORMANCE

S. L. and 59°F			4000 Ft and 45°F	
Gross Weight Lbs.	Rate of Climb Ft/Min	Best Rate of Climb IAS-mpH	Rate of Climb Ft/Min	Best Rate of Climb IAS/MPH
2550	880	97	670	92
2400	1015	95	800	91
2200	1215	93	995	88

8000 Ft and 30°F			12000 Ft and 16°F	
Gross Weight Lbs.	Rate of Climb Ft/Min	Best Rate of climb IAS-mpH	Rate of Climb Ft/Min	Best Rate of Climb IAS-mpH
2550	460	87	250	83
2400	585	86	375	82
2200	775	84	560	80

MANEUVERS

The following maneuvers and recommended entry speeds are approved for your MUSKETEE only when operating in the utility category (gross weight 2200 lbs or less).

MANEUVERS

MAXIMUM ENTRY SPEED

Chandelle	140 mph CAS
Steep turns	140 mph CAS
Lazy eights	140 mph CAS
Stalls (except whip)	Slow Deceleration
Maximum approved entry speed	140 mph CAS

OBSTACLE TAKE-OFF DATA

4-6

	Sea Level			2000 Ft.			4000 Ft.			6000 Ft.			8000 Ft.		
Wind Vel MPH	To Clear Ground 50'			To Clear Ground 50'			To Clear Ground 50'			To Clear Ground 50'			To Clear Ground 50'		
	Temp F	Run Ft.	Obst Ft.	Temp F	Run Ft.	Obst Ft.	Temp F	Run Ft.	Obst Ft.	Temp F	Run Ft.	Obst Ft.	Temp F	Run Ft.	Obst Ft.
0	30	840	1225	20	965	1400	15	1135	1650	10	1350	1980	0	1580	2405
	59	950	1380	52	1105	1600	45	1300	1890	38	1530	2265	30	1815	2845
	90	1075	1560	80	1240	1795	75	1475	2155	70	1755	2665	60	2020	3395
10	30	665	1000	20	765	1140	15	910	1355	10	1085	1635	0	1280	2000
	59	755	1125	52	890	1315	45	1045	1560	38	1240	1885	30	1475	2380
	90	860	1270	80	1000	1485	75	1190	1790	70	1430	2225	60	1685	2880
20	30	535	820	20	620	940	15	745	1120	10	895	1365	0	1055	1675
	59	610	930	52	720	1090	45	860	1295	38	1025	1585	30	1225	2010
	90	705	1050	80	825	1235	75	985	1500	70	1190	1875	60	1405	2440
30	30	445	675	20	515	780	15	620	930	10	750	1135	0	890	1405
	59	510	775	52	605	910	45	715	1080	38	860	1320	30	1040	1700
	90	590	885	80	685	1030	75	825	1260	70	1000	1585	60	1200	2070

Note: Decrease distance approximately 15% for 100 pounds decrease in gross weight.

OBSTACLE LANDING (Over 50 foot Obstacle)

S. L. @ 59° F			2000 Ft. @ 52° F	
Wind Vel MPH	Ground Run Ft.	To Clear 50 Ft.	Ground Run Ft.	To Clear 50 Ft.
0	660	1300	665	1365
10	465	1025	495	1080
20	315	765	335	820
30	195	540	210	590

4000 Ft. @ 45° F			6000 Ft. @ 38° F		8000 Ft. @ 30° F	
Wind Vel MPH	Ground Run Ft.	To Clear 50 Ft.	Ground Run Ft.	To Clear 50 Ft.	Ground Run Ft.	To Clear 50 Ft.
0	705	1435	735	1505	770	1570
10	520	1140	585	1271	585	1270
20	365	880	390	935	415	995
30	230	635	260	690	280	740

CRUISE PERFORMANCE

ALT	RPM	%BHP	TAS MPH	38.8 Gal.	38.8 Gal.	58.8 Gal.	58.8 Gal.
				Endurance Hours	Range Miles	Endurance Hours	Range Miles
2500	2575	75	144	2.6	379	4.3	615
	2450	65	135	3.5	466	5.6	757
	2250	51	124	4.3	534	7.0	867
3500	2600	75	145	2.6	380	4.3	618
	2450	63	134	3.5	469	5.7	763
	2300	52	125	4.2	528	6.9	861
4500	2625	75	146	2.7	379	4.2	617
	2500	64	136	3.4	469	5.6	765
	2300	50	124	4.3	527	6.9	861
5500	2650	75	147	2.6	80	4.2	619
	2550	66	138	3.4	466	5.5	761
	2350	51	125	4.2	523	6.8	855
6500	2675	75	148	2.6	379	4.2	618
	2550	63	137	3.4	468	5.6	766
	2400	52	127	4.1	517	6.7	848
7500	2700	74	149	2.6	383	4.2	626
	2600	65	139	3.3	465	5.5	762
	2400	50	127	4.1	526	6.8	864
8500	2700	70	144	3.1	441	5.0	724
	2600	62	137	3.5	473	5.7	777
	2450	50	128	4.1	522	6.8	868
9500	2700	68	143	3.1	448	5.1	736
	2600	60	137	3.5	481	5.8	790
	2500	52	130	3.9	513	6.5	844
10500	2700	66	142	3.2	456	5.3	749
	2600	57	134	3.7	492	6.0	810
	2500	48	126	4.2	523	6.9	870
11500	2700	62	139	3.4	468	5.5	768
	2600	55	133	3.8	500	6.2	821
	2500	45	123	4.3	530	7.1	873

FUEL CONSUMPTION FOR CRUISE FLIGHT (LEANED)*

50% Power	7.3 Gal/Hr
55% Power	8.0 Gal/Hr
60% Power	8.7 Gal/Hr
65% Power	9.4 Gal/Hr
70% Power	11.2 Gal/Hr
75% Power	12.3 Gal/Hr

The above figures are for 7,000 feet.

*For best fuel economy and proper engine performance at your cruising altitude, the fuel mixture must be leaned. Slowly pull out the mixture control until a slight rpm drop is noted, then ease the mixture control slightly forward.

WEIGHT AND BALANCE

By using the following tables, graph, and Sample Problem, you will always be able to fly your airplane within the design weight and center of gravity limits.

To figure your weight and center of gravity, first take your airplane empty weight and moment/100 from the aircraft weight and balance, plus any changes from forms FAA-337, carried in your airplane. Next, using the Useful Load Weight and Moments Charts, determine the moment/100 of each item you plan to carry. Total the weights and moments/100 and use the center of gravity Moment Envelope to determine whether the point falls within the envelope, and if the Loading is acceptable.

SAMPLE LOADING CALCULATION

	Sample Airplane	Your Airplane	
	Weight	Weight	Moment
	(lbs)	(lbs)	(/100)
1. FAA Certificated Weight	1435	1577	
2. Oil - 8 Qts. *	15	7	7
3. Fuel	180	211	
4. Pilot and Front Seat Passenger	340	374	
5. Rear Passengers	340	483	
6. Baggage	240	400	
7. Total Airplane (Loaded)	2550	3052	
8. Locate This Point On The Center of Gravity Envelope	2550	3052	

USEFUL LOAD WEIGHTS AND MOMENTS

FUEL (3)

H-ARM 117

Gallons	Weight	Moment /100	Gallons	Weight	Moment /100
5	30	35	35	210	246
10	60	70	40	240	281
15	90	105	45	270	316
20	120	140	50	300	351
25	150	176	55	330	386
30	180	211	59	354	414

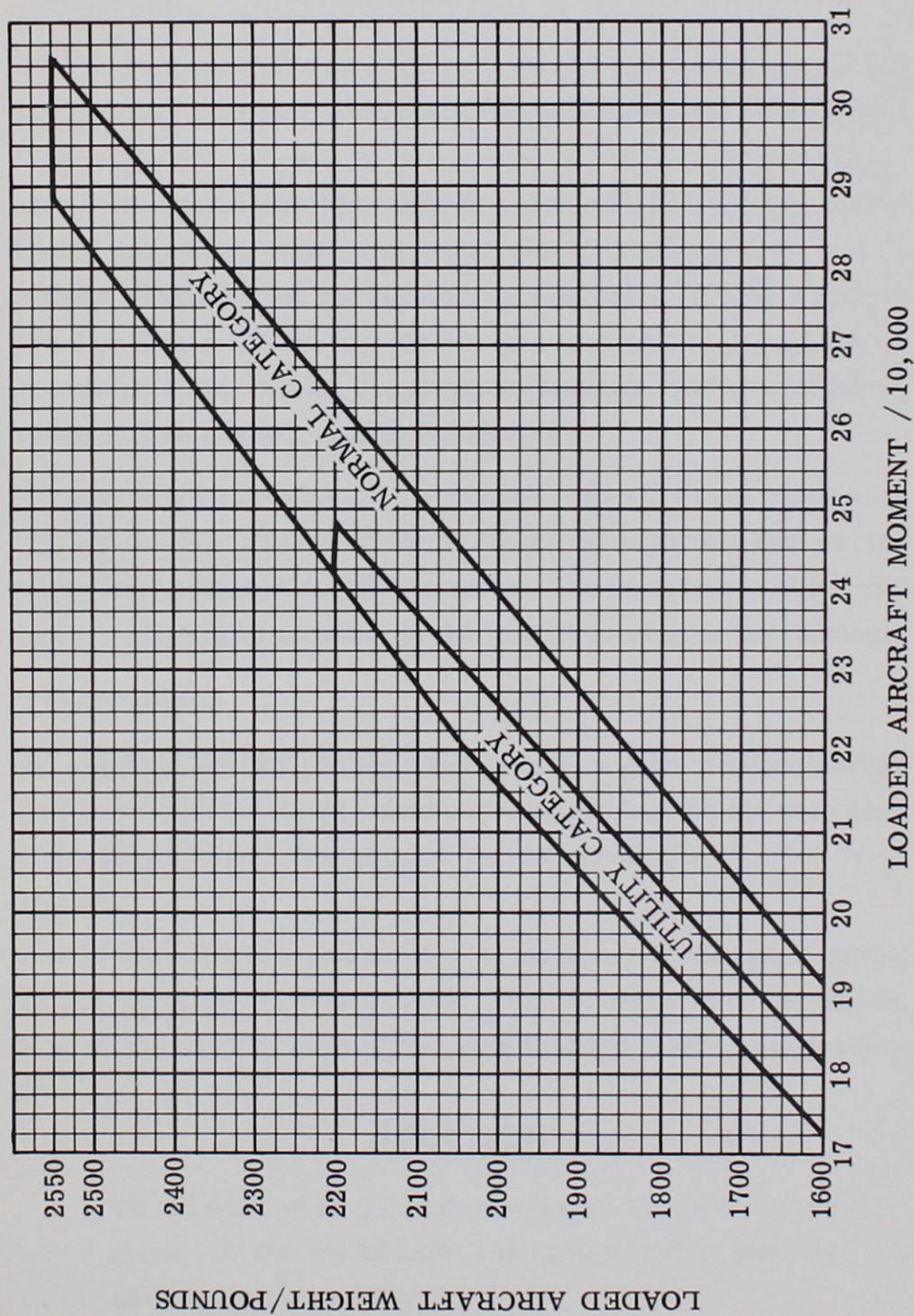
OCCUPANTS

FRONT SEAT		REAR SEAT	
H-ARM 110 (4)		H-ARM 142 (5)	
Weight	Moment/100	Weight	Moment/100
120	132	120	170
130	143	130	185
140	154	140	199
150	165	150	213
160	176	160	227
170	187	170	241
180	198	180	256
190	209	190	270
200	220	200	284

BAGGAGE	
H-ARM 167 (6)	
Weight	Moment/100
10	17
20	33
30	50
40	67
50	84
60	100
70	117
80	134
90	150
100	167
110	184
120	200
130	217
140	234

*Normally full oil may be assumed for all flights.

CENTER OF GRAVITY ENVELOPE GRAPH



SECTION V

SERVICING AND MAINTENANCE

This section furnishes suggestions and recommendations for the care and maintenance required to keep the airplane operating at peak efficiency, as well as information to assist you in deciding, when the airplane should be sent to a shop. It furnishes you guides should you choose to do some minor servicing yourself. It is in no sense a substitute for the services of your BEECHCRAFT Distributor or Dealer. Also included in this section is information on ground handling, oil and grease specifications, and tire inflation, which will be useful at a strange airport.

If you should refer a question to Beech Aircraft Corporation concerning the care of your MUSKETEER it is important that you include the airplane serial number in any correspondence. The serial number placard is attached to the left aft section of the fuselage.

TOWING

To move the MUSKETEER on the ground, attach the hand towbar included in the loose equipment over the two lugs on the nose gear lower torque knee. One person can maneuver the plane on level ground.

It is best to have someone standby the airplane's brakes when moving across uneven or sloping ground. When a towbar is not available, push on the leading edge of the wing inboard of the main landing gear.

CAUTION

Do not push on the propeller or any of the control surfaces. Do not try to raise the nose wheel by pushing down on the stabilator.

CAUTION

Extreme care should be used when towing with power equipment. Should the nose gear be turned in excess of 38° there is a very good possibility the travel stop bolt at the top of the strut will be sheared. Once the stop bolt is sheared, damage to the rudder pedal torque shafts may occur in the form of elongated holes or distorted shafts.

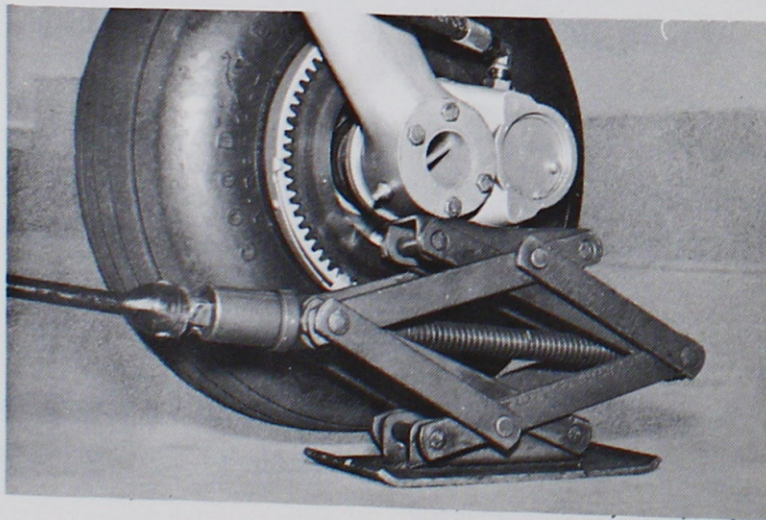
JACKING

Raise the individual gear for wheel and tire removal with a scissors jack under the axle, also jack pads may be installed for jacking.

DO NOT attempt to raise the nose gear by pushing down on the stabilator.

DO NOT raise the gear higher than is necessary to remove the wheel.

DO NOT enter plane while the plane is on a wheel jack.



TIE DOWN

Proper aircraft tiedown is good insurance against damage from strong or gusty winds. A tiedown lug is located on the lower side of each wing; the tail lug serves as a third tiedown point.

After bringing the aircraft into the desired position (preferably facing into the wind) proceed as follows:

1. Chock the main wheels, fore and aft.
2. Using nylon line or chain of sufficient strength, secure the aircraft at the wing and tail lugs. DO NOT overtighten; if the line at the tail lug is excessively tight, the nose may rise and produce lift due to the angle of attack of the wings.
3. Install the control column lock and pitot tube cover.

BATTERY

A 12-volt, 25 amp-hour, lead-acid battery, located directly aft of the baggage compartment may be reached through the access door in the rear panel.

Check the battery regularly for fluid level and add distilled water as required. Clean, tight connections should be maintained at all times. Battery vents should be checked periodically for obstructions and for proper protrusion (1 to 3 inches from top of chamfer to skin line). Since either vent may serve as the intake, one chamfer should be forward and the other aft.

When recharging the battery, commence with a charging rate of 4 amps and reduce to 2 amps at the close of the charging cycle. When applying a quick charge, the battery master switch must be in the OFF position.

OIL SYSTEM

Check engine oil quantity before each flight. Under normal operation conditions, the oil should be changed after each 50 hours of engine operation. More frequent changes may be required under adverse operating conditions. Use engine oil as indicated in the Consumable Materials Chart in this section. The engine oil sump capacity is eight quarts.

When draining the engine oil, first bring the oil up to normal operating temperature, then shut down the engine and immediately remove the sump drain plug.

FUEL SYSTEM

Use only 100/130 octane fuel, or higher, as indicated on the Consumable Materials Chart. Two 30 gallon (29.4 usable) fuel tanks are located in the wings just outboard of the wing root rib.

A visual measuring tab located below the tank filler neck, permits fills of 15 gallons or 20 gallons of fuel when it is desired to increase the payload. The fuel gages on the instrument subpanel will indicate full tanks even though each tank contains only 20 gallons of fuel.

CAUTION

Connect a grounding cable from the fuel nozzle to the landing gear or engine mount and to ground during fueling operations. Failure to do so creates a fire hazard.

Open each of the fuel drains daily to remove any condensed water vapor from the system. The two tank sump drains extend through the bottom of the wing skins. The system low spot drain is incorporated in the fuel strainer on the lower right hand side of the fuse-

lage aft of the nose wheel.

Inspection and cleaning of the fuel strainers should be considered of the utmost importance as a regular part of preventive maintenance. The following inspection and cleaning intervals are recommendations only, since the frequency will depend upon service conditions and fuel handling cleanliness. When operating in localities where there is an excessive amount of sand or dirt, the strainers should be inspected at more frequent intervals.

The screen in the fuel manifold valve at the top forward portion of the engine and the fuel strainer at the system low spot on the bottom of the fuselage should be removed and washed in fresh cleaning solvent at each 100-hour inspection of the airplane. Ordinarily, the finger strainers in the fuel tank outlets should not require cleaning unless there is a definite indication of solid foreign material in the tanks, or the airplane has been stored for an extended period.

After the fuel strainers have been reinstalled, the installations should be checked for leakage. Any fuel lines or fittings disconnected for maintenance purposes should be capped.

PRESERVATION OF RUBBER SEALS

To prevent deterioration of the seals around the windows, doors and cowlings, coat them with Oakite 6 compound. The compound is non-injurious to paint, and may be removed by employing normal cleaning methods.

ENGINE AIR INTAKE FILTER

The air filter, is located in the nose cowlings, and should be in-

spected every 25 to 50 hours for accumulated foreign matter. Operation in some areas may require cleaning more often.

To remove the filter for cleaning, loosen the two wing nuts holding the filter plate in place and lift the filter out.

The filter may be cleaned by shaking or tapping gently to dislodge foreign matter. Replacement is recommended at 300 hours for normal operation and more frequently should conditions warrant.

SERVICING THE TIRES

The MUSKETEEER is equipped with sidewall inflating tubeless tires. An inflating needle kit is furnished with the loose tools and accessories kit.

To inflate the tire, lubricate the inflating needle with the lubricant provided in the carrying case, then with the end of the inflation needle work lubricant around the guide hole of the tire valve and insert the needle. Inflate the 15 x 6.00-6 standard tires to 40 psi; inflate the 17.50 x 6.00-6 optional tires to 20-22 psi.

NOTE

Tube type wheels cannot be used with tubeless tires.

CAUTION

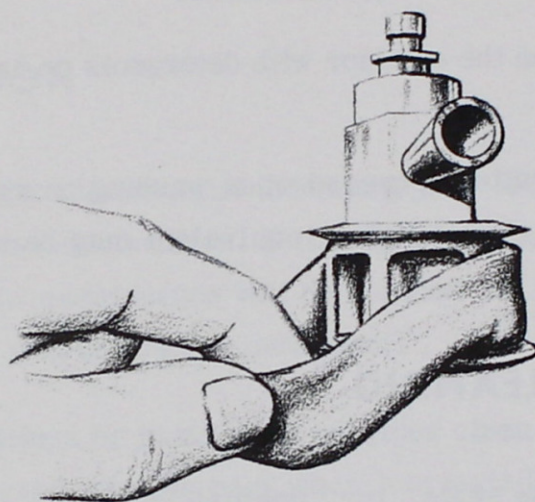
Never force the needle into a dry valve. If it will not enter easily, relubricate the needle and the valve.

BRAKES

Complete information on brake, wheel and tire maintenance is contained in The Beech Aircraft Corporation Manual 92-426 included in your loose tools and accessories kit.

VACUUM SYSTEM (OPTIONAL)

The foam rubber suction relief valve screen may be removed for cleaning by slipping it off the bottom of the valve (as shown in the illustration). The screen may be cleaned with soap and water.



MAGNETOS

Information pertaining to magneto timing and maintenance will be found in the Engine Operating and Field Maintenance Manual included in your loose tools and accessories kit.

CAUTION

Treat the magnetos as hot whenever the ground lead is disconnected. To ground the magneto, connect a wire to switch lead at the filter capacitor and ground the wire to the engine case.

EXTERIOR CLEANING

High gloss lacquer is used for the exterior painted surfaces. Do not wax or polish the aircraft for a period of 60 to 90 days after deliv-

ery, since the new paint requires this time to cure properly. Should it become necessary to clean the painted surface before the curing time has elapsed, use lukewarm water and mild soap. Rub down with a chamois or soft cloth.

CAUTION

Never clean the exterior with detergents or harsh alkalines.

Keep the static buttons covered when washing or waxing. BEECH-CRAFT Aero Luster Polish or equivalent may be used on painted surfaces.

INTERIOR CLEANING

Vacuum-clean the seats, rug, upholstery panels, and headlining frequently to remove as much surface dust and dirt as possible. When it is necessary to remove spots, stains, etc., use a commercial foam type cleaner. When using cleaners of this type, follow the recommendations as noted and approved on the container.

CLEANING PLEXIGLASS WINDOWS

Use care when cleaning plexiglass windows since they scratch easily. Never wipe the windows when dry. Clean water or a mild soap solution will remove ordinary film. Trisodium phosphate completely dissolved in water will remove oil and grease. For stubborn spots, hectane, naphtha or menthanol may be used. Rinse with clean, cool water and wipe dry with a soft cloth, sponge or chamois. Avoid prolonged rubbing.

NOTE

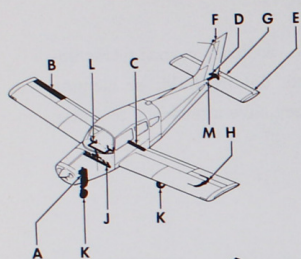
Do not use gasoline, benzine, acetone, carbon tetrachloride, fire extinguisher fluid, deicing fluid, or lacquer thinners on plexiglass as they have a tendency to soften and craze the surface.

LUBRICATION

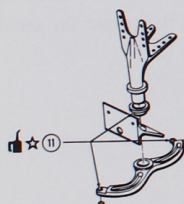
Proper lubrication is essential in keeping your MUSKETEEER's components in top notch condition. If this operation is performed thoroughly, general maintenance will be reduced and the service life of your airplane will be greatly increased.

The grease fittings or parts must be wiped clean to make sure that no dirt is carried into the part when lubricated. Apply lubricant sparingly, but with assurance that the bearing surfaces are adequately covered. Wipe off excess lubricant to prevent the accumulation of dust and foreign material.

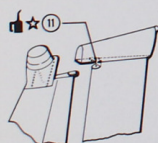
LUBRICATION POINTS



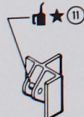
DETAIL B



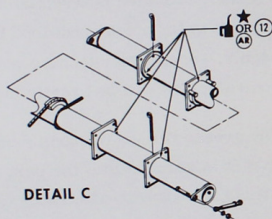
DETAIL D



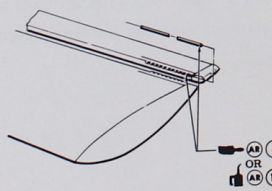
DETAIL F



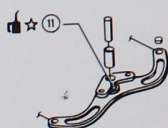
DETAIL G



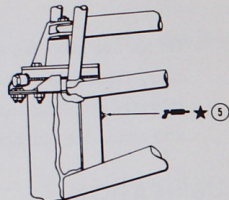
DETAIL C



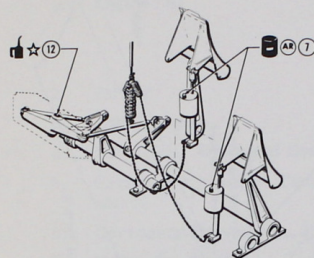
DETAIL E



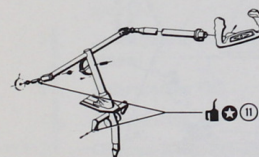
DETAIL H



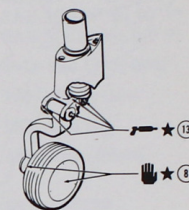
DETAIL A



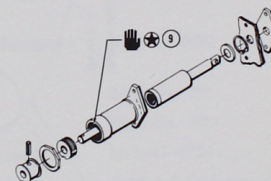
DETAIL J



DETAIL L



DETAIL K

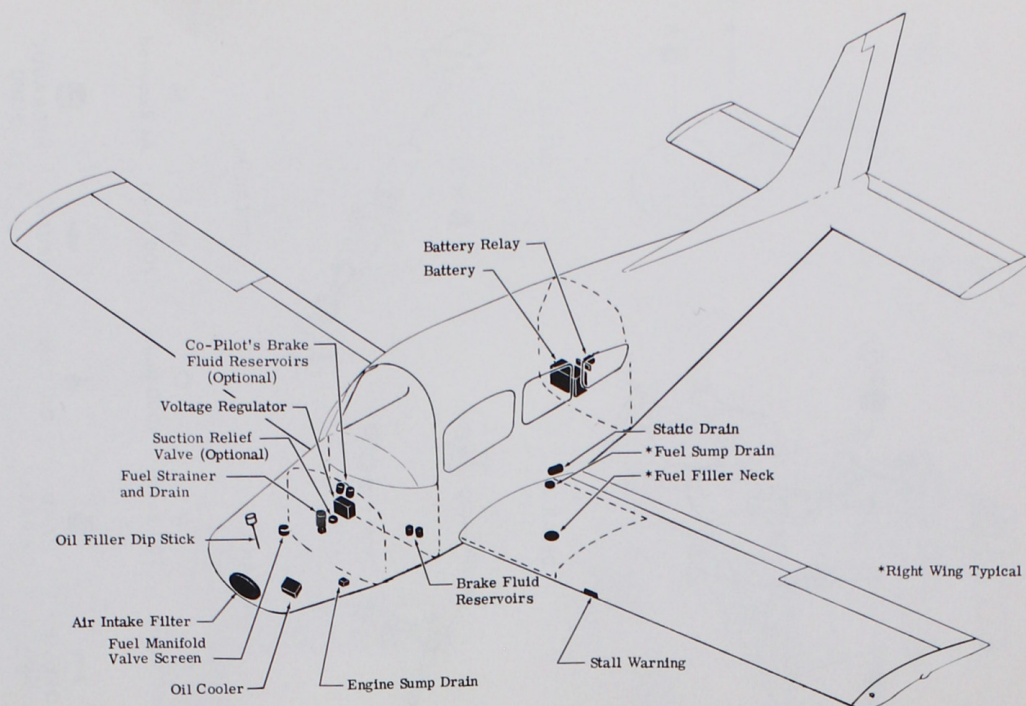


DETAIL M

★	☆	⊕	⊕	Ⓐ
100 hours	500 hours	1000 hours	1200 hours	As Required
GREASE GUN	HAND OR PACK	OIL CAN	BRUSH	HYDRAULIC FLUID

NOTE: Numbers refer to items in the consumable materials chart.
Lubricate all plain bearing bushings as required or every 500 hours with SAE No. 30 oil.
Apply SAE No. 20 oil to push-pull control housings as required.
Lubricate flight control pulley bushings with SAE No. 30 oil every 1000 hours.

SERVICING CHART



CONSUMABLE MATERIALS CHART

<u>ITEM</u>	<u>MATERIAL</u>	<u>SPECIFICATIONS</u>
1.	Engine Oil	SAE 20 (below 10° F) SAE 30 (0° to 70° F) SAE 40 (30° to 90° F) SAE 50 (above 60° F)
2.	Solvent	P-D-680 (P-S-661)
* 3.	Fuel, Engine	100/130 Octane
** 4.	Lubricant, Powdered Graphite	MIL-G-6711
5.	Grease (High & Low Temperature)	Aero Lubriplate
6.	Corrosion Preventive, Engine	MIL-C-6529
7.	Hydraulic Fluid	MIL-H-5606
8.	Grease (High Temperature)	MIL-G-3545
9.	Grease (High & Low Temperature)	MIL-G-23827
10.	Lubricating Oil (Low Temperature)	MIL-L-7870
11.	Lubricating Oil	SAE No. 20
12.	Lubricating Oil	SAE No. 30
*** 13.	Grease (General Purpose)	MIL-G-7711
**** 14.	Lubricant, Rubber Seal	Oakite 6 Compound

*If 100/130 Octane fuel is not available, use 130/145 Octane.

**Mix with quick evaporating liquid naphtha and apply with a brush.

***In extremely cold climates, MIL-G-23827 grease should be used in Place of MIL-G-7711 grease. Care should be exercised when using either MIL-G-7711 or MIL-G-23827 grease, as they contain a rust preventing additive which is harmful to paint.

****Product of OAKite Products, Inc., New York 6, New York.

LAMP REPLACEMENT GUIDE

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Tail Light	93
Landing Light	4313
Cabin Dome Light	89
Overhead Instrument Light	89
Compass Light	330
Engine Instrument Cluster Light	330R
Rotating Beacon	WRM-44R
*Landing Gear Position Light	330

*If simulated retractable landing gear switch kit is installed.

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