

# AVIAT AIRCRAFT INC.

AIRPLANE FLIGHT MANUAL

# HUSKY A-1B

SERIAL NUMBER

2383

REGISTRATION NUMBER


N966TF

FAA APPROVED: Ronald F. May

Manager, Denver Certification Office  
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Page	Rev	Page	Rev
i	C	21	IR
ii	C	22	IR
iii	C	23	IR
iv	C	24	A
1	C	25	A
2	C	26	IR
3	IR	27	IR
4	C	28	IR
5	C	29	IR
6	IR		
7	IR		
8	C		
9	C		
10	C		
11	IR		
12	C		
13	A		
14	IR		
15	IR		
16	C		
17	IR		
18	IR		
19	IR		
20	C		

TABLE OF CONTENTS

SECTION I	OPERATING LIMITATIONS	1 OF 29
	A. Airspeed	
	B. Powerplant	
	C. Weight	
	D. Flight Load Factors	
	E. Flight Limitations	
	F. Usable Fuel	
	G. Marking and Placards	
	H. Passenger Seating	
	I. Kinds of Operation Equipment List (KOEL)	
SECTION II	NORMAL PROCEDURES	8 OF 29
	A. Airspeed	
	B. Pre-Flight	
	C. Before Starting Engine	
	D. Starting Engine	
	E. Before Take-Off	
	F. Take-Off	
	G. Cruise	
	H. Before Landing	
	I. Balked Landing	
	J. Landing	
	K. After Landing	
	L. Securing Aircraft	
SECTION III	EMERGENCY PROCEDURES	16 OF 29
	A. Engine Failure After Take-Off	
	B. Engine Failure During Flight	
	C. Forced Landing With No Power	
	D. Fire	
	1. Starting	
	2. On Take-Off	
	3. In Flight (Engine)	
	4. In Flight (Electrical)	
	E. Icing	
	1. Carburetor	
	2. Pitot Static System	
	F. Stall Warning	
	G. Spins	
	H. Flap Asymmetry	

TABLE OF CONTENTS (Cont'd)

SECTION IV                      PERFORMANCE INFORMATION                      21 OF 29

- A. Stalls
- B. Maneuvers and Entry Speeds
- C. Engine Cooling
- D. Take-Off
- E. Climb
- F. Landing

SECTION V                      LOADING INFORMATION                      1 OF 7

- A. Weight and Balance
- B. Standard and Optional Equipment List

SECTION I OPERATING LIMITATIONS

A. AIRSPPEEDS

Airspeed Limitations:	<u>IAS</u>
Maximum flap operation ( $V_{FE}$ ) . . . . . (Do not exceed in any operation with flaps extended.)	80 MPH
Maneuvering speed ( $V_A$ ) . . . . . (Above this speed, full control surface deflection not permitted.)	113 MPH
Maximum structural cruising speed ( $V_{NO}$ ) . . . . . (Do not exceed this speed except in smooth air, and then only with caution.)	119 MPH
Never exceed speed ( $V_{NE}$ ) . . . . . (Do not exceed this speed in any operation.)	153 MPH

Airspeed Indicator Markings:	<u>IAS</u>
Flap extended speed (white arc) from stall speed . . . . .	53 MPH
to maximum flap extended speed . . . . .	80 MPH
Normal operating range (green arc) from stall speed . . . . .	58 MPH
to maximum normal operating speed . . . . .	119 MPH
Caution range (yellow arc) from maximum normal operating speed . . . . .	119 MPH
to never exceed speed (red radial) . . . . .	153 MPH
Never exceed speed (red radial) . . . . .	153 MPH

B. POWERPLANT LIMITS

For O-360-A1P Lycoming engine and Hartzell HC-C2YK-1BF/F7666A propeller.

Propeller diameter . . . . .	72 inches minimum, 76 inches maximum.
Propeller Pitch Settings (measured at 75% of semi-span) . . . . .	High Pitch $29.0^\circ \pm 1.0^\circ$ Low Pitch $11.7^\circ \pm 0.2^\circ$
Maximum Continuous Power . . . . .	180 H.P. at 2700 RPM
Normal Operating Power . . . . .	135 H.P. at 2400 RPM
Minimum Fuel Grade . . . . .	AVGAS 100/100 LL Octane

### OIL PRESSURE

Minimum (red radial) .....	25 PSI
Caution Range (yellow arc) .....	from 25 PSI to 60 PSI
Normal Range (green arc) .....	from 60 PSI to 90 PSI
Caution Range (yellow arc) .....	from 90 PSI to 100 PSI
Maximum (red radial) .....	100 PSI

### OIL TEMPERATURE

Maximum (red radial) .....	245 Deg. F./118 Deg. C.
Normal range (green arc) .....	from 100 Deg. F./38 Deg. C. to 245 Deg. F./118 Deg. C.

### TACHOMETER

Recommended idle .....	700 RPM
Normal Range (green arc) .....	from 500 RPM to 2000 RPM and from 2250 RPM to 2700 RPM
Red Arc .....	from 2000 RPM to 2250 RPM
Continuous operation between 2000 to 2250 RPM prohibited.	
Do Not Exceed (red radial) .....	2700 RPM

CYLINDER HEAD TEMPERATURE (red radial) .....	500° F
--	--------

C. WEIGHTS

Maximum Gross Weight (normal category) . . . . . 2000 LBS  
Design Empty Weight dry, no fuel, no oil. . . . . 1190 LBS

NOTE: Datum, FS 0.00 is located 60.0 inches  
forward of wing leading edge.

Maximum Oil. . . . . 2 US GALS 15 LBS  
Fuel Capacity . . . . . 52 US GALS 312 LBS  
Pilot . . . . . Actual Weight  
Passenger. . . . . Actual Weight  
Baggage, Maximum . . . . . 50 LBS  
Design Useful Load . . . . . 810 LBS

(See Section V, "Weight and Balance", Model A-1B Airplane for allowable weight  
and center of gravity combinations, and detail loading instructions.)

Weight and Center of Gravity Limits (Normal Category)

Most forward Limit. . . . . FS 71.0 at 1530 LBS  
Most forward Limit at Maximum Gross Weight . . . . . FS 73.6 at 2000 LBS  
Most rearward at Maximum Gross Weight or Less . . . . . FS 80.0 at 2000 LBS

D. FLIGHT LOAD FACTORS (Normal Category)

Positive Limit, Flaps Up. . . . . +3.8  
Negative Limit, Flaps Up . . . . . -1.52  
Positive Limit, Flaps Down . . . . . +2.0  
Negative Limit, Flaps Down. . . . . -1.0



E. FLIGHT LIMITATIONS

This airplane must be operated as a day and night VFR/IFR airplane.  
Flight into known icing conditions is prohibited.  
Acrobatic maneuvers, including spins, are prohibited.  
Demonstrated crosswind velocity is 15 MPH

F. USABLE FUEL

Of the 52 US gallons total fuel capacity, 50 gallons are usable during all normal flight conditions.

Unusable Fuel, normal flight. . . . . 2 US gallons.

G. MARKINGS AND PLACARDS

The following placards are installed in the airplane:

At fuel selector handle:

“MAIN FUEL SELECTOR”  
OFF  
ON  
50 GALS USABLE

Adjacent to airspeed indicator:

“DESIGN MANEUVERING SPEED 113 MPH IAS”  
“DEMONSTRATED CROSSWIND VELOCITY 15 MPH”

At rear of baggage compartment:

“MAXIMUM BAGGAGE 50 LBS”

On left side of cockpit immediately aft of pilot’s throttle:

“THE MARKINGS AND PLACARDS INSTALLED ON THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE NORMAL CATEGORY. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL. OPERATIONS ARE LIMITED TO DAY AND NIGHT VFR AND/OR IFR CONDITIONS. FLIGHT INTO KNOWN ICING CONDITIONS PROHIBITED. ACROBATIC MANEUVERS, INCLUDING SPINS, PROHIBITED”

Adjacent to each main fuel filler neck:

**"FUEL - AVGAS 100/100LL OCTANE 25 GALS USABLE"**

On right side panel next to the alternate static source valve:

**"OPEN FOR ALTERNATE STATIC AIR"**

On lower forward instrument panel:

**"SOLO FRONT SEAT ONLY"**

On lower forward instrument panel:

**"NO SMOKING"**

Next to alternate static source valve:

**"WHEN USING THE ALTERNATE STATIC AIR SOURCE THE FOLLOWING  
SHOULD BE ADDED TO THE ALTIMETER READING**

70 MPH....20 FT 110 MPH....100 FT

90 MPH....80 FT 130 MPH....120 FT

**CLOSE DOOR AND WINDOWS WHEN USING ALTERNATE STATIC AIR"**

NOTE: No airspeed correction necessary while using alternate static source.

Next to Tachometer

**"AVOID CONTINUOUS OPERATION  
BETWEEN 2000 - 2250 RPM"**

#### H. MAXIMUM PASSENGER SEATING CONFIGURATION

One person rear seat.

I. KINDS OF OPERATING EQUIPMENT LIST (KOEL)

This airplane may be operated in day or night VFR, day or night IFR, when approved equipment is installed and operable. Flight into known or forecast icing conditions is prohibited.

The following equipment list identifies the systems and equipment upon which type certification for each kind of operation was predicated. Unless the airplane is operated in accordance with a current Minimum Equipment List (MEL) issued by the FAA, the following systems and items of equipment must be installed and operable for the particular kind of operation indicated.

	VFR Day	VFR Night	IFR Day	IFR Night
<u>Electrical Power</u>				
1- Battery	1	1	1	1
2- Alternator	1	1	1	1
3- Ammeter	1	1	1	1
4- Alternator Indicator Lights	1	1	1	1
<u>Flight Controls</u>				
1- Trim Indicator (Elevator)	1	1	1	1
2- Stall Warn Horn	1	1	1	1
<u>Fuel</u>				
1- Fuel Quantity Indicator	2	2	2	2
2- Fuel Primer	1	1	1	1
<u>Lights</u>				
1- Cockpit Map (White)	0	1	0	1
2- Instruments Flood Red (Notes)	0	1	0	2
3- Anti-collision	0	2	0	2
4- Landing Light	0	1	0	1
5- Taxi Light	0	0	0	0
6- Position Lights	0	3	0	3
Note: Post Lights or Two floods, one per side required for IFR night.				
<u>Navigation</u>				
1- Sensitive Altimeter	1	1	1	1
2- Airspeed	1	1	1	1
3- Magnetic Compass	1	1	1	1
4- Attitude Indicator (Gyro Stabilized)	0	0	1	1
5- Direction Indicator (Gyro Stabilized)	0	0	1	1
6- Turn and Bank or Turn Coordinator	0	0	1	1
7- Vertical Speed Indicator	0	0	1	1
8- VHF Comm	0	0	1	1
9- VHF Nav or LF Nav	0	0	1	1

I. KINDS OF OPERATING EQUIPMENT LIST (KOEL) (continued)

	VFR Day	VFR Day	IFR Night	IFR Night
<u>Vacuum System</u>				
1- Suction Gauge	0	0	1	1
2- Vacuum Pump	0	0	1	1
<u>Engine Indicators</u>				
1- Tachometer	1	1	1	1
2- Manifold Pressure Gauge	1	1	1	1
3- Cylinder Head Temperature Gauge (CHT)	1	1	1	1
<u>Engine Oil</u>				
1- Oil Temperature Indicator	1	1	1	1
2- Oil Pressure Indicator	1	1	1	1

Note 1: The zeros (0) used in the above list mean that the equipment and/or system was not required for type certification for that kind of operation.

Note 2: The above system and equipment list is predicated on a crew of one pilot.

Note 3: Equipment and/or systems in addition to those listed above may be required by operating regulations (FAR Part 135).

Note 4: The above system and equipment list does not include all specific flight instruments and communications/navigation equipment required by FAR Parts 91 and 135 operating requirements.

SECTION II      NORMAL PROCEDURES

A. AIRSPEDS

Vx-Best angle of climb (sea level).....	67	MPH
Best angle of climb (10,000 ft.).....	70	MPH
Vy-Best rate of climb (sea level).....	74	MPH
Best rate of climb (10,000 ft.).....	68	MPH
Va-Maneuvering speed.....	113	MPH
Vfe-Maximum speed, flaps extended.....	80	MPH
Vne-Never exceed speed.....	153	MPH

For best engine cooling while climbing, use 74 MPH at seal level with a straight line variation to 68 MPH at 10,000 ft.

B. PRE-FLIGHT

1. Visually check aircraft for
  - a. Fabric..... General Condition
  - b. Screws and cowl fasteners..... Secure
  - c. Tires..... Proper Inflation
  - d. Brakes..... Secure
  - e. Pitot - static tube ports..... Check for Blockage
  - f. Tie-downs (wings-tail)..... Disconnect
2. Visually check fuel level in tanks
  - a. Clear fuel strainer and tank sumps of possible water and sediment.
  - b. Fuel caps..... Secure
  - c. Fuel vent openings..... Unobstructed
3. Control surfaces..... Check Freedom of Movement and Security
4. Engine..... General Condition & Security
  - a. Oil..... Check Level (7 - 8 qts)
  - b. Propeller and Spinner..... Check for Nicks, Cracks, Security and Oil Leaks
  - c. Carburetor air inlet..... Check for Obstructions
  - d. Cowl openings..... Check for Obstructions
5. In cold weather remove any accumulations of frost, ice, or snow.
6. If night flight is planned, check all lights.

C. BEFORE STARTING ENGINE

1. Pre-flight ..... Complete
2. Flight Controls ..... Free and Correct
3. Seat Belts, Shoulder Harness ..... Adjust and Lock
4. Fuel Valve ..... On
5. All Electrical Switches ..... Off
6. Brakes ..... Test and Set  
The parking brake controls consist of small metal tabs on the top of each brake master cylinder on the rear pedals. To set: 1. Apply pressure to brake pedals. 2. Lift up on tabs. 3. Release pressure to brake pedals 4. The tabs should lock the pistons in place. To release: 1. Apply pressure to brake pedals. 2. Release pressure to brake pedals.

D. STARTING ENGINE

1. Mixture ..... Rich
2. Carburetor Heat ..... Cold
3. Propeller Control ..... Full Increase (In)
4. Master Switch ..... On
5. Throttle ..... Open 1/4 Inch
6. Prime (Depending on temperature) ..... 1 to 6 strokes(then secure primer)  
(None required when engine is warm.)
7. Propeller Area ..... Clear
8. Ignition Switch ..... Start (Release when engine starts)
9. Oil Pressure ..... Check
10. Alternator Field Switch ..... On

START ENGINE USING EXTERNAL BATTERY POWER (OPTIONAL GROUND POWER PLUG)

**CAUTION**

Engine start with external power must only be accomplished with the assistance of a qualified ground crewman.

1. Pre-flight . . . . . Complete
2. Seat belts and shoulder harnesses . . . . . Adjust and lock
3. Fuel valve . . . . . On
4. All electrical switches . . . . . Off

**CAUTION**

Insure that all electrical switches, radios, and avionics are off prior to connecting external battery power. Failure to do so may result in damage to electronic equipment.

5. Battery access panel . . . . . Remove for access to ground power plug
6. Brakes . . . . . Test and set
7. Mixture . . . . . Rich
8. Carburetor heat . . . . . Cold
9. Propeller Control . . . . . Full Increase (In)
10. External battery power . . . . . Connect
11. Master Switch . . . . . On
12. Throttle . . . . . Open 1/4 inch
13. Prime (depending on temperature) . . . . . 1 to 6 strokes (then secure primer)
14. Propeller area . . . . . Clear
15. Ignition switch . . . . . Start (release at engine start)
16. Oil Pressure . . . . . Check
17. External Power . . . . . Disconnect
18. Alternator field switch . . . . . On
19. Battery access panel . . . . . Secure

**E. BEFORE TAKE-OFF**

1. Cabin Doors . . . . . Latched
2. Flight Controls . . . . . Free and Correct
3. Elevator Trim . . . . . Half way between Full Nose Up and Neutral  
can be used for all weights and CG locations.
4. Fuel Valve . . . . . On
5. Mixture . . . . . Full Rich (In)

6. Brakes ..... Set
7. Throttle ..... 1900 RPM
  - a. Magnetos ..... Check  
(RPM drop should not exceed 150 RPM on either magneto  
or 50 RPM between magnetos. Lean if above 5000' MSL.)
  - b. Carburetor Heat ..... Check RPM drop.
  - c. Engine Instruments ..... Check  
Ammeter ..... Check Battery Charging  
Suction Gauge (vacuum system installed) ..... (4½ to 5½ " Hg)
8. Throttle ..... 1700 RPM
  - a. Prop Governor ..... Check  
Move propeller control through complete range and return to high RPM
9. Flight Instruments and Radios ..... Set
10. Carburetor Heat ..... Cold

F. TAKE-OFF

Normal Takeoff

1. Wing Flaps ..... 0°
2. Propeller Control ..... Full Increase (In)
3. Throttle ..... Full Open
4. Elevator ..... ¼ Up From Neutral  
(Hold Tail Low)
5. Lift-Off ..... 55 to 60 MPH
6. Climb ..... 74 MPH

Crosswind Takeoff

1. Wing Flaps ..... 0°
2. Propeller Control ..... Full Increase (In)
3. Throttle ..... Full Open
4. Elevator ..... ¼ Up From Neutral  
(Hold Tail Low)



5. Ailerons ..... Into Wind
6. Lift-Off ..... 55 to 60 MPH  
Keep upwind wing low and nose aligned with runway
7. Climb ..... 74 MPH

Maximum Performance Takeoff

1. Wing Flaps ..... 30°
2. Trim ..... Half way between Full Nose Up and Neutral  
can be used for all weight and CG locations
3. Propeller Control ..... Full Increase (In)
4. Throttle ..... Full Open
5. Brakes ..... Release
6. Elevator ..... ½ Up From Neutral  
(Hold Tail on Ground)
7. Lift Off ..... 53 to 58 MPH
8. Climb ..... 65 MPH

G. CRUISE

1. Propeller control ..... 2250 to 2700 RPM
2. Throttle ..... For Desired Manifold Pressure
3. Mixture ..... Lean
  - a. Move from rich toward lean (pull).
  - b. Continue until engine roughness is noted.
  - c. Enrich until engine runs smoothly and power regained (25° rich of peak EGT)

NOTE: For best economy 2350 RPM at 20 inches manifold pressure,  
lean mixture as described in step 3.

H. BEFORE LANDING

1. Mixture ..... Rich
2. Carburetor Heat ..... On

3. Throttle ..... Close  
(Or as needed for approach)
4. Flaps ..... As desired  
(see Section IV - F)
5. Airspeed ..... 68 MPH for 30° Flaps  
75 MPH for 0° Flaps
6. Propeller Control ..... Full Increase

NOTE: A spring type trim system is installed, use trim to help reduce up elevator force while landing.

I. BALKED LANDING

1. Throttle ..... Open
2. Propeller ..... Full Increase (In)
3. Carburetor Heat ..... Cold
4. Flaps ..... slowly retract to 0°
5. Climb Airspeed (Vx) ..... 74 MPH (Sea Level)

J. LANDING

Normal Landing

1. Airspeed ..... Below 80 MPH
2. Flaps ..... As desired  
(see Section IV-F)
3. Trim ..... Adjust for 68 MPH for 30° Flaps  
75 MPH for 0° Flaps
4. Power ..... Idle (Or As Required)
5. Touchdown ..... Tail Down Landing - Tail Wheel First  
Wheel Landing - Main Wheels First
6. Landing Roll ..... Tail Down Landing - Elevator Up (Full Back)  
Wheel Landing - Slowly lower tail to runway, then Full aft stick
7. Brake ..... As Required

Short Field Landing

1. Airspeed. . . . . 68 MPH
2. Flaps. . . . . 30°
3. Trim. . . . . Adjust (Full Nose Up)
4. Power. . . . . As Required
5. Touchdown . . . . . Tail Wheel First
6. Landing Roll . . . . . Elevator Full Back
7. Flaps . . . . . Retract to 0° After Touchdown  
For maximum Brake Effectiveness
8. Brake . . . . . Apply Heavily

Cross Wind Landing

1. Airspeed. . . . . 68 MPH for 30° Flaps  
75 MPH for 0° Flaps
2. Flaps . . . . . As Desired  
(Recommended 30°)
3. Power. . . . . As Required
4. Ailerons--Rudder. . . . . On Short Final Use Ailerons  
to Keep Upwind Wing Low,  
Rudder to Hold Runway Alignment
5. Touchdown. . . . . Tail Wheel First  
(Do not Touch Down In A Slip)
6. Landing Roll. . . . . Use Aileron to Keep Upwind  
Wing Down, Rudder and Brakes  
(If needed) for Directional Control
7. Flaps. . . . . Retract to 0°

K. AFTER LANDING

1. Flaps..... 0°
2. Carburetor Heat..... Cold

L. SECURING AIRCRAFT

1. Brakes..... Set
2. Radios, Electrical..... Off
3. Mixture..... Idle Cut Off
4. Ignition Switch..... Off
5. Master Switch..... Off
6. Secure Aircraft..... Tie Down

SECTION III EMERGENCY PROCEDURES

MAXIMUM GLIDE DISTANCE SPEED ..... (NO FLAPS) 73 MPH  
LOWEST RATE OF DESCENT SPEED ..... (NO FLAPS) 68 MPH

A. ENGINE FAILURE AFTER TAKE-OFF

1. Lower nose to maintain airspeed.  
In most cases, landing should be planned straight ahead
2. Airspeed ..... 75 MPH (No Flaps)  
68 MPH (30° Flaps)  
(30° Flaps Recommended)
3. Mixture ..... Cut Off
4. Fuel Valve ..... Off
5. Master Switch ..... Off

B. ENGINE FAILURE DURING FLIGHT

1. Establish glide at 73 MPH  
While gliding toward a suitable landing area, an effort should be made to identify cause of failure. If time permits, proceed as follows:
2. Airspeed ..... 73 MPH
3. Propeller ..... Full Increase (In)
4. Carburetor Heat ..... Hot
5. Fuel Valve ..... On
6. Mixture ..... Rich
7. Ignition Switch ..... Both  
(Or START if propeller is not windmilling)

NOTE: If the engine cannot be restarted, a forced landing without power must be executed.

C. FORCED LANDING WITH NO POWER

1. Airspeed. . . . . 75 MPH (No Flaps)  
68 MPH (30° Flaps)
2. Mixture. . . . . Idle Cut-Off
3. Propeller. . . . . Full Decrease (Out)
4. Fuel Shutoff. . . . . Off
5. Ignition Switch. . . . . Off
6. Wing Flaps. . . . . As Required  
(30° Recommended)
7. Master Switch. . . . . Off
8. Door. . . . . Unlatch
9. Touch Down. . . . . Tail Wheel First
10. Brakes. . . . . Apply Heavily

D. FIRES

1. Engine Fire -- Starting
  - a. Continue cranking in an attempt to start the engine.
  - b. If starts is successful, run engine at 1700 RPM for a few minutes before shutting down to inspect damage.
  - c. If starting is unsuccessful continue cranking engine for two to three minutes:
    1. Mixture. . . . . Cut Off
    2. Throttle. . . . . Full Open
    3. Obtain fire extinguisher
  - d. When ready to extinguish fire:
    1. Discontinue cranking
    2. Master, Ignition Switch. . . . . Off
    3. Fuel Valve. . . . . Off
  - e. Make a thorough inspection before conducting another flight.

D. FIRES (continued)

2. Engine Fire On Take-Off

a. Before Lift-Off

- 1. Throttle ..... Idle
- 2. Brakes ..... Apply Heavily
- 3. Mixture ..... Cut-Off
- 4. Switches (after engine stops) ..... Off

b. After Lift-Off

- 1. Throttle ..... Idle
- 2. Complete as much of "Fire in Flight" as possible. .... (D(3))
- 3. Land As Soon As Possible  
(Follow Forced Landing With No Power)

3. Fire In Flight (Engine)

- a. Fuel shut off ..... Off
- b. Mixture ..... Cut Off
- c. Switches ..... Off
- d. Cabin Heat ..... Off
- e. Airspeed ..... (that which will provide an incombustible mixture)
- f. Land As Soon As Possible  
(Using Forced Landing With No Power)

4. Fire in Flight (Electrical)

The initial indication of an electrical fire is an odor of burning insulation  
The following procedure should be used.

- a. Master Switch ..... Off
- b. All Radio/Electrical Switches ..... Off
- c. Fire Extinguisher ..... Activate (If Available)
- d. Land As Soon As Possible

D. FIRES (continued)

If landing cannot be made immediately and fire appears out and electrical power is necessary for continuance of flight

- e. Master Switch. . . . . On
- f. Circuit Breakers. . . . . Check for open circuit, do not reset
- g. Radio/Electrical Switches. . . . . On  
(On one at a time, with delay after each one until faulty circuit is located.)
- h. Land As Soon As Possible

E. ICING (FLIGHT INTO KNOWN ICING PROHIBITED)

1. Carburetor

- a. Carburetor Heat. . . . . Hot
- b. When ice has cleared  
Carburetor Heat. . . . . Cold
- c. If carburetor heat is used continuously,  
lean mixture for maximum manifold pressure.

2. Pitot Static System

- a. Alternate static valve. . . . . Open
- b. Apply altimeter correction from placard, no airspeed correction applies.
- c. Remain clear of icing and Land As Soon As Practical

F. STALL WARNING INOPERABLE WITH  
MASTER SWITCH OFF



G. SPINS

1. Spins Are Unauthorized
2. Recovery from an inadvertent spin
  - a. Retard throttle to idle
  - b. Ailerons neutral
  - c. Apply full opposite rudder  
(Opposite direction of rotation)
  - d. Move control stick forward of neutral in brisk motion.
  - e. When rotation stops, neutralize rudder, make a smooth recovery from dive.

H. FLAP ASYMMETRY

1. Flap Deployment
  - a. Maintain control with Aileron against roll and rudder for coordination
  - b. Retract flap to 0° or to Symmetry
  - c. Land as soon as practicable at the nearest airport where maintenance may be performed
2. Flap Retraction
  - a. Maintain control with Aileron against roll and rudder for coordination
  - b. Deploy flap back to symmetry
  - c. Land as soon as practicable at the nearest airport where maintenance may be performed

SECTION IV

PERFORMANCE INFORMATION

A. STALLS

1. Altitude loss during power off stalls ..... 150 ft.

2. Power off stalling speed versus bank angle @ 2000 lbs.

	<u>BANK ANGLE</u>	<u>STALLING SPEED (IAS)</u>
0° Flaps	0°	58 MPH
	30°	62 MPH
	45°	69 MPH
	60°	82 MPH
30° Flaps	0°	53 MPH
	30°	57 MPH
	45°	63 MPH
	60°	75 MPH

B. MANEUVERS AND ENTRY SPEEDS

1. Design maneuvering speed ..... 113 MPH IAS

2. All acrobatic maneuvers, including spins are unauthorized.

C. ENGINE COOLING

Engine cooling demonstrated to a maximum ambient atmospheric temperature, corresponding to sea level conditions of 100° F.

D. TAKE-OFF

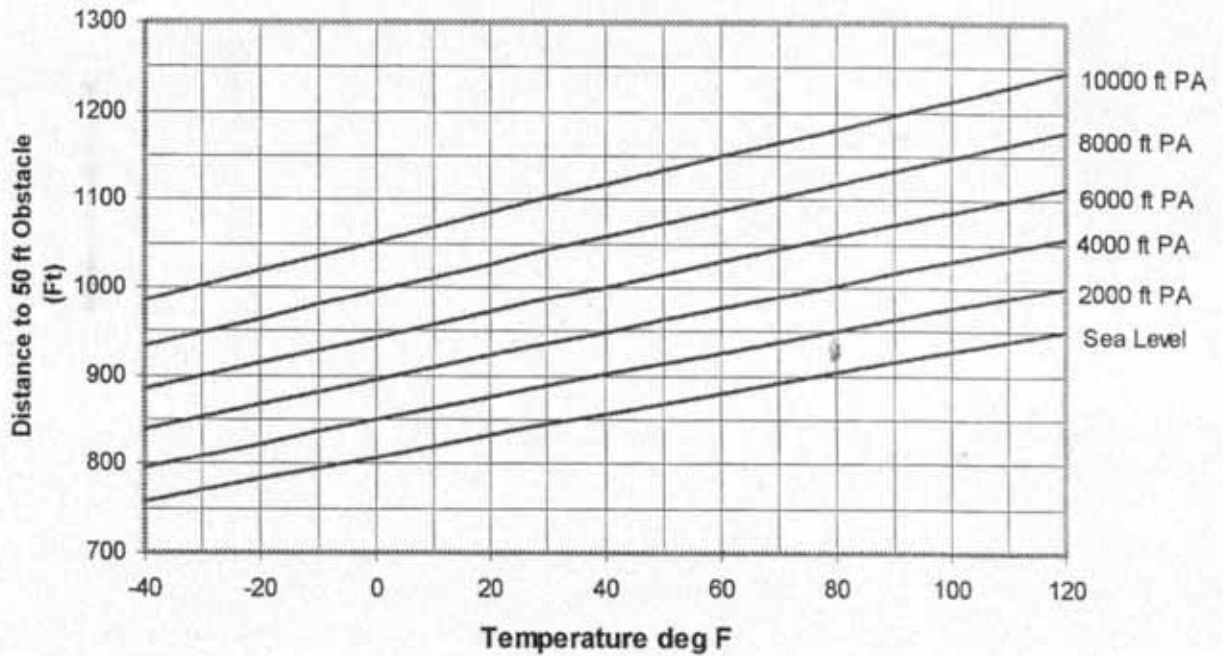
76 Inch Diameter Propeller

1. Take-off Normal Flaps 0° (Over 50 Ft. Obstacle)  
Maximum weight ..... 2000 lbs.

2. Notes:

1. No wind
2. Hard surface runway (dry, level)
3. Lift-off 55 to 60 MPH IAS.
4. Airspeed at 50 ft. obstacle height  $1.3 V_{s1} = 75$  MPH IAS
5. Ground roll is approximately 40% of total distance to 50 ft. obstacle height.
6. Technique as specified in Section II.

**Take- Off Distance to 50 ft Obstacle  
Flaps 0 deg - 76 in Dia. Prop**



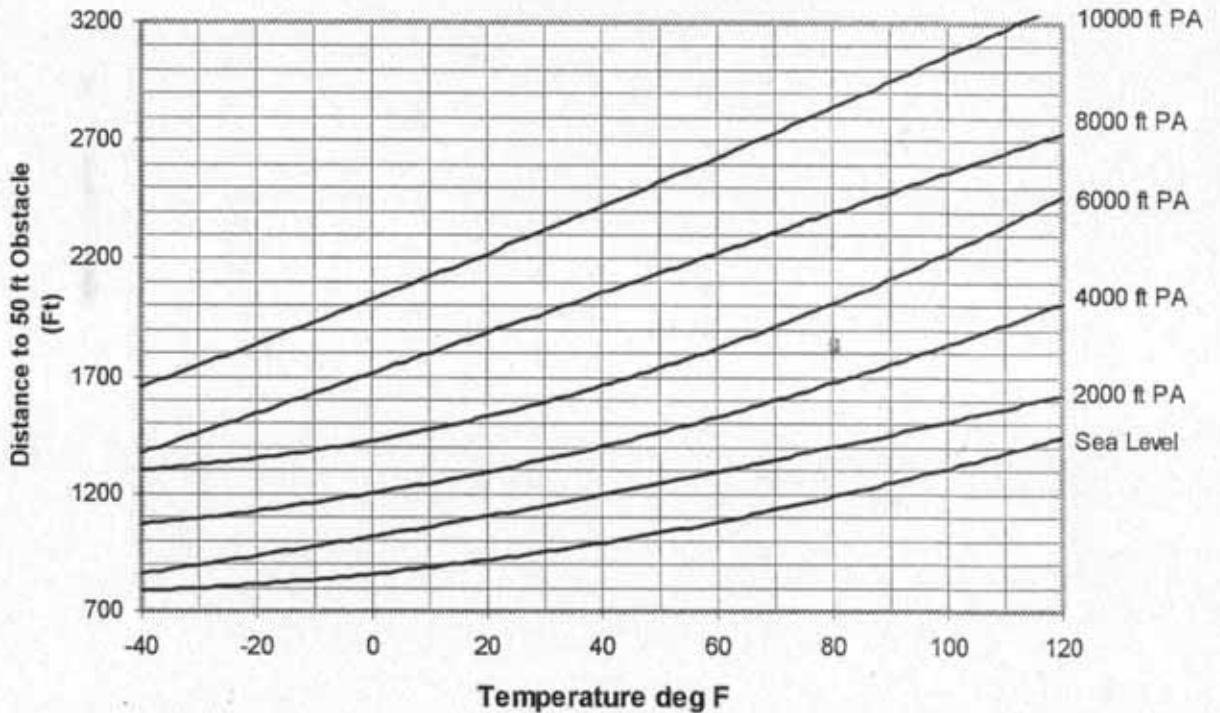
D. TAKE-OFF (continued)

72 Inch Diameter Propeller

1. Take-off Normal Flaps 0° (Over 50 ft. Obstacle)  
 Maximum weight. . . . . 2000 lbs.

2. Notes:
1. No wind
  2. Hard surface runway (dry, level)
  3. Lift-off 55 to 60 MPH IAS.
  4. Airspeed at 50 ft. obstacle height 1.3  $V_{s1}$  = 75 MPH IAS
  5. Ground roll is approximately 40% of total distance to 50 ft. obstacle height.
  6. Technique as specified in Section II.

**Take- Off Distance to 50 ft Obstacle  
 Flaps 0 deg- 72 in Dia. Prop**



D. TAKE-OFF (continued)

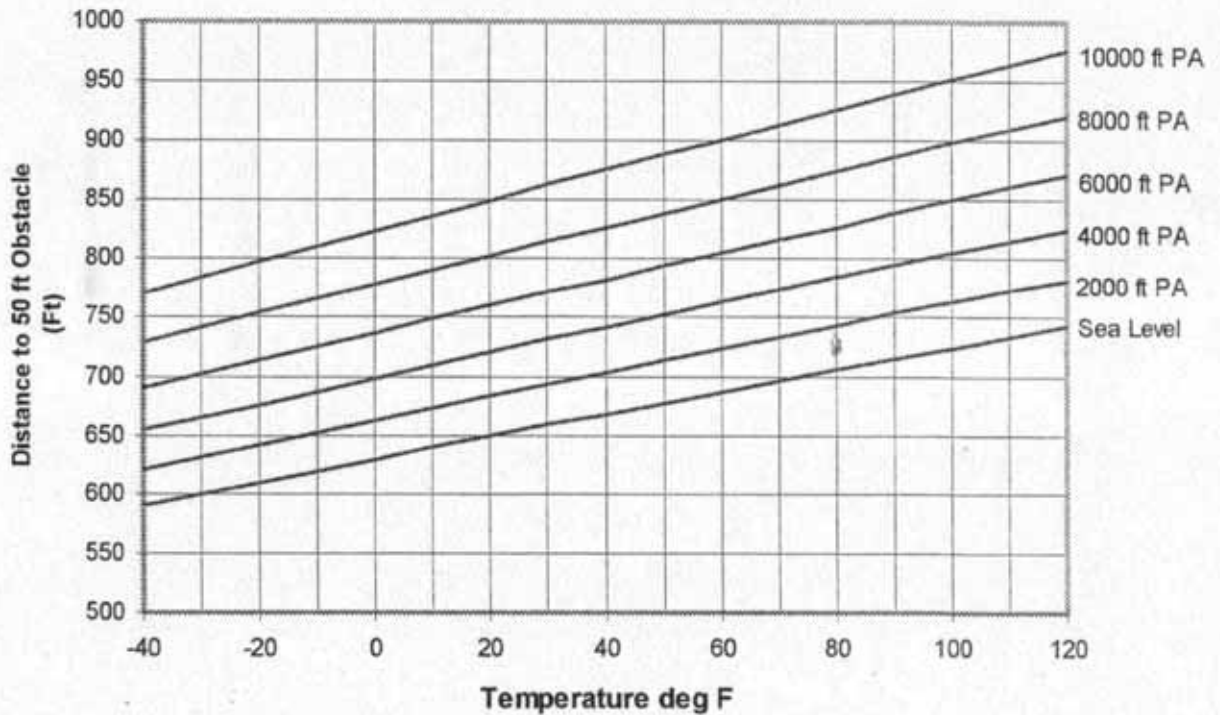
76 Inch Diameter Propeller

1. Take-off Maximum Performance    Flaps 30° (Over 50 ft. Obstacle)  
Maximum weight. . . . . 2000 lbs.

2. Notes:

1. No wind
2. Hard surface runway (dry, level)
3. Lift-off 53 to 58 MPH IAS.
4. Airspeed at 50 ft. obstacle height  $1.3 V_{s1} = 70$  MPH IAS
5. Ground roll is approximately 42.5% of total distance to 50 ft. obstacle height.
6. Technique as specified in Section II.

**Take- Off Distance to 50 ft Obstacle  
Flaps 30 deg - 76 in Dia. Prop**



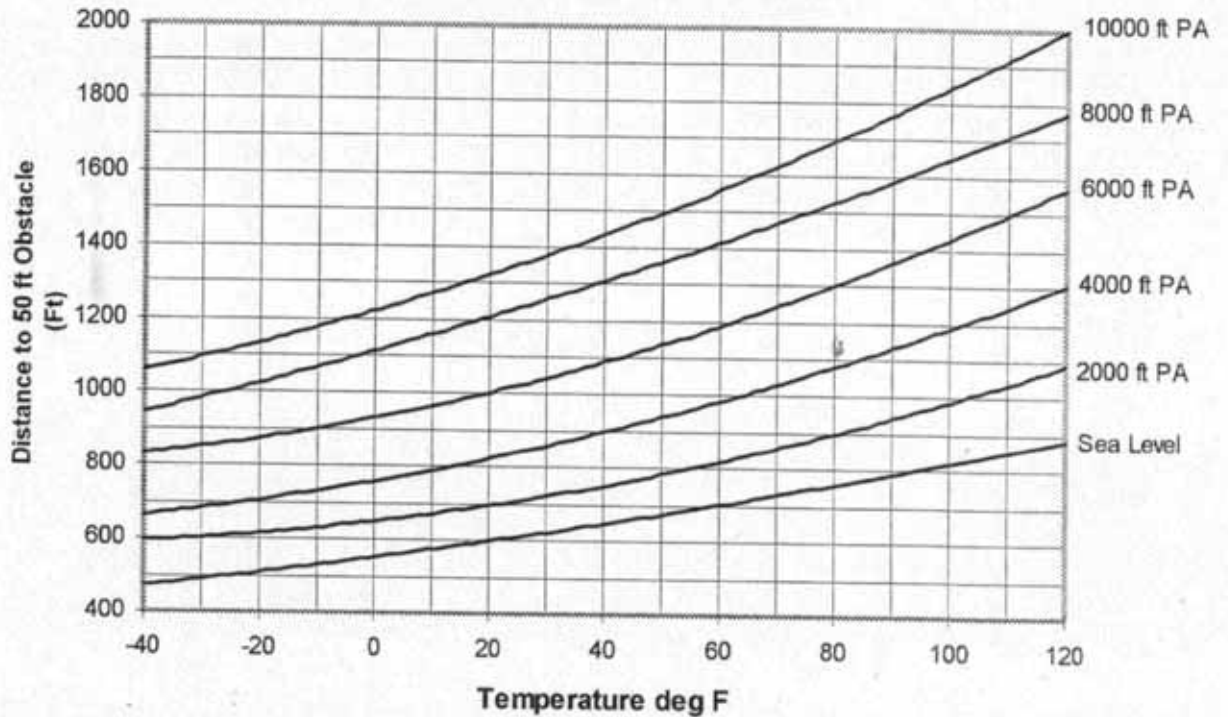
D. TAKE-OFF (continued)

72 Inch Diameter Propeller

1. Take-off Maximum Performance  
Maximum weight. . . . . 2000 lbs. Flaps 30° (Over 50 ft. Obstacle)

2. Notes:
1. No wind
  2. Hard surface runway (dry, level)
  3. Lift-off 53 to 58 MPH IAS.
  4. Airspeed at 50 ft. obstacle height 1.3 Vs1 = 70 MPH IAS
  5. Ground roll is approximately 42.5% of total distance to 50 ft. obstacle height.
  6. Technique as specified in Section II.

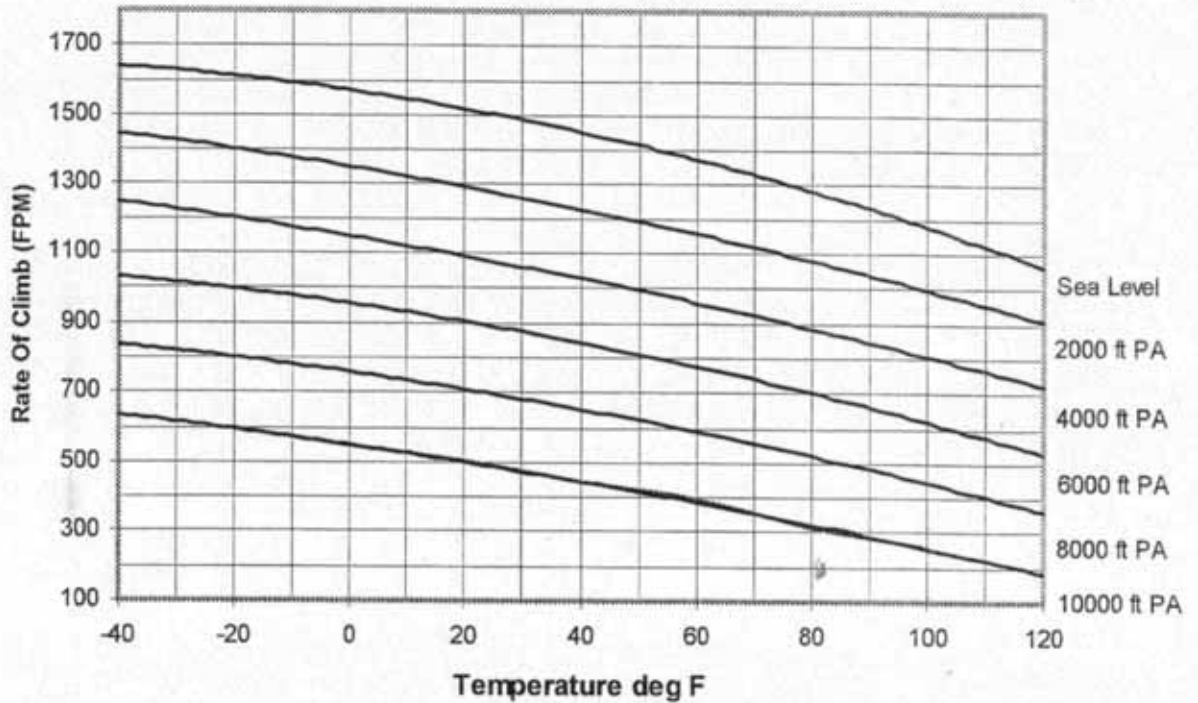
Take-Off Distance to 50 ft Obstacle  
Flaps 30 deg- 72 in Dia. Prop



E. CLIMB 76 Inch Diameter Propeller

- Notes: 1. All climbs are with 0° flaps  
2. Climb speed is best rate of climb:  
74 MPH at sea level to 68 MPH at 10,000 ft. with a straight line variation.  
3. Smooth air, no wind.  
4. Maximum weight. . . . . 2000 lbs.

**Climb Performance**  
**Flaps 0 deg-76 in Dia. Prop**

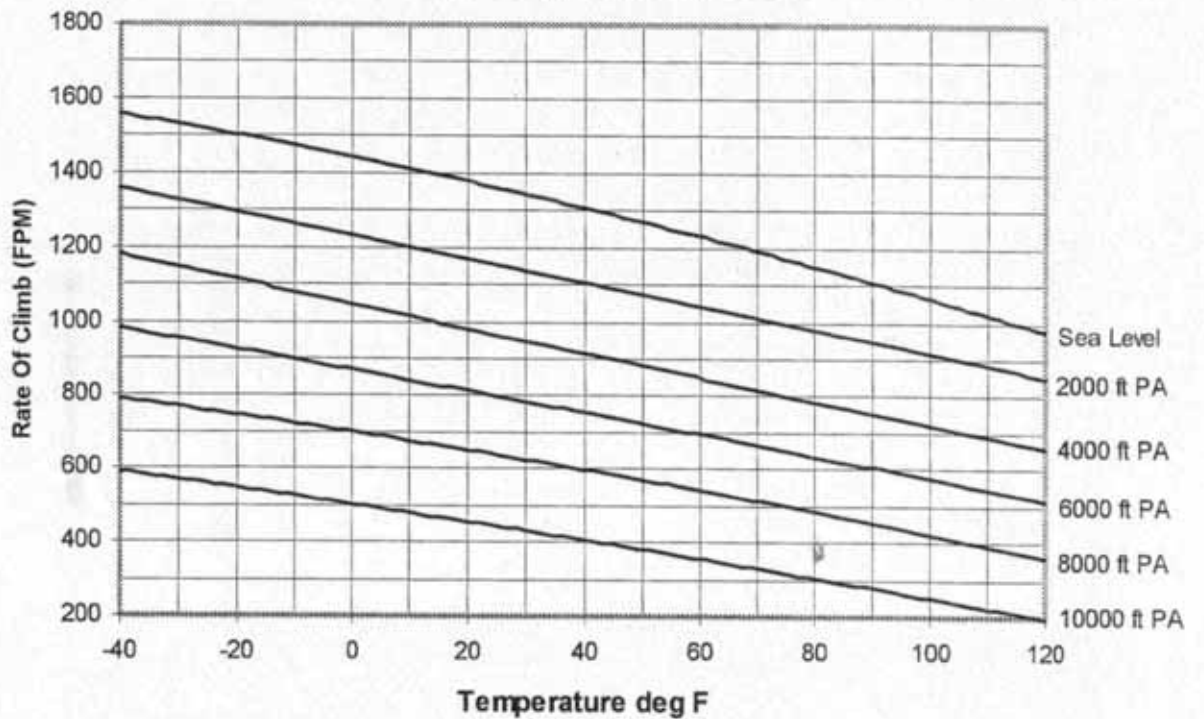


E. CLIMB (continued)

72 Inch Diameter Propeller

- Notes:
1. All climbs are with 0° flaps
  2. Climb speed is best rate of climb:  
74 MPH at sea level to 68 MPH at 10,000 ft. with a straight line variation.
  3. Smooth air, no wind.
  4. Maximum weight. . . . . 2000 lbs.

**Climb Performance**  
**Flaps 0 deg- 72 in Dia. Prop**





F. LANDING

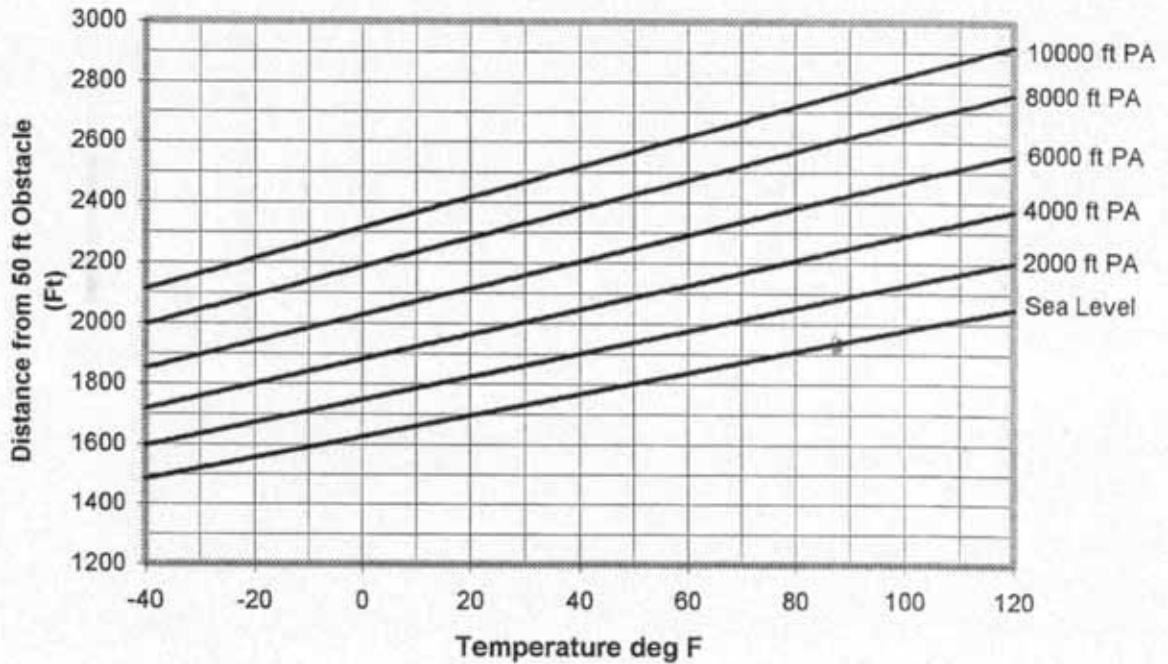
Landing Over 50 ft. Obstacle, Flaps 0°

Maximum weight ..... 2000 lbs.

Notes:

1. No wind
2. Hard surface runway (dry, level)
3. Airspeed at 50 ft. obstacle height  $1.3 V_{s1} = 75$  MPH IAS
4. Ground roll is approximately 36.5% of total landing distance from 50 ft. obstacle height.
5. Brakes, apply heavily.
6. Technique as specified in Section II.

**Landing Distance from 50 ft Obstacle  
Flaps 0 deg**



F. LANDING (continued)

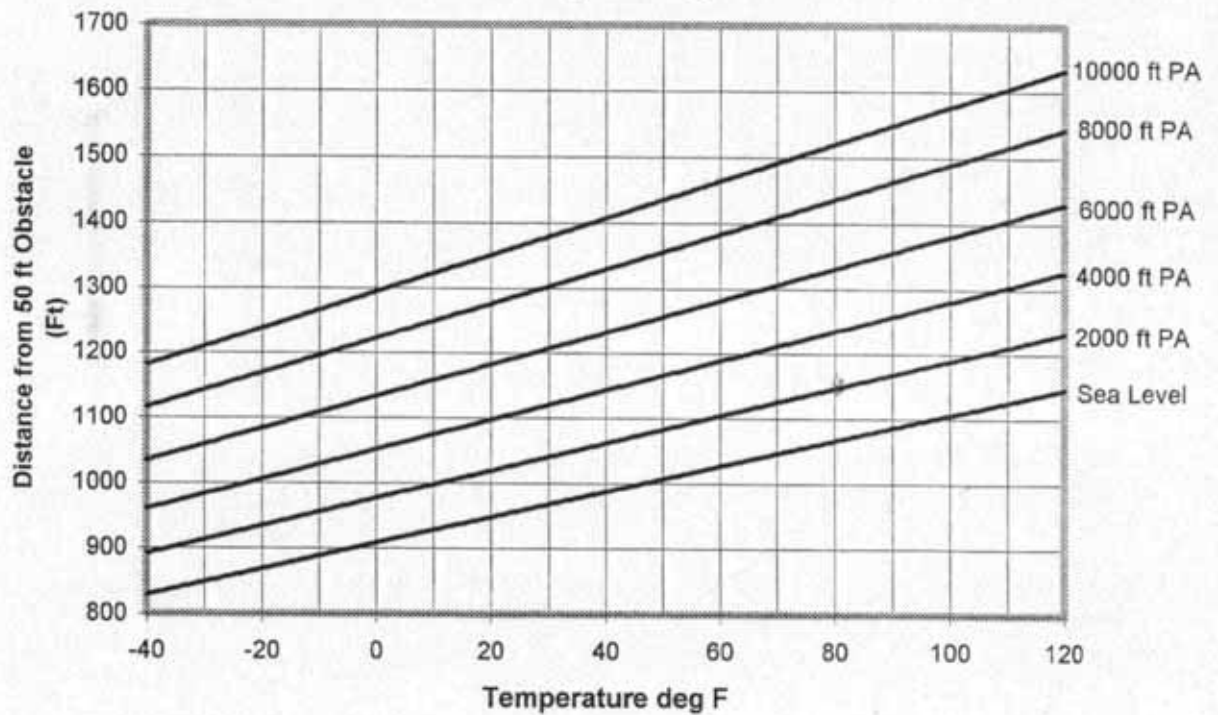
Landing Over 50 ft. Obstacle, Flaps 30°

Maximum weight ..... 2000 lbs.

Notes:

1. No wind
2. Hard surface runway (dry, level)
3. Airspeed at 50 ft. obstacle height 1.3  $V_{s1}$  = 70 MPH IAS
4. Ground roll is approximately 38.8% of total landing distance from 50 ft. obstacle height.
5. Brakes, apply heavily.
6. Technique as specified in Section II.

**Landing Distance from 50 ft Obstacle  
Flaps 30 deg**



SECTION V

LOADING INFORMATION

ACTUAL WEIGHT & BALANCE OF:

MODEL: AVIAT A-1B

SERIAL NO: 2383

DATE: 1-02-07

PREPARED BY 

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NOTE: It is the responsibility of the pilot to ensure that the airplane is operated in loading configurations which are within the approved weight and center of gravity limits.

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INITIAL RELEASE

LOADING INFORMATION (cont'd)

LOG OF REVISIONS

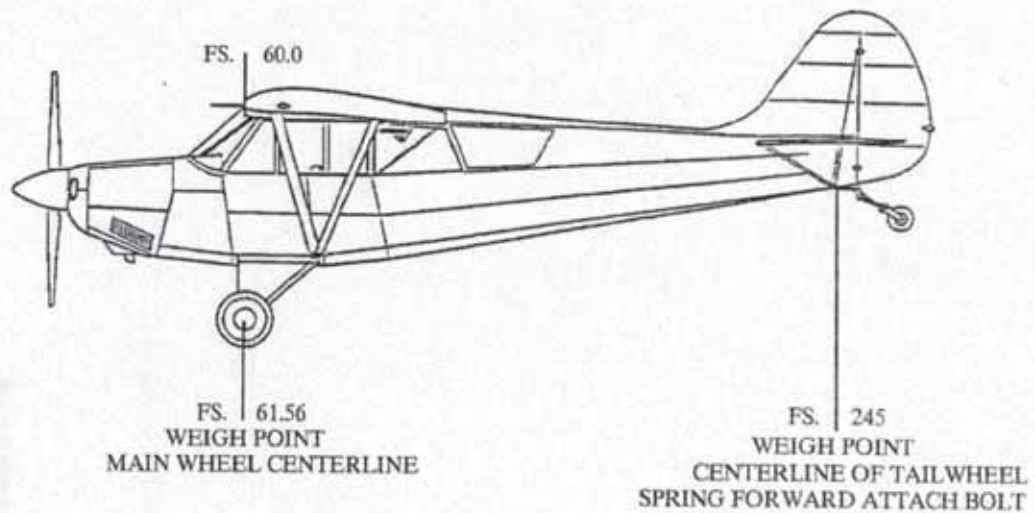
REVISION LETTER	PAGES AFFECTED	DESCRIPTION OF CHANGE	APPROVAL AND DATE
Initial Release	all		

INITIAL RELEASE

LOADING INFORMATION (Cont'd)

A. WEIGHT & BALANCE

WEIGHING GEOMETRY:



DATUM IS 60.0 INCHES FORWARD OF WING LEADING EDGE

WEIGHING PERFORMED WITH AIRPLANE LEVEL

LEVELING DATUM IS BOTTOM CABIN DOOR SILL

1. EMPTY WEIGHT AS WEIGHED

SCALE	READING	TARE	NET
LEFT MAIN	609.6 LB	- 0 LB	609.6 LB
RIGHT MAIN	615.1 LB	- 0 LB	615.1 LB
TAIL	123.5 LB	- 23 LB	100.5 LB
EMPTY WEIGHT AS WEIGHED			1325.2 LB

INITIAL RELEASE

LOADING INFORMATION (Cont'd)

A. WEIGHT & BALANCE (Cont'd)

2. EMPTY WEIGHT C.G. (AS WEIGHED)

$$\text{C.G.} = \frac{(\text{LEFT MAIN NET} + \text{RIGHT MAIN NET}) 61.56 + (\text{TAIL}) 245}{\text{TOTAL NET}}$$

$$\text{C.G.} = \frac{(\quad 609.6 + 615.1 \quad) 61.56 + (\quad 100.5 \quad) 245}{1325.2}$$

$$\text{C.G.} = \frac{100015.1}{1325.2} = 75.5 \text{ INCHES AFT OF DATUM}$$

NOTE: FOR ITEMS OF EQUIPMENT INCLUDED IN THE EMPTY WEIGHT REFER TO SECTION V B., ("STANDARD & OPTIONAL EQUIPMENT LIST") IN THIS AIRPLANE FLIGHT MANUAL.

3. STANDARD ZERO-FUEL WEIGHT & MOMENT

The following zero-fuel weight is for AVIAT HUSKY A-1B airplane, Serial No. 2383 with two gallons (8 qts.) of oil, zero fuel, no pilot, no passenger, no baggage.

ITEM	WEIGHT	ARM	MOMENT
AS WEIGHED	1325.2	75.5	100015.1
OIL CORRECTION	15.0	25.92	388.8
FUEL CORRECTION		84.0	
OTHER CORRECTION (describe)			
STANDARD ZERO-FUEL	1340.2	74.9	100403.9

4. EQUIPPED WEIGHT EMPTY

The equipped weight empty of the airplane is the standard zero-fuel weight, plus 2 gallons of unusable fuel, and includes 8 quarts of oil.

ITEM	WEIGHT	ARM	MOMENT
STANDARD ZERO-FUEL	1340.2	74.9	100403.9
UNUSABLE FUEL	12.0	84.0	1008
EQUIPPED WEIGHT EMPTY	1352.2	75.0	101411.9

LOADING INFORMATION (Cont'd)

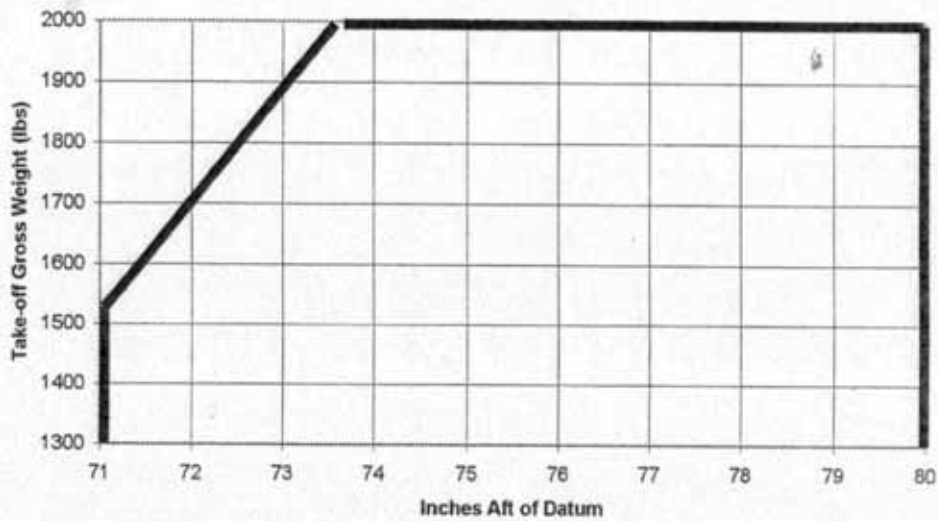
5. DETERMINING AIRPLANE WEIGHT & C.G.

ITEM	WEIGHT	ARM	MOMENT
EQUIPPED WEIGHT EMPTY			
FUEL ( 7.5 GAL MIN)		84.0	
PILOT (USE ACTUAL WEIGHT)		72.5	
PASSENGER (USE ACTUAL WEIGHT)		99.0	
BAGGAGE (50 LBS MAX)		120.0	
TOTAL			

$$\text{C.G.} = \frac{\text{TOTAL MOMENT}}{\text{TOTAL WEIGHT}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ inches}$$

Check to be sure the C.G. lies within the C.G. envelope shown below.

**CG Envelope**



C. G. ENVELOPE

LOADING INFORMATION (Cont'd)

B. STANDARD & OPTIONAL EQUIPMENT LIST

The Model A-1B airplane empty weight includes the following items of installed equipment. The following equipment was installed in this airplane as delivered from the factory and is included in the empty weight.

CHECK ITEMS INSTALLED

(X)	1. ENGINE (Lycoming 0-360-A1P)	Weight	292.0 lbs @ FS	20.0
( )	2. PROPELLER (Hartzell HC-C2YK-ABF/F7666A)	Weight	57.0 lbs @ FS	4.0
( )	3. PROPELLER SPINNER (Hartzell 836-60)	Weight	5.5 lbs @ FS	2.0
(X)	4. GOVERNOR (Hartzell V3-6)	Weight	3.5 lbs @ FS	10.0
(X)	5. STARTER ( ) B & C (BC315-100-2) ( ) Lycoming (31A21198) (X) SKY-TEC 149-12PM	Weight	10.0 lbs @ FS	11.0
		Weight	11.5 lbs @ FS	11.0
		Weight	8.0 lbs @ FS	11.0
(X)	6. ALTERNATOR (Prestolite ALY 8420)	Weight	12.0 lbs @ FS	11.0
(X)	7. MAIN GEAR WHEELS (Cleveland Model 40-60)	Weight	6.3 lbs @ FS	61.5
(X)	8. MAIN GEAR BRAKES (Cleveland Model 30-60)	Weight	2.5 lbs @ FS	61.5
(X)	9. MAIN GEAR TIRES ( ) 6:00x6 4 Ply Type III Tube ( ) 8:00x6 4 Ply Type III Tube (X) 8:50x6 6 Ply Type III Tube ( ) 24X10X6 Type III Tundra ( ) 26X10.5-6 Tundra and 8:5x6 Tube	Weight	12.4 lbs @ FS	61.5
		Weight	20.0 lbs @ FS	61.5
		Weight	32.0 lbs @ FS	61.5
		Weight	50.0 lbs @ FS	61.5
		Weight	50.0 lbs @ FS	61.5
(X)	10. TAIL WHEEL UNIT (Scott 3200A or BushWheel ABI-3224A)	Weight	8.0 lbs @ FS	263.7
XX	11. RADIO (Use actual weight)	Weight	_____ lbs @ FS	_____
( )	12. RADIO (Use actual weight)	Weight	_____ lbs @ FS	_____

See list on back of page



INSTRUMENTS & EQUIPMENT

INSTRUMENTS & EQUIPMENT

- Garmin 430 + com/nav/gps ant.
- GTX 327 transponder
- GMA 340 Audio panel
- GI 106A CDI
- ACK-A30 encoder
- LC-2 Chronometer
- Marker ant.
- RAMI Au570 coupler
- VM 1000 Engine system
- Aft Stowage
- MTV propeller
- B&C oil Filter

QTY	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	Garmin 430 + com/nav/gps ant.	1200.00	1200.00
1	GTX 327 transponder	150.00	150.00
1	GMA 340 Audio panel	100.00	100.00
1	GI 106A CDI	80.00	80.00
1	ACK-A30 encoder	120.00	120.00
1	LC-2 Chronometer	180.00	180.00
1	Marker ant.	60.00	60.00
1	RAMI Au570 coupler	100.00	100.00
1	VM 1000 Engine system	1500.00	1500.00
1	Aft Stowage	50.00	50.00
1	MTV propeller	100.00	100.00
1	B&C oil Filter	40.00	40.00
Subtotal			5070.00
TAX			101.40
TOTAL			5171.40

LOADING INFORMATION (Cont'd)

B. STANDARD & OPTIONAL EQUIPMENT LIST (Cont'd)

( )	13. RADIO (Use actual weight)	Weight	_____ lbs @ FS	_____
( )	14. RADIO (Use actual weight)	Weight	_____ lbs @ FS	_____
( )	15. RADIO (Use actual weight)	Weight	_____ lbs @ FS	_____
(X)	16. BATTERY			
	( ) Gel/Cell (U-128 or U1-31)	Weight	<u>24.0</u> lbs @ FS	<u>144.0</u>
	(X) Concorde (RG-25)	Weight	<u>22.8</u> lbs @ FS	<u>144.0</u>
(X)	17. ELT (AmeriKing AK-450)	Weight	<u>3.45</u> lbs @ FS	<u>145.0</u>
(X)	18. VACUUM PUMP (SigmaTek 1U128B-005 or equiv.)	Weight	<u>2.4</u> lbs @ FS	<u>32.0</u>
(X)	19. ARTIFICIAL HORIZON (R C Allen 22-7)	Weight	<u>2.2</u> lbs @ FS	<u>48.0</u>
(X)	20. DIRECTIONAL GYRO (R C Allen 11A-8 or equiv.)	Weight	<u>2.7</u> lbs @ FS	<u>48.0</u>
(X)	21. TURN COORDINATOR (Electric Gyro 1394T100-7Z, or equiv.)	Weight	<u>1.2</u> lbs @ FS	<u>48.0</u>
(X)	22. RATE OF CLIMB (United Instruments 7040-C2B or equiv.)	Weight	<u>.7</u> lbs @ FS	<u>48.0</u>
( )	23. SCHWEIZER TOW HOOK INSTL.	Weight	<u>3.8</u> lbs @ FS	<u>144.0</u>
( )	24. EDO 89-2000 FLOAT INSTL.	Weight	<u>198.0</u> lbs @ FS	<u>67.3</u>
( )	25. AERO SKI WHEEL REPLACEMENT SKIS (Use actual weight difference)	Weight	_____ lbs @ FS	<u>58.3</u>
( )	26. AERO RETRACT SKIS, MODEL R2800 (Use actual weight difference)	Weight	_____ lbs @ FS	<u>57.8</u>
( )	27. WHEEL FAIRINGS (Christen Dwg 35602)	Weight	<u>8.4</u> lbs @ FS	<u>61.5</u>
( )	28. REMOTE OIL FILTER INSTL.	Weight	<u>4.8</u> lbs @ FS	<u>36.0</u>

INITIAL RELEASE

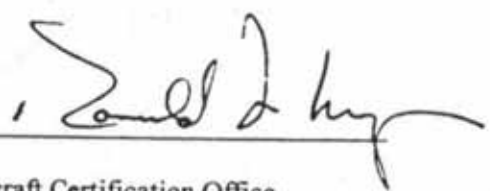
AVIAT AIRCRAFT INC.  
Airplane Flight Manual Supplement  
VM1000 ENGINE MONITORING SYSTEM

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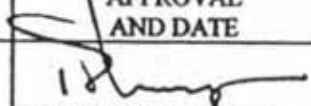
**AIRPLANE FLIGHT MANUAL SUPPLEMENT**  
**FOR**  
**MODEL A-1, A-1A, A-1B HUSKY AIRPLANE**

**REGISTRATION NO.** N966TF  
**SERIAL NO.** 2383

This supplement must be attached to the FAA Approved Airplane Flight Manual, dated May 30, 1996 or later FAA approved flight manual for A-1; and dated January 28, 1998 or later FAA Approved Flight Manual for A-1A and A-1B, when equipped with the Vision Microsystems VM1000 Engine Monitoring System. The information contained herein supplements the information of the basic Airplane Flight Manual.

**FAA APPROVED**   
Ronald May  
Manager, Denver Aircraft Certification Office  
Northwest Mountain Region  
Federal Aviation Administration  
Date August 18, 1999

**AIRPLANE FLIGHT MANUAL SUPPLEMENT  
VM1000 ENGINE MONITORING SYSTEM**

REVISION LETTER	PAGES AFFECTED	DESCRIPTION OF CHANGES	APPROVAL AND DATE
Initial Release	All	Initial Release	 Mgr. FAA Denver ACO Date: 18Aug99

## TABLE OF CONTENTS

<b>Section I</b>	Operating Limitations
<b>Section II</b>	Normal Procedures
<b>Section III</b>	Emergency Procedures
<b>Section IV</b>	Performance Information
<b>Section V</b>	Loading Information
<b>Appendix A</b>	System description

**Section I      Operation Limitations**

F. USABLE FUEL

VM1000 fuel remaining display ("REM") is advisory only. Sight gauges are primary fuel quantity indicators.

G. MARKINGS AND PLACARDS

VM1000 circuit breaker listed as on breaker panel .

ENG INST
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**Section II      Normal Procedures**

C. BEFORE STARTING ENGINE

7. Ensure fuel quantity has been added to VM1000 and actual fuel on board is displayed.

D. STARTING ENGINE

9. Oil Pressure ..... Oil pressure light OUT  
10. Alternator Field Switch.....ON, Alternator light OUT

M. START ENGINE USING EXTERNAL BATTERY POWER (OPTIONAL GROUND POWER PLUG)

16. Oil Pressure ..... Oil Pressure Light OUT  
17. Alternator field switch .....ON, Alternator light OUT

### Section III Emergency Procedures

I. VM1000 Digital/ Analog Display Loss

- I. Check circuit breaker. If open reset circuit breaker. If circuit breaker is not open and display is not available, or if breaker does not remain closed, conduct the following procedures.

- A. Propeller control ..... Full forward
- B. Mixture ..... Full rich

Note: Full use of throttle for any power setting/ manifold pressure is available.

Monitor the oil pressure and alternator annunciator lights and terminate the flight as soon as practical to correct the malfunction.

**Section IV Performance Information**

No Changes

**Section V Loading Information**

B. Standard and Optional Equipment

(\*) 29. VM1000 Weight    lbs @ FS 48

**Appendix A**

A. VM1000 system description

1. General description
2. VM1000 indicator gauges
3. Settings/initial set-up
4. Troubleshooting



## A. VM1000 System

### 1. GENERAL DESCRIPTION

The VM1000 Engine Monitoring System replaces all of the conventional engine instruments currently found in the Husky series aircraft with a single uniformly formatted display arrangement. The VM1000 display information is presented in the same manner as other engine monitoring instrumentation, however, additional features are accessible with the VM1000 using five function buttons.



VM1000 INDICATOR

### VM1000 ENGINE MANAGEMENT SYSTEM

The VM1000 Engine Management System utilizes microprocessor technology, flat panel high contrast displays and full sweep graphics to provide fast visual reference to engine operating limits and trends. The VM1000 indicator displays analog and digital Tachometer, Manifold Pressure, EGT/CHT, Fuel Temperature and Pressure, Oil Temperature and Pressure, Voltage and Amperage.

The VM1000 Engine Management System back lighting system is controlled by the aircraft rheostat.

## 2. VM1000 INDICATOR GAGES



Each of the individual VM1000 read-outs will be discussed in the following sections. Each section will list and illustrate a gage as shown above, discuss the gage functions, limits and resolutions.

### MAN (MANIFOLD PRESSURE)



The Manifold Pressure System provides full sweep color range graphic analog display with 1" HG resolution for quick reference to normal, caution and red line manifold pressure during power changes.

The Manifold Pressure System comes complete with a Warning Alert activated at Manifold Pressure redline, at which time the manifold pressure display will flash until this condition is rectified.

### RPM (TACHOMETER)



The Tachometer System provides full sweep color range graphic analog display quick reference to monitor normal, caution and red line engine speed. The four place digital display with 10-rpm resolution indicates precision RPM.

**Example:** An initial 2400 rpm display reading combined with a slight increase in power might read 2410 rpm.

The Tachometer System comes complete with a Warning Alert, which is activated at engine RPM redline (2700rpm), at which time the RPM display will flash.

### RPM ENGINE HOURS:

Total Engine Hours will be displayed on the rpm display when the engine is off. The digital readout displays up to 5999.9 accumulated engine hours.

### RPM CHECKS:

**Analog:** The graphic arc resolution is 40 RPM for engine speeds up to 2000 RPM and the graphic arc resolution is 100 RPM for engine-speeds of 2000 RPM and greater.

**Digital:** Allow the engine time to stabilize when performing RPM checks. It is recommended to stabilize the engine for a three second minimum for each RPM check before noting the RPM change.

**EGT AND CHT GAGE**  
**(EXHAUST GAS AND CYLINDER HEAD TEMPERATURE)**



The 'Diamond Graph' engine analyzer system is equipped with a vertical full sweep color range bar graph analog display for quick reference to monitor normal, caution and red line Cylinder Head Temperature and Exhaust Gas Temperature conditions.

The digital EGT/CHT displays temperatures for each pair, periodically displaying the engine cylinder number (ex: 'E1' 'C1').

**EGT AND CHT DIGITAL DISPLAY MODES**

The initial start up mode, or default mode, is 'PEAK DISPLAY MODE.' Alternate Display Modes can be selected as shown in TABLE 1. Select an EGT/CHT pair to display by pressing 'BUTTON 2'.

**TABLE 1**  
**EGT/CHT SELECTION**

Display Mode	Cylinder. Numbers	Probes displayed
Cylinder 1 Pair	'E1' 'C1'	EGT1 & CHT1
Cylinder 2 Pair	'E2' 'C2'	EGT2 & CHT2
Cylinder 3 Pair	'E3' 'C3'	EGT3 & CHT3
Cylinder 4 Pair	'E4' 'C4'	EGT4 & CHT4
Peak Mode	'P?' 'H?'	PEAK DISPLAY MODE

### VOLT AND AMP DISPLAYS



The Voltage and Amperage gages combine Analog and Digital Displays.

**NOTE;** There is an external alternator annunciator light on the instrument panel, which illuminates at low voltage. Light activates at 12.5 volts or less and is connected to an independent source.

### VOLT AND AMP ANALOG DISPLAYS

The Voltage and Amperage gages are full sweep color range graphic analog displays which provide quick reference to normal, caution and red line Voltage and Amperage levels. These displays also present Voltage or Amperage increases with a proportional graph size increase illustrating the parameter relationships.

The Voltage and Amperage Systems come complete with Warning Alert activated at respective redline conditions, at which time the redline display will flash until this condition is rectified. This occurs at low amperage levels of less than 2 amps or when the alternator does not produce power for the electrical system.

### VOLT DIGITAL DISPLAY



The Voltage Digital readout displays 0.1 Volt resolution.

### AMP DIGITAL DISPLAY



The digital readout displays amperage at 1 amp resolution.

### OIL PRESSURE AND OIL TEMPERATURE DISPLAYS



The Oil Pressure and Oil Temperature gages combine Analog and Digital Displays.

**NOTE:** There is an oil pressure light on the instrument panel that illuminates at a pressure of 25 psi or less that is attached to an independent source.

### OIL PRESSURE AND OIL TEMPERATURE ANALOG DISPLAYS

The Oil Pressure and Temperature gages are full sweep color range analog displays which provide quick reference to normal, caution and red line Oil Pressure and Temperature measurements respectively. Oil temperature ranges are caution range from 40°F to 100°F. Normal range is 100°F to 244°F. Red line is at 245°F

### OIL PRESSURE DIGITAL DISPLAY



The digital display indicates 1-PSI increments to a maximum of 99 PSI. Oil pressure markings are as follows, red line at 25 psi, caution from 26 to 60 psi, normal or green arc is 60 to 90 psi, caution from 90 to 99 psi and red line at 100 psi.

### OIL TEMPERATURE DIGITAL DISPLAY



The Oil Temperature Digital Display indicates Temperatures in 1° F increments with a maximum display capability of 300° F.

**NOTE:** A constant temperature reading of 26° F or 317° F indicates a transducer failure. Monitor CHT and oil pressure to determine oil temperature trend and service immediately.

### FUEL PRESSURE AND FUEL FLOW DISPLAYS



The Fuel Pressure and Fuel Flow indicators combine Analog and Digital Displays.

### FUEL PRESSURE AND FUEL FLOW ANALOG DISPLAYS

The Fuel Pressure and Fuel Flow gages are full sweep color range analog displays.

### FUEL PRESSURE DIGITAL DISPLAY



The Fuel Pressure Digital Display shows fuel pressure from 0 to 5 psi. 0 to 1/2 psi is caution; 1/2 psi to 4 psi is green and 4 to 5 psi caution and red line at 5 psi

### FUEL FLOW DIGITAL DISPLAY



The Fuel Flow Digital Display presents gallons per hour in 0.1 increments.

FUEL FLOW MODES



The initial start up mode, or default mode, is 'FUEL FLOW'.  
To view and/or select an alternate Display Mode, as shown below, press 'BUTTON 4'.

- 'REM' - Fuel remaining onboard
- 'BRN' - Fuel burned since last power-up
- 'HRS' - Hours of fuel remaining
- 'ADD' - Add fuel to computer memory.

The different modes will be indicated in black letters below the words 'FUEL FLOW' on the VM1000 display:

'REM' - Digitally displays total gallons of fuel remaining in 0.1 gallons increments. This mode is ONLY usable, if the computer's memory has been updated with fuel information corresponding to the actual aircraft usable fuel and has always had the computer operational when fuel is being burned. The graphic display is discontinued during this mode.

'HRS' - Digitally displays calculated Hours of Fuel remaining in 0.1 hour increments. The Fuel remaining is determined as a function of the current Flow Rate and current Fuel Total. The graphic display is discontinued during this mode.

**NOTE:** The 'HRS' mode will be INACCURATE if either of the following two conditions occur.

- (1) The ADD FUEL was not used correctly for refueling and/or
- (2) The system was not operating continually during fuel consumption.

'BRN' - Digitally displays gallons of fuel used in 0.1-gallon increments. The graphic display is discontinued during this mode.

'ADD' - This mode allows you to add fuel to the fuel computers 'electronic tank' after fuel has physically been added to the aircraft's fuel tank(s). The graphic display is discontinued during this mode.



ADDING FUEL TO THE VM1000 SYSTEM



The ADD Fuel System feature allows the operator to 'ADD' fuel according to how much has been pumped into the tank(s). The operator is not required to calculate the new total fuel level after adding fuel. The ADD Fuel system does it for you when you follow STEPS 1 through 3 of this Section to 'ADD' fuel to the computer:

\*\*\*\*\* WARNING \*\*\*\*\*  
**IMPROPER USE OF THIS FEATURE WILL CAUSE  
INCORRECT FUEL 'REM' AND 'HRS' INFORMATION.  
COMPLETE UNDERSTANDING OF THE FUEL SYSTEM  
IS ESSENTIAL PRIOR TO USE DURING FLIGHT.**  
\*\*\*\*\*

- STEP 1: Press 'BUTTON 4' until the 'ADD' indicator activates.
- STEP 2: Press 'BUTTON 3' to add ten-gallon increments.  
Press 'BUTTON 5' to add one gallon increments.  
Continue to press Button 3 and Button 5 until the Fuel ADD EQUALS the fuel added to the fuel tank(s).
- NOTE: **TOPPING TANKS:**  
Press 'BUTTON 3' until the number entered exceeds the tank(s) 52 gal. capacity. The system will equalize at the programmed full tank volume.
- STEP 3: Input errors can be automatically canceled by the "ADD" mode after a 20 second pause occurs. When correct fuel has been added from steps 1 and 2; press 'BUTTON 4'. The added fuel will be added to the remaining fuel 'REM' total. Verify new total by pressing 'BUTTON 4' until the 'REM' fuel is displayed.

**CAUTION:** There is no direct connection to the aircraft's fuel quantity system by the VM1000 therefore sight gauges are primary for fuel quantity indication.

### 3. SETTINGS / INITIAL SET-UP

#### VM1000 Graphic Display Modes

The VM1000 Indicator operation can be set for either a Sweep Mode or a Pointer Mode.

- 1) Sweep Mode - Graphic display is a continuous sweep of pointers.
- 2) Pointer Mode - Graphic display is a single needle type pointer.

To determine operation mode; select between one of the graphic sweep display modes by holding 'BUTTON 3' while initiating the VM1000 system until the indicator displays engine parameters. Release Button 3 and Repeat Button 3 again to try alternate operating mode.



1 2 3 4 5

BUTTON 1: 'SELECT EGT GRAPHIC MODES'  
BUTTON 2: 'SELECT EGT & CHT DIGITAL MODES'  
BUTTON 3: 'SELECT 'AUTOTRACK' ON / OFF'  
BUTTON 4: 'SELECT FUEL COMPUTER MODES'  
BUTTON 5: 'SELECT FLIGHT DATA RECORDER INFORMATION'

### 'AUTOTRACK' SYSTEM OPERATION

The "AUTOTRACK" continually monitors engine parameters for deviations.

### HOW TO INITIALIZE 'AUTOTRACK'

STEP 1: STABILIZE the aircraft.  
Set power and mixture condition.  
Allow the engine time to stabilize  
(i.e. engine temps and pressures, etc..)

STEP 2: Press 'BUTTON 3'.  
The "AUTOTRACK" indicator will activate in the display and the system will begin tracking the engine's performance.

### TO CANCEL 'AUTOTRACK'

Press 'BUTTON 3'

### 'AUTOTRACK' ALERT INDICATORS

As an engine parameter deviates beyond the initial set point, the system will flash the corresponding graphic display and the 'AUTOTRACK' indicator.

### 'AUTOTRACK' ALERT TERMINATION

To terminate an alert, return the engine parameter to its initial value or simply press 'BUTTON 3' to shut off the 'AUTOTRACK' system.

### HOW TO USE 'FLIGHT DATA RECORDER'

STEP 1: Press 'BUTTON 5'.  
View flight minimums (i.e., lowest fuel pressure, voltage, amperage, etc.).  
RPM digital display will indicate actual flight hours in tenths.

STEP 2: Press 'BUTTON 5' again.  
View flight maximums (i.e., max. CHT, max. Oil Temp, max. RPM)

STEP 3: Press 'BUTTON 5' again.  
The Flight Data Recorder is shut off. The recorder data will automatically shut off in approximately 20 seconds if the button is not pressed.

## 4. TROUBLESHOOTING

### System Display Care and Maintenance

The indicators require no scheduled care or maintenance. However, they may need to be cleaned periodically.

**Caution: Diaper flannel is recommended to clean displays. Paper towels and tissues have a high abrasive content, which will damage the displays.**

To clean indicators, remove surface dust and abrasives by blowing on the indicator face or brushing with a soft bristle brush. Fog the indicator with your breath and gently rub the indicator.

**Caution: Never use any solvents or cleaning fluids on the indicators.**

Indicator service should comply with the associated system installation manual and be serviced by an authorized service representative.

### Data Processor Unit Care and Maintenance

The Data Processor Unit requires no scheduled care or maintenance except for a battery memory pack. This pack has an estimated life of 7 to 10 years and must be replaced every 5 years or earlier if the battery fails to hold charge. Loss of charge is indicated by loss of engine total time (RPM display indicates 0 when engine is off) or loss of fuel quantity data entered from a previous flight. If the pack loses charge, then 'Initial System Set-up' is required. Service should comply with the associated system installation manual and be serviced by an authorized service representative.

### Transducer Inline Resettable Fuses

The EGT and CHT transducer leads incorporate permanently installed Polyswitch resettable fuses (polyfuse). These polyfuses protect the VM1000 internal power supply in case of a transducer lead fault. A transducer lead fault will cause loss of display for the affected cylinder. To reset the polyfuse power must be removed from the system, either by turning off and resetting the ENG INST circuit breaker or turning off master power. Failure of the polyfuse to reset indicates a continuous fault. The system should be serviced per the Supplemental Instructions for Continued Airworthiness for the VM1000 as soon as practical in the event of a continuous or intermittent transducer fault.

AVIAT AIRCRAFT INC.  
Airplane Flight Manual Supplement  
Garmin GNS 430 Installation

**AIRPLANE FLIGHT MANUAL SUPPLEMENT**  
**FOR**  
**MODEL A-1, A-1A, A-1B HUSKY AIRPLANE**

**REGISTRATION NO.** N966TF

**SERIAL NO.** 2383

This supplement must be attached to the FAA Approved Airplane Flight Manual, dated May 30, 1996 or later FAA Approved Flight Manual for A-1; and dated January 28, 1998 or later FAA Approved Flight Manual for A-1A and A-1B, when equipped with the Garmin GNS 430 communications/navigation system which has been installed in accordance with Garmin installation manual 190-00140-02 Rev A. (or later revision) and Aviat Aircraft Inc. drawing no. 37403.

The information contained herein supplements or supersedes the basic Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Airplane Flight Manual.

**FAA APPROVED** David R. Showers  
David R. Showers  
Small Airplane Program Manager  
Northwest Mountain Region  
Federal Aviation Administration  
Date August 14, 2001

AVIAT AIRCRAFT INC.  
Airplane Flight Manual Supplement  
Garmin GNS 430 Installation

## AIRPLANE FLIGHT MANUAL SUPPLEMENT

### GARMIN GNS 430 VHF Communication Transceiver/VOR/ILS Receiver/ GPS Receiver

REVISION LETTER	PAGES AFFECTED	DESCRIPTION OF CHANGES	APPROVAL AND DATE
Initial Release	All	Initial Release	<i>D. Mann</i> 8/14/01 Mgr. FAA Denver ACO Date: 08/14/01

AVIAT AIRCRAFT INC.  
Airplane Flight Manual Supplement  
Garmin GNS 430 Installation

## TABLE OF CONTENTS

Section I	Operating Limitations
Section II	Normal Procedures
Section III	Emergency Procedures
Section IV	Performance Information
Section V	Loading Information

## Section I      Operation Limitations

### E.      FLIGHT LIMITATIONS

1. The Garmin GNS 430 Pilot's Guide, P/N 190-00140-00, Rev. A, dated Oct. 1998, or later appropriate revision, must be immediately available to the flight crew whenever navigation is predicated on the use of the system.
2. The GNS 430 must utilize the following or later FAA approved software versions:

<b>Main</b>	<b>2.00</b>
<b>GPS</b>	<b>2.00</b>
<b>COMM</b>	<b>1.22</b>
<b>VOR/LOC</b>	<b>1.25</b>
<b>G/S</b>	<b>2.00</b>

The Main software version is displayed on the GNS 430 self test page immediately after turn-on for 5 seconds. The remaining system software versions can be verified on the AUX group sub-page 2, "SOFTWARE/database ver".

3. IFR enroute and terminal navigation predicated upon the GNS 430's GPS receiver is prohibited unless the pilot verifies the currency of the data base or verifies each selected waypoint for accuracy by reference to current approved data.
4. Instrument approach navigation predicated upon the GNS 430's GPS receiver must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment database. The GPS equipment database must incorporate the current update cycle.



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Airplane Flight Manual Supplement  
Garmin GNS 430 Installation

- a. Instrument approaches utilizing the GPS receiver must be conducted in the approach mode and receiver autonomous integrity monitoring "RAIM" must be available at the Final Approach Fix.
- b. Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay with the GNS 430's GPS receiver is not authorized.
- c. Use of the GNS 430 VOR/ILS receiver to fly approaches not approved for GPS require VOR/ILS navigation data to be present on the external indicator.
- d. When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS or Loran-C navigation, the aircraft must have the operational equipment capable of using that navigation aid, and required navigation aid must be operational.
- e. VNAV information may be utilized for advisory information only. Use of VNAV information for Instrument Approach Procedures does not guarantee step-down fix altitude protection, or arrival at approach minimums in a normal position to land.

## **Section II     Normal Procedures**

- N. Detailed operating Procedures  
Normal operating procedures are described in the Pilot's guide, P/N 190-00140-00 Rev. A dated Oct. 1998 or later revision.

## **Section III    Emergency Procedures**

- J. Abnormal Procedures
1. If Garmin GNS 430 navigation information is not available or invalid, utilize remaining operational equipment as required.
  2. If "RAIM POSITION WARNING" message is displayed the system will flag and no longer provide GPS based navigational guidance. The pilot should revert to the VOR/ILS receiver or an alternate means of navigation other than the GNS 430 GPS receiver.
  3. IF "RAIM IS NOT AVAILABLE" message is displayed in the enroute, terminal, or initial approach phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation other than the GPS receiver appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using the VOR/ILS receiver or another IFR-approved navigation system.
  4. In an in-flight emergency, depressing and holding the Comm transfer button for 2 seconds will select the emergency frequency of 121.500 Mhz into the "Active" frequency window.

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Garmin GNS 430 Installation

**Section IV Performance Information**

**NO Change**

**Section V Loading Information**

**See current weight and balance data.**

**FAA APPROVED**  
**AIRPLANE FLIGHT MANUAL SUPPLEMENT**  
**FOR**  
**MODELS A-1, A-1A, A-1B HUSKY AIRPLANES**

REGISTRATION NO. N966TF

SERIAL NO. 2383


This supplement must be attached to the FAA Approved Airplane Flight Manual for Model A-1, dated May 1, 1987 or later FAA Approved Airplane Flight Manual; and FAA Approved Airplane Flight Manual for Models A-1A or A-1B, dated January 28, 1998 or later FAA Approved Airplane Flight Manual, when Aft Stowage Compartment is installed in accordance with Aviat Aircraft Inc. Master drawing list No. 96-00-00, Revision E, dated 4/19/2000 or later approved revision. The information contained herein supplements the information in the basic Airplane Flight Manuals.

**FAA APPROVED**   
Carrie Sumner  
Small Airplane Program Manager  
Denver Aircraft Certification Office  
Federal Aviation Administration

Date: April 18, 2000  
Revised: April 28, 2000

## AIRPLANE FLIGHT MANUAL SUPPLEMENT

### MODELS A-1, A-1A, A-1B HUSKY AIRPLANES WITH AFT STOWAGE COMPARTMENT

REVISION LETTER	PAGES AFFECTED	DESCRIPTION OF CHANGES	APPROVAL AND DATES
Initial Release	All	Initial Release	Carrie Sumner Small Airplane Program Mgr. FAA Denver ACO Date: April 18, 2000
A	1,4,5	Corrected master drawing list reference. Removal of split weight provision.	 Small Airplane Program Mgr. FAA Denver ACO Date: April 28, 2000

## TABLE OF CONTENTS

<b>SECTION I</b>	<b>OPERATING LIMITATIONS</b>
	C. WEIGHT
	G. MARKINGS AND PLACARDS
<b>SECTION II</b>	<b>NORMAL PROCEDURES</b>
	B. PRE-FLIGHT
<b>SECTION III</b>	<b>EMERGENCY PROCEDURES</b>
	NO CHANGE
<b>SECTION IV</b>	<b>LOADING INFORMATION</b>
	A. WEIGHT AND BALANCE
	B. STANDARD & OPTIONAL EQUIPMENT LIST

SECTION 1 OPERATING LIMITATIONS

C. WEIGHT

Aft stowage compartment maximum weight.....30 lbs

G. MARKINGS AND PLACARDS

On aft stowage compartment walls:

**MAX COMPARTMENT WEIGHT  
30 LBS**

**SECURE STOWAGE  
FLOOR FASTENERS  
BEFORE FLIGHT**

SECTION II NORMAL PROCEDURES

B. PRE-FLIGHT

1. Visually check aircraft for
  - g. Secure stowage floor fasteners  
Before flight
  - h. Baggage is secured
  - i. Secure stowage battery access door

SECTION III EMERGENCY PROCEDURES

NO CHANGE

SECTION IV PERFORMANCE INFORMATION

NO CHANGE

SECTION V LOADING INFORMATION

A. WEIGHT & BALANCE

5. DETERMINING AIRPLANE WEIGHT & C.G.

ITEM	WEIGHT	ARM	MOMENT
EQUIPPED WEIGHT EMPTY			
FUEL 7.5GAL MIN		84.0	
PILOT WEIGHT		72.5	
PASSENGER WEIGHT		99.0	
BAGGAGE CABIN 50 LBS MAX		120.0	
AFT STOWAGE Front		131.6	
30 LBS MAX Middle		146.3	
Back		176.7	
TOTAL			

B. STANDARD & OPTIONAL EQUIPMENT LIST

- (7) ~~30~~ AFT STOWAGE KIT ... Weight 10 lbs@FS 154