Van’s Aircraft RV-7

Pilot’s Operating Handbook

Registration: N732DH
S/N: 74261
Builder: Dave Hock

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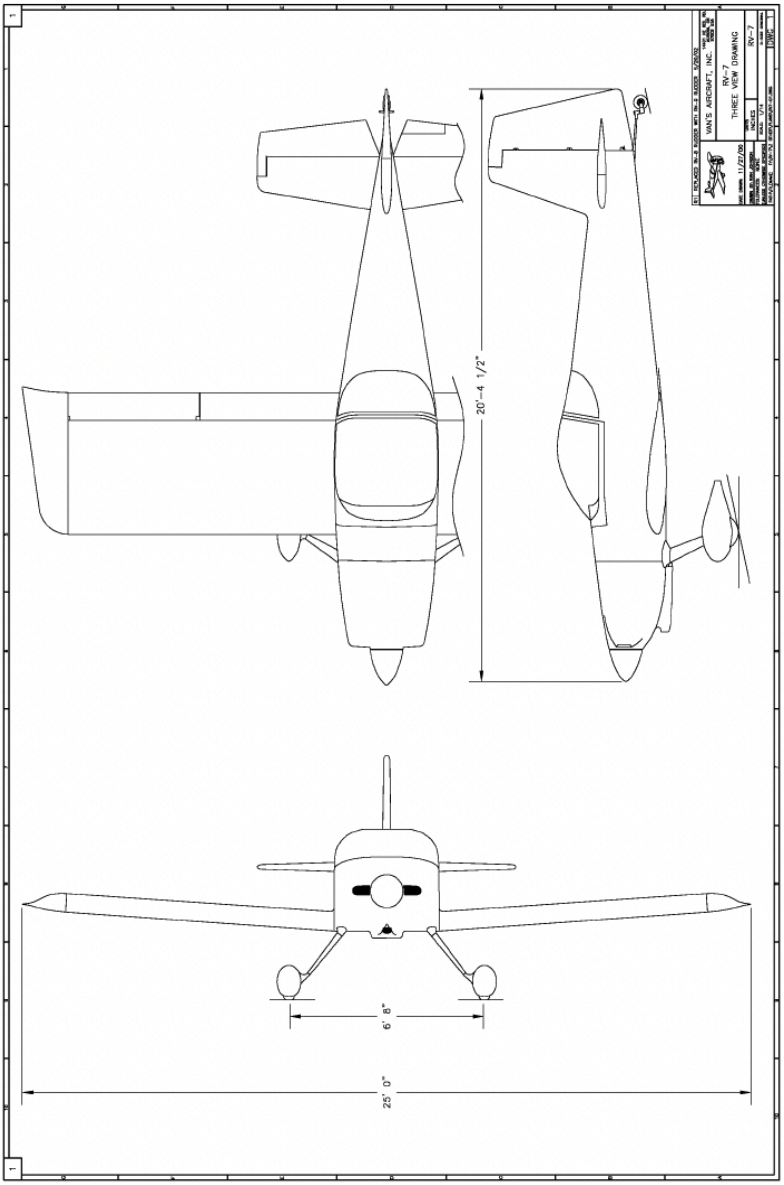
Section 1 - General:

3 VIEW:



Section 1 - General:

Engine Information:

Model: ……. Lycoming YIO-360-EXP139 Fuel Injected
HP: …….. 180 @ 2700
Fuel: …….. UL 91/96 or 100LL 100/130 octane minimum
Ignition: …… Dual P-Mag P114
Spark Plugs:… NGK BR8ES 2.5mm center electrode,
Stock #3961 solid post
Oil Filter: ……. Champion CH48110-2

Lycoming Oil Recommendations:

Avg Ambient Air Temperature	MIL-L-6082 or SAEJ1966 SPEC Mineral Grades	MIL-L-22851 or SAEJ1899 SPEC Ashless Dispersant
All Temperatures	--------	SAE15W50 or 20W50
Above 80F	SAE 60	SAE 60
Above 60F	SAE 50	SAE 40 or 50
30 – 90F	SAE 40	SAE 40
0-70F	SAE 30	SAE 30,40 or 20W40
Below 10F		SAE 20 SAE 30 or 20W30

Oil Sump Capacity: 8 U.S. Quarts
Minimum Safe Quantity: 4 U.S. Quarts

Operating Conditions:

Oil Inlet Temp:	245 F max	180 F desired	
Oil Pressure:	95 psi max	55 psi min	25 psi idle
Fuel Pressure:	45 psi max	14 psi min	30 psi desired
Cyl. Head Temp	435 F max	350-400 F desired	

Max oil consumption: 0.006 x BHP x 4/7.4 = Qt./Hr.
(Lycoming Formula)
Result = .58 qts/hr. at cruise

Section 2 - Limitations:

AIRSPEED LIMITATIONS

	SPEED	IAS	REMARKS
Vne	Never Exceed Speed	**200 KTS**	Do not exceed this speed in any operations. ***KTAS or KIAS**
Vno	Maximum Structural Cruising Speed	**168 KTS**	Exceed this speed only in smooth air.
Va	Maneuvering Speed	**123 KTS**	Do not make full control movements above this speed.
Vfe	Maximum Flap Extend Speed	**86 KTS**	Full Flaps -- Do not exceed this speed with flaps down
Vy	Best Rate of Climb	**90 KTS**	
Vx	Best Angle of Climb	**70 KTS**	
Vs	Stall Speed Clean	**55 KTS**	
Vso	Stall Speed Landing Configuration	**50 KTS**	Full Flaps
Vr	Rotation Speed	**65 KTS**	Initial liftoff speed
Vref	Short Final Landing Speed	**69 KTS**	Threshold crossing airspeed
Vcc	Cruise Climb	**115-120 KTS**	Best climb speed for cooling and over the nose visibility

AIRSPEED INDICATOR MARKINGS

MARKING	IAS VALUE OR RANGE	SIGNIFICANCE
White Arc	**50-86 KTS**	Full Flap Operating Range. Lower limit is Vso. Upper limit is maximum speed with flaps fully extended
Green Arc	**56-168 KTS**	Normal Operating Range. Lower limit is Vs. Upper limit is maximum structural cruising speed
Yellow Arc	**168-200 KTS**	Operations must be conducted with caution and only in smooth air.
Red Line	**200 KTS**	Maximum speed for all operations ***KTAS or KIAS**

Section 2 - Limitations:

Vne TRUE AIRSPEED ALTITUDE CONSIDERATIONS

RV7 Vne (Redline) = 230 MPH or TAS = 200 KTAS			
Altitude (FT)	**TAS (MPH/KTS)**	**IAS (MPH)**	**IAS (KTS)**
Sea Level	230 / 200	230	200
2,500	230 / 200	222	193
5,000	230 / 200	214	186
7,500	230 / 200	206	179
10,000	230 / 200	198	172
12,500	230 / 200	191	166
15,000	230 / 200	183	159
17,500	230 / 200	176	153
20,000	230 / 200	169	147

* Assumes standard temperature and pressure

Section 2 - Limitations:

ENGINE MARKINGS

INSTRUMENT and RANGE	WHITE ARC	YELLOW ARC	GREEN ARC	YELLOW ARC	RED LINE
	NOTES:	Minimum Limit	Normal Operating	Caution Range	Maximum
Tachometer (RPM) 0-2800	< 900 Min speed for P-Mag self powering	-	900 - 2700	-	2700
Manifold (IN HG) 0-32	29.92 - 32.0	-	10.0 - 29.92	-	-
Oil Temp (F) 100 - 260	-	140 - 160	160 - 220	220 - 245	245>
Oil Pressure (PSI) 10 - 130	-	25 - 45	45 - 95	95 - 115	115
Fuel Pressure (PSI) 4 - 55	-	<14	14 - 45	45>	-
CHT (F) 100 - 450	-	250 - 320	320 - 420	420 - 435* *Max cruise	435 >
EGT (F) 1000 - 1800	-	-	1000 - 1400	1400 - 1650	1650* - 1800 *Red line

- *Never exceed the maximum red line cylinder head temperature limit of 500°F (260°C).*
- *For maximum service life, cylinder head temperatures should be maintained below 435°F (224°C) during high performance cruise operation and below 400°F (205°C) for economy cruise powers.*
- *Per Lycoming, "oversquare" operations are permitted, see Section 9 for performance data.*

FUEL MARKINGS

INSTRUMENT and RANGE	NOTES:	RED ARC	YELLOW ARC	GREEN ARC
		Minimum	Caution	Normal
LEFT FUEL: 0-21 GAL MAX	Unusable: **1 GAL**	0-1 GAL	1-6 GAL	6-21 GAL
RIGHT FUEL: 0-21 GAL MAX	Unusable: **1 GAL**	0-1 GAL	1-6 GAL	6-21 GAL

- NOTE: Flight plan for no more than **30 gal** to ensure 10 usable for reserve.

BATTERY MARKINGS

INSTRUMENT and RANGE	NOTES:	Transition Voltage	RED ARC	YELLOW ARC	GREEN ARC	YELLOW ARC	RED ARC
MAIN BATTERY 10.5 - 16.0	*EFIS Low Voltage	10.5-11.5	10.5-11.5	11.5-13.6 **13.0***	13.6-14.5	14.5-15.5	15.5-16.0
IBBS BKUP 10.5 - 16.0			< 10.5	10.5-11.5	11.5-14.7	14.7-15.5	15.5-16.0

- IBBS SUPPORT: *"...You will see a peak charging voltage of 14.7 nominally and when the system is running under load approx. 12.8 volts and the system idle and not under load and not charging about 13.6 volts..."*

Section 3 - Emergency Procedures:

AIRSPEEDS FOR EMERGENCY OPERATIONS

Engine Failure After Takeoff:
Wing Flaps Up ..... **78 KTS**
Wing Flaps Down ..... **70 KTS**

Maneuvering Speed (Va) ..... **123 KTS**

Maximum Glide ..... **75 KTS**

ELECTRICAL / ALTERNATOR FAILURE

1. Avionics – OFF
2. Master Switch – OFF
3. Alt Field -- OFF
4. Master Switch – ON

IF ALTERNATOR IS STILL OFF-LINE:

1. Master Switch – ON
2. Electrical Switches – OFF
3. Alternator Field – OFF
4. Avionics – ON as required
5. Electrical Equipment – ON, as required
6. Flight – TERMINATE as soon as practical, aircraft is on battery reserves only.

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF RUN

1. Throttle –IDLE
2. Brakes – APPLY
3. Wing Flaps – RETRACT
4. Mixture – IDLE CUT-OFF
5. Ignition Switch – OFF
6. Master Switch – OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed – 70 KTS
2. Mixture – IDLE CUT-OFF
3. Fuel Selector Valve – OFF
4. Ignition Switch – OFF
5. Wing Flaps – AS REQUIRED
6. Master Switch – OFF

ENGINE FAILURE DURING FLIGHT

1. Airspeed – 78 KTS
2. Boost Pump – ON
3. Fuel Selector – SWITCH TANKS
4. Mixture – RICH
5. Ignition Switch – BOTH, LEFT, RIGHT
6. Transponder – 7700

FIRES

DURING START ON GROUND

1. Cranking – CONTINUE, to get a start which would suck the flames and accumulated fuel through the carb and into the engine.

If engine starts:

2. Power – 1700 RPM for a few minutes
3. Engine – SHUTDOWN and inspect for damage

If engine fails to start:

4. Throttle – FULL OPEN
5. Mixture – IDLE CUT-OFF
6. Cranking – CONTINUE
7. Fire Extinguisher – OBTAIN
8. Engine – SECURE

ENGINE FIRE IN FLIGHT

1. Mixture – IDLE CUT-OFF
2. Fuel Selector Valve – OFF
3. Master Switch – OFF
4. Cabin Heat and Air – OFF

ELECTRICAL FIRE IN FLIGHT

1. Master Switch – OFF
2. Avionics – OFF
3. All Other Switches (except ignition) – OFF
4. Vents/ Cabin Air/ Heat – CLOSED
5. Fire Extinguisher – ACTIVATE (if available)

CABIN FIRE

1. Master Switch – OFF
2. Vents/ Cabin Heat – CLOSED
3. Fire Extinguisher – ACTIVATE

WING FIRE

1. Nav & Strobe Lights – OFF
2. Landing Light – OFF

Section 4 - Normal Procedures:

PREFLIGHT INSPECTION

CABIN:

1. Documentation – Available In Airplane
2. Aeronautical Charts – CURRENT AND APPROPRIATE TO FLIGHT
3. Seat Belt Securing Control Stick – RELEASE
4. Ignition Switches – OFF
5. Master Switch – OFF
6. AVI Battery – OFF
7. Avionics – OFF
8. Engine gages – OFF
9. Flaps – DOWN
10. Alternate Air – CLOSED

NOSE:

1. Engine Oil Level – CHECK, do not operate with less than 6 quarts
2. Propeller and Spinner – CHECK for nicks and security
3. Cowl Hinge Pins – CHECK for security
4. Air Intakes – CHECK for restrictions
5. Air Inlet – CHECK for restrictions
6. Inspect Engine Compartment - Secure Oil Door
7. Fuel Tank Vents – CHECK for blockage

RIGHT WING:

1. Aileron – CHECK freedom of movement and security
2. Flap – CHECK security
3. Nav and Strobe – CHECK condition
4. Right Landing Light – CHECK condition
5. Wing Tie-Down – DISCONNECT
6. Main Wheel Tire – **CHECK** for proper inflation (35-38 psi)
7. Chock – REMOVE
8. Right Wing Tank – SUMP
9. Fuel Quantity – CHECK VISUALLY
10. Fuel Filler Cap – SECURE

PREFLIGHT INSPECTION

EMPENNAGE:

1. Control Surfaces – CHECK freedom of movement and security
2. Static Sources (both sides of fuselage) – CHECK for blockage
3. Tail and Strobe – CHECK condition
4. Inspect Tailwheel and Springs for Security

LEFT WING:

1. Aileron – CHECK freedom of movement and security
2. Flap – CHECK security
3. Nav and Strobe – CHECK condition
4. Right Landing Light – CHECK condition
5. Wing Tie-Down – DISCONNECT
6. **REMOVE PITOT COVER**
7. Main Wheel Tire – **CHECK** for proper inflation (35-38 psi)
8. Chock – REMOVE
9. Right Wing Tank – SUMP
10. Fuel Quantity – CHECK VISUALLY
11. Fuel Filler Cap – SECURE

STARTING PROCEDURES

BEFORE STARTING ENGINE:

1. Exterior Preflight – COMPLETE / REMOVE CHOCKS
2. Seat Belts and Shoulder Harnesses – ADJUSTED and SECURE
3. Fuel Selector Valve – FULLEST TANK
4. AVI Battery switch – ON (G3X EFIS ON)
5. MSTR Battery – ON
6. Brakes – TEST and HOLD
7. Ignition Circuit Breakers – CHECK IN

STARTING ENGINE (COLD):

1. Alternate Air – CLOSED
2. Ignition Circuit Breakers - IN
3. Master and AVI Battery Switches – ON
4. Fuel Boost Pump – **ON** until pressure rises then **OFF**
5. Mixture – **FULL RICH**
6. Crack Throttle to 1/4”
7. Propeller – HIGH RPM
8. Propeller Area – CLEAR
9. Ignition Switch – START (3-4 blades to start)
10. Oil Pressure – CHECK min 25 psi at idle
11. Mixture – **MAXIMUM LEAN** for GROUND OPS
12. Alternator – ON
13. Flaps – UP
14. Nav Lights – ON

STARTING ENGINE (HOT START):

1. Throttle **FULL** Open
2. Mixture – **IDLE CUT OFF**
3. Fuel Boost Pump – **OFF**
4. Propeller – HIGH RPM
5. Propeller Area – CLEAR
6. Ignition Switch – START (3-4 blades to start)
7. THEN PROMPTLY:
   > *Mixture – Feed in gradually*
   > *Throttle - Retard quickly to idle*
8. THEN STEPS 10+ ABOVE

BEFORE TAXI

TAXI:

1. Nav/Strobe Lights – ON
2. Taxi Lights – AS NEEDED
3. Ramp Area – CLEAR
4. Brake – TEST and HOLD
5. Flight Controls – FREE and CORRECT
6. ATIS & Taxi Instructions / Clearance

BEFORE TAKE OFF:

1. Flight Controls – FREE and CORRECT
2. Elevator Trim – TAKEOFF POSITION
3. Fuel Selector Valve – FULLEST TANK
4. Brakes – HOLD
5. Mixture – RICH (below 5000'). Lean for best power as needed
6. Throttle – 1,700 RPM (at least 100 degrees oil temp)
7. P-Mag Functional Check:

a. > Switch to Left then Right P-Mag, as long as smooth RPM drop is not critical (<100 RPM) confirms that P-Mag is functional, ***then***

b. > Remove bus PWR to respective P-Mag, if engine does not cut out P-Mag internal alternator is functioning correctly

8. Propeller – Cycle 2-3 times, CHECK operation
9. Engine Instruments – Correct Range in GREEN
10. Minimum Oil Temp for Take OFF - 120 degrees
11. Bus Voltage – 13.6 to 14.4 Volts
12. Throttle – IDLE (800 RPM)
13. Flight Instruments and Radios – SET

a. > Altimeter – CORRECT PRESSURE
b. > BUG DEPARTURE ALTITUDE
c. > ADHARS – G5/G3X ALIGNED
d. > GPS – ON Check Signal & WAAS Availability
e. > Transponder – Check ALTITUDE

14. Fuel Boost Pump – ON
15. Canopy – Main Latch – SECURE
16. Passenger – Briefed and seatbelt secure

TAKEOFF PROCEDURES

NORMAL TAKEOFF:

1. WING FLAPS - UP
2. MIXTURE LEAN ABOVE 5000 FT.
3. ALTERNATE AIR - CLOSED
4. ALIGN ACFT ON RUNWAY **CENTERLINE**
5. AILERON **INTO WIND**
6. SMOOTHLY APPLY FULL POWER
7. LIFT TAILWHEEL WHEN CONTROLS BECOME FIRM
8. ROTATE AT 65 KTS - LIFT NOSE TO CLIMB ATTITUDE
9. CLIMB SPEED - Vy – 90 KTS
10. CLIMB POWER 25" MP 2,500 RPM
11. TRIM

SHORT / SOFT FIELD TAKEOFF:

1. WING FLAPS - 10 DEGREES (IN TRAIL WITH AILERON)
2. TAIL UP AS SOON AS POSSIBLE
3. CLIMB AT Vx - 70 KTS UNTIL CLEAR THEN Vy - 90 KTS

NORMAL CLIMB:

1. POWER TO 23” MP 2,300 RPM
2. AIRSPEED – 115-120 KTS
3. MIXTURE - RICH - LEAN ABOVE 5000 FT FOR BEST RPM
4. FUEL PUMP - OFF

CRUISE:

1. LOWER NOSE TO LEVEL ATTITUDE
2. TRIM TO HANDS OFF
3. HIGH SPEED: POWER WOT AND 2,300 RPM = 162 KTAS
4. ECON: 21” AND 2,300 RPM
5. LEAN MIXTURE TO ROP BELOW 65%
6. LEAN TO ENGINE STUMBLES THEN ENRICHEN ½-1 TURN IN
7. FUEL FLOW BETWEEN 7 AND 8 GPH AT FULL THROTTLE
8. MONITOR ENGINE:
   > CHT, BELOW 380 DEGREES CRUISING
   > TARGET EGT ~1325 DEGREES
   > TARGET OIL TEMP 180 DEGREES

RV POWER SETTINGS

➔ T/O POWER AT SEA LEVEL = 30” MP @ 2,700 RPM

➔ CLIMB POWER = 25” MP @ 2,500 RPM

➔ CRUISE POWER = 23”MP @ 2,300 RPM

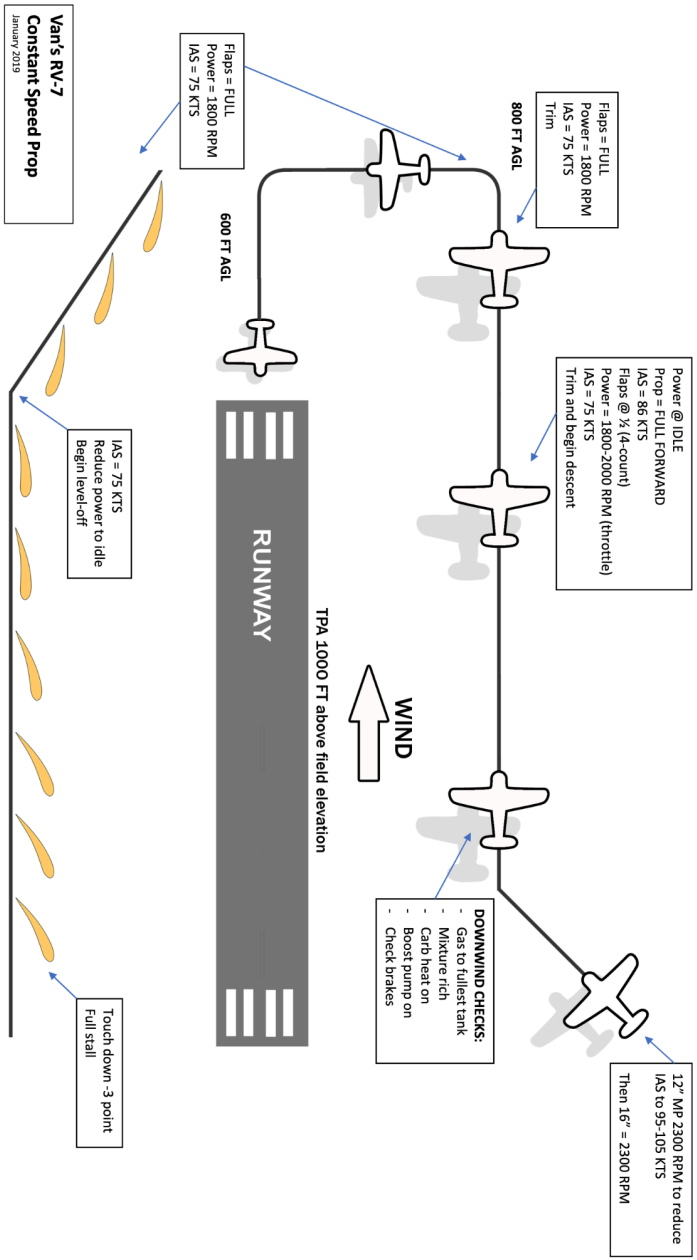
➔ LOW CRUISE POWER = 16”- 20” MP @ 2,300 RPM

➔ BEFORE PATTERN POWER = 10” MP @ 2,300 RPM

➔ PATTERN POWER = 16” MP @ 2,300 RPM

➔ APPROACH POWER = 1,800 - 2,000 RPM (THROTTLE MOVEMENT) PROP IS ALL THE WAY IN

LANDING PATTERN SPEEDS AND SETTINGS



LANDING PROCEDURES

BEFORE LANDING @ 10 MILES:

1. ATIS, ALTIMETER SET, PLAN APPROACH AND RUNWAY
2. SLOW FROM CRUISE SPEED
3. FUEL - FULLEST TANK
4. MIXTURE - RICH AS NEEDED
5. BOOST PUMP - ON
6. LANDING LIGHTS ON
7. BRAKES - TEST

APPROACH TO LANDING @ 5 MILES:

1. ALTITUDE - MAINTAIN 1,000' AGL UNTIL 3 MILES
2. SLOW TO 85 KTS
3. IF STRAIGHT IN BEGIN DESCENT AT 3 MILES @ 75 KTS

LANDING:

1. ABEAM TOUCHDOWN - REDUCE POWER TO 1,800 - 2,000
2. PROPELLOR - FULL FORWARD
3. WING FLAPS - 1/2 BELOW 86 KTS
4. AIRSPEED - TRIM FOR 75 KTS
5. POWER - 1,800 - 2,000 RPM
6. TRIM ELEVATOR FOR HANDS OFF FLIGHT
7. FINAL LEG - FLAPS FULL @ 500' - AIRSPEED = **75 KTS**
8. SHORT FINAL = **70 KTS,** OVER NUMBERS **68-70 KTS**
9. TOUCHDOWN 3 POINT ATTITUDE - FULL STALL
10. LANDING ROLL - BRAKES AS REQUIRED

BALKED LANDING:

1. THROTTLE - FULL OPEN
2. PITCH - ESTABLISH CLIMB ATTITUDE
3. WING FLAPS - UP
4. AIRSPEED – 90 KTS

AFTER LANDING:

1. WING FLAPS – UP
2. BOOST PUMP – OFF
3. LIGHTS (Landing and Strobe) – OFF
4. MIXTURE - AGGRESSIVELY LEAN

AFTER LANDING PROCEDURES

ENGINE SHUTDOWN:

1. PROPELLER – FULL FORWARD
2. MIXTURE - ENRICHEN FOR RUNUP
3. THROTTLE – INCREASE TO 1,500 RPM FOR 30 SEC
4. TEMPS STABILIZED THEN REDUCE TO IDLE
5. MIXTURE – IDLE CUT-OFF **and** THROTTLE CLOSED
6. AFTER ENGINE STOPS - CRACK MIXTURE
7. FLAPS – DOWN
8. SWITCHES – OFF
9. AVIONICS AND INSTRUMENTS – OFF
10. P-MAGS – OFF
11. MASTER – OFF
12. AVIONICS BATTERY – OFF
13. FUEL SELECTOR - OFF
14. REMOVE PLACE KEY ON GLARE SHIELD!

SECURING AIRCRAFT:

1. VENT ENGINE COMPARTMENT - OPEN OIL DOOR
2. WHEEL CHOCKS - AS NEEDED
3. WING AND TAIL TIE DOWNS - AS NEEDED
4. CONTROL LOCKS SECURED - AS NEEDED
5. ENGINE AND AIR INTAKES PLUGS IN PLACE
6. PITOT COVERED
7. CANOPY COVER AS NEEDED
8. KEY – REMOVED

Section 5 - Performance:
PERFORMANCE – SPECIFICATIONS

SPAN:	25’ 0”
LENGTH:	20’ 4”
HEIGHT:	7’ 10”

PERFORMANCE @ Gross Weight 1800 lbs:

SPEED:	
Maximum at Sea Level	181 KTS
Cruise, 75% Power at 8,000 Ft	173 KTS
Cruise, 55% Power at 8,000 Ft	155 KTS
RANGE (includes 3 gal. for taxi, takeoff & climb):	
75% @ 8000’, no reserve	775 sm / 673 nm
55% @ 8000’, no reserve	950 sm / 825 nm
75% @ 8000’, one hour (10 gal) reserve	500 sm / 434 nm
55% @ 8000’, one hour (10 gal) reserve	680 sm / 590 nm
RATE OF CLIMB AT SEA LEVEL	1,650 fpm
SERVICE CEILING	20,500 ft
TAKEOFF PERFORMANCE:	575 ft
LANDING PERFORMANCE:	500 ft
STALL SPEED (CAS):	
Flaps Up, Power Off	54 KTS
Flaps Down, Power Off	50 KTS
MAXIMUM WEIGHT (Normal Category):	1,800 Lbs
EMPTY WEIGHT	1,115 Lbs
MAXIMUM USEFUL LOAD:	685 Lbs
BAGGAGE ALLOWANCE	100 Lbs
WING LOADING (Pounds/ Sq. Ft)	14.8 Lbs
POWER LOADING (Pounds/ HP)	10 Lbs
FUEL:	
Capacity:	42 Gal Total
Unusable:	2 Gal
Type:	100 LL

ENGINE: Lycoming Thunderbolt	YIO-360-EXP139 = I(O)360-M1B S/N: EL-38733-51E 180 BHP @ 2700 RPM
OIL CAPACITY	8 Qts Max 6 Qts Min Normal Qty 4 Qts Min Safe
PROPELLER: Hartzell	HC-M2YR-1BFPX/F7497-2X

Section 6 - Aerobatic Information:

Weight Limitation – **1,600** lbs

Recommended Entry Speeds:

Loops, Horizontal Eights	121-165 KTS
Immelmann Turns	130-165 KTS
Aileron Rolls, Barrel Rolls	104-165 KTS
Vertical Rolls	156-165 KTS
Split-S	87-95 KTS

Section 7 - Weight & Balance:

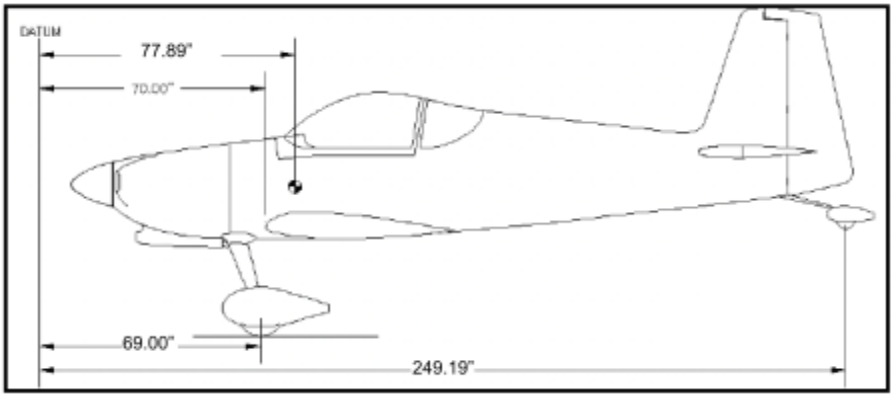
WEIGHT AND BALANCE DATA

Make: Van's Aircraft
Model: RV-7
Serial Number: 74261
Registration: N732DH

Maximum Weights:

Aerobatic Category	1,600 Lbs
Normal Category	1,800 Lbs

Datum = ...	70 inches forward of the wing leading edge (L.E.)
DESIGN CG Range =	15% to 29% of wing chord or 8.7" to 16.82" from L.E. or 78.7" to 86.82" aft of Datum
AEROBATIC CG Range =	15% to 25% of wing chord or 8.7" to 14.5" from L.E. or 78.7" to 84.5" aft of Datum
Wing L.E = ...	70 inches aft of datum
Fuel = ...	80" aft of datum
Pilot and Passenger =	97.48" aft of datum
Baggage = ...	126.78" aft of datum



Main wheel right = ...	69.00" aft of datum
Main wheel left = ...	69.00" aft of datum
Tail Wheel = ...	249.19" aft of datum

WEIGHT AND BALANCE DATA

Aircraft weighed empty in level flight attitude including 6 qts. of oil, no fuel.

Make: Van's **Serial: 74261**
Model: RV-7 **Reg: N732DH**

Weighed on October 18, 2020

R-Main	**69.00**	**Aft of datum**
L-Main	**69.00**	**Aft of datum**
Tail	**249.19**	**Aft of datum**

WEIGHTS:

L-Main	R-Main	Tail	Total
532	528	55	1,115.00

COMPONENT:	Weight	Arm	Moment
L-Main	532	69.00	36,708.00
R-Main	528	69.00	36,432.00
Tail	55	249.19	13,705.45
Subtotal:	**1,115.00**		**86,845.45**
CG:	**77.89**	**Aft of datum for empty weight CG**	

STD	**FWD:**	**78.70**	**AFT:**	**86.82**
AEROBATIC	**FWD:**	**78.70**	**AFT:**	**84.50**

WEIGHT AND BALANCE SAMPLES

SAMPLE SITUTATION 1:		GROSS WEIGHT CG		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	42	252	80.00	20,160.00
Pilot		200	97.48	19,496.00
Co-Pilot		140	97.48	13,647.20
Baggage		93	126.78	11,790.54
Total	**Weight:**	**1,800**		**151,939.19**
	CG:	**84.41**		

SAMPLE SITUTATION 2:		FURTHEST AFT CG (Goss Weight, min. fuel)		
Component	**Gal:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	5	30	80.00	2,400.00
Pilot		200	97.48	19,496.00
Co-Pilot		140	97.48	13,647.20
Baggage		93	126.78	11,790.54
Total	**Weight:**	**1,578**		**134,179.19**
	CG:	**85.03**		

SAMPLE SITUTATION 3:		MOST FORWARD CG W/ 200 LBS PILOT		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	42	252	80.00	20,160.00
Pilot		200	97.48	19,496.00
Co-Pilot		0	97.48	0.00
Baggage		0	126.78	0.00
Total	**Weight:**	**1,567**		**126,501.45**
	CG:	**80.73**		

WEIGHT AND BALANCE SAMPLES

SAMPLE SITUTATION 4:		MOST FORWARD CG W/ 200 LBS PILOT		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	42	252	80.00	20,160.00
Pilot		200	97.48	19,496.00
Co-Pilot		0	97.48	0.00
Baggage		0	126.78	0.00
Total	**Weight:**	**1,567**		**126,501.45**
	CG:	**80.73**		

SAMPLE SITUTATION 5:		GROSS WEIGHT W/HEAVY PILOT/PSG AND REDUCED FUEL		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	22	132	80.00	10,560.00
Pilot		230	97.48	22,420.40
Co-Pilot		230	97.48	22,420.40
Baggage		93	126.78	11,790.54
Total	**Weight:**	**1,800**		**154,036.79**
	CG:	**85.58**		

SAMPLE SITUTATION 6:		AS ABOVE, BUT WITH MINIUM FUEL		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	5	30	80.00	2,400.00
Pilot		230	97.48	22,420.40
Co-Pilot		230	97.48	22,420.40
Baggage		94	126.78	11,917.32
Total	**Weight:**	**1,699**		**146,003.57**
	CG:	**85.94**		

WEIGHT AND BALANCE SAMPLES

SAMPLE SITUTATION 7:		AS ABOVE, BUT WITH REDUCED BAGGAGE		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	5	30	80.00	2,400.00
Pilot		230	97.48	22,420.40
Co-Pilot		230	97.48	22,420.40
Baggage		0	126.78	0.00
Total	**Weight:**	**1,605**		**134,086.25**
	CG:	**83.54**		

SAMPLE SITUTATION 8:		NO PSGR, NO BAGGAGE, MINIUM FUEL		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	5	30	80.00	2,400.00
Pilot		200	97.48	19,496.00
Co-Pilot		0	97.48	0.00
Baggage		0	126.78	0.00
Total	**Weight:**	**1,345**		**108,741.45**
	CG:	**80.85**		

WEIGHT AND BALANCE SAMPLES

SAMPLE SITUTATION 9:		AEROBATIC - MAX GROSS = 1,600 Lbs		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	20	120	80.00	9,600.00
Pilot		200	97.48	19,496.00
Co-Pilot		165	97.48	16,084.20
Baggage		0	126.78	0.00
Total	**Weight:**	**1,600**		**132,025.65**
	CG:	**82.52**		

SAMPLE SITUTATION 10:		AEROBATIC - MAX GROSS = 1,600 Lbs		
Component	**Gal.:**	**Weight**	**Arm**	**Moment**
Aircraft		1,115	77.89	86,845.45
Fuel	42	252	80.00	20,160.00
Pilot		200	97.48	19,496.00
Co-Pilot		0	97.48	0.00
Baggage		0	126.78	0.00
Total	**Weight:**	**1,567**		**126,501.45**
	CG:	**80.73**		

Section 8 - Equipment List:

N732DH EQUIPMENT LIST: **Updated: Janurary 1, 2024**

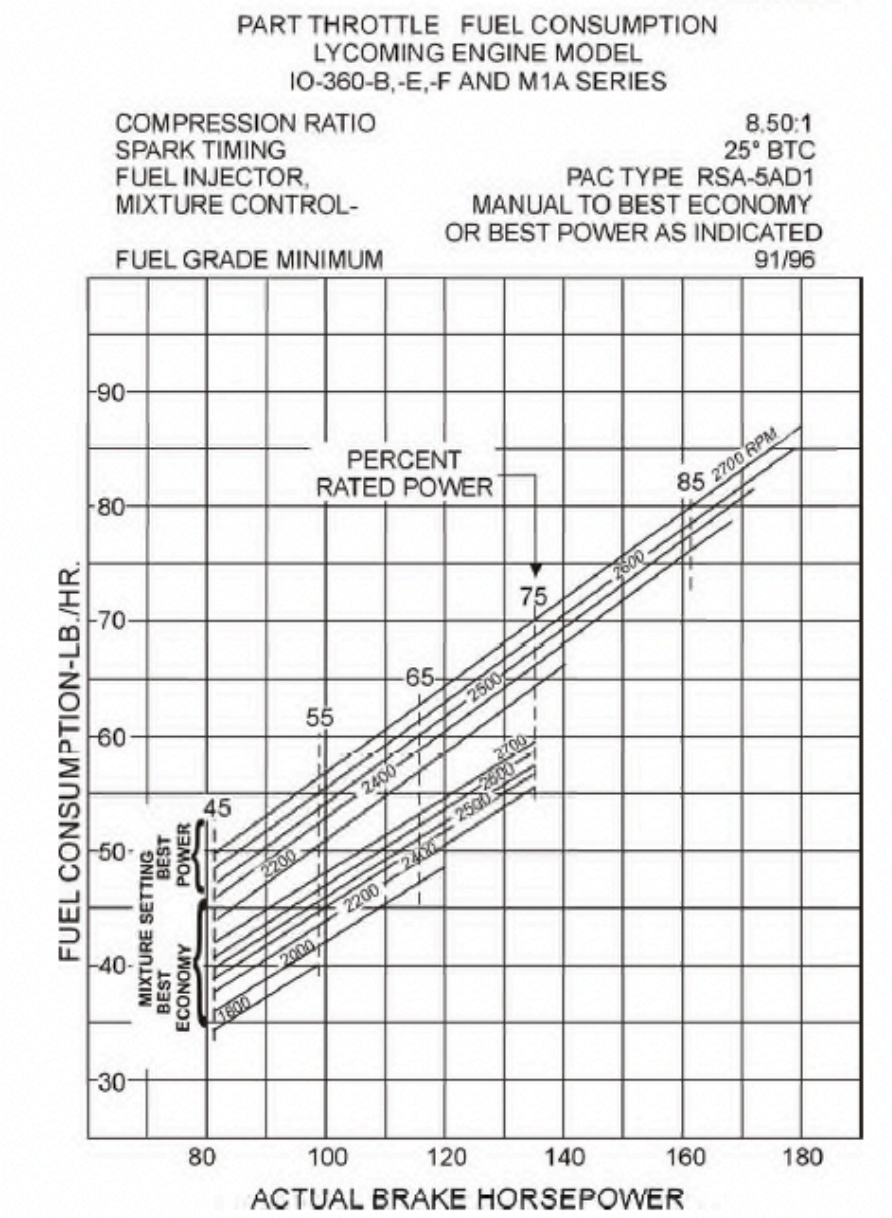
	DESCRIPTION	MFG	MODEL	SERIAL #	REVISION	AFT DATUM LOCATION	COMMENTS
PROPELLER:							
	Constant Speed	Hartzell	HC-M2YR-1BFPX	B37303B	N/A	N/A	Extended Hub for James Cowl
	Blade 1	Hartzell	F7497-2X	M10271	N/A	N/A	
	Blade 2	Hartzell	F7497-2X	M10273	N/A	N/A	
ENGINE:							
	Thunderbolt	Lycoming	YIO-360-EXP139	EL-38733-51E	N/A	N/A	180 HP
	Oil Filter	Champion	CH48110-1	N/A	N/A	N/A	or Tempest AA48110-2
	Oil Cooler	Aero-Classic	8001602	4655567	N/A	N/A	High capacity
	Left P-Mag	E-Mag	P-114-L4	7100	VL-184117	N/A	
	Right P-Mag		P-114-L4	7022	VL-184117	N/A	
	Spark Plugs	NGK	BR8ES	N/A	N/A	N/A	Stock #3961 solid post
	Fuel Servo	Avstar	AVX3015002-1	AV53190736	AVX-NNSS6	N/A	Avstar Servo Kit - AVX360-1
	Flow Divider		AVX3015004-1	AV53190987	3015002	N/A	
	Nozzles		AV2524864-2	N/A			
	Prop Governor	MT	P-860-4	21G054-K	N/A	N/A	
	Starter	Sky-Tec	149-12HT	H-X112397	N/A	N/A	High torque
	Fuel Pump	Lycoming	62B26931	4123L0084	N/A	N/A	Engine Driven
	Fuel Flow	Electronics International	FT-60	228565	N/A	Under Plenum	TSO-C44c
	Auxiliary Pump & Filter	Airflow Performance	2090255 / 1090079	N/A	N/A	N/A	Forward of Selector Valve
	Alernator	B&C	LX60	2BB10D9M1	N/A	N/A	14V/60A
	Regulator	B&C	LR3D-14	N/A	N/A	64"	Sub panel
	Alternator Belt	Gates	7360	N/A	N/A	N/A	
AVIONICS:							
	G3X EFIS	Garmin	GDU 460	350010844	SW 9.31	Panel	ID: 60002C9E8F5D6
	Bkup Attitude	Garmin	G5	4JQ053696	SW 8.41	Panel	
	GPS/ADS-B	Garmin	GNX-375	5GJ004668	Main 3.22 Trans 2.80 Touch 2.00 GPS 8.20	Panel	ID: A310060FF864C
	COMM 1	Garmin	GTR-200	5JC004450	SW 3.50 BB 2.40	Panel	
	COMM 2	Garmin	GTR-20	5JE004310		64"	Sub-panel aft FW
	Audio	Garmin	GMA-245	3YL003456	ASW 2.20 BT 2.00 SW 3.10 BB 2.30	Panel	
	Autopilot	Garmin	GMC-507	5H1008389	SW 5.00 BB 2.30	Panel	
	Roll Servo	Garmin	GSA-28	6N7005112	SW 5.60	Right Wing	At Aileron Bellcrank
	Pitch Servo	Garmin	GSA-28	2PG007451	SW 5.60	130"	Behind Baggage Comparment
	Engine Monitor	Garmin	GEA 24	2J2021304	SW 3.90 BB 2.20	64"	Sub-panel
	MAG	Garmin	GMU 11	56J023476	SW 2.20 BB 2.10	160"	Behind Baggage Comparment
	ARINC	Garmin	GAD 29C	6V9001122	SW 2.10 BB 2.00	64"	Sub-panel
	ADHARS	Garmin	GSU 25C	5Q2101793	SW 2.90 BB 2.10	Panel	Attached to G3X
	Pitot	Garmin	GAP 26	34F600819	-	Left Wing	Heated, un-regulated
	USB PWR	Garmin	GSB 15	63M250617	-	Panel	USB Type A & C
	CO Detector	Aithre	EX-2.0	2OE7	-	Panel	Co-Pilot side
	ELT	ACK	E-04	36420	N/A	150" Behind Baggage Comparment	HEX: 2DC8A 41C86 FFBFF, Registered NOAA, Exp 1-24-24

Section 8 - Equipment List:

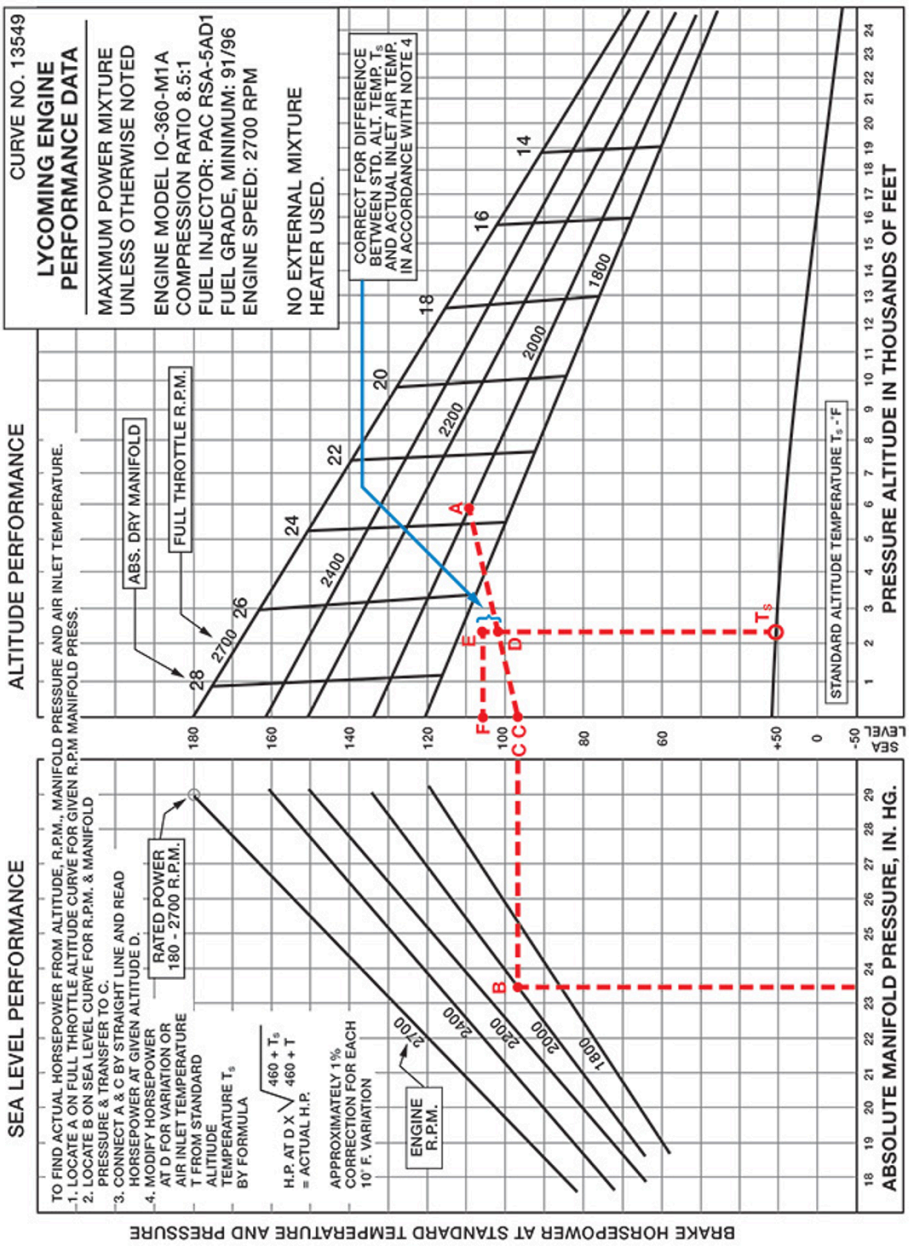
N732DH EQUIPMENT LIST: **Updated: Janurary 1, 2024**

	DESCRIPTION	MFG	MODEL	SERIAL #	REVISION	AFT DATUM LOCATION	COMMENTS
ELECTRICAL:							
	PWR Distribution	Vertical Pwr	VPX-Pro	3558	1.06 Rev D	64"	Between Sub-panel and Firewall
	Battery	Odyssey	PC680	-	-	74"	w/attached trickle charge lead
	AVI Bkup Battery	IBBS	IBBS-12V-6AH	20219319 H	-	64"	Above VPX - Remove with VPX
ANTENNAS:							
	COMM 1/2	RAMI	RV-17	-	-	N/A	COMM 1 L, COMM 2 R
	ELT/ADS-B Trans	Mono-pole	104-17	-	-	N/A	Belly near FW
	PFD GPS	Garmin	GA 26C	-	-	N/A	On glare shield
	WAAS GPS	Garmin	GA 35	-	-	N/A	Under cowl
LIGHTS:							
	Wing Nav/Strobe	AeroLED	Pulsar NS	M22982-002 M22982-012	-	N/A	Left/Right
	Tail Nav/Stobe	AeroLED	Suntail	-	-	N/A	Rudder
	LNDG Light	AeroLED	Aerosun VX	-	-	N/A	Left/Right w/WigWag via VPX

Section 9 - Engine Operations:
Lycoming Data: PN 60297-12



Section 9 - Engine Operations:
Lycoming Data: PN 60297-12



Section 10 - Miscellaneous:

FAR 91.125 - ATC light signals.

ATC light signals have the meaning shown in the following table:

Color and type of signal	Meaning with respect to aircraft or the surface	Meaning with respect to aircraft in flight
Steady **Green**	Cleared for takeoff	Cleared to land
Flashing **Green**	Cleared to taxi	Return for landing
Steady **Red**	Stop	Give way to other aircraft and continue circling.
Flashing **Red**	Taxi clear of runway in use	Airport unsafe—do not use
Flashing **White**	Return to starting point on airport	N/A
Alternating **Red** and **Green**	Exercise extreme caution	Exercise extreme caution

Compass Headings, VFR under 18,000ft

Course	Altitude
0 – 179 degrees	Odd thousand +500
180 – 360 degrees	Even thousand + 500

TEMPERATURE Conversion table:

Celc.	Fahr.	Celc.	Fahr.	Celc.	Fahr.	Celc.	Fahr.	Celc.	Fahr.
10	50	60	140	110	230	160	320	210	410
16	60	66	150	116	240	166	330	216	420
21	70	71	160	121	250	171	340	221	430
27	80	77	170	127	260	177	350	227	440
32	90	82	180	132	270	182	360	232	450
38	100	88	190	138	280	188	370	238	460
43	110	93	200	143	290	193	380	243	470
49	120	99	210	149	300	199	390	249	480
54	130	104	220	154	310	204	400	254	490