PERFORMANCE – SPECIFICATIONS

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

SPEED:
Maximum at Sea Level .....................180 knots
Cruise, 75% Power at 8,000 Ft ..................170 knots

RANGE (includes 3 gal. for taxi, takeoff & climb):
75% @ 8000’, no reserve ..........................700 sm
55% @ 8000’ no reserve ..........................880 sm
75% @ 8000’, one hour (10 gal) reserve .........500 sm
55% @ 8000’, one hour (10 gal) reserve ........680 sm

RATE OF CLimb AT SEA LEVEL .....................1,600 FPM

SERVICE CEILING ........................................19,500 Ft

TAKEOFF PERFORMANCE: ..................575 Ft
LANDING PERFORMANCE: ....................500 Ft

STALL SPEED (CAS):
Flaps Up, Power Off .................................54 knots
Flaps Down, Power Off ..............................50 knots

MAXIMUM WEIGHT (Normal Category):........1800 Lbs.
EMPTY WEIGHT .............................................1086 Lbs.
MAXIMUM USEFUL LOAD: ......................714 Lbs
BAGGAGE ALLOWANCE .........................100 Lbs.
WING LOADING (Pounds/ Sq. Ft) ............14.8 Lbs.
POWER LOADING (Pounds/ HP) ...............10 Lbs.

FUEL:
Capacity .....................159 L – (42 US Gal) Total
Type .........................................................100 LL

OIL CAPACITY ..............................................8 Qts
ENGINE: Superior.................................XP-1O-360-1AA2
PROPELLER: Hartzell.............................HC-C2YR-1BF
## AIRSPEED LIMITATIONS

<table>
<thead>
<tr>
<th>SPEED</th>
<th>IAS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VNE</td>
<td>Never Exceed Speed</td>
<td>200 knots</td>
</tr>
<tr>
<td>VNO</td>
<td>Maximum Structural Cruising Speed</td>
<td>168 knots</td>
</tr>
<tr>
<td>VA</td>
<td>Maneuvering Speed</td>
<td>123 knots</td>
</tr>
<tr>
<td>VFE</td>
<td>Maximum Flap Extended Speed</td>
<td>95kt - 20°</td>
</tr>
<tr>
<td>Vy</td>
<td>Best Rate of Climb</td>
<td>95 knots</td>
</tr>
<tr>
<td>Vx</td>
<td>Best Angle of Climb</td>
<td>70 knots</td>
</tr>
<tr>
<td>Vs</td>
<td>Stall Speed Clean</td>
<td>55 knots</td>
</tr>
<tr>
<td>Vso</td>
<td>Stall Speed Landing Configuration</td>
<td>50knots</td>
</tr>
</tbody>
</table>

## AIRSPEED INDICATOR MARKINGS

<table>
<thead>
<tr>
<th>MARKING</th>
<th>IAS VALUE OR RANGE</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Arc</td>
<td>50-87 knots</td>
<td>Full Flap Operating Range. Lower limit is Vso. Upper limit is maximum speed with flaps extended</td>
</tr>
<tr>
<td>Green Arc</td>
<td>55-168 knots</td>
<td>Normal Operating Range. Lower limit is Vs. Upper limit is maximum structural cruising speed</td>
</tr>
<tr>
<td>Yellow Arc</td>
<td>168-200 knots</td>
<td>Operations must be conducted with caution and only in smooth air.</td>
</tr>
<tr>
<td>Red Line</td>
<td>200 knots</td>
<td>Maximum speed for all operations</td>
</tr>
</tbody>
</table>
PREFLIGHT INSPECTION

1. **CABIN**
   a) Documentation -- Available In Airplane
   b) Aeronautical Charts – CURRENT AND APPROPRIATE TO FLIGHT
   c) Seat Belt Securing Control Stick -- RELEASE
   d) Ignition Switch -- OFF
   e) Avionics -- OFF
   f) Master Switch -- ON
   g) Engine gages – ON
   h) Fuel Quantity -- CHECK QUANTITY
   i) Flaps – DOWN
   j) Master Switch -- OFF

2. **EMPENNAGE**
   a) Tail Tie-Down -- DISCONNECT
   b) Control Surfaces -- CHECK freedom of movement and security
   c) Static Sources (both sides of fuselage) – CHECK for blockage
   d) Tail and Strobe--CHECK condition

3. **LEFT WING**
   a) Aileron -- CHECK freedom of movement and security
   b) Flap -- CHECK security
   c) Nav and Strobe--CHECK condition
   d) Right Landing Light -- CHECK condition
   e) Wing Tie-Down – DISCONNECT
   f) Pitot Tube Cover -- REMOVE and check for blockage
   g) Main Wheel Tire -- CHECK for proper inflation
   h) Chock -- REMOVE
   i) Right Wing Tank – SUMP
   j) Fuel Quantity -- CHECK VISUALLY
   k) Fuel Filler Cap – SECURE
4. NOSE
   a) Oil Level -- CHECK, don’t operate with less than 5 quarts
   b) Propeller and Spinner -- CHECK for nicks and security, grease & oil leaks. (Gentle shake each blade to feel for movement up to 1/8th inch allowed)
   c) Cowl Hinge Pins – CHECK for security
   d) Air Inlet -- CHECK for restrictions
   e) Nose Wheel Tire -- CHECK for proper inflation
   f) Chock-remove
   g) Fuel Tank Vents-CHECK for blockage

5. RIGHT WING
   a) Wing Tie-Down -- DISCONNECT
   b) Main Wheel Tire -- CHECK for proper inflation
   c) Chock -- REMOVE
   d) Left Wing Tank -- SUMP
   e) Fuel Quantity -- CHECK VISUALLY
   f) Fuel Filler Cap -- SECURE
   g) Left Landing Light -- CHECK condition
   h) Nav and Strobe--CHECK Condition
   i) Aileron -- CHECK freedom of movement and security
   j) Flap -- CHECK security

BEFORE STARTING ENGINE
   a) Preflight Inspection -- COMPLETE
   b) Seat Belts and Shoulder Harnesses -- ADJUST and LOCK
   c) Fuel Selector Valve -- DESIRED TANK
   d) Avionics and Electrical -- OFF
   e) Brakes -- SET
   f) Circuit Breakers -- CHECK IN
   g) Canopy adjust
STARTING ENGINE (cold)

a) Master Switch-Alternator – ON
b) Flaps -- UP
c) Set Prop control full in
d) Fuel Boost Pump -- ON
e) Open throttle wide, move mixture control to “Full Rich” until a slight
   but steady fuel flow is noted (approx.3 to 5 seconds) then return
   throttle to “Closed” and return mixture control to “Full Rich”
f) Fuel Boost Pump – OFF
g) Open Throttle ¼ of travel
h) Turn key (mags) to “Both”
i) Propeller Area -- CLEAR
j) Turn key-start position
k) Move Mixture control slowly and smoothly to lean slightly
l) Oil Pressure -- CHECK  25 psi at idle
m) Avionics & Instruments -- ON

STARTING ENGINE (Hot)

a) Flaps -- UP
b) Mixture “idle cut-off”
c) Throttle at least 1/4 open
d) Prop -- HIGH RPM
e) Boost pump on for 30 seconds
f) Boost pump off
g) Master Switch-Alternator -- ON
h) Propeller Area -- CLEAR
i) Ignition Switch – START
j) When it catches quickly push the mixture in (to the run position) and
   retard the throttle to idle.
k) Avionics & Instruments -- ON
l) Oil Pressure -- CHECK  25 psi at idle
m) Nav & Strobe – ON
BEFORE TAKEOFF
   a) Brakes -- SET
   b) Canopy -------- Main Latch – SECURE
   c) Flight Controls -- FREE and CORRECT
   d) Flight Instruments – SET DG to Compass
      • Altimeter – CORRECT PRESSURE
      • GPS—CURRENT DATA AND PROGRAMMED
   e) Fuel Selector Valve -- DESIRED TANK
   f) Mixture -- RICH (below 3000’)
   g) Elevator and Aileron Trim -- NEUTRAL
   h) Throttle -- 1800 RPM
      • Magnetos -- CHECK (Right 125 max drop, 50 diff max)
      • Prop – cycle (2x) CHECK operation (do not allow the RPM to drop more than 500 RPM)
      • Engine Instruments -- CHECK
      • Throttle -- IDLE
   i) Radios -- SET
   j) Fuel Boost Pump -- ON
   k) Transponder – ALTITUDE
   l) Flaps to 20 degrees
   m) Passenger – READY and willing

TAKEOFF

NORMAL TAKEOFF

   a) Wing Flaps – UP
   b) Prop – HIGH RPM
   c) Align on center line
   d) Throttle -- Gently & Smoothly to FULL OPEN
   e) Elevator Control – LIFT NOSE WHEEL (55kts)
   f) Climb Speed -- 95 knots
   g) Trim
SHORT FIELD TAKEOFF
   a) Wing Flaps – 20 degrees
   b) Prop – HIGH RPM
   c) Brakes – APPLY
   d) Throttle -- Gently & Smoothly to FULL OPEN
   e) Mixture – RICH (above 3000’ lean to obtain max RPM)
   f) Brakes – RELEASE
   g) Climb Speed – 78 knots (Vy)

ENROUTE CLIMB
   a) Airspeed – 108-130 knots
   b) Throttle – 25 in Hg, or full throttle
   c) Prop – 2300-2400 RPM
   d) Boost Pump – OFF at 1000 feet AGL
   e) Fuel Pressure – CHECK
   f) Trim
   g) Mixture – LEAN above 5000’

CRUISE
   a) Throttle – 23.6 in Hg
   b) Prop – 2360 RPM
   c) Trim – ADJUST
   d) Mixture – LEAN to 100 deg F rich of peak
   e) Avoid continuous operation of Prop between 2050 to 2300 RPM and 2600 to 2700 RPM

LANDING
   a) Approach speed 80 knots
   b) Flaps – 15 degrees
   c) Prop control full rpm
   d) Engine 1800-1900 rpm
   e) Fuel – Fullest Tank
   f) Base Leg - Flaps 25 degrees – 75kts
   g) 70 knots final-Full Flaps
AFTER LANDING
   a) Wing Flaps – UP
   b) Boost Pump – OFF
   c) Transponder – STANDBY
   d) ELT - off

ENGINE SHUTDOWN
   a) Flaps – DOWN
   b) Prop – FULL FORWARD
   c) Throttle – IDLE
   d) CHT decidedly dropped
   e) All electrical switches – OFF
   f) Avionics and Instruments.-- OFF
   g) Mixture – IDLE CUT-OFF
   h) Wait for shut down
   i) Master – OFF

SECURING AIRCRAFT
   a) Wheel Chocks
   b) Wing & Tail Tie-Down
   c) Pitot Tube Cover
   d) Cockpit
   e) Ignition Key – REMOVED
   f) Master and Electrical Switches – OFF
   g) Canopy Locked

Performance

Cruise Performance at 8,000’(TAS)

<table>
<thead>
<tr>
<th>KNOTS</th>
<th>RPM</th>
<th>MAP</th>
<th>Fuel Flow</th>
<th>% Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>171</td>
<td>2450</td>
<td>23”</td>
<td>10.5 GPH</td>
<td>75%</td>
</tr>
<tr>
<td>162</td>
<td>2350</td>
<td>22”</td>
<td>9.5 GPH</td>
<td>65%</td>
</tr>
<tr>
<td>154</td>
<td>2250*</td>
<td>21”</td>
<td>8.5 GPH</td>
<td>55%</td>
</tr>
</tbody>
</table>

* avoid continuous use at this prop setting
No Wind Range at 8,000’:
  * All range calculations include 3 gal. for engine start, taxi, takeoff and climb.
  * Engine is leaned for best economy.

One hour (10.5 gal.) reserve

<table>
<thead>
<tr>
<th>Power</th>
<th>Range (sm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%</td>
<td>500</td>
</tr>
<tr>
<td>65%</td>
<td>590</td>
</tr>
<tr>
<td>55%</td>
<td>680</td>
</tr>
</tbody>
</table>

No Reserve:

<table>
<thead>
<tr>
<th>Power</th>
<th>Range (sm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%</td>
<td>700</td>
</tr>
<tr>
<td>65%</td>
<td>790</td>
</tr>
<tr>
<td>55%</td>
<td>880</td>
</tr>
</tbody>
</table>

AEROBATIC INFORMATION

Weight Limitation – 1600 Pounds

Recommended Entry Speeds:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Speed (knots)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loops, Horizontal Eight’s</td>
<td>120-165</td>
</tr>
<tr>
<td>Immelman Turns</td>
<td>130-165</td>
</tr>
<tr>
<td>Aileron Rolls, Barrel Rolls</td>
<td>105-165</td>
</tr>
<tr>
<td>Snap Rolls</td>
<td>70 - 95</td>
</tr>
<tr>
<td>Vertical Rolls</td>
<td>156-165</td>
</tr>
<tr>
<td>Split-S</td>
<td>87 - 95</td>
</tr>
</tbody>
</table>
WEIGHT AND BALANCE DATA

Manufacturer: John C. Droege  Model: RV-7A
Serial: 72127  Registration: N585RV

Maximum Weights:
- Aerobatic Category … 1600 Lbs
- Utility Category … 1700 Lbs
- Normal Category … 1800 Lbs

Datum = 70 inches forward of wing leading edge (L.E.)
Design C.G. Range = 15% to 29% of wing chord
8.7” to 16.82” from L.E.
78.7” to 86.82” aft of Datum

Wing Leading Edge = 70 inches aft of datum
Main wheel right = 93.96” aft of datum
Main wheel left = 93.96” aft of datum
Nose wheel = 39.11” aft of datum
Fuel ....................... 80” aft of datum
Pilot and Passenger ...... 97.48” aft of datum
Baggage ................... 126.78” aft of datum

Aircraft weighed empty in level flight attitude.
(Includes 8 qts. of oil, no fuel)

N585RV weighed at Flying W Aviation in
Ontario, OR October 26, 2007  (Revised 12/15/2010)

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight *</th>
<th>Arm</th>
<th>Moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left main</td>
<td>390</td>
<td>93.96</td>
<td>36644</td>
</tr>
<tr>
<td>Right main</td>
<td>388</td>
<td>93.96</td>
<td>36456</td>
</tr>
<tr>
<td>Nose</td>
<td>302</td>
<td>39.11</td>
<td>11811</td>
</tr>
<tr>
<td>sub total</td>
<td>1080</td>
<td></td>
<td>84912</td>
</tr>
</tbody>
</table>

Empty C.G 78.62
**Engine Information**

Model: Superior XP-IO-360-1AA2

HP: 180

Fuel: 91/96 or 100/130 octane minimum

Oil Filter: Champion CH48110

**Oil**

<table>
<thead>
<tr>
<th>Ambiant Air</th>
<th>MIL-L-6082 Grades</th>
<th>Ashless Dispersant Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 80F</td>
<td>SAE 60</td>
<td>SAE 60,20w50</td>
</tr>
<tr>
<td>Above 60F</td>
<td>SAE 60</td>
<td>SAE 60</td>
</tr>
<tr>
<td>30 – 90F</td>
<td>SAE 40</td>
<td>SAE 40,50</td>
</tr>
<tr>
<td>0-70F</td>
<td>SAE 30</td>
<td>SAE 30,40 or SAE 40</td>
</tr>
</tbody>
</table>

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: 180 deg F desired, 245 deg F Maximum
- Oil Pressure: 115 psi max; 45 psi min; 25 psi idle
- Fuel Pressure: 35 psi max; 2 psi min; 28.5 psi desired
- Cyl. Head Temp: 150 deg F – 400 deg F desired range, 500 deg F max
- Max oil consumption: .89 qts/hr. at cruise
Engine Out Glide Performance
Airspeed 75 Kts

No Wind Distance (nm)

Altitude X 1000'

Prop Low RPM
Prop High RPM
EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATIONS

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

Maneuvering Speed (Va) .......... 123 knots

Maximum Glide ..................... 78 knots

ELECTRICAL / ALTERNATOR FAILURE
1. Avionics –OFF
2. Master Switch – OFF
3. Alt Field -- OFF
4. Master Switch – ON

IF ALTERNATOR IS STILL OFF-LINE:

5. Master Switch – ON
6. Electrical Switches – OFF
7. Alternator Field – OFF
8. Avionics – ON as required
9. Electrical Equipment – ON, as required
10. Flight – TERMINATE as soon as practical, aircraft is on battery reserves only.
EMERGENCY PROCEDURES

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 knots
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 knots
2. Boost Pump – ON
3. Fuel Selector – SWITCH TANKS
4. Mixture – RICH
5. Ignition Switch – BOTH, LEFT, RIGHT
6. Transponder – 7700
EMERGENCY PROCEDURES

FIRES

DURING START ON GROUND
1. Cranking – CONTINUE, to get a start which would suck the flames and accumulated fuel 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 (if available)
ATC light signals have the meaning shown in the following table:

<table>
<thead>
<tr>
<th>Color and type of signal</th>
<th>Meaning with respect to aircraft on the surface</th>
<th>Meaning with respect to aircraft in flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady green</td>
<td>Cleared for takeoff</td>
<td>Cleared to land</td>
</tr>
<tr>
<td>Flashing green</td>
<td>Cleared to taxi</td>
<td>Return for landing</td>
</tr>
<tr>
<td>Steady red</td>
<td>Stop</td>
<td>Give way to other aircraft and continue circling.</td>
</tr>
<tr>
<td>Flashing red</td>
<td>Taxi clear of runway in use</td>
<td>Airport unsafe—do not use</td>
</tr>
<tr>
<td>Flashing white</td>
<td>Return to starting point on airport</td>
<td>N/A</td>
</tr>
<tr>
<td>Alternating red and green</td>
<td>Exercise extreme caution</td>
<td>Exercise extreme caution</td>
</tr>
</tbody>
</table>

Compass Headings, VFR under 18,000ft

<table>
<thead>
<tr>
<th>Course</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 179 degrees</td>
<td>Odd thousand +500</td>
</tr>
<tr>
<td>180 – 360 degrees</td>
<td>Even thousand + 500</td>
</tr>
</tbody>
</table>