Sikorsky S-76A/B/C+

QUICK REFERENCE GUIDE (QRG)

Twin-engine, IFR-capable medium helicopter – Transport / Offshore / Utility

X Plane 12 Use ONLY!



GENERAL

- Crew: 1-2 pilots
- Passengers: Up to 12
- Engines: Twin turboshaft (e.g., Pratt & Whitney PT6B-36A for S-76A)
- Fuel Type: Jet A / Jet A-1
- Max Gross Weight:
 - S-76A: 11,700 lbs
 - S-76C+: 11,700 12,050 lbs
- Fuel Capacity: ~2,015 lbs usable (standard tanks)

ROTOR SPEED LIMITS (NR)

 Condition
 % RPM

 Power ON
 100–107% (Normal) Max Transient: 107% (10 sec)

 Power OFF
 95–107%

ENGINE SPEED LIMITS (N1/N2)

- Max N1: ~105%
- Max N2 (Power turbine): 107%
- N2 Governed: 100% nominal (linked to rotor)

TAKEOFF & CLIMB

- Vtoss (Takeoff Safety Speed): 55–60 KIAS (gear up)
- Vy (Best Rate of Climb): 80–85 KIAS
- Vx (Best Angle of Climb): 60–65 KIAS
- Initial Climb: 75–80 KIAS
- Max Climb Rate: ~1500–1800 fpm (at sea level, clean)
- Gear Retraction Speed: ≤90 KIAS
- Recommended Climb Power: Takeoff or max continuous, as per weight

CRUISE PERFORMANCE

- Cruise Speed (Econ): 120–135 KIAS
- Fast Cruise: 140–155 KIAS
- Max Range Speed: ~125 KIAS
- Max Continuous Cruise Power: As per TQ limits (usually ~70-80%)
- Typical Fuel Burn: ~500–600 lb/hr total
- Max Endurance: ~2.5–3.5 hours

DESCENT

- Recommended Descent Rate: ≤1000 fpm
- Normal Descent Speed: 100–120 KIAS
- Approach Descent (Final): 60–80 KIAS
- Gear Down Speed: ≤90 KIAS
- Stabilized Approach: Begin 300–500 ft AGL, ~70 KIAS

APPROACH & LANDING

- Final Approach Speed: 60–70 KIAS
- Short Final (Spot/Helideck): 40–50 KIAS
- Touchdown Speed (roll-on): ≤60 KIAS
- Hover Landing: Set down vertical rate < 200 fpm
- Braking: Wheel brakes if applicable, at <30 KIAS
- Rotor RPM (landing): Maintain ≥100% NR until ground idle

V-SPEEDS SUMMARY

Speed	KIAS	Definition
Vne	155–165	Never exceed speed (varies by version & gear)
Vh	~155	Max level flight speed
Vy	80–85	Best rate of climb
Vx	60–65	Best angle of climb
Vlo / Vle	90	Max gear extend/retract
Vmini (IFR)	60	Min instrument flight speed
Vtoss	55–60	Takeoff safety speed (gear up)

EMERGENCY OPERATIONS

One Engine Inoperative (OEI)

- Maintain 80–90 KIAS
- Maintain torque within OEI limits
- Climb or level off depending on weight

Engine Failure (Hover)

- Enter autorotation
- Apply collective as required
- Cushion landing

Dual Engine Failure (In-Flight)

- Autorotation:
 - Speed: 80 KIAS
 - Rotor RPM: Maintain in green
 - Flare: Begin at ~75 ft AGL
 - Cushion with collective

Tail Rotor Failure

- At speed: Enter shallow descent, reduce power
- In hover: Roll throttle(s) off, cushion landing

Fire (Engine or Cabin)

- Identify source
- Throttle(s): OFF
- Fuel valve(s): OFF
- Fire extinguisher (if equipped): ACTIVATE
- Land immediately

LIMITATIONS

- Max Altitude: 15,000 ft
- Max Operating Temp: ~50°C
- Min Operating Temp: ~-40°C
- Max Cabin Pressure Altitude (IFR): 10,000 ft
- Max Crosswind (landing): 35 knots
- Approved Flight Types: Day, Night, VFR, IFR (as equipped)
- Autopilot Use: As per AFCS limitations
- No Intentional Flight into Known Icing (unless equipped)

SYSTEM NOTES

- Hydraulics: Dual, failure causes stiff controls
- Gear System: Tricycle, retractable (S-76A/C)
- Electrical: 28V DC, dual battery & generator system
- Fuel System: 3 tanks (forward, center, aft) with crossfeed
- Flight Control: Fully coupled with AFCS/autopilot (if installed)

Created by LetsFlyVFR.com for the X Plane community 2025.