Sikorsky S-76C++™ Helicopter

Executive Transport mission
### Performance


<table>
<thead>
<tr>
<th>Standard day, sea level, maximum gross weight unless otherwise noted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum speed ($V_{ne}$)</td>
<td>155 kts</td>
</tr>
<tr>
<td>Maximum cruise speed ($V_{nC}$)</td>
<td>155 kts</td>
</tr>
<tr>
<td>Hover ceiling, In-Ground-Effect (TOP)</td>
<td>7,050 ft</td>
</tr>
<tr>
<td>Hover ceiling, Out-Of-Ground-Effect (TOP)</td>
<td>3,300 ft</td>
</tr>
<tr>
<td>Single engine service ceiling</td>
<td>4,900 ft</td>
</tr>
<tr>
<td>Range (Long Range Cruise* speed @ 4,000 feet)</td>
<td></td>
</tr>
<tr>
<td>- With 30-minutes reserve</td>
<td>345 nm</td>
</tr>
<tr>
<td>- No reserve</td>
<td>411 nm</td>
</tr>
<tr>
<td>- Average speed</td>
<td>137 kts</td>
</tr>
<tr>
<td>- Average fuel flow</td>
<td>620 pph</td>
</tr>
</tbody>
</table>

* LRC = speed for 99% best specific range

### Weights

| Maximum takeoff gross weight                                  | 11,700 lb | 5,306 kg |
| Empty weight, utility configuration                           | 7,005 lb  | 3,177 kg |
| Useful load, utility configuration                            | 4,695 lb  | 2,129 kg |

### Dimensions

| Fuselage length                                              | 43' 4"   | 13.22 m |
| Fuselage width                                               | 7' 0"    | 2.13 m  |
| Fuselage height (to top of tail pylon)                       | 11' 9"   | 3.58 m  |
| Overall length (rotors turning)                              | 52' 6"   | 16.00 m |
| Overall height (to top of tail rotor)                        | 14' 6"   | 4.42 m  |
| Width (horizontal stabilizer)                                | 10' 0"   | 3.05 m  |
| Main rotor diameter                                          | 44' 0"   | 13.41 m |
| Tail rotor diameter                                          | 8' 0"    | 2.44 m  |
| Main landing gear tread                                      | 8' 0"    | 2.44 m  |
| Wheel base                                                   | 16' 5"   | 5.00 m  |

### Accommodation

| Normal cabin seating                                         | 12 |
| Maximum certified cabin seating                              | 13 |
| Passenger cabin length                                       | 7' 11" | 2.41 m |
| Passenger cabin width                                        | 6' 4"  | 1.93 m |
| Passenger cabin height                                       | 4' 5"  | 1.35 m |
| Passenger cabin area                                         | 50 sq ft | 4.65 sq m |
| Passenger cabin volume                                       | 204 cu ft | 5.78 cu m |
| Baggage compartment volume                                   | 38 cu ft | 1.08 cu m |

### Powerplants

| Number and Type                                               | Two Turbomeca Arriel 2S2 |
| Powerplant ratings (per engine, standard day, sea level)      |  |
| - 30- second OEI                                              | 1,032 shp | 770 kw |
| - 2-minute OEI                                                | 937 shp  | 699 kw |
| - Continuous OEI                                              | 897 shp  | 669 kw |
| - Takeoff (5-minute)                                          | 922 shp  | 688 kw |
| - Dual engine continuous                                      | 833 shp  | 621 kw |

### Fuel system

| Standard fuel capacity                                       | 281 U.S. gal | 1,064 l |
| Auxiliary fuel                                               | 50 U.S. gal  | 189 l  |
| Auxiliary fuel                                               | 102 U.S. gal | 386 l  |
Aircraft Dimensions

8' 0" (2.438 m)
6' 5.8" (1.98 m)
11' 8.9" (3.58 m)
8' 0" (2.44 m)
16' 5" (5.00 m)
43' 4" (13.21 m)
44' 0" (13.41 m)
52' 6" (16.0 m)
14' (4.41)
6' 5.8" (1.98 m)
8' 0" (2.438 m)
8' 1.8" (2.484 m)
14' (4.41)
6' 5.8" (1.98 m)
8' 0" (2.438 m)
8 0" (2.44 m)
11' 8.9" (3.58 m)
7' 0" (2.13 m)
10' 0" (3.048 m)
52' 6" (16.0 m)
10' 0" (3.048 m)
44' 0" (13.41 m)
52' 6" (16.0 m)
Cabin Dimensions

Passenger cabin area ................. 50 sq ft ........ 4.69 sq m
Passenger cabin volume .............. .204 cu ft ........ 5.78 cu m
Baggage compartment volume ........ 38 cu ft ........ 1.08 cu m
Passenger door width .................. 37.5 in ........ 95.25 cm
Passenger door height ............... 52.0 in ........ 132.08 cm
1. Master warning panel
2. Backup airspeed indicator
3. Backup barometric altimeter
4. Integrated Instrument Display System (IIDS)
5. Electronic Attitude Display System (EADS)
6. Electronic Horizontal Situation Indicator (EHSI)
7. Display control
8. Barometer set
9. DME readout
10. Radio altimeter
11. Landing gear control panel
12. Standby horizon
13. Altitude preselect
14. Weather radar
15. Digital clock
16. Autopilot mode select
17. Vne placards
18. Floats, engine, generator test panel
19. Cat A training switch (under)
20. Audio panels
21. GPS/Moving map
Baseline (Green) Configuration

Airframe

• Nose mounted radome
• Nose and tail avionics compartments
• Heated glass windshields
• Bleed air heating and defogging
• Dual windshield wipers and washers
• Pilot and copilot seats with 5-point restraint harness
• Two ejection, hinged cockpit doors
• Cockpit and cabin bleed air heating and defogging system
• Ram air ventilation system
• Fully retractable, tricycle landing gear with pivoting nose gear and main wheel brakes
• Pneumatic emergency landing gear extension system
• 204 cubic foot cabin with 75 psf floor and fittings for up to twelve seats
• Left and right side hinged cabin doors with electric door locks and single action door release
• Separate 38 cubic foot baggage compartment with dual lockable doors
• Flight manual pockets located on the cockpit doors

Propulsion

• Two Turbomeca Arriel 2S2 engines
• Inlet barrier filters for both engines
• Two independent suction fuel systems with crossfeed capability
• Two fuel tanks with gravity fuel fillers, total fuel capacity is 281 U.S. gallons
• Low level fuel warning system
• Hinged fuel filler caps with key locks
• Dual engine fire detection and extinguishing systems
• Engine water wash system with hose connection in the baggage compartment
• Dual-input main transmission rated at 1,605 shp for takeoff
• Intermediate and tail gearboxes with interconnecting drive shafts
• Magnetic chip connectors with fuzz burn capability on gearboxes
• Manually actuated rotor brake system

Rotor Systems

• Four-blade articulated main rotor with one-piece aluminum hub and elastomeric bearings
• Main rotor blades with titanium spars, fiberglass skins, honeycomb cores and high-visibility paint
• Single bifilar vibration suppression system
• Nose-mounted vibration absorber
• Provisions for main rotor tracker and tail rotor balancer (Chadwick-Helmuth Model 8500 or RADS-AT Fastrack)
• Four-blade flexbeam tail rotor

Electrical

• Dual 200 amp starter generators
• Single 44 amp-hour battery (Super Marathon)
• AC power system with 10 KVA generator and two 250 VA static inverters
• DC external power receptacle with overvoltage protection
• Controllable landing light
• Three strobe/position light system (pos-off-normal)
• Single red beacon on the top of the tail
• Fixed landing light on the right main gear
• Battery operated emergency cabin lights
• Overhead master switch panels
Baseline (Green) Configuration

Flight Controls and Instruments

- Full controls for pilot and copilot
- Dual, independent 3,000 psi hydraulic systems with quick disconnects for ground servicing
- Dual independent flight control servos systems
- Dual Digital Flight Control system (DDAFCS) – four-axis, fully coupled (Honeywell SPZ-7600)
- Electronic Flight Instrumentation System (EFIS) with four 5x6 inch displays (Honeywell EDZ-756)
- Integrated Instrument Display System (IIDS) – Gull
- Standby self-contained attitude display indicator (J.E.T. ADI335D) with integral AD emergency power supply (PS 855B)
- NAV1/NAV2 switch
- Vertical card standby magnetic compass
- Three-inch backup airspeed indicator
- Three-inch backup barometric altimeter
- Dual Attitude Heading Reference Systems (AHRS)
- Dual air data systems
- Radio altimeter (Collins Rad Alt 1000) with expanded scale indicator (Collins ALI-55A)
- Dual pitot static systems with pitot and static port heat
- Outside air temperature indicator
- Two digital electric clocks (DAVTRON 877)
- Two low-profile, glare-shield-mounted master warning panels
- Two landing gear up warning indicators
- Battery temperature warning system
- Door open annunciator panel

Avionics (Navigation and Communications)

- Dual cockpit ICS switches with 45° pedestal mount
- Dual dB Systems Inc. audio systems with one additional maintenance jack in the cabin and two in the baggage compartment
- Radio/EFIS master switches
- Emergency Locator Transmitter (ARTEC ELT-406 NHM)
- Passenger briefing system (Heads Up Technology, PBS-250)
- Cabin paging and chime system with two speakers
- Two VHF communications radios (Collins VHF-22A)
- Single mode C transponder (Collins TDR-90)
- Single ADF (Collins ADF-462)
- Two VOR’s with ILS, glide slope and marker beacon (Collins VIR-32A)
- Single DME (Collins DME-42) with indicator (IND-42A)
- Weather radar (Honeywell Primus 440)
- Enhanced Ground Proximity Warning System (EGPWS) (Honeywell Mk XXII)
- Cockpit Voice Recorder (Universal CVR-120)
- Three headsets (David Clark H10-26)
The Standard Executive Configuration consists of the Baseline configuration plus the following options:

- Modified ICS for single-pilot IFR capability
- Cabin ICS system with handset
- Cabin call system with bell ringer
- Two additional speakers for the cabin paging and chime system
- GPS/moving map (Garmin GPS-500)
- Traffic Advisory System (Goodrich SKY 497) displayed on the MFD
- Executive paint finish
- Deluxe VIP Interior Group
  - “Silencer” interior with secondary acoustic package,
  - Ultraleather or Ultrasuede interior panel upholstery,
  - Cockpit-cabin divider bulkhead with left and right side sliding windows,
  - Emergency cabin lighting,
  - Eight individual reading lights and air outlets,
  - Cabin threshold lighting,
  - Membrane switches to control cabin systems,
  - Wood/veneer/leather/metal decorative details,
  - Magazine racks on the cabin doors,
  - Storage cabinet beneath the forward-facing divan and molded baggage compartment floor liner.
- Aft-facing, four-place executive bench seat
- Continuous, one-piece bulkhead window
- Forward-facing, four-place executive divan
- Cabin cup holders
- Bay blanket acoustic kit
- Single retractable boarding step
- Fuzz burn engine chip detectors
- Spare cabin and cockpit carpeting
- Air-conditioning system (21,500 BTU, R135a coolant)
- Gooseneck map lights
- Red anti-collision light on the belly
- Lighted approach plate holders
- Additional bifilar and cabin roof lateral vibration absorbers
- Maintenance work covers for interior and exterior
Standard Deluxe Executive Configuration

The Standard Deluxe Executive Configuration consists of the Baseline configuration plus the following options:

- Radio tuning units (RTU 4200)
- Dual Mode S transponders with diversity (TDR-94D) – replaces single baseline TDR 90
- Second DME (DME-42)
- Modified ICS for single-pilot IFR capability
- Cabin call system
- Two additional speakers for the cabin paging and chime system
- Cellular phone base and charger
- Satellite communications system (AirCell 3100)
- FD DCPL annunciator
- Nav/LRN switch for ADI 335D
- Vertical card standby compass
- Flight Management System (Universal UNS-1F)
- Lightning Strike Sensor (LSZ 860W/LU 860)
- Weather radar (Honeywell Primus 880) – replaces baseline Primus 440
- Multi-function moving map display (Garmin MX-20)
- Chart View option for the MX-20
- Honeywell Multi Function Radar Display (MFRD) capability
- TCAS 1 system (CAS 66A with CP 66B control and dual TA/VSI displays)
- Executive paint finish
- Deluxe VIP Interior Group
  - “Silencer” interior with secondary acoustic package,
  - Ultraleather or Ultrasuede interior panel upholstery,
  - Cockpit-cabin divider bulkhead with left and right side sliding windows,
  - Emergency cabin lighting,
  - Eight individual reading lights and air outlets,
  - Cabin threshold lighting,
  - Membrane switches to control cabin systems,
  - Wood/veneer/leather/metal decorative details,
  - Magazine racks on the cabin doors,
  - Storage cabinet beneath the forward-facing divan and molded baggage compartment floor liner
- Two, forward-facing captain’s swivel chairs
- Low profile refreshment cabinet
- Four-place, aft-facing executive divan with folding table and armrests
- Bulkhead storage compartment behind the pilot’s seats
- Cabin coat hooks
- Cabin cup holders
- Sheepskin covers for the pilot’s seats
- Single action emergency door release for the cockpit and cabin doors
- Retractable boarding steps for both left and right cabin doors
- Fuzz burn engine chip detectors
- Cockpit Cabin Climate Control system (C4)
- Additional annunciator lights for “Land LT ON”, “Search LT ON”, “Pitot Heat On” and “W/S Heat On”
- Gooseneck map lights
- Red anti-collision light on the belly
- Landing light on the left main gear
- Forward-facing recognition lights in the chin windows
- Pulselight system for the landing and recognition lights
- Lighted approach plate holders
- Additional bifilar and cabin roof lateral vibration absorbers
- Flotation system
## Mission
- Standard day
- Takeoff at maximum gross weight (11,700 lb)
- Cruise at 4,000 feet, Long Range Cruise speed*
- Reserve: 30 minutes at Long Range Cruise speed*
- Average fuel flow: 620 pph at 137 ktas

### Weights

<table>
<thead>
<tr>
<th></th>
<th>Executive</th>
<th>Deluxe Executive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight (lb)</td>
<td>7,817</td>
<td>8,282</td>
</tr>
<tr>
<td>Pilots (lb)</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Engine oil (lb)</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Windshield washer fluid (lb)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Manuals (lb)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Cabin supplies (lb)</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>Operating weight (lb)</td>
<td>8,259</td>
<td>8,754</td>
</tr>
</tbody>
</table>

* Speed for 99% best specific range

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### Payload/Range Performance

- **S-76C++ effective range from New York**
  - Standard day
  - Takeoff with full fuel at maximum gross weight
  - Long Range Cruise @ 4,000 feet
  - 30-minute reserve

- **S-76C++ effective range from Rio de Janeiro**
  - Standard day
  - Takeoff with full fuel at maximum gross weight
  - Long Range Cruise @ 4,000 feet
  - 30-minute reserve

- **S-76C++ effective range from Seattle**
  - Standard day
  - Takeoff with full fuel at maximum gross weight
  - Long Range Cruise @ 4,000 feet
  - 30-minute reserve

- **S-76C++ effective range from Tokyo**
  - Standard day
  - Takeoff with full fuel at maximum gross weight
  - Long Range Cruise @ 4,000 feet
  - 30-minute reserve
NOTE: IF TRANSMISSION TORQUE LIMITED ON UPPER SECTION OF CHART, DO NOT TAKE CREDIT FOR POWER MARGINS GREATER THAN 0%.

EXAMPLE:
PRESS ALT: 8150 FT
OAT: −30 °C
POWER MARGIN: 6%
GROSS WEIGHT: 11190 LB

NOTE: ONLY TAKE POWER MARGIN CREDIT UP TO THE APPROPRIATE DASHED TEMPERATURE LINE.

EXAMPLE:
PRESS ALT: 4000 FT
OAT: 30 °C
POWER MARGIN: 2%
GROSS WEIGHT: 10320 LB

DASHED LINES ARE FOR INTERPOLATION ONLY.
Mission Performance

0 FT Pressure Altitude
ISA (15 °C)

Fuel Flow ~ LB/HR

0 FT Pressure Altitude
ISA + 20 (35 °C)

Fuel Flow ~ LB/HR
Mission Performance

4000 FT Pressure Altitude
ISA (7.08 °C)

4000 FT Pressure Altitude
ISA + 20 (27.08 °C)
Mission Performance

6000 FT Pressure Altitude
ISA (3.12 °C)

- Fuel Flow ~ LB/HR
- True Speed ~ KTS

6000 FT Pressure Altitude
ISA + 20 (23.12 °C)

- Fuel Flow ~ LB/HR
- True Speed ~ KTS

Legend:
- 12000 LBS
- 11000 LBS
- 10000 LBS
- 9000 LBS
- 8000 LBS
- 7000 LBS
- Bleed Valve ON
- Max Endurance
- Long Range
- Max Range
- Normal Cruise Power
- VNE = 151.3 KTAS
- VNE = 142.3 KTAS
## Estimated Direct Operating Costs

The following represents estimated average operating costs over a period of 3,000 hours (500 hours per year over six years) under the following conditions:

- Executive Transport and Deluxe Executive Transport configuration
- 2006 U.S. $1
- two takeoff/landing cycles per hour
- U.S. costs assumed for fuel, shop labor rates, and parts costs
- transmissions on Powertrain Assurance Program (power-by-the-hour)
- scheduled and unscheduled removals greater than 3,000 hours discounted
- no credit for warranty
- fuel flow and speed based on Long Range Cruise speed @ 4,000 feet/ISA conditions.

### Fuel and lubricants:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average fuel consumption (gallons per hour)</td>
<td>92</td>
</tr>
<tr>
<td>Fuel cost per gallon ($/gal)</td>
<td>4.35</td>
</tr>
<tr>
<td>Cost of fuel ($/fh)</td>
<td>400.20</td>
</tr>
<tr>
<td>Cost of lubricants, 3% of fuel ($/fh)</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>Total cost for fuel and lubricants ($/fh)</strong></td>
<td><strong>412.20</strong></td>
</tr>
</tbody>
</table>

### Maintenance Labor

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop labor rate ($/fh)</td>
<td>41.20</td>
</tr>
<tr>
<td>Direct Maintenance (mmh/fh)</td>
<td>1.6</td>
</tr>
<tr>
<td>Indirect Maintenance (mmh/fh)</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total Maintenance (mmh/fh)</strong></td>
<td><strong>3.6</strong></td>
</tr>
<tr>
<td><strong>Total cost for maintenance labor ($/fh)</strong></td>
<td><strong>148.32</strong></td>
</tr>
</tbody>
</table>

### Reserve for Retirement Items

<table>
<thead>
<tr>
<th>Description</th>
<th>Retirement</th>
<th>Cost ($/fh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main rotor spindle bearing outer race ($/fh)</td>
<td>1,250</td>
<td>1.30</td>
</tr>
<tr>
<td>LG squibs ($/fh)</td>
<td>5 years</td>
<td>2.26</td>
</tr>
<tr>
<td>Fire bottle cartridges ($/fh)</td>
<td>5 years</td>
<td>0.67</td>
</tr>
<tr>
<td><strong>Total cost for retirement items ($/fh)</strong></td>
<td><strong>4.23</strong></td>
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</tr>
</tbody>
</table>

### Transmissions

<table>
<thead>
<tr>
<th>Description</th>
<th>TBO (hours)</th>
<th>Cost ($/fh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main transmission ($/fh)</td>
<td>3,250</td>
<td>74.50</td>
</tr>
<tr>
<td>Intermediate ($/fh)</td>
<td>4,500</td>
<td>4.66</td>
</tr>
<tr>
<td>Tail gear box ($/fh)</td>
<td>4,000</td>
<td>9.28</td>
</tr>
<tr>
<td><strong>Total cost for transmissions ($/fh)</strong></td>
<td><strong>88.44</strong></td>
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</tbody>
</table>
### Estimated Direct Operating Costs

<table>
<thead>
<tr>
<th>Reserve for overhaul and unscheduled repairs</th>
<th>Executive</th>
<th>Deluxe Executive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruments and displays</td>
<td>0.4309</td>
<td>0.4309</td>
</tr>
<tr>
<td>Electrical</td>
<td>0.1754</td>
<td>0.1754</td>
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<tr>
<td>Fuel system</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>Hydraulic system</td>
<td>0.0382</td>
<td>0.0382</td>
</tr>
<tr>
<td>Landing gear</td>
<td>0.0099</td>
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</tr>
<tr>
<td>Lighting</td>
<td>0.0220</td>
<td>0.0220</td>
</tr>
<tr>
<td>Heating/cooling</td>
<td>0.0294</td>
<td>0.0294</td>
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<tr>
<td>Airframe</td>
<td>0.0081</td>
<td>0.0081</td>
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<tr>
<td>Rotors</td>
<td>0.0115</td>
<td>0.0115</td>
</tr>
<tr>
<td>Powertrain</td>
<td>0.0098</td>
<td>0.0098</td>
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<tr>
<td>Flight controls</td>
<td>0.005053</td>
<td>0.005053</td>
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<tr>
<td>Avionics</td>
<td>0.0008</td>
<td>0.0008</td>
</tr>
<tr>
<td>Options</td>
<td>0.00531</td>
<td>0.01320</td>
</tr>
<tr>
<td><strong>Total cost for overhaul and unscheduled ($/fh)</strong></td>
<td><strong>156.81</strong></td>
<td><strong>164.70</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Reserve for engine overhaul and spares</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhaul reserve ($/fh)</td>
<td>0.14310</td>
<td>0.14310</td>
</tr>
<tr>
<td>Spares and unscheduled ($/fh)</td>
<td>0.005699</td>
<td>0.005699</td>
</tr>
<tr>
<td><strong>Total cost for engines ($/fh)</strong></td>
<td><strong>200.09</strong></td>
<td><strong>200.09</strong></td>
</tr>
</tbody>
</table>

| **Total direct operating cost ($/fh)**       | **1,010.09** | **1,017.98**    |
| Average cruise speed (ktas)                  | 137        | 137             |
| **Cost per mile ($/nm)**                     | 7.37       | 7.43            |

The operating data provided herein are estimates only. Sikorsky endeavors to ensure that this data is current and meaningful for operating cost evaluations. Sikorsky, however, does not warrant, and you should not rely upon, this data as defining the operating costs or overhaul/retirement times for any particular S-76 helicopter or its components.