FAA APPROVED
R66 PILOT'S OPERATING HANDBOOK

FEDERAL AIR TRANSPORT AGENCY
(FATA) SUPPLEMENT

This supplement must be included in the FAA-approved Robinson R66 Pilot's Operating Handbook for FATA-certified aircraft.

The information contained herein supplements or supersedes the basic manual only in those areas listed in this supplement. For limitations, procedures, and performance information not contained in this supplement, consult the basic R66 Pilot's Operating Handbook.

This supplement is approved by the United States Federal Aviation Administration on behalf of the FATA.

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for Manager, West Flight Test Section, AIR-716
Federal Aviation Administration
Los Angeles, CA

DATE: November 21, 2017

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SECTION 1: GENERAL

INTRODUCTION

This supplement contains the changes and additional data applicable when the R66 helicopter is certified by the Federal Air Transport Agency.

FATA-certified R66s may be equipped with an altimeter calibrated in meters, an airspeed indicator calibrated in kilometer per hour, and a vertical speed indicator calibrated in meters per second. FATA-certified R66s are equipped with an artificial horizon with inclinometer, heated pitot, and a 121.5/406 MHz ELT as standard equipment. Refer to Section 7 for operator-provided required equipment.

Garmin G500H Cockpit Reference Guide must be immediately available to the flight crew when the G500H is installed. The appropriate Aspen PFD/MFD Pilot's Guide must be immediately available to the flight crew when the Aspen PFD or PFD/MFD combination is installed.

The certification basis for the R66 helicopter in Russia is AP-27, AP-34 and AP-36.

SECTION 2: LIMITATIONS

NOTE

All airspeeds given in km/h are indicated airspeed.

AIRSPEED LIMITS

NEVER-EXCEED AIRSPEED (V_{ne})

998 kg TOGW or above	241 km/h (130 KIAS)
Below 998 kg TOGW	259 km/h (140 KIAS)
Autorotation	185 km/h (100 KIAS)

For Vne reductions with altitude and temperature, see placards on page 9-F7.8.

ADDITIONAL AIRSPEED LIMITS

120 km/h (65 KIAS) maximum above 83% torque.

185 km/h (100 KIAS) maximum with any combination of cabin doors removed.

CENTER OF GRAVITY LIMITS

See figure on page 2-4. Reference datum is 2540 millimeters (100 inches) forward of main rotor shaft centerline.

SECTION 2: LIMITATIONS (cont'd)

FLIGHT AND MANEUVER LIMITATIONS

Maximum operating density altitude 4270 meters (14,000 feet).

Maximum operating altitude 2740 meters (9000 feet) above ground level to allow landing within 5 minutes in case of fire.

Closing throttle (twist grip) in flight prohibited above 3050 meters (10,000 feet) density altitude to avoid possible engine flameout.

Operation up to 185 km/h (100 KIAS) approved with any combination of doors removed. All seat belts must be buckled and loose items in cabin must be properly secured during doors-off flight.

Maximum bank angle is 60 degrees.

Maximum pitch angle is 20 degrees except for takeoff, landing and flare at autorotation.

The barometric flight altitude limitations due to crew and passengers oxygen supply are established in FATA operational requirements.

Regular commercial transportation operations are not permitted without an approved flight data recorder installed.

Flights with passengers over water beyond safe autorotation distance from land are prohibited without floats installed. Extended over-water operation is prohibited.

Maximum number of occupants including pilot is five.

Maximum lateral ground slope angle for takeoff and landing is 7 degrees.

Maximum fore/aft ground slope angle for takeoff and landing is 5 degrees.

SECTION 2: LIMITATIONS (cont'd)

FLIGHT AND MANEUVER LIMITATIONS (cont'd)

Flight above 60 degrees north latitude in areas without landmarks is prohibited without an approved GPS installed.

GEARBOX OIL LIMITATIONS

For operations in Russia only gearbox oil A257-22 (Mobil SHC 629) is approved.

FUEL LIMITATIONS

APPROVED FUEL GRADES

TC-1 grade aviation fuel (GOST10227 specification)
PT grade aviation fuel (GOST10227 specification)

APPROVED FUEL ADDITIVES

И grade aviation fuel additive (Fluid I)
ИМ grade aviation fuel additive (Fluid IM)

AVIONICS LIMITATIONS

If indications displayed on primary flight displays (G500H or Aspen PFD) and corresponding analog instruments differ by more than 70 ft (21 meters) altitude and/or 2 knots (4 km/h) airspeed, refer only to analog instruments.

Terrain proximity function of GTN 6XX/7XX is not approved.

SECTION 2: LIMITATIONS (cont'd)

INSTRUMENT MARKINGS

AIRSPEED INDICATOR (METRIC VERSION ONLY)

Green arc	0 to 204 km/h (0 to 110 KIAS)
Yellow arc*	204 to 259 km/h (110 to 140 KIAS)
Red cross-hatch	185 km/h (100 KIAS)
Red line	259 km/h (140 KIAS)

*Earlier English units airspeed indicators without yellow arc must have the following placard adjacent:

DO NOT EXCEED 110 KIAS EXCEPT IN SMOOTH AIR

Earlier metric units airspeed indicators without yellow arc must have the following placard adjacent:

DO NOT EXCEED 204 KM/H EXCEPT IN SMOOTH AIR

SECTION 2: LIMITATIONS (cont'd)

PLACARDS

Adjacent to pilot's cyclic grip:

POWER-ON V_{ne} - KM/H

PRESS ALT-M	OAT- C°									
	-40	-30	-20	-10	0	10	20	30	40	50
0	238									235
500	231		241					236	229	
1000	223	239				238	230	223	216	
1500	216	231		240	232	225	217	210	202	
2000	208	223	235	227	219	212	203	194		
2500	201	216	222	214	205	196	187	178		
3000	194	209	209	199	189	179	170	161		
3500	188	201	192	182	172	162				
4000	181	185	175	165						
4500	174	168	NO FLIGHT							
5000	162									
BELOW 998 KG TOGW, ADD 18 KM/H										

NOTE: 120 KM/H MAXIMUM ABOVE 83% TORQUE

AUTOROTATION V_{ne} - KM/H

PRESS ALT-M	OAT- C°									
	-40	-30	-20	-10	0	10	20	30	40	50
2000								179		
2500			185			181	172	163		
3000				184	174	164	155	147		
3500			177	167	157	148				
4000	182	171	160	150						
4500	164	153	NO FLIGHT							
5000	147									

SECTION 2: LIMITATIONS (cont'd)

PLACARDS (cont'd)

Adjacent to altimeter (on R66 helicopters equipped with an altimeter calibrated in feet only):

FEET x 1000	METERS
1	305
2	610
3	914
4	1219
5	1524
6	1829
7	2134
8	2488
9	2743
10	3048

SECTION 2: LIMITATIONS (cont'd)

PLACARDS (cont'd)

Near lock on rear cabin doors:

НАЖАТЬ ДЛЯ БЛОКИРОВКИ
НЕ БЛОКИРОВАТЬ НА ВРЕМЯ
ПОЛЕТА

(Push to lock
Do not lock in flight)

Inside cabin above each cabin door:

ВЫХОД

(Exit)

In clear view of all occupants:

НЕ КУРИТЬ

(No smoking)

SECTION 2: LIMITATIONS (cont'd)

PLACARDS (cont'd)

Inside each under-seat compartment:

ОСТОРОЖНО
НЕ ПРЕВЫШАТЬ СЛЕДУЮЩИХ ОГРАНИЧЕНИЙ

- МАКС. ВЕС БАГАЖА В ОТСЕКЕ: 23 КГ (50 ФУНТОВ)
- МАКС. ВЕС ПАССАЖИРА С РАСПОЛОЖЕННЫМ В ОТСЕКЕ БАГАЖОМ: 136 КГ (300 ФУНТОВ)
- МАКС. УРОВЕНЬ ЗАПОЛНЕНИЯ

ДОПОЛНИТЕЛЬНУЮ ИНФОРМАЦИЮ ПО ЗАГРУЗКЕ СМ. В РЛЭ

(Caution
Do not exceed any of the following:

- Compartment capacity: 23 kg (50 lb)
- Combined seat plus compartment: 136 kg (300 lb)
- Max fill line

See Pilot's Handbook for additional loading instructions.)

On or near collective controls:

НЕ ЗАГРОМОЖДАТЬ
ОСТАВЛЯТЬ МЕСТО СВОБОДНЫМ

(No stowage
Keep area clear)

SECTION 2: LIMITATIONS (cont'd)

PLACARDS (cont'd)

Near fuel tank filler cap:

ТОПЛИВО: ТС-1, РТ
ДРУГИЕ ТИПЫ ТОПЛИВА СМ. В РЛЭ

(Fuel: TS-1, RT
See Pilot's Handbook
for other fuel types)

Inside the baggage compartment:

ОСТОРОЖНО
МАКСИМАЛЬНАЯ РАСПРЕДЕЛЕННАЯ
НАГРУЗКА НА ПОЛ: 244 КГ/М^2
(50 ФУНТОВ/ФУТ^2)
МАКСИМАЛЬНЫЙ ВЕС БАГАЖА: 136 КГ
(300 ФУНТОВ)

(Caution
Maximum distributed floor load: 244 kg/m^2 (50 lb/ft^2)
Maximum total compartment load: 136 kg (300 lb))

Inside each cabin door near door handle:

ЗАКРЫТЬ: СДВИНУТЬ РУЧКУ НАЗАД И ОИУСТИТЬ
ОТКРЫТЬ: ПОДНЯТЬ РУЧКУ И СДВИНУТЬ ВПЕРЕД

(To close: Slide handle aft and down
To open: Lift handle and slide forward)

SECTION 3: EMERGENCY PROCEDURES

GENERAL

NOTE

The following procedures are unchanged from those of the basic manual. The only changes are that altitudes are converted to meters, and knots are converted to km/h.

NOTE

All speeds in km/h are indicated airspeed.

SECTION 3: EMERGENCY PROCEDURES (cont'd)

POWER FAILURE ABOVE 150 METERS (500 FEET) AGL

1. Lower collective immediately to maintain rotor RPM.
2. Establish a steady glide at approximately 130 km/h (70 KIAS). (For maximum glide distance or minimum rate of descent, see pages 9-F7.15 and 9-F7.16.)
3. Adjust collective to keep RPM between 95 and 106% or apply full down collective if light weight prevents attaining above 95%.
4. Select landing spot and, if altitude permits, maneuver so landing will be into wind.
5. A restart may be attempted at pilot's discretion if sufficient time is available (See "Air Restart Procedure", page 3-3).
6. If unable to restart, turn unnecessary switches and fuel valve off.
7. At about 12 meters (40 feet) AGL, begin cyclic flare to reduce rate of descent and forward speed.
8. At about 2.4 meters (8 feet) AGL, apply forward cyclic to level ship and raise collective just before touchdown to cushion landing. Touch down in level attitude with nose straight ahead.

SECTION 3: EMERGENCY PROCEDURES (cont'd)

POWER FAILURE BETWEEN 2.4 METERS (8 FEET) AND 150 METERS (500 FEET) AGL

1. Lower collective immediately to maintain rotor RPM.
2. Adjust collective to keep RPM between 95 and 106% or apply full down collective if light weight prevents attaining above 95%.
3. Maintain airspeed until ground is approached, then begin cyclic flare to reduce rate of descent and forward speed.
4. At about 2.4 meters (8 feet) AGL, apply forward cyclic to level ship and raise collective just before touchdown to cushion landing. Touch down in level attitude with nose straight ahead.

POWER FAILURE BELOW 2.4 METERS (8 FEET) AGL

1. Apply right pedal as required to prevent yawing.
2. Allow helicopter to settle.
3. Raise collective just before touchdown to cushion landing.

MAXIMUM GLIDE DISTANCE CONFIGURATION

1. Airspeed approximately 165 km/h (90 KIAS).
2. Rotor RPM approximately 90%.

   Best glide ratio is about 5.5:1, or 1 km per 180 meters (one nautical mile per 1100 feet) AGL.

SECTION 3: EMERGENCY PROCEDURES (cont'd)

MINIMUM RATE OF DESCENT CONFIGURATION

1. Airspeed approximately 110 km/h (60 KIAS).
2. Rotor RPM approximately 90%.

Minimum rate of descent is about 6.6 meters per second (1300 feet per minute). Glide ratio is about 4.5:1, or 1 km per 220 meters (one nautical mile per 1350 feet) AGL.

CAUTION

Increase rotor RPM to 95% minimum or full down collective when autorotating below 150 meters (500 feet) AGL.

LOSS OF TAIL ROTOR THRUST IN FORWARD FLIGHT

Failure is usually indicated by nose right yaw which cannot be corrected by applying left pedal.

1. Immediately close throttle and enter autorotation.
2. Maintain at least 130 km/h (70 KIAS) if practical.
3. Select landing site and perform autorotation landing.

NOTE

When a suitable landing site is not available, the vertical stabilizers may permit limited controlled flight at low power settings and airspeeds above 130 km/h (70 KIAS); however, prior to reducing airspeed, enter full autorotation.

SECTION 4: NORMAL PROCEDURES

GENERAL

Icing conditions are indicated by the accumulation of ice at the tips of the landing gear skids, landing gear struts, and yaw strings. An increase in torque required to maintain airspeed is also an indication of icing conditions. Immediately leave suspected icing conditions by reversing track or landing as soon as possible.

NOTE

The following procedures are unchanged from those of the basic manual. The only changes are that altitudes are converted to meters, and knots are converted to km/h.

NOTE

All speeds in km/h are indicated airspeed.

RECOMMENDED AIRSPEEDS

Takeoff and Climb	111 km/h (60 KIAS)
Maximum Range	185 km/h (100 KIAS)*
Maximum Cruise	204 km/h (110 KIAS)*
(Do not exceed except in smooth air, and then only with caution.)	
Significant Turbulence	111 to 130 km/h (60 to 70 KIAS)
Landing Approach	111 km/h (60 KIAS)
Autorotation	111 to 130 km/h (60 to 70 KIAS)

*Certain conditions may require lower airspeed. See VNE placard in Section 2 of this supplement.

SECTION 4: NORMAL PROCEDURES (cont'd)

COLD WEATHER OPERATION

Avionics equipment may not function, or function improperly, after a rotorcraft cold soak. Warm up the cabin to pass avionics self-test successfully.

APPROVED FUEL GRADES

TC-1 grade aviation fuel (GOST10227 specification)
PT grade aviation fuel (GOST10227 specification)

APPROVED FUEL ADDITIVES

И grade aviation fuel additive (Fluid I)
ИМ grade aviation fuel additive (Fluid IM)

SECTION 4: NORMAL PROCEDURES (cont'd)

CRUISE

1. Beep RPM as required to 100%.
2. Set torque as desired with collective. Observe torque, MGT, and airspeed limits. Maximum recommended cruise speed is 204 km/h (110 KIAS).
3. Verify gages in green, no cautions or warnings.
4. Engine anti-ice as required.

CAUTION

Do not exceed 204 km/h (110 KIAS) except in smooth air and then only with caution. If turbulence is significant or becomes uncomfortable for the pilot, use 111 to 130 km/h (60 to 70 KIAS).

DOORS-OFF OPERATION

Maximum airspeed with any doors off is 185 km/h (100 KIAS). Warn passengers to secure loose objects and to keep head and arms inside cabin to avoid high velocity airstream.

CAUTION

Ensure all seat belts are buckled during doors-off flight. Rear outboard seat bottoms may lift if not restrained.

CAUTION

Flight with left door(s) removed is not recommended. Loose objects exiting left doors may damage tail rotor.

NOTE

Door removal on opposite sides of aircraft allows cross flow in cabin and increases noise levels.

SECTION 4: NORMAL PROCEDURES (cont'd)

PRACTICE AUTOROTATION – POWER RECOVERY

CAUTION

Verify a recent N_1 deceleration check was performed prior to conducting autorotations. Do not close throttle above 3048 meters (10,000 feet) density altitude or with cabin heat ON (see Section 2).

1. Close throttle and lower collective to down stop.
2. Adjust collective to keep rotor RPM in green arc.
3. Airspeed 111 km/h to 130 km/h (60 to 70 KIAS).
4. At about 12 meters (40 feet) AGL, begin cyclic flare to reduce rate of descent and forward speed and roll throttle smoothly on to recover engine power.
5. At about 2.4 meters (8 feet) AGL, apply forward cyclic to level aircraft, and raise collective to control descent.

CAUTION

Simulated engine failures require prompt lowering of collective to avoid dangerously low rotor RPM. Catastrophic rotor stall could occur if rotor RPM drops below 80% plus 1% per 300 meters (1000 feet) of altitude.

CAUTION

If entering autorotation with a rapid collective input, close throttle before lowering collective to avoid an RPM overspeed.

CAUTION

Engine may require several seconds to spool up to full power during power recoveries.

NOTE

For maximum glide distance and minimum rate of descent configurations, see Section 3 of this supplement.

SECTION 4: NORMAL PROCEDURES (cont'd)

DESCENT, APPROACH, AND LANDING

1. Reduce power with collective as desired. Observe airspeed limits. Maximum recommended airspeed is 204 km/h (110 KIAS) except in smooth air.

CAUTION

Do not initiate a descent with forward cyclic. This can produce a low-G condition. Always initiate a descent by lowering collective.

2. Make final approach into wind at lowest practical rate of descent with initial airspeed of 111 km/h (60 KIAS).
3. Reduce airspeed and altitude smoothly to hover. (Be sure rate of descent is less than 1.5 meters per second (300 feet per minute) before airspeed is reduced below 56 km/h (30 KIAS).)
4. From hover, lower collective gradually until ground contact.
5. After initial ground contact, lower collective to full down position.

CAUTION

When landing on a slope, return cyclic control to neutral before closing throttle.

CAUTION

Never leave helicopter flight controls unattended while engine is running.

CAUTION

Hold throttle closed if passenger is entering or exiting left front seat with engine running and left seat collective installed.

SECTION 4: NORMAL PROCEDURES (cont'd)

NOISE ABATEMENT

To improve the quality of our environment and to dissuade overly restrictive ordinances against helicopters, it is imperative that every pilot minimize noise irritation to the public. Following are several techniques which should be employed when possible.

1. Avoid flying over outdoor assemblies of people. When this cannot be avoided, fly as high as practical, preferably over 600 meters (2000 feet) AGL.
2. Avoid blade slap. Blade slap generally occurs at airspeeds below 185 km/h (100 KIAS). It can usually be avoided by maintaining 185 km/h (100 KIAS) until rate of descent is over 5 meters per second (1000 feet per minute), then using a fairly steep approach until airspeed is below 120 km/h (65 KIAS). With the right door vent open, the pilot can easily determine those flight conditions which produce blade slap and develop piloting techniques to eliminate or reduce it.
3. When departing from or approaching a landing site, avoid prolonged flight over noise-sensitive areas. Always fly above 150 meters (500 feet) AGL and preferably above 300 meters (1000 feet) AGL.
4. Repetitive noise is far more irritating than a single occurrence. If you must fly over the same area more than once, vary your flight path to not overfly the same buildings each time.
5. When overflying populated areas, look ahead and select the least noise-sensitive route.

NOTE

Above procedures do not apply where they would conflict with Air Traffic Control clearances or when, in the pilot's judgment, they would result in an unsafe flight path.

SECTION 5: PERFORMANCE

GENERAL

Hover controllability has been demonstrated in 31 km/h (17 knot) wind from any direction up to 3350 meters (11,000 feet) density altitude. Refer to hover performance charts for allowable gross weight.

Maximum wind speed for operations near the ground and during engine start and shutdown is 46 km/h (25 kts).

Indicated airspeed (km/h) shown on charts assumes zero instrument error.

CAUTION

Performance data presented in this section was obtained under ideal conditions. Performance under other conditions may be substantially less.

USE OF CHARTS

POWER ASSURANCE CHART

The power assurance chart shows maximum allowable MGT at a specified torque. If the observed MGT is greater than indicated by the chart, the engine may not produce the power necessary to achieve the performance data given in this section without exceeding MGT limits.

A power assurance check may be done in a hover or in forward flight and should be performed at the maximum practical power for best accuracy. The chart assumes no generator load and stabilized conditions. Temperature stabilization may take up to two minutes. Generator load should be minimal or the generator may be switched OFF during the check. An example on the chart shows correct use.

SECTION 5: PERFORMANCE (cont'd)

USE OF CHARTS (cont'd)

POWER ASSURANCE CHART (cont'd)

The chart may also be read in reverse, giving the minimum allowable torque at a specified MGT. It may be useful to use the chart to predict the torque available at MGT limits for a given pressure altitude and OAT.

NOTE

All speeds in km/h are indicated airspeeds.

HOVER PERFORMANCE

In-ground-effect (IGE) and out-of-ground-effect (OGE) hover performance is given in the Hover Ceiling vs. Gross Weight charts in this supplement. Note that hover performance is limited by the MGT five-minute limit, not by torque. Hover performance is substantiated up to 3350 meters (11,000 feet) density altitude; however, data is presented beyond 3350 meters (11,000 feet) density altitude only to determine performance with engine anti-ice, cabin heat, and/or generator loads over 50 amps. With anti-ice and cabin heat OFF, maximum IGE hover gross weight is 1225 kg (2700 lb) up to 3350 meters (11,000 feet) density altitude at any OAT within limits.

To correct for anti-ice, cabin heat, and/or high generator load, increase the actual OAT as specified on the charts. The following example illustrates the calculation of an effective OAT when anti-ice and cabin heat are turned ON, and there is a 90-amp generator load (40 amps over the 50-amp load on which the charts are based).

SECTION 5: PERFORMANCE (cont'd)

USE OF CHARTS (cont'd)

HOVER PERFORMANCE (cont'd)

Pressure altitude:	2750 meters (9000 feet)
Actual OAT:	0°C
Anti-ice ON correction:	10°C
Cabin heat ON correction:	20°C
90-amp load correction:	(90 – 50)/20 = 2°C
Effective OAT:	0 + 10 + 20 + 2 = 32°C

A pressure altitude of 2750 meters (9000 feet) and OAT of 32°C are therefore used with the charts, giving a maximum gross weight of 1170 kg (2580 lb) for IGE hover and 1050 kg (2320 lb) for OGE hover.

CLIMB PERFORMANCE

Climb performance charts are given for maximum gross weight (1225 kg (2700 lb)) and for 1000 kg (2200 lb) gross weight at 111 km/h (60 KIAS) climb indicated airspeed and maximum continuous torque or MGT (whichever is less). Each chart gives the potential reduction in climb rate due to anti-ice and cabin heat. The charts assume a 50-amp generator load; generator load has a small effect on climb rate. Note that predicted climb rate is approximate; variations in aircraft and operating conditions may significantly affect performance.

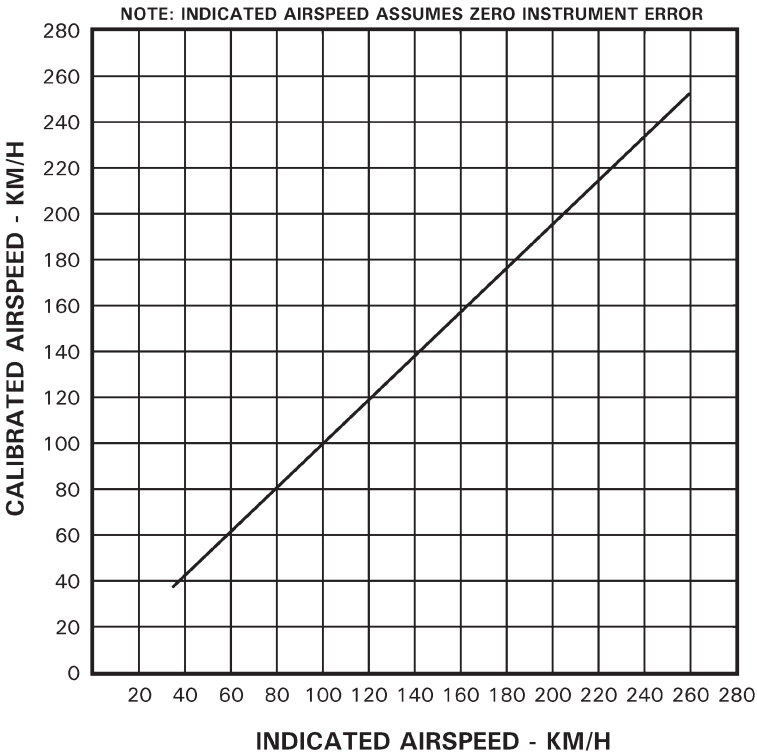
SECTION 5: PERFORMANCE (cont'd)

USE OF CHARTS (cont'd)

HEIGHT-VELOCITY DIAGRAM

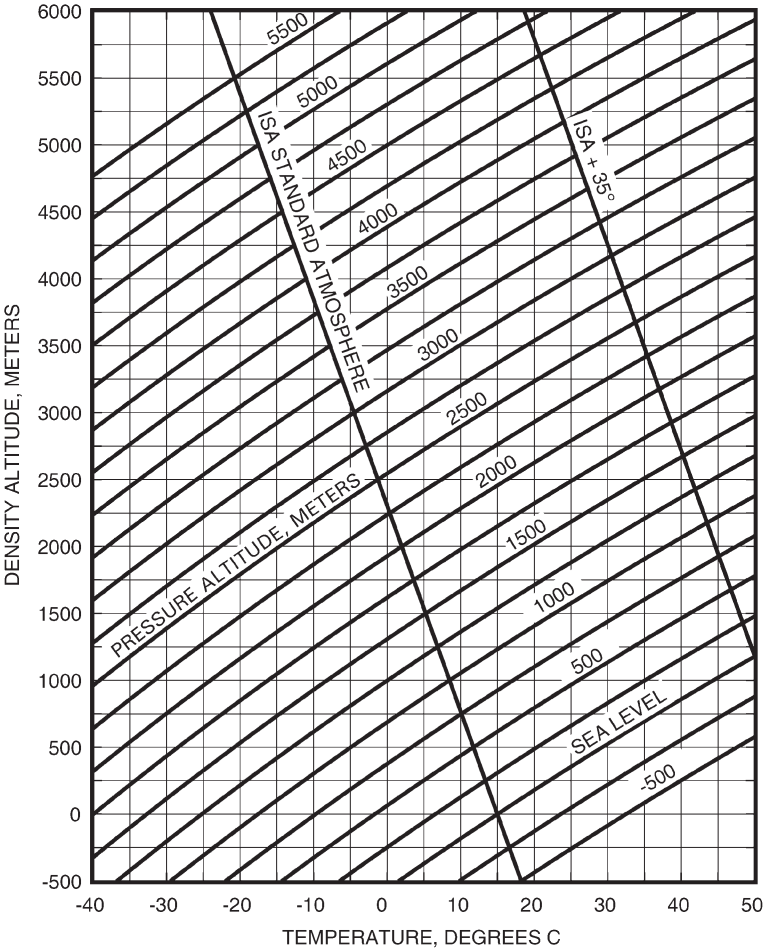
The height-velocity diagram is given for maximum gross weight at sea level and at 2380 meters (7800 feet) density altitude. An appropriate curve for altitudes between sea level and 2380 meters (7800 feet) may be used by interpolation. For example, a curve with a hover point at 183 meters (600 feet) AGL may be used for 1190 meters (3900 feet) density altitude.

SECTION 5: PERFORMANCE (cont'd)



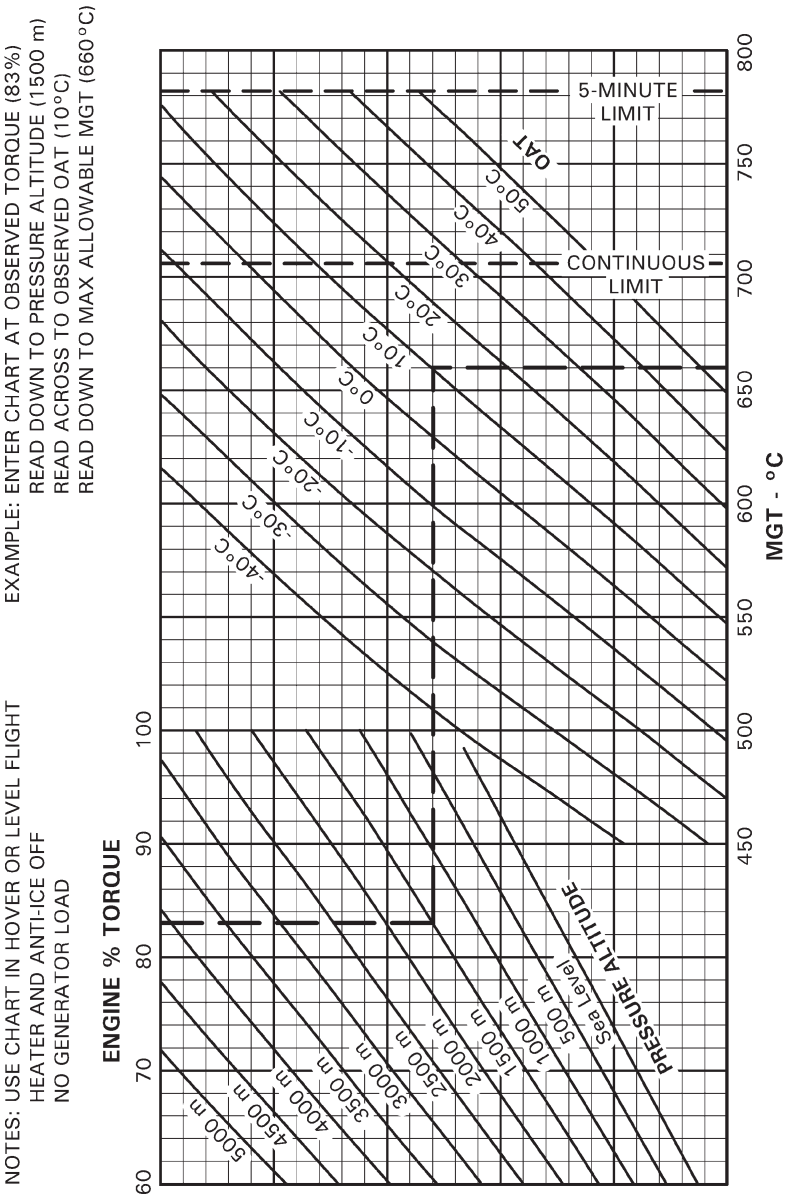
AIRSPEED CALIBRATION CURVE

SECTION 5: PERFORMANCE (cont'd)



DENSITY ALTITUDE CHART

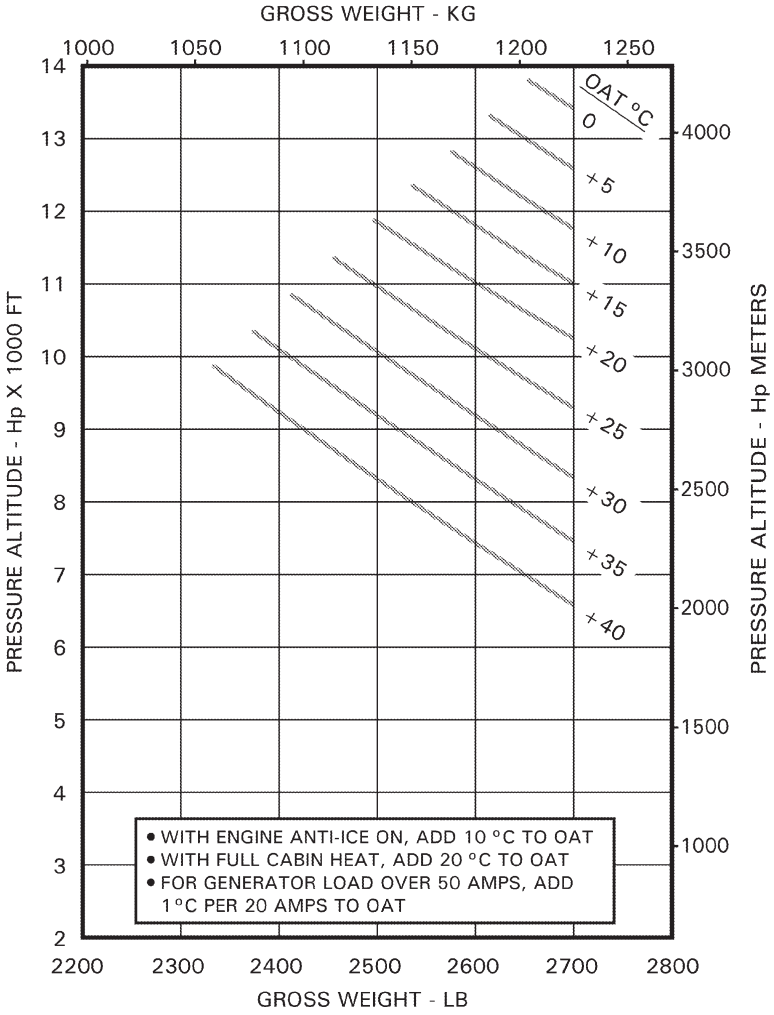
SECTION 5: PERFORMANCE (cont'd)



POWER ASSURANCE CHART

SECTION 5: PERFORMANCE (cont'd)

IN GROUND EFFECT AT 0.6 METERS SKID HEIGHT AND ZERO WIND
MGT 5-MINUTE LIMIT
ENGINE ANTI-ICE AND CABIN HEAT OFF
50 AMP GENERATOR LOAD

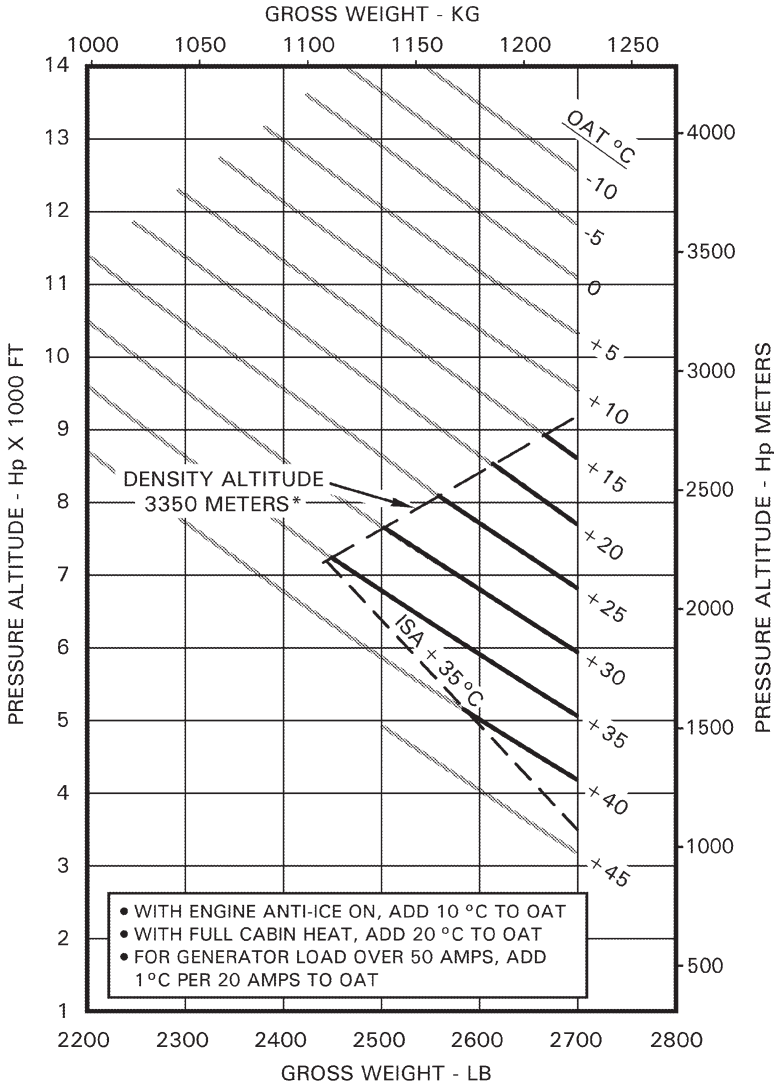


IGE HOVER CEILING VS. GROSS WEIGHT

NOTE: Hover performance substantiated up to 3350 meters density altitude. Data is presented only to determine performance with engine anti-ice, cabin heat and/or generator loads over 50 amps.

SECTION 5: PERFORMANCE (cont'd)

OUT OF GROUND EFFECT, ZERO WIND
MGT 5-MINUTE LIMIT
ENGINE ANTI-ICE AND CABIN HEAT OFF
50 AMP GENERATOR LOAD

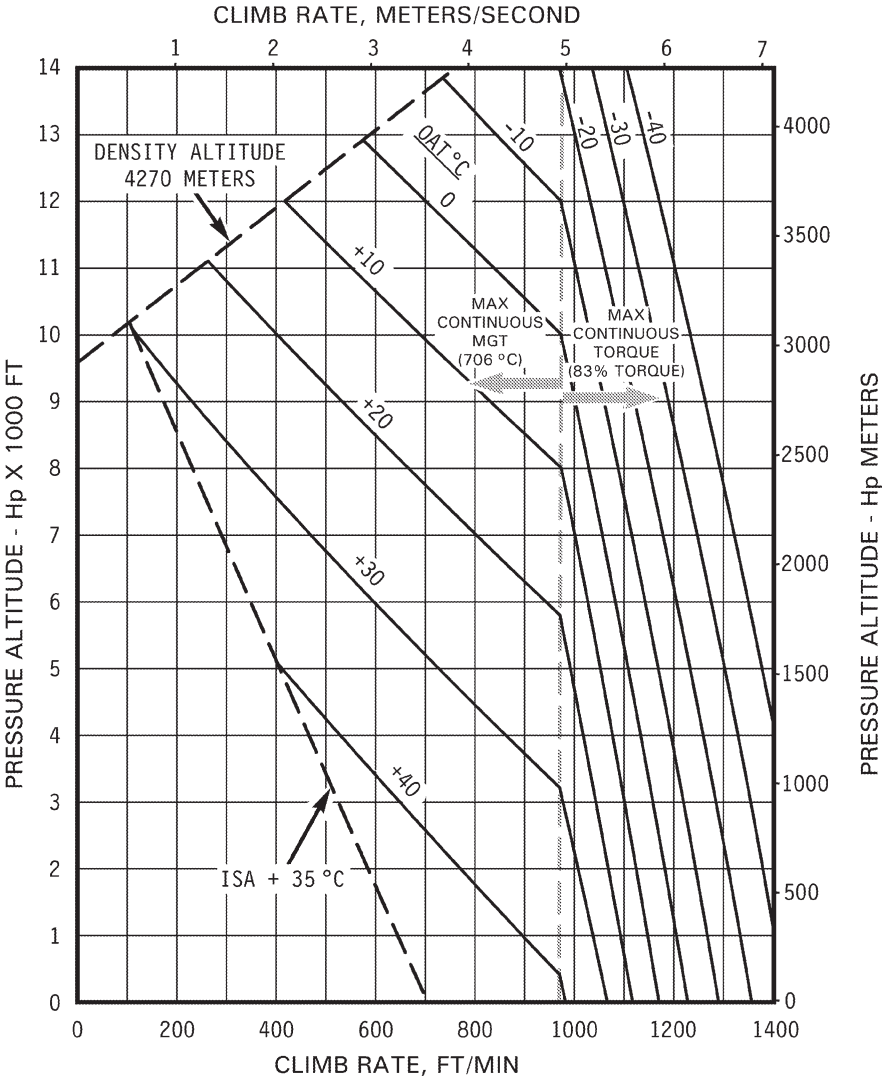


OGE HOVER CEILING VS. GROSS WEIGHT

* Hover performance substantiated up to 3350 meters density altitude. Data beyond ISA + 35ºC and above 3350 meters density altitude is presented only to determine performance with engine anti-ice, cabin heat, and/or generator loads over 50 amps.

SECTION 5: PERFORMANCE (cont'd)

MAXIMUM CONTINUOUS TORQUE OR MAXIMUM CONTINUOUS MGT
110 KM/H CLIMB SPEED
ENGINE ANTI-ICE AND CABIN HEAT OFF

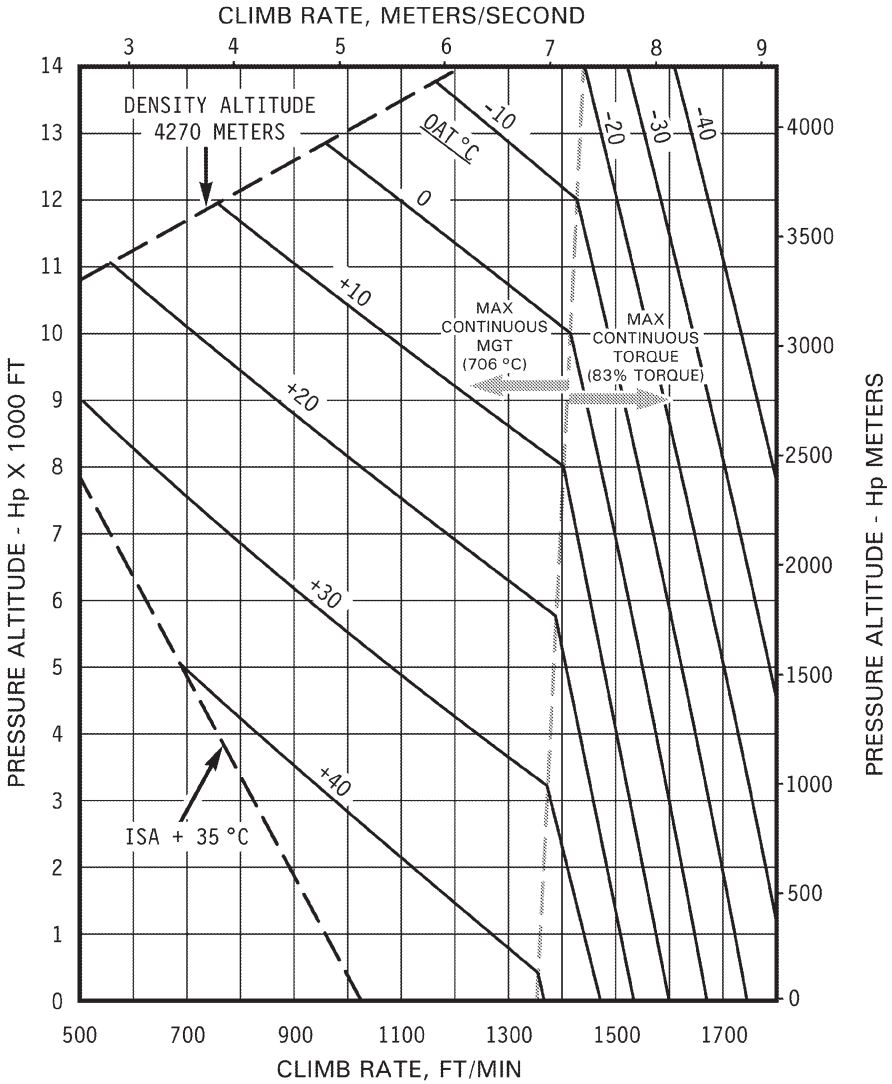


ENGINE ANTI-ICE MAY REDUCE CLIMB RATE UP TO 1.5 METERS/SECOND
FULL CABIN HEAT MAY REDUCE CLIMB RATE UP TO 3.0 METERS/SECOND

CLIMB PERFORMANCE, 1225 KG GROSS WEIGHT

SECTION 5: PERFORMANCE (cont'd)

MAXIMUM CONTINUOUS TORQUE OR MAXIMUM CONTINUOUS MGT
110 KM/H CLIMB SPEED
ENGINE ANTI-ICE AND CABIN HEAT OFF

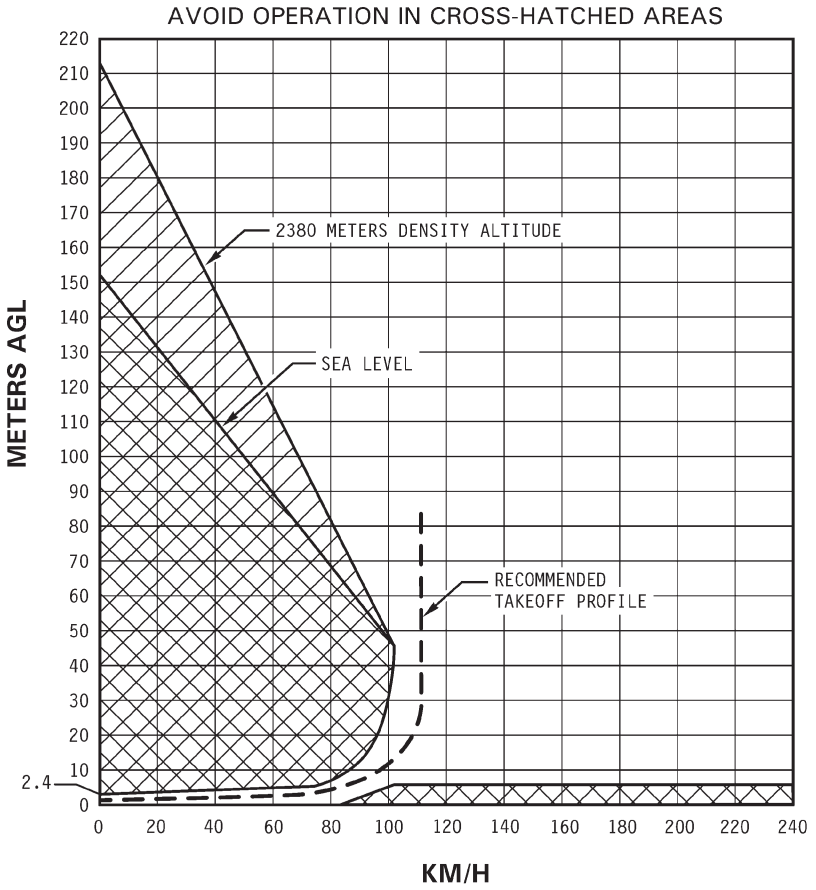


ENGINE ANTI-ICE MAY REDUCE CLIMB RATE UP TO 2.0 METERS/SECOND
FULL CABIN HEAT MAY REDUCE CLIMB RATE UP TO 3.6 METERS/SECOND

CLIMB PERFORMANCE, 1000 KG GROSS WEIGHT

SECTION 5: PERFORMANCE (cont'd)

DEMONSTRATED CONDITIONS:
SMOOTH HARD SURFACE
WIND CALM
1225 KG GROSS WEIGHT
HOVER POWER + 10% TORQUE FOR TAKEOFF



HEIGHT – VELOCITY DIAGRAM

SECTION 5: PERFORMANCE (cont'd)

NOISE CHARACTERISTICS

The following noise levels comply with 14 CFR Part 36, Appendix H and ICAO Annex 16, Volume 1, Chapter 8 noise requirements and were obtained from FAA-approved data from actual noise tests.

Model: R66
Engine: Rolls-Royce Model 250-C300/A1
Gross Weight: 1225 kg

Configuration	V_h KM/H True Airspeed	Noise Level (EPNdB)		
		Flyover	Takeoff	Approach
Clean	217	84.5	87.8	87.8
Dirty*	200	84.8	87.8	88.6

* Landing gear strut fairings removed. Air conditioning and four doors with bubble windows installed.

NOTE

No determination has been made by the Certifying Authority that the noise levels are or should be acceptable or unacceptable for operation at, into, or out of any airport.

SECTION 6: WEIGHT AND BALANCE No change.

SECTION 7: SYSTEMS DESCRIPTION

FIRST-AID KIT

A first-aid kit (supplied by operator) should be stored in the accessory box located in front of the forward left seat.

SECTION 8: HANDLING, SERVICING AND MAINTENANCE

No change.

SECTION 9: SUPPLEMENTS

HEATED PITOT SUPPLEMENT

No change.

AIR CONDITIONING SUPPLEMENT

SECTION 5: PERFORMANCE

CLIMB PERFORMANCE, 2700 LB (1225 KG) GROSS WEIGHT

Air conditioning operation may reduce climb rate up to 0.25 meters/second (50 ft/min).

CLIMB PERFORMANCE, 2200 LB (998 KG) GROSS WEIGHT

Air conditioning operation may reduce climb rate up to 0.30 meters/second (60 ft/min).

SECTION 9: SUPPLEMENTS

POP-OUT FLOATS SUPPLEMENT

SECTION 2: LIMITATIONS

AIRSPEED LIMITS

NEVER-EXCEED AIRSPEED (V_{NE}) – FLOATS STOWED

All Weights	241 km/h (130 KIAS)
Autorotation	185 km/h (100 KIAS)

For V_{NE} reductions with altitude and temperature, see placards on page 9-F7.40.

ADDITIONAL AIRSPEED LIMITS

120 km/h (65 KIAS) maximum above 83% torque.

With floats stowed, 185 km/h (100 KIAS) maximum with any combination of cabin doors removed.

148 km/h (80 KIAS) maximum for float inflation.

148 km/h (80 KIAS) maximum with floats inflated.

213 km/h (115 KIAS) maximum with float system armed (safety catch in READY position).

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 2: LIMITATIONS (cont'd)

FLIGHT AND MANEUVER LIMITATIONS

Maximum altitude decrease with floats inflated is 1220 meters (4000 feet).

CAUTION

Altitude loss greater than 1220 meters (4000 feet) may cause floats to lose shape and rigidity due to atmospheric pressure increase. Do not inflate floats above 1220 meters (4000 feet) AGL.

Flights over water beyond safe auto-rotation distance from land are prohibited after a cold soak below 0°C or in ambient temperatures below 0°C.

Duration of pop-out floats usage on water must not exceed 6 hours.

INSTRUMENT MARKINGS

AIRSPEED INDICATOR (METRIC VERSION ONLY)

Green arc	0 to 204 km/h (0 to 110 KIAS)
Yellow arc*	204 to 241 km/h (110 to 130 KIAS)
Red cross-hatch	185 km/h (100 KIAS)
Red line	241 km/h (130 KIAS)

*Earlier English units airspeed indicators without yellow arc must have the following placard adjacent:

DO NOT EXCEED 110 KIAS EXCEPT IN SMOOTH AIR

Earlier metric units airspeed indicators without yellow arc must have the following placard adjacent:

DO NOT EXCEED 204 KM/H EXCEPT IN SMOOTH AIR

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 2: LIMITATIONS (cont'd)

PLACARDS

Adjacent to pilot's cyclic grip on helicopters equipped with a metric altimeter and airspeed indicator:

POWER-ON V_{ne} - KM/H

PRESS ALT-M	OAT-°C									
	-40	-30	-20	-10	0	10	20	30	40	50
0	238									235
500	231			241				236	229	
1000	223	239				238	230	223	216	
1500	216	231		240	232	225	217	210	202	
2000	208	223	235	227	219	212	203	194		
2500	201	216	222	214	205	196	187	178		
3000	194	209	209	199	189	179	170	161		
3500	188	201	192	182	172	162				
4000	181	185	175	165						
4500	174	168				NO FLIGHT				
5000	162									

NOTE: 120 KM/H MAXIMUM ABOVE 83% TORQUE
DO NOT EXCEED 148 KM/H WITH FLOATS INFLATED

AUTOROTATION V_{ne} - KM/H

PRESS ALT-M	OAT-°C									
	-40	-30	-20	-10	0	10	20	30	40	50
2000								179		
2500			185			181	172	163		
3000				184	174	164	155	147		
3500			177	167	157	148				
4000	182	171	160	150						
4500	164	153				NO FLIGHT				
5000	147									

Near inflation lever on helicopters equipped with a metric airspeed indicator:

DO NOT INFLATE FLOATS ABOVE
148 km/h (80 KIAS)

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 3: EMERGENCY PROCEDURES

POWER FAILURE ABOVE 150 METERS (500 FEET) AGL

Autorotation to land: Same as in basic manual.

Autorotation to water:

1. Lower collective immediately to maintain rotor RPM.
2. Reduce airspeed to below 148 km/h (80 KIAS).
3. Adjust collective to keep RPM between 95 and 106% or apply full down collective if light weight prevents attaining above 95%.
4. If altitude permits, maneuver into wind.
5. Inflate floats.

CAUTION

Do not inflate floats above 148 km/h (80 KIAS). Do not exceed 148 km/h (80 KIAS) with floats inflated.

6. At about 12 meters (40 feet) AGL, begin cyclic flare.
7. At about 2.4 meters (8 feet) AGL, apply forward cyclic and raise collective just before touchdown. Touch down in slight nose high attitude with nose straight ahead.
8. Maintain cyclic in touchdown position and do not lower collective full down until forward motion has stopped.

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 3: EMERGENCY PROCEDURES (cont'd)

POWER FAILURE BETWEEN 2.4 METERS (8 FEET) AND 150 METERS (500 FEET) AGL

Autorotation to land: Same as in basic manual.

Autorotation to water:

1. Lower collective immediately to maintain rotor RPM.
2. Reduce airspeed to below 148 km/h (80 KIAS).
3. Adjust collective to keep RPM between 95 and 106% or apply full down collective if light weight prevents attaining above 95%.
4. If altitude permits, maneuver into wind.
5. Inflate floats.

CAUTION

Do not inflate floats above 148 km/h (80 KIAS). Do not exceed 148 km/h (80 KIAS) with floats inflated.

6. Maintain airspeed until water is approached, then begin cyclic flare.
7. At about 2.4 meters (8 feet) AGL, apply forward cyclic and raise collective just before touchdown. Touch down in slight nose high attitude with nose straight ahead.
8. Maintain cyclic in touchdown position and do not lower collective full down until forward motion has stopped.

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 3: EMERGENCY PROCEDURES (cont'd)

POWER FAILURE BELOW 2.4 METERS (8 FEET) AGL

Same as in basic Pop-out Floats Supplement.

MAXIMUM GLIDE DISTANCE CONFIGURATION

Same as in basic manual except airspeed 148 km/h (80 KIAS) with floats inflated.

With floats inflated, best glide ratio is about 5.2:1 or 1 km per 190 meters (one nautical mile per 1200 feet) AGL.

EMERGENCY WATER LANDING – POWER ON

1. Reduce airspeed to below 148 km/h (80 KIAS).
2. Inflate floats.

CAUTION

Do not inflate floats above 148 km/h (80 KIAS). Do not exceed 148 km/h (80 KIAS) with floats inflated.

3. Make normal approach and landing to water.

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 4: NORMAL PROCEDURES (cont'd)

FLOAT INFLATION

CAUTION

Observe 213 km/h (115 KIAS) speed limitation when safety catch is in READY position.

OPERATION ON WATER

Safe operation on water has been demonstrated in waves up to 0.3 m (1 foot) (trough to crest). Maximum recommended water taxi speed is 9 km/h (5 knots). Some application of collective is required.

Since the helicopter sits very low on water, it is likely that water will leak into the cabin. Intentional water landings should be limited to training. Avoid salt water if possible.

There may be limited tail rotor clearance to water, particularly at aft CG. Also, even small waves may cause enough rocking to dip the tail rotor in the water. If tail rotor contact with water is suspected, have tail rotor inspected prior to further flight. (If no noticeable change in vibration occurs after suspected water contact, helicopter may be repositioned to nearest convenient inspection site.)

CAUTION

Except for actual emergencies, maximum weight for water operation is 998 kg (2200 lb).

SECTION 9: SUPPLEMENTS (cont'd)

POP-OUT FLOATS SUPPLEMENT (cont'd)

SECTION 5: PERFORMANCE

CLIMB PERFORMANCE, 2700 LB (1225 KG) GROSS WEIGHT

Stowed or inflated floats may reduce climb rate by as much as 1.3 meters per second (250 feet per minute).

CLIMB PERFORMANCE, 2200 LB (998 KG) GROSS WEIGHT

Stowed or inflated floats may reduce climb rate by as much as 1.5 meters per second (300 feet per minute).

SECTION 9: SUPPLEMENTS (cont'd)

AUTOPILOT SUPPLEMENT

SECTION 2: LIMITATIONS

FLIGHT AND MANEUVER LIMITATIONS

Minimum altitude for use of autopilot ALT mode is 100 meters (300 feet) AGL for practice instrument approaches.

Minimum altitude for use of autopilot VRT mode is 60 meters (200 feet) AGL but no less than published minimum for the aerodrome.

Use of autopilot with NAV and/or VRT modes engaged is prohibited when:

- Component of crosswind exceeds 31 km/h (17 knots).
- Glideslope angle exceeds 5°.

NOTE

Use of backcourse mode is only permitted when performed in accordance with a published backcourse procedure.

NOTE

Practice instrument approaches using autopilot or the use of approach modes for pilot workload reduction during landing are allowed in VFR conditions only.

NOTE

If crosswind or glideslope angle limits are exceeded during autopilot approach pilot must revert to basic SAS mode and continue approach manually.

SECTION 9: SUPPLEMENTS (cont'd)

AUTOPILOT SUPPLEMENT (cont'd)

SECTION 3: EMERGENCY PROCEDURES

AUTOPILOT DISENGAGEMENT OR FAILURE

NOTE

The system automatically switches off all modes except SAS mode at airspeeds below 81 km/h (44 KIAS) or above 259 km/h (140 KIAS), accompanied by a single beep. This is by design and not a system failure.

AUXILIARY FUEL SUPPLEMENT

SECTION 2: LIMITATIONS

PLACARDS

Near auxilary fuel tank filler cap:

ТОПЛИВО: ТС-1, РТ ДРУГИЕ ТИПЫ ТОПЛИВА СМ. В РЛЭ

(Fuel: TS-1, RT
For other fuel grades refer to
flight manual)

LITHIUM-ION BATTERY SUPPLEMENT

No change.

OPTIONAL AVIONICS SUPPLEMENT

No change.

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