

**SECTION 3**

**EMERGENCY PROCEDURES**

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### SECTION 3

## EMERGENCY PROCEDURES

### DEFINITIONS

Land Immediately - Land on the nearest clear area where a safe normal landing can be performed. Be prepared to enter autorotation during approach, if required.

Land as soon as practical - Landing site is at pilot's discretion based on nature of problem and available landing areas. Flight beyond nearest airport is not recommended.

### POWER FAILURE - GENERAL

A power failure may be caused by either an engine or drive system failure and will usually be indicated by the low RPM horn. An engine failure may be indicated by a change in noise level, nose left yaw, an oil pressure light, or decreasing engine RPM. A drive system failure may be indicated by an unusual noise or vibration, nose right or left yaw, or decreasing rotor RPM while engine RPM is increasing.

In case of power failure, immediately lower collective to enter autorotation.

#### ***CAUTION***

Aft cyclic is required when collective is lowered at high airspeed.

#### ***CAUTION***

Do not apply aft cyclic during touchdown or ground slide to prevent possible blade strike to tailcone.

**POWER FAILURE ABOVE 500 FEET AGL**

1. Lower collective immediately to maintain rotor RPM.
2. Establish a steady glide at approximately 65 KIAS. (For maximum glide distance, see page 3-3.)
3. Adjust collective to keep RPM between 97 and 110% or apply full down collective if light weight prevents attaining above 97%.
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 40 feet AGL, begin cyclic flare to reduce rate of descent and forward speed.
8. At about 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 BETWEEN 8 FEET AND 500 FEET AGL**

1. Lower collective immediately to maintain rotor RPM.
2. Adjust collective to keep RPM between 97 and 110% or apply full down collective if light weight prevents attaining above 97%.
3. Maintain airspeed until ground is approached, then begin cyclic flare to reduce rate of descent and forward speed.
4. At about 8 feet AGL, apply forward cyclic to level ship and raise collective just before touchdown to cushion landing. Touch down in level attitude and nose straight ahead.

**POWER FAILURE BELOW 8 FEET AGL**

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

**MAXIMUM GLIDE DISTANCE CONFIGURATION**

1. Airspeed approximately 75 KIAS.
2. Rotor RPM approximately 90%.
3. Best glide ratio is about 4:1 or one nautical mile per 1500 feet AGL.

**CAUTION**

Increase rotor RPM to 97% minimum when autorotating below 500 feet AGL.

**AIR RESTART PROCEDURE**

1. Mixture - full rich.
2. Primer (if installed) - down and locked.
3. Throttle - closed, then cracked slightly.
4. Actuate starter with left hand.

**CAUTION**

Do not attempt restart if engine malfunction is suspected or before safe autorotation is established.

**EMERGENCY WATER LANDING – POWER OFF**

1. Follow same procedures as for power failure over land until contacting water. If time permits, unlatch doors prior to water contact.
2. Apply lateral cyclic when aircraft contacts water to stop rotors.
3. Release seat belt and quickly clear aircraft when rotors stop.

**EMERGENCY WATER LANDING – POWER ON**

1. Descend to hover above water.
2. Unlatch doors.
3. Passenger exit aircraft.
4. Fly to safe distance from passenger to avoid possible injury by rotors.
5. Switch battery and alternator OFF.
6. Roll throttle off into overtravel spring.
7. Keep aircraft level and apply full collective as aircraft contacts water.
8. Apply lateral cyclic to stop rotors.
9. Release seat belt and quickly clear aircraft when rotors stop.

**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 enter autorotation.
2. Maintain at least 70 KIAS if practical.
3. Select landing site, roll throttle off into overtravel spring, 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 70 KIAS; however, prior to reducing airspeed, enter full autorotation.

**LOSS OF TAIL ROTOR THRUST IN HOVER**

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

1. Immediately roll throttle off into overtravel spring and allow aircraft to settle.
2. Raise collective just before touchdown to cushion landing.

### **ENGINE FIRE DURING START ON GROUND**

1. Cranking – Continue and attempt to start which would suck flames and excess fuel into engine.
2. If engine starts, run at 50-60% RPM for a short time.
3. Fuel mixture – OFF.
4. Fuel valve – OFF.
5. Battery switch – OFF.
6. If time permits, apply rotor brake to stop rotors.
7. Exit helicopter.

### **ENGINE FIRE IN FLIGHT**

1. Enter autorotation.
2. Cabin heat – OFF (if installed and time permits).
3. Cabin vent – ON (if time permits).
4. **If engine is running**, perform normal landing, then fuel mixture OFF and fuel valve OFF.  
**If engine stops running**, fuel valve OFF and complete autorotation landing.
5. Battery switch – OFF.
6. If time permits, apply rotor brake to stop rotors.
7. Exit helicopter.

### **ELECTRICAL FIRE IN FLIGHT**

1. Battery and alternator switches – OFF.
2. Open cabin vents.
3. Land immediately.
4. Fuel mixture OFF and fuel valve OFF.
5. If time permits, apply rotor brake to stop rotors.
6. Exit helicopter.

### ***CAUTION***

Low RPM warning system and governor are inoperative with battery and alternator switches both off.



### **TACHOMETER FAILURE**

If rotor or engine tach malfunctions in flight, use remaining tach to monitor RPM. If it is not clear which tach is malfunctioning or if both tachs malfunction, allow governor to control RPM and land as soon as practical.

#### ***NOTE***

Each tach, the governor, and the low RPM horn are on separate power circuits. A special circuit allows the battery to supply power to the tachs with the battery and alternator switches both off.

### **GOVERNOR FAILURE**

If engine RPM governor malfunctions, grip throttle firmly to override the governor, then switch governor off. Complete flight using manual throttle control.

**WARNING/CAUTION LIGHTS**

***NOTE***

If a light causes excessive glare at night, bulb may be unscrewed or circuit breaker pulled to eliminate glare during landing.

- OIL** Indicates loss of engine power or oil pressure. Check engine tach for power loss. Check oil pressure gage and, if pressure loss is confirmed, land immediately. Continued operation without oil pressure will cause serious engine damage and engine failure may occur.
- MR TEMP** Indicates excessive temperature of main rotor gearbox. See note below.
- MR CHIP** Indicates metallic particles in main rotor gearbox. See note below.
- TR CHIP** Indicates metallic particles in tail rotor gearbox. See note below.

***NOTE***

If light is accompanied by any indication of a problem such as noise, vibration, or temperature rise, land immediately. If there is no other indication of a problem, land as soon as practical.

Break-in fuzz will occasionally activate chip lights. If no metal chips or slivers are found on detector plug, clean and reinstall (tail rotor gearbox must be refilled with new oil). Hover for at least 30 minutes. If chip light comes on again, replace gearbox before further flight.

**WARNING/CAUTION LIGHTS (cont'd)**

**LOW FUEL** Indicates approximately one gallon of usable fuel remaining for all-aluminum fuel tanks or 1.5 gallons for bladder-style tanks. The engine will run out of fuel after approximately five minutes at cruise power for aircraft with all-aluminum tanks or ten minutes with bladder-style tanks.

***CAUTION***

Do not use low fuel caution light as a working indication of fuel quantity.

**CLUTCH** Indicates clutch actuator circuit is on, either engaging or disengaging clutch. When switch is in the ENGAGE position, light stays on until belts are properly tensioned. Never take off before light goes out.

***NOTE***

Clutch light may come on momentarily during run-up or during flight to retension belts as they warm-up and stretch slightly. This is normal. If, however, the light flickers or comes on in flight and does not go out within 10 seconds, pull CLUTCH circuit breaker and land as soon as practical. Reduce power and land immediately if there are other indications of drive system failure (be prepared to enter autorotation). Have drive system inspected for a possible malfunction.

**ALT** Indicates low voltage and possible alternator failure. Turn off nonessential electrical equipment and switch ALT off and back on after one second to reset alternator control unit. If light stays on, land as soon as practical. Continued flight without functioning alternator can result in loss of power to tachometers, producing a hazardous flight condition.

**WARNING/CAUTION LIGHTS (cont'd)**

**BRAKE** Indicates rotor brake is engaged. Release immediately in flight or before starting engine.

**STARTER-ON** Indicates starter motor is engaged. If light does not go out when ignition switch is released from start position, immediately pull mixture off and turn battery switch off. Have starter motor serviced.

**GOV-OFF** Indicates engine RPM throttle governor is off.

**CARBON MONOXIDE (if installed)** Indicates elevated levels of carbon monoxide (CO) in cabin. Shut off heater and open nose and door vents. If hovering, land or transition to forward flight. If symptoms of CO poisoning (headache, drowsiness, dizziness) accompany light, land immediately.

**FULL THROTTLE (if installed)** Indicates engine near full throttle. The governor will be ineffective because it cannot increase throttle to maintain RPM. Lower collective as required to extinguish light.

**LOW RPM HORN & CAUTION LIGHT**

A horn and an illuminated caution light indicate that rotor RPM may be below safe limits. To restore RPM, immediately roll throttle on, lower collective and, in forward flight, apply aft cyclic. The horn and caution light are disabled when collective is full down.

**INFORMATION PER FAA AD 95-26-04**

**1) RIGHT ROLL IN LOW "G" CONDITION**

Gradually apply aft cyclic to restore positive "G" forces and main rotor thrust. Do not apply lateral cyclic until positive "G" forces have been established.

**2) UNCOMMANDED PITCH, ROLL, OR YAW RESULTING FROM FLIGHT IN TURBULENCE.**

Gradually apply controls to maintain rotor RPM, positive "G" forces, and to eliminate sideslip. Minimize cyclic control inputs in turbulence; do not overcontrol.

**3) INADVERTENT ENCOUNTER WITH MODERATE, SEVERE, OR EXTREME TURBULENCE.**

If the area of turbulence is isolated, depart the area; otherwise, land the helicopter as soon as practical.

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