

Section III
EMERGENCY AND MALFUNCTION PROCEDURES

EMERGENCIES

3-1. ENGINE FAILURE - ALTITUDE ABOVE 450 FEET

- Lower collective pitch.
- Enter normal autorotation.
- Establish a steady glide of 52 knots (60 mph) IAS approximately.
- At an altitude of 50 feet, begin steadily to apply back cyclic stick to decrease forward speed.
- At approximately 10 feet, coordinate collective pitch with forward movement of cyclic stick to level ship and cushion landing. Make ground contact with ship level.
- Avoid rapid lowering of collective pitch or the use of aft cyclic stick during initial ground contact or during ground slide.
- In the event of engine failure at night, do not turn on landing light above 1,000 feet above terrain in order to preserve battery power.

3-2. ENGINE FAILURE - ALTITUDE ABOVE 7 FEET AND BELOW 450 FEET

- Conduct takeoff operation in accordance with the restrictions shown on Height Velocity Diagram (Figure 5-2). In the event of power failure during takeoff, lower the collective pitch (altitude permitting), in order to maintain rotor speed. The amount and duration of collective reduction depends upon the height above the ground at which the engine failure occurs. As the ground is approached, use back cyclic and collective as needed to decrease forward and vertical velocity. Establish a level attitude prior to ground contact.

3-11. AIR RESTART

- Establish 52 knots (60 mph) autorotation.
- Pick out landing spot. If less than 2000 feet above terrain, proceed with autorotation landing.
- Pull mixture control to IDLE CUTOFF when time permits to stop flow of fuel from nozzles.
- If altitude permits:
 - ● With mixture in IDLE CUTOFF.
 - ● Throttle - crack approximately 1/2 an inch.
 - ● Starter - press to engage.
 - ● Mixture - push to FULL RICH position when engine fires.

Note: If fuel boost pump was on at time of engine stoppage, a flooded condition may have resulted necessitating additional use of the starter.

3-12. ENGINE/FUSELAGE/ELECTRICAL FIRE ON THE GROUND.

- Pull mixture control to IDLE CUTOFF.
- Set fuel shutoff valve in CLOSED position.
- Set battery switch in OFF position.
- Set alternator switch in OFF position.

WARNING

**REMAIN CLEAR OF ROTOR BLADES
DURING AND AFTER EVACUATION.**

- Exit aircraft with fire extinguisher.

correlation is such that only minor throttle adjustments will be required to perform a smooth recovery without exceeding 3200 rpm.

4-11. ENGINE OVERSPEED LIMITERS

- If installed, the limiter should be adjusted so that rpm limits of the Rotorcraft Flight Manual are complied with.

NOTE: Under no circumstances should the limiter be used as a governor to replace pilot skill; the occasions for limiter use should be extremely rare and only to prevent a catastrophic engine overspeed.

4-12. LANDING APPROACH

- Set engine rpm at 3100.

CAUTION

FIRE CAN RESULT FROM A LANDING IN TALL DRY GRASS DUE TO EXHAUST HEAT; EXERCISE CARE IN SELECTING LANDING SITE. IN CASE OF A GRASS FIRE MOVE AIRCRAFT TO A CLEAR AREA.

- Slow airspeed to approximately 60 mph for a normal approach and reduce collective for the desired rate of descent. Maintain 3100 rpm. On approaching the desired landing spot, reduce airspeed and rate of descent until a hover is established.

4-13. RUNNING LANDING

CAUTION

AVOID RAPID LOWERING OF COLLECTIVE PITCH CONTROL AFTER GROUND CONTACT.

- 40 mph maximum recommended ground contact speed for smooth hard surface.

4-14. PILOT'S CHECK OF IDLE MIXTURE, IDLE SPEED, AND FUEL BOOST PUMP

NOTE: This check of idle mixture, idle speed, and fuel boost pump shall be accomplished at the end of the last flight each day, prior to engine shutdown.

- Accomplish the engine idle mixture check as follows:
- ● Land from a hover with engine cylinder head temperature and oil temperature as near to in-flight conditions as possible, friction on the collective and cyclic controls, governor disengaged, and engine speed at operational rpm.
- ● Ensure MIXTURE is set to FULL RICH.

CAUTION

AIRCRAFT MAY ROTATE IF LANDING GEAR IS SET ON A SMOOTH, HARD SURFACE AND OPERATOR DOES NOT CORRECT FOR LOSS OF TORQUE WITH PEDALS.

- ● Rapidly rotate throttle to CLOSED position. (Set at normal idle stop, do not override.)

NOTE: Engine speed will immediately decrease to idle level. Rotor speed, however, will decline gradually. The next step must be performed before rotor tachometer needle superimposes with engine tachometer needle.

- ● Observe engine tachometer needle and smoothly move mixture control toward IDLE CUTOFF position.
- ● Return mixture control to FULL RICH before the rpm decreases to a point where the engine will stop.

NOTE: Engine rpm rise is required to be between 25 and 100 rpm for this check.

- ● If rpm rise is not within the required limits, notify the appropriate maintenance personnel to perform proper idle speed and mixture adjustments.
- Accomplish an idle speed check as follows:
- ● Operate helicopter at operational rpm with rotor system engaged, friction on the collective and cyclic controls, and governor disengaged.

CAUTION

AIRCRAFT MAY ROTATE IF LANDING GEAR IS SET ON A SMOOTH, HARD SURFACE AND OPERATOR DOES NOT CORRECT FOR LOSS OF TORQUE WITH PEDALS.

- ● Rapidly rotate throttle closed and into full override position.
- ● Read and record engine idle rpm prior to engine and rotor tachometer needles superimposing.
- ● With engine head temperature near 300°F, but not above, repeat the three preceding steps, without going into full override (set throttle at normal idle stop).

NOTE: The first check (throttle into full override) should produce an idle speed no less than 1400 rpm. The second check (throttle at normal idle stop) should produce an idle speed no greater than 1600 rpm.

- ● If engine idle speed is not within the required limits, notify the appropriate maintenance personnel to perform adjustments in accordance with the Basic HMI.
- Perform a fuel boost pump check.
- ● Operate helicopter at idle rpm with fuel boost pump ON.
- ● Turn fuel boost pump OFF while observing engine tachometer.
- ● If a change in engine rpm is observed, ground helicopter and troubleshoot fuel system.

NOTE: Any noticeable change in engine rpm is unacceptable and must be entered in the Helicopter Log Book.

4-15. ENGINE COOLING SHUTDOWN

WARNING

ALWAYS TURN OFF ENGINE BEFORE EXITING HELICOPTER.

- After landing, maintain 3000 rpm with full down collective pitch for two minutes; watch for cylinder head temperature to decrease and stabilize.