

BELL 505



ROTORCRAFT FLIGHT MANUAL

**S/N 65011 THROUGH S/N 65169 AND
S/N 65171 THROUGH S/N 65300**



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The following terms are used to describe operating condition of a system, subsystem, assembly, or component:

<u>TERMS</u>	<u>DEFINITION</u>
Affected	Fails to operate in intended or usual manner.
Normal	Operates in intended or usual manner.

3-3. ENGINE

3-3-A. ENGINE FAILURE

3-3-A-1. ENGINE FAILURE — HOVERING

• INDICATIONS:

Left yaw.

ENGINE OUT Warning illuminated.

NOTE

Audio activated when N_G drops below 50%.

Engine instruments indicate power loss.

MFD switches to ENGINE page.

N_R decreasing with RPM warning light and audio on when N_R drops below 95%.

• PROCEDURE:

1. Maintain heading and attitude control.
2. Collective — Adjust to control N_R and rate of descent.

NOTE

Amplitude of collective movement is a function of height above ground. Any forward airspeed will aid in ability to cushion landing.

3. Collective - Increase prior to ground contact to cushion landing.
4. Complete helicopter shutdown.

3-3-A-2. ENGINE FAILURE — IN FLIGHT

• INDICATIONS:

Left yaw.

ENGINE OUT Warning illuminated.

NOTE

Audio activated when N_G drops below 50%.

Engine instruments indicate power loss.

MFD switches to ENGINE page.

N_R decreasing with RPM warning light and audio on when N_R drops below 95%.

• PROCEDURE:

1. Maintain heading and attitude control while lowering the collective.
2. Collective — Adjust as required to maintain 90 to 111% N_R .

NOTE

Maintaining N_R at high end of operating range will provide maximum rotor energy to accomplish landing, but will increase rate of descent.

3. Cyclic — Adjust to obtain desired autorotative airspeed.

NOTE

Maximum airspeed for steady state autorotation is 100 KIAS. Minimum rate of descent airspeed is 50 KIAS (glide ratio of approximately 0.5 NM per 1000 feet AGL). Maximum glide distance airspeed is 70 KIAS (glide ratio of approximately 0.6 NM per 1000 feet AGL). Recommended

autorotation speed is 60 KIAS to increase flare efficiency.

NOTE

If desired, and sufficient altitude remains, perform the ENGINE RESTART IN FLIGHT ([paragraph 3-3-B](#)).

4. ENGINE - OFF
5. Flare to lose airspeed.
6. Apply collective as flare effect decreases.
7. Cushion the landing.
8. Maintain cyclic in centered position.
9. Lower collective smoothly.
10. Complete helicopter shutdown.

3-3-B. ENGINE RESTART IN FLIGHT



DO NOT ATTEMPT A RESTART IF THE CAUSE OF FAILURE IS MECHANICAL, AS EVIDENCED BY ABNORMAL ENGINE BEHAVIOR OR METALLIC OR GRINDING SOUNDS.

An engine restart may be attempted in flight if time and altitude permit.

NOTE

Engine restart in flight has not been demonstrated.

• INDICATIONS:

No specific indications.

• PROCEDURE:

NOTE

Minimum rate of descent airspeed of 50 KIAS and minimum NR will allow pilot more time for air restart.

1. BLEED AIR - OFF.
2. THROTTLE - FLY.
3. ENGINE - OFF then START/ RUN.
4. Start sequence - Confirm initiated automatically when N_G decreases through 8%.
5. PSI - Monitor start limitations.
6. Engine oil pressure - Check.
7. THROTTLE - Confirm FLY position and N_P increasing to target 104% N_R .
8. If restart is unsuccessful, abort start and do the engine failure — in flight procedure, as per ([paragraph 3-3-A-2](#)).

3-3-C. ENGINE UNDERSPEED

No caution/warning/advisory messages illuminated

• INDICATIONS:

PSI decreasing.

N_R/N_P decreasing.

Possible decrease in N_R and low RPM warning activation below 97%.

• PROCEDURE:

NOTE

The minimum power required airspeed to maintain level flight is 60 KIAS.

1. Collective - Adjust as required to maintain 97% N_R/N_P or above.