

## SECTION 4

# EMERGENCY OPERATING PROCEDURES

### NOTE

Procedures outlined in this section are only for familiarization. Consult the airplane Flight Manual for approved procedures.

## ENGINE FAILURE DURING TAKEOFF

### LOSS OF ENGINE BEFORE LIFTOFF

Close throttles and stop aircraft.

### LOSS OF ENGINE AFTER LIFTOFF

If sufficient landing area still ahead, pull throttles back and effect an immediate landing. Without sufficient landing area ahead, proceed as follows:

1. Prop Controls - FULL FORWARD (high rpm).
2. Throttles - FULL FORWARD.
3. Landing Gear - UP.
4. Flaps - UP.
5. Determine Inoperative Engine.

### NOTE

(Airplanes equipped with single hydraulic pump driven by right engine). If right engine has failed, landing gear will retract only if right engine is allowed to windmill approximately 8 seconds after placing landing gear handle in the up position.

6. Inoperative Engine - FEATHER.
7. For obstacle clearance, establish best *angle* of climb speed, 120 mph, CAS.
8. After obstacle clearance, establish best *rate* of climb speed, 130 mph, CAS.
9. Operative Engine Boost Pump - ON.
10. Trim Aircraft.
11. Inoperative Engine:
  - (a) Mixture - IDLE CUTOFF.
  - (b) Boost Pump - OFF.
  - (c) Fuel Selector Valve - OFF.
  - (d) Magneto Switch - OFF.
  - (e) Alternator Switch - OFF.
12. Land as soon as possible.

## ENGINE FAILURE BELOW SE MINIMUM CONTROL SPEED (Vmc)

Normal procedures do not require operation below the single engine minimum control speed, however, should this condition inadvertently arise and engine failure occur, power on the operating engine should immediately be reduced and the nose lowered to attain a speed above 97 mph IAS, the single engine minimum control speed. Continue with the procedures given for Engine Failure During Flight.

## ENGINE FAILURE DURING FLIGHT

1. Throttles - FULL FORWARD.
2. Prop Controls - FULL FORWARD.
3. Mixtures - FULL RICH.
4. Boost Pumps - ON. (If engine fails to restart, proceed with checklist.)
5. Determine inoperative engine.
6. Trim aircraft for single engine flight.
7. Inoperative Engine:
  - (a) Mixture - IDLE CUTOFF.
  - (b) Prop Control - FEATHER.
  - (c) Boost Pump - OFF.
  - (d) Fuel Selector Valve Switch - OFF.
  - (e) Magneto Switch - OFF.
  - (f) Alternator Switch - OFF.
8. Attempt engine restart using procedure given for Restarting Feathered Engine in Flight. (Also see Fuel Pump Failure in Flight.)
9. If engine does not start, land as soon as possible.
10. For prolonged single engine flight, refer to the Crossfeed System discussion in Section 1.

## RESTARTING FEATHERED ENGINE IN FLIGHT

1. Fuel Selector Valve Switch - ON.
2. Boost Pump - ON.
3. Mixture Control - IDLE CUTOFF.
4. Throttle - CRACKED  $\frac{1}{2}$ " OPEN.
5. Magneto Switch - BOTH.
6. Prop Control - FULL FORWARD (high rpm).
7. Engage Starter Switch.
8. As engine rotates, move mixture control to FULL RICH.
9. After engine starts, turn boost pump OFF.
10. Warm up engine at 2000 rpm/15 in. MAP.
11. Oil Pressure - CHECK 25 psi minimum in 30 seconds or shut down.
12. When temperatures are in normal range, increase power as desired.

## RESTARTING FEATHERED ENGINE IN FLIGHT (Contd)

13. Alternator Switch - ON.
14. Retrim aircraft.

## LANDING AND GO-AROUND WITH ONE ENGINE INOPERATIVE

With the right engine inoperative, a loss of hydraulic pressure source occurs and a no flap landing is recommended.

### NOTE

For landing gear extension procedures, see hydraulic pump failure.

### LANDING

1. Follow normal landing check list, except proceed as follows:
2. Approach field with excess altitude and speed of 130 mph CAS.
3. Extend landing gear within gliding distance of the field.
4. Do not use flaps until landing is assured.

### NOTE

A maximum of 20° flaps is recommended for single engine landings due to the large drag increase with the last 25° of flap travel.

### GO-AROUND

1. Use Full Power.
2. Gear - UP.
3. Flaps - UP.
4. Climb at 130 mph CAS (120 mph CAS with obstacles directly ahead).

### NOTE

(Airplanes equipped with single hydraulic pump driven by right engine). Landing gear will not retract with right engine feathered. If retraction is required, windmill right engine for approximately 8 seconds.

## ENGINE FIRE IN FLIGHT

1. Mixture Control - IDLE CUTOFF.
2. Fuel Selector Valve Switch - OFF.
3. Boost Pump - OFF.

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### STALL SPEEDS

| CONFIGURATION         | BANK ANGLE |      |      |      |      |      |     |     |
|-----------------------|------------|------|------|------|------|------|-----|-----|
|                       | 0°         |      | 20°  |      | 40°  |      | 60° |     |
|                       | IAS        | CAS  | IAS  | CAS  | IAS  | CAS  | IAS | CAS |
| Gear Up - Flaps Up    | 96         | 87   | 97.5 | 90   | 104  | 99.5 | 124 | 123 |
| Gear Down - Flaps 20° | 88.5       | 80.5 | 90   | 83   | 94.5 | 92   | 114 | 114 |
| Gear Down - Flaps 45° | 85         | 77   | 85.5 | 79.5 | 90   | 88   | 107 | 110 |

NOTE: 1. IAS does not include instrument error.  
2. All airspeeds are given in mph at zero thrust and gross weight of 5500 lbs.

Figure 7-1.

### AIRSPEED SYSTEM POSITION ERROR

| FLAPS 0° |          |             | FLAPS 20° |          |             | FLAPS 45° |          |             |
|----------|----------|-------------|-----------|----------|-------------|-----------|----------|-------------|
| CAS      | IAS      |             | CAS       | IAS      |             | CAS       | IAS      |             |
|          | Power On | Zero Thrust |           | Power On | Zero Thrust |           | Power On | Zero Thrust |
| 87       | 94       | 96          | 81        | 86       | 89          | 77        | 79       | 85          |
| 90       | 96       | 98          | 85        | 89       | 91          | 80        | 81       | 86          |
| 95       | 99       | 101         | 90        | 93       | 94          | 85        | 85       | 88          |
| 100      | 103      | 104         | 95        | 96       | 98          | 90        | 90       | 92          |
| 110      | 111      | 112         | 100       | 100      | 102         | 100       | 99       | 100         |
| 120      | 121      | 121         | 120       | 119      | 119         | 110       | 109      | 109         |
| 140      | 140      | 140         | 140       | 139      | 139         | 120       | 119      | 119         |
| 160      | 159      | 159         | 160       | 159      | 159         | 130       | 129      | 129         |
| 180      | 179      | 179         | 180       | 178      | 178         | 140       | 139      | 139         |
| 200      | 199      | 199         |           |          |             | 150       | 148      | 148         |
| 220      | 219      | 219         |           |          |             |           |          |             |
| 240      | 238      | 238         |           |          |             |           |          |             |
| 260      | 258      | 258         |           |          |             |           |          |             |
| 280      | 278      | 278         |           |          |             |           |          |             |

NOTE: 1. IAS does not include instrument error.  
2. All airspeeds are given in mph at zero thrust and gross weight of 5500 lbs.

Figure 7-2.