

1. Lower nose immediately and fly straight ahead.

Note

If altitude and airspeed permit, slight directional changes are possible.

ENGINE FIRE DURING FLIGHT

Generally, the cause of an engine fire during flight is a failure within the engine or of an engine system. In most cases, cracks in the fuel or oil system tubing can be determined by means of engine instrument readings. Most engine fires are fed by fuel or oil. Cut off the fuel system if it seems to be the cause.

Perform the following actions:

1. Fuel shutoff knob – OUT
2. Prepare for forced landing or bail out

IN FLIGHT OPERATION

ENGINE FAILURE

If complete engine failure is encountered, proceed as follows:

1. Glide – 90 KIAS
2. Attempt engine airstart

AIRSTART

The following procedure should be used, when time and altitude permit the engine airstart procedure.

1. Fuel pump – On
2. Tanks – Change
3. Carburetor heat control – Warm
4. Glide – 90 KIAS
5. Fuel shutoff knob – Check in
6. Ignition switch – M1 + 2
7. Stopcock – Check in

If engine is not windmilling:

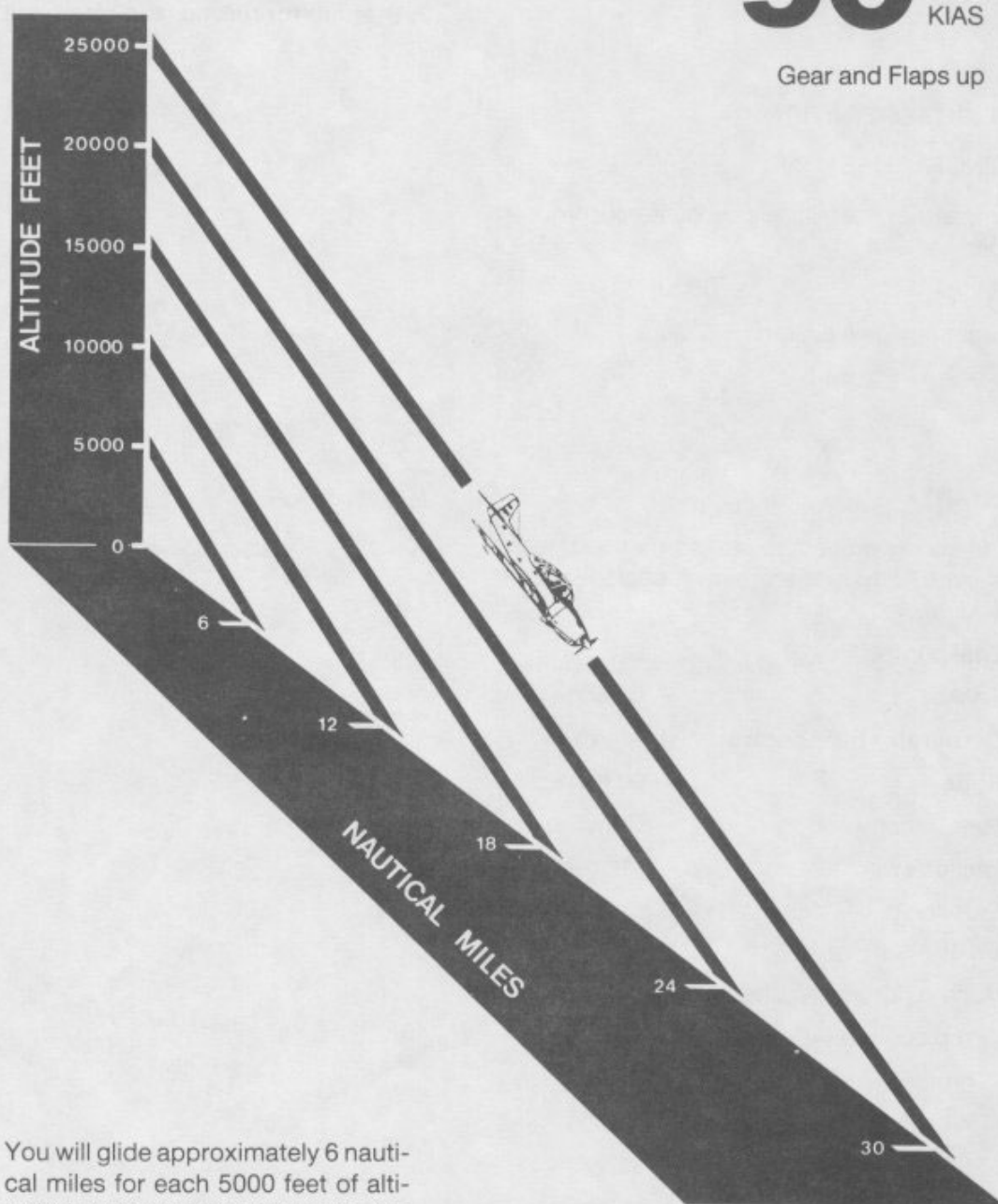
8. Prop control lever – Full fine
9. Throttle – Open 1/10
10. Primer – Actuate
11. Starter button – Press
12. Fuel pump – Remains ON
13. Land ASAP

MAXIMUM GLIDE

BEST POWER - OFF GLIDE SPEED
TO OBTAIN **MAXIMUM DISTANCE**

90 KIAS

Gear and Flaps up



You will glide approximately 6 nautical miles for each 5000 feet of altitude lost by holding 90 knots. No wind condition.

Figure 3-1

FORCED LANDING DEAD ENGINE

1. Shoulder harness - Lock
2. Gear - Up

Note

Gear DOWN only if a safe landing on a prepared airfield is assured.

3. Select landing field
4. Call mayday

Note

Transmit MAYDAY if time and altitude permit. Actions to be taken will always depend on the prevailing circumstances and conditions. Do not neglect any steps necessary for safe performance of the required actions.

5. Glide - 90 KIAS
6. Fuel shutoff knob - OUT
7. Ignition switch - OFF
8. Stopcock - OUT
9. All circuit breakers - OFF
10. After touchdown - Jettison canopy

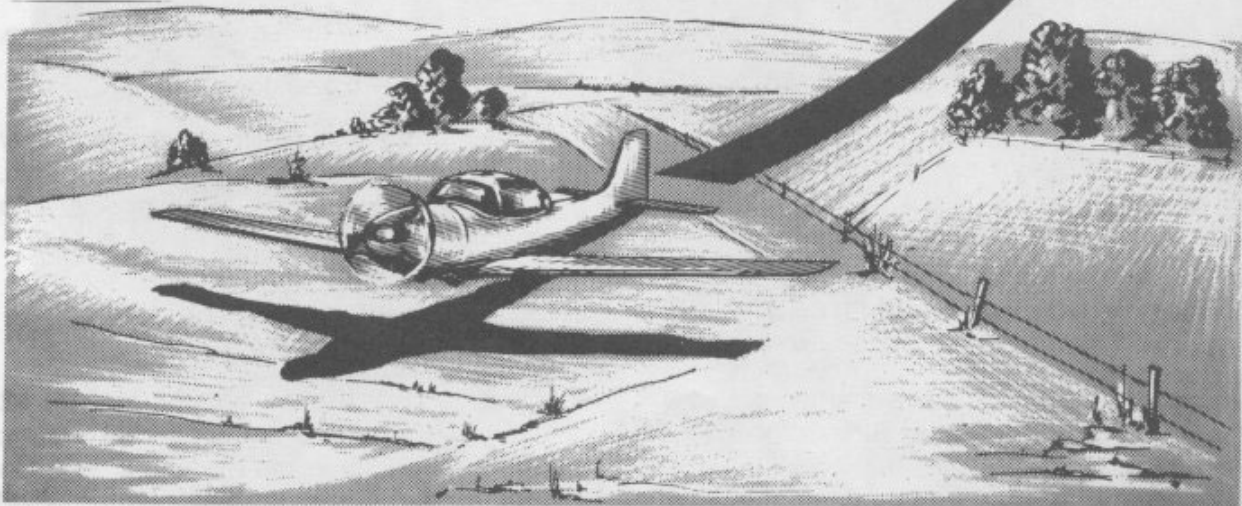


Figure 3-2

CAUTION

Do not jettison canopy if altitude is too low for a bail-out. If pilot's vision is obstructed by thick smoke, sideslip the aircraft to obtain clear field of view. Keep canopy closed.

FUSELAGE FIRE DURING FLIGHT

If a fuselage fire occurs during flight, proceed as follows:

1. Airspeed – Reduce immediately
2. Battery and generator circuit breakers – OFF
3. If the fire is extinguished, make a forced landing.
4. If the fire is not extinguished, shut down engine and bail out.

WING FIRE DURING FLIGHT

If a fire starts in the wing:

1. Gyro instruments and position lights – OFF
2. Pitot heater and fuel quantity gage – OFF
3. Sideslip aircraft away from flame.

Note

Sideslipping the aircraft away from the flame will aid in extinguishing the fire.

4. If the fire is extinguished, make a forced landing.
5. If the fire is not extinguished, shut down engine and bail out.

PROPELLER FAILURE – HIGH PITCH AT LOW RPM

If the propeller governor fails and the propeller goes to high pitch at low RPM, proceed as follows:

1. Throttle – Adjust to lowest manifold pressure to maintain flight.

2. Move propeller control lever to increase RPM, then to decrease RPM several times.
3. Land ASAP

PROPELLER RUNAWAY

In case of a propeller runaway during flight, proceed as follows:

1. Throttle – Retard
2. Airspeed – Reduce below 100 KIAS
3. Adjust RPM by means of throttle.
4. Land ASAP

PROPELLER LOSING OIL

1. Manifold pressure – Reduce to approx. 0,60 – 0,65 ata
2. Propeller control lever – Full coarse (Low RPM)
3. Land ASAP

MAXIMUM GLIDE

For maximum glide distance with IDLE engine, the best airspeed is 90 KIAS with a clean aircraft, landing gear and wing flaps up and propeller control lever at full coarse to minimize drag. See figure 3-1 for maximum glide distance.

FORCED LANDING

See figure 3-2 for forced landing procedure.

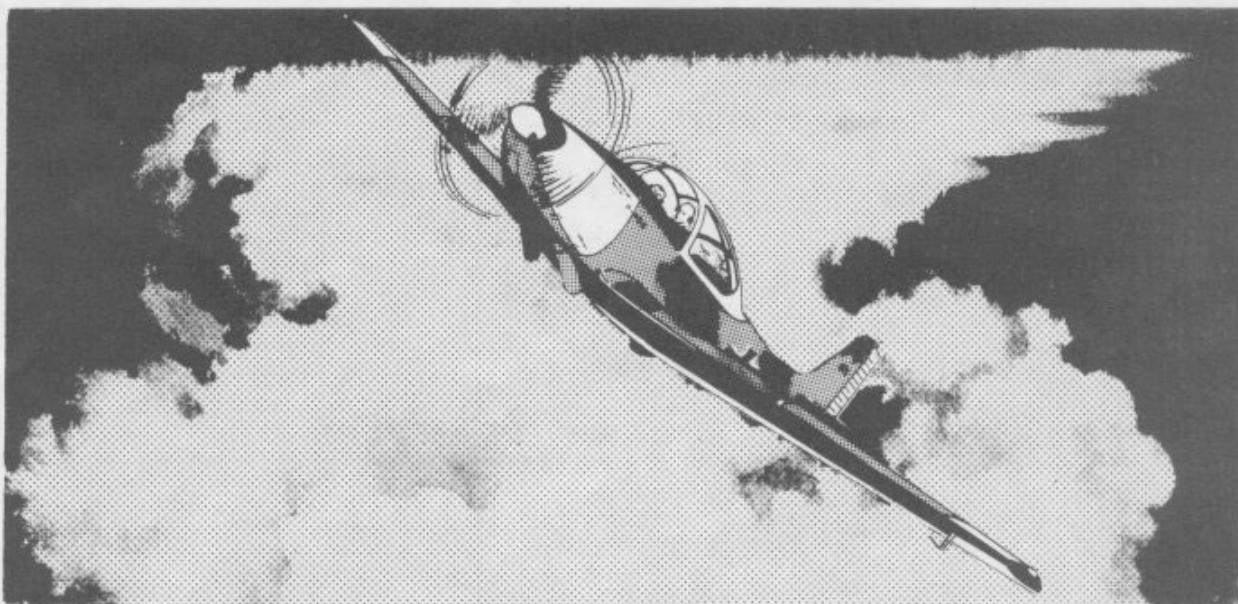
Forced landing with gear down

If time and altitude permit, and sufficient battery power is available (all other circuit breakers off), a normal landing on a prepared landing strip is possible.

BAIL-OUT

If altitude and time permit, direct the aircraft before bail-out toward an unpopulated area, reduce airspeed, lower the wing flaps, and trim the aircraft slightly nose down.

1. Call – Mayday



FLIGHT CHARACTERISTICS SECTION VI

TABLE OF CONTENTS	PAGE		PAGE
Introduction	6-1	Level-Flight Characteristics	6-4
Stalls	6-1	Maneuvering Flight Characteristics...	6-4
Spin	6-3	Dives	6-4
Flight Control Effectiveness	6-4		

INTRODUCTION

The aircraft is stable around all axes. Aircraft flight control is excellent in all flight attitudes. At low airspeed the angle of attack may be quickly reduced. Trim changes induced by throttle, landing gear or wing flap movements are easily compensated. Rudder and elevator trim capability is sufficient; even at incorrect trim settings caused by maladjustments or malfunctions, the forces applied can be easily controlled due to the limited trim range. The aircraft is easily controllable at all flight attitudes up to the point of stall without any control reversal becoming effective.

STALLS

For stalling speeds at different aircraft configurations and gross weights refer to fig.6-1.

POWER-OFF STALLS

The aircraft can be easily stalled in the power-off condition. Two to three knots prior to the actual stall, the aircraft gives a stall warning in the form of a mild vibration going through the aircraft. During a stall the aircraft pitches into a nose-down attitude of approximately 10 degrees below horizon. Slight yaw and roll movements are easily corrected.

POWER-ON STALLS

In the power-on condition, too, the aircraft can be stalled relatively easily. During a power-on stall wing level and heading are maintained by rudder movements.

Note

The landing gear position has no

STALL SPEEDS

GROSS WEIGHT kp		
	FLAPS UP - GEAR UP POWER OFF	FLAPS DOWN - GEAR DOWN POWER OFF
SPEEDS ARE GIVEN IN KNOTS (IAS)		
1470	53	46
1560	56	48
1820	61	51

Figure 6-1

appreciable effect on the stalling characteristics.

STALL RECOVERY

For this aircraft, recovering from stall is normal and should be effected as follows:

1. Drop nose immediately by releasing back pressure on the stick at full power.
2. Use rudder as required to regain straight and level attitude.
3. After the nose has been lowered, speed increases rapidly. When you attain safe flying speed, raise nose with steady back pressure.
4. Retard throttle to cruising power.

PRACTICE STALLS

For familiarization with the aircraft stall characteristics under various flight conditions, perform the following practice stalls. All practice stalls, with the exception of landing gear-down and flap-down stalls, shall be continued from the point of an abrupt dive pull-out to an actual stall. Do not increase the stalling condition by continuously pulling the control stick. Coordinate control surface deflections. Do not execute excessive aileron deflections. If a wing starts to drop, apply

opposite rudder.

PRACTICE STALL GEAR AND FLAPS UP, POWER OFF, STRAIGHT AHEAD

This stall condition is less violent and forms a stalling basis for comparison with other modes of stall. Start the practice stall in level flight, retard throttle to IDLE, pull the aircraft nose-up above horizon level and maintain this flight attitude. As soon as the stalling condition is reached, watch lessening of control force, observe flight attitude and engine sound. Observe how stall warning vibrations start 2 to 3 knots prior to actual stall. As the actual stall occurs, recover according to specified method.

PRACTICE STALL GEAR AND FLAPS UP, POWER ON, STRAIGHT AHEAD

Perform initiation of, and recovery from, stall in the same way as mentioned in the foregoing practice stall. Consider that application of power results in a nose-up attitude and an increase in stalling speed.

**PRACTICE STALL
GEAR AND FLAPS UP, POWER ON OR OFF,
20-DEGREE BANK**

Fly a coordinate climbing turn at a 20-degree bank attitude. Pull the aircraft several degrees nose-up above horizon level and maintain this flight attitude until a stall occurs. Perform a standard recovery with a coordinated roll out of the turn and dive. Observe increasing airspeed during a stall at a bank attitude. This stalling speed increase is the result of a wing load build-up due to centrifugal acceleration.

**PRACTICE STALL
GEAR DOWN, FLAPS UP, POWER OFF,
STRAIGHT AHEAD**

Practice this stall in anticipation of a forced flaps-up landing. Retard throttle and attempt a normal glide at 100 KIAS. Pull up aircraft nose and proceed in landing attitude until stall occurs. Note that gear-down condition does not increase rate of sink and causes aircraft to lose speed more rapidly. Use normal stall recovery.

**PRACTICE STALL
GEAR AND FLAPS DOWN, POWER OFF,
STRAIGHT AHEAD**

This stalling practice procedure is basically a power-off landing. Simulate a traffic pattern and make standard landing checks. Turn on final approach, make final checks, and set up approach speed of 90 KIAS. Flare at simulated runway altitude, pull nose up to landing attitude, and hold until stall occurs. At this point, observe flight characteristics of aircraft. Note how stalling speed is reduced by wing flaps application.

**PRACTICE STALL
GEAR AND FLAPS DOWN, POWER ON,
STRAIGHT AHEAD**

This stalling practice procedure is also applied for landings. Simulate a complete traffic pattern as in preceding practice stall. Since this stall occurs at the lowest airspeed of any

of the stall series, it effectively demonstrates the lowest airspeed at which the aircraft can be flown.

SPIN

The aircraft has satisfactory spin characteristics. For safe spin performance the altitude at which spin is initiated shall be selected so that the aircraft will be recovered from spin at 5000 ft AGL. Loss of altitude for each spin revolution is approximately 500 ft. When initiating spin, reduce engine power to a minimum and decrease airspeed to 60 KIAS by slowly pulling back the control stick. Full rudder must be held in the direction of the spin, and the stick must be held full back to maintain the spin. Aileron position does not materially affect spin characteristics.

Note

The procedures mentioned above shall be performed speedily to cause the aircraft to spin and to maintain spinning.

After several spin revolutions the aircraft spin motion changes and the aircraft pitch attitude approaches the horizontal plane.

SPIN RECOVERY

To obtain spin recovery, leave ailerons neutral, apply and maintain full opposite rudder. Maintain this position for approximately 2 seconds. Smoothly push control stick fully forward. Hold flight controls in this position until spin-rotation stops (after approx. one revolution). Neutralize rudder. Slowly pull control stick aft to take the aircraft out of the dive.

CAUTION

Initiate the spin recovery procedure after a maximum of two revolutions, including the spin initiation revolution.

FLIGHT CONTROL EFFECTIVENESS

All flight controls are very effective throughout the normal speed range, and only moderate stick movement is required to maneuver the aircraft. At high speeds, the aircraft response to control movement is greater than at cruise speeds, and abrupt movement of the controls must be avoided to prevent exceeding the G-limit of the aircraft.

AILERON CONTROL

Aileron deflection stick forces are proportionate to airspeed and rate of roll. Aileron characteristics are normal throughout the entire speed range.

ELEVATOR CONTROL

After the aircraft has been trimmed properly at a given airspeed, only light stick forces are required for any longitudinal change. Changing from one configuration to another (as from a clean aircraft to landing gear and flaps down) without a corresponding change in trim does not impose excessive elevator stick forces.

RUDDER CONTROL

Rudder control is satisfactory for all maneuvers including sideslips and cross-wind landings.

TRIM TAB CONTROLS

Trim tabs are very effective on the aircraft. The rudder, elevator, and aileron trim have full response throughout the entire speed range of the aircraft. All trim tabs except the aileron trim tab are adjustable from the cockpit, by use of the trim tab controls (31, figure 1-3 and 5, figure 1-5). The aileron trim tabs are adjustable on the ground.

LEVEL-FLIGHT CHARACTERISTICS

The aircraft has good stability and control characteristics and, when properly trimmed, it will maintain level flight. The aircraft has no undesirable characteristics throughout the entire speed range from stalling speed to maximum speed.

MANEUVERING FLIGHT CHARACTERISTICS

Rapid aircraft response to flight control movement during the normal speed range provides good aircraft characteristics.

CAUTION

Do not trim the aircraft during any acrobatic maneuvers in an attempt to reduce stick forces, as only small elevator stick forces will be required to exceed the structural limits for the aircraft.

DIVES

In dives to limit airspeed, the handling characteristics of the aircraft are good. All control movement is easy and effective, and the aircraft responds immediately and normally. Use the following procedure in a dive:

1. If necessary, pull the carburetor heat knob.
2. Do not exceed maximum airspeed during dive. Refer to "Airspeed Limitations" in Section V.

CAUTION

During dives there is danger of undercooling the engine. Ensure that cylinder head and oil temperatures are maintained within limitations.