

Section III - Emergency Procedures

INVERTER INOPERATIVE

- Select the other inverter

BATTERY CHARGE RATE (BATTERY CHG annunciator)

Ground Operations:

The BATTERY CHG annunciator will illuminate after an engine start. Do not take off with the annunciator illuminated unless a decreasing battery charge current is confirmed. See Nickel-Cadmium Battery Check in Section IV, NORMAL PROCEDURES.

In Flight:

In-flight illumination of the BATTERY CHG annunciator indicates a possible battery malfunction.

1. Battery - OFF
2. BATTERY CHG Annunciator Extinguished - CONTINUE TO DESTINATION
3. BATTERY CHG Annunciator Still Illuminated - LAND AT NEAREST SUITABLE AIRPORT

FLIGHT CONTROLS

UNSCHEDULED ELECTRIC ELEVATOR TRIM

1. Airplane Attitude - MAINTAIN (using elevator control)
2. Control Wheel Disconnect Switch - DEPRESS FULLY (2nd level)

NOTE

Autopilot will disengage when the disconnect switch is depressed.

3. Manually Retrim Airplane
4. ELEV TRIM Control Switch (Pedestal) - OFF

CAUTION

DO NOT reactivate electrical system until cause of malfunction has been determined.

UNSCHEDULED RUDDER BOOST ACTIVATION

Rudder boost operation without a large variation of power between the engines indicates a failure of the system.

1. Rudder Boost Switch - OFF

If condition persists:

2. Rudder Trim - ADJUST

LANDING GEAR MANUAL EXTENSION

1. Airspeed - ESTABLISH 125 KNOTS
2. Landing Gear Relay Circuit Breaker (pilot's right subpanel) - PULL
3. Landing Gear Switch Handle - DOWN
4. Emergency Engage Handle - LIFT AND TURN CLOCKWISE TO THE STOP TO ENGAGE.
5. Extension Lever - PUMP up and down until the 3 green GEAR DOWN lights are illuminated.

WARNING

If for any reason the green GEAR DOWN lights do not illuminate (e.g., in case of an electrical system failure), continue pumping until sufficient resistance is felt to ensure that the gear is down and locked, even though this procedure may damage the drive mechanism.

BEECHCRAFT
Super King Air F90

GROUND CONTROL

Direct linkage from the rudder pedals allows for nose wheel steering. When the rudder control is augmented by a main wheel brake, the nose wheel deflection can be considerably increased.

The minimum wing-tip turning radius, using partial braking action and differential engine power, is 35 feet.

FLAPS

Two flaps are installed on each wing. Power is delivered from an electric motor to a gearbox mounted on the forward side of the rear spar. The gearbox drives four flexible driveshafts which are connected to jackscrews, one of which operates each flap. The motor incorporates a dynamic braking system, through the use of two sets of motor windings. This feature helps prevent overtravel of the flaps.

The flaps are operated by a sliding switch handle on the pedestal just below the condition levers. Flap travel, from 0% (full up) to 100% (full down) is registered on an electric indicator on top of the pedestal. A side detent provides for quick selection of the APPROACH position (32.5% flaps). From the UP position to the APPROACH position, the flaps cannot be stopped in an intermediate position. Between APPROACH and DOWN, the flaps can be stopped anywhere by moving the handle to the DOWN position until the flaps reach the desired position, then moving the flap-switch handle back to APPROACH. The flaps can be raised to any position between DOWN and APPROACH by raising the handle to UP until the desired setting is reached, then returning the handle to APPROACH. Selecting the APPROACH position will stop flap travel anytime the flaps are deflected more than 32.5%.

The flap-motor power circuit is protected by a 20-ampere flap-motor circuit breaker placarded FLAP MOTOR, located on the right circuit breaker panel. A 5-ampere circuit breaker for the control circuit (placarded FLAP CONTROL) is also located on this panel.

Lowering the flaps will produce these results:

Attitude - Nose Up
Airspeed - Reduced
Stall Speed - Lowered
Trim - Nose-down Adjustment Required
to Maintain Attitude

LANDING GEAR

A 28-volt split-field motor, located on the forward side of the center section main spar, extends and retracts the landing gear. The motor incorporates a dynamic braking system, through the use of two motor windings, which prevents

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Systems Descriptions

overtravel of the gear. Excessive operation of the gear motor, such as during door adjustment or landing gear rigging, may cause the motor to overheat.

Torque shafts drive the main gear actuators, and duplex chains drive the nose gear actuator. Spring-loaded friction clutches between the gear box and the torque shafts protect the system in the event of mechanical malfunction. A 200-ampere current limiter under the center floorboard protects the system from electrical overload.

The Beech air-oil type shock struts are filled with compressed air and hydraulic fluid. Direct linkage from the rudder pedals allows for nose wheel steering. When the rudder control is augmented by a main wheel brake, the nose wheel deflection can be considerably increased. As the nose wheel retracts, it is automatically centered and the steering linkage becomes inoperative.

A safety switch on the right main strut opens the control circuit when the strut is compressed. The safety switch also actuates a solenoid-operated downlock hook, which prevents the landing gear handle from being raised when the airplane is on the ground. The hook automatically unlocks when the airplane leaves the ground and can be manually overridden by pressing down on the red button placarded DOWN LOCK REL while the airplane is on the ground.

Visual indication of landing gear position is provided by individual green GEAR DOWN indicator lights (placarded NOSE, L, R) on the center subpanel. Two red, parallel-wired indicator lights located in the control handle illuminate to show that the gear is in transit or unlocked. They also illuminate when the landing gear warning horn is actuated.

LANDING GEAR WARNING SYSTEM

The landing gear warning system is provided to warn the pilot that the landing gear is not down and locked during specific flight regimes. Various warning modes result, depending upon the position of the flaps.

With the FLAPS in UP or APPROACH position and either or both power levers retarded below a certain power level, the warning horn will sound intermittently and the landing gear switch handle lights will illuminate. The horn can be silenced by pressing the WARNING HORN SILENCE button adjacent to the landing gear switch handle; the lights in the landing gear switch handle cannot be cancelled. The landing gear warning system will be rearmed if the power lever(s) are advanced sufficiently.

With the FLAPS BEYOND APPROACH position, the warning horn and landing gear switch handle lights will be activated regardless of the power settings, and neither can be cancelled.

MANUAL LANDING GEAR EXTENSION

Manual landing gear extension is provided through a separate, manually powered, chain-drive system. Pull the LANDING GEAR RELAY circuit breaker (on the pilot's right subpanel) and make certain that the landing gear switch handle is in the down position before manually extending the gear. Pulling up on the emergency engage handle (located on the floor) and turning it clockwise will lock it in that position. When the emergency engage handle is pulled up, the motor is electrically disconnected from the system, and the emergency drive system is locked to the gear box and motor. When the emergency drive is locked in, the chain is driven by a continuous-action ratchet, which is activated by pumping the ratchet handle adjacent to the emergency engage handle.

CAUTION

Do not continue pumping the ratchet handle after the GEAR DOWN lights illuminate. Excessive pumping may damage the gear drive mechanism and bind the clutch so that the handle will not release it.

WARNING

After an emergency landing gear extension has been made, do not stow pump handle or move any landing gear controls or reset any switches or circuit breakers until the airplane is on jacks. These precautions are necessary because the failure may have been in the gear-up circuit, in which case the gear might retract on the ground. The gear can not be retracted manually.

After a practice manual extension, the landing gear may be retracted electrically. Rotate the emergency engage handle counterclockwise and push it down. Stow the extension lever, push in the landing gear relay circuit breaker on the pilot's subpanel, and retract the gear in the normal manner with the landing gear switch handle.

BRAKE SYSTEM

The dual hydraulic brakes are operated by depressing the tow portion of either the pilot's or copilot's rudder pedals. Shuttle valves permit braking by either pilot or copilot.

CAUTION

If either the pilot's or the copilot's brake pedals are pumped repeatedly while continuous pressure is being applied to the other set of

brake pedals, braking capability from the "continuous-pressure" side may be lost. Normal brake function can be restored by momentarily removing all pressure from the pedals on the "continuous-pressure" side.

Dual parking-brake valves are installed adjacent to the rudder pedals between the master cylinders of the pilot's rudder pedals and the wheel brakes. A control for the valves, placarded PARKING BRAKE, is located below the pilot's left subpanel. After the pilot's brake pedals have been depressed to build up pressure in the brake lines, both valves can be closed simultaneously by pulling out the parking brake handle. This retains the pressure in the brake lines. The parking brake is released by depressing the pedals briefly to equalize the pressure on both sides of the valve, then pushing in the parking brake handle to open the valve.

CAUTION

The parking brake should be left off and wheel chocks installed if the airplane is to be left unattended. Changes in ambient temperature can cause the brakes to release or to exert excessive pressures.

TIRES

The airplane is normally equipped with dual 18 x 5.5, 8-ply-rated, tubeless, rim-inflation tires on each main gear. For increased service life, 10-ply-rated tires of the same size may be installed.

Optionally, the airplane may be equipped with dual 22 x 6.75-10, 8-ply-rated, tubeless tires on each main gear. These tires provide higher flotation, and permit operation at approximately 2/3 the inflation pressure required for the standard 18 x 5.5 tires.

The nose gear is equipped with a single 22 x 6.75-10, 8-ply-rated, tubeless tire.

BAGGAGE COMPARTMENT

The 26.5-cubic-foot baggage compartment on the right side of the lavatory compartment extends aft of the airstair entrance door to the rear pressure bulkhead. A nylon web is provided for the restraining of loose items.

CAUTION

Baggage and other objects should be secured by webs, in order to prevent shifting in turbulent air.