

**EMERGENCY PROCEDURES**

**ELECTRICAL FIRE - NOTES**

- 1/ By cutting off the source of electrical current, an electrical fire can be eliminated. If the circuit at fault can be readily identified, this can be done by the appropriate switch or circuit breaker.
- 2/ If it is not possible to immediately identify the affected circuit, make a partial cut of electrical power, shutting off loads which are most likely the cause of the fire. This is done with the NONESSENTIAL LOAD SWITCHES, which de-energize the following loads.

<u>RADIO BUS 1</u>	<u>RADIO BUS 2</u>	<u>BUS C</u>	<u>BUS A &amp; B</u>
VHF NAV 1	VHF NAV 2	Buffet Power	All items listed under Radio Bus 1
VHF COMM 1	VHF COMM 2 & 3	Cabin Duct Heater	All items listed under Radio Bus 2
Marker Receiver	HF COMM 2	Cargo Compt.Heater	HF COMM 1
Radar	ADF 2	Freon Equipment	ADF 1
P.A. System	Transponder	Cabin Lights	Captain's Compass
	Radio Panel Lights		Pilot's Horizon and Turn & Bank
			Autopilot
			Steering Computers #1 & #2.

With all 4 nonessential load switches OFF, the following units are operable:  
Captain's Horizon, Course Indicator, and Turn & Bank; Pilot's RMDI, and; Interphone.

If the partial power cut eliminates the cause of the fire, return buses to action individually until the one with the faulty circuit becomes apparent. If possible, deactivate the faulty circuit with its switch or circuit breaker, and turn the remainder of the equipment back on.

- 3/ If the partial power cut was not successful in stopping the fire, follow the Procedure.
  - 4/ VHF COMM-1 and PA system are transferred to the DC Essential Bus and are available for use.
  - 5/ Turn off generators #1, #2, and #4, leaving generator #3 on. This leaves Priority A and AC Essential buses energized, while de-energizing other AC buses. If this eliminates the cause of the fire, deactivate the faulty circuit with its switch or circuit breaker. If fire persists, follow the procedure.
  - 6/ Turn on #2 generator, turn off #3 generator, leaving generators #1 and #4 off. This leaves Priority B and AC Essential buses energized, while de-energizing other AC buses. If this eliminates the cause of the fire, it isolates the source of the fire to Priority A bus. Deactivate the faulty circuit with its switch or circuit breaker.
- If fire indication is still present at this point, it involves a load fed or controlled by DC Essential bus, or AC Essential bus.
- 7/ Turn off Ground Operation Bus Feeder circuit breaker. If this eliminates the cause of the fire, deactivate the faulty circuit with its switch or circuit breaker. If fire persists, isolate the faulty circuit by pulling circuit breakers (and pushing them in one at a time) on the DC Essential and AC Essential circuit breaker panels.
  - 8/ After it has been possible to identify the faulty circuit and deactivate it with a switch or circuit breaker, secure according to the check list.

# EMERGENCY PROCEDURES

## HYDRAULIC FAILURE

CAPTAIN	PILOT	FLIGHT ENGINEER
<b>NO. 1 SYSTEM ONLY</b>		
	1 AND 1A HYDRAULIC PUMP SWITCHES. . . . . OFF	
<b>BOTH SYSTEMS 1 AND 2</b>		
TRIM AIRCRAFT TO FLY HANDS OFF	ALL HYDRAULIC PUMP SWITCHES. . . . . OFF	CONTROL BOOSTS (ON CAPT'S ORDER). . . . . INDIVID'LY OFF

## EMERGENCY BRAKE OPERATION

CAPTAIN	PILOT	FLIGHT ENGINEER
	DC HYDRAULIC PUMP (GROUND TOW) SWITCH. . . . . ON	
	BRAKE PRESSURE. . . . . CHECK (HYD. . . . . 3000) (AIR. . . . . 2000)	
BRAKE PEDALS. . . . . . . . . . USE NORMALLY		
<b>WITHOUT HYDRAULIC PRESSURE</b>		
EMERGENCY BRAKE HANDLE (AIR). . . . . OPERATE		

## EMERGENCY PROCEDURES

### HYDRAULIC FAILURE - NOTES

#### FAILURE OF NO. 1 SYSTEM

In the event of failure of the No. 1 hydraulic power system, the following units will be inoperative:

NOSE STEERING  
WINDSHIELD WIPER  
AUTOPILOT.

The LANDING GEAR will free fall and lock down when the Landing Gear Selector Handle is placed to the EMERGENCY DOWN position. If the gear does not extend, pull the Emergency Landing Gear Valve Release Handle located at station 730 in the cabin floor.

The BRAKES can be operated from accumulator or air bottle pressure.

#### FAILURE OF SYSTEMS 1 AND 2

Should both No. 1 and No. 2 hydraulic power systems fail, in addition to the items listed above, the following units will be inoperative:

WING FLAPS  
SURFACE CONTROL BOOSTERS.

In TURNING BOOSTERS ON OR OFF in flight, caution should be used not to apply force to the rudder, elevators or ailerons. The application of pressure to any of the controls at this time will open the booster control valve and may cause a sudden change in control surface position when the boosters are turned ON or OFF.

The AUTOPILOT should never be used while flight control boosters are being shifted.

### EMERGENCY BRAKE OPERATION - NOTES

The brakes can be operated by the brake pedals from hydraulic fluid pressure in the brake accumulator, with the brake accumulator fully charged approximately 10 brake applications are available.

Just prior to landing the D.C. Hydraulic Pump (Ground Tow) Switch should be turned ON to provide a continuing source of pressure to the accumulator.

Without hydraulic pressure available in the accumulator, brakes can be operated from either the Captain's or the Pilot's seat by operating the Emergency Brake Handle (air system). Brake pedals should not be used in this case. Application of the air brakes will not be immediately felt the instant the handle is turned, but will lag slightly behind the application of air. No differential braking is available; that is, both sets of wheel brakes will be applied equally on each side of the plane.

If little or no brake action can be developed, propeller reversing is available for aerodynamic braking. Reversing should be used judiciously in a situation where nose wheel steering is not available.

There is no standpipe to supply the DC hydraulic pump. If the #1 system fluid supply is depleted, there will be no fluid for this pump.

# EMERGENCY PROCEDURES

## EMERGENCY LANDING GEAR EXTENSION

CAPTAIN	PILOT	FLIGHT ENGINEER
	LANDING GEAR LEVER. . . . . EMERGENCY DOWN	

## LANDING WITH UNLOCKED GEAR INDICATION

CAPTAIN	PILOT	FLIGHT ENGINEER
ON RADIO - EXPLAIN SITUATION AND REQUEST EMERGENCY EQUIPMENT TO STAND BY.  ADVISE CREW TO PREPARE FOR PASSENGER EVACUATION  MAKE LEVEL ATTITUDE LANDING.  DECELERATE AND STOP WITH BRAKES ONLY. HOLD POSITION WITH BRAKES.	LANDING GEAR CONTROL LEVER - MOVE UP AND DOWN SEVERAL TIMES, TRYING FOR LOCKED INDICATION.  DO NOT RAISE FLAPS.	

## LANDING WITH GEAR RETRACTED

CAPTAIN	PILOT	FLIGHT ENGINEER
<b>DUMP FUEL TO REDUCE GROSS WEIGHT</b>		
ADVISE F/A TO DISPOSE PASSENGERS FOR EMERGENCY LANDING.  EMERGENCY EVACUATION LIGHTS. . . . . ON  UNNEEDED FUEL. . . .ORDER DUMPED  LAND WITH NOSE FAIRLY HIGH.	AUX VENT KNOB. . . . . 100%  FUEL BOOST PUMPS. . . . ALL OFF  WING FLAPS. . ON CAPT'S ORDER. . . . . FULL DOWN	STOW LOOSE EQUIPMENT IN CABIN.  ALL DOORS. . . . . BLOCK OPEN  EMERGENCY EXIT COVERS. . . . . . . . . . REMOVE AND STOW
<b>AFTER MAKING CONTACT WITH GROUND</b>		
	BATTERY & GENS. . . . . OFF	FUEL VALVES. . . . . OFF  EMERGENCY SHUT DOWN HANDLES. . . . . PULL
<b>EVACUATE AIRCRAFT PROMPTLY</b>		

## EMERGENCY PROCEDURES

### EMERGENCY LANDING GEAR EXTENSION - NOTES

Placing the landing gear lever in the EMERGENCY DOWN position releases the uplatches by means of an interconnecting cable, permitting the gear to "free-fall" by gravitational forces. Bungee springs assist in locking the gear in the DOWN position.

If the gear does not extend, pull the Emergency Landing Gear Valve Release Handle located at station 730 in the cabin floor.

### LANDING WITH UNLOCKED GEAR INDICATION-NOTES

This procedure is presupposed on an unsafe gear indication when normal hydraulic system pressure is available. In this case the gear can be held in the extended position by hydraulic pressure so long as sufficient pressure is maintained in the landing gear extend cylinder.

If conditions permit, it would be advisable to make a low fly-by near a ground observer, such as a control tower, to determine if the landing gear strut in question appears to be fully extended. If one of the main gears is only partially extended, consideration might be given to landing with the gear retracted. If the nose gear is up or only partially extended, concentrate passengers as far aft in cabin and request fire department to lay foam blanket on runway, landing with main gear extended.

With all struts apparently extended, and with normal hydraulic pressure, but an unlocked gear indication, make the touch down in a level attitude (all three wheels touching at once). This will tend to prevent collapse of the gear from the effect of the initial impact.

Do not raise the flaps after touch down as this will tend to rob gear struts and wheel brakes of some of the hydraulic fluid pressure available.

Do not use propeller reversing.

Bring plane to a smooth stop, maintain positive thrust and hold position with wheel brakes.

Due to the geometry of the gear, the inertia of the airplane being opposed by the wheel brakes will tend to hold the gear in the down position.

Do not turn hydraulic pumps off after stopping as this would remove source of pressure in gear extend cylinders.

After stopping, keep at least two engines running to supply electricity supply for hydraulic pumps and radio. Do not move airplane until landing gear locks have been set in place by ground personnel.

### LANDING WITH GEAR RETRACTED-NOTES

Dumping fuel before landing with gear retracted will not only lighten the plane, it will reduce fire hazard in event of a fuel tank rupture should be encountered after touch down.

Placing the aux. vent. knob to 100% will depressurize the plane. This is necessary before it will be possible to remove emergency exit covers and open the doors. Doors and windows are opened before landing to make sure they are not jammed closed by any possible twist the fuselage might encounter after touch down.

**EMERGENCY PROCEDURES**

**FUEL DUMPING**

CAPTAIN	PILOT	FLIGHT ENGINEER
AIRSPEED. . . . . 140-200 Recommend 175  RADAR . . . . . OFF  SEAT BELT - NO SMOK . . . . . ON	GEAR AND FLAPS. . . . . UP     	MAIN FUEL VALVES. . . . . ON  CROSS FEEDS . . . . . OFF  DUMP VALVES . . . . . OPEN
<p>AFTER DESIRED QUANTITY HAS BEEN DUMPED</p>		
		DUMP VALVES. . . . . . . . . . CLOSE TO DRAIN DETENT  DUMP CHUTES. . . . . RETRACT

**EMERGENCY PROCEDURES**

**FUEL DUMPING - NOTES**

The fuel dumping control labelled RELEASE LEFT extends the dump chute in the left wing and opens the dump valves of tanks 1 and 2. The control labelled RELEASE RIGHT extends the dump chute in the right wing and opens the dump valves of tanks 3 and 4.

The remaining two controls are placarded CLOSE LEFT and CLOSE RIGHT. The left one terminates dumping and retracts the chute on the left side; the right one accomplishes the same purpose on the right side. Between the two sets of controls is a "T"-handle having slots in the end of the "T" cross bar. Normally this handle will be DOWN and out of the way. This handle is to be pulled full out and rotated 90° before retracting dump chutes to the drain position. A ball is swaged to the CLOSE LEFT and CLOSE RIGHT cables. To drain the chutes, the CLOSE control handles are pulled until the cables can be inserted in the T-handle slot with the swaged ball resting on top. This position closes the dump valves and permits dump chutes to drain. After draining is completed, the close control handles are pulled completely out to retract the dump chutes and the T-handle is returned to the DOWN position.

The Engineer should inspect dump chutes from cabin windows to see that draining is completed before pulling these controls full up to retract the dump chutes.

Dumping all tanks simultaneously gives most rapid rate of load reduction and the best distribution of remaining fuel.

When dumping fuel from all tanks simultaneously, the dumping rate is approximately 1350#/Min.

Useable fuel remaining in tanks after complete dumping is as follows:

Outboards 905# each, Inboards 750# each, Total 3310#;

This would be enough to fly approximately 180 miles at an altitude of 4,000' on a +10°C day with no wind, using 848°C T.I.T. (Cruise Power); the distance that could be covered at 20,000' would be a little over 300 miles, all other factors being the same.

# EMERGENCY PROCEDURES

## PREPARATIONS FOR PASSENGER EVACUATION--ALL EAL AIRPLANES

### LAND OR WATER

NEITHER LIFE VESTS NOR LIFE RAFTS SHOULD BE INFLATED INSIDE THE AIRPLANE, PASSENGERS MUST BE SO INSTRUCTED.

CAPTAIN	PILOT	ENGINEER	FLIGHT ATTENDANTS
<p>Advise crew to prepare for emergency landing (or ditching) and order distress message sent.</p> <p>Dump unneeded fuel, if airplane to be ditched or if crash landing to be made.</p> <p>Set course for most logical point of landing under the circumstances existing.</p> <p>Don life vest if ditching. Secure seat belt, and shoulder harness if available.</p> <p>Notify flight attendants when touch-down is imminent by turning on NO SMOKE - SEAT BELT signs, use PA system if possible.</p>	<p>Sends distress message (MAY DAY) giving position, course, trouble, intentions and assistance needed.</p> <p>Be prepared to take over Flight Engineer's duties on the flight deck.</p> <p>Don life vest if ditching. Secure seat belt, and shoulder harness if available.</p> <p>See that flares are released if crash landing or ditching is involved.</p>	<p>Depressurize airplane, close below-floor openings if ditching is intended.</p> <p>Don life vest if ditching.</p> <p>Secure or stow loose gear in the flight deck, secure cabin-flight deck door(s) open.</p> <p>Turn on emergency exit lights. At Captain's discretion, secure exits if removed. Overwing emergency exits to be opened if ditching.</p> <p>Assist in placing life rafts between seat rows nearest overwing emergency exits if ditching. Do not secure launching lines.</p> <p>If landing is to be made on water or with gear retracted, on warning of impending touch-down, take seat in cabin. If landing apparently does not involve a crash, take regular seat in flight deck.</p>	<p>Advise passengers of situation if Captain has not already done so on PA. Request co-operation with crew.</p> <p>If time and loading permit, reseat most forward passengers to vacant seats aft.</p> <p>Distribute blankets and pillows for protection; have passengers remove glasses, dentures, sharp objects, and high heels; check all seat belts fastened and seat backs upright; instruct in best protective position and how plane will be evacuated.</p> <p>Stow loose equipment and baggage in lavatories.</p> <p>Set up buddy system so able-bodied passengers can assist women, children and others as needed.</p> <p>Assign and instruct able-bodied passengers on proper method of holding evacuation slides. Attach slides so that they are ready to push out.</p> <p><b>IF DITCHING:</b></p> <p>Assist passengers in donning life vests and advise them to INFLATE ONLY AFTER OUT OF PLANE. Don own vest.</p> <p>Assist in placing rafts between seat rows nearest overwing emergency exits and at other exits. Do not secure launching lines.</p> <p>Take seat and secure belt on signal touch-down is imminent.</p> <p>If there is not an Engineer in the flight crew, the Flight Attendant will turn on the emergency exit lights if at night.</p>