

**Factual Report - Attachment 18**

**CL-605 Normal Procedures**

**OPERATIONAL FACTORS**

WPR21FA286

|                              |                                           |                   |         |
|------------------------------|-------------------------------------------|-------------------|---------|
| BOMBARDIER<br>CHALLENGER 605 | NORMAL PROCEDURES<br>Approach and Landing | Vol. 1            | 04-08-1 |
|                              |                                           | REV 49, Nov 19/18 |         |

## 1. APPROACH AND LANDING

### A. Approach

It is assumed that all the necessary preparations for the approach have been accomplished prior to reaching the terminal control zone. The descent check should have been initiated prior to the start of the descent and completed before arriving at the terminal area. Plan the descent such that the airplane will be at the traffic pattern altitude at flaps-up maneuvering speed, at about 12 miles (19 km) out when proceeding straight-in, or at about 8 miles (13 km) out when entering the pattern abeam.

*On airplanes incorporating Service Bulletin 605-34-019:*

#### NOTE

When changing the destination to ALTN airport by selecting direct-to a waypoint in the route to the ALTN airport, if Temp Comp is ON and an OAT value has been entered for the original DEST, the same OAT value will be retained for the new DEST (ALTN). Crew must verify the correctness of OAT after changing destination.

As a rule-of-thumb, the descent should be planned so as to arrive at the following conditions:

- Altitude (AGL) 10,000 feet
- Distance from the airport 30 miles (48 km)
- Airspeed.....250 KIAS

#### NOTE

If FMS is in use, TOD will put the airplane at 15,000 feet AGL, 10 NM back.

### B. Maneuvering and Approach Speeds

The minimum maneuvering speed is obtained by adding 10 knots to the approach speed as defined in the Airplane Flight Manual. The 10-knot additive provides adequate margin to stick shaker actuation for an inadvertent 15° overshoot beyond the normal 30° bank, when recommended procedures are followed.

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## 1. APPROACH AND LANDING (CONT'D)

### C. Holding

Prior to entering the hold, it is assumed that a holding clearance and all other pertinent data have been acquired. All other necessary items (entry procedures, timing, fuel, etc.) relevant to the hold and subsequent approach should also have been determined.

- (1) Airspeed ..... Flaps 0° speed  
+ 30 KIAS

- Reduce the airplane speed at least 3 minutes prior to arrival at the holding fix.
- Review the performance data for thrust setting if a prolonged holding is expected.

#### Procedures

Upon receipt of a holding clearance:

- (1) Request:
- Estimated approach time,
  - Type of approach in use.
- (2) Check:
- Minimum diversion fuel,
  - Weather at the destination and at the alternate,
  - Endurance speed.
- (3) Procedure:
- Determine entry procedure, and
  - Brief pilot not flying.

#### NOTE

If time does not permit determining entry procedure upon station passage, turn immediately outbound to parallel outbound track. After the required timing, turn inbound towards the holding track.

Holding patterns must be entered and flown at or below the airspeed set by regulatory agencies. Air Traffic Control (ATC) must be advised if it is impossible to comply with the appropriate maximum holding airspeed.

The initial outbound leg should be flown for 1 minute or 1 1/2 minutes, as required, for the altitude. Timing for subsequent outbound legs should be adjusted, as necessary, to achieve the proper inbound leg timing. ATC should be advised immediately if an increase in airspeed is necessary due to turbulence, or if it is impossible to accomplish any part of the holding procedure.

The maximum holding airspeeds and timing are shown in the table below:

| ALTITUDE                        | AIRSPEED (KIAS) | TIMING (MINUTES) |
|---------------------------------|-----------------|------------------|
| Up to and including 14,000 feet | 230             | 1.0              |
| Above 14,000 feet               | 265             | 1.5              |

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## 1. APPROACH AND LANDING (CONT'D)

### D. Precision (ILS/PAR) Approach

Precision approaches utilizing the autopilot and/or the flight director are essentially the same.

**Approaching the fix (or beacon), when performing a full approach (with procedure turn), or coming from a hold:**

#### NOTE

When performing an ILS autopilot-coupled approach, ensure that both flight directors are displayed.

- (1) Airspeed ..... Flaps 20° speed  
+ 20 KIAS

**Fix outbound:**

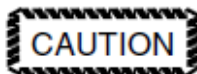
- (2) Flaps ..... 20 degrees

**For straight-in approach (radar vectored):**

- (1) Flaps ..... 20 degrees  
(2) Airspeed ..... Flaps 20° speed  
+ 20 KIAS

#### NOTE

When performing a straight-in approach, assume the initial approach configuration (as in 1 and 2 above), at a distance of 12 miles away from the airport.



To avoid possible false localizer captures, do not arm approach until airplane is close to, or established on, an inbound localizer course.

**Cleared for the approach; Fix inbound (for a full approach), or when on the localizer intercept heading (for a straight-in approach):**

- (3) FCP mode ..... APPR  
(4) Mode annunciations ..... Verify
- LOC 1 (2) and GS armed – white indications on both PFDs.
  - LOC 1 (2) – green indications on both PFDs.

**When 1 dot below the glideslope:**

- (5) LDG GEAR lever ..... Set to DN.  
(6) Flaps ..... 30 degrees

**At glideslope capture (indicated by green GS annunciation on both PFDs):**

- (7) Flaps ..... 45 degrees  
(8) Airspeed .....  $V_{REF} + 10$  KIAS  
(9) Before landing check ..... Complete  
(10) Preselect ALT ..... Set to missed approach altitude.



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## 1. APPROACH AND LANDING (CONT'D)

### D. Precision (ILS/PAR) Approach (Cont'd)

At 1,500 feet AGL:

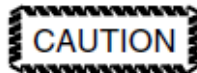
- (11) Airspeed .....  $V_{REF} + WIND$       Wind correction is half steady state crosswind plus all gust (regardless of direction). Maximum correction is + 20 KIAS.

At the final approach fix (FAF):

- (12) Fix name, altitude and flags ..... Recheck      correct fix name, at correct altitude and no flags in view.

At decision height (DH) or decision altitude (DA) and landing is feasible:

- (13) Autopilot (if used) ..... Disconnect      at no less than 80 feet AGL.



PFD negative barometric altitude is indicated by a yellow NEG flag within the barometric altitude window.

### NOTE

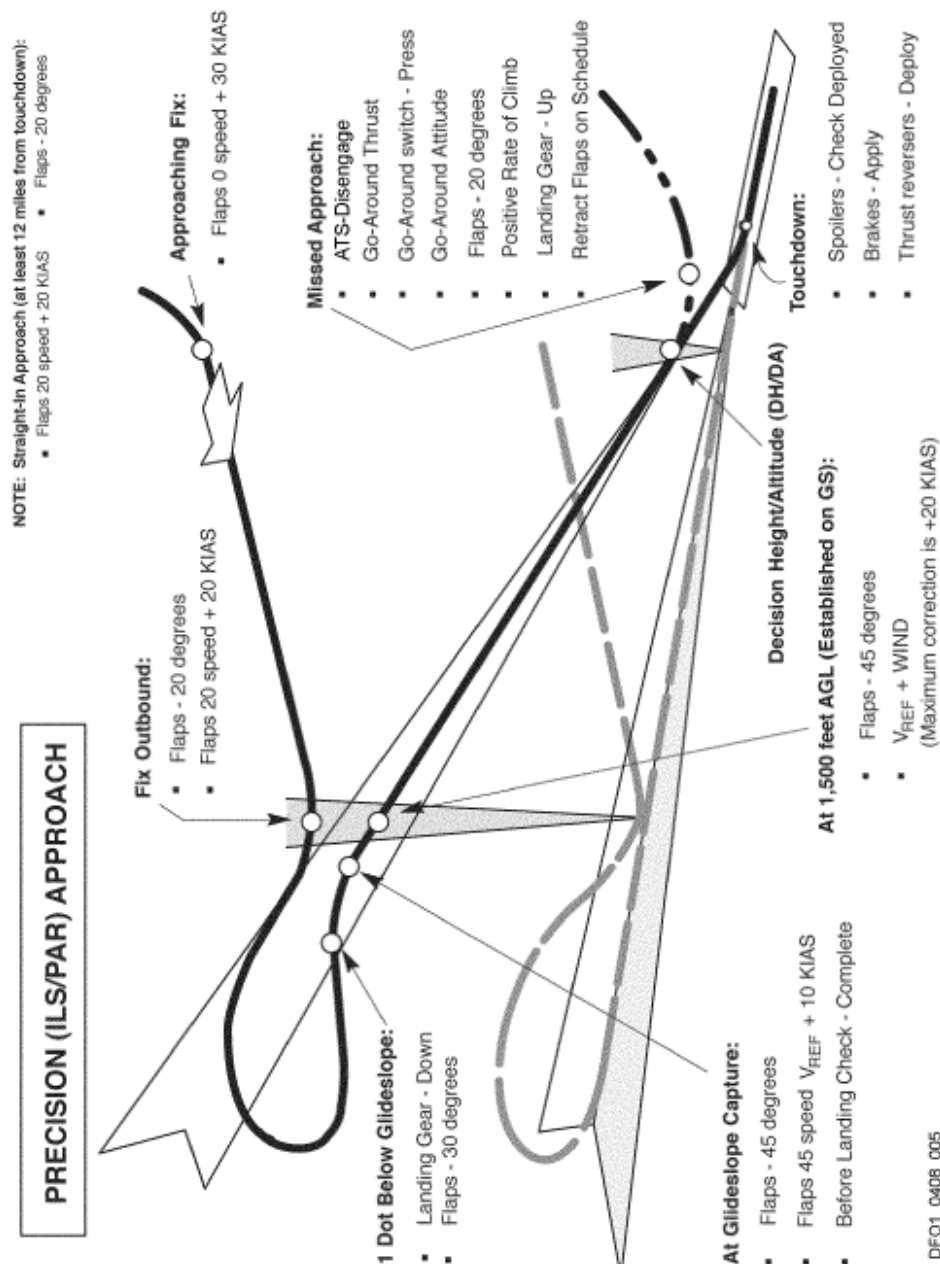
1. If the missed approach is not selected for display on the MFD, it will auto pop-up for display when the TOGA switch is depressed, but not until the missed approach point is sequenced by the FMS.
2. The NAV preview needle will remain displayed after transfer to LOC. This indication should be disregarded.



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## 1. APPROACH AND LANDING (CONT'D)

### D. Precision (ILS/PAR) Approach (Cont'd)



Precision (ILS/PAR) Approach  
Figure 04-08-1

|                              |                                           |                   |         |
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## 1. APPROACH AND LANDING (CONT'D)

### E. Non-Precision Approach

When approaching the fix (or beacon):

- (1) Airspeed ..... Flaps 0° speed  
+ 30 KIAS

When at fix outbound or when abeam the approach fix for straight-in approach (radar vectored):

- (2) Flaps ..... 20 degrees  
(3) Airspeed ..... Flaps 20° speed  
+ 20 KIAS

When tracking procedure turn altitude:

- (4) Preselect altitude ..... Set to the final approach fix (FAF) altitude. Verify that ALTS white indication is on (armed).

When established inbound:

- (5) FCP mode ..... FLC  
(6) FLC ..... Set as required  
(7) Thrust levers ..... Adjust to maintain the desired rate of descent.

At approximately 3 miles before FAF:

- (8) LDG GEAR lever ..... Set to DN.  
(9) Flaps ..... 30 degrees  
(10) Airspeed ..... Flaps 30° speed  
+ 10 KIAS  
(11) Before landing check ..... Accomplish

Approaching the FAF:

- (12) Flaps ..... 45 degrees If a circling approach is planned, maintain flaps at 30°.  
(13) Airspeed .....  $V_{REF} + WIND$  Wind correction is half steady state crosswind plus all gust (regardless of direction). Maximum correction is + 20 KIAS. If a circling approach is planned, maintain flaps 30° speed + 10 KIAS.

Upon FAF altitude capture (also indicated by green ALT CAP and ALTS messages on both PFDs):

- (14) Preselect altitude ..... Set to the minimum descent altitude (MDA).

At the FAF:

- (15) Fix name ..... Call



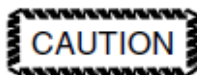
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## 1. APPROACH AND LANDING (CONT'D)

### E. Non-Precision Approach (Cont'd)

- (16) Chronometer ..... Start
  - (17) FCP mode ..... FLC
  - (18) FLC ..... Set as required
  - (19) Thrust levers ..... Adjust to maintain the desired descent rate.
  - (20) Autopilot (if used) ..... Disconnect prior to commencing final turn.
- When the MDA is captured (as indicated by yellow MIN alert flag and flashing yellow RA or BARO MIN reference on both PFDs):**
- (21) Preselect altitude ..... Set to missed approach altitude.
- At the missed approach point (MAP) and runway is in sight:**
- (22) Landing ..... Continue visually Continue the approach on a 3° glide path.
  - (23) Flight director ..... Off



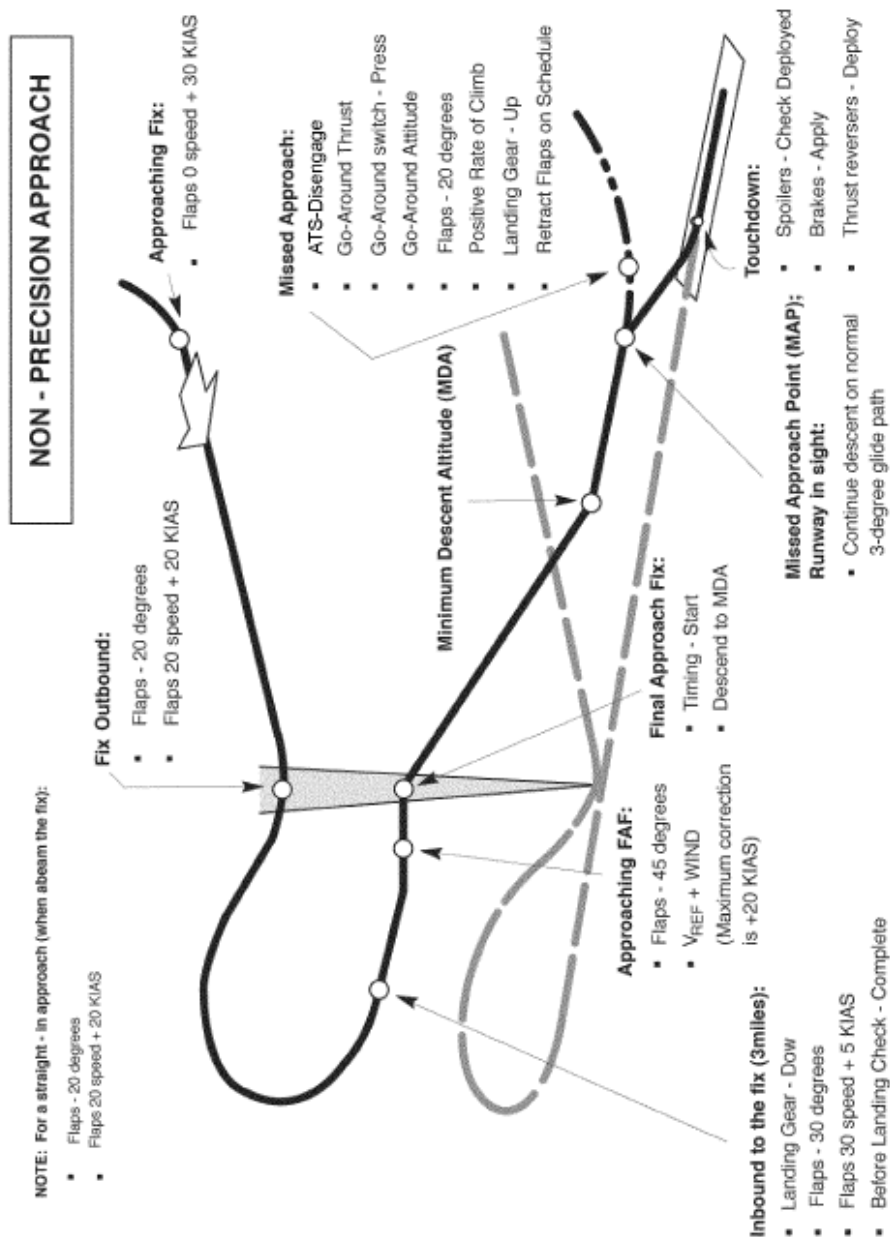
PFD negative barometric altitude is indicated by a yellow NEG flag within the barometric altitude window.



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## 1. APPROACH AND LANDING (CONT'D)

### E. Non-Precision Approach (Cont'd)



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Non-Precision Approach  
Figure 04-08-2

|                              |                                           |                   |         |
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## 1. APPROACH AND LANDING (CONT'D)

### F. Circling Approach

When performing a circling approach, maintain the airplane configuration from the final approach fix (FAF) onwards (flaps 30° and landing gear down). At the circling MDA with the field in sight, maneuver to establish a downwind leg parallel to the runway at a distance of approximately 1 1/2 miles.

**At the established downwind:**

- (1) Circling MDA ..... Maintain
- (2) Flaps ..... 30 degrees
- (3) Airspeed ..... Flaps 30° speed  
+ 10 KIAS

**When abeam the runway threshold:**

- (4) Chronometer ..... Start      Time for 15 to 30 seconds,  
plus or minus wind correction.

**After the desired timing has elapsed, start the turn towards the base leg:**

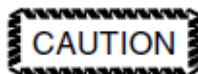
- (5) Descent ..... Initiate

**Approaching 400 feet, start turn towards final, and when landing is assured:**

- (6) Flaps ..... 45 degrees
- (7) Airspeed .....  $V_{REF} + WIND$       Wind correction is half steady  
state crosswind plus all gust  
(regardless of direction).  
Maximum correction is  
+ 20 KIAS.

### NOTE

The autopilot, if used, should be disconnected no later than 320 feet AGL.



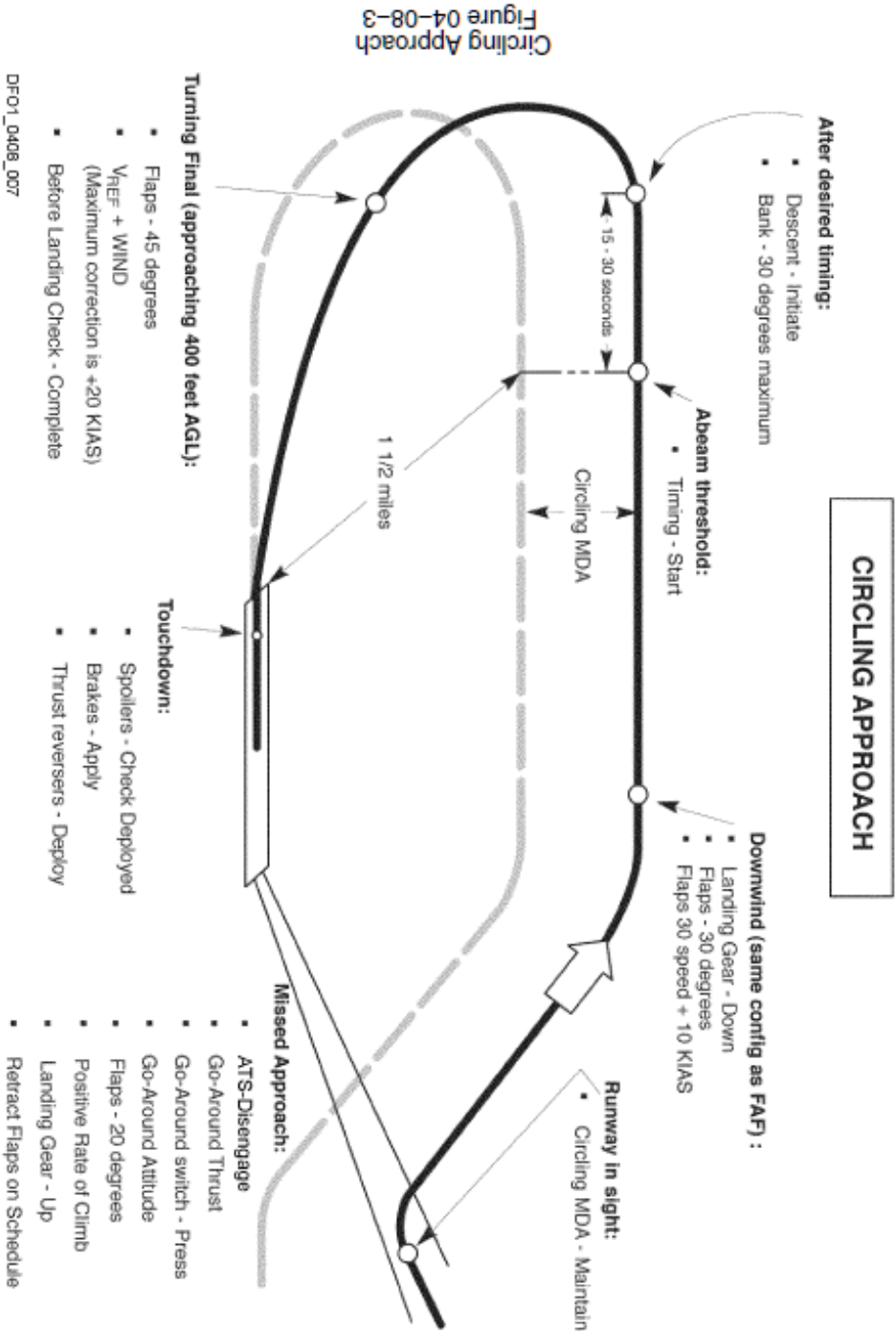
PFD negative barometric altitude is indicated by a yellow NEG flag within the barometric altitude window.



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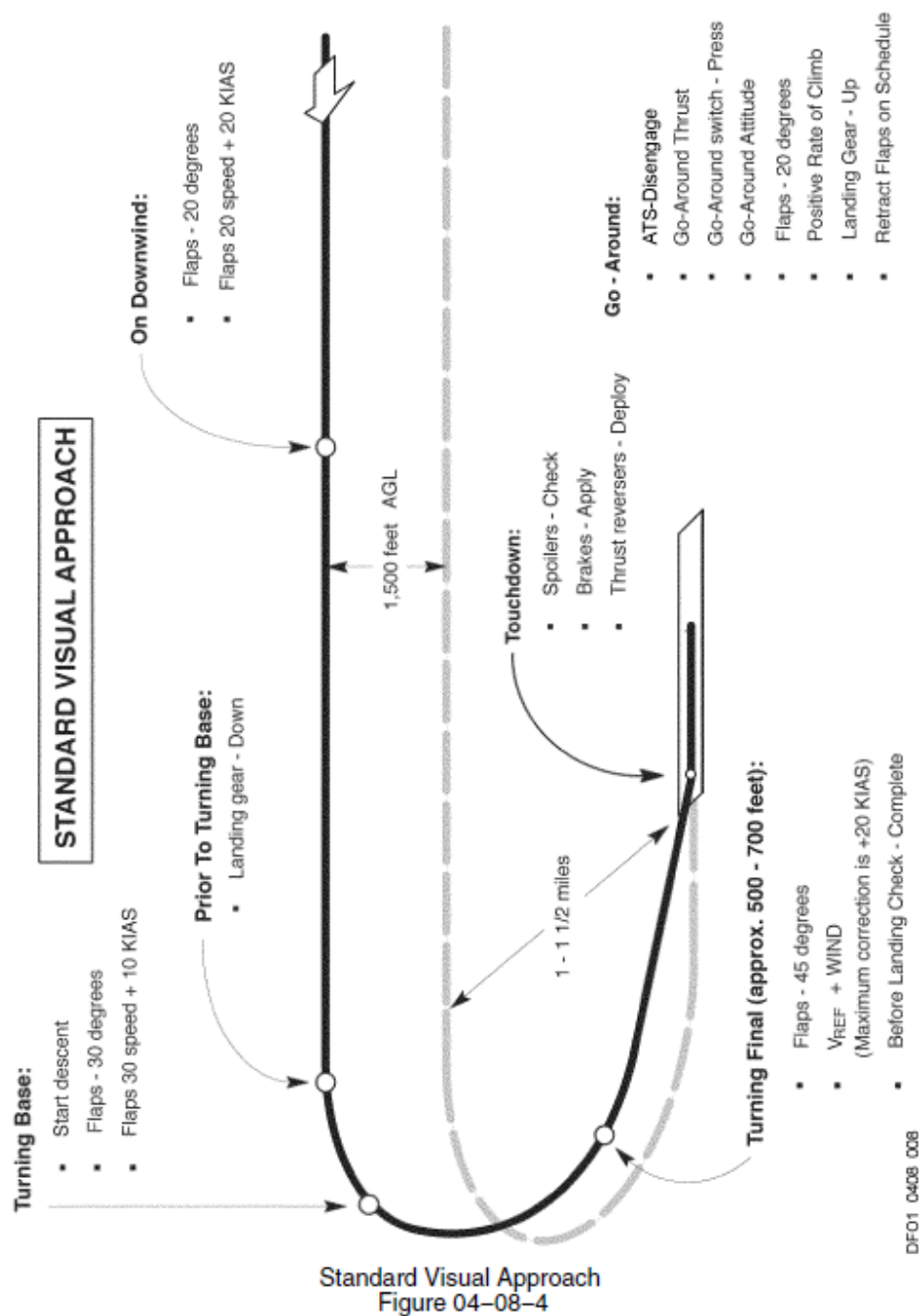
1. APPROACH AND LANDING (CONT'D)

F. Circling Approach (Cont'd)



## 1. APPROACH AND LANDING (CONT'D)

### G. Standard Visual Approach (Cont'd)



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## 1. APPROACH AND LANDING (CONT'D)

### H. Before Landing Check

- (1) IGNITION, CONT switch/light..... As required

#### NOTE

Icing conditions exist in flight at a TAT of 10°C (50°F) or below, and visible moisture in any form is encountered (such as clouds, rain, snow, sleet or ice crystals), except when the SAT is -40°C (-40°F) or below.

The engine cowl and wing anti-ice systems must be on when in icing conditions, or when ice is indicated by the ice detection system:

- (2) ANTI-ICE, WING switch ..... Select as required.

- (3) ANTI-ICE, COWL L and R switch/lights ..... Select as required.

If wing anti-ice is selected ON and WING L HEAT or R HEAT light goes out or **WING A/ICE ON** or **WING/COWL A/ICE ON** advisory message goes out:

- (4) Thrust ..... Increase until the following come on:
- **WING A/ICE ON** or **WING/COWL A/ICE ON** advisory message.
  - WING L HEAT and R HEAT lights.

If **WING A/ICE ON** or **WING/COWL A/ICE ON** advisory message remains out or WING L HEAT or R HEAT light remains out:

- (5) Leave icing conditions.
- (6) Cabin ..... Advise not less than five minutes prior to landing.
- (7) PASS SIGNS, NO SMKG switch ..... Select to ON.
- (8) PASS SIGNS, SEAT BLTS switch ..... Select to ON.
- (9) LDG GEAR lever ..... Set to DN. Check that three green DN indications are displayed, indicating that the landing gear is down and locked.

#### NOTE

To avoid nuisance **A/SKID INBD** and **A/SKID OUTBD** caution messages, wait 5 seconds after landing gear is down and locked before checking anti-skid system.

- (10) Brake and anti-skid system ..... Check
- (a) ANTI SKID, ARMED switch ..... Check selected to armed.



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## 1. APPROACH AND LANDING (CONT'D)

### H. Before Landing Check (Cont'd)

- (b) ANTI SKID, TEST switch.....Select to TEST momentarily, and check the following:
- **A/SKID IN TEST** advisory message on.
- After approximately 3 seconds check:
- **A/SKID IN TEST** advisory message out.

#### NOTE

Anti-skid system is inoperative if the **A/SKID IN TEST** advisory message does not come on during test.

Anti-skid system is inoperative if **A/SKID INBD (OUTBD)** caution messages come on during test.

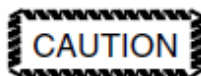
- (c) NOSE STEER switch.....Check selected to ARMED.

#### NOTE

When the nose wheel steering system is armed in flight, the tiller should be centered.

### (11) THRUST REVERSER, L and R

- switches.....Select to ARMED.
- Check the following:
- **L and R REV ARMED** advisory messages on.
  - **L and R REV UNSAFE** caution messages out.
  - **L and R REV UNLOCKED** caution messages out.



Do not arm thrust reverser if **L (R) REV UNSAFE** caution message is displayed.

- (12) Flaps..... As required Check that the flap indications are displayed as selected.

### At 100 feet AGL:

- (13) ATS MSD .....Check **SPEED** message flashes. If message is not displayed, disengage ATS and manually control thrust.

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## 1. APPROACH AND LANDING (CONT'D)

### I. Go-Around Procedure (Cont'd)

When a positive rate of climb is achieved:

- (6) LDG GEAR lever ..... Select to UP.

#### NOTE

When a turn is required in the missed approach procedure, wait for the landing gear to retract fully before commencing the turn.

At a safe altitude (not below 400 feet AGL):

- (7) FLAPS ..... Select to 0°.

- (8) THRUST REVERSER,  
L and R switches ..... Select to OFF.

Check **L** and **R REV ARMED**  
advisory messages out.

- (9) Normal climb-out procedures ..... Accomplish

### J. Touch-and-Go Landing Procedure

Touch-and-go landing maneuvers are only intended for use during flight training, primarily for approach and landing practice, and should not be utilized as part of the normal take-off and landing procedures.

#### NOTE

- For touch-and-go landings, GROUND SPOILERS switch may be left at AUTO.
- The landing gear may be left extended throughout the whole exercise, if required for brake cooling.

When stabilized at the downwind leg:

- (1) V speeds ..... Recompute and set the speed bugs accordingly.

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