

BRITTAIN INDUSTRIES  
FAA APPROVED AIRPLANE FLIGHT MANUAL  
FOR  
BEECH MODELS 36 AND A36  
AIRCRAFT

The information in this document is FAA approved material which, together with the appropriate basic FAA approved airplane placarding is applicable and must be carried in the airplane when it is modified by the installation of a Brittain Model B-VII Flight Control System in accordance with STC. No. SA2068WB

The information in this document supersedes the basic placarding only where covered in the items contained in this Manual. For limitations and procedures not contained in this Manual, consult the basic placarding.

I. LIMITATIONS SECTION

- A. Autopilot master shall be "OFF" during take-off and landing.
- B. Autopilot shall not be operated at airspeeds above  $V_{no}$  (Green Arc).
- C. Autopilot shall not be used for coupled localizer or VOR approaches if the VOR-LOC indicator coupled to the autopilot is affected during radio transmission.
- D. Autopilot shall not be used for coupled back course localizer approaches unless the aircraft is equipped with a Brittain "back course selector" or equivalent as specified in Brittain Flight Procedures Manual No. #3959 Revision "J" or subsequent, which provides for positive indication to the pilot of the selected "Back Course" mode.
- E. Coupled approaches shall be conducted using only the VOR-LOC receiver-indicator combinations demonstrated to perform satisfactorily in accordance with FAA approved Brittain Flight Procedures Manual No. #3959, Revision "J" or subsequent; VOR-LOC receiver-indicator combinations not so demonstrated shall be placarded "DO NOT USE THIS RADIO FOR COUPLED APPROACHES"
- F. Enroute ADF coupling may be accomplished only when the aircraft is equipped with a NARCO ADF-31A and Brittain ADF Adaptor, P/N 3933, which has been checked and adjusted in accordance with Brittain Flight Procedures Manual No. #3959, Revision "J" or subsequent. Do not use for ADF coupled approach.

OPERATING PROCEDURES SECTION

A. NORMAL

1. Make certain that aircraft is properly trimmed and Altitude Hold is "OFF" before engaging autopilot.
2. To engage autopilot, pull autopilot master "ON" and the mode selector switch to desired mode.

NOTE: When the autopilot master is "ON" and the mode selector switch is "OFF", the autopilot provides stability augmentation

3. Turns may be made by selecting the manual (MAN) mode and rotating the "Turn" knob left or right.
4. Command aircraft pitch attitude with manual elevator trim tab. Power variations will establish climb or descent.
5. To maintain a desired altitude, adjust the aircraft elevator trim system until the pitch trim indicator is in neutral position and the aircraft is in level flight. Engage the altitude hold.

NOTES: (a) Altitude loss during turns at normal cruise speed is less than 100 feet.

6. Disengage altitude hold prior to changing altitudes.
7. The pitch trim indicator provides a visual reference of elevator trim status. When the indicator bar is above center, the aircraft has nose-up trim and vice-versa.
8. Monitor pitch axis control during power and configuration changes.

9. To Fly a Magnetic Heading

Rotate the heading azimuth to desired magnetic heading and select heading (HDG) mode.

10. To Fly a VOR Course

- a. Rotate omni bearing selector (OBS) and autopilot heading azimuth to desired course.
- b. Select capture (CAP) mode. Aircraft will turn to intercept the VOR course. The maximum capture angle is 60 degrees.
- c. As VOR needle approaches center position, select track (TRK) mode.

- NOTES: (1) VOR-LOC left/right needle indication may be interrupted or lost during transmission with some NAV-COM systems. In this case, the autopilot will steer the aircraft towards the heading selected on the autopilot heading azimuth.
- (2) Some NAV-COM systems may produce an erroneous deflection of the left/right needle during transmission. In this instance, the autopilot will steer the aircraft in the direction of momentary needle displacement.
- (3) When the mode selector switch is in the track (TRK) position, VOR needle deflection greater than half scale will cause the autopilot to revert to magnetic heading information for approximately one minute.

## 11. To Fly Enroute with ADF Coupling

- a. Rotate the heading azimuth to the magnetic heading necessary to zero the ADF pointer. When ADF indicates zero, select track (TRK) or approach (APP).

- NOTES: (1) Enroute tracking may be accomplished only to the Non Directional Beacon (NDB) or broadcast facility.
- (2) Cross-wind capabilities of the autopilot will change the heading of the aircraft in an attempt to zero the ADF pointer. As a result, the intended track to a facility may vary depending upon cross-wind conditions.

## 12. To Fly a VOR Approach

- a. Rotate omni bearing selector (OBS) and autopilot heading azimuth to approach course.
- b. Select capture (CAP) mode. Aircraft will turn to intercept the VOR course. When aircraft heading is within 60° of the selected course, select approach (APP) mode. Aircraft will complete the interception and track the selected course.

CAUTION: VOR-LOC indicators not equipped with failure warning flags indicate loss of usable navigation signal by loss of TO-FROM indication.

- c. If the VOR approach requires a course change over the station, select the final approach course on the omni bearing selector (OBS) and autopilot heading azimuth as soon as positive station crossing has been made.

13. To Fly a Localizer Approach

- a. Rotate autopilot heading azimuth to inbound localizer course.
- b. Select approach (APP) mode after aircraft heading is within 60° of localizer course. Aircraft will turn to intercept the localizer.

CAUTION: VOR-LOC indicators not equipped with failure warning flags indicate loss of usable navigational signal by loss of TO-FROM indication.

- c. Autopilot may be used during missed approach procedure; select heading (HDG) mode and dial in headings as desired. Monitor flight controls during power and flap changes. Adjust pitch trim as required.

14. To Fly a Back Course Localizer Approach

- a. Place the back course switch in the back course position.

CAUTION: Localizer needle deflection is not reversed by the back course switch.

- b. Rotate autopilot heading azimuth to localizer back course.
- c. Select approach (APP) mode after aircraft heading is within 60° of localizer back course. Aircraft will turn to intercept the localizer back course.
- d. Thirty seconds after passing the final approach fix, select track (TRK) mode.

B. EMERGENCY

1. In the event of autopilot or aircraft pressure malfunction, disengage by pushing the autopilot master "OFF". The autopilot can be overpowered at any time without damage to the aircraft or components.
2. In the event of navigation signal malfunction, disengage the navigation/steering portion of the autopilot by selecting the OFF, MAN or HDG mode.
3. Maximum altitude loss after nose-down hardover during descent is 200 feet. All other altitude losses are less critical.

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B. EMERGENCY (Continued.....)

4. Maximum altitude loss after nose-down hardover in approach configuration is **50** feet (based on pilot recovery after one second).

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