

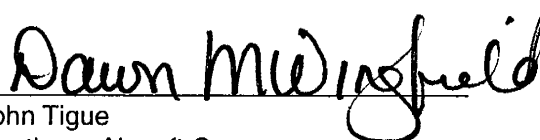
Raytheon Aircraft
Beech King Air[®] C90A
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
Supplement

for the
Collins FCS-65H Automatic Flight Control System
with
Collins EFIS-84
(2-Tube System With Single Data Processor Unit)
Electronic Flight Instrument System
(EFIS)

*This Supplement is Applicable to the Following Manual(s):
90-590024-35 and 90-590024-69*

Airplane Serial Number: _____

Airplane Registration Number: _____

FAA Approved by: 
for John Tighe
Raytheon Aircraft Company
DOA-230339-CE

Raytheon Aircraft

LOG OF REVISIONS

Beech King Air® C90A

Pilot's Operating Handbook
and

FAA Approved Airplane Flight Manual Supplement

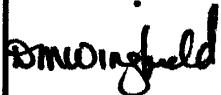
for the

Collins FCS-65H Automatic Flight Control System

with

Collins EFIS-84

(2-Tube System With Single Data Processor Unit) Electronic Flight Instrument System
(EFIS)

REV NO.	PAGE NO(S).	DESCRIPTION	DATE OF REV	FAA APPROVED
0	1 thru 14	Original Issue	December, 1992	John Kennedy
1	1 and 2	Added effectivity on title page and autopilot information in Limitations.	January, 1994	A.C. Jackson
2	1 thru 14	Revised section heads, inspection time intervals, and shifted data.	April, 2002	

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SECTION I - GENERAL

The information in this supplement is FAA-approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM) when the airplane has been modified by installation of the Collins FCS-65H Automatic Flight Control System and Collins EFIS-84 (2-Tube System with Single Data Processor Unit) Electronic Flight Instrument System (EFIS) in accordance with Raytheon Aircraft-approved data.

The information in this supplement supersedes or adds to the basic POH/AFM only as set forth below. Users of the manual are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

The Collins Pilot's Guide for the EFIS-84 Electronic Flight Instrument System (2-Tube) No. 523-0777-066, dated November 30, 1992 or later revision, is available from Collins General Aviation Division, 400 Collins Road NE, Cedar Rapids, Iowa 52498. It is the responsibility of the owner/operator to maintain the appropriate pilot's guide in current status.

SECTION II - LIMITATIONS

1. Maximum speed limit for autopilot operation is unchanged from the airplane maximum airspeed limit (V_{MO}/M_{MO}).
2. Do not use autopilot below the following altitudes:
 - a. Approach - 200 feet above ground level.
 - b. Climb - 500 feet above ground level.
 - c. All other operations - 1000 feet above ground level.
3. Do not use autopilot or yaw damper during takeoff or landing.
4. Pilot must be seated at the controls with the seat belt fastened during autopilot operations.
5. Autopilot preflight check must be conducted and found satisfactory prior to each flight on which the autopilot is to be used.
6. Use of the VOR Approach mode is limited to an area within 10 nm of the VOR station.
7. The Collins Pilot's Guide for the EFIS-84 Electronic Flight Instrument System (2-Tube) No. 523-0777-066 dated November 30, 1992 or later revision, must be immediately available to the flight crew.
8. The copilot's attitude indicator and navigation instrument must be operational for takeoff.
9. The pilot's EADI and EHSI must be operational in NORMAL mode for takeoff.

SECTION III - EMERGENCY PROCEDURES

AUTOPILOT MALFUNCTION/ELEVATOR TRIM RUNAWAY

If the airplane deviates unexpectedly from the planned flight path:

1. Control Wheel **HOLD FIRMLY, BE PREPARED TO ACCEPT CONTROL WHEEL FORCES**
2. AP YD/DISC TRIM Switch (Pilot's or Copilot's Control Wheel) **DEPRESS FULLY**
3. Flight Controls/Power Levers **AS REQUIRED TO RECOVER THE AIRPLANE**

NOTE

The maximum altitude lost during malfunction tests was:

Climb - 0 Feet
Cruise - 200 Feet
Descent - 200 Feet
Maneuvering - 200 Feet
Approach - 87 Feet
One-engine-inoperative Approach - 75 Feet

4. Elevator Trim Switch OFF
Continue flight using manual trim.
5. Autopilot DO NOT RE-ENGAGE

WARNING

In flight, do not overpower the autopilot. The trim will operate in the direction opposing the overpower force, which will result in large out-of-trim forces.

MANUAL AUTOPILOT DISENGAGEMENT

If necessary, the autopilot can be manually disengaged using any one of the following methods.

1. AP YD/DISC TRIM Switch (Pilot's or Copilot's Wheel) DEPRESS TO FIRST LEVEL
2. AP ENG Switch (APP Panel)(Yaw Damper Remains Engaged) PUSH
3. Pitch Trim Switch (Pilot's or Copilot's Wheel)(Yaw Damper Remains Engaged) ACTIVATE
4. Go-Around (GA) Switch, If Lateral Mode is Selected (Left Power Lever)(Yaw Damper Remains Engaged) ... ACTIVATE
5. AFCS or AP SERVO Circuit Breaker. PULL
6. Master Switch OFF
7. VG Fast Erect (Yaw Damper Remains Engaged) ON

AUTOMATIC AUTOPILOT DISENGAGEMENT

The following conditions will cause the autopilot to automatically disengage. Disengagement will normally be accompanied by an aural warning.

1. Electrical Power. MAJOR DEGRADATION, INTERRUPTION, OR LOSS
2. Vertical Gyro (ATT Flag on EADI) FAILURE
3. Roll Attitude MORE THAN 50°
4. Pitch Attitude GREATER THAN ±40°
5. A/P FAIL Annunciator ILLUMINATED

ZERO TORQUE CONDITIONS

The autopilot monitors pitch and roll rates, and computes normal acceleration. Any one of the following conditions will cause the elevator and/or aileron autopilot servo torques to decrease to approximately zero torque until the monitored parameter returns to within limits. The autopilot will not disengage during the zero torque condition.

1. Pitch Rate GREATER THAN 4°/SECOND
2. Roll Rate GREATER THAN 10°/SECOND
3. Normal Acceleration GREATER THAN APPROXIMATELY 0.4G INCREMENT

AUTOPILOT FAILURE (A/P FAIL ANNUNCIATOR)

Illumination of the A/P FAIL annunciator upon attempted engagement or after engagement of the autopilot indicates a failure of the APC-65H computer or associated components monitored by the computer. The autopilot will not engage; or it will automatically disengage, and the aural warning will sound.

ELEVATOR TRIM FAILURE (A/P TRIM FAIL ANNUNCIATOR)

Illumination of the A/P TRIM FAIL annunciator indicates that the elevator trim servo is not responding to commands from the autopilot. The autopilot will not disengage, although electric trim will be disengaged automatically.

1. ELEV TRIM SwitchCHECK ON
(or cycle OFF, then ON, if ELEC TRIM OFF green annunciator is illuminated.)

If A/P TRIM FAIL annunciator remains illuminated:

2. Control Wheel HOLD FIRMLY - BE PREPARED TO ACCEPT PITCH FORCES
3. Autopilot DISENGAGE
4. Elevator Trim RETRIM MANUALLY
5. Autopilot DO NOT RE-ENGAGE

ENGINE FAILURE (AUTOPILOT ENGAGED)

1. Autopilot DISENGAGE
2. Engine Failure Procedures in EMERGENCY PROCEDURES Section of AFM COMPLETE
3. Trim Controls RETRIM AIRPLANE
4. Autopilot RE-ENGAGE, IF DESIRED
5. Rudder Trim MANUALLY ADJUST AS REQUIRED AFTER POWER AND CONFIGURATION CHANGES.

EFIS MALFUNCTION

If the EFIS displays are blank or abnormal, refer to alternate instruments for usable data. The copilot's instruments are approved as alternates to the pilot's instruments. Refer to EFIS MALFUNCTIONS in the ABNORMAL PROCEDURES section of this supplement.

SECTION IIIA - ABNORMAL PROCEDURES

EFIS MALFUNCTIONS

DISPLAY PROCESSOR UNIT (DPU) FAILURE

Display Processor Unit (DPU) failure is indicated by the red DPU FAIL flag on the EADI and EHSI or by the EADI and/or EHSI blanked and disabled.

1. Disengage autopilot.
2. Use alternate attitude and/or navigation instruments.

DISPLAY SELECT PANEL (DSP) FAILURE

Display Select Panel (DSP) failure is indicated by the red DSP flag on the EADI and EHSI.

1. Disengage autopilot if engaged.
2. Use alternate navigation instrument for navigation information.

NOTE

Failure of the DSP does not affect heading information displayed on the EHSI.

EADI FAILURE

1. If the EADI fails, select the composite switch to CMPST. A composite display will be presented on the operating tube.
2. Pull the appropriate circuit breaker for the affected indicator.

EHSI FAILURE

1. If the EHSI fails, select the composite switch to CMPST. A composite display will be presented on the operating tube.

2. Pull the appropriate circuit breaker for the affected indicator.

ATTITUDE FAILURE

Attitude failure is indicated by a red ATT flag on the EADI.

- Use copilot's attitude indicator.

NOTE

The autopilot will disengage if it is selected ON.

HEADING FAILURE

Heading failure is indicated by a red HDG flag on the EHSI.

1. Use instrument displaying compass No. 2 data.
2. Monitor the affected unit for performance degradation. If a system component failure occurs, pull the appropriate circuit breaker.

SECTION IV - NORMAL PROCEDURES

BEFORE STARTING

EFIS

1. Battery Switch OFF
2. EFIS POWER Switch OFF
3. EFIS AUX POWERCHECK
 - a. ON-OFF-TESTHOLD TO TEST
for approximately 5 seconds (green AUX TEST annunciator
will illuminate while the TEST switch is held.)
 - b. ON-OFF-TEST Switch RELEASE TO OFF

BEFORE TAXI

EFIS

1. EFIS POWER Switch ON
2. EFIS AUX POWER ON

BEFORE TAKEOFF (RUNUP)

Items marked with an "*" may be omitted at pilot's discretion after the first flight of each day.

EFIS

1. EFISCHECK
 - a. EADI/EHSI Dim Control SET BRIGHTNESS LEVEL

NOTE

Tube brightness should not be set higher than that required for adequate visibility.

- * b. EFIS TEST PUSH AND HOLD
The EADI and EHSI are checked using the EFIS TEST button on the EFIS power control panel located on the pedestal. Two levels of test may be accomplished, depending on how long the button is held down.
Momentarily pressing the button results in:
 - 10° pitch up and 10° right roll indication on EADI.
 - 20° heading increase on EHSI.
 - Red TEST flag in upper left corner of EADI.

Pressing and holding the button for 5 seconds or longer results in previous indications and:

- The sky/ground display disappears from EADI.
- The following red flags are displayed on the EADI: ATT, RA, DSP.
- The following red flags are displayed on the EHSI: HDG, DSP.

NOTE

The following additional red flags are displayed continually, assuming the receivers are not receiving a valid signal.

EADI: VOR/LOC

EHSI: VOR/LOC, GS, and Bearing Pointer Flags (if selected).

2. EFIS Composite switch. CMPST
(verify composite mode display on both EFD's.)
3. EFIS Composite switch. NORMAL

ELECTRIC ELEVATOR TRIM

1. Verify the ELEV TRIM is on.
2. Check operation of dual-element thumb switches as detailed in the POH/AFM.

WARNING

Operation of the electric trim system should occur only by movement of pairs of switches. Any movement of the elevator trim wheel while actuating only one switch denotes a system malfunction. If a malfunction of the electric trim system is indicated, electric trim must be disengaged and trim changes made with manual trim ONLY.

ALTITUDE ALERT CHECK

NOTE

The altitude alert system functions only on the pilot's altimeter.

1. Pilot's Baro Set Knob ADJUST FOR NEAREST 100-FOOT ALTIMETER READING.
2. Altitude Alerter/Preselector SET TO MATCH ALTIMETER READING.
3. Pilot's Baro Set Knob ADJUST TO INCREASE AND DECREASE ALTITUDE.

At 300 feet from initial altitude, ensure that:

- a. Aural warning sounds for approximately 2 seconds.
 - b. The ALT ALERT annunciators on the pilot's altimeter, copilot's instrument panel and the Altitude Alerter/Preselector panel illuminate.
4. Pilot's Baro Set Knob ADJUST TO FIELD ELEVATION SETTING.
 5. The ALT ALERT annunciators will extinguish at 300 feet from alert panel setting.

AUTOPILOT

1. Position pitch trim wheel to the takeoff position, turn the ELEV TRIM switch on and engage the autopilot. Check that YAW, A/P, and ALT ARM annunciators are illuminated.
2. With control wheel in the forward position and the autopilot engaged, operate pilot, then copilot pitch trim switches in both directions to ensure that the autopilot disengages. The yaw damper remains engaged.
3. Center the control wheel and engage the autopilot. Apply forward pressure on control wheel. Note that pitch trim travels nose up and white TRIM annunciator illuminates. Apply rearward pressure on control wheel. Note that pitch trim travels nose down.
4. Hold the control wheel and disengage the autopilot by depressing the AP YD/DISC TRIM button on the pilot's control wheel to the first level. Note that the YAW DIS and A/P DIS annunciators illuminate. Further depress the AP YD/DISC TRIM switch. Note that the ELEC TRIM OFF annunciator illuminates. Cycle the ELEV TRIM switch on the console, engage the autopilot, and repeat the check using the copilot's AP YD/DISC TRIM switch.
5. Engage yaw damper. Note that YAW annunciators are illuminated. Check for additional resistance to movement of rudder pedals. Disengage yaw damper.

6. Reset pitch trim to the takeoff position.
7. Move all primary flight controls through their full travel in both directions. Verify that controls move in the proper direction and no restrictions to free movement are present.

IN FLIGHT

EFIS OPERATION

In-flight operation of the EFIS is as described in the Collins Pilot's Guide.

AUTOPILOT OPERATION

1. Autopilot Engagement:

- AP ENG Button on APP PUSH
(Check A/P and YAW Annunciators Illuminated)

NOTE

If a TRIM or A/P FAIL annunciation is displayed on the APP and FCP, two pushes of the AP ENG button may be required to engage, one to clear any fault and one to engage.

2. Autopilot Disengagement:

- AP ENG or AP YD/TRIM DSC PUSH

NOTE

The AP YD/TRIM DSC button is a two-level switch. The first level disengages the autopilot and yaw damper. The second level disengages electric trim.

3. Yaw Damper

The yaw damper is automatically engaged when the autopilot is engaged. The yaw damper may be engaged without engaging the autopilot by pressing the YAW ENG button on the APP.

The yaw damper may be disengaged by pressing the red AP YD/TRIM DSC button or by pressing the YAW ENG button on the APP. The yaw damper cannot be disengaged while the autopilot remains engaged.

Yaw damp remains engaged if the autopilot is disengaged by use of the AP ENG button on the APP.

4. Soft Ride (SR)

SR mode is used to reduce the autopilot response to turbulent conditions. The pilot may use SR mode at his discretion. SR is cancelled by APPR mode.

5. 1/2 Bank (1/2 ϕ)

In 1/2 Bank mode, the bank limit in HDG or NAV mode is reduced to approximately 1/2 the normal value. Capture of NAV or APPR mode clears the 1/2 Bank mode, if selected. After a NAV or APPR capture, 1/2 Bank mode may be reselected.

6. Turn Control

The turn control can be used to manually command an autopilot turn. The bank angle during the turn is proportional to the turn control displacement up to the bank limit of 30°. The autopilot may be engaged with the turn control out of its center detent, but the control must be returned to center before it is active again. Use of the turn control cancels any lateral mode selected, except APPR.

7. Vertical Control Switch

The vertical control switch can be used to incrementally adjust reference values for certain vertical modes selected on the flight control panel (FCP). During Pitch Hold mode, the vertical control switch can continuously adjust the pitch reference. If the vertical control switch is pushed and held, the Vertical mode will clear, the autopilot will enter Pitch Hold mode, and the pitch reference will increase or decrease 1 degree/second.

Each momentary actuation (up or down) commands the following adjustments.

MODE	INCREMENT
ALT	±25 Feet
IAS	±1 KIAS
VS	±200 FPM
Pitch Hold	±1/2 Degree
DSC	±200 FPM
CLIMB	±1 KIAS

FLIGHT DIRECTOR OPERATION

The flight director may be used with or without the autopilot engaged. If the autopilot is engaged, the flight director provides steering commands to the autopilot. All flight director modes, except Go-Around, are selected by pressing the appropriate mode select button on the FCP.

1. Heading Mode (HDG)
 - a. Set heading bug to desired heading on HSI.
 - b. Press HDG button. The flight director command bars will command a turn to capture and hold the selected heading. Bank angles are limited to ±25° during HDG mode.
2. Altitude Hold (ALT)
 - a. Maneuver airplane to desired altitude.
 - b. Press ALT button.
 - c. If a new barometric setting is input, the autopilot will automatically adjust to the new altitude.

To Change Altitude:

Incremental adjustments of ±25 feet can be made by each momentary actuation of the vertical control switch on the APP, or:

- d. CWS/Pitch SYNC Button PRESS AND HOLD
- e. Maneuver to desired altitude.
- f. CWS/Pitch SYNC Button RELEASE
- g. Flight director command will maintain new altitude.

3. Altitude Select (ALT SEL)

ALT SEL can be armed by pressing the ALT SEL button or by simply turning the altitude preselect knob.

- a. Altitude Preselect Controller. SET DESIRED ALTITUDE
- b. ALT ARM annunciates, indicating arming of the mode.
- c. Select a vertical mode to intercept preselected altitude.
- d. Altitude Capture Sequence VERIFY
 - 1) 1000 Feet Prior to selected Altitude ALT ALERT ANNUNCIATORS ON THE ALTITUDE PRESELECTOR, THE PILOT'S ALTIMETER AND COPILOT'S INSTRUMENT PANEL ILLUMINATE AND AN AURAL ALERT SOUNDS. ANNUNCIATORS EXTINGUISH 300 FEET PRIOR TO THE SELECTED ALTITUDE.
 - 2) At computed capture point ALT ARM AND VERTICAL MODE ANNUNCIATIONS EXTINGUISH AND ALTITUDE IS AUTOMATICALLY CAPTURED. ALT ILLUMINATES.

NOTE

Changing selected altitude on the ALTITUDE ALERTER/PRESELECTOR during altitude capture will automatically cancel ALT and rearm ALT SEL.

NOTE

ALT SEL mode is referenced to barometer-corrected altitude displayed on pilot's altimeter.

NOTE

If altitude varies more than 300 feet without resetting the Altitude Alerter/Preselector, the altitude visual and aural alerts will be activated.

4. Climb Mode (CLM)

The climb mode provides commands to capture and maintain a programmed cruise-climb airspeed schedule.

- a. CLM ButtonPRESS
 - b. Airspeed scheduling in CLM mode is 150 KIAS up to 10,000 feet, then decreasing 2 KIAS per 1000 feet above 10,000 feet.
 - c. Incremental changes of ± 1 knot in the climb speed profile can be made by each momentary actuation of the vertical control switch.
 - d. Pitch synchronization is not operative in CLM mode.
- ### 5. Descent Mode (DSC)
- a. DSC Mode Select ButtonPRESS
 - b. Descent mode will command a gradual descent to achieve and maintain an approximate 1500 fpm rate of sink.
 - c. Incremental changes of ± 200 fpm can be made by each momentary actuation of the vertical control switch.
 - d. Pitch synchronization is not operative in DSC mode.
- ### 6. Vertical Speed Hold (VS)
- a. Maneuver to desired vertical speed.
 - b. VS ButtonPRESS

To Change Vertical Speed:

Incremental changes of ± 200 fpm can be made by each momentary actuation of the vertical control switch, or;

- c. CWS/Pitch SYNC ButtonPUSH AND HOLD
 - d. Maneuver to desired new vertical speed.
 - e. CWS/Pitch SYNC ButtonRELEASE
 - f. Flight director command bars will synchronize to and maintain the new vertical speed.
- ### 7. Airspeed Hold (IAS)
- a. Maneuver to desired airspeed.
 - b. IAS ButtonPRESS

To Change Airspeed:

Incremental changes of ± 1 KIAS can be made by each momentary actuation of the vertical control switch, or;

- c. CWS/Pitch SYNC ButtonPRESS AND HOLD
 - d. Maneuver to desired airspeed.
 - e. CWS/Pitch SYNC ButtonRELEASE
 - f. Flight director command will maintain new airspeed.
- ### 8. Navigation Mode (NAV)
- a. NAV ReceiverTUNE TO DESIRED STATION FREQUENCY.
 - b. Course SelectorSET DESIRED COURSE ON EHSI.
 - c. Heading BugSET DESIRED INTERCEPT HEADING ON EHSI.
 - d. NAV ButtonPRESS
(FCP annunciates NAV ARM, and HDG is automatically selected if airplane is outside computed capture point.)
 - e. Upon CaptureHDG CANCELS, FCP ANNUNCIATES NAV, AND FLIGHT DIRECTOR COMMANDS TURN TO TRACK SELECTED COURSE.

NOTE

Approaching station passage, the autopilot will enter Dead-Reckoning (DR) mode. During the DR mode, course changes of less than 30° may be made using the course knob. Course changes of more than 30° must be accomplished using the HDG mode to set up a new NAV capture.

For optimum NAV mode operation, select intercept angle so the system maintains straight and level flight in the NAV ARM mode for a minimum of 30 seconds. Maximum recommended capture angles are 90° or less in NAV mode and 60° or less in APPR mode.

9. Approach Mode (APPR)

When making any coupled approach, primary flight instruments must be monitored by the pilot. Presence of a VOR/LOC/GS flag must be considered as a warning of system or signal failure.

a. VOR Approaches

NOTE

Use of the VOR Approach mode is limited to an area within 10 nm of the VOR station.

- 1) Navigation Receiver TUNE TO DESIRED STATION FREQUENCY.
- 2) Course Selector. SET DESIRED COURSE ON EHSI.
- 3) Heading Cursor SET DESIRED INTERCEPT HEADING ON EHSI.
- 4) APPR Button PRESS
(Mode selector annunciates APPR ARM.
HDG mode is automatically selected if the
airplane is outside computed capture point.)
- 5) At Computed Capture Point HDG MODE IS CANCELLED
AND FLIGHT CONTROL PANEL ANNUNCIATES
APPR. FLIGHT DIRECTOR COMMANDS A TURN TO
CAPTURE AND TRACK SELECTED COURSE.

CAUTION

During a VOR approach, the flight control system automatically goes to DR (dead reckoning) mode if a VOR station is crossed. If the VOR approach being flown is one that crosses the VOR, the HDG mode should be used for station passage and to recapture the outbound course.

b. Localizer Approach (APPR)

- 1) Navigation Receiver TUNE TO DESIRED LOCALIZER FREQUENCY.
- 2) Course Selector. SET LOCALIZER FRONT COURSE ON EHSI.
- 3) Heading Bug SET DESIRED INTERCEPT HEADING ON EHSI.
- 4) Mode Selector APPR Button PRESS
(Mode selector annunciates APPR ARM, and HDG mode is automatically
selected if the airplane is outside the computed capture point.)
- 5) At Computed Capture Point HDG MODE IS CANCELLED AND MODE SELECTOR
ANNUNCIATES APPR. FLIGHT DIRECTOR COMMANDS
A TURN TO CAPTURE AND TRACK LOCALIZER BEAM.
- 6) Flight Control Panel SELECT VERTICAL FLIGHT DIRECTOR MODE, AS REQUIRED.

c. Back Course Approach (BC)

- 1) Navigation Receiver TUNE TO DESIRED LOCALIZER FREQUENCY.
- 2) Course Selector. SET LOCALIZER FRONT COURSE ON EHSI.
- 3) Heading Bug SET DESIRED INTERCEPT HEADING ON EHSI.
- 4) B/C Button PRESS
(Mode selector annunciates APPR ARM B/C, and HDG mode is automatically
selected if the airplane is outside the computed capture point.)
- 5) At Computed Capture Point HDG MODE IS CANCELLED AND MODE SELECTOR ANNUNCIATES
APPR B/C. FLIGHT DIRECTOR COMMANDS A TURN
TO CAPTURE AND TRACK LOCALIZER BACK COURSE.
- 6) Flight Control Panel SELECT VERTICAL FLIGHT DIRECTOR MODE, AS REQUIRED.

d. ILS Approach (APPR)

- 1) Navigation Receiver. TUNE TO DESIRED ILS FREQUENCY.
- 2) Course Selector.SET LOCALIZER FRONT COURSE ON EHSI.
- 3) Heading Bug SET DESIRED INTERCEPT HEADING ON EHSI.
- 4) APPR ButtonPRESS
(Mode selector annunciates APPR ARM, and HDG mode is automatically selected if the airplane is outside the computed localizer capture point.)
- 5) Mode Selector SELECT VERTICAL FLIGHT DIRECTOR MODE, AS REQUIRED, TO INTERCEPT GLIDESLOPE.
- 6) At Localizer Capture Point HDG MODE IS CANCELLED, AND MODE SELECTOR ANNUNCIATES APPR AND GS ARM. FLIGHT DIRECTOR COMMANDS A TURN TO CAPTURE AND TRACK LOCALIZER BEAM.
- 7) At Glideslope Capture Point VERTICAL MODE IS CANCELLED (EXCEPT ALT SEL ARM). MODE SELECTOR ANNUNCIATES GS AND APPR. FLIGHT DIRECTOR COMMANDS A PITCH CHANGE TO CAPTURE AND TRACK GLIDESLOPE.

NOTE

Glideslope capture will not occur until localizer has been captured.

10. Go-Around Mode (GA)

GA mode is activated by pushing the Go-Around switch on the left power lever. GA mode may be selected whenever a lateral mode is selected.

When GA mode is activated, the autopilot disengages, the disconnect aural warning sounds, and the flight director commands a wings-level, 7° nose-up attitude. GA is cancelled by autopilot engagement, the CWS/Pitch SYNC button, or other mode selections.

11. Attitude Hold, Roll Hold, Pitch Hold Modes

Attitude Hold mode is activated if the autopilot is engaged with no flight director modes selected. If no lateral mode is active, Roll Hold mode is active; likewise if no vertical mode is active, Pitch Hold mode is active.

DIAGNOSTIC TESTING

The TEST button on the FCP can be used to perform a diagnostic test of the flight director or autopilot. Testing may be accomplished on the ground or during flight, as follows:

GROUND TESTING

1. Flight Control Panel (FCP) Test ButtonPRESS AND RELEASE
 - a. EADI TEST ANNUNCIATOR ILLUMINATED
 - b. FCP and Autopilot Annunciators ILLUMINATE BRIEFLY, THEN EXTINGUISH, EXCEPT FOR GA

NOTE

The GA annunciator indicates the computer is in the Ground Test mode. If other annunciators are illuminated, a fault is indicated. Report these to maintenance personnel. If additional diagnostic data on a malfunction is required while in the Ground Test mode:

- 1) HDG Button PRESS AND HOLD
Record displayed annunciators, then release.
- 2) ALT Button PRESS AND HOLD
Record displayed annunciators, then release.
- 3) IAS Button PRESS AND HOLD
Record displayed annunciators, then release.
2. Autopilot ENGAGE

NOTE

Normal engage annunciators will not illuminate on the FCP or the APP since they are used to indicate faults.

3. Airplane Servos.....CHECK
 - a. Aileron ENGAGED
 - b. Elevator ENGAGED
 - c. Rudder ENGAGED AND OSCILLATING
 - d. Elevator Trim ENGAGED AND RUNNING NOSE DOWN
4. Autopilot Engage Switch..... PUSH TO DISENGAGE
 - a. Aural warning will sound.
 - b. Elevator and elevator trim servos will disengage.
 - c. Rudder servo remains engaged and continues to oscillate.
5. FCP Test ButtonPRESS AND RELEASE
 - a. Rudder oscillations stop.
 - b. The rudder servo remains engaged and the YAW annunciator illuminated.
6. AP YD/DISC TRIM SwitchDEPRESS TO FIRST LEVEL
(Check rudder servo disconnects and YAW annunciator extinguished.)
7. Elevator Trim..... SET FOR TAKEOFF

IN-FLIGHT TESTING

1. Test Button on FCP PUSH AND HOLD
2. FCP annunciators will flash, then display mode annunciations indicating a fault, if present. If no fault exists, the flashing sequence will repeat. Record any annunciations of faults.
3. Test Button on FCPRELEASE

SHUTDOWN AND SECURING

EFIS

1. EFIS AUX POWER..... OFF
2. EFIS POWER SwitchOFF (before FUEL CUTOFF)

SECTION V - PERFORMANCE

No Change

SECTION VI - WEIGHT & BALANCE/EQUIPMENT LIST

No Change

SECTION VII - SYSTEMS DESCRIPTION

The Collins EFIS-84 EFIS (2-Tube) consists of two panel-mounted Electronic Flight Displays (EFD's), one pedestal-mounted Display Select Panel (DSP), one remote Display Processor Unit (DPU), one pedestal-mounted EFIS reversionary and power select panel. The system displays attitude and navigation information depending on the input data sources selected.

ANNUNCIATORS

Annunciation is displayed on the mode select panel and on the EFIS. Annunciation is color-keyed for better recognition of mode status with green or white for active condition, yellow for disengaged condition, and red for warning condition. When a mode annunciator is flashing, it indicates that signals used for that mode are not usable; EFIS modes flash briefly when selected.

EFIS SWITCHES

EFIS POWER

With airplane power on, the EFIS POWER switch applies power to the EADI/EHSI and Display Processor.

EFIS REVERSIONARY MODE

CMPST will select composite mode of operation on the EADI and EHSI. A composite format replaces the normal EADI and EHSI display.

SECTION VIII - HANDLING, SERVICING & MAINTENANCE

Fans are installed to aid in cooling of the Display Processor Unit (DPU-84) and the pilot's Electronic Flight Displays (EFD-84's).

- During each phase inspection and at any sign of abnormal equipment operation, verify these fans are operating properly. An avionics compartment fan is also installed.