

AIRPLANE FLIGHT MANUAL

FOR

CHEROKEE SIX 260

APPLICABLE TO SERIAL NUMBERS 32-7400001 THROUGH 32-7600024

WARNING

EXTREME CARE MUST BE EXERCISED TO LIMIT THE USE OF THIS MANUAL TO APPLICABLE AIRCRAFT. THIS MANUAL REVISED AS INDICATED BELOW OR SUBSEQUENTLY REVISED IS VALID FOR USE WITH THE AIRPLANE IDENTIFIED BELOW WHEN APPROVED BY PIPER AIRCRAFT CORPORATION. SUBSEQUENT REVISIONS SUPPLIED BY PIPER AIRCRAFT CORPORATION MUST BE PROPERLY INSERTED.

MODEL PA-32-260

AIRCRAFT SERIAL NO. 32-7400029 REGISTRATION NO. _____

AIRPLANE FLIGHT MANUAL, REPORT NUMBER VB-561 REVISION 5

PIPER AIRCRAFT CORPORATION
APPROVAL SIGNATURE AND STAMP



Douglas J. Gough



NOTE

THIS MANUAL MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

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AIRPLANE FLIGHT MANUAL

| | |
|------------------|-------|
| Log of Revisions | 3-iii |
| Limitations | 3-1 |
| Procedures | 3-5 |
| Performance | 3-7 |
| Supplements | 3-9 |

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TABLE OF CONTENTS

Log of Revisions 3-iii

SECTION I

Limitations 3-1

 A. Engine 3-1

 B. Fuel 3-1

 C. Propeller 3-1

 D. Power Instruments 3-1

 E. Airspeed Limitations and Airspeed Instrument
 Markings (Calibrated Airspeed) 3-2

 F. Maximum Weight 3-2

 G. C. G. Range 3-2

 H. Maneuvers 3-2

 I. Placards 3-3

 J. Rear Cabin Door or Rear Cabin Door and Cargo
 Door Removed 3-4

 K. Seventh-Passenger Operation 3-4

 L. Nose Wheel Fairing Removed 3-4

SECTION II

Procedures 3-5

SECTION III

Performance 3-7

SECTION IV

Optional Equipment 3-9

 A. Electric Pitch Trim Installation 3-11





 B. AutoFlite II Installation 3-14

 C. Piper AutoControl III and/or AutoControl IIIB Installation 3-15

 D. Piper AltiMatic IIIC Installation 3-19

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AIRPLANE FLIGHT MANUAL LOG OF REVISIONS

| Revision | Revised Pages | Description and Revision | FAA Approved Date |
|----------|--|--|---|
| 1 | Title | Added PAC Approval Form. (NOTE: AIRCRAFT DELIVERED WITH MANUALS PRIOR TO THIS REVISION DO NOT REQUIRE THIS REVISION.) |  D. H. Trompler June 4, 1974 |
| 2 | 3-i 3-9 3-15, 3-16, 3-17, 3-18 | Added Item D. (Installation of Piper Auto-Control IIIB) to Supplements. Added Item D. (Installation of Piper Auto-Control IIIB). Added pages (AutoControl IIIB Supplement). |  D. H. Trompler June 19, 1974 |
| 3 | 3-i 3-4 3-9 3-12 3-13 3-14 3-15 3-18 3-19, 3-20, 3-21, 3-22, 3-23, 3-24, 3-25, 3-26 | Under Limitations - added item L. (Nose Wheel Fairing Removed); changed Section IV title from Supplements to Optional Equipment; under Optional Equipment- deleted items B. and C.; revised remaining items; added new item D. (Piper AltiMatic IIIC Installation). Added item L. (Nose Wheel Fairing Removed), remove Airplane Flight Manual Supplement Report No. VB-637 if attached to the Airplane Flight Manual. Changed Section IV title from Supplements to Optional Equipment; revised Note; deleted items B. and C.; revised remaining items; added new item D. (Piper AltiMatic IIIC Installation). Deleted item B. AutoFlite Installation. Deleted item C. AutoControl Installation. Revised item letter (D. to B.). Revised item letter; revised item title; added AutoControl III to title. Deleted IIIB designation from items c. (1) and (2). Added pages (AltiMatic IIIC), remove Airplane Flight Manual Supplement Report No. VB-667 if attached to the Airplane Flight Manual. |  Ward Evans Nov. 4, 1974  Ward Evans Dec. 13, 1978 |
| 4 | 3-3, 3-4 | Deleted seventh seat reference. | Ward Evans Dec. 13, 1978 |

AIRPLANE FLIGHT MANUAL LOG OF REVISIONS (cont)

| Revision | Revised Pages | Description and Revision | FAA Approved Date |
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| 5 | Title | Added Applicable Serial Numbers. (NOTE: AIRCRAFT DELIVERED WITH MANUALS PRIOR TO THIS REVISION DO NOT REQUIRE THIS REVISION.) | <i>Ward Evans</i> Ward Evans March 22, 1979 |

SECTION I
LIMITATIONS

The following limitations must be observed in the operation of this airplane:

A. ENGINE

Lycoming O-540-E4B5

ENGINE LIMITS

For all operations 2700 RPM, 260 HP

B. FUEL

100/130 minimum aviation grade fuel

C. PROPELLER

Hartzell Model HC-C2YK-1()/8477-2 or HC-C2YK-1()F/F8477-2, low pitch stop $12.0^\circ \pm .2^\circ$, high pitch stop $32^\circ \pm 2^\circ$, maximum diameter 82 inches, minimum diameter 80.5 inches.

D. POWER INSTRUMENTS

OIL TEMPERATURE

Green Arc (Normal Operating Range)
Red Line (Maximum)

75°F to 245°F
245°F

OIL PRESSURE

Green Arc (Normal Operating Range)
Yellow Arc (Caution Range)
Red Line (Minimum)
Red Line (Maximum)

60 PSI to 90 PSI
25 PSI to 60 PSI
25 PSI
90 PSI

FUEL PRESSURE

Green arc (Normal Operating Range)
Red Line (Minimum)
Red Line (Maximum)

.5 PSI to 8 PSI
.5 PSI
8 PSI

TACHOMETER

Green Arc (Normal Operating Range)
Red Line (Maximum Continuous Power)

500 to 2700 RPM
2700 RPM

CHEROKEE SIX-260

E. AIRSPEED LIMITATIONS AND AIRSPEED INSTRUMENT MARKINGS (Calibrated Airspeed)

| | |
|------------------------------|--------------------------------|
| NEVER EXCEED | 212 MPH |
| MAXIMUM STRUCTURAL CRUISE | 168 MPH |
| MANEUVERING | 149 MPH |
| FLAPS EXTENDED | 125 MPH |
| MAXIMUM POSITIVE LOAD FACTOR | 3.8 |
| MAXIMUM NEGATIVE LOAD FACTOR | No inverted maneuvers approved |

AIRSPEED INSTRUMENT MARKINGS

| | |
|---|--|
| Red Radial Line (Never Exceed) | 212 MPH (184 KTS) |
| Yellow Arc (Caution Range) (Smooth Air Only) | 168 MPH to 212 MPH (146 KTS to 184 KTS) |
| Green Arc (Normal Operating Range) | 71 MPH to 168 MPH (62 KTS to 146 KTS) |
| White Arc (Flap Down Range) | 63 MPH to 125 MPH (55 KTS to 109 KTS) |

F. MAXIMUM WEIGHT 3400 LBS

G. C. G. RANGE

The datum used is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

| Weight (Pounds) | Forward Limit (In. Aft of Datum) | Rearward Limit (In. Aft of Datum) |
|--------------------|-------------------------------------|--------------------------------------|
| 3400 | 91.4 | 95.5 |
| 3300 | 89.0 | 96.2 |
| 2900 | 80.0 | 96.2 |
| 2400 | 76.0 | 96.2 |

Straight line variation between points given.

NOTE

It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See Weight and Balance Section for proper loading instructions.

H. MANEUVERS

No acrobatic maneuvers including spins approved.

I. PLACARDS

In full view of the pilot:

“THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS. NO ACROBATIC MANEUVERS, INCLUDING SPINS, APPROVED.”

“THIS AIRCRAFT APPROVED FOR NIGHT IFR NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135.”

On the instrument panel in full view of the pilot:

“ROUGH AIR OR MANEUVERING SPEED 149 MPH.”

On the instrument panel in full view of the pilot:

“DEMONSTRATED CROSSWIND COMPONENT 20 MPH.”

In full view of the pilot: (For operation with the rear door removed)

“FOR FLIGHT WITH THE DOOR REMOVED, SEE THE LIMITATIONS AND PROCEDURES SECTIONS OF THE AIRPLANE FLIGHT MANUAL.”

On the instrument panel in full view of the pilot when the AutoFlite is installed:

“FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING. RELEASE DISENGAGE SWITCH.”

On the fuel selector valve cover:

“ALL WEIGHT IN EXCESS OF 3112 POUNDS MUST BE FUEL WEIGHT ONLY. FILL TIP TANKS FIRST. USE MAIN TANKS FIRST.”

On the instrument panel in full view of the pilot when the AutoFlite II is installed:

“TURN AUTOFLITE ON. ADJUST TRIM KNOB FOR MINIMUM HEADING CHANGE. FOR HEADING CHANGE, PRESS DISENGAGE SWITCH ON CONTROL WHEEL, CHANGE HEADING, RELEASE SWITCH. ROTATE TURN KNOB FOR TURN COMMANDS. PUSH TURN KNOB IN TO ENGAGE TRACKER. PUSH TRIM KNOB IN FOR HI SENSITIVITY. LIMITATIONS AUTOFLITE OFF FOR TAKEOFF AND LANDING.”

On the instrument panel in full view of the pilot when the supplementary white strobe lights are installed:

“WARNING - TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE.”

J. REAR CABIN DOOR OR REAR CABIN DOOR AND CARGO DOOR REMOVED

The following limitations must be observed in the operation of this airplane with the rear cabin door or rear cabin door and cargo door removed:

1. The airplane may be flown with the rear cabin door or rear cabin door and cargo door removed. Flight with the front door removed is not approved.
2. Maximum speed - 165 mph.
3. No smoking.
4. All loose articles must be tied down and stowed.
5. Jumper's static lines must be kept free of pilot's controls and control surfaces.
6. Operation approved VFR flight conditions only.

K. LOADING LIMITATIONS

The following limitations must be observed in the operation of this airplane:

1. Fill tip tanks first; use main tanks first.
2. This airplane must not be operated at gross weights in excess of 3112 pounds unless the weight over 3112 pounds is fuel weight only.
3. Remove fuel from the main tanks first when required for proper weight and balance.

L. NOSE WHEEL FAIRING REMOVED

When the nose wheel fairing is removed, two nose wheel centering springs (part number 67168) must be installed.

SECTION II
PROCEDURES

1. The stall warning system is inoperative with the master switch off.
2. Electric fuel pump must be on for both landing and takeoff.
3. Except as noted above, all operating procedures for this airplane are normal.
4. When operating with the rear cabin door removed, it is recommended that all occupants wear parachutes.
5. Fuel System Preflight Procedure:

The fuel system should be drained daily prior to first flight and after refueling to avoid the accumulation of water or sediment. Each fuel tank is equipped with an individual quick drain located at the lower inboard rear corner of the tank. The fuel strainer and a system quick drain valve are located in the fuselage at the lowest point of the fuel system. It is important that the fuel system be drained in the following manner:

- a. Drain each tank through its individual quick drain located at the lower inboard rear corner of the tank, making sure that enough fuel has been drained to insure that all water and sediment is removed.
- b. Place a container under the fuel sump drain outlet, which is located under the fuselage.
- c. Drain the fuel strainer by pressing down on the lever located on the right hand side of the cabin below the forward edge of the rear seat. The fuel selector must be positioned in the following sequence: off position, left tip, left main, right main, and right tip while draining the strainer to insure that the fuel lines between each tank outlet and fuel strainer are drained as well as the strainer. When the fuel tanks are full, it will take approximately 11 seconds to drain all the fuel in one of the lines between a tip tank and the fuel strainer and approximately six seconds to drain all the fuel in one of the lines from a main tank to the fuel strainer. When the fuel tanks are less than full, it will take a few seconds longer.
- d. Examine the contents of the container placed under the fuel sump drain outlet for water and sediment and dispose of the contents.

CAUTION

When draining any amount of fuel, care should be taken to insure that no fire hazard exists before starting engine.

After using the under-seat quick drain, it should be checked from outside to make sure it has closed completely and is not leaking.

SECTION III
PERFORMANCE

All performance is given for a weight of 3400 pounds.

Loss of altitude during stalls can be as great as 350 ft depending on configuration and power.

Stall speed, in mph (Calibrated Airspeed):

Flaps Up - 71
Flaps Down - 63

Flap deflection versus handle position is:

1st notch - 10 degrees
2nd notch - 25 degrees
3rd notch - 40 degrees

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SECTION IV
OPTIONAL EQUIPMENT

NOTE

THE INFORMATION CONTAINED IN THIS SECTION
APPLIES WHEN THE RELATED EQUIPMENT IS INSTALLED
IN THE AIRCRAFT.

- A. Electric Pitch Trim Installation
- B. AutoFlite II Installation
- C. Piper AutoControl III and/or AutoControl IIIB Installation
- D. Piper AltiMatic IIIC Installation

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A. ELECTRIC PITCH TRIM INSTALLATION

The following emergency information applies in case of electric pitch trim malfunction:

1. In case of malfunction, disengage electric pitch trim by operating push button trim switch on instrument panel.
2. In emergency, electric pitch trim may be overpowered using manual pitch trim.
3. In cruise configuration, malfunction results in 10° pitch change and 50 ft altitude variation.

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B. AUTOFLITE II INSTALLATION

1. LIMITATIONS

AutoFlite off for takeoff and landing.
AutoFlite use prohibited above 195 mph CAS.

2. PROCEDURES

a. Normal Operation

Refer to Manufacturer's Operation Manual.

b. Emergency Operation

- (1) In case of malfunction, PRESS disconnect switch on pilot's control wheel.
- (2) Rocker switch on instrument panel - OFF.
- (3) Unit may be overpowered manually.
- (4) In cruise configuration malfunction, 3 seconds delay results in 35° bank and 80 ft altitude loss.
- (5) In approach configuration malfunction, 1 second delay results in 10° bank and 50 ft altitude loss.

C. PIPER AUTOCONTROL III AND/OR AUTOCONTROL IIIB INSTALLATION

1. LIMITATIONS

- a. Autopilot OFF during takeoff and landing.
- b. Autopilot use prohibited above 180 MPH CAS.

2. PROCEDURES

a. PREFLIGHT

(1) Roll Section

- (a) Place Radio Coupler in "Heading" mode and place A/P ON/OFF switch in the "ON" position to engage roll section. Rotate roll command knob Left and Right and observe control wheel describes a corresponding Left and Right turn, then center knob.
- (b) Set proper D.G. Heading on D.G. and turn Heading Indice to aircraft heading. Engage "Heading" mode switch and rotate Heading Indice right and left. Aircraft control wheel should turn same direction as Indice. While D.G. indice is set for a left turn, grasp control wheel and override the servo to the right. Repeat in opposite direction for right turn.
- (c) If VOR signal available check Omni mode on Radio Coupler by swinging Omni needle left and right slowly. Observe that control wheel rotates in direction of needle movement.
- (d) Disengage by placing the A/P ON/OFF switch to the "OFF" position.

b. IN-FLIGHT

- (1) Trim airplane (ball centered).
- (2) Check air pressure or vacuum to ascertain that the Directional Gyro and Attitude Gyro are receiving sufficient air.
- (3) Roll Section
 - (a) To engage, center Roll Command Knob, place the A/P ON/OFF switch to the "ON" position. To turn rotate roll command knob in desired direction. (Maximum angle of bank should not exceed 30°.)
 - (b) For heading mode, set Directional Gyro with Magnetic Compass. Push directional gyro HDG knob in, rotate to aircraft heading. Place the console HDG ON/OFF switch to the "ON" position. To select a new aircraft heading, push D.G. heading knob IN and rotate, in desired direction of turn, to the desired heading.

NOTE

In HDG mode the maximum bank angles are limited to approximately 20° and single command, heading changes should be limited to 150°. (HDG Indice not more than 150° from actual aircraft heading.)

(4) VOR

(a) To Intercept:

1. Using OMNI Bearing Selector, dial desired course, inbound or outbound.
2. Set identical heading on Course Selector D.G.
3. After aircraft has stabilized, position coupler mode selector knob to OMNI mode. As aircraft nears selected radial, interception and crosswind correction will be automatically accomplished without further switching.

NOTE

If aircraft position is less than 45° from selected radial, aircraft will intercept before station. If position is more than 45°, interception will occur after station passage. As the aircraft nears the OMNI station, (1/2 mile) the zone of confusion will direct an "S" turn in alternate directions as the OMNI indicator needle swings. This alternate banking limited to the standard D.G. bank angle, is an indication of station passage.

(b) To select new course:

1. To select a new course or radial, rotate the HDG indice to the desired HDG (match course).
2. Rotate OBS to the new course. Aircraft will automatically turn to the intercept heading for the new course.

(c) To change stations:

1. If same course is desired, merely tune receiver to new station frequency.
2. If different course is desired, position coupler mode selector to HDG mode. Dial course selector D.G. to new course. Dial OBS to new course and position coupler mode selector to OMNI mode.

(5) VOR Approach

Track inbound to station as described in VOR navigation section. After station passage:

- (a) Dial outbound course on Course Selector D.G., then dial same course on OBS.
- (b) After established on outbound radial, position coupler mode selector to HDG mode and select outbound procedure turn heading. After 40 seconds to 1 minute select a turn in the desired direction with the Course Selector D.G. to the inbound procedure turn heading.
- (c) Set OBS to inbound course.
- (d) When aircraft heading is 45° to the inbound course, dial Course Selector D.G. to inbound course and position coupler mode selector to OMNI mode.

NOTE

For precise tracking over OMNI station. without "S" turn, position coupler mode selector to HDG mode just prior to station passage. If holding pattern is desired, position coupler mode selector to HDG mode at station passage inbound and select outbound heading in direction of turn. After elapsed time, dial inbound course on Course Selector D.G. When aircraft heading is 45° to radial, position coupler mode selector to OMNI mode.

(6) LOC Approach Only

- (a) To intercept dial ILS outbound course on Course Selector D.G. When stabilized, position coupler mode selector to LOC REV mode.
- (b) After interception and when beyond outer marker, position coupler mode selector to HDG mode and dial outbound procedure turn heading. After one minute, dial inbound procedure turn heading in direction of turn.
- (c) When aircraft heading is 45° to ILS inbound course dial inbound course on Course Selector D.G. and position coupler mode selector to LOC NORM mode.
- (d) At the missed approach point (M.A.P.), or when missed approach is elected, position coupler mode selector to HDG mode and execute missed approach procedure.

(7) LOC Approach - Back Course (Reverse)

- (a) To intercept dial ILS Back Course outbound heading on Course Selector D.G. When stabilized, position coupler mode selector to LOC NORM mode.
- (b) After interception and when beyond fix, position coupler mode selector to HDG and dial outbound procedure turn heading. After one minute, dial inbound procedure turn heading in direction of turn.
- (c) When heading 45° to inbound course, dial inbound course on Course Selector D.G. and position coupler mode selector to LOC REV mode.
- (d) Approximately 1/2 mile from runway, position coupler mode selector to HDG mode to prevent "S" turn over ILS station near runway threshold.
- (e) Missed approach - same as Front Course. (See (6) d)

c. **EMERGENCY OPERATION**

- (1) In an emergency the AutoControl can be disconnected by placing the A/P ON/OFF switch to the "OFF" position.
- (2) The AutoControl can be overpowered at either control wheel.
- (3) An Autopilot runaway, with a 3 second delay in the initiation of recovery, while operating in a climb, cruise or descending flight could result in a 38° bank and 40 foot altitude loss.
- (4) An Autopilot runaway, with a 1 second delay in the initiation of recovery, during an approach operation, coupled or uncoupled, could result in an 8° bank and 10 foot altitude loss.

3. **PERFORMANCE**

No change.

D. PIPER ALTIMATIC IIC INSTALLATION (Includes Roll, Pitch and Pitch Trim Sections)

1. LIMITATIONS

- a. The maximum speed for autopilot operation is 195 MPH CAS. (Autopilot Vmo)
- b. Autopilot "OFF" for takeoff and landing.
- c. Placard P/N 13A660 "Conduct Trim Check Prior to Flight (See AFM)" to be installed in clear view of pilot.
- d. During autopilot operation, the pilot must be in his seat with the safety belt fastened.

2. PROCEDURES

a. PREFLIGHT

(1) Roll Section

- (a) Place Radio Coupler in "Heading" mode and place Roll rocker switch in the "ON" position to engage roll section. Rotate Roll Command Knob left and right and observe that control wheel describes a corresponding left and right turn, then center Roll Command Knob.
- (b) Set proper D.G. Heading on D.G. and turn Heading Bug to aircraft heading. Engage HDG mode rocker switch and rotate Heading Bug right and left. Aircraft control wheel should turn same direction as Bug. Grasp control wheel and manually override servo, both directions.
- (c) Disengage Autopilot by depressing trim switch. Check Aileron operation is free and A/P is disconnected from controls.

(2) Pitch Section

- (a) Engage "Roll" rocker switch.
- (b) Center pitch command disc and engage "Pitch" rocker switch.
- (c) Rotate pitch command disc full DOWN and full UP and check control wheel describes a corresponding fore and aft movement. Check to see that servo can be overridden by hand at control wheel.

NOTE

Autopilot might not be able to raise elevators on ground without assistance from pilot.

- (d) Hold control wheel and disengage Autopilot by pressing Master A/P Disconnect/Trim Interrupt switch button. Check Roll and Pitch controls to assure autopilot has disconnected.
- (3) Trim Section (General)

This preflight check procedure is designed to uncover hidden failures that might otherwise go undetected. Proper operation of the electric elevator trim system is predicated on conducting the following preflight check before each flight. If the trim system fails any portion of the procedure, place the panel mounted Trim Master Switch in the OFF position until the system is repaired. Substitution of any trim system component for another model is not authorized. For emergency interrupt information, refer to Section 2.d. of this supplement.

The Command Electric Trim Switch on the left hand portion of the pilot's control wheel has two functions:

- (a) When the top bar (A/P off) is pressed, it disconnects the Autopilot.
- (b) When the top bar is pressed and the rocker is moved forward, nose down trim will occur - when moved aft, nose up trim will occur.

PREFLIGHT: Command Trim - Before Each Flight

- (a) Check trim circuit breaker - IN.
- (b) Trim Master Switch- ON.
- (c) A/P OFF - Check normal trim operation - UP. Grasp trim wheel and check override capability. Check nose DOWN operation. Recheck override.
- (d) Press center bar only - trim should not operate.
- (e) Without pressing center bar, move rocker fore and aft - trim should not operate.

AUTOTRIM - Before Each Flight

- (a) A/P ON - (Roll and Pitch Sections) Check automatic operation by activating A/P Pitch Command Disc UP, then DN. Observe trim operation follows Pitch Command Direction.

NOTE

In Autopilot Mode, there will be approximately a 3 second delay between operation of Pitch Command and operation of trim.

- (b) Press center bar (A/P OFF) - release - check autopilot disengagement.
- (c) Rotate trim wheel to check manual trim operation. Reset to takeoff position prior to takeoff.

b. IN-FLIGHT

- (1) Trim airplane (ball centered).
- (2) Check pressure gauge to ascertain that the Directional Gyro and Attitude Gyro are receiving sufficient air.
- (3) Roll Section
 - (a) To engage, center Roll Command Knob, push Roll rocker switch to the "ON" position. To turn, rotate Roll Command Knob in desired direction. (Maximum angle of bank should not exceed 30°.)
 - (b) For heading mode, set Directional Gyro with Magnetic Compass. Push directional gyro HDG knob in, rotate to select desired heading. Push HDG rocker switch to the "ON" position. (Maximum angle of bank will be 20° with heading lock engaged.)
- (4) Pitch Section - (Roll Section must be engaged prior to engaging Pitch Section.)
 - (a) Center pitch trim indicator with the Pitch Command Disc.
 - (b) Engage pitch rocker switch. To change attitude, rotate Pitch Command Disc in the desired direction.
- (5) Altitude Hold

Upon reaching desired or cruising altitude, engage ALT Hold Mode rocker switch. As long as ALT Hold Mode rocker switch is engaged, aircraft will maintain selected altitude. For maximum passenger comfort, rate of climb or descent should be reduced to approximately 500 FPM prior to Altitude Hold engagement. For Altitude Holding below 100 MPH lower flaps to takeoff position.

NOTE

Prior to disengaging Altitude Hold Mode, rotate Pitch Command Disc to center.

- (6) Radio Coupling VOR/ILS with H.S.I. (Horizontal Situation Indicator) Type Instrument Display. (Optional)
VOR Navigation
 - (a) Tune and identify VOR Station. Select desired course by rotating CRS knob of H.S.I.
 - (b) Select OMNI mode on Radio Coupler.
 - (c) Engage HDG mode on autopilot console to engage coupler. Aircraft will turn to a 45° intercept angle to intercept the selected VOR course. Intercept angle magnitude depends on radio needle off-course magnitude, 100% needle deflection will result in 45° intercept angle, diminishing as the needle off-set diminishes.
 - (d) NAV mode - NAV mode provides reduced VOR sensitivity for tracking weak, or noisy, VOR signals. NAV mode should be selected after the aircraft is established on course.

ILS/LOC Front Course

- (a) Set inbound, front, localizer course on H.S.I.
- (b) Select LOC/NORM mode on Radio Coupler to intercept and track inbound on the localized Select LOC/REV to intercept and track the localizer course outbound to the procedure turn area.
- (c) Engage HDG mode on autopilot console to engage coupler.

ILS/Back Course

- (a) Set inbound, front, localizer course on H.S.I.
- (b) Select LOC/REV on Radio Coupler to intercept and track inbound on the back localizer course. Select LOC/NORM to intercept and track outbound on the back course to the procedure turn area.
- (c) Engage HDG mode on autopilot console to engage coupler.

(7) Radio Coupling VOR/ILS with Standard Directional Gyro

NOTE

Radio Coupler operation in conjunction with a standard Directional Gyro and VOR/LOC display differs from operation with an integrated display (H.S.I.) only in one respect. The Heading Bug is used as the radio course datum and therefore must be set to match the desired VOR/ILS course as selected on the O.B.S.

- (a) For VOR Intercepts and Tracking: Select the desired VOR course and set the Heading Bug to the same heading. Select OMNI mode on the coupler and engage the HDG mode on the autopilot console.
- (b) For ILS Front Course Intercepts and Tracking: Tune the localizer frequency and place the Heading Bug on the inbound, front course heading. Select LOC/NORM mode on the coupler and engage HDG mode on the autopilot console.
- (c) For LOC Back Course Intercepts and Tracking: Tune the localizer frequency and place the Heading Bug on the inbound course heading to the airport. Select LOC/REV mode on the coupler and engage HDG mode on the autopilot console.

c. COUPLED APPROACH OPERATIONS

(1) VOR or LOC

- (a) After arrival at the VOR Station, track outbound to the procedure turn area as described in Section b.(6) or (7), as appropriate, and slow to 110-120 MPH CAS and lower flaps to takeoff position (10° extension).
- (b) Use HDG mode and Pitch or ALT Hold modes as appropriate during procedure turn.

- (c) At the F.A.F. inbound, return to pitch mode for control of descent and lower landing gear.
 - (d) At the M.D.A. engage ALT Hold mode and add power for level flight. Monitor Altimeter to assure accurate altitude control is being provided by the autopilot.
 - (e) Go-Around. For missed approach select desired pitch attitude with Pitch Command Disc and disengage ALT Hold mode. This will initiate the pitch up attitude change. Immediately add takeoff power and monitor Altimeter and rate of climb for positive climb indication. After climb is established, retract flaps. Adjust attitude as necessary for desired airspeed and engage HDG mode for turn from the VOR final approach course.
- (2) ILS - Front Course Approach with Glide Slope Capture (Optional)
- (a) Track inbound to L.O.M. as described in Section b.(6) or (7) with ALT Hold mode engaged.
 - (b) Inbound to L.O.M. Slow to 110-120 MPH IAS and lower flaps to takeoff position (10 ° extension).
 - (c) Automatic Glide Slope capture will occur at Glide Slope Intercept if the following conditions are met:
 - 1. Radio Coupler in LOC/NORM Mode.
 - 2. Altitude Hold Mode engaged (ALT rocker switch on console).
 - 3. Under Glide Slope for more than 20 seconds.
 - 4. Localizer radio frequency selected on NAV receiver.
 - (d) At Glide Slope Intercept immediately reduce power to maintain 110-120 MPH CAS on final approach. Glide Slope capture is indicated by lighting of the green Glide Slope engage Annunciator Lamp and by a slight pitch down of the aircraft.
 - (e) Monitor localizer and Glide Slope raw data through out approach. Adjust power as necessary to maintain correct final approach airspeed. All power changes should be of small magnitude and smoothly applied for best tracking performance. Do not change aircraft configuration during approach while autopilot is engaged.
 - (f) Conduct missed approach maneuver as described in Section c.(1)(e).

NOTE

Glide Slope Coupler will not automatically decouple from Glide Slope. Decoupling may be accomplished by any of the following means:

- (1) Disengage ALT Hold mode.
- (2) Switch Radio Coupler to HDG mode.
- (3) Disengage Autopilot.

d. EMERGENCY OPERATIONS

This aircraft is equipped with a Master Disconnect/Interrupt Switch on the pilot's control wheel. When the switch button is depressed it will disconnect the autopilot. When depressed and held it will interrupt all Electric Elevator Trim Operations. Trim operation will be restored when the switch is released. If an autopilot or trim emergency is encountered, do not attempt to determine which system is at fault. Immediately depress and hold the Master Disconnect/Interrupt button. Turn off Autopilot and Trim Master Switch and retrim aircraft, then release the interrupt switch.

NOTE

During examination of this supplement, the pilot is advised to locate and identify the Autopilot controls, the Trim Master Switch and the Circuit Breakers for both systems.

- (1) In the event of an Autopilot malfunction the Autopilot can be:
 - (a) Overpowered at either control wheel.

CAUTION

Do not overpower Autopilot pitch axis for periods longer than 3 seconds because the Autotrim System will operate in a direction to oppose the pilot and will, thereby, cause an increase in the pitch overpower forces.

- (b) Disconnected by depressing the Master Disc/Inter Switch.
 - (c) Disconnected by depressing the Trim Switch "A/P OFF" bar.
 - (d) Disconnected by pushing the Roll rocker switch "OFF."
- (2) In the event of a Trim malfunction:
 - (a) Depress and hold the Master Trim Interrupt Switch.
 - (b) Trim Master Switch - OFF. Retrim aircraft as necessary using manual trim system.
 - (c) Release Master Trim Interrupt Switch - be alert for possible trim action.
 - (d) Trim Circuit Breaker - Pull. Do not operate trim until problem is corrected.
- (3) If a trim runaway occurs with the Autopilot operating, the above procedures will disconnect the Autopilot which will immediately result in higher control wheel forces. Be prepared to manually retrim, as necessary, to eliminate undesirable forces.
- (4) Altitude Loss During Malfunction:
 - (a) An Autopilot malfunction during climb, cruise or descent with a 3 second delay in recovery initiation could result in as much as 35° of bank and a 400 foot altitude loss.
 - (b) An Autopilot malfunction during an approach with a 1 second delay in recovery initiation could result in as much as 20° of bank and a 180 foot altitude loss. Maximum altitude loss measured in approach configuration and operating either coupled or uncoupled.

3. PERFORMANCE
No change.

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REPORT: VB-561 PAGE 3-25
MODEL: PA-32-260

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