

System Weight and Power Requirements

DESCRIPTION

Components for 2-axis system:
 KCS 55A Silver Crown Compass System
 KI 256 3" Flight Command Indicator
 KC 295 Flight Computer with Altitude Sensor
 KS 270 Pitch Servo w/KM 275 Mount/Capstan
 KS 271 Aileron Servo w/KM 275 Mount/Capstan
 KA 285 Mode Annunciator
 KC 290 Mode Controller
 KS 272 Trim Servo w/KM 276 Mount/Capstan

TOTAL FOR 2-AXIS SYSTEM

28.1 lbs. (12.8 kg.) 14V/15.5 AMP 28V/9.5 AMP

Additional Components for 3-axis system:

KS 271 Rudder Servo w/KM 275 Mount/Capstan
 KC 291 Yaw Controller
 KC 296 Yaw Computer
 KG 257 Yaw Rate Sensor

TOTAL FOR 3-AXIS SYSTEM

34.0 lbs. (15.6 kg.) 14V/18.1 AMP 28V/11.5 AMP

The following aircraft have been issued Supplemental Type Certificates (STC's) for the KFC 200 System. Additional aircraft STC's are in process. Please contact your dealer or the King factory if your aircraft is not listed.

Aerostar: Models 600/601/601P,
Beechcraft: Barons E55/E55A, 95-
 A55, 95-B55, 95-C55, D55, 58, 58P,
 58PA, 58TC, 58TCA, Bonanzas K35,
 M35, N35, P35, S35, V35, V35A,
 V35B, V35TC, V35ATC, V35BTC, 36,
 A36, F33A, Debonair, 35-C33A,
Cessna: Golden Eagle 421C, Titan
 404, Skymaster 337G, 340A, 310R,
 T310R, Centurions T210L/210L,
 T210K/210K, T210M/210M, Skylane

182P/Q, Piper: Chieftain PA31-350,
 Navajo C PA 31, Navajo CR, PA31-
 325, Aztec PA 23-250 (C, D, E, F),
 Seneca II PA34-200T, Lance
 PA32R-300, Arrow II PA28R-200,
 Arrow III PA28R-201T, Mooney:
 Executive M20F, M20J, Bellanca:
 Super Viking 17-30A, 17-31ATC,
 17-31A, Rockwell: Commander 114,
 112TC, 112, 112B, 112TCA.

NOTE: The above STC's are not valid for aircraft with STOL kits or other aerodynamic modifications, unless specifically authorized by the FAA.

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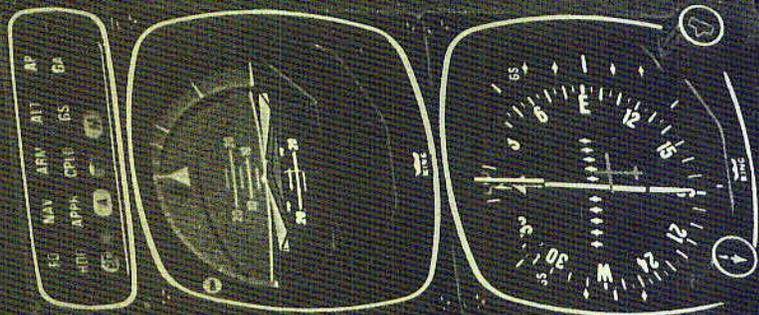
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PILOT'S GUIDE

KING KFC 200 FLIGHT CONTROL SYSTEM KAP 200 AUTOPILOT SYSTEM

PARDO



King
 Silver
 Crown

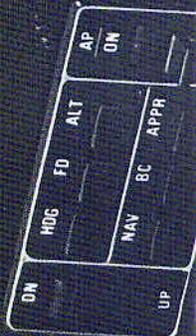


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The KCS 55A Compass System, which includes the KA 51A Slaving Control and Compensator Unit, the KMT 112 Magnetic Slaving Transmitter and the KG 102A Directional Gyro as well as the KI 525A Pictorial Navigation Indicator is an integral part of the KFC 200 system.

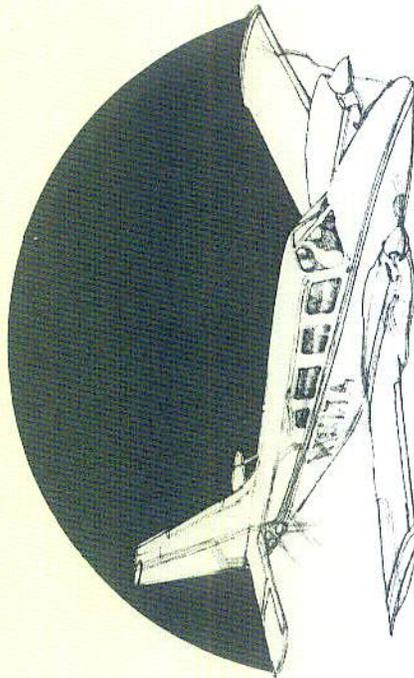
Careful study of the KCS 55A Pilot Guide will materially help in understanding and operation of the KFC 200 System.

Introduction to the KFC 200 Flight Control System

The KFC 200 Flight Director/Autopilot is a complete 2-axis (pitch and roll with altitude hold), integrated system with professional Flight Director displays. A 3rd axis option (yaw damper) is available.

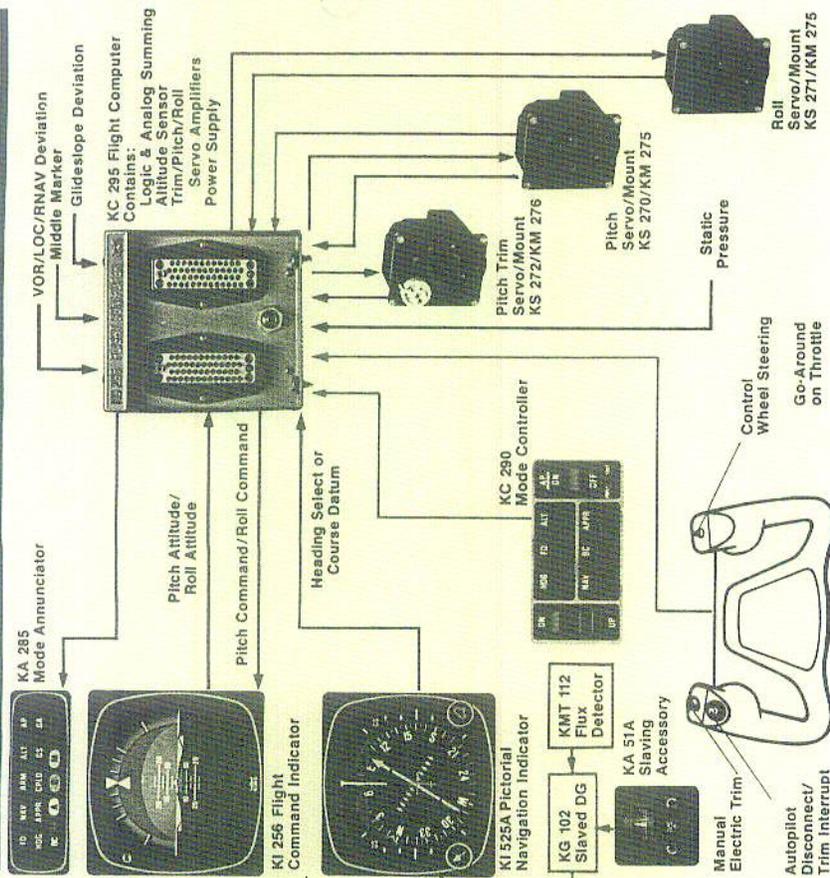
The basic 2-axis system provides all standard operating modes, plus important pilot-oriented features found only in larger, more expensive systems. Electric trim is also provided along with autopilot automatic trim.

The KFC 200 system includes the King KCS 55A slaved Pictorial Navigation system with remote electric gyro and Pictorial Navigation Indicator (PNI). This system replaces the standard Directional Gyro and Course Deviation Indicator (CDI) in your panel. It combines slaved heading and VOR/LOC/Glideslope deviation information in a symbolic pictorial presentation of the complete navigation situation.

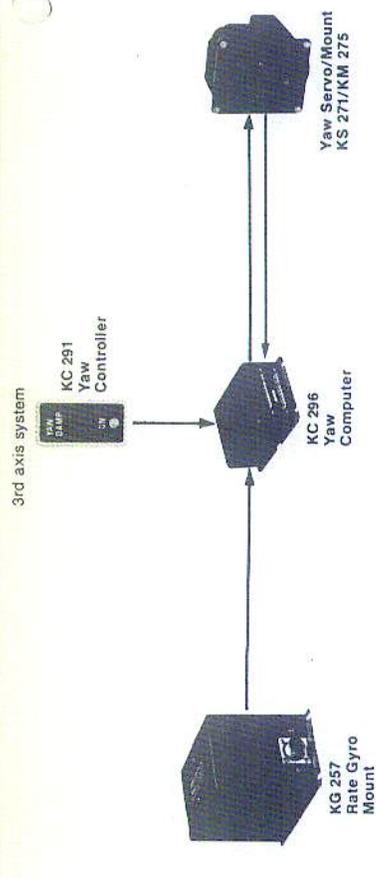


IMPORTANT: This Pilot Guide provides a general description of the various operational characteristics of the KFC 200 Flight Control System. However, operation of the system should not be attempted without first reviewing your FAA approved Aircraft Flight Supplement Manual for complete system familiarization.

Control System Components



(this is a 2-axis system)



KFC 200 System Integration

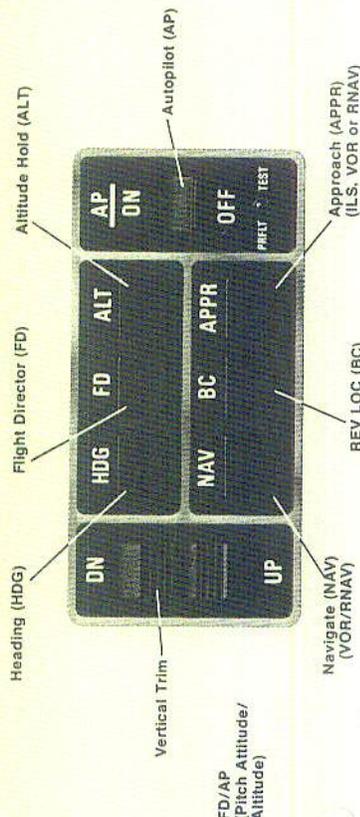
The adjacent system diagram shows the components of the KFC 200 integrated Flight Control System and their relationships. The system has a number of inputs and outputs: Sensor output shown in red; Computation input shown in blue; Display outputs shown in orange; Aircraft control shown in green. All sensor information (pitch and roll reference; Heading error or course datum; RNAV/VOR/LOC/GS deviation and flags; Marker receiver and static pressure (altitude) is fed into the KC 295 Flight Computer.

The Flight Computer computes roll and pitch steering commands. These two commands are routed to the KI 256 Flight Command Indicator, where they are displayed on the V-bar as visual guidance commands. These steering commands are also fed to the Autopilot computation circuits con-

tained in the Flight Computer and generate the aileron, elevator and elevator trim commands for the Autopilot. An optional yaw channel is available, but it is independent of pitch and roll commands. Using the same pitch and roll commands for Flight Director and Autopilot provides totally consistent Flight Director steering command and Autopilot control. There is no disagreement in computation. The Autopilot simply converts the pitch and roll steering commands from the Flight Computer, displayed on the V-bar in the FCI, into the required elevator and aileron position commands.

Full integration of Flight Director and Autopilot allows the pilot to delegate the manual effort of flying the aircraft to the Autopilot while monitoring its activity with the Flight Director.

Modes of Operation Flight Director System



Flight Director Mode

Attitude Reference

Power on and no modes selected. FCI displays aircraft attitude and PNI displays aircraft heading. Command V-bar is biased out of view. Aircraft engine must be running for pressure to be applied to FCI attitude gyro.

Flight Director (FD)

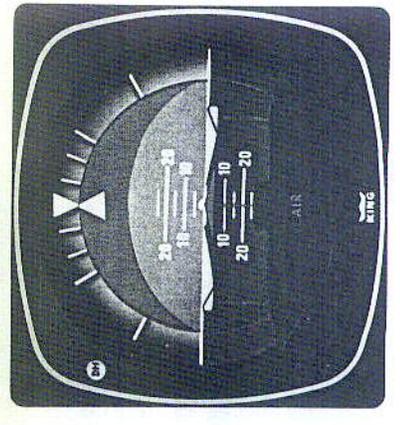
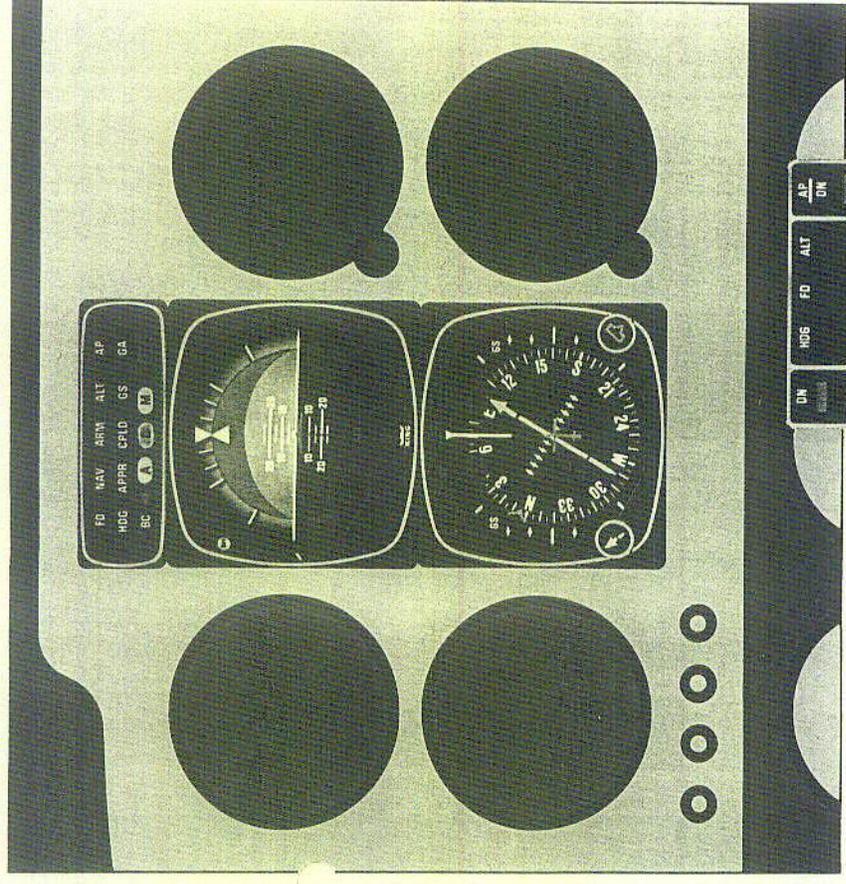
Command V-bar will appear and command wings level and pitch attitude of the aircraft at the time of mode selection.

- Heading (HDG) _____ Select desired heading on PNI, then select HDG mode and the system will command the necessary bank to turn to and maintain the selected heading.
- Navigate (NAV) (VOR/RNAV) _____ Bank command to capture and track a selected VOR or RNAV course.
- Approach (APPR) _____ Bank and pitch commands to capture and track LOC and Glideslope for precision approaches... bank command to capture and track VOR and RNAV courses for non-precision approaches.
- Reverse Localizer (BC) _____ Bank command to capture and track a reverse LOC course... Glideslope is locked out.
- ARM _____ Standby mode to compute automatic capture point for NAV, APPR or BC.
- CPLD _____ Active mode for NAV, APPR or BC.
- Go Around (GA) _____ Wings level and pitch up command to proper missed approach climb attitude.
- Altitude Hold (ALT) _____ Pitch command to maintain engaged altitude.
- Vertical Trim _____ Pitch command to adjust altitude at 500 fpm or pitch attitude up at 1 deg/sec, or down from the engaged altitude or pitch attitude.
- Autopilot (AP) Engage _____ Aircraft control surfaces (ailerons and elevators) smoothly respond to all selected Flight Director mode commands with automatic pitch trim. Engages Yaw Damper if present.
- Pitch Synchronize/Control Wheel Steering _____ Manual Flight maneuvering without the need to disengage and reengage the Autopilot/Flight Director and Autopilot; Synchronizes the pitch axis.
- Yaw Damper (YD) Engage (optional system) _____ System senses motion around yaw axis, and automatically moves rudder to oppose yaw.



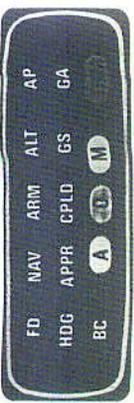
Typical Control Wheel Switch Arrangements

KFC 200 System Panel Checklist:

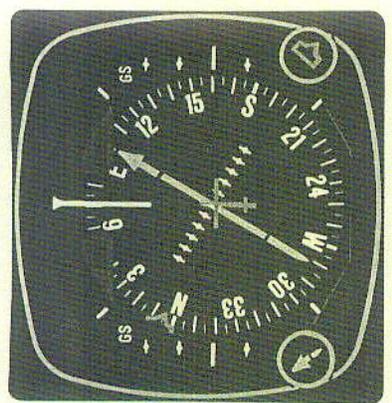


1. The KI 256 Flight Command Indicator (FCI) displays the following information:
 - Pitch and roll attitude
 - Pitch and roll commands
 - DH (Decision Height) annunciation when used with radar altimeter
 The KI 256 FCI contains a pressure-operated vertical gyro. Engine(s) must be running, pressure system operating and gyro up to speed before system will operate.

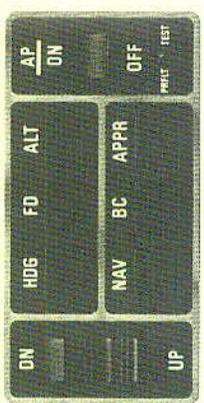
2. The KA 285 Annunciator Panel annunciates all vertical and lateral Flight Director/Autopilot system modes, including all "armed" modes prior to capture. Simply stated, it tells the pilot when his selected mode has been received and accepted by the system and if an "armed" mode is selected when capture has been initiated. It also has integral Marker Beacon lights and Trim failure warning.



3. The KI 525A Pictorial Navigation Indicator displays the following information:
 Aircraft magnetic heading
 Selected heading
 Selected VOR/LOC/RNAV course
 To-From course indication
 Course or LOC deviation
 Glideslope deviation
 Compass flag
 NAV flag



The KC 290 Mode Controller contains six pushbutton switches for turning on the Flight Director and selection of FD modes; a solenoid-held switch for Autopilot engagement; a Vertical Trim rocker switch and a Preflight Test button.



The KC 291 Yaw Mode Controller is installed adjacent and to the right of the KC 290 Mode Controller when the optional yaw (rudder) axis is included in the KFC 200 System. The yaw axis is wired so that it automatically engages when the Autopilot is engaged. Disengagement of the Yaw Damper is accomplished using the KC 291 or the A/P disconnect or the control wheel.



Operating the KFC 200 System

There are eleven (11) modes of operation that are provided by the KFC 200 system to offer the pilot Flight Director/Autopilot commands in response to his selection of desired modes on the Mode Controller.

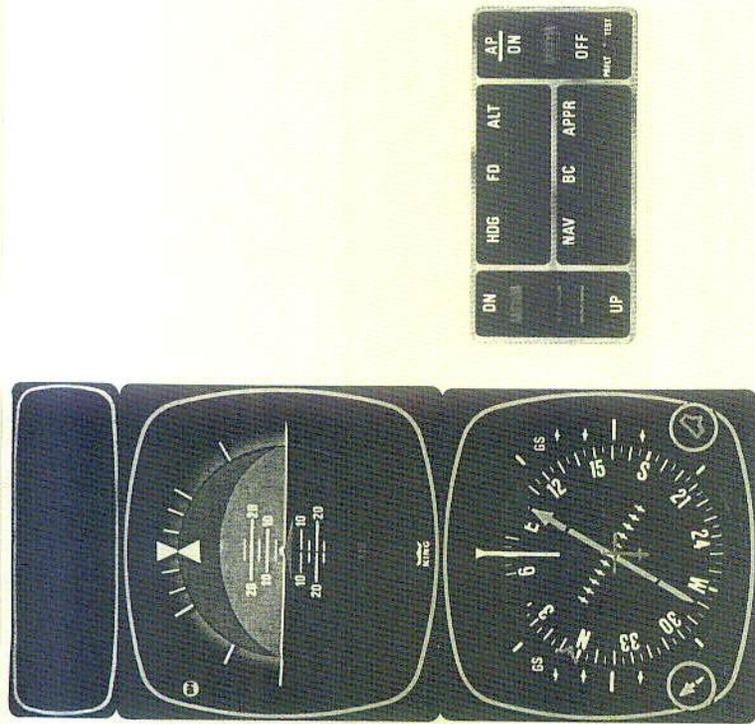
Most of these modes are activated by pushbutton switches on the Mode Controller. These pushbuttons operate with alternate action. The first depression of the pushbutton activates a mode; the second depression cancels it; if it has not already been automatically inactivated. Annunciation of the mode selected appears on the annunciator panel.

Any operating mode not compatible with a newly-selected mode will be automatically cancelled in favor of the pilot's latest selection. This lets the pilot advance

along his flight sequence without the inconvenience of having to manually cancel modes. For example, if in NAV CPLD mode, selection of Heading will automatically cancel NAV.

The Basic Mode of System Operation

The system will be in the Basic Attitude Reference or "Gyro" mode with engine running and aircraft "power on," but no modes selected (Annunciator Panel blank). This provides indication of aircraft heading on the Pictorial Navigation Indicator, and roll and pitch attitude on the Flight Command indicator. The FCI Command V-bar is biased out of view.



System Safety is Assured by Integrity Monitors.

The KFC 200 monitors the validity of the system sensors and the Flight Computer to alert the pilot when sensor information is faulty and when the system cannot respond correctly to command signals.

"Invalid" signals provide visual warning by means of the flags and annunciators. "Invalid" signals are also routed to the KFC 200 switching logic to "lock out" modes which will not operate reliably.

Most failures in the slaved compass system would be announced by a HDG flag and the system would not allow selection of the Heading mode.

The illustrations above show the KFC 200 Flight Director cockpit displays with all warning flags in view.

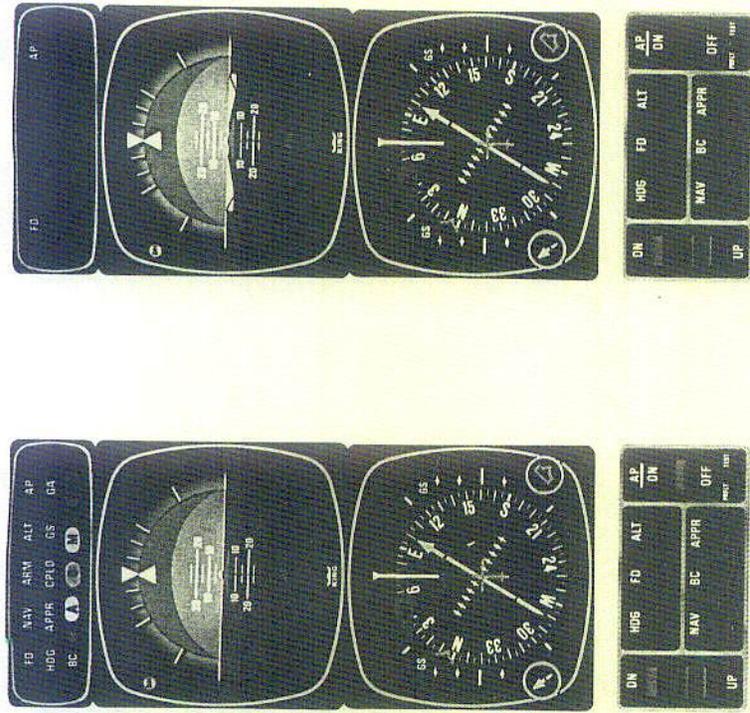
Flight Command Indicator warnings: Flight Director (FD) Command V-bar will bias out of view whenever the FD mode is not selected; when FD internal power is inadequate and when vertical gyro information is invalid.

The Pictorial Navigation Indicator

warnings: A HDG flag indicates that the compass card is not displaying proper heading. A NAV flag indicates that a valid NAV Signal is not being received.

When an ILS channel is selected on the NAV receiver and a valid Glideslope signal is received, the Glideslope pointers will drop into view. Glideslope coupling usually occurs at Outer Marker, when the Glideslope is intercepted and APPR CPLD. If, after GS coupling, the GS pointers are lost, the system will flash the GS Annunciator and revert from GS back to Pitch Attitude Hold. If the GS pointers return into view the system will revert back to GS coupled. The NAV warning flag indicates an invalid Localizer but has no effect on Glideslope operation.

The Trim warning light in the lower right corner of the Annunciator Panel will light when an Autotrim failure occurs or when the trim breaker is pulled. It will also flash at least four times when the TEST switch on the Mode Controller is depressed.



Preflight Test Determines, Before Takeoff, that the System is Operating Normally.

With power on, all circuit breakers in, and engine running, allow 3 minutes for the gyros to come up to speed.

Depress the slaving button on the KA 51A Slaving Meter, making sure you are in slaved gyro mode, and compare the compass card on the KI 525A with your magnetic compass. (See your KCS 55A Pilot Guide for more detailed information.)

With no modes engaged, depress the Preflight Test button on the Mode Controller. All modes will be announced on the Annunciator Panel, including the 3 Marker lights, and the red Autotrim light will flash. At least four flashes must be observed to indicate proper operation of the Autotrim monitor feature.

The pilot first engages the Flight Director to activate the Command V-bar. Then he engages the Autopilot. The Autopilot will not engage when the Flight Director is not operating.

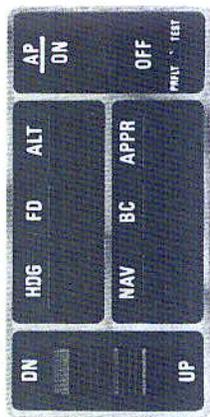
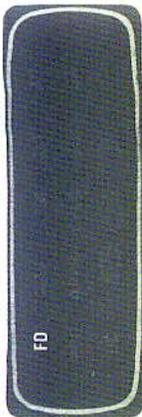
Now depress the CWS switch, center the display on the Flight Command Indica-

tor and release the CWS switch. Then apply force to the controls to determine if the Autopilot can be overpowered.

Disengage the AP and check aircraft manual pitch trim. Set trim to takeoff position. You are now ready to take off.

IMPORTANT: This Pilot Guide provides a general description of the various operational characteristics of the KFC 200 Flight Control System. However, operation of the system should not be attempted without first reviewing your FAA Approved Aircraft Flight Supplement Manual for complete system familiarization.

Pertinent limitations, procedures, and warning statements from your aircraft Flight Supplement Manual should be entered on page 27 of this Pilot's Guide.



FLIGHT DIRECTOR Mode (FD)

The Flight Director mode is activated by depressing the "FD" button on the Mode Controller.

The FCI Command V-bar will appear and provide the pilot with steering commands to maintain wings level and the pitch attitude that existed at the time of Flight Director engagement.

If pitch or roll attitude are changed, recycling the FD button will synchronize the Command V-bar to the new situation.

If a change only in the commanded pitch attitude is desired, the Control Wheel Steering (CWS) button installed on the pilot's control wheel allows the pilot to synchronize the Command V-bar (in the FD mode with Autopilot disengaged) without removing his hand from the control wheel.

The Flight Director can also be activated by direct selection of any specific mode, which will activate the Command V-bar. Such selection will illuminate both FD and the appropriate annunciator mode.

Special note: The FD mode must be activated before the Autopilot can be engaged.

The Vertical Trim switch may be used to adjust the selected pitch attitude up or down at 1 deg/second.

AUTOPILOT ENGAGEMENT (AP)

The Autopilot is engaged by moving the solenoid-held AP switch on the Mode Controller to the "ON" position.

The Autopilot provides two-axis (pitch and roll) stabilization and automatic elevator trim as well as automatic response to all selected Flight Director commands.

Installation of optional 3rd axis (rudder command) will damp out yaw oscillations and provide automatic turn coordination.

CAUTION: Overpowering the Autopilot in the pitch axis in flight for periods of 3 seconds or more will result in the autotrim system operating in the direction to oppose the pilot and will, therefore, cause an increase in the pitch overpower forces, and if Autopilot is disengaged, will result in a pitch transient control force. Operation of the Autopilot on the ground may cause the autotrim to run because of backforce generated by elevator downsprings or pilot induced forces.

CAUTION: Prior to Autopilot engagement, the pilot should make sure the V-bar commands are satisfied. This will prevent any rapid changes in the aircraft's flight path when the Autopilot is engaged.

HEADING SELECT/PRESELECT Mode (HDG)

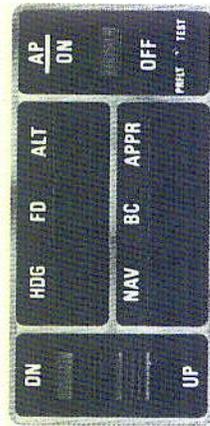
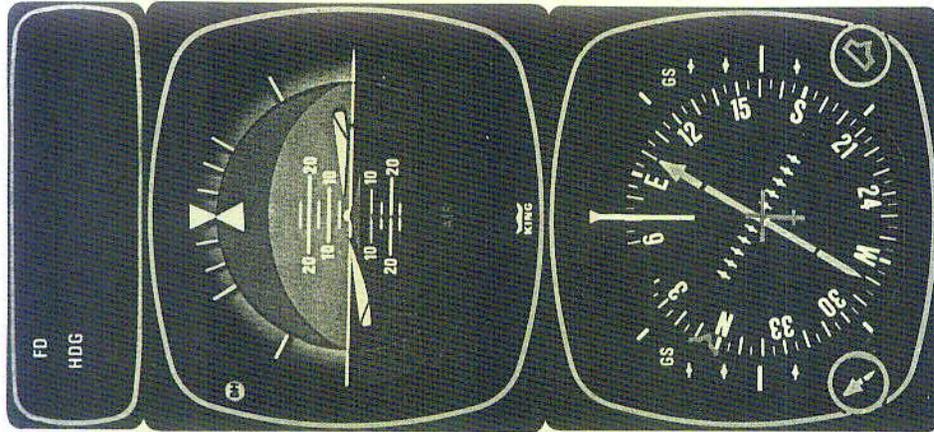
Select a desired heading by positioning the heading "bug" on the PNI. This is done with the HDG knob on the PNI.

Depress the HDG button on the Mode Controller to activate the HDG mode. "HDG" will light on the Annunciator Panel and a computed, visually displayed bank command is shown on the FCI. Following this bank command, the aircraft will bank and roll out on the desired preselected heading.

The Command V-bar on the FCI will deflect in the direction of the shortest turn to satisfy the commanded turn to the preselected heading. The aircraft may be manually banked to realign the V-bar and satisfy the command or if the Autopilot is engaged, the aircraft will automatically bank, turn to, rollout and hold the preselected heading. As the aircraft approaches the selected heading the V-bar will command a rollout to wings level.

With the HDG mode in operation, subsequent changes made in the heading "bug" position on the PNI will immediately cause the V-bar on the FCI to call for a turn to the new heading, unless the HDG button on the Mode Controller has been depressed again to cancel the HDG mode.

The HDG mode is cancelled when NAV or APPR coupling occurs, or when FD mode button is pushed to "OFF".



NAVIGATION (NAV ARM and NAV CPLD) Mode

The NAV mode provides visual bank commands on the Flight Command Indicator and deviation guidance on the PNI to intercept and track a VOR course or an RNAV course.

Operation of the NAV mode requires the pilot to:

1. Tune the frequency of the selected VOR (or VORTAC) station. For RNAV operation, set in waypoint distance and bearing from the VORTAC station.
2. Set the PNI course pointer on the desired course.
3. Establish angle of intercept by setting heading "bug" and activate "HDG" mode.
4. Depress the NAV button on the Mode Controller.

When the "NAV" button on the Mode Controller is depressed, "NAV/ARM" will be lighted on the Annunciator Panel and the automatic capture circuit is armed, provided a valid VOR or VORTAC signal is being received. Heading hold and heading select, if operating, are retained until capture occurs.

The VOR or RNAV "course-capture" point is variable to prevent overshoot and depends on angle of intercept and the rate the course deviation is changing. Upon capture, a bank command will be displayed on the FCI; the HDG, if on, will be cancelled and "NAV/CPLD" will be lighted on the Annunciator Panel.

The pilot can manually bank the aircraft to satisfy the command display which will call for a rollout to level flight when on course centerline to track the course. Crosswind compensation is provided in the "track" state.

If the NAV mode is selected with the aircraft level within $\pm 4^\circ$ of bank and within three dots of course deviation, NAV/ARM will be bypassed and NAV/CPLD will engage directly.

If the Autopilot is engaged, the aircraft will bank to satisfy the command display and rollout on course automatically.

Upon station (or waypoint) passage, an outbound course other than the inbound reciprocal can be selected by resetting the NAV course arrow on the PNI. This will cause an immediate V-bar deflection on the FCI directing a turn to the new course.

The NAV mode is cancelled by depressing the NAV button, or selecting HDG (when in NAV coupled) or APPR modes, or pushing FD to "OFF".

APPROACH (APPR/ARM and APPR/CPLD, GS/CPLD) Mode

The APPR mode provides visual roll and pitch commands on the FCI V-bar to capture and track precision ILS (LOC and Glideslope) beams, or non-precision VOR or RNAV radials. Lateral and vertical deviation can be monitored on the PNI.

Operation of the APPR mode requires the pilot to:

1. Set the NAV receiver frequency.
2. Set the PNI course pointer to the inbound runway heading or the front course in case of ILS precision approach. Do this even on back course approach.
3. Set the HDG SEL "bug" on the PNI to the desired intercept angle and activate "HDG" mode.
4. Depress the "APPR" button on the mode controller.

The automatic APPR capture function will be immediately armed. "APPR/ARM" will be lighted on the Mode Annunciator Panel.

In APPR/ARM mode, prior to capture, the heading hold mode is retained and HDG is retained to allow the pilot to adjust heading to Approach Control vectoring instructions.

The LOC beam or VOR/RNAV "capture" point will vary, depending on angle of intercept and rate of change of deviation indication. Upon capture, a bank command will be introduced on the FCI, the existing heading mode will be cancelled and "APPR/CPLD" will be lighted on the Annunciator Panel.

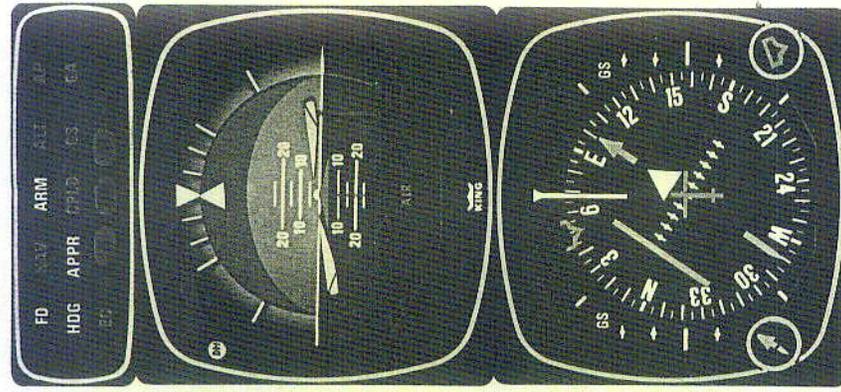
The pilot may manually bank the aircraft to satisfy the command display, which will command a rollout to level flight when the aircraft is on course. Automatic crosswind compensation will provide precise tracking. VOR/LOC deviation is shown on the PNI, and actual crab angle will be shown by offset of the course arrow from the lubberline.

Throughout APPR mode operation LOC and Glideslope deviation or VOR/RNAV deviation are displayed on the PNI.

If the Autopilot is engaged during operation in the APPR mode, automatic steering response will follow the command display on the FCI.

The Glideslope mode is armed for automatic capture if LOC front course capture has occurred. Automatic Glideslope capture occurs as the aircraft approaches the glide path from above or below.

Upon interception of the Glideslope, capture occurs and "GS" is lighted on the Annunciator Panel. A smooth capture pitch command is displayed by the Command V-bar. The pilot (or Autopilot) controls the

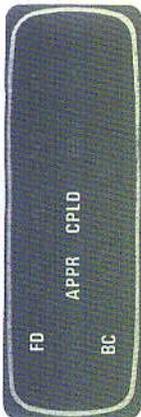


aircraft to satisfy the Command V-bar.

Upon GS capture, the ALT HOLD mode (if active) is cancelled. However, ALT HOLD may be manually reselected to maintain altitude upon reaching MDA or DH if visual contact is not established.

During VOR or RNAV approaches, Glideslope capture will not occur because the NAV receiver is channeled to a VOR station, not an ILS, and this locks out the Glideslope function.

APPR/CPLD mode is cancelled by selection of HDG, NAV, or Go-Around modes... or pushing FD or APPR to "OFF".



BACK COURSE (BC) Mode

Whenever a LOC or ILS frequency is selected, the BC mode may be activated by depressing the BC button on the Mode Controller, **after** selecting APPR. When in BC mode and Localizer capture occurs, the system will turn and track outbound on the front course or inbound on the back course. The BC mode reverses the LOC deviation signal and course datum to permit the FCI steering command display to operate on a fly-to rather than a fly-from basis on the reverse course. "BC" is lighted on the Annunciator Panel.

Operation on BC is identical to front course operation, except that automatic Glideslope capture is "locked out" by the switching circuitry. Localizer deviation on PNI will have the proper sensing if the front inbound Localizer course was set on the PNI.



GO-AROUND Mode

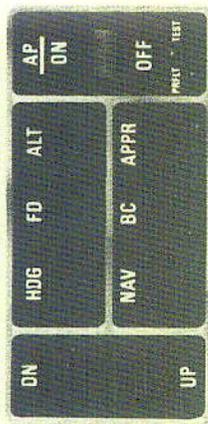
The Go-Around mode is primarily designed to assist the pilot in establishing the proper pitch attitude under missed-approach conditions. The Go-Around switch is located on the throttle lever for pilot convenience when applying climb-out power.

Depression of the Go-Around switch during an approach cancels all Flight Director modes and disengages the Autopilot, if it is engaged.* A wings-level and pitch-up command is displayed by the FCI and "GA" is lighted on the Annunciator Panel. The magnitude of the pitch-up command is adjustable to match Flight Manual criteria for each aircraft model.

The Go-Around mode may also be used on takeoff for climb-out attitude guidance. When used for takeoff, the Go-Around mode may be followed with HDG for continuous heading control during departure. NAV and APPR modes may also be armed for automatic capture and guidance during the departure sequence.

Go-Around may be cancelled by use of Vertical Trim, Altitude Hold mode, Control Wheel Steering mode or by turning off the Flight Director.

**Some airplanes are certified with the Autopilot remaining engaged when GA is selected.*



ALTITUDE HOLD (ALT) Mode

This mode will cause a computed visual pitch command on the FCI Command V-bar to hold the aircraft at the present altitude existing at the time it was activated.

The mode is activated manually by depressing the "ALT" button on the Mode Controller. For smoother operation, engage ALT at no more than 500 ft/min. climb or descent.

If the Autopilot is engaged, it will follow the Command V-bar and automatically hold the aircraft at that altitude.

The Vertical Trim switch may be used to adjust the altitude up or down at 500 fpm without disengaging the mode. This enables the pilot to conveniently adjust the aircraft altitude because of a new altimeter barometric setting while enroute, or to make short descent segments during a nonprecision approach.

The ALT mode is cancelled by automatic Glideslope capture or selection of Go-Around modes, depressing the ALT button, or selection of FD to "OFF."

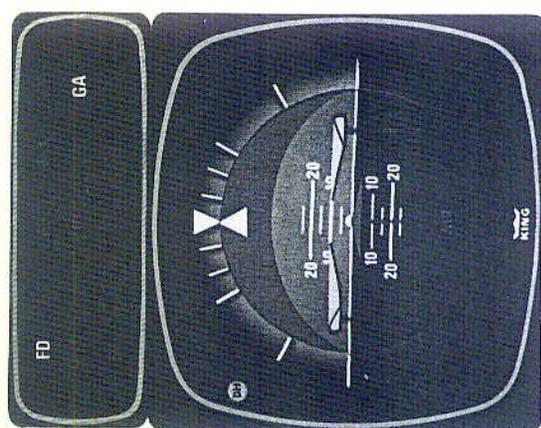
CONTROL WHEEL STEERING (CWS) Mode

When the Autopilot is engaged, Control Wheel Steering provides the pilot with the capability for natural and convenient manual maneuvering of the aircraft without the need to disengage and reengage the Autopilot, or reselect any modes of operation.

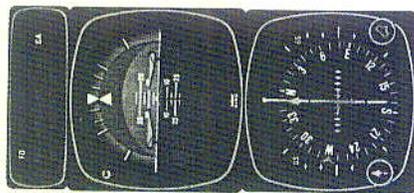
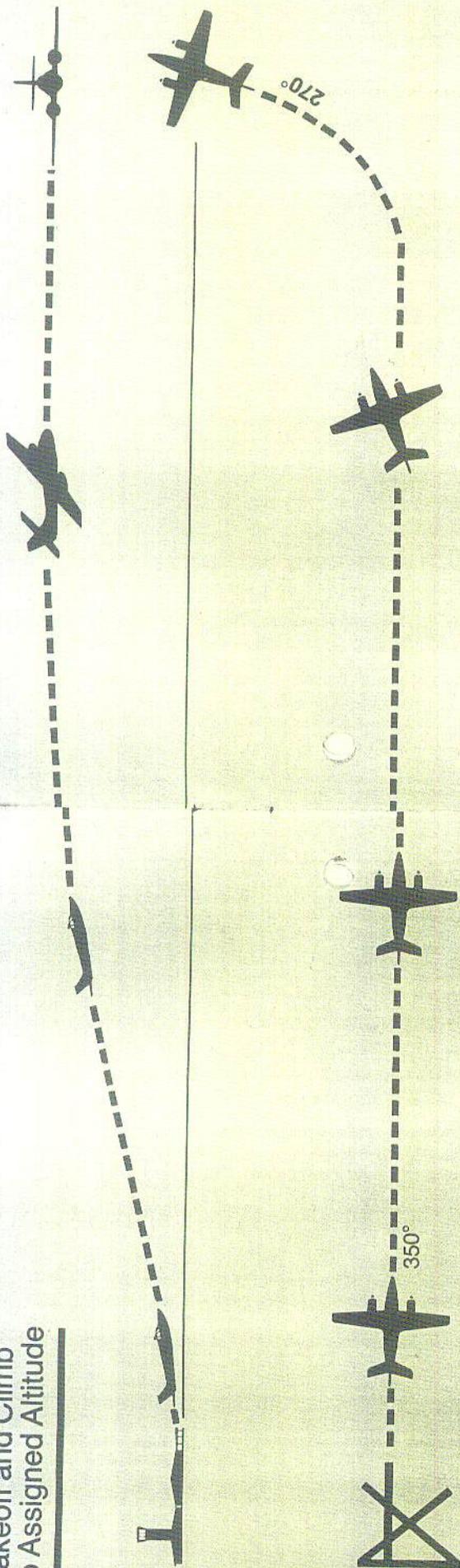
The CWS mode is engaged by continuous pressure on the CWS button, preferably located on the right-hand horn of the control wheel. Operation of the CWS button causes immediate release of Autopilot servos and allows the pilot to assume manual control, while Autopilot control functions and Pitch Command and Altitude Hold modes are placed in a synchronization state.

This means that these modes remain in continuous synchronization with the pilot's aircraft maneuvers so that, upon release of the CWS mode button, the Autopilot will smoothly reassume control of the aircraft to the original lateral command and existing vertical command.

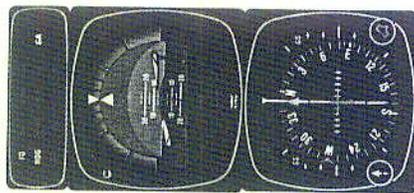
Since all engaged modes remain coupled (in synchronization) during operation of the CWS mode, their annunciator lights will continue to show on the Annunciator Panel. The CWS mode is not separately announced.



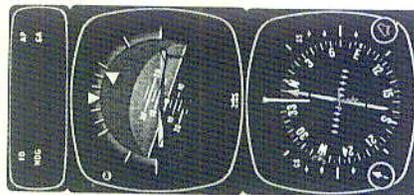
Takeoff and Climb to Assigned Altitude



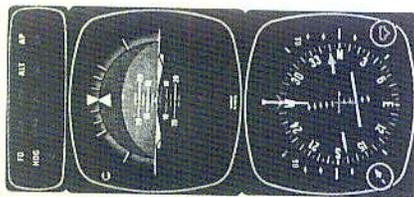
1. The FD has been engaged, Takeoff is in the GO-AROUND mode, activated by depressing the GO-AROUND button located on the throttle. "GO-AROUND" is lighted on the annunciator panel. Wings are commanded level and the nose up to the GO-AROUND angle. Takeoff is on runway 35 as shown on the PNI.



2. The aircraft is well off the ground and climbing. The heading "bug" on the PNI is turned to a desired heading and HDG mode has been pushed on. The Flight Director has responded with the Command V-bar calling for a left turn to the 270° heading and takeoff pitch attitude. The aircraft has not yet responded to the heading command but will as soon as the Autopilot is engaged.

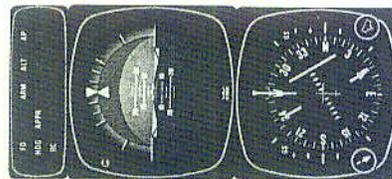
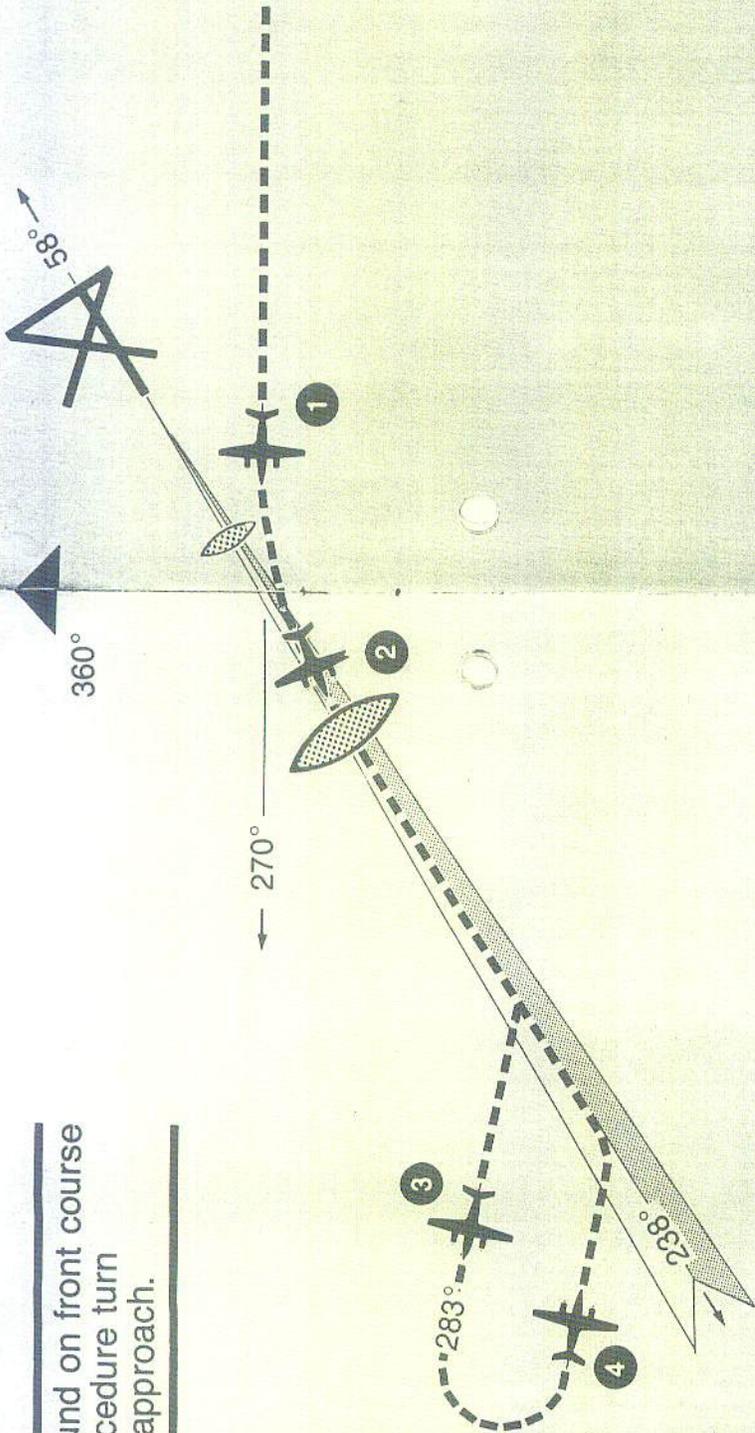


3. With the Autopilot engaged, the aircraft is responding to the FCI commands with a 22° left bank. Takeoff climb attitude continues.

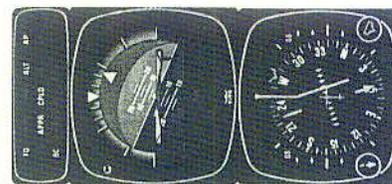


4. Desired altitude has been reached, ALT HOLD mode has been engaged and the aircraft has returned to level flight. The 270° heading has been acquired.

Outbound on front course for procedure turn to ILS approach.

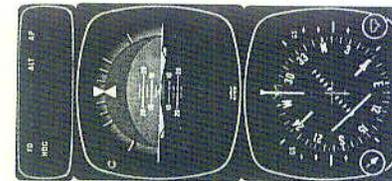


1. In HDG SEL and ALT Hold mode on a LOC channel, the aircraft is heading 270° toward the Localizer. The front inbound localizer course of 58° is selected. APPR mode and "BC" have been selected. The back course (BC) mode is selected to go outbound on the front course. The capture point is now being computed, based on beam rate.

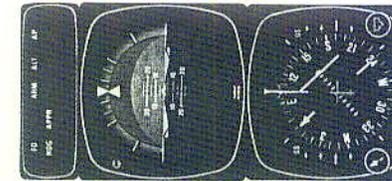


2. When the computed capture point is reached the APPR CPLD mode is automatically activated and a left turn outbound on the localizer is commanded by the FCI, and is satisfied by the Autopilot.

Note that the left-right deviations of the bar give "fly-to" indications just as on the front course inbound.

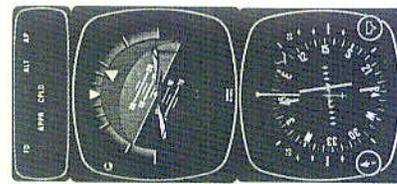
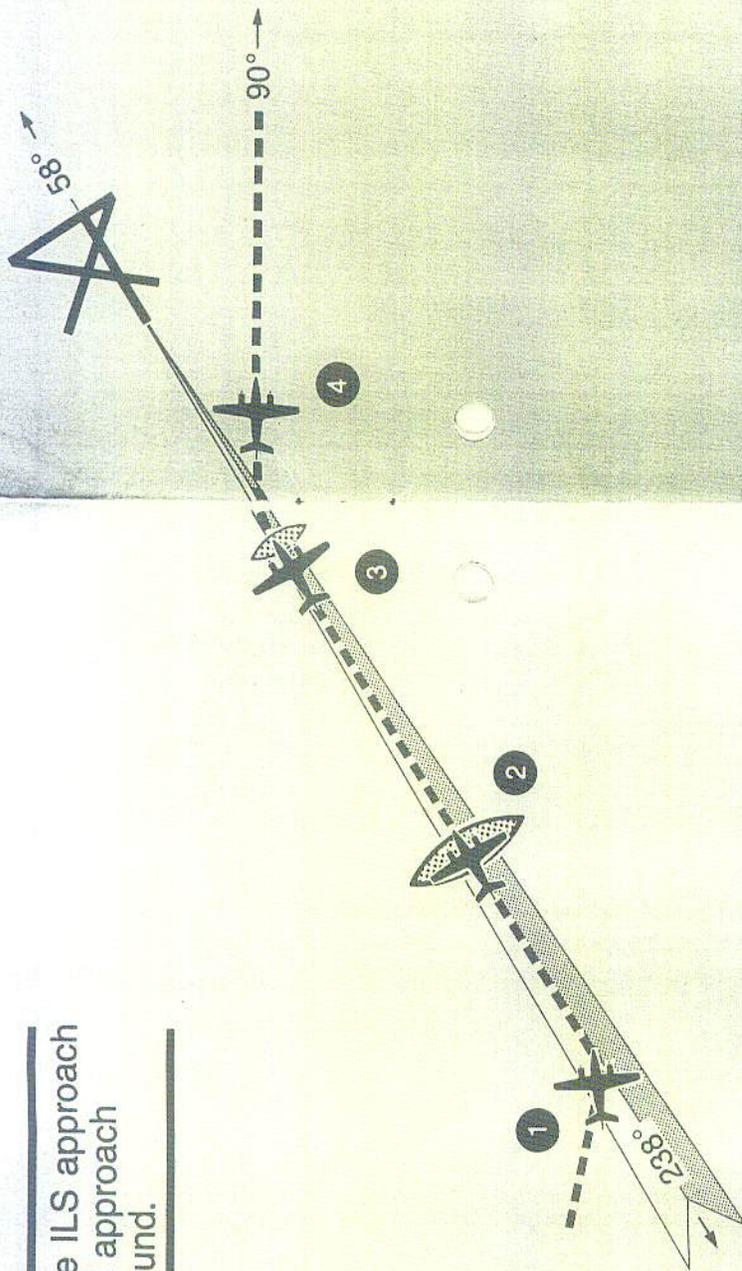


3. During the procedure turn outbound the deviation bar shows pictorially that the aircraft is flying away from the Localizer centerline at a 45° angle on a selected heading of 283°.

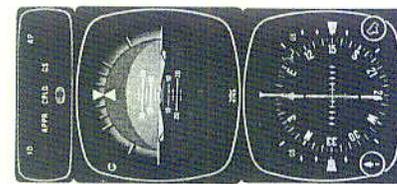


4. Now you have reset the heading select bug to 103° and made a 180° turn to this heading. This 103° heading will intercept the front course. You must deactivate Back Course by depressing the BC button on Mode Controller. The PNI clearly pictures the course you are to intercept and the angle of interception. APPR AFM mode has been selected so that automatic capture of the Localizer will occur.

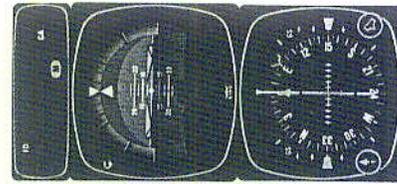
Front course ILS approach with missed approach and Go-Around.



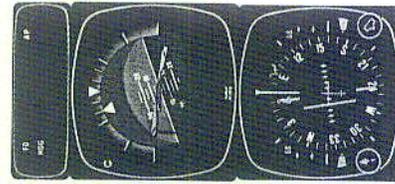
1. Continuing the maneuver on preceding page, APPR coupling occurs and the Glideslope mode is automatically armed. The Command V-bar will command a turn to the LOC course and the PNI shows your position in relation to the LOC course.



2. The Autopilot (or pilot) is following the Command V-bar on the FCI which commands the necessary heading to maintain on centerline of the Localizer. At the Outer Marker the Glideslope points are approximately at midpoint. Altitude Hold is automatically disengaged and Glideslope capture occurs when the airplane passes thru beam center. The V-bar will command a descent on the Glideslope and on Localizer.

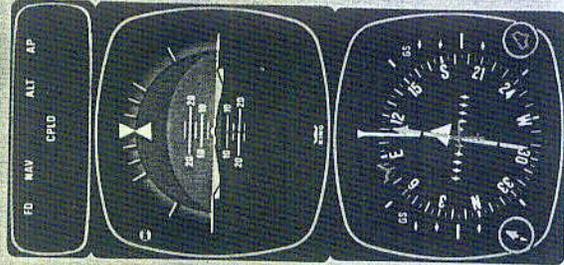
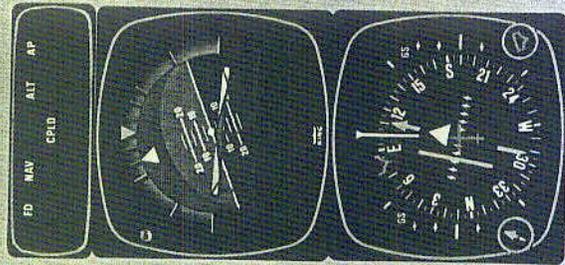
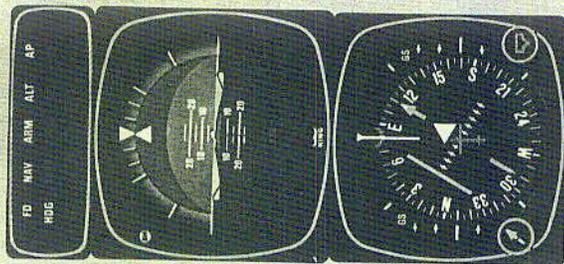
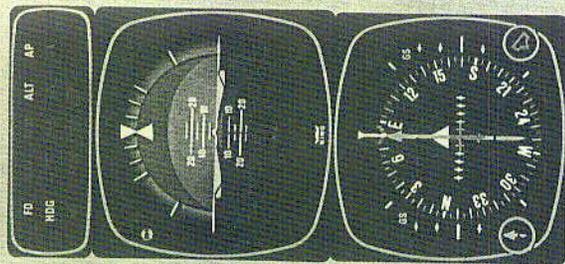
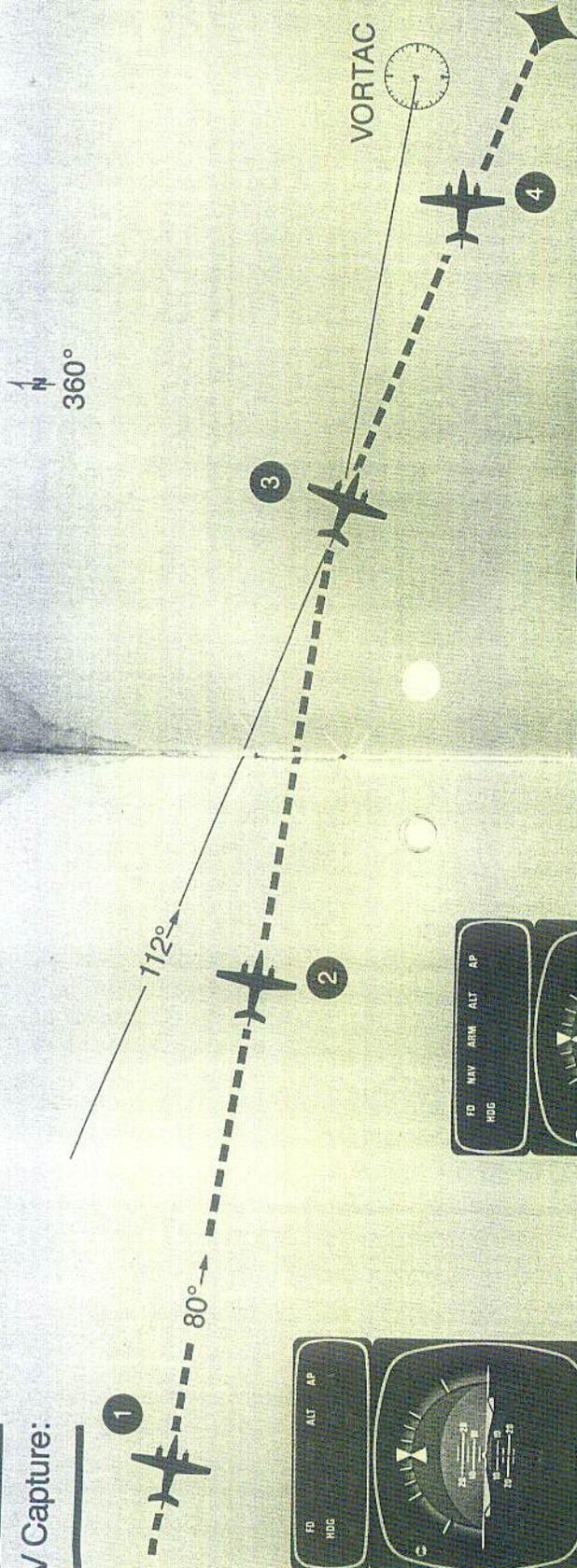


3. At the Middle Marker a missed approach is executed by pressing the Go-Around button on the throttle as you increase power. This disengages the Autopilot and the FCI commands the correct nose-up attitude and wings level. At the discretion of the pilot, the Autopilot may be reengaged to complete the missed approach. Some airplanes are certified with autopilot remaining engaged when GA selected.



4. The heading "bug" has been previously set to the missed approach heading, 90°. Activating the HDG mode will cause the Command V-bar in the FCI to command a turn to that heading. Pitch-up attitude may be adjusted from the Go-Around angle by using CWS or the Vertical Trim control on the Autopilot controller, either of which terminates "GA" mode.

RNAV Capture:



1. The aircraft is flying an OMNI airway in HDG mode on a heading of 80°.

2. A waypoint has been established and the RNAV computer is in ENROUTE mode. A 112° course to the waypoint has been selected and NAV mode pushed "on". HDG and NAV/ARM modes are activated for automatic capture of the 112° course to the waypoint. The capture rate is now being computed based on beam rate. The airplane must be headed toward the selected course in order for NAV/CPLD to occur.

3. Capture sequence starts when NAV/CPLD mode is automatically engaged, cancelling the NAV/ARM and HDG modes. The Command V-bar will call for a 22° bank which is being satisfied by the Autopilot.

4. The aircraft has completed its turn to the 112° course. A wind correction produces an aircraft heading of 105°, displaying a 7° "crab" angle to maintain the 112° course.

KAP200 AUTOPILOT SYSTEM

Lower cost option to the complete Flight Director/Autopilot System

With this optional control system configuration, King offers you proven Autopilot only performance at a considerable savings in cost.

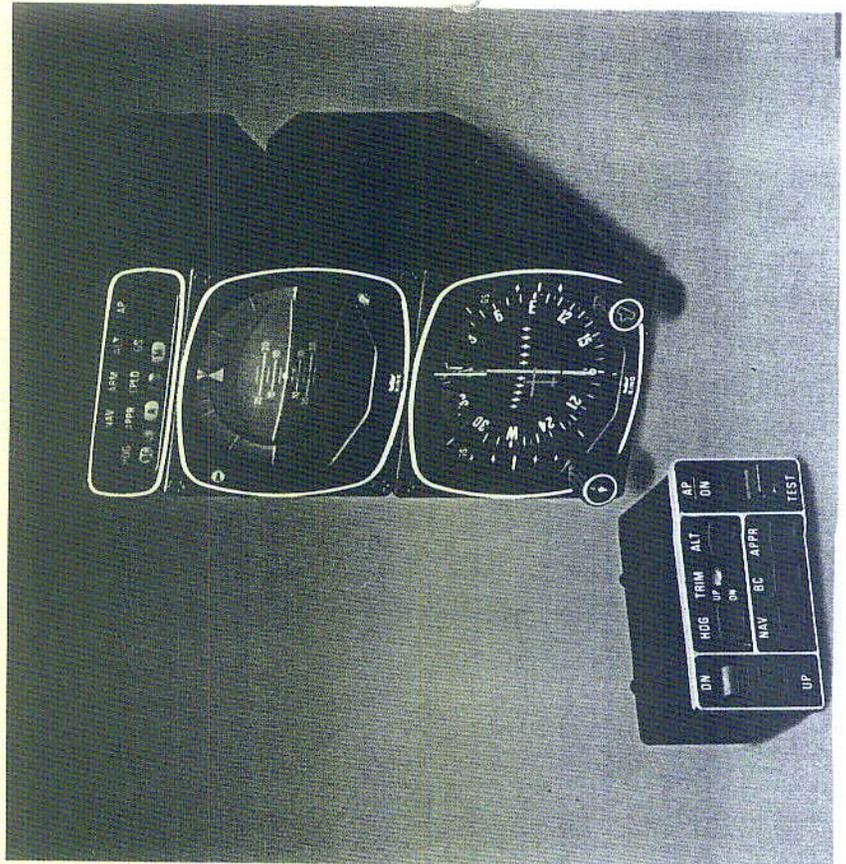
An air driven panel-mounted KG 258 Vertical Gyro replaces the V-bar Flight Command Indicator in this system. There are no Flight Director "V-bar" computed commands or Go Around modes.

The KC 292 Mode Controller replaces the KC 290 and has a servo trim indicator in place of the Flight

Director button on the KC 290 Controller.

The basic Autopilot mode is wings level and pitch attitude hold with ALT, NAV, APPR, BC, and HDG select modes available.

Thus, with a minimal reduction in sophistication, this affordable King system retains the most desirable workload-reducing features of the KFC 200's slaved Pictorial NAV, Annunciator and Autopilot systems.



NOTES (TO BE COMPLETED BY AIRCRAFT OWNER)

REFERENCE: FAA APPROVED FLIGHT MANUAL SUPPLEMENT FOR KFC 200 INSTALLATION IN MODEL _____

LIMITATIONS: _____

PROCEDURES: _____

CAUTION/WARNING STATEMENTS: _____

