SCHWEIZER AIRCRAFT CORP.

Supplement to the Approved
Rotorcraft Flight Manual
For

Schweizer 300CB Helicopter
Model 269C-1

INSTRUMENT/AVIONICS INSTALLATIONS

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NOTES

The change bar (▮) defines the latest FAA Approved changes. The asterisk (*) indicates not officially approved.

REVISION TABLE

Number	Date	Description
#1	04 Dec 1995	Revised to include KX 155, KI 203 and KI 208.
#2	17 Apr 1996	Revised to include KX 165, "Hot Mic", Transfer/Channel Increment Switch, KR87, KR 21, KMA 24H, KI 229, KN 62A, KCS55A and Avionics Master Switch.
#3	21 May 1997	Revised to include KI209 Indicator and Transmitter/Receiver, Audio Monitor Selector Switch and miscellaneous other changes.
#4	09 Jan 1998	Revised to include GNC 250/250XL Comms/GPS.
#5		Never Issued.
#6	23 Jul 1998	Revised to include GPS 150, GPS 150XL and KLN 89B GPS.
#7	20 Feb 2001	Revised to include GPS 430 COMM/NAV/GPS.
#8	02 Mar 2001	Revised to include GTX 320 Transponder
#9	29 Mar 2001	Revised to include GTX 320A and GTX 327 Transponder

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SECTION I

Introduction and General

This supplement contains basic operating instructions for avionics and instrumentation which may be installed on the aircraft. As installed equipment varies with each aircraft, it is the pilot's responsibility to become familiar with the operation and function of all installed equipment.

This supplement must be carried in the applicable basic FAA approved 300CB Model 269C-1 Rotorcraft Flight Manual when the rotorcraft is equipped with any of the instruments or avionics whose operation is contained herein.

Except as modified by this flight manual supplement, operation in compliance with the basic approved Rotorcraft Flight Manual is mandatory.

SECTION II

Limitations

The installation of the equipment listed in this supplement is for VFR aircraft, only, and does not make the aircraft eligible for flight into IFR or IMC conditions.

If this aircraft has an installed GPS Navigation System, a placard (Garmin P/N 161-00024-00, S.A.C. P/N 269A4646-265, or equivalent) stating “GPS limited to VRF use only” must be installed in clear view, and be easily readable by the pilot.

If this aircraft has an installed GPS Navigation System, the GPS manufacturer’s operation manual must be immediately available to the flight crew.

SECTION III

Emergency and Malfunction Procedures

In case of electrical system failure, all unnecessary electrical equipment should be turned “OFF” to conserve battery power.

Specific emergency procedures for avionics are provided in the individual operating instructions where applicable.

SECTION IV

Normal Procedures

The pilot's cyclic stick pistol grip incorporates a three position "trigger" switch. When the "trigger" switch is pulled to the first detent, the plot's microphone is connected to the aircraft intercom (ICS) system. When the "trigger" switch is pulled through the first detent into the second detent, the pilot's microphone is connected to the radio transmitter and the radio transmitter is "keyed" to transmit. When the "trigger" switch is released, it returns to the "off" position.

If the aircraft is equipped with dual controls, the "trigger" switch on the co-pilot's cyclic stick pistol grip operates the same as the "trigger" switch on the pilot's cyclic stick, except the co-pilot "trigger" switch controls the co-pilot's microphone.

An optional floor mounted "ICS-XMIT" foot activated switch may be installed. When the footswitch is depressed on the side placarded "ICS", the crewmember with the footswitch, has his microphone connected to the aircraft intercom system. When the footswitch is depressed on the side placarded "XMIT", the crewmember with the footswitch, has his microphone connected to the radio transmitter and the radio transmitter is "keyed" to transmit.

The aircraft is provided with headset plug-ins for all crew members. These plug-ins are hanging cords and are located between the pilot and co-pilot seats near the top of the seatbacks. The pilot's plug-in is a plain cord. The co-pilot plug-in includes a plastic box, (with a clothing clip for attaching to shirt pocket, etc.) an "ICS" momentary activation switch (for access to the intercom system) and a coiled cord.

CAUTION

AVIONICS SHOULD BE TURNED ON ONLY AFTER ENGINE STARTUP. THIS IS A SIMPLE PRECAUTION WHICH HELPS PROTECT THE SOLID STATE CIRCUITRY AND EXTENDS THE OPERATING LIFE OF YOUR AVIONICS EQUIPMENT.

4.1 KY 96A/196A VHF COMM. TRANSCEIVER

To turn on the radio rotate the Volume (VOL) knob clockwise from the OFF position. When power is activated the USE and Standby (STBY) windows will display the frequencies and/or mode stored in the non-volatile memory before power down.

After activating power, pull the VOL knob out to override the automatic squelch and rotate the VOL knob to the desired audio level. Push the VOL knob back in to activate the automatic squelch.

TRANSMIT INDICATOR

During Comm transmissions, a TX (KY96A) or a T (KY 196A) will appear between the USE and STBY windows to indicate that the transceiver is in the Transmit mode of operation:

KY 96A COMM Transceiver [TSO'd]

MODES OF OPERATION

A. Frequency Mode

Frequency selection is accomplished in the Standby Entry mode by changing the frequency display in the STBY window of the display with the tuning knobs, and then transferring the selected frequency into the USE window by pressing the Transfer button. The larger tuning knob will increment or decrement the MH_Z portion of the display in 1 MH_Z steps with rollover at each band edge (118.000 MH_Z or 136.975 MH_Z). The smaller tuning knob will increment or decrement the KH_Z portion of the display in 50 KH_Z steps with the knob pushed in, or in 25 KH_Z steps with the knob pulled out. While in the Standby Entry mode, the transceiver remains tuned to the frequency displayed in the USE window at all times.

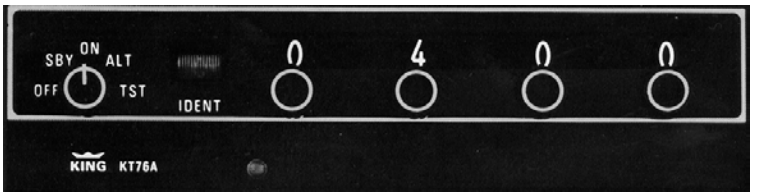
Amplified operating instructions are provided in Bendix-King Publications No. 006-08431-0002 (KY96A) and No. 006-8438-000 (KY196A).

KY 196A COMM Transceiver [TSO'd]

4.2 KT76A TRANSPONDER

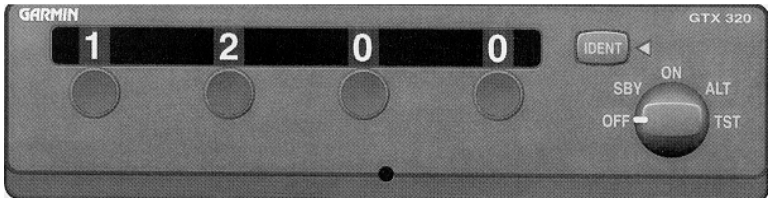
Turn on the KT76A transponder by rotating the function selector knob to standby (STBY) for approximately 45 seconds, then to ON or ALT. Rotating the function selector knob to test TST position will cause the reply light to illuminate if test is successful. The transponder code is entered by rotating the code control knobs. During some operations, ATC may request the pilot to IDENT which will require a momentary depressing of the IDENT push button on the KT76A transponder. If aircraft is equipped with an altitude encoder, the transponder function selector knob must be turned to the ALT position in order to provide altitude reporting to ATC.

Amplified operating instructions are provided in Bendix-King Publication No. 006-8244-08.



KT 76A Class 1A Transponder [TSO'd]

4.2B GTX 320/320A TRANSPONDER OPERATING INSTRUCTIONS



Detailed operating instructions can be found in the (GARMIN P/N 190-00133-09) GTX 320/320A Pilot's Guide. Some highlights of that pilot's guide are printed here.

Operation of this transponder will be very familiar to most pilots. Many pilots will only need to know that the **reply light** is the little caret **beside** the **IDENT** button, and that the TST function only tests the reply light. Pressing the **IDENT** button causes the special identification pulse to be added to any normal Mode A or Mode C replies, and it lights the reply light, for 20 seconds. **ON** provides only Mode A replies. **ALT** provides both Mode A and Mode C (altitude) replies, and is the normal operating mode.

When changing codes in **ON** or **ALT**, do not pass through codes 0000 (government), 7500, (hijack), 7600-7677 (COMMunication failure), or 7700-7777 (EMERGENCY), or it may trigger an automatic alarm, at Air Traffic Control.

4.2C GTX 327 TRANSPONDER OPERATING INSTRUCTIONS

Detailed operating instructions can be found in the (GARMIN P/N 190-00187-00) GTX 327 Pilot's Guide. Some highlights of that Pilot's Guide (and the Installation Manual) are printed here.

Many pilots will only need to know that the (Model A) reply code is usually displayed, and that pressing a number button starts over writing in a new reply code (left to right). During new code entry, the **CLR** button works as a backspace, and the **CRSR** button cancels a partial (less than four number button presses) entry. As expected, **SBY** switches the radio ON but allows no replies, **ON** starts only Mode A replies, **ALT** starts both Mode A and C replies, and OFF switches the transponder **OFF** (if held in for at least two seconds). If the helicopter has an optional Avionics Master Switch, the GTX 327 will remember which mode was selected before the Avionics Master was switched OFF. There is no TEST mode to test the reply light because there is no separate reply light; there is, instead, a circled "R" that shows up on the lower left corner of the display, for a reply indicator. The **IDENT** button activates 18 seconds of IDENT and adds the word "IDENT" to the upper left corner of the display. The **VFR** button toggles to and from a VFR code (usually 1200) from the entered Mode A reply code that is remembered (even during shut down) until a new code is four button entered. (The VFR code may be pilot selected, in the Configuration mode.)

Pressing the **FUNC** button advances the PRESSURE ALT part of the display through three different six digit stopwatch type timers: a FLIGHT TIME duration timer, a similar COUNT UP timer, and a reverse operating COUNT DOWN timer (that may all be operated simultaneously), and then back to (encoder) altitude. Use the **CRSR** button and six presses of the ten number buttons, to select the starting time for the count down timer. The **START/STOP** button starts or stops (and the **CLR** button resets) whichever timer is presently in view. When the COUNT DOWN timer passes zero, it flashes and continues as a count up timer, and "COUNT

DOWN" is replaced by "EXPIRED." When the PRESSURE ALT(altitude encoder output) function is displayed, an up or down arrow will appear, to the right side of "PRESSURE ALT," when the helicopter rate of climb exceeds the number of feet per minute selected in the Configuration mode. This altitude display can be pilot configured to read flight level, feet or meters.

When changing codes in **ON** or **ALT,** do not pass through codes 0000 (government), 7500 (hijack), 7600-7677 (COMMunication failure), or 7700-7777 (EMERGENCY), or it may trigger an automatic alarm at Air Traffic Control.

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4.3 KX 155/165 VHF NAV/COMM OPERATION INSTRUCTIONS

COMM TRANSCEIVER

Rotate the VOL knob clockwise from the OFF position. Pull the VOL knob and adjust for desired listening level on the noise being produced by the receiver. Push the VOL knob back in to actuate the automatic squelch.

The left portion of the digital display readout is allocated for COMM USE and STBY frequencies with a "T" between them to indicate the TRANSMIT mode of operation. Select the desired operating frequency in the STBY display by rotating the increment/decrement knobs either clockwise or counterclockwise. A clockwise rotation will increment the frequency while a counterclockwise rotation will decrement the frequency. The larger knob will change the MH_Z portion of the STBY display. At one band-edge (118 or 136 MH_Z) the following $1MH_Z$ change will wrap around to the other band-edge. The smaller knob will change the KH_Z portion of the STBY display. It will change in steps of $50KH_Z$ when the knob is pushed in, and $25KH_Z$ when the knob is pulled out. The wrap around band-edge is also utilized when incrementing or decrementing the KH_Z portion of the STBY display.

To tune the radio to the desired operating frequency, the desired frequency must be entered into the STBY display and then the transfer button must be pushed. This will trade the contents of the USE and STBY display. The transceiver is always tuned to the frequency appearing in the USE display. It is therefore possible to have two different frequencies stored in the USE and STBY displays and to change back and forth between them at the simple push of the transfer button. During the transmit mode of operation, a "T" will appear between the USE and STBY displays, signifying that the transceiver is in the transmit mode of operation.

A non-volatile memory stores the COMM USE and STBY frequencies on power down. When the unit is turned on again, the COMM USE and STBY windows will display the same USE and STBY frequencies that were displayed before power down. If an invalid frequency is detected in the memory on power up, the COMM USE and STBY windows will contain "120.00", thus indicating the presence of an error in the stored frequency.

The right portion of the display is allocated to NAV receiver USE and STBY/RAD information. The frequency channeling is the same as the COMM, when operating in the frequency mode.

The NAV increment/decrement knob is located on the right hand side of the front panel. The larger knob operates in 1MHZ steps and increments/decrements the STBY/PAD frequency display. The smaller knob operates in 50KHZ steps. The NAV receiver's lower and upper frequency limits are 108.00MHZ and 117.95MHZ. Exceeding the upper limit of frequency band would automatically return to the lower limit and vice versa.

Note: Only KX 165 has STBY/RAD window; KX 155 has STBY window only and will not give radial information.

On the KX 165, when the smaller knob is pulled out, the VOR bearing is digitally displayed in STBY/RAD window. In the bearing mode, the increment/decrement knobs channel the USE frequency window and depressing the frequency transfer button will cause the USE frequency to be placed in blind storage and the STBY frequency (in the blind storage) to be displayed in the USE window display. In radial mode of operation, the right hand window of NAV display shows the bearing FROM the station and when due to weak signals, a digital flag "---", will be displayed in the radial window. Also, when an ILS frequency is selected, the digital flag "---" is displayed in the radial window.

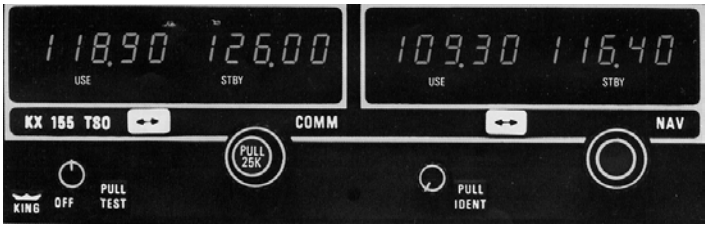
On the KX 155, when the smaller knob is pulled out, the increment/decrement knob channels the USE frequency window and depressing the frequency transfer button will cause the USE frequency to be placed in blind storage and the STBY frequency (in the blind storage) to be displayed in the USE window display, a digital flag "---", will be displayed in the STBY window.

The NAV USE and STBY frequencies are stored in the memory on power down and return on power up. On power up, if an error is detected in the stored frequencies, the unit will display 110.00 MHZ in both USE and STBY/RAD windows. The unit does not store the VOR bearing on power down.

When the smaller increment/decrement knob is pushed in, depressing the NAV TRANSFER button will interchange the USE and STBY/RAD frequencies. The NAV IDENT knob is active in the pulled out position so that both voice and ident can be heard. When this knob is pushed in, the ident tone is attenuated. The volume of voice/ident can be adjusted by turning this knob.

Note: If dual Nav's are installed a placard will be located on the receiver and on the corresponding NAV indicator to correlate the NAV receiver with the appropriate NAV indicator.

Amplified operation instructions are provided in Bendix-King Publication No. 006-8329-03.



KX 155 NAV/COMM Transceiver [TSO'd]

KX 165 NAV/COMM Transceiver [TSO'd]

4.4 NAVIGATION INDICATORS

NAV Indicators for use with the KX 155:

KI 203 VOR/LOC Indicator [TSO'd]

KI 208 VOR/LOC Indicator [TSO'd]

KI 209 VOR/LOC Indicator [TSO'd]

4.5 SWITCHABLE "HOT MIC"

The "Hot Mic" switch, when activated, provides continuous intercom operation for all microphones. With the switch in the OFF position, normal keying is required to provide intercom operation.

4.6 REMOTE FREQUENCY TRANSFER/CHANNEL INCREMENT SWITCH

The transfer/channel increment switch is located on the pilot's cyclic pistol grip.

XFER FUNCTION
When momentarily toggled to XFER, the switch transfers the Comm USE and STBY frequencies.

CHAN FUNCTION
With Comm only radios, the switch increments and displays all preprogrammed frequencies in the STBY window when momentarily toggled to CHAN. With Nav/Comm radios, the switch transfers the Nav USE and STBY frequencies when momentarily toggled to CHAN.

Should the remote frequency transfer/channel increment switch become disabled, manual operation of the avionics will be necessary to change frequencies.

In dual COMM (NAV/COMM) installations the remote frequency transfer/channel increment switch operates COMM 1 (or NAV/COMM 1) only.

4.7 KR 87 AUTOMATIC DIRECTION FINDER (ADF)

The unit is turned on by rotating the volume control clockwise past the detent. The volume control is used to adjust the audio output for a comfortable listening level.

> Note: The audio muting feature of the KR 87 will cause the audio output to be muted unless the receiver is locked onto a valid station. This reduces interstation noise and aids the pilot in identifying usable stations.

OPERATING MODES

The KR 87 Automatic Direction Finder has two operational modes. In the ANT (Antenna) mode (ADF button out) the loop antenna is disabled, and the unit simply acts as a receiver, allowing audio reception through the headphones. The indicator needle will remain parked at the 90° relative position and the ANT message on the left side of the display will be illuminated. This mode provides slightly clearer audio reception, and is used for station identification. In various parts of the world, some L/MF stations use an interrupted carrier for identification purposes. A Beat Frequency Oscillator (BFO) function is provided to permit these stations to be more easily identified. Pushing the BFO switch will cause a 1000HZ tone to be heard whenever there is a radio carrier signal present at the selected frequency. It will also light the BFO message in the center of the display.

With the ADF button depressed, the unit is placed into the ADF mode and the loop antenna is enabled. The ADF message on the left side of the display will be illuminated and the indicator needle will point to the relative bearing of the selected station. In order to tell if there is a sufficient signal for navigational purposes, the pilot can place the KR 87 back in the ADF mode, parking the indicator needle at 90°. When the unit is then switched to the ADF mode, the needle should slew to the station bearing in a positive manner, without excessive sluggishness, wavering, or reversals.

FREQUENCY CONTROL

A. Active Frequency (The frequency to which the ADF is tuned)

The active frequency is displayed in the left hand window. This frequency may be changed with the concentric knobs when either timer mode (FLT or ET) is being displayed in the right hand window. The exception to this is when the ET message is flashing (see below). To set the 10's digit push the small knob in and rotate it. Clockwise rotation will increment the digit. The digit will roll over at 9 to 0 and roll under (when turning the knob counterclockwise) at 0 to 9. With the small knob pulled out the 1's digit may be set. Its operation is the same as for the 10's digit.

Turning the large knob changes the 100's digit and the 1000's digit. The 100's digit carries to the 1000's digit from 9 to 10 and borrows from 10 to 9. The two digits roll over from 17 to 02 and under from 02 to 17 thus limiting the frequencies to the range of 200KHZ to 1799HZ.

B. STBY Frequency

The STBY frequency is displayed in the right window when the FRQ message is illuminated. When this is the case, this frequency may be changed with the knobs in a manner similar to that explained above for the active frequency.

If the STBY frequency is not being displayed it may be called to the window by pressing the FRQ button. Pressing this button when the STBY frequency is displayed causes the current STBY and active frequencies to be exchanged.

TIMERS

A. FLT/ET Button

If elapsed time (ET) is currently displayed the FLT/ET button will cause the flight timer to be displayed. Pressing this button again will exchange the two timers in the display. If the STBY frequency is displayed the FLT/ET button will cause the timer which was last displayed to reappear in the window. (Note: When power is first applied, the flight timer is displayed.)

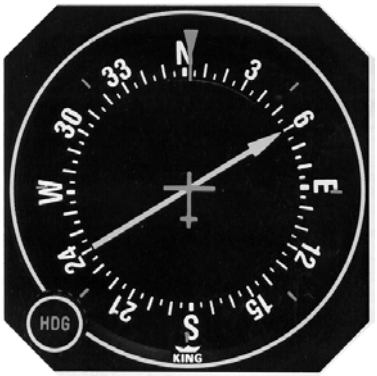
B. Flight Timer

The flight timer is displayed in the right hand window when the FLT message is lit. This timer will count up to 59 hours, 59 minutes, 59 seconds. When the unit is first turned on this timer is automatically started at 0. Minutes and seconds will be displayed until a value of 59 minutes and 59 seconds is reached. On the next count the display will shift to hours and minutes.

C. Elapsed Timer

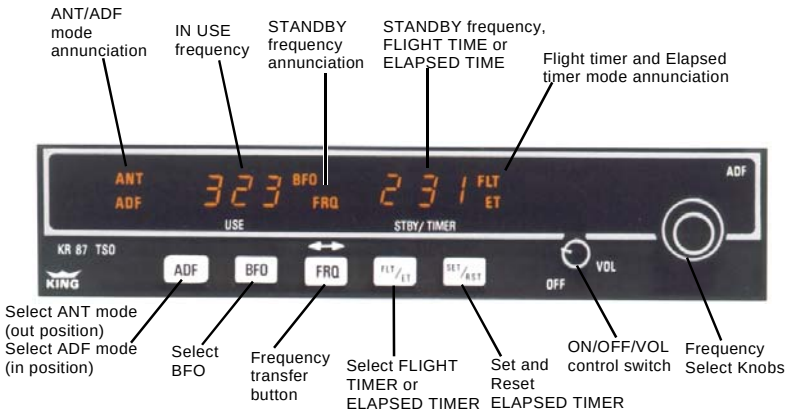
This timer has two modes: Count Up and Count Down. When power is applied it is in the Count Up mode starting at 0. As is true with the flight timer, the elapsed timer will count to 59 hours, 59 minutes, 59 seconds, displaying minutes and seconds until one hour has elapsed, then displaying hours and minutes. When in the Count Up mode the timer may be reset to 0 by pressing the reset button. (Note: Pressing the reset button will reset the elapsed timer regardless of what is currently being displayed.)

To enter the Count Down mode, the Reset (RST) button is held depressed for approximately 2 seconds until the ET message begins to flash (this may be done regardless of current display). While the ET message is flashing the timer is in the ET Set mode. In this mode a number up to 59 minutes, 59 seconds may be preset into the elapsed timer with the concentric knobs. With the small knob pressed in the 10's of seconds digit may be changed; it will roll over from 5 to 0 and under 0 to 5. With the knob pulled out the 1's of seconds digit may be changed. It rolls over from 9 to 0 and under from 0 to 9. The larger knob modifies the minutes. It rolls over from 59 to 0 and under from 0 to 59. The timer will remain in the ET Set mode (ET message flashing) for 15 seconds after a number is set in or until the RST, FLT/ET, or FRQ button is pressed. The number preset will remain unchanged until the RST button is pressed. When the RST button is pressed after a number is preset, the elapsed timer will start counting down. (Note: The timer will start when RST is pressed regardless of the current display). When the timer reaches 0 it changes to the Count Up mode and continues up from 0. Also the right hand display will flash for 15 seconds and the timer alarm line will be pulled low for 1 second. While the elapsed timer is counting down, pressing the RST button will have no effect unless it is held for approximately 2 seconds. This will cause the timer to stop and enter the Set mode (ET message flashing).



KI 227 ADF Indicator

Note: ADF bearing information may be displayed on KI 229 RMI. Refer to KI 229 RMI operation instructions when KI 229 RMI is installed.



Note: The KR 87 does not have an aural timer alarm connected (Connection of an external aural timer alarm is possible).

4.8 KI 229 RADIO MAGNETIC INDICATOR (RMI)

A. Compass Card/Lubber Line

This rotating card repeats gyro stabilized magnetic compass information. Aircraft heading is read from the compass card under the orange lubber line.

B. ADF Pointer

The arrow of the double yellow pointer indicates magnetic heading to the ADF station.

C. VOR Pointer

The arrow of the single green pointer indicates the magnetic heading to a VOR station or Area Navigation Waypoint.

The KI229 RMI repeats magnetic heading information from the KI 525A Navigation Indicator or other slaved directional gyro system. Aircraft heading is read under the lubber line of the KI229. (Refer to KCS 55A compass system operation for KI 525A operation).

When the ADF receiver is tuned to a station, the yellow ADF pointer indicates the magnetic heading to the station. Thus, if the pilot desires to fly toward the station, he merely turns his aircraft to the magnetic heading indicated by the ADF pointer.

When VOR receiver is tuned to a VOR station, the green VOR pointer indicates the magnetic heading to the station. If the KI 229 is used in an Area Navigation System, the VOR pointer indicates the magnetic heading to the waypoint.

Should a localizer frequency be selected, or the VOR receiver indicate a flagged condition, the VOR pointer (green pointer) is parked 90° to the right of the lubber line.

When the ADF is not in use or if a weak ADF signal is received, the ADF (yellow) pointer will park at 90° to the right of the lubber line.

RMI OPERATION

The KI 229 Radio Magnetic Indicator provides bearing information to both ADF and VOR stations by means of two pointers, each of which is read against the compass card. The servo drive compass card displays heading information derived from ARINC type X, Y, Z, compass headings. The double pointer is dedicated solely to a ADF DC SIN/COS source. The single pointer is assigned to VOR information.

KI 229 Radio Magnetic Indicator

4.9 KCS 55A COMPASS SYSTEM

When power is applied to the KCS 55A System, the HDG flag will remain in view until the following conditions are satisfied: The gyro spin motor is at least 50% of normal speed, the fast slave mode has been executed and normal system power is present. The fast slaving mode is initiated when power is applied, and is switched to the slow slave mode when the slaving

error is reduced to zero. The fast slave rate is 180 degree/minute. The slow slave rate is 3 degree/minute to keep the system aligned with the earth's magnetic field. The slaving meter on the KA 51B indicates relative deviation from this alignment.

CAUTION

MOVEMENT OF THE AIRCRAFT WHEN THE GYRO'S ARE NOT UP TO FULL SPEED OR WHEN POWER TO THE GYRO'S HAS BEEN SHUT OFF AND GYROS HAVE NOT FULLY SPUN DOWN MAY CAUSE GYRO DAMAGE. ALLOW SUFFICIENT SPIN DOWN TIME PRIOR TO ANY AIRCRAFT MOVEMENT.

Set the navigation receiver to the desired VOR/LOC station and rotate the course select knob to adjust the selected course pointer to the desired course radial. When a usable navigation signal is received by the KI 525A, the NAV warning flag will disappear from view.

The KI 525A VOR/LOC lateral deviation bar represents the selected VOR/LOC course. The relationship of the deviation bar to the symbol aircraft presents the relationship of the selected course to the aircraft.

For an ILS approach, tune the navigation receiver to the desired frequency. For LOC operation, the selected course pointer should be set to the inbound localizer course. The glideslope pointer will deflect into view after a 2 to 12 second delay, if a usable glideslope signal is received. The glideslope pointer indicates the relative position of the glideslope path with respect to the aircraft.

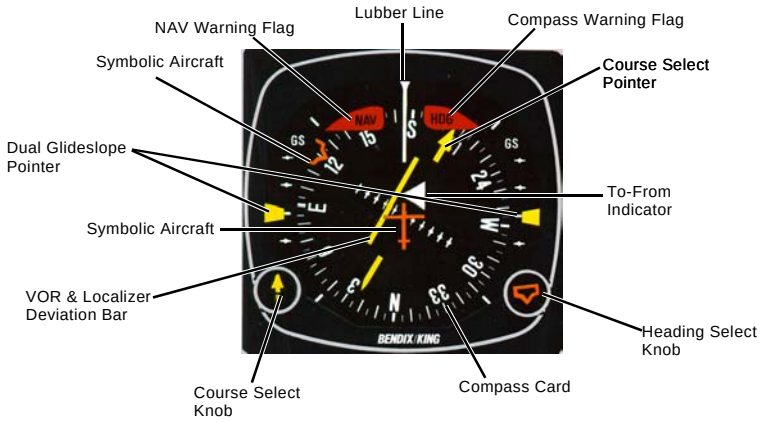
For LOC operation and ILS front course approach, tune the navigation receiver to the desired frequency, set the pointer to the selected inbound localizer course, and if a usable glideslope signal is received, the glideslope pointer will deflect into view. The glideslope pointer indicates the position of the glideslope path with respect to the aircraft. The position of the deviation bar with respect to the symbolic aircraft indicates the relative position of the selected course. For backcourse operation, set the course pointer to the **FRONT INBOUND** localizer course. The deviation bar position relative to the symbolic aircraft then represents the position of the backcourse with respect to the aircraft.

If the KI 525A HDG flag appears in view after the system has been operating or will not go out of view after initial power up, one of the following conditions exists and the compass information will not be reliable:

1) The gyro on the KG 102A is not running above 50% of its normal speed.

2) The system has not rotated to the magnetic heading and switched out of fast slave on initial power up.

3) The power supply in the KG 102A is not functioning properly.



KI 525A PNI (Part of KCS 55A system)
(Pictorial Navigation Indicator)

A continuous large deflection of the slaving meter or large discrepancies between the magnetic compass and the KI 525A compass card may indicate a failure in the slaving system and may not necessarily be annunciated by the HDG flag. If a slaving failure should occur, the SLAVE switch on the KA 51B should be returned to its FREE position. The system will now be in the free gyro mode. By pressing the clockwise or counterclockwise toggle switch on the KA 51B, the compass card can be repositioned to the correct heading. The KCS 55A will continue to function normally, except the heading information will be solely derived from the KG 102A Gyro. There will be no magnetic correction from the KMT 112.

KA 51B Slaving Accessory And Controls

If the KI 525A NAV flag appears, the navigation equipment is off, improperly tuned, or malfunctioning. If possible, switch to another navigation receiver. The compass card on the KI 525A will continue to display the aircraft heading.

If the KI 525A glideslope pointer remains out of view during ILS operation, the glideslope transmitter or the aircraft glideslope receiver is malfunctioning. If possible switch to another glideslope receiver. The localizer and heading displays will continue to function normally.

4.10 KN 62A DISTANCE MEASURING EQUIPMENT (DME)

The KN 62A front panel controls consist of an ON-OFF switch, a function switch, and frequency selection knobs. The function switch determines both the information displayed and the channeling source for the KN 62A. In Remote (RMT) mode, the KN 62A is channeled from an external control head, and the display shows range, speed, and time-to-station. In Frequency (FREQ) mode, the KN 62A is channeled from its own frequency selection knobs, and the display shows range and frequency. In Ground Speed/Time-to-Station (GS/T) mode the KN 62A holds the last internally selected frequency and displays range, speed, and time-to-station.

The frequency hold feature in GS/T mode is necessary to prevent accidental rechanneling of the DME when frequency is not being displayed. To prevent the unit from displaying false information, the KN 62A will display dashes and stay in " search" whenever power is turned on or momentarily interrupted in GS/T mode. Normal operation is re-established by switching to FREQ or RMT mode.

When the KN 62A is locked to a ground station, range is displayed to the nearest 0.1 nautical mile from 0 to 99.9 nautical miles and to the nearest 1 nautical mile from 100 to 389 nautical miles. Ground speed is displayed to the nearest knot from 0 to 999 knots. Time-to-station is displayed to the nearest minute from 0 to 99 minutes. When the KN 62A is in search mode, dashes are displayed instead of range, speed, and time-to-station. An automatic dimming circuit adjusts the brightness of the display to compensate for changes in ambient light level. The dimming is controlled by a photocell mounted behind the front panel to the left of the display.

The audio output of the KN 62A can be set as high as l5 milliwatts into 600 ohms using the audio level adjustment accessible through the top cover. It is set for approximately 2mW output at the factory. It is desirable to use the audio to identify the DME ground stations being received.

The effective range of the KN 62A DME depends on many factors; most important being the altitude of the aircraft. When the aircraft is on the ground, the KN 62A usually will not receive DME stations due to line-of sight signal limitations. Other contributing factors to the DME's effective range are the location and altitude of the ground transmitter, transmitter power output, and the degree of maintenance of the ground facility. The distance measured by the KN 62A is slant-range distance (measured on a slant from aircraft to ground station) and should not be confused with actual ground distance. The difference between ground distance and slant-range distance is smallest at low altitude and long range. These distances may differ considerably when in close proximity to a VOR/DME facility. However, if the range is three times the altitude or greater, this error is negligible. In order to obtain accurate ground speed and time-to-station, the aircraft must be tracking directly to or from the station.

KN 62A DME Distance/Frequency, FREQ mode.

KN 62A DME Distance/Groundspeed/TTS. GS/T mode.

FAA Approved: 03 Oct 1995
Revised: 17 Apr 1996

4.11 KMA 24H AUDIO PANEL

The top row of pushbuttons does nothing. The bottom row of pushbuttons selects the audio to be heard on the headphones. The audio from the transceiver selected with the MIC SELECT switch will be automatically heard on the headphones.

The MIC SELECT switch performs several functions. It routes microphone audio and keying to the appropriate transceiver. and routes selected transceiver audio to the headphones. In the P.A. position, no function is provided. In the EXT position, no function is provided.

The “EMG” position on the “MIC SELECT” switch provides a straight through connection to Comm #1. It may be used in the event of audio panel failure.

The KMA 24H has five ICS (Intercom Station) inputs: pilot, co-pilot and three others. These inputs are always active or “hot”. The volume of all five ICS inputs is controlled by the inner knob INT VOL (Intercom volume) control on the front panel. This control affects the volume of intercom only, it does not affect the volume of the audio inputs selected with the pushbuttons. When the outer “VOX” knob is rotated full clockwise, the KMA 24H provides “HOT MIC” intercom operation. The outer “VOX” knob can be adjusted to provide voice activated “VOX” operation by rotating the knob from the full counter clockwise position towards the full clockwise position. Depending on ambient noise levels, this “VOX” activation point can be adjusted to eliminate background noise while still activating when a voice is directed into a microphone. When the outer “VOX” knob is rotated full couterclockwise, an ICS key must be used to activate the intercom and no background noise will be heard until the ICS is keyed. Keying the pilot or co-pilots microphones for transmit will cause transmission over the transceiver selected by the MIC SELECT switch.

KMA 24H AUDIO PANEL

When either the pilot or co-pilot keys the microphone to transmit, all other microphone inputs are muted to insure that the keyed microphone is the single source of the transmitted audio. The audio inputs selected from the front panel pushbuttons are also muted while the pilot or co-pilot is transmitting. If the pilot and co-pilot should both key their microphones at the same time, the pilot's mic will override the co-pilot's. This pilot microphone priority does not apply to dual KMA 24H installations. In these installations, each audio panel can be keyed independent of the other.

4.12 KR 21 MARKER BEACON

Marker beacon receivers are used to provide accurate fixes by informing the pilot of his passage over beacon stations located on airways and ILS approach courses. Three types of beacons are used. They are the airways/inner marker, the outer marker and the middle marker.

The outer, middle and inner markers are used in conjunction with the radio instrument landing systems. The outer marker is normally positioned on the front localizer course near the point where the glideslope approach path intersects the minimum inbound altitude after the procedure turn. Distance from the airport will vary from 4 to 7 miles. Radio frequency from the marker is projected vertically in an elliptical cone shaped pattern. The marker signal is modulated at 400 Hz and is keyed to emit dashes at a rate of two per second.

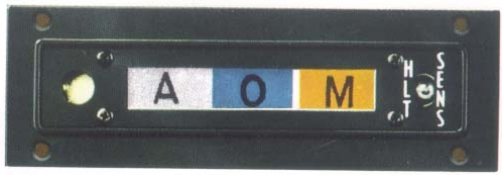
When passing the outer marker the blue light will flash "on/off" at a two per second rate and the pilot will hear a series of low tone dashes.

The middle marker is normally located on the front localizer course about 3200 feet from the approach end of the ILS runway. The radiated pattern is similar in shape and power to the outer marker. The middle marker signal is modulated with 1300Hz and the modulation is keyed to identify by alternate dots and dashes. When the KR 21 equipped aircraft passes the middle marker the pilot hears a medium pitched tone in a series of dots and dashes and the amber light flashes synchronously with the tones.

The inner marker is located close to the end of the runway. The beacon transmitter and antenna are designed to project a cone shaped pattern of 75MHz energy, vertically. The radio frequency output of the transmitter is modulated with an audio tone of 3000Hz. An aircraft equipped with the KR 21 will receive a 3000Hz tone in headphone or speaker and the white lamp will be illuminated while over the station. The inner marker is used to indicate a point approximately 1500 ft. from the runway and if on proper glide path the altitude above the runway should be approximately 100 feet.

The Hi-Lo Switch in the KR 21 provides sensitivity switching effect of the high sensitivity position is to greatly enlarge the size of the cone shaped " area of indication" above the station. An aircraft flying at high altitude or slightly off course may fail to receive the signal when in the low sensitivity position. It is suggested that the KR 21 marker sensitivity switch first be placed in high sensitivity position until aural and/or lamp indication is received. The control switch may be turned to low sensitivity to reduce the duration of the indication and to obtain a more accurate reading of passage since the signal appears to build and fade faster on low sensitivity.

The high sensitivity position may be used to effectively give the pilot an advance indication that he is approaching the outer marker. In order to expedite the ILS approach the pilot may wish to retain higher speed until he is nearby the outer marker inbound. With the KR 21 marker in high sensitivity position the aural tone will begin about one mile from the outer marker. At this time, the pilot may switch the KR 21 marker to low sensitivity and reduce engine power for final approach speed, also retrim and perform cockpit checks. He is then prepared to begin descent when the marker indicates actual passage over the outer marker and the glideslope is intercepted.



KR 21 MARKER BEACON

4.13 AVIONICS MASTER SWITCH

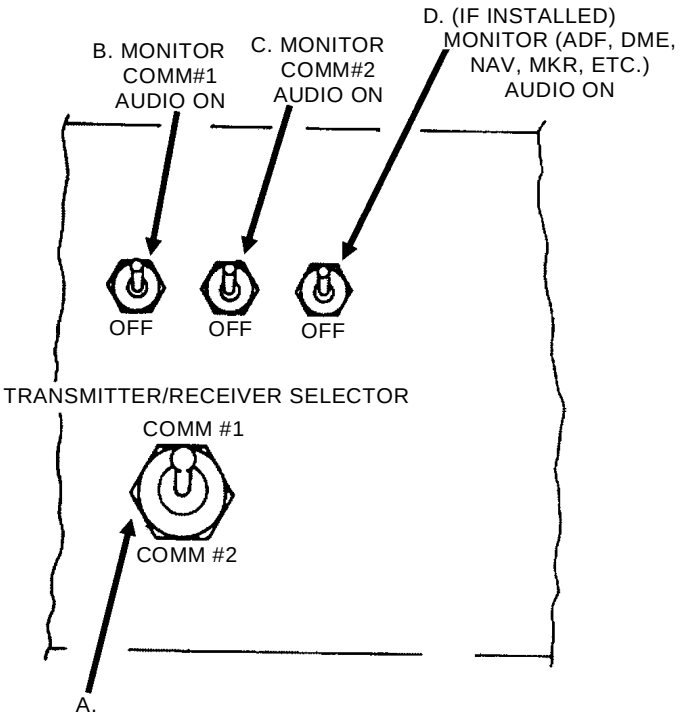
On aircraft equipped with a significant amount of radio/avionics equipment, an avionics master switch is installed. The avionics master switch provides a single point source for connecting and disconnecting radio/avionics equipment (comm's, nav's, ADF, DME, Compass system, transponders, etc.) from the aircraft electrical system.

During engine start and shut-down, the avionics master switch should be placed in the "OFF" position to prevent possible voltage transients damage to radio/avionics equipment. The avionics master switch should be turned on after the aircraft alternator has been turned on.

4.14 TRANSMITTER/RECEIVER AND AUDIO MONITOR SELECTOR SWITCHES

The transmitter/receiver selector switch **A** is used to select which communications system transmitter (COMM 1 or COMM 2) is connected to the aircraft microphones. Switch **A** also simultaneously connects the selected transmitter audio to the aircraft headphones, regardless of the position of headphones audio monitor switches **B, C,** and **D** (If installed). Example: When COMM 1 is selected by the transmit selector switch, microphone keying, microphone audio, and headphones audio will be connected to the COMM 1 communications system.

Headphones audio monitor selector switches **B** (COMM 1), **C** (COMM 2), and **D** (ADF, DME, MKR, etc.) are used to connect or disconnect headphone audio to the selected system. If ADF audio is toggled ON, the ADF audio will be heard thru the aircraft headphones. If ADF audio is not desired, for example after station identification, simply toggle the ADF switch to the OFF position. The ADF audio volume should be adjusted to the desired volume with the ADF headphones audio switch D in the ON position; then the switch D can be toggled ON or OFF as desired to provide or disconnect ADF headphones audio.



TRANSMITTER/ RECEIVER AND AUDIO MONITOR

Headphones audio monitor switches **B** (COMM 1) and **C** (COMM 2) are provided to allow the crew to monitor the communications system that is not in use, if desired. If the transmit selector switch **A** is in the COMM 1 position, toggling the Headphones Audio Switch **C** to the ON position will provide COMM 2 receive audio to be heard on the aircraft headphones. Both COMM 1 and COMM 2 receive audio will be heard on the aircraft headphones in this example. The receive audio of the communications system selected on the transmit selector switch can not be turned OFF by headphones audio switches **B** (COMM 1) and **C** (COMM 2), since the transmit selector switch provides this audio automatically.

4.15 GNC 250/250XL COMM/GPS

Detailed operation is described in the GARMIN GNC-250 Pilot's Guide (Garmin P/N 190-00067-50, Rev. A or later) or GARMIN GNC-250XL Pilot's Guide (Garmin P/N 190-00067-60, Rev. A or later), which must be immediately available to the flight crew. The GNC 250/250XL display top line is the **ACTV** (active) and **STBY** (standby) COMM frequencies, and the lower three lines are the GPS display. This GPS is for VFR use only.

This COMM works as soon as the **OFF**/ON/Volume control knob is turned ON; right beside this knob is the **SQ**uelch control key... you can press it for MAXIMUM receiver sensitivity. The double ended◄►arrow key (above the **CRSR** cursor key) is used to trade the **ACTV** (active) and **STBY** (standby) frequencies. Only the **STBY** frequency may be changed, by the knobs beside the **CRSR** key, and only when the **CRSR** key has been pressed the correct number of times to highlight the **STBY** frequency. Pressing the **double arrow key for more than two seconds** will **always** tune the **active** frequency to **121.50** mhz (**emergency**). A "TX" will show up to the right of the active frequency, during transmit. The GNC 250/250XL will not transmit continuously for longer than 35 seconds, even with a stuck mic key.

IF there is a flashing light beside the **MSG** key, and / or the instrument panel mounted "GPS MESSAGE " light is on, press the GNC 250/250XL **MSG** (message) key once, to read the message, and again, to return to the previous display. **ENT**er = "yes" to "**OK**?" Press the **D** arrow "direct to" key and use the right side knob (and ring) to spell out a chosen way point (remember that ICAO says to start USA **all letter** airport identifiers with "K"); then, press **ENT** twice, to navigate directly there. Use **CRSR** and ring knob to highlight what you want to change. **ENT** will transfer a **highlighted frequency** to **STBY**. Press **NRST** (nearest airport, etc.) key and twist knobs to get quick selections. **D** arrow and **ENT** takes you there. See GNC 250 or GNC 250XL Pilot's Guide for more instructions.

GNC 250 COMM/GPS

4.16 GARMIN GPS 150 NAVIGATION SYSTEM

Notice the placard stating "**GPS limited to VFR use only**".

Detailed operating instructions can be found in the (GARMIN P/N 190-00048-00) GPS 150 Pilot's Guide that must be immediately available to the flight crew. Some highlights of that pilot's guide are printed here.

After equipment turn on and its self test, it is necessary to press the **ENT**er key to answer "yes, I approve that," any time the GPS 150 display includes the flashing question "**OK?**" ...the operator may wish to first use the **CRSR** (cursor) key and twist the concentric knob and ring, to change something. The GPS 150 receiver has a message annunciator that lights up beside the **STAT**us key, that controls it. Waypoint arrival, change of receiver status, and other important GPS messages light this light. There is also mounted on the instrument panel a remote "**GPS MESSAGE**" indicator, with push to test (its own lamp) function. IF there is a flashing light beside the **STAT** key, repeated by the instrument panel mounted "GPS MESSAGE " light, press the GPS 150 STAT (status message) key once, to read the message, and again, to return to the previous display. Press the **D** arrow "direct to" key and use the right side knob (and ring) to spell out a chosen way point (remember that ICAO says to start **USA all letter** airport identifiers with "K"); then, press **ENT** twice, to navigate directly there. Use **WPT** (waypoint), CRSR (to select a displayed word), and concentric ring and knob to make choices or enter location of user defined destination waypoints. Or, press **NRST** (nearest) key and twist ring and knob to get quick waypoints. **D** arrow and **ENT** will take you to a **CRSR** highlighted waypoint.

A 3/32" Allen wrench and power supply have been provided for pilot removal of the GPS 150 receiver, for user waypoint programming or operator familiarization. See Section VI for weight and balance information.

4.17 GARMIN GPS 150XL NAVIGATION SYSTEM

Notice the placard stating "**GPS limited to VFR use only**".

Detailed operating instructions can be found in the (GARMIN P/N 190-00067-80) GPS 150XL Pilot's Guide and Reference that must be immediately available to the flight crew. Some highlights of that pilot's guide are printed here.

After equipment turn on and its self test, it is necessary to press the ENTer key to answer "yes, I approve that," any time the GPS 150XL display includes the flashing question "**OK?**"_the operator may wish to first use the **CRSR** (cursor) key and twist the concentric knob and ring, to change something. The GPS 150XL receiver has a message annunciator that lights up beside the **MSG** (message) key, that controls it. Waypoint arrival, change of receiver status, and other important GPS messages light this light. There is also mounted on the instrument panel a remote "**GPS MESSAGE**" indicator, with push to test (its own lamp) function. IF there is a flashing light beside the **MSG** key, repeated by the instrument panel mounted "GPS MESSAGE " light, press the GPS 150XL **MSG** key once, to read the message, and again, to return to the previous display. Press the **D** arrow "direct to" key and use the right side knob (and ring) to spell out a chosen way point (remember that ICAO says to start **USA all letter** airport identifiers with "K"); then, press **ENT** twice, to navigate directly there. Use **WPT** (waypoint), **CRSR** (to select a displayed word), and concentric ring and knob to make choices or enter location of user defined destination waypoints. Or, press **NRST** (nearest) key and twist ring and knob to get quick waypoints. **D** arrow and **ENT** will take you to a **CRSR** highlighted waypoint. Up and down arrow keys beside "OFF " knob change the map scale, when **NAV** key is pressed to moving map.

A 3/32" Allen wrench and power supply have been provided for pilot removal of the GPS 150XL receiver, for user waypoint programming or operator familiarization. See Section VI for weight and balance information.

4.18 BENDIX/KING KLN 89B GPS NAVIGATION SYSTEM

Notice the placard stating "**GPS limited to VFR use only**". If there is an installed HSI, look for a nearby **HSI transfer switch**, that selects its input between a VOR/ILS **NAV** and a **GPS**. If there is also a GPS / APPR switch, it has been disabled in this VFR certified aircraft.

Detailed operating instructions can be found in the (Allied Signal P/N 006-08786-0000) KLN 89 / KLN 89B Pilot's Guide that must be immediately available to the flight crew. Some highlights of that pilot's guide are printed here.

Upon turn "ON," the GPS stops at a page that should display: 34.5nm and a course deviation indicator showing one half scale fly right, "FROM." The next line reads "No Altitude Input" or the output from a connected altitude encoder. The third line always reads "RMI 130°**OBS**" (followed by three dashes, or the **present reading** of a connected HSI **course arrow** or other connected and switch **selected** remote omni bearing selector.

After equipment turn on and its self test, it is necessary to press the **ENT**er key to answer "yes, I approve that," any time the KLN 89B display includes the flashing question "**OK?**"(perhaps 5 times) ...the operator may wish to first use the **CRSR** (cursor) key and twist the concentric knob and ring, to change something. The KLN 89B receiver has a message annunciator that flashes "**M**" above the **MSG** (message) key, that controls it. Change of receiver status, and other important GPS messages illuminate this light. There is also mounted on the instrument panel a remote "**GPS MESSAGE**" indicator. IF there is a flashing light above the **MSG** key, repeated by the instrument panel mounted "GPS MESSAGE " light, press the KLN 89B **MSG** key once, to read the message, and again, to return to the previous display.

Press the **D** arrow "direct to" key and use the right side knob (and ring) to spell out a chosen way point (remember that ICAO says to start **USA all letter** airport identifiers with "K"); then, press **ENT** twice, to navigate directly there. Or, press **NRST** (nearest) key and twist ring, to select waypoint type, and press **ENT**; then **pull out** knob to scan waypoints. **D** arrow and **ENT** will take you to the displayed waypoint.

The KLN 89B display has many different pages. Twisting the concentric **ring** that is around the right hand knob is used to move the bottom of display indicator bar across the 11 types of display pages. The inner **knob** is then used to select which page of that type to display. NAV page 4 is a moving map. Use the CRSR button and knob to change the moving map miles range scale. Pulling out the scan knob causes the destination waypoint identifier to flash, in lower right corner of the map.

The left hand one third of the display usually shows four lines of data. The top line is distance to destination waypoint. The second line down may be waypoint name or ground speed, depending upon which display page is selected. The third line down usually says "LEG" or a three digit number of degrees. The turn "ON" default choice is "LEG," meaning the GPS will navigate to the destination waypoint directly from the location where the pilot pressed the enter button. The other option is to press the "**OBS**" button and use a remote HSI course arrow or a remote OBS omni bearing selector to **pilot select** the chosen magnetic course into the waypoint. The OBS button selects between these two modes. The OBS button and a remote HSI selector switch can be used to make the GPS function the same as a VOR, on the HSI.

A 3/32" Allen wrench may be used for pilot removal of the KLN 89B receiver, for user waypoint programming or operator familiarization. One practical home use power supply is called the Commander 2000, and is available from Lone Star Aviation Corp., of Arlington Texas, phone 817-548 7768, or fax 817-261-8692. See Section VI for weight and balance information.

4.19 GNS 430COMM//NAV/GPS

Detailed operation is described in the GARMIN GNS 430 Pilot's Guide and Reference (Garmin P/N 190-00140-00, Rev. A or later), which must be immediately available to the flight crew. A 16 page abbreviated GNS 430 Quick Reference reminder (Garmin P/N 190-00140-01, Rev. B or later) is also available. The following cursory instructions are for **VFR USE, ONLY.**

The COMM works as soon as the C(omm) PWR/VOL volume control knob is turned ON. After turn ON, the pilot will only be able to see and adjust which frequencies are presently selected, by pressing the GPS **ENT**er key(twice), to approve the GPS Aviation Database effectivity page, displayed after the turn ON self test display page. The "C" knob is also the squelch control key...you can press it for unsquelched MAXIMUM receiver sensitivity. The first 2.3" of the **left** hand side of this radio functions as a conventional VHF "**NAV/COMM**," and the rest of the radio (center and right hand side) functions only as a GPS navigation receiver, with moving map display. The double ended arrow ↔ key marked "**C**" is used to trade the **COMM** active and standby frequencies. **Pressing this key for more than two seconds** will **always** automatically **tune** the COMM transceiver **ACTIVE** frequency to the **121.500 emergency** frequency. Only the standby frequencies may be changed by the COM/VLOC **knob** and **ring**. An "RX" will show up beside the letters "COM" above the active frequency, while receiving a transmission. A "TX" will show up above the active frequency, during transmit. The GNS 430 will not transmit continuously for longer than 35 seconds, even with a stuck mic key.

Please call the large knob at the lower left corner of the GNS 430 the "COM **ring**," and please call the small knob in its center (PUSH C/V) the "COM **knob**."

Also, please call the large knob at the lower right corner of the GNS 430 the "GPS **ring**," and please call the small knob in its center (PUSH CRSR) the "GPS **knob**." The COM **knob** and **ring** tune the highlighted COMM

standby frequency, on the second line down, below the letters "COM." Pushing in on the COM **knob** shifts the frequency highlight below "VLOC" (VOR/LOC/ILS), and the **knob** and **ring** then tune the VLOC standby frequency. Pushing the COM **knob** (PUSH C/V) toggles the tuning control (and cursor highlight) between COM and VLOC frequencies. However, this control always defaults back to COM, after the COM **knob** or **ring** has not been turned for the past 30 seconds. The double ended arrow ↔ key marked "**V**" is used to trade the VOR or ILS active and standby frequencies. The **little knob** marked "**V**" is for VOR or Localizer or ATIS volume; push this knob to hear the VOR or LOC Morse code identifiers and see "ID," by the "VLOC" frequencies.

There are only two functional connections between the COMM/NAV and the GPS sides of the GNS 430. One function is through the **CDI** button, at the lower left edge of the GNS 430. The GNS 430 is normally connected to an HSI or other remote navigation **C**ourse **D**eviation **I**ndicator, and the "**CDI**" button selects whether this indicator will be supplied with "**VLOC**" (VOR or LOC) deviation from the **left** side of the GNS 430, or "**GPS**" deviation from the **right** side of the GNS 430. This choice is indicated, just above the **CDI** button.

The other connection is that if a COMM or NAV frequency on a GPS page is cursor highlighted (push the **GPS** "PUSH CRSR" **knob**), and the **ENT** button is pressed, this frequency is then transferred to the standby register of the COM or VLOC frequency display. VOR/LOC left/right is never displayed on the GNS 430.

IF there is a yellow flashing "MSG," above the **MSG** key, press the **MSG** (message) key once, to read the message, and again, to return to the previous display. After first turn "ON" and **ENT** approval of the Aviation Database effectivity page, the next GPS page to appear will be the satellite STATUS page, while the receiver is looking for satellites (NAV page number 5). As soon as the GPS is ready to navigate, the display switches to the moving map (NAV page number 2). **NAV** is the first of four groups of pages that may be displayed after turning the GPS **ring** fully counter clockwise (**NAV**IGATION, **W**AY**P**OINT, **AUX**ILLARY or **N**EA**R**E**ST**). Which group of pages is displayed just above the **FPL** button, and the little boxes to the right fill in to show which page of that group is being displayed. The GPS **knob** selects which page in that group will be displayed.

Turn the GPS **ring** to select which type of pages. Then, turn the GPS **knob**, to select your desired page. Then, push **PUSH CRSR** (the GPS knob), to use the ring for scrolling up or down that page. To get emergency **NEAREST AIRPORT**, turn the GPS **ring** fully clockwise (three or more detent clicks) and then turn the GPS **knob** (many detent

clicks) fully counterclockwise, if necessary, to see the nearest airports (NRST page number one). Then, push the GPS (PUSH CRSR) **knob**, to get a cursor. Use the GPS **ring** to scroll the cursor through the nearest airports and their tower (or common traffic advisory) frequencies. First use the **ENT** key to transfer your chosen **twr** (or **uni** or **mul**) frequency to the COMM. Then, use the **ring** to scroll to the airport identifier and use the **D** arrow key and **ENT** key (twice) to navigate directly there.

At any time, press the **D** arrow "direct to" key and use the GPS **knob** and **ring** to spell out a chosen way point (remember that ICAO says to start USA **all letter** airport identifiers with "K"); then, press **ENT** twice, to navigate directly there. Pressing the **OBS** button allows the pilot to navigate along any chosen bearing to (or radial from) the waypoint, like using the omni bearing selector for a VOR. Press the **CLR** button for more than two seconds to default to NAV page one. NAV page one has **(only) a GPS course deviation indicator** that can be repeated on a remote CDI or HSI, by pressing the **CDI** button. The NAV 2 page is a moving map. The left and right ends of the top GPS (**RNG**) button select the moving map's range, between 500' and 2000 miles. The **CLR** button removes up to three levels of additional map details. Use the **MENU** button (and **ENT** key) to choose to display a larger map, or a small map with waypoint bearing and distance and ground speed data along one side.

SECTION V
Performance Data
Not Affected

SECTION VI

Weight and Balance

At the time of delivery, Schweizer Aircraft Corporation provides each rotorcraft with an original weight and balance report and the equipment list, (equipment both required and optional) installed on the helicopter at the time of licensing. The removal or addition of any equipment can affect the basic empty weight and center of gravity. Any change to the permanently installed equipment or modification which affects weight or moment must be entered in the weight and balance record.

6.1 GNC 250, GNC 250XL, GPS150, GPS150XL, KLN 89B AND GNS 430

The removable panel unit for GNC250 weighs 2.4 lbs. and is located at longitudinal arm 57.5" in the standard instrument panel.

The removable panel unit for GNC250XL weighs 2.6 lbs. and is located at longitudinal arm 57.8" in the standard instrument panel.

The removable panel unit for GPS150 receiver weighs 2.1 pounds at 55.5" aft (for a main instrument panel, or 59.7" for a lower instrument panel).

The removable panel unit for GPS 150XL receiver weighs 1.7 pounds at 56" aft (for a main instrument panel, or 60.2" for a lower instrument panel).

This removable panel unit for GPS KLN 89B receiver weighs 2.55 pounds at 55.2", in the main instrument panel or 56.3”, in the lower instrument panel extension.

The removable panel unit for GNS 430 receiver weighs 5.1 lbs. at 53.1" aft (for a main instrument panel, or 59.1" for a lower instrument panel).

SECTION VII

Aircraft Handling, Servicing and Maintenance
Not Affected

SECTION VIII

Additional Operations and Performance Data
Not Affected