



**Pilot's Operating Handbook and
FAA Approved Airplane Flight Manual**

**CESSNA MODEL 172S
AIRPLANES 172S8001 AND ON**

SUPPLEMENT 4
ARTEX - 406
EMERGENCY LOCATOR TRANSMITTER

SERIAL NO. _____
REGISTRATION NO. _____

This supplement must be inserted into Section 9 of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

FAA APPROVAL
FAA APPROVED UNDER FAR 21 SUBPART J
The Cessna Aircraft Co
Delegation Option Manufacturer CE-1
Michael D. Hedley Executive Engineer
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 Member of GAMA

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172SPHUS-S4-01

S4-1

DESCRIPTION AND OPERATION

TASK 25-62-30-870-801

1. Description

SUBTASK 25-62-30-870-001

A. Functional Overview

- 1) The ELT automatically activates during a crash and transmits the standard sweep tone on 121.5 MHz. Approximately every 50 seconds, for up to 520 milliseconds (long message protocol), the 406 MHz transmitter turns on. During that time, an encoded digital message is sent to the COSPAS-SARSAT Search and Rescue (SAR) satellite system.
- 2) The information contained in the message includes:
 - a) Serial number assigned to the ELT by the beacon manufacturer or the national beacon registration authority, or
 - b) Aircraft identification or registration number, and
 - c) Country of registration and country code; plus
 - d) Position coordinates, when coupled with a navigation interface device, which receives position data from the aircraft navigation system and transmits it to the ELT.
- 3) The 406 MHz transmitter will operate for 24 hours and then shuts down automatically. The 121.5 MHz transmitter will continue to operate until the batteries are exhausted, which is at least 50 hours.
- 4) The 406 MHz transmitter produces a much more accurate position, typically 3 kilometers as compared with 15 to 20 kilometers for 121.5 MHz transmitters. When coupled to the aircraft navigation system via a navigation interface, the accuracy improves to approximately 100 meters.
- 5) The ELT transmits a digital message that allows search and rescue authorities to contact the owner/operator of the aircraft through information contained in a database. Information contained in the database includes:
 - a) Type of aircraft and aircraft registration number,
 - b) Owner address and telephone number, and
 - c) Alternate emergency contact.
- 6) After the ELT is activated and the 406 MHz signal is detected by the SAR satellite system and a position is calculated, the 121.5 MHz transmissions are used to home in on the crash site.

NOTE: Effective February 1, 2009, COSPAS-SARSAT has terminated satellite processing of distress signals from 121.5 MHz beacons.
- 7) Aircraft communications transceivers are not capable of receiving 406 MHz transmissions; therefore, the only methods of monitoring the ELT are:
 - a) The blinking cockpit remote switch LED,
 - b) The buzzer, or
 - c) 121.5 MHz transmissions, which can be monitored using the aircraft communications transceiver or an AM radio tuned to 121.5 MHz.

25-62-30

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 DESCRIPTION, OPERATION, INSTALLATION AND MAINTENANCE MANUAL
 ME406 (453-6603), ME406HM (453-6604)

SUBTASK 25-62-30-870-002

B. Components

- 1) The ME406 Series ELT main assembly is housed in a high impact, fire resistant, polycarbonate case and mounted in a tray made of similar material. See Figure 2 ME406 Series ELT and Mounting Tray Assembly.

NOTE: The ELT main assembly and its mounting frame assembly are capable of withstanding extremely harsh environments and have been subjected to the rigorous environmental testing required by COSPAS-SARSAT for certification.

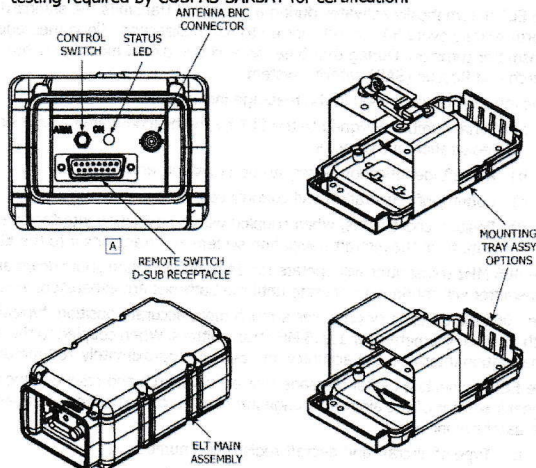


Figure 2 ME406 Series ELT and Mounting Tray Assembly

- 2) The cockpit-mounted remote switch assembly is comprised of an ELT status LED and control switch and allows an operator to manually turn the ELT on (i.e., activate) for testing and reset (i.e., deactivate) the ELT. See Figure 3 Remote Switch Front View.

NOTE: The ELT CANNOT be disarmed or disabled from the cockpit. Cockpit operation is limited to deactivating or manually activating the ELT.

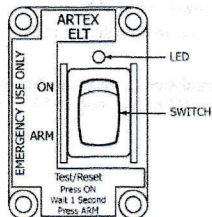


Figure 3 Remote Switch Front View

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- 3) The buzzer (i.e., horn) provides an audible alert when the ELT is active. See Figure 4 Buzzer.

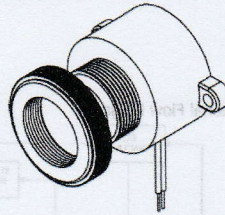


Figure 4 Buzzer

- 4) The battery pack for the ME406 Series ELT consists of two "D" size lithium manganese dioxide cells connected in series. To prevent the cells from being charged, diodes and fuses are connected to the inline power from each cell. The fuses also protect from high output. See Figure 5 Battery Pack Assembly.

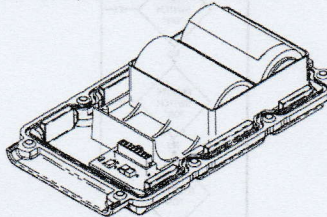


Figure 5 Battery Pack Assembly

- 5) Two antennas are approved for use with the ME406 Series ELT. Selection of the proper antenna is dependent upon end use, aircraft configuration and speed, and other factors. See Figure 6 Antennas.

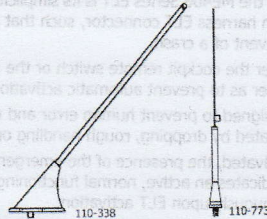


Figure 6 Antennas

25-62-30

TASK 25-62-30-870-802

2. Operation

SUBTASK 25-62-30-870-001

A. Operational Overview

- 1) See Figure 7 ELT Operational Flow Diagram.

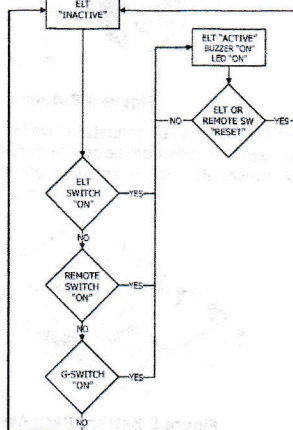


Figure 7 ELT Operational Flow Diagram

- 2) A primary feature of the ME406 Series ELT is its simplicity of operation. As long as the ELT is connected to the remote switch harness ELT connector, such that pins 5 and 12 are jumpered (G-switch loop), it will activate in the event of a crash.

NOTE: Neither the cockpit remote switch or the ELT local switch can be positioned in such a manner as to prevent automatic activation when the ELT is connected properly.

- 3) ELT operation is designed to prevent human error and misuse in regards to automatic activation. The ELT cannot be activated by dropping, rough handling or during shipping.
- 4) When the ELT is activated, the presence of the emergency sweep tone and the flashing cockpit remote switch panel LED indicates an active, normal functioning ELT. The cockpit panel LED must immediately begin to flash continuously upon ELT activation.
- 5) The ELT is considered to be either "ACTIVE" or "INACTIVE". When "INACTIVE", the ELT is in a state of rest and performs no functions. Taking the ELT from the "INACTIVE" state to the "ACTIVE" state requires a positive switch transition from either the cockpit remote switch, ELT local switch, or G-switch.
 - a) It is possible the primary G-switch or one of the auxiliary G-switches could activate the ELT in either a fixed or rotor wing aircraft as the result of severe maneuvers or a very hard landing.
 - b) To take the ELT from an "ACTIVE" state back to an "INACTIVE" state, a reset must occur. See SUBTASK 25-62-30-870-004 on page 22.
- 6) A warning buzzer is required under C126 TSO approval. The buzzer is powered by the ELT and therefore not dependent upon the aircraft battery for operation. It is not designed to operate continuously, but sounds at predetermined intervals and runs for shorter periods toward the end of ELT battery life.

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DESCRIPTION, OPERATION, INSTALLATION AND MAINTENANCE MANUAL
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SUBTASK 25-62-30-870-002

B. Normal Operation

- 1) The cockpit remote switch is in the "ARM" position (i.e., down).
- 2) The local switch on the ELT is in the "ARM" position (i.e., down).

SUBTASK 25-62-30-870-003

C. Manual Activation

- 1) The ELT may be manually activated by placing either the remote switch or the ELT local switch in the "ON" position.

NOTE: As long as the cockpit remote switch and the ELT local switch are in the ARM (off) positions respectively, the ELT will automatically activate on impact.

SUBTASK 25-62-30-870-004

D. ELT Reset

- 1) If the ELT is activated accidentally, it will need to be reset.
- 2) Reset the ELT from the cockpit by moving the remote switch to the "ON" position, waiting approximately one second, and then moving it back to the "ARM" position. If the switch is already in the "ON" position, move it to the "ARM" position.
- 3) Reset the ELT locally by moving the switch on the ELT to the "ON" position, waiting approximately one second, and then moving it back to the "ARM" position. If the switch is already in the "ON" position, move it to the "ARM" position.

NOTE: The ELT cannot be reset if either the cockpit remote switch or the ELT local switch is in the "ON" position.

SUBTASK 25-62-30-750-001

E. Functional Check

- 1) A monthly functional check is recommended to verify operational status of the ELT.
- 2) Perform this functional check in accordance with SUBTASK 25-62-30-750-011 on page 34.

25-62-30

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DESCRIPTION, OPERATION, INSTALLATION AND MAINTENANCE MANUAL
ME406 (453-6603), ME406HM (453-6604)

SUBTASK 25-62-30-750-010

O. ELT Reset Check – Item 5h

- 1) Place the ELT control switch in the "ON" position.
- 2) Return the switch to the "ARM" position.
- 3) If the ELT is working properly, the LED will stay on for approximately 1 second and then turn off. If a series of flashes are displayed, refer to Table 6 on page 37.

NOTE: A 5-flash error indication will occur if the ELT is programmed with a location protocol, since no navigation input data is present.

SUBTASK 25-62-30-750-011

P. Installed Transmitter Test – Item 6

CAUTION: DO NOT ALLOW THE DURATION OF THIS TEST TO EXCEED 5 SECONDS. THE ELT WILL TRANSMIT A 406 MHZ SIGNAL AFTER THE ELT IS ACTIVATED FOR APPROXIMATELY 47 SECONDS. THE COSPAS-SARSAT SATELLITE SYSTEM WILL CONSIDER THE 406 MHZ TRANSMISSION TO BE A VALID DISTRESS SIGNAL.

- 1) Reinstall the ELT in accordance with SUBTASK 25-62-30-410-001 on page 59.
- 2) If required by local aviation regulations, perform the following functional check within the first 5 minutes after the hour (UTC).
- 3) Notify any nearby control tower of your intentions.
- 4) Tune a receiver, usually the aircraft transceiver, to 121.5 MHz.

NOTE: An AM radio may be used to receive the signal.

- 5) Activate the ELT by placing the cockpit remote switch in the "ON" position. The LED will begin flashing continuously.
- 6) Listen for 3 audible sweeps on the receiver, which takes about 1 second.
- 7) Verify the buzzer sounds immediately upon activation.
- 8) Return the cockpit remote switch to the "ARM" (off) position while paying close attention to LED activity when the ELT enters the "ARM" condition. If the ELT is working properly, the LED will stay on for approximately 1 second and then turn off.

NOTE: This test also completes the requirement to check ELT controls by verifying operation of the remote switch.

- 9) Refer to Table 6 on page 37 if the LED displays a series of error code flashes.

25-62-30

Page 34 of 72
Dec 08/15

KLN 94 Pages

Airport (APT) Pages

- 1 Ident, elevation, name, city, state, use type
- 2 Latitude/longitude, bearing/radial and distance
- 3 Time from UTC, fuel, approaches, radar environment
- 4 Runway numbers, length, surface, lighting
- 5 Comm/ILS frequencies
- 6 User remarks
- 7 DP/STAR procedures
- 8 Approach procedures

VOR Pages

- 1 Ident, frequency, name, lat/long
- 2 Magnetic station declination, bearing/distance

NDB Page

- 1 Ident, frequency, name, lat/long, bearing/distance

Intersection (INT) Pages

- 1 Ident, lat/long, bearing/distance, DME designation (for ILS DMEs)
- 2 Location relative to VOR

User-defined Waypoint (USR) Pages

- 1 Ident, lat/long, bearing/distance
- 2 Location relative to VOR
- 3 User remarks

Active Waypoint (ACT) Pages

Waypoint pages for active flight plan waypoints and/or the direct-to waypoint. (Pull right inner knob out to scan FPL 0 waypoints).

Navigation (NAV) Pages

- 1 Active waypoint/leg, CDI, crosstrack correction, CDI scale, VNAV status, bearing, ETE
- 2 Present position (lat/long and radial/distance)
- 3 Present time, departure time, flight time, ETE & ETA at destination
- 4 Moving map

Flight Plan (FPL) Pages

- 0 Active flight plan
- 1-25 Stored (numbered) flight plans

Bendix/King®

GPS Navigation System

Setup (SET) Pages

- 1 Position initialization for GPS receiver
- 2 Date, time, and time zone initialization, mag var
- 3 Database update
- 4 Nearest airport criteria
- 5 SUA alert enable/disable
- 6 SUA alert/map
- 7 Map setup for aero data
- 8 Map setup for land data
- 9 Low voltage warning
- 10 Turn anticipation enable/disable
- 11 Default first waypoint character
- 12 Barometric pressure units
- 13 Altitude alerting
- 14 QuickTune™ default

Auxiliary (AUX) Pages

- 1 GPS state, GPS altitude, EPE
- 2 GPS signal status
- 3 RAIM prediction
- 4 Trip planning for distance, bearing, ESA, and ETE
- 5 Trip planning for fuel requirements
- 6 Pressure altitude
- 7 Density altitude
- 8 True airspeed (TAS)
- 9 Winds aloft
- 10 Alarm/timer
- 11 Sunrise/sunset
- 12 List of user-defined waypoints
- 13 List of airports and user waypoints with stored remarks
- 14 Software versions
- 15 *Fuel required, fuel on board, landing fuel
- 16 *Fuel reserve, extra fuel
- 17 *Fuel endurance, range, efficiency
- 18 *Fuel flow
- 19 *Cumulative fuel used
- 20 *TAS, Mach
- 21 *SAT, TAT, pressure alt, density alt

* Page only displayed if appropriate equipment is interfaced with KLN 94.

KLN 94 INSTRUMENT APPROACH REFERENCE

WARNING: Make sure that you have practiced instrument approaches with the KLN 94 in VFR weather before attempting to fly approaches in IMC.

APPROACH SEQUENCE

1. Select an approach and load into FPL 0
 - a. **PRESS** **PROC**. Choose "**Select Approach?**"
 - b. **SELECT** airport on PROC 2 page
 - c. **SELECT** an approach/IAF from APT 8 page. Choose "**Vectors**" for radar vectors
 - d. **CHANGE** an approach using above procedure
 - e. **DELETE** approaches on the FPL 0 page.
2. Get established on the final approach course.
 - a. **VERIFY APR ARM** (or **TERM**) is annunciated within 30 nm of destination.
 - b. **SELECT** the NAV 4 page.
 - c. **SELECT** OBS mode for procedure turns and holding patterns. Use OBS mode until inbound to the FAF.
 - d. **SELECT** LEG mode for radar vectors and NoPT routes including DME arcs. LEG mode is mandatory from the FAF to the MAP.
 - e. **PRESS** **PROC** and **ACTIVATE** Vectors from PROC 1 page for radar vectors.
3. At or before 2 nm from the FAF inbound:
 - a. **SELECT** the FAF as the active waypoint.
 - b. **SELECT** LEG mode.
4. At 2 nm inbound to the FAF:
 - a. **VERIFY APR ACTV** (or **APR**) annunciated.
5. At the FAF if **APR ACTV** not annunciated:
 - a. **DO NOT DESCEND.**
 - b. **EXECUTE MISSED APPROACH.**

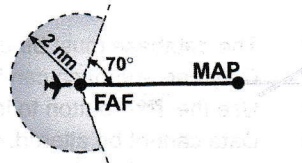
NOTE: There is no automatic leg sequencing at the MAP.

6. After the MAP:
 - a. **FLY** the exact published missed approach procedure from the approach charts.
 - b. **PRESS** **→**. Verify automatic selection of the first waypoint of the missed approach procedure (usually the missed approach holding point). Change it if desired.
-

APPROACH TIPS

1. The database must be up to date.
2. Only one approach can be in the flight plan at a time.
3. Use the **PROC** button to initiate approach and IAF selections.
4. Data cannot be altered, added to or deleted from the approach procedures contained in the database. (DME arc intercepts may be relocated along the arc through the NAV 4 page or FPL 0 page.)
5. To change a DP, STAR or approach, select a new one using the normal procedure for selecting and loading a procedure.
6. To delete a DP, STAR or approach, select the FPL 0 page, place the cursor over the name of the DP, STAR or approach, press **CLR** and then **ENT**.
7. Some approach waypoints in the database may not appear on the approach plates (in some cases this includes the FAF)!
8. Waypoint suffixes attached to some approach waypoints: i - IAF, f - FAF, m - MAP, h - missed approach holding fix.
9. Use the NAV 4 page for flying approaches.
10. At the time of installation the KLN 94 is configured to annunciate either (1) **APR ARM** and **APR ACTV** or (2) **TERM** and **APR**. The two sets mean exactly the same.
11. At 30 nm from the destination airport the KLN 94 will go into **APR ARM** (or **TERM**) if there is an approach in the flight plan. Left/right D-bar scaling will change from ± 5.0 nm to ± 1.0 nm over the next 30 seconds.
12. If the approach includes a DME arc, the DME arc intercept point will be a) on your present position radial off the arc VOR at the time you select an arc IAF, or b) the beginning of the arc if currently on a radial beyond the arc limit. To adjust the arc intercept to be compatible with a radar vector, bring up the first waypoint of the arc in the NAV 4 page scanning field (or under the cursor on the FPL 0 page), press **CLR**, then **ENT**. Fly the arc in LEG. Adjust the HSI or CDI course pointer with reference to the desired track value on the NAV 4 page (it will flash when the pointer needs to be adjusted). Left/right D-bar information is relative to the arc. Displayed distance is not along the arc but straight to the active waypoint. (The **ARC** radial is also displayed on the NAV 4 page.)
13. Two nm from the FAF inbound and in LEG, the KLN 94 will go into **APR ACTV** (or **APR**) and the D-bar scaling will begin changing from ± 1.0 nm to ± 0.3 nm.

14. **APR ARM** to **APR ACTV** (or **TERM** to **APR**) is automatic provided all of the following are satisfied:
- In **APR ARM** (normally automatic).
 - In **LEG** mode!
 - FAF is the active waypoint!
 - Within 2 nm of the FAF.
 - Outside the FAF.
 - Inbound to the FAF.
 - RAIM is available. (For early prediction go to AUX 3 page.)
15. RAIM availability is mandatory for approach operation.
16. **APR ACTV** (or **APR**) mode is mandatory for approach operation.
17. **DIRECT-TO** operation between the FAF and MAP cancels approach **ACTV** (or **APR**). Fly the missed approach in **APR ARM** (or **TERM**).
18. Flagged navigation inside the FAF due to a RAIM problem may usually be restored by pressing the **PROC** button to change from **ACTV** to **ARM** (or **APR** to **TERM**). A message is provided as a reminder. Fly the missed approach procedure.
19. Instrument approaches using the KLN 94 may be essentially automatic starting 30 nm out (with manual baro setting update) or it may require judicious selection of the OBS and LEG modes.



PAGE MESSAGES

Messages that could appear during approach operations. Refer to the Pilot's Guide for a complete list of messages.

XXXXX Deleted

From FPL 0 -- A pre-existing waypoint was deleted from FPL 0 because the same waypoint was in the Approach/DP/STAR just loaded into FPL 0.

APR ACTV Annunciator

Fail -- Indicates an external annunciator drive circuit failure. Discontinue approach operation unless already on final approach inside the FAF.

Adj Nav Crs to XXX° -- Manually adjust the mechanical HSI or CDI to the indicated value.

APR ARM Annunciator

Fail -- Indicates an external annunciator drive circuit failure. Discontinue approach operation unless APR ACTV is annunciated.

Arm GPS Approach -- Manually arm approach mode. (A reminder given 3 nm from the FAF if the approach mode was disarmed manually with an optional GPS approach arm switch.)

Bad Satellite Geometry

And RAIM Not Available -- Can appear in approach ACTV (or APR) mode only. Integrity monitoring is lost and satellite geometry is degraded. Can be followed by a NAV flag.

PAGE MESSAGES Continued

Bad Satellite Geometry

See EPE on AUX 1 page -- Integrity monitoring is lost and the estimated position error is greater than allowed for the current phase of flight. Cross check the position with other on-board equipment every 15 minutes.

Check APR ACTV

Annunciator -- Indicates an overcurrent condition in the external annunciator circuit. Discontinue approach operation unless already on final approach inside the FAF.

Check APR ARM

Annunciator -- Indicates an overcurrent condition in the external annunciator circuit. Discontinue approach operation unless APR ACTV (or APR) is annunciated.

Enable Turn

Anticipation For

GPS Approach -- Turn anticipation has been disabled on the SET 10 page. For proper approach operation, it should be enabled on the SET 10 page.

Course is XXX° -- Displays the new desired track when GPS is not displayed on the primary indicator.

If Required Select OBS -- Use OBS mode for holding patterns or procedure turns. Appears 4 nm from a waypoint that normally would require the OBS mode.

Turning Procedure

Turn Reduce Speed

To Remain Within

Protected Area -- The aircraft's flight path may extend beyond the protected airspace for the procedure turn if the aircraft's present ground speed is maintained (ORS 02 and higher).

Press ALT To Set Baro -- A reminder given 30 nm from the destination airport to update the barometric setting.

Press PROC Button Now For Navigation -- After a NAV flag in approach ACTV (or APR) mode, press **PROC** button to restore navigation for the remainder of approach. (Integrity monitoring is less critical in approach ARM (or TERM) mode so navigation may be restored.)

RAIM Not Available

APR Mode Inhibited

Predict RAIM on AUX 3 --RAIM is predicted to not be available at either the FAF or the MAP. Determine when RAIM will be available on the AUX 3 page. Integrity monitoring is required for approach operation.

RAIM Not Available

Cross Check Position --Integrity monitoring is absent. Compare the GPS position with other on-board navigation equipment.

PAGE MESSAGES Continued

RAIM Position Error

Cross Check Position--RAIM has detected a problem with a satellite. Compare the GPS position with other on-board navigation equipment.

Redundant WPTs in FPL

Edit Enroute WPTs

As Necessary--Examine the active flight plan and remove those waypoints that occur both in the en route and the approach or DP/STAR sections of the flight plan.

SCRATCHPAD MESSAGES

Messages that could appear during approach operations. Refer to the Pilot's Guide for a complete list of messages.

↔ CRS

XXX°--When in OBS mode, manually adjust the HSI or CDI course pointer to the prescribed value to provide direct-to navigation.

Fpl Is

Full--The KLN 94 cannot add any more waypoints to the flight plan.

Invalid

Add--You cannot add waypoints to the approach sequence.

Invalid

Del--You cannot delete waypoints from the approach sequence.

No Appr

at Apt -- An airport has been entered on the PROC 2 page that does not have an approach in the database.

No Apr In Fpl --No approach has been loaded into the flight plan when the APR ARM button is pressed.

No Intcpt --The aircraft's actual track does not intersect with the DME arc. Alter course so that the actual track does intercept the arc.

D Base Expire --A reminder that the database is out of date.

NAV 4 (MOVING MAP) PAGE TIPS

- To display the NAV 4 page when on any other page, press **(A)** or **(MNU)**.
- To scan through waypoints in scanning window, pull out and turn the right inner knob. Active flight plan waypoints are displayed in green. Non-flight plan waypoints are displayed in white. With desired waypoint displayed in scanning window, press **(→)** and **(ENT)** to go direct-to the selected waypoint OR press **(ENT)** to display the waypoint page for the selected waypoint (ORS 02 and higher).

- To temporarily declutter the map, press **CLR** once to deselect land data, press **CLR** a second time to declutter aero data. To restore, press **CLR** again or leave the NAV 4 page and return to it.
- To configure what information is displayed on the map, press the **MND** button, select **Setup Aero Data?** or **Setup Land Date Menu?** and press the **ENT** button to bring up the appropriate Setup page (SET 7 for aero data and SET 8 for land data). The range selected on these SET pages is the maximum range scale that the selected item will be displayed on the map.
- To change the map orientation, press the **MND** button, move the cursor over item 3 and turn the right inner knob to select the desired orientation:
 - N↑ = North up
 - TK↑ = Actual track up (when groundspeed > 2 kts)
 - HDG↑ = Heading up (if heading supplied to the KLN 94)
 - DTK↑ = Desired track up
- To change the map scale factor:
 1. Press the **A** button. The top half increases the map scale and the bottom half decreases the map scale. The scale is displayed in the bottom left part of the map.
 2. For terminal area operations select AUTO scale factor by pressing the **A** button for 2 seconds.
- To change the navigation information shown in the lower left corner of the display:
 1. Press the **CRSR** button.
 2. Use the right outer knob to move the cursor to line 4 or line 5 in the lower left corner.
 3. For line 4, use the right inner knob to select between actual track (TK), bearing, radial, or groundspeed.
 4. For line 5, use the right inner knob to select between groundspeed, ETE, crosstrack correction, or VNAV status.

KLN 94 BUTTONS

- MSG** Displays the message page
- OBS** Changes between Leg and OBS navigation modes
- ALT** Displays the altitude pages, ALT 1 and ALT 2
- NRST** Selects the nearest APT, VOR, NDB, INT, USR, SUA, FSS, or CTR
- Initiates a direct-to operation
- CLR** Cancels operations
- ENT** Approves an operation
- PROC** Initiates the selection of or the changing of an approach, DP, or STAR. Activates vectors-to-final.
- A** If on the NAV 4 (map) page, changes the map range scale. If on any other page, brings up the NAV 4 page.
- WNU** If on the NAV 4 (map) page, brings up the map menu for configuring map. If on any other page, brings up the NAV 4 page.

SUMMARY OF OPERATION

- Emergency Nearest Airport Search - Press **NRST** then **ENT**.
- Operation of right knobs - Cursor on
 - Press **CRSR** button. With the cursor on, outer knob controls cursor location and inner knob selects the character.
 - With the inner knob in, make selection character by character.
 - With inner knob out, make selection by scanning through the database alphabetically.
- Operation of right knobs - Cursor off
 - Outer knob selects page type (APT, VOR, etc.)
 - Inner knob selects specific page (APT 1, APT 2, etc.)
- Direct To operation
 - Press **▸** once. Enter desired wpt using right concentric knobs, press **ENT** to view wpt info, press **ENT** to confirm.
 - Alternatively, highlight desired wpt in flight plan, then press **▸**, then press **ENT** to confirm.
 - To center D-bar. With non-wpt page displayed press **▸** then **ENT**.
 - To cancel direct to operation press **▸**, then **CLR**, then **ENT**.

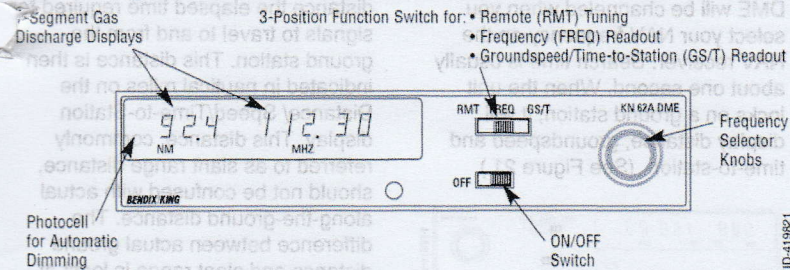
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Honeywell

KN 62A and KN 64 TSO'd Silver Crown Digital DMEs

Operating the KN 62A and KN 64 DMEs



Operation

Turn on the unit only after engine start-up. Also, turn avionics off prior to engine shut-down. These simple precautions should be practiced with all avionics. It will protect the solid-state circuitry from short duration high voltage spikes and extend the operational life of your avionics.

The 3-position function switch determines both the information displayed and the channeling source.

Place the function switch on Frequency (FREQ). The unit is channeled internally with its own two concentric frequency selection knobs. The smaller of the two knobs has an "in" and an "out" position. When in the "in" position, this smaller knob changes the 0.1 MHz digit (0.0, 0.1, 0.2, etc.). When pulled "out", it adds 0.05 MHz to the frequency and tunes in 0.1 MHz steps (0.05, 0.15, 0.25, etc.). Pushing the smaller knob "in" subtracts 0.05 MHz from the displayed frequency. The outer, larger knob changes the larger digits (1 MHz, 10 MHz). In FREQ mode, the

unit will display distance and the selected frequency. (See Figure 19.)

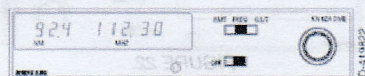


FIGURE 19.
Distance/Frequency FREQ Mode.

Now move the function switch to the Groundspeed/Time-to-Station (GS/T) position. The unit will hold the internally selected frequency and will display distance, groundspeed and time-to-station. (See Figure 20.)

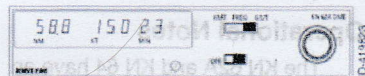


FIGURE 20.
Distance/Groundspeed/TTS GS/T Mode.

Rotating the frequency selector will have no effect on the display, because the DME is in "Frequency Hold". This frequency hold feature in the GS/T mode prevents accidental

rechanneling of the DME when the frequency is not displayed.

Place the function switch in the Remote* (RMT) position, and your DME will be channeled when you select your NAV frequency on the NAV receiver. Search time is usually about one second. When the unit locks on a ground station, it will display distance, groundspeed and time-to-station. (See Figure 21.)

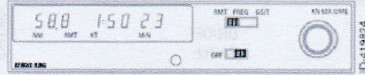


FIGURE 21.
Distance/Groundspeed/TTS RMT Mode.

Prior to lock on, "dashes" will be displayed. (See Figure 22.)

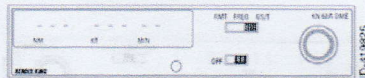


FIGURE 22.
Prior to Lock On.

Note that you may have two frequencies available at all times (one remotely selected on the NAV receiver and one internally selected with the unit's controls).

*Remote channeling requires wiring to the NAV receiver.

Operational Notes

The KN 62A and KN 64 have an audio output for use in identifying the DME ground station being received.

The audio level is preset at the factory, but may be easily adjusted through the top cover.

The unit electronically converts to distance the elapsed time required for signals to travel to and from the ground station. This distance is then indicated in nautical miles on the Distance/ Speed/Time-to-Station display. This distance, commonly referred to as slant range distance, should not be confused with actual along-the-ground distance. The difference between actual ground distance and slant range is least at low altitude and/or long range. If the range is three times the altitude or greater, error is negligible.

The effective range of DME depends on many factors, most important being the altitude of the aircraft. Other contributing factors are the location and elevation of the station, DME transmitter power output, and receiver sensitivity.

The groundspeed feature incorporated in the unit measures the rate of change in DME slant range distance with time. This speed is then read from 0 to 999 knots in 1 knot increments. To obtain accurate groundspeed, the aircraft must be tracking directly to or from the station. To obtain accurate time to station, the aircraft must be tracking directly to the station.