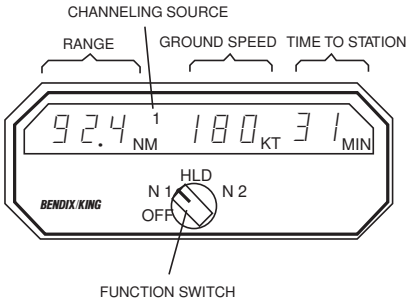
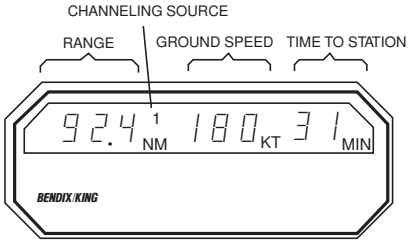


KDI 572 Display



KDI 573/574 Display

DME

KDI 572/573/574 When Used With the KDM 706/706A

The effective range of a DME depends on many factors: most important being line of sight limitations determined by the altitude of the aircraft (see Table 1), weather, the location and altitude of the ground transmitter and transmitter power output. The degree of maintenance of the KDM 706/706A DME and maintenance of the ground station also contribute to a DME's effective range capability. Usually line-of-sight limitations will prevent an aircraft on the ground from receiving and locking onto a VORTAC station.

The DME system electronically converts elapsed time-to-distance by measuring the length of time between the transmission of a radio signal to a pre-selected VORTAC station and reception of the reply signal. This distance is then indicated in nautical miles on the DME range/ground speed/time-to-station indicator. This distance is measured on a slant from the aircraft to the ground and is commonly referred to as slant-range distance. Slant-range distance should not be confused with actual ground distance. The difference between slant-range distance and ground distance is smallest at low altitude and long range. These distances may differ considerably when in close proximity to a VORTAC facility. However, if the range is three times

the altitude or greater, this error is negligible. To obtain accurate ground speed and time-to-station, the aircraft must be on a direct course to or from the VORTAC facility.

Note: *It is recommended that the power to the DME system be turned on only after engine start-up as this procedure increases the reliability of the solid state circuitry.*

The KDI 572 Master Indicator function selector switch serves as the Power ON-OFF control for the system as well as selecting the DME channeling source N1 (NAV 1), Hold (NAV 1 or NAV 2) and N2 (NAV 2). In most typical installations, channeling of the DME is accomplished with the No. 1 and No. 2 VOR/LOC frequency selectors in the aircraft. The KDI 573 requires a external panel mounted switch to provide ON-OFF and NAV 1, HOLD, NAV 2 Switching.

The DME uses channels that are paired with VOR/LOC channels. Tuning the desired VOR/LOC frequency on the NAV frequency selector automatically pairs the proper DME channel. In a few installations, a separate DME control head is installed. It selects the VORTAC channel enabling the DME to function separately from the aircraft's NAV system.

Information on VORTAC stations can be found by checking the current aeronautical chart.

One or two frequency selector controls may be used with the KDI 572/574 Master Indicator. The KDI 572/574 also provides a Hold function. After a DME channel has been selected, the Hold function may be selected. This will uncouple the frequency selector control from the DME and allow a new navigation frequency to be selected without channeling the DME until the N1 (NAV 1) or N2 (NAV 2) function is again selected on the KDI 572/574. This feature may be used to advantage during an approach where both NAV receivers are tuned to the ILS frequency. If there is no corresponding DME channel on the ILS frequency, the DME may be channeled to a nearby VORTAC station before the approach is begun and then placed in Hold position where it will remain giving useful distance information up to the time of loss of signal.

To prevent the display of false information the KDI 572/574 will display “dashes” while in search or if power is turned on or momentarily interrupted while in the frequency Hold mode, indicating loss of the DME holding frequency. Normal operation is re-established by placing the indicator function switch in the N1 (NAV 1) or N2 (NAV 2) position. A “1” (one) is displayed when N1 or a “2” (two) is displayed when N2 has been selected as the channeling source. In the Hold mode either a “1H” or “H2” is displayed to indicate the channeling source being held.

The indicator will display “RNV” when the displayed range, ground speed and time-to-station are derived from an area navigation system.

The KDI 572/574 Indicator displays range to the nearest 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. The display also will indicate 99 minutes for any computed time-to-station greater than 99 minutes.

The KDI 573 Slave Indicator (see Figure) provides a display identical to the display on the KDI 572 Master Indicator. An automatic dimming

function is designed into both indicators to adjust the brightness of the display to compensate for changes in the ambient light level.

The NAV Frequency Selector proveds frequency selection for the NAV receiver (including glideslope channels) as well as DME channels. The desired navigation frequency is selected by use of two controls located on the front panel. The large (inner) control is used to increase or decrease the navigation frequency in one MHz increments from 108.00MHz to 117.00MHz. The small (outer) control is used to increase or decrease the navigation frequency in 50 KHz increments. The frequency selected is displayed in the “frequency window”.

The DME system provides an audio output capability allowing the pilot to identify the DME ground station by listening to the CW tones transmitted by the ground station at 30-second intervals.

Table 1 Aircraft Altitude Versus Range Capability

AGL ALTITUDE (FEET)	LINE OF SIGHT RANGE (NAUTICAL MILES)	AGL ALTITUDE (FEET)	LINE OF SIGHT RANGE (NAUTICAL MILES)
1,000	39	25,000	195
2,000	55	30,000	213
3,000	67	35,000	230
4,000	78	40,000	246
5,000	87	45,000	261
6,000	95	50,000	275
7,000	103	60,000	301
8,000	110	70,000	325
9,000	117	80,000	348
10,000	123	90,000	369
15,000	151	100,000	389
20,000	174		

TACAN

KFS 579A and KDI 572/573/574 When Used With the KTU 709

The KTU 709 TACAN system is a polar coordinate UHF navigation system that provides relative bearing and slant-range distance information with respect to a selected TACAN or VORTAC ground station. The effective range of the TACAN is limited to the line-of-sight. Actual operating range depends on the altitude of the aircraft, weather, type of terrain, location and altitude of the ground transmitter and transmitter power. Usually line-of-sight limitations will prevent an aircraft on the ground from receiving and locking on to a TACAN or VORTAC ground station. Typical operating distance versus altitude is shown in Table 1.

The range measurement portion of the KTU 709 TACAN system electronically converts elapsed time-to-distance by measuring the length of time between the transmission of a radio signal to a pre- selected TACAN or VORTAC station and reception of the reply signal. This distance is then