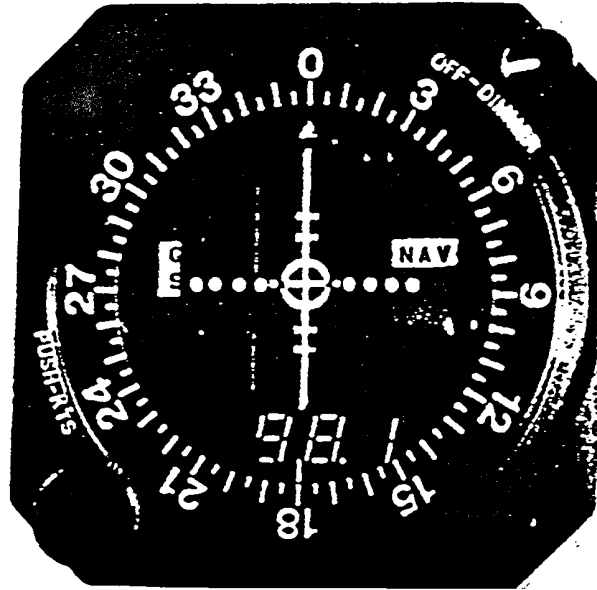


 **NARCO AVIONICS INC.**

## IDME 891 SYSTEM



**REMOTE CHANNELED DME WITH VOR-ILS INDICATOR**

## OPERATION MANUAL



**NARCO AVIONICS INC**  
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### 3.1 INTRODUCTION TO OPERATION

Operation of the IDME-891 remote channeled DME with VOR-ILS indicator is described here only to the extent of making the electrical tests necessary to confirm proper operation. Operation of the unit, as applied to navigating an aircraft, is not covered in this manual.

### 3.2 IDME-891 FRONT PANEL DESCRIPTION

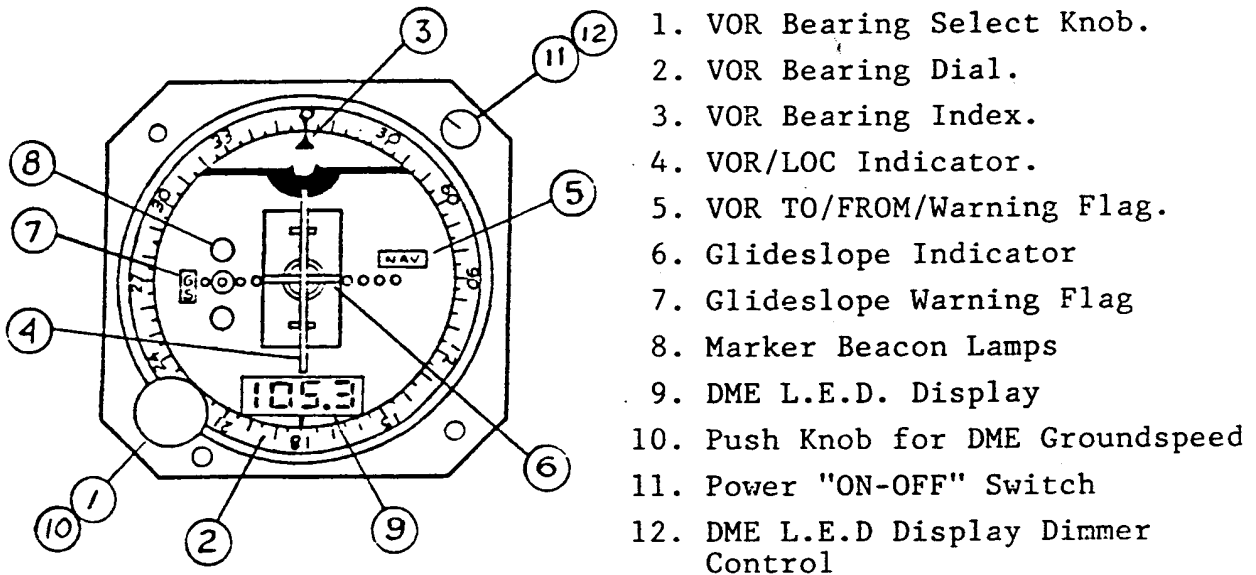


FIGURE 3-1 IDME-891 FRONT PANEL

### 3.3 VOR BEARING SELECTION CONTROL

The VOR bearing selection control is the knob at the lower left of the indicator. The selected bearing is shown on a moving VOR bearing dial under an index at the top of the indicator. The reciprocal bearing appears under an index, at the bottom of the indicator.

### 3.4 INDICATORS

#### 3.4.1 VOR/LOC DEVIATION INDICATOR

For VOR Steering, the vertically oriented Indicator moves left or right to indicate selected VOR bearing relative to actual aircraft heading. When the indicator is centered, an ON-course condition exists.

For LOC Steering, the Indicator moves left or right to locate the lateral centering component of an ILS glide path system relative to actual aircraft heading.

### 3.4.2 GLIDESLOPE DEVIATION INDICATOR

The horizontally oriented Indicator moves up or down to locate the vertical centering component of an ILS glidepath system relative to the actual aircraft heading.

The required glidepath of the aircraft is obtained only when the GS and LOC Deviation Indicators are crossed and centered within the small circle.

### 3.5 WARNING FLAGS

#### 3.5.1 NAV FLAG (TO/FROM)

A Red NAV Flag (Red OFF) alerts the pilot to either a loss of VOR/LOC signal or inadequate signal level. When a valid signal is received, either a TO or FROM Flag will appear depending on whether the selected course will take the aircraft to or from the station.

#### 3.5.2 GLIDESLOPE FLAG

A Red GS Flag (Red OFF) alerts the pilot to either a loss of signal or inadequate signal level.

### 3.6 MARKER BEACON LAMPS

The marker beacon lamps are used to mark locations on the ILS system, and to mark selected airways points. The ILS Outer Marker is the BLUE lamp, the Inner Marker is the AMBER Lamp and the "Z" or airways marker is the WHITE lamp.

### 3.7 OPERATING PROCEDURES

#### 3.7.1 POWER SWITCHING (ON/OFF)

The IDME-891 is turned "OFF" by the extreme CCW position of the Dimmer control. CW rotation beyond the detent turns the unit "ON".

#### 3.7.2 VOR CHANNEL SELECTION

When the IDME-891 is properly installed and connected, the associated NAV and/or GS receiver must be tuned to the desired VOR or GS/LOC channel.

### 3.7.3 VOR OPERATION

With the NAV receiver properly tuned and a VOR bearing, TO or FROM, selected on the VOR Generator, rotate the VOR Bearing Selector knob until the Left-Right Indicator is centered. If a valid signal is received, the NAV Flag should retract and a TO or FROM Flag should appear. The magnetic bearing TO or FROM the simulated VOR station is then read under the index at the top of the VOR bearing dial.

### 3.7.4 LOCALIZER OPERATION

With the NAV receiver tuned to a localizer channel and a LOC centering signal set on the VOR generator, the Red NAV Flag should retract to the TO position if a valid signal is received and the Left-Right Indicator should center. When the LOC centering signal at the VOR Generator is moved to favor the 90 Hz component of the composite signal, the Left-Right Indicator will move to the right. Favoring the 150 Hz component will move the indicator to the left.

### 3.7.5 GLIDESLOPE OPERATION

Glideslope transmitters are paired with localizer transmitters in the ILS system. Glideslopes operate at UHF frequencies. A glideslope frequency is assigned to each localizer frequency. Most glideslope receivers are remotely tuned by the NAV receiver.

With the glideslope receiver properly tuned and a GS centering signal set on the VOR/GS generator, if a valid signal is received, the Red GS Flag will retract and the GS indicator should go to the center position. When the GS centering signal at the VOR/GS generator is moved to favor the 150 Hz component of the composite signal, the GS indicator will move UP. Favoring the 90 Hz component will move the GS indicator down.

## 3.8 DME OPERATION

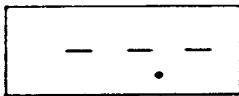
### 3.8.1 DME CHANNEL SELECTION

The IDME-891 has NO DME tuning controls as it is remotely channeled by its companion NAV receiver (MK-12D or NAV-824/825). When the IDME-891 is properly installed and connected, the associated NAV unit must be tuned to the desired DME channel.

### 3.8.2 DME LIGHT EMITTING DIODE (L.E.D.) DISPLAY

The DME readout is a 4-digit 7-segment high intensity L.E.D. display. Range in nautical miles to the nearest 0.1 nm is normally displayed when locked-on to the set ground station. A fault condition is indicated when "BARS" are displayed.

**TYPES OF DISPLAY INDICATIONS**



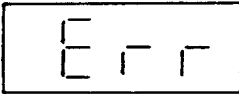
**FAULT**

**FAULT** - Indicates an unuseable signal or circuit defect.



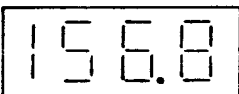
**FREQUENCY**

**FREQUENCY** - Immediately following a remote channel selection, push in the OBS knob and for 5 seconds, the MHz frequency will be displayed. The KHz frequency is not displayed. After 5 seconds, the display will indicate the preset velocity (120 kts).



**ERROR**

**ERROR** - When the OBS knob is pushed in and "Err" is displayed, this indicates a false ARINC channeling code.



**RANGE**

**RANGE** - The display normally indicates range in nautical miles.



**VELOCITY**

**VELOCITY** - When the OBS knob is pushed in, the display indicates velocity in nautical miles per hour.

**3.8.3 DME GROUNDSPPEED SELECTION**

To read DME groundspeed in the L.E.D. display, the VOR Bearing Select Knob must be depressed and held depressed. The groundspeed is given in knots to the nearest whole digit. Accuracy is  $\pm 5\%$  after 5 minutes stabilization of the initial lock-on. When the Bearing Select Knob is released, the display reverts back to DME range.

Displayed Time-to-Station (TTS) is NOT available in the IDME-891 system.

**3.8.4 DME L.E.D. DISPLAY DIMMING CONTROL**

The intensity of the L.E.D. display is manually controlled by the Dimmer Knob located at the upper right of the Indicator. The dimmer pot is part of the unit's "ON-OFF" switch. CW knob rotation dims the display while CCW rotation increases brightness.