

### Description

The TR-36 NAV/COMM/ELT/EPIRB Test Set is Tel-Instrument Electronics Corp. latest offering. Updated to the latest in hardware and software the TR-36 can easily provide comprehensive ramp testing in an user-friendly, light weight high-precision instrument for rapid functional testing of VOR, LOC/GS, MB, and VHF COMM (AM/FM), ELT and EPIRB avionic equipment all in a weather proof package with color display.

Tel-Instrument is known for our intuitive and innovative user interface, but now updated to include ELT, EPIRB and SECAL. The TR-36 with its industry leading, long battery life, rugged and light weight package and easy to see and use COLOR front screen. The TR-36 packs all of the latest features with unsurpassed reliability, performance and resolution of all measured or transmitted parameters.



**P/N – 90 000 136**

### Tel-Instrument Electronics Corp.

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Sales – Extension - 368

### Features

- VOR, LOC, GS, ILS and MB
- ELT and EPIRB
- SELCAL and VSWR
- UHF and VHF Transmit and Receive
- Remote software updates via Ethernet interface
- Large easy to use 5.1" COLOR display
- Simple to use interface and menu structure
- Key board entry of nearly limitless parameters
- Battery Charger Included
- Industry leading 8 lb. light weight package

#### VOR

Provides signal coverage across the entire VOR band. Complete simulation of VOR beacon and bearing in 0.1° increments.

- Accurate generation of 30 Hz variable, reference, and 9960 Hz sub-carrier.
- Preset bearing simulation in 45° or slew in 0.1° increments.
- 30 Hz REF & VAR, and 9960 Hz modulation can be deleted to check flag operation.
- Covers the entire VOR band of 108.00 to 117.95 MHz.
- 1020 Hz IDENT tone Selectable ON/OFF
- FM Immunity Check
- "On the Fly" adjustments
- Complete Control of Output power for Direct Connect and Antenna Operation.

#### LOC and GS

CAT I, II, and III Simulation of GS and LOC signals. Variable DDM in .001 DDM values

- Precise simulation of LOC/GS ground station signals.
- Allows selection of preset DDM deflections or manual slew in 0.001 increments.
- 90 Hz and 150 Hz ON/OFF selection
- ID Tone ON/OFF
- FM Immunity Test
- Simultaneous LOC/GS/MB Mode.
- Complete Auto Sweep selection
- "On the Fly" adjustments
- Complete Control of Output power for Direct Connect and Antenna Operation.

## Marker Beacon and ILS

Simple user selection of the MB 75 MHz signal at 400, 1300 and 3000 Hz

- Simultaneous MB and ILS output signals.
- Separate adjustment of DDM values, either preset or slew, in ILS.
- Output Power easily adjustable from +13 to -67 dBm
- *ON the FLY* changes



## COMM RF TRANSMITTER Characteristics

RF FREQUENCIES		PRESET FREQUENCY VALUES***			KEYPAD ENTRY FREQUENCY CAPABILITY		
FUNCTION		LO	DEFAULT	HI	FROM	TO	ACCURACY
Marker	MB	74.50 MHz	75.00 MHz	75.50 MHz	74.5000 MHz	75.5000 MHz	± 0.02%
VOR OMNI	VOR	108.00 MHz	108.05 MHz	117.95 MHz	108.0500 MHz	117.9500 MHz	± 0.02%
Localizer**	LOC	108.10 MHz	108.15 MHz	110.15 MHz	108.1000 MHz	119.9500 MHz	± 0.02%
Glide Slope**	GS	334.70 MHz	334.55 MHz	334.25 MHz	329.1500 MHz	335.0000 MHz	± 0.02%
COMM AM LOW	COMM L	118.00 MHz	137.00 MHz	156.00 MHz	10.00 MHz	156.0000 MHz	± 0.02%
COMM AM HI	COMM H	225.00 MHz	312.00 MHz	400.00 MHz	156.0000 MHz	400.0000 MHz	± 0.02%
COMM FM	COMM FM	156.00 MHz	165.00 MHz	174.00 MHz	10.0000 MHz	400.0000 MHz	± 0.02%
COMM SSB	SSB				10.0000 MHz	30.0000 MHz	± 0.02%
SELCAL	SELCAL	118.00 MHz	137.00 MHz	156.00 MHz	117.0000 MHz	157.0000 MHz	± 0.02%

**FREQUENCY SPACING IS IN 25 KHZ AND 8.33 KHZ STEPS**

\*\* Localizer and Glideslope Frequencies are Automatically Paired      \*\*\*All preset values can be user modified and saved to memory

OUTPUT LEVEL		FREQUENCY VALUES		
FUNCTION				
Ant Connector	10.00 to 75.00 MHz	-17 to -67 dBm	0.5 dB Steps	± 3 dB
	75.00 to 400 MHz	+13 to -67 dBm	0.5 dB Steps	± 3 dB
Dual Mode LOC		0.0 dBm	Fixed	± 2.5 dB
Dual Mode GS		0 to -76 dBm	0.5 dB Steps	± 3 dB
Tri Mode Marker		+13 dBm	Fixed	± 2 dB
Tri- Mode LOC		-7 dBm	Fixed	± 2 dB
Tri-Mode GS		-7 to -83 dBm	0.5 dB Steps	± 3 dB
RF Direct Connect	10.00 to 75 MHz	-40 to -130 dBm	0.5 dB Steps	± 2 dB
	75.00 to 400.00 MHz	-12 to -130 dBm	0.5 dB Steps	± 2 dB
Dual Mode LOC		-22 dBm	Fixed	± 2 dB
Dual Mode GS		-22 to -101 dBm	0.5 dB Steps	± 2.5 dB

## Power Output

## NAVIGATIONAL Characteristics

FUNCTION	FREQUENCY	CONDITIONS	DEFAULT	ACCURACY	RANGE	RESOLUTION	SELECTION
Marker	0.4, 1.3, 3.0 kHz	----	95 % mod	+/- 5 %	----	----	TONES
Tone Frequency Accuracy ± 0.2% @ 0.4, 1.3, 3.0 kHz							
VOR OMNI	9960 Hz & 30 Hz	0° Bearing	30 % mod	+/- 2 % Mod	0° to 360°	0.1°	ILS/VOR VAR
	Bearing Accuracy	± 0.1° at 0° degree bearing					
	FM Modulation	30 Hz reference at ± 480 Hz Peak deviation on 9960 Hz Sub carrier			Accuracy ± 25 Hz at peak deviation		
VOR Presets	0°	45	90	135	180	225	270
		315	360	Key Pad Variable - 0° to 360° in 0.1° inc.			
Glide Slope	90 Hz & 150 Hz ± 0.02%	@ 0.0 DDM	40 % mod	+/- 2 % Mod.	0 to 0.400 DDM (U/D)	0.001 DDM	ILS/VOR VAR
Localizer	90 Hz & 150 Hz ± 0.02%	@ 0.0 DDM	20 % mod	+/- 2 % Mod.	0 to 0.200 DDM (L/R)	0.001 DDM	ILS/VOR VAR
<b>PRESETS</b>							
LOC	DDM	U1/R1	U2/R2	FS	OC	FS	D2/L2
		0.093	0.155	0.200	0.000	-0.200	-0.155
GS	DDM	0.091	0.175	0.400	0.000	-0.400	-0.175
							D1/L1
							-0.093
							-0.091
Key Pad Variable DDM in .001 DDM increments to full scale							
IDENT	1020 Hz +/- 0.02 %	VOR	30% Fixed or 0 to 90% VAR	+/- 2 % Mod ± 50 Hz.	----	----	MB/NAV ID

## Power Monitoring

- Accurate a quick measurements of power and audio
- VSWR Testing from 10 to 400 MHz
- Precise FM Deviation measurements

Power Meter	
<b>Frequency</b>	10.00 to 400 MHz
Power Range Low	20 dBm to < 30 dBm
Resolution	± 0.1 dB
Power Range HI	30 dBm to 45 dBm
Resolution	± 1 dB
Duty Cycle	< 30 dBm Continuous > 30 dBm 3 min ON, 2 min OFF

AM/FM Metering	
<b>AM Meter</b>	50 to 3000 Hz
Modulation Range	5% to 100%
Accuracy	± 2%
Sensitivity	
Antenna Connector	≥ -20 dBm
Direct Connect	≥ +5 dBm
<b>FM Meter</b>	50 to 3000 Hz
Deviation Range	1 to 15 kHz
Accuracy	± 8%
Minimal Input Level	
Antenna Connector	≥ -35 dBm
Direct Connect	≥ +5 dBm

## ELT

- Continuous Monitoring of ELT Beacon on 121.5 and 243 MHz
- Accurate Power and Frequency Measurements
- Monitor broadcast on headphone jack

## EPIRB (406 Beacon)

- Continuous Monitoring of all ELT COPAS/SARSAT signals
- Accurate Sensitivity and Frequency measurements
- Position Information (LAT/LONG) decoded and displayed
- ID, Beacon Type, Type of Locating Device, Device Activation Code

121.5 / 243 MHz Beacon	
<b>Swept Audio Tone</b>	100 to 300 Hz
Accuracy	± 10%
<b>Sensitivity</b>	
Antenna	≥ -30 dBm
Direct Connect	≥ +5 dBm
406 MHz Beacon	
<b>Sensitivity</b>	
Antenna	≥ -30 dBm
Direct Connect	≥ +5 dBm

SELCAL	
<b>Single Transmission</b>	100 to 300 Hz ± 2%
Modulation	40% AM ± 2%
<b>Continuous</b>	
Modulation	0 to 55% ± 2%
Distortion	< 2 %

## SELCAL

- Continuous or Single Burst Tones
- Selectable Pulse Pairs
- Variable Modulation (Continuous)
- Monitor broadcast on headphone jack

## Misc/Environmental

INPUT/OUTPUT Connectors	
<b>Direct Connect</b>	
Impedance	50 Ω
<b>Max Input</b>	30 Watts Max.
<b>VSWR</b>	
10.00 to 400 MHz	≥ 1.8:1 Ratio
<b>Antenna Connector</b>	
Impedance	50 Ω
Max Input	0.5 Watts

Physical Characteristics	
P – 90 000 136	
Case Style	MIL-PRF-28800F, Class 2
Height	3 3/8"
Width	12 13/16"
Depth	7 3/8"
Weight Static	8 lbs. 2 oz.

Supplemental Specifications	
<b>Battery</b>	Lithium Ion
Duration	> 8 Hours 20% DC
<b>AC Power (input)</b>	100 to 240VAC 40 to 400 Hz
<b>DC Power (input)</b>	28 VDC
Input Power Consumption	45 Watts
Input Current	0.17 Amps AC
Fuse Requirements	1.0 A SB (2 req.)
Operating Temperature	-20°C to +55°C
Storage Temperature	-30°C to +70

## Standard Accessories and Options

- Standard 2 Year Limited Warranty included
- Multi Band Omni Antenna
- Telescoping Antenna
- Operational Manual
- External Battery Charger
- Direct Connect Cable
- Optional Transit Case



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### ILS

CRAFT - ILS

Mode	Status
<input checked="" type="checkbox"/> Localizer	108.100 MHz
<input checked="" type="checkbox"/> Glide Slope	337.700 MHz
<input checked="" type="checkbox"/> Marker Beacon	0.000 MHz
<input type="checkbox"/> FM Immunity	0.000 MHz

< Back      Stop Test

Running test ILS\_TEST



### VOR

VOR

Power 0.0 dBm      Frequency 108.000 MHz

Bearing 45.0 degs      Variable 0.0 degs

30Hz Ref     30Hz Var     ID Tone

< Back      Run Test

### MB

Marker Beacon

Power 0.000 dBm

Beacon Middle

< Back      Stop Test

Running test MARKERBCN\_TEST

### LOC

VOR

Power 0.0 dBm      Frequency 108.000 MHz

Bearing 45.0 degs      Variable 0.0 degs

30Hz Ref     30Hz Var     ID Tone

< Back      Run Test

### ELT/EPIRB

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Frequency 406.025      Run

Power 20.000

BCH Errors 0

Country: Norway

Protocol: Standard Location

Hex ID: 2024F72524FFBFF

Device: EPIRB

ID: MMSI=506153

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Running test RUN\_ELTPLB\_TEST