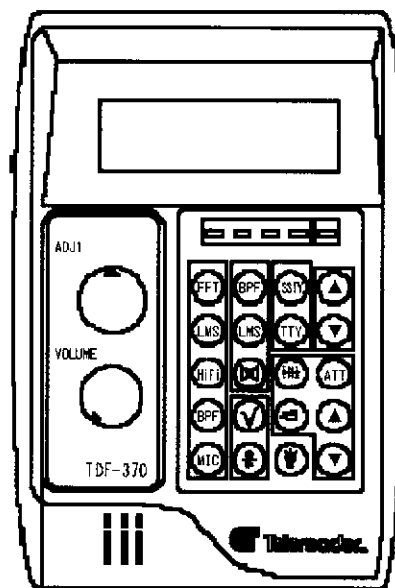


**DSP MULTI-MEDIA TERMINAL**  
**MODEL TDF-370**



**INSTRUCTION MANUAL**

**AOR, LTD.**

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This equipment has been tested and found to comply with the limits pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, it is not certain that the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures,

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment to an outlet on a circuit different from the one to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

1. Introduction

1-1. Introduction

Thank you for purchasing the AOR TDF-370 DSP Multi-Media Terminal. Before operating your TDF-370, please read through this instruction manual and become familiar with each function. Please keep this manual with the unit for future reference.

1-2. Features

DSP Filters

A total of 4 types of filters have been provided for VOICE operations. Those filters are FFT, LMS, Hi-Fi, and BPF. For CW operations, 3 filters are provided, BPF, LMS, and Stereo filters.

PSK31 Operation

A wide filter and a narrow filter are provided for the BPSK and QPSK modes. Each parameter can be set by a PC through the RS-232C port. The TDF-370 is capable of displaying decoded signals on the LCD without a PC.

RTTY Operation

Operates in 170Hz, 425Hz and 850Hz shifts, and 45 baud, 50 baud and 74 baud with 5 bit (Baudot) code. Both control and communications can be accomplished through a PC connected to the RS-232C port. The TDF-370 is also capable of displaying decoded signals on the LCD without using a PC. Note: The RTTY mode is available only in the AFSK mode. The FSK mode is not supported.

SSTV Operation

Supports Robot 36, Robot 72, Scottie 1, Scottie 2, Martine 1, Martine 2, AVT90 and AVT94 modes. To operate in these SSTV Modes, optional control software is required.

Microphone Equalizer

Adjustable up to +/- 6 dB in 8 frequency bands. A background noise canceling function is available.

DVR

A DVR (Digital Voice Recorder) has been built in to record audio up to 102 seconds long, using DPCM compression technology. There are 8 memory channels. (Total recording time is 102 seconds.)

1-3. Accessories

When you unpack the carton, you should find the following accessories:

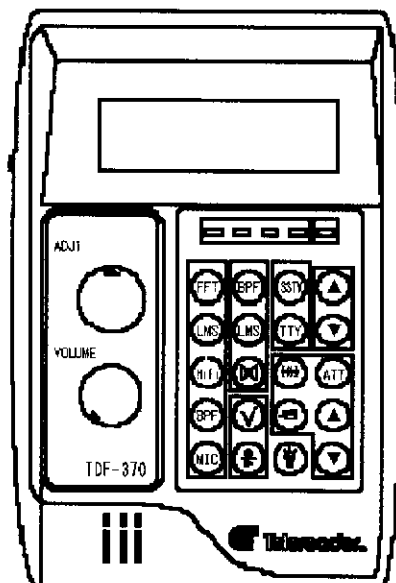
- DC power cable ----- 1
- Audio cable with 3.5 mm mono plug at each end ----- 1
- 3.5 mm stereo plug ----- 2
- Stereo earphones ----- 1
- Y-type serial cable ----- 1
- 8- pin microphone plug ----- 1
- 8- pin microphone jack ----- 1
- Instruction manual (this book) ----- 1

1-4. Equipment you need to make full use of the TDF-370:

- Radio (transceiver), microphone, antenna, power supply
- Power supply for the TDF-370 (4 -AA alkaline batteries or 11 ~ 14 V DC regulated power supply)
- PC, PC control software (optional)
- Audio interface cables

## 2. Operations

### 2-1. Upper Panel



#### 1. DISPLAY

LCD --- Displays parameter settings, operating status, and decoded signals.

LEVEL - Indicates the input signal level.

Sets the input signal level so that the RED LED flashes occasionally. If the input level is too high, readjust the level using the level switch and/or the attenuator switch.

IN 2 --- There are 2 separate signal input ports for the TDF-370.

When the "IN 2" LED is lit, then Input 2 is selected.

When "IN 2" LED is NOT lit, then Input 1 is selected.

CUE ----- Lit while the DVR is in operation.

Flashes when the alkaline AA batteries need replacement.

#### 2. ADJ 1

Used to change parameter settings for each mode.

#### 3. VOLUME

Adjustment for internal speaker output, headphone output, and SP output level.

#### 4. INTERNAL SPEAKER

Monitors the input signals. Disabled when headphones or an external speaker are connected.

When in battery operation, using the internal speaker will shorten battery life.

For a longer battery life, use the headphones whenever possible.

#### 5. VOICE FILTER SWITCHES

FFT ---- FFT adaptive filter switch

This is a remarkable feature, and is a "world first," utilizing FFT (Fast Fourier Transform) technology. The FFT filter produces a natural sound with low distortion, in comparison to other DSP methods.

Bandwidth --- 300 Hz ~ 2400 Hz

Adjustment --- ADJ 1 ---- Noise reduction control

ADJ 2 ---- N/A

LMS ---- Modified LMS adaptive filter switch  
Using an advanced LMS type noise reduction circuit, background noise is significantly reduced. An auto notch filter is also active in this mode

Bandwidth ---- 300 Hz ~ 2400 Hz  
Adjustment ---- ADJ 1 ---Adjusts noise reduction  
ADJ 2 ---Adjusts auto notch

Hi-Fi --- Hi-Fi stereo filter switch  
Simulated Hi-Fi audio quality is generated and through special processing, a stereophonic-like sound is produced through the headphones.

Bandwidth ---- 300 Hz ~ 2400 Hz  
Adjustment ---- ADJ 1 --- Mixing adjustment of higher frequency range signals  
ADJ 2 --- Stereo Parameter adjustment

BPF ----- Band Pass Filter switch  
Engages simple audio band pass filtering. More flexible filtering is available by using the FFT mode..

Bandwidth ---- 300 Hz ~ 2400 Hz  
Adjustment ---- ADJ 1 ---- Slope control for high/low frequency  
ADJ 2 ---- Low cut frequency adjustment

MIC --- - Microphone Equalizer switch  
Frequency compensation is adjustable using 8 frequency bands.  
Background noise cancellation level and output level are adjustable.

Adjustment --- ADJ 1 --- Mode selection  
ADJ 2 --- Level adjustment

## 6. CW FILTER SWITCHES

BPF ----- Band Pass Filter switch  
Center frequency and bandwidth are adjustable.  
Adjustment ---- ADJ 1 ---- Center frequency 450 Hz ~ 800 Hz (in 50 Hz step)  
ADJ 2 ---- Bandwidth 100 Hz, 200 Hz, 300 Hz

LMS ----- LMS adaptive Filter switch  
Especially effective for CW reception

Adjustment ----- ADJ 1 ---- Adjusts noise reduction effect  
ADJ 2 ---- N/A



----- Stereo Band Pass Filter switch  
Processes input signals through the FIR filter to obtain stereophonic-like audio signals.

Adjustment ----- ADJ 1 ---- Center frequency --- 450 Hz ~ 850 Hz  
ADJ 2 ---- Bandwidth ----- 100 Hz, 200 Hz, 300 Hz

## 7. RECORD/PLAY SWITCH



----- RECORD/PLAY switch

Press this switch to go into the RECORD STAND-BY mode, and the "REC" icon will appear on the LCD. While in this mode, pressing this switch again will playback the recorded signals. While in either the RECORD mode or PLAY mode, press this switch to ERASE all recorded signals.



----- CUE switch

While in the RECORD STAND-BY mode, press this key to start recording signals into memory. The TDF-370 actually captures audio up to 6.4 seconds prior to your pressing the record button. This means you will not miss any signals that may pass a few seconds before you activate the recording feature. The CUE LED is lit while recording. Pressing this switch while recording will stop recording, and will return the unit to the RECORD STAND-BY mode. You can resume recording by pressing this switch once again.

### 8. DATA COMMUNICATIONS SWITCHES

SSTV ----SSTV mode switch

To operate in this mode, you must have a PC and optional control software.

Operation Mode: Robot 36, Robot 72, Scottie 1, Scottie 2, Martine 1, Martine 2, AVT 90, AVT 94

Adjustment ----- ADJ 1 --- N/A

ADJ 2 --- Squelch level setting

TTY ---- RTTY/PSK 31 switch

Decoded signals can be monitored on the LCD without a PC.

TTY 17 ----- RTTY mode 170 Hz shift

TTY 42 ----- RTTY mode 425 Hz shift

TTY 85 ----- RTTY mode 850 Hz shift

PSK BW ----- PSK 31 (BPSK mode) with wide filter

PSK QW ----- PSK 31 (QPSK mode) with wide filter

PSK BN ----- PSK 31 (BPSK mode) with narrow filter

PSK QN ----- PSK 31 (QPSK mode) with narrow filter

The "tty" or "psk" icons indicate that the TDF-370 is in the RECEIVE STAND-BY mode.

If you have a PC connected to the TDF-370, mode settings and transmit/receive commands can be controlled through the PC.

NOTES: The TDF-370 supports only the BAUDOT RTTY mode.

In the data mode (SSTV/TTY), input levels will be automatically adjusted, therefore, no user adjustment is necessary.

### 9. ADJ 2 SWITCH

Used for parameter settings of each mode.

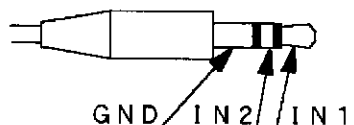
### 10. INPUT/OUTPUT SWITCH

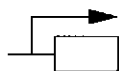
IN1  
IN2 --- Input channel selector

When the Input 2 is selected, the "IN 2" LED is lit.

When the Input 1 is selected, the "IN 2" LED is NOT lit.

A 3.5 mm stereo input plug may be used. Below is a diagram of the input connector.





--- Bypass switch

Press this switch to monitor incoming signals without any processing.  
This function can be used to monitor the processing effects of the TDF-370

NOTE: This function is NOT available for the SSTV and RTTY modes.

ATT ---- Input Attenuator switch

When the input level is so high as to cause distortion, press this switch. The "A" icon appears on the LCD indicating the input attenuator is activated.

NOTE: This function works for Input 1 only. As an alternative to using this feature, or to reduce input level on Input 2, you can try reducing the input at its source, such as lowering the volume of the receiver.

LEVEL -- Input Level adjustment switch

Press either the UP switch or DOWN switch for proper input level settings.

Input level is displayed by the level indicator LED's. If the RED LED is lit all the time, you need to reduce the input level to avoid distortion. However, there is no need to set the input level for the SSTV and TTY modes since they will be adjusted automatically.

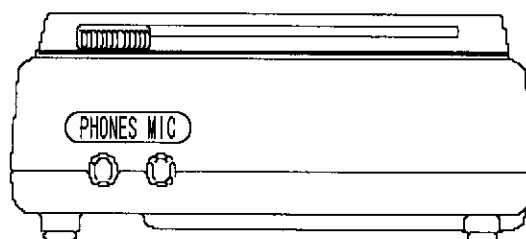
## 11. BACKLIGHT SWITCH



Backlight on/off switch for illumination of the LCD.

When in the battery operation mode, the backlight automatically goes off after a brief period when no key operations are made.

## 2-2. FRONT PANEL



### 1. PHONES (3.5 mm stereo jack)

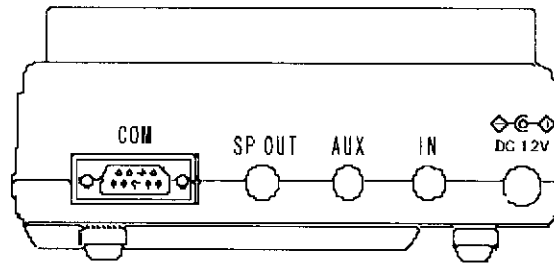
Use the supplied stereo earphones or your own headphones. Powered external stereo speakers, such as those used with computers, may also be used, provided they are of the proper impedance value. The internal speaker will be disabled when a headset is connected.

### 2. MIC (3.5 mm stereo jack)

Plug-in a dynamic microphone. This jack also controls the PTT of the radio.

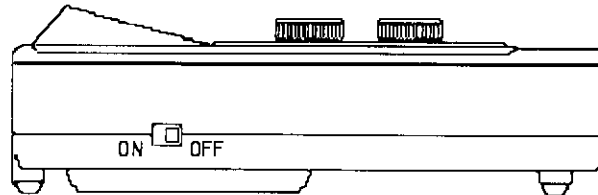


### 2-3. REAR PANEL



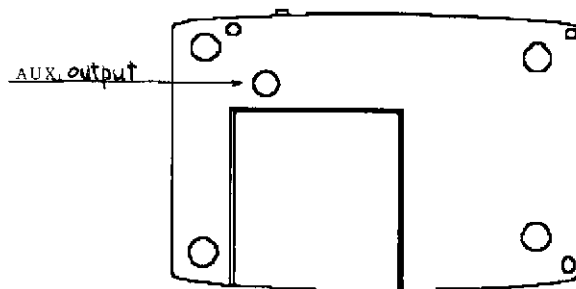
1. COM ----- For RS-232C serial interface connector Baud rate: 9600 bps (TTY) 57.6 K bps (SSTV)
2. SP OUT (3.5 mm mono jack) --- External mono speaker output
3. AUX (3.5 mm stereo jack) ----- Microphone signal output and the PTT output to the radio
4. IN (3.5mm stereo jack) ----- Audio input (2 channels)
5. DC 12V ----- External power supply input (Use 11 ~ 14 v DC regulated power source)

### 2-4 SIDE PANEL



1. ON/OFF ----- Power on/off switch  
NOTE: While the power switch is in the off position, the INPUT 2 signal is bypassed to the SP OUT.

### 2-5 BOTTOM PANEL



Battery compartment

1. Battery compartment  
Insert 4 - AA size alkaline batteries.
2. AUX output adjustment  
Level adjustment for microphone output to the radio

### 3. INSTALLATION AND INTERFACING

#### 3-1. INTERFACE WITH THE RADIO

##### \* RECEIVE ONLY

There is no need to wire the MIC connector and the AUX connector.

##### \* TRANSMIT AND/OR MICROPHONE EQUALIZING

To use the microphone equalizer, you need to wire the microphone connector and the AUX connector.

To transmit in the SSTV, RTTY, and PSK31 modes, you need to wire the AUX connector.

#### 3-2. INTERFACE WITH PC

Use the supplied serial cable for interface with an available, active serial port on your PC.

#### 3-3. OTHER

Please double check your wiring, including its polarity, mono or stereo, and speaker impedance before operating your TDF-370. Improper wiring may damage the unit and could void the warranty.

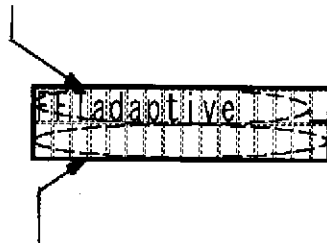
### 4. OPERATIONS

#### 4-1 VOICE FILTER

##### 1. FFT filter

Press the FFT switch in the VOICE section on the key panel.

The FFT filter has been selected.



Left end is 400 Hz. Each segment represents an 80 Hz step. (16 band total).

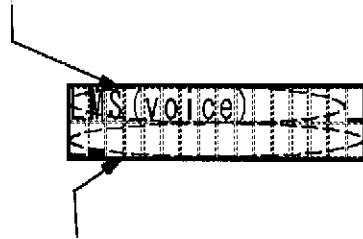
Adjustment --- ADJ 1 --- Noise Reduction control  
ADJ 2 --- N/A

Note: FFT indicates the use of Fast Fourier Transform technology, a highly advanced form of Digital Signal Processing.

2. LMS filter

Press the LMS switch in the VOICE section on the key panel.

The LMS (voice) filter has been selected



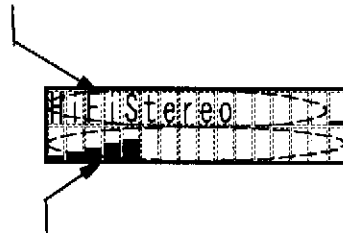
Adjusted value of the auto notch filter.

Adjustment --- ADJ 1 --- Noise reduction effect  
ADJ 2 --- Auto notch filter effect

3. Hi-Fi Processing

Press the Hi-Fi switch in the VOICE section on the key panel.

The Hi-Fi processing mode has been selected



Stereo adjustment value

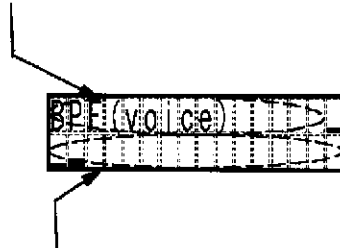
Adjustment --- ADJ 1 --- Mixed amount of higher frequency signals  
ADJ 2 --- Stereo processing parameter

NOTE: Hi-Fi/Stereo effects can only be observed using stereo headphones or external speakers.

4. BPF filter (Band Pass Filter)

Press the BPF switch in the VOICE section on the key panel.

The BPF (voice) filter has been selected.



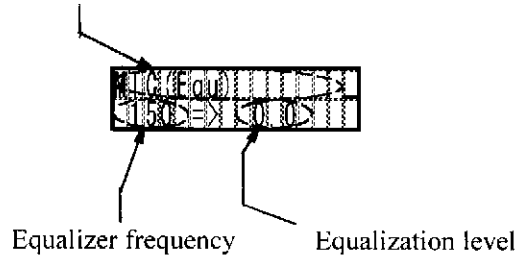
Adjustment value of the low cut frequency.

Adjustment --- ADJ 1 --- Hi/Low frequency slope control  
ADJ 2 --- Low cut frequency setting

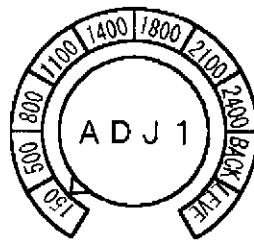
## 4-2 MICROPHONE EQUALIZER

Press the MIC switch in the VOICE section on the key panel.

The Microphone Equalizer mode has been selected.



Adjustment --- ADJ 1 --- Mode selection (see below)



Value	Equalizer frequency
150 -----	150 Hz
500 -----	500 Hz
800 -----	800 Hz
1100 -----	1100 Hz
1400 -----	1400 Hz
1800 -----	1800 Hz
2100 -----	2100 Hz
2400 -----	2400 Hz
BACK ----	Background noise adjustment
LEVE(L) ----	Microphone level adjustment

ADJ 2 --- Equalization level adjustment

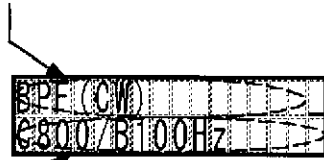
	150	500	800	1100	1400	1800	2100	2400	BACK	LEVE
A D J 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Frequency (Hz)	Default compensation value (dB)
150	0.0
500	0.0
800	0.0
1100	0.0
1400	0.0
1800	0.0
2100	0.0
2400	0.0
BACK	-30.0
LEVE(L)	0.0

## 4-3 CW FILTER

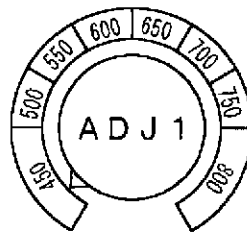
### 1. BPF (Band Pass Filter)

Press the BPF switch in the CW section on the key panel.  
The BPF (CW) mode has been selected.



The center frequency is 800 Hz, the bandwidth is 100 Hz.

Adjustment --- ADJ 1 --- Center frequency



Value	Center Frequency
450	450 Hz
500	500 Hz
550	550 Hz
600	600 Hz
650	650 Hz
700	700 Hz
750	750 Hz
800	800 Hz

Adjustment --- ADJ 2 --- Bandwidth

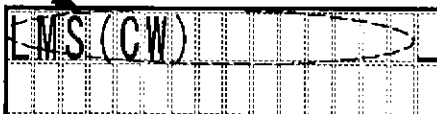
Value	Default bandwidth
450	100 Hz
500	100 Hz
550	100 Hz
600	100 Hz
650	100 Hz
700	100 Hz
750	100 Hz
800	100 Hz

NOTE: The setting value of the ADJ 1 and ADJ 2 in the BPF (CW) mode will be retained in the TDF-370's memory even if it is switched to another filter mode. This helps you to compare the filter effect with that of a different filter mode.

## 2. LMS filter


Press the LMS switch in the CW section on the key panel.

The LMS (CW) mode has been selected.



Adjustment --- ADJ 1 --- Noise reduction effect  
ADJ 2 --- N/A

## 3. Stereo filter

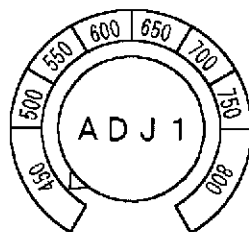
Press the  switch in the CW section on the key panel

The BPF (stereo) mode has been selected.



The center frequency is 450 Hz, and the bandwidth is 100 Hz.

Adjustment --- ADJ 1 --- Center frequency



Value	Center Frequency
450	450 Hz
500	500 Hz
550	550 Hz
600	600 Hz
650	650 Hz
700	700 Hz
750	750 Hz
800	800 Hz

Adjustment --- ADJ 2 --- Bandwidth

Value	Default bandwidth
450 ----	100 Hz
500 ----	100 Hz
550 ----	100 Hz
600 ----	100 Hz
650 ----	100 Hz
700 ----	100 Hz
750 ----	100 Hz
800 ----	100 Hz

NOTE: The setting value of the ADJ 1 and ADJ 2 in the BPF (Stereo) mode will be retained in the TDF-370's memory even if it is switched to the other filter mode. This helps you to compare the filter effect with that of a different filter mode.

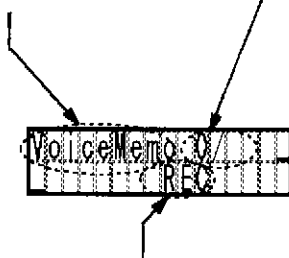
#### 4-4. RECORDING FUNCTION

Your TDF-370 has a built-in DVR (Digital Voice Recorder) using DPCM compression technology. The total recording time is 102 seconds, and can be divided into 8 memory banks. When in the recording mode, the TDF-370 captures audio starting 6.4 seconds *prior* to when you pressed the start button. This feature allows you to capture and retain information that passed through the unit prior to your "record" command. In this way, you have a better chance of recording important information even if it is heard a few seconds before you activated the recording function.

##### 1. Mode selection

Press the Record/Play switch (▶) on the key panel to go into the RECORD STAND-BY mode.

The RECORD/PLAY mode has been selected. Memory channel/total memory

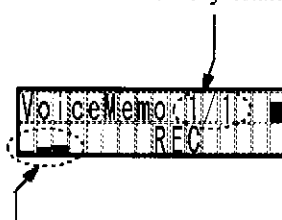


RECORD STAND-BY mode

##### 2. Record

While in the RECORD STAND-BY mode, press the CUE switch (√) to start recording. The "CUE" LED will light, and a progress indicator will appear on the bottom of the LCD. You may monitor the recorded signals while recording by using a stereo earphone.

Memory channel/total memory

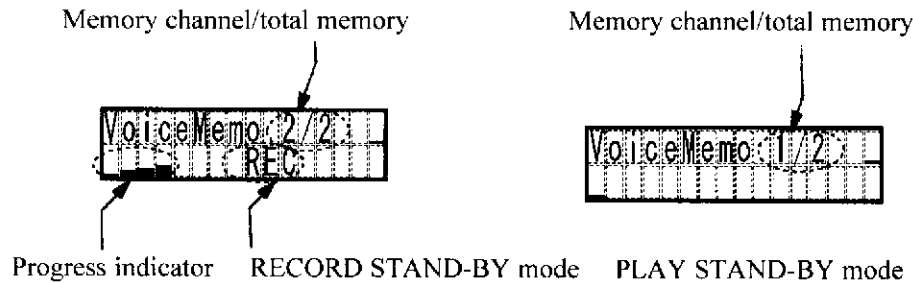


Progress indicator



### 3. Stop

Press the CUE switch (✓).



### 4. Play

While in the RECORD STAND-BY mode, press the Record/Play switch (▶) to playback from the lowest memory channel. Press the CUE switch (✓) during the play mode, and then playback from the next memory channel.

While in the PLAY STAND-BY mode, pressing the CUE switch (✓) will playback from the next available memory channel.

NOTE: Pressing the Record/Play switch (▶) during record mode or play mode will erase ALL recorded signals in the memory.

## 4-5. DATA COMMUNICATIONS

### 1. TTY mode

Press the "TTY" switch in the DATA section on the key panel. This goes into the RTTY (BAUDOT) mode or the PSK31 mode.

#### 1-1. PC interface

You may monitor decoded signals on the LCD without a PC. However, you need to have a PC to send messages.

Using the supplied serial cable, connect the TDF-370 to an available serial port on your PC.

#### 1-2. Terminal setting

Configure the communication port of your PC as follows.

Baud rate --- 9600 bps  
Data length ----- 8 bit  
Stop bit ----- 1 bit  
Parity ----- None  
Flow control ---- RTS/CTS hardware  
Echo ----- Off

### 1-3. Boot up

Using a terminal software program (such as Windows ® Hyper Terminal ®), boot up your PC. Then turn on power to the TDF-370. Press the TTY switch in the DATA section. The following opening message will appear on the monitor screen.

```
TASCO TTY/PSK31   or   TASCO TTY/PSK31
V *.*             V *.*
TTY>              PSK>
```

In case the above message does not appear on your monitor, you need to double-check your terminal settings and cable connections.

### 1-4. Verify communications between the PC and the TDF-370

Type "MODE" from the keyboard followed by the Enter key.

```
TTY>MODE <enter>  or   PSK>MODE <enter>
MODE TTY          MODE PSK
TTY>              PSK>
```

If you see above on the monitor, the communication link has been successfully established.

### 1-5. RTTY (BAUDOT) settings

#### 1. Frequency Shift

There are 3 shift widths (170 Hz, 425 Hz, 850 Hz) provided with the TDF-370. Using the SHIFT command, change the parameter as follows.

```
TTY>SHIFT N <enter>  ---- 170 Hz shift   or
TTY>SHIFT M <enter>  ---- 425 Hz shift   or
TTY>SHIFT W <enter>  ---- 850 Hz shift
```

#### 2. Baud rate

There are 3 baud rate (45.5 bps, 50 bps, 74.5 bps) provided with the TDF-370. Using the RT BAUD command, change the parameter as follows:

```
TTY>RTBAUD 45 <enter> ---- baud rate 45.5 bps  or
TTY>RTBAUD 50 <enter> ---- baud rate 50 bps    or
TTY>RTBAUD 75 <enter> ---- baud rate 75 bps
```

#### 3. Shift Direction

If the frequency shift direction is different, you will not decode signals properly. If this is the case, use the REVERSE command to change it.

```
TTY>RXREV ON
```

In this mode, the TDF-370 receives the mark code as the higher frequency. (in the 170 Hz shift)

#### 4. Character Code

Since RTTY uses a 5 bit code, it is not possible to send every Latin (English) character. To improve this situation, both the LTRS mode and the FIGS mode are currently used. Under poor propagation conditions, however, those codes may not be properly received by the other party, and may cause a decoding problem. In that case, only "garbage" appears on the screen. To avoid this problem, the USOS command has been provided.

TTY>USOS ON <enter>

#### 5. Receive filter

To improve decoding capability, a narrow receive filter has been provided.

TTY>FILTER N <enter> ---- filter bandwidth 250 Hz  
TTY>FILTER W <enter> ---- filter bandwidth 450 Hz

NOTE: This function is available in the 170 Hz shift mode only.

#### 1-6. RTTY (BAUDOT) Operation

##### 1. Receive without a PC

##### 1-1. Mode setting

Press the TTY in the DATA section on the key panel.  
The LCD displays as follows:

TTY 17 000 Hz      or      PSK BW 000 Hz

If "PSK BW 000 Hz" appears on the LCD, you need to switch to the RTTY Mode by pressing the UP arrow key of the ADJ 2 switch.

##### 1-2. Receive mode

Press the UP arrow key on the ADJ 2 switch; then the following message appears on the LCD:

tty 17 000 Hz

The unit is now in the RECEIVE STAND-BY mode.  
While in this mode, pressing the UP arrow key on the ADJ 2 switch will toggle the frequency shift.

tty 17 000 Hz ----- shift 170 Hz or  
tty 42 000 Hz ----- shift 425 Hz or  
tty 85 000 Hz ----- shift 850 Hz

### 1-3. Tuning signals

Plug in the provided stereo earphones to the PHONES jack. You will hear the original signals from one side of the earphone and the filtered signals are heard from the other side of the earphone.

When the frequency is NOT properly tuned to the signal, only the original signal can be heard from one side of the earphone. Carefully and slowly rotate the tuning dial of the radio so that you can get signals from both side of the earphones. At this time, you should be able to see decoded signals on the LCD. In the meantime, the first row of the LCD will indicate the frequency difference from the received signal such as:

```
tty 17 -050 Hz
```

Carefully re-tune the receiver dial so that this difference comes close to zero.

## 2. Operation with a PC

### 2-1. Parameter setting

Go into the terminal mode by typing as MODE TTY.

```
PSK>MODE TTY <enter>
```

If nothing is displayed on the monitor screen, then type ^C (Ctrl+C).

Verify the current parameters.

Input Command	Parameter
TTY>SHIFT <enter>	SHIFT N
TTY>RTBAUD <enter>	RTBAUD 45
TTY>FILTER <enter>	FILTER N

If your parameter is different from above, correct it as follows.

```
TTY>SHIFT N <enter>  
TTY>RTBAUD 45 <enter>  
TTY>FILTER N <enter>
```

### 2-2. Receive mode

To go into the receive mode, use the K command as follows.

```
TTY>K <enter>
```

Received signals will be displayed on the monitor screen as they are decoded.

### 2-3. Tuning signals

Plug-in the provided stereo earphones to the PHONES jack. You will hear the original signals from one side of the earphone while signals through the internal Band Pass Filter will be heard from the other side of the earphones.

When the frequency is NOT properly tuned to the signal, only the original signal can be heard from one side of the earphones. Carefully and slowly rotate the tuning dial of the radio so that you can get signals from both side of the earphones. At this time, you should be able to see decoded signals on the LCD. In the meantime, the top row of the LCD will indicate the frequency difference from the received signal such as:

```
tty 17 -050 Hz
```

Carefully re-tune the dial so that this difference comes close to zero.

When the receive frequency is crowded with many signals, you may find it effective to execute the following command:

```
TTY>AFC OFF <enter>
```

If you see a lot of "garbage" characters on the monitor screen, make sure the narrow filter has been selected. To verify it is on, execute the FILTER command.

```
TTY>FILTER <enter> Then,  
TTY>FILTER N <enter> ----- Filter bandwidth 250 Hz  
TTY>
```

When the decoded characters have been over-wrapped on the monitor screen after the carriage return, execute the AUTOLF command.

```
TTY>AUTOLF ON <enter>
```

#### 2-4 Transmit buffer memory

In the receive mode, as you type on the keyboard, each character will be stored in the TX buffer memory.

```
TTY>TECHO <enter>  
TECHO OFF  
TTY>
```

In this mode, as you type input on the keyboard, each character will echo back on the monitor screen. However, those characters will not be transmitted when you are in the receive mode.

```
TTY>TECHO ON <enter>
```

In this mode, when the radio is switched into the transmit mode all stored characters will be sent and as they are transmitted, those characters will echo back onto the monitor screen.

Each character in the TX buffer memory can be deleted by using the Backspace key. Once the all characters are sent, it is not possible to delete or backspace.

## 2-5. Transmit mode

While in the receive mode, type ^T (Ctrl+T) to go into the transmit mode.

If text is stored in the TX buffer, it will be automatically sent. If you wish to return to the receive mode at the end of transmission, enter ^D (Ctrl+D).

When you type text from the keyboard, keep each sentence as short as possible to avoid receive errors with those monitoring your transmission. To aid this situation, the CRLEN command has been included:

```
TTY>CRLEN 40 <enter>
```

In this case, a carriage return will occur after 40 characters are sent.

Type ^R (Ctrl+R) to return to the receive mode.

If you wish to change other command settings, type ^C (Ctrl+C).

## 2. PSK31 mode

### 2-1. BPSK mode and QPSK mode

PSK31 has 2 different operation modes, BPSK and QPSK. Most amateur radio operators are using the BPSK mode. To change the operation mode, use the PHASE command as follows.

```
PSK>PHASE B ---- BPSK mode or  
PSK>PHASE Q ---- QPSK mode
```

### 2-2. USB mode and LSB mode

In the BPSK mode, it doesn't matter if the receiver is set to the LSB or the USB mode.

In the QPSK mode, however, the phase direction must be set properly. If you are unable to decode signals correctly, you need to switch the receive mode from USB to LSB or vice versa.

### 2-3. AFC

Since the PSK31 mode uses a very narrow bandwidth, the carrier frequency and its phase should be synchronized. In the BPSK mode, the frequency tolerance should be within +/- 50 Hz, and +/- 15 Hz in the QPSK mode. There are two choices of transmit carrier frequency.

```
PSK>NET ON <enter> --- Use the same receive frequency as the carrier frequency ,or  
PSK>NET OFF <enter> --- Use a 1000 Hz fixed carrier frequency. (Default)
```

### 2-4. Receive filter

There are two receive filters provided for the PSK31 mode.

```
PSK>FILTER N <enter> --- Bandwidth 75 Hz  
PSK>FILTER W <enter> --- Bandwidth 220 Hz
```

## 2-5. PSK31 operation

### 2-5-1. Receive without a PC

#### 2-5-1-1. Mode setting

Press the TTY switch in the DATA section on the key panel.

The LCD displays as follows:

TTY 17 000 Hz      or      PSK BW 000 Hz

If "TTY 17 000 Hz" appears on the LCD, you need to switch to the PSK31 mode by pressing the DOWN arrow key on the ADJ 2 switch.

#### 2-5-1-2. Receive mode

Press the DOWN arrow key on the ADJ 2 switch. The following message appears on the LCD.

psk BW 000 Hz

The unit is now in the RECEIVE STAND-BY mode.

While in this mode, pressing the DOWN arrow key on the ADJ 2 switch will toggle the receive mode.

psk BW 000 Hz -----      BPSK wide filter mode    or  
psk QW 000 Hz -----      QPSK wide filter mode    or  
psk BN 000 Hz -----      BPSK narrow filter mode   or  
psk QN 000 Hz -----      QPSK narrow filter mode

#### 2-5-1-3. Tuning signals

Plug-in the provided stereo earphones to the PHONES jack.

You will hear the original signals from one side of the earphone, and the beat signal is heard from the other side of the earphone.

When the frequency is NOT properly tuned, only the original signal can be heard from the one side of the earphone. Carefully and slowly rotate the tuning dial of the radio. When the receive frequency is tuned within the lock range of the AFC, a high pitched tone will be heard. At this time, you should be able to see decoded signals on the LCD. In the meantime, the first row of the LCD will indicate the frequency difference from the received signal such as:

psk -050 Hz

Carefully re-tune the receiver tuning dial so that this difference comes close to zero.

### 2-5-2. Operation with a PC

#### 2-5-2-1. Parameter settings

Go into the terminal mode by typing as MODE PSK.

PSK>MODE TTY <enter>

If nothing is displayed on the monitor screen, then type ^C (Ctrl+C).  
Verify the current parameters.

Input Command	Parameter
PSK>PHASE <enter>	PHASE B
PSK>NET <enter>	NET ON
PSK>FILTER <enter>	FILTER W

If your parameters are different from above, correct as follows:

PSK>PHASE B <enter>	-----	PSK31 mode setting
PSK>NET ON <enter>	-----	Carrier frequency setting
PSK>FILTER W <enter>	-----	Wide filter setting

#### 2-5-2-2. Receive mode

To go into the receive mode, use the K command as follows.

```
PSK>K <enter>
```

When signals are received and decoded, they will be displayed on the monitor screen.

#### 2-5-2-3. Tuning signals

Plug in the provided stereo earphones to the PHONES jack.

You will hear the original signals from one side of the earphone, and the beat signal is heard from the other side of the earphone.

When the frequency is NOT properly tuned to the signal, only the original signal can be heard from the one side of the earphone. Carefully and slowly rotate the tuning dial of the radio. When the receive frequency is tuned within the lock range of the AFC, a high pitched tone will be heard. At this time, you should be able to see decoded signals on the LCD. In the meantime, the first row of the LCD will indicate the frequency difference from the received signal such as:

```
psk -050 Hz
```

Carefully re-tune the dial so that this difference comes close to zero.

If the decoded characters are over-wrapped on the monitor screen after the carriage return, execute the AUTOLF command.

```
PSK>AUTOLF ON <enter>
```

#### 2-5-2-4 Transmit buffer memory

In the receive mode, as you type on the keyboard, each character will be stored in the TX buffer memory.

```
PSK>TECHO <enter>
TECHO OFF
PSK>
```

In this mode, as you type from the keyboard, each character will echo back on the monitor screen. However, those characters will not be sent while in the receive mode. They are stored in the TX buffer.

```
PSK>TECHO ON <enter>
```

In this mode, the radio will be switched in the transmit mode, and all stored characters will be sent. As they are transmitted, those characters will be echo back onto the monitor screen.



Each character in the TX buffer memory can be deleted by using the Backspace key.

#### 2-5-2-5. Transmit mode

While in the receive mode, type ^T (Ctrl+T) to go into the transmit mode.

If there is text stored in the TX buffer, it will be sent automatically. If you wish to return to the receive mode at the end of the transmission, enter ^D (Ctrl+D) at the end of TX buffer.

When you type from the keyboard, keep each sentence as short as possible to avoid receive errors at stations monitoring your transmission. To aid this situation, the CRLEN command has been provided:

```
PSK>CRLEN 40 <enter>
```

When this value is entered, a carriage return will be sent after 40 characters are transmitted.

Type ^R (Ctrl+R) to return to the receive mode.

If you wish to change command setting, type ^C (Ctrl+C).

#### 3. SSTV mode

To operate the TDF-370 in the SSTV mode, you need to have a PC and optional control software. For best results, please refer to the manual of your control software.

### 5. OTHER FUNCTIONS

#### 1. Battery operation

Use 4 AA size alkaline batteries for battery operation. If you use rechargeable batteries in the battery compartment, and an external power supply is connected at the same time, the rechargeable batteries will not be charged by the TDF-370.

When the battery voltage falls below the "normal" range, the "CUE" LED will start flashing.

When this happens, immediately replace all 4 alkaline cells at the same time. If the batteries are not replaced and the voltage continues to drop, the "BATT HALT" icon appears on the LCD display and the unit will stop working until new batteries are installed.

#### 2. Reset

In case the unit is not responding to any key input or PC control, you may have to reset the microprocessor. This will initialize all settings to the factory default. Please be aware that performing a reset will erase all stored memory contents.

To reset the microprocessor, perform the following steps:

1. Turn the power off.
2. Press and hold the "FFT" switch and the "BPF" (in the VOICE section) while turning on the power switch.
3. The display shows "EEPROM INIT" and the unit is now reinitialized.

## 6. SPECIFICATIONS

### 1. TDF-370

- Power Requirement

External Input: 11 V DC ~ 14 V DC Regulated

Power Connector: EIAJ TYPE 4

Battery operation: 3 AA size alkaline battery (4.8 V ~ 7.0 V)

Current drain: 200 mA (stand-by) nominal 600 mA maximum

- Audio Input

Inputs: 2 channels

Input connector: 3.5 mm stereo type

Input impedance: 10 K ohm nominal

Input frequency range: 300 Hz ~ 3000 Hz

Input level: 0.1 V p-p ~ 10 V p-p (Input 1)

0.1 V p-p ~ 4 V p-p (Input 2)

- Speaker Output

Internal speaker: built-in

Output connector: 3.5 mm mono type

External speaker impedance: 8 ohms

- Headphone Output

Output connector: 3.5 mm stereo type

Output impedance: 47 ohms

- Microphone Input

Type: Dynamic type

Input connector: 3.5 mm stereo type

- COM port

Connector type: D-Sub 9 pin male

Signal level: RS-232C compatible

Hand shake: RTS-CTS hard flow control

Speed: 9600 bps (TTY)

57,600 bps (SSTV)

- Dimensions

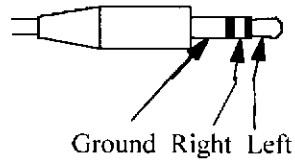
1.3 x 4.3 x 6.2 in (excludes projections)

- Weight

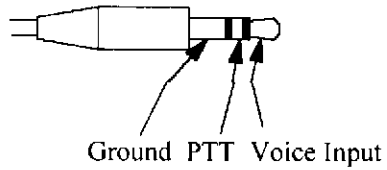
Approx. 12.3 oz (does not include batteries)

## 2. Connector Pin assignment

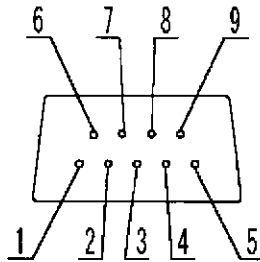
- Phones --- 3.5 mm stereo plug



- Microphone plug --- 3.5 mm stereo plug

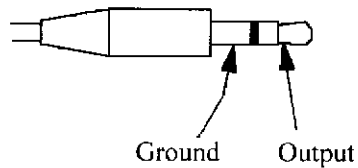


- COM connector --- D-Sub 9 pin (female)



1 --- DCD 2 --- RXD 3 --- TXD 4 --- DTR 5 --- GND 6 --- DSR  
7 --- RTS 8 --- CTS 9 --- NC

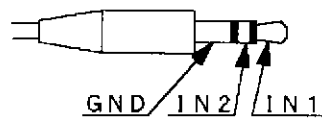
- SP Output --- 3.5 mm stereo plug



- AUX connector --- 3.5 mm stereo plug



- IN connector --- 3.5 mm stereo plug



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All specifications are subject to change without notice or obligation.

#### Limited Warranty

AOR U.S.A., Inc. will repair this product with new or refurbished parts or replace the unit, free of charge, in the U.S.A. for a period of 180 days from the date of original purchase, in the event of a defect in materials or workmanship. This warranty is extended only to the original purchaser. A purchase receipt or other proof of date of original purchase is required to obtain parts and/or repairs under the terms of this limited warranty. The warranty only covers defects in materials or workmanship, which occur during normal use of the product. The warranty does not cover damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor or failures which result from accident, misuse, abuse, neglect, mishandling, faulty installation, misapplication, set-up adjustments, improper operation or maintenance, alteration, modification, power line surge, improper voltage supply, lightning damage, signal reception problems, or service by anyone other than an AOR authorized service center, or damage that is attributable to acts of God.

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