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FOX TANGO INTERNATIONAL

The Yaesu FT-901DM & FT902DM

Type:	Amateur HF transceiver
Frequency range:	10-160 m
Mode:	All-mode
RF Power output:	SSB/CW: 100 W AM/FM: 80 W
Sensitivity:	N/A
Selectivity:	N/A
Image rejection:	N/A
Voltage:	13.8 VDC or mains
Current drain:	RX: Max ? A TX: Max ? A
Impedance:	50 ohms
Dimensions (W*H*D):	342*154*324 mm
Weight:	18 Kg
Manufactured:	197x-19xx
Other:	
Related documents:	

Yaesu FT-901DM Transceiver

with RED LED display, 160~10 meters

Yaesu FT-902DM Transceiver

with Gold display, All band coverage

160~10 meters, Including WARC bands.

Type:	Amateur HF transceiver
Frequency range:	10-160 m + WARC
Mode:	AM/FM/SSB/CW/FSK
RF Power output:	SSB/CW: 100 W AM/FM/FSK: 80 W
Sensitivity:	0.25 uV (10 dB S/N)
Selectivity:	SSB: 2.4 KHz (-6 dB), 4 KHz (-60 dB) CW/FSK: 0.6 KHz (-6 dB), 1.2 KHz (-60 dB) with optional CW filter installed AM: 6 KHz (-6 dB), 12 KHz (-60 dB) with optional AM filter installed FM: 12 KHz (-6 dB), 24 KHz (-60 dB)
Image rejection:	15-160 m: better than 60 dB 10-12 m: better than 50 dB
Voltage:	13.8 VDC or mains
Current drain:	RX: 1.1 A with heater off, 5 A with heater on TX: Max 21 A

Impedance:	50-75 ohms, SO-239
Dimensions (W*H*D):	342*154*324 mm
Weight:	18 Kg
Manufactured:	19xx-19xx
Other:	
Related documents:	

What lurks beneath an Ebay purchase

FT-901 night mare!

Just wanted to show you what I was doing in order to try and pump some life back into this FT-901

Bought this one off Ebay, it looks innocent enough.

Was told up front it wasn't working, so I didn't expect much in the way of performance.

It lived up to my expatiations!






At first glance the rig doesn't look all that bad except for the obvious! Except where we can see it has bad capacitors on the rectifier "A" unit. The photos above came from the original Ebay auction. Deep down inside this rig was hiding a lot of sins yet to be revealed. I can only imagine the seller knew something about this or threw all his bad parts at the problematic rig! The rig has bad capacitors all

over the place and a VFO that had been tampered with and wasn't working!

After replacing the capacitors on the Rect "A" unit, the rig started coming back to life, we had a red flashing digital display, no audio or signals of any kind were heard giving reason to believe possible PLL problems or more! The transceiver ran for approximately 45 minutes while I was looking around inside and checking things out before it finally cut loose and bellowed smoke into the shack and revealed another hidden secret that was not visible in the photos above at the time of purchase.

The High Voltage Filter caps shot smoke and capacitor cheese all over the place!

It's not exactly an easy job getting the filter caps out of this rig!


The H.V. filter caps reside just forward of the power transformer, under the rig you need to pull just about everything clear as the capacitors and rectifier board are under PB-1726 diode switching board. In the two pictures above (Original Auction Pictures) I didn't catch it, but a keen eye might notice from the top photo of the rig that something bleed out of the capacitors onto the chassis just forward of the blue wire on the transformer.



Once the memory unit was removed and the crystal unit was removed, we were ready to go to work digging out our filter capacitors. The counter unit, PLL unit and RF unit were all removed to get more access to the capacitors from the top.



PB-1712A the HV rectifier unit resides under the diode switching board and is directly attached to the bottom of the HV filter capacitors.

Now the truth is told once the capacitors were removed, this was not the first time the filter caps have blown their tops! All of this will have to be cleaned up before the new replacement capacitors are installed.

Before I put any more time into this rig,

I wanted to see if I could at least get it to receive something.

Having gotten lucky by chance I plugged in my spare FV-101Z VFO. This is the same VFO used with the FT-101ZD series and works fine with the FT-901/902. Ta'da we have signals. We also have a dead VFO ~ Great ! The VFO unit pulls directly out from the front of the FT-901/902. Removing the VFO unit and the counter unit also made it easier when it came to replacing the H.V. filter capacitors. Someone had already beaten me into the VFO first, they knew it did not work! Otherwise why would someone have gone into it, the lights were missing from the VFO behind the blue dial and a couple of screws were missing off the VFO shield. Repairs were made to the VFO unit and it was reinstalled. The counter no longer runs randomly and we basically have a working receiver.



Luckily for me at this point the receiver is working, the display unit is working and counting properly. All of the high voltage AC wiring has been cut loose and secured for safety reasons. Thus the transceiver will actually function as a receiver alone at this point. Even after getting into this mess, I believe we have really had a great deal of success to get the rig up and running to this point.

Along with the VFO lamps that were missing, the meter lamps were dead. Wanting to get a quick look at these, I was afraid I'd be dealing with more peanut bulbs as was the case with the meter lamps in the FR-101 / FL-101 Yaesu twins, that's a story in itself. Yaesu made an improvement here some 10 years after the 101 series and installed two axial lead lamps in front of the meter, so there is no need to remove the meter movement to replace these lamps.

Lamp, Meter S8100017 Suitable sub - Try PN 620701
from Farnell.com $3.12 OBS-NLA 032704

LAMP, T3.8 AXIAL W/E 8V 0.6W; Lamp fitting type: ***Axial wire ended, T3.8; Power rating:0.6W; Current rating:0.1A; Length / Height, external:20mm; Length, lead:15mm; Light output, total:1.9lm; Time, operating life:5000h; Vo***

It may not look like much right now.

Now with a working VFO and repairs well underway, I was able to hear signals on 75 meters weak! Good enough for now, it was time to go to bed! Another 4AM night!

Exploding Rectifier "C" unit

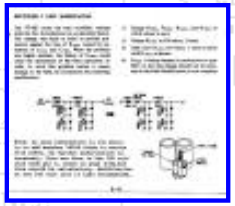
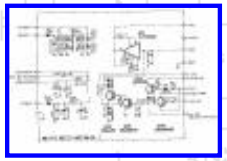
PB-1717A

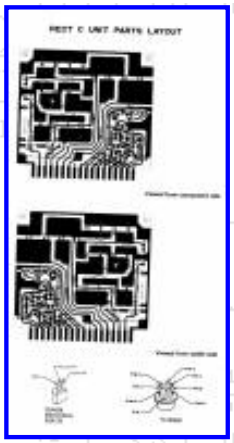
PB-1717A resides in the very back of the transceiver



One problem to watch out for in the FT-901 is the Rectifier "C" unit with the exploding capacitor syndrome!

The FT-901 series starting with production lot No. 8 had the following modifications, the changes were made in order to provide against the loss of R1803 caused by unbalance in C1802 and C1803. The failure of R1803 could cause the destruction of the filter capacitors as seen in the photos above.



Attempting to rebuild the blown apart circuit board, PB-1717A

Members Emails regarding PB-1717A problem.

I've rebuilt several rectifier c boards over the years for myself and friends. I've used both methods listed on page 3-17 of the service manual. Both seemed to work just fine. The last few I used the second method, adding the extra diode, exclusively and they have all held up under stress. Yaesu still has the odd value caps for this board in stock as well. So, if the caps blew, simply add the extra diode and replace the caps with originals. Which are very inexpensive by the way. The last time I called they sent them to me free because the postage was more than the caps! LOL! :)

Tom KB6SSN

April 16, 2005 Subject: The FT-901

Replaced the diode and a resistor in the 190 volt side of the 'C' rectifier board. I had to replace the resistor R-1809, 470 ohm, it had fried. Also the diode D-1802, the input, was open. I replaced it with a 1N5408, 1000 PIV at 3 amps Mouser part number 5121N5408. Also did the mods to the board, replacing five resistors and adding a resistor and a diode in series with existing diodes. The mods were shown in the service manual, Yaesu suggests in the mod section of the service manual on page 3-1. I followed the mod and replaced the four 470K ohm resistors with 180K ohm resistors, replaced the R-1803 470 Ohm with a 390 ohm, and added the 39 ohm 1 watt resistor in series with diode D-1801. And last I checked the mod on the PB-1715A board located below the final tubes, to make sure mine had the diode added as per the mod on page 3-16 of the manual. his may have kept the caps from disappearing in a cloud of smoke. I think that this is the most important mod to do. I got the parts from Mouser Electronics. Phone is 1-800-346-6873. No minimum order and quick service. They had the 2 and 3 watt resistors and the diode was a replacement for the 10D10. The number of the diodes I used was 1N5408, 1000 PIV at 3 amps Mouser part number 5121N5408. By the way, the manual I used, I down loaded from Fox Tango site, and it sure made a difference.

Larry, WB3EUS

FT-901 AND FT-902 MODEL DIFFERENCES

O = Built-in feature X = Available option - = Not Available*

FEATURE	FT-901D	FT-901SD	FT-901DE	FT-901DM	FT-902D	FT-902SD	FT-902DE	FT-902DM
BAND CRYSTAL 160m	O	O	O	O	O	O	O	O
BAND CRYSTAL 80m	O	O	O	O	O	O	O	O
BAND CRYSTAL 40m	O	O	O	O	O	O	O	O
BAND CRYSTAL 30m	-	-	-	-	O	O	O	O
BAND CRYSTAL 20m	O	O	O	O	O	O	O	O
BAND CRYSTAL 17m	-	-	-	-	O	O	O	O
BAND CRYSTAL 15m	O	O	O	O	O	O	O	O
BAND CRYSTAL 12m	-	-	-	-	O	O	O	O
BAND CRYSTAL 10mA	O	O	O	O	O	O	O	O
BAND CRYSTAL 10mB	O	O	O	O	O	O	O	O

BAND CRYSTAL 10mC	O	O	O	O	O	O	O	O
BAND CRYSTAL 10mD	O	O	O	O	O	O	O	O
VOX/MARKER UNIT	O	O	O	O	O	O	O	O
FM UNIT	O	X	X	O	O	X	X	O
RF SPEECH PROCESSOR	O	O	O	O	O	O	O	O
AM FILTER	X	X	X	X	X	X	X	X
CW FILTER	X	X	X	X	X	X	X	X
FM FILTER	-	-	-	-	X	X	X	X
KEYER UNIT	X	X	O	O	X	X	O	O
MEMORY UNIT	X	X	X	O	X	X	X	O
DC-DC CONVERTER	X	X	X	O	X	X	X	O
COOLING FAN	X	X	O	O	X	X	O	O
POWER OUTPUT	100 W	10 W	100 W	100 W	100 W	10 W	100 W	100 W

Source: Yaesu FT-901DM and FT-902DM Instruction Manual, page 3.

*** Except in very late production FT-901DM units.**

FT-901 / FT-901 24 Mhz to 28 Mhz Conversion

(FT-901 11 Meter & 12 Meter conversion)

Downloadable PDF file for 11m /12m conversion

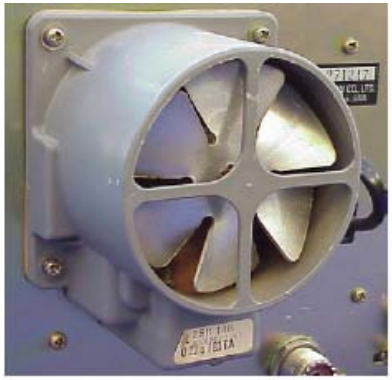
FT-901/FT-902

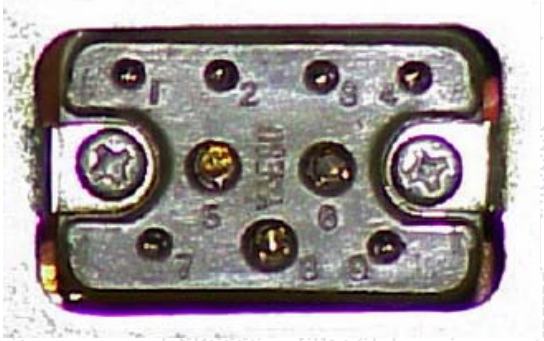
Accessories

Cooling Fan

The optional cooling fan can easily be installed on the FT-101ZD.

If you use another fan than the original Yaesu fan, see to it that the voltage is 110 Volt ac.





DC-DC Converter

The DC-Dc converter allows the mobile use of the FT-101ZD, on a 13.8 Vdc source. The unit is installed on the back of the transceiver and uses the internal transformer to obtain the proper voltages. The power connection is made by a special DC cord,

delivered together with the DC-DC converter.

FV-101Z external VFO

FV-101DM external VFO

The FV-101Z external VFO is a compact remote VFO for the FT-101ZD. The VFO has a analog frequency display. If you use

it with a FT-101ZD, the frequency is displayed on the digital display from the FT-101ZD. The VFO has a precision tuning mechanism with a silky-smooth operation. Clarifier for transmit, receive or transceive frequency is included. The VFO shift range is +/- 8khz. Up to 6 crystal-controlled channels may be installed. The necessary crystals have to be in the 5 - 5.5 Mhz range.

The FV-101DM external VFO has twelve memories, up/down scanning, keyboard frequency entry and receiver offset tuning in 10hz steps. This provides smooth and precise tuning for SSB and CW. Either the keyboard, main tuning knob or up/down scanning buttons can be used for quick (QSY) changing of frequency to your preferred operation frequency. Up to four of you most used memory channels can be protected from overwriting, when you store frequencies. The two-loop PLL circuit is designed to produce a crisp, clean output signal for a spurious-free receiver and transmitter. This VFO can only be used with the FT-101ZD MK3, serial numbers above 240001

FL2100Z Linear Amplifier

The FL-2100 is special designed for the FT-101ZD transceiver. It uses two rugged 572B/T160 transmitting triodes in a class AB2 grounded grid configuration. Power input is 1200 watts PEP on SSB and 1KW on CW, on all bands, including the W.A.R.C. bands 10, 18 and 24 Mhz. The linear has 2 fans for cooling the final tubes, and special protection circuits for the output tubes and the tank circuit. During standby is the antenna switched to the transceiver and the built-in SWR meter allows monitoring of the feed line during either amplifier or exciter-only operation. The heavy-duty power supply requires no warm-up time and has excellent regulation.


MULTISCOPE
YAESU YO-901

FT-101ZD & FT-901DM accessories

Top to bottom

The FT-101ZD can use accessories of the FT-901DM, but there are some restrictions at their use.

FV-901DM external VFO

This is a external VFO that provide a synthesized control system for your FT-101ZD. It has a 3-speed scanner, which will take you instantly everywhere in the band, and the auto-scan feature sweeps the band until it finds a signal. The synthesizer has a separate of 100 hz and is coupled to a 40-memory bank for storing the frequency. Fine tune is done with the TX/RX clarifier. Because there is no frequency display on the FV-901DM, use of this VFO in combination with the analog FT-101Z is not possible, as the operating frequency cannot determined.

FTV-901R transverter

The FTV-901R is a 3-band VHF/UHF transverter, all in one compact case. The basic FTV-901R comes equipped for 144 – 148 Mhz. 6 meter and 70 centimeter modules may be added. The satellite 1-3 bands provide operation on OSCAR modes A/B/J on full duplex, when a external receiver is used. Repeater split is provided on 6 and 2 meters.

YO-901 Multiscope

The YO-901 Multiscope provides superb monitoring capability, with a instant interface to the FT-101ZD and can be used to monitor the output signal with trapezoidal and two-tone tests, general oscilloscope measurements are also possible. A panoramic adapter is a available option for a quick band activity examination. IF rx and tx monitoring is not possible with the FT-101ZD combination.

SP-901P speaker/hybrid phone patch

The SP-901P features a shaped-response loudspeaker and a hybrid phone patch, allowing efficient operation during patches. Styling and size match the FT-101ZD and FT-901DM series.

FC-901 Antenna coupler

The FC-901 antenna coupler presents a 50 ohm load to your FT-101ZD transceiver, all across the band. 3 coax-fed and one random-wire antenna may be accommodate (SWR) standing wave radio meter and power metering to allow for quick determination of proper matching conditions.

Web Page by Fox Tango International and

Fox Tango Members contributions.

W4CLM