

**EDX-2**

# **Service Manual**

**ALINCO INCORPORATED**

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## EDX-2 AUTOMATIC ANTENNA TUNER

Alinco's EDX-2 is an automatic antenna tuner that matches your transceiver to an antenna of over 3 meters in length ( 3.5MHz and above ), or over 12 meters in length ( 1.6MHz and above ). This manual contains information you should know before installing the EDX-2 and describes how to set up, connect, and operate.

### SPECIFICATIONS

■ Frequency Range	3.5 – 30MHz( with over 3 meter element ) 1.6 – 30MHz( with over 12 meter element )
■ Input power (MAX)	200W P.E.P.
■ Input impedance	50 $\Omega$
■ Tuning Voltage	13.8V DC $\pm$ 10%

### ENCLOSURE

The following items are enclosed in the package of the EDX-2:

- (1) EDX-2 itself
- (2) U-bolts, 2 pcs.
- (3) U- bolt plates, 2 pcs.
- (4) Flat washers ( large ), 8 pcs.
- (5) Flat washers ( small ), 4 pcs.
- (6) Spring washers, 8 pcs.
- (7) Nuts, 8 pcs.
- (8) Hex bolts, 4 pcs.
- (9) Self-tapping screws, 4 pcs.
- (10) Rubber cap, 1 pc.

### CAUTION !

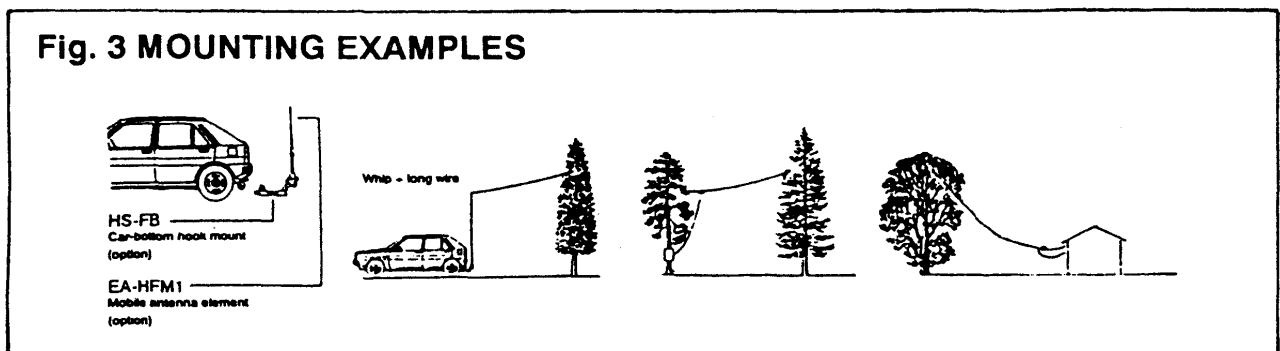
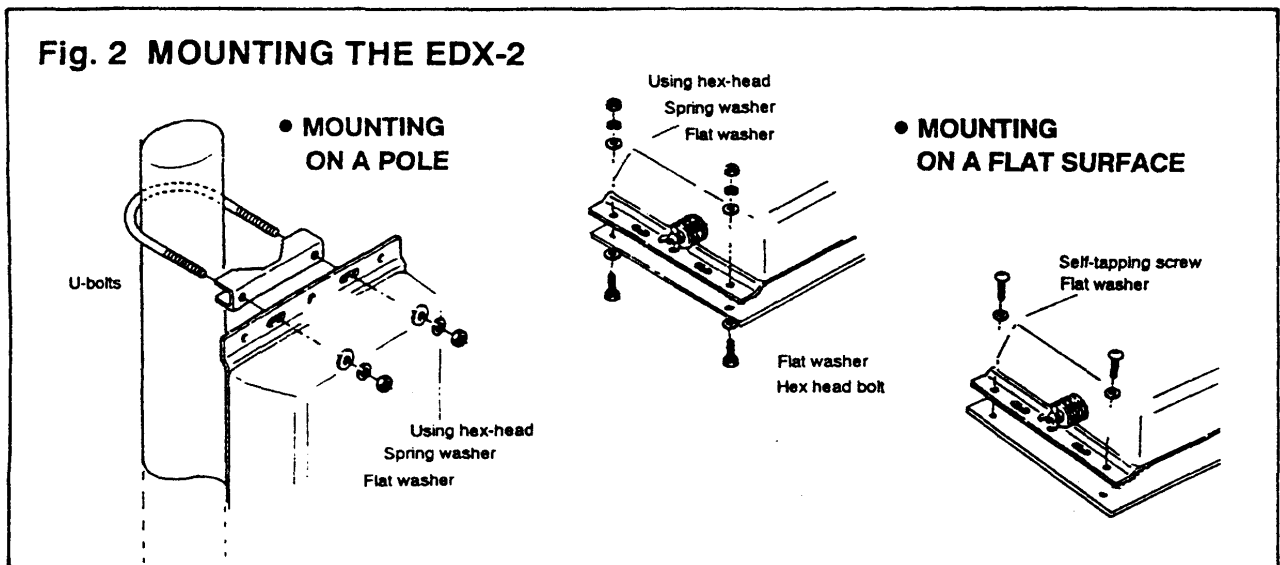
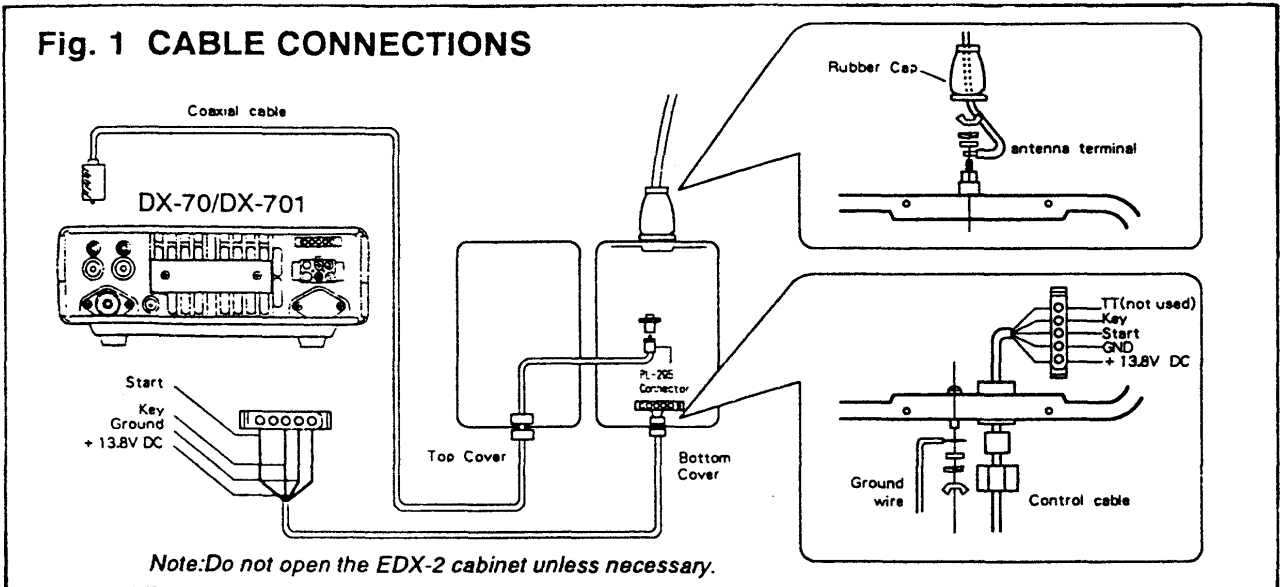
- **DO NOT** use this tuner when it is not grounded. You must ground the tuner through the ground terminal before operating. **DO NOT** use the mounting plates for grounding ; the ground-terminal should be grounded independently.
- **DO NOT** use gas pipes for grounding.
- **DO NOT** transmit or tune without an antenna.
- **DO NOT** touch the antenna, ground wire, or come close to the antenna element while transmitting or tuning. Place the EDX-2 and antenna in a position where you are sure it will not be touched.

# INSTALLATION

- (1) Mount the EDX-2 to the desired position.(Figs. 2 & 3)
- (2) Ground the EDX-2 grounding-terminal through an independent wire as short as possible.
- (3) Connect an antenna element \*to EDX-2's antenna element terminal.(Fig.1)
- (4) Connect the EDX-2's control cable to your radio's accessory terminal.(Fig.1)
- (5) Connect the EDX-2's co-ax cable to your radio's antenna terminal.(Fig.1)

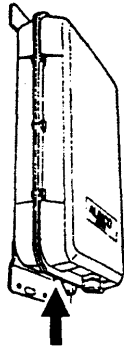
You may extend the control and co-ax cables to the desired length.(co-ax impedance is 50  $\Omega$  .)

\*Avoid undesirable antenna length(See p.3)



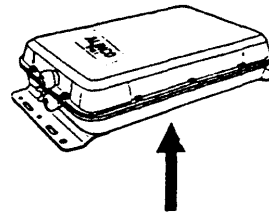
### Fig.5 DRAIN HOLE

Depending on the position of EDX-2, you may choose a drain-hole (a hole to let the inside water drain out) from one of the two locations:



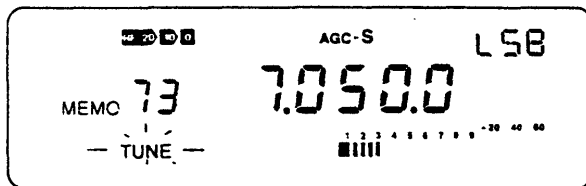
If positioned vertically:

Unscrew the Phillips-head screw located between the GND terminal and the control cable hole.



Unscrew the Phillips-head screw located in the centre of the lower cover.

## OPERATION



appears while tuning

- (1) Set the desired band and frequency of the transceiver.
- (2) Push the TUNE switch on the transceiver.\*
  - "TUNE" appears in the LCD while tuning.
  - Do not change the frequency or mode while tuning.
- (3) After tuning is completed "TUNE" disappears.
  - Normally, tuning requires less than 20 secs; average tuning time is 4-6 secs.

\*For DX-70 press FUNC then TUNE.

### ■ CALCULATION OF UNDESIRABLE ANTENNA LENGTH

Certain lengths of antenna element could be extremely difficult to tune with EDX-2, besides causing high-voltage on the radio chassis. Such lengths are dependent on your operating frequency, and can be calculated as follows.

$$\text{Length of half-wave and its multiples } (1/2 \lambda) = \frac{300}{\text{Operating frequency (MHz)}} \times \frac{1}{2} \times n$$

Where n is an integer.

[EXAMPLE] Undesirable antenna length with an operating frequency of 29.00MHz

$$\text{Multiple of } 1/2 \lambda = \frac{300}{29} \times \frac{1}{2} \times (1,2,3,4,\dots) = 5.2, 10.3, 15.5 \text{m etc.}$$

*NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, 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 instruction manual, may cause harmful interference to radio communications.*

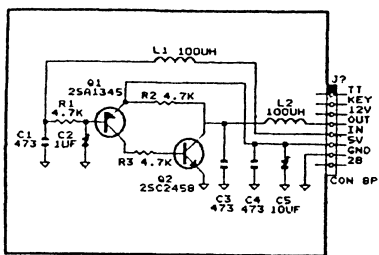
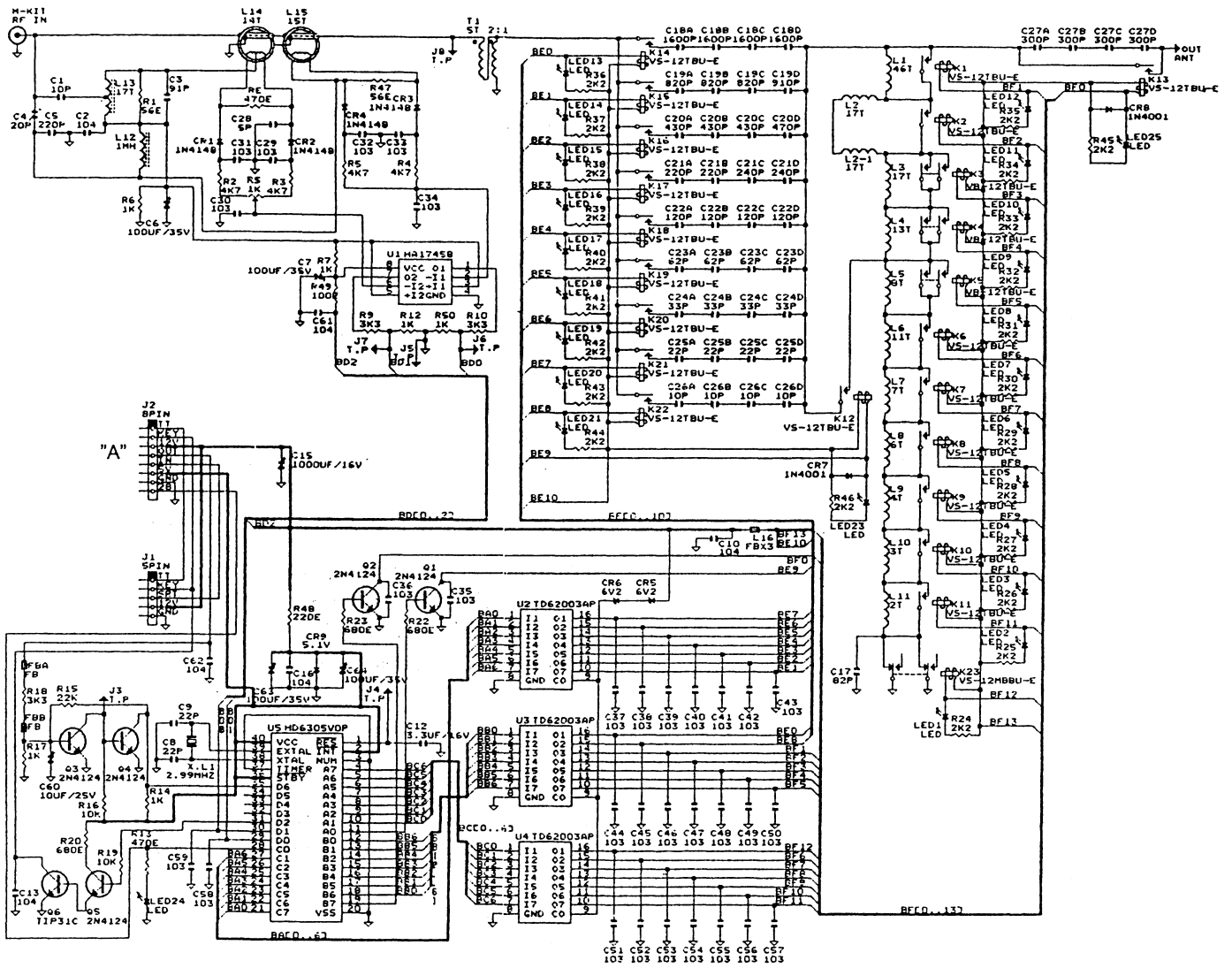
*However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

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

All stated specifications and circuits are subject to change without notice.

Names of products or descriptions mentioned in this manual are used for identification purpose only and may be trade mark and/or registered trademarks of their respective company.

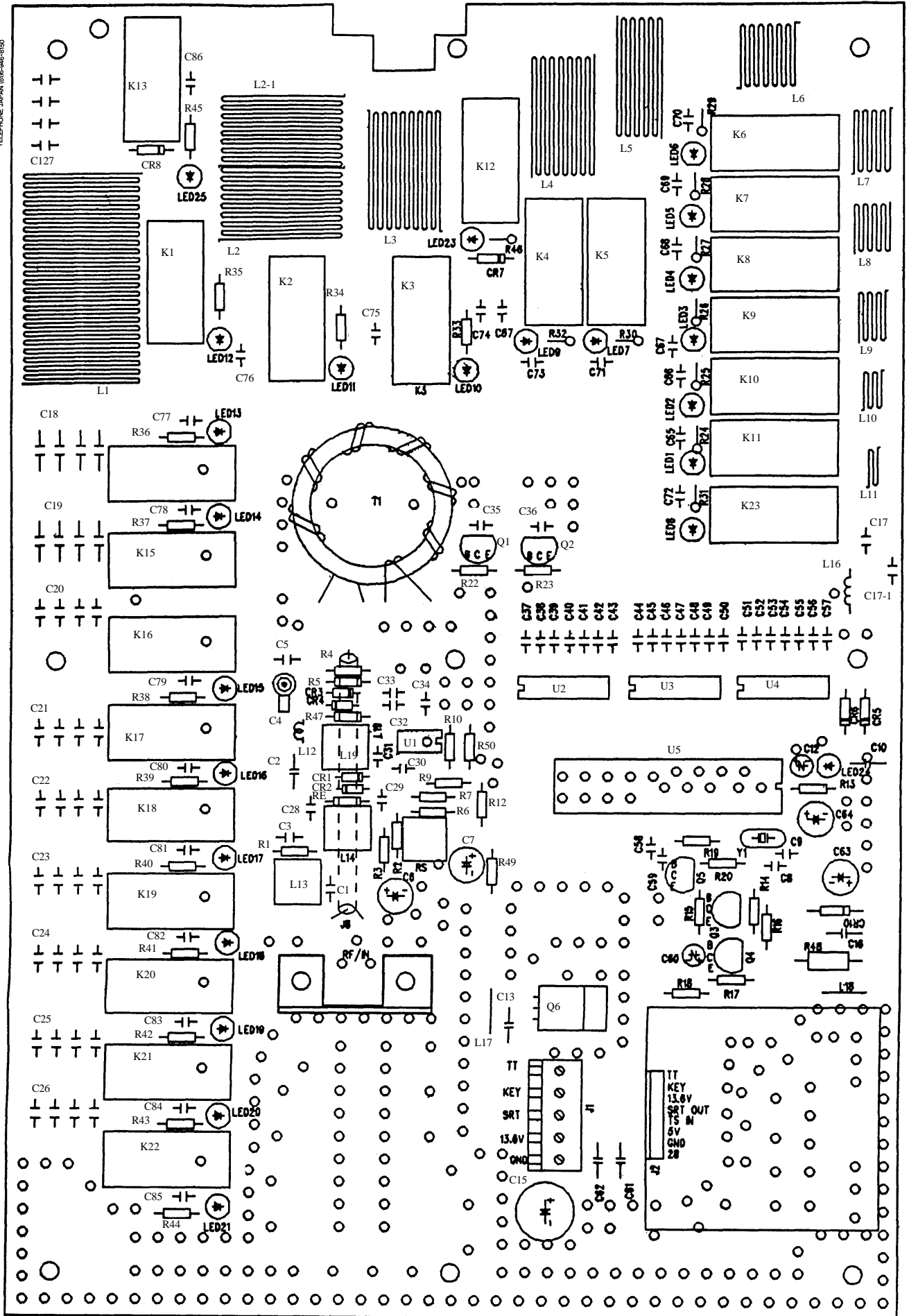
**SCHEMATIC DIAGRAM**

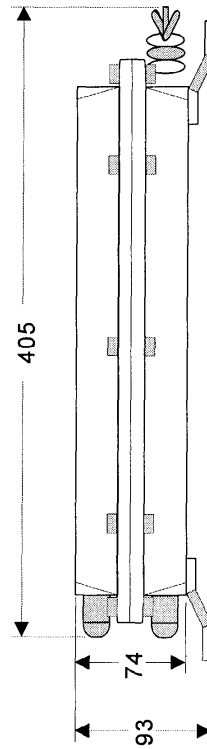
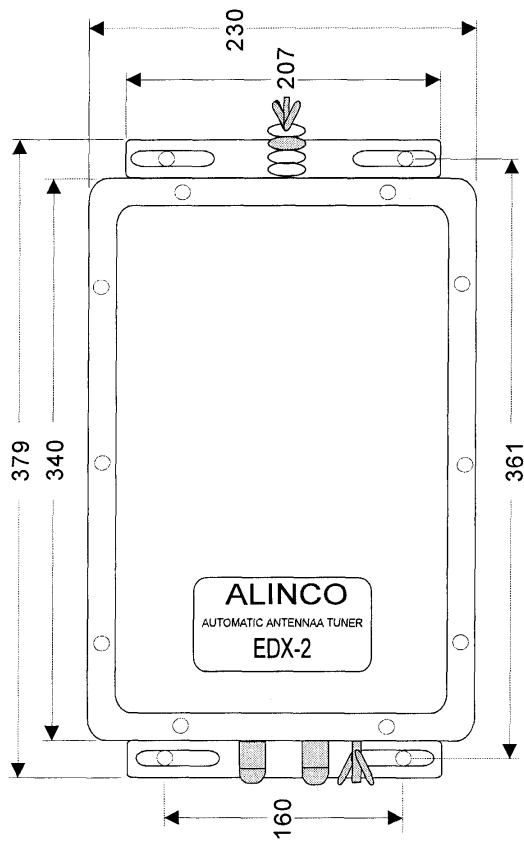


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Specifications subjects to change without notice

**Wenden Radio Co., Ltd.**

**ALINCO EDX-2 AUTOMATIC ANTENNA TUNER**

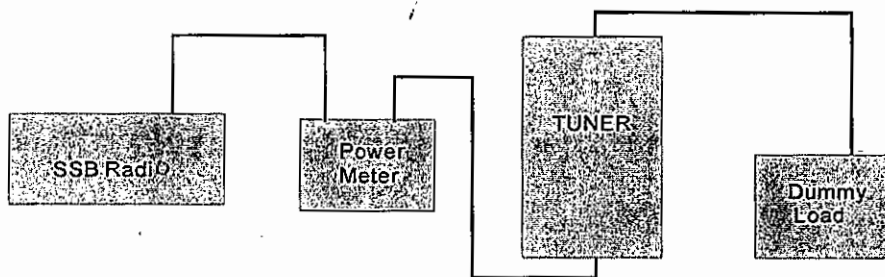
**DIMENSIONS AND INSTALL HOLD POSITION**

## Adjustment

### 1. EQUIPMENT REQUIRED

1. SSB Radio RF output power 3~10 watts
2. Power/SWR meter
3. Power supply output 24V 25A
4. 50 ohm dummy load

### 2. CONNECTION



### 3. ADJUSTMENT

1. Set the radio frequency on around 8Mhz, the adjustable resistor "RS" and adjustable capacitor "SVC1" set middle point.
2. To key start the tuner operate, the standard operating time is from 3~8 seconds, turn left the "SR" if it is less then 3 seconds, till the operate time on standard time.
3. Transmit the radio, check the SWR rate by power/SWR meter, the standard rate is less 2.0, if higher then 2.0 must to adjust the "SVC" until SWR less then 2.0, this adjustment may be take some times to complete.
4. Set the radio frequency on around 3Mhz, and transmit the radio, check the SWR rate by power/SWR meter, the standard rate is less 2.0, if higher then 2.0 must to adjust the "SVC" until SWR less then 2.0, and return the 8Mhz check again.
5. Same as action 4 set the radio frequency on 7Mhz.
6. Same as action 4 set the radio frequency on 2Mhz.
7. After above action, key start the tuner and transmit the radio, check the SWR and output power from 2~25Mhz for each one Mhz band.



EDX-2 PARTS LIST

Item	QTY	Reference	Parts	Description
1	3	AC1	473	C/C
		AC2	473	C/C
		AC3	473	C/C
2	31	C29	103	C/C
		C30	103	C/C
		C31	103	C/C
		C32	103	C/C
		C33	103	C/C
		C34	103	C/C
		C35	103	C/C
		C36	103	C/C
		C37	103	C/C
		C38	103	C/C
		C39	103	C/C
		C40	103	C/C
		C41	103	C/C
		C42	103	C/C
		C43	103	C/C
		C44	103	C/C
		C45	103	C/C
		C46	103	C/C
		C47	103	C/C
		C48	103	C/C
		C49	103	C/C
		C50	103	C/C
		C51	103	C/C
		C52	103	C/C
		C53	103	C/C
		C54	103	C/C
		C55	103	C/C
		C56	103	C/C
		C57	103	C/C
		C58	103	C/C
		C59	103	C/C
3	23	C65	473	C/C
		C66	473	C/C
		C67	473	C/C
		C68	473	C/C
		C69	473	C/C
		C70	473	C/C
		C71	473	C/C
		C72	473	C/C
		C72	473	C/C
		C73	473	C/C
		C76	473	C/C
		C77	473	C/C
		C78	473	C/C
		C79	473	C/C
		C80	473	C/C
		C81	473	C/C
		C82	473	C/C
		C83	473	C/C
		C84	473	C/C
		C85	473	C/C
		C86	473	C/C
		C87	473	C/C

Item	QTY	Reference	Parts	Description
4	1	JA9	8PIN	M-TYP
5	2	AL1	100UH	L
		AL2	100UH	L
6	4	CR1	1N4148	DE
		CR2	1N4148	DE
		CR3	1N4148	DE
		CR4	1N4148	DE
7	1	AC5	1UF/50V	E/C
8	2	AC4	10UF/35V	E/C
		C60	10u/35V	E/C
9	1	AQ1	2SA134	TR
10	1	AQ2	2SC2458	TR
11	1	Q1	TIP31C	TR
12	5	Q2	2SC1675	TR
		Q3	2SC1675	TR
		Q4	2SC1675	TR
		Q5	2SC1675	TR
		Q6	2SC1675	TR
13	3	R9	3K3	U/R
		R10	3K3	U/R
		R18	3K3	U/R
14	2	R16	10K	U/R
		R19	10K	U/R
15	7	R6	1K	U/R
		R7	1K	U/R
		R12	1K	U/R
		R14	1K	U/R
		R17	1K	U/R
		R50	1K	U/R
		RS	1K	U/R
16	5	R2	4K7	U/R
		R3	4K7	U/R
		R4	4K7	U/R
		R5	4K7	U/R
		AR2	4K7	U/R
17	2	R13	470E	U/R
		RE	470E	U/R
18	2	CR5	6V2	ZD
		CR6	6V2	ZD
19	3	CR7	1N4004	DE
		CR8	1N4004	DE
		CR10	5.1V	DE
20	5	C1	10P	MA/C
		C26D	10P	MA/C
		C26C	10p	MA/C
		C26B	10p	MA/C
		C26A	10p	MA/C
21	6	C2		104 M/C
		C10		104 M/C
		C13		104 M/C
		C16		104 M/C
		C61		104 M/C
		C62		104 M/C

EDX-2 PARTS LIST

Item	QTY	Reference	Parts	Description
22	1	C3	91P	MA/C
23	1	C4	20P	VC
24	3	C5	220P	MA/C
		C21B	220P	MA/C
		C21A	220P	MA/C
25	4	C6	100UF/35V	E/C
		C7	100UF/35V	E/C
		C63	100UF/35V	E/C
		C64	100UF/35V	E/C
26	6	C8	22P	C/C
		C9	22P	C/C
		C25D	22P	MA/C
		C25C	22P	MA/C
		C25B	22P	MA/C
		C25A	22P	MA/C
27	1	C12	3.3UF/16V	T/C
28	1	C15	100UF/16V	T/C
29	2	C17	160P	MA/C
		C17-1	160P	MA/C
30	4	C18D	1600P	MA/C
		C18C	1600P	MA/C
		C18B	1600P	MA/C
		C18A	1600P	MA/C
31	3	C19C	820P	MA/C
		C19B	820P	MA/C
		C19A	820P	MA/C
32	1	C19D	910P	MA/C
33	3	C20C	430P	MA/C
		C20B	430P	MA/C
		C20A	430P	MA/C
34	1	C20D	470P	MA/C
35	2	C21D	240P	MA/C
		C21C	240P	MA/C
36	4	C22D	120P	MA/C
		C22C	120P	MA/C
		C22B	120P	MA/C
		C22A	120P	MA/C
37	4	C23D	62P	MA/C
		C23C	62P	MA/C
		C23B	62P	MA/C
		C23A	62P	MA/C
38	4	C24D	33P	MA/C
		C24C	33P	MA/C
		C24B	33P	MA/C
		C24A	33P	MA/C
39	4	C27D	300P	MA/C
		C27C	300P	MA/C
		C27B	300P	MA/C
		C27A	300P	MA/C
40	1	C28	5P	MA/C
41	2	FBB	FB	FB
		FBA	FB	FB

Item	QTY	Reference	Parts	Description
42	1	J1	5 PIN	M-TYP
43	6	J3	T.P	
		J4	T.P	
		J5	T.P	
		J6	T.P	
		J7	T.P	
		J8	T.P	
44	19	K1	VS-12MB-VD3	RL
		K2	VS-12MB-VD3	RL
		K6	VS-12MB-VD3	RL
		K7	VS-12MB-VD3	RL
		K8	VS-12MB-VD3	RL
		K9	VS-12MB-VD3	RL
		K10	VS-12MB-VD3	RL
		K11	VS-12MB-VD3	RL
		K12	VS-12MB-VD3	RL
		K13	VS-12MB-VD3	RL
		K14	VS-12MB-VD3	RL
		K15	VS-12MB-VD3	RL
		K16	VS-12MB-VD3	RL
		K17	VS-12MB-VD3	RL
		K18	VS-12MB-VD3	RL
		K19	VS-12MB-VD3	RL
		K20	VS-12MB-VD3	RL
		K21	VS-12MB-VD3	RL
		K22	VS-12MB-VD3	RL
45	3	K3	VS-12MB-VD3	RL
		K4	VS-12MB-VD3	RL
		K5	VS-12MB-VD3	RL
46	24	LED1	LED	LED
		LED2	LED	LED
		LED3	LED	LED
		LED4	LED	LED
		LED5	LED	LED
		LED6	LED	LED
		LED7	LED	LED
		LED8	LED	LED
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