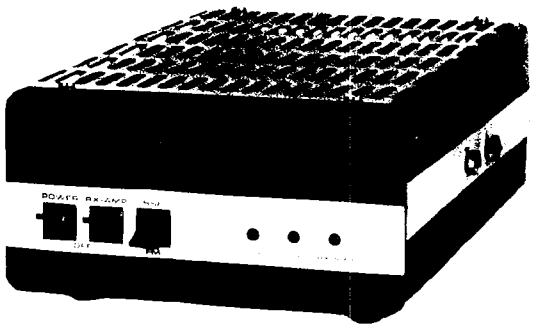
ALINCO ELECTRONICS

Instruction Manual

EL SERIES VHF LINEAR AMPLIFIER

VHF TX-RX AMPLIFIER

EL-2HC EL-2HS



ALINCO ELECTRONICS

- We thank you very much for your purchase of EL Series -

ALINCO EL Series HC Type and HS Type, which have been built-in "pre-amplifier circuit" adopting U-310, are compact and high efficient Linear Amplifier for amateur wireless communication in VHF Zone.

You can use this EL Series without any fear. Because this EL Series are also featured in specially designed "Automatic Transmitting and Receiving Circuit" and equipped with "Bigger Size Radiator" and "High Reliability Transistor".

(1) Rated

Model		EL-2HS X	EL-2HC
Using Frequency Range		144MHz - 146MHz	
Electric Source		DC12V - 15V	
Input & Output Impedance		50 Ω	
Input & Output Connector		M Type	
Consumption Currency	(Transmitting)	About 18A X	About 10A
	(Receiving)	About 150mA	
High Frequency Electric Input Power in Transmitting Part		10W - 15W	
High Frequency Electric Output Power in Transmitting		110W min:. X	70W min:.
		Electric Source + 13.8V at Input Power 10W	
Receiving Pre. Amplifier Gain		About 10dB	
" " " NF		About 1.5dB	
Dimension		150x80x252mm	
Weight		About 2Kg	

(2) Features

a. When transmitting, can watch matching position of the antena.(HS Type only)

b. Can get most suitable condition to operate in using electric wave by "Mode Select Switch".

c. HS Type can get OUTPUT more than 110W PEP (DC 13.8V at Input Power 10W)

(3) Cautions

a. When radiating, please be careful. Because heating volume may be increased accordint to using condition.
In case of transmitting continuously for long time more than 10 minutes in FM, it is desired to be cooled by auxiliary fan. Then, you can use in perfect condition.

b. Please be careful not to put High Frequency Input Power more than 15W. Should be less than 15W.

c. Please be careful that electric source should not exceed rated voltage. And also, be careful not to mistake pole of electric source.

d. Please be sure to use rated "FUSE".

e. Antena should be used according to using frequency and to be less than VSWR2.

f. Please use coaxial cable of 50Ω Series as connection cable of Input and Output Power.

g. If excessive power or shock shall be added, it is a cause of trouble. So, please be careful.

h. When circuit and other parts of this amplifier shall be remodeled, it may be a cause of trouble and can not be guaranteed. So, please be careful not to do.

■ Operation of Each Part

o Input Power Detector Circuit
..... This is a detector circuit by capacitive combination and can detect even if it will be small input power.

o Relay Driving Circuit
..... This circuit is built in schmitt trigger using C MOS IC. So, can get earlier first transition. And, even on single side band in last transition, can select transmitting and receiving by semi-brake-in system in delayed circuit.

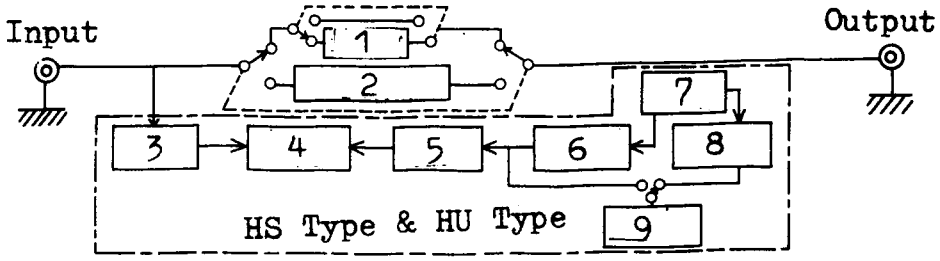
o Pre-Amplifier
..... This is"high efficiency receiving circuit" using U-310 and, switching RX-AMP "ON", gear lamp shall be lighter in receiving condition and indicate that the circuit is in the operating position.
And also, as you can use in putting SW "ON" by automatic transmitting and receiving circuit, it is not necessary to control outside.

o Reflected Wave Detector
..... To detect refleeted wave by directional coupler using troidal core (HS Type Only).

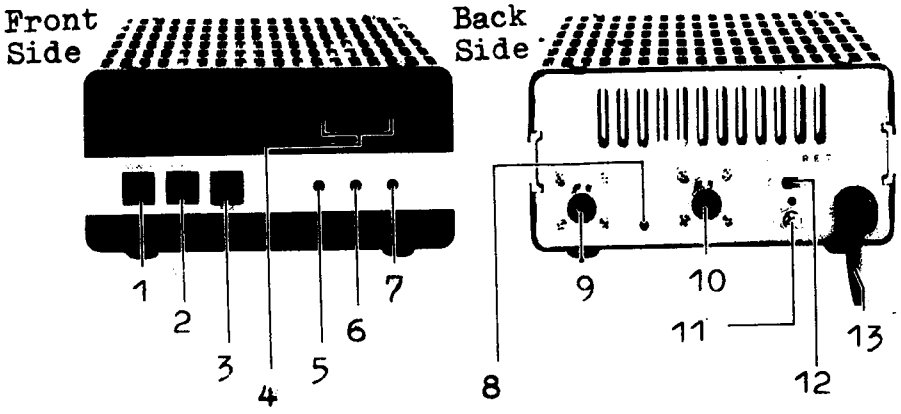
o Relay Circuit
..... Coaxial Relay has been used.

o Linear Amplifier Circuit
..... High efficient transistor is used for few distortion and stable amplifier.

■ EL Block Diagram



(1) Pre Amplifier
(2) Linear Amplifier
(3) Input Detector
(4) Relay Driving Circuit
(5) Protection Circuit
(6) Reflected Wave Detector
(7) Direction Connector
(8) Progressed Wave Detector
(9) LED Indicator



(1) Electric Source Switch
(2) Pre Amplifier Switch
(3) Mode Changing Switch
(4) Power Indicator LED(HS Type)
(5) Electric Source Indicator
(6) Transmission Indicator
(7) Pre Amplifier Indicator
*(8) Outside Control
(9) Output Terminal
(10) Input Terminal
*(11) Level Adjustment Volume (HS Type)
*(12) Progressed Wave & Reflected Wave Selector(HS Type)
(13) Electric Source Cord(13.8V)

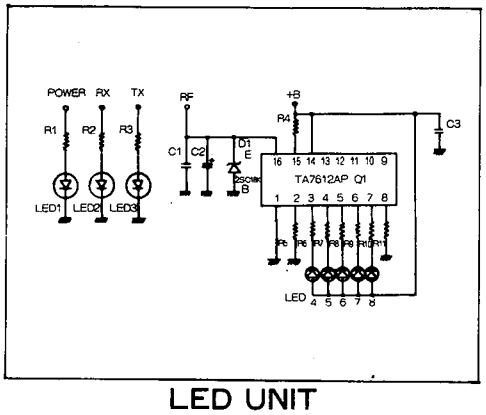
* (8) Outside Control
In case of SSB, signal of P.T.T. shall be added to be sure in transmitting. So, please and the signal, "OV" in transmitting and "OV" in receiving.

* (11) Level Adjustment Volume (HS Type)
Putting the progressed-wave and reflected wave select switch at progressed wave, and transmitting, Power Indicator LED can be adjusted the number of lighting. But, indication of reflected power and transmitting power can not be adjusted.

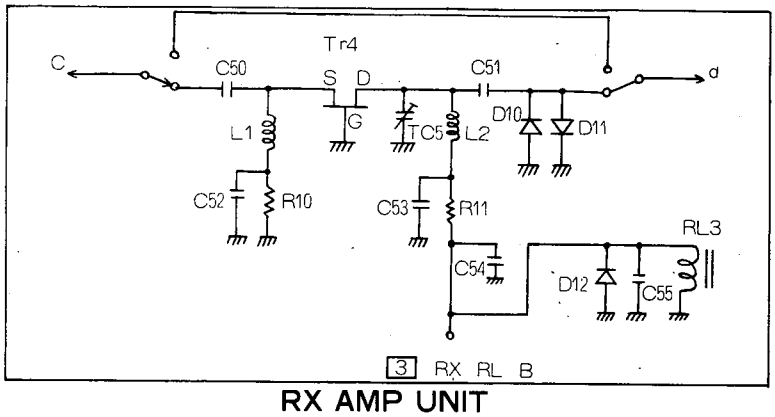
* (12) Progressed Wave and Reflected Wave Select Switch (HS Type only).

Indicates Progressed Wave as "FWD" and Reflected Wave as "REF" in power indicator on front side.

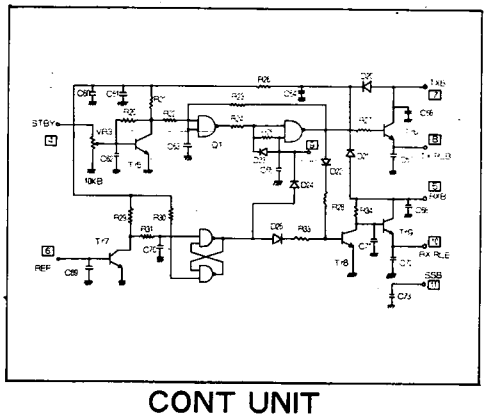
EL-2HS(U) Circuit Diagram



LED UNIT



RX AMP UNIT



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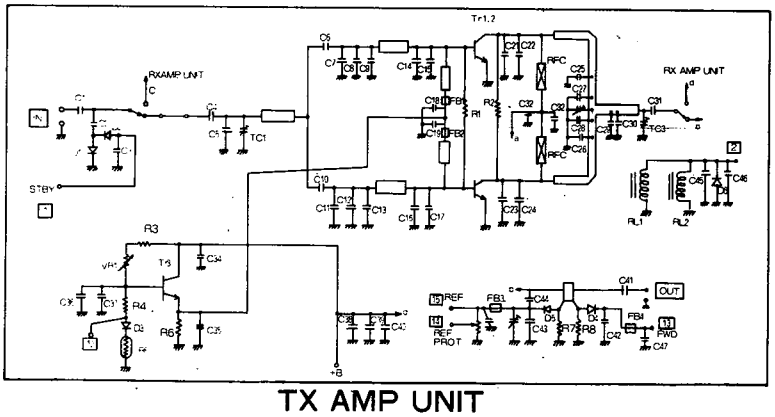

TX AMP UNIT