MIZUHO PICO COUPLER

It enables you to operate on HF All Bands. with one long-wire antenna

KX-QRP (Complete Set)

KX-QRP was developed for the potential users who wants to enjoy QRP operation, less than 5W, on all HF bands with 1 long-wire antenna even at the mobile station or home shack being difficult to set up the antenna tower or beam antennas.

The operator will be impressed with QSO under simple antenna and QRP. He can enjoy real thrill of Ham also.

Works and Features of KX-QRP

The circuit of this unit is consists of 3 pieces of variable capacitors, coil with tap and tap switch. This π -C match uses the variable capacitors at 3 positions but it can be used for the wide range.

For example, when setting up the 10m band long wire antenna (1 conductive wire antenna) and earth or counterpoise(5-10m), it can be used for 3.5MHz-28MHz band.

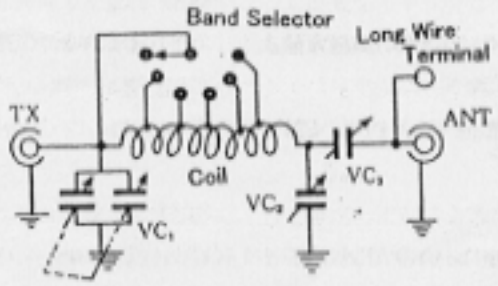

FIG. 1 CIRCUIT

If the user uses this antenna without coupler, he can use it for only 7MHz(1/4 λ) and 21MHz(1-1/2 λ) and you cannot use for transmission on other band. In this case, by using KX-QRP, he can adjust the SWR level nearly to 1.0 on any bands. It means that the coil of coupler and variable capacitors do the same work as adding the extension coil or shortened coil to the wire of optional length and it enable the wire to resonate the target band. It effects to reduce the BCI and TVI when transmitting and also works as Pre-selector at receiving.

Main Specifications

1. Circuit Method	π-C match
2. Frequency Range	3.5 – 30MHz
3. Band	6 bands
4. Through Power	5 W max.
5. Input/Output Impedance	50-600Ω
6. Size	162(W) x 55(H) x 130(D)mm
7. Weight	800g

How to Connect to the Coupler

Connect the KX-QRP in between the transceiver and antenna as shown in the figure 2.
The transceiver output is standardized at 50Ω and use the 50Ω type coaxial cable such as 3D-2V and 5D-2V with optional length, say, 50cm or 1m. The antenna connectors of recent small transceivers are Almost BNC type and conversion connector may be required for the connection since KX-QRP is provided with M type connector.

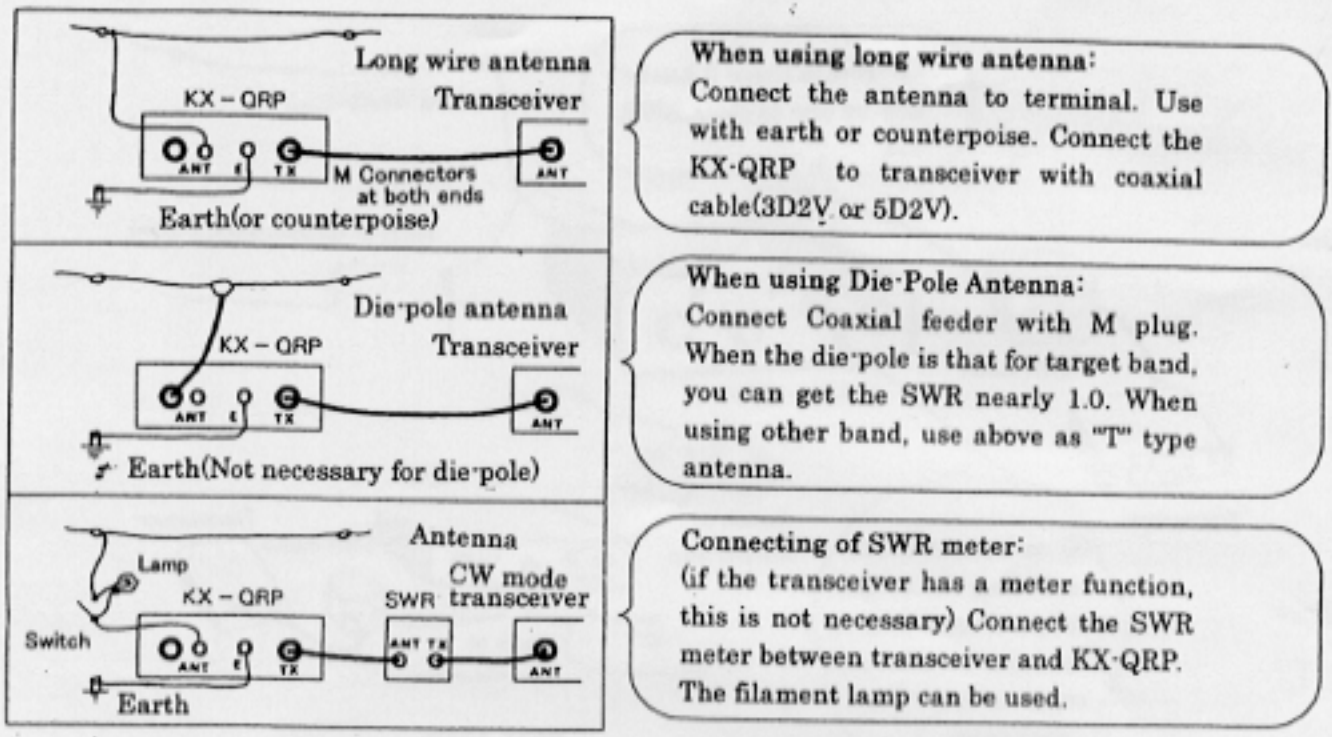

FIG.2 EACH ANTENNA AND CONNECTION

The long wire antenna should be connected to the antenna terminal. The earth or counterpoise (radial) should be connected to the earth terminal (E) . In this case, when making 7MHz die-pole antenna but the SWR level does not come down to 1.0, the connecting of this coupler enables to adjust to SWR 1.0 very easily. (Please be careful when using the antenna at the band outside from target range.)

Mobile Antenna and Counterpoise

- **The length of Long Wire**
  When the operation band is fixed or having priority band among 2 or 3 bands to be operated, it can operate with optional length of wire but it will be better to use long wire with 1/4 λ and radial. In case of 7MHz, 10m+10m(or earth), if 3.5MHz, 20m+20m(or earth) with combinations of coupler, these antenna and counterpoise or earth, it can be used at each band up to 28MHz. The coupler can get the best matching against the over length or short length of counterpoise than 1/4 λ . When counterpoise is not straight line like "L", triangle or square, the coupler can get the best tuning. The counterpoise can be used under the condition setting up on the floor or ground directly.

- **There is a possibility not to get the best matching even using the coupler for tuning.**

  The antenna with power feeding by coaxial cable, for example, die-pole antenna 7MHz can not be used as an antenna for 3.5MHz or 14MHz band even connecting the coaxial cable directly to the coupler. The 7MHz die-pole antenna can be used for 21MHz band, 3 times of 7MHz, but for other bands, bind the tip end of coaxial cables to work as a single wire

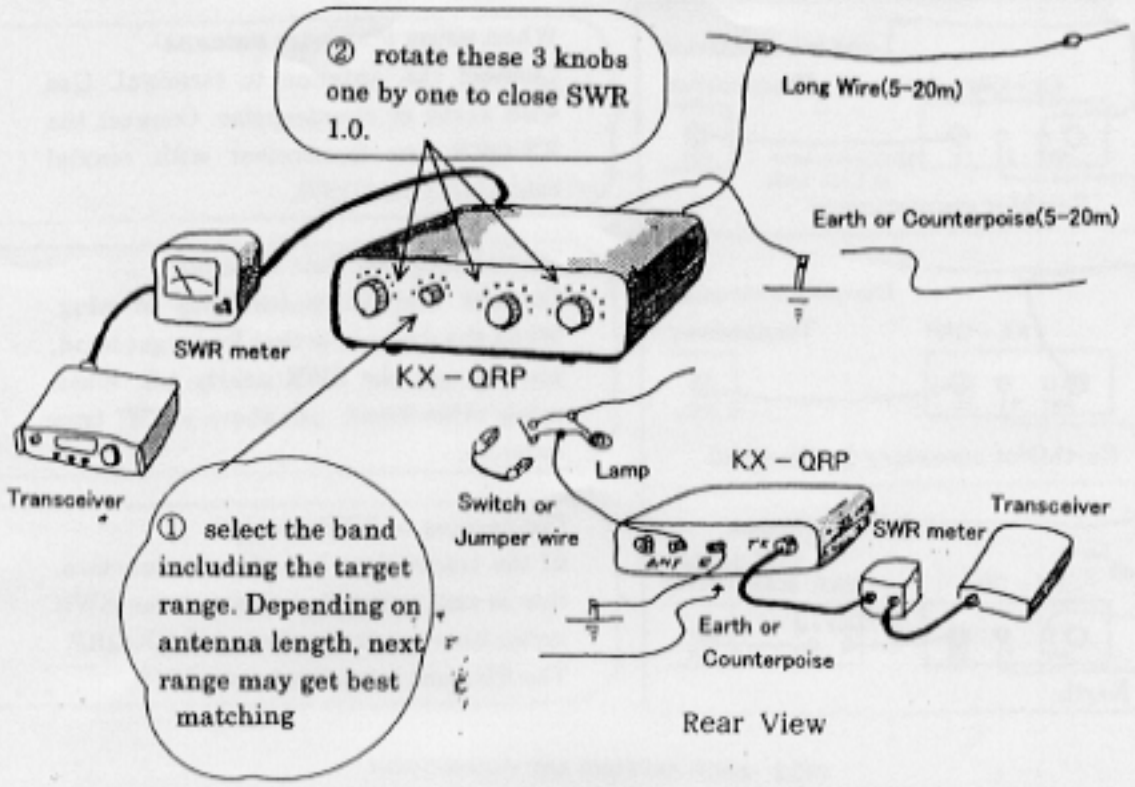

FIG.3 CONNECTING AND ADJUSTMENT

and combine with earth or counterpoise for using it as "T" type antenna, as shown in the figure, then, the user of coupler can enjoy "on-air" on the other HF bands.

How To Operate The Coupler

Connect the SWR meter in between coupler and transceiver(TX) as shown in figure 3 and adjust the coupler to have the indication of SWR nearly 1.0. If the transceiver has a SWR meter function like "Yaesu" FT-817, the user can adjust in the same manner. When the user does not have SWR meter, you can check with filament lamp to be connected in line to the antenna and adjust the band switch and 3 pieces of variable capacitors(VC1 – VC3) one by one in order to get the maximum brightness. (the antenna current is maximum point.) After the adjustment, the filament lamp must be shortened to avoid the loss of transmitting power.(When the lamp being maximum brightness, the SWR level should be nearly 1.0.)

The antenna adjustment should be done under transmitting the carrier wave of CW, AM, or FM. In SSB mode, the power will not be generated without Audio Input so it should be better to avoid to adjust the antenna in SSB mode. (By using the filament lamp as mentioned above, the lamp will not have enough brightness in SSB mode since the Audio Input will not be able to heat the filament lamp in such a short time. When using the RF Current Meter, applying thermocouple, the same condition will be appeared.) There is another modern adjustment method by using antenna analyzer (SWR Analyzer).

When using one die-pole antenna for multiband purpose, do not use the coaxial cable, but, use the ladder feeder cable. This is the only way to use above purpose.

(Warning and Others)

KX-QRP is the coupler for small output power. Please be careful not to use with big output power like 50W or 100W. The variable capacitor will be broken down. QRP communication means the output power 5W or less. For the output power 1W or less, it is called as "QRPp" which may be specially marked in the Award.

We hope you can enjoy FB, DX on QRP.