



How to... Work satellite with single IC-706MKIIG

You wanna try to work modern satellite like AO-40 but have only one rig ICOM-706MKIIG ?... Me too, and it easier than You think. How to work ? You need a converter first. I have Icom 706MKIIG and take it everywhere I go. For portable AO-40 Im use surplus umbrella type dish 1.2m diameter from used inmarsat satphone with paytv convreter in focus and 1m boom 6 turn helix for uplink . Secret is in the delay Your own signal back from the sat , the distance to satellite and back is about twice of 65000 kilometers so it causing signal delay about 0.1-0.25 sec. this time is more then enough to hear Your own echo ! Rig setup is very simple, one VFO set for 145.000 USB for receive and set power level to 0! than another VFO set to 435.650 LSB with normal power level , return to 145, go to M1 menu and push SPL button so You get 145.000 USB and split appear on display. Push PTT and You see 435.650 LSB on TX, release PTT and return to 145.000 USB (sure , You can storage setting in memory). For connect TX antenna and RX converter (I suppose that RX converter has 145 IF) Im use old MFJ-916 duplexer with 144/440 label.

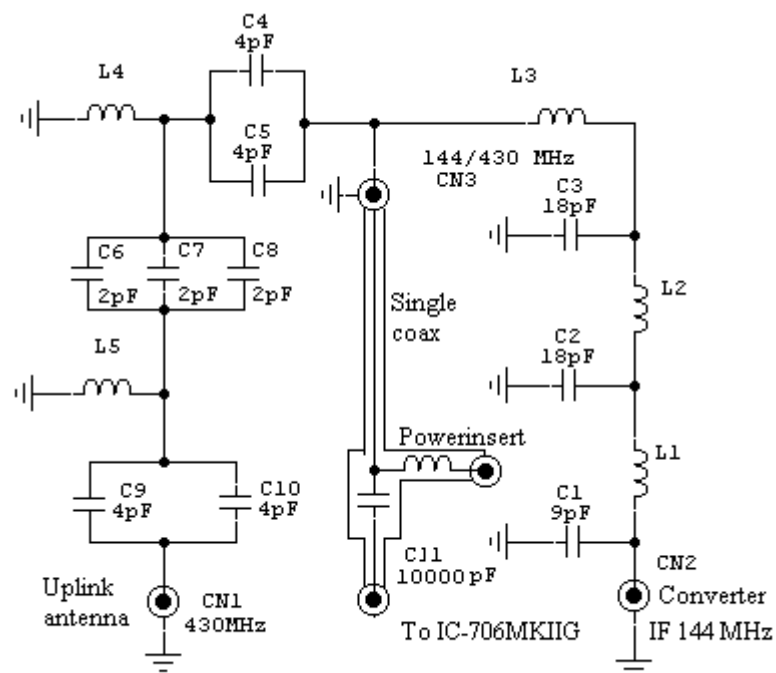
Rear view of VHF/UHF port IC-706MKIIG



Please note that connectors on MFJ changed to fit on 706 and rx tx port , common port have male (instead of female in original design) and rx port now have F connector to use TV cable from converter and tx have femalea to fit TX RG-213 to helix. I think You may find any suitable unit with right connectors and/or use adaptors to Your needs instead to shrink the MFJ.

Next trik is find Yourself on passband : first step is find beacon on 145 and set Your rx up about 10 KHz , uplink frequency to beacon is 435.655 MHz (dont transmit here, beacon is jammed) set tx down 5 KHz and say "hello" realise PTT quickly, than go down 1-2 KHz while You hear Your own signal delayed back from sat , adjust Your tx for good audio and thats all. I worked a lot of station over the world with that simple setup from nearest for my qth mountaines. Many of our hams here say - wow! how simple to work sat. Try this metod and I will be very glad to work with You from some exotic location !

Another trick is how to use single coax line to feed uplink antenna and downlink converter with single rig like IC-706MKIIG . Look on schematic diagramm MFJ duplexer



You need to add power inserter at transceiver side and run long coax cable to roof or tower with uplink antenna and downlink s-band converter.

Surplus umbrella type dish 1.2 meter from used Inmarsat phone



I think worked frequency was about 1.8GHz but it work on AO-40 nicely. My daughter standing near portable dish from Mobile Telesys Inc.

Need a signal source in 2401 range - its easy, You already have one. For example: I have

old mobile transceiver TM-451A from Kenwood and in receive mode it produce strong signal in s-band range. Only correct frequency must be set on unit. If You set RX frequency 445.285 on display it also means that You set VFO frequency inside to $445.285 \text{ RX} - 45.05 \text{ IF} = 400.235$ and x6 multiplier will be 2401.41.!!! You can use it for tune up Your s-band converter. Signal is very strong 9+40/60, so keep converter away enough from source. Exact frequency may vary slightly, depends of internal reference crystal frequency and temperature drift. You may recalculate this for any VFO frequency from any Your transceiver.

Need to know exact LO of Your converter ? - no problem , LO frequency depend of crystal reference frequency multiple on divide ratio in synthesisers prescaler usually 256, so if You know exact reference frequency x 256 You get LO. Listen around 149.8125 and find carrier about S7-S9 it will be multiple x 17 of Your reference crystal, so $149.8125/17 \times 256 = 2256 \text{Mhz}$ or around this value.

73 и до встречи на AO40!

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Hits	15295086
	13082
Visitors	2353640
	2196
Sp	10G
	11