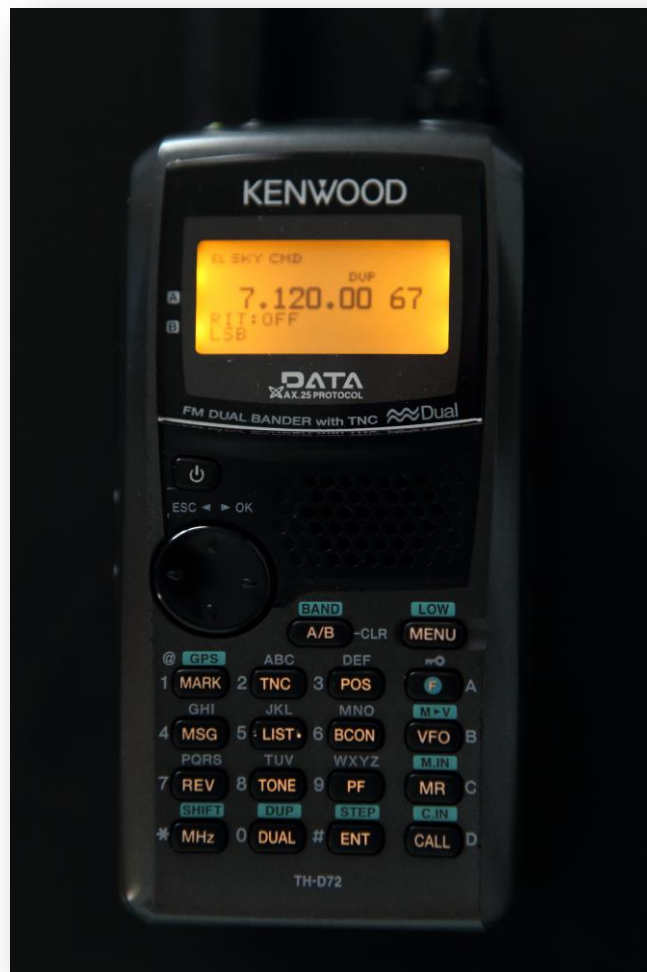# Setting Up Sky Command II

Using Sky Command II with your TS-2000 and TH-D72A

Documented by VK6JI
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Overview/Purpose

This document briefly describes how to set up the TS-2000 to act as a Sky Command *Transporter* and the TH-D72A as a Sky Command *Commander*.

Before we get into the detailed setup of the Transporter and the Commander lets first look at the overview of what we are about to setup.
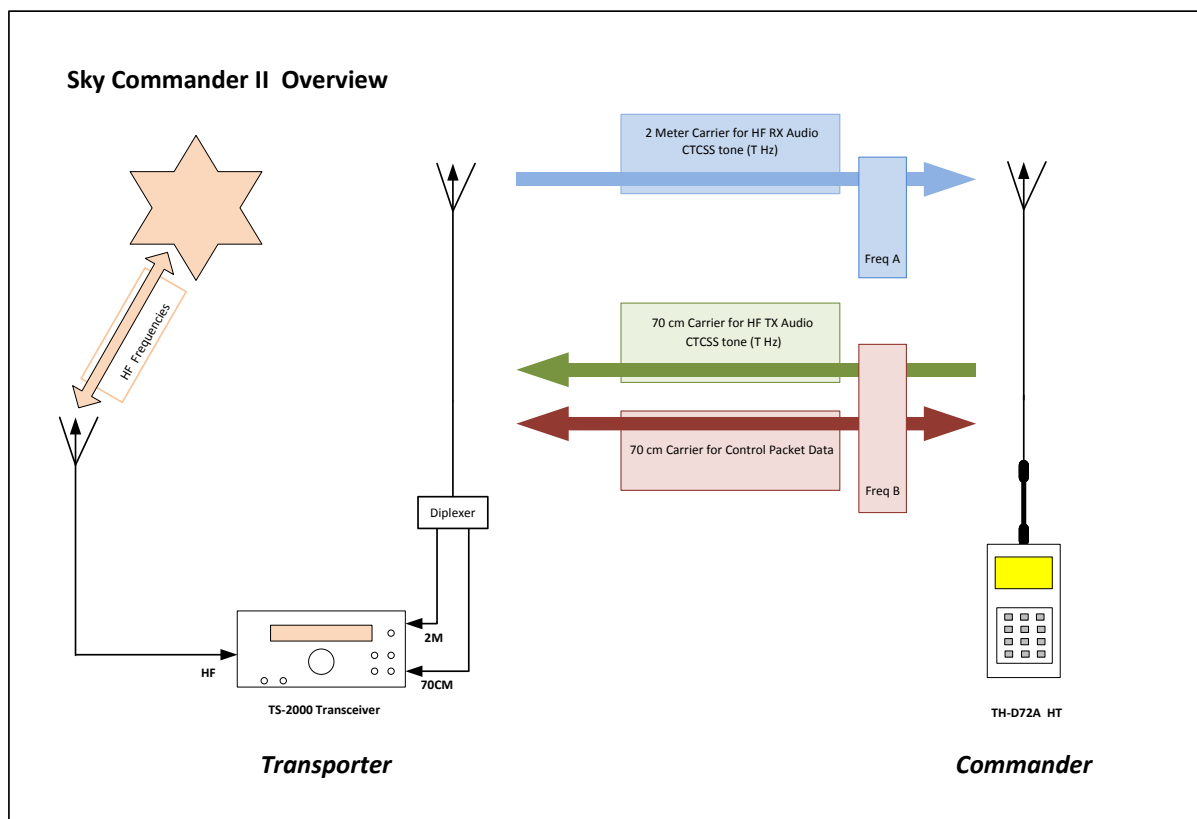

Figure – 1

The TS-2000 acting as the Transporter on reception of a HF signal transmits a CTCSS encoded 2 meter FM signal to transfer this RX audio to the HT.

When the PTT is activated on the HT, the TX audio is transmitted from the HT via a CTCSS encoded 70cm signal to the TS-2000 which then re-transmits this signal on the nominated HF frequency.

All commands from the HT to the TS-2000 are done via data in the form of packet. The TS-2000 responds to the commands from the HT and sends acknowledgements back to the HT with data in the form of packet. In order to enable this two way data transfer between the TH-D72A and the TS-2000, both rigs connect their internal TNC's to the Freq B channel.

The display on the TH-D72A will reflect a summarized version of the TS-2000 screen as a result of the data the TS-2000 returns to it in the data stream.

Configuring The TS-2000 To Be a Transporter

The TS-2000 can be configured to be a *Transporter* or a *Commander* depending on your requirements. In the configuration in figure 1 above we will be using it as a *Transporter*.
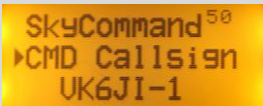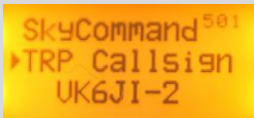
Menu Item	Function
62A 146.540.00 B 438.075.00 62A VK6JI-1 COMMANDER C	Set your call sign with SSID for the Commander call sign. Example VK6JI-1
62B 146.540.00 B 438.075.00 62B VK6JI-2 R CALLSIGN	Set your call sign with SSID for the Commander call sign. Example VK6JI-2
62C 146.540.00 B 438.075.00 62C 88.5Hz ONE FREQUENC	Set the CTCSS tone frequency to be used for SKY Commander II. This is used to encode both the 2 meter and 70cm signals. The default is 88.5 Hz but you can change this if required.
62D 146.540.00 B 438.075.00 62D 1200bps MMUNICATION	Select the required communication speed to be used. In order to reduce configuring this all the time, make it the same as your default packet operations for other modes. As the TNC in the TH-D72A is 1200 BPS we will make this 1200 BPS.
46	Set the TNC to operate on the SUB band.
Main Transceiver Configuration 146.540.00 ◄A 438.075.00 FM FM	Set the VFO A frequency to be the required frequency in the 2 meter band, designated Freq A in figure 1 above. I have set this to 146.540 MHz Check to ensure No offsets have been set or any other CTCSS tones for encoding or decoding are in operation. Sky Commander will set these as required from the settings used in 62C above.
Sub Transceiver Configuration 146.540.00 ◄A 438.075.00 FM FM	Set the VFO A frequency to be the required frequency in the 70-cm meter band, designated Freq B in figure 1 above. I have set this to 438.075 MHz Check to ensure No offsets have been set or any other CTCSS tones for encoding or decoding are in operation. Sky Commander will set these as required from the settings used in 62C above.

Configuring The TH-D72A To Be a Commander

We now need to configure the TH-D72A to act as Commander as shown in figure 1 above. The following table outlines the steps required to make the required configuration.

Menu Item	Function
Set A Transceiver Configuration. 146.540 ▸438.075 This screen shows how A and B are set.	Set the A frequency to be the required frequency in the 2 meter band, designated Freq A in figure 1 above. I have set this to 146.540 MHz but MUST be the same as set in the Transporter. Check to ensure No offsets have been set or any other CTCSS tones for encoding or decoding are in operation. Sky Commander will set these as required. Make sure the Voice Alert function is turned Off.
Set B Transceiver Configuration SKY-02-A 88 ▸SKY-70-B 87 I Saved these settings into a memory postion to simplify it for future operations.	Set the B frequency to be the required frequency in the 70 cm band, designated Freq B in figure 1 above. I have set this to 438.075 MHz but MUST be the same as set in the Transporter. Check to ensure No offsets have been set or any other CTCSS tones for encoding or decoding are in operation. Sky Commander will set these as required. Make sure the Voice Alert function is turned Off.
Sky Command *CMD Callsign* 500 SkyCommand⁵⁰ ▸CMD Callsign VK6JI-1	Set your call sign with SSID for the Commander call sign. Example VK6JI-1 MUST be the same as set in the Transporter
Sky Command *TRP Callsign* 501 SkyCommand⁵⁰¹ ▸TRP Callsign VK6JI-2	Set your call sign with SSID for the Commander call sign. Example VK6JI-2 MUST be the same as set in the Transporter
Sky Command *Tone Freq* 502 SkyCommand⁵⁰² ▸Tone Freq. 88.5 Hz	Set the CTCSS tone frequency to be used for SKY Commander II. This is used to encode both the 2 meter and 70cm signals. The default is 88.5 Hz but you can change this if required, MUST be the same as set in the Transporter.

Turning The Sky Commander Link On

Now that both the *Transporter* and the *Commander* transceivers have been configured we can now turn Sky Commander II on in both transceivers.

On TS-2000 (The Transporter)

- Ensure Main and Sub receivers are setup as per the last two items in the TS-2000 configuration table above.
- Set Menu Item 62E to *T-PORTER* and exit menu system.

  The screen on the TS-2000 will have the following shown on the bottom line.

  The Main Transceiver will now show the last used HF frequency and mode.

On TH-D72A (The Commander)

- Ensure A and B Transceivers are set up as per the first two rows in the TH-D75A configuration table above.

 Check to ensure offsets, CTCSS tones and Voice Alarm are NOT set.

- Press Menu and goto the Sky option (5--) and press OK.
- On Sky Command Press OK to goto Sky Command (503) and select *Commander* and press OK.

  You will see a message saying "Opening TNC" and the another message will appear saying press [0] to start commander.

- Press 0

  The TH-D72A will now send some commands to the TS-2000 which will now respond and send some data back to the TH-D72A which will result in the LCD display of the TH-D72A reflecting a summarized version of the current TS-2000 screen.

At this point if a signal is received on HF to break the mute, or mute is opened, the TS-2000 will transmit the received HF audio on the 2 meter frequency chosen to the TH-D72A.
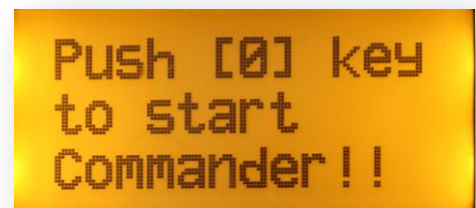
If the PTT is press on the TH-D72A then it will transmit on the chosen 70 cm frequency resulting in the TS-2000 sub receiver receiving it and keying up the PTT on the nominated HF TX freq.

In addition the TH-D72A is able to send and receive a set of commands from it's keyboard to control the frequency and mode of operation of the TS-2000 HF operations. The following table defines the commands the TH-D72A can send to the TS-2000.

Remote Commands From TH-D72A

Function	Key On TH-D72A	Command
VFO	VFO	Toggle between VFO and Memory Mode on TS-2000.
A/B	A/B	Toggle between VFO A and B.
RIT	MSG	RIT ON/OFF
XIT	LIST	XRIT ON/FF
CLR	BCON	RIT Offset or XIT Offset Clear
POWER	MARK	Power ON/OFF
RX	TNC	HF Freq Rec ON/OFF
MODE	POS	Toggles the mode, LSB,USB,AM,FM,CW
SPLIT	REV	Toggle the Split On and Off
SYNC	DUAL	Current Settings retrieve from HF transceiver.
ENT	ENT	When in VFO mode enters the required VFO frequency as direct entries from key pad. When in Memory mode, recalls the required memory on the TS-2000 by direct entry from the key pad.
Tuning Control	Turning Control Knob	When in VFO mode changes the VFO A or VFO B frequency. When in RIT or XRIT mode changes the RIT or XRIT frequency. When in Memory Mode changes the memory position.

As you send a command to the TS-2000 from the TH-D72A, the TS-2000 will respond sending data back to the TH-D72A which will result in the display on the TH-D72A reflecting that summarized screen of the TS-2000 on the TH-D72A.

You can nominate to have the HF receiver muted or open, but I would recommend it be muted to avoid the TS-2000 sub transmitter on 2 meters being keyed on continuously. Don't forget when setting up the Sub Transceiver on the Transporter to set both the 2 meter and 70 cm transmitters to low power (5w).