

***YAESU***  
*The radio*

**HF/VHF/UHF ALL MODE TRANSCEIVER**

**FT-991**

**INSTRUCTION MANUAL**  
**(WIRES-X Edition)**

Thank you for purchasing this Yaeau product.

This instruction manual explains operations and settings associated with the "WIRES-X Function".

For information on basic operation of the transceiver, please refer to the FT-991 Operating Manual.

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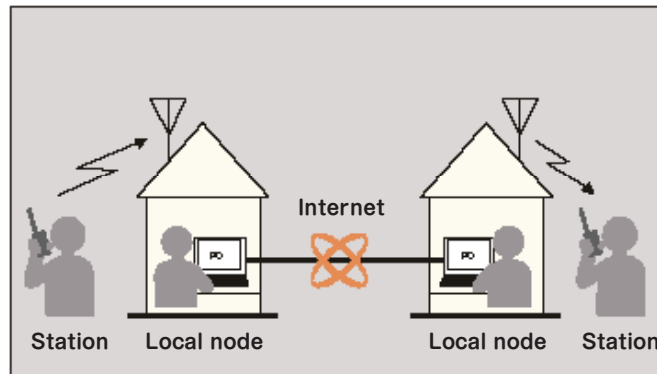
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# WHAT IS WIRES-X?

WIRES (Wide-coverage Internet Repeater Enhancement System) is an Internet communication system which expands the range of amateur radio communication. By relaying radio signals via the Internet, stations can be connected far beyond the range of local VHF/UHF radio communications.

WIRES uses local nodes (stations connected to the Internet via PCs) as access points which repeat communications of conventional amateur radio stations. When the local nodes are connected to each other via the Internet, amateur stations all over the world can communicate with each other just by connecting conventional stations to the local nodes.



In addition to the WIRES linking features, WIRES-X also supports digital communications. Using WIRES-X, you can transmit and receive digitalized data such as text, image data and audio.

Using WIRES-X in conjunction with amateur radio transceiver allows analog/digital communications with stations outside the local communications range. In digital communication mode, you can search stations by call signs or keywords, and exchange data such as location information.

WIRES-X together with the GM (Group Monitoring) function on a compatible Yaesu transceiver, may be used to create a group including local nodes. Also networks covering a wide range may be established.

# WHAT IS WIRES-X?

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## TERMINOLOGY

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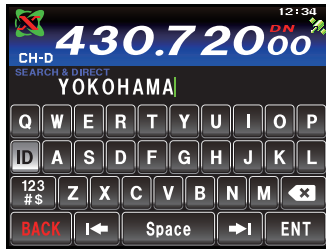
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- Node
  - Radio repeater connected to the Internet via a PC, which repeats communications of conventional amateur radio stations as an access point
- Local node
  - Node within the radio communication range of a conventional amateur radio station
- Analog node
  - Node which is a transceiver or repeater using the conventional FM format and can only repeat DTMF (Dual Tone Multi Frequency) codes and analog audio transmissions/receptions
- Digital node
  - Node which is a transceiver or repeater compatible with digital communications in C4FM (Continuous 4 level FM) format. With this type of node, you can transmit/receive audio as well as text and image data.
  
- WIRES-X user ID
  - YAESU provides identification names with the WIRES-X nodes. For each node, a DTMF ID (five-digit number), and a user ID (alphanumeric characters consisting of up to ten digits) are provided.
  - If you know the ID of the node you want to connect with, you can transmit the DTMF code from your transceiver. For digital nodes, you can directly specify the node to search for and connect to by using the alphanumeric ID characters.
- ID list
  - Currently operating WIRES-X Nodes and rooms are listed and published on the WIRES-X website. Information such as IDs, call signs and operating frequencies is provided. (Some information may not be published due to the wishes of node owners).
- Room (Round QSO Room)
  - WIRES system internet community space to which multiple nodes can connect simultaneously. As well as voice communications, you can also chat with text messages on the PC used for the local node.
- Open room
  - A room which allows all nodes to connect
- Closed room
  - A room which allows only registered nodes to connect
- Owner
  - A Node which opens and organizes a room
- Activity
  - Nodes currently connected to a specific room
  
- Preset search function
  - When a preferred channel for connecting to local nodes is programmed (preset) in the transceiver, the channel can be scanned automatically when you start up WIRES-X.
  - Utilize this function as follows:
    - Quickly connect to the usually accessed local node by presetting its frequency in advance.
    - By presetting to a frequency channel shared with other associated nodes, the transceiver can quickly connect to a local node, even while you are traveling in other areas.

You can use two transceivers as nodes, one for the preset search channel (receive only channel) and the other for the voice channel (operation channel)

The following screen is displayed when inputting text, such as tags, on the FT-991 transceiver.

## Alphabet Input Screen



**[123#\$]** Touch to switch the screen to the number and symbol input screen.

**[←][→]** Touch to move the cursor in the input field left /right.

**[ENT]** Touch to confirm entered characters and return to the previous screen.

**[BACK]** Touch to return to the previously viewed screen.

**[<x>]** Touch to delete the character to the left of the cursor.

## Number and Symbol Input Screen



**[ABC]** Touch to switch the screen to the alphabet input screen.

### CAUTIONS:

- Any symbol may be input as the first digit.
- The only allowable symbols that may be input for the remaining digits are “-” and “/”.

# COMMUNICATING USING WIRES-X

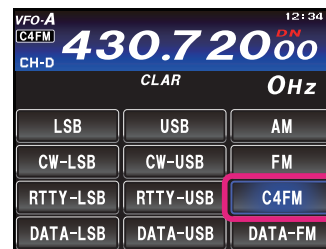
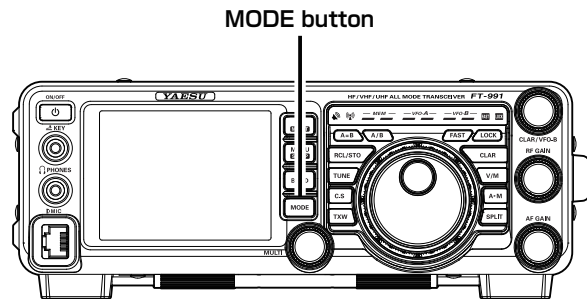
## CONNECTING TO A NODE OR ROOM ON THE INTERNET IN DIGITAL MODE

### NOTE:

- \* Ascertain the DSQ code or the DG-ID setting of the WIRES-X node station. Connecting to the WIRES-X node requires the transceiver DG-ID be set according to the DSQ code or the DG-ID code set on the WIRES-X node station.
- \* Before using WIRES-X, set the communication mode (modulation mode) to C4FM.

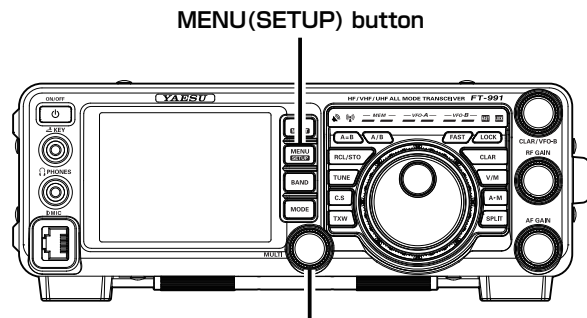
### Connecting to a WIRES-X node in the C4FM mode (\*Recommended)

1. Set the communication mode to C4FM.  
After pressing the **MODE** button, touch “**C4FM**”, then press the MODE button again.
2. Set the transmit/receive DG-ID to the same ID number as the node station. For details, refer to the FT-991 Operating Manual.
3. Tune to the frequency of the local node you want to connect to.
4. Transmit corresponding to the transmit/receive frequency.
  - If receiving the signal from the node, transmit it as is.
  - If not receiving the signal from the node, it is possible that the node station is not connected to the Internet → proceed to step “Connecting to the other node ID or the other room ID”.




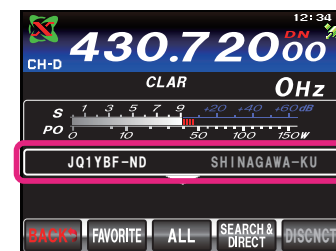
### Connecting to the other node ID or the other room ID

1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “153 WIRES DG-ID”.
3. Touch **[SELECT]** on the screen.
4. Rotate the **MULTI** knob to set the WIRES-X DG-ID to the same ID number as the node station.  
01 - 99: Only nodes matching the set DG-ID number may be connected.  
AUTO: Only open nodes, set to the DG-ID number “00” may be connected.





MULTI knob

- Default setting: AUTO
5. Touch **[ENTER]** on the screen.
  6. Touch **[BACK]**.  
Returns to the original screen.
  7. Press the **F(M-LIST)** button.
  8. Touch **[X]**.  
The transceiver automatically switches to transmit mode and “X” of the “” icon flashes.  
When a local node is found, “X” is lit solid, and the node name (call sign) and city name appear.



### TIPS:

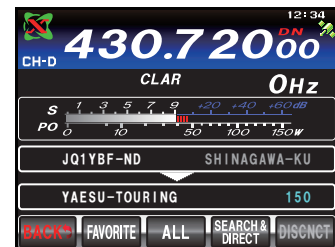
- While “X” is flashing, briefly press **[X]** to re-establish connection to the local node.
- While “X” is flashing, press and hold **[X]** for over one second to cancel the connection operation.
- When a local node cannot be found, “” will disappear in 20 seconds.
- When the local node found is a repeater station, “” appears on the right side of “**[R]**”.

## CONNECTING TO A NODE OR ROOM ON THE INTERNET IN DIGITAL MODE

### Tip:

Depending on the connection status, the screen will show one of four display patterns.

1. Connected to the local node, but unable to connect to Internet nodes or rooms (no previously established connection to Internet nodes or rooms)
2. Connected to the local node, but unable to connect to Internet nodes or rooms (previously succeeded in establishing connection to Internet nodes or rooms)
3. Connected to the local node, successfully connected to an Internet node or room (the Internet node or room is the same as the one previously used)
4. Connected to the local node, successfully connected to an Internet node or room (the Internet node or room is different from the one previously used)



## CONNECTING TO A NODE OR ROOM ON THE INTERNET IN DIGITAL MODE

You can connect to the desired node or room in one of the following ways:

- Selecting an accessible node or room from the list
- Specifying the node name (call sign) or room name
- Selecting the most recently connected node or room
- Specifying the DTMF ID of the node or room you want to connect with

### Searching from the Node or Room List

1. When the transceiver is connected to a local node, touch **[ALL]**.  
After “Waiting” flashes, displays the list of accessible nodes and rooms.

#### TIPS:

- Connection destinations are displayed from the room list and then node list.
  - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
2. Rotate the **MULTI** knob or touch the screen to select the node or room you want to connect with.

#### TIP:

Touching **[TOP]** jumps to the top of the list.

3. Touch **[SELECT]**.  
Connection to the selected node or room from the local node is started. Once connection is successfully established, displays “Connected” is displayed, followed by the information of the node or room you are connected to.



### Searching by Node or Room Name

1. When the transceiver is connected to a local node, touch **[SEARCH & DIRECT]**.

The alphabet input screen is displayed.

#### TIP:

If the number and symbol input screen appears, touch **[DIRECT]** to switch the screen to the alphabet input screen.

2. Enter all or part of the room name or user ID.
3. Touch **[ENT]**.  
Start searching. If connection destinations with the first part of a name partially matching the name you entered are found, they will be listed.

#### TIPS:

- If there is no connection destination matching the entered name, “No Data” appears and then the screen returns to the **[SEARCH & DIRECT]** screen. Input the letters you want to search by again.
  - If the name you entered is found, the transceiver establishes connection immediately.
  - The screen displays the room list search results followed by the node list search results.
  - On the room columns in the search results, the number of activities (the number of nodes connected to each room) appears on the right side.
4. Rotate the **MULTI** knob or touch the screen to select the node or room you want to connect to.

#### TIP:

Touching **[TOP]** jumps to the top of the list.





## CONNECTING TO A NODE OR ROOM ON THE INTERNET IN DIGITAL MODE

1. Touch **[SELECT]**.

Starts connection to the selected node or room from the local node. Once connection is successfully established, displays “Connected” is displayed followed by the information of the connected node or room.

### Reconnecting to the Most Recently Connected Node or Room

If a node or room was previously connected on the Internet, it appears and flashes at the bottom of the screen when you again connect to the local node.

Touch the displayed node or room to restart a connection, once the connection is established, the ID and information of the connected node (room) will appear.



### Specifying the DTMF ID of the Node or Room to Connect to

1. When the transceiver is connected to a local node, touch **[SEARCH & DIRECT]**.

The number and symbol input screen is displayed.

**Tip:**

If the alphabet input screen appears, touch **[ID]** to switch to the number and symbol input screen.

2. Enter the five-digit DTMF ID.
3. Touch **[ENT]**.

The local node starts the connection to the node in accordance with the ID you have input. Once connection is successfully established, “Connected” is displayed followed by the ID and information of the node or room you are connected to.

**Tip:**

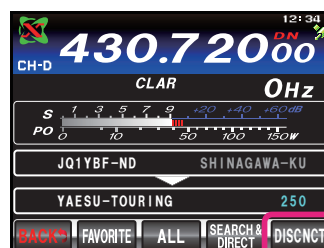
If connection is not successful, an error message appears and then the display returns to the DTMF ID input screen. Enter the DTMF ID again.



## DISCONNECTING FROM A NODE OR ROOM IN DIGITAL MODE

1. Touch **[DISCNCT]**.

If disconnection is successful, “Not Connected” appears and then the screen returns to the local node connection screen.



# COMMUNICATING USING WIRES-X

## CONNECTING TO A NODE OR ROOM ON THE INTERNET IN ANALOG MODE

When connecting to a local node which is an analog station, use the optional DTMF microphone “MH-36E8J”.

1. Connect the optional DTMF microphone “MH-36E8J” to the transceiver.
2. Set the communication mode to FM.  
After pressing the **MODE** button, touch “FM” on the screen, then press the **MODE** button again.
3. Tune to the frequency of the local node you want to connect to.
4. While pressing **[PTT]** on the microphone, press the buttons (**[#]**, **[0]** to **[9]**) on the microphone to transmit the access code.

### EXAMPLE:

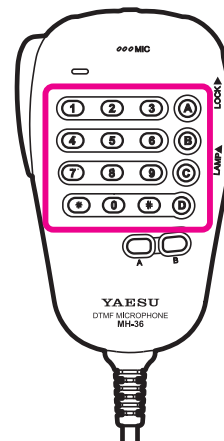
**[#]** → **[2]** → **[0]** → **[5]** → **[1]** → **[1]**

5. Release **[PTT]**, and keep the transceiver in reception mode for about ten seconds.

When the connection is successfully established, you will be able to hear audio.

### TIP:

The ID information of the connection destination does not appear.

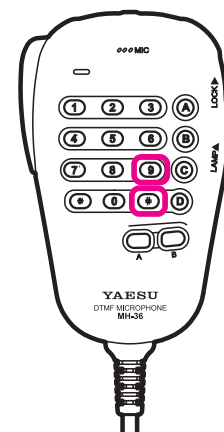


## DISCONNECTING FROM THE NODE OR ROOM YOU ARE CONNECTED TO IN ANALOG MODE

1. While pressing **[PTT]** on the microphone, press the buttons on the microphone to transmit #99999 (disconnection command).  
Disconnects the node or room.

### TIP:

You can disconnect from some specific nodes just by transmitting **[\*]**.



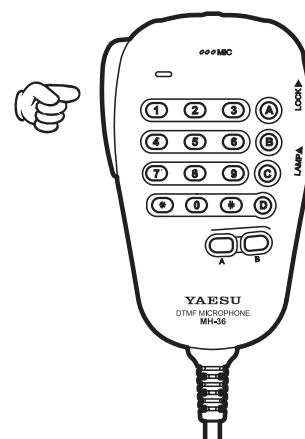
## COMMUNICATING WITH OTHERS

1. Press **[PTT]** on the microphone.  
The transceiver switches to transmit mode.
2. Speak into the microphone.  
Speak into the microphone in your normal speaking voice while keeping it about 5 cm away from your mouth. Do not continuously transmit over an extended period of time to reduce the risk of overheating, malfunction, or injury.

### CAUTION:

Maximum continuous TX: three minutes

3. Release **[PTT]**.  
The transceiver switches to receive mode.



# USEFUL FUNCTIONS IN DIGITAL MODE

## USING PRESET CHANNELS

Programming (presetting) a channel frequency allows easy connection to a local node.

By sharing the same channel frequency with other nodes, you can connect the transceiver to a local node even while you are traveling. This is useful for group stations operation.

### Connecting to a Preset Channel

1. To use the preset channels function, follow the below “Presetting a channel” and “Activating the preset channel function” procedures in advance.
2. Press the **F(M-LIST)** button.
3. Touch **[X]**.

On the top left of the screen, the “**X**” and “**P**” icons light up alternately.

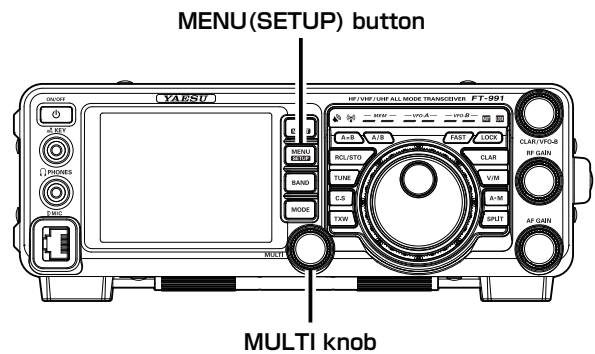
When a local node is found, “**X**” is lit solid, and the node name (call sign) and city name appear.

#### TIPS:

- While “**X**” is flashing, briefly press **[X]** to re-establish connection to the local node.
- When no local node can be found, the “**X**” and “**P**” icons will disappear in 20 seconds.
- When the local node found is a repeater station, “**[R]**” appears on the right side of “**X**”.

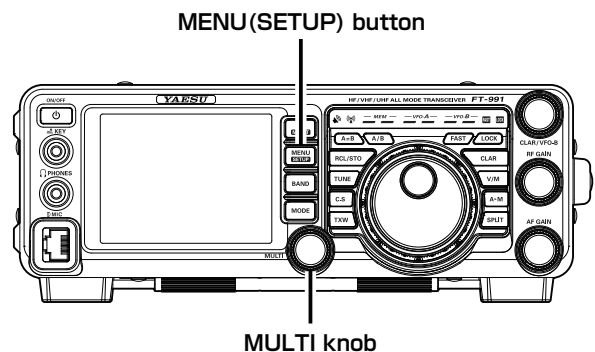
### Presetting a channel

1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “151 PRESET FREQUENCY”.
3. Touch **[SELECT]** on the screen.
4. Use the numeric keys to input the frequency you want to preset.  
Default setting: 145. 375. 00 MHz  
146. 550. 00 MHz (USA version)  
When about 10 seconds have passed without any frequency inputting operations, the operation will be canceled.
5. Touch **[ENT]** on the screen.  
Sets the frequency you have input.
6. Touch **[BACK]**.  
To return to the original screen.



### Activating the preset channel function

1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “150 PRT/ WIRES FREQ”.
3. Touch **[SELECT]** on the screen.
4. Rotate the **MULTI** knob to select “PRESET”.  
Default setting: MANUAL
5. Touch **[ENT]** on the screen.
6. Touch **[BACK]**.  
Returns to the original screen.

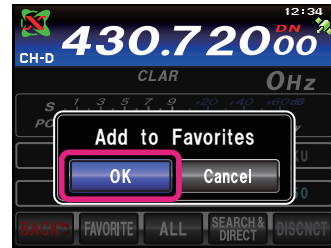
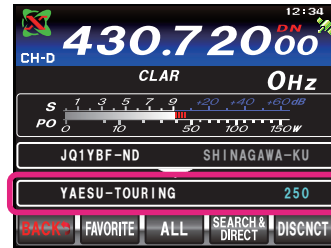


# USEFUL FUNCTIONS IN DIGITAL MODE

## PRESETTING YOUR FAVORITE NODES OR ROOMS

Favorite nodes or rooms may be preset.

1. Connect to the node or room you want to preset.
2. Touch the node or room display.  
The “Add to Favorites” confirmation screen will be displayed.
3. Touch **[OK]**.  
The node or room preset is registered and the display returns to the original operating screen.  
To exit the preset operation without registering the frequency, touch **[Cancel]**.



### Connecting to the Node or Room Preset as FAVORITE

1. When the transceiver is connected to a local node, touch **[FAVORITE]**.  
“Waiting” flashes, and then the list of the preset Nodes and Rooms will be displayed.

#### TIPS:

- The items may be listed in order, according to the number of nodes connected to a room, or according to the “Access History” of room and node connections by setting “152 SEARCH SETUP” to “Activity” or “Access History” from the set-up menu.
  - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
2. Rotate the **MULTI** knob or touch the screen to select the node or room to be connected.

#### TIP:

Touching **[TOP]** jumps to the top of the list.

3. Touch **[SELECT]**.  
Connection to the selected node or room is attempted.  
When the connection is successfully established, “Connected” is displayed, followed by the connected node or room information.



### Deleting the Nodes or Rooms from FAVORITE

1. When the transceiver is connected to a local node, touch and hold **[FAVORITE]** for over one second.  
The list of the preset nodes and rooms is displayed.
2. Rotate the **MULTI** knob or touch the screen to select the node or room to be deleted.

#### TIP:

Touching **[TOP]** jumps to the top of the list.

3. Touch **[SELECT]**.  
The “DELETE” confirmation screen is displayed.
4. Touch **[OK]**.  
The node or room is deleted and the display returns to the original operating screen.  
To exit the operation without deleting the node or room, touch **[Cancel]**.



# SET-UP MENU FOR THE WIRES-X FUNCTION

## SET-UP MENU LIST FOR THE WIRES-X FUNCTION

No.	Menu Function	Available Settings	Default Value
150	PRT/WIRES FREQ	MANUAL/PRESET	MANUAL
151	PRESET FREQUENCY	144.000.00 - 148.000.00	145.375.00 146.550.00 (USA version)
152	SEARCH SETUP	HISTORY/ACTIVITY	HISTORY
153	WIRES DG-ID	AUTO/01 - 99	AUTO

## USING THE MENU FOR THE WIRES-X FUNCTION

### Choose the Operating Frequency Setting Method (for Connecting to a Local Node)

Select manual frequency entry or a preset (registered in advance) frequency channel, when connecting to a local node.

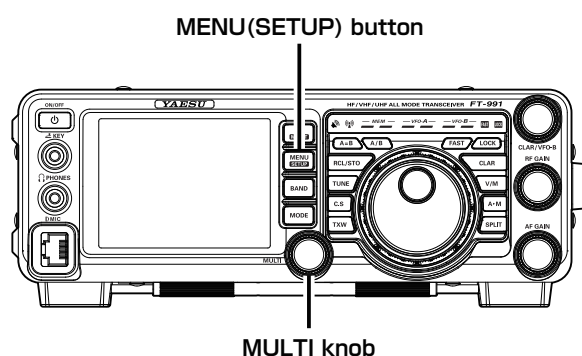
1. Press the **MENU(SETUP)** button
2. Rotate the **MULTI** knob to select “150 PRT/WIRES FREQ”.
3. Touch **[SELECT]** on the screen.
4. Rotate the **MULTI** knob to select “MANUAL” or “PRESET”.

**MANUAL:** Manually set the frequency to access the local node.

**PRESET:** Access the local node by selecting a preset frequency channel.

Default setting: MANUAL

5. Touch **[ENTER]** on the screen.
6. Touch **[BACK]**.  
Returns to the original operating screen.



### Presetting Frequencies

Presetting (registering frequency channels in advance) permits convenient connection to local nodes.

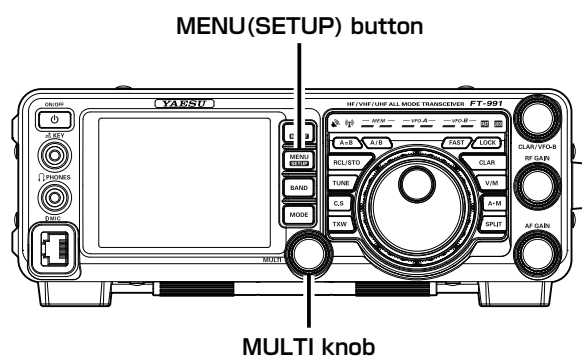
1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “151 PRESET FREQUENCY”.
3. Touch **[SELECT]** on the screen.
4. Use the numeric keys to input the desired preset frequency.

Default setting: 145.780.00 MHz

146.550.00 MHz (USA version)

If no inputting operation is made within 10 seconds, the operation will be canceled.

5. Touch **[ENT]** on the screen.  
Registers the input Preset Channel Frequency.
6. Touch **[BACK]**.  
Returns to the original operating screen.



# SET-UP MENU FOR THE WIRES-X FUNCTION

## USING THE MENU FOR THE WIRES-X FUNCTION

### Setting the Criteria to Sort the FAVORITE List

To select the FAVORITE list sort criteria:

1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “152 SEARCH SETUP”.
3. Touch **[SELECT]** on the screen.
4. Rotate the **MULTI** knob to select “HISTORY” or “ACTIVITY”.

**HISTORY:** Displays the list sorted in order, beginning with the most recently connected destination station.

**ACTIVITY:** Displays the list sorted in descending order, beginning with the room with the most connected nodes.

Nodes are listed after rooms.

Default setting: HISTORY

5. Touch **[ENTER]** on the screen.
6. Touch **[BACK]**.

Returns to the original screen.

### Setting the WIRES-X DG-ID

When accessing to the WIRES-X node station, the connecting node station may be selected in accordance with the DG-ID setting of the node stations:

1. Press the **MENU(SETUP)** button.
2. Rotate the **MULTI** knob to select “153 WIRES DG-ID”.
3. Touch **[SELECT]** on the screen.
4. Rotate the **MULTI** knob to select “AUTO” / “01 - 99”.

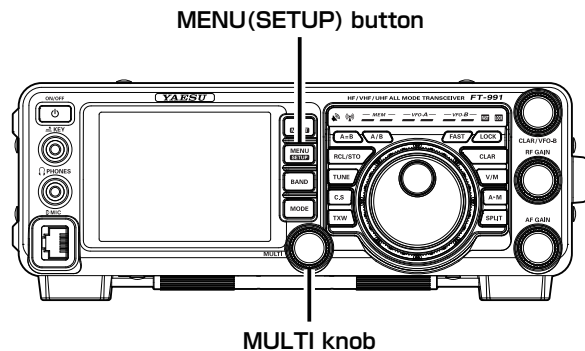
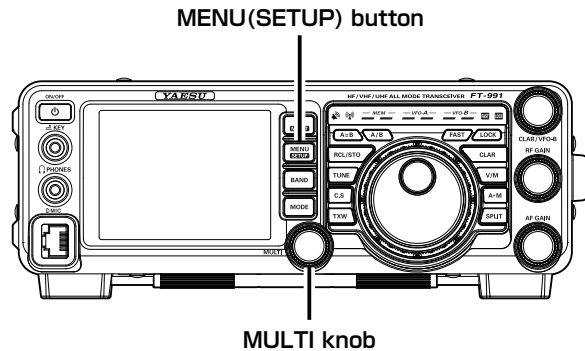
01 - 99: Only nodes matching the set DG-ID number may be connected.

AUTO: Only open nodes, set to the DG-ID number “00” may be connected.

Default setting: AUTO

5. Touch **[ENTER]** on the screen.
6. Touch **[BACK]**.

Returns to the original screen.





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