WR7HLN-R AND -L ECHOLINK CODES

MacDonald Pass, MT 444.100+ (PL Code 131.8)
University Mountain, MT 448.900 (PL Code 131.8)

Connect by Node Number …	***1**	**Followed by Echolink Node Number**
Connect by Callsign	***2**	**Difficult to do, not recommended**
Listen Only Off	***3**	**Turns Listen Mode Off**
Listen Only On	***4**	**Monitors Echolink, will not TX to it**
Play Info	***5**	**Plays ID of Repeater if not connected**
Status .....…	***8**	**Plays connection status and Callsign**
Reconnect .....…	***9**	**Connects to last node connected to**
Disconnect .....….	**#**	**Disconnects Repeater from Echolink**
Echolink Disable.....…..	***6#**	**Disables Echolink Computer from the Internet**
Echolink Enable.....….	***69**	**Enables Echolink Computer to Internet**

STATION SHORTCUTS (Permanent Members)

Rather than using code *1 above, this will connect directly to the Node identified below. This command will not work if the repeater is already connected to a node! These stations are normally connected through the server and the server will automatically try to re-establish connection if the station is disconnected by loss of Internet or other un-intentional disconnect.

MONTANA	***00**	**The Montana Conference (ECHOLINK NODE #391181)**
WB5EGI	***01**	**The Atlanta Conference Server (ECHOLINK NODE #163339)**
K5RKE-R	***02**	**Sandia Crest Repeater, Albuquerque, NM (443.300+ 127.3PL)**
WR7HLN-R	***03**	**MacDonald Pass Repeater, Helena, MT (444.100+ 131.8PL)**
N8IJV-R	***04**	**Columbus, Ohio Repeater (444.125+ 131DPL)**
WB5EGI-L	***05**	**Atalanta, Georgia Repeater (442.525+ 110.9PL)**
WR7HLN	***06**	**Helena Backup Conference Server (ECHOLINK NODE #259372)**
W8SAI-R	***07**	**Cincinnati, Ohio Repeater (444.950+ 77.0PL)**
WR7HLN-L	***08**	**University Mountain Repeater, Missoula, MT (448.900- 131.8PL)**

STATION SHORTCUTS (Occasional Connections)

These area repeaters in Montana can be connected to without needing the node numbers. These codes will only work on the WR7HLN repeaters and only if the repeater is not connected to another node already.

K7KTR-R Plains, MT	***71**	**Pat's Knob Repeater, Plains, MT (147.140+ 103.5PL)**
N7YO-L Great Falls, MT	***72**	**Highwood Baldy Repeater, Great Falls, MT (146.730-)**
N7YHE-R Billings, MT	***73**	**Red Lodge Mountain, Billings, MT (147.000+)**

Echolink Help

Additional Echolink Software and help can be found at http://www.echolink.org

The codes above are the DTMF function codes that control the WR7HLN repeater's Echolink connection in Montana as well as the K5RKE repeater in New Mexico, WB5EGI-L repeater in Atlanta, N8IJV repeater in Ohio, and the W8SAI-R repeater in Ohio. However, the "Occasional Connections" Station Shortcuts codes (*71, *72, etc) are unique to the individual repeaters only.

The first thing you need to know about the Mac Pass Repeater Group's Echolink system is that it will allow only one connection at a time. Normally this connection is to the *WB5EGI* conference server in Atlanta, more about it later. In order to make a connection using any of the above DTMF codes, the Mac Pass Repeater or University Mountain Repeater must not be currently connected to an Echolink station. The proper method to determine whether the repeater is currently connected is to use the *8 (Status) code. By sending this code through the repeater, you will either get a voice response that says "Not Connected", or one that says "Connected Conference WB5EGI (or other call sign)". If you desire to connect the Mac Pass Repeater or University Mountain Repeater to another node/station, and you get the "Connected Conference WB5EGI" response to the status check, you will first have to hit the # code to disconnect the repeater from the current connection. You should get a "Conference WB5EGI Disconnected" response if your # command was received. Note, if you hit the # command and get a "Not Connected" response, then you are ready to go as well.

In order to connect to a new node or station, you will need to know the Echolink node number assigned to that station. Without it you are going to be unable to connect. Once you have determined that the repeater is not connected to someone else, use the following sequence to connect to another station.

Hit the *1 command followed immediately by the node number. For instance, the WB5EGI-L node number is 112723, so to connect to it, you would hit *1 112723. If the repeaters Echolink connection is up, you get a "Connecting to WB5EGI Link", then, "Connected [CW ID WR7HLN]". If the node you are trying to connect with is unavailable, you get a "WB5EGI Link Not Found" response. You may also get a "WB5EGI Link Busy" response if the node is already connected to someone else on Echolink and is not set up for more than one connection (this should never happen with the *WB5EGI* Conference Server).

The *9 command will cause the Mac Pass or University Mountain repeater to re-connect to the LAST Echolink node it was connected to. The Station Shortcuts simply make it easier to connect to a given node that is used often. Rather than using the *1 followed by node number as in the example above, simply using *01 will also connect to the *WB5EGI* server and the same connection responses will be heard.

The *5 command only works if the Repeater is not connected to an Echolink station. All it does is play the call sign as "Echolink, WR7HLN". This is yet another method to determine if the repeater is connected to the Echolink or not. If you receive the above response, you know it isn't currently connected to a station. If you get no response, then the repeater is connected to Echolink.

The *6# and *69 commands are used only when it is desirable to disconnect the repeater from the Atlanta server and insure that the servers timed auto-connect function does not automatically connect the repeater to the server. It is intended to be used during long local communications, emergencies, local events, and other times where we desire to disable the auto-connect feature.

The WR7HLN Echolink Standard!

The intent of the WR7HLN Echolink connection is to maintain a 24-hour a day connection between a several repeaters in the US. Currently, these repeaters are the K5RKE repeater in Albuquerque, New Mexico, the WB5EGI-L repeater in Atlanta, Georgia, the WR7HLN repeater in Missoula, Montana, the WR7HLN repeater in Helena, Montana, and the KI6EAY remote base in Los Angeles, California. In order to accomplish this connection in a reliable way, we have a system of private conference servers and T1 connections.

We have loaded two conference servers with software called The Bridge (TBD). This software is commonly used to create Echolink Conference nodes. Currently, the servers are setup to allow up to 12 "allowed" connections to them at a time, although this limit can be increased. These nodes are the repeaters mentioned above and their control operators and selected individual users. *WB5EGI* is this primary conference server and currently anybody on the allowed list can connect to it. *WR7HLN* is the secondary server and acts as a "hot standby" and will automatically take over in the event the *WB5EGI* server was to fail or lose Internet connection. These servers are shown as a "Private Conference" on the Echolink servers and are found under the "Conferences" node list.

The Bridge software is more reliable than Echolink software in that it has the ability to auto re-connect and to auto-connect to certain pre-selected stations. The two methods of constant connection are called timed auto-connect and loss of Internet auto re-connect. The timed auto-connect feature is the more reliable of the two and is setup in the conference servers so that the servers issue an Echolink connect command to all of the pre-programmed permanent stations 4 times per hour. The connect times are on the hour, 15 minutes after, 30 minutes after, and 45 minutes after the hour for *WB5EGI*, and at 5 minutes after, 20 minutes after, 35 minutes after, and 50 minutes after the hour for *WR7HLN*. This connect command is sent every 15 minutes, 24 hours a day in an effort to keep the systems repeaters linked. Additionally, the *WR7HLN* server is on the auto-connect list of the *WB5EGI* server and thus the two servers will remain connected to each other at all times, making who is connected to what server at any given time unimportant. This feature is why the *6# and *69 function is important.

The other feature, auto re-connect, is used when either the server or the individual repeaters lose their Internet service or connection. If the individual repeater was connected to from the server and the repeater was to lose its Internet connection, the server will try to auto re-connect to the repeater every two minutes until it is able to establish the connection. Should the server itself lose the Internet, or lose power, once the Internet has been re-established, the server will re-connect to all the previously connected stations. The auto re-connect feature knows the difference between an intended disconnect (# function) and a loss of Internet. If you disconnect the repeater using the # command, the auto re-connect feature will not attempt to re-connect the repeater, however, the timed auto-connect will still try and connect back to the repeater on its 15 minute schedule. These two features virtually insure the 24-hour a day connection we desire between the repeaters.

Here are a couple of courtesies to think about when using the WR7HLN repeaters or its Echolink connections. If you disconnect the repeater in order to connect to another Echolink node, when you are finished, please disconnect from the station you were talking with and re-connect the repeater to the *WB5EGI* server by hitting the *01 command.

Here is another important courtesy to think about when using the WR7HLN repeaters to talk to local users of the repeater. If you plan to have an extended conversation with a person who is local (using the same repeater you are and not an Echolink connected repeater), be nice and simply hit the *6# code prior to or during the QSO. Remember, there may be several repeaters in multiple states tied into *WB5EGI* at any given time, and there is no need to tie them up with a long conversation. And remember, when you are done, hit *69 followed by *01 to put WR7HLN back "on link" to the others. If a conference between multiple stations not associated with our system is desired, it can be arranged by a Sysop (currently Brad, Tom or Don). We have the ability to connect to any Echolink node via the Atlanta or Helena servers, however only a Sysop with the proper codes can do this, and only by computer. Unfortunately, it is not possible to send connect commands from our repeater, over the Internet to *WB5EGI* and command *WB5EGI* to connect to other repeaters. Also, remember that only if the WR7HLN repeater is disconnected from the server may you connect to another node.

Another courtesy to remember, the VOX system used by Echolink has a certain amount of delay before un-keying the link transmitters used to talk to the repeaters. When talking on a repeater connected to Echolink, or when using a computer to talk to someone on a repeater that is connected to Echolink, remember to always pause a few seconds between transmissions. Not only will this allow someone to break in, but also more importantly, it will allow link transmitters to un-key, and prevent the time-out timers in either the link transmitters or the repeaters themselves from shutting down. When multiple repeaters are on the Echolink server(s), you have no way of knowing if an unused repeater or it's link transmitter may have timed out because of a constant key up of it's link radio.

And VERY IMPORTANT, in the event of an EMERGENCY, such as a Forest Fire, Natural Disaster, Search and Rescue, or any other priority use of the WR7HLN repeaters, it is perfectly OK, in fact desirable, that you use the *6# command and disconnect us from the Internet so that the auto-connect feature is unable to reconnect us to Echolink during the term of the event.