Manual Programming and Frequencies

Simplex Operation – In the context of Amateur Radio, simplex operation means that two (2) or more radios (aka stations) are communicating with one another directly on the same frequency. The stations take turns transmitting. If you are talking to another station directly with no repeater involved then you are operating in simplex.

Repeater Operation – uses two (2) frequencies. One frequency is for the repeater to receive signals and the other frequency is used to transmit signals. The repeater will retransmit what it hears on the receive frequency. You can manually program most HAM radios to work with a repeater. You will need to know the repeaters transmit frequency, the offset and the repeater's tone. Some repeater may have a transmit tone as well. More about tones below. Repeaters operate in full duplex because they receive and transmit at the same time. The radio communicating through a repeater is operating in half duplex because it is switching between transmit and receive.

Receive frequency – The repeater is referred to by its transmit frequency which is your receive frequency. This is the frequency that you will need to program into the radio memory setting. This is the frequency you will listen on.

Offset – is the difference between your transmit and receive frequencies. The different bands have different standard offsets. For the 2 meter (144Mhz-148Mhz) band the standard offset is 600Khz. For the 70cm (420Mhz-450Mhz) band the standard offset is 5Mhz. Most radios will have these offset frequencies as the default but you should verify. Next you need to know the offset direction, whether the transmit frequency is above or below the receive frequency. This is indicated by either (+) or (-) for above or below. The offset direction needs to be programmed into the memory setting. When programmed and you transmit, the frequency you are transmitting on will automatically change accordingly.

PL Tone – (Private Line) is a common reference for the tone but, it is a trademarked name for Motorola's system. The correct term is (CTCSS) Continuous Tone Coded Squelch System. This is an inaudible tone (below 300Hz) that is sent when transmitting. This inaudible tone is used to open the squelch of capable receivers such as repeaters. All other signals received without the tone are blocked. The proper tone needs to be programmed into the memory setting. Some repeaters have CTCSS tone sent with its transmit signal. Your radio does not need to be programmed with the CTCSS tone to hear the repeater. If you program the CTCSS tone into your radio receive then you will only hear the repeater and no other radios unless they are transmitting the correct CTCSS tone.

The different manufacturers and even the different radios from the same manufacturer have different programming methods and steps. No matter what the manual programming format is, this information is what you need to input into your radios memory locations so that you can easily recall any of the Dirt Devil Club frequencies or repeaters.

The next page has the details on the club frequencies as well as some area repeaters.

Note: You do not need to have a HAM radio license to own a HAM radio or to listen to any frequencies or repeaters. A HAM radio license is only required to transmit. If you are planning on obtaining a HAM license in the future then I would suggest buying a HAM radio now, even a low cost hand held, and start listening. Listen to how others are talking on the radio. You can learn from listening. Some of the repeaters have nets (talk groups) on a regular basis covering different subjects. There are several weekly "tech nets" that discuss HAM radio related technical questions. There are also several weekly "swap nets" that are for buying, selling or trading HAM radio related items.

Dirt Devil and Area Repeater Frequency List
(Note: This repeater list is a portion of the available repeaters in the area)

Name	Type	Receive Freq, (Offset), Tone
Dirt Devil Prime	Simplex	145.585, (None), None
Dirt Devil 1	Simplex	146.580, (None), None
Dirt Devil 2	Simplex	146.565, (None), None
Keller	Repeater	146.385, (+), 146.2
Barstow 1	Repeater	147.180, (+), 151.4
Barstow 2	Repeater	145.220, (-), 114.8
Lucern	Repeater	145.180, (-), 123.0
Yucca	Repeater	146.790, (-), 136.5
Victorville	Repeater	147.765, (-), 97.4
Long Beach	Repeater	146.145, (+), 156.7
Fullerton	Repeater	145.400, (-), 103.5
Catalina	Repeater	147.090, (+), None
Pasadena	Repeater	145.180, (-), 156.7
WynSys	Repeater	147.210, (+), 100.0
Santiago	Repeater	446.640, (-), 77.0
Fountain Valley	Repeater	447.320, (-), 94.8
Arcadia	Repeater	445.480, (-), 131.8
Inland Empire	Repeater	449.880, (-), 146.2
Long Beach	Repeater	449.780, (-), 131.8
Papa 22 Pleasant	Repeater	446.320, (-), 127.3
Papa 4 Saddle	Repeater	445.420, (-), 127.3
Papa 5 Signal	Repeater	449.280, (-), 127.3
Papa 8 Wilson	Repeater	445.140, (-), 127.3
Papa 3 Santiago	Repeater	446.760, (-), 127.3
Winsys UHF	Repeater	448.060, (-), 100.0

The Papa repeaters are a group of repeaters in Southern California that are linked together. If you listen to any one of them, you are monitoring all of them. Likewise, if you transmit to any one of them, you will be transmitting from all of them. The coverage area is from Santa Barbara to the southern border. There are many more Papa System repeaters than those listed above.

The Winsys is similar to the Papa repeater system except that the Winsys has over 100 repeaters in many major cities across the US and overseas.