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HANDBOOK ON CB's, Radar Detectors, Scanners, and Antennas

***The Professional Driver Guide
Custom Built for the Professional Driver***

Introduction

This is a self-instructional training guide designed to familiarize you with the basics of the electronic division of the truck stop business. As a salesperson, you will receive many questions concerning CB's, antennas, radar detectors, and scanners. This guide contains some general information and common questions asked about these devices. There is also a glossary of related terms at the end of the booklet to help you better understand the electronics.

After reading this guide, you should be better qualified to offer information to your customers and to help them select the item that best suits their needs. We encourage you to use this guide as a tool and refer to it often.

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Chapter 1 - What you should know about CB's

What exactly is a CB Radio?

CB Radio is simply a 2-way voice communication system that lets you broadcast messages to other CB users. It lets you talk from your truck, home, business, car or boat to any other CB operator on the same channel. Technically it is a transceiver. It functions both as a receiver (when receiving messages). Citizen Band Radio was created by the Federal Communications Commission or FCC in 1958. In that year the FCC authorized 23 channels for private citizen use. CB's popularity soon congested these channels, so the FCC added 17 more channels for a total of 40, effective January 1, 1977.

What types of CB's are there?

Base CB – Base Stations are units designed primarily for fixed position use in the home or office, on a desk or countertop. They are equipped to operate on 110V – 120VAC house current without special adapters. Though they are no more powerful, base stations have added range capabilities over mobiles and portables because their fixed position allows much greater height.

Mobile CB – Designed for mobile operation in cars, boats, trucks, tractors, planes, etc. Although generally more compact than base unit, they have the same maximum legal transmit power (4 watts). Most mobile CB's are designed to operate on a 12 volt negative ground power supply. Some are capable of operating on a negative or positive ground system (check your owner's guide). While most cars, on the road today are negative ground, some older cars, newer trucks and imports use a positive ground. If you are not sure which you have, check with your service station mechanic.

Portable CB – Often referred to as a hand-held walkie-talkie. It is a CB which carries its own antenna and internal power supply (batteries). Depending on its features, a portable can take several configurations with respect to internal external power supplies, antennas and microphones.

AM/SSB – The method most CB's use to generate a voice signal is called amplitude modulation or AM. The AM signal can be divided into three segments: the carrier, the upper sideband, and the lower sideband. CB radios designed to broadcast on just one sideband at a time, as well as regular AM, are called Single Sideband or SSB. SSB equipment gives you significantly increased power output and range in sideband mode, and provides 80 additional operating channels.

Emergency CB – This newest CB two-way radio can get you help fast when you have trouble on the road. It's small, hand held unit that plugs directly into a car's cigarette lighter/port for emergency use, and stores out of sight when not needed.

CB Controls and Operating Features

Depending upon the manufacturer and model purchased, the CB may be equipped with a variety of controls and features which are designed to make the unit more efficient. The following lists the most common of these features along with their purpose or function.

AM/LSB/USB – Found on Single Sideband or SSB units only. This control switches the mode from regular AM transmit/receive to upper and lower sideband.

Antenna Warning Indicator or AWI – Is an LED indicator light that is activated when transmitting without an antenna or with a poor SWR match.

Battery Check – Found on portable units only, this feature indicates the power condition of the internal battery supply. The indicator can be a simple LED “battery low” indicator lamp or can be built into an S/RF meter which shows the batter power level as a meter reading.

Channel 9/19 Priority Switching – This control allows the operator to instantly switch to either of these channels directly. It must be disengaged to return to normal channel change operation.

Clarifier – This control, found on SSB units only, allows the operator to fine tune receiver reception if the sound seems off-frequency or distorted.

Delta Tune – This control does much the same for AM band reception as the clarifier does for SSB. It is a 3-position control rather than a variable control like the clarifier, allowing the operator to get the high (+) or low (-) side of the frequency transmissions.

Display Bright/Dim Switch – This control allows the operator to brighten or dim the CB’s LEDs and meter lamp display to preference.

HI/LOW Tome – This control changes the tonal quality of the speaker audio added bass or treble tone as desired by the listener.

Local/Distance Switch – This control is basically a two position RF Gain control. See RF Gain.

Mic Gain – This control adjusts the sensitivity of the microphone amplifier circuit. Under extremely noisy conditions, reducing the mic gain should improve voice clarity by reducing the sensitivity of the mic circuit to background noise.

Noise Blanker (NB) and Automatic Noise Limiter (ANL) – These special circuits help reduce engine ignition, electrical and other atmospheric noises picked up by the CB through the electrical or antenna cabling. Some CB’s have these features built into the unit operating automatically which others provide manual on/off switches.

Micro-Tune – Unique remote channel selection system. Up/down buttons on top of the microphone allow the user to change channels without searching for dash-mounted control: Provides improved safety and convenience.

Power Hi/Low – Found on portable units only, this control allows transmitting at a lower output power to minimize battery drain. Transmitting signals depletes battery power more rapidly than receiving. Transmitting at 4 watts output power will also drain battery power more quickly than transmitting at 2 watts. Low power is typically 1 to 2 watts power output while high power is between 3 and 4 watts.

Public Address (PA) – This control switches the radio from CB mode to function as a public address amplifier and microphone. To complete the PA system, an optional PA speaker simply plugs into the PA jack on the back of the unit.

FR Gain – This variable control adjusts the reception sensitivity of the receiver. It can also reduce unwanted interference in the congested urban areas or increase the receiver sensitivity to help pick up a distant signal when the air waves are quieter.

Squelch – This control, standard on all CB's, quiets the receiver of unwanted background static noise and weak signals while allowing stronger signals to be heard. Normally this control is adjusted to the point where the receiver is quiet and only signals of the desired strength are allowed.

SWR/CAL/S-RF Meter and Switch – The SWR/CAL meter feature, in conjunction with the Calibration (CAL) control knob, allows the operator to take an SWR reading of the unit and its antenna system using the CB's built-in meter. The S/Rf features provides a measurement of inbound signal strength in the receive mode and power output in the transmit mode. Many units have the S/Rf feature only, with the SWR/CAL feature.

Do I Need a License to Operate a CB?

No. Using a CB requires no special training or instruction and anybody can learn to use it in just a few minutes. To talk, simply pick up the mic, press a button and talk. To listen, simply release the mic button and listen. It's that easy.

Is Talking on CB Really Difficult?

No, but the CB boom has been responsible for creating a colorful new jargon all its own. Most CB operators develop their own nicknames called "handles". After about an hour or two of listening you'll be on the air and talking like a pro.

CB Jargon Unofficial Language of CB

All the good numbers – Best wishes

Back door – Last vehicle in a group in communications with each other

Back'em down – Slow down to the legal speed limit

Bear – A minion of the law

Bear cave – Police station or barracks

Bear bite – Traffic ticket

Bear in the air – Police patrolling in helicopters

Beat the bushes – The lead vehicle looks for Smokey to relay his “twenty”

Beaver – Female

Bone box – Ambulance

Bounce around – Return trip

Breaker – Someone who wants to interrupt a conversation

Bushel – One bushel equals ½ ton; 20 tons is a 40 bushel load

Camera – Radar unit

Catch ya on the flip flop/side – Talk to you on the return trip

Chase’ em up – The chase car of a 2 car radar set-up

Chicken coop – Roadside truck weighing station, despised by truckers

Clean – No police in the immediate area

Clear – Off the channel; final transmission

Comeback – Return call

C’mon, come on back – Invitation to reply

Copy – Do you understand?

Cotton-picker – Substitute for any expletive (no swearing is allowed on CB)

County-Mounty – Local sheriff or deputy

Definitely – Emphatically

Don’t feed the bears – Try not to pick up any tickets

Double nickel – 55 mile per hour speed limit

Drop the hammer – Accelerate

Down and gone – Stopped transmitting or moving to another channel

Dirty side – Eastern seaboard

Ears on – CB radio turned on

Eatem’ up – Restaurant

18 wheeler – Commonly known as a “semi” or 17 wheeled tractor/trailer

Eyeball – Visual contact

Flip-flop, flipper – Return trip

Foot warmer – Linear amplifier

Four – 10-4, abbreviated; OK?

Four-Ten – Emphatic 10-4

Four wheeler – Passenger car or truck with four wheels

Front door – Lead vehicle in a group in communication with each other

Good buddy – 100% Universal reference to someone else with a CB

Green stamp – Fines or toll road

Hammer down – Cruising above the speed limit

Handle – On the air nicknames used by CB person

Harvey Wall-banger – Reckless driver

Heater – Illegal linear amplifier used to gain extra range (see also linear)

Hole in the wall – Tunnel

How ‘bout it? – Asking for a response

Kenosha Cadillac – Any product of American Motors

Linear – Same as heater

Land line – Telephone

Load of Postholes – Empty truck

Legalizin’ – Keeping within speed limit (opposite of streakin’)

Local Yokel – City or town police officer

Lots of good numbers – Have a good trip

Makin’ the trip – Getting the signal out

Mercy! – Wow

Mix master – Cloverleaf intersection

Modulating – Talking

Negatory, negative – No

On the move – In motion

On the side – Standing by on the channel; listening on the channel

Over the shoulder – Behind you

Pedal on the medal – Flat out; cruising in excess of 55 mph (see Hammer down)

Plain wrapper – Unmarked police car of (fill in) color

Picture taker – Policeman with radar

Pick'em up – Pickup truck

Portable barnyard – Semi hauling livestock

Portable parkin' lot – New car carrier

Pounds – S-unit-9S-units on the meter is 9 pounds etc.

Radar Alley – Ohio turnpike

Rake the leaves – Same as "backdoor"

Reefer – Refrigerated truck

Rest'em up – Rest stop

Rig – CB radio or vehicle

Rockin' chair – Vehicles between the front and back door

Roller skate – Small car

Runnin' barefoot – Legal CB operation

Sandbox – Dump truck carrying dirt or stones

Southbounder – Anyone traveling south

Seatcover – Occupants of a vehicle, usually female

Seven thirds or 73'rds – Best regards

Shake the trees – Same as “front door” & “beat the bushes”

Short-short – A short time

Stepped on – Overpowered by a stronger transmission

Smokey bear – State police

Spies in the sky & hounds on the ground – Aircraft working with pursuit cars

Streakin’ – Speadin’

33 – 10-33 (emergency)

Three’s or 3’s – Best regards

3’s and 8’s – Lots of best regards

Tijuana Taxi – Full dressed (marked) police car, 2 wheeler motorcycle

Twenty – 10-20, location; what is your location?

Uncle Charlie – FCC monitoring team

Walked on – Same as “stepped on”

Wall-to-wall – Full scale on the S-meter

Wall-to-wall bears – A lot of police

Watergate city – Washington, D.C.

We gone – Stopped transmitting or leaving the road

Wrapper – Color of police car

X-ray machine – Radar

XYL – Ex young lady, usually a wife

What you should know about Antennas

Your base, mobile or portable CB transceiver requires an antenna specifically made for CB operation. Operation of your CB equipment without a properly matched antenna may result in damaged transmitter circuitry. While portable CB’s generally come equipped with their own antenna, base stations and mobiles usually require antennas purchased separately. Selecting the right antenna is as important as selecting the right CB.

Mobile Antennas

There are some important considerations to be made when choosing a mobile antenna such as type of mount, physical size of antenna, type of car and performance expected.

Antenna Size

Electrically, all CB antennas must be the same size. Physically size, however, can be shortened with the use of loading coils. A loading coil is a coil of wire located at the top, center, or base of the antenna, the purpose of which is to electrically maintain desired length while physically shortening the vertical element. Generally, the longer the antenna, the better performance you can expect. The full sized 9 foot mobile whip antenna is not always practical, however, when you consider the height of most garage doors.

The type of vehicle will also determine your antenna selection. By their design, vehicles with fiberglass bodies, glass hatchbacks, vinyl tops or convertibles eliminate certain types of antennas and mounts.

Type of Mount

There are many numbers of ways to mount mobile antennas. The type of mount you select will usually determine the location of the antenna on the vehicle.

Note: When determining the location of your antenna and type of mount, remember that the higher and more centrally located the antenna is mounted on the vehicle, the better the performance and more omnidirectional it's transmit and receive area.

The best performance, then, would require maximum size, maximum height and most central location, i.e., a 9 foot whip antenna mounted in the middle of the vehicle roof. As this may not be practical for most installations, tradeoffs in size, height, location and mounts must be made.

Two antenna types for autos which surpass the rest in popularity, performance, versatility, ease of installation, and appearance are the magnetic roof mount and the "no holes" truck lip mount. Mirror mounts and bumper or side mounted 9 foot whips are also popular for trucks and vans.

SWR Antenna Matching

Standing wave ratio (SWR) is technical term for a simple procedure. Basically, the transmitter output power of your CB is fed into your antenna coax, to the antenna itself and ultimately into the air waves. How well your antenna system accepts this power output should be measured periodically. Such measurement is called a standing wave ratio or SWR. Output power not accepted by the antenna system is built up as heat in the final output section of the transmitter.

Note: The power build up caused by severe antenna mismatch can damage your transmitter.

Antenna Coax Connectors

PL259 (male) SO239 (female): The common reference for CB antenna coax connectors or plugs. Mobile CB's and base stations come equipped with SO239 jack plugs. Antenna coax is usually equipped with pre-installed PL259 connectors. Devices designed for in-line antenna coax operation are equipped with both an in and out SO239 jack.

CB Range

Transceiver range is often exaggerated by friends, salesclerks, and other CB'ers. This sometimes leads to disenchantment with equipment by the CB newcomer. But with proper understanding of the factors affecting CB range and realistic range expectations, the new CB'er will fully appreciate his unit and its capabilities.

The 4 primary factors affecting CB radio range are

- *Equipment (quality, type, and power output)*
- *Antenna height*
- *Terrain*
- *Atmospheric conditions*

Quality is important in both the transceiver and the antenna. The type of antenna will also affect the range. A base station beam antenna will outdistance an omnidirectional one, single sideband equipment will surpass the range of AM CB and mobile or base antennas will outperform a short rubber duck antenna on a walkie-talkie. Where power output is concerned, a 4 watt mobile with a good SWR antenna match will outperform an identical 4 watt mobile with a poor SWR match.

The type of transceivers you are using is also a range factor. For instance, let's say you and a friend are outdoors with walkie-talkies and can get a one mile portable to portable range. Your range back to the mobile CB at base camp, however, is three miles. You've also found out you can reach the ranger's station, a base unit, eight miles away on top of Mt. anywhere. The increase range is primarily due to the superior antenna system of the mobile and the base station.

Simply put, the higher the antenna, the better the range. A mobile CB unit operating from the roof of a 4 story parking garage will get better range than the same unit at ground level.

The terrain in which you are operating will also play an important role. CB signals can be blocked or absorbed thus reducing their range. Much better range can be expected over a large body of water than in the mountains. Buildings, hills, and foliage can greatly reduce the range of CB radio transmissions.

Atmosphere and weather conditions are other range factors. A freakish condition known as "skip" has been known to increase range over 1,000 miles. At other times, normal range can be significantly reduced by atmosphere or weather conditions.

So, CB range can be a matter of feet, miles, or sometimes hundreds of miles, depending on the equipment and conditions.

Below are listed some typical and realistic range estimates for different types of transceivers.

- | | |
|-------------------------------|----------------------|
| • 4 watt portable to portable | 1/8 mile to 1 mile |
| • Congested urban area | 2 miles to 7 miles |
| • Open flat rural area | 5 miles to 13 miles |
| • 4 watt base to mobile | 7 miles to 15 miles |
| • SSB mobile to SSB mobile | 10 miles to 20 miles |

Chapter 2 - What you should know about Radar

What is Radar?

Radar – (Radio detecting and ranging) Based on the Doppler Theory, radar emits a beam at a set frequency. When the beam is reflected off a moving object, the frequency changes and this is then calculated into a speed reading. Simply put, a radar detector is a receiver tuned to respond to the radar waves used in a police car.

The communication Act of 1934 states that “No radio receivers can be licensed restricted or banned”. Radar detectors are simply radio receivers, completely legal in every state except Connecticut, Virginia, and the District of Columbia. The local laws governing radar detectors in these three areas are in direct opposition to the Communications Act and Supreme Court ruling, which upheld the right to use a radar detector.

How Accurate is Radar

Radar is not perfect. In fact, radar readings are subject to hundreds of variables that can greatly affect its accuracy. Just to name a few: humidity and extreme hot or cold weather, airport or marine radar, metal buildings, radio interference, wind and even a squad car’s own air conditioning will often give false readings.

These conditions affect the path that radio waves travel which in turn distorts the accuracy. When the radar beam is transmitted, any interference that occurs can cause inaccurate calculated speed readings. Many experts estimate that up to 25% of radar speeding tickets are issued in error.

Do Radar Detectors Cause Accidents?

Quite the contrary, a recent study shows radar detector users have fewer accidents per mile driven than non-users. According to an analysis by Yanke Lovich Clancy Shulman Inc. of Westport CT, detector owners have fewer accidents per mile driven and are significantly more likely to wear seatbelts compared to non-users.

Two key findings were uncovered in the study

Radar detector users have over 25% fewer accidents per mile driven compared to non-users.

81% of radar users say they use seat belts all or most of the time when driving long distances (10 miles or more). This compared with 69% for non-users.

Note: This study clearly shows that people who use radar detectors do not affect auto accident rates.

What Types of Traffic Radar are used?

There are basically four types of traffic radar being used today:

Stationary Radar – Virtually all radar can be used in the stationary mode. This simply means that the radar unit operates from fixed position. Stationary radar can either be mounted to a vehicle or hand held.

Moving Radar – This is a more complex system designed to allow the operator to check traffic speed from a moving patrol car. The principles are the same as for the stationary radar.

Stalker Radar – The stalker is a hand held radar gun operating on a Ka band. Stalker guns are designed to work in a different frequency range than older radar guns. The Stalker gun operates between 34200-35200 Mhz. The Stalker does not use a photo system.

Instant-On Radar – This is a method of operation rather than a type of radar. Most traffic radar can be operated in the instant mode. It can be used either stationary or moving. The only difference in this system is that the radar does not transmit until the operator pushes a button.

Why the Need for a Radar Detector?

A radar detector is one of the most effective means of protecting yourself from unwanted traffic tickets. By having advanced warning of speed traps ahead, a driver will be more careful when entering a monitored stretch of roadway.

A radar detector owner has something that all other motorists are missing, peace of mind. Knowing that they are protected from radar, a driver can concentrate on what is really important, driving, not worrying that around every corner could be an officer speed trap just waiting for the next motorist not paying attention to his/her speedometer.

The number of tickets issued last year exceeded 15 million. More speeding citations were issued in the last five years than in the previous ten years. Many of the states that raised the speed limit to 65 will be enforcing limits more strictly than before by giving tickets to motorists clocked at 67 or 68 mph. Many people think that a speeding ticket will cost them about \$50.00, when, in fact, the real cost is far greater. In 1985, an insurance commission concludes that on traffic ticket increases auto insurance by an average of \$300.00!

What to Look for in a Radar Detector?

Sensitivity – This is one of the most important aspects of a radar detector. How sensitive is it? Sensitivity is measured in the unit of dBm/cm². A detector rated at 112 dBm/cm² is more sensitive than one rated at 108 dBm/cm². Each band, X and K, have different sensitivity ratings. A higher sensitivity rating gives a radar detector the ability to pick up even the slightest radar signal. The more sensitive it is, the more time a driver has to react to a speed trap. Sometimes sensitivity comes with the sacrifice to false alarms. If a radar detector is tuned to be super sensitive, it will often give false alarms. If you get too many false alarms, you may not pay attention to it when it gives you a real warning, not to mention how annoying and distracting false alarms can be to the driver. A good radar detector will have a balance between sensitivity and filtering.

X and K Band Differentiation – The FCC has approved two separate frequencies for traffic radar. The best radar detectors will separate the X and K band signals by using different lights or different alarm sounds. There are two reasons for wanting to know the difference. Most false alarms occur in the X band range because many electronic devices use this frequency. Garage door openers, bank alarms, etc. use this frequency. So, many times on the X band you will receive false alarms. However, police radar is the only user of the K band frequency. When you receive an alarm on the K band, you have picked up police radar. Some police radar still use X band, so having both gives maximum protection.

Highway and City Filtering – Many radar detectors have a separate city and highway position. When you drive in a city or industrial zone, any good radar detector will be set off by burglar alarms, garage door openers, etc. that operate by radar. By sensitivity to police radar! These false alerts can be received from many different sources.

Anti-Falsing Circuitry – This circuitry filters out transmissions operating on frequencies close to traffic radar. By doing this, it eliminates most false alerts while keeping the sensitivity to police radar! These false alerts can be received from many different sources.

Is a Radar Detector able to Detect Signals from Behind my Car, around Curves or Over Hills?

Yes, it can detect and alert you to radar approaching from behind, stationary or approaching source situated around a curve or over a hill. However, since the signal is reflected rather than direct, it is weaker and may come and go increase and decrease...in intensity.

From What Distance Can It Detect A Signal and Alert Me?

Radar detection distances can vary from several miles to only a few hundred feet – depending upon the type (X or K band) of transmitter, direction and power of the signal and the surrounding terrain. A more applicable performance measurement than distance is reaction time and in most radar encounters, a detector will alert you in time to react defensively.

Does the Location of the Radar Detector Affect its Performance?

Yes, as a rule the higher up the detector is mounted, the greater its detection ranges. It can be mounted on the visor, dash or windshield. It is also important that the detectors relatively level (with 20 degrees of horizontal) and that its antenna has a clear sightline of the road unobstructed by any metallic objects.

Note: When mounting on the visor (the most common and convenient place) consider the convenience and safety of both the driver and the passenger.

Are Radar Detector Against the Law in Some Locations?

A few states and localities have enacted laws to regulate the use of police radar detectors. Check local regulations before using a detector.

What is Stalker Radar?

The Stalker is a handheld radar gun operating on K band. The Stalker should do well in the radar gun marketplace as a result of the advantages it offers over existing X and K band guns including: convenience of battery operation, improved target selection, lower susceptibility to false readings and undetectable to non-wideband radar detectors.

Chapter 3 - What You Should Know About a Scanner

A scanner is a radio receiver that picks up frequencies that are transmitted in a certain frequency range. These frequency ranges are called bands. Take a look at your radio. Most radios are AM and FM receivers. AM is a range of frequencies to which you can tune in and listen. FM is a different range of frequencies, located higher in the frequency range, which is also used to transmit sound from radio stations. Because both AM & FM cover a range of frequencies, they are called bands. A scanner is very similar to your radio, except that your radio is limited to only AM and FM bands. A scanner can cover many bands depending upon its capabilities.

What can you do with a Scanner?

Listen. If you ever wanted to know what is going on around you, buy a scanner. You will hear police and fire departments at work, ambulances, railroad trains, and amateur radio, taxis, and weather plus government, military, marine and business services. Certain models of scanner also receive airport communications and planes in flight.

Is a Scanner Complicated to Operate?

If you have ever programmed your VCR to tape a show, you most certainly will be able to program a scanner. In fact, it is probably much easier to program a scanner.

Do I Need a License to Operate a Scanner?

No, a License is not required to operate a scanner.

Chapter 4 – Glossary of Terms Used in this Guide

AC – Alternating current

Alarm Lamp – Amber incandescent lamp that illuminates where radar signals are received and blinks at an increasingly faster rate as the radar source gets closer.

Alarm Test Switch – Enables volume adjustment for the audible alert and permits manual test of alarm to ensure operation readiness.

ANL – (Automatic Noise Limiter) Acts as a filter, chopping holes in the received signal and substituting periods of silence, thereby reducing the static that the receive picks up from manmade sources such as car ignition, machinery, etc.

Antenna – Used in sending and receiving electromagnetic waves.

Audible Alarm – Electronic tone that sounds when radar signals are received, when in combination with the alarm lamp, sounds at a faster rate closer to the radar source.

Band – A range of frequencies between two definite limits.

Band Width – The spread of frequencies a detector is sensitive to above or below, the operating frequencies. Example, if the operating frequency is 10.525 GHz, a detector with a band width of 100 MHz would pick up signals from 10.52 – 10.530.

Base – Intended for use in one place, generally a desk or table top transceiver.

Beam – Type of highly directional antenna (radiating in one general direction, but capable of providing high power gains).

CB – Citizens Band.

Coax – Coaxial cable used to connect the antenna with the transceiver.

Constant Radar Broadcasting – A radar gun being on all the time, not being triggered on and off as is “instant on”.

Cosine Error – The phenomenon which causes radar guns to give a lower reading than actual speed. Radar can only measure accurately the speed of an object moving directly towards or away from the antenna. If an object moves at an angle to the antenna, it will read only a portion of the speed.

DC – Direct current.

Decible (db) – Unit of measure for the boundaries of sound. A numerical expression of the relative loudness of sound.

Delay – Adds a delay to any channel so that call replies will be heard before scanning is resumed.

Delta Tune – Compensates for a signal which may be slightly off frequency. Operates just like a fine tuning control on a TV set.

Dim Switch – Adjusts the brightness of all indicator lights for a day or night driving.

Distinguishing – Gives different sounds or separate lights for the X and K bands.

Doppler Principle – A phenomenon of physics where a frequency can be effectively raised or lowered by a moving object.

Duplex System – Uses two frequencies, one for the base station and one for the mobile unit.

Dynamic – Adjust the microphone output to the user voice level to achieve 100% modulation without distortion. Allows user to speak at normal level without having to shout to be heard.

DX – Long Distance.

Falsing – Triggering of radar from something other than radar.

FCC – Federal Communications Commissions.

Frequency – The number of complete oscillations per second of an electromagnetic wave. Simply a channel that traffic radar is tuned. A radar detector must be tuned to the same in order to pick up its signal. Similar to radio stations. Each station has its own number. Traffic radar only uses two frequencies and radar detectors are already tuned to these frequencies.

Hz – Hertz (cycles per second).

Highway/City Switch – “Highway” position ensures maximum range and sensitivity, “city” position reduces interference from non-radar signals in urban areas with minimal reduction in sensitivity.

Hold – (Scanner) – Stops searching action to hold on a frequency of interest. (Radar Detectors) – When a radar gun is warmed up and or with the exception of the oscillator so nothing is being transmitted while in the “hold mode”. The gun itself is on but radar is not being transmitted.

Instant On – When a radar gun is quickly turned on so it will not constantly emit radar.

Interference – Since super heterodyne radar detectors generate a radar signal internally, this signal can sometimes be detected by other radar detectors, often called radio frequency.

K Band – A frequency certified by the FCC for police radar and other types of field disturbance sensors, specifically 24.15 GHz.

Leakage – The RF interference transmitted by super heterodyne radar detectors.

LED Indicators – Light emitting diodes in various colors are used as indicators for radar detector functions.

Limit – Set lower and upper frequencies, limits for automatic search.

Line of Sight – In order for any radar gun to get a speed reading, it must have a straight view of the target car.

Lockout – (Scanner) – Skip channels or banks not of current interest, for faster scanning cycle.

Manual – Direct channel access to wanted channels or used to advance one channel at a time.

MHz – Kilohertz or millions of cycles per second. (1,000 Kilohertz)

Microvolt – (uV) One millionth of a volt.

Microwave – A range of frequencies on the electromagnetic spectrum having wave length from 30 centimeters to 1 millimeter.

Mini – A small radar detector not much larger than a pack of cigarettes.

Mobile – Any set intended for use while in motion, as in a vehicle.

Motion Sensor – A small radar transmitter designed to detect any movement nearby; many motion sensors operate on the same frequencies that police radar use.

Moving Radar – A type of radar gun that can clock oncoming cars while the patrol car is moving.

Multichannel System – Various classes of units in a system are given different frequencies.

Mute Switch – Momentarily silences the audible alarm after reception of a radar signal and automatically resets the radar detector for the next signal after the current signal is no longer being received.

No False Circuit – Electronic filter that prevents false alarms from so called “dirty” radar detectors the emit radar frequency signals.

Noise Blanker – See “Noise limiter”

Noise Limiter – A circuit that reduces noise from manmade devices.

PA – Public address.

Passive – The technology most radar detectors used before super heterodyne circuitry became popular.

Pep – Peak envelop power applies only to SSB radios.

Photo Electric Condenser – Electronic eyes that automatically adjust the brightness of all indicator lights for day or night driving.

Polluting Detector – A radar detector that does not contain its internally generated signal, transmits RF interference, and is called a polluting radar detector.

Priority – Automatically switches to your favorite programmed frequency on channel 1 when it becomes active.

Radar – Radio detecting and ranging based on the Doppler theory, radar emits a beam at a set frequency. When the beam is reflected off a moving object, the frequency changes and this shift is then translated in a speed reading.

Radio Waves – Electromagnetic wave frequencies from 10 KHz to 300,000 KHz.

Receiver – Apparatus for receiving radio signals and converts them into sound.

Remote – Also called “two piece” detectors, remote radar detectors are designed to be permanently installed in a car with the antenna (receiver) in the grille, and the control panel anywhere inside the car.

RF – Radio frequencies above 15KHz.

RF Gain – Adjusts the receiver sensitivity to match the incoming signal above.

Sampling – A police officer using an instant radar gun will periodically check the speed of traffic, these “samplings” can easily be picked up by a radar detector and give prior warning to a motorist approaching a bigger activated radar gun.

Selectivity – Ability of the CB receiver to reject transmissions on adjacent channels, the amount of resistance of false alerts. A radar detector has very few false alters. This means very good selectivity, the degree to which a radio receiver will block out adjacent channel signals.

Sensitivity – Ability of the CB receivers to pick up weak signals. A detector’s sensitivity is usually measured in terms of (dBm/cm²). A radar detector rated (112dBm/cm²) is more sensitive than one rated at (108dBm/cm²). Ability of the radio receiver to pick up weak signals.

Signal Sensor Circuit – Circuitry that filters out and shows the presence of signals on the same frequency as traffic radar (such as intrusion alarms) or automatic door openers without triggering a full alert.

Signal Strength – Relative proximity to the radar source; the closer to the source, the stronger the signal strength.

S/RF – Signal strength of radio frequency.

Skip – A radio frequency, reflected by the ionosphere which is bounced back to earth at a far distant point.

Squelch – Circuiting that quiets the speaker until a signal is received.

SSB – Single side band. It involves dividing each channel into a carrier and two side bands, upper and lower. Single side band offer the advantage of great range, less interference and generally better performance.

Superhet – see “Super Heterodyne”, applies to CB’s also.

Super Heterodyne – Also called “active” technology. A type of detector technology which amplifies incoming signals several hundred times in order to make it much more sensitive and also more selective about which incoming signals are to trigger an alert. All modern radar detectors use super heterodyne technology.

SWR – Standing wave ratio. see “VSWR”

TVI – Television interference.

UHF – Ultra high frequency, ranges from 300 to 3000 MHZ.

VHF – Very high frequency, ranges from 30 to 300MHZ.

VSWR – Voltage standing wave ratio. A rating of the efficiency of an antenna. VSWR of 1:1 is ideal, but rarely achieved. The lower the VSWR the better.