Advanced **PROTECTION** *System* ™
with Shadow Technology® II

BEL 990 *International*

RADAR • LASER • SAFETY DETECTOR

INTERNATIONAL FREQUENCIES

Advanced *System*
with Shadow Technology II

PWR   DRK   AUD   CTY

BEL 990
International

Ka 9

DIGITAL
DIGITAL PLL SYNTHESIZED OSCILLATOR

SWS
safety warning system

**World's First
International Frequency
Radar/Laser/Safety Detector**

Operating instructions for model **990**

BEL
BELTRONICS™

INTRODUCTION

Thank you for purchasing a BEL 990 *International* Radar/Laser/
Safety detector with the Advanced Protection System™ and
Shadow Technology® II. BEL 990 *International* is the world's first
Radar/Laser/Safety detector which detects International Radar
frequencies, making it the choice for those looking for protection
where ever they travel.

*Remember, owning a Radar detector does not give you a license to
speed. Alerts from a Radar detector serve as an effective reminder to
check your speed. Laws vary throughout the world governing the use
of a Radar detector. It is your responsibility to follow these laws.*

SOFTWARE UPGRADABLE – *AN INDUSTRY FIRST*

BEL 990 *International* contains technology which provides the
highest capability to be reprogrammed as the threat of new Police
traffic Radar monitoring technologies emerge. Please ensure that
you promptly send in your Consumer Information card. This will
ensure you are notified about new, approved traffic monitoring
technologies and will be provided the details of service cost and
where to send your unit for software upgrade.

SHADOW TECHNOLOGY® II

BEL 990 *International* contains Shadow Technology® II making it
undetectable to the Interceptor VG-2 or any other Radar Detector
Detector (RDD). Only Shadow Technology® has been consistently
proven *undetectable* to the VG-2.

SELECTABLE FEATURES

These featues may be selected depending upon your driving
environment. (*See page 10 for the operation of Selectable
Features.)*

- City X or City All
- X/K/Ka Band **ON** or **OFF**
- Auto-Mute **ON** or **OFF**
- Ka Narrow (34.3 GHz $\pm$ 100 MHz/Super Wideband Ka
- Radar/Laser Digital Voice Prompts or "beeps"
- Safety Warning System® **ON** or **OFF**
- Safety Warning System® with Digital Voice **ON** or **OFF**
- Audio/Visual Scroll Rate (**FAST** or **SLOW**)

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1. **PWR (Power/Start-Up Mode) Button:** pressing and holding PWR briefly will turn the unit on. Continuing to press the PWR button will scroll through the three start-up mode options: NORMAL, MODS (Modificaitons), Q-START (Quick Start) plus TUTORIAL MODE.

2. **Text Message Display:** communicates all mode selections (i.e. DIM, DARK, CITY, HIGHWAY, and AUTOMUTE) and confirms Radar band and signal strength, presence of Laser and SWS™ messages received.

3. **DRK (Bright/Dim/Dark) Button:** provides bright, dark and fully adjustable dim settings of the Text Display for discreet night travel. Audio alerts are not affected.

4. **AUD (Audio Mute/Volume Control) Button:** provides manual muting of all Radar and SWS™ alerts. Pressing and holding the AUD button will change the audio level.

5. **CTY (City/Highway) Button:** choose between Highway mode or for urban/suburban travel, City X or City All modes.

6. **Antenna Opening:** Radar and **SWS**™ signals are received by a patented diecast antenna with integrated transition to microstrip mixer.

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7. **Laser Optical Sensors:** collect Laser signals from in front and behind.

8. **Audio Alert Speaker:** all audible alerts and Digital Voice Messages are emitted from this location.

9. **Power Jack:** using the straight or coiled cord, the BEL 990 *International* operates in any vehicle with a 13.8 volt DC negative ground system (10.5 volt to 16 volt range).

DESCRIPTION OF FEATURES

Power-Up Test Sequence/Start-up Mode

Each time your detector is turned **ON**, BEL 990 *International* will perform a power-up test sequence based upon the start-up mode selected. There are three start-up modes of operation plus a Tutorial mode. Release the PWR button at your chosen selection.

Note—Pressing PWR *at any time during start-up test will bypass the sequence.*

NORMAL *(Factory pre-set Mode)*

Presents **START UP**, followed by Audio and Text Messages for Laser, Ka, K, X and Safety Warning System® (sws™) and the Travel Mode selected (factory default is NAmerica). After this sequence, the status of Selectable Features is displayed:

"CTY X or CTYALL"; "X/K/KA BAND ON/OFF"; "AUTOMUTE,ON/OFF"; "VoiceON", "VoiceOFF"; "KANARROW", "KAS-WIDE"; "SWS on", "SWS off"; "SWSvoice", "SWSclick"; SCROLfast", SCROLslow". Unit is now ready for operation.

MODS *(Modifications Mode)*

Presents **START UP**, followed by Travel Mode selected and Selectable Features as chosen by the user. Unit is ready for operation.

Q-START *(Quick-Start Mode)*

Unit will bypass any form of a power-up test sequence when powered-up and will display **CITY** or **HIGHWAY** depending upon the mode retained in memory. Unit is ready for operation.

TUTORIAL MODE

The tutorial mode allows you to become more familiar with all audible and visual alerts. To engage this mode, press the AUD and CTY buttons simultaneously when the unit is **ON.** The message "**TUTORIAL**" appears in the display followed by the audio and corresponding Text Message for "**LASER**", "**Ka AUDIO**", "**K AUDIO**", "**X AUDIO**", sample Radar alert (K band signal ramping from weak to strong) and "**SAFETY WARNING SYSTEM SAMPLE ALERTS**". Three sample sws™ messages are then presented in the display along with the corresponding Digital Voice Message:

Sample 1 "**ACCIDENT AHEAD**"
Sample 2 "**HIGHWAY WORKCREW AHEAD**"
Sample 3 "**POLICE IN PURSUIT**"

While sample messages are playing you can access the complete list of sws™ messages by pressing the CTY button to move forward in the list. "**MSG 1**" will appear in the display confirming your selection (to move backward in the list, press the DRK button). Pressing the AUD button allows you to listen to the sws™ message while viewing it in the display. Press the CTY button again to step to the next message; press the AUD button to review, and so on. This allows you to review all 60 messages.

To exit Tutorial Mode, press the PWR button and your unit will be **ON** and ready to receive signals.

Set and Forget Memory

Any time BEL 990 *International* is turned **OFF** or unplugged from the cigarette lighter socket, all feature settings you have selected are retained in the unit's memory. Set and Forget Memory eliminates the need to reset your preferred feature settings each time your unit is turned **OFF** and then back **ON.**

Reset to Factory Settings

You can reset your unit to factory settings for start-up mode, volume, DRK, AUD, CTY, Travel Mode and Selectable Features. To reset, press and hold the CTY button until the display shows "RESET". Two "beeps" will sound and your unit will be **ON** and ready for operation.

Voltage Warning

BEL 990 *International* continually checks your vechicle's voltage to ensure proper performance of the detector. The unit's operating range is 10.5 to 16.0 volts. If voltage is above 10.5, the display will flash "HI VOLT" until condition is rectified. If voltage falls below 10.5 volts, display will flash "LOW VOLT" until condition is rectified.

DRK (Bright/Dim/Dark) Button

The DRK button allows selection of a bright, fully adjustable dim mode or dark mode. The unit is factory preset to full bright display. To engage DIM mode, press and hold the DRK button. The display will cycle through various levels of dim illumination. Release the button at your chosen level. To engage dark mode, press the DRK button a second time. A single "beep" coupled with the brief illumination of "DARK" on the display confirms your selection. You'll notice an "H" (Highway mode) or "C" (City mode) remains dim to confirm your unit is receiving power. To return to a full bright setting, press the DRK button a third time; two "beeps" confirm this selection. Use of the DRK button does not affect audio alerts.

Important—if you press the the DRK button and do not receive audible confirmation, the audio level has been set too low.

AUD (Auto-Mute/Volume Control) Button

Manual Muting of Audio Alerts (Radar and sws™)

Whether Auto-Mode is selected **ON** or **OFF** in Selectable Features the audio alerts can be completely muted by

pressing the AUD button during an alert. The display will briefly show "Quite." No audible alert will be heard for at approximately 20 seconds. If the signal is still present after 20 seconds, press the AUD button again if you do not want to receive any audible alerts.

Note—because Laser alerts are not lengthy or sustained, muting is not required (see page 16)

Volume Control

Press and hold the AUD button to engage the volume control. The Audio level has 9 settings. Release the AUD button when you have reached your desired audio setting.

CTY (City/Highway) Button

The CTY mode has been designed to effectively reduce unwanted audio alerts caused by intrusion alarms, door openers, and other devices which share X band with police Radar — without reducing sensitivity. Signals from non-police Radar sources are frequently encountered in urban and suburban areas, making use of this mode ideal in these areas.

Pressing the CTY button once engages the CTY mode which is confirmed by "CITY" in the display coupled with a single audio "beep". Pressing the CTY button a second time returns you to highway mode; "HIGHWAY" will appear in the display coupled with two "beeps". Once engaged, weak X band signals encountered will produce no audible alert until the signal strength reaches a preset level. However, visual alerts are processed the instant an X band signal is detected, keeping you quietly informed. Since most "false" X band signals are weak, the use of the CTY mode allows you to drive out of their range before they reach the preset level and trigger a full audio alert. In contrast, signals from X band traffic Radar are generally stronger and will exceed the preset level, causing a full X band audio alert. Activating the CTY mode will not change Super Wideband Ka, K or instant-on X band Radar alert patterns.

Note—the CTY mode does not change the presentation of alerts for Laser or sws™.

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City All

City All mode is a Selectable Feature of the BEL 990 *International* (see *Selectable Features* page 10). This feature provides an alternate approach for improving selectivity on ALL Radar Bands and is ideal for use in areas with a high level of microwave transmissions which can cause falsing on all Radar bands.

While in City All mode, BEL 990 *International* will provide an initial short X, K, or Super Wideband Ka alert coupled with visual confirmation of the band detected and signal strength in the display. No further audible alert is provided until the signal strength reaches a preset level. When no audio alert is provided, the visual alert keeps you quietly informed.

Note—Once "CTY X" or "CTY ALL" is chosen in Selectable Features the CTY button must to be pressed to engage your selection.

INTERNATIONAL FREQUENCIES

What are International Frequencies?

BEL 990 *International* is the world's first Radar detector designed to operate anywhere you travel. Because different countries use different frequencies to monitor traffic, there has been no way of using existing technology to detect ALL the various frequency types. That is until now. BEL 990 *International* is the world's first Radar detector designed to operate anywhere you travel.

All Radar Bands, whether used in North America or Europe, fall under the X, K or Ka Band classification. The difference is the operating frequency, measured in Gigahertz, which the X, K or Ka Band signal is transmitted. Regardless of the Travel Mode selected, BEL 990 *International* will sound an X, K or Ka Digital Voice Message or an X, K or Ka "tone" (whichever you have chosen in Selectable Features) when Radar is encountered. The Text Message Display will confirm the actual frequency detected, depending upon the frequency type received. *(see sample Text Display readouts below.)*

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X BAND 10.525 (North American signal)
X BAND 9.9 (UK signal)

Engaging International Frequencies

BEL 990 *International* is factory preset to detect all North American Radar frequencies (X, K, Super Wideband Ka). To engage one of the three Travel Modes for operation outside North America, with the unit **ON,** press and hold the CTY button until the display scrolls through the following prompts: "NAMERICA", "TRAVEL 1," "TRAVEL 2," and "TRAVEL 3." To determine which Travel mode best represents the frequencies used in the country you will be driving, refer to the label on the bottom of your unit. Release the CTY button at your chosen selection.

Note—If you encounter excessive falsing on X, K or Ka Bands when operating your unit in any of the travel modes, you can engage the City All mode in Selectable Features or turn the offending Band or Bands off in Selectable Features (see below). If excessive falsing occurs specifically on Super Wideband Ka (33.4 – 36.0 GHz) you can select Ka Narrow (33.4 ± 100 MHz) in Selectable Features.

Disabling X, K or Ka Bands in Selectable Features will defeat detection of ALL frequencies within the X, K or Ka Band classification (See page 00 for a complete listing of frequencies).

SELECTABLE FEATURES

The following features may be selected depending upon your driving environmnet and preference.

- City X or City All
- X/K/Ka Band **ON** or **OFF**
- Auto Mute **ON** or **OFF**
- Radar/Laser Digital Voice Prompts or "beeps"
- Ka Narrow (34.3 GHz ± 100 MHz)/Super Wideband Ka
- Safety Warning System® **ON** or **OFF**
- Safety Warning System® Digital Voice **ON** or **OFF**
- Audio/Visual Scroll Rate (**FAST** or **SLOW**)

City X or City All

When "CTY X " is selected, your unit provides standard
X Band selectivity which is suitable for most urban areas.
City All provides an increased level of selectivity on all Bands
in high density microwave areas. Factory setting is "CTY X ".

Note—once "CTY X" *or* "CTY ALL" *is chosen in
Selectable Features, the* CTY *button must be pressed to engage
your selection.*

X/K/Ka Band On or Off

Select "X ON/XOFF", "K ON/K OFF" or "Ka ON/Ka
OFF" dependng upon your driving environment and selec-
tivity requirements. This mode is especially useful when
operating your unit outside North America, where falsing
may occur and disabling the offending band may be
required. Factory setting is **ON** for all three Bands.

Auto-Mute On/Off

With "AmuteON", unit will provide several X, K, Super
Wideband Ka audio alerts followed by the Digial Voice
announcement of the signal detected. After the Digital Voice
announcement, a "clicking" tone keeps you quietly informed
for as long as the signal is present. This clicking becomes more
rapid as the strength of the Radar signal increases.
"AmuteON" enables you to conveniently monitor extended
encounters without having to manually mute or adjust the
volume setting.

Note—Because of their urgency, Laser alerts are not affected.

With "Amuteoff," unit will provide a continuous series of
X, K, Super Wideband Ka and Laser audio alerts and a Digital
Voice announcement of the signal detected. Digital Voice
prompts are provided once after the initial audio alert. This
standard setting is often preferred when background noise in a
vehicle is loud. Factory setting is "Amuteoff. "

Radar/Laser Digital Voice Prompts

With "VoiceON", unit will provide Digital Voice prompts followed by "beeps" when X/K/Ka and Laser signals are detected. Factory setting is **on**. With "VoiceOFF", unit will sound unique audio tones only. Factory setting is "VoiceON".

Ka Narrow (33.4 ± 100 MHz) /Super Wideband Ka

When "Ka S-Wide" is selected, unit detects Super Wideband Ka signals and provides alarms at the 33.4 GHz to 36.0 range. When "Ka arow" is selected, unit detects Super Wideband Ka signals and alarms at 33.4 to 36.0 GHz)

Safety Warning System® (sws™)

When **on**, unit will provide a Text Message when signals from sws™ transmitters are detected. Factory setting is **on.**

Note—sws™ signals are not common outside North America.

Safety Warning System® (sws™) with Digital Voice Messages

When "SWSvoice" is selected, unit will provide Digital Voice announcements when sws™ transmitters are detected. Factory setting is "SWSvoice." When "SWSclick" is selected, Digital Voice is replaced by "tone/clicking" only. Factory setting is "SWSvoice".

Audio/Visual Scroll Rate

When "SCRLslow" is selected, unit will provide a slow cycling of audio/visual messages. When "SCRLfast" is selected, unit will provide a fast cycling of audio/visual messages. Factory setting is "SCRLfast".

Entering Selectable Features Mode

1. With the unit **off**, press and hold the cty button, then press the pwr button. The word "FEATURES" will appear in the display and a short audible "beep" will sound indicating you are now in the Selectable Features Mode.
2. Immediately after the "beep", the display will show the status of the first Selectable Feature (City X or City All).

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3.   Press the AUD button to make your selection. Press the CTY button to move to the next Selectable Feature. Repeat the process until you have made your selection for each of the eight Selectable Features.

4.   Press the PWR button to exit Selectable Features mode. Two "beeps" confirm that you have exited this mode and either "**HIGHWAY**" or "**CITY**" will be presented in the display, based on your previous selection. Your unit is ready for operation.

INSTALLATION

General Guidelines

Do not mount your unit directly behind windshield wipers or mirrored sunscreens which block Radar and Laser signals and substantially reduce warning range. Unlike "after market" mirrored sun-screens, regular tinted glass does not affect Radar reception. Radar signals are also reflected by the "heated windshields" known as Instaclear® and ElectriClear® available as an option on some vehicles. This type of windshield makes any dash, visor or windshield mounted detector ineffective. (If in doubt, check with an appropriate dealership to see if this applies to your vehicle.) To achieve optimum performance, regardless of which mounting position you choose, follow the basic steps on the following page.

1.   Consider occupant safety when selecting a mounting location. Choose a location where the unit will not be hazardous in case of an accident.

2.   For optimum detection, position your unit with a clear, unobstructed view of the road from the *front and rear.*

3.   Do not allow the unit to make contact with the windshield. This will eliminate unnecessary vibration.

4.   Avoid placing your unit in direct sunlight. During the summer, interior temperatures of an enclosed vehicle can sometimes reach temperatures that will cause premature aging of the unit.

5.   Your detector is not waterproof; exposure to water may cause damage.

13   Instaclear is a registered trademark of the Ford Motor Company.
ElectriClear is a registered Trademark of Libbey, Owens, Ford, and Delco-Remy.

Dash Mounting

You can mount your unit to a level area of your vehicle's dash using the hook and loop fastener or the four non-skid dash mounting pads provided.
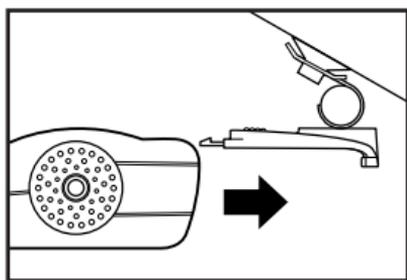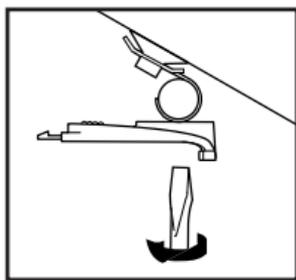
Windshield Bracket Assembly

The visor clip is fully assembled. To assemble the windshield bracket, follow this diagram.
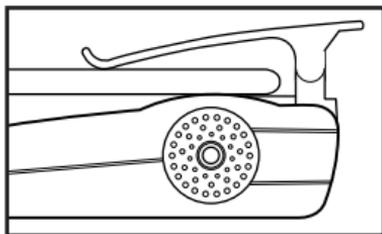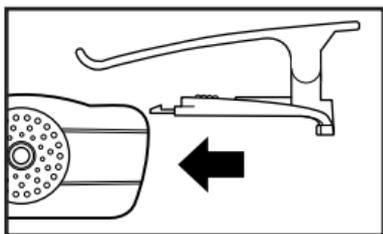

Windshield Bracket Assembly
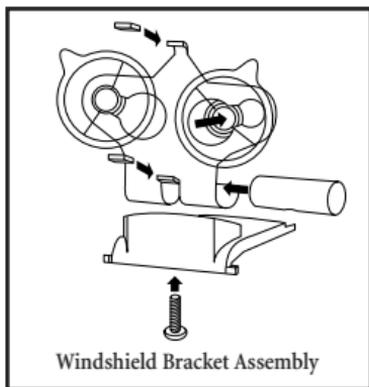
Windshield Mounting

1. Remove the mounting bracket cover on top of the unit by pressing on the raised dots and pushing outward. Store the cover in a safe place.

2. Clean the selected windshield area, position the suction-cup mount on the windshield, and press firmly on each suction cup to secure it in place.

3. Use a screwdriver or a small coin to adjust the angle of the suction-cup mount until the base plate is level.

4. Slide detector onto base plate until it snaps into place.

Note—some vehicles have a plastic coating on the inside of the windshield designed to protect occupants in case of an accident. Use of the windshield bracket on this type of windshield can permanently mark the surface. Check with your dealer if you are unsure whether your vehicle is equipped with this type of windshield.

Visor Mounting

1. Remove the mounting bracket cover by pressing on the raised dots and pushing outward. Store the cover in a safe place.

2. Slide the visor clip onto the top of the detector until it snaps into place. Clip the detector to the edge of the sun visor nearest the windshield.

Fuse Replacement

1. If the fuse has blown, remove the tip from the lighter plug followed by the old fuse. Replace the fuse with a 1-amp, 3AG fuse. Defeating the fuse protection can damage your unit or your vehicle's electrical system and will void your warranty.
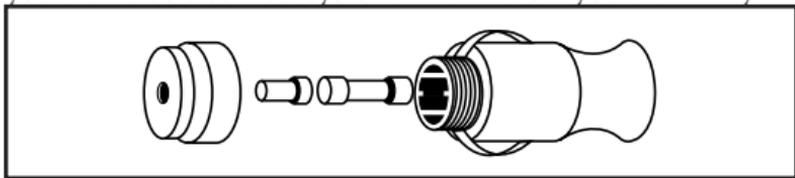
Note—the tip is in two pieces; be careful not to lose either piece or the spring inside the holder. (See diagram on page 13).

UNDERSTANDING RADAR, LASER AND SWS™

Three Radar Frequencies

Three microwave frequencies have been allocated by the FCC (Federal Communications Commission) and are used for traffic Radar in North America. They are:

> *X band: 10.525 GHz*
> *K band: 24.150 GHz*
> *Super Wideband Ka: 33.4 GHz to 36.0 GHz*

Both X and K bands are well known to motorists who have traveled with Radar detectors. Introduced first was X band Radar which became common during the 1960s. In the mid 1970s the lower powered, more difficult to detect K band Radar was introduced. In 1987, FCC approval was given for Radar equipment using a third frequency, Ka. In response to this, BELTRONICS introduced the first Radar detectors capable of detecting X, K and Ka band signals. In late 1990, FCC approval was given to Wideband Ka: 34.2 GHz to 35.2 GHz. Once again, BEL responded with Wideband Ka detection. Today, the BEL 990 *International* detects the *complete* Super Wideband Ka frequency allotted for police monitoring—33.4 GHz to 36.0 GHz, as well as all International frequencies. *(See Specifications for a complete listing of frequencies.)*

Total Tracking Laser™ (TTL™)

Unlike Radar signals, which are highly reflective, Laser signals have very poor reflective characteristics. Many of today's Laser detectors do not have the high sensitivity necessary to detect Laser within a large "field of view". BEL 990 *International* incorporates BEL's number one rated Laser detection. Twin Laser ports detect energy far outside the main Laser beam— including off-axis signals—providing the largest achievable 360° "field of view." The alerts provided by your unit are the same whether signals are received from the front or rear.

Safety Warning System® (SWS™)—What is it?

The Radio Association Defending Airwave Rights, Inc. (R.A.D.A.R.) conceived and developed the Safety Warning System®. The concept behind this system is to warn motorists of potential road hazards by employing Safety Warning System® transmitters in areas such as construction zones, accident sites and detours. These SWS™ transmitters operate within the 24 GHz portion of the K band frequency, and broadcast uniquely coded signals that are detected by your unit.

*Note: SWS signals are not common outside North America.*

Radar Alerts

The alerts provided by your unit are affected both by the type of transmission (continuous wave or instant-on), and the position of the Radar source. These critera hold true whether you are traveling in or outside of North America. Generally, when you drive closer to a Radar source, the intensity of the received signal increases, resulting in the increase of the number of bar graph segments as well as numerical digit [1–9] and a corresponding increase in the audio alert rate. Described below are five common types of Radar encounters and the alerts you will typically receive.

1. *Stationary or moving Radar, straight ahead aimed in your direction.*
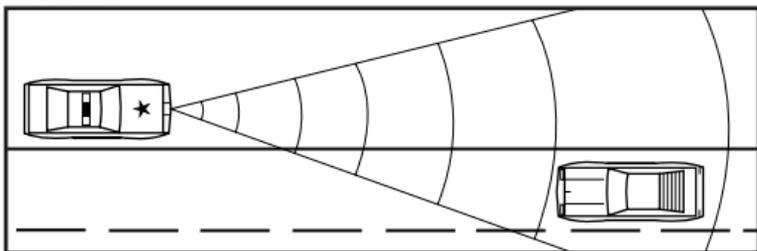
Since Radar signals travel in a straight line, this Radar encounter potentially offers maximum warning range. Once the signal is received, the initial warning consists of an X, K or Super Wideband Ka audio alert coupled with simultaneous identification of the Radar band (X, K or Ka) and signal strength in the Text Display. The number of bar graph segments displayed depends upon the strength of the signal received. As the strength of the Radar signal increases, the audio alert becomes more rapid and the bar graph will display the maximum number of five segments and the digit "9" will also appear indicating maximum signal strength. Assuming the Radar signal remains uninterrupted, the audible and visual alerts will clearly indicate a "weak" signal becoming stronger as you drive closer to the Radar source. Remember, when the police Radar source is moving toward you, the Radar signal strength will increase much more rapidly than if you are approaching a stationary source.

2.   *Stationary Radar aimed around a corner*
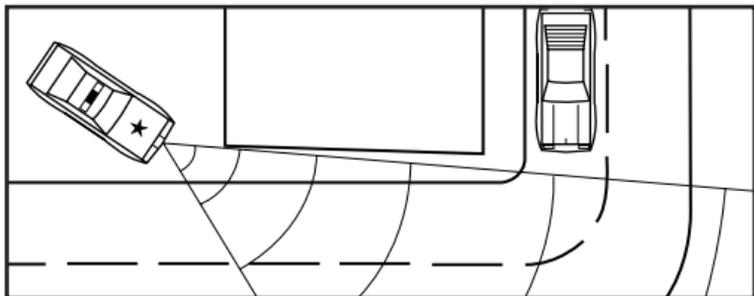
Under this circumstance, reaction time is considerably reduced. Since the Radar signals are transmitted across your line of travel, there is generally no signal available to receive until you are relatively close to the source. Once an alert is received, expect the strength of the signal to increase very quickly. Advanced warning in this situation may be reduced.

3.   *Stationary Radar concealed by the crest of a hill aimed in your direction.*
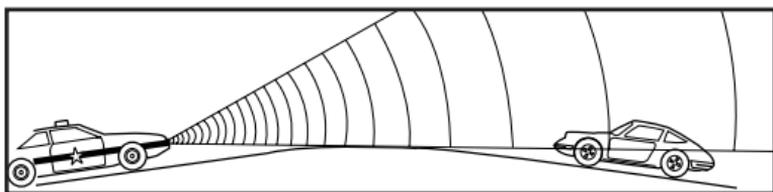
Radar signals travel in a straight line and do not pass through earth. Consequently, police Radar aimed at the crest of a steep hill cannot be received until you are at or near the top. Warning time may be minimal (as in situation #2) since a strong signal is not present until you are near the crest of the hill. At this point, you may be nearly in the police officer's line of sight. When cresting a hill, a weak initial alert followed very quickly by a full alert is typical. This alert pattern requires prompt attention.

4. *Moving Radar behind you, traveling in the same direction.*
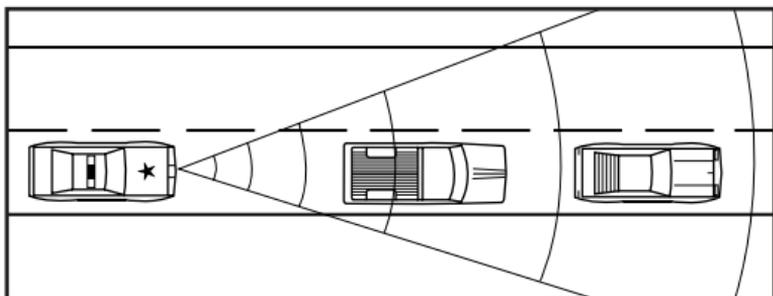
Police Radar signals transmitted from behind your vehicle can be received when reflected by objects in front of you such as large signs, bridges and trucks. As you drive, the size and configuration of these objects are constantly changing causing the strength of any reflected Radar signal received to vary. A strong, uninterrupted alert indicates the patrol car is close behind.

Instant-On/Pulsed Radar

This type of signal appears suddenly when a Radar unit is "triggered". The instant-on alert consists of an intense, three second audio "burst", coupled with the type of band detected and flashing of the signal strength bar graph in the display.

Instant-on/pulsed alert to Ka band

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Typical False Alert (Radar)

Ideally, a Radar detector should only alert in the presence of police Radar. However, because other devices share X band with police Radar, false alerts sometimes occur. Generally, a false signal produces only a short audio and visual alert. Since they are most often weak, it is possible to drive out of the signal's range very quickly and receive only a brief alert. Although many times the probable source of the false signal can be identified (supermarket, bank, commercial building, etc.), caution is advised until the source can be confirmed. The X band alert pattern caused by a non-police source can look like the initial alert produced by actual police Radar. For this reason appropriate action is required any time an alert is received.

Laser Alerts

When Laser is detected, the display will flash "LASER" coupled with a distinct Laser audio alert. If a vehicle is a long distance from the source of Laser pulses, fewer pulses will generally be received. The closer the vehicle is to the source of Laser pulses, the greater the likelihood of receiving a steady stream of Laser pulses. The reason for this is the aiming stability of the Laser gun and the fact that it is difficult to hold the gun absolutely still. Any movement of the gun results in motion of the beam at the target. The further the target, the greater the displacement of the beam and the shorter the dwell time of the beam at the target point. Therefore, there is the possibility of receiving only a few Laser pulses. Due to these characteristics, all Laser alerts should be taken seriously.

Safety Warning System® (sws™) Alerts

With the Safety Warning System® feature **ON** and an sws™ transmitter in use, your detector will provide a unique, 2 second sws™ tone coupled with a Safety Warning System® category word (i.e. "HazdZone" indicating **Highway Hazard Zone Advisory**) to quickly orient you to the type of situation ahead. This introductory message is followed by a specific Text Message (i.e. "SHARP CURVE AHEAD") and Digital Voice Message which is repeated twice. After the Digital Voice, the unit will continue to present the message and provide the "clicking" tone for as long as an sws™ signal is detected. If two separate sws™ messages are received, each message is presented twice before the "clicking" resumes.

You can replay the last sws™ message received by pressing the DRK button within 30 seconds of receiving an sws™ alert. Both Digital Voice and Text Message are replayed.

If you have selected "SWSclick" (Digital Voice **OFF**), your unit will show just the Text Message (see *Selectable Features*, page 9).

Note—the end of a multiple word sws™ message is indicated by an asterisk.

Abbreviated SWS™ Category Words

"HwyWork"
confirms Highway Construction/Maintenance
(messages 1–11)

"HazdZone"
confirms Highway Hazard Zone Advisory
(messages 13–31)

"Weather"
confirms Weather Related Hazards
(messages 33–41)

"TravInfo"
confirms Travel Information/Convenience
(messages 43–59)

"Moving"
confirms Emergency/Slow Moving Vehicles in transit
(messages 61–64)

"Message Unknown"
confirms incomplete or unknown messages

Note—for a complete listing of the five Safety Warning System®
*categories and corresponding messages, please refer to the **Safety***
***Warning System® Alert Card** enclosed with your manual.*

Conditions that Affect Radar Alerts

If you feel your unit is not alerting properly, keep in mind that there are many conditions that influence the intensity or duration of an alert:

1. The police are using instant-on/pulsed Radar, in which case no signal is transmitted until visual contact has been made with your vehicle. For detection of this signal, you must rely on reflected signals from Radar directed at traffic traveling ahead of you.

2. The police Radar unit is positioned perpendicular to the road, around a curve, or just over the crest of a hill thus significantly reducing the reception range.

3. The highway traffic between your vehicle and the police Radar source is heavy. This blocks/reflects transmitted signals. The presence of several large trucks between you and the police Radar unit could also significantly reduce reception.

4. Rain or humid weather conditions can absorb transmitted signals before they reach your vehicle, again reducing detection range.

5. The police Radar unit is not properly tuned and is transmitting outside the FCC allocated X, K or Super Wideband Ka frequency ranges.

Conditions that Affect Laser Alerts

If you feel your unit is not properly alerting to the presence of Laser signals, keep in mind that rain, fog, high humidity and traffic conditions can affect the range that the Laser beam can be detected.

Solutions for Common Problems

If your unit is not operating properly, please refer to the outline below.

Problem	Possible Cause	Corrective Procedure
Unit not receiving power	Plug not properly inserted	Reinsert plug and rotate
	Fuse in power cord is defective	Replace with 1 amp 250 Volt 3AG fuse (see page 12)
	Lighter socket not clean and negatively grounded	Consult your dealer or a professional mechanic
	Fuse or electrical wiring for lighter socket defective	Consult your dealer or a professional mechanic
"Poor detection range"	Antenna/lens opening partially blocked	Reposition unit with unobstructed view of road ahead and behind.
	Radar signals unable to pass through windshield	Determine whether your vehicle has a "heated windshield" known as Instaclear* or ElectriClear*, or is covered with a metallic sun screen.
Erratic or frequent alerts	High concentration of non-police X band sources	Use CTY mode
		Review section in this manual on *Performance Verification*
Partial or no display	Dim or dark mode engaged	Disengage dim or dark mode

If you experience a problem with your unit that is not covered in this outline please call, Monday to Friday, 9 AM–5 PM EST, for assistance:

1-800-341-2288 USA
1-800-268-3994 CANADA

2-year Warranty

1. This warranty covers all defects in materials and workmanship. This warranty does not apply if the unit has been subject to physical abuse, improper installation, modification, or if the housing or serial number of the unit has been removed.

2. The enforceability of this warranty is limited to the original consumer purchaser and is not transferable to, or enforceable by, any subsequent owner.

3. In the event of a defect, malfunction or other failure to conform to this warranty, BELTRONICS will, at its sole discretion, repair or replace the unit at no charge. You are responsible for all shipping costs in connection with warranty service pursuant to this warranty.

4. This warranty commences on the date of retail purchase and shall be effective for a period of two years.

5. There are no express warranties covering the unit other than those set forth in this warranty. All implied warranties are limited to the period of this warranty and no warranties, expressed or implied, extend beyond this period. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

6. BELTRONICS will in no event be liable for any consequential, incidental, indirect or special damages (including, but not limited to, lost profits) arising out of or in connection with the use, misuse, or function of the unit. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

7. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

8. You must provide a copy of a dated sales receipt for your unit in order to receive service under warranty.

Warranty Service

If you feel your detector is not funtioning properly please review this manual, particularly the section on *Performance Verification*. If you still feel service is required, please follow the instructions on below.

1. To obtain service during the warranty period, please call the apporprate number below to obtain an RA number and shipping instructions. Rember to return your detector postage paid, insured and in suitable packaging.
   1-800-341-2288 USA
   1-800-268-3994 CAN

2. For your own proctection, obtain a proof of delivery receipt. Shipping costs are your responsibility.

3. Enclose with your unit the following information:
   (a) Your name, complete return address and written description of the problem. (No P. O. BOX please.)
   (b) A telephone number where you can be reached during regular business hours.
   (c) A copy of your dated sales receipt.

Post-Warranty Service

The following arrangements apply if the warranty period has expired or you are not able to provide a copy of your dated sales receipt indicating purchase within the last twenty-four months.

1. Return your unit to the appropriate address under *Warranty Service* and follow steps 1 through 3(b) outlined in that section.

2. Enclose with your unit $85 US or $115 Canadian to cover inspection and postage return. Prices subject to change without notice.

Radar Receiver Frequencies:

9.41 GHz (X Band), 9.9 GHz (X Band), 10.525 GHz (X Band), 13.45 GHz (X Band), 24.150 GHz (K Band), 24.120 GHz (K Band), 34.3 $\pm$ 100 MHz (Ka Band), 33.4 GHz to 36.0 GHz (Super Wideband Ka)

Operating Temperatures: -4°F to 158°F (-20°C to 60°C)

Power Supply Requirements: 13.8 Volts (10.5 volt to 16 volt range), 250 mA

Radar Antenna Type: Patented Diecast Horn with Integrated Transition to Microstrip Mixer

Maximum Dimensions: 5.3"(L) x 3.1"(W) x 1.8"(H)

Weight: 9.0 ounces

ACCESSORIES

If you require any additional accessories, replacement accessories or any accessory which is not included with your unit, call to order or for more information, Monday to Friday, 9 AM–5 PM EST.

1-800-341-2288 USA
1-800-268-3994 CANADA

DESCRIPTION	MODEL NUMBER	COST USA	COST CANADA
Suction Cup Kit (2)	DA-6	$ 2.95	$ 3.95
Straight Power Cord (4')	DA-16	$ 9.95	$ 11.95
Coiled Power Cord (6')	DA-17	$ 11.95	$ 16.95
Power Cord Fuses (2)	DA-19	$ 3.95	$ 5.95
Hook & Loop Fastener	DA-20	$ 2.95	$ 3.95
Visor Bracket	DA-48	$ 9.95	$ 11.95
Windshield Bracket	DA-702	$ 11.95	$ 16.95
Non-Skid Dash Mounting Pads	DA-1000	$ 2.95	$ 3.95
Protective Travel Case	DA-62	$ 13.95	$ 19.95
Owner's Manual	990 INT'L	N/C	N/C

Prices subject to change without notice.

BEL

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