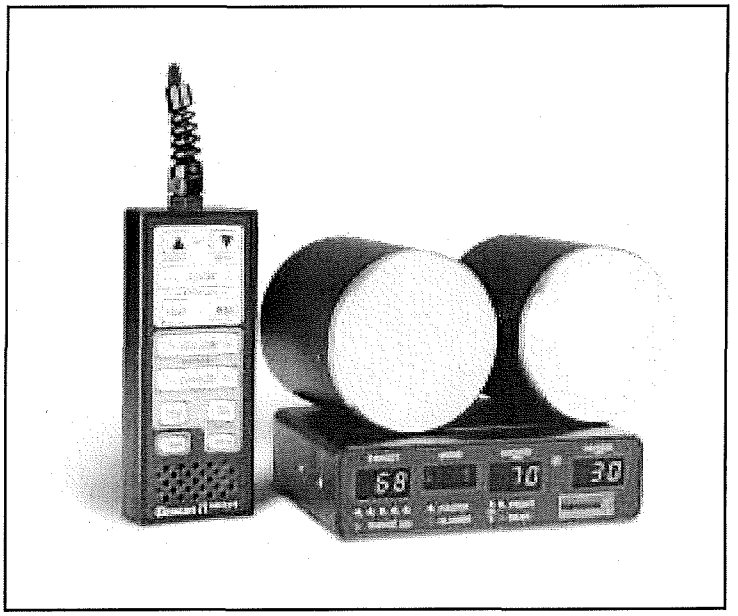
Certified ISO 9001

GENESIS-II DIRECTIONAL™

USER'S AND INSTALLATION MANUAL



Decatur Electronics, Inc.
715 Bright Street
Decatur, IL 62522
USA/Canada 800.428.4315
Intl 217.428.4315
Fax 217.428.5302
www.decaturradar.com

Copyright 2004 Decatur Electronics, Inc.

Rev. 09/04

WELCOME TO DECATUR ELECTRONICS

Thank you for choosing another fine Decatur Electronics product—a *Genesis-II Directional™*, a highly advanced traffic radar unit that will reward your department with years of dependable service. The *Genesis-II Directional* design incorporates high performance and long range, with many leading features.

We urge you to study this manual before using the *Genesis-II Directional,* so you can maximize the benefits of this sophisticated radar device. We believe you will be pleasantly surprised by the features and advantages. The *Genesis-II Directional* is small, dependable, features instant target acquisition, and is designed using a quality management system certified to ISO 9001. Its digital signal processing (DSP) gives the device advanced capabilities unseen by many veteran officers. If you are as pleased with its performance as we think you will be, ask your Decatur sales representative about other Decatur products, including the *Genesis VP™* Black & Decker® VersaPak™* battery hand-held line of products.

Traffic officers told us exactly what they wanted in a radar device—and we built it. Try any one of our products and see if you don't agree that it is the best-in-class!

—The management and staff at Decatur Electronics,
the nation's oldest radar company

* VersaPak is a registered trademark of the Black & Decker Company.

TABLE OF CONTENTS

Genesis-II Directional™ Features.....7
About This Manual 7
1. Quick Start 9
2. Installation 10
   2.1 Separating the Computer/Display Unit (optional).....10
   2.2 Mounting the Computer/Display Unit 12
   2.3 Mounting and Connecting the Antenna 15
   2.4 Installation Check 18
3. Operating the *Genesis-II Directional* 19
   3.1 Power 19
   3.2 Front and Rear Antenna 20
   3.3 Stationary Mode 21
   3.4 Moving Mode Opposite Direction 25
   3.5 Moving Mode Same Direction 26
   3.6 Faster Mode 28
   3.7 Lock a Speed 29
   3.8 Range Setting 30
   3.9 Stopwatch Mode.....31
4. Computer/Display Unit.....33
   4.1 Display Windows 34
   4.2 Lights 35
5. Antennas 37
6. Hand-Held Remote Control 38
   6.1 Control Buttons 39
7. Communication System Controls 43
8. Performance Tips 44
   8.1 How Radar Works 44
   8.2 Interference Sources and Remedies 44
      8.2.1 Angular Interference (Cosine Effect) 45
      8.2.2 Fan Interference 46
      8.2.3 Batching 47
      8.2.4 Electromagnetic Interference (EMI) 47
      8.2.5 Feedback Interference 47

8.2.6 Multi-Path Beam Cancellation 48
8.2.7 Patrol Harmonics 48
8.2.8 Radio Frequency Interference (RFI) 49
8.2.9 Shadowing 49
8.2.10 Vehicle Ignition Interference....51
9. Field Tests 52
9.1 Operator-Requested Self Test 52
9.2 Road Test 52
9.3 Tracking History 53
10. Care, Cleaning, and Storage 54
11. Specifications 55
11.1 Mechanical 55
11.2 Antenna 56
11.3 Environment 56
11.4 Power Consumption 57
11.5 Speed Range 58
12. Legal Requirements 59
12.1 FCC Documents 59
12.2 Canadian Industry Certificates of Technical Acceptability 60
12.3 Radar Case Law 61
13. Frequently Asked Questions (FAQ) 62
14. Service 64
14.1 Warranty 64
14.2 Service Return Procedure 65
14.3 Maintenance and Repair Record 67
15. How to Order Additional Products 68
Appendix A Communications Port 70
Appendix B Menu Feature....71
Appendix C Radar Case Law....72
User Notes 78
Index 79

Genesis-II Directional™ Features

The *Genesis-II Directional™* is a highly advanced traffic radar device offering many advanced capabilities. It includes 32-bit digital signal processing (DSP), a versatile detachable computer/display unit, K-band Directional antennas, and an easy-to-use hand-held remote control. It also features Faster Mode for detecting the next strongest target going faster than the strongest in multiple target situations.

Unlike conventional radars, the Genesis-II Directional is able to determine ***which direction*** targets are moving. Directional technology enables the radar to single out vehicles moving in one specific direction, while ignoring vehicles moving in the other direction. This capability makes stationary operation far more effective and makes moving same lane mode very easy to operate.

The *Genesis-II Directional* digital signal processing provides instant target acquisition and speed lock as well as more precise tracking and speed measurement.

If space in your vehicle is at a premium, you will appreciate the detachable computer/display unit. For more safety conscious installation options, you can separate the pieces and mount them wherever best meets your specific needs.

The hand-held remote controls all the functions. It features convenient "eyes-off" raised buttons for use without taking your eyes off the road. The remote control fits comfortably in the palm of your hand, positioning all controls at your fingertips.

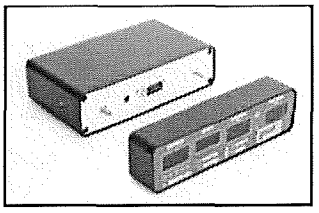
About This Manual

Note the following symbols in this manual.

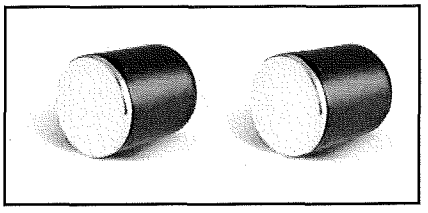
⚠ *indicates a warning message about safety precautions. Please read it carefully.*

➢ *indicates a helpful tip or precaution to note.*

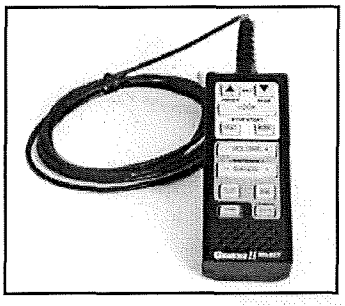
The *Genesis-II Directional* includes:



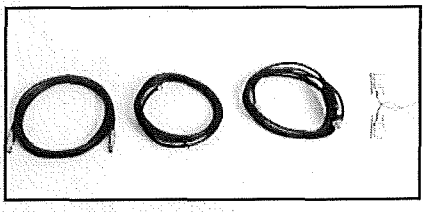
Detachable computer/display unit



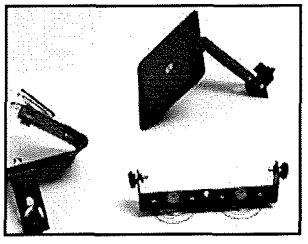
Antennas



Hand-held remote



Connector cables



Mounting brackets

1. Quick Start

1. Press the PWR button on the hand-held remote to power up the radar unit.

2. Press the ANT FRONT or REAR button to select the antenna from which you want the radar to transmit.

3. Press and release the MODE button to quickly toggle between Moving Mode Opposite Direction and Moving Mode Same Direction. Press and hold the MODE button for two seconds to activate and then toggle through the three Stationary Modes.

4. Press and hold the *FAST* button to select Faster Mode when you want to track the next strongest target going faster than the strongest.

5. To lock on a target speed, press the LOCK button. The target speed will transfer to the LOCKED window. The radar will continue to process speeds and display them in the TARGET window.

6. To clear a locked speed, press the LOCK button when an antenna is transmitting and no target is present.

2. Installation

Use the following instructions to mount your *Genesis-II Directional.*

2.1 Separating the Computer/Display Unit (optional)

If the space in your vehicle is at a premium, you will appreciate *Genesis-II Directional's* compact size and versatile components. You can separate and remotely mount the computer unit from the display unit. Common places to mount it are behind the dash, under the driver's seat, or on the console.

To separate the combined unit, firmly grasp the ends and pull them apart.

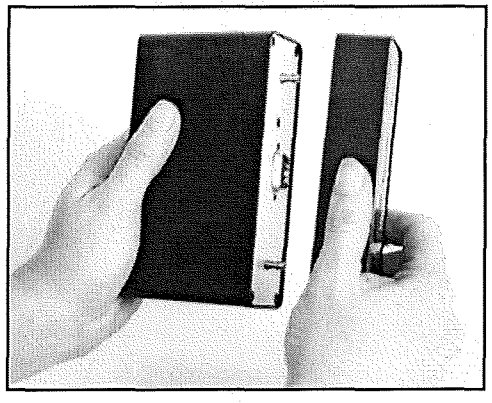


Figure 2.1a Separating the computer/display unit.

Note the 9-pin connectors on each half of the unit. Screw two standoffs into the holes next to each connector to attach the two pieces with the 9-pin connector cable.

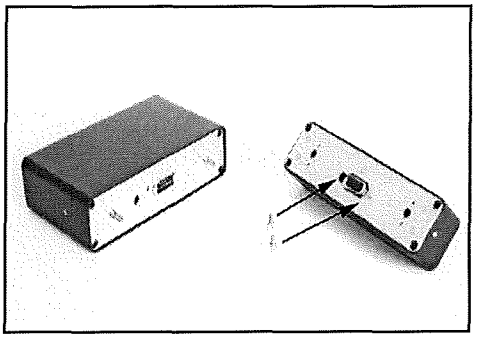


Figure 2.1b To connect the separated unit, first insert the standoffs to secure the cable connectors.

Then attach and secure the connectors with the thumbscrews on the sides of each cable connector.

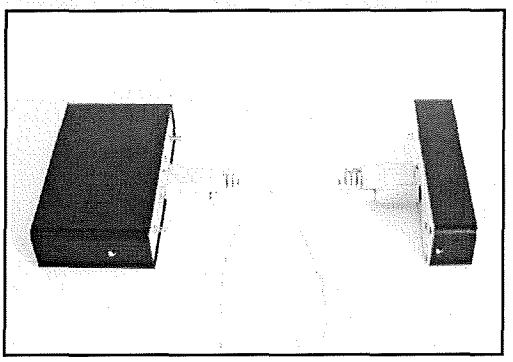


Figure 2.1c *Secure the connecting cable by fastening* the thumbscrews into the standoffs.

To return the unit to a one-piece configuration, remove the cables and standoffs, line up the 9-pin connectors, and push the two pieces together.

2.2 Mounting the Computer/Display Unit

⚠ WARNINGS

- *Do not place the Genesis-II Directional components in locations that will obscure the driver's view of the road.*
- *Double-check each component to ensure it is securely mounted. In an accident, a loose component could strike an occupant of the vehicle.*
- *Do not place the* Genesis-II Directional *computer, antennas, cables, or brackets in your vehicle's air bag deployment zones. Refer to your vehicle's owner's manual or call the vehicle manufacturer if you are unsure where the air bag deployment zones are.*

You can mount the computer/display unit behind and to the side of the steering wheel or on the dashboard. The computer unit easily withstands and remains accurate in temperature extremes. Dash-mounting the unit promotes safety; you can read the display without taking your eyes off the road.

To mount the unit, use the Velcro™ fastening material or the mounting bracket. Before applying the Velcro™, use a clean cloth to remove any foreign material from the dashboard and bracket face. Position the Velcro™ lightly on the computer/display unit and mounting surface. After the unit is in the correct position, press it firmly to affix it to the surface. For the bracket mount, simply place and tighten the screws on the mounting bracket into the holes in the unit. Then adhere the suction cups to a clean glass surface. For maximum adhesion, moisten the suction cups before affixing them to the surface.

All cables connect to the rear panel of the computer unit with a quick-disconnect connector. (A communications cable for video and PC is not included. You can order it from Decatur Electronics by calling 800.428.4315.)

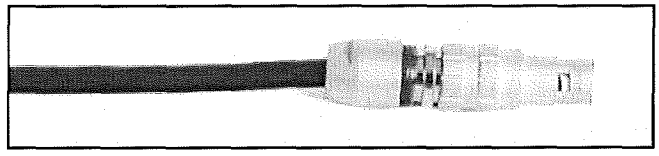


Figure 2.2a The quick-disconnect connector plugs into the computer unit.

1. Align the red dot on the connector with the red dot at the top of the receptacle.

2. Push the connector into the receptacle until you hear a click.

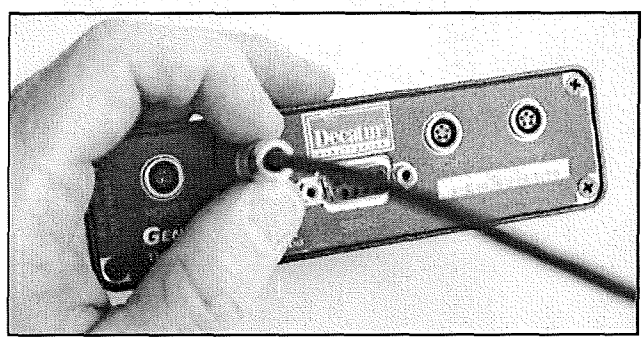


Figure 2.2b Align the red dot on the connector with the red dot on the computer receptacle.

Power connector

WARNING

Be sure to plug the connector into the computer unit first before pluging the power plug into the auxiliary power source. If the power source is on, it can damage the unit.

The power cable has a larger 12-volt power plug (cigar plug) on one end. Make sure the plug fits securely in the vehicle's auxiliary power (cigarette lighter) receptacle.

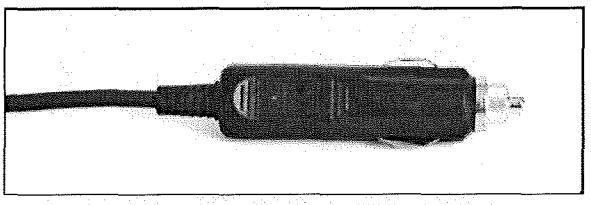


Figure 2.2c The cigar plug for the auxiliary power (cigarette lighter) receptacle.

Antenna connector

The connector that plugs into the antenna has a more smooth finish than the connectors that plug into the unit.

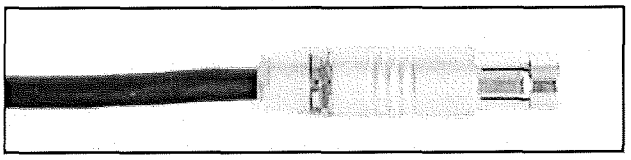


Figure 2.2d Cable connector that plugs into the antenna.

To remove a cable, grasp and pull the connector.

2.3 Mounting and Connecting the Antenna

To attach the antennas to the brackets, align the threaded mounting hole on the antenna with the slot on the L-brace. Then screw the post into the threaded mounting hole.

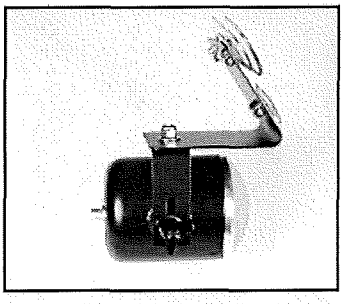


Figure 2.3a The front antenna mounts using the suction cup bracket

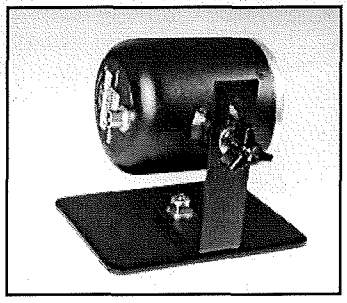


Figure 2.3b The rear antenna mounts using the flat deck mount bracket.

When affixing the suction cup mounted front antenna, for maximum adhesion, moisten the suction cups on the bracket before affixing them to a surface of the glass. Mount the forward-facing antenna assembly on the windshield. Mount the rear-facing antenna near the center brake light where it is not obstructing a clear view of traffic.

After you affix the bracket to a surface, adjust the position of the antenna. *ANY SIGNIFICANT DEVIATION FROM A PARALLEL ORIENTATION CAN AFFECT THE RADAR'S ACCURACY.*

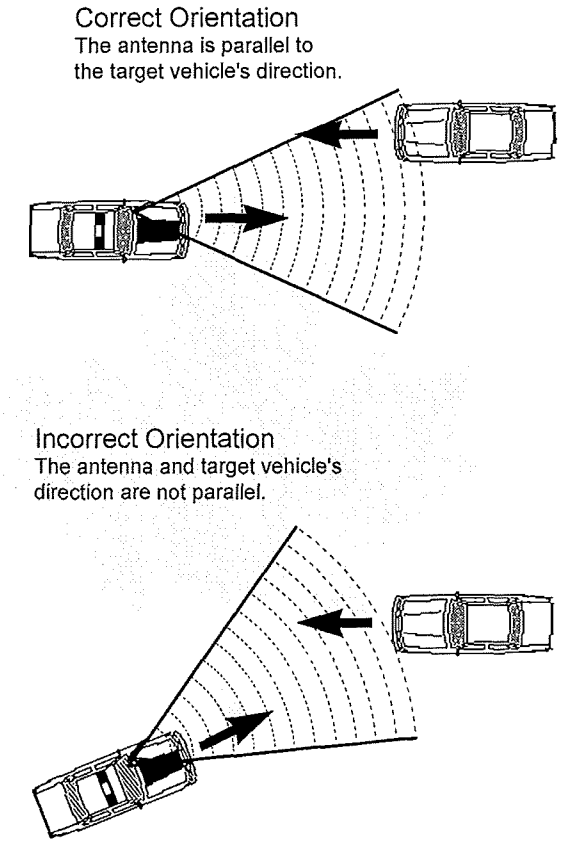


Figure 2.3c Orientation of the antenna to the target vehicle.

Point the antenna so it is parallel with the patrol vehicle, (the direction the patrol vehicle is facing) and parallel with the ground.

- *Use only the mounting hardware provided. Damage to the antenna housing can occur if you use incorrect fasteners. The radar antenna should be mounted in a safe manner with either hardware provided with the unit or developed for use with the equipment by the Police Service.*

- *To reduce interference, position the antenna away from the patrol vehicle's display, fans, engine, and the* Genesis-II Directional *computer unit.*

- *When removing the bracket, use the tabs on the suction cups to break the vacuum seal.*

After you have mounted the antenna, plug the cable into the antenna and the antenna receptacle on the computer/display unit. If you are using only one antenna, you must connect it to the FRONT antenna receptacle.

2.4 Installation Check

After you install the components, for safety, double-check to ensure all components are secure. Then check for potential interference from sources such as the air conditioner/heater fan.

1. With all other vehicle accessories off, turn on the heater/air conditioner fan.

2. Power up by pressing the PWR button on the hand-held remote and select the front antenna by pressing the FRONT button.

3. Cycle through the fan's low to high settings.

4. If the unit displays a reading, reposition the antenna to eliminate it. Often, the far-left corner of the front windshield is an interference-free zone where you can place an antenna.

5. Repeat this process for the rear antenna.

time the patrol speeds for the front and rear antenna should be the same.

In addition to this road test, as part of the tracking history for any violation in which enforcement action is to be taken, it is a mandatory requirement that there be this correlation between the patrol speed of the police vehicle and the patrol speed displayed on the radar unit at that time. Without this correlation no enforcement action shall be taken.

➤ *An incorrectly aimed antenna will cause the radar unit's patrol speed to be lower than the speedometer's speed.*

9.3 Tracking History

For each enforcement action taken by the police with respect to a speeding offence arising out of the use of this radar unit a tracking history must occur. The tracking history shall consist of:

1. A Visual Observation of an approaching or receding Motor Vehicle that appears to be in excess of the posted speed limit in the area and an estimation by the officer of the speed of that motor vehicle is traveling. Generally, skilled officers are able to estimate the speeds of moving motor vehicles within plus or minus 5 km/h per hour of the actual speed. This is an acquired skill that is taught on the basic operators course.

2. Having made the visual observation and estimate of the rate of speed, the radar unit will be placed in the operational mode, selecting the appropriate antenna if the unit is a dual antenna configuration.

3. The officer then must determine or confirm the correlation between the patrol speed of the police vehicle and the patrol speed displayed on the radar unit. This correlation should be consistent with the results noted while conducting the road test in 9.2.

4. Note, that the target speed displayed on the radar unit is consistent and confirms the officers initial observations and estimate, and that the audio tracking tone emitted by the radar unit is consistent with the visual observations and the target speed displayed.

5. Where a target speed is determined while in same direction mode, regardless of whether a VIP interface exists, the operating member must conduct a target vehicle discrimination test. For non-direction sensing units, it will confirm that the unit was being deployed in the correct same direction mode, and for all other radar units, it will confirm that there is no fan or spurious response.

6. Absence of any one of the above tracking history components and NO ENFORCEMENT ACTION shall be undertaken.

10. Care, Cleaning, and Storage

- Avoid spilling food, beverages, and other liquids and substances on the radar device.
- When you are not using or transporting the device, store it in its original packaging.
- To clean the radar device, dust it with a soft clean cloth, which is free of cleaning solutions.
- The *Genesis-II Directional* can withstand temperature variations, however, only the antenna is weather resistant.
- Insert and remove the connectors by following the correct connect and disconnect procedures.

11. Specifications

11.1 Mechanical

Display Unit	
Dimensions	5.25 in x 1.45 in x 1.10 in 13.33 cm x 3.68 cm x 2.79 cm
Weight	5.90 oz 0.17 kg
Computer Unit	
Dimensions	5.25 in x 1.45 in x 3.00 in 13.33 cm x 3.68 cm x 7.63 cm
Weight	14.5 oz 0.41 kg
Hand-Held Remote	
Dimensions	5.00 in x 1.20 in x 2.10 in 12.70 cm x 3.04 cm x 5.33 cm
Weight	9.10 oz 0.26 kg
K-Band Directional Antenna	
Dimensions	4.15 in x 3.00 in 10.54 cm x 7.62 cm
Weight	13.25 oz 0.37 kg

11.2 Antenna

K-Band Directional	
IACP type	IV
Nominal transmission frequency	24.150GHz ± 50MHz
Nominal horizontal beamwidth	12°
Polarization	Circular
Nominal microwave power output	7mW
Maximum aperture power density	≤ 1mW/cm^2

11.3 Environment

Ambient operating temperatures	-22°F to 158°F -30°C to +70°C
Maximum humidity	90% relative humidity at 98.6°F (37°C)

11.4 Power Consumption

Supply voltage range	10.8 to 16.5VDC with internal, resettable fuse
Low voltage threshold	10.8VDC with visual indicator
Current draw with 13.6VDC applied in various modes:	
Standby (antenna OFF)	0.35 amperes
Antenna ON, no targets displayed	0.50 amperes
Antenna ON, 55 target displayed	0.53 amperes
Antenna ON, 20 target, 35 patrol	0.55 amperes
Antenna OFF, segment check 888 888 888	0.60 amperes
Antenna ON, segment check 888 888 888	0.75 amperes

11.5 Speed Range

Stationary Mode

Target 19 km/h - 337 km/h

Moving Mode Opposite Direction

Patrol	Patrol with High-Speed Option
8 km/h - 161 km/h	16 km/h - 180 km/h

Target
19 km/h - Closure of 337 km/h

Moving Mode Same Direction

Patrol	Patrol with High-Speed Option
32 km/h** - 160 km/h	32 km/h - 180 km/h
Slower Target	Slower Target with High-Speed Option
8 km/h - 120 km/h	8 km/h - 135 km/h
Faster Target	Faster Target with High-Speed Option
40 km/h - 281 km/h	40 km/h - 308 km/h

The Moving Mode Same Direction target speed is computed as:

when tracking a slower target TS = PS – SS
when tracking a faster target TS = PS + SS

where

TS = Target Speed
PS = Patrol Speed

This is done automatically by the directional sensing component of the Genesis II Directional.

SS = Separation Speed — With the Genesis II Directional, the operator has the ability of selecting either 4 Km/H, 8 Km/h, or 12 Km/h as the minimum speed separation that must exist before a target reading can be obtained. This is imply an officer preference and is often dictated by medium speed in a given area, volumes of traffic and a desire by the officer to be able to patrol at or reasonbly close to the posted speed limit of the area. The maximum speed separation can not be greater than 75% of the patrol speed.

*See Appendix B
**24 km/h when in city mode

12. Legal Requirements

12.1 FCC Documents

FEDERAL COMMUNICATIONS
COMMISSION
WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT
AUTHORIZATION

Certification

Decatur Electronics Inc
715 Bright Street
Decatur, IL 62522
United States

Date of Grant: 02/28/2000
Application Dated: 12/21/1999

Attention: Randall Sanner , President

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER:
HTRCR-1KD

Name of Grantee:
Decatur Electronics Inc

Equipment Class:
Part 15 Field Disturbance Sensor
Notes:
Traffic Safety Radar

12.2 Canadian Industry Certificate of Technical Acceptability

Industry Canada Industrie Canada

No. ▶ 18276

TECHNICAL ACCEPTANCE CERTIFICATE

CERTIFICAT D'ACCEPTABILITÉ TECHNIQUE

CERTIFICATION No. No. DE CERTIFICATION	▶	1270A-GVPD
ISSUED TO DÉLIVRÉ A	▶	DECATUR ELECTRONICS INC.
TYPE OF EQUIPMENT GENRE DE MATÉRIEL	▶	RADAR
TRADE NAME AND MODEL MARQUE ET MODELE	▶	GENESIS II KD
FREQUENCY RANGE BANDE DE FRÉQUENCES	▶	24.134 GHz
EMISSION DESIGNATION DESIGNATION D'ÉMISSION	▶	3M00N0N
R.F. POWER RATING *PUISSANCE NOMINALE H.F.*	▶	368.6 mWatt
CERTIFIED TO CERTIFIÉ SELON LE	▶	SPECIFICATION RSS210 ISSUE 5 CAHIER DES CHARGES ÉDITION

FAMILY APPROVAL WITH GENESIS-VP DIRECTIONAL (CERTIFICATE NO.18062)

Certification of equipment means only that the equipment has met the requirements of the above noted specificatio. License applications, where applicable to use certified equipment, are acted on accordingly by the issuing office and will depend on the existing radio environment, service and location of operation.

This certificate is issued on condition that the holder complies and will continue to comply with the requirements of the radio standards specifications and procedures issued by the Department.

L'homologation de matériel terminal signifie seulement qu'il est conforme aux exigences du cashier des charges mentionné ci-dessus. Les demandes de licence, le cas échéant en vue de l' utillisation de matériel certifié seront traitées en conséquence par le bureau chargé de délivrer lesdites licences, en tenant compte du milieu radioélectrique ambiant, du service radio existant et de l'emplacement de la station.

Le présent certificat est délivré à condition que le détenteur se comforme et continue cà se conformer aux cashiers des charges et procédures sur les normes radioélectriques publiées par le ministère.

ISSUED UNDER THE AUTHORITY OF MINISTER OF INDUSTRY
DELIVRE AVEC L'AUTORISATION DU MINISTRE DES INDUSTRIE

DATE **May 19, 2003**

FOR

DIRECTOR GENERAL SPECTRUM ENGINEERING BRANCH

DIRECTEUR GÉNÉRAL GÉNIE DU SPECTRE

Canada

12.3 Radar Case Law

See Appendix C for more information on the Offense of Speeding and Training Qualifications.

13. Frequently Asked Questions (FAQ)

Q. My radar device will not power up. What should I do?

A. Make sure the radar device is plugged into the power source and that the power source has power. Also, check to see if the LED light on the power plug is on and that the fuse in the power plug is working. If the unit still does not power up, contact Decatur Electronics.

Q. My radar device has poor range. How can I remedy this?

A. Make sure the range control is adjusted properly and verify that no obstructions are in front of the antenna. If the antenna still has poor range, increase the range (sensitivity) level. If this problem continues, contact Decatur Electronics.

Q. Do the Decatur Electronics traffic safety radar devices interface with in-car video systems?

A. Yes. Decatur's traffic safety radar devices will interface with various in-car video systems with an active communications (COM) port, including the Decatur Electronics *Gemini™* in-car video system. Please call the Decatur Electronics sales staff to see which video systems will work with your Decatur radar device.

Q. How often do I need to recertify my radar unit?

A. In the past, the Federal Communications Commission (FCC) required that you check all devices with transmitters once a year to guarantee that they are transmitting within the allowed band. The FCC has since then dropped this requirement. Now, most states have set up their own standards to regulate the timing of radar certification. Because each state has different requirements, Decatur Electronics recommends that you check with your local department policy.

Q. Does Decatur Electronics carry other law enforcement radar products?

A. Yes, the *Genesis™* series of hand-held stationary radar guns, such as the *GHS™, Genesis-VP™, Genesis-VPD™ (Directional)* and dash-mount radar systems.

Q. Does Decatur Electronics have a sports radar gun?

A. Decatur Electronics has developed a radar gun specifically for use in baseball and softball. We market this radar gun exclusively through the JUGS Company. Contact 800.547.6843, www.thejugscompany.com.

Decatur's *Prospeed™* model CR-1K sports radar works well for boat, personal watercraft and snowmobile racing. Contact Decatur Electronics for more information on this product.

Q. Does Decatur Electronics make speed trailers or speed signs?

A. Yes, Decatur has a variety of speed signs and radar/ message trailers—the *Galaxy™* series. Contact your Decatur sales representative for more information on these products.

Q. What upgrades are available now for my *Genesis-II Directional*?

A. Contact Decatur Electronics Sales Department 800.428.4315 for upgrade information.

Q. SYS appears in the MODE window and nothing else works?

A. If your unit has a system error, turn the unit off and on. If it still says SYS, contact Decatur Electronics.

14. Service

14.1 Warranty

TWO-YEAR RADAR WARRANTY

Decatur Electronics, Inc. guarantees the *Genesis-II Directional* to be free from defects in workmanship and material and to operate within specifications for a period of two years. During this period, Decatur Electronics will repair or replace, at its option, any component, found to be defective, without cost to the owner providing you return the unit to the factory or a Decatur authorized warranty service center.

The full warranty on parts and workmanship does not include normal wear and tear, crushing, dropping, fire, impact, immersion, damage from attempted repair, modifications by unauthorized service agents, or improper voltage and fusing (including removal of the power plug.)

For repairs, simply return the unit (transportation prepaid) directly to the factory or to a Decatur authorized warranty service center. Refer to section 14.2 Service Return Procedure.

TWO-YEAR WARRANTY EXCEPTION

If you purchased the radar unit under a special buying program, such as a state purchase contract, etc., the above warranty may not apply. Please refer to the buying program contract for the appropriate warranty terms or contact Decatur Electronics.

If you are interested in an extended warranty or the Maintenance*PLUS* maintenance contract, contact your sales representative to discuss the options.

14.2 Service Return Procedure

If you have questions, want a quick problem diagnosis, or need to return your *Genesis-II Directional* to the factory.

- Call Decatur Electronics Customer Service and ask to speak with a Customer Service Representative. Have the serial number of the radar unit ready.

  Phone: 800.428.4315
  Fax: 217.428.7508

If you need to return your radar unit to Decatur Electronics:

- Ask to arrange for a Return Authorization Number. You will need to give the serial number of the radar that is to be serviced. The serial number is located on the back of the main computer unit.

- Return ALL of the *Genesis-II Directional* parts in the original packaging (transportation prepaid).

- If so directed, include a note describing the problem and/or the incident that resulted in the problem. Failure to do so can delay the return of your radar device.

- Based on the information that you have given, the Customer Service Representative will issue you a return authorization (RA) number. Write the RA number on your note and shipping label.

- Return the system to:

  Decatur Electronics, Inc.
  715 Bright Street
  Decatur, IL 62522 USA
  RA# XXXXXX

The customer is responsible for the shipping charges to send the system to Decatur Electronics, Inc.

If we receive a system from a customer COD that is still under warranty, we will charge the customer for the amount of COD freight charges plus an additional 10% for handling after we repair the system. Also, we will add COD and a 10% handling fee to the repair bill for out-of-warranty repairs.

The customer is responsible for all shipping charges to the Decatur service location. Decatur does not accept incoming COD shipments. Decatur Electronics will pay the freight (up to $10.00 US) for shipping the system from the repair facility to the customer, provided the system is still under warranty. We will charge the customer for any shipping charges above the initial $10.00. If you want to ship your package express or next day air, we will invoice you for these freight charges.

If your radar is out of warranty and you would like to know the cost of repair prior to the actual repair work being performed, Decatur would be happy to give you a repair estimate. To obtain an estimate, request it either on the paperwork you submit with the radar device when you send it in for service or when you obtain a Return Authorization (RA) number. Decatur provides estimates only upon request.

The initial charge for an estimate is currently $50.00 per unit if your radar gun is not under warranty, plus the return shipping and handling fees. If, after reviewing the estimate cost, you decide not to have your radar repaired, you will be invoiced a $50.00 minimum charge. If you decide to have your radar gun repaired, you do not owe the estimated charge (the charge is waived) and only pay the amount stated in the estimate.

14.3 Maintenance and Repair Record

Date of Maintenance or Repair	What Was Done	By Whom

15. How to Order Additional Products

You can order upgrades (when available) to the *Genesis-II Directional* from Decatur Electronics as well as cases, power supplies, tripods, tuning forks, different cable lengths and mounting brackets. To see product descriptions or to order products, visit the Decatur Electronics Web site at www.decaturradar.com or contact the Decatur Electronics sales office at 800.428.4315.

Antenna cables (An 8-ft front and 16-ft rear antenna cable is good with most vehicles)		
4-ft. antenna cable	S769-117-0	$80.00
8-ft. antenna cable	S769-105-0	$90.00
16-ft. antenna cable	S769-118-0	$95.00
22-ft. antenna cable	S769-115-0	$100.00
Front and rear antenna mounting bracket		
Windshield bracket (comes standard with *Genesis-II Directional* order)	S758-38-0	$25.00
Universal window bracket	S758-33-0	$50.00
Deck mount (mounts on flat surface)	S758-34-0	$35.00
Visor bracket (mounts on sun visor)	S758-40-0	$25.50
Glue-on bracket (mounts on windshield)	S773-235A-0	$25.50
Communication cable (optional, connects radar to an external device)		
10-ft. cable (connects to IBM format PC and some video systems)	P769-116-0	$70.00
Carrying Case		
Cardboard packing box / carrying case	P1025-36	$40.00
Hard case with cut-out foam	P801-20	$70.00
Interconnect cable for connecting computer unit to detachable display unit (optional)		
9-ft. interconnect cable	S769-116-0	$15.00

Interconnect cable for use in separating detachable display from computer unit or for use in connecting communications port to other equipment		
10-ft. interconnect cable	S769-116-0	$15.00
Mounting bracket for use with detachable display or the computer unit		
Detachable display bracket	S758-51-0	$15.00

Appendix A Communications Port

The RS232 communications port (COM) is located on the rear panel of the computer unit. The serial communication has the following characteristics (8:n:1) and is transmit only:

One (1) start bit
Eight (8) data bits
No parity
One (1) stop bit
Transmission at 1200 baud

The *Genesis-II Directional* transmits data as ASCII symbols in the following digit sequence:

Target	Patrol
[hundreds][tens][ones]	ASCII [hundreds][tens][ones]
	carriage return<CR>
	(<CR> = ASCII decimal value 13)

The *Genesis-II Directional* sends the data in this sequence when the TARGET or PATROL speed display changes, or when the MODE or antenna (ANT) selection changes. During the test sequence the target and patrol speeds transmit, but the display segment check data do not.

When you press the LOCK button, the *Genesis-II Directional* transmits the following digital sequence

[hundreds][tens][ones]<CR>
(<CR> = ASCII decimal value 13)

Appendix B Menu Feature

The menu feature allows the operator to fine tune some of the settings of the radar. To activate the menu feature, press and hold the TEST button down until MENU is displayed in the mode window. Pressing OPTN steps through the menu items and the antenna ▲/ ▼ buttons change the settings. Pressing the TEST button again exits the menu feature and saves the settings.

Feature	Setting	Function
LOSP	4, 25 (km/h)	Low Speed - The minimum speed that the radar will process in stationary mode. Default is 25 km/h.
BEEP	ON, OFF	Beep - Beeps when button is pushed on the hand remote. Default is ON.
UNTS	KPH, MPH	Display units - Measure speeds in km/h or mph. Factory set based on order.
COMX	0 through 5	Serial Port Communication Protocol - Selects protocol for interfacing to MDT, signs, etc. 0 - no output 1 - Decatur format 2, 3, 4, 5 - Reserved (no output) Default is 1.
FSTL	ON, OFF	Fast Lock - Allows the locking of a target if FAST mode is active. Default is ON.
HAR	ON, OFF	Harmonic Indicator - The radar displays "_H_" in the target window in the presence of a patrol harmonic. If turned off, the target window is blank. Default is ON.
SDSS	4, 8, 12 (km/h)	Same Directions Separation Speed - Sets the minimum separation speed that the radar will process in Same Direction mode. Default is 4 km/h.

Appendix C Radar Case Law

The Offence of Speeding (General)

R. v. Hickey (O.C.A.) 1976

Speeding is an offence of absolute liability. Defence of reasonable mistake of fact is not available.

R. v. Hickey (O.H.C.J.) 1976

Speeding - defendant's speedometer inaccurate - Court held speeding was a strict liability offence to which defence of reasonable mistake of fact did exist.
NOTE: OVERTURNED ON Appeal, See: R.v. Hickey (O.C.A.) 1976

R. v. Cunningham (O.H.C.J.) 1979

Accused misread speed limit sign and believed he was in a higher speed limit zone. HELD: Accused's mistake was a mistake of law, which is no defence to the charge of speeding.

R. v. Naugler (N.S.S.C.) 1981

Speeding is an offence of absolute liability, to which mistake of fact is no defence.

R. v. Bigioni (O.C.A.) 1988

ISSUE: What evidence is required to satisfy burden on crown prima facie in prosecution of charge of speeding when evidence obtained by radar?

The Ontario Court of Appeal affirmed that the evidence adduced at trial was sufficient prima facie evidence of speeding. (Refer to transcript of trial proceedings for particulars of evidence adduced)

R. ats. Sim (O.C.A.) 1988

See transcript of evidence at trial
- no evidence of visual observation
- no evidence of officer's training and qualifications
- no evidence tests performed on radar unit conformed with manufacturer's specifications
- no evidence as to accuracy of tuning forks
- no evidence radar units "is capable of accurately measuring the speed of moving motor vehicles

Held on appeal: Evidence before trial Court was sufficient to support conviction.

R. v. Grainger (O.C.A.) 1958

Speed by radar: Counsel argued it must be established that radar, when properly used, was capable of registering speed of a motor vehicle on a highway and that the machine was in good working condition and was properly used.
HELD: On summarized evidence it was implicit that radar when properly used is capable of registering speed of motor vehicle and at time was being properly used and in good working order. As defence merely claimed but did not show machine subject to weaknesses, conviction proper on weight of evidence.

R. v. Werenka (Alta. Q.B.) 1981

ISSUE: What evidence Crown must establish to prove prima facie case where speed by radar.
HELD: Crown only had to prove prima facie case. Not obliged to demonstrate that the instrument was capable of accurately registering speeds over the entire range of the instrument where there was no evidence to throw doubt on the officer's evidence.
1. qualified operator
2. tested and accurately measured the speed of the appellant's vehicle
3. evidence prima facie notwithstanding that the officer did not have a detailed knowledge of the working of the radar set.

R. v. Joudrey (1992) Nova Scotia Prov. Court

The accused was charged with speeding contrary to s. 106(2) of the Motor Vehicle Act. The night of the alleged offence was foggy and drizzly. The accused insisted that he was not driving over the speed limit and challenged the accuracy of the RADAR readings. His lawyer cross-examined the RADAR operator and, in doing so, referred to a textbook, "the Law of Speeding and RADAR", and specifically to passages stating that certain atmospheric or environmental conditions could give spurious readings. The court did take judicial notice of the passages in the textbook and the accused was acquitted.

Griffin v. the Queen (N.S. Cnty. Crt.) 1980

Officer testified the appellant traveled at 107 kilometres in a zone marked for a maximum of 80 kilometres. He neither described the speed in terms of "kilometres per hour", nor did he describe the purpose or functioning of the radar gun. HELD: Judicial notice could be taken of the functioning of the radar gun. While the description of the speed was imprecise, the intended meaning was clear.

R. v. Longmire (1993) Nova Scotia Supreme Court (Appeal Div.)

The appellant's conviction was affirmed on appeal. The appellant appealed further, arguing that the trial Judge erred in his interpretation and application of s. 88(5) of the Motor Vehicle Act and that the Crowns refusal to provide him with a copy of the RADAR operation manual violated his rights under ss. 7 and 11(d) of the Charter, preventing him from making full answer to the charge.Defence council indicated that his reason for asking for the manual was "so that the defence can make itself familiar with the particular operation of this RADAR unit and in order that we can intelligently cross-examine the Crown with regards to how he operated the RADAR on that day." He also wished to have the manual to review sources of interference that may make the unit

susceptible to inaccuracies. In addition, the testing procedure was sought for review. The Crown, in response to the preliminary motion, indicated that it would not provide a copy of the manual, but would consent to an adjournment so the defence could hire an expert in the operation of the RADAR machine. The trial Judge declined to order a stay, as defence requested, but did grant n adjournment so that defence counsel might obtain the manual from another source. Defence counsel did not pursue the matter of disclosure on the adjourned date, nor did they cross-examine the officer with respect to the operation of the RADAR.The appellant did not lay a rational basis or factual foundation for his claim for disclosure. In an absence of an air of reality to the request for production, there was no evidence of a breach of the Charter. The appeal was dismissed.

R. v. Windrem (May 27, 1986, Brampton Prov. Off. Appt. Ct.)

Defence agents/counsel use this case to support their argument that there must be evidence before the Court that the tests conducted on the radar device were in accordance with the accepted manufacturer's technique. It is apparent from the Judgment that the appeal was allowed as the Justice of the Peace at trial misdirected himself on the evidence. The J.P. in his reasons for judgement found that the officer had checked the radar before and after use by the accepted manufacturer's technique. That evidence was not before the J.P. at trial.

R. v. Furlong (P.O.A.) 1985

Defence agents/counsel use this case to support their argument that the officer must state in evidence "- I tested the radar..."" It is apparent from the Judgement on appeal, that the appeal was allowed due to the fact that the J.P. at trial misdirected himself on the evidence before him. The J.P. found as a fact that the officer was the person that did the testing, because there was no one else in the police car. There was no such evidence before the J.P. at trial.

Owusu v. R. (P.O.A. Appeal Crt.) 1988

1. It is not mandatory for the speed limit sign to display a tab sign below.
   See Reg. 486 (d) "MAY" display...
2. There is no statutory provision in Ontario Highway Traffic Act, for the admissibility
   Of a certificate as to the accuracy of the tuning forks.
   (Alberta Court of Appeal decision Re: speeding and necessity to file certificate distinguished)

R. v. Wagner (1999), Ontario Court of Justice

The appellant in this case as charged for speeding and requested a trial. The officer in charge of the matter encouraged the woman to plead guilty in exchange for a reduction of the offence by 10 km/h. The officer later had a paralegal approach the woman and offer his unsolicited opinion that she was unlikely to be successful at trial and should accept the officer's reduction, which she did and plead guilty. She later appealed the conviction citing that she had been intimidated into the agreement. In his ruling, Judge K.P.Evans stated, "This long time practice of having the charging police officer attempt to negotiate a plea or arrange a settlement of a case such as this, is archaic and fraught with dangers to the integrity of our judicial system as it stands today. The responsibility for offering or accepting any plea negotiations are solely within the jurisdiction of the Provincial Prosecutor assigned to the said Court." The appeal was granted and a dismissal was ordered.

R. v. Howe (P.O.A. Appeal Crt.) 1988

Requirement in Alberta case for a certificate as to accuracy of tuning forks is unreasonable and not necessary. See R. v. Bourque (1985 Alta. Q.B.)

R. v. Meyer (P.O.A. Appeal Crt.)

On appeal, Court held that there must be evidence that the radar device was "capable of registering the speed of vehicles".

R. v. O'Reilly (Alta. Dist. Crt.) 1979

Where Crown failed to adduce evidence that the radar set was capable of accurately measuring the speeds and that the tests were approved tests, which evidence would have been given by the officer who testified, then appeal must be allowed and conviction set aside.

NOTE: Speeding is an offence of absolute liability. This means that MENS REA (a guilty mind) is not an element that must be proven. Guilt follows proof of the ACTUS REUS (proscribed act).

Because speeding is an absolute liability offence, a defence argument that, owing to a defective speedometer the accused honestly believed that he or she was not exceeding the speed limit, would not be successful.

R. v. Keenan (1994) British Columbia Supreme Court

The accused appealed a conviction for speeding. One of his three grounds for appeal was that there was insufficient evidence of the accuracy of the RADAR measurement showing that the accused was speeding.

The police officer testified that, prior to starting his shift, he had tested the device using a tuning fork. He also testified that he visually estimated the speed of the vehicle to be 90 km/h: the RADAR device displayed a speed of 92 km/h. There was ample evidence to support the justice of the peace's conclusion that the measured speed was accurate. It was not necessary that the accuracy of the tuning fork be proven.

R. v. Cook (1994) Nova Scotia Supreme Court

The accused was convicted of speeding based on a reading from a moving RADAR. The accused appealed arguing that the trial Judge erred in finding that a prima facie case as to the accuracy of the RADAR equipment had been established since no certificate was produced attesting to the frequency used by the tuning fork to calibrate the machine. He also argued that the Crown failed to make full disclosure in that it failed to give notice that it intended to give expert testimony from the officer/ RADAR operator. Finally, he argued that the Crown failed to prove that signs were erected and maintained imposing an 80 km/h speed limit at the time and place in question. The appeal was dismissed.

The Motor Vehicle Act makes it clear that, whether posted on not, there is a prima facie speed limit on all highways in Nova Scotia of 80 km/h. The accused conceded that he had the entire file of the Crown. There was no withholding of any information; there was no expert's report and no need for the preparation of any expert report. The accused argument as to the accuracy of the instrument would be persuasive if the alleged offence was one in which there was a marginal difference between the speed limit (80km/h) and the speed of the accused (130km/h) and if there was no other persuasive evidence.

R. v. Lounsbury (1993) Manitoba Court of the Queen's Bench

The accused was charged for speeding. The RADAR operator testified at trial that it was his usual practice to test the unit both before and after issuing an offence notice, but he had no independent recollection of performing the tests in this case. He made a note in his notebook that he had performed a test or tests, but did not note the time of the test. The accused was convicted and appealed. The appeal was allowed.

Evidence as to the operator's usual practice did not constitute proof beyond a reasonable doubt that the RADAR device was operation in this case. All that could be safely inferred from the RADAR operators testimony and notes was that he tested the RADAR device and found it to be in good working order at some point or points during the relevant shift. As a result, the appeal was allowed and the conviction was quashed.

R. v. Friedlan (1993) Ontario Court of Justice (Prov. Div.)

Where a person is charged with speeding in a construction zone, the onus is on the Crown to prove that the portion of the highway travelled was designated as construction zone under s. 128(8) of the Highway Traffic Act. Pursuant to s.128(9) of that Act, such designation is not a regulation within the meaning of the Regulations Act.

In this case, despite the fact that the officer testified that this was a construction zone in question and the area was clearly posted as an 80 km/h zone, the court allowed the conviction, but amended the offence to indicate the non-construction zone speed limit of 100 km/h.

Quebec c. Robitaille (1991) Quebec Court of Appeal

A police officer who was following the accused's vehicle testified that the speedometer of his own car recorded a speed of 140 km/h while the speed limit was 90 km/h. At the end of the Crown's case, the accused moved for non-suit on the grounds that the speed at which he was travelling was not established. This argument was rejected and the accused was convicted. On appeal by trial de novo, the Superior Court quashed the conviction. The Crown appealed.

The appeal was allowed and the conviction was restored. If a speed established by a RADAR device is sufficient prima facie evidence, a fortiori is the speed recorded by the speedometer. Expert evidence establishing the speed

at which the accused was driving is not required, since the accused had not adduced evidence raising a reasonable doubt as to the accuracy of the police officer's speedometer. Therefore, the conviction was justified and had to be restored.

Quebec c. Mason (1988) Quebec Superior Court

The accused was convicted of speeding. He appealed, challenging the RADAR evidence. The appeal was dismissed. Leaving aside cases in which calibration, verification of calibration, method of operation, qualifications of the operator or other factors cast a doubt on the evidence of operation and capabilities of a device, the testimony of a qualified operator can found a conviction. Once the conditions precedent are met the fallibility of the device goes to weight. It is unnecessary to show scientifically the principles of RADAR.

R v. Strong (1988) Nova Scotia County Court

The accused was acquitted of a speeding charge. Although the trial Judge accepted the evidence of the police officer with respect to the actual speed of the accused's vehicle as indicated by the RADAR, he entered an acquittal on the basis that the Crown had failed to prove that the accused had passed a speed zone sign indicating the posted speed in the area in question. The Crown appealed. The appeal was allowed.

There was requirement in the relative statutory provision that speed zone signs be erected so as to be always visible to a motorist traversing a section of highway covered by the speed approved for that area. Common sense dictated that such could not have been the intention of the Legislature - otherwise such signs would have to be erected at each street intersection and at various intervals along all the province's roadways.

Quebec c. Rannaud (1988) Quebec Provincial Court

The accused was stopped for speeding. The sole evidence was from a RADAR operator. The operator testified that he took an instruction course and that he frequently used the device on duty. He indicated that on the night in question he manually and electronically verified the accuracy on three occasions. He also verified the devices operation after stopping the accused. Manual checks were done by means of a tuning fork. The accused was convicted.

No expert was needed to provide evidence regarding calibration. The absence of legislative approval of the use of tuning forks did not invalidate its effectiveness on calibration. If the operator carries out tests correctly and in conformity with recognized methods, he can speak to accuracy of the device and its proper functioning. An operator need not be familiar with the relevant laws of physics. Here, the results of the test confirmed the accuracy.

TRAINING/QUALIFICATIONS

R. v. Wolfe (B.C.C.C.) 1979

The officer had some training and experience operating radar set, but training "fell short" which cast doubt on the accuracy of the device and its results.

R. v. Brewer (May 19, 1988, Prov. Off. Ct. Nwkt, Ont.)

At trial, officer had stated in-chief that he was a qualified radar operator and that he had received some basic training from an experienced officer in the use of the radar. In cross-examination, the officer's qualifications were challenged.

HELD ON APPEAL: In this case, the officer could not be regarded as a "qualified radar operator" and therefore, a prima facie case was not made out.

NOTE: Can be distinguished on the facts of this case, as officer had no formal training.

R. v. Waschuk (Sask. Q.B.) 1970

Judicial notice of radar: Judicial notice may only be taken of facts which are known to intelligent persons generally, therefore, judicial notice may not be taken of meaningfulness of tests.

Radar operator should be able to give evidence as to whether the machine is in good working order and capable of recording the speed of the vehicle being tested.

R. v. Karpetz (Unreported, March 18, 1982 (Prov. Off. App. Ct.)

His Honour, Provincial Court Judge W. Hryciuk.

Failure to show the radar reading to the defendant does not make the charge bad. No duty is cast upon the officer to show the reading on the radar screen. As a matter of courtesy, he can advert the defendant's attention to the reading whether the defendant asked to see it or not.

R. v. Axler (Unreported August 20, 1981, Prov. Off. App. Ct.)

His Honour, Provincial Court Judge R.B. Dnieper.

Radar alone is good evidence. After 42 years of use, the courts will accept as prima facie evidence, the accuracy of radar devices. No longer is radar merely corroborative evidence. It is now primary evidence.

Before the prima facie rule applies, it has to be established in evidence that:

1. the radar machine was in proper working order, and

2. the radar operator was qualified to operate the machine in question.

At all times, the onus is on the crown to prove its case beyond a reasonable doubt.

R. v. Seymour (Unreported, June 16, 1982 Prov. Off. App. Ct., County of Huron, Ont.)

The crown must establish in evidence that the officer is a person who has been properly trained in the use of the device and further, that at the time in question the radar device was operating accurately.

R. v. Lehane (1982, 15 M.V.R. 160 (Ata Q.B.)

There was no evidence that the device had been recently tested to determine whether or not the device was operating properly and was capable of accurately registering speeds.

The Judge stated in his opinion it would be easy matter for police to test the accuracy of radar devices by means of a calibrated tuning fork or by some other means before and after a duty shift during which the device was used.

R. v. Ellision (Feb. 11, 1987, British Columbia County Court)

The accused was convicted of speeding. He appealed on the ground that the denial by the police officer who stopped his car of his request to see the radar reading erasure of the reading by the officer contravened the best evidence rule and violated his right to make full answer and defence under section 7. of the Charter.

Held - The appeal was dismissed.

The best evidence rule was confined largely to documentary evidence; apart from documentary evidence it was not usually applied to exclude secondary evidence otherwise admissible. There was no suggestion of an attempt to conceal evidence. The accused had been given the opportunity to make full answer and defence.

R. v. Hallett (May 3, 1988, N.S. Co. Ct.)

Appeal by accused from his conviction on a charge. The accused's vehicle had been clocked on radar and the accused now argued that the police officer operating the radar device had never been properly qualified as an expert to do so - No objection had been raised as to the qualifications of the police officer during his evidence at trial nor was the officer cross-examined as to his qualifications. In the circumstances it was not necessary for the Crown to establish that the police officer was an "expect" as the evidence which he was being asked to give was not in the nature of an opinion but more in nature of observations. The trial judge clearly found that the police officer could operate the machine, that the machine was working properly, and that there was no evidence to show that it's reading was inaccurate. There was no basis to disturb those findings on appeal.

R. v. McDonald (Feb. 26, 1987, B.C. Co. Ct.)

Opinion Evidence - Whether radar operator giving "expert" evidence. The trial judge did not err in finding police officer who testified concerning his operation of radar was not an "expert" so as to require 30 days' notice in writing of his proposed evidence under s.11 of the Evidence Act. Accordingly, the officer gave evidence only of a technical skill, which did not reach expert status.

User Notes

Index

air bag deployment zone 12
air conditioner 18
angular interference 45
ANT (FRONT and REAR) buttons 9, 20, 38, 42
Ant? 20
antennas 7, 8, 9, 12, 14, 15, 16, 17, 20, 22, 24, 36, 37, 40, 42, 52, 56, 62
batching 47
beep 7, 41
blanking patrol speed 40, 42
brackets 8, 12, 15, 17, 68, 69

cables 8, 11, 13, 14, 37, 68, 69
care 54
case law 72-84
CITY 39
city/highway option (OPTN) 39, 71
cleaning 54
communication (COM) port 43, 62, 70
computer/display unit 8, 10, 33, 55
connectors 10, 11, 13, 14, 37
controls 38
cosine error effect 45, 46

Decatur Electronics Customer Service 65
Decatur products 63, 68
digital signal processing (DSP) 7, 47
display windows 34
Doppler 41, 44, 49

electromagnetic interference (EMI) 47
environment 56
erratic speeds 44, 50
error messages 34

FAIL 51
fan interference 18, 46
FAST button 9, 28, 35, 38, 42
Faster operating mode 9, 28, 35, 42
FCC 59, 62
feedback 47
freight charges 66
frequently asked questions (FAQ) 62, 63
FRONT button 9, 18, 20, 38, 42

guarantee 64

hand-held remote control 7, 8, 38, 55
heater 18
high-speed option 58
HWY 39

in-car video systems 43, 62
initial setup 10-17
installation check 18
interference 18, 44, 45-50

K-band Directional antennas 7, 37, 55, 56

law (radar cases) 72-84
legal requirements 59-61
lights 35, 36
  FASTER 33, 35
  FRONT 33, 36
  RANGE 30, 33, 35
  REAR 33, 36
  SLOWER 33, 35
LOCK button 9, 29, 32, 34, 38, 40, 42, 70
locked speeds 9, 29, 34, 40, 42
LOCKED window 9, 28, 29, 31, 32, 33, 34, 42

low voltage (LowV) 34

maintenance 67
MODE button 9, 25, 38, 42
MODE window 19, 20, 25, 26, 27, 33, 34, 39, 40, 51, 63
mounting hardware 8, 12, 15, 17
Moving Mode Opposite Direction 9, 25, 26, 42, 54, 58, 63
Moving Mode Same Direction 9, 26, 27, 42, 58, 63
Moving Mode Same DirectionTest 58
multi-path beam cancellation 48

operating modes 21
OPTN button 31, 38, 39, 40

PASS 19, 51
patrol harmonics 48
Patrol speed blanking 40, 42
Patrol speed lock 40, 42
Patrol speed recall 40, 42
Patrol speeds 26, 40, 42
PATROL window 26, 31, 33, 34, 40
PCs 43
performance tips 44
power 14, 19, 57
PWR button 9, 19, 38, 39

quick start 9

radar (defined) 44
radio frequency interference (RFI) 34, 49
range 30, 35, 38, 62
RANGE button 30, 32, 38, 41
REAR button 9, 20, 38, 42
recalling patrol speed 40, 42
remote control 38
repair record 73
return policy 65, 66
RMT? 34, 38
road test 52
RS232 communications port 43, 62, 70

sensitivity level 30, 35, 62
serial communication port 43, 62, 70
service 64-67
shadowing 39, 49, 50
shipping and handling charges 66
specifications 55-58
speed accuracy tests 51
speed computation 58
speed range 58
speed signs 43, 63
speedometer test 52
sports gun 63
spurious speeds 44, 46, 47
squelch (SQL) button 38, 41
Stationary Mode 21, 22-24, 58
Stopwatch Mode 31, 32, 39, 41
storage 54
system error (SYS) 19, 34, 40, 63

TARGET window 9, 22, 24, 26, 28, 29, 31, 33, 34, 35, 42
targets
  acquisition range 30, 35, 41
  evaluating multiple targets 28, 42
  next strongest target 28
temperature 12, 56
TEST button 38, 40, 51, 71
test functions
  circuitry 40, 51
  display 51
  Moving Mode Opposite Direction 58
  Moving Mode Same Direction 58
  road 52

self test 40, 51
speed simulation 51
Stationary Mode 58
tracking history of target speed 29, 42
troubleshooting 62, 63

upgrades 68, 69
user notes 86

vehicle ignition interference 50
Velcro 12
video systems 43, 62
voltage 57
VOLUME button 38, 41

warranty 64