

Exhibit E

User's Manual

SUPERIOR ELECTRONICS CORPORATION

FCC ID.: K4ER1F

RECEIVER

TROUBLESHOOTING GUIDE

See page 15 for testing tips.

SITUATION	POSSIBLE PROBLEM	SOLUTION
Poor transmitter range	1. Low or dead transmitter battery. 2. Metal of car body reflecting RF waves. 3. RF interference.	Replace the battery. Mount alarm brain in another location. Fold or roll up (do not cut) alarm brain antenna.
Transmitter LED doesn't flash when button pushed.	1. Loose battery connection. 2. Low or dead transmitter battery. 3. Defective transmitter.	Make sure battery contact with clip is tight and clean. Replace the battery. Replace the transmitter.
Transmitter not work when siren sounding.	Alarm brain too close to siren.	Increase the distance between siren and alarm brain, and make sure the two are not grounded together.
Alarm not respond to pressing transmitter button.	Transmitter not matched to alarm.	Re-code the transmitter.
Under passive arming (switch sensing), siren does not chirp when the last door/hood/trunk is closed.	Door/hood/trunk pin switch not connected, or broken, or its height is not adjusted properly.	Check blue or blue/white wire (depending on which switch) at brain with VOM. If ground when door or hood or trunk open, and not when closed, then problem with wire harness or brain. Otherwise, check switch, wire, or connection.
Under passive arming (current sensing), siren does not chirp when the last door/hood/trunk is closed.	Not a problem—With current sensing, alarm can only detect open doors, not closed doors.	
Not all doors trigger the alarm.	Door switches are isolated by diodes.	Connect trigger wire to under-dash courtesy lights, or connect individual pin switches to each door.
Too many false alarms.	Shock sensor or door pin switches, or current sensing.	Reduce shock sensor trigger sensitivity, and double-check all door and hood/trunk pin switches.
When alarm triggered, pressing transmitter shuts siren and lights OFF, but alarm stays armed.	Patented Stop-Safe Disarm.	This is a feature of the alarm, and not a problem.
More than one chirp when arming (active mode).	Alarm detects open circuit, does zone bypass.	Check all openings to see which is not closed properly.
Siren does not chirp.	Set for chirp delete.	Reprogram to restore chirp.
Siren chirps or LED flashes while driving.	Yellow wire of 10-pin connector loose.	Check the connection.
Siren continuously emits a strange quiet sound.	Poor main brain ground.	Check the main brain ground, make sure good contact, and not grounded together with siren.
Cut main power wire (red wire), and alarm loses power.	Fused orange wire and fused red wire connected to the same source.	Connect these two wires to separate sources of +12VDC. (Feature not available for (-) parking light systems).
Testing of hardwired zone, on-board or auxiliary sensor, or current sensor does not trigger alarm.	Tried to test the triggers too soon after the alarm was armed.	Wait 3 sec. (hardwired triggers) or 10 sec. (current sense) after arming before testing.

SECO-LARM's ENFORCER 100F is protected by the following patents:

- U.S. pat. nos. 5483225, 5473305, 4975678, 4980666, 4835518, 4810998, 4550229, 4543568, 4546629, 4679033, 4700332, 4706064, 4761631, 4926160, 4507945, D314791, D319196
- Taiwan pat. nos. 105843, 100701, 94510, 84396, 76872, 50612, 43239, 40938, 35097, 33687, 75669, 66042, 59176, 40938, 37977, 33201, 33687, 52421, 19593, 12398, 21111, 30897, 37422, 40244, 30905, 30060, 32844, 32409, 28883, 31633, 26690, 22073, 20786, 46459, 17724, 18971, 20380, 24477, 39225, 16021
- U.K. pat. nos. 2271009, 2215895, 2179482, 2177529, 2177797, 2141480
- German pat. nos. 29600370.0, G9203003.3, G9203004.1, G9212809.2
- Hungary pat. no. 85927
- Japan pat. no. 1882619
- Other international patents are pending.
- China pat. no. ZL94300564.7
- Korea pat. nos. 32332, 35097

INSTALLATION MANUAL

ENFORCER®

100F

Remote Controlled
Vehicle Security System



SECO-LARM® U.S.A., INC.

17811 Sky Park Circle
Suite D & E
Irvine, California 92614

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NOTICE

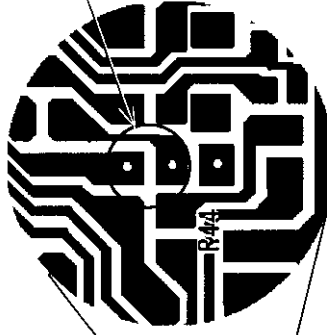
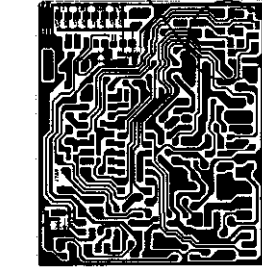
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ALARM FEATURE PROGRAMMING

Description of feature	Default	Can be programmed to be:
Enable/disable current sensor	enabled	disabled — cut the purple wire loop
Passive/active mode	active	passive — cut the orange wire loop
Permanent chirp on/off	on	off — cut tracer on the printed circuit board

Programming for Chirp Disable



Solder these two solder pads together for chirp disable.

TIPS FOR TESTING THE ALARM

- A. Testing RF reception and range — To test if the alarm brain is receiving signals from the RF transmitter, and to test range, watch the alarm status LED. The LED should turn ON steady as long as any button on the RF transmitter is being pressed. If the LED does not turn ON, this means the alarm brain is not receiving the transmitter signal.
- B. Testing wire connections — Often, when trying to trace a problem between a trigger input, wiring, and the alarm brain, one place to test is at the alarm brain itself. Set the VOM for (+) or (-), depending on the trigger, then probe the appropriate wire near the alarm brain while testing the trigger. For instance, to determine why a (-) door trigger is not working, probe and test the BLUE WIRE of the 6-pin connector near that connector. If the BLUE wire shows (-) when the door is opened, then the problem may be caused by the user not arming the alarm correctly, or the alarm brain may be defective. But if the BLUE wire does not show (-) when the door is opened, the problem may be a loose or defective pin switch or wire connection.
- C. Sensor delay times — The various sensors have a short 4-second delay from the time the alarm is armed until the sensor can be triggered. Therefore, after arming the alarm, wait until after the delay period before testing the sensor to be sure that sensor is operating properly.

CODING THE RF TRANSMITTERS

The two included transmitters come pre-coded to the alarm brain, and so no further coding is needed at the time of installation.

Any number of transmitters can be scratch-coded to match the alarm brain. In most cases, to add additional transmitters, just open an existing transmitter and a new transmitter, and use a dremel tool or an awl or other pointed object to cut traces in the new transmitter's printed circuit board to match the cuts in the old transmitter.

However, in some cases, especially if the transmitters are lost or stolen and it is not practical to pull out the alarm brain, it is possible to find the alarm's existing code and code a new transmitter without seeing the old transmitter's printed circuit board. In this case:

- A. Get the code — Look for a 5-digit number on a white sticker on either the back of the alarm brain, back of an existing transmitter case, or on top of an IC on the alarm brain's printed circuit board.
- B. Note the code — Each digit corresponds to one combination on the printed circuit board:
 - (1) The 1st digit corresponds to combination "I" on PCB.
 - (2) The 2nd digit corresponds to combination "II" on PCB.
 - (3) The 3rd digit corresponds to combination "III" on PCB.
 - (4) The 4th digit corresponds to combination "IV" on PCB.
 - (5) The 5th digit corresponds to combination "V" on PCB.
 Every combination has two bits (BIT "A" & BIT "B"). Each bit can be programmed for one of three modes ("H" or "L" or "F"). Each combination corresponds to one digit (see TABLE 1).

TABLE 1

	1	2	3	4	5	6	7	8	9
A	H	H	H	L	L	L	F	F	F
B	H	L	F	H	L	F	H	L	F

H: Keep the trace between the Middle case and the Higher case, but cut the trace between the Middle case and the Lower case.

L: Keep the trace between the Middle case and the Lower case, but cut the trace between the Middle case and the Higher case.

F: Cut both traces.

3. Example — Take code 25679 for example. I = 2, II = 5, III = 6, IV = 7, V = 9.

Carefully cut the printed circuit board trace per figs. 1 and 2. For every trace cut on the transmitter, the respective trace must be cut on the receiver.

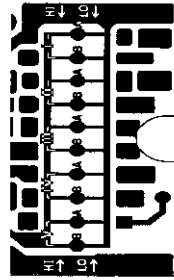


Fig. 1 — RF transmitter printed circuit board

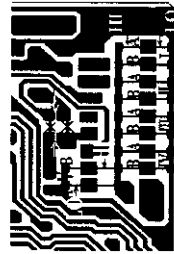


Fig. 2 — RF receiver printed circuit board

GENERAL CONSIDERATIONS

IMPORTANT: THIS ALARM IS INTENDED FOR INSTALLATION BY QUALIFIED PROFESSIONALS ONLY. READ BOTH THIS MANUAL AND THE OWNERS MANUAL COMPLETELY BEFORE BEGINNING THE INSTALLATION

1. Make sure all electrical connections are securely soldered.
2. Do not run wires too tightly. Allow some slack in case the wires are accidentally pulled by someone servicing the vehicle in the future. Remember that wires may shrink or break due to impact, heat, and so on.
3. Do not allow wires to rub against sharp edges which could cause short circuits. Use grommets when wires are run through holes in the car body or firewall.
4. Protect and hide wires with flexible tubing or by wrapping with electrical tape if possible. Ideally, the wires should be indistinguishable from the vehicle's factory wiring.
5. Mount all plastic components away from sources of extreme heat such as the exhaust manifold or turbocharger to prevent melting. Also mount all components away from areas that receive water directly.
6. Mount all components in such a way that they do not impair or interfere with the normal operation of the car's moving parts.
7. Mount all components and run all wires so they cannot be easily reached from underneath the vehicle.

IMPORTANT:

THIS MANUAL OFFERS GENERAL GUIDELINES ONLY. INSTALLATION WILL VARY FROM VEHICLE TO VEHICLE. SECO-LARM IS NOT RESPONSIBLE FOR INJURIES OR DAMAGES WHICH RESULT FROM INCORRECT INSTALLATION OF THIS ALARM SYSTEM.

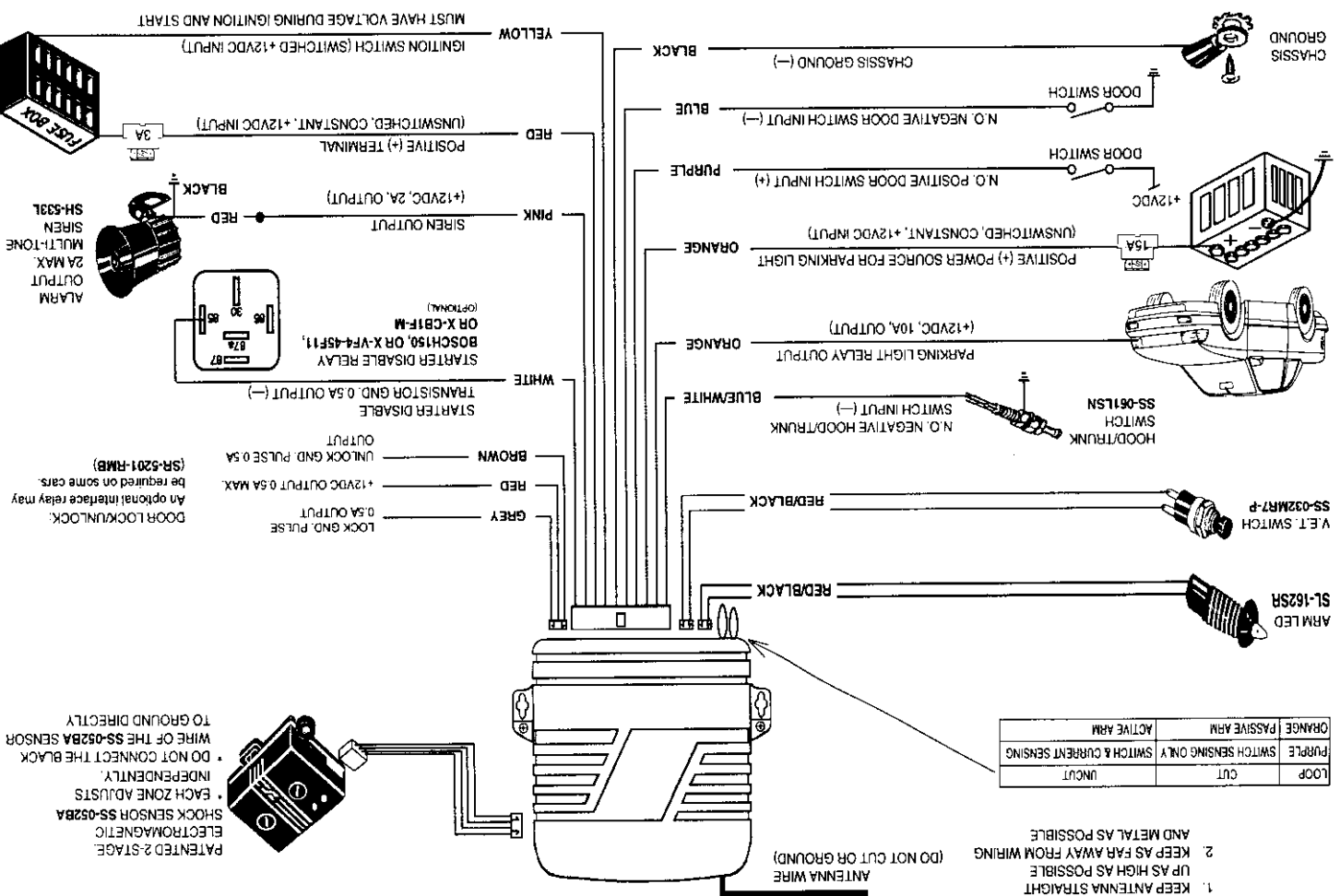
DISCONNECT THE FUSES FROM THE ALARM'S RED AND ORANGE WIRES BEFORE BEGINNING THE INSTALLATION. PLUG BACK IN ONLY AFTER THE INSTALLATION IS DONE AND CHECKED.

TEST ALL WIRES CAREFULLY BEFORE CUTTING OR SPlicing. TO AVOID DAMAGING THE VEHICLE'S ELECTRICAL EQUIPMENT, USE A TEST METER, NOT A TEST LIGHT.

IF THE VEHICLE IS EQUIPPED WITH AN ANTI-THEFT RADIO OR AN AIR BAG, DO NOT DISCONNECT THE BATTERY.

BEFORE YOU START, DON'T FORGET:

1. Ask the customer where to install the LED. It should be visible from the right and left sides of the car. It should not be exposed to direct sunlight.



The shock sensor is omnidirectional. It can be mounted at any angle.
 (2) Plug the sensor into the alarm brain's 4-pin connector.
 (3) Set the sensitivity:

- Turn the pre-intrusion (1st stage) sensitivity to maximum (clockwise).
- Test the trigger (2nd stage) sensitivity by rapping hard on the vehicle to simulate an attack. (Do not hit the window.) Adjust the sensitivity by turning the trigger adjustment pod clockwise (more sensitive) or counterclockwise.
- Next, test pre-intrusion (1st stage) sensitivity by lightly knocking on the vehicle to simulate bumping the car. Adjust sensitivity by turning the pre-intrusion pod clockwise (more sensitive) or counter-clockwise.

NOTE:

- Changing trigger sensitivity also affects pre-intrusion sensitivity.
- When trigger sensitivity is set to minimum, the shock sensor is turned OFF, and cannot trigger the alarm.
- When sensitivity is set to maximum, the shock sensor is very sensitive. This may cause unnecessary chirps and/or false alarms.
- The shock sensor and auxiliary sensors will not trigger the alarm until 4 seconds after the alarm is armed and no further motion is detected.

IMPORTANT — These four wires are transistor +12VDC or transistor ground inputs and outputs with max. ratings of 500mA. Take care when connecting accessories to these wires.

CURRENT SENSING

- Program the alarm for switch sensing only, or for both current & switch sensing.
- Current sensing does not trigger the alarm until 4 seconds after the alarm is armed.
- If the alarm is programmed for current sensing, but does not detect the opening of a door, it is possible the dome lights do not draw enough current. In this case, try a brighter dome light (check the vehicle manufacturer's specifications), or connect a non-polarized capacitor (47µF or larger) in parallel across the dome light.
- Note regarding current sensing:
 - If the dome light burns out or is constantly left ON, the alarm will not detect the doors opening.
 - If current sensing and passive arming are desired, connect the door pin switches to the alarm. Otherwise the alarm will not arm properly.

B. To connect more than one SECO-LARM dual-stage shock, microwave, or glass break sensor, use an SR-199-315 Y-connector. (See fig. 18.)

C. To install non-SECO-LARM auxiliary sensors — Splice into the shock sensor's wire harness as shown in fig. 19.
NOTE — For single-stage auxiliary sensors, do not use the YELLOW WIRE.

- KEEP ANTENNA STRAIGHT UP AS HIGH AS POSSIBLE
- KEEP AS FAR AWAY FROM WIRING AND METAL AS POSSIBLE

- D. Single wire, polarity switching — The factory door lock switch uses a single wire to control the door lock and unlock operation. The single LOCK/UNLOCK WIRE shows ground when the doors lock, and +12VDC when they unlock. This is found on most Mercedes Benz and on some other European cars. See fig. 13.
- E. Single wire, positive shunt switching — This system uses a single wire to activate the door locks. Applying +12VDC on the LOCK/UNLOCK WIRE causes the doors to unlock, and removing the +12VDC (not applying ground) causes the doors to lock. Found on some Ford Probes. See fig. 14.
- F. Single wire, negative shunt switching — This system uses a single wire to activate the door locks. Applying ground on the LOCK/UNLOCK WIRE causes the doors to unlock, and removing the ground (not applying +12VDC) causes the doors to lock. Found on some Mazdas and Nissans. See fig. 15.
- G. Aftermarket door lock actuators — If the vehicle does not have power door locks, install aftermarket actuators according to the supplier's instructions. (If the vehicle has power door locks on all doors except the driver's door, install one aftermarket actuator on the driver's door. Includes some Volkswagens, SAABs, and assorted Japanese models.) See fig. 16.

13. 4-pin connector
DUAL-STAGE SHOCK SENSOR
YELLOW WIRE (pre-intrusion input)
BLACK WIRE (ground output)
BLUE WIRE (aux. sensor trigger input)
RED WIRE (+12VDC output)
 Figs. 17 to 19
- A. To install the included shock sensor:
 (1) Cable-tie the sensor securely to at least two points under the dash. Do not screw it to metal. Mount so you can reach the adjustment pads. (NOTE —

Fig. 17 — Plugging the SS-052BA into the alarm brain

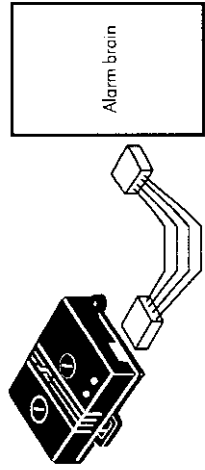


Fig. 18 — Connecting more than one auxiliary SECO-LARM sensor to the alarm (via the SR-199-315 Y-connector)

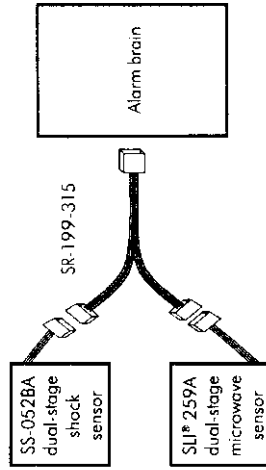
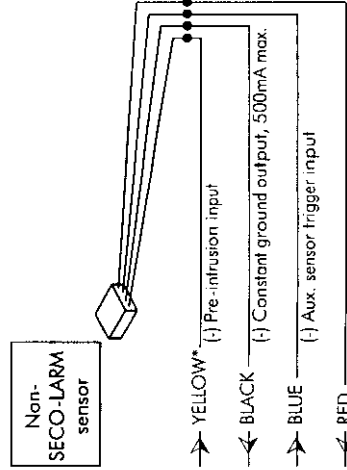


Fig. 19 — Adding a non-SECO-LARM auxiliary single- or dual-stage sensor



* NOTE — Ignore the YELLOW wire if installing a single-stage sensor.

MOUNTING THE ALARM BRAIN

The alarm's main brain, which controls all the alarm's functions, is very sophisticated, and care must be taken when mounting. Note:

A. DO NOT MOUNT THE ALARM BRAIN UNTIL ALL CONNECTIONS HAVE BEEN MADE AND THOROUGHLY TESTED.

- B. Do not mount the alarm brain where it is exposed to extreme heat or moisture. **DO NOT MOUNT IT IN THE ENGINE COMPARTMENT.**
- C. Mount the alarm brain out-of-sight under the dashboard. Securely tie-wrap it in place so it cannot be easily reached by thieves or disconnected by accident.
- D. Make sure the alarm brain does not disrupt the normal operation of any moving parts under the dash.
- E. Do not mount in front of the heater, defroster, or air conditioning ducts.

F. RF considerations — Transmitter range will vary. For greatest range:

- (1) Metal blocks RF transmission, while glass and plastic have no effect. The higher the alarm brain is mounted (the closer to the windshield), and the farther from metal, the greater the transmitter range. Never mount in the trunk.
- (2) Do not mount near pagers, CB radios, car horns, or air horns.
- (3) Do not lengthen or cut the black antenna wire or mount the antenna wire to the metal car body, unless in an area of excessive RF interference.
- (4) RF interference — If there are difficulties arming and disarming in areas of strong RF interference, such as near an airport or a military base, tape the antenna wire to the car's metal body, or roll or fold it (do not cut it). This may reduce range, but it should reduce arming and disarming difficulties.

SPECIFICATIONS

Alarm outputs	+12VDC, 2A
Siren/horn:	On-board 10A DPST relay, 2 wires (com & N.O.)
Parking lights:	500mA transistor ground
Starter disable:	100mA, transistor ground
LED output:	500mA, transistor ground
Door lock/unlock:	500mA ground output
Alarm inputs	
RF panic, N.O. negative for door, N.O. positive for door, N.O. negative for hood/trunk, N.O. negative for aux. sensor trigger, N.O. negative for aux. sensor pre-aler, ignition switch sensing, current sensing	

Transmitter/receiver	
Modulation:	AM
Impedance:	50 ohm
Frequency:	31.5MHz
Digital coding:	Over 68 billion possible codes
Power (kmtr):	+12VDC battery
General	
Power:	+12VDC (9V to 14V)
Current drain:	Under 20mA (armed, LED flashing)
Exit delay:	30 seconds (passive arming)
Entry delay:	None (10 sec. under emergency disarm)
Alarm duration:	30-second cycle, max. 4 cycles

WIRE CONNECTIONS

1. 10-wire connector, RED WIRE (3A fuse, to +12VDC)

Remove the 3A fuse, and connect this wire to constant (unswitched) source of +12VDC. Connect directly to the vehicle's fuse box, or to the battery (+) terminal.

IMPORTANT — FOR SAFETY, DO NOT INCREASE THE LENGTH OF THE RED WIRE.

IMPORTANT — DO NOT PLUG IN THE FUSE UNTIL ALL OTHER CONNECTIONS ARE MADE.

2. 10-wire connector, BLACK WIRE (to chassis ground), fig. 1

Choose a good chassis ground location. This is the most important point of a successful installation. A poor ground connection will cause the siren to continuously emit a low siren sound whenever the alarm is armed.

Use one of the car's factory bolts to connect to chassis ground. If none is available, scrape paint and dirt from the metal surface, and use a grounding lug and star washer.

3. 10-wire connector, YELLOW WIRE (ignition switch positive input)

Fig. 1 — Connecting chassis ground

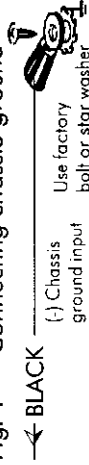
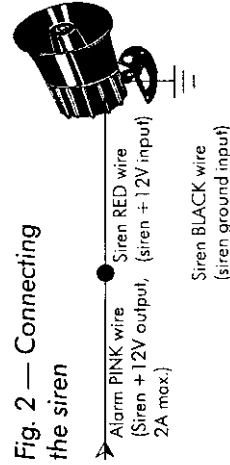


Fig. 2 — Connecting the siren



Connect to a fuse or wire which outputs +12VDC when the ignition key is in the ON and START position, but not the ACC position. **This wire must be connected at all times** to ensure proper arming and disarming, as well as to operate the push-button switch for valet, emergency disarm, and temporary disarm.

4. 10-wire connector, PINK WIRE (to siren), fig. 2

A. Mount the siren under the hood to the vehicle's metal body. Mount as close to the grill as possible for best sound. The siren must not touch the engine. Mount with the mouth facing down so water will not collect inside the siren.

B. Connect the siren's BLACK WIRE directly to the vehicle's metal chassis. Scrape paint from the metal surface, and use a factory grounding bolt or a star washer.

C. Connect the alarm's PINK WIRE directly to the siren's RED WIRE.

5. 10-wire connector, PURPLE WIRE (positive door trigger input), fig. 3

Existing car door switches — Use a VOM meter to locate a wire (usually in the driver's kick panel) which shows +12VDC when any vehicle door is opened, and which is not +12VDC when all the doors are closed. Connect to the PURPLE WIRE.

Fig. 3 — Connecting pos. door triggers

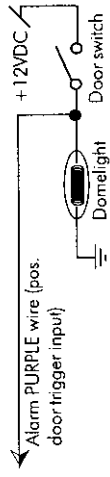


Fig. 13 (power door lock/unlock outputs) — Single wire, polarity switching

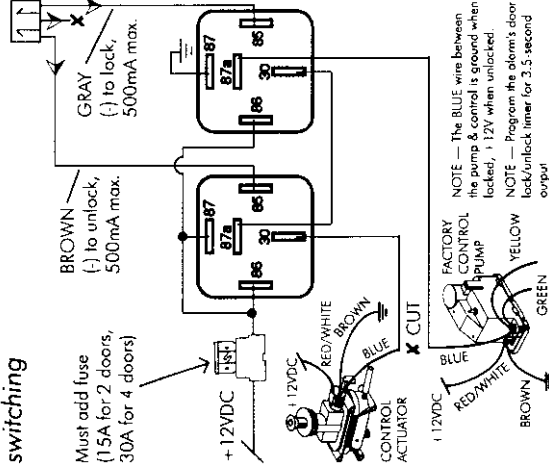


Fig. 15 (power door lock/unlock outputs) — Single wire, negative shunt switching

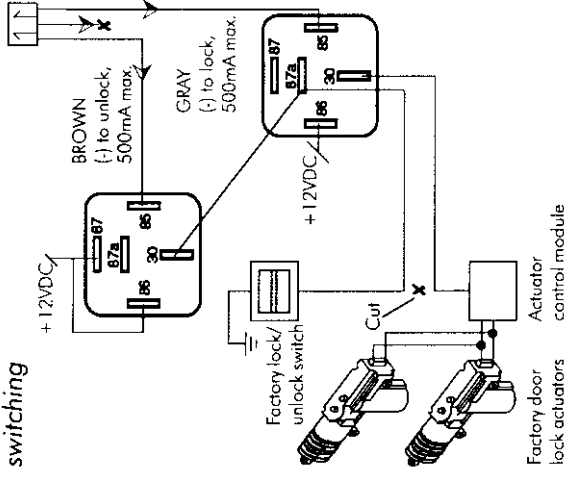


Fig. 14 (power door lock/unlock outputs) — Single wire, positive shunt switching

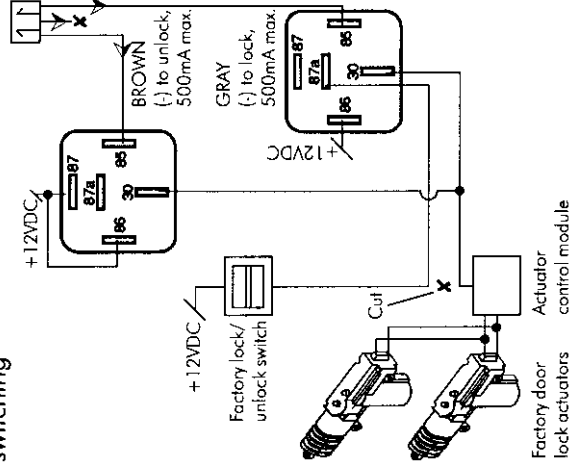
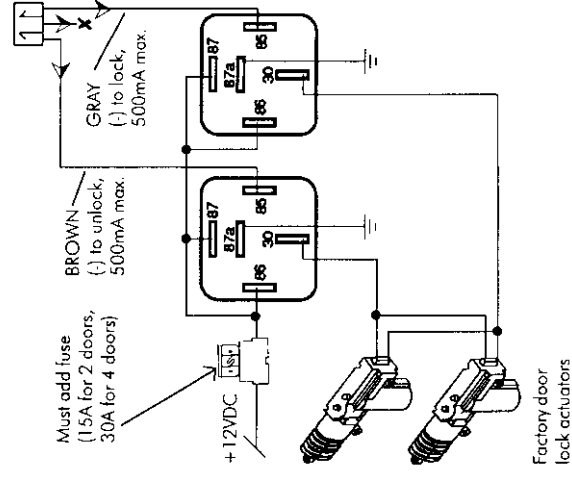


Fig. 16 (power door lock/unlock outputs) — Aftermarket actuators



the door is locked to pulse a factory relay to lock the doors. The UNLOCK WIRE becomes +12VDC when the door is unlocked to pulse a factory relay to unlock the doors. Most General Motors cars use this system. See fig. 11.

- C. **Positive reversal switching to factory actuators** — The factory door lock switch typically has 5 wires. Two wires always show ground, and one always shows +12VDC. The LOCK WIRE shows ground at rest and during unlock, but shows +12VDC when the door is locked. The UNLOCK WIRE shows ground at rest and during lock, but shows +12VDC when the door is unlocked. Many GM trucks, Fords, and Chryslers use this system. See fig. 12.

Fig. 11 (power door lock/unlock outputs) — Positive relay switching to factory actuators

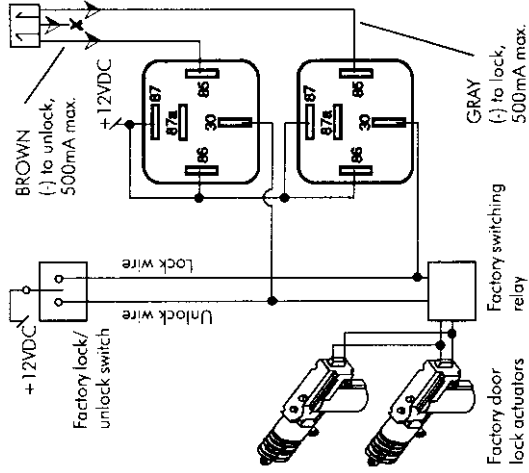


Fig. 10 (power door lock/unlock outputs) — Negative relay switching to factory actuators

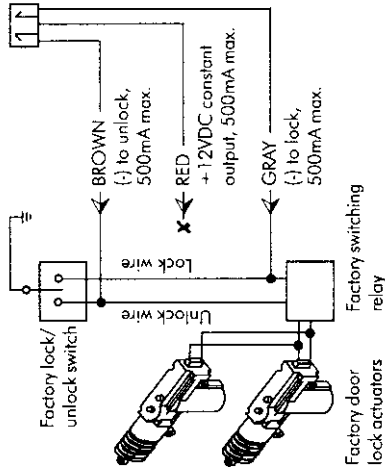
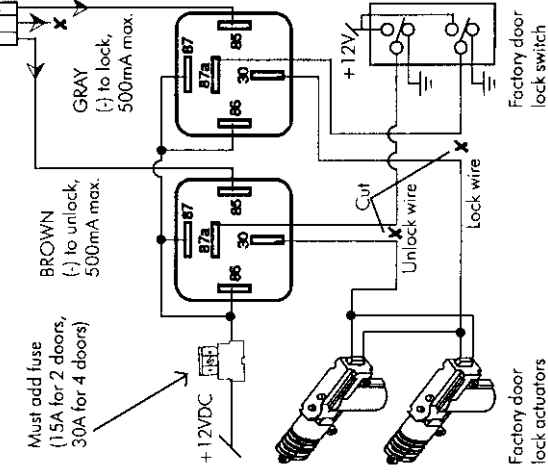


Fig. 12 (power door lock/unlock outputs) — Positive reversal switching to factory actuators



- 6. **10-wire connector, BLUE WIRE (negative door trigger input), fig. 4**

A. Existing car door switches — Use a VOM meter to locate a wire (usually in the driver's kick panel) which shows ground when any vehicle door is opened, and which is not ground when all the doors are closed. Connect to the BLUE WIRE.

B. If the vehicle (such as a delivery van) has no existing car door switches — Mount a pin switch in every door you wish to protect. Connect each switch to the BLUE WIRE.

- 7. **10-wire connector, BLUE/WHITE WIRE (negative hood/trunk trigger input), figs. 5 & 6**

A. If the vehicle has a trunk light — Use a VOM meter to locate a wire which shows ground with the trunk open, and which is not ground with the trunk closed. Mount a pin switch in the hood. Connect as shown in fig. 5. Don't forget the diode.

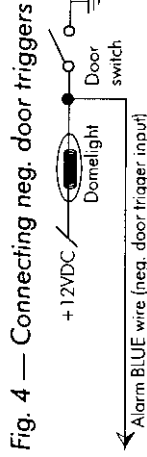


Fig. 4 — Connecting neg. door triggers

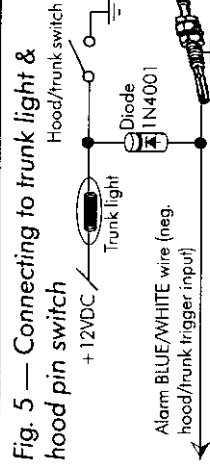


Fig. 5 — Connecting to trunk light & hood pin switch

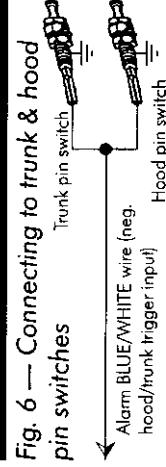


Fig. 6 — Connecting to trunk & hood pin switches

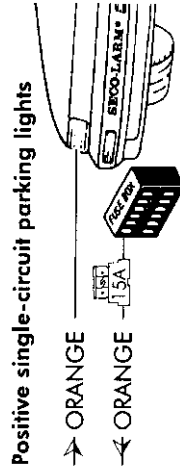
B. If the vehicle has no existing hood or trunk switches — Mount a pin switch in both the hood and trunk. Connect as shown in fig. 6.

- 8. **10-wire connector**
2 x ORANGE WIRES (to flash positive or negative parking lights)
Fig. 7

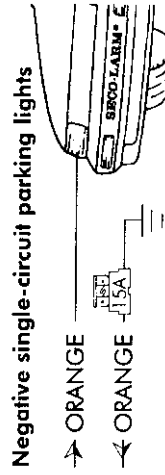
A. Determine if the parking lights are positive or negative switched — Using a VOM meter, test the wires coming from behind the light switch. Look for a wire which changes polarity when the parking lights are turned ON:

- (1) Positive (+) parking light system — if a wire goes to +12VDC when the parking lights are turned ON, but shows no voltage with the parking lights turned OFF, this is the (+) parking light wire.

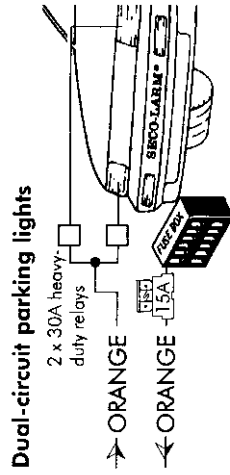
Fig. 7 — Flashing parking lights



Positive single-circuit parking lights



Negative single-circuit parking lights



Dual-circuit parking lights

- (2) Negative (-) parking light system — If a wire goes to ground when the parking lights are turned ON, but shows no ground with the parking lights turned OFF, this is the (-) **parking light wire**.
- (3) NOTE:
- Most vehicles have (+) parking light systems. A few (mainly Japanese) have (-) parking light systems (the (-) signal usually triggers a relay to send +12VDC to the parking lights).
 - If the voltage on the (+) or (-) parking light wire varies when you dim or brighten the interior lights, then this is not the correct wire.

B. Connect the fused **ORANGE WIRE**:
 (1) Positive (+) parking light system — Connect the fused **ORANGE WIRE** directly to a source of unswitched +12VDC at the fuse box.

(2) Negative (-) parking light system — Connect the fused **ORANGE WIRE** directly to a solid chassis ground.

C. Connect the non-fused **ORANGE WIRE**:
 (1) Single-wire parking light systems — Most vehicles have a single circuit which controls all parking lights. In this case, connect the non-fused **ORANGE WIRE** to the (+) or (-) parking light wire.

(2) Dual-wire parking light systems — A few vehicles (mainly European) have separate circuits for parking lights for the vehicle's right and left sides. In this case, connect the non-fused **ORANGE WIRE** to two relays, each of which feeds power to the two separate circuits.

D. NOTE — This alarm features Dual Power Protection (DPP™). Under DPP, when you connect the fused **ORANGE WIRE** to +12V, it serves as a second power source for the alarm brain in case the fused **RED WIRE** is cut by thieves or vandals. Therefore, connect the fused **ORANGE WIRE** to a separate source of +12VDC from the fused **RED WIRE**.

9. 10-wire connector, WHITE WIRE (to starter disable), figs. 8a and 8b

Connect to an optional 30A relay to prevent the car from starting when the alarm is armed.

- Locate the starter solenoid wire (carries power from the ignition switch to the starter solenoid). This wire must show +12VDC only when the ignition is in the start position.
- Cut the starter solenoid wire.
- Test the starter solenoid wire as follows:
 (1) If the wire is cut before the engine is started, the engine should not turn over.
 (2) If the wire is cut while the engine is running, it should not affect the engine's operation.

Fig. 8a — Connect to starter disable

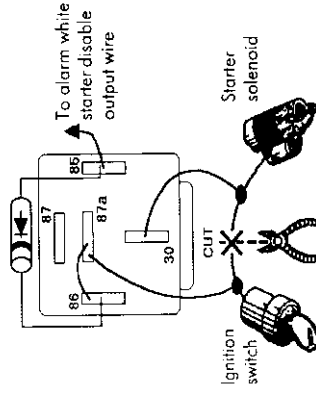
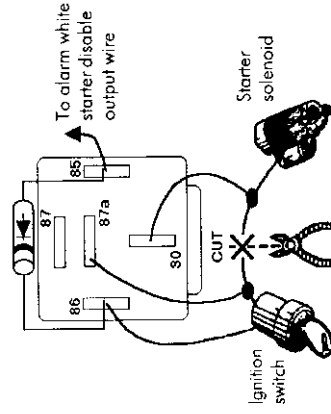


Fig. 8b — Alternate starter disable



- D. Connect the **WHITE WIRE** and the two halves of the cut starter solenoid wire to the relay as shown in fig. 8a. Don't forget the diode.

E. If the engine still starts, connect terminal 86 to a wire which shows +12VDC when the engine is both starting and running (fig. 8b).

10. 2-pin RED connector, PLUG-IN LED, fig. 9

A. Determine where to mount — The **LED** should be easily seen by potential thieves and vandals. However, do NOT mount where the **LED** is easily exposed to sunlight. Discuss the location with the customer before mounting.

B. Drill a 3/8" hole in the **LED** location.

C. Run the **LED** connector through the hole, and then plug into the alarm brain.

IMPORTANT — DO NOT CONNECT THE LED DIRECTLY TO THE CAR'S BATTERY, OR IT WILL BURN OUT.

11. 2-pin WHITE connector, PLUG-IN VET BUTTON (push-button), fig. 9

A. Determine where to mount — Location is not important for security, as the **VET** switch cannot be used without the ignition key. It should be hidden from view, yet easily accessible by the user in an emergency. **IT IS IMPORTANT THE USER EASILY REMEMBERS THE BUTTON'S LOCATION.**

B. Drill a 9/32" hole where the **VET** switch will be mounted.

C. Run the **VET** switch connector through the hole, and then plug into the alarm brain.

12. Connector 4 (3-pin connector) GRAY WIRE (ground output to lock) BROWN WIRE (+12VDC output) BLACK WIRE (ground output to unlock) Figs. 10 to 16

These 3 wires allow the alarm to control the power door lock/unlock systems of most vehicles without external relays. However, one or two relays may be required in some cases.

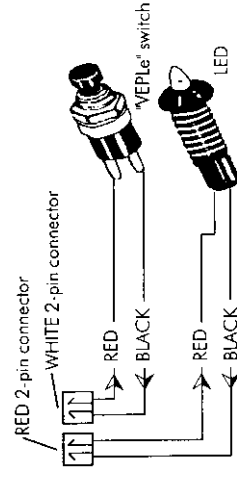
The alarm has a built-in timer which is pre-set for 0.4 seconds.

Types of door lock/unlock systems — At the time this manual was completed, there were seven common types of power door lock/unlock systems in use:

A. Negative relay switching to factory actuators — The factory door lock switch has 3 wires. One wire always shows ground. The **LOCK WIRE** becomes ground when the door is locked, and sends a pulse to a factory relay to lock the doors. The **UNLOCK WIRE** becomes ground when the door is unlocked, and sends a pulse to a factory relay to unlock the doors. Most Japanese cars use this system. **THIS IS THE MOST COMMON TYPE OF POWER DOOR LOCK SYSTEM.** See fig. 10.

B. Positive relay switching to factory actuators — The factory door lock switch has 3 wires. One wire always shows +12VDC. The **LOCK WIRE** becomes +12VDC when

Fig. 9 — LED and VET switch



Appendix 1 — UNDERSTANDING THE SIREN CHIRPS AND LIGHT FLASHES

- A. **1 chirp** — When valet mode is successfully entered.
- B. **1 chirp/flash:**
- When transmitter button #1 is pressed, the alarm is armed.
 - When a door is closed, the alarm will arm in 30 sec. (passive arming).
 - 30 sec. after ignition switch is turned OFF and all doors are closed (or 30 seconds after delayed dome lights turn OFF), the alarm is armed (passive arming with switch sensing).
- C. **2 chirps** — When valet mode is successfully exited.
- D. **2 chirps/flushes** — When transmitter button #1 is pressed, the alarm is disarmed.
- E. **3 chirps/flushes** — When pressing transmitter button #1 to arm the alarm, indicates the alarm arms even though it is not set properly (door not closed, or broken switch, or dome light is still ON, see ZONE BYPASS on page 5).
- F. **4 flashes** — When transmitter button #1 is pressed, indicates alarm in valet.
- G. **5 chirps/flushes** — Pre-intrusion warns potential thieves or vandals who trigger the first stage of a dual-stage sensor that your car is protected by an alarm.
- H. **7 flashes** — When the alarm is disarmed, indicates the alarm was triggered while you were away.

NOTE — The chirps for arm, disarm, pre-intrusion, zone bypass, and valet can be deleted (see CHIRP DELETE, page 6).

Appendix 2 — UNDERSTANDING THE LED FLASHES

- A. **Arming indicator** — Flashes quickly during the 30-second rearm or passive arming countdown.
- B. **Door open indicator** — OFF when a hardwired door is opened during the 30-second rearm or passive arming countdown.
- C. **Armed indicator** — Flashes when the alarm is armed.
- D. **Disarmed indicator** — OFF when the alarm is disarmed.
- E. **One-time override of passive arming** — Steady ON after VET button is pressed once.
- F. **RF reception indicator** — ON while transmitter button is pressed.
- G. **Valet mode indicator** — Flashes slowly if the ignition switch is turned OFF (no flash if ignition is ON).

OWNER'S MANUAL

ENFORCER®

100F

Remote Controlled
Vehicle Security System

SLI®

SECO-LARM® U.S.A., INC.
17811 Sky Park Circle
Suite D & E
Irvine, California 92614

CONGRATULATIONS

From the moment you purchased this ENFORCER Vehicle Security System, you became a part of the SECO-LARM family. You started taking advantage of over 27 years of advanced engineering. You joined a team of engineers, technicians, designers, and people like yourself who know how important protecting your car is. You discovered the SECO-LARM difference.

This difference is important because the ENFORCER is more than just an alarm. It is a complete security and convenience system. It is like having your personal security guard and butler on call in your car, 24 hours a day.

Keep in mind that the best security systems will not work properly without careful installation. Therefore, the ENFORCER is designed for installation by your professional SECO-LARM dealer. He understands both his alarms and your needs, and will work hard to ensure the ENFORCER does its job for you. Welcome to the family: SECO-LARM, your dealer, and you!

IMPORTANT

This ENFORCER security system contains many innovative features and unique functions. Please read this Owners Manual carefully in order to understand all of this alarm's security and convenience features. Some features may require the addition of sensors or accessories not included with this alarm. Please consult your professional SECO-LARM dealer.

NOTICE

The information and specifications printed in this manual are current at the time of publication. However, the SECO-LARM policy is one of continual development and improvement. For this reason, SECO-LARM reserves the right to change specifications without notice. SECO-LARM is also not responsible for misprints or typographical errors.

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INSTRUCTIONS TO THE USER

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Increase the separation between the equipment and receiver.
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

FCC ID: K4ER1F

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may be received, including interference that may cause undesired operation.

Notice: the changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

POWER DOOR LOCKS

With this optional feature, your alarm can automatically lock the doors when armed and unlock the doors when disarmed. The doors lock and unlock any time transmitter button #1 is pressed. For extra security, they lock automatically if the alarm is triggered.

(Exception — See EMERGENCY CALL FOR HELP, page 5.)

Your alarm also has ignition-controlled operation. The doors automatically lock when you turn the ignition ON, and unlock when you turn the ignition OFF.

NOTE — Under passive arming, the doors automatically lock after the 30-second exit delay is over and the alarm arms.

DUAL-STAGE SHOCK SENSOR

Your alarm includes a patented dual-stage shock sensor.

The first stage (pre-intrusion alert) warns thieves the alarm is armed. For instance, the alarm will chirp and parking lights flash five times if the sensor detects a light bump to the vehicle. However, if the thief attacks the car

with sufficient force, the alarm will trigger. (Your dealer can make the shock sensor more or less sensitive to attack, depending on your vehicle.)

Note that the shock sensor will not be ready to trigger the alarm until four seconds after the alarm is armed.

OTHER FEATURES

- **Starter disable** — With this optional feature, while your alarm is armed, your car will not start, even if a thief has your keys.
- **Tamper indicator** — If your alarm was triggered when you were away, the siren will chirp two times and the parking lights flash seven times when you disarm your alarm. This memory is automatically cancelled when you turn the ignition switch ON.
- **2nd car operation** — With this feature, your transmitters can control alarms in two cars. Operation for both cars is the same, except that the functions of button #1 and button #2 are switched in the second car. (Optional — ask your dealer.)
- **Patented Stay-Safe Disarm™** — Any time your alarm is triggered (the siren is sounding and the parking lights are flashing), press transmitter button #1 once to shut the siren and flashing parking lights OFF while the alarm stays completely armed.
- **Dual-power protection (DPP™)** — Helps keep your alarm powered even if a thief cuts the alarm's main power line. (Optional — ask your dealer.)

OPTIONAL ACCESSORIES

Spare transmitter SK-919TD2A — Get one for everyone who drives your car (2 included with alarm). To order a spare transmitter reference the above model number.

Your dealer has a wide variety of other genuine SECO-LARM accessories, including pagers, microwave sensors, glass break sensors, immobilizers, and much more.

VALET

Sometimes you may not wish your alarm to arm when you leave your vehicle. (For instance, if you leave your car with a valet attendant, you may not want to teach him how the alarm operates.) If your alarm is set for active (manual) arming, this is easy — don't press button #1, and the alarm will not arm. However, if your alarm is set to arm passively, use the valet mode to prevent it from arming.

To enter valet, first disarm the alarm, turn the ignition ON, and press and release the VET button once. The alarm is now in the valet mode. The siren chirps once to confirm.

To exit valet, turn the ignition ON, then press

and release the VET button once. The siren chirps twice to confirm valet is exited and that the alarm is now disarmed.

While your alarm is in valet, the LED flashes slowly when the ignition switch is OFF so thieves think the alarm is armed. It does not flash when the ignition switch is ON. If you press transmitter button #1 while the alarm is in valet, the doors will lock or unlock, and the parking lights will flash four times. The alarm's emergency call for help (panic) operates normally.

NOTE — If you trigger the alarm by doing emergency call for help (panic) while the alarm is in valet, the alarm will exit valet.

EMERGENCY DISARM

If you lose your transmitter, you can disarm your alarm with the ignition key and "VET" button. While your alarm is either armed or triggered, turn the ignition switch ON, then press and release the VET button once. The siren and the flashing lights stop, and the alarm is disarmed. (Ask your dealer where the VET button is hidden.)



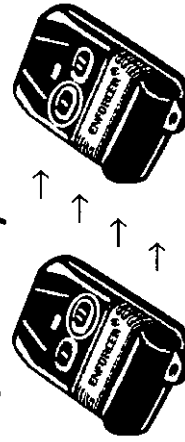
NOTE — If you use emergency disarm, just turn the ignition OFF and close the doors when you leave your car, and the alarm arms automatically. Next time you open a door, you will have 10 seconds of quiet to turn the ignition switch ON and press the VET button to disarm the alarm. This feature is cancelled next time you use your transmitter to arm or disarm your alarm.

CHIRP DELETE (Silent arm/disarm)

There are times, especially at night, when you may not want to hear the siren chirps. There are 2 ways to delete chirps:

- A. **One-time delete** — Just press button #2 any time before you need the chirps deleted. For instance, press button #2 before you press button #1 to arm or disarm the alarm, and the chirps will not sound, but the parking lights will still flash. The chirps are restored the next time you press a transmitter button.

- B. **Permanent delete** — Your dealer can



program your alarm to delete the chirps on a permanent basis.

NOTE — Either method deletes the arm, disarm, pre-intrusion, zone bypass, and valet chirps. However, it does not affect the flashing parking lights.

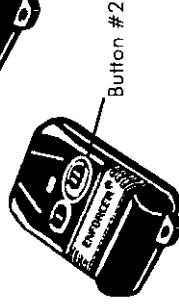
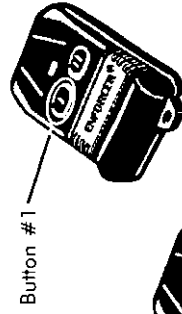
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TRANSMITTER FUNCTIONS

1. Press transmitter button #1 to:
 - Arm and disarm the alarm.
 - Turn the siren ON (and shut it OFF) in an emergency.
 - Lock/unlock power door locks.
 - Bypass an open zone.
2. Press transmitter button #2 to:
 - Silently arm or disarm the alarm.
 - Operate 2nd vehicle.

These features and functions are explained in this Owner's Manual.



TOTAL PROTECTION

While your alarm is armed, your car is protected in the following ways:

- Potential thieves or vandals will be deterred by the flashing LED.
- If a thief opens a door, the alarm immediately sounds the siren and flashes the parking lights for 30 seconds. If the opened door is not closed and current sensing has not been selected, the siren and lights will trigger up to four 30-second cycles, after which the alarm will rearm.
- Turning the ignition key ON will trigger the alarm for 30 seconds.
- The starter disable prevents the car from

- being started.
- If the shock sensor detects light taps on the car, it will trigger the pre-intrusion alert (the siren chirps five times and the parking lights flash five times) to warn potential thieves and vandals. However, if it detects a strong shock to the car, such as shock caused by prying the trunk open, it will trigger the alarm for 30 seconds. (See DUAL-STAGE SHOCK SENSOR, page 7)
- Optional SECO-LARM shock, motion, glass-break, and microwave sensors will offer your alarm additional protection. Ask your SECO-LARM dealer.

ARMING

There are two different ways to arm your alarm. Tell your dealer which is best for you:

Active Arming

Turn your ignition OFF. Close all the doors.

Then press transmitter button #1. If the siren chirps and parking lights flash once, the alarm is fully armed.



If the siren chirps and parking lights flash three times, the alarm is either waiting for the vehicle's delayed dome lights to turn OFF (if your vehicle is so equipped), or it is telling you that one of the alarm's zones (a door, or the hood or trunk) is either open or is not functioning properly (see ZONE BYPASS, page 5). Also, check to make sure your car's dome light switch was not accidentally left on.

Passive Arming

Turn the ignition OFF, and open a door to exit the car. When the last door is closed (and the dome light turns OFF, if your car has delayed dome lights), the siren chirps and the parking lights flash once. The LED now flashes quickly during the 30-second arming countdown, after which the siren chirps and parking lights flash once more to confirm the alarm is completely armed.

If you wish, you can open a door during the 30-second arming countdown, and keep it open for as long as needed. The LED turns OFF while the door is opened. When finished, once again close the last door, and the siren will chirp and parking lights flash once to show the 30-second arming countdown has started again. The LED will also begin to flash quickly.

If you close the last open door, and the siren does not chirp and parking lights do not flash, you know that one or more openings are not closed properly. This is SECO-LARM's patented Quick and Quiet Testing (Q.Q.T.[™]), and it prevents you from thinking your alarm is armed when it may not be. In this case, double-check that all the doors, as well as the hood and trunk, are closed properly, and that your vehicle's dome lights are OFF. If you cannot locate the problem, but need to arm the alarm, then press button #1 to immediately arm the alarm and bypass whatever zone is open (see ZONE BYPASS, page 5).

One-Time Override of Passive Arming

This function can prevent the alarm from arming one time if it is programmed for passive arming. This is useful for leaving the car for a short period of time such as a stop at a gas station and you have friends that are going to wait in the car. To operate, turn OFF the ignition and press the VET button once before opening any door (the LED will then turn steady on until the ignition is turned on or transmitter button is pressed). If you change your mind and wish to leave the car for an extended time, press transmitter button #1 to arm the alarm. The one-time override feature is automatically disengaged once the ignition is turned on.

NOTE — Under passive arming, you can force your alarm to arm immediately any time during the 30-second arming countdown by pressing transmitter button #1.

NOTE — There are references to opening or closing a door throughout this manual. "Door" also includes your hood and trunk, if they are protected. Ask your dealer.

ARMED

When the 30-sec. arming countdown ends, or when transmitter button #1 is pressed to arm the alarm, the siren chirps and parking lights

flash once, and the LED starts flashing to show the alarm is armed.



ZONE BYPASS

When you press button #1 to arm the alarm, and the alarm responds with three chirps and three light flashes, there are two possibilities:

- A. Delayed dome lights — If your dome lights do not immediately turn OFF when you close your car door (in other words, your vehicle has delayed dome lights), this is normal. The alarm should protect all the openings once the dome lights go OFF.
- B. A zone was bypassed — In other words, the alarm has armed, but a hardwired door is not protected (either because it is

open, or because its pin switch is broken). If the bypassed door is later closed, it will be restored (no siren chirp or light flash).

If your alarm indicates a bypassed zone, find the cause as soon as possible to ensure your vehicle is completely protected. For instance, if your driver's door is not properly closed when you arm your alarm, a thief may be able to open any door without setting off the alarm.

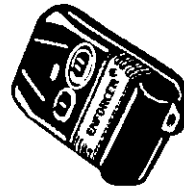
NOTE — The three zone bypass confirm chirps will not sound if chirp delete is engaged. However, the parking lights will still flash three times. See CHIRP DELETE, page 6.

DISARMING

To disarm the alarm, press button #1. The siren chirps twice, the parking lights flash twice, and the LED turns OFF. What happens next depends on how your alarm is set (ask your dealer):

- Alarm set for active arming:**
The alarm is now completely disarmed.
- Alarm set for passive arming:**
 - A. A 30-second automatic rearming period begins.
 - B. Open a door and turn the ignition ON before the rearming period expires to completely disarm the alarm.
 - C. If you do not turn the ignition ON, the

alarm automatically rearms in 30 sec. Once rearmed, the siren chirps and the parking lights flash one time, and the LED starts flashing.



NOTE — If passive arming is selected, the LED flashes quickly from the time transmitter button #1 is pressed to disarm the alarm until the alarm is either completely disarmed or it rearms. The LED turns OFF while a door is open (if connected to door switch).

EMERGENCY CALL FOR HELP (PANIC)

To trigger the alarm in an emergency (armed or disarmed), press and hold transmitter button #1 for 3 seconds. The siren sounds and the parking lights flash for about 30 seconds. Stop the siren and the parking lights any time by pressing button #1 again.



Regardless of whether the alarm was armed or disarmed when panic was activated, the alarm will disarm and doors will unlock (if remote controlled door locks are connected) when panic is activated.