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1.0 Overview

The Telephonic Car Alarm and Remote Starter is a newly developed alarm system under a patent protection.

The alarm system consists of 5 components:

1. Central control processing unit (GRA 02)
2. Cell phone in a protective box (W.COM 02)
3. Remote control (R.C. 402)
4. Immobilizer relays
5. SS 02 Shock Sensor

2.0 Remote Control Functions:

- Pressing button # 1 once: turns alarm on and uploads the first user's telephone number into memory (in case of alarm, the notification goes out to this number) (note: once this is pressed, buttons # 2 or # 3 can't be pressed, since they have become inactive.) Only by turning the alarm off (press button # 4) will the user be able to switch to button # 2 or # 3.
- Pressing button # 2 once: turns alarm on and uploads the second user's telephone number into memory. (Note: same as previously noted)
- Pressing button # 3 once: turns alarm on and uploads the third user's telephone number into memory. (Note: same as previously noted)
- Pressing button # 4 once: deactivates alarm
- Holding button # 1 down continuously (at least for 1.5 seconds): activates PANIC ALARM (horn (siren) + lights)



3.0 Remote Control Functions for System Programming

- Pressing button # 2 for 4 to 7 seconds: enables the following system modes:

3.1 Vibration Test Mode

"VIBRATION TEST" FUNCTION is activated for 2 minutes. In this mode a test and check can be done on the proper operation of the vibration sensors' optimal sensitivity, without having to use the automatic self-adjusting system. The adjustment is accurate when by tapping on the windshield or on the roof the MONITOR LED turns on for about 5 seconds, then turns off. Upon repeated tapping it turns on. This way a can a test can be conducted on the car as to its sensitivity at various spots. This function is automatically cancelled in 2 minutes.

3.2 Phone Number/Remote Programming Mode

PROGRAMMING THE TELEPHONE: we have the same 2 minutes to assign the preprogrammed telephone numbers to the remote control, that's the only way for the alarm system to call the driver. The precise sequence of PROGRAMMING is available in Section 10.0 "PROGRAMMING THE TELEPHONE".



4.0 Passive Alarm Function

Once the alarm is deactivated (the MONITOR LED is not lit) the engine must be started within one minute. If you don't start the engine within 1 minute, the central processing unit switches to the Passive Alarm mode.

The Passive Alarm Function is a security feature that automatically activates the alarm and vehicle immobilizer when your vehicle is left unarmed for more than 60 seconds.

When the Passive Alarm function is active the MONITOR LED is brightly lit. In this case the engine can only be restarted if the alarm is turned on with one of the "ON" buttons, and then turned OFF in 2-3 seconds.

5.0 GUN ALARM FUNCTION (Optional)

This function is to be used in case of armed robbery. Should the driver be forced out of the car, he/she can discretely activate the alarm by pulling a hidden looped switch. The practical placement for this switch would be next to the driver's seat close to the seat belt button. This will give the driver the opportunity to pull the switch while inconspicuously removing the seatbelt. Within 1 minute (min. 20 seconds) the horn/siren will be activated to the loudest degree along with the lights being continuously on. If the engine was not in operation the immobilizer will also tilt, if the engine was in operation, then it will be activated once the engine comes to a stop. The alarm lasts until the noose-switch is replaced to its place, with 1 minute delay.

6.0 AUTOMATIC VIBRATION SENSOR ®

The GRA 02 alarm system is equipped with a special sensor, which provides a unique automatic sensory for minimal false alarm rates. The key feature of the VIBRATION SENSOR is that it is constantly monitoring the traffic, adjusting the utmost sensitivity at all times. The prerequisite of the proper operation of the unit is the correct one time and permanent adjustment / installation which is done by the installer by taking into consideration the characteristics of the car. There are two installation units (trimmer) for this, VR1 and VR2 (fig.3.)

With the VR1 the basic sensitivity (SENSITIVITY) can be adjusted, whereas with the VR2 the degree of feedback (DEPTH) direction of control and recommended initial adjustment:

ATTENTION! Adjusting and testing of the AUTOMATIC SHOCK SENSOR can ONLY be done in a QUIET environment. Any noise from traffic will interfere with the correct operation of the automatic unit. The adjustment is only accurate when – parking in a quiet place - we get maximal sensitivity, (VR1) and even in high traffic areas there wouldn't be any false alarms. This is very important, otherwise the alarm system activates, justifiable or false.

Further possibility to diminish the rate of false alarm is by activating the VIBRATION SELECT ON function (see Section 9.0 - #8). The point is that in case of a minor "fender-bender", or tapping, the car-alarm will be activated, (when parking in a quiet area), but alarm-notification wouldn't notify the driver. However, should this small fender-bender/shock be repeated within 2 minutes, the alarm would sound again and the notification will go out to the telephone set with short series of rings. Likewise, should a sudden and strong impact (SHOCK) the car that is if the impact exceeds the limit, the alarm and the telephone notification will take place simultaneously. (VR1 Adjustor)

7.0 GREEN ALARM SYSTEM

The selected alarm will sound through the horn (or siren) of the car. The alarm time varies; in a very quiet place it may last for 3-5 seconds, but in a very noisy place it might even last for 50 seconds. Thus the noise level can be decreased in the residential area, since in a quiet place the selected alarm will not disturb the neighborhood, and at the same time we are being notified through the phone. (The G.A.S. ONLY APPLIES TO THE SHOCK-SENSOR, in case of intrusion, the alarm will go off at maximum, regardless of environment.)



8.0 TWO LEVEL TELEPHONE NOTIFICATION

When the alarm is activated by the vibration sensor the phone rings: 2-6 times, depending on service provider. There is no need to acknowledge the call since it will cease automatically. There will not be any more calls until the alarm is activated again. Should – however – the door be pried open, the numbers of rings on the telephone is 6 to 10, followed by a short pause, then ringing, and pause again. This repeats maximum 13 times (a counter will automatically “acknowledge” it), unless the call had been acknowledged by answering the phone and pressing button # 1, or # 2, or # 3, and ending the call (END).

Once the call has been acknowledged, the alarm will be reset to ON mode in case of repeated intrusion.

In case of such an alarm the car should be checked.

The outgoing call from the alarm (the number of rings on the user's phone) can be adjusted at the GRA 02 central processing unit, in case of refined adjustment (up to 13 rings) with VP3, in case of unrefined adjustment (13 or more rings) with JUMPER JP2. This can only be done by an expert at the time of installation.

7.0 USING THE THIRD BUTTON FOR MULTI USERS

The GRA 02 alarm center can handle 3 telephone numbers. If more people use the car, it is advisable to attach the telephone number/voice sample to the first two buttons (ON 1 and ON 2) and to leave the third button (ON 3) blank. Thus the users – if there are more than two – can use ON 3 for the alarm, which will not utilize the phone notification feature. (ex. company car)

8.0 TURNING ON THE ENGINE VIA TELEPHONE

If your car has an automatic transmission and its technical characteristics permit it, you can start up the engine with module RS 02 REMOTE STARTER, from any distance, as well as its heating, cooling system. Turning on the engine via telephone is completely synchronized with the alarm; the alarm will still be monitoring the doors. In case of a forced entry the alarm will immediately sound, the telephone notification will take effect, and the engine will come to a stop. Also, if you forget about the car the system will automatically shut down in 5 minutes.

9.0 REMOTE CONTROL BY TELEPHONE

We can transmit 9 instructions on the telephone and send programs to GRA 02 car alarm central processing unit, by DTMF code. Since the alarm's inner timings are as one complex unit, it is advisable to start trying the telephone-programming 2-5 minutes after we turned the alarm on.

9.1 Instruction-programming:

1. Call the alarm's telephone number
2. Upon ringing, the car alarm will indicate in 1-2 seconds with a short signal tone that it is ready to receive instructions. From this moment on we have approximately 14-18 seconds to enter instructions, after which point the unit will cut off the telephone line unless additional instructions are entered. Once you have entered an instruction the 14-18 second timer will start again.

9.2 The 9 instructions after the beep:

1. By pressing button # 1 on the phone for 0.5-1 second the alarm is turned on in ON 1 mode, provided the alarm was off previously. (THE SAME AS REMOTE CONTROL ON 1) WE CAN ONLY TURN IT ON BUT WE CAN NOT TURN IT OFF (OFF)
2. By pressing button #1 for at least 2 seconds we can activate the PANIC ALARM (THE SAME AS THE PANIC ALARM ON THE remote control)



3. By pressing button # 2 on the phone for 0.5-1 second the alarm is turned on in ON 2 mode, provided the alarm was off previously. (THE SAME AS REMOTE CONTROL ON 2)
4. By pressing button # 3 on the phone for 0.5-1 second the alarm is turned on in ON 3 mode, provided the alarm was off previously. (THE SAME AS REMOTE CONTROL ON 3)
5. Button # 4 has no function. The alarm can't be turned off by the telephone.
6. Button # 5 has no function
7. By pressing Button # 6 for 0.5-1 seconds we can RESET the telephones instructions (PROGRAM RESET) that were sent by pressing button # 7, # 8, # 9. It RESETS all three at the same time.
8. By pressing Button # 7 for 0.5-1 seconds we can activate the VIBRATION SELECT ON function. The purpose of this function is to diminish the rate of false alarms – see Section 4.0 The ordinary part of the alarm is functioning and it cannot be influenced by the telephone.
9. By pressing Button # 8 for 0.5-1 seconds we can activate the AUXILIARY ON function which can be independently used. Through its relay we can turn on/off appliances of 25 Amperes. (AIRCONDITIONER/ HEATING) or by switching with a jumper (in the REMOTE STARTER's box) we can prohibit the function of the entire car in such way that it will not react to any remote control instruction. What you can achieve in this case is being able to give the car key to someone, but the car will only start at a time permitted by you. (You may give permission of an engine start through the telephone.)
10. By pressing Button #9 for 4-6 seconds (entering impulse) releasing it for 1 second and pressing again for 2-3 seconds you can start your vehicles engine (will be acknowledge by a short beep). Once the engine is running, you cannot restart it.

10.0 MONITOR LED

A red LED indicates the working order, and it should be placed in a highly visible spot. It can indicate 5 functions as follows:

- MONITOR LED will not be lit upon DISARMING for about 30..60 seconds. (The door is closed and the engine is not running.)
- MONITOR LED is lit half dim upon DISARMING for about 30..60 seconds if the door is open. (door-contact test, engine is not running.)
- MONITOR LED is brightly lit upon DISARMING for about 30..60 seconds: The car alarm has switched to PASSIVE ARMING function. (The engine is not running)
- In VIBRATION TEST function the MONITOR LED is not lit, but should we hit on the car, based on the impact the MONITOR LED will light up for 5 seconds than turns off. For a repeated impact it will light up again for 5 seconds. The VIBRATION TEST function lasts for 2 minutes, then it goes to off. (OFF). The same 2 minutes can be used to entering the VOICE SAMPLES, which may be attached to the telephone numbers.
- ARMING (ALARM ON 1 or ON 2, or ON 3) The MONITOR LED is blinking with a rate of 1 Hz.



11.0 PROGRAMMING THE CAR-ALARM TELEPHONE

The car-alarm telephone will be placed into a separate smaller box, which should be positioned somewhere at the seat, next to the driver, in an invisible but easily accessible place (example: the glove compartment). It is hooked up with a sole wire to the GRA 02 central processing unit, through which it also receives Voltage necessary for the battery. There are two plugs at the end of the wire, they should be plugged into the holes available on the lower end of the telephone set.

Before installation, make sure the telephone is fully charged and all the connections are properly attached. A maximum of 3 phone numbers can be programmed into the phone. To program the phone with the desired numbers, perform the following steps:

1. Program the 3 desired numbers into the phone memory. (from the "Home" screen on your phone – select Names, Add entry)
2. Assign each of the 3 numbers to the phone's "1 touch dialing" feature (from the "Home" screen on your phone – select Names, 1-touch dialing and assign the desired numbers to any of the available openings)

To assign the entered phone numbers to the GRA-02 remote control perform the following steps:

"Remember – you only have 2 minutes to assign the phone numbers to the remote. If you run out of time you will need to reactivate the programming mode by pressing button #2 on the remote and holding it down for 4-7 seconds (see Section 1.1)

Note: the following steps are the same for each of the three programmed alarm phone numbers.

1. Press a programmed "1 touch dialing" number on the phone.
2. Wait 1 – 3 seconds (times may vary depending on user location)
3. Press 1 of the 3 desired buttons on the GRA-02 remote control.
4. Within 5-6 seconds, press the disarm button and repeat steps to assign the remaining numbers.

Upon successfully assigning the phone numbers to the alarm system remote, return to the main menu of the telephone display. Wait 4 - 5 minutes and then test the system. At this time we should leave the alarm's telephone to a highly visible place, perhaps we want to roll the windows down, leaving the doors closed and switch the alarm into ARMING 1 position.

In 30 seconds we tap on the windshield and listen to the telephone. If the vibration was strong enough and everything was set accurately, the telephone will display the name (number) of the party called, and rings in a few seconds. After a few tests let's place the alarm's telephone set into the box TELEPHONE BOX W-COM 02 than we can place it to its appropriate place. (It should be hidden yet easily accessible, next to the driver's seat, for example in the gloves compartment.)

IMPORTANT: When having the vehicle serviced, be sure to either remove the phone from your car or password protect your phone (see phone's user manual) to avoid any problems such as unauthorized access to stored alarm information.

FEDERAL COMMUNICATIONS COMMISSION

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

NOTE

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. 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 or 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.

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