KARTROL EXE

The **Kartrol EXE** was developed in response to the ever-changing needs of track operators. It incorporates all the features of the **Kartrol EX** system and goes way beyond in its flexibility and capability.

The most significant features of the **EXE** system are:

- the ability to control either gas or electric karts. The receivers are different for gas or electric karts; however the transmitters and other controls are the same.
- the ability of the operator to program the kart receiver number and the track number, meaning a single spare can be programmed in the field to any track and any kart number
- the ability to control individual karts in all modes, most notably the reset mode, allowing a single kart to be reset without resetting any others
- the provision for wired remote switches for the main functions, including turning on and off of the pit loop
- three speeds for gas karts: stop, slow and medium plus full throttle
- the actual rpm of all three modes, stop, slow and medium, can be varied from the factory presets by the operator to allow for different track variables
- the ability to remotely control other devices such as traffic lights, message systems or even the pit loop.
- new more accurate pit loop system, allowing for control of karts without affecting karts on adjacent lanes or elsewhere on the track.

All of these features combine to make the **Kartrol EXE** the most flexible and user friendly go-kart control system.

CAUTION: The **Kartrol EXE** system is designed to be an aid to existing safe track operating procedures, and the possibility of a failure in the system should always be considered **and allowed** for in the track operating procedures. **Testing** of the system should be done **daily** and regular inspection of all mounting and wiring should be done every time the kart is being serviced.
 It must be understood that the **Kartrol EXE** system **does not directly slow the karts**, but rather reduces engine RPM to where the kart will coast to a stop. The system **does not apply the brakes** in any way, and depending on the RPM speed

selected and the condition of clutches, bearings, etc. on the kart, the rate of deceleration can vary somewhat.

All employees operating the track should be familiar with the system, and know what to do in case of a system malfunction.

If safe track operating and pit procedures are used in conjunction with the system, the track should be very safe and easy to operate.

Testing and Installation

If you are testing an EXE system for evaluation purposes, or have just received karts from the manufacturer with the EXE system, it is **VERY IMPORTANT** that you Test the system in the following manner.

1. Install an EXE receiver on the kart. If this is a test, you can connect the wires, and duct tape or tie strap the unit and sensor on the kart in a reasonable location.

2. Start the go kart and test the receiver using a table top or hand held transmitter. Test all functions, and if they work proceed to #3, or refer to the trouble shooting guide.

3. Have someone drive the kart around the track and try to control the kart at various locations, verifying there are no dead spots. Attention should be paid to the locations farthest from the transmitter, and behind any obstructions such as bridges. If there are dead spots, the antennae wire probably needs to be stretched out, or refer to trouble shooting guide.

4. As the kart is being driven around the track, press the SLOW button at various locations to find the spot on the track where the pit control loop should be located. The EXE Loop will need to be saw cut in to the track for final installation, but for testing purposes it can be taped down to the track surface. Determining the correct location for the pit loop is very important to safely and effectively controlling the karts entering the pit area.

5. Once the location for the loop has been determined, tape the loop to the track surface and connect the pit loop transmitter. Temporarily run an extension cord and power up the pit transmitter. Powering it up will activate the loop and the kart should now be driven across the wire at full speed. If the kart does not respond to the loop, the sensor is probably not mounted in a good location. If this is a test, try moving the sensor to locations where it would be ideal to be permanently mounted. In that way, once you verify that it works in that location at full speed, you will know were to begin mounting these sensors for permanent installation. If this kart has the sensor mounted at the factory it should be in a good location, but there are some variables that may cause the sensor not to work in that location and it may need to be moved from the factory mounting location. It is **very important** to get the correct sensor location before spending time installing all the units. **Note that different styles of karts may need the sensor mounted in different locations, even though the frame looks similar.**

6. If this is a demo test you can now read through the manual and try other features such as changing the RPM speeds. If you have any questions or concerns you can contact your kart manufacturer or our Tech line at 204-254-7176

7. For a track setup, you should now test all karts on all functions including the pit control before you begin final installation of the pit wire etc.
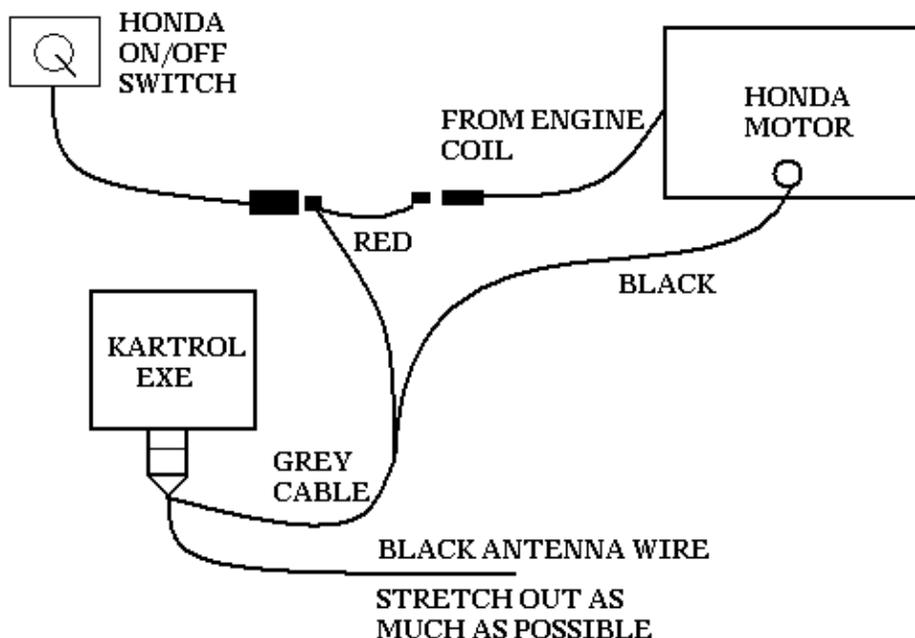
TRANSPONDER INSTALLATION

Wiring Diagrams-Gas

Step 1- disconnect the Honda On/Off switch

HONDA
ON/OFF
SWITCH

FROM ENGINE
COIL
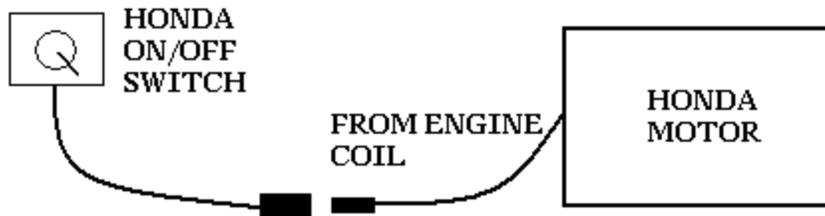
HONDA
MOTOR

Step 2- connect the red wire from the transponder to both Honda connectors, and mount the black wire hoop to a good engine ground such as a carburetor bolt or gas tank bolt

HONDA
ON/OFF
SWITCH

FROM ENGINE
COIL

HONDA
MOTOR

RED

BLACK

KARTROL
EXE

GREY
CABLE

BLACK ANTENNA WIRE

STRETCH OUT AS
MUCH AS POSSIBLE

Location of the transponder may be critical to reliable operation and longevity of the unit. The transponder should be mounted in a relatively dry and safe location on the kart, away from the motor or batteries and motor controller on electric karts. Some possible locations for mounting transponders are:

- -On the roll bar or headrest
- - On the steering support column
- - Under the body along the side by the seat
- -Near the front of the kart frame under the body

The transponder must be mounted with the harness plug towards the ground to prevent any water from wicking along the harness.

The black wire is the antenna and should be stretched out as much as possible. Preferably away from motor, motor controllers, and batteries. It is wise to mount **one** transponder and then test on the track for proper range and function. If it is

not satisfactory, change the antennae routing and retest. Once you are satisfied the unit operates correctly, mount the remaining units the same way.

If the kart transponder has the optional pit loop sensor, it must be mounted on the frame away from motor, motor controller, and batteries. A good location is in the front half of the kart as close to the outside of kart as is safely possible. It is also a good idea to stay out from a corner between two frame members. The wire coming out of the sensor must be to the top and the sensor bottom should be as close to the bottom of the frame rail without hanging below the frame. **Again, a single unit should be mounted and tested on the track to ensure correct operation with the pit loop before installing the remainder of the units.**
 If there is no suitable location down on the frame, **or if the sensor does not pick up** the loop signal on that style of kart when mounted down on the frame, you can mount the sensor on an upright or body support near the side or rear of the kart. Some kart models work best with the pit sensor mounted approximately 8 to 10 inches off the ground on a wing support. The pit loop signal can be received as much as 2 feet above the ground when properly installed.

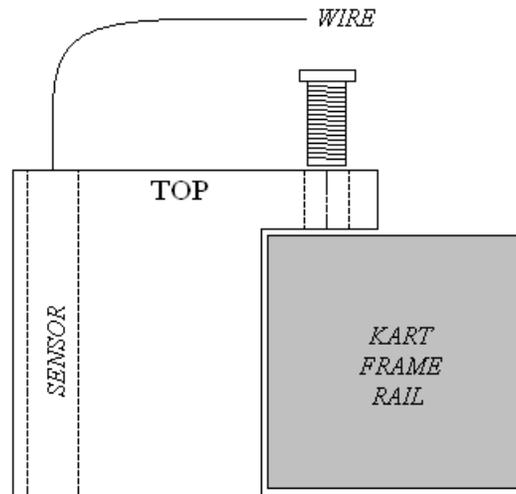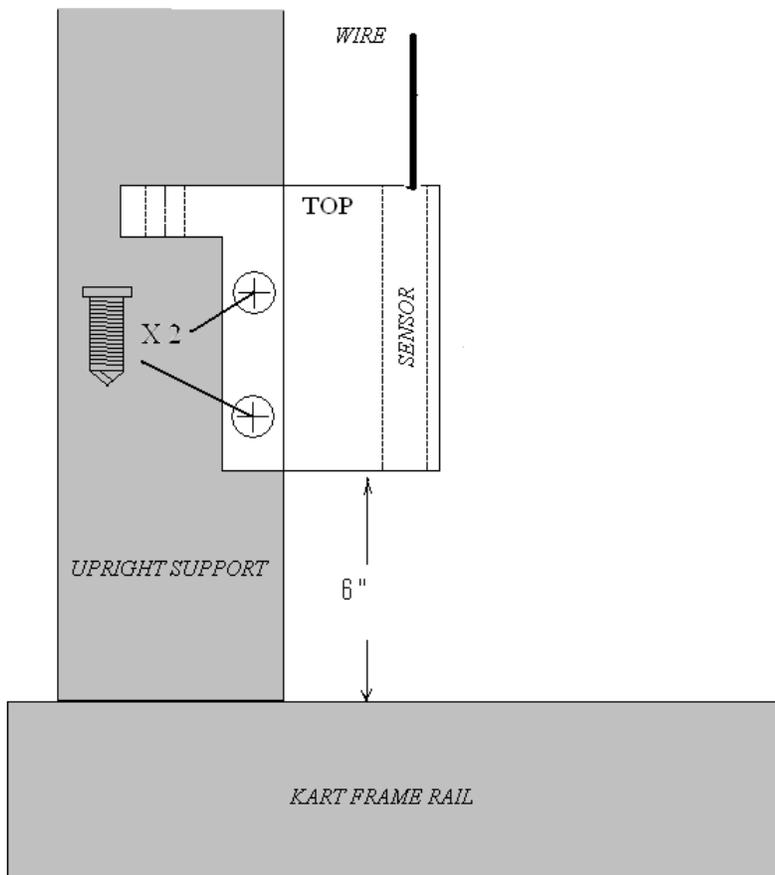ENGINE

Loop
Sensor
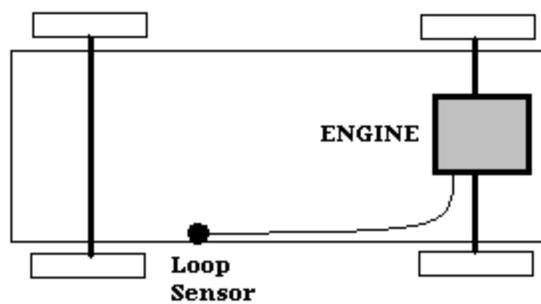
Possible location

NOT GOOD LOCATIONS

GOOD LOCATION ——
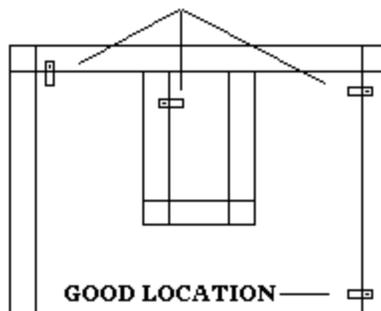
Some trial may be needed on location for each model of kart

WIRE

TOP

SENSOR

KART
FRAME
RAIL

Secure to frame rail using self tapping screw

Optional mounting on upright

- During kart maintenance, **do not pressure wash** the transponder boxes.

- **If you need to weld** a kart frame, disconnect the transponder from its harness to avoid back feeding power through the ground.

- The wiring harness should be routed and secured such that it will not get damaged.

- The transponder must be securely mounted and protected from damage when removing kart body.

- A little care in good solid installation will go a long way

Wiring Diagrams - Electric

BLACK GROUND -BATTERY - 12V
RED 12V + ON Sevcon
YELLOW – CENTER/FWD/REV SWITCH
BLUE - CUTBACK SPEED
WHITE - CUTBACK SPEED
ORANGE - TURBO

KARTROL EXE

GREY CABLE

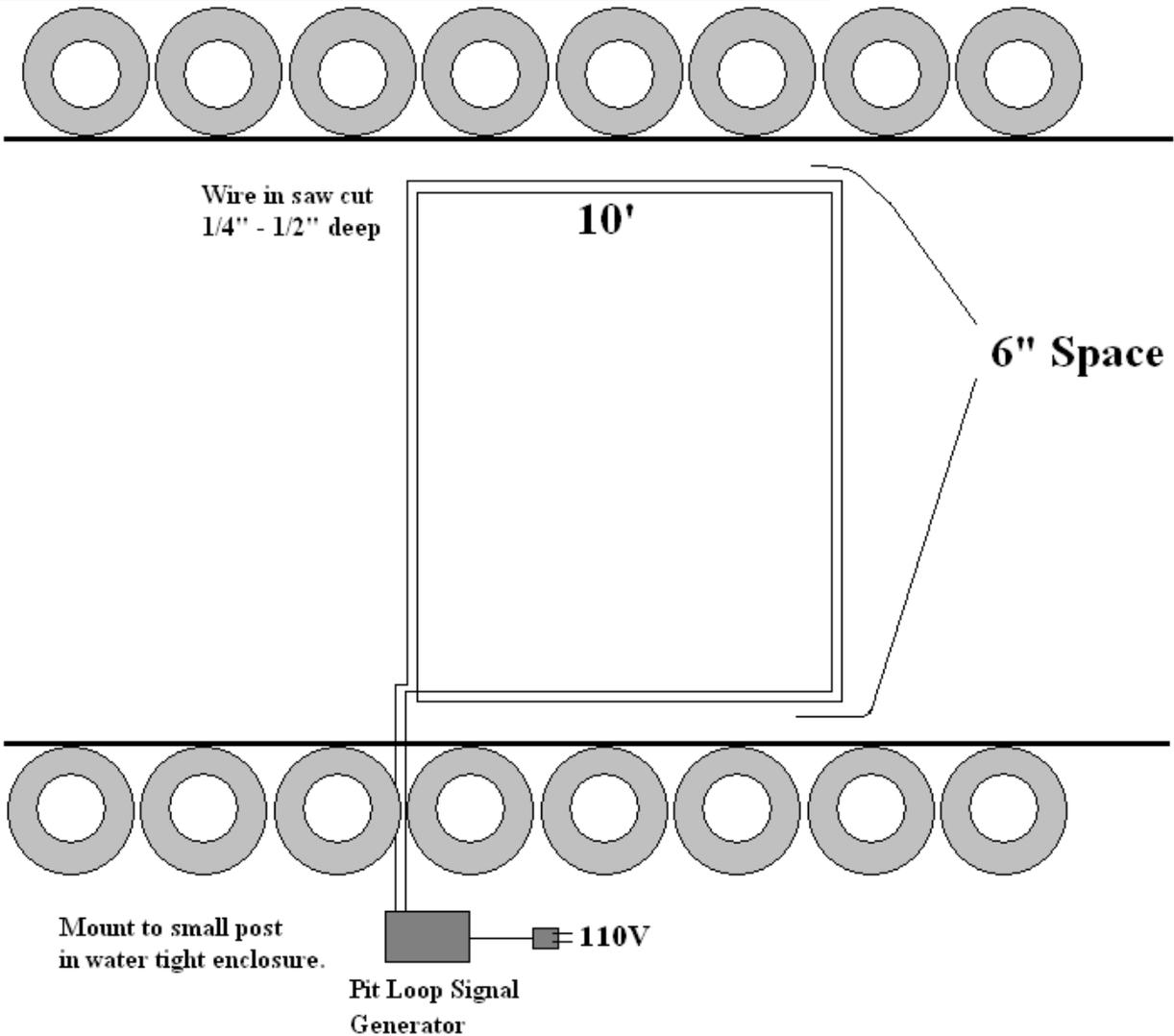BLACK ANTENNA WIRE
STRETCH OUT AS MUCH AS POSSIBLE
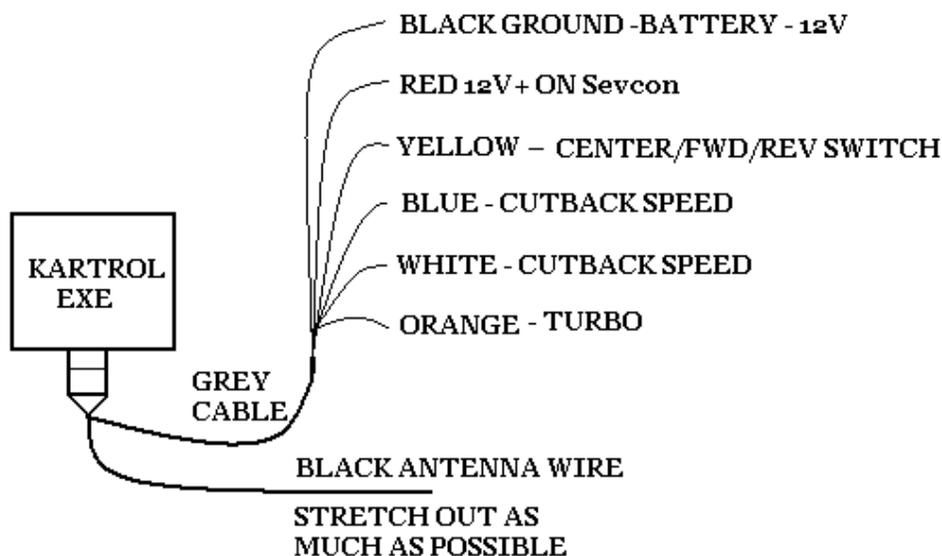
The actual wiring will be slightly different depending on engine, motor controller, and kart model. You must follow the kart manufacturer's exact wiring diagram.

Pit Loops are not often required on electric kart tracks as the medium or slow speeds are very accurate and the tracks are generally short enough, such that a lap on the slow speed does not present a large problem. However if Pit Control is desired on electric karts we require the specifics on motor, motor controller and type of chassis to determine if the pit loop sensor will work in that application. The electrical fields given off by the motor can cause the pit sensor to false trigger or may prevent it from operating at all. The sensor location becomes very critical on electric karts.

The pit loop sensor is different on electric karts and must be specified at time of ordering.

In addition, the Pit Loop transmitter is different from the gas EXE Pit Loop Transmitter.

PIT LOOP INSTALLATION

Wire in saw cut
1/4" - 1/2" deep

10'

6" Space

Mount to small post
in water tight enclosure.

Pit Loop Signal
Generator

110V

The Pit Loop is intended to slow karts to a safe speed before entering the pit area. It requires the Optional pit loop sensor installed on each kart, connected to the kart transponder.

The Pit Loop Transmitter generates a coded signal that is picked up by the kart sensor when it drives across the Pit Loop wire embedded in the track. The actual location of the Pit Loop wire is the point on the track where you want the karts to begin slowing. By using duct tape to hold the Pit Loop wire on the track, you can experiment to find the correct location for the pit wire, such that the kart will be at the desired speed as it enters the pit area. Generally the Pit Loop transmitter is set to the SLOW speed, so as to allow karts to propel themselves all the way to the

front of the Pit area. Once all karts are in the Pit area, the attendant can push the STOP button to make loading safer.

Once the ideal location of the Pit Loop wire is determined, it should be installed in a saw cut in the track surface and sealed with a sealer or caulking. The Pit Loop wire runs from the Pit Loop transmitter, across the track, along the other side of the track for 10 feet, and then back across the track to reconnect to the pit transmitter.

It is recommended that the wire be put into a saw cut of approximately ¼ to ½-inch deep. It is best if the wire is run approximately 6 inches out from the guardrail on the far side of the track (see diagram).

We have found that the pit signal is optimized when the wire actually makes two loops. This means the wire is run across the track, along the far side, back across, down the close side to the starting point, then across, along the far side, across, and along the track to the starting point, then back to the pit transmitter. The wire can be set on top of one another in the saw cut.

The Pit Loop transmitter should be mounted on a short post in a waterproof enclosure. Failure to do so may destroy unit.

The Pit Loop transmitter has an AC adaptor that is plugged into a 110V outlet. Plugging the unit in directly to 110volt will fatally damage the unit.

The Pit Loop Transmitter can be programmed to output any of the main functions: **STOP**, **SLOW**, **MEDIUM**, or **GO**. The **SLOW** speed is the most common for pit speed, but other codes may be used for additional track operations. Programming is done using dip switches inside the Pit Loop transmitter box.

To turn the Pit Loop ON and OFF there are a number of options:

1)   Switch the 110V power ON and OFF to turn on and off the pit transmitter. This also could be done by connecting the 110V outlet into the traffic light system if equipped. In this way the Pit Loop would turn on when the red light is activated.

2)   A switch could be put in the low voltage line from the AC adaptor to the Pit Transmitter

3)   Using the optional remote switch box on the Main Console.

4)   By radio signal from the Hand Held Transmitter or Main Console. In order to use this feature the radio receiver inside the Pit Loop Transmitter must be activated. This is done by selecting **Switch** #4 on the dipswitch bank inside the Pit Loop Transmitter.

Then to activate the Pit Loop, push **#91** and then **GO** to activate the Pit Loop.
To deactivate the Pit Loop, push #**91** then **STOP**.

Programming the Pit Loop

The Pit Loop is generally shipped programmed to Track#1 and to address the Crawl function. To program the Loop to operate on a different Track # you need to program as follows: with the cover off

- Unplug the AC adapter from the 110 volt supply and wait 20 seconds
- Make sure dipswitch # 4 is ON, and turn ON dipswitch #8
- Plug the power back in and using a Table Top or Hand Held Control programmed to the Track# you want the Pit Loop to respond to, press 91, then GO and then 91 and STOP. The LED light on the Pit should be ON after this.
- Unplug the power once more and wait 20 seconds, then turn dipswitch # 8 OFF
- Plug back in the power and the lights should be ON. Press 91GOand then 91 STOP. The light should be off now and the unit is ready to operate.

To change or reprogram the function that the Pit Loop addresses, you need to open the cover then using the yellow guide label, only adjust the first 3 switches as follows:
For STOP- #1, 2, 3 all OFF
For Crawl- #1, 2 OFF, 3ON
For Medium - # 1, 3 OFF, 2 ON
For GO or Reset- #1OFF, 2,3ON

OPERATIONS

The **KARTROL EXE** is very easy to use right out of the box. However, certain steps must be followed to enjoy all the features.

CAUTION: Never power up a consol or Hand held transmitter without having the correct antennae installed. This can damage the transmitter.

Most **EXE** systems have the transponders already mounted on the karts by the kart manufacturer. The transponders may be programmed to the correct kart number and track, if this information was conveyed to the manufacturer before or during installation. If this was not done, all **KARTROL EXE** receivers will come pre-programmed to respond to Kart #1, Track #1. If they are mounted on an electric kart they should also have been set to electric operation.

The following procedures will guide you through the programming and operations of the **EXE** system.

Programming the Hand Held or Table Top Consol

- Programming must be done when more than one track at one location will be using the Kartrol EXE, and also if batteries are removed or discharged completely in the Hand Held or Table Top Console. The Hand Held transmitters are generally shipped with batteries removed and therefore will need to be programmed upon arrival. The factory default is Track 1 with Gas function.

- Power **ON** – push and hold **PWR** button for 2 seconds on older models, or instant on new models.

- If there is a letter "P" on the back of your **table top consol**, you can activate programming mode by pushing a straightened paper clip gently into the hole in the center of the letter P. If it does not have the P etched into the consol, follow the instructions below.

- Hand Held transmitters may have a programming hole in the back, but it is not etched with the letter "P" as the Table Top consol is. If there is a small hole on the back of your hand held, in the top half in the middle, then gently push a paper clip in to enter programming mode. If there is no hole, or you choose to do so, follow the directions below.

- With power on, enter programming mode by simultaneously pressing the bottom left three buttons (**PWR**, **O** and **CLR**). This may take a few attempts as it was designed to be such that accidental access would not occur. When successful, the LCD screen will read:

Software version
1.1.1

Note: If you have a consol with the letter "P" etched on the back the software version will read 2.1.1

(Stop continues)

INDIVIDUAL KART
PRESS # AND THEN FUNCTION

1	2	3	GO
4	5	6	MED
7	8	9	SLOW
PWR	O	CLR	STOP

POWER ON/OFF
PRESS AND HOLD

ALL KARTS
RESPOND

PUSH ALL THREE BUTTONS AT SAME
TIME TO ENTER PROGRAM MODE
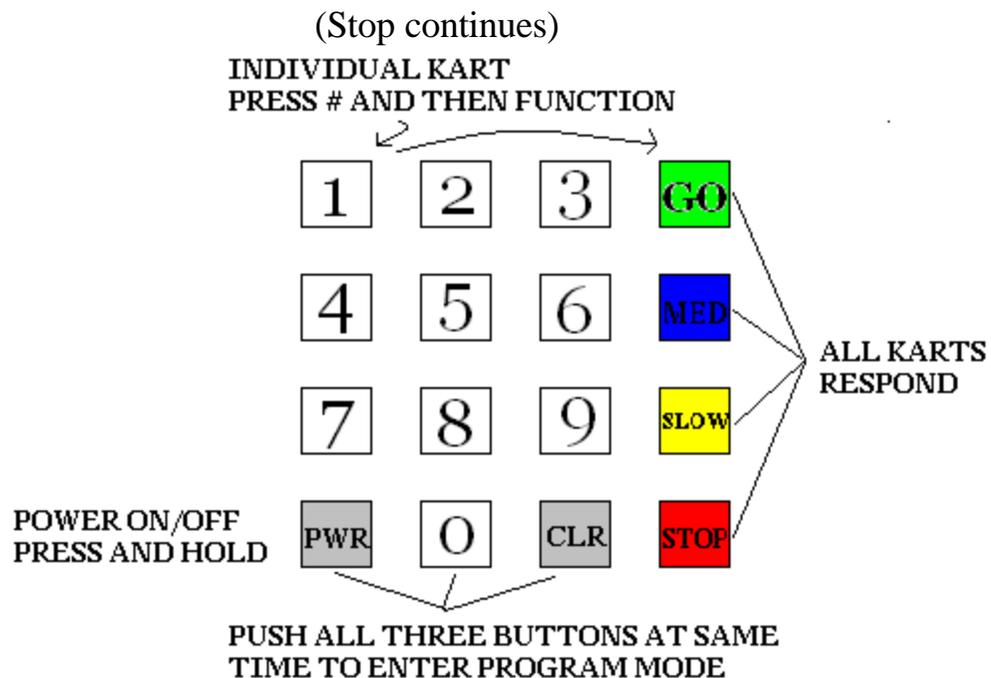
- Pressing the **STOP** button will change the screen to the next screen where a different track number can be set. The screen will appear as:

> **Enter Track #**
> **(stop sets)**
> **01**

- If only one track is one the site and no other tracks are within the effective radio area, it can be left at **Track #1. If so, simply push Stop to set this number and advance to next screen.**
  To change the track number, press **CLR** and then the track number desired, e.g. "2**"** *It is not necessary to enter the zero before numbers 1 thru 9.*
  Then press the **STOP** button to set this track # into memory. It will also change to the next screen.

  Note: The letter P consol has one additional screen before the gas / electric screen. It will have -   Pit: shared or standard. In almost all cases you would select **standard** by pushing the STOP button. The shared pit is only used when you have two different coded fleets of cars using the same track. The shared pit feature allows the cars of both fleets to respond to the same pit control. For this feature please contact our tech line first.

> **Select Mode**
> **Go= Gas**
> **Stop= Electric**

- This screen allows you to select for Gas or Electric kart. Press **GO** to program for Gas Karts and **STOP** to program Electric Karts. Pressing either one will enter that setting into memory and advance to the next screen.

- If Electric operation was selected then programming is complete and the transmitter is ready for operation. The Track # is displayed and a letter "*E"* for Electric is also displayed in the upper right of the screen.

Track 01   E
Enter Kart /Func:

This is the general operation screen and you have left the programming mode. If you made an error, simply repeat the process.

- If Gas was selected, the next three screens allow the operator to vary the actual rpm that the karts will be slowed to at each of the speed settings, beginning with the **Medium** Speed. The factory presets are in the middle of the range, and should be correct for most locations.. If no change to the preset speed is desired, simply press **STOP** and the next screen will be the rpm for the **SLOW** speed. Again pressing Stop will advance to the next screen which is the Stop rpm speed. It is recommended that you try the karts at the factory set speeds first and only if you see a need, modify these settings.
- To change the rpm of the speed, you press the **MEDIUM** button to increase the speed or the **Slow** button to decrease the speed. Each press changes the rpm by about 25 rpms, and one bar will be added or subtracted from the bar graph. When you have adjusted speed to where you want to try it on the karts, press **STOP** to set into memory.

Note - when you make a change to the RPM settings this change is sent to the receiver from the transmitter. In order for it to be locked into the memory in the receiver, you must cycle through all the functions once. Then the next time the receiver gets the signal it will respond to the new RPM. If you are changing the RPM on one unit to try, all transponders that are turned on will receive this information. Those that are not on will not hear that change until they are cycled through the functions one time.

- The screen will advance to the **SLOW** speed. If desired, adjust the settings for the **SLOW** speed and press **STOP**. The screen will now move to the **STOP** speed rpm settings. Adjust as desired and press **STOP** to set it into memory. This will complete programming and will enter normal operation mode.
  The track number is displayed and the letter **"G"** for **GAS** is displayed in the upper right corner.

Track 01   G
Enter Kart #/Func:

__

If any mistake has been made, simply re-enter the programming mode and reprogram.

- Now that the transmitter, either Hand Held or Main Console version, is programmed, it is necessary to program the receiver units to match that transmitter. If no changes were made on the programming this may not be necessary. The information such as Track # and Gas or Electric is transferred to the receivers from the transmitter when programming the receivers, therefore it is necessary to program the transmitter **first** and then the receivers.

- If two transmitters are to be used on the same track, it is necessary for them to be programmed exactly the same.

PROGRAMMING KART TRANSPONDER/RECEIVER

- To program the kart receiver/transponder it is necessary to use the transmitter that you will be using on that track. This transmitter should be programmed to the Track #, and mode of Gas or Electric, that you require. The information from the transmitter is transferred to the transponder which will lock this into memory. On Gas karts the RPM speed settings are changed on the transmitter and then sent to the receiver.

- Connect the transponder to the **Programmer/Shop Tester**. Be sure connection is secure. It is a good idea to gently twist the connector back and forth as you push the connectors together. There is a raised mark on both halves of the connector that must be aligned. Failure to properly connect the two halves will make it impossible to program the unit.

- Press the **Power** button and turn on the **Programmer**.   The green LED will flash. Wait until flashing stops. The LED light should be on in the **SLOW** mode. If not, check the connection between the connector halves.

- Turn on the **Program** mode button. This causes the red LED to light up, and again, wait for the green LED to stop flashing. The STOP LED light should be lit.

- Turn on the transmitter, either Hand held or Table Top model. It is very IMPORTANT that the transmitter is at least 3 feet away from the programmer so as not to distort the signal. If you are using a Hand Held transmitter, it must be held in the vertical position, Not laying down on a table.

- If you do not want, or desire, to have the ability to address karts individually by kart number, simply push **#1** button then **GO** button. This will program the unit to Kart 1. If programming was received by the transponder the tester will change to **GO**.
- To program a kart number, enter the number you wish to program into the transmitter, check on the LCD screen that the correct number is showing, then push GO on the transmitter. The LED on the tester should change to GO mode.

- Turn off the program mode button and wait for the green LED to stop flashing. This is very important to wait during this time period. Do not unplug the transponder from the tester before the flashing stops.

- Using the transmitter, test the transponder by pushing the **GO**, **MEDIUM, SLOW** and **STOP** buttons and watch that the LED's on the tester change accordingly. This confirms the transponder works on the global settings.

- Select a kart number different than the one you programmed, enter that number, and then push a function that is different from the current mode. Example: Kart #1 was programmed, push #2 and then **GO** if the tester showed **STOP**. The tester should not respond.

- Select the kart # you programmed, enter it, and then push a function that is different from what is showing on the tester. The tester should respond to the function you selected.
  Example: Tester shows **STOP**. Enter #1, then push **GO**. Tester should change to **GO**, confirming that the signal was understood.

-    Turn off Programmer/Tester and disconnect the transponder. It is now ready for installation on the kart. This can also be done while the transponder is mounted on the kart simply by disconnecting the kart harness and connecting the Programmer.
-    Repeat this programming to all receivers to be used on that track. If individual control of karts is not desired, program all of them to Kart #1.

*CAUTION: The Programmer/Tester has a fairly significant draw on the batteries, and if they become low, the programming or testing **may not work.** The power LED should go to yellow when the batteries are low, but it may be possible for the tester to begin malfunctioning just before this happens. If you detect any problem in either testing or programming, put a fresh set of batteries into the tester and retry. Note: you can use either a 9volt battery or 2 AA batteries. We recommend the use of the 9volt as it lasts much longer.

MAIN CONSOLE INSTALLATION

The Main Console is intended to be used at a track attendant station. It requires a 110V outlet to power the AC adaptor to the console. It should be positioned where the attendant has good track visibility of all areas.

The optional remote switch boxes connect to the main console. Any number of remote switch boxers can be connected. They can be mounted at additional track attendant stations or at critical areas of the track, making it easy to safely operate the track from many positions. The remote switch boxes allow the operator to address the STOP, SLOW, MEDIUM and GO functions as well as turn on and off the Pit Loop Transmitter. These boxes should be mounted securely in a dry safe location such as on a light pole. It is low voltage in the wires so while it must be protected from damage, it is not a voltage hazard.
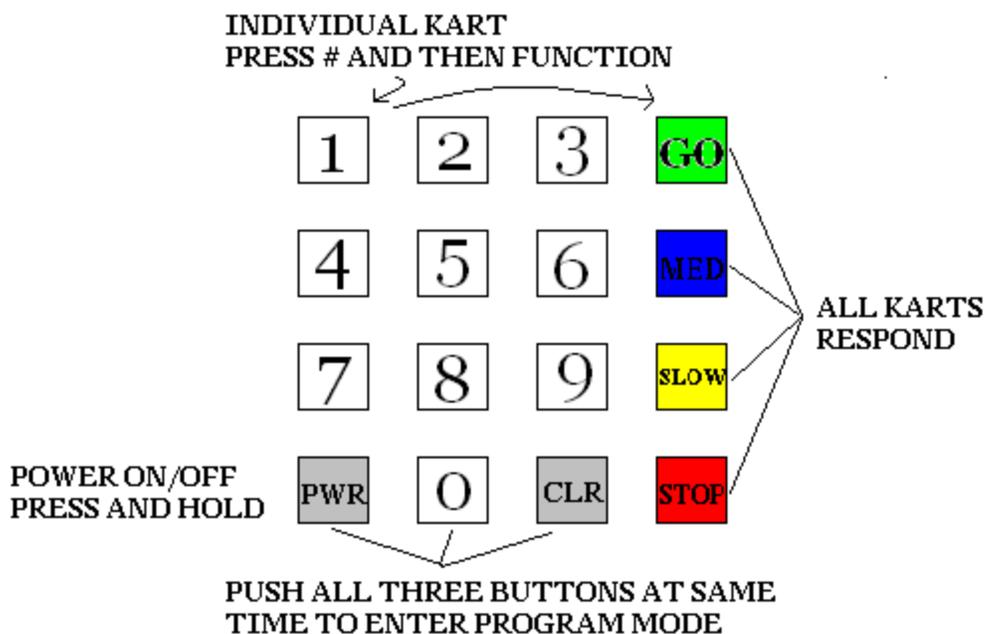
The Main Console is weather-resistant but **NOT** waterproof. It should be protected from rain. Direct sunlight may reduce the life of the Mylar covering.

CAUTION- **Never use a transmitter without the antennae being connected**. If antenna gets damaged, replace it immediately. An extension cable can be used to locate the antennae in a better location. This may be very important when the consol is located under a pit structure, or if bridges or other obstructions may block the signal from the consol location.

The proper cable and maximum length are very important. **Only an extension cable supplied by Proleg Technologies can be used. Failure to use the correct cable will damage the transmitter immediately.**

MAIN CONSOLE/HAND HELD OPERATIONS

Both Hand Held and Main Consoles have the ability to control all karts, individual karts, and may control other devices such as the Pit Loop, a message system, or traffic lights. The Transmitters are capable of controlling 89 karts individually and up to 99 different tracks. Unlimited numbers of karts can be controlled at a time if they are numbered the same.

INDIVIDUAL KART
PRESS # AND THEN FUNCTION

1	2	3	GO
4	5	6	MED
7	8	9	SLOW
PWR	0	CLR	STOP

ALL KARTS RESPOND

POWER ON/OFF PRESS AND HOLD

PUSH ALL THREE BUTTONS AT SAME TIME TO ENTER PROGRAM MODE

To control all karts on the track, simply push the function you want to activate. e.g. **SLOW**. All karts will respond to these four functions.

To address a single kart, push the kart # and then the function. Only **that** kart will respond.

* CAUTION: It can be dangerous to slow an individual kart down on the track. It should only be done when attendant has total track visibility and can determine it is safe to do so. Many tracks do not allow attendants to slow individual karts. It is far safer to slow **all** karts to deal with a problem driver or accident.

Below is a chart of the additional functions that can be accessed on the Hand Held or Main Console.

#	GO	STOP
91	Activates Pit #1	Deactivates Pit #1
92	Activates Pit #2	Deactivates Pit #2
93	Activates Pit #3	Deactivates Pit #3
94	Activates Pit#4	Deactivates Pit#4
95	Activates Rookie	Deactivates Rookie
96	Turns on lights	Turns OFF lights
97	Starts Timer	Stops Timer
98	Aux 1 ON	Aux 1 OFF
99	Activates TURBO	Deactivates Turbo

Some of these features require an additional receiver or control to activate.

The Main Console has battery backup in case of power failure. The AC adaptor keeps these batteries charged.

 The power must be turned off or disconnected once per day to reactivate the battery charging circuit. If left powered on continually, the charging circuit may turn off and the unit will run on the batteries until they run down.

*** Only use rechargeable nickel metal hydride batteries. Use of alkaline batteries could cause fire or explosion if put on charge!***

Trouble Shooting and Diagnostics

When troubleshooting a transponder, it is important to carefully revue the symptoms and confirm them. This is especially important when the information was relayed to the mechanic by an attendant. Not having all the information may make diagnostics very difficult and time consuming. Methodically testing all functions and noting under what circumstances the symptoms are occurring, will give valuable information for determining exact cause.
 For example: the attendant says the kart won't slow down. Does this mean it will not slow down when all Slow is pushed, or when it crosses over the pit loop? Does it function off the hand held transmitter, but not off the pit loop?

  One of the advantages of the Kartrol EXE transponders is the ability to use the Kartrol Programmer/Tester. The use of the tester will immediately confirm if the problem is in the transponder or the harness and installation.
  To test a Kartrol transponder, unplug the unit from its harness right at the transponder. It is not necessary to remove the transponder. Then plug the unit into the Programmer/tester, being careful to get a good secure connection. Turn the power **On** and wait for the **LED** to stop blinking. If the programmer does not light up in the **Slow** mode, check the connections. It is possible that pins in the connector are pushed in, preventing a good connection. Inspect both sides of the connector and if needed, gently push the pins back into position using a fine screwdriver, being careful not to damage the wire.
  If the tester still will not boot up in the **Slow** mode, try plugging a known working transponder in to the tester. If that also does not boot up in **Slow** mode, change the batteries in the programmer.
  With the transponder plugged in to the tester and the Slow light is on, push each one of the all kart functions and if the corresponding **LED** lights come on, then the unit is working. If you have the optional Pit Loop, you can walk over to the Loop with the tester and wave the sensor over the loop wire. It should make the tester change to whatever mode the pit loop is set to.

   If the transponder does not respond to the testing, you can try to reprogram the transponder and retest. It is possible that something has caused the programming to be corrupt, and following the procedures in the Programming Transponder section will correct this.

If you do not have a Programmer/Tester, the easiest way to begin diagnostics is to plug a spare or known working transponder into the kart harness on the problem kart. If the new transponder works, recheck the suspect transponder, being sure to inspect the pins in the connector. If it still does not work, send it in for repair.
 If the spare transponder also does not work, then the problem is in the harness or installation. Check all wiring and connectors. It may require a continuity meter to properly verify connectors are working.

Some Common symptoms and solutions:

All karts will respond to TOP, MEDIUM, but will not GO-

   Check the LCD screen, it will probably have an R . This is for a Rookie speed on electric karts to deactivate the Full speed on the transmitter, o an attendant can't accidentally hit GO during a ride. It was activated by someone pushing #95 then GO.
To deactivate, push # 95 then STOP.

Transmitter won't power up-
   Check batteries and charging cord, then wait at least 3 minutes with unit on charge and try again. If batteries are too weak, it will take a few minutes of charging before unit will power up.

Pit control transmitter not working-
   Check the power to the pit transmitter and unplug, wait 15 seconds, and plug back in.
   If the radio feature on the pit transmitter has been activated (see pit control programming) it may be turned off by pushing **91 STOP**. To turn on, push **91 GO**.
   Hook a transponder to the programmer/tester, turn on the tester, hit GO on the transmitter, and then walk across the pit wire with the tester sensor hanging in a vertical position 1 foot above the wire. It should change the tester to the SLOW position if the pit transmitter is working. If it is and a kart does not respond, then the pit sensor on the kart needs to be relocated or is faulty.

Constant Beeping from Table Top transmitter-
   Check remote switch connector on side of consol to see if pins are shorting, or if remote switches are hooked up, a button is sticking or a short is in the wiring.

Testing Pit Loop Sensor-   Gas – using a multimeter set on continuity, you should get a reading of approximately 1.3
. Setting the range to the 20k scale, the reading should be 2.2k

For electric sensors the reading is .48k approx on the 20k scale or 4.2 on the continuity scale