

Genesis 80cm Boat

1N00-511 Installation Manual

Company Information.

	Telephone	Fax	
Technical Help	+44(0)121-773-1827	(0)121-772-6056	Ask for Technical Help
Parts & Accessories	+44(0)121-773-1827	(0)121-772-6056	Ask for the Parts Dept
Unit Sales	+44(0)121-773-1827	(0)121-772-6056	Katie Roberts
Comments:	+44(0)121-773-1827		Stuart Bland

Addresses:

Head Office, Sales Office & Production

Tornado International Ltd
 Unit 28 Green Lane Industrial Estate
 Second Avenue
 Birmingham
 B9 5QP
 England
 Tel: +44(0)121-773-1827
 Fax: +44(0)121-772-6056

A Member of the Tornado International Leisure Group

Conventions used in this Manual

For clarity the following conventions are used in this manual:

Paragraph Heading	Meaning
Tip!	Information which will assist in the operation of the product
Note!	Information which is important for the correct operation <i>of the product</i> .
Caution!	Information which is VITAL to avoid injury to persons or damage to the product.
Warning!	Information which is VITAL to avoid <i>serious injury</i> to personnel or the public.

Please take note of the information in shaded areas. If you have any questions with regard to the correct installation or operation of the product please contact Tornado International Ltd.

Important – Please Read This!

This manual is provided in good faith and is believed to be accurate. Because Tornado International have no control over the manner in which the product is used, users should satisfy themselves that any information or instruction contained in this manual is appropriate for the conditions under which the product is being installed and operated.

In the interest of product development, Tornado International reserves the right to alter or modify the product as necessary.

On Delivery

Before Opening Crates

1. Check the number of crates delivered agrees with the number on the shipping documents.
2. Inspect the crates for damage. If any damage is visible note the crate number, and the position and extent of the damage. If the crates are not to be opened immediately, the shipping company should be notified as soon as possible. If the crates are to be opened at this time, wait until the product is inspected for damage.
3. The crates should be moved to a position close to the operating area before opening.
4. The crates should be opened carefully, the contents removed and the quantities checked against the shipping notes. A product identification chart can be found at Appendix A. If any damage was noted on the outside of the crates, the product next to the damage should be inspected carefully. Any damage should be notified to the shipping company as soon as the product is unpacked. Any shortage should be notified to Tornado International Ltd. in writing (letter, fax or e-mail) as soon as possible and in any event not later than 5 days after receipt.

Before Installation

All equipment (except UK) designed to operate off mains voltage supply (100v to 240v) is supplied without a connecting plug. Ensure that the required number of plugs are available before starting the installation.

Caution!

Check that the supply voltage matches the voltage setting on the front of the PSU and Charger cases. (Dia. 5 & 6)

Tools & Items Required: (These are not supplied with the unit)

Small flat screwdriver
 Medium flat screwdriver
 Medium cross point screwdriver
 Power drill
 8mm drill bit
 51mm hole cutter
 10mm socket and ratchet
 ¼ whitworth socket (or adjustable spanner)
 Soldering Iron
 Staple Gun or 3mm cable clips
 7mm cable clips
 10off each coin/token used

Setting Out the Equipment:

1. Before starting the installation place the consoles on the floor in the position they are to be mounted. The consoles may be mounted either indoors or outside. Console number "1" should be on the left with the consoles running in numerical order to the right.
2. Place the Power Supply Unit (PSU) in the position it will be used. The rear of the PSU has a large aluminium heat sink. It is important that the PSU is positioned so that there is an uninterrupted flow of cool air over the heat sink.

Caution!

The PSU must be mounted indoors and in such a position that the public do not have access to it. It must be protected from water.

3. Place the chargers in the position they will be used. The top and bottom of the charger case has vents to provide cooling. It is important that the chargers are positioned so that there is an uninterrupted flow of cool air over the vents. **Caution!**

The chargers must be mounted indoors and in such a position that the public do not have access to them. They must be protected from water.

4. Check that the PSU and charger mains cables will reach the electric supply sockets.
5. Lay out the 24V PSU cable and check that it is long enough to reach from the master console to the PSU.

Note!

The PSU cable must not be lengthened without consulting Tornado International Ltd.

Tip!

The master console can be identified by an additional door to the right of the coin acceptor door. It is usually number 4 or 6. It is the console with the transmitter inside.

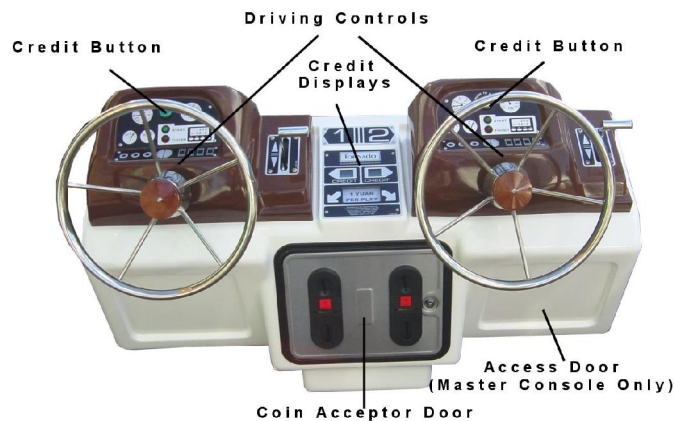
6. If you have more than one console open the console door (the key is in the spares pack) and locate the console cable coiled up inside. Check that the cables from all additional consoles reach the console connection sockets inside the master console.

When you have satisfied yourself that all of the units are suitably positioned the installation can begin.

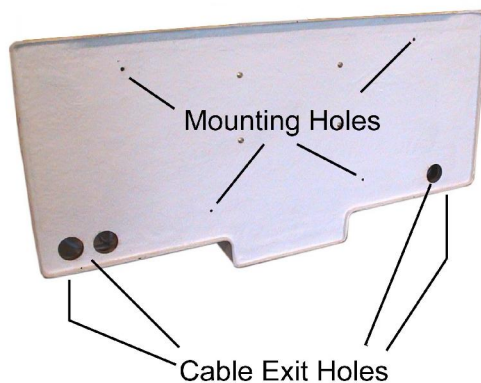
The Installation

The Consoles:

The consoles are usually mounted on a fence or low wall. The lip (See Dia. 3) at the top of the console serves to locate the console on the top of the wall or fence and assists in the mounting process. The lip may be removed if required by marking a line along the top of the console and cutting along the line with a hacksaw. There are 4 mounting holes in the back of the console and large cable holes on the back and underside of the console to route the console connection cables. (See Dia. 2)



Dia. 1 – Console



Dia. 2 – Console

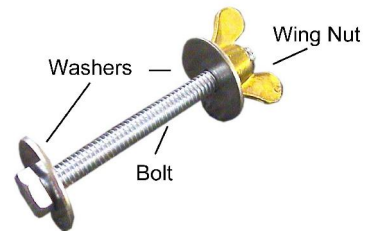


Dia. 3 – To Remove Lip (If required)

Caution!

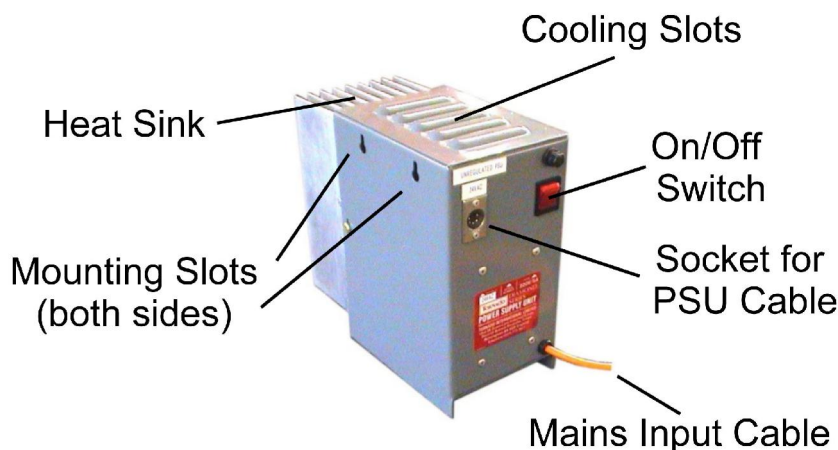
Whenever possible use the predrilled mounting holes in the rear of the console (See Dia. 2). If this is not possible, alternative holes may be drilled in the back of the console only after checking that there are no items or electronics inside the console, in the area to be drilled. Any damage caused by not following this instruction is the responsibility of the installer.

1. With the coin acceptor door open the console should be placed in the chosen position on the wall or fence to which it is to be fixed.
2. The position of the mounting holes (and cable holes if required) should be marked on the wall or fence using a scribe or pencil from inside the console.
3. The console can then be removed and using an 8mm drill bit, the four mounting holes can be drilled in the wall or fence. Any required cable holes can then be drilled in the wall or fence, using a 51mm hole saw.
4. Locate the console mounting bolts and position the bolts with one washer under the head through the wall or fence from the model operating side.
5. Prepare four washers and wing nuts. With a helper holding the bolts in place, lift the console into position and locate it onto the mounting bolts. Fit a washer and wing nut to each bolt and tighten securely.
6. Repeat for each console.



Dia. 4 - Console Mounting Bolt

The Power Supply Unit:



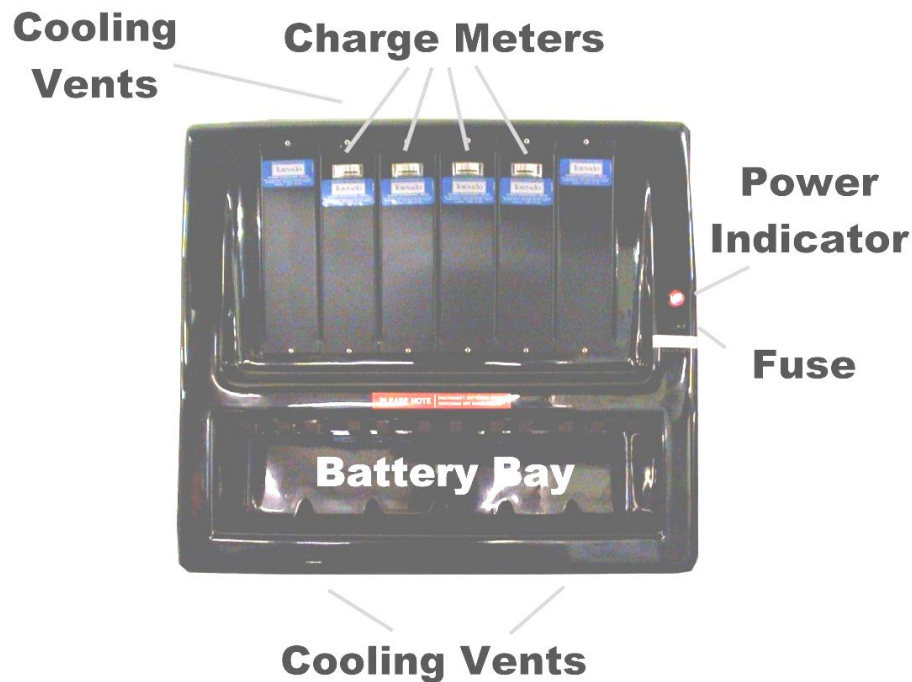
Dia. 5 – The PSU

The PSU (See Dia. 5) can either be stood on a shelf or hung on a wall using the slots in the sides of the case. The rear of the PSU has a large aluminium heat sink. It is important that the PSU is positioned so that there is an uninterrupted flow of cool air over the heat sink.

Caution!

The PSU must be mounted indoors and in such a position that the public do not have access to it. It must be protected from water.

The Chargers:



Dia. 6 – The Charger

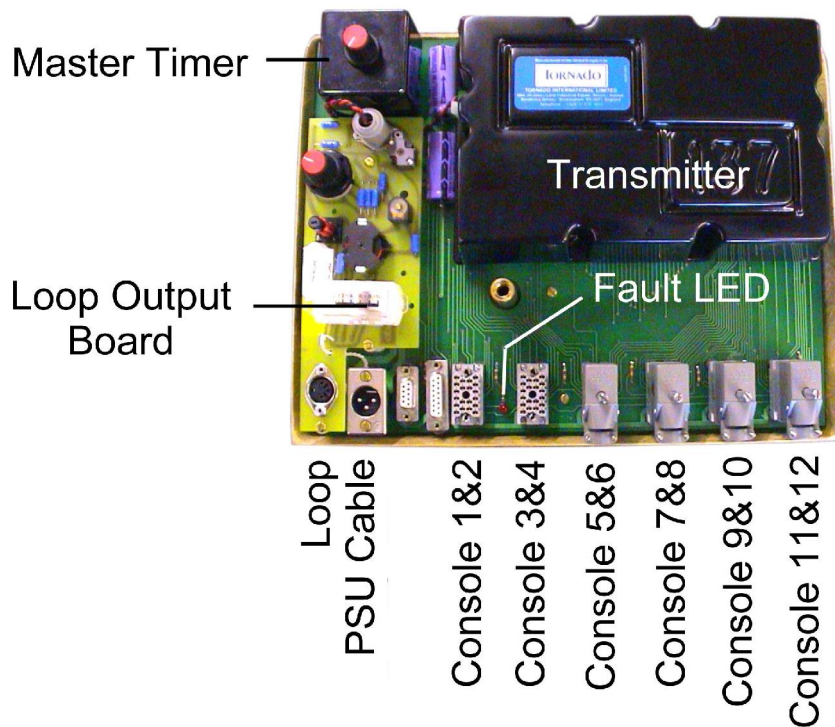
The chargers (See Dia. 6) must be mounted on a wall using the slots in the rear of the case. The top and bottom of the charger case has vents to provide cooling. It is important that the chargers are positioned so that there is an uninterrupted flow of cool air over the vents.

Caution!

The chargers must be mounted indoors and in such a position that the public do not have access to them. They must be protected from water.

The chargers should now be connected to the electric supply. The batteries are fully charged when the unit is dispatched from the factory, however if the unit has been in transit for some time it might be prudent to charge the batteries whilst the rest of the installation is carried out. See the section “The Battery Chargers” in the operation manual for how to charge the batteries.

Routing the Console Cables:



Dia. 7 – The Transmitter Mother Board showing the Master Console Connection Sockets
(Inside the access door of the master console)

Each console has a grey cable coiled inside the console on the side nearest the master console. Each of these has to be routed out of the console and into the master console. The cables should be supported using 8mm cable clips every 30cm.

1. Open the coin acceptor door and locate the console cable.
2. Uncoil the cable and feed the plug out of the console using one of the large holes in the back or bottom as required.
3. Route the cable to the master console and fit the plug into the correct numbered socket on the transmitter motherboard (See Dia. 7) (The socket numbers are on the transmitter motherboard cover). Do not fix the cables in position at this time.
4. Repeat the routing for all console cables. It should be noted that the cable for the master console is fitted at the factory. All of the console cables are the same length so some surplus will remain for consoles close to the master console.
5. Leaving a small loop of cable in the master console, fix the cables in position starting at the master console and working toward the standard console(s).
6. Coil up any excess cable and place it inside the standard console to one side, ensuring that the coil of cable does not interfere with the operation of any of the console controls.

7. Repeat the cable fixing for any other consoles.

Note!

When you have finished connecting all of the supplied consoles check to ensure all of the master console connection sockets have either a console connected or a dummy plug installed.

Routing the PSU cable:

The PSU cable has to be routed from the master console to the PSU. This cable carries the 24v ac produced by the PSU to the consoles.

Note!

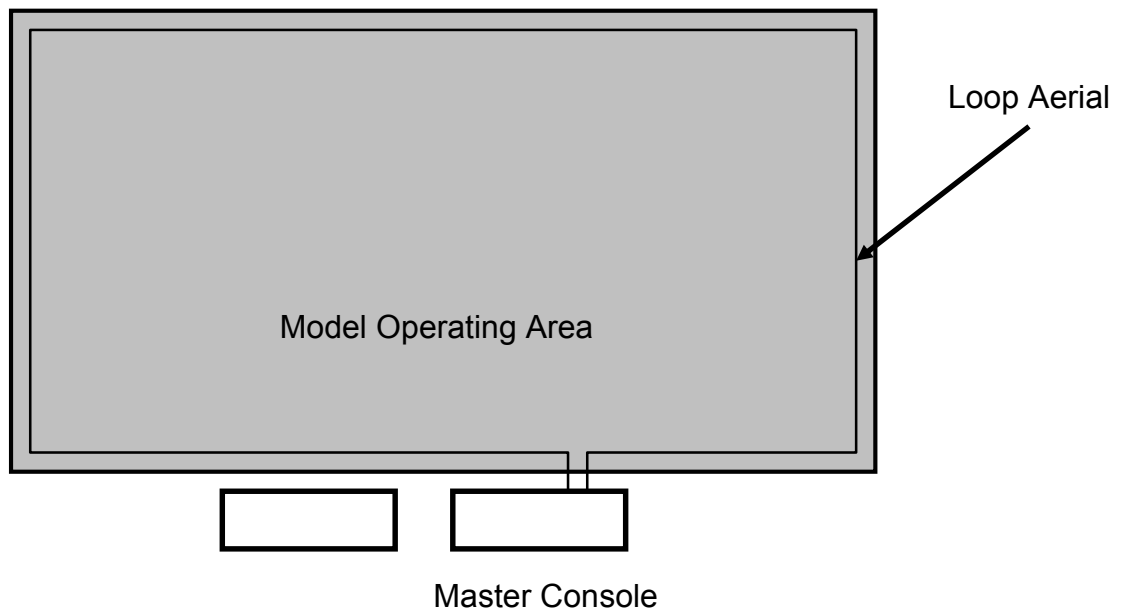
The PSU cable must not be lengthened without consulting Tornado International Ltd.

1. Plug the PSU cable into the 24v socket in the master console. (See Dia. 7)
2. Route the cable from the master console to the PSU.
3. Starting at the master console fix the cable in place using 8mm cable clips.
4. Coil any excess cable next to the PSU.
5. Plug the PSU mains supply input cable into an outlet of the correct voltage (See Dia. 5).
6. Check that the PSU is turned off. (The neon indicator is off.)
7. Connect the cable to the PSU.

Do not turn on the PSU at this time.

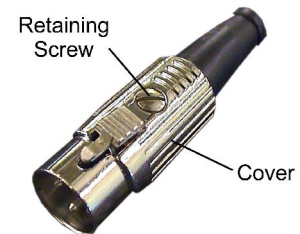
The Loop:

The loop is the aerial used by the transmitter (TX) to send the control signal to the models. We use a loop type aerial because it concentrates the available transmitter power into the operating area for better interference rejection. The loop wire will be found with the spares pack. If required any wire of at least the same cross sectional area can be used. The loop forms a complete loop starting at the loop plug in the master console (See Dia. 7), running around the perimeter of the model operating area and ending back at the loop plug in the master console (See Dia. 8).

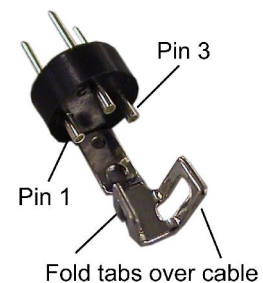


Dia. 8 – The Loop Aerial

1. Locate the loop wire and leaving 3M excess, attach the wire to the model retaining wall at a convenient point below the master console. The loop wire may be run on the outside of the retaining wall or on the inside.
2. Fix the wire around the operating area using staples or cable clips every 300mm. Choose a position and height that does not cause the models to rub against the wire, and is not easily seen by the public.
3. The wire should be run around the area to finish at the point you started. Leave 3M and cut the wire. The remaining wire should be retained for any future use.
4. Route the two lengths of wire to the loop socket in the master console and cut them to a convenient length so that they reach the socket (See Dia. 7).
5. Locate the loop plug in the spares pack (2 are supplied), remove the retaining screw and cover (See Dia. 9).
6. Slide the cover over the two wires, strip 5mm of the outer covering from each wire and solder one to pin number 1 and the other to pin number 3. It does not matter which wire goes to which pin (See Dia. 10).
7. Ensure that there are no stray strands of wire to short across the pins and that the solder joints are good.
8. Re-assemble the cover onto the plug and refit the screw.
9. Fit the loop plug into the loop socket in the master console (See Dia. 7).



Dia. 9 – Loop Plug



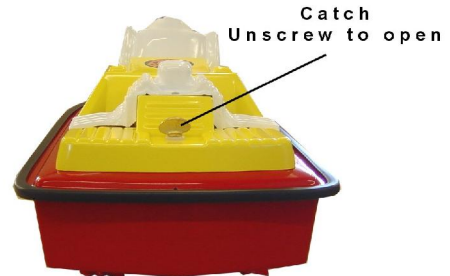
Dia. 10 – Inside the Loop Plug

The Models:

The models should be handled with care. They are designed to be as robust as possible within the constraints of their size.



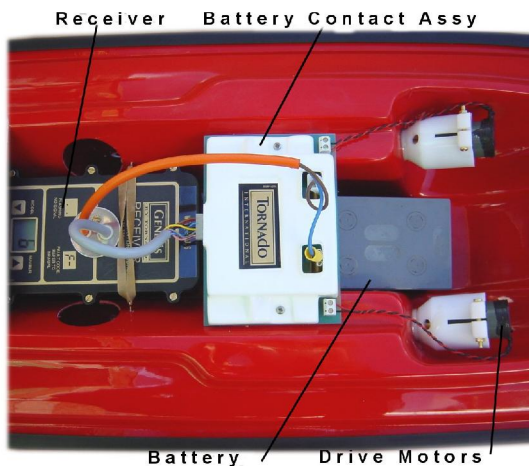
Dia. 11 – The Model



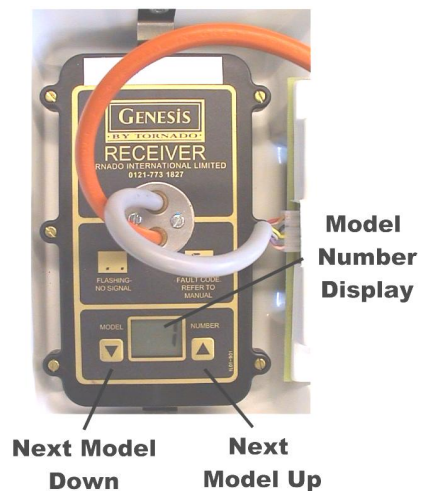
Dia. 12 – The Top Catch

1. Carefully unpack the models and place them near their driving positions.
Tip! Use spare packing material to protect the underside of the hulls.
2. Remove the top of the model by rotating the catch, then gently slide the top forward to release the front catch (See Dia. 12).

Do not connect the battery to the model at this time.



Dia. 13 – The Model Interior



Dia. 14 – The Receiver in Position in the Boat

Power Up & Testing

All of the stages described in “The Installation” should be completed before these instructions are followed. The power to the unit will be turned on and the primary functions of the unit will be tested manually. This will allow the unit to be entered into service. The test procedures will duplicate some of the tests carried out at the factory prior to shipment. All aspects of every unit's operation are tested as the last stage of production. If you encounter any problems please check to ensure you have carried out the installation correctly. If you still have a problem please make a note of the exact nature of the fault, all of the symptoms and the serial number of the unit. Then telephone the Tornado International Ltd technical helpline.

Power Up & Testing:

1. Turn on the PSU (See Dia. 5).

Before the manual test can begin the loop aerial will have to be tuned. Follow the instructions in the following section “Tuning the Loop”.

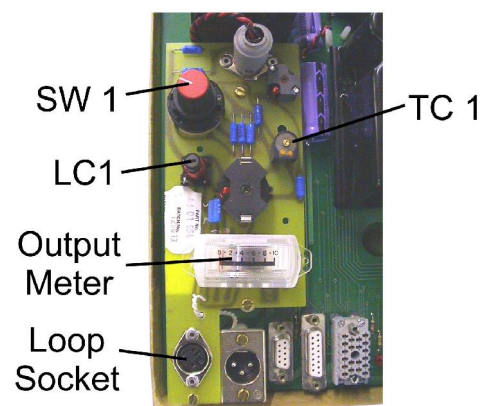
Tuning the Loop:

For a transmitter (TX) to work correctly the aerial needs to be a specific length, which depends on the frequency used for transmission. As the transmission frequency is fixed but the length of the aerial (loop) varies depending on the perimeter of the operating area, we have to provide a system to “match” the length of the loop to the transmitter. The device to achieve this is called the “Loop Output Board” and is housed to the left of the transmitter in the master console (See Dia. 7 & 15). The operation of adjusting the Loop Output Board to achieve an aerial match is called “Tuning the Loop”

Caution!

Failure to tune the loop correctly will lead to overheating of the receivers in the models and may lead to failure of the transmitter. These items are of high value and any failures caused by not following these instructions are the responsibility of the installer.

The following instructions are important. Please read and thoroughly understand them before proceeding. If you are at all unsure then telephone the Tornado International Ltd technical help line.



Dia. 15
Loop Output Board

1. Remove the cover from the transmitter motherboard.
2. Locate the adjusters SW1 & TC1 (Dia. 15).
3. Check that the loop plug is securely connected to the loop socket.
4. Check that every playing position has a red light showing and that each credit display is showing “0” (See Dia. 16).

5. Check that the fault LED in the master console (See Dia. 7) is not on. If it is, check to ensure that every console socket has a plug connected.
6. Rotate SW1 fully anti-clockwise and observing the loop output meter select each clockwise position in turn, noting the loop output meter reading at each position.
Note: If the loop output meter should read over 10 during this procedure adjust LC1 to return the needle to 5. Please read the note and instructions below before doing this.
7. Select the position of SW1 corresponding to the highest reading and note that reading.
8. Using a screwdriver, rotate TC1 through 360° and note the action of the loop meter. If when rotating TC1 through one complete revolution, the loop meter does not raise above the reading obtained at stage 6, rotate SW1 one position anti-clockwise and again continue from step 8.
9. When rotating TC1 through one complete revolution the loop meter should show 2 positions when the meter is at its highest.
10. Rotate TC1 to obtain the highest reading on the loop meter.
11. To check if the loop is tuned correctly move TC1 a quarter of a turn in each direction. The loop meter reading should fall in both cases. Re-adjust TC1 to give the highest reading.

The next operation is carried out to adjust the loop output meter to read 8. This is to provide a datum reading for any future evaluation of transmitter performance.

Note!

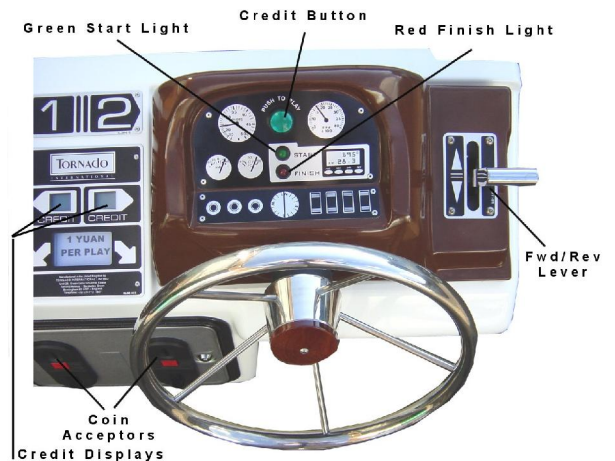
It should be understood that although the reading of the loop output meter is being adjusted during this operation, the actual output of the transmitter and the loop tuning is not being affected in any way. The only thing that is being changed is the coupling of the output meter to the transmitter.

It is important that this is understood and that this operation is only carried out during installation or replacement/re-siting of the loop. The core of LC1 is made of carbon. It is very brittle so adjust it with care.

1. Locate LC1 (See Dia. 15).
2. Using a small screwdriver carefully rotate LC1 to adjust the loop meter to give a reading of 8.

Continuation of Installation Test:

Dia. 16 – The Playing Position



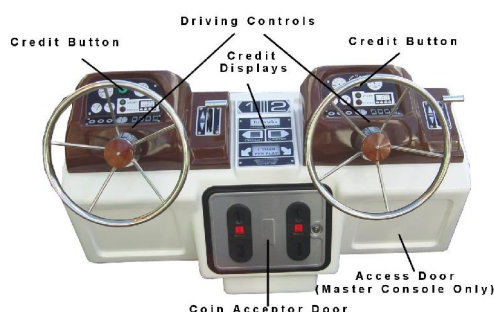
1. Check that the red finish lights on all of the consoles are turned on (See Dia. 16).
2. Turn the playtime control on the master timer to maximum (fully clockwise) (See Dia. 7).
3. Open all of the cash doors.
4. Observing the credit displays introduce enough coins/tokens to purchase one play. The credit display should show "1" and the green credit button should flash. Repeat for each playing position.
5. Press the green credit button, the credit display should now show "0" the credit button stops flashing and turns on, the red finish light should turn to green. Repeat for each playing position.
6. At the end of the set time a sounder will be heard and the green play light will return to red.
7. Insert a battery into each model. (See Dia. 13)

Caution!

Lift the rear of the model as the battery is slid into position to allow the propellers to rotate.

8. Again introduce enough coins/tokens to purchase one play into playing position "1". The credit display should show "1" and the green credit button should flash. Press the green credit button to trigger the game. Check that the red finish light has turned to green.
9. Place model number 1 on the water. Move the forward/reverse stick to forward. The model should move forward. Turn left and right to check that the model responds correctly. Repeat for reverse. At the end of the play period the green play light will turn to red and control will be removed from the playing position.
10. Repeat the test for each model.

The unit is now ready for use.



(Style of tops may vary)



PSU

S



Battery



Battery
Charger



PSU Cable