



X-EC DIVERSION™

Flight Manual



www.megatech.com

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If you have questions about operating or installing your new Megatech product, or if you are missing parts... Please Call Megatech First!

DO NOT RETURN THIS PRODUCT TO THE STORE

Call our Customer Service Department at:
(201) 662-2800

10:00am - 5:00pm, EST Monday through Friday (except holidays)

Technical assistance is also available on-line at www.megatech.com
or by e-mail to info@megatech.com

Congratulations! You have just purchased a radio controlled micro model airplane that incorporates some of the most technically advanced electronics available. Your new Megatech® X-EC Diversion™ is packed with on-board microprocessor-controlled thrust-vectoring, an advanced self-righting elliptical wing and a pre-programmed failsafe landing mode. All of this technology combines to make the X-EC Diversion incredibly stable and one of the easiest R/C airplanes in the world to fly. Even if this is your first R/C airplane, successful flights with the X-EC Diversion are virtually guaranteed. You must, however, follow the instructions.

Please read this entire flight manual carefully before you attempt to build or fly your X-EC Diversion.

If you experience any problems, **DO NOT** take your X-EC Diversion back to the store! Call one of our MegaTechnicians at:

1-888-MEGA-911 or send an e-mail to: info@megatech.com

10:00am-5:00pm EST, Monday through Friday (except holidays)

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TABLE OF CONTENTS

Getting Acquainted with your X-EC Diversion.....	3
Safety Warnings	4
The Radio Transmitter	5
Attaching the Landing Gear.....	6
The Flight Pack Battery	7
Preparing For Your First Flight	8
Flying Your X-EC Diversion	9
Landing Your X-EC Diversion	10
Ordering Spare Parts	11
Troubleshooting	12
Helpful Hints	13
Crash Warranty	13
Limited Warranty.....	14



Important! Before you begin, please read the warnings listed on the following page. Failure to comply with the following recommendations could lead to bodily harm or injury. The Megatech X-EC Diversion is not intended for those under 12 years of age without proper adult supervision.

Getting Acquainted with Your X-EC

PACKAGE CONTENTS

Before going any further, please check that your X-EC package contains all of the following items, using the picture below as a guide:



- | | |
|--|----------------------|
| A. X-EC Diversion Aircraft | H. Display Stand |
| B. Radio Transmitter/Charger Unit | I. Rear Landing Gear |
| C. Rechargeable Battery Pack | |
| D. Landing Gear | |
| E. Hook and Compartment Tool - "Dual-Tool" | |
| F. Transmitter Frequency Flag/Wind Gauge | |
| G. Spare Propellers | |

If any of these items are missing from your package, please contact Megatech.

Safety Warnings

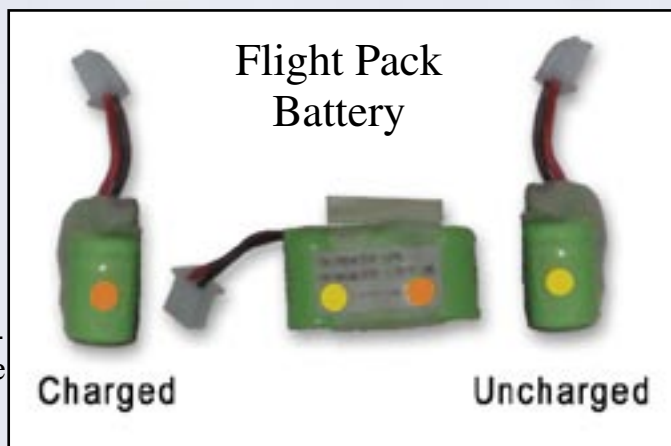
⚠ Please read before operating your X-EC Diversion. ⚠

General

- **You alone are responsible for operating your aircraft in a safe manner. When flying, you are responsible for your own safety and the safety of others around you. Follow these basic safety guidelines at all times.**
- When operating/flying always be aware of spinning propellers. Be careful not to let them come close to your person, others and/or loose clothing.
- Fly in wide-open areas free from obstructions such as trees or telephone poles and wires.
- Do not fly your airplane if other models are being operated in the area on the same frequency (49 MHz or 27 MHz).
- Do not attempt to disassemble any of the airplane's components or allow them to get wet. Electrical damage may occur.
- Never fly your airplane from roadways or after dark.
- Keep spectators behind you when flying.
- Before flying, make sure you perform a range check to be sure you can maintain control at least 25-feet from transmitter to model with the transmitter antenna collapsed.
- Since your airplane is controlled by a radio link it is very important to always use fresh alkaline batteries in the transmitter. We recommend Megatech's Golden Power series, designed for R/C products.
- Never use solvents or liquid cleaners to clean this aircraft. Doing so may damage the foam. Only use a dry, soft cloth for cleaning.

Batteries

- Always turn on the radio before installing the flight pack battery. Installing the flight pack battery before turning on the transmitter turns on the airplane's fail-safe system and there is no control of the plane.



- Never leave the flight pack battery unattended while charging. Constant monitoring is required while charging the flight pack battery. Only charge the flight pack battery until its indicator turns from yellow to orange. It will become warm, but don't let it get too hot. Approximately 2-4 minutes with fresh transmitter batteries is usually enough.
- To prevent flight pack battery from overheating, allow it to cool completely after each flight before recharging. The battery indicator will turn yellow when it has cooled enough to recharge.
- The flight pack battery should never be left in the model while it is not in use.

Radio

- **Safe radio operation tip:** The transmitter should always be the first thing turned on and the last thing turned off.
- The transmitter's antenna must be fully extended for optimum radio link during flight. Never fly with the antenna down.
- Do not trim the airplane's antenna. It is cut to a specific frequency length and to do so would drastically affect radio range.
- Never disassemble any of the radio components or expose them to moisture.

Radio Transmitter



Antenna: Emits signal from the transmitter to the airplane's on-board receiver.

LED display: Glows when transmitter is on and also shows battery condition. (All three will glow when the batteries are at full capacity):
Green—full capacity
Yellow—half capacity
Red—low capacity (time to replace transmitter's "AA" batteries)

Left/Right Turn Control Stick (CH 1): Used to steer the airplane. Pushing the stick right or left causes the airplane to turn right or left. (When flying in Mode II, this stick will also activate motors.)

Flight Mode Switch: When the switch is down, it is in Mode I. This means that only the Climb Button will turn on the twin motors. When it is in Mode II (switch up), the twin motors can be turned on with either the Climb Button or by pressing forward on the Control Stick.

Climb Button (CH 2): Press this button to turn on both of the twin motors for takeoffs and for climbing altitude.

Power On/Off Switch: Turns the transmitter on and off. When the transmitter is on and its batteries are at full capacity, the LED display will light.

Battery Cover: Cover for compartment that holds six (6) “AA” alkaline batteries.

Flight Pack Charging Jack: Used to charge the airplane’s flight pack battery.

Attaching the Landing Gear

Grasp the legs of the main landing gear. Gently squeeze the legs together, and then push the gear into the slot on the bottom of the fuselage in front of the battery door. Press firmly, but gently until it is in all the way. Then release the pressure on the gear legs and give them a

gentle tug to make sure they are secure.

When properly inserted, the legs will be angled forward slightly. To remove the main gear, simply squeeze the gear legs together to release the gear from the housing.

Insert the rear landing gear as shown until snug.



Installing the Transmitter Batteries



- The transmitter uses six “AA” batteries (use only alkaline or NiMH batteries).
- Remove the battery compartment hatch using the supplied Dual-Tool.
- Install the six fresh “AA” batteries paying careful attention to proper “+” and “-” polarity.
- Press the hatch cover back into place until you hear it “click”.

Charging the Flight Pack Battery

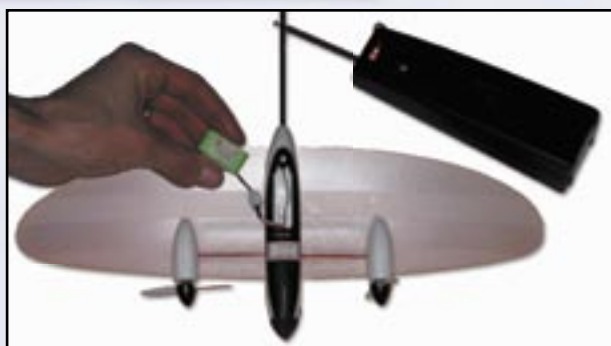


- The X-EC Diversion uses Symbiotic Charging™ from the transmitter. This means the flight pack is charged directly off of the transmitter, an extremely convenient method for charging in the field.
- The back of the transmitter features a charging jack. Simply plug the flight pack into the charging jack and hold down the red button until the battery indicator turns orange.

- **NEVER LEAVE A CHARGING BATTERY UNATTENDED!!!**
- Your flight pack will naturally get good and warm, but do not let it get extremely hot. The charge time should take about 2-minutes to 4-minutes, depending on the condition of your transmitter batteries.
- The X-EC uses the latest NiMH (nickel-metal-hydride) battery technology available. While NiMH batteries offer the best performance available, they don't come up to full potential until they have gone through 3 or 4 charge and discharge cycles. After that, you should be getting flight durations of 4 to 6 minutes.

Installing the Flight Pack

- Turn the transmitter on first! Because the X-EC has no on-board "on-off" switch, plugging in the flight pack automatically turns on the electronics aboard the plane. If you do not turn your transmitter on first, your Firefly will run out of control. Remember, the transmitter is always to be switched on before the flight pack is installed and should never be switched off until after the on-board flight pack is removed.



- Remove the battery hatch beneath the X-EC's fuselage by pushing the release tab toward the front of the model and pulling up.
- Using the hook end of the supplied Dual-Tool, gently remove the X-EC's battery extension jack from inside the battery compartment beneath the fuselage.
- Plug in your charged flight pack battery and replace the battery hatch.

Preparing For Your First Flight

Before your first flight, it is important to “*cycle*” the X-EC’s batteries at least twice.

Here’s how: Charge the battery pack as instructed on page 7. Fully extend the radio transmitter antenna. Next, turn on the radio transmitter. **Always remember to turn on the transmitter first then install the flight pack into the plane.** Firmly hold the X-EC at the center of the fuselage so the propellers are unobstructed and away from fingers, loose clothing, etc. Now press the climb button (CH 2) on the transmitter to start the propellers spinning. Continue to run the motor until it stops. Allow the battery pack to cool, and then recharge it again. Perform this process of running the motor until the battery is drained at least twice. The battery pack will now supply more power and make your first flights much easier and safer!

Flight Orientation

Before you attempt to fly the X-EC you should first familiarize yourself with the basic modes of flight and how they are controlled using the transmitter.

Climbing (gaining altitude): The airplane will climb when the transmitter’s climb button (Channel 2) is pressed. When the climb button is pressed both motors operate at full-speed and the model gains altitude (climbs). In Mode II (recommended for advanced pilot) both motors can be activated in the same way by pushing the turn-control stick forward.

Descending (losing altitude): Descending, or losing altitude, is also controlled by the climb button. Releasing the climb button will shut off the twin motors and the model will slowly descend (lose altitude).

Right Turning: This is accomplished by moving the turn-control stick to the right. This action causes the right motor to slow while the left motor stays at full speed causing a right-hand turn bank. Tapping the stick right will cause momentary slowing to gently turn the plane right.

Left Turning: This is accomplished by moving the turn-control stick to the left. This action causes the left motor to slow while the right motor stays at full speed causing a left-hand bank. Tapping the stick left will cause momentary slowing to gently turn the plane left.

NOTE: To observe the above flight modes in action, grasp the X-EC at the center of the fuselage so the propellers are facing away from you, unobstructed and away from fingers, loose clothing, etc. Then try all of the plane’s functions with the transmitter. To save time, you can do this while cycling (discharging/recharging) the flight pack.

Flying Your X-EC Diversion

Choosing a Flying Area

The X-EC is both an indoor and outdoor flyer. Generally, look for a space approximately the size of half a regulation sized basketball court, and one that is totally clear of obstructions like poles, trees, wires, people and houses. We recommend that you begin flying your X-EC outdoors since there is more room for new pilots to get acquainted with the controls. A grassy field (baseball field, soccer field, etc.) is the best type of outdoor site to look for.

Picking a Day

Until you become acclimated with flying the X-EC outdoors, it is best to choose a day with no wind at all. (*The X-EC is extremely light (approximately 48 grams), so it can fly indoors, but this means it may be affected by even light winds.*) **We strongly recommend that you wait for a calm day. You should not fly in winds greater than 4mph.** If the wind is blowing hard enough to make the Frequency Flag/Wind Indicator hang at an angle greater than 30-degrees from the vertically held transmitter antenna, wait for a calmer day.



Launching Your X-EC Diversion

1. Turn on the radio transmitter.
2. Install the flight pack and close the battery hatch.
3. Gently grab the fuselage under the wing, making sure the propellers are unobstructed and away from fingers, loose clothing, etc. While holding the transmitter in your other hand, press the climb button (CH 2) to test the motors.
4. If there is any breeze present, make sure you launch the airplane directly into it. While pressing the climb button (CH 2), hold the model at approximately shoulder level and **gently** push and release it straight and level into the wind. **Do not toss the model up or down.** (*Helpful hint: Using the horizon as a reference aiming point will help you release the model in a straight and level manner.*)

5. Allow the airplane to fly straight away from you holding the climb button down at all times so as to gain altitude. Your X-EC will naturally descend (lose altitude) somewhat when making turns, so **do not** attempt a turn until it has reached a safe altitude (50 to 75 feet). Altitude will be gained simply by holding the climb button (CH 2) down and keeping the model going straight.
6. To keep the model going straight as you climb to a safe altitude, it may be necessary to give momentary right or left movements of the turn-control stick. Be sure to make only enough adjustment to keep the plane climbing straight because longer turns at low altitudes may result in a turn that is too low to the ground.
7. You do not want the model to get too far away from you, so once it gets to a safe altitude tap the turn-control stick to the direction (right or left) you want the model to turn while still holding the climb button. The model will start to turn. Once it has turned in the direction you want, release the turn-control stick.
8. Continue to make gradual turns in one direction to keep the model circling you at a fairly constant altitude. If the model starts getting too high, release the climb button and the model will start to descend but you will still be able to steer it with the turn-control stick. Now try some turns in the other direction.
9. If the model gets too low to the ground (25-feet for beginners) just add motor thrust by pressing the climb button.

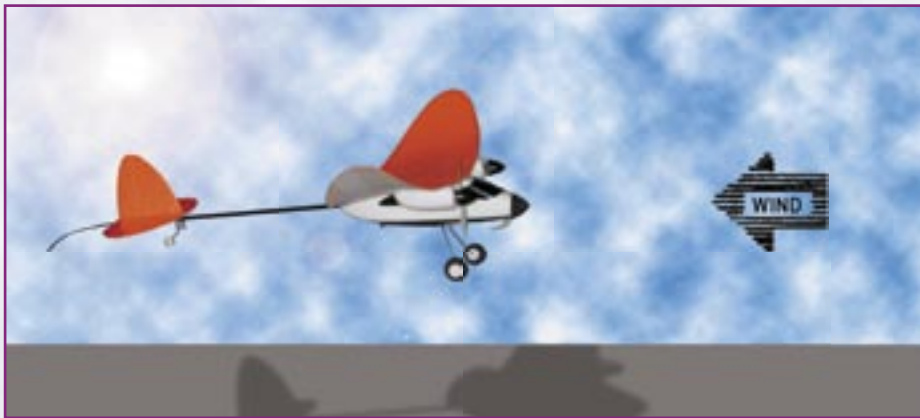
Important tip! When the model is coming toward you, the controls are reversed. (Moving the stick left will make the model turn to your right and vica-versa). This is the most important thing to get used to. Trying to imagine that you are actually sitting in the model's cockpit will help you.

Helpful hint: When the model is coming **toward** you, move the turn-control stick toward the wingtip that is tipping lower than the other one.

Landing Your X-EC Diversion

Your new X-EC Diversion is equipped with landing gear, enabling it to glide in for an exciting rolling landing.

- Before flying, try to locate a good level landing area, such as a deserted driveway, parking lot or smooth ground.
- Always try to land into the wind keeping the wings as level as possible.
- Setup for a landing by making gentle shallow turns until the plane is facing into the wind and heading in the direction of your landing area.
- When the plane is level, facing into the wind and descending toward the landing area you've selected, release both the climb button and the turn-control stick and the model will descend to the ground.



- If slight corrections are needed as the model makes its way back to the ground, briefly tap the turn-control stick in the appropriate direction. Turns at this point must be brief to keep the plane descending on a straight heading. Over-controlling will put the airplane into another turn, which can make it crash if you are too close to the ground. Make small momentary turn corrections to keep the model flying straight until it glides safely in for a landing.

Ordering Spare Parts

Should you require spare parts for your Megatech X-EC Diversion, you should first contact your local certified Megatech dealer. Should you not be able to locate the parts locally, you can contact Megatech directly. The following are spare parts that are available for the Firefly along with the part numbers for your reference.

Spare Parts List

Part Numbers & Descriptions

770001	Micro Receiver
770002	Pcm Transmitter
770003	Transmitter Battery Cover
770004	Transmitter Antenna
770005	Fuselage Battery Hatch Cover
770006	Propeller 4pk
770007	Vertical/horizontal Tail
770008	Battery Connectors (Male & Female Set)
770099	Xec Replacement Plane
770010	3 Cell 100mah Nimh Battery Pack
770011	Display Stand

Troubleshooting

PROBLEM	CAUSE	RECOMMENDATION
No power to radio control transmitter or charger.	<ol style="list-style-type: none"> 1. Power switch is in the “off” position. 2. Batteries are incorrectly installed. 3. Batteries are exhausted. 	<ol style="list-style-type: none"> 1. Move switch to the “on” position. 2. Make sure batteries are installed correctly 3. Replace the batteries with new alkaline batteries.
Flight pack is not charging.	<ol style="list-style-type: none"> 1. Battery is not properly connected. 2. Batteries are exhausted. 	<ol style="list-style-type: none"> 1. Double check the connection. 2. Replace the batteries with new alkaline or NiMH batteries.
X-EC is not under control.	<ol style="list-style-type: none"> 1. Radio control transmitter is not turned on. 2. Transmitter antenna is not fully extended. 3. Windy or bad weather. 4. Batteries are exhausted. 5. You have flown out of range. 	<ol style="list-style-type: none"> 1. Slide the switch to the “on” position. 2. Fully extend the antenna. 3. Stop flying at once and try again on another day. 4. Replace the batteries with new alkaline or NiMH batteries. 5. Be careful not to let your X-EC get too far away from you.
Flight duration has grown short.	<ol style="list-style-type: none"> 1. Charger Batteries are exhausted. 2. Flight pack is overheating. 3. Batteries have 	<ol style="list-style-type: none"> 1. Replace the batteries with new alkaline or NiMH batteries. 2. Allow flight pack time to cool. 3. Land immediately and
Lights on transmitter have gone out. died.	<ol style="list-style-type: none"> 3. Batteries have 	<ol style="list-style-type: none"> 3. Land immediately and replace with new alkaline batteries.

Helpful Hints

- Bring several extra batteries with you for longer flying time.
- 6 AA alkaline batteries are recommended.
- Check the direction and speed of the wind before you begin to fly. The Wind Indicator Ribbon will point in the direction the wind is blowing.
- Check the power light on the transmitter often during a flight. If the green and yellow lights become dark or go out, land the plane as soon as possible to avoid losing control. Then change the batteries in the transmitter.
- Always stay far away from trees, buildings and elevated land. Unexpected air currents can quickly alter your X-EC's course and possibly lead to an accident.
- Always keep the plane in front of you. Never fly your X-EC directly overhead, as it is easy to lose your sense of direction.
- If the main wing on your Firefly becomes damaged, simply apply clear packing tape to the affected area.

Crash Warranty

For a period of 1 year from date of purchase, if your X-EC Diversion is badly damaged in a crash, for whatever reason, Megatech will replace the entire airplane (no questions asked) for a nominal fee of \$39.00 (shipping included for Continental US orders, for international orders the actual shipping charges will apply.) Simply return the damaged model to Megatech with its proof of purchase receipt (very important!) and a brand new X-EC Diversion will be immediately shipped out directly to you. **ATTENTION! DO NOT return the transmitter or flight pack!** These items are to be kept by you and will work perfectly with your brand new replacement X-EC Diversion.

**MEGATECH
ATT: WARRANTY DEPT
8300 TONNELLE AVENUE
NORTH BERGEN, NJ 07047**

Megatech® Limited Warranty

Megatech International guarantees this item to be free from defects for a period of 90 days from date of purchase. If any component of this product fails to function properly due to defects in materials or manufacturing process during this 90 day period, the manufacturer's obligations are limited and manufacturer can choose to either repair or replace the item.

This warranty is void if the product in question has been altered or repaired by anyone other than Megatech International or an authorized agent.

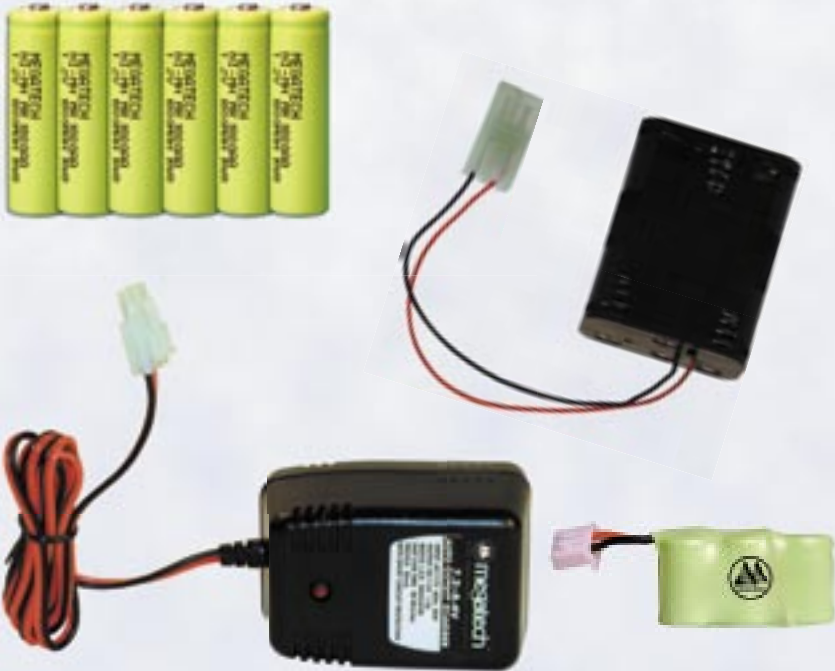
Under no circumstances will Megatech International or any of its representatives be held liable for injury to persons or property damage resulting from assembly or use of the product. Megatech is not liable if any outside radio frequencies interfere with the product's frequency causing loss of control. Megatech International will not be held liable for any injury to persons or property damage resulting from an out-of-control model caused by use or misuse of the product. Megatech International expressly excludes any and all express warranties not specifically stated here and all implied warranties of merchantability and fitness for a particular purpose. There are no warranties which extend beyond the description of the warranties contained herein.

Contact the Megatech International Service Department before returning any item that is defective according to the limitations listed above. Please be sure to pack the returned item(s) carefully. The customer must return the product along with proof of purchase, a letter describing the problem and the customer's address and telephone number. At this point in time we will either repair the defective part or replace it and return it to the customer. Return shipping and handling in the 48 contiguous states is \$12.99, please include a check or money order. Shipping outside of the 48 states will be quoted by location.

This warranty does not cover any damage caused by use, misuse, alteration, accident, or neglect, nor does it cover normal wear and tear of the product. Product returned to us which falls under this category will be submitted to our service department for repair. We reserve the right to charge any service and parts fees incurred when repairing the item.

**Megatech International
8300 Tonnelle Avenue
North Bergen, NJ 07047
(201) 662-2800**

FOR OPTIMUM PERFORMANCE AND FLIGHT DURATION WITH YOUR FIREFLY



MTC770012

Eliminate your alkaline battery purchases with the included rechargeable transmitter batteries and charger set. The 110v wall charger charges transmitter batteries safely and to the maximum capacity in one hour without fear of overcharge. The flight pack can be recharged off the transmitter batteries over 20 times before the transmitter batteries need to be recharged.

SET INCLUDES:

- Six Rechargeable Megatech 1800mAh “AA” NiMH Transmitter Batteries
- 110v Wall Charger with heavy-duty 20-gauge wiring, electronic timing, 10-second reset logic and 6-cell battery box
- One 3-cell +NiMH flight pack

LOOK FOR THESE OTHER FINE MEGATECH PRODUCTS



**MTC8210
HELICOPTER
ELECTRIC HELICOPTOR**

**MTC7701
H2O ELECTRIC MICRO
R/C SPEEDBOAT**



**MTC7702
OCEAN EXPLORER 1 R/C SUBMARINE**



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HIGH PERFORMANCE PRODUCTS

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