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# If you need assistance, give us a call at 1-888-TRAXXAS.

We're here to help you Monday through Friday, 8:30am to 9:00pm central time.
E-mail customer support with your question at support@Traxxas.com.

Thank you for purchasing the Traxxas DTS-1 drag timing system. The Traxxas DTS-1 is designed to operate and run races that are an accurate simulation of NHRA drag racing. We have tried to capture every detail and nuance so that you and your friends can experience the intensity of competition of the real thing. Cutting the best light and achieving the lowest ET requires practice and skill that develops over time. That's all part of the fun. While you may already be familiar with drag racing, in order to better understand the procedures and operation of the DTS-1, we recommend that you go to Traxxas Drag Racing School on page 14 of this manual. There you will find a glossary of terms and we'll take you through the steps of an actual race. From there, go through the following instructions to get your system set up and Ready-To-Race.®

#### **Precautions**

Warning: The DTS-1 uses visible lasers for the beams. Places where laser light is emitted are marked by yellow warning stickers on the consoles. To avoid the potential for injury, do not look into the beam windows on the consoles. Make sure the on/off switch is in the off position before installing batteries. Make sure the consoles are flat on the ground before turning the power on. Do not direct the lasers at persons or animals. Children 14 years and under require adult supervision. Read the warnings and precautions before proceeding or using your DTS-1.

- The DTS-1 timing system is not intended for use on public roads or congested areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- Never, under any circumstances, operate R/C models in crowds of people. R/C models can cause injury if allowed to collide with anyone.
- Do not operate R/C models at night, or anytime your line of sight to the models may be obstructed or impaired in any way.
- Because R/C models are controlled by radio, they are subject to radio interference from many sources that are beyond your control.
- Since radio interference can cause momentary losses of radio control, always allow a safety margin in all directions around the model in order to prevent collisions.
- · Most importantly, use good common sense at all times.

**Caution:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**Warning:** The Starting and Finish Line Consoles emit lasers from both sides of the consoles. **Do not** power-on the consoles unless they are flat on the ground. **Do not** pick up, transport, or store the consoles while they are powered on. The consoles **must** be powered off before handling, carrying, transporting, or storing.

#### Warning: Laser Light - Avoid Direct Eye Exposure.

The DTS-1 Timing System uses visible lasers. Due to the potential for injury, do not point the lasers at persons or animals.

### **Laser Specifications**

Product: Laser Diode

Beam Power Level: Po: ≤5mW

Beam Diameter: <3mm

Beam Divergence: -5.6 mRad (Start)

-1.5 mRad (Finish)

Emissions: CW
Rating: 6.0V DC

Class: Class 3R Laser Wave Length: 650nm



LASER LIGHT
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
635-655nm <5mW CW
EN/IEC 60825-1 2007

# Check for Firmware Updates when Using Traxxas Link

The DTS-1 is ready to go right out of the box for stand-alone use. If you wish to connect the DTS-1 to your Traxxas Link application (using a TQi transmitter with Docking Base and an iPhone or iTouch), then check for the latest firmware updates to ensure optimum compatibility and performance with the Traxxas Link application.

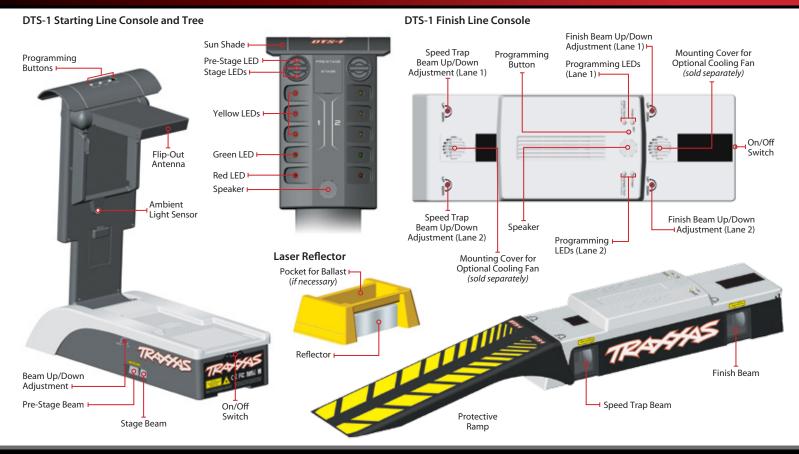
Do this before taking the unit out to the running location. Updating the firmware can take 15-20 minutes, so plan ahead. Refer to the instructions in the Traxxas Link app. The application will take you step by step through the firmware updating process. **The DTS-1** is ready to go right out of the box for stand-alone use and does **NOT** require a firmware update for use without the Traxxas Link application.

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#### TIMING SYSTEM COMPONENTS



#### **GETTING STARTED**

#### Determine Where to Run

You will need a very flat and smooth surface to run the models. Avoid surfaces that have a large "crown" or dips/gutters to facilitate drainage. Find an area that is blocked from access by vehicular and pedestrian

traffic. A distance of 100-330 feet is recommended for scale representations of drag racing. Remember to leave adequate room to safely decelerate and stop your vehicle once you cross the finish line.

	Distance equivalent to:		
Scale	1000 Feet (NHRA Rules)	1320 Feet (Standard 1/4 mile)	
1/16	62.5 feet	82.5 feet	
1/10	100 feet	132 feet	
1/8	125 feet	165 feet	
1/4	250 feet	330 feet	

# Installing the Sun Shade

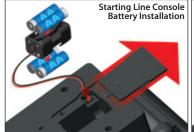
Slide the sun shade onto the top of the tree. Install the shade so MENU/ SET/OPTION label reads right-side up when facing the Starting Console.

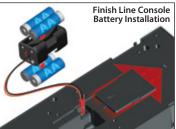


# **Battery Installation**

The DTS-1 System uses 8 AA batteries (4 in each console). The battery compartments are located on the bottom of each console. Note: The optional Traxxas rechargeable NiMH battery pack (#3037, sold separately) can be used in place of the AA alkaline batteries.

- 1. Remove the battery compartment door by sliding the door open.
- 2. Remove the battery holder. Install 4 fresh batteries in the battery holder. Correct orientation is indicated in the battery holder. Make sure the battery holder is plugged into the console.
- 3. Reinstall the battery holder. Replace the battery door and snap it closed.





#### SYSTEM SETUP

# **Starting Line Console Setup**

- 1 Place the DTS-1 Starting Line Console on the starting line. The second beam is the actual start line.
- 2. The console must sit as flat and secure as possible without rocking on an uneven surface.
- 3. LED's produce a directional light beam. Raise the tree and position it so that the LEDs are shining directly at you when you are at your driving position behind the start line.
- 4. Fold out the antenna so that it points towards the finish line.



# Finish Line Console Setup

- 1. Install the console ramp by inserting the ramp's hinge pins into the console as shown and rotating it into proper position. The ramp is there to prevent a vehicle from a direct impact with the Finish Line Console.
- 2. Use a tape measure or measuring wheel to mark of the track distance you wish to run. See the chart on page 5.

- 3. Position the Finish Line Console so that the second beam (farthest beam) shines across the finish line. It should sit on level ground as flat and secure as possible without rocking on an uneven surface.
- 4. For maximum race accuracy, make sure both consoles are directly in line as shown.



5. Make sure to leave adequate room past the finish line for you to safely decelerate and stop your vehicle.



#### Linking the Starting and Finish Line Consoles

Switch the Starting Line Console and Finish Line Console on. It does not matter which is turned on first. As the components electronically link, the yellow LEDs on the consoles will light in a 'rotating' pattern. When the link is complete, the 2 green LEDs on the Starting Line Console will flash

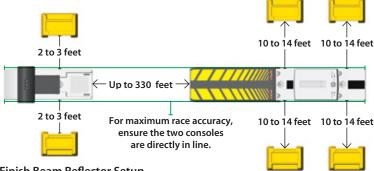
every 4 seconds and the console will beep. On the Finish Line Console the lower right yellow LED (When facing the top of the unit) will flash every 4 seconds to indicate that the power is on and the unit is linked and ready. The consoles will continue to link indefinitely until a link is established. **Note:** The consoles may link so quickly that you do not see the "rotating" yellow LEDs, and the green LEDs will light instantly.

# **Beam Setup**

#### Stage Beam Reflector Setup

- 1. Two reflectors are used at the starting line, one for each lane. Space the reflectors 2 to 3 feet away from the Starting Line Console, straight out from the laser apertures. Position the reflectors so they are parallel with the consoles. **Entering Beam**
- 2. Enter Beam Setup Mode on the Starting Line Console by pressing and holding the OPTION button until two beeps are heard. Release the button.
- 3. The Starting Line tree's two green and two yellow LEDs will flash until the pre-stage beams (green LEDs) and the stage/start line beams (yellow LEDS) are aligned with the reflector. (If the LEDs are not flashing, the beams are already aligned.) Adjust the position of the reflector to align with the beams until the console beeps, indicating it

"sees" the reflector. Stop moving the reflector. The console will then emit a "rising" success tone and the LEDs for that lane will light solid to confirm the beam is properly aligned. Repeat for the other lane. Do not look directly into the laser aperture. Note: If you have difficulty aligning any of the beams, or the unit presents a slow-flashing LED to indicate there is too much background light, see **Beam Alignment Tips** on page 8.



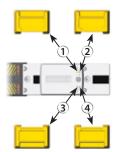
#### Finish Beam Reflector Setup

Setup Mode

Press and hold. Two Beeps, Release,

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- 1. There are two beams at the finish line. The first beam is the speed trap beam. The second beam is the finish line. Four reflectors are used at the finish line, two for each lane. Space the reflectors between 10-14 feet away from the Finish Line Console, straight out from the laser apertures. Position the reflectors so they are parallel with the consoles.
- 2. Enter Beam Setup Mode on the Finish Line Console by pressing and holding the SET button until two beeps are heard. Release the button.
- 3. The Finish Line Console will flash a yellow LED for the Lane 1 speed trap beam. Adjust the position of the reflector to align with the beam until the console beeps, indicating it "sees" the reflector. Stop moving the reflector. The console will then emit a "rising" success tone and the LEDs for that beam will light solid to confirm the beam is properly aligned.

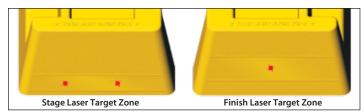


#### SYSTEM SETUP

4. The next LED in sequence will then flash yellow. This is the Lane 1 finish line beam. Repeat step 3 for this beam. The flashing LED will then advance to the next beam. Repeat for remaining beams in Lane 2. When all four beams are aligned, all LEDS will be solid yellow and then turn off. The Lane 2 speed trap LED on the Finish Line Console (position 3 on the diagram on page 7) will then flash every 4 seconds, indicating the console is on and ready to use. Note: If you have difficulty aligning any of the beams, or the unit presents a slow-flashing LED to indicate there is too much background light, see Beam Alignment Tips below.

#### **Beam Alignment Tips**

• The reflectors are marked with the correct beam height zone on the side of the reflector. Turn the reflector so the height zone markings face the beams to check beam height. **Do not look directly into the laser aperture.** 



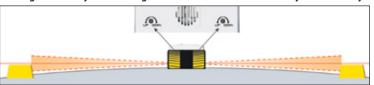
- If an LED is blinking slowly, this means there is too much background light. This may occur if the console is facing a white wall or light-colored building. Move to another location.
- The beams on the Starting Line Console must be set low enough to pass beneath your vehicle so they will only be broken by the tires, not the body or chassis.

 If you cannot achieve a solid LED and a "success" tone, you may need to compensate for curvature in the running surface. Insert the included 2.5mm hex wrench into the beam adjustment opening and carefully adjust the height of the beams.

**Note:** The beam adjustment openings are labeled to show which direction to turn the wrench to raise and lower the beams. On the Starting Console, turn clockwise to raise the beams, and counter-clockwise to lower them. On the Finish Console, turn counter-clockwise to raise the beams, and clockwise to lower them.

Warning! Turn with very gentle force. Do not overturn the adjustment screws.

Damage caused by overturning the screws will not be covered by the warranty.



# **Reflector Alignment Codes**

When you start a race, the DTS-1 will automatically perform a diagnostic check. If there is an error, it will light LED(s) to indicate what the problem is and which reflector, console, or beam is affected



#### Starting Console LED (see diagram)

Solid	Reflector aligned		
Flashing Fast	Reflector misaligned		
Flashing Slow	Too much background light		
Lane 1 Red on	Starting end error		
Lane 2 Red on	Finish end error		

See the chart on Page 11 for other LED Codes

#### **RACING WITH THE DTS-1**

After setting up the reflectors and powering-on the consoles, the DTS-1 is ready for racing with the "Sportsman" tree light sequence and "EZ-Staging" (EZ-Staging allows more time between staging and the start of the race than Pro Staging). The DTS-1 can also be programmed with other staging and tree modes. These are covered in the System Programming and Menu Selections sections on page 12.

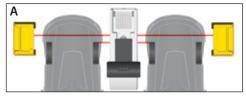
# Starting a Race

- 1. Press and release the SET button.
- 2. The yellow LEDs in both lanes will flash in sequence like runway lights, indicating the vehicles can



roll forward to pre-stage. **Note:** If the LEDs do not light in the runway sequence, the system has encountered an error. Consult the chart on page 8 to remedy the problem.

By hand or by radio control, slowly roll your vehicle to the starting line.The blue pre-stage LED will light to show you have crossed the pre-stage beam (A).





4. Roll the vehicle slowly forward until the white and blue staging LEDs light (B). Your vehicle is now staged. Watch the tree, your race is about to begin! *Note:* Once both vehicles are staged, EZ-Staging mode allows

2 seconds before the yellow lights count down and the green light starts the race. If you are hand staging the vehicles switch to Hand Staging mode to allow more time between staging and the race start. See page 12.





- Cancelling a race: after starting a race, you can press the SET button on
  the Starting Line Console to cancel the race. When a race is cancelled,
  the two red LEDs will blink three times and the console will emit a long
  beep. The DTS-1 will then return to its idle mode (green LEDs flashing
  every 4 seconds).
- Race time-out: if a vehicle is not detected (by breaking one of the stage beams) within 60 seconds after starting a race, the system will time-out.

Note: The timing system allows "deep staging." When a vehicle is deep-staged, the pre-stage LEDs will go out while the stage LEDs stay lit. The racer is disqualified if the vehicle rolls





forward enough so that both the pre-stage and stage beams are unbroken. See "Deep stage" definition in the Glossary for more information.

#### Solo Run

The DTS-1 can also be used to run a single vehicle. Instead of pressing SET to start the race, press MENU (to run solo in the left lane) or OPTION (to run solo in the right lane). The staging and tree modes will be the same as you have selected for



racing with two drivers, and the tree will give you the win-lights when you cross the finish line, or "red-light" you if you leave the stage beams before the green LED comes on to start the run. **Note:** The Starting Line Console reflectors and Finish Line Console reflectors must be set up and aligned for both lanes even when solo running.

#### **Race Results**

- Race winner: After the race, the Starting Line Console displays who won the race by flashing all the LEDs in the lane of the winning driver multiple times, then holding the white LED on for 20 seconds.
- **Tip:** To clear the results before the 20 seconds is up, just press the SET button on the Starting Line Console.
- **Disqualified (DQ)**: If either racer takes off before the green light, the red LED will light in the driver's lane.

# **System Maintenance**

#### **Basic Maintenance**

- 1. Turn the system off before performing any maintenance.
- 2. The dust covers / windows on the lasers need to be clean for best operation. Use a soft cloth dampened with window cleaner or water to gently wipe away any dust or dirt.
- 3. Reflectors should be cleaned the same way as the dust covers.

# Binding the Starting Line Console and Finish Line Console

For proper operation, the Starting Line Console and Finish Line Console must be electronically 'bound.' **This has been done for you at the factory.** Should you ever need to re-bind the system, follow the instructions below. **Note:** The Starting Line Console and Finish Line Console must have batteries installed and must be within 5 feet of each other to bind properly.

- On the Finish Line Console, press and hold the SET button and turn on the power switch.
- 2. Release the SET button.
- 3. On the Starting Line Console, press and hold the SET button and turn on the power switch.
- Release the SET button. The Starting Line Console and Finish Line Console will bind automatically.

# TROUBLESHOOTING

DTS-1 LED Codes	Starting Line Console	Finish Line Console	Sound
System ready	Green LEDs flash every 4 seconds	Lane 2 speed trap LED flashes every 4 seconds	Chirp once per minute
System linking	Yellow LEDs "rotate"	Yellow LEDs "rotate"	
Power-up failure	Lane 1 red LED on	Lane 1 speed trap LED on	
Low battery start console	Lane 1 red LED flash		
Low battery finish console	Lane 2 red LED flash	Lane 1 speed trap LED flashes	
Ready to race	Yellow LEDs cycle like "runway lights"		
Ready for solo run	Yellow LEDs cycle like "runway lights" in the selected lane, the other lane red		
System Link failure	Finish Line Console Link Fail: The bottom yellow LEDs flash alternately and red LED on in Lane 2	Lane 1 yellow LEDs flash "up and down"	
Thermal Shutdown (Temperature too high)	Starting Line Console Shutdown White stage LED blinks and red LED on in Lane 1. Shade the console, allow to cool, or purchase accessory cooling fans.	Finish Line Console Shutdown White stage LED blinks and red LED on in Lane 2. Shade the console, allow to cool, or purchase accessory cooling fans.	

#### SYSTEM PROGRAMMING

#### **Selecting the Staging and Tree Modes**

The DTS-1 makes it easy to select from three Staging Modes and four Tree Modes. Any Staging Mode can be used with any Tree Mode.



#### First, select a Staging Mode:

The Staging Mode menu controls how the competing vehicles will position themselves for the start of the race.

- Press and hold the MENU button until two beeps are heard.
   Release the button.
- 2. Press the MENU button to alternate between the two menu items. The top left yellow LED lights when Staging is selected; the second yellow LED lights when Tree is selected. Stop when the top LED is lit to select Staging Mode.

- 3. Press the OPTION button to select the Staging Mode you wish to use. The LEDs on the right side of the tree indicate which option is selected. Each time you press the OPTION button, the next LED will light. Option explanations are on page 13; stop on the option you wish to select.
- 4. Press and release the SET button to confirm your Menu and Option selections. The console will emit a "success" tone to confirm the settings have been accepted.

**Tip:** Hold the SET button for 4 seconds to exit the menu without saving the selected settings.

#### Next, select a Tree Mode:

The Tree Mode menu controls how the tree lights will "drop" to start the race.

- Press and hold the MENU button until two beeps are heard.
   Release the button.
- Press the MENU button to alternate between the two menu options.
   The top left yellow LED lights when Staging is selected; the second yellow LED lights when Tree is selected. Stop when the second LED is lit to select Tree Mode.
- 3. Press the OPTION button to select the Tree Mode you wish to use. The LEDs on the right side of the tree indicate which option is selected. Each time you press the OPTION button, the next LED will light. Option explanations are on page 13; stop on the option you wish to choose.
- 4. Press and release the SET button to confirm your Menu and Option selections. The console will emit a "success" tone to confirm the settings have been accepted.

**Tip:** Hold the SET button for 4 seconds to exit back to Step 1 without saving the selected settings.

#### **Menu Selections**

#### **Staging Options**



**Option 1 - Pro Staging:** In this mode, 60 seconds are allowed for either vehicle to break a stage beam. Either driver can stage first; after one vehicle is staged, the Starting Line Console allows ten seconds for the second vehicle to stage. The tree will begin the race 0.7 seconds

after the last driver stages his vehicle. **Note:** If the second vehicle does not stage after 10 seconds, the tree will begin the race and the unstaged vehicle will be disqualified.



**Option 2 - EZ-Staging (Default Setting)**: This mode operates the same as Pro Staging, but allows more time between staging and the start of the race. The tree will instead begin the race 2 seconds after the last driver stages his vehicle. **Note:** If the second vehicle does not stage

after 10 seconds, the tree will begin the race and the unstaged vehicle will be disqualified.



**Option 3 - Hand Staging:** Some vehicles do not have the precise low-speed throttle capability required for staging by radio control. The Hand Stage mode allows the maximum amount of time between staging and the start of the race, so the drivers have sufficient time to resume

their driving positions after staging their vehicles by hand. The tree will begin the race 5 seconds after the last driver stages his vehicle.

Note: If the second vehicle does not stage after 10 seconds, the tree will begin the race and the unstaged vehicle will be disqualified.

### **Tree Options**



**Option 1 - Pro Tree:** This simulates the start of an actual pro race. After both vehicles are staged, the top three yellow LEDs will light together, then after 4/10 of a second, the green LED comes on.



Option 2 - Sportsman Tree (Default Setting): This simulates the start of an actual sportsman race. After both vehicles are staged, the top yellow LED lights first, then each consecutive LED lights at a half-second interval until the green LED lights.



**Option 3 - Pro Tree Practice**: This is the same as Pro Mode, but no race is run. It is only for practicing staging and launch. One or two racers are supported, and the Finish Line Console is not used.



**Option 4 - Sportsman Tree Practice**: This is the same as Sportsman Mode, but no race is run. It is only for practicing staging and launch. One or two racers are supported, and the Finish Line Console is not used.

#### TRAXXAS DRAG RACING SCHOOL

The Traxxas DTS-1 is designed to provide an authentic drag racing simulation. To get the most from the experience, it helps to understand the rules, procedures, and terminology around NHRA drag racing. Let's look at the sequence for a typical drag race (see the Glossary for a full explanation of the terms used):

#### Step 1: Burnout

Before putting the vehicle on the starting line, a driver will perform a burnout by slipping the rear tires on pavement under power. This cleans, heats and softens the tires so they provide maximum grip.

# Step 2: Staging

Staging is the process by which the competing vehicles are accurately positioned on the starting line so the two vehicles are even. To do this, the vehicles' positions are measured by infrared beams (the DTS-1 system achieves the same result with lasers). As the vehicles roll forward, their front tires break the beams to first light the Pre-Stage Light, followed by the Stage Light. Once both vehicles are staged, the Christmas tree will begin the light sequence to start the race.

If the rules permit, a driver may choose to deep-stage his vehicle to buy a few inches' advantage over his competitor. Further strategy may be employed by being the last driver to stage. Since the race begins only when both vehicles are staged, being the final driver to stage affords a level of control over the race. Delaying staging can be a means of psyching out your opponent.

#### Step 3: Watch the lights

Once both vehicles are staged, the Christmas tree will drop the lights in either the Sportsman or Pro sequence (you can select either with the DTS-1). A skilled driver will not wait to actually see the green light, but will

instead anticipate it. Anticipating the light accounts for your reaction time and the vehicle's rollout (the distance required for the front tires to leave the stage beam). Timed perfectly, the vehicle will leave the stage beam the moment the green light comes on. But be careful—if you launch too soon, you may "red light" and be disqualified.

#### Step 4: Launch

Now it's time to put the pedal to the metal, but not necessarily all the power will go to the ground if track conditions cannot provide the required traction. Full-size Funny Cars are equipped with adjustable clutches that will allow slippage to prevent tire spin during the full-throttle launch. The Traxxas Funny Car simulates this by allowing you to adjust the amount of torque the motor supplies when you flip the launch control switch to instantly deliver full throttle. For other Traxxas vehicles, the mechanical slipper clutch may be used to adjust power delivery.

# Using the DTS-1 with TQi and Traxxas Link



The DTS-1 can be linked with the Traxxas TQi transmitter and Traxxas Link application for an even more immersive drag-racing experience. See your reaction time, elapsed time, and trap speed for each

run. Organize and run complete race programs.

Even set up bracket races for heads-up racing with vehicles of dissimilar performance. Traxxas Link makes it easy to setup and operate the DTS-1 system right from your transmitter. Traxxas TQi transmitter, Docking Base, and Apple iPhone® or iPod touch® required, sold separately. Get more information at Traxxas.com/dts1.



Download Now!



#### GLOSSARY

**Bracket racing**: A form of drag racing competition that allows vehicles of unequal performance to race together fairly, based on their predicted elapsed times.

**Deep stage**: Rolling forward on the starting line so that the pre-stage bulb goes out while the stage bulb stays lit. This puts the racer closer to the finish line, but it is risky because the racer is disqualified (loses) if he goes too far and the stage beam goes out. It is also easier to jump the start and be disqualified as well.

**Elapsed time**: Time measured from the instant the starting line beam is cleared to when the finish line beam is broken.

**Pre-Stage light:** When the vehicle rolls into the pre-stage beam, the pre-stage bulb lights indicating the vehicle is very close to the starting line. On the DTS-1, the pre-stage beam is about 23mm from the starting line.

**Pro Tree**: All three large yellow lights will flash simultaneously, followed four-tenths of a second later by the green light

Reaction time: The time measured in thousandths of a second between when the last yellow light flashes on the tree to when the vehicle leaves the starting line and clears the stage beam. The reaction timer starts when the third yellow comes on. Since there is a half-second (or .500 seconds) delay until the green light comes on, a .500 reaction time is perfect. In the same way, the four tenths delay of the Pro Tree makes a .400 a perfect light.



- Made for · iPod touch (4th generation)
- · iPod touch (4th generation) · iPhone 4 · iPod touch (3rd generation) · iPhone 3GS · iPod touch (2nd generation) · iPhone 3G

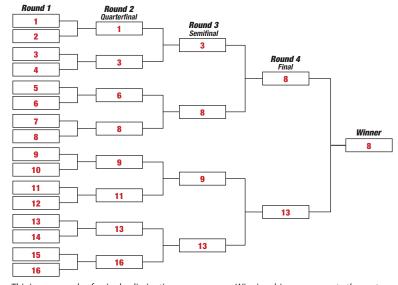
iPhone 4S

Available on the App Store

"Made for iPod" and "Made for iPhone" mean that an electronic accessory has been designed to connect specifically to iPod and iPhone, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod and iPhone may affect wireless performance. **Red Light (Disqualified):** A racer can "red light" or be disqualified if they leave too soon (cross the starting line before the light turns green).

**Rollout**: Rollout is the distance that your tire has to travel to leave the starting line.

Speed trap: There are two beams in the Finish Line Console including the finish line beam. The speed of the vehicle is calculated between the first beam and the finish line beam.



This is an example of a single-elimination race program. Winning drivers move on to the next round. In this example, driver number 8 won each round to become the overall winner.

#### GLOSSARY

**Sportsman Tree**: (Full tree) The countdown lights (three yellow bulbs) will flash consecutively five-tenths of a second apart, followed five-tenths later by the green light.

**Stage light:** The stage bulb lights as the stage beam is broken, indicating the front wheels are positioned exactly on the starting line. When the stage bulb is lit in both lanes, the race is ready to begin.

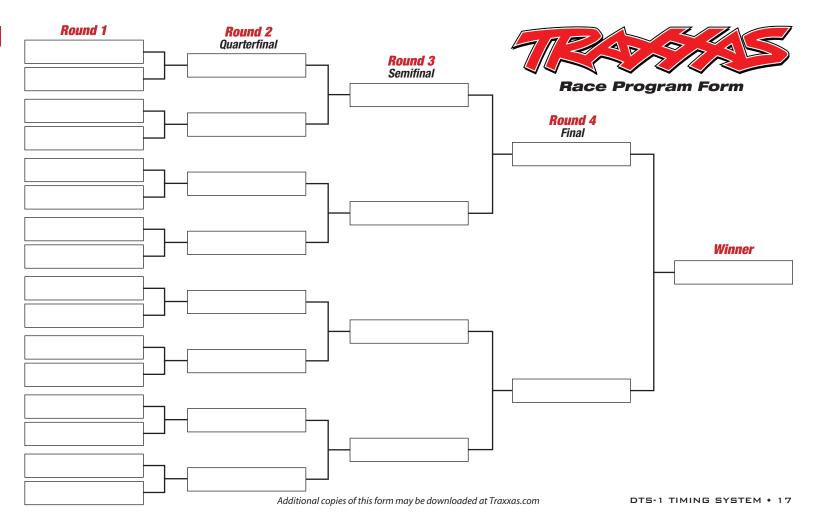
**Staging**: Staging is the process of getting the two racer's vehicles lined up equally on the starting line. There are two beams on the starting line, the pre-stage beam and the stage beam. These beams are designed to aim at the side of the front tire.

**Start line**: The starting line is aligned with the stage beam. Timing starts when the tire leaves the stage beam

**Trans brake**: A device that essentially locks first and reverse gears together on a full size drag car to hold the vehicle in place while the engine revs against the torque converter. Vehicle is launched by releasing a button.

**Trap speed**: Speed of the vehicle as measured in the speed trap.

Tree (Christmas tree): The tree contains the stage lights and the countdown lights needed to run the race. There is a set of lights for each lane.



OWNER'S MANUAL



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