# CASTER RACING FUSION EX-1 RTR

■ RTR ■ ELECTRIC ■ OFF-ROAD

## 1/8-SCALE OFF-ROAD GETS ITS FIRST ELECTRIC RTR

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PHOTOS **HOPE MCCALL**

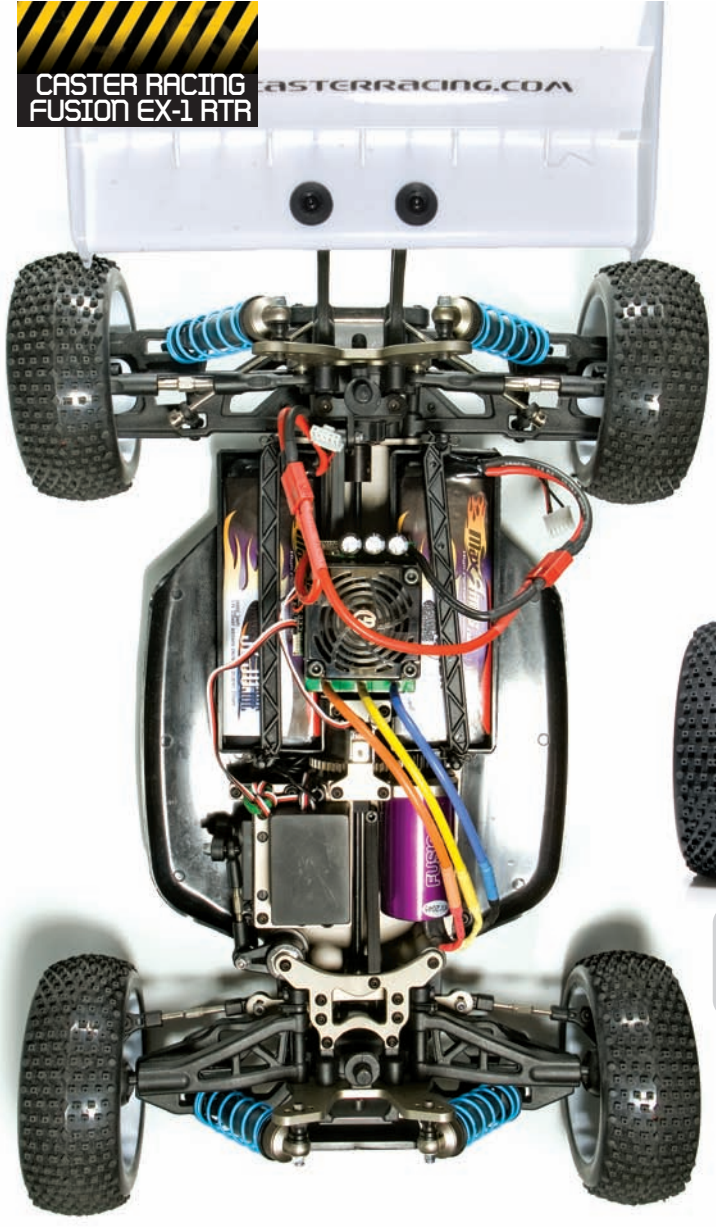
**THE CASTER RACING FUSION EX-1** gets credit for being the first ready-to-run electric 1/8-scale buggy. While the Caster Racing name may not be familiar to you, take a close look at this RTR and you'll quickly see that Caster makes its kits with quality and durability in mind. CNC-machined parts, front CVDs, rear swaybar kit, prepainted body, aluminum shocks, FM radio and more went into this RTR buggy. It was designed with brushless and LiPo in mind, and not only do you get a beefy 2045kV brushless motor, but it also comes with an 80A Hobbywing speed control to power it all. Take it out of the box, toss in two batteries, and get ready to hit the track.

## SPECIFICATIONS

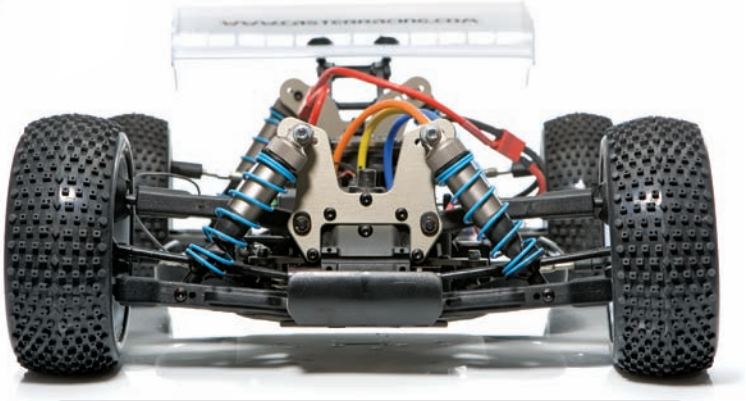
**Type** 1/8-scale RTR 4WD electric buggy
**Price** $645 (varies with dealer)
**Top speed** 37mph
**Wheelbase** 12.6-13 in. (322-330mm)
**Width** 12 in. (308mm)
**Weight, as tested** 7.4 lb. (3,380g) no batteries
**Spur/pinion gears** 43/13
**Final drive ratio** 11.98:1
**Chassis** T6 CNC-machined aluminum
**Differentials** Planetary
**Suspension** (F/R) Pivot ball/lower H-arm with turnbuckle upper link
**Shocks** Hard-coated aluminum

**360 VIEW AND WALLPAPER AT RCCARACTION.COM/MO**


*"I WAS IMPRESSED WITH ITS HANDLING AND SPEED .... ALL IN ALL, THIS IS A GREAT BUGGY"*

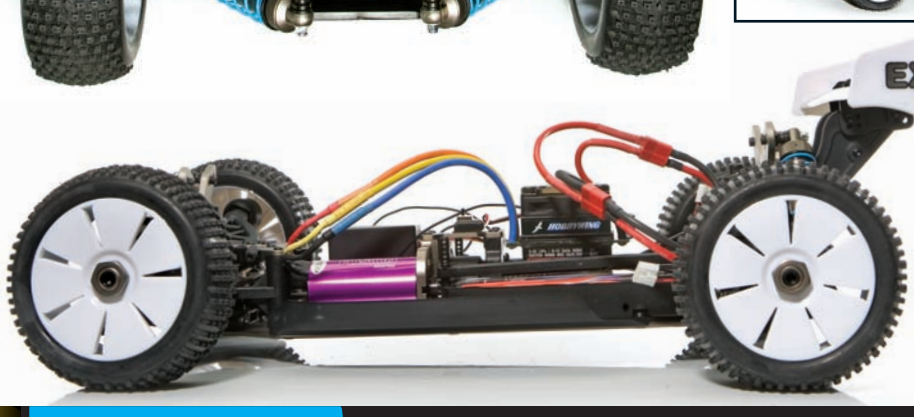



ACCELERATION WAS GREAT, TOP SPEED WAS PERFECT FOR RACING, AND IT WAS STABLE ON THE TRACK



**ONLINE EXTRAS** **Check out the Fusion EX-1R Factory Pro version by going online now! See a comparison chart, photos, 360 views and sick action video at rccaraction.com/caster**

The included 27MHz FM radio was reliable during testing. EPAs, throttle/servo high/low and servo-reversing are all adjustable.




## FEATURES

**CHASSIS.** The Fusion EX-1 comes with a 3mm CNC-machined aluminum counter-sunk chassis. The chassis is drilled only for electric use and is not a nitro chassis with a conversion kit bolted to it. Flip the chassis over, and you will not see any unused engine or fuel-tank mounting holes. Connected to the main chassis are the typical 1/8-scale molded-plastic side guards to help keep mud, dirt and other debris from entering the buggy. The front and rear bulkhead-to-chassis braces are plastic. The front and rear shock towers are made of stout 4mm thick CNC-machined aluminum, and this really adds to the durability of this buggy. Other aluminum goodies include a radio plate, center diff plate and servo-saver plate. There are two plastic battery trays, located on the left and the right side of the chassis for even weight distribution. Above that sits the speed-control tray. The radio box that comes with the Fusion EX-1 is a dust-proof box that does a good job of protecting the receiver from the elements.

**DRIVETRAIN.** The drivetrain on the Fusion EX-1 is very beefy and features CVDs in the front of the buggy and dog-bones in the rear. The center drivelines are dogbones that connect to a sealed gear differential. The front and rear differentials are sealed and use planetary gears for maximum durability. Silicone fluid can be used to adjust all three diffs. The buggy also features 24 rubber-sealed ball bearings throughout the drivetrain to keep the buggy running smoothly. There are no mechanical brakes or clutch. The motor mount is a one-piece unit, and a 5mm pinion on the motor directly drives (and brakes) the center differential from a spur gear.

**SUSPENSION.** The Fusion EX-1 features beefy aluminum

# BEHIND THE DESIGN
# WITH DUSTIN PECKHAM

**Caster Racing is known for its nitro buggies and truggies and is leading the way in the electric segment by designing the first electric-only buggy and truggy. These vehicles are not a re-badge but are 100 percent built for electric power. We sat down with the designer of the Caster Racing Fusion EX-1 to get his thoughts on the buggy and the hobby in general.**

Peckham with the September 1990 issue of *RC Car Action*.

***RC Car Action*: Why electric?**
**Dustin Peckham:** That's what the guys at my LHS, Hobby Haven always used to ask me! It's all Joel Johnson's fault; he started it. In the September 1990 issue of *RC Car Action*, he said that his first RC car was a gas car converted to electric, and that must have been in the late '70s! Why electric? It was unique. I saw it as a challenge. I've always liked the challenge of making custom things myself and doing things new and different.

***RCCA*: How long did it take to develop the buggy?**
**DP:** I had already done several different designs on my other cars, so I just had to decide which one to use as a basic template. I spent two or three months mocking up layouts and making prototype parts from scratch before deciding on a final design, which I sent to the factory. But really, you could say it was several years in the making. The work hasn't stopped either. I have more radical ideas in the work for future versions of the car.

***RCCA*: Other than the obvious differences in power source, what are design elements on your electric platform compared with the nitro?**
**DP:** With the Fusion, I tried to keep things very much the same as the nitro to avoid concerns about handling and durability from the nitro racer, so the entire front and rear suspension is unchanged from the nitro car. We did the saddle-pack battery layout to be compatible with the standard 1/10-style packs, LiPo and NiMH, and allow for a wide range of packs. This layout also is inherently more balanced than a single-pack design, so anything from 3200mAh to 8000mAh packs work well in the car. A more radical-looking car would have been cool, but at the time there were no other production electric cars, so I was mainly concerned about creating a solid platform that worked well and would be accepted by the racer. I think we did that.

***RCCA*: How big do you think electric 1/8-scale racing will get?**
**DP:** Huge, assuming that the motor, speed control and battery technologies continue to advance. We must have reliable electric systems for this class to really go big time. Most of the speed control manufacturers have now jumped on the bandwagon, so I think the day has finally come that we will see 1/8-scale electric explode. They are a blast to drive, and now you can run the big bad 1/8-scale class without the mess and hassle of nitro. Sure, plenty of racers love everything about nitro, and I don't see it going away. But I think there is a place for electric too. Have you ever run nitro indoors when it's too cold to open the doors?

***RCCA*: Do you have plans for an electric truggy?**
**DP:** Yes, the truggy has just been released. The factory simply applied the same design and parts to the truggy.

***RCCA*: What else can we expect to see from Caster in the future?**
**DP:** Since I'm sort of a consultant or partner with Caster and not actually part of the company, I can't speak for them officially. Their main focus will always be the 1/8-scale buggy. The current ZX-1.5R is a really good car, and I see a lot of effort right now to keep improving it. But I can tell you that they are working on several other projects, including smaller-scale cars and something to join the trophy truck scene. I have a couple of fresh, radical 1/8-scale electric buggy designs in the works and a large-scale project that I hope to get Caster to do in the future.

***RCCA*: What setup suggestions do you have?**
**DP:** In general, run the same chassis setup as the nitro cars. Setups and information for Caster cars can be found on the casterracingusa.com forums. Some of the brushless systems being used now are crazy fast. Sick power is fun but not always the best for racing. For the club racer, especially nitro guys, it's important to not forget the electronic side of the setup. The speed control and radio settings for brake and throttle can really help dial in the car and make it easier to drive.

***RCCA*: In terms of handling, what can a nitro racer making the switch to electric expect?**
**DP:** The big difference in handling is braking. Without the mechanical brakes, you can't make the car rotate with rear brake bias. A nitro racer may need to try a more smooth driving style, such as braking early to set the car and let it carve the corner, instead of driving deep into the corners and relying on the brakes to get the car to turn. It feels more like a 4WD 1/10-scale car, so racers with a 1/10-scale background love driving an electric 1/8-scale car. To my surprise, the "nitro guys" on the Caster team really liked running the Fusion from the first lap.

***RCCA*: Who's on the Caster team?**
**DP:** Caster USA has picked up a lot of club racers around the country to help get exposure for the brand. Right now there isn't a national name driver, but we have a great bunch of guys on the team, most of them having a good time hanging out on the Caster team forum. Team managers are Josh Pease on the West Coast, Chris Figueroa on the East Coast, and David Alberico in the Midwest.

***RCCA*: Who is Caster's target customer with this product?**
**DP:** I want to see the serious racer give the car a shot. But we know that most cars sold in the hobby never see the track, at least not in competition. That's a big reason why the car was designed to use a pair of standard battery packs, even NiMH 6-cell packs, which I think makes it a great car for the local hobby shop to have on the shelf.

*Continued on next page*

15mm shocks, with 3.5mm shafts all around that use shock boots to keep mud, dirt and debris out. The shocks come with blue "medium" springs that can be regulated with preload adjusters. The front suspension system uses A-arms top and bottom, with pivot balls connecting the hubs to the arms. Adjustable steering links allow easy toe-in and toe-out adjustments. Caster is changed with removable clips. The front shock tower has two mounting locations for the shocks, and the lower A-arms have two positions. The rear has lower H-arms with upper adjustable turnbuckles. The rear shock tower has four shock-mounting positions, and the lower H-arms have two positions like the front arms. Swaybars are used in the rear of the buggy to help with handling and to make the buggy more stable.

**TIRES & WHEELS.** The included tires and wheels are glued at the factory, so all you have to do is charge your batteries to get this buggy going. The front and rear tires have a white dish rim and seven small cutouts for styling. The tires feature a mostly square block pattern with holes in the middle to soften them up. The center row has a line of diamond-shape blacks. The hexes are the standard 17mm 1/8-scale buggy hexes made out of aluminum.

**BODY & WING.** The Fusion EX-1 comes with a painted and trimmed Lexan body. On the bench, you'll notice the old mold lines for engine and fuel tank access/cooling, but they quickly disappear when the buggy is moving. The included wing is a molded design and is fully adjustable and is held in place securely with two screws.

**TEST GEAR**

- 8AA BATTERIES
- MAXAMPS.COM 6500MAH 30C WATERPROOF LIPO PACKS (2)

## PERFORMANCE

I went to Wolcott Hobbies and Raceway in Wolcott, CT, to test this buggy. They have a good-size track, and I've hit that track before with both truggies and buggies. The track was muddy, but as the sun came up, it eventually dried up. I put the Fusion EX-1 on the ground and took off. Acceleration was definitely there. Not only did it take off like a bullet, but it continued to drive straight and controllable as I pegged the throttle. I went through a couple of wide corners to get a feel for the buggy, and handling seemed very stable. The buggy sports a swaybar in the rear and not in the front, so I wasn't expecting it to push in the corners. Hitting the jumps is always the best part when testing a new vehicle. I pegged it over the small rhythm sections and launched over a few large doubles, and it was easy to land every time. After the large jump was an immediate turn, and I had to brake hard to make the corner. The speed control braking felt very good and not too strong. At full speed, it took a good six to eight feet to stop completely. This is just about perfect for my driving style. Like all buggies, the Fusion doesn't like ruts or rocks, and if something is sticking up on the track, you might get sideways. The tires had trouble at first when the track was a little wet, but as I continued driving, they really started to hook up. Reliability wasn't an issue, as the included FM radio worked flawlessly. As a matter of fact, this particular track is near some power lines, and you can constantly hear the buzzing and snapping of the electricity. You might think you'd experience glitching, but I had no problems. Even after testing when I headed towards the open bashing area that was closer to the power lines, the radio system still worked perfectly. With most buggies, durability is not truly an issue, and the Fusion EX-1 is no exception. I flipped it a few times over some rutty sections of the track, but it kept coming back for more. While testing, I launched the buggy over some big jumps, and while most of the time I landed them, a few times I flipped. Nothing broke. At the end of the day, all I had was a loose wing, nothing a screwdriver wouldn't fix. The out-of-the-box Fusion EX-1 felt great around the track, but I wanted to take it back to the bench and check some settings. The camber all around the buggy was set at -2.5 from the factory, and I was happy with that setting. The toe seemed a little off, so I got my turnbuckle wrench and set the tires to point in slightly. This was done by eye. While I didn't notice a huge difference in performance, the buggy seemed to hit the jumps a little smoother, and cornering improved as well. A fun day at the track ended when my batteries ran out and it was time to pack up and head back to the office. The speed control was warm to the touch, but not hot.

## INCLUDED ELECTRONICS & ACCESSORIES

The included Hobbywing 80A heavy-duty 1/8-scale speed control uses 2 to 4 LiPo cells and between 6 and 12 NiMH cells. It can handle a constant 80 amps continuous current and handles bursts of up to 270 amps. The BEC is rated at 5.75 volts at 3 amps. The speed control profiles include: forward w/brake; forward w/brake and reverse; and forward and instant reverse. It has a heavy-duty heat sink and fan to keep things cool. The included motor is a Fusion 2045kV. For a radio, Caster Racing gave us a simple yet effective FM transmitter and receiver. It features dual-servo servo-reversing, EPAs and throttle and steering high/low rates. The receiver is a standard FM receiver.

## PLUS/MINUS

**+**

- Fast and handles well
- Tires hook up well
- Made to be electric

**–**

- Speed control limits battery access

## VERDICT

**At the end of the day, and after going through a number of packs, I was very happy with this buggy. I was impressed with the handling and speed of the EX-1. Acceleration was great, top speed was perfect for racing, and it was stable on the track and predictable in the air. The tires on this buggy really hooked up, and on the Pro version … well, you can go online to read about the Pro version. All in all, this is a great buggy. And if you're looking to make the jump from nitro to electric, or you just want a buggy that can win at the track, this buggy definitely fits the bill.**

### SOURCES

**Caster Racing USA**
casterracingusa.com
**MaxAmps.com** maxamps.com

## BEHIND THE DESIGN

*Continued from previous page*

***RCCA:* What sets this buggy apart from the competition?**
**DP:** On the track, it's very stable and easy to drive. But the big difference is that it uses standard ROAR packs in a balanced saddle-pack layout. Most 1/10 racers already have a pair of packs they can use with the Fusion. And this car comes complete, no add-ons or kits required, and no nitro stuff to take off.

***RCCA:* How does the design process work at Caster?**
**DP:** I don't know how they usually do it, but I have to thank them for putting up with me. Since I don't have mad CAD skills, I actually had to machine the prototype parts myself and send them to the factory to use as a template. Along with some communication via email, that's how we did it.

***RCCA:* Other than the included electronics, the pre-painted body and the fact that the RTR is assembled, what are the differences between the kit and RTR versions?**
**DP:** The Pro comes with all 7075 grade aluminum and includes upgrades such as oversize shocks, aluminum battery and chassis braces and front CVDs and sway-bar.

***RCCA:* Which is faster on the track, your electric or nitro buggy?**
**DP:** That depends on who is helping me tune my nitro! If I can get the motor and clutch both to work right on the same day, my nitro can hang with my electric pretty good. Which can throw down the fastest single lap? I'll give you two guesses.