

Chad Bradley MBX-5

Chad's always been a friend of the magazine and willing to lend his expertise.

The Mugen MBX-5 is the latest offering from one of the top names in nitro RC, Mugen Seiki. To help you set up your MBX-5, we enlisted the help of one of Mugen's top off-road drivers, Chad Bradley. Chad's a former national champion, and A-Main Worlds qualifier. Chad sat down with us and went over every possible tuning point on the MBX-5 to give you this exclusive XRC Hook-Up.

The MBX-5 is a lot easier to drive than the previous Mugen buggies. It has longer arms, so it goes through the bumps better. It definitely hits the jumps better and lands more stable without hopping around. More racers will be able to go faster around the track with the MBX-5 versus older Mugen kits as well as the other buggies on the market.

- CHAD BRADLEY

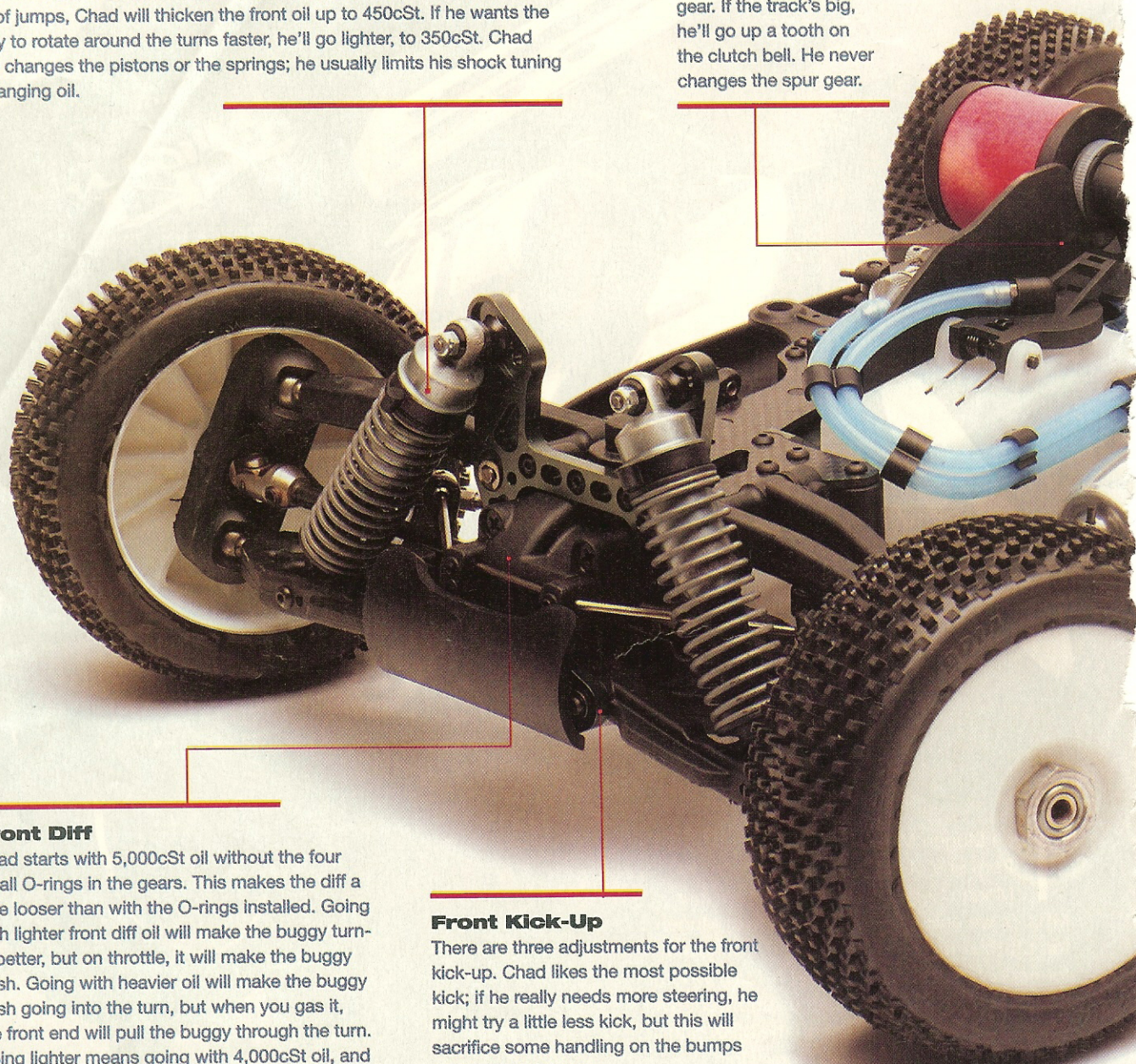
Shocks

When going to a new track, Chad uses the 1.5 piston with 400cSt oil. This setup is a little thicker than the stock setup and provides a little more pack up front. Chad likes that since it makes the buggy handle the jumps a bit better and doesn't dive. If the car is too twitchy on the track, or if there are a lot of jumps, Chad will thicken the front oil up to 450cSt. If he wants the buggy to rotate around the turns faster, he'll go lighter, to 350cSt. Chad rarely changes the pistons or the springs; he usually limits his shock tuning to changing oil.

Gearing

Chad starts with the stock 13-tooth clutch bell with the 46-tooth spur gear. If the track's big, he'll go up a tooth on the clutch bell. He never changes the spur gear.

The buggy shown is Chad's back-up rig.



Front Diff

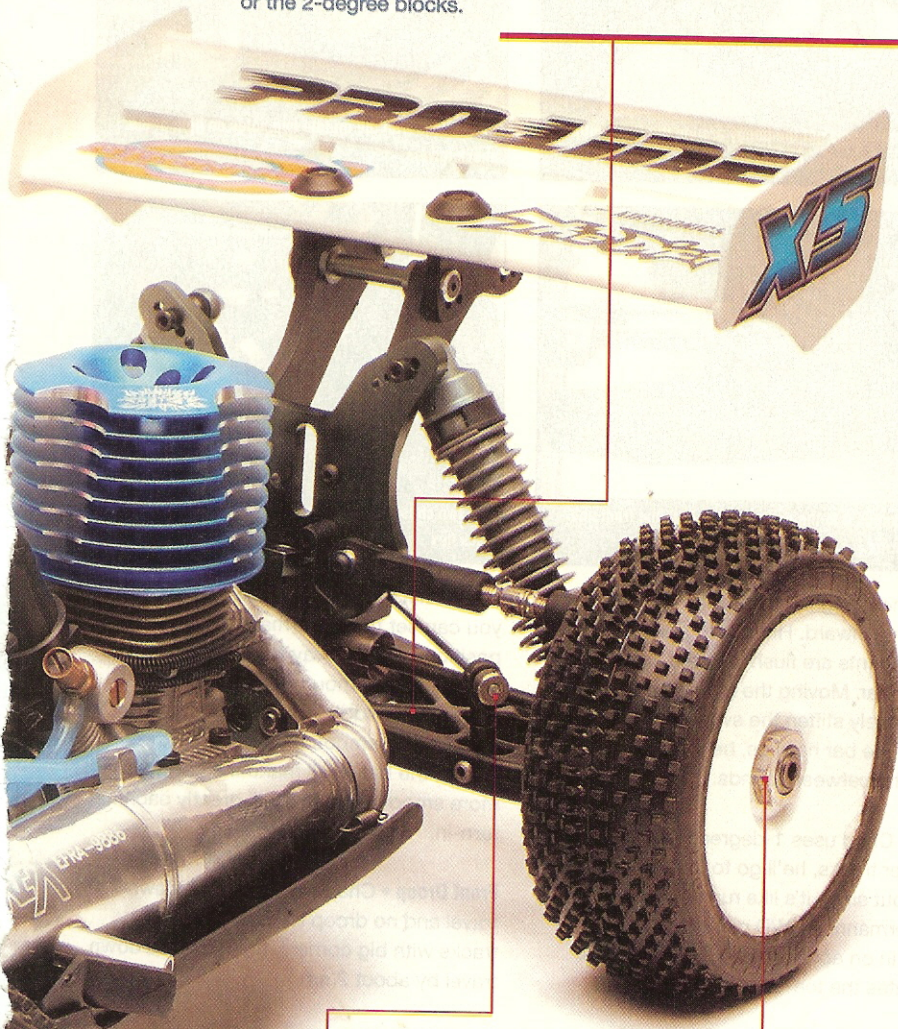
Chad starts with 5,000cSt oil without the four small O-rings in the gears. This makes the diff a little looser than with the O-rings installed. Going with lighter front diff oil will make the buggy turn-in better, but on throttle, it will make the buggy push. Going with heavier oil will make the buggy push going into the turn, but when you gas it, the front end will pull the buggy through the turn. Going lighter means going with 4,000cSt oil, and going heavier means going with 7,000cSt.

Front Kick-Up

There are three adjustments for the front kick-up. Chad likes the most possible kick; if he really needs more steering, he might try a little less kick, but this will sacrifice some handling on the bumps and around the turns.

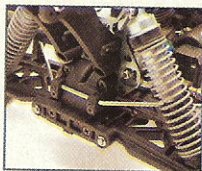
Toe-In, Anti-Squat

Chad likes 3-degrees of toe-in and keeps the anti-squat in the middle position. Chad's tried both the higher and lower anti-squat positions, but he always comes back to the center and advises sticking with that. If he's trying to get his lap times down and has rear traction to spare, he'll go with less toe by trying the 2.5-degree or the 2-degree blocks.



Sway Bar

The rear sway bar options are just like the front. The silver one makes the car more stable but a little bit looser in the rear. The black one makes the rear less stable but helps with rear traction.



Hub Height

Chad really likes using the lower hole on the rear hubs. It allows less side bite going around turns. The buggy comes out of the turn a little looser, but going through the turn, it's faster. In the higher hole, the rear sometimes will get choppy, where the rear tires grab, then let go, then grab, then let go. Using the lower hole takes away this condition and just makes the buggy easier to drive overall.

SPEC. NOTES

Engine: REX P-5

Plug: Rex #6

Pipe: Mug. REX 986

Fuel: O'Donnell 30%

Sticky Situations

When Chad comes across the following situations, here's what he does first, in order:

IF THE SITUATION IS A...

...very loose track, dusty with little traction

ADJUST THE...	HOW?
Shock Damping	Go thicker
Ride Height	Raise the front
Rear Toe-In	Max out the toe-in
Wheelbase	Go shorter

IF THE SITUATION IS A...

...very loamy track, lots of bite, too much traction

ADJUST THE...	HOW?
Rear toe-in	Less toe-in
Wheelbase	Go longer
Rear Camber Links	Shorter and lower
Rear Droop	Limit down travel

IF THE SITUATION IS...

...you need more turn-in steering

ADJUST THE...	HOW?
Front Shock Location	Move out on tower
Front Caster	Less
Front Diff	Lighter
Front Sway Bar	Lighter

IF THE SITUATION IS...

...you need more exit steering

ADJUST THE...	HOW?
Front Caster	More
Front Diff	Thicker
Center Diff	Thicker
Front Toe	More toe-out

IF THE SITUATION IS...

...you need to reduce oversteer

ADJUST THE...	HOW?
Front Caster	More
Front & Rear Sway Bars	Go Thicker

Chad's next big race is the final Saturday Series.

cST is an abbreviation for centistokes. We call it weight. It's roughly a factor of 10. So 350cSt is 35wt oil.

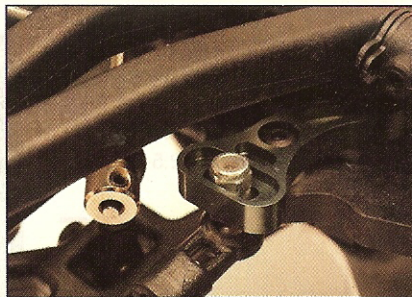
FRONT END

Shock Placement • Chad's stock setup uses the second hole from the top on the shock tower and the outside hole on the arm. Chad never stands the shock all the way up to the outside hole on the tower and never goes to the bottom hole. He limits his tuning to the two middle holes. If the track is really bumpy, he'll go to the inside middle hole. This spot lets the shocks move more and makes the suspension a little freer. On the arm, Chad keeps with the outside hole. Moving the arm in gives the buggy too much body roll.

Caster • Chad runs his caster in the middle setup. If the track is big with lots of high-speed turns, he'll move the upper arms back, giving the buggy more caster. That will make the car turn better from middle of the turn out. It also helps to smooth out the turn-in, since it's less aggressive. It also helps through the bumps since the wheel angle is a little sharper. If the track is tight, he'll go with less caster and will move the upper arms forward. This will give the buggy a bit more turn-in, but it will sacrifice a little turn-out steering.

Roll Center Height • On the MBX-5, you can adjust the height of the front upper arms. This effectively alters the buggy's front roll center. Chad likes the lower position. On smaller tracks where he wants more turn-in, he'll go higher. The lower position makes the buggy easier to drive and smoother exiting turns.

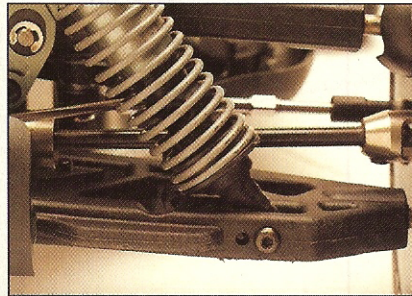
Sway Bar • Mugen offers two different sway bars, the stock silver one and a black one that's slightly thinner. Chad starts off with the stock one, but if he needs a little more steering, or if the conditions are very bumpy, he'll go with the softer black one. The black one lets the chassis roll more and gives the buggy a little more turn-in. Beyond that, Chad will play with the



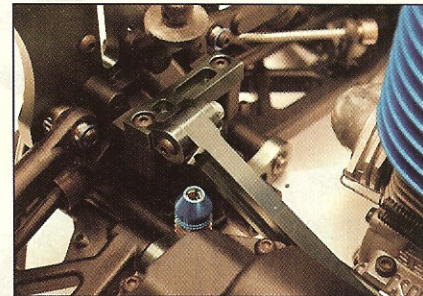
Ackerman helps get the buggy around the track with either more or less turn-in.



Chad sticks with the middle two holes on both of the shock towers.



Chad keeps it to the outer hole on both the front and rear arms.



The two chassis braces absolutely eliminate front-to-back flex.

tightness slightly by moving the sway bar mounts inward. His starting point is so that the mounts are flush with the end of the sway bar. Moving the mounts forward will effectively stiffen the sway bar. After Chad finds the bar he likes, he'll adjust this point slightly between rounds.

Toe • Chad uses 1-degree of toe-out. On bigger tracks, he'll go to 2-degrees of toe-out since it's like running a little more Ackermann. A 4WD car wants to pull the tires in on accelerations, which kind of negates the toe-out.

Bump Steer • Chad lowered the steering mounts on the steering rack by 2mm. This gives the buggy a little less bump-out from the stock setup.

Ackermann • There are three positions that you can set the Ackermann. The stock position is all the way forward. This gives you the most amount of turn-in. Chad prefers the middle hole since it makes the car a bit smoother. Moving all the way to the back will make the car even more smooth, but this will greatly sacrifice turn-in.

Front Droop • Chad starts with full down travel and no droop limiting. On bigger tracks with big corners, he'll limit the down travel by about 2mm.

Front Width • It's important that you have the pillow balls spaced correctly; Chad and the rest of the team run the front width at 276mm. This is measured by removing the wheels and measuring from the outer part of the hubs.

HOP-UPS THAT MATTER

5mm Steering Rack • The stock rack is 2mm thick; the Mugen replacement is 5mm and milled out for weight. The new rack is much stronger without adding too much weight. Under extremely stressful conditions, the stock one will bend.

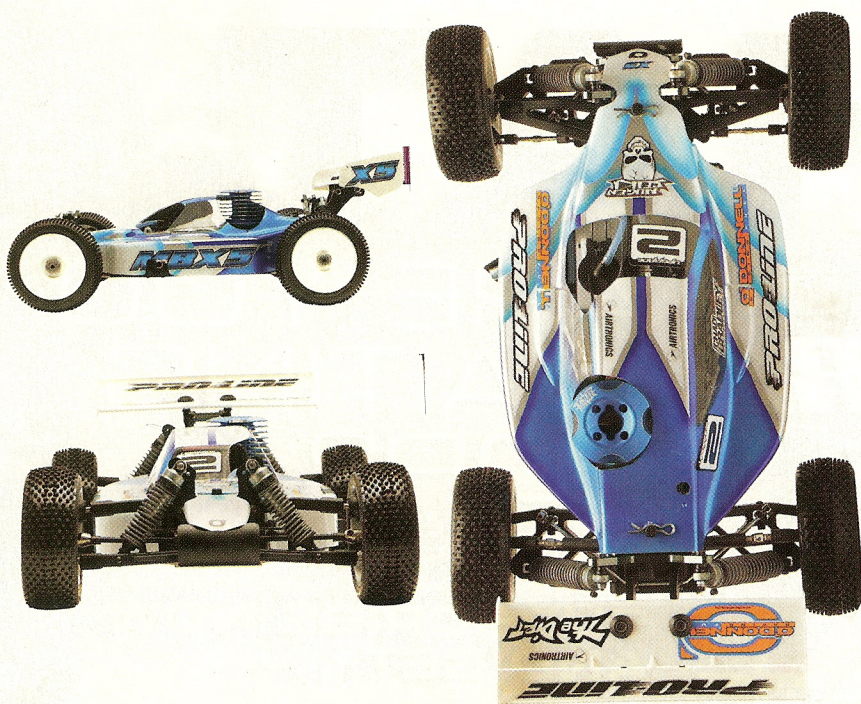
Chassis Braces • Overall, the chassis is very stiff, but adding the front and rear machined braces will eliminate any of the existing front-to-back flex. Zero flex means the suspension can completely work as designed when you're in the heat of battle.

Variety of Diff and Shock Oils • Chad likes to keep a variety of oils on hand for both the differentials and the shocks. In this article,

you'll read about when he uses different oils. But keeping a variety in your toolbox is important.

5mm Shock Towers • The stock towers get the job done, but if you really want to safeguard the buggy for a long race, upgrade to the milled out 5mm shock towers also available directly from Mugen.

Titanium Steering Turnbuckles • The MBX-5 and other 1/8-scale buggies handle a tremendous amount of abuse when on the track. Chad ditched the stock steel turnbuckles in favor of titanium ones. These are available from Mugen as well as Lunsford.



After having seen stingers break off during a race we know why Chad uses the guard.



For added rigidity Chad fits his servo horn with a carbon fiber brace.

CHASSIS

Ride Height • Chad starts with the front ride height so that the arms are slightly above level, while the rear arms are level. If the track is really bumpy, he raises the overall ride height a little bit. He'll also do this if the track is really loamy with fluffy dirt. If the track is really rutted, he might raise the rear slightly.

Center Diff • Chad starts with 7,000cSt oil in his center diff without the O-rings. On loose tracks where he needs some traction, he'll go with 5,000cSt oil. This will drive the rear less and allow the front to pull more. Chad doesn't like using Torsen or any type of locking diff. He thinks those are better suited for European tracks that are flatter and smoother. Chad never goes thicker than 7,000cSt on the center diff.

Clutch • Chad really likes the stock clutch. It's an aluminum three-shoe with the

1.0 spring. He's tried other clutches and always comes back to this one.

Brake Bias • When Chad is at full brakes on his radio, his brake bias is set at 50-percent to the front and 100 percent to the rear. When his radio is at half brake, he sets the bias at 25-percent to the front and 50-percent to the rear. Setting this takes a little bit of trial and error. Chad doesn't use any drag brake. When the buggy is at idle, the wheels are free to spin.

Wing Adjustment • Chad has his wing set all the way back and low. He rarely changes this setting.

Tires • Ninety percent of the time, Chad uses Pro-Line M2 Crime Fighters. If the track is very hard packed and clean with not a lot of dust, he'll go to M2 Knuckles, always with the stock Pro-Line foam.

Rear

Shocks • Chad uses the stock shock setup in the rear, 1.5 pistons, 350cSt oil, and gray springs. He always uses the gray springs. If the track has really deep ruts, he'll go with a drilled out piston with a 1.4 drill, or he'll go with 400cSt oil. This increases the pack and helps the buggy from bottoming out on the big ruts. Chad never goes lighter on the oil. When he did, he found that it loses rear traction and makes the car tend to wash out around turns.

Shock Placement • On the tower, he starts with the second hole from the outside and outside on the arm. He hasn't changed the location on the arm. On the tower, it's like the front: the more you lay the shocks down, the more body roll you'll get. But it will be a little softer through the bumps. This will also make the buggy a bit twitchier.

Camber Rod Location • On the tower, there are six positions to choose from. Chad starts with the middle inner hole. On bumpy tracks, he'll go lower or shorter. Going shorter, outside on the tower, will make the buggy camber more when it compresses. Going lower will make the rear end camber sooner during the suspension's down travel. Raising the camber location will give you more traction, but going through the turns might make the buggy traction roll. On the hub carrier, there are four positions. Chad's stock location is the outside upper hole. Moving the location in toward the chassis will make the buggy camber sooner. He never goes with the lower location on the hub carrier.

Camber • Chad sets his rear camber at negative 2-degrees and rarely changes this.

Rear Diff • Chad likes 1,000cSt in the rear with no o-rings other than the seals. He never goes lighter. Going thicker to 2,000cSt will give the buggy more traction going into the turn, but when you get on the gas, it will make it looser. Chad never goes thicker than 3,000cSt in the rear.

Wheelbase • Chad likes the long wheelbase with a 4mm spacer in front of the hub and a 1mm spacer behind. If the track is loose and not bumpy, he'll go a little shorter. But overall, he likes the longer wheelbase, but he doesn't go all the way long with 5mm in front. ⚙

Chad's pumped about having his MBX-5 for a full racing season next year.