



V5 INSTRUCTION MANUAL

1/5 SCALE GAS POWERED RC CARS



Thank You.

Thank you for purchasing MCD. Reliability and ease of maintenance are the two key qualities of our products. When we design our cars our primary goal is always to ensure our customers the best driving experience possible.

Welcome to the TEAM MCD.

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You can download the most up to date exploded views on our website.

Please go to: www.mcdracing.com/support select Exploded View from the Type Menu and hit the search button to see all the exploded views.

Quick Guide for MCD Racing Cars

Warranty and safety precautions

With the purchase of this MCD 1:5 car, your car is under two year warranty starting with the date of purchase. This warranty covers any material or manufacturing faults that might be present at the date of purchase.

This warranty does not cover:

- Ordinary wear and tear.
- Wearable parts like the clutch or gears.
- Damages as a result of misuse by the driver.
- Damages from wrong maintenance procedures .
- Cosmetic damage.

Please consult your local hobby shop first in case of a warranty claim.

In case you decide to send this product for repair, please attach a proof of purchase. Before you send your product to your dealer, we recommend you to consult them first (either via telephone or email) The sender has to pay for shipping costs. Every warranty claim has to be validated by service department first. Dismissed claims are subject to administrative fees (checking and handling) before we send the items back. Repairs that are not covered by warranty have to be paid for in advance. MCD Racing cannot be held responsible for any damages that emerge from or are caused by, directly nor indirect use or misuse of this product or its accessories.

This product should not be considered as a toy and therefore not suitable for children under the age of 14. The engine must not be operated interiors.



IMPORTANT:

Advise your local hobby shop before you first start up the engine, especially considering proper operation and safety precautions. If possible, get a demonstration on how to operate the engine, and make yourself familiar with it.

Only if and when you fully understand its operation, you should start using the engine. Always be sure to operate within the safety guidelines indicated below to avoid damages or personal injury. Never try to modify any part of the engine as this voids the warranty and may lead to damages or personal injury.

Fuel – Safety precautions

Use only minimum 95 Octane gasoline mixed with high quality two-cycle engine oil. Use a 20:1 ratio gasoline to oil. (e.g. 250ml oil mixed with 5lt Fuel)

- Stay away from open fires while fuelling or running the engine. Do not smoke nearby!
- Store the fuel in a well ventilated area, away from heat sources, fire or batteries.
- Always keep the fuel in a clearly marked container away from the reach of children.
- Never handle the engine or the exhaust until they are cooled down. These parts can get up to 170°C when operating.
- In case of eye contact, rinse thoroughly with warm water.
- In case of skin contact, rinse thoroughly with warm water and soap. Do not scrub.
- Never breathe the exhaust fumes as they are poisonous. Never operate the engine in closed spaces.
- If someone is exposed to the exhaust fumes, the person has to be taken out to open air in case of nausea.
- Always store your fuel in a sealed container specifically made for gasoline.

Make sure your car is properly maintained before you start running!

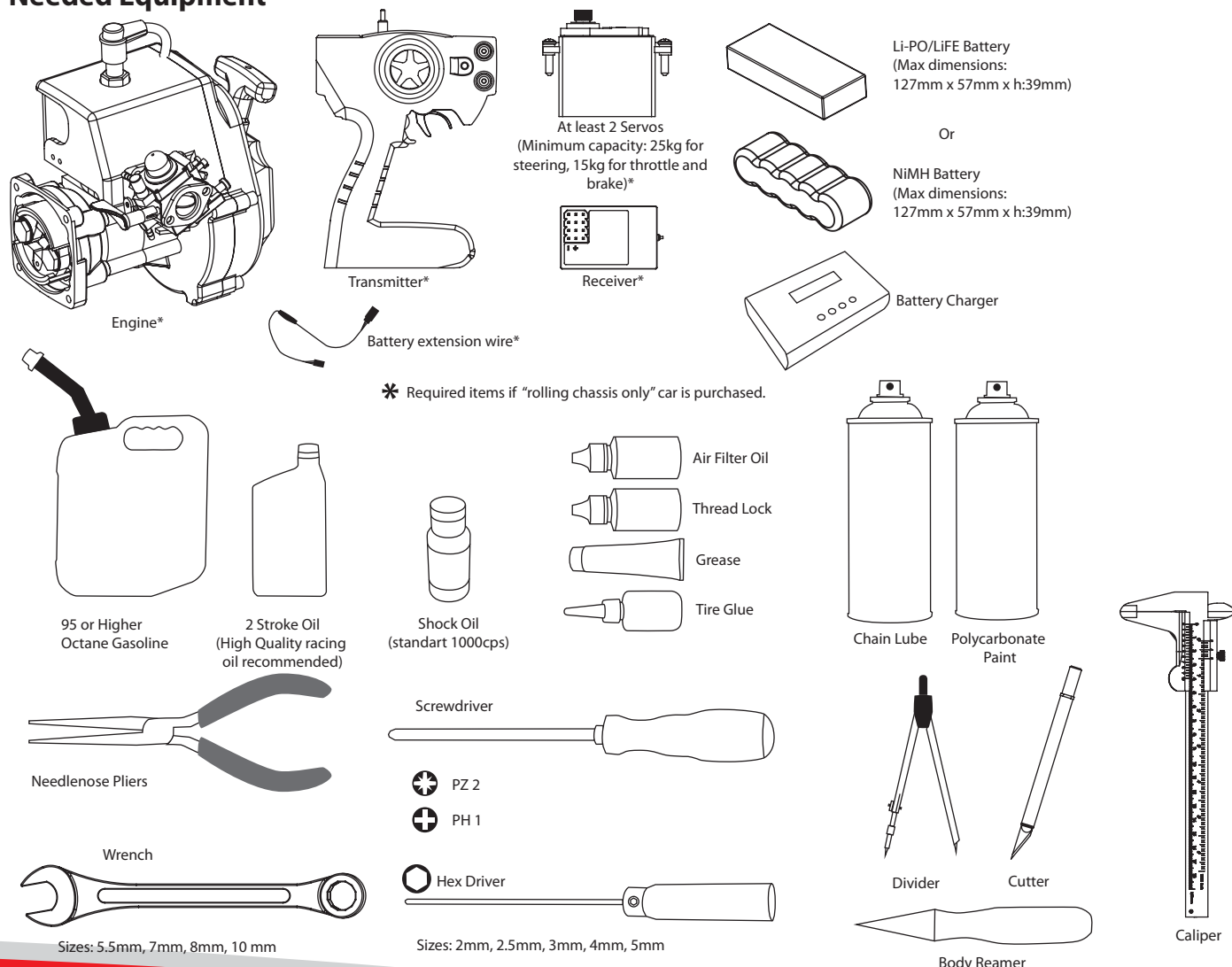
- Check all screws and nuts for a proper and firm seat. Use thread lock, where screws thread into metal.
- Never drive without fully charging batteries for the transmitter and receiver against the risk of a runaway.
- Always check the brake and throttle linkage before you start the engine.
- Be sure the air filter is clean and properly oiled. Never run the engine without an air filter as dust and debris may enter inside and seriously damage the engine.
- Always be sure that there is chain wax inside the CCD Axles.
- Always be sure that there is grease inside the cup joint boots.
- Always be sure that nobody else uses the same frequency.

Operation

- Exhaust fumes are poisonous. Never operate the engine in closed spaces.
- Break-in procedure should be paid attention.
- Be sure the air filter is clean and well-oiled. Never operate the engine without an air filter attached.
- Check the air filter regularly for eventual damages.
- Use minimum 95 Octane gasoline mixed with high quality two-cycle engine oil.
- Use a 20:1 ratio gasoline to oil. (e.g. 250ml oil mixed with 5lt Fuel)
- Use original engine spare parts only.

The Do's	The Dont's
Switch on the transmitter before starting the engine.	Never run with low batteries.
Drive carefully when there are people around.	Never run your car in wet conditions or on tall grass.
Switch engine off first, and then the transmitter.	Never use chemicals for cleaning your car.
Always check the condition of the batteries before running the engine.	Never run your car without the bodyshell.

Needed Equipment



Mounting the Air Flow Set - 7751 & 7302 (Optional)



6251
PH1 Self Tap 3x9 mm



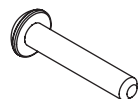
6406
Bh Hex Screw M3x12 mm



6501
Self Lock Nut M3



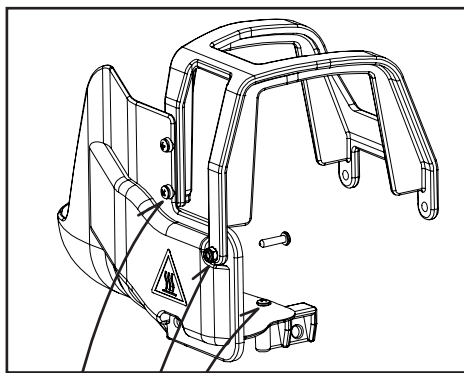
6307
Hex Screw M5x10 mm



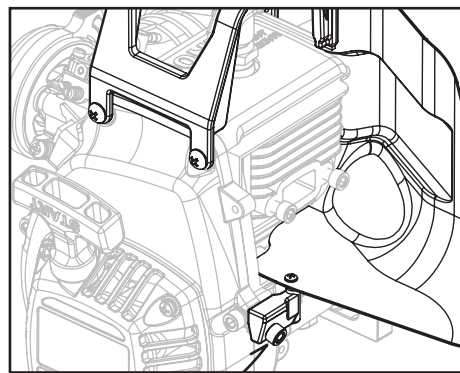
6281
Bh Ph2 Self Tap 5x25 mm



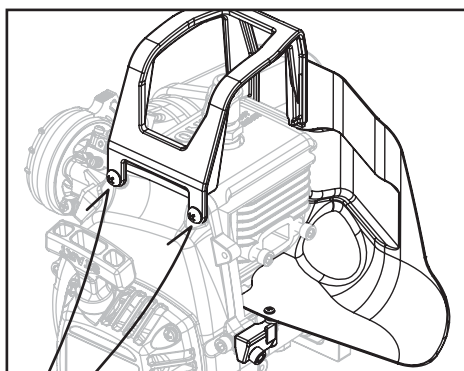
6302
Ch Hex Screw M4x12 mm



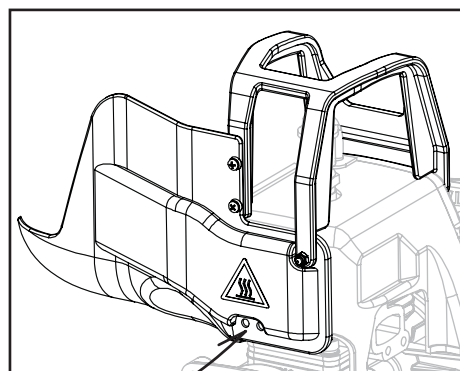
1. Assemble all 3 parts. (6251, 6406, 6501)



2. Screw the bottom bracket on the engine
(6307 - 4mm allen wrench)

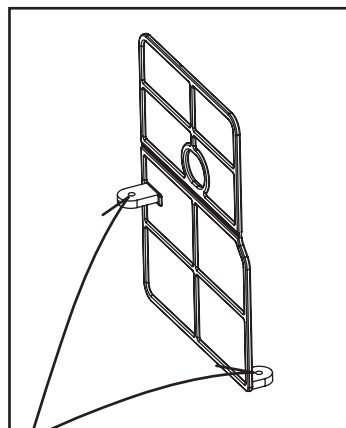


3. Fix the screws on the engine. (6281)

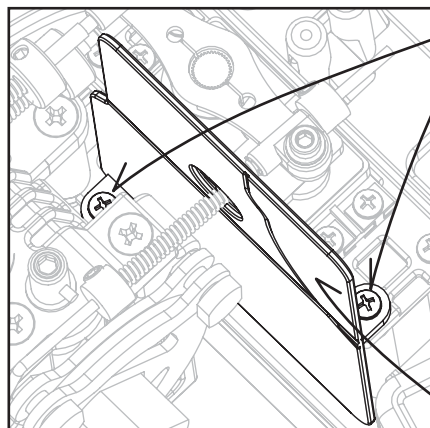


4. Screw the main insulation plate directly on the engine. (6302, You don't need to drill)

Mounting the Servo Heat Plate



Drill 3mm holes



Screw with 6252

Cut away from the sign if the Air Flow Set(7751)
is mounted.



Optional Barracuda G Performance Exhaust.(7506)



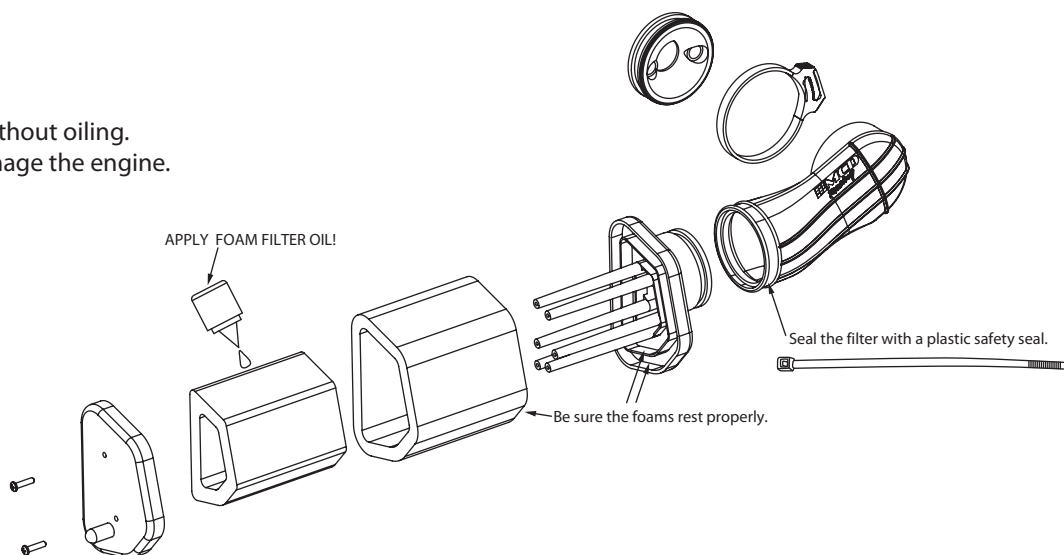
You can only mount the standart
exhaust shown on the picture.

Air Filter

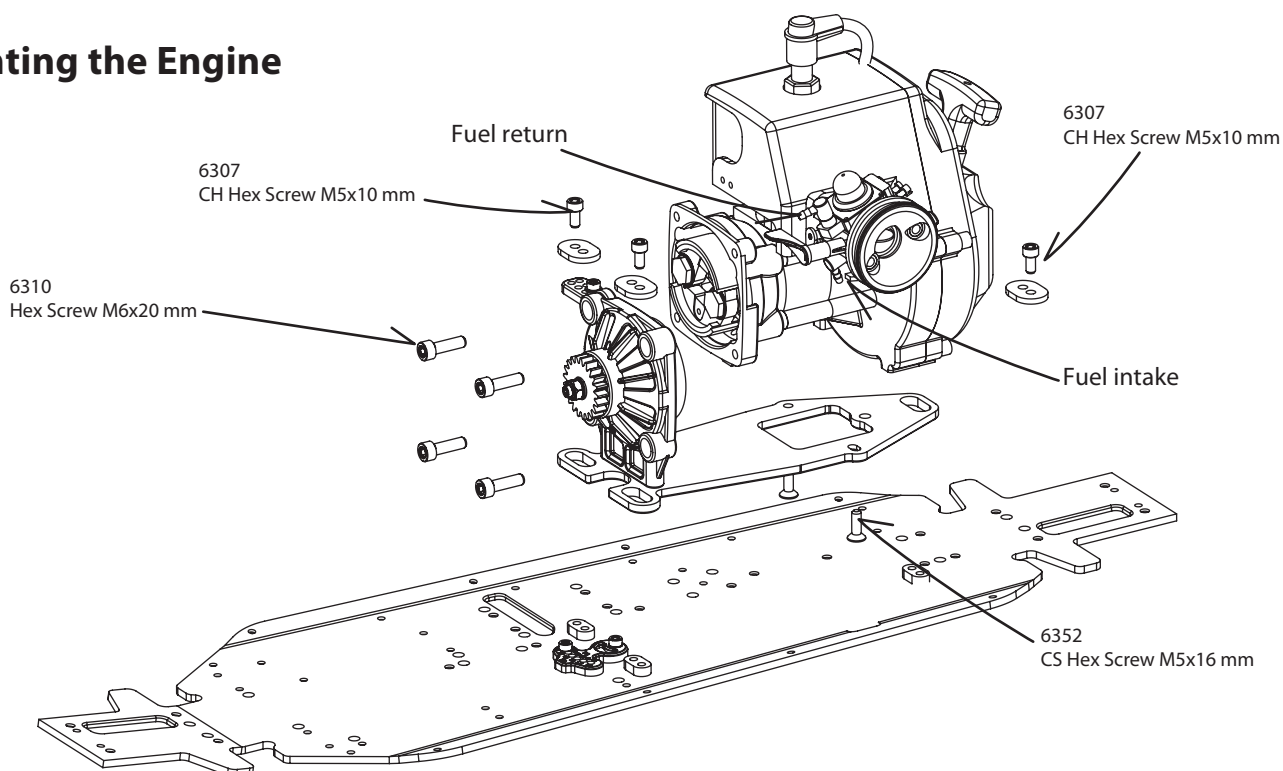


Warning!

Do not use the air filter without oiling.
Dust and particle can damage the engine.

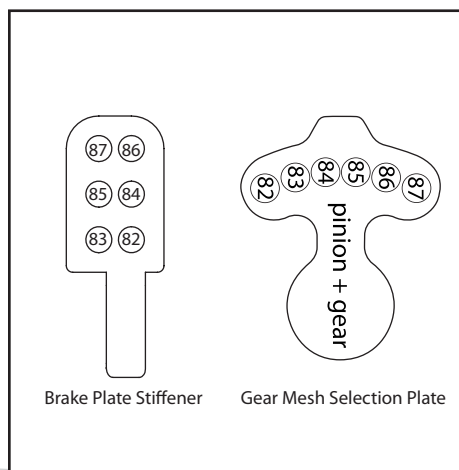


Mounting the Engine

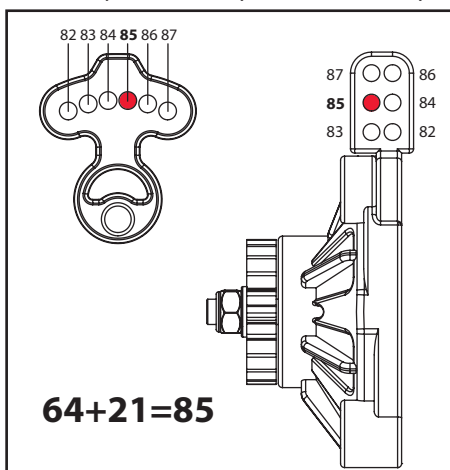


Adjusting the Gear Ratio

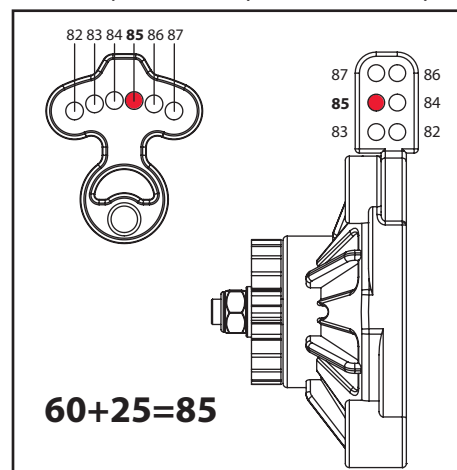
The numbers indicate the sum of **Main** and **Pinion Gear** teeth. Mount accordingly as shown in the examples below.



Main: 64T, Pinion: 21T (Off-Road Default)



Main: 60T, Pinion: 25T (On-Road Default)

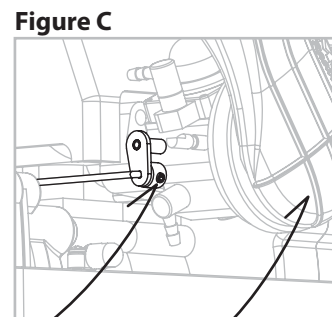
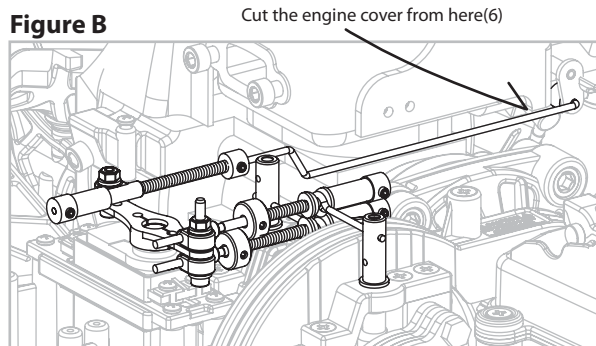
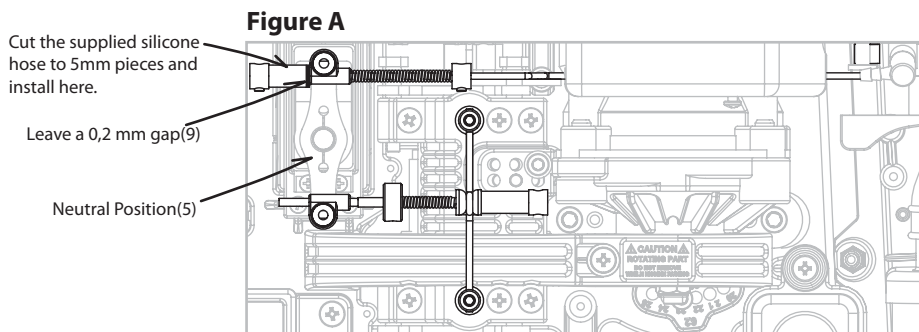
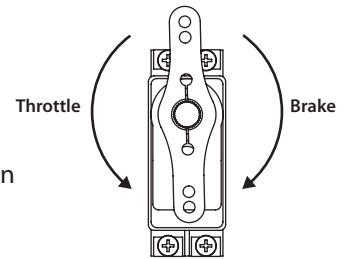


Throttle and brake linkage

The throttle/brake servo controls both linkages and serves two purposes: 1. The throttle linkage controls the amount of air that goes in to the engine and therefore controls engine rpm. 2. When the throttle linkage stops at idle, the brake linkage engages.

Installing the throttle linkage

1. Turn on your radio first.
2. Check if servos are functioning.
3. Be sure the servo turns on correct direction. (Throttle direction: CCW, Brake direction: CW. As shown beside. **Reverse** if direction is not correct!)
4. Install servo horn.
5. Make sure you adjust neutral position as shown in **Figure A**. If necessary correct the neutral position from the sub trim menu on your transmitter.
6. Cut the engine cover from the spot indicated in **Figure B**.
7. After completing the previous steps connect linkage as indicated in **Figure A**.
8. After adjusting the neutral position install the throttle linkage as indicated in **Figure C**.
9. Make sure you leave a 0,2mm gap in between the "linkage stopper" and "linkage plastic" as indicated in **Figure A**.

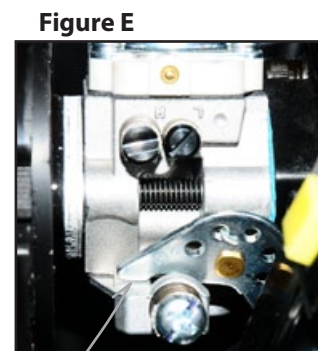


Screw from here(8) Rotate the air filter up.

10. Reduce the throttle end point adjustment(EPA) around %50 from the transmitter.
11. Apply full throttle from the trigger. (**Figure D**)



12. Hold full throttle on the transmitter then increase throttle EPA slowly until there is 0,2mm gap left between the parts shown in **Figure E**.
13. After this setting leave the throttle to neutral position.



Leave a 0,2 mm gap while on full throttle(12)

14. The throttle linkage is assembled and alignment is done. Check if the linkage is functioning properly.

Installing the brake linkage

During operation the brake pads wear over time causing weakening of the brakes. In order to compensate you should extend the brake linkage by turning it.

1. Make sure you assemble the brake linkages with the dimensions as indicated below.
2. Connect the upper linkage to the front brake and the bottom linkage to the rear brake as indicated in **Figure F**.

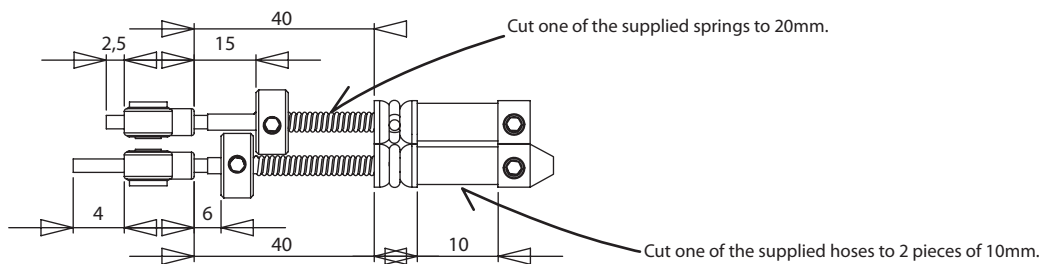
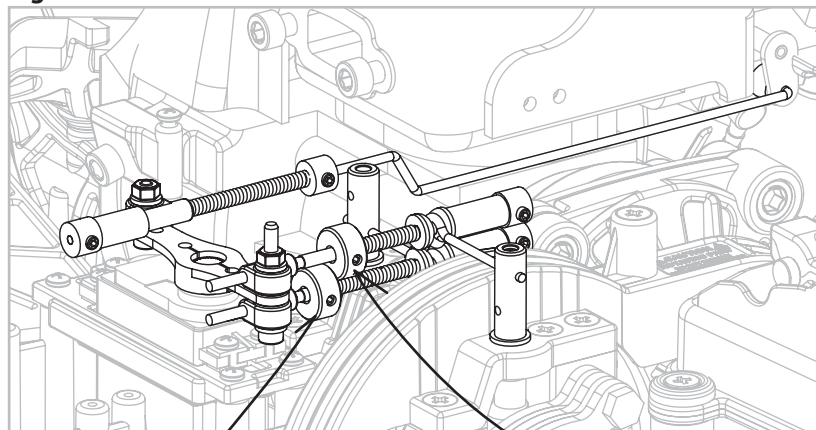


Figure F



Rear brake adjustment collar.

Front brake adjustment collar.

Adjust the brake bias 55% front and 45% rear.

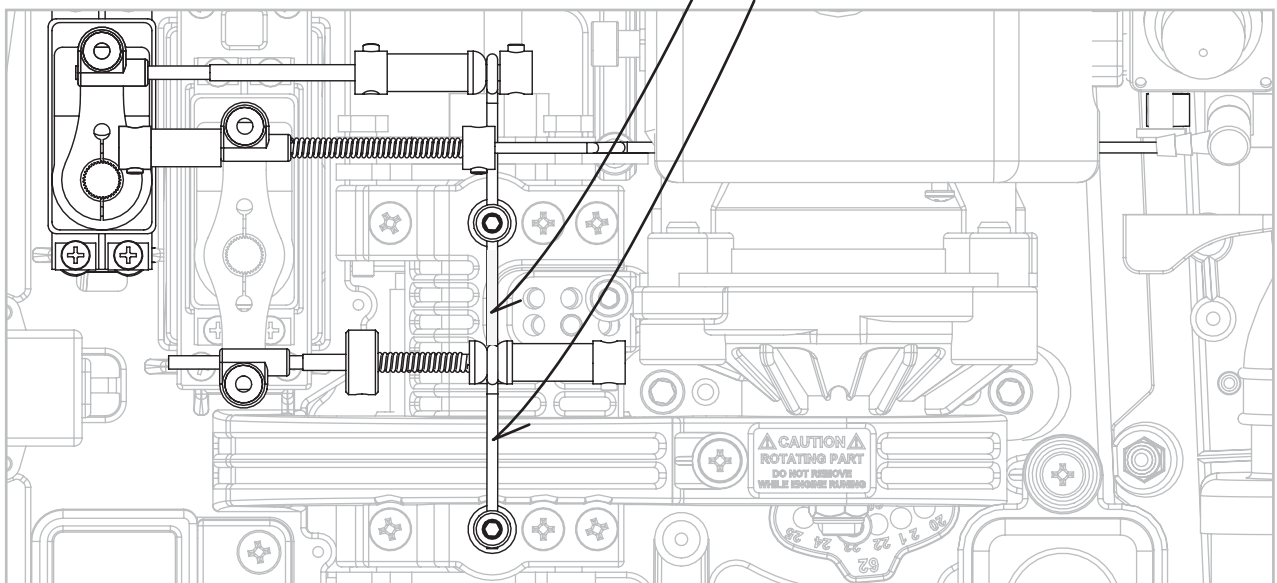
3. After the linkages are installed, switch on your radio and reduce the brake end point from the transmitter EPA menu to %30.
4. Apply full brake from the trigger and hold.
5. By moving the car back and forth with your hand, start slightly increasing EPA to approx. %50 until the brakes lock.
6. If it doesn't lock at %50 turn back to the step 1 and re-adjust.
7. After the brakes are functioning properly adjust the brake bias by using the collars as indicated in **Figure F**.
8. After the step 7 is complete your brake set-up is finished.

Optional rear brake servo installation

Requires advanced programmable mixing 3 channel radio.
Check your transmitters manual to adjust.

Install the linkage in this side if double servo is used.
Install the linkage in this side if single servo is used.

Figure G



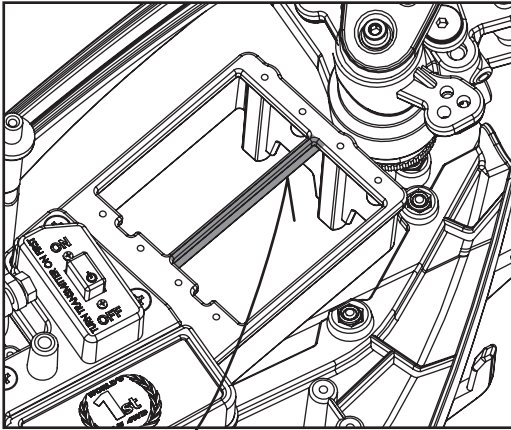
Steering servo installation.

You can use single or double steering servos on this car. We recommend using large scale 30x60mm min of 25kg/cm torque servos.

Steering single-servo installation.

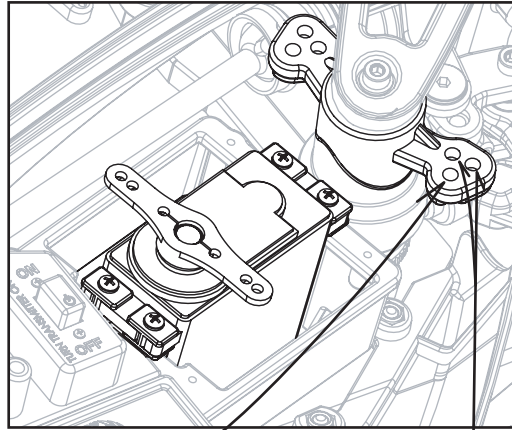
1. Cut the beam with a diagonal pliers as indicated in **Figure H**.
2. Install servo as shown in **Figure I**.
3. Insert a 4 mm round pin and lock the Ackerman plate to prevent steering as shown in **Figure L**. Servo saver will be locked in the central position.
4. Turn on the radio and install the double horn to neutral position. Perpendicular to servo case.
5. Set steering EPA to approx. %70.
6. Set from the sub trim menu the distances from "the servo horn" to "servo saver" equal at both sides as shown in **Figure J**. You can use a divider to measure the distance. (**Figure K**)
7. Assemble the linkages supplied in the accessory bag and adjust them to same lengths measured in step 6.
8. Install the assembled linkages to the outer holes on the servo saver as indicated in **Figure I** and **Figure J**.
9. Remove the round pin inserted in step 3.
10. Adjust steering EPA to max. possible left then max. possible right from the transmitter. The servo should stop turning when the steering reaches its maximum travel.
11. After step 10 is completed your steering single servo installation and set-up is finished.

Figure H



Cut the beam with diagonal pliers(1).

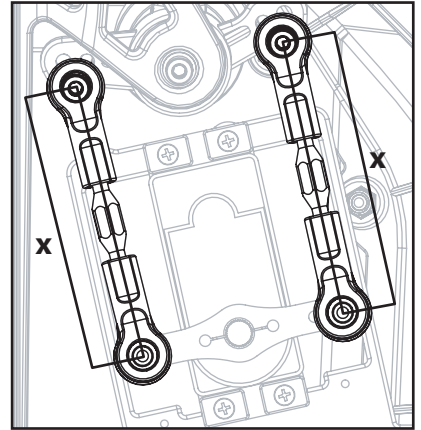
Figure I



Single servo hole

Twin servo holes

Figure J



Steering double-servo installation.



Caution!

Double-servo installation is critical and should be handled carefully. If not installed properly the servos will work against each other and damage themselves.

1. Install servos as shown in **Figure L**.
2. Insert a 4 mm round pin and lock the Ackerman plate to prevent steering as shown in **Figure L**. Servo saver will be locked in the central position.
3. Turn on the radio and install the single horns to neutral position as shown in **Figure L**.
4. Set steering EPA to approx. %70.
5. Measure the **distance A** shown in **Figure L** with a divider.
6. Set from the sub trim menu, the servo 1 horn distance to servo saver inner hole(**distance B**) is equal to **distance A**.
7. Repeat step 6 for servo 2 **distance C** and check if the **distance B** has remained same. Distances may change during sub trim. Remove the horns of servo 1 and servo 2 and swap them then repeat step 5,6 and 7. **Make sure the distances A, B and C are equal!**
8. Assemble the linkages supplied in the accessory bag with the same length with **distance A**.
9. Install the assembled linkages to the inner hole on the servo saver for faster response (make sure the **distance D** is equal to the servo horn **distance E** as shown in **Figure L**).
10. Remove the round pin inserted in step 2.
11. Adjust steering EPA to max. possible left then max. possible right from the transmitter. Be sure the servo stops turning before the steering reaches its maximum travel.
12. After step 11 is completed your steering single servo installation and set-up is finished.

Figure K

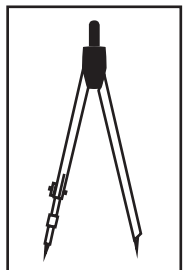
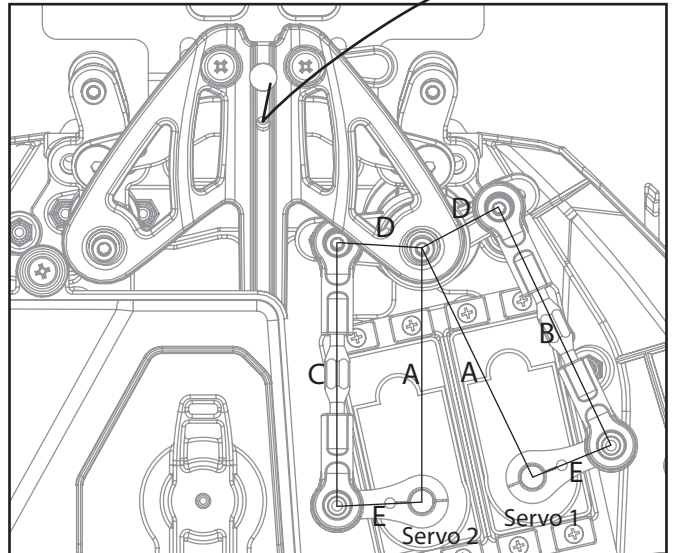


Figure L



Starting the Engine

Preparing fuel

Fill the fuel tank. Use only minimum 95 Octane gasoline mixed with high quality two-cycle engine oil.
Use a 20:1 ratio gasoline to oil. (e.g. 250ml oil mixed with 5lt Fuel)

Shutting the engine off

- Push engine stop switch **E** shown in **Figure M**.



Caution!

Be sure you understand all engine instructions before attempting to start the engine. Turn on the transmitter first, then the receiver before starting the engine.

Carburetor default settings

Slight adjustments of the carburetor might be needed depending on the external factors such as mixture, spark plug, muffler and environmental factors (air pressure, humidity and temperature). Fine-tuning idle and full throttle settings will only work after the engine is fully broken in. The factory settings provide a rich mixture that results in a significant blue smoke from the exhaust.

In case the idle-mixture needle L or the main needle H were accidentally altered, turn the setting screws H and L clockwise as far as they will go. Afterwards, turn the H screw 1 hour 30mins +- 5mins turns counter-clockwise and the L-screw 1 hour 10mins +- 5mins counter-clockwise. (As explained in **Figure O** below)

Figure N

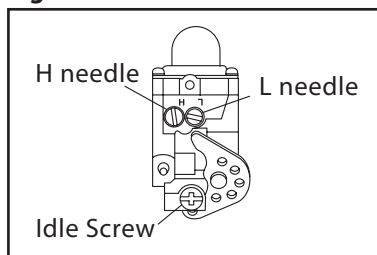
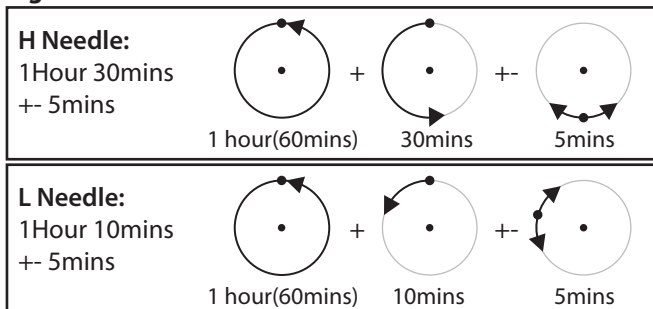


Figure O



Starting the engine

The engine is provided with an integrated fuel pump to get fuel to the carburetor. The carburetor features a manual pump (B) with a transparent cover to see the fuel flow. Follow the steps below to start the engine.

1. Pump the primer bulb on the carburetor (**B** in **Figure M**) until it is filled.
2. Set the choke lever (**A** in **Figure M**) as shown.
3. Pull the starter cord 3 times **slowly** for the fuel to get in the cylinder. (Do not pull the cord fast and more than 50-60cm)
4. Set the choke lever as shown.
5. Pull the starter cord rapidly 5-6 times until the engine starts. (Do not pull the cord more than 50-60cm)
6. When the engine starts, set the idle if its too high (vehicle moves at idle) or too low (engine stops running from the idle screw shown in **Figure N**).
7. If the engine does not start set the carburetor to default settings as indicated above.

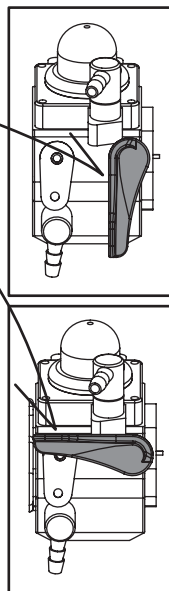
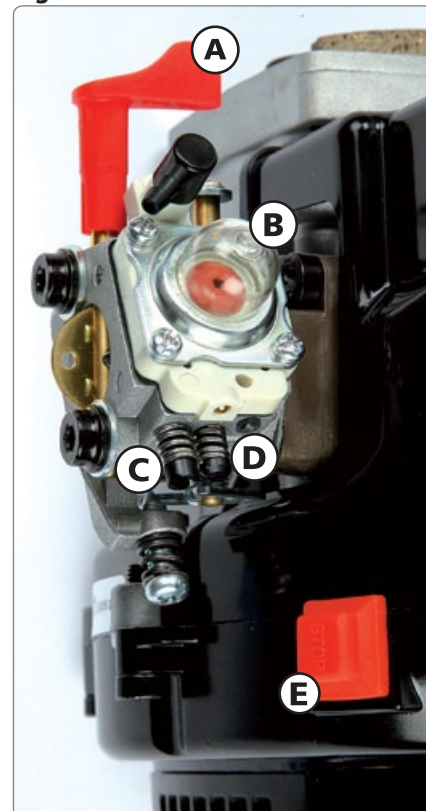


Figure M



Caution!

- Pulling the pull-start cord to its full length can damage the pull starter.
- Pull about 50-60cm of the cord. (first try slowly with the ignition disengaged)
- Never apply too much force to the pull-start mechanism.

Caution!

The mixture gets too rich if too much fuel enters the crankcase or the choke stays closed for too long. This causes the engine to stall. In this condition, the pull-start can only be operated with considerable force. Do not try to start the engine, but rather drain the excess fuel to prevent damage on the engine or the pullstart mechanism. Proceed as outlined below:

- Take out the spark plug and let the electrode dry
- Fully open the choke
- Pull the starter cord several times. CAUTION: fuel may spatter from the combustion chamber and catch fire, and if contacted irritate your eyes and skin.
- Reassemble the spark plug.
- Start the engine again.

Setting the idle-mixture needle L

- Let the engine warm up.
- If the engine responds weak when throttle is pulled, the idle-mixture is too lean.
- Richen the mixture as you slowly turn the idle-mixture needle counter-clockwise by 5 min increments. (As indicated in **Figure O** on the previous page)
- If the engine responds to throttle input with stuttering and smoke plumes from the exhaust, the idle-mixture is too rich.
- Lean the mixture as you slowly turn the idle-mixture needle clockwise by 5 min increments.

Setting the mixture-needle H for WOT

- Prop the car and let the warmed up engine run at full throttle for a short duration.
- Lean the mixture as you slowly turn the mixture needle H clockwise by 5 min increments.
- Richen the mixture as you slowly turn the mixture needle H counter-clockwise by 5 min increments.
- We recommend a setting slightly on the rich side to prolong the engine life.

Caution!

The mixture must not be set too lean under any circumstances! Engine lubrication solely depends on the oil contained in the fuel. Too little fuel in the mixture leads to overheating and piston squeezing due to lack of lubrication. During operation, a lightly blue smoke trail should be visible. Otherwise, immediately stop the engine and richen the mixture accordingly. Also make sure that the cylinder is cooled enough with fresh air to avoid overheating. Spark plugs are subject to wear, especially during break in. Always keep spare plugs of the CMR 7H class at hand. An unsuitable spark plug will make the engine run rough and hamper carburetor settings. Check spark plugs for visual defects and proper electrode clearance.

Break-in procedure

The engine performs best after a short break-in period due to the engines internal parts manufacturing methods. During this break-in, the piston's and liner's surfaces mate each other for best performance and best break-in possible. Break in the engine by driving for around 1 tank of fuel before full throttle may be applied.

Toe Setting

Toe-in:

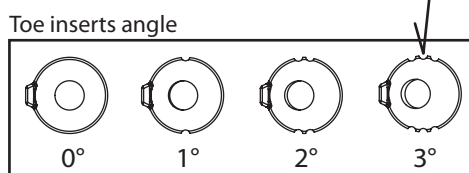
Mount the toe inserts pointing the direction that the hubs will be installed (L or R) as shown beside.

e.g. If the hub will be installed on the left side, the inserts should be pointing L for toe-in.

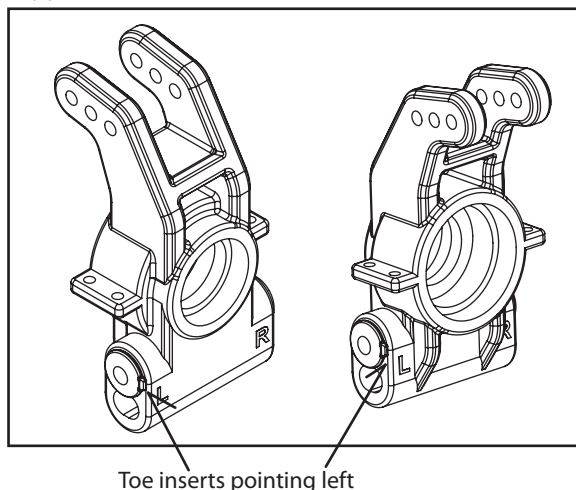
Toe-out:

Though not used frequently if toe-out desired in the rear, simply swap left and right hubs. You will obtain same amount of toe-out.

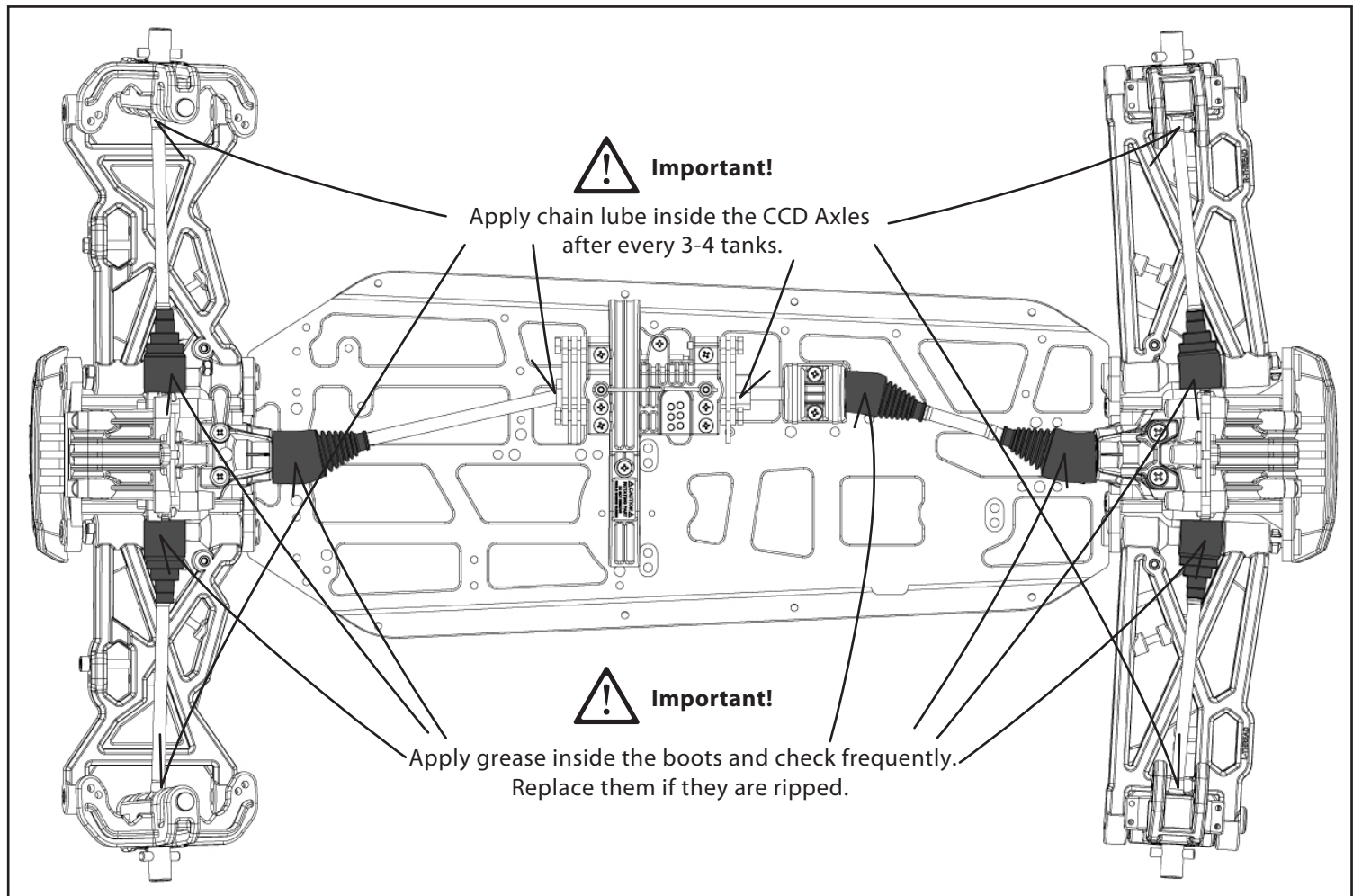
The toe angle can be changed by replacing the inserts with the desired angle. The degree which defines the toe-angle can be noticed by the sign on the inserts as indicated in the figure below.



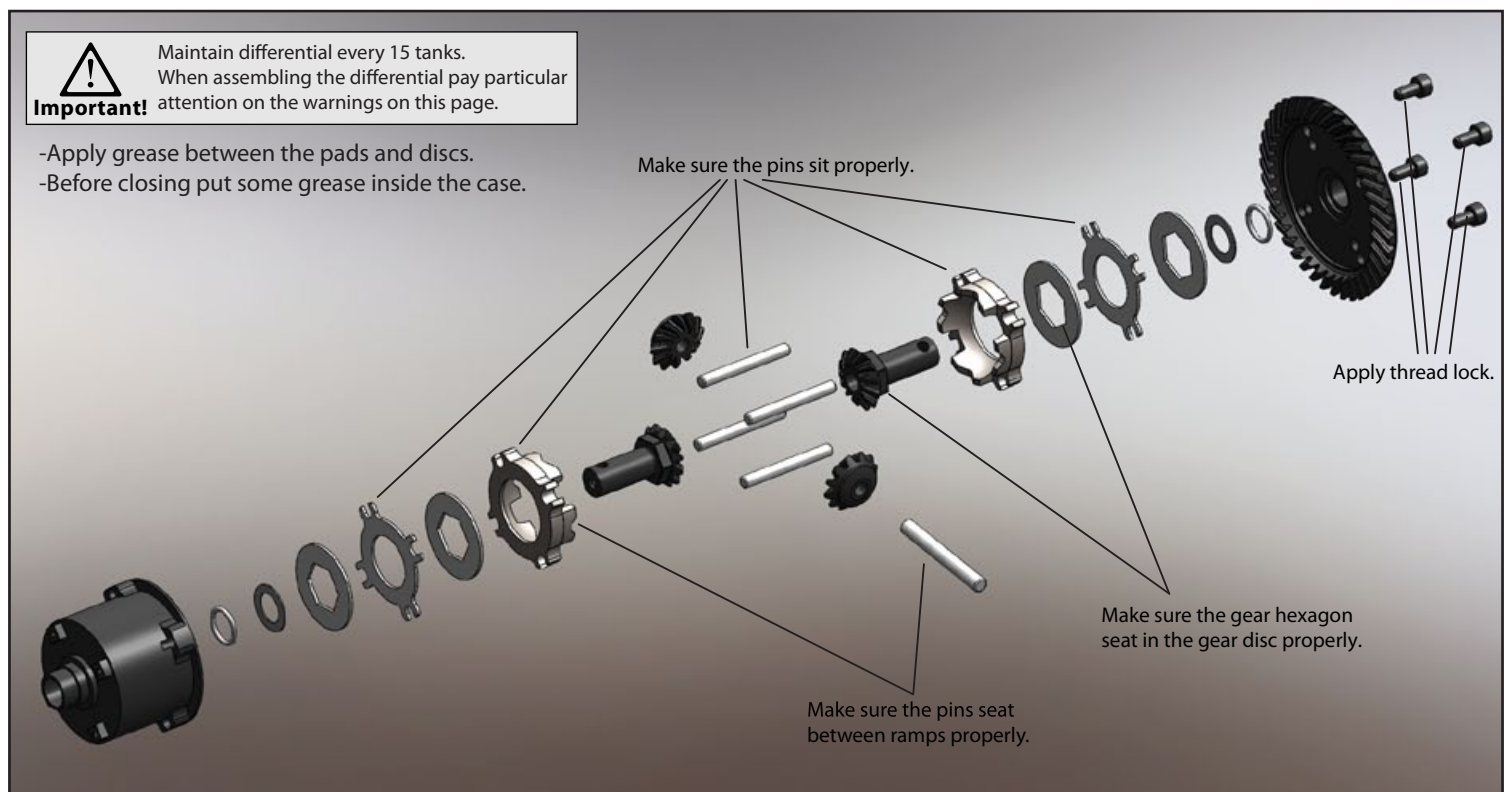
Hub



Drive-train maintenance

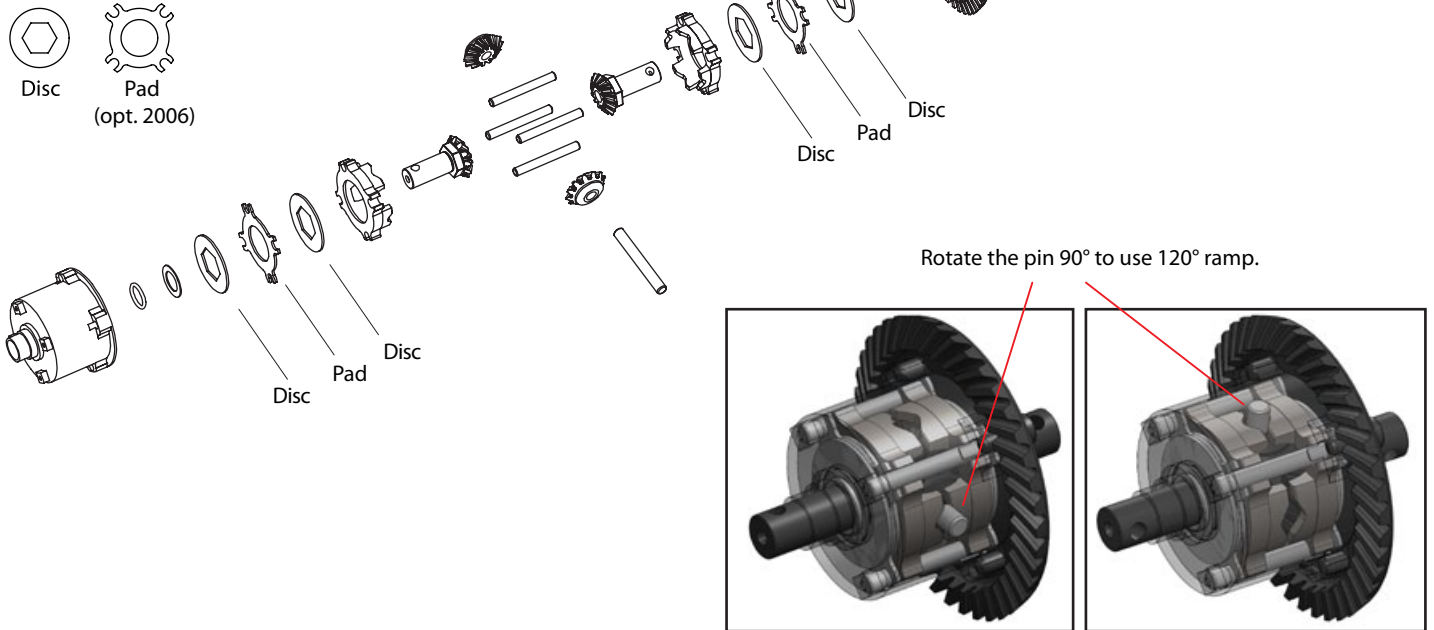


LSD Differential Maintenance

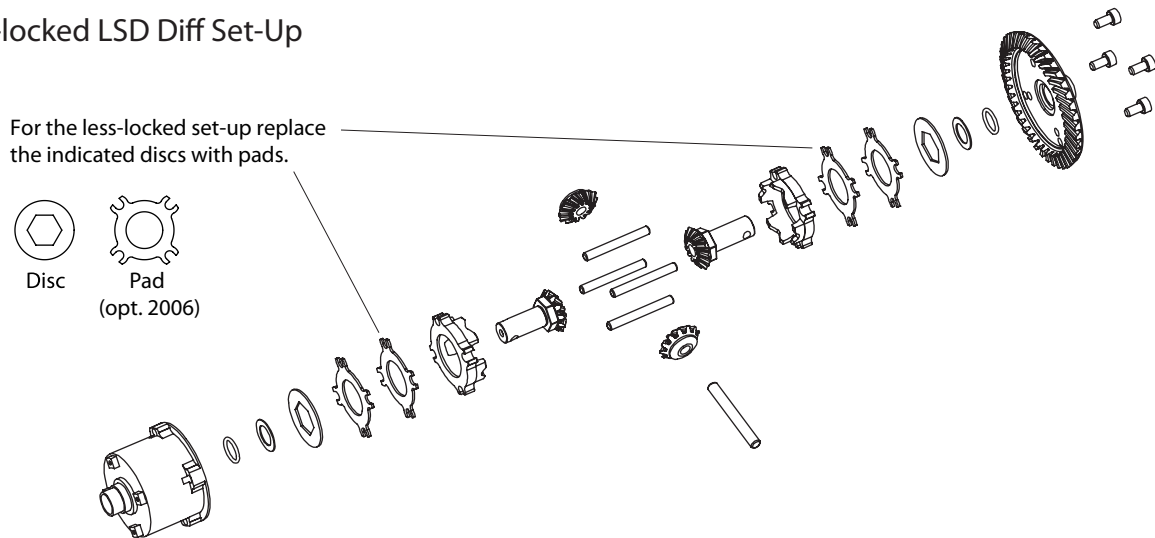


Differential Set-up Options

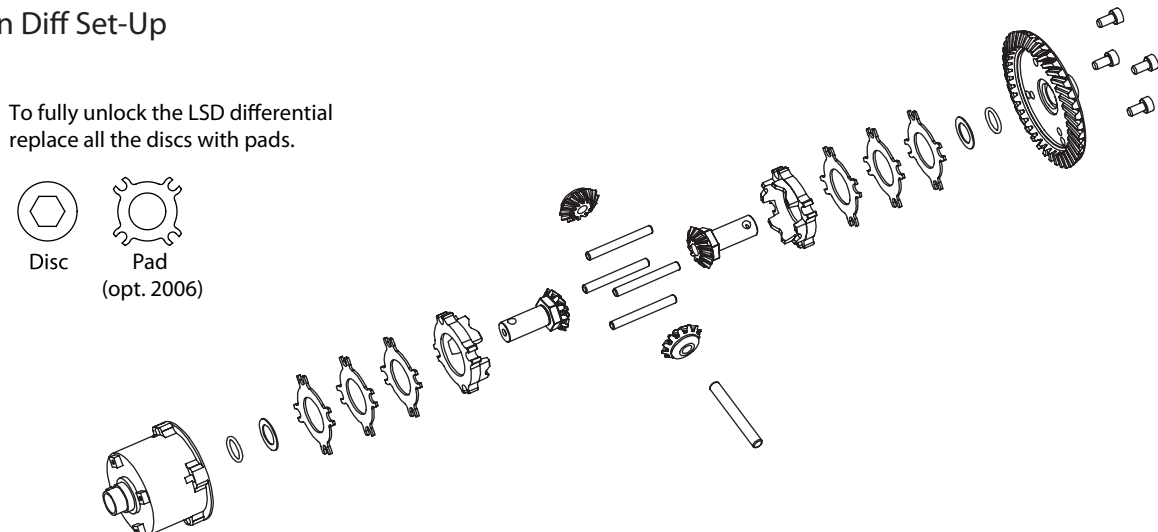
Default LSD Diff Set-Up



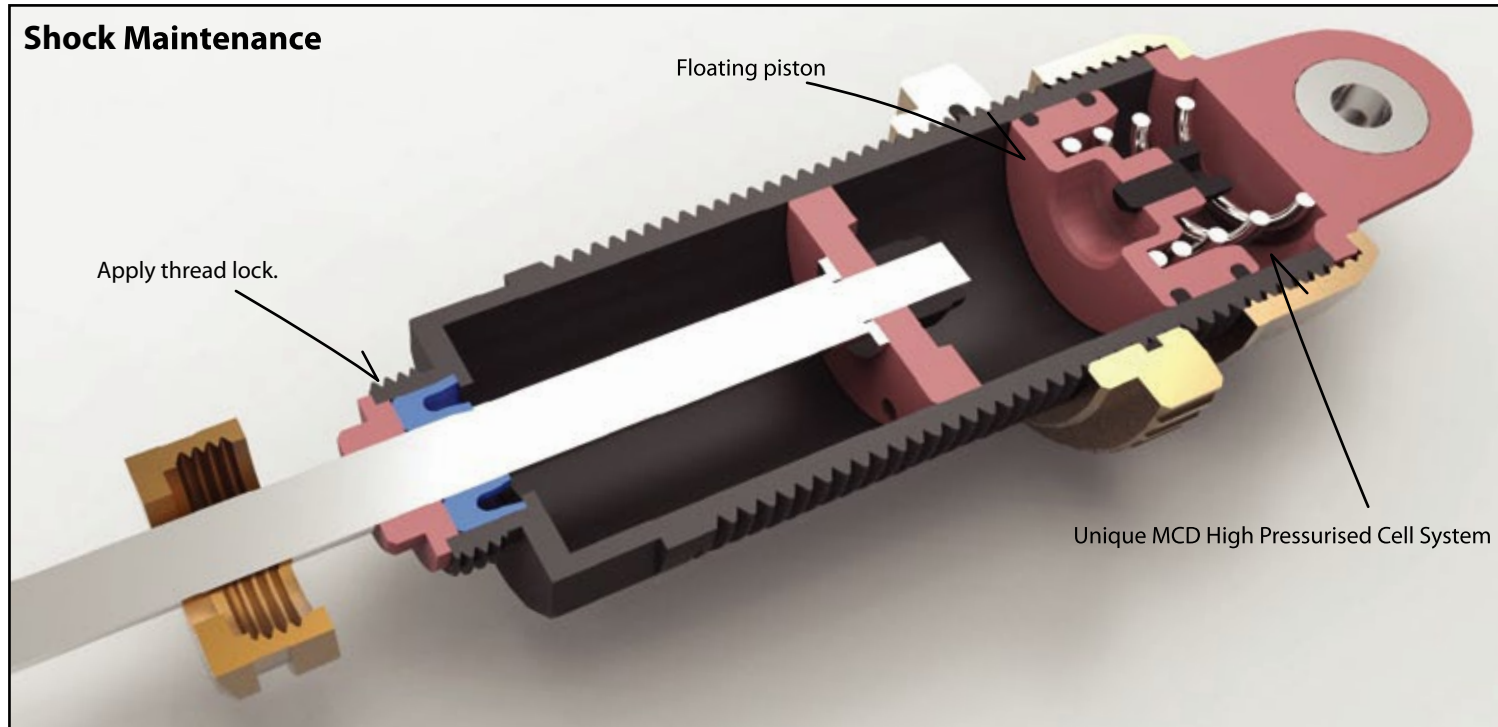
Less-locked LSD Diff Set-Up



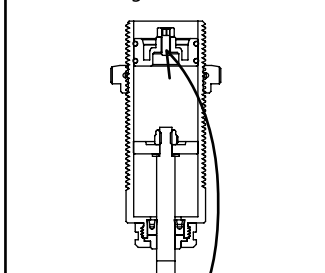
Open Diff Set-Up



Shock Maintenance

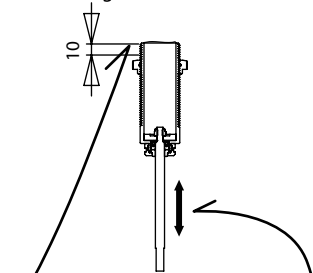


Disassembling Shock

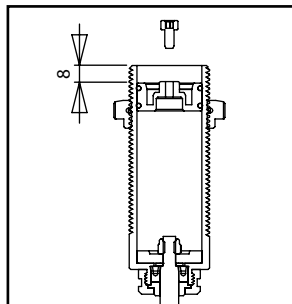


- Remove the lid.
- Remove the screw.
- Rotate the shock upside down and empty oil by pressing the shock shaft.
- Apply force until the floating piston comes out.

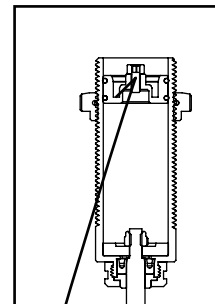
Assembling Shock



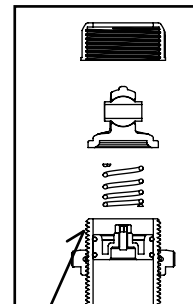
- Fill oil approx. 10mm from the top of the shock body.
- Stroke the shaft up&down approx 20mm for a couple of times.



- Place the floating piston leaving 8mm from the top of the shock body. (The oil will spill) During this step the piston must remain at the bottom.



- Set the screw.
- Empty the overflowed oil



- Apply thread lock.
- Close the lid.

Decal Application



