



**duox**

**INSTRUCTION MANUAL**

**LARGE SCALE TOURING CAR**



## 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.

## Contents

Warranty and Safety Precautions.....	2
Fuel Safety Precautions.....	2
Make sure your car is properly maintained before you start running!.....	3
Operation.....	3
Needed Equipment.....	3
Mounting the Engine.....	4
Gear Ratios.....	4
Air Booster.....	5
Air Booster Assembly.....	5
Servo Installation.....	6
Installing the Throttle & Rear Brake Linkage.....	6
Installing the Front Brake Linkage.....	7
Setting the Brakes.....	7
Installing the Steering Servos.....	8
Shock Maintenance.....	9
Toe Setting.....	9
Hydraulic Differential.....	10
Hydraulic Differential Set-up.....	10



You can download the most up to date exploded views on our website. Please go to: [www.mcdracing.com/support](http://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!

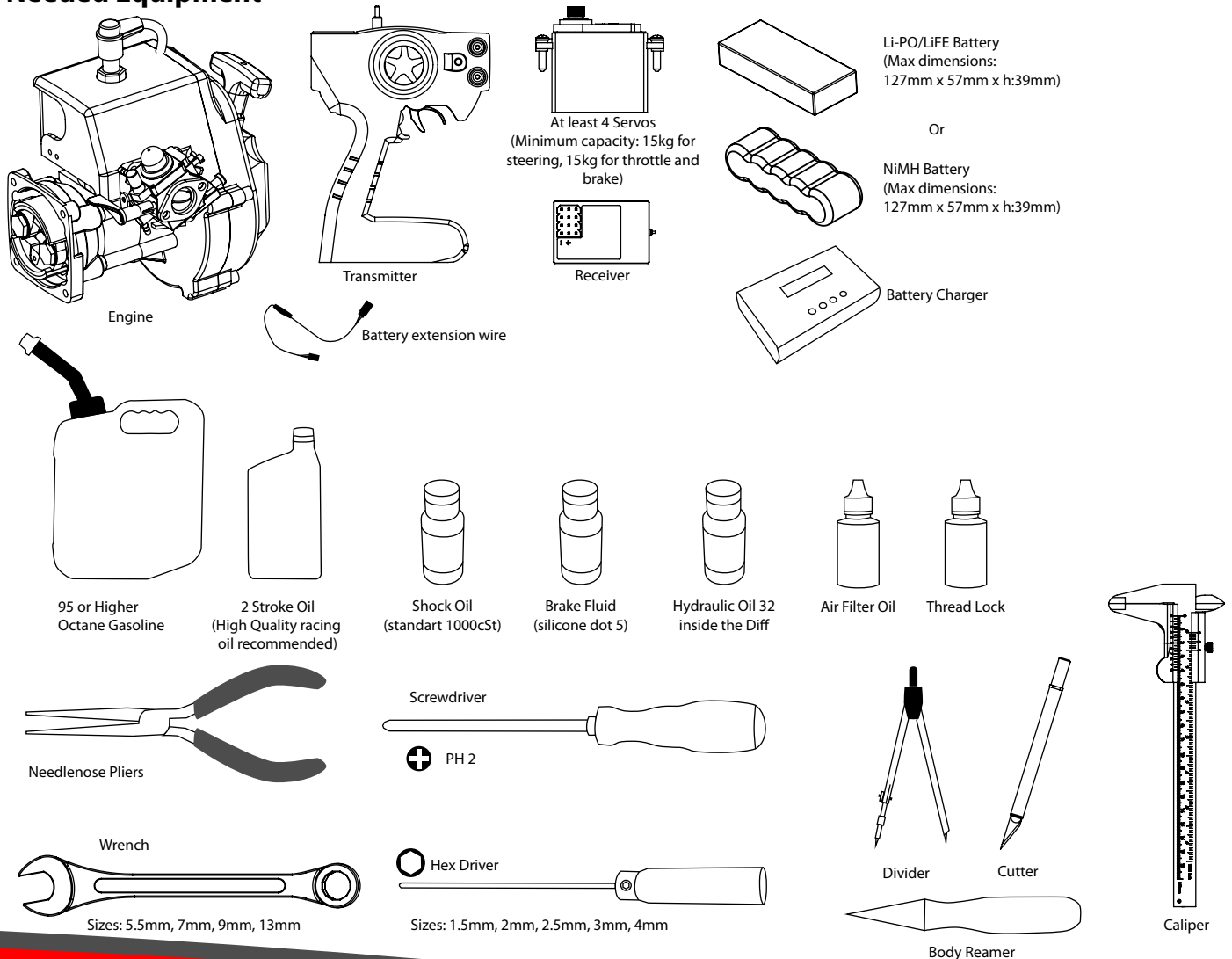
- Check all screws and nuts for a proper and firm seat. Use thread lock, where screws thread into metal.
- Never drive without fully charging batteries for the transmitter and receiver against the risk of a runaway.
- Always check the brake and throttle linkage before you start the engine.
- Be sure 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 grease inside the cup joint boots.
- Always be sure that nobody else uses the same frequency.

## Operation

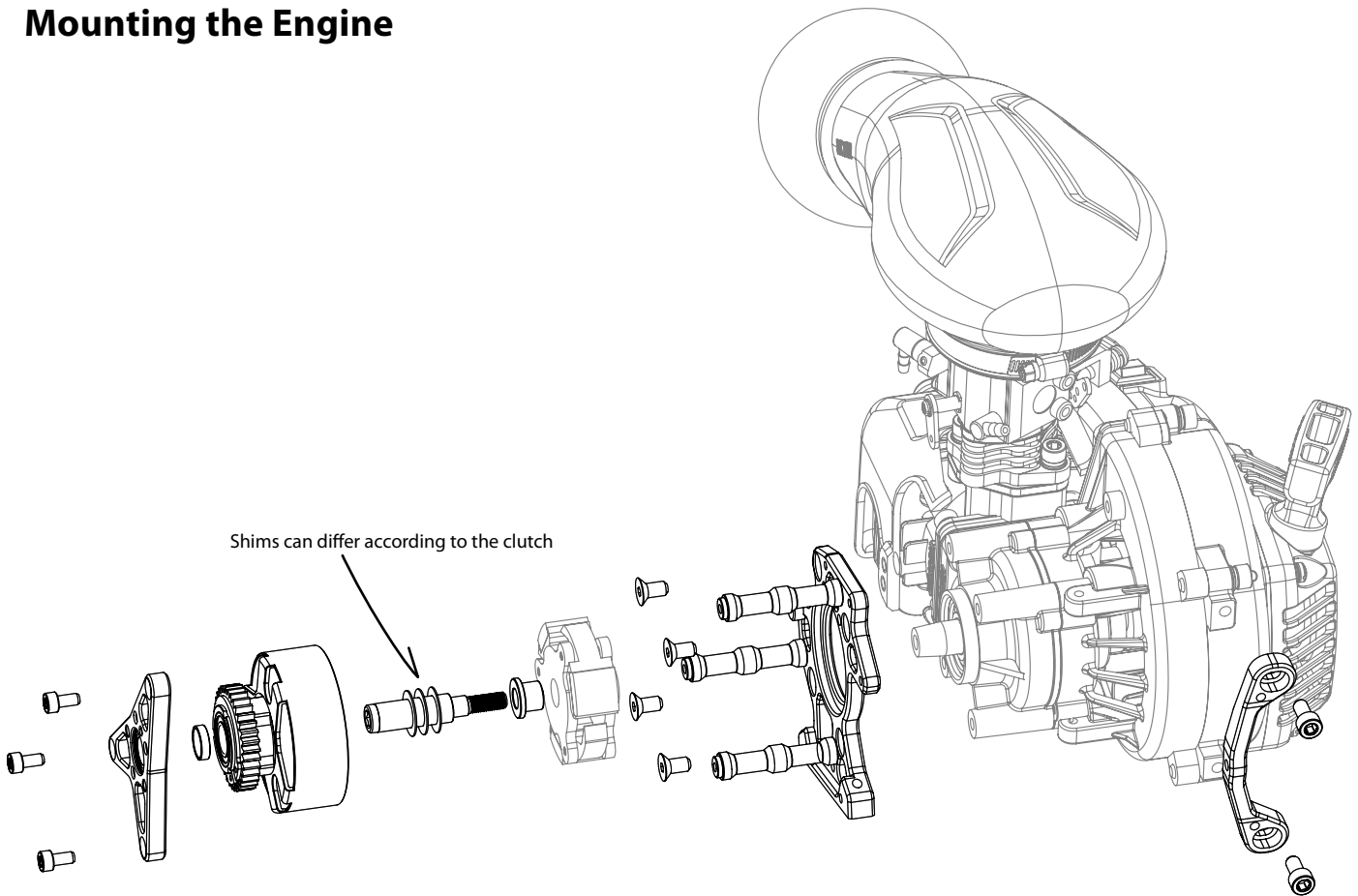
- Exhaust fumes are poisonous. Never operate the engine in closed spaces.
- Break-in procedure should be payed attention.
- Be sure the air filter is clean and well-oiled. Never operate the engine without an air filter attached.
- Check the air filter regularly for eventual damages.
- Use minimum 95 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 Engine




## Gear Ratios

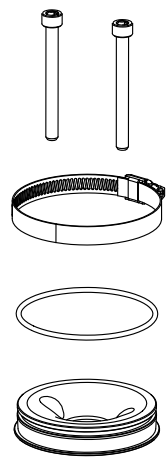
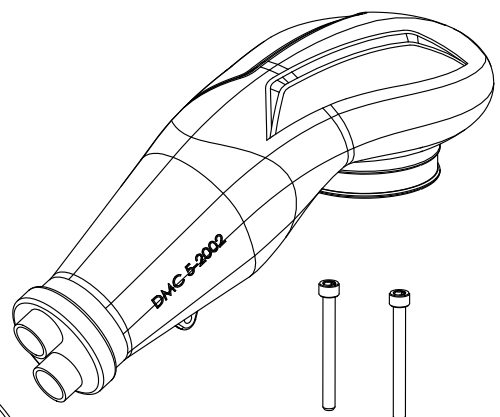
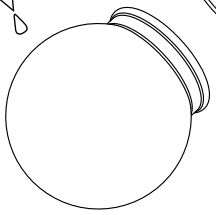
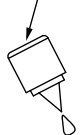
Default Ratio:

Engine	Center/ Engine	Center/ Diff.	Diff.	Final Ratio
39	62	23	73	5,05
38	63	23	73	5,26
37	64	23	73	5,49
36	65	23	73	5,73
35	66	23	73	5,99

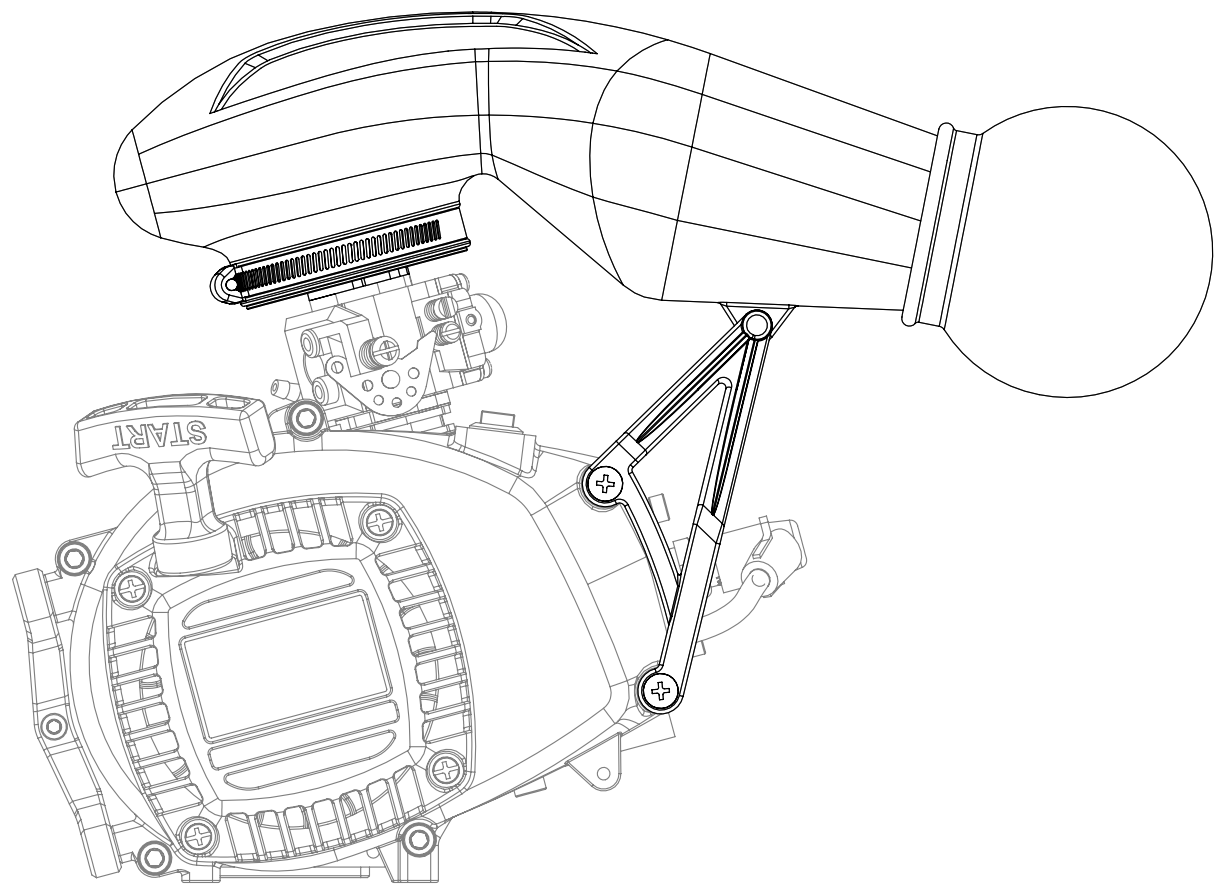
## Air Booster

 **Caution!** Do not use the air booster without oiling. Dust and particle can damage the engine.

APPLY FOAM FILTER OIL!



## Air booster assembly



## Servo Installation

1. Mount the servos on the servo tray from below as shown on **Figure A**.
2. Install the front brake servo horn parallel as shown.
3. Install the steering servos with a slight angle as shown.  
The definitive angles will be determined during the steering installation phase (explained on page 8).
4. Connect the steering servos with a Y cable.
5. Install the rear brake servo horn parallel as shown.
6. Connect the servos to the receiver as indicated on **Figure A**.
7. Mix the 3rd and 2nd channel. (Check your radio booklet for information)

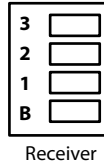
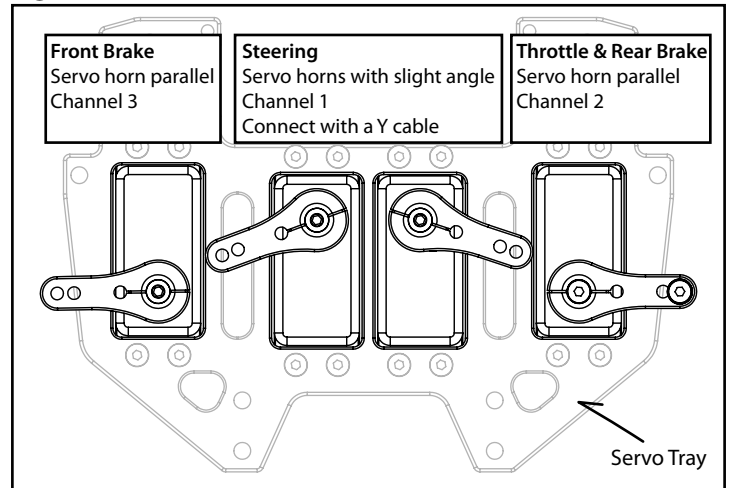


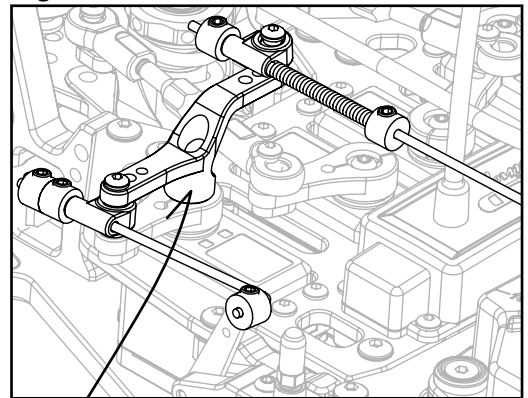
Figure A



## Installing the throttle & rear brake linkage

1. Turn on your radio.
2. Check if servos are functioning.
3. Be sure the servo turns on correct direction. (Throttle direction: CCW, Brake direction: CW. Reverse if direction is not correct!)
4. 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.
5. After completing the previous steps install the throttle and rear brake linkage on the servo horn as indicated in **Figure B**.
6. Install the linkage on the rear brake as shown in **Figure C**.
7. Install the linkage on the carburetor. (**Figure D**)

Figure B



Install the throttle & rear brake linkage on the horn.

Figure C

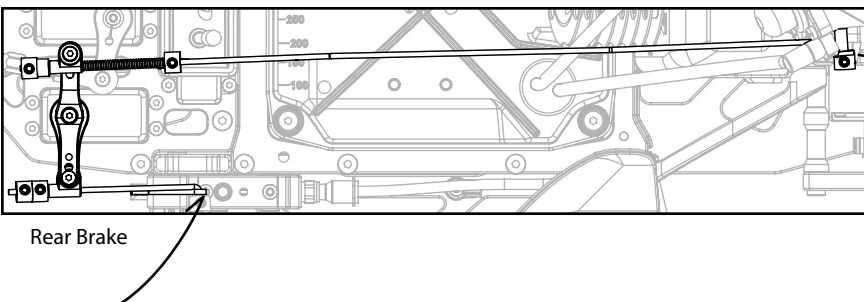
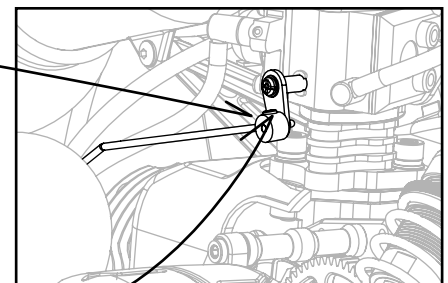


Figure D



Screw from here

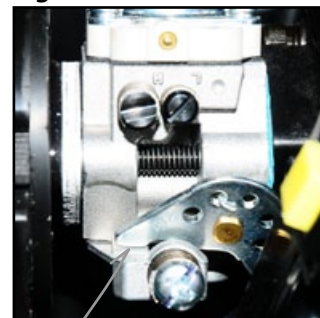
8. Reduce the throttle end point adjustment (EPA) around 50% from the transmitter.
9. Apply full throttle from the trigger. (**Figure E**)

Figure E



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

Figure F



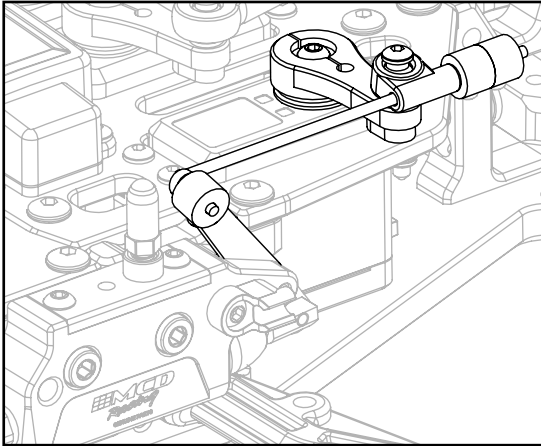
Leave a 0,2 mm gap while on full throttle(12)

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

## Installing the front brake linkage

1. Set the servo horn position parallel as shown in **Figure A**.
2. Connect the front brake linkage to the servo horn as shown in **Figure G**.

**Figure G**



## Setting the brakes

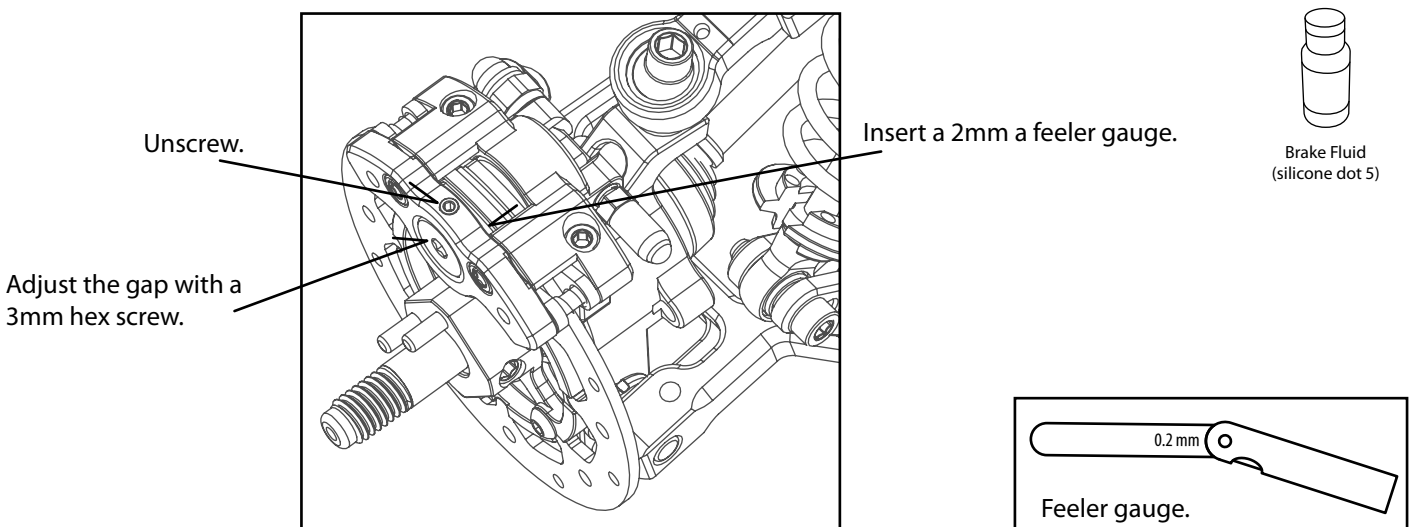
1. After the linkages are installed, switch on your radio and reduce the brake end point from the transmitter EPA menu to 30%.
2. Apply full brake from the trigger and hold.
3. By moving the car back and forth with your hand, start slightly increasing EPA to approx. 50% until the brakes lock.
4. If it doesn't lock at 50% turn back to the step 1 and re-adjust until it locks at 50%.



### **Important!**

During operation the brake pads wear over time causing weakening of the brakes.

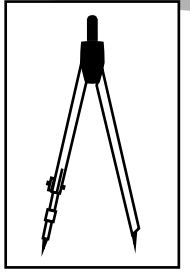
In order to compensate wear over time unscrew the set-screw and insert a 2mm feeler gauge in between the brake pad and the disc. Adjust the gap with a 3mm hex screw.





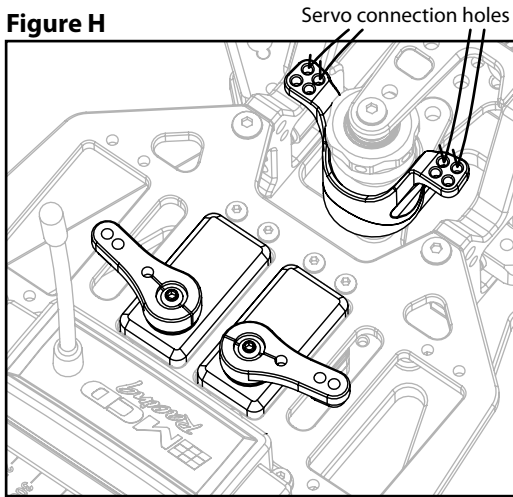
## Installing the steering servos.

1. Install servos as shown in **Figure A**.
2. Insert a 4 mm round pin and lock the Ackerman plate to prevent steering (shown in **Figure I**). Servo saver will be locked in the central position.
3. Make sure you install the steering servo horns with a slight angle as shown on **Figure A**.
4. Mount the steering servo linkages to the correct servo holes according to your servo horns (by default the linkages are mounted on the outer servo holes). **Figure H**
5. Be sure that the **distance D** is equal to the servo horn **distance E** as shown in **Figure I**.

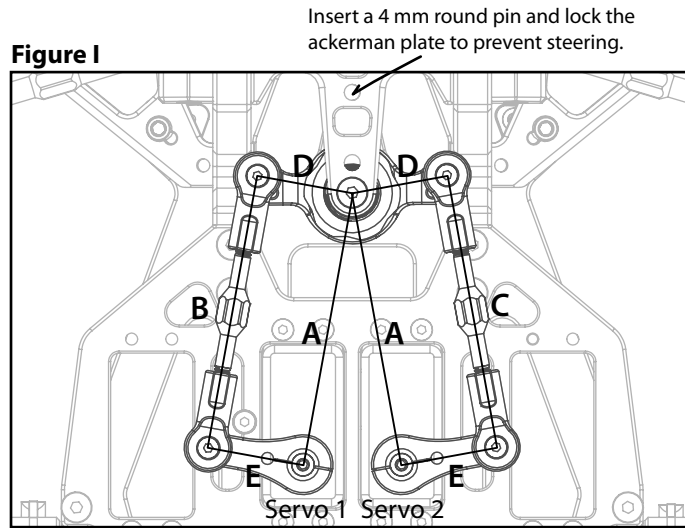


Tip! Use a divider to measure the distances.

**Figure H**



**Figure I**



6. Measure the **distance A** shown in **Figure I** with a divider.
7. Set the servo linkages the same distance with **distance A**.
8. Set steering EPA to approx. %70.
9. From the sub trim menu, adjust the servo horns positions to match the previously adjusted servo linkage lengths.
10. Assemble the linkages on the servo horns.

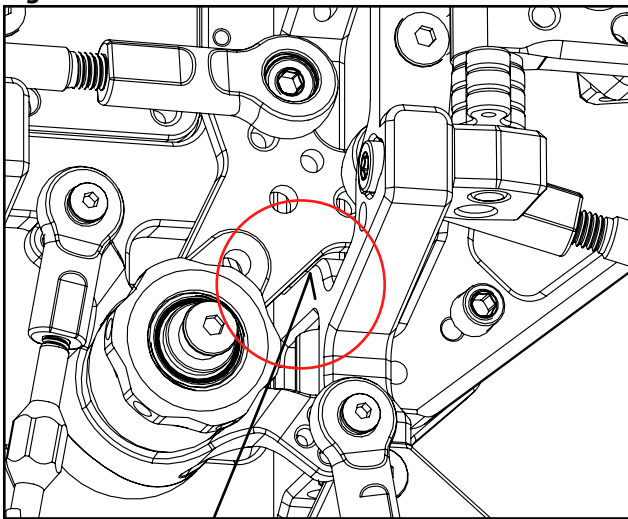


### Caution!

Double-servo installation is critical and should be handled carefully. If not installed properly the servos will work against each other and damage themselves. Be sure that the distances A, B and C are equal!

11. Remove the 4mm round pin inserted in step 2.
12. To set the steering endpoint(EPA), open the EPA menu. Steer until the steering bracket touches to the wishbone tower (shown in **Figure J**) and set your EPA. Do the same step for both left and right.

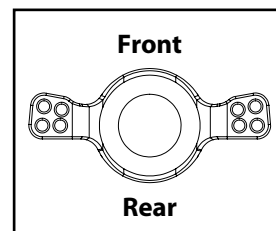
**Figure J**



Steer until the steering bracket touches to the wishbone tower.

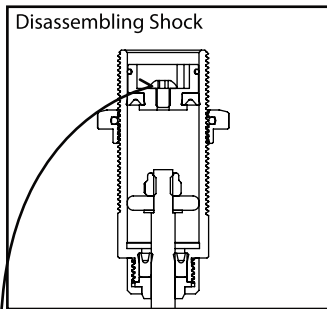
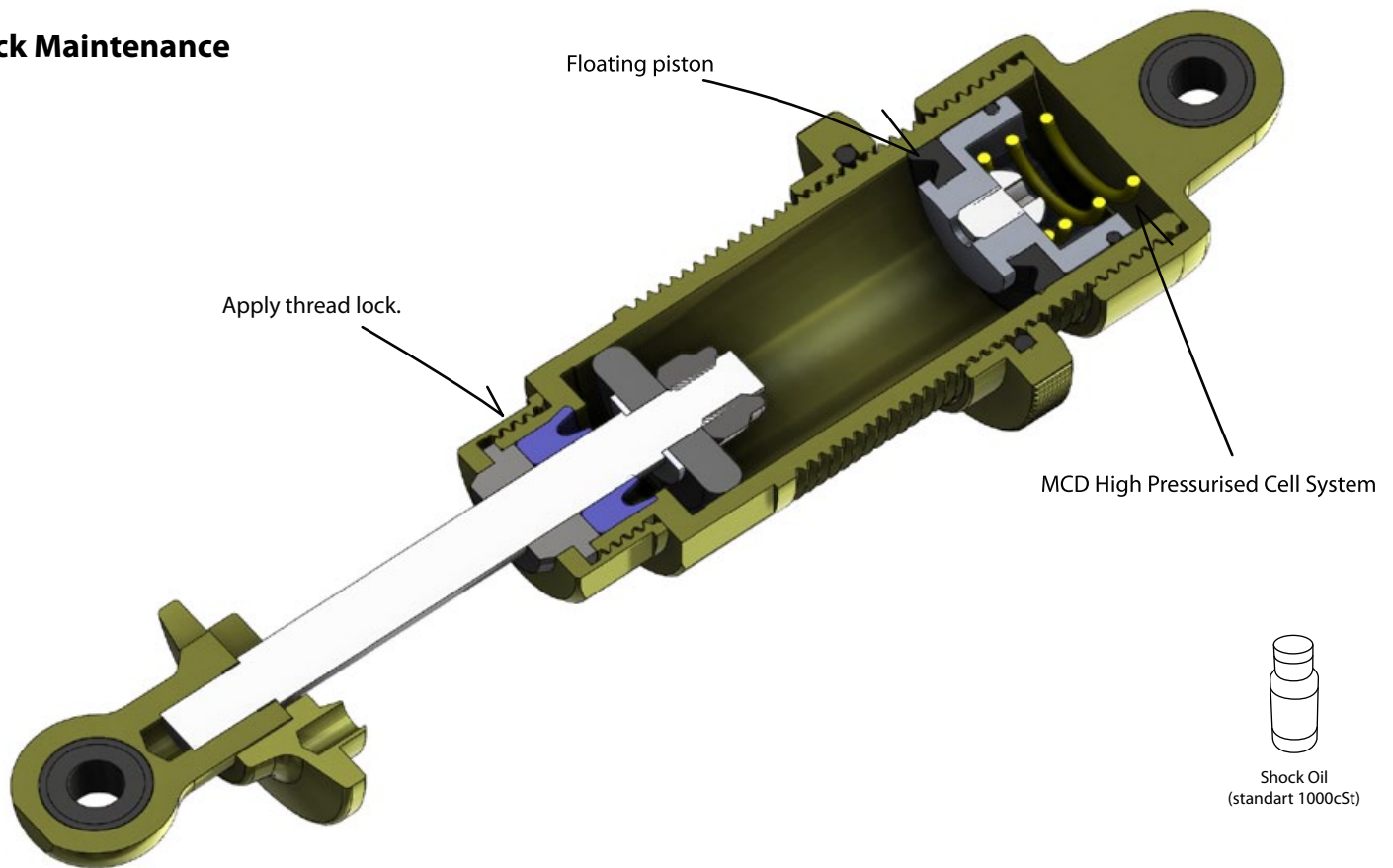


Caution!



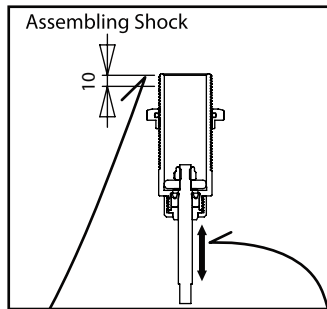
Be sure that the steering servo connection hub is oriented correctly.

## Shock Maintenance



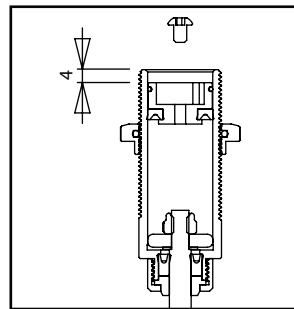
Disassembling Shock

- 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.

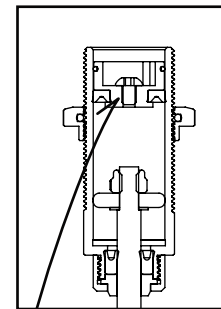


Assembling Shock

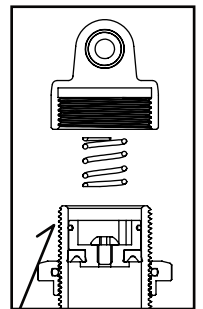
- Fill oil approx. 10mm from the top of the shock body.
- Stroke the shaft up&down approx 20mm for a couple of times.



- 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.

## Toe Setting

### Toe-in:

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

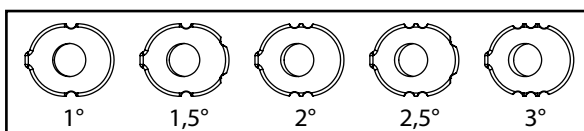
e.g. If the hub will be installed on the left side, the inserts should be pointing L for toe-in.

### Toe-out:

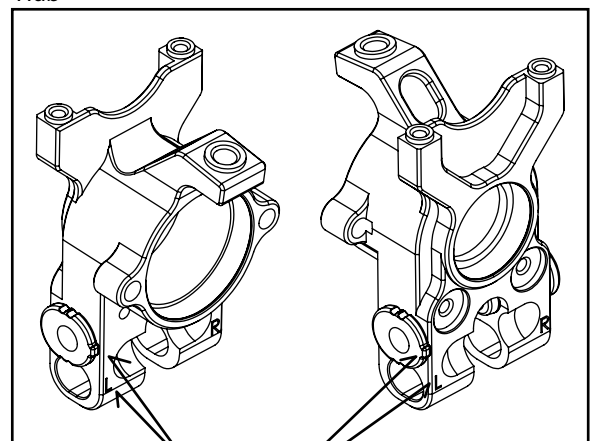
Though not used frequently if toe-out is desired in the rear, simply swap left and right hubs. You will obtain same amount of toe-out.

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.

### Toe inserts angles:

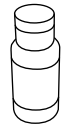
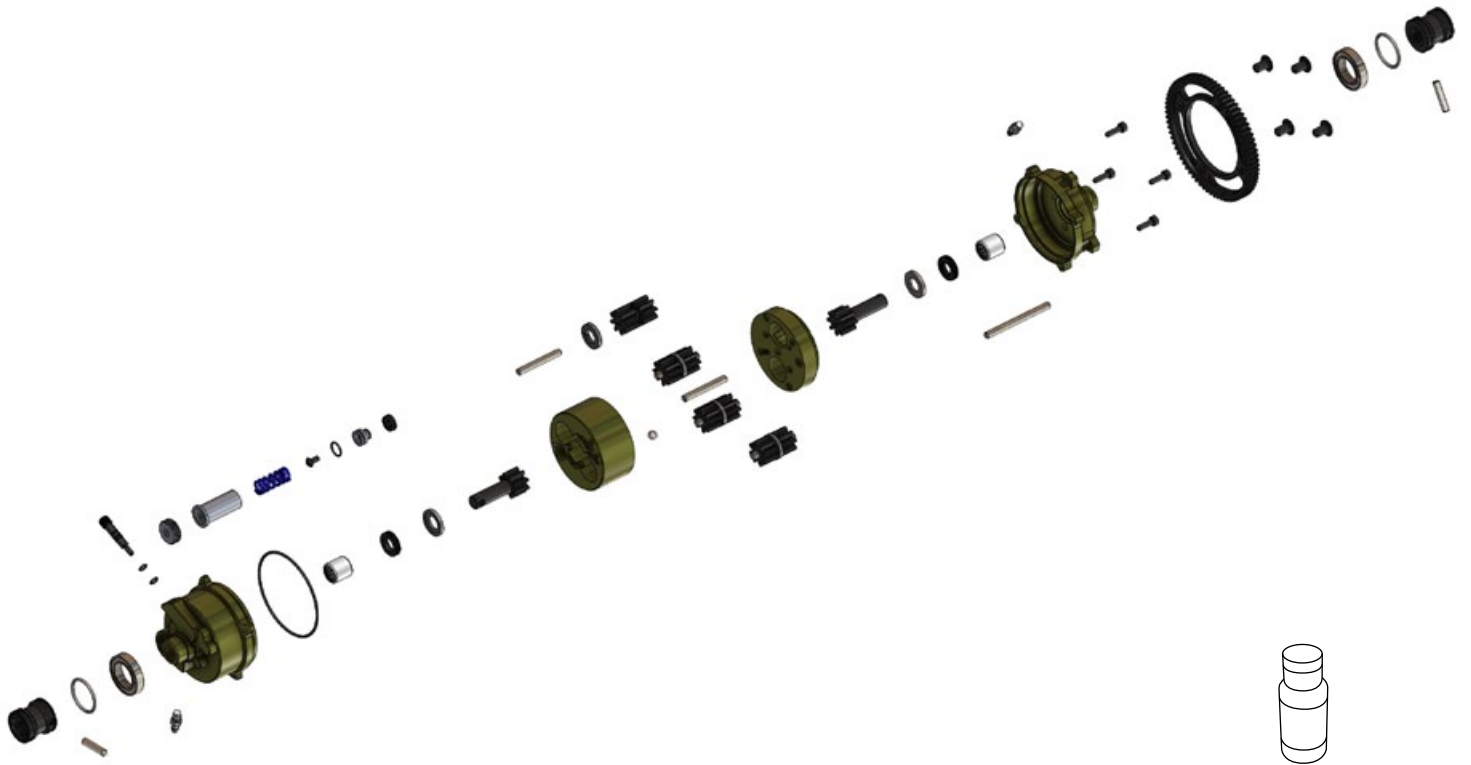


### Hub



Toe inserts pointing left for left side.

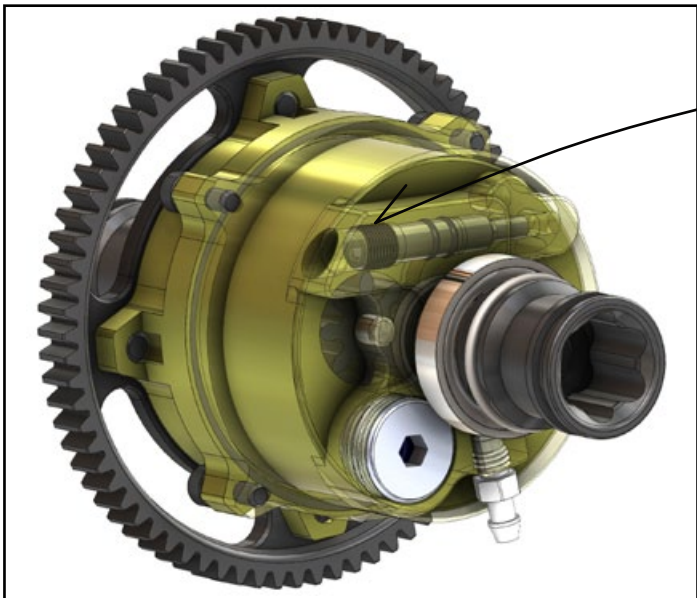
# Hydraulic Differential



Hydraulic Oil 32  
inside the Diff

## Hydraulic Diff Set-Up

Lock or unlock the hydraulic diff with the adjusting screw. Loosen the screw for slipping, tighten for locking.



Adjusting screw



### Caution!

The hydraulic diff contains pressured oil. Do not fully open the diff.



Maintain differential every 20 tanks.

