FURY

Version 1.1

by Awesome Bob

thanks Rob K
Rick V
Dave S

1-JUL-21

NEWMEXICON

Before you start

The Norsemen Fury is a competition level Radio Controlled scale car intended for persons aged 16 years and older with previous experience building and operating RC model racing cars. This is not a toy - it is a precision racing model. This model racing car is not intended for use by beginners, inexperienced customers, or inexperienced racers or by children without direct supervision of a responsible, knowledgeable adult. Before building and operating your Fury, YOU MUST read and fully understand the assembly instructions and operating manual to achieve maximum enjoyment and prevent unnecessary damage.

Contents of the box may differ from illustrations. The exact specifications of the kit may vary without prior notice.
Take appropriate safety precautions prior to operating this model. You are responsible for this model‘s assembly and safe operation!

Please read the instruction manual before building and operating this model and follow all safety precautions.

Important Notes

- This product is not suitable for children under 16 years of age without the direct supervision of a responsible and knowledgeable adult.
- Carefully read all manufacturers warnings and cautions for any parts used in the construction and use of your model.
- Assemble this kit only in places away from the reach of very small children.
- First-time users should seek advice from people who have building experience in order to assemble the model correctly and to allow the model to reach its performance potential.
- Exercise care when using tools and sharp instruments.
- Take care when building, as some parts may have sharp edges.
- Keep small parts out of reach of small children. Children must not be allowed to put any parts in their mouth, or pull vinyl bag over their head.
- Read and follow instructions supplied with paints and/or cement, if used (not included in kit).
- Do NOT touch the motor and speed controller immediately after uses because they generate high temperatures. You may burn yourself seriously.
- Follow the operating instructions for the radio equipment at all times.
- Do not put fingers or any objects inside rotating and moving parts, as this may cause damage or serious injury as your finger, hair, clothes, etc. may get caught.
- Be sure that your operating frequency is clear before turning on or running your model, and never share the same frequency with somebody else at the same time. Ensure that others are aware of the operating frequency you are using and when you are using it.
- Use a transmitter designed for ground use with RC cars. Make sure that no one else is using the same frequency as yours in your operating area. Using the same frequency at the same time, whether it is driving, flying or sailing, can cause loss of control of the RC model, resulting in a serious accident.
- Always turn on your transmitter before you turn on the receiver in the car. Always turn off the receiver before turning your transmitter off.
- Keep the wheels of the model off the ground when checking the operation of the radio equipment.
- Disconnect the battery pack before storing your model.
- When learning to operate your model, go to an area that has no obstacles that can damage your model if your model suffers a collision.
- Remove any sand, mud, dirt, grass or water before putting your model away.
- If the model behaves strangely, immediately stop the model, check and clear the problem.
- To prevent any serious personal injury and/or damage to property, be responsible when operating all remote controlled models.
- The model car is not intended for use on public places and roads or areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- Because the model car is controlled by radio, it is subject to radio interference from many sources that are beyond your control. Since radio interference can cause momentary loss of control, always allow a safety margin in all directions around the model in order to prevent collisions.
- Do not use your model:
  - Near real cars, animals, or people that are unaware that an RC car is being driven.
  - In places where children and people gather
  - In residential districts and parks
  - In limited indoor spaces
  - In wet conditions
  - In the street
  - In areas where loud noises can disturb others, such as hospitals and residential areas.
  - At night or anytime your line of sight to the model may be obstructed or impaired in any way.

Before you start

To prevent any serious personal injury and/or damage to property, please be responsible when operating all remote controlled models.

Electrical Notes

• Insulate any exposed electrical wiring (using heat shrink tubing or electrical tape) to prevent dangerous short circuits. Take maximum care in wiring, connecting and insulating cables. Make sure cables are always connected securely. Check connectors for if they become loose. And if so, reconnect them securely. Never use RC models with damaged wires. A damage wire is extremely dangerous, and can cause short-circuits resulting in fire. Please have wires repaired at your local hobby shop.
• Low battery power will result in loss of control. Loss of control can occur due to a weak battery in either the transmitter or the receiver. Weak running battery may also result in an out of control car if your car‘s receiver power is supplied by the running battery. Stop operation immediately if the car starts to slow down.
• When not using RC model, always disconnect and remove battery.
• Do not disassemble battery or cut battery cables. If the running battery short-circuits, approximately 300W of electricity can be discharged, leading to fire or burns. Never disassemble battery or cut battery cables.
• Use a recommended charger for the receiver and transmitter batteries and follow the instructions correctly. Over-charging, incorrect charging, or using inferior chargers can cause the batteries to become dangerously hot. Recharge battery when necessary. Continual recharging may damage battery and, in the worst case, could build up heat leading to fire. If battery becomes extremely hot during recharging, please ask your local hobby shop for check and/or repair and/or replacement.
• Regularly check the charger for potential hazards such as damage to the cable, plug, casing or other defects. Ensure that any damage is rectified before using the charger again. Modifying the charger may cause short circuit or overcharging leading to a serious accident. Therefore do not modify the charger.
• Always unplug charger when recharging is finished.
• Do not recharge battery while battery is still warm. After use, battery retains heat. Wait until it cools down before charging.
• Do not allow any metal part to short circuit the receiver batteries or other electrical/electronic device on the model.
• Immediately stop running if your RC model gets wet as may cause short circuit.
• Please dispose of batteries responsibly. Never put batteries into fire.

Building Tips

• Make sure all fasteners are properly tightened. Check them periodically.
• Make sure that chassis screws do not protrude from the chassis.
• For the best performance, it is very important that great care is taken to ensure the free movement of all parts.
• Clean all ball-bearings so they move very easily and freely.
• Tap or pre-thread the plastic parts when threading screws.
• Self-tapping screws cut threads into the parts when being tightened. Do not use excessive force when tightening the self-tapping screws because you may strip out the thread in the plastic. We recommended you stop tightening a screw when you feel some resistance.
• Ask your local hobby shop for any advice

To prevent any serious personal injury or damage to property, please be responsible when operating all remote controlled models. Failure to follow these instructions will be considered as abuse and/or neglect. We have made reasonable effort to make these instructions as easy to understand as possible. If you have any difficulties, problems, or questions, please contact the Norsemen team at support@norsemen-rc.com. Also, please visit our Web sites Norsemen-rc.com and www.facebook.com/NorsemenRC.

How to use this manual

The manual has two sections, Front Assembly and Rear Assembly with Final Assembly Notes.

The layout was designed to be viewed on electrical devices such as laptops, tablets, or phones. We discourage printing to save or prioritize resources. Please view our sustainability policy on our web site at www.norsemen-rc.com/

It will instruct how to build a typical CARPET car for RUBBER tires, while showing included setup choices and after market optional parts. Additional symbols used in the manual indicate:


Important instruction - so you don't make a building mistake


Building tip - to make assembly easier


Setup tip - to help you go faster on track ⟶ Refer to the setup sheet for more information

Make multiples - just one won't be enough


Add oil, lube, grease, or fluid - or the car won't drive properly


Optional parts - can find these on our website

Items not included in this kit to make the car functional are:

Tools

- 1.5mm allen driver
- 2.0mm allen driver
- 2.5mm allen driver
- 3.0mm allen driver
- 5.5mm socket
- 7.0mm socket
- Calipers
- Pliers
- Scissors
- Turnbuckle wrench

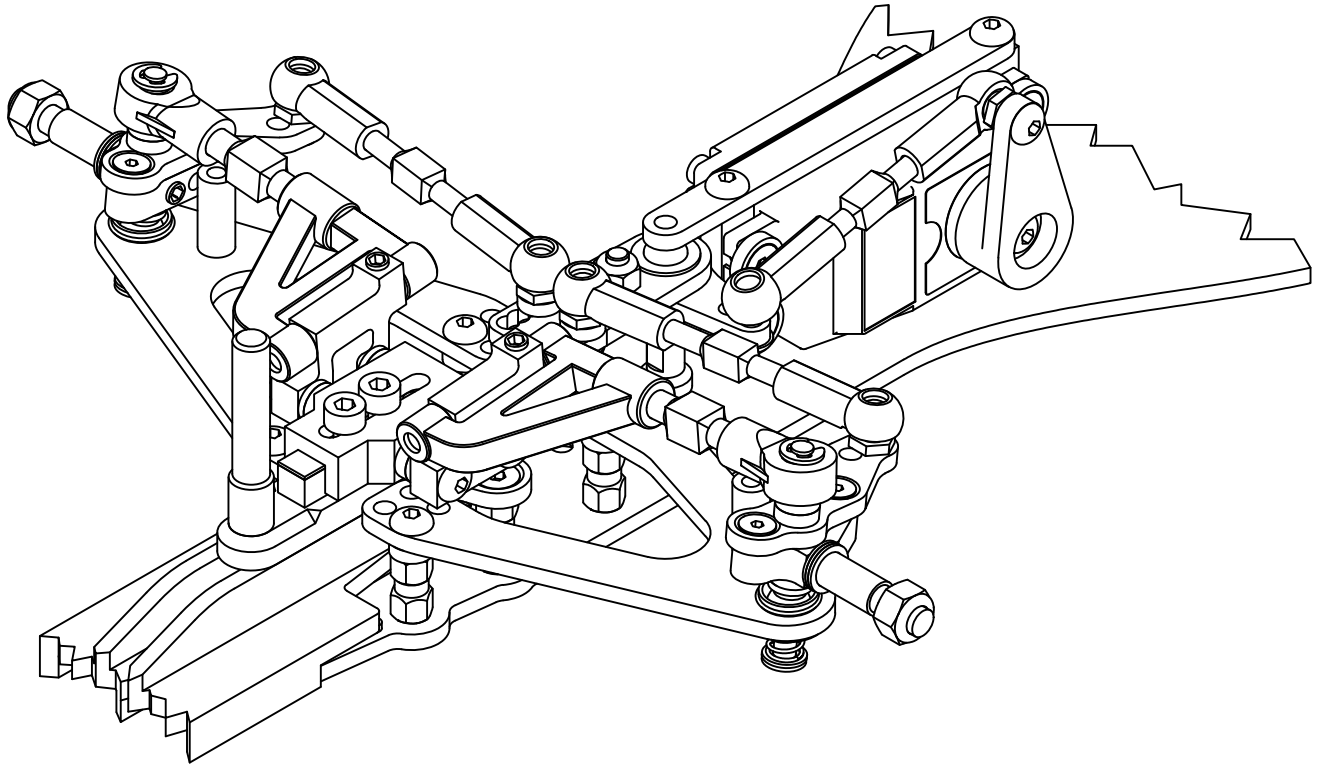
Equipment

- Transmitter
- Receiver
- Steering servo
- Servo arm
- Motor
- Pinion
- Speed controller
- Battery
- Body
- Front wing
- Rear wing
- Tires

Other items

- Charger
- Double sided tape
- Paint
- Silicon oils
- Diff grease
- Setup station
- Driving skill

Front Assembly - Overall



Screws	
Qty	Part
4	M2.5x6-FH
11	M3x6-FH
5	M3x8-FH
2	M4x18-FH
8	M3x6-BH
7	M3x8-BH
4	M3x10-BH
4	M3x12-BH
1	M3x6-CH
1	M3x8-CH
4	M3x4-Set

Carbon	
Qty	Part
1	F1001
1	F1018-S
1	F1018-L
2	F1019
1	F1020
1	F1021
1	F1022-S
1	F1022-L *opt*
1	F1023

Aluminum	
Qty	Part
1	F1106
1	F1107
2	F1108-C0 *opt*
2	F1109-C5
2	F1110-C10 *opt*
1	F1111-05
1	F1112-1
2	F1113
1	F1114
2	F1116

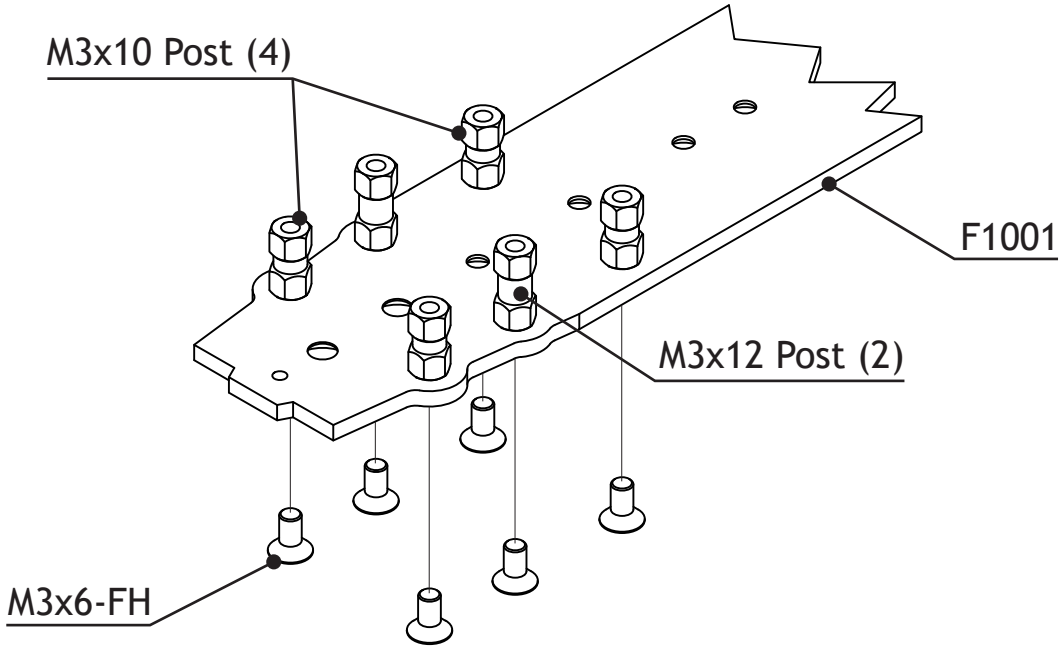
Hardware	
Qty	Part
4	M3x10 Post
2	M3x12 Post
2	M3x12 Post-R
4	M2.5 e-clip
6	M3 Hex ball
2	M5 Ball-short
2	M5 Ball-tall
6	M3 Ball end
2	M4 Ball end
1	M3x25 Rod
2	M3x35 Rod
2	M4x25 Rod
2	M4x30 Rod *opt*
2	King pin
2	M3x26 pin
2	Spring
2	MF85ZZ Bearing
3	M3 Lock nut
2	M4 Wheel nut

Shims	
Qty	Part
4	M3x0.25
8	M3x0.5
16	M3x1.0
14	M3x2.0
3	M3x3.0
4	M3-FH
8	7x5x0.5
2	10x8x0.1

Plastic	
Qty	Part
3	F1211-05
2	F1212-1
2	A-arm
1	Body post
2	Ball insert
2	Insert O-ring

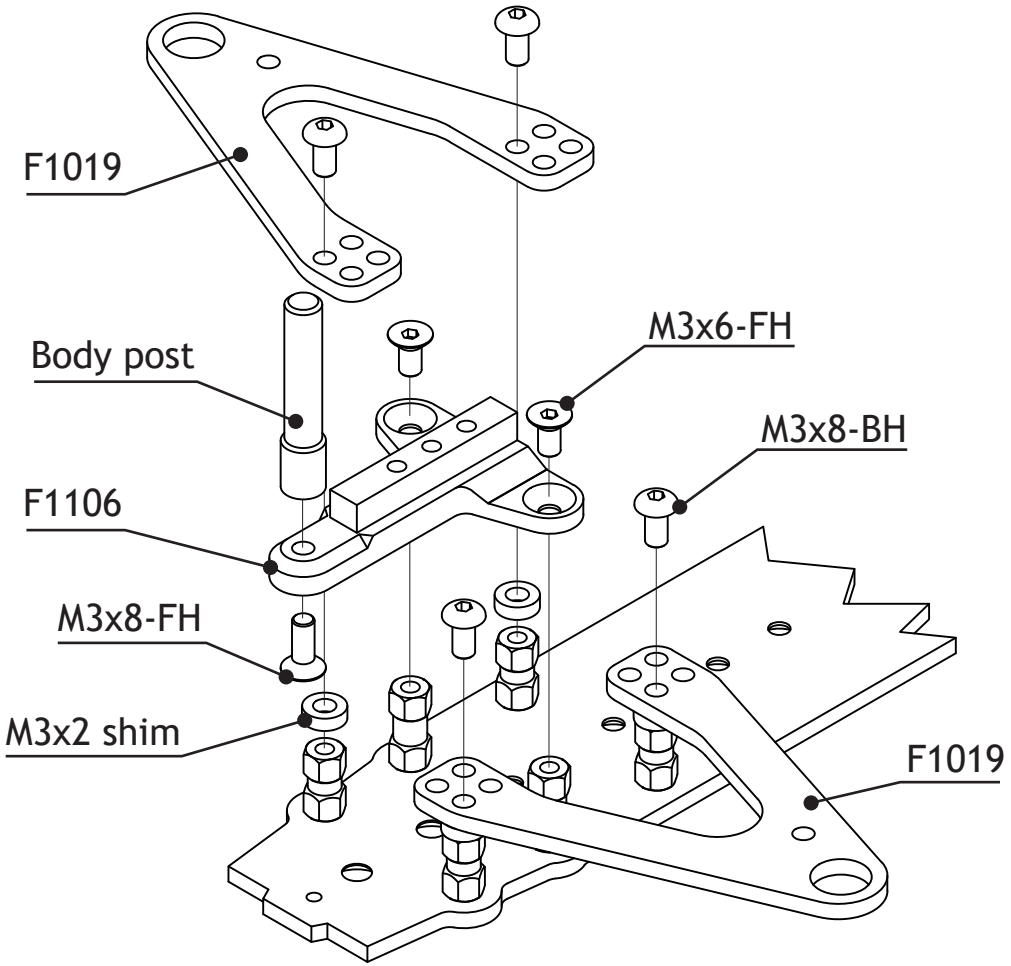
Front Assembly - Step 1

1. Fasten the posts to the chassis with M3x6-FH screws.



Front Assembly - Step 2

1. Fasten Body post to F1106 with M3x8-FH screws.
2. Use two M3x6-FH screws to bolt F1106 to M3x12 Posts.
3. Place M3x2 shims on the M3x10 Post before fastening both F1019 arms with M3x6-BH screws.



Orientation of left and right F1019 arms.

Roll Center

The shims under F1019 determine *Roll Center* and affect *Ride Height*.

Lower arm = **Lower** RC
Front will roll **More**

Higher arm = **Higher** RC
Front will roll **Less**

Shim range height is about 9mm - 12.5mm.

Generally, a lower RC is better on tracks with less grip, such as asphalt. Higher RC is better on carpet tracks. Your tire selection affects how your car uses the available grip in the track surface and the RC setting can adjust how much weight gets transfered to the tires.

Please experiment for best setting on your track.

Ride Height

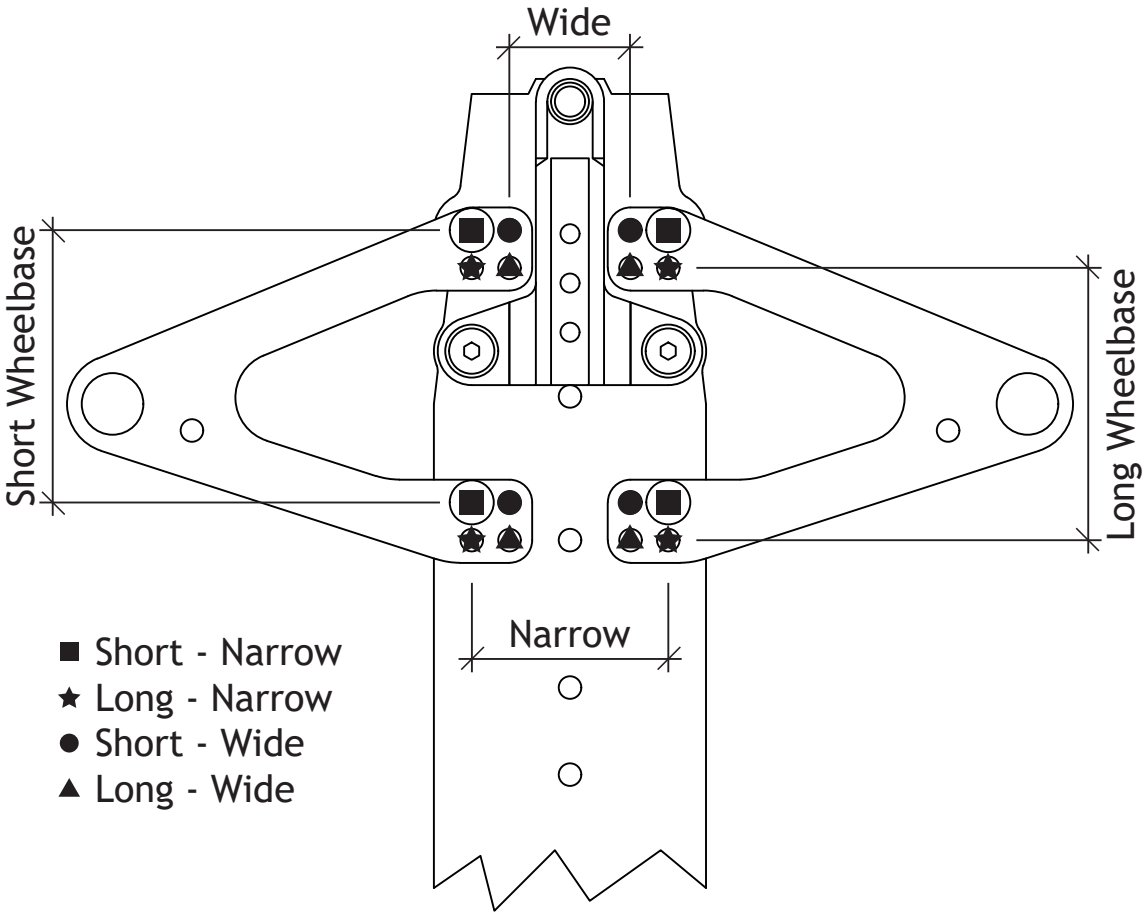
The shims under F1019 affect *Ride Height*. Adjusting the height of the F1019 arm determines how high the steering knuckle sits on the king pin making the desired ride height. The higher the steering knuckle sits on the king pin, the lower the RC. Please see above, page 15, and page 31 for more information.

Shim range height is about 9mm - 12.5mm.

Typical ride height for carpet is about:
4.0mm front - 4.4mm mid - 4.6mm rear

The four shims under the F1019 arms MUST be equal.

Front Assembly - Step 2 continued



The left and right F1019 arms MUST use the same hole setting.

Width

Current F1 kits have separate width setting on the lower arms to accommodate different tire manufactures. Some wheels like Volante and Rush need the wide setting to maximize width at the standard 190mm limit. Most other tire manufactures will work with the narrow setting.

Wide settings at 190mm are generally used on low grip surfaces, like asphalt, to keep the front planted and stable. However, a narrow setting usually generates more grip as it is easier to transfer weight to the tires.

Please experiment for best setting on your track. See page 44 for more information.

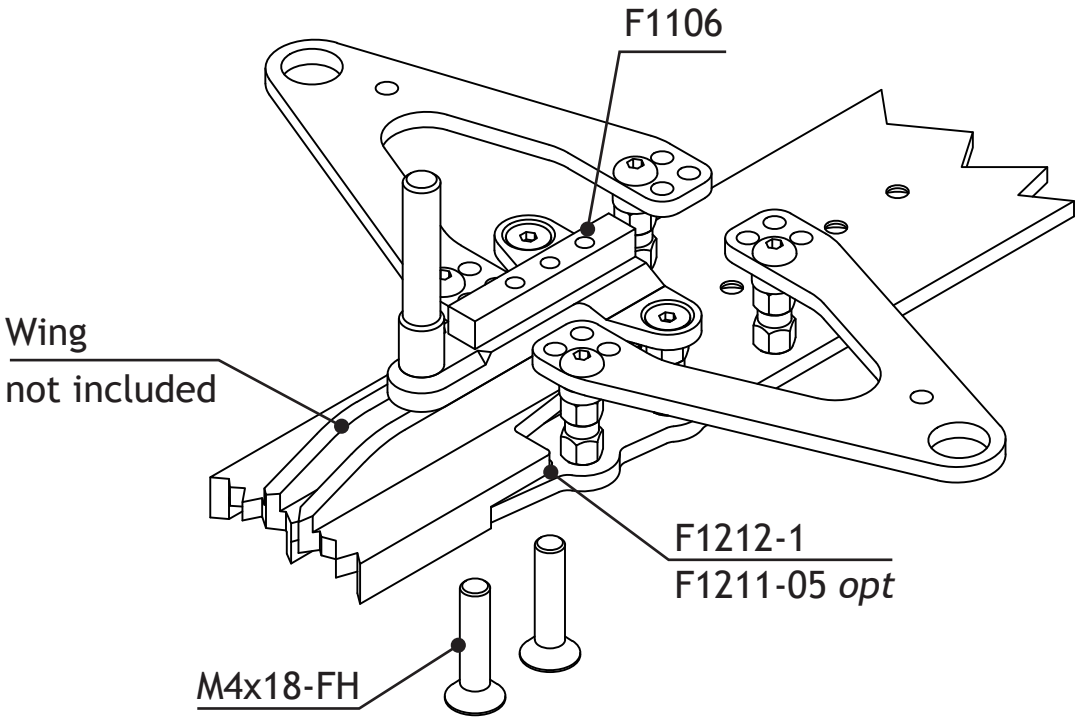
Wheelbase

Wheelbase is the distance between the front and rear axles. Generally, a long wheelbase is good on large, open fast tracks. A short wheelbase is useful on small tracks with tight turns.

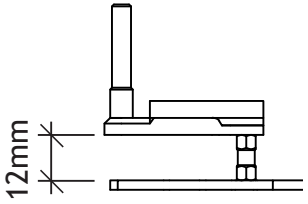
The Fury has wheelbase adjustments on the front and rear, so one could keep a desired length setting AND move weight bias forward or rearward by adjusting wheelbase. See page 31 for more information.

Front Assembly - Step 3

1. Measure wing mount area to determine if trimming or shims are needed.
2. Place appropriate shims to raise wing and fill 12mm space under F1106.
3. Fasten wing to F1106 with M4x18-FH screws.



The wing MUST fill the 12mm space under F1106 snuggly.



Wing Treatment

After installation, trim all plastic material under the wing to ensure the chassis lays flat on a setup board.

Wing Selection

The wing mounting area is 12mm tall maximum. Some wings will need to be trimmed to fit. Other wings will need shims.

The Tamiya wing (51604) and all Mon-tech wings and clones work well with the supplied 1mm plastic shim.

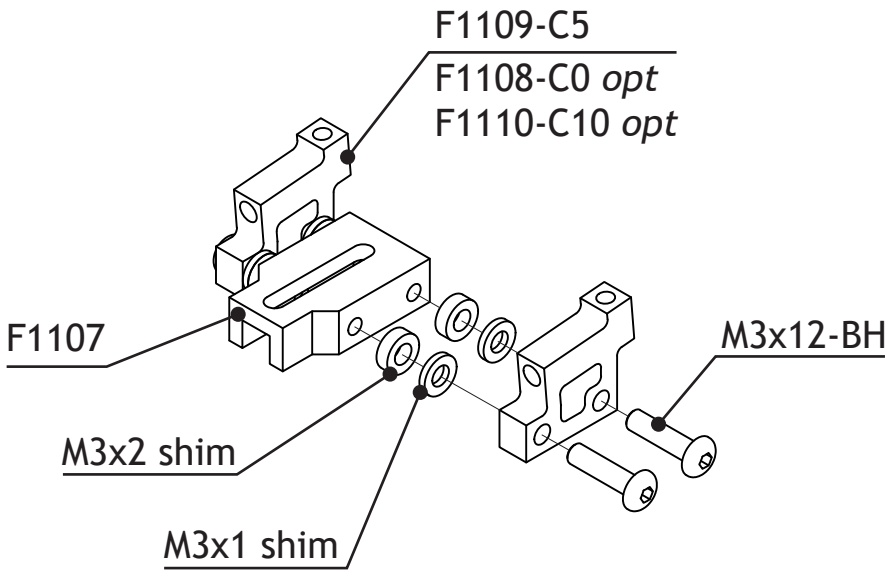
Aerodynamics

Our belief is the front wing provides zero down force at the current speeds with a 21.5 motor. The front wing is simply a great looking bumper.

However, changing the ***weight*** of your front wing by selecting different types can be a fine weight transfer tuning option.

Front Assembly - Step 4

1. BH screws bolt through the F1109-C5 caster upright, through shims, and into F1107 Caster Slide.
2. Repeat for both sides.



The same caster mount type MUST be used on both sides.

The same number of shims MUST be used on both sides.

Different length BH screws may be needed when adjusting shims.

Reactive Caster

Reactive Caster is a change in caster when the suspension compresses or rises. Most F1 cars do not have this option and are restricted to 0º.

The Fury has reactive caster options at 0º, 5º, and 10º.

More reactive caster usually allows greater initial steering going into a corner and provides a quicker steering response - a more twitchy car. We use this on small, tight tracks.

Less reactive caster is smoother into the corner and easier to drive. We use this on large, fast tracks.

Camber Gain

Camber Gain is the increase in camber as the suspension is compressed. This is controlled by the length of the upper suspension arm. Most F1 cars do not have this adjustment.

The Fury controls camber gain by the number of shims between F1107 and the reactive caster mounts.

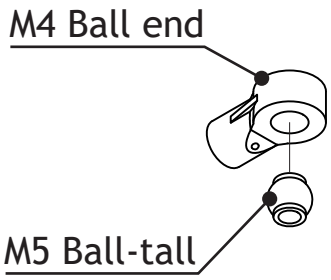
Less shims = **Longer** link = **Less** camber gain.
Used to dull the steering response and reduce initial steering.

More shims = **Shorter** link = **More** camber gain.
Used to increase initial steering into the corner and increase steering response - a more twitchy car.

Front Assembly - Step 5

1. Insert M5 Ball-tall into M4 Ball end on side with the dot.
2. Assemble upper arm with A-arm, Rod, and Ball end.

2X Assemble 2



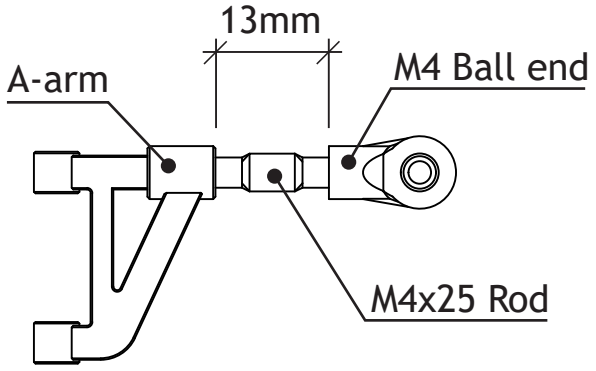
Push ball into side with dot.

Free Movement

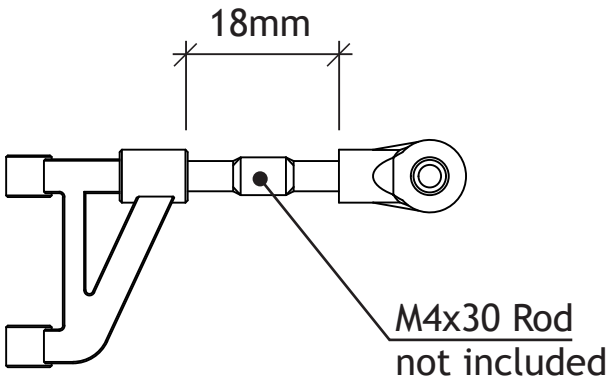
If the Balls do not rotate freely within the Ball ends, put slight pressure on the sides of the Ball ends with pliers. Rotate the Ball ends and repeat pressure until the Ball moves freely.

2X Assemble 2

NARROW SETTING



WIDE SETTING



M4x30 Rod is required for wide setting.

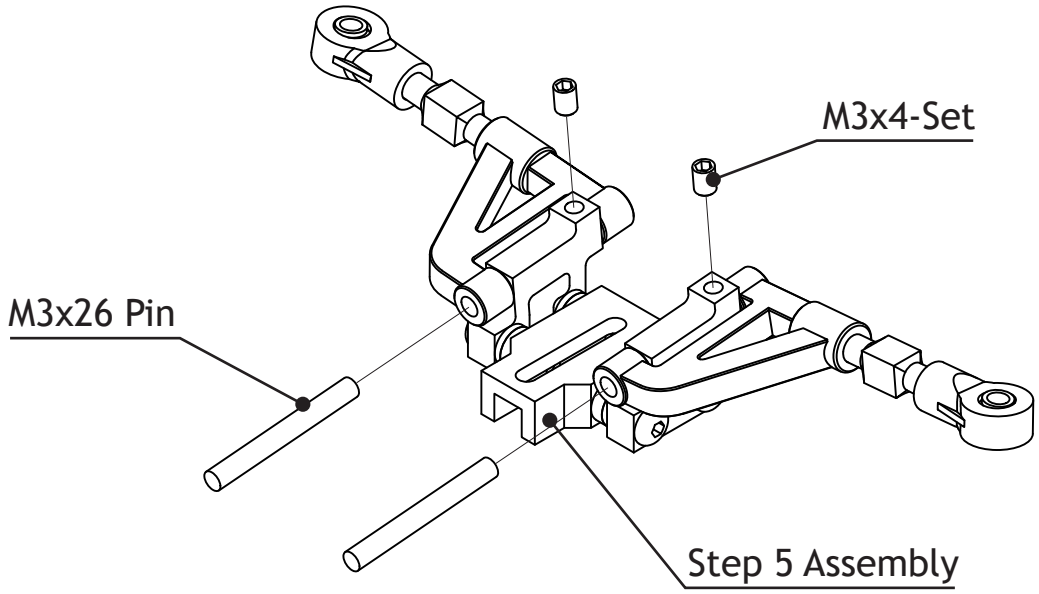
Front Assembly - Step 6

1. Slide pin through arm and into the caster block assembled in Step 4.
2. Secure pins with M3x4-Set screws.

Shims

Shims on the pin can help remove play and fine tune the left and right arm position to be even.

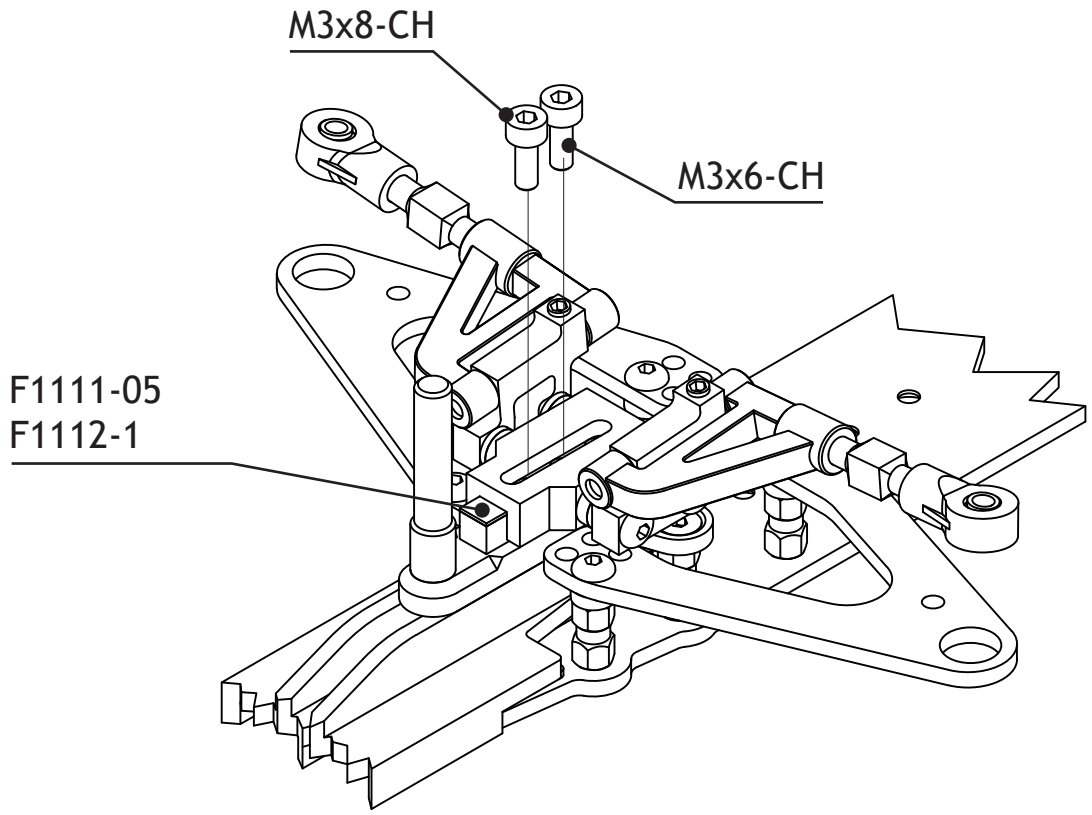
Orientation of arms.



Ensure arms are not binding.

Front Assembly - Step 7

1. Bolt the top A-arm Caster Slide assembly from Step 6 to the Caster Base assembly from Step 3 with two M3x8-CH screws.
2. Start with 1.5mm shims under Caster Slide for initial testing at your track.



Maximum Roll Center shims = 3.5mm.

Caster

Caster is the angle of the king pin relative to the chassis. The Fury changes caster by sliding the upper arms forward or rearward.

Arms **Forward** = **Less** caster = more **Upright** king pin. Car should be more reactive at higher speeds. Used on low traction, bumpy surfaces.

Arms **Rearward** = **More** caster = more **Inclined** king pin. Car should be more stable out of the corner and on straights. Used on high traction, smooth surfaces.

However, due to different F1 tire size, shape, compound, maximizing the contact patch requires experimentation.

Start at 6° for initial setting - about 5mm slid rearward.

Roll Center

Placing shims between the Caster Base and Caster Slide will change the *Roll Center*. Refer to page 6 for more information.

Less shims = **Higher** RC = **Less** roll.

More shims = **Lower** RC = **More** roll.

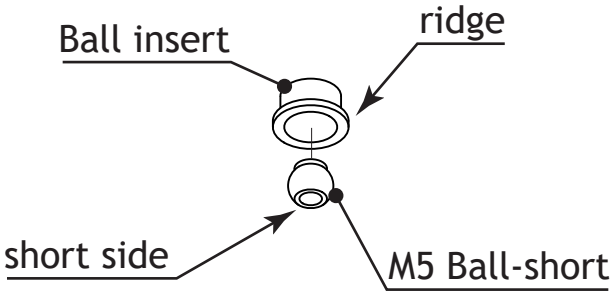
Please experiment with this setting at your track as changing the RC can have benefits on high grip, low grip, large, and small tracks.

Shim range height is 0mm - 3.5mm.

Front Assembly - Step 8

1. Push the M5 Ball into the Ball insert on the side with the ridge. Ensure the SHORT side of the ball is near the ridge.
2. Slide the Ball and Insert assembly onto the F1019 arm from below and fasten with the rubber O-ring.
3. Secure the M3x12-R steering stopper with M3x6-BH screws.
4. Build Left and Right arms.

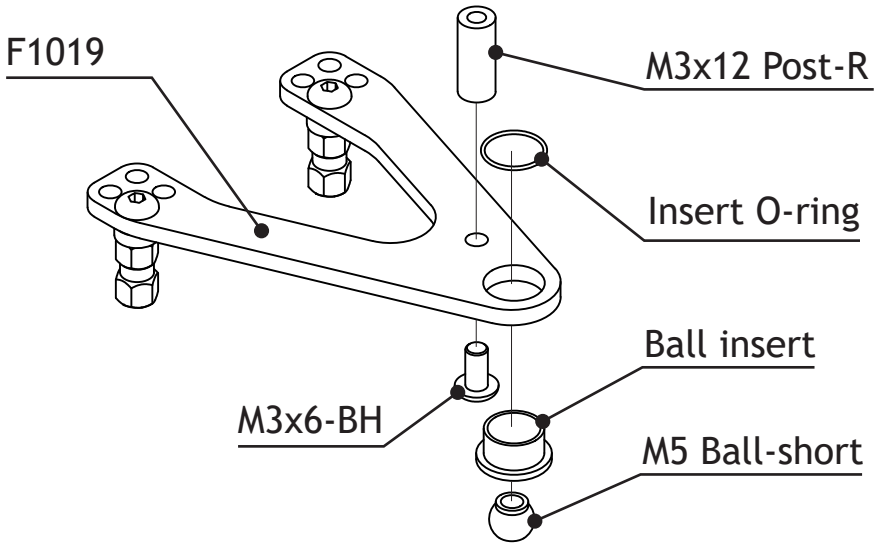
2X Assemble 2



Free Movement

If the Balls do not rotate freely within the Inserts, put slight pressure on the sides of the Insert with pliers. Rotate Insert and repeat pressure until Ball moves freely.

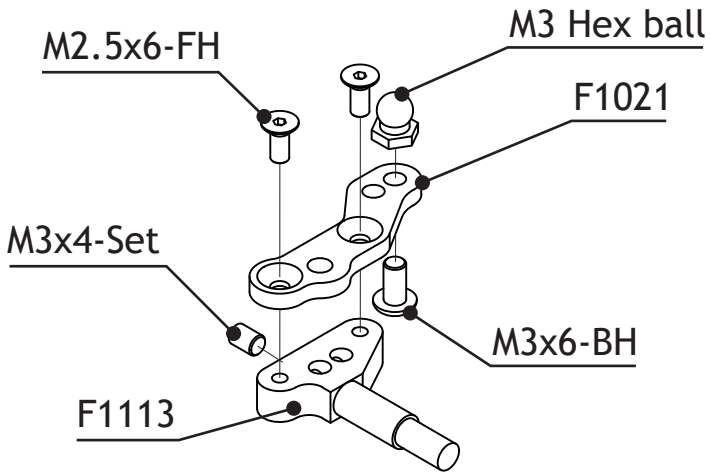
Arm hole may need sanding to ensure a slightly snug fit.



Short side of ball MUST face downward.

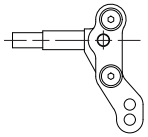
Front Assembly - Step 9

1. Two M2.5x6-FH screws attach the F1021 Left steering plate to a F1113 knuckle.
2. Repeat step one for the F1020 Right steering plate.
3. Install a M3 Hex ball with a M3x6-BH screw for each side.
4. Fit M3x4-Set screw to both knuckles. This will be used later to secure the knuckle to the king pin.

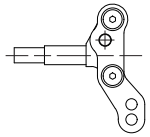


In-line axle vs. Trailing axle

This is the axle placement relative to rotating around the king pin. The Fury has 2 options by flipping the F1113 Steering Knuckle over.



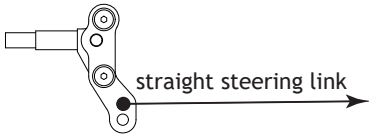
In-line
More aggressive steering used on small tracks.



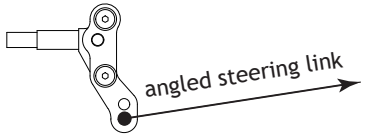
Trailing
Steering dulled and better on large tracks.

Ackermann

Ackermann is when steering and looking down on the car, the inside wheel has a higher turning degree than the outside tire. The Fury has 2 options on the steering plate.



More Ackermann
Outside wheel turns in **Less**.
More steering into corner.
Less corner speed.



Less Ackermann
Outside wheel turns in **More**.
Less steering into corner.
More corner speed.

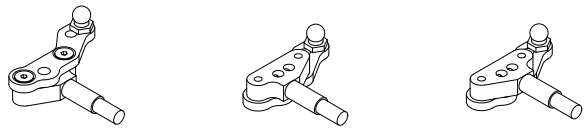
Bump Steer

Bump steer is the steering link angle when looking at the side of the car. Bump steer causes toe changes when the suspension is compressed. Adjust it by adding shims to the Steering Plate. The Fury can also place the Steering Plate above or below the Steering Knuckle.

Link **Parallel** to ground = **More** Bump Toe **Out**.
More initial steering into corner used on smooth tracks.

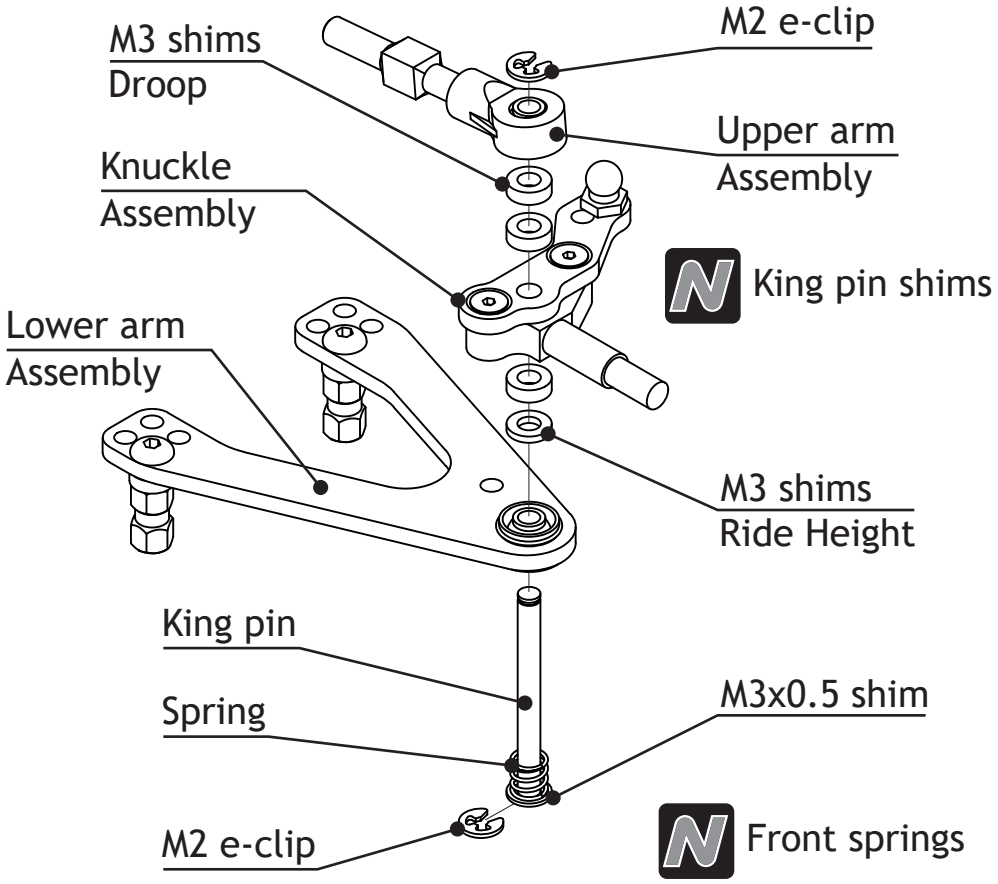
Link **Higher** at wheel = **Less** Bump Toe **Out**.
Easier to drive and used on bumpy tracks.

Link **Lower** at wheel = **More** Bump Toe **In**.
More agressive steering.



Front Assembly - Step 10

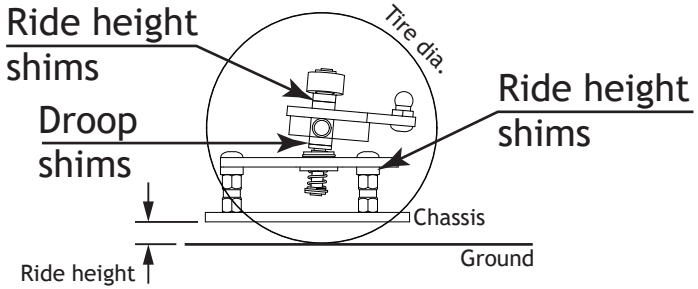
1. Press e-clip onto King pin.
2. Slide M3x0.5 shim and Spring onto King pin.
3. King pin goes through Lower arm ball, Shims, Steering knuckle, Shims, Upper arm ball. Fasten with e-clip.
4. Lift knuckle up to rest against the upper shims, then tighten M3x4-Set screw to secure Knuckle to King pin.



Ensure King pin does not bind through Ball after assembly.

Knuckle Height Position

The **Higher** the Knuckle is on the King pin, the **Lower** the roll center and the front will roll **More** side to side. See page 6 for more info.



Droop

Droop is the amount the chassis can move upward while the tires are still touching the surface. It allows weight to be transfered to the opposite end of the car during throttle changes.

More droop is more stable out of the corner.

Less droop gives more on-power steering.

Start with 0.5mm - 1.0mm of front droop.

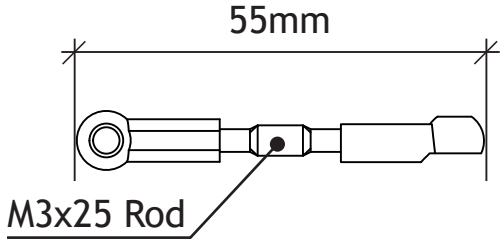
Springs

Softer springs are supposed to offer more steering, but this is dependent on your tire choice and track conditions. Beware that changing springs will affect droop and ride height because they have different heights and compression rates.

Silicon oil on the Lower Ball and King pin provides damping.

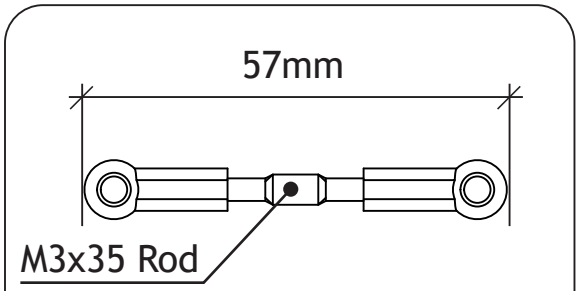
Front Assembly - Step 11

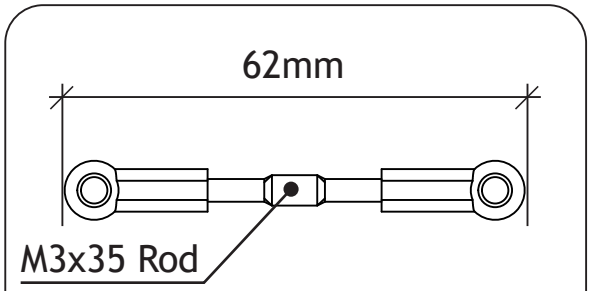
1. Create one servo link with a M3x25 Rod and M3 Ball ends.
2. Create two steering links with M3x35 Rods and M3 Ball ends.



Servo Link

2X Assemble 2



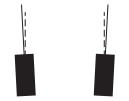


Steering Links

Toe

Toe measures the angle of the front tires when looking down on the car and steering is centered. The length of the Steering Links determine the amount of toe.

More Toe Out



Less Toe Out

More in-corner steering
More stable on straight

More on-power steering
Less stable on straight

Toe In is undesirable in most situations.

Start with 1.0° - 1.5° of Toe Out per side.

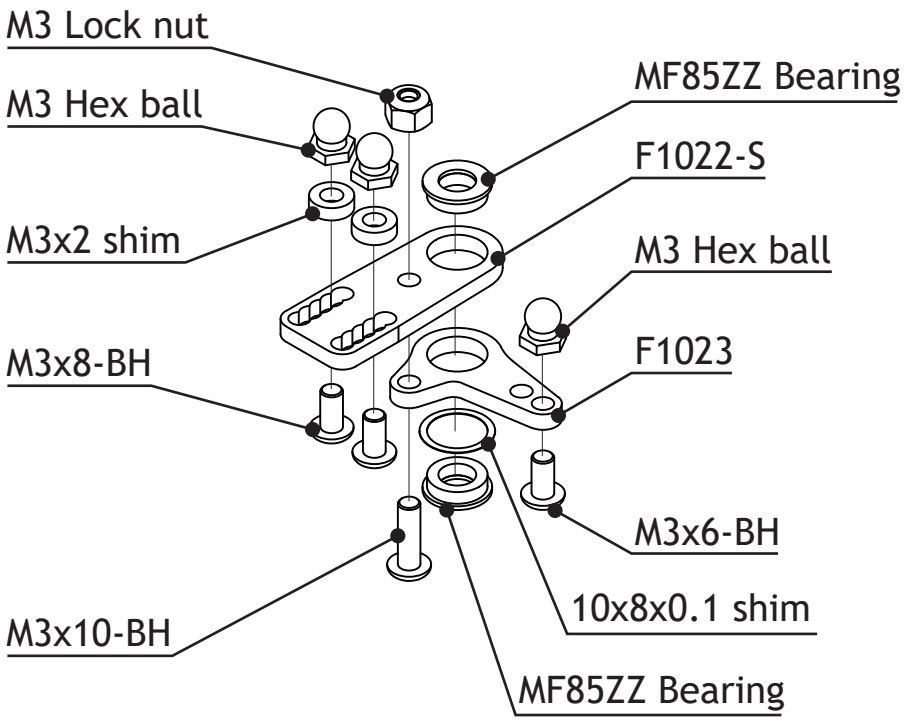
Steering Rod Orientation

Most Rods come with a mark indicating the direction of rotation. If you orient these marks in the same direction, adjusting the toe will be faster and easier.

M3x40 Rods can be used to bite into the Ball Ends more - if you hit a lot of stuff.

Front Assembly - Step 12

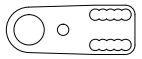
1. Press MF85ZZ Bearing into F1022-S and F1023. Note orientation.
2. Screw carbon plates together with M3x10-BH and M3 Lock nut.
3. Install two M3 Hex balls with M3x6-BH screws on F1022.
4. Screw one M3 Hex ball with an M3x6-BH screw on F1023.



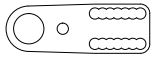
Ensure the same Right and Left Ackermann holes are used.

Bell Crank

Use the **Short** plate F1022-S for **Short** wheelbase setting.

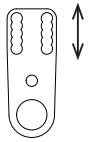


Use the **Long** plate F1022-L for **Long** wheelbase setting.



Ackermann

F1022 provides several Ackermann options. See page 14 for more information.



Bump Steer

Placing shims under the M3 Hex balls change bump steer. See page 14 for more information.

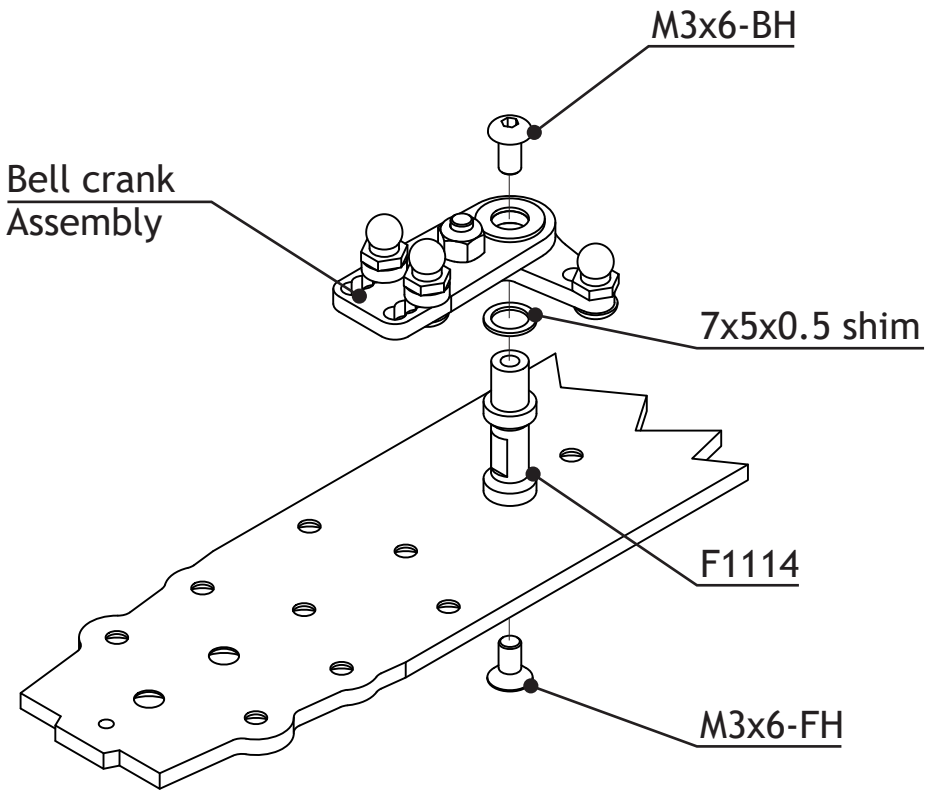
Bell Crank Play

We are having success limiting the Bell Crank play by placing a 10x8x0.1 shim on the underside between the bearing and F1023 plate.

Experiment by placing shims on the top bearing to suit your needs.

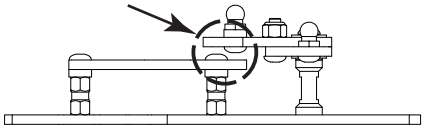
Front Assembly - Step 13

1. Bolt F1114 Steering Post to chassis with a M3x6-FH screw.
2. Slide Step 12 Bell Crank Assembly onto F1114 Steering post.
3. Use M3x8-BH to secure Bell Crank to Steering post.



Bell Crank Fit

Use 7x5x0.5 shims to lift the Bell crank assembly high enough so the screw heads don't interfere with rotation.



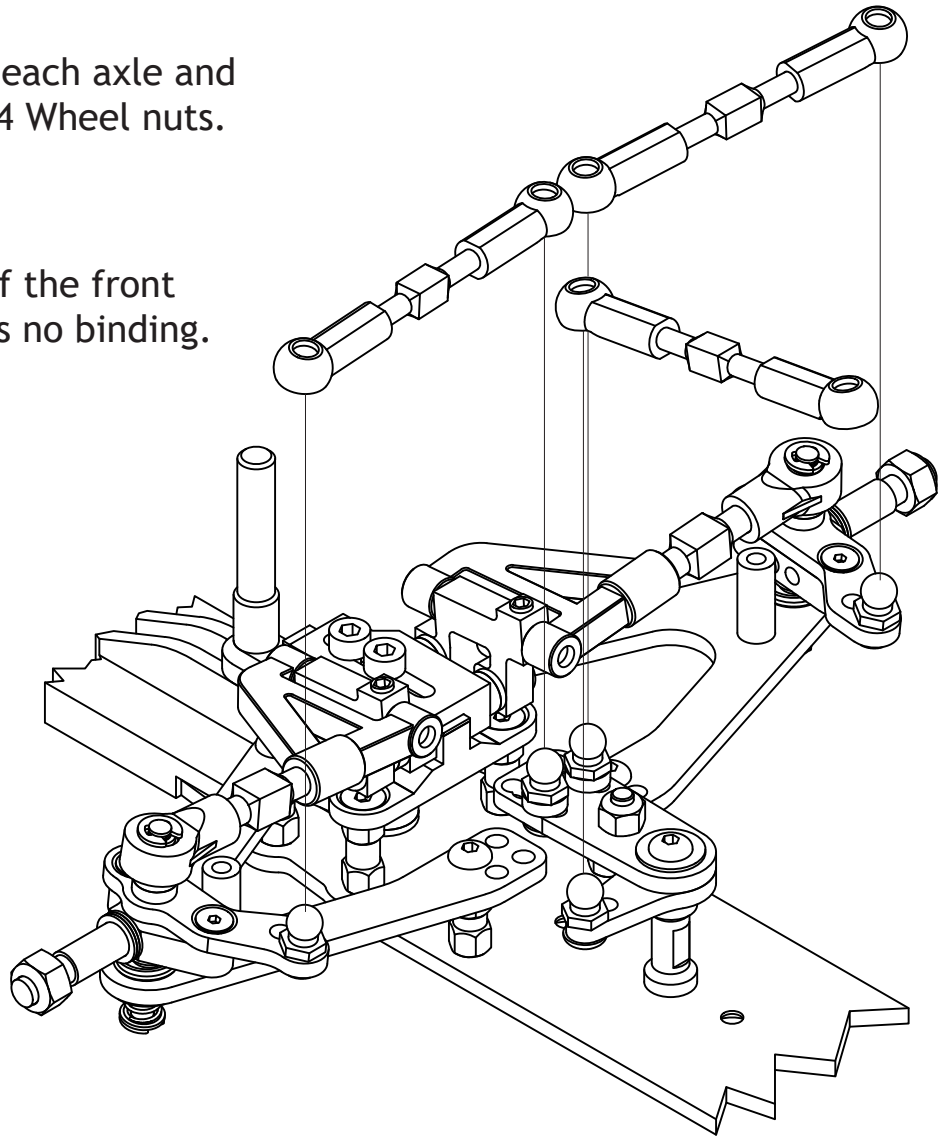
This clearance issue happens depending on how many ride height shims are used and location of Ackermann screws.

Ensure the Bell crank fits on F1114 Steering post as tight as possible without binding. Use 10x8x0.1 shims and 7x5x0.5 shims as necessary.

Front Assembly - Step 14

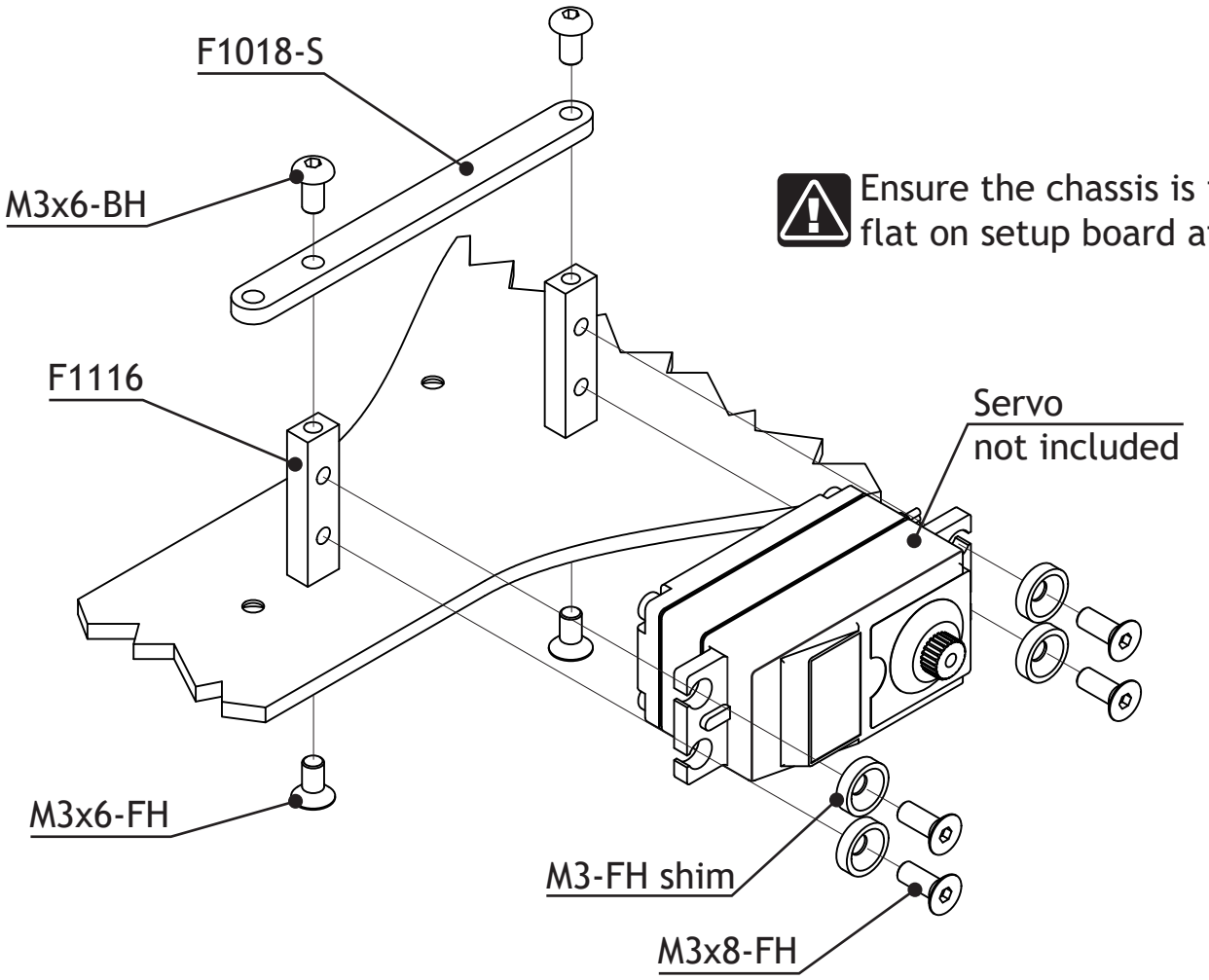
1. Attach steering links.
2. Attach servo link.
3. Place three 7x5x0.5 shims on each axle and temporarily secure them with M4 Wheel nuts.

When adjusting any part of the front suspension, ensure there is no binding.



Front Assembly - Step 15

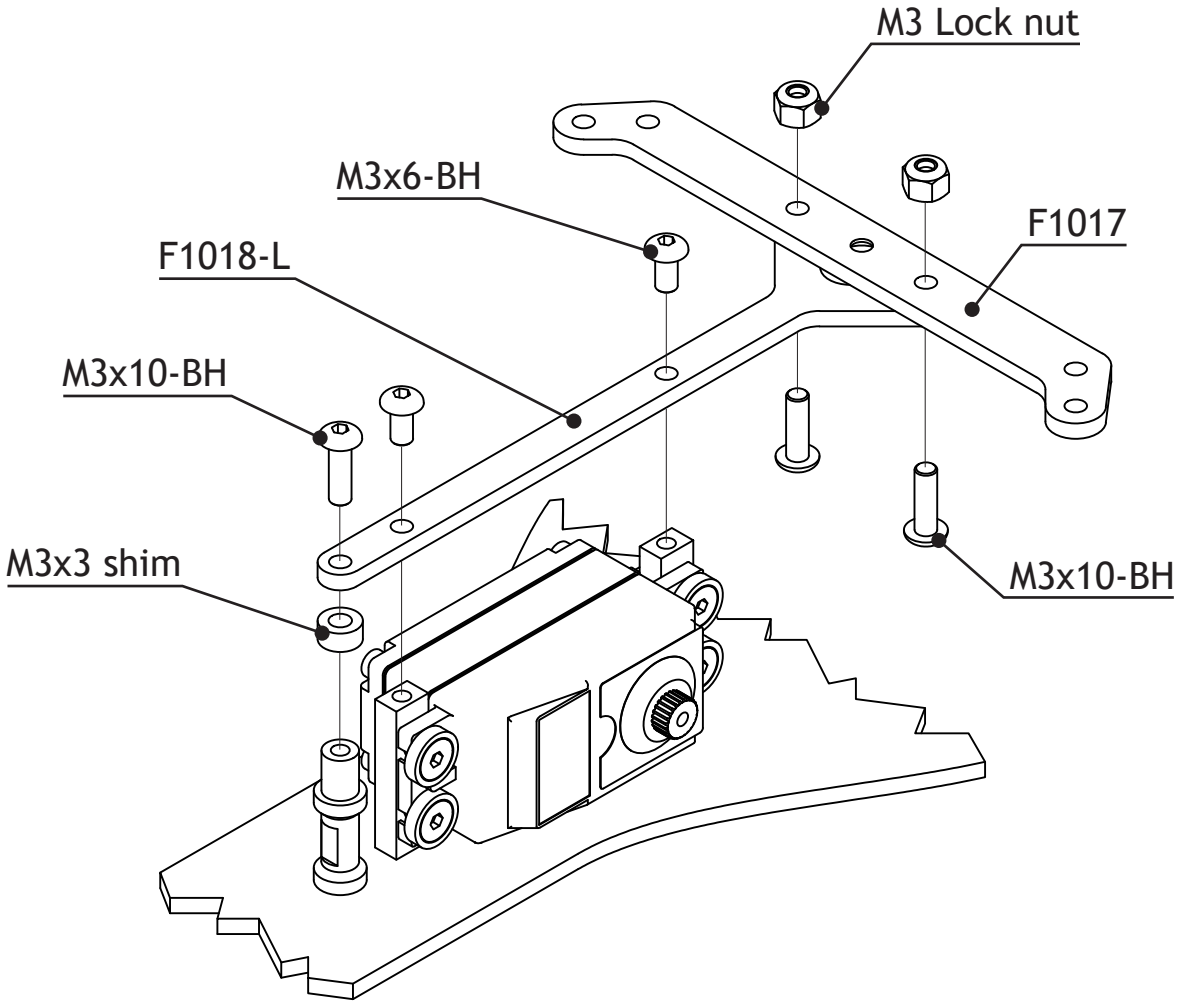
1. Lightly screw both F1116 post to chassis with M3x6-FH. DO NOT fully tighten yet.
2. Lightly fix servo to post with M3x8-FH screws through the FH shim. DO NOT fully tighten yet.
3. Lightly bolt the F1018-S Top deck on the F1116 Servo posts.
4. Take turns slowly tightening all the screws. Prevent the posts from twisting or the servo causing chassis tweek.



Ensure the chassis is tweek-free and lays flat on setup board after tightening.

Front Assembly - Step 15 continued - Top deck options

1. Remove F1018-S top deck.
2. Screw F1018-L long top deck into F1116 Servo posts with M3x6-BH screws.
3. Attach F1018-L top deck to F1017 Shock brace with M3x10-BH screws and M3 Lock nuts.



Top Deck

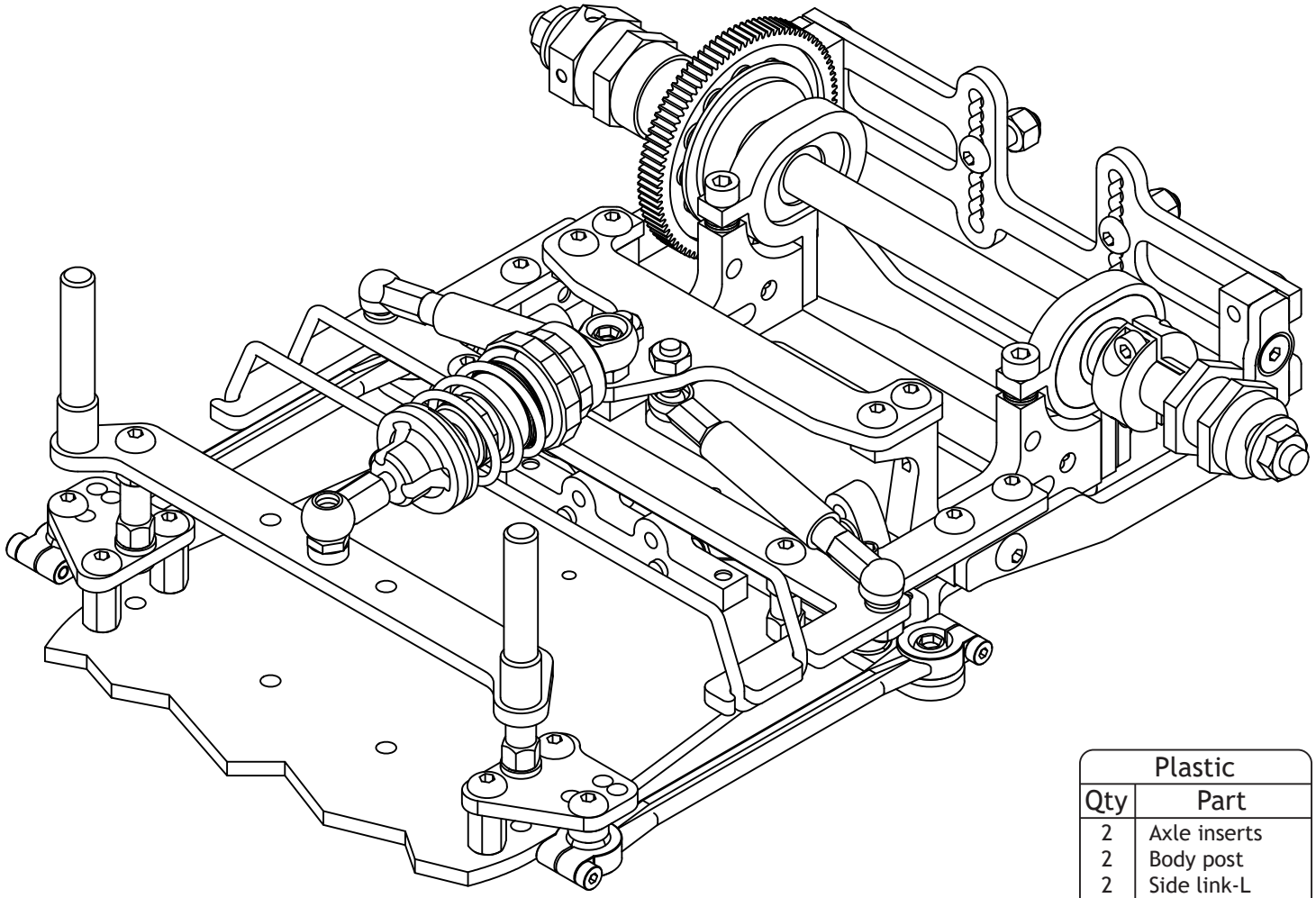
There are several flex options when combining the short and long top decks with the post screw.

stiffer

- Short F1018-S
- Short F1018-S + BH into F1114 Steering post
- Long F1018-L
- Long F1018-L + BH into F1114 Steering post

When using the steering post screw, a M3x3 shim MUST be placed on the F1114 Steering post. Ensure no binding.

Rear Assembly - Overall



Screws	
Qty	Part
20	M3x6-FH
2	M3x8-FH
22	M3x6-BH
6	M3x8-BH
2	M3x10-BH
2	M3x12-BH
4	2x8-CH
1	M3x8-CH-N
1	M3x8-CH
2	M3x8-Set
2	M3x10-Set

Carbon	
Qty	Part
1	F1010
1	F1011
1	F1012-L
1	F1012-R
1	F1013
1	F1014
1	F1015
2	F1016
1	F1017

Aluminum	
Qty	Part
1	F1101
2	F1102
2	F1103
1	F1104
1	F1105
4	F1115

Hardware	
Qty	Part
4	M3x8 Post
2	M3x12 Post
2	M3x15 Post
4	M3x10.5 Ball-TH
4	M3x12 Ball-TH
1	M3 Hex ball
4	M5 Ball
4	M3 Ball end-O
4	M3 Ball end-C
1	M3 Ball end
2	M3x18 Rod
2	Spring - C0.9
2	FR168ZZ Brng.
5	M3 Nut
2	M3 Lock nut
2	M4 Wheel nut
1	Battery band

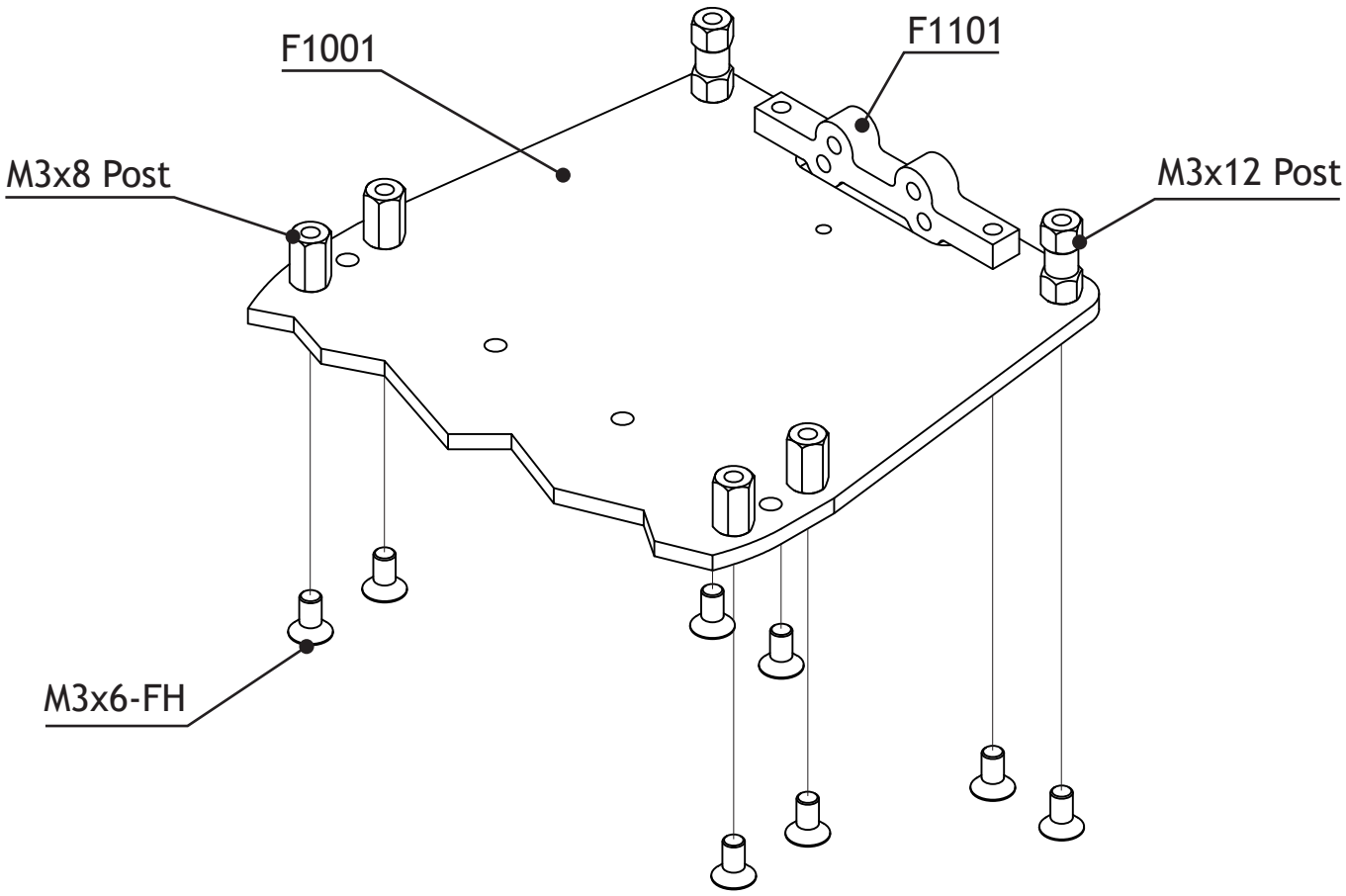
Shims	
Qty	Part
6	M3x0.5
2	M3x1.0
3	M3x2.0
2	M6.4x0.5
2	M6.4x1.0
2	M6.4x2.0

Plastic	
Qty	Part
2	Axle inserts
2	Body post
2	Side link-L
2	Side link-S *opt*
2	Spring perch

Assemblies	
Qty	Part
1	Differential
1	Shock
2	Side tubes

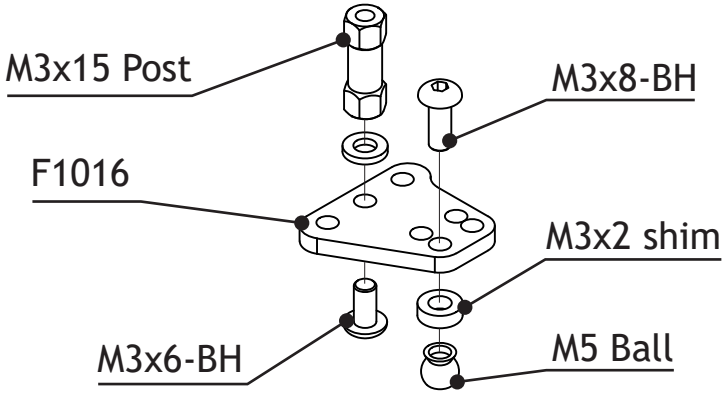
Rear Assembly - Step 16

1. Use M3x6-FH screws to fasten the posts and F1101 to the chassis.



Rear Assembly - Step 17

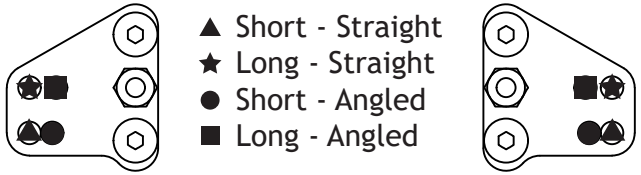
1. Fasten M3x15 Post and M3x1 shim with M3x6-BH screw to the F1016 Link hanger.
2. A M3x8-BH screw fastens the M3x2 shim and M5 Ball to the F1016 Link hanger.
3. Mirror the right side Link hanger.



Ensure the same mounting holes, shims, and links are used on both sides.

Side Link Position

The links on both sides of the car control how the pod moves and rotates relative to the main chassis. There are four link mounting positions on the F1016 Link hanger.



Link Length determines the sensitivity of the setup changes.

Longer link = **Less** sensitivity to changes.

Shorter link = **More** sensitivity to changes.

Link Angle changes the outer rear wheel orientation when turning.

Straight link = **Less** Toe Out = **More** rear stability.

Angled link = **More** Toe Out = **More** steering.

Link Pitch changes how weight is transfered to the rear on-power.

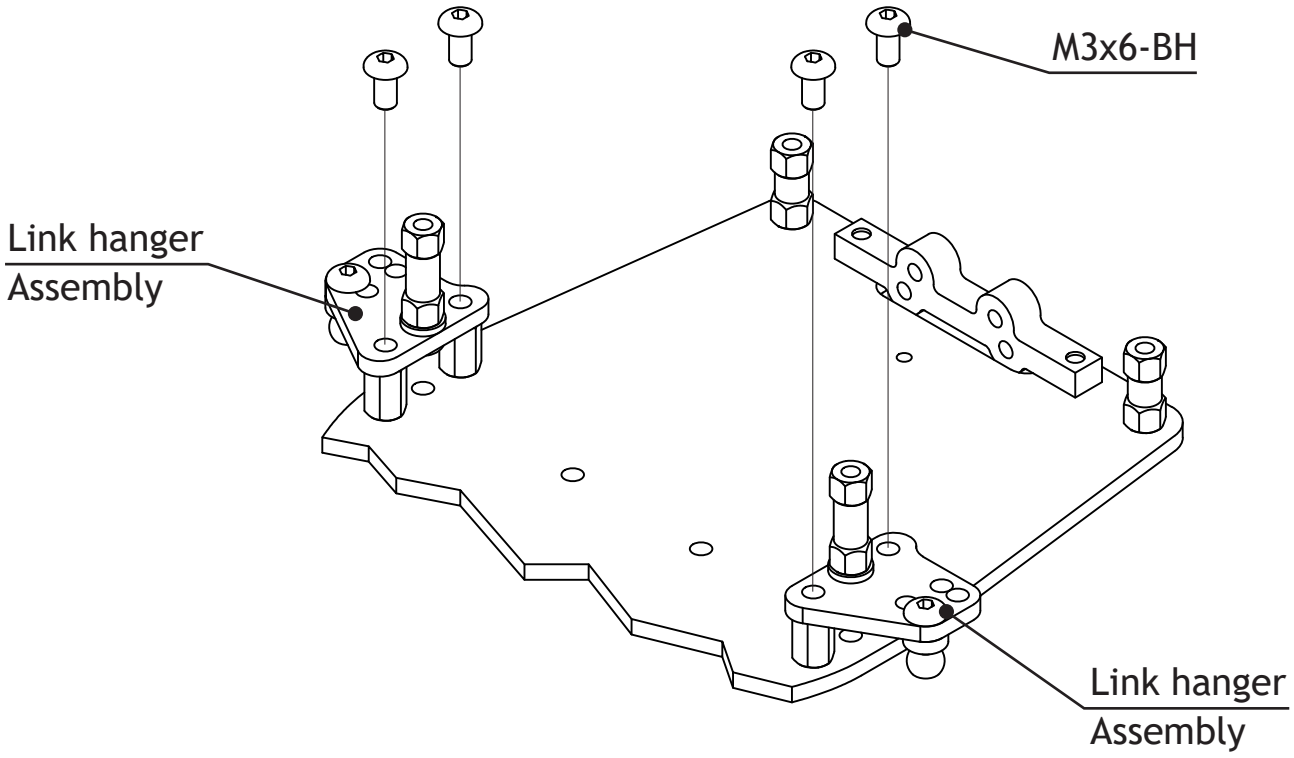
Front **Lower** than rear = Pro-squat = **More** rear stability.

Front **Higher** than rear = Anti-squat = **More** steering.

Link Height does not change the roll center with a V-link system.

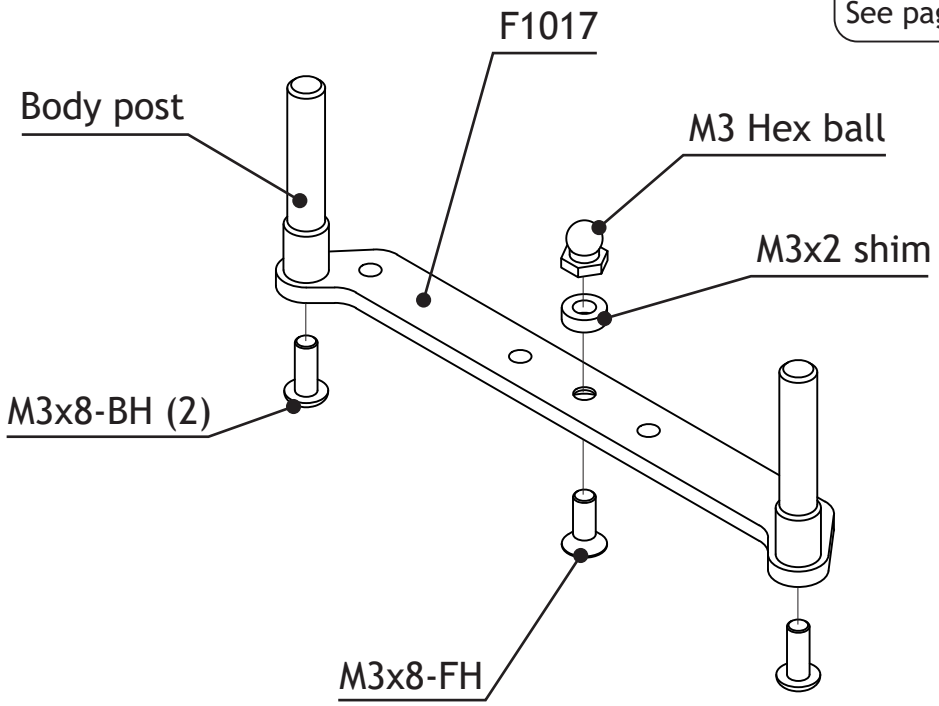
Rear Assembly - Step 18

1. The Link hanger assemblies made in step 17 are bolted to the posts with M3x6-BH screws.



Rear Assembly - Step 19

1. Fix the Body posts to F1017 Shock crossbar with M3x8-BH screws.
2. M3x8-FH screw from below fastens the M3 Hex ball.



Shock Position

By placing shims under M3 Hex ball, the shock angle can be adjusted to alter the dampening feel.

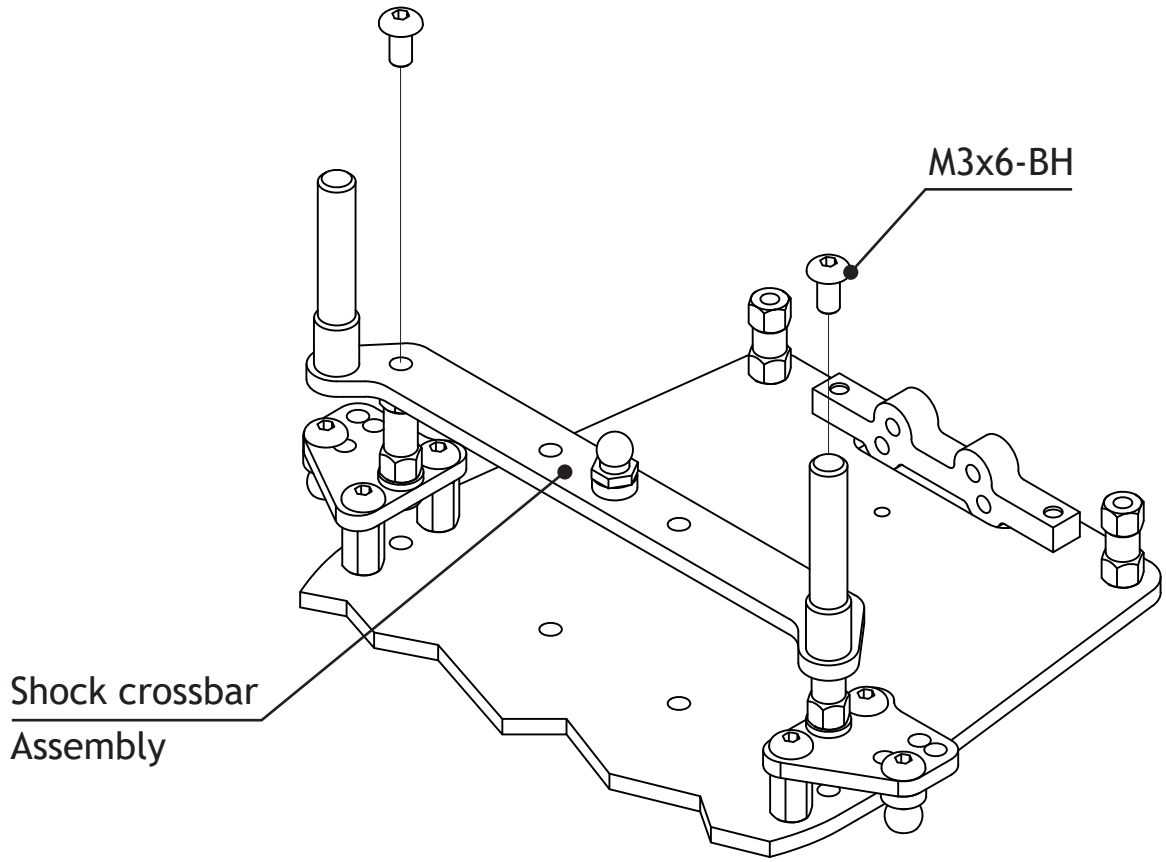
Less shims = **Higher** angle = **Softer** shock.
Used for more rear grip when on power.

More shims = **Lower** angle = **Stiffer** shock.
Used for more steering on power.

See page 42 for more information.

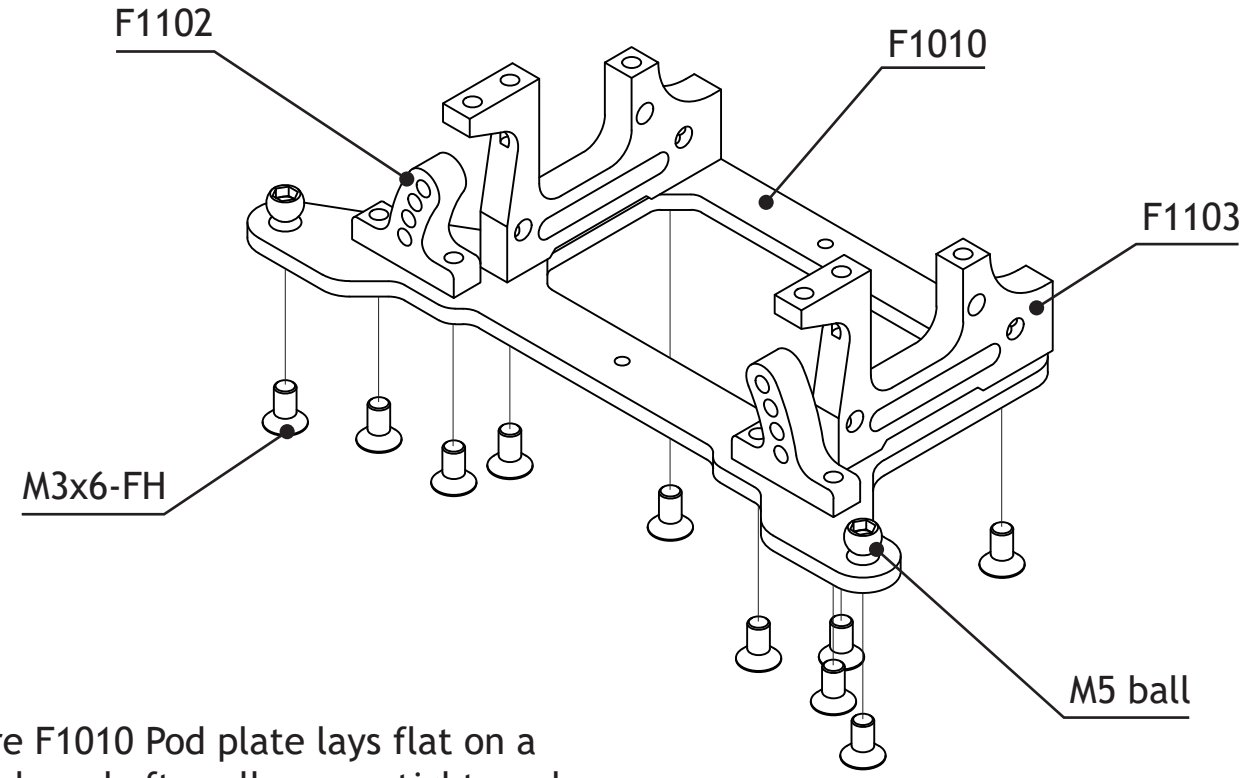
Rear Assembly - Step 20

1. M3x6-BH screws secures Shock crossbar assembly to M3x15 Posts.



Rear Assembly - Step 21

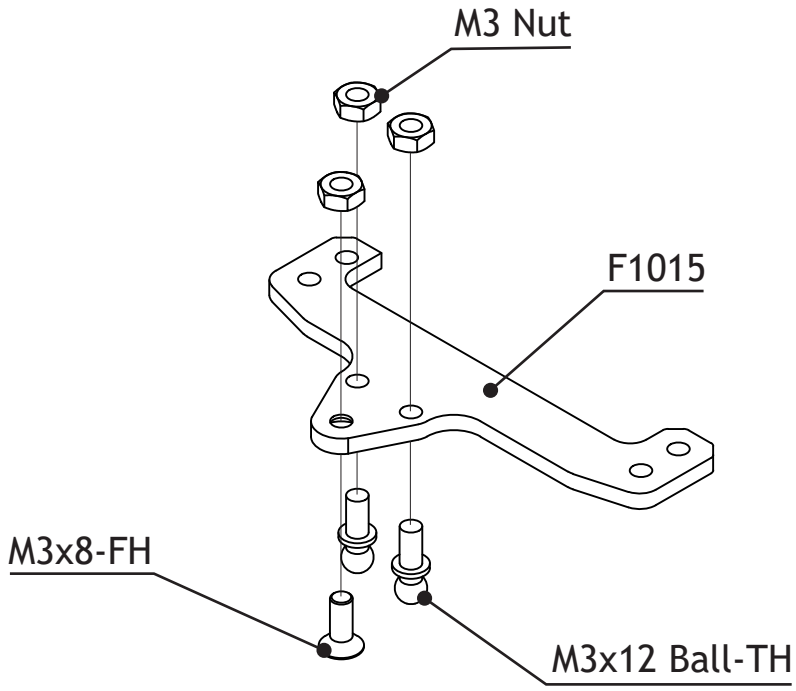
1. Both F1103 Uprights bolted to F1010 Pod plate with M3x6-FH screws.
2. Screw both F1102 Link mounts and both M5 Balls to F1010 Pod plate with more M3x6-FH screws.



Ensure F1010 Pod plate lays flat on a setup board after all screws tightened.

Rear Assembly - Step 22

1. M3 Nuts used to fix M3x12 Threaded balls and M3x8-FH screw to F1015 Pod top plate.

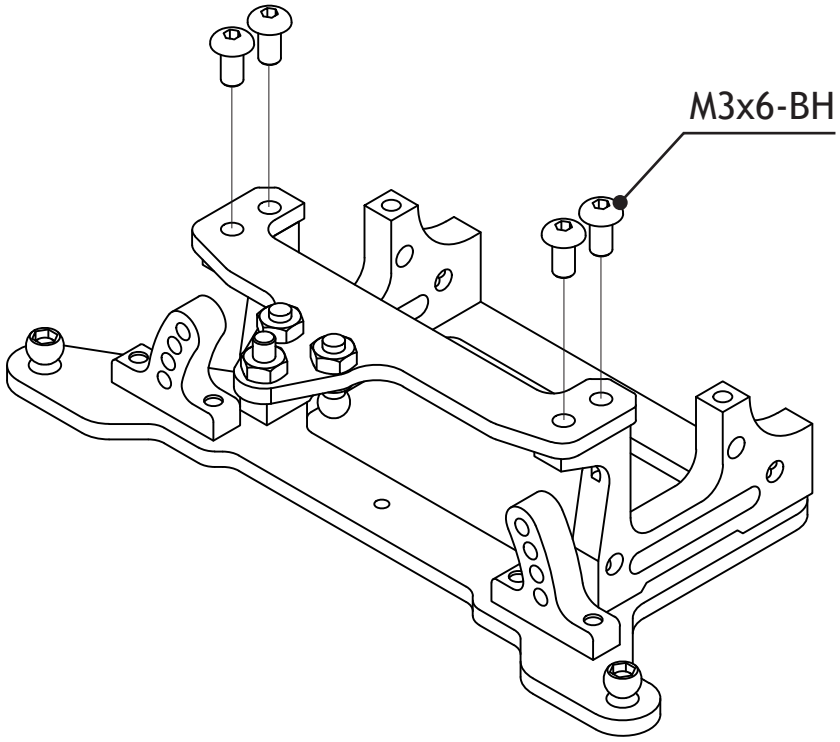


Rear Assembly - Step 23

1. Four M3x6-BH screws bolt the F1015 Pod top deck to the Pod Assembly.

Fan Mount

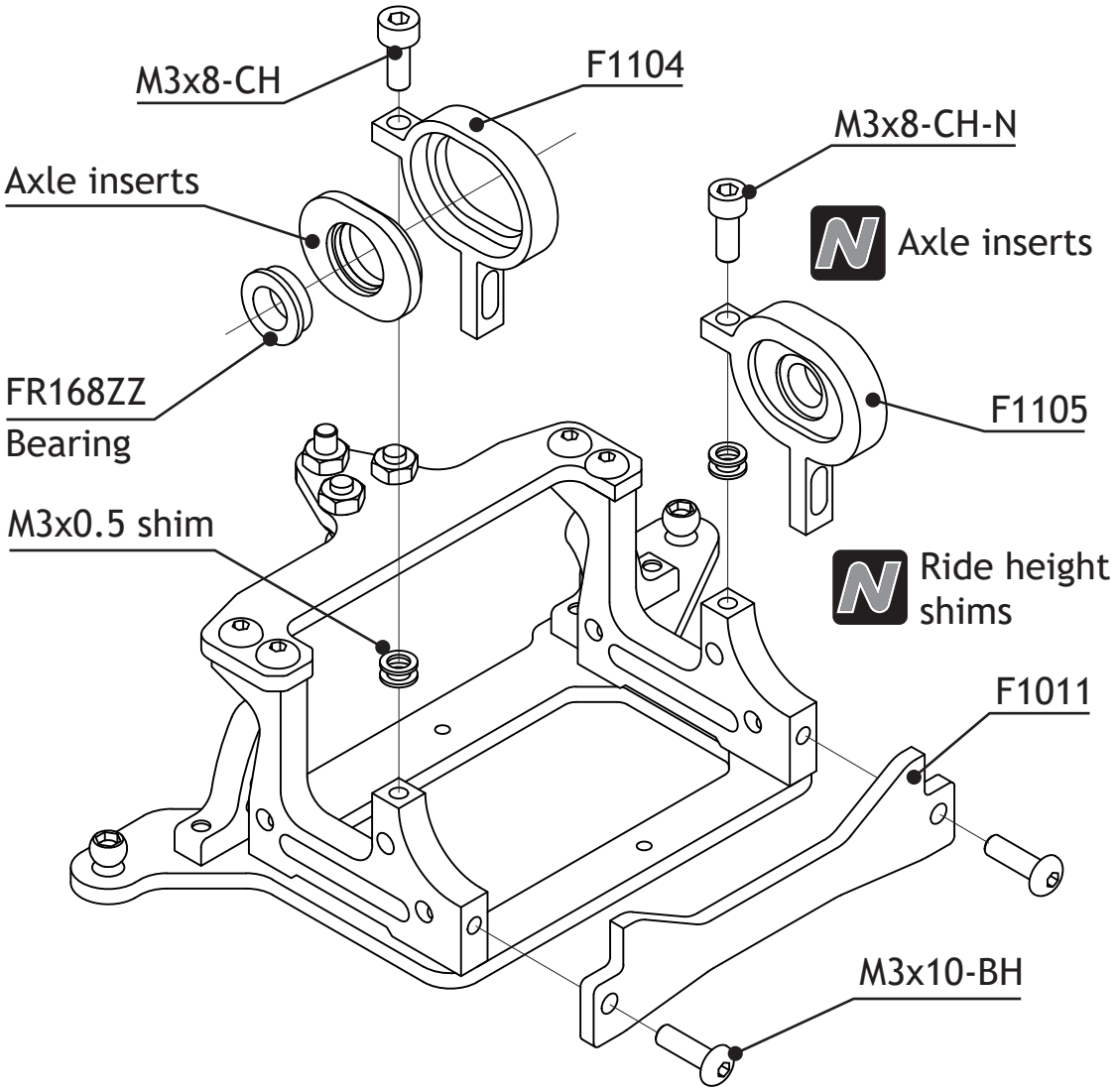
The F1015 Top pod plate is wide enough to mount a thin fan up to 25x25mm square to cool the motor.



Ensure F1010 Pod plate lays flat on a setup board after all screws tightened.

Rear Assembly - Step 24

1. Slide Axle inserts into F1104 / 1105 Holders.
2. Push FR168ZZ Bearings into plastic Axle inserts.
3. M3x8-CH screws secure Holders to F1103 Uprights from top.
4. M3x10-BH screws go through F1011 plate and into F1103 Uprights.



Wheelbase

The rear wheelbase can be adjusted +/- 3.75mm by using the CRC axle inserts in a forward or rearward position. See page 7 for more information.

A more **Forward** position = **Short** pod wheelbase.
Provides **More Steering**.

A more **Rearward** position = **Long** pod wheelbase.
More Stable on power, out of the corner.

Use 0 insert for initial track testing.

Ride Height

The shims below the F1104 / 1105 Holders will determine rear ride height. Rear tire choice will have an affect as to how many shims are required for a given ride height. See pages 6 and 15 for more information.

1mm of shims usually gives the desired 4.6mm - 4.8mm rear ride height for most tires. Start with this amount.

The Axle inserts and shim count MUST be same Left and Right sides.

Ensure F1010 Pod plate lays flat on a setup board after all screws tightened.

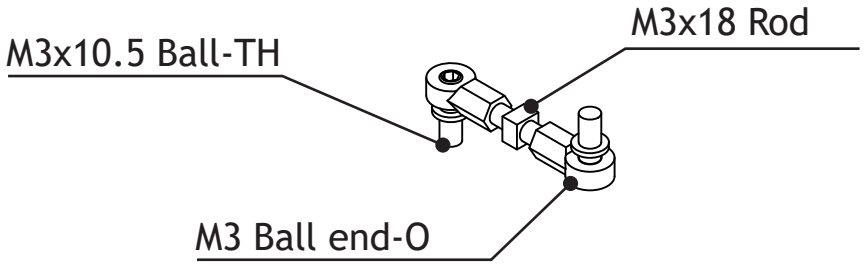
MUST use narrow CH screw on motor side upright to maximize clearance.

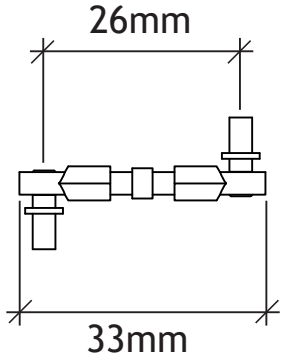
Axle inserts will sit about 1mm lower than holders when seated properly.

Rear Assembly - Step 25

1. Use the Open M3 Ball ends and M3x18 Rods to make V-links.

2X Assemble 2

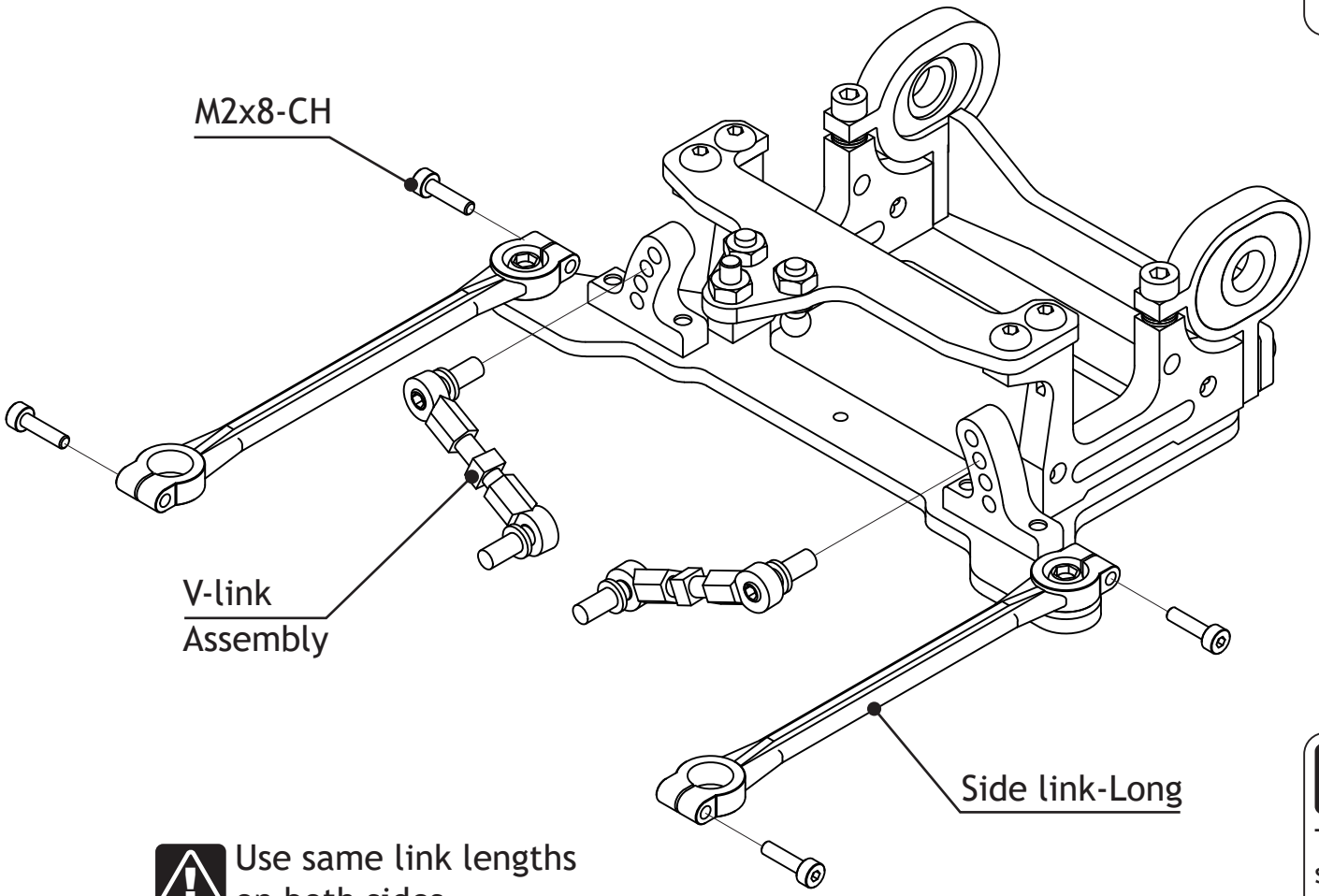




Both links MUST be exactly the same length at all times.

Rear Assembly - Step 26

1. Screw V-links into F1102 Pod mounts.
2. Attach Side links to Pod.



Use same link lengths on both sides.

Side Links

After snapping the plastic links on the balls, tighten the 2x8-CH screws only enough to prevent binding.

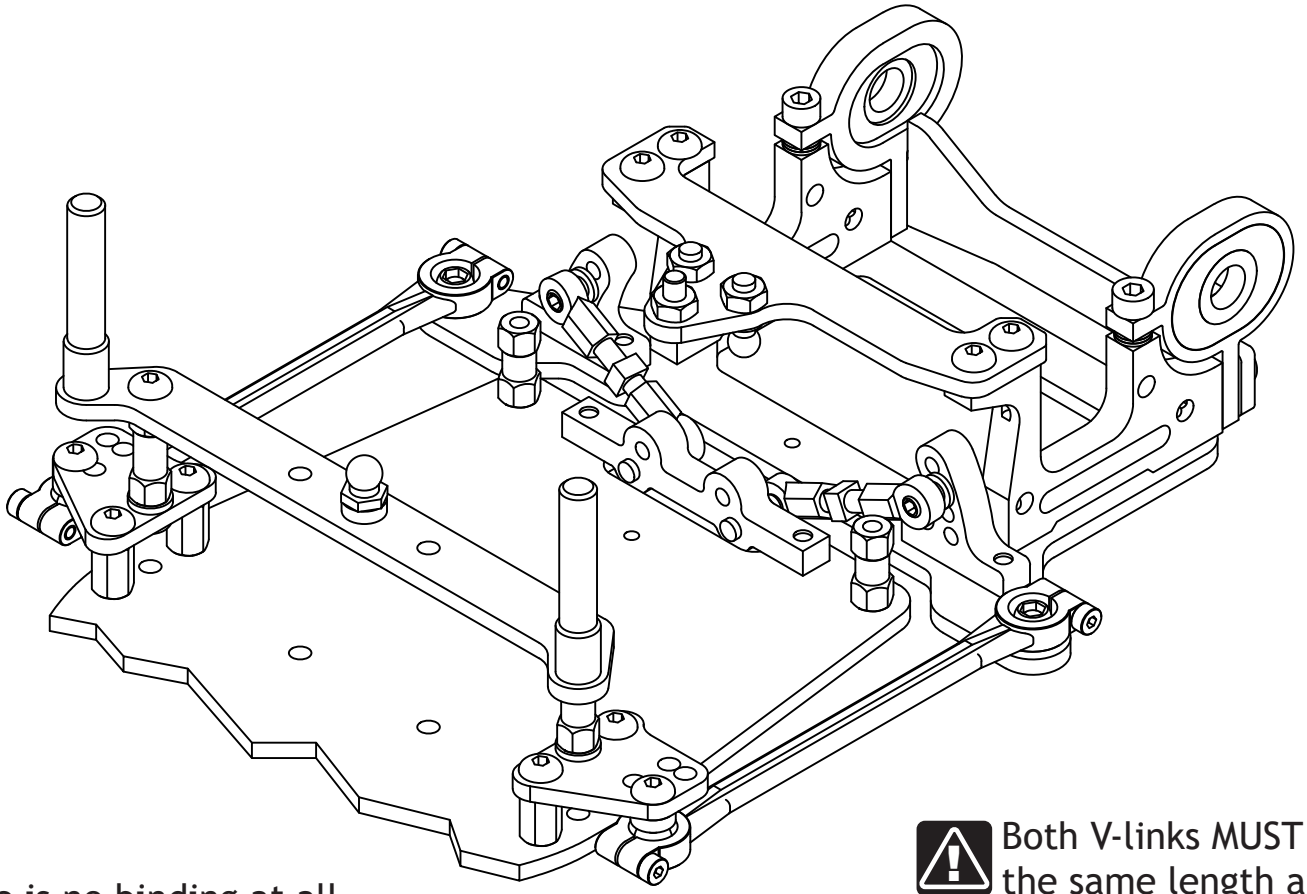
Side Links

The Fury can accommodate 71mm Long side links and 65mm Short side links.

See page 24 for more information.

Rear Assembly - Step 27

1. Attach the V-links to the F1101 chassis mount.
2. The side links snap onto the Link hanger balls.

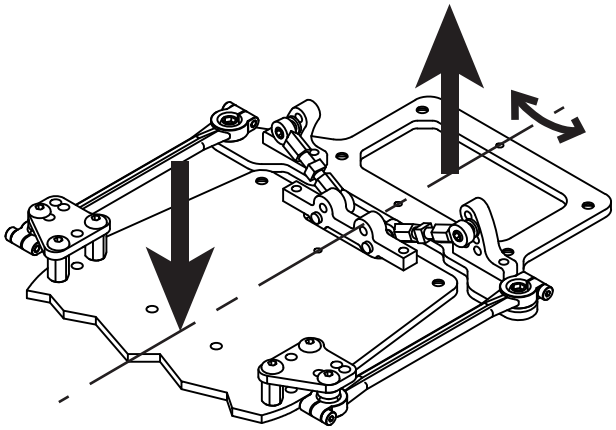


Ensure there is no binding at all the balls and ball ends. When placed on a flat surface, the V-links and Side links should easily rotate in your fingertips.

Both V-links MUST be exactly the same length at all times.

Rear Assembly - Step 27 continued
V-link Setup Guide

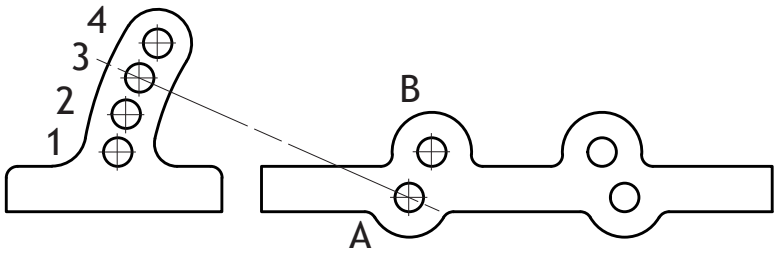
The pod will have slight play up and down due to using typical balls and plastic ends. This will not affect the performance of the car. You must make sure at maximum play (when pushing **down** on the chassis and **up** on the pod) the pod is never lower than the chassis by adjusting the V-link lengths equally. It is fine if the pod is lower than the chassis during the play - this will get absorbed in the rear droop setting. The goal is to have the chassis and pod level at maximum play.



V-links

The Pod should rotate freely right and left around the chassis centerline with no binding. It will also pitch up and down about 10º.

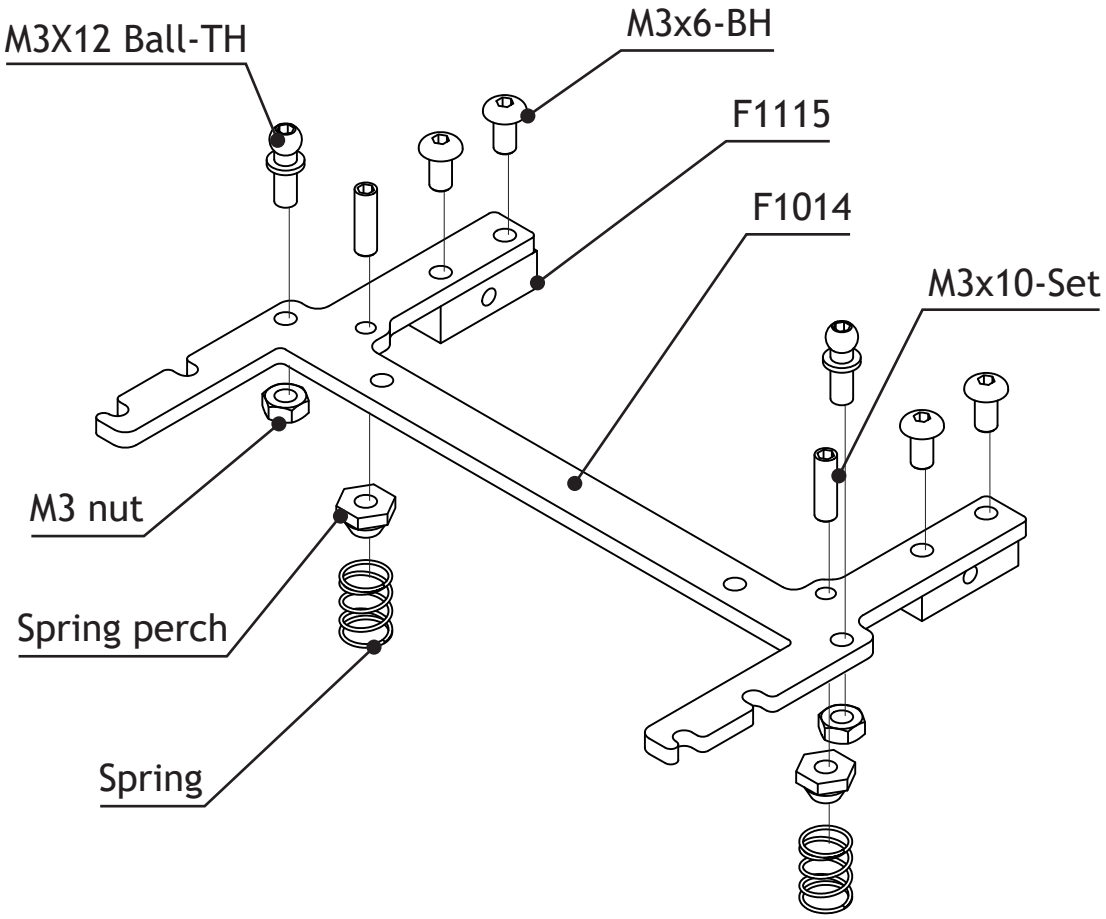
V-link Roll Center



Position	Roll Center	V-link Length
B1 B2	Not Recommended	Not Recommended
B3	Highest	26.6mm
B4		26mm
A1		26mm
A2		26mm
A3		26mm
A4	Lowest	26mm

Rear Assembly - Step 28

1. Fix M3x12 Ball-TH with M3 Nut.
2. Lubricate M3x10-Set and slowly screws into F1014.
3. Screw the plastic spring perch to end of M3x10-Set screw and attach spring to perch.
4. Fasten F1115 blocks to F1014 with M3x6-BH screws.



Side springs

Side Spring

Side springs control how much and how fast the main chassis rolls. Most of the time, balancing the front and side springs to allow the chassis to roll and transfer weight to the outside tires while keeping the rear axle straight, is how to corner the fastest.

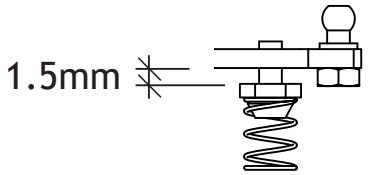
Stiff side springs = **Less** side bite = **More** steering.
Used on **High traction** surface. Could cause traction roll.

Soft side springs = **More** side bite = **Less** steering.
Used on **Low traction** surface.

The opposite can be true on different surfaces. Please experiment at your track for best settings.

Side Spring

Start with the spring perch 1.5mm below the F1014 plate.



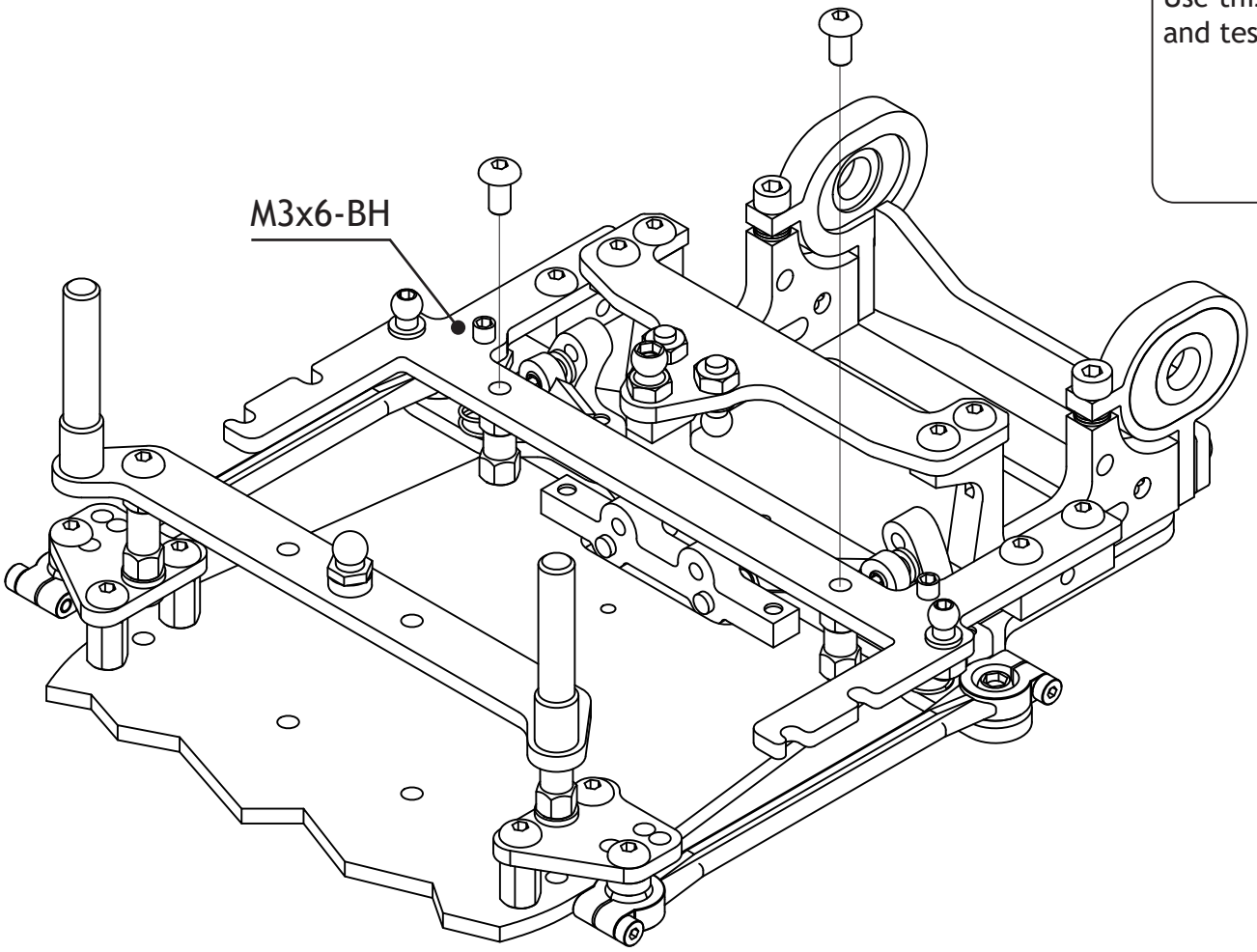
Begin with medium spring C=0.9. Have the springs touch the pod plate, then tighten them 2 turns to add pre-load.

If **Rear** wheel lifting in corner = spring too **Stiff**
Reduce pre-load or use softer spring.

If **Front** wheel lifting in corner = spring too **Soft**
Increase pre-load or use stiffer spring.

Rear Assembly - Step 29

1. Fix side spring assembly to chassis posts with M3x6-BH screws.

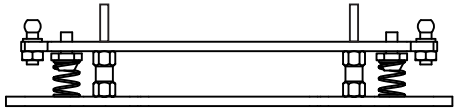


Side Spring Start Point

Put chassis assembly on flat surface.

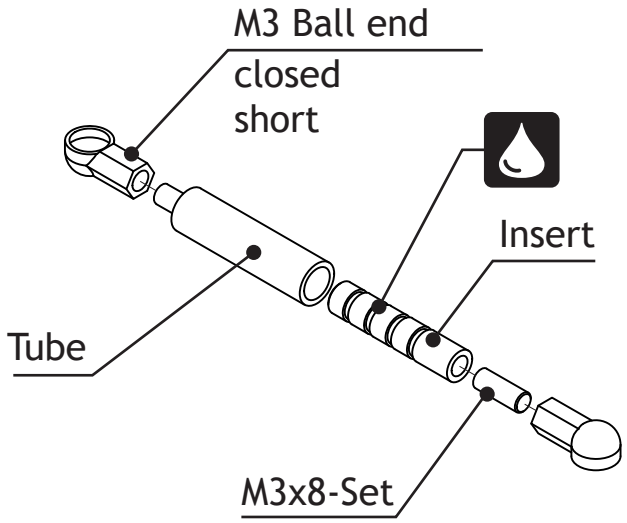
Replace the M3x6-BH screws with long set screws. Then slide the Side Spring assembly on the set screws. This will allow you to adjust the heights of the side springs so that each side is equally just touching the pod plate.

Use this setting as a starting point for tweek adjustments and testing spring stiffness.



Rear Assembly - Step 30

1. Screw the plastic M3 Ball end-C to the Side tubes.
2. M3x8-Set screws are used to connect the ball end to tube insert.



2X Assemble 2

Side Tubes

Oil in the side tubes dampens and slows the pod-chassis articulation. Put silicon oil only in the insert slots.

Generally:

Heavy oil = keeps chassis flat = **Less** steering
For **Low traction** conditions.

Lighter oil = lets chassis roll = **More** steering
For **High traction** conditions.

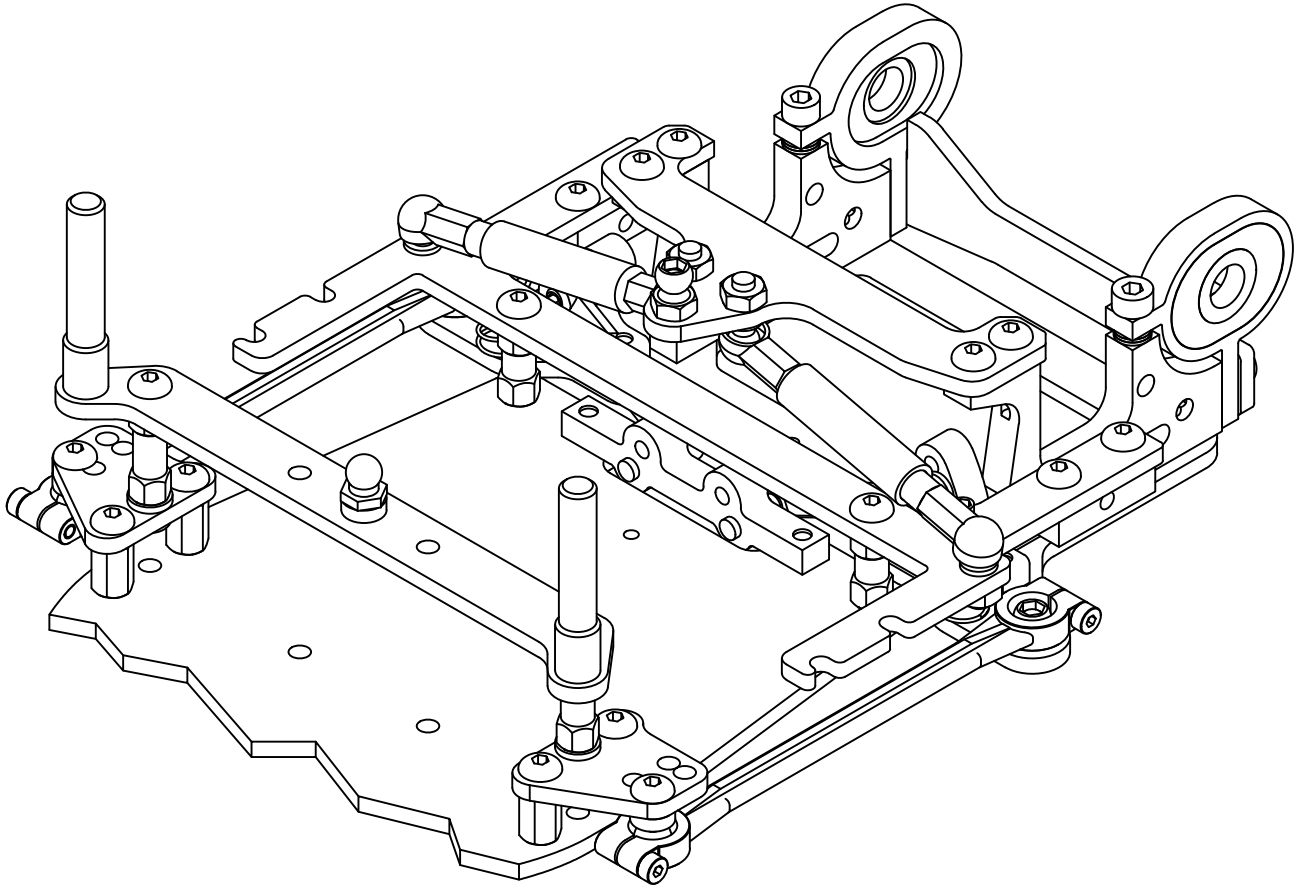
Tube oil thickness will change the steering feeling and is driver preference dependent. Experiment at your track for best setup.

Start with 10,000 CST.

CST	Track Conditions	Surface
1,000	High traction	Carpet
3,000		
5,000		
7,000		
10,000		
15,000		
20,000		
30,000		
50,000	Low traction	Asphalt

Rear Assembly - Step 31

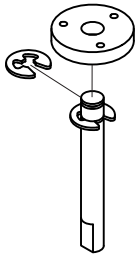
1. Attach Side tubes to the pod and chassis balls.
2. Placing the tube on the pod and the insert on the chassis will allow changing oils easier.



Ensure tube balls do not bind in the plastic ball ends.

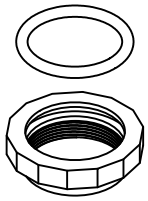
Rear Assembly - Step 32 - Center Shock

Step 1



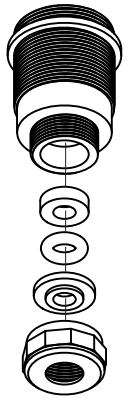
Sandwich piston on shaft with two c-clips top and bottom.

Step 2



Place o-ring inside shock collar. Lubricate with a little shock oil.

Step 3

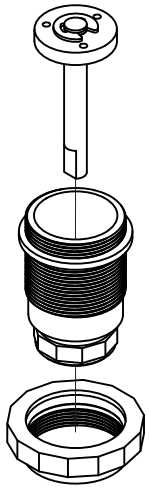


Round spacer, then rubber o-ring, then flanged spacer pointing down, goes into bottom of shock body.

Install bottom shock cap.

AE Green Slime can be used here to reduce oil leakage.

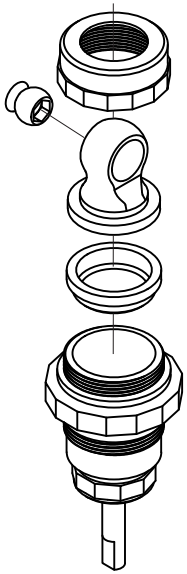
Step 4



Screw collar into body.

Place piston in body.

Step 5

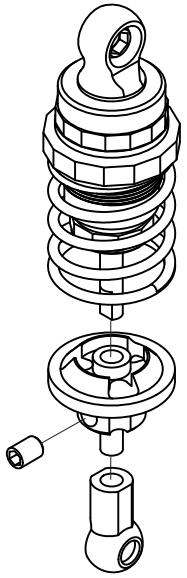


Push M5 Ball (supplied with shock parts) into plastic cap.

After filling body with oil and removing all air bubbles, place rubber seal and cap on body.

Screw top shock cover onto body.

Step 6



Attach M3 Ball end to spring perch. Do NOT use ball end supplied in shock bag.

Fix spring cup to shaft with set screw.

Ball end may need to be cut short for proper droop setting.

Rear Assembly - Step 32 - Center Shock continued

Oil

Shock oil dampens the car over bumps and determines how fast weight is transfered to the rear when on power.

Thinner oil = **Softer** shock = **More** weight transfer.
Used for more rear side bite grip when on power.

Thicker oil = **Stiffer** shock = **Less** weight transfer.
Used for more steering on power.

Start with 500 CST.

Droop

Rear *Droop* is the amount of up travel in the pod and is measured at the side spring chassis location. Pull up on the rear chassis while keeping all four wheels on the surface.

It can also be measured by placing the chassis on blocks and measuring how far the pod extends lower than the main chassis.

Rear droop determines how much weight is transfered forward while braking or off power.

Change droop by turning the spring perch adjusting the shock length. Check mid-chassis ride height after making droop changes.

More droop = **More** weight transfer = **More Initial** steering.

Less droop = **Less** weight transfer = **More Exit** steering.

Start with 1.5mm of rear droop.

Springs

Springs work with oil to dampen the car over bumps keeping the tires on the track surface.

The collar position determines pre-load and mid-chassis ride height.

Softer spring = **Softer** shock = **More** weight transfer.
Used for more rear side bite grip when on power.

Stiffer spring = **Stiffer** shock = **Less** weight transfer.
Used for more steering on power.

Kit starting spring is C = 2.3

Length

Initial setting is a short shock and is optimal in most situations. M3 posts can be attached to the spring perch to extend the shock length. Move the M3 Hex ball to three different screw locations on the servo plate to give a different feel.

Short length = **More** steering reaction = **Less** on power steering.
For flat surfaces.

Longer length = **Less** steering reaction = **More** on power steering.
For very bumpy surfaces.

Rear Assembly - Step 33

1. Snap the bottom ball to the cross brace.
2. Screw the shock top ball to the pod.

Shock Position

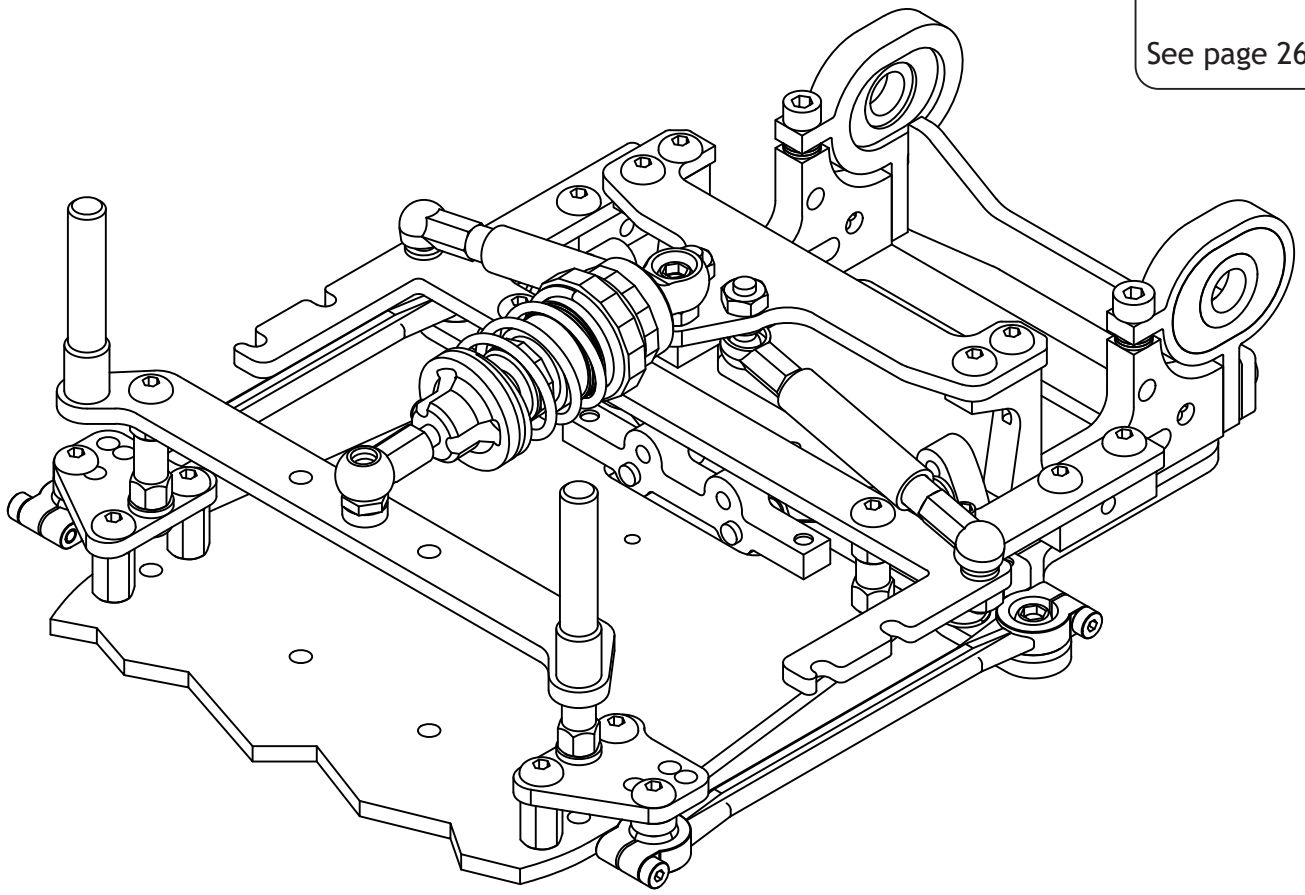
By placing shims under the bottom M3 Hex ball and the top M5 Hex ball, the shock angle can be adjusted to alter the dampening feel.

Higher angle = **softer** shock = **More** weight transfer.
Used for more rear side bite grip when on power.

Lower angle = **stiffer** shock = **Less** weight transfer.
Used for more steering on power.

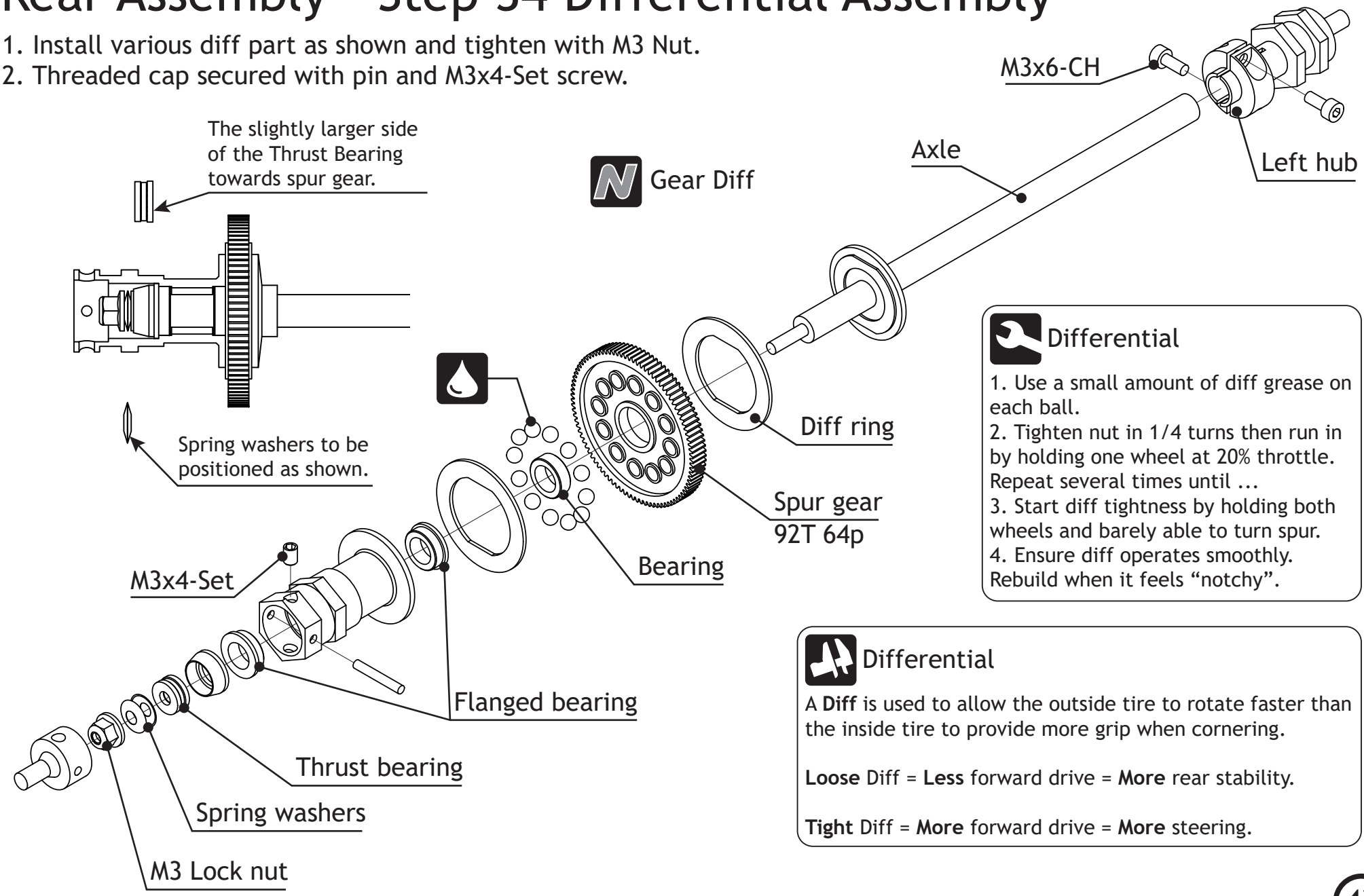
See page 26 for more information.

Center Springs



Rear Assembly - Step 34 Differential Assembly

1. Install various diff part as shown and tighten with M3 Nut.
2. Threaded cap secured with pin and M3x4-Set screw.



Differential

1. Use a small amount of diff grease on each ball.
2. Tighten nut in 1/4 turns then run in by holding one wheel at 20% throttle. Repeat several times until ...
3. Start diff tightness by holding both wheels and barely able to turn spur.
4. Ensure diff operates smoothly. Rebuild when it feels “notchy”.

Differential

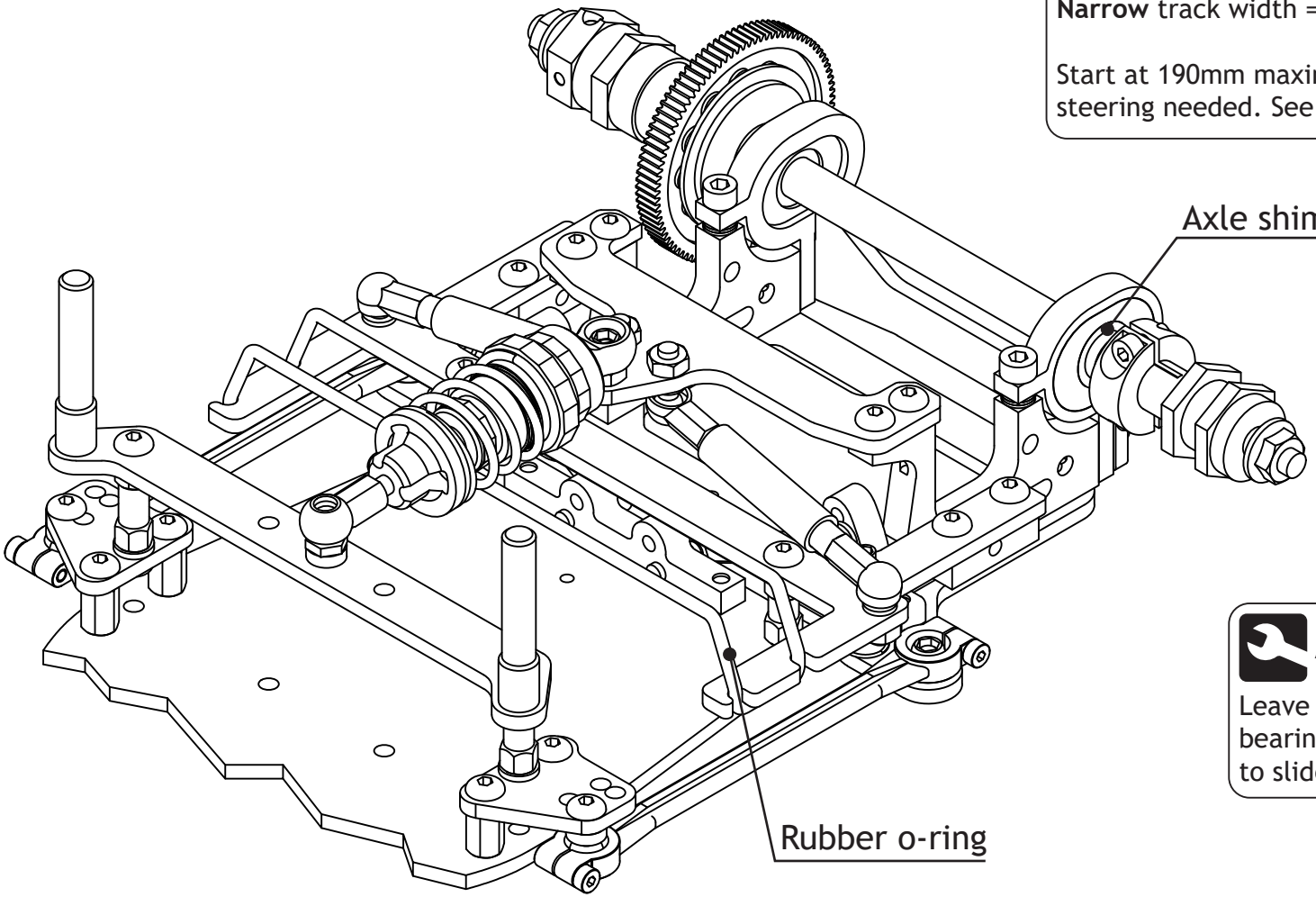
A **Diff** is used to allow the outside tire to rotate faster than the inside tire to provide more grip when cornering.

Loose Diff = **Less** forward drive = **More** rear stability.

Tight Diff = **More** forward drive = **More** steering.

Rear Assembly - Step 35

1. Place desired Axle shims next to right insert holder and slide axle through bearings.
2. Place desired Axle shims next to left insert holder and secure Left hub by applying equal pressure on CH screws.
3. Secure battery with o-ring.
4. Screw M5 Wheel nut to axle.



Width

The rear *Track Width* is adjusted by adding shims between the hubs and pod upright bearings. The rear width affects how much side bite stability the car has when cornering. Width is also dependent on tire choice and wheel offsets.

Wide track width = **More** side bite.

Narrow track width = **More** steering.

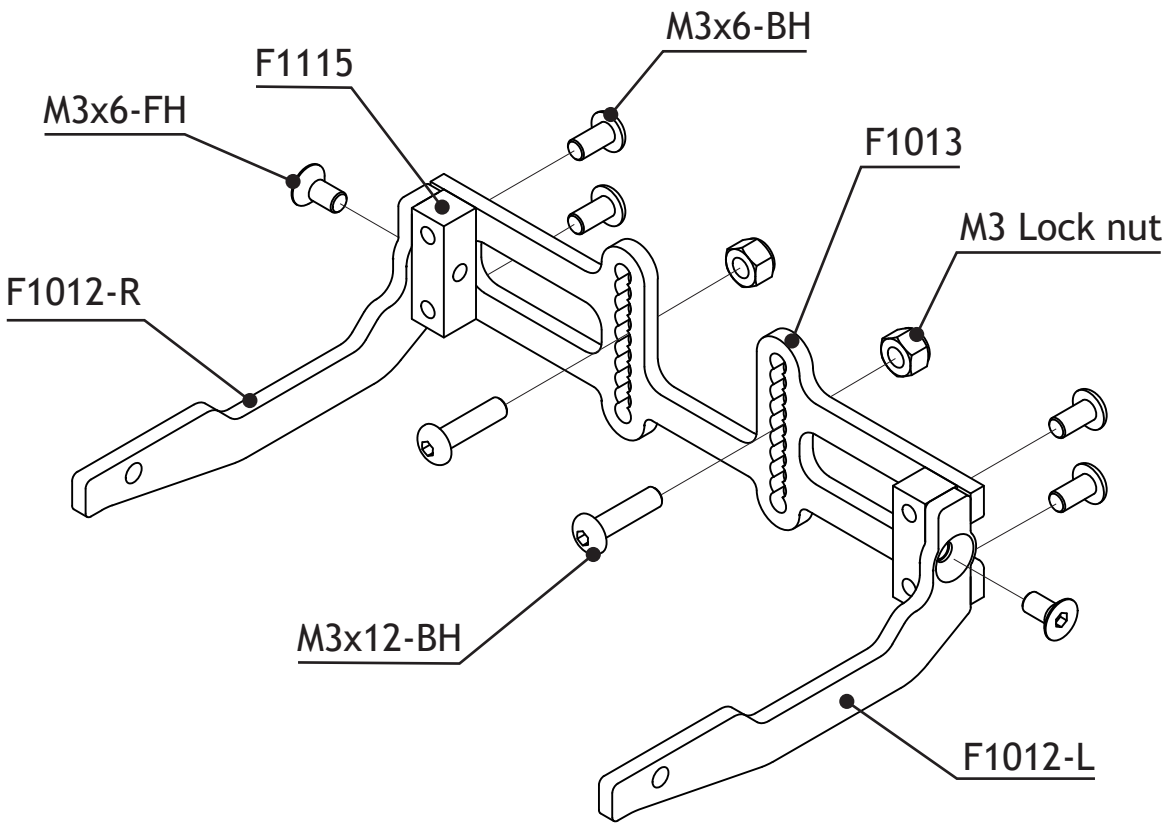
Start at 190mm maximum. Go more narrow if more steering needed. See page 7 for more information.

Axle

Leave a gap (0.25mm) between hub and bearing when fixing Left hub to allow axle to slide and rotate freely.

Rear Assembly - Step 36

1. Assemble the rear wing mount with M3x6-BH and M3x6-FH screws into The F1115 blocks.
2. Ensure the countersunk holes face outward.



Wing Mount

The Fury has 10 vertical options to place the rear wing where desired. Note that most F1 rules limit the wing height to under the body air box.

The wings can be butted against the F1013 Brace or posts can be used to move the wing rearward.

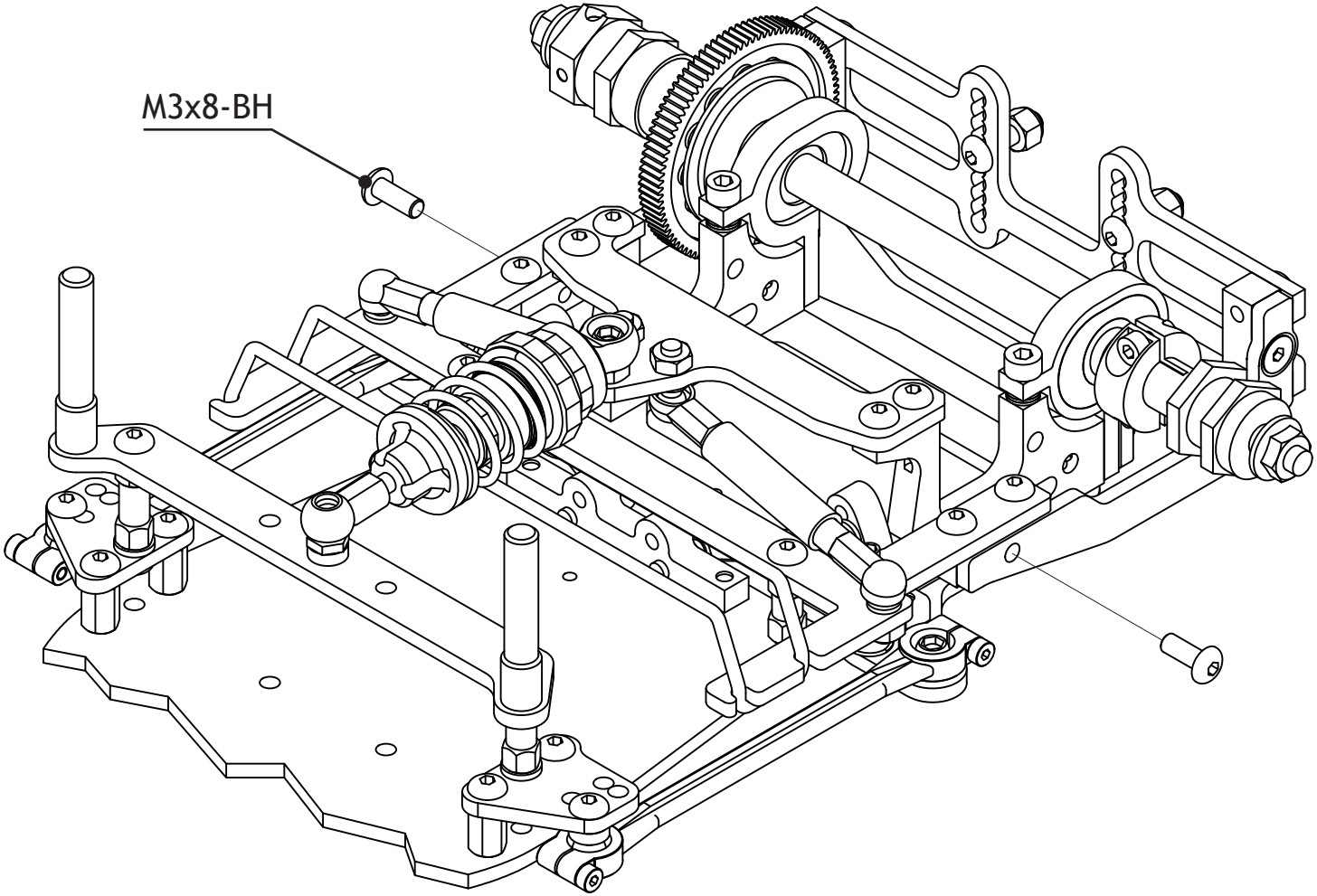
Aerodynamics

Our belief is most rear wings provide zero down force. They change the feel of the car with their ***weight***. The 3Racing style wing that provides down force through drag is the exception.

Experiment with different wings and heights to develop your own theories and setups.

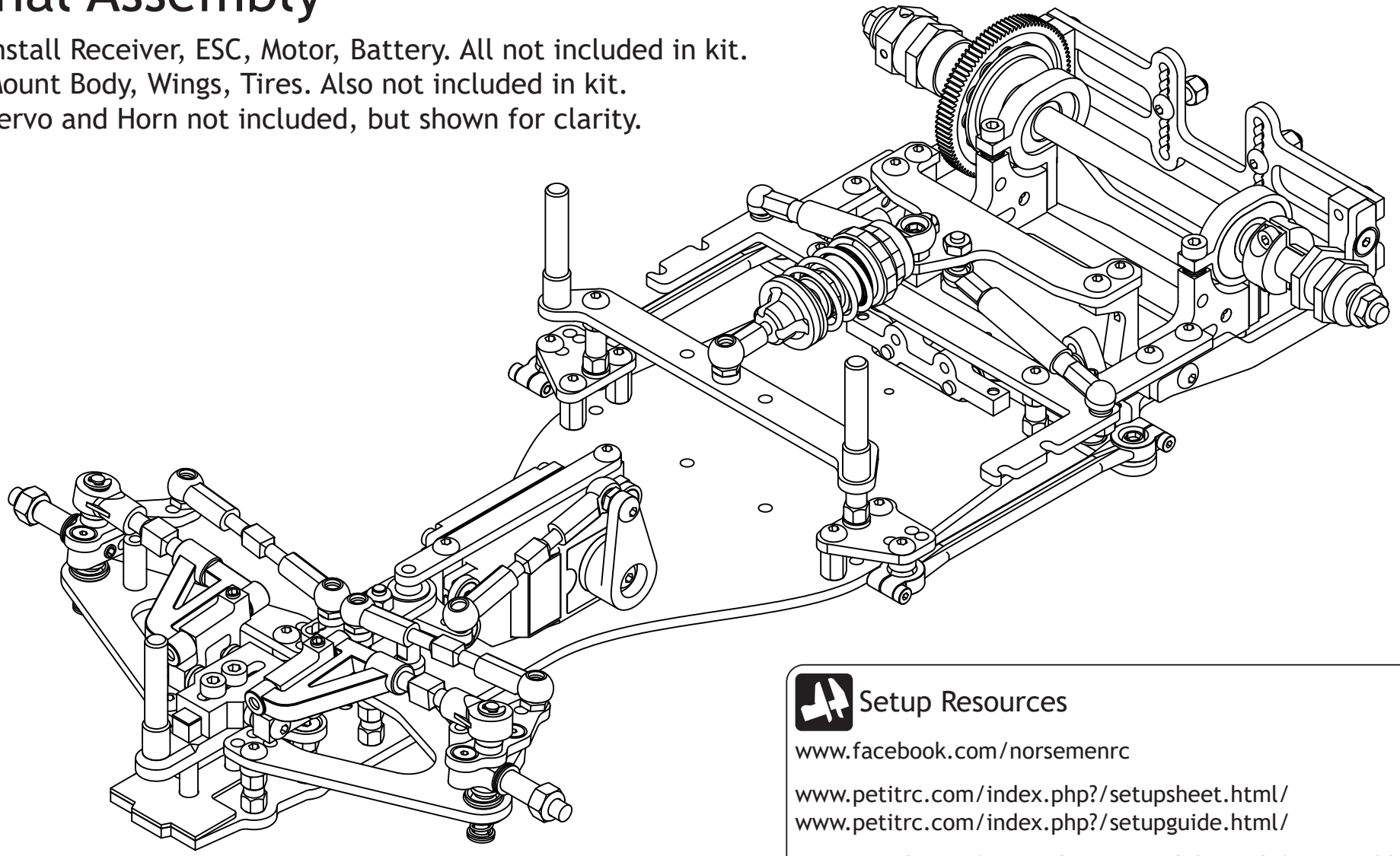
Rear Assembly - Step 37

1. Connect the wing mount assembly to the chassis with M3x8-BH screws.



Final Assembly

1. Install Receiver, ESC, Motor, Battery. All not included in kit.
2. Mount Body, Wings, Tires. Also not included in kit.
3. Servo and Horn not included, but shown for clarity.



Setup Resources

www.facebook.com/norsemenrc

www.petitrc.com/index.php?/setupsheet.html/
www.petitrc.com/index.php?/setupguide.html/

www.rctech.net/forum/electric-road/37-1-12-forum-1738.html

rcformula1.com.au/
www.davebstevens.com/essential-12th-f1-rc-racers-guide

Notes