

XRAY X11

1/12 PAN CAR
INSTRUCTION MANUAL



DESIGNED & MANUFACTURED IN EUROPE
PREMIUM
HIGHEST QUALITY
RACE CAR CHASSIS



BEFORE YOU START

The XII is a high-quality, 1/12-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 car model. This model racing car is not intended for use by beginners, inexperienced customers, or by children without direct supervision of a responsible, knowledgeable adult. If you do not fulfill these requirements, please return the kit in unused and unassembled form back to the shop where you have purchased it. Before building and operating your XII, **YOU MUST** read through all of the operating instructions and instruction manual and fully understand them to get the maximum enjoyment and prevent unnecessary damage. Read carefully and fully understand the instructions before beginning assembly. Make sure you review this entire manual and examine all details carefully. If for some reason you decide the XII is not what you wanted or expected, do not continue any further. Your hobby dealer cannot accept your XII kit for return or exchange after it has been partially or fully assembled.

Contents of the box may differ from pictures. In line with our policy of continuous product development, the exact specifications of the kit may vary without prior notice.

CUSTOMER SUPPORT

We have made every effort to make these instructions as easy to understand as possible. However, if you have any difficulties, problems, or questions, please do not hesitate to contact the XRAY support team at info@teamxray.com. Also, please visit our Web site at www.teamxray.com to find the latest updates, set-up information, option parts, and many other goodies. We pride ourselves on taking excellent care of our customers.

You can join thousands of XRAY fans and enthusiasts in our online community at: www.teamxray.com

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Failure to follow these instructions will be considered as abuse and/or neglect.

In line with our policy of continuous product development, the exact specifications of the kit may vary. In the unlikely event of any problems with your new kit, you should contact the model shop where you purchased it, quoting the part number. We do reserve all rights to change any specification without prior notice. All rights reserved.

SYMBOLS USED

Part bags used 	Assemble in the specified order 	Assemble left and right sides the same way 	Pay attention here 	Assemble as many times as specified (here twice) 	Apply CA glue 	Apply oil 	Apply grease 	Ensure smooth non-binding movement 	Follow Set-up Book 
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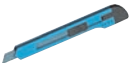
EQUIPMENT INCLUDED

XRAY Premium Silicone Oil 350cSt (#359235) 	Diff. Grease (HUDY #106211) 
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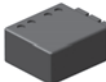
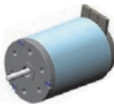
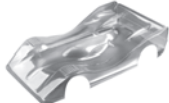
TOOLS REQUIRED

Allen Wrench 1.5mm (HUDY #111540) 	Allen Wrench 2.0mm (HUDY #112040) 	Socket Driver 5.5mm (HUDY #170055) 
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TOOLS REQUIRED

Pliers 	Scissors 	Side Cutters 	Hobby Knife 	File 	Turnbuckle 3mm (HUDY #181030) 	Turnbuckle 4mm (HUDY #181040) 	Reamer (HUDY #107600) 
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EQUIPMENT REQUIRED

Transmitter 	Receiver 	Steering Servo 	Speed Controller 	Electric Motor 	Pinion Gear and Setscrew 	Bodyshell 
4-cell Battery Pack 	Battery Charger 	Front & Rear Tires 	Tire Truer (HUDY #102003) 	Bearing Oil (HUDY #106230) 	Fibre Tape (HUDY #107870) 	Lexan Paint 

GRAPHITE PARTS PREPARATION

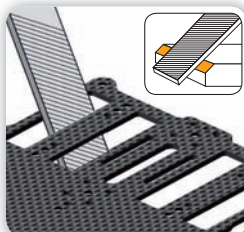
PREPARE ALL GRAPHITE PARTS

To protect and seal edges of graphite parts, sand edges smooth and then apply CA glue.

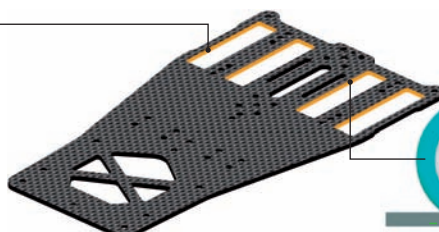


Fine sandpaper

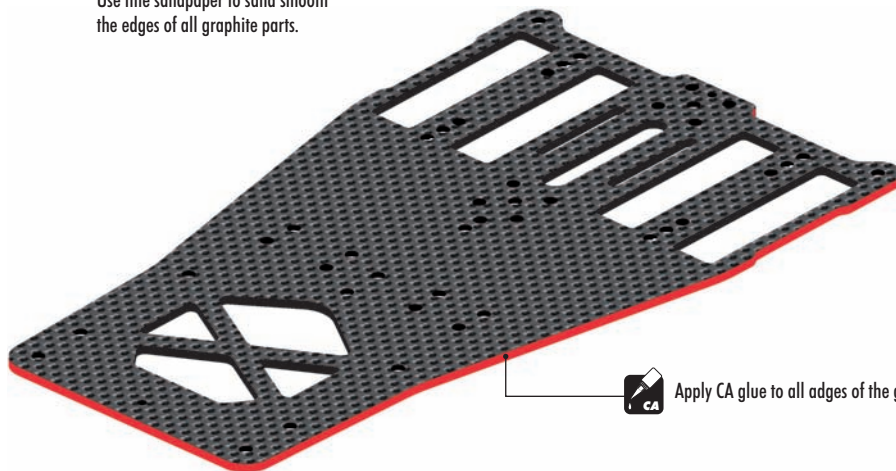
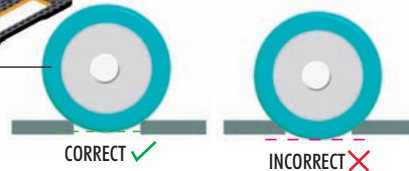
Use fine sandpaper to sand smooth the edges of all graphite parts.



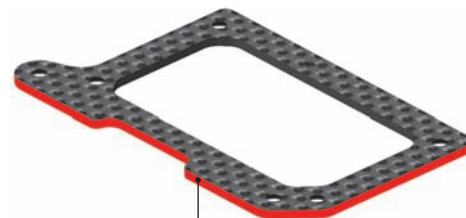
Lightly file edges of battery slots to remove sharp edges.



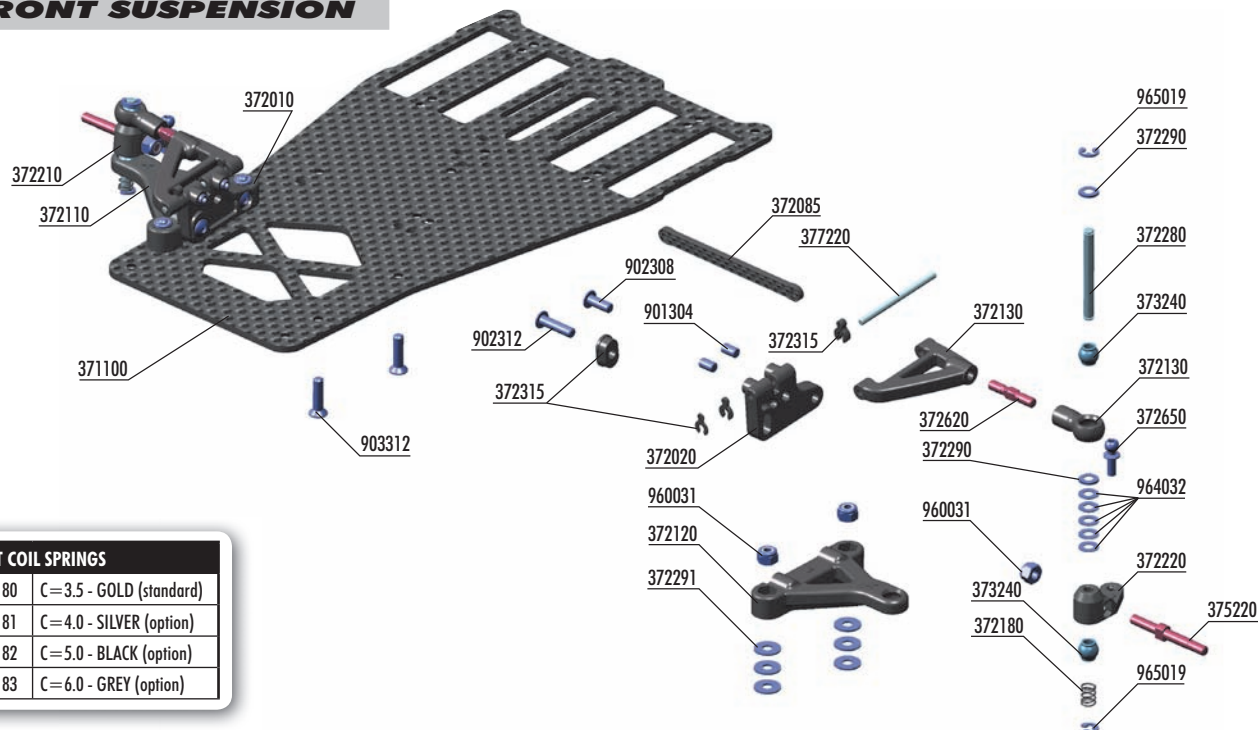
Do not file battery slots too much, or batteries may protrude below the chassis bottom.



Apply CA glue to all edges of the graphite parts.



1. FRONT SUSPENSION



FRONT COIL SPRINGS

#372180	C=3.5 - GOLD (standard)
#372181	C=4.0 - SILVER (option)
#372182	C=5.0 - BLACK (option)
#372183	C=6.0 - GREY (option)

BAG



371100 XII CHASSIS - 2.0MM GRAPHITE
 372010 COMPOSITE FRONT UPPER ARM MOUNT - RIGHT
 372020 COMPOSITE FRONT UPPER ARM MOUNT - LEFT
 372085 FRONT BRACE - GRAPHITE 2.0MM
 372110 COMPOSITE SUSPENSION ARM - FRONT LOWER - RIGHT
 372120 COMPOSITE SUSPENSION ARM - FRONT LOWER - LEFT
 372130 COMPOSITE FRONT UPPER SUSPENSION ARM & BALL JOINT
 372180 FRONT COIL SPRING 3.6x6x0.5MM; C=3.5 - GOLD (2)
 372210 COMPOSITE STEERING BLOCK - RIGHT

372220 COMPOSITE STEERING BLOCK - LEFT
 372280 KING PIN (2)
 372290 ALU SHIM 3.2x4.8x0.5 (4)
 372291 ALU SHIM 3.1x8x0.5 (4)
 372315 COMPOSITE ECCENTRIC BUSHINGS + CASTER CLIPS (2)
 372620 ADJ. TURNBUCKLE M3x17 MM - HUDY SPRING STEEL™ (2)
 372650 BALL-END 4.2MM - THREADED - HUDY SPRING STEEL™ (2)
 373240 PIVOTBALL UNIVERSAL 6.0 MM - HUDY SPRING STEEL (2)
 375220 FRONT WHEEL AXLE - HUDY SPRING STEEL (2)

377220 FRONT UPPER PIVOT PIN 2x31MM (2)

901304 HEX SCREW SB M3x4 (10)
 902308 HEX SCREW SH M3x8 (10)
 902312 HEX SCREW SH M3x12 (10)
 903312 HEX SCREW SFH M3x12 (10)
 960031 ALU NUT M3 (10)
 964032 WASHER S 3.2 x 4.8 x 0.2 (10)
 965019 E-CLIP 1.9 (10)

1. **2x** **L=R**

3x12 **4**

3x8 **2**

1

Marked "L"

LEFT

5

REACTIVE CASTER SETTING	
	= 2.5°
	= 5° INITIAL SETTING
	= 7.5°

Use same bushings in left and right sides.

COMPLETED ASSEMBLY

RIGHT

L=R

SET-UP BOOK
CASTER

902308
SH M3x8

902312
SH M3x12

2. **2x** **L=R**

NOTE ORIENTATION

5.2mm

5.2mm

NOTE ORIENTATION

COMPLETED ASSEMBLY

L=R

SET-UP BOOK
CAMBER

3. **2x** **L=R**

Lightly tighten setscrews

3

2

COMPLETED ASSEMBLY

RIGHT

L=R

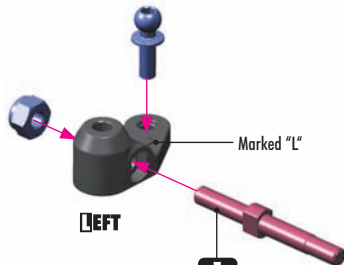
SET-UP BOOK

901304
SB M3x4

4.

2x

L=R



Marked "L"

LEFT

NOTE ORIENTATION

COMPLETED ASSEMBLY

L=R

Marked "R"



RIGHT

960031
ALU N M3

5.

2x

L=R

The number of shims used affects the ride height of the car, so determine the proper amount of shimming based on your tire diameter.



LEFT

0.5mm

COMPLETED ASSEMBLY

L=R

Moves freely

RIGHT

0.5mm

0.2mm (5x)

FRONT COIL SPRINGS

#372180	C=3.5 - GOLD
#372181	C=4.0 - SILVER
#372182	C=5.0 - BLACK
#372183	C=6.0 - GREY

FRONT RIDE HEIGHT ADJUSTMENT

INITIAL SETTING

- above upper arm (0.5mm)
- above steering block (1.5mm)
- beneath steering block (0mm)



RIDE HEIGHT

372290
S 3.2x4.8x0.5964032
S 3.2x4.8x0.2965019
C 1.9

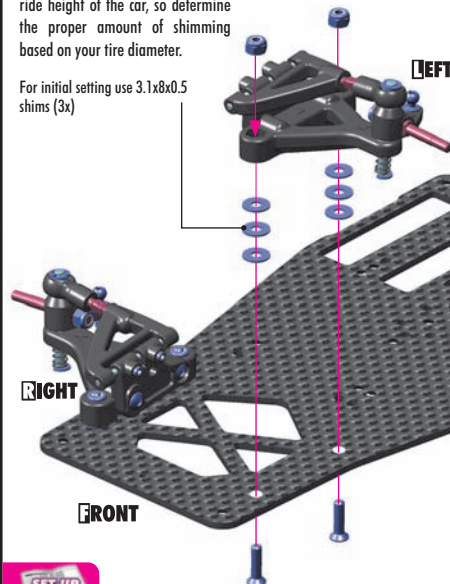
6.

2x

L=R

The number of shims used affects the ride height of the car, so determine the proper amount of shimming based on your tire diameter.

For initial setting use 3.1x8x0.5 shims (3x)



LEFT

RIGHT

FRONT



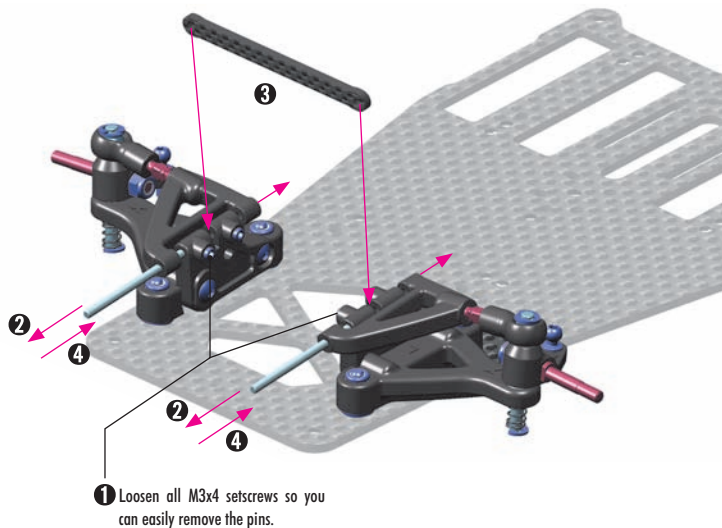
RIDE HEIGHT

372291
S 3.1x8x0.5903312
SFH M3x12960031
ALU N M3

7.

FRONT BRACES

#372080	ALU ACTIVE BRACE (option)
#372085	GRAPHITE BRACE (standard)

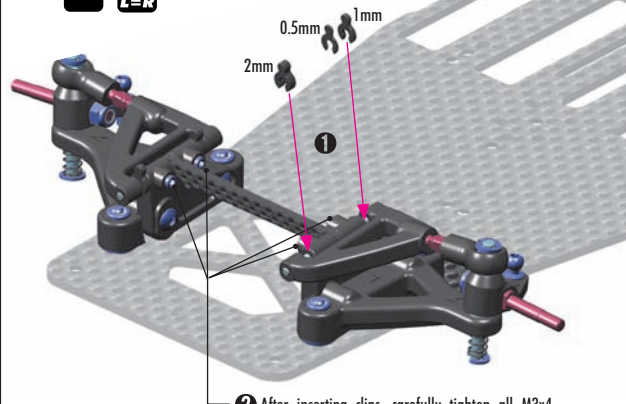


8.

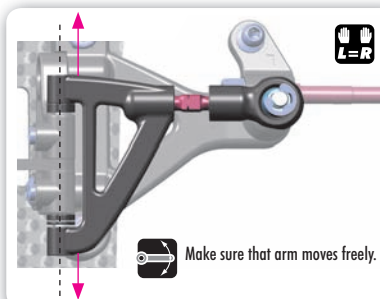
2x

L=R

INITIAL SETTING



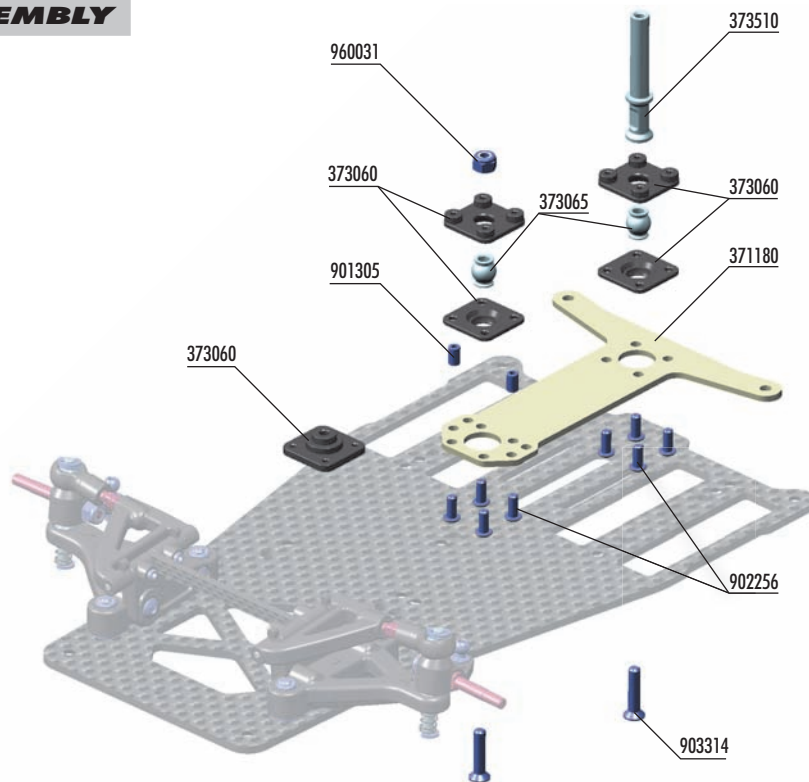
2 After inserting clips, carefully tighten all M3x4 setscrews so the pins will not move. Do not overtighten or you may strip the plastic.



If the arm does not have enough play, remove the clips and thin the clips slightly with sandpaper. The arms must have free movement and not bind.



2. T-BAR ASSEMBLY



BAG

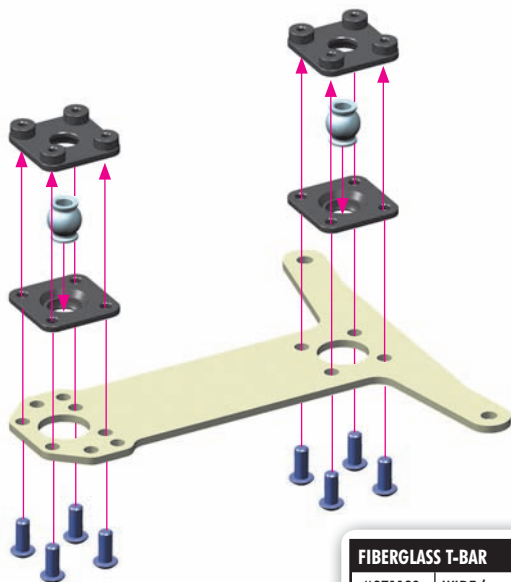
02

371180 FIBERGLASS T-BAR 1.5MM - WIDE
 373060 COMPOSITE PIVOT MOUNTS - SET
 373065 T-BAR PIVOTBALL - HUDY SPRING STEEL (2)
 373510 ALU FRICTION DAMPER POST

901305 HEX SCREW SB M3x5 (10)
 902256 HEX SCREW SH M2.5x6 (10)
 903314 HEX SCREW SFH M3x14 (10)
 960031 ALU NUT M3 (10)

1.1

T-BAR MOUNTING OPTION 1: PRO Racing with 2 Pivotballs

SET-UP
BOOK

T-BAR

FIBERGLASS T-BAR

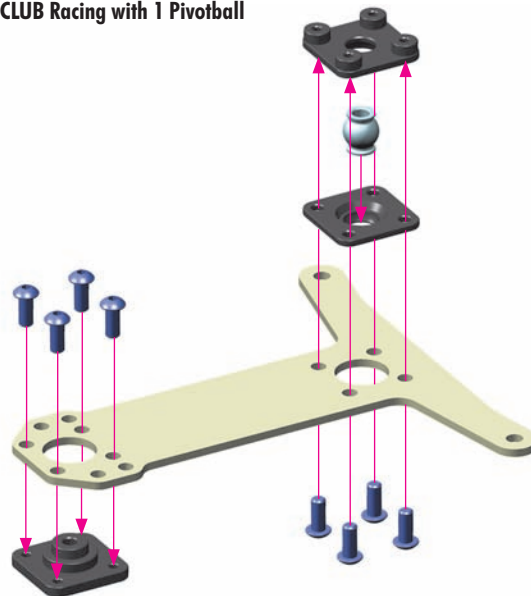
#371180 WIDE (standard)

#371181 NARROW (option)

902256
SH M2.5x6

1.2

T-BAR MOUNTING OPTION 2: CLUB Racing with 1 Pivotball

SET-UP
BOOK

T-BAR

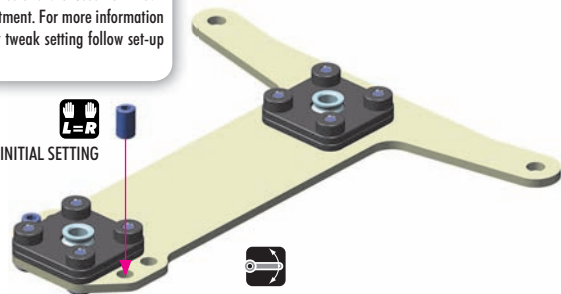
902256
SH M2.5x6

2.

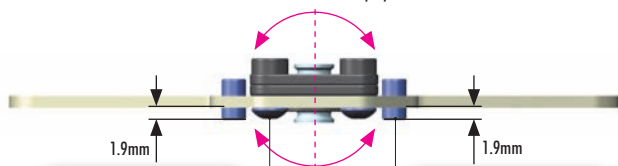
These screws are used for tweak adjustment. For more information about tweak setting follow set-up book.



INITIAL SETTING



Ensure free, smooth movement without excessive freeplay.



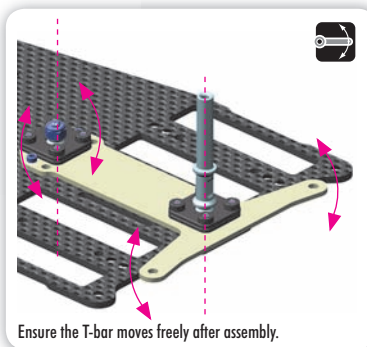
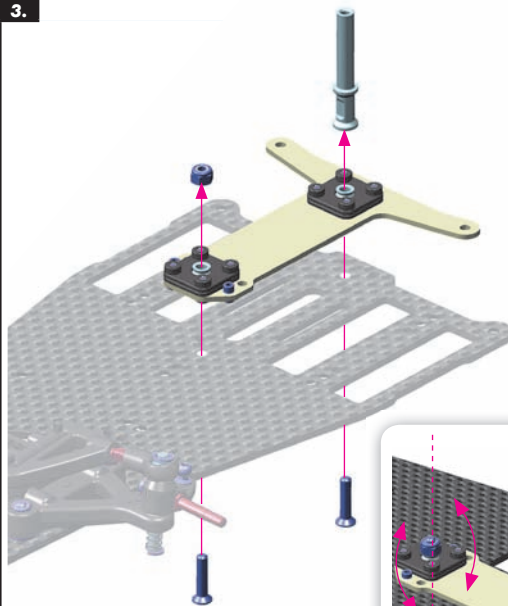
Lightly tighten the screws so there is no free play, but do not overtighten otherwise the balls will not move freely.

This is only an ESTIMATED value; make sure that the setscrews only lightly touch the chassis.



901305
SB M3x5

3.



Ensure the T-bar moves freely after assembly.

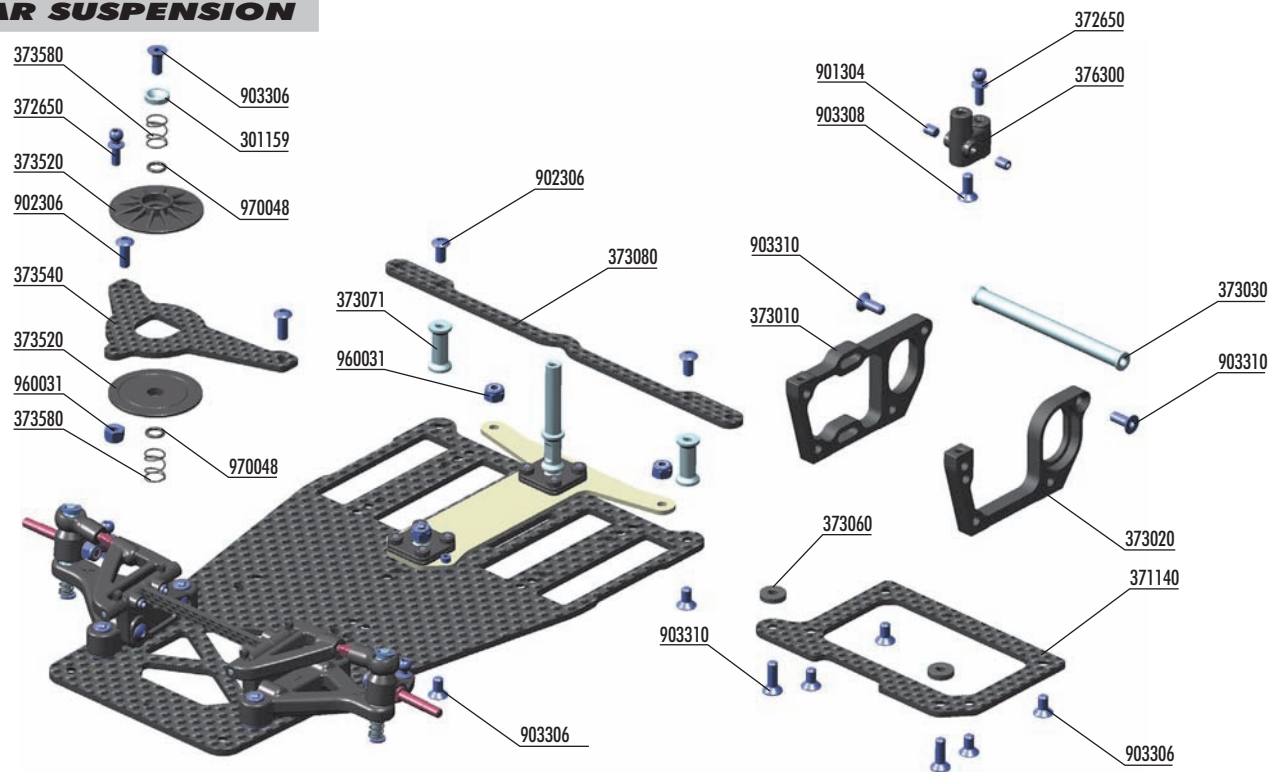


903314
SFH M3x14



960031
ALU N M3

3. REAR SUSPENSION



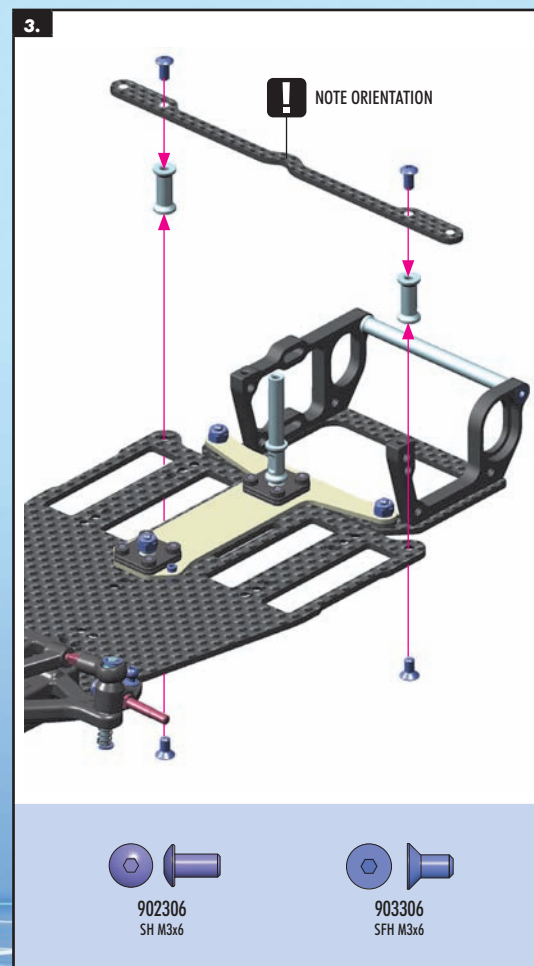
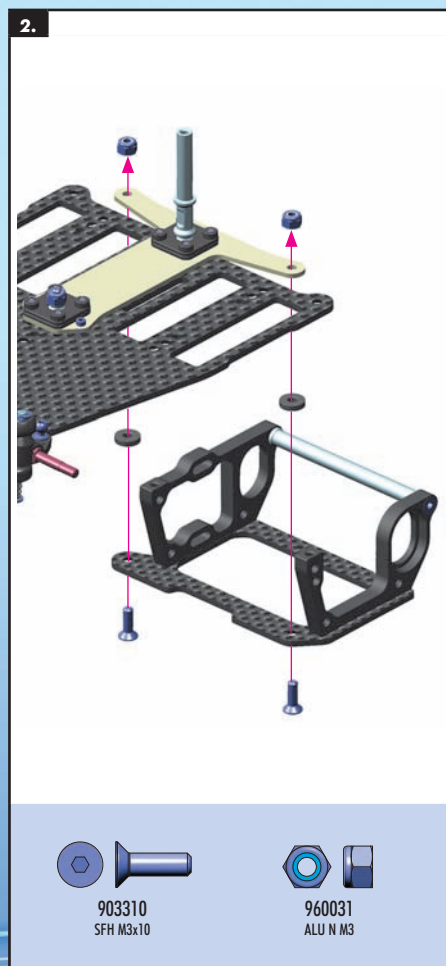
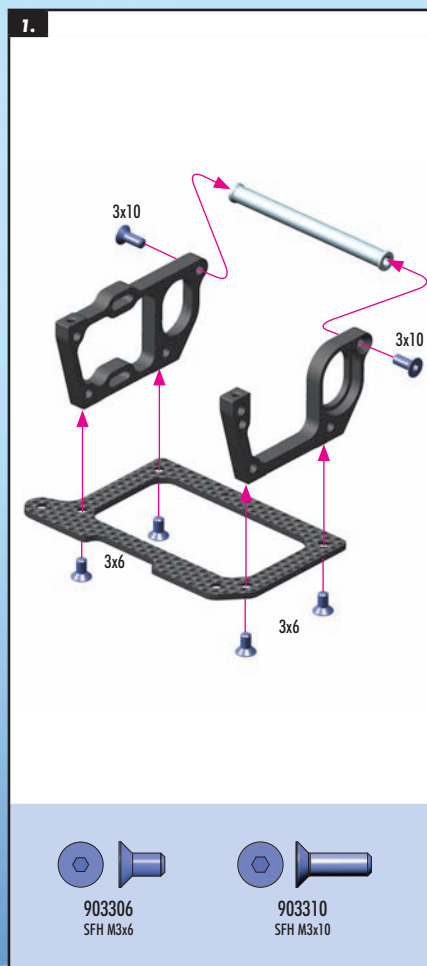
BAG

03

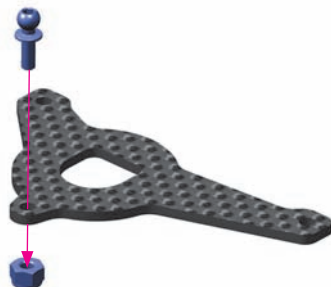
301159 ALU COUNTERSUNK SHIM (4)
 371140 GRAPHITE 2.0MM REAR POD LOWER PLATE
 372650 BALL-END 4.2MM - THREADED - HUDY SPRING STEEL™ (2)
 373010 ALU REAR BULKHEAD - MOTOR (RIGHT)
 373020 ALU REAR BULKHEAD - LEFT
 373030 ALU REAR BULKHEAD BRACE
 373060 COMPOSITE PIVOT MOUNTS - SET
 373071 ALU REAR BRACE MOUNT (2)

373080 REAR BRACE - GRAPHITE 2.0MM
 373520 COMPOSITE FRICTION DAMPER PAD (2)
 373540 REAR POD UPPER PLATE - GRAPHITE 2.0MM
 373580 FRICTION DAMPER PAD SPRING (2)
 376300 COMPOSITE ANTENNA MOUNT

901304 HEX SCREW SB M3x4 (10)
 902306 HEX SCREW SH M3x6 (10)
 903306 HEX SCREW SFH M3x6 (10)
 903308 HEX SCREW SFH M3x8 (10)
 903310 HEX SCREW SFH M3x10 (10)
 960031 ALU NUT M3 (10)
 970048 O-RING 4.8x1.9 (10)

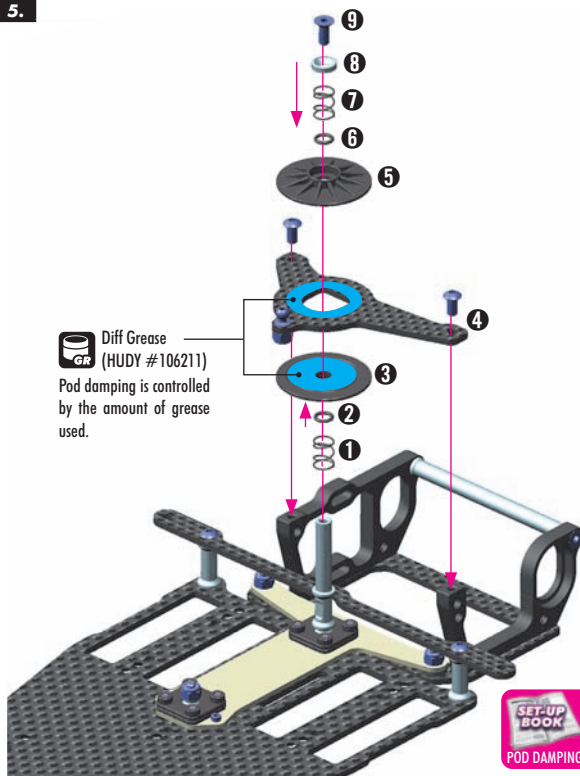


4.



960031
ALU N M3

5.



902306
SH M3x6

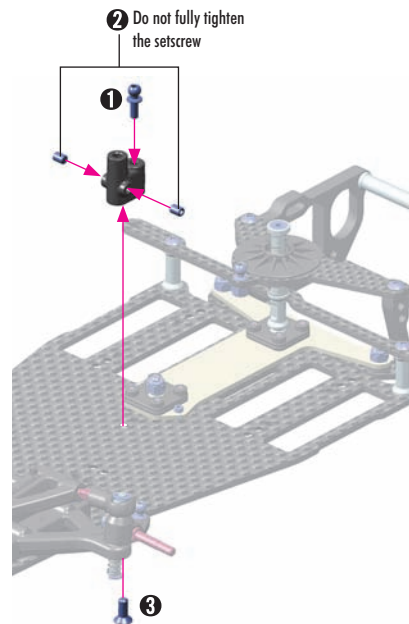


903306
SFH M3x6



970048
O 4.8x1.9

6.

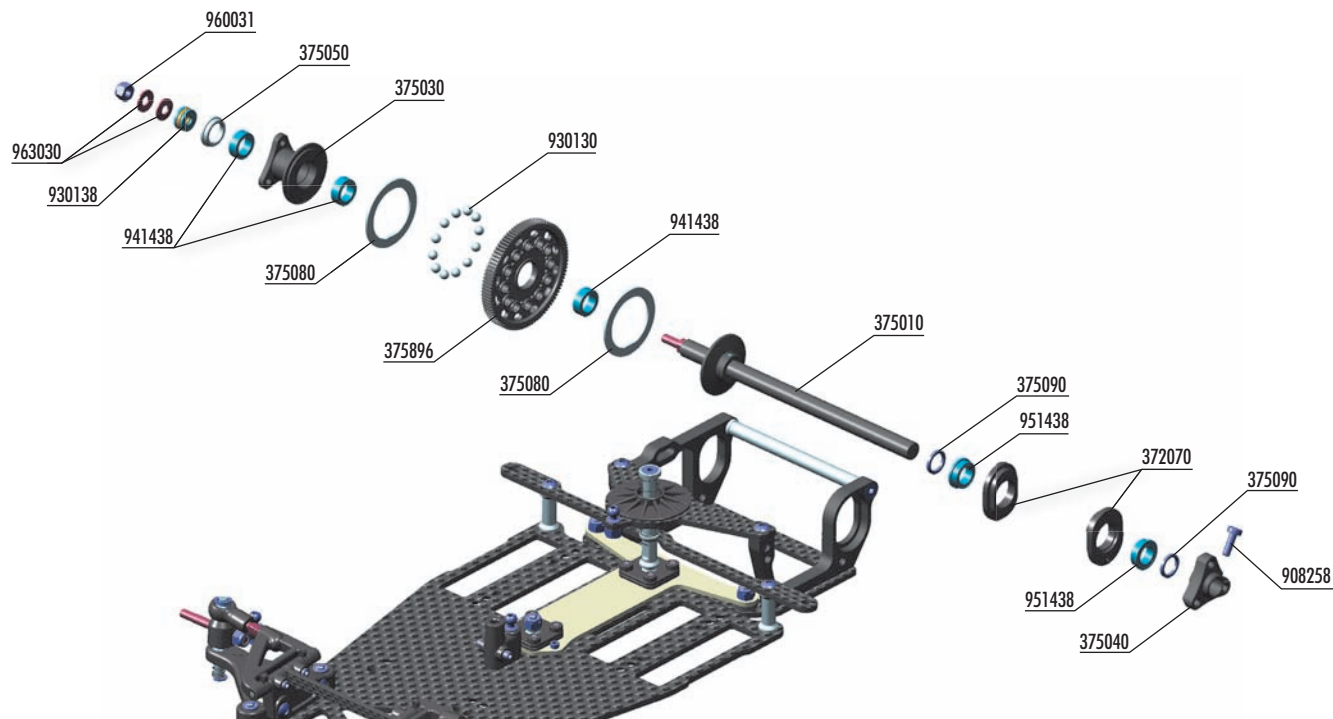


901304
SB M3x4



903308
SFH M3x8

4. BALL DIFFERENTIAL



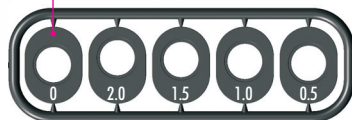
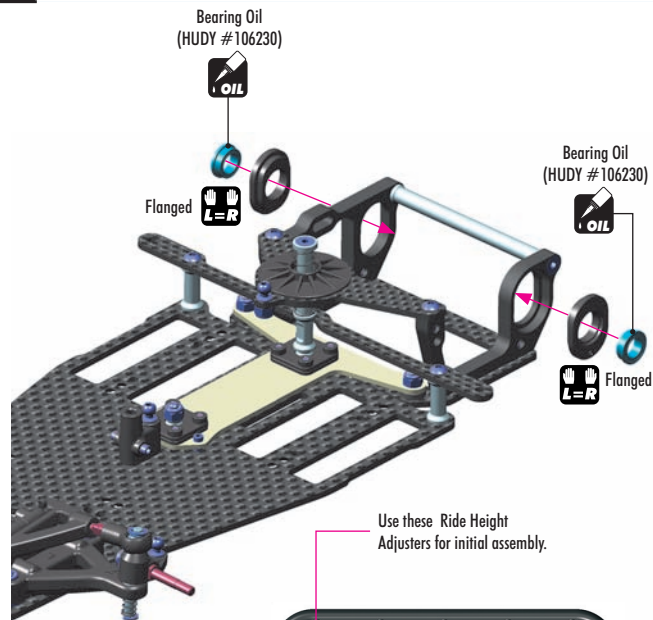
BAG

04

372070 COMPOSITE RIDE HEIGHT ADJUSTER SET (2)
 375010 REAR AXLE SHAFT - GRAPHITE
 375030 ALU REAR WHEEL HUB - RIGHT
 375040 ALU REAR WHEEL HUB - LEFT
 375050 ALU DIFF HUB
 375080 D-LOCK DIFF PLATE (2)
 375090 SET OF ALU SHIMS (0.5MM, 1.0MM, 2.0MM)
 375896 COMPOSITE SPUR GEAR - 96T / 64P

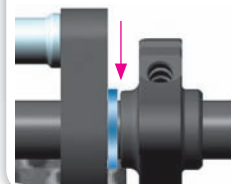
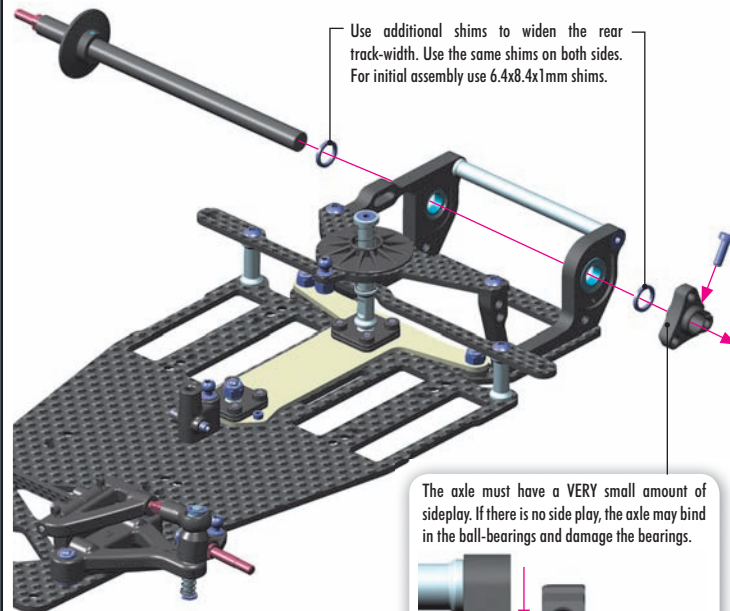
908258 HEX SCREW SOCKET HEAD CAP M2.5x8 (10)
 930130 CARBIDE BALL 3.175MM (12)
 930138 CARBIDE BALL-BEARING AXIAL F3-8 3x8x3.5
 941438 HIGH-SPEED BALL-BEARING 1/4"x3/8"x1/8" RUBBER SEALED (2)
 951438 BALL-BEARING 1/4" x 3/8" x 1/8" FLANGED (2)
 960031 ALU NUT M3 (10)
 963030 CONE WASHER ST 3x8x0.5 (10)

1.



951438
BB 1/4" x 3/8" x 1/8"

2.

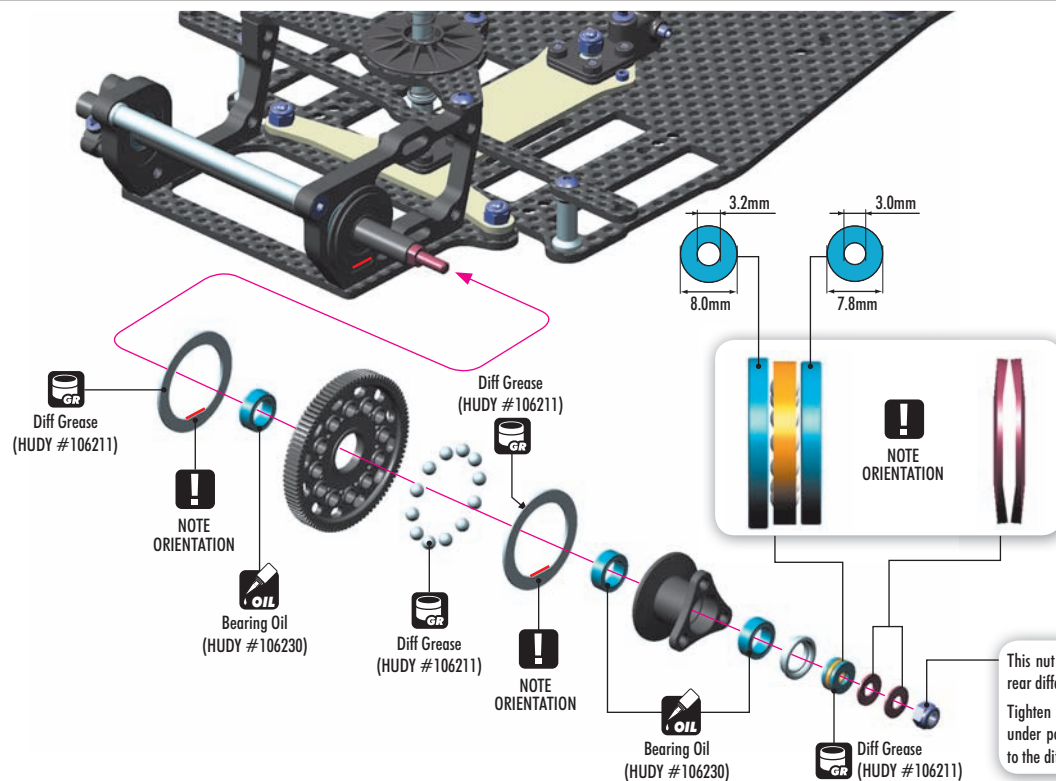


375090
6.4x8.4x1.0



908258
SCH M2.5x8

3.



SET-UP BOOK
DIFFERENTIAL

930130
B 3.1

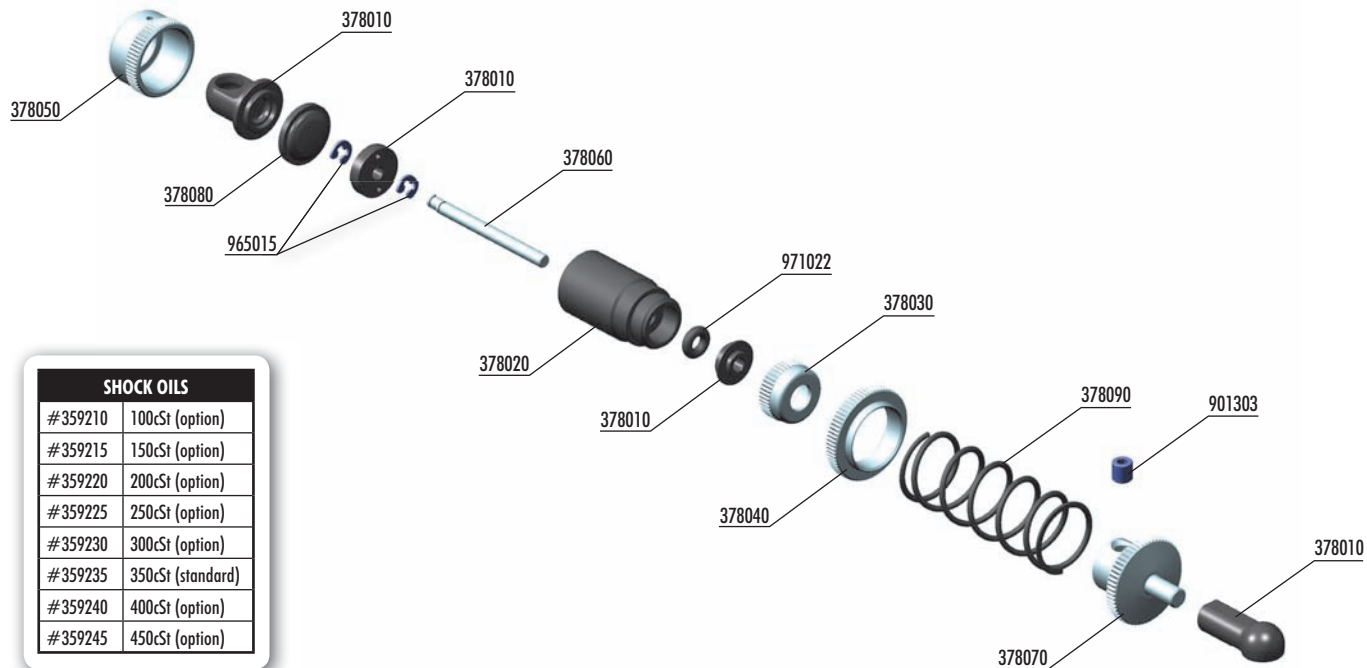
930138
BA 3x8

941438
BB 1/4"x3/8"x1/8"

960031
ALU N M3

963030
ST 3x8

5. SHOCK ABSORBER



SHOCK OILS

#359210	100cSt (option)
#359215	150cSt (option)
#359220	200cSt (option)
#359225	250cSt (option)
#359230	300cSt (option)
#359235	350cSt (standard)
#359240	400cSt (option)
#359245	450cSt (option)

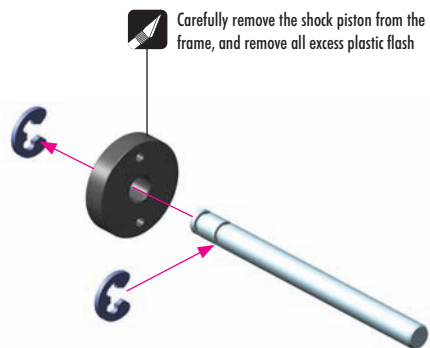
BAG



378010 COMPOSITE SHOCK PARTS - FRAME
 378020 ALU THREADED SHOCK BODY - HARDCOATED
 378030 ALU SHOCK BODY CAP - LOWER
 378040 ALU SHOCK ADJUSTABLE NUT
 378050 ALU SHOCK BODY CAP - UPPER
 378060 SHOCK SHAFT
 378070 ALU SHOCK SPRING COLLAR

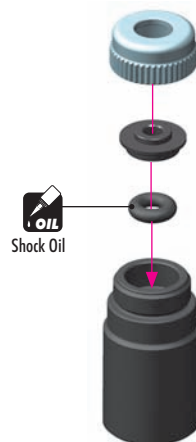
378080 SHOCK RUBBER MEMBRANE (2)
 378090 SHOCK SPRING
 901303 HEX SCREW SB M3x3 (10)
 965015 E-CLIP 1.5 (10)
 971022 SILICONE O-RING 2x2 (10)

1.



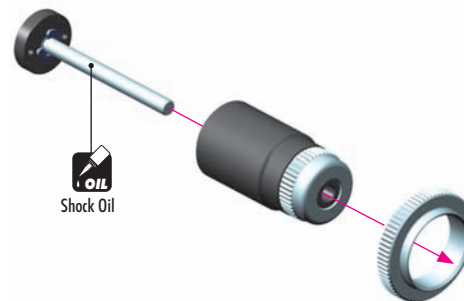
965015
C15

2.



971022
0 2x2

3.



COMPLETED ASSEMBLY

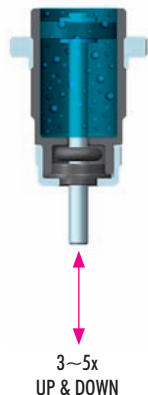


4. DEFAULT SHOCK SETTING

Follow the steps below to set the shock.



- 1** Extend the shock shaft completely. Fill the shock body with the shock oil.



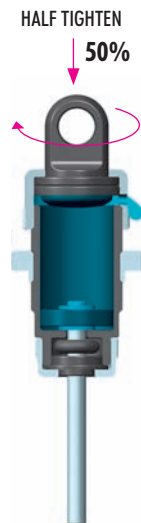
- 2** Move the shock shaft up and down a few times to release the air bubbles trapped beneath the piston.



- 3** Orient the filled shock vertically for several minutes with the shock shaft fully extended. The remaining air bubbles will release.



- 4** Install the shock membrane into the groove in the upper shock cap.



- 5** Gently place the shock cap assembly onto the filled shock body. Excess oil will spill from the shock. Screw the shock cap onto the body by only a few turns, approx. 50%. Excess oil will flow through the hole in the shock cap.



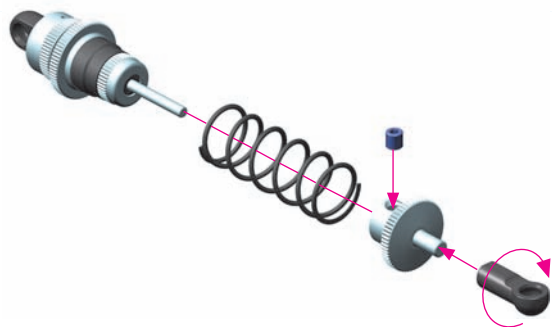
- 6** Gently push the shock shaft completely into the shock body. Excess oil will flow through the hole in the shock cap.



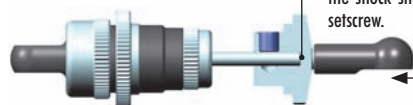
- 7** Keep the shock shaft pushed in the shock body and tighten the shock cap completely.

Tighten the cap fully but do not overtighten or the rubber membrane may be damaged. Make sure that there is no oil leakage after the cap is tightened.

5.

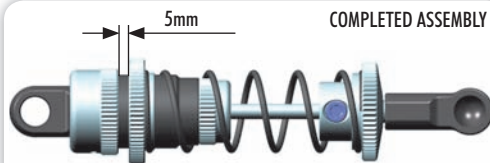


INITIAL SETTING



Press the collar **FULLY** onto the end of the shock shaft and tighten the M3x3 setscrew.

For initial setting, thread fully.



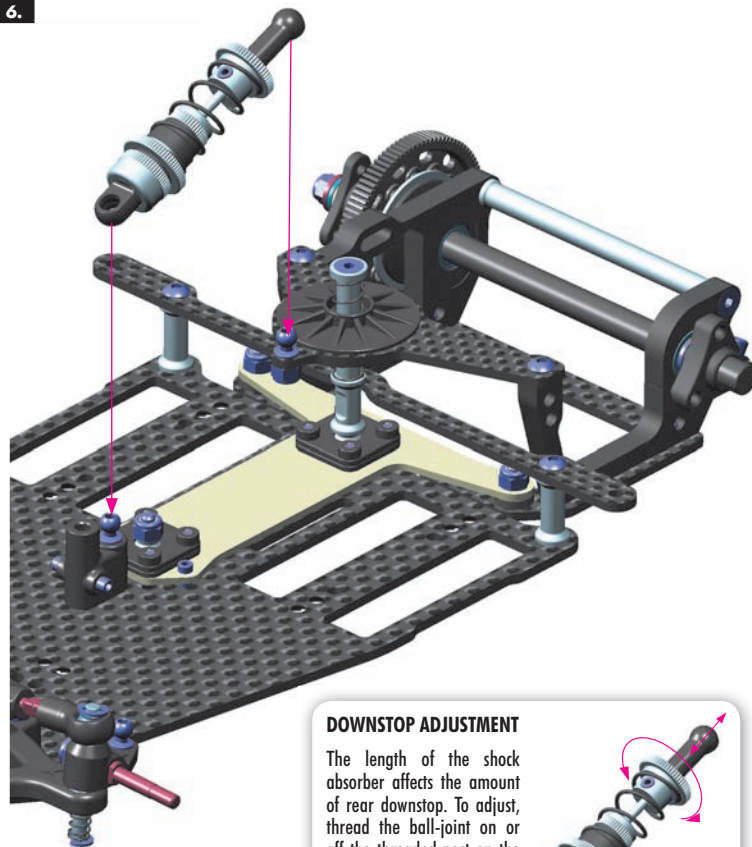
COMPLETED ASSEMBLY

SET-UP
BOOK
SHOCK



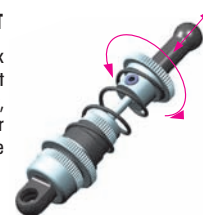
901303
SB M3x3

6.



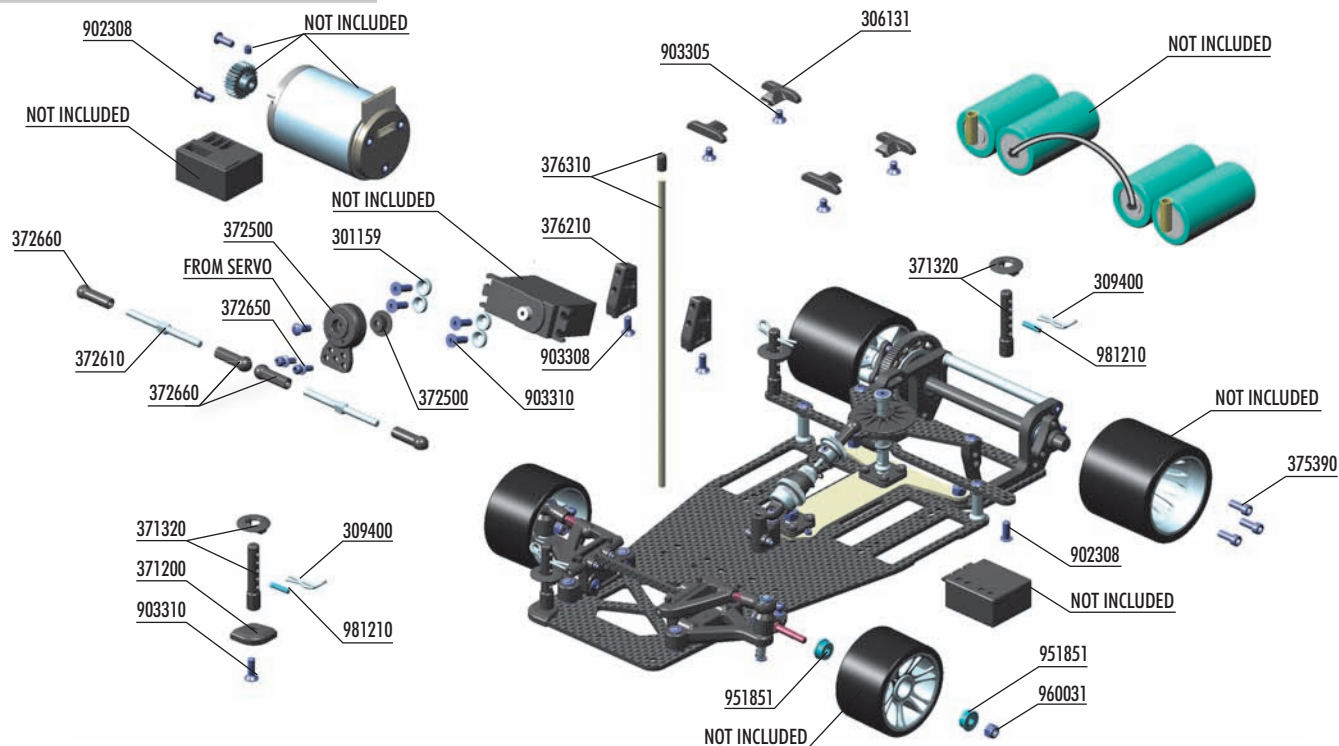
DOWNSTOP ADJUSTMENT

The length of the shock absorber affects the amount of rear downstop. To adjust, thread the ball-joint on or off the threaded post on the bottom spring cap.



SET-UP
BOOK
DOWNSTOP

6. FINAL ASSEMBLY



BAG

05

301159 ALU COUNTERSUNK SHIM (4)
 305968 ~88 PINION GEAR ALU HARD COATED 18~38T/64P
 306131 SET OF BATTERY BACKSTOPS - V2
 309400 BODY CLIP FOR 5MM BODY POST (8)
 371200 COMPOSITE CHASSIS PROTECTOR (2)
 371320 COMPOSITE BODY POST (2)
 372500 COMPOSITE SERVO SAVER SET

372610 ALU ADJ. TURNBUCKLE M3x42 MM - SWISS 7075 T6 (2)
 372650 BALL-END 4.2MM - THREADED - HUDY SPRING STEEL™ (2)
 372660 COMPOSITE STEERING BALL-JOINT 4.2 MM (4)
 375390 ALU HEX SCREW M3x8 FOR REAR WHEELS (6)
 376210 COMPOSITE SERVO MOUNT (2)
 376310 FIBERGLASS SOLID ANTENNA ROD + CAP

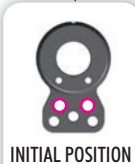
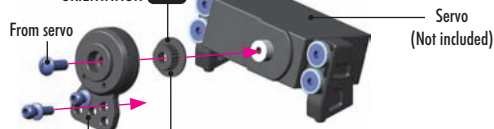
902308 HEX SCREW SH M3x8 (10)
 903305 HEX SCREW SFH M3x5 (10)
 903308 HEX SCREW SFH M3x8 (10)
 903310 HEX SCREW SFH M3x10 (10)
 960031 ALU NUT M3 (10)
 981210 PIN 2x10 (10)
 951851 BALL-BEARING 1/8" x 5/16" x 9/64" FLANGED (2)

1.

We recommend using a micro servo for 1/12 pan cars.



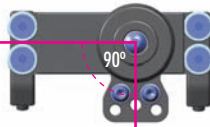
NOTE
ORIENTATION



Futaba Hitec KO Propo

Use the adapter that match your servo.

Note the orientation of servo saver when servo is in neutral.

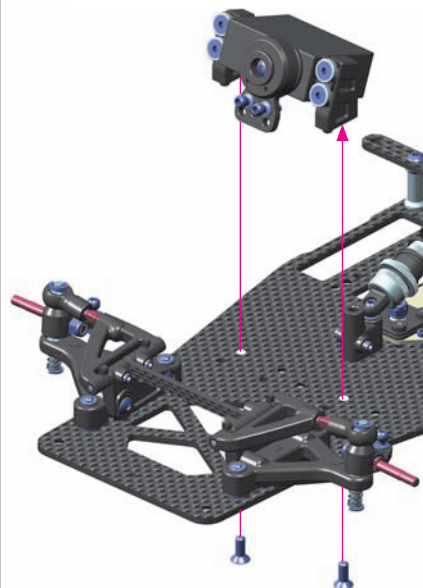


903310
SFH M3x10

2.

SERVO MOUNT SETS

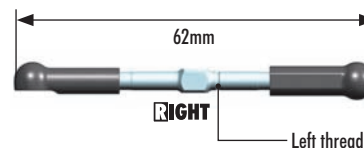
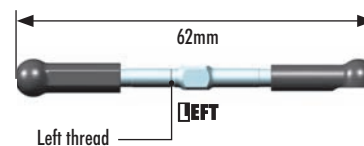
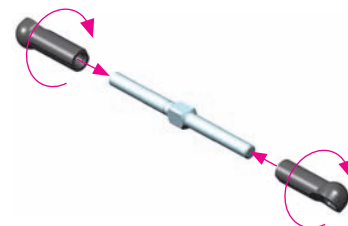
#376210	COMPOSITE (standard)
#376215	GRAPHITE - MID-SIZE (option)
#376216	GRAPHITE - MICRO (option)



903308
SFH M3x8

3.

2x
L=R



TOE

4.

2x  L=R! NOTE
ORIENTATIONNote groove
position

LEFT

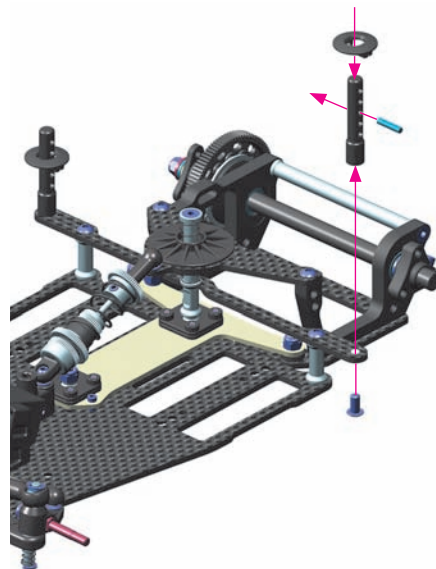
! NOTE
ORIENTATIONNote groove
position

RIGHT

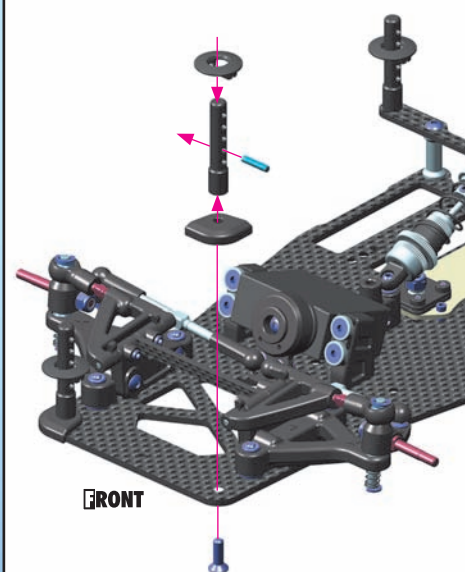
FRONT



5.

2x  L=R902308
SH M 3x8981210
P 2x10

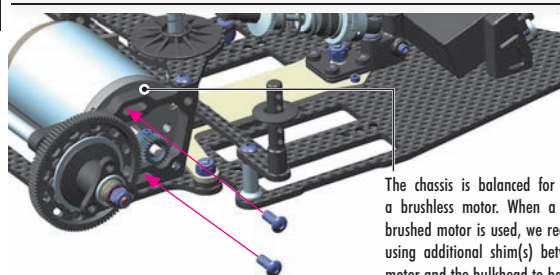
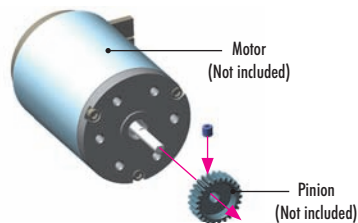
6.

2x  L=R

FRONT

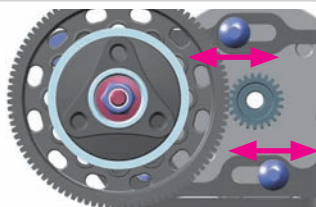
903310
SFH M 3x10981210
P 2x10

7.



The chassis is balanced for use with a brushless motor. When a standard brushed motor is used, we recommend using additional shim(s) between the motor and the bulkhead to balance the weight properly.

Adjust the gear mesh so there is appropriate space between the spur gear and pinion teeth. There should be a very small amount of freeplay.



SET-UP
BOOK
GEAR RATIO

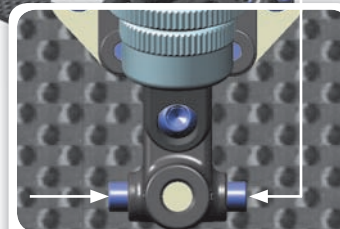
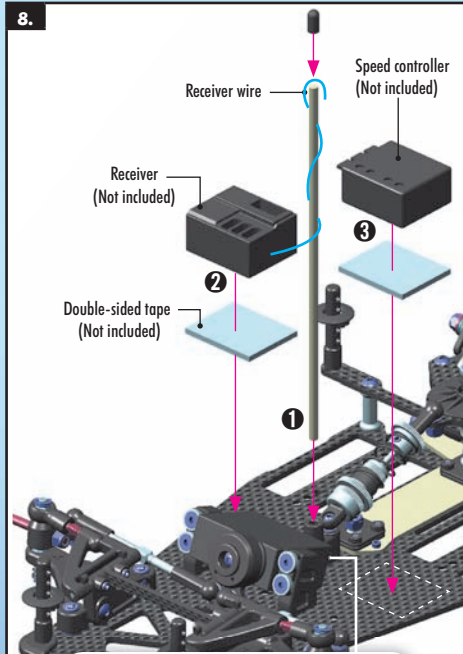


902308
SH M 3x8

PINION GEARS ALU HARDCOATED

#305968	18T / 64P (option)
#305969	19T / 64P (option)
#305970	20T / 64P (option)
#305971	21T / 64P (option)
#305972	22T / 64P (option)
#305973	23T / 64P (option)
#305974	24T / 64P (option)
#305975	25T / 64P (option)
#305976	26T / 64P (option)
#305977	27T / 64P (option)
#305978	28T / 64P (option)
#305979	29T / 64P (option)
#305980	30T / 64P (option)
#305981	31T / 64P (option)
#305982	32T / 64P (option)
#305983	33T / 64P (option)
#305984	34T / 64P (option)
#305985	35T / 64P (option)
#305986	36T / 64P (option)
#305987	37T / 64P (option)
#305988	38T / 64P (option)

8.

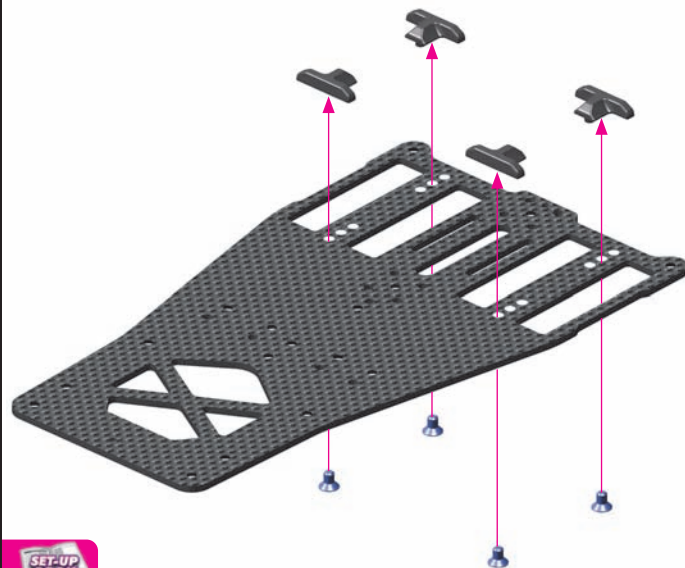


After inserting the antenna rod, fully tighten both setscrews. Do not overtighten or you may strip the plastic.

9a.

BATTERY CONFIGURATION 1: Forward Position

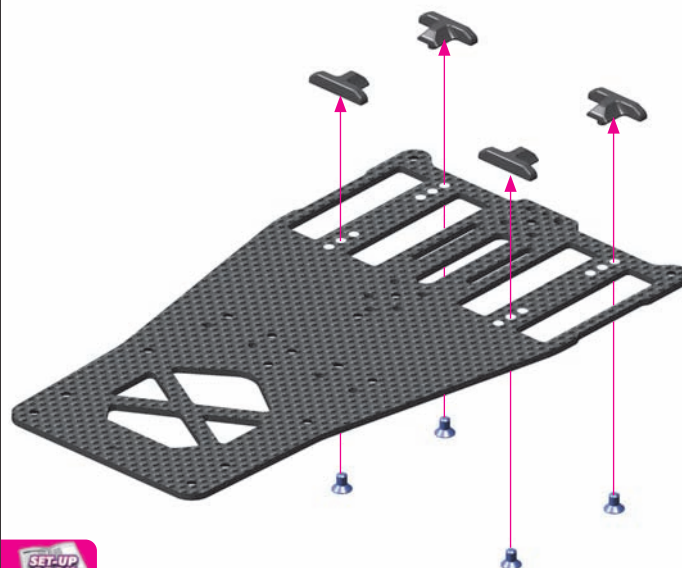
INITIAL ASSEMBLY



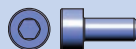
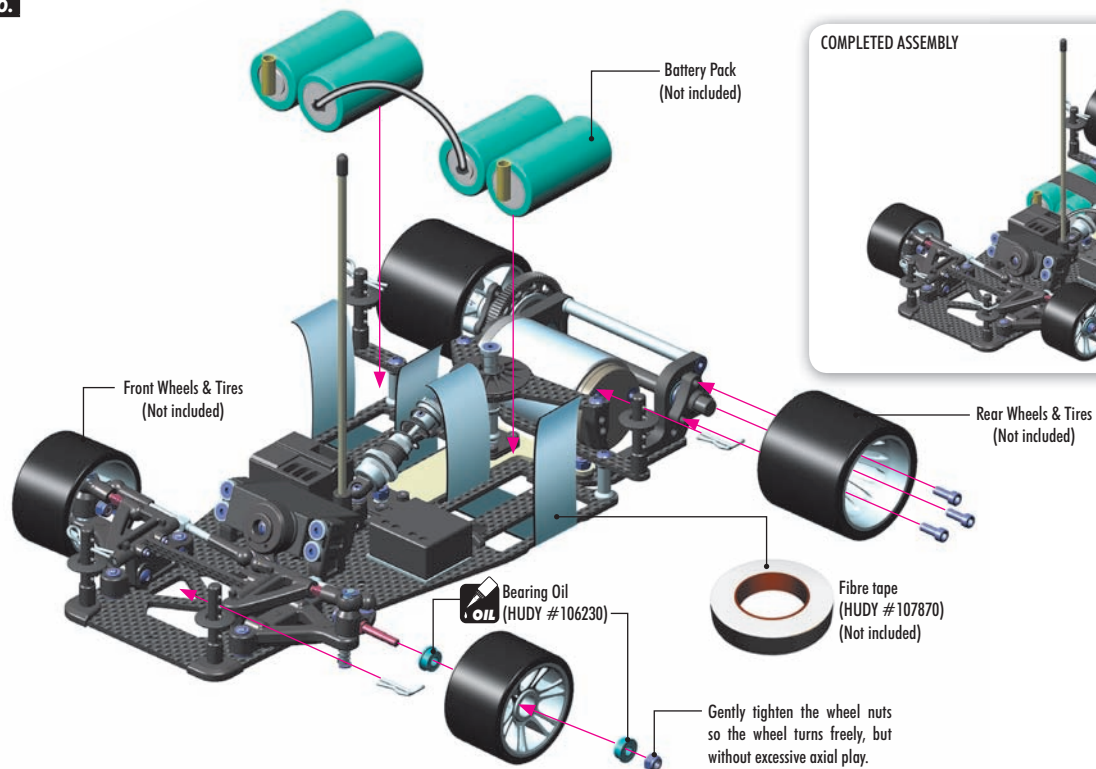
903305
SFH M3x5

9b.

BATTERY CONFIGURATION 2: Rear Position



903305
SFH M3x5



375390
ALU SCH M3x8



951851
BB 1/8"x5/16"x9/64"



960031
ALU N M3



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