

R3 RACING

FF210



INSTRUCTION MANUAL

INTRODUCTION

DEAR CUSTOMER,

ON BEHALF OF THE COMPANY I THANK YOU FOR YOUR PURCHASE AND AM PROUD TO OFFER YOU THE FF210 CONVERSION KIT.

FROM THE UNIQUE DRIVING EXPERIENCE OF THE FRONT-WHEEL-DRIVE CONCEPT TO THE USE OF ADDITIVE MANUFACTURING FOR THE MAJORITY OF THE COMPONENTS, THE FF210 PUSHES INNOVATION IN THE RC INDUSTRY. I HOPE YOU WILL ENJOY YOUR PURCHASE!

SINCERELY,



PAUL DIJKSTRA
DESIGNER AT & CO-OWNER OF ORB RACING

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KIT FEATURES

- FRONT-WHEEL DRIVE SYSTEM FOR HIGH CORNERING SPEEDS AND STABILITY.
- DESIGN SPECIALIZED FOR LOW-MEDIUM GRIP SURFACES AND CONDITIONS.
- EFRA-LEGAL (2015) DESIGN FOR THE 1/10 BUGGY 2-WHEEL-DRIVE CLASS.
- HIGHLY ADJUSTABLE DOUBLE-WISHBONE FRONT SUSPENSION AND SEMI-TRAILING REAR SUSPENSION.
- PRECISION CNC CUT CARBON-FIBRE PLATES AND LASER SINTERED NYLON (PA12) PARTS.
- TAILOR-MADE CAB FORWARD BODYSHELL.
- BATTERY CRADLE SUITABLE FOR SADDLE, SQUARE AND SHORTY 2S LIPO BATTERIES.

REQUIRED PARTS/TOOLS

TO COMPLETE THE BUILD OF YOUR FF210, YOU REQUIRE A DONOR CAR, SOME ADDITIONAL PARTS AND TOOLS.

YOU NEED EITHER OF THE FOLLOWING CARS TO COMPLETE THE CONVERSION:

- TEAM DURANGO DEX210V2 (*RECOMMENDED*)
- TEAM DURANGO DEX210 WITH:
 - LONG BALL DIFF OUTDRIVES (TD310417)
 - TYPE B RM MOTOR GUARD (TD320227)
 - TYPE B RR HANGER (TD330579)

IN ADDITION TO THIS, YOU WILL NEED TO COMPLETE THE KIT WITH THE PARTS AND USE THE TOOLS STATED IN THE BUILD MANUAL OF THE TEAM DURANGO DEX210/DEX210V2.

BUILD ADVICE

PLEASE TAKE THE TIME TO BUILD THE CAR. CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND MAKE SURE TO READ THE NOTES IN THE LEFT-BOTTOM CORNER OF EACH BUILD STEP.

BEFORE BUILDING THE CAR, WE RECOMMEND YOU TO SEAL THE EDGES OF THE CARBON FIBRE PLATES WITH CYANO-ACRYLATE GLUE IN ORDER TO INCREASE DURABILITY.

WE RECOMMEND THE USE OF HAND TOOLS WHILE BUILDING. TIGHTEN THE PARTS CAREFULLY TO PREVENT DAMAGE TO THE THREAD IN THE PLASTIC.

FOR DETAILED INSTRUCTIONS OF THE GEARBOX AND DAMPER ASSEMBLY, PLEASE REFER TO THE INSTRUCTION MANUAL OF THE TEAM DURANGO DEX210/DEX210V2.

RUNNING THE CAR

THE CAR DRIVES DINSTINCTLY DIFFERENT FROM RWD AND 4WD BUGGIES. AS SUCH, PLEASE TAKE YOUR TIME TO GET TO KNOW THE CAR, ADJUST YOUR DRIVING STYLE TO WORK WITH THE CAR AND BE PREPARED TO OPTIMIZE THE SETUP.

IN THE BACK OF THE MANUAL ARE SOME SETUP AND DRIVING TIPS TO HELP YOU GET STARTED WITH THE CAR.

SERVICE & SUPPORT

WE STRIVE TO GIVE YOU THE BEST PRODUCT EXPERIENCE AND CUSTOMER SERVICE. ANY FEEDBACK IS WELCOME AND WILL HELP US TO IMPROVE THE PRODUCTS WE MAKE.

AS SUCH, IF YOU HAVE ANY COMMENTS, QUESTIONS OR SUGGESTIONS, FEEL FREE TO CONTACT US:

EMAIL: ORBRACING@GMAIL.COM

FOR THE LATEST UPDATES AND PRODUCT RELEASES, LOOK US UP ONLINE:

WEBSITE: WWW.ORBRACING.COM
FACEBOOK: WWW.FACEBOOK.COM/ORBRACING

STEP 1

FRONT SUSPENSION ARMS

4x CS M3x8MM



2x TD330037



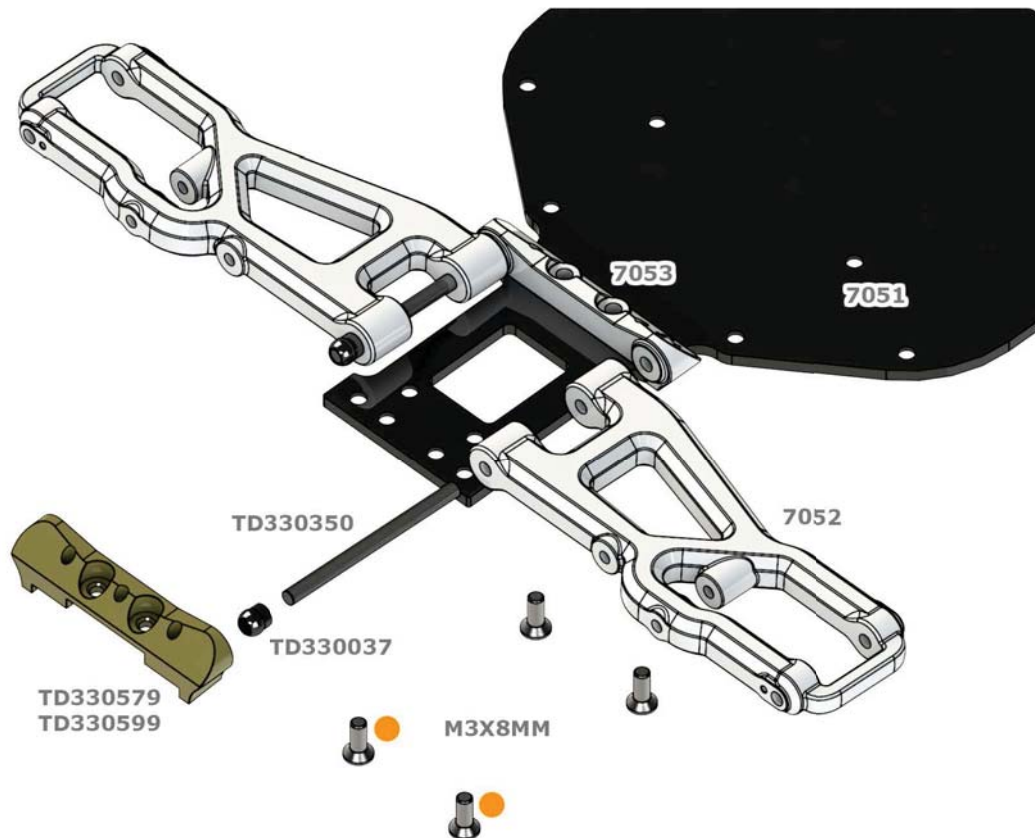
2x TD330350



NOTES

TD330579 - 3° KICKUP
TD330599 - 0° KICKUP

THE 3D PRINTED HANGER
IN THE KIT CAN BE
UPGRADED WITH A
TD330579 HANGER
(REQUIRES HANGER AND
2X TD330037 PIVOT BALL).



STEP 2

GEARBOX

2x CS M3x8MM



2x CS M3x10MM



2x CS M3x25MM



2x BH M3x8MM



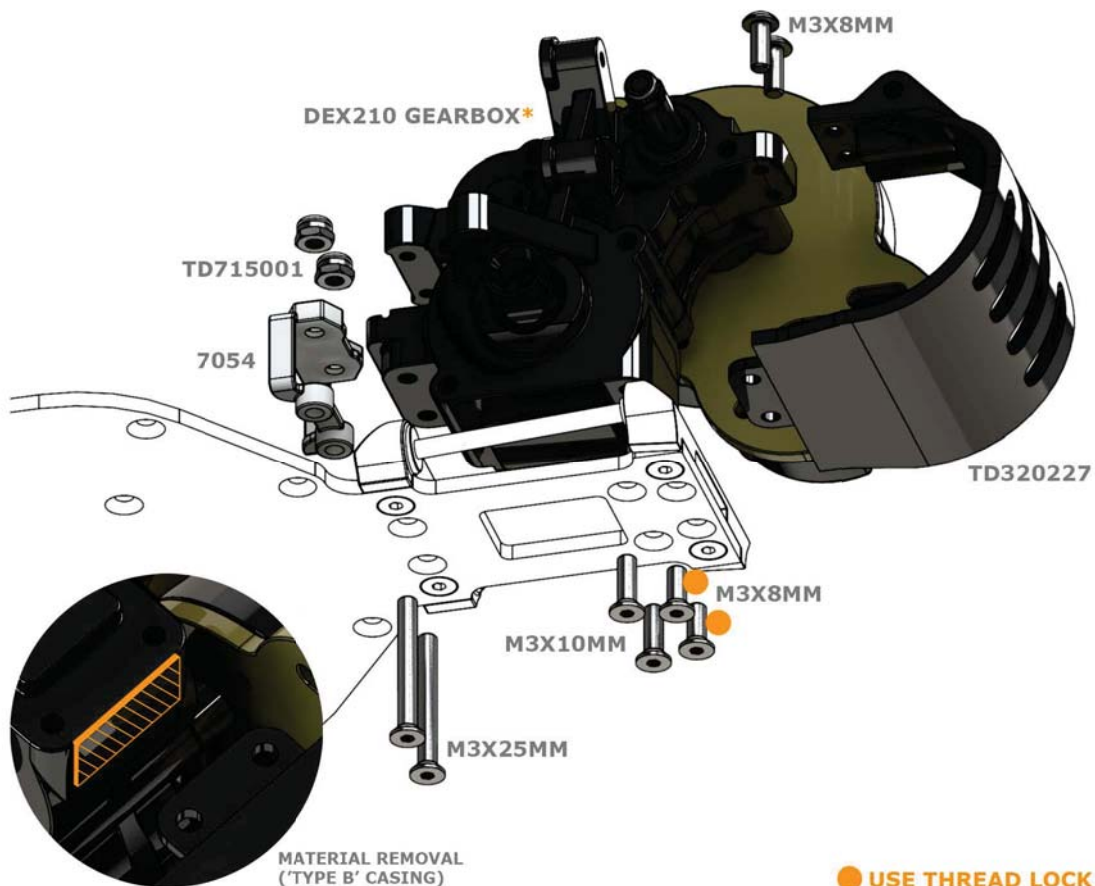
2x TD715001



NOTES

*USE GEARBOX WITH 'MM4' LAYOUT AND LONG BALL DIFF OUTDRIVES OR GEAR DIFFERENTIAL.

FOR THE 'TYPE B' GEAR CASING, FILE AWAY THE 'STEPPED' AREA ON THE FRONT EDGE OF THE CASING SO IT EASILY SLOTS INTO THE CHASSIS.



STEP 3

FRONT SHOCK TOWER

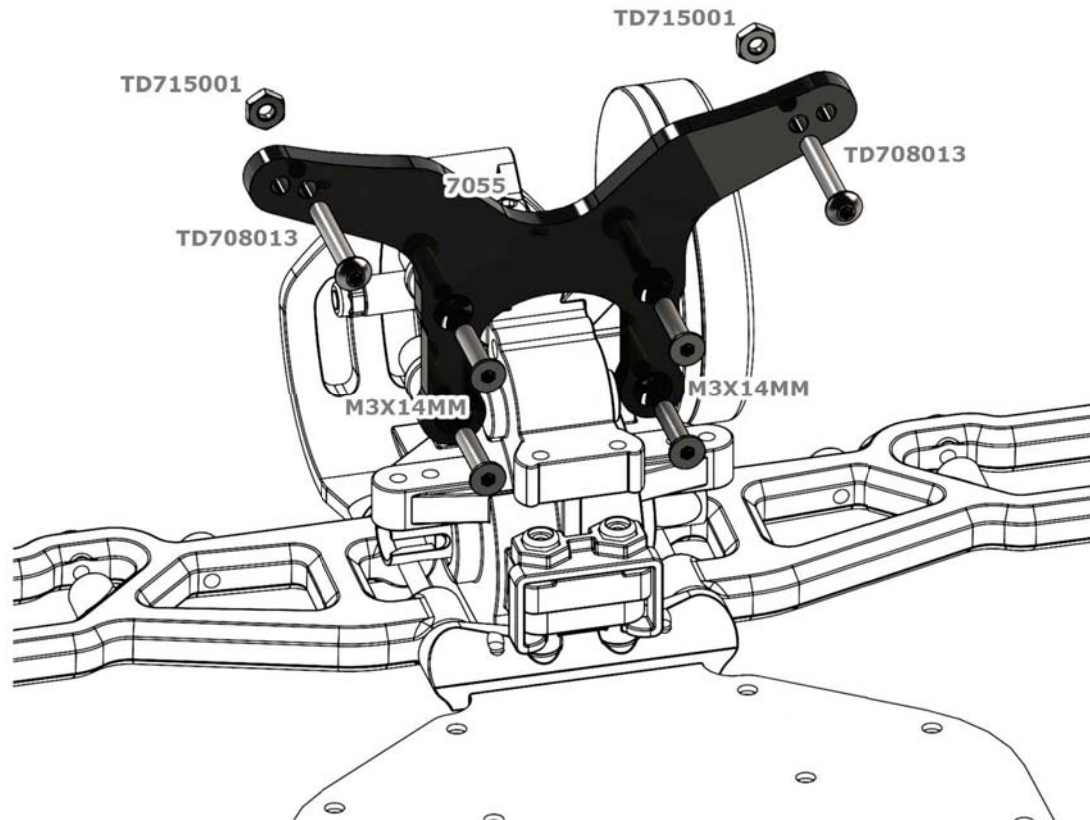
4x CS M3x14MM



2x TD708013



2x TD715001



STEP 4

DRIVESHAFTS

2x TD310113



2x TD310123



2x TD601003



4x TD601017



2x TD708005



NOTES

MAKE ASSEMBLY 2X, USING ONE LEFT AND ONE RIGHT STEERING ARM.

USING THE TYPE-B CVD PIN (TD310120) AND A GRUB SCREW IN THE CVD JOINT WILL NOTICABLY INCREASE THE SERVICE LIFE OF THE CVD PIN.



STEP 5

C-HUBS

4x BH M3x10MM



4x TD330035
TD330602



2x 7075



4x TD340004



4x TD705029



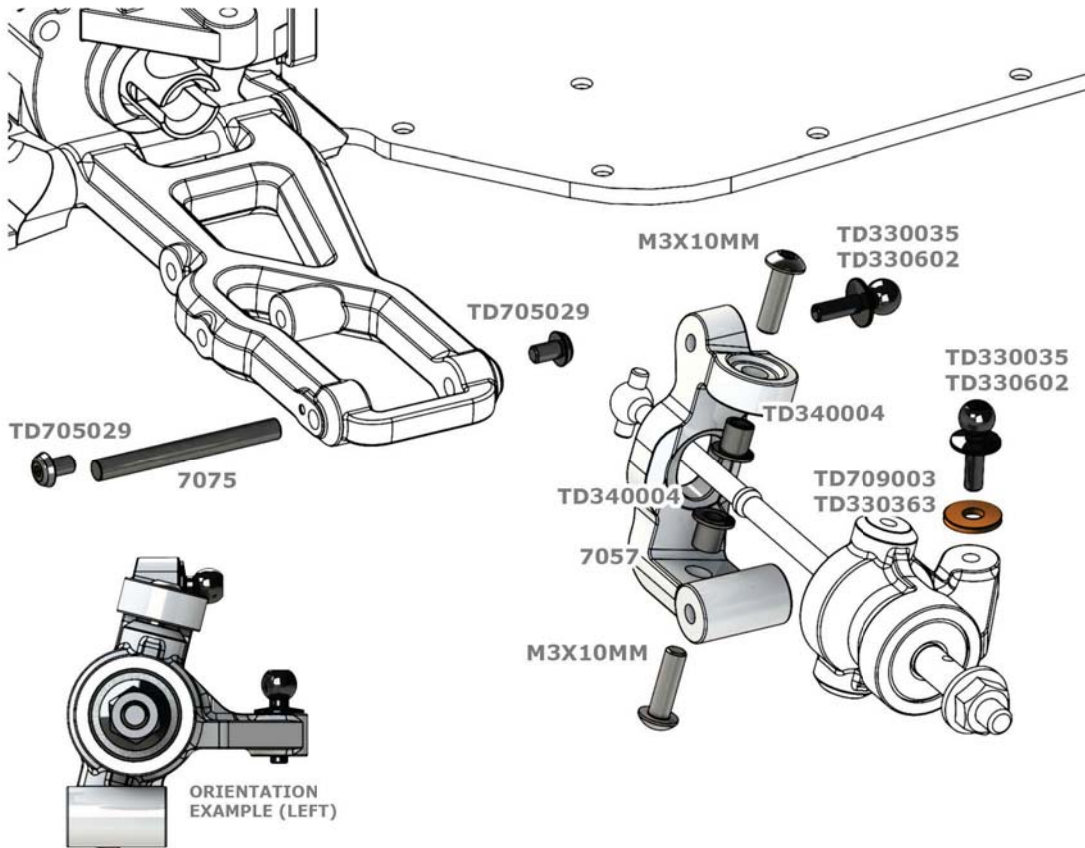
4x TD709003
TD330363



NOTES

MAKE ASSEMBLY 2X, TAKE NOTE OF THE LEFT AND RIGHT ORIENTATION.

TIGHTEN THE M3X10MM SCREWS GENTLY SO THE STEERING ARMS MOVE FREELY.



STEP 6

CAMBER LINKS + TIE RODS

2x M3X25MM ROD



2x TD330343



2x TD330347

TD330601

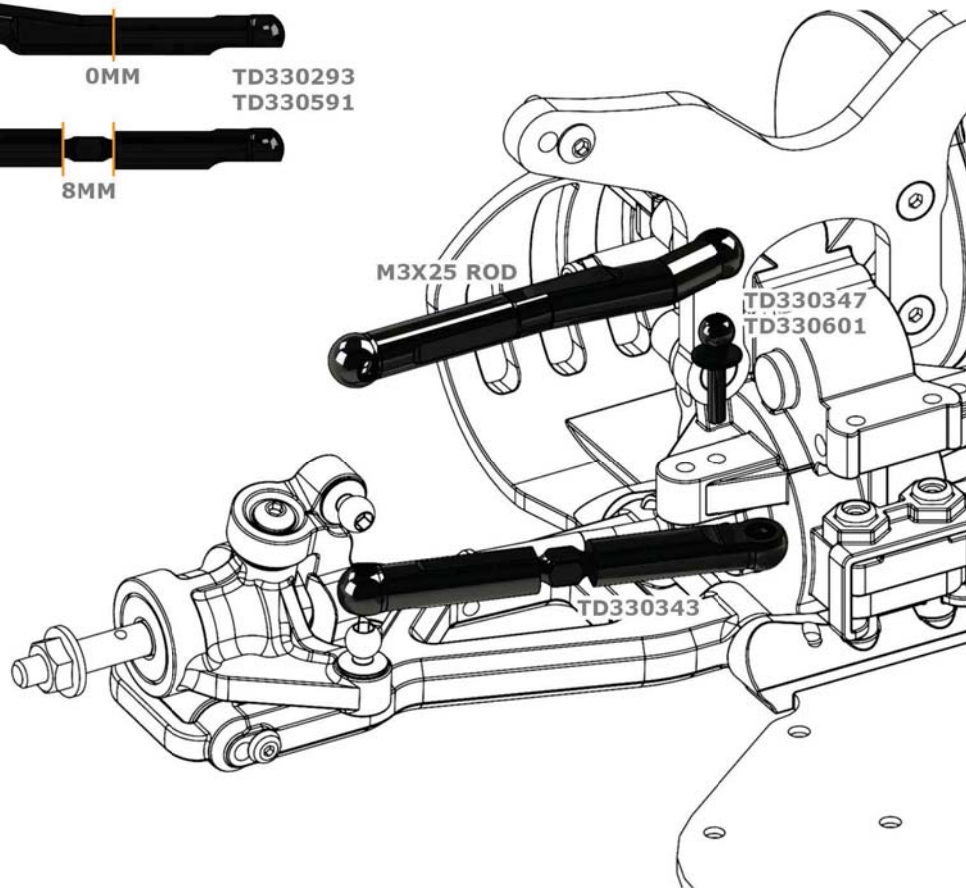


2x TD709003



NOTES

MAKE ASSEMBLY FOR THE LEFT AND FOR THE RIGHT SIDE.



STEP 7

SIDEPODS + BATTERY CRADLE

4x CS M3x12MM



4x CS M3x20MM



4x M3 NYLOC NUT

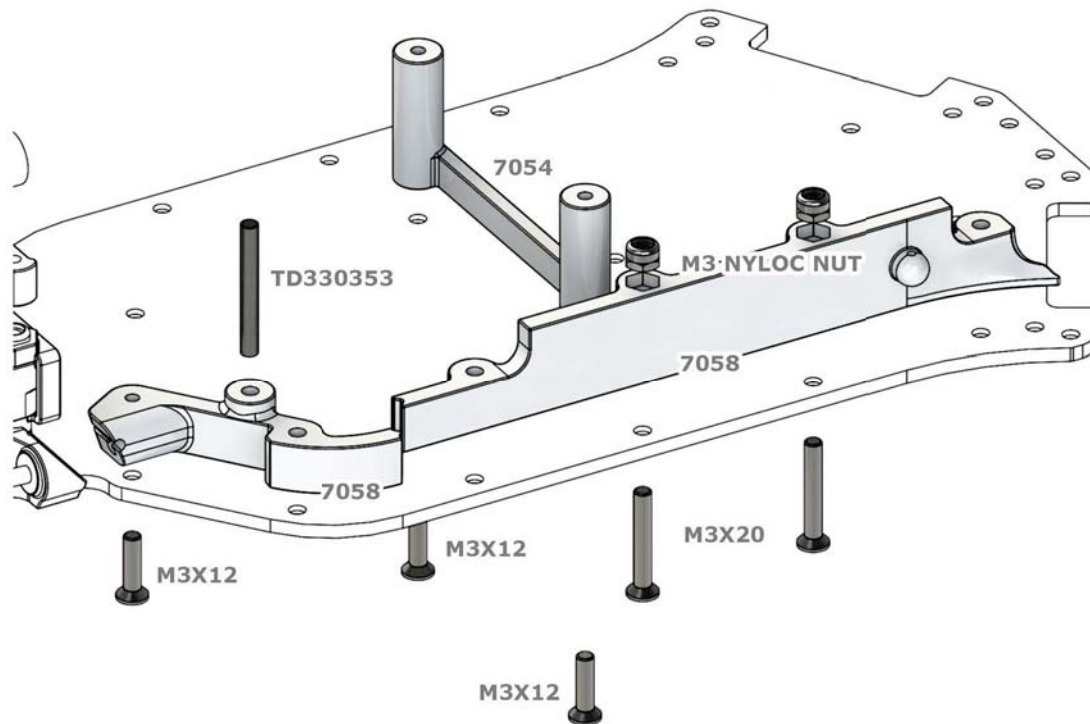


2x TD330353



NOTES

REPEAT THE SIDEPOD ASSEMBLY ON THE RIGHT SIDE (NOT DISPLAYED).



STEP 8

STEERING RACK

2x BH M3X10MM



1x TD330035
TD330602



2x TD330347
TD330601



2x TD340004



4X TD601023



5X TD715001



STEP 9

SERVO

2x CS M3X10MM



1x BH M3X6MM



4x BH M3X10MM



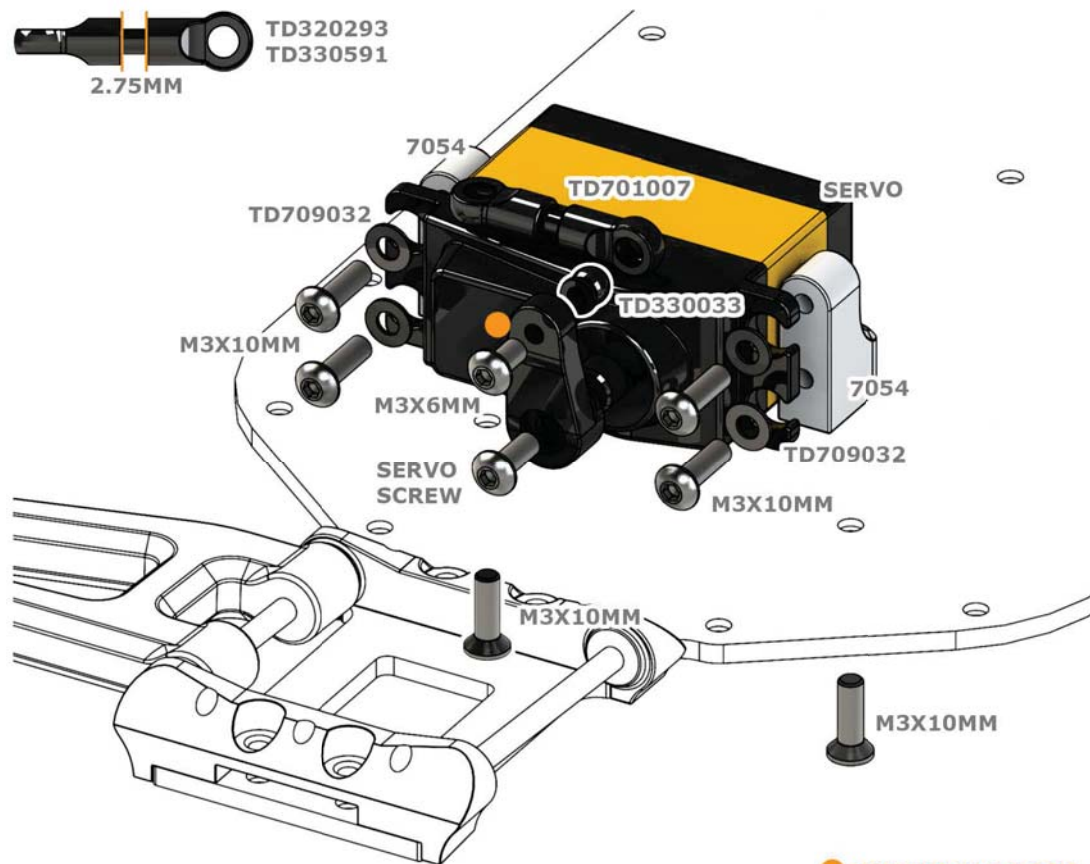
1X TD330033



1X TD701007



4X TD709032



STEP 10

FRONT BULKHEAD

2x CS M3X14MM



2x CS M3X20MM



2x CS M3X30MM



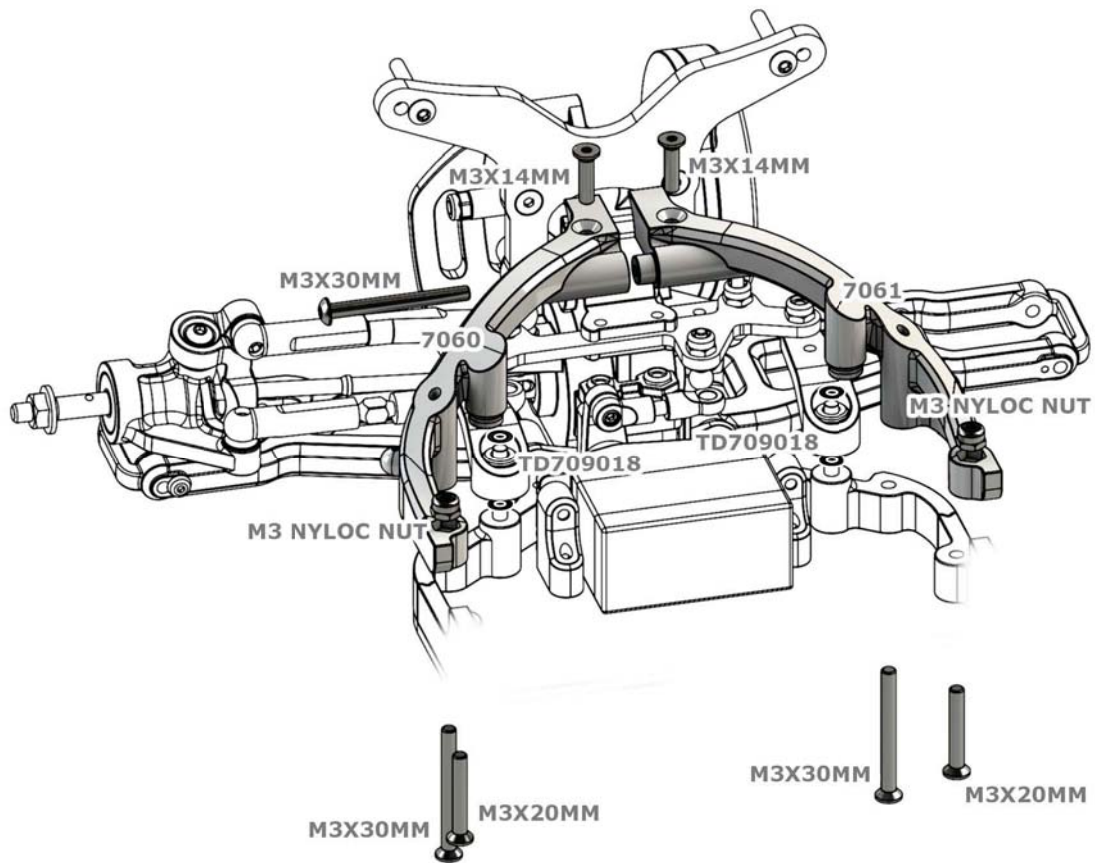
1X BH M3X30MM



2X M3 NYLOC NUT



4X TD709018



STEP 11

REAR SUSPENSION ARMS

8x CS M3X10MM



2x CS M3X12MM



4x BH M3X12MM



2X BH M3X20MM



2X BH M3X25MM



2X M3 NYLOC NUT



2X 7063*
TD330406



2X TD709003
TD330363



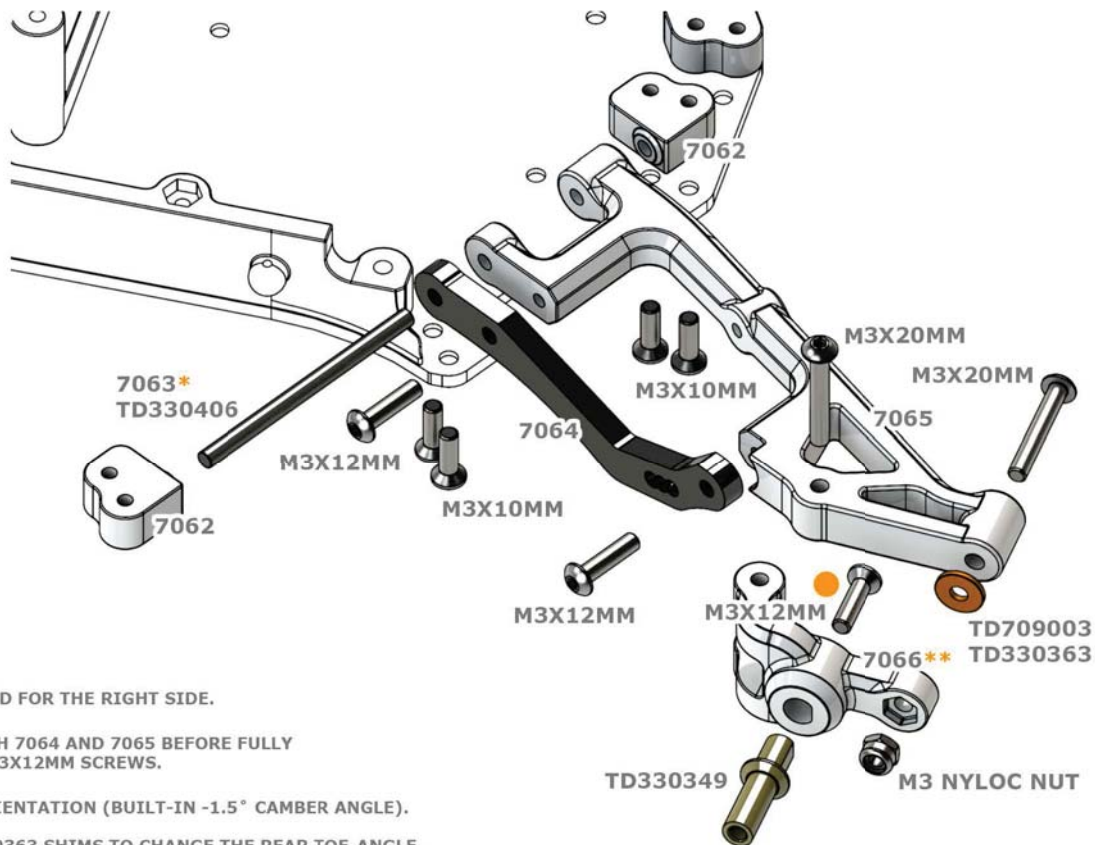
NOTES

MAKE ASSEMBLY FOR THE LEFT AND FOR THE RIGHT SIDE.

* INSERT THE HINGE PIN THROUGH 7064 AND 7065 BEFORE FULLY TIGHTENING THE BUTTON HEAD M3X12MM SCREWS.

** NOTE THE RIGHT AND LEFT ORIENTATION (BUILT-IN -1.5° CAMBER ANGLE).

ADD OR REMOVE TD709003/TD330363 SHIMS TO CHANGE THE REAR TOE-ANGLE.



STEP 12

REAR SHOCK TOWERS

2x CS M3X10MM



2x CS M3X12MM



2x CS M3X20MM



4X BH M3X10MM



4X BH M3X12MM



TD708013



2X M3 LOCK NUT



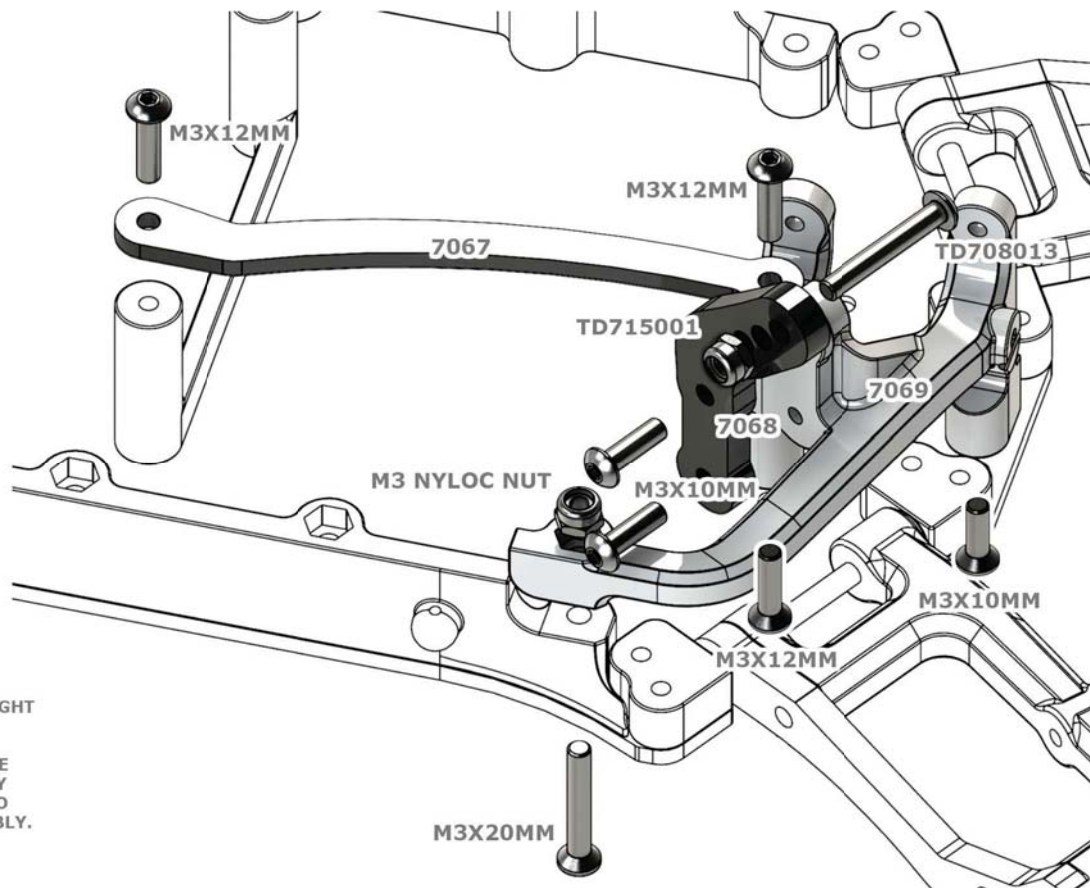
2X TD715001



NOTES

REPEAT THE ASSEMBLY ON THE RIGHT
(USE THE 7070 RR BULKHEAD).

WHEN USING WEIGHTS UNDER THE
BATTERY, SHIM THE 7067 BATTERY
PLATES UPWARD ACCORDINGLY TO
PREVENT TENSION IN THE ASSEMBLY.



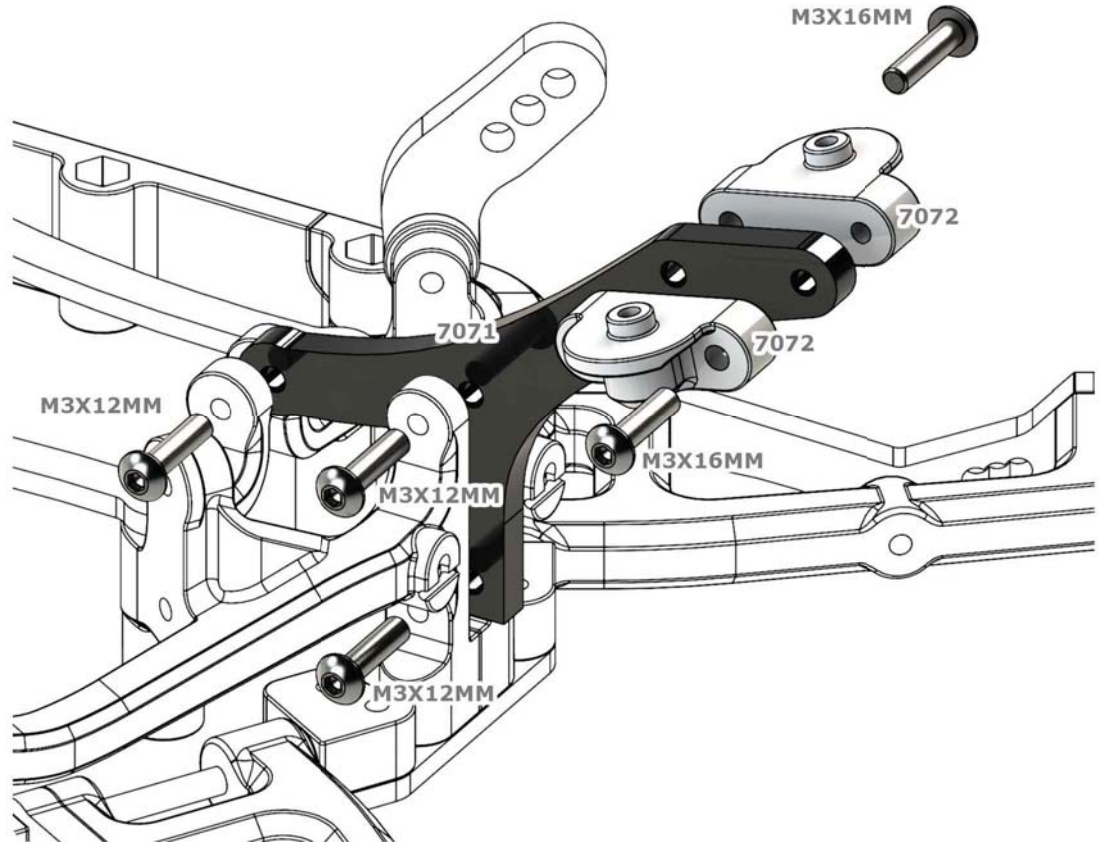
STEP 13

WING MOUNT

3x BH M3X12MM



2x BH M3X16MM



STEP 14

FRONT DAMPERS

2x BH M3X20MM



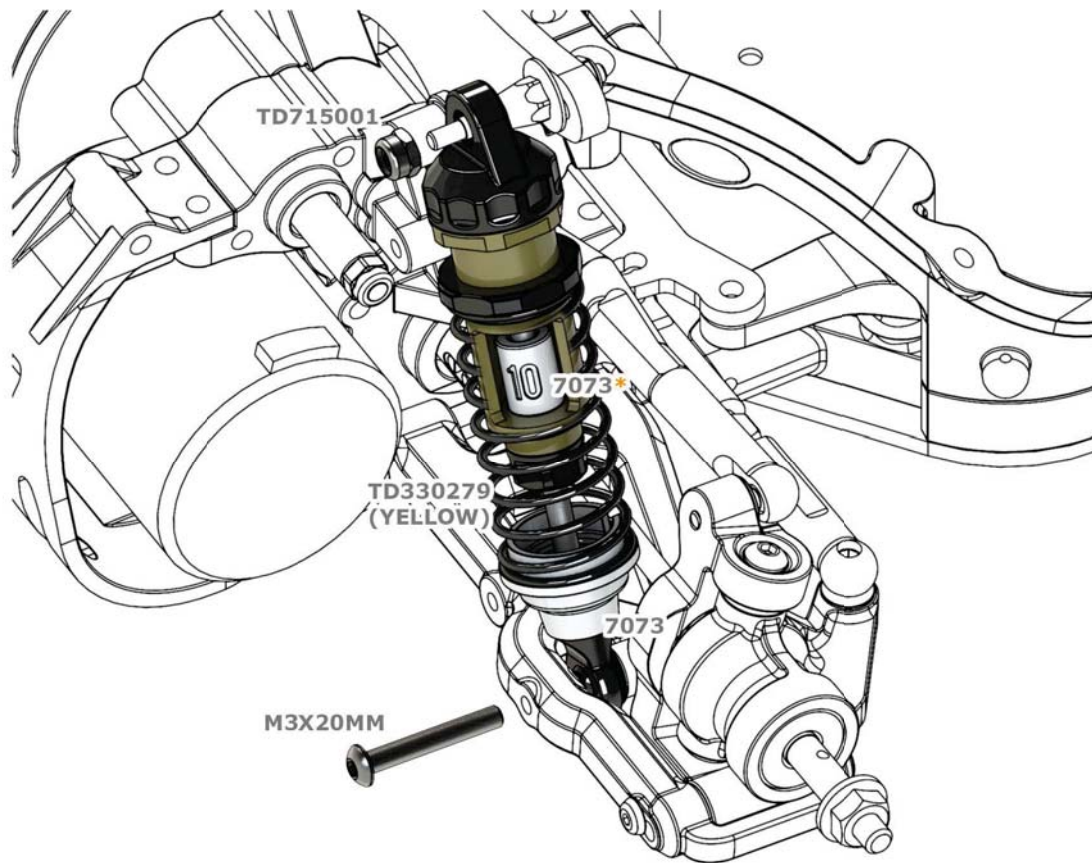
2X TD715001



NOTES

REPEAT THE ASSEMBLY
ON THE RIGHT SIDE.

*USE THE 10MM LIMITER
FOR THE DEX210V2
(52MM SHOCK SHAFT)
AND THE 13MM LIMITER
WITH THE DEX210
(55MM SHOCK SHAFT).



STEP 15

REAR DAMPERS

2x BH M3X16MM



2x M3 LOCK NUT



4x TD715001

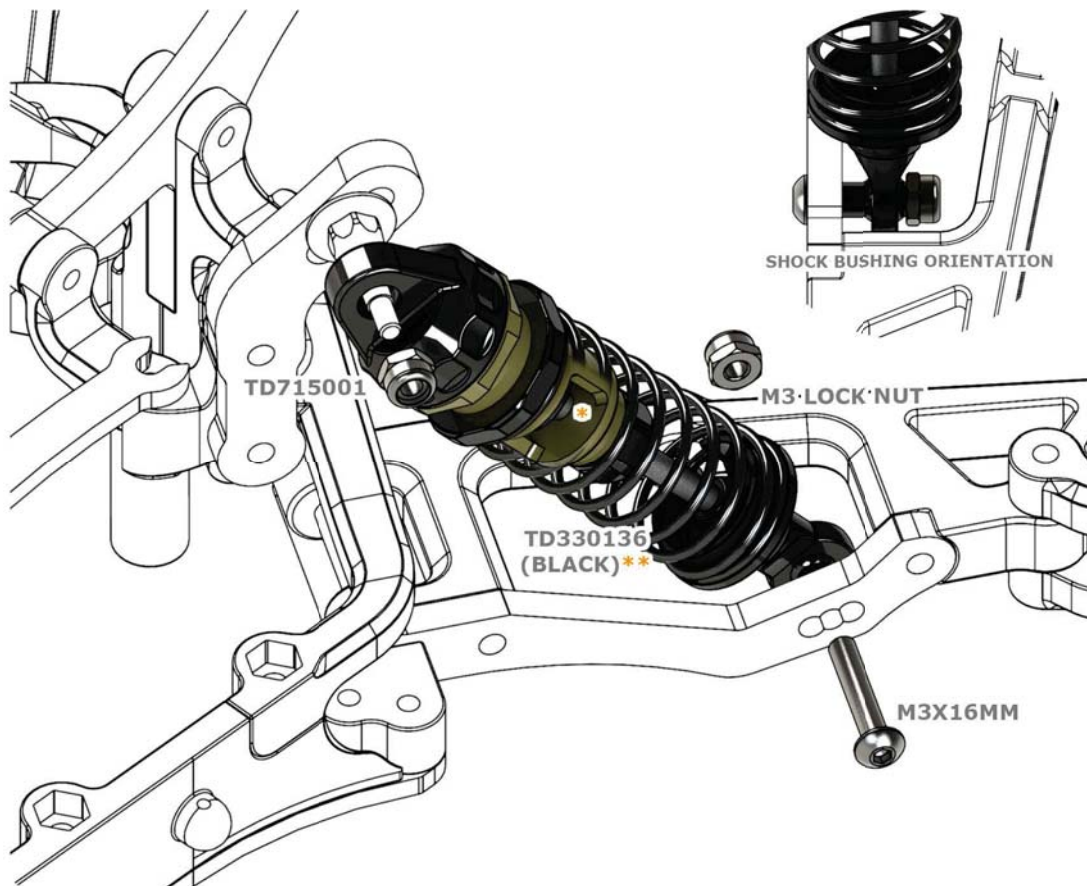


NOTES

REPEAT THE ASSEMBLY ON THE RIGHT SIDE.

*USE NO LIMITER FOR DEX210V2 SHOCKS AND THE 3MM LIMITER (7073) WITH DEX210 SHOCKS.

**INCLUDED IN THE DEX210V2 KIT, AVAILABLE SEPERATELY FOR THE DEX210 KIT.



STEP 16

BODYSHELL + WING + RIMS

2x CS M3X12MM



2X BH M3X6MM



4x TD390003
TD390085

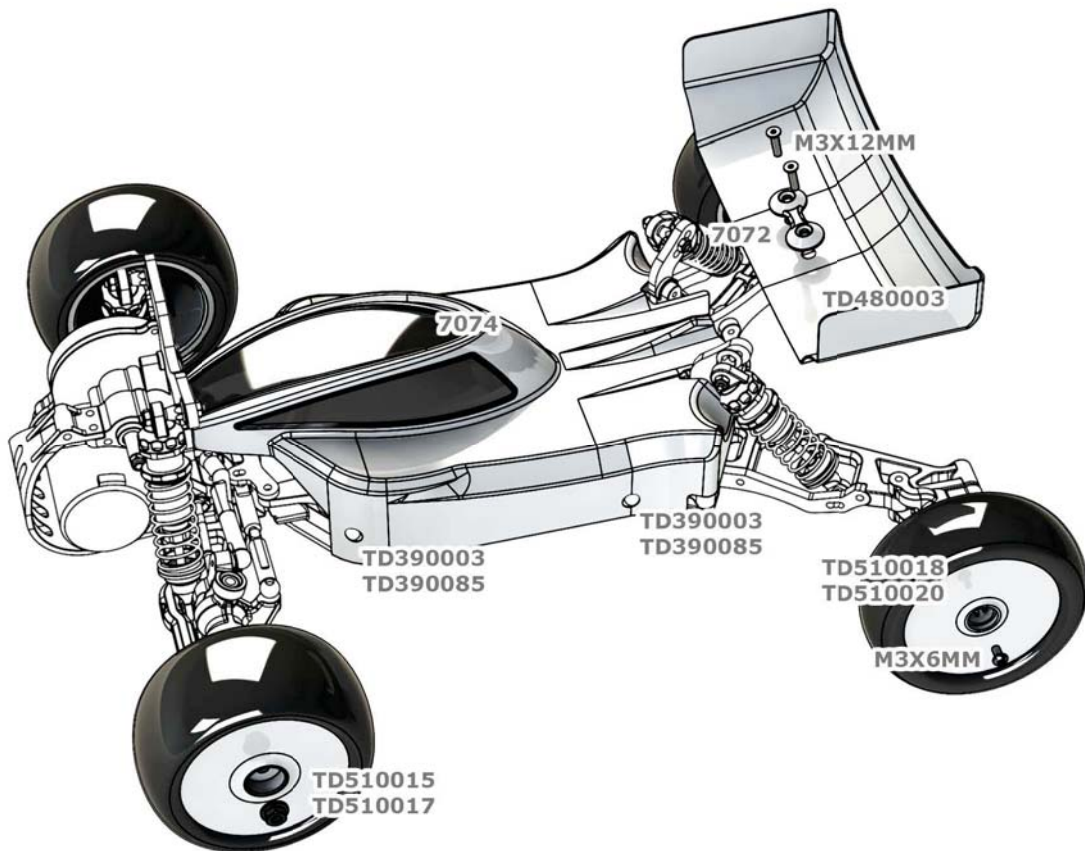
NOTES

FOLLOW THE WHEEL- & TIRE ASSEMBLY INSTRUCTIONS OF THE DEX210/DEX210V2 KIT.

THE WING USES A 21MM DISTANCE BETWEEN THE MOUNTING HOLES (SAME AS DEX210/DEX210V2).

TRIM 2MM AROUND THE TRIM LINES OF THE BODYSHELL AND TRIM FURTHER AS NECESSARY. LOCATE AND ALIGN THE BODY MOUNT HOLES MANUALLY.

BEFORE PAINTING, MASK THE WINDOWS WITH MASKING TAPE. MAKE SURE TO ONLY USE POLY-CARBONATE PAINTS.



DRIVING GUIDE

FRONT-WHEEL-DRIVEN CARS ARE FAST BY THEIR STABILITY AND KEEPING THE SPEEDS HIGHER THROUGH THE CORNERS. THIS GUIDE GIVES YOU SOME TIPS HOW TO ADJUST YOUR DRIVING STYLE AND MAXIMIZE THE PERFORMANCE OF YOUR FF210.

THE THROTTLE MUST BE APPLIED SMOOTHLY TO LIMIT WHEELSPIN AND MAXIMIZE ACCELERATION. ONCE RUNNING, YOU CAN APPLY THROTTLE THROUGH CORNERS TO KEEP UP YOUR SPEED AND APPLY IT SOONER OUT OF CORNERS TO ACHIEVE THE HIGHEST SPEEDS ON THE STRAIGHTS.

IN ADDITION, INCREASE CORNERING SPEEDS FURTHER BY USING SMOOTH, FLOWING RACING LINES WITH A WIDER CORNER ENTRY AND EXIT (THAT EFFECTIVELY MAKE THE CORNER RADIUS LARGER).

FOR JUMPING IT IS IMPORTANT TO USE YOUR HIGH CORNERING SPEEDS TO GAIN ENOUGH MOMENTUM AND CLEAR THE JUMPS. YOU MUST AVOID WHEELSPIN WHEN LEAVING THE GROUND: IT BOTH REDUCES SPEED AND MAKES IT HARD TO KEEP THE CAR HORIZONTAL.

IF NEEDED, YOU CAN ADJUST THE CAR IN THE AIR WITH THE THROTTLE (MORE THROTTLE IN THE AIR PUSHES THE NOSE UP, REDUCING THROTTLE PUSHES THE NOSE DOWN) AND STEERING (ADJUSTS THE ROLL OF THE CAR TO THE LEFT OR RIGHT).

DESPITE THE STABLE NATURE OF THE CAR, THE REAR END CAN BREAK OUT. IF THIS HAPPENS, APPLY THROTTLE TO PULL THE CAR STRAIGHT.

SETUP GUIDE

THE FF210 IS A BUGGY DEVELOPED FOR LOW-MEDIUM GRIP CONDITIONS. THIS SETUP GUIDE EXPLAINS SOME ELEMENTARY THINGS TO KEEP IN MIND WHEN SETTING UP THE CAR.

WEIGHT BALANCE

THE WEIGHT BALANCE SHOULD BE 65-70% FRONT / 30-35% REAR. OUT OF THE BOX THE CAR WILL HAVE THIS BALANCE USING A SQUARE PACK, SADDLE PACK OR A SHORTY PACK IN REARWARD ORIENTATION WITH A 80G UNDER-LIPO WEIGHT.

MOVING THE BALANCE FORWARD WILL INCREASE FORWARD TRACTION/ACCELERATION BUT MAY COMPROMISE STABILITY OF THE REAR END, AND VICE VERSA WHEN MOVING THE BALANCE REARWARD.

FOR MEDIUM GRIP CONDITIONS IT IS USUALLY BETTER TO MOVE THE WEIGHT BALANCE FURTHER TO THE REAR.

TIRES

USE FIRM (PREFERABLY MOULDED) INSERTS FOR THE FRONT (WIDE) TIRES FOR A SHARP STEERING RESPONSE, MINIMUM TIRE BALLOONING AT HIGH THROTTLE AND TO COMPENSATE FOR THE FORWARD WEIGHT BALANCE.

ON THE REAR OF THE CAR, USE 2WD FRONT TIRES THAT PROVIDE HIGH AMOUNTS OF SIDEWAYS GRIP IN COMBINATION WITH SOFT INSERTS TO MAXIMIZE SIDEWAYS GRIP AND TO COMPENSATE FOR THE FORWARD WEIGHT BALANCE. USE 4WD FRONT TIRES ON THE REAR IF THE 2WD FRONT TIRES DO NOT PROVIDE ENOUGH GRIP.

DAMPERS

THE DAMPER (AND SPRING) SETUP SHOULD BE SOFT ENOUGH TO SOAK UP THE BUMPS AND RESPOND QUICKLY, YET BE FIRM ENOUGH TO PREVENT BOTTOMING OUT OVER BUMPS AND LANDING JUMPS.

FOR THE LATTER, 'PACK' (FAST DAMPING) IS IMPORTANT. THE HIGH WEIGHT UP FRONT REQUIRES MORE PACK THAN CONVENTIONAL BUGGIES, THE LOW WEIGHT ON THE REAR END REQUIRES CONSIDERABLY LESS PACK THAN THE FRONT. THE PACK CAN BE LARGELY REGULATED BY THE CHOICE OF PISTONS.

PLEASE REFER TO THE SETUP SHEET INCLUDED IN THE KIT OR THE LATEST SETUP SHEETS ONLINE FOR MORE DETAILS.

OTHER

SET THE RIDE HEIGHT AT 20MM UP FRONT (UNDER THE DIFF) AND 23MM AT THE REAR (OUTERMOST EDGE) TO START OFF.

IF YOUR CAR SUFFERS FROM UNDERSTEER, INCREASE FRONT GRIP OR REDUCE REAR GRIP AND VICE VERSA FOR OVERSTEER.

THE FRONT SUSPENSION SETUP ATTRIBUTES TO THE MAJORITY OF THE PERFORMANCE. THE REAR END SHOULD STAY STABLE WITH A MINIMUM AMOUNT OF GRIP (TOO MUCH REAR GRIP MAY CAUSE UNDERSTEER).

SPARE PARTS

- 7001 FF210 - CONVERSION KIT
- 7051 MAIN CHASSIS PLATE
- 7052 FRONT SUSPENSION ARM
- 7053 PRINTED RR HANGER (0° & 3°)
- 7054 GEARBOX BRACKET, BATTERY CRADLE & SERVO MOUNTS
- 7055 FRONT SHOCK TOWER (LONG)
- 7056 STEERING ARMS (L+R)
- 7057 C-HUBS 14° (L+R)
- 7058 SIDEPODS (L+R)
- 7059 STEERING PLATE
- 7060 FRONT BULKHEAD (L)
- 7061 FRONT BULKHEAD (R)
- 7062 REAR SUSPENSION BLOCK (2pcs)
- 7063 HINGE PIN 3x45mm
- 7064 REAR SUSPENSION PLATE
- 7065 REAR SUSPENSION ARM
- 7066 REAR AXLE HOLDER (L+R)
- 7067 BATTERY PLATE
- 7068 REAR SHOCK TOWER
- 7069 LEFT REAR BULKHEAD
- 7070 RIGHT REAR BULKHEAD
- 7071 WING MOUNT PLATE
- 7072 WING MOUNT (SET)
- 7073 SPRING CUPS+LIMITERS (SET)
- 7074 BODYSHELL
- 7075 HINGE PIN 3X29MM
- 7077 MANUAL

OPTION PARTS

- 7078 C-HUBS 11° (L+R)
- 7079 C-HUBS 17° (L+R)
- 7080 STABILIZER BAR (F+R SET)
- 7081 FRONT SHOCK TOWER (SHORT)
- 7082 REAR AXLE CONVERSION (AE 12MM HEX)

NOTES

NOTES
