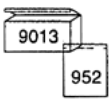
THE MARK OF EXCELLENCE

EXPLAINING THE PACKING SYMBOLS

White carton box numbered 9013

Vinyl bag numbered 9350



Vinyl bag 9350 in white carton box 9013

Large vinyl bag numbered 9025

9020
EXCEL MK-2
BUILDING INSTRUCTIONS

INTRODUCTION

The SERPENT EXCEL MK-2 is a product developed, designed and manufactured for 1/8 scale competition. The car meets the specifications set by the world organisation for model car racing IFMAR, and its member organisations EFRA, ROAR, FEMCA and FAMAR.

To obtain the best results from this high quality product, a comprehensive set of instructions is made to guide you through all the stages of assembling the EXCEL MK-2. Follow these instructions step by step.

The last part of the building of the car is the setting up for actual use. It is very important to apply for the Setting-Up Procedures immediately and to follow them step by step.

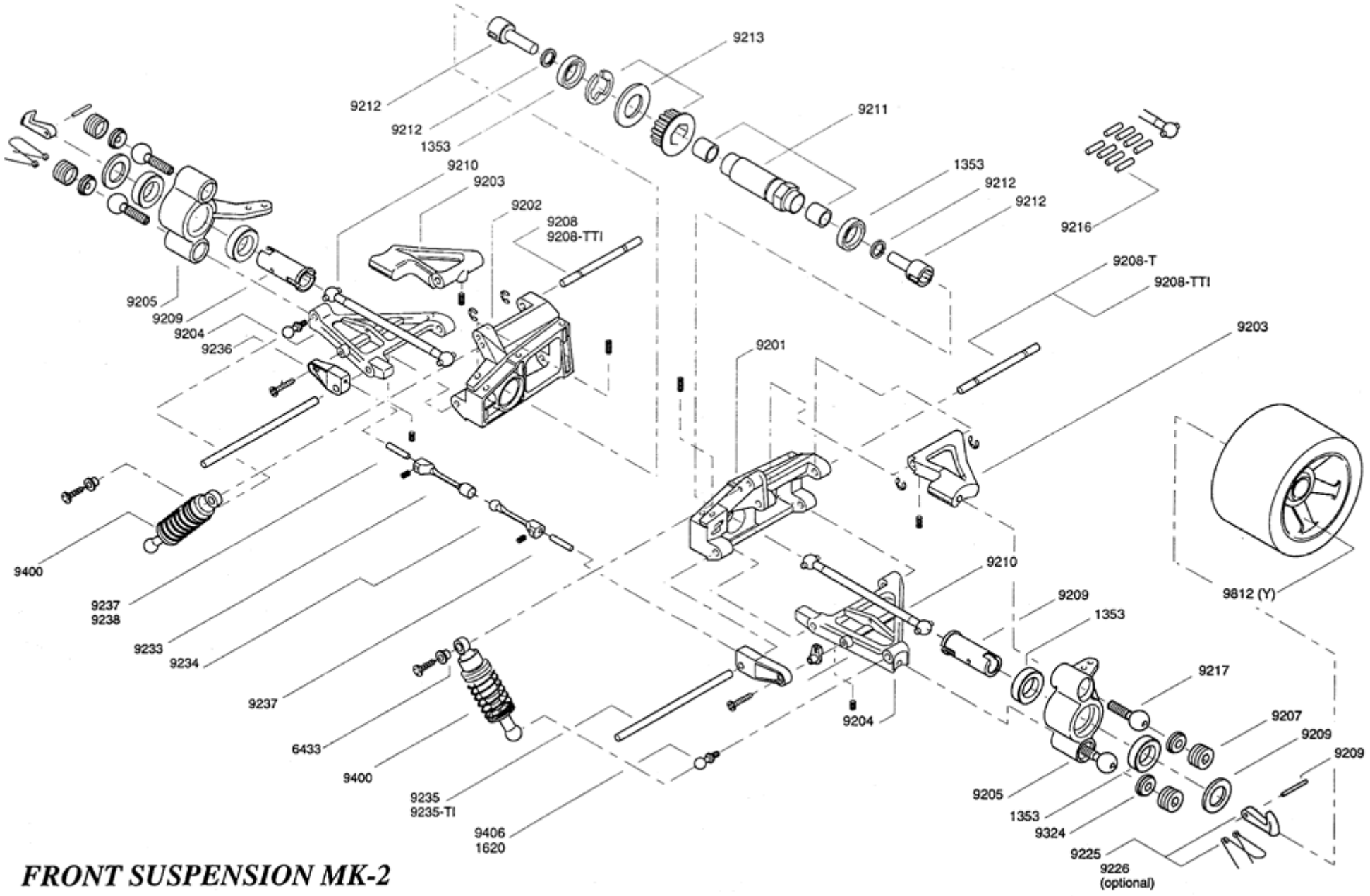
This procedure is based on the experience of top level SERPENT EXCEL works drivers such as Michael Salven. These settings will give you an excellent starting point to go racing at a very competative level.

With the Setting-Up Procedures you will also receive the Set-Up Sheet.
This sheet can be photo-copied and can be used by you to write down your settings per race in order to gather valuable set-up information to further develop the performance of the car or for future reference when returning to the same track again.

We understand that 1/8 scale racing is probably the most exciting but also the most demanding class in RC car racing. TEAM SERPENT racers throughout the world are available to you to answer your questions and to help you setting up your EXCEL MK-2.

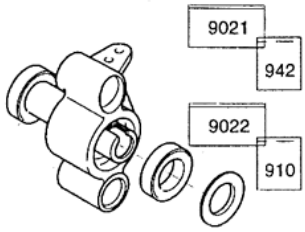
If you encounter assembling or quality problems in the course of building your car, despite of all our efforts to create the best 1/8 racing car, do contact your Serpent dealer or the distributor without hesitation.

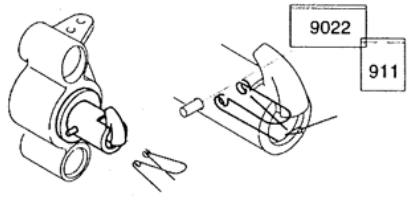
Good luck with your racing. Maybe we meet you some day and find a satisfied new Team Serpent racer.

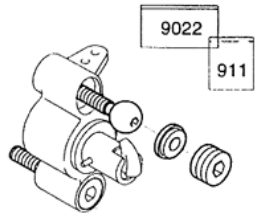


FRONT SUSPENSION MK-2

ASSEMBLING THE FRONT SUSPENSION







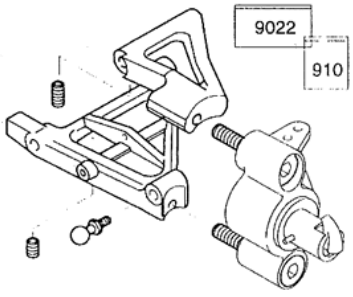
① Right and left front suspension assemblies are very much the same. Shown is the left side, follow the same instructions for the right side.

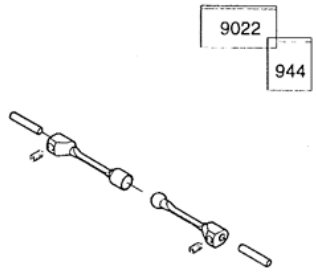
Press the 2 ballbearings in the steering block.

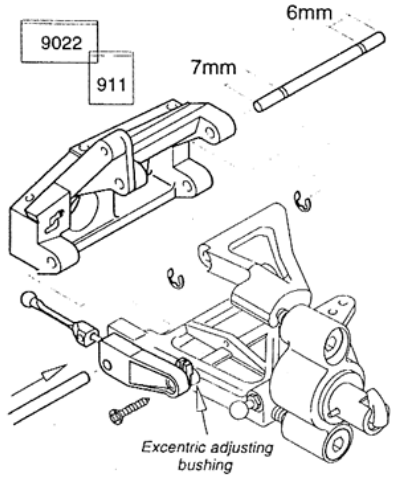
Insert the front wheelaxle and apply the nylon washer on the outside with the flat side of the washer facing to the outside.

② Place the nylon lever in the wheelaxle and press the steel 2.5mm pin through the hole. Apply the torsion spring, the 2 legs snap behind the small edge inside the wheelaxle. Check that the axle turns freely with a minimal sideplay.

③ Insert the 2 pivot balls (11mm) into the steering block. Place the larger nylon ball-cup in the alu. adjusting nut M12 and carefully adjust the play and the free movement of the balls in the steering blocks.





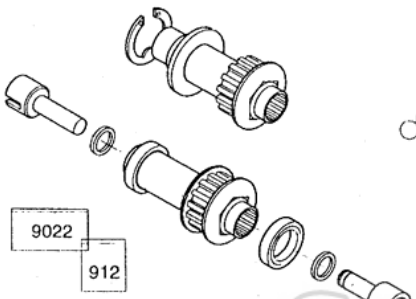


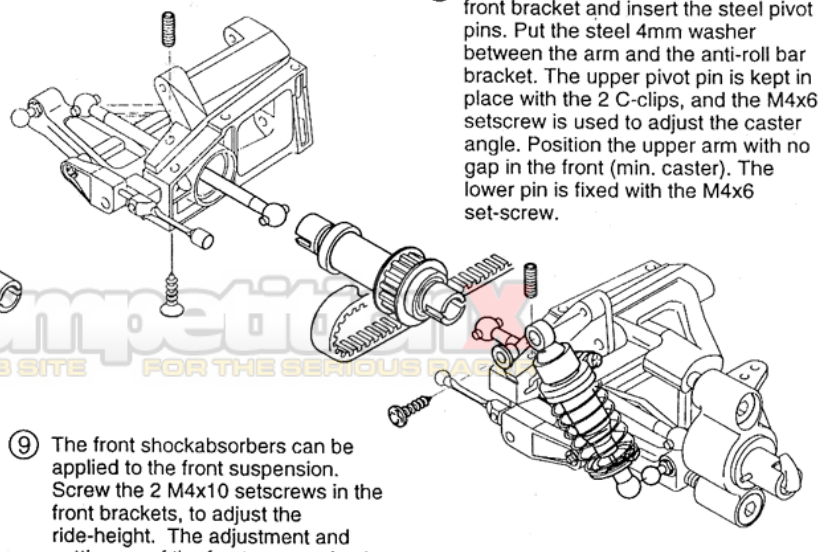
④ The M5 threaded parts of the pivot balls are turned into the threaded holes of the suspension arms. Note that the holes are slightly angled backwards. The 5mm steel balls are applied to the lower suspension arms. Lock the upper wishbone with an M4x6 bolt. The lower wishbone is secured with an M4x4 bolt.

⑤ The front anti-roll bar is adjustable The two arms of the anti-roll bar are fitted onto pins. The diameter of the pin is 3 mm . The two anti-roll bar arms are secured on the pins with M3x3 screws. The other side of the pin is pushed into the anti-roll bar bracket.

⑥ Fix the 2 nylon anti-roll bar brackets to the lower arms, using parker r.h. 2,9x13. On the left arm, the excent adjustment bushing placed betwee. the arm and the bracket. This bushing is used for alignment of the front anti-roll bar (see Setting-up).

⑦ Position the suspension arms in the front bracket and insert the steel pivot pins. Put the steel 4mm washer between the arm and the anti-roll bar bracket. The upper pivot pin is kept in place with the 2 C-clips, and the M4x6 setscrew is used to adjust the caster angle. Position the upper arm with no gap in the front (min. caster). The lower pin is fixed with the M4x6 set-screw.

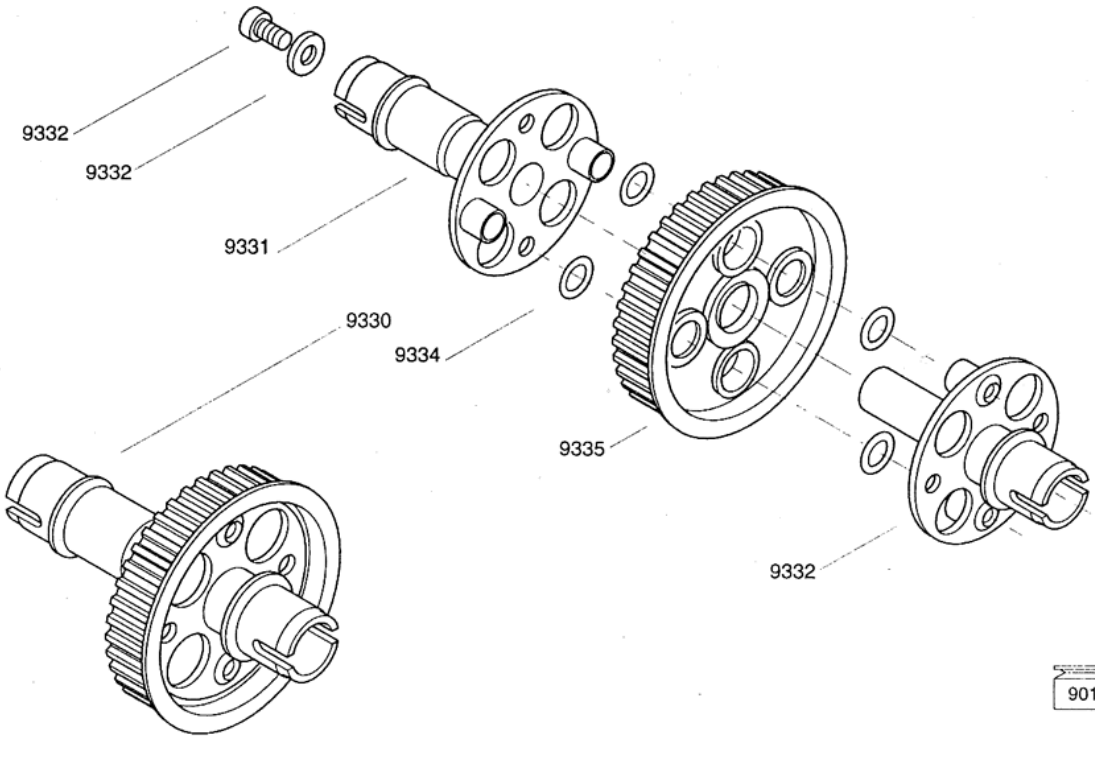


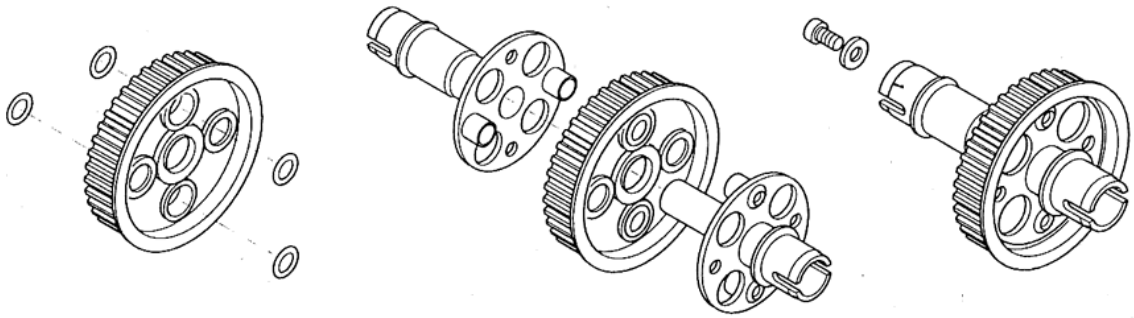


⑧ The alu. front axle has pre-mounted 1-way bearings. Apply the 24T timing belt pully and the nylon washer, and secure it with the circlips.
Press the 2 12x18mm ballbearings on both ends of the front shaft. Put the 2 nylon spacers on the inner driveshaft adapters and place them in the front shaft. Put the front axle with the front drive shafts in place, with the long timing belt, and screw the left and right front suspension brackets to the chassis using c.s.h. screws 3.5x13.

⑨ The front shockabsorbers can be applied to the front suspension. Screw the 2 M4x10 setscrews in the front brackets, to adjust the ride-height. The adjustment and setting-up of the front suspension is explained under "SETTING UP THE SERPENT EXCEL MK-2".

ASSEMBLING THE FLEX-DRIVE AXLE



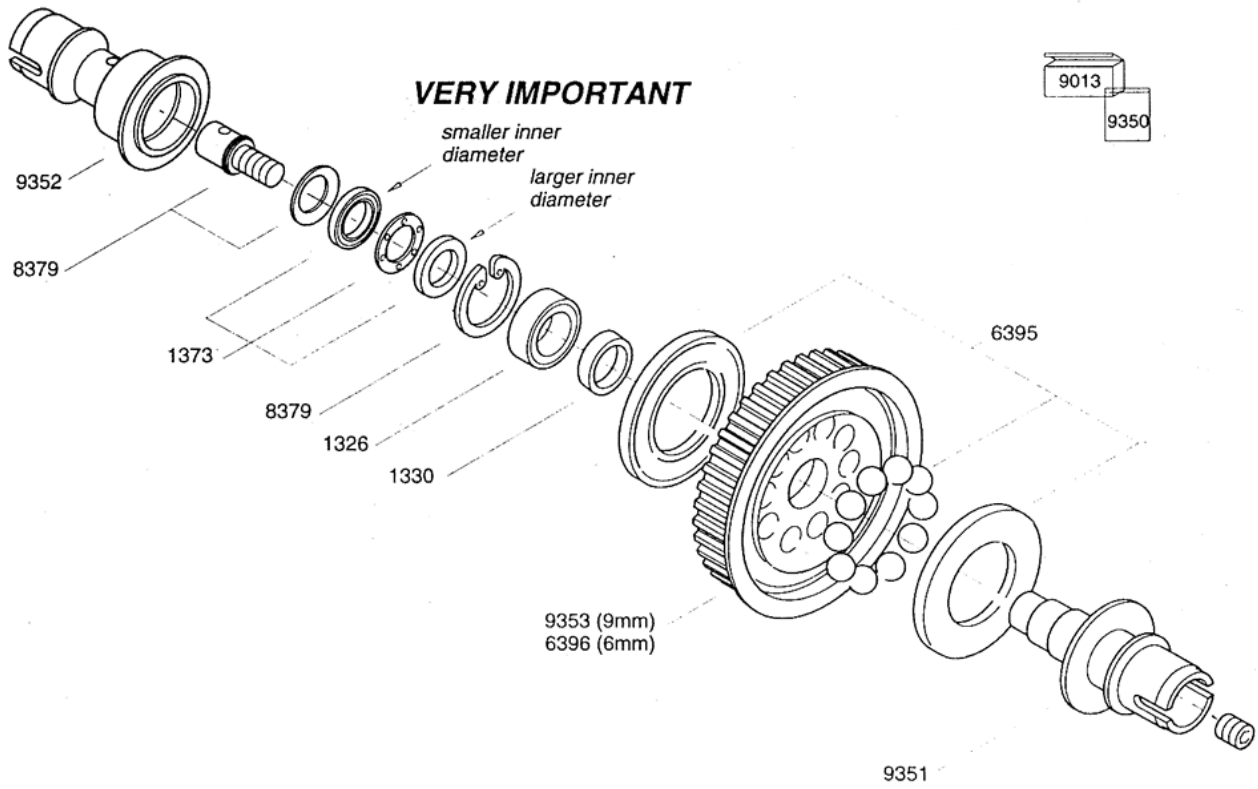


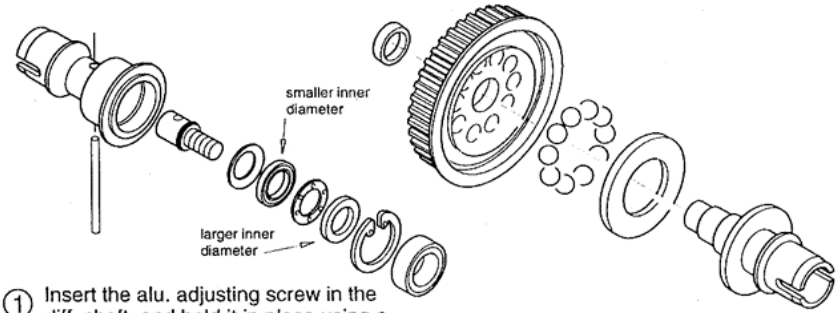
① Apply the 4 O-rings in the 4 seats of the 46T timing belt pully. These O-rings will absorb the severe transmission and braking shocks. This will result in smoother acceleration and less wear on wheel-axles, drive shafts and belts.

② Apply a little grease on the long axle to avoid friction. Now put both axles together with the timing-belt pully. Note the direction of the pully.

③ The M3 socket head screw and steel washer are used to fix both Flex-Drive parts together. Tighten this screw thoroughly. If everything is assembled properly, a little "flex" movement in both parts can be felt.

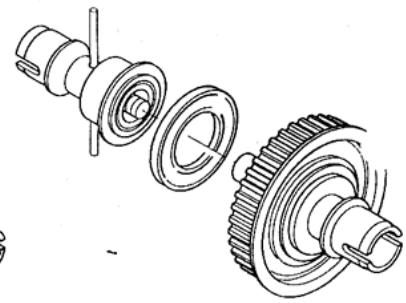
ASSEMBLING DIFFERENTIAL 9350



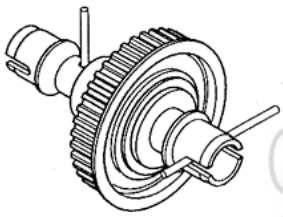


① Insert the alu. adjusting screw in the diff. shaft, and hold it in place using a 2mm pin. Place the spring washer and the thrust bearing on the alu. adjusting screw and apply the 14mm inner G-clips. Make sure the sharp side of the G-clips faces towards you.

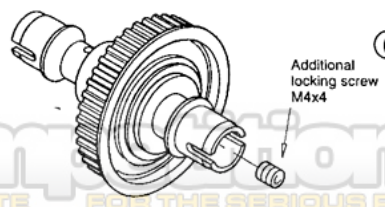
② Press the 8x12 ballberaring in the centre-hole of the pully. Place the steel plate with the smaller hole on the short diff. axle, apply the diff. pully, and insert the balls in the gear.



③ Place the second steel plate on the long diff. axle and screw the 2 parts together.



④ Use another 2mm pin to turn the 2 parts together and applying the pre-load. While doing this, make sure the steel plates are correctly seated on the diff. axles. Check that the diff is not too loose by holding the 2 axles with the pins, and turning the diff. gear. If the diff. pully slips, apply a little more pre-load. The M4x4 set screw can be used to counter-lock the steel adjusting screw.

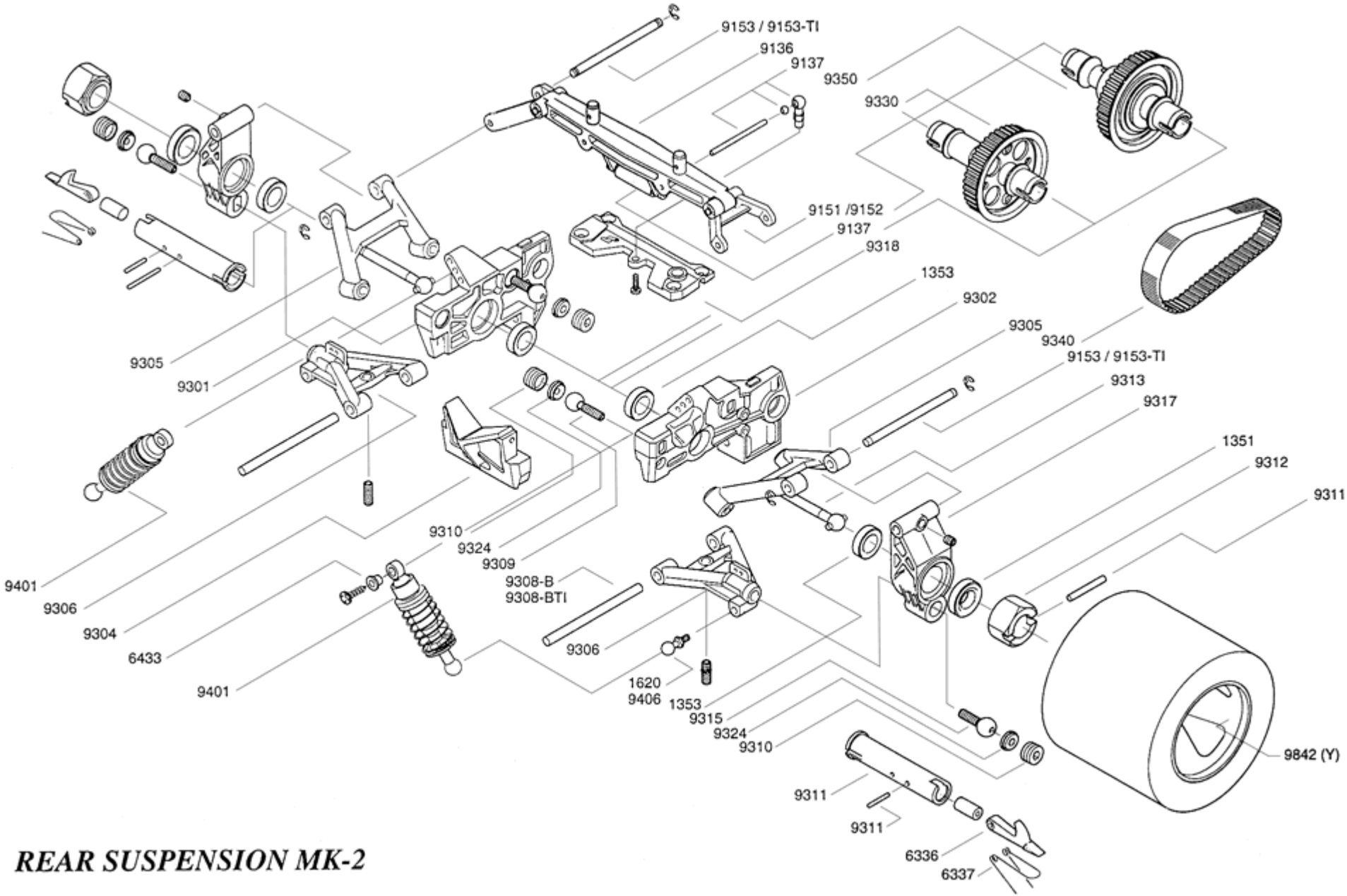


⑤ ADJUSTMENT

The amount of resistance can be adjusted by placing the pin through the hole and turning the wheel on the other side. If the counter-lock screw is used, this screw must be loosened before making the adjustment. This requires taking the upper outside pivot pin out of the right-side suspension arm to reach the screw.

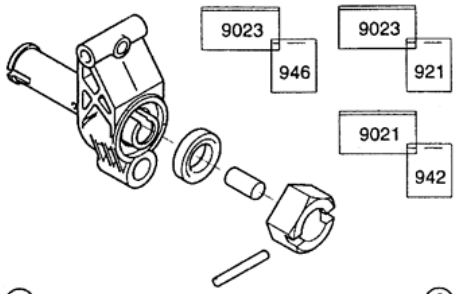
⑥ MAINTENANCE

The differential requires little maintenance. Take the differential apart every 2 or 3 hours and clean the balls and the hardened steel plates. Use # 6395 if the balls and washers must be replaced. The 6mm thrust bearing should be greased regulary. Clean the slotted parts of the diff. axles regulary. This will extend the life of these parts. Apply just a little grease to keep these parts lubricated. The axles are made of very tough and wear resistant steel. Nevertheless the drive-pins may bed in after a long time and this will influence the suspension. If this occurs, the axle(s) must be replaced.

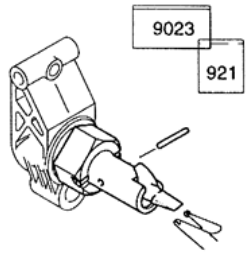


REAR SUSPENSION MK-2

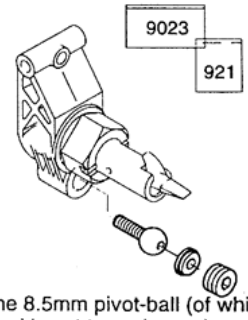
ASSEMBLING THE REAR SUSPENSION



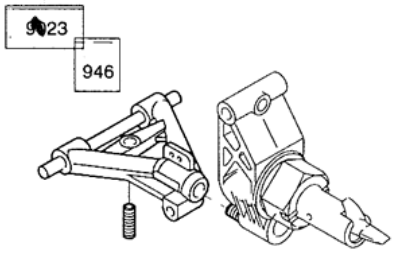
① The right and left up-right are identical. Press the 12x18 ball-bearing in the inner side of the up-right. and the larger 12x21 in the outside. Insert the rear wheelaxle. The nylon spacer is inserted in the axle. Apply the nylon hexagon rear wheeladapter and press the 2.5x20mm pin through the hole of the axle. Check the free turning, allow a little side-play.



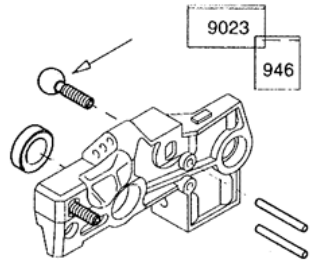
② Place the nylon lever in the rear wheelaxle and press the 2.5x12mm pin through the second hole and the hole of the lever. Apply the torsion spring, the 2 legs of the spring snap behind the small edge on the end of the axle, just like in the front wheel axles.



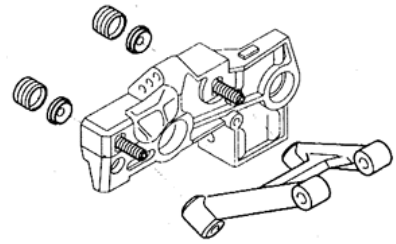
③ Insert the 8.5mm pivot-ball (of which the thread is not turned away) and screw the alu. M10 adjusting nut in the threaded hole of the up-right with the nylon ball cup in place. Carefully adjust the play and the free movement of the ball.



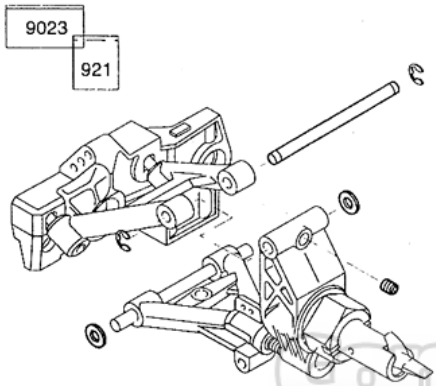
④ Screw the pivot ball in the lower suspension arm. Press the long steel pivot pin in place, equally protruding on both sides of the arm. Turn the M4x10 setscrew in the lower arm to adjust the ride-height.

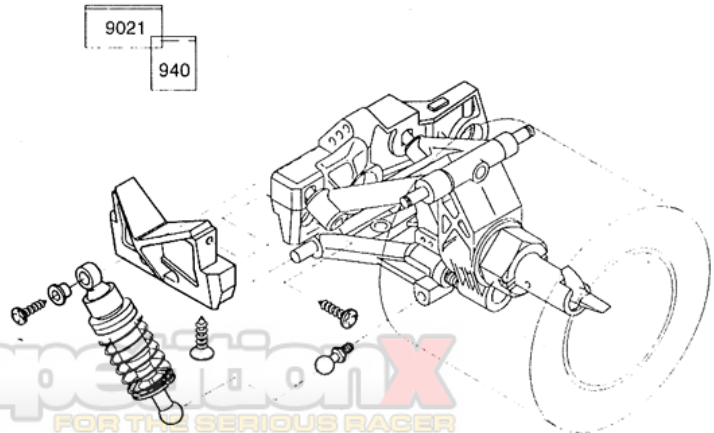


⑤ The 2 brake roll-pins (2.5x24) are pressed into the right side bearing block. Place the 8.5mm pivot balls in the bearing blocks (use the pivot balls of which the thread is turned away just behind the ball).



⑥ The upper suspension arms are attached. The arms are marked L and R. Turn the pivot balls into the threaded holes of the suspension arms. Insert the alu. M10 adjustin nuts and the nylon ball cups and carefully adjust the free movement and the play of the balls.



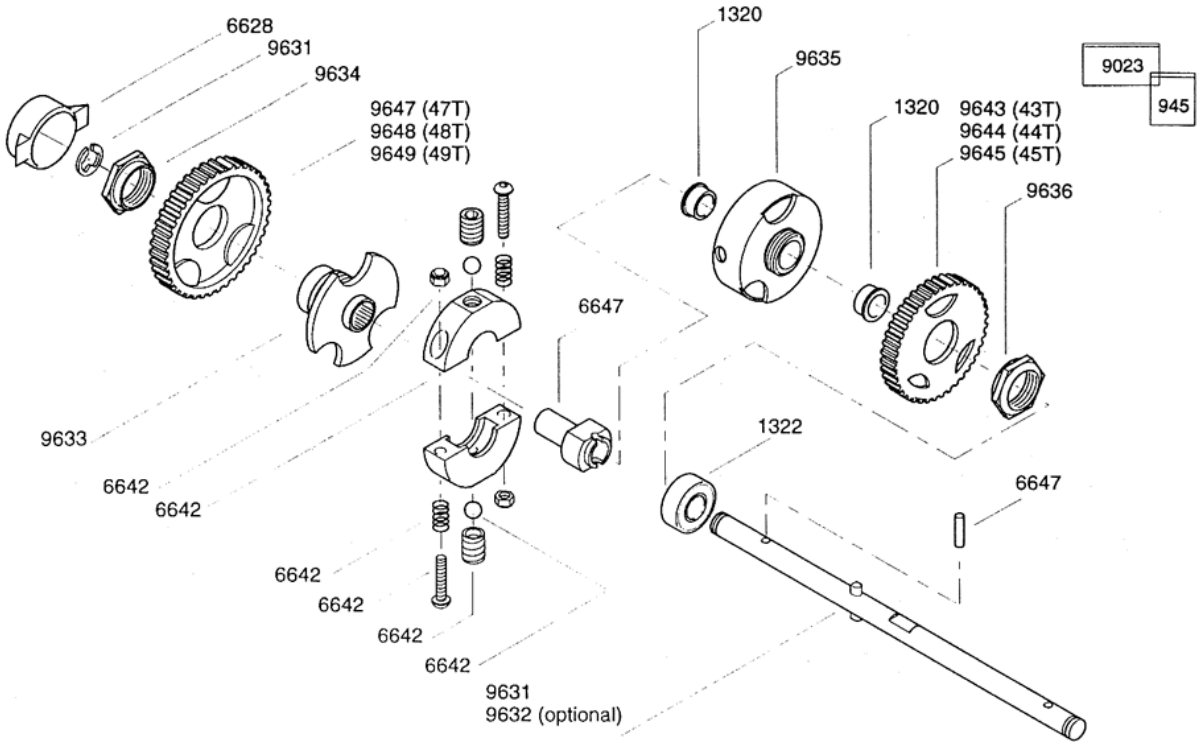


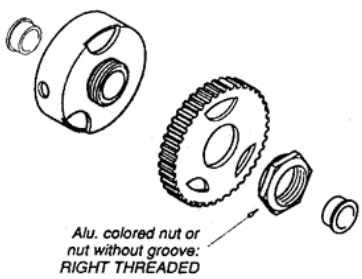
⑦ Attach the assembled lower arm and up-right.
The pin is secured with the setscrew M4x4 and with the 2 3.2mm C-clips on both ends of the pivot pin. Use the 4mm shims to adjust any side-play. The rear body-mount is assembled seperately (explained later).

⑧ The rear plate is mounted to the rear blocks with r.h. screws 3.5x13. After completion of the differential or the solid axle, the whole rear end is mounted to the chassis using 6 c.s.h. screws 4.2x13.

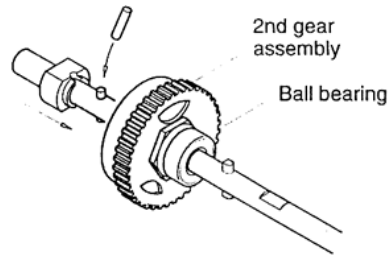
⑨ Turn the steel 5mm ball with M3 thread in the lower suspension arms. The shockabsorber can now be applied to complete the rear suspension. The adjustment and setting-up of the rear suspension is explained under "SETTING UP THE SERPENT EXCEL MK-2"

ASSEMBLING THE 2-SPEED GEARBOX

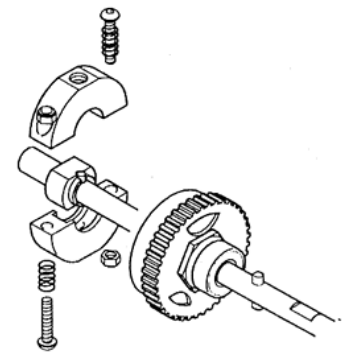




① Apply the 2 flanged 6x10mm ballbearings. Place the 43T second gear on the clutch bell and secure it with the alu. nut (clockwise direction thread).

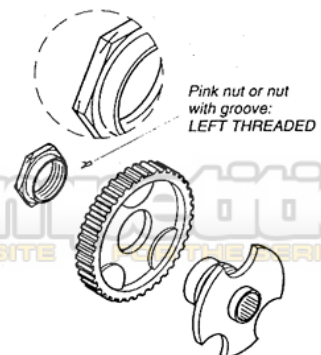


② First slide the 6x13 mm ball bearing over the gearbox-shaft. Then slide the 2nd gear assembly over the shaft. After this you insert the 3x12 hardened pin in the 2-speed shaft. Slide the 2-speed adapter over the shaft.

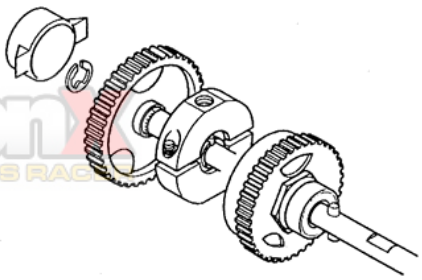


③ Apply the 2 clutch-shoes, using the 2 M3x16 screws, the coil-springs and the M3 lock-nuts. Turn both screws in equally far, so they protrude about 1.5mm (3 complete turns) through the nut. Applying more pre-load to these screws make the gearbox shift later.

④ Turn the center adjusting screws in the shoes, with the 4mm balls in place. Make sure the balls press on the flat parts of the adapter. Adjust the center screws so that the shoes are just touching the clutch bell and then 1/8 of a turn back again.

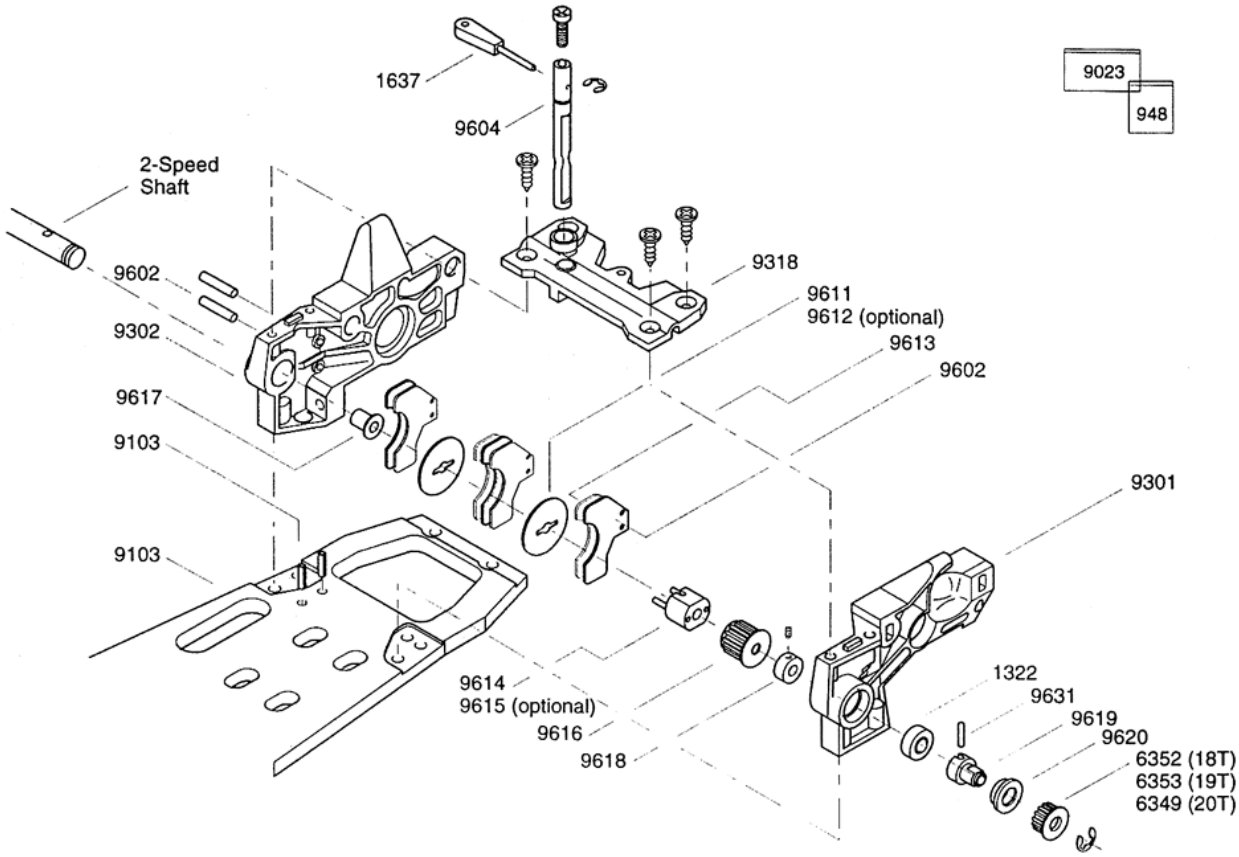


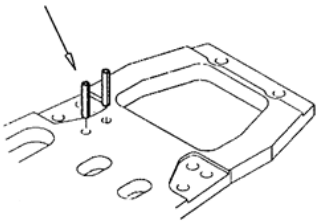
⑤ The 1-way bearing is pre-mounted in the drive flange. Place the 47T first gear on the drive flange and turn the hex. nut (Colored pink or with groove) on the drive flange in a COUNTER CLOCKWISE direction to secure the gear.



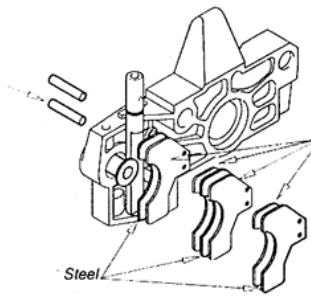
⑥ Now put all the pre-mounted parts together on the 2-speed layshaft. The drive flange is secured with the C-clips. The nylon dustcap is pressed on the drive flange to protect the 1-way bearing from dust and water.

ASSEMBLING THE DISK BRAKE UNIT

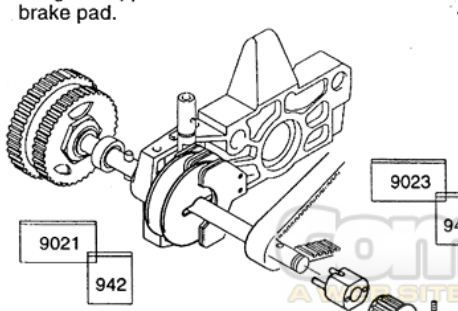




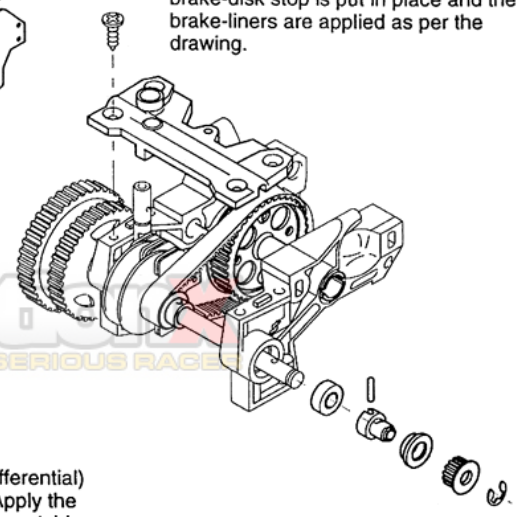
① Press the two 3x10mm roll-pins in the 2 holes in the chassis. These pins will give support to the outer steel brake pad.



② The yellow coloured brake-liners must be glued to the steel brake pads. Clean and roughen the steel brake-pads before glueing. Use some cyano. glue. Check that the holes line up properly. Press the two 2.5x24mm steel pins in the differential block. Apply the alu. brake cam with the flat facing the brake-pads. Next the alu. brake-disk stop is put in place and the brake-liners are applied as per the drawing.

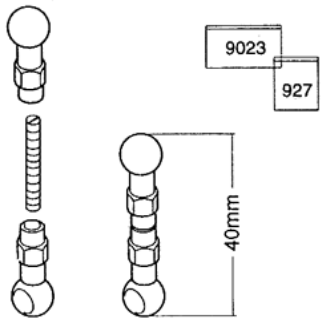


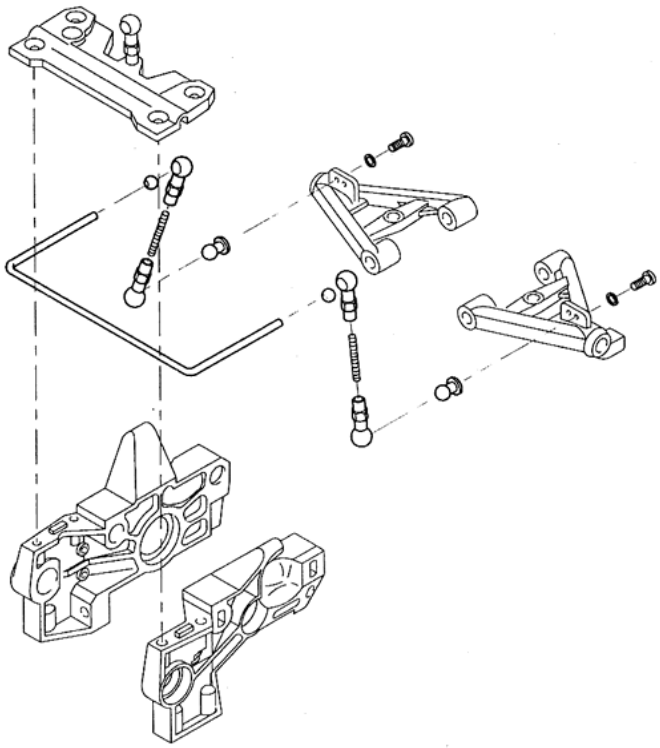
③ Place the 2 steel brake-disks between the brake pads and insert the 2-speed assembly with the 6x13mm ballbearing through the right hand differential block. Insert the 3mm steel pin that holds the brake-pully adapter. Make sure the 9mm Kevlar belt is in place. Now apply the 23T pully and secure it with the alu. collar.



④ Place the Flex-Drive (or differential) between the rear blocks. Apply the 6x13mm ballbearing on the outside. Insert the 3mm pin in the 2-speed shaft, and slide the alu. side-pully adapter over the shaft. The 19T side pully with the nylon retainer ring is applied and the C-clips secures it on the shaft. Apply the nylon brake bracket to the bearing-blocks, using c.s.h. parkers 3.5x13.

ASSEMBLING THE REAR ANTI-ROLL BAR





① Assemble the 2 balljoints using the M3x20 setscrews. Adjust to a total length of 40mm.

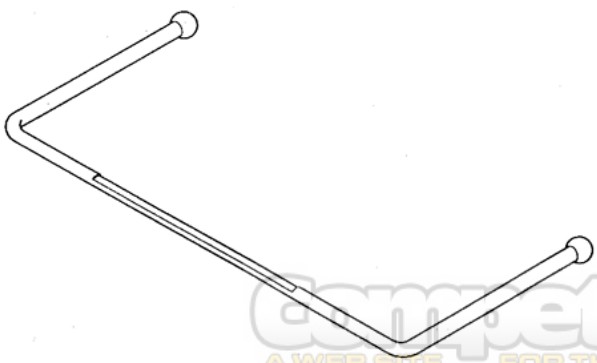
② Solder the brass balls with the 3mm holes on both ends of the rear anti-roll bar.

③ Mount the threaded 5mm balls to the outer holes on the lower suspension arms using r.h. screws M2x6 and the 2.5mm washer.

④ Before fitting the rear anti-roll bar, check the free movement of the parts, the balljoints, and the roll-bar itself after the nylon brake bracket is applied.

⑤ Connect the balljoints to the balls on the lower arms. Now check that the ride-height left and right is exactly equal. If necessary change the length of one of the connecting balljoint rods.

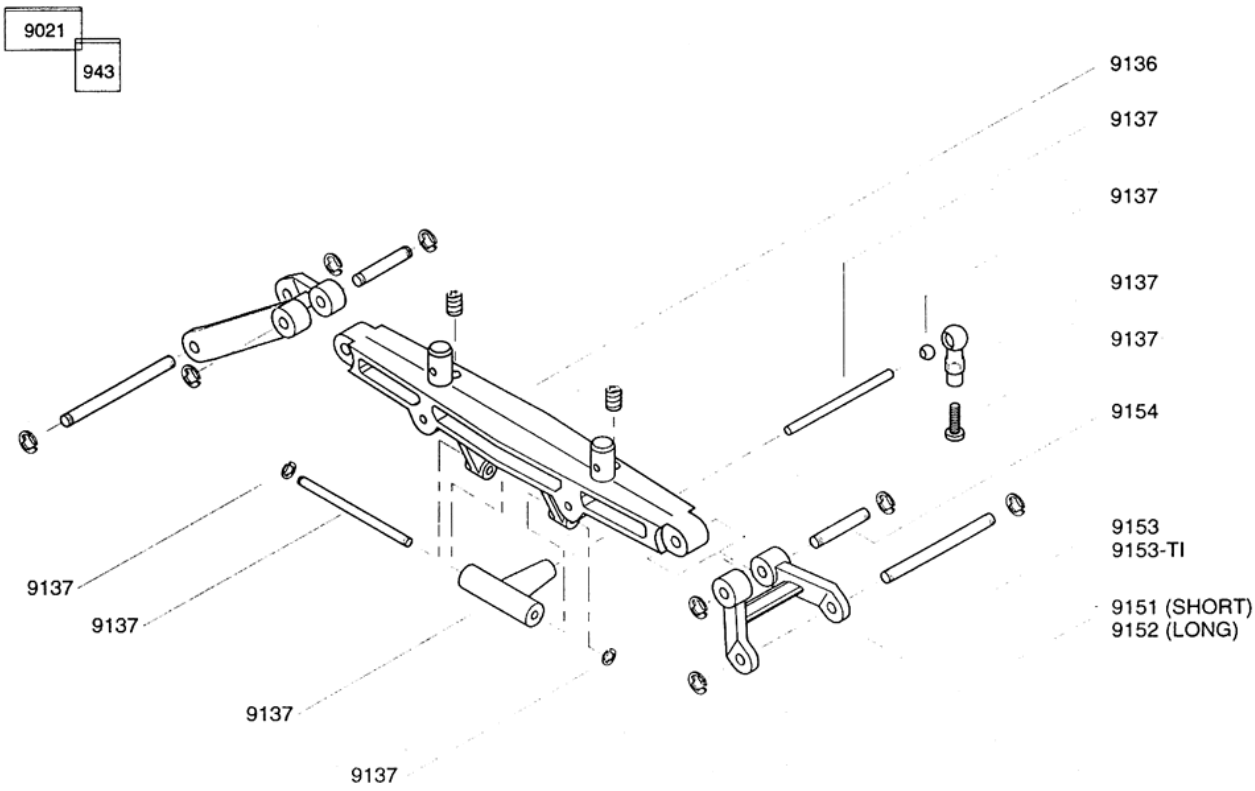
⑥ Softer rear anti-roll bars can be made by grinding a flat part of approx. 40mm wide on the anti-roll bar. The thickness of the anti-roll bar determines the stiffness.

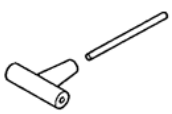


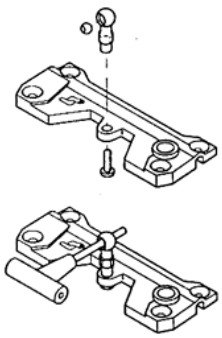
Optinal anti-roll bars are available:

9321	Standard round	= 3 mm
9322	Thickness flat piece	= 2.3 mm
9323	Thickness flat piece	= 1.6 mm
9325	Thichness flat piece	= 1.0 mm

ASSEMBLING THE REAR BODYMOUNT

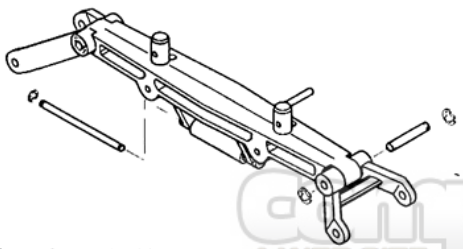


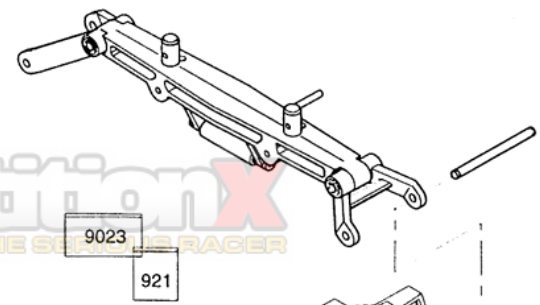




① Press the steel rod into the nylon swivel lever. A drop of cyano. glue could be used to secure the parts firmly together.

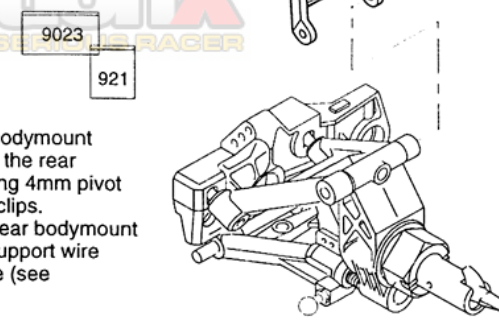
② The open ball-joint is screwed to the nylon brake-bracket, using the M3x12 screw. Press the 5mm ball into the balljoint. The steel rod slides foreward and backwards through this ball when the suspension is moving.





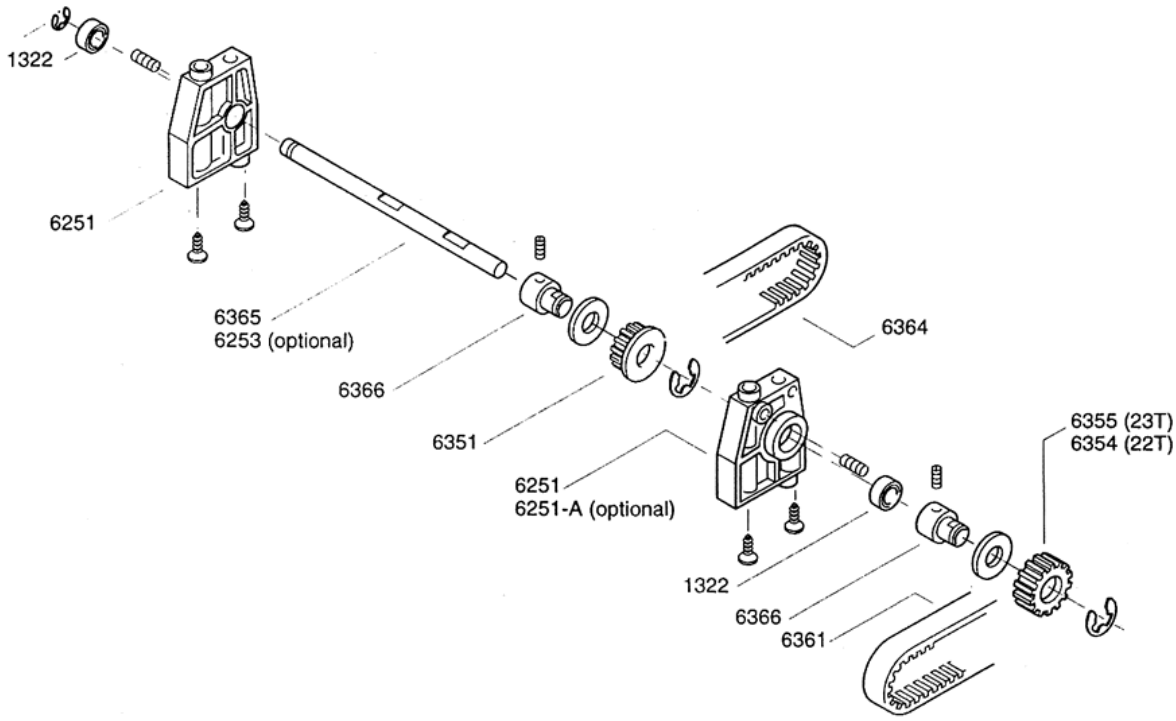
③ The nylon swivel is mounted to the nylon rear bodymount using the 3mm steel pin and the 2.3mm C-clips. Check for free movement. Normaly the small swivels are used.

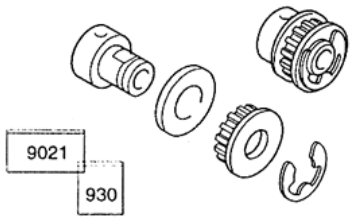
④ Apply the 2 nylon arms, using the 4mm pivot pins and the 3.2mm C-clips. Again check that the arms can rotate freely. The free movement of these parts is important in order not to obstruct the suspension movement at all.

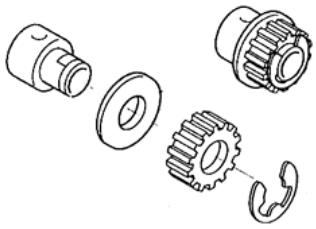


⑤ Finally the whole rear bodymount assy. can be placed on the rear suspension. Use the long 4mm pivot pins and the 3.2mm C-clips.
The 3mm holes in the rear bodymount can be used for body support wire and wing mounting wire (see pictures).

ASSEMBLING THE MIDDLE SHAFT





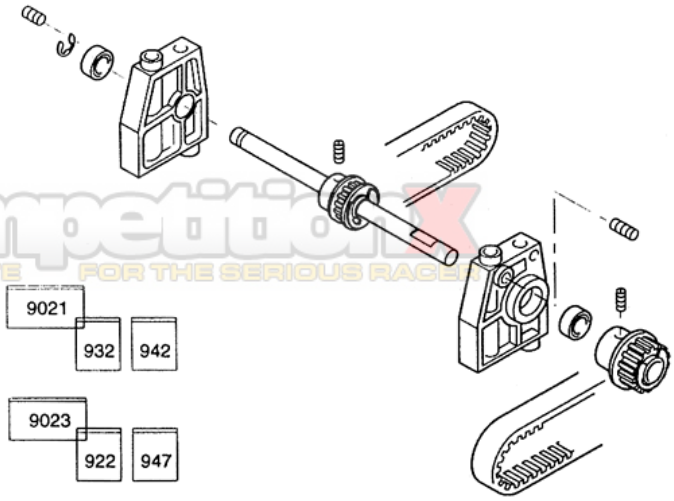


① Press the 16T pully on the alu. pully adapter. Because of the small diameter of the pully the use of a cyano-glue or other strong glue is necessary to get a very firm and reliable joint between the pully and the pully-adapter. Secure the pully with the 7mm C-clips.

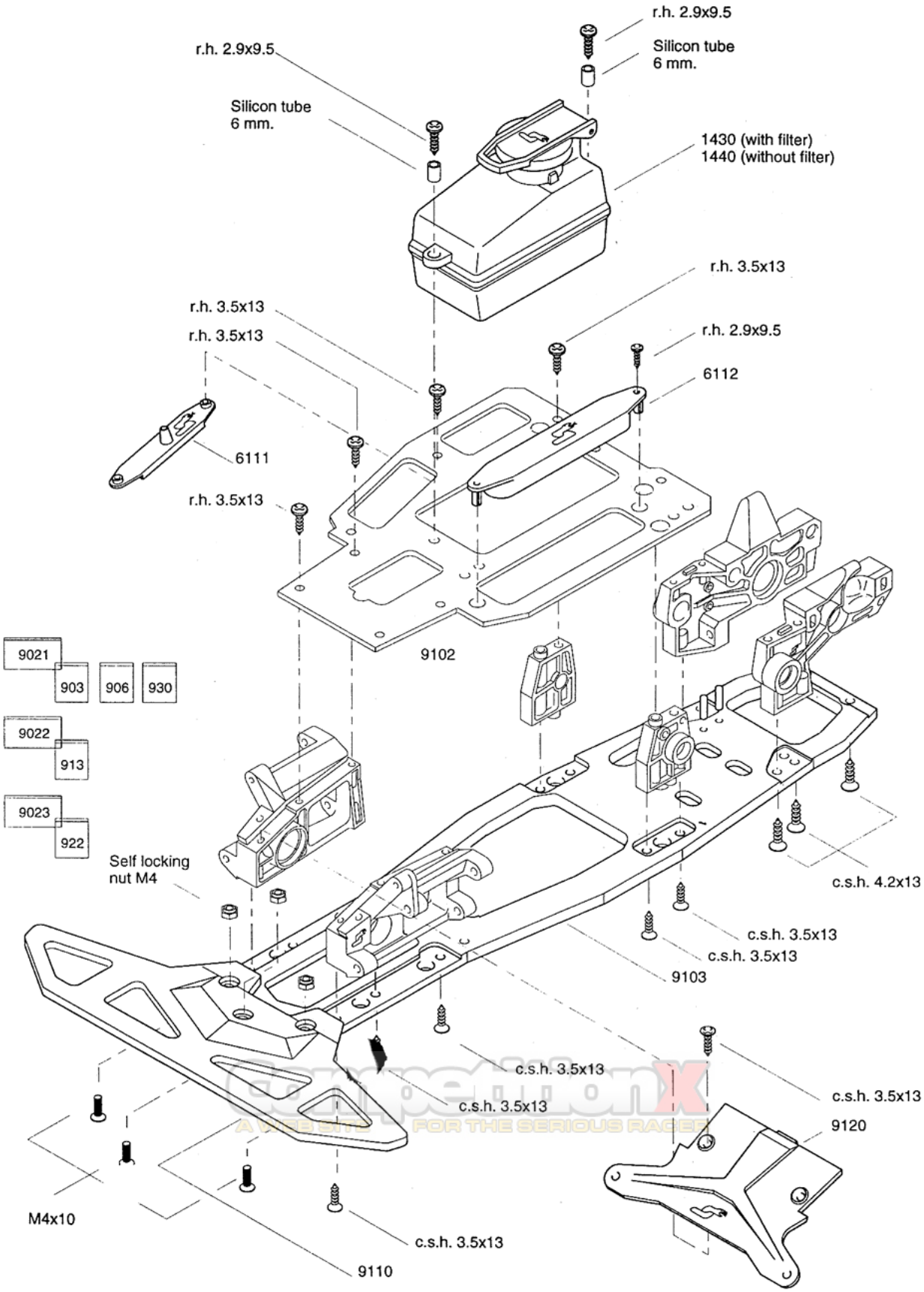
② Mount the 23T pully on the pully adapter and secure it with the 7mm C-clips.

③ An alternative front-rear drive ratio can be obtained by using the 22T (#6354) pully instead of the 23T pully. This will put more overdrive to the front wheels. See the drive-ratio charts for more information.

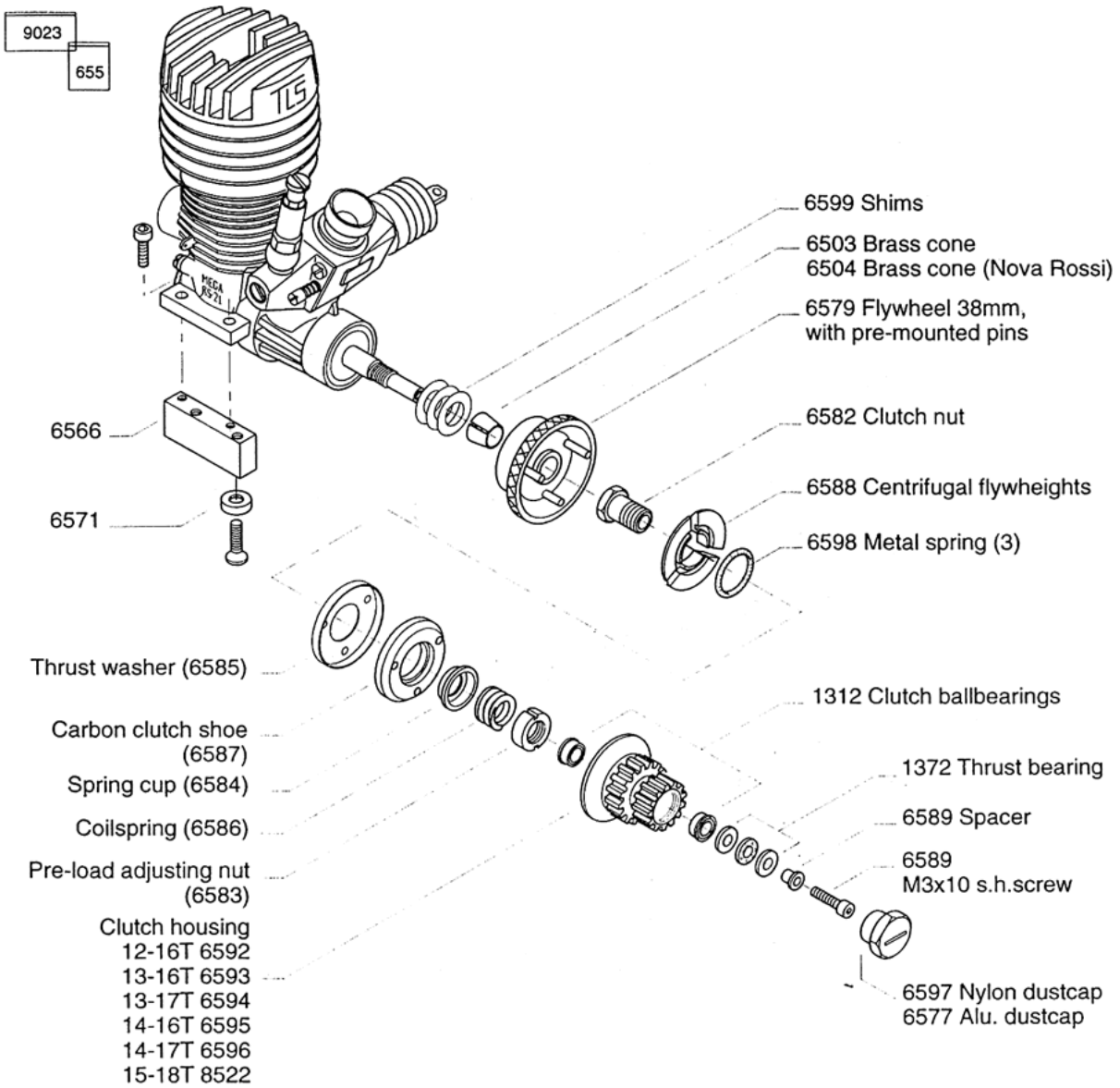
④ Press the 6mm ballbearings in the bearing blocks. The blocks are mounted to the chassis with c.s.h. screws 3.5x13. Insert the M4x6 setscrews in the side of the blocks, with these screws the roll-overbar is fixed.
Apply the C-clips on the end of the shaft and insert the middle shaft, with the 16T pully and the long timing belt in place. Align the timing belt with the front pully, use setscrew M4x6 to fix it to the shaft. Apply the 23T pully and fix it with setscrew M4x6. Use Lock-Tite on the setscrews. Allow a little sideplay on the shaft.

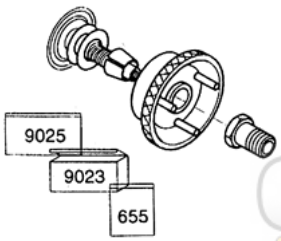


CHASSIS RADIOPLATE AND BUMPER

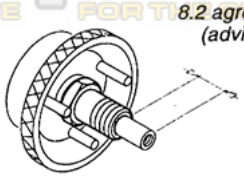


THE CENTAX CLUTCH SYSTEM





8.0-8.2mm
Use shims to adjust correct length.



① The CENTAX clutch is a whole new concept and will require some time to fully understand the details of this clutch. Once set up right you will be amazed about the extra performance of your engine, especialy at bottom-end. Follow the assembling instructions and setting-up procedures to obtain the best results from your CENTAX clutch.

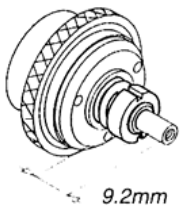
② To obtain the right axial play on both the clutch shoe and the clutch bearing, carefully shimming of the flywheel is required.

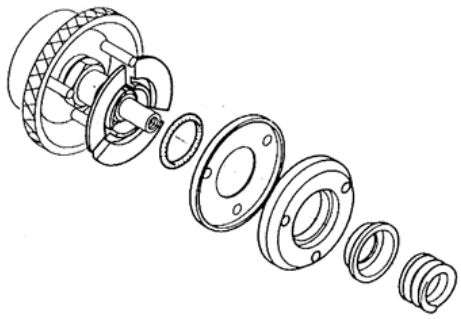
Apply the flywheel to the crankshaft and tighten the clutchnut. Take a measurement from the end of the crankshaft till the end of the clutch-nut. The required size is 8.2mm. The difference between your reading and the 8.2mm should be added behind the flywheel. For this shims of 0.1 0.3 and 0.5mm thickness are included with the clutch. After having applied the shims make sure you tighten the clutchnut thoroughly and check this size again.

ASSEMBLING THE CENTAX CLUTCH

③ Apply the 3 flywheights and place them in the flywheel, the O-ring is put in the groove. Apply the support plate, followed by the carbon filled clutch shoe and the spring cup. Place the spring over the clutchnut and apply the adjusting nut. Check that all moving parts slide freely over the pins and clutch nut. If the movement is obstructed, some deburring or smoothening may be required.

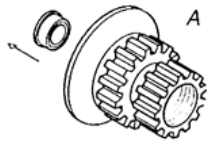
With the adjusting nut the spring-tension can be adjusted. As a start, set the adjusting nut at 9.2mm measured from the end of the crankshaft.

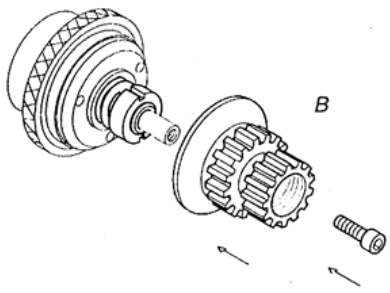




④ The spring-tension can be increased by turning the adjusting nut further on to the clutch nut, causing the clutch to engage later. This adjustment can be made by inserting a 1.5mm pin (or a 0.050 allen key) through the small hole in the clutch housing.
Find the slot in the adjusting nut and then turn it clockwise whilst holding the flywheel. Remove any grease or oil from the clutch-housing. Apply the flanged ballbearings to the clutch housing. Now place the small 4mm thrustbearing over the spacer-bushing and secure the clutch housing with the M3x12 sockethead screw. Check that the clutch housing spins nice and free and that the ballbearings have a little sideplay.

⑤ To get the clutch working the propper way, the right end-play is vital. This can be measured as follows. Take off the clutch housing and remove the inner flanged bearing (A). Re-apply the clutch-housing and turn the M3x8 allen screw in the top of the crankshaft (B).

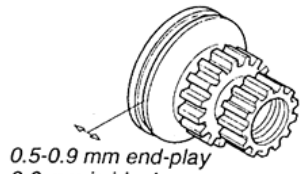




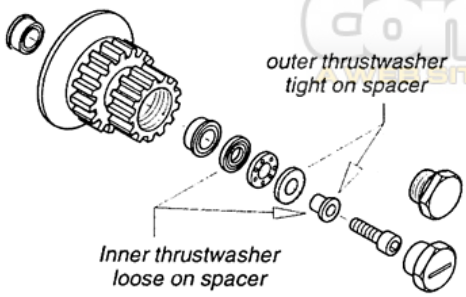
⑥ Press the clutch-housing against the clutch-shoe and measure the distance from the end of the allen-bolt to the top of the little gear.

Next pull the clutch-housing from the clutch-shoe, all the way against the thrust bearing. Again measure the distance between the top of the allen-bolt and the top of the little gear. The difference between these two measurements is called the end-play.

The value of the end-play should lie between 0.5 and 0.9 mm. 0.6 mm is ideal. The end-play can be changed by taking away or adding shims behind the flywheel.



⑦ SETTING-UP THE CENTAX CLUTCH
The clutch slip can be adjusted with the adjusting nut. The correct setting can only be made in the car and may depend on your engine and gear-ratio. Too late engagement will increase clutch-wear and will cause less bottom punch.



⑧ NEVER ALLOW THE CLUTCH TO SLIP, STOP IMMEDIATELY AND RE-ADJUST THE CLUTCH.
When running-in a new engine, set the clutch on 9.0mm. Also in wet or very slippery conditions it is better to let the clutch come in earlier.

DO NOT TEST THE CLUTCH UNDER FULL POWER WHILE LOCKING THE WHEELS.
THIS WILL DAMAGE THE CLUTCH.

The distance between the clutch housing and the clutch shoe is also very important for the 'punch' you can get from your clutch. Fine adjustments can be made by shimming the flywheel backward or foreward. Always check for enough end-play on the clutch ballbearings.

⑨ MAINTENANCE

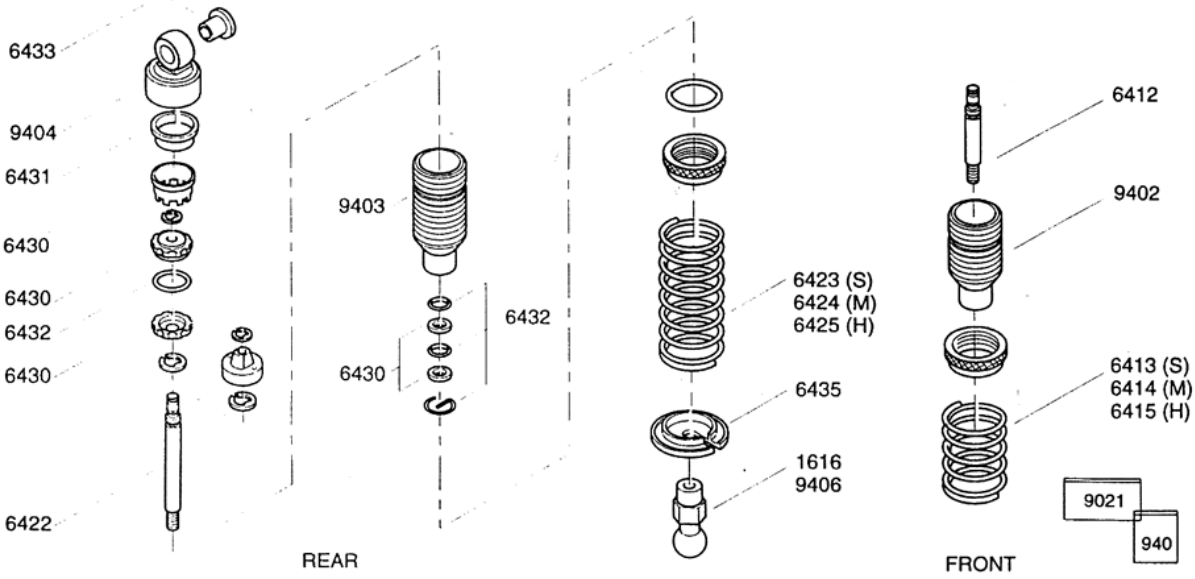
Check the wear on the clutch shoe every 2 hours. Also check that the wear pattern is even. When the clutch housing is pressed on to the clutch-shoe, the end-play should be between 0.9 and 0.5 mm.
If the clutchshoe looks doubtful, replace the shoe.

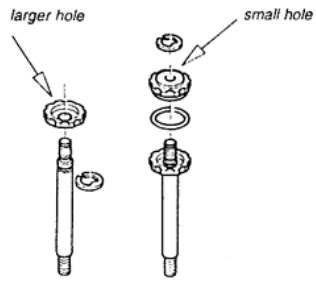
⑩ Check the flyweights every 2 hours. The flywheel surfaces should not be deformed or worn.

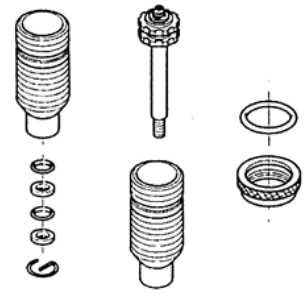
DO NOT CUT OR MODIFY THE CLUTCHSHOE OR THE FLYWEIGHTS. THIS WILL OBSTRUCT THE WELL FUNCTIONING OF THE CENTAX CLUTCH.

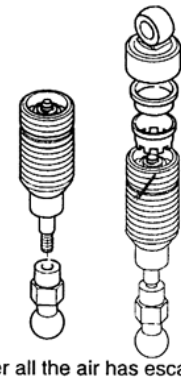
⑪ Check the small thrust-bearing regulary and apply some MOS2 (molybdene sulfide) grease. If this bearing fails, the whole clutch will be damaged!

ASSEMBLING THE ALU. SHOCKS









ADJUSTABLE PISTONS

① Insert the 2.3mm C-clips in the second groove of the piston rod and slide the piston with the bigger hole on the piston rod. Turn the second piston (smaller hole) on the M3 part of the rod, apply the 1.9mm C-clips and turn this piston back against the C-clips. Apply the 6mm O-ring between the 2 pistons. By turning the top piston towards the lower piston, the O-ring will be sqeezed to the outside and will so change the flow resistance of the pistons, thus changing the damping rate. Place the small O-rings and the nylon guide bushings in the lower end of the cilinder.

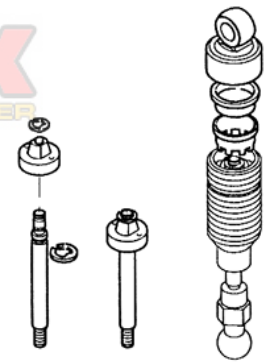
② The retainer G-clips is inserted to keep the O-ring pack in place. Make sure that the G-clips is seated well. Apply some shock. oil on the rod and gently push the piston rod through the O-ring pack. Screw the nylon rod-end to the rod, holding the rod on the thread with side cutters. Be carefull not to damage the grinded part, this will cause leakage. Fill the shock. with the special silicone based shockoil. Move the piston slowly up and down to allow the air to escape. Then insert the large O-ring in the top spring-nut. This ring prevents the nut from loosening when driving with the car.

③ After all the air has escaped, the nylon cam busing is pressed into the cylinder. Place the rubber membrane on the nylon cam bushing and close the shockabsorber with the piston 3/4 way up. Check the well functioning of the shockabsorber and adjust the damping. Push the rod all the way in to lock the upper piston in the cam bushing. The upper piston can only reach the cam with the spring not installed. Make sure the damping rate left and right is equal. Apply the coil-springs and the spring-support washers. Mount the short shock-absorbers in the front and the long shocks in the rear.

FIXED PISTONS

④ The shockabsorbers can also be mounted with the fixed pistons. 3 Versions are supplied in the frame, with 1, 2 or 3 holes. The more holes, the softer the dampening. Ofcourse using the fixed pistons means that if you want to change the dampening, the shocks have to be opened and either the piston must be changed, or the viscocity of the oil. Although the nylon cam-bushing has no adjustment function, it is still mounted to give support to the rubber membrane.

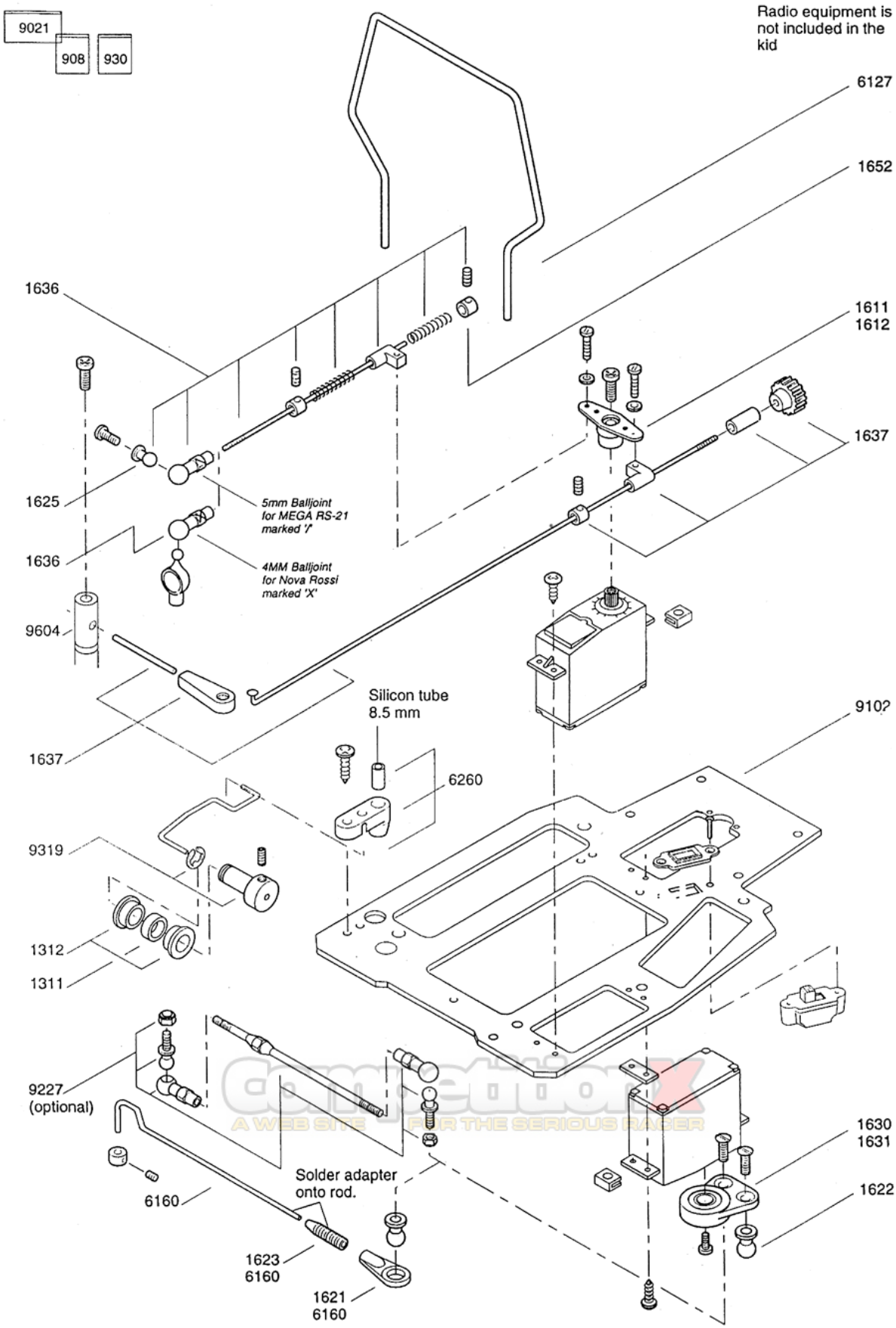
⑤ To fill and to mount the shockabsorber with fixed piston, follow the instructions as for the adjustable shocks.



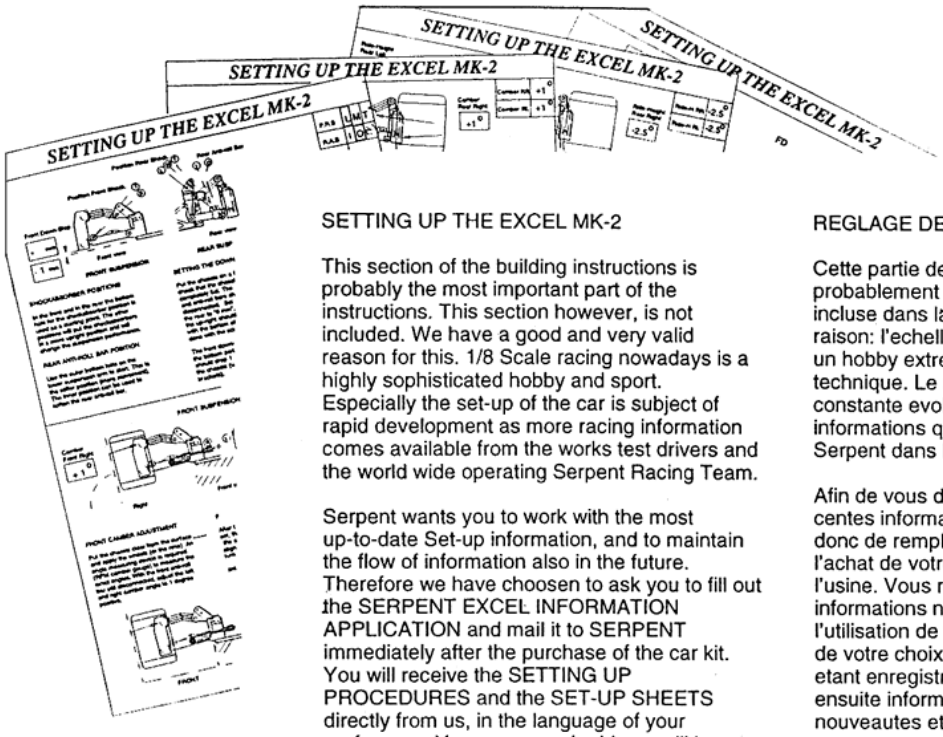
⑥ SPECIAL SERPENT SHOCK OIL

1670 silicone oil W20 green
1671 silicone oil W30 yellow
1672 silicone oil W40 red
1673 silicone oil W50 blue

INSTALLING THE RADIO EQUIPMENT



SETTING UP THE EXCEL MK-2



SETTING UP THE EXCEL MK-2

This section of the building instructions is probably the most important part of the instructions. This section however, is not included. We have a good and very valid reason for this. 1/8 Scale racing nowadays is a highly sophisticated hobby and sport. Especially the set-up of the car is subject of rapid development as more racing information comes available from the works test drivers and the world wide operating Serpent Racing Team.

Serpent wants you to work with the most up-to-date Set-up information, and to maintain the flow of information also in the future. Therefore we have choosen to ask you to fill out the SERPENT EXCEL INFORMATION APPLICATION and mail it to SERPENT immediately after the purchase of the car kit. You will receive the SETTING UP PROCEDURES and the SET-UP SHEETS directly from us, in the language of your preference. Your name and address will be stored in a database and will be used to send you specific information about the EXCEL, new developments, speed secrets etc.

A database service is under development in which relevant set-up information will be stored and processed. This information will become available to you as well. Just sign up!

REGLAGE DE LA SERPENT EXCEL MK-2

Cette partie de la notice de montage est probablement la plus importante mais n'est pas incluse dans la boite, et ceci pour une bonne raison: l'echelle 1/8 thermique est aujourd'hui un hobby extremement sophistique et technique. Le reglage des voitures est constante evolue grace aux tests et informations que nous donnent les pilotes Serpent dans le monde entier.

Afin de vous donner les meilleures et plus centes informations, Serpent vous demande donc de remplir la notice d'information apres l'achat de votre voiture et de la renvoyer a l'usine. Vous recevrez en retour toutes les informations necessaires au reglage et a l'utilisation de votre Excel MK-2 dans la langue de votre choix. Votre nom et votre adresse etant enregistres sur notre fichier, vous serez ensuite informes directement de toutes les nouveautes et secrets de reglages.

Notre fichier d'informations et de reglages sera a votre service, alors renvoyez vite votre fiche!

DIE ABSTIMMUNG DES EXCEL MK-2

Wahrscheinlich ist dieser Teil der Bauanleitung der wichtigste des gesamten Heftes. Trotzdem - oder gerade deshalb - ist er nicht mitabgedruckt. Dafur gibt es unserer Meinung nach einen sehr guten und einleuchtenden Grund. Heutzutage ist das 1/8 RC Car Rennfahren ein sehr anspruchsvolles Hobby und Sport. Gerade die optimale Abstimmung des Autos ist Hauptursache fur die kontinuierlich schnelle Weiterentwicklung unsere Produkte, da immer mehr Renninformationen von unseren weltweit vertretenen Serpent-Rennteam verfugbar sind.

Serpent mochte, dass Sie immer Ihr Fahrzeug nach den neuesten Abstimmungs-Angaben einstellen, dazu mochten wir einen kontinuierlichen Informationsfluss auch in Zukunft sicherstellen. Deshalb bitten wir Sie die beigefugte Fragenbogen auszufullen und sofort nach dem Kauf des Baukastens an SERPENT zu schicken (Freiumschlag liegt bei). Wir werden Ihnen unverzuglich die 'SETTING UP PROCEDURES' sowie Einstellformulare in Ihrer Landessprache zuzusenden. Ihr Name und Ihre Anschrift werden in unserer Datenbank gespeichert und dazu genutzt Ihnen regelmassig die neuesten Informationen uber Weiterentwicklungen, Tips und Tricks etc. fur Ihren EXCEL zukommen zu lassen. (Eine vertrauliche Behandlung Ihrer personlichen Daten ist zugesichert.)

DE INSTELLINGEN VAN DE EXCEL MK-2

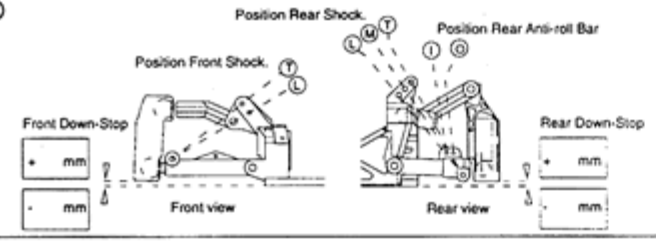
Dit onderdeel van de bouwbeschrijving is waarschijnlijk het meest belangrijke gedeelte. Toch is juist dit gedeelte niet in de bouwbeschrijving opgenomen. Hiervoor hebben wij hele goede redenen. Het 1/8 racen is tegenwoordig een zeer technische aangelegenheid. Met name de gegevens voor een optimale wegligging veranderen vaak omdat steeds meer informatie beschikbaar komt door het vele testwerk van de fabrieksrijders en de internationale teamrijders.

SERPENT is als enige in staat de EXCEL gebruiker van de meest recente afstelgegevens te voorzien, en bovendien deze informatie ook op pijl te houden in de toekomst. Daarom hebben wij ervoor gekozen de EXCEL MK-2 SET-UP informatie via een aanvraag formulier aan u toe te zenden. Vul dit formulier onmiddelijk in een stuur deze in de port-vrije envolop naar ons toe. De meest recente afstel-gegevens en tips worden dan onmiddelijk aan u toegezonden, en wel in het Nederlands. De naam en adres gegevens worden in een database opgenomen, zodat wij ook in de toekomst u direkt over alle nieuwe ontwikkelingen kunnen informeren. Tevens is SERPENT bezig een afstel-gegevens database op te zetten, waarvan iedere geregistreerde EXCEL rijder in de toekomst gebruik van kan maken. Meteen doen dus.

SERPENT SET-UP SHEET©

JULY 1995 STANDARD SET-UP VARIOUS CONDITIONS

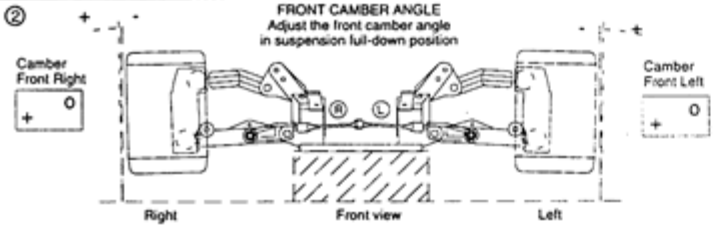
① Position Rear Shock. / Position Front Shock. / Position Rear Anti-roll Bar



		4 WD WET TRACTION	4 WD LOW TRACTION	4 WD MED TRACTION	4 WD HIGH TRACTION	2 WD LOW TRACTION	2 WD HIGH TRACTION
Postion Rear Shocks	P.R.S.	L T M	L T M	L T M	L T M	L M T	L M T
Rear Anti-roll Bar	S.R.A.B.	⌀ 1.8	⌀ 1.8	⌀ 2.2	⌀ 3.0	⌀ 1.8	⌀ 2.2
Position Rear Anti-roll Bar	P.R.A.B.	I O	I O	I O	I O	I O	I O
Rear Down Stop	R.D.S.	+2.0 mm	+2.0 mm	0 mm	0 mm	0 mm	0 mm
Position Front Shock	P.F.S.	L T	L T	L T	L T	L T	L T
Front Down Stop	F.D.S.	-1.0 mm	-1.0 mm	-1.0 mm	-1.0 mm	+3.0mm	+3.0mm

② FRONT CAMBER ANGLE

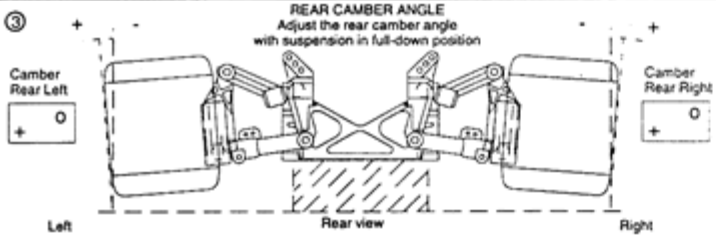
Adjust the front camber angle in suspension full-down position



Camber Front Right	C.F.R.	+1.0 °	+1.0 °	+0.5 °	+0.5 °	+0.5 °	0 °
Camber Front Left	C.F.L.	+1.0 °	+1.0 °	+0.5 °	+0.5 °	+0.5 °	0 °
Front Anti-roll Bar	F.A.B.	1.8 mm	⌀ 1.8 mm	⌀ 2.0 mm	⌀ 2.0 mm	⌀ 2.0 mm	⌀ 2.0 mm
Adjustment Right	A.F.R.	0 °	0 °	0 °	45 °	45 °	90 °
Adjustment Left	A.F.L.	0 °	0 °	0 °	45 °	45 °	90 °

③ REAR CAMBER ANGLE

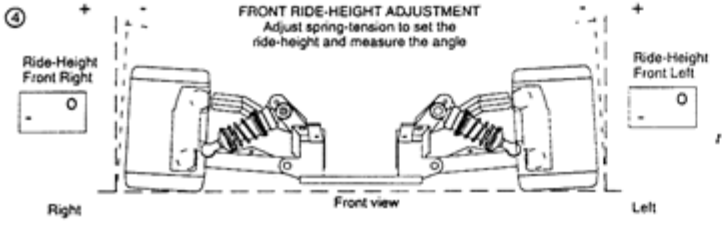
Adjust the rear camber angle with suspension in full-down position



Camber Rear Right	C.R.R.	0 °	+0.5 °	0 °	0 °	0 °	-1.0 °
Camber Rear Left	C.R.L.	0 °	+0.5 °	0 °	0 °	0 °	-1.0 °
Remarks:		Remarks:	Remarks:	Remarks:	Remarks:	Remarks:	Remarks:

④ FRONT RIDE-HEIGHT ADJUSTMENT

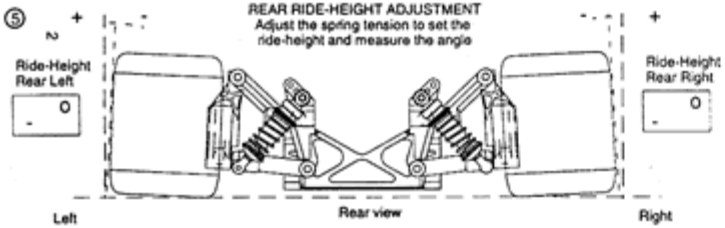
Adjust spring-tension to set the ride-height and measure the angle



Ride-height Angle Front Right	R.A.F.R.	-1.0 °	-1.0 °	-1.5 °	-1.5 °	-0.5 °	-1.0 °
Ride-height Angle Front Left	R.A.F.L.	-1.0 °	-1.0 °	-1.5 °	-1.5 °	-0.5 °	-1.0 °
Remarks:		Remarks:	Remarks:	Remarks:	Remarks:	Remarks:	Remarks:

⑤ REAR RIDE-HEIGHT ADJUSTMENT

Adjust the spring tension to set the ride-height and measure the angle

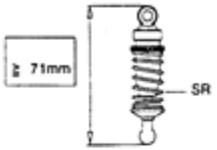


Ride-height Angle Rear Right	R.A.R.R.	-2.5 °	-3.0 °	-3.5 °	-3.5 °	-2.5 °	-3.0 °
Ride-height Angle Rear Left	R.A.R.L.	-2.5 °	-3.0 °	-3.5 °	-3.5 °	-2.5 °	-3.0 °
Remarks:		Remarks:	Remarks:	Remarks:	Remarks:	Remarks:	Remarks:

SERPENT SET-UP SHEET © — JULY 1995 — STANDARD SET-UP VARIOUS CONDITIONS

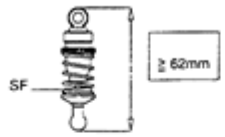
	4 WD				2 WD	
	WET TRACK	LOW TRACTION	MED. TRACTION	HIGH TRACTION	LOW TRACTION	HIGH TRACTION
⑥ Shock Springs Rear — S.S.R.	SILVER	SILVER	BLACK	SILVER	GOLD	SILVER
Shock Oil Rear — S.O.R.	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE
Damping Rear Shocks — D.R.S.	MEDIUM	MEDIUM	MEDIUM	HEAVY	MEDIUM	MEDIUM
Shock Springs Front — S.S.F.	GOLD	GOLD	SILVER	SILVER	SILVER	BLACK
Shock Oil Front — S.O.F.	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE
Damping Front Shocks — D.F.S.	MEDIUM	MEDIUM	HEAVY	V-HEAVY	MEDIUM	HEAVY
⑦ Front Width — F.W.	256 mm	256 mm	256 mm	256 mm	256 mm	260 mm
Caster Front — C.F. Toe-Out Front — T.O.F. Toe-In Rear — T.I.R.	7.0 mm +5.0 mm +3.0 mm	7.0 mm +2.0 mm +3.0 mm	7.5 mm +8.0 mm +0.0 mm	7.5 mm +8.0 mm 0.0 mm	4.0 mm +6.0 mm 3 mm	4.0 mm +6.0 mm 1 mm
Front Tire Right — F.R. Diameter Front Right — D.F.R. Shore Hardness Front Right — S.H.F.R. Taper Front Right — T.F.R.	CAP 70 mm shore mm	JAP. 70 mm 30 shore 0.5 mm	JAP. 70 mm 35 shore 0.5 mm	JAP. 70 mm 40 shore 0.5 mm	JAP. 68 mm 35 shore 0.5 mm	JAP. 68 mm 35 shore 0.5 mm
Front Tire Left — F.L. Diamter Front Left — D.F.L. Shore Hardness Front Left — S.H.F.L. Taper Front Left — T.F.L.	CAP 70 mm shore mm	JAP. 70 mm 30 shore 0.5 mm	JAP. 70 mm 35 shore 0.5 mm	JAP. 70 mm 40 shore 0.5 mm	JAP. 68 mm 36 shore 0.5 mm	JAP. 68 mm 38 shore 0.5 mm
Rear Tire Right — R.R. Diameter Rear Right — D.R.R. Shore Hardness Rear Right — S.H.R.R. Taper Rear Right — T.R.R.	CAP 78 mm shore mm	PINK P 78 mm 28 shore 3 mm	PINK P 78 mm 32 shore 3 mm	PINK P 78 mm 35 shore 3 mm	PINK P 76 mm 30 shore 3 mm	PINK P 76 mm 30 shore 3 mm
Rear Tire Left — R.L. Diameter Rear Left — D.R.L. Shore Hardness Rear left — S.H.R.L. Taper Rear Left — T.R.L.	CAP 78 mm shore mm	PINK P 78 mm 28 shore 3 mm	PINK P 78 mm 32 shore 3 mm	PINK P 78 mm 35 shore 3 mm	PINK P 76 mm 32 shore 3 mm	PINK P 76 mm 35 shore 3 mm
⑧ Flex-Drive / Differential — Pinion 1 — P1	14 T	T	T	T	T	T
Pinion 2 — P2	17 T	T	T	T	T	T
Gear 1 — G1	49 T	T	T	T	T	T
Gear 2 — G2	45 T	T	T	T	T	T
Side 1 — S1	19 T	19 T	19 T	19 T	Differential slip: L M T	Differential slip: L M T
Side 2 — S2	22 T	22 T	23 T	23 T		
O D Ratio — O.D.R.	+3.3%	+3%	+3%	+3%		
Best Lap	17.4 sec.	sec.	sec.	sec.	sec.	sec.
Turn-in	+ O -	+ O -	+ O -	+ O -	+ O -	+ O -
Turn-out	+ O -	+ O -	+ O -	+ O -	+ O -	+ O -
Straight	+ O -	+ O -	+ O -	+ O -	+ O -	+ O -
Braking	+ O -	+ O -	+ O -	+ O -	+ O -	+ O -
Acceler.	+ O -	+ O -	+ O -	+ O -	+ O -	+ O -
Speed	+ O	+ O	+ O	+ O	+ O	+ O

⑥



REAR SHOCKS

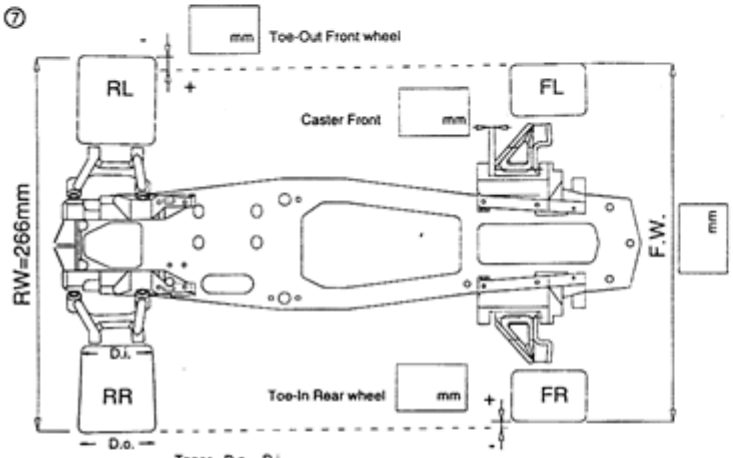
ADJ.	OIL	O-rings	
FIXED	DAMPING		



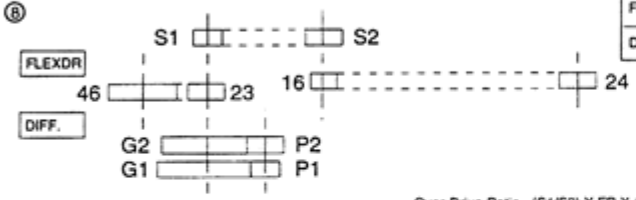
FRONT SHOCKS

ADJ.	OIL	O-rings	
FIXED	DAMPING		

⑦



⑧



Over-Drive Ratio= (S1/S2) X FR X 1,333 / RR

Circuit: Country: Race:

REMARKS:

Track L mtr | Body | Air-trim mm | Engine | Nitro | Oil | Glowplug | Pipe

Traction L M H | Dry / Wet D M W | Temp. C F | Qualif. | Final

SERPENT MODEL RACING CARS PO BOX 180 2100 AD TEL: (0031) (0)23 292068 FAX: (0031) (0)23 284955 HAARLEM HOLLAND

SERPENT EXCEL MK-2 PARTS LIST

CHASSIS -RADIOPLATE BODYMOUNT

9103 chassis 5.2mm lowered
9102 radiotray 2.0mm purple
9102-C carbon radioplate 2.2 mm
9120 front body mount plate
6123 nylon front bodymounts short
6124 nylon front bodymounts long
9135 nylon rear bodymount MK-2
9136 nylon rear bodymount bracket
9137 nylon hinge with pin
9151 nylon arms short (9135/9150)
9152 nylon arms long (9135/9150)
9153 upper pivot pins rear bodymount
9153-TI titanium pivot pins rear top
9150 aluminium purple rear bodymount
1601 body clips (10)
9110 front bumper
6127 roll-over bar
9140 parker set for Excel (total 64 pieces)

RC INSTALLATION

6111 mounting bracket receiver
6112 mounting bracket battery pack
1611 servo discs ko propo (2)
1612 servo discs futuba/sanwa/jr (2)
1614 antenna rods 30cm pink (2)
1637 universal brake linkage set
1638 universal throttle linkage set
6160 trackrods with ball-joints
6161 track rods standard
1629 track-rods threaded (4)
1620 5mm balls threaded (4)
1621 nylon ball-joints 1/4" (6)
1622 chromed balls 1/4" (6)
1627 nylon ball-joints 5mm (12)
1628 chromed balls 5mm (4)
1630 servo saver ko/sanwa/jr
1631 servo saver futuba/robbe
1652 collar 1.6mm/2.3mm (12 total)

FUELTANKS

1430 fueltank 125ccm with filter
1440 fueltank 125ccm without filter
1421 sintered bronze filter
1431 rubber tank seals (4)
1493 brass pressure nipple (4)
1432 pressure nipple set top mounting
1494 silicone fueltubing 50cm
1495 silicone fueltubing 50cm yellow
1496 silicone fueltubing 50cm orange
1497 silicone fueltubing 50cm green
1498 silicone fueltubing 50cm pink

SHOCKABSORBERS

9400 front shockabsorbers alu/teflon
9401 rear shockabsorbers alu/teflon
9402 cilinders front shocks teflon
6412 hardened piston rods front
9403 cilinders rearshocks teflon
6422 hardened piston rods rear
9404 alu. shock pivot points (purple)
6430 nylon shockabs. parts set
6431 rubber membranes white (4)
6432 o-ring set (4+8)
6433 nylon bushings shock.mount (4)
9405 shockabs. mounting bushings (4)
6435 spring-support washers
6436 nylon rod-ends (4)
6441 alu. adjusting nut purple (4)
1620 5mm balls threaded (4)
9406 balljoint-set shock-mounting
6413 coilsprings front d=1.5 (2)
6414 coilsprings front d=1.6 (2)
6415 coilsprings front d=1.7 (2)
6423 coilsprings rear d=1.3 (2)
6424 coilsprings rear d=1.4 (2)
6425 coilsprings rear d=1.5 (2)

Serpent shock-absorber-oil

1670 silicone oil 20 w (green)
1671 silicone oil 30 w (yellow)
1672 silicone oil 40 w (red)
1673 silicone oil 50 w (blue)

FRONT SUSPENSION

9201 front bracket left
9202 front bracket right
9203-L upper front wishbone L
9203-R upper front wishbone R
9204-L lower front wishbone L
9204-R lower front wishbone R
9205-L steering block L
9205-R steering block R
9217 pivot balls 11mm front (4)
9207 alu. adjusting nuts m12 (4)
9208-T front top pivot pins (2)
9208-TTI tita. front top pivot pins (2)
9235 front bottom pivot pins long (2)
9235-TI tita. front bottom pivot pins (2)
9209 front wheelaxles set
9225 q/c levers and springs front
9226 alu. quick-change levers (2)
9236 nylon brackets f.anti roll bar
9237 stepped pins 2-3mm f.a.r.b
9238 3mm pins front a.r.b.
9233 adj. anti-roll bar rod (female)
9234 adj. anti-roll bar rod (male)
1090 shims 4 x 8 x 0.1mm (10)

REAR SUSPENSION

9301 rear bearingblock left
9302 rear bearingblock right
9318 nylon bracket disk-brake MK-2
9304 rearplate
9305-L upper rear wishbone L
9305-R upper rear wishbone R
9306-L upper rear wishbone L
9306-R upper rear wishbone R
9317 up-rights left/right MK-2
9308-B rear bottom pivot pins (2)
9308-BTI tita. rear bottom pivot pins(2)
9315 pivot balls 8.5mm rear (6)
9310 alu. adjusting nuts m10 (6)
9324 nylon ball-cup set (4+6)
9311 rearwheel axles set
6336 qc levers rear (4)
6337 q.c. springs (4)
9226 alu. quick change levers (2)
9312 hexagon rearwheel adapters (2)
9321 rear anti-roll bar 3.0mm set
9320 adj. rear anti-roll bar set
9233 adj. anti-roll bar rod (female)

MIDDLE SHAFT

6251 middle bearing blocks (l+r)
6251-A alu.middle bearing blocks
6365 steel middle shaft
6253 hollow middle shaft
6260 belt tensioner set
6263 nylon roller belt-tensioner (2)
9319 steel belt. tensioner
(use 1311/1312 ballbearings)

TRANSMISSION PARTS

9210 front driveshafts 63.5mm
9313 rear driveshafts 44.0mm
9216 hardened drive-shaft pins (8)
9211 alu. frontshaft (one-way bearings pre-mounted)
9212 inner driveshaft adapters
6351 timing belt pully 16T 6mm
6352 timing belt pully 18T 6mm
6353 timing belt pully 19T 6mm
6349 timing belt pully 20T 6mm
6354 timing belt pully 22T 6mm
6355 timing belt pully 23T 6mm
9616 timingbelt pully 23T 9mm
9213 timing belt pully 24T 6mm
6361 Kevlar timingbelt short 6mm (lay-shaft-diff/lay-shaft-middleshaft)
6364 Kevlar timingbelt long 6mm (middle shaft-frontshaft)
9340 Kevlar timing belt short 9mm
6366 pully adaptors (2)
1322 ballbearings 6x13x5 (4)
1353 ballbearings 12x18x4 (2)

DISK-BRAKE

9610 steel diskbrake set MK-2
9604 disk brake cam
9611 steel brake disks (2) MK-2
9612 ventilated disk-brake
9613 fast brake brake liners MK-2
9614 alu.brake pully adaptor MK-2
9617 alu.spacer disk-brake MK-2
9618 alu.collar brake pully MK-2
9619 alu.pully adaptor 19T MK-2
9620 cover ring side pully MK-2

DIFFERENTIAL

9350 adj. ball differential
9351 short diff. axle MK2
9352 long diff. axle MK2
9353 diff pully 9mm
8379 adjustment screw steel
6395 main thrust bearing
1371 thrust bearing 7x15
1330 ball.bearing 8x12x3.5mm

SERPENT EXCEL MK-2 PARTS LIST

SOLID REAR AXLES

9330 Flex-drive solid axle set 9mm
9331 long axle flexdrive
9332 short axle flexdrive
9333 t-belt pully 46T flexdrive 6mm
9335 t.belt pully 46T flexdrive 9mm
9334 rubber buffers flexdrive (8)

2-SPEED GEARBOX

9630 2-speed gear-box MK2
9631 2-speed lay-shaft MK2
9632 2-speed lay-shaft MK hollow
6647 2-speed adaptor MK-2
9633 drive flange/ 8mm 1-way bearing
9634 alu.nut m19-l groove MK2
9635 clutch bell 2-speed MK2
9636 alu.nut m19-r gray MK2
9643 gear 43T 2-speed MK2
9644 gear 44T 2-speed MK2
9645 gear 45T 2-speed MK2
9647 gear 47T 2-speed MK2
9648 gear 48T 2-speed MK2
9649 gear 49T 2-speed MK2
6642 2-speed clutch shoes set
6628 nylon dustcap 2-speed (2)

QUICK-CHANGE WHEELS

9812 quick-change frontwheels yellow
9842 quick-change rearwheels yellow

CENTAX CLUTCH

6580 Centax clutchset
6580-NC11 Centax clutch set without clutch housing
6579 Centax flywheel 38mm teflon
6581 Centax flywheel 36mm teflon
6503 flywheel cones (3)
6582 Centax clutchnut
6583 Centax pre-load adjusting nut
6584 Centax spring cup
6585 Centax thrust washer
6586 Centax coilspring
6587 Centax clutch shoe
6588 Centax centrifugal shoes
6598 Centaxmetal springs (3)
6589 Centax spacer thrustbearing
6597 Centax nylon dustcap (2)
6577 Centax alu. dustcap nut
6592 Centax clutch housing 12-16t
6593 Centax clutch housing 13-16t
6594 Centax clutch housing 13-17t
6595 Centax clutch housing 14-16t
6596 Centax clutch housing 14-17t
8522 Centax clutch housing 15-18t
6599 Centax shim-set

ENGINE MOUNTS

6565 eng. mounts Serpent p5/picco p5
6566 eng. mounts Mega/picco exr/nova
6562 eng. mounts Ops/mondial
6571 engine mounting screws/washers

MEGA ENGINES

2400-LS Mega R-21 long stroke car
2402-LS Mega RS21 long stroke buggy
2403-TLS Mega RS-21 TLS long stroke turbo

Mega Selection glow plugs and airfilters

2359 special foam airfilter
glow-plugs packed by 3 pcs. in strong nylon snap-box
2310 Serpent Mega glowplugs cold (3)
2315-5TC turbo glow plug warm (3)
2315-5TF turbo glow plug cold (3)
2315-6TC turbo glow plug warm (3)
2315-6TF turbo glow plug cold (3)
2315-7TC turbo glow plug warm (3)
2315-7TF turbo glow plug cold (3)
2315-8TC turbo glow plug warm (3)
2315-8TF turbo glow plug cold (3)

TUNED PIPES

2382 Tuned Mega pipe 059
2384 Tuned Mega pipe 069
2389 exhaust adapter Mega car
2393 exhaust adaptor Turbo car
2386 silicone tubing 15x10 5cm black
1591 silicone tubing 15x20 5cm white
1592 silicone tubing 15x20 5cm reinforced, red, very strong
1596 exhaust mounting wire

LEXAN BODIES AND WINGS

1745 body Group C Porsche 962
1746 body Saloon car Corvette
1747 body Salooncar BMW M3
1748 body Salooncar Opel Calibra
1749 body Group-C Mazda
1722 trim-strip + nylon mounts
1723 silicone bodywashers (5)
1724 body stiffner (2)
1711 wing 21 cm Formula
1721 wing 26 cm Group-C
1791 steel wing wire 3mm
1792 nylon wing mounts (2)
1793 alu. wing mounts (2)

DECALS

9190 Excel decals neon pink
9191Excel decals neon yellow
1840 Serpent promotional decal small
1841 Serpent promotional decal big
1842 Excel promotional decal small
1843 Excel promotional decal big
1845 Mega decal 20x21cm
1855 Serpent track banner nylon 150x70cm
1856 Serpent circuit track decal 150x70cm

SETTING INSTRUMENTS

1460 Serpent cambergauge
1451 Nitro-max 25% to measure legality of fuel

PROMOTIONAL ITEMS

Serpent Nylon Coach jackets
high quality black nylon with white print size M and L 1960 and 1961

Serpent Polo-shirt purple
with embroyed chest and sleeve logo's
size S-XXL 1910-1914

Serpent Sweater purple
with printed big size logo's
size S-XXL 1915 - 1919

Serpent Summer-coat
purple-yellow combination
with embroyed logo's
size S-XXL 1970 - 1974

Serpent Winter-coat
purple-yellow combination
with embroyed logo's
size S-XXL 1975 - 1979

Serpent racing team cap
yellow with purple/black print #1995

This Serpent Excel 9000-series parts-list is subject to changes without prior notice.