

## The Hatzenbach Concept

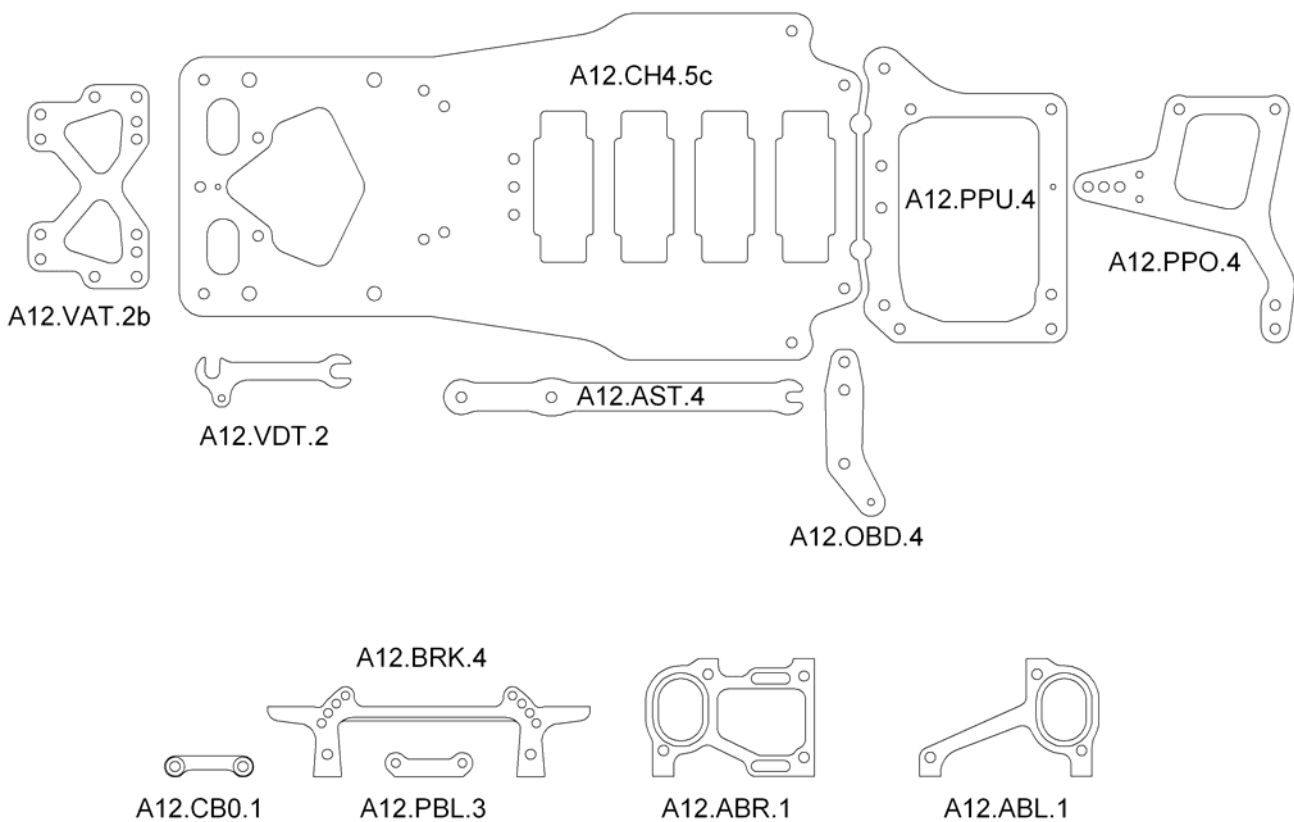
The Hatzenbach A12 is a modern pan car of the latest generation, designed without any compromises for the four cell application.

The central cell position ensures besides an optimal center of gravity an extreme low moment of inertia and therefore a unique agility. The narrow design of the main chassis reduces the risk of lateral ground contact and facilitates the handling at corners.

The innovative 4 link rear axle is fully adjustable and achieves with an extremely low roll center an amazing traction and at the same time very high drive stability.

With the conversion kit you can retrofit all types of Asso and Calandra 1/12 cars into a Hatzenbach.

## Parts overview Hatzenbach A12 conversionkit and optionparts



## Parts needed from other manufacturer:

- Ball joints and balls M3 for the V- link such as those. GM No. 90071.65 + 90071.32
- Ball joints and pivot balls for trailing link such as those from Mugen No. H0858 + H0867
- Also you need turn buckles 3 x 16 mm L/R and 3 x 20 mm L/R for instance those from Take off No. TT101 and TT104
- Power pack aluminum post like Corally No. #7935
- Also you need tubes and tweak springs like Corally No. 74905 tubes and 2 pairs of Asso springs No. A-4118

## Before assembling

Trim carbon edges. Use large radii on the bottom side of the main chassis and power pod plate. It improves the sliding characteristics on carpet.

Chamfer cell slots for a low position of accumulator in the chassis.

Check chamfering at front axle mount, mend if needed. Normally screws from Calandra are fitting flush into the chamfered holes, those from Asso can marginally overlap. This has to be prevented.

Using Corally tubes you have to rebores the 2 mm bores in the lateral plates (A12.OBD.4) and in the power pod top plate up to 3 mm.

Seal the edges with super glue.

## Assembly of Pivot Bridge and block



Mount ball screws with Loctite medium at bridge position 3 (second from top) and fix the unit with two countersunk screws M3x6 on the chassis.



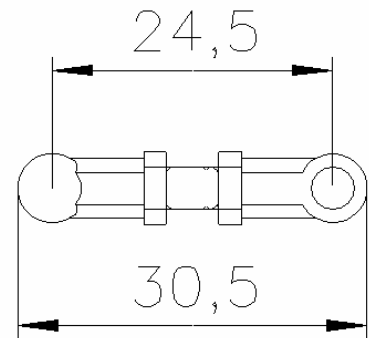
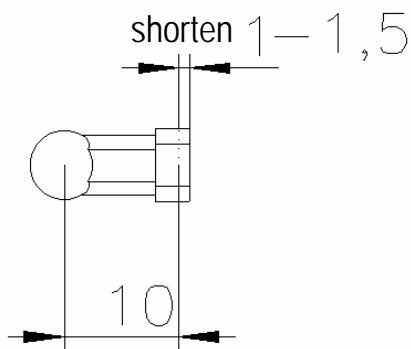
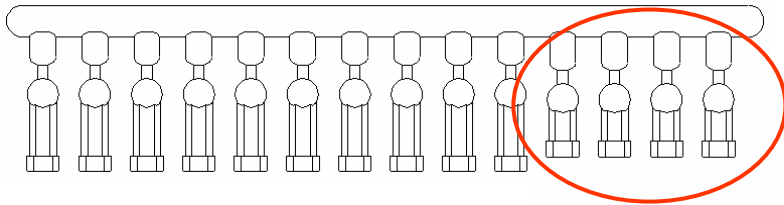
Further two ball screws M3 are to be mounted on the pivot block with Loctite medium. Then fix the unit with two countersunk screws M3x6 onto the Power pod bottom plate.

## Adjustment of rear axle

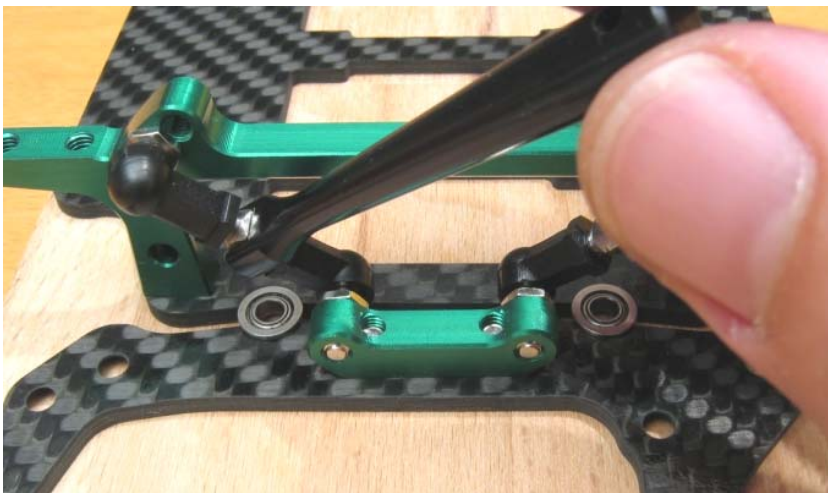
### 1. V-link

Cap joints 4mm  
(GM 90071.65)

Turnbuckle M3x16mm  
(Take Off TT 101)



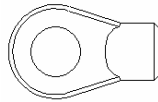
The chassis and the power pod bottom plate have opposing semicircular clippings each. Insert an adjustment disc of 6mm diameter into each clipping for correct adjustment (such as a ball bearing 3x6mm).



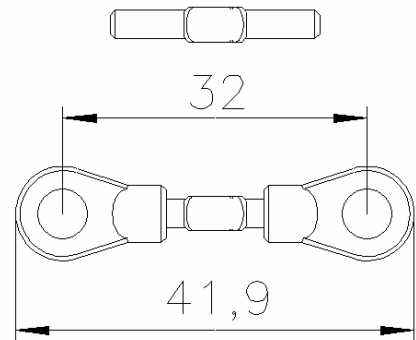
The V-links are adjusted correctly if both discs are fitting flush into the cut-outs and the chassis as well as the power pod are even on a plane surface.

## Adjustment of rear axle 2. Trailing links

Ball link  
(Mugen H0858)



Turnbuckle M3x22mm  
(Take Off TT 104)



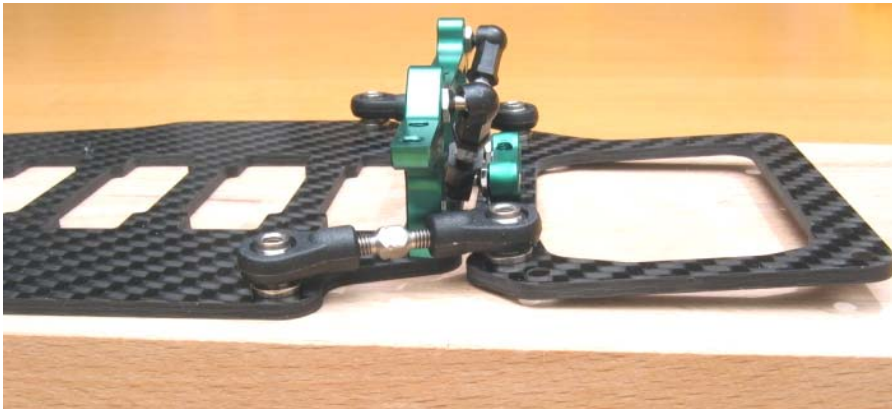
Preassemble two links and fix them with two countersunk screws M3x6 to the chassis and power pod.

For the adjustment of the trailing links the adjustments discs remain between the carbon plates.

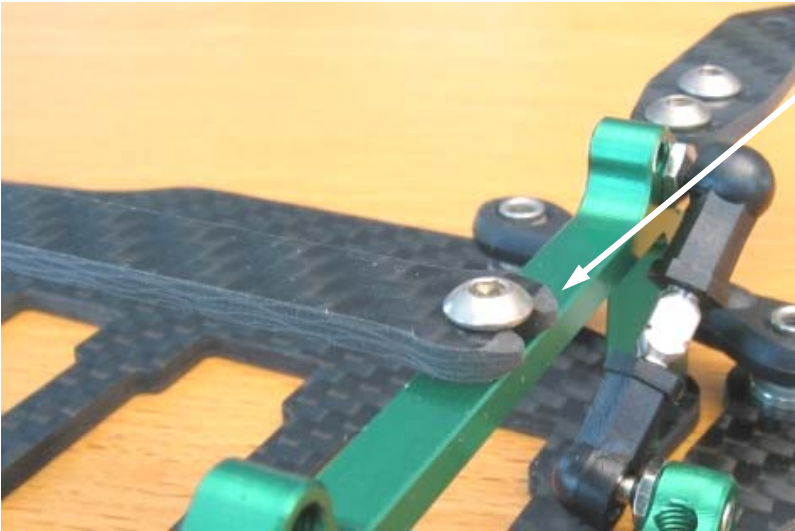
Turn trailing links until the rear side of the power pod rises.

Turn turnbuckles carefully apart until the pod seats solidly on both sides.

If the pod is pressed to the chassis with adjustment discs inserted the trailing links should be smooth-running.



## Battery fastener



Slightly chamfer the fork side of the battery fastener. It eases mounting.

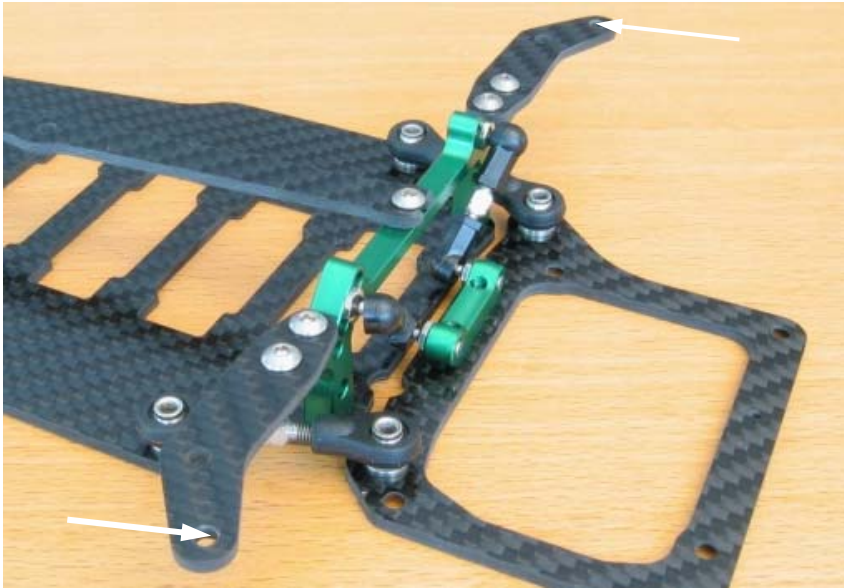
Insert screw M3x6 with Loctite into bridge and turn back 90 degrees. Let the Loctite harden.

The fastener should now be insertable smoothly.



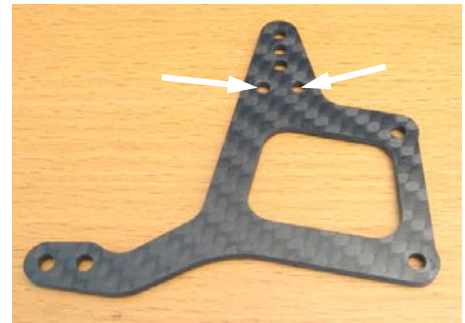
You can use posts from Corally (#79365) or others with a height of 20mm (the post shown is from XRay T1).

## Lateral Plates and Power Pod

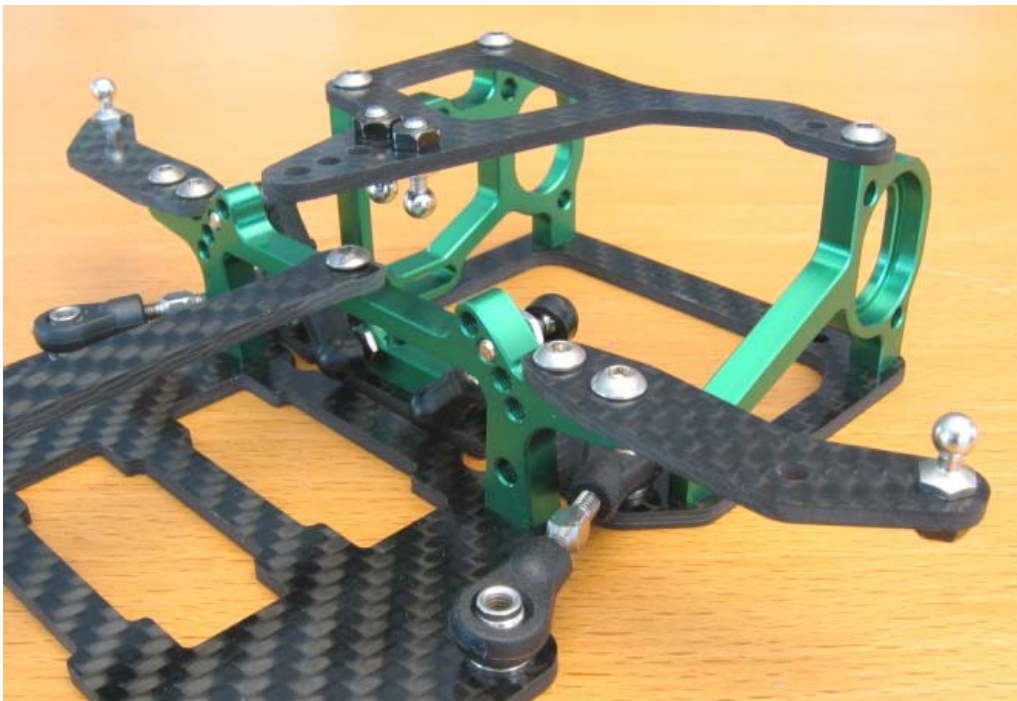


If using Corally tubes the attachment holes of the tubes have to be rebores to 3mm.

Same procedure for the power pod top plate.



The lateral plates will then be fixed with two lens head screws M3x6 each to the bridge.

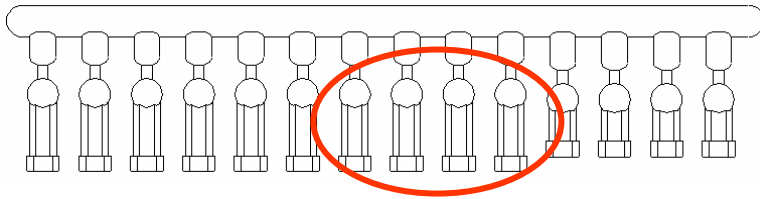


Then preassemble ball screws (GM 90071.36) for the tubes with ball on top side at the lateral plates and ball on bottom side at the pod upper plate.

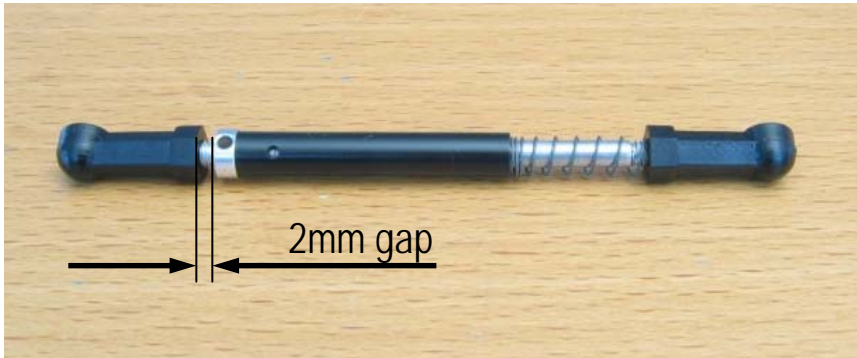
The axle blocks are fixed with countersunk screws M3x6 from the bottom. Then fix the pod upper plate with lens head screws M3x6.

**!** Attention! If using axle blocks from Asso or Calandra please use the appropriate inch screws!

## Tube dampeners



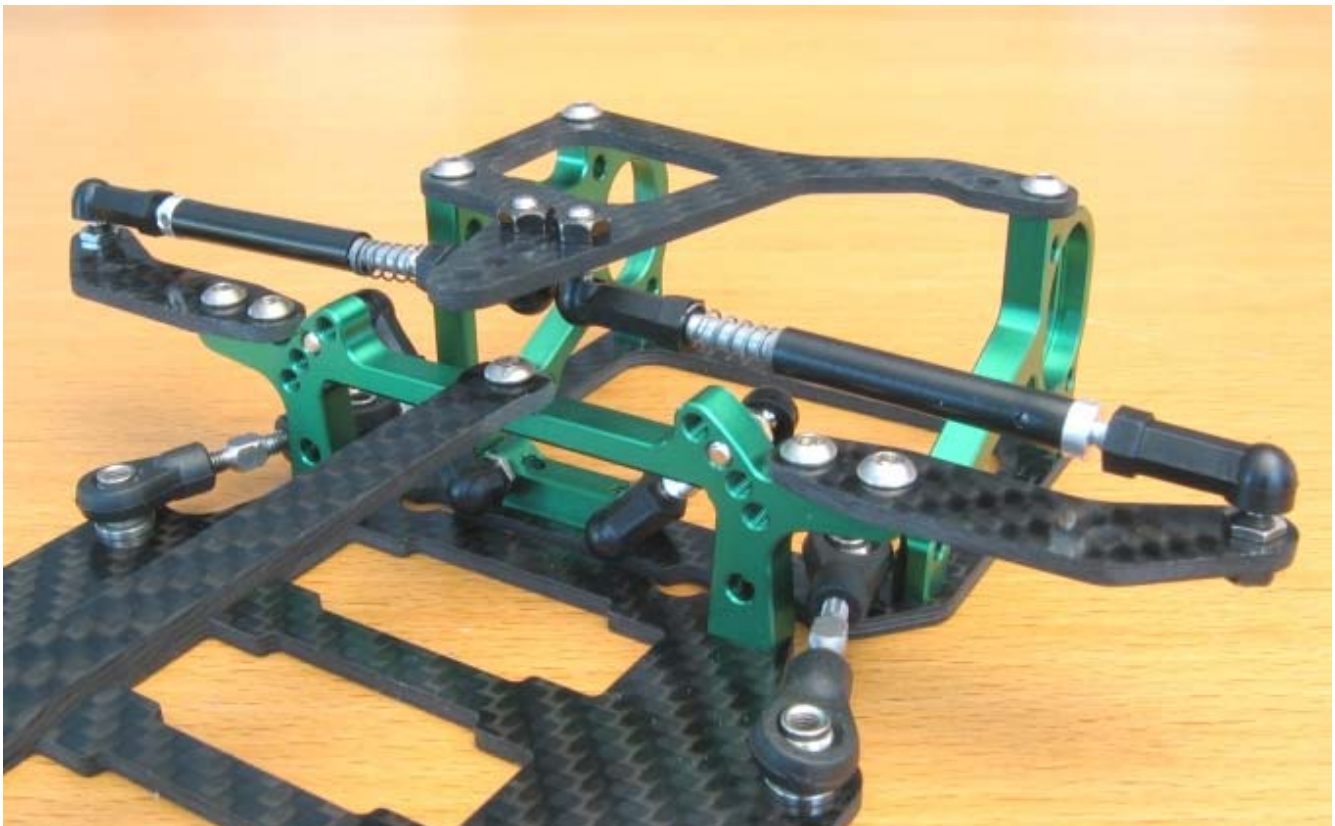
Cap joints 4mm  
(GM 90071.65)



Preassemble Corally tubes with long GM ball buttons (in contrast to the original parts they have no clearance, the damping works more directly).

Leave a gap of 2mm between the ball button and the tube. The clearance is necessary for the tweak adjustment later.

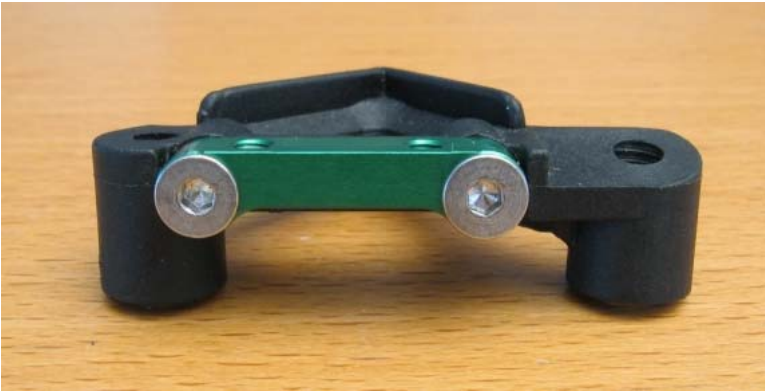
You can use for instance two Asso front axle springs each in line. As well you can use springs from a ball pen cut in half (see pic.). The properly machined side of the spring should direct to the tube case.



Mount the tubes with springs inside. Then the tweak adjustment is outside and easily accessible.

## Front Axle (option)

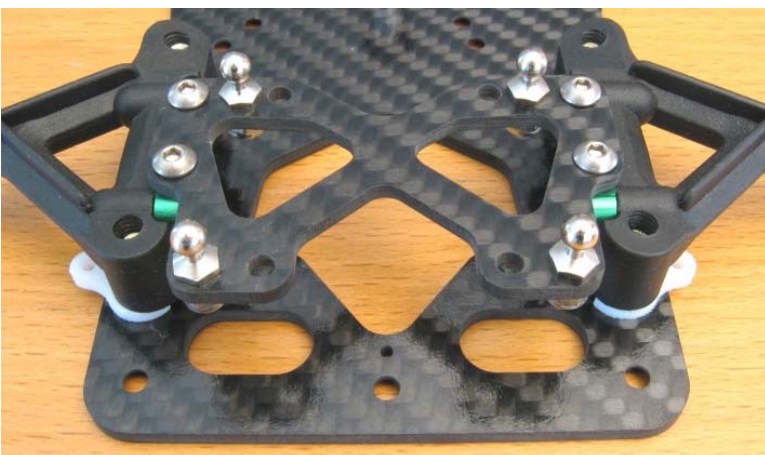
The Hatzenbach can be constructed using a standard Asso RC12L3/L4 or Calandra front axle. As an optional feature there is the front axle kit available described here. It stiffens the axle and also the chassis front end significantly and therefore performs a better grip.



The two front axle blocks are fixed with countersunk screws M3x10 to the original Asso / Calandra / IRS front axle supports.



Mount those blocks with aluminum screws to chassis. To compensate the tire diameter there are spacers available in 0,5mm, 1mm and 2mm. Plug in the spacers at the rear attachment point and pivot them below the front attachment point. For the exchange of the spacers you need not turn out the screws completely.



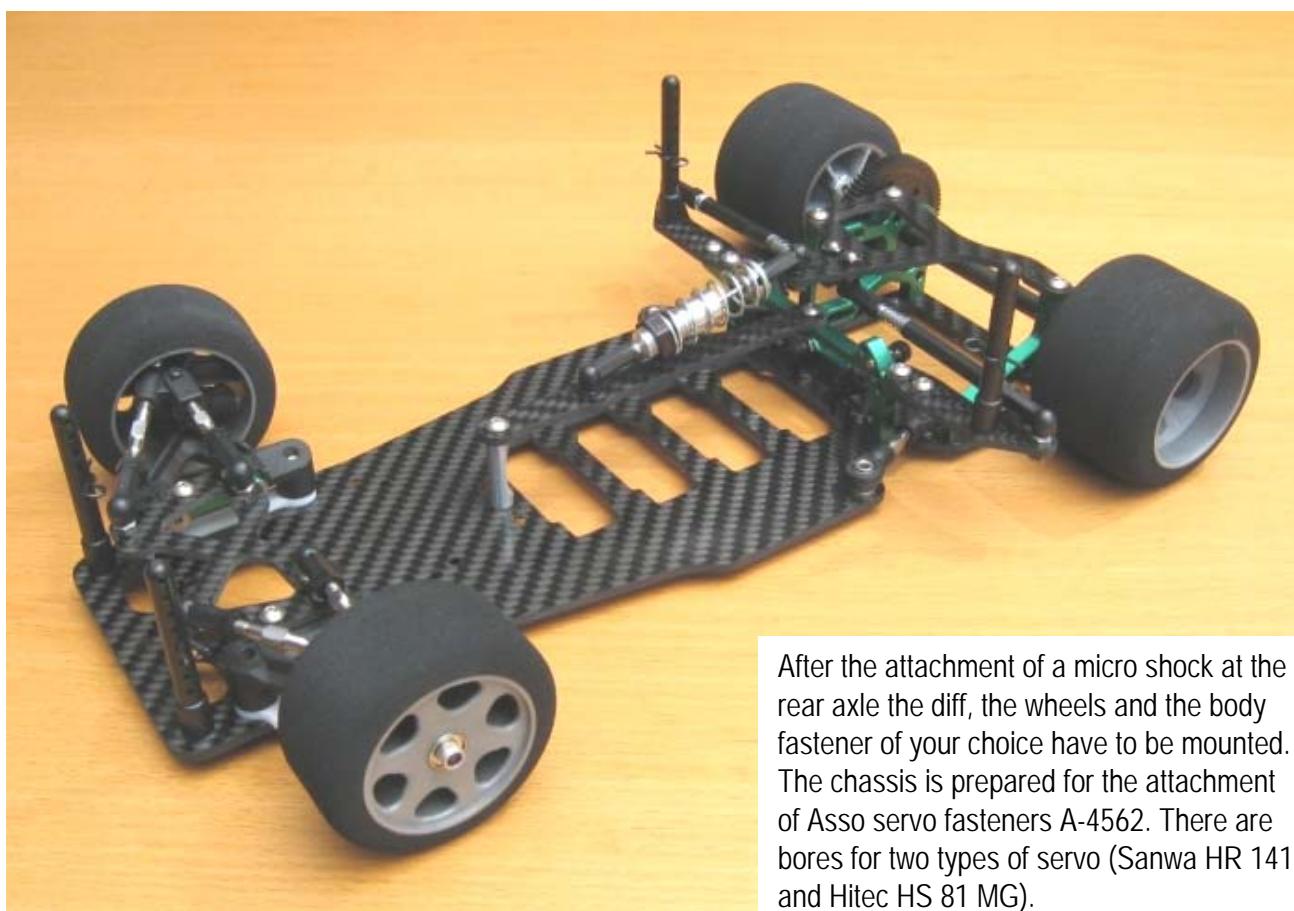
Finally you preassemble the ball screws onto the support plate and fix the whole unit with four screws M3x6 onto the front axle block.



## Front Axle (option) and Completion



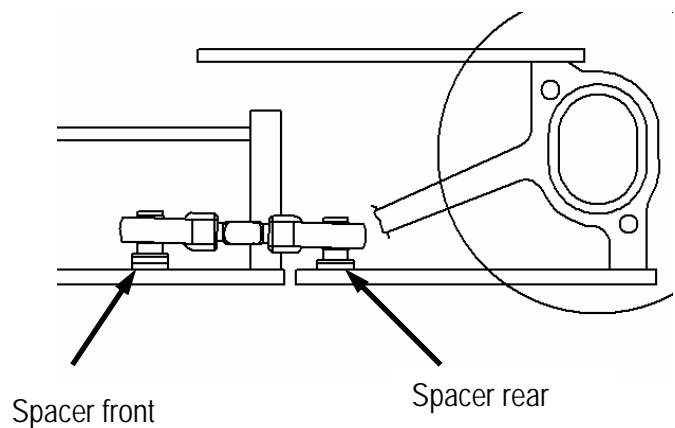
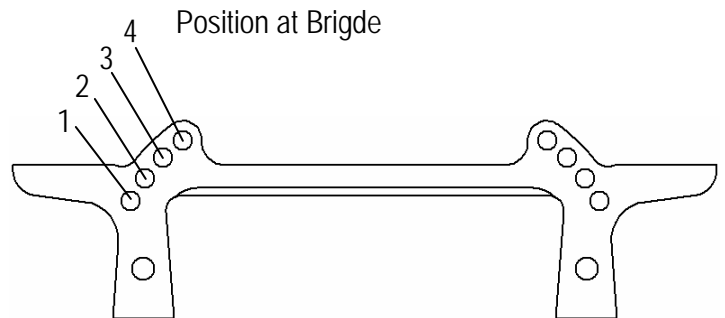
The front axle will now be completed with the upper links of the Cross conversion kit. The extreme low clearance GM links should be used as internal joint heads. The ball joints of the Cross kit are well suited as steering link joints as they are very smooth-running.



After the attachment of a micro shock at the rear axle the diff, the wheels and the body fastener of your choice have to be mounted. The chassis is prepared for the attachment of Asso servo fasteners A-4562. There are bores for two types of servo (Sanwa HR 141 and Hitec HS 81 MG).

## Setup Kinematik Rear Suspension

Position at bridge	Spacer front [mm]	Spacer rear [mm]	Rollcenter at 4mm ground clearance [mm]	Bumpsteer [°/cm wheel travel]	
1	0	0	8,0	0,4	
		1	10,1	0,8	
		2	12,3	1,1	
	1	1	0	6,4	0,2
			1	8,5	0,5
			2	10,6	0,9
	2	2	0	4,8	-0,1
			1	6,9	0,3
			2	9,0	0,6
2	0	0	7,0	0,6	
		1	9,2	1,0	
		2	11,4	1,3	
	1	1	0	5,4	0,3
			1	7,5	0,7
			2	9,6	1,0
	2	2	0	3,9	0,1
			1	6,0	0,4
			2	8,1	0,8
3	0	0	5,9	0,8	
		1	8,0	1,2	
		2	10,1	1,5	
	1	1	0	4,3	0,5
			1	6,4	0,9
			2	8,5	1,2
	2	2	0	2,7	0,3
			1	4,8	0,6
			2	6,9	1,0
4	0	0	4,3	1,1	
		1	6,4	1,4	
		2	8,6	1,8	
	1	1	0	2,7	0,8
			1	4,8	1,2
			2	6,9	1,5
	2	2	0	1,1	0,5
			1	3,2	0,9
			2	5,3	1,2



The rollcenter height is measured relatively to the track surface. With a ground clearance of 4mm, the rollcenter lower than 4mm are below the chassis plate.

The bumpsteer values are related to an opposite wheel travel of 1cm each wheel. A positive bumpsteer means, that the outer wheel gets toe in to stabilize the rear axle.