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## SET UP MANUAL



**HAND MADE**

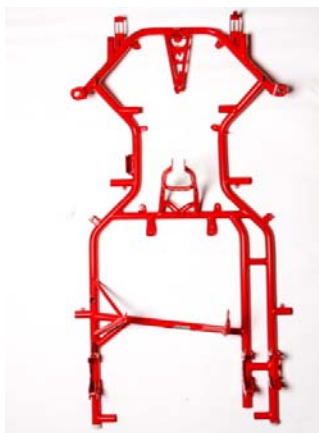
**2015**

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**Frames**

MK3 KF - Rotax  
Ø30/30mm Tube



MK4 KF - Rotax  
Ø30/32mm Tube



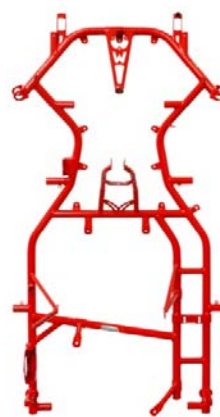
MK4 KZ  
Ø30/32mm Tube



RS7 - KZ  
Ø30/32mm Tube

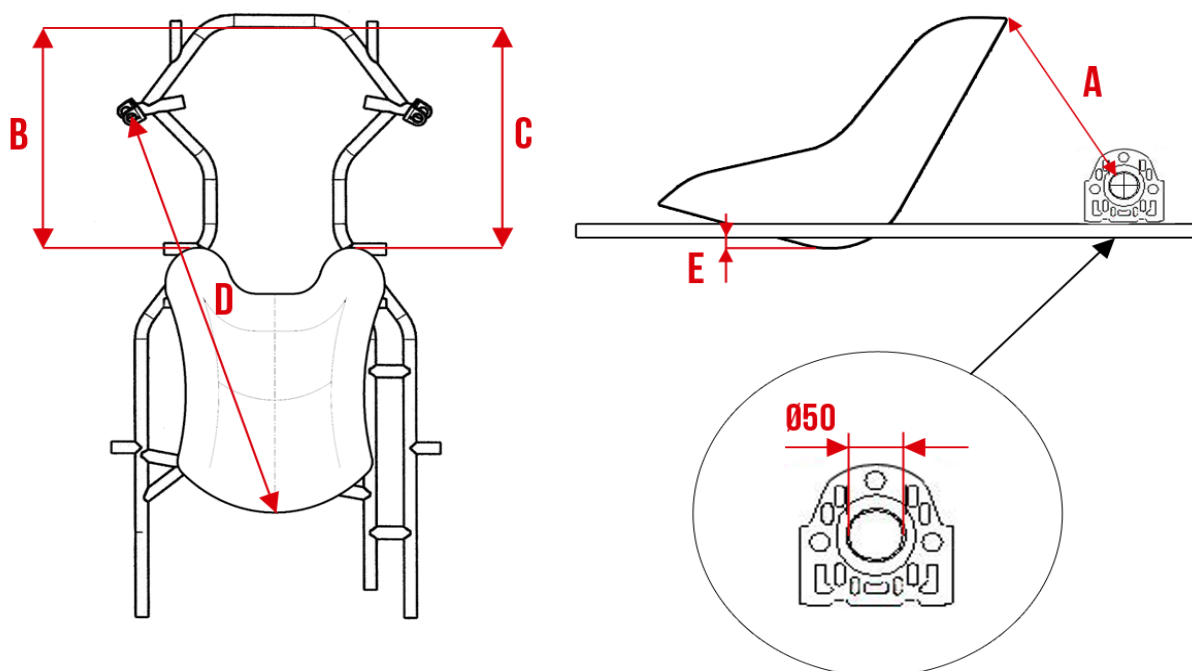


RS12 KF- Rotax  
Ø28/30mm Tube



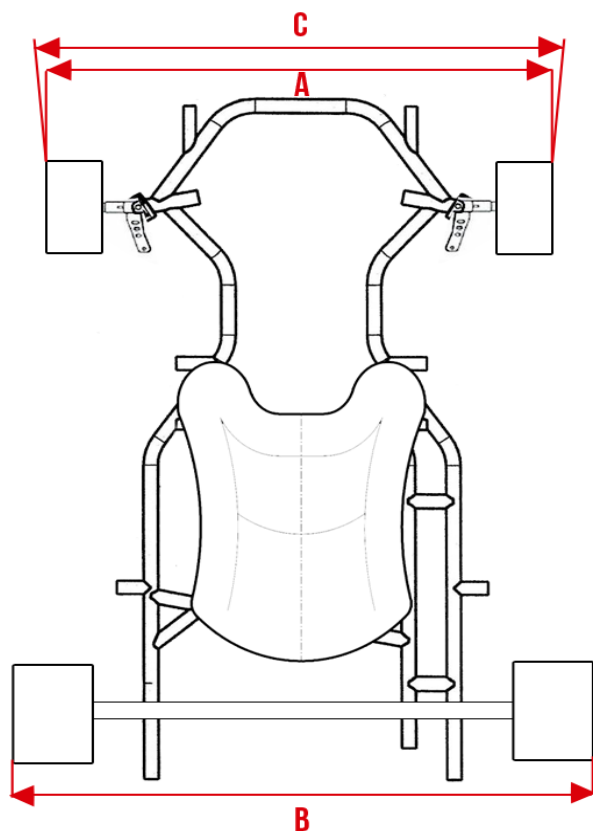
RS11 DD2  
Ø30mm Tube  
Ø32mm Tube  
Ø30/32mm Tube

## Seat position and size



Model Chassis	Category	SEAT MEASURE (cm)				
		A	B	C	D	E
MK3 MK4	KF3 / KFJ	19,5/20,5	60/61	60,5/61,5	102/104	0,5/10
	KF2 / MAX	19,5/20,5	61,5/62,5	62/63	103/105	0,5/10
MK4	KZ1/KZ2	19,5/20,5	63,5/64,5	64/65	105/106	0,5/10
RS12	KF3 / KFJ	19,5/20,5	60/61	60,5/61,5	102/104	0,5/10
	KF2 / MAX	19,5/20,5	61,5/62,5	62/63	103/105	0,5/10
RS7	KZ1/KZ2	19,5/20,5	63,5/64,5	64/65	105/106	0,5/10
RS10	KZ1/KZ2	19,5/20,5	63,5/65	64/65,5	105/106,5	0/0,5
RS11	DD2	19,5/20,5	63,5/65	64/65,5	105/106,5	0,5/10

## Front and back set up



Description	DRY	WET
Axle	Ø50 H	Ø50 H/S
Spindle	STD	STD
Caster/Camber	STD	MAX 3° GRIP
Remov. Rod - 1 Nylon	YES	YES
Remov. Rod - 1 Steel	NO	NO
Front Hubs	L.75	L.95
Rear Hubs	Ø50x95	Ø50x125
Measure A	1220mm	1250mm
Measure B	1395mm	1360mm
Toe-IN/Toe-Out - C	2mm	6mm

RECCOMENDED TIRE PRESSURE			
TYRES		FROM (bar)	TO (bar)
COMPOUNDS	SOFT	0,5	0,75
	MEDIUM	0,5	0,75
	HARD	0,65	0,8

RECCOMENDED AXLE		
KF	KZ	DD2
H/RS6	H/RS3	RS5
H/RS6	H/RS3	RS5/RS6
H/RS6/S	H/RS5	RS6/S

### AXLE Ø50 x 1020mm / 1040mm

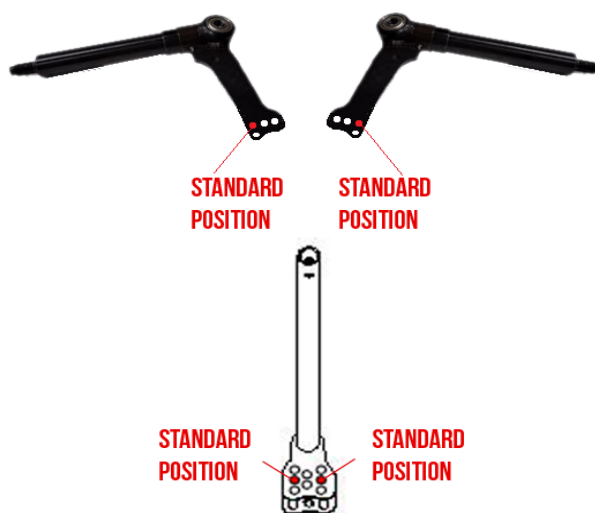
RS5	
H	
RS3	
RS6	
M	
S	

**MK4/RS10/RS12 KZ - Camber and Caster kit**

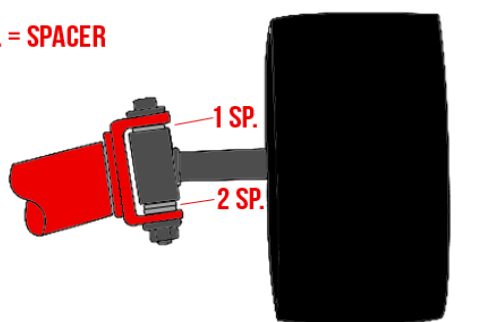
CASTER ADJUSTMENT IS ARCHIVED BY 7 PRESET POSITIONS.  
THIS STEPS ARE IN DEGREE INCREMENTS.



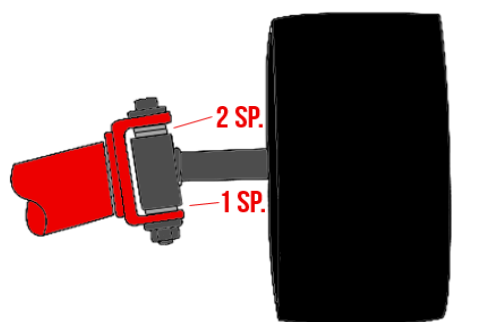
**TIE ROD FASTENING**



SP. = SPACER



**STANDARD RIDE HEIGHT - DRY WEATHER**



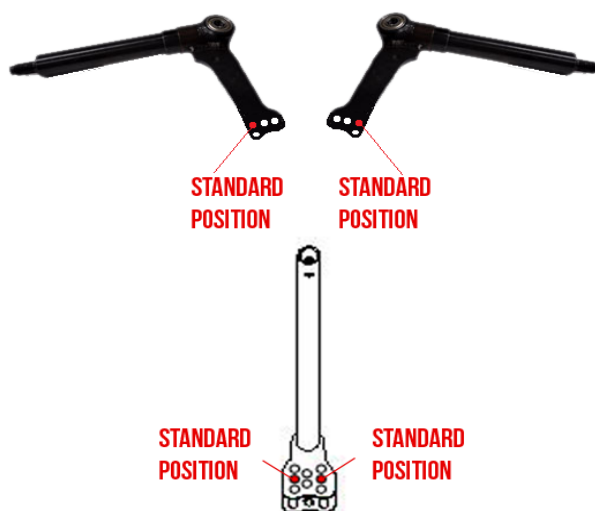
**RIDE HEIGHT - COLD/RAIN**

**MK3/MK4 KF - Camber and Caster kit**

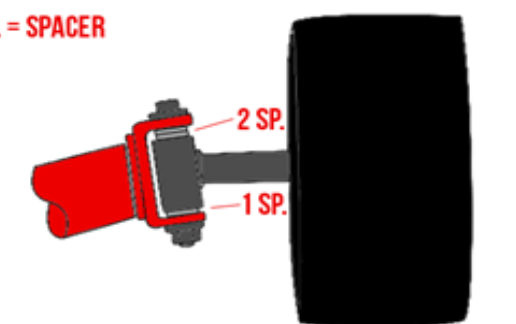
CASTER ADJUSTMENT IS ARCHIVED BY 7 PRESET POSITIONS.  
THIS STEPS ARE IN DEGREE INCREMENTS.



**TIE ROD FASTENING**



SP. = SPACER



**STANDARD RIDE**

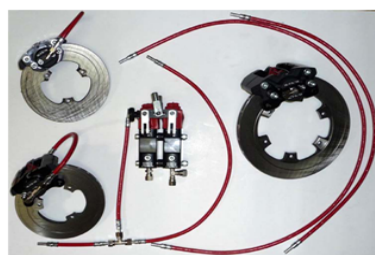


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**CHASSIS MAINTENANCE**

- \* BE SURE THAT THE FRAME AND MECHANICAL COMPONENTS ARE NOT SUBJECTED TO EXCESSIVE STRESS OR BREAKAGE AS THIS COULD COMPROMISE SAFETY AND PERFORMANCE CHARACTERISTICS OF THE CHASSIS.
- \* MARANELLO RECOMMENDS THAT THE AXLE BEARINGS ALWAYS BE KEPT CLEAN AND FREE OF DEBRIS.
- \* ASSURE THAT THE SPINDLES RESPECT THEIR ORIGINAL DEGREE INCLINATION AND SHAPE AS ANY SUSTAINED DAMAGE WILL HAVE A NOTICABLE EFFECT ON THE CHASSIS HANDLING. MARANELLO RECOMMENDS THE REGULAR USE OF ALIGNMENT INSTRUMENTATION.

## **BRAKE SYSTEM MAINTENANCE**



- \* MARANELLO RECOMMENDS DOT 4 BRAKE OIL.
- \* REPLACE ALL O-RINGS AND SEALS AFTER APPROXIMATELY 20-25 HOURS OF USE.
- \* REPLACE BRAKE SYSTEM OIL AFTER APPROXIMATELY 15 HOURS.
- \* VERIFY THAT THE BRAKE CYLINDER WALLS ARE ALWAYS KEPT PERFECTLY SMOOTH AND WITHOUT IRREGULARITIES.

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**ALIGNMENT FAQ****WHY IS TOE IN OR TOE OUT IMPORTANT TO THE HANDLING OF MY KART?**

TOE MUST BE EVENLY ADJUSTED ON BOTH SIDES OF THE KART TO PREVENT UNEVEN STEERING RATE, CAMBER ANGLES AND CORNERING WEIGHTS. GENERALLY TOE WILL BE SET TO ZERO OR UP TO A COUPLE OF MILLIMETERS TOE OUT. IN THEORY ZERO TOE WILL PREVENT “SNOW PLOUGHING” AND GIVE THE BEST STRAIGHT LINE SPEED, ALTHOUGH THIS IS ONLY TRUE WITH A ZERO CAMBER ANGLE. WHEN CAMBER IS INTRODUCED IT GENERATES A FORCE CALLED CAMBER THRUST WHICH CAUSES THE TYRES TO SCRUB ON THE TRACK. THIS FORCE CAN BE COUNTERACTED BY TOEING THE WHEELS OUT SLIGHTLY.

**WHAT EFFECT DOES CAMBER HAVE ON MY KART?**

CAMBER IS THE ANGLE THAT THE TYRE SURFACE IS PRESENTED TO THE RACING SURFACE, AND AS SUCH DIRECTLY INFLUENCES THE LEVEL OF GRIP THE FRONT END OF THE KART WILL HAVE. WHEN THE KART IS ON THE GROUND WITH THE DRIVER IN, ZERO CAMBER GIVES THE MAXIMUM AMOUNT OF RUBBER CONTACT WITH THE ROAD. OBVIOUSLY, MAXIMIZING THE AMOUNT OF RUBBER ON THE TRACK IS ONE OF THE MAIN AIMS OF A GOOD KART SETUP. THE CHASSIS FLEXES QUITE A LARGE AMOUNT WHEN UNDER LOAD. THIS IS WHY IT IS IMPORTANT TO CHECK THE LOADED SETTINGS OF THE KART AS WELL AS THE SETTING ON THE TROLLEY OR STAND. THIS IS ALSO WHY MOST KARTS ARE SETUP WITH POSITIVE CAMBER WHEN THEY ARE ON THE TROLLEY, BECAUSE BY THE TIME THE CHASSIS FLEXES, YOU END UP WITH NEUTRAL TO SLIGHTLY NEGATIVE CAMBER.

**WHAT DOES CASTER DO?**

CASTER IS ONE OF THE MOST IMPORTANT ASPECTS OF KART GEOMETRY BECAUSE OF THE WEIGHT JACKING EFFECT IT CREATES WHEN THE STEERING WHEEL IS TURNED. WHEN CORNERING, THE INSIDE FRONT WHEEL IS PUSHED DOWN BY THE FRONT END GEOMETRY AND THE OUTSIDE FRONT WHEEL IS RAISED IN RELATION TO THE CHASSIS. THIS EFFECTIVELY CAUSES THE CHASSIS TO PIVOT AROUND A LINE FROM THE INSIDE FRONT AND OUTSIDE REAR WHEELS. THIS IN TURN RESULTS IN THE INSIDE REAR WHEEL LIFTING OFF THE TRACK. INCREASING CASTER SHOULD IMPROVE THE INITIAL TURN IN OF THE KART.



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**ALIGNMENT FAQ****IF I CHANGE THE FRONT TRACK OF MY KART WHAT DIFFERENCE WILL IT MAKE?**

THE WEIGHT JACKING EFFECTS OF CASTER CAN BE INCREASED OR DECREASED BY CHANGING THE FRONT TRACK. WIDENING THE FRONT WILL INCREASE THE JACKING EFFECT AT THE EXPENSE OF HEAVY STEERING AND A LESSENING OF STEERING FEEL, WHILST NARROWING IT WILL HAVE THE OPPOSITE EFFECT. BY WIDENING THE FRONT TRACK YOU ARE REALLY JUST INCREASING THE SCRUB RADIUS.

**CAN I RUN DIFFERENT SETTINGS ON EITHER SIDE OF MY KART?**

WHETHER YOU DO IT INTENTIONALLY OR NOT, THERE PROBABLY WILL BE SMALL VARIATIONS IN CASTER FROM ONE SIDE TO THE OTHER, DUE TO THE MANUFACTURING PROCESSES USED TO PRODUCE THE KART CHASSIS. IN THEORY, YOU COULD RUN DIFFERENT SETTINGS ON EACH SIDE OF THE KART TO SUIT A PARTICULAR TRACK OR RACING DIRECTION. THIS WOULD TAKE A LOT OF LAP TESTING THOUGH TO PROVE WHETHER IT WORKS OR NOT. WE BELIEVE THERE IS ONE WELL KNOWN CHASSIS MANUFACTURER WHO HAS DONE THIS SUCCESSFULLY, AND BEFORE YOU ASK, NO WE WON'T TELL YOU WHO IT IS! OUR NEW CHASSIS PRODUCTION MEASURING AND CORRECTION SYSTEM IS NOW BEING USED BY ALL OF THE MAJOR MANUFACTURERS, WHICH MEANS YOU ONLY HAVE TO WORRY ABOUT YOUR OWN ADJUSTMENTS, NOT THE CHASSIS ITSELF.

**WHAT IS CHASSIS SQUARENESS?**

WE USE THIS TERM TO DESCRIBE TWO ASPECTS OF THE KART'S GEOMETRY. THE FIRST IS THE PARALLELISM OF THE REAR AXLE TO AN IMAGINARY LINE THROUGH THE FRONT KINGPINS. IN FACT, IT IS NOT IMAGINARY ANYMORE, BECAUSE A LASER WHEEL ALIGNMENT SYSTEM WILL CREATE THIS LINE FOR YOU. THE SECOND ASPECT IS THE SPACING OF THE REAR WHEELS IN RELATION TO THE FRONT SO THAT THE KART IS SYMMETRICAL ABOUT THE CENTER LINE. THE REAR AXLE CAN BE SET PARALLEL TO THE FRONT ONCE YOU HAVE A SYMMETRICAL FRONT END ALIGNMENT BY SIMPLY MEASURING WITH A STRAIGHT EDGE OR TAPE MEASURE TO THE STUB AXLES. THIS MAY INVOLVE ENLARGING THE REAR BEARING MOUNTING BOLT HOLES SLIGHTLY. THE REAR WILL THEN TRACK IN LINE WITH THE FRONT AND PREVENT ANY "CRABBING".

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**ALIGNMENT FAQ****IS IT IMPORTANT TO CHECK MY KART'S GEOMETRY UNDER LOAD?**

UNLESS YOU PLAN TO DRIVE THE KART MOUNTED ON THE TROLLEY, YES! AS MENTIONED ABOVE, THE KART DOES FLEX QUITE SIGNIFICANTLY UNDER LOAD, WITH SOME CHASSIS FLEXING MORE THAN OTHERS, EVEN DIFFERENT MODELS FROM THE SAME MANUFACTURER. NOT ONLY DOES THIS AFFECT CAMBER, BUT THROUGH THE INTERACTING GEOMETRIES OF THE FRONT END, IT ALSO CAUSES CHANGES IN TOE.

**SO WHAT IS THE BEST SETUP FOR MY KART?**

UNFORTUNATELY, THERE IS NO ONE MAGIC NUMBER OR SETUP FOR ALL KARTS. GENERALLY 1-2MM TOE OUT MEASURED ON THE TROLLEY IS A GOOD STARTING POINT FOR DRY WEATHER. THE KART MANUFACTURER OR LOCAL DEALER SHOULD BE ABLE TO GIVE GOOD ADVICE FOR YOUR PARTICULAR KART, ENGINE, TYRE AND WEIGHT COMBINATION.