SET-UP - HELPER by MICHAŁ MŁYNOWICZ & TOM KRAGERSKI — XRAY RX8'18

CASTER ANGLE	
Less Caster angle	decreases straight-line stability, increases off-power sterring at corner entry, decreases on-power steering at mid-corner and corner exit
More caster angle	increases straight-line stability, decreases off-power steering at corner entry, increases on-power steering at mid-corner and corner exit, makes the car more stable through bumpy track conditions

BUMP STEER SHIMS	
Less shims	less steering in mid-corner, better on rough bumpy tracks, easier to drive on chicanes
More shims	more steering in mid-corner, more rotation

WHEELBASE	
Longer wheelbase	car is more stable, easier to drive but got less steering, less response, better on high traction tracks or big tracks
Shorter wheelbase	opposite to long, better steering response, car is more agressive, better on smaller technical tracks

FRONT UPPER ARM	
SOFT	makes the car more round and more steering
MEDIUM	STANDARD
HARD	makes the car less round and less steering, but little more initial steering,
GRAPHINE	more effect compare to hard
REAR UPPER ARM	
MEDIUM	for more cold condition or lower grip
HARD	better for hot condition, makes the car little bit more precise and frees up the suspension
GRAPHINE	more effect compare to hard
FRONT AND REAR LOWER ARM	
MEDIUM	for more cold condition or lower grip
HARD	better for hot condition, makes the car little bit more precise and frees up the suspension
GRAPHINE	more effect compare to hard
It's recommend to change both - FRONT & REAR ARMS	

BUMPER WINDOW
Open bumper generates less front downforce and little lower top speed Can make it little consistent steering for bumpy tracks
Closed bumper generates more front downforce and little higher top speed Can make it little inconsistent steering for bumpy tracks

FRONT TOE-OUT	
INCREASING	more stable on power and on the straight
DECREASING	increases steering and steering response, faster direction change
REAR TOE-IN	
INCREASING	more traction and more on power stability
DECREASING	less traction, more onpower steering, faster direction change

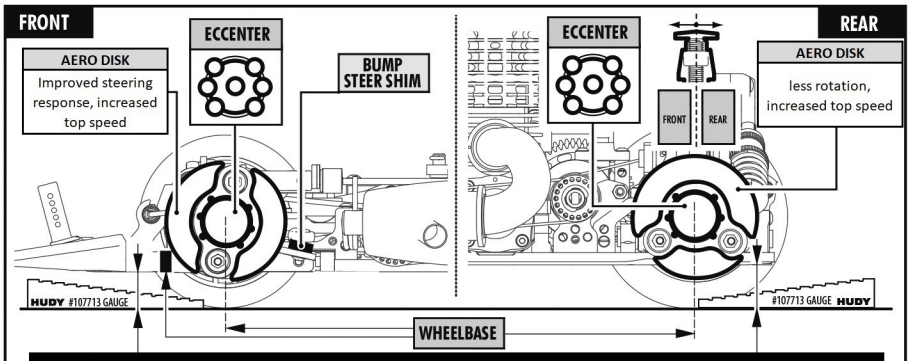
ACKERMANN	
more backward	smoother out steering response, car reacts smoothly, better suited to smooth flowing tracks with high speed corners
more forward	quickens initial steering response, car reacts faster to steering input, better suited to small and tight tracks, faster direction change

SHOCK UPPER POSITION (SHOCK TOWER)	
FRONT SHOCKS MORE DOWN	decreases steering response, less on power steering, increased highspeed steering, increase midcorner steering but decrease rotation
FRONT SHOCKS MORE UP	increases steering response, more on power steering, decreased highspeed steering, decrease midcorner steering but increase rotation
REAR SHOCKS MORE DOWN	increased rotation and onpower steering
REAR SHOCKS MORE UP	decreased rotation, faster direction change, more midcorner steering, less onpower steering

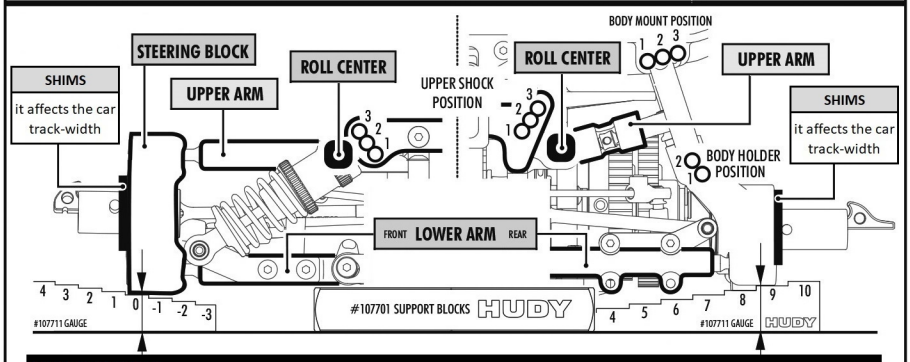
CAMBER LINK LOCATION	
Inner hole (1)	more rear traction in corner exit, less cornering speed, less rotation, less rear traction on straight way, more progressive cornering
Outer hole (2)	less rear traction in corner exit, more cornering speed, more rotation, more rear traction on straight way, more linear cornering

ENGINE MOUNT	
ALUMINIUM	BASIC SETTING
MONOBLOCK	reinforces the chassis flex around the engine area for improved onpower steering and feeling, decreased incorner steering
BRASS	reinforces the chassis flex around the engine area for improved onpower steering and feeling, decreased incorner steering, increased midcorner steering

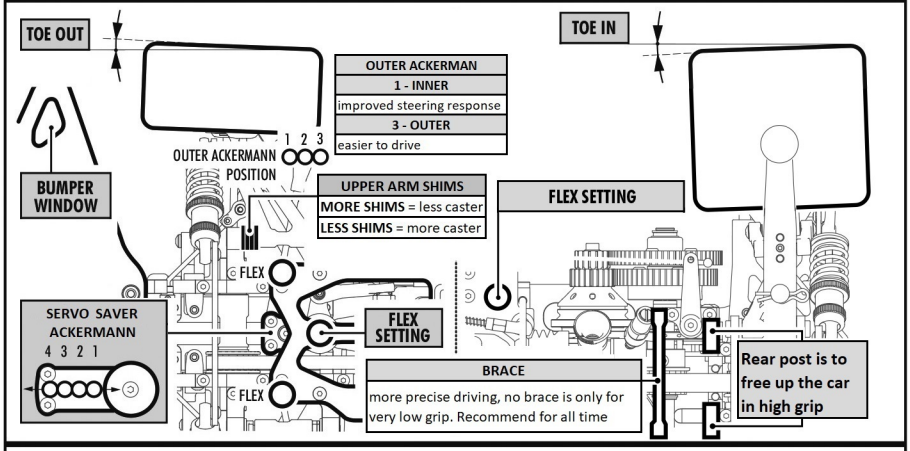
FRONT BRACE
better steering response and precise driving, Also little more steering



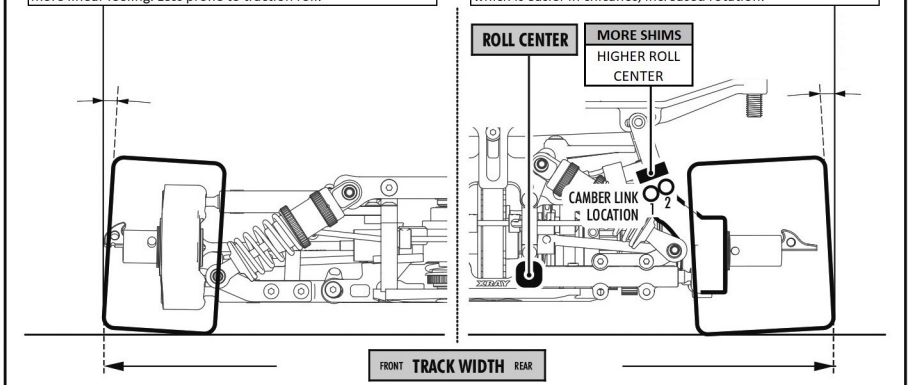
RIDE HEIGHT	
Lower ride height	better on smooth tracks, car reacts faster, more overall grip
Higher ride height	better on bumpy track, car reacts slower, increased chassis roll, less overall grip
Front lower then rear by 0,5mm	increased steering into corner, car holds into corner better, increased oversteer on-power



FRONT DOWNSTOP	
Higher front downstop	increases steering response , makes the car easier to drive over chicanes
Lower front downstop	decreases steering response but improves on power steering and cornering speed
REAR DOWNSTOP	
Higher rear downstop	improves stability but decrease off power steering and rotation
Lower rear downstop	improves off power steering and cornering speed but makes the car less stable



FRONT CAMBER basic setting 2-3°	REAR CAMBER basic setting 2-4°
More camber	**More camber**
Will increase mid corner steering and rotation, decreased initial steering, more prone to traction roll.	Will give more traction in corner exit,increase mid corner stability but increase initial steering.
Less camber	**Less camber**
Will decrease mid corner steering, increase initial steering with more linear feeling. Less prone to traction roll.	Will reduce traction in corner exit, less aggressive initial steering which is easier in chicanes, increased rotation.



TRACK WIDTH	
FRONT Wider	increases front traction, less steering response, easier to drive, avoid traction rolling, more onpower steering
FRONT Narrower	decreases front traction, better steering response, faster direction change
REAR Wider	more stable, easier to drive, less rotation and faster direction change
REAR Narrower	less stable, better rotation and cornering speed, more onpower steering

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SHOCKS

	SHOCK OIL	PISTON HOLES	EFFECT
FRONT SHOCKS			
SOFTER DAMPING	thinner	more holes/larger holes	slower steering response, decreases initial steering at corner entry, increased oversteering mid corner
HARDER DAMPING	thicker	less holes/smaller holes	faster steering response, increases initial steering at corner entry, decreased oversteer mid corner
REAR SHOCKS			
SOFTER DAMPING	thinner	more holes/larger holes	faster steering response, decreases rear stability at corner exit, increases rear stability under braking and mid corner
HARDER DAMPING	thicker	less holes/smaller holes	slower steering response, increases rear stability at corner exit, decreases rear stability under braking and mid corner

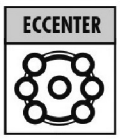
SPRINGS		
FRONT	STIFFER	increases steering response and initial steering into corner, decreases steering mid-corner but more rotation and increased on power steering
	SOFTER	decreases steering response and initial steering into corner, increased steering mid-corner, but less rotation and decreased on power steering, car will feel smoother especially under breaking, better for bumpy tracks
REAR	STIFFER	decreases initial steering, increases mid corner steering and increases power oversteering from mid corner to exit, slightly faster direction change
	SOFTER	increases initial steering, decreases mid corner steering, decreases power oversteering, better for bumpy tracks

REBOUND	
MORE REBOUND	car generates more initial grip, but has less chassis roll with less cornering speed, car is more responsive, car is more sensitive to curbs, can cause car to traction roll in high grip conditions
LESS REBOUND	car generates less initial grip, but has more chassis roll and cornering speed, car is smoother and more forgiving to drive, can be useful in high grip conditions

WHEEL AXLE POSITION (ECCENTER)

FRONT & REAR	EFFECT	RECOMMENDATION
AXLE UP	roll center up, spring and shock softer	for smooth high grip track
AXLE DOWN	roll center down, spring and shock stiffer	for bumpy tracks

FRONT	EFFECT
AXLE FORWARD/LESS CASTER WAY	under full steering lock less rotation, but more rear grip, less stable on straight
AXLE BACKWARD/MORE CASTER WAY	under full steering lock more rotation, but less rear grip, more stable on straight



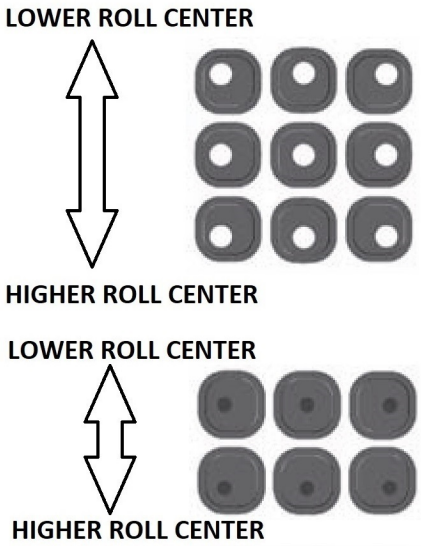
REMEMBER! Ride height has to be readjusted and the drop will have different value when eccenter is changed.

ROLL CENTER

REAR UPPER ROLL CENTER		
LENGTH	LONG	less rear traction in corner exit, more cornering speed, more rotation, more rear traction on straight way, more linear cornering
	SHORT	more rear traction in corner exit, less cornering speed, less rotation, less rear traction on straight way, more progressive cornering
HEIGHT	UP	less midcorner steering, more rotation, more initial steering, slightly more progressive cornering
	DOWN	more midcorner steering, less rotation, less initial steering, slightly more linear cornering
ANGLE	ANGLED	more steering midcorner, more chassis roll, more progressive cornering, less rotation
	FLATTENED	less steering midcorner, less chassis roll, more linear cornering, more rotation

FRONT UPPER ROLL CENTER	
Lower roll center	improved initial steering, more linear cornering, less rotation and less off power steering Recommended for low-medium traction
Higher roll center	decreased initial steering, more progressive cornering, more rotation and more offpower steering Recommended for high traction tracks

REAR LOWER ROLL CENTER	
Lower roll center	improved traction, more initial steering, more rotation Recommended for low traction tracks
Higher roll center	improved on power steering, easier in chicanes, faster direction change but less traction Recommended for high traction tracks
Changing the eccentric bushings position will effect the ride height position	

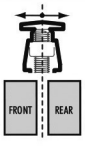


REAR BODY POSITION

BODY MOUNT POSITION
1 = less steering, but more round cornering and little lower overall downforce
3 = more steering, but less round cornering and little higher overall downforce,

BODY HOLDER POSITION
2 = More steering, higher overall downforce
1 = less steering, lower overall downforce

BODY SUPPORT
It's related with the wheelbase of the car, once you move the rear axel you also move the body support



ANTI-ROLL BAR

ANTI-ROLL BAR	
FRONT	
Softer (sthinner wire)	more chassis roll, increases front traction, decreases rear traction, increases steering (may cause oversteer)
Stiffer (thicker wire)	less chassis roll, decreases front traction, increases rear traction, reduces steering at corner entry (increases understeer), quicker steering response
REAR	
Softer (sthinner wire)	more chassis roll, increases rear traction, decreases front traction, decreases steering (increases understeer)
Stiffer (thicker wire)	less chassis roll, decreases rear traction, increases front traction, increases steering (may cause oversteer), quicker steering response

ANTI-ROLL BAR BLADE - PROGRESSIVE

ANTI-ROLL BAR WIRE - LINEAR

BY MIDCORNER STEERING,
THE WIRE GOT BETTER STEERING RESPONSE