



“Scythe” - *Instruction Manual*

Rev. 2

Exclusive Overseas Distribution by:
Tokyo hobbies Optional Parts



1/10 Scale R/C EP Touring Car



Tokyo hobbies *Optional Parts*

Equipment recommended to run the Scythe chassis (not included):

Radio Transmitter
Radio Receiver
Batteries for Transmitter
Electronic Speed Control
Steering Servo
540 Type Motor or Brushless Motor System
Pinion Gear (64 Pitch)
7.2V, 6 Cell Sub-C Battery Pack or suitable Li-Po pack
190mm Bodyshell
Touring car Wheels, Tyres and Inserts

Tools recommended to build the Scythe chassis (not included):

1.5mm & 2.0mm Allen Wrench
7.0mm, 5.0mm & 5.5mm Hex Socket Wrench
Modellers Craft Knife
Small Cross Head Screw Driver
Turnbuckle Wrench
Calipers/Ruler
Camber Gauge
Battery Strapping Tape
Instant Glue / Thread Lock
Shock Oil
Thrust Grease, Diff Grease, Joint Grease
Paint (for Bodyshell)
Threadlock

Other Information:

This is a professional R/C chassis kit and should be built by an experienced user, away from small children. Components, tools and substances used dangerous and should be kept away from small children. Always follow the manufacturers instructions for installing radio equipment, batteries, electronic speed controls etc. Always turn the transmitter on first (NOT the car !) Keep the wheels off the ground when testing. Always disconnect any batteries when not using the car.

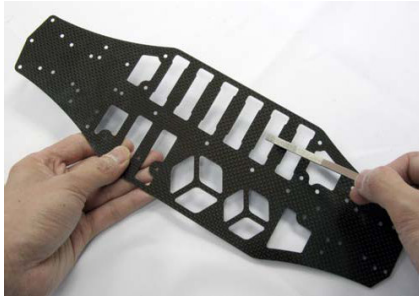
READ THESE INSTRUCTIONS CAREFULLY BEFORE BUILDING AND ENSURE THE FOLLOWING ARE AVAILABLE FOR REFERENCE DURING THE BUILD:

- these instructions
- example set-up sheet
- parts list showing parts required for each build step
- Scythe exploded diagram
- additional build notes

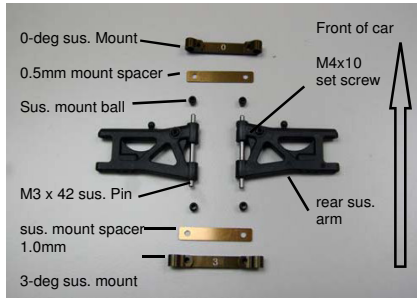
Open each parts bag, source and layout the parts you need to complete each step of the build.

Note. The Scythe chassis uses the best available components. All replacement parts can be purchased from your local hobby or model shop.

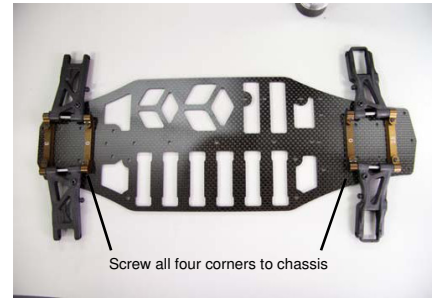
Enjoy building and driving the Scythe!



Step 1 - File down the edges of the battery slots on the main chassis.



Step 2 - Prepare parts for front and rear suspension (rear shown) - refer to set-up sheet..



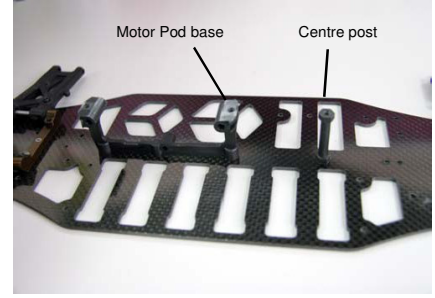
Step 3 - Fit front and rear suspension. Use 8, M3x10 countersunk screws.



Step 4 - Remove motor pod base and centre post parts from mold part B.



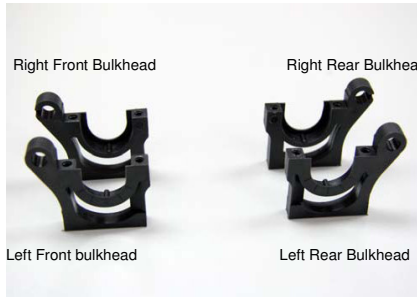
Step 5 - Pre-tap all screw holes of all plastic (use M3 tapping tool if available).



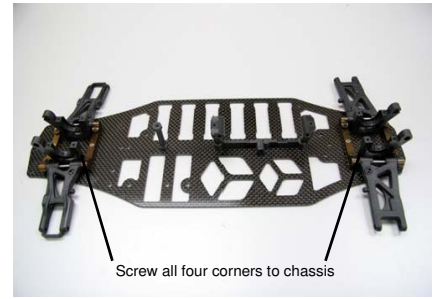
Step 6 - Install motor-pod base and centre post on the main deck with 4, M3x6 screws.



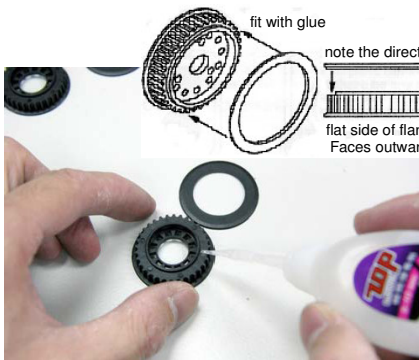
Step 7 - Remove bulk head sides from mold part A (2 sets).



Step 8 - Pre-tap all screw holes. The front and rear bulkhead parts are identical.



Step 9 - Install front and rear bulkheads. Use 8, M3x6 countersunk screws.



Step 10 - Install flange onto 33T pulley using instant adhesive. Make 2, keep 1 for step 19.



Step 11 - Rear Diff. Parts (Long, short diff. hubs, diff. ring, pulley adaptor, balls, spring thrust bearing, joint, ring, nut, screw, bearings).

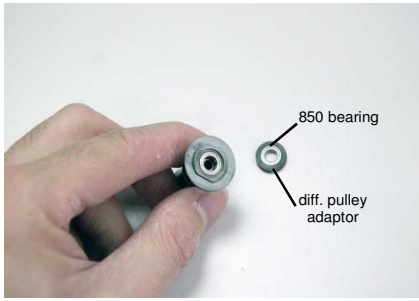


Step 12 - Place the diff. nut inside the diff. nut slot at the centre of the short diff. hub. Use small Allen wrench to hold in place.

Build tips:

Step 2 - shows rear suspension, use 2.5-deg suspension mount for the front end of the front suspension mount and use the 0-deg suspension mount for the rear end of the front suspension mount. Refer to set-up sheet for choice of suspension spacer to place under suspension mount.
Use Allen wrench to screw set screw into each suspension arm - adjust screws when car is completed to adjust droop.
Apply joint grease to suspension pin and to suspension mount ball.





Step 13 - Insert 850 bearings into diff. hub and diff. pulley adaptor (located on mold part A).



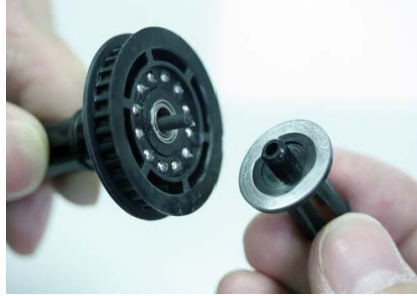
Step 14 - Apply diff. grease and install diff. balls; install diff. pulley adaptor with bearing from step 13.



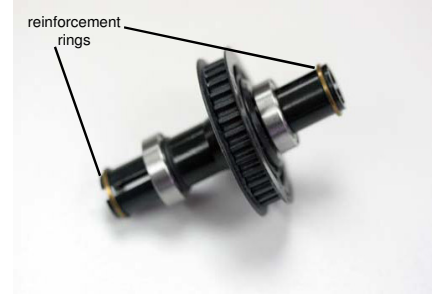
Step 15 - Apply thrust grease, install the thrust bearing and spring through the diff. screw and through the centre of long hub.



Step 16 - Install diff. ring with diff. grease to the long diff. hub; install it to the centre of diff. pulley; make sure the side of pulley is correct.



Step 17 - Install diff. ring with diff. grease to the short diff. hub and install it to the other side of the diff. pulley.



Step 18 - Complete the differential installation by tightening the diff. screw; install 1510 bearings and diff. joint reinforcement rings.



Step 19 - Locate front one-way parts.



Step 20 - Install front one-way to diff. pulley. Note direction.



Step 21 - Secure assembly with 3, 2mm screws.



Step 22 - Fit front one-way shafts and 1510 bearings, the front one-way is now assembled.



Step 23 - Centre Pulley parts.



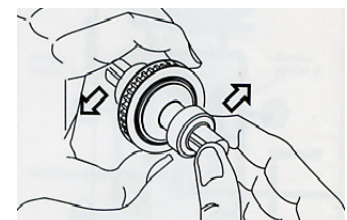
Step 24 - Insert centre shaft into centre pulley.

Build tips:

Step 15 - mount spring on screw, then mount one washer, apply thrust grease then space 8 diff. balls around washer. Finally, apply the second washer.

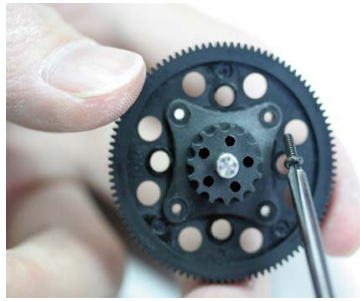
Step 18 - hold both hubs and try to turn diff gear. If it moves too freely then tighten diff screw.

To build a diff. for the front of the car (you will need the following parts from your local hobby shop):
 1 x MoldA-P4S1, 1x1510zz bearings, 1x9203-2625S diff screw,
 1xzs-507 diff thrust bearing, 1x3218-P4S1 diff rings, 1xsd-501
 diff hub part set, 1x850zz bearings, 1xzs-506 diff ring plate,
 1x9420-S001-3/32 - diff balls(12), 1x9203-2625N - diff nut.

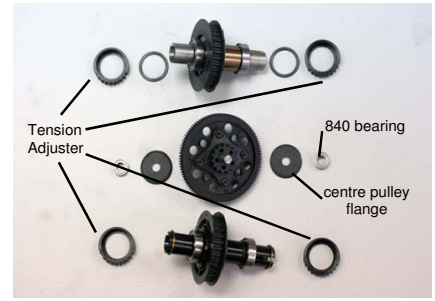




Step 25 - Insert spur onto centre shaft and then fit the second centre pulley.



Step 26 - Press the 2 pulleys together firmly and tighten the M2 screws to secure.



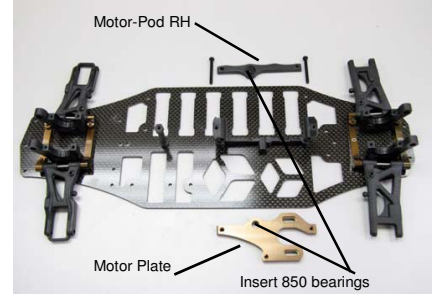
Step 27 - Rear diff., front one-way and centre pulley are assembled. Secure flange (flat side Facing outwards) to centre pulley with glue.



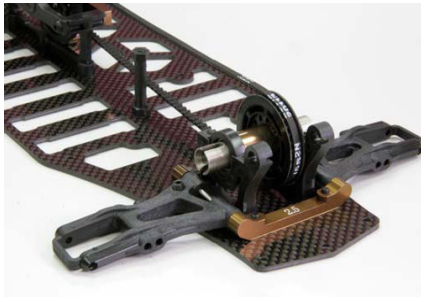
Step 28 - Place a tension adjustment spacer in each tension adjuster for front one-way assembly.



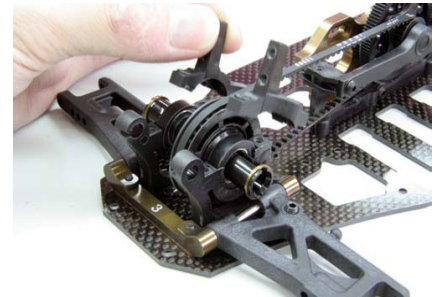
Step 29 - Install tension adjusters onto bearings of both front one-way and rear diff.



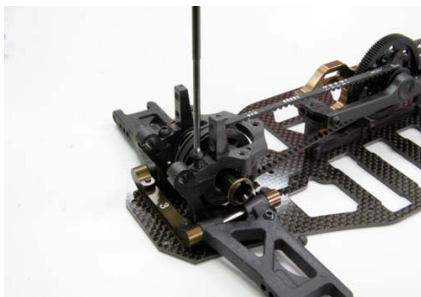
Step 30 - Take out motor-pod RH and motor plate ready for installation.



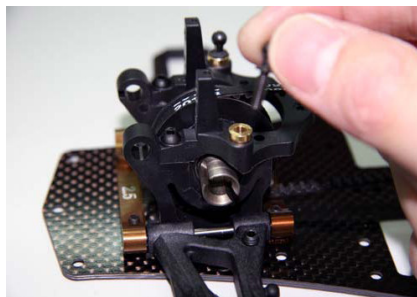
Step 31 - Insert front one-way into front drive belt and rear diff. into rear drive belt and insert centre pulley assemblies onto main deck. Ensure tension adjuster is located into the bulkhead and belt tension is suitable. The belt drive assembly is now complete.



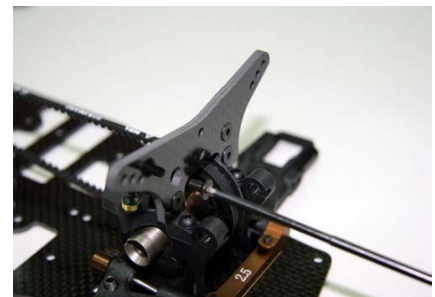
Step 32 - Install front and rear bulkhead cover to secure front one-way and rear diff. assembly.



Step 32 continued - secure bulkhead with M3 x 10 button head screws.



Step 33 - Install 2, king pin ball studs into outer holes on each bulkhead cover. Use spacer or M3x1.5 spacer from mold A.



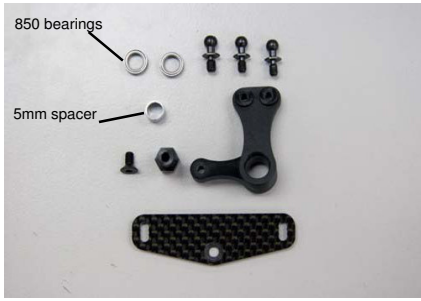
step 34 - Install front shock tower as shown. Install rear shock tower the same way. Use 4, M3x6 cs screws to secure each tower.

Build tips:

Step 26 - ensure screwdriver tip is the correct size and fits screws well.

Step 31 - ensure rear drive belt goes to pulley on right hand side of car and front drive belt goes to pulley on left hand side of car.

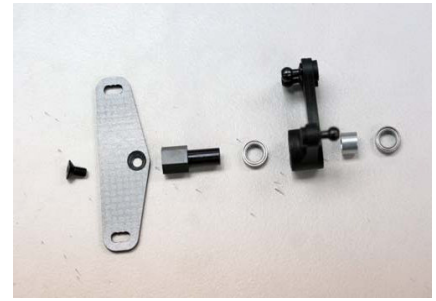
Step 32 - ensure bulkhead cover fits flush to lower bulkhead. Shorter screws may be required if using optional alloy bulkheads.



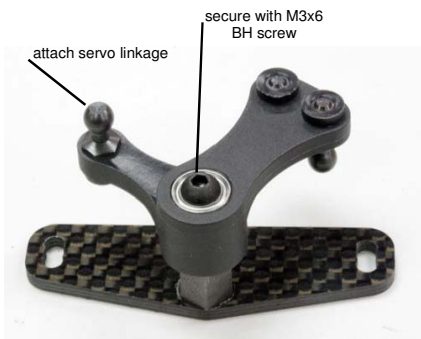
Step 35 - Steering assembly Parts.



Step 36 - Screw ball studs (short) into steering crank - use 5.0mm hex socket driver



Step 37 - Install steering crank and post onto the Ackerman plate in the above sequence.



Step 38 - Steering assembly is complete. Apply servo linkage using 3x34 turnbuckle and 2, 4.3 rod ends parts. Attach servo posts.



Step 39 - Install the steering assembly onto the main chassis deck just behind the front suspension assembly. Check set-up sheet..



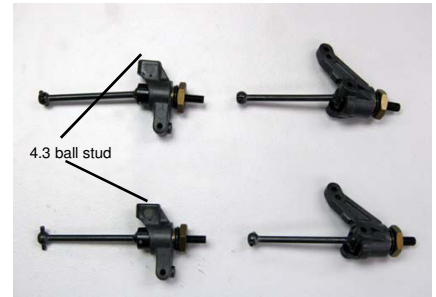
Step 40 - Prepare universal axle parts x 4.



Step 41 - Assemble the universal shaft sets.



Step 42 - locate all 4 universal shafts, bearings, shims, hex adapters & pins, o-rings, front steering hubs and rear knuckles.



Step 43 - Front and rear universal shaft assembly. Screw in 4.3 ball stud into each rear knuckle.



Step 44 - Install left rear knuckle; make a symmetric installation on right hand side.



Step 45 - Secure the 2.5mm suspension pin with a set screw.

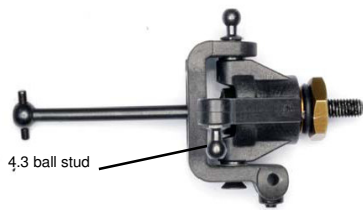


Step 46 - Assemble steering hub carrier. You can fit the wheel nut until later.

Build tips:

- Step 40 - Partly screw-in set screw into axle part before assembling, it can be tightened later.
- Step 41 - Assemble as shown below, then apply joint grease.

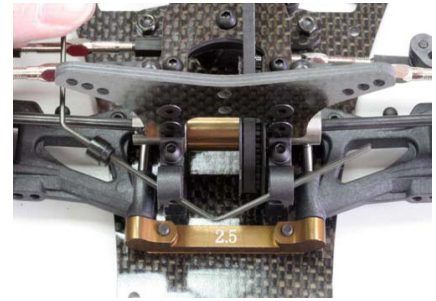




Step 47 - Assemble right side steering hub carrier, make a symmetric installation for the left side. Fit 4.3 ball stud into outer hole.



Step 48 - Assemble 4, 34mm camber link tie rods and a further 2, 45mm tie rods for steering links.



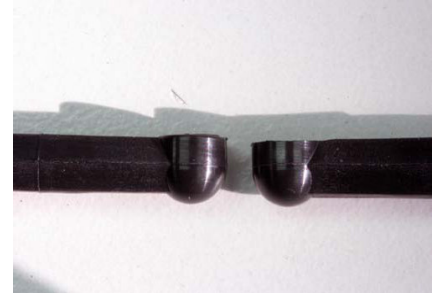
Step 49 - Install front and rear stabiliser stabiliser in the same way.



Step 50 - Assemble stabiliser link; make 2 pairs.



Step 51 - Cut the portion off the ball cup...



Step 51 (continued) as shown.



Step 52 - Install front stabiliser link.



Step 53 - Install rear stabiliser link.



Step 54 - Install front plastic bumper and EVA bumper and front body posts.



Step 55 - Install rear plastic bumper.



Step 56 - Shock Installation: Lubricate shock body with damper and screw on adjuster.



Step 57 - insert o-ring then spacer into damper then screw on bottom cap.

Build tips:

Step 47 - Fit to front steering arms with 2.5x25 suspension pin, secure pin with set screws.

Step 49 - Both sway bars are 1.6mm, other diameters are available as option parts.

Step 56 - Build all four shocks at the same time.



Step 58 - Assemble shock shaft and spacer; Add damper oil for lubrication. Insert shaft into damper case and tighten damper bottom.



Step 59 - Add damper oil into shocks and allow them to settle to remove air bubbles.



Step 60 - Put on damper diaphragm, optional pressure sponge and top metal ball link. Note. Pressure sponge is optional and not included.



Step 61 - Screw on damper top cap.



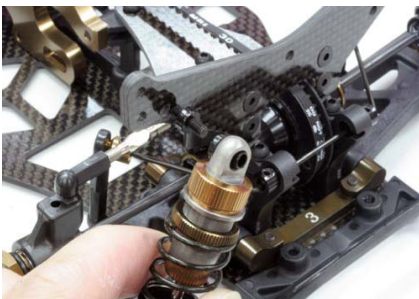
Step 62 - Install plastic ball end (short).



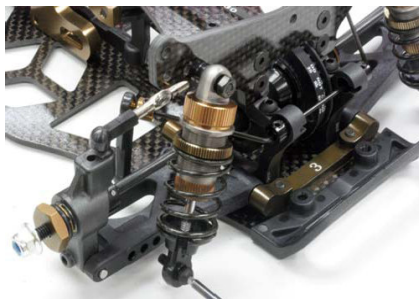
Step 63 - Install suspension spring and spring seat.



Step 64 - Install plastic ball into ball end.



Step 65 - Install shock between shock tower and suspension arm for each shock location. Be sure to install a plastic ball end into each top metal ball link. Use M3x15mm button head for fixing shock tops and M3x10mm button head screws for fixing shock bottoms.



Step 66 - Place one 3x8 bearing on top of tensioner post and secure the assembly by screws on top and bottom.

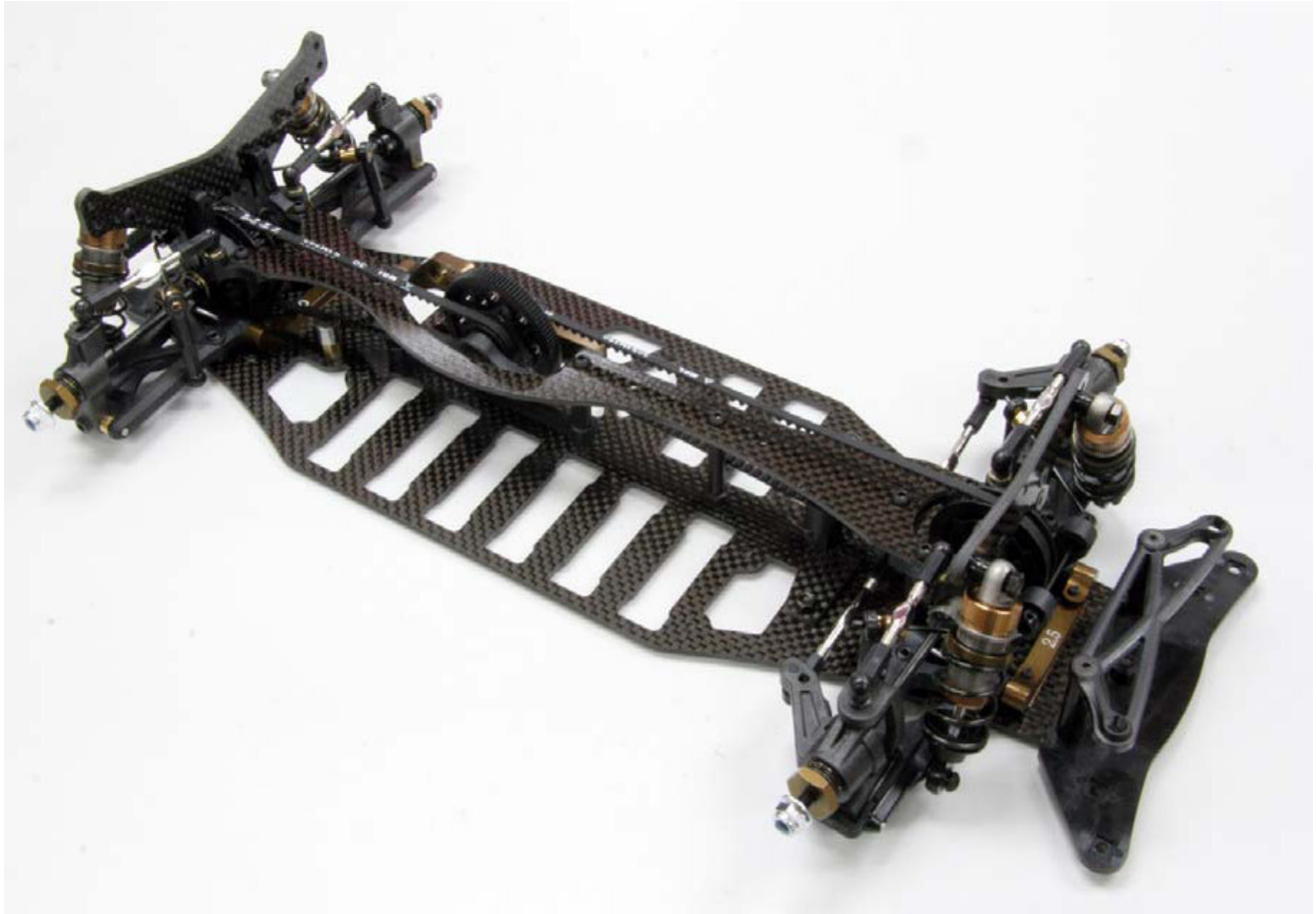
Build tips:

Step 58 - sandwich the piston between 2, e-ring 2.0mm then slide spacer on from bottom of shaft.

Step 59 - experiment with different weights of oil. Move piston slowly up and down until there are no air bubbles.

Step 62 - place some thin card around shock shaft to protect it from pliers.

Step 63 - start with 4.75 coil spring on front shocks and 5.50 spring on rear shocks. Other springs are available as option parts.



Step 67 - Finally, fit the upper deck (refer to exploded diagram for screw sizes).

Fit rear body posts with M3x10 button head screws (you may need to trim plastic below screw hole on body post so it fits flush with shock tower)
Use the included motor screws to attach motor.

Your professional kit is now complete.

Refer to set-up sheet and adjust your kit with turnbuckle wrench using camber gauge and set-up tools.

Enjoy driving your Scythe.

Spare Parts Part numbers and parts for each step

**Build Step Number -
Quantity required or part
shown in brackets**

Part No.	Description	
Kit		
1000-P4S1-0000	Scythe Chassis Kit	
Chassis		
2101-P4S1	Main Chassis	1
2213-P4S1	Front Damper Stay	34
2223-P4S1	Rear Damper Stay	34
2111-P4S1	Upper Plate	67
MoldA-P4S1	Mold Parts A	7(bulkhead sidesx4), 10(diff pulley flangex2) 10(diff pulleyx2), 11(pulley adaptor), 23(centre pulleyx2) 23 (centre pulley flangex2), 27(tension adjusterx4) 28(tension adjust spacerx2), 32(bulkhead coverx2) 33(M3x1.5 spacer x4)
MoldB-P4S1	Mold Parts B	4(pod base), 4(centre post), 30(motor pod RH) 35(steering crank), 38(servo posts)
2231-P4S1	Motor Plate	30
MTSC-SET2	Motor Screw Set	67
5121-P4S1	Ackerman Plate	35
5117-Set1	Steering Crank Post	35
2333-P4S1	EVA Bumper	54
SD-001	Front Bumper	54
SD-001R	Rear Bumper	55
ZS-016T	Body Mount	54(front posts), 67(rear posts)
Drive Train		
3124-P4S1	Front One Way	19
ZS-642T	Cup Joint	19(x2)
9201-2005	Phillips Pan Head Screw M2 x 5	19(x3), 23(x4)
MB0120	Spur Gear 102T	23
CSFT-SET1	Center Shaft Set / M3 E-Clip	23
9203-2625	Differential Screw Set	11
9212-2625	Differential Nut	11
ZC-508	Differential Spring	11
ZS-507	Different Thrust Bearing (washer & balls)	11
SD-501	Differential Hub	11
3218-P4S1	Differential Joint Ring	11
ZS-506	Differential Ring	11
9420-S001-3/32	Differential Ball	11(x12)
3141-P4S1	Front Belt	31
3241-P4S1	Rear Belt	31
ASB-307C	Belt Guide Post	66
Drive Shaft		
3230-SET2	Universal Shaft Set	
3231-P4S1	Axle Shaft	40
ZS-010RSB	Universal Bone	40
3133-SET1	Universal Joint Set 1	40
3134-P4S1	Universal Pin	40
2101-P4S1	Shim 5 x 0.2mm	42(x8)
3146-SET2	Wheel Hub Set	42(x4)
3146-ACC4	Wheel Hub Accessory	42(x4)
9217-4045	Wheel Nut	46(x4)

Ball Bearing

830ZZ	Ball Bearing 3 x 8mm	66(x1)
840ZZ	Ball Bearing 4 x 8mm	27(x2)
850ZZ	Ball Bearing 5 x 8mm	11(x2), 32(x2), 35(2)
1050ZZ	Ball Bearing 5 x 10mm	42(x8)
1510ZZ	Ball Bearing 10 x 15mm	11(x2), 19(x2)

Suspension

31420	Suspension	2(2x No.4 parts), 2(2x No.1 parts)
73518	Hub Carrier	46
73507	Upright	42(2 packs)
4215-P4S1	Suspension Mount 2.5 deg.	2(x1)
4111-P4S1	Suspension Mount 0 deg.	2(x2)
4216-P4S1	Suspension Mount 3.0 deg.	2(x1)
4114-P4S1	Height Spacer Set 0.5mm & 1.0mm	2(2x0.5mm), 2(2x1.0mm)
4113-P4S1	Suspension Pin 3 x 42mm	2(x4)
4112-P4S1	Mounting Ball	2(x8)
9206-4100	Set Screw M4 x 10	2(x4)
4152-P4S1	King Pin Collar	46(x4)
4154-P4S1	Suspension Pin 2.5 x 25mm	44(x2), 47(x2)

Shock Absorber

4310-SET2	Damper Set	56(x4)
YS-5SSS-1	Damper Shaft	58(x4)
9261-0020	E-ring 2.0	58(x8)
PS-0918	O-ring	57(x4)
PS-0903	Diaphragm	60(x4)
4311-SET1	Damper Case	56(x4)
YS-7-1	Damper Plastic Parts	57(spacerx4), 58(triangle spacer narrow diam.x4) 58(3 hole pistonx4), 64(plastic ballx8)
YS-6W	Spring Sheet	62(ball end shortx4), 63(spring seatx4)
P950-450	Spring 4.50 Winding	
P950-475	Spring 4.75 Winding	63(frontx2)
P950-500	Spring 5.00 Winding	
P950-525	Spring 5.25 Winding	
P950-550	Spring 5.50 Winding	63(rearx2)
P950-575	Spring 5.75 Winding	
P950-600	Spring 6.00 Winding	

Stabilizer

4251-P4S1-0014	Stabilizer Bar 1.4	
4251-P4S1-0016	Stabilizer Bar 1.6	50(x2)
4251-P4S1-0018	Stabilizer Bar 1.8	
ZC-207A	Stabilizer Link	50(x4)
9206-3100	Set Screw M3 x 10	50(x8)
4252-SET4	Stabilizer Retainer	50(x4)
4253-SET4	Stabilizer Ball	50(x4)

Linkage

9207-3034	Turnbuckle 3 x 34	38(x1), 48(x4)
9207-3045	Turnbuckle 3 x 45	48(x2)
ZC-207	Rod End 4.3	38(x2), 48(x12)
9241-4505	Ball Stud 4.3	35(x3), 43(x2), 47(x2)
9241-4509	King Pin Ball 4.3	33(4), 46(x2)

Screw & Nut

9205-3006	Button Head Screw M3 x 6	34(x8), 38(x1), 66(x1), 67(x5)
9205-3010	Button Head Screw M3 x 10	32(x4), 65(x4), 67(x6)
9205-3015	Button Head Screw M3 x 15	65(x4)
9205-3025	Button Head Screw M3 x 25	
9204-3006	Countersunk Head Cap Screw M3 x 6	6(x4), 9(x8), 35(x1), 39(x2), 55(x2), 66(x1), 67(x2)
9204-3010	Countersunk Head Cap Screw M3 x 10	3(x8), 46(x2), 54(x3), 67(x2)
9204-3014	Countersunk Head Cap Screw M3 x 14	54(x2)
9211-3020	Flat Nut M3	39(x2), 65(x4)
9206-3040	Set Screw M3 x 3	45(x2), 47(x2)

iScythei

Setup Sheet in All Japan

Name Satoshi Yamazaki Date 2006.02.28 Humidity 60 % Air Temp. 20 °C

Track Yatabe Arena Track Condition bad 1 2 **3** 4 5 good Track Temp. 30 °C

Front Suspension

1 2 3
2.0 mm
2 1

Camber Angle	-0.5 °∞
Castor	4 °∞
Ride Height	4.5 mm
Droop	5.0 mm
FR. Drive	1way
Stabilizer Bar	φ1.6
Stick out	3.0 mm
Toe Angle	-1 °∞
Notes	

Sus. Mount F 2.5 R 0 Sus. Mount Spacer F 0.5 mm R 1.0 mm

Shock Absorber

	Front	rear
Piston & Holes	Yokomo #3 φ0.9 x 3	Yokomo #3 φ0.9 x 3
Oil	associ. #30	associ. #25
Spring	OVA φ1.4-4.75	OVA φ1.4-5.50
Diaphragm	Simizu PS-0903	Simizu PS-0903
Form	—	—
Other		

Rear Suspension

1 2 3 4
0.5 mm
1 2
0 mm
3 2 1

Camber Angle	-1.0 °∞
Ride Height	5.0 mm
Droop	5.0 mm
Stabilizer Bar	φ1.6
Stick out	0 mm
Upright Spacer	F 3 mm R 0 mm
Notes	

Sus. Mount F 0 R 3.0 Sus. Mount Spacer F 0.5 mm R 1.0 mm

Tire

	Front	rear
Brand	NoMrak +30	NoMrak +30
Insert	Stealthy Firm	Stealthy Firm
Wheel	Parabolic Dish	Parabolic Dish
Additive	Paragon FX-(監)	Paragon FX-(監)
Spreaded Area	FL. FR. RL. RR.	

Ackermann

□ Ex.Front
□ Rear
□ Mid
□ Front
□ Ex.Rear

1 2

Power Source

Motor	Orion V2	Battery	IB3800
Rotor	φ1.0x2 6T	Gear Ratio	
Brush	Edge Sprint	Spur	102
Spring	φ0.29 9T	Pinion	~ 34
Timing	9 deg.	2nd Reduction	◇ 2.200
		Over All Ratio	6.60

Radio

Transmitter	KO EX-10 Helios
Receiver	KO KR-302FS
Servo	Hitec HS-5975HB
ESC	KO VFS-1 pro Competition

Body

RIDE Accord Type B

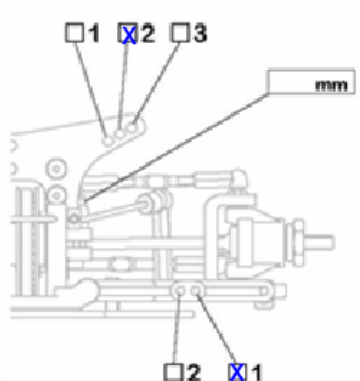
Wing

HPI Racing Wing 185mm

"Scythe" Setup Sheet for

Name **Damien Zarb** Date **2006 Apr 30** Humidity % Air Temp. **20** °C
 Track **Eastern Creek, Syd, AUSTRALIA** Track Condition bad 1 **2** 3 4 5 good Track Temp. °C

Front Suspension



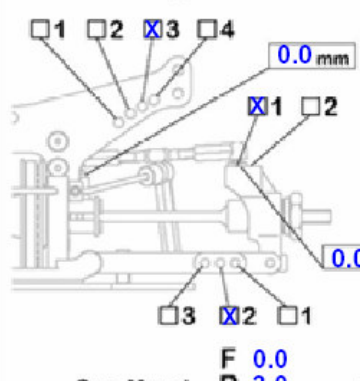
1 2 3
 2 1

Camber Angle **-1.0** °
 Castor **4** °
 Ride Height **5.5** mm
 Droop **5.0** mm
 FR. Drive **One-way**
 Stabilizer Bar ϕ **1.6**
 Stick out **3** mm
 Toe Angle **-0.5** °
 Notes
 Sus. Mount F **2.5** R **0.0** Sus. Mount Spacer F **0.0** mm R **0.5** mm

Shock Absorber

	Front	rear
Piston & Holes	2 Holes 1.2mm	2 Holes 1.2mm
Oil	Tamiya 500	Tamiya 400
Spring	4.75 Coil	5.50 Coil
Diaphragm	Standard	Standard
Form	Yes	Yes
Other	Full Rebound	

Rear Suspension

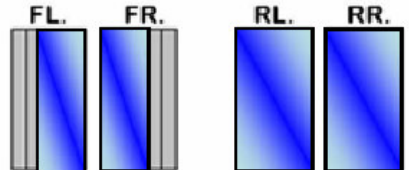


1 2 3 4
 1 2
 3 2 1

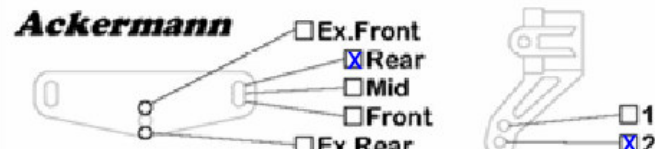
Camber Angle **-1.5** °
 Ride Height **5.5** mm
 Droop **5.0** mm
 Stabilizer Bar ϕ **1.8**
 Stick out **0** mm
 Upright Spacer F **.75** mm R **2.0** mm
 Notes
 Sus. Mount F **0.0** R **3.0** Sus. Mount Spacer F **0.5** mm R **0.0** mm

Tire

	Front	rear
Brand	Sorex 36R	Sorex 36R
Insert	Med C	Med C
Wheel	Sorex Dish	Sorex Dish
Additive	FX-II	FX-II
Spreaded Area	FL. FR.	RL. RR.



Ackermann



Ex.Front
 Rear
 Mid
 Front
 Ex.Rear
 1
 2

Power Source

Motor **Rontam** Battery **SMC IB3800**
 Rotor **27x1**
 Brush **+ Green Potnam - Blue Potnam + Red**
 Spring **- Red**
 Timing **N/A**

Gear Ratio

Spur **78**
 Pinion **26** ÷
 2nd Reduction **x 2.200**
 Over All Ratio **6.60**

Radio

Transmitter **Futaba 3PK**
 Receiver **Spectrum**
 Servo **Futaba 9550**
 ESC **Keyence Ex. Straight**

Body

Excel Accord Type B

Wing

Excel Straight Wing

"Scythe" Setup Sheet for _____

Name _____ Date _____ Humidity _____ % Air Temp. _____ °C
 Track _____ Track Condition bad 1 2 3 4 5 good Track Temp. _____ °C

Front Suspension

1 2 3

mm

2 1

Sus. Mount F R Sus. Mount Spacer F R mm mm

Camber Angle _____ °
 Castor _____ °
 Ride Height _____ mm
 Droop _____ mm
 FR. Drive _____
 Stabilizer Bar ϕ _____
 Stick out _____ mm
 Toe Angle _____ °
 Notes _____

Shock Absorber

Front **rear**

Piston & Holes _____
 Oil _____
 Spring _____
 Diaphragm _____
 Form _____
 Other _____

Rear Suspension

1 2 3 4

mm

1 2

3 2 1

Sus. Mount F R Sus. Mount Spacer F R mm mm

Camber Angle _____ °
 Ride Height _____ mm
 Droop _____ mm
 Stabilizer Bar ϕ _____
 Stick out _____ mm
 Upright Spacer F R mm mm
 Notes _____

Tire

Front **rear**

Brand _____
 Insert _____
 Wheel _____
 Additive _____
 Spreaded Area

FL.	FR.	RL.	RR.

Ackermann

Ex.Front
Rear
Mid
Front
Ex.Rear

1
2

Radio

Transmitter _____
 Receiver _____
 Servo _____
 ESC _____

Power Source

Motor _____ Battery _____
 Rotor _____
 Brush _____

Gear Ratio

Spur _____
 Pinion \div _____
 Spring _____ 2nd Reduction \times 2.200
 Timing _____ Over All Ratio _____

Body

Wing
