

SETTING UP THE SWIFT SC97F

Set all links as prescribed in the link and joint setting sheet supplied when building and preparing your car.

The following details the recommended set up procedure. Recommended dimensions can be found on the set-up sheet and link and joint setting sheet provided.

1. CASTOR

Front castor is adjusted via the inner top wishbone joints only. Do not attempt to adjust via the bottom wishbone. Screw two cap head bolts into the front caliper lugs and measure with a camber gauge across the heads. The castor angle is relative to the car floor hence level the car beforehand.

Example:- Lengthening the front joint and shortening the rear joint of the wishbone increases castor and vice-versa.

2. FRONT BUMP STEER

After the castor is set, check the bumpsteer. There should be no change of wheel alignment from ride height to full bump travel.

Adjust by altering the height of the steering arm joint and washer.

Example:- If toe-in during bump travel, move the joint downwards
If toe-out during bump travel, move the joint upwards.

3. REAR BUMP STEER

Adjust the rear bump steer by adjusting the castor. The castor angle at the rear has no relevance but to achieve zero bumpsteer, hence castor does not require any measuring.. Adjust via the inner top wishbone joints.

Example:- If toe-in during bump, shorten the front joint and lengthen the rear joint of the top wishbone.
If toe-out during bump, lengthen the front joint and shorten the rear joint of the top wishbone.

4. FLAT PATCH

The car can now be placed on a flat area which must be level longitudinally and laterally. The driver should be seated, tyres pressured (ensure tyres are within 5mm circumference) and that the anti-roll bars are disconnected.

5. FRONT PRE-LOAD AND RIDE HEIGHT

The SC96F runs zero droop.

Set the pushrod and damper length to the standard settings prescribed in the link setting sheet.

Ensure springs compress slightly when the driver sits in the car by winding off any pre-load above zero droop. Then wind the platforms up one 360 degree turn at a time until the dampers are fully extended. The ride height should now be adjusted via the pushrods.

Smooth fast circuits run one turn of pre-load above zero droop.

For bumpy circuits run 5mm of droop measured at floor. Set using the same methods as for the rear.

6. REAR DROOP AND RIDE HEIGHT

The rear suspension runs 30mm +/-3mm of droop as standard. Set the pushrods and dampers to the lengths prescribed in the link setting sheet. Measure height of rear bottom wishbone ear (with driver on board) and then lift the car with a jack until the dampers are fully extended and re-measure.

The difference in the two measurements gives the droop. Adjust via spring platforms, up giving less droop, down giving more.

The ride height can now be adjusted via the pushrods.

7. FRONT CAMBER

Measure the cambers with the driver on board and ride heights set. Use a camber gauge vertically across the tyres and adjust via shims.

Front shims consist of;

1	x	0.5mm
1	x	1.0mm
1	x	2.0mm

1 x 2.5mm
1 x 5.0mm

8. REAR CAMBER

As for front. Adjust via shims.

Rear shim set consists of;

1 x 0.5mm
1 x 1.0mm
1 x 2.0mm
1 x 3.0mm
1 x 6.0mm

9. TRACKING

Use parallel bars only for setting the tracking. Align the parallel bars with the centreline of the car and measure the distances of the front and rear edges of the tyres.

The difference gives the amount of toe-in. Adjust accordingly.

10. CORNER WEIGHTS

Adjust the corner weights via the rear pushrods only. The driver must be seated and the anti-roll bars disconnected. Lengthening one pushrod will transfer the weight diagonally to the opposite front wheel.

Weights should be equal side to side or 5lbs heavy on the outside wheel.

Once weights are corrected, adjust the anti-roll bar links so that there is no load on the anti-roll bars. This is essential otherwise they will not work properly.

11. FRONT BELLCRANK

The front bellcrank should be set in the soft position as illustrated .

Cars running treaded tyres are supplied with a very soft slow velocity (SV) bellcranks.

SC97Z ZETEC JOINT AND LINK SETTINGS SHEET

Front Pushrod	677mm
Rear Pushrod	468mm
Front Damper	264mm
Rear Damper	315mm
Front Anti-Roll Bar Link	360mm
Rear Anti Roll Bar Link	79mm
Rack Length	381mm

Joints

Measured from eye centre to wishbone bush top

Front Suspension

Top wishbone Inboard	25mm	1.0"
Bottom Wish bone Inboard	32mm	1 1/4"

Rear Suspension

Top Wishbone Inboard	28mm	1 1/8"
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ENGINEERING THE SC97F

The standard set up should work at most circuits, with only fine adjustments required

Rear Roll Bar

Stiffening increases corner exit oversteer or corrects exit understeer and visa-versa. To stiffen move sliders inward.

Front Roll Bar

Stiffening improves traction but increases mid to exit understeer and vice-versa. Lowering will cause the opposite.

Rear Camber

Increases will provide additional traction and increase corner exit understeer or correct corner exit understeer. Decreases will provide the opposite effects.

Front Camber

Increases will improve mid-corner and exit understeer. Decreases will produce the opposite effect. Excessive camber can prolong tyre scrubbing time and reduce braking capability and overheat inside edges.

Front Preload

Increase will improve fast corner stability but will adversely affect the ride and increase slow corner understeer. Use no more than one turn above zero droop.

Front Droop

Use on slow bumpy circuits only. It will improve ride especially over kerbs, use 6mm.

Adjustment Order

1. Ride height
2. Roll bars
3. Cambers
4. Pre-loads/Droop

Other adjustments if required:

Toe-ins

At certain circuits the toe-ins may require resetting. For instance, at a very fast circuit where increased stability and reduced steering response is required, you may wish to increase the toe-ins to perhaps 2mm per wheel.

Springs

Spring changes are only advised if you are an experienced driver and team. Really only required on a very bumpy circuit if the ride is poor.

Rear spring limits: 200-400lb/in spring free length 8"

Front spring limits: 100-200lb/in spring free length 8"

Dampers

ZETEC

Front Koni BA135

Rear Koni BA235

See sheet for suggested adjustment.

Wet Conditions

Set up as per set-up sheet. Blank NACA ducts and fit lightly scrubbed tyres.

SC97F GENERAL INFORMATION

Spherical Joints

Loctite all spherical joints in their housings with loctite bearing fit

Gearbox Oil

Fill the gearbox with one litre of gear oil from dry

Oil Tank

From dry, fill the tank with 3.5 litres of oil. Warm-up the engine and stop. Measure level with a stick to the bottom of the tank and top up to eight inches.

Radiators

After an engine change, bleed the radiators. Bleeds are located at the top of the radiators. Allow water to bleed for at least five seconds and then top up header tank. The Zetec car is fitted with permanent bleeds hence there is no need to manually bleed.

Brake Balance

Set 2 turns to front from central position. The driver can then fine tune the balance on shake down. For wet conditions, adjust two turns to the rear from preferred dry setting.

CV Grease

80ml outboard, 80 ml inboard.

Spring

Front free length	8"	2.25"ID (2"ID for Koni BA2812 dampers)
Rear free length	8"	2.25"ID (2"ID for Koni BA2812 dampers)

Master cylinders

Front brake m/cyl Dia 0.700 Girling non integral (0.750 with carbon metallic brake pads)
Rear brake m/cyl Dia 0.700 Girling non integral (0.750 with carbon metallic brake pads)
Clutch Dia 0.750 Girling integral

Calipers

Front MLB20
Rear MLB19

Tyre Diameters

Tyres should be within 5mm side to side in circumference otherwise corner weights are affected

Wheel Torque

40 Ft lbs

Starting

Always start and warm-up Zetec engines using a jump battery.

Brake Pads

Use Hawke HB117 blue carbon metallic brake pads at the rear
HB108 blue carbon metallic brake pads at the front

Hubs

Front torque setting 140 Ft lbs
Rear torque setting 180 Ft lbs

Rack Clevis

Set the rack clevises at 30 degrees to the horizontal.

Data Logging

Swift recommend the use of a PI System 2+2 data logging system.

COMPONENT LIFE

For the following listing, half a season is considered to be 10 races and 10 tests, a full season 20 races and 20 tests.

Wishbone joints:	Replace after half a season.
Pushrod joints:	Replace after half a season.
Roll bar link joints:	Replace after one season.
Brake Discs:	Replace after half a season.
Hubs:	Crack test after one season.
Springs:	Replace after one season.
Caliper piston seals:	Replace after half a season.
Clutch seals:	Replace after half a season.
Gearbox dog rings:	Replace as required.
Dampers:	Check and re-valve after half a season.
Steering column:	Replace after one season.
Clutch release bearing:	Replace after half a season.
Electrical switches	Replace after half a season

Check and replace all other components as necessary.