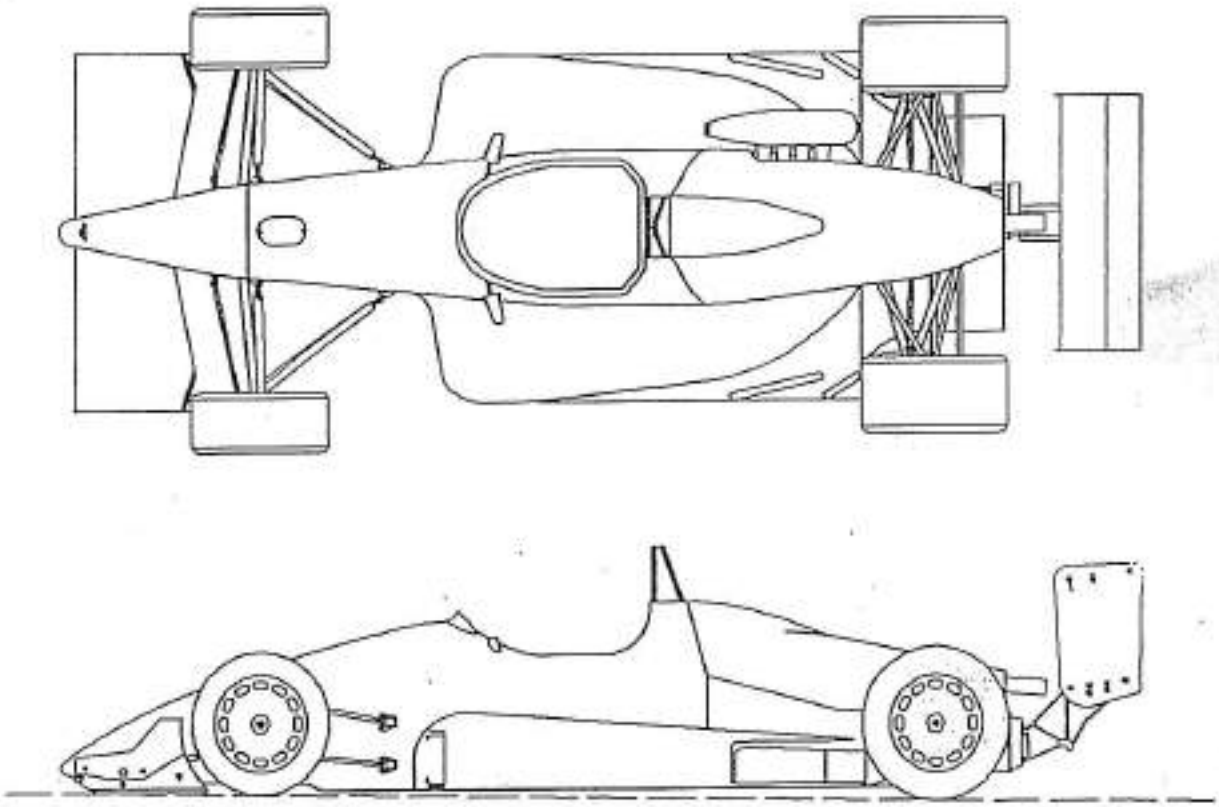
reynard
racing cars ltd



reynard 903

technical

manual

CONTENTS

REYNARD 903
TECHNICAL MANUAL

1. INTRODUCTION

This manual is designed to help customers achieve and maintain optimum performance from their Reynard 903 Formula Three car.

2. DETAILS

2.1 Front Upright

These are cast magnesium and house two pre-assembled deep groove ball bearings.The bearings are a shrink fit in the upright;before assembly the bearing should be cooled in a freezer and the upright heated to approximately 120 C (250 F)

2.2 Rear Upright

These are steel fabrications housing two pre-assembled deep groove ball bearings.The assembly procedure is as for the front upright.

2.3 Front Suspension

The front suspension is by independent fabricated steel wishbones.Droop is limited by the front dampers and the rideheight is adjusted by altering the front pushrod length.When fitting spherical joints ensure that all circlips are properly fitted and seated.Also ensure the dampers are identical lengths side to side.(279mm)

2.4 Rear Suspension

The rear suspension is by independent fabricated steel wishbones.Droop is limited by the rear dampers and rideheight is altered using the rear pushrods.

2.5 Gearbox

The gearbox is a Reynard designed magnesium casting,incorporating the oil tank.It houses standard Hewland FT3 internals.A gear driven oil pump is located in the differential housing,with a protective screen over the pump inlet.This screen should be cleaned every 500 miles.The oil level should be maintained at 230mm below the top of the filler neck on the oil swirlpot.

The differential fitted as standard is a Hewland FTC 212 "powerflow".The following notes have been supplied by Hewlands:

The main "slip limiting"components in this differential are the plates located on either side of the side gear rings.These consist of two types,one connected by the spline to the outer casing,the other connected by spline to the side

bevel gears.Friction between the two types of plates will occur as one road wheel begins to spin away;the greater the friction the more the slip will be limited.

To reduce the friction,plates of similar type should be arranged side by side so as to reduce the number of faces acting in friction.To maximise the friction,leaving a "solid" differential effect,plates of opposing type should be arranged side by side to maximise the number of friction faces.

An additional factor is the angle of the "cut out" or "ramp" in the side gear ring which has an effect on the characteristic of the plate locking action.Should you wish to change this,it is best done by experiment,to suit your driver.

Maintenance of this differential should be straightforward,with all components being accessible by removing the end cover.The main components to be changed regularly are the friction plates as they will wear.

2.6 Fuel Cell

The fuel cell is housed within the monocoque and satisfies FIA FT3 and SCCA regulations.An electric fuel pump feeds a fuel pressure regulator which should be set to 3.5 psi.

SETTING UP PROCEDURE

To ensure a consistently correct set up on the car, we recommend the following procedure is followed whenever setting up the car, especially from new, after repairing accident damage or replacing any suspension component.

The first part of this is best done in a clean, well lit workshop, with the car supported on stands and with the body work removed.

1) Check that all wishbones, track rods and toe links are set to the lengths given in the accompanying diagrams.

2) Ensure that the car is mechanically sound (i.e. there is no play in the wheel bearings, spherical joints etc).

3) Ensure that the wheel rims are true and that there is no obvious damage.

4) Check that the tyre diameters and wear patterns are the same side to side.

5) Set the front castor by adjusting the front top wishbone rear, inboard rod ends.

6) Set the front toe, using the track rod.

7) Remove the front spring/dampers and set the front bumpsteer to zero by inserting spacers above or below the outboard rod end of the track rod.

8) Set the rear toe, using the toe link.

9) Remove the rear spring/dampers and set the rear bumpsteer to zero by adjusting the rod ends on the inboard of the top wishbone.

10) Measure the free length of the springs, and check that they are the same side to side. Check that the length of the dampers (between the mounts) is the same side to side. Pre-load the front springs the desired amount, the fitted length will then be the free length minus the pre-load.

11) Check that the rear spring platform positions are the same side to side.

12) Set the tyres to the correct pressures.

13) Remove one front and one rear anti-roll bar drop link.

14) Re-fit the spring/dampers to the car and position it on the flattest piece of ground available. Check with a long straight edge and a camber gauge. If the ground is not perfectly flat, place packers under one wheel and measure with the straight edge and camber gauge between the contact patch of the front wheels until the gauge reads level, also ensuring that the packers themselves are level. Repeat this at the rear. However, you will have to remember to allow for the thickness of the packers when measuring ride height.

15) Place the camber gauge across the car, on the shear plate attached to the front casting. Set the car level, by adjusting one front push rod.

16) Set the front ride height, by adjusting the length of the push rods. Always adjust the push rods equally, side to side. The front ride height should be measured under the steel plate fixed under the front of the monocoque, and just behind the aluminium skid plate.

17) Set the rear ride height by adjusting the rear spring platforms. The rear ride height should be measured alongside the rear (steel) skid plate, under the gearbox.

18) Set the corner weights by adjusting the rear spring platforms. Also ensuring that the rear bellcranks are set to the same angle as each other (to within half a degree) by adjusting the rear push rods.

19) Set the front camber by adjusting the front lower wishbone out board rod end.

20) Set the rear camber by the camber nut on the outboard of the top wishbone.

21) Set the front toe by the track rod.

22) Set the rear toe using the toe link.

23) Re-check the ride heights.

24) Re-check the cambers.

25) Re-check the corner weights.

26) Finally reconnect the anti-roll bar drop links so that they are not under any tension.

reynard

Championship Winning Car Constructors

DATE	20-DEC-89
COMPILED BY	J.B.T.
CUSTOMER	·——·
NO. LAPS	·——·

CHASSIS TYPE 903	CHASSIS NO. ·——·		ENGINE NO. ·——·	
CIRCUIT STANDARD	LAP LENGTH ·——·		LAP RECORD ·——·	
DRIVER ·——·	TRACK CONDITIONS DRY			

SETTINGS	FRONT		REAR	
RIDE HEIGHT	18		50	
CASTER	5.5°		·——·	
CAMBER	left	right	left	right
	-3.5°	-3.5°	-3°	-3°
TRACK SETTING	TOTAL 3mm OUT		TOTAL 3MM IN	
DAMPER TYPE & NO.	BILLSTEIN		BILLSTEIN	
SETTINGS bump	80		90	
rebound	300		260	
AEONS & PACKERS	·——·		·——·	
SPRINGS: RATE (lbs/in)	375		425	
FREE LENGTH	152		152	
FITTED LENGTH	112		150	
ANTI-DROOP MECH.	·——·		·——·	
ANTI-ROLL BARS	OD 19.1mm ID 12.7mm		OD 19.1 ID 15	
A.R.B. SETTING	STIFF		STIFF	
WHEELS	REYNARD		REYNARD	
TYRE PRESSURES	left	right	left	right
COLD	1.1 bar	1.1 bar	1.1 bar	1.1 bar
WINGS: TYPE	STD. REY. DELTA.		STD. SHORT CHORD.	
O'ALL ANGLE	+1.5°		+8.5°	
FLAP ANGLE	·——·		·——·	
GURNEY	·——·		+6mm.	

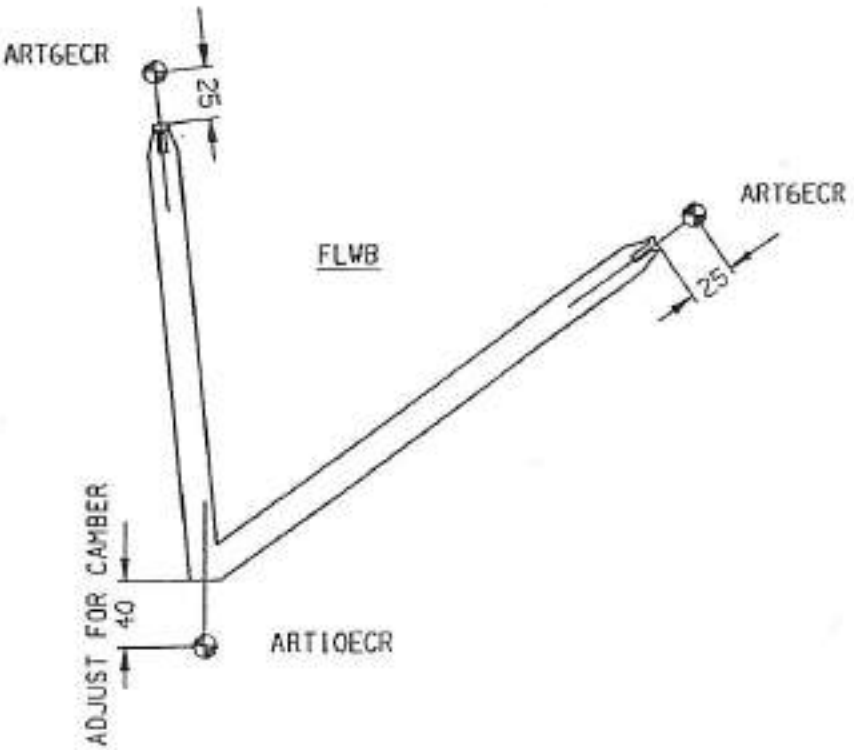
GEARBOX RATIOS	1st	2nd	3rd	4th	5th

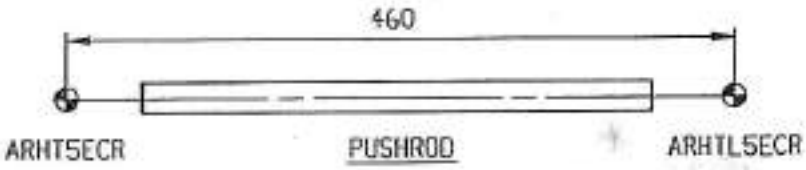
CWP 13:36	DIFF HEWLAND POWERFLOW.

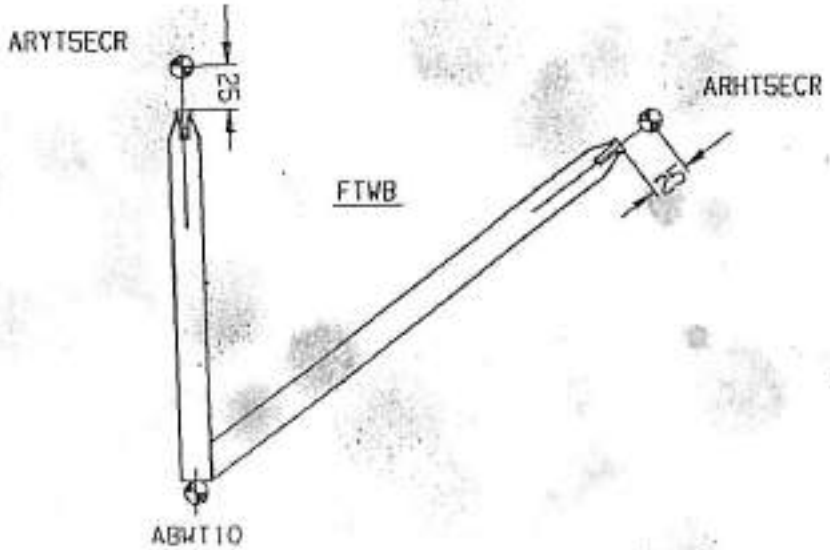
NOTES

1 bar = 14.5 PSI

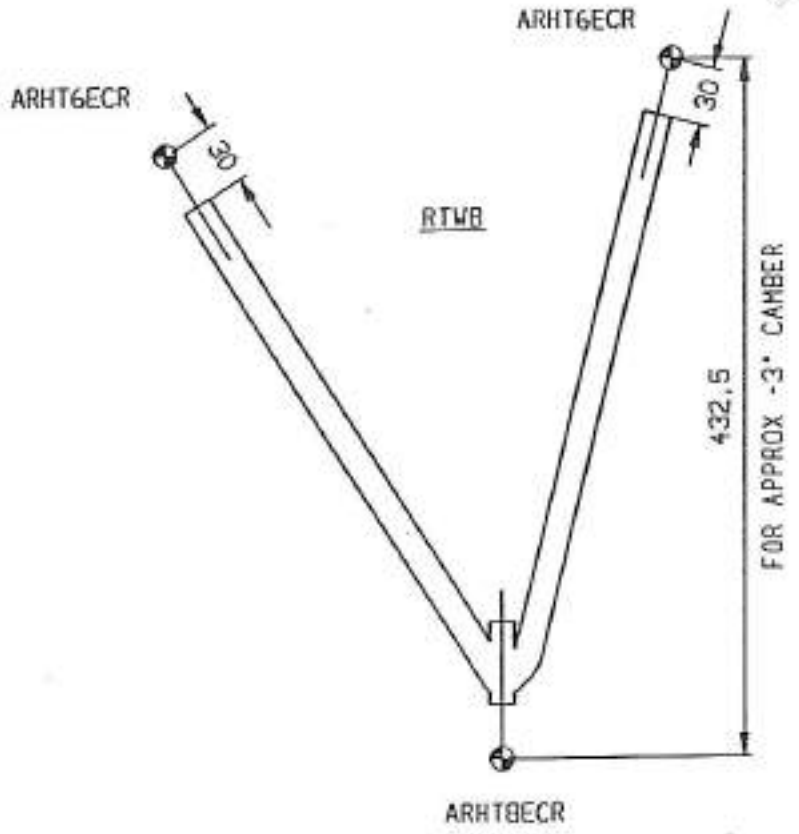
903 FRONT SUSPENSION SETTINGS

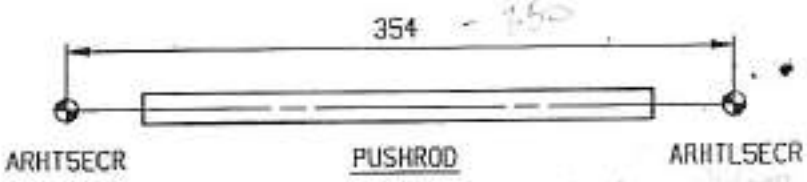


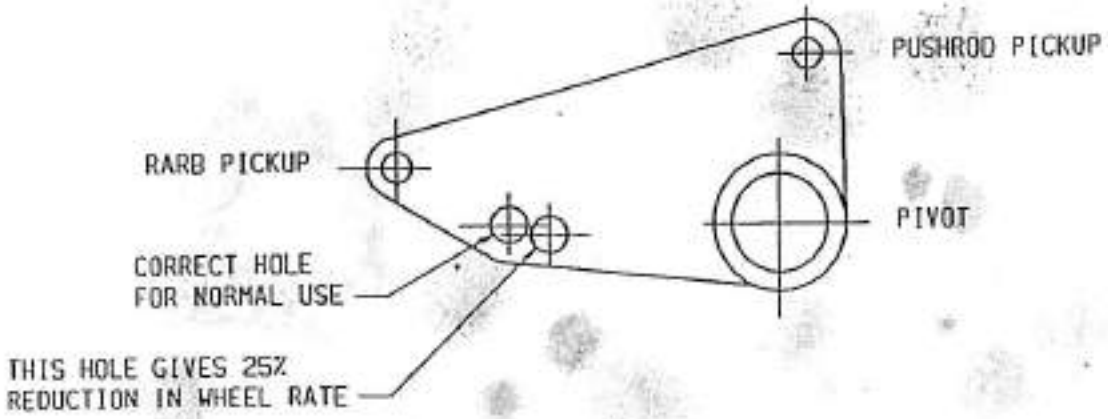




903 REAR SUSPENSION SETTINGS



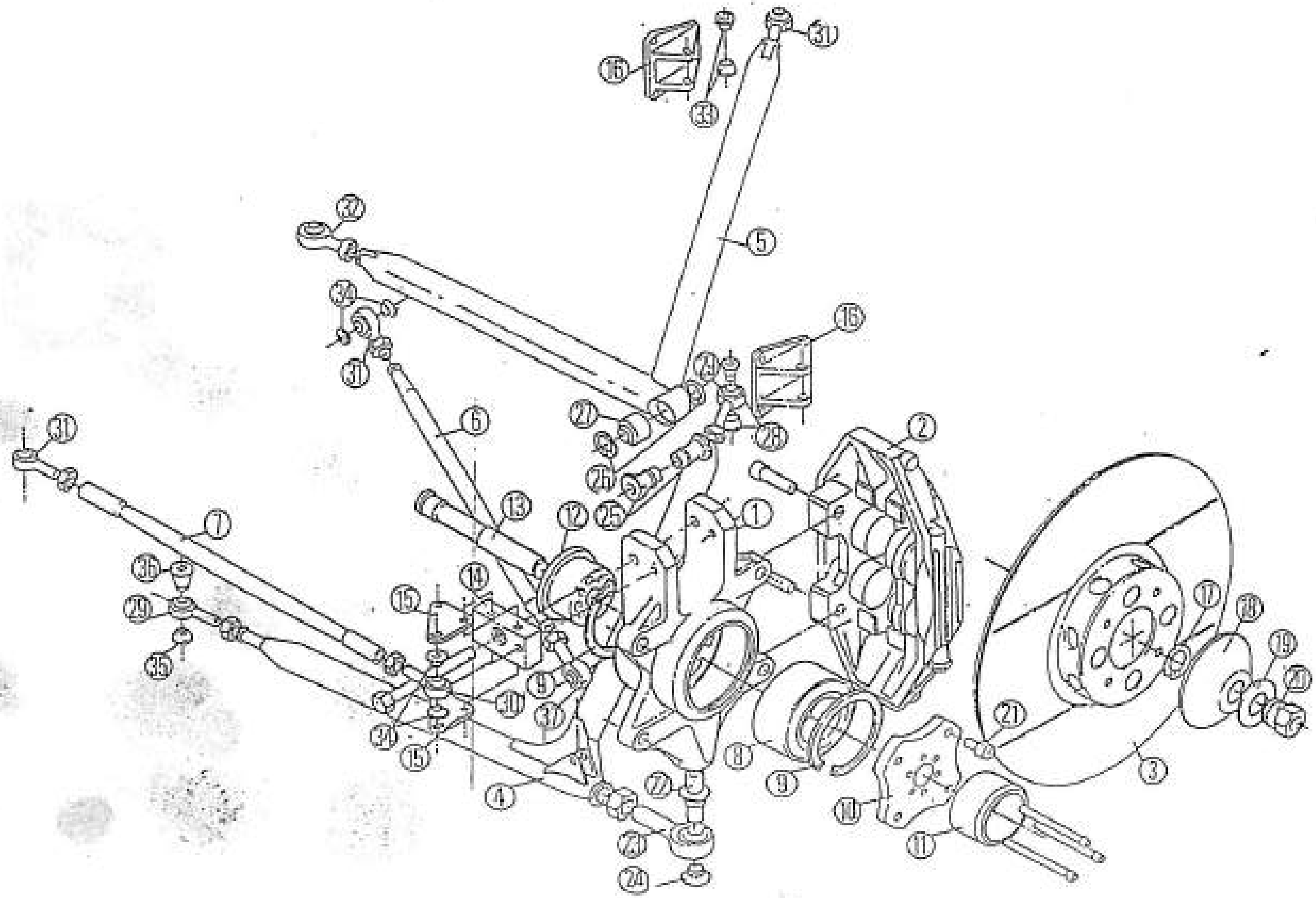




BILSTEIN SHOCK ABSORBER TYPE 260/90
OPEN LENGTH APPROX 279mm FITTED LENGTH 248mm

REYNARD 903 SET-UP CALIBRATION

Setting - Adjustment device	Adjustment-Change	Change-Adjustment
Front Ride Height - Pushrod	1 turn - 5.4mm	2mm - 3/8 turn
Rear Ride Height - Pushrod	1 turn - 5.8mm	2mm - 3/8 turn
Front Toe - Tractrod	1 turn - 4.2mm/1.44°	1mm (0.35°) - 1/4 turn
Rear Toe - Toe Link	1 turn - 4.6mm	1mm - 1/5 turn
Front Camber - Lower Rod End	1 turn - 0.35°	1/4° - 3/4 turn
Rear Camber - Cambernut	1 turn - 0.42°	1/4° - 1/2 turn



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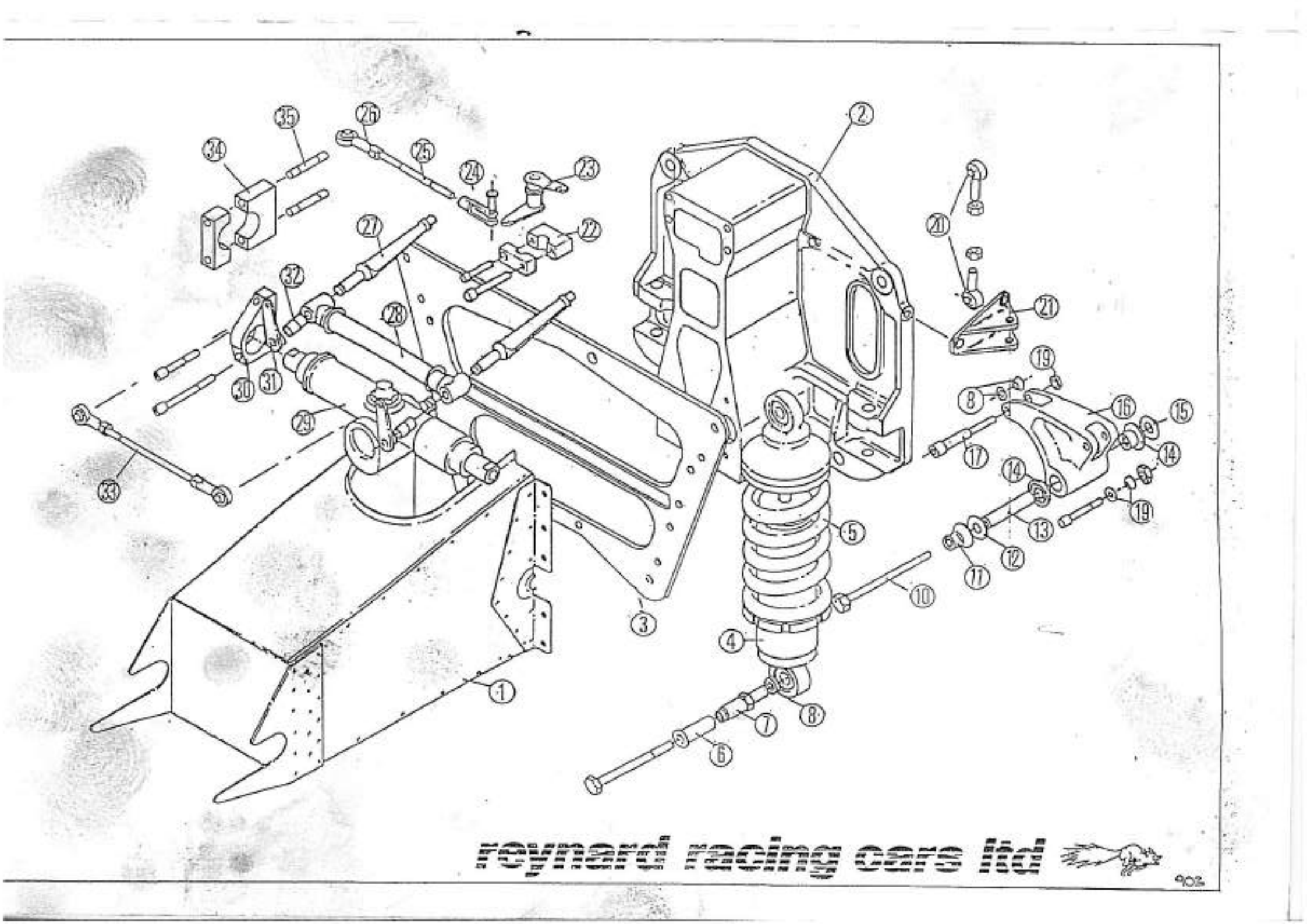
REYNARD 903
EXPLODED DRAWING PARTS LIST
FRONT SUSPENSION/UPRIGHT ASSEMBLY

1	- CEC 0001	Front Upright
2	- PBC 013/14	Front Caliper LH/RH
3	- CBC 0119	Front Brake Disc 11"
4	- CEF 8002/3	Front Lower Wishbone LH/RH
5	- CEF 8001	Front Top Wishbone
6	- HDF 8003	Front Pushrod
7	- CEH 0001	Trackrod
8	- PTW 004	Wheel Bearing - 633007C
9	- BBC 0045	Wheel Bearing Circlip
10	- CDC 0002	Wheel Flange
11	- SCC 0001	Wheel Spigot
12	- BBC 0043	Wheel Flange Retainer
13	- DDC 0012	Wheel Stud
14	- CBH 0015	Steering Arm Block
15	- CBH 0016	Steering Arm Plate
16	- CCB 0001	Front Wishbone Mounting Bracket
17	- ABC 0006	Wheel Nut Circlip
18	- CCT 0011	Wheel Collar
19	- ABC 0007	Wheel Washer
20	- ABC 0005	Wheel Nut
21	- ABC 0016	Wheel Drive Peg
22	- CEC 0002	Lower Ballpost
2. 23	- PRRT10M	Rod End Joint ART10ECR
24	- CBC 0118	Ballpost Safety Washer
25	- CBC 0051	Spacer FTWB/Upright
26	- PSNAM1308118	Joint Circlip 1308-118
2 27	- PSWT10	Spherical Bearing ABWT10

	28 - CCF 0023	Joint Spacer
4	29 - PRRT6M	Rod End Joint ART6ECR
4	30 - PRRHTL5M	Rod End Joint ARHTL5ECR
6	31 - PRRHT5M	Rod End Joint ARHT5ECR
2	32 - PRRYT5M	Rod End Joint ARYT5ECR
	33 - CCF 0031	FTWB Aft Spacer
	34 - BBH 0367	Bumpsteer Spacers
	35 - CEF 0007	FLWB Forward Lower Spacer
	36 - CEF 0008	FLWB Forward Upper Spacer
	37 - CEF 0010	FTWB Forward Leg Spacer



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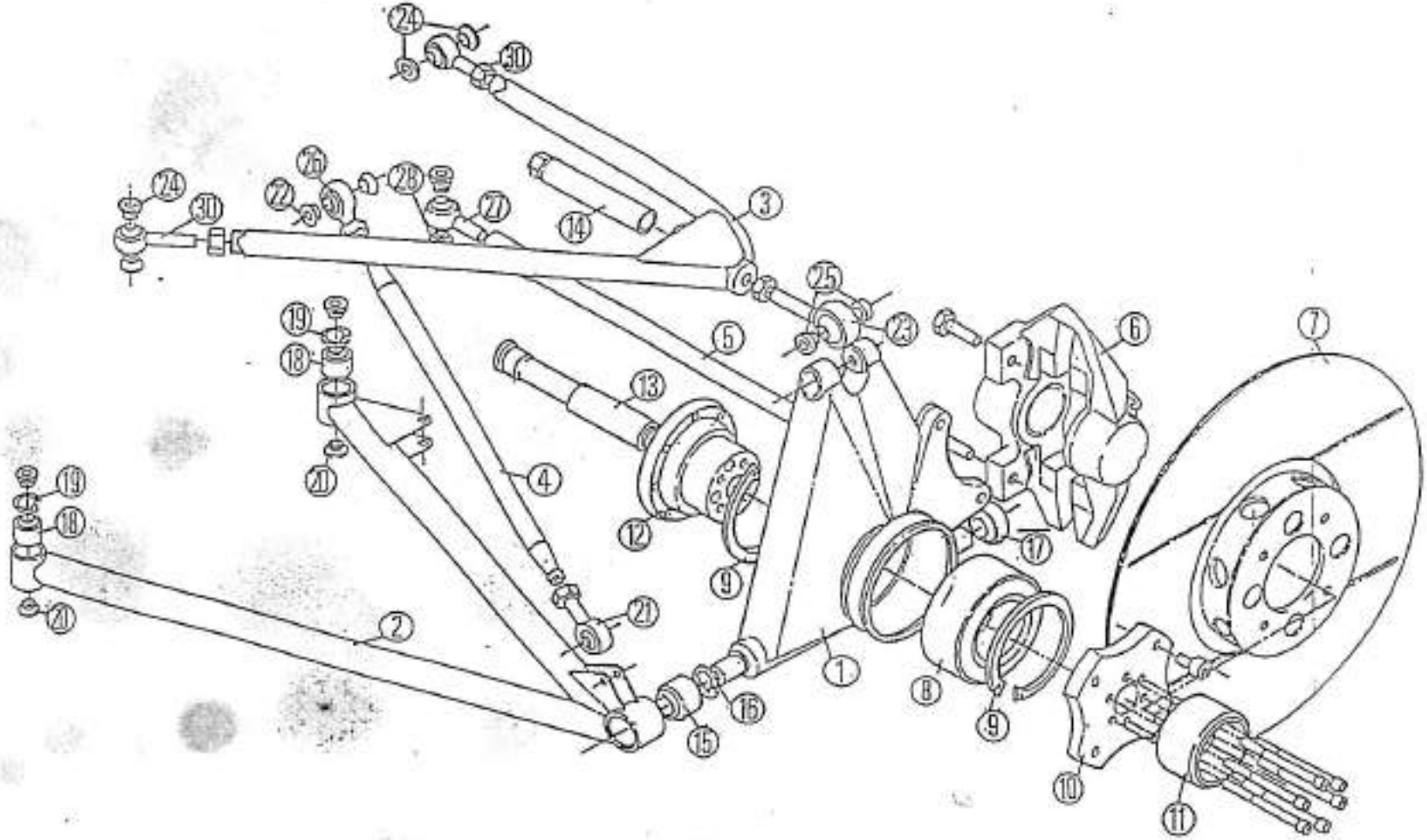
REYNARD 903
EXPLODED DRAWING PARTS LIST
FRONT BULKHEAD/SUSPENSION PICKUP

1	- CEB 8002	Nosebox
2	- DEB 0006	Front Bulkhead
3	- DEF 0011	Front Shearplate
4	- CBK 0024	Front Damper Bilstein 300/80
5	- PGS6375B	6" Spring 375 lb
6	- DEF 0005	Front Damper Mounting Spacer
7	- DEF 0007	Front Lower Damper Stud
8	- BBK 0051	Damper Top Hat Spacer
9	-	
10	- DEF 0002	Bellcrank Pivot Bolt
11	- DEF 0004	Front Bellcrank Spacer
12	- PTS 2035	Nadella Shim CP2035
13	- DEF 0003	Front Bellcrank Pivot Shaft
14	- PTN 720	Nadella Bearing RAX-720
15	- DEF 0001	Nadella Top Hat Bush
16	- CEF 0004/5	Bellcrank LH/RH
17	- CEF 0009	Front Damper Bolt
18	-	
19	- BBH 0367	Bumpsteer Spacer
4 20	- PRRHT5M/F	Rod End Joint
21	- DEF 0008	FTWB Pick Up
22	- DDK 0004	FARB Bellcrank Block
23	- DDK 8005	FARB Bellcrank
24	- BBJ 0005	Clutch Clevis
25	- DDK 0009	FARB Adjuster Rod
3 26	- PRFR3F	Rod End Joint - AFR3

REYNARD 893
EXPLODED DRG PARTS LIST
REAR SUSPENSION/UPRIGHT ASSEMBLY

	1 - CBE 8015/16	Rear Upright
	2 - CDG 8008/7	RLWB LH/RH
	3 - CDG 8005	RTWB
	4 - CCF 8016	Pushrod
	5 - CDG 0006	Rear Toe Link
	6 - PBC015	LH/RH Rear Caliper
	7 - CBC 0112	Rear 10.5" Brake Disc
	8 - BBC 0044	Wheel Bearing
	9 - BBC 0045	Wheel Bearing Circlip
	10 - BBC 0040	Wheel Flange
	11 - DDC 0031	Wheel Spigot
	12 - BBE 0046	CV Joint Ball
	13 - BBC 0042	Wheel Stud
	14 - DCG 0006	Camber Nut
2	15 - PSNT 10	Spherical Bearing Joint ABWT10
	16 - PSNAM 1308118	Joint Circlip 1308118
2	17 - PRRT 10M	Rod End Joint ART10ECR
2.	18 - PSNT 8	Spherical Bearing Joint ABWT8
	19 - PSNAM 1308100	Joint Circlip 1308100
	20 - REYC001	RLWB Joint Spacer
2.	21 - PRRHT 5M	Rod End Joint ARHT5ECR
	22 - BBH 0367	Bumpsteer Spacers
2.	23 - PRRHT8M	Rod End Joint ARHT8ECR
	24 - CDG 0009	Spacer RTWB/Inboard Bkt
	25 - BBK 0051	Damper Top Hat Spacer
2	26 - PRRHTL 5M	Rod End Joint ARHTL5ECR
2	27 - PRRHTL7M	Rod End Joint ARHTL7ECR.
	28 - CBG 0055	RLWB Toe Link Spacer
	29 - ABC 0016	Wheel Drive Peg
4	30 - PRRHT 6M	Rod End Joint ARHT6ECR



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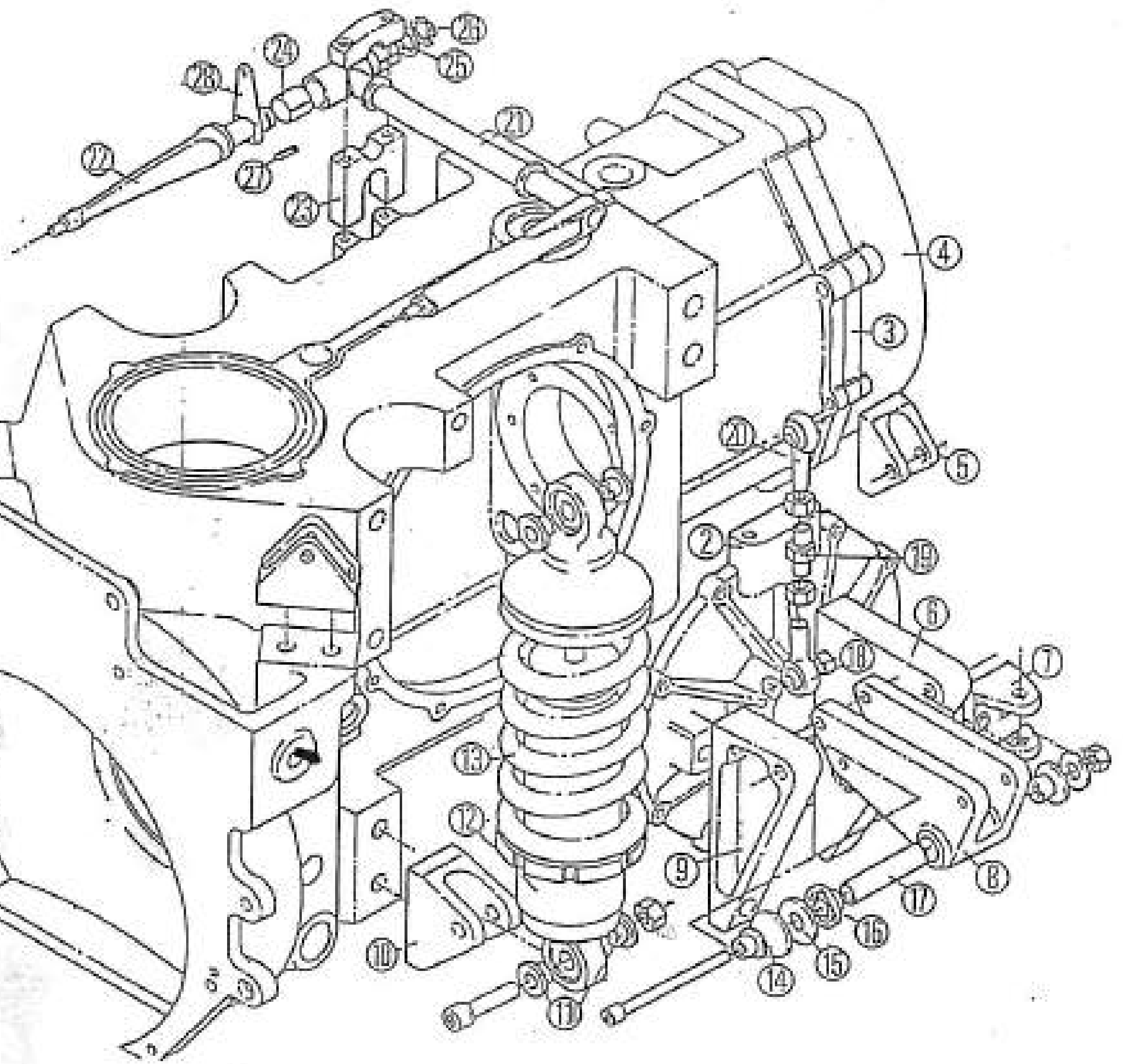
REYNARD 893
EXPLODED DRG PARTS LIST
REAR SUSPENSION/UPRIGHT ASSEMBLY

1 - CBE 8015/16	Rear Upright
2 - CDG 8008/7	RLWB LH/RH
3 - CDG 8005	RTWB
4 - CCF 8016	Pushrod
5 - CDG 0006	Rear Toe Link
6 - PBC015	LH/RH Rear Caliper
7 - CBC 0112	Rear 10.5" Brake Disc
8 - BBC 0044	Wheel Bearing
9 - BBC 0045	Wheel Bearing Circlip
10 - BBC 0040	Wheel Flange
11 - DDC 0031	Wheel Spigot
12 - BBE 0046	CV Joint Ball
13 - BBC 0042	Wheel Stud
14 - DCG 0006	Camber Nut
15 - PSWT 10	Spherical Bearing Joint ABWT10
16 - PSNAM 1308118	Joint Circlip 1308118
17 - PRRT 10M	Rod End Joint ART10ECR
18 - PSWT 8	Spherical Bearing Joint ABWT8
19 - PSNAM 1308100	Joint Circlip 1308100
20 - [illegible]	RLWB Joint Spacer
21 - PRRHT 5M	Rod End Joint ARHT5ECR
22 - BBH 0367	Bumpsteer Spacers
23 - PRRHT8M	Rod End Joint ARHT8ECR
24 - CDG 0009	Spacer RTWB/Inboard Bkt
25 - BBK 0051	Damper Top Hat Spacer
26 - PRRHTL 5M	Rod End Joint ARHTL5ECR
27 - PRRHTL6M	Rod End Joint
28 - CBG 0055	RLWB Toe Link Spacer
29 - ABC 0016	Wheel Drive Peg
30 - PRRHT 6M	Rod End Joint ARHT6ECR



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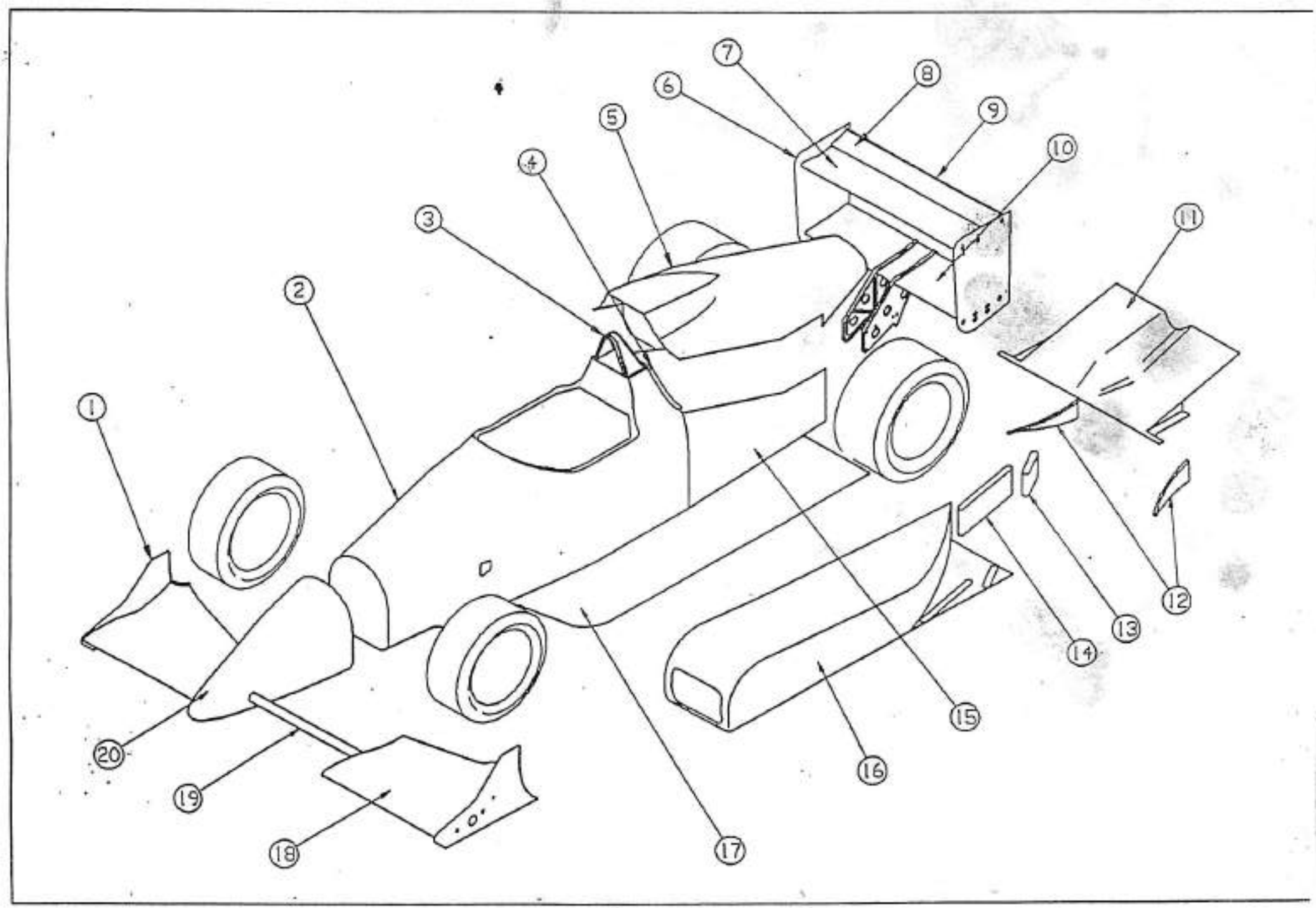
REYNARD 893
EXPLODED DRG PARTS LIST
GEARBOX/REAR SUSPENSION PICK UP ASSEMBLY

1 - CDQ 0001	Mag Gearbox
2 - CDQ 0002	Sideplate
3 - CDQ 0003	Bearing Carrier
4 - CDQ 0004	End Cover
5 - CDG 0010	RTWB Bracket
6 - CDG 002/1	LH/RH AFT Suspension PLate
7 - CDG 0013	RLWB BRacket
8 - CBG 0133	Bellcrank
9 - CDG 003/4	LH/RH FWD Triangular Plate
10 - CBG 0135	Damper BRacket
11 - BBK 0051	Damper Top Hat Spacer
12 - CBK 0059	Rear Damper - Bilstein 260/90
13 - PGX64233	Rear Springs 6" 425 lb.
14 - CBG 0140	Bellcrank Spacer
15 - PTS 1528	Thrust Washer
16 - PTN 715	Carlte Nadella Bearing
17 - CBG 0141	Bellcrank Pivot Shaft
18 - BBH 0367	Bumpsteer Spacer
19 - BBK 0128	Droplink Adaptor
20 - PRRT 5M	Rod End Joint
21 - CDK 8001	RARB
22 - DCK 0007	ARB Twisting Blade
23 - CDK 0002	RARB Mounting BLocks
24 - PTU 1014	DU Bushes 10 DU14
25 - CCK 0019	ARB Blade Washer
26 - CBK 0060	RARB Twisting Blade Circlip
27 - PG 0063	Spring Pin
28 - CBK 0023	Adjuster Lever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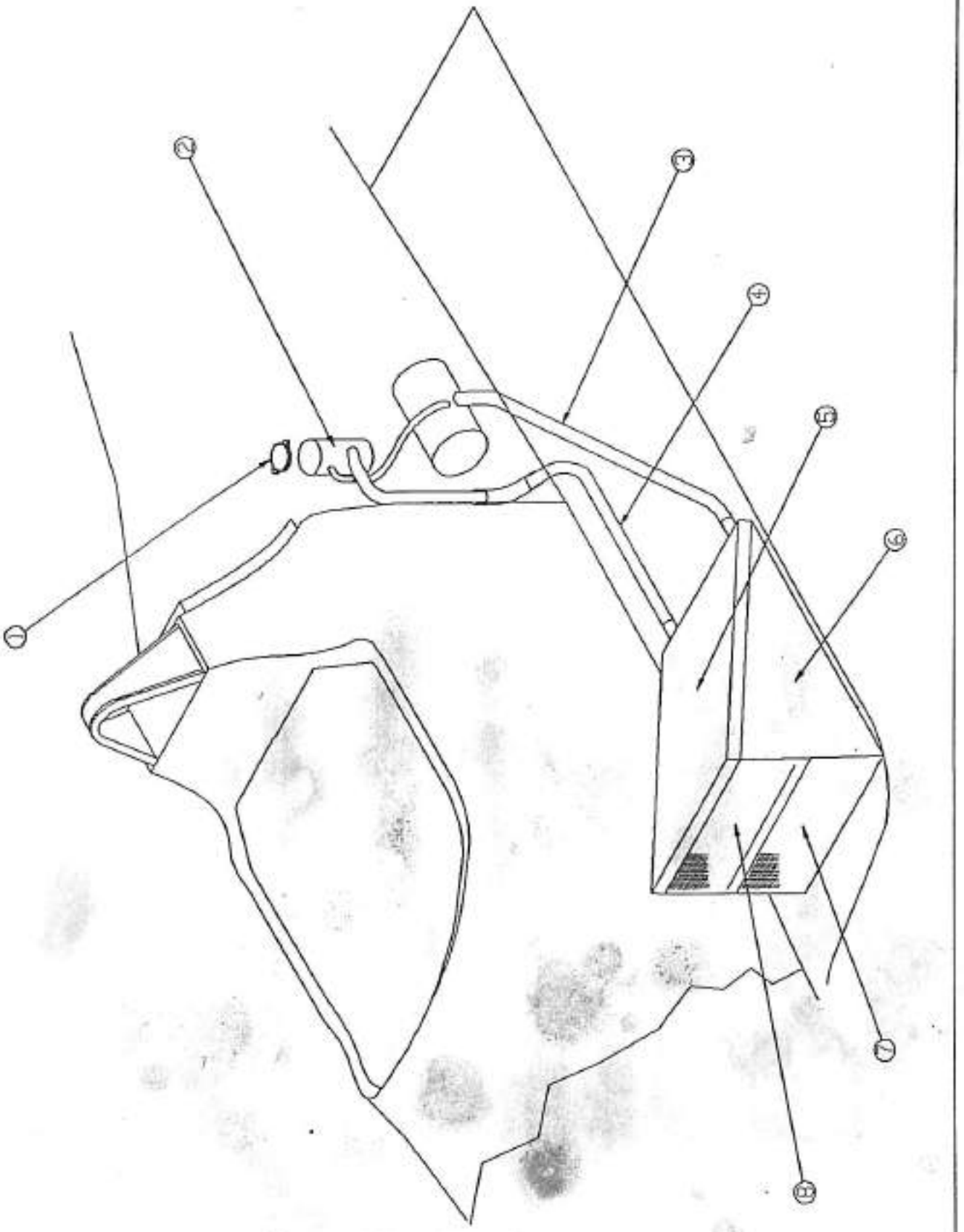
REYNARD 903
EXPLODED DRAWING PARTS LIST
BODYWORK

1	- CER 0011/12	Front wing endplate
2	- CEB 0001	F3 Monocoque
3	- CEB 8016	F3 Rollhoop
4	- CES 0023	Enginecover Return
5	- CES 0002	Enginecover
6	- CER 0009/10	Rear Wing Endplate LH/RH
7	- CDR 0015	Short Chord Mainplane
8	- CDR 0016	Short Chord Flap
9	- CER 0015	Gurney Flap 930mm
10	- CER 8016	Rear Wing Crosstube Assembly
11	- CDS 0010	Rear Floor
12	- CCS 0035/36	Large Curved Splitter RH/LH
13	- CES 0025/26	Lateral Protection Structure(Rear)
14	- CES 0027/28	Lateral Protection Structure(Front)
15	- CES 0036/37	Sidepanel RH/LH
16	- CES 0005/6	Sidepod RH/LH
17	- CES 0016	Front Floor Complete With Brackets
18	- CER 8005/6	Front Wing LH/RH
19	- CBR 0271	Front Wing Nosepole
20	- CES 0007	Nosecone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REYNARD 903
EXPLODED DRAWING PARTS LIST
COOLING SYSTEM

1 - PG 0057	Pressure Cap 13 psi
2 - CBP 8035	VW Swirlpot
3 - CEP 0007	VW Waterpipe Radiator-Engine
4 - CDP 0003	Alfa Waterpipe
5 - CDP 0018	Extended Single Pass Radiator
6 - CES 0008	Diffuser Duct/Radiator Tray
7 - CEP 0002	Radiator Grill
8 - CEP 0001	Radiator Grill

REYNARD 903
BOLT LIST

APPLICATION	SIZE	TYPE	LENGTH	SHANK	QTY
ROLLOVER BAR - TUB	3/8"UNF	CAP	1 1/4"	1/2"	4
WISHBONE BKTS - TUB	6 **	CAP	55 **	STD	10
WISHBONE BKTS - BULKHEAD	6 **	CAP	25 **	10 **	2
FRONT CASTING - TUB	8 **	CAP	50 **	35 **	6
FRONT CASTING DAMPER STUD	5/16" UNF	CAP	2 1/2"	STD	2
FRONT CASTING STUDS	8 **	-	9-6-15	-	2
FRONT CASTING STUDS	8 **	-	10-16-15	-	4
STEERING RACK - PLATE	6 **	CAP	18	10	2
STEERING RACK - PLATE	6 **	CAP	52	40	2
STEERING COLUMN BLOCK	6 **	CAP	15 **	STD	2
STEERING COLUMN - RACK	5/16" UNF	HEX	1 3/16"	13/16"	1
STEERING RACK CLEVIS	5/16" UNF	HEX	1 3/8"	3/4"	2
ANTI ROLL BAR ADJUSTER BLOCK	5 **	CAP	50 **	STD	2
PEDALS - PEDAL BKT	1/4" UNF	CAP	1 3/4"	STD	3
CLUTCH PEDAL - BALLPOST	5/16" UNF	CAP	1"	STD	1
CLUTCH CYLINDER - TUB	5/16" UNF	HEX	3 1/8"	2 1/2"	2
CLUTCH BELLCRANK PIVOT	1/4" UNF	HEX	1 3/4"	1 3/8"	1
CLUTCH CLEVIS - BELLCRANK	1/4" UNF	HEX	7/8"	1/2"	1
FRONT BELLCRANK BOLT	3/8" UNF	———	SPECIAL	REYNARD	———
FRONT DAMPER LOWER	3/8" UNF	CAP	3"	2 3/8"	2
SHOULDER STRAP BKTS	1/4" UNF	DOME	1 1/8"	3/4"	8
SEATBELT SHOULDER STRAPS	1/4" UNF	HEX	2 5/8"	2 1/4"	4
SEATBELT LAP STRAPS	1/4" UNF	C.S.	1"	STD	6
SEATBELT LAP STRAPS	1/4" UNF	C.S.	1 1/4"	STD	2
GEARCHANGE MTG - DASH	2 BA	CAP	1 1/2"	STD	3
GEARCHANGE MTG - LINK JOINT	5/16" UNF	CAP	1"	1/2"	1
GEARCHANGE LEVER - LINK JOINT	2 BA	CAP	1/2"	STD	1
GEARCHANGE PIVOT	2 BA	CAP	1 1/4"	13/16"	1
A.V. MOUNT - DASH	2 BA	CAP	1 1/2"	STD	2

APPLICATION	SIZE	TYPE	LENGTH	SHANK	QTY
NOSE BOX	2 BA	DOME	3/4"	STD	10
SIDE POD MOUNTS	5 **	DOME	15 **	STD	8
FTWB FRONT	5/16" UNF	HEX	1 7/8"	1 1/4"	2
FTWB REAR	5/16" UNF	HEX	1 7/8"	1 1/4"	2
FLWB FRONT	3/8" UNF	HEX	2 3/4"	2 1/8"	2
FLWB REAR	5/16" UNF	HEX	1 7/8"	1 1/4"	2
HUB BOLTS	8 **	CAP	70 **	40 **	6
FRONT UPRIGHT TOP	3/8" UNF	HEX	4 5/8"	3 3/4"	2
FRONT UPRIGHT BOTTOM	3/8" UNF	CAP	2 7/16"	1 5/8"	2
STEERING BLOCK - UPRIGHT	1/4" UNF	HEX	1 3/4"	1 5/8"	2
STEERING BLOCK - STEERING PLATES	1/4" UNF	HEX	2"	1 5/8"	4
TRACKROD - STEERING PLATES	5/16" UNF	HEX	2 1/8"	1 1/2"	2
BRAKE CALIPER	7/16" UNF	CAP	1 1/2"	3/4"	4
PUSHROD - BELLCRANK	5/16" UNF	HEX	1 7/8"	1 1/4"	2
FUELTANK HATCHCOVER	6 **	CAP	20 **	STD	20
FUELTANK HATCHCOVER	6 **	C.S.	15 **	STD"	4
ENGINE A-FRAMES	3/8" UNF	CAP	2 1/2"	STD	4
ENGINE A-FRAMES(MUGEN)	3/8" UNF	HEX	4"	STD	1
ENGINE A-FRAMES - BELLHOUSING	10 **	CAP	43 **	25 **	1
ENGINE A-FRAMES - BELLHOUSING	10 **	CAP	38 **	18 **	1
PUSHROD - WISHBONE	5/16" UNF	HEX	1 1/8"	5/8"	2
REAR TOP WISHBONE BKT	10 **	CAP	30 **	STD	7
REAR TOP WISHBONE BKT	10 **	CAP	20 **	STD	1
REAR BELLCRANK MOUNTS	10 **	CAP	30 **	STD	6
REAR BELLCRANK MOUNTS	12 **	CAP	25 **	STD	2
LOWER DAMPER MOUNTS	10 **	CAP	30 **	STD	4
LOWER DAMPER - MOUNT	3/8" UNF	HEX	1 3/4"	1 3/16"	2
TOP DAMPER - MOUNT	3/8" UNF	HEX	2"	1 3/8"	2
REAR BELLCRANK PIVOT	3/8" UNF	HEX	5 3/4"	4 3/4"	2

APPLICATION	SIZE	TYPE	LENGTH	SHANK	QTY
REAR BELLCRANK - PUSHROD	5/16" UNF	HEX	2"	1 3/8"	2
REAR BELLCRANK - DROPLINK	5/16" UNF	HEX	2"	1 3/8"	2
RLWB INNER	3/8" UNF	HEX	2 1/4"	1 5/8"	4
RLWB - PUSHROD	5/16" UNF	HEX	1 1/16"	1/2"	2
RTWB FRONT	3/8" UNF	HEX	1 3/4"	1 1/8"	2
RTWB REAR	3/8" UNF	HEX	1 3/4"	1 1/8"	2
REAR TOE LINK INNER	5/16" UNF	HEX	1 3/8"	3/4"	2
SWIRLPOT - GEARBOX	6 **	CAP	15 **	STD	4
REAR UPRIGHT TOP	3/8" UNF	HEX	2"	1 3/8"	2
REAR UPRIGHT LOWER	5/16" UNF	CAP	1"	STD	4
REAR HUB BOLTS	8 **	CAP	70 **	40 **	12
BRAKE CALIPER	7/16" UNF	CAP	1 1/4"	1/2"	4
FRONT SKID	6 **	C.S.	27 **	STD	3
FLOOR - TUB	10/32	C.S.	3/4"	STD	16
FLOOR - TUB	10/32	C.S.	1/2"	STD	3
REAR UNDERWING - FLOOR	10/32	C.S.	1/2"	STD	6
SIDEPOD STAY - TUB	1/4" UNF	HEX	2 1/8"	1 5/8"	4
SIDEPOD STAY - FLOOR	1/4" UNF	HEX	5/16"	1/2"	4
REAR WING CROSSTUBE	8 **	HEX	138 **	120 **	2

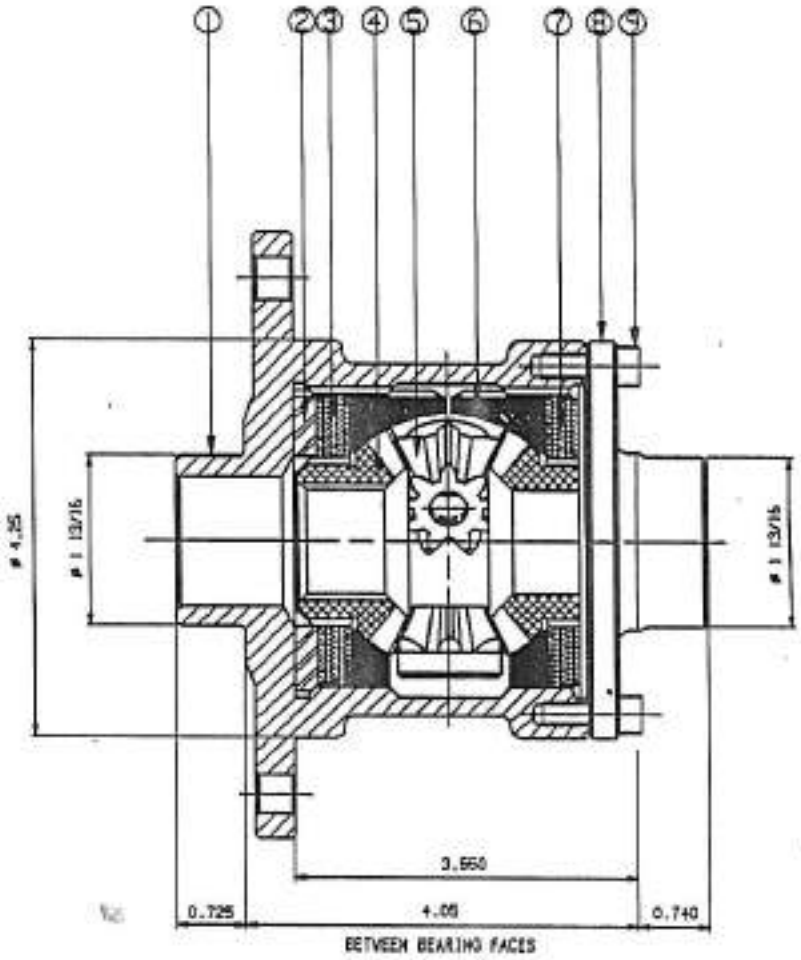
APPLICATION	SIZE	TYPE	LENGTH	SHANK	QTY
VOLKSWAGEN					
BELLHOUSING - ENGINE	12 **	CAP	35 **	10 **	2
BELLHOUSING - ENGINE	12 **	CAP	40 **	15 **	2
BELLHOUSING - ENGINE	12 x 1.75	K NUT	-	-	1
TOP MOUNT - ENGINE	8 **	CAP	100 **	STD	4
LOWER MOUNT - ENGINE	8 **	HEX	80 **	STD	4
TOP MOUNT - ENGINE PLATE	5/16" UNF	HEX	1 1/2"	STD	2
TOP MOUNT - TUB	8 **	CAP	70 **	STD	2
MUGEN					
ENGINE - ADAPTOR	12 x 1.5	CAP	35 **	10 **	3
ENGINE - ADAPTOR	12 **	CAP	80 **	63 **	1
ENGINE - ADAPTOR	12 **	CAP	70 **	30 **	1
GEARBOX - ADAPTOR	12 **	CAP	55 **	31 **	2
GEARBOX - ADAPTOR	10 **	CAP	48 **	25 **	1
GEARBOX - ADAPTOR	10 **	CAP	62 **	41 **	1
GEARBOX - ADAPTOR	8 **	CAP	40 **	22 **	2
LOWER MOUNT - PLATE	8 **	HEX	23 **	10 **	4
LOWER MOUNT - ENGINE	10 x 1.25	HEX	80 **	STD	4
LOWER MOUNT - TUB	3/8" UNF	CAP	3"	STD	2
RH TOP MOUNT - ENGINE	10 x 1.25	CAP	35 **	8 **	2
LH TOP MOUNT - ENGINE	8 **	CAP	32 **	15 **	2
LH TOP MOUNT - TUB	8 **	CAP	80 **	STD	1

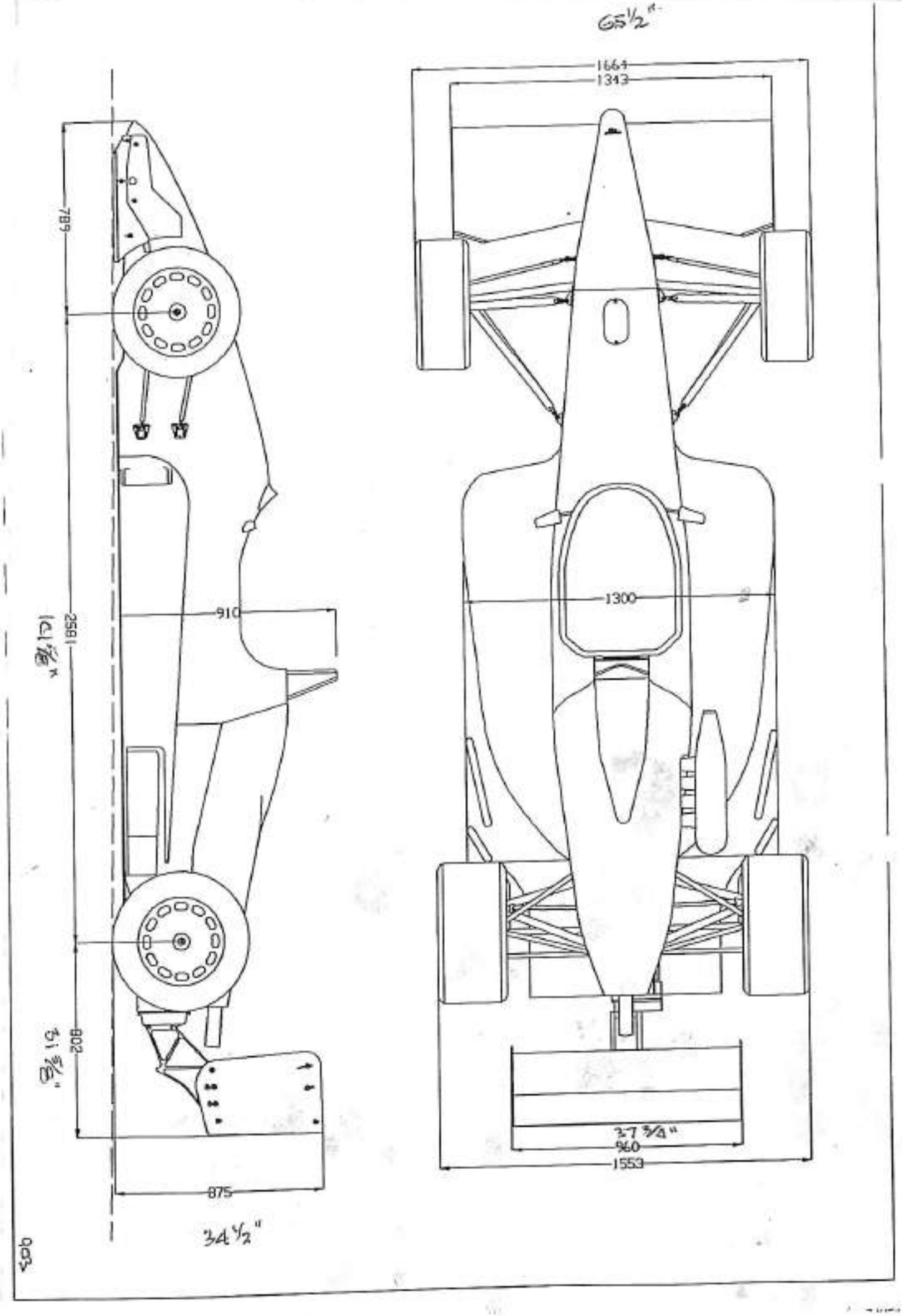
No.	DESCRIPTION	QTY	PART No.
1	DIFF CASE	1	FTC 213
2	SPACER	1	FTC 213 3
3	CLUTCH PLATE	4	FTC 213 10
4	SIDE BEVEL GEAR	2	FTC 213 6 OR HCC213-6
5	PLANET BEVEL GEAR	3	FTC 213 5
6	RING - SIDE GEAR	2	FTC 213 7
7	CORE PLATE	6	FTC 213 8
8	END PLATE	1	FTC 214
9	CAP SCREW	8	DGC 213 12

INITIAL TORQUE 10/15 Ft lb

LAYOUT OF DIFFERENTIAL

(Reproduced with permission of Hewland Engineering Ltd.)




65½"
1664
1343
789
910
1852
1300
208
875
34½"
37 3/4"
960
1553

Reynard Racing Cars

Recommended Tightening Torques.

ISO Metric	M6	M8	M10	M12
Torque ft lbs	8.6	19.5	38.1	78.1
Torque N m	11.6	26.5	51.7	97.3

U.N.F	1/4"	5/16"	3/8"	7/16"	1/2"
Torque ft lbs	8.5	18.0	37.0	52.0	80.0
Torque N m	11.5	24.0	50.0	70.0	108.0

U.N.C	1/4"	5/16"	3/8"	7/16"	1/2"
Torque ft lbs	8.0	15.0	33.0	49.0	68.0
Torque N m	11.8	20.0	44.5	66.0	92.0

Front hub, M8 Cap screws, 26 Ft lbs

Wheel Nuts, 3/4" U.N.F, 130/140 Ft lbs