PART B – Transmission and Rear Axle

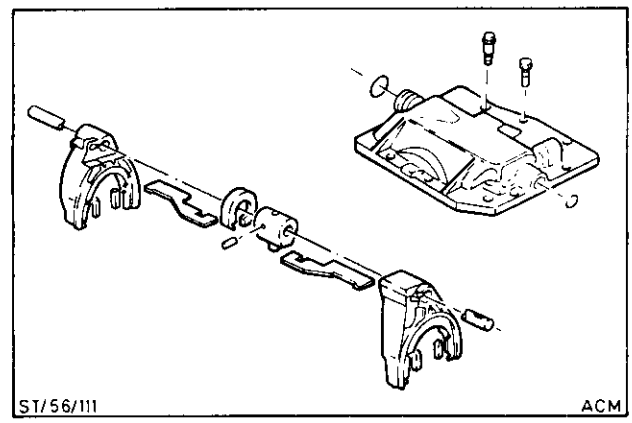
1. Transmission

1.3 Important Notes on Disassembly and Assembly (cont'd.)

- To fit the 5th gear to the main shaft, the gear should be heated up to approx. 600° C using a hot air blower.

- When disassembling the gear shift cover make sure to mark the shift forks and to set the shift segments and the shift lever in neutral position.

  Further detailed instructions on "dismantling and assembling of the gear shift cover" are contained in the Sierra RS Cosworth Workshop Manual.

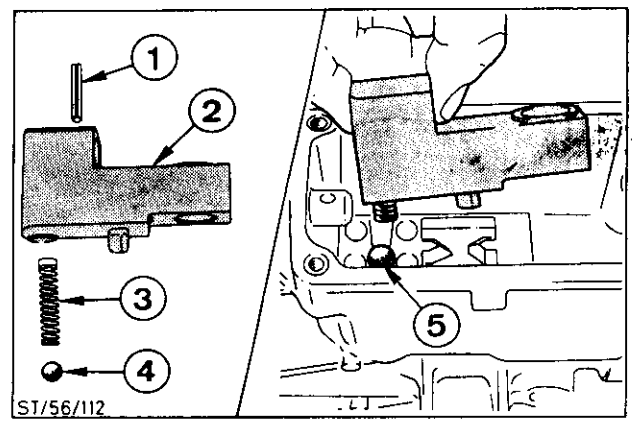


Gear shift cover – disassembled

- Before fitting the transmission extension, the cranked selector lever with detend ball and spring have to be fitted.

  1 = Roll pin
  2 = Cranked selector lever
  3 = Detend spring
  4 = Detend ball
  5 = In neutral position install detend ball into detend plate.

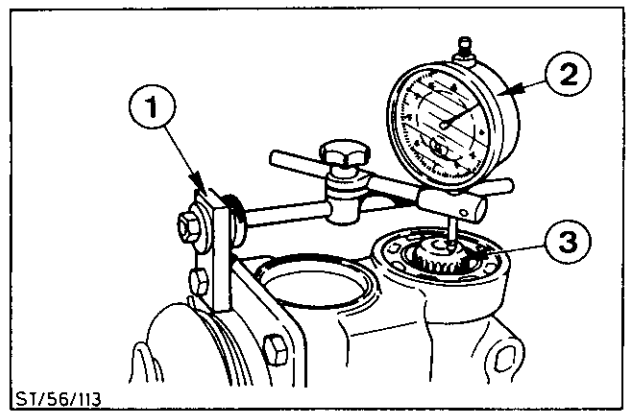
  Secure cranked selector lever by the roll pin after fitting the transmission extension.



Install cranked shift rod

- Before fitting the gear shift cover, measure end play of the main shaft as follows

  – Install dial indicator gauge (see illustration), turn the input shaft and watch deflection of pointer on gauge. Set gauge to zero.
  – Using a suitable piece of wood force input shaft upwards and note dial gauge reading.
  – Dial reading = shim pack required
  Specified end float: 0±0,5 mm
  – Fit required shim pack between bearing outer ring and input shaft bearing retainer. (For selection of shims see Technical Data).



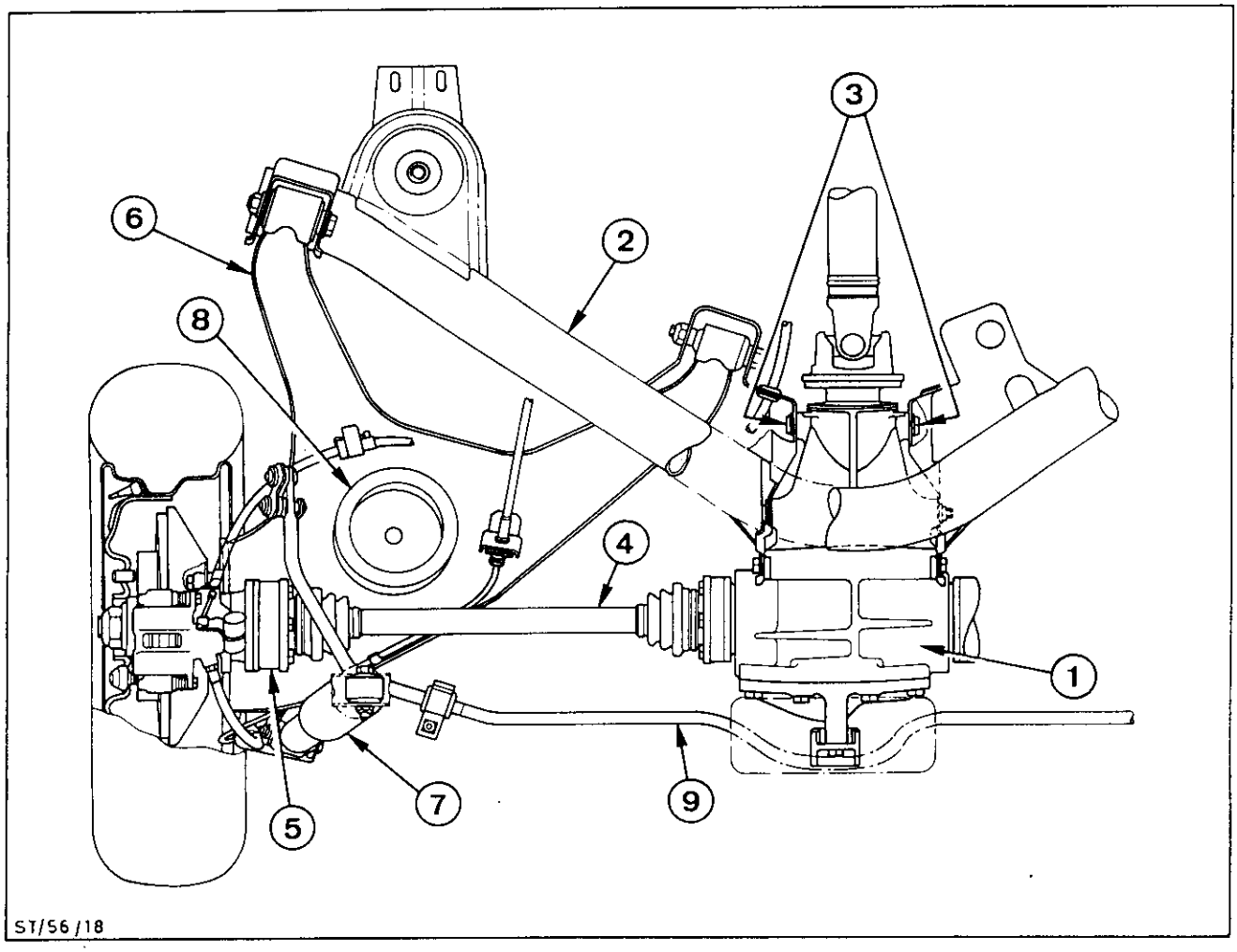
Check end float of the main shaft

1 = Bracket – Indicator gauge
2 = Indicator gauge
3 = Main shaft

PART B – Transmission and Rear Axle

2. Rear Axle and Suspension

- The Sierra RS Cosworth is fitted with the independent semi-trailing arm rear axle, coil springs and double-acting telescopic shock absorbers as known from the Sierra vehicles.
- The rear axle incorporates a viscous-coupling limited-slip differential, which gives full control over wheel-spin and greatly improve traction and roadholding in all driving conditions.
- All components of the Sierra RS Cosworth rear axle which have been modified in comparison to the Sierra are mentioned on the next page.
- **No new special tools are required.**



PART B – Transmission and Rear Axle

2. Rear Axle and Suspension (cont'd.)

The following components have been carried over from Scorpio:

1 = 7,5" rear axle assembly with viscous limited-slip differential.
The ratio, 3.64 : 1, is special to the Sierra RS Cosworth.

2 = Rear axle crossmember

3 = Fastening – rear axle assembly to crossmember.

The following components have been modified in comparison to the Sierra:

4 = Rear axle shafts.

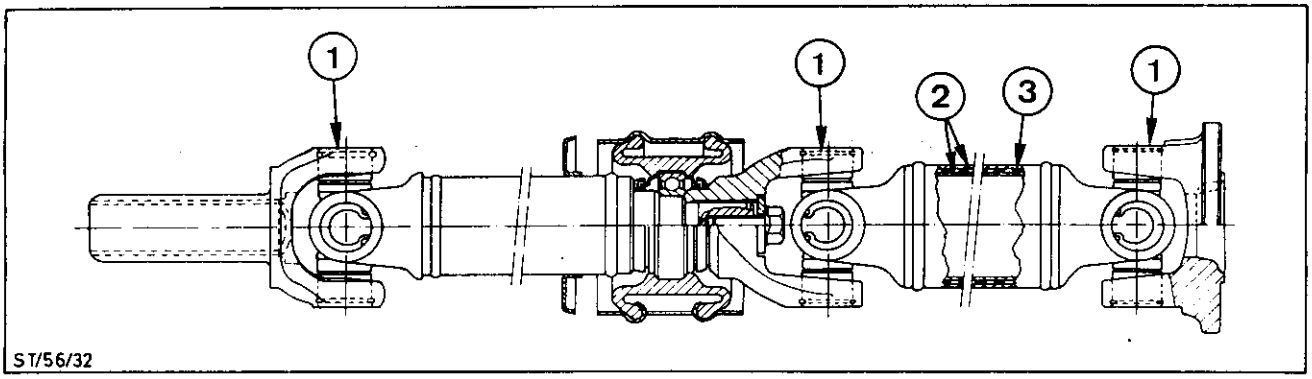
5 = Driveshaft stubs.

6 = Lower suspension arm.

7 = Shock absorbers (as Sierra XR 4 x 4)

8 = Coil springs

9 = Stabiliser assembly (as Sierra XR 4 x 4)



Driveshaft

1 = Heavy-duty universal joints
2 = Doppel tube
3 = Rubber elements

For details see Sierra RS Cosworth Workshop Manual.

PART B – Transmission and Rear Axle

3. Technical Data

Transmission

Ratios

1st Gear	2nd Gear	3rd Gear	4th Gear	5th Gear	Reverse Gear
2.95 : 1	1.94 : 1	1.34 : 1	1 : 1	0.8 : 1	2.76 : 1

Selective Washers – mm (inch)

0.30 (0.012)	0.61 (0.024)	0.79 (0.031)	0.97 (0.038)
0.36 (0.014)	0.64 (0.025)	0.81 (0.032)	0.99 (0.039)
0.41 (0.016)	0.66 (0.026)	0.84 (0.033)	1.02 (0.040)
0.46 (0.018)	0.69 (0.027)	0.86 (0.034)	1.04 (0.041)
0.51 (0.020)	0.71 (0.028)	0.89 (0.035)	1.07 (0.042)
0.56 (0.022)	0.74 (0.029)	0.91 (0.036)	1.09 (0.043)
0.58 (0.023)	0.76 (0.030)	0.94 (0.037)	1.12 (0.044)

End float – countershaft (mm) = 0.025 – 0.127

– mainshaft (mm) = 0 ± 0.05

Oil capacity (Ltrs.) = 2.6

FORD Specification = SQM 2C 9010 A

For detailed Technical Data and Tightening Torques see Sierra RS Cosworth Workshop Manual.

PART B – Transmission and Rear Axle

3. Technical Data (cont'd.)

Rear Axle

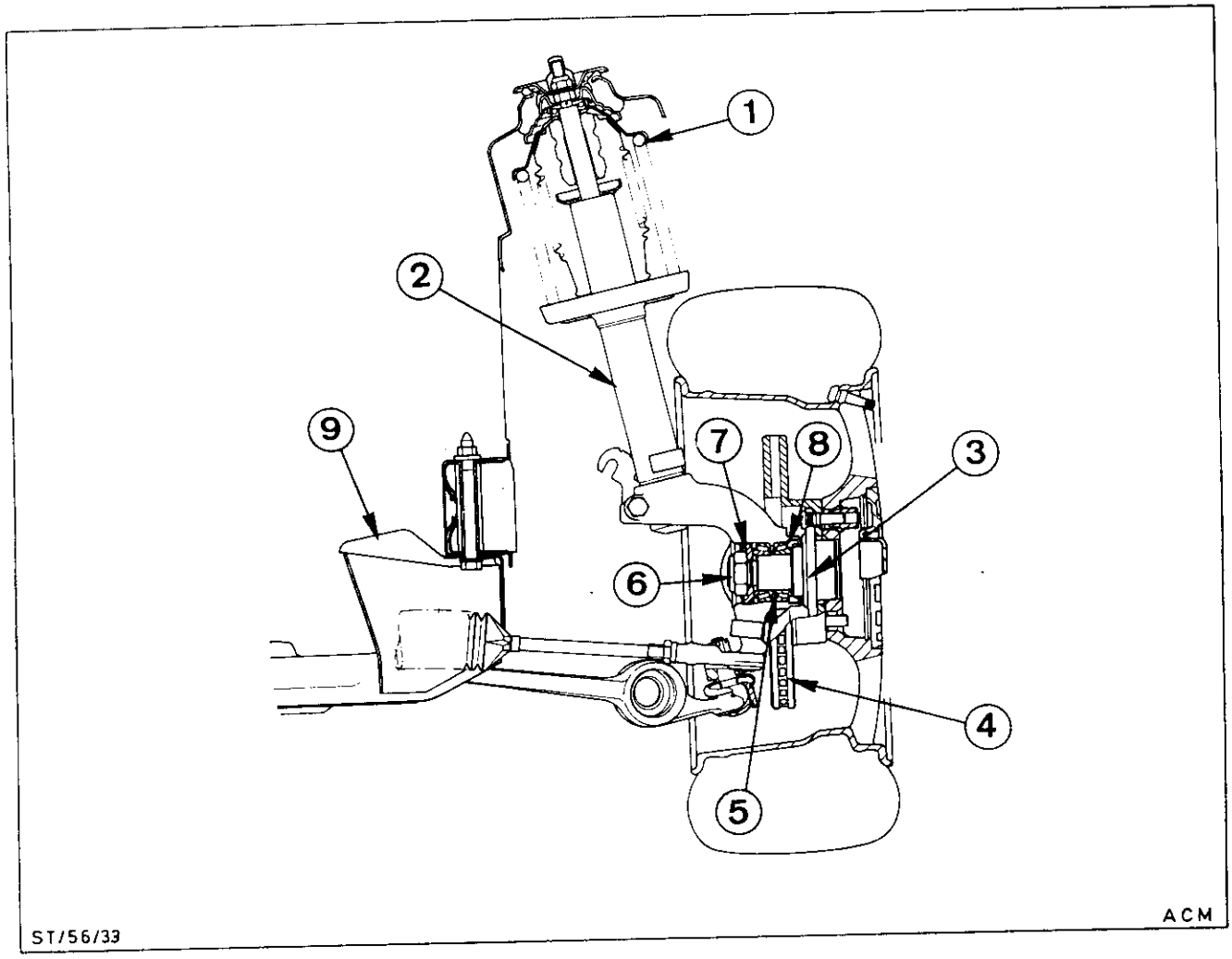
Typ: Independent semi-trailing arm rear axle

Ratio	3.64 : 1
Oil capacity (Ltrs.)	1.3
Hypoidoil SAE 90	FORD specification SQM 2C 9002 AA
Liquid sealant – rear axle case (1110 B)	FORD specification SQM 4G 9523 A
Grease – bearing housing	FORD specification ESEAM 1C 1014 A
Grease – driveshaft centre bearing	FORD specification SM 1C 4515 A
Wheel bearing grease	FORD specification SAM 1C 9111 A
Grease capacity – tripod drive joints – FORD specification	100 ± 10 g S-M1 C75-A or SQM-1C 9004 A or Mobil Rex E 22 grease

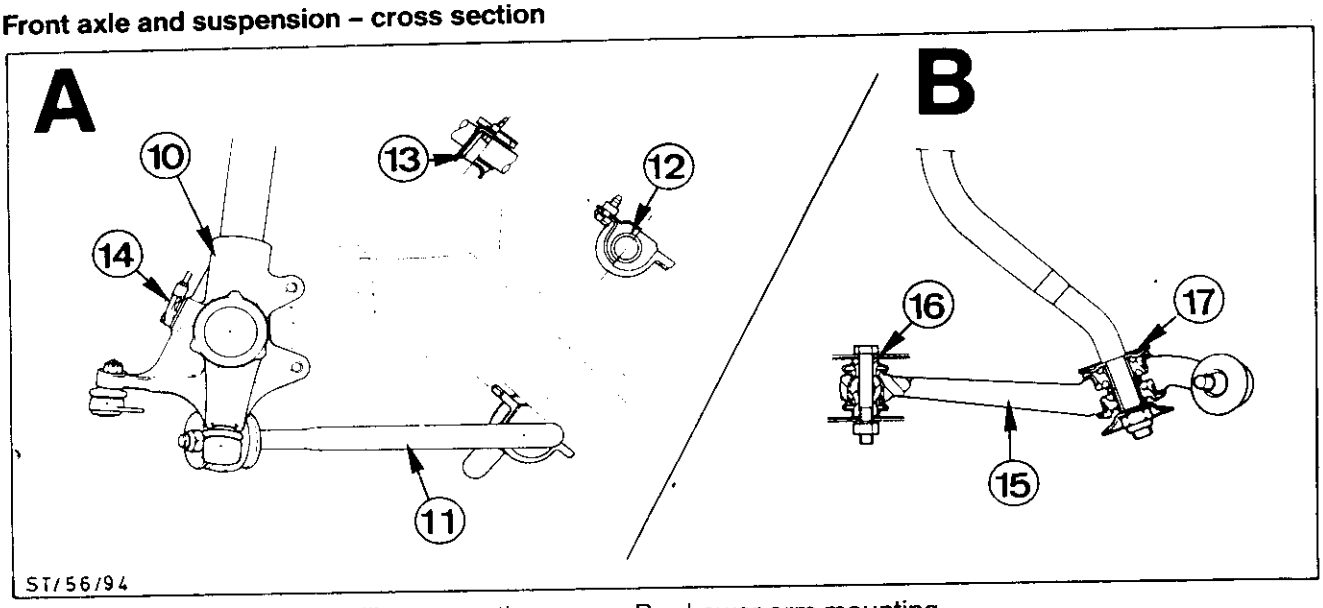
For detailed Technical Data and Tightening Torques see Sierra RS Cosworth Workshop Manual.

PART C – Front Axle and Suspension

The Sierra RS Cosworth has McPherson strut front suspension, similar to that used in Sierra and Scorpio model ranges.



Front axle and suspension – cross section



A = Spindle carrier and stabiliser mounting B = Lower arm mounting

PART C – Front Axle and Suspension

- Some parts of the front axle and suspension have been reinforced or modified in order to meet with the increased requirements of road holding.
- The front wheel alignment should be checked as described in the Sierra Workshop Manual.
- Only toe setting is adjustable.
- **No new special tools are required.**
- In the list below, front axle and suspension components, which are reinforced or modified in comparison to the Sierra, are marked with "Sierra RS Cosworth". Scorpio components which have been carried over to the Sierra RS Cosworth are marked with "Scorpio" (refer to illustration on page 66).

1 = Spring	Sierra RS Cosworth
2 = Strut	Sierra RS Cosworth
3 = Hub	Sierra RS Cosworth
4 = Brake disc	Sierra RS Cosworth
5 = Front wheel bearings	Scorpio
6 = Protection cap	Scorpio
7 = Toothed rotor (ABS)	Scorpio
8 = Grease seal	Scorpio
9 = Crossmember	Sierra RS Cosworth
10 = Spindle carrier	Sierra RS Cosworth
11 = Stabiliser bar, 28 mm diameter	Sierra RS Cosworth
12 = Bush	Scorpio
13 = U-Clamp and fixing	Sierra RS Cosworth
14 = Anti-lockwheel sensor with fixing	Scorpio
15 = Lower arm	Sierra RS Cosworth
16 = Attachment-lower arm to crossmember	Scorpio
17 = Rear cover	Scorpio

Wheel Alignment (unladen)

Toe setting (toe-in)	1,0 mm ± 1,0 mm
Castor	2° 30' ± 0° 30'
Camber	–1° 15' ± 0° 30'

Maximum variation Left hand to Right hand:

Castor	1° 0'
Camber	1° 15'
Front wheel bearing grease	Ford Spezifikation SAM 1C 9111 A

For detailed Technical Data and Tightening Torques see Sierra RS Cosworth Workshop Manual.

PART D – Anti-Lock Braking System (ABS)

1. General Description

- The Sierra RS Cosworth is fitted with the Anti-Lock Braking System (ABS), which is similar to the system used on the Sierra XR 4 x 4.

- The principle of operation of these systems are described in detail in the following publications:

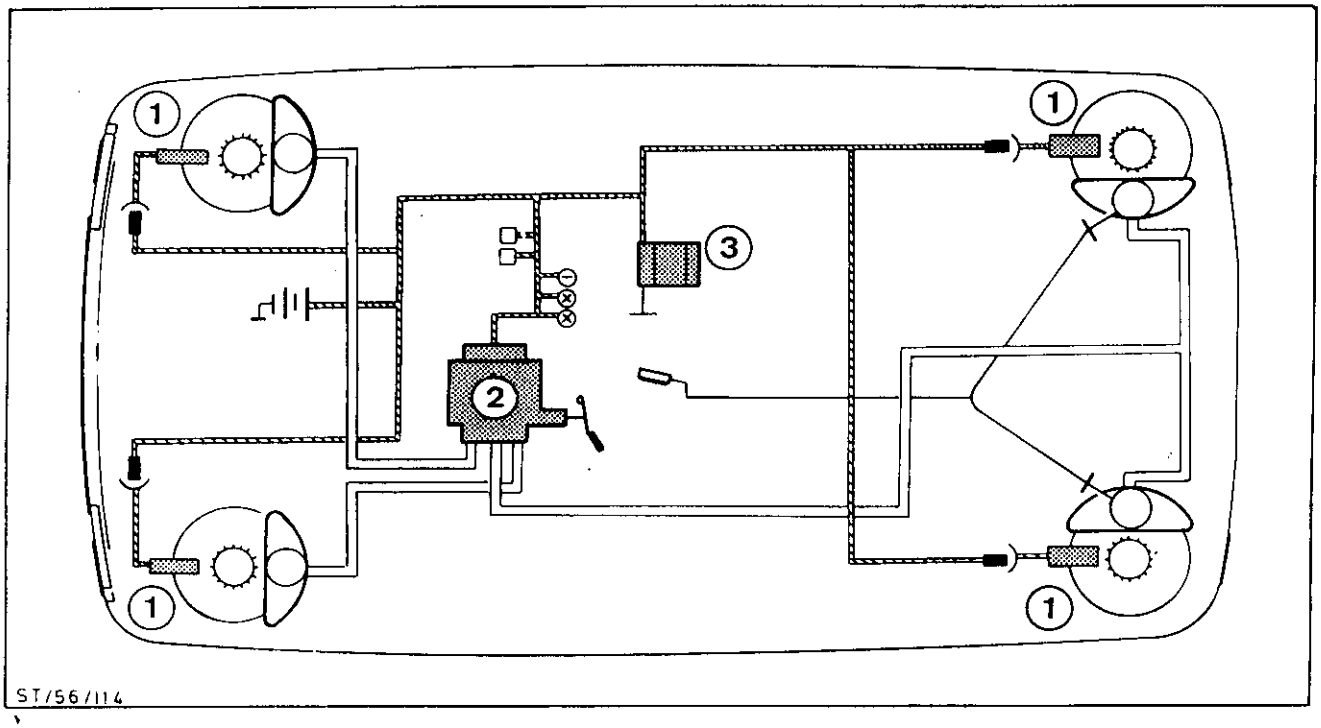
  – Technicians Information CG 7216,

  – A Technical Introduction for Workshop Staff (Scorpio/Granada),

  – Sierra XR 4 x 4 Workshop Manual.

- No new special tools and test equipment are required for the Sierra RS Cosworth Anti-Lock Braking System.

- This part of the brochure includes a brief summary about the principles of operation of the ABS and informs you about the modified components of the Sierra RS Cosworth Anti-Lock Braking System.



1 = Wheel Sensors 2 = Actuation Assembly 3 = ABS-Module

PART D – Anti-Lock Braking System (ABS)

1. General Description (cont'd.)

Principles of Operation

- A dual circuit braking system is used, with the front wheels on a separate circuit to the rear wheels.
- The brake system does not operate with vacuum boost but with an integral hydraulic booster by using accumulator pressure.
- The heart of ABS is the actuation assembly.
- The front wheel brakes are activated by a single piston master cylinder.
- The rear wheel brakes are activated by controlled accumulator pressure.
- The accumulator pressure is produced by an electric pump forcing brake fluid against the diaphragm of a gas filled pressure accumulator which forms part of the actuation assembly.
- ABS uses an electronically controlled system to sense any tendency for a wheel to lock and instantly adjusts brake line fluid pressure to the affected wheel to maintain optimum braking.
- The system has all round power assisted disc brakes with ventilated front discs and solid rear discs.
- Each brake assembly has a sensor which constantly monitors the rotational speed of the wheel.
- A magnetic field within the sensor is interrupted by a toothed rotor which turns with the wheel of the car. This produces an electrical signal.
- The sensors send a constant stream of signals to the ABS module which contains two identical micro-processors. These constantly monitor and compare incoming signals from all four wheel sensors.
- If during braking lock-up of one wheel becomes imminent, the sensor signal from that wheel will differ from signals from other wheels.
- The ABS module reads this difference and instructs the actuation assembly to adjust hydraulic pressure to the affected wheel.
- Constant adjustment of pressure at this wheel is maintained until the module interpretes the same rate of deceleration by all four wheels.

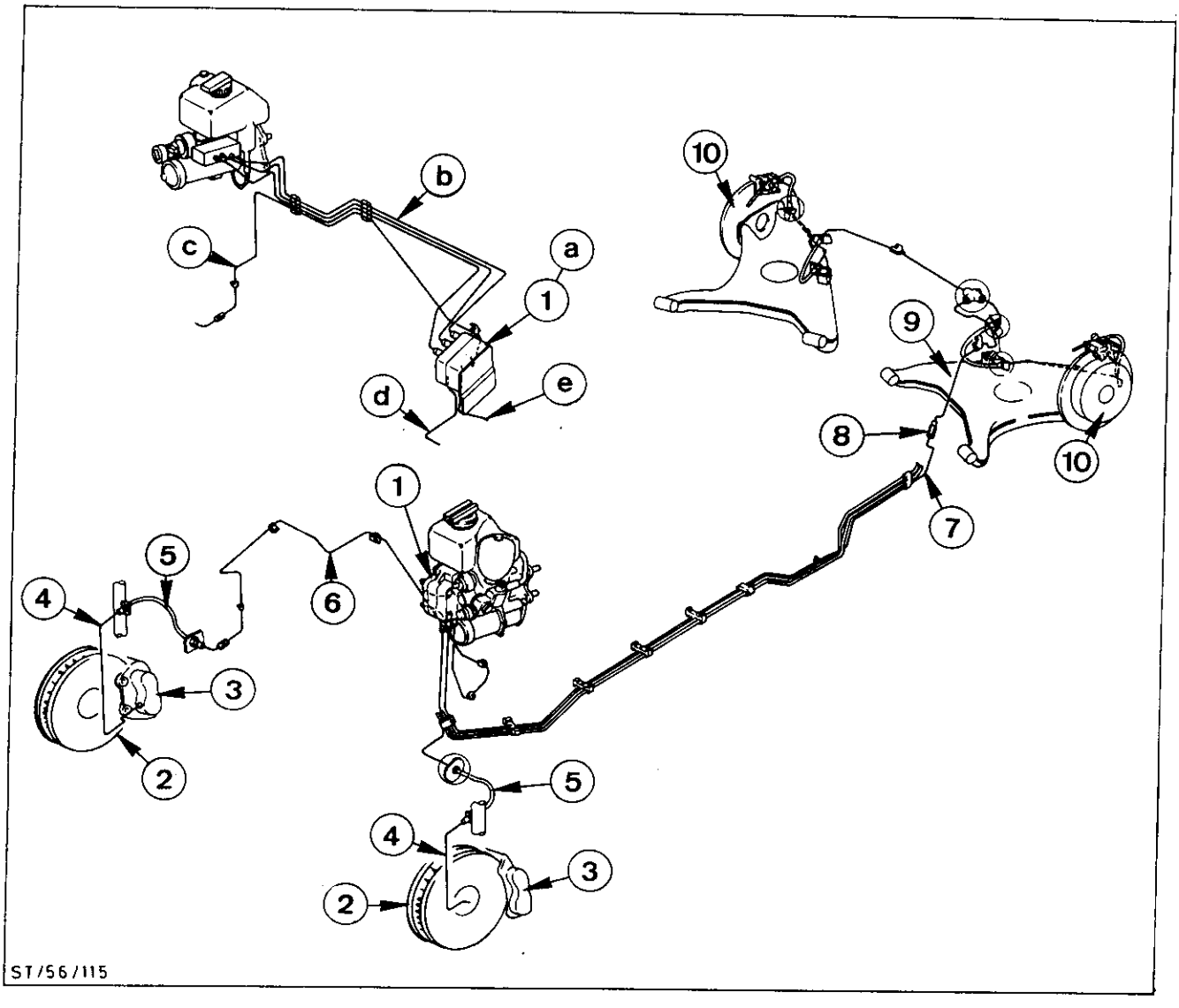
PART D – Anti-Lock Braking System (ABS)

2. The Sierra RS Cosworth Anti-Lock Braking System

As GRANADA.

Modified Components

The following components have been modified to suit Sierra RS Cosworth.



1 = Valve block
Due to lack of space the valve block on **RHD-versions** is fitted separately to the left fender apron and connected to the actuation assembly by brake lines.

2 = Front brake discs

3 = Front caliper assembly and brake pads

4 = LH/RH front brake line

5 = LH/RH front brake hose