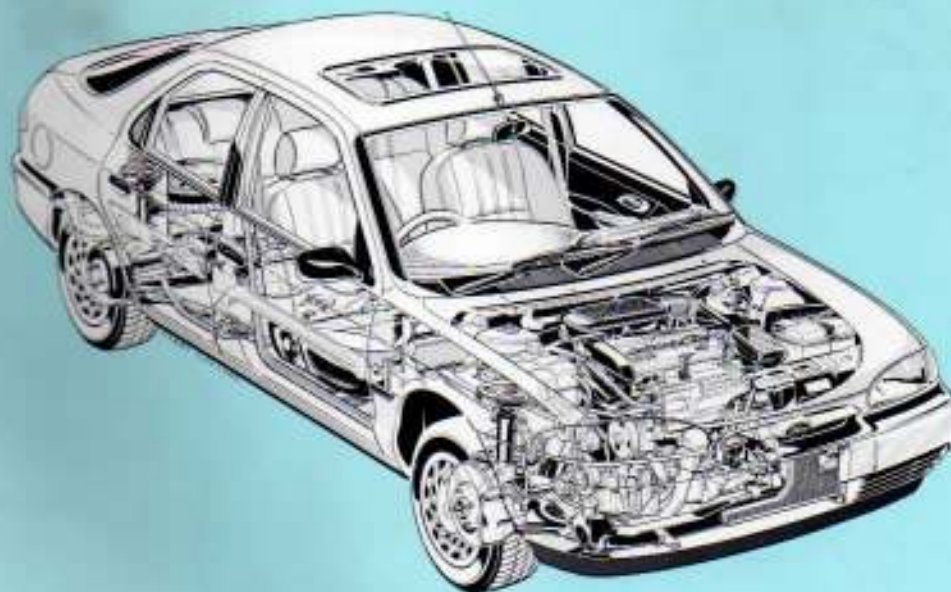


New  
Product Introduction

00/218

Ford Mondeo Overview



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**FORD-WERKE AKTIENGESELLSCHAFT**  
**Service Training Programmes D-P/GZK-T1**  
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**Dear Ford Service Team**

Our Engineering team has developed the new Ford Mondeo with the primary objective of maximising customer satisfaction. The Mondeo incorporates many new and unique technological features and a quality of construction which will ensure that it is "best in class".

Ultimately, complete customer satisfaction will only be achieved if the customer service experience is also outstanding. Only your expertise can ensure that this objective is met.

The comprehensive programme of launch events and training courses available to you will provide the opportunity to learn about all of the Mondeo design innovations and their service implications.

We look forward to your active participation and would like to take this opportunity to thank you for playing your part in making Mondeo a success in the market.

Best regards,



**Ingvar Sviggum**

Executive Director, Customer Service  
Parts and Service Operations

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Hatchback



Hatchback



Estate



The MONDEO is a completely new, ultra-modern design vehicle, featuring front wheel drive and the latest automotive technology.

The Mondeo will be available throughout Europe as a 4-door notchback, 5-door hatchback or Estate in the model variants L, LX, CLX, GLX, Si and Ghia.

### Engines

- Modern multi-valve 1.6/1.8 and 2.0 DOHC 16V Zeta engines are fitted, all equipped with EEC IV engine management.
- These engines comply with the 83 US and EEC Emission Regulations.
- The petrol engine range is enhanced by the 1.8 turbo diesel engine with intercooler and 93 EEC or 87 US Emission Regulations.

### Transmission

- MTX-75, 5-speed manual transmission with all gears synchronised, including reverse.
- Electronic 4-speed automatic transmission (CD4E) with selectable economy and sports operating mode.
- Four wheel drive for special model variants.

### Chassis

- Independent wheel suspension at front and "Quadralink" rear wheel suspension for all Saloons and "SLA" rear wheel suspension for Estate.

### Adaptive Damping System (ADS)

- Optionally for all Saloons with 2.0 DOHC 16V engine.
- Manual or automatic selection of soft or hard damping dependent on prevailing driving conditions.

### Automatic Self Levelling

- Optionally for all Estate vehicles.

### Steering

- Power assisted steering fitted as standard with steering wheel adjustable in height and range for all model variants.

### Brakes

- Disc brakes at front, drum brakes at rear. Disc brakes front and rear for 4x4 vehicles.
- Electronic anti-lock brake system (ABS) with traction control system (TCS) available for all model variants. Fitted as standard on certain vehicle variants.



### Traction Control System (TCS)

The traction control system is an additional safety feature that effectively prevents the drive wheels spinning when starting off and cornering.

### Safety

- Driver's air bag fitted as standard on all model variants.
- Optional passenger's air bag (available at a later date).
- Side impact protection in the doors and reinforced front section.
- The front and rear ends of the body are designed such that they absorb a high degree of impact energy by means of controlled deformation.
- Seat belt tensioners and grabbers fitted as standard for driver and passenger.

### Safety Electronics\*

- Double door locking
- Anti-theft system with:
  - Monitoring of doors, hood and of the tailgate/luggage compartment lid
  - Activation of alarm system via infrared remote control or with the ignition key
  - Start inhibit when alarm system activated
  - Interior monitoring
- Auxiliary warning system
- Heated windscreen/exterior mirrors/washer nozzles
- Headlamp levelling

### Comfort Electronics\*

- Central locking system
- Infrared locking system
- Power windows with "one-touch down" driver's window and lock switch for rear door windows
- Power sliding sunroof
- Electrically operated/heated seats
- Fuel computer
- Air conditioning with environmentally acceptable refrigerant R-134a
- Vehicle speed control (cruise control)

\* Availability and standard/optional specifications vary by market

Technical Features

Feature	L	LX/CLX	GLX	Si	Ghia
<b>Body Style</b>					
Notchback, 4Dr	A	A	A	A	A
Hatchback, 5Dr	A	A	A	A	A
Estate	A	A	A	-	A
<b>Engine</b> <b>kW/(PS) DIN</b>					
1,6 litre Zeta                      66/(90)	A	A	A	-	-
1,8 litre Zeta                      85/(115)	A	A	A	-	A
2,0 litre Zeta                      100/(136)	-	A	A	A	-
1,8 litre Turbo diesel              65/(88)	A	A	A	-	A
Oxidation Catalyst for 1,8 Turbo diesel	X	X	X	-	X
<b>Transmission</b>					
5 speed manual MTX-75 A	A	A	A	A	
4 speed automatic transmission (except 1,6 litre)	-	A	A	-	A
4x4 drive                      2,0 l    (Ghia not 5Dr)	-	-	-	A	A
1,8 l    (LX/CLX not 5Dr)	-	A	-	-	-
<b>Chassis</b>					
Independent wheel suspension on McPherson struts at front	S	S	S	-	S
Quadralink independent wheel suspension at rear (Saloon)	S	S	S	-	S
SLA independent wheel suspension at rear (Estate)	S	S	S	-	S
Adaptive Damping System ADS (Saloon)	-	-	-	O	X
Automatic Self Levelling (Estate)	-	X	X	-	X
<b>Steering</b>					
Power steering with steering wheel height/range adjustment	S	S	S	S	S

A = Available

S = Standard

O = Optional

X = Availability varies by market

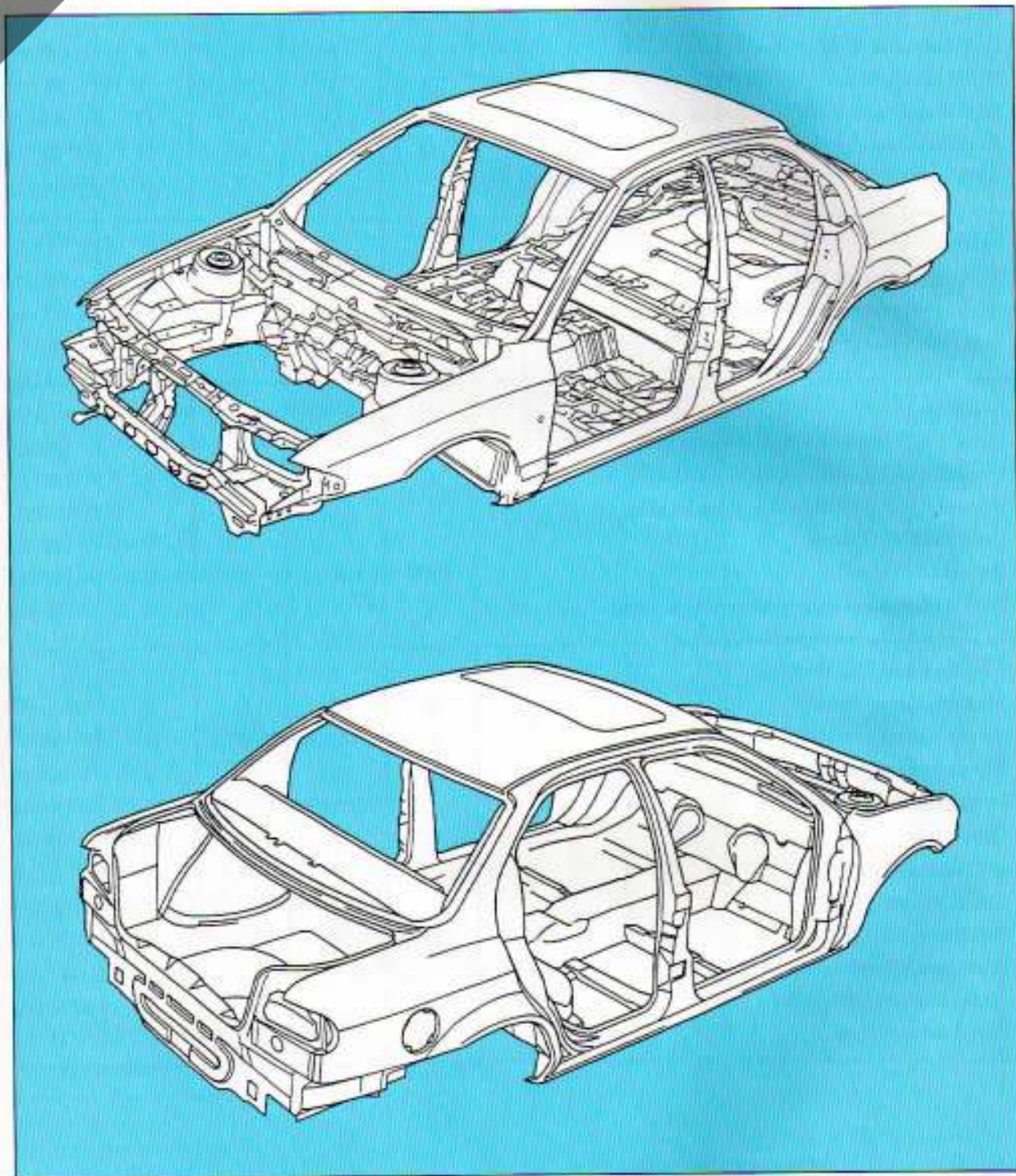
- = Not available



Feature	L	LX/CLX	GLX	Si	Ghia
<b>Brakes</b>					
Disc brakes at front	A	A	A	A	A
Drum brakes at rear (not on 4x4)	S	S	S	S	S
Disc brakes at rear (as standard on 4x4)	-	O	-	O	O
Anti-lock brake system (ABS)	O	O	O	O	O
ABS with TCS (2.0 litre only, as standard on 4x4)	-	-	X	X	-
<b>Safety</b>					
Air bag in steering wheel	S	S	S	S	S
Air bag on passenger side (available at a later date)	O	O	O	O	O
Seat Belt Grabbers and Tensioners	S	S	S	S	S
<b>Security</b>					
Central locking with single door locking	X	X	S	S	X
Central locking with double door locking	X	X	X	X	X
Central locking with double door locking and Remote Control	-	-	-	-	X
Anti-theft system	X	X	X	X	X
Anti-theft system with interior monitoring	X	X	X	X	X
<b>Comfort and Convenience</b>					
Manual sliding sunroof	X	X	X	X	-
Power sliding sunroof	-	-	X	X	X
Power front windows	X	X	S	S	S
Power rear windows	-	-	-	-	S
Pollen filter	S	S	S	S	S
Air conditioning	-	X	X	X	X
Cruise control	-	-	-	-	X
Headlamp levelling	X	X	X	-	X
Front seat lumbar support and power height adjustment	-	-	S	S	S
Power driver's seat	-	-	-	-	O

**Note**

This is a general table covering all European markets. Availability and standard/optional specifications may vary from market to market.





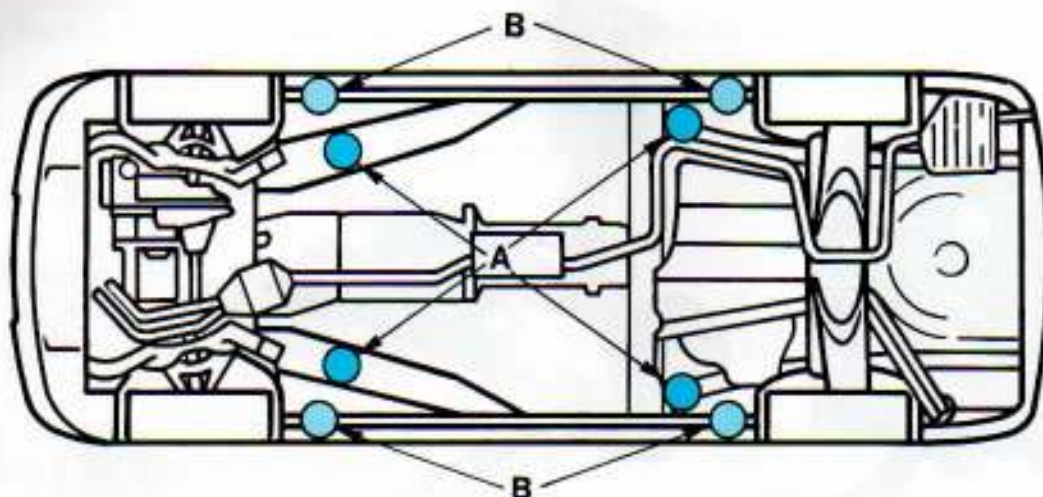
- ☐ Few passive safety features i. e. body front and rear lateral impact protection, side impact protection, anti-submarine seats, air bags and optimised safety belt system with belt tensioners and belt grabbers reduce risks of injuries.
- ☐ Fewer MIG welds than on any other FORD vehicle. Improves repair efficiency.
- ☐ No brazed panel joints. Improves body structural strength.
- ☐ Optimised ventilation system with integrated pollen filter.
- ☐ The front Body section is designed such that it deforms in a controlled manner upon impact. This applies not only to head-on but also to laterally offset impacts.
- ☐ High strength steel sheet metal is used for the unterbody.
- ☐ Form stability of the passenger compartment by transverse reinforcement at the bulkhead and sturdy reinforcement between door frames.
- ☐ A design feature prevents the doors from bursting open in an accident.
- ☐ Engine hood release is located on A-pillar.
- ☐ The front section of the vehicle up to the B-pillar is identical on all models.
- ☐ An ultra-modern, environmentally friendly painting process is used in production. For example, the materials used for the phosphate coating and chip priming are water soluble.  
The filler colour tone is closely matched to the colour tone of the topcoat.  
This ensures that there are no noticeable colour differences in case of damage to the topcoat e.g. by stone-pecking.
- ☐ All sheet metal surfaces prone to corrosion are galvanized.
- ☐ Improved noise damping and optimised sealing.
- ☐ The safety fuel tank is made of high strength plastic.
- ☐ New power front seats with 12-way adjustment.



**Important for the Workshop**

- ☐ The windscreen, side and rear windows are bonded on all model variants.
- ☐ The bonded side windows on Estate vehicles can be reused after removal.
- ☐ The instrument panel, including the heating and ventilation unit, is premounted on a crossmember which is then installed during final vehicle assembly.
- ☐ The crossmember on which the instrument panel and heating/ventilation unit is mounted is bolted to the A-pillar and bonded to the bulkhead.
- ☐ The front fenders and all hinges are bolted. This simplifies repair and adjustment operations.
- ☐ Collision damage repairs after head-on crashes at speeds below 15 km/h can be carried out without removal of mechanical components.
- ☐ For security, the chassis number is stamped in the lower windscreen frame. It can be read from the outside through the windscreen.
- ☐ The fuel pump located in the fuel tank is accessible through an opening in the floor panel under the rear seat cushion.
- ☐ The seat belt grabbers must be replaced after an accident.
- ☐ Economy parts are provided for frequent part panel repairs.
- ☐ The headlamp mounting panel can be repaired in sections.

## Vehicle Lifting/Jacking



A Support points for chassis stands

B Lifting points for hoist and jack

**Lifting with a Hoist**

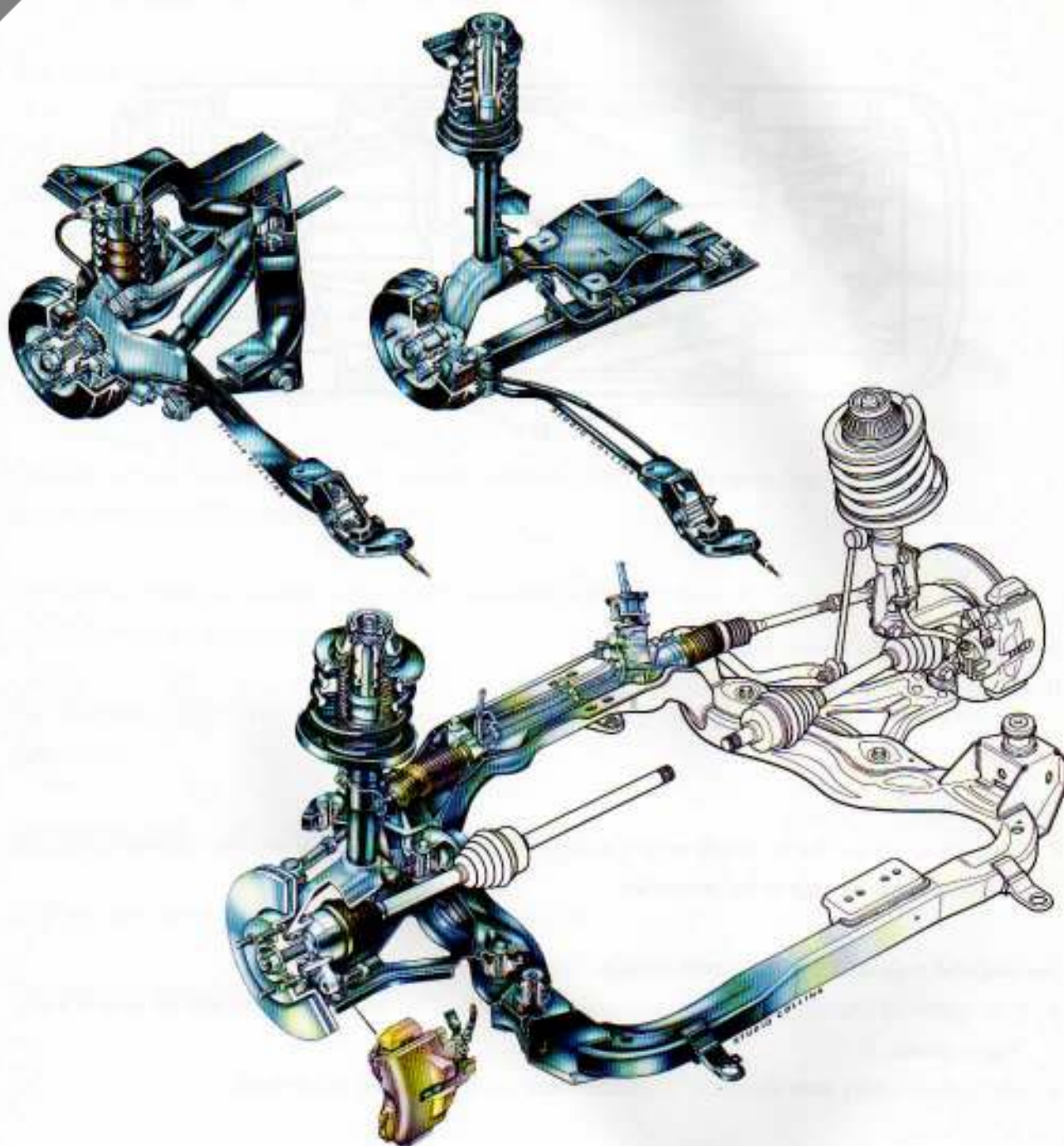
- Place lifting arms of the hoist only under the points B. Lifting the vehicle at any other than the specified points can cause damage to the underbody.

**Jacking and supporting with Chassis Stands**

- Park vehicle on a firm, even surface. Jack under points B and use only points A to support vehicle with chassis stands.
- Appropriate blocks must always be placed between the chassis stand and the body.

**Note:** In order to avoid damage, never jack up or support the vehicle at the subframe or at the rear wheel suspension (including crossmembers).

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- ☐ Front wheel drive
- ☐ 4x4 drive as option for Saloon and Estate.
- ☐ A 96 mm longer wheelbase compared to its predecessor on all model variants.
- ☐ Front track (all model variants): approx. 47,3 mm wider than its predecessor.
  - Rear track: - Saloon, approx. 17,0 mm wider.
  - Estate, including 4x4 version approx. 38,0 mm wider.
- ☐ Front suspension:
  - The subframe is bolted to the body with four rubber mountings.
  - Independent wheel suspension. McPherson struts with control arm and stabiliser bar.
- ☐ Rear suspension, consisting of:
  - "Quadralink" independent suspension on Saloon vehicles.
  - "SLA" (SLA = Short Long Arm) independent suspension on Estate vehicles.
- ☐ Adaptive damping (electronic shock absorber adaption) as option for Saloon vehicles.
- ☐ Automatic self levelling suspension as option for Estate vehicles.
- ☐ Internally-ventilated brake discs at front with floating, single-piston calipers.
- ☐ Drum brakes fitted at rear as standard for all vehicles equipped with 1,6 and 1,8 DOHC 16V Zeta engine (except 4x4 vehicles).
- ☐ Internally-ventilated brake discs at rear with floating calipers for all 4x4 vehicles.
- ☐ Maintenance-free handbrake.
- ☐ Electronic anti-lock brake system (Bendix) and traction control system.
- ☐ Power steering as standard feature, steering gear with linear gear ratio mounted on subframe. Hydraulic pipes equipped with "quick-fit" connections.
- ☐ Hydraulic and rubber-flexible engine/transmission mountings.
- ☐ Torque restrictor at front and rear, mounted on subframe and transmission housing to reduce noise and vibration.

### Important for the Workshop

#### Front Suspension

- ☐ Never support or lift/jack vehicle under the subframe.
- ☐ Mount engine/transmission assembly first. Then mount subframe using guide pins (Special Tool 15-097).
- ☐ Torque restrictors must be installed with no preload.
- ☐ For removal and precise installation of track control arm rubber bushes use Special Tool 14-043.
- ☐ The ball joints riveted to the track control arms can be replaced.  
The replacement ball joints is bolted to the track control arm with special bolts.
- ☐ A stop in the knuckle bore enables correct and reliable installation of the ball joint.
- ☐ For the removal and installation of coil springs the new spring compressor (Special Tool 14-042) must be used for safety reasons.

#### Driveshafts

- ☐ The driveshaft joints must not be angled beyond 20°.
- ☐ To avoid corrosion seizure, grease splines of the intermediate shaft before installing the right-hand driveshaft.
- ☐ New driveshaft boot retaining straps are fitted with Special Tool 14-044 and torque wrench.

#### Power Steering

- ☐ Release steering gear retaining bolts from below with Special Tool 13-013. Lower the subframe in order to remove the steering gear.
- ☐ Feed and return pipes of the power steering system must be renewed together with the threaded nuts ("quick-fit" connections). Fit new Teflon rings when reusing the old pipes. Before fitting, expand Teflon rings with Special Tool 13-015. Tighten union nuts with Special Tool 13-014.
- ☐ Before removing the steering column or the steering wheel, lock steering in centre position by removing the ignition key. This ensures that the clock spring in the steering wheel hub is centred correctly (clock spring is marked with "TOP").
- ☐ When bleeding the power steering system, apply vacuum to the reservoir with the aid of a vacuum pump and the adapter, Special Tool 13-016 in order to remove any remaining air bubbles in the oil.

### Rear Suspension

- ☐ Never support or lift/jack vehicle at the rear axle crossmember or other suspension components.
- ☐ Never use the side arms of the suspension to tow the vehicle.
- ☐ The rear wheel track can be adjusted at the rear side arms with eccentric bolts (Saloon and Estate).
- ☐ Always fit crossmember of Quadralink suspension with guide pins (Special Tool 15-097).
- ☐ 4x4 vehicles and SLA rear wheel suspensions (Estate) feature integral guide pins in the crossmember to achieve precise alignment.
- ☐ For the removal and installation of coil springs the new spring compressor (Special Tool 14-042) must be used for safety reasons.

### ☐ Quadralink Rear Suspension:

Three different stub axles for Saloon with drum brakes, with disc brakes and 4x4 version.

Wheel hub with bearing must be replaced as a complete unit.

### ☐ SLA Rear Suspension:

**Standard** stub axle for **all** Estate vehicles.

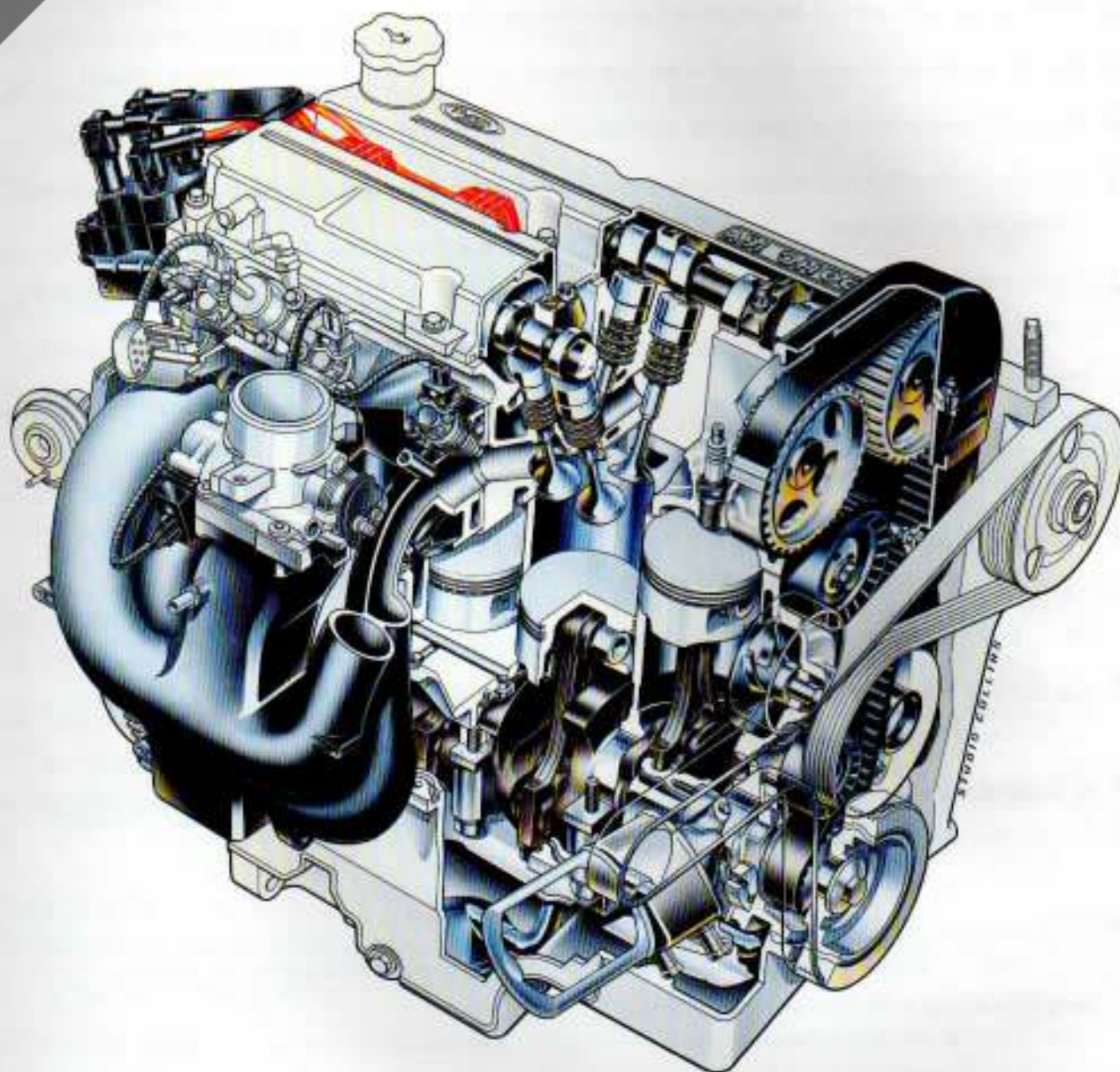
Stub shaft and wheel hub/wheel bearing unit must be replaced as a complete unit.

- ☐ The rear side arm of the Quadralink suspension is marked with "HINTEN/REAR". The recess in the side arm must face upwards when installed.
- ☐ A part of the side arm rubber bushes in the Quadralink and SLA rear suspension is interchangeable (see Service Microfiche, Section 15).

### Fuel Tank

- ☐ The in-tank fuel pump with sender unit is accessible from the passenger compartment. Remove pump/sender unit with Special Tool 23-038.





Transverse mounted DOHC 16V Zeta engines in three different capacities:

- 1,6 DOHC 16V 66 kW (90 PS) (DIN)
- 1,8 DOHC 16V 85 kW (115 PS) (DIN)
- 2,0 DOHC 16V 100 kW (136 PS) (DIN)

- ☐ All engines have the same external dimensions and use a common crankshaft. Having the same stroke, the different displacements are derived from the cylinder diameters.
- ☐ Installation position of the engines - tilted forward by 8°.
- ☐ Rubber and hydraulic engine mountings for the engine and rubber mountings for the transmission. Two torque restrictors to reduce noise and vibration are mounted between the transmission and the subframe.
- ☐ New oil sump, modified oil pump and pick-up pipe, sensor for engine oil level indication (2,0 litre engine with auxiliary warning system), new oil dipstick position.
- ☐ Compact, roof-shaped combustion chamber with spark plug in centre position
- ☐ Hydraulic tappets
- ☐ EEC IV engine management with integrated fully electronic ignition system EDIS 4
- ☐ EDIS 4 module integrated in EEC IV module on vehicles with MTX-75 transmission.
- ☐ EDIS 4 module arranged separately on vehicles with CD4E automatic transaxle.
- ☐ EDIS 4 Diagnostic Monitor (EDM)
- ☐ Sequential Electronic Fuel Injection (SEFI)
- ☐ Air mass measurement
- ☐ New inlet system with vertically arranged throttle housing, a plastic inlet manifold as well as resonators under the left-hand fender and in the engine compartment for additional inlet noise suppression.
- ☐ Modified exhaust manifold with two-piece exhaust downpipe.
- ☐ 83 US and EEC Emission compliance
- ☐ HEGO controlled three-way catalytic converter
- ☐ Electronically controlled pulse air system
- ☐ Electronically controlled exhaust gas recirculation (EGR)
- ☐ Evaporative emission control system (EVAP)

#### Diagnosis

- ☐ Serial interface for Ford Diagnostic System FDS 2000
- ☐ Test connector for STAR Tester
- ☐ Service connector for octane adjust



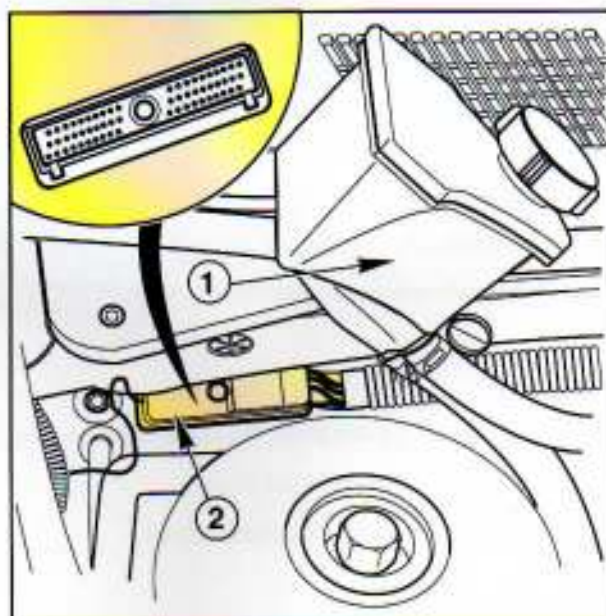
## Important for the Workshop

### Engine

- ☐ For engine/transmission removal and installation use the engine support bar (Special Tool 21-140) with the new adaptor (Special Tool 21-140-03).
- ☐ The engine/transmission assembly is removed from below.
- ☐ To optimise NVH performance the engine/transmission assembly has to be accurately aligned after installation using Special Tool 21-172.
- ☐ The timing belt must be renewed every 90,000 km (60,000 miles). When replacing the timing belt, install return spring for the timing belt tensioner.
- ☐ The retaining bolts of the flywheel must not be reused.
- ☐ The new type radiator clamps must be removed and installed with Special Tool 24-003.

### Engine Management

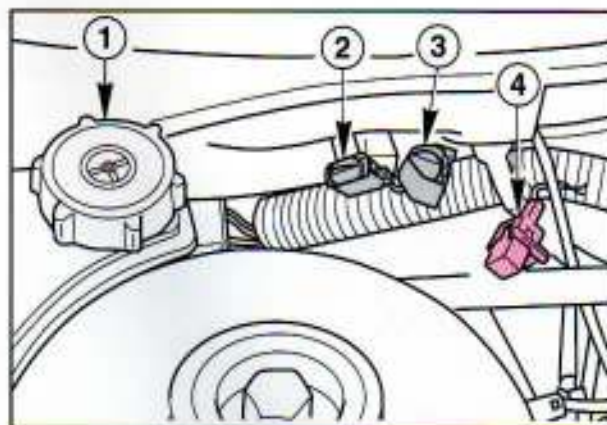
- ☐ The connector of the EEC IV module is accessible after lifting the power steering reservoir of its mounting.
  - 1 Power steering reservoir
  - 2 EEC IV module connector
- ☐ If no FDS 2000 is available and if the Löwener/Churchill Y-lead 29-009 is in use, modification kit 29-009A/1 is required.





□ All test connectors are located together on the right-hand side of the engine compartment on the bulkhead next to the power steering reservoir.

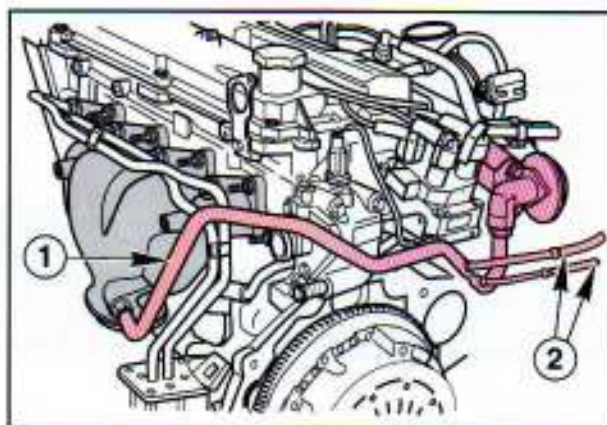
- 1 Power steering reservoir
- 2 Diagnosis connector FDS 2000
- 3 Self-test connector (STAR Tester)
- 4 Service connector (octane adjust)  
Plug-in bridge installed during production for operation with unleaded premium grade fuel 95 octane.

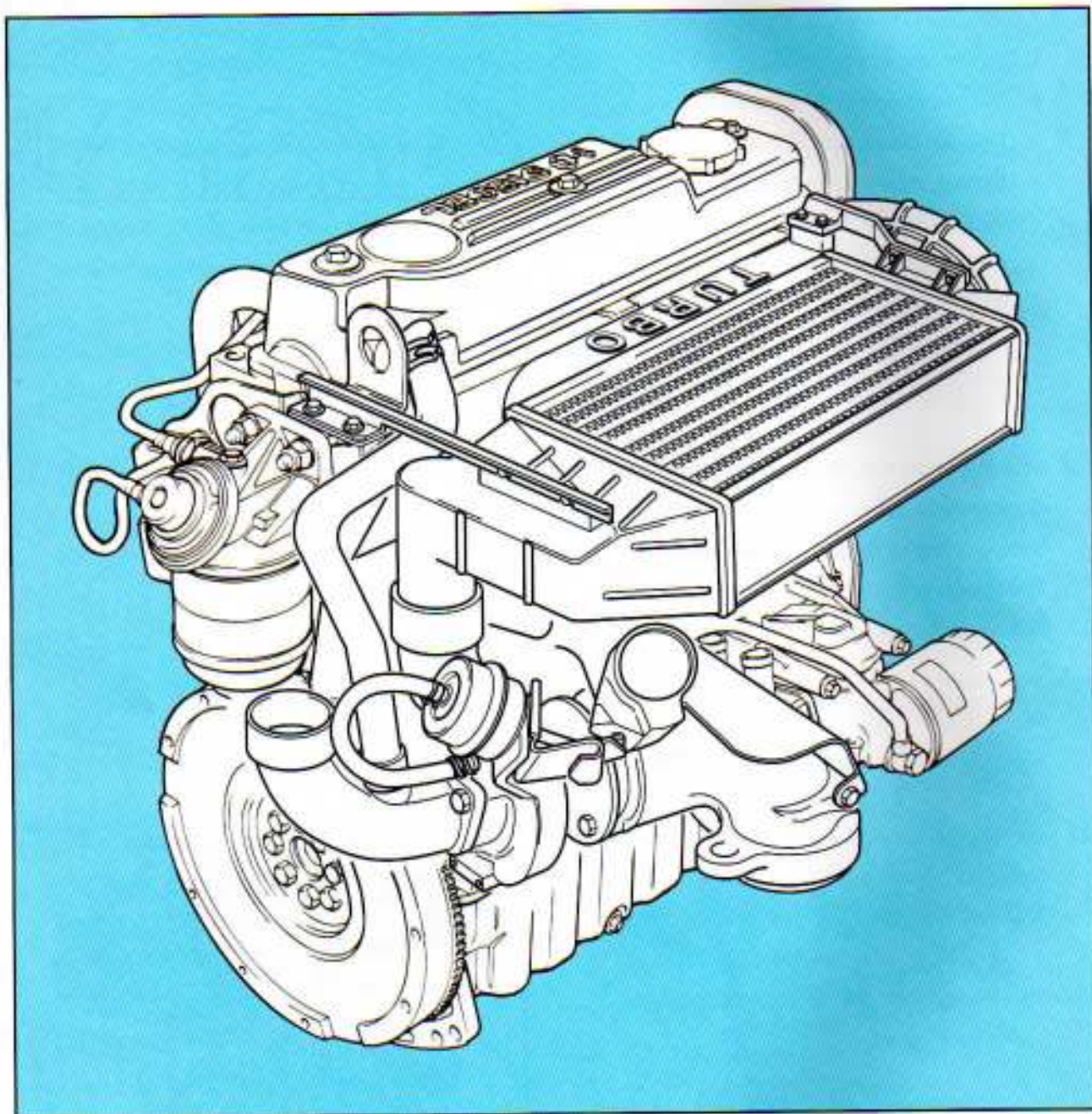


- Changes in the idle speed caused by dirt in the throttle housing or similar are compensated by the EEC IV module. The bypass screw in the throttle housing should not be adjusted.

- In cases of excessive backfiring of exhaust gases (e.g. due to a blocked exhaust system), the hoses from the EGR pipe to the electronic differential pressure converter (DPFE sensor) must be replaced and the connections at the EGR pipe cleaned.

- 1 EGR pipe
- 2 Hoses to DPFE sensor







☐ transversely installed 1,8 litre turbo diesel engine with Garrett T2 turbocharger and intercooler as well as oxidation catalytic converter (availability varies by market).

☐ Intercooler located above turbocharger. Air supply for cooling via a special air duct in the hood mat.

☐ Intake system with resonators for additional intake noise suppression.

☐ Hydraulic mountings for engine and transmission. Two torque restrictors to reduce noise and vibration are mounted between the subframe and the transmission.

☐ LUCAS DPC distributor-type injection pump with cold-start cable connected to wax element in thermostat housing.

☐ Electronic control of exhaust gas recirculation, injection timing and air conditioning system by EDC module (EDC = Electronic Diesel Control).

☐ Engine speed measured by speed sensor VRS (VRS = Variable Reluctance Sensor) and mass air flow meter (MAF).

☐ Engine complies with Emission Regulation 93 EEC or 87 US (depending on market requirements).

## Diagnosis

☐ Serial interface for Ford Diagnosis System FDS 2000

☐ Test connector for STAR Tester

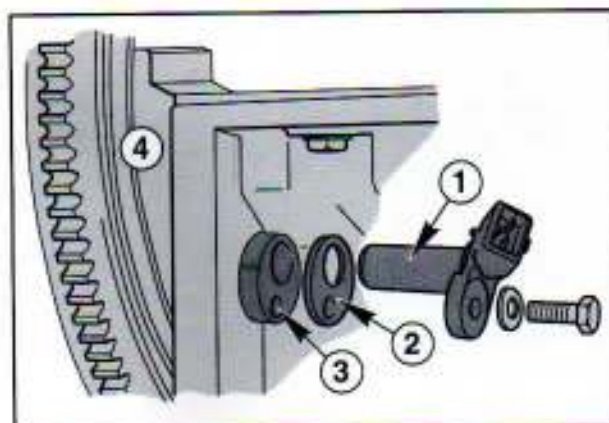


## Important for the Workshop

- ☐ For engine/transmission removal and installation use the engine support bar (Special Tool 21-140) with the new adaptor (Special Tool 21-140-03).
- ☐ Engine is removed together with the transmission from below.
- ☐ To optimise NVH performance the engine/transmission assembly has to be accurately aligned after installation using Special Tool 21-172.
- ☐ The new type radiator hose clamps must be removed and installed with Special Tool 24-003.
- ☐ Using existing Special Tool 21-164, tighten new M12 cylinder head bolts in three stages following the specified tightening sequence (see Service Microfiche). Note that stage 3 procedure must be carried out completely for each bolt.
- ☐ Exhaust manifold is attached with a new fibre gasket and only one plastic guide sleeve.
- ☐ Tighten bolt retaining vibration damper to crankshaft to specified torque and to torquing angle method. The retaining bolt must not be reused.
- ☐ During production, the bush of the crankshaft speed sensor (VRS) is firmly fitted in the sump (no service part), thus defining the distance of the sensor to the flywheel. A check is only necessary if a sensor malfunction is diagnosed. A spacer is available to compensate for insufficient distance.

Location of crankshaft speed sensor (VRS)  
on transmission flange of sump.

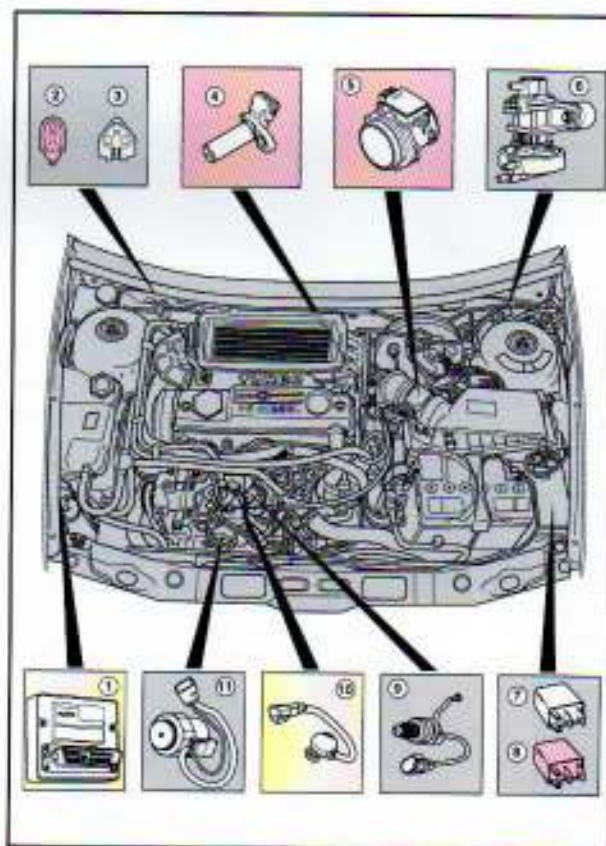
- 1 VRS sensor
- 2 Spacer (service item)
- 3 Bush (installed during production, no service item)
- 4 Flywheel (with two holes offset by 180° on engine side)



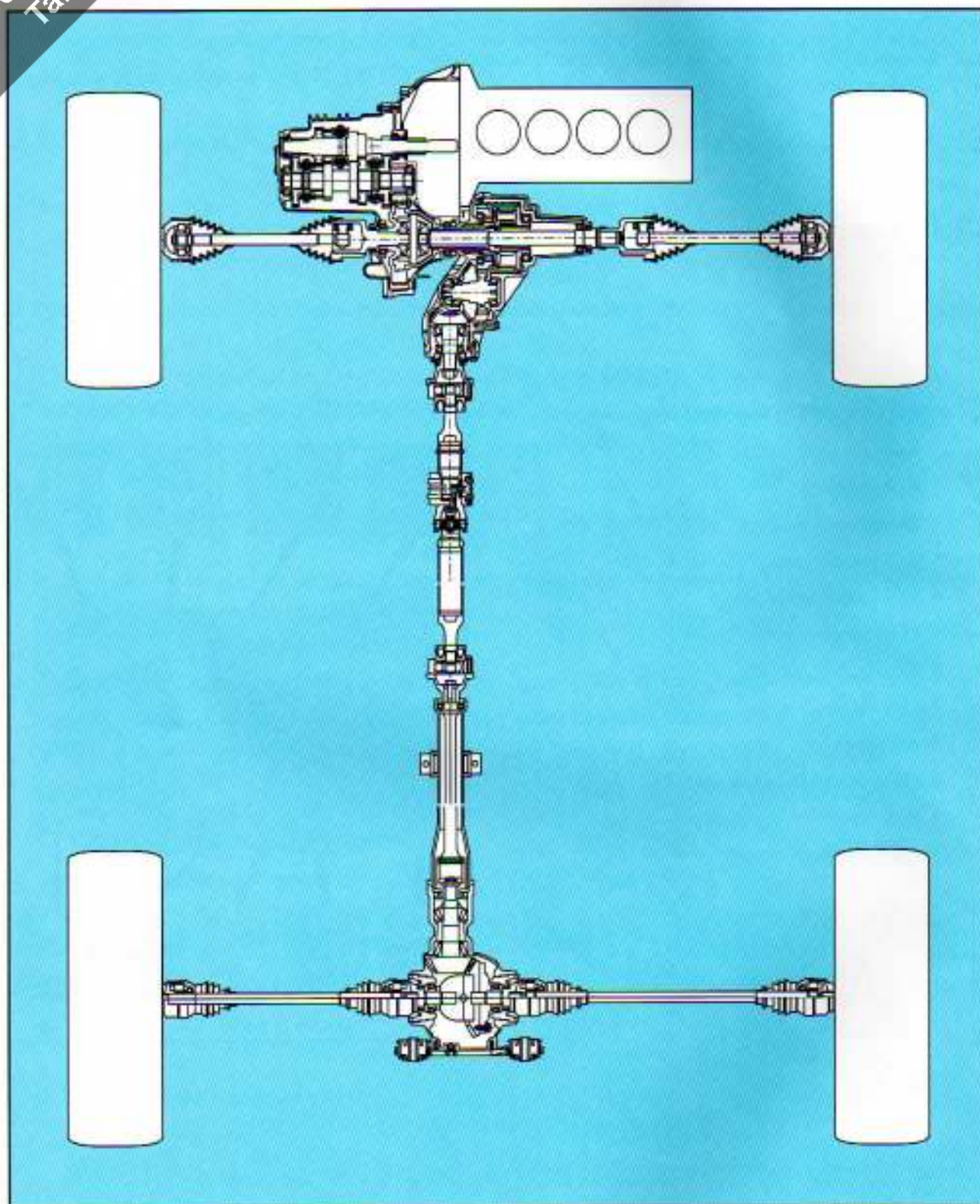
- ☒ Washer of oil drain plug is reusable.
- ☒ Always renew O-rings of oil cooler adapter after removal.
- ☒ Fuel pipes are equipped with self-sealing plug-in connectors.
- ☒ The installation position of the rubber hose on the intercooler is indicated by alignment marks.

☒ Location of emission control components:

- 1 EDC module
- 2 Diagnosis connector - FDS 2000
- 3 Self-test connector (STAR Tester)
- 4 Crankshaft speed sensor
- 5 Mass airflow meter
- 6 Vacuum transducer
- 7 Cold-advance relay
- 8 A/C relay
- 9 Light-load advance solenoid
- 10 Fuel lever position sensor
- 11 Cold-advance solenoid









**MTX-75**

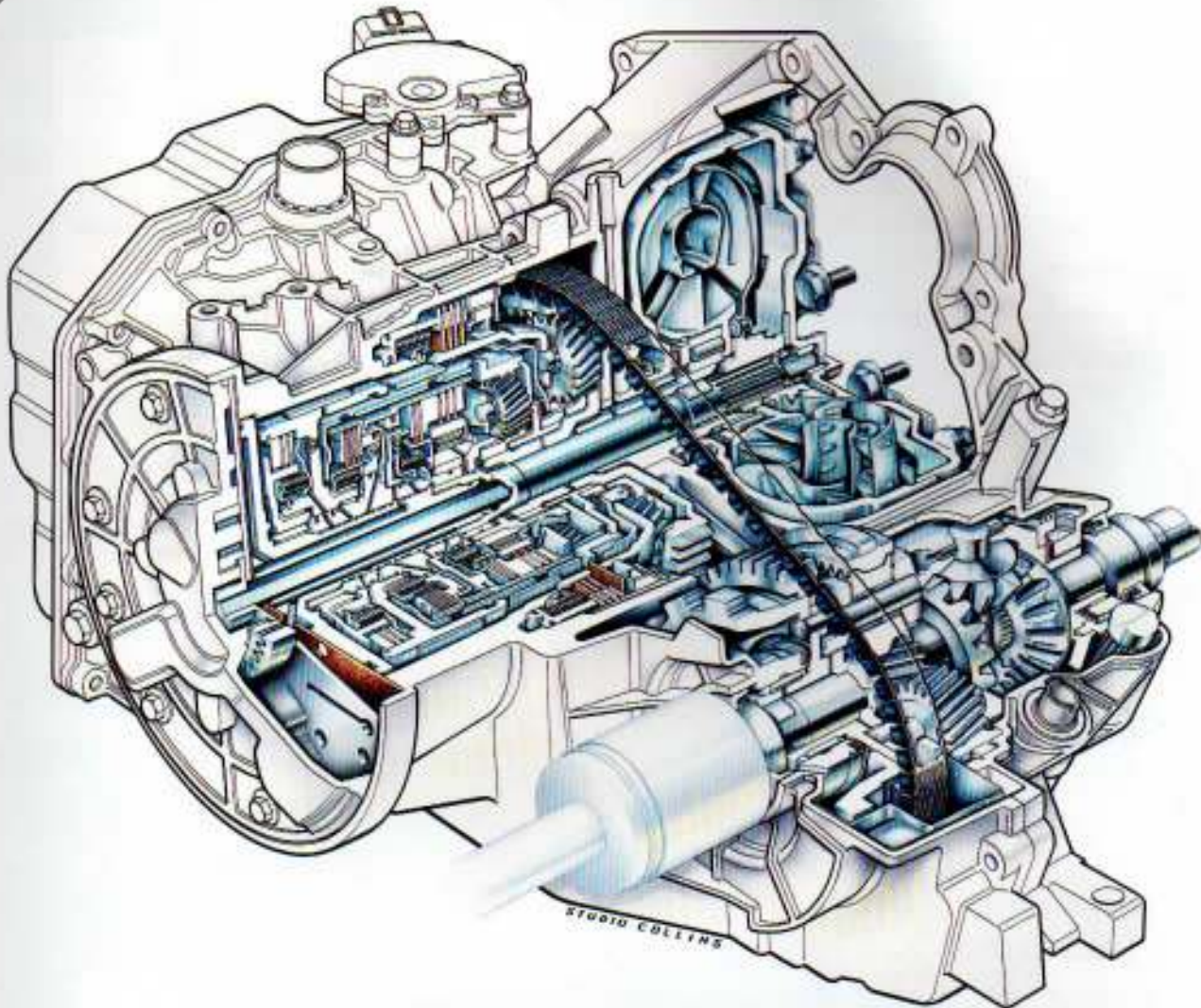
- ☐ New type transmission mounting
- ☐ New type seal between transmission housing and cylinder block
- ☐ To optimise the clutch pedal travel a mechanical clutch cable adjustment is provided.
- ☐ Modified transmission ratios
- ☐ Additional bearing for idler gear shaft
- ☐ Driveshafts with tripod joint on transmission end and ball type CV joint on wheel end
- ☐ 25 mm  $\varnothing$  driveshafts. 28 mm  $\varnothing$  for TCI engines.
- ☐ New, hard-wearing driveshaft boots made of high quality, stone chip resistant plastic with lifetime lubrication
- ☐ Driveshaft boots are secured with retaining straps made of stainless steel
- ☐ Support bracket for driveshafts adapted to engine variant

**MTX-75 4x4**

- ☐ New flange for transfer box
- ☐ New transfer box. It distributes the torque at a ratio of 58/42 to the front and rear axles.
- ☐ No Viscomatic coupling in differential, traction control now achieved with traction control system (TCS)
- ☐ Modified front constant velocity joint without stub shaft
- ☐ Length of front driveshaft adapted to Mondeo
- ☐ Centre bearing adapted to Mondeo floor pan
- ☐ Front axle differential without Viscomatic coupling
- ☐ Front driveshafts with tripod joint on transmission end and CV joint (Rzeppa) on wheel end
- ☐ New, hard-wearing driveshaft boots made of high quality, stone chip resistant plastic with lifetime lubrication
- ☐ Driveshaft boots are secured with retaining straps of stainless steel
- ☐ The 1.8 and 2.0 DOHC 16V Zeta engines are available for this drive configuration.

**Important for the Workshop**

- ☐ The housing of the planetary gear cannot be separated. Repairs can therefore not be carried out on the transfer box.
- ☐ The transfer box must be replaced as a complete assembly. External gaskets, the ventilation hose and the combined filler/inspection plug can be replaced individually.
- ☐ No oil change necessary since transmission features lifetime filling (oil specification SQM-2C9010-AA).
- ☐ Install new driveshaft boot retaining straps with Special Tool 14-044 and torque wrench.
- ☐ To align gear lever in neutral position, use Special Tool 16-073.





- ☐ The new CD4E automatic transmission is electronically controlled by the EEC IV module.
- ☐ With the Economy/Sport mode switch the driver is able to change shift modes:
  - E (Economy) mode for economic driving with low engine speeds
  - S (Sport) mode for sport driving with high engine speeds
- ☐ To shift the selector lever from position **P**, the release button and the brake pedal must be depressed and the ignition key must be in position **II**.
- ☐ Overdrive cancel switch inhibits the 4th gear operation.
- ☐ Engine braking during coast mode is possible in each gear.
- ☐ The transmission ratios are obtained by two planetary gearsets, five clutches and one brake band.
- ☐ Chain drive from the planetary gearsets to the final drive.
- ☐ The chain drive has a combination of chain width sizes and sprocket tooth pitches. Drive-to-driven sprockets are available in the ratio 0,910 : 1.
- ☐ The final drive is available in the ratio 4,308 : 1.
- ☐ The combined chain drive and final drive ratio is 3,920 : 1.
- ☐ If the electronic control fails, the transmission will operate in a failsafe mode.

#### Diagnosis

- ☐ Diagnosis can only be carried out with FDS 2000.

Downloaded from  
TalkFord.com

**Important for the Workshop**

- ☐ For an initial period the CD4E transmission must not be repaired. If a repair operation is required in Service, the whole unit has to be replaced according to guide lines which will be published separately.

The transmission must not be exchanged unless a detailed diagnosis with FDS 2000 has been carried out and approval has been obtained from the Service Department of your Ford Motor Company.

- ☐ The CD4E transmission is removed and installed in a similar fashion to the MTX-75 transmission, except for the following points:

- Disconnect and connect oil pipes to and from the oil cooler
- Selector lever cable
- Two additional connectors

- Note:**
1. When transmission is replaced also replace torque converter.
  2. Clean oil cooler when transmission is replaced.
  3. In order to optimise NVH performance the engine/transmission unit has to be accurately aligned after installation using Special Tool 21-172.

- ☐ When a vehicle requires towing the selector lever must be in position N (neutral).

- Never tow vehicle faster than 50 km/h or further than 50 km.
- If it is necessary to tow a vehicle further than 50 km the drive wheels must be lifted clear of the ground.
- Never tow vehicle in reverse direction with drive wheels on the ground.

- ☐ Push or tow starting is not possible.



- ☐ To shift the selector lever from position **P**, the release button and the brake pedal must be depressed and the ignition key must be in position **II**.

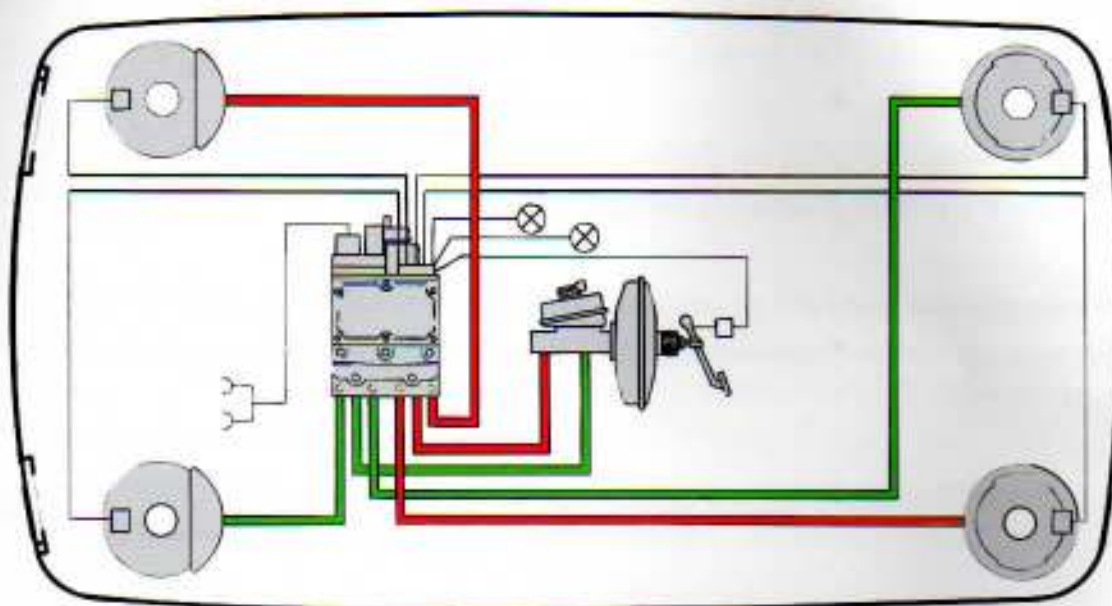
- ☐ A mechanical emergency release lever is provided to enable the selector lever to be moved out of the park position **P** e. g. in the situation of a flat battery.

Insert a pen or similar object into the aperture located at the lower right of the center console. Push the locking lever rearwards and simultaneously move the selector lever out of the position **P** (refer Owner Manual).

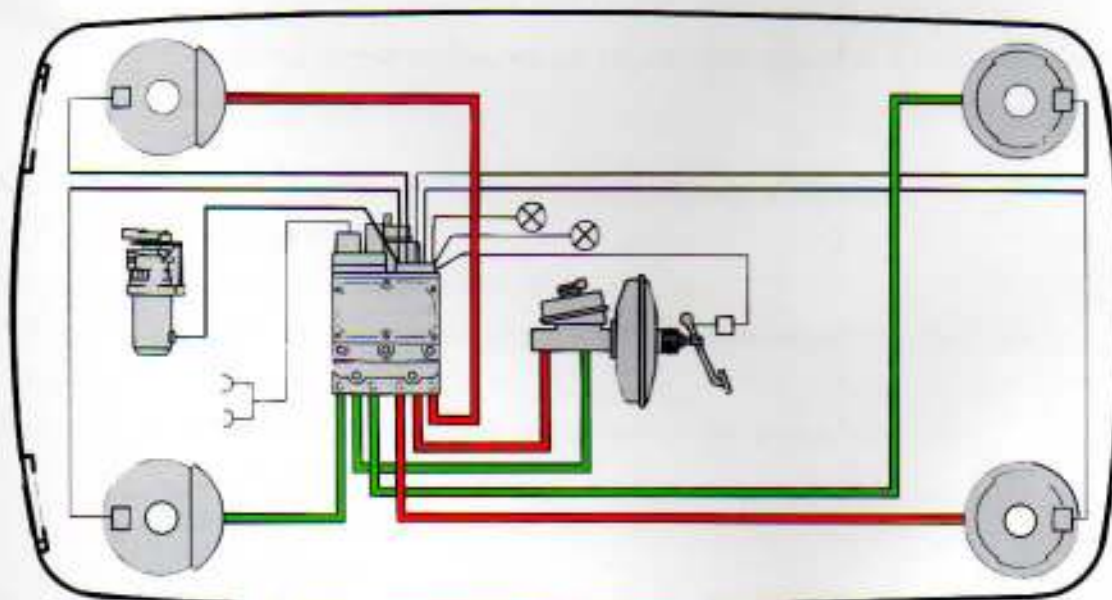
**Note:** If the **P** position is selected again, this procedure must be repeated.

- ☐ The CD4E automatic transmission features a new type of transmission oil (specification WSP-M2C194-A) with lifetime capability. No oil change prepared.
- ☐ The brake band is set in production and does not require readjustment in Service.

ABS control circuit



ABS/TCS control circuit





### Anti-Lock Braking System ABS

- ☐ Dual-circuit brake system with diagonal split brake circuits
- ☐ Separate ABS control for each individual wheel (4-channel), speed sensors at each wheel
- ☐ Twin-piston hydraulic pump
- ☐ Hydraulic actuator, ABS brake pressure pump, ABS module and ABS relay box assembled together in one compact unit.
- ☐ ABS module and ABS relay box form one unit
- ☐ ABS control does not come into effect at road speeds of less than 5 km/h (3 mph)
- ☐ If the ABS fails, the conventional brake system remains operative
- ☐ The ABS warning light is fitted in the instrument panel
- ☐ Self-diagnosis of electrical/electronic components via a serial interface in the ABS module

### Traction Control System TCS

- ☐ In addition to unique TCS components, utilisation of all existing Mondeo ABS components
- ☐ The Traction Control System is optional on 2WD with the 2.0 Zeta engine and standard with 4WD
- ☐ The Traction Control System is controlled by the ABS/TCS module
- ☐ Wheel speed signals required for control are supplied by the 4 wheel sensors of the ABS brake system
- ☐ TCS operation is indicated by the TCS warning light lightning up.
- ☐ If the TCS system is switched off, the TCS warning light remains constantly on.
- ☐ Throttle actuator for engine torque adjustment during traction control
- ☐ At road speeds greater than 50 km/h (30 mph), TCS control is provided purely by means of adjusting the throttle plate position.

### Diagnosis

- ☐ Serial interface for Ford Diagnosis System FDS 2000
- ☐ Test connector for STAR Tester

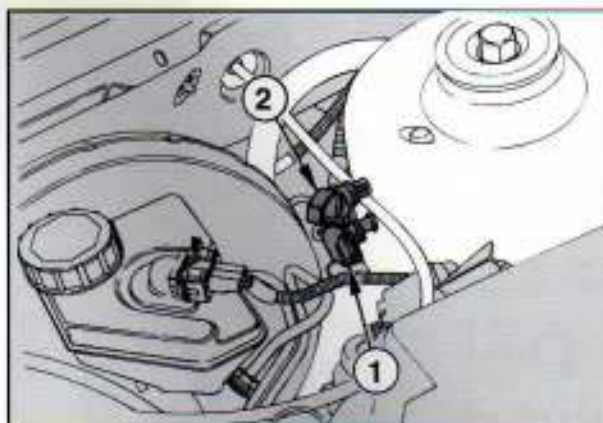
**Important for the Workshop**

- ☐ The hydraulic control unit, ABS pump and ABS/TCS module form one complete unit. This unit is installed at the bulkhead under the brake servo/master brake cylinder. If possible, diagnosis should be carried out with FDS 2000, since access to the connectors on the unit is restricted.
- ☐ The ABS/TCS module cannot be replaced individually.
- ☐ The relay box is bolted to the ABS/TCS module. In the event of a defective relay or defective diode, the complete relay box must be replaced.
- ☐ The brake pressure reducer valves (PCR) installed in the ABS/TCS unit for the rear wheel brake feature different thread diameters to avoid cross connection.
- ☐ The ABS/TCS system is maintenance-free. Only a visual inspection is necessary at routine service intervals.
- ☐ The brake system is bled in the same way as a conventional system.



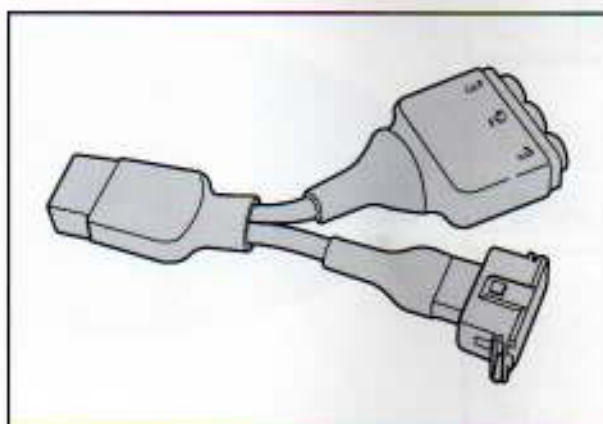
The test connectors are located on the left-hand side in the engine compartment between the brake servo and suspension strut top mounting.

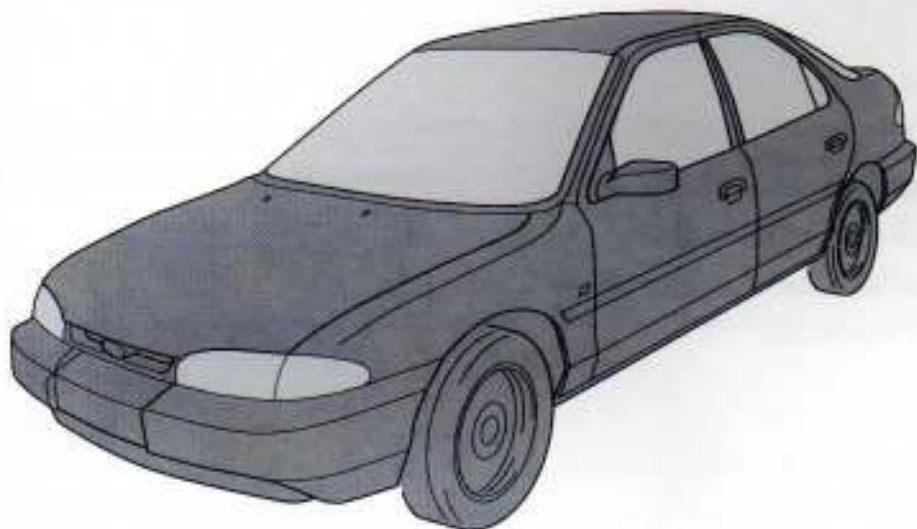
- 1 Diagnosis connector - FDS 2000
- 2 Self-test connector (STAR Tester)



- ☐ New test lead No. 15 (Special Tool 12-017) for F60 Breakout Box.  
New lead is not required if FDS 2000 is available.

- ☐ New test lead for throttle control motor (Special Tool 12-019) for connecting a multimeter. New lead is not required if FDS 2000 is available.







- ☐ Power supply and distribution with central electrical box and central timer module as well as battery junction box
- ☐ Exterior lights/interior lights
- ☐ Instruments/switches/warning lights

### Power Train

- ☒ Electronic engine management
- ☒ Electronic automatic transmission control

### Safety Electronics

- ☐ Double locking
- ☐ Anti-theft system and interior monitoring
- ☐ Air bags (driver's and passenger's)
- ☒ Anti-lock brake system (ABS) and traction control system (TCS)
- ☐ Horn operation
- ☐ Auxiliary warning system
- ☐ Heated windscreen/exterior door mirrors/washer nozzles
- ☐ Headlamp levelling

### Comfort Electronics

- ☐ Central locking system
- ☐ Infrared locking system
- ☐ "One-touch down" driver's power window and lock switch for rear door windows
- ☐ Power adjustable front seats
- ☐ Heated front seats
- ☐ Fuel computer
- ☐ Heating/air conditioning system
- ☐ Vehicle speed control (cruise control)
- ☐ Electronic adaptive damping system (ADS)
- ☐ Automatic self levelling (Estate)

### Diagnosis

- ☒ Described in the corresponding sections of this brochure.

Diagnosis (cont'd)

- ☒ Serial interface for FDS 2000 as well as self-test connectors for:
  - Electronic engine and automatic transmission management (EEC IV)
  - ABS/TCS
  - Anti-theft warning system
  - Adaptive damping system (ADS)
- ☐ Integrated self-diagnosis for:
  - Central timer module
  - Air bag (diagnosis unit)
  - Central locking/infrared locking system

Important for the Workshop

Central Timer Module (CT)

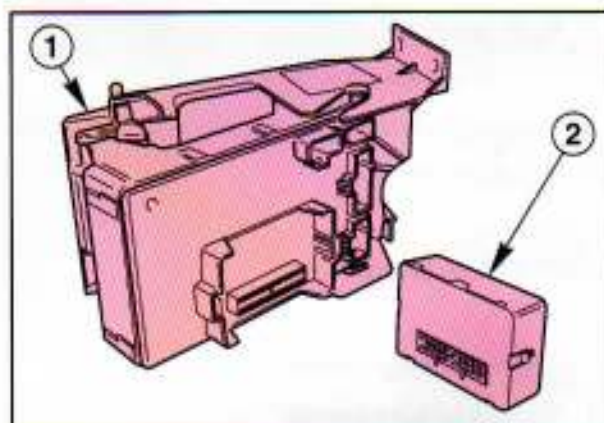
- ☐ The central timer module (Item 2) is plugged into the central electrical box (Item 1) from below and contains all standard time control elements for:

- Heated rear window
- Interior lights
- Intermittent wiper operation

as well as for the warning functions

- when the vehicle is left with lights switched on.
- when a vehicle with CD4E automatic transmission is not parked in position "P" (door open, ignition key removed).

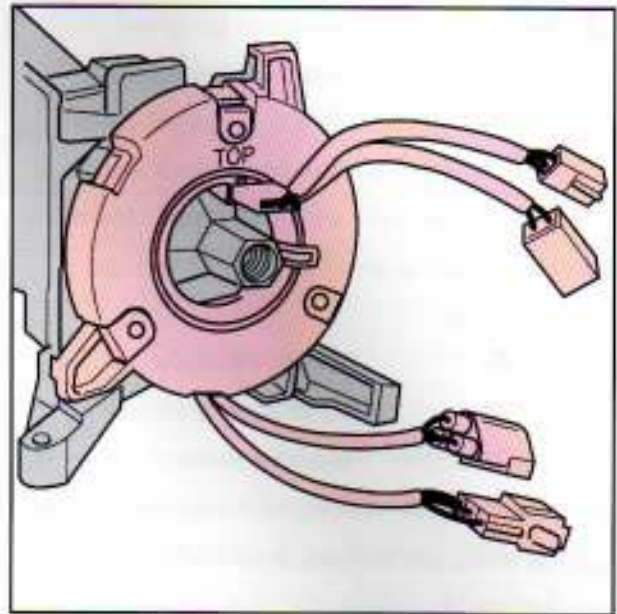
- ☐ The complete CT module must be replaced if one of the timers is defective.



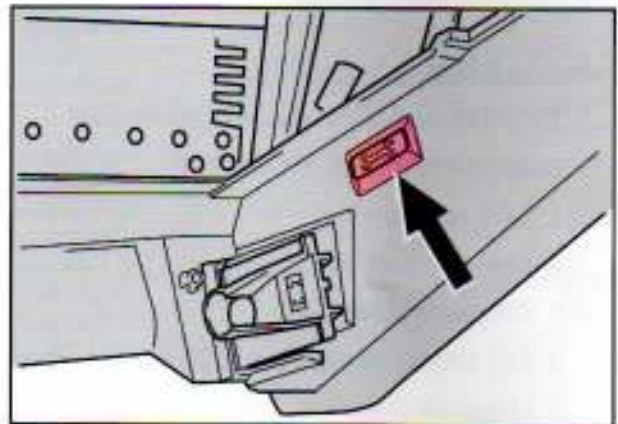


Clock Spring

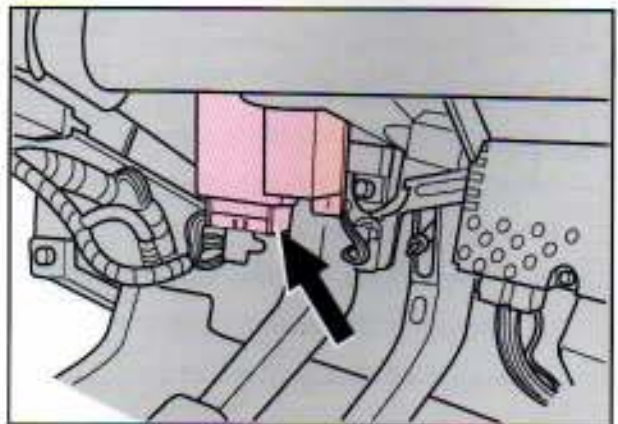
- The Mondeo uses a coil spring fitted in the steering wheel hub as the electronic connection for the horn, air bag and cruise control.
- Before removing the steering wheel, the coil spring or the steering column, lock the steering in the centre position by removing the ignition key to ensure the clock spring is also in the centre position (clock spring is marked with "TOP"). Otherwise, the ribbon-type leads wound up in the clock spring will be damaged.

Service Indicator

- The service indicator is reset by pressing the switch in the glove compartment.

Air Bag

- The sensor and electronic unit is mounted on the right-hand side next to the steering column in the footwell area (see Fig. below).  
The sensor and electronic unit contains the extremely sensitive crash sensor and must therefore be handled with appropriate care when performing service work.
- Mechanical switching noises from the sensor and electronic unit do not indicate a defect. Switching noises stem from the mechanically operated "Safing-Sensor".
- Under no circumstances must a defective air bag wiring loom be repaired! It must always be replaced by a new wiring loom.

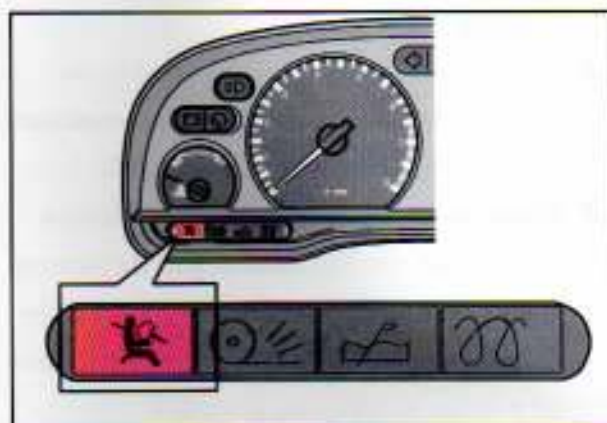


- The diagnosis unit monitors the entire electronic air bag system and indicates any faults by way of different activation patterns of the air bag indicator lamp which is located at the bottom left of the instrument cluster.

- The following new diagnosis equipment is required:

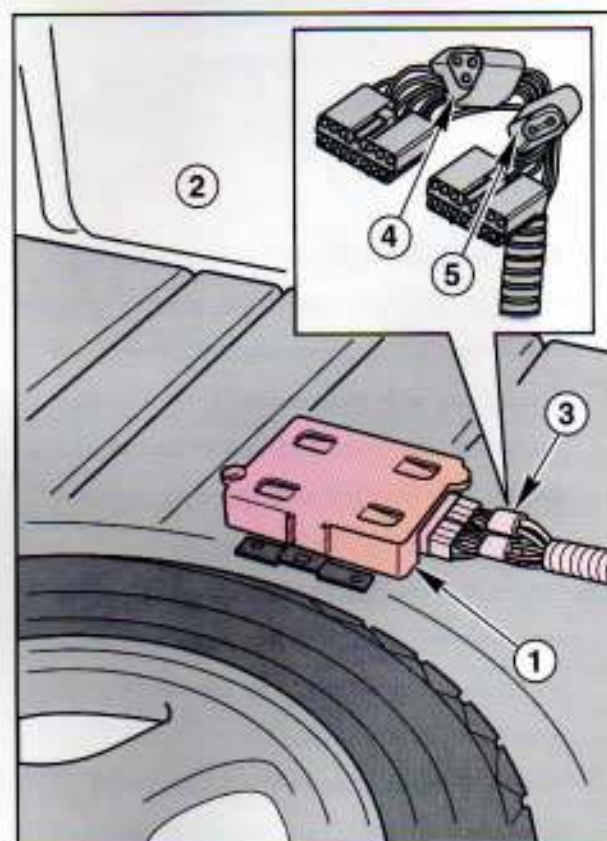
40-001	Air bag simulator
40-002	Breakout Box adaptor
29-011-07/08	Terminal probes

**Warning:** When working on the air bag system, the safety precautions, described in the Service Microfiche and New Vehicle System Test Manual must be strictly complied with.



## Adaptive Damping System (ADS)

- The ADS module is located in the luggage compartment behind the rear seat.
  - 1 ADS module
  - 2 Rear seat back rest
  - 3 Diagnosis connections
  - 4 Self-test connector (STAR Tester)
  - 5 Diagnosis connector - FDS 2000
- A new test lead No. 14 (33-011) is required for diagnosis with the Breakout Box if FDS 2000 is not available.



## Air Conditioning System

- New type environmentally acceptable refrigerant R-134a. Replaces the refrigerant R-12 containing CFCs.
- New Special Tools (34-003, 34-004, 34-005) for fluid pipe and fluid pipe throttle removal/installation are required as well as new A/C equipment.



## New Special Tools

Number	Description
13-013	Socket wrench, steering rack
13-014	Socket wrench, union nut
13-015	Expander, teflon seal
13-016	Adaptor, power steering bleeding
14-042	Spring compressor
14-043	Remover/installer, rubber bush
14-044	Clamping tool, boot retaining strap
15-097	Guide pins, rear axle carrier and subframe
16-073	Aligner, gear lever
21-140-03	Adaptor, for 21-140 (engine support bar)
21-172	Gauge, power train alignment
23-038	Socket wrench, sender unit and fuel pump
24-003	Remover/Installer, cooling hose clamp
34-003	Remover, A/C fluid pipe
34-004	Remover/Installer, A/C fluid pipe throttle
34-005	Remover, A/C fluid pipe throttle

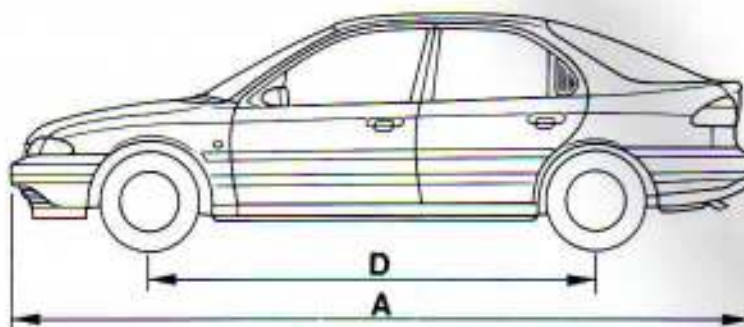
## New Diagnosis Equipment

Number	Description
12-017	BOB lead No. 15 - ABS and traction control testing*
12-019	Testlead - traction control motor testing*
29-009/A1	Modification kit for updating Löwener/Churchill Y-lead 29-009* (Y-lead 29-009/A does not require modification)
33-011	BOB lead No. 14 - Adaptive damping system testing*
29-011-07/08	Terminal probes - Air bag system testing
40-001	Air bag simulator - Air bag system testing
40-002	BOB adaptor - Air bag module testing

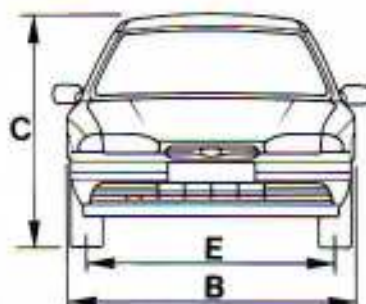
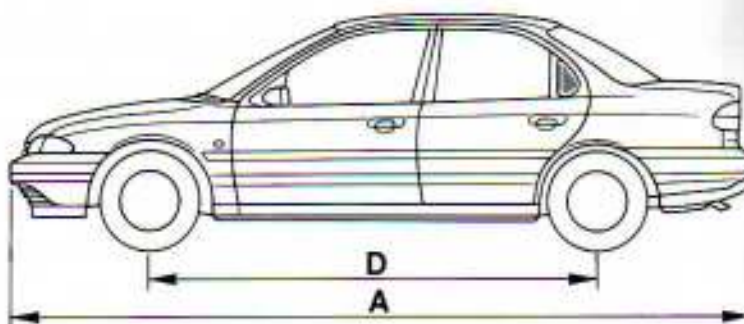
\* This equipment is not necessary if FDS 2000 is available.

## Vehicle dimensions

Hatchback



Notchback

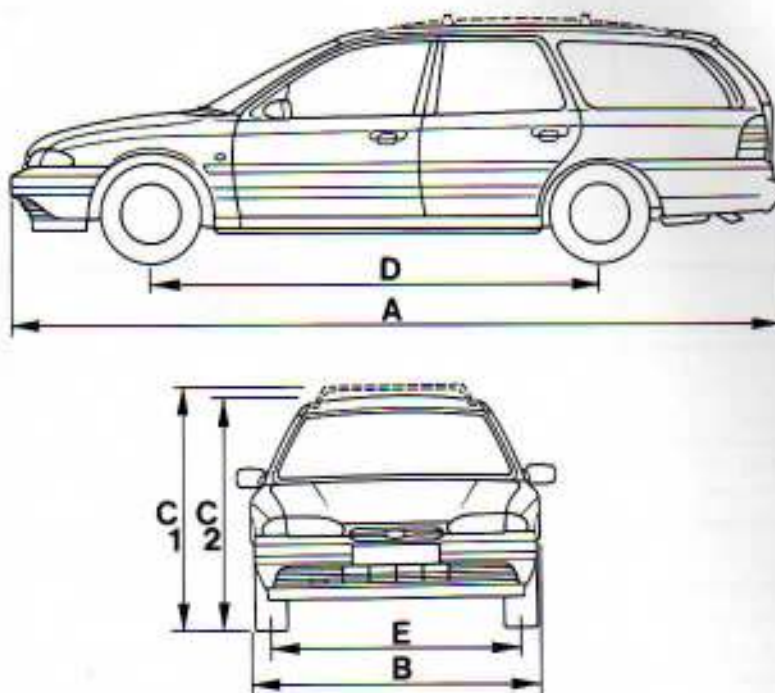


Dimensions (mm)		Hatchback	Si version	Notchback	Si version
A = Maximum length		4481	4481	4481	4481
B = Overall maximum width (excluding exterior mirrors)		1749	1749	1749	1749
C = Maximum height (kerb weight)		1432	1403	1435	1404
D = Wheelbase		2704	2704	2704	2704
E = Maximum track	Front	1503	1503	1503	1503
	Rear	1487	1487	1487	1487



Vehicle dimensions

Estate



Dimensions (mm)		Estate
A = Maximum length		4631
B = Overall maximum width (excluding exterior mirrors)		1749
C1 = Maximum height (kerb weight)		1501
C2 = Maximum height (kerb weight)		1442
D = Wheelbase		2704
E = Maximum track	Front	1503
	Rear	1504

## Engine data

Engine type	1,6 litre DOHC 16V with regulated catalytic converter	1,8 litre DOHC 16V with regulated catalytic converter	2,0 litre DOHC 16V with regulated catalytic converter	1,8 litre Turbo Diesel with oxidation catalyst***
Displacement (cc)	1597	1796	1988	1753
Power output kW (PS) at engine speed (rev/min)	66 (90) 5250	85 (115) 5750	100 (136) 6000	65 (88) 4500
Required fuel grade	Super grade unleaded; 95 octane*			Diesel
Max. continuous speed (rev/min)	5700	6200	6450	—
Max. intermittent speed (rev/min)	5925	6425	6675	Speed governor
Idle speed (rev/min) (with electric fan switched on)	830 + 50	830 + 50	830 + 50	850 ± 50
Engine management	Electronic fuel injection system			
Firing order/ Injection timing	1 - 3 - 4 - 2			
Spark plugs/Glow plugs (Motorcraft)	AYRF 22 PP			EZD 8
Spark plug gap (mm)	1,3			—
Ignition system	Electronic controlled (EDIS 4)			—
Valve clearances (cold) Inlet (mm) Exhaust (mm)	Hydraulic tappets			0,30 - 0,40** 0,45 - 0,55**
Engine oil filter (Motorcraft)	EFL 2			EFL 344

\* 98 octane unleaded fuel may be used without detriment but offers no real advantage.

\*\* To be checked statically not less than 5 minutes after stopping the engine.

\*\*\* Availability varies by market



Capacities

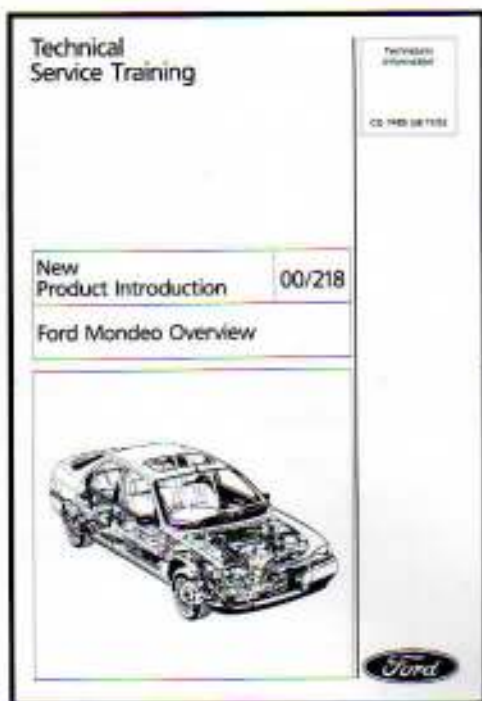
Capacities (litres)	1,6 litre DOHC 16V engine	1,8 litre DOHC 16V engine	2,0 litre DOHC 16V engine	1,8 litre Turbo Diesel engine
Engine oil	4,25	4,25	4,25	5,0
with filter	3,75	3,75	3,75	4,5
without filter				
Manual transmission	2,6 (2 wheel drive) 2,4 (4x4)			
Transfer box (4x4)	—	0,65		—
Rear axle (4x4)	—	1,0		—
Automatic transmission and oil cooler	—	7,2		—
Power assisted steering	Top up as required			
Cooling system	6,6 (with manual transmission) 7,1 (with automatic transmission)			
Screen washer system	2,5 (excluding rear screen washer system) 4,0 (excluding headlamp washer system) 8,0 (including headlamp washer system)			
Fuel tank	61 or 52 (4x4)			

Tyre pressures (when cold)

Model	Tyre size*	Pressure bar			
		Normal load - up to 3 persons		Full load - over 3 persons	
		Front	Rear	Front	Rear
Saloon	185/65 R 14 195/60 R 14 205/55 R 15	2,1	2,1 (2,3**)	2,4	2,8
Estate	185/65 R 14 195/60 R 14	2,1	2,1 (2,3**)	2,4	2,8

\* Fitted with tyre type TR, HR or VR - depending on engine capacity

\*\* For all 4x4 vehicles



## Additional Ford Mondeo New Product Introduction Brochures:

- 00/208 Ford Mondeo  
"Body", CG 7470
- 00/209 Ford Mondeo  
"1,6/1,8 and 2,0 DOHC 16V  
Zeta Engine", CG 7471
- 00/210 Ford Mondeo  
"MTX-75 Transmission and  
4x4 Drive", CG 7472
- 00/211 Ford Mondeo  
"Chassis", CG 7473
- 00/212 Ford Mondeo  
"Anti-Lock Braking System (ABS)  
and Traction Control System (TCS)",  
CG 7474
- 00/213 Ford Mondeo  
"Vehicle Electrics and  
Electronics", CG 7475
- 00/214 Ford Mondeo  
"Automatic Transmission CD4E",  
CG 7481
- 00/215 Ford Mondeo  
"1,8 Turbo Diesel Engine with  
Intercooler", CG 7482

Video Film "Product Introduction"  
Ford Mondeo, CG 7483

Video Film "Product Training"  
Ford Mondeo, CG 7484