

1994 CAR SERVICE MANUAL

Powertrain Control/Emissions Diagnosis

— Powertrain Control Systems Not Designed In North America —



**TECHNICAL
PUBLICATIONS DEPARTMENT**
Ford Customer Service Division

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Foreword

This portion of the 1994 Car Service Manual provides the Powertrain Control/Emissions Diagnostic information for the following vehicle, engine, and transaxle combinations:

MODEL YEAR	VEHICLE	ENGINE	SYSTEMS COVERED IN THIS PORTION OF THE MANUAL	SYSTEMS NOT COVERED IN THIS PORTION OF THE MANUAL
1994	Aspire	1.3L	All EEC Diagnostics	—
1994	Capri	1.6L	All EEC and 4EAT Diagnostics	—
1994	Escort/Tracer	1.8L	All EEC and 4EAT Diagnostics	—
1994	Probe	2.0L	EEC Diagnostics	2.0L CD4E Diagnostics
1994	Probe	2.5L	All EEC and 4EAT Diagnostics	—

The descriptions and specifications contained in this manual were in effect at the time this manual was approved for printing. Ford Motor Company reserves the right to discontinue models at any time, or change specifications or design without notice and without incurring obligation.

For service information on specific vehicle lines for Body, Chassis and Electrical and Powertrains, refer to the individual service manual. For information on pre-delivery, maintenance and lubrication for all vehicles, refer to the Pre-Delivery, Maintenance and Lubrication manual.



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What's New In This Manual

The following is a list of the modifications to this manual for 1994.

New Name

The name of the manual has changed due to the addition of a new manual covering On Board Diagnostics II vehicles. The names are Powertrain Control/Emissions Diagnosis Service Manual, On Board Diagnostics I, and On Board Diagnostics II. (See Other Changes or Additions for applications in the new manual. All other vehicle diagnostics are in the On Board Diagnostics I manual.)

New or Modified Applications

- 2.0L SFI CD4E Probe (new EGR system)
- 2.0L SFI M/T Probe (California only) (new EGR system)

Deleted Applications

- 2.3L OHC MFI Mustang
- 5.0L MA SFI Thunderbird/Cougar

Other Changes or Additions

- The diagnostics for the 3.8L SFI Mustang and 4.6L SFI Thunderbird/Cougar are in the On Board Diagnostics II (OBD II) manual.
- Diagnostics for the 2.0L Probe will start in Section 2A. Electronic Engine Control (EEC) concerns are diagnosed within Section A of the manual. System concerns for the 2.0L Probe are diagnosed in Section B.
- Intermittent ignition diagnostic procedures have been added to Section 8A.
- Throttle body material has been removed from Section 9A and is now part of Air Intake Systems, Section 12A.
- Section 9A, formerly Fuel/Throttle Body Systems Diagnostics is now Fuel Delivery Systems.

This Chart Identifies:

- The starting point of diagnostic routines and section location for vehicles with an integrated Powertrain and Transmission Control Module.
- The starting point of diagnostic routines and section location for vehicles with separate stand alone Powertrain Control Modules (PCM) and a separate stand alone Transmission Control Module (TCM).
- The starting point of diagnostic routines and section location for electronic transmission Quick Test section for vehicles equipped with 4EAT or 4F20E electronic transmission.

1994 COMPONENT DIAGNOSIS AND REPAIR PROCEDURES ASSOCIATION VEHICLES

Engine	Vehicle Application	Diagnostic Routine	Engine Supplement	EEC Quick Test	EEC Pin Point Test	EEC Monitor Box	EEC Engine Codes	4EAT Codes	4EAT Quick Test	4EAT Pin Point Test	IGN SYS	Fuel Delivery	EGR	EVAP	PCV	CAT CONV	Emission Related Components
1.3L	Aspire	2B	3B	5B	6B	7B	3B				8B	9B	10B	11B	14B	15B	**
1.6L	Capri	2B	3B	5B	6B	7B	3B	3B	5B	6B	8B	9B	10B	11B	14B	15B	**
1.6L Turbo	Capri	2B	3B	5B	6B	7B	3B				8B	9B	10B	11B	14B	15B	**
1.8L ATX	Escort/Tracer	2B	3B	5B	6B	7B	3B	3B	5B	6B	8B	9B	10B	11B	14B	15B	**
1.8L MTX	Escort/Tracer	2B	3B	5B	6B	7B	3B				8B	9B	10B	11B	14B	15B	**
1.9L ATX	Escort/Tracer	2A	3A	2A	6A	7A	3A	3A	2A	6A	8A	9A	10A	11A	14A	15A	17A
1.9L MTX	Escort/Tracer	2A	3A	2A	6A	7A	3A				8A	9A	10A	11A	14A	15A	17A
2.0L	Probe	2A	3A	2A	6A	7A	3A	*	*	*	8B	9B	10B	11B	14B	15B	**
2.5L	Probe	2B	3B	5B	6B	7B	3B	3B	5B	6B	8B	9B	10B	11B	14B	15B	**
3.0L	Villager	2B	4B	5B	6B	7B	4B	***	***	***	8B	9B	10B	11B	14B	15B	**

* CD4E Transaxle diagnostics sections are 2A, 3A and 6A

** Emission Related components have been merged into sections 6B, 8B, 9B, 10B, 11B, 12B, 14B and 15B where appropriate

*** 4F20E Transaxle diagnostics sections are 4B, 5B and 6B

Important Safety Notice

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles as well as the personal safety of the individual doing the work. This Service Manual provides general directions for accomplishing service and repair work with tested, effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. This Manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this Manual must first establish that he compromises neither his personal safety nor the vehicle integrity by his choice of methods, tools or parts.

Notes, Cautions, and Warnings

As you read through the procedures, you will come across NOTES, CAUTIONS, and WARNINGS. Each one is there for a specific purpose. NOTES give you added information that will help you to complete a particular procedure. CAUTIONS are given to prevent you from making an error that could damage the vehicle. WARNINGS remind you to be especially careful in those areas where carelessness can cause you personal injury. The following list contains some general WARNINGS that you should follow when you work on a vehicle.

- Always wear safety glasses for eye protection.
- Use safety stands whenever a procedure requires you to be under the vehicle.
- Be sure that the ignition switch is always in the OFF position, unless otherwise required by the procedure.
- Set the parking brake when working on the vehicle. If you have an automatic transmission or automatic transaxle, set in PARK unless instructed otherwise for a specific operation. If you have a manual transmission or manual transaxle, it should be in REVERSE (engine OFF) or NEUTRAL (engine ON) unless instructed otherwise for a specific operation. Place wood blocks (4" x 4" or larger) against the front and rear surfaces of the tires to provide further restraint from inadvertent vehicle movement.
- Operate the engine only in a well-ventilated area to avoid the danger of carbon monoxide.
- Keep yourself and your clothing away from moving parts when the engine is running, especially the drive belts.
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, three-way catalytic converter and muffler.
- Do not smoke while working on a vehicle.
- To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing before beginning to work on a vehicle.
- If it is necessary to work under the hood, keep hands and other objects clear of the radiator fan blades! Your vehicle may be equipped with a cooling fan that may turn on, even though the ignition switch is in the OFF position. For this reason care should be taken to ensure that the radiator electric motor is completely disconnected when working under the hood when engine is not running.

How to Use This Manual

Contents

Special Notes	1
Do	2
Don't	2
Flowchart	2

How To Use This Manual

SPECIAL NOTES:

- This manual is designed to assist the service technician in diagnosing and correcting driveability engine malfunctions.
- In each case, begin diagnosis with Section 2B, Diagnostic Routines. Section 2B defines the probable causes of the vehicle's symptoms. It functions as a checklist to ensure that all potential causes are reviewed. Refer to the flowchart on the following page.
- If a diagnostic procedure does not find the solution to a vehicle symptom, it is important to return to Section 2B to review all other possible causes of the symptom, as shown in the flowchart on the following page.
- Refer to Section 3B for electrical schematic diagrams, connector pin usage, quick test codes and code definitions, and mechanical schematic diagrams.
- Section 22B defines the terms used in this manual.

How To Use This Manual

DO

- Refer to Section 1B, Emission Control Identification/Application, to identify the emission components on the vehicle.
- Begin diagnosis with the diagnostic routines in Section 2B.
- Read all special notes.
- Prevent any unsafe or hazardous conditions by following the notes, cautions and warnings listed at the beginning of this book.
- After service, always verify that the repair corrected the customer complaint.

DON'T

- Skip from Section to Section.

Flowchart

