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## Introduction

### ABOUT THIS SUPPLEMENT

This booklet supplements your Owner Guide and is part of the owner's package. It describes the operation of your flexible-fuel vehicle (FFV) and how it differs from a gasoline powered vehicle. Therefore it is very important that you read and thoroughly familiarize yourself and others operating the vehicle with this guide.

Some of the information in this supplement replaces certain instructions in the Owner Guide. Please read this supplement carefully and completely. After reading this supplement, for complete vehicle information, also refer to the Owner Guide which is included with the vehicle.

### VEHICLE IDENTIFICATION

Your vehicle is equipped with a 3.0L flexible-fuel (FF) engine and fuel system. The Taurus FFV can be identified by two decals, located on the front doors.

The Taurus FFV has two versions, one for methanol and one for ethanol. Unleaded gasoline may be used in either version. However, methanol is not to be used in an ethanol vehicle and vice-versa. A decal on the inside of the fuel filler door shows you the correct fuels for your FFV. See the *Refueling* section of this supplement for more information on the fuels which may be used in your FFV.

You may verify which vehicle you have by checking the eighth character of the Vehicle Identification Number (VIN) located on the lower left corner of your dashboard. A "1" indicates a methanol/gasoline version. A "2" indicates an ethanol/gasoline version.

### WARNINGS

Warnings remind you to be especially careful in those areas where carelessness can cause damage to your vehicle or personal injury to yourself, your passengers or others. Please read all warnings carefully.

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### ABOUT THE WARRANTIES

The normal vehicle warranties will apply to your flexible-fuel vehicle. For further information, refer to your *Warranty Information Booklet*.

Specified maintenance procedures must be followed. Repairs must be made by trained personnel.

It is important that your flexible fuel vehicle be properly maintained by Ford flexible fuel trained personnel. If a problem occurs, it is important that properly trained personnel diagnose the cause. If the problem relates to the fuel system, proper part replacement is imperative to keep your vehicle operating at normal performance. Flexible fuel components and standard fuel components are not interchangeable and if your vehicle is not serviced in accordance with flexible fuel vehicle procedures, damage may occur and your warranty may be invalidated.

### PRECAUTIONARY INFORMATION



Do not swallow fuel of any kind. Fuels such as gasoline, methanol, ethanol and mixtures of these fuels are highly toxic and if swallowed can cause death or permanent injury. Swallowing methanol can also cause blindness. IMMEDIATELY SEEK MEDICAL ATTENTION. from a physician to treat anyone who has swallowed fuel. Be aware, if fuel is swallowed, onset of serious health effects may be delayed 12–24 hours.



Avoid inhaling fuel vapors. Inhaling too much fuel vapor of any kind can lead to eye and respiratory tract irritation. In severe cases, excessive or prolonged breathing of fuel vapor can cause serious illness and permanent injury.

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 Avoid getting fuel liquid in your eyes. If you get fuel in your eyes, remove contact lenses (if worn), flush immediately with plenty of water for at least 15 minutes and seek medical attention. Allowing fuel to get in your eyes will cause severe irritation. Failure to seek proper medical attention could lead to permanent injury.

 If you get fuel on your skin, wash with soap and water. repeated or prolonged skin contact with fuel liquid or vapor causes skin irritation. Make sure you wash your hands before handling food.

 Fuels contain gasoline such as Fuel Methanol and Fuel Ethanol may contain benzene which is a cancer-causing agent.

 If you are taking medication such as Antabuse® or other forms of disulfiram for the treatment of alcoholism, skin contact with fuel containing methanol or ethanol may cause the same kind of adverse reaction as drinking alcoholic beverages. In sensitive individuals, serious personal injury or sickness could result. If you are taking such medication, you should take extra care to avoid skin contact with fuel and to avoid breathing its vapors. If you do get fuel on your skin, wash it off immediately. Consult a physician promptly if you experience an adverse reaction.

**NOTE:** Flexible-fuel vehicle fuel tanks may contain any percentage of methanol or ethanol from zero to 85 percent or more. Any fuel blends containing

## Starting your vehicle

methanol or ethanol and gasoline should be “treated” the same as “Fuel Methanol (M85)”, which is described in the *Refueling* section of this supplement.

### Health information

Flexible-fuel vehicle fuel tanks may contain any percentage of methanol or ethanol from zero to 85 percent or more. Any fuel blends containing methanol or ethanol and gasoline should be treated the same as “Fuel Methanol (M85)”, which is described in the *Refueling* section of this supplement.

### PREPARING TO START YOUR VEHICLE

Climate conditions and other factors play a large part in deciding how to start the engine. Read all the starting instructions carefully, so you'll be aware of these factors when you start the engine.



Before turning the key, make sure the parking brake has been set fully. Place the gearshift in P (Park).

Do not crank the starter continuously for more than 30 seconds at a time, as starter overheating or other damage could result. If the engine fails or falters in starting, wait three or four seconds before re-engaging the starter. If the engine is flooded, or fires intermittently, and fails to start during a 30-second cranking period, wait two minutes before attempting to start the engine again.

A computer system controls the engine's idle RPM. When you start your vehicle, the engine's idling RPM normally runs high. These higher engine speeds will slow down when the vehicle warms up. If they do not, have the idle RPM checked.

## Starting your vehicle



If the engine idling speed does not slow down automatically, do not allow your vehicle to idle for more than 10 minutes. Have the vehicle checked as soon as possible. Extended idling at high engine speeds can produce very high temperatures in the engine, fuel systems and exhaust system, creating the risk of fire or other damage to the vehicle and possibly resulting in personal injury.

If fuel odor is detected inside the vehicle, have the vehicle checked by a qualified service technician.



Do not start your vehicle in a closed garage or other enclosed area. Exhaust fumes can be toxic. Always open the garage door before you start the engine.

### **Before you start your vehicle, do the following:**

1. Make sure you and all your passengers buckle your safety belts.
2. Make sure your headlamps and other accessories are turned off.
3. Make sure the gearshift lever is in P (Park) and the parking brake is set before you turn the key.

### **STARTING THE ENGINE**

#### **Starting procedure**

1. Follow the steps under *Preparing to Start Your Vehicle*.
2. Turn the key to START until the engine starts, then release the key. **Do not press down on the accelerator.**

## Starting your vehicle

3. Release the key as soon as the engine starts. Do not hold the key in START or you could damage the starter. After you start the engine, let it idle for about 15 seconds.

4. Hold your foot on the brake pedal, put the gearshift lever in gear and release the parking brake. Slowly release the brake pedal and drive away in a normal manner.

### Cold weather starting

Your flexible-fuel vehicle is equipped with an engine block heater. The standard 110V AC (male) plug is located in the upper left-hand air inlet opening, under the bumper.

When the temperature is expected to be  $-12^{\circ}\text{C}$  ( $10^{\circ}\text{F}$ ) below and your vehicle has M85 or E<sub>d</sub>85 fuel, you should plug in the engine block heater to ensure a quick start.

If temperatures are expected to remain below  $-12^{\circ}\text{C}$  ( $10^{\circ}\text{F}$ ), it is recommended that you reduce the alcohol content in your fuel tank to about 70% by adding unleaded gasoline if your tank is not already full. Thirteen liters (3 gallons) of gasoline will reduce the alcohol in 3/4 full tank from 85% to about 70%. In some areas, winter blends of fuel methanol (M85) and fuel ethanol (E<sub>d</sub>85) will already contain the extra gasoline. See the *Refueling* section of this supplement for more information on alcohol fuels.

If you should unexpectedly have 85% alcohol in your fuel tank in extremely cold temperatures with no way to use the engine block heater, the engine may require extended crank times and several attempts to start.

### If the engine fails to start using the preceding instructions

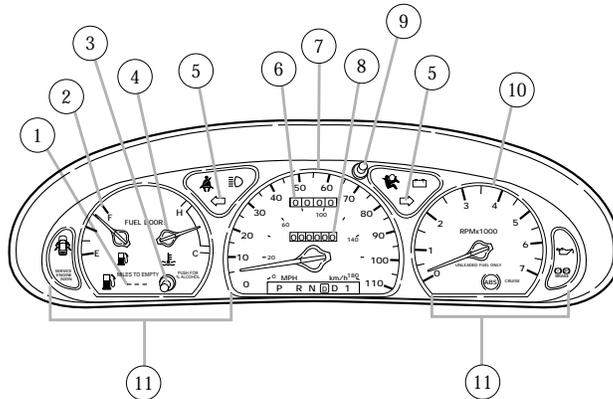
1. Press the accelerator pedal 1/3 to 1/2 of the way to floor and hold.

## Starting your vehicle

2. Turn the key to START position.
3. When the engine starts, release the key, then release the accelerator pedal gradually as the engine speeds up.
4. If the engine still fails to start, repeat steps one through three.
5. After the engine starts, hold your foot on the brake pedal, put the gearshift lever in gear and release the parking brake. Slowly release the brake pedal and drive away in a normal manner.

If your vehicle has alcohol content in the fuel tank between 10 and 30 percent, and the outside temperature is above 27°C (80°F), you may experience a rough or rolling idle after start up. The idle should improve in 10 to 30 seconds.

## Instrument panel controls



1. Miles to Empty and % Alcohol display
2. Fuel gauge
3. Engine coolant temperature gauge
4. Turn signal indicator
5. Trip odometer
6. Speedometer
7. Odometer
8. Trip odometer reset control
9. Tachometer
10. Warning/indicator lights
11. % Alcohol display control

### FUEL RELATED FUNCTIONS

The following features are not available on vehicles sold in Canada.

#### Miles to empty

The "Miles to Empty" function tells you approximately how many miles you can drive before

## Instrument panel controls

you run out of fuel. The “Miles to Empty” is the default display which will be indicated unless the driver depresses the button to request a “% ALCOHOL” display.

For your convenience, if the miles remaining is below 50 miles, the Miles to Empty display will flash for approximately five seconds when the key is first turned on. The display will repeat this action for each key-on while the miles remaining is below 50 miles.

Low Fuel Indication - In addition to the Miles to Empty display, the FFV instrument cluster features a Low Fuel Warning lamp which replaces the warning indicators used in previous model years. Please refer to the *Instrument Panel, Warning Lights and Gauges* section of the Taurus Owner Guide for a description of this feature.

Typical Key-On - When the ignition key is turned on, the Miles to Empty display will initialize by showing three eights (888) for approximately five seconds before indicating the miles remaining.

Key-On After Refueling - When you add at least 9.5 liters (2.5 gallons) of fuel to your tank, the remaining miles will be calculated shortly after the engine is started. The display will initialize at key-on by showing three eights (888) for about five seconds. The display will show three dashes (---) for about two minutes while the engine is on and the new fuel level and fuel alcohol percentage are being determined. The display will then indicate the new remaining miles. To ensure accuracy, turn the ignition OFF when you add fuel to your tank.

The Miles to Empty display is calculated based on the running average fuel economy value. This value is based on at least 500 miles of driving history. If your battery has been disconnected, the running average fuel economy will be reset to an initial value as it was when the vehicle was new. The Miles to Empty display will then update based on this value.

## Instrument panel controls

### **% Alcohol display**

This display indicates the approximate percentage of “alcohol” in the fuel line to the engine. It cannot differentiate between ethanol and methanol. Therefore, your readout will be meaningful only when the fuel type being used matches the type shown on the label inside your fuel filler door.

The display “% Alcohol”, depress the button located to the right of the “Miles to Empty” display on the instrument cluster. There is a label next to the button which reads, “PUSH FOR % ALCOHOL”. The display will indicate % Alcohol for approximately five seconds and then return to the Miles to Empty display.

As noted in the Miles to Empty section, adding at least 9.5 liters (2.5 gallons) of fuel will cause the display to recalculate the miles remaining and the % alcohol based on the current tank of fuel. To ensure accuracy, turn the ignition OFF when you fill the fuel tank.

It is important to use only the fuels recommended for your FFV. Refer to the *Refueling* section of this supplement for information.

### **OTHER WARNING LIGHTS AND GAUGES**

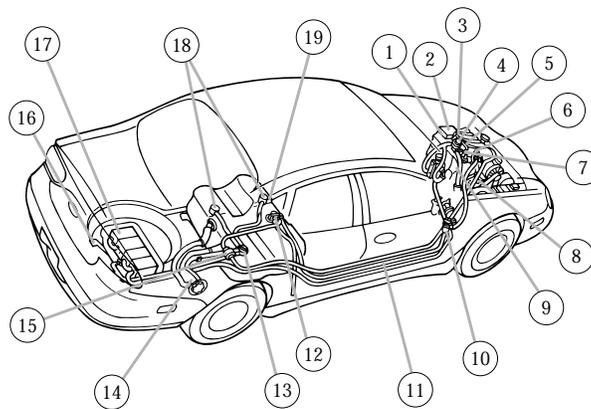
The FFV instrument cluster also has separate warning lights and gauges that tell you the condition of your vehicle. When illuminated, these warning lights and gauges warn you about the brakes and parking brake, safety belts, battery, oil pressure, high beams, air bag, anti-lock brake system, Powertrain Control Module (PCM) system (check engine), temperature of the engine coolant, how much fuel you have in your tank, how fast you are driving, engine RPM, and the total distance your vehicle has been driven.

Refer to your Owner Guide for information regarding the warning lights and gauges for your flexible-fuel vehicle.

## Flex fuel (FF) component identification

### FLEX FUEL (FF) COMPONENT IDENTIFICATION

*The accompanying illustration shows all of the unique 3.0L Taurus FF components at a glance. All of these unique materials and alloys have “methanol fuel compatibility”. NEVER replace a unique FF component with a standard vehicle component. Ford Motor Company has designed the materials, components and system configurations specifically for the 3.0L Taurus FF vehicle and is monitoring the service history of these vehicle.*



1. **Spark plug**— Has a colder heat range and the wire electrode is wider for better heat transfer.
2. **Engine**— Internal engine changes for “alcohol fuel compatibility.”
3. **Fuel injectors**— Higher fuel flow capacity, modified spray nozzle design and material changes for “alcohol fuel compatibility.”
4. **Engine oil**— Specifically designed for engines operated with methanol and ethanol fuels.

## Flex fuel (FF) component identification

5. **Fuel rail**— Material changes are made for “alcohol fuel compatibility.”
6. **Fuel pressure regulator**— Material changes are made for “alcohol fuel compatibility.”
7. **Engine block heater**— Use to assist in cold start below  $-12^{\circ}\text{C}$  ( $10^{\circ}\text{F}$ ).
8. **PCM processor**— Calibration is utilized to optimize engine function for alcohol fuel operation.
9. **Wiring harness**— Wiring changes have been made to connect with the fuel sensor.
10. **Fuel sensor**— Determines the percentage of methanol in the fuel for methanol FFVs or percentage ethanol for ethanol FFVs.
11. **Fuel supply and return lines**— Material changes are made for “alcohol fuel compatibility.”
12. **Fuel pump assembly/fuel sending unit**— Fuel pump specifically designed for alcohol fuels. Stainless steel parts are used.
13. **Vapor control valve**— Controls vapor flow to charcoal canister
14. **Filler tube**— Improved coating is applied and anti-siphon screens installed.
15. **Fuel filter**— Material changes are made for “alcohol fuel compatibility.”
16. **Charcoal canister tray**— Protective enclosure.
17. **Evaporative emission system**— Charcoal canister system enlarged and modified for additional alcohol fuel vapor capacity and higher vapor flow.
18. **Vapor (rollover) valves**— Helps to increase fuel capacity and vapor flow. Material changes are made for “alcohol fuel compatibility.”
19. **Fuel tank**— A specially coated steel fuel tank is used for “alcohol fuel compatibility.”

“Alcohol fuel compatibility” means that the component performs satisfactorily, is durable and does not contaminate the fuel when tested in

## **Servicing your vehicle**

worst-case methanol-gasoline and ethanol-gasoline blends up to 85% alcohol.

### **REFUELING**

Use only fuels which meet the specifications issued by the American Automobile Manufacturer's Association (AAMA) and of the type specified for the calibration number printed on the calibration decal. Use of other fuels may cause powertrain damage as well as loss of vehicle performance. It will also invalidate the Ford Warranty and any extended service agreement.

### **WHAT FUELS SHOULD BE USED?**

The Taurus FFV has two versions, one for fuel methanol and one for fuel ethanol. Unleaded gasoline may be used in either version. However, fuel methanol is not to be used in a fuel ethanol vehicle, and vice-versa. The correct fuels for your FFV are shown on a decal, located on the inside surface of the fuel filler door.

These vehicles will operate well on ordinary commercial quality unleaded regular gasoline, but only the highest quality fuel methanol or fuel ethanol will provide the same level protection and performance. The American Automobile Manufacturer's Association (AAMA) has published standards for these fuels designed to give FFV's the best possible performance, safety and durability. To assist alcohol fuel providers in meeting these standards, the AAMA has also published companion guidelines which proscribe "Methanol and Ethanol Fuel Compatible" dispensing station equipment. Stations may apply to the AAMA to be certified as meeting these standards. However, not all stations meet these standards at this time. To ensure proper operation of your Taurus FFV on the appropriate alcohol fuel, refuel at stations certified by the AAMA.

## Servicing your vehicle

### WHAT IS FUEL METHANOL (M85)?

Methanol, also known as methyl alcohol or wood alcohol, is a colorless, odorless liquid produced from coal or natural gas. It is not the same substance as the alcohol found in alcoholic beverages (ethanol or ethyl alcohol) but is more toxic.

Fuel methanol (M85) is a mixture of approximately 85% commercial grade methanol (M100) and 15% unleaded gasoline. Gasoline is added to give certain qualities important for use as a motor fuel. The resulting fuel has a higher octane rating than unleaded regular gasoline and other properties which allow engine designs with greater efficiency and power.

Winter blends of fuel methanol (M85) may contain up to 30% unleaded gasoline to enhance cold engine starts. Severely cold weather may require additional measures for reliable starting. This supplement contains specific information for starting under these conditions.

Since methanol has less energy per gallon, fuel economy in miles per gallon will decrease as the percentage of methanol goes up. However, it is still more efficient on an energy basis to run M85 in a flexible fuel vehicle than gasoline.

Methanol corrodes some metals and causes some plastic and rubber materials to swell, break down or become brittle and crack, especially when mixed with gasoline. Special materials and procedures have been developed for the Taurus FFV and for the dispensers used by M85 fuel providers.

*U.S. government regulations require retail fuel methanol dispensing pumps to have a small square orange and black label with the common abbreviation for the fuel such as: "M85" above the mid-line and the words "MINIMUM xx% METHANOL" below the mid-line. The "xx%" is replaced with either "70%" or "85%" as appropriate for the region.*

## Servicing your vehicle

### WHAT IS FUEL ETHANOL (E<sub>d</sub>85)

Pure ethanol is the alcohol which is the intoxicating agent in liquor, beer and wine. It is distilled from the fermentation of plants such as field corn and sugar cane. When ethanol is used in the making of motor fuels, a small amount of a bad tasting chemical is added to discourage beverage use. The resulting fuel feedstock is called E<sub>d</sub>100 meaning 100% pure ethanol diluted by 2% to 5% gasoline as the "denaturant".

Fuel ethanol (E<sub>d</sub>85) is then made by adding 15% more unleaded gasoline. The resulting fuel also has a higher octane rating than unleaded regular gasoline and other properties which allow engine designs with greater efficiency and power.

As with fuel methanol, winter blends may contain up to 30% unleaded gasoline (25% plus the denaturant) to enhance cold engine starts. Severely cold weather may require additional measures for reliable starting. This supplement contains specific information for starting under these conditions.

Like methanol, ethanol is more chemically active than gasoline. It too corrodes some metals and causes some plastic and rubber components to swell, break down or become brittle and crank, especially when mixed with gasoline. The same special materials and procedures developed for the Taurus Methanol FFV are used in the Taurus Ethanol FFV.

Ethanol also has less energy per gallon, so fuel economy in miles per gallon will decrease as the percentage of ethanol goes up. However, the decrease is not as severe as with methanol.

*U.S. government regulations require fuel ethanol dispensing pumps to have a small square orange and black label with the common abbreviation for the fuel such as: "E85" above the mid-line and the words "MINIMUM xx% ETHANOL" below the mid-line. The "xx%" is replaced with either "70%" or "85%" as appropriate for the region.*

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See *Precautionary Information* for more fuel information.

Use of other fuels may cause powertrain damage as well as loss of vehicle performance. It will also invalidate your extended service agreement.

Do not operate the engine while refueling. Do not smoke while refueling.



Do not modify the fuel system configuration or components, or replace components with parts not especially designed for use with fuel methanol or fuel ethanol. Ford Motor Company has specially designed the materials, components and system configuration for methanol- or ethanol-fueled vehicles and each particular system is precisely calibrated for efficient operation. The use of different parts or materials could produce an untested configuration that could result in fire, personal injury, or could cause engine damage.

### ADDING ENGINE OIL

Use an engine oil which is formulated specifically for vehicle which are capable of using fuel methanol. Do not use or mix other types of engine oil. Ford recommends using Motorcraft Oil (XO-10W30-FFV or CXO-10W30-FFV [available only in Canada]) for methanol/gasoline and ethanol/gasoline flexible fuel vehicles or an equivalent oil that meets Ford specification WSE-M2C909-A2.

Use of a specific oil is mandatory for proper operation of flexible fueled engines throughout the warranty period and for validation of the extended service agreement.

When a Taurus FFV is being operated in an area where methanol/ethanol are not available or using only unleaded gasoline with 10% or less alcohol, the use of Ford specified synthetic engine oil (part number XO-10W30-FFV or equivalent) is not

## Servicing your vehicle

required. Motorcraft engine oil (part number XO-5W30-QSP or XO-10W30-QSP or equivalent) is the recommended engine oil for these vehicles. Oil change intervals must be maintained at the recommended 8,000 km (5,000 miles) with either oil usage. If the vehicle is occasionally driven using methanol/ethanol blended fuels, the FFV engine oil (XO-10W30-FFV) MUST be used. The FFV vehicle recommended Motorcraft spark plugs stock number AWSFA-12C installed as original equipment MUST continue to be used for ALL types of fuels.

### SPARK PLUGS

The spark plugs used in the flexible fuel vehicle are different than those used in the gasoline-powered vehicle. This is necessary to prevent engine damage due to pre-ignition.

Standard spark plugs must never be installed on the FFV engine, because disabling and expensive engine damage may occur. Proper spark plugs may be purchased through your dealer. Ask for Motorcraft part number AWSFA-12C. At the time of this writing, no equivalent is available. For additional information, contact your dealer.

### FUEL FILTER

The fuel filter used on flexible fuel vehicles is specifically designed using materials that are methanol compatible. Refer to the *Service Guide* for recommended intervals. When your fuel filter requires servicing, your FFV trained Ford dealer can install the proper replacement (Motorcraft part number FG-877).

### LONG-TERM STORAGE

Due to the small amounts of corrosive impurities that may be found in M85 and E<sub>85</sub>, it is recommended that the fuel be switched over to 100% high-quality unleaded gasoline prior to long-term storage of your FFV.