



Thunderbird
HANDBOOK

*1955 Ford
Thunderbird
Handbook*

REPRINTED BY CLASSIC THUNDERBIRD CLUB INC.
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FORD MOTOR COMPANY

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Foreword

Your Thunderbird is a true, high performance car, yet it retains all of the conveniences and all-weather protection of your family sedan. We are confident you will derive many thousands of pleasant and exciting miles from your Thunderbird. This handbook is designed to assist you in maintaining its original beauty and sparkling performance.

"From The Driver's Seat" provides complete information on the operation of the instruments and controls, as well as any optional equipment which you may have in your car. Each unit is described under appropriate headings which can be readily located through use of the "Index" at the back of the book.

Under the caption "Out On The Road" you will find information about starting the engine, and shifting gears. It also gives driving tips to obtain fuel economy and suggestions concerning operation and performance on the highway which will enable you to derive maximum safety and satisfaction from your car.

"In The Garage" describes the operations necessary to maintain the high performance which is built into and which you expect from your Thunderbird. A lubrication chart and a maintenance guide point out those units on your car which should be serviced at regular intervals. Detailed procedures covering trouble shooting, engine tune-up, and various other adjustments are also given for the enthusiast who prefers to do his own mechanical maintenance.

The "Specifications" at the back of the handbook, provide capacity and dimensional values which should be referred to when maintenance or service operations are performed.

The information, specifications, and illustrations contained in this handbook are based on information available at the time of publication. The Ford Motor Company reserves the right to make changes at any time without notice or obligation.

November 1, 1954

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From The Driver's Seat

As you relax behind the wheel of your Thunderbird, operate the various controls and familiarize yourself with the instruments as you read the next few pages. If you get well acquainted with the instruments and controls before you do any extensive driving, the ensuing miles will be much more pleasurable.

BREAK-IN

As you may have already assumed, this vehicle is designed to provide high performance. However, in view of the fact that this is a production automobile, it has not been broken-in at the factory. A few precautions on your part, during the first few miles of driving, will improve the operation of all the moving parts and greatly extend their life expectancy.

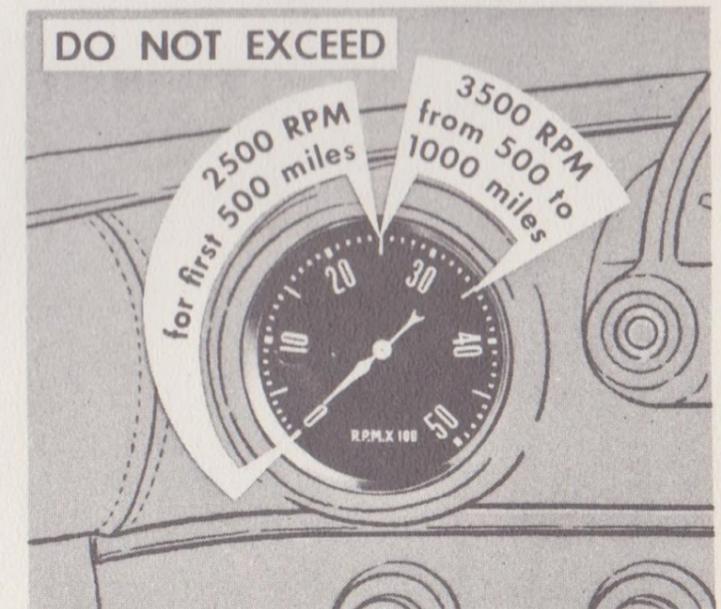
Although consistently low speeds during the break-in period should be avoided, it is not recommended that the engine be operated in excess of 2500 r.p.m. for the first 500 miles or 3500 r.p.m. for the second 500 miles. Vary your speed up and down through the range, and avoid maintaining a steady pace for a long period of time.

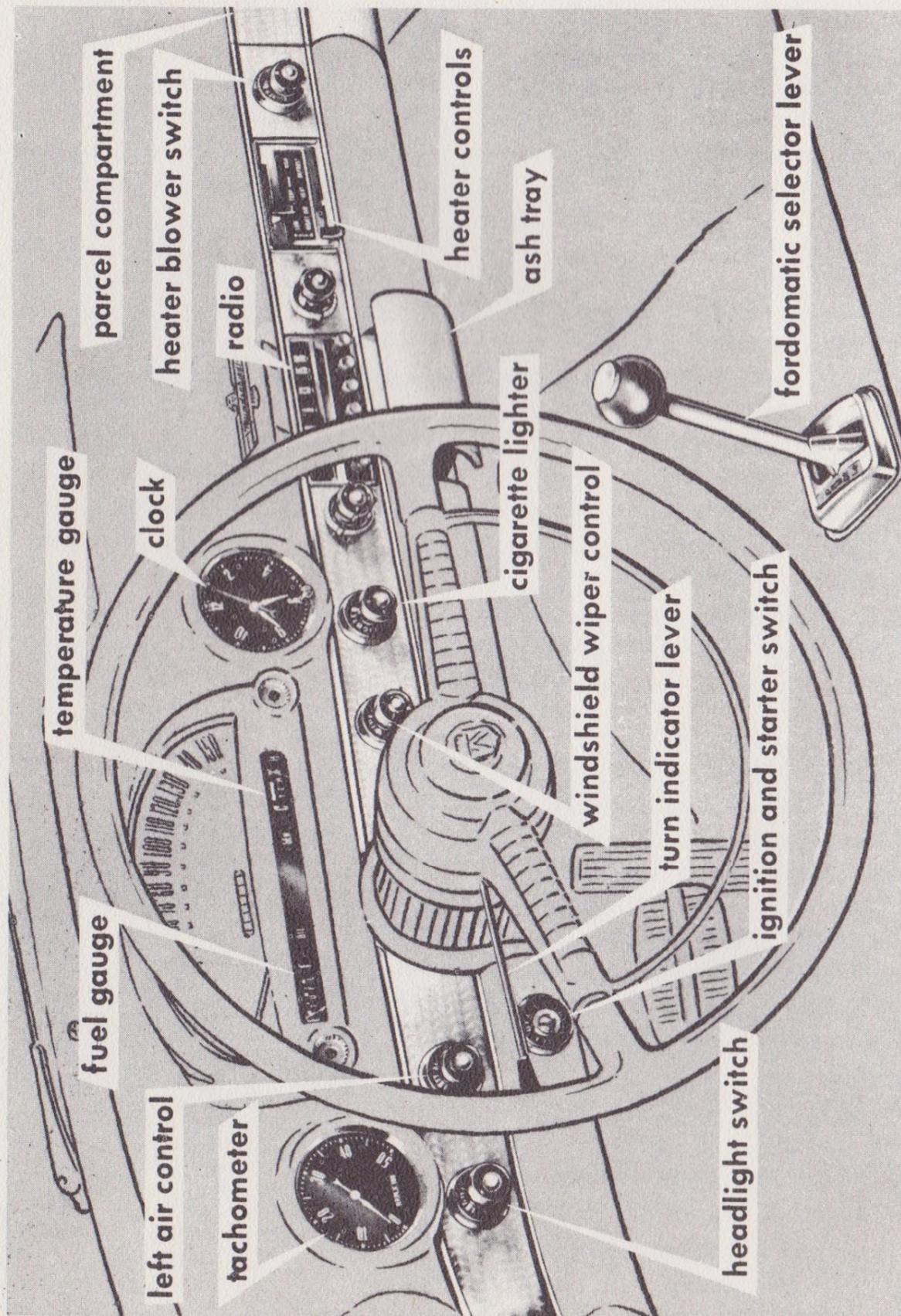
There are some important maintenance operations which should be performed during and after the first 1000 miles of operation. Turn to page 24 and make a mental note of these things as a precaution against overlooking them.

IGNITION SWITCH

The ignition switch is also the starter switch. It has four positions, clearly marked on the bezel. The ACC position permits operation of the accessories, such as the radio, when the engine is not running. When the key is in the ON position, all of the electrical circuits in the car are energized. Turning the key to the right, against spring tension, operates the starter.

Now is a good time to jot down your key numbers on one of the numerous cards in your wallet. Using these code numbers, any Ford Dealer, and most locksmiths, can make replacement keys.





HEADLIGHT SWITCH

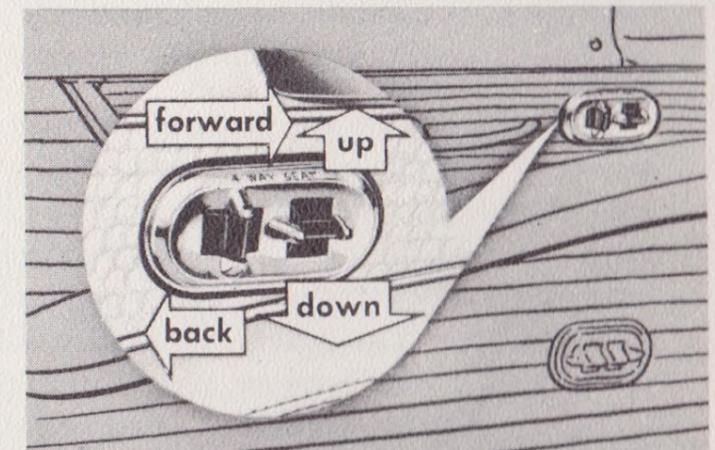
This is a two-position, push-pull type switch. The first notch turns on the parking and taillights. Pull it all the way out for headlights. The control panel lights go on whenever the headlight switch is actuated. The brilliance of the control panel lights is controlled by rotating the switch knob.

DIMMER SWITCH

The headlight dimmer switch provides dim or bright lights as desired. A small, red signal light, located in the center of the speedometer, lets you know when your bright lights are on. Good drivers always dim their lights for oncoming traffic or when approaching another vehicle from the rear.

INTERIOR LIGHT

When you open either door, the interior of the car is illuminated. The interior light can also be turned on and off, when the doors are closed, by use of the switch on the light.

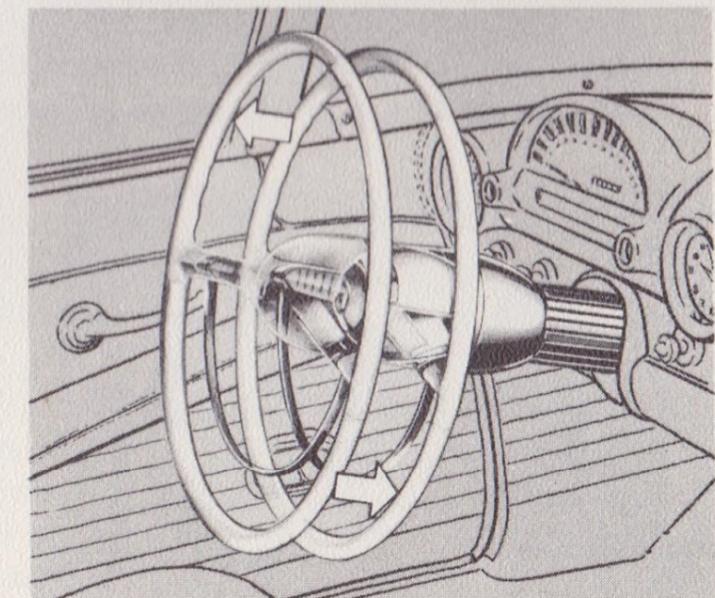


SEAT AND STEERING WHEEL ADJUSTMENT

The combination of an adjustable steering wheel and an adjustable seat provides a comfortable driving position.

4-Way Power Seat. Multiple seat positions are attainable with the 4-Way Power Seat. The control buttons move the seat in the same direction as you push the button. The seat moves four inches fore and aft, and one and three-quarters inches up and down. The ignition switch must be ON to operate the power seat.

Adjustable Steering Wheel. The steering wheel has a total fore and aft adjustment of three inches. This



adjustment, in combination with the seat adjustment, allows you to obtain a custom-fitted driving position. To release the wheel so its position can be altered, turn the large collar on the steering column clockwise about 1/2 turn. Move the wheel fore or aft to the position desired, and lock it by turning the collar counterclockwise.

POWER STEERING

If your Thunderbird is equipped with Ford's Master-Guide Power Steering, you will have feather-touch steering control. You will appreciate the ease with which you can park and maneuver. Power steering also affords superb control when you are forced onto a soft shoulder. Power steering operates only when the engine is running. If your power steering fails to operate, safe steering is provided at all times by the conventional steering system.

INSTRUMENTS

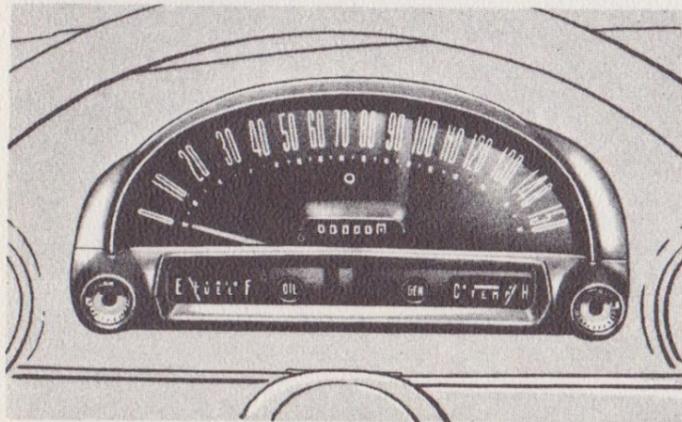
The instruments are grouped directly in front of you. A quick impression of how the engine and other units of the vehicle are operating can be gained with a minimum of distraction from the road. Develop the habit of looking at these instruments once in a while when rolling down the highway. It may keep you out of trouble and save expensive repairs.

Fuel Gauge. The fuel gauge needle will rest at the E (empty) mark when the ignition is off. However, the position the needle assumes when the ignition is off may not be indicative of its position when the fuel tank is empty. It is wise to replenish your fuel supply when the needle approaches the square dot next to the E.

Oil Pressure Warning Light. The oil pressure warning light comes on when you turn on the ignition. After starting the engine it goes out. The light may flash on following a severe brake application. This does not indicate trouble,

as the light will go off within a few seconds. However, frequent flashing of the light during moderate brake stops may indicate low oil level or a faulty oil pressure sending unit.

Generator Charge Indicator Light. A red generator indicator light on the control panel goes on when the battery is discharging and the generator is not supplying current. This is not serious unless the



light remains on for a long period of time. If this occurs, it is wise to inspect the fan belt to assure that it has not broken. If the fan belt is broken, replace it immediately, as the engine cooling system will not operate without it. If the generator is not charging for some other reason, it is safe to drive on until repairs can be made. Continuous driving with the generator not charging will result in the battery running down to the point where it may not operate the starter. The generator indicator may go on and off while the engine is idling. This does not indicate generator or battery trouble unless the light remains on after engine speed has been increased.

Temperature Gauge. The temperature of the engine coolant is indicated by the temperature gauge. The needle rests at the H (hot) end of the scale when the ignition is off. When the engine is first started, the needle moves to the C (cold) mark. As the engine warms up, the needle will rise and finally settle at some point in the wide band. If the needle moves to the H (hot) side of the scale, the engine is overheated. Stop the engine, find the cause, and make repairs if possible.

CAUTION: Be careful when removing the radiator cap to avoid possible injury from escaping steam or hot water.

If overheating is due to lack of coolant, allow a few minutes for the engine to cool, then add water, slowly, while the engine is idling. Proceed on your way, keeping an eye on the temperature gauge, until repairs can be made.

WINDSHIELD WIPERS

The wipers are actuated by turning the control knob clockwise. Wiper speed is determined by how far you rotate the knob. If you have Ford's "positive-action," vacuum operated wipers, they will not stop when a heavy load is imposed on the engine, due to a vacuum booster pump which is built into the fuel pump.

ASH TRAY

The ash tray is easily removed for cleaning. Pull it out to the limit of its travel, then push down on the front edge and slide it out of the guides. To replace the ash tray, just insert it in the guides and push in.

DOOR LOCKS

The doors can be locked from the inside by depressing the door lock buttons, or from the outside by turning the ignition key in the exterior lock. You cannot lock your keys inside the car because there is no way to lock the car from the outside without using the key.

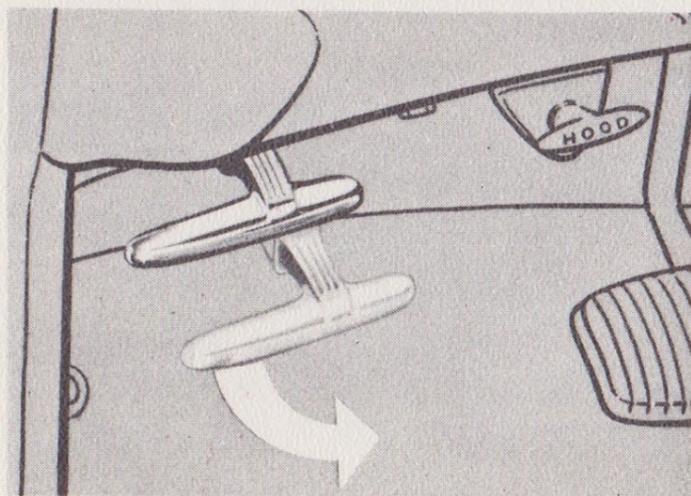
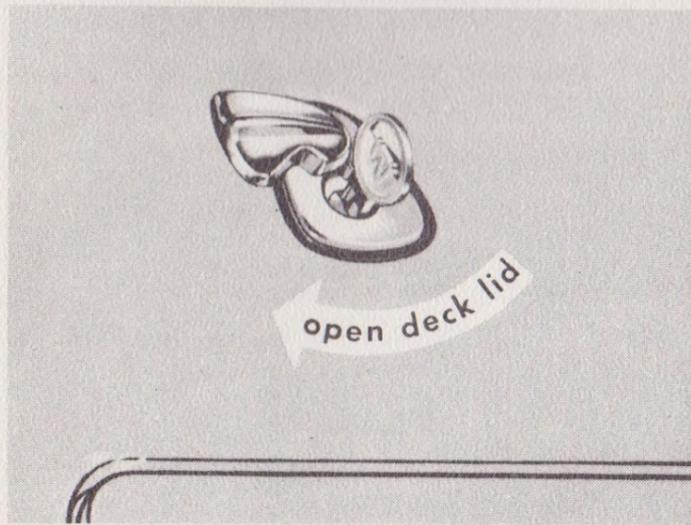
The luggage compartment is opened by turning the round headed key in the deck lid lock and then raising the lid. Counter-balanced hinges will hold the deck lid open. To close the luggage compartment, push the deck lid down until the lock clicks.

A frozen door lock can usually be thawed out by heating the key with a match or cigarette lighter before inserting it in the lock.

PARKING BRAKE

The offset, T-shaped handle, located under the control panel, operates the parking brakes. You'll find it easier to apply the parking brakes, if you depress the brake pedal before you pull the handle out. To release, turn the handle 1/4 turn to the left, then push it in all the way.

CAUTION: *Be sure the parking brakes are fully released before you put the car in motion. If you drive with the parking brakes applied, you will burn up the rear brake linings.*



POWER BRAKES

Less pedal pressure is needed to stop if your Thunderbird is equipped with *Swift Sure Power Brakes*. If the engine stops or the power system fails, *Swift Sure Power Brakes* will operate as conventional brakes.

VENTILATION

Fresh air is provided, at floor level, to both sides of your Thunderbird. The left air control is located just above the ignition switch. The amount of air admitted is regulated by how far out you pull the control knob. If your car is equipped with the *MagicAire System*, the right air control is in the heater control panel. Without a heater, the right air control is located next to the glove box.

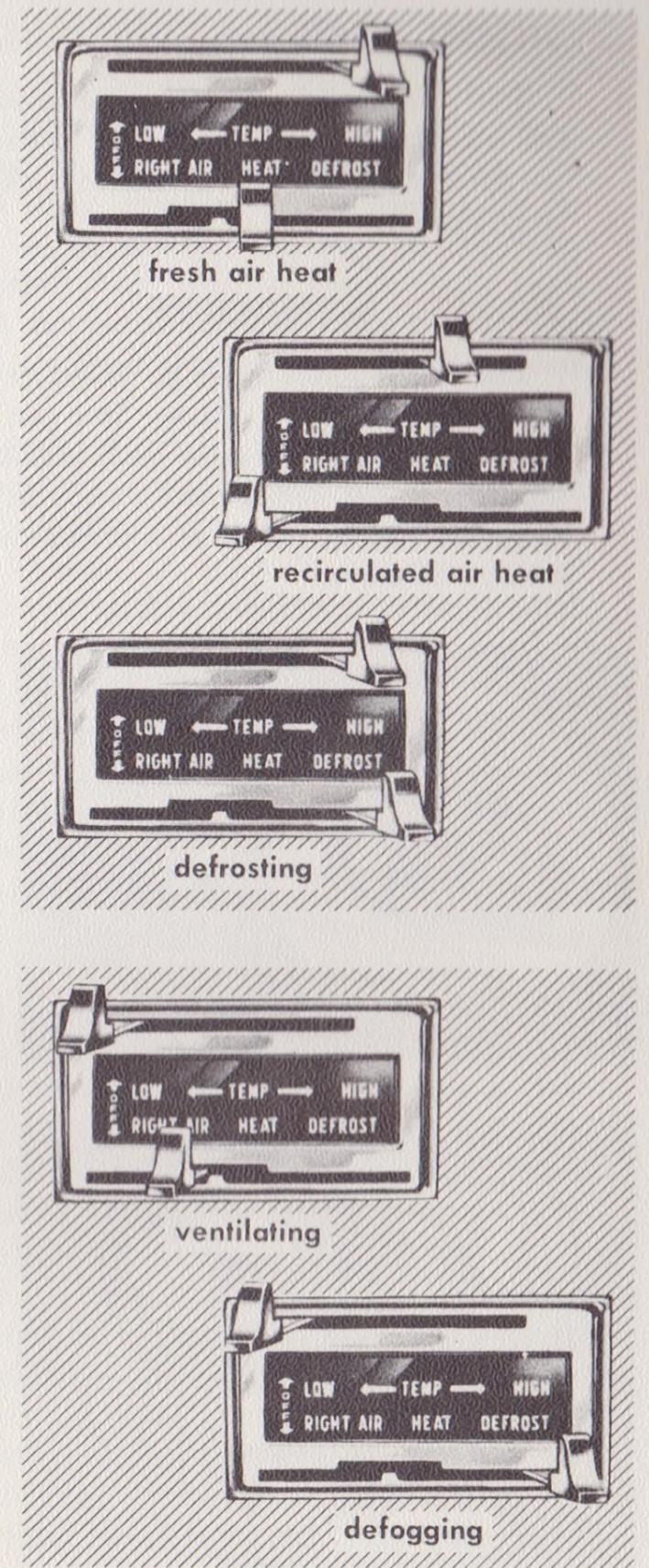
HEATER

The *MagicAire System* provides all-climate, all-season heating, ventilating, and defrosting. The heater controls and the two-speed blower can be set to provide just what you want in the way of temperature and air circulation. The illustrations of the heater control panel show the positions to which the control levers should be set to provide the heater action desired. The blower forces fresh air through the system when the car is moving at slow speed.

The upper lever, for temperature control, works just like the thermostat in your home. You can raise or lower the temperature of the air coming into the car merely by moving the lever.

The lower lever regulates the right-hand air intake and controls the air flow for ventilating, heating or defrosting.

Heater Capacity. If you live in an area subject to particularly severe winters, you may want to increase the capacity of your heater. Installation of a high-temperature thermostat in the engine cooling system will increase the operating temperature of the engine and also increase the heater air temperature. You must use permanent type anti-freeze with a high-temperature thermostat.

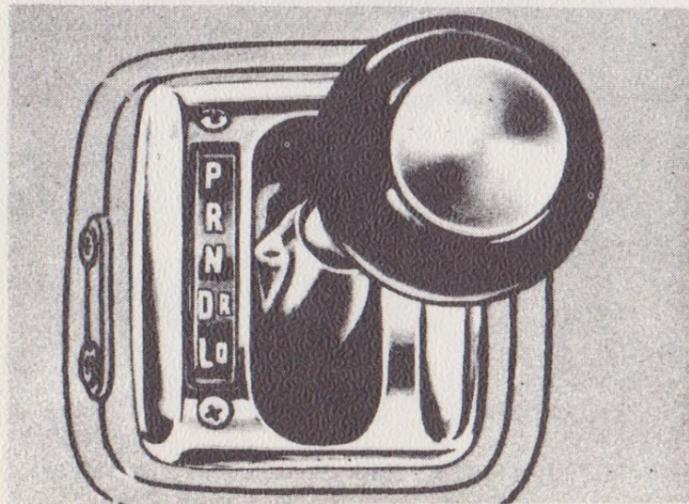
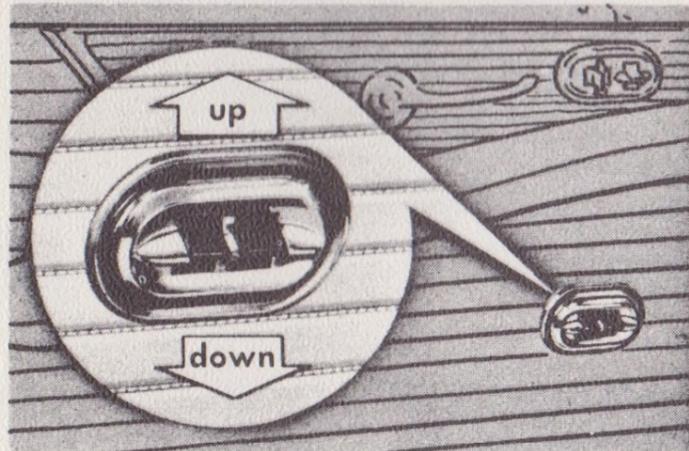


HOOD LOCK

The hood lock release handle is located under the control panel below the windshield wiper switch. To release the hood, pull the handle out until the hood pops up. Push the handle back in and the hood will lock automatically when lowered.

POWER WINDOWS

The door windows can be raised or lowered at the touch of a switch with Ford's Power-Lift Windows. You can control both door windows from the driver's seat. Switches for both windows are located at the bottom of the left door panel. A separate switch in the right door panel allows the passenger to control his window. Press the switch in the direction you wish the window to move.



FORDOMATIC

The Fordomatic selector lever must be placed in the Neutral (N) position before the starter will operate. The lever is equipped with a locking button which prevents accidental movement of the lever to any position which may cause damage to the transmission.

CAUTION: *When rocking the car, depress the button just far enough to permit movement of the lever from Low (LO) to Reverse (R). If the button is depressed all the way it will permit the lever to go into the Park (P) position, which may result in damage to the transmission. Practice until you are familiar with the operation of the selector lever.*

After starting the engine, move the selector lever to the desired

position. To go forward, place the lever in Drive (DR) position and step on the accelerator. *Fordomatic* does all the shifting for you. You start normally in intermediate gear and automatically shift to high somewhere between 15 and 65 m.p.h., depending on how heavy your foot is on the accelerator. If you want to pass a slow moving vehicle and need an extra burst of power, just push the accelerator all the way to the floor. *Fordomatic* will automatically downshift from high to intermediate gear, giving you the extra power you need. An automatic shift back to high will occur when you let up a little on the accelerator or when car speed reaches approximately 65 m.p.h.

At vehicle speeds below approximately 16 m.p.h., downshifts to the Low (LO) ratio will occur when the accelerator pedal is pressed to the floor with the selector lever in the Drive (DR) position. Automatic upshifts to intermediate take place at approximately 34 m.p.h. and to high at approximately 65 m.p.h. at wide open throttle. If the accelerator is partially released after the forced downshift, the upshifts to intermediate and high occur at relatively lower vehicle speeds.

Low (LO) range is provided for operation in deep mud, sand, or snow, and should not be used for normal driving. If you ever get stuck, you can rock the car by maintaining a steady 800-1000 engine r.p.m. and shifting back and forth between Low (LO) and Reverse (R).

CAUTION: *Never move the selector lever to Reverse (R) while the car is moving forward faster than 5 miles per hour. Such action may result in unintentional displacement of the occupants and possible injury.*

It is usually advantageous to shift to Low (LO) range when descending long, steep grades, such as are found in mountainous terrain. This action takes full advantage of the braking effect of the engine, thus the tendency for the brakes to overheat is greatly reduced.

Low (LO) range may also be useful when climbing long, steep grades. The transmission will upshift to intermediate and high gear only after the selector lever is moved manually to the Drive (DR) position.

When you park your car, place the selector lever in Park (P) position. If you park on a grade, apply the parking brake first, then move the selector lever to Park (P) position. If the Fordomatic parking lock is allowed to hold the car by itself on a grade, some difficulty may be encountered in getting the selector lever out of Park (P) position because of the high vehicle weight bearing against the locking mechanism in the transmission.

CAUTION: *Never move the selector lever to Park (P) position while the car is in motion. A violent stop, of a highly undesirable nature, will result.*

Pushing to Start. To push your Thunderbird to start the engine, place the selector in Neutral (N) position. After the car reaches a speed of 20 miles per hour, turn on the ignition switch, and move the selector lever to Low (LO). If the road is slippery and the rear wheels won't bite in, use (DR) position. Hold the accelerator about half way down until the engine starts.

Towing. If it should ever become necessary to tow the car, there are some things which should be done to prevent the possibility of extensive damage to the *Fordomatic* transmission. Three conditions regulate the steps which must be taken before towing the car.

1. *Towing less than 12 miles, transmission OK.*

Place the selector lever in Neutral (N) position. Do not exceed 40 miles per hour.

2. *Towing more than 12 miles, transmission OK.*

Raise the rear wheels of the car, or remove the drive shaft and cover the rear of the transmission.

3. *Towing any distance as the result of transmission failure.*

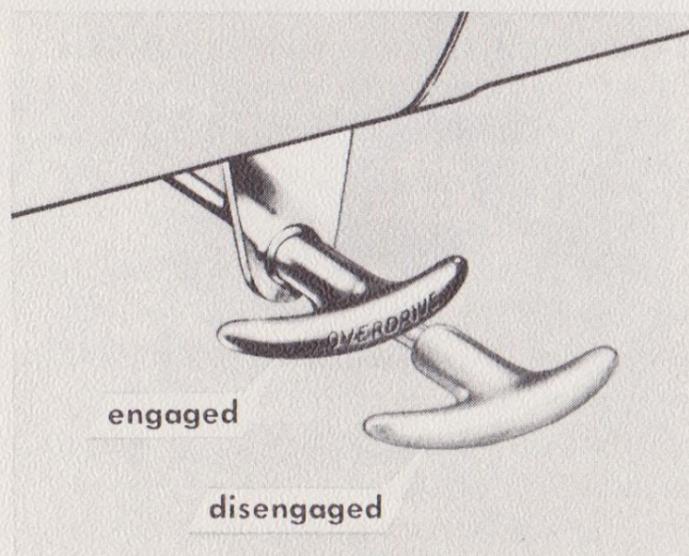
Same as "2" above.

OVERDRIVE

The overdrive transmission is primarily a fuel saving device. It provides an automatic fourth gear which reduces engine speed 30% while road speed is unchanged. Overdrive is ready to go to work for you when the overdrive control handle is pushed in. At any speed above 27 miles per hour, the transmission will automatically shift into overdrive if you momentarily release the accelerator. When car speed drops below 21 miles per hour, the overdrive

will automatically disengage. If you are cruising in overdrive, behind a slow moving vehicle, and need extra power for passing, just depress the accelerator all the way to the floor. The transmission will shift back to conventional third gear.

The overdrive should be disengaged when descending long, steep grades such as are encountered in mountain driving. This will take full advantage of the braking effect of the engine and reduce the tendency for the brakes to overheat.



The overdrive may be engaged or disengaged any time the car is not in motion. To disengage the overdrive, when the car is moving, press the accelerator to the floor, then pull out the control handle. The overdrive may be engaged at any speed.

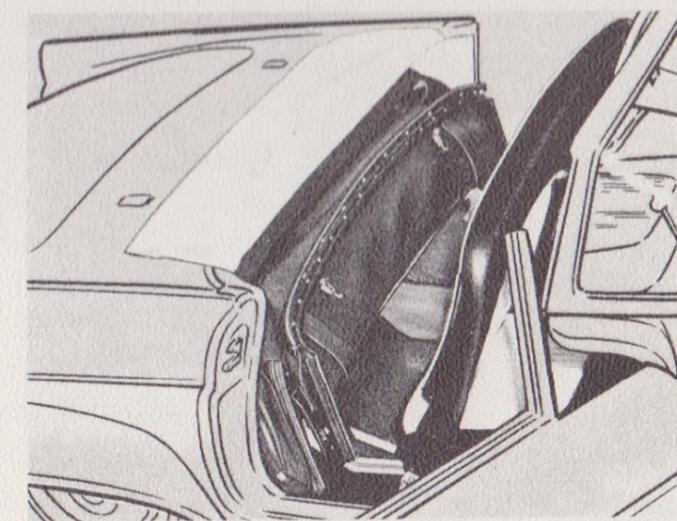
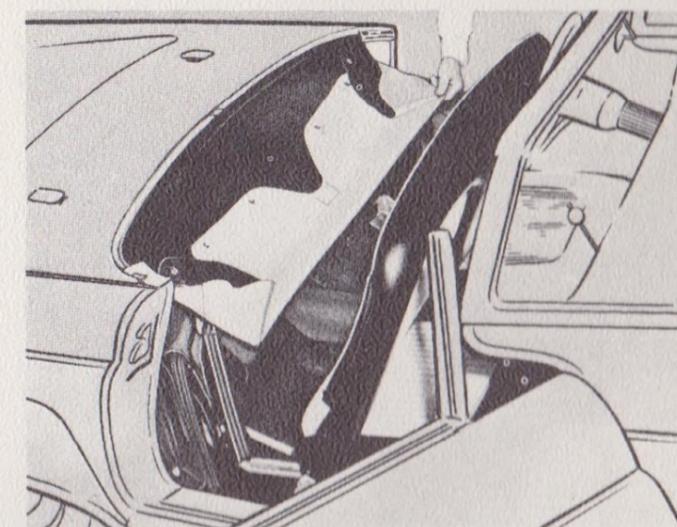
To park the car in gear, move the gearshift lever to reverse.

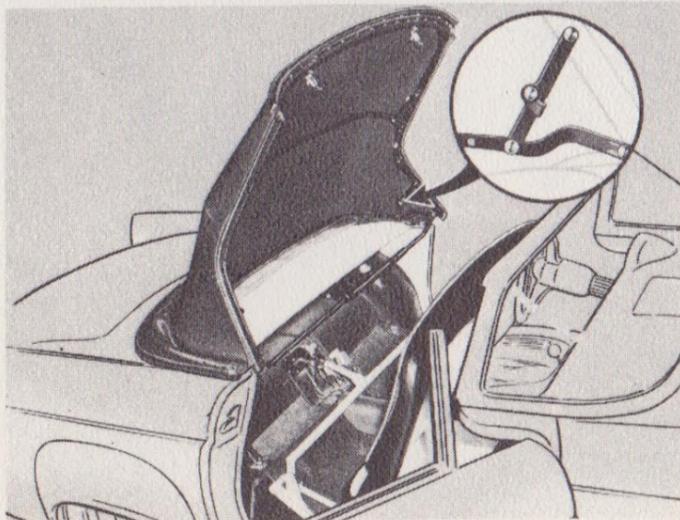
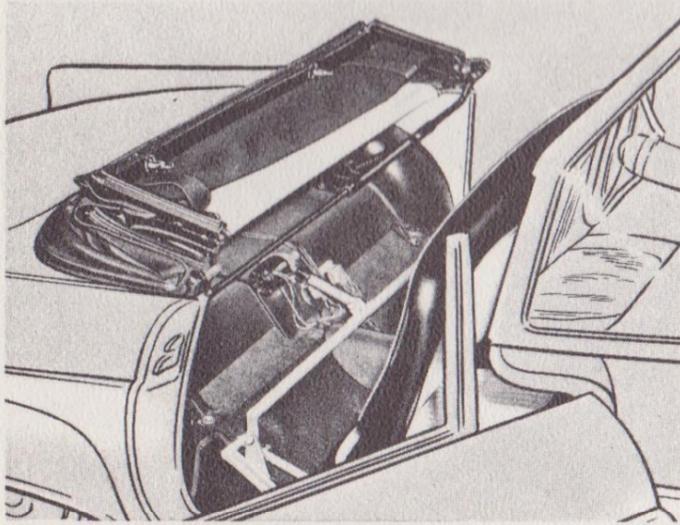
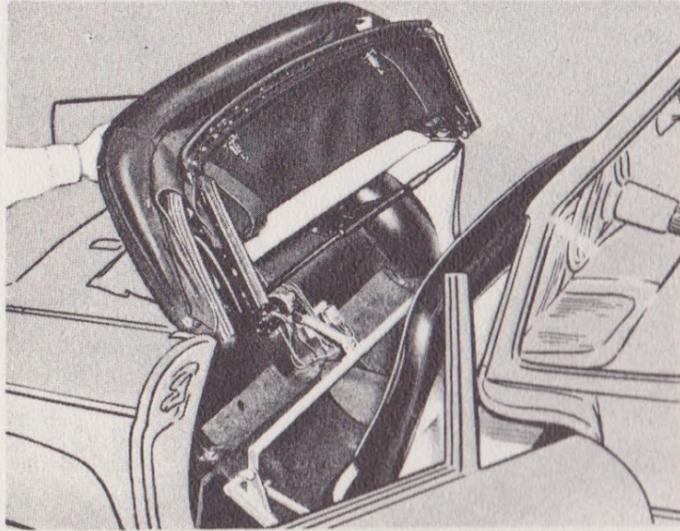
CONVERTIBLE TOP

When not in use, the convertible top is stored behind the seat back. With the convertible top raised or removed from the car, the extra space behind the seat can be used for luggage.

Raising Convertible Top. The top can be raised quite easily by following these simple instructions:

1. Move the seat fully forward and down.
2. Open both doors.
3. Tilt the seat back forward, and unsnap six (6) top cover to floor fasteners.
4. Fold the convertible top cover upward and fold the edges in.
5. Place the cover on the upper back panel.
6. Keeping the top assembly fully folded, lift the assembly forward and up as far as possible, and lay it on the upper back panel.
7. Unfold the first and second sections of the top so they are in line and standing vertically. Lift up and forward, then reach





inside and lock the over center links.

8. Move the top forward, and place the dowels in the holes in the windshield header.
9. Get inside and fasten the toggle and rear rotary clamps.
10. Unfold the convertible top cover, and snap it into position with the floor fasteners.

To lower the convertible top, just reverse the above procedure.

CAUTION: *Be sure to place the rear rotary clamps in the locked position after release, to prevent damage to the rear window when the top is stored.*

HARD TOP

The all-weather hard top is very easy to remove and install. Two people can handle it; however, a man can usually get it on or off by himself. Pick the top up, place it in position, and fasten the clamps. When not in use, it can be stored in any convenient inside location.

TURN INDICATOR

To signal for a turn, just move the control handle in the direction in which you intend to turn the steering wheel. Signal lights on the front and rear of the car indicate the direction you intend to turn.

Indicator lights on the control panel, near the speedometer, flash on and off when the turn indicator is operating. After completing the turn, the indicator will cancel auto-

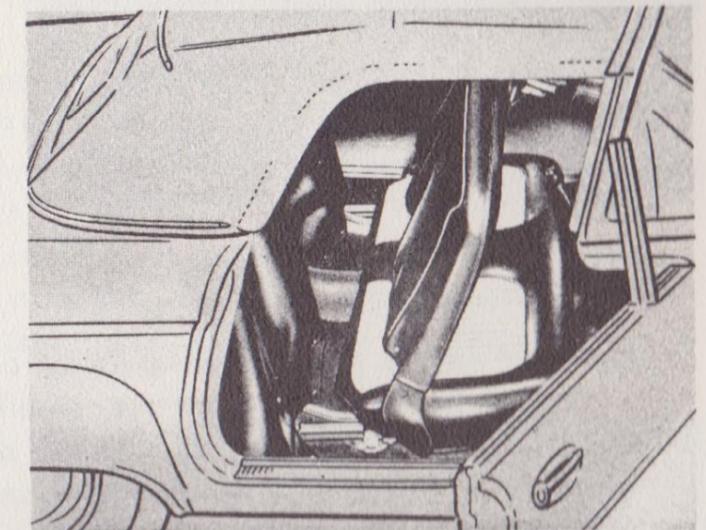
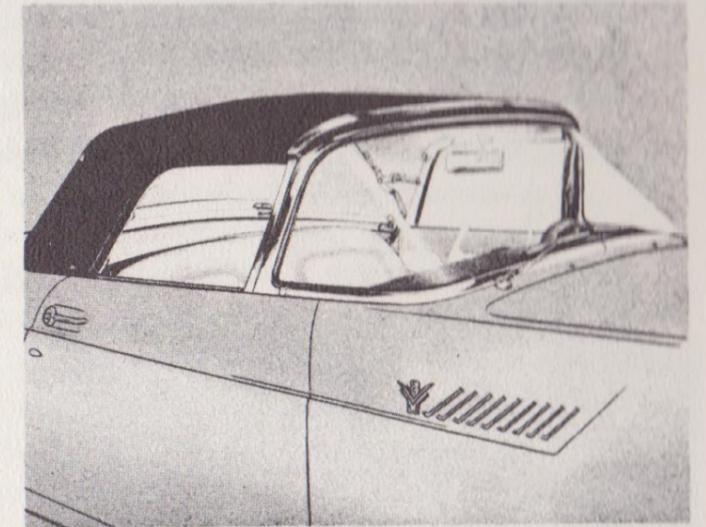
matically as the steering wheel returns to the straight ahead position. On a gradual turn, the steering wheel may not be turned far enough to engage the canceling mechanism, then it will be necessary to turn off the signal manually. If one of the turn indicator bulbs burns out, the light on the control panel will flash more rapidly than normal. Check up on it, and replace the faulty bulb.

WINDSHIELD WASHER

On those muddy, drizzly days when your windshield wipers just won't keep the windshield clean, give them an assist with a couple of squirts from the windshield washer. The washer control button is located at the upper left corner of the floorboard. Just press it with your left toe, and fluid will be directed on the windshield so the wipers can efficiently clean the surface. An all-weather solution is available from your Ford Dealer. Fill the reservoir with solution up to the mark on the side of the reservoir. This leaves a little room for expansion when the solution slushes up on extremely cold days. Yes, the all-weather solution will partially freeze, but it soon melts as the engine compartment temperature rises. Do not use the washers on a cold windshield in freezing weather. Wait until the defrosters have thoroughly warmed the windshield, then the fluid won't freeze when it contacts the glass.

CLOCK

The "Motochron" clock installed in your Thunderbird is constructed to the highest standards of design, workmanship, material, and accuracy. It is warranted by the Telechron Department of General Electric Company. Whenever your clock needs service, take it to your Ford Dealer.

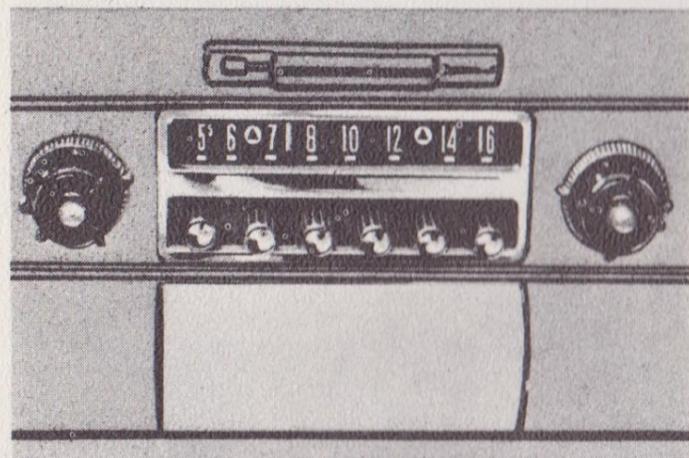


To set your clock, pull out the knob and turn the hands to the correct time. Make sure the knob returns to the full "in" position when released.

If your clock runs too fast or too slow, you can regulate it by turning the small screw at the top of the clock face toward "F" (faster) or "S" (slower).

It is recommended that the clock be cleaned and oiled at least once a year.

RADIO



To turn on the radio, merely push any one of the five tuning buttons. The ignition switch, of course, must be in either the ACC or ON position. The knob at the left of the dial is the volume control, while the metal ring under it is the tone control. Adjust these controls to settings which suit you best. To turn off the radio, push the OFF button at the extreme left.

Notice the two small triangular marks on the dial. These are the CONELRAD station settings, which

are used only in case of enemy attack or other emergency.

The radio tuning buttons are usually set to local stations by your Ford Dealer. However, you can change the setting of any tuning button to receive the station you desire. Merely tune in the station of your choice with the manual tuning knob. Turn the push button one turn to the left, push it in fully, then release it slowly. Secure the button by turning it to the right until it is tight.

Out On The Road

If you treat your Thunderbird like a lady during the first 1000 miles of operation, following the break-in recommendations on page 5, you will improve the operation of all moving parts and greatly extend their life expectancy. It is granted that keeping your speed down in such a lively vehicle may be quite difficult. However, your discretion will be rewarded by better performance when the break-in period is over.

STARTING THE ENGINE

If your car is equipped with a conventional or overdrive transmission, place the gearshift lever in the neutral position and depress the clutch pedal. On *Fordomatic* equipped cars, place the selector lever in Neutral (N) position.

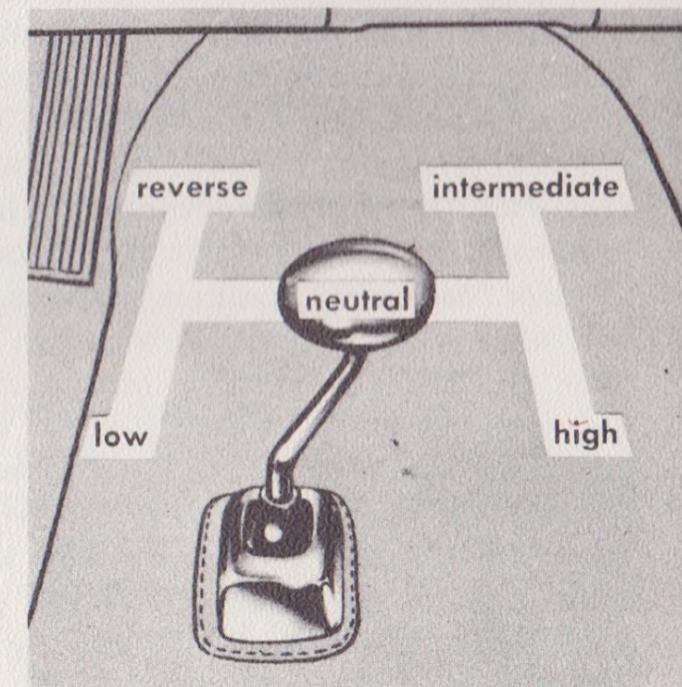
To start a cold engine, depress the accelerator one complete stroke and release, then turn the ignition key in the switch to the extreme right to operate the starter. As soon as the engine starts, release the key. When the engine is cold, it will automatically idle fast until it warms up. Allow the engine to idle, or drive at reduced speeds, until the engine is warm.

To start a warm engine, depress the accelerator slightly, hold it in this position, then turn the key to operate the starter. If the engine does not start immediately, it may be "flooded." To remedy this situation, push the accelerator to the floor (this prevents the automatic choke from operating), and operate the starter continuously until the engine starts. Do not "pump" the accelerator as this only contributes to the flooded condition.

WARNING: Do not start your car in a closed building without adequate ventilation. Carbon monoxide is odorless and highly poisonous when inhaled.

If it is ever necessary to push the car to get it started, first make sure the bumpers of the two cars are the same height and will not "lock" when the cars are moving. On cars equipped with the *Overdrive* transmission, "lock out" the overdrive by pulling the control handle all the way out. Depress the clutch pedal, place the gearshift lever in high position, then turn the ignition switch ON. When the car reaches 5 miles per hour, release the clutch slowly. Hold the accelerator about half way down until the engine starts. Instructions for pushing a *Fordomatic* equipped car are given on page 14.

Shifting Gears. The gearshift pattern is the same if your car is equipped with either the conventional or *Overdrive* transmission. Always depress the clutch pedal when shifting gears, and always start from a stop in low gear. Never shift to low or reverse without com-



ing to a complete stop as transmission gear damage may result.

If the engine begins to "labor" when climbing a steep grade, shift to a lower gear or kickdown to conventional third gear if you have overdrive. When descending steep hills, shift to a lower gear than high to take better advantage of the engine braking power. This keeps the brakes from overheating.

Fuel Economy. Your Thunderbird is capable of delivering exceptional fuel economy; however, a heavy foot on the accelerator is not conducive to low fuel consumption. High speed driving, jack-rabbit starts, and frequent accelerating and slowing down in traffic are economy's worst enemies. Drive in the highest gear possible without making the engine "labor." Maintain a steady pace whenever traffic conditions permit.

The high compression engine in your Thunderbird is designed to provide superlative performance. For maximum efficiency, it is recommended that premium type fuels be used.

Driving Tips. When driving through deep snow, sand, or mud shift to a lower gear to maintain maximum pulling power and to keep the engine from stalling.

NOTE: Your Thunderbird has only 5½ inches ground clearance. Keep this in mind when driving in rugged, country terrain.

If you have to start the car moving on an icy surface, don't spin the wheels. Use of low gear with the engine operating at idle speed, and gentle clutch application will usually get you away quicker.

During cold weather, it is a good idea to keep the fuel tank as nearly full as possible. This will reduce the possibility of water condensing in the fuel tank and being drawn into the fuel lines where it can readily freeze.

Performance. The majority of you Thunderbird owners will no doubt at one time or another have the urge to take her out and "see what she will do." Please take these words of caution to heart.

Always observe all traffic regulations. You have probably heard of the superior "cornering" qualities of sports cars. Your Thunderbird is one of the best when it comes to taking a corner; however, be thoroughly familiar with your car before attempting any of this fancy driving. When a standard passenger car starts to skid, the rear wheels break loose first, and through experience you know how to react to recover. The weight distribution of your Thunderbird is equally divided between the front and rear wheels. Therefore, when your Thunderbird starts to skid, all four wheels break loose at the same time. This, in combination with the higher speed required to force your Thunderbird into a skid, may find the unfamiliar driver in a situation with which he cannot cope.

We realize that some of you may use your Thunderbird in competition. This is not the primary purpose for which this car was designed. The Ford Motor Company cannot guarantee any parts which may fail as a result of the severe use to which the vehicle is subjected in competition. However, if the vehicle is used for racing, it may be advisable to use racing type tires which are specially designed to withstand the higher pressures necessary and punishment received at sustained high speeds and severe cornering.

TUBELESS TIRES

Your Thunderbird is equipped with tubeless tires. They have a built-in liner instead of a tube. Blowouts resulting from tube chafing or shifting are eliminated. When punctured, the liner seals around the object so that several miles of driving are usually possible before a repair is necessary. Most punctures can be repaired with the tire on the wheel.

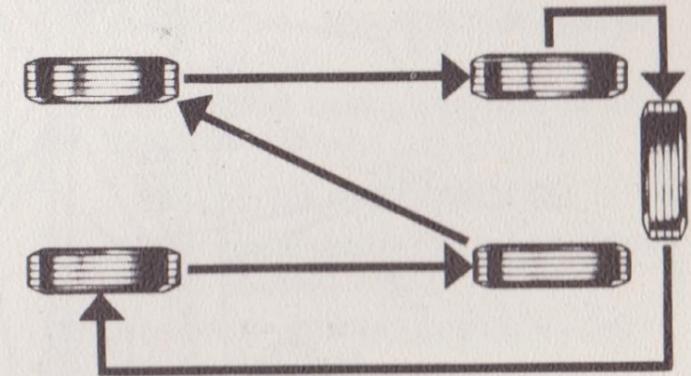
Tire Pressure (front and rear)

For all normal driving 24 lbs. (cold)

For sustained high speed driving 30 lbs. (cold)

Fast driving will increase tire pressures. Do not "bleed" the tires to reduce high pressures resulting from hard driving. The pressures will return to normal as the tires cool.

You will get more mileage out of your tires, and distribute the wear evenly among them, if you cross-switch them, as shown, at least every 5000 miles.

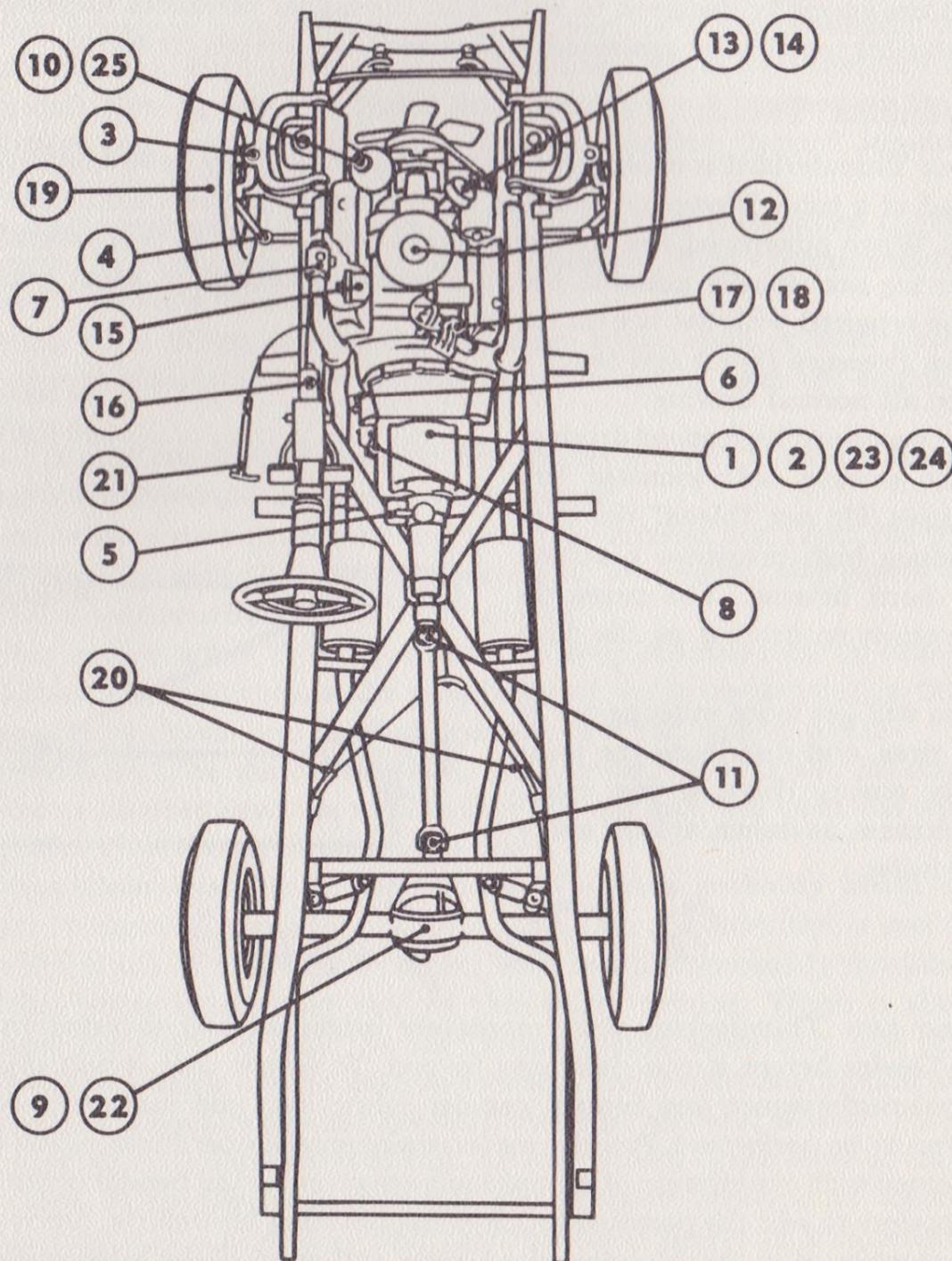


In The Garage

Your new Thunderbird was completely inspected and serviced by your Ford Dealer before it was delivered to you. To insure that it will retain its original performance and beauty, regular lubrication and maintenance services should be performed. Procedures for maintenance operations which can be performed with a minimum of special tools are given for the benefit of the owner who prefers to add the personal touch to maintaining his vehicle. Some operations mentioned in the *Maintenance Guide*, and most of the lubrication services, should be performed only in a suitably equipped garage. Your Ford

Thunderbird

Lubrication



EACH 1000 MILES

- ① **FORDOMATIC**—CHECK LEVEL AND ADD AUTOMATIC TRANSMISSION FLUID—TYPE A.
- ② **TRANSMISSION** (STANDARD OR OVER-DRIVE)—ADD MULTIPURPOSE-TYPE GEAR LUBRICANT, S.A.E. 80.
- ③ **FRONT SUSPENSION BALL JOINTS** (2 FITTINGS, EACH SIDE)—PRESSURE GUN GREASE.
- ④ **STEERING LINKAGE** (7 FITTINGS)—PRESSURE GUN GREASE.
- ⑤ **GEARSHIFT LEVER** (1 FITTING)—PRESSURE GUN GREASE.
- ⑥ **CLUTCH EQUALIZER BAR**—(2 FITTINGS)—PRESSURE GUN GREASE.
- ⑦ **STEERING GEAR**—ADD MULTIPURPOSE-TYPE GEAR LUBRICANT, S.A.E. 90.
- ⑧ **LINKAGE**—TRANSMISSION, CLUTCH, AND BRAKE—APPLY ENGINE OIL, S.A.E. 10.
- ⑨ **REAR AXLE**—ADD MULTIPURPOSE-TYPE GEAR LUBRICANT S.A.E. 90 ABOVE -10°F. , S.A.E. 80 BELOW -10°F.
- ⑩ **MASTER-GUIDE STEERING**—CHECK LEVEL AND ADD AUTOMATIC TRANSMISSION FLUID—TYPE A.
- ⑪ **UNIVERSAL JOINTS** (2 FITTINGS)—UNIVERSAL JOINT GREASE.

DOOR, DECK LID, AND HOOD HINGE PIVOTS—APPLY S.A.E. 10 OIL.

HOOD LOCK, HOOD AND DECK LID HINGE SPRINGS, DOOR CHECK ARMS, AND CONVERTIBLE TOP LINKAGE PIVOTS—APPLY LUBRIPLATE.

EACH 2000 MILES

- ⑫ **AIR CLEANER**—CLEAN AND REFILL WITH S.A.E. 30 OIL ABOVE 32°F. , S.A.E. 10W OIL BELOW 32°F.
- ⑬ **CRANKCASE VENTILATION SCREEN AND BREATHER CAP**—CLEAN AND OIL.
- ⑭ **CRANKCASE**—DRAIN AND REFILL WITH ENGINE OIL, S.A.E. 20 OR 20W ABOVE 32°F. , S.A.E. 10W FROM 32°F. to -10°F. , S.A.E. 5W BELOW -10°F.

EACH 4000 MILES

- ⑮ **OIL FILTER**—REPLACE CARTRIDGE.

EACH 5000 MILES

- ⑯ **BRAKE MASTER CYLINDER**—ADD HEAVY DUTY BRAKE FLUID TO RAISE LEVEL TO $\frac{1}{2}$ INCH FROM TOP.
- ⑰ **DISTRIBUTOR**—FEW DROPS OF ENGINE OIL IN OIL CUP.
- ⑱ **DISTRIBUTOR CAM**—LIGHT FILM OF DISTRIBUTOR GREASE.

EACH 10,000 MILES

- ⑲ **FRONT WHEEL BEARINGS**—REPACK WITH WHEEL BEARING GREASE.
- ⑳ **PARKING BRAKE CABLES**—APPLY GRAPHITE GREASE.
- ㉑ **PARKING BRAKE HANDLE**—APPLY LUBRIPLATE TO SHAFT.
- ㉒ **REAR AXLE**—DRAIN AND REFILL.
- ㉓ **TRANSMISSION** (STANDARD OR OVER-DRIVE)—DRAIN AND REFILL.

EACH 15,000 MILES

- ㉔ **FORDOMATIC**—DRAIN, ADJUST BANDS AND REFILL.

EACH 25,000 MILES

- ㉕ **MASTER-GUIDE STEERING**—REPLACE OIL RESERVOIR FILTER ELEMENT.

Dealer will be pleased to perform all maintenance and lubrication services for you.

Maintenance Guide

	After 300 Miles	Each 1,000 Miles	Each 2,000 Miles	Each 4,000 Miles	Each 5,000 Miles	Each 10,000 Miles	Each 15,000 Miles	Each 25,000 Miles
Change Engine Oil	X		X					
Change Rear Axle Lubricant	X					X		
Lubricate Chassis		X						
Check Battery Electrolyte Level and State of Charge		X						
Clean Air Cleaner (Oil Bath Type)			X					
Clean Crankcase Breather Cap			X					
Check Body Drain Holes			X					
Change Oil Filter Cartridge				X				
Change or Clean Fuel Filter				X				
Complete Dealer Inspection					X			
Engine Tune-up					X			
Check Brake Master Cylinder Fluid Level					X			
Adjust Brakes					X			
Cross Switch Tires					X			
Clean and Repack Front Wheel Bearings						X		
Change Transmission Lubricant (Standard or Overdrive)						X		
Adjust Fordomatic Bands and Change Fluid							X	
Change Master-Guide Steering Oil Reservoir Filter Element								X

AT 300 MILES

After you have completed the first 300 miles of driving, drain and replace the engine oil and rear axle lubricant. These are special "break-in" type lubricants, and their use is not recommended beyond this mileage. Check the engine oil frequently during the first 300 miles. If it is necessary to add oil, use nothing heavier than SAE 10W. Drain the oil with the engine at normal operating temperature, then refill with the proper viscosity oil for the lowest expected temperature. Refill the rear axle with Multi-Purpose Type Gear Lubricant. Use SAE 90 above -10° F and SAE 80 below -10° F.

OIL VISCOSITY

The viscosity of the oil which should be used in your engine is determined by the lowest temperature expected while that oil is in the crankcase. Select engine oil as follows:

<u>Lowest Temperature Expected</u>	<u>Use Oil Viscosity</u>
32° F	SAE 20 or 20W
-10° F	SAE 10W
Below -10° F	SAE 5W

AT 1000 MILES

When you have completed the first 1000 miles of driving, it's time for the 1000 mile inspection. Take your Thunderbird to your Ford Dealer, and he will take care of anything that isn't working properly. On Fordomatic equipped cars, the transmission fluid will be drained, the bands will be adjusted, then the fluid will be filtered and put back in the transmission.

REGULAR CARE

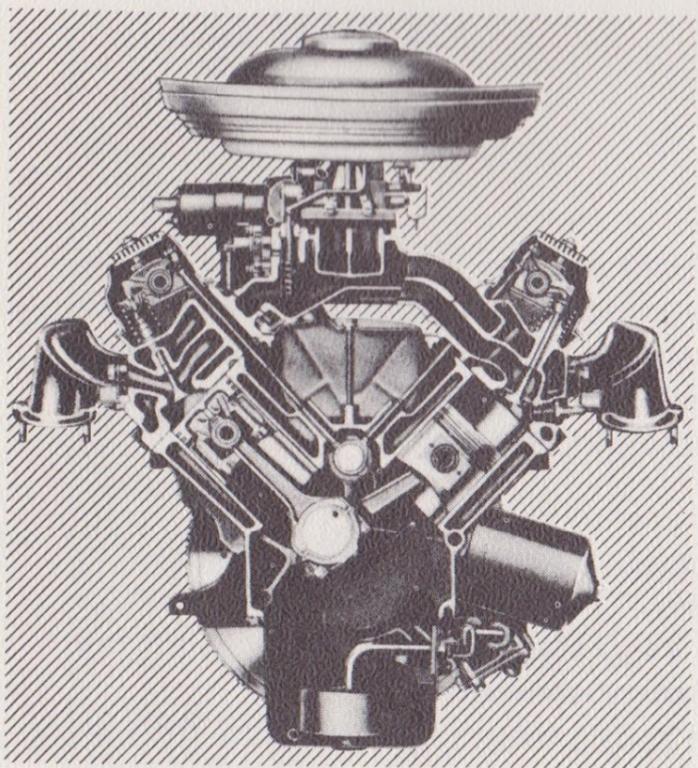
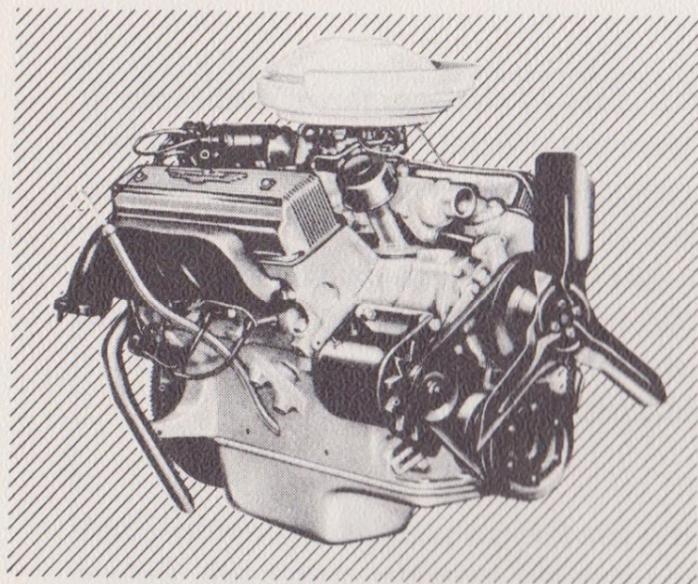
Certain units of your Thunderbird require attention, at regular intervals, to keep the car operating at peak efficiency. The Maintenance Guide on Page 24 lists these units and the intervals at which they should be checked. Severe driving may necessitate more frequent attention to some units.

The Lubrication Chart indicates the points requiring lubrication, the recommended interval, and the type of lubricant to be used.

ENGINE

The Thunderbird engine is a Y-block, overhead-valve, V-8 having a total piston displacement of 292 cubic inches, a 3.75 inch bore, and a 3.30 inch stroke. The compression ratio is 8.5:1 for Fordomatic equipped cars and 8.1:1 for standard transmission and overdrive equipped cars.

The engine is equipped with a four-barrel carburetor which provides maxi-



sion. This design permits closer initial piston fitting without bind or excessive friction. Thus, cold engine piston slap is eliminated and long piston life is provided. To further reduce internal friction, only three piston rings are used, two compression and one oil. The top compression ring is chrome plated to provide long life and minimum cylinder wall wear. The piston pin is offset from the center of the piston, away from the thrust side of the cylinder bore.

imum fuel economy at normal road speeds and also supplies increased fuel-air mixture when additional power is needed. A dual exhaust system is also provided which facilitates rapid scavenging of exhaust gases with a minimum of back pressure.

The crankshaft is supported by five steel-backed, insert type, copper-lead main bearings with the center bearing absorbing the crankshaft end thrust. The forged-steel, "I" beam section, connecting rods have bronze piston pin bushings and locking type, steel-backed, copper-lead bearing inserts. All bearings, both main and connecting rod, are selective fit.

The camshaft is supported by five steel-backed, babbitt bearings and is driven by a silent timing chain. Camshaft end thrust is controlled by a thrust plate and spacer located between the front camshaft journal and the camshaft sprocket.

Solid steel, mushroom type tappets operate directly off the camshaft.

The aluminum-alloy, solid-skirt, autothermic pistons are designed to provide controlled piston expansion.

This reduces the tendency of the piston to be noisy as the connecting rod passes top dead center (T.D.C.) and the thrust load passes from one side of the piston to the other.

The cylinder heads feature a high-turbulence type combustion chamber which provides more complete burning of the fuel mixture. Thin, steel gaskets are used between the cylinder heads and the block to provide rapid heat transfer between these castings. The valve guides are cast integral with the cylinder heads.

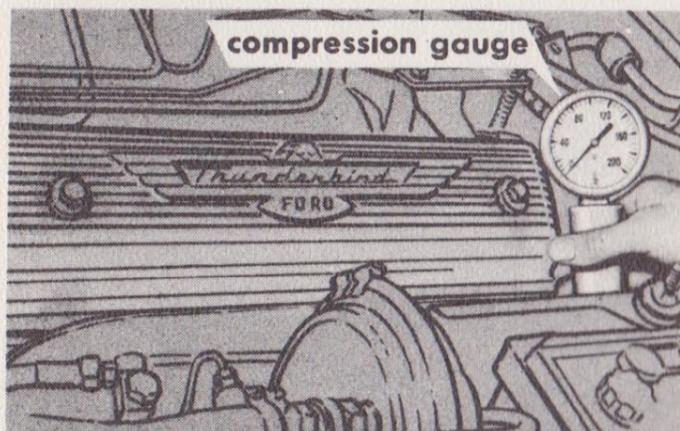
All valves are of the rotating type, providing added insurance against valve burning and sticking. The valves are inclined toward the intake manifold ports to aid engine deep breathing characteristics.

The intake manifold is designed to provide for the four-barrel carburetor. The individual passages from the carburetor to the cylinders are almost identical in length. Thus, equal distribution of the fuel-air mixture is provided. When the engine is cold, hot exhaust gases pass through the heat riser section of the intake manifold, around the intake passages, warming the incoming fuel-air mixture. Exhaust gases pass from the right-hand exhaust manifold, through the intake manifold heat riser under the carburetor, and out the left-hand exhaust manifold. They are controlled by the manifold heat control valve, installed between the right-hand exhaust manifold and the right-hand muffler inlet pipe.

The four-barrel, or four-venturi, carburetor on your Thunderbird engine is designed to provide the extra breathing capacity needed to produce the power required for rapid acceleration and high speed performance. Four-venturi carburetors are not unusual; however, the method of operating the secondary (rear) venturis in this carburetor is not common. Opening of the secondary venturi throttle plates is controlled by primary venturi vacuum. Primary venturi vacuum is high when increased power is demanded of the engine or when operating at high speeds. Therefore, the secondary venturis operate only when needed, remaining closed at normal road speeds, which means a considerable saving in fuel.

The cooling system is pressurized at thirteen p.s.i. Coolant under pressure has a higher than normal boiling point and dissipates heat more efficiently. The pressure is maintained in the cooling system by a spring loaded radiator cap. The fan's ability to draw air through the radiator is greatly improved by the shroud which completely encircles the fan.

Every drop of gasoline which passes through the fuel lines is thoroughly filtered before it goes to the carburetor. The fuel filter is mounted in the



line between the carburetor and pump. The filter element can be readily cleaned or replaced if necessary.

CHECKING COMPRESSION

Before any checks or adjustments are made on an engine, it should be operated at fast idle speed for a minimum of 30 minutes, or until

it is thoroughly warmed. The compression pressure of each cylinder should be checked before any other steps of an engine tune-up are performed. *An engine with uneven compression cannot be properly tuned.*

1. Turn off the ignition, and block the primary throttle linkage in an open position.
2. Pull the ignition wires off the spark plugs.
NOTE: Grasp the ignition wires by the molded caps when removing them from the spark plugs. Damage may result if the wires are pulled off recklessly.
3. Remove all the spark plugs from the engine. Be careful! The exhaust manifolds are hot.
4. Install a compression gauge in a spark plug hole, and crank the engine, about four revolutions, with the starter.
5. Write down the gauge reading. Chalk on the exhaust manifold works well.
6. Repeat the check on all cylinders, then compare the gauge readings.
7. The compression pressure reading on all cylinders should be the same within 10 pounds.

If the compression pressure is low on two adjacent cylinders, the possibility of a leak between the cylinders is indicated. Such a leak is usually caused by a head gasket not sealing properly.

If the compression pressures are low, or vary, the cause of the trouble can be narrowed down by squirting engine oil through the spark plug holes on top of the pistons of the low reading cylinders.

Crank the engine for a few revolutions to evenly distribute oil on the cylinder walls and around the piston rings, then take a second compression check. If there is very little difference between the readings obtained in the

two checks, sticking or poorly seating valves are indicated. However, if the readings on the low cylinders have improved, it indicates the compression is being lost past the pistons and rings.

Before going any further with an engine tune-up, correct the cause of the low compression readings.

SPARK PLUGS

The original equipment spark plugs installed in your Thunderbird engine are the new conical-tapered seat, 18 millimeter plugs. They are designed to provide efficient firing for the entire heat range. The conical tapered plug seat eliminates the need for gaskets and once the plug is properly tightened, no torque loss is encountered, providing positive sealing under high combustion pressures.

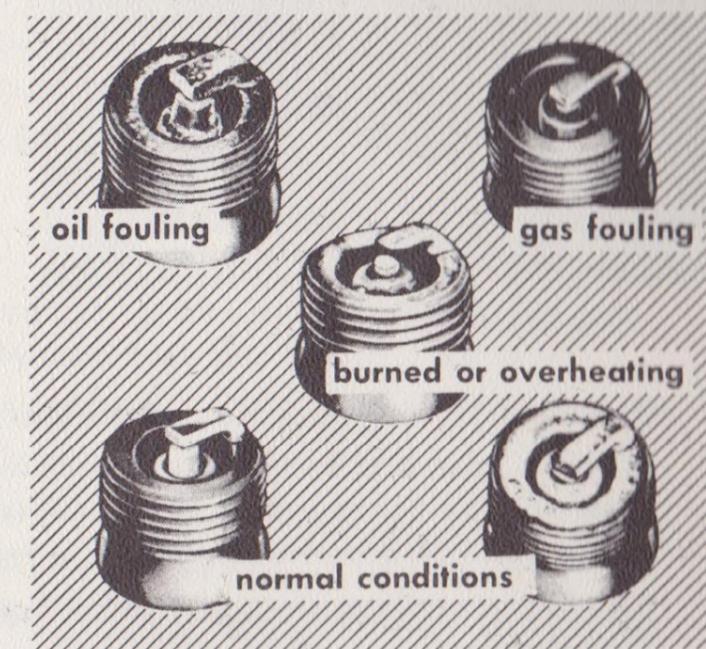
Don't burn your arms on hot exhaust manifolds when removing the spark plugs. Loosen the plugs about one turn, then blow accumulated dirt out of the wells before removal of the plugs. Clean heavy carbon deposits from the plugs with a thin bladed knife, then finish cleaning them with an abrasive type cleaner. Use the abrasive type cleaner sparingly as excessive blasting may damage the porcelain around the center electrode. If the porcelain is badly glazed or eroded, replace the spark plugs.

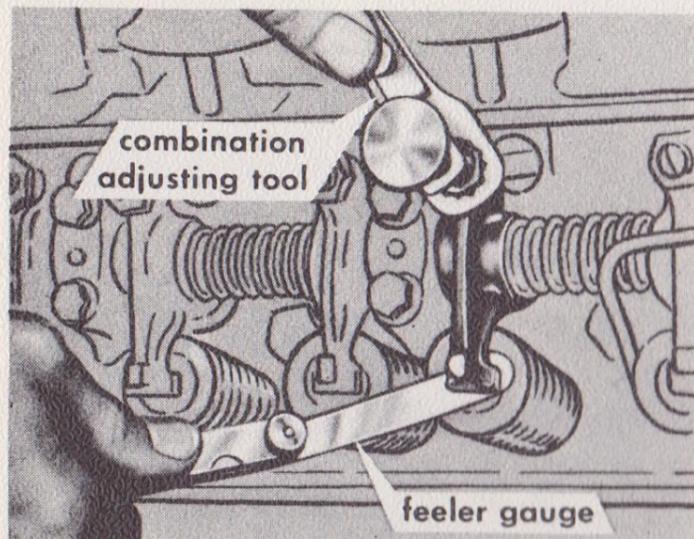
File the tips of both electrodes until they have clean, flat surfaces. Adjust the spark plug gap to 0.032-0.036 inch with a wire feeler gauge.

NOTE: Do not bend the center electrode, bend the side electrode only when adjusting plug gap.

NOTE: "Normal Conditions" in the picture above shows powdery deposits on one plug as a result of using highly leaded gasoline. Little effect on plug performance will be noted if the plugs are cleaned at regular intervals. However, continuous high speed driving will fuse these deposits to the porcelain, producing a conductive glaze which may cause the plug to misfire.

Install the spark plugs in the engine and tighten them to 15-20 foot-pounds torque.





NOTE: Do not over-tighten spark plugs. The gaps may be changed due to distortion of the outer shell.

ADJUSTING VALVE LASH

Valve lash is an important factor in engine performance. Improper valve lash can result in excessive noise, poor engine performance, excessive fuel consumption, and short valve life. It is recommended that valve lash be checked, and adjusted if necessary, every 10,000 miles under normal driving conditions or

oftener under severe driving conditions.

Before adjusting valve lash, the engine must be at normal operating temperature. Run the engine at fast idle speed (approximately 1200 r.p.m.) for a minimum of 30 minutes to attain this temperature. Then proceed as follows:

1. Reduce engine idle speed as much as possible, still maintaining a smooth idle.
2. Remove the rocker arm cover hold down nuts.
3. Jar the rocker arm cover with your hand or a soft leather hammer to loosen the gasket from the cylinder head.
4. Remove the rocker arm cover.

NOTE: Work on one bank of cylinders at a time, leaving the rocker arm cover installed on the other bank.

5. Check the clearance between the rocker arms and valve stems with 0.018 inch feeler gauge. The clearance is the same for intake and exhaust valves.
6. When it is necessary to adjust the clearance, loosen the rocker arm adjusting screw lock nut, turn the adjusting screw clockwise to decrease or counterclockwise to increase clearance, then tighten the lock nut. Recheck the clearance.
7. Inspect the rocker arm cover gasket. If inspection indicates it will provide a good seal, install the rocker arm cover. Tighten the rocker arm cover hold down nuts to 2.0-2.5 foot-pounds torque. If a torque wrench is not available, tighten the nuts carefully, making sure the rocker arm

cover is not distorted. If the hold down nuts are overtightened, the rocker arm cover may warp, resulting in oil leaks.

If it is necessary to replace the rocker arm cover gasket, remove the old gasket from the recess in the cover with a screw driver. Clean all sealer and gasket material from the recess, apply a liberal coating of gasket sealer, then press the new gasket in place.

NOTE: It is not necessary to cement the rocker arm cover gasket to the cylinder head to obtain a good oil seal. If the gasket is cemented on both surfaces, it will be torn each time the rocker arm cover is removed.

DISTRIBUTOR POINTS

The heavy duty, vented type distributor points used in this engine provide the following advantages over the solid type points:

- (a) Larger contact area increases point life.
- (b) Metal transfer between points is reduced.
- (c) Cooler contact surface during operation.
- (d) Vented design allows foreign matter and tungsten dust to be blown away.

Proper condition, alignment, and gap of distributor points are important factors relating to high fuel mileage and excellent engine performance. Distributor points should be cleaned and inspected every 10,000 miles under normal operating conditions. Points should be replaced whenever inspection reveals a burned condition or excessive metal transfer.

Inspection and Cleaning. Periodic inspection and cleaning of distributor points is essential to proper engine operation and long point life.

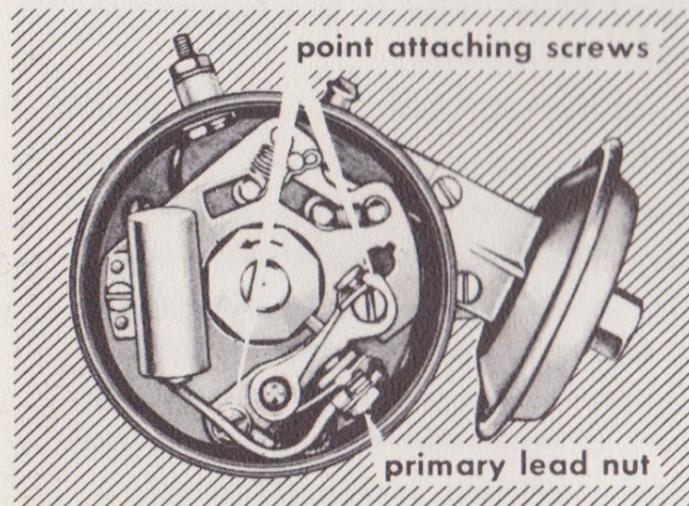
1. Release the distributor cap clips, remove the cap, wires intact, and lift off the rotor.
2. Clean the exterior and interior of the cap with solvent or a clean, dry cloth.
3. Inspect the cap for cracks or burned contacts.
4. Pull the spark plug wires out of the cap sockets, one at a time, and inspect the sockets for cracks, corrosion, and foreign matter. Inspect the terminals on the wires for looseness and the insulation for cracks or an oil soaked condition. If a terminal is loose on a wire, drop a spot of solder on it. Loose terminals cause arcing and high resistance.

NOTE: If it is necessary to replace the distributor cap or spark plug wires, insert the wires in the proper cap sockets in a counterclockwise direction,

in the firing order 1-5-4-8-6-3-7-2. Number 1 socket is identified by the number "1" on the cap. The cylinders are numbered from front to rear—right bank, 1-2-3-4; left bank, 5-6-7-8.

5. Open the points and inspect them for pitted or badly burned condition.
6. Clean any accumulation of oil, dirt, and foreign matter from the points with a stiff bristle brush dipped in solvent.

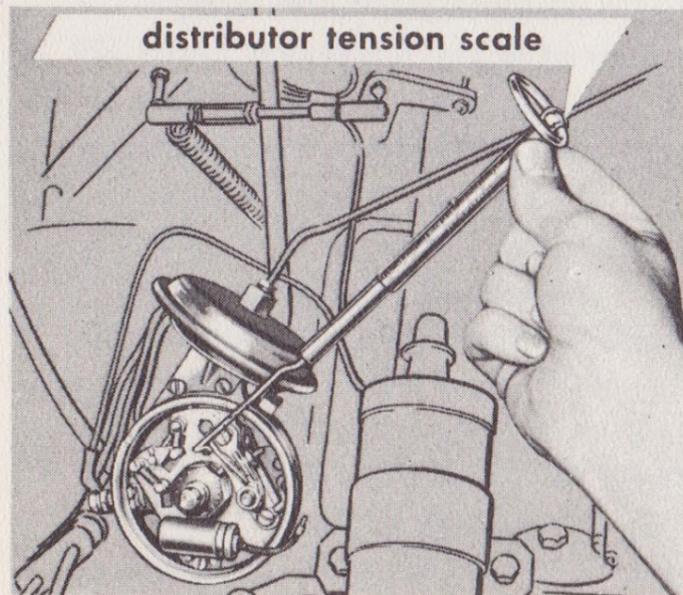
NOTE: Do not use a file, sandpaper, or emery cloth to clean or remove pits from distributor points. Any abrasion of the point surfaces only causes them to burn faster. The so-called distributor point files should be used only on spark plug electrodes.



Replacement. If the inspection reveals badly burned contacts or excessive metal transfer between the points, they should be replaced. Burned contacts are usually caused by arcing when the points open. Arcing results from improper condenser capacity, oil, or foreign matter on the contacts. Excessive metal transfer between the points is usually caused by incorrect point alignment, voltage regulator setting too high, or installation of a radio condenser to the distributor side of the coil.

Replace the distributor points using the following procedure:

1. Remove the nut and lock washer attaching the condenser lead and primary lead to the stationary point bracket.
2. Remove the two screws attaching the point assembly to the breaker plate, then lift out the assembly.

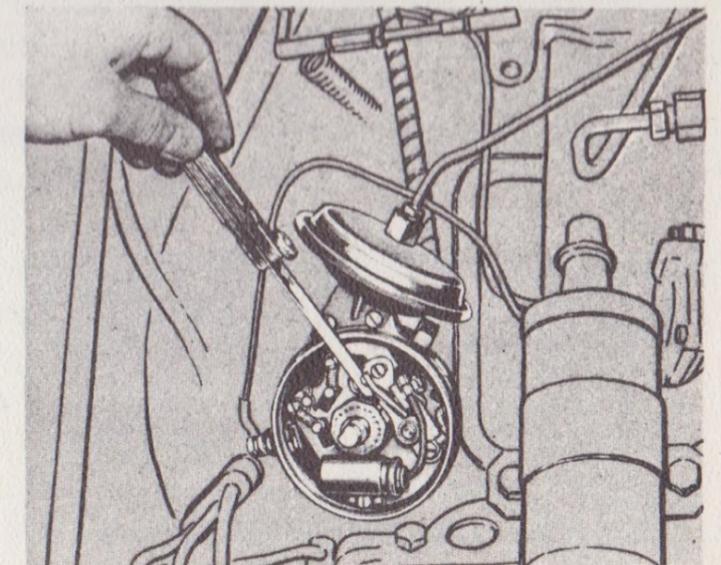


3. Position the new point assembly on the breaker plate, and install the attaching screws. Make sure the ground wire is installed on the screw nearest the pivot.
4. Before completing the installation, check the distributor point spring tension. Place the spring scale as close to the movable point as possible, and move the scale until the points just start to open. The tension should be 17-20 ounces. If the distributor point spring tension is not correct, loosen the spring locknut, and slide the spring toward the points to increase tension or away from the points to decrease tension.
5. Install the condenser lead, primary lead, lock washer, and nut.
6. Apply a light film of non-fibre, high melting point grease to the distributor cam.

NOTE: Do not use engine oil on the distributor cam. It will spatter on the points and cause them to burn rapidly.

Adjustment. When new distributor points are installed, they must be aligned and adjusted to provide proper engine operation and long point life. Proper alignment of vented type distributor points is critical. Vented type points which are misaligned will burn rapidly. The movable point must meet the vented, stationary point squarely and exactly on center.

1. Inspect the alignment of the points with the aid of a strong light and a magnifying glass.
2. Align the points by bending or twisting the stationary point. Do not bend the movable arm.
3. Using the starter, crank the engine until the rubbing block rests on a high point of the cam.
4. Check the distributor point gap with a 0.015 inch feeler gauge.
5. Loosen the lock screws, insert the blade of a screw driver in the adjusting slot, and turn it to obtain a 0.015 inch point gap.
6. Tighten the lock screws, then recheck the point gap. The

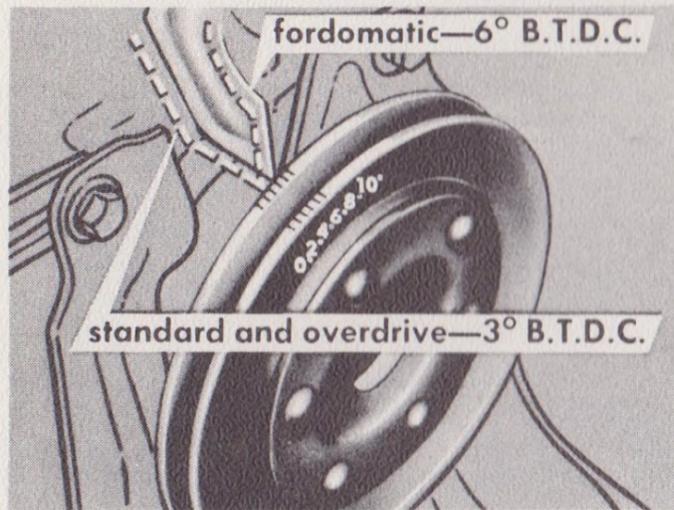


point gap must be adjusted very accurately because it affects the point dwell and in turn, the efficiency of the ignition coil.

7. Install the rotor. Install the distributor cap with the tab on the cap seated in the notch in the distributor.
8. If a dwell meter is available, check the distributor point dwell. The dwell angle should be 26-28 degrees.

IGNITION TIMING

Each time distributor points are replaced or adjusted, the ignition timing should be checked and adjusted. A timing light is required to perform this operation.

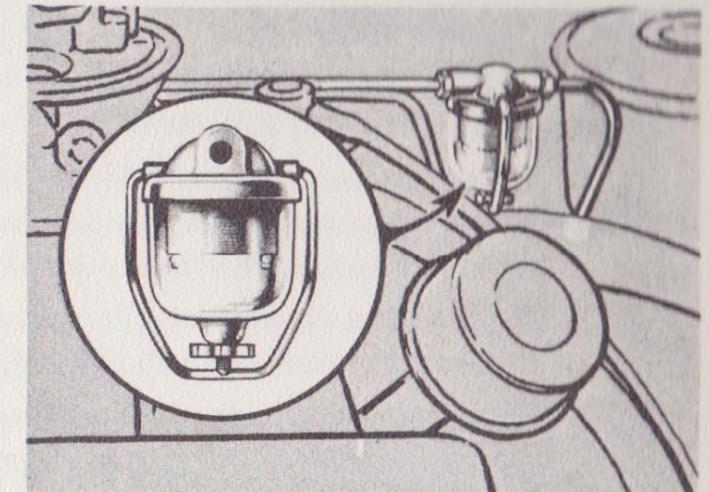


The crankshaft pulley has six (6) timing marks on it. The wide mark represents top dead center (T.D.C.) and each succeeding mark represents 2°, 4°, 6°, 8°, and 10° before top dead center (B.T.D.C.). These marks and a pointer bolted to the water pump are used to time the engine. The ignition timing should be set to the specifications shown at the left.

1. Disconnect the distributor vacuum line.
 2. Connect the timing light high tension lead to the No. 1 spark plug and the other two leads to the proper battery terminals.
 3. Clean the dirt from the timing marks, and chalk the marks and pointer.
 4. Operate the engine at idle speed.
 5. Direct the timing light at the pointer. The light should flash as the proper mark on the pulley lines up with the pointer.
 6. If the proper timing mark and the pointer do not line up, rotate the distributor body until the desired alignment is obtained. Tighten the clamp screw and recheck the timing.
- NOTE:** Ignition timing is advanced by clockwise rotation of the distributor body, while counterclockwise rotation retards it.
7. Connect the distributor vacuum line, then accelerate the engine while watching the timing marks with the timing light to assure that the advance mechanism is operating.

FUEL PUMP

A combination fuel and vacuum pump is mounted to the cylinder front cover at the left-front corner of the engine. It is operated by an eccentric bolted to the front of the camshaft. The pump delivers fuel to the carburetor, and the vacuum pump half of the combination assures continuous operation of the windshield wipers even when the engine is under heavy load.



FUEL FILTER

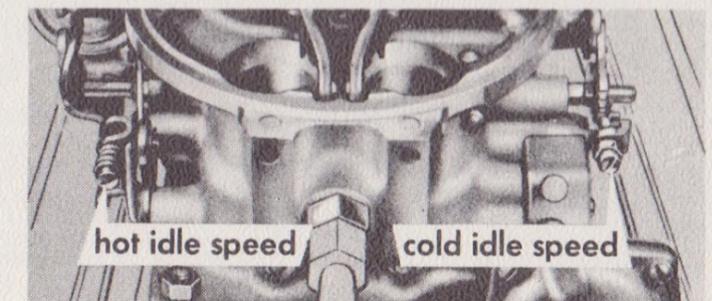
A fuel filter is installed in the line between the fuel pump and the carburetor. When visual inspection reveals an accumulation of water or sediment, the bowl and filter should be removed and cleaned. Merely loosen the bail nut, swing the bail to one side, and remove the bowl. To remove the filter, pull it straight down. If the filter is thoroughly clogged it should be replaced. Replace the gasket if it is torn or will not seal.

CARBURETOR ADJUSTMENTS

Carburetor adjustments must be made with the engine at normal operating temperature and the air cleaner installed. The air cleaner acts as the air horn. Therefore, the air cleaner must be installed to provide proper air flow through the carburetor when adjustments are made.

Hot Engine Idle Speed. Proper adjustment of the hot engine idle speed at the specified r.p.m. is highly important. If idle speed is too fast it will cause "creeping" on vehicles equipped with Fordomatic. Slow idle speed results in low power steering pump output, poor engine cooling at idle speed, low generator output, engine idle roughness, and engine stalling.

Adjustment of the throttle lever stop screw on the left-hand side of



the carburetor controls the hot engine idle speed. Clockwise rotation increases idle speed, while counterclockwise rotation decreases idle speed. Adjust the hot engine idle speed as follows:

1. Place the transmission selector lever in Neutral (N) position and set the parking brake. Start the engine, and let it run until the temperature has stabilized and the choke fast idle cam is in the slow position.
2. Back off the choke fast idle adjustment screw (on the right-hand side of the carburetor) from the fast idle cam.
3. Turn the hot engine idle adjustment screw in a direction to obtain approximately 445-455 r.p.m. (Fordomatic) or 475-500 r.p.m. (Standard or Overdrive transmission).
4. Open the throttle by hand and allow it to close normally, then recheck the hot engine idle speed.
5. If the vehicle is equipped with Fordomatic, place the selector lever in Drive (DR) position, and recheck the engine idle speed. The idle speed should be 425-450 r.p.m. If it is below 425 r.p.m., turn the hot engine idle speed adjustment screw in until the speed comes up to 425 r.p.m.
6. Adjust the cold engine idle speed setting.

NOTE: Always adjust the cold engine idle speed setting whenever the hot engine idle speed has been adjusted.

Cold Engine Idle Speed. The throttle lever stop screw on the right-hand side of the carburetor controls the cold engine idle speed (choke fast idle speed). It contacts steps on the fast idle cam during the engine warm-up period. Adjust the cold engine idle speed setting as follows:

1. Adjust the hot engine idle speed as outlined above before attempting to set the cold engine idle speed.
2. With the fast idle cam in the slow position, screw in the cold engine idle speed adjustment screw until it just touches the lowest step on the fast idle cam.

NOTE: In localities where normal setting of the cold engine idle speed may be considered unusually high, it may be reduced by backing off the adjustment screw not in excess of one full turn.

Idle Fuel Mixture. The idle fuel mixture is controlled by two idle mixture adjusting screws located at the base of the throttle body in the front of the carburetor. Proper adjustment is necessary to obtain a smooth engine idle.

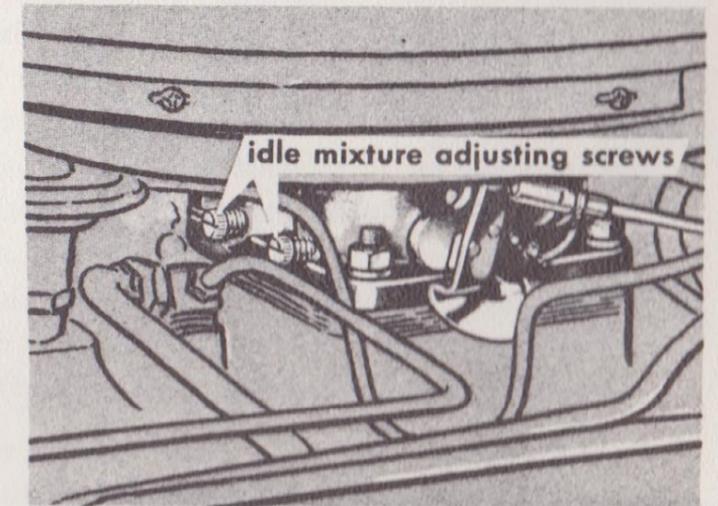
1. Make the initial adjustment by turning the idle mixture adjustment

screws "in" until they seat lightly, then back off each screw $1\frac{1}{4}$ turns.

NOTE: Do not turn the adjustment screws too tightly against their seats as this may groove the points. Damaged adjustment screws must be replaced before the proper idle fuel mixture can be obtained.

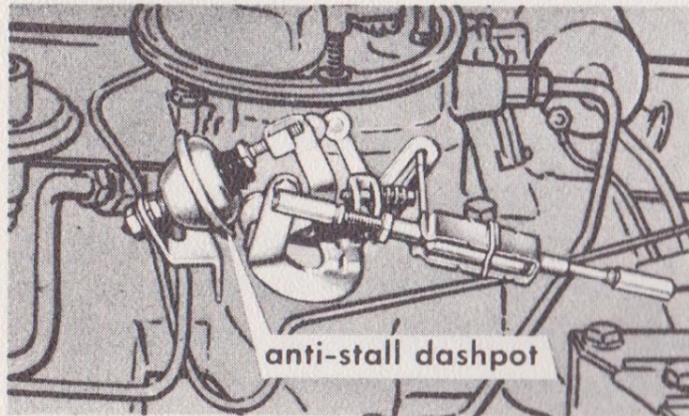
2. Operate the engine at fast idle speed until normal operating temperature is reached, then place the fast idle cam in the slow position.
3. Turn both mixture screws $\frac{1}{8}$ turn at a time in a direction which gives the smoothest idle and maximum r.p.m.

IMPORTANT: Since there is very little fuel transfer between the two branches of the manifold, each branch of 4 cylinders would respond primarily to its respective idle mixture adjustment. However, due to the interconnecting idle fuel passages in the base of the throttle body, it is possible to obtain an apparent correct idle mixture adjustment without the adjustment screws being turned in evenly. The rich mixture adjustment of one screw would compensate to some degree for the lean adjustment of the other. Therefore, when adjusting the idle mixture, turn each adjusting screw the same amount. Final adjustment may vary slightly from this setting but should not exceed $\frac{1}{2}$ turn difference between the screws.



4. Increase engine speed for a few seconds to clear out excess fuel in the system. Recheck the idle mixture adjustment by repeating Step 3.
5. If adjustment of the idle mixture has increased the engine r.p.m., reset the hot engine idle speed to the recommended r.p.m. See "Hot Engine Idle Speed." Then adjust each idle mixture screw individually, $\frac{1}{8}$ turn in each direction, to find the best setting. Repeat this step for final adjustment.

Dashpot. On vehicles equipped with Fordomatic, or Overdrive with Power Brakes, an anti-stall dashpot is attached to the carburetor to prevent engine stalling when the throttle is released suddenly. The dashpot closes the throttle plates slowly in their last few degrees of travel.

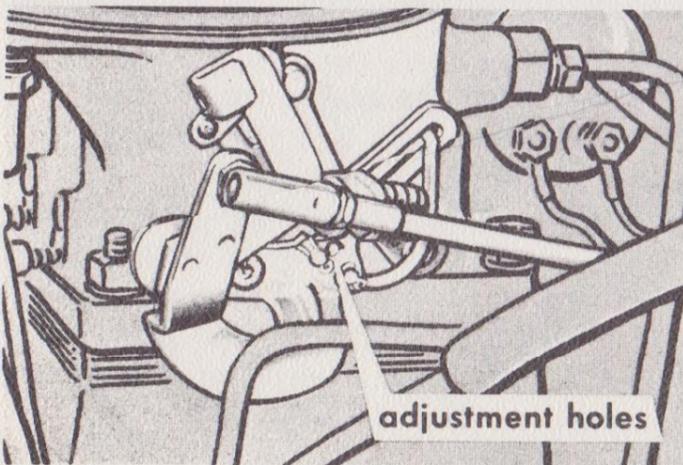


The dashpot is adjusted as follows:

1. Adjust the engine idle speed, then turn off the ignition.
2. Hold the throttle in the closed position, and turn the dashpot adjusting screw out until the plunger reaches the limit of its inward travel.
3. Turn the dashpot adjusting screw in (away from the

plunger) 1½-2 turns to give the dashpot plunger enough clearance so that it won't bottom when the throttle is in idle position.

Accelerator Pump Link. The accelerator pump supplies an additional amount of fuel to the mixture when the accelerator is depressed such as when passing another vehicle. Different climates, altitudes, and atmospheric temperatures make it desirable to vary the amount of fuel discharged into the throttle bores by the accelerator pump. Two holes are provided in the throttle lever to accomplish this. The accelerator pump link can be installed in either of these holes to furnish a longer or shorter accelerator pump stroke. The hole closest to the throttle shaft provides the shortest pump stroke and should be used for normal operation in cold and warm weather. The hole farthest from the throttle shaft provides the longest pump stroke and the greatest discharge of fuel and should be used only when the vehicle is operated in extremely cold climates. The position of the link can be changed as follows:



follows:

1. Remove the carburetor air cleaner.
2. Remove the hairpin clip which retains the pump link to the throttle lever.
3. Remove the link to pump rod retaining screw.
4. Place the pump link in the desired hole in the throttle lever, and secure it with the hairpin clip.

5. Attach the pump link to the pump actuating rod with the retaining screw.
6. Install the air cleaner, and tighten the wing nut finger-tight.

AIR CLEANER

The air cleaner is one of the most important and one of the most neglected units on the engine. The function of the air cleaner is to thoroughly filter and clean the air which enters the carburetor. This air, mixed with fuel, is ultimately consumed by the engine in combustion. The amount of air which passes through the air cleaner is tremendous when a moment is taken to think about it.

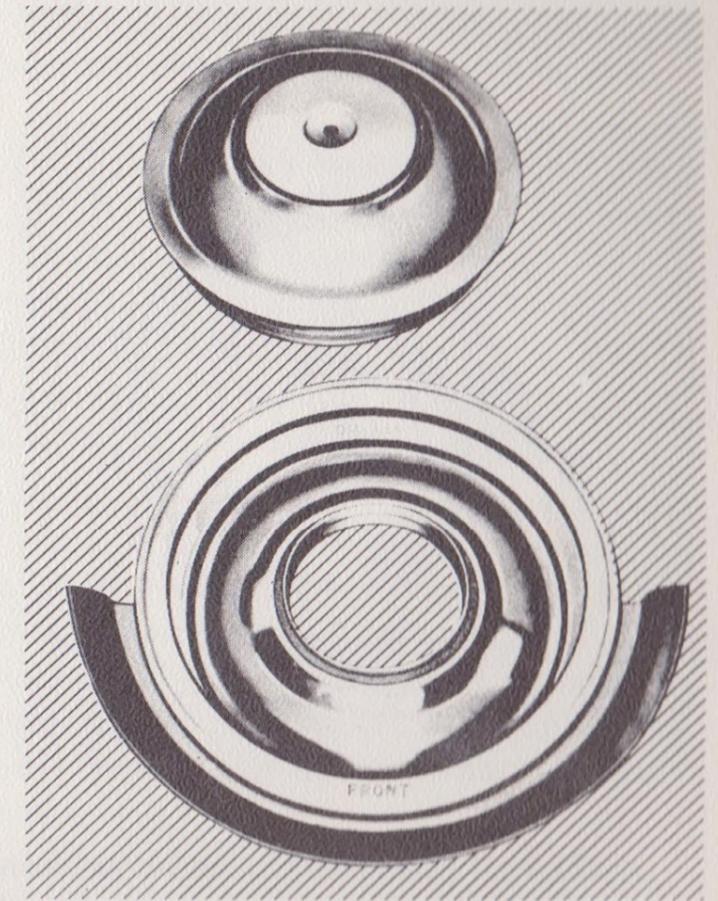
The average internal combustion engine consumes approximately 15 times as much air as it does fuel—by weight. A specified volume of gasoline is about 600 times heavier than the same volume of air. A little arithmetic brings out the fact that it takes about 54,000 cubic feet of air to burn one gallon of gasoline. In view of this, it can readily be seen that the air cleaner has a tremendous job to do and should be given a little attention.

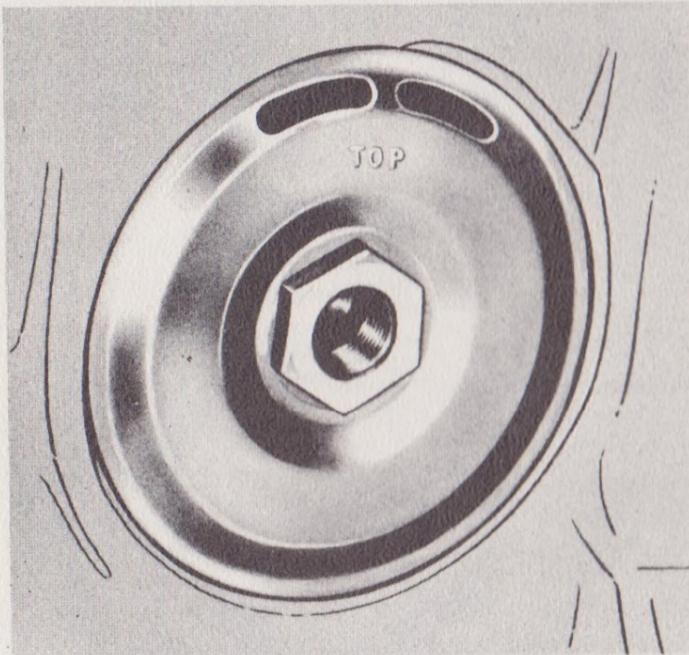
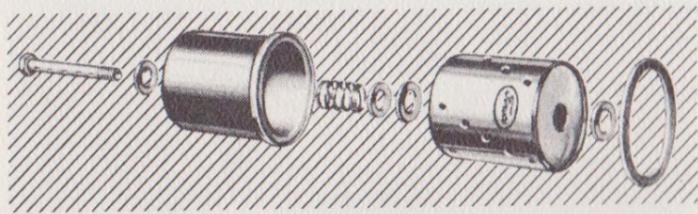
The oil bath air cleaner should be checked every 1000 miles. Remove the wing nut, then lift off the top half of the air cleaner. Inspect the oil in the lower half of the cleaner for accumulated dirt. Clean and refill with engine oil at least every 2000 miles or oftener if necessary.

OIL FILTER

The full-flow type oil filter used on this engine, filters all of the oil delivered by the oil pump before it enters the main oil gallery in the cylinder block.

A hollow center bolt retains the filter housing on the cylinder block. A spring loaded by-pass valve in the center bolt operates when sludge





and dirt or extremely thick oil in the filter element prevents the free-flow of oil through the element. Under these conditions, the by-pass valve allows sufficient unfiltered oil to enter the main oil gallery to provide proper engine lubrication. Under normal operating conditions, the oil filter element should be changed at 4000 mile intervals. Under abnormal conditions such as dusty areas, stop and go driving, or low engine temperature operation, the element should be changed more often.

NOTE: *To obtain maximum efficiency, only the recommended Ford Full-flow type filter element kit (B2A-6731-A) should be used. Use of substitute elements can result in poor filtration, short filter life, and may cause serious engine malfunctions.*

The oil filter element must be changed from under the vehicle. Proceed as follows:

1. Place a drip pan under the filter assembly.
2. Loosen the center bolt, then remove the entire filter assembly from the engine.
3. Remove the filter housing gasket from the recess in the cylinder block.
4. Remove all parts from the filter housing, and discard the filter element and all gaskets.
5. Wash all parts in a solvent and dry them thoroughly.
6. Make sure all the openings in the center bolt are clean.
7. Install a new fibre gasket on the center bolt, then place the bolt through the filter housing.
8. Install the spring and retainer assembly on the center bolt, making sure the retainer tangs are engaged in the spring.
9. Install a new neoprene gasket and a new filter element on the center bolt.

10. Be sure the two elongated holes in the anti-drainback diaphragm, which is installed in the cylinder block recess, are positioned at the top.
11. Install a new neoprene gasket in the filter housing recess in the cylinder block.
12. Place the filter assembly in position, and thread in the center bolt finger-tight.
13. Rotate the filter housing slightly, in each direction, to make sure the gasket is seated evenly.
14. Tighten the center bolt $\frac{3}{4}$ -1 complete turn (approximately 20-25 foot-pounds torque). Do not over-tighten the center bolt as the filter housing may be distorted resulting in oil leaks.
15. Operate the engine for at least 5 minutes at fast idle speed while continuously checking for oil leaks at the filter housing and center bolt.

COOLING SYSTEM

The cooling system is pressurized at 13 p.s.i. (pounds per square inch). The pressure is retained in the system by a spring loaded radiator cap. Coolant under pressure dissipates heat more efficiently and will not boil as readily as coolant which is open to the atmosphere.

CAUTION: *Be careful when removing the radiator cap to avoid possible injury from escaping steam or hot water.*

The cooling system consists of the radiator, water pump, fan, thermostat, engine water passages, and the necessary hoses, connections, and fittings.

The shroud which surrounds the fan improves the fan's efficiency by creating a "wind tunnel" effect. With the shrouded fan, more air is drawn through the radiator with a given number of fan revolutions than could be drawn with an open fan of the same size. The high capacity water pump contains a permanently-sealed, double-row ball bearing which requires no lubrication. The pump forces coolant through the cylinder block and heads at a high velocity. The direction of flow is from front to rear in the cylinder block, then into the rear of the heads and forward in the heads to the water outlet. The water outlet contains a cartridge type thermostat which maintains efficient engine operating temperatures. For quick, even warm-up, and to eliminate hot spots while the thermostat is closed, the coolant is recirculated in the engine through a by-pass until the thermostat has opened.

Care of the Cooling System. The importance of keeping the cooling system in proper condition cannot be overemphasized. Too often the cooling system

is neglected until it fails in some manner. Whereas, if periodic maintenance steps had been taken the failure could have been avoided. Rust and scale are probably the biggest enemies of the cooling system. In view of this, only rust inhibiting FoMoCo anti-freeze or equivalent should be used. When water is used as the coolant, it is recommended that a high quality rust inhibitor, such as FoMoCo 8A-19546-C, be added. It is essential that the cooling system be kept clean. A thorough bi-annual flushing will usually avoid the necessity of more drastic action. Periodic inspection of all the units of the system should be made to determine the points requiring attention to maintain peak efficiency.

The coolant level should be inspected each time a stop for gasoline is made. Do not fill the radiator too full. Maintain the coolant about one inch from the top of the upper tank, adding water or anti-freeze as required.

NOTE: *Do not mix various types of anti-freeze. If mixed, a true test of the protection against freezing cannot be made.*

In sub-freezing weather, the anti-freeze solution should be checked occasionally with a hydrometer to make sure it is strong enough to provide sufficient protection. The strength of the solution should always be checked before addition of water or anti-freeze to determine the quantity of each that should be added to maintain sufficient protection.

Check the front of the radiator core once in a while, particularly in summer and fall, for any accumulation of bugs, leaves, and papers which may restrict the flow of air through the core. Flush these things out from the rear of the radiator with an ordinary garden hose.

Check the fan belt tension occasionally, and adjust it when necessary.

When loss of coolant is evident, check the system thoroughly for leaks, tighten the loose hose clamps, or replace the faulty hoses.

In the spring and fall, the radiator and cylinder block drain cocks (one on each side of the block, one at lower, right-rear corner of radiator) should be opened, all of the coolant allowed to drain, and the entire system thoroughly flushed. Pull off the heater hoses at the intake manifold and water pump, move the heater temperature control valve to the "High" position, and reverse flush the heater core by running water through the hose disconnected from the water pump.

While the heater hoses are disconnected, inspect the inside of them. The condition of the inside of the heater hoses is a good indication of the condition of all the hoses in the cooling system. If there is any doubt about the serviceability of the hoses, remove all of them for inspection, and install

new hoses as required.

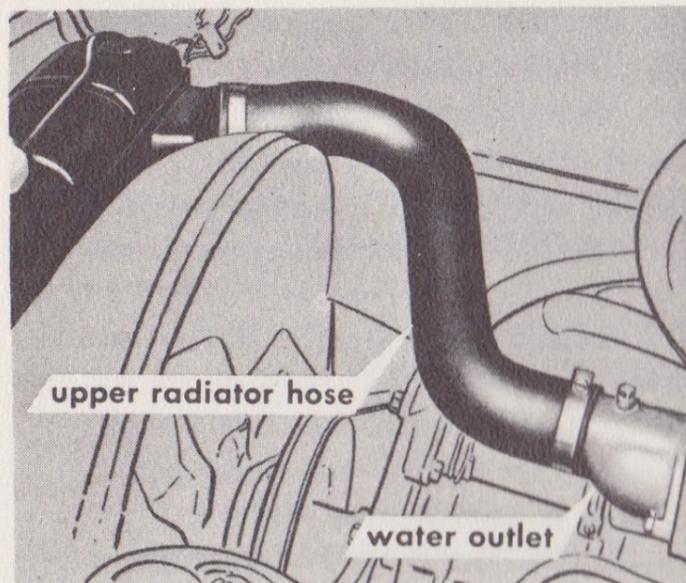
Installing Anti-Freeze. FoMoCo regular or permanent type anti-freeze is recommended for use in the Thunderbird cooling system; however, most of the name brand anti-freezes on the market today are satisfactory. Avoid the use of any anti-freeze having a petroleum or salt base. Petroleum or salt-base anti-freeze will deteriorate the rubber parts of the cooling system and clog the radiator core.

The strength of the anti-freeze solution is determined by the lowest expected temperature. Mix the pure anti-freeze and water in the proportions recommended by the manufacturer of the particular anti-freeze being used. Make certain the anti-freeze solution will stay in the cooling system, and not leak out, by using the following procedure to prepare the system:

1. Drain the radiator and cylinder block. Be sure to open both drain cocks in the cylinder block.
2. Flush the system with liberal quantities of clean water.
3. If considerable rust, scale, or oil is present, clean the cooling system with FoMoCo Cooling System Cleanser. Use regular or heavy duty, depending on the severity of the condition.
4. Inspect the fan belt, replace it if it is cracked or frayed, or adjust if necessary.
5. Inspect the radiator and heater hoses. If any hoses are collapsed, cracked, or deteriorated on the inside, replace them. Tighten all hose clamps.
6. Remove and check the thermostat. Make sure it opens and closes properly. The standard thermostat will maintain engine temperature at 157°-162° F. The high temperature thermostat (177°-182° F) should be used with permanent type anti-freeze only.
7. Fill the cooling system with anti-freeze and water, using the amount of anti-freeze recommended by the manufacturer to protect the system to the lowest expected temperature.
The cooling system capacity is 20 quarts plus one quart for the heater.
8. Warm up the engine, and check all points of possible leakage. Be especially observant if permanent type anti-freeze is used because it will seep out where other types of solutions will not.

Thermostat. The cartridge type thermostat is located in the water outlet connection on the intake manifold.

If it is suspected that the thermostat is not operating properly, maintaining too high, too low, or fluctuating engine temperature, it can be removed



and tested in the following manner:

1. Open the radiator drain cock, and allow about half of the coolant to drain. This will bring the level below the water outlet.
2. Disconnect the upper radiator hose at the water outlet, and loosen the by-pass hose clamps.
3. Remove the two cap screws which attach the water outlet to the intake manifold.
4. Pull the water outlet forward, bending the by-pass hose enough to remove the thermo-

stat.

5. Insert a piece of 0.003 inch feeler stock $\frac{1}{8}$ inch under the nose of the thermostat butterfly valve.

NOTE: If the thermostat will not hold fast to the feeler stock when the thermostat is cold, replace the thermostat.

6. Suspend the thermostat, by the feeler stock, in a large container of water so that it is completely submerged but one to two inches from the bottom of the container.
7. Suspend a thermometer in the water so that the bulb is at the same level as the thermostat element.
8. Heat the water slowly, and stir it frequently to normalize the temperature.
9. When the thermostat drops off the feeler stock, note the temperature on the thermometer. This is the start-to-open temperature.
10. If the valve opens at a temperature more than 5° above or below the start-to-open specification, the thermostat should be replaced.

Thermostat	Identification	Begins to open °F	Fully open °F
EAA-8575-A	160	157-162	180
EAA-8575-B	180	177-182	195

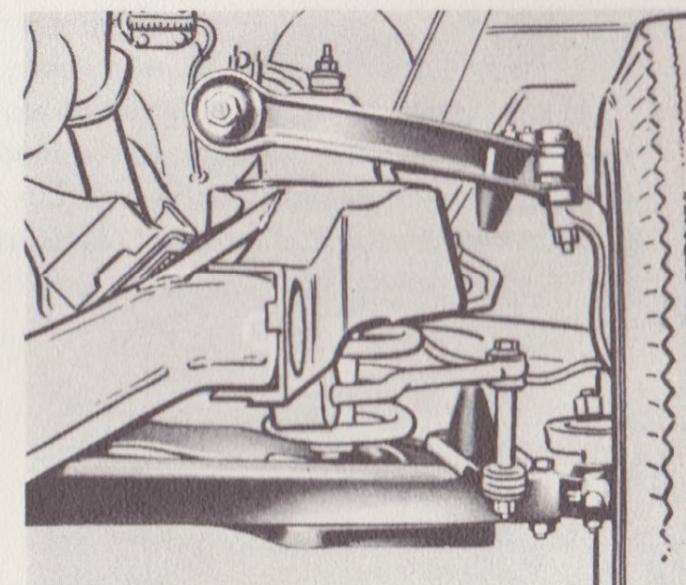
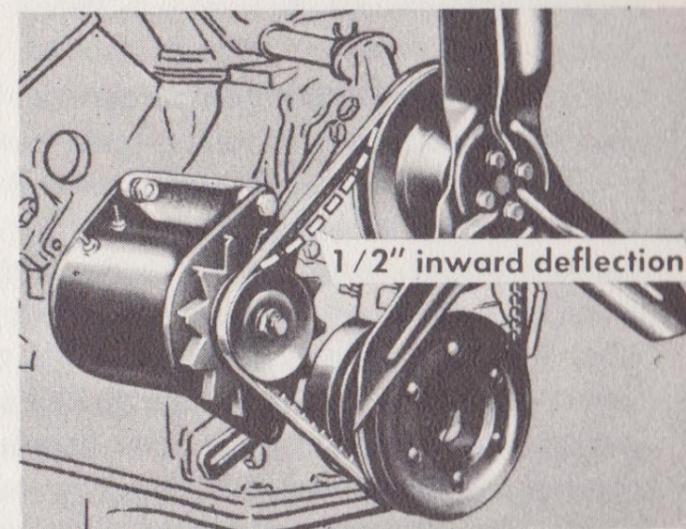
11. The butterfly valve should open $\frac{1}{2}$ to $\frac{9}{16}$ inch, from its seat, in boiling water. If the valve will not open this far, the thermostat should be replaced.
12. Place the thermostat in the water outlet with the butterfly valve facing

forward and the stamp "TOP" in proper position.

13. Position a new water outlet gasket on the intake manifold, insert the thermostat, and install the cap screws.
14. Connect the radiator hose and tighten the by-pass hose clamps. Fill the cooling system, then check for leaks after the engine has reached operating temperature.

Fan Belt Adjustment. The fan belt should be properly adjusted to insure proper operation of the water pump, fan, and generator. If the fan belt is cracked or frayed it should be replaced. Adjust the fan belt as follows:

1. Loosen the generator mounting bolts and the generator adjusting strap bolt.
2. Move the generator toward or away from the engine to provide $\frac{1}{2}$ inch fan belt deflection when light thumb pressure is applied between the generator and water pump pulleys.
3. Tighten the mounting bolts and adjusting strap bolt.



FRONT SUSPENSION

Ford's famous ball-joint front suspension gives the Thunderbird the handling and roadability characteristics required by a high-performance car. With this suspension, the spindle is attached directly to the upper and lower suspension arms through ball joints. No spindle bolt is used. All motion, up and down as well as turning, is transmitted through the ball joints. The upper and lower arms are pivoted at the inner ends on torsion type rubber bushings which are pressed into the arms. Up and down motion of the suspension arms is permitted by twisting the

rubber in the bushings, thus eliminating the necessity of lubrication. The use of rubber bushings as pivot points for the suspension arms also provides additional insulation between the wheels and the frame.

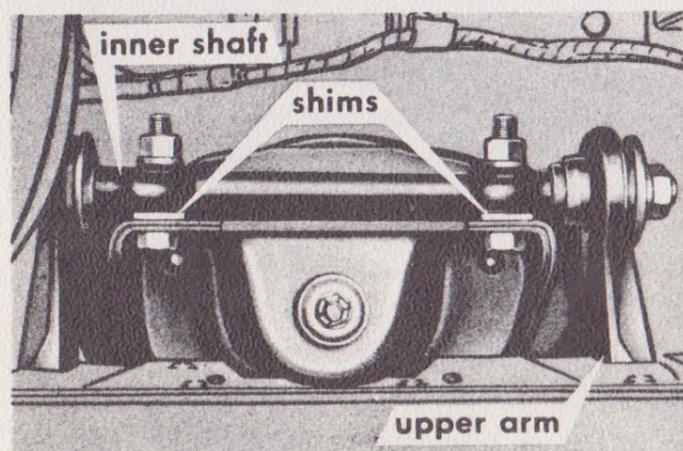
Each side of the front suspension is lubricated at only two points, one fitting on the upper ball joint and one on the lower ball joint. The suspension arm inner bushings are made of natural rubber and must not be lubricated.

Coil springs are mounted between the lower suspension arms and the frame. Spring deflection is controlled by telescopic, direct-action shock absorbers mounted inside of each spring. A stabilizer bar, mounted on the frame and connected to the lower suspension arms, minimizes roll.

The high stability afforded by the ball joint suspension is best illustrated by the action of the suspension when the car rolls on a severe turn. The outside wheel bears the greatest weight or thrust. The front spring on the outside of the turn compresses, and both suspension arms rise in relation to their normal position. The design of the arms is such that the top of the outside wheel is pulled in, and the wheel banks against the turn rather than trying to roll under the car. The inside wheel is pushed out at the top, thus lending all the support it possibly can to the job the outside wheel has to do. This action prevents excessive tire wear and road squeal, while providing complete steering control.

WHEEL ALIGNMENT

Many types of wheel alignment equipment are available which can be used to check caster, camber, toe-in, and the other factors of wheel alignment. As long as the equipment is reliable and is used by someone thoroughly familiar with wheel alignment, satisfactory results will be obtained. Since different types of equipment require varied checking procedures, only the



methods involved in adjustment of alignment factors and specifications will be mentioned here.

Caster Adjustments. The caster angle is controlled by horseshoe type shims between the upper suspension arm inner shaft and the frame. Loosen the two bolts that secure the inner shaft to the frame, then insert or remove shims to obtain the desired caster angle. The addition of shims at the rear bolt,

or the removal of shims at the front bolt, changes the caster angle in a positive direction. Conversely, if shims are removed at the rear bolt or added at the front bolt, the caster angle is changed in a negative direction. Shim thicknesses of 1/16 inch will change the caster angle 1/2°. Shims are available in thicknesses of 1/32 inch and 1/8 inch. When the desired caster angle has been obtained, tighten the bolts to 65-90 foot-pounds torque.

NOTE: *The maximum difference in the thickness of the shim packs at each bolt should not exceed 1/8 inch.*

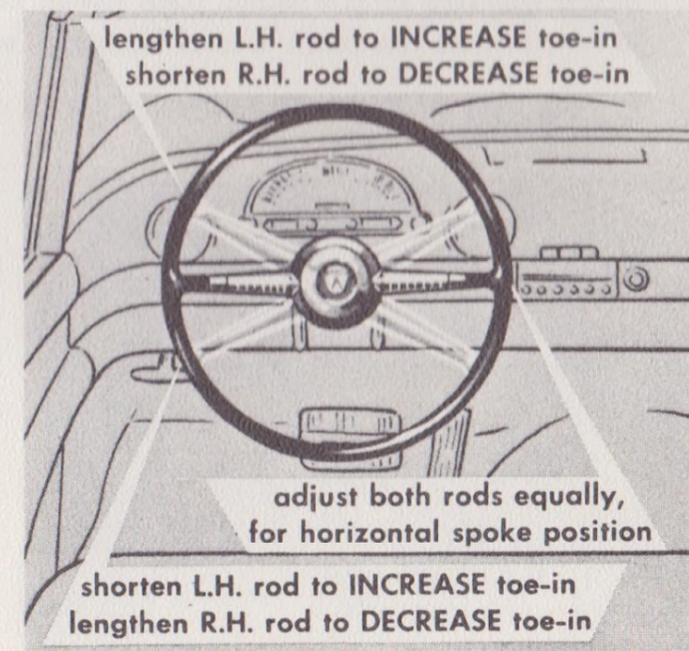
Camber Adjustments. The camber angle is also controlled by shims placed between the upper suspension arm inner shaft and the frame. When adjusting camber, of course, the same thickness of shims must be added or removed from both bolts so that the caster angle previously set is not disturbed. The removal of shims at both bolts changes the camber angle in a positive direction, while the addition of shims changes the camber angle in a negative direction. Shim thicknesses of 1/16 inch will change the camber angle 1/4°. The total thickness of any shim pack should not exceed 9/16 inch.

Toe Adjustment. If the toe is incorrect, note the position of the steering wheel spokes when the front wheels are in the straight ahead position. If the spokes are in the horizontal position, lengthen or shorten both spindle connecting rods equally to obtain correct toe.

NOTE: *To lengthen or shorten both connecting rods equally, the right and left connecting rod sleeves must be turned an equal number of turns, but each in an opposite direction.*

If the spokes are rotated clockwise from the horizontal position, make the adjustments as shown at the top of the adjacent figure. If the spokes are rotated counterclockwise, adjust toe as shown at the bottom of the figure. By making the toe adjustments in this manner, the steering wheel spokes are moved toward the horizontal position at the same time. If the steering wheel spokes are still not horizontal after the toe is adjusted, proceed as follows:

Set the steering wheel spoke in the horizontal position. Scratch a mark on each steering arm connect-



ing rod sleeve and the spindle connecting rod tube, then loosen the sleeve clamp bolts.

If the left-hand steering wheel spoke was below the horizontal position when checked, turn both connecting rod sleeves downward the same amount. One complete turn of the sleeve equals approximately one inch of steering wheel rim travel. Turn the connecting rod sleeves upward if the left-hand wheel spoke is above the horizontal position. Tighten the sleeve clamp bolt nuts to 12 to 15 foot-pounds torque. Road test the vehicle and check the operation of the steering gear under all driving conditions.

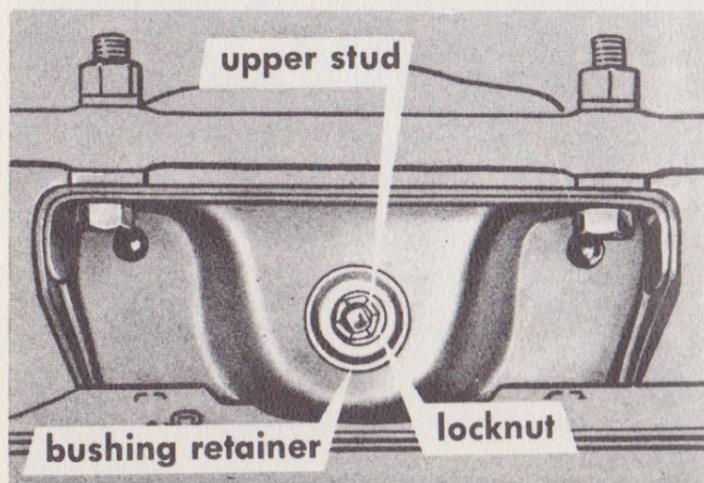
When adjusting toe on vehicles equipped with power steering, the engine should be running so that the power steering control valve will be centered. This procedure allows the control valve to return to the center, or neutral, position when the front wheels are turned to the straight ahead position. The steering wheel can then be correctly centered with the front wheels.

FRONT WHEEL BEARING ADJUSTMENT

Proper adjustment of front wheel bearings is an important factor in safety, steering stability, and tire wear. Wheel bearings that are adjusted too tightly will cause excessive drag, will run hot, and as the result of running hot will usually fail in a short time. Wheel bearings that are too loose have a tendency to allow the car to wander or shimmy and cause excessive tire wear.

To check the wheel bearing adjustment, jack up the front of the car, grasp the tire at the sides, then move the wheel in and out. If any looseness is felt, adjust the front wheel bearings as follows:

1. Remove the hub cap, the hub grease cap, and the cotter pin.
2. Tighten the wheel bearing adjusting nut, while rotating the wheel, until a slight drag is felt.
3. Back off the adjusting nut until the nearest slot in the nut is aligned with the horizontal hole in the spindle (about $\frac{1}{8}$ turn).
4. Install a new cotter pin, the grease cap, and the hub cap.



When the wheel bearings are properly adjusted, the wheel will rotate freely with no perceptible end play.

NOTE: *If roughness or noise is noticed when the wheel is rotated, the wheel bearings or cups are worn or dirty and should be cleaned or replaced.*

FRONT SHOCK ABSORBERS

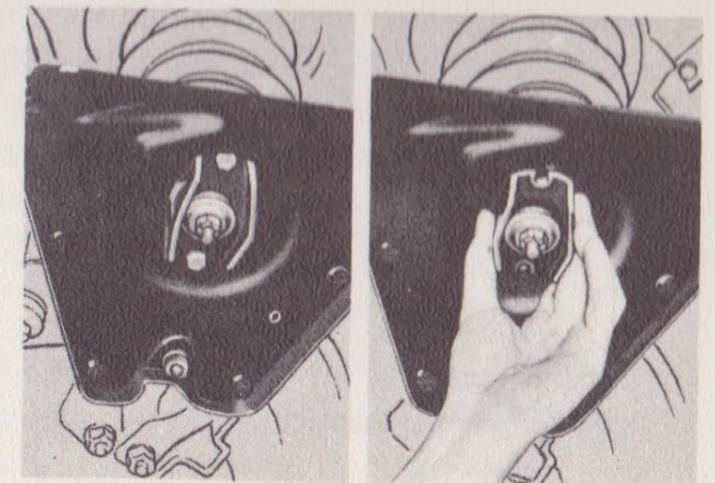
The front shock absorbers, mounted in the center of the front springs, are permanently sealed and the service operations are limited to replacement only. The upper end of each shock absorber is attached to a bracket which also serves as the spring housing. The lower end of each unit is attached to a removable plate, bolted to the lower suspension arm. Shock absorbers are easily replaced using the following procedure:

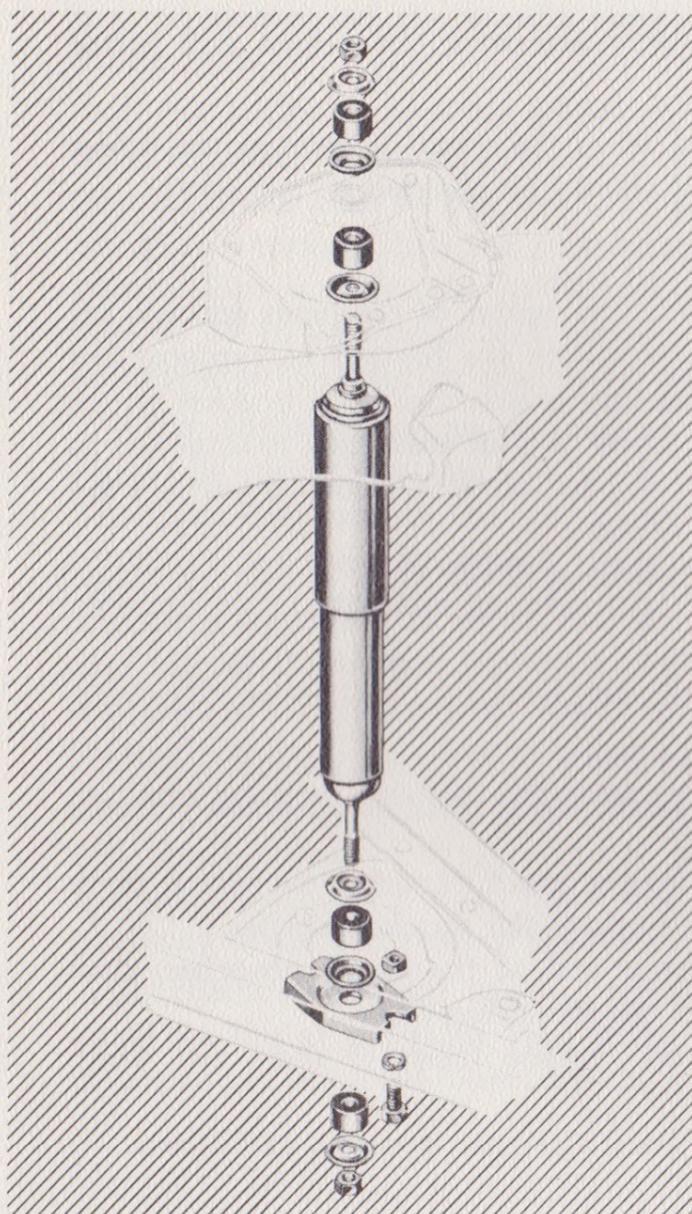
Removal. Before replacing shock absorbers, check their action by grasping the bumper and bouncing the car up and down. If the shock absorbers are in good condition, the car will settle to a normal position. If the car continues to bounce, or remains displaced, the shock absorbers should be replaced.

1. Hold the upper stud of the shock absorbers with a $\frac{1}{4}$ -inch end wrench or a pair of vise-grip pliers, and remove the locknut, bushing retainer, rubber bushing, and bushing seat.
2. Remove the cap screws that secure the shock absorber mounting plate to the lower suspension arm, and remove the shock absorber.
3. Remove the locknut from the lower end of the shock absorber, then remove the bushing, retainers, and the mounting plate.
4. Inspect the rubber bushings, and replace them if they are worn, deteriorated, or torn.

Installation. To install a new front shock absorber, proceed as follows:

1. Place the bushing retainers, bushings, bushing seat, and mounting plate on the lower end of the shock absorber in the order shown in the exploded view.
2. Install the locknut, and tighten it to 20-25 foot-pounds torque. If a torque wrench is not available, tighten the nut securely until the retainer is seated securely against the shoulder of the stud.





3. Place one bushing retainer and one bushing on the upper end of the shock absorber.
4. Position the shock absorber in the coil spring, and install the mounting plate to suspension arm cap screws.
5. Place the remaining bushing seat, bushing, and bushing retainer on the upper stud of the shock absorber.
6. Install the locknut, and tighten it as in Step 2 above.

REAR SHOCK ABSORBERS

The rear shock absorbers are of the same direct acting type as the front shock absorbers. They are mounted between the rear spring and the frame cross member. The lower end of the unit is attached to the spring clip plate, and the upper end to a bracket welded to the frame cross member.

Removal. Before replacing the rear shock absorbers, check their

action as outlined for checking the front shock absorbers.

1. Remove the locknut, bushing retainer, and bushing, at each end of the shock absorber. Remove the seat from the upper stud.
2. Collapse the shock absorber, and remove it from the vehicle.
3. Inspect the rubber bushings, and replace them if their condition indicates the necessity.

Installation. To install a rear shock absorber, use the following procedure:

1. Place one bushing retainer and one bushing on each end of the shock absorber.

2. Collapse the shock absorber, then position it in the bracket and spring clip.
3. Place the bushing seat on the upper stud, then install a bushing and retainer on each end of the shock absorber. Install the locknuts.
4. Tighten the locknuts to 20-25 foot-pounds torque or until the retainer seats solidly on the stud shoulder.

BRAKES

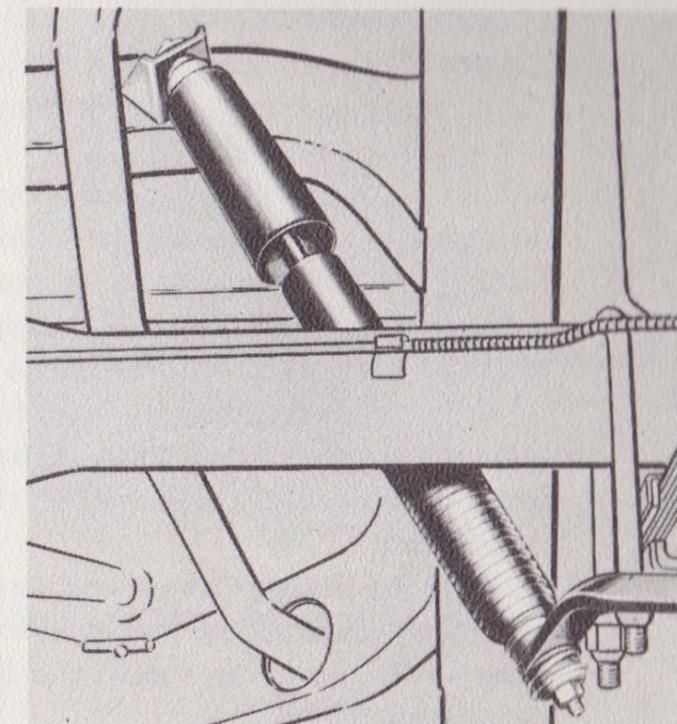
The Thunderbird brakes incorporate large, 11-inch brake drums and are of the single-anchor, full-floating, self-energizing type. The

service brakes are hydraulically operated, while the parking brakes are manually operated by mechanical linkage which actuates the rear brake shoes.

The brake master cylinder is mounted on the upper left side of the firewall and is easily accessible from under the hood. Check the brake fluid level in the master cylinder at regular intervals, each 5000 miles is not too often, to assure that the fluid level is within 1/2 inch of the top of the cylinder. When adding brake fluid or bleeding brakes, use heavy duty fluid only, made by a reputable manufacturer. Do not use any fluid having a petroleum base as serious damage to the rubber parts of the hydraulic system will result and complete brake failure is inevitable.

Bleeding Brake System. If air is allowed to get into the hydraulic system, the brake pedal will have a spongy feel, and it will be necessary to bleed the brakes to correct this condition. Air will usually get into the system when the fluid level in the master cylinder is allowed to get extremely low or when any part of the hydraulic system is disconnected.

To do the most effective job of bleeding air from the hydraulic system, bleed the longest line first. The proper sequence is right rear, left rear, right front, left front. It is extremely important that absolute cleanliness be observed while performing the bleeding operation. If any dirt or foreign matter is allowed to enter the system, it may clog the lines or cause damage to the rubber cups in the master cylinder or wheel cylinders.



The manual method of bleeding the hydraulic system is given below. It is recommended that a helper assist in this operation.

1. Raise the hood, clean all the dirt from the top of the master cylinder, then remove the filler plug.
2. Fill the master cylinder with brake fluid. The master cylinder must not be allowed to get less than half full during the bleeding operation. A simple method which can be used to keep the master cylinder full is to fill a small necked bottle (approximately 12 ounce capacity) with brake fluid, then invert the bottle on the master cylinder with the neck of the bottle extending into the filler hole.
3. Attach a rubber drain tube to the bleeder screw at the wheel cylinder, then submerge the free end of the tube in a glass jar partially filled with fluid.
4. Loosen the bleeder screw and have the helper depress the brake pedal slowly by hand. Allow the pedal to return slowly to the released position. Repeat this procedure until the fluid expelled from the bleeder tube is free of air bubbles.
5. Close the bleeder screw when air bubbles cease to appear in the fluid stream.
6. Make sure the master cylinder is full, then repeat the operation at the other wheels in proper sequence.

Service Brake Adjustment. The brakes should be adjusted when the linings have been worn to an extent which permits the brake pedal to travel more than half way to the floor board.

The brakes should not be adjusted when the drums are hot and expanded as the shoes may drag when the drums cool and contract.

The procedure given here is for a minor brake adjustment. If a minor adjustment does not provide a satisfactory brake, a major adjustment or brake reline may be necessary. It is recommended that your Ford Dealer perform these operations when necessary.

1. Make sure the parking brake is fully released and the parking brake cables are not rusted or frozen in their housings, resulting in a partial application of the rear brakes.
2. Jack up the wheel, and remove the adjusting hole cover from the brake carrier plate.
3. Expand the brake shoes by turning the adjusting screw, with a screw driver or adjusting tool, until the shoes contact the brake drum. Move the screwdriver or adjusting tool handle in an upward direction to expand the shoes.

4. Back off the adjusting screw 10 or 12 notches.
5. Turn the eccentric cam until the brake drum is free of lining drag. This applies to the front brakes only, the rear brakes do not have an eccentric cam.
6. Replace the adjusting hole cover, and repeat the procedure on each brake.

Parking Brake Adjustment. In most cases, adjustment of the service brakes will also provide satisfactory parking brake action. However, if adjustment of the parking brake cables is necessary, proceed as follows:

1. Place the parking brake T-handle in the fully released position.
2. Loosen the lock nut on the equalizer rod, then tighten the adjusting nut just enough to remove any slack from the cables.
3. Tighten the lock nut securely.

NOTE: Do not tighten the cables too much or the rear brake shoes will be partially applied at all times.

CLUTCH

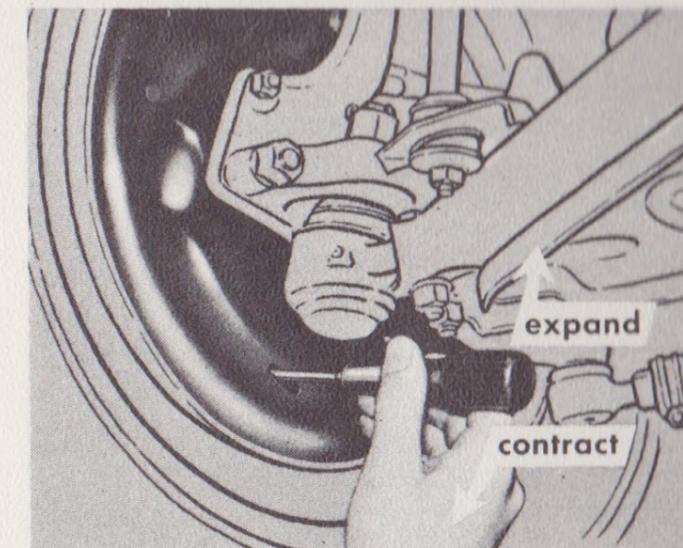
The clutch used in Thunderbirds, equipped with the standard or overdrive transmission, is a dry, single-disc, semi-centrifugal type.

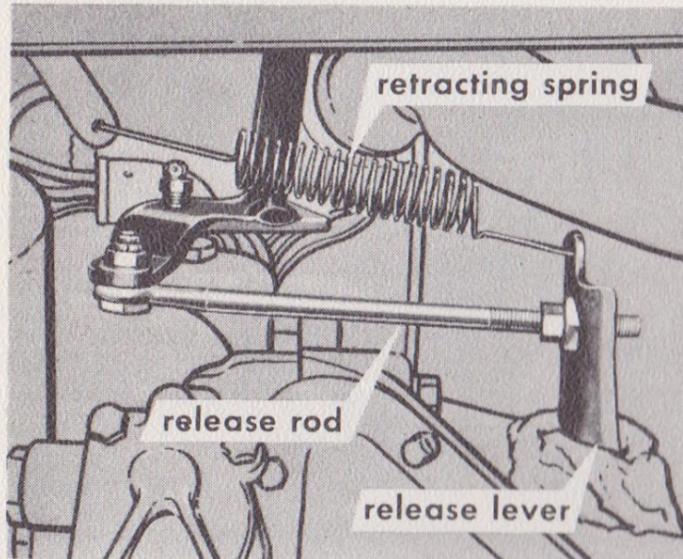
The clutch disc construction features spring-steel segments, sandwiched between the two facings, and damper springs between the disc and the hub to avoid grabbing, vibration, and chatter.

A pre-lubricated, sealed ball bearing is used as the clutch release bearing, and an oil-impregnated, bronze bushing is used as the clutch pilot bearing.

Clutch Pedal Adjustment. The need for a clutch pedal adjustment is indicated when the clutch slips or when transmission gear clashing indicates that the clutch is not completely disengaging.

1. Check the clutch pedal free travel. Depress the clutch pedal by hand, and measure the distance the pedal travels before the beginning of clutch disengagement is felt. The free travel should be 1 1/8-1 3/8 inches.
2. If the free travel is not within limits, loosen the clutch pedal release





rod lock nut, then turn the adjusting nut until the free travel is correct. Shorten the rod to increase free travel, lengthen it to decrease free travel.

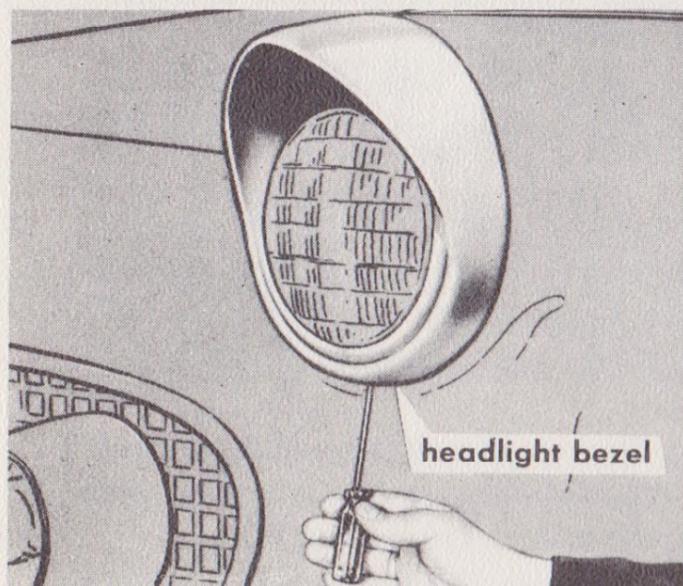
3. Tighten the release rod lock nut to secure the adjustment.

BATTERY

The battery is located under the hood on the left-hand side of the engine compartment. The level of the electrolyte solution should be

checked at two-week intervals. Add distilled water to all three cells to keep the solution level at least $\frac{1}{4}$ inch above the plates. When water is added in freezing weather, the car must be driven at least five miles to properly mix the water and electrolyte in order to prevent freezing. It is also important to keep the battery in a fully charged condition in cold weather, as a discharged battery will freeze at a temperature slightly below 32° F.

The battery cable terminals must be kept tight and clean. Corroded or loose terminals cause high resistance and result in hard starting and a discharged battery. Corrosion can be removed from the terminals with a solution of baking soda and water or ammonia and water. Flush the top of the battery with clear water after cleaning the terminals, then coat the terminals with grease to reduce corrosion.



HEADLIGHTS

The Thunderbird headlights are of the "Sealed Beam" type with filaments, lens, and reflector assembled in a sealed unit. Due to the sealed construction, the reflector will not tarnish or the light intensity diminish throughout the life of the unit.

"Sealed Beam" headlights con-

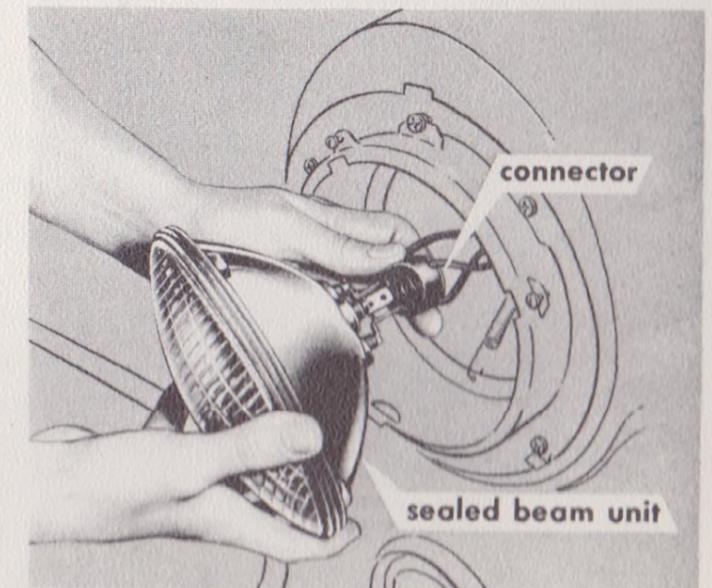
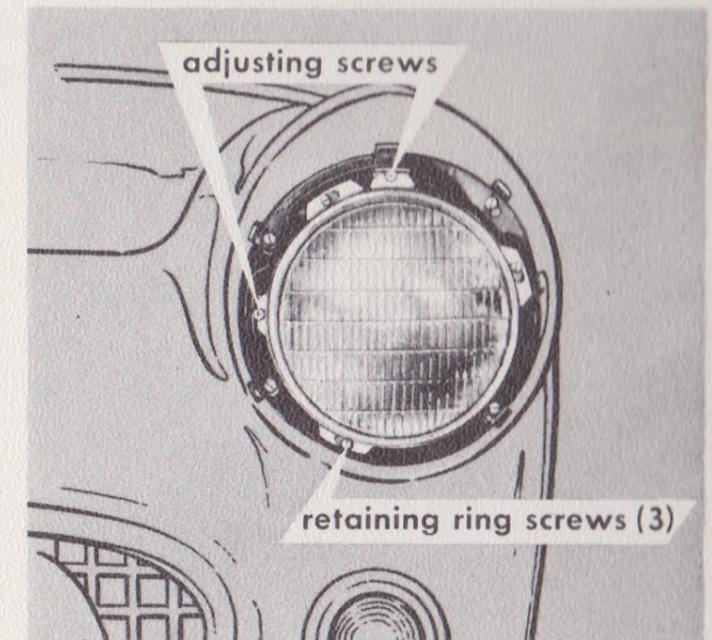
tain a double filament, so placed within the unit that a high beam is provided for country driving, and a low beam is provided to eliminate glare in the eyes of oncoming drivers and for city driving.

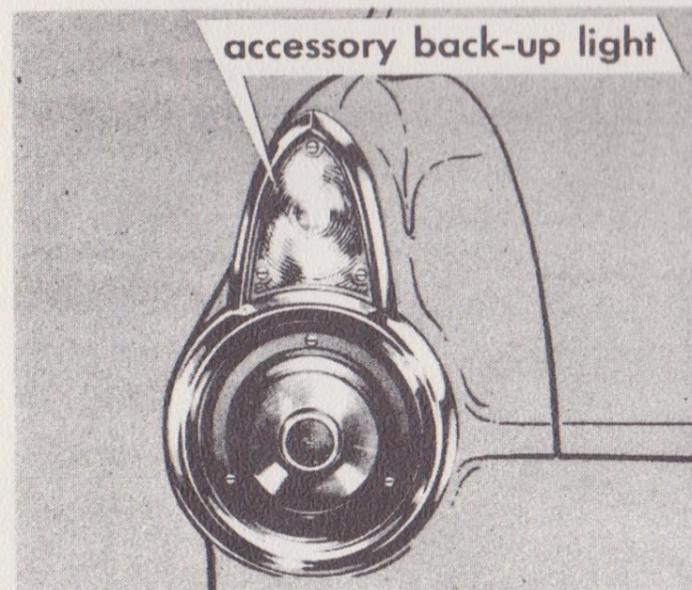
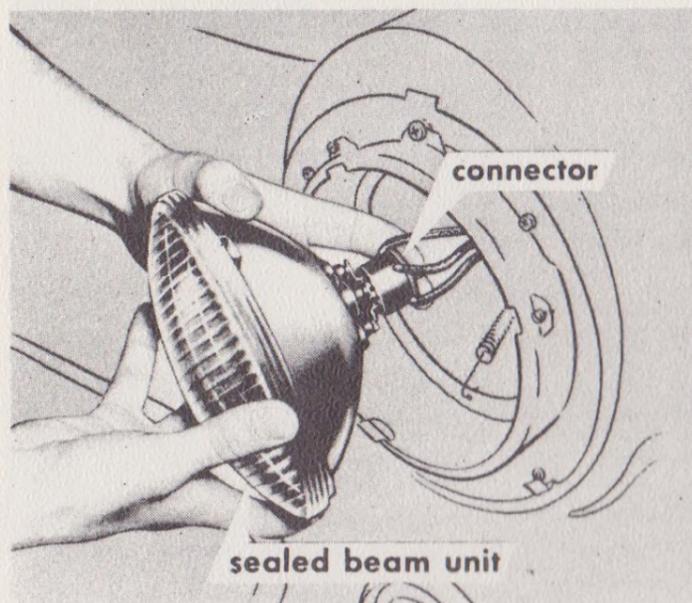
Replacement. When one of the headlights burn out, a new sealed beam unit can readily be installed as follows:

1. Insert a screwdriver in the slot at the bottom of the headlight bezel, and pry forward to remove the bezel.
2. Loosen the three screws which secure the headlight retaining ring, then rotate the ring counterclockwise for removal.
3. Pull the connector off the rear of the sealed beam unit.
4. Press the prongs of the new sealed beam unit into the connector.
5. Position the new sealed beam unit in the headlight housing, and install the retaining ring. Tighten the screws securely.
6. Hook the headlight bezel at the top, and press it into position. Make sure it snaps onto the spring clips securely.

Adjustment. Two adjustment screws are provided for vertical and horizontal aiming of the headlight beam. Turning the vertical adjusting screw in or out will raise or lower the beam. Turning the horizontal screw in or out will move the beam laterally to the right or left.

Your Ford Dealer has special equipment which is designed to furnish proper aiming of the headlight beams, providing maximum road illumination without blinding other drivers. It is suggested that he be contacted when headlight aiming is necessary.





PARKING, TAIL, AND STOP LIGHTS

Combination parking and turn signal lights are located directly below the headlights, while combination tail, stop, and turn signal lights are in the tail light assemblies in the rear fenders. Back up lights are housed above the tail light assemblies. Access to any bulb can be gained by removing the lens retaining screws and lens.

LICENSE PLATE LAMP

The license plate lamp is on the underside of the deck lid at the lower edge. The lamp assembly is accessible when the deck lid is open. Bulb replacement is accomplished by removal of the two lens attaching screws and the lens.

FUSES AND CIRCUIT BREAKER

A circuit breaker, an integral part of the headlight switch, protects the headlight and tail light circuit. When overloaded, due to a shorted wire, the excessive heat created

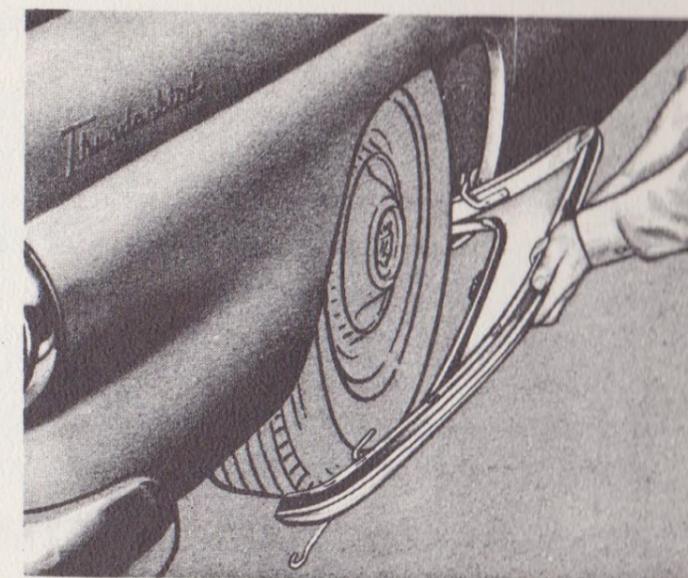
causes the circuit breaker points to open, extinguishing the headlights and tail lights. As soon as the heating element in the circuit breaker cools, the points will close and the lights will burn. The circuit breaker will seldom need replacement, but the shorted point in the circuit must be located and repaired before the lights will burn continuously.

Fuses of various capacity are installed in individual electrical circuits throughout the car. Each fuse, its rating, and the unit which it protects is listed in the "Specifications" section. All fuses are of the glass enclosed type with the exception of the cigarette lighter fuse. The cigarette lighter fuse

is a metal enclosed type, and it screws into the rear of the lighter element. Do not use fuses of higher than specified rating. Extensive damage to the wiring may result.

REAR FENDER SHIELDS

The rear fender shields are removed or installed through operation of the locking lever at the rear of the shield. To release, push up, then in on the lever, then pull the lever down to a vertical position. Remove the shield by pulling the rear section down, then slip the locating pin at the front of the shield out of its slot. Install the shield by reversing this procedure.



CARE OF FINISH

Frequent washing with FoMoCo Foam Car Washing Solution is the best method of preserving the new car luster of the baked enamel finish. Use cold water or warm water with the solution. Do not use hot water or household soap. Never wipe off dust or dirt when the finish is dry, as scratches may result.

As the result of severe weather conditions or failure to keep the car clean, the finish may lose its original luster and sparkle. Various FoMoCo cleaners and polishes are available which will restore the original beauty of the painted finish. From the condition of the paint, your Ford Dealer will be able to advise which cleaner or polish should be used.

The chrome plated parts of your Thunderbird are of high quality and require no special care. The use of FoMoCo Chrome Cleaner will restore the original sparkle when chrome plated parts become tarnished. Application of FoMoCo Polishing Wax will extend the time from one cleaning to the next, or may eliminate the necessity for cleaning chrome parts entirely.

CARE OF CONVERTIBLE TOP

Wash the convertible top with FoMoCo Foam Upholstery Cleaner or a mild soap at least once every three months. This will prevent the accumulation of fine particles of dust and grit in the fabric and will materially increase the life of the top. Before washing the top, remove all loose dirt with a whisk

broom or vacuum cleaner. Wash the rear window with FoMoCo Car Washing solution or mild soap and warm water. Rinse the window with plenty of clean water, then wipe it dry with a clean cloth.

CAUTION: *To avoid scratches, never wipe dust or dirt from the convertible rear window with a dry cloth.*

Rayon convertible tops that become faded can be made to look like new with FoMoCo Top Dye. Top dye not only restores the original color, but also preserves the material and acts as a sealer. If the top material is not restored promptly, it will eventually crack and develop leaks. Your Ford Dealer has FoMoCo Top Dye, and he can expertly restore your convertible top for you.

Convertible tops made of "Cotan", a vinyl coated material, can be washed as above. It is also permissible to scrub this material with a brush and household type cleanser to remove dirty spots. Special care must be exercised during paint repairs to protect "Cotan" tops from excessive heat and paint thinners.

CONVERTIBLE TOP ADJUSTMENT

At times, it may be necessary to adjust the convertible top to provide a better fit, a water-tight seal, or to eliminate sags in the top material. It may not be necessary to perform all of the adjustments at the same time. Choose the adjustment which will correct the immediate problem.

Centering No. 1 Roof Rail (Header). If the header does not center on the top of the windshield frame, loosen the two locating dowels, and move them laterally in a direction to obtain proper centering.

Fore and Aft Adjustment of Header. This adjustment provides proper alignment of the header to the windshield frame and also eliminates any excess slack in the top material between the header and the No. 2 roof rail. Two screws on each side, which attach the header to the front side rail are located at the top of the front side rail, and are used to make this adjustment. Loosen the two screws, and slide the header fore or aft to obtain the desired position of the header.

Side Rail Sag. The set screw, located in the rear side rail pivot, may be turned in or out to maintain a parallel condition between the rear side rail and the door glass frame.

Weather-Tight Seal. To check the seal at the header or at the upper back panel, loosen the toggle clamps, and insert a strip of paper under the weatherstrip. Fasten the toggle clamps, then pull out the paper. If the paper can be removed easily, turn the threaded hooks on the toggle clamps inward, one turn at a time, until the paper is held firmly. Do not tighten the toggle clamps excessively as difficult operation of the clamps and unnecessary "squashing"

of the weatherstrip will result. The side rail weatherstrips can be adjusted in or out to provide a proper seal at the door glass.

CARE OF HARD TOP

The painted surface of the hard top should be treated in the same manner as the painted surface of the rest of the car. The headlining should be cleaned with lukewarm water and mild soap only. Rinse with clean water and dry with a clean soft cloth. Do not use cleaning fluids of any type.

When not in use, store the hard top indoors where it can be kept dry and clean. If the hard top is to be stored for a long period of time, through the summer for example, cover it adequately to insure that excessive dirt, which may be difficult to remove, will not settle on it.

The locating dowels at the front of the hard top and the toggle clamps can be adjusted in the same manner as the comparable parts on the convertible top.

UPHOLSTERY

The Thunderbird upholstery is all vinyl and can usually be cleaned satisfactorily with mild soap and lukewarm water. Rinse with clean water and dry with a soft cloth.

If the upholstery is badly soiled and cannot be cleaned with mild soap, use FoMoCo Foam Upholstery Cleaner diluted with two parts of water. Do not use cleaning fluids on vinyl trim.

To keep the floor carpet in good condition and forestall the necessity for washing, use a vacuum cleaner often. This will remove the dirt before it gets ground into the nap so deeply that a vacuum cleaner will not remove it. When necessary, wash the floor carpet with FoMoCo Foam Upholstery Cleaner.

WHITE SIDE WALL TIRES

Scuffed or dirty white side wall tires can be easily cleaned with FoMoCo Whitewall Tire Cleaner. Use the cleaner as directed on the container.

TIRE CHAINS

When it is necessary to use tire chains, the rear fender shields must be removed, and the chains installed very tightly. Any unused adjusting links should be cut off or wired tightly against the tire. Speeds beyond 35 M.P.H., with two persons in the car, are not recommended. For loads beyond this, speed should be reduced accordingly. Tire chains are satisfactory for operation on moderately rough roads; however, severe cornering should be avoided.

Specifications

GENERAL

Car Serial Number	Stamped on plate attached to dash panel under hood	
Wheelbase	102 inches	
Length (Overall)	175.3 inches	
Width (Overall)	70.3 inches	
Height—With Plastic Hard Top	52.2 inches	
—With Convertible Top Up	52.4 inches	
—Without Top	50.2 inches	
Road Clearance	5.5 inches	
Tread—Front	56 inches	
—Rear	56 inches	
Turning Diameter (Curb to Curb)	36 feet	
Brake Drum Diameter	11 inches	
Brake Lining Area	175 square inches	
Rear Axle Ratios:		
Standard Transmission	3.73:1	
Overdrive Transmission	3.92:1	
Fordomatic Transmission	3.31:1	
Transmission Ratios:		
Standard and Overdrive—		
First	2.32:1	
Second	1.48:1	
Third	1:1	
Overdrive	0.70:1	
Reverse	2.82:1	
Steering Ratio (Overall)	20:1	

ENGINE

Type	Overhead Valve V-8	
Bore	3.75 inches	
Stroke	3.30 inches	
Piston Displacement	292 cubic inches	
Taxable Horsepower	45	
	Std. & O.D.	Fordomatic
Brake Horsepower @ r.p.m.	193 @ 4400	198 @ 4400
Torque—Foot-Pounds @ r.p.m.	280 @ 2600	286 @ 2500
Compression Ratio	8.1:1	8.5:1
Compression Pressure @ Cranking Speed	135 p.s.i.	140 p.s.i.
Idle Speed—r.p.m.	475-500	445-455
Firing Order	1-5-4-8-6-3-7-2	
Cylinder Numbering (front to rear)		
Right Bank	1-2-3-4	
Left Bank	5-6-7-8	
Valve Clearance (Hot)		
Intake and Exhaust	0.018 inch	

Specifications—Continued

IGNITION SYSTEM

Distributor Point Gap	0.014-0.016 inch		
Distributor Dwell Angle	26°-28.5°		
Breaker Arm Spring Tension	17-20 ounces		
Ignition Timing (Mark on Crankshaft Pulley)			
Standard and Overdrive Transmission	3° B.T.D.C		
Fordomatic Transmission	6° B.T.D.C		
Distributor Rotation (Rotor End)	Counterclockwise		
Spark Plug Gap	0.032-0.036 inch		
Coil Amperage Draw—			
Engine Stopped	5 amps.		
Engine Idling	3 amps.		
Condenser Capacity	0.21-0.25 mfd.		
Distributor Vacuum Advance—	Distributor r.p.m.	Distributor Degrees	Vacuum (Inches Hg.)
	200	0	0
	300	½- 1½	0.19
	1000	11 -12¼	1.36
	1400	12¾-13¾	1.59
	2000	14¼-15½	1.95

FUEL SYSTEM

Carburetor—		
Type	Quadruple down draft, top inlet balanced concentric bowl, air cleaner forms air horn	
Choke	Automatic	
Main Metering Jets—	Std. & O.D.	Fordomatic
0-5,000 feet altitude	No. 53	No. 52
5,000-10,000 feet altitude	No. 48	No. 48
10,000-15,000 feet altitude	No. 45	No. 45
Secondary Metering Jets—		
0-5,000 feet altitude	No. 78	No. 78
5,000-10,000 feet altitude	No. 70	No. 70
10,000-15,000 feet altitude	No. 63	No. 63
Main Well Tubes	No. 31	No. 31
Spark Control Metering Jet	No. 25	No. 28
Idle Tubes	No. 54	No. 54
Fuel Level (from top of main body)	½ inch	
Air Cleaner Oil Capacity	1 pint	
Fuel and Vacuum Pump—		
Fuel Pressure	4-5 p.s.i. @ 900 r.p.m.	
Capacity (at Idle Speed)	1 pint in 45 seconds or less	
Vacuum	10.5" Hg. @ 900 r.p.m.	

COOLING SYSTEM

Radiator Cap Pressure	13 pounds
Thermostat (Standard)	
Starts to open	157°-162° F.
Fully open	180° F.
Fan Belt Deflection	½ inch

Specifications—Continued

ELECTRICAL SYSTEM

Battery—	
Capacity	90 amp. hours
Voltage Rating	6 volts
No. of Plates	17
Electrolyte Level	¼ inch above plates
Generator—	
Type	2 brush shunt
Rating	40 amps.
Voltage	7.1 volts
Generator Regulator—	
Cutout Closing Voltage	6.0-6.6 volts
Opening Current Draw (Maximum)	8 amps.
Voltage Regulation Setting	7.4-7.8 volts
Current Regulation Setting	38-42 amps
Brush Spring Tension	30 ounces
Starter—	
Drive	Bendix "Folo-Thru"
Lock Test	700 amps @ 3.5 volts
Torque	14 foot-pounds @ 3.5 volts
No Load Current Draw	65 amps max. @ 6 volts
Brush Spring Tension	48-56 ounces

TIRES

Type	Tubeless
Size	6.70 x 15-4 ply
Pressures—front and rear (Cold)—	
Normal Operation	24 pounds
Sustained High Speed Driving	30 pounds

WHEEL ALIGNMENT

Caster	½°-1½°
Camber	⅛°-1⅛°
Toe-in	¼-⅛ inch

CAPACITIES

	U. S. Measure	Imperial Measure
Cooling System	20 quarts	16.7 quarts
Add for Heater	1 quart	0.83 quart
Fuel Tank	17 gallons	14.2 gallons
Standard Transmission	3 pints	2.5 pints
Overdrive Transmission	4½ pints	3.75 pints
Fordomatic Transmission (Refill)	20.5 pints	17.1 pints
Rear Axle	3½ pints	2.9 pints
Crankcase	5 quarts	4.2 quarts
Add for Oil Filter Change	1 quart	0.83 quart

Specifications—Continued

FUSES

UNIT	LOCATION	RATING
Clock	On Rear of Headlight Switch	9 amp.
Heater	In Blower Switch Wire	20 amp.
Radio	In Radio at End of Feed Wire	14 amp.
Courtesy Light	On Rear of Headlight Switch	9 amp.
Overdrive	On Overdrive Relay	30 amp.
Turn Indicator	In Flasher to Switch Wire	9 amp.
Cigarette Lighter	On Rear of Lighter Unit	

LIGHT BULB DATA

UNIT	RATING	LAMP NO.
Headlight	45-35 watts	4030
Parking	3-21 c.p.	1154
Tail and Stop	3-21 c.p.	1154
License	3 c.p.	63
Control Panel (All)	2 c.p.	55
Courtesy	3 c.p.	64
High Beam Indicator	1 c.p.	51
Oil and Generator Indicators	1 c.p.	51
Fordomatic quadrant	1 c.p.	51
Radio Dial	3 c.p.	44
Heater Control Panel	2 c.p.	55
Turn Signal Indicators	1 c.p.	51
Back-up Lights	32 c.p.	1133

Recommended Engine Oil Types

For moderate to severe conditions, use MM.
For unfavorable or severe conditions, use MS.

Shipping Weight (Approximate)*

With Transmission	Hard Top	Convertible
Standard	2986	2980
Overdrive	3020	3014
Fordomatic	3085	3079

*For Curb Weight Add 146.7 pounds.

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