

SHOP TIPS

Motorcraft



VOL. 12, NO. 4

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EMERGENCY TOWING and Starting



TOWING CARS INTO

WHEN YOU'RE CALLED TO HANDLE A TOWING JOB

Technical parts and service information published by the Ford Parts Division and distributed by Ford and Lincoln-Mercury Dealers to assist servicemen in Service Stations, Independent Garages and Fleets.

IN THIS ISSUE

	Page
EMERGENCY TOWING AND STARTING	
WHEN YOU'RE CALLED TO HANDLE A TOWING JOB	2
TOWING TIPS ON THE 1974 FORD-BUILT CARS	
FORD DIVISION	3-5
LINCOLN-MERCURY DIVISION	6-8
DRIVERS CAN BE FOOLED . . . YOU CAN BE FOOLED	9
HOW TO CORRECT DRIVER ERRORS WITH THE STARTER INTERLOCK SYSTEM	10
PRECAUTIONS WHEN USING JUMPER CABLES	11
TECHNICAL SERVICE BRIEFS	12-13
YEARLY INDEX OF SHOP TIPS ARTICLES	14
AUTO TECH AUTOMOTIVE TUNE-UP HOME STUDY COURSE	15

Be sure to file this and future issues for ready reference. If you have any suggestions for articles that you would like to see included in this publication, please write to: Ford Parts Division, Merchandising Services Dept., P.O. Box 3000, Livonia, Michigan 48151.

The information in this publication was gathered from materials released by the National Service Department of Ford Parts Division and the Ford Customer Service Division of the Ford Marketing Corporation, as well as other vehicle and parts manufacturers. The descriptions and specifications contained in this issue were in effect at the time it was approved for printing. Our policy is one of continuous improvement and we reserve the right to change specifications or design without notice and without incurring obligation.



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With today's passenger cars, special precautions and special types of towing equipment are needed to bring in a disabled vehicle without damaging body structure, sheet metal or bumpers. Therefore, in the following pages, we have included important details for towing all of the 1974 Ford-built automobiles.

Other details for the tow operator to follow in order to prevent damaging the drive train of the disabled vehicle are listed below.

Take a few moments to go over these vital points. Doing so will help you and your men to become even more professional in this part of the service field.

One of the most important items a tow operator must determine is whether or not the transmission and rear axle are in proper working order . . . before towing from the front end.

If it is determined that the rear axle is damaged or has failed, the rear wheels **MUST** be raised off the pavement and the car towed with the front wheels in the straight ahead position on the roadway, or the car must be towed with the front wheels supported on a wheeled dolly. If the transmission is determined to be damaged or inoperative, the driveshaft **MUST** be removed prior to towing the vehicle, or the rear wheels raised or supported on a wheeled dolly as described . . . whichever is more convenient for the tow operator.

To tow a vehicle with both the steering column and the transmission locked, and no ignition key available, lift the vehicle from the rear or use a wheeled dolly under the rear wheels and tow from the front.

NOTE: Late model cars equipped with an automatic transmission (selector lever in PARK position and no ignition key) will have the rear wheels **LOCKED**. Therefore the car must be towed with the rear wheels raised off the pavement, or raised and placed on a wheeled dolly.

If the front wheels are turned and locked, then the front wheels must be supported with a wheeled dolly and the car must be towed from the rear.

If the car is being towed with the rear wheels on the roadway, **NEVER EXCEED 30 mph** or tow for distances greater than 15 miles. If it is necessary to exceed these limits, then the tow operator must tow the car with (a) rear wheels off the ground (if he can do so), (b) with the driveshaft removed, (c) with the rear wheels supported on a wheeled dolly.

PRECAUTIONS WHEN TOWING

1. Never tow over 30 mph (where permitted). The distance required to stop safely increases greatly with speed. Remember, you're driving two vehicles.
 2. Never stop or start suddenly. Be alert and try to anticipate stops and turns. Panic stops not only cause accidents, but also the chance for damaging the towed vehicle is magnified. Jerky driving can cause sheet metal and bumper damage.
 3. Pass carefully . . . if you must pass. Remember, your tow truck length is increased by about 20 feet. You will need at least 5 extra vehicle lengths passing room.
 4. Never allow passengers to ride in the towed vehicle.
 5. Turn the parking lights of the towed car **ON** when towing at night.
- CAUTION:** If the towed vehicle is not trailering properly or is unstable, stop immediately and find out the reason.

YOUR SERVICE SHOP

TOWING TIPS ON 1974 FORD-BUILT CARS FORD DIVISION

There are no serious or unusual problems connected with towing any of the 1974 Ford-built passenger cars. In fact, even when towing the 1974 Mustang II with its color-keyed, plastic-covered front and rear bumpers, only a good, approved towing sling is required.

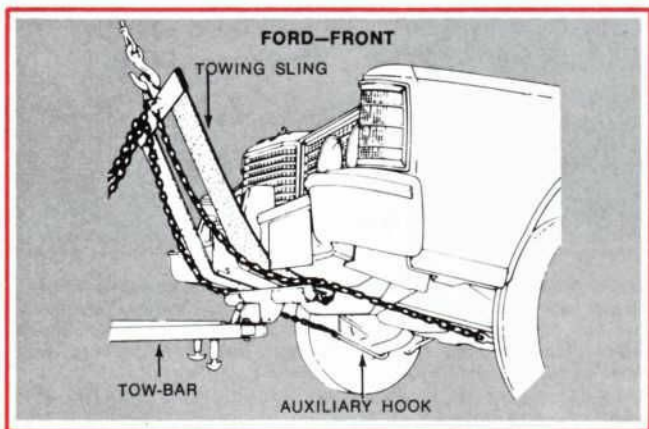
However, in some towing situations, depending upon the particular car line, a 4" x 4" wood block spacer is necessary for the protection of body sheet metal and underbody structure.

One of the big problems is not with the initial lifting of the car at the front and rear, but the prevention of any damage

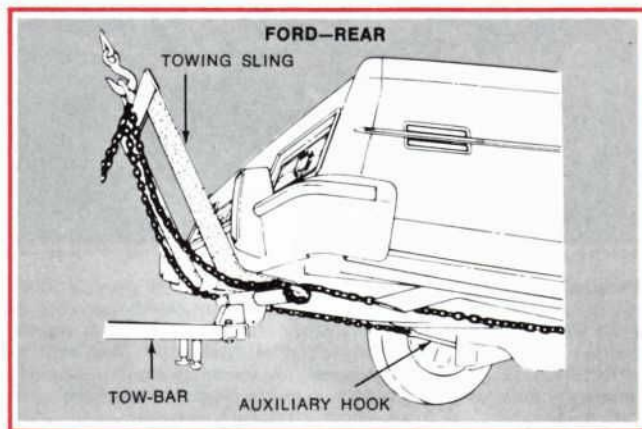
to the automobile in the event the tow truck operator must make a panic stop.

Therefore, although other methods may be tried and found temporarily satisfactory by tow truck operators, the details shown on the following pages and in the separate illustrations should be adhered to for safe, professional towing of all 1974 Ford-built passenger cars.

Now would be a good time for you to review these towing methods and to make notes on any special hook-ups, equipment or materials needed before you are confronted with an emergency road call.

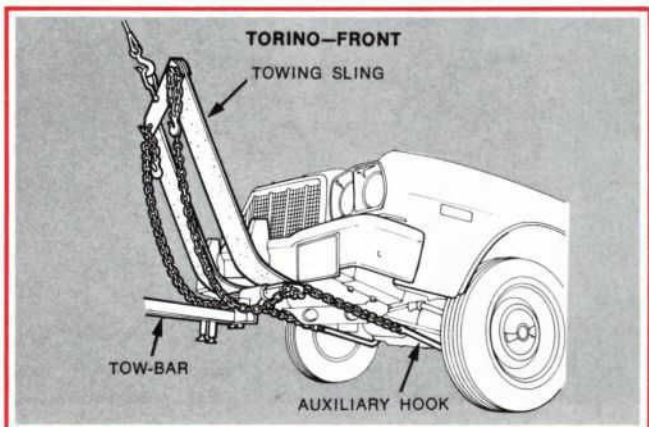


When towing from the front, no wood block spacer is needed. Attach the J-hooks (also called auxiliary hooks), to the REAR SIDE of the lower control arms and outboard of the stops. Position the tow bar directly behind the bumper and place the safety chains around the frame horns.



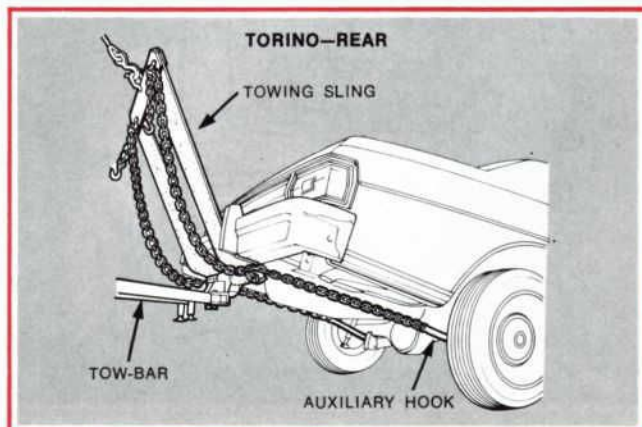
When towing from the rear, no wood block spacer is needed. Attach the J-hooks (also called auxiliary hooks), around the rear axle between the lower arm bracket and the shock absorber. Position the tow bar 4 to 6 inches forward of the bumper and place the safety chains around the frame horns.

SPECIAL NOTE: When towing from the rear, the vehicle tends to ride up the sling. Therefore to prevent a possible damage situation, the tow operator should make slow, easy stops. Avoid sudden startups or medium to heavy stops.



When towing from the front, no wood block spacer is needed. Attach the J-hooks INBOARD of the lower control arms. Position the tow bar under the bumper reinforcement. Place the safety chains around the bumper Energy Absorbing units.

SPECIAL NOTE: Note that the front bumper guards are resting in the center of the slings.



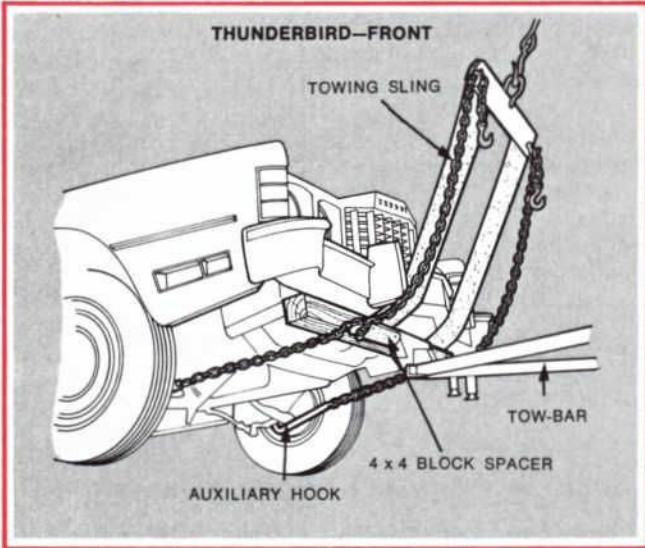
When towing from the rear, no wood block spacer is needed. Attach the J-hooks INBOARD of the shocks and around the rear axle. Position the tow bar under the bumper reinforcements. Safety chains should be placed around the bumper Energy Absorbing units.

SPECIAL NOTE: On a rear hookup, make sure the license plate and bracket are between the towing sling straps.



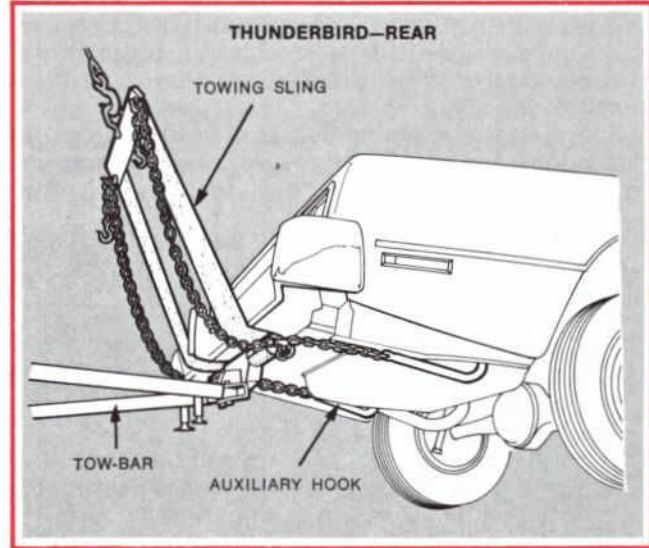
TOWING CARS INTO

TOWING TIPS ON 1974 FORD-BUILT CARS FORD DIVISION



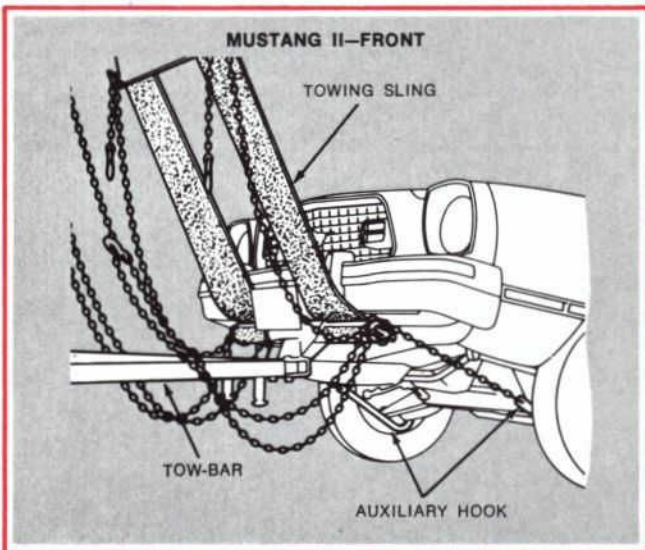
When towing from the front, it is necessary to use a wood block spacer. Attach the J-hooks OUTBOARD of the lower control arms. Position the sling pads INBOARD of the bumper guards. Position the 4" x 4" wood block spacer against the locating tabs on the INSIDE of the bumper reinforcement assembly and place the safety chains around the front bumper Energy Absorbing units.

SPECIAL NOTE: Care should be taken with rubber pads on the bumper guards.



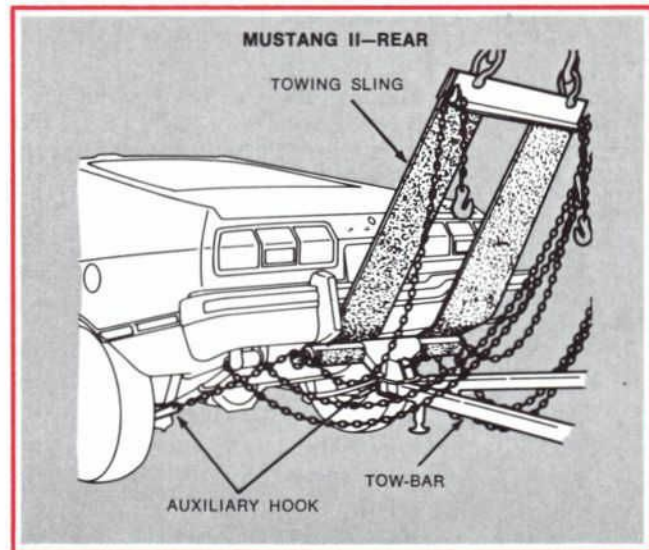
When towing from the rear, no wood block spacer is needed. Attach the J-hooks into the frame rail access holes. Position the tow bar just ahead of the bumper support plate and place the safety chains around the rear bumper Energy Absorbing units. Position sling pads OUTBOARD of the bumper guards.

SPECIAL NOTE: Care should be taken that sling pads DO NOT make contact with rubber pads on the bumper guards.



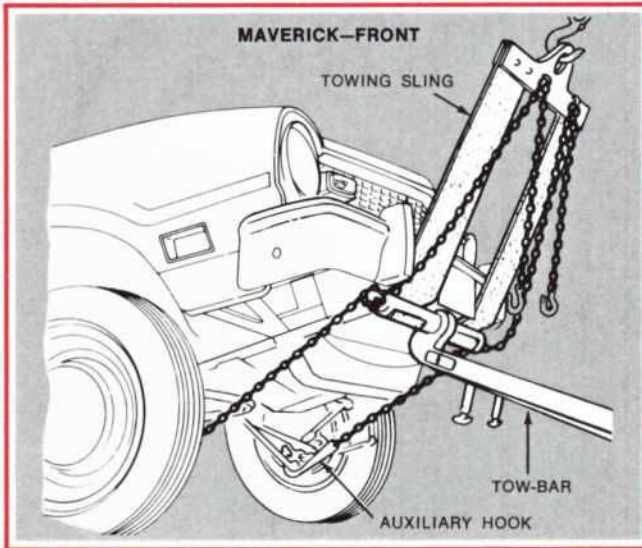
When towing from the front, no wood block spacer is needed. Attach the J-hooks OUTBOARD of the lower control arms. Position the tow bar just behind the radiator support.

SPECIAL NOTE: This car line has a plastic front valance just below the front bumper.

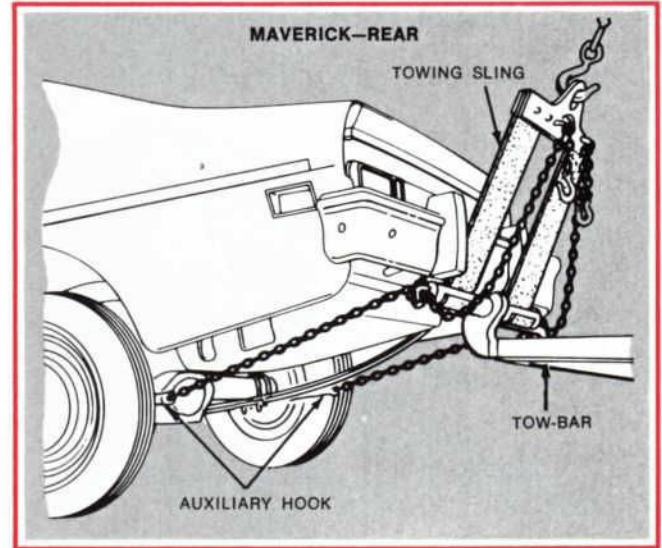


When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the axle, OUTBOARD of the springs and between the wheels. Position the tow bar just ahead of the bumper and place the safety chains around the rear spring shackles.

TOWING TIPS ON 1974 FORD-BUILT CARS FORD DIVISION

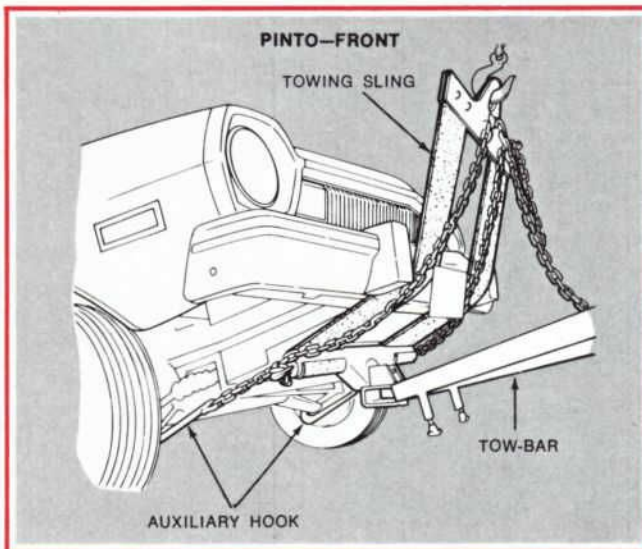


When towing from the front, no wood block spacer is needed. Attach the J-hooks **OUTBOARD** of the lower control arms. Position the tow bar behind the front bumper.

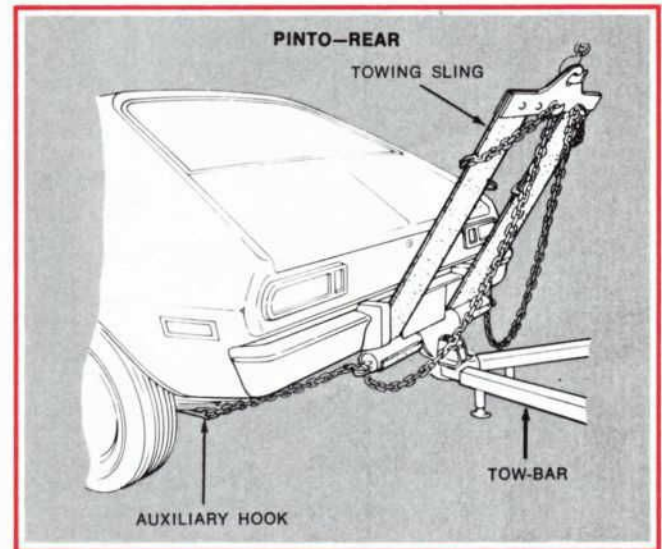


When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the rear axle **INBOARD** of the springs. Position the tow bar just ahead of the bumper and place the safety chains around the rear spring shackles.

SPECIAL NOTE: On rear hook-up, caution should be taken to make sure the J-hooks are placed **INBOARD** of the springs to prevent crushing the hydraulic brake lines leading to each rear wheel cylinder.



When towing from the front, no wood block spacer is needed. Attach the J-hooks **OUTBOARD** of the lower control arms. Position the tow bar behind the front bumper and place the safety chains **INBOARD** of the lower control arms.

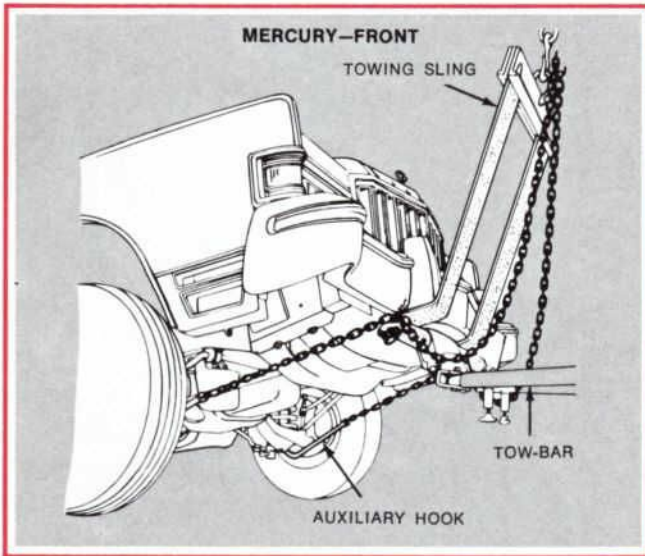


When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the axle **OUTBOARD** of the springs and place the safety chains around the rear spring shackles.

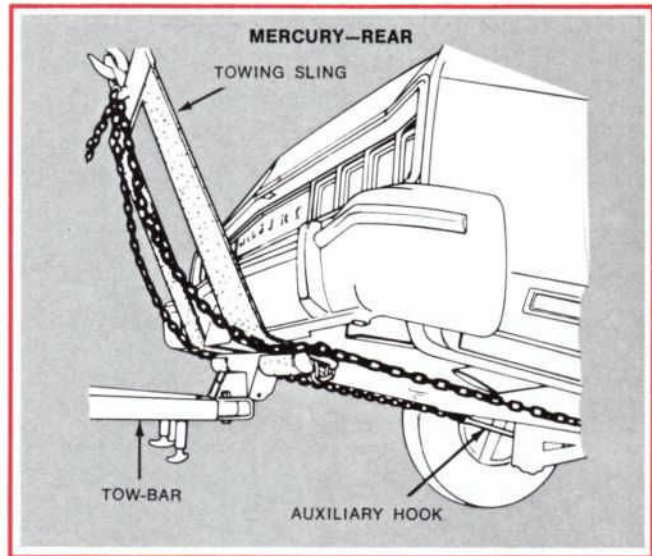


TOWING CARS INTO

TOWING TIPS ON FORD-BUILT CARS LINCOLN-MERCURY DIVISION

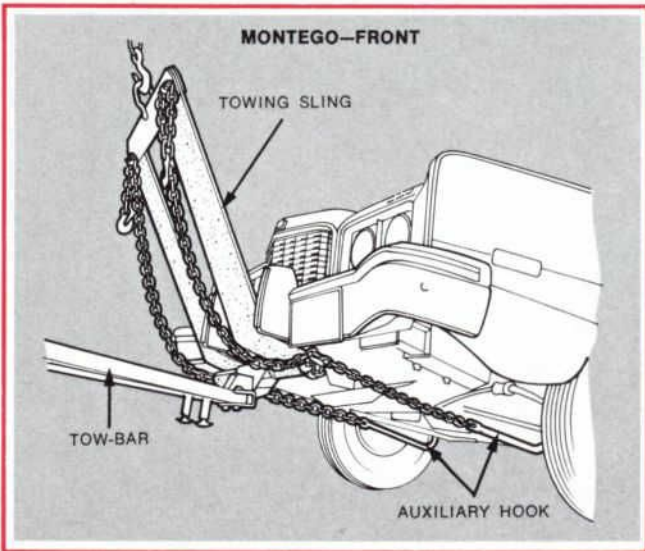


When towing from the front, no wood block spacer is needed. Attach the J-hooks to the REAR SIDE of the lower control arms OUTBOARD of the stops. Position the tow bar directly behind the bumper and place the safety chains around the frame horns.

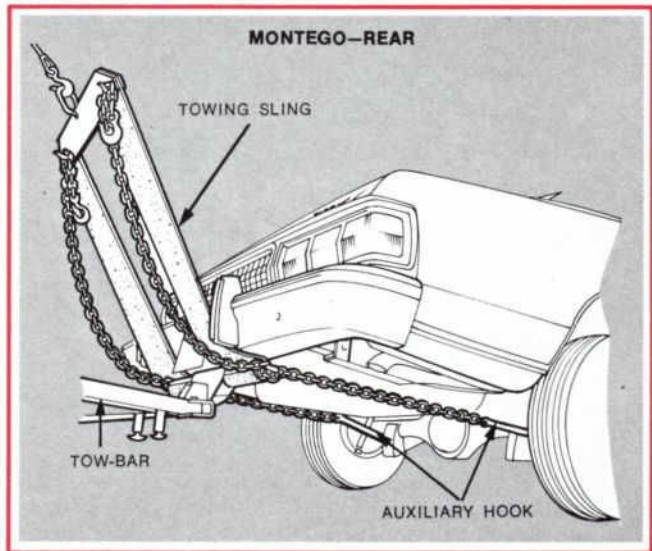


When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the rear axle between the lower arm brackets and the shock absorbers. Position the tow bar 4 to 6 inches forward of the bumper and place the safety chains around the frame horns.

SPECIAL NOTE: When towing from the rear, the vehicle tends to ride up the sling. Therefore to prevent a possible damage situation, the tow operator should make slow, easy stops. Avoid sudden startups or medium to heavy stops.



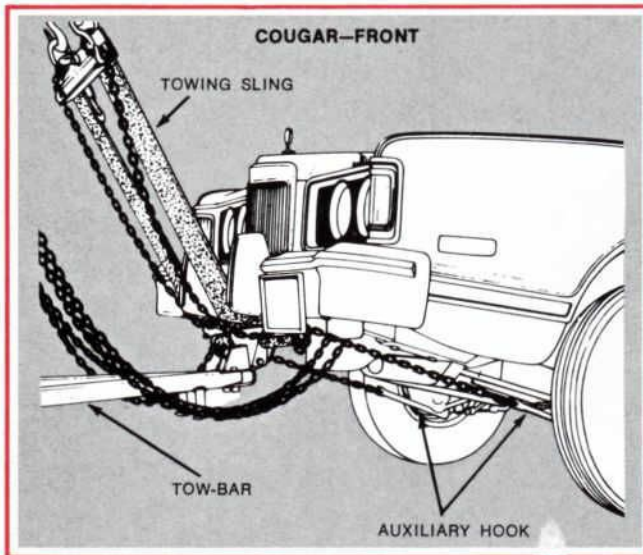
When towing from the front, no wood block spacer is needed. Attach the J-hooks OUTBOARD of the lower control arms. Position the tow bar under the bumper reinforcements. Place one sling strap just INSIDE of the left bumper guard and the other sling strap just OUTSIDE of the right bumper guard in order to avoid damaging the license plate and bracket. Safety chains should be placed around the bumper Energy Absorbing units. Removal of the license plate is recommended.



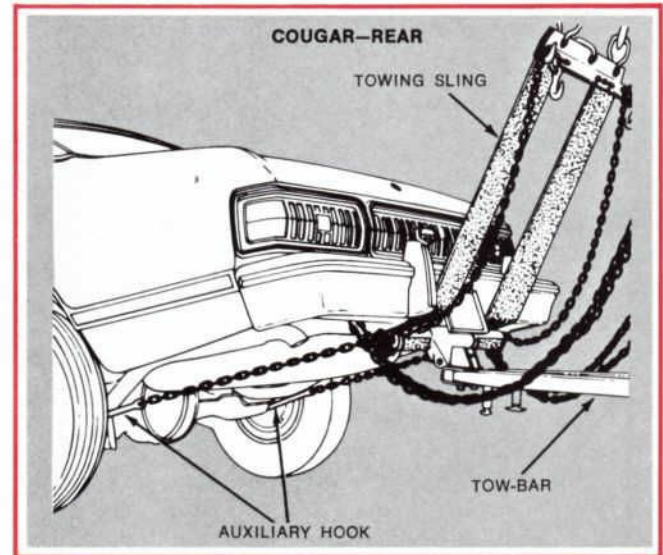
When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the rear axle INBOARD of the shock absorber brackets and place the safety chains around the bumper Energy Absorbing units.

SPECIAL NOTE: On a rear hookup, make sure the license plate and the brackets are between the sling straps.

TOWING TIPS ON FORD-BUILT CARS LINCOLN-MERCURY DIVISION

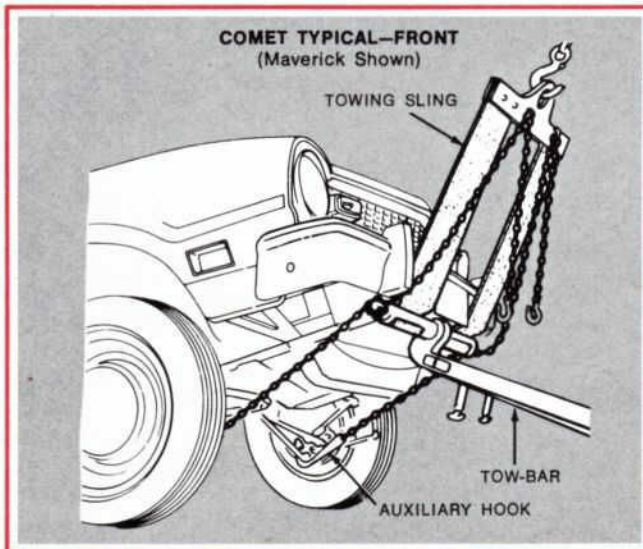


When towing from the front, no wood block spacer is needed. Attach the J-hooks OUTBOARD of the lower control arms. Position the tow bar under the bumper reinforcements. Place one sling strap just INSIDE of the left bumper guard and the other sling strap just OUTSIDE of the right bumper guard in order to avoid damaging the license plate and bracket. Safety chains should be placed around the bumper Energy Absorbing units. Removal of the license plate is recommended.

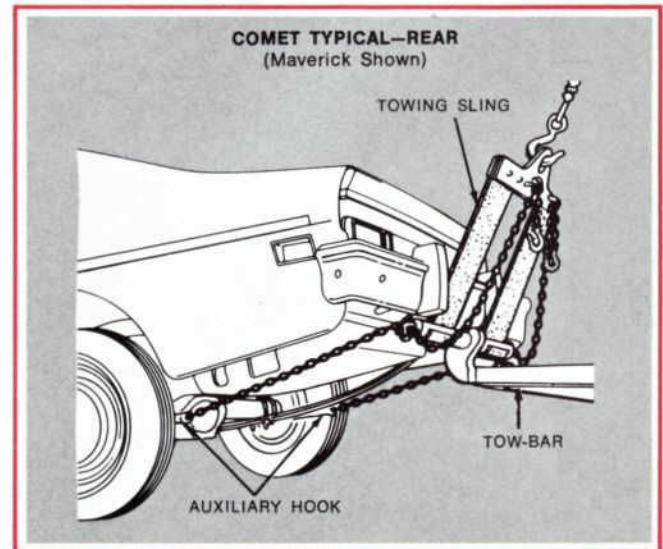


When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the rear axle INBOARD of the shock absorber brackets and place the safety chains around the bumper Energy Absorbing units.

SPECIAL NOTE: On a rear hookup, make sure the license plate and the brackets are between the sling straps.



When towing from the front, no wood block spacer is needed. Attach the J-hooks OUTBOARD of the lower control arms. Position the tow bar behind the front bumper. Safety chains should be placed around the rear spring shackles.



When towing from the rear, no wood block spacer is needed. Attach the J-hooks around the rear axle INBOARD of the springs. Position the tow bar just ahead of the bumper and place the safety chains around the rear spring shackles.

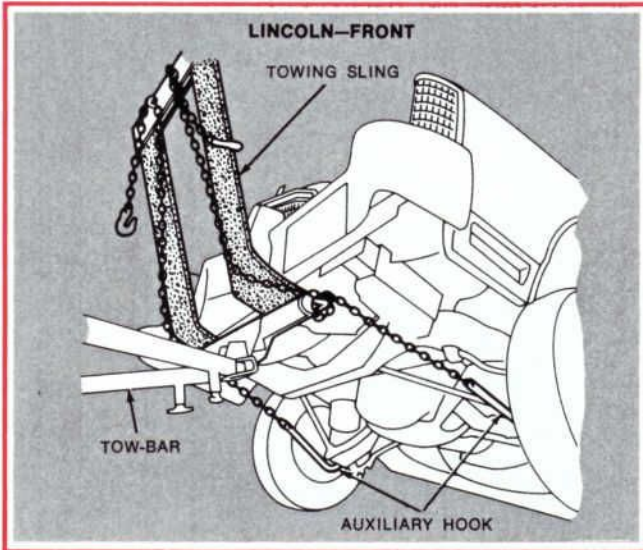
SPECIAL NOTE: On rear hook-up, caution should be taken to make sure the J-hooks are placed INBOARD of the springs to prevent crushing the hydraulic brake lines leading to each rear wheel cylinder.



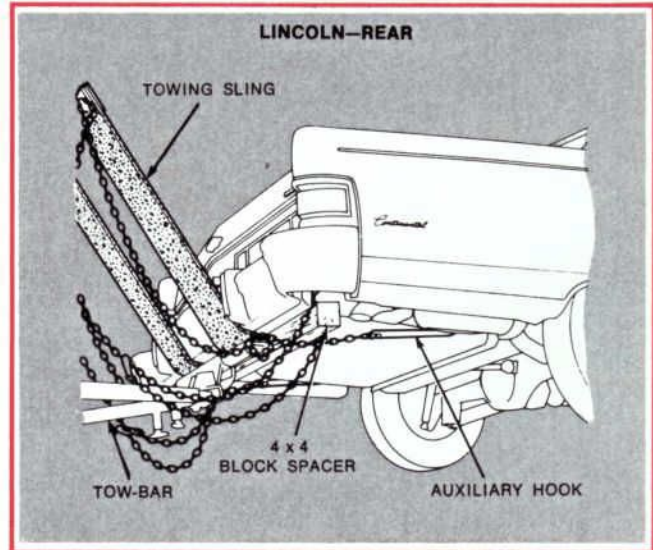
TOWING CARS INTO YOUR SERVICE SHOP

Continued

TOWING TIPS ON FORD-BUILT CARS LINCOLN-MERCURY DIVISION



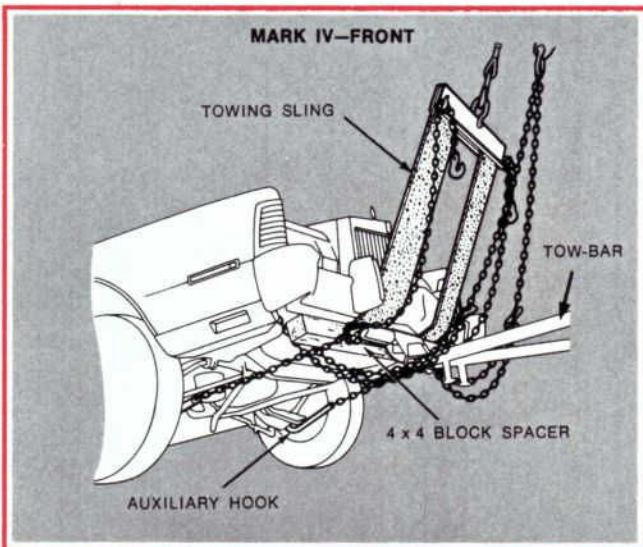
When towing from the front, no wood block spacer is needed. Attach the J-hooks OUTBOARD of the lower control arms. Position the tow bar just behind the front bumper and place the safety chains INBOARD of the lower control arms.



When towing from the rear, it is necessary to use a wood block spacer. Attach the J-hooks to the access holes provided in the INBOARD frame rails.

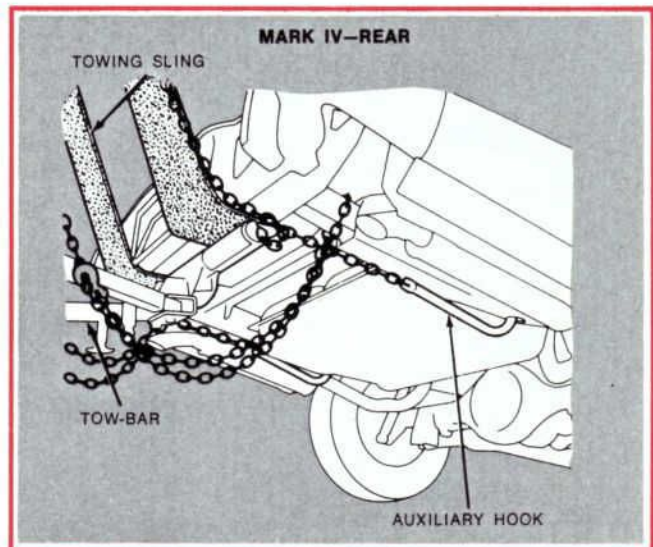
Position the 4" x 4" wood block spacer just ahead of the rear bumper support plates (towards the front of the vehicle). Position the tow bar just behind the wood block spacer (towards the rear of vehicle). Place the safety chains around the lower control arm brackets.

SPECIAL NOTE: Care should be taken to position the wood block spacer INBOARD of the tailpipe.



When towing from the front, it is necessary to use a wood block spacer. Attach the J-hooks OUTBOARD of the lower control arms. Position the 4" x 4" wood block spacer against the locating tabs INSIDE of the bumper reinforcement assembly. Position the tow bar UNDER the bumper and place the safety chains around the bumper Energy Absorbing units. Position sling pads INBOARD of bumper guards.

SPECIAL NOTE: Care should be taken that sling pads DO NOT make contact with the rubber pads on the bumper guards.



When towing from the rear, no wood block spacer is needed. Attach the J-hooks into the access holes provided in the frame rails. Position the tow bar just ahead of the bumper support plates and place the safety chains around the bumper Energy Absorbing units. Position sling pads INBOARD of bumper guards.

SPECIAL NOTE: Care should be taken with the rubber pads on the bumper guards.



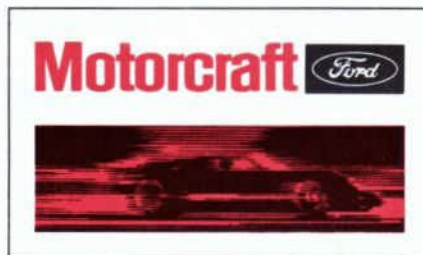
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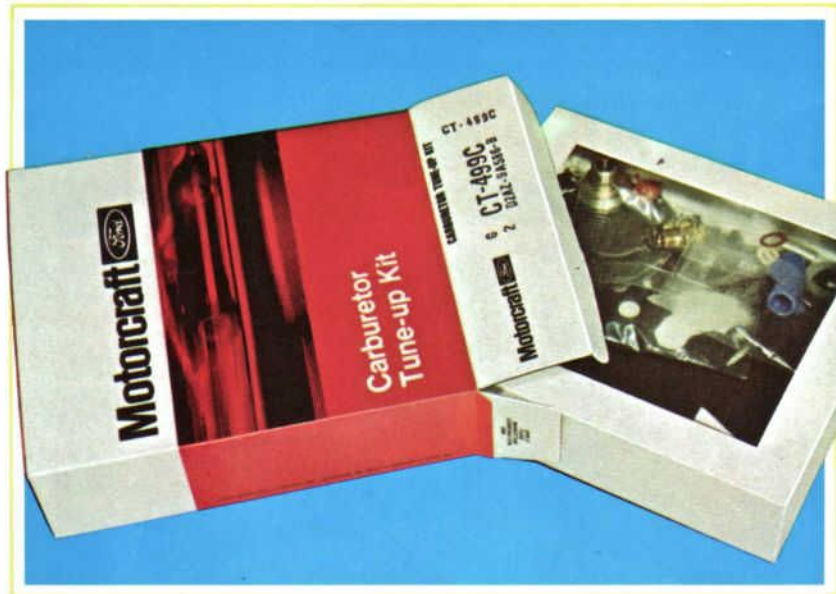
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- Trucks
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- Inboard and Outboard Engines
- Snowmobiles

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stock up now... help your customers enjoy a happy and safe snowmobile season

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EMERGENCY STARTING TIPS

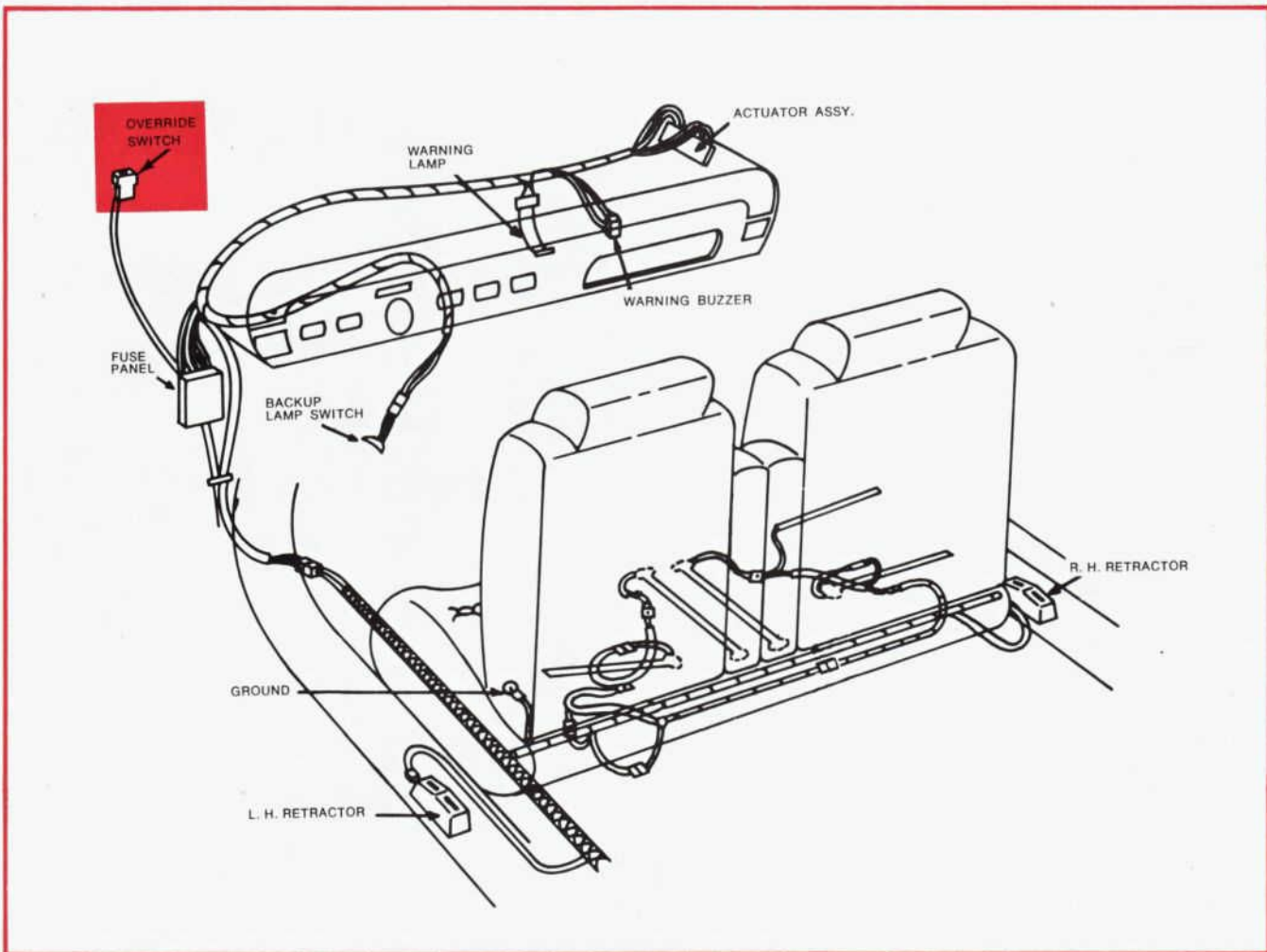
DRIVERS CAN BE FOOLED . . . YOU CAN BE FOOLED!

The Starter Interlock System that is standard on all 1974 Ford-built passenger cars (and also all other makes of U.S. produced cars) can fool a lot of service people into going out on unnecessary road emergencies. See illustration below. Too, it can fool a lot of drivers into making unnecessary calls for road service. Because this new system is tied in to the starter cranking motor circuit you can expect (more than likely) a number of emergency phone calls for such typical complaints as:

- I went into the store, then came out and my engine won't start. Are my seat belts buckled? Of course!
- I visited a friend of mine, then we came out to my car, buckled up our seat belts and now my engine will not start up. Yes, the engine ran fine up to this point.
- Do I have a heavy parcel on the front seat? Yes, but what has that got to do with the fact that my engine won't start? What's wrong?
- I picked up a heavy parcel, placed it on the front seat, kept the engine running, then the warning system came on. What did I do wrong?
- I can't start the car. Nothing happens. I did everything that I could think of with the belts and the engine still won't start. What did I foul up?

Now, we are not saying these situations will become commonplace. Yet, there is a distinct possibility that such complaints will occur . . . at least until the motoring public becomes more fully acquainted with the new starter interlock system. It may take one to two years of public exposure to such a revolutionary method for starting and "firing up" the engine.

Therefore, until that time . . . review the information on the following page. We have outlined a number of important details for you to remember to ask the driver BEFORE taking off on a road call.



Typical view of the seat sensor system installed on 1974 Ford-built passenger cars.

HOW TO CORRECT DRIVER ERRORS WITH THE STARTER INTERLOCK SYSTEM

STARTER WILL NOT CRANK ENGINE OVER AND/OR WARNING SYSTEM IS ON

Did the driver get into the car and sit on a pre-buckled seat belt or has he a seat belt that does not fully retract (return) into the cover of the seat belt retractor mechanism?

If this is determined, then have him unbuckle the belt and/or ask him to fully retract the belt until the belt tongue (metal piece) rests against the retractor cover. Then have him extend the belt and rebuckle it properly over his lap.

FRONT SEAT OCCUPANTS ARE BUCKLED BUT THE STARTER WILL NOT CRANK

It may be that the sensor switch in the unoccupied seat(s) might be *closed*. If you suspect this to be the case, the sensor switch will have to be returned to its normal position. To do this, at least 50 pounds (or more) of weight must be applied and released to the seat cushion **DIRECTLY** at a point where the occupant would normally be seated. Hand pressure will do the job.

HEAVY PARCEL PLACED ON THE FRONT SEAT—THE STARTER WILL NOT CRANK AND THE WARNING SYSTEM IS ON

If you determine this is the case, then ask the driver to see to it that the seat belt is buckled around the package, parcel or object . . . or . . . have the item placed somewhere else inside the car or luggage compartment area. Remember, when the parcel is removed the seat belt should be unbuckled.

AFTER THE ENGINE IS STARTED, A HEAVY PARCEL IS PLACED ON THE FRONT SEAT—WARNING SYSTEM COMES ON OR COMES ON INTERMITTENTLY

If you determine that this is the case, then ask the driver to see to it that the seat belt is buckled around the object or that the item is placed somewhere else inside the car or the luggage compartment area. Remember, when the parcel is removed, the seat belt should be unbuckled.

EMERGENCY USE ONLY—STARTER WILL NOT CRANK

There is an emergency starter interlock override switch located on the inner part of the left front fender under the hood. This switch is identified by a decal that reads **EMERGENCY STARTER INTERLOCK OVERRIDE**. Operation of the switch allows the starter to operate in the event that a failure occurs in the starter interlock system.

The switch has a **RED** push button that must be depressed and then released.

SPECIAL NOTE: This procedure does not apply to cars sold in Canada because they **DO NOT** have the starter interlock system.

CAUTION

Never tape the button down as this will result in the override feature being "lost."

When the cause of the no-start is due to a failure in the starter interlock system, pushing the red button will allow the starter to operate for **ONE** complete cycle of the ignition key . . . from **OFF** to **START** and then back to **OFF**. In other words, a one-time start without performing the buckling of belts. Any such malfunction of the starter interlock system should then be checked out completely to pin-point the specific trouble and make the necessary corrections.



PRECAUTIONS WHEN USING JUMPER CABLES TO START AN ENGINE

Whenever you are called upon to start an owner's car and you find it necessary to use jumper cables, there are certain precautions to be followed in order to avoid possible injury to yourself and to prevent damaging the car.

Here for your review is the recommended method for negative grounded batteries. And, even though you have hooked up many jumper cables in the past, take the time to read the information carefully.

- To jump start, first remove the vent caps.
- Now, cover the top of the battery with a clean dry cloth.

NOTE: Some batteries are the maintenance-free type and do not have vent caps.

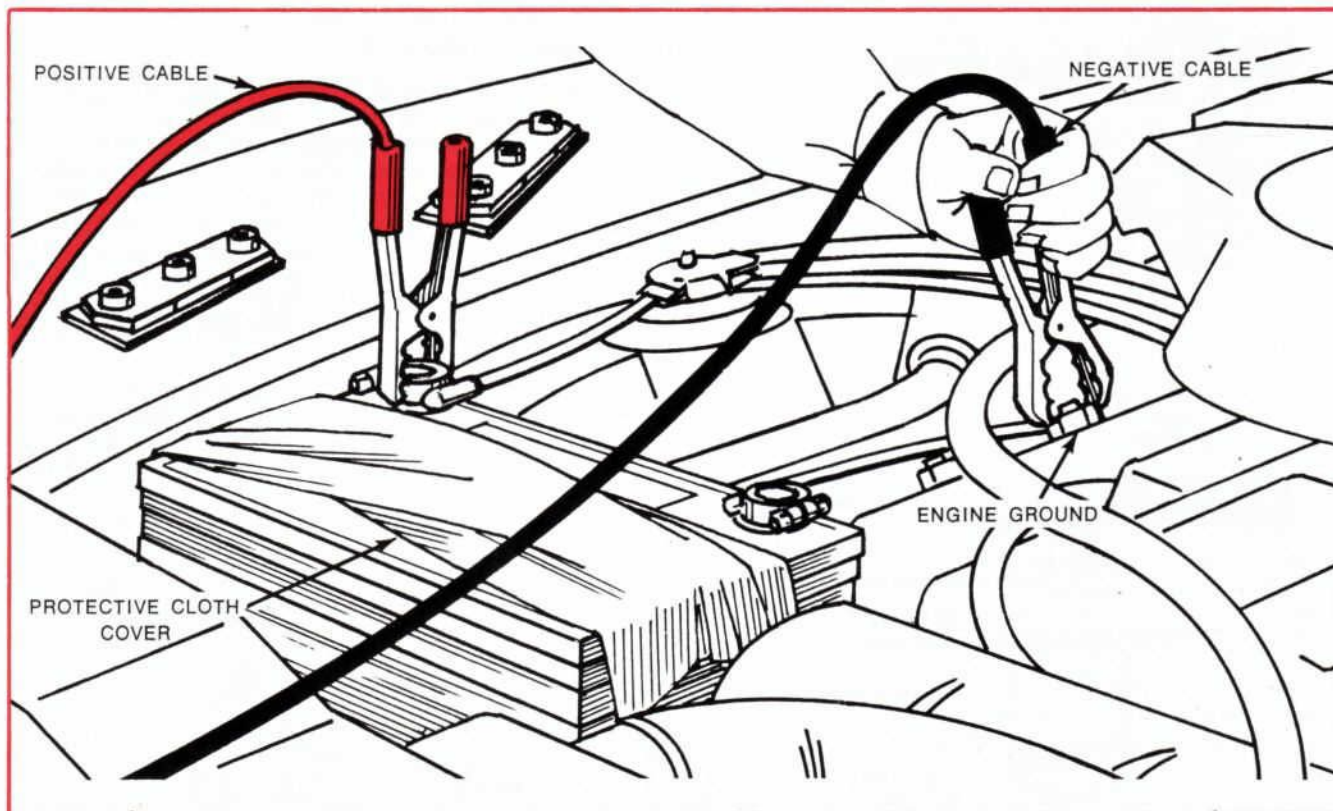
- Connect the clamping ends of one cable to the POSITIVE (+) terminal of each battery.
- Connect the clamping end of the other cable to the NEGATIVE (-) terminal of the substitute (good) battery.
- Connect the other clamping end of the cable to the ENGINE BLOCK on the vehicle being started . . . NOT TO THE NEGATIVE TERMINAL OF THE VEHICLE'S BATTERY.
- To prevent damage to other electrical units on the vehicle being started, make certain that the engine is at IDLE SPEED before you disconnect the jumper cables.
- Replace the vent caps and carefully dispose of the cloth

that covered the battery since it may contain sulphuric acid.

CAUTION: Use only a 12-volt jumper system. You can damage a 12-volt starter motor and the ignition system beyond repair (even when cranking loads are relatively light), by connecting it to a 24-volt power supply . . . (two 12-volt batteries in series, or a 24-volt motor generator set). The likelihood of extensive damage is greatly increased if the starter is connected to a 24-volt power supply while being subjected to prolonged and heavy cranking loads such as attempting to start an engine in subzero weather.

WARNING: Batteries contain SULPHURIC ACID. Shield your eyes when working near the battery to protect them against possible spillage of the acid solution. In case of acid contact with skin, eyes or clothing, FLUSH IMMEDIATELY WITH WATER FOR A MINIMUM OF FIVE MINUTES. Get "on-the-spot" medical attention IMMEDIATELY.

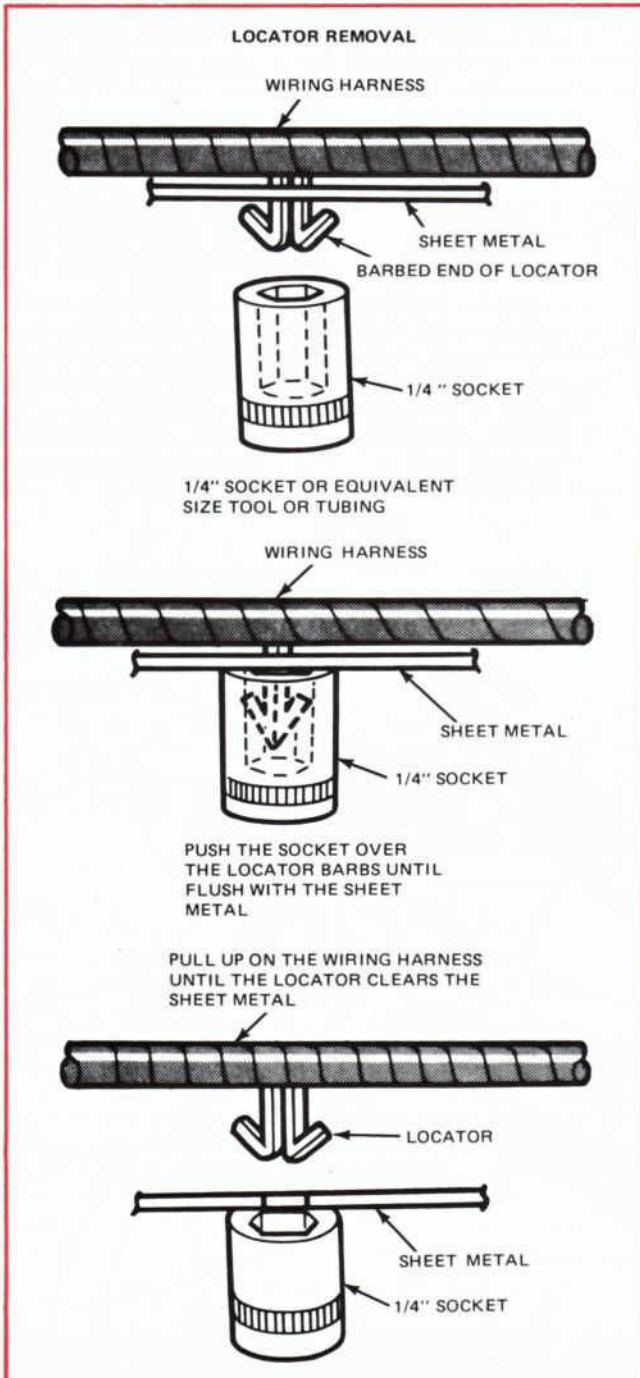
SPECIAL NOTE: Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can EXPLODE if flames or a spark are brought near or occur next to the battery. Therefore, when hooking up jumper cables . . . charging or using a battery in an enclosed space . . . always provide ventilation and remember . . . NO SMOKING. Too many cases of personal injury occur each year to treat this lightly. Be safe and follow these safety precautions!



HOW TO REMOVE THE WIRING HARNESS LOCATING RETAINER

1962-73 ALL FORD-BUILT VEHICLES

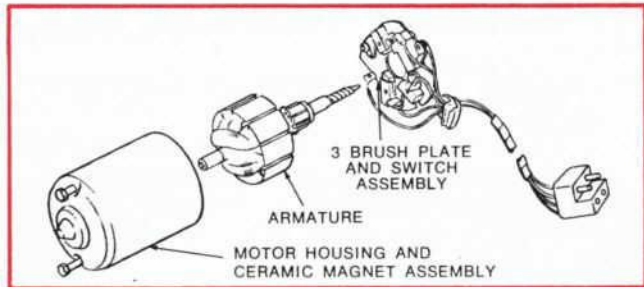
The locating retainer can easily be removed from the sheet metal by pushing a 1/4" (inch) socket or equivalent size tool or pipe over the barbed ends of the retainer. Note the three sequence steps below. The tool will compress the barbs allowing the wiring harness to be pulled away from the sheet metal without damaging the retainer barbs.



WINDSHIELD WIPER MOTORS—SHATTERED MAGNETS

The electric windshield wiper motors used on Ford vehicles contain permanent magnets that are made of a ceramic material. This is a hard glass-like material that can shatter or crack if the motor receives a severe physical shock. The location of this magnet is inside the motor housing.

A windshield wiper motor must not be struck with a hammer or other object in an attempt to make it operate when diagnosing wiper problems. To do so will damage the magnets and make the motor inoperable. Also new replacement motors should not be subjected to rough handling or the magnets may be damaged.



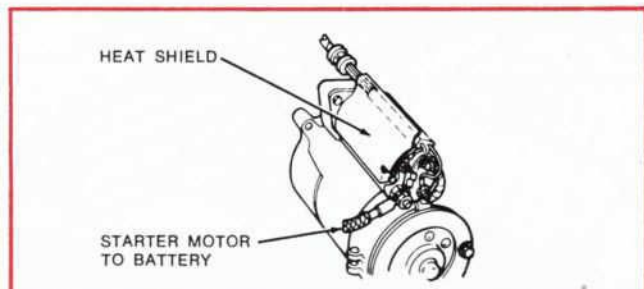
IMPORTANCE OF STARTER HEAT SHIELD

SOLENOID-TYPE STARTERS FORD-BUILT VEHICLES

A bright metal shield is installed on all engines equipped with solenoid-type starters. Note the location of this heat shield in the illustration. The purpose of the shield is to protect the solenoid from heat radiated by the engine exhaust pipe and manifold. When this heat shield is missing, the plastic parts of the solenoid are exposed to excessively high temperatures and failure of the solenoid can result.

To prevent solenoid failure, the heat shield must always be installed whenever a starter has been removed and repaired or replaced.

If the shield has fallen off and is lost or has been damaged, a new one should be installed. A service kit consisting of the attaching screws and a universal shield is available for use on all engines with solenoid starters. The part number of the kit is DOVY-11006-B.



NEW TESTING PROCEDURE— POSITIVE CRANKCASE VENTILATION SYSTEM

ALL FORD-BUILT PASSENGER AND TRUCK ENGINES

A new procedure for testing the operation of the positive crankcase ventilation (PCV) system is now considered the testing procedure for all engines.

The previous method, using a vacuum tester, may be used as an alternate method, on those engines which have the system fresh air inlet location in the oil fill cap.

PROCEDURE

A. With the engine at idle speed:

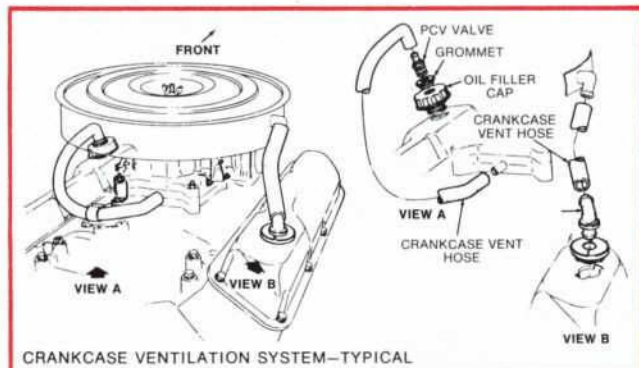
1. Remove the PCV valve from its mounting. If the valve is functioning properly and not plugged, a hissing air noise will be heard as the air passes through the valve, and a strong vacuum should be felt when a finger is placed over the valve inlet. While the finger is over the valve inlet, check for vacuum leaks in the hose line and at all connections.
2. Reinstall the PCV valve, then remove the crankcase air inlet hose at the air cleaner connection. Loosely hold a small piece of stiff paper (such as a 3 x 5 memo card or parts tag card) over the opening at the end of the inlet hose.
The paper should be sucked against the hose opening with a noticeable force *after* sufficient time has lapsed for the crankcase pressure to lower (usually about a minute or more).

B. With the engine stopped:

Remove the PCV valve from its mounting and shake it. A metallic clicking noise should be heard indicating the valve is *free*.

- C. If the ventilation system passes tests "A" and "B" above, it can be considered functionally O.K. and no further service is required. If it fails either of the tests, replace the PCV valve and repeat Test "A."

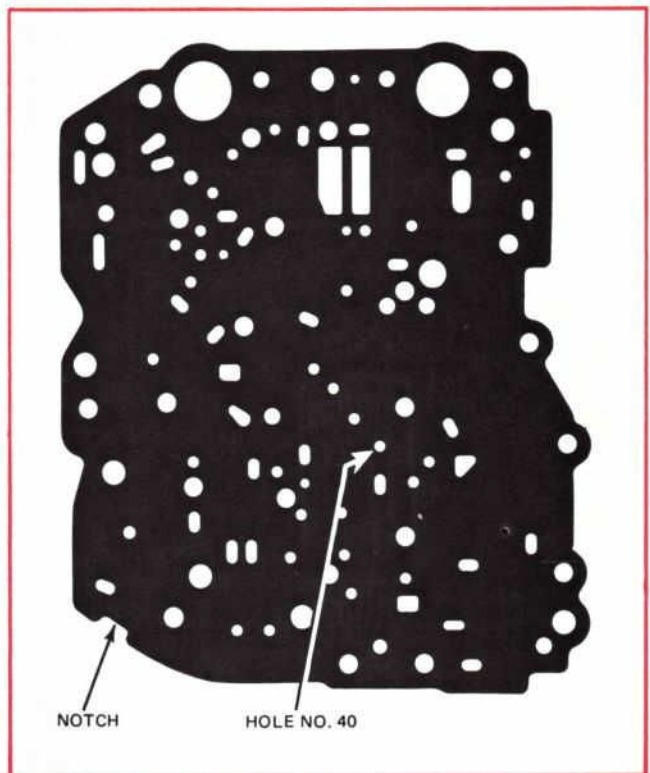
If the system still does not pass Test "A," clean the ventilation system hoses and all passages to the induction system in accordance with established procedures.



AUTOMATIC TRANSMISSION VALVE BODY SEPARATOR PLATE GASKET

1973 C-4 TRANS. (EXCEPT CAPRI AND PINTO)

A new hole (No. 40) was added to the valve body separator plate for the 1973 model C-4 transmission. The separator plate gaskets currently in depot stock are of the 1972 model design and do not contain the No. 40 hole. A NO KICKDOWN-CONDITION will occur if a 1972 design gasket is used on a 1973 model. Until depot stock can be changed, the 1972 model gasket can be used by adding a hole using the separator plate as a template. Note the added hole shown in the illustration. The new gasket when released will be identified by a notch in the outer edge as indicated in the illustration.



IMPORTANT INFORMATION TO ALL MECHANICS

All mechanics in the automotive and truck service field are cautioned that running changes may occur during a model year production run. These changes may affect ignition timing, distributor dwell, spark plug specifications and other vital parts of the engine.

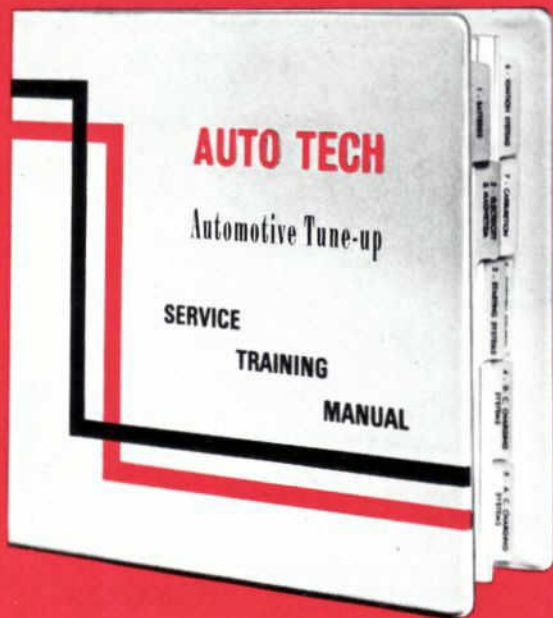
For those reasons, ALWAYS CHECK THE ENGINE DECAL before making adjustments, repairs or the installation of a new part or assembly on any of the 1974 Ford-built car lines.

1973 SHOP TIPS

YEARLY INDEX TO MAGAZINE ARTICLES

1973 CALENDAR YEAR
JANUARY TO DECEMBER ISSUES

ARTICLE	ISSUE	PAGE	ARTICLE	ISSUE	PAGE
Air Conditioning Circuit Protection—1973 Ford, Mercury, T-Bird, Mark IV, Lincoln Continental	April	9	Index for All 1973 Issues of <i>Shop Tips</i>	December	14
Air Conditioner Service Made Easy—Review of Refrigeration Cycle, Testing the System, Refrigerant System Analysis Chart, Safety Precautions	May	2-9	Maintenance Schedule All 1974 Ford-Built Passenger Cars	September	11
Alternator—Improper Operation of Warning Light—1973 Ford, Torino, Mercury, Montego	June	15	Mark IV—1973 New Side Terminal Battery—Servicing	April	11
Automatic Transmission—Ford—Background Details, Checking Fluid, Filling	April	2, 12-15	Motorcraft/Autolite Part Number Application 1974 Vehicles Listed in Chart Form	September	44-47
Automatic Transmission—1973 C4 Main Control Pump Outlet Screen	April	11	Motorcraft Crankcase Emission Filter Element and Filter Assembly Kit Application Chart	January	19
Automatic Transmission—1973 C4 (Except Capri and Pinto)—Valve Body Separator Plate Gasket	December	13	Pinto—Engine Timing and Cylinder Firing Order—1600 and 2000 cc	July	13
Batteries—Testing, Diagnosing, and Servicing	February	2-14	Pinto 1971-73 Camshaft and Auxiliary Drive Shaft Sprocket Installation—2000 cc Engine	April	10
Battery—New Side Terminal—Servicing 1973 Mark IV	April	11	Positive Crankcase Ventilation System New Testing Procedure	December	13
Capri—All Models—Front Wheel Shimmy	July	15	Rocker Arm Hold-Down Nuts—1972-73 429-460 CID Police Interceptor Engines—Replacement	April	10
Capri Ignition Switch Accessories Position	April	9	Safety—Working Around Cars—Personal, Gasoline, Power Tools, Pressurized Cans, Compressed Air, Violations, Fire Prevention, Shop Quiz	August	2-14
Capri—Engine Timing and Cylinder Firing Order—2000 cc	July	13	Service Publications Offer—Ford Cars and Trucks 1956-1973	May	10-15
Capri 1971-73 Camshaft and Auxiliary Drive Shaft Sprocket Installation—2000 cc Engine	April	10	Solenoid Throttle Connector—New—1973—Disconnecting	April	10
Capri Side Marker Lights	April	9	Solid State Ignition System	November	2-15
Crankcase Emission Filter in Air Cleaner	January	19	Spark Plug Ignition Cable Sets—New Motorcraft—1973	July	15
Diesel Engine Codes 1968/74	October	14	Specifications on All 1974 Ford Division Cars and Trucks	September	12-29
Distributor—Description, Diagnosing, Adjusting, Testing (Correction in November Issue, page 2), Servicing—All 1972-73 Ford-Built Cars, Pinto, Capri	July	2-14	Specifications on All 1974 Lincoln-Mercury Cars	September	30-43
Distributor—Solid State—How It Works—Testing—Diagnosis	November	2-15	Starter Cable Routing—1972 Vehicles With 351C and 400 CID Engines	April	9
Distributor Specifications 1973	June	14	Starter Heat Shield on Solenoid Type Starters—Ford-Built Vehicles	December	12
Electric Choke—1973 Ford V-8 Carburetor Features, Operation, Troubleshooting	April	2-5	Steering Column—Lower Shaft Assembly—1972-73 Torino, Pinto, Montego, T-Bird, Mark IV	June	15
Emergency Towing and Starting	December	2-11	Thermostat—Correct Usage for 1971-73 351C/400 CID Engines	July	15
Emission (Exhaust Gas Recirculation) EGR System—Testing and Servicing	March	2-15	Trailer Towing Tips and Facts—Ford Vehicles—Specifications, Recommendations, Lubrication, Service	June	2-13
Emission Systems—Required Maintenance Services—All 1974 Ford-Built Passenger Cars	September	10	Truck Engine Codes Gas and Diesel 1968/74	October	14
Engine Identification Plates and Labels—All U.S.-Built Cars and Trucks for 1964/73	January	2-18	Truck Transmission Codes 1968/74	October	15
Engine Timing and Cylinder Firing Order—Ford, Capri, Pinto	July	13	Tune-Up Specifications—All 1973 Ford-Built Car Lines	April	9
Exhaust Manifold Installation—289 CID Engine	April	11	Wheel Alignment—Front	February	15
Ford-Built Passenger Car Features 1974 Ford and Lincoln-Mercury Division Cars	September	2-9	Windshield Wipers and Blades—1973 Ford Cars—Adjustment, Removal, Installation	April	2, 6-8
Ford Vehicle Identification Plates 1963/74	October	2-15	Windshield Wiper Auxiliary Arm—Replacing Retainer 1970-71 T-Bird, Mark III, Torino, Montego	June	15
Gasket—Cylinder Head—Installation	February	15	1970-71-72 Lincoln	June	15
Identification Plates for Ford Vehicles 1963/74	October	2-15	1971-72 Ford and Mercury	June	15
Ignition Coil—Loose Primary Connectors	June	14	1971-72-73 Mustang and Cougar	June	15
Ignition Coil Pigtail—1973 Ford-Built Models—Added to Distributor Primary Wire	June	15	Windshield Wiper Motors—Shattered Magnets	December	12
Ignition Systems—Breaker and Breakerless Differences	November	4-6	Wiring Harness Locating Retainer—1962-73 All Ford-Built Vehicles—How To Remove	December	12
Important Information To All Mechanics Checking Engine Decal	December	13			



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