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DEFOGGER - REAR WINDOW

1991 ACCESSORIES & SAFETY EQUIPMENT Rear Window Defoggers - Rear Window

DESCRIPTION & OPERATION

The rear window defogger consists of an electrical grid on rear window glass. The rear window defogger switch is located in the instrument cluster bezel. On Capri, the switch is a push type and includes a small indicator light in the switch to indicate when rear defogger is on. On Festiva, the switch is a rocker type and includes a small indicator light in instrument cluster to indicate when rear defogger is on.

On Capri, the defogger circuit includes a 10-amp METER fuse which receives battery power from ignition switch and a 20-amp HTD B-LIGHT fuse which has battery power at all times. The wire from the METER fuse goes to the rear defogger switch and then to the relay. The wire from the HTD B-LIGHT fuse goes to the rear defogger relay and then to the grid. See **Fig. 1** .

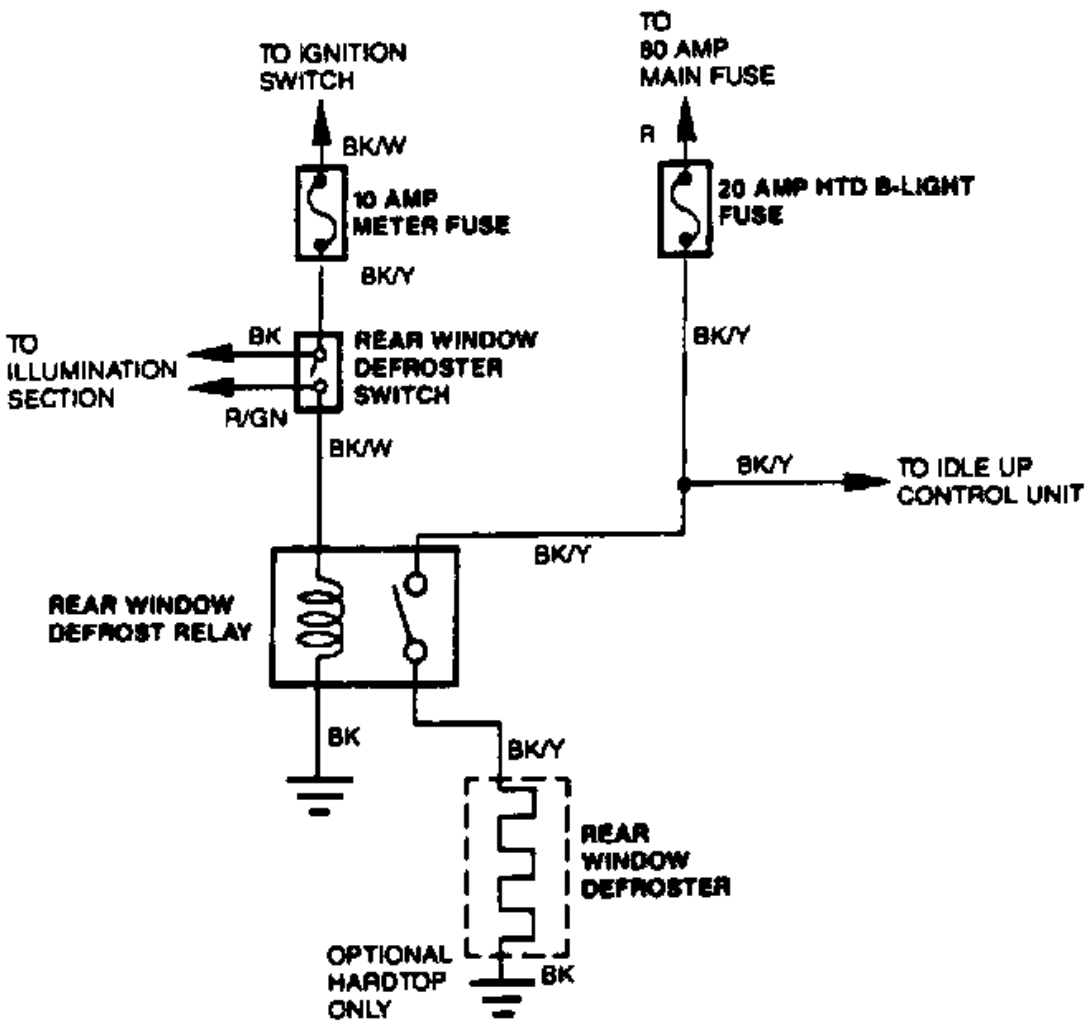
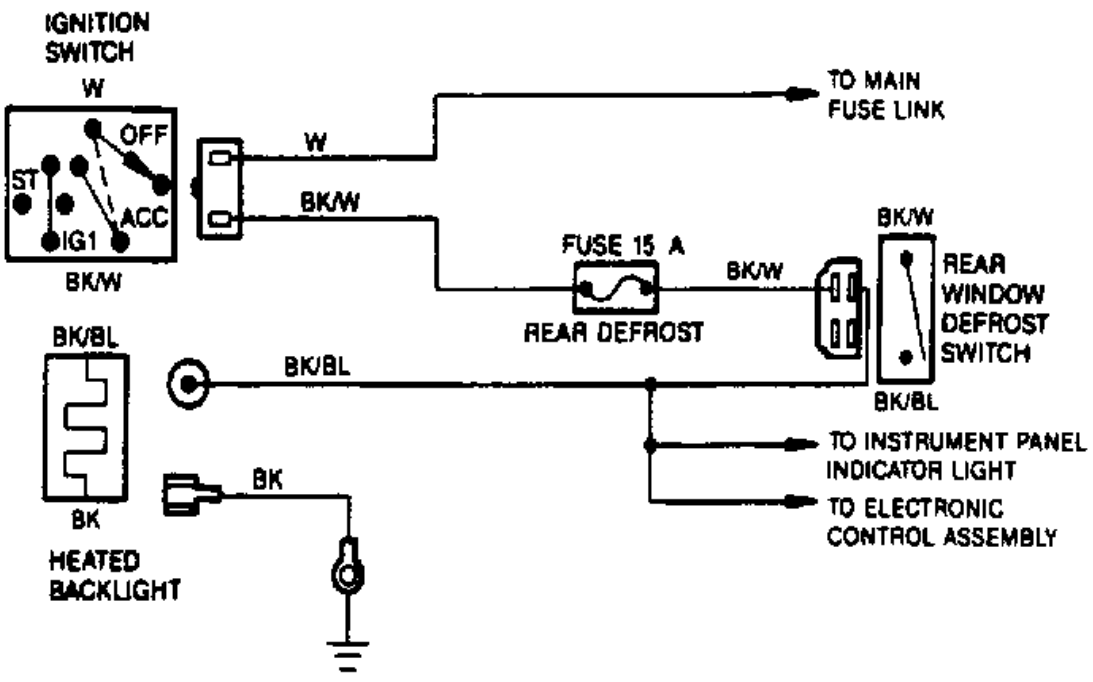


Fig. 1: Rear Window Defogger Wiring Diagram (Capri)
Courtesy of FORD MOTOR CO.

On Festiva, the defogger circuit includes a 15-amp DEFOG fuse which receives battery power from ignition switch. The wire from the fuse goes to the rear defogger switch and then to the grid. The defogger circuit does not contain a relay. See **Fig. 2** .



control mirror switch. See **REMOTE MIRROR SWITCH** under REMOVAL & INSTALLATION. If no, repair the Black wire between the remote control mirror switch and ground.

RM7: Check Remote Control Mirror Switch

Access the remote control mirror switch. Check for voltages at the remote control mirror switch as shown. See **Fig. 7** . Do all the switch positions check out OK? If yes, see **RM8: Check Wire Power** . If no, replace the remote control mirror switch. See **REMOTE MIRROR SWITCH** under REMOVAL & INSTALLATION.

NOTE: Voltage readings from 11V to 13V OK for 12V, and 0V to 1V OK for 0V. When switch is in resting position, 0V should be on all wires.

SWITCH POSITION		LG/BK	LG	LG/R	BR	BL/R
Left Mirror	Up	0	X	X	0	12
	Down	12	X	X	12	0
	Left	12	X	X	0	12
	Right	0	X	X	12	0
Right Mirror	Up	X	0	0	X	12
	Down	X	12	12	X	0
	Left	X	12	0	X	12
	Right	X	0	12	X	0

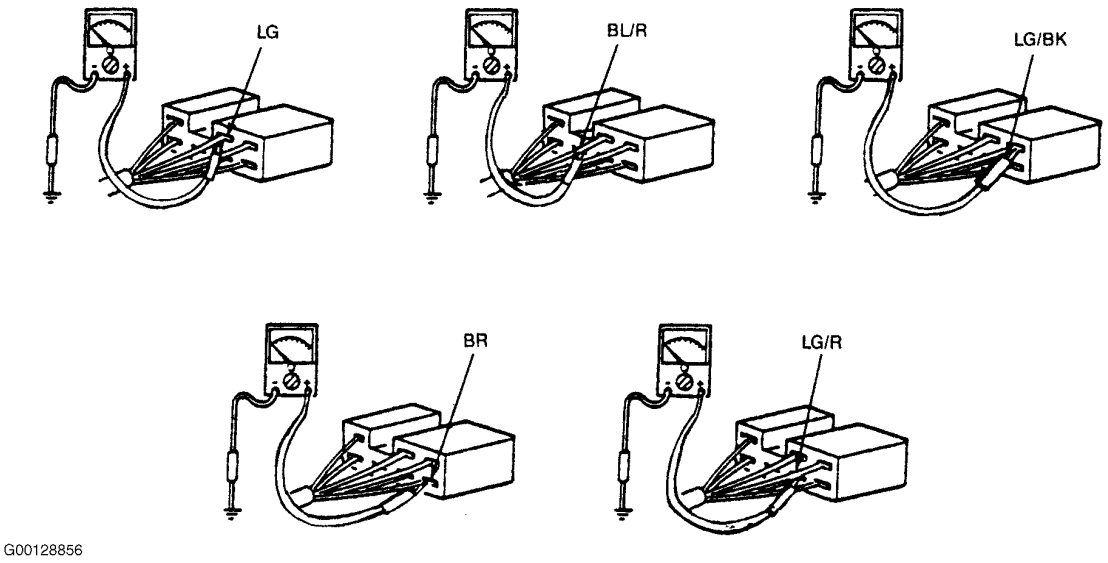


Fig. 7: Identifying Remote Control Mirror Switch Terminals & Switch Positions
Courtesy of FORD MOTOR CO.

RM8: Check Wire Power

Check for voltages at the remote control mirror motors as shown. See **Fig. 8** . Do all the switch positions check out OK? If yes, replace the remote control mirror in question. See **POWER REAR VIEW MIRROR** under REMOVAL & INSTALLATION. If no, repair the wire(s) in question from the mirror(s) to the mirror switch.

NOTE: Voltage readings from 11V to 13V OK for 12V, and 0V to 1V OK for 0V.

SWITCH POSITION		BR/BK	BR/W	BR
Left or Right Mirror	Up	0	0	12
	Down	12	12	0
	Left	12	0	12
	Right	0	12	0

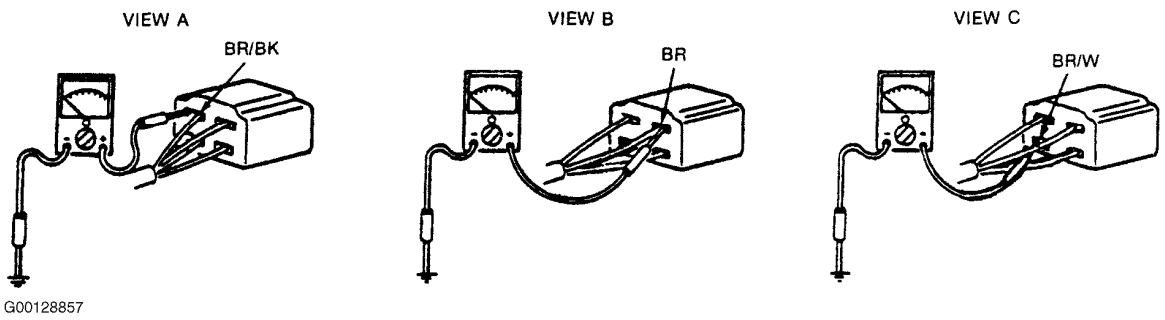


Fig. 8: Checking Power Mirror Switch Voltage
Courtesy of FORD MOTOR CO.

REMOVAL & INSTALLATION

POWER REAR VIEW MIRROR

Removal

1. Remove the interior trim cover attaching screw and trim cover. See **Fig. 9** .

Power brake push rod length is not adjustable.

Festiva

Remove master cylinder. See MASTER BRAKE CYLINDER under REMOVAL & INSTALLATION. Place Adjustment Gauge (T87C-2500-A) on master cylinder. Loosen set screw on gauge and place plunger against master cylinder. See **Fig. 1** . Invert gauge and position on power booster. Check clearance between gauge and power booster. Adjust push rod until clearance is zero.

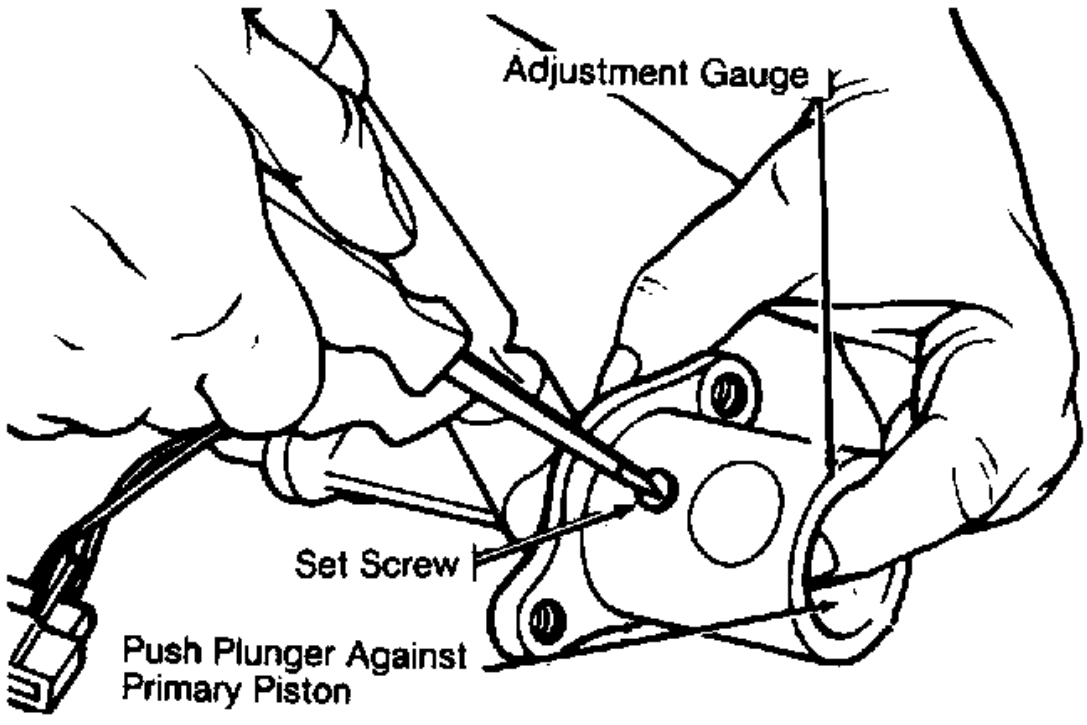


Fig. 1: Measuring Brake Booster Push Rod Length (Festiva)
Courtesy of FORD MOTOR CO.

PARKING/EMERGENCY BRAKE

Capri

1. Ensure parking brake lever is released. Remove parking brake console. Loosen parking brake cable lock nut. Loosen or tighten adjusting nut so parking brake begins to apply when lever is pulled up 5 notches and is fully applied at 7-11 notches.
2. Using Spring Scale (T74P-3504-Y), check force required to apply parking brake. A properly operating system will require 44 lb. (97 kg) of force to fully apply parking brakes. Tighten lock nut. Ensure brake warning light operates when parking brake lever is raised.

Festiva

1. Ensure parking brake lever is released. Remove parking brake console insert. Remove locking clip from cable adjuster nut. Raise and support rear of vehicle. Tighten parking brake adjuster until slight drag is felt when rotating wheels.
2. Loosen adjuster in small increments until drag is eliminated. As parking brake lever is lifted, parking brake should lock rear wheels in 11-16 notches. Ensure brake warning light operates when parking brake lever is raised.

REAR BRAKE SHOES

Festiva

1. Raise and support vehicle. Release parking brake. Unstake and remove axle lock nut. Remove brake drum. Insert screwdriver between adjusting plate and quadrant. See **Fig. 2** . Twist screwdriver to disengage teeth.
2. Push quadrant adjusting lever toward backing plate. Install brake drum and NEW axle lock nut. Adjust wheel bearings and secure nut by crimping. See REAR AXLE BEARINGS. Operate brake pedal a few times to reset adjuster. Adjust parking brake (if necessary). See PARKING/EMERGENCY BRAKE.

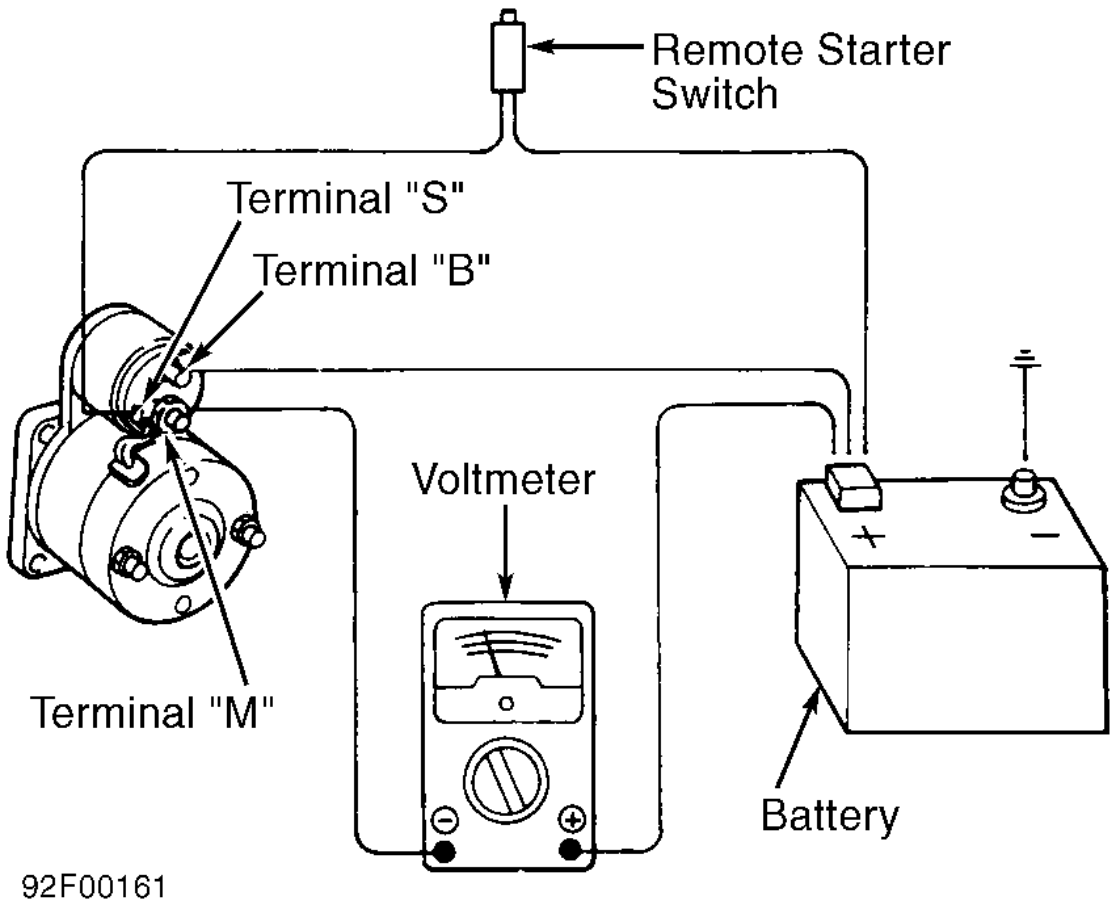


Fig. 3: Testing Voltage Drop
Courtesy of FORD MOTOR CO.

STARTER GROUND CIRCUIT TEST

NOTE: Make all voltmeter connections at component terminal rather than at cable or wire end.

1. Disconnect and ground coil wire from distributor cap to prevent engine from starting. Connect remote starter switch between starter solenoid terminal "S" and battery positive terminal. See **Fig. 1** .
2. Using a digital voltmeter set on low scale, connect positive voltmeter to starter motor housing. Ensure connection point is clean and free of rust and grease. Connect negative voltmeter lead to negative battery terminal.
3. Engage remote starter switch and crank engine. Observe and record voltmeter reading. Voltmeter should read .2 volt or less. If voltage drop is greater than .2 volt, clean negative battery cable connections at battery and body connections. Retest to ensure problem has been corrected.
4. If voltage drop is still excessive, replace negative battery cable(s) as necessary. If battery cables test okay, and starter still cranks slowly or not at all, remove and repair starter motor.

BENCH TESTING

STARTER NO-LOAD TEST

Remove starter. Place starter on bench. Connect a fully charged 12-volt battery, voltmeter, ammeter and remote starter switch to starter. See **Fig. 4** . Engage remote starter switch. Starter should rotate smoothly. Ensure voltage and amperage draw is less than maximum specification at 5000 RPM minimum. See NO-LOAD TEST SPECIFICATIONS table. If voltage and/or amperage is higher than specifications, disassemble starter and determine cause.

NO-LOAD TEST SPECIFICATIONS

Application	Maximum Amps	Volts
Capri & Festiva	60	11.5

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DRIVE BELT ROUTING

1991-92 ENGINE COOLING BELT ROUTING

BELT ADJUSTMENT

Tensioners may be used to automatically adjust belt tension to specification. Check belt for fraying. If fraying exists, ensure both belt and tensioner are properly aligned. See **Fig. 1** . Tensioners may contain a belt-wear indicator. See **Fig. 2** . If tensioner reaches travel limit, as indicated by marks on tensioner, replace belt. Ensure serpentine belts are properly installed. See **Fig. 3** -**Fig. 7** . On models without tensioners, ensure belt tension is within specification. See BELT ADJUSTMENT SPECIFICATIONS table.

BELT TENSION ADJUSTMENT SPECIFICATIONS (1)

Application	New Belt	(2) Used Belt
Continental	(3)	(3)
Cougar & Thunderbird	(3)	(3)
Crown Victoria & Grand Marquis		
5.0L & 5.8L		
1/4" "V" Belt	70 (32)	50 (23)
6 Rib Belt	170 (77)	150 (68)
Escort & Tracer		
1.8L	(4) (5)	(4) (5)
1.9L	(3)	(3)
Mark VII	(3)	(3)
Mustang	(3)	(3)
Probe		
2.2L & 2.2L Turbo		
Alternator	(4) (6)	(4) (6)
A/C	90 (41)	90 (41)
Sable & Taurus		
2.5L	(3)	(3)
3.0L (7)		
Alternator	140-160 (63-67)	110-130 (50-59)
P/S & A/C	(3)	(3)
3.0L SHO		
A/C & Alt.	220-265	(100-120) 148-192 (67-87)
P/S & W/P	154-198 (70-90)	112-157 (51-71)
3.8L	(3)	(3)
Tempo & Topaz		
2.3L		
Alternator	150-170 (68-77)	130-150 (59-68)
W/P	150-90 (23-41)	40-60 (18-27)
Town Car	(3)	(3)

(1) Tension is measured in Lbs. (kg) using tension gauge.

(2) Used belt is a belt in operation for at least 10 minutes.

(3) Belt tension is automatically adjusted by tensioner.

(4) Manufacturer lists only belt deflection with 22 lbs. applied on belt.

(5) Belt deflection on new belt is .31-.35" (7.9-8.9 mm) or .35-.39" (8.9-9.9 mm) on used belt.

(6) Belt deflection on new belt is .24-.31" (6.1-7.9 mm) or .27-.35" (6.9-8.9 mm) on used belt.

(7) Specification is for models without belt tensioner.

Remove timing belt covers, See TIMING BELT COVER procedure to remove timing belt from this engine.

Installation (1.6L)

1. Ensure timing belt and sprockets are clean and not worn or damaged. Ensure timing marks are properly positioned on camshafts and crankshaft. Intake cam should have letter "I" aligned with arrow on belt cover. Exhaust cam should have letter "E" aligned with arrow on belt cover. Crankshaft key should align with arrow. See **Fig. 4** .
2. Tighten tension pulley with tension spring fully extended. Install timing belt. Keep tension on opposite side of tensioner as tight as possible. Ensure rotation mark on belt is correct.
3. Turn crankshaft 2 full turns. Check alignment of timing marks. If any mark is not aligned, remove timing belt and reset timing. Loosen tension pulley retaining bolt allowing tension spring to tighten belt. Tighten tension pulley to specification and rotate engine 2 full turns. Verify timing mark alignment.
4. Measure timing belt tension between camshaft pulleys. Belt deflection should be 0.33-0.45" (8.5-11.5 mm). If incorrect, loosen tension pulley and repeat procedure. If correct tension cannot be achieved, replace tension spring.
5. Install lower, center and upper timing belt covers, and tighten bolts to specification. See **TORQUE SPECIFICATIONS** table at end of article. Install RH engine mount. Lower engine. Tighten retaining nuts to specification. Install crankshaft pulley, damper and baffle. Tighten baffle and damper screws and pulley retaining bolts to specification. Install water pump pulley and tighten retaining bolts to specification.
6. Install alternator and power steering belts. Install oil dipstick. Raise vehicle and install splash guard and RF wheel and tire assembly. Lower vehicle, install spark plugs and start engine. Inspect for leaks and check operation.

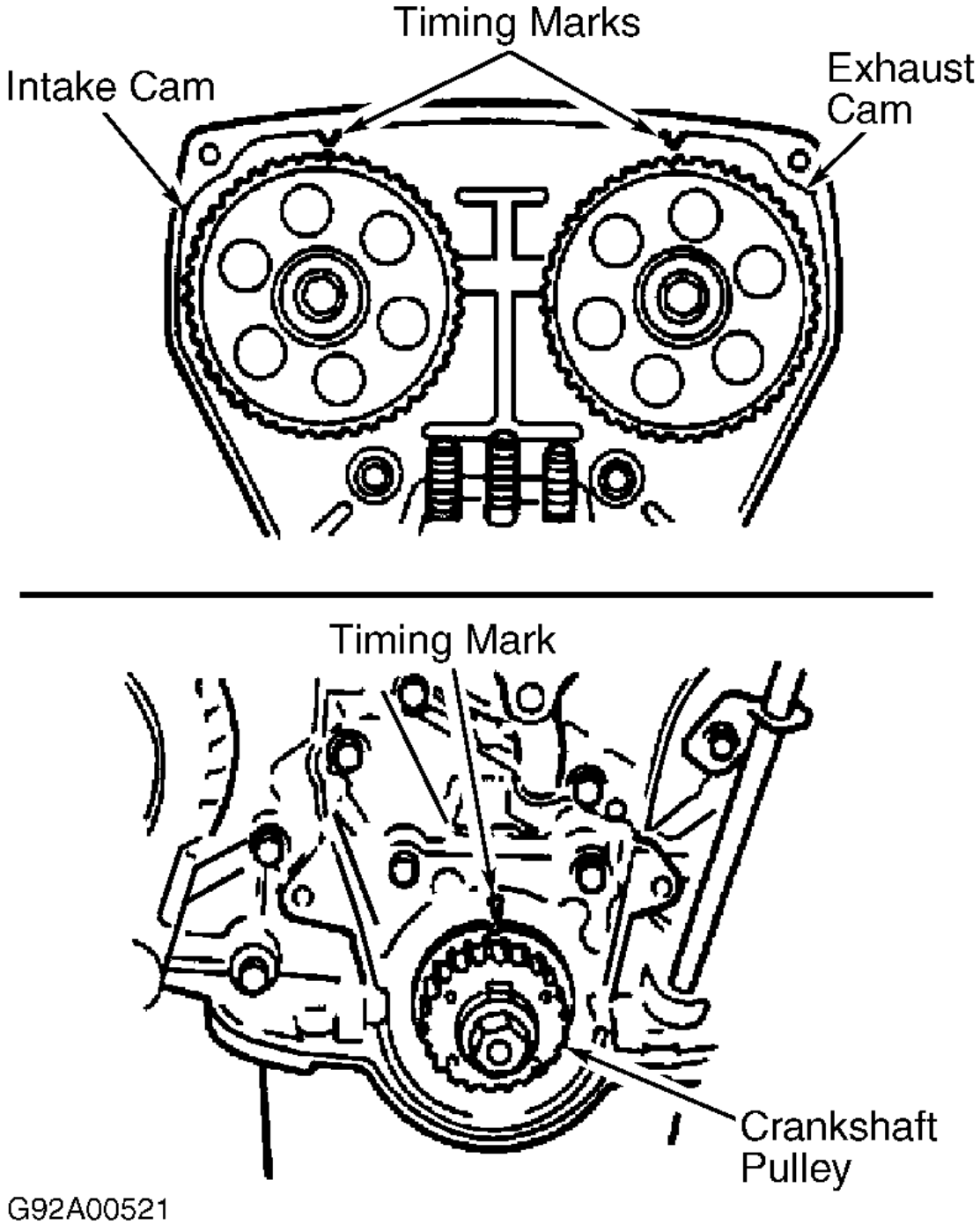

Fig. 4: Aligning Camshaft & Crankshaft Timing Marks (1.6L)
Courtesy of FORD MOTOR CO.

FRONT COVER & OIL SEAL

Removal & Installation

Front cover is the housing for the oil pump. See OIL PUMP under ENGINE OILING.

CAMSHAFT

Removal (1.3L)

Remove cylinder head. Remove rocker arm assemblies if not previously removed. Carefully remove camshaft thrust plate. Remove camshaft

ORVR-VSV

ORVR Vent Shut Valve

ORVR-VV

ORVR Vent Valve

OVCV

Outer Vent Control Valve

O2S

Oxygen Sensor

PAIR

Pulsed Secondary Air Injection

PCV

Positive Crankcase Ventilation

SFI

Sequential Multiport Fuel Injection

SFI-MAF

SFI Mass Airflow Sensor

SPK

Spark Controls

SPK-AVM

SPK Advance Vacuum Modulator

SPK-BVSV

SPK Bimetal Vacuum Switching Valve

SPK-CC

SPK Computer Controlled

SPK-CKV

SPK Check Valve

TWC

Three-Way Catalytic Converter

Article GUID: A00157498

Temperature °F (°C)	Ohms
-4 (-23)	15,000
32 (0)	5210
68 (20)	2500
104 (40)	1100
140 (60)	600
176 (80)	300

PINPOINT TEST TP - THROTTLE POSITION SENSOR

NOTE: **Enter this test only when a Code 12 is displayed during QUICK TESTS procedure or when directed here from another PINPOINT TEST.**

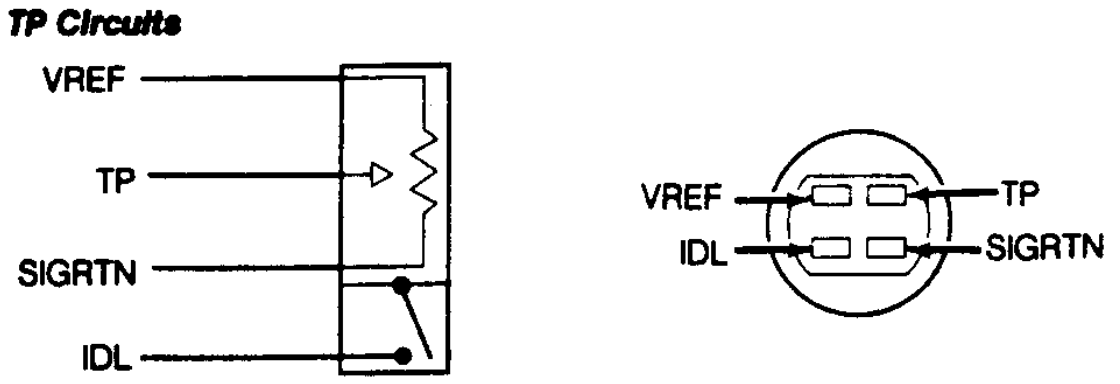

Fig. 11: Identifying TP Circuits

TP CIRCUIT PIN IDENTIFICATION

Circuit	ECA Pin	BOB Pin	Wire Color
1.6L			
IDL	1E	28	GRN/ORG
SIGRTN	2C	46, 49	BLK/YEL
TP	2G	47	ORG
VREF	2A	26	WHT/BLK

1.6L

1. Turn ignition off. Install BOB. Turn ignition on. Measure voltage between BOB test pins TP and SIGRTN while opening throttle. Compare voltage to specification in **TP SENSOR OUTPUT VOLTAGE** table. Go to next step if output voltage is not within specification.

   TP SENSOR OUTPUT VOLTAGE

Throttle Opening	(1) Voltage
1/8	1.00
1/4	1.60
3/8	2.37
1/2	2.74
5/8	3.15
3/4	3.43
7/8	3.60
(1) Voltage may vary by 15 percent.	

2. Turn ignition off. Unplug TP sensor connector at throttle body. Using jumper wires, connect VREF and SIGRTN wires on harness

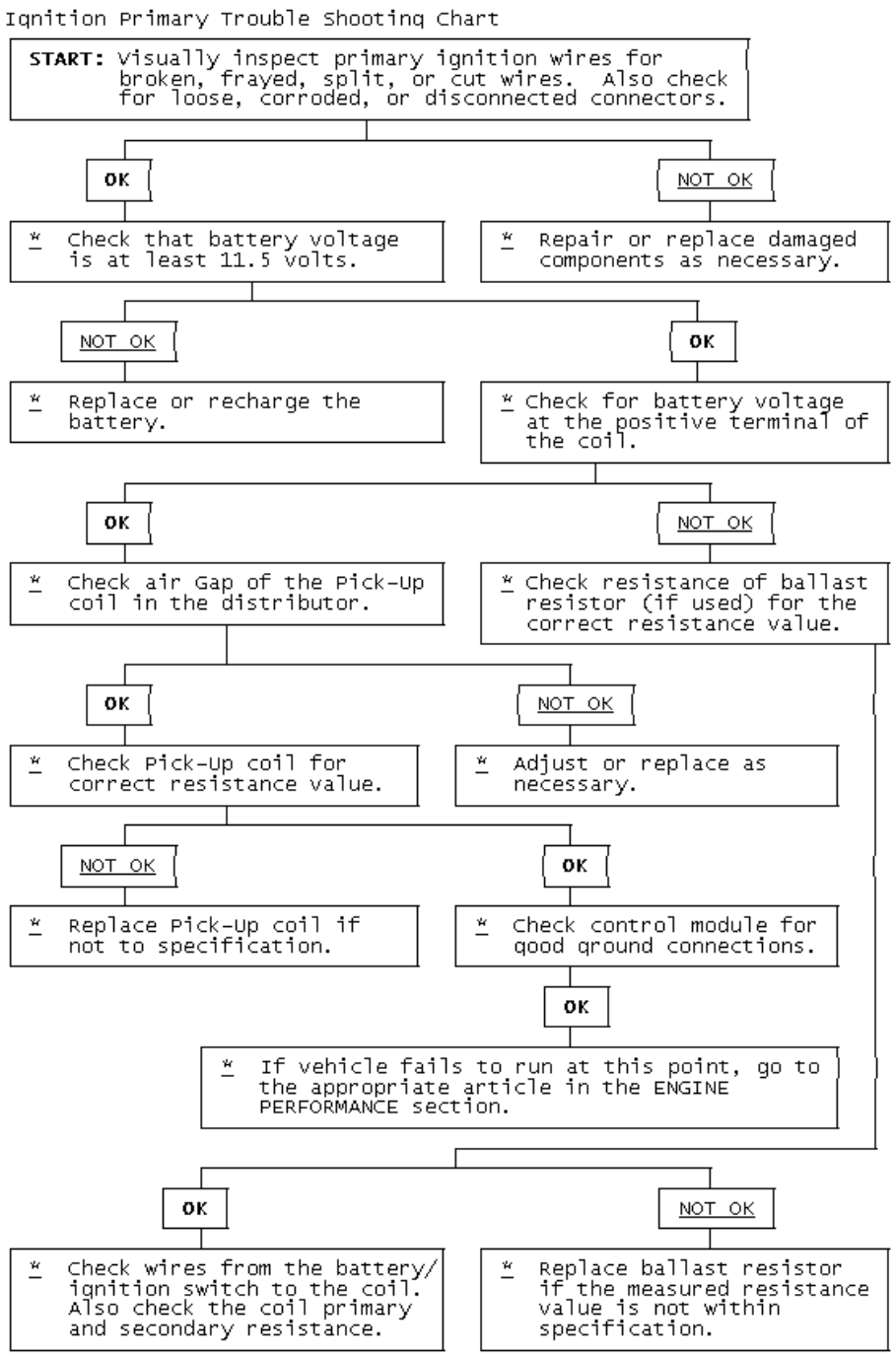

Fig. 4: Ignition Primary Trouble Shooting Chart

STARTER TROUBLE SHOOTING

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. The purpose of this Trouble Shooting information is to provide a list of common causes to problem symptoms. For model-specific Trouble Shooting, refer to SUBJECT, DIAGNOSTIC, or TESTING articles available in the section(s) you are accessing.**

BASIC STARTER TROUBLE SHOOTING CHART

CONDITION & POSSIBLE CAUSE	CORRECTION
Starter Fails to Operate	
Dead battery or bad connections between starter and battery	Check battery charge and all wires and connections to starter
Ignition switch faulty or misadjusted	Adjust or replace ignition switch
Open circuit between starter switch ignition terminal on starter relay	Check and repair wires and connections as necessary
Starter relay or starter defective	See Testing in STARTER article
Open solenoid pull-in wire	See Testing in STARTER article
Starter Does Not Operate and Headlights Dim	
Weak battery or dead cell	Charge or replace battery as necessary
Loose or corroded battery connections	Check that battery connections are clean and tight
Internal ground in starter windings	See Testing in STARTER article
Grounded starter fields	See Testing in STARTERS
Armature rubbing on pole shoes	See STARTER article

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GENERAL INFORMATION

Clutch Trouble Shooting

* PLEASE READ THIS FIRST *

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

ALL MODELS

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

CLUTCH TROUBLE SHOOTING

Problem & Possible Cause	Action
Clutch Chatters/Grabs	
Incorrect Pedal Adjustment	Adjust Free Play
Worn Input Shaft Spline	Replace Input Shaft
Binding Pressure Plate	Replace Pressure Plate
Binding Throw-Out Lever	Check Throw-Out Lever, Check Throw-Out Bearing, Check Bearing Retainer
Uneven Pressure Plate Contact With Flywheel	Align/Replace Worn Parts
Transmission Misaligned	Align Transmission
Worn Pressure Plate	Replace Clutch Assembly
Oil-Saturated Disc	Replace Clutch Assembly, Repair Oil Leak
Loose Engine Mounts	Replace Engine Mounts
Clutch Pedal Sticks Down	
Clutch Cable Binding	Replace Clutch Cable
Weak Pressure Plate Springs	Replace Clutch Assembly
Binding Clutch Linkage	Lubricate Linkage
Broken Clutch Pedal Return Spring	Replace Return Spring
Clutch Will Not Release	
Oil-Saturated Disc	Replace Clutch Assembly, Repair Oil Leak
Defective Disc Face	Replace Clutch Assembly
Disc Sticking on Input Shaft Splines	Replace Disc/Input Shaft
Binding Pilot Bearing	Replace Pilot Bearing
Faulty Clutch Master Cylinder	Replace Master Cylinder
Faulty Clutch Slave Cylinder	Replace Slave Cylinder
Blown Clutch Hose	Replace Hose
Sticky Throw-Out Bearing Sleeve	Clean/Lube Sleeve
Clutch Cable Binding	Replace Clutch Cable
Broken/Loose Bellhousing	Check Bellhousing
Rattling/Squeaking	
Broken Throw-Out Lever Return Spring	Replace Return Spring
Faulty Throw-Out Bearing	Replace Throw-Out Bearing
Faulty Clutch Disc	Replace Clutch Disc
Faulty Pilot Bearing	Replace Pilot Bearing
Worn Throw-Out Bearing	Replace Throw-Out Bearing
Dry Bearing Retainer Slide For Throw-Out Bearing Sleeve	Lubricate Slide
Slipping	
Faulty Pressure Plate	Replace Clutch Assembly
Worn Clutch Disc	Replace Clutch Assembly
Incorrect Alignment	Realign Clutch Assembly
Faulty Clutch Slave Cylinder	Replace Slave Cylinder
No Pedal Pressure	
Leaky Hydraulic System	Check Clutch Master Cylinder, Check Clutch Slave Cylinder
	Check Clutch Hose
Broken Clutch Cable	Replace Clutch Cable
Faulty Throw-Out Lever	Replace Throw-Out Lever
Broken Clutch Linkage	Repair Clutch Linkage

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GENERAL INFORMATION

Parasitic Load Explanation & Test Procedures

* PLEASE READ THIS FIRST *

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

GENERAL INFORMATION

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

The term Parasitic Load refers to electrical devices that continue to use or draw current after the ignition switch is turned to OFF position. This small amount of continuous battery draw is expressed in milliamps (mA). On Chrysler vehicles, a typical Parasitic Load should be no more than 30 milliamps (0.030 amps). On Ford Motor Co. and General Motors vehicles produced after 1980, a typical Parasitic Load should be no more than 50 milliamps (0.050 amps).

Vehicles produced since 1980 have memory devices that draw current with ignition off for as long as 20 minutes before shutting down the Parasitic Drain. When Parasitic Load exceeds normal specifications, the vehicle may exhibit dead battery and no-start condition.

Follow test procedure for checking Parasitic Loads to completion. A brief overview of a suggested test procedure is included along with some typical Parasitic Load specifications. Refer to GENERAL MOTORS PARASITIC LOAD TABLE chart.

TESTING FOR PARASITIC LOAD

NOTE: **This is GENERAL information. This article is not intended to be specific to any unique situation or individual vehicle configuration. For model-specific information see appropriate articles where available.**

CAUTION: **Always turn ignition off when connecting or disconnecting battery cables, battery chargers or jumper cables. DO NOT turn test switch to OFF position (which causes current to run through ammeter or vehicle electrical system).**

NOTE: **Memory functions of various accessories must be reset after the battery is reconnected.**

The battery circuit must be opened to connect test switch (shunt) and ammeter into the circuit. When a battery cable is removed, timer circuits within the vehicle computer are interrupted and immediately begin to discharge. If in doubt about the condition of the ammeter fuse, test it with an ohmmeter prior to beginning test. An open fuse will show the same reading (00.00) as no parasitic drain. Begin test sequence with the meter installed and on the 10-amp scale. Select lower scale to read parasitic draw.

CHRYSLER IGNITION OFF DRAW (IOD) TEST

To test for excessive IOD, verify that all electrical accessories are OFF. Turn off all lights, remove ignition key, and close all doors and decklid. If the vehicle is equipped with electronic accessories (illuminated entry, automatic load leveler, body computer, or high line radio), allow the system to automatically shut off (time out), up to 3 minutes.

1. Raise the hood and disconnect both battery cables, negative first.

   CAUTION: **IOD greater than 3 amps may damage millampmeter.**

2. Reconnect the negative cable and connect a typical 12-volt test light (low wattage bulb) between the positive cable clamp and the positive battery post. Remove the engine compartment lamp bulb. If the test light does not light, proceed to step 3. If the test light does light, proceed to step, 4. The test light will indicate IOD greater than 3 amps. After higher amperage IOD has been corrected, proceed to step 3.
3. ith 12-volt test light still connected (not lit), connect an ammeter (milliampere scale) between the positive cable clamp and the positive battery post, disconnect test light, refer to instructions provided with ammeter being used. A reading of 30 milliamperes or less indicates normal electrical draw. If ammeter reads more than 30 milliamperes, excessive IOD must be corrected.
4. Locate the fuse panel and remove fuses or circuit breakers one at a time, and observe ammeter after each fuse or circuit breaker is removed. If test light goes out and the reading drops below 30 milliamperes when a certain fuse or circuit breaker is removed, that circuit may have a defect.
5. If IOD is detected after all fuses and circuit breakers have been removed, disconnect the 60-way connector at the Single Module Engine Control (SMEC), located outboard of the battery.
6. If excessive IOD is detected after all fused circuits and SMEC have been verified, disconnect the B+ terminal from the alternator. If reading drops below 30 milliamperes, reinstall all fuses and circuit breakers, reconnect B+ terminal at alternator, reconnect battery, and perform alternator diagnostics.
7. Install engine compartment lamp bulb.

TEST PROCEDURE USING TEST SWITCH

1. Turn ignition off. Remove negative battery terminal cable. Install Disconnect Tool (J-38758) test switch male end to negative battery cable. Turn test switch knob to OFF position (current through meter). Install negative battery cable to the female end of test switch.

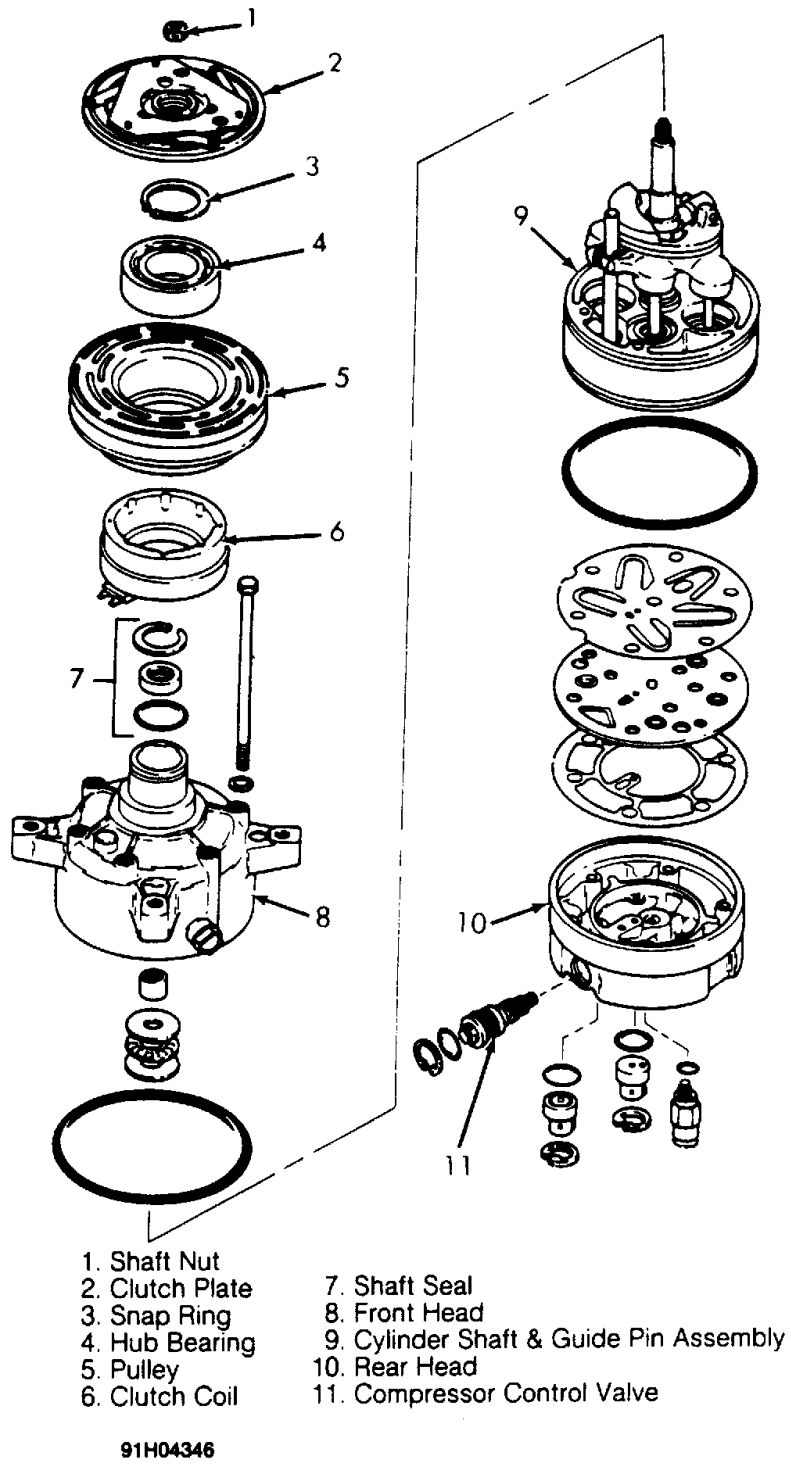

Fig. 8: Exploded View of Harrison V5 5-Cylinder Compressor
Courtesy of GENERAL MOTORS CO.

HITACHI 5 & 6-CYL CLUTCH R & I

Removal

1. Using Clutch Holder (KV99412302), hold clutch hub. Remove shaft nut from shaft. Using Clutch Hub Remover (KV994C5780), remove clutch hub.
2. Pry inner snap ring off. Remove pulley and bearing assembly. If assembly cannot be removed by hand, use Pulley and Bearing Removers (KV994C5781 and KV994C5782).
3. Remove clamping screws that secure coil assembly leads. Remove inner snap ring from coil assembly. Remove coil assembly from front cover. See **Fig. 9** .

Inspection

Check friction surfaces of clutch for damage due to excessive heat, or excessive grooving due to slippage. Replace compressor components as necessary. Oil or dirt on friction surfaces should be cleaned with a solvent and a dry rag. Check coil for binding, shorted or open leads.

Installation

1. Install coil assembly on compressor. Properly position terminals. Using snap ring pliers, install snap ring. Using a plastic mallet, drive pulley and bearing assembly onto neck of front cover. Turn pulley, making sure that there is no noise and that rotation is free. Ensure there is no pulley play.
2. Using snap ring pliers, install inner snap ring. Remove all oil from clutch pulley. Fit key and clutch hub to shaft. Select adjusting spacer which gives the correct clearance between pulley and clutch hub.
3. Coat shaft nut with Loctite and install. Using a feeler gauge, measure clutch hub-to-pulley clearance. Clearance should be .020-.031" (.5-.8 mm). If specified clearance is not obtained, replace adjusting spacer and readjust.
4. When replacing compressor clutch assembly, DO NOT forget break-in operation. This is accomplished by engaging and disengaging clutch 30 times.

tube from evaporator core fins while removing thermostatic switch. To install, reverse removal procedure. Evacuate and recharge system.

THERMOSTATIC EXPANSION VALVE

Removal & Installation

1. Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove evaporator housing. See **EVAPORATOR HOUSING** under REMOVAL & INSTALLATION. Remove air inlet duct. See **Fig. 1** .
2. Remove insulation from sensing bulb. Disconnect thermostatic expansion valve at evaporator tube fitting and inlet tube fitting (from receiver-drier). See **Fig. 3** . Remove thermostatic expansion valve. To install, reverse removal procedure. Use new "O" rings. Evacuate and recharge system.

A/C RELAYS

Removal & Installation

A/C relays are located in left front corner of engine compartment, near battery. Unclip relay holder from its mounting bracket. Disconnect relay wiring. DO NOT pull on wiring connector to remove relay from holder. Remove relay from holder. To install, reverse removal procedure.

A/C-HEATER CONTROL ASSEMBLY

Removal & Installation

1. A/C control module is located above radio. Remove accessory bezel. Remove radio (if necessary) and glove box. Disconnect recirculated/fresh air cable from door lever. See **Fig. 5** . Disconnect mode select cable from door lever. See **Fig. 6** .
2. Disconnect temperature control cable from door lever. See **Fig. 4** . Pull control assembly away from dash, and disconnect wiring connectors. Remove control assembly.
3. To install, reverse removal procedure. Check and adjust temperature control, recirculated/fresh air and mode cables. See ADJUSTMENTS. Test control assembly operation.

BLOWER MOTOR

Removal & Installation

Disconnect negative battery cable. Remove A/C air outlet duct located below steering column. See **Fig. 2** . Disconnect blower motor wiring. Remove blower motor attaching screws and blower motor. Remove blower wheel attaching nut. Remove blower wheel and washer. To install, reverse removal procedure.

BLOWER MOTOR RESISTOR

CAUTION: DO NOT remove screw in front of blower resistor, or blower resistor mounting plate will fall into air distribution plenum. To retrieve plate, disassemble instrument panel.

Removal & Installation

Disconnect negative battery cable. Remove air duct located below steering column. See **Fig. 2** . Disconnect blower motor resistor wiring. Remove blower resistor attaching screws and resistor. To install, reverse removal procedure.

AIR DISTRIBUTION PLENUM

Removal & Installation

1. Remove instrument panel. See **INSTRUMENT PANEL** under REMOVAL & INSTALLATION. Drain cooling system. Disconnect heater hoses in engine compartment. Disconnect wiring for blower motor and blower resistor. Disengage wiring harness and antenna lead from bracket on front of air distribution housing.
2. Loosen connector duct-to-air inlet clamp screw. Remove upper and lower mounting nuts from plenum. Disengage and remove plenum from defroster ducts. To install, reverse removal procedure. Refill cooling system, and check for leaks.

HEATER CORE

Removal & Installation

1. Remove air distribution plenum. See **AIR DISTRIBUTION PLENUM** under REMOVAL & INSTALLATION. Disconnect linkage connecting defroster doors. Remove attaching screw located near blower resistor. Turn housing around and remove attaching screw located near blower motor opening.
2. Remove clips retaining blower housing halves. Separate blower housing halves. Remove heater core. Remove tube insert from heater core. To install, reverse removal procedure. Test system for proper operation.

INSTRUMENT PANEL

Removal & Installation

1. Disconnect negative battery cable. Remove steering wheel, steering column covers and multifunction switch assembly. Disconnect electrical connectors from switches on instrument panel. Remove instrument cluster hood.
2. Disconnect speedometer cable from transmission. Remove 4 instrument cluster screws. Pull instrument cluster out from instrument panel cluster enough to disconnect wiring and speedometer cable. Remove instrument cluster.
3. Remove steering column shield. Remove shield bracket. Remove glove box. Remove fuse panel cover and 4 fuse panel screws. Pull fuse panel out, but DO NOT remove. Remove shift lever console and mount brackets.

and left brake lines in place. Install rear suspension struts and wheels. Block wheels and lower vehicle to load suspension to normal ride height. Tighten torsion beam pivot bolts at body brackets to 69-87 ft. lbs. (93-118 N.m).

4. Check rear suspension alignment. Place an alignment mark at the center of the underbody, at a point of equal distance from the right and left body bracket inboard mounting bolts. From this alignment mark, measure distance to centers of right and left strut lower mounting bolts.
5. Both measurements must be within .20" (5 mm) of being the same. If not, shift torsion beam body brackets from side-to-side to center suspension. Once centered, tighten upper body bracket mounting bolts to 40-50 ft. lbs. (54-68 N.m) and lower bolt to 69-87 ft. lbs. (93-118 N.m). Bleed brakes.

TORSION BEAM BUSHINGS

Removal

1. Raise and support vehicle to fully extended rear struts. Remove wheels. Remove retaining clip at right brake line routing bracket and disconnect brake line. Remove clip from left brake line and disconnect at body crossmember.
2. Remove torsion beam pivot bolt bolts and nuts at right and left body brackets. Swing torsion beam trailing arm downward to clear body brackets.
3. Using piece of wood, block beam in disengaged position. Using Bushing Remover/Replacer (D80L-1002-L), remove bushings from inboard side of torsion beam arm. See **Fig. 6** .

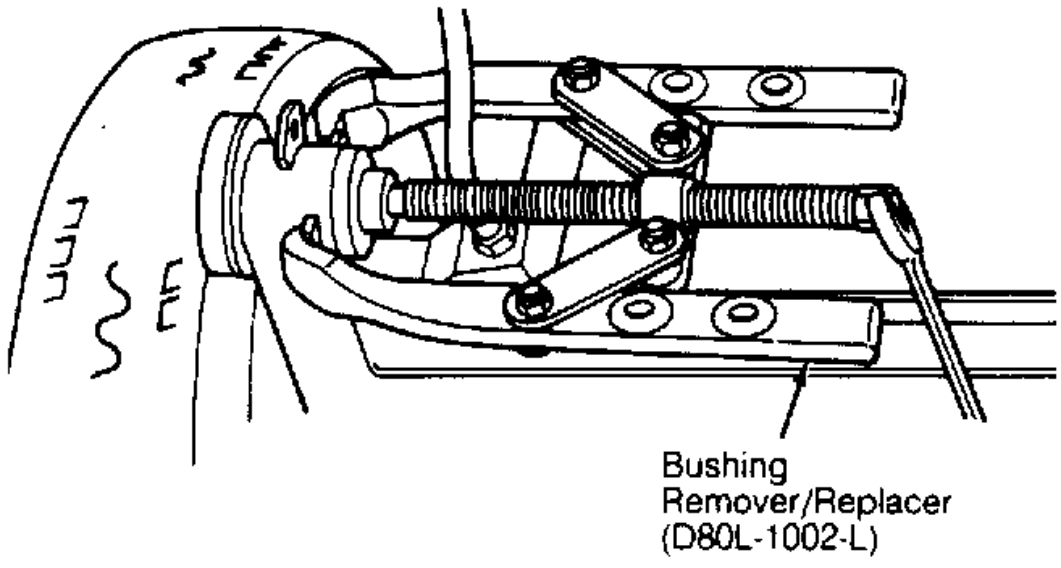

Fig. 6: Removing Torsion Beam Bushing
Courtesy of FORD MOTOR CO.

NOTE: **Bushings have "F" (front) and "R" (rear) stamped on bushing face. Ensure these marks are right side up when "F" is toward front of vehicle.**

Installation

1. Place bushings on outboard sides of torsion beam arms with marks "F" and "R" aligned parallel to arm axis. To ease installation, lubricate bushings with soapy water. Press in bushings using bushing remover/installer.
2. Remove wood block holding torsion beam out of body pivot brackets. Place bushing flange washers on outboard faces of bushings. Raise torsion beam arms into brackets until pivot bolt holes align.
3. Install pivot bolts through brackets from inboard side but do not tighten nuts at this time. Connect brake lines at routing brackets. Reinstall brake line retaining clips. Reinstall wheels. Lower vehicle and block wheels. Jounce vehicle until suspension is fully loaded in its normal riding position. Tighten torsion beam pivot bolt nuts to 69-87 ft. lbs. (93-118 N.m). Bleed brakes.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Capri	
Control Arm Bolt-To-Spindle	45-55 (61-75)
Inner Control Arm Bolts	69-86 (93-117)
Rear Hub Lock Nut	18-21 (25-29)
Rear Stabilizer Bracket	32-39 (43-55)
Spindle-To-Strut Bolts	69-86 (93-117)
Strut Rod Upper Flanged Nut	40-50 (54-68)
Strut-To-Strut Tower	17-22 (23-29)
Wheel Bearing Lock Nut	18-21 (25-29)
Wheel Lug Nuts	67-88 (90-120)
Festiva	
Brake Backing Plate Spindle Support Bolts	32-45 (43-61)
Lower Body Bracket Mounting Bolts	69-87 (93-118)

97C02670

Festiva ATX & Geo KF400

Neutral - "N" Range

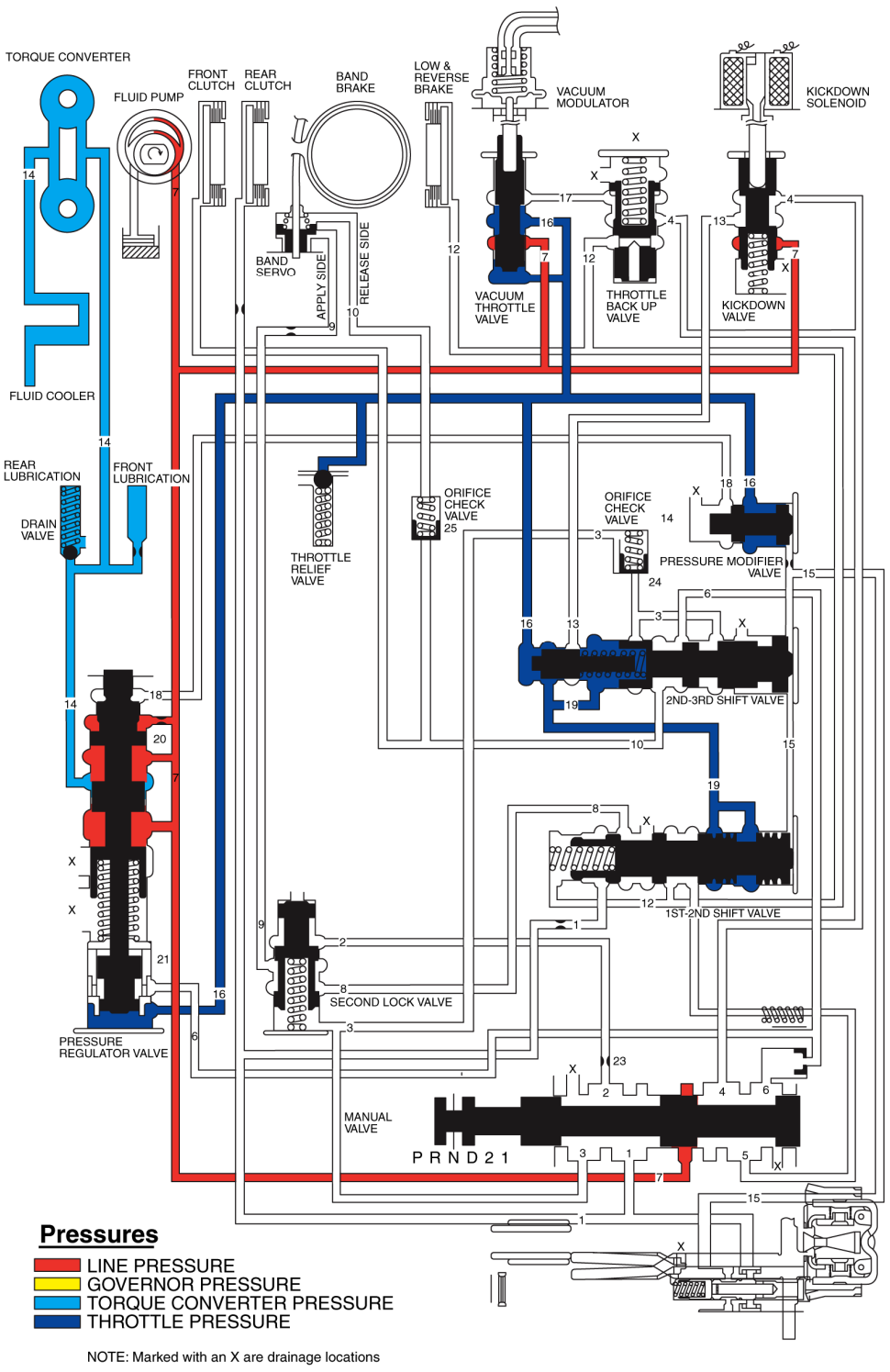

Fig. 3: Neutral - "N" Range