SERVICE REFERENCE BOOK
of the MASTER TECHNICIANS SERVICE CONFERENCE

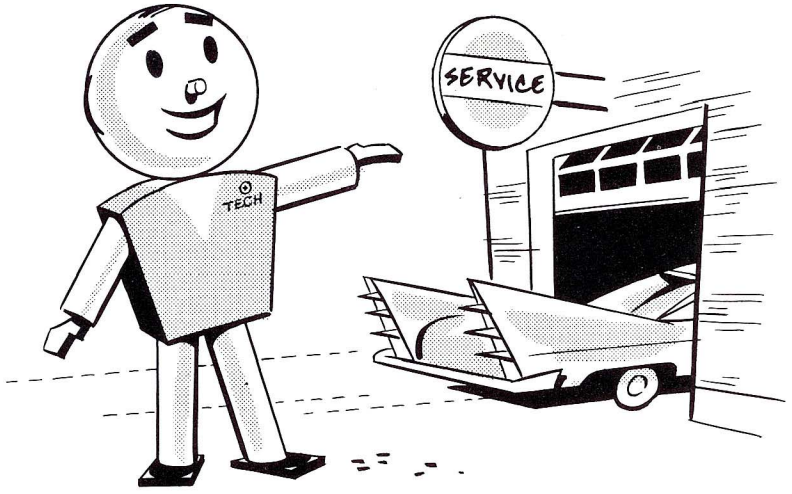
session no. **128**

LONG TRIP GET-READY SERVICE

PREPARED BY CHRYSLER CORPORATION

Plymouth • Dodge • De Soto • Chrysler • Imperial

REGULAR SERVICE CHECKS ARE MORE IMPORTANT THAN EVER



Most car owners know that periodic maintenance of today's automobile is more important to performance and safety than it was on the automobiles of a few years ago. Higher compression and higher speed engines are more sensitive to slight variations from recommended performance adjustments. Sustained higher car speeds on the highway, more congested traffic conditions and increased night-time traffic have placed greater importance on proper maintenance of steering systems, brakes and lights.

As a result, more drivers are beginning to realize that common-sense planning *before* a long trip calls for leaving the car in an authorized dealer's service department for a thorough checking over. You, with your knowledge of the product, and your knowledge of proper maintenance procedures, are in a better position to provide this preventive maintenance service than anyone else.

To help you organize a preventive maintenance inspection procedure, this reference book explains what to check, as well as why, and how to do it.

You'll find this service information organized as follows:

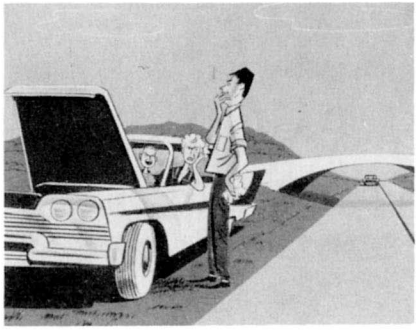
PREVENTIVE MAINTENANCE PERIODS

While there's no neat rule of thumb that applies to all cars to determine the need for a service check-up, an inspection or adjustment period based on mileage intervals is the rule most often used. Of course, other factors have to be considered, such as:

1. type of service the car performs,
2. amount of mileage since the last check-up,
3. seasonal changes, and—
4. long trip get-ready requirements.

A car that's kept constantly on the go can usually time its maintenance periods to mileage intervals. But, a car that makes short runs to the office, is used for shopping once or twice a week, and often sits idle for a day or two at a time is usually the one in need of more frequent maintenance. Infrequent service is much harder on the engine, for example. That's because a short-run car is a sitting duck for the formation of condensation in the engine and exhaust systems. That's when destructive acids or rust are formed because they're not evaporated by longer trips with a hot engine.

In any case, the type of driving done, amount of mileage, and seasonal requirements all must be taken into account whenever an owner tells you he's planning to take a long vacation trip. Above all, your customer will want to be sure that everything's perfectly safe before he takes off for any extended traveling he's planned to do.



He knows, as well as you, that it pays to stay on the safe side. Undoubtedly, he's learned that getting stranded on a busy turnpike, or out on a lonely road, is certainly no picnic.

You can render a real service, therefore, if you follow a planned order of checking when you try to bring his over-all performance up to new-car specifications as closely as possible.

INSPECTION PROCEDURE

As a car is driven mile after mile, engine performance gradually begins to fall off. This may be so gradual that the owner fails to notice it, and may think the engine runs as well as it did when spanking new. He might be surprised to know, for instance, that in every 5,000 miles an 8-cylinder engine is driven, each spark plug

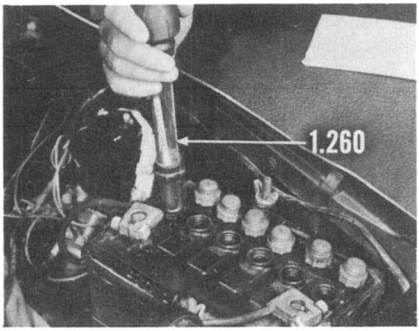
fires about 6,500,000 times. The distributor points open and close about 51,000,000 times, and each valve, naturally, opens and closes the same number of times as the plug fires. Every time the accelerator is depressed, from 10 to 15 parts move inside the carburetor.

Today's engine tolerances are closer, compression ratios and octane ratings are higher. So it's important to keep the engine and fuel system in top-operating condition at all times. Beginning with a tune up, then, is the wise thing to do—and a battery check is first.

Begin with an engine tune up

When taking a specific gravity reading of the battery, be sure to make allowance for the temperature of the electrolyte. The hydrometer is calibrated for 80° temperature. For each ten degrees *above* 80°, *add* .004 points to the reading; for each ten degrees *below* 80°, *subtract* .004 points from the reading.

With a reliable hydrometer, test specific gravity of the battery. A reading of 1.260 indicates a full charge for a 12-volt battery. A

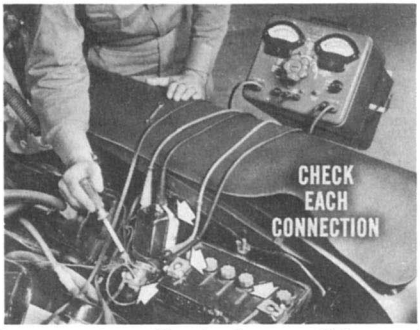


reading of 1.205 indicates a half-charged battery, while a reading of 1.130 is one of a discharged battery. Each cell should test about the same, within 25 (.025) gravity points of each other. The battery should be clean and the hold-down clamps tightened securely.

Starting Circuit

Once you're sure the battery will hold its own, use test instruments to check the starting circuit. Check cranking voltage especially. Even when cranking *speed* is good, the voltage should be tested. In addition, check neutral starter switch operation. On key-starting models, the engine should start promptly when the ignition key is turned *on*, while the "N" button is depressed. On models with "N" button starting, the key should be in its "on" position. The engine should then start promptly when the "N" button is pushed in. Start the engine several times to be sure the starter switch makes good contact each time.

Circuit Resistance Test. If cranking voltage at the starter is low, use the voltmeter to test for circuit resistance. Check each connection for looseness or corrosion, especially the battery and starter cables. Also, inspect connections at the solenoid. There should be no more than .1 voltage drop per cable or switch, and zero drop at the battery and starter terminals.



Drive Belts. Check the condition and tension of each drive belt next. Belt tension specifications for all models are listed in the accompanying table:

DRIVE BELT TIGHTENING SPECIFICATIONS
1958 MODELS

MAKE AND MODEL	GENERATOR DRIVE				POWER STEERING PUMP DRIVE				AIR COMPRESSOR DRIVE			
	NEW BELT		USED BELT		NEW BELT		USED BELT		NEW BELT		USED BELT	
	Torque (ft.-lbs.)	Deflection	Torque (ft.-lbs.)	Deflection	Torque (ft.-lbs.)	Deflection	Torque (ft.-lbs.)	Deflection	Torque (ft.-lbs.)	Deflection	Torque (ft.-lbs.)	Deflection
PLYMOUTH												
All Models	—		—		70		50		—		—	
318 Cu. In.		5/32"		1/4"		1/16"		1/8"		3/16"		5/16"
350 Cu. In.		1/8"		7/32"		1/8"		3/16"		1/16"		
6-Cyl. Eng.		3/32"		5/32"		3/32"		5/32"				
DODGE												
LD-1	30	3/32"	20	5/32"	40	3/32"	20	5/32"	90	3/8"	65	1/2"
LD-2	30	1/8"	20	1/4"	60	1/16"	40	1/8"	90	3/8"	65	1/2"
					*30	1/8"	*20	3/16"				
LD-3	30	1/8"	20	1/4"	90	1/8"	55	3/16"	95	1/4"	70	3/8"
					*80		*45					
DE SOTO												
All Models	95	1/8"	70	1/8"	90	1/8"	55	3/16"	—	1/4"	—	3/8"
					*60		*45					
CHRYSLER												
LC-1	50	5/16"	35	15/32"	120	3/32"	80	5/32"	70	5/16"	40	3/8"
					*70		*45					
LC-2, 3	50	5/16"	35	3/8"	120	3/32"	80	3/16"	70	3/32"	40	3/16"
					*70		*45					
LY-1	50	5/16"	50	3/8"	125	3/32"	75	3/16"	70	3/32"	40	3/16"

*Applies to early production power steering pumps with bolt-on pulleys.

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PLYMOUTH												
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6-Cyl. Eng.		3/32"		5/32"		3/32"		5/32"				
DODGE												
LD-1	30	3/32"	20	5/32"	40	3/32"	20	5/32"	90	3/8"	65	1/2"
LD-2	30	1/8"	20	1/4"	60	1/16"	40	1/8"	90	3/8"	65	1/2"
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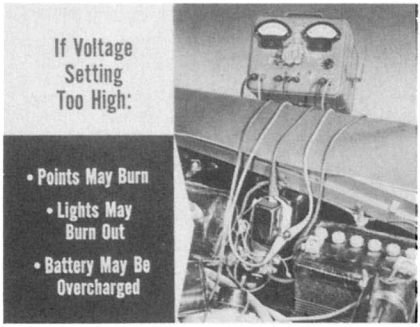
*Applies to early production power steering pumps with bolt-on pulleys.

Charging Circuit

Circuit Resistance Test. High resistance in the charging circuit acts on the regulator the same as a fully charged battery. This reduces the charging rate to the battery before it is fully charged. So, circuit resistance should be checked before testing the generator regulator. Procedure for resistance testing is given in the Service Reference Book for Session No. 127.

Generator Regulator Test. The next point to check is the generator regulator setting. So, hook up the tester and normalize the charging system. "Normalize" merely means to bring the generator, regulator and the entire charging circuit up to normal operating temperature. This is done by running the engine for about fifteen minutes at a speed that will keep generator output at ten amperes.

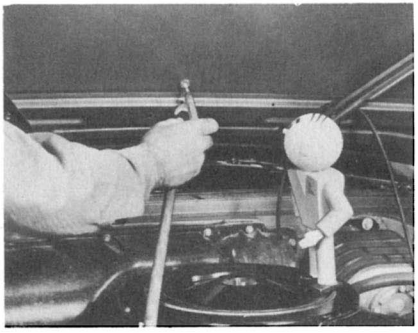
Voltage settings must follow the specifications. If the regulator is set too high, the entire electrical system will be affected. The ignition points may burn, lights may burn out, and the battery may become overcharged and require water too frequently. If the regulator setting is too low the battery will run down. In other words, proper generator regulator operation is necessary to keep the battery in a good state of charge.



NOTE: While the charging system is warming up, check the operation of the horns, lights, turn signals, door locks and handles. Any other accessories with which the car may be equipped, such as back-up lights, brake warning light, etc., can be checked during this warm-up period.

When the system is ready for testing, place a thermometer about two inches from the regulator to get the temperature reading, and then check the voltage specified for that temperature. This information is given in the Reference Book for Session No. 127.

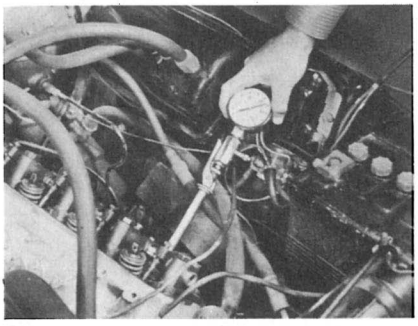
Turn on the windshield wipers—and the washers. It's a good idea to add solvent to the washer bag to help remove road film. And, if the jets are clogged, unhook the hose and use compressed air to blow the jets clean. Check the washer bag for leaks, while you're at it. As the windshield wipers work, see if they wipe as cleanly as they should. Perhaps a new set of blade rubber refills needs to be installed.



Check Compression

The next step in the general inspection is to remove the spark plugs. You'll want to check compression while the engine's still hot. Use a torque wrench to check tightness of the cylinder head bolts; *do not tighten* the head—just check to see it *is* tight.

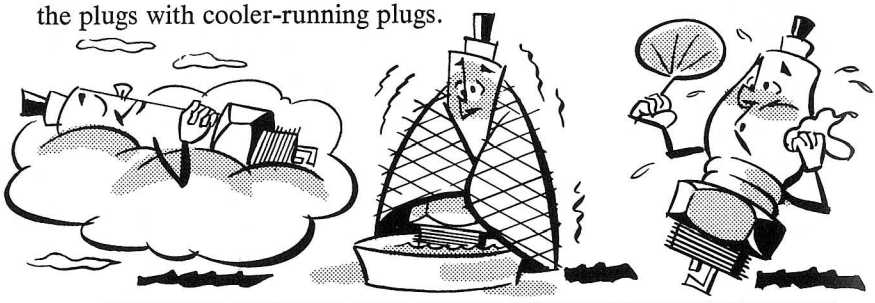
On a Plymouth and Dodge Red Ram V-8 engine, compression shouldn't vary more than 15 psi from one cylinder to another. On the "B" engine used for Plymouth Fury, Dodge Super Red Ram, and De Soto, compression shouldn't vary more than 25 psi. A variation of 20 psi is permitted in all Chrysler engines. On 6-cylinder jobs, compression shouldn't vary more than 10 psi.



Low readings on adjacent cylinders usually mean the head gasket's leaking. This, of course, would call for installing a new gasket.

Check Spark Plugs

Examine the spark plugs. If the tips have a dry, light coating of soot or flaky carbon, the plugs are right for the type of driving being done. But, if the tips have a light, chalky-white deposit and no hard carbon, along with porcelain blistering and severe erosion of the electrodes, the plugs are *too hot* for the driving being done. In this case, replace the plugs with cooler-running plugs.



NOTE: Plugs too cold for the type of owner operation will have heavy soot and carbon deposits on the base. They'll be oily-wet, and the carbon will be soft. Plugs like this should be replaced with a new set of a hotter type.

Now, if the spark plugs you remove are of the right type for the owner's particular operation, clean and inspect them. If there's no great erosion of the electrodes, file the center electrodes flat, and regap them to .035". Then, reinstall them *with new gaskets*, and tighten them 30 to 32 foot-pounds torque.

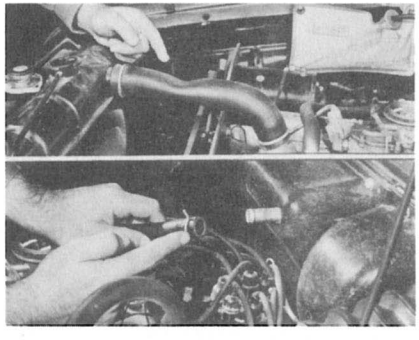
NOTE: New gaskets are necessary to provide the proper heat transfer from the spark plug to the head.

Cooling System

Another check to make while the engine's still fairly warm is one on the cooling system. Stop-and-go driving on a crowded highway can

really cause the engine to heat up if water circulation is restricted. So, make sure the hose connections and clamps are snug, and that there are no signs of leaks. Squeeze the hoses and see if they return to their original shape when released.

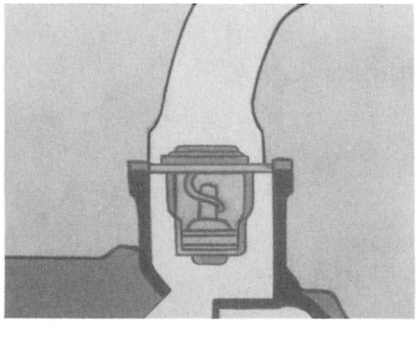
If the hoses don't return to their original shape, they're over the hill and should be replaced. Remove the heater hoses next, and check them for clogging and deterioration. While you're doing this, check operation of the heater water control valve. If this valve doesn't turn off completely, the front compartment will be too hot during hot weather.



Remove the thermostat, drain and flush the cooling system. Don't leave any winter-worn antifreeze in the radiator. The rust resistor loses its effectiveness after one season's use. Remember to drain the engine water jackets as well as the radiator. Following that, fill the system, and add an approved rust resistor.

NOTE: If the car is equipped with air conditioning, you'll have to add antifreeze, too, for year-round protection.

Incidentally, if the thermostat is stamped 180°, you needn't replace it for summer driving. A 180° thermostat will permit more efficient engine operation. However, it pays to use an accurate thermometer to check thermostat operation before you reinstall it in the system.



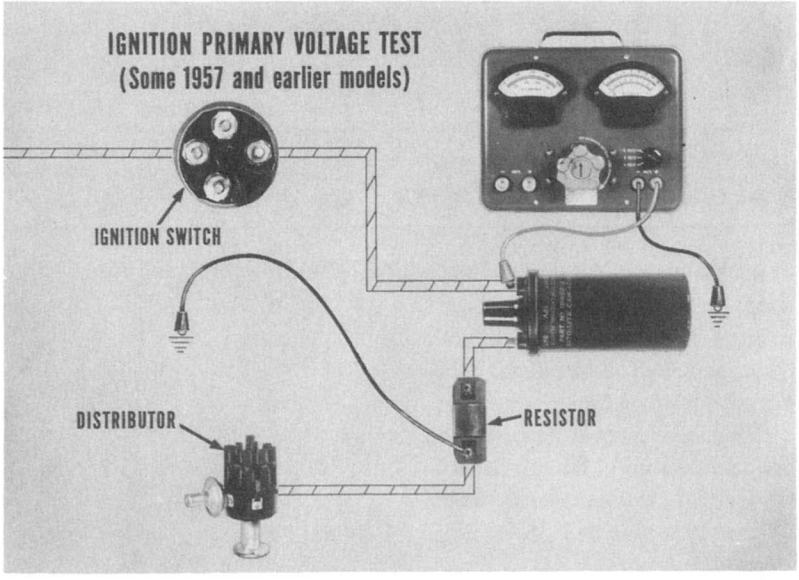
Check the pressure filler cap, also. It must work and seal properly. Finally, use an air hose behind the radiator core to clean off the bugs and foreign matter that may be on the front surface. There must be as much free circulation of air through the core as possible.

Check Ignition Primary Circuit

Up to now, you've checked everything electrical except the distributor. So, hook up the voltmeter and check ignition primary voltage while you crank the engine.

For this test, use an accurate voltmeter. Follow the instructions that apply to the instrument you're using. Set the voltmeter selector switch at its 16-volt position, and connect the negative lead to a good ground. Do not connect the voltmeter positive lead, however, until you locate the position of the ballast resistor.

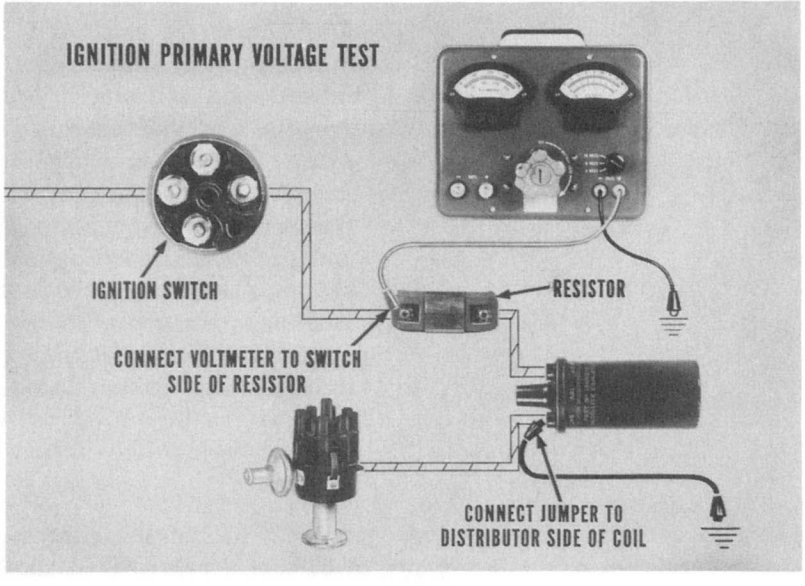
On some 1957 and earlier cars, the ballast resistor was placed between the distributor and the coil. On these cars, you must connect the jumper to the *distributor side* of the *resistor*. If you connected



the jumper to the coil side of the resistor, current would be too high. That's because the resistor wouldn't cut down the current, which would really "French-fry" the ignition wiring.

On all 1958 models the ballast resistor is between the ignition switch and coil. As a result, you must connect the positive voltmeter lead to the switch side of the resistor. If you connected the voltmeter to the coil side, the resistor would drop the voltage. That would give you a low-voltage reading that would be misleading. So, whenever the resistor lies between the switch and coil, put the positive lead on the switch side of the resistor.

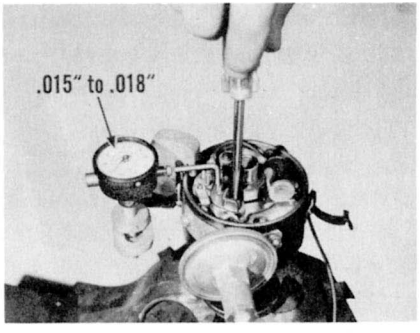
Next, connect a jumper on the distributor side of the coil to ground out the primary circuit. This keeps the engine from starting during this test. You could pull the high-tension lead from the distributor to keep the engine from starting, but you must ground it. High voltage in an ungrounded secondary circuit can damage the coil, or set off sparks that can cause a fire.

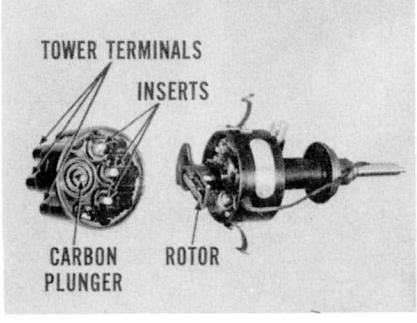


Just keep in mind that when the resistor is on the distributor side of the coil, you connect the voltmeter directly to the coil on the ignition switch side.

Now, once you've connected instruments properly, crank the engine about 15 seconds and watch the voltmeter. Cranking voltage should be 9.6 volts, and cranking speed should be good.

Take a look at the distributor points next. If they're pitted, pull the distributor so you can install a new set of points and a new condenser. Gap the points to whatever is specified for the model you're servicing. In all cases, be sure the points line up properly for even, full-surface contact. Put a drop of oil on the movable point pivot, work the point a few times, and wipe off the excess oil. Put a very light film of cam lubricant on the cam. Add a drop or two of light oil on the felt in the end of the shaft. Inspect the distributor cap tower terminals for corrosion and cracks. See that there's no burning at the terminal inserts, and that the carbon plunger is in good condition. Inspect the rotor, too, to see that it is okay. Test centrifugal and vacuum advance against specifications for this engine. If all these points pass inspection, reinstall it, and you're ready to check ignition timing.





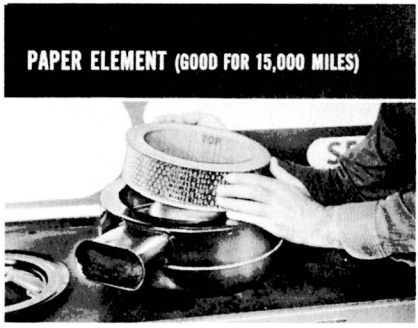
Check Ignition Timing

Hook up the tachometer. Then disconnect the vacuum line either at the carburetor or at the distributor, to be sure no vacuum advance

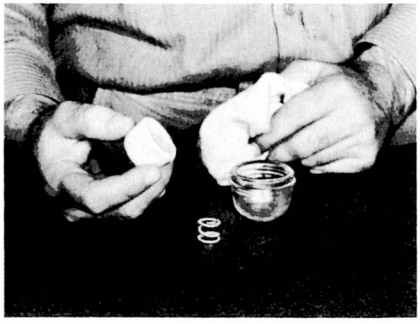
acts on timing while it's being checked. On "B" engines, with the distributor at the front, it is easier to disconnect the line at the distributor. Then, tape the end of the line to keep the engine from speeding up. On other engines it is easier to disconnect the line at the carburetor; in that case you'd tape the line fitting in the carburetor. Then, with a timing light, set timing according to specifications for the engine being checked.

Fuel System Points to Check

Air Cleaner. Remove the paper filter element from the housing and tap it squarely on the bench surface to remove all dirt it has collected. Do not use compressed air, kerosene, or oil on the paper element. Normally, it's good for 15,000 miles, but if the owner of the car you're checking is going to drive beyond this mileage on his trip, install a new element.



Fuel Filter. Remove the fuel filter element and examine it for clogging. If it has a rusty or dirty appearance, replace it; it cannot be satisfactorily cleaned. The important thing to keep in mind is that you don't want the owner to suffer any fuel restriction due to a clogged filter during his trip. In addition, be sure to clean out the bowl. If the filter did appear to be rusty or dirty, it would be wise to check and possibly replace the filter in the gas tank.



Exhaust Manifold Heat Control Valve. Main point here is to check

to see that the valve works freely. Rotate it clockwise (by hand) and release it. Apply a few drops of heat control valve solvent (Part No. 1879318) to the shaft to keep it free.

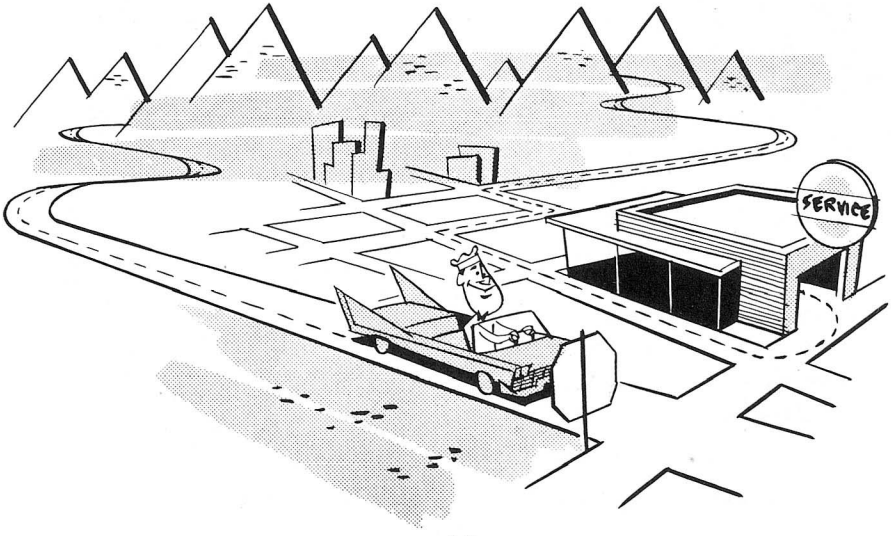
Fuel Pump, Fuel Lines. Hook up a tachometer and check fuel pump pressure to see if it's within five to seven pounds at five hundred r.p.m. Also, see if all fuel line connections are tight. There should be no signs of fuel leakage.

Adjust Carburetor. Start the engine and let it warm up so you can check and adjust carburetor mixture and idle speed settings. Set idle speed according to specifications for the model being worked on.

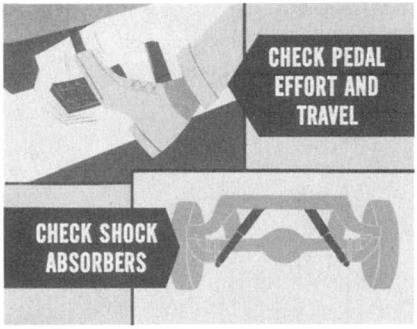
If the carburetor has an integral-type choke, remove the thermostatic coil housing. Clean it carefully and blow out the hot air tube.

Road-Test the Car

Brakes. Once you've got the engine purring properly, road-test the car. Pay particular attention to the operation of the brakes. Try them out at slow, medium, and high speeds. See if you get straight-line stops, a pull to one side, or if the brakes tend to fade.



Check pedal effort and travel. This check will tell you if the brake hydraulic system's working as it should. Besides that, check action of the shock absorbers.

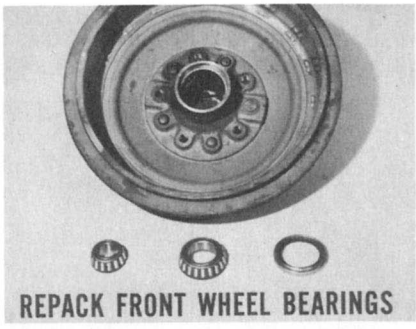


In addition, check operation of the automatic transmission. Get a good idea of the shift pattern, and the quality of shift. Do this by operating the car in the various push-button positions. And, note how the car steers —check for wandering, and for returnability. On your return, make any necessary brake or transmission adjustments to correct conditions uncovered by your road test. Add brake fluid, if needed.

If the car has power brakes, be sure you are getting the proper assist provided by the power cylinder. While you're checking brakes, test the holding ability of the parking brake when the car is parked on a slope. Adjust the parking brake shoes (or band) as needed. When properly adjusted, there should be from 1½″ to 2″ of brake lever rod travel.

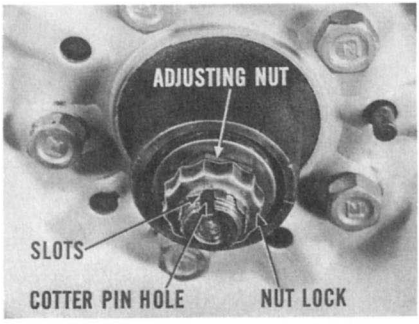
Linings. If the road test shows brake performance is erratic, it may be necessary to pull both front wheels to check brake linings and wheel cylinders, and to inspect the front wheel bearings. The con-

dition of the front brake linings generally tells you what the other linings are like. Also, you might spot a brake fluid or grease leak. If the linings are evenly worn and the drums are okay, wash out and inspect the wheel bearings. Worn, or improperly adjusted wheel bearings can affect brake action.


REPACK FRONT WHEEL BEARINGS

Wheel Bearings. Knowing the customer plans to make a fairly long trip, it's good practice to pull the seals and front wheel inner bearings so they can be repacked. Clean out the old lubricant and repack the bearings. Install new dust seals, and be sure the bearings are carefully adjusted.

Models before 1957 and some 1957 cars use a castellated nut held by a cotter pin. Late 1957 and 1958 models use a new type bearing nut lock and nut. When you install this latter type, tighten the adjusting nut to a torque of 90 inch-pounds while you rotate the wheel.



Position the nut lock over the adjusting nut so the spindle cotter pin hole lines up with one set of slots in the nut lock. Without removing the nut lock, back off the adjusting nut until the slots line up with the cotter pin hole. Install the cotter pin to secure the adjustment.

While the car's on the hoist, wipe off all lubrication fittings and give the car a thorough lubrication.

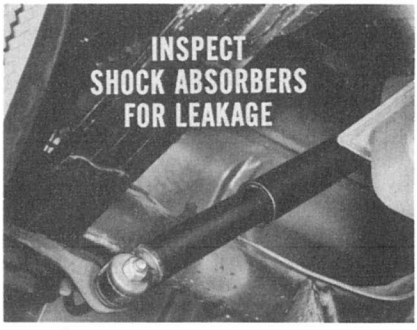
Be sure to lubricate the upper and lower steering knuckle ball joints. If the owner tells you he might be hauling a trailer on his trip, drain and refill the transmission. Ordinarily, you do this at 20,000 miles. But for cars in special service, such as police cars, taxicabs, and those that haul trailers, it's better to change at 10,000-mile intervals.

Drain, Refill Automatic Transmission at:

20,000 Miles-Regular Service
10,000 Miles-Special Service

Check lubricant level of the rear axle. If the rear axle lubricant has been used for 20,000 miles or more, replace it with new lubricant. If the car is equipped with a Sure-Grip differential, use only Sure-Grip lubricant. On cars of this mileage, too, the propeller shaft universal joints should be removed so you can clean and inspect the bearings, and repack them.

Here's something else: The owner's car might be in need of an engine oil change and a new engine oil filter. If so, take care of this along with the over-all lubrication services.



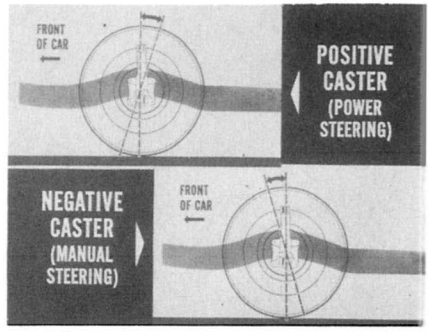
Inspection. While you're under the car, inspect the shock absorbers for fluid leakage. A slight amount of wetness is okay. But if it looks as though the shocks are leaking, it means that seals at the top and lower sections of the unit are worn, and the shock absorbers must be replaced. Badly leaking units cannot be repaired.

Be sure to inspect the brake lines and connections for leakage and signs of damage. At the same time, examine the exhaust system for leaks and loose muffler and tailpipe clamps and for contact with the frame or underbody panel. Loose bumper attaching bolts are also a cause of annoying noise. So check them, and tighten any that may require it. Ends of bumper bars, remember, shouldn't contact sides of the fenders or they'll cause a disturbance when the car travels over rough roads.

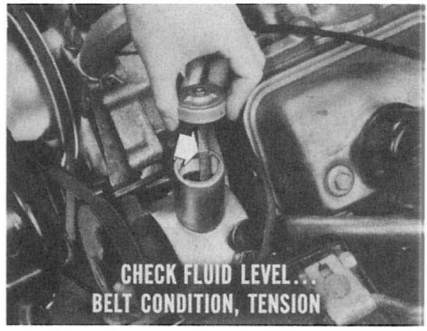
Tires. Any time a car is up on the lift is a good time to check tires for embedded nails, or other foreign objects. At the same time, inspect the tire wear pattern; it's a good clue to a need for front-end alignment. Before lowering the car, rotate the tires, check tire inflation and then check wheel balance. If you noticed any tendency of the car to wander while out on the road, it could have been due to low tire pressures.

Front Suspension Level. The first point to check at the front end is to be sure the car is level from side to side. If it isn't, you'll have to make the necessary correction before checking front-end alignment. A car that is not level will have a tendency to lead to one side.

Check Front-end Alignment. Next after suspension level comes the front alignment checks of caster, camber, and toe-in. Caster on power steering jobs should be *positive*. It improves returnability and directional stability. Manual steering cars should have *negative* caster to reduce steering effort during low speeds.

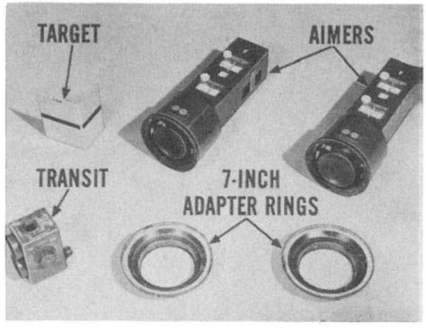


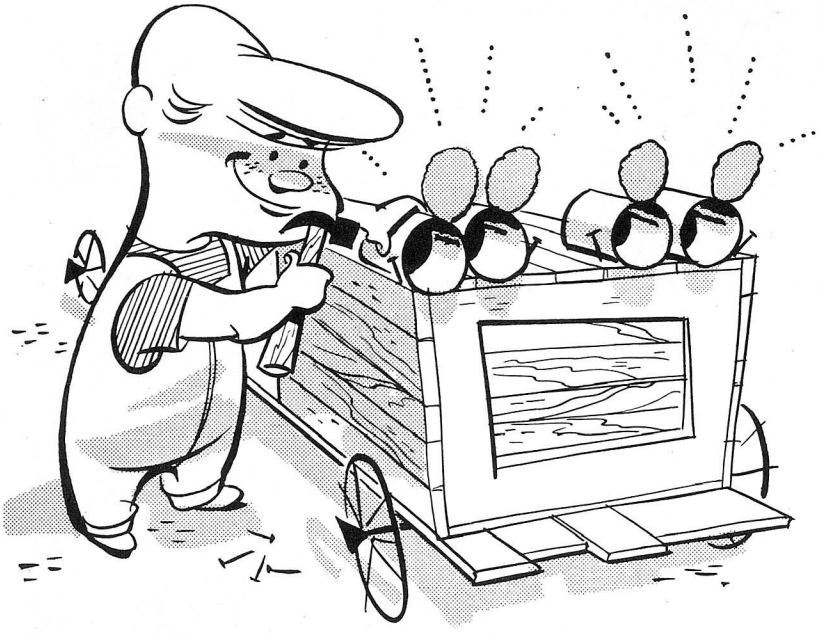
Power Steering. On cars equipped with power steering, check fluid level in the power steering pump. Add type "A" transmission fluid if the level is too low. Check the pump belt for fraying, oil and grease. Replace any belt that is not serviceable.



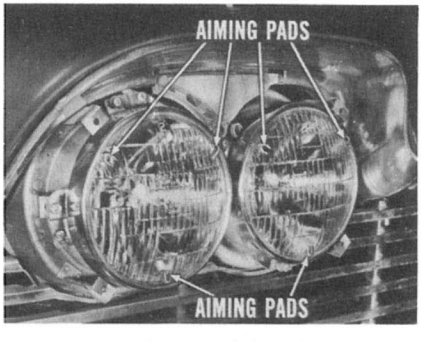
DUAL HEADLAMP AIMING

Any customer on a trip will probably travel over strange roads. He'll need to spot road signs and other objects, so accurate headlamp aiming is a must. On current models, this calls for using the new headlamp aimer set (No. C-3674). These are designed specifically for aiming dual headlamps. They're easy and quick to use, and assure maximum lighting.





Outboard lamps, known as type 2 lamps, have a numeral 2 molded into the lens at the top. Each outboard lamp has two filaments—one for low, the other for the upper beam. It's the low beam that you'll be aiming. The upper beam is an "off-focus" filament which provides body light for illuminating the side of the road, ditches, and signs, and sort of fills in the low beam.

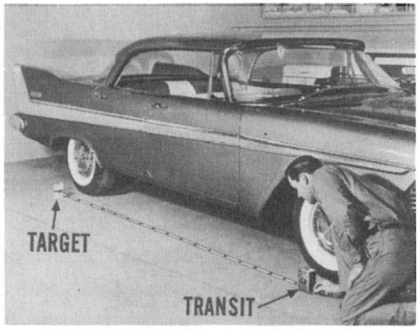


Inboard lamps, known as type 1 lamps, have a numeral "1" molded into the lens at the top. They have only one filament, and that for the upper beam. This is an "on-focus" filament which provides wide-angle light for road shoulders and turns. Some of its light is directed upward for seeing road signs and rising grades.

Each lamp has three aiming pads which establish the aiming plane when mechanical aimers are used. Filaments are located in relation to the aiming plane at the time of manufacture.

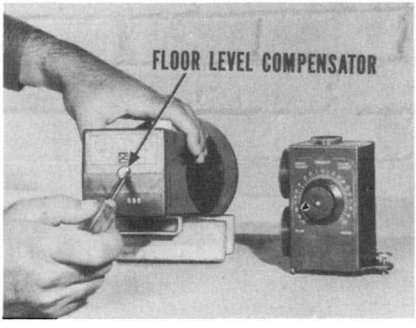
Procedure

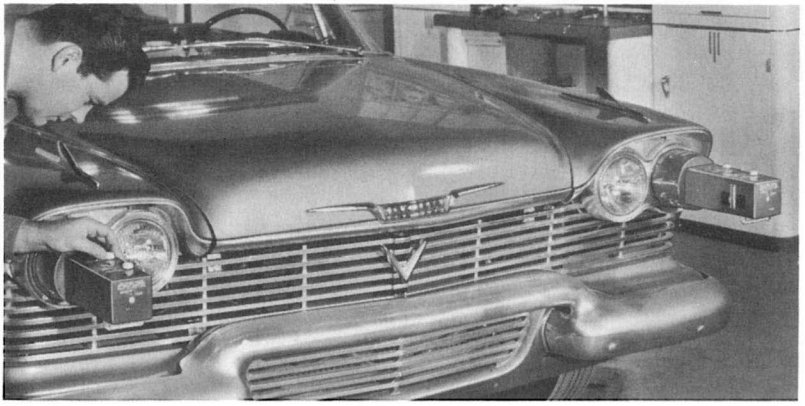
Park the car on a flat section of floor. Be sure tire pressures are even at all wheels, within 3 to 5 pounds. Rock the car sideways so springs and shock absorbers settle in their normal positions. If the gas tank's not full, put a 100-lb. weight in the luggage compartment. Locate this centrally. That, plus the driver is all the load you want. Place the target "TOP" up, on the floor at the rear wheel; place the transit at the front wheel, as shown, in line with the vertical centerline of the wheel.



Look down into the transit and move it about until the target is visible. Adjust the range screw until you line up the split image of the target into one unbroken line. Next, turn the dial on the side of the transit until you center the bubble in the level vial. Where the dial stops is your reading in degrees of slope of the floor. This is the figure you will put into the floor-level compensator of each mechanical aimer.

Use a screwdriver to set the floor-level compensator in each aimer. This will compensate for any variation in floor level.





Checking Headlamp Aim. If the headlamps are merely to be checked for aim, you don't have to remove the headlamp doors. Just clean the lenses and attach the aimers to both outboard lamps. See that the side sight openings on each aimer point toward each other, as shown. Turn the right-left aim knob until the split image is in alignment. If the *horizontal* check exceeds the values listed below (representing inches at 25 feet), you'll have to aim the lamps.

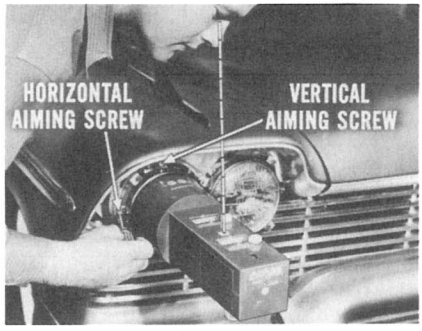
UNIT	RIGHT	LEFT
No. 1	4	4
No. 2	4	0

If your *vertical* check shows values that exceed those below, the lamps should be aimed.

UNIT	DOWN	UP
No. 1	½ to 3½	0
No. 2	½ to 3½	0

Aiming the Outboard Lamps. If your check shows the headlamps need aiming, remove the aimers. Remove the headlamp doors, and reattach the aimers to the outboard lamps. Sight through the viewing

port to align the split images. If they don't line up, turn headlamp horizontal adjusting screws counterclockwise until the image aligns into one unbroken line. Remove any backlash by turning the adjusting screw clockwise for a final adjustment. Repeat this adjustment on the other outboard lamp.



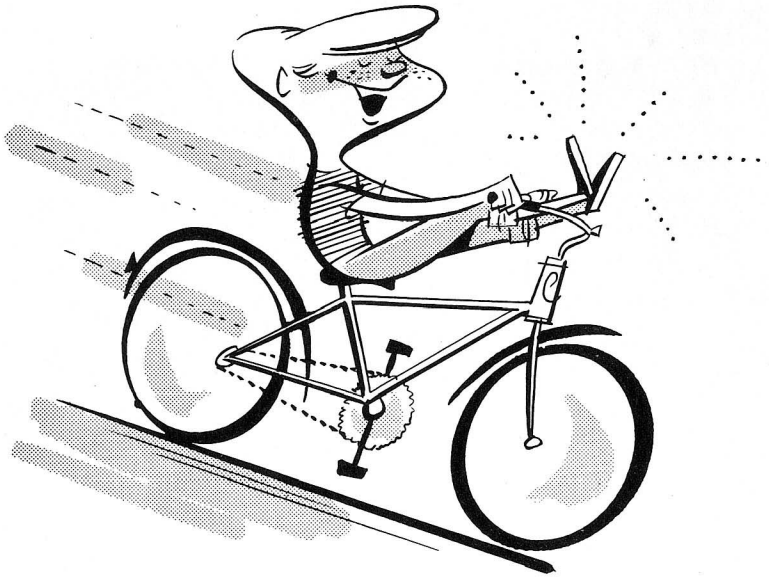
To aim the headlamps vertically, turn the vertical adjusting screw counterclockwise to bring the bubble on the spirit level to the car side of center. Then, turn the screw clockwise to center the bubble and eliminate backlash. Recheck each lamp. Readjust, if necessary, and remove the aimers.

Aiming the Inboard Lamps. Attach the aimers to the inboard lamps and aim them the same way you aimed the outboard lamps. After rechecking your adjustments, remove the aimers and reinstall the headlamp doors.

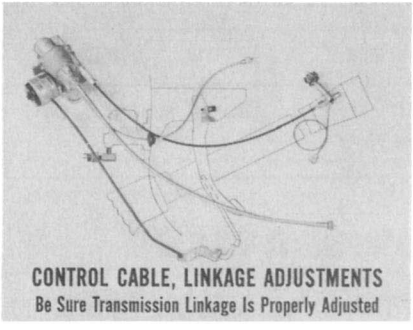
NOTE: You can convert the 5¾" aimer to aim 7" sealed-beam units by attaching the 7" adapter ring.

AUTO-PILOT SERVICE

If a Chrysler or Imperial comes in with an Auto-Pilot that needs attention, the trouble may be electrical or mechanical. With a test lamp connected between the connector terminals and ground, or the battery, you can quickly determine whether or not the fuse is burned out, there's a loose connector, a wire is broken, if there's a faulty switch, or control unit. Since control assemblies cannot be repaired, replace the faulty unit with a new one.



If your electrical checks show that the trouble is mechanical, you'll know that either a control cable or a throttle linkage adjustment is required. Before either of these can be made, however, the transmission throttle linkage must be properly adjusted. So first check the linkage to be sure it operates freely. Also, inspect the carburetor accelerator return spring. This spring, on Windsor models, is yellow. On Saratoga, New Yorker and Imperial models this spring is an aluminum color.

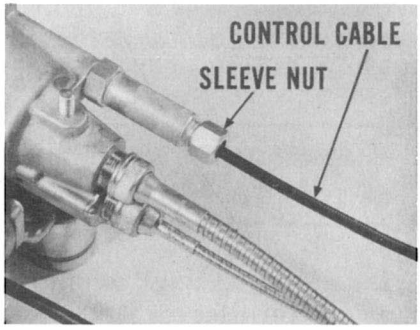


CONTROL CABLE, LINKAGE ADJUSTMENTS
Be Sure Transmission Linkage Is Properly Adjusted

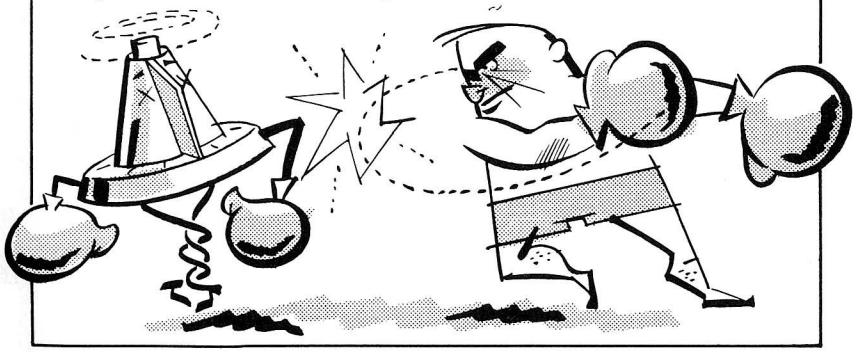
Selector Speed Setting (control cable adjustment)

You might find that the selector speed settings don't correspond to speedometer readings. In a case like this, the control bezel can be adjusted. Since Imperial and Chrysler models are adjusted differently, both procedures are given on the following pages.

Imperial. First find out if the control cable is adjusted to its minimum regulating speed. Turn the knob to the minimum setting. Hold the knob there against its stop while an assistant loosens the cable sleeve nut at the control unit. He should then push the control cable *lightly* all the way into the unit until it bottoms and then tighten the sleeve nut.



CAUTION: Do not apply too much force to the control cable or you'll cause the knob to spin.



Pry the push button off its shaft and remove the knob by loosening the set screw. Loosen the bezel retaining nut until the bezel can be turned by hand. Then, install the knob.

Drive the car at 40 miles per hour. Adjust the knob until you can feel reaction pressure in the accelerator pedal at 40 miles per hour. Adjust the bezel until the numeral 4 lines up with the knob pointer. Recheck settings next at 30 and at 50 miles per hour. Finally, remove the knob and tighten the bezel retaining nut. Reinstall the knob and tighten the set screw. Install the push button and recheck the unit.

Chrysler. Turn the selector knob to its minimum setting. When the stop is reached, hold the knob there while an assistant loosens the cable sleeve nut at the Auto-Pilot unit. He should push the cable *lightly* all the way into the unit until it bottoms, and tighten the nut.

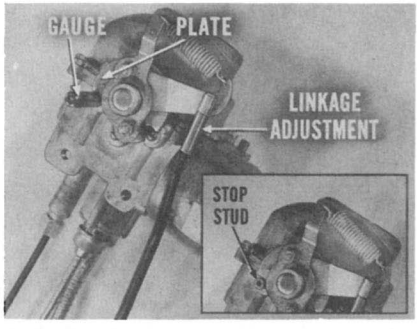
> **CAUTION:** Do not apply too much force to the cable or it will cause the knob to spin.

Loosen the set screw on the plastic collar containing calibration numerals. Drive the car at 40 miles per hour. Turn the knob until you feel reaction pressure in the accelerator pedal at 40 miles per hour. Rotate the collar on the knob to line up number 4 with the knob pointer. Tighten the collar set screw. Recheck settings at 30 and 50 miles per hour. Readjust, if necessary, and you're done.

If knob settings on either Imperial or Chrysler are still out of synchronization with the speedometer, check for control cable deflection below the control housing and Auto-Pilot unit. Recheck control cable tightness in the sleeve, and make sure the sleeve nut on the Auto-Pilot unit is tight.

Linkage Adjustment

First disconnect the Auto-Pilot link at the ball joint end in the Pilot unit. Start the engine and warm it up to operating temperature. Adjust the carburetor idle speed. Inspect the transmission throttle linkage to be sure there is no binding and that the throttle returns to normal idle. The choke must be open and the carburetor on slow idle.

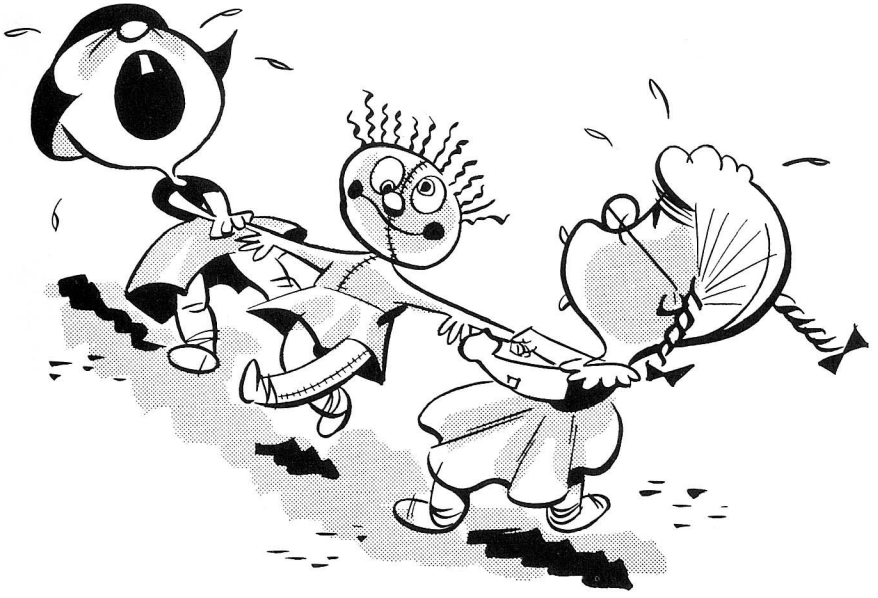


Insert a .060″ sleeve gauge, or .060″ feeler blades to maintain this clearance between the stop stud and lock plate. You can make this sleeve gauge from $\frac{5}{16}$″ I.D. tubing with a .060″ wall thickness. Hold the lock plate securely against the gauge and adjust the Auto-Pilot link ball joint so it will freely enter the hole in the lever.

Recheck the carburetor to be sure it is still on slow idle. Tighten the ball joint to the lever. Recheck Auto-Pilot linkage for binding or interference, and correct if necessary.

Auto-Pilot Won't Disengage

It should be necessary only to touch the brake pedal to actuate the brake mechanical cut-out switch. If pressure is required before the Auto-Pilot disengages, inspect and test for a faulty or improperly positioned brake switch. You'll find this switch on the brake pedal mounting bracket.

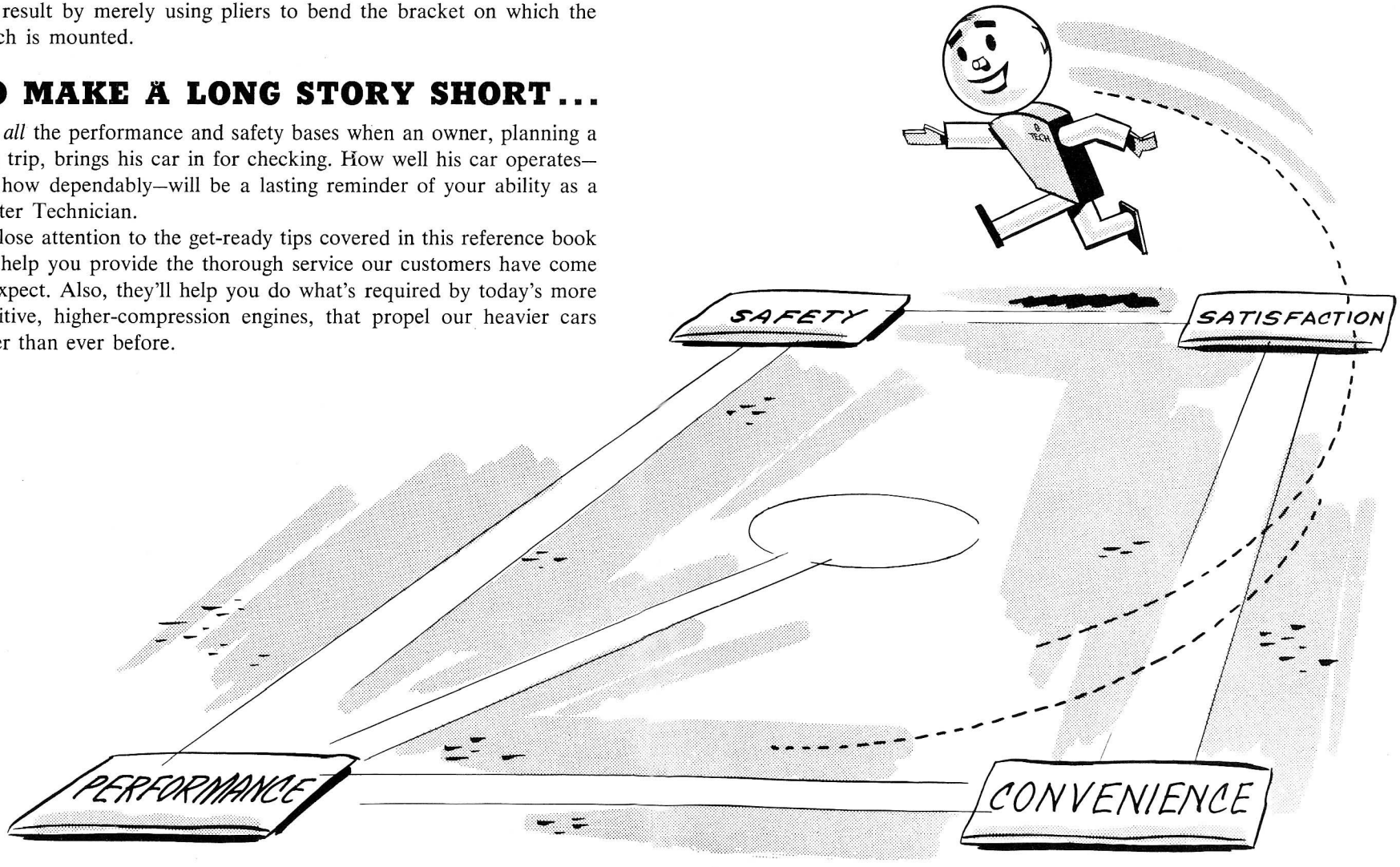


Normally, the switch points are closed when the brake pedal is released, but must be adjusted so that contacts will open on brake pedal movement within the free-play distance. You can adjust for this result by merely using pliers to bend the bracket on which the switch is mounted.

TO MAKE A LONG STORY SHORT...

Tag *all* the performance and safety bases when an owner, planning a long trip, brings his car in for checking. How well his car operates—and how dependably—will be a lasting reminder of your ability as a Master Technician.

Close attention to the get-ready tips covered in this reference book will help you provide the thorough service our customers have come to expect. Also, they'll help you do what's required by today's more sensitive, higher-compression engines, that propel our heavier cars faster than ever before.



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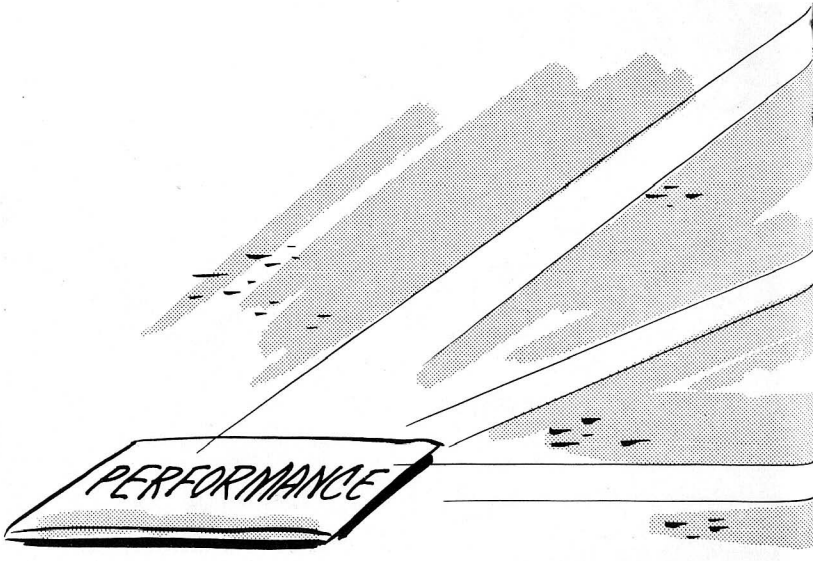

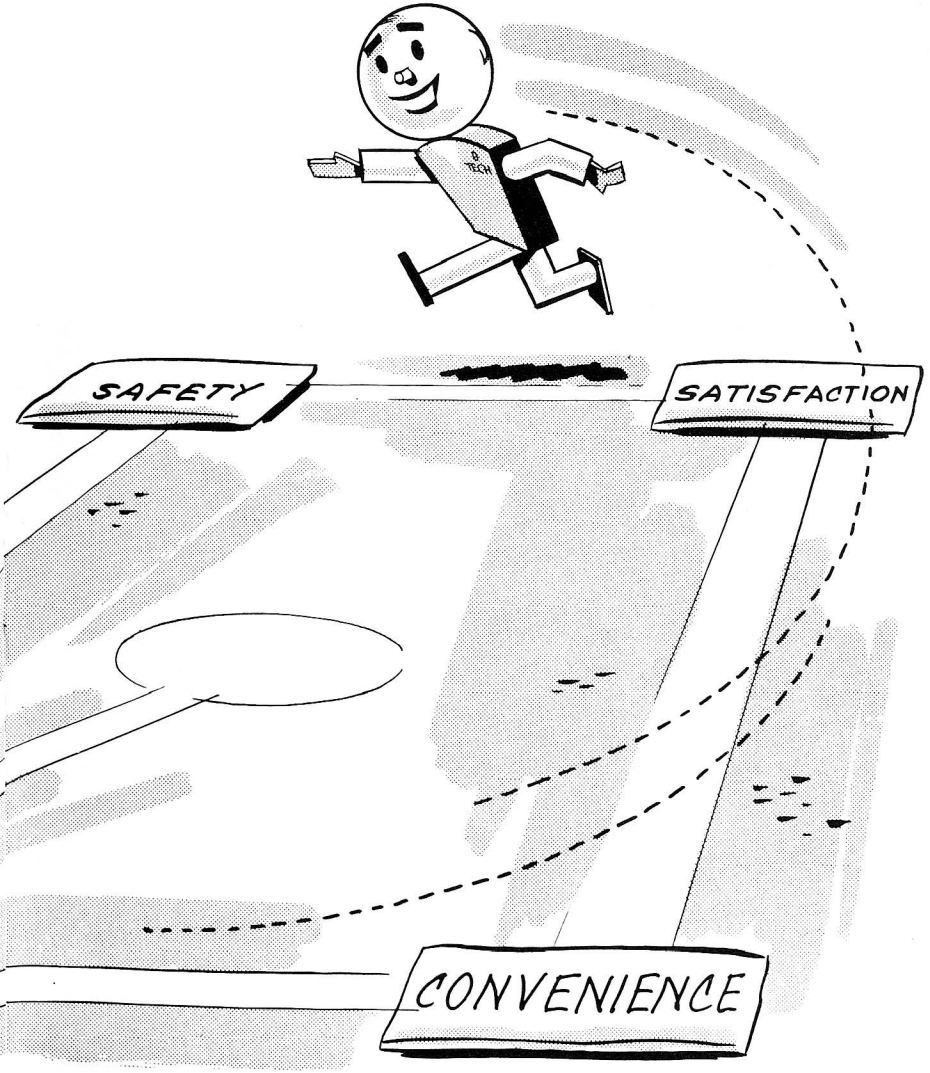
SAFETY
SATISFACTION
CONVENIENCE

RECORD YOUR ANSWERS TO THESE QUESTIONS ON QUESTIONNAIRE NO. 128

Proper operation of the regulator is necessary to keep the battery in a good state of charge and protect the entire electrical system. — RIGHT — 1 — WRONG

Always check cylinder compression when the engine is hot. — RIGHT — 2 — WRONG

Low compression readings on adjacent cylinders usually mean the head gasket is leaking. — RIGHT — 3 — WRONG

If the heater water control valve doesn't turn off completely, the car will be too hot for comfort during warm weather. — RIGHT — 4 — WRONG

Always replace a 180° thermostat with a 160° thermostat for summer operation. — RIGHT — 5 — WRONG

When a fuel filter element is too rusty or dirty, be sure to check the filter in the gas tank, too. — RIGHT — 6 — WRONG

Always install new seals when repacking front wheel bearings. — RIGHT — 7 — WRONG

For cars in special service, such as police cars, taxicabs, and those that haul trailers, change transmission fluid every 10,000 miles. — RIGHT — 8 — WRONG

Before checking front wheel alignment, check front suspension level and correct it if necessary. — RIGHT — 9 — WRONG

The new mechanical headlamp aimers must be used when aiming the dual headlamps to be sure the owner will have maximum lighting efficiency. — RIGHT — 10 — WRONG

Litho in U.S.A.