

rubber hammer and they go right on. This is the drivers side instrument panel.

Number 14

I now have installed the chrome on the glove box door but I have not installed the glove box lock yet or the clock. I am ready to flock the inside of the glove box door before I install it and before I install the clock.



number 15

This is what the flocking kit comes with. The only reason the wrench is under the adhesive can is just to hold the can up a little for the picture. The kit comes with adhesive in the color of the flock. You get a pound of flock with the kit and unless you're doing the trunk it is plenty and if you are going to do a trunk then you should get a flocking gun to do that.



The yellow tubes are what blows the flock on to the parts. Just a quick little air pump and you really don't need to get the flocking gun out just to do that little glove box door. You could even pour the flock on the wet glue if you wanted to but this is more consistent.

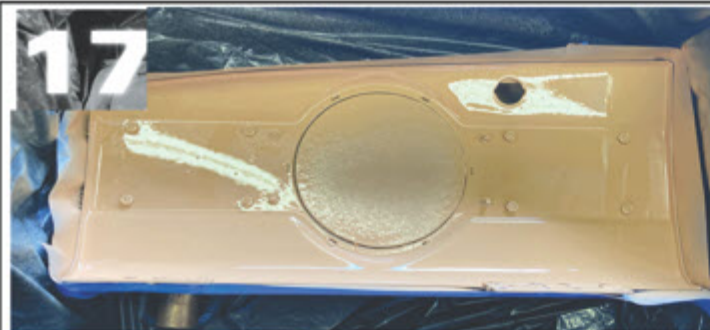


Number 16

This is what a flocking gun looks like. My Buddy Armand loaned the gun to me and when I do the trunk this is what I will be using to do that.

number 17

The flocking kit comes with the flock and a glue that is color keyed to the color of the flock. The directions say that you can brush it on or you



can spray it on. I thinned it out according to instructions and sprayed the glue on to the door (on the inside) and masked the sides so that it did not get on the wood graining.

Number 18

This is what the door looks like once you have the flocking on the door. It has set for a day to dry and the excess has been blown off. The flock is nice and soft and does not come off when you run your hand over it.



Number 19

I now have the glove box door wood grained, all the chrome installed, and the glove box door is flocked. It is ready to install. I need to make a new glove box (I have all the Packard glovebox patterns) and get that

installed before I install the door. I need to install some more items under the dash such as the heater defroster vents, cowl vent handle, firewall panel and a few other things. Not having to deal with the door makes it easier to work in and around the areas under the dash.

Number 20

This is what the dash looks like now that all the chrome and door are in place. I have to install the lock and the clock but that will be later.



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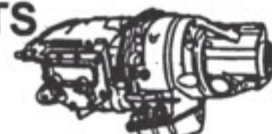
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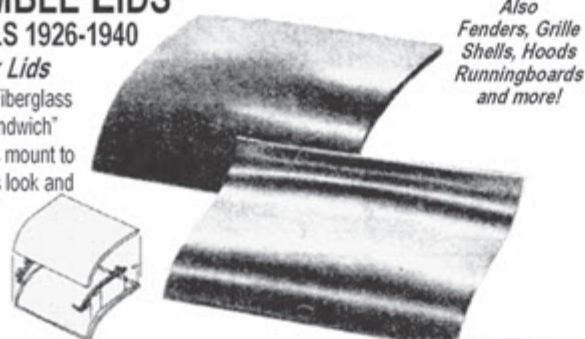
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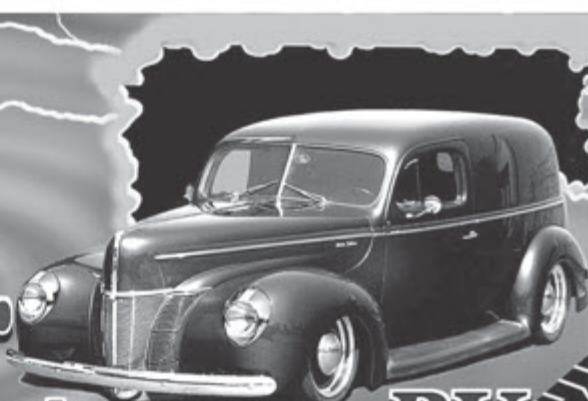
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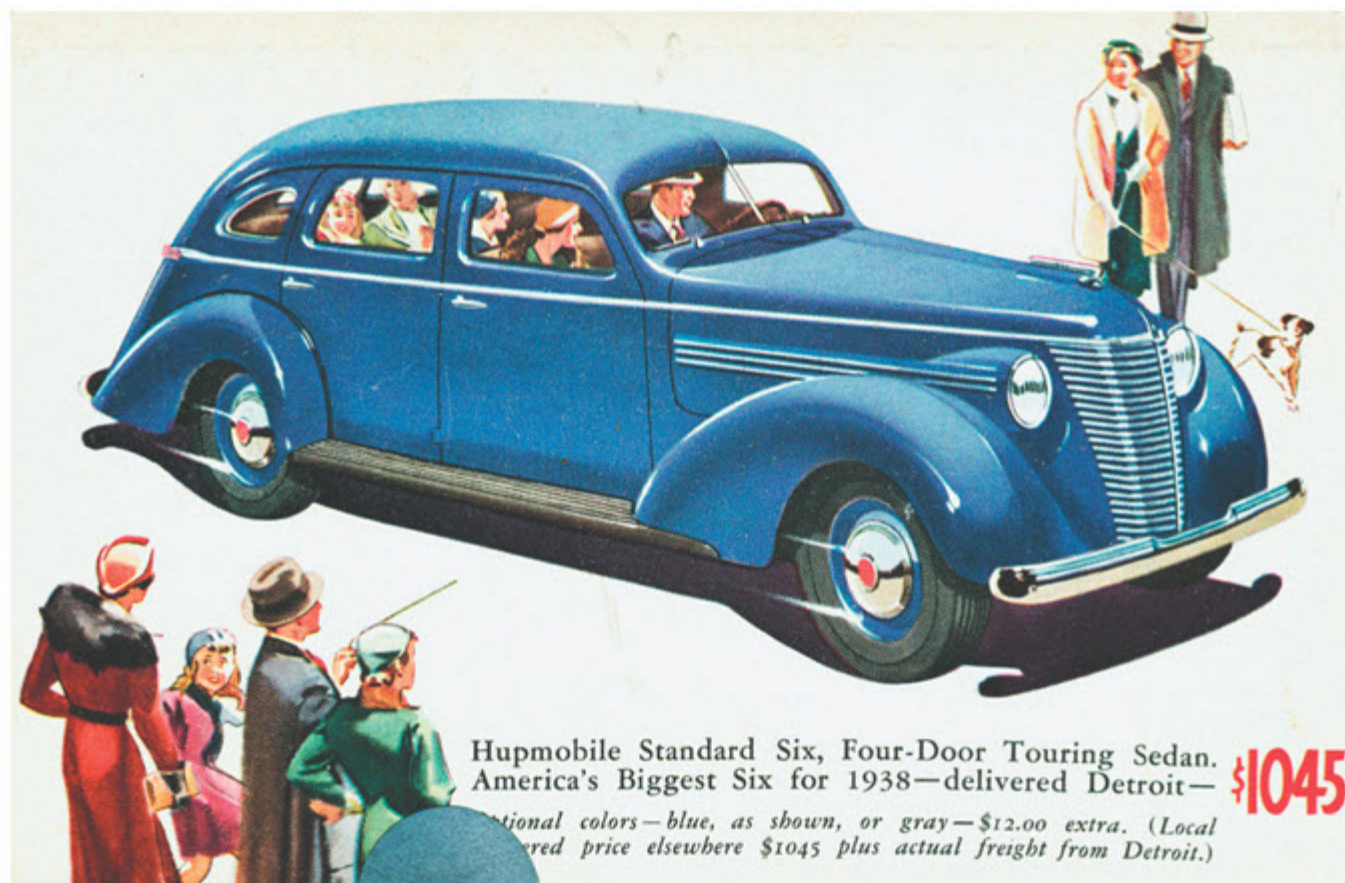
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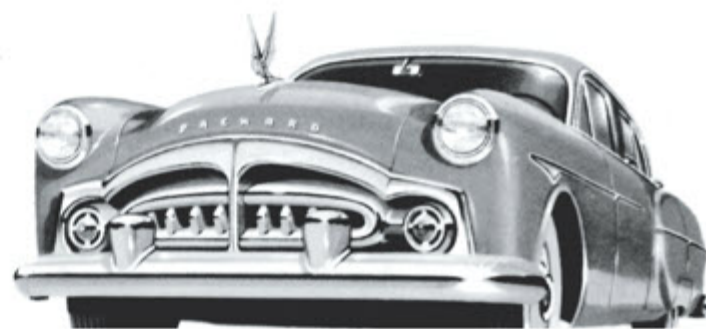


A is for Appearance

Important because a car's *beauty* is your first source of *pride of ownership* . . . and can also be important *protection for your investment*.

Moral: Look for *distinctive styling* that will *stay in style*!

Individuality is the first point-of-difference between Packard and today's "look-alikes." Packard identity—known throughout the world as the trademark of precision-built quality—is shared with no other car.

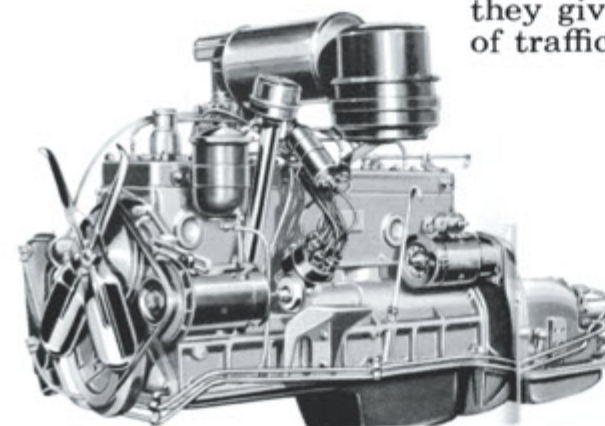


B is for Behavior

Important because *performance, handling, and roadability* are the sources of a motor car's *personality*. And *personality* makes the difference between a good companion and "just plain transportation."

Look for 4 important qualities in a power plant: (1) Silent *smoothness*, at *all* speeds, for restful riding. (2) Abundant *reserve* power, for safety. (3) Simplified design, for lastingly trouble-free performance. (4) Amazing gasoline economy.

On all these fundamental points, Packard Thunderbolt engines qualify as the greatest achievement of America's Master Motor Builders. Teamed with 1951 Packard Ultramatic Drive, they give you America's most advanced brand of traffic-and-highway performance.



The goal of all steering-gear designers is to combine finger-tip *lightness* (for city traffic) with waver-proof *sureness* (for the open road). Packard engineers have accomplished this in their new Load-ease steering design.



Advanced roadability, like advanced steering, calls for a *double* achievement: Gentle *smoothness* (for relaxing comfort) and husky *firmness* (for constant safety under all road conditions). Packard meets this double requirement with a suspension system all its own—a *self-controlling, Broad-beam* suspension system that compensates automatically for changes in load and road, and cushions the ride up and down, side to side, front to rear.

C is for Comfort

Important, not only because of your personal liking for luxury but, because the advanced comfort features of a car are usually clues to its safety.



The famed Packard "Limousine Ride" (with all its advancements in safer roadability) combines with new Hush-toned soundproofing to make traffic tension a thing of the past.



The Packard automatic, all-season heating and ventilating system treats you to automatically-controlled temperature—and keeps you alert, because you enjoy a silent change of clear, fresh air once every minute . . . even with the windows closed and the car standing still. What's more—the fresh-air heating, and new Clear-across defroster, are your assurance of perfect visibility in wet and wintry weather.



Controls were never more convenient—and never safer—then they are in a Packard. 1951 Packard Ultramatic Drive is the last word in safer, simplified, automatic motoring. Other typical conveniences: the new Tele-glance instrument panel . . . new Safeti-set hand brake.

D is for Durability

Important because longer *total* life also means longer *new-car* life . . . lower operating and upkeep expense . . . higher re-sale value.

Take this "long-range" view: While visiting a Packard showroom step into the service department and study the *underside* of a Packard. You'll get an idea of how thoroughly Packard carries out its ideals of husky construction and precision workmanship.



Special alloys and advanced metallurgical methods, play a big part in Packard's amazing durability. Take the engine, for example. In high speed, 25,000-mile durability runs, cylinder wear is less than the thickness of this sheet of paper. Countless Packards have rolled up individual records of over 400,000 miles of faithful service.

Armor-rib body construction is a worthy match for Packard's husky chassis construction. The solid thud you hear, when you close a Packard door, is quick evidence of this body's immunity to twists, rattles, and outside noise.



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OLD CAR MATCH GAME *(Answers on Page 1)*

MODEL NAMES (MID-1930'S-1946)

A

- ☐ A. ROADMASTER 8
- ☐ B. LA SALLE
- ☐ C. FLEETLINE
- ☐ D. AIRFLOW
- ☐ E. COMMODORE EIGHT
- ☐ F. AMBASSADOR 8
- ☐ G. CUSTOM SUPER 8 CLIPPER
- ☐ H. ROAD KING SIX

B

- 1. BUICK
- 2. CHRYSLER/ DE SOTO
- 3. HUDSON
- 4. MADE BY CADILLAC
- 5. PACKARD
- 6. CORD
- 7. CHEVROLET
- 8. NASH
- 9. STUDEBAKER
- 10. PLYMOUTH (1938-1940)



DRIVING OLD CARS



Borg-Warner's R-9 OVERDRIVE: Troubleshooting

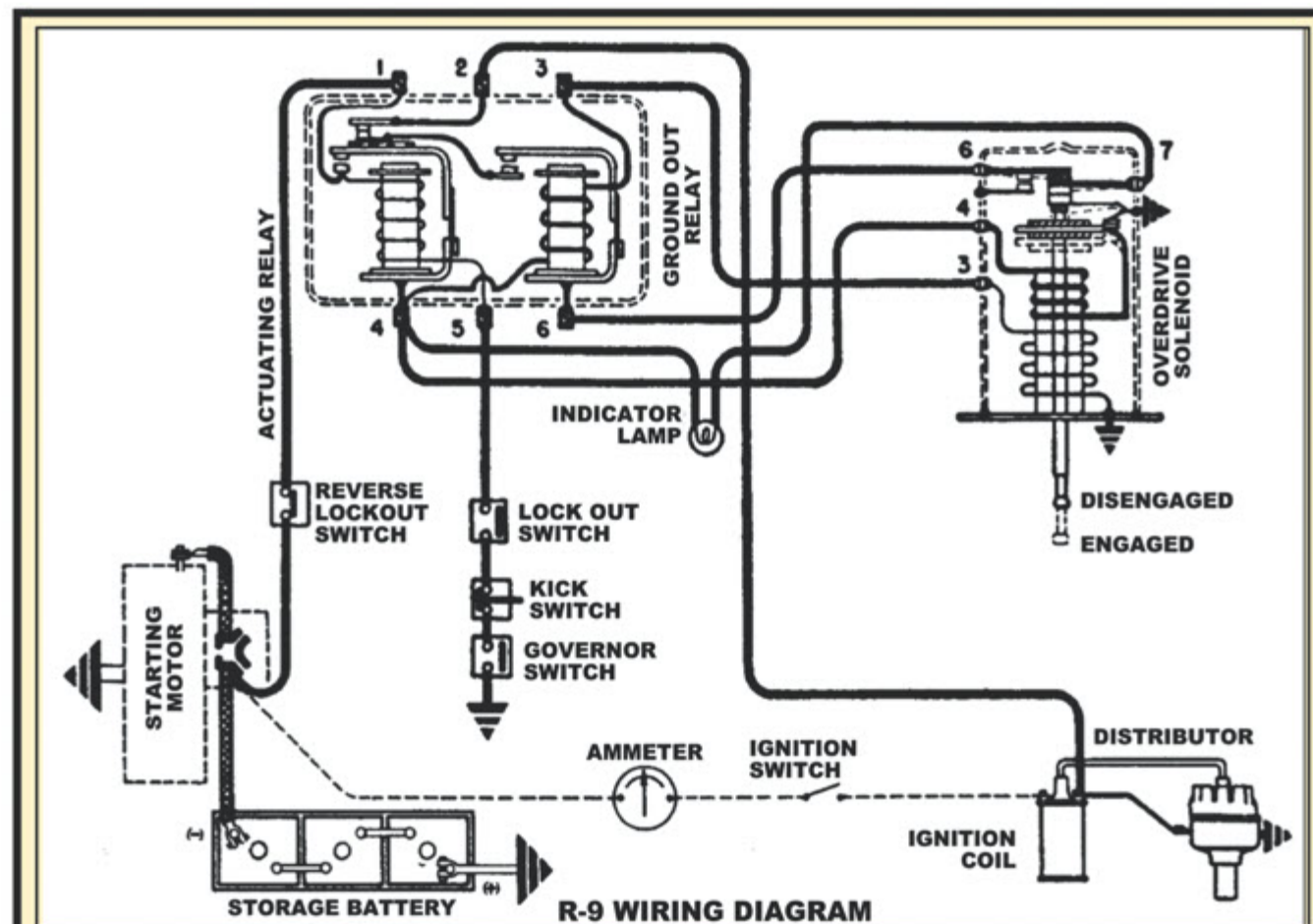
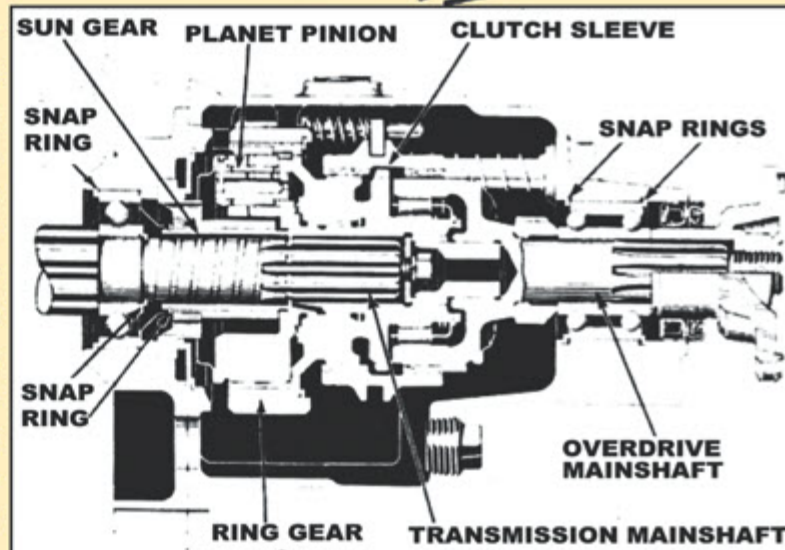
by *Bin Johnson* Publisher

Overdrives became popular in the late 1930's as roads improved, allowing greater travel distances and higher speeds in motor cars. They reduced engine RPM's by over 30%, resulting in longer engine life and better gas mileage. Packard introduced theirs in 1939 as Econo-Drive. It was mounted at the rear of the transmission, and was controlled by a manual control knob at the bottom of the dash that was pushed in to engage and pulled out to disengage. This manual knob activated a series of electrical relays that made the unit work. **HOW TO ENGAGE ECONO-DRIVE:** With the car running and the gears being shifted in the normal way, when approximately 22 mph is reached, a green light to the right of the speedometer will come on. The Econo-Drive may now be engaged by momentarily lifting the foot from the accelerator, then returning it. Econo-Drive will now be engaged, and it will stay engaged as long as the car's speed is maintained above approximately 17 mph.

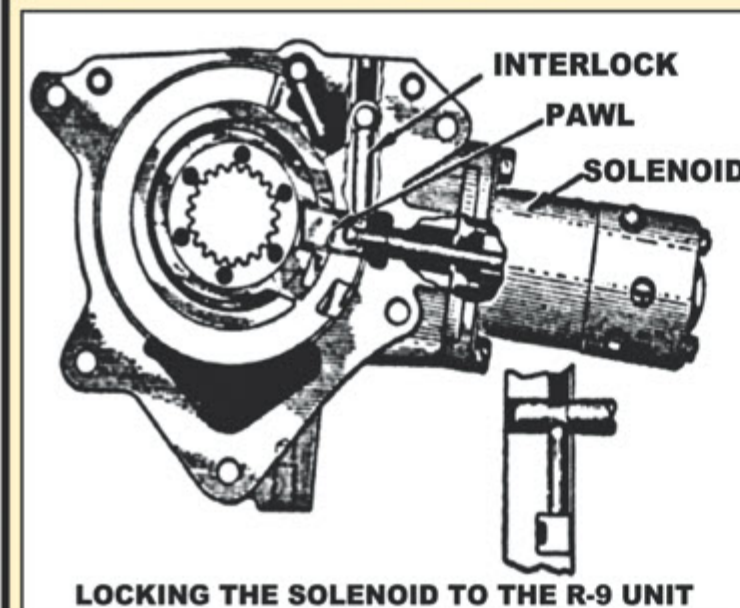
To shift back into conventional high gear, push the accelerator down hard. To return to Econo-Drive, lift your foot momentarily and Econo-Drive will automatically come back in.

TO LOCK OUT THE SYSTEM: With the car in motion at a speed less than 5 mph, depress the clutch and pull out the dash lockout knob.

We have a 1946 Packard Custom Super 8 with R-9. The unit has never worked. We have only driven the car in town, so it hasn't been a problem. Were



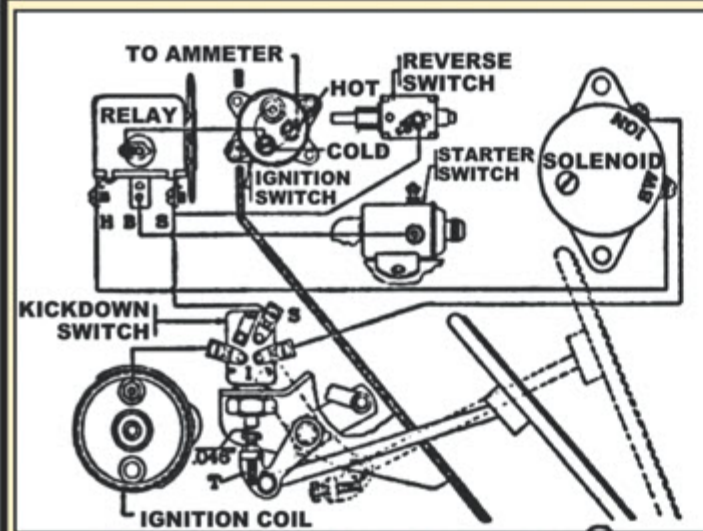
worked. We have only driven the car in town, so it hasn't been a problem. Were now planning to do more open-road motoring, and want the benefit of the lower RPMs on our 356 cid straight 8. We have a '48 with the R-11, and when its on the open road and the overdrive is engaged, its like a fourth gear and the engine seems to loaf as it quietly takes us down the highway.



LOCKING THE SOLENOID TO THE R-9 UNIT

Before starting repairs on our '46, we located our motors manuals and newsletters and set up our team, then we were ready to start. After studying the manual and before testing, we made sure it was getting current through the system, starting at the source—the 30-amp fuse at the starter (It's hot all of the time). Since the unit had been inoperable for years, every contact was cleaned. The fuse was removed and tested and the wire contact ends to it cleaned. Each wire was checked for oxidation and

CONTINUED



OVERDRIVE CONTROL CIRCUIT

TO TEST: With the solenoid off the car, take a 6-volt battery and connect a pigtail to the battery's positive terminal, and then to the case of the solenoid (rubber gloves are recommended). Then take a pigtail from the negative battery terminal to #3 terminal on the solenoid (the numbers are stamped on the solenoid). The plunger will start popping in and out. Then take a pigtail from the negative battery terminal to #4 terminal on the solenoid. This will stop the plunger in the out position. Our solenoid didn't work (the plunger wouldn't move). We called our buddy David Moe, owner of Packard Seattle Company (425-334-7754), to rebuild it. He had a rebuilt one on the shelf and we had it in a week. When it was hooked up and tested, this time it worked.

While we had been waiting for the solenoid, we tested the governor. We removed the cover, cleaned the contacts, then hooked it up to a drill to make sure the sling weights came out. As they spin, they cause a micro switch to close and complete the circuit. The purpose of the governor is to provide a ground for the system. Ours worked fine.

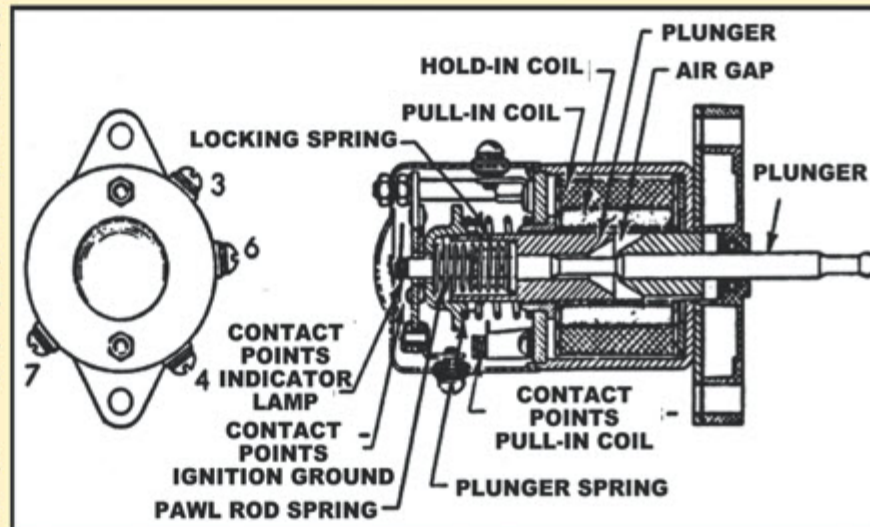
INSTALLING THE SOLENOID:

With everything working, it was now time to install the solenoid. This must

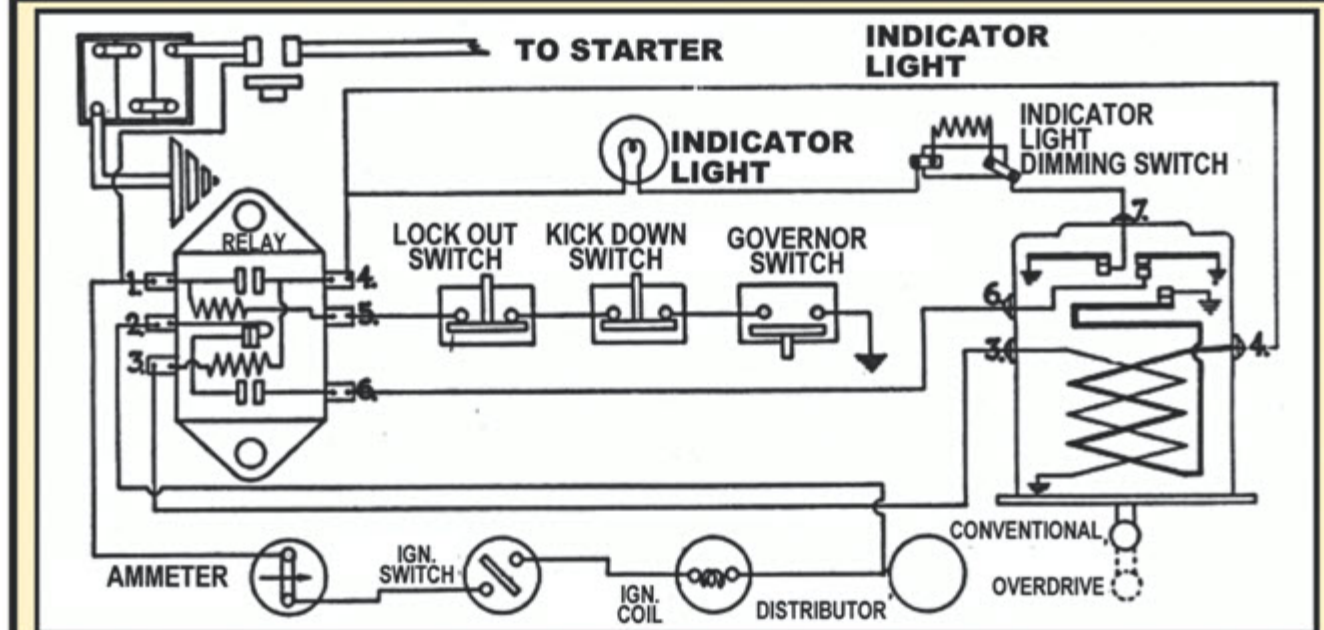
*Continuity is checked with a volt meter set to "ohms" (20) and one lead put on one end of wire being tested and the other lead on the other end of the wire being tested. If the circuit is good, the reading will be "000"

continuity.* This is a positive ground system, so we followed the ground circuit through the switches to the governor then tested for continuity to the solenoid (see wiring diagram for components).

With current going to all components in the circuit, it was time to test the solenoid and governor. We called on our Packard buddy Ron Carpenter to help go beyond the manual for the solenoid testing. The goal is to get the plunger to kick in and out, which activates the overdrive.



SOLENOID



R-9 SCHEMATIC

be done with the overdrive cable in and the solenoid energized. It has an aluminum adapter plate with an off-set hole that only fits one way. Once you have it in position, mark the plate and unit with a Sharpie, then energize the solenoid to kick out the plunger. To energize (with the solenoid wires hooked up) first ground the governor by running a pigtail from the one terminal on the governor (the one coming from the harness) then run the other end of the pigtail to the transmission. Then ground the solenoid by running a pigtail from the body of the solenoid to the transmission. This will kick out and hold the plunger. With the plunger out, push it into the hole in the overdrive with the adapter plate in the correct position, and tilt the plunger toward the front of the car, then pull and tilt back to lock it in place. This locks the plunger to the pawl. Then bolt up. It seals with an O-ring. The adapter plate has paper gaskets on each side.

While it was still on the rack, it was a good time to check the transmission, overdrive and rear end. They all use 90-weight mineral oil, although in some climates, 140 mineral oil can be used in the overdrive and transmission. Now, with everything buttoned up, it was time for the long-anticipated test drive. I got in and went through the gears. Right around 22 mph, the green light in the speedometer came on. I lifted my foot from the accelerator, then returned it, and we could feel it go into overdrive. The engine became quieter, the car was quieter, and we could feel the reserved torque and horsepower as the old Packard glided down the road. Its obvious why overdrives were so popular well into the '50's. Our '46 is now ready for some touring.

The following charts describe the Conditions that might be found in the R-9, Possible Causes for those conditions, and Corrections that can be made to eliminate the problems. I hope this information helps keep your overdrive operating as it should. Overdrives really let the engine relax, allowing the car to smoothly travel down the road without strain.

See "Troubleshooting Charts" Page 86-87

R-9 Transmission Troubleshooting Chart (Continued from Pages 82-85)

CONDITION	POSSIBLE CAUSE	CORRECTION
1. Transmission buzz or rattle (A buzz or rattle on acceleration at approximately 20 to 30 mph is generally known as transmission 'jazz' or clutch 'jazz'.)	This condition is caused by a natural engine period that causes the transmission and overdrive gears to rattle in their clearances. It is more noticeable on overdrive-equipped cars because there are more gears and shafts to rattle in their clearances. On overdrive cars, it comes in a slightly lower speed because of the slower rear axle ratio. There are three causes that may exaggerate and aggravate this condition. a. Transmission & overdrive oil too light b. Clutch driven plate grease-soaked c. Low friction lag clutch driven plate on an overdrive-equipped car	a. Change transmission & overdrive oil to correct grade. b. Check the clutch driven plate and replace it with a new one if it is found to be grease-soaked. c. If rattle is still objectionable, install a new "high friction lag" clutch disc, which will help minimize rattle. It must be remembered that in some cases the rattle cannot entirely be eliminated.
2. Failure of overdrive to engage (electrical causes)	a. Burned out fuse in overdrive main feed circuits b. Faulty governor. May be indicated by the indicator lamp not lighting c. Faulty overdrive relay. May be indicated by no operation in the overdrive electrical circuit, after the fuse and the governor check okay. d. Faulty solenoid may be indicated by the indicator lamp lighting and no operation of the solenoid.	a. Remove fuse and examine. Install new fuse of correct capacity if needed. b. Test the governor. Install new governor if needed. c. Install new overdrive relay d. Test solenoid circuits with test lamp. Install new solenoid if needed.
3. Failure of overdrive to engage (mechanical causes)	a. Failure to engage after indicator lamp lights may indicate a sticking engaging pawl. b. Solenoid plunger sticking. This condition may be caused by the solenoid spacer being installed in the wrong position, which would cause a bind on the solenoid plunger. c. Faulty balk ring on the stationary gear plate. This is generally indicated by spasmodic engagement of the overdrive and very harsh engagement at times.	a. Remove solenoid, check pawl for free movement. If pawl is sticking, overdrive must be disassembled and pawl freed up. b. Remove solenoid and check position of spacer. Note that the plunger hole is not in line with the bolt holes. Install spacer in correct position. c. Disassemble the overdrive, check drag of balk ring on the stationary gear plate. Install a new balk ring if drag is too slight.
4. Failure to disengage	a. Faulty governor b. Sticking engaging pawl c. Failure to disengage on the "kick down" is generally caused by faulty kick down switch. d. "Ground out" lead disconnected at the distributor or coil. e. Overdrive relay faulty. Ground-out unit not operating.	a. Test the governor. Install new governor if needed. b. Remove solenoid. Check for free movement of pawl. Disassemble overdrive if necessary to free up pawl. c. Test kick down switch with test lamp. Install new kick down switch if needed d. Connect "ground out" lead at distributor or coil primary terminal. e. Check operation of relay with test lamp. Install new relay if needed.

CONDITION	POSSIBLE CAUSE	CORRECTION
5. Overdrive engages as soon as the gearshift lever is placed in low gear (on 19th and 20th Series cars equipped with overdrive and Electromatic Clutch)	a. The most likely cause is a burned out fuse in the Electromatic main feed cable. This would permit a current reversal through the governor "AD" terminal, which would cause the overdrive solenoid to become energized when the gearshift lever is placed in low gear position. b. A disconnect or broken Electromatic clutch main feed cable would cause the same condition as a burned out fuse.	a. Remove Electromatic clutch fuse and examine. Install new fuse if needed b. Check Electromatic clutch wiring and make necessary repairs to wiring or replace faulty wires.
6. Failure to lock out the overdrive	a. Lock-out cable disconnected or out of adjustment. b. Failure to lock out the electrical units after the overdrive is mechanically locked out is generally caused by a shorted lock-out switch.	a. Check overdrive lock-out cable and adjust properly. b. Install a new lock-out switch.
7. Failure to lock out overdrive when shifting lever is placed in reverse gear position.	a. Overdrive lock-out collar sticking, which may be caused by congealed lubricant in cold weather. b. Burred or work splines on the over-running clutch cam, tail shaft or lock-out collar will prevent free movement of the lock-out collar.	a. Drain transmission and overdrive. Refill with new lubricant of correct grade. b. To check for this, pull out control knob on instrument panel. Usually this will shift lock-out collar to the lock-out position. To check further, control cable can be disconnected at lock-out lever on overdrive case. Operating lever by hand, it is possible to feel whether the lock-out collar is sliding freely and traveling full distance. If lock-out collar cannot be shifted easily, disassemble overdrive and replace any worn or burred parts.
8. "Lock-Up" in reverse gear (overdrive equipped Clippers). This condition in the overdrive unit, after the transmission has been shifted into reverse gear and power applied, is usually caused by a faulty condition in the overdrive electrical system. However, this condition may also be caused by faulty operation of the mechanical parts or in the units of the overdrive.	a. Contact points of governor closed or sticking. b. Lock-out switch grounded. c. Kick down switch grounded. d. Overdrive relay contacts closed or sticking. Relay terminals grounded. e. Overdrive electrical wiring grounded. If the electrical system is in normal operating condition, the lockup may be caused by any of the following mechanical conditions. f. Stationary gear plate engaging pawl sticking.	a. Test governor. Install new governor if needed. b. Test for grounds with test lamp. Install new switch if needed. c. Test kick down switch for being grounded. Install new switch if needed. d. Test relay. Inspect relay terminals for being grounded. Install new relay if needed. e. Test wiring for grounds with test lamp. Repair or replace faulty wiring. A reverse lockout switch, available for service under part #394484 may be used for all Clipper models. It is suggested that this switch be installed when a car is serviced for the lockup condition, to prevent recurrence of the same trouble. f. Remove solenoid attaching bolts. Check engaging pawl for free movement. If pawl is sticking, disassemble overdrive and correct sticking condition.

CONTINUED

CONDITION	POSSIBLE CAUSE	CORRECTION
	g. If overdrive solenoid has been removed, possibly solenoid spacer was installed in wrong position, causing a bind on solenoid plunger. h. Broken engaging pawl i. Engaging pawl disconnected from solenoid plunger	g. Remove solenoid, check position of spacer. Note: plunger hole is out of line with bolt holes. Install spacer in correct position, install solenoid. h. Remove solenoid, check engaging pawl. If pawl is broken, disassemble overdrive and install new pawl. i. Remove solenoid, check for pawl being disconnected from plunger. Install solenoid, making sure knob on end of plunger is engaged in slot of pawl.
9. Transmission and overdrive oil leaks	a. Worn or faulty overdrive tail shaft oil seal. b. Worn or faulty transmission main driving shaft extension oil seal c. Oil leaks around clutch shaft rear bearing retainer cap screws.	a. Install new tail shaft oil seal b. Install new extension oil seal c. Remove transmission, install new copper gaskets under heads of clutch shaft rear bearing retainer cap screws.
10. Locking or sticking in gear	a. Transmission lubricant too heavy, gets so congealed in cold weather that great pressure is required to shift into gear or into neutral. b. Burred or battered teeth on low and reverse sliding gear making shifting difficult, due to drag of battered teeth. c. Worn gear shifting linkage, permits lever to drop back into neutral while gears are still meshed.	a. Drain transmission, refill with proper grade lubricant for winter driving. b. Leave shifting lever in neutral, then, underneath car, disconnect low and reverse shifting rod, move low and reverse shifting lever on transmission cover in and out of gear. If there is excessive drag with the proper lubricant, transmission should be removed, disassembled and gears inspected. Replace any worn or damaged parts. c. Recondition linkage in the following procedure: 1. Check movement of levers at transmission cover. If holes in levers are worn, install new levers. Be sure to tighten pinch bolts in levers. If shifting rod ends are worn, install new shifting rods. 2. Check idler levers for wear in bushings and in pin holes in ends of levers. Install new levers, pins & clevises if needed. 3. Inspect steering column selector levers for wear. Install new selector levers if needed. 4. Accurately align shifting levers and
11. Gearshift Lever Rattle	a. Worn gearshift linkage b. Pivots of the idler levers lubricated. Friction washers are used on the pivot bearings to provide a dampening effect. Lubrication will reduce the dampening effect and permit free movement of the shifting lever, and a possible rattle. c. Worn or faulty selector rod bumpers will permit the selector rod itself to rattle.	a. Recondition the gearshift linkage. Replace any worn or faulty parts. b. Wash off the idler lever pivots with clean, unleaded gasoline. Install new friction washers. c. Disassemble steering column gear shift shaft and housing. Install new selector rod bumpers.
12. Locking or Sticking in gear. Transmission may be forced into two gears at the same time.	a. A transmission that will lock or stick in gear, due to worn gearshift linkage and levers, and permit the driver to force his way into two gears at the same time, is usually accompanied by a loose or worn interlock block on the transmission cover.	a. Remove the transmission cover, inspect the detent and interlock grooves on the shifter forks. Inspect the interlock block for wear or looseness. Install all necessary new parts. In the event of any complaints that might arise from a transmission that has been subjected to hard usage or abuse, it is recommended that a complete new transmission cover assembly be installed, if the shifter forks and interlock blocks are worn.
See you next month. Keep 'em driving! 🚗		

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