

HAS YOUR CAR A GROWLY REAR AXLE?

Expert Explains How to Locate and Remedy This Annoying Trouble.

By H. CLIFFORD BROKAW.

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Have you a dog concealed somewhere about the rear axle of your car? That is, something which growls? Some cars go along without a bit of unwanted noise, while others have a distinct hum, or a growl, or even, at high speed, a decided scream. Which is yours?

You don't think you have anything of the kind? Ask your neighbor, for sometimes persons on the sidewalk will hear it even if the driver does not suspect it. Recently a driver asked me to locate a grind in his clutch. It was noticed that at certain speeds there was a sound as if there were a dry or worn out bearing, and it caused a vibration throughout the car. An inspection of the clutch, however, failed to disclose trouble there, so I had one rear wheel laced up and got under the car to hunt for the source of the noise. Immediately it was made plain that it did not come from the clutch, but from the rear axle assembly.

Believing from the sound that the driving gears inside the differential were meshed too deep, I suggested that they be adjusted; adjustment in this case was made easily from the outside. A slight change eased the noise, and after a few trials an adjustment was secured which entirely eliminated the grind. This was in one place, but really was far removed, the vibration being transmitted by the torque tube.

When a growl is discovered in the rear axle it does not necessarily indicate that the gears are not meshing properly. It might mean a lack of lubrication, which must be determined by inspection. The manufacturers exercise great pains to mesh the gears so that they run true and mesh properly, so that they operate silently, and it may be assumed that what a car is delivered the adjustment has been made to the most silent position. It will stay right unless the adjustment works loose or the bearings or gears become worn.

On each side of the differential (master gear) there is a thrust bearing which takes the side thrust caused by the generation of the gears. The bearings run on a shaft and allow the gears to go deeper in mesh and make a humming sound, which is noticeable only when going around a corner, being generally silent at other times. This is because in turning the wheel slides the axle in for the amount of the play, meshing the gears deeper.

Wear in the thrust bearings on each side of the master gear causes another trouble which makes a "disturber" rather than a hum or growl when the wear becomes excessive. Then it allows the master gear to move away from the pinion far enough to slip teeth. There will be unevenness of action in this case. If the gears were permanently out of mesh the car would stop; but the motion of the car would slide the axle in and out so that the gears would mesh a time and then slip, with resultant dash and noise. The same result would come from uneven wear of the teeth.

It should be remembered that where there are gears usually there is wear.

Tisdale Is "Air Cooled" 3,000 Feet Up.



GLENN A. TISDALE.

Glenn A. Tisdale, president of the Franklin Motor Car Company of New York and the New York Rotary Club, thinks the H. H. Franklin method of air cooling a passenger gets in an airplane. Tisdale flew from New York to Rye the other day to join his brother-in-law at an outing, but hereafter he will stick to the ground and travel either by train or automobile in getting about the country. He says he believes in air cooled motors, but that air cooled engines under the bridges are different and not conducive to regular heart action.

Tisdale gave the members of the Rotary Club a big surprise when he occasionally a set will be made just right toughness and hardness, and will last for the life of the car. Others are too hard; they get a little out of adjustment they will chip off, the chips working among the teeth, breaking off a tooth or chewing up a number, with consequent noisy action. Where one tooth is broken there is a decided knock. If the gears are too soft they wear rapidly and gradually come to a knife edge. There is then danger of breaking off under a little extra strain, climbing a steep hill, or when the clutch is let in with a jerk.

This latter condition may be determined by jacking up one rear wheel and putting the gears in mesh, and then rocking the wheel back and forth to see of there is excessive play. In doing this it is necessary to see what play there is from other causes, such as universal joint play or from loose key in rear axle; the remainder of the play is in the differential. It should not be more than two inches of motion of the outside of the tire.

Some time ago I discovered another cause of rear axle noise which was difficult to locate, where the key holding the wheel to the axle had become loose and had rocked the keyway out of shape. Another case in the floating type rear axle, connected to the hub by flutings which matched projections on the flange, was a click which defied detection by the eye or ear, though loud enough to be annoying. Fingers searching for a loose part detected a very slight motion, and then it was found that flutings and projections had worn enough to permit



Tisdale Plane Making Landing.

arrived at Rye Beach just thirty minutes after he left Eightieth street and the North River. He flew over a course that took him around the Battery and up the East River, and travelled at much better than a mile a minute clip. "Talk about air cooling," said Tisdale; "the first place I felt it was in my feet when the driver of this flying machine fussed around in the river for an hour before he could get into the air. The engine wasn't acting just right, and it didn't help the temperature of my feet any to hear the driver and his mechanic arguing about what ought to be done to make the thing fly. It seemed to me that if there was any question in their minds about the way the flying should be done and after getting up several hundred feet they should change their minds again and be wrong. I was very likely to retire from the automobile business rather suddenly and have to leave everything to my son without being able to tell him how to run it, which I knew would be fatal.

"The trouble about air cooling in an airplane is that it hits you in all parts of the body. After we got into the air and the boys seemed to have decided definitely on how to fly the machine and my feet had got warm again, I stuck my arm out over the side and nearly lost it. Why, it was numb and cold for ten minutes after the wind hit it. The very next instant I got cold chills up and down my spine when I saw the driver nonchalantly take his hands off the wheel, fumble around for a map and then spread it out and study it. Say, man, the first time you are up you want them to keep their hands on the wheel all the time.

"And then when we began to come down my forehead felt rather clammy. I wondered how big the splash was going to be and whether after all my son would be able to continue the business satisfactorily without any last instructions from me. Down we swooped with amazing speed and just before we hit I had decided that Glenn would make good with the business, and then quickly prepared myself for the crash. But there wasn't any crash. I didn't know we had touched the water until the machine began to throw the spray. As we taxied toward the beach I pulled off my helmet and looked at the driver. He was grinning.

"Were you cold?" he asked. "A trifle here and there," I replied, without telling him that my feet gave me the most trouble." B. S. H.

There is unusually high road clearance. The foregoing are the principal features in which the post-war models differ from those previously built by Renault. The completed cars already received have bodies designed and built in Renault's own body plant and also bodies by Felber of Paris. Included in the shipments are bare chassis. The complete line of Renault post-war models will be exhibited at the automobile salon in November.

NEW RENAULTS ARE HERE.

There has been intense rivalry for some time among foreign motor car manufacturers, and more particularly among their representatives in this country, to reach the lucrative American market first with new post-war models. The race has been won by the Renault of France, whose American branch at 719 Fifth Avenue, New York, has received two shipments of complete cars within the past ten days direct from the factory at Billancourt, Seine, France. The continuity of these shipments is assured and new Renault models are offered for delivery after October 1.

New features as found in the Renault post-war models which have just arrived here are as follows: A silent, single unit S. E. V. starting system attached to the crank shaft at the front of the motor, making the starting dynamo extremely accessible; Monobloc type motors in the 12 to 13 horse-power and 15 to 20 horse-power models. All motors have a three point suspension attached to the chassis frame instead of the former method of attaching motors to a sub-frame, and a new automatic carburetor with the flange attached direct on the cylinder casting.

'SEXTET' IS NEW NATIONAL MODEL

Remarkable Car Is Presented to New Yorkers by the Poertner Company.

A new model of remarkable beauty of line and ability in performance, christened the National Sextet, is announced by the Poertner Motor Car Company and is being progressively introduced to the public in various parts of the United States as rapidly as demonstrators can be manufactured.

The new car is a six of 130 inch wheel base and an improved overhead valve engine that has been in process of development for the last two years. In point of appearance, comfort, power and refinement it establishes a new level of automobile achievement. Though the bore and stroke of the engine are only 3 1/4 and 5 1/4 inches, yet it develops 71 horse-power at 2,600 r. p. m., showing the remarkable gain of 67.8 per cent. over the previous six built by the National company of the same size.

Reasons for this remarkable increase, aside from the improved design, are found in extremely fine and close workmanship and a new oiling system that reduces friction losses to a minimum, forcing oil to every vital working part under pressure, including the overhead valve rocker arms, in a manner comparable to the circulatory system of the human body.

For starting in extreme cold weather the carburetor, a Rayfield, is provided with an auxiliary electric heating device that warms the initial charge of fuel to a point of ready vaporization before passing it to the carburetor.

Moreover, the engine has been designed especially for burning low grade fuels, the intake manifold being contained in its entirety within the detachable cylinder head, where it is surrounded by heat and provided in addition with an exhaust superheated hot spot at its point of entrance. As a result low grade fuels perform with the snap and pop of high test gasoline.

In appearance the engine is unusually prepossessing, the left side being absolutely blank, with all the operating accessories grouped on the right, where they are illuminated for inspection at night by a motor light set in the reverse side of the dash.

The chassis is as advanced in design as the engine, being especially noteworthy for its automatic lubricating provisions. Wherever possible grease cups have been replaced by oilless bushings, eliminating a fertile source of squeaks and rattles. The rear axle is also new, embodying a one piece pressed steel housing of unusual strength and light weight.

A neat refinement in the chassis is found in an apron over the gas tank at the rear that conceals this unsightly object, with its usual covering of grease, dust, and grime. Built into the tank is a one and a half gallon emergency reservoir that is controlled by a small valve on the front of the rear seat. With this device it is impossible to run out of gasoline on the road.

The lines of the new National sextet are refreshingly new and advanced, promising to individually shape every body style. They incorporate the latest ideas of European coach builders as gathered by Col. William Guy Wall, chief engineer of the National company, during his recent sojourn abroad.

The conception departs entirely from the level edge type so much in evidence of late, and presents a character and individuality all its own, from the distinctive design of the radiator to the sharply defined contour of the rear seat. A striking feature of the body, and one that contributes materially to its distinctive character, is the shape and contour of the front fenders, which are of the individual type, closely hugging the wheel and independent of the running board.

A new and advanced method of body mounting is employed that permits lowering the bodies several inches, materially adding to their firmness of line and giving exceptional strength and solidity, eliminating squeaks and rattles. Many refinements are incorporated, from the individually shaped front lamps, with integral auxiliary lamps underneath for city driving, to the Yale locked double tire carrier at the rear.

The front compartment reflects the glint of polished walnut and aluminum, with a hooded ventilator on top of the compartment with a stream of fresh air. Control levers are unusually long and situated so they can be manipulated without shifting the driver's position.

The panelling of the rear compartment is finished in walnut, with three small lockers suitable for carrying gloves, veils, goggles and other articles of value. The auxiliary seats disappear into recesses at the bottom of the panelling.

All doors are provided with capacious pockets for the storage of blue books, clothes brushes or other articles of touring use, with the exception of the left front door, which contains a built-in and fitted tool compartment.

Standard equipment for the car includes many unusual items, such as a motorometer, windshield cleaner, Hartford shock absorbers both front and rear, power driven tire pump, transmission theft lock, large size electric horn, Warner seventy mile an hour speedometer, car man top lined inside, with glass rear window, cord tires, and a screw jack of new and improved type.

Only the seven passenger model is now in quantity production, but the car will soon be available in five custom body styles—seven passenger touring, four passenger phaeton, two passenger roadster, four passenger coupe and seven passenger sedan.

Carrying Capacity and Power. While carrying capacity usually goes with strength, it does not necessarily mean power. A truck may be able to support a heavy load and yet lack power to pull that load under some conditions. Load conditions and grades must be considered in the selection of the truck. Buyers ought also to know more than they do about gear ratios in relation to the power needed under the conditions that obtain in their service. A truck might do very well on the flat streets of Chicago and get fat on the steep grades of San Francisco. And yet a change of gear ratio would fit the truck for either city.

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The Lonesome Game

ALL Summer both of us played the lonesome game. We simply stayed at home. But when the crisp days of Fall came, we made up our minds to buy the Sedan. The lure of the road and the tang of harvest days turned the rick. Schoonmaker & Jacod sold us this car. We asked all sorts of questions, but they answered them frankly and quickly. They gave us additional facts, points that we should never have thought about. They told us why they purchase only cars of the better types and how thoroughly their Service Engineers overhaul every car. Result? We bought the Sedan and here's what we got: Real companionship, all accompanied by the restfulness and solid comfort that come to the man and wife who own their own car.

No Lonesome Days With Any One of These Cars

- Cadillac Type 57 Victoria
- Cadillac Type 57 Sedan
- Cadillac Type 57 Touring
- Cadillac Type 57 Limousine
- Cadillac Type 57 Town Car
- Cadillac Type 57 4-Passenger
- Cadillac Type 57 Landaulet
- Hudson 1918 Sedan
- Hudson 1917 7-Pass. Touring
- Hudson 1918 Suburban
- Hudson 1918 Limousine
- Hudson 1916 Touring
- Marmon Model 34 Chummy
- Marmon 1918 Chummy Roadster
- Mercer 1918-19 Sporting 4-Pass.
- Murray 1917 Roadster
- Stutz 1918 Coupe
- Stutz 1918 Speedster

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AN OPEN LETTER

to those who have not secured immediate delivery of their new 1920 Haynes cars

By A. G. SEIBERLING, Vice-President and General Manager
The Haynes Automobile Company, Kokomo, Ind., U. S. A.

IT is a matter of great regret to us that thousands of people have been unable to get immediate delivery of the new 1920 Haynes. The fact that we have succeeded in increasing production to the point where we may soon be on a greater delivery basis is encouraging to us. But we feel that an explanation is due all of the good friends of the Haynes who have waited so patiently and so expectantly for their cars.

During the war our plant was converted into one to serve our government. Our engineers and designers went ahead with their work and produced the new 1920 Haynes. Its tremendous appeal at the opening of the year is a matter of history, and orders continued to come from all parts of this country as well as from abroad.

Our dealers have done their best to take care of their patrons. We realize, however, that even when the situation was understood every one who ordered a new Haynes was more and more anxious to receive it.

We could not "rush" production. Even had it been mechanically possible there remained the fact that no Haynes is allowed to leave our plant until it has satisfied the rigid inspection tests of our engineers and designers. Each Haynes car must exemplify the four essential factors of character—beauty, strength, power and comfort—before it can go to its future owner. This extra care on our part is a tangible benefit to the owner, but we know how anybody feels about it when he has ordered a fine new car and cannot get it.

But the orders continue to come in. The new 1920 Haynes is actually an advance model. It is what, in ordinary times, would have been expected of this organization next January. Naturally, every time one is driven from a Haynes dealer's establishment it awakens in the mind of every beholder the desire to own one. Thus the orders show no indication of abatement.

We are doubling the capacity of our plant; we have increased our production. Those who have waited have profited, because they are getting Haynes cars which are wonderfully improved.

The new 1920 Haynes, therefore, is a car worth waiting a little while for. Whether it is the seven-passenger touring car, the four-door, four-passenger roadster, the seven-passenger limousine, the seven-passenger sedan or the four-passenger coupé, we know that it comes fully up to the Haynes standard of a car of character.

Our earnest recommendation is that you place your reservation with your Haynes dealer now. You may have to wait a short time before receiving your car, but the value of your investment will more than offset the slight delay.

We have promised your dealer to do our best to fill his orders with the least possible loss of time, and that every car we send him shall measure fully up to the standards created and perfected by the Haynes organization in all the twenty-six years since Elwood Haynes thrilled this country with his invention—America's First Car.

A. G. Seiberling

The Haynes, AMERICA'S FIRST CAR, now exhibited by the government at the Smithsonian Institution, Washington, D. C., was invented, designed and built by Elwood Haynes, in 1893.

1893 — THE HAYNES IS AMERICA'S FIRST CAR — 1919