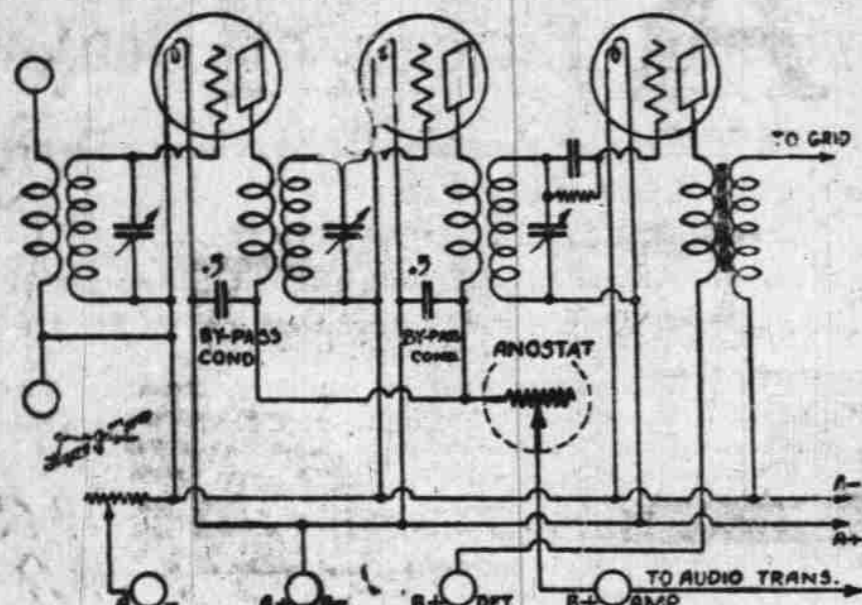


RESISTANCE IS BIG FEATURE IN RADIO

Proper Working of Set Depends on Good Connections in Circuit

By HARRY J. MARX
Resistance are an inseparable factor in all electrical circuits. It may not be there in the form of a rheostat, potentiometer or other piece of resistance apparatus, but



every part of the circuit whether it is just copper wire connections, condensers, coils or any other unit has some resistance value. It may be great or small as the case may be, but it exists and is a factor in the circuit. Copper wire is a good conductor meaning its resistance is low, while a non-conductor simply means something that has a very high resistance.

Present day radio apparatus is so designed as to reduce as far as practical all resistance in the tuned circuits.

tuning and therefore improves selectivity. But in radio frequency circuits it multiplies the tendency of tubes to go into oscillation, producing the assortment of squeals, howls, and whistles which not only come out of the loud speaker but back up and go out in the air to play havoc with the neighbors' reception.

The old and incorrect practise was to add a potentiometer in the secondary circuit of the radio frequency stages. This was equivalent to replacing the resistance back into the apparatus. It reduced the oscillation tendency but it likewise killed the selectivity that was desired and in addition materially reduced the volume. Resistance should not be added where

it becomes an integral part of the radio frequency circuits. The fundamental cause of oscillation is due to a great extent to the amount of voltage across the plate circuit. If this voltage is controlled so that it can be adjusted to a value just below the point where oscillation starts then radio frequency amplification can be used to full advantage. But this control must not be such as to add resistance in the tuned circuits.

Oscillation can be effectively prevented if a variable resistance is connected in series between the

plate or primary coils of the radio frequency transformers and the B battery to prevent oscillation by reducing the plate voltage on the radio frequency tubes. Now by connecting a 1/2 MFD condenser on the B terminal of the primary on the radio frequency transformers and the filament terminal of the tubes, this artificial resistance can be shunted out of the tuned circuit. This condenser closes the plate circuit to the filament of the tube for the radio frequency currents. In other words, on account of the condenser these currents don't have to pass through the resistance—hence the resistance does not effect the tuning and selectivity.

This variable resistance provides a means of reducing the plate voltage and therefore controls oscillation. This means of controlling oscillation was first utilized commercially by E. F. Andrews in the Beresadyne receiver. The use of this control for radio receiving sets is covered by patent applications but its use by the fan in building his sets or for remedying trouble in a set he has made is encouraged.

Mr. Andrews has now developed the use of this by-passed plate circuit resistance as a volume control, as well as an oscillation control. This is done by using an extremely high variable resistance having a maximum value of several megohms. The circuit is just the same as for the control of oscillation. The first part of the resistance can be used for oscillation control, and the high resistance part for controlling volume. Volume can thus be adjusted without the slightest distortion, and with great saving in B battery current.

This combination control is known as the "Anostat," derived from "anode" meaning positive or plate and the word rheostat. Further details about the Anostat and new developments will be told about shortly.

Corvallis—Bids opened for a \$300,000 woman's gymnasium for OAC.

LONG TRIPS NOW TAKEN WITH EASE

Superior Riding Comfort and Ease of Driving Makes Tour Easy

Today the average motorist thinks no more of driving his car 50 to 200 miles for even a week-end trip than he did a decade ago if driving 24 miles. A trip through four or five states or even half across the continent in a motor car is considered an ordinary event for a two or three weeks' summer vacation.

This has been brought about by the remarkable durability of cars today, together with smoother riding qualities which have been enhanced by full balloon tires, and the four wheel brakes which have made such trips, even at high speed, comparatively safe.

Yet one undesirable feature of motor car performance remained in taking such long trips—engine vibration. At the high speeds necessary on long runs, ranging from 25 to 45 miles an hour, the vibration of the average motor is particularly noticeable.

It was to eliminate this objectionable feature that engineers of the Oakland Motor Car company and the General Motors Research corporation developed the harmonic balancer which positively does

eliminate all torsional engine vibration.

This exclusive feature of the new Oakland six has been acclaimed by experts as the greatest mechanical achievement of automotive engineering that has been introduced this year, comparable to the introduction of the two other great developments in motor car construction, the four wheel brakes and the balloon tires.

Though the new Oakland six was introduced only slightly more than a month ago, thousands of letters have been received by Oakland dealers throughout the country from owners who attest to their joy of touring in this practically motor-vibrationless car.

The harmonic balancer is simple in both principle and design; is non-wearing and requires no adjustment. It consists of a light steel bar, pivoted to the shaft at its center and tennished by stiff springs at both ends. The weight of the bar and the stiffness of the springs are so selected that the harmonic balancer has a natural frequency of vibration practically the same as the crankshaft itself. When there is the slightest movement of the shaft, the harmonic balancer picks it up and vibrates in the opposite direction, thus neutralizing all torsional vibration.

The principle of its operation might be stated simply by saying that the simplest way to stop any object that is moving is to push it in the opposite direction with a force equal to the force of the moving object. That, in essence, is what the harmonic balancer positively does.

CHEVROLET TO USE COOPERATIVE PLAN

Dealers and Factory to Work Together in Advertising Campaigns

The Chevrolet Motor company has announced a co-operative advertising campaign in connection with its large dealer organization.

This campaign is a further move by the Chevrolet Motor company in its effort to obtain the most economical distribution of its product. It is probably the most comprehensive and efficient of the great advertising campaigns in the automotive industry. Approximately 4,000 newspapers are being used.

Under this plan the Chevrolet Motor company in reality has become the advertising department of each of its dealers whom it provides with a highly efficient and consistent advertising campaign. In addition, it becomes possible to key local advertising with national advertising and thus broadcast a single advertising message at one time in both national and local publications.

The cooperative feature of the plan does not apply in a financial way to the national advertising used by the Chevrolet Motor company in the principal magazines of

the country. This advertising is paid for the general advertising appropriation of the company without expense to the dealers. The dealers continue to receive gratis the sales literature and the effective window display service of the company. These displays supplement the unified advertising plan.

In brief the plan is this: The Chevrolet Motor company charges a small amount for each car shipped to dealers and credits it to the Chevrolet Dealers' Advertising fund. To this fund the company then adds a substantial contribution from its own advertising budget.

The company plans the dealer advertising campaign, buys newspaper space, purchases and prepares art work, sends the advertisements to the newspapers, directs the printing and display of outdoor advertising handles invoices and pays bills. The dealers thus are relieved of a vast amount of detail.

A desirable angle of the plan is a guarantee to each dealer that every dollar which he pays into the fund will be spent in his district for newspaper or outdoor display space, all of the costs of preparing and placing the advertising matter being more than covered by the Chevrolet Motor company's contribution to the fund.

FACTORY MAN HERE
R. W. Bush, factory representative of the Chevrolet company, was in Salem, Friday, conferring with the Newton company, Chevrolet distributors for this city.

WALES LIKES NEW HUP

HEIR TO BRITISH THRONE ADMIRES STRAIGHT EIGHT

The Prince of Wales, who has been termed the world's foremost salesman, sold himself on the advantages of the Hupmobile eight during his stay in Potchef Stroom, South Africa. The royal visitor and visiting press correspondents gathered about the car and His Royal Highness plied the chauffeur with questions regarding its motor and other phases of its construction. In so doing, the prince displayed an intimate knowledge of automobile engineering and of the latest and best engineering practices.

Having asked that the hood be lifted the prince had the local Hupp dealer explain the engine to him thoroughly. He especially commented upon what he called the amazing quietness of the motor and the ease and surprising power it displayed in action.

The royal examination of the Hupmobile eight took place after a parade in which His Royal Highness had ridden in the Hupmobile eight through the streets of Potchef Stroom.

This parade was very largely a Hupmobile procession for following the Hupmobile eight sedan came six new Hupmobile fours. The Hupmobile eight made a fitting leader for this procession. It carried the royal standard and bore the Prince of Wales' plumes in real ostrich feathers on the front, with dainty streamers flowing from windshield to radiator.

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