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Jacking Pipe

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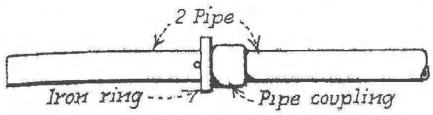
IN jacking a pipe under a highway, we have found that the use of a 1-in. iron ring just ahead of a coupling makes the job a lot easier. Pipe rivets



Open-end pipe and a ring facilitate jacking pipe under highway

are used ahead of the ring to keep it from slipping off when the pipe is backed up. A 2-ft. open-end pipe section ahead of the coupling is better than a point, as it does not lead off so easily.

Checking Track Circuits From a Motor Car

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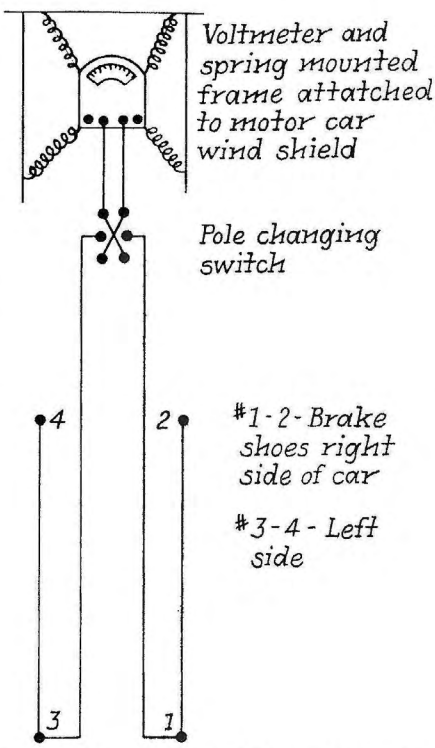
AN efficient and relatively simple arrangement for checking voltages of track circuits, and for locating broken rails, open joints, and high resistance bonds, etc., while riding a motor car, is easily assembled. The motor car brake shoes are wired up, the leads being brought from the brake shoes to the seat deck of the motor car and terminated to a pole-changing knife switch which it attached to the control lever support. The leads of a voltmeter are connected to the terminal of the pole changing switch so that by operating the motor car brake lever, giving it slight brake pressure, the circuit is completed and the voltmeter registers correctly and accurately the voltage of the track circuit over which the motor car is being operated.

Testing track circuits in this way eliminates the necessity of stopping the motor car and getting off to contact the rails with meter leads. Broken rails and open joints can be located very quickly by using this method of testing.

The following are details relative to the wiring applied to the motor car and the method used in mounting the



Test circuit used in checking track circuits from a motor car

voltmeter to facilitate quick reading of the voltages registered on the meter and to eliminate fluctuations of the meter needle caused by vibrations of the motor car.

The two brake shoes on each side of the car are jumpered together, using a short length of No. 2 insulated flexible copper wire to which has been soldered a 45-deg. cast copper terminal lug having a ⅜-in. stud hole. To these lugs a 2-in. length of coiled spring is attached by soldering; the jumper wire is then laced through this spring in order to prevent breakage of the wire at the terminal due to brake shoe vibration. The lugs are attached to the brake shoe bolts, (as shown in the accompanying illustration) the nut being tightened to give a tight connection.

The object of the pole-changing switch is to enable the maintainer to quickly change the polarity to the voltmeter without reversing the meter leads. The voltmeter is attached to the motor car windshield, using a metal frame fashioned from a piece of heavy tin, the sides and bottom of which are formed to fit the outside measurements of the meter, and arranged so that the meter will slide in from the top of the holder. A short length of coiled spring is attached to each corner of the frame, the loose ends of the springs being fastened in clips on the motor car windshield; this arrangement of mounting prevents the voltmeter from receiving the shocks and vibration of the moving motor car.

Obtaining Release Values of D-C. Relays

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Having a definite need for a low-reading milliammeter for use in obtaining release values on high-resistance d-c. relays when such are rated in current values in the relay specifications, the following method was used to provide a supplementary range of 0-0.03 amp. on a voltammeter of the D'Arsonval type which has current ranges of 0-15, 0-1.5, 0-0.15 amp., and voltage ranges of 0-150, 0-15 and 0-1.5 volts.

This type of meter has two binding posts for external connections and a switching knob, with contact arm, for making connection to the various ranges which are indicated schematically in the accompanying figure: Solid lines indicate existing wiring and broken lines the wiring for the additional range. A binding post, three-position radial arm switch, resistance wire for the shunt, and wire for the connections were the materials used.

Obviously, the higher current ranges should be multiples of the new range in order to simplify readings; in this case, it required approximately