

## SERVICE MANUAL

### TRANSFORMERS TYPES "VW" and "ZW"

Types "VW" and "ZW" Multi-Control Transformers, built in 1948, are similar to other Multi-Control transformers in the principle of operation but differ from them in their general appearance and in having a double set of whistle and reversing controls so that two separate layouts can be operated independently by the same transformer.

Type "VW" transformer, rated at 150 watts, can supply continuously 110 watts, or approximately 8 amperes at the working track voltage. This transformer can be used with power lines of 110-125 volts, 50-60 cycles.

Type "ZW" transformer, rated at 250 watts, can supply continuously 180 watts at 14 amperes. The "ZW" transformer can be used with power lines of 110-125 volts 50 cycles only.

As illustrated in the schematic diagram below, these transformers have a fixed secondary winding of 8 volts in series with a variable secondary winding of 12 volts. This makes it possible for each of the four rolling contacts to supply from 8 to 20 volts. The two 5-volt compensating windings are normally

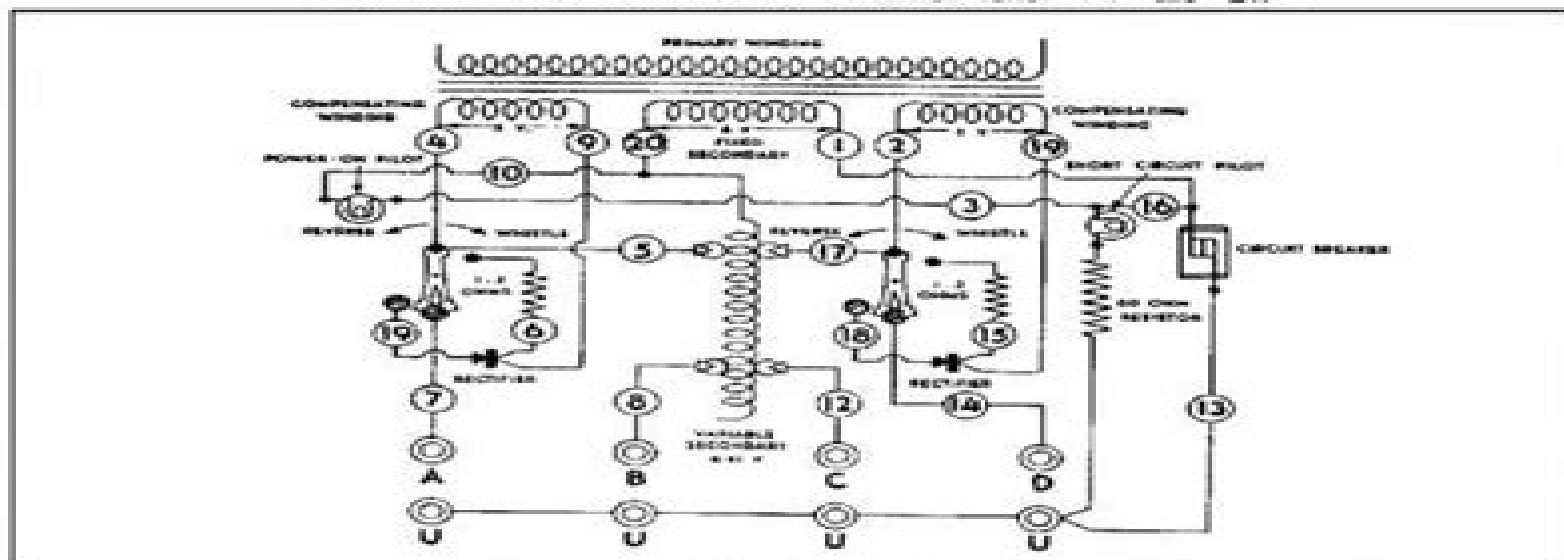
out of the circuit but are switched in series with the circuit whenever the whistle controller is operated to compensate for the voltage drop in the rectifier and the additional load of the whistle motor.

The three fixed secondary windings are wound directly on the primary, while the variable secondary winding is wound separately on a bakelite form and assembled on the opposite leg of the iron core.

The transformers are equipped with a pilot "power on" light placed across the fixed 8 volts winding, and a "short circuit" pilot placed across the circuit breaker. The 60-ohm resistor in series with the short circuit pilot limits the voltage placed across that lamp when the circuit breaker opens.

Note: Because circuit breakers of correct value could not be obtained for the "VW" transformers built in 1948, a length of resistance wire in insulating sleeving was wound around the circuit breaker and served as a heater to decrease its breaking time in case of short circuits.

SCHEMATIC WIRING DIAGRAM OF TRANSFORMERS "VW" and "ZW"



# Lionel Zw Transformer Repair Manual

**Katrin Zwirglmaier**



## **Lionel ZW Transformer Repair Manual:**

Toy Train Repair Made Easy Ray L. Plummer, 1999-10 Learn how to take it apart fix it rewire it and make your Lionel train or accessory work again Step by step instructions in this detailed 21 project book can help you get your collection running *Model Railroad Craftsman*, 1985 **Model Railroading** Bruce Greenberg, 1979 Provides information and advice on every aspect of O and S scale model railroads with comments on the varied rewards of this classic hobby

**Model Railroader**, 1959 **The Gannetteer**, 1963 **Transformer Maintenance Guide** Mike Horning, Joseph J. Kelly, Scott Myers, 2001-01-01 **A Guide to Transformer Maintenance** Stanley D. Myers, Joseph J. Kelly, Robert H. Parrish, 1981 Transformer Maintenance Guide Mike Horning, Joe Kelly, Scott Myers, Randy Stebbins, 2004 **Chevrolet Astro & GMC Safari Mini-vans Automotive Repair Manual** Ken Freund, John Harold Haynes, J. H. Haynes, 1999 Chevrolet GMC Mini Vans 1985 1998 Repair Manual Haynes Sftbd 8 1 4x 1 3 4 317 pgs 76 b w ill *Transformer Maintenance and Test Guide* Doble Engineering Company, 1984 *Chevrolet Astro and Gmc Safari Mini-Vans Automotive Repair Manual* Ken Freund, John Harold Haynes, 1993 Astro GMC Safari Mini Vans 1985 93 Shop Manual Haynes 325 pgs 780 ill Manual on Transformers M. Vijayakumaran (Technical expert), India. Central Board of Irrigation and Power, 2013 **Chevrolet Venture, Oldsmobile Silhouette, Pontiac Trans Sport, and Montana Automotive Repair Manual** Bob Henderson, John Harold Haynes, 2006 **Guide for Transformer Maintenance** Conseil international des grands réseaux électriques. Comité d'études A2, 2011 **Repair of Power Transformers** Z. Khudyakov, 1980 **Chevrolet Electrical Repair Manual** General Motors Corporation. Chevrolet Motor Division, 1927 *Chevrolet LUV Owners Workshop Manual* Ian M. Coomber, John Harold Haynes, 1977\* *Motor Light Truck & Van Repair Manual*, 1984 Motor Light Truck & Van & [sic] Repair Manual Robert R. Savasta, Motor (New York, N.Y.), 1988 *Motor Light Truck & Van Repair Manual*, 1999

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