

Instructions for Operating **LIONEL "Multi-Control" TRANSFORMERS**

WITH BUILT-IN WHISTLE CONTROLLERS

No. 1032M	125 Volts-50 Cycles	75 Watts
No. 1033	115 Volts-60 Cycles	90 Watts
No. 1232	250 Volts-50 Cycles	75 Watts

IMPORTANT: Before attempting to use any of these transformers make sure that the voltage and frequency of your power line corresponds to the rating of your transformer.

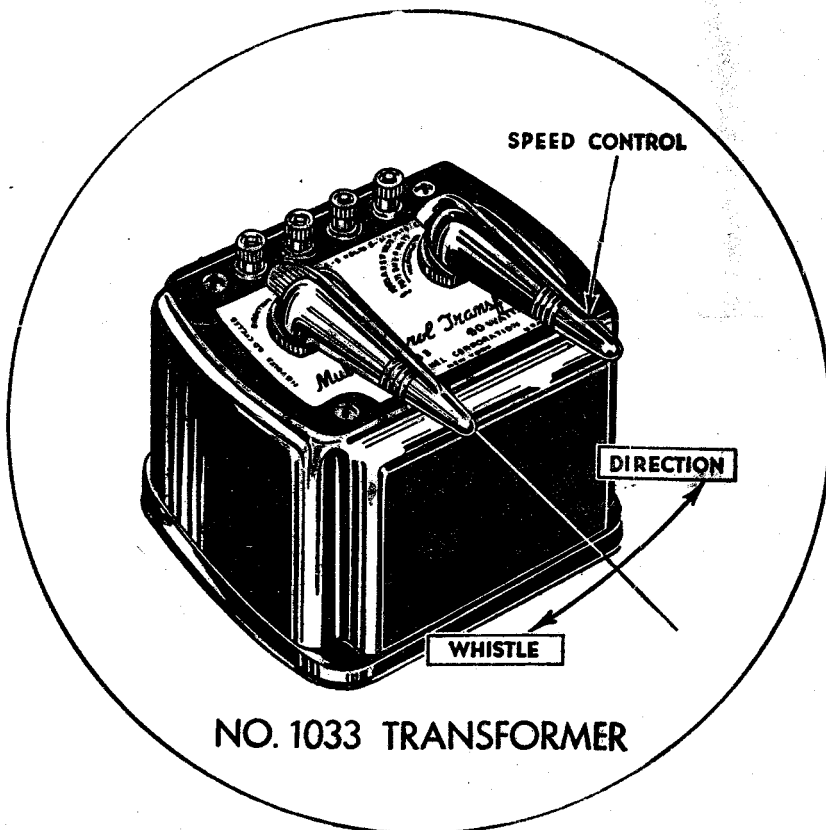


Figure 1—No. 1033 "Multi-Control" Transformer.

Lionel Electric Trains and accessories operate on low voltage, ranging from 8 to 18 volts, depending on the size and type of the locomotive and the number of cars in the train. Lionel transformers reduce, or *transform*, the available house voltage to the low voltage required. The plug at the end of the transformer cord is plugged into any convenient wall outlet. The low voltage is then obtained from the output terminals.

Lionel "Multi-Control" transformers are made in several models to operate on different power lines as listed above. If in doubt, check the voltage and frequency of your house power line with your electric company before attempting to operate your transformer. The wattage rating of these transformers is a measure of their capacity, or ability to furnish power. While your house current determines the rated voltage and frequency in cycles of the transformer, the *wattage* of the transformer that you need for your outfit is determined by the size of the train and the number of accessories you have in your model railroad system. The larger the train and the greater the number of accessories, the higher should be the wattage of your transformer. The capacity of the transformers listed in this leaflet is ample to run the outfits with which they are sold in addition to several small accessories. To assist you in estimating the number of accessories you may use, read the section on Wattage Requirements in your Instruction Booklet.

All Lionel transformers are provided with means of controlling voltage to the track so gradually that any train speed may be obtained. By turning the black voltage control arm on the transformer panel the train can be gradually accelerated or retarded in realistic fashion. Continuous voltage control is of particular advantage when operating trains with remote control couplers, operating cars and similar accessories where precise train control is necessary.

HOW TO CONNECT TRANSFORMER

In order to get current from the transformer to the track two of the output terminals of the transformer must be connected to the track. This connection is generally made by means of a track Lockon, one of which is provided with each outfit. The Lockon is clipped onto a convenient straight section of track and is connected by wires to a pair of transformer output binding posts which furnish variable voltage.

The "Multi-Control" Transformers listed in this leaflet have four binding posts located on top of the transformers. Of these, "A-U" and "B-U" combina-

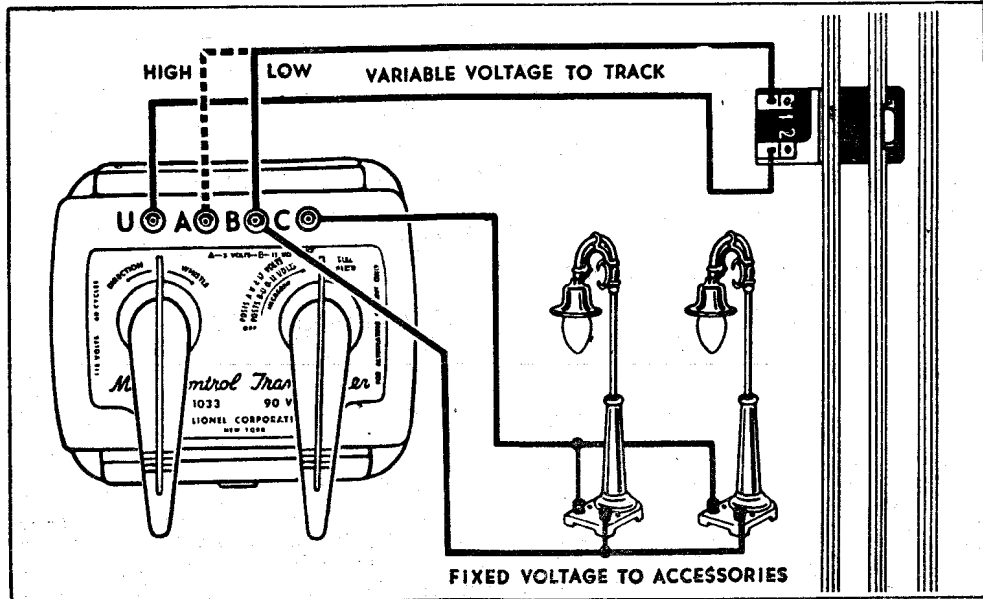


Figure 2—Track and accessory connections for "Multi-Control" transformers. If the higher track voltage range is desired move the wire from "B" post to "A" post as shown by dotted line.

OUTLET WHEN TRANSFORMER IS NOT IN USE

tions furnish variable voltage for the track. The control arm of the transformer simultaneously regulates the voltage output of both the "A-U" and the "B-U" combinations. The transformer nameplate indicates the voltage ranges of these two combinations. The "A-U" combination supplies any voltage from 5 to 16 volts. The "B-U" combination has a voltage range from 0 to 11 volts. In selecting the proper range of voltage for your particular outfit, try the lower "B-U" combination first. If the maximum train speed obtained is not satisfactory, then try the "A-U" posts.

HOW THE CIRCUIT BREAKER WORKS

To protect them from overheating and damage due to "short circuits" these transformers are equipped with built-in automatic circuit breakers. Whenever the current drawn from the transformer exceeds a certain safe limit the circuit breaker opens, cutting off the output of the transformer. The circuit breaker will reset itself in a few seconds but, if the short circuit which caused the circuit breaker to operate still exists, the circuit breaker will keep on reopening until the cause of the trouble has been removed.

The most frequent cause of a short circuit is a derailed car or locomotive where a truck makes a direct connection between the center rail and one of the outside rails. You can usually detect a short circuit by the sudden dimming of locomotive headlight or track accessory light.

REMOTE CONTROL REVERSING

All Lionel locomotives have a remote control reversing unit which makes it possible to start, stop and reverse the train by operating the red "Multi-Control" arm of the transformer. Moving the arm to the right for an instant stops the flow of current to the track. When the flow of current is interrupted, the reversing unit automatically changes the action of the locomotive motor in the following sequence: forward, stop, reverse, stop, etc. For example, if the train is running forward, moving the arm once will cause the train to stop, moving it again will cause the train to move in reverse direction, and so on. (For further information on reversing units see Instruction Booklet.)

HOW TO BLOW WHISTLE

Your Lionel Train outfit is equipped with a realistic-sounding whistle which can be sounded anywhere on the track whether the train is moving or standing still. To sound the whistle move the "Multi-Control" arm to the left. The whistle will blow as long as the arm is held in this position. Some of the official railroad whistle signals are given below.

ENGINE WHISTLE SIGNALS	COMMUNICATING SIGNALS
<ul style="list-style-type: none">• means short sound (1½ - 2 seconds)— means long sound (2½ - 3 seconds)— — means extra long sound (5 seconds)• Apply brakes, stop.— — Release brakes, proceed.— • • Indicates a section following.— — • • Approaching grade crossing. Prolong last sound till clear.— — — Approaching station, junction, etc.— — — Train in motion has parted.	<p>(Used by train crews to communicate with engine crews generally by pulling air cord)</p> <ul style="list-style-type: none">• • When standing - Start.• • When running - Stop at once.• • • When standing - Back the train.• • • When running - Stop at next station.• • • • When standing Apply or release brakes.• • • • When running - Reduce speed.• • • • • When standing - Recall flagman.• • • • • When running - Increase speed.

A series of short blasts is a warning to people or livestock on the track.

HOW TO CONNECT ACCESSORIES

While variable voltage posts are connected to the track in order to control train speed, accessories work best with fixed voltages. "Multi-Control" transformers listed in this leaflet provide three different fixed voltages which are not affected by the position of the voltage control arm. These voltages are obtained from the following pairs of output binding posts: "A-B," 5 volts; "B-C," 11 volts; and "A-C," 16 volts.

The majority of operating and illuminated accessories work best at approximately 10 to 12 volts and should therefore be connected to posts "B-C." However, because of the voltage drop which normally occurs when a transformer is delivering power, accessories may have to be connected to the "A-C" terminal posts, when the transformer is heavily "loaded." As in selecting variable track voltage, try the lower voltage first. Then, if you want still brighter lights or snappier action try the higher combinations.

A wide variety of illuminated accessories, such as lamp posts, block and crossing signals, stations and platforms, is available for your model railroad. Any number of these accessories may be used up to the capacity of the transformer, but too heavy an accessory load will cause an excessive transformer voltage drop so that the train will slow down.

In the event that you have several accessories requiring the same voltage it is possible to use the same transformer binding posts for all. A simple method for wiring a number of illuminated accessories in "parallel" is shown in Figure 2. Two main "feeders" to the transformer and individual leads from the feeders to each accessory eliminate unnecessary wiring. If your railroad is being operated on a table or platform, the feeders may be concealed underneath the platform with small holes bored for the leads to each accessory.

Remember that if two or more accessories are wired together in "parallel," as in Figure 2, the connections are still made to transformer posts furnishing the correct voltage for a single accessory, regardless of whether, two, three or more accessories are so connected.

SERVICE INFORMATION

This transformer was inspected at the Factory and is in perfect operating condition. Like all Lionel products it is guaranteed against defective materials or workmanship to the extent that if any such defective transformer is returned to the Factory or to any Lionel Authorized Service Station within one year of the date of purchase it will be repaired or replaced. If in the future it should ever require servicing, you may either send it to the Factory Service Department, or take it to the nearest Lionel Authorized Service Station listed in the instruction booklet.

If you decide to mail the transformer to us, be sure to pack it carefully to avoid damage in transit. Use the original box if possible and enclose in another strong container. A letter in a stamped envelope stating fully the service desired *must be pasted to the outside wrapper*, since postal regulations do not permit a letter or any written messages to be placed inside the package.

THE LIONEL CORPORATION

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APPROVED SERVICE STATIONS IN THE PRINCIPAL CITIES, UNITED STATES AND CANADA