

# Instructions for Unloading Transformers from Railroad Cars WECX-200 and WECX-201



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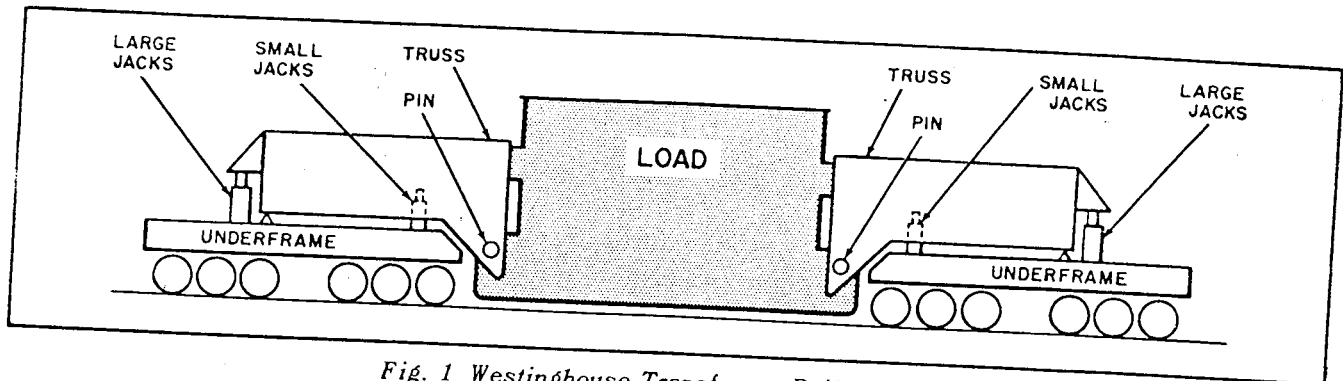


Fig. 1 Westinghouse Transformer Railroad Car

LARGE POWER TRANSFORMERS are frequently shipped using the Westinghouse WECX-200 or WECX-201 railroad car, which is usually called a Schnabel car. It is recommended that customers and contractors who are responsible for the unloading of transformers, use the following procedures to avoid complications that may result in injury to unloading personnel and damage to the car and transformer.

The principle of the two cars is basically the same, each car being made of identical halves which part to allow the transformer to be suspended in the middle. See Figure 1.

The major equipment for unloading the cars are two sets of jacks. One set consists of four large jacks, one located at each corner of the truss, which are used for raising the transformer. The remaining set of four small jacks, located midway in the truss, are used only for maneuvering the truss so that the pins supporting the load can be pulled. See Figure 1.

## UNLOADING CHARACTERISTICS COMMON TO WECX-200 AND WECX-201 CARS

1. Cars must be unloaded on a straight section of track. Proper operation of the jacking system cannot be accomplished on a curve, and if attempted, overturning of the car could result.
2. Although the method of cribbing is the choice of the contractor, the following

method has been successful. At the midpoint of the straight section of track and before the car is pulled onto it, build up cribbing between the rails to a height approximately equal to the height of the rail. Pull the car over this section with the load directly over the cribbing. Once the transformer has been raised, there will be a 10 to 16 inch space for additional cribbing under the transformer. The load can then be skidded off the tracks by means of greased planks or rails.

3. The track location must be such that the surrounding ground will not sink due to the weight of the load. The transformer cannot be unloaded on soft ground because the load pins bind on the car, making it impossible for them to be pulled.

## WECX-200, TRANSFORMER RAILROAD CAR

CAPACITY - 500,000 LB. TRANSFORMER 12 FEET WIDE by 28 FEET LONG	
LENGTH - 62 FEET, 8-1/2 INCHES (Empty)	
WEIGHT - 218,000 LBS. (Empty)	
RECOMMENDED MINIMUM TURNING RADIUS (Loaded)	- 200 FEET

NOTE: Absolute minimum turning radius when loaded is 155 feet and should be approached with extreme caution. Any radius less than 155 feet will cause overturning of the car.

There are four 100 ton mechanical jacks used in lifting the transformer. These jacks are driven by means of air motors and reducer attachments. A centrally located gasoline driven air compressor and receiver supplies 90 P.S.I. air pressure for operating the air motors. Three men are required at each jacking station, whenever they are being used. One man drives the jack with the air motor, a second man measures the height the jack is raised, and the third man works a traversing mechanism on the jack, which maintains it in a vertical position. Since an air motor, which generates a great amount of torque is used in the operation, it is quite easy to damage the jacks which could result in collapsing and possible loss of the load. Detailed operating instructions are located on the side of the car and should be followed carefully.

The four small jacks, each having a 30 ton capacity, are used to assist in positioning the truss, so that the load pins can be removed. **THESE JACKS ARE NOT TO BE USED IN LIFTING THE LOAD.**

The length of the straight section of track on which this car is unloaded should be equal to the length of the loaded car, when centered at the unloading point plus 5 feet on either end. The minimum length needed would be 100 feet. The 5 feet is needed when the car halves are parted from the transformer. Any additional distance would be dependent on the space required for the contractor to skid the transformer off the tracks.

#### WECX-201, TRANSFORMER RAILROAD CAR

CAPACITY - 750,000 LB. TRANSFORMER 12 FEET WIDE BY 32 FEET LONG	
LENGTH - 78 FEET, 6 INCHES (Empty)	
WEIGHT - 300,000 LBS. (Empty)	
RECOMMENDED MINIMUM TURNING RADIUS (Loaded)	- 220 FEET

NOTE: Absolute minimum turning radius when loaded is 176 feet and should be approached

with extreme caution. Any radius less than 176 feet will cause overturning of the car.

Four 110 ton hydraulic jacks are used in raising the load. Each end of the car contains a gasoline driven generator which supplies power to the hydraulic pump. In the event either of these units fails, there are provision for connecting into 220 volt or 440 volt outside power. In operating these jacks, one man is required at each end of the car. The jacks are controlled by manual control valves that can be worked individually or together. Each jack contains a measuring rod which is easily visible to the operator. Detailed operating instructions are located on the side of the car and should be followed carefully. Particular attention should be given to step no. 7 on the instruction panel entitled "UNLOADING INSTRUCTIONS". In part it reads, "Using the 110 ton jack measuring rods, the height of the transformer when it is resting on the cribbing should not exceed 8 inches". This means that cribbing can be built a maximum distance of 6 inches above the carrying height of the transformer.

Four smaller 20 ton jacks are located within the truss, which are used for relieving truss pressure so that the load pins might be removed. **THESE JACKS ARE NOT TO BE USED IN LIFTING THE LOAD.**

The minimum length of straight track required for unloading the car is 120 feet. As in the previous case, anything over this amount depends on the contractor's methods of rigging.

The WECX-200 and WECX-201 Schnabel cars are to be operated only by personnel authorized by the Westinghouse Electric Corporation. In all cases, a trained Westinghouse representative will supervise the unloading of transformers from the cars.

Since there is a great demand for the use of these cars, the customer is requested to take the necessary preliminary steps to have the proper unloading conditions ready when the car arrives at the site.