

BRIDGING TRANSITION

The transition from series to parallel by this system consists in placing a shunt, or bridge, between the motors so that all the motors are active during the transition period. Its operation is similar to a Wheatstone bridge. The two sides of the bridge consist of the motor plus a resistor. If the drop in voltage through the resistor is equal to the drop through the motor, the two parts of the circuit connected by the bridge will be at the same potential, and no current will flow.

The arrangement of circuits for this method consists in a portion of the series resistance being inserted between the two motors. Passing from the full-speed series position to the first parallel notch, the two sections of resistance are inserted in parallel with the motors, so that each motor has a circuit from trolley to ground through the motor and a section of resistance, the final series connection forming the bridge of the circuit.

This bridge circuit is then opened and the resistance is gradually short-circuited until the motor is brought up to full-speed.

In practice, extra resistance is inserted ahead of the first motor, to obtain adequate starting resistance and to protect the first motor, on resetting the circuit breaker. If the resistors are so adjusted that more current passes through the two resistors than through the two motors during the bridging period, the opening of the bridging switch will interrupt this excess current and give an increased torque on the motors, equivalent to an additional notch of the controller.

BRIDGING TRANSITION:-

Full series

Transition

First Parallel