



INSTRUCTION SHEET D2-3180-3

DYNAMIC BRAKING KIT

Models 2DB5010 and 2DB5020

For use with 5 HP thru 20 HP, 575 VAC

GP-2000

General Purpose A-C V \star S \star Drive Controllers

DANGER

BEFORE INSTALLING AND/OR OPERATING THIS KIT, THE QUALIFIED ELECTRICAL MAINTENANCE PERSON WHO IS FAMILIAR WITH THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED SHOULD READ AND UNDERSTAND THIS ENTIRE INSTRUCTION SHEET. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

Description

The products described in this instruction manual are manufactured by Reliance \star Electric Industrial Company.

The Dynamic Braking Kit provides rapid deceleration of the drive motor. The kit dissipates the power regenerated by the motor during deceleration through a resistor. When the D-C bus voltage (nominal 780 VDC) increases to 920 VDC, the controller automatically switches the dynamic braking resistor ON to absorb the excess energy.

The dynamic braking resistor is protected by a thermal switch. If the temperature of the resistor reaches 210°C (410°F), the thermal switch energizes a relay whose contact is to be wired to function loss terminal in a controller. Therefore an Instantaneous Electronic Trip (IET) occurs in the controller.

The Dynamic Braking Kit has two model numbers:

- Model number 2DB5010 for 5 through 10 HP controller; UL Listed/CSA Certified.
- Model number 2DB5020 for 15 through 20 HP controller; UL Listed/CSA Certified.

The design specifications are listed below:

- Three starts/stops per minute.
- Maximum WR² (including motor, reflected to motor)
 - 2.6 lb-ft² (2DB5010)
 - 6.6 lb-ft² (2DB5020)
- Resistor Wattage
 - 800 watts (2DB5010)
 - 1,600 watts (2DB5020)

Installation

DANGER

EQUIPMENT IS AT LINE VOLTAGE WHEN A-C POWER IS CONNECTED TO THE CONTROLLER. ALL UNGROUNDED CONDUCTORS OF THE A-C POWER LINE MUST BE DISCONNECTED FROM THE CONTROLLER. AFTER POWER IS REMOVED, USE A VOLTMETER AT TERMINALS 147(+) AND 45(-) TO VERIFY THAT THE D-C BUS FILTER CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL PARTS OF THE CONTROLLER OR INSTALLING KITS. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

NOTE: All components of the Dynamic Braking Kit must be mounted in a clean and dry environment. Maximum ambient temperature must not exceed 55°C.

1. Disconnect all power to the controller before installing this kit.
2. Remove the cover from the Dynamic Braking Kit by loosening the four screws.
3. Select a location within 30 feet of the controller where the heat generated by the resistor is not objectionable or hazardous and where convection air flow is unrestricted. Do not mount the unit under the controller. It is good practice to mount the unit above the normal reach of all personnel.
4. Mount the unit vertically. Mounting hardware is not supplied. Refer to Figure 1 for physical size and mounting dimensions.
5. Remove the cover from the controller and lower the faceplate.

DANGER

THE USER IS RESPONSIBLE FOR CONFORMING WITH THE USA NATIONAL ELECTRICAL CODE AND ALL OTHER APPLICABLE LOCAL CODES. WIRING PRACTICES, GROUNDING, DISCONNECTS AND OVERCURRENT PROTECTION ARE OF PARTICULAR IMPORTANCE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: It is important to use wire rated at 600 volts or greater because this wiring may make contact with uninsulated (575 VAC) components. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

6. Wire between the controller and the Dynamic Braking Kit in accordance with Figure 2 and all codes. Use wire that is rated at a minimum of at least 600 volts. The two wire pairs for a DB signal and a function loss signal must be run in separate conduit from the other two wire pairs for power supply.

7. Replace the controller cover and the Dynamic Braking Kit cover.
8. Reapply power to the controller. Refer to GP-2000 Instruction Manual for complete instructions of the controller installation and startup.

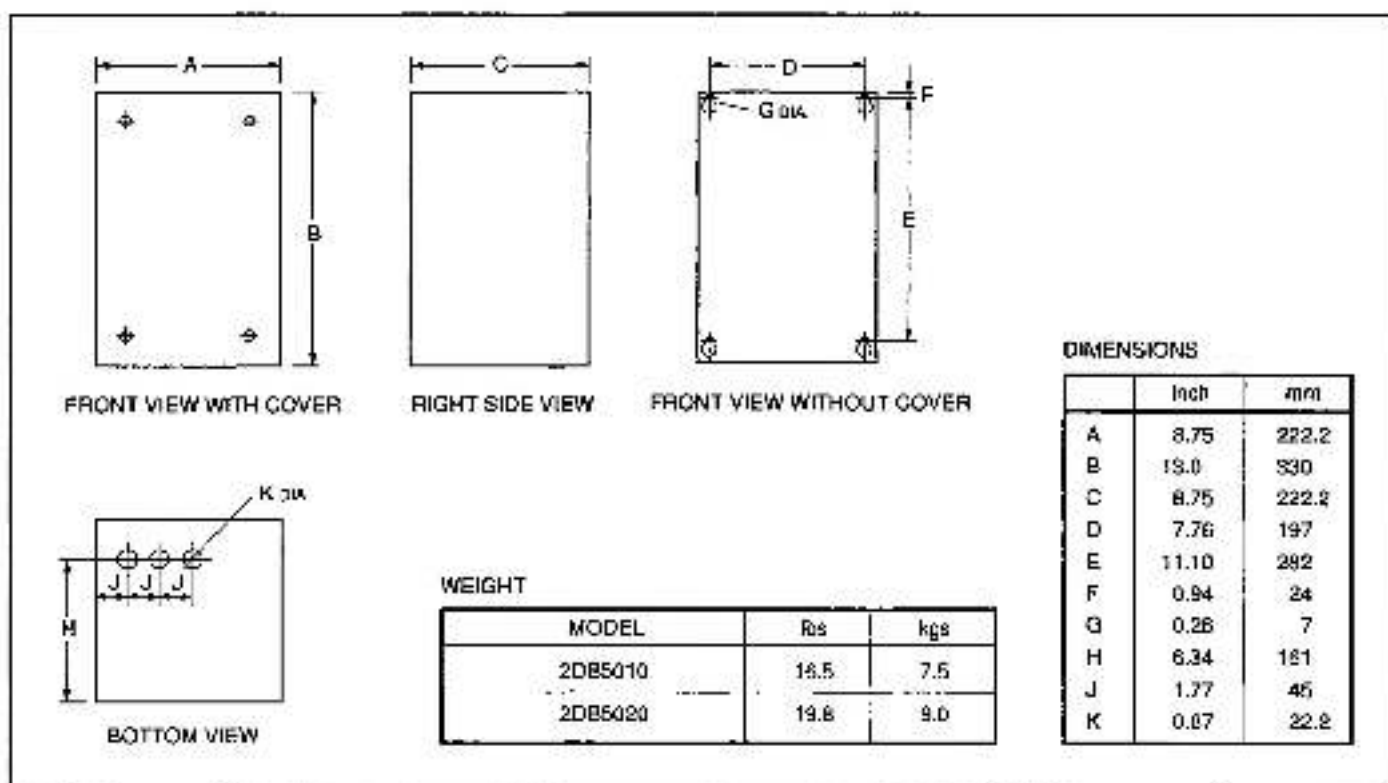


Figure 1. Mounting Data for Dynamic Braking Kit.

Operating Details

1. A neon lamp (RUN READY), mounted in the Dynamic Braking Kit, lights when the D-C bus voltage reaches 90 VDC or more.
2. When in the regenerative mode, the D-C bus voltage will rise as the motor decelerates. If the D-C bus voltage exceeds 920 V, D.B. signal comes to the dynamic braking kit from the controller and the LED (DB SIGNAL) lights.
3. Controller IET (function loss) occurs when the D-C bus voltage exceeds 990 V or regenerative A-C current exceeds 200% of the controller full-load rating. This may indicate that a higher resistance value is required. Consult with Reliance Electric.
4. If the temperature of the dynamic braking resistor exceeds the 210°C setting of the thermal switch, the LED (OVERHEAT) will light and Controller IET (function loss) will occur at once.
5. Allow adequate cooling time for the kit and press the STOP key on the GP-2000 controller to reset IET.

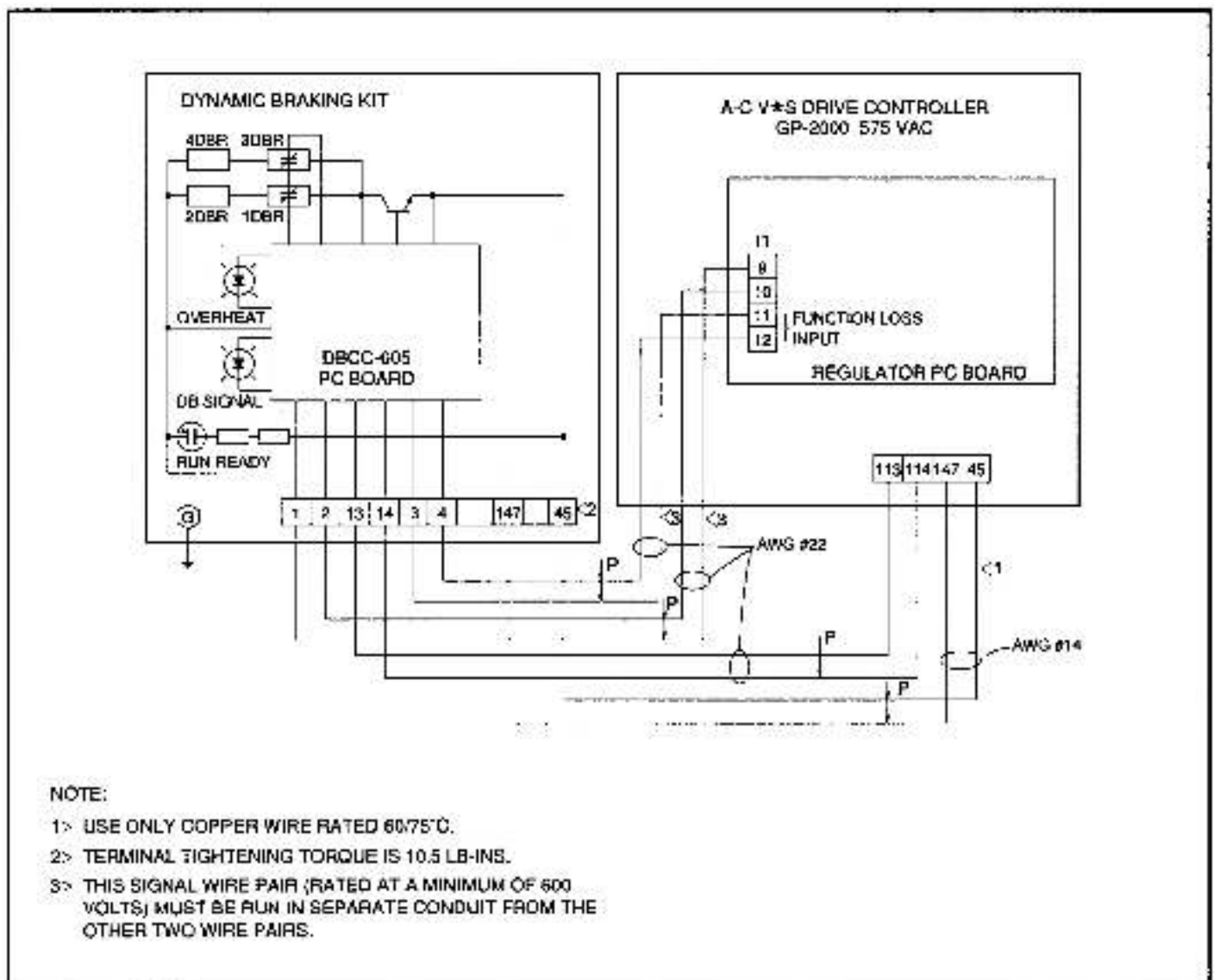


Figure 2. Connection Diagram.

