

# Torque Taper Kit for Non-Regenerative FlexPak Plus and MinPak Plus DC Drives

Model Number 14C224

Instruction Manual D2-3386



**ATTENTION:** Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, and/or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

## Product Description

The Torque Taper kit allows fine adjustment of the slope and breakpoint of the drive's speed-torque curve. It should be used where simple, center-driven winders and similar applications require a reciprocal speed-torque relationship to maintain constant tension as material builds up. In these cases, a higher current limit (higher torque) setting is required for a decrease in motor speed due to a growing diameter. See figure 1.

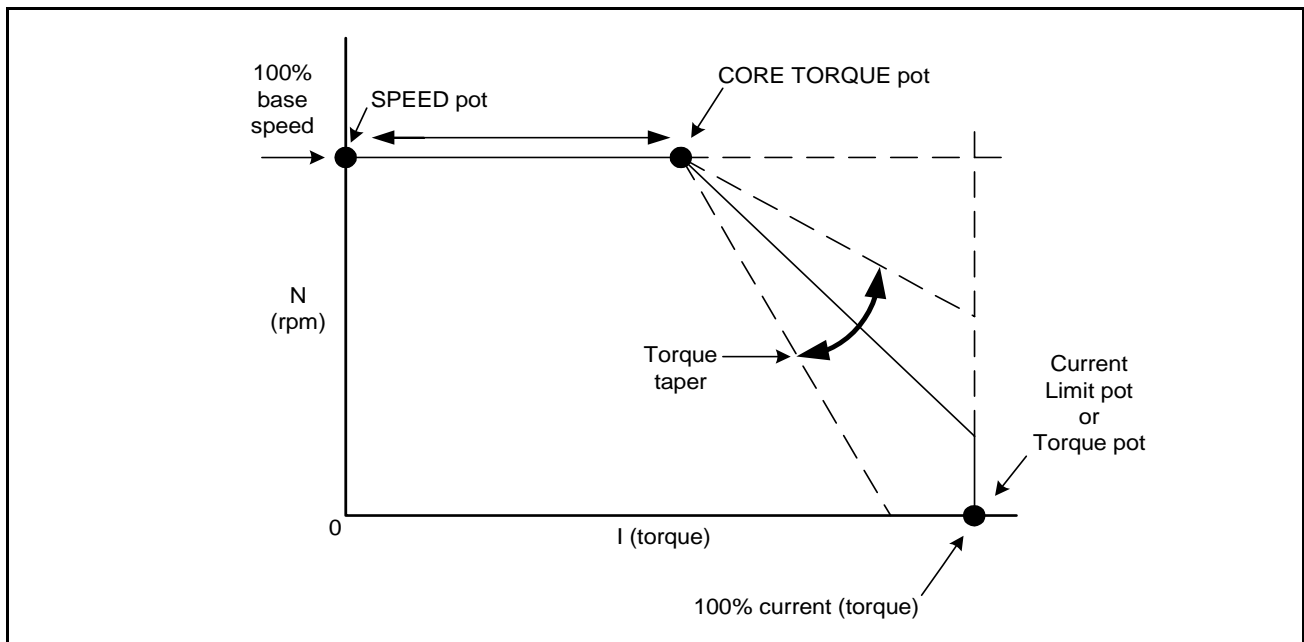


Figure 1 – Torque Curves

The Torque Taper kit comprises a module (printed circuit board) and a mounting screw. No other equipment is required. However, the Speed potentiometer and either the Torque potentiometer or the Current Limit potentiometer on the drive's Regulator module are used in conjunction with the two potentiometers on the Torque Taper module.

## Installing and Adjusting the Torque Taper Kit



**ATTENTION:** Do not install modification kits with power applied to the drive. Disconnect, lock out, and tag all sources of incoming AC power to the drive before attempting such installation. Verify that no voltage is present at the drive's AC input terminals, L1/181 and L2/182. Failure to observe this precaution could result in severe bodily injury or loss of life.

**ATTENTION:** The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Refer to your drive instruction manual for help locating and identifying drive components.

To install the Torque Taper kit in your non-regenerative FlexPak Plus or MinPak Plus DC drive:

- Step 1. Disconnect, lock out, and tag input power to the drive.
- Step 2. Remove the drive cover and verify that no voltage is present at the drive's AC input terminals, L1/181 and L2/182.
- Step 3. Remove jumpers J7 and J8 on the Regulator module. See figure 2.
- Step 4. Orient the Torque Taper module over the area marked TORQUE TAPER on the Regulator module, just over the seven pins. Press down so that the pins pass through the guides on the Torque Taper module. Use the mounting screw to secure it.
- Step 5. On the Regulator module, adjust the Current Limit potentiometer counter-clockwise (CCW) to 100%, or lower, depending on the application. It is shipped from the factory set at 150%. Dot No. 4 is approximately 100%. Refer to figure 3.
- Step 6. On the Torque Taper module, turn the CORE TORQUE potentiometer completely CCW. The core torque setting provides a minimum winding torque, or minimum strip tension, when the winding cycle begins.
- Step 7. On the Torque Taper module, turn the TORQUE TAP. ADJ. potentiometer completely CW. This assures that excessive tension will not develop as the first coil or package is wound.

**Important:** The remaining steps assume that the complete drive system has been successfully started up according to the instructions in the drive user manual. They provide a power-on test.

Note that an ammeter in the armature circuit is useful when adjusting both potentiometers on the Torque Taper module. Observing the ammeter, which shows current, and the growing coil diameter gives visual confirmation whether the current (Torque) is increasing too fast or slow in relation to the build-up.

- Step 8. Thread the strip onto the winder and securely fasten it to the core. Remove all strip slack before the drive is restarted.
- Step 9. Set the Maximum Speed potentiometer for a safe maximum winder speed.
- Step 10. Remove the lockout and tag. Apply power to the drive.
- Step 11. Start the drive.

If the strip web breaks immediately, stop the drive. Reduce the Current Limit potentiometer (CCW reduces current (torque)).

If the strip does not break immediately, start the process and allow the winder to begin winding. Accelerate to the normal running speed. On the Torque Taper module, adjust the CORE TORQUE potentiometer to obtain the desired strip tension at the beginning of the coil (CCW decreases tension).

Step 12. As the coil or package increases in diameter, adjust the TORQUE TAP. ADJ. potentiometer to maintain the proper tension (CCW increases tension). Adjust in small increments as the diameter grows.

**Important:** Depending on the amount of torque taper desired and the size of the coil or package being wound, the drive may go into current limit. However, the Current Limit potentiometer on the Regulator module must never be set higher than 100% of the nameplate current rating on the motor.

Step 13. Stop the drive. Disconnect, lock out, and tag input power to the drive.

Step 14. Reattach the cover to the drive.

Step 15. Remove the lock out and tag.

This completes the installation of the Torque Taper kit.

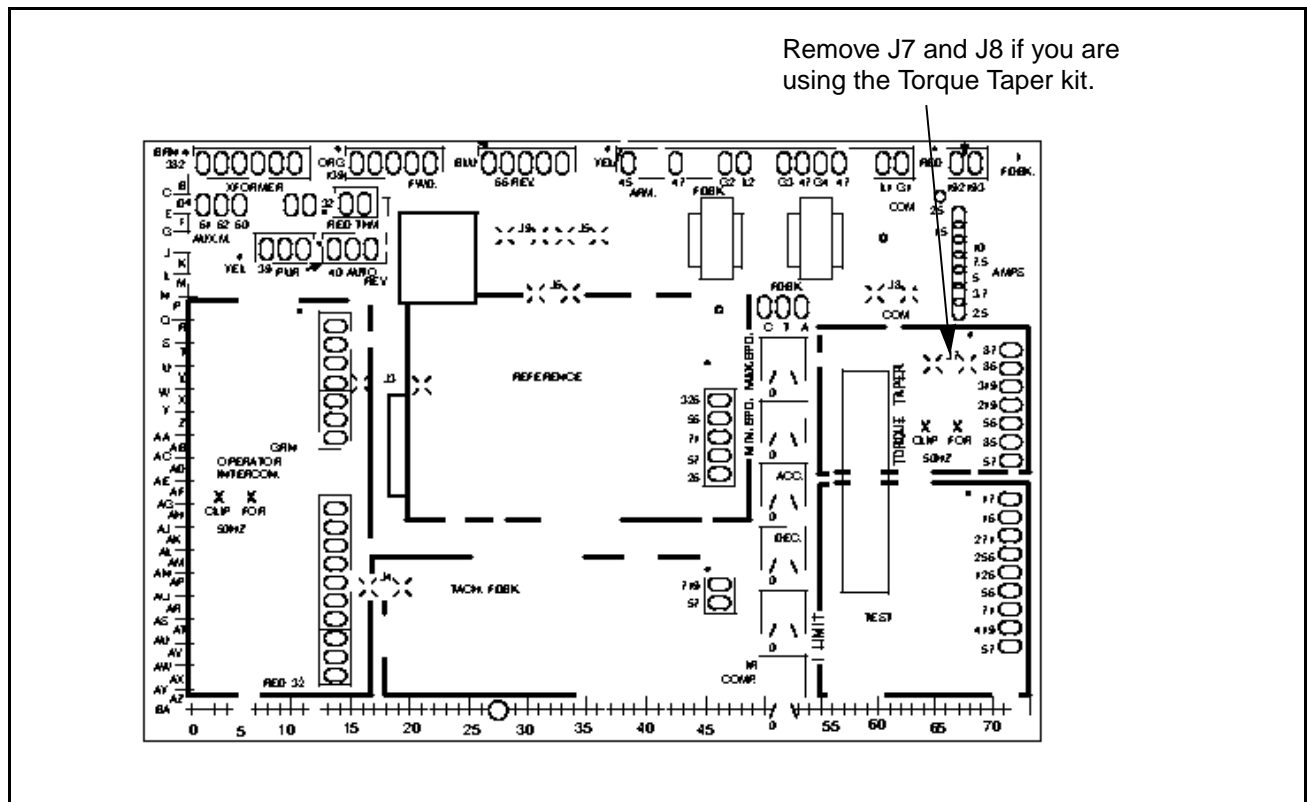


Figure 2 – Regulator Module Jumper Locations

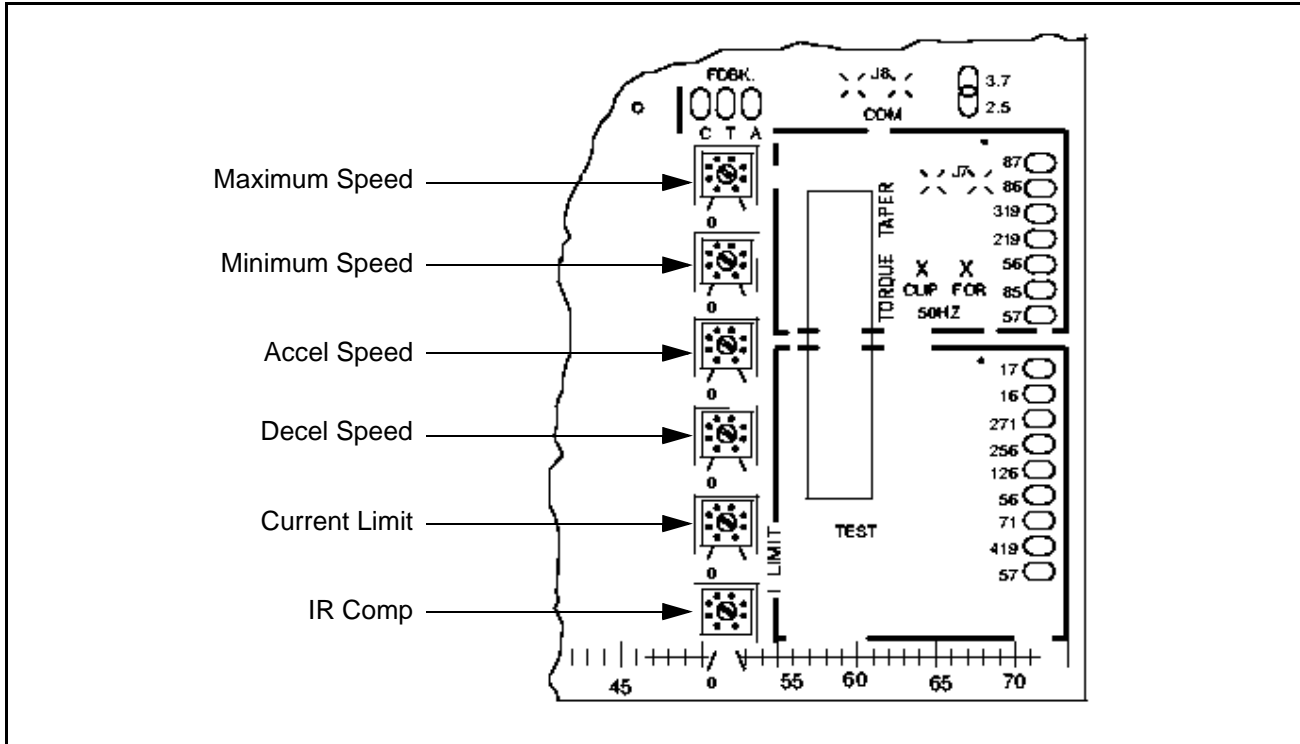


Figure 3 – Regulator Module Potentiometers

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