

CTCW Constant Tension Center Wind Control

Model D10337-000

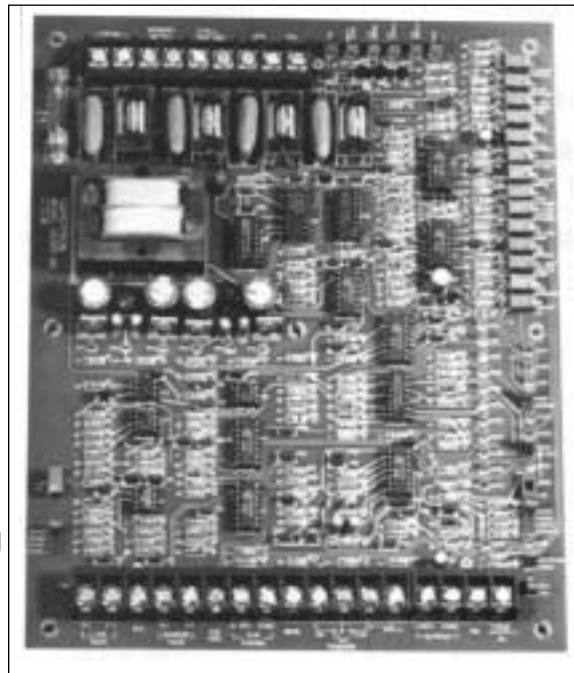
General Description

The Carotron CTCW (Constant Tension Center Wind) Control is designed for use with a torque mode drive to provide constant tension or taper tension control of a center driven winder.

Web tension is regulated by controlling motor torque through varying levels of material roll diameter, line speed and line acceleration rate. These diameter, friction and inertia compensating torque signals are summed with other torque signals to further provide control of core tension, taper tension, stall tension and even Winder motor RPM when in the JOG mode.

The CTCW can accept an external diameter signal or can calculate diameter from Line and Winder speed signals by an internal Radius Computer with memory.

A +10 VDC reference is available for a direct contact rider roll compensator to measure diameter. The Line Speed signal input is isolated to allow use of existing feedback or process tachometers.



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Standard Features

- Provides constant tension or taper tension torque reference to a torque mode drive based on the following:
 - Core tension, minimum torque
 - Taper tension, change in tension as roll builds
 - Diameter compensation, increase torque with roll build
 - Friction compensation, torque increases with line speed
 - Inertia compensation, torque increases with line acceleration rate
 - Stall tension, parking torque selectable by contact closure
- Torque reference output is +10 VDC maximum
- Isolated line speed input for up to 240 VDC as signal input to radius computer and inertia compensation circuits
- Accepts the following for diameter compensation
 - Line speed signal and winder speed signal to calculate roll radius on board and store in 8 bit digital memory
 - Externally generated signal from a sonic or optical sensor, +10 VDC max. at full diameter
 - Direct contact rider roll compensator to measure roll diameter. A +10 VDC reference is supplied to source a potentiometer
- Maximum roll build range is 10 to 1
- On-board velocity loop for jog speed control using armature voltage feedback that is selectable for 90 or 180 VDC
- 20 turn cermet calibration potentiometers
- On-board 115 VAC relays allow contact closures from external logic to select jog, stall tension or memory reset functions

Specifications

A.C. INPUT

- 115 VAC, 50/60 Hz, 11VA max., internally fused

SIGNAL INPUTS

- Line speed signal, isolated, 240 VDC maximum in four ranges
- Winder speed signal, 240 VDC maximum in four ranges
- Diameter signal, +10 VDC maximum
- Tension pot. input, 1K ohm minimum resistance
- Winder armature signal, 90 and 180 VDC ranges

BUILD RANGE

- 10 to 1

CONTROL RELAYS

- Jog relay, 115 VAC @ .1VA, customer contact required
- Stall tension relay, 115 VAC @ .1 VA, customer contact required
- Memory reset relay, 115 VAC @ .1 VA, customer contact required

SIGNAL OUTPUTS

- Torque mode -10 VDC maximum torque reference
- Jog mode -3 VDC maximum, closed loop speed reference equivalent to 500 RPM motor speed, adjustable

SPEED/TORQUE CURVES FOR CTCW CONTROL

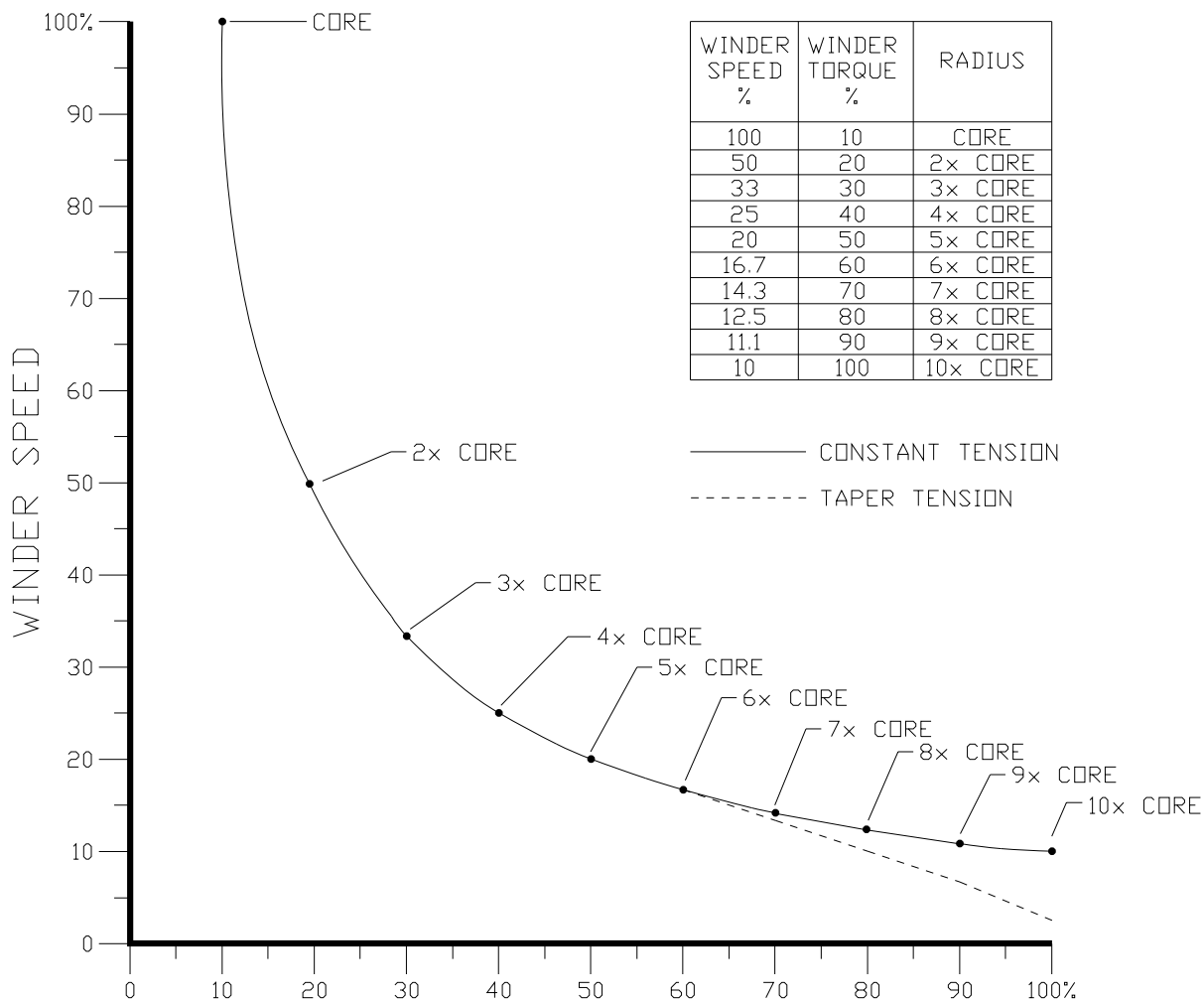


Fig. C.17

Application Example

Center Winder

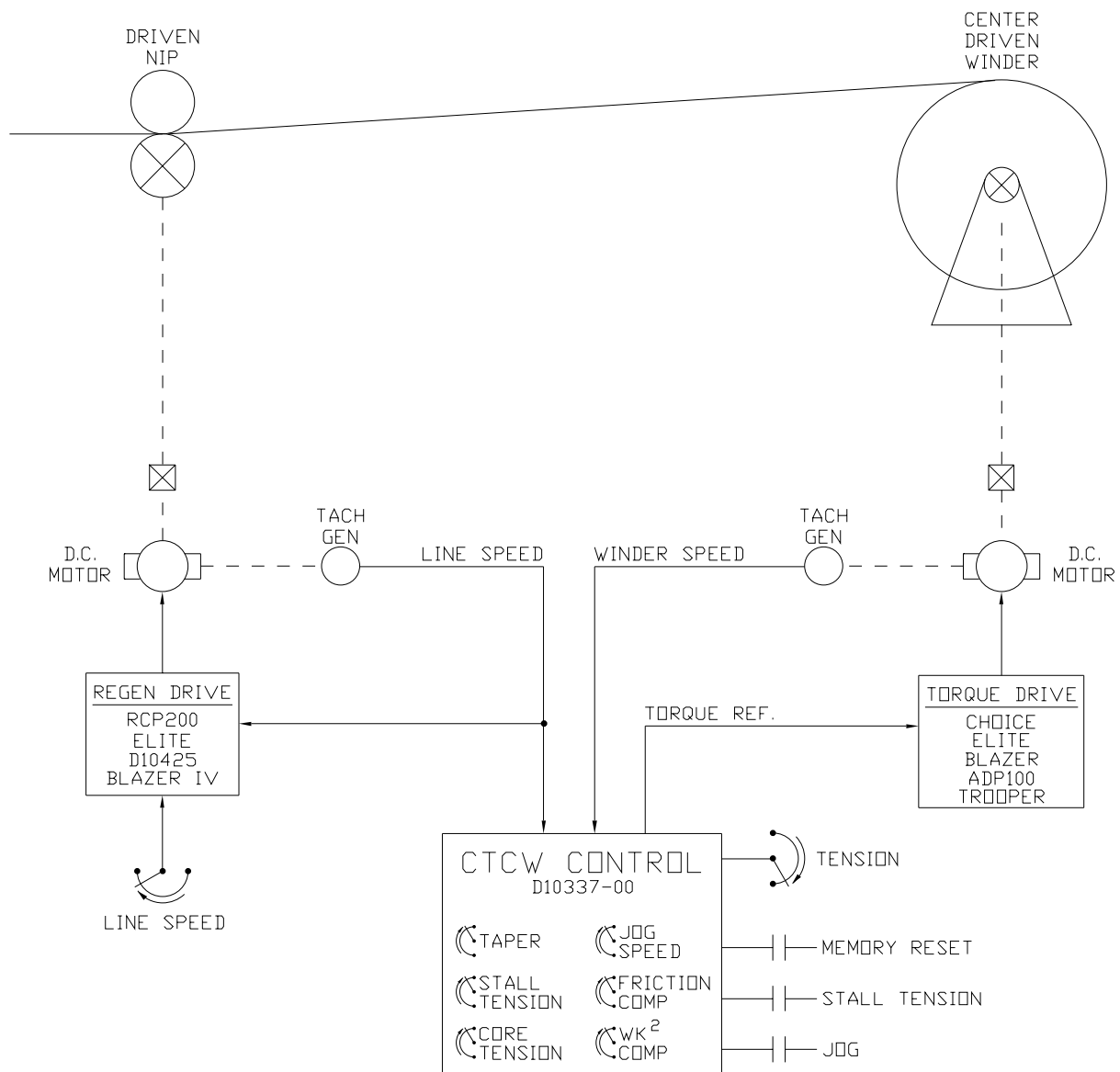


Fig. C.18

