

TROOPER®

TDP500 SERIES 1/8 - 3 HP DC Motor Controls

General Description

The TROOPER® TDP500 Series of DC motor controls is an economical alternative for your speed or torque control applications. Though designed for economy, the TROOPER® Series still provides the quality and performance many have come to know as a trademark of all CAROTRON products. Packed with features generally only available in more expensive controllers, the TROOPER® is a very attractive addition to the CAROTRON family.

Two basic models are offered one in a compact chassis and one in a NEMA 4 watertight enclosure.

Sixteen models provide full range speed or torque control of shunt wound or permanent magnet type D.C. motors from 1/8 to 3 HP. Various models are offered with options that add torque/taper control, manual reversing with torque/taper or process follower isolation for both chassis and enclosed models.

60 PPR encoder or pulse tachometer feedback is another key standard feature in the TROOPER® series. This feature allows frequency signals required for process monitoring to be used to improve speed regulation and simplify system requirements.



Standard Features

- Standard NEMA 4, UL Type 4, watertight rating for all enclosed models
- Jumper selectable speed feedback to allow use of armature voltage, D.C. tachometer, or 60 pulse encoder (Reversing models will not operate in D.C. TACH feedback)
- Start, Stop and Jog sequencing logic in all models
- Five jumper selectable armature current ranges
- Quality components such as I.C. regulators, metal film resistors, and cermet potentiometers for temperature stable operation
- Inner current loop for fast stable response under varying load conditions
- Power On/Off switch on all enclosed models for local safety power disconnect
- Membrane switch panel with Start, Stop and Jog pushbuttons for all enclosed models
- Torque/Taper models with provision for external torque potentiometer available in chassis or enclosed versions
- Manual reversing models with Torque/Taper are available in chassis or enclosed versions
- Process follower models are offered that give manual/auto functions and isolated 0-10 VDC or 4-20 mA input to the drive for speed control in the auto mode

Specifications

TDP 502 Models

A.C. INPUT

- 115VAC \pm 10%, 50/60 Hz \pm 2Hz
- 230VAC \pm 10%, 50/60 Hz \pm 2Hz

ARMATURE OUTPUT

- 90VDC for 115VAC input
- 0-180VDC for 230VAC input

FIELD OUTPUT

- 100VDC @ 1A (115VAC in)
- 200VDC @ 1A (230VAC in)

HORSEPOWER RANGE

- 1/8 - 1 HP @ 90VDC
- 1/4 - 2 HP @ 180VDC

TDP 503 Models

A.C. INPUT

- 230VAC \pm 10%, 50/60 Hz \pm 2Hz

ARMATURE OUTPUT

- 0-180VDC

FIELD OUTPUT

- 200VDC @ 1A

HORSEPOWER RANGE

- 1/2 - 3 HP @ 180VDC

All Models

ENCODER SUPPLY

- 50mA @ 12VDC

JOG SPEED

- 20% of base speed

CURRENT LIMIT

- 150% of current range selected

ADJUSTMENTS

MIN

- 0 to 25% of full speed (Speed Mode)
- 0 to 10% of rated torque (Torque Mode)

MAX

- -20 to +10% of full speed (Speed Mode)
- -20 to +10% of rated torque (Torque Mode)

IR COMPENSATION

- Range set by current range jumper

ACCEL

- Independently adjustable from 1 to 25 seconds

TORQUE

- (Torque/Taper Option Only): Sets tension level for core diameter

TAPER

- (Torque/Taper Option Only): Sets tension level for full package diameter

SPEED REGULATION

- 20 to 1 speed range

ARMATURE FEEDBACK

- \pm 1% of base speed

TACHOMETER FEEDBACK

- 7V/1000 RPM: \pm 0.5% of base speed (Non-reversing models only)

ENCODER FEEDBACK

- 60 PPR: \pm 0.5% of base speed

TORQUE REGULATION

- \pm 2% of range selected

TEMPERATURE RANGE

- 0 - 55°C for chassis units
- 0 - 40°C for enclosed units

Standard Models and Descriptions

115VAC Input	230VAC Input	Model Number	Description	Approx. Shpg. Wt.	Dim	Conn.
1/8 – 1 HP	1/4 – 2 HP	TDP502-000	Chassis Only, Basic Model	4 lbs	Fig B.1	Fig B.5
–	1/2 – 3 HP	TDP503-000	Chassis Only, Basic Model	6 lbs	Fig B.3	Fig B.9
1/8 – 1 HP	1/4 – 2 HP	TDP502-00T	Chassis Only with Torque/Taper	4 lbs	Fig B.1	Fig B.6
–	1/2 – 3 HP	TDP503-00T	Chassis Only with Torque/Taper	6 lbs	Fig B.3	Fig B.10
1/8 – 1 HP	1/4 – 2 HP	TDP502-0RT	Chassis Only with Torque/Taper and Manual Reversing	4 lbs	Fig B.1	Fig B.7
–	1/2 – 3 HP	TDP503-0RT	Chassis Only with Torque/Taper and Manual Reversing	6 lbs	Fig B.3	Fig B.11
1/8 – 1 HP	1/4 – 2 HP	TDP502-0PF	Chassis Only with Process Follower (0-10VDC & 4-20mA)	4 lbs	Fig B.1	Fig B.8
–	1/2 – 3 HP	TDP503-0PF	Chassis Only with Process Follower (0-10VDC & 4-20mA)	6 lbs	Fig B.3	Fig B.12
1/8 – 1 HP	1/4 – 2 HP	TDP502-E00	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot. and Power On/Off Switch	8 lbs	Fig B.2	Fig B.5
–	1/2 – 3 HP	TDP503-E00	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot. and Power On/Off Switch	10 lbs	Fig B.4	Fig B.9
1/8 – 1 HP	1/4 – 2 HP	TDP502-E0T	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch and Torque/Taper	8 lbs	Fig B.2	Fig B.6
–	1/2 – 3 HP	TDP503-E0T	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch and Torque/Taper	10 lbs	Fig B.4	Fig B.10
1/8 – 1 HP	1/4 – 2 HP	TDP502-ERT	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch, Manual Rev. and Torque/Taper	8 lbs	Fig B.2	Fig B.7
–	1/2 – 3 HP	TDP503-ERT	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch, Manual Rev. and Torque/Taper	10 lbs	Fig B.4	Fig B.11
1/8 – 1 HP	1/4 – 2 HP	TDP502-EPF	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch, Auto/Man Switch and Process Follower (0-10VDC & 4-20mA)	8 lbs	Fig B.2	Fig B.8
–	1/2 – 3 HP	TDP503-EPF	NEMA 4 Enclosed Model with Start PB, Stop PB, Jog PB, Speed Pot., Power On/Off Switch, Auto/Man Switch and Process Follower (0-10VDC & 4-20mA)	10 lbs	Fig B.4	Fig B.12

Dimensions

2HP Chassis Models

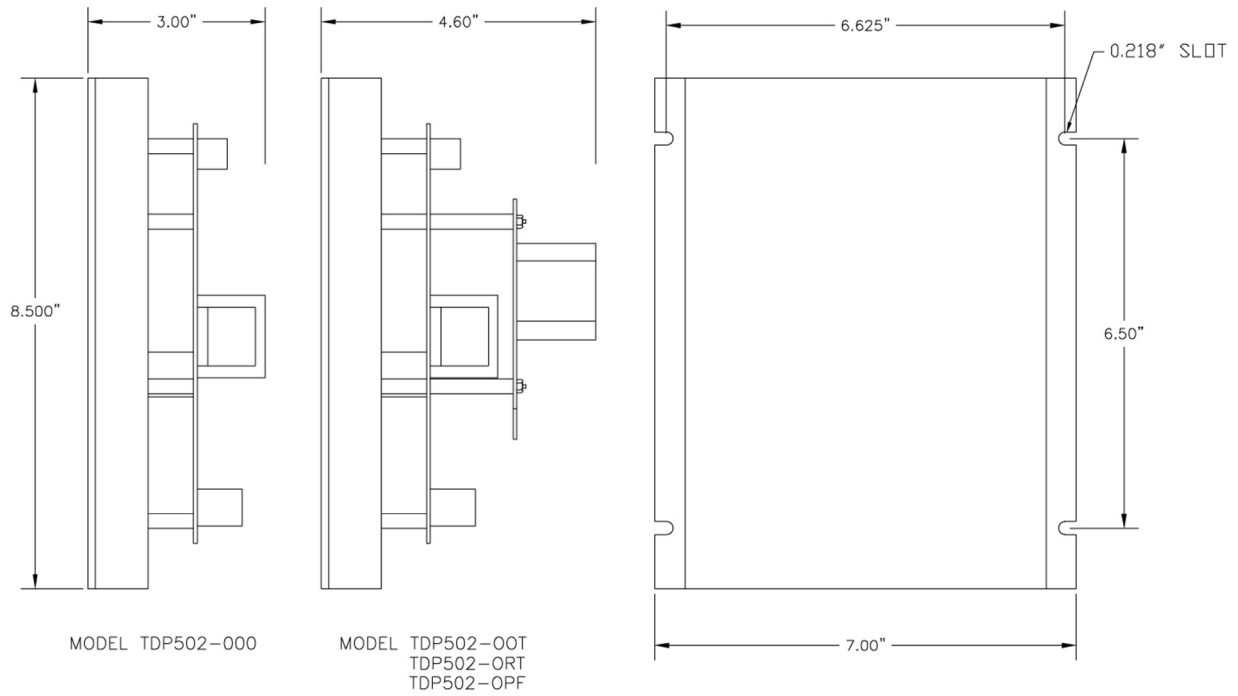


Fig. B.1

2HP Enclosed Models

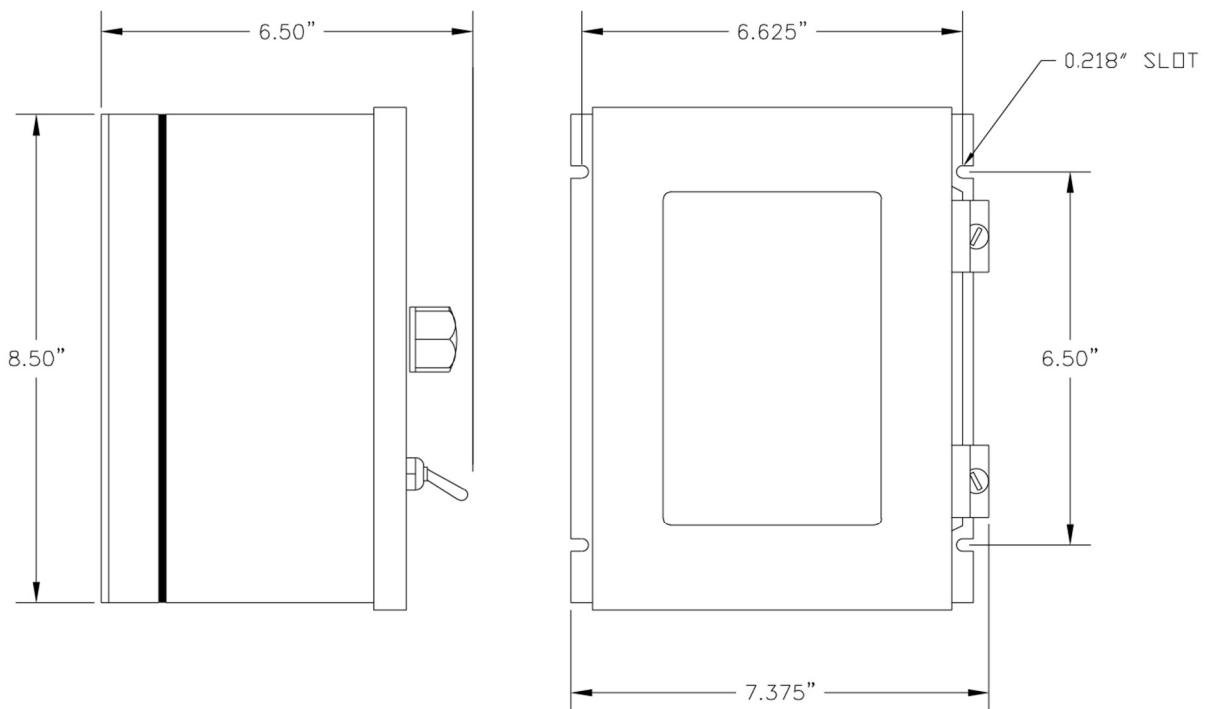


Fig. B.2

3HP Chassis Models

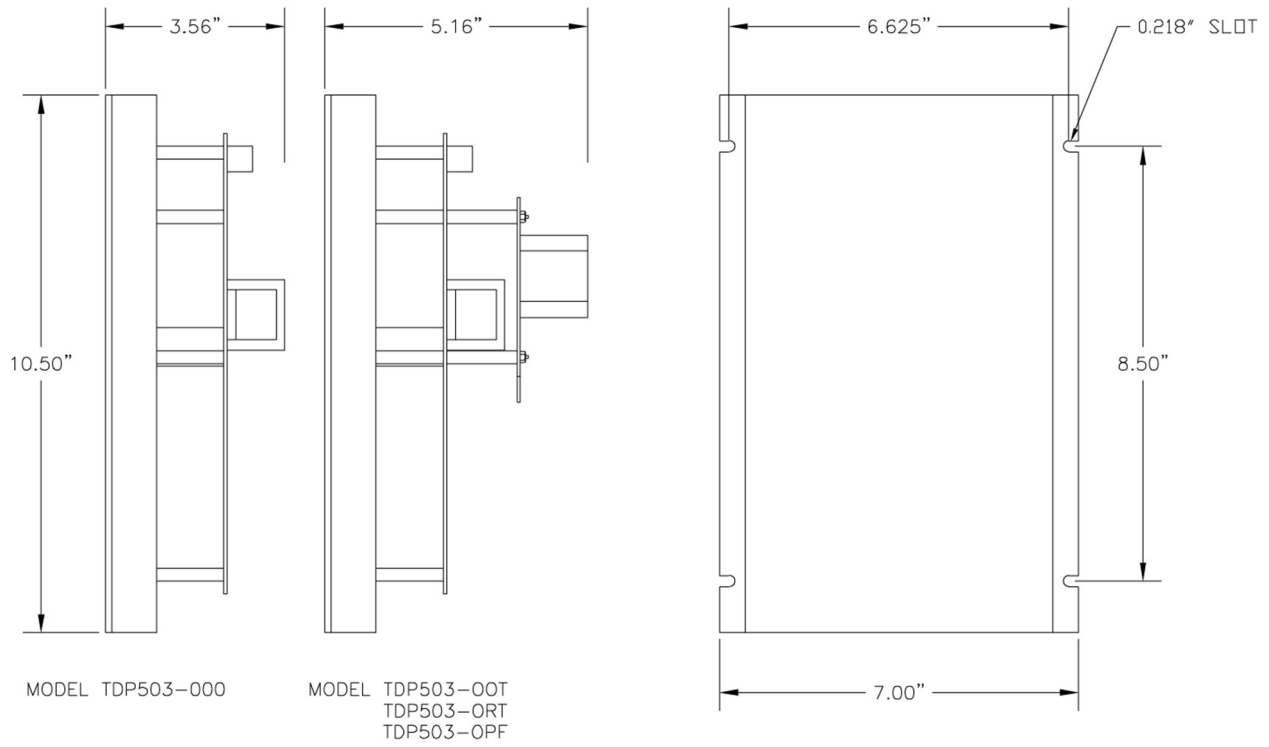


Fig. B.3

3HP Enclosed Models

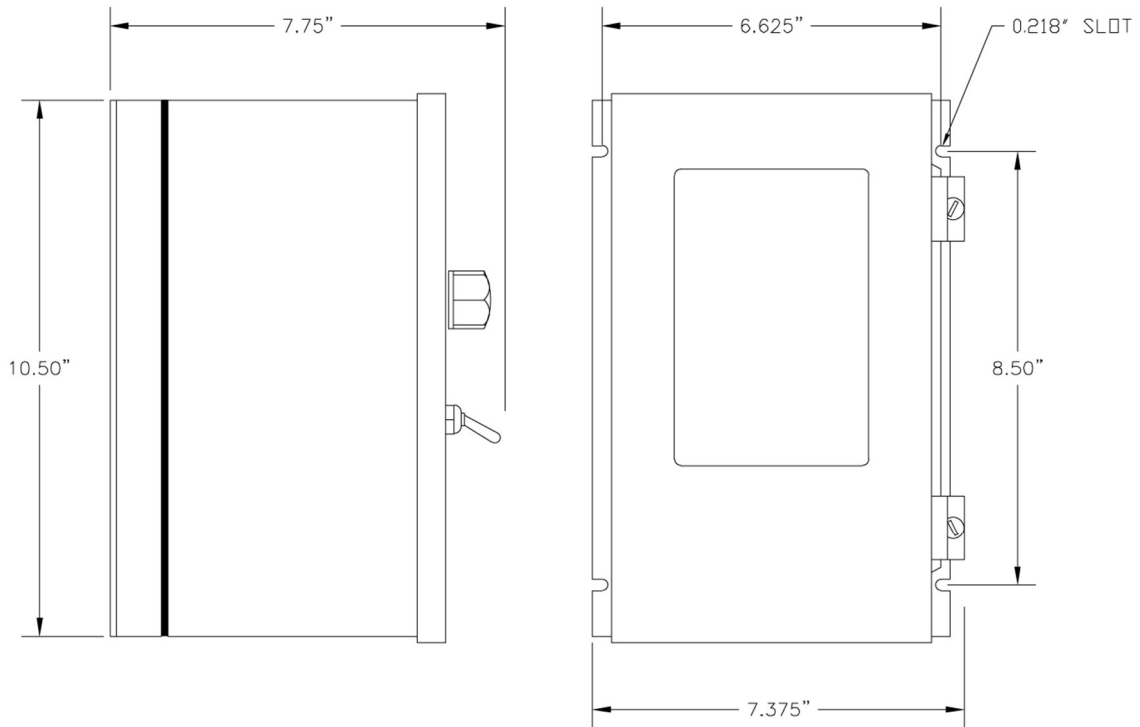


Fig. B.4

Connections

Models TDP502-000 and TDP502-E00

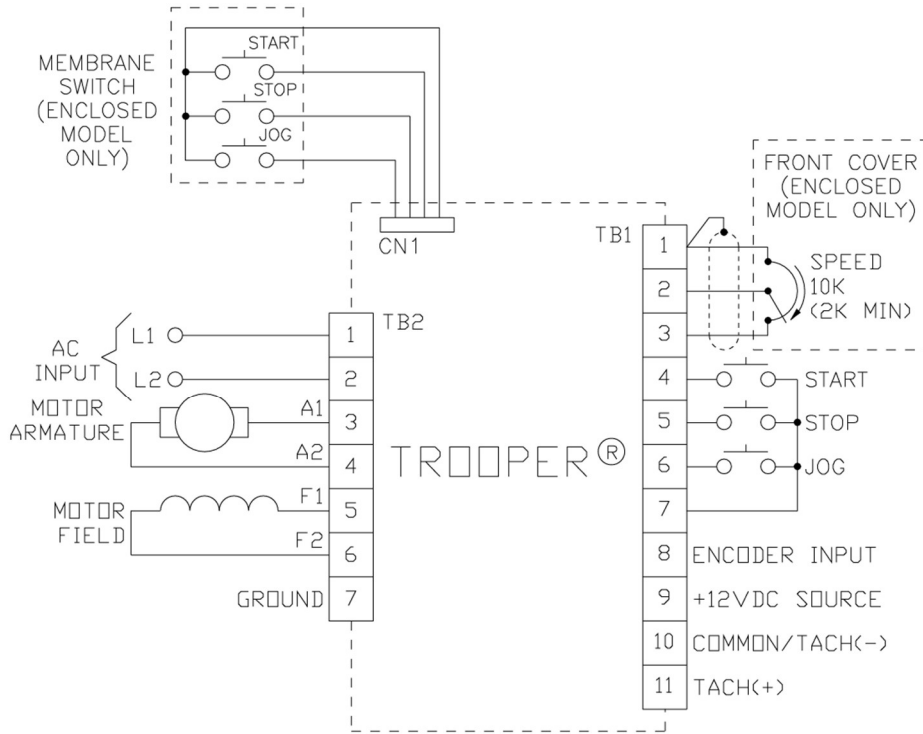


Fig. B.5

Models TDP502-00T and TDP502-E0T

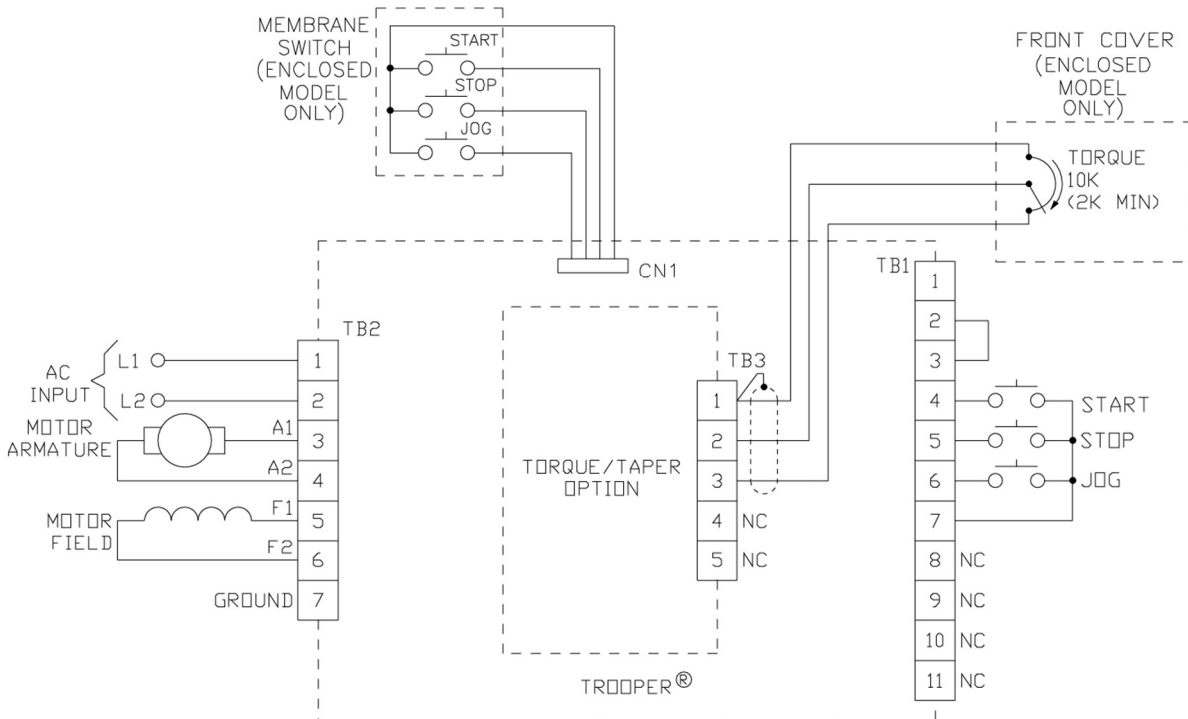


Fig. B.6

Models TDP502-ORT and TDP502-ERT

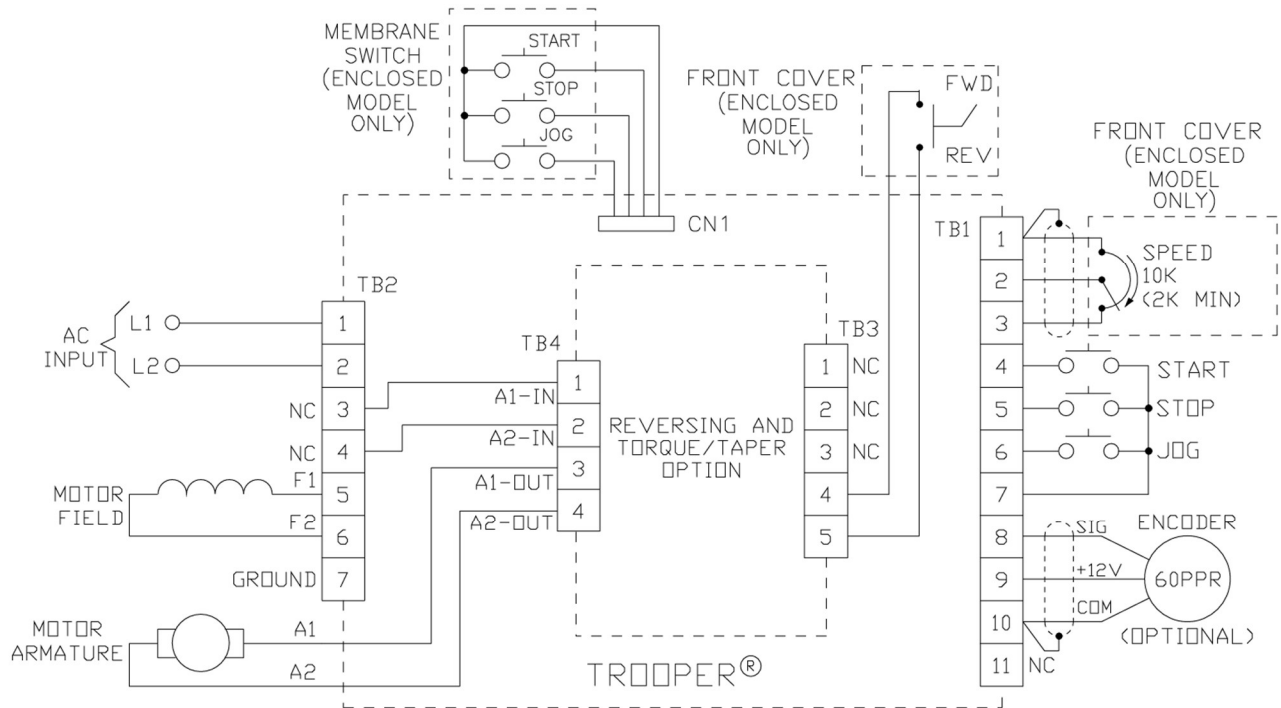


Fig. B.7

Models TDP502-OPF and TDP502-EPF

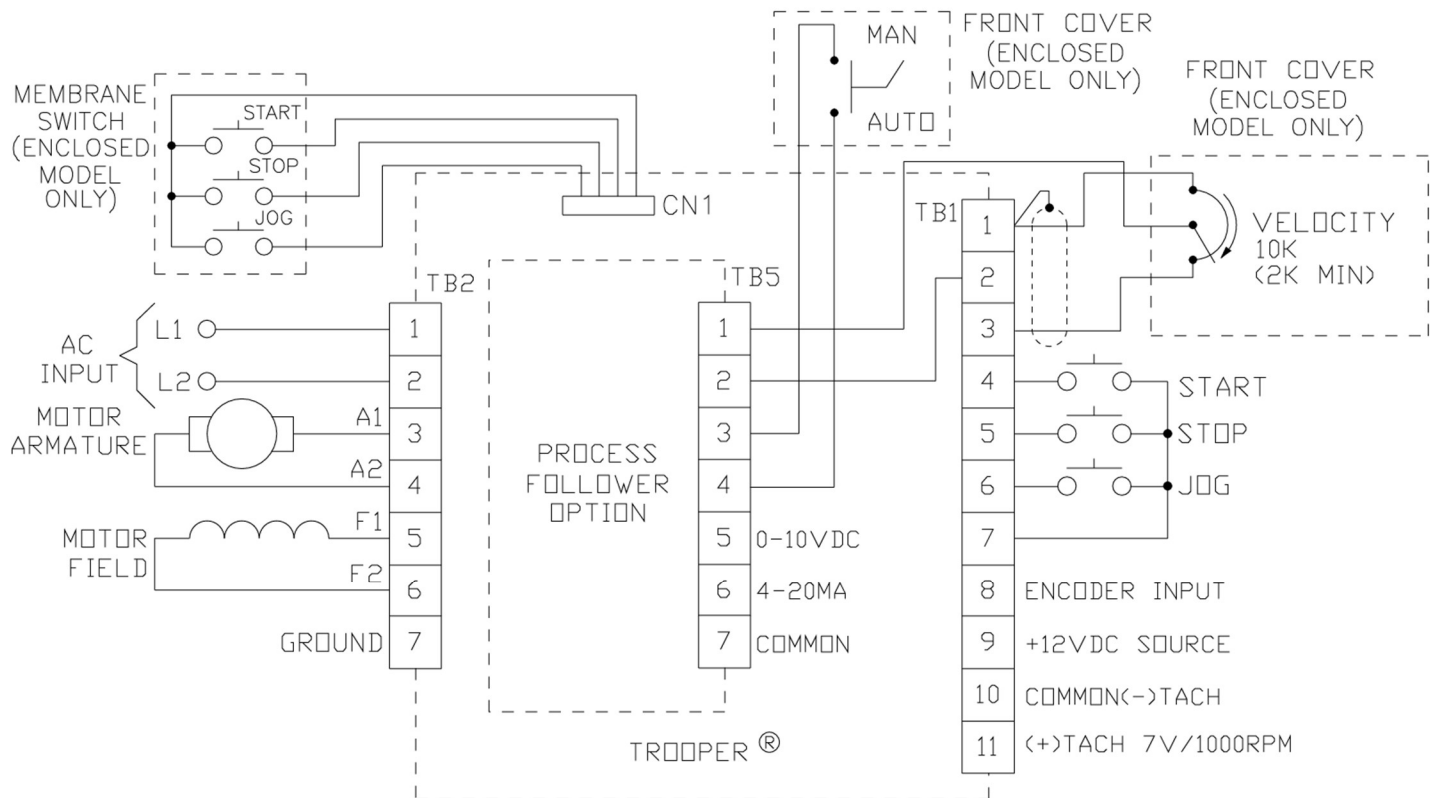


Fig. B.8

Models TDP503-000 and TDP503-E00

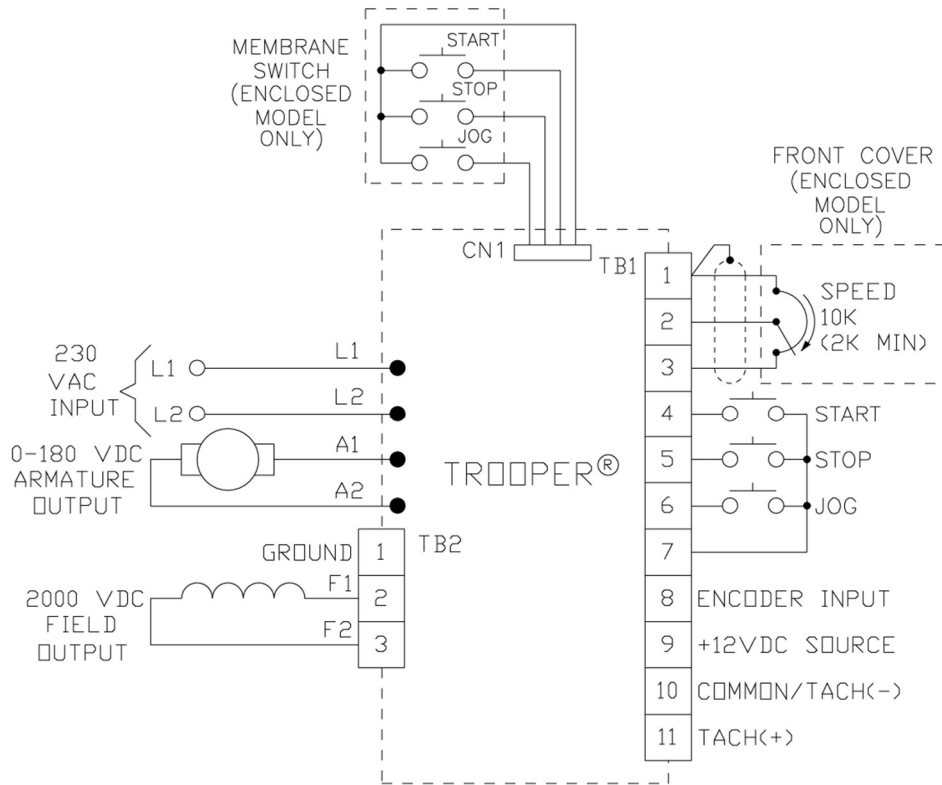


Fig. B.9

Models TDP503-00T and TDP503-E0T

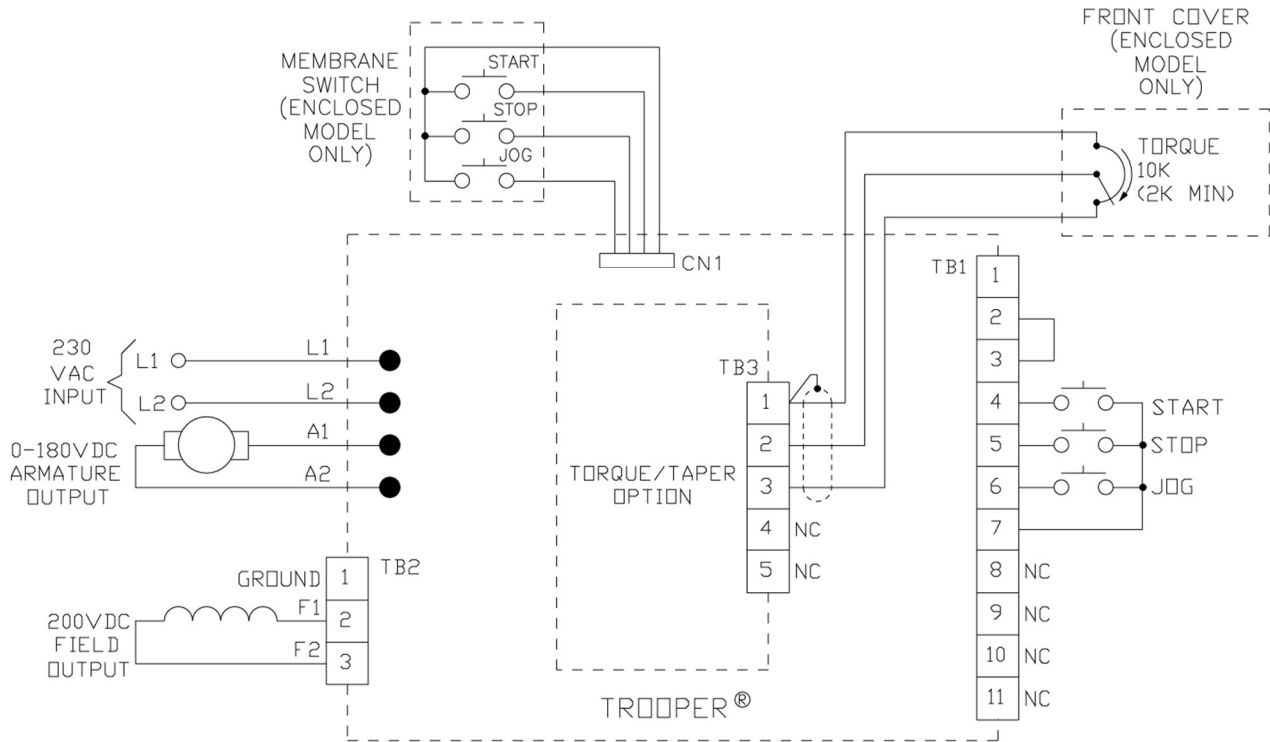


Fig. B.10

Models TDP503-ORT and TDP503-ERT

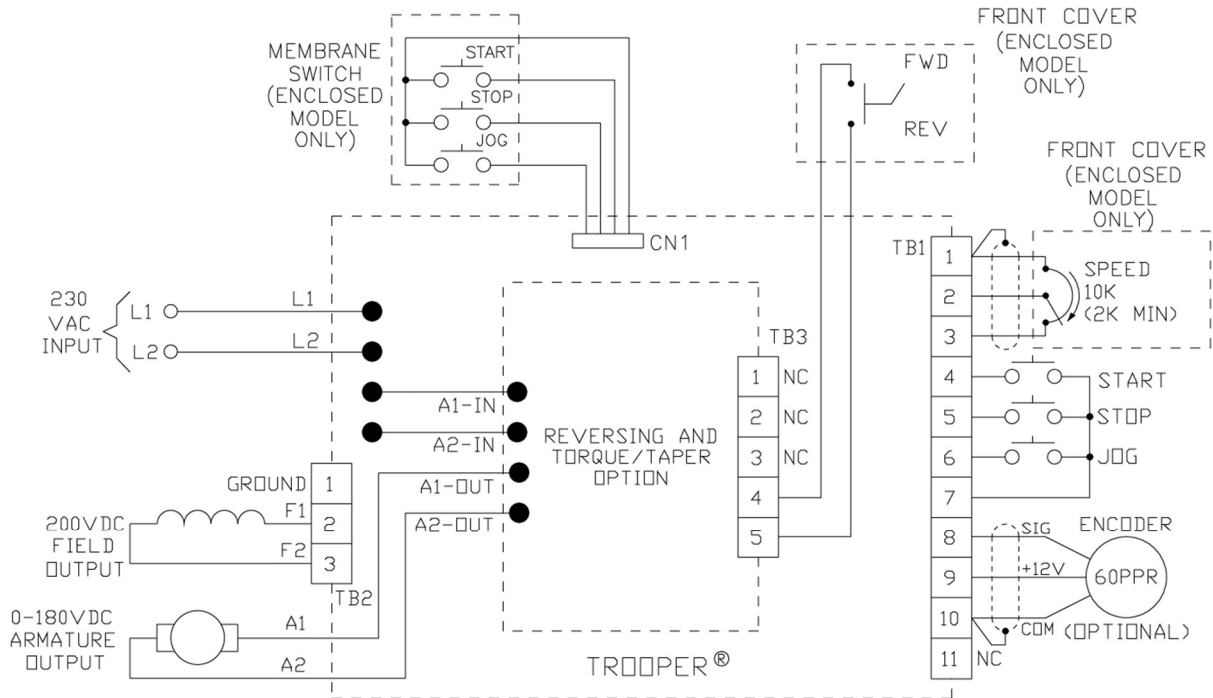


Fig. B.11

Models TDP503-OPF and TDP503-EPF

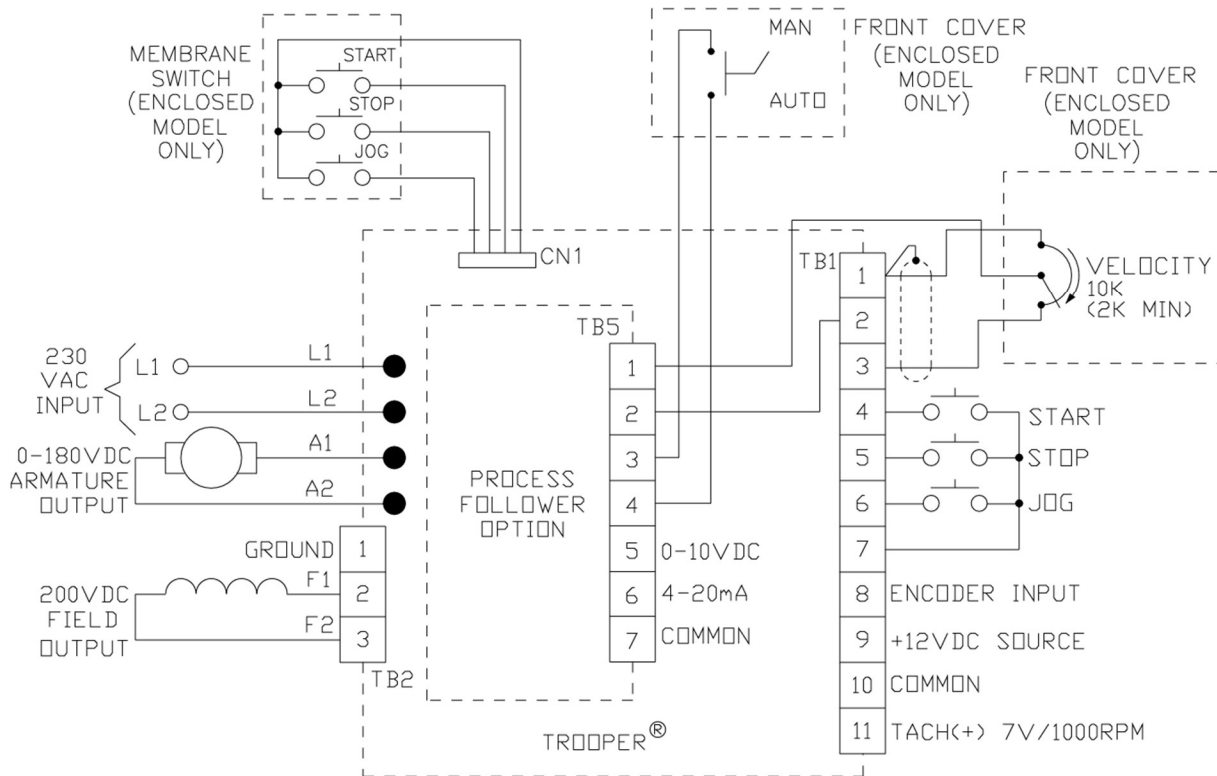


Fig. B.12