INSTRUCTION MANUAL D2-3305-2
Motor Encoder Cable Kit
for the GV3000 A-C V★S Drive
Model Numbers 2TC3xxx and 2TC4xxx,

DANGER

ONLY QUALIFIED 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 INSTRUCTION MANUAL IN ITS ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

CAUTION: All interconnecting wiring must be sized and installed in conformance with applicable local, national, and international codes. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

The products described in this instruction manual are manufactured and distributed by Reliance® Electric Industrial Company.

Description

This instruction manual describes how to use the Motor Encoder Cable Kit to connect a pulse tachometer to the GV3000 A-C V★S® drive. The manual is intended for the use of qualified electrical personnel.

The cable supplied with the kit contains three twisted-pairs (2-3 twists per inch) enclosed in a plenum grade jacket. Cables are supplied in pre-measured lengths. They can be ordered with both ends bare or with one end bare and a tachometer connector on the other end. The installation procedure consists of assembling the cable (Models 2TC4100 and 2TC4300 only), routing the cable, and connecting the cable to the pulse tachometer and the GV3000 control terminal strip.

Verifying the Kit Model Number Matches the Tachometer

Motor encoder cable kits are rated for use with Reliance GV3000 A-C V★S drives and Reliance Vector Induction Motors equipped with Dynapar or Tamagawa pulse tachometers. To ensure that the cable kit matches your drive and tachometer, the kit should be used only with Reliance GV3000 drives and only as listed in table 1.

Table 1 - Cable Kit Model Numbers

Kit Model Number	Tachometer Manufacturer	Termination Type
2TC3025 2TC3075	Dynapar	Connector and exposed wire pairs
2TC4025 2TC4075	Tamagawa	
2TC4100 2TC4300	Dynaper or Tamagawa	Exposed wire pairs (both ends)

Checking the Contents of the Kit

Depending upon the model number purchased, motor encoder cable kits are supplied as a complete assembly or as a separate cable with two nylon strain reliefs as shown in figure 1. Cable lengths range from 25 feet (7.62 m) to 300 feet. (91.44 m). Motor encoder cable kit contents are illustrated in figure 1 and listed in table 2.

Table 2 - **Motor Encoder Cable Kit Contents**

Kit Model Number	Contents	Cable Length Ft. (meters)	Cable Part Number
2TC3025	Cable with pulse tachometer connector on one end	25 (7.62)	615183-3R
2TC3075		75 (22.86)	615183-3S
2TC4025		25 (7.62)	615183-1B
2TC4075		75 (22.86)	615183-1D
2TC4100	Cable with exposed wire ends (2) - Cable strain reliefs	100 (30.38)	615183-2AA
2TC4300		300 (91.44)	615183-2CA

(1) NOTE: *The cable jacket on exposed wire ends is stripped back approximately 1 foot (304.8 mm) to expose the wire pairs.*

Assembling the Connector and Cable (Model Numbers 2TC4100 & 2TC4300 only)

NOTE: *This section applies only to kits with exposed wires at both ends of the cable (Model Numbers 2TC4100 and 2TC4300). For other models, proceed to* ***Connecting the Cable to the Drive and Motor.***

For Dynapar pulse tachometers, refer to figure 2. For Tamagawa pulse tachometers, refer to figure 3.

Step 1. Remove the connector from the pulse tachometer provided with the motor.

Step 2. Unscrew the shell to disassemble the connector. On Tamagawa connectors a setscrew must be loosened before unscrewing the shell.

Step 3. Remove the attached connector strain relief clamp from the shell.

Step 4. Route the cable through the supplied cable strain relief, the connector's shell, and the outer ring as shown in figure 2 (Dynapar) or figure 3 (Tamagawa).

Step 5. Separate the wire pairs and trim the wires to about 1.5 inches (38.1 mm).

Step 6. Strip 1/4 inch (6.3 mm) of insulation from each wire.

Step 7. Solder each wire to the appropriate pin on the tachometer connector. The cable consists of three twisted-pair wires. Each pair can be identified by the wire's insulation color. Refer to the appropriate figure for color coding and function references.

Step 8. Check each solder joint for integrity. Check for and remove any solder bridges between connector pins.

Step 9. Slide the outer ring back onto the connector, and screw the shell into place. Re-tighten the setscrew on Tamagawa connectors.

Step 10. Slide the cable strain relief into the connector's shell and reattach the connector's strain relief clamp.

This completes the cable assembly. Proceed to the next section.

Connecting the Cable to the Drive and Motor

DANGER

DO NOT INSTALL MODIFICATION KITS WITH POWER APPLIED TO THE DRIVE. DISCONNECT, LOCKOUT, AND TAG INCOMING POWER BEFORE ATTEMPTING SUCH INSTALLATION. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER

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

Refer to figure 4 when making connections to the GV3000's control terminal strip.

Step 1. Disconnect, lockout, and tag power to the drive.

Step 2. Insert the cable's keyed connector into the motor's pulse tachometer connector and tighten the outer ring.

CAUTION: Do not route the pulse tachometer cable with power wiring in the same conduit. This may cause interference with drive operation. Route signal and power wiring in separate conduits. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Step 3. Route the cable from the motor to the GV3000 drive's enclosure.

Step 4. If not already done, loosen the four (4) captive screws on the GV3000 drive's cover and remove the cover from the drive.

Step 5. Route the cable through the wiring opening at the bottom left of the drive.

Step 6. Make sure that the wires in the cable can reach the GV3000's control terminal strip. Cut off the excess cable.

Step 7. Carefully remove the cable's outer jacket as required. Strip about 1/4 inch (6.3 mm) of insulation from each wire.

Step 8. Place a lead number label on each wire. The cable consists of three twisted-pair wires. Refer to figure 4 for twisted-pair color coding and function.

Step 9. Wire each lead to the corresponding position on the GV3000's control terminal strip as shown in figure 4. Torque the control terminal strip hardware to 7 in-lbs. (8.01 kg-cm) maximum.

CAUTION: Make sure that the pulse tachometer common is not intermixed with other commons in the drive. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

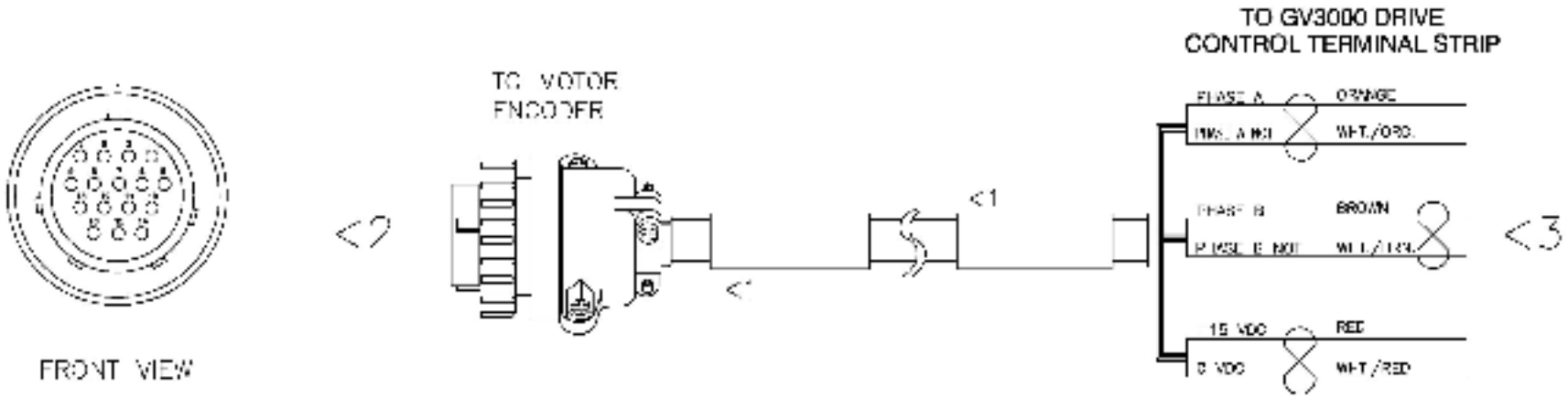
Step 10. Reattach the cover to the drive.

Step 11. Refer to your GV3000 drive instruction manual and check all motor and drive wiring.

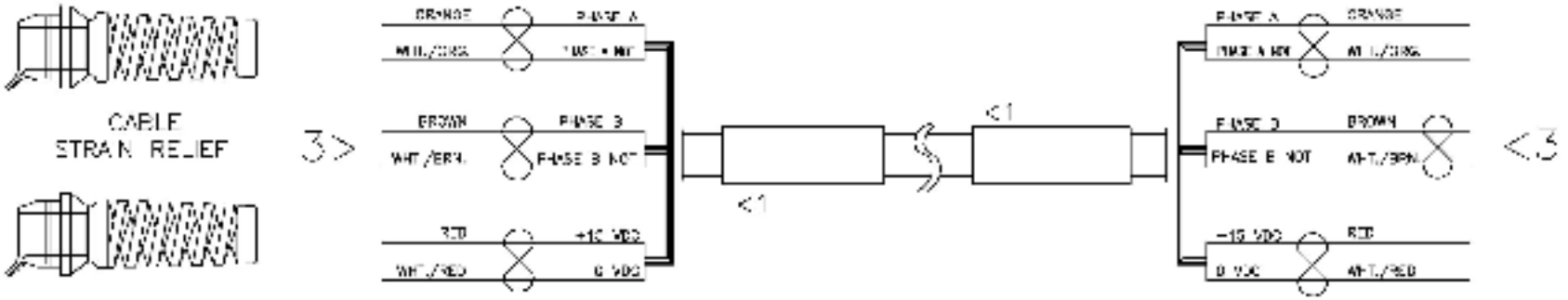
Step 12. Remove the lockout and tag and reconnect power to the drive.

Step 13. Turn on power to the drive and check for proper drive operation.

This completes the installation of the motor encoder cable kit on the GV3000 A-C V★S drive.



MODEL NUMBERS 2TC3025, 2TC3075, 2TC4025, 2TC4075



MODEL NUMBERS 2TC4100 AND 2TC4300

NOTES:

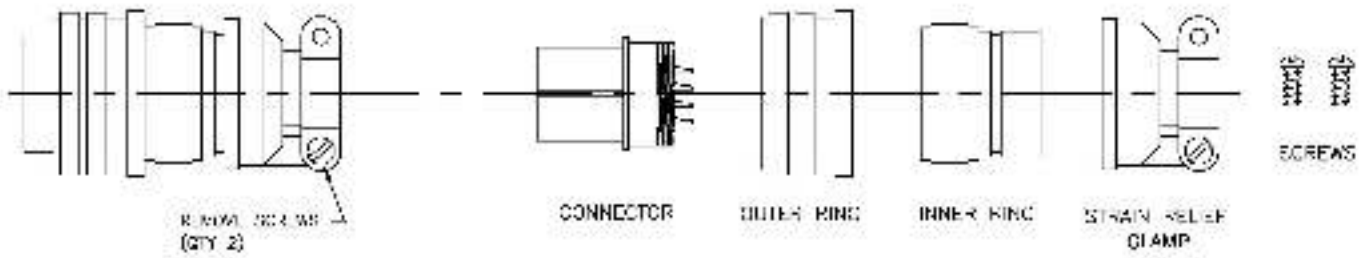
<1: SHRINK TUBING WITH PRINTED PART NO. AT EACH END.

<2: TYPICAL CONNECTOR. SHELL MAY VARY DEPENDING ON VENDOR AVAILABILITY.

<3: CUT AND STRIP EACH WIRE TO AN APPROPRIATE LENGTH DURING INSTALLATION.

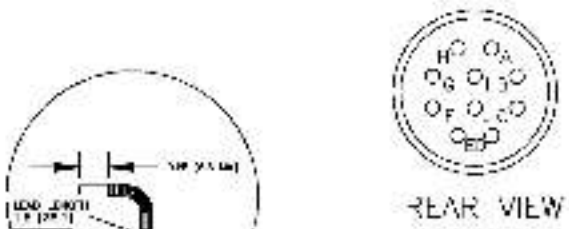
WIRE COLOR	CABLE CONNECTOR	FUNCTION SYMBOL		WIRE COLOR	GV3000 CONTROL TERMINAL
ORANGE	1	PHASE A	(A)	ORANGE	5
WHT./ORG.	2	PHASE A NOT	(A)	WHT./ORG.	6
BROWN	8	PHASE B	(B)	BROWN	7
WHT./BRN.	9	PHASE B NOT	(B)	WHT./BRN.	8
RED	12	PULSE TACH SUPPLY	(+15 VDC)	RED	4
WHT./RED	6	PULSE TACH COMMON	(0 VDC)	WHT./RED	9

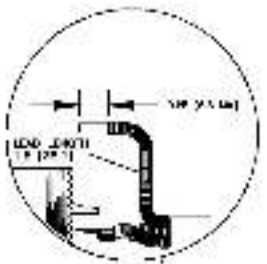
Figure 1 - Motor Encoder Cable Kit



NOTE:
CONNECTOR SUPPLIED WITH AND ATTACHED
TO THE MOTOR'S PULSE TACHOMETER

GV3000 CONNECTOR TB No.	PIN NUMBER	FUNCTION	SYMBOL	WIRE COLOR
5	A	PHASE A	A	ORANGE
6	H	PHASE A NOT	$\overline{A}$	WHT/ORG
7	B	PHASE B	B	BROWN
8		PHASE B NOT	$\overline{B}$	WHT/BRN
4	D	PULSE TACH SUPPLY	+15 VDC	RED
9	F	PULSE TACH COMMON	0 VDC	WHT/RED





NOTES:

<1> CUT AND STRIP EACH WIRE TO AN APPROPRIATE LENGTH DURING INSTALLATION.

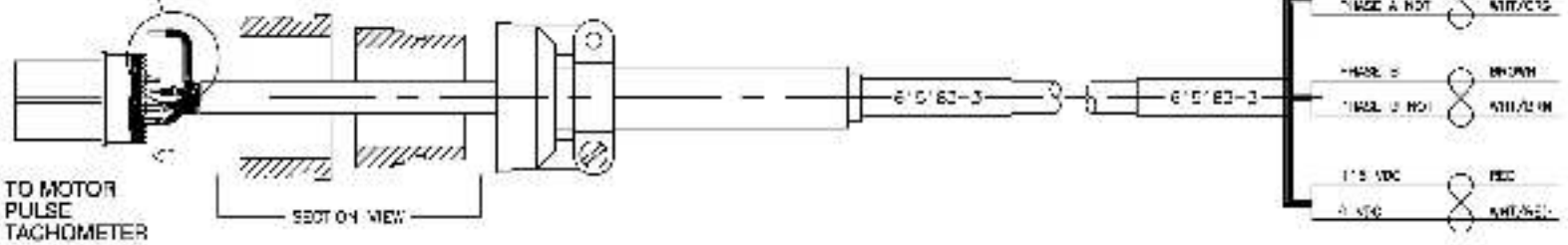


Figure 2 - Dynapar Cable Assembly

Figure 3 - Tamagawa Cable Assembly

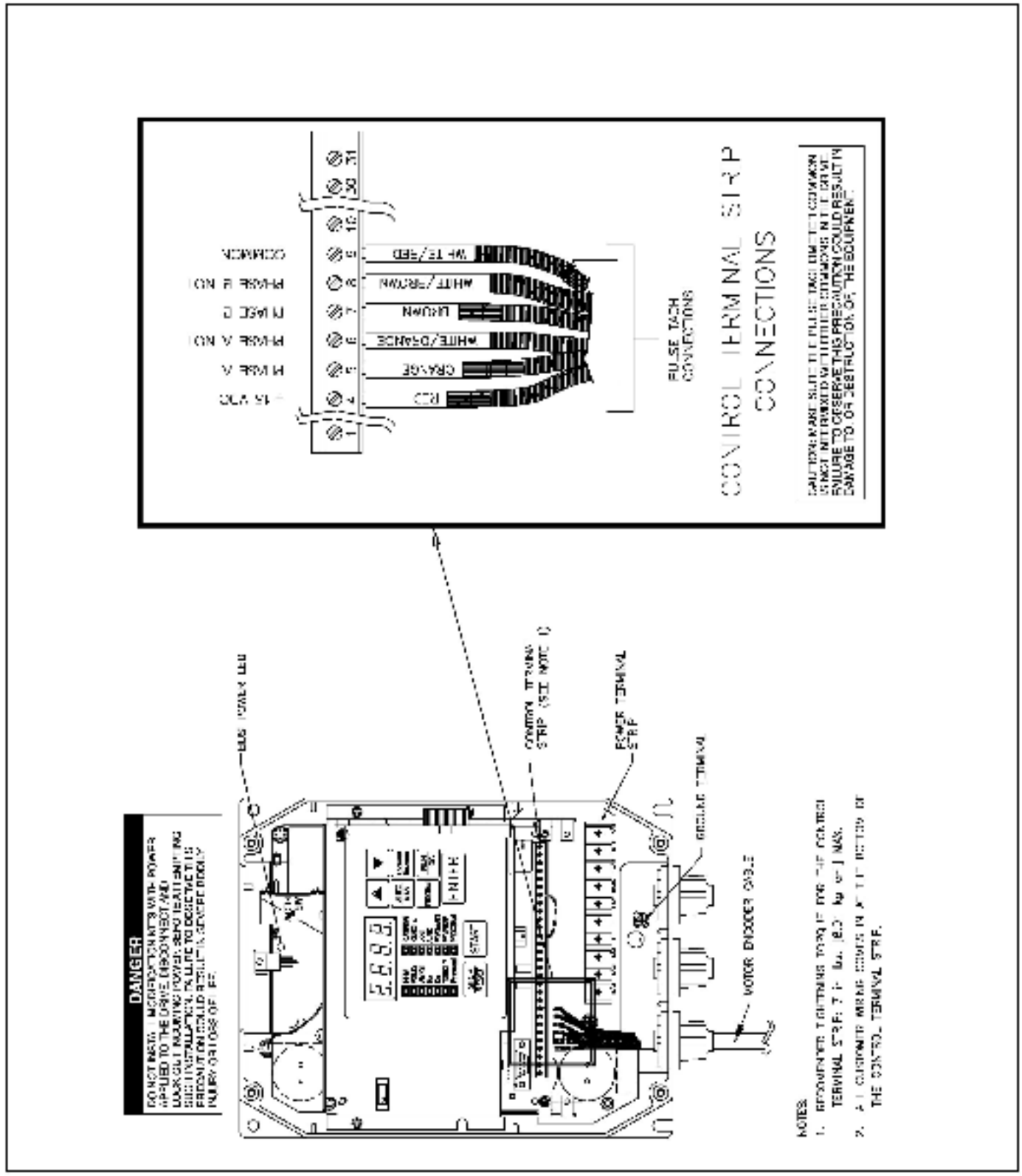


Figure 4 - GV3000 Control Terminal Connections

Reliance Electric / 24703 Euclid Avenue / Cleveland, Ohio 44117 / (216) 266-7000

Rockwell Automation

Reliance Electric

Printed in U.S.A. D2-3305-2 March 1998