

Technical Bulletin

No: TB059

Rev: 0

Date: September 10, 2008

Description: Retrofit kit to improve communication between ABB Drive and PLC installed in EMI/EXI Top drives



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BACKGROUND INFORMATION:

TESCO power modules incorporating ABB variable frequency drives (both EMI and EXI) have been found to suffer from noise susceptibility on the communication link between the ABB drive and GE PLC. The affected systems incorporate a “Standard MODBUS” communication system between drive and PLC. Initially, the issue was addressed by minimizing baud rate (2400) and increasing the communication fault delay time to 3 seconds. While this mode of operation did allow the drives to run without excessive nuisance trips, it also resulted in the possibility of the drive appearing to be unresponsive. If a communication fault were to occur simultaneous with user input from the drillers panel it could be up to three seconds before the system is able to respond.

A field retrofit kit was developed that consists of a fibre optic MODBUS adapter and fiber optic cable that has been shown to have superior noise rejection capabilities and will allow for a much higher baud rate (19,200) and communication fault delays of 1 second or less.

This change is documented fully in ECN-128-0056.

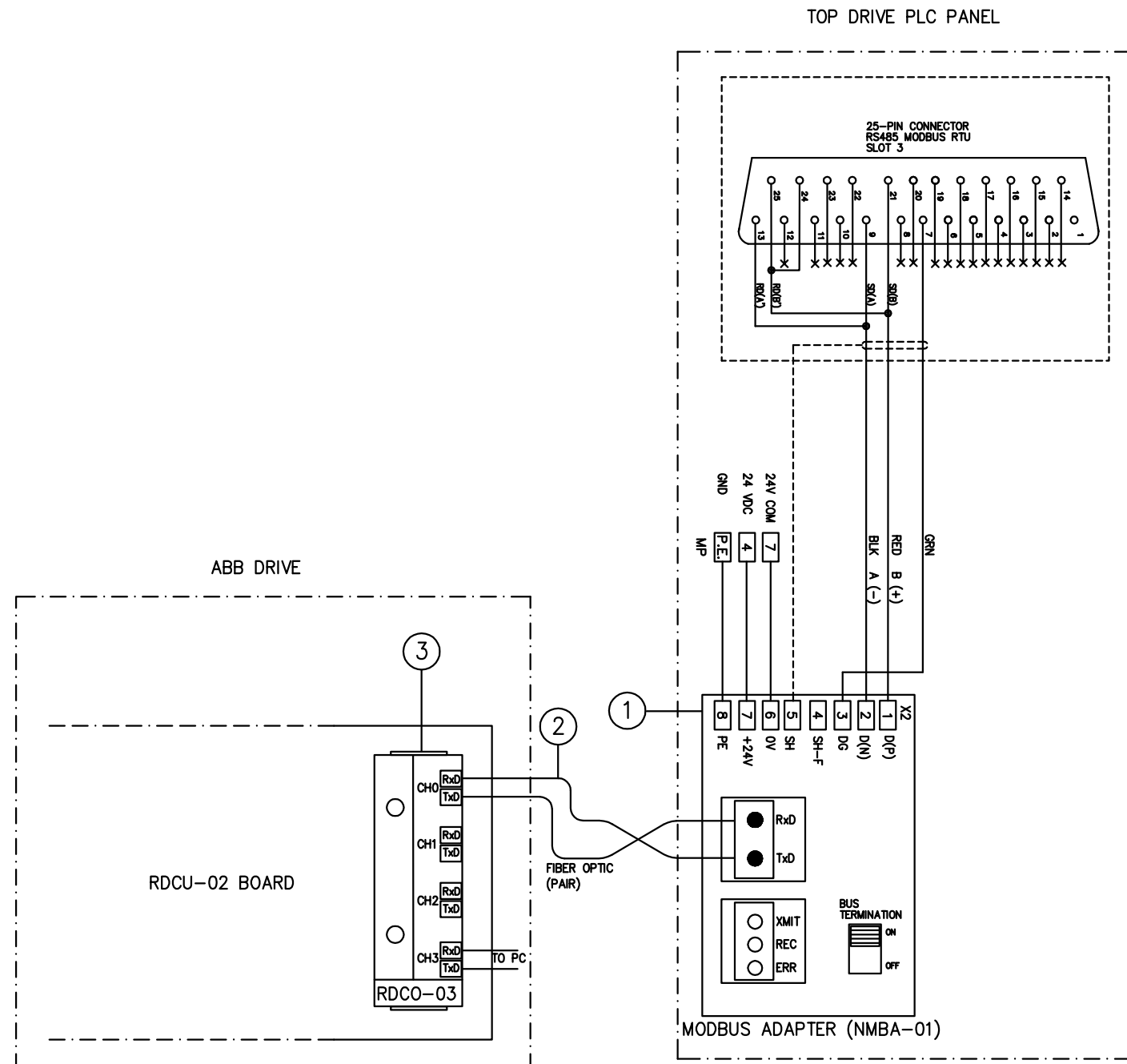
AFFECTED PRODUCT:

- All EMI Top Drives built with ABB Drives (Standard MODBUS configuration only). A list is given below:
250EMI400: Unit605, Unit614, Unit616, Unit623, Unit666
- All the EXI Top Drives built with ABB Drives (Standard MODBUS Configuration only). A list is given below:
350EXI600: Unit520, Unit521, Unit537, Unit541, Unit617

ACTION REQUIRED:

The exiting standard MODBUS system on the impacted units should be replaced with retrofit kit (TS#1280062). Drawing 1280062 (attached herein) contains detailed instructions required to complete this retrofit. If additional assistance is required please contact TESCO Manufacturing's Sustaining Engineering Department at 403-723-7902

Contact your local TESCO Parts and Service Center for further information regarding this bulletin and or supply of affected components noted above.



STEP BY STEP PROCEDURE TO INSTALL FIBER OPTIC MODBUS ADAPTER KIT

1. TURN OFF THE MAIN POWER FROM DRIVE DISCONNECT, WAIT UNTIL KEYPAD LIGHT GOES OFF THEN REMOVE OLD MODBUS CARD (RMBA-01). PULL THE COMMUNICATION CABLE INTO PLC PANEL.
2. INSTALL NEW MODBUS MODULE (NMBA-01) IN PLC PANEL NEAR RTU CARD. RUN FIBER OPTIC CABLE BETWEEN PLC PANEL AND RDCU CARD IN ABB DRIVE . CONNECT FIBER OPTIC CABLE & MODBUS MODULE AS PER WIRING DIAGRAM (USE CH0 OF RDCO-03 TO CONNECT FIBER OPTIC AT DRIVE END)
3. TURN THE POWER ON AND FROM CONTROL KEYPAD, GOTO GROUP 98 AND SET FOLLOWING PARAMETERS:
 98.02 = FIELDBUS
 98.07 = CSA 2.8/3.0
4. POWER DOWN THE DRIVE AGAIN AND WAIT UNTIL KEYPAD LIGHT GOES OFF
5. POWER UP THE DRIVE AND GOTO GROUP 51, SET FOLLWING PARAMETERS:
 51.01 = NMBA-01 Vx.x
 51.02 = RTU wdg:rst
 51.03 = 1
 51.04 = 19200
 51.05 = NONE 1 S.BIT
 51.06 = 0
 51.07 = 0
 51.08 = CH0
6. GOTO GROUP 30, SET PARAMETER 30.19 TO 1.0 SEC
7. USING CIMPLICITY, GO ONLINE , IN "RTU" BLOCK AT RUNG-7, SET IN7=19200 IN THE CENTRE "BLKMOVE". SAVE PROGRAM AND WRITE CHANGES IN THE PLC MEMORY.
8. REBOOT BOTH PLC AND DRIVE , IF BOTH GREEN LIGHTS (XMIT , REC) ON THE MODBUS (NMBA-01) AND P2 LIGHT ON THE RTU ARE FLASHING CONSTANTLY, THEN DRIVE AND PLC ARE COMMUNICATING AND READY FOR OPERATION.

NOTE:

1. USE EXISTING COMMUNICATION CABLE BETWEEN RTU AND MODBUS ADAPTER.
2. REFER TO INSTRUCTION & START UP GUIDE NMBA-01 FOR MORE DETAILS
3. ITEM#3 IS OPTIONAL & MAY ONLY REQUIRE IN OLD UNITS.

0	SFH	08/07/29	128-0056	Retrofit kit Installation Details - Issued for Reference	10		20			DRAWN	SFH	PROJECT	ALL DIMENSION IN INCHES UNLESS OTHER NOTED.		
					9		19			MODEL	EXI / EMI	D. CHK	STANDARD TOLERANCES:		
					8		18			E. CHK.		APPD.	XX, XX ¹ / _X ± 1/16		
					7		17						XX.X ± 0.03		
					6		16						XX.XX ± 0.01		
					5		15						XX.XXX ± 0.005		
					4		14						ANGLE ± 0.5°		
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					2	1	1280061	Kit,Fiber Optic Cable,NLWC-05-kit,Pair,5M	12	TESCO PART No. 1280062 UNITS INCHES SHEET 1 OF 1 SCALE 1:1 FILE NAME 1280062.DWG REV. 0					
					1	1	1280060	Kit,Modbus Adaptor,24VDC,Fiber Optic NMBA-01,F/ACS800 Drive	11						
					ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION			
MATERIALS LIST															