

Vission 20/20 Retrofit Instructions



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1.0 General Information

This procedure defines the steps required to replace a Vilter Keypad Microcontroller with the Vission 20/20 Microcontroller.

It is highly recommended that the instructions be reviewed prior to retrofitting.

Figures and tables are included to illustrate key concepts.

Safety precautions are shown throughout the manual. They are defined as the following:

WARNING - Warning statements are shown when there are hazardous situations, if not avoided, will result in serious injury or death.

CAUTION - Caution statements are shown when there are potentially hazardous situations, if not avoided, will result in damage to equipment.

NOTE - Notes are shown when there are additional information pertaining to the instructions explained.

2.0 Vision 20/20 Retrofit Instructions

This procedure defines the steps required to replace a Vilter Keypad Microcontroller with the Vision 20/20 Microcontroller.

2.1 Removal

- Step 1. Safely shutdown and de-energize the compressor unit (1) and keypad microcontroller (2) adhering to safe practices including lock-out/tag-out procedures.

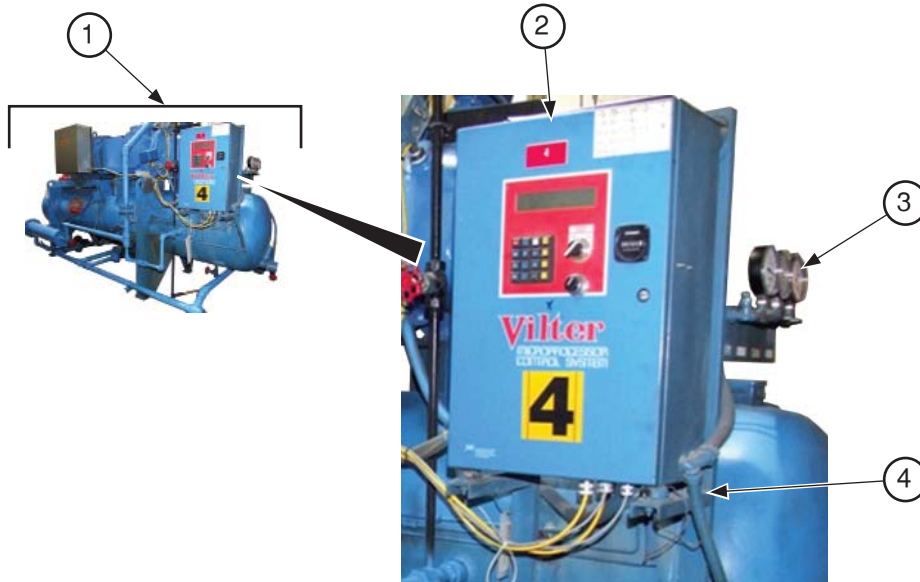


Figure 1. VSS Compressor Unit with Keypad Microprocessor

- Step 2. Disconnect wiring from transducers.

WARNING

When handling microcontroller, use additional personnel or lifting device as required. Failure to comply may result in serious injury and/or damage to equipment.

- Step 3. With additional personnel or lifting device, remove hardware securing keypad microcontroller (2) to rails (4). Remove keypad microcontroller.

NOTE

Some compressor units are equipped with transducers and RTDs, if equipped, continue to step 3. If not, continue to installation.

- Step 4. Disconnect all associated pressure and temperature sensors from compressor unit (1) and existing block and bleed assembly (3), if present.

- Step 5. Remove the existing block and bleed assembly (3), if present.

2.2 Installation

NOTE

Torque all hardware according to torque table specifications, see Table 1.

NOTE

Modification to rails may be required to support and properly align Vission 20/20 microcontroller and block and bleed assembly. Follow standard practices for weldment and fabrication procedures.

Step 5. Install new block and bleed assembly (4) on rails (3).

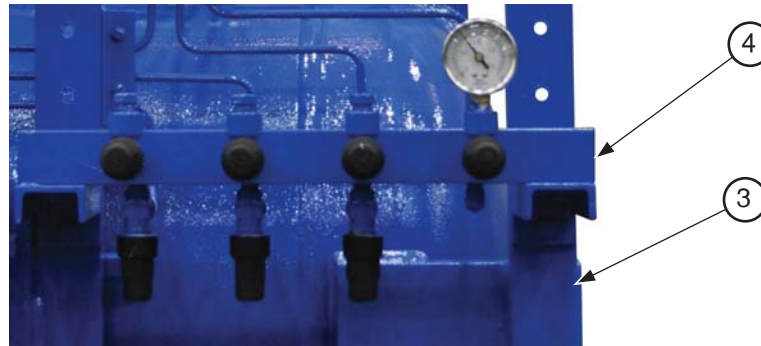


Figure 2. Block and Bleed Assembly

WARNING

When handling microcontroller, use additional personnel or lifting device as required. Failure to comply may result in serious injury and/or damage to equipment.

NOTE

On smaller compressor units, ensure there is adequate clearance between Vission 20/20 microcontroller and volume slide actuator. Adjust location of microcontroller as required by modifying support structure.

- Step 6. Make sure Vission 20/20 microcontroller will install onto existing rails. Measure mounting holes on rails (3) and Vission 20/20 microcontroller (6), taking into consideration dimension of mounting holes of vibration isolators (5).
- Step 7. Modify structure of rails (3) if required. Follow standard welding and fabrication procedures.

Step 8. Install hardware to secure new vibration isolators (5) to mounting holes of Vission 20/20 microcontroller (6).

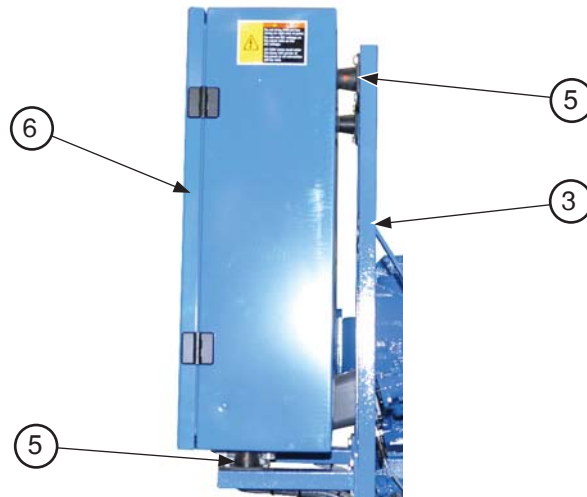


Figure 3. Vission 20/20 with Vibration Isolators

Step 10. With additional personnel or lifting device, install hardware to secure Vission 20/20 microcontroller (6) with vibration isolators (5) to rails (3).

NOTE

Ensure to use correct transducers because transducers have different pressure ranges. Suction manifold uses 0-200 psia transducer, discharge manifold and oil filter inlet uses 0-414.5 psia transducer.

Step 9. Install transducers (7) on block and bleed assembly (4).

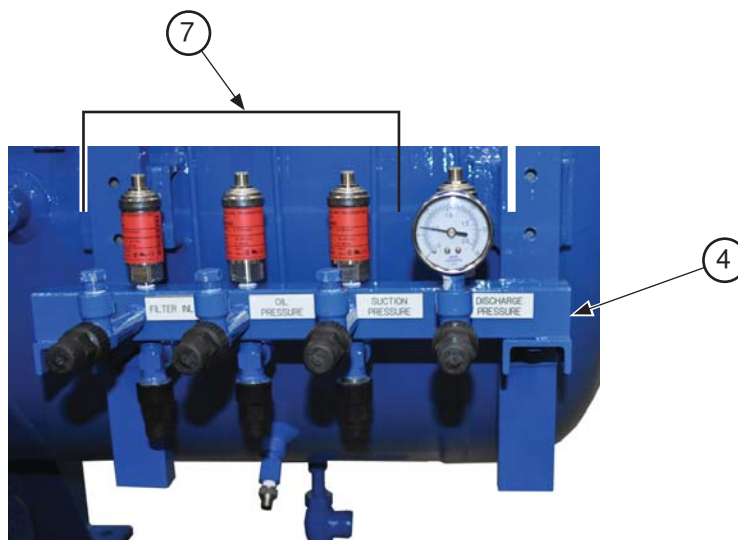


Figure 4. Block and Bleed Assembly with Transducers

NOTE

Stainless steel tubing is not provided in a retrofit kit.

Step 10. Route stainless steel tubing from suction manifold, discharge manifold and oil filter inlet lines. If existing tubing is not reusable then cables can be secured to block and bleed assembly (4).

NOTE

Wells are also provided in retrofit kit. Install new wells as required.

Step 11. Install RTDs (8) on suction manifold (9), discharge manifold (11), oil separator (12) and inlet oil line (14) or oil manifold (13), if equipped.

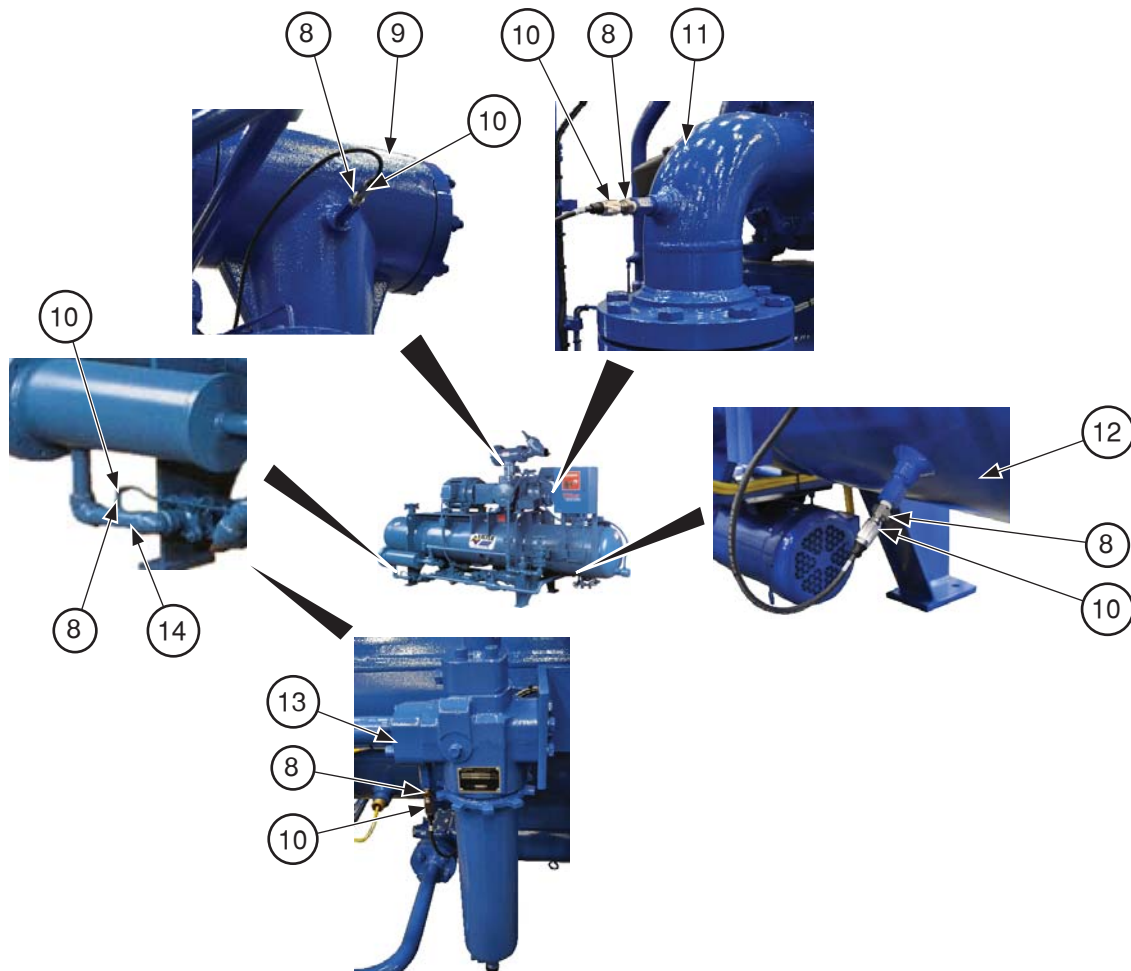


Figure 5. Compressor Unit RTD Locations

Step 12. Connect cables (10) to RTDs (8).

Step 12. Connect cables (10) to transducers (7).

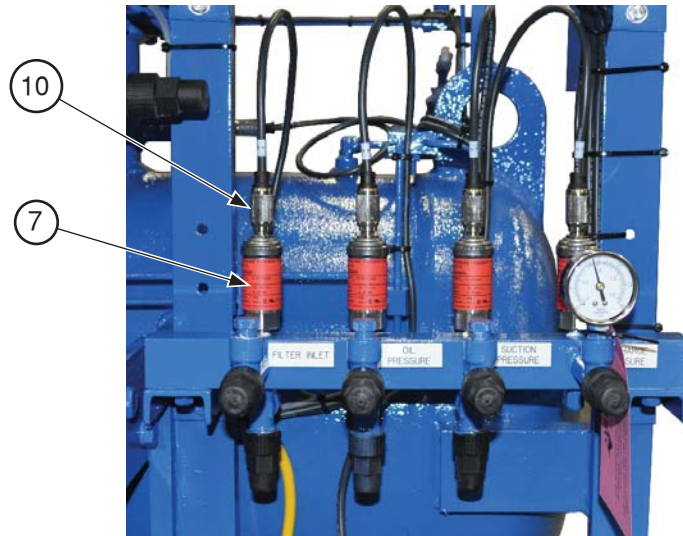


Figure 6. Block and Bleed Assembly with Transducers and Cables

Step 13. Route cables (10) from RTDs (8) and transducers (7) through bottom right side of Vision 20/20 microcontroller (6).

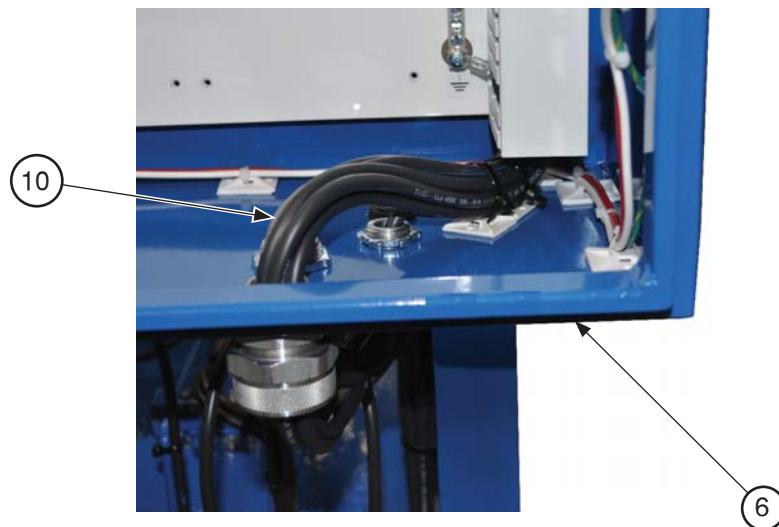


Figure 7. RTD and Transducer Cable Routing

CAUTION

Do not route A/C and D/C wires together, this will cause Electromagnetic Interference. Failure to comply may result in damage to equipment.

Step 14. If equipped with solenoids (15) (i.e. Danfoss Motorized Valve), route cables (16) from solenoids through bottom left side of Vission 20/20 microcontroller (6).

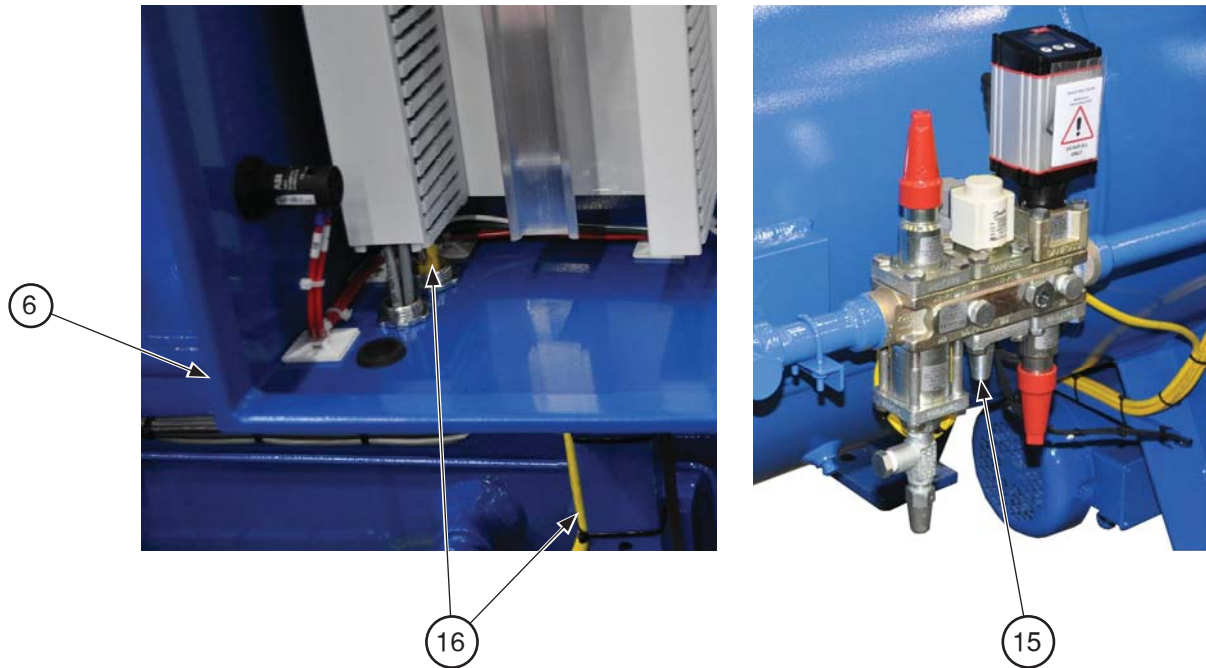


Figure 8. Solenoid Cable Routing

Step 15. To make following connections according to supplied wiring diagram, refer to Section 3.0 Field Wiring Instructions.

3.0 Field Wiring Instructions

NOTE

This procedure defines steps required to wire Vission 20/20 microcontroller for the following items: Compressor Motor Starter Auxiliary Contact, High Level Shutdown, Oil Separator Heater(s), Oil Pump Start and Compressor Starter.

General figures, Figures 9, 10 and 11 are used for purposes of explanation, follow supplied wiring diagram for detailed wiring.

Step 1. Control power of 115 VAC 50/60 HZ must be wired to left side of terminal blocks inside the Vission 20/20 cabinet. Line power (1A) shall be connected to 15-amp circuit breaker, CB1. Neutral (1N) is connected to any N terminal blocks. Number of line power feeds required to panel is dependent upon number supplied on compressor. Line power feeds for oil heaters are brought to additional 15-amp circuit breakers, CB2A, CB2B, CB2C and CB2D. Neutrals for circuits (2N, 3N, 4N, and 5N) are connected to terminal blocks labeled HTN2, HTN3, HTN4, and HTN5. Units with V-PLUS® oil cooling, L1 must be connected to fuse in V-PLUS panel, and L1A must be connected to terminal 2B.

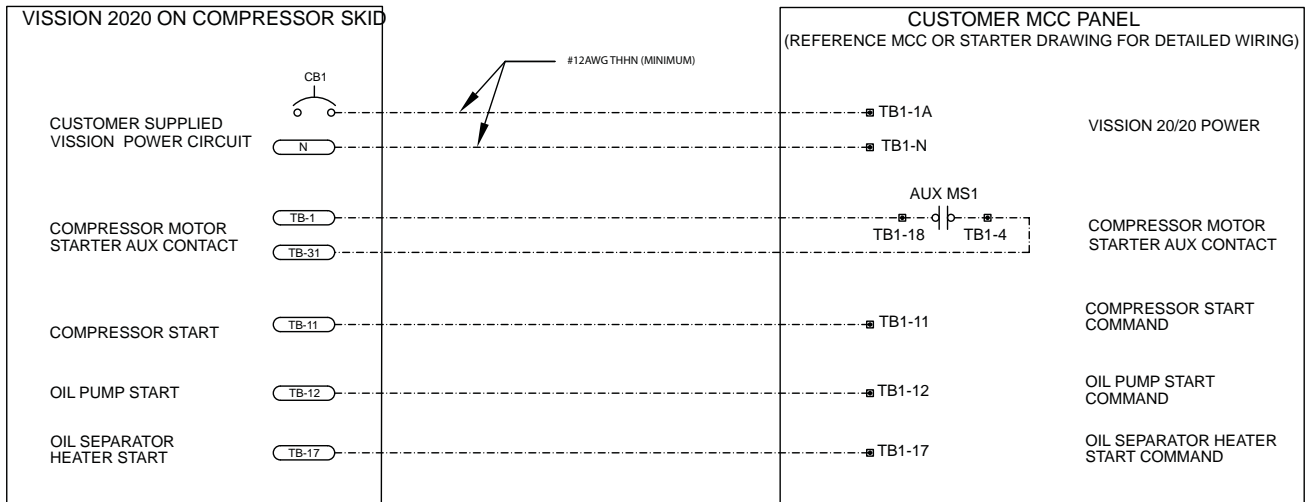


Figure 9. MCC and Customer Control Center Interconnect Wiring

Step 2. An auxiliary contact from compressor motor starter is required. Connect isolated contact to terminal blocks 1 and 31.

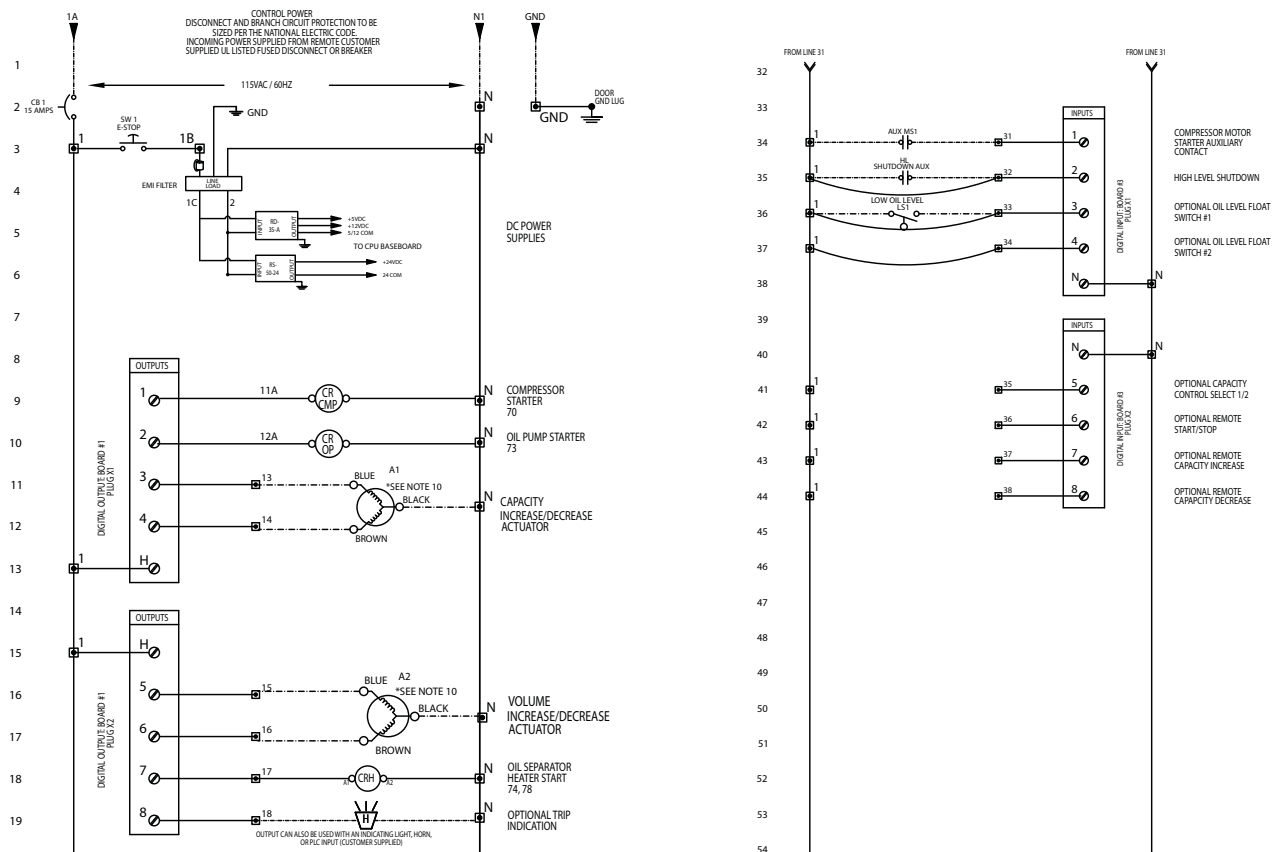


Figure 10. VISION 20/20 Microcontroller Diagram

Step 3. A dry contact from control relay CR11 must be wired to compressor motor starter coil. This dry contact is wired to terminal blocks according to supplied drawing. Control power for this coil should come from a source, which will be de-energized with compressor disconnect.

- Step 4. A dry contact from control relay CR12 must be wired to oil pump motor starter coil. This dry contact is wired to two terminal blocks according to supplied drawing. Control power for this coil should come from a source, which will be de-energized with compressor disconnect.
- Step 5. An auxiliary safety cutout is available to shut down compressor package. A dry contact must be supplied and wired to terminal blocks 1 and 32. The jumper installed on terminal blocks must be removed to use this cutout. If contact is closed, it will allow compressor to run. If contact opens at any time, compressor will shut down.

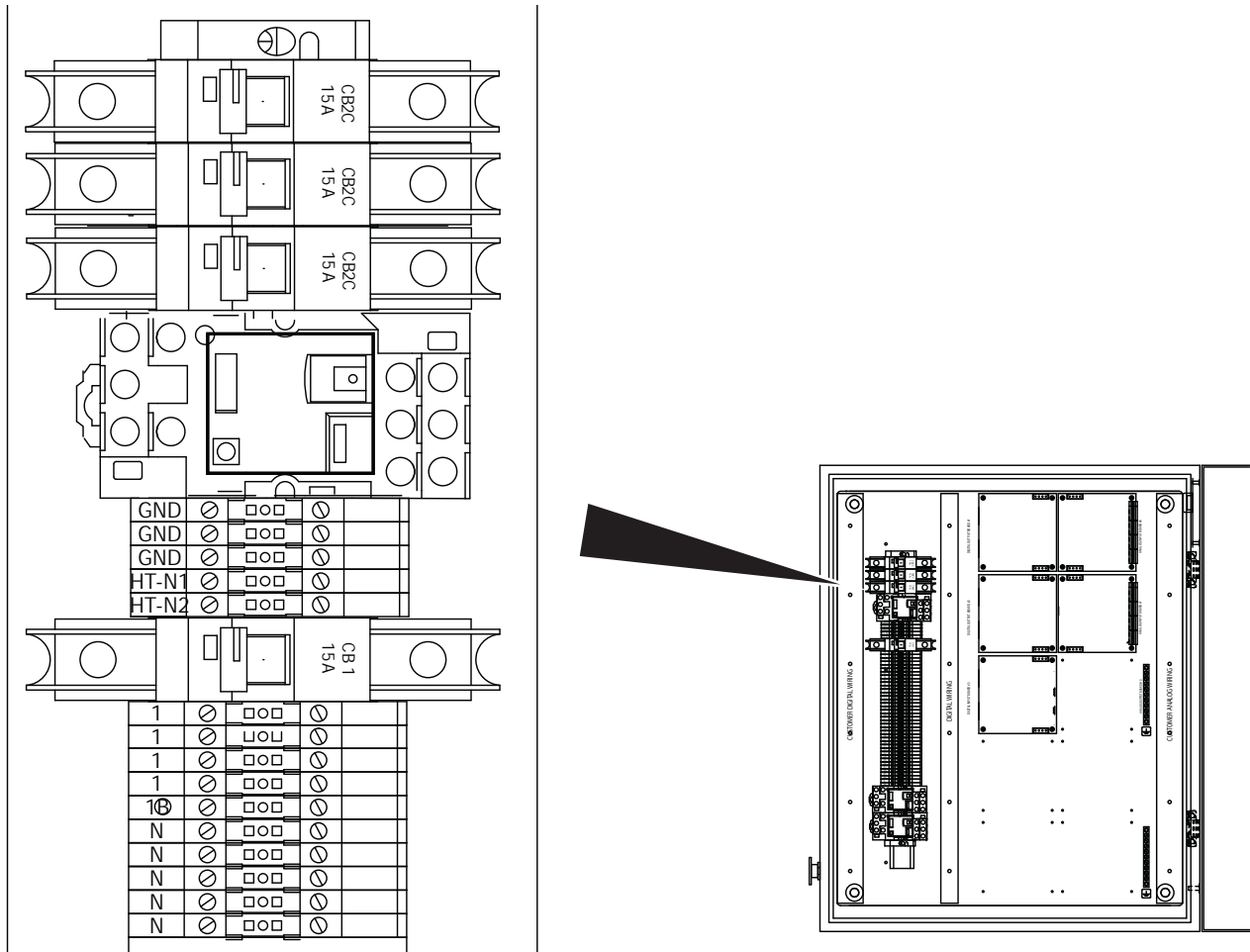
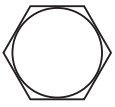
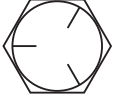
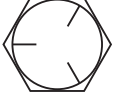

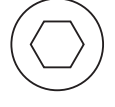


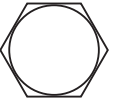
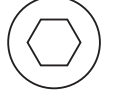

Figure 11. Vision 20/20 Terminal Blocks

- Step 6. Indication of compressor shutdown status is also available. There is an output on terminal blocks 18 and N where a relay coil can be wired. For output, an energized state represents a “safe” condition. A de-energized state indicates a loss of voltage to relay coil or a “failure” has occurred.
- Step 7. Current transformer supplied in compressor motor conduit box should be checked to insure that motor leads of one leg are pulled through the transformer. Note, there is a dot on one side of the current transformer. This dot must face away from the motor. Typically, a wye delta started motor should have leads 1 and 6 pulled through this transformer for a 6 lead motor. However, this should always be checked as different motors and starting methods will require different leads to be used.

Table 1. Torque Specifications

Torque Specifications (ft-lbs)											
Type Bolt	Head Markings	Nominal Size Numbers or Inches									
		#10	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8
SAE Grade 2 Coarse (UNC)		-	5	10	18	29	44	63	87	155	150*
SAE Grade 5 Coarse (UNC)		-	8	16	28	44	68	98	135	240	387
SAE Grade 5 Coarse (UNC)		-	-	18	-	-	-	-	-	-	-
SAE Grade 8 Coarse (UNF)		-	11	22	39	63	96	138	191	338	546
Socket Head Cap Screw (ASTM A574) Coarse (UNC)		5	13	26	46	73	112	115	215	380	614

1) Torque values in this table are not to override other specific torque specifications when supplied.
 2) When using loctite, torque values in this table are only accurate if bolts are tightened immediately after loctite is applied.
 * The proof strength of Grade 2 bolts is less for sizes 7/8 and above and therefore the torque values are less than smaller sizes of the same grade.

Torque Specifications for 17-4 Stainless Steel Fasteners (ft-lbs)											
Type Bolt/Nut	Head Markings	Nominal Size Numbers or Inches									
		#10	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	
Hex & Socket Head Cap Screws	 	3	8	14	25	40	60	101	137	245	
Nut		-	8	-	25	-	-	-	-	-	

NOTE: Continue use of red loctite #271 (VPN 2205E) on currently applied locations. Use blue loctite #243 (VPN 2205F or 2205G) on all remaining locations.

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