



Since 1867

Manufacturers of Industrial Refrigeration
and Gas Compression Equipment

Cool CompressionTM Vission/Vantage Manual

HOURMETER : 4531:30:00
MOTORAMPS : 134

Ammonia (R717)

8/27/2001 21:39:35
Oil Heater **Off**
SOI Sol.: **Off**
Level Master Heater: On

Suction
20.3 psig
24 F

Discharge
137 psig
81.2 F

Oil Filter
In **137**
Out **134**
Diff **3**



Proc Temp **33 F**

Service Item Required

INC	% CAP
DEC	51%
INC	% VOL
DEC	72%

Unit Start

Alarm Reset

Unit Stop

Pressure Ratio
4.3

Saturated Discharge
Temp
81.2

Superheat -
Disch Temp
0

Sump
Separator Temp
81.2

Menu

Setup

Maintenance

Version

Help

VPN-35391CA
January 2005 Rev-2
Price \$45.00



Important Note:

Before applying power to the VISSION/VANTAGE MicroController panel, all wiring to the panel should be per NEC. Specifically check for proper voltage and that the neutral is grounded at the source. An equipment ground should also be run to the panel.

*See Wiring Instructions and Diagrams before proceeding.

Before start-up you need to enter all system values and options, see section on Setpoint Values.

“Before powering the Vission/Vantage control panel down”, it is a good idea to Backup Control Settings to insure that all previously changed setpoints have been properly saved. See section on saving changes. After backing up the setpoints DO NOT power down the Vission/Vantage panel for at least 1 minute. This will allow adequate time for all setpoints to be properly saved.

Equipment Identification Numbers:

Vilter Order Number: _____	Serial Number: _____
Vilter Order Number: _____	Serial Number: _____
Vilter Order Number: _____	Serial Number: _____
Vilter Order Number: _____	Serial Number: _____
Vilter Order Number: _____	Serial Number: _____
Vilter Order Number: _____	Serial Number: _____



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DOMESTIC TERMS and CONDITIONS

Exclusivity. Seller's acceptance of Buyer's order is expressly conditional upon Buyer's agreement to these terms and conditions. All inconsistent or additional terms, modifications, or changes are deemed material, are expressly rejected, and do not form a part of this Agreement unless Seller agrees to such terms in writing.

Home Office Approval. Buyer understands that no agent of Seller is authorized to execute this Agreement or bind Seller unless this Agreement and any purported change are signed by a home office Officer of Seller.

Prices and Payments. Prices are exclusive of taxes and may be modified at any time prior to Seller receiving Buyer's binding order. Upon acceptance, prices are firm for only three months and subject to reasonable escalation. Unless agreed otherwise in writing, all payments are due in full within 30 days of Seller shipping the products or providing the services. All overdue amounts will incur finance charge of the lesser of (a) 1 ½ % per month and (b) the maximum allowed by law.

Security Agreement. This Agreement shall be considered a security agreement to the maximum extent allowed by law. Seller shall have, retain, and possess a security interest in all products sold to Buyer until Seller is paid in full. Buyer grants to Seller a power of attorney to complete, sign on Buyer's behalf, and file all forms reasonably necessary to perfect Seller's security interest. If Buyer defaults, or Seller deems itself insecure of receiving payment, the full unpaid balance shall become immediately due and payable at the option of the Seller, and Seller may retake possession of the products without Court order.

Delivery. Seller shall not be liable for delivery delays beyond its control, including delays caused by its suppliers. All delivery dates and rates of production statements are merely good faith estimates. Unless otherwise stated on Seller's Order Acknowledgment, all shipments are F.O.B. Seller's factory. Seller reserves the rights to make installment deliveries.

Warranties. Seller warrants the products it manufactures to be free from defects in material and workmanship for a period of eighteen (18) months from the date of shipment from Seller's manufacturing plant or twelve (12) months from date of installation at the initial end users location, whichever occurs first. In addition, Seller provides the following extended warranties: (a) three (3) years from the date of shipment on single screw compressor internal rotating parts, (b) two (2) years from the date of shipment on reciprocating compressors and single screw and reciprocating compressor parts, and (c) two (2) years on all other parts on a single screw compressor unit. Such warranties do not apply to ordinary wear and tear. Seller does not warrant that the product complies with any particular law or regulation not explicitly set forth in the specifications, and Buyer is responsible for ensuring that the product contains all features necessary to safely perform in Buyer's and its customer's plants and operations. Buyer must notify Seller of any warranty claim within ten (10) days after such claim arises, otherwise Buyer waives all rights to such claim. Products supplied by Seller which are manufactured by others are not warranted by Seller, but rather Seller merely passes through the manufacturer's warranty to Buyer. **SELLER EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.** Unless otherwise agreed in writing, Buyer's sole remedy for breach of warranty is, at Seller's option, the repair of the defect, the correction of the service, or the providing a replacement part FOB Seller's office. Seller will not be responsible for costs of dismantling, lost refrigerant, reassembling, or transporting the product. Further, Seller will not be liable for any other direct, indirect, consequential, incidental, or special damages arising out of a breach of warranty. **THESE WARRANTY REMEDIES ARE EXCLUSIVE, AND ALL OTHER WARRANTY REMEDIES ARE EXCLUDED.** Products or parts for which a warranty claim is made are to be returned transportation prepaid to Seller's factory. Any improper use, corrosion, neglect, accident, operation beyond rated capacity, substitution of parts not approved by Seller, or any alteration or repair by others which, in Seller's judgment, adversely affects the Product, shall void all warranties and warranty obligations. Further, Seller shall not be liable under the above warranties should Buyer be in default of its payment obligations to Seller under this Agreement or any credit agreement.



DOMESTIC TERMS and CONDITIONS

Changes, Cancellations, and Returns. Buyer will pay reasonable charges and all associated costs and damages arising from canceling or changing this Agreement. No returns shall be allowed other than with Seller's express permission, and such returns shall include a reasonable restocking charge to the extent permitted by law.

Resellers and Distributors. Should Buyer resell the product to a third party, then Buyer agrees to provide a copy of these Terms and Conditions to such third party prior to the sale, and obtain such third party's agreement to be bound by the relevant provisions including, but not limited to, the Warranties Section and the Limitation of Liability Section. Buyer agrees to indemnify Seller against any and all claims, damages, or liability (including reasonable attorney fees) arising from Buyer's breach of the obligations set forth in this Section.

Proprietary Rights. All designs and information provided by Seller remain its property, and Buyer shall honor all proprietary legends.

Limitation of Liability. The Seller's price is based on the enforceability of this limitation of liability, and the Buyer understands that the price would be substantially higher without this limitation. **SELLER SHALL HAVE NO LIABILITY TO BUYER FOR LOST PROFITS OR FOR SPECIAL, CONSEQUENTIAL, EXEMPLARY OR INCIDENTAL DAMAGES OF ANY KIND, WHETHER ARISING IN CONTRACT, TORT, PRODUCT LIABILITY OR OTHERWISE, EVEN IF ADVISED OF THE POTENTIAL DAMAGES IN ADVANCE.**

IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE CONTRACT PRICE. IN THE EVENT THAT ANY WARRANTY OR WARRANTY REMEDY FAILS OF ITS ESSENTIAL PURPOSE, OR IS HELD TO BE INVALID OR UNENFORCEABLE FOR ANY REASON, IN CONSIDERATION OF THE OTHER PROVISIONS OF THIS AGREEMENT, THE PARTIES AGREE THAT ALL LIABILITY LIMITATIONS WILL NEVERTHELESS REMAIN IN EFFECT.

Governing Law. This Agreement shall be governed by the internal laws of the State of Wisconsin, without resort to conflicts of law analysis.

Attorney fees, Collection Costs, and Indemnification. Buyer agrees to defend and indemnify Seller against any claims, damages, or liability (including attorney fees) arising out of Buyer's violation of any law or breach of its obligations under this Agreement including, but not limited to, personal injury, death, or property damage. In addition, Buyer shall reimburse Seller all reasonable attorney fees and collection costs incurred by Seller to enforce its rights against Buyer under this Agreement.

Manuals and Brochures. Buyer shall communicate to Seller any special needs, pictorials, labels, warning signs, instructions, or language required for the manuals and brochures used for the products. Buyer agrees to pay a reasonable surcharge for additional manuals, special manuals, and brochures.

Severability. Any legally unenforceable provision may be severed from this Agreement, and the remaining terms and conditions will be enforced as a whole as if such provision had not be inserted herein.

Waiver, Entire Agreement. No waiver by either party of a right under this Agreement shall waive any other rights. These terms and conditions and any other writing signed by Seller constitute the entire agreement, and may not be modified other than in writing signed by Seller.



EXPORT TERMS and CONDITIONS

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Export Transactions. If the products provided under this Agreement are to be shipped or used outside of the United States, then the following terms apply unless otherwise agreed by Seller in writing: (1) Buyer shall be responsible for all export and import scheduling and financial arrangements, (2) Buyer shall be responsible for compliance with all export and import laws and shall comply, and shall cause its agents to comply, with the Foreign Corrupt Practices Act, (3) the United Nations Convention on the International Sale of Goods shall not apply or govern the transaction, (4) Buyer accepts all responsibility for the products complying with any non-United States based laws, regulations, and other legal requirements, and (5) Seller shall be entitled to condition any shipment upon Buyer obtaining an acceptable Letter of Credit in Seller's favor confirmed at a United States based bank of Seller's choosing.

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STANDARD VILTER WARRANTY STATEMENT

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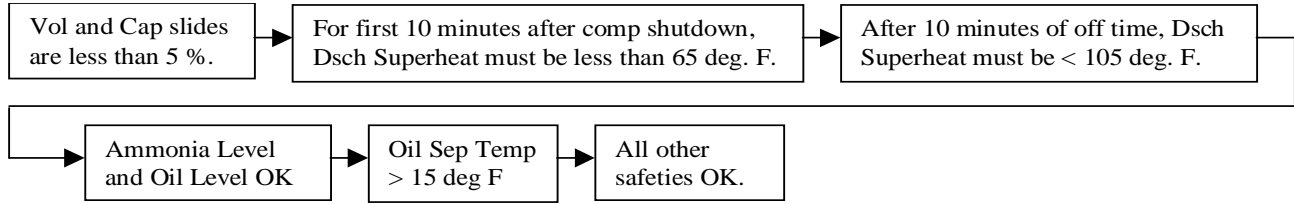
SELLER EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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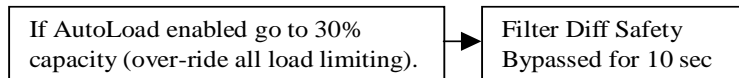
Operational Flowchart

The values referenced in this flowchart are default values.

Requirements To Start Compressor

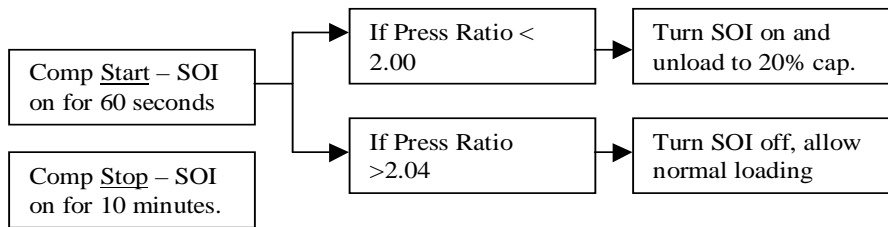


Compressor Starting Logic

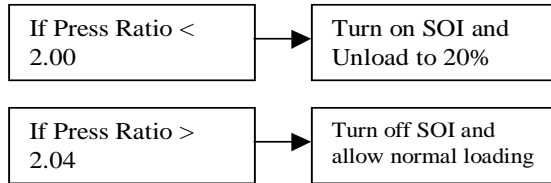


Compressor Operation Logic

Suction Oil Injection (SOI) Solenoid Operation

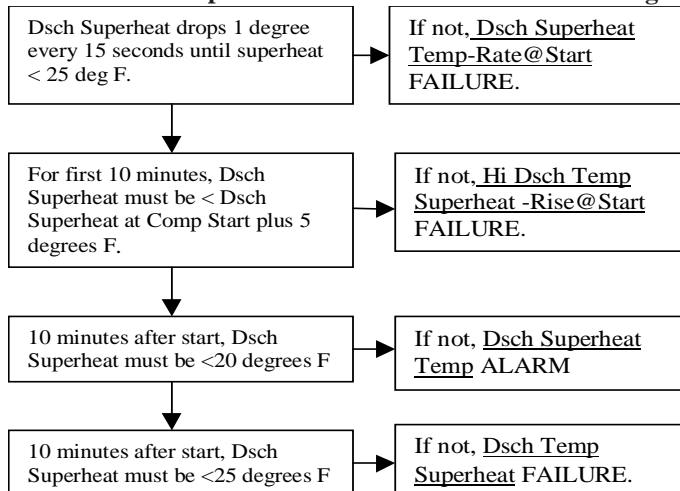


Pressure Ratio Load Limit



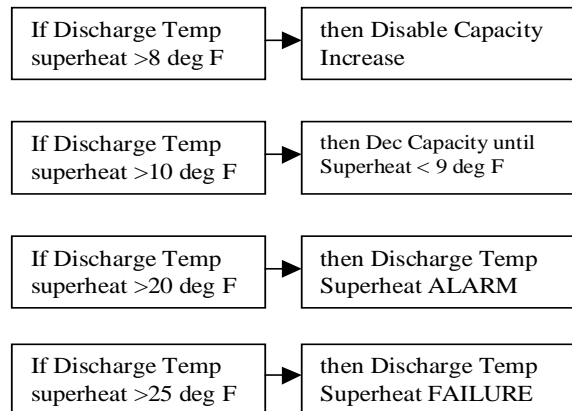
Discharge Superheat Requirements

For Continued Operation



Alarm/FailureMessage

Discharge Temp Superheat Load Limit

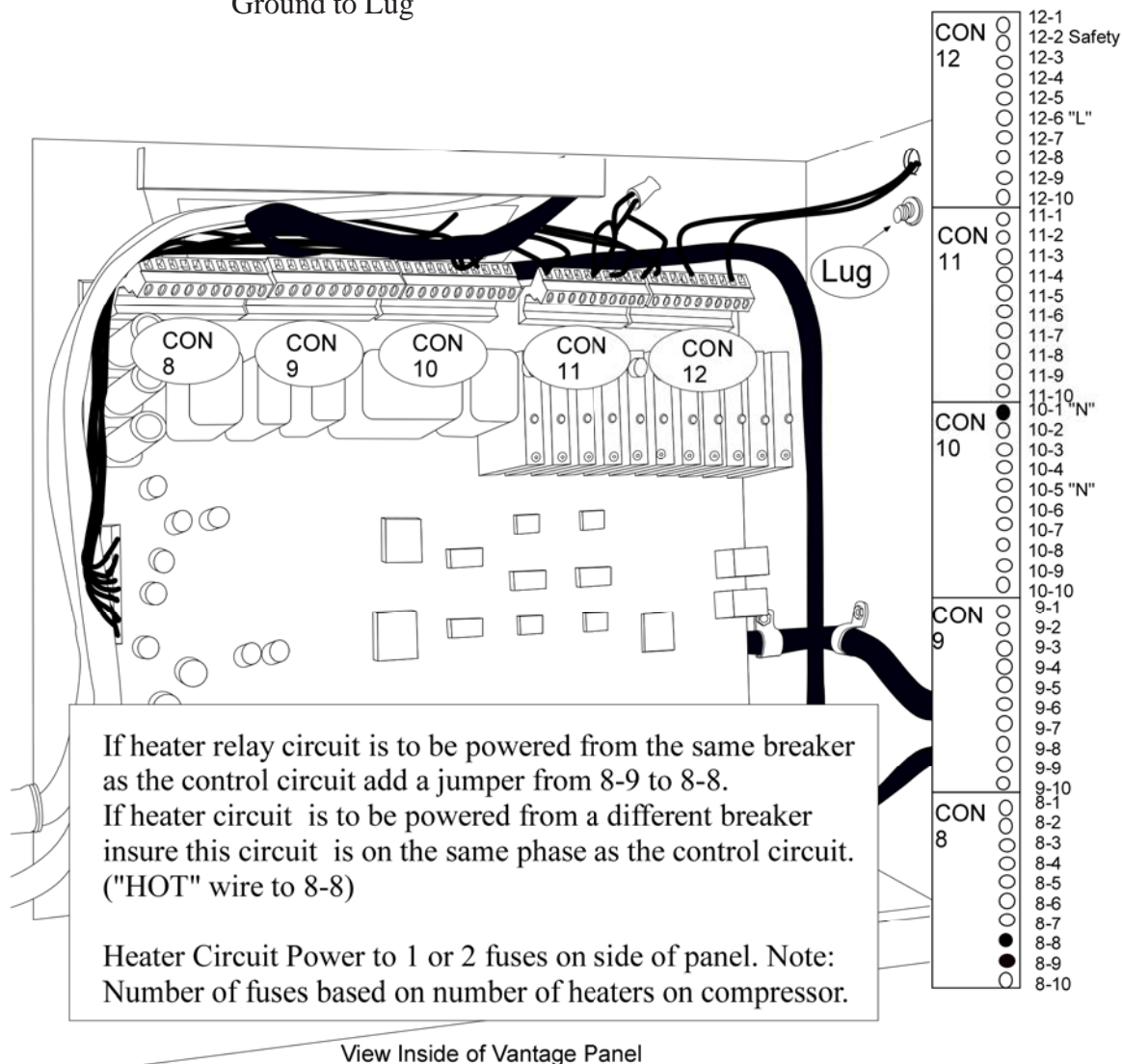


Wiring Instructions For Vantage Only

Mandatory Wiring

Step #1

- 8-9= Main Power to Panel
- 8-8= Heater Relay Power
- Neutral to 10-1
- Ground to Lug



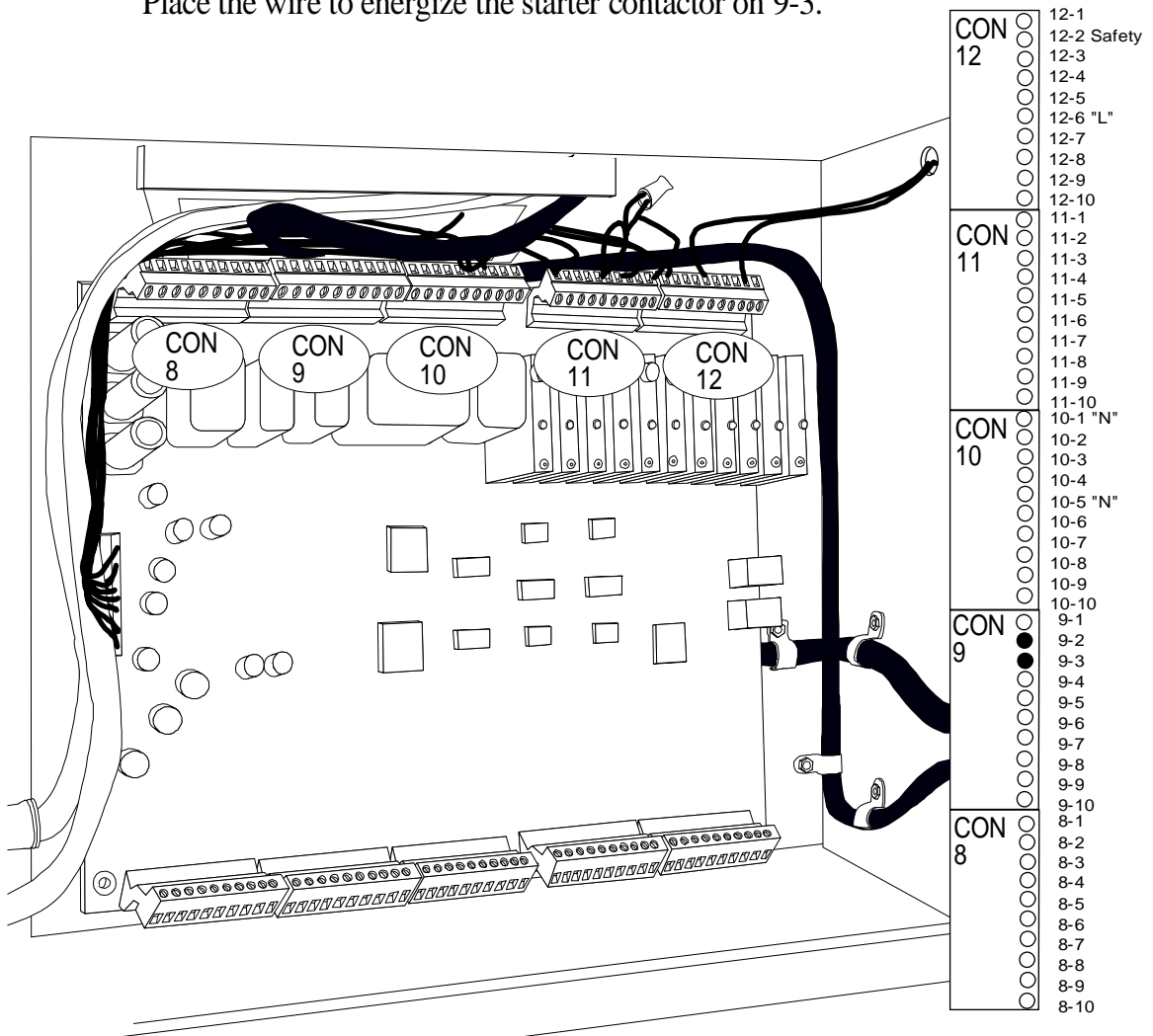
Wiring Instructions For Vantage Only

Mandatory Wiring

Step #2

Motor Starter Contactor Connection

The contact to the pull in the motor starter contactor is a dry contact, place a "HOT" wire from the starter circuit on 9-2. Place the wire to energize the starter contactor on 9-3.



View Inside Of Vantage Panel

Wiring Instructions For Vantage Only

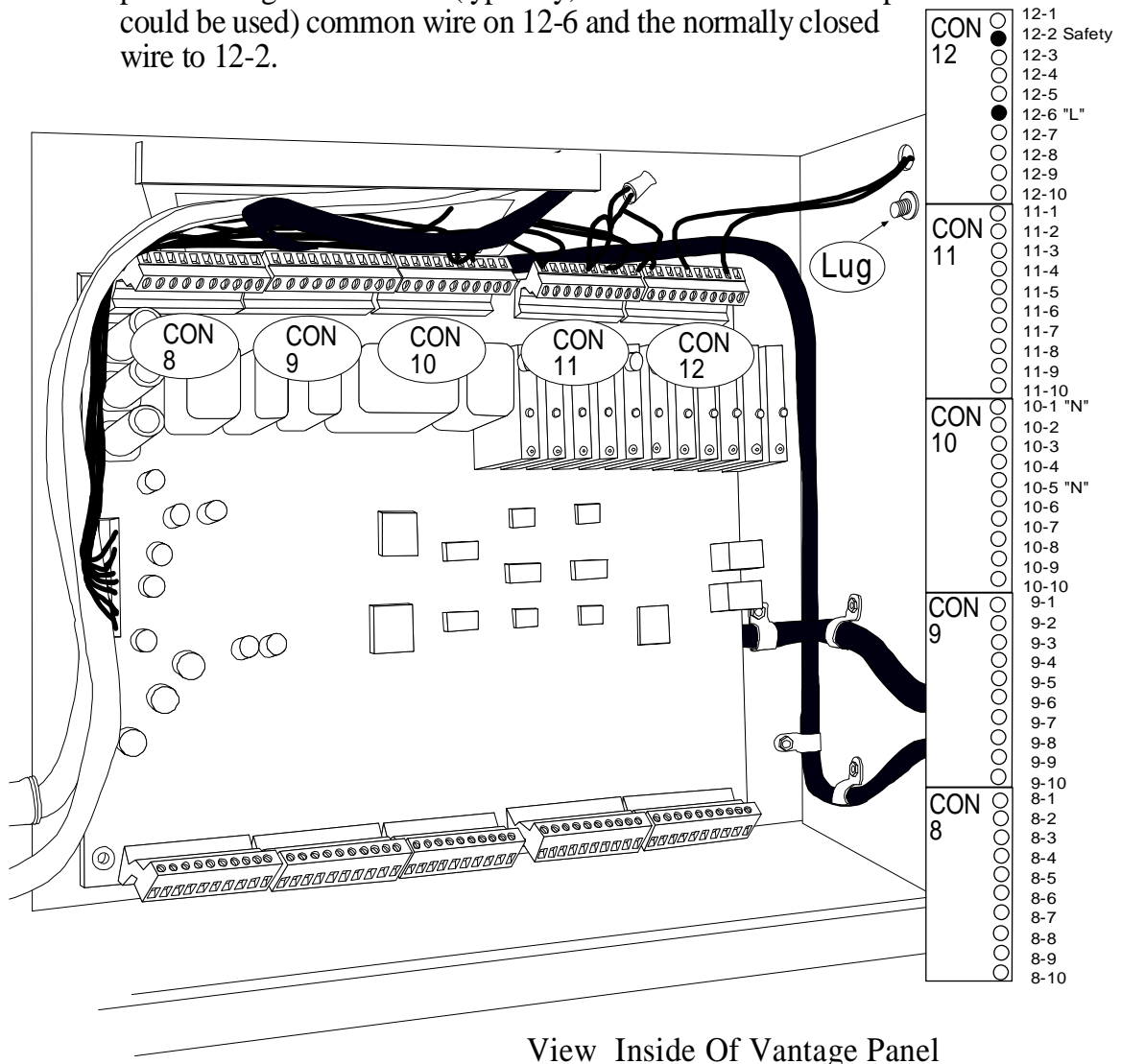
Optional Wiring

Step #3

Auxiliary / Safety Wiring

A determination by the user is to be made if this option will be used. If it is *not* used, insure that a jumper is installed between L 12-6 and 12-2.

If this option is used, remove the jumper 12-6 to 12-2 and place the high level cutout (typically, other cutouts or an E-stop could be used) common wire on 12-6 and the normally closed wire to 12-2.



View Inside Of Vantage Panel

Wiring Instructions For Vantage Only

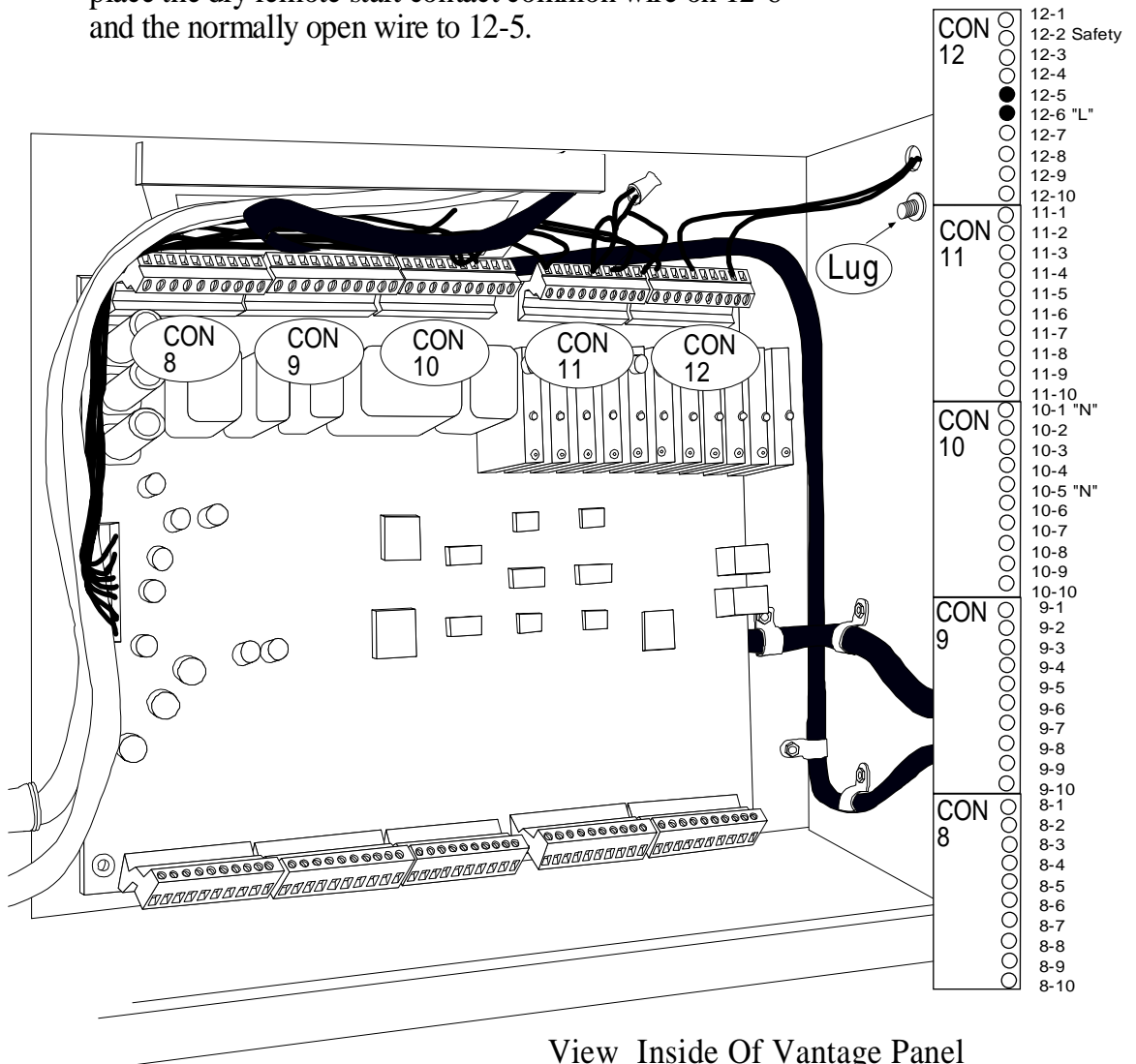
Optional Wiring

Step #4

Remote Start Wiring

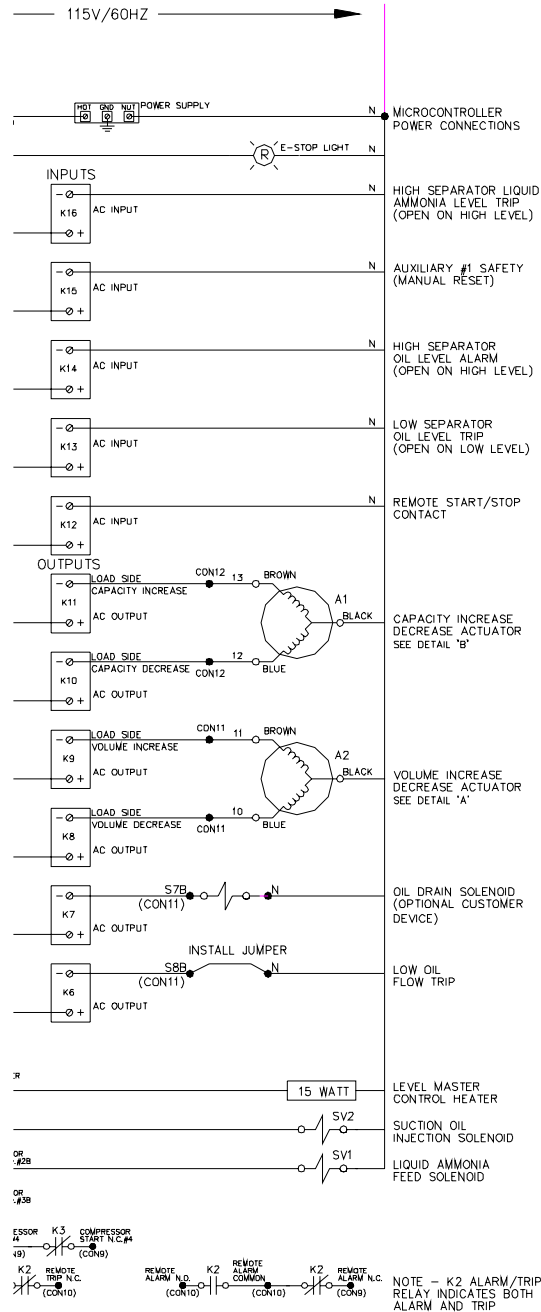
A determination by the user is to be made if this option will be used. If it is *not* used, insure that a jumper is installed between L 12-6 and 12-5.

If this option is used, remove the jumper 12-6 to 12-5 and place the dry remote start contact common wire on 12-6 and the normally open wire to 12-5.



Wiring Diagram For Vantage Only

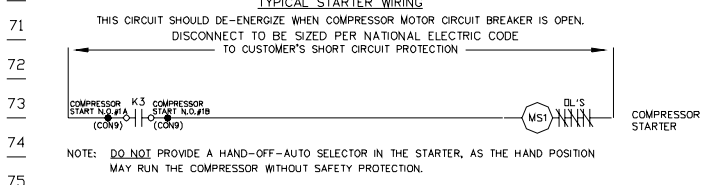
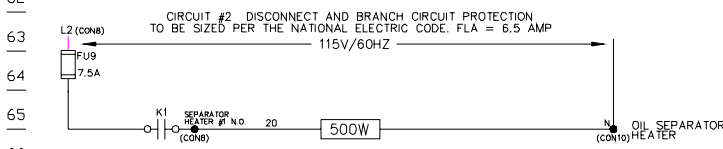
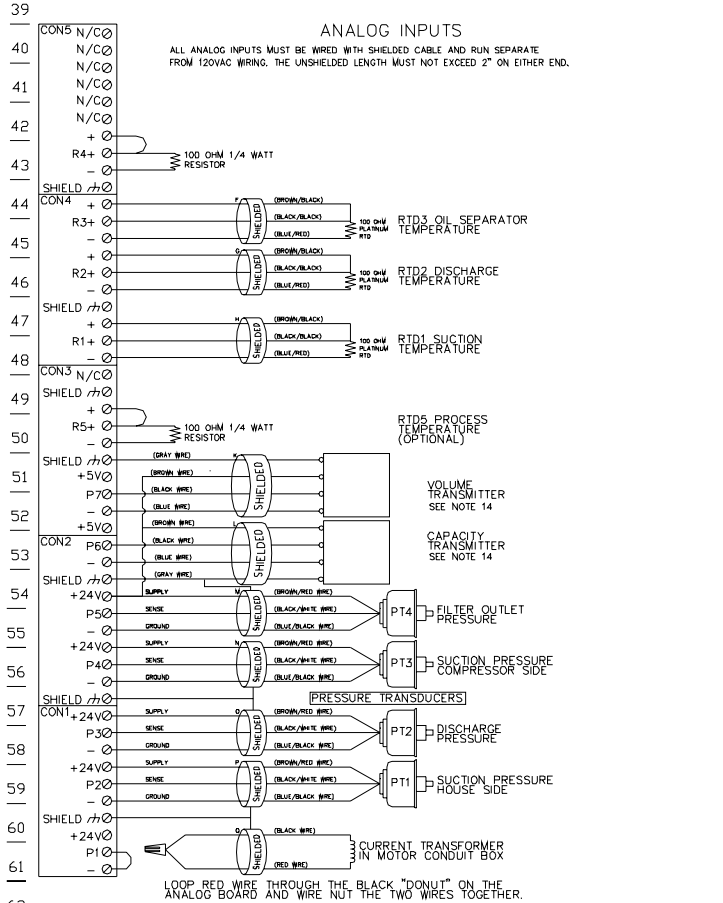
 **Verify Correct Version of Software. See bottom of drawing.**



ALL AC WIRING TO BE RUN INTO AND ON LEFT SIDE OF PANEL
ALL DC WIRING TO BE RUN INTO AND ON RIGHT SIDE OF PANEL

This Diagram Applies To Software Version 2.XX

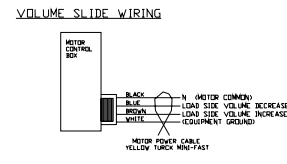
Wiring Diagram For Vantage Only



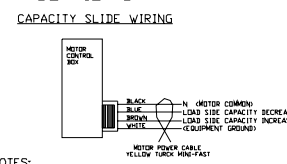
120VAC TERMINAL BLOCK LAYOUT

77	CON12	MOTOR STARTER AUX. SAFETY
78		AUXILIARY #1 SAFETY
79		SEPT #1/#2 SELECTION SWITCH
80		LOW OIL SEPARATOR LEVEL SWITCH
81		REMOTE START/STOP CONTACT
82	CON11	L
83		L
84		L
85		L
86	CON10	L
87		N
88		N
89		N
90		N
91	CON9	N
92		REMOTE TRIP COMMON
93		REMOTE TRIP N.O.
94		REMOTE TRIP N.C.
95	CON8	REMOTE ALARM COMMON
96		REMOTE ALARM N.O.
97		REMOTE ALARM N.C.
98		COMPRESSOR START N.O. #1A
99		COMPRESSOR START N.O. #1B
		COMPRESSOR START N.O. #2A
		COMPRESSOR START N.O. #2B
		COMPRESSOR START N.O. #3A
		COMPRESSOR START N.O. #3B
		COMPRESSOR START COM #4
		COMPRESSOR START N.O. #4
		COMPRESSOR START N.C. #4
		OIL PUMP STARTER
		ECONOMIZER SOLENOID
		ECONOMIZER SOLENOID
		SEPARATOR HEATER #2 N.O.
		SEPARATOR HEATER #1 N.O.
		L3
		L2
		L1
		E-STOP

DETAIL "A"



DETAIL "B"

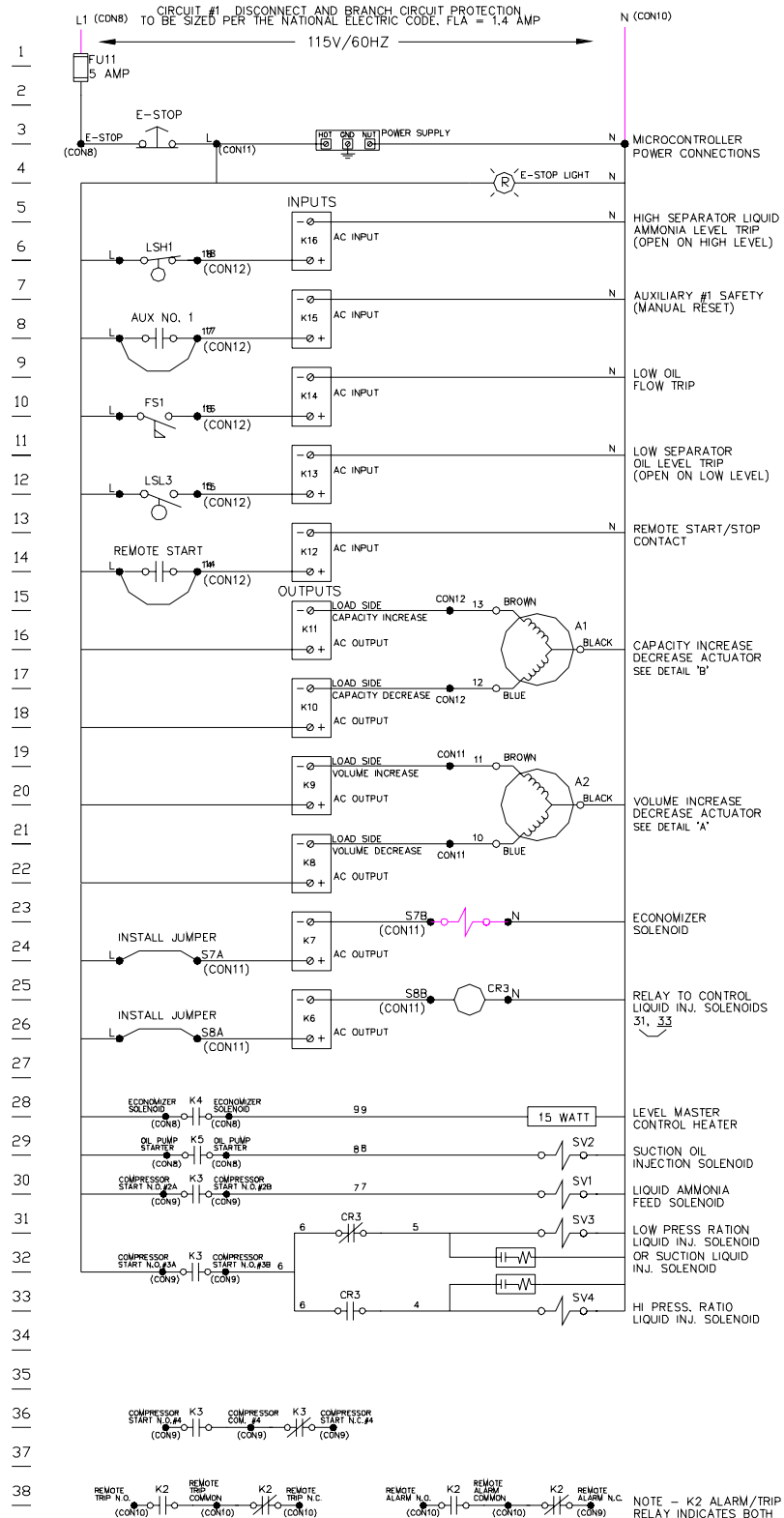


- NOTES:**
- 1) WIRING PER NEMA 12
 - 2) CONTROL WIRING #16 AWG. HEATER WIRING #16 AWG. JC COLOR CODE UNLESS OTHERWISE NOTED.
 - 3) USE COPPER WIRE WITH AN INSULATION TEMPERATURE RATING OF 60°C MINIMUM.
 - 4) DOTTED WIRING REPRESENTS FIELD WIRING.
 - 5) DOTTED COMPONENTS NOT BY VILTER
 - 6) ● DENOTES TERMINAL IN VILTER CONTROL PANEL.
 - 7) FOR NEMA 3, 3R, 4 & 12 PANELS, ALL OPENINGS TO BE GASKETED.
 - 8) MOTOR STARTER WIRING WILL VARY. REFER TO STARTER MANUFACTURER'S DIAGRAM FOR ACTUAL WIRING.
 - 9) ELECTRICIAN TO ROTATE COMPRESSOR MOTOR CONDUIT BOX (HOLE FACING UP) BEFORE WIRING.
 - 10) ALL CONDUIT CONNECTIONS TO THE PANEL MUST BE MADE WITH FLEXIBLE CONDUIT.
 - 11) "L" TERMINALS ARE LOCATED ON CONNECTORS CON11 AND CON12 AS NECESSARY.
 - 12) "N" TERMINALS ARE LOCATED ON CONNECTORS CON10 AND CON11 AS NECESSARY.
 - 13) TORQUE ON TERMINALS 3-7 INCH POUNDS.
 - 14) USE GREY EURO-FAST CABLE.
 - 15) SLIDE MOTOR WIRING SHOWN FOR VSM-91 TO VSS-601. FOR ALL OTHER SIZES REVERSE THE BROWN & BLUE WIRES.

This Diagram Applies To Software Version 2.XX

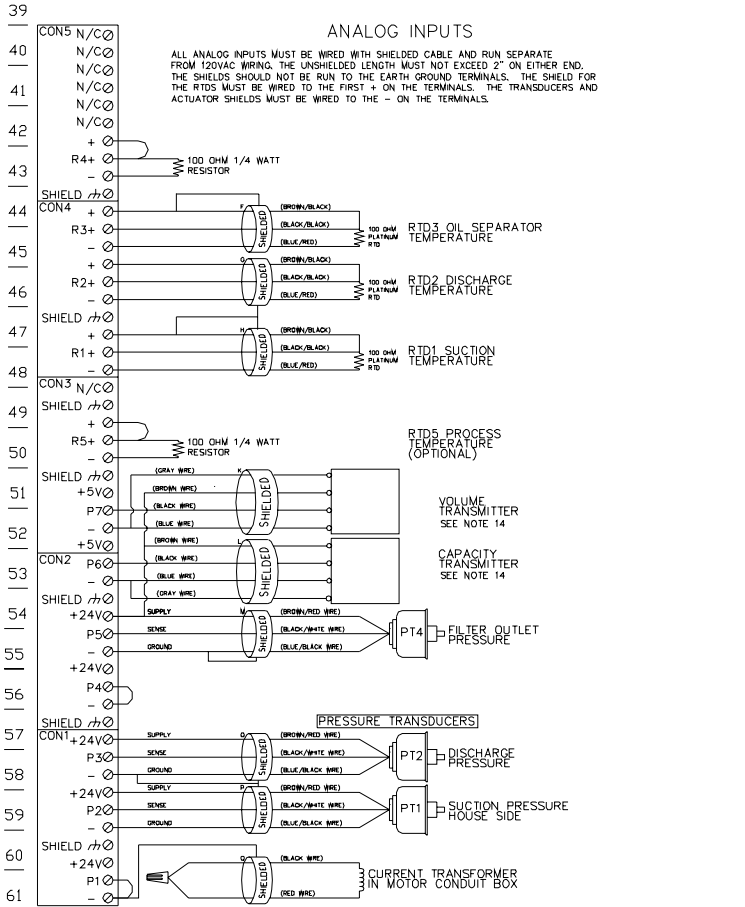
Wiring Diagram For Vantage Only

Verify Correct Version of Software. See bottom of drawing.



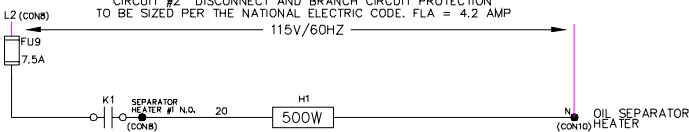
This Diagram Applies To Software Version 3.XX

Wiring Diagram For Vantage Only



LOOP RED WIRE THROUGH THE BLACK "DONUT" ON THE ANALOG BOARD AND WIRE NUT THE TWO WIRES TOGETHER.

CIRCUIT #2 DISCONNECT AND BRANCH CIRCUIT PROTECTION TO BE SIZED PER THE NATIONAL ELECTRIC CODE, FLA = 4.2 AMP
115V/60HZ



ALL AC WIRING TO BE RUN INTO AND ON LEFT SIDE OF PANEL
ALL DC WIRING TO BE RUN INTO AND ON RIGHT SIDE OF PANEL

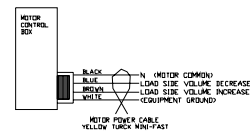
120VAC TERMINAL BLOCK LAYOUT

77	CON12	MOTOR STARTER AUX. SAFETY
78		AUXILIARY #1 SAFETY
79		SEPT #1/#2 SELECTION SWITCH
80		LOW OIL SEPARATOR LEVEL SWITCH
81		REMOTE START/STOP CONTACT
		L
		L
		L
82	CON11	LOAD SIDE CAPACITY INCREASE
		LOAD SIDE CAPACITY DECREASE
		LOAD SIDE VOLUME INCREASE
		LOAD SIDE VOLUME DECREASE
83		L
		L
84		S7A
		S7B
		N
85		S8A
		S8B
86		L
	CON10	N
87		N
		N
88		N
		N
89		REMOTE TRIP COMMON
		REMOTE TRIP N.O.
		REMOTE TRIP N.C.
90		REMOTE ALARM COMMON
		REMOTE ALARM N.O.
91	CON9	REMOTE ALARM N.C.
		COMPRESSOR START N.O. #1A
		COMPRESSOR START N.O. #1B
92		COMPRESSOR START N.O. #2A
		COMPRESSOR START N.O. #2B
93		COMPRESSOR START N.O. #3A
		COMPRESSOR START N.O. #3B
94		COMPRESSOR START COM #4
		COMPRESSOR START N.O. #4
		COMPRESSOR START N.C. #4
95	CON8	OIL PUMP STARTER
		OIL PUMP STARTER
96		ECONOMIZER SOLENOID
		ECONOMIZER SOLENOID
97		SEPARATOR HEATER #2 N.O.
		SEPARATOR HEATER #1 N.O.
98		L3
		L2
99		L1
		E-STOP

NOTES:

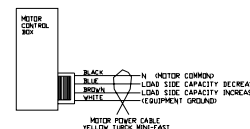
DETAIL "A"

VOLUME SLIDE WIRING



DETAIL "B"

CAPACITY SLIDE WIRING

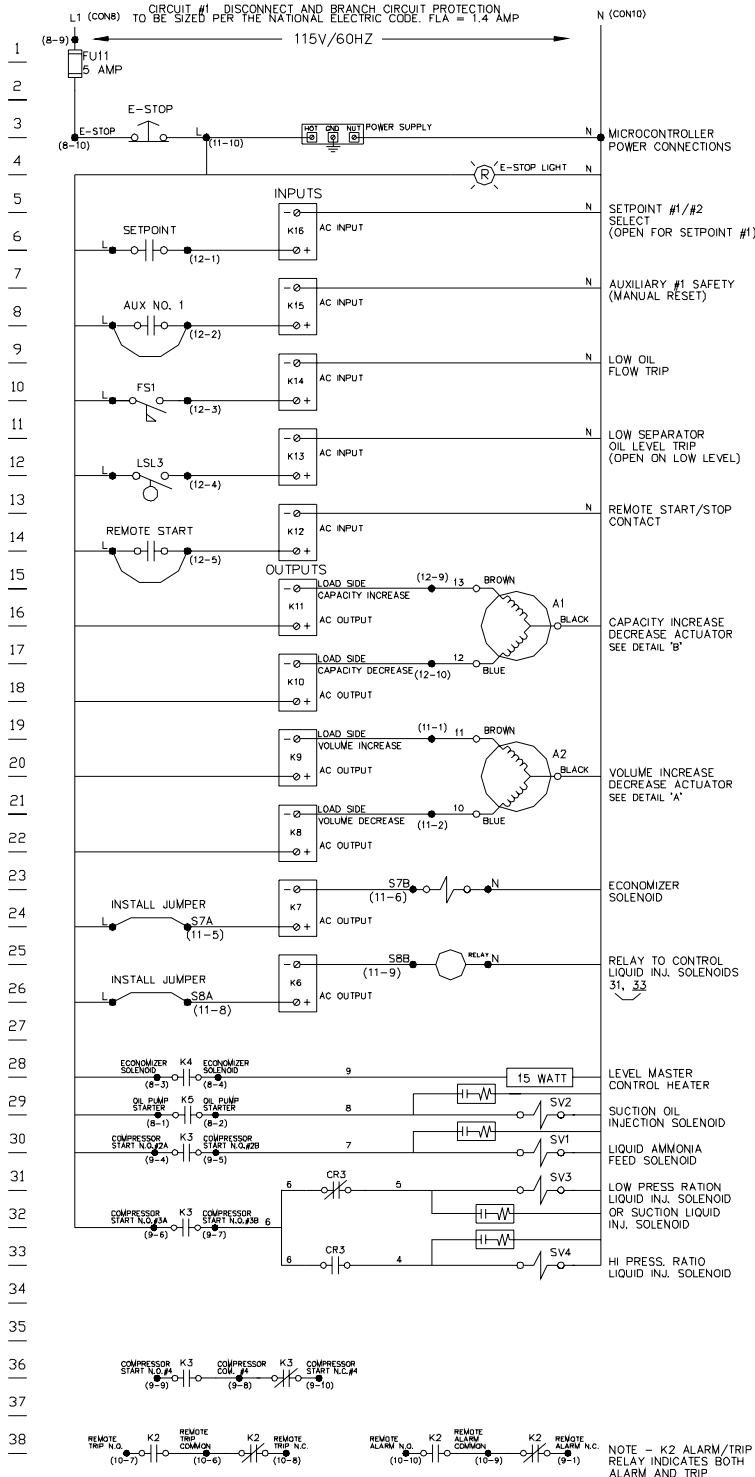


- 1) WIRING PER NEMA 12.
- 2) CONTROL WIRING #18 AWG, HEATER WIRING #16 AWG, JIC COLOR CODE UNLESS OTHERWISE NOTED.
- 3) USE COPPER WIRE WITH AN INSULATION TEMPERATURE RATING OF 60°C MINIMUM.
- 4) DOTTED WIRING REPRESENTS FIELD WIRING.
- 5) DOTTED COMPONENTS NOT BY VILTER.
- 6) DENOTES TERMINAL IN VILTER CONTROL PANEL.
- 7) FOR NEMA 3, 3R, 4 & 12 PANELS, ALL OPENINGS TO BE GASKETED.
- 8) MOTOR STARTER WIRING WILL VARY. REFER TO STARTER MANUFACTURER'S DIAGRAM FOR ACTUAL WIRING.
- 9) ELECTRICIAN TO ROTATE COMPRESSOR MOTOR CONDUIT BOX (HOLE FACING UP) BEFORE WIRING.
- 10) ALL CONDUIT CONNECTIONS TO THE PANEL MUST BE MADE WITH FLEXIBLE CONDUIT.
- 11) "L" TERMINALS ARE LOCATED ON CONNECTORS CON11 AND CON12 AS NECESSARY.
- 12) "N" TERMINALS ARE LOCATED ON CONNECTORS CON10 AND CON11 AS NECESSARY.
- 13) TORQUE ON TERMINALS 3-7 INCH POUNDS.
- 14) USE GREY EURO-FAST CABLE.
- 15) SLIDE MOTOR WIRING SHOWN FOR VSM-91 TO VSS-601. FOR ALL OTHER SIZES REVERSE THE BROWN & BLUE WIRES.

This Diagram Applies To Software Version 3.XX

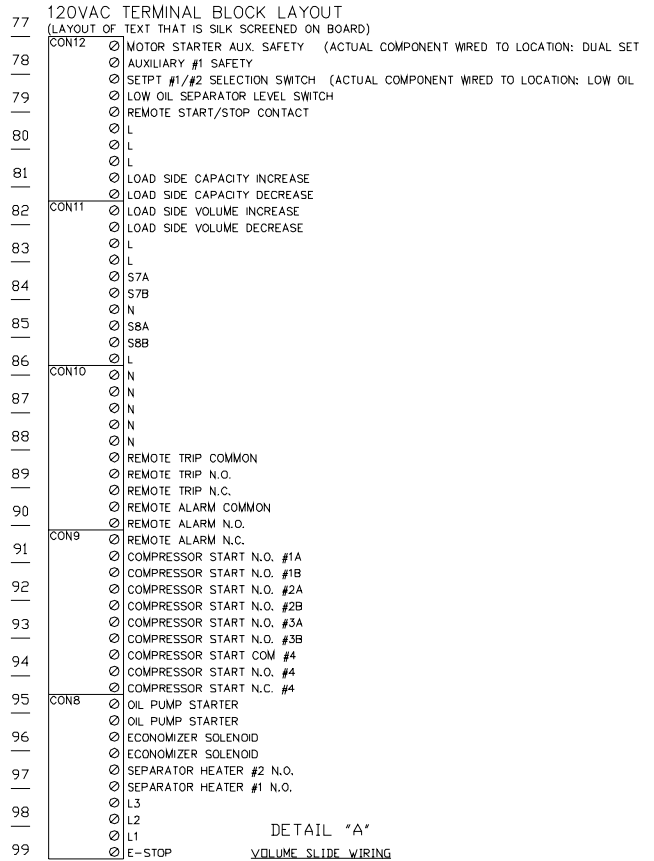
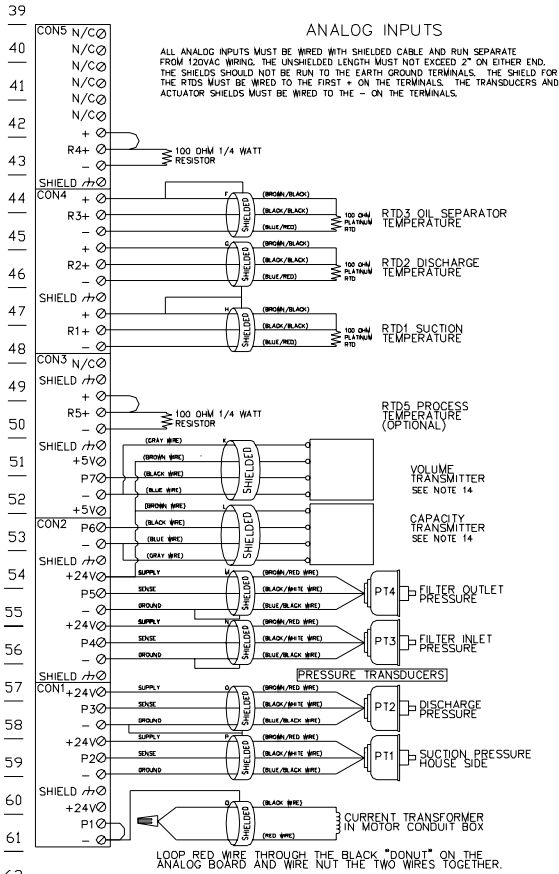
Wiring Diagram For Vantage Only

Verify Correct Version of Software. See bottom of drawing.

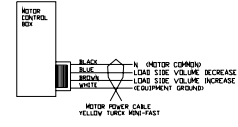


This Diagram Applies To Software Version 5.XX

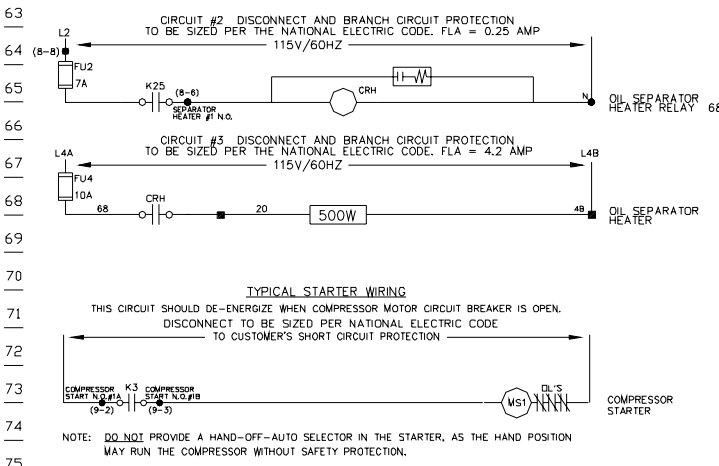
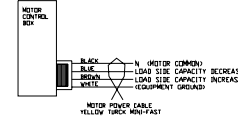
Wiring Diagram For Vantage Only



DETAIL "A"
VOLUME SLIDE WIRING



DETAIL "B"
CAPACITY SLIDE WIRING



- NOTES:**
- 1) WIRING PER NEMA 12.
 - 2) CONTROL WIRING #18 AWG. HEATER WIRING #16 AWG. JIC COLOR CODE UNLESS C
 - 3) USE COPPER WIRE WITH AN INSULATION TEMPERATURE RATING OF 60°C MINIMUM
 - 4) DOTTED WIRING REPRESENTS FIELD WIRING.
 - 5) DOTTED COMPONENTS NOT BY VILTER.
 - 6) ● DENOTES TERMINAL IN VILTER CONTROL PANEL.
 - 7) FOR NEMA 3, 3R, 4 & 12 PANELS, ALL OPENINGS TO BE GASKETED.
 - 8) MOTOR STARTER WIRING WILL VARY. REFER TO STARTER MANUFACTURER'S DIAGRAM
 - 9) ELECTRICIAN TO ROTATE COMPRESSOR MOTOR CONDUIT BOX (HOLE FACING UP)
 - 10) ALL CONDUIT CONNECTIONS TO THE PANEL MUST BE MADE WITH FLEXIBLE CONDUIT
 - 11) "L" TERMINALS ARE LOCATED ON CONNECTORS CON11 AND CON12 AS NECESSARY
 - 12) "N" TERMINALS ARE LOCATED ON CONNECTORS CON10 AND CON11 AS NECESSARY
 - 13) TORQUE ON TERMINALS 3-7 INCH POUNDS
 - 14) USE GREY EURO-FAST CABLE
 - 15) SLIDE MOTOR WIRING SHOWN FOR VSM-91 TO VSS-601. FOR ALL OTHER SIZES THE BROWN & BLUE WIRES
 - 16) WHEN DRIVING AN INDUCTIVE LOAD FROM MICROPROCESSOR CONTROL CIRCUIT A RC NETWORK (SNUBBER) MUST BE PUT IN PARALLEL WITH THE LOAD. FOR STARTER COILS USE RK ELECTRONICS # RC51A-B (VPM 3030D) OR EQUIVA FOR RELAY OR SOLENOID COILS USE RK ELECTRONICS # RC51D-B (VPM 3030C)

VSM-COOL COMPRE
VANTAGE MICROPRC
INITIAL ISSUE CM
SOFTWARE VERSION: VAN5.00 A

This Diagram Applies To Software Version 5.XX

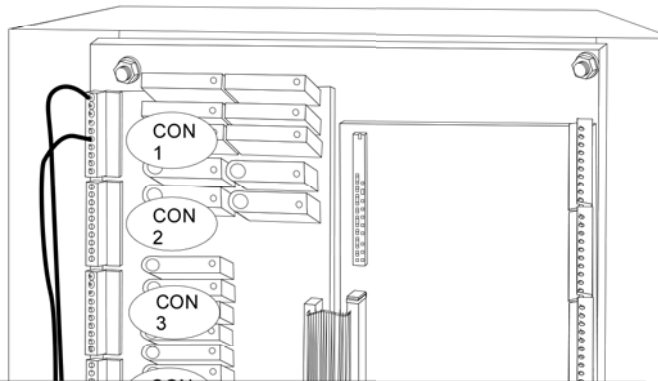
Wiring Instructions For Vission Only

Mandatory Wiring

Step #1

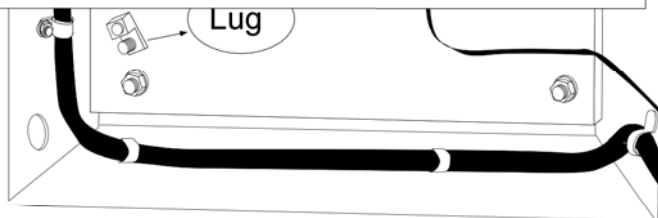
Power Connections Required
(#16 AWG. Nominal)

- 5-1= Main Power to Panel
- 5-2= Heater #1 power
- 5-5= Heater #2 Power

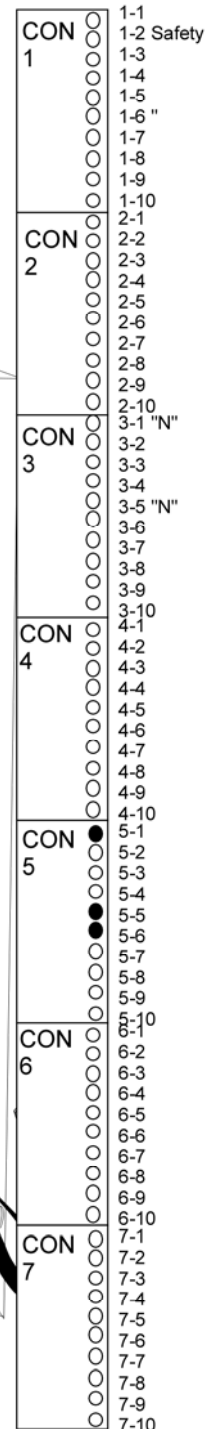


If heater relay circuit is to be powered from the same breaker as the control circuit add a jumper from 5-1 to 5-2.
If heater circuit is to be powered from a different breaker insure this circuit is on the same phase as the control circuit. ("HOT" wire to 5-2)

Heater Circuit Power to 1 or 2 fuses on bottom of panel. Note: Number of fuses based on number of heaters on compressor.



View Inside Of Vission Panel



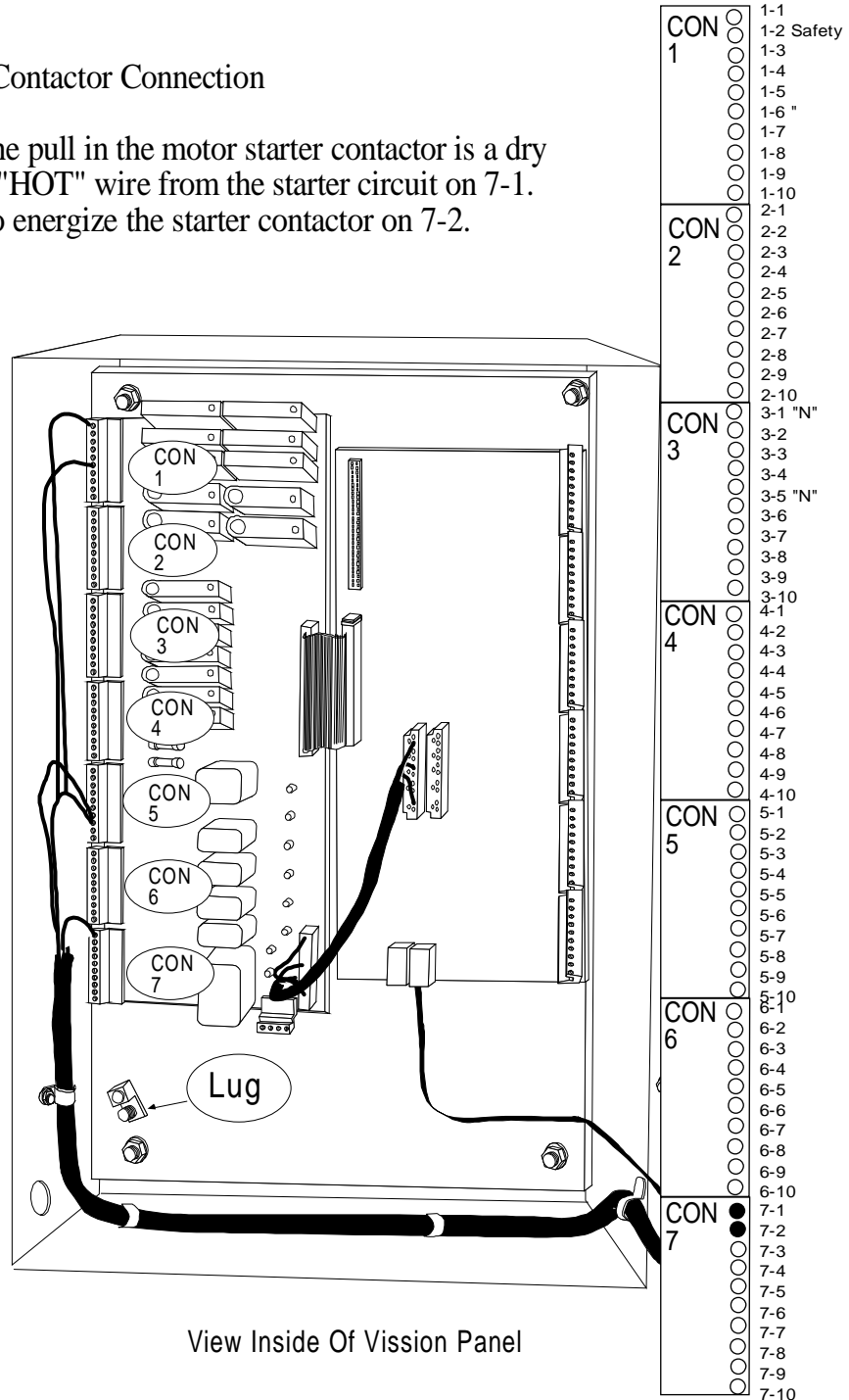
Wiring Instructions For Vission Only

Mandatory Wiring

Step #2

Motor Starter Contactor Connection

The contact to the pull in the motor starter contactor is a dry contact, place a "HOT" wire from the starter circuit on 7-1. Place the wire to energize the starter contactor on 7-2.



View Inside Of Vission Panel

Wiring Instructions For Vission Only

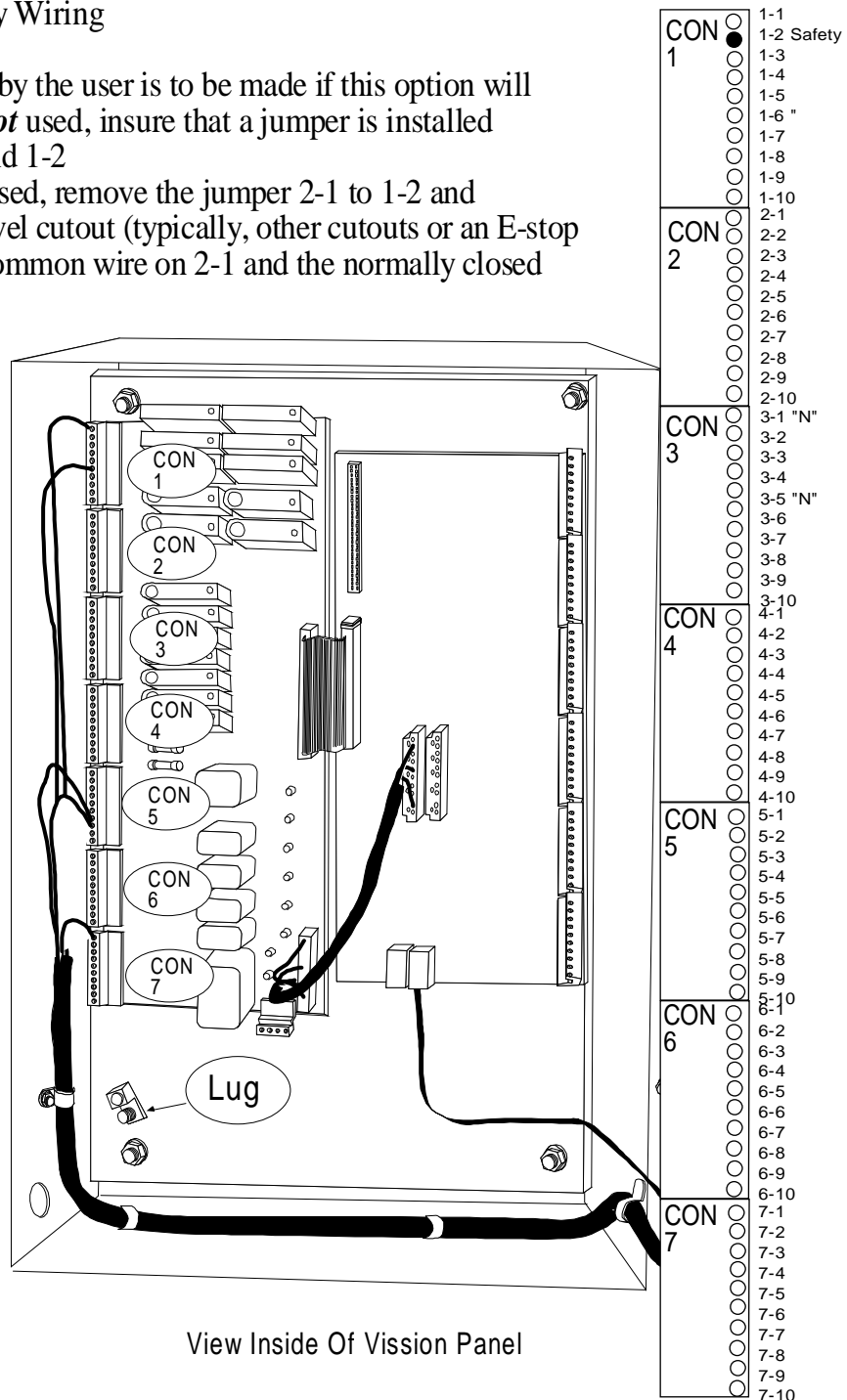
Optional Wiring

Step #3

Auxiliary / Safety Wiring

A determination by the user is to be made if this option will be used. If it is *not* used, insure that a jumper is installed between L 2-1 and 1-2

If this option is used, remove the jumper 2-1 to 1-2 and place the high level cutout (typically, other cutouts or an E-stop could be used) common wire on 2-1 and the normally closed wire to 1-2.



View Inside Of Vission Panel

Wiring Instructions For Vission Only

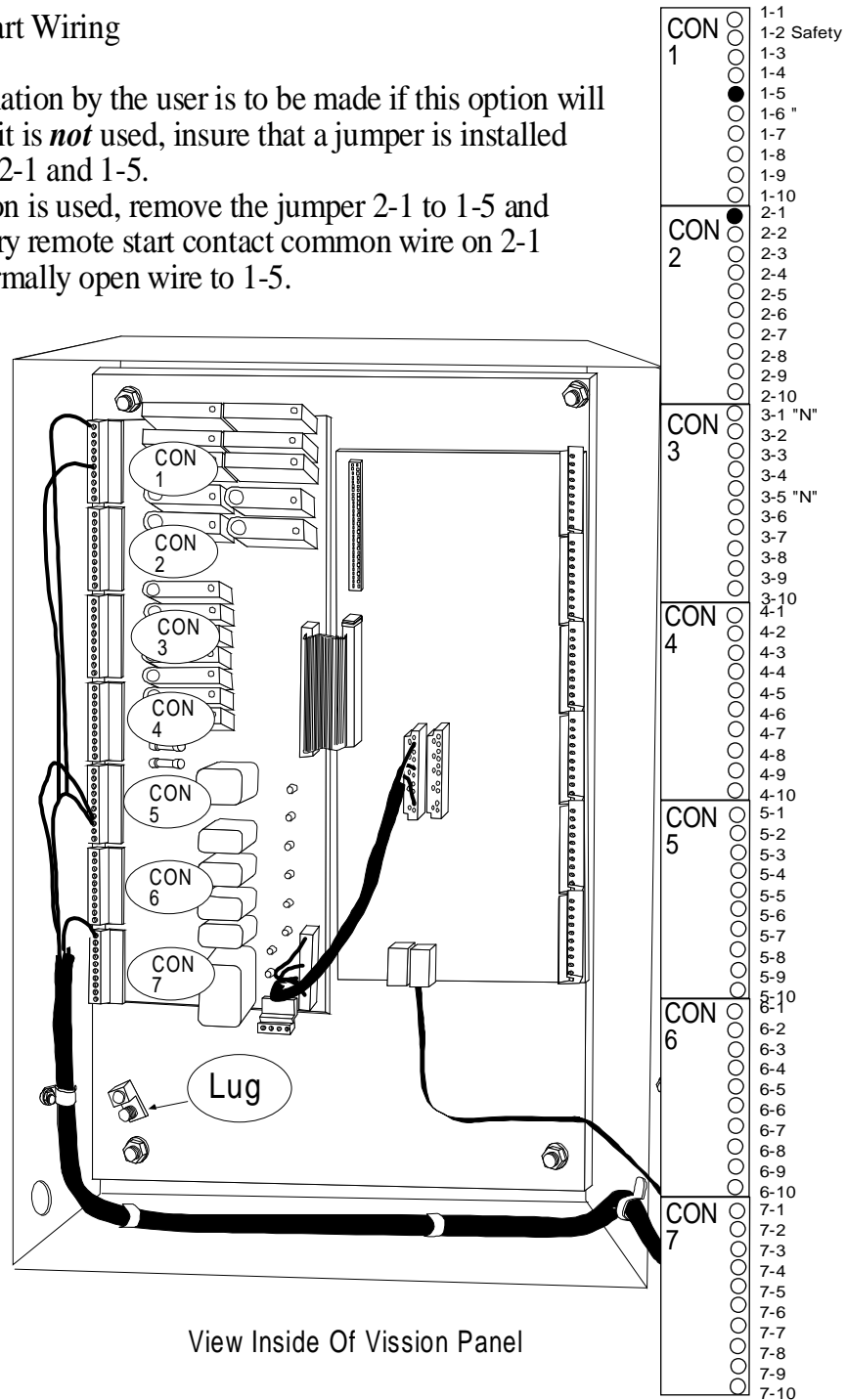
Optional Wiring

Step #4

Remote Start Wiring

A determination by the user is to be made if this option will be used. If it is *not* used, insure that a jumper is installed between L 2-1 and 1-5.

If this option is used, remove the jumper 2-1 to 1-5 and place the dry remote start contact common wire on 2-1 and the normally open wire to 1-5.



View Inside Of Vission Panel

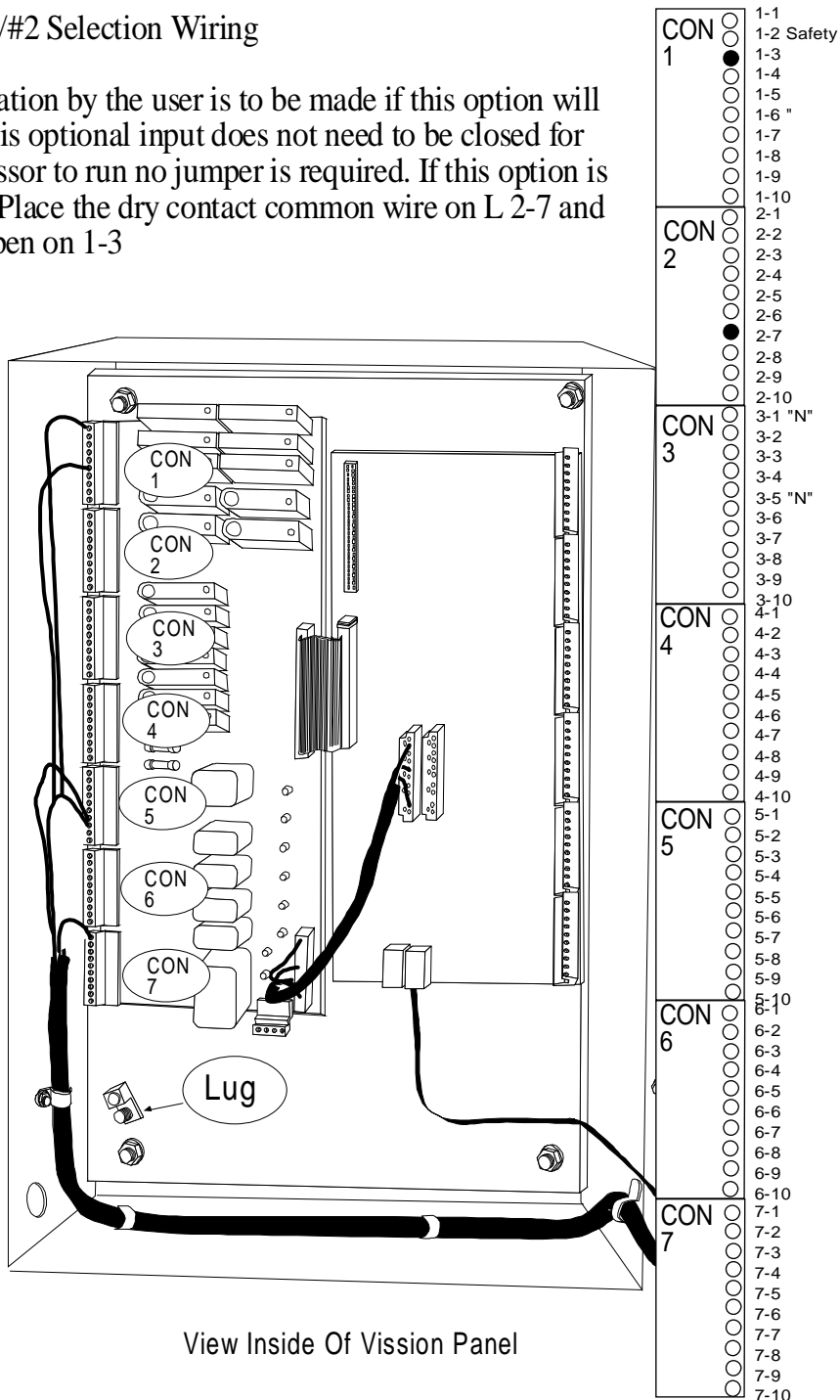
Wiring Instructions For Vission Only

Optional Wiring

Step #5

Setpoint #1/#2 Selection Wiring

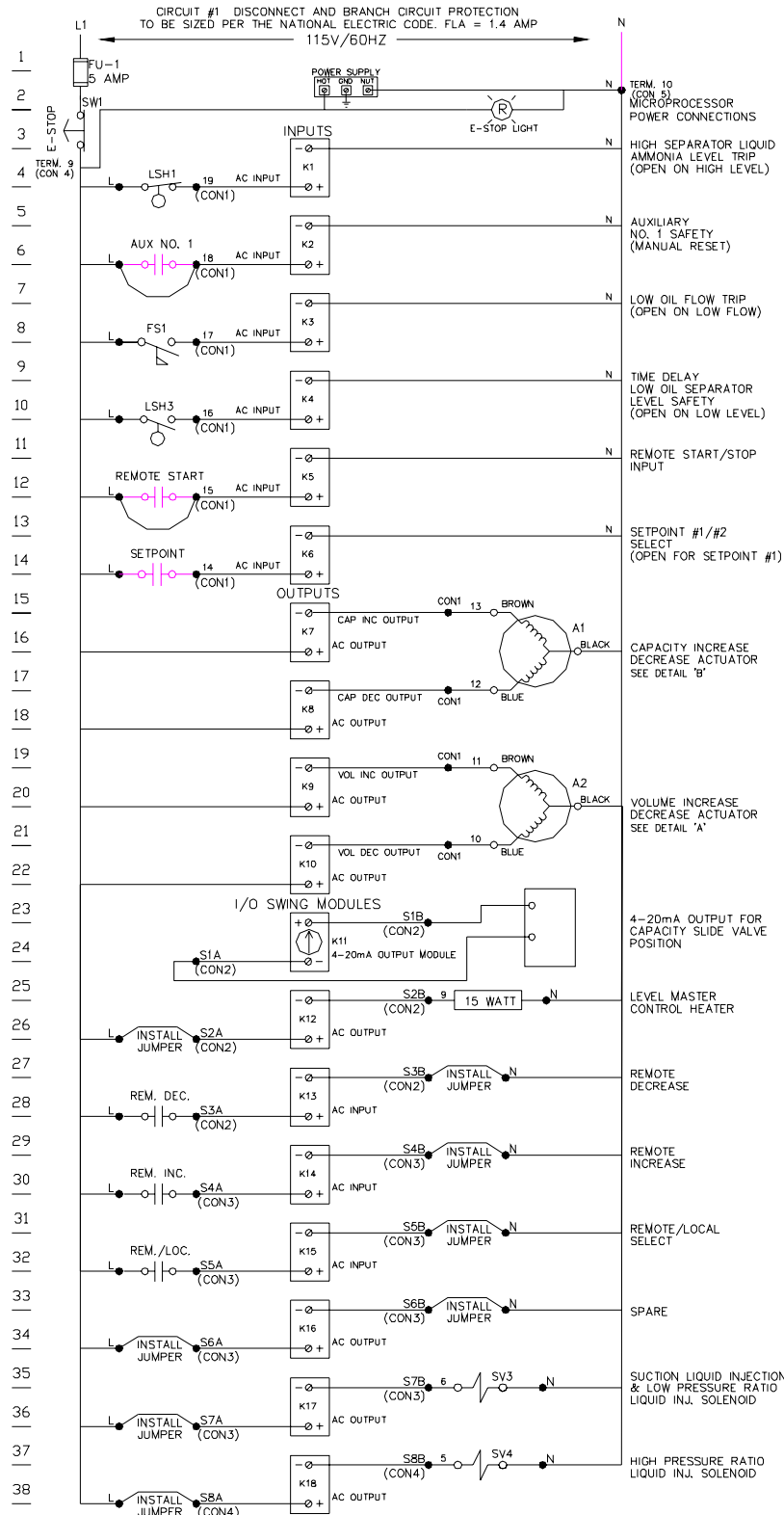
A determination by the user is to be made if this option will be used. This optional input does not need to be closed for the compressor to run no jumper is required. If this option is to be used, Place the dry contact common wire on L 2-7 and normally open on 1-3



Note Page

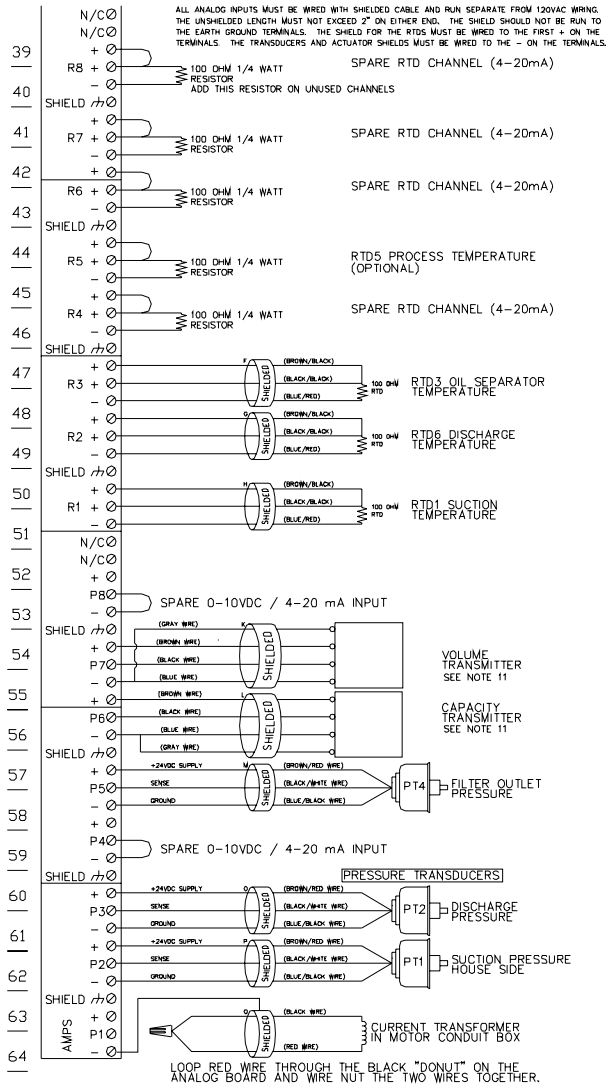
Wiring Diagram For Vision Only

 **Verify Correct Version of Software. See bottom of drawing.**

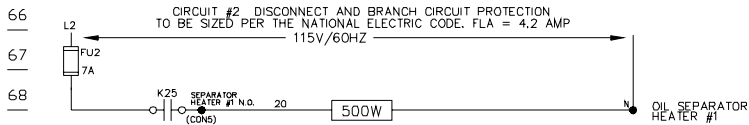


This Diagram Applies To Software Version 3.XX

Wiring Diagram For Vission Only

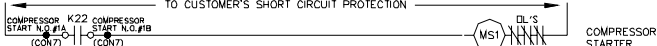


LOOP RED WIRE THROUGH THE BLACK "DONUT" ON THE ANALOG BOARD AND WIRE NUT THE TWO WIRES TOGETHER.

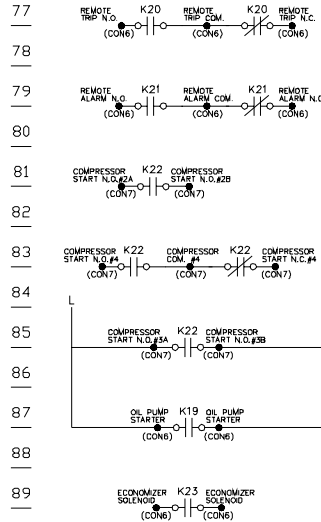


TYPICAL STARTER WIRING

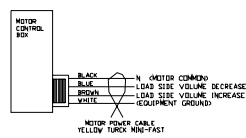
THIS CIRCUIT SHOULD DE-ENERGIZE WHEN COMPRESSOR MOTOR CIRCUIT BREAKER IS OPEN. DISCONNECT TO BE SIZED PER NATIONAL ELECTRIC CODE TO CUSTOMER'S SHORT CIRCUIT PROTECTION



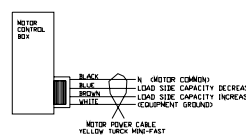
NOTE: DO NOT PROVIDE A HAND-OFF-AUTO SELECTOR IN THE STARTER, AS THE HAND POSITION MAY RUN THE COMPRESSOR WITHOUT SAFETY PROTECTION.



DETAIL "A" VOLUME SLIDE WIRING



DETAIL "B" CAPACITY SLIDE WIRING



NOTES:

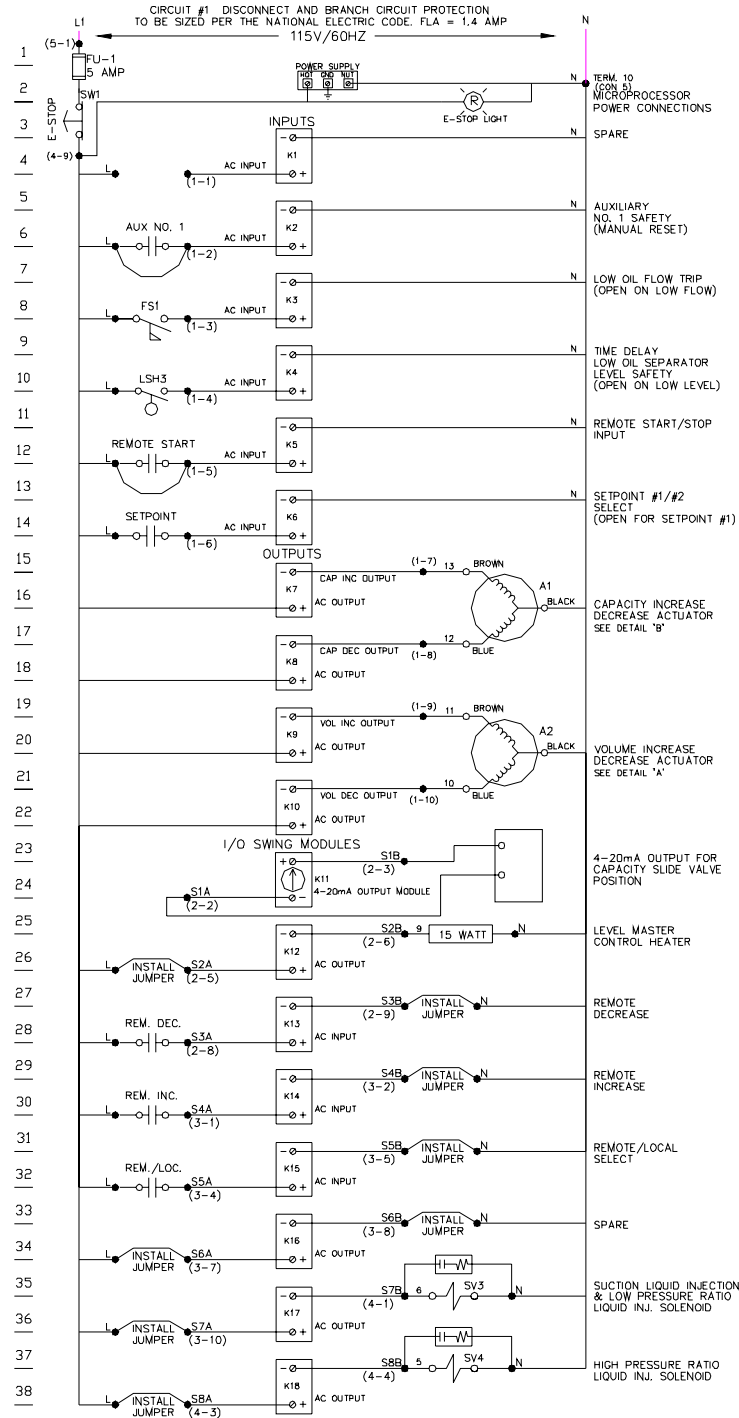
- 1) WIRING PER NEMA 12.
- 2) CONTROL WIRING #18 AWG, HEATER WIRING #16 AWG, JIC COLOR CODE UNLESS OTHERWISE NOTED.
- 3) USE COPPER WIRE WITH AN INSULATION TEMPERATURE RATING OF 60°C MINIMUM.
- 4) DOTTED WIRING REPRESENTS FIELD WIRING.
- 5) DOTTED COMPONENTS NOT BY VILTER.
- 6) ● DENOTES TERMINAL IN VILTER CONTROL PANEL.
- 7) FOR NEMA 3, 3R, 4 & 12 PANELS, ALL OPENINGS TO BE GASKETED.
- 8) MOTOR STARTER WIRING WILL VARY. REFER TO STARTER MANUFACTURER'S DIAGRAM FOR ACTUAL WIRING.
- 9) ELECTRICIAN TO ROTATE COMPRESSOR MOTOR CONDUIT BOX (HOLE FACING UP) BEFORE WIRING.
- 10) ALL CONNECTIONS TO THE PANEL MUST BE MADE WITH FLEXIBLE CONDUIT.
- 11) USE GREY TURK EURO-FAST CABLE.
- 12) "L" TERMINALS ARE LOCATED ON CONNECTORS CON2, CON3 AND CON4 AS NECESSARY.
- 13) "N" TERMINALS ARE LOCATED ON CONNECTORS CON2, CON3, CON4 AND CON6 AS NECESSARY.
- 14) TORQUE ON TERMINALS 3-7 INCH POUNDS.
- 15) SLIDE MOTOR WIRING SHOWN FOR VSM-91 TO VSS-601. FOR ALL OTHER SIZES REVERSE THE BROWN &

ALL AC WIRING TO BE F AND ON LEFT SIDE OF
ALL DC WIRING TO BE F AND ON RIGHT SIDE OF

VSM-701-VVR-A-H-ENV-VISION MICROPROCESSOR INITIAL ISSUE CM032173 SOFTWARE VERSION: VSS3.XX AND LATER

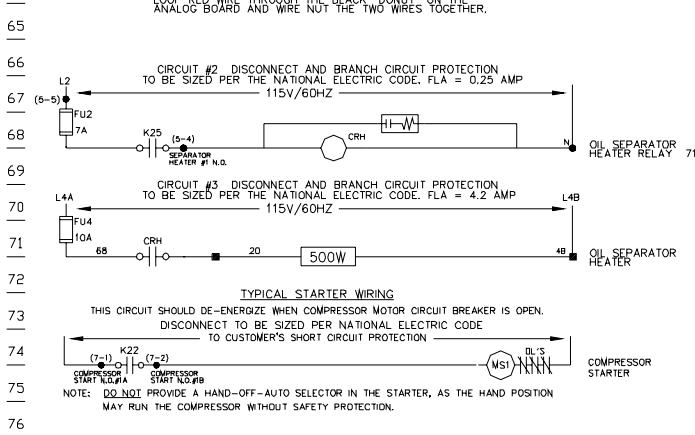
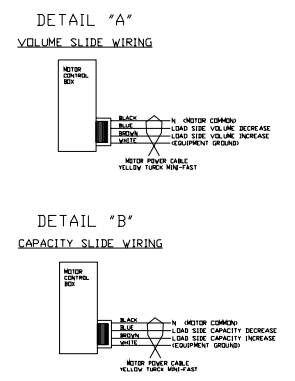
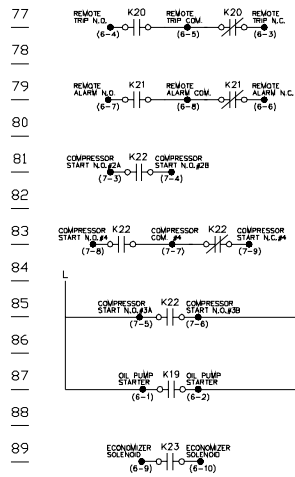
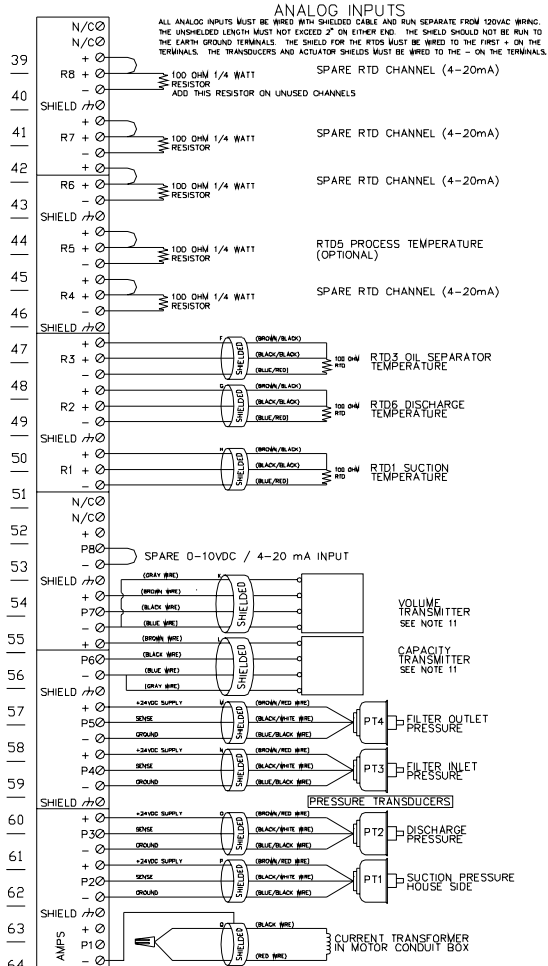
Wiring Diagram For Vision Only

Verify Correct Version of Software. See bottom of drawing.



This Diagram Applies To Software Version 5.XX

Wiring Diagram For Vission Only



- NOTES:**
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 - 2) CONTROL WIRING #18 AWG. HEATER WIRING #16 AWG. JIC COLOR CODE UNLESS OTHERWISE NOTED.
 - 3) USE COPPER WIRE WITH AN INSULATION TEMPERATURE RATING OF 60°C MINIMUM.
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 - 9) ELECTRICIAN TO ROTATE COMPRESSOR MOTOR CONDUIT BOX (HOLE FACING UP) BEFORE WIRING.
 - 10) ALL CONNECTIONS TO THE PANEL MUST BE MADE WITH FLEXIBLE CONDUIT.
 - 11) USE GREY TYPK EURO-FAST CABLE.
 - 12) "X" TERMINALS ARE LOCATED ON CONNECTORS CON2, CON3 AND CON4 AS NECESSARY.
 - 13) "Y" TERMINALS ARE LOCATED ON CONNECTORS CON2, CON3, CON4 AND CON5 AS NECESSARY.
 - 14) TORQUE ON TERMINALS 3-7 INCH POUNDS.
 - 15) SLIDE MOTOR WIRING SHOWN FOR VSM-91 TO VSS-601. FOR ALL OTHER SIZES REVERSE THE BROWN & BLUE WIRES.
 - 16) WHEN DRIVING AN INDUCTIVE LOAD FROM MICROPROCESSOR CONTROL CIRCUIT A RC NETWORK (SNUBBER) MUST BE PUT IN PARALLEL WITH THE LOAD. FOR STARTER COILS USE RK ELECTRONICS # RC51A-8 (VFN 30300) OR EQUIVALENT FOR RELAY OR SOLENOID COILS USE RK ELECTRONICS # RC51D-B (VFN 30300) OR EQUIVALENT

ALL AC WIRING TO BE RUN INTO AND ON LEFT SIDE OF PANEL
ALL DC WIRING TO BE RUN INTO AND ON RIGHT SIDE OF PANEL

VSM-701-VVR-A-H-ENV-CC
VISSION MICROPROCESSOR
INITIAL ISSUE CMO
SOFTWARE VERSION: VSS5.XX AND LATER



Main Screen

The Main Screen

This screen has been designed to give the operator an overall view of all operating parameters affecting the compressor package. **This screen should always be displayed when maintenance items and setpoint items are not being performed.** The date on the screen is updated every 1/2 second. Status information such as Alarms and Trips are displayed on the screen.

This Screen contains buttons to navigate to setpoint, setup and maintenance screens.

Status information on the compressor, SOI solenoid, oil heater, level master heater and run mode.

Start/Stop buttons.

Hour meter.

Motor amperage.

Refrigerant.

Real time compressor and package operating conditions.

Volume and Capacity Slide locations.

8/27/2001 21:39:35
 Oil Heater **Off**
 SOI Sol.: **Off**
 Level Master Heater: On

Suction
20.3 psig
24 F

Discharge
137 psig
81.2 F

Oil Filter
 In **137**
 Out **134**
 Diff **3**

HOURMETER : **4531:30:00**
 MOTORAMPS : **134**



Proc Temp **33 F**

Service Item Required

Ammonia (R717)

Unit Start

INC % CAP
 DEC **51%**

Alarm Reset

INC % VOL
 DEC **72%**

Unit Stop

Pressure Ratio
4.3

Saturated Discharge Temp
81.2

Superheat - Disch Temp
0

Sump SeparatorTemp
81.2

Menu

Setup

Maintenance

Version

Help

Set Up Screen

From the **Main** screen, touch the Setup button. After entering an authorized user name and password, the screen pictured below will appear.

Operator Name – This is the same list that appears in the login dialog. Names in this list can be selected for deletion. To change a name or password, you delete the name and enter a new name/password pair. The VILTER operator name cannot be deleted. Emergency passwords provided by a Vilter representative for the VILTER name are good only on the date for which they are issued. They are intended to permit navigation to this screen for setup or repair of this list.

Language – The user screens can be seen in English, French, and Spanish, depending on the option selected. Some text will still display in English even when another language is selected.

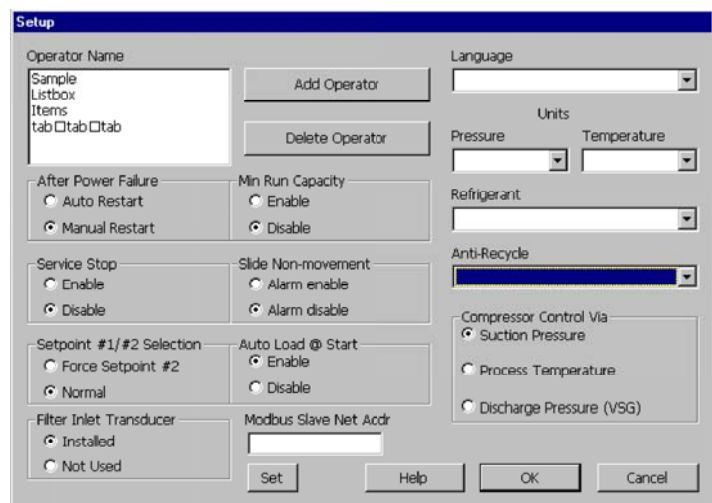
Pressure Units – Select units of measure for pressure readings. Choices are psi, kg/cm² and kPa. Affects pressures displayed on main screen. On other screens, units are displayed in psi. On the main screen with psi selected, negative gauge pressures will display as inches of mercury vacuum with the unit “Hg. On other screens, negative numbers are scaled as “Hg.

Temperature Units – Select units of measure for temperature. Choices are Fahrenheit or Celsius.

Refrigerant – The current choice for Cool Compression is R717 (Ammonia).



Touch Here



Set Up Screen

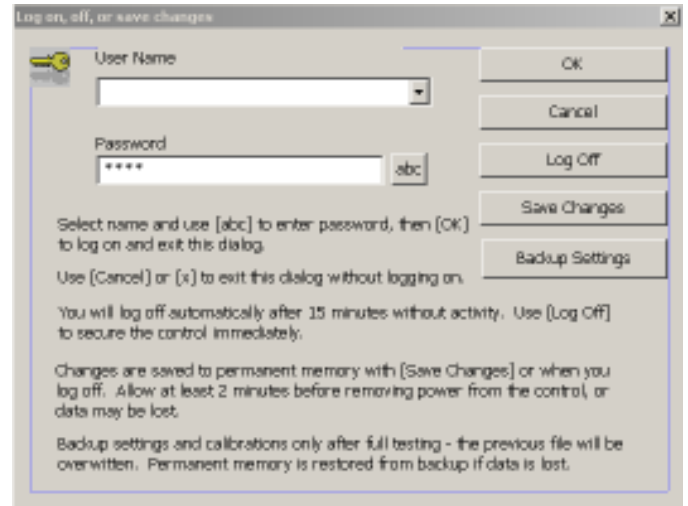
- **Anti-Recycle** – The operator can select from the following AntiRecycle options: True, Accumulative, Modified, or Hot Starts. These select the strategy used to prevent excessive start/stop cycles of the compressor. Timers and counters used to enforce anti-recycling are adjusted and monitored in the Compressor Timer Settings screen, reached from the **Menu** screen. Help for the Timer Settings screen explains how the different settings and strategies operate.
- **Compressor Control Via** – Operator can choose the method or mode of compressor control. This determines which measured variable is used in making loading (capacity control) decisions. The choice selected here determines which setpoints are made available for adjustment on the Compressor Control Setpoints screen.
- **Delete Operator** – Operator can choose to delete operator names from the authorized operator listing. A name in the list is selected by touching it. The selected name will be deleted from the list when this button is pushed. If you delete all the names (besides VILTER), be sure you add at least one before leaving this screen.
- **Add Operator** – The button opens a dialog for entry of a new name/password pair. Nothing (leaving the password text box blank) is a legal password. The password is not obscured as it is typed in, so untrusted parties should not be permitted to view the screen during entry. The password is not confirmed with a repeat entry, so verify it visually before pressing okay. Up to 25 name/password pairs can be added. The Operator Name list box will acquire a scroll bar when it fills.
- **Service Stop** – Enable and disable buttons permit selecting whether the operator is going to perform a ‘service stop’. The ‘service stop’ allows pumping the liquid refrigerant out of the oil separator, for service work. When selected, a dialog box pops up, instructing the operator to turn off the high pressure liquid hand valve. When the operator acknowledges the dialog box, the level master heater is turned off and the compressor enters the ‘service stop’ mode. When the discharge temperature rises to 8 deg. over saturation discharge temperature, the compressor is forced to unload to minimum capacity. When the discharge temperature rises to a value above the “High Dsch Temp Above Saturation Temp” setpoint, then the compressor will fail on this safety and turn off.
- **Slide Non-Movement** – Alarm enable and disable buttons permit selecting whether an alarm should be generated when failure of slides to move is detected.
- **Setpoint #1/#2 Selection** – When Force Setpoint#2 is selected, then all setpoint#2 settings are forced active. When Normal is selected, then Setpoint #1 / #2 selection is enabled and disabled from an input module. Reference the wiring diagram for specific location of this module. **Note:** The input module may not be available on all models.
- **Auto Load @ Start** – When enabled, the Auto Load @ Start setpoint (located in the Compressor Control Setpoints screen) is active, and the compressor will automatically load to this setting when the compressor is started. The compressor must be placed in AUTO mode for this to occur. Also, if the compressor is in a load limit condition, the Auto Load @ Start will be disabled until the load limit condition is removed.
- **Modbus Slave Network Address** – When multiple MicroControllers are connected on a Modbus Network, each controller must have a unique address from the other MicroControllers on the network. Duplicate node addresses are not allowed. The node address of each Vission is determined through the **SETUP** menu. The MicroController that will initiate all conversation on the network **MUST** be defined as node 100 (this is defined as the “master” node). All other node numbers should be in the range of 101 through 174.

Set Up Screen

This must be set when the extra special port (Com4) is used to control or monitor the compressor via Modbus. It also must be set when the multi-compressor sequencing feature is used. Even though Ethernet is used for the comms, this address establishes the compressor's identity and role in the sequencing logic.

- **Reset After Power Fail** – When Auto is selected, the compressor will attempt to restart on powering up if it was running in 'Auto' when powered down and enabling conditions are met. When 'Manual' is selected, the compressor powers up into the 'Stop' mode and an explicit command to run is required from an operator or comms channel.
- **Min Run Capacity** – When enabled, the Minimum Run Capacity setting on the Addition Compressor Setpoints screen operates as described in the help for that screen. When multiple compressor sequencing is used, selecting Disable here does not interfere with use of the Min Run Capacity setting in the sequencing logic.

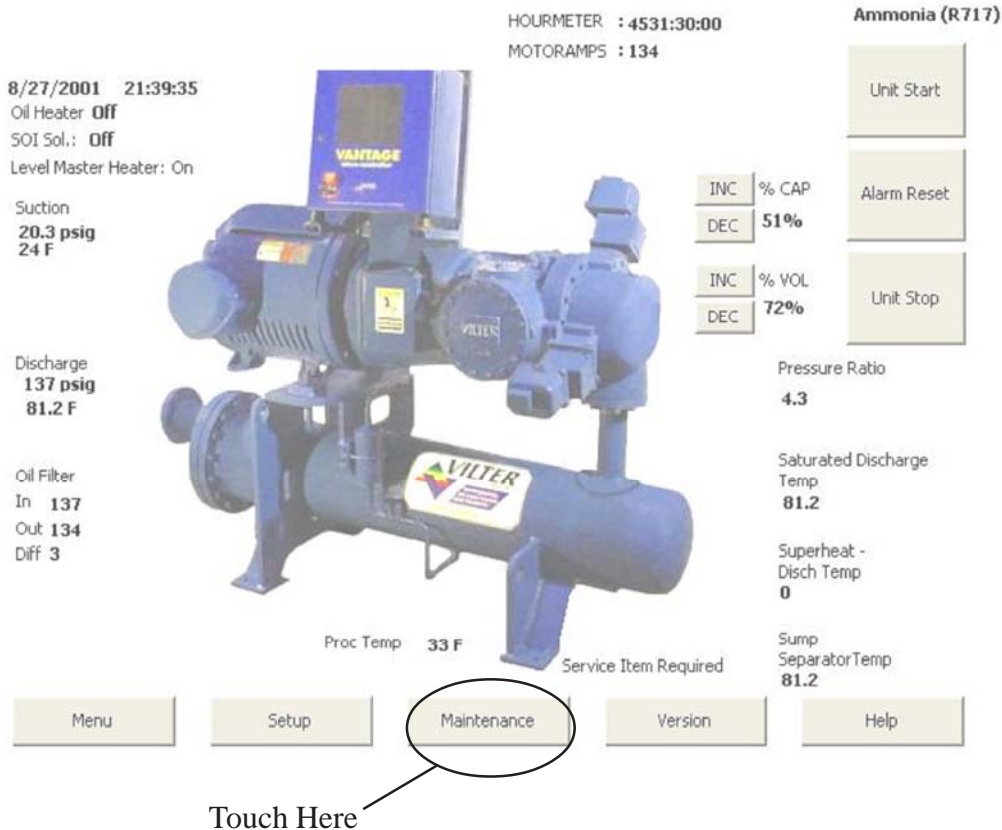
Log On, Off, or Save Changes



Press Log on/Save Button and the above screen will appear. When altering setpoints, log on is necessary. Select appropriate user name and enter password to change setpoints. This screen is also used to backup and save setpoints by pressing (Backup Settings).

*After performing a "Back up Setting" operation, **DO NOT** power down the Vission/Vantagepanel for at least 1 minute. This will allow adequate time to insure all setpoints have been properly stored.*

Maintenance Screen



8/27/2001 21:39:35
 Oil Heater Off
 SOI Sol.: Off
 Level Master Heater: On

Suction
 20.3 psig
 24 F

Discharge
 137 psig
 81.2 F

Oil Filter
 In 137
 Out 134
 Diff 3

Proc Temp 33 F

Service Item Required

HOURMETER : 4531:30:00
 MOTORAMPS : 134

Ammonia (R717)

Unit Start

INC % CAP
 DEC 51%

Alarm Reset

INC % VOL
 DEC 72%

Unit Stop

Pressure Ratio
 4.3

Saturated Discharge Temp
 81.2

Superheat - Disch Temp
 0

Sump Separator Temp
 81.2

Menu Setup Maintenance Version Help

Touch Here

From the **Main** screen touch the Maintenance button.

“**Service Item Required**” message indicates that the compressor runtime hours has accumulated to a value - or a point- where service Maintenance is required.

>From the main screen, press the “Maintenance” button. A chart will be shown to indicate what service is required - based on the number of hours the compressor has run.

After the all required service work has been accomplished, press the “Service” button located on the Maintenance screen. A “Services Completed” screen will appear. Press on each service that has been completed. A “check” will appear next to each item that has been pressed. When all required services have been completed, and the appropriate box has been checked in the “Services Completed” screen, then the “Service Item Required” message will disappear on the main screen.

Note: All of the service items listed for that interval must be checked before the “Service Item Required” message will disappear on the main screen.

Maintenance Screen

Maintenance Chart		SERVICE INTERVAL (HOURS)															
GROUP	INSPECTION OR MAINTENANCE ITEM	(4)															
		25	50	200	5,000	10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000	110,000	120,000
OIL CIRCUIT	Oil Change (1)	R		R	R		R		R		R		R		R		R
	Oil Analysis (2)			S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Oil Filters (3)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Oil Strainer	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
PACKAGE	Suction Screen	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Liquid Line Strainers	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Coupling Alignment and Integrity			I	I	I	I	I	I	I	I	I	I	I	I	I	I
CONTROL CALIBRATION	Transducers			I	I	I	I	I	I	I	I	I	I	I	I	I	I
	RTD's			I	I	I	I	I	I	I	I	I	I	I	I	I	I
COMPRESSOR	Inspect Compressor				I		I		I		I		I		I		I
	Bearings																

Key

I	Inspect.
C	Clean.
R	Replace.
S	Sample.

(1) Oil should be changed at these intervals unless analysis results exceed limits. Change & Analysis intervals depend on system cleanliness.
 (2) Oil Analysis should be done at these intervals as a minimum.
 (3) Change filter(s) at run hour intervals, at least annually, if differential exceeds 25psi, or if analysis results recommend.
 (4) Initially, the oil charge on existing system may need to be changed after 25 hrs dependent on the amount of contaminants in the system.

Service
Close

This screen shows the chart of routine maintenance to be performed on the machine at hourly intervals from 200 hours to 120,000 hours.

Services Completed X

<input type="checkbox"/> Oil Change	<input type="checkbox"/> Coalescing Elements	<input type="checkbox"/> Transducer Calibration	OK
<input type="checkbox"/> Oil Analysis	<input type="checkbox"/> Suction Screen	<input type="checkbox"/> RTD Calibration	Cancel
<input type="checkbox"/> Oil Filters	<input type="checkbox"/> Liquid Line Strainers	<input type="checkbox"/> Inspect Compressor	
<input type="checkbox"/> Oil Strainer	<input type="checkbox"/> Coupling Alignment	<input type="checkbox"/> Inspect Bearings	Add Note

The Service Button from the Maintenance Screen will bring you to this screen.

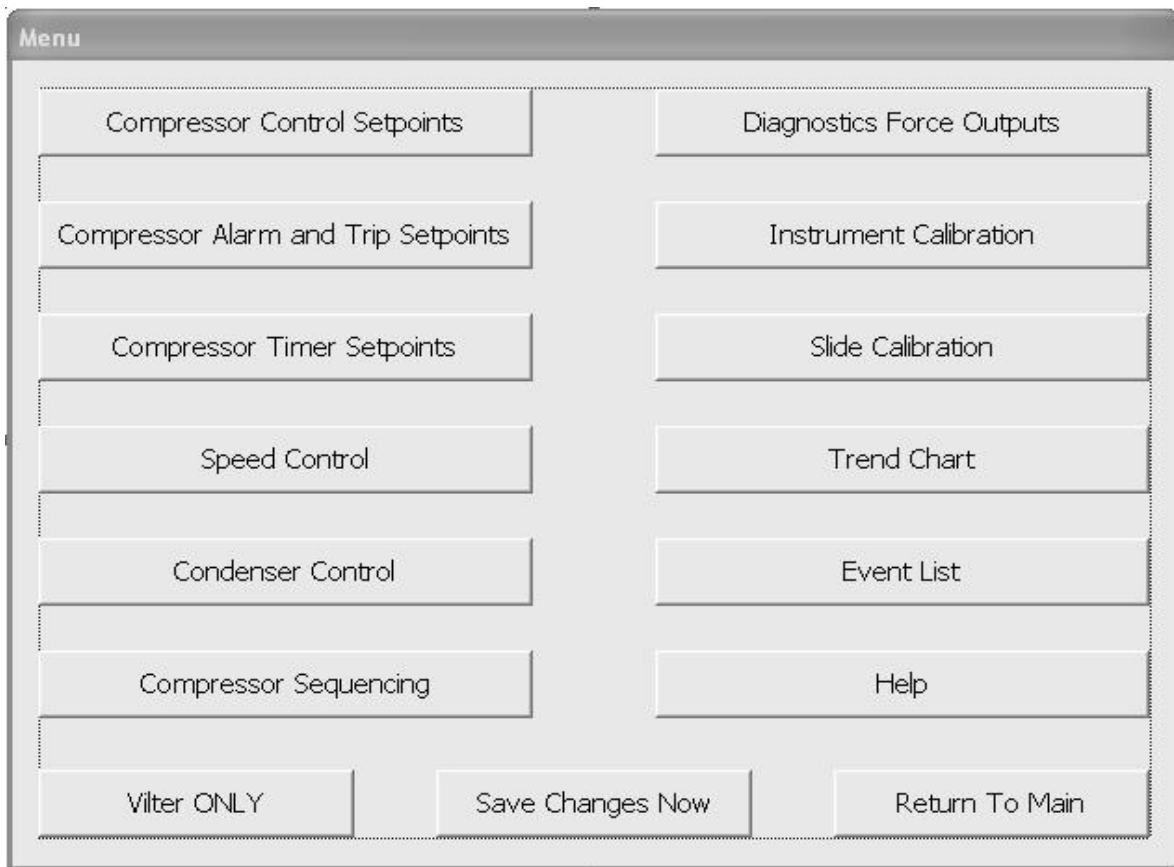
Menu/Setpoint Screen

At the bottom of the **Main** screen touch the Menu button to bring up the screen shown in Figure below.

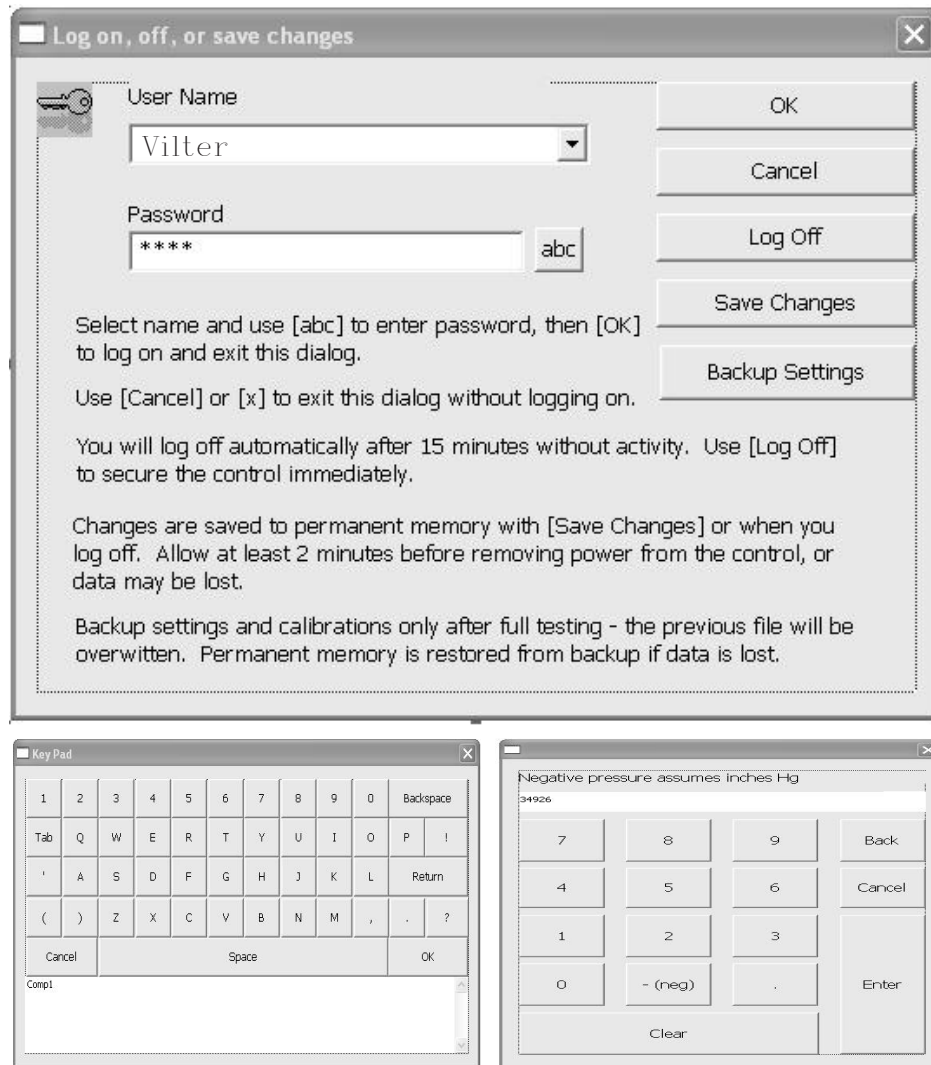
Use this screen to navigate to the other setpoint screens contained within the program. Each setpoint has a help button to describe the function of the screen.



Touch Here



Set point Screen



A. Common Buttons

There are several buttons that are common for all menu screens:

- **Return to Menu** – This button always returns you to the **Menu** screen
- **Logon To Edit** – The user is allowed to view data at all screen levels but cannot edit data until a login has occurred. In order to logon, press the arrow next to user name, select user then press the abc button, the key pad screen will appear. Enter your password and hit OK.
- **Set** – To change a value, the operator must first press the SET button and then the text field of the value they want to modify. A number pad will pop up for ease in entry.
- **Help** – This screen will provide more information to the user about the operator of the microprocessor.

Compressor Control

Compressor Control Setpoints			
Compressor On / Off		On	Off
Setpoint No. 1	20.0	10.0	°F
Setpoint No. 2	25.0	15.0	°F
Capacity Increase		On	Off
Setpoint No. 1	28.0	27.0	°F
Setpoint No. 2	33.0	32.0	°F
Capacity Decrease		On	Off
Setpoint No. 1	24.5	25.0	°F
Setpoint No. 2	29.0	30.0	°F
Capacity Incr. Motor ON		3	sec
Capacity Incr. Motor OFF		20	sec
Capacity Decr. Motor ON		3	sec
Capacity Decr. Motor OFF		20	sec
Capacity		Volume	
Auto		Auto	
Manual		Manual	
High Pressure Ratio Liquid Injection		On	Off
Setpoint No. 1	5.00	4.80	P.R.
Setpoint No. 2	4.70	4.60	P.R.
% Capacity to turn off		Auto Load @ Start	30
Next >		Main	
Set		Logon to Edit	
Help		Trend Chart	
Event List		Static	

Level 1 Access – Compressor Control Setpoints

From the **Menu** screen, press the Compressor Control setpoints button. The compressor control setpoints screen will be shown.

These screens enable the operator to view and adjust settings that affect compressor control.

From the **Setup** screen, the operator can choose the method or mode of compressor control:

Compressor Control Via
Suction Pressure
Process Temperature
Discharge Pressure

Once the method is chosen, the appropriate setpoints are then displayed on the Compressor Control Setpoints screen.

The compressor will decide when to increase or decrease capacity by comparing the controlled variable to the setpoints. The maximum on time and minimum off time settings for slide actuator motors can be used to reduce hunting or improve response time. The de-

fault settings of 3 and 20 seconds respectively, provide good operation over a wide range of conditions.

Also on this screen, the following buttons are displayed:

- **Event List** – Provides a chronological event listing.
- **Chart** – Provides a line graph showing process values over a range of time.
- **Auto** – Places the capacity or volume slides into automatic mode. In automatic mode, the slides move based on control setpoint information.
- **Manual** – Places the capacity or volume slides into manual mode. In manual mode, the slides move base on direct input from the operator.

Compressor Control

Setpoints on this screen:

- **Suction Pressure On/Off** – The compressor will automatically cycle ON and OFF at the setpoints entered. Suction Pressure On/Off control is only active if the Compressor Control Via Suction Pressure option is selected on the **Setup** screen. If a compressor shutdown is desired on a suction pressure drop and a manual reset is required, set the OFF value below the Low Suction Pressure Safety Trip value. This will shut down the unit and a reset will be required to restart it.
- **Suction Pressure Capacity Increase** – The capacity of the compressor will increase when suction pressure is at or above the Increase ON setpoint, and the increase “off” timer has cycled. Capacity will continue to increase until the Suction Pressure Capacity Increase OFF setpoint is reached. If closer system control is desired, set the ON and OFF setpoints at the same values. This will essentially eliminate any differential between the ON and OFF setpoints.
- **Suction Pressure Capacity Decrease** – The capacity of the compressor will decrease when suction pressure is at or below the ON setpoint, and the decrease “off” timer has cycled. Capacity will continue to decrease until the Suction Pressure Capacity Decrease OFF setpoint is reached. If closer system control is desired, set the ON and OFF setpoints at the same values. This will essentially eliminate any differential between the ON and OFF setpoints. While this setting is only available for adjustment on the Control Setpoints screen when the Compressor Control Via Suction Pressure option is selected on the **Setup** screen, it has an override effect when control is via process temperature as described below.
- **Capacity Control °F On/Off** – The compressor will automatically cycle ON and OFF at the setpoints entered. Capacity Control °F On/Off is only active if the Compressor Control via Process Temperature option is selected on the **Setup** screen. If compressor shutdown is desired on a process temperature drop and a manual reset is required, set the OFF value below the Low Control Temperature safety trip value. This will shut down the unit and a reset will be required to restart it.
- **Capacity Control °F Increase** – The capacity of the compressor will increase when process temperature is at or above the ON setpoint, and the increase “off” timer has cycled. Capacity will continue to increase until the Capacity Control °F Increase OFF setpoint is reached. If closer system control is desired, set the ON and OFF setpoints at the same values. This will essentially eliminate any differential between the ON and OFF setpoints. Process temperature control of the capacity is active only if the Compressor Control Via Process Temperature option is selected on the **Setup** screen.
- **Process Temperature Control** – Provides for a Suction Pressure Override feature. If the suction pressure should drop below the Suction Pressure Capacity Decrease OFF setpoint, the Suction Pressure Capacity Decrease OFF setpoint will override the Capacity Control °F Increase and prevent the compressor capacity from increasing (loading). If the suction pressure should continue to decrease below the Suction Pressure Capacity Decrease ON setpoint, the compressor capacity will be forced to decrease until the suction pressure is just above the Suction Pressure Capacity Decrease ON setpoint. This will help stabilize the suction pressure, allowing for the process temperature to be gradually pulled down. The Suction Pressure Capacity Decrease ON and OFF setpoints can be viewed or adjusted by temporarily selecting “Processor Control Via Suction Pressure” on the **Setup** screen .
- **Capacity Control °F Decrease** – The capacity of the compressor will decrease when the process temperature is at or below the ON setpoint and the decrease “off” timer has cycled. Capacity will continue to decrease until the Capacity Control °F Decrease OFF setpoint is reached. If closer system control is desired, set the ON and OFF setpoints at

Compressor Control

the same values. This will essentially eliminate any differential between the ON and OFF setpoints.

- **Auto Load @ Start** – When this feature is enabled from the Setup menu, the Auto Load @ Start setpoint is active, and the compressor will automatically load to this setpoint when the compressor is started. NOTE: The compressor must be placed in AUTO mode for this to occur. Also, if the compressor is in load limit condition, the Auto Load @ Start will override until the load limit condition.
- **Hi Press Ratio Liq Inj Solenoid Setpt 1 & 2** – The low and high pressure ratio solenoids direct oil flow to different ports in the compressor, in order to cool the compressor. This is based on Pressure Ratio across the compressor. The ON and OFF setpoints establish a Pressure Ratio differential in which these solenoids will turn on and off. When the Hi Pressure Ratio Solenoid turns on, the Lo Pressure Ratio Solenoid automatically turns off.
- **Capacity Incr Motor On** – When the compressor is in the Automatic mode, if a capacity increase is desired, the motor is energized to increase the capacity for this set length of time. The motor is then shut off for a set period of time (defined as the Capacity Increase Motor Off time), after which if the system requires a further increase in capacity, the motor is energized. This allows time for the capacity increases to take effect before making another capacity adjustment.
- **Capacity Incr Motor Off** – This is the length of time the increase motor is not allowed to energize, even though an increase in capacity may be required. This allows time for the last capacity increase pulse to take effect before making another capacity adjustment.
- **Capacity Decr Motor On** – When the compressor is in the Automatic mode, if a capacity decrease is desired, the motor is energized to decrease the capacity for this set length of time. The motor is then shut off for a set period of time (defined as the Capacity Decrease Motor Off Time), after which if the system requires a further decrease in capacity, the motor is energized. This allows time for the capacity decreases to take effect before making another capacity adjustment.

Capacity Decr Motor Off – This is the length of time the decrease motor is not allowed to energize, even though a decrease in capacity may be required. This allows time for the last capacity decrease pulse to take effect before making another capacity adjustment.

Compressor Control

Additional Compressor Setpoints

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">On</td> <td style="text-align: center;">Off</td> <td></td> </tr> <tr> <td colspan="3">High Discharge Pressure Unload</td> </tr> <tr> <td>Setpoint No. 1</td> <td style="text-align: center;">200</td> <td style="text-align: center;">190 psig</td> </tr> <tr> <td>Setpoint No. 2</td> <td style="text-align: center;">210</td> <td style="text-align: center;">200 psig</td> </tr> </table>	On	Off		High Discharge Pressure Unload			Setpoint No. 1	200	190 psig	Setpoint No. 2	210	200 psig	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">On</td> <td style="text-align: center;">Off</td> <td></td> </tr> <tr> <td colspan="3">Motor Amps Load Limit</td> </tr> <tr> <td>Setpoint No. 1</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10 amps</td> </tr> <tr> <td>Setpoint No. 2</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10 amps</td> </tr> </table>	On	Off		Motor Amps Load Limit			Setpoint No. 1	5	10 amps	Setpoint No. 2	5	10 amps										
On	Off																																		
High Discharge Pressure Unload																																			
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<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">Lo Suction Press Load Limit</td> </tr> <tr> <td>Setpoint No. 1</td> <td style="text-align: center;">30.0</td> <td style="text-align: center;">35.0 psig/"Hg</td> </tr> <tr> <td>Setpoint No. 2</td> <td style="text-align: center;">40.0</td> <td style="text-align: center;">45.0 psig/"Hg</td> </tr> </table>	Lo Suction Press Load Limit			Setpoint No. 1	30.0	35.0 psig/"Hg	Setpoint No. 2	40.0	45.0 psig/"Hg	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>Volume Slide Adj. Factor</td> <td style="text-align: center;">0</td> <td style="text-align: right;">%</td> </tr> <tr> <td>Current Transformer Ratio</td> <td style="text-align: center;">250</td> <td></td> </tr> </table>	Volume Slide Adj. Factor	0	%	Current Transformer Ratio	250																				
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Setpoint No. 1	30.0	35.0 psig/"Hg																																	
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Current Transformer Ratio	250																																		
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center;">On</td> <td style="text-align: center;">Off</td> <td></td> </tr> <tr> <td>Discharge Temp Superheat Load Limit</td> <td style="text-align: center;">8</td> <td style="text-align: center;">10</td> <td style="text-align: right;">°F</td> </tr> <tr> <td>Suction Oil Injection Load Limit</td> <td style="text-align: center;">20</td> <td style="text-align: center;">30</td> <td style="text-align: right;">%</td> </tr> <tr> <td>Minimum Run Capacity</td> <td style="text-align: center;">30</td> <td style="text-align: center;">35</td> <td style="text-align: right;">%</td> </tr> <tr> <td>Oil Separator Heater Temp.</td> <td style="text-align: center;">30</td> <td style="text-align: center;">35</td> <td style="text-align: right;">°F</td> </tr> <tr> <td>Capacity Slide Adj. Range</td> <td style="text-align: center;">70</td> <td style="text-align: center;">75</td> <td style="text-align: right;">%</td> </tr> <tr> <td>Suction Oil Injection Solenoid</td> <td style="text-align: center;">2.00</td> <td style="text-align: center;">2.04</td> <td style="text-align: right;">CR</td> </tr> <tr> <td>Economizer</td> <td style="text-align: center;">80</td> <td style="text-align: center;">75</td> <td style="text-align: right;">%</td> </tr> </table>				On	Off		Discharge Temp Superheat Load Limit	8	10	°F	Suction Oil Injection Load Limit	20	30	%	Minimum Run Capacity	30	35	%	Oil Separator Heater Temp.	30	35	°F	Capacity Slide Adj. Range	70	75	%	Suction Oil Injection Solenoid	2.00	2.04	CR	Economizer	80	75	%	<div style="margin-bottom: 10px; text-align: center;">< Back</div> <div style="margin-bottom: 10px; text-align: center; background-color: #ccc; padding: 5px;">Main</div> <div style="margin-bottom: 10px; text-align: center; padding: 5px;">Set</div> <div style="margin-bottom: 10px; text-align: center; padding: 5px;">Logon to Edit</div> <div style="text-align: center; padding: 5px;">Help</div>
	On	Off																																	
Discharge Temp Superheat Load Limit	8	10	°F																																
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Oil Separator Heater Temp.	30	35	°F																																
Capacity Slide Adj. Range	70	75	%																																
Suction Oil Injection Solenoid	2.00	2.04	CR																																
Economizer	80	75	%																																

Static

High Discharge Pressure Unloading Setpoints 1&2 – Active in Suction Pressure or Process Temperature Capacity Control mode. These setpoints limit the compressor from loading at high discharge pressure conditions. They override the Suction Pressure or Process Temperature Capacity Control setpoints. The capacity of the compressor will decrease when the discharge pressure is at or above the on setpoint. When the off setpoint is reached, the compressor will stop from unloading any further.

Low Suction Pressure Load Limit – Active in Discharge Pressure Capacity Control mode only. These setpoints limit the compressor from loading at low suction pressure condi-

tions. They override the discharge pressure capacity control setpoints. When the off setpoint is reached (at or below setpoint), the compressor will not be allowed to load any further. If the suction pressure continues to fall, the capacity of the compressor will decrease when the suction pressure is at or below the on set point. It will stop decreasing when the suction pressure rises to a point that is just below the off set point.

Motor Amp Load Limit Setpoints 1 & 2 – This control limit is the motor full load current draw and the maximum current draw. This control limit will only prevent the compressor from loading and does not shut down the compressor if the maximum current draw

Compressor Control

setpoint is exceeded. The actual values entered may depend on particular circumstances. The function of the setpoint is as follows:

If the motor is operating at the full load amperage (FLA=On) setting, the compressor is prevented from loading. If the motor amps exceed the MAX=off setpoint, the compressor is forced to unload until the current is at 1.0625 times above the FLA setting. If the motor being used has a service factor below 1.0625, use a value for the FLA that is 10% lower than the MAX value.

Discharge Temp Superheat Load Limit – This control will limit the compressor capacity based on the amount of discharge temperature superheat present. The formula for superheat is = current discharge temperature minus current saturated discharge temperature. This control limit will only prevent the compressor from loading and does not shut down the compressor if the superheat OFF setpoint is exceeded. The function of the setpoint is as follows: If the amount of superheat is at or above the ON setpoint, the compressor is prevented from loading. If the amount of superheat exceeds the OFF setpoint, the compressor is forced to unload until the discharge superheat value is halfway between the ON and OFF setpoints.

Volume Slide Adjustment Factor – This value is normally zero (0) and will not require changing. However, if the system operating conditions show the volume ratio is not at the optimum value for the system, this value can be adjusted up or down to permit the most efficient positioning of the volume slide valves. To determine the value to enter, first ensure that the system is in a steady operating state and place the volume slide in manual. **NOTE:** The volume position setting and increase the volume side position slowly until the lowest amperage level is achieved. If the amperage level rises instead of falls, decrease the volume slide position until the lowest amperage is achieved. Record the differential from the original position. This will then

be adjustment factor to enter for our system. **NOTE:** Negative numbers can be used for this setting. This setpoint is active on a drop in capacity below the Capacity Slide Adjustment Range cut-in (ON) setting. The adjustment is disabled when capacity rises above the Adjustment Range OFF setting. Normally, the “ON-Off” set points should both be set at 100%, so the volume side adjustment factor will be applied over the full range of 0 to 100%

Current Transformer Ratio – The value entered must agree with the Current Transformer Ratio on the current transformer being used. The current transformer is mounted in the compressor motor conduit box. The ratio is stated as the ratio of measured current to a nominal full scale current in the secondary of 5 amps; only the first of these is entered. For example, if the ratio reads 250/5, enter 250.

Suction Oil Injection Load Limit – This control limit will limit the compressor capacity only when the Suction Oil Injection (SOI) Solenoid has been told to “open”, or to turn on. (The SOI solenoid is turned on or off based on Pressure Ratio setpoints. The Pressure Ratio is absolute discharge pressure divided by absolute suction pressure.) The Suction Oil Injection Load Limit setpoints will only prevent the compressor from loading and does not shut down the compressor if the setpoints are exceeded.

Oil Separator Heater Temperature – This control limit determines when the oil separator heater is energized. A decrease in oil separator temperature below the cut-in setpoint energizes the oil separator heater. On an increase in oil separator temperature above the off setpoint, the oil heater is de-energized.

Capacity Slide Adjustment Range – This control limit determines the capacity range the Volume Slide Adjustment factor will be active. The factor will be active from 0% capacity and will be deactivated when the off setpoint is reached. On a decrease in capacity below the on set point, the factor will be active.

Compressor Control

Suction Oil Injection Solenoid – These setpoints determine when to turn the SOI solenoid on and off, based on pressure ratio values. To determine cut-in (ON) and cut-off (OFF) values for the pressure ratios, take the absolute discharge pressure (PSIA), and divide it by the absolute suction pressure (PSIA). If the pressure ratio is below ON setpoint value, the suction oil injection solenoid will energize and stay on until the pressure ratio increases above the OFF setpoint. The “On-Off setpoints should both be set at 100%.

Economizer Solenoid – This control limit determines when the economizer solenoid is energized. When the percentage of compressor capacity reaches below the Economizer Solenoid on set point, the solenoid is energized. The Solenoid will stay energized until the compressor capacity reduces to the off setpoint.

Compressor Alarm and Trip

Compressor Alarm and Trip Setpoints [Page 1 of 2]

	Alarm	Trip	Reset	
Low Suction Pressure				
Setpoint No. 1	-3.00	-4.00	-2.00	psig/"Hg
Setpoint No. 2	-1.00	-2.00	-1.00	psig/"Hg
High Discharge Pressure				
Setpoint No. 1	210	220	205	psig
Setpoint No. 2	220	230	215	psig
Low Oil Separator Temp.	10	5	15	°F
Low Control Temperature	-50	-55	-45	°F
High Control Temperature	100		95	°F

Normal Conditions

Next >
Main
Set
Help
Logon to Edit

· **Low Suction Pressure Setpoints 1&2** –

This is the low suction pressure safety. This safety is active in both temperature and pressure control modes. An alarm or trip will be active on a drop in suction pressure below the setpoint value.

· **High Discharge Pressure Setpoints 1&2**

This is the high discharge pressure safety. The alarm or trip will be active on a rise in discharge pressure above the setpoint value.

Low Oil Separator Temperature – This is

the lowest allowable oil separator temperature. The compressor will not be allowed to run if the Oil Separator Temperature is below the trip setting. After the compressor starts, the alarm or trip will be active if

the oil temperature in the separator drops below the setpoint value.

· **Low Control Temperature** – This is the

low control temperature safety. This safety is active when process temperature control has been selected in the **Setup** screen. An alarm or trip will be active on a drop in process temperature below the setpoint value.

· **High Control Temperature** – This is the

high control temperature safety. This safety is active when the temperature control has been selected in the **Setup** screen. An alarm will be active on an increase in process temperature above the setpoint value.

Note Page

Compressor Setpoints and Alarms

Compressor Alarm and Trip Setpoints [Page 2 of 2]

	Alarm	Trip	Reset	
Low Run Pressure Ratio	1.60	1.40	1.50	PR
High Motor Amps	15	15	1000	amps
Hi Oil Filter Differential Pressure	15	25	22	psid
Discharge Temperature Superheat				
Run	20	25	22	°F
Before and @ Start		65	64	°F

Static

Buttons: < Back, Main, Set, Help, Logon to Edit

- Low Run Pressure Ratio** – This is the low run pressure ratio (absolute dsch press / absolute suct press) safety. The compressor will alarm or fail if the pressure ratio falls below the setpoint value.
- High Motor Amps** – This safety setpoint is active after the Volume Decrease At Start Timer expires. This timer is not user settable, and in standard applications, is 15 seconds. A trip will occur if the motor amperage exceeds the safety setpoint value. The setpoint should be set at 125% of the motor full load amperage.
- High Filter Differential Pressure -Run** – This safety setpoint is active when the compressor is in the run cycle. An alarm or trip will be active if the filter inlet pressure exceeds the filter outlet pressure by the setpoint value.
- Discharge Temp Superheat -Run** – This safety will cause the compressor to fail if the discharge temperature superheat value rises above the trip setpoint. After the compressor starts, this safety is bypassed for the duration of a non-settable (default of 10-minutes) time (TMR34) within the program. Discharge temperature superheat is calculated as current discharge temperature minus current saturated discharge temperature.

Compressor Setpoints and Alarm

Discharge Temp Superheat –Before and @ Start

– This safety has a dual purpose. First, the compressor will not be allowed to start if the superheat is above the trip setpoint of this safety (default is 65°). Second, when the compressor starts, it is required that the discharge temperature superheat falls at an average rate of “at least 1°F every 15 seconds – for the duration of TMR34 (non-settable by operator) setting”. After TMR34 times out, the discharge temperature superheat value must be below the safety setpoint of “Hi Dsch Temp Superheat –Run” failure (typically 25°). If either of these two conditions are not met, the failure message displayed will be “Dsch Superheat Temp-Rate @ Start”.

There is a third discharge temp superheat failure. This failure is a program calculated *NONSETTABLE* failure called “Dsch Temp Superheat-Rise @ Start”. This safety is active for the duration of the TMR34. This safety setpoint is calculated by reading the current Discharge Temp Superheat when the compressor starts, and adding 5° to the reading. This value becomes the TRIP setpoint for this safety. If the discharge temp superheat ever exceeds the Trip setpoint (for the duration of TMR34), the compressor will fail on “Hi Dsch Temp Superheat – Rise @ Start” failure.

The nonsettable timer TMR34 is called “Hi Dsch Temp Superheat Bypass @ Start” timer. This timer is not settable by the operator. It is calculated based on the setting of the safeties “Hi Dsch Temp Superheat Run Failure” (default 25°F), and “Hi Dsch Temp Superheat before and @ Start” (default 65°F).

The value of this timer is determined by the following rule. When the compressor starts, the discharge temp superheat is required to drop at an average rate of at least 1°F every 15 seconds over the span of its maximum allowable superheat (at start), to its maximum allowable superheat (at run). So, to determine the maximum length of time of this timer, we subtract

the “Hi Dsch Temp Superheat Run Failure” setpoint from the “Hi Dsch Temp Superheat before and @ Start” setpoint. Then multiply this difference by 15 seconds to find the total seconds allowed for the Dsch Temp Superheat to drop to an allowable “run” superheat.

EXAMPLE:

Assume:

“Hi Dsch Temp Superheat @ Start” Trip setpoint is set at 65°.

The “Hi Dsch Temp Superheat” Trip setpoint is set at 25°.

The program will test for the requirement of “at least an average rate of 1° drop every 15 seconds” for a total time period of 65° MINUS 25° = 40° change x (1° change per 15 seconds) = 600 seconds. So, 600 seconds (10 minutes) is allowed for the superheat to drop 40° — with a requirement that there be an average drop of at least 1° decrease for every 15 seconds of run time.

Compressor Timer Setpoints

Compressor Timer Setpoints

Capacity Decrease at Start	<input type="checkbox"/>	15	sec
Compressor Starter Aux. Contact Bypass	<input type="checkbox"/>	10	sec
Volume Slide Adjustment Timer	<input type="checkbox"/>	15	sec
SOI Solenoid Drain @ Stop	<input type="checkbox"/>	10	min
Pressure Ratio Bypass at Start	<input type="checkbox"/>	30	sec
Low Oil Separator Level Bypass Timer	<input type="checkbox"/>	360	min
Auto Restart After Power Failure	<input type="checkbox"/>	5	min
Force On SOI Solenoid @ Start	<input type="checkbox"/>	60	sec
Number of Hot Starts per Hour	<input type="checkbox"/>	3	counts
True AntiRecycle Timer	<input type="checkbox"/>	20	min
Accumulative AntiRecycle Timer	<input type="checkbox"/>	20	min
Stop Level Master Heater Timer	<input type="checkbox"/>	30	min
Level Master Heater Restart Delay	<input type="checkbox"/>	30	sec
Hi Liquid Ammonia Level Delay	<input type="checkbox"/>	30	min
Bypass Oil Flow Safety @ Start	<input type="checkbox"/>	10	sec

To change a timer setting, you must “Logon to Edit” first. Push the “Set” button then push on the timer setpoint value you wish to change.

Normal Conditions

Capacity Decrease At Start – At compressor startup, the capacity motor is held at minimum position for this time period. After the timer expires, the slide is free to move in accordance to the system demands.

Compressor Starter Auxiliary Contact Bypass – This timer is used to bypass the motor amperage input at start. After the timer times out, the program determines if the motor starter has pulled in by testing the amperage channel. If the program determines that the starter did not “pull in”, then the compressor will fail on “Motor Starter Fail” message.

Volume Slide Adjustment Timer – This timer determines the intervals the volume slide is adjusted. If the volume slide is between 2½% & 7% away from the desired volume ratio, the motor is pulsed once toward the desired volume. If the volume slide is more than 7% away from the desired value, the volume slide motor is continuously energized until the valve is within 2½% of the desired value. If the actual position is within 2½% of the desired value, no adjustment will be made.

Compressor Timer Setpoints

- **SOI Solenoid Drain at Stop** – When the compressor shuts down, this timer will keep the SOI solenoid energized to allow liquid ammonia to drain back to the oil separator.
 - **Press Ratio Bypass @ Start Timer** – This is the length of time that the Lo Run pressure ratio safety is by-passed during the starting of the compressor.
 - **Low Oil Separator Level Bypass Timer** – This timer bypasses the low oil level switch for momentary drops in the oil level. If the switch is still open after the Low Oil Separator Level Bypass Timer has timed out, the compressor will be shut down. An alarm will be displayed prior to shutdown to alert the operator of potential problem.
 - **Auto Restart After Power Failure** – This timer forces the microprocessor to wait for the set time period after a power failure before starting the compressor unit. By staggering the time settings, the compressors can be allowed to start automatically, one at a time, after a power failure. This prevents excessive loads on the power system that could be caused by all of the equipment coming online at the same time. The Power-Up Auto Start operator option must be selected on the **Setup** screen for this option to be active.
 - **Force on SOI Solenoid @ Start** – This timer forces the SOI solenoid on when the compressor starts. After this timer times out, the SOI solenoid then is controlled by pressure ratio control setpoints.
 - **Number of Hot Starts per Hour Counter** – This counter counts compressor starts. After every start, a one-hour timer is reset and starts timing. If the timer times out, the hot starts counter is reset. When the counter reaches its preset value, it will not allow another compressor start until the one-hour timer times out and resets the counter. In other words, the hot starts counter will be reset when the time between compressor starts total one hour. This counter allows repetitive compressor starts, but once the counter has reached its set point, it requires a one-hour window between compressor starts in order for the counter to be reset.
 - **True Anti-Recycle Timer** – Once the compressor turns off, the timer will keep the compressor off for the setting of True Anti-Recycle Timer. This timer is used to prevent short cycling of the compressor.
 - **Accumulative Anti-Recycle Timer** – This timer also forces a specified time between compressor starts. When the compressor starts, the timer resets it then starts timing and accumulates while the compressor is running. Once the compressor shuts down, it will not be allowed to restart for the remainder of the time left on the Accumulative Anti-Recycle Timer. Unlike the True Anti-Recycle Timer, if the compressor has run for a time period that exceeds the setpoint of the Accumulative Anti-Recycle Timer, then when the compressor shuts down, it will be allowed to restart immediately.
- The compressor restart options (Hot Starts or Anti-Recycle Timers) are selected from the **Setup** screen. One additional Anti-Recycle Timer that can be selected from the **Setup** screen is the Modified Anti-Recycle Timer.
- **Stop, Level Master Heater Timer** – This timer puts a limit on how long the Level Master Heater will stay energized after the compressor shuts down.
 - **Level Master Heater Restart Delay Timer** – This timer puts a limit on how long the compressor will be delayed from starting. The compressor will be delayed from starting if the compressor tries to restart after the “Comp Stop, Level Master Heater Timer” has timed out.
 - **High Liquid Ammonia Level Delay Timer** – This timer delays a failure from occurring on a condition of a Hi Liquid Ammonia Level. This timer prevents nuisance shutdowns from occurring, due to a momentary rise in level of liquid ammonia in the oil separator.
 - **Bypass Oil Flow Safety @ Start Timer** – This timer delays an oil flow failure from occurring during startup of the compressor. This timer prevents nuisance trips from occurring, due to a momentary reduction of oil flow in the oil line at compressor start.

Miscellaneous Screens

Condenser Control

<p>Fan Control PID Parameters</p> <p>Proportional Gain <input style="width: 50px;" type="text"/></p> <p>Reset Time (min) <input style="width: 50px;" type="text"/></p> <p>Rate Time (min) <input style="width: 50px;" type="text"/></p> <p>Manual Out (%) <input style="width: 50px;" type="text"/></p> <p>Fan On (PSI) <input style="width: 50px;" type="text"/></p> <p>Fan Off (PSI) <input style="width: 50px;" type="text"/></p>	<p>Condenser Pump Control</p> <p>Cooling On Pressure <input style="width: 50px;" type="text"/></p> <p>Cooling Off Pressure <input style="width: 50px;" type="text"/></p>	<p style="text-align: right;"><input type="button" value="Back to Menu"/></p> <p style="text-align: right;"><input type="button" value="Logon to Edit"/></p> <p style="text-align: right;"><input type="button" value="Set"/></p>
<p>Fan Control PID Variables</p> <p>Discharge Pressure Setpoint <input style="width: 50px;" type="text"/> psig</p> <p>Actual Discharge Pressure <input type="button" value="Edit"/> psig</p> <p>Fan Output (% full speed) <input type="button" value="Edit"/></p>		
<p>Fan Speed Control Mode</p> <p><input type="radio"/> Automatic (PID)</p> <p><input type="radio"/> Manual (% Full Speed)</p>	<p>Hot Gas Bypass Solenoid</p> <p>On @ % Capacity <input style="width: 50px;" type="text"/></p> <p>Off @ % Capacity <input style="width: 50px;" type="text"/></p>	

This screen is designed for customized functions only, thus maybe placed as a view only screen.

Note: Changing variables on this screen will not have any effect unless you have a customized program for your unit.

To View if a customized program has been installed in your unit, go to the main screen and press VERSION, a screen will appear with the program version and the make model of the unit.

Miscellaneous Screens

Motor Speed Control

<p>PID Tuning</p> <p>Gain <input style="width: 50px;" type="text"/></p> <p>Reset <input style="width: 50px;" type="text"/> min</p> <p>Rate <input style="width: 50px;" type="text"/> min</p> <p>Deadband <input style="width: 50px;" type="text"/> %</p> <p>Min Spd Point <input style="width: 50px;" type="text"/> %</p>	<p>Speed Selection Mode</p> <p><input type="radio"/> Automatic High/Low</p> <p><input type="radio"/> High Speed Only</p> <p><input type="radio"/> Low Speed Only</p> <p><input type="radio"/> External Input</p>
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<p>Low to High Speed Change</p> <p>Capacity above <input style="width: 50px;" type="text"/> %</p> <p>For at least <input style="width: 50px;" type="text"/> min</p> <p>Delay from Low dropout to High pickup <input style="width: 50px;" type="text"/> sec</p>	<p>High to Low Speed Change</p> <p>Capacity below <input style="width: 50px;" type="text"/> %</p> <p>For at least <input style="width: 50px;" type="text"/> min</p> <p>Delay from High dropout to Low pickup <input style="width: 50px;" type="text"/> sec</p>
---	---

This screen is designed for customized functions only, thus maybe placed as a view only screen.

Note: Changing variables on this screen will not have any effect unless you have a customized program for your unit.

To View if a customized program has been installed in your unit, go to the main screen and press VERSION, a screen will appear with the program version and the make model of the unit.

Compressor Sequencing (Max 5 Compressors)

Compressor Sequencing

Equipment	Node	Central	Priority	Step	Min Cap	Max Cap	Stop Tmr
Comp1 <input type="text" value="Comp1"/>	100	<input type="button" value="OFF"/>	1	10	10	95	120
Comp2 <input type="text" value="Comp2"/>	2	<input type="button" value="OFF"/>	2	10	10	95	120
Comp3 <input type="text" value="Comp3"/>	3	<input type="button" value="OFF"/>	3	10	10	95	120
Comp4 <input type="text" value="Comp4"/>	4	<input type="button" value="OFF"/>	4	10	10	95	120
Comp5 <input type="text" value="Comp5"/>	5	<input type="button" value="OFF"/>	5	10	10	95	120

Pressure Setpoints

Start #1	19.0	PSIG/"Hg
Start Lag	21.0	PSIG/"Hg
Load Rate 2	20.8	PSIG/"Hg
Load Rate 1	18.0	PSIG/"Hg
Unload Rate 1	15.0	PSIG/"Hg
Unload Rate 2	12.2	PSIG/"Hg
STOP	10.0	PSIG/"Hg

CAP Load Timers

Load Rate 1	20	SEC
Load Rate 2	10	SEC

CAP Unload Timers

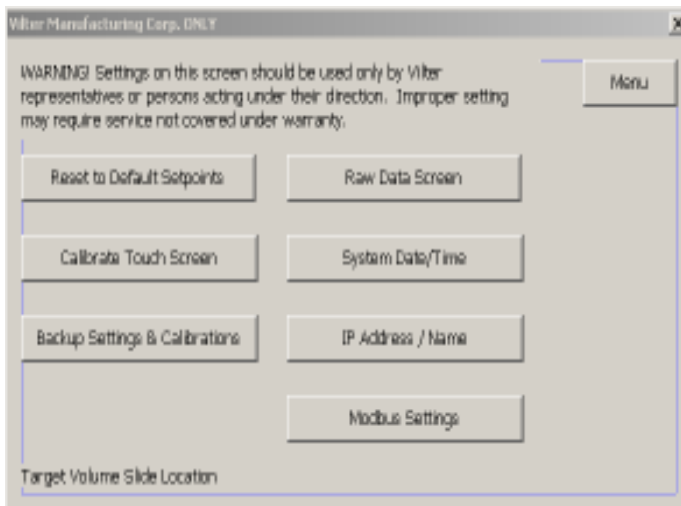
Unload Rate 1	20	SEC
Unload Rate 2	10	SEC

Machine Start Time

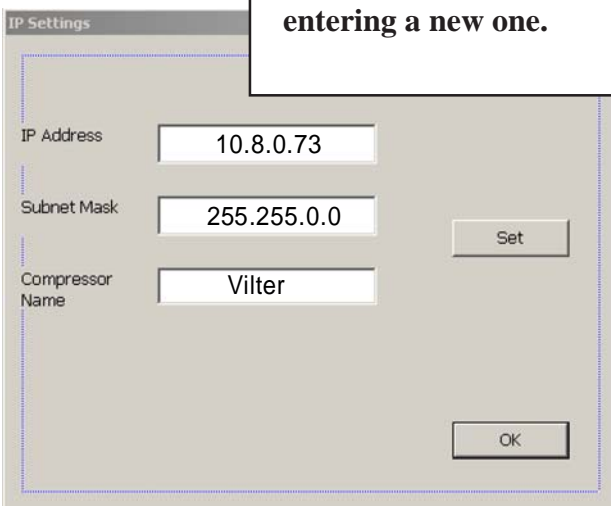
Start Time	120	SEC
------------	-----	-----

Force Priority 1 Compressor on

From the Main Menu (press sequencing), this screen will appear.

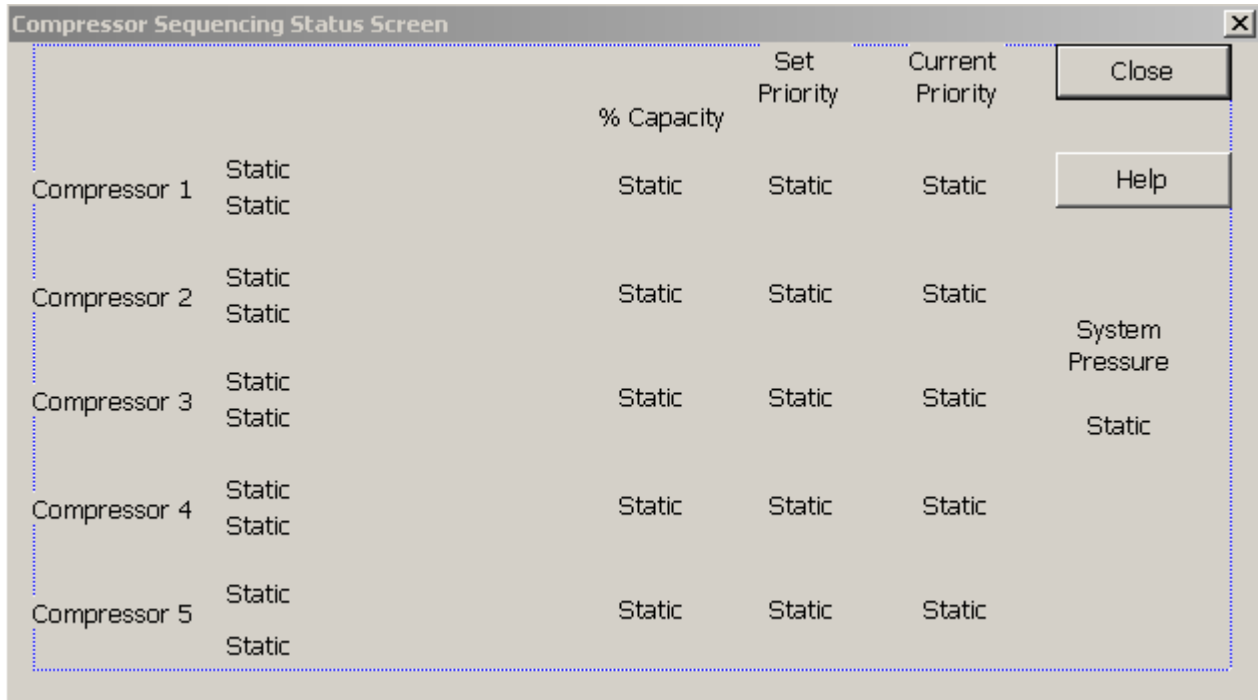


You must clear the IP Address before entering a new one.



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Compressor Sequencing (Max 5 Compressors)



Note: Sequencing and Remote/Start-Stop can NOT function at the same time- Sequencing will over-ride remote start/stop!

This screen allows the operator to setup a sequencing network. Currently, the MicroController is capable of sequencing 5 compressors. In order for a MicroController to participate on the network, it must have a unique address from the other Controllers on the network. Duplicate node addresses are not allowed. The node address of each is done through the **Setup** menu.

The MicroController which will initiate all conversation on the network MUST be defined as node 100. This is defined as the “master” node. All other node numbers should be in the range of 101 through 174.

Before connecting cad cable, you MUST enter I.P address.

Ethernet Peer To Peer – In addition to having unique node addresses, all compressors on the Ethernet network must have unique IP addresses and unique names. These are entered from the “Think and Do Configuration Utility” screen,

accessed from the VILTER ONLY screen. The Ethernet IP addresses of each of the five compressors listed are required to be:

Equipment:	Ethernet IP Address
Cmp#1:	10.8.0.73
Cmp#2:	10.8.0.74
Cmp#3:	10.8.0.75
Cmp#4:	10.8.0.76
Cmp#5:	10.8.0.77

The Compressor Sequencing screen only needs to be setup on the “Master” node. The elements of this screen are:

- **Equipment** – Allows the operator to select the size of each compressor. This information is used to make sequencing decisions based on the CFM of the compressor. A valid size MUST be chosen for a compressor to participate in sequencing. This field also allows the operator to change the name of each of the five compressors listed.

Compressor Sequencing (Max 5 Compressors)

Node – These node address fields tell the sequencing algorithm which MicroController will be participating in the sequencing network. Input the node addresses of each Controller, participating on the network, in these fields.

NOTE:

The node addresses for each panel are defined and entered under the **Setup** screen at each individual panel.

Central Off/On Buttons – These buttons indicate whether the compressor has been selected to operate under Central Control. If the button reads “On”, the compressor will be included in the Central Control System. If the button reads “Off”, the compressor will not be included in the Central Control system. Pushing once on the button will toggle the button between “Off” and “On”.

Priority – The Priority fields are used to assign the compressor priority for Central Control. The lower the priority number, the greater the priority of the compressor. Priority #1 compressor is the highest priority compressor. Compressors with higher priority numbers will be lag compressors. A compressor with a priority of 1 will be considered the “lead” compressor. The suction pressure of priority #1 compressor is used to control the system pressure.

Step – This field sets the amount of capacity change that will occur when a compressor is loading or unloading.

NOTE:

Because of the method used to position the slide valve, and the method used to determine when the slide valve position is “close enough” to the target value, the step value should never be less than 5%.

Min Cap – The Minimum Capacity is the lowest capacity, in percentages, that this compressor is allowed to reach during operation. If the system needs to remove additional system capacity, it may shut a compressor off.

Max Cap – The Maximum Capacity is the highest capacity, in percentage, that this compressor is allowed to reach during operation. If the system needs to increase capacity after this compressor has reached its maximum, it may turn on another compressor.

Stop Tmr – The Stop Timer (in seconds) is the amount of time the system must hold a compressor at minimum capacity before the compressor can be shut off.

PRESSURE SETPOINTS:

The 7 pressure setpoints are used to control the system pressure. With the exception of the Start #1 and Start Lag setpoints, all other setpoints must be in decreasing pressures from the previous value.

Start #1 – The Start #1 pressure setpoint is the system pressure at which the Priority 1 compressor will be started.

Start Lag – The Start Lag pressure setpoint will only start the lag compressor, and only after the lead compressor has reached the Max Cap value, and the Machine Start Timer has timed out. The Lead compressor is normally priority, unless it is not available to start due to waiting hot starts, safety trips, etc.

Load Rate 2 – If the system pressure exceeds the Load Rate 2 pressure setpoint for the time specified in the Load Rate 2 Timer, Central Control will attempt to increase the capacity of the system.

Load Rate 1 – If the system pressure exceeds the Load Rate 1 pressure setpoint for the time specified in the Load Rate 1 Timer, Central Control will attempt to increase the capacity of the system.

Unload Rate 1 – If the system pressure falls below the Unload Rate 1 pressure setpoint for the time specified in the Unload Rate 1 Timer, Central Control will attempt to decrease the capacity of the system.

Compressor Sequencing (Max 5 Compressors)

Unload Rate 2 – If the system pressure falls below the Unload Rate 2 pressure setpoint for the time specified in the Unload Rate 2 Timer, Central Control will attempt to decrease the capacity of the system.

Stop – If the system pressure falls below the Stop setpoint, Central Control will immediately try to shut down the lowest priority lag compressor. If there is only one compressor running, Central Control will shut down.

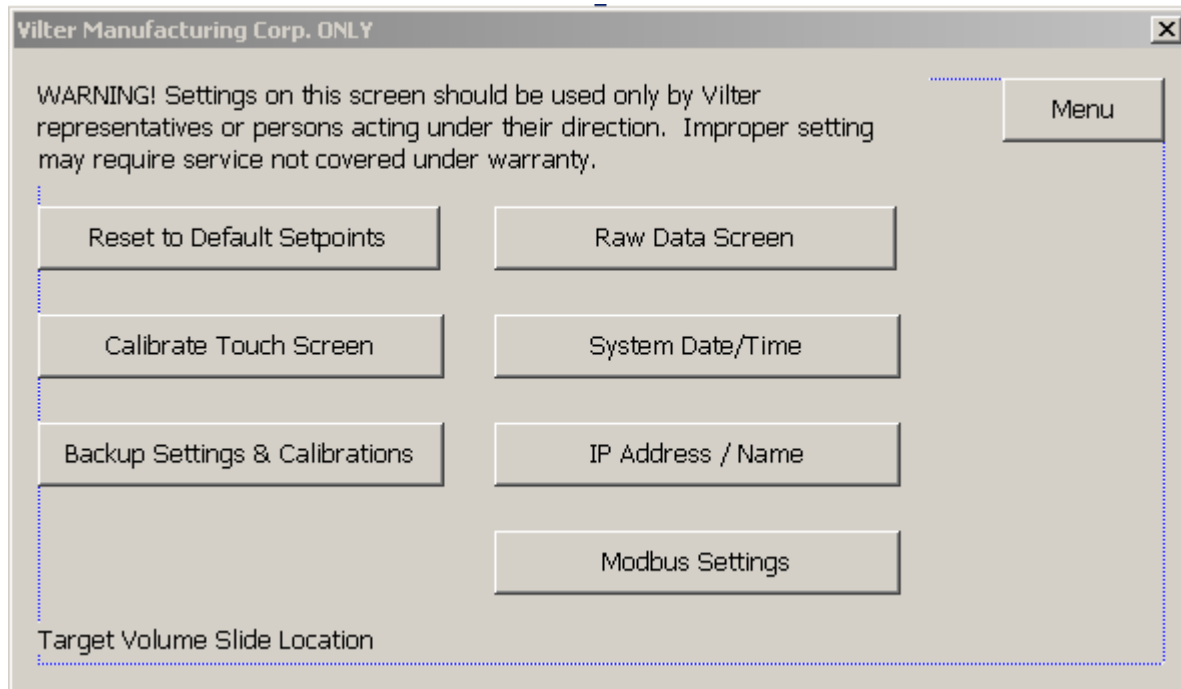
CAP Load Timers – These timers are directly related to the setpoint values described above. The timers are the minutes and seconds that the Central Control algorithm will hold before deciding on an action. The CAP Load Rate Timers are related to the appropriate Load 1 and 2 increase setpoints described above.

CAP Unload Timers – The Capacity Unload Rate Timers are similar to the timers described above, however, they work to decrease system capacity. The CAP Unload Rate Timers are related to the appropriate Unload Rate 1 and 2 decrease setpoints described previously.

Machine Start Time – This timer is the time the system will wait until another compressor is started in an attempt to increase capacity.

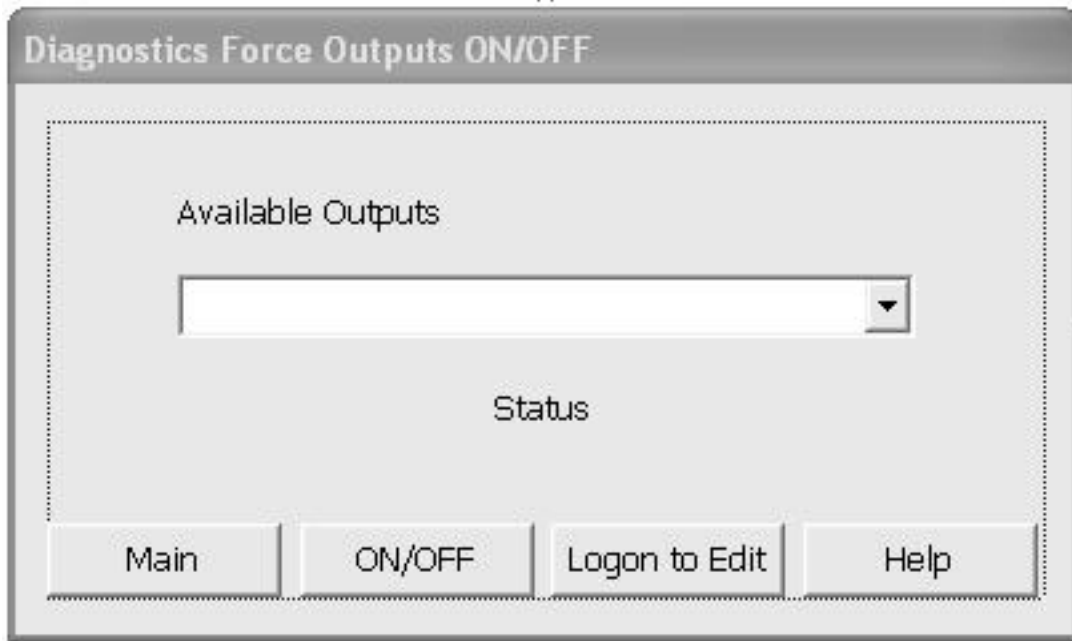
Force Priority 1 Compressor On Checkbox: When checked this overrides other sequencing logic and priority 1 compressor will always run. Pressing the box alternating checks and unchecks it.

Vilter Only Screen

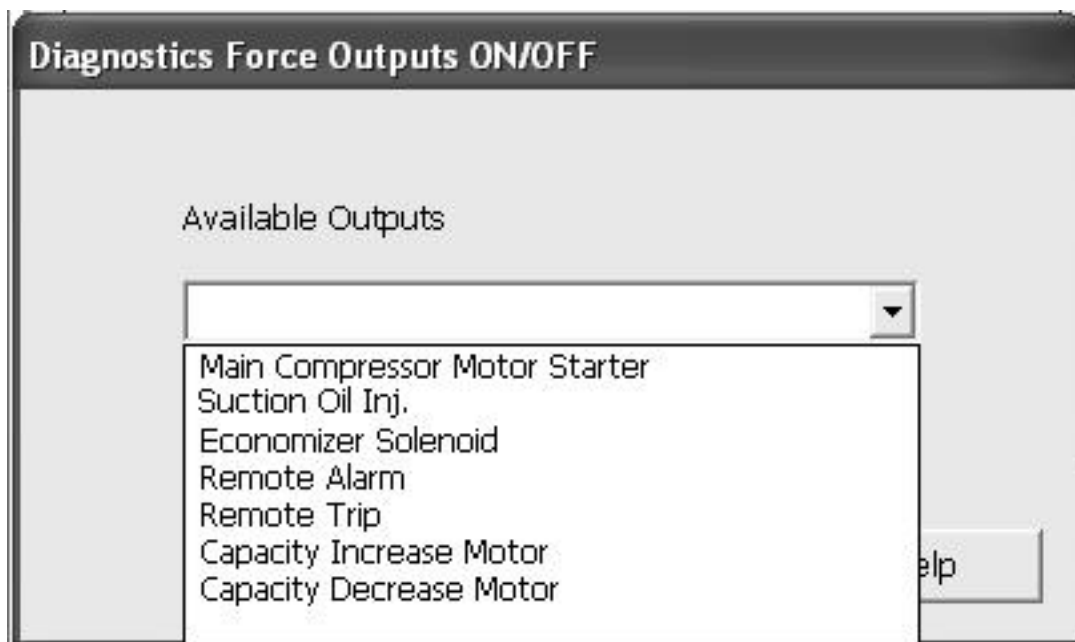


WARNING: Settings on these screens should be used only by Vilter representatives or persons acting under their direction. Improper setting may result in loss of vital data and require service NOT covered under warranty.

Diagnostics Force Output



On/Off – This will turn the force outputs option On/Off. The force outputs that can be modified are as follows: Main Motor Starter, Suction Oil Inj. SO1, Level Master Control Heater, Remote Alarm/Trip, Oil Drain SO1, Capacity Increase Motor, Capacity Decrease Motor, Volume Increase Motor, Volume Decrease Motor and Oil Separator Heater. You can choose the forced output by pressing the down arrow in the control labeled Available Outputs.



Instrument Calibration

Instrument Calibration [Page 1 of 2]

	Current	+/-	Offset	
Discharge Pressure Trans.	200	0		psig
Suction Press Trans.- House Side	55	0		psig
P4, 0-10v Input	10	0		psig
Oil Filter Outlet Press. Trans.	198	0		psig
Discharge Temp. RTD	109	0		°F
Suction Temperature RTD	51	0		°F
R4 Temp. Channel RTD	48	0		°F
Oil Separator Temp. RTD	66	0		°F
Process Temperature RTD	46	0		°F
Motor Amperage	2	0		amps

The current values reflect the values presently maintained by the system. The user can perform a one-point calibration by entering an offset value into the respective column. This will automatically adjust the current value and zero out the offset value. Giving max and min values for a respective current value can perform a two-point calibration. The program will automatically adjust the calibration line to meet those values.

The following items can be calibrated at this screen: Discharge Pressure Transducer, Suction Pressure Transducer, Channel P4, 0-10v Input, Oil Filter Outlet Pressure Transducer, Discharge Temperature RTD, Suction Temperature RTD, Channel R4 RTD, Oil Separator RTD, Process Temperature RTD and Motor Amperage.

In Version 5.XX the oil filter inlet pressure transducer will also be displayed.

Instrument Calibration

Instrument Calibration [Page 2 of 2]

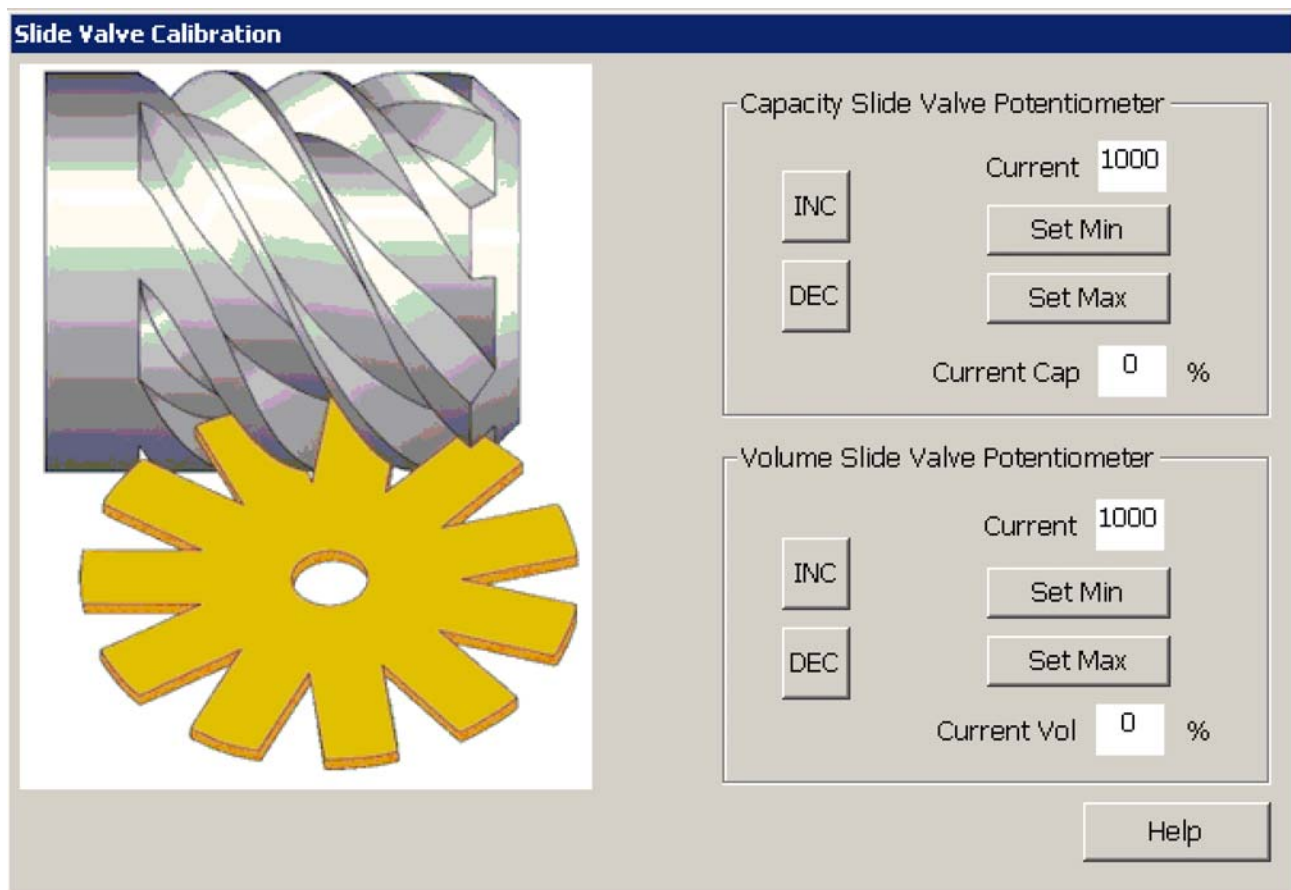
	Current	+/- Offset		
Spare RTD #1	32	0	°F	Back to Menu
Spare RTD #2	33	0	°F	Main
Spare RTD #3	32	0	°F	Set
P1, 0 - 10 volt channel	-53	0	psig	Logon to Edit
0 - 10 Volt Input	0	0	psig	Help

Instrument calibration menu displays the Input channels that can be calibrated to represent the actual values at the sampling points.

The current values reflect the values presently maintained by the system. The user can perform a one point calibration by entering an offset value into the respective column. This will automatically adjust the current value and zero out the offset value.

The following items can be calibrated at this screen: three (3) spare RTDs and two (2) 0-10 volt input.

Calibration Procedure of Optical Actuators



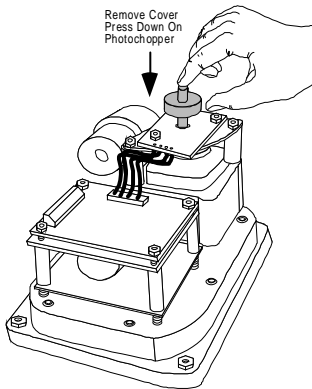
*** If you are replacing or re-installing a new optical actuator see page 59 first.**

ACTUATOR MOTOR CONTROL MODULE CALIBRATION PROCEDURE

1. Disable the Slide Non-Movement Alarm by going to the "Setup" menu on the Vission/Vantage and choosing "Alarm Disable" for the Slide Non Movement Option.
2. Open the plastic cover of the capacity motor by removing the four #10 screws. **Caution: there are wires attached to the connector on the plastic cover. Handling the cover too aggressively could break the wires.**
3. Gently lift the cover and tilt it toward the Turck connectors. Raise the cover enough to be able to press the blue calibrate button and be able to see the red LED on the top of assembly.
4. Press "Menu" on the main screen and then press the "Slide Calibration" button, to enter the slide calibration screen. If you are re-installing a new optical actuator re-connect the yellow and gray cables.
5. Press INC and DEC to move the slide valve and check for the correct rotation. See Table 1 for Actuator/command shaft rotation specifications.
6. Note: If the increase and decrease buttons do not correspond to increase or decrease shaft rotation, swap the blue and brown wires of the "yellow power cable". This will reverse the rotation of the actuator/command shaft.

Calibration Procedure of Optical Actuators

7. Quickly press and release the blue push button on the actuator one time. This places the actuator in calibration mode. The red LED will begin flashing rapidly.
8. Note: When the actuator is in calibration mode, it outputs 0V when the actuator is running and 5V when it is still. Thus, as stated earlier, the actuator voltage will fluctuate during calibration. After the actuator has been calibrated, 0V output will correspond to the minimum position and 5V to the maximum position.
9. Note: The “Slide calibration” screen on the Vission/Vantage has a “Current” window, which displays twice the actuator output voltage. This value, (the % volume and the % capacity) displayed in the “Current Vol” and Current Cap” Windows are meaningless until calibration has been completed.
10. Use the DEC button on the Vission/Vantage panel to drive the slide valve to its minimum “mechanical stop” position. **Do not continue to run the actuator in this direction after the slide valve has reached the stop. Doing so may cause damage to the actuator or the slide valve.**



Do not touch wires, may cause an electrical shock!

Press down on the photochopper shaft to disengage the brake, releasing tension from the motor mount. Use the INC button to pulse the actuator to where the slide is just off of the mechanical stop and there is no tension on the motor shaft.

11. Quickly press and release the blue button on the actuator again. The red LED will now flash at a slower rate, indication that the minimum slide valve position (zero position) has been set.
12. Use the INC button on the Vission/Vantage panel to drive the slide to its maximum “mechanical stop” position. **Do not continue to run the actuator in this direction after the slide valve has reached the stop. Doing so may cause damage to the actuator or the slide valve.** Press down on the photochopper shaft to disengage the brake, releasing tension from the motor mount. Use the DEC button to pulse the actuator to where the slide is just off of its mechanical stop and there is no tension on the motor shaft.
13. Quickly press and release the blue button on the actuator one more time. The red LED will stop flashing. The actuator is now calibrated and knows the minimum and maximum positions of the slide valve it controls. Now the capacity or volume channel of the Vission/Vantage can be calibrated.
14. Use the Dec button to move the actuator towards its minimum position while watching the millivolt readout on the Vission/Vantage screen. Discontinue pressing the DEC button when the millivolt reading the “Current” window above the “Set Min” button is approximately 500 millivolts.



Calibration Procedure of Optical Actuators

15. Now use the DEC and INC buttons to position the slide valve until a value close to 300 millivolts is on the screen. Then, press the “Set Min” button in the capacity or volume slide valve window to tell the controller that this is the minimum millivolt position. Note: The value in the “Current Cap” or “Current Vol” window has no meaning right now.
16. Use the INC button to rotate the actuator towards its maximum position while watching the millivolt readout on the controller screen. Discontinue pressing the INC button when the millivolt reading in the “Current” window is approximately 9200 millivolts (7900 millivolts for the 2783J qualified analog boards applies to Vission Only). You are nearing the mechanical stop position.
17. Pulse the INC button to carefully move the slide valve until the millivolt readout “saturates”, or stops increasing. This is around 9500 millivolts (**8400 millivolts for 2783 qualified analog boards**). *8400 Millivolts applies to Vission Only.*
Record millivolt maximum reading.
18. Pulse the DEC button until the millivolts just start to decrease. (This is the point where the channel drops out of saturation).
Adjust millivolt value to 300 millivolts below recorded maximum millivolts in step #17.
19. Press the “Set Max” button.
20. Press the “Main” button to complete calibration and exit the “Slide Calibration” screen. The controller will automatically energize the actuator and drive it back to its minimum position (below 5%) for pre-start-up.
21. Note: Now the “Current Cap” or the “Current Vol” value will be displayed in the window on the “Main” screen and the “Slide Calibration” screen.
22. Gently lower the plastic cover over the top of the actuator to where it contacts the base and o-ring seal. After making sure the cover is seated properly, gently tighten the four #10 screws. **Caution: The plastic cover will crack if the screws are over tightened.**
23. Enable the “Slide Non-Movement Alarm” by going to the “Setup” menu and choosing “Alarm Enable” for the “Slide Non-Movement Option”.
24. This completes the calibration for this channel either capacity or volume. Repeat the same procedure to the other channel.

Installation Instructions For Replacement Of Optical Actuator

CAUTION: WHEN INSTALLING THE OPTICAL SLIDE MOTOR, LOOSEN LOCKING COLLAR BEFORE SLIDING THE COLLAR DOWN THE SHAFT. DO NOT USE A SCREWDRIVER TO PRY LOCKING COLLAR INTO POSITION.

OVERVIEW

Calibration of an optical slide valve actuator is a two step process that must be done for each actuator installed on the compressor. The steps are as follows.

1. The actuator motor control module, located inside the actuator housing, is calibrated so that it knows the minimum and maximum rotational positions of the slide valve it controls. The calibrated actuator will output 0 VDC at the minimum position and 5 VDC at maximum position.
2. After the actuator motor control module has been calibrated for 0-5 Volts, the controlling channel corresponding to the actuator motor (either the capacity or volume) has to be calibrated. This instructs the Vission/Vantage control panel to learn the rotational 0% position & rotation 100% position of the slide valve travel.

Please Note:

Because there is an optical sensor on this motor, DO NOT attempt to calibration in direct sunlight.

3. Before applying power to the Vission/Vantage disconnect the gray and yellow cable.
4. Power the Vission/Vantage back on.
5. Refer to **Calibration Procedure of Optical Actuators** (page 56-59).

See next page for trouble shooting tips.



Slide Valve Actuator Troubleshooting Guide

Slide Valve Actuator Theory of Operation

The slide valve actuator is a gear-motor with a position sensor. The motor is powered in the forward and reverse directions from the main computer in the control panel. The position sensor tells the main computer the position of the slide valve. The main computer uses the position and process information to decide where to move the slide valve next.

The position sensors works by optically counting motor turns. On the shaft of the motor is a small aluminum “photochopper”. It has a 180 degree fence that passes through the slots of two slotted optocouplers. The optocouplers have an infrared light emitting diode (LED) on one side of the slot and a phototransistor on the other. The phototransistor behaves as a light controlled switch. When the photochopper fence is blocking the slot, light from the LED is prevented from reaching the phototransistor and the switch is open. When photochopper fence is not blocking the slot, the switch is closed.

As the motor turns, the photochopper fence alternately blocks and opens the optocoupler slots, generating a sequence that the position sensor microcontroller can use to determine motor position by counting. Because the motor is connected to the slide valve by gears, knowing the motor position means knowing the slide valve position.

During calibration, the position sensor records the high and low count of motor turns. The operator tells the position sensor when the actuator is at the high or low position with the push button. Refer to the calibration instructions for the detailed calibration procedure.

The position sensor can get “lost” if the motor is moved while the position sensor is not powered. To prevent this, the motor can only be moved electrically while the position sensor is powered. When the position sensor loses power, power is cut to the motor. A capacitor stores enough energy to keep the position sensor circuitry alive long enough for the motor to come to a complete stop and then save the motor position to non-volatile EEPROM memory. When power is restored, the saved motor position is read from EEPROM memory and the actuators resumes normal function

This scheme is not foolproof. If the motor is moved

manually while the power is off or the motor brake has failed, allowing the motor to free wheel for too long after the position sensor loses power, the actuator will become lost.

A brake failure can sometimes be detected by the position sensor. If the motor never stops turning after a power loss, the position sensor detects this, knows it will be lost, and goes immediately into calibrate mode when power is restored.

Slide Valve Actuator Troubleshooting Guide

The actuator cannot be calibrated

- Dirt or debris is blocking one or both optocoupler slots

Clean the optocoupler slots with a Q-Tip and rubbing alcohol.
- The photochopper fence extends less than about half way into the optocoupler slots

Adjust the photochopper so that the fence extends further into the optocoupler slots. Make sure the motor brake operates freely and the photochopper will not contact the optocouplers when the shaft is pressed down.
- The white calibrate wire in the grey Turck cable is grounded

Tape the end of the white wire in the panel and make sure that it cannot touch metal
- Dirt and/or condensation on the position sensor boards are causing it to malfunction

Clean the boards with an electronics cleaner or compressed air.
- The calibrate button is stuck down

Try to free the stuck button.
- The position sensor has failed

Replace the actuator.
- Push button is being held down for more than $\frac{3}{4}$ second when going through the calibration procedure

Depress the button quickly and then let go. Each $\frac{3}{4}$ second the button is held down counts as another press.

The actuator goes into calibration mode spontaneously

- The white calibrate wire in the grey Turck cable is grounding intermittently

Tape the end of the white wire in the panel and make sure that it cannot touch metal.
- A very strong source of electromagnetic interference (EMI), such as a contactor, is in the vicinity of the actuator or grey cable

Increase the distance between the EMI source and the actuator.

Install additional metal shielding material between the EMI source and the actuator or cable.
- There is an intermittent failure of the position sensor

Replace the actuator.

The actuator goes into calibration mode every time power is restored after a power loss

- The motor brake is not working properly (see theory section above.)

Get the motor brake to where it operates freely and recalibrate.

Replace the actuator

Slide Valve Actuator Troubleshooting Guide

The actuator does not transmit the correct position after a power loss

- The motor was manually moved while the position sensor was not powered. ————— Recalibrate.
- The motor brake is not working properly ————— Get the motor brake to where it operates freely and then recalibrate.
- The position sensor's EEPROM memory has failed ————— Replace the actuator.

There is a rapid clicking noise when the motor is operating

- The photochopper is misaligned with the slotted optocouplers ————— Try to realign or replace the actuator.
- The photochopper is positioned too low on the motor shaft. ————— Adjust the photochopper so that the fence extends further into the optocoupler slots.
- A motor bearing has failed ————— Replace the actuator.

The motor operates in one direction only

- There is a loose connection in the screw terminal blocks ————— Tighten.
- There is a loose or dirty connection in the yellow Turck cable ————— Clean and tighten.
- The position sensor has failed ————— Replace the actuator.
- There is a broken motor lead or winding ————— Replace the actuator.

The motor will not move in either direction

- The thermal switch has tripped because the motor is overheated ————— The motor will resume operation when it cools. This could be caused by a malfunctioning control panel. Consult the factory.
- Any of the reasons listed in "The motor operates in one direction only" ————— See above.
- The command shaft is jammed ————— Free the command shaft.
- Broken gears in the gearmotor ————— Replace the actuator.

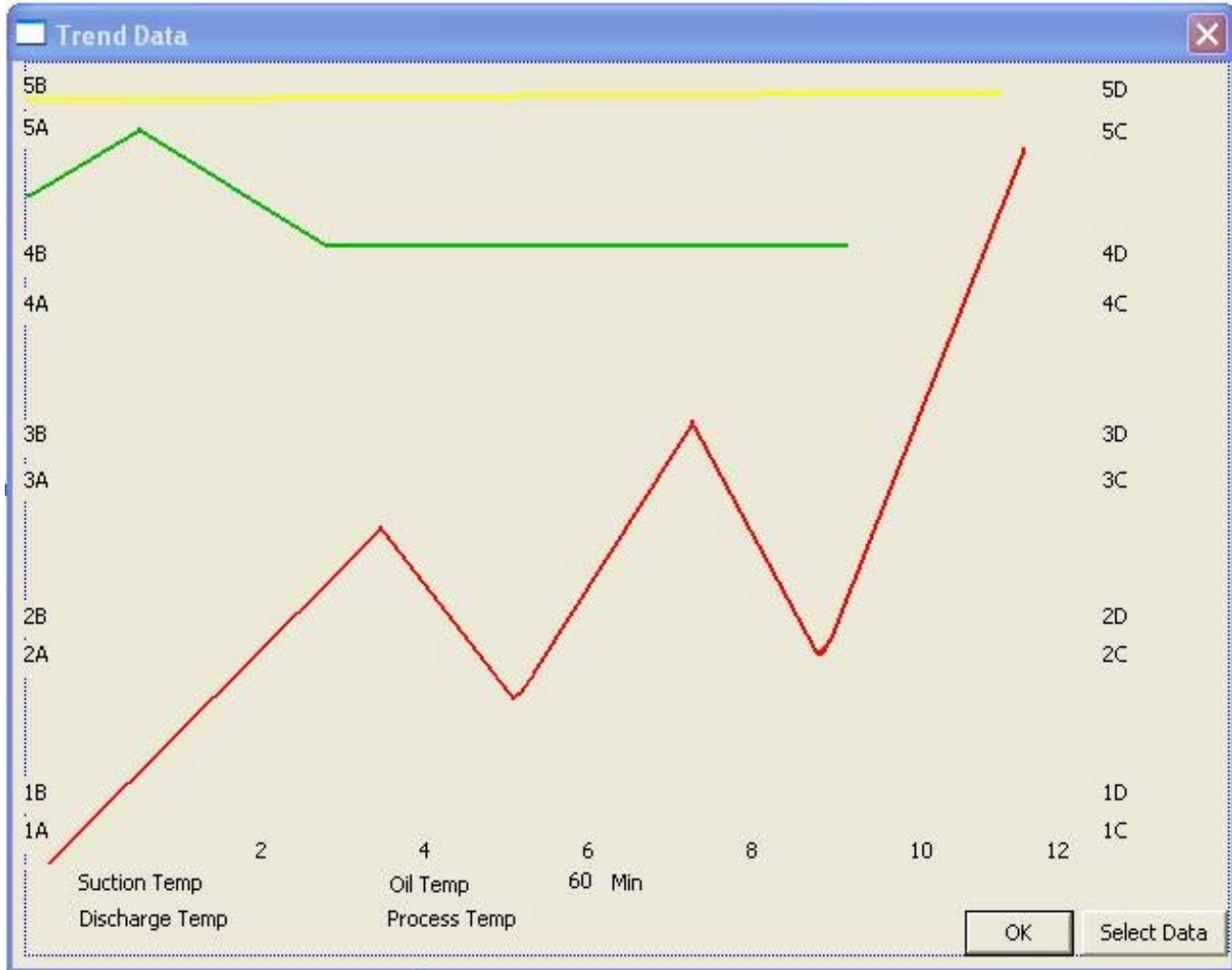
The motor runs intermittently, several minutes on, several minutes off

- Motor is overheating and the thermal switch is tripping ————— This could be caused by a malfunctioning control panel. Consult the factory.

Slide Valve Actuator Troubleshooting Guide

<i>The motor runs sporadically</i>	—	Bad thermal switch	—	Replace the actuator.
	—	Any of the reasons listed in “The motor will not move in either direction”	—	See above.
<i>The motor runs but output shaft will not turn</i>	—	Stripped gears inside the gear motor or the armature has come un-pressed from the armature shaft	—	Replace the actuator.

Trend Chart

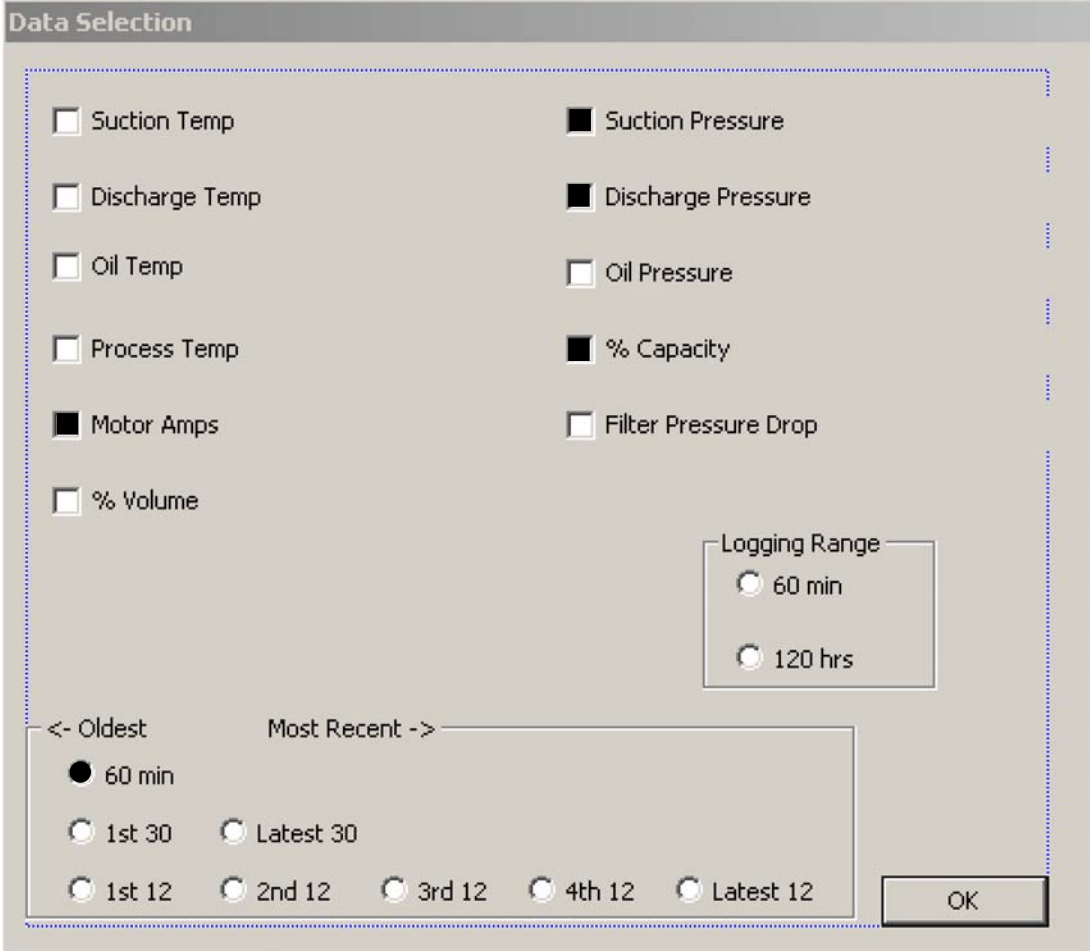


The trend analysis screen shows recorded data for a logging range of either 60 minutes or 120 hours. Additionally, selections can be made to display segments of the logged data.

To view which selections are being shown hit the data select button.

Note: When the panel is powered down, and powered back up, the “Trend Screen” will default to 120 hours even if you have chosen 60 minutes. Trend data is not retained.

Data Select Screen



Data Selection

<input type="checkbox"/> Suction Temp	<input checked="" type="checkbox"/> Suction Pressure
<input type="checkbox"/> Discharge Temp	<input checked="" type="checkbox"/> Discharge Pressure
<input type="checkbox"/> Oil Temp	<input type="checkbox"/> Oil Pressure
<input type="checkbox"/> Process Temp	<input checked="" type="checkbox"/> % Capacity
<input checked="" type="checkbox"/> Motor Amps	<input type="checkbox"/> Filter Pressure Drop
<input type="checkbox"/> % Volume	

Logging Range

60 min

120 hrs

<- Oldest Most Recent ->

60 min

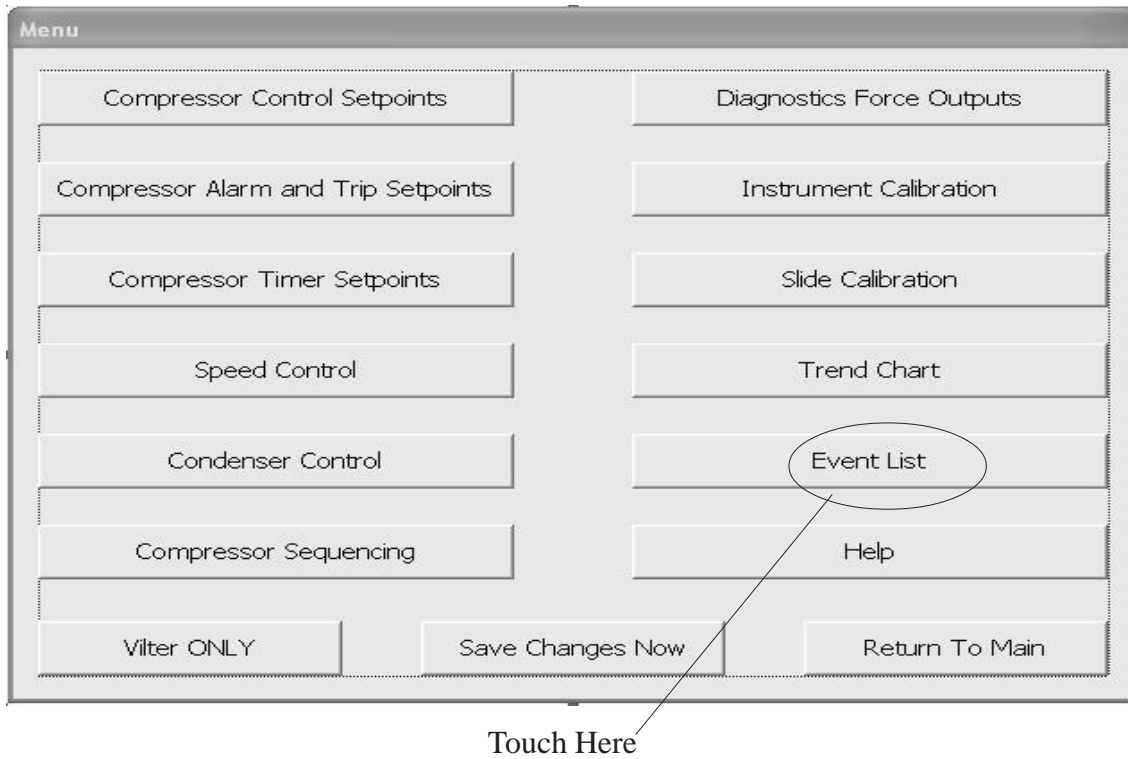
1st 30 Latest 30

1st 12 2nd 12 3rd 12 4th 12 Latest 12

OK

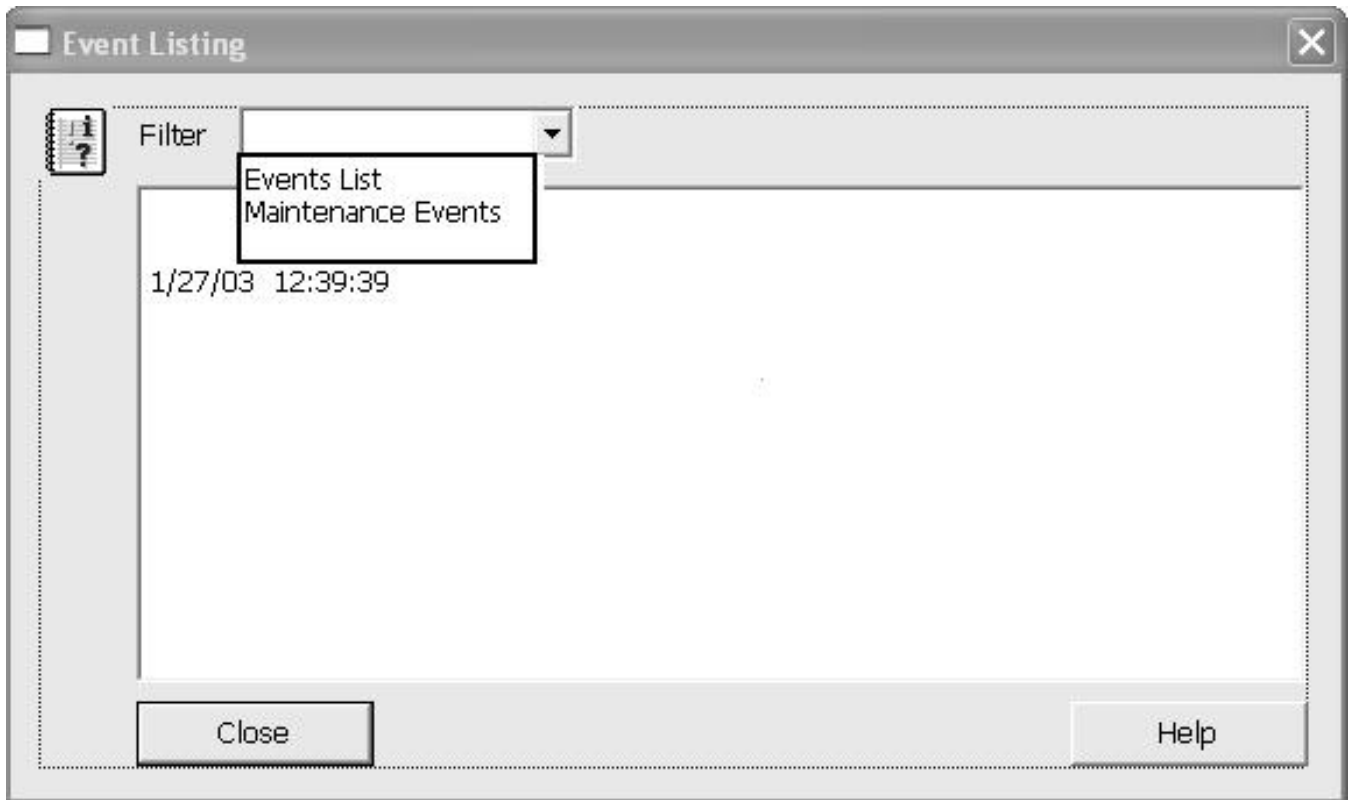
The user has the ability to select which value they would like to see displayed on the graph. Only four selections can be chosen at once to view, even though all data is being accumulated.

Event List



From the **Menu** screen, touch the Event List button. The screen on the next page will appear.

Event List



The Event List will give a chronological record of the last 40 events recorded by the controller. These events can be filtered by selecting the Filter box on the upper left of the screen.

Command Shaft Rotation and Travel

COMP. MODEL	COMMAND SHAFT ROTATION (b)				COMMAND SHAFT	
	CAPACITY		VOLUME RATIO		ROTATION ANGLE/#	TEETH
	INC	DEC	INC	DEC	CAPACITY	VOLUME RATIO
VSM 201	CW	CCW	CW	CCW	288°	162°
VSM 301	CW	CCW	CW	CCW	288°	162°
VSM 361	CW	CCW	CW	CCW	288°	162°
VSM 401	CW	CCW	CW	CCW	288°	162°
VSM 501	CCW	CW	CCW	CW	327°	187°
VSM 601	CCW	CW	CCW	CW	327°	187°
VSM 701	CCW	CW	CCW	CW	327°	187°



Trouble Shooting Flowchart Vantage Only

MicroController does not boot up, no lights on any boards.

Check to make sure 120VAC is run to "L1" on the combination relay and analog board. This is the board on the inside back of the panel. "L1" is the fifth connector down from the top and the 9th terminal down. The neutral should be brought to any "N" on the relay board.

Check F11 fuse on combination relay and analog board.

Check F1 fuse on the power supply, located on the inside top of panel. If all of the above is okay, the power supply may be bad. Check DC voltages on the single board computer interface board, which is the big green board on the door. Along the right edge of this board, just above the power supply connector J14, are test points. If proper voltages are not located at these test points, the power supply may be faulty.

MicroController appears to be booted, lights seen on boards and E-stop switch, but no touch screen is evident.

Check cable connections located on the LCD Inverter board. This board is located inside the door on the LCD touch screen back plane above the single board computer. The connector with the pink and white wires, located on the left center of the board is the power supply to the board. The connector on the top right of the board with the black wires has the data wires. If these are inserted correctly, the problem could be bad solder joint on the LCD Inverter board or a component failure.

MicroController boots up but all data temperatures and pressures are zeroed and do not update.

Check combination relay and analog board jumpers J2 & J4. They should be on pins 1 & 2 (center and right pins).

Check the DIP switch (S1) on the combination relay and analog board. This identifies the node address of the combination relay and analog board. Only switch #1 should be on, the rest off.

The MicroController has (2) boards running separate programs. The combination relay and analog board located inside the panel on the back right calculates pressures, temperatures, amps and monitors inputs. The single board computer requests this data for action and display. The single board computer will instruct the combination relay and analog board to activate outputs or relays as needed. Communication between the boards is RS-485 running at 115200 baud. The cable is basically phone cable with phone jack style connectors. The connector to the single board computer is on the touch screen back panel and is labeled RS 485 Com2 to Analog Bd. The connector on the combination relay and analog board is located on the bottom of the board. There are 2 connectors on the combination relay and analog board, either one can be used.

If this cable is open or disconnected, there will be no communications between the boards. The top two green lights on the combination relay and analog board (D9 & D10), located on the center of the board, will be off. The pressures and temperatures will not update. Ensure the cable is plugged in correctly. Try rebooting again. If the problem persists, try moving the cable on the combination relay and analog board to the other connector. If not successful, try a different cable on the combination relay and analog board to the other connector on the board. If not successful, try a different cable. Any phone style cord should work. If neither of these help, contact the Vilter Home Office.

Trouble Shooting Flowchart Vantage Only

A bank of pressure or temperature channels no longer function.

There are eight fuses on the combination relay and analog board that limit the current on the 24VDC to the Analog channels. The fuses are 500 milliamp, located near the power supply connectors and brown in color. LEDs next to the fuses give a visual indication of the status of the fuse, however, it is best to pull the fuse and check them with an ohmmeter. If any are blown, find the shorted device that is responsible for the blown fuse and replace.

F1,F6 & F7 protects the +24VDC supply to the pressure transducers and relays.

F2 protects the +5VDC supply for analog channels P6&P7.

F4&F5 protects the -12VDC and+12VDC supply respectively, which is subregulated to +5VDC, required for multiplexers, analog to digital converters, and temperature channel.

F3 & F8 protects the main +5VDC supply required for most of the components on the combination relay and analog board.

If F1,F6 & F7 blows, the pressure transducers will produce erroneous readings and the relays on the combination relay and analog board will drop out (de-energize). If F3, F4 or F5 blows, all analog readings will be affected.

A pressure channel reads a negative number over -140

This indicates the transducer wiring or transducer is either open or shorted. Check wiring to print. Check all fuses.

A temperature channel reads a large negative value over -400°

This indicates the RTD wiring or RTD is open. Check wiring to print. Check all fuses.



Trouble Shooting Flowchart Vission Only

MicroController does not boot up, no lights on any boards.

Check to make sure 120VAC is run to "L1" on the Relay board. This is the board on the inside left back of the panel. "L1" is the fifth connector down from the top and the top terminal. The neutral should be brought to any "N" on the relay board.

Check F1 fuse on relay board.

Check F1 fuse on the power supply, located on the front of the door. If all of the above is okay, the power supply may be bad. Check DC voltages on the single board computer interface board, which is the big green board above the power supply. Along the right edge of this board, just above the power supply connector J14, are test points. If proper voltages are not located at these test points, the power supply may be faulty.

MicroController appears to be booted, lights seen on boards and E-stop switch, but no touch screen is evident.

Check cable connections located on the LCD Inverter board. This board is located inside the door on the LCD touch screen back plane above the single board computer. The connector with the pink and white wires, located on the left center of the board is the power supply to the board. The connector on the top right of the board with the black wires has the data wires. If these are inserted correctly, the problem could be bad solder joint on the LCD Inverter board or a component failure.

MicroController boots up but all data temperatures and pressures are zeroed and do not update.

Check Analog board jumpers J41 & J46. They should be on pins 1 & 2 (center and right pins).

Check the upper DIP switch on the analog board. This identifies the node address of the Analog board. Only switch #1 should be on, the rest off.

The MicroController has (2) boards running separate programs. The Analog board located inside the panel on the back right calculates pressures, temperatures, amps and monitors inputs. The single board computer requests this data for action and display. The single board computer will instruct the Analog board to activate outputs or relays as needed. Communication between the boards is RS-485 running at 115200 baud. The cable is basically phone cable with phone jack style connectors. The connector to the single board computer is on the touch screen back panel and is labeled RS-485 Com2 to Analog Bd. The connector on the Analog board is located on the bottom of the board. There are 2 connectors on the analog board, either one can be used.

If this cable is open or disconnected, there will be no communications between the boards. The top two green lights on the Analog board (D10 & D11), located on the bottom left of the board, will be off. The pressures and temperatures will not update. Ensure the cable is plugged in correctly. Try rebooting again. If the problem persists, try moving the cable on the Analog board to the other connector. If not successful, try a different cable on the Analog board to the other connector on the board. If not successful, try a different cable. Any phone style cord should work. If neither of these help, contact the Vilter Home Office.

Trouble Shooting Flowchart Vission Only

A bank of pressure or temperature channels no longer function.

There are four fuses on the Analog board that limit the current on the 24VDC to the Analog channels. The fuses are 500 milliamp, located near the power supply connectors and brown in color. LEDs next to the fuses give a visual indication of the status of the fuse, however, it is best to pull the fuse and check them with an ohmmeter. If any are blown, find the shorted device that is responsible for the blown fuse and replace.

F1 protects the +24VDC supply to the pressure transducers and relays.

F2 protects the -12VDC supply which is subregulated to 5VDC required for multiplexers, analog to digital converts and temperature channels.

F3 protects the +12VDC supply, which is subregulated to +5VDC, required for multiplexers, analog to digital converters, and temperature channel.

F4 protects the main +5VDC supply required for most of the components on the analog board.

If F1 blows, the pressure transducers will produce erroneous readings and the relays on the relay board will drop out (de-energize). If F2, F3 or F4 blows, all analog readings will be affected.

A pressure channel reads a negative number over -140

This indicates the transducer wiring or transducer is either open or shorted. Check wiring to print. Check fuses F1, F2, F3 and F4 on analog board.

A temperature channel reads a large negative value over -400°

This indicates the RTD wiring or RTD is open. Check wiring to print. Check fuses F1, F2, F3 & F4 on analog board.



Safety Failure Message

Auxiliary Safety#1

Input Fail – This message will appear when power is removed from the input module that is designated as “Auxiliary #1 Safety” (please refer to your wiring diagram).

Discharge Pressure

SP#1 Fail – This message will appear when the discharge pressure exceeds the safety setting of the Hi Dsch Press Trip Setpoint No1. In addition, this message will appear when the discharge pressure reading falls below 30” Hg, indicating a shorted transducer.

Discharge Pressure

SP#2 Fail – This message will appear when the discharge pressure exceeds the safety setting of the Hi Dsch Press Trip Setpoint No2. In addition, this message will appear when the discharge pressure reading falls below 30” Hg, indicating a shorted transducer

Dsch Superheat

Temp Fail –

(see explanation below, under **Cool Compression Hi Discharge Temp Superheat Failures**)

Dsch Superheat

Temp-Rate@Start –

(see explanation below, under **Cool Compression Hi Discharge Temp Superheat Failures**)

Dsch Superheat

Temp-Rise@Start –

(see explanation below, under **Cool Compression Hi Discharge Temp Superheat Failures**)

Hi Liq Ammonia

Level Fail - This message will appear when power is removed from the input module that is designated as “Hi Separator Liquid Ammonia Level”. (please refer to your wiring diagram).

Lo Control

Temperature Fail – This message will appear when the Process Control Temperature falls below the safety setting of the Lo Control Temperature Trip Setpoint. In addition, this message will appear when the Process Control Temperature rises above 300 degrees F, indicating an open RTD.

Safety Failure Message

Lo Oil Injection

Flow Fail – This message will appear when power is removed from the input module that is designated as “Lo Oil Flow”. (please refer to your wiring diagram).
This safety is active after the compressor starts.

Lo Oil Separator

Level Fail - – This message may appear when power is removed from the input module that is designated as “Lo Separator Oil Level Trip”. (please refer to your wiring diagram).
This safety has an associated delay. The associated delay timer is the Lo Oil Separator Level Bypass Timer. This safety will activate only after the oil level has been low after the timer times out.

Lo Run Press

Ratio Fail – This message will appear if the compressor pressure ratio (Absolute Discharge Press / Absolute Suction Pressure) falls below the Lo Run Press Ratio Trip setpoint.
This safety is bypassed at compressor start for the time period setting of the Press Ratio Bypass @ Start Timer.

Maximum Amperage

Fail – This message will appear if the motor amperage rises above the Hi Motor Amps Trip setpoint. This failure is bypassed at compressor start for a period of 15 seconds, to allow for high amp inrush at start.

Motor Starter

Fail – This message will appear when the Vission/Vantage has determined that the compressor motor starter has been instructed to turn on, but fails to do so. This determination is based on the motor amperage (or lack of) being read.

Oil Separator Run

Temp Fail – This message will appear if the Oil Separator Temperature falls below the Lo Oil Separator Temp trip setpoint.

Percent Capacity

Fail – This message will appear if the percent capacity reading exceeds 300% or goes below -15%.

Percent Volume

Fail – This message will appear if the percent volume reading exceeds 300% or goes below -15%.

Safety Failure Message

Run Filter Diff

Press Fail – This message will appear when the filter differential pressure exceeds the Filter Differential Pressure trip set or the differential goes negative, exceeding a value of –15 PSID.
This safety is bypassed at compressor start for a short time period.

Suction Pressure

SP#1 Fail – This message will appear when the suction pressure exceeds the safety setting of the Lo Suction Press Trip Setpoint No. 1. In addition, this message will appear when the suction pressure reading falls below 30” Hg, indicating a shorted transducer.

Suction Pressure

SP#2 Fail – This message will appear when the suction pressure exceeds the safety setting of the Lo Suction Press Trip Setpoint No. 2. In addition, this message will appear when the suction pressure reading falls below 30” Hg, indicating a shorted transducer.

Cool Compression Hi Discharge Temp Superheat Failures

There are currently three Hi Dsch Temp Superheat failures incorporated into the cool compression logic. A NONSETTABLE timer TMR34 affects all three failures. They are associated with the following setpoints.

1. Hi Dsch Temp Superheat Before and @ Start
Setpoint: Assume the default setpoint is 65 deg F. This safety has a dual purpose. First, the compressor will not be allowed to start if the superheat is above the trip setpoint of this safety. Second, when the compressor starts, it is required that the discharge temperature superheat falls at a average rate of “at least 1 degree Fahrenheit every 15 seconds - for the duration of TMR34 setting.” After TMR34 times out, the discharge temperature superheat value must be below the safety setpoint setting of “Hi Dsch Temp Superheat Run Failure” (typically 25 degrees). If either of these two conditions are not met, the failure message displayed will be “Dsch Superheat Temp-Rate @ Start”.

2. Hi Dsch Temp Superheat Run Failure : Assume the default setpt is 25 deg F. This safety is bypassed until TMR34 times out. After the compressor starts, the Dsch Temp Superheat must fall below this point by the time TMR34 times out, or else the compressor will fail on the message “Dsch Superheat Temp Fail”.

3. Program calculated, NONSETTABLE, Hi Dsch Temp Superheat-Rise @ Start. This safety is active for the duration of the TMR34. This safety setpoint is calculated by reading the current Dsch Temp Superheat when compressor starts, and adding 5 degrees to the reading. This value becomes the TRIP setpoint for this safety. If the Dsch Temp Superheat ever exceeds the Trip setpoint (for the duration of TMR34), then the compressor will fail on “Hi Dsch Temp Superheat-Rise@Start” failure.

Safety Failure Message

TMR34 is called “Hi Dsch Temp Superheat Bypass @ Start” timer. This timer is not settable by the operator. It is calculated based on the setting of the safeties “Hi Dsch Temp Superheat Run” setpoint (default 25 deg F), and “Hi Dsch Temp Superheat Before and @ Start” setpoint (default 65 deg F).

The value of this timer is determined by the following rule. When the compressor starts, the discharge temp superheat is required to drop at an average rate of at least 1 degree Fahrenheit every 15 seconds, over the span of its maximum allowable superheat (at start), to its maximum allowable superheat (at run). So, to determine the maximum length of time of this timer, we subtract the “Hi Dsch Temp Superheat Run Failure” setpoint from the “Hi Dsch Temp Superheat Before and @ Start” setpoint. We then multiply this difference by 15 (seconds) to find total seconds allowed for the discharge temperature superheat to drop to an allowable “run” superheat.

Example:

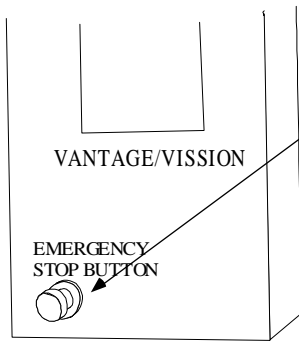
“Hi Dsch Temp Superheat Before and @ Start” Trip setpoint is set at 65 degrees.

The “Hi Dsch Temp Superheat Run” Trip setpoint is set at 25 degrees.

The program will test for the requirement of “at least an average rate of 1 degree drop every 15 seconds” for a total time period of [65 deg MINUS 25 degrees = 40 degree change x (1 deg change per 15 seconds) = 600 seconds]. So 600 seconds (10 minutes) is allowed for the superheat to drop 40 degrees... with a requirement that there be an average drop of at least a 1 degree decrease for every 15 seconds of runtime.

Flash Card Installation Instructions

Note: Before Powering Down To Replace Flashcard, You Must Copy Down All Setpoints As These Will Need To Be Re-entered When New Flashcard Is Installed.



Hit The Emergency Stop Button
Located In Front Of The Panel



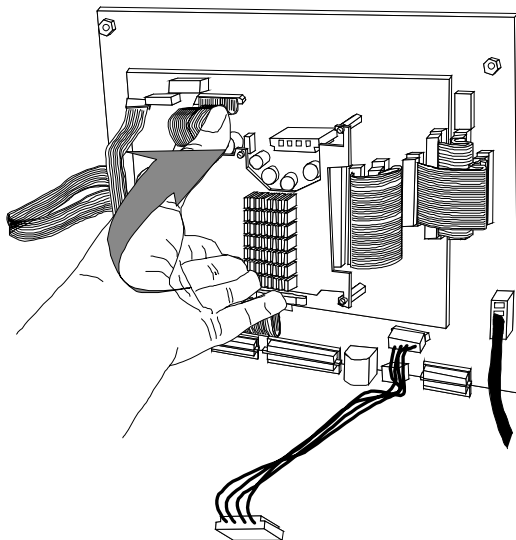
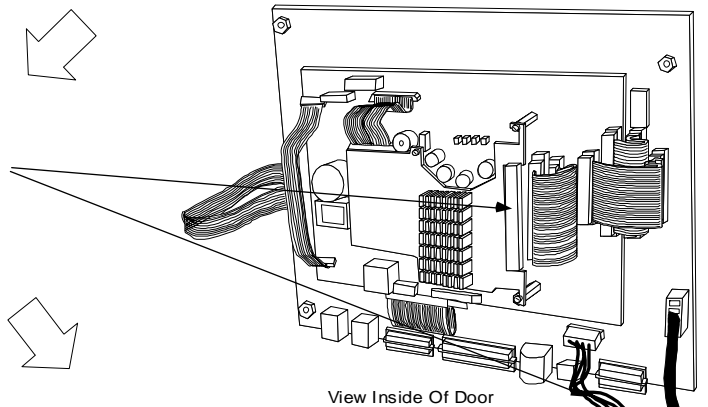
Verify Unit is Shut Down Completely



Verify Lockout Disconnect On Compressor Start.
This Ensures Compressor Does Not Start.

Proceed As Follows

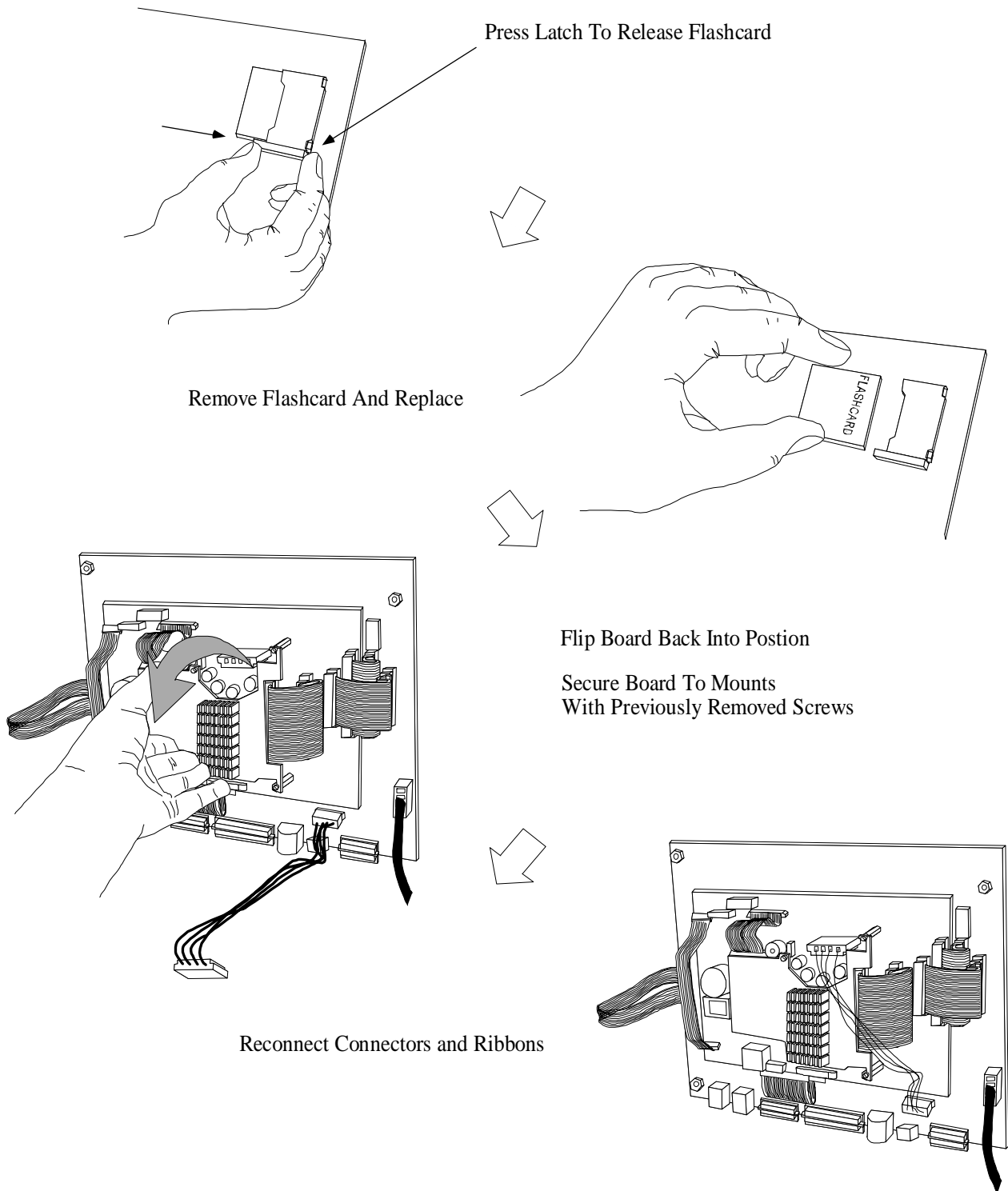
Disconnect the Connector And
Ribbon As Shown



Remove (4) Screws, One In
Each Corner Of Board

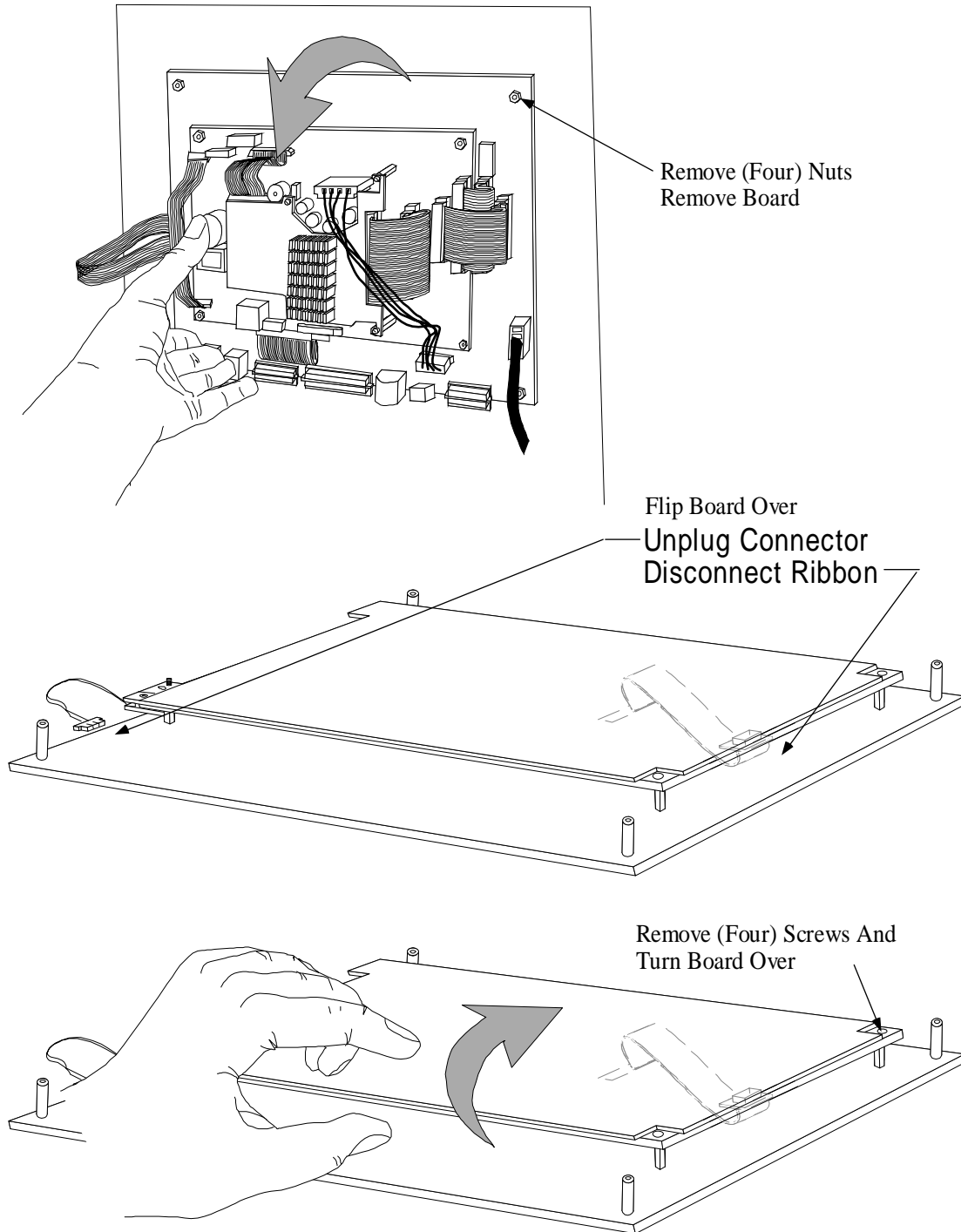
Flip Board Over To
View Flash Card

Flash Card Installation Instructions



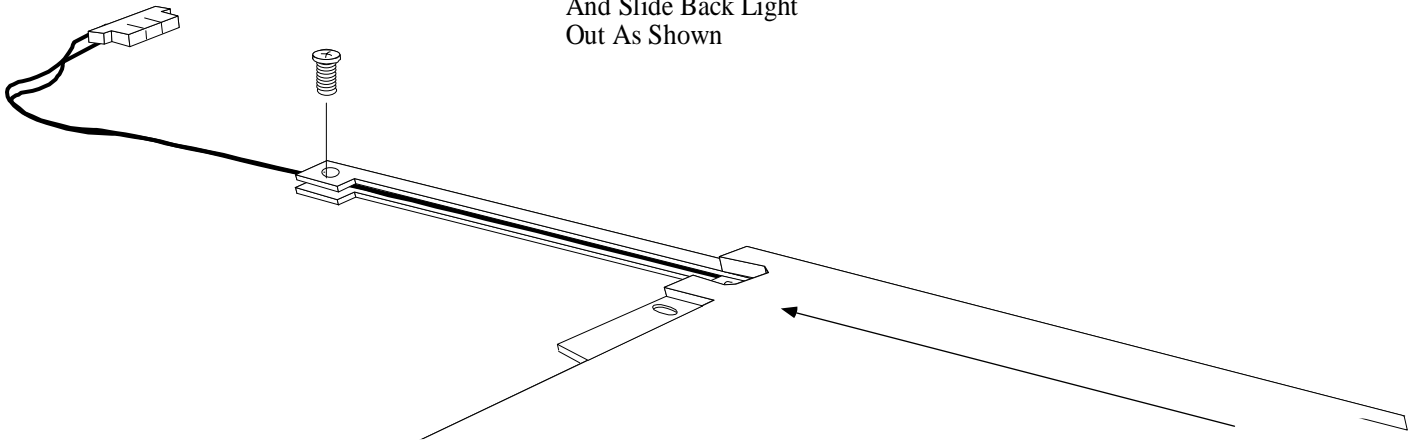
**Note: You Must Re-enter Setpoints And Recalibrate Slide Valves.
See Section On Setpoint Values And the Section On Optical Actuators.**

Back Light Installation Instructions

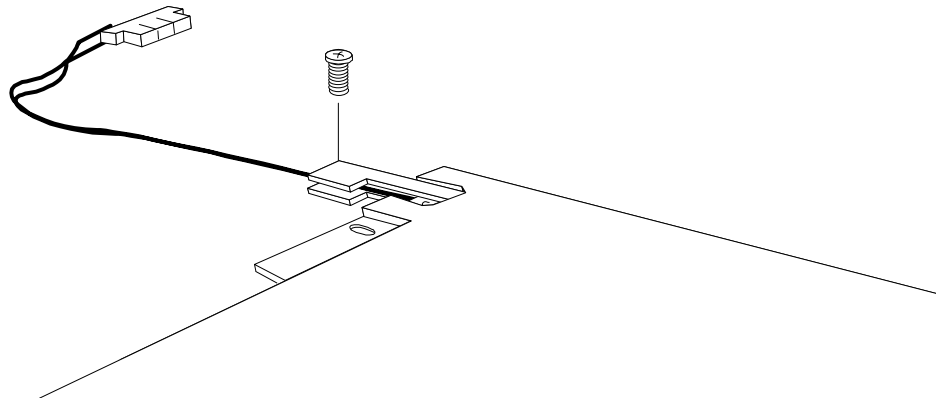


Back Light Installation Instructions

Remove Small Screw
And Slide Back Light
Out As Shown

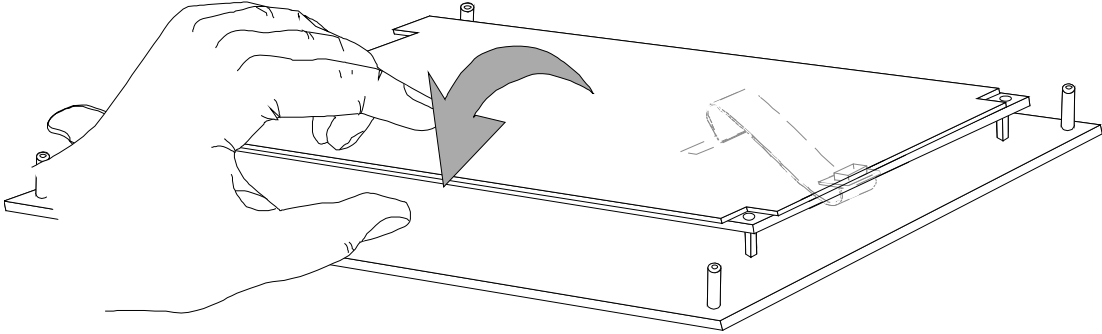


Slide New Back Light In And
Secure With Previously Removed Screw

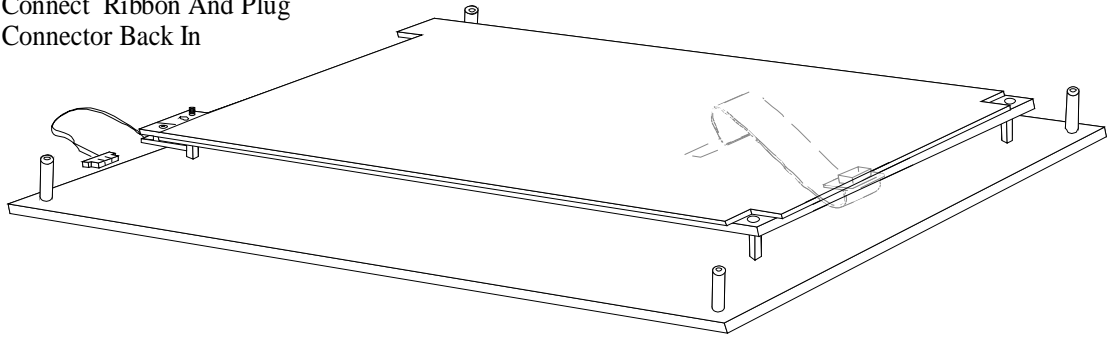


Back Light Installation Instructions

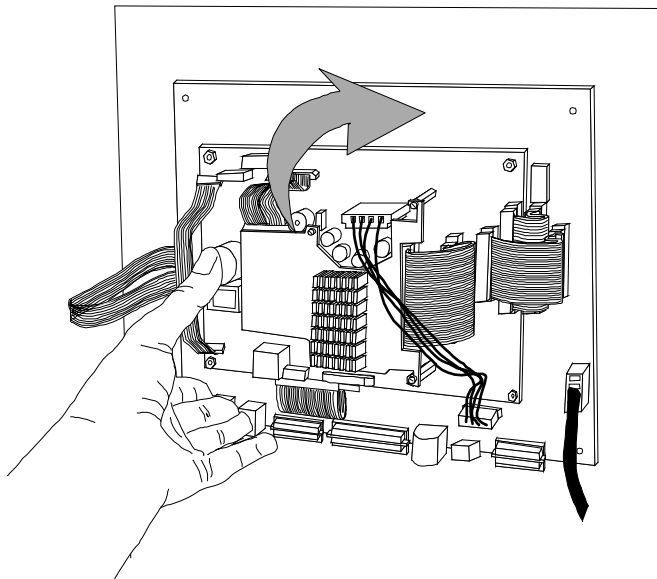
Place Board Back Into Position And Secure




Connect Ribbon And Plug
Connector Back In



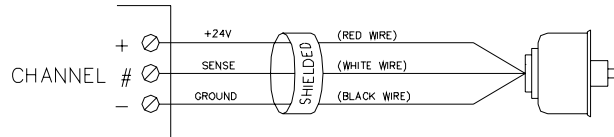
Place Board Back Onto Back Of Panel And
Secure With Previously Removed Nuts



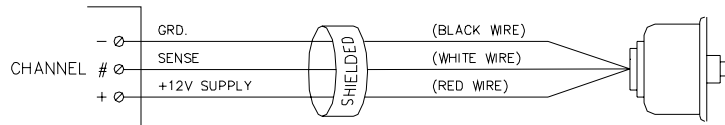
Transducer Wiring

	VILTER MANUFACTURING CORPORATION CUDAHY, WISCONSIN 53110-8904 TELEPHONE No. (414) 744-0111	DRAWN BY	REDRAWN BY	CHKD BY	APPR. BY	DATE	T00448 R0
		SLP		JKK	MTW	08/15/03	

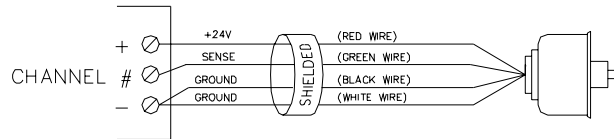
VISSION/VANTAGE WIRING FOR AMETEK TRANSDUCER (2783A)



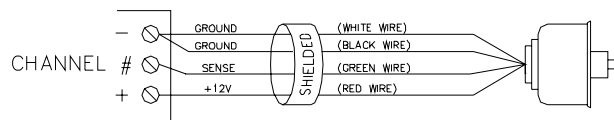
2895 MICROCONTROLLER WIRING FOR AMETEK TRANSDUCER (2783A)



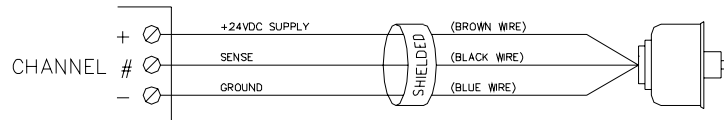
VISSION/VANTAGE WIRING FOR SETRA TRANSDUCER



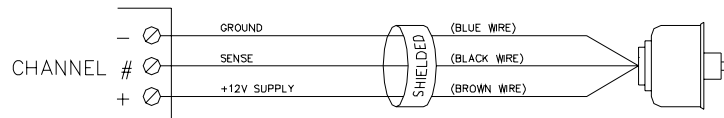
2895 MICROCONTROLLER WIRING FOR SETRA TRANSDUCER



VISSION/VANTAGE WIRING FOR DANFOSS TRANSDUCER (2783J & 3122B)



2895 MICROCONTROLLER WIRING FOR DANFOSS TRANSDUCER (2783J & 3122B)



REVISIONS: Initial Release MTW 8/18/03 ECN M030096.



System Setpoints Alarms and Trips Work sheet

SYSTEM SETPOINTS ALARMS & TRIPS WORKSHEET

SAFETY SETPOINTS	SYSTEM VALUES ALARM TRIP RESET	VALUE LIMITS			DEFAULT VALUES		
		ALARM	TRIP	RESET	ALARM	TRIP	RESET
LO SUCT PRESS							
SETPOINT #1		30"/300	30"/300	30"/300	3"	4"	2"
SETPOINT #2		30"/300	30"/300	30"/300	1"	2"	1"
HI DISCHARGE PRESS							
SETPOINT #1		30"/350	30"/350	30"/350	210	220	205
SETPOINT #2		30"/350	30"/350	30"/350	220	230	215
LO OIL SEPTEMP		5/200	5/200	5/200	10	5	15
LO CONTROL TEMP (1)		-99/210	-99/210	-99/210	-50	-55	-45
HI CONTROL TEMP (1)		-99/210	---	---	100	---	95
LOW RUN PRESSURE RATIO		1.0/4.9	1.0/4.9	1.0/4.9	1.60	1.40	1.50
HI FILTER DIFF PRESS RUN (3)		0/40	0/40	0/40			
3 press transducers					20	25	22
4 press transducers					10	15	12
HI MOTOR AMPS (2)		0/1000	0/1000	0/1000	15	25	22
DSCH TEMP SUPERHEAT-RUN		10/35	10/35	10/35	20	25	22
DSCH TEMP SUPERHEAT – BEFORE AND @ START		---	10/65	10/45	---	65	64

NOTES:

- (1) Set only if Comp Control Via Process Temperature is selected.
- (2) Set Alarm at 105% and Trip at 115% of full load motor nameplate amps.
- (3) Default values based on compressor having 3 pressure transducers or 4 pressure transducers.



System Control Limit Values Work sheet

SYSTEM CONTROL LIMIT VALUES WORKSHEET

CONTROL LIMITS	SYSTEM VALUES		VALUE	LIMITS	DEFAULT VALUES	
	CUT IN	CUT OUT	CUT IN	CUT OUT	CUT IN	CUT OUT
SUCTION PRESSURE ON/OFF (1)						
SETPOINT #1			30"/150	30"/150	10	16
SETPOINT #2			30"/150	30"/150	15	11
SUCT PR CAP INCREASE (1)			30"/150	30"/150	20	20
SETPOINT #1						
SETPOINT #2			30"/150	30"/150	25	25
SUCT PR CAP DECREASE (1)						
SETPOINT #1			30"/150	30"/150	18	18
SETPOINT #2			30"/150	30"/150	23	23
CAP CTRL °F ON/OFF (2)						
SETPOINT #1			-99/200	-99/200	20°F	10°F
SETPOINT #2			-99/200	-99/200	25°F	15°F
CAP CTRL °F INCR (2)						
SETPOINT #1			-99/300	-99/300	28°F	27°F
SETPOINT #2			-99/300	-99/300	33°F	32°F
CAP CTRL °F DECR (2)						
SETPOINT #1			-99/200	-99/200	24°F	25°F
SETPOINT #2			-99/200	-99/200	29°F	30°F
HIGH PRESS RATIO LIQ INJECTION (1)						
SETPOINT #1			4/6	4/6	5.0	4.8
SETPOINT #2			4/6	4/6	4.7	4.6
AUTO LOAD @ START (1)				0/50		30%
HIGH DISCH PRESS UNLOAD(1)						
SETPOINT #1			0/300	0/300	200	190
SETPOINT #2			0/300	0/300	210	200
LO SUCTION PRESS LOAD LIMIT (2)						
SETPOINT #1			-30/300	-30/300	30	35
SETPOINT #2			-30/300	-30/300	40	45
			<u>FLA</u>	<u>MAX</u>	<u>FLA</u>	<u>MAX</u>
			(ON)	(OFF)	(ON)	(OFF)
MOTOR AMPS LOAD LIMIT (4)						
SETPOINT #1			0/999	0/999	5	10
SETPOINT #2			0/999	0/999	5	10
VOL SLIDE ADJ FACTOR			1/100	---	0%	---
DSCH TEMP SUPERHEAT LOAD LIMIT			<u>ON</u>	<u>OFF</u>	<u>ON</u>	<u>OFF</u>
			0/35	0/35	8°F	10°F
SUCTION OIL INJ LOAD LIMIT			0/100	0/100	20%	30%
MINIMUM RUN CAPACITY			10%/90%	---	30	35%
OIL SEPARATOR HEATER TEMP			20/130	20/130	30	35
CAP SLIDE ADJUSTMENT RANGE			0/100	---	70%	75%
SUCTION OIL INJECTION SOLENOID			1/8	1/8	2.00 PR	2.04 PR
ECONOMIZER			<u>ON</u>	<u>OFF</u>	<u>ON</u>	<u>OFF</u>
			0/199	0/100	80%	75%
			<u>C/T RATIO</u>		<u>C/T RATIO</u>	
CURRENT TRANSFORMER (1)			100-1000/AMPS		250/5 AMPS	

NOTES:

- (1) Must be field set.
- (2) Set only if temperature is used for capacity control.
- (3) Set only if Lead/Lag option is selected.
- (4) Set "ON" at FLA and "OFF" at FLA+Service Factor.



System Timer Values

The values or options in the screen displays shown must be entered before start-up.

SYSTEM CONTROL LIMIT VALUES WORKSHEET

TIMER VALUES	SYSTEM VALUES	VALUE LIMITS	DEFAULT VALUES
CAPACITY DECREASE AT START		0/999 SEC	15 SEC
CMP STARTER AUX CONTACT BYPASS		0/255 SEC	10 SEC
VOL SLIDE ADJUSTMENT TIMER		0/255 SEC	15 SEC
SOI SOLENOID DRAIN @ STOP		0/10 MIN	10 MIN
PRESS RATIO BYPASS AT START		0/600 SEC	30 SEC
LO OIL SEP LEVEL BYPASS TIMER		0/360 MIN	360 MIN
AUTO RESTART AFTER POWER FAIL		1/240 MIN	5 MIN
FORCE ON SOI SOLENOID @ START		15/120 SEC	60 SEC
NUMBER OF HOT STARTS PER HOUR		1/10 COUNTS	3 COUNTS
TRUE ANTIRECYCLE TIMER		0/15 MIN	20 MIN
ACCUMULATIVE ANTIRECYCLE TIMER (1)		0/30 MIN	20 MIN
STOP LEVEL MASTER HEATER TIMER		0/60 MIN	30 MIN
LEVEL MASTER HEATER RESTART TIMER		0/600 SEC	30 SEC
HI LIQUID AMMONIA LEVEL DELAY		0/60 MIN	30 MIN
BYPASS OIL FLOW SAFETY @ START		0/300 SEC	10 SEC

NOTES:

(1) Must be field set.

Spare Parts

PART DESCRIPTION	VILTER PART NUMBER	QTY.
Analog Board (VISSION PANEL)	3011A	1
Analog & Relay Board (VANTAGE PANEL)	3011C1	1
Control Relay, 4PDT	3011B1	1
Control Relay, DPDT	3011A1	1
Control Relay, SPDT	3011Z	1
Input Module	2895M1 (120v)	1
Output Module	2895N1 (120v)	1
Output Module Fuse	2895P	1
Panel Fuse, ½ Amp	3011V	1
Panel Fuse, 10 Amp	3011W	1
Panel Fuse, 4 Amp	2895P	1
Power Supply	3011K	1
Relay Board (VISSION)	3011B	1
Pressure Transducer	2783J	1
Resistance Temperature Detector	2611G	1
Fuse Kit (VISSION PANEL)	3011F	1
Fuse Kit (VANTAGE PANEL)	3011F1	1
VISSION SBC Sub-Assembly	3011ML	1
Modbus Cable	3011X	1
VISSION Cable Kit	3011Y	1
RTD/Transducer Cable	3122B	1
Cable Kit (VANTAGE PANEL)	3011Y1	1
Modbus Cable Kit (VANTAGE PANEL)	3011X1	1
CORD SET RK4T-4/ 5618Turk	3122B	1

*Supplied with 120VAC. input& output modules.



Modifications for Analog Board in Vission/Vantage after July 2003

Using Danfoss Transducers with 2783J qualified boards

The analog boards used in the Vission and Vantage panels after July 2003 have been modified to accommodate the use of Danfoss transducers (VPN 2783J). These analog boards are denoted as “2783J qualified” boards. The use of 2783J qualified boards with Danfoss transducers require that scaling factors for the Danfoss pressure transducers be checked and modified if necessary.

The scale factors for all transducers are located at a specific Index location in Vission/Vantage database. Refer to Figure 1. This table shows the proper scale factors for each type of transducer as well as the Index location of the scaling factor for each transducer.

Vission and Vantage (VSS and SOI units)			Vission (VRS units)		
Transducer	Index	Value*	Transducer	Index	Value*
Suction	N658	3950	Suction	N658	3950
Discharge	N659	3950	Discharge	N659	3950
Man/Filter Out	N660	3950	Manifold	N660	3950
Filter In	N661	3950	Filter Inlet	N661	3950
			Filter Outlet (Retrofit)	N664	3950
Vission and Vantage (Cool Compression units)			Vantage (Recip)		
Transducer	Index	Value*	Transducer	Index	Value*
Suction	N658	3950	Suction	N658	3950
Discharge	N659	3950	Discharge#1	N659	3950
Man/Filter Out	N660	3950	Filter Out	N660	3950
			Filter Inlet	N661	3950
			Discharge#2	N662	3950
			Oil Manifold	N663	3950
			Crankcase	N664	3950

Figure 1. Transducer Index Table and Scale Factors

Value* : The value 3950 shown is the Scale Factor for transducers manufactured by Ametek and Setra. This does NOT include Danfoss transducers. **If Danfoss transducers are being used with 2783J qualified boards, the “Value” at the Indexes shown above needs to be modified to 4297.** The procedure on the next page describes how to modify the scaling factor.

Modifications for Analog Board in Vission/Vantage after July 2003

The procedure to Change Scale Factors on 2783J Qualified Board

1. From the Main Screen, press the Menu button.
 2. From the Menu Screen, press the Vilter ONLY screen.
 3. Logon
 4. From the Vilter ONLY screen, press the Raw Data Screen button.
You will now see a screen labeled "Data Test", containing 4 columns, 2 labeled "Index" and 2 labeled "Value".
 5. Press the "Set" button and then press one of the blank boxes under either one of the Index columns.
 6. A keypad will be displayed. Now type in "N658" (without the quote marks). Press the OK button. (Per the table, this is the Index for the Suction Pressure transducer.)
 7. You are now returned to the "Data Test" screen. You will see "N658" in the box that you touched, and you will see the value 3950 in the corresponding "Value" box. This is the scale factor that will be changed.
 8. Now press the "Set" button again, and press the "Value" box that contains the value 3950.
- A numeric keypad will now be visible.
9. Press the Clear button. Now press the buttons 4297, followed by pressing the "Enter" button. You will now be returned to the "Data Test" screen, and the Value field that previously contained 3950 now contains the Value 4297. Per the table below, you have now corrected the scaling factor for the Suction Pressure transducer.
 10. Continue this process, entering in "Index" values and changing the scaling factors for all transducers. (Reference Figure 1 below.)
 11. When completed, press the OK button and return back to the main screen.
 12. Now go to the LOGON screen and perform a "BACKUP SETTINGS". After a minute or so, the new scale factors will be "active".
 13. You may now need to recalibrate your transducers again, as the new scale factors will affect the current readings of the transducers. If you have gauges on your system, you can do this using your gauge readings. When you have completed re-calibration of all your transducers, do another "BACKUP SETTINGS".

	2895A	3011A Vission	3011C1 Vantage	3011A Vission (2783J qualified)	3011C1 Vantage (2783J qualified)
Ametek	Yes	Yes	Yes	Yes	Yes
Danfoss	No*	No	No	Yes-Rescale	Yes-Rescale
Setra	Yes	Yes	Yes	Yes	Yes

Table II The acceptable mix of analog boards and transducers.

No* = this combination of board and transducer will result in a very slight scaling error (2 percent error over entire 0-300 PSIG range of transducer). Vilter does not recommend using the Danfoss transducer with a 2895A board.



If service is required, first contact your equipment distributor or contact
A Vilter Technical Service Representative at:

Vilter Manufacturing Corporation
5555 South Packard Ave.
PO Box 8904
Cudahy, WI 53110-8904
Telephone: 414-744-0111
Fax: 414-744-1769
e-mail: service@vilter.com

Note: It will be necessary to have your Vilter order number available
when contacting Vilter Manufacturing Corporation for service support.

Disclaimer: Specifications are subject to change without notification.



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