

**KNOWLEDGE BASE**Article Type: **Instruction**

Load Sense Conversion Instructions, for Slump Water Control #328.100.1154

Description:

Instructions on; “How to set-up a Slump Load Sense conversion #328.100.1154. By adding a load sense system for slump to a mixer, you have enabled the batching system to monitor the resistive load in a mixer by means of the power being required to rotate the mixer blades thru the mix.

WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous - avoid personal injury and or death by following manufacture, Local, and OSHA safety procedures. Contact Columbia Machine for safety decals, guards, horns and beacons.

LOAD SENSE CONVERSION FOR SLUMP OPERATING INSTRUCTIONS

Theory of Operation:

By adding a load sense system for slump to a mixer, you have enabled the batching system to monitor the resistive load in a mixer by means of the power being required to rotate the mixer blades thru the mix.

The load sense system for slump monitors the voltage and current of 2 of the 3 phases and converts the output into a scaled 0-20mA signal that the MBS system can use to control the water valves.

When slump by load sense is selected the MBS will monitor the power draw from the mixer and add water in the Slump step until the actual water content is equal to or less than the slump load sense average value and the load sense de-bounce timer has timed out. At that point the slump blend timer will time until complete and then the MBS system mix step will continue to the next step.

Slump load sense value is to be determined initially by manually adding water to a mix until the desired slump consistence is achieved and then record the actual value into the load sense target set point. You may need adjust the target set point either up or down for desired mix slump water content.

How to Operate:

The screenshot shows the MBS control interface for Slump Water. It includes several control buttons and data displays:

- Control Buttons:**
 - LOAD SENSE ENABLE
 - SLUMP H2O ENABLE
 - WATER CONTROL (PREWET AND FINAL 'OFF')
 - LOAD SENSE DEBOUNCE (1234.5)
 - SLUMP LOAD SENSE (123456)
- Data Displays:**
 - Slump Load Sense Value Actual/Target: 123456
 - Slump Counts Actual/Target: 123456
 - Slump Blend Time Accum. /Preset: 1234.5
- Graphing:**
 - LOAD SENSE GRAPHING FOR SLUMP WATER
 - Graph showing Target Slump Value (500.00) and Load Sense Value (123456).
- Alarms and Status:**
 - Alarms: Coolant Pump Failed, Oil Pressure Low, Reduction Furnace Overtemp, Inbound Hopper Overweight.
 - Buttons: Silence Alarm Horn, View or Acknowledge Alarms, Get Page.

Load Sense Enable:

When ON, the Slump water value is by Load Sensor.

When OFF, the Slump water value is by counts (water meter required).

Slump H2O Enable:

When ON, Slump water option is enabled.

When OFF, Slump water option is disabled.

Water Control:

Manual control for addition of water into the mixer via Prewet and Final water valves.

Load Sense Debounce:

This is a timer that starts once the actual load sense value from the mixer is equal to or below the load sense target value. Once this timer is done, the Slump Blend Time will start.

Slump Load Sense:

Bottom number is the target load sense value.

Upper number is the actual average load sense value.

Slump Counts:

Target slump counts (this is only used when Load Sense Enable is OFF and Slump H2O is ON).

Slump Blend Time:

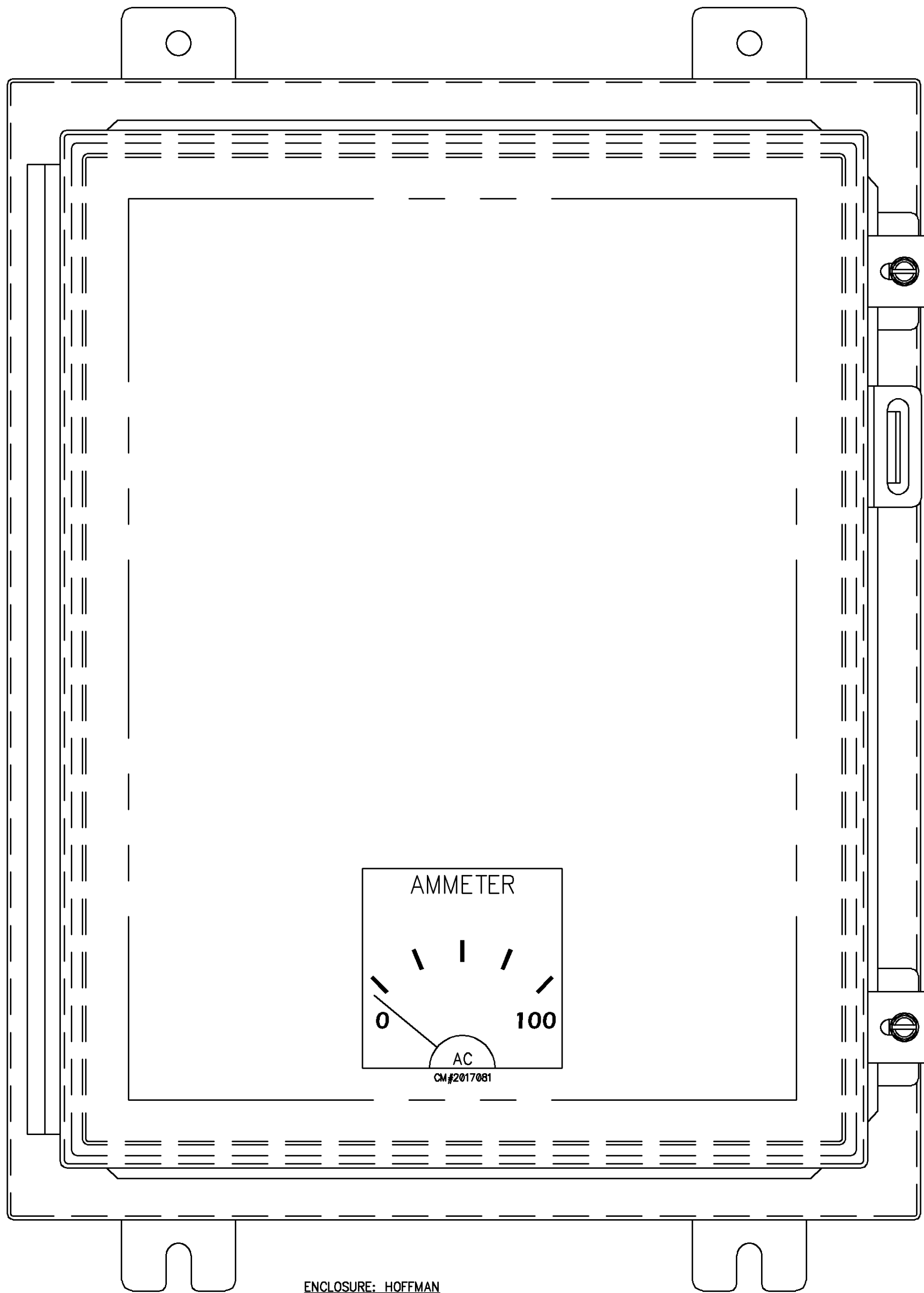
Blend time of slump mix step after the target value has been reached.



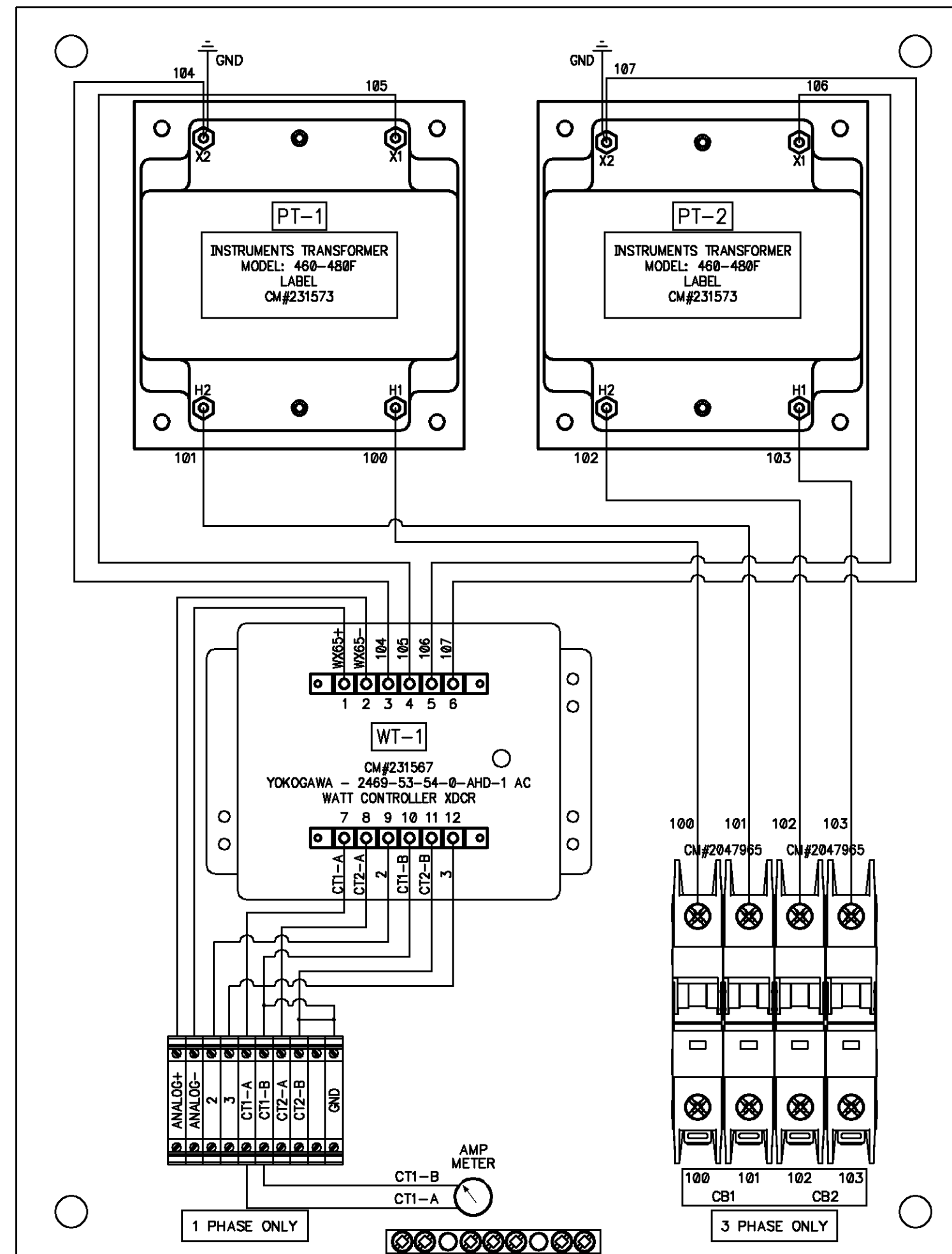
LEGEND

- White = No Install Drawing Required
- Green = Install Drawing Supplied
- Red = Install Drawing Pending

| | | | |
|------|----------------|------------------------------|--------|
| 0000 | 328.100.1154 | CONV KIT,LD SNSR,WESTERN BLK | 1.00 |
| 0001 | 328.120.4278 | CP,LD SNSR,440V,60HP,2MTR | 1.00 |
| 0002 | 230538 | CABLE,SHIELDED,8760 | 100.00 |
| 0003 | 2016772 | CORD GRIP, CG1850S | 2.00 |
| 0004 | 202592.08 | COND.LOCKNUT,1/2IN,LN101SC | 2.00 |
| 0005 | 202214.08 | NEOPHRENE GASKET, 1/2IN,2452 | 2.00 |
| 9200 | 328.100.1154.2 | SCHEM,LD SNSR,WESTERN BLK | 0.00 |
| 9201 | 328.100.1154.7 | SCHED,LD SNSR,WESTERN BLK | 0.00 |



ENCLOSURE: HOFFMAN
A-201608LP
BACKPANEL: HOFFMAN
A-20P16



ADJUST MOTOR OVERLOADS TO MOTOR NAMEPLATE SPECIFICATIONS. THIS EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND LOCAL CODES AND ORDINANCES. INSTALLATION IS TO BE PERFORMED BY A LICENSED ELECTRICIAN AND INSPECTED BY LOCAL AUTHORITIES. PLEASE DISCONNECT ALL POWER BEFORE SERVICING.

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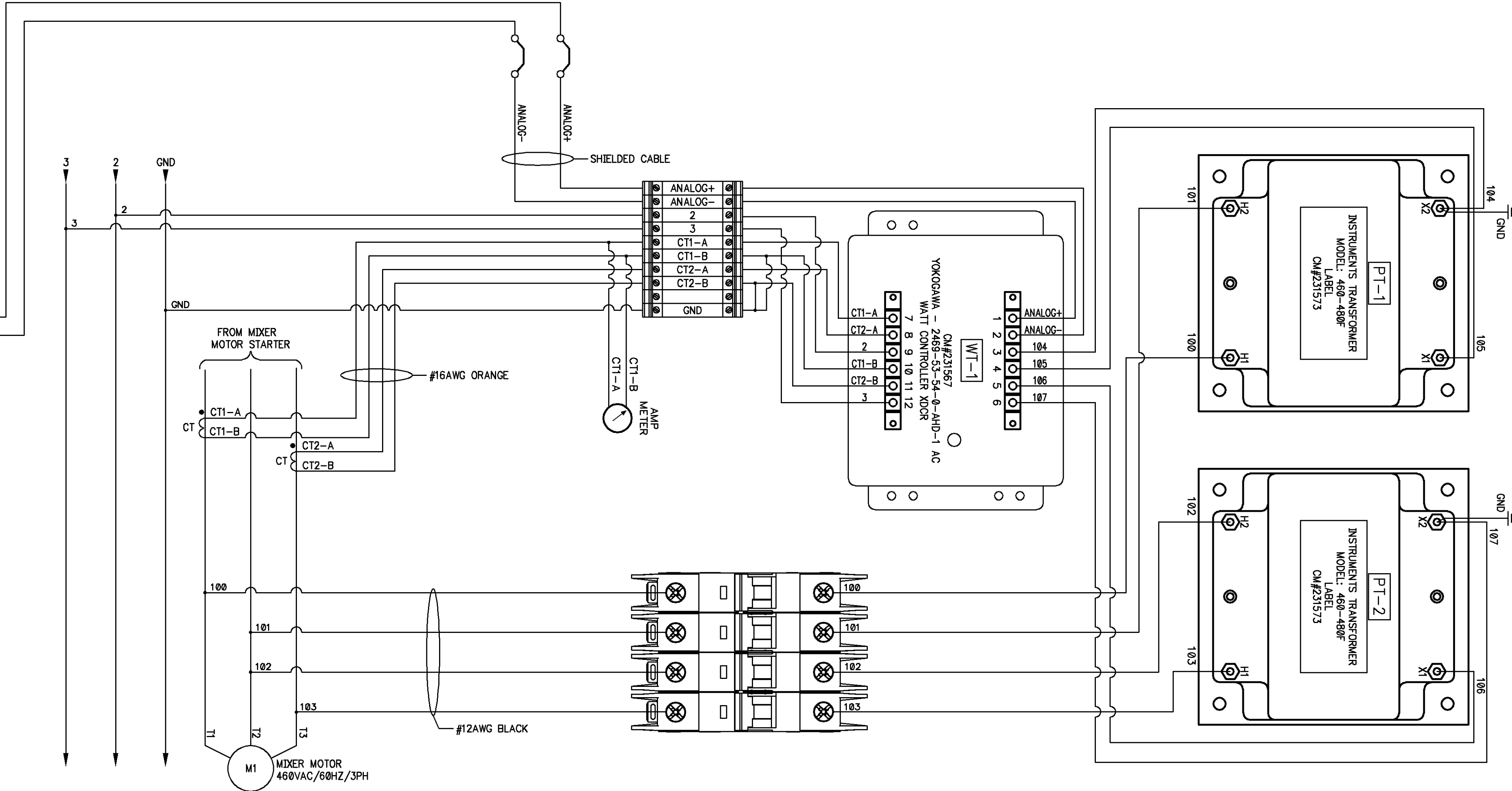
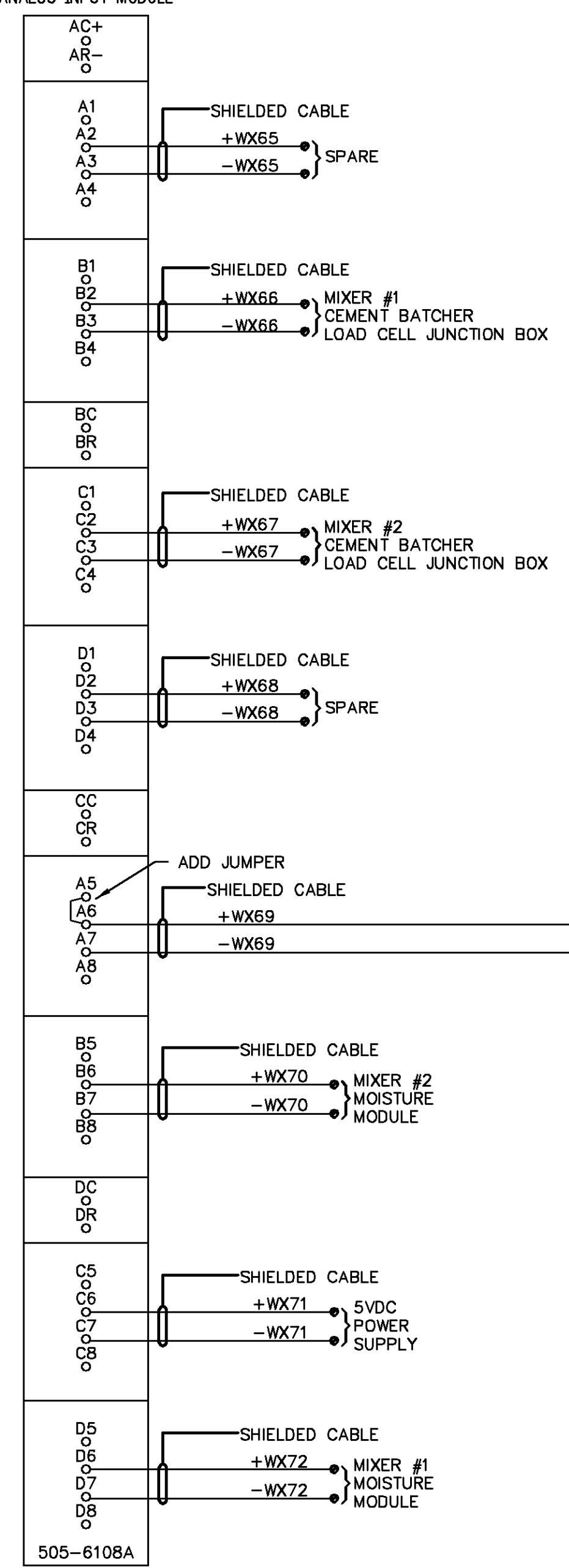


MODEL: CONTROL PANEL
LOAD SENSE FOR
60HP
460VAC 3 PHASE 60 HZ

| | | |
|--------------------------------|-------------------------|------------------------|
| DRAWN BY: DAVENG | REFERENCE: REFERENCE | REF. SCALE NONE |
| ENGINEER: JEFPAP | DATE: 8/11/14 | REV. SHEET * 1 OF 1 |
| SIZE DWG NO: B 328.120.4278 | | |

| REV. | ZONE | CHANGE DESCRIPTION | DATE | CHANGE BY |
|------|------|--------------------|------|-----------|
| * | * | * | * | * |
| * | * | * | * | * |
| * | * | * | * | * |

EXISTING
ANALOG INPUT MODULE



| | | | | |
|------|------|--------------------|------|-----------|
| REV. | ZONE | CHANGE DESCRIPTION | DATE | CHANGE BY |
| * | * | * | * | * |
| * | * | * | * | * |
| * | * | * | * | * |

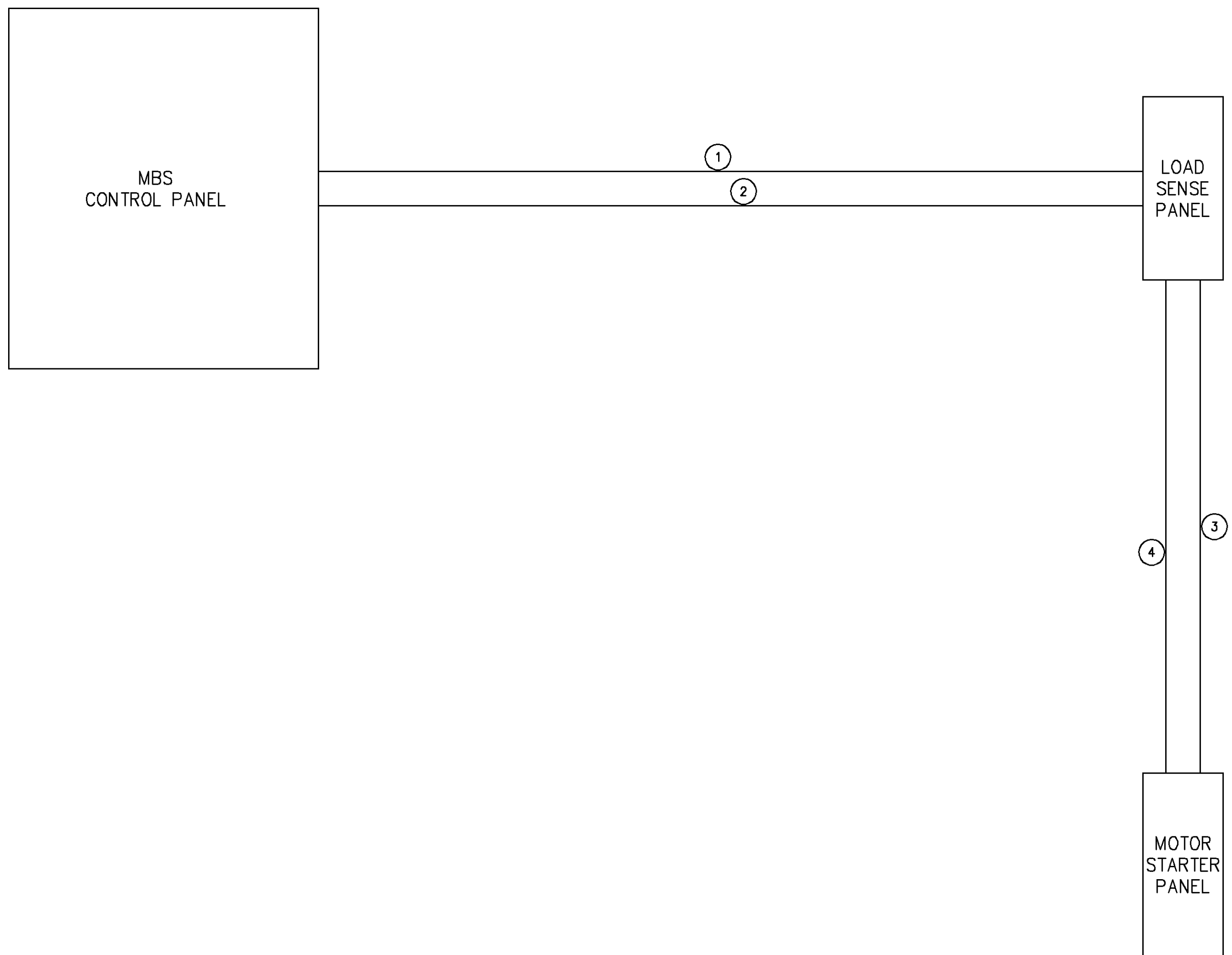
ADJUST MOTOR OVERLOADS TO MOTOR NAMEPLATE SPECIFICATIONS. THIS EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND LOCAL CODES AND ORDINANCES. INSTALLATION IS TO BE PERFORMED BY A LICENSED ELECTRICIAN AND INSPECTED BY LOCAL AUTHORITIES. PLEASE DISCONNECT ALL POWER BEFORE SERVICING.

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WESTERN BLOCK ENTERPRISES
PHOENIX, AZ
MODEL: BATCHING & MIXING
LOAD SENSE CONVERSION WIRING

| | | | |
|---------------------|---------------------------|------|--------|
| DRAWN BY: DAVENG | REFERENCE: REFERENCE | REV. | SHEET |
| ENGINEER: JEFPAP | DATE: 8/11/14 | * | 1 OF 1 |
| SIZE B | DWG NO: 328.100.1154.2 | | |



- ① SUPPLIED BY CUSTOMER
CONTROL WIRE FROM MBS CONTROL PANEL TO LOAD SENSE PANEL
120VAC
3 CONDUCTOR #14AWG
2 = WHITE
3 = RED
GND = GREEN
- ② SUPPLIED BY COLUMBIA
MBS CONTROL PANEL TO LOAD SENSE PANEL
SHIELDED CABLE BELDEN 8760
+WX69
-WX69
- ③ SUPPLIED BY CUSTOMER
CONTROL WIRES FROM LOAD SENSE PANEL TO MOTOR STARTER PANEL
4 CONDUCTOR #14AWG ORANGE
CT1-A
CT1-B
CT2-A
CT2-B
- ④ SUPPLIED BY CUSTOMER
POWER CABLE FROM MOTOR STARTER PANEL TO LOAD SENSE PANEL
5 CONDUCTOR #12AWG
GND = GREEN
100 = BLACK
101 = BLACK
102 = BLACK
103 = BLACK

| | | | | | | | | |
|-------|------|---|---|---|---|---------------------|-------------------------|--------------------|
| * * * | * * | ADJUST MOTOR OVERLOADS TO MOTOR NAMEPLATE SPECIFICATIONS. THIS EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND LOCAL CODES AND ORDINANCES. INSTALLATION IS TO BE PERFORMED BY A LICENSED ELECTRICIAN AND INSPECTED BY LOCAL AUTHORITIES. PLEASE DISCONNECT ALL POWER BEFORE SERVICING. | THIS DRAWING AND ITS PRINCIPLES OF DESIGN CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION OF COLUMBIA MACHINE, INC. DESIGN NOT TO BE USED, COPIED OR DISCLOSED WITHOUT WRITTEN PERMISSION. PROTECTED UNDER U.S. AND FOREIGN COPYRIGHT LAW. ALL RIGHTS RESERVED. | Columbia COLUMBIA MACHINE INC. VANCOUVER, WA 98661 CONCRETE PRODUCTS | WESTERN BLOCK ENTERPRISES PHOENIX, AZ MODEL: BATCHING & MIXING CABLE RUNS | DRAWN BY: DAVENG | REFERENCE: REFERENCE | REV. SCALE |
| * * * | * * | | | | | ENGINEER: JEFPAP | DATE: 8/11/14 | REF. SCALE NONE |
| REV. | ZONE | CHANGE DESCRIPTION | DATE | CHANGE BY | SIZE | DWG NO: | REV. | SHEET |
| | | | | | B | 328.100.1154.7 | * | 1 OF 1 |