

**M-133-13**

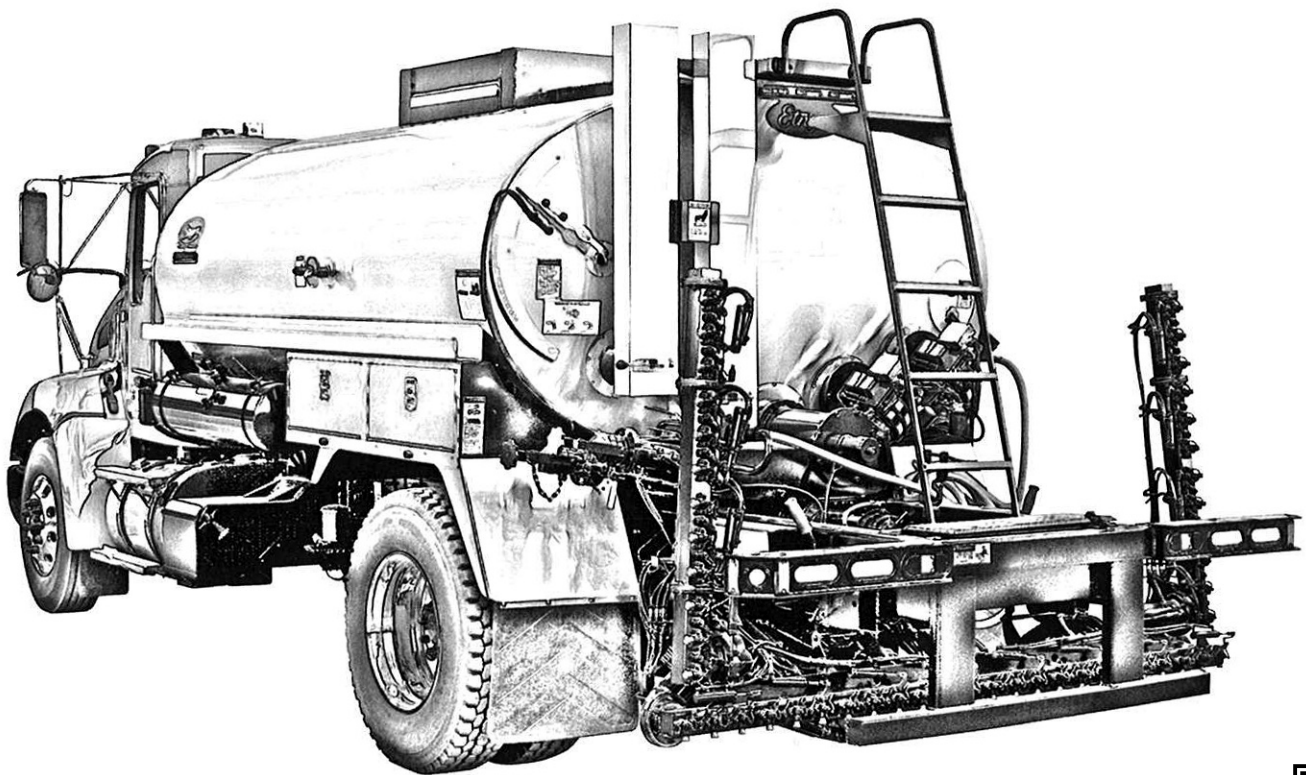
For previous units not  
included here, use  
M-133-11

Updated December 22, 2017



# **Black-Topper® Centennial Series**

## **Electrical & Hydraulic Schematics**



E. D. ETNYRE & CO. 1333 S. Daysville Road, Oregon, Illinois 61061

Phone: 815/732-2116 or 800/995-2116 • Fax: 800-521-1107 • [www.etnyre.com](http://www.etnyre.com)

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### Centennial

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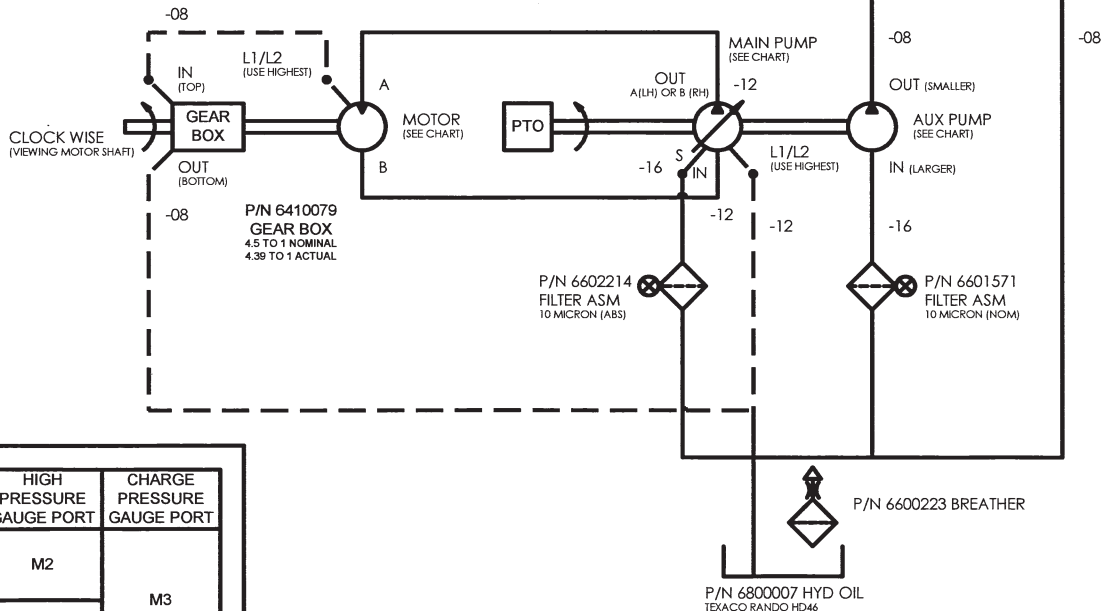
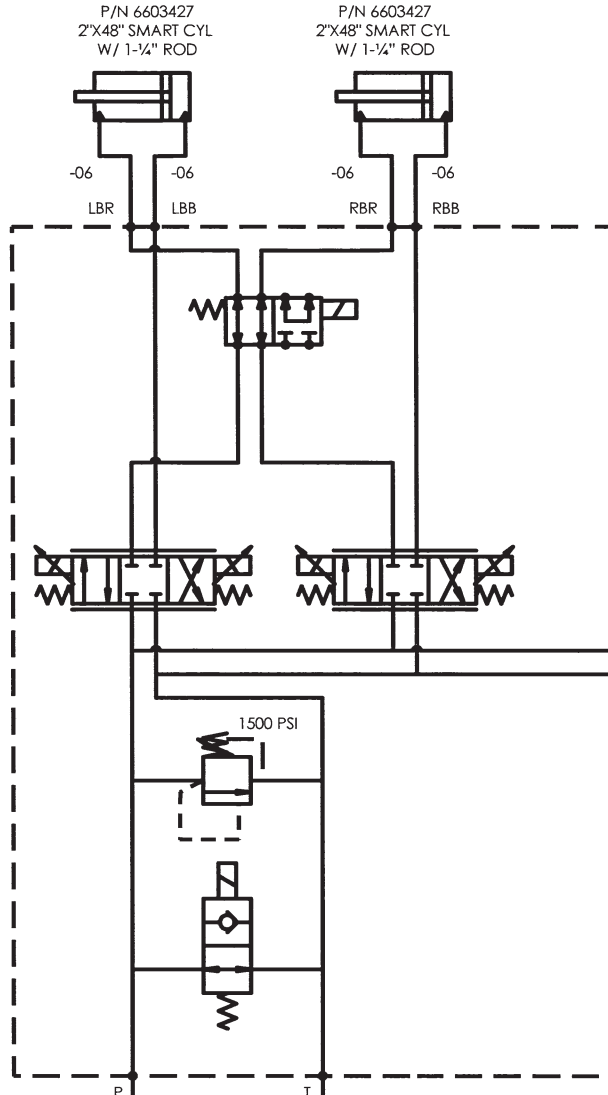
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### Centennial

#### BT-1 Computer

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PTO ROTATION	MAIN PUMP	AUX PUMP	MOTOR
LH (CCW)	P/N 6603433 (SPEED) P/N 6603243 (W/O SPEED) 42 SERIES 51 cc (3.11 cir) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cir) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cir)	P/N 6603157 25 cc (1.53 cir) LOOP FLUSH 0.85 GPM @ 290 PSI
RH (CW)	P/N 6603437 (SPEED) P/N 6603242 (W/O SPEED) 42 SERIES 51 cc (3.11 cir) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cir) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cir)	
LH (CCW)	P/N 6603460 (SPEED) P/N 6603759 (W/O SPEED) 90 SERIES 75 cc (4.57 cir) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cir) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cir)	P/N 6603219 35 cc (2.14 cir) LOOP FLUSH 1.65 GPM @ 290 PSI
RH (CW)	P/N 6603459 (SPEED) P/N 6603758 (W/O SPEED) 90 SERIES 75 cc (4.57 cir) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cir) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cir)	
LH (CCW)	P/N 6603435 (SPEED) P/N 6603761 (W/O SPEED) 90 SERIES 100 cc (6.10 cir) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cir) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cir)	P/N 6603173 44 cc (2.69 cir) LOOP FLUSH 1.65 GPM @ 290 PSI
RH (CW)	P/N 6603434 (SPEED) P/N 6603760 (W/O SPEED) 90 SERIES 100 cc (6.10 cir) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cir) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cir)	



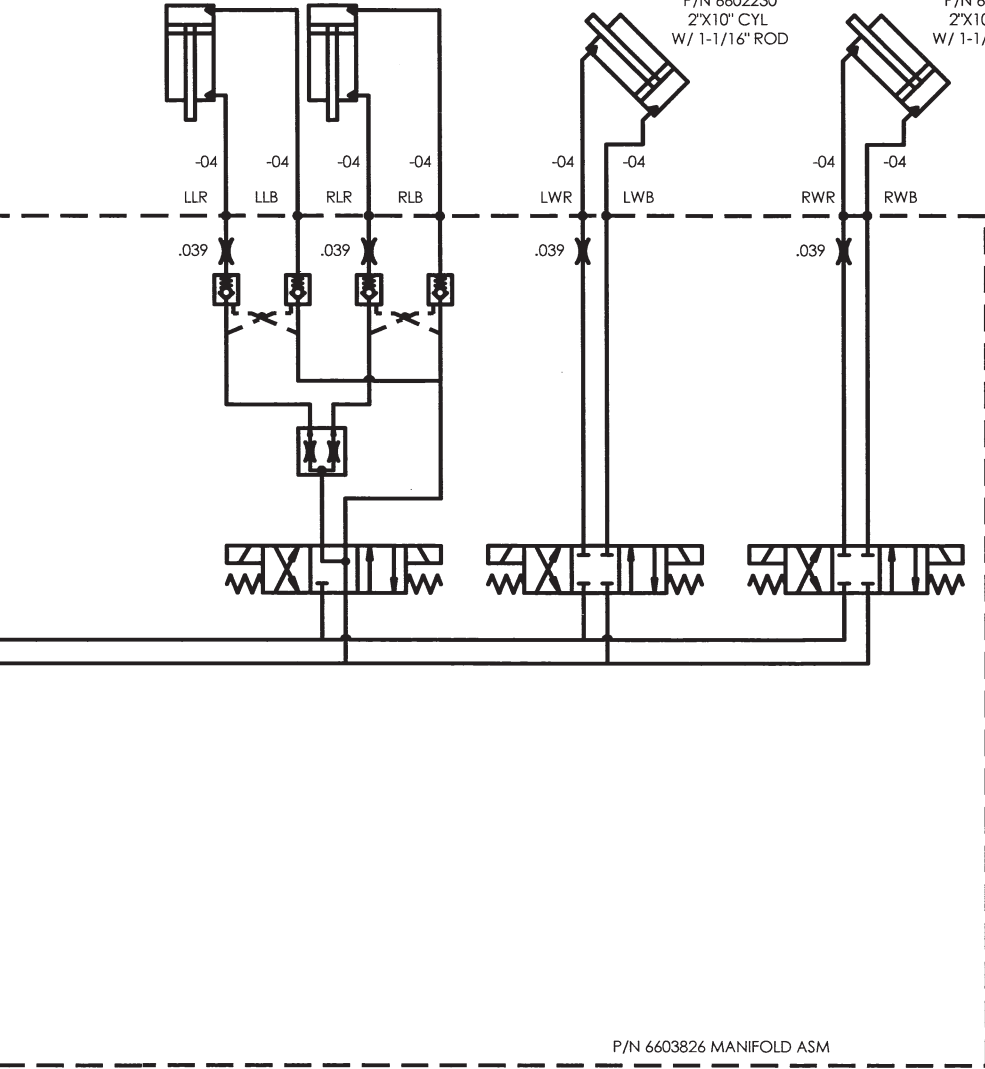
MAIN PUMP ROTATION	HIGH PRESSURE GAUGE PORT	CHARGE PRESSURE GAUGE PORT
LH (CCW)	M2	M3
RH (CW)	M1	

P/N 3353733  
2"x14" CYL  
W/ 1-1/16" ROD

P/N 3353733  
2"x14" CYL  
W/ 1-1/16" ROD

P/N 6602230  
2"x10" CYL  
W/ 1-1/16" ROD

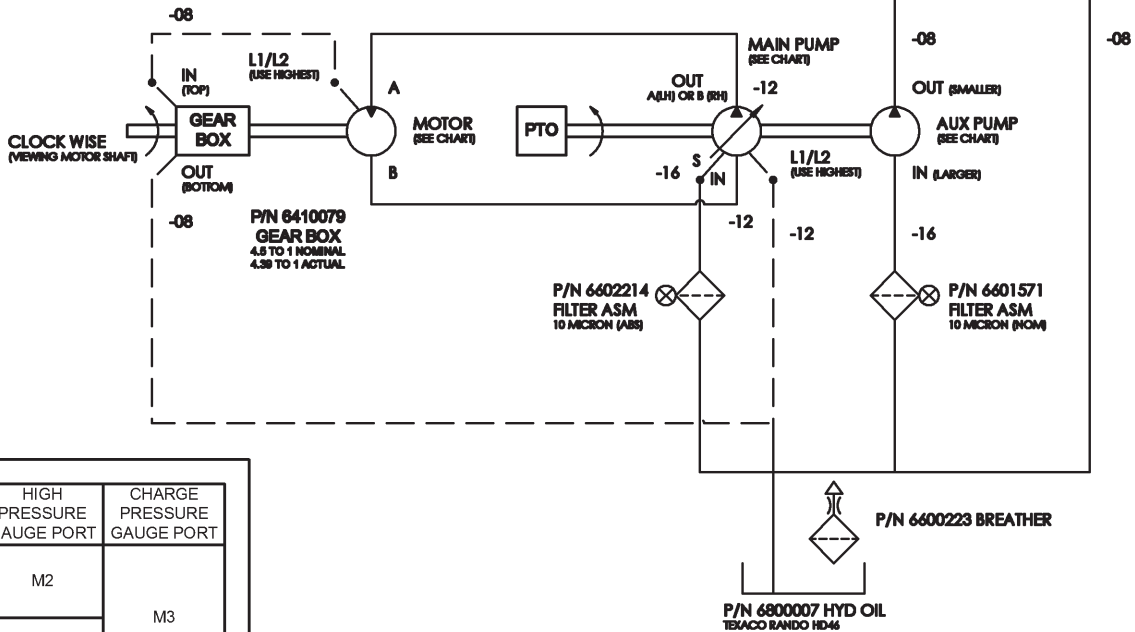
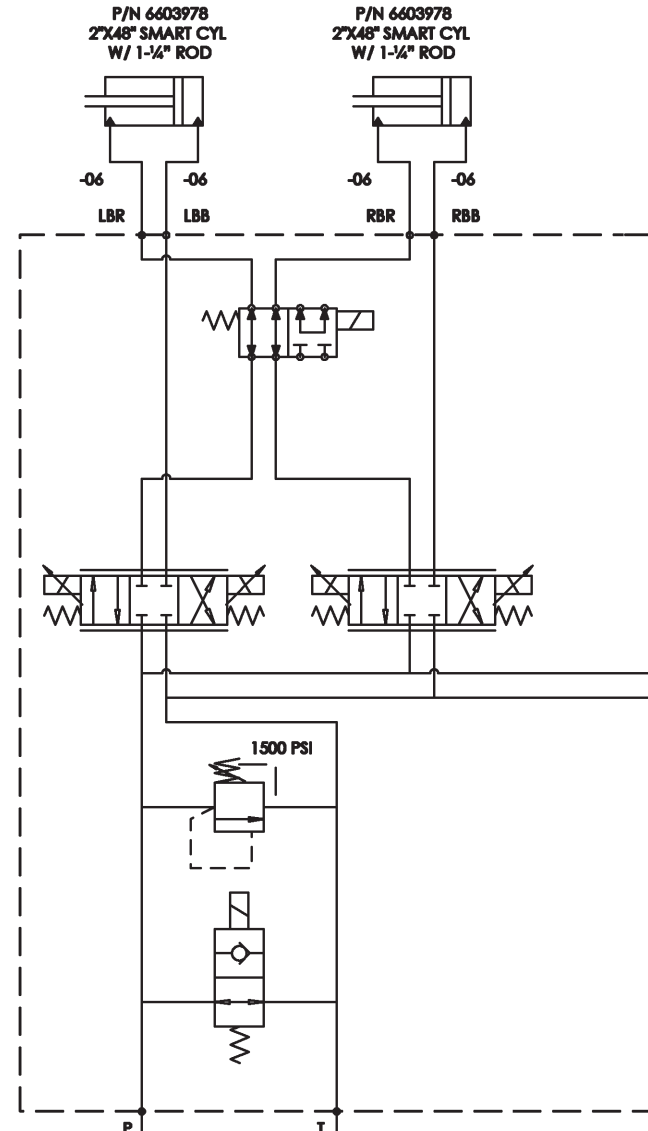
P/N 6602230  
2"x10" CYL  
W/ 1-1/16" ROD



GENERAL NOTES: REMOVE ALL BURRS SER.NO: SIM.TO: 9304264 WEIGHT: DRW FILE: VISIO	DFT: JSH ENGR: JSH APPD:	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE HYD-SCH,VW,SHIFT LOCK INC		
	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	DWG NO. 9304618	REV	
	DWG SIZE D	SCALE NONE	DATE 8/1/08	SHEET 1 OF 1



PTO ROTATION	MAIN PUMP	AUX PUMP	MOTOR
LH (CCW)	P/N 6603243 (W/O SPEED) 42 SERIES 51 cc (3.11 cfr) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603157 25 cc (1.53 cfr) LOOP FLUSH 0.85 GPM @ 290 PSI
RH (CW)	P/N 6603242 (W/O SPEED) 42 SERIES 51 cc (3.11 cfr) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	
LH (CCW)	P/N 6603759 (W/O SPEED) 90 SERIES 75 cc (4.57 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603219 35 cc (2.14 cfr) LOOP FLUSH 1.65 GPM @ 290 PSI
RH (CW)	P/N 6603758 (W/O SPEED) 90 SERIES 75 cc (4.57 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	
LH (CCW)	P/N 6603761 (W/O SPEED) 90 SERIES 100 cc (6.10 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603173 44 cc (2.69 cfr) LOOP FLUSH 1.65 GPM @ 290 PSI
RH (CW)	P/N 6603760 (W/O SPEED) 90 SERIES 100 cc (6.10 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	



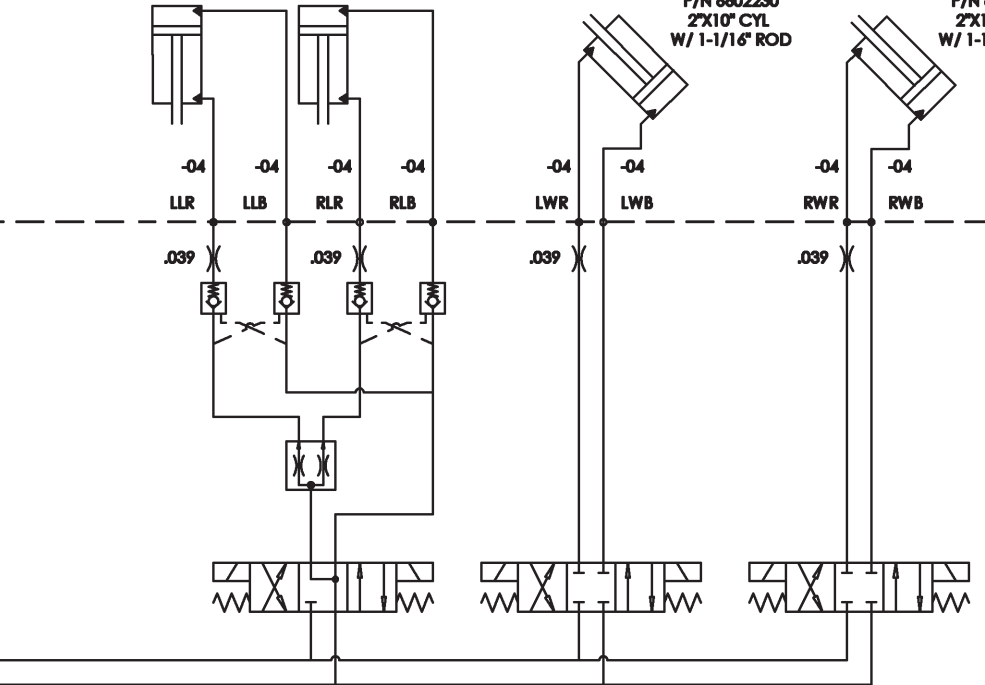
MAIN PUMP ROTATION	HIGH PRESSURE GAUGE PORT	CHARGE PRESSURE GAUGE PORT
LH (CCW)	M2	M3
RH (CW)	M1	

P/N 6602230  
2"x14" CYL  
W/ 1-1/16" ROD

P/N 6602230  
2"x14" CYL  
W/ 1-1/16" ROD

P/N 6602230  
2"x10" CYL  
W/ 1-1/16" ROD

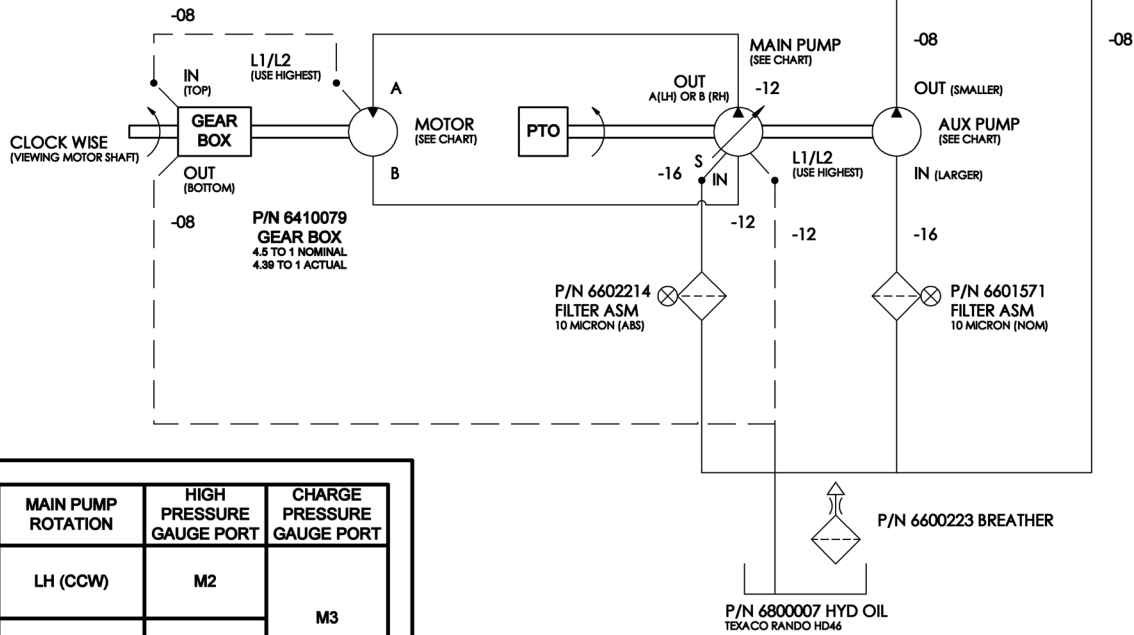
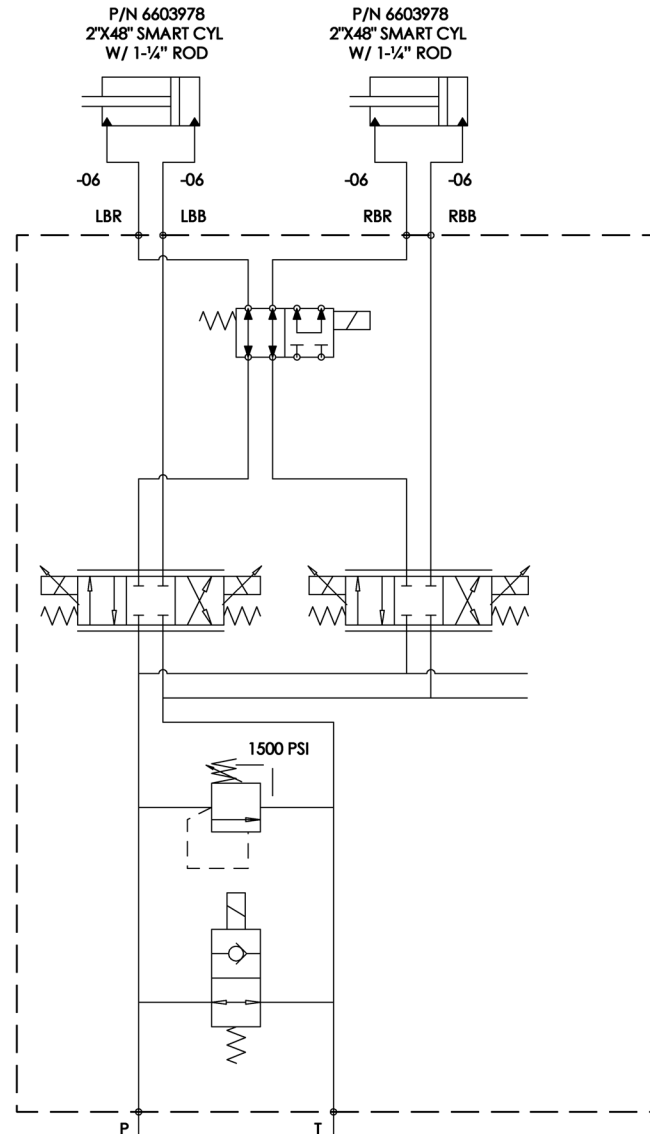
P/N 6602230  
2"x10" CYL  
W/ 1-1/16" ROD



P/N 6603826 MANIFOLD ASM

GENERAL NOTES: REMOVE ALL BURRS SER.NO: _____ SIM.TO: <u>9304618</u> WEIGHT: _____ DRW FILE: VISIO	DFTR: <u>RKR</u> CHKR: _____ ENGR: <u>RKR</u> APPD: _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061	
	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .05 .XXX ± .010 ANGLES ± 0° 30'	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE <b>HYD-SCH,VW,SHIFT LOCK INC</b>	
		DWG SIZE <b>D</b>	REV _____
	SCALE NONE	DATE 11/19/14	SHEET 1 OF 1

PTO ROTATION	MAIN PUMP	AUX PUMP	MOTOR
LH (CCW)	P/N 6603243 (W/O SPEED) 42 SERIES 51 cc (3.11 cfr) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603157 25 cc (1.53 cfr) LOOP FLUSH 0.85 GPM @ 290 PSI
RH (CW)	P/N 6603242 (W/O SPEED) 42 SERIES 51 cc (3.11 cfr) 345 bar (5004 psi) CHARGE PUMP 15.6 cc (0.95 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	
LH (CCW)	P/N 6603759 (W/O SPEED) 90 SERIES 75 cc (4.57 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603219 35 cc (2.14 cfr) LOOP FLUSH 1.85 GPM @ 290 PSI
RH (CW)	P/N 6603758 (W/O SPEED) 90 SERIES 75 cc (4.57 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	
LH (CCW)	P/N 6603761 (W/O SPEED) 90 SERIES 100 cc (6.10 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603432 23 cc (1.40 cfr)	P/N 6603173 44 cc (2.69 cfr) LOOP FLUSH 1.85 GPM @ 290 PSI
RH (CW)	P/N 6603760 (W/O SPEED) 90 SERIES 100 cc (6.10 cfr) 350 bar (5076 psi) CHARGE PUMP 20 cc (1.22 cfr) 20 bar (290 psi)	P/N 6603436 23 cc (1.40 cfr)	



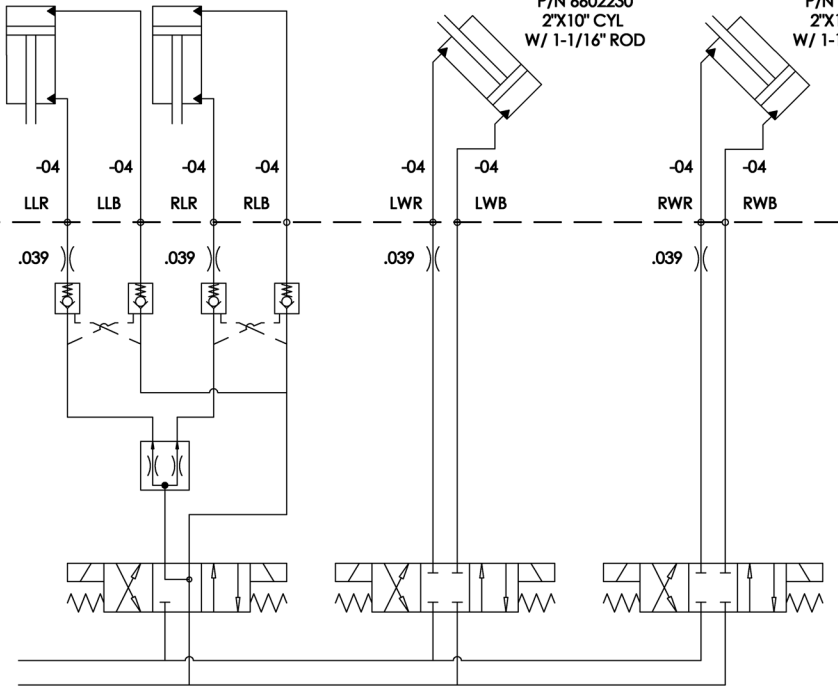
MAIN PUMP ROTATION	HIGH PRESSURE GAUGE PORT	CHARGE PRESSURE GAUGE PORT
LH (CCW)	M2	M3
RH (CW)	M1	

P/N 6602230  
2"X14" CYL  
W/ 1-1/16" ROD

P/N 6602230  
2"X14" CYL  
W/ 1-1/16" ROD

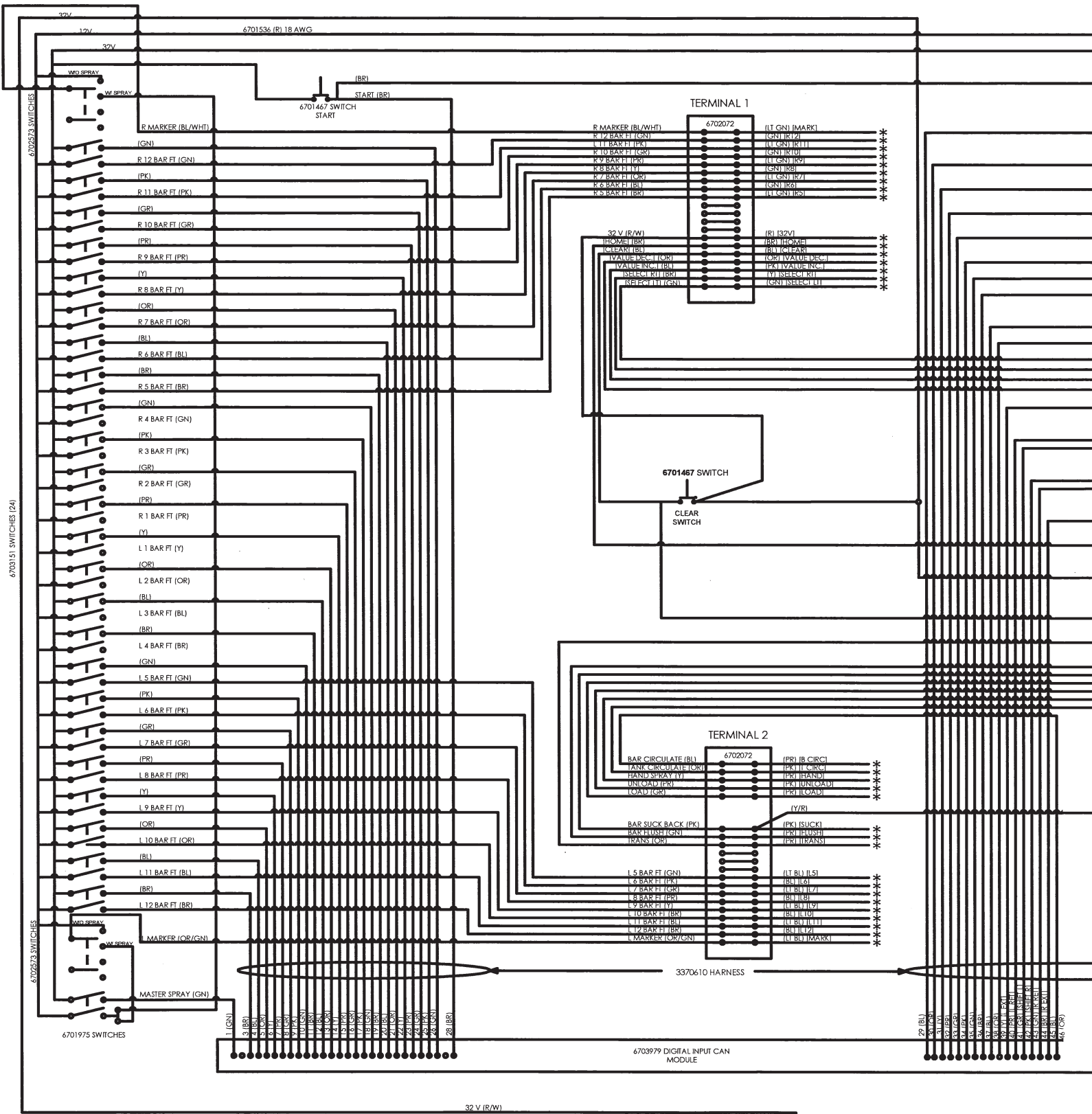
P/N 6602230  
2"X10" CYL  
W/ 1-1/16" ROD

P/N 6602230  
2"X10" CYL  
W/ 1-1/16" ROD



P/N 6604112 MANIFOLD ASM

GENERAL NOTES: REMOVE ALL BURRS SER.NO: _____ SIM.TO: <b>9306083</b> WEIGHT: _____ DRW FILE: VISIO	DFTR <u>DM</u> CHKR _____ ENGR <u>DM</u> APPD _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061	
	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE HYD-SCH,VW,SHIFT LOCK INC	
		DRAWING NO. <b>9306813</b>	REV _____
	SCALE NONE	DATE 12/8/17	SHEET 1 OF 1



NO MORE THAN 1-1/2 IN OF EXPOSED UNSHIELDED WIRE. SHRINK SLEEVE SHIELD WIRE.

6703259 CONNECTOR  
6703260 WEDGE  
6703487 PIN-SOCKET (3)

A (V)  
B (GN)  
C (SHIELD)

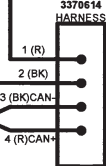
6703519 RESISTOR 120 OHM

6703989 USB PORT (OPTIONAL)

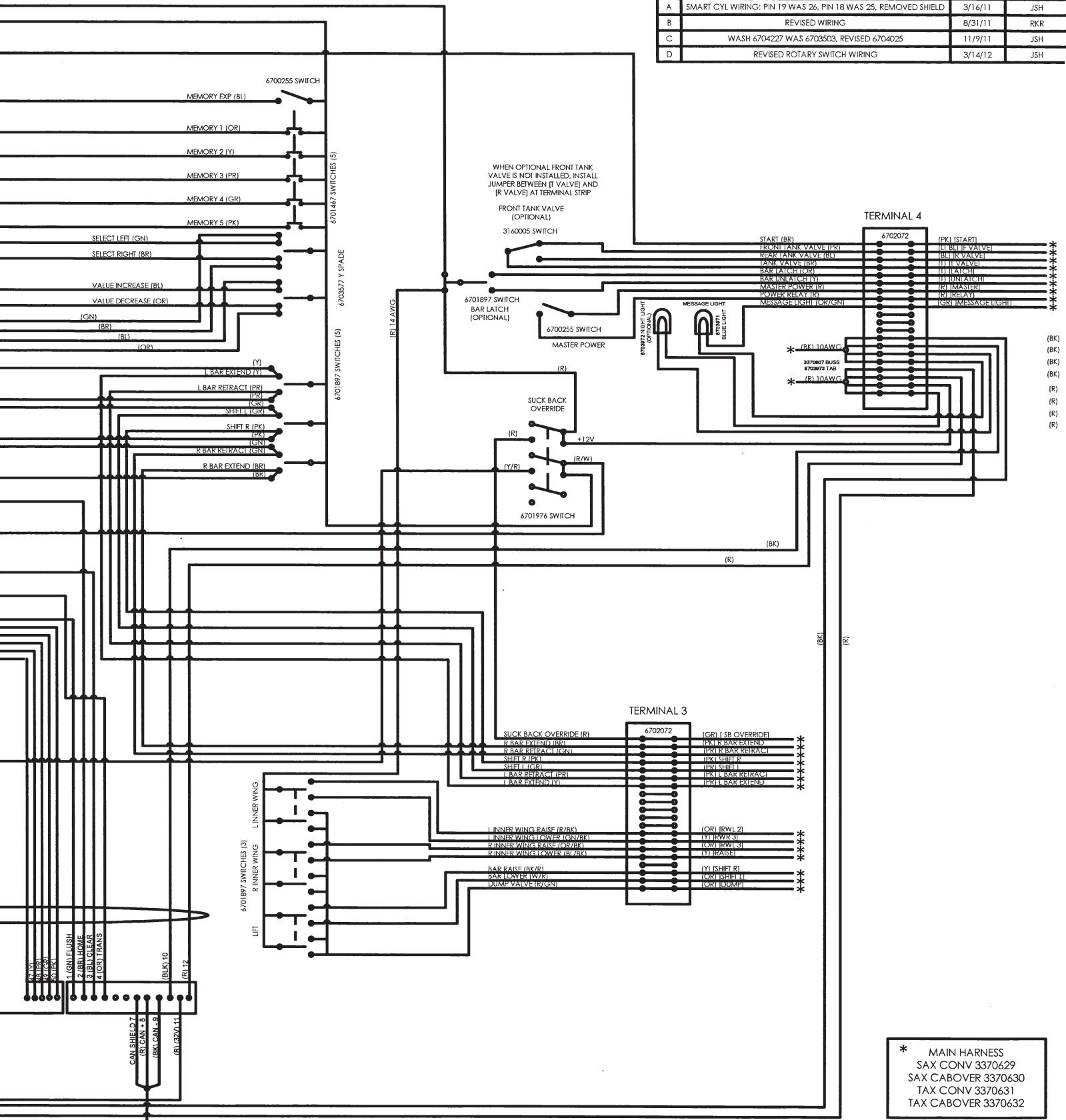
6703931 USB CABLE  
3361491 USB DRIVE W/FILES

CABLE PER J1939

3370614 HARNESS-CAN DISPLAY



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SMART CYL WIRING: PIN 19 WAS 26, PIN 18 WAS 25, REMOVED SHIELD	3/16/11	JSH
B	REVISED WIRING	8/31/11	RKR
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH

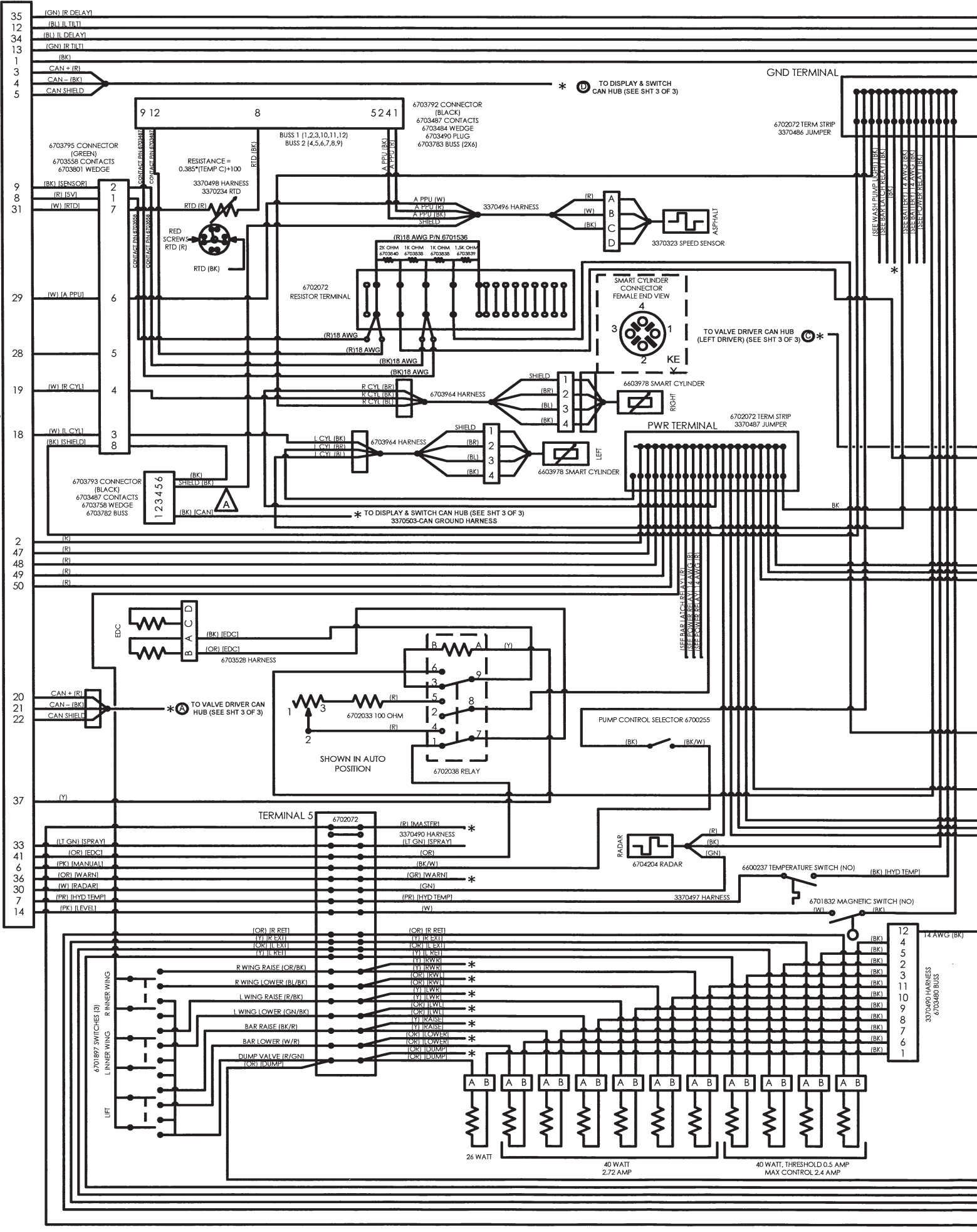


ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER. NO.: <b>S5316</b> SIM. TO: WEIGHT: DRW FILE: VISIO	DFTR: <b>RKR</b> CHKR: ENGR: <b>RKR</b> APPD: TOLERANCE UNLESS SPECIFIED FRACTIONAL = 1/32 DECIMAL X ± .1 XX ± .03 XXX ± .010 ANGLES ± 0° 30'	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE <b>ELECTRICAL SCHEMATIC-VWSB, 2010</b> DWG NO. <b>9305034</b> REV <b>D</b> SCALE NONE DATE 9/1/2010 SHEET 1 OF 3
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

337500 HARNESS  
670354 COMPUTER

IN THE CONNECTORS  
USE TAP WIRE ONLY



A

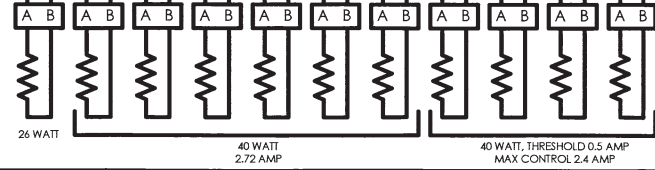
A

A

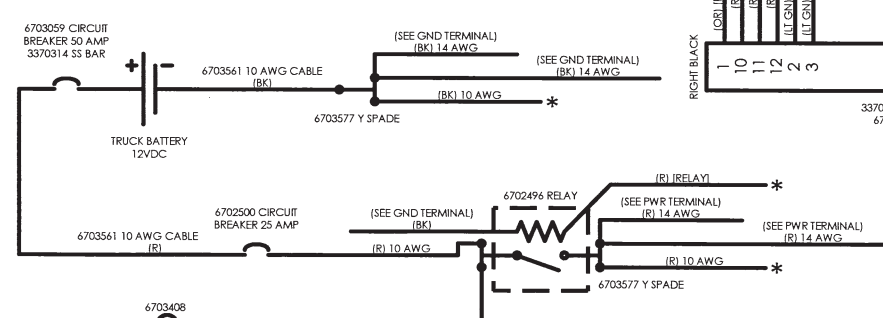
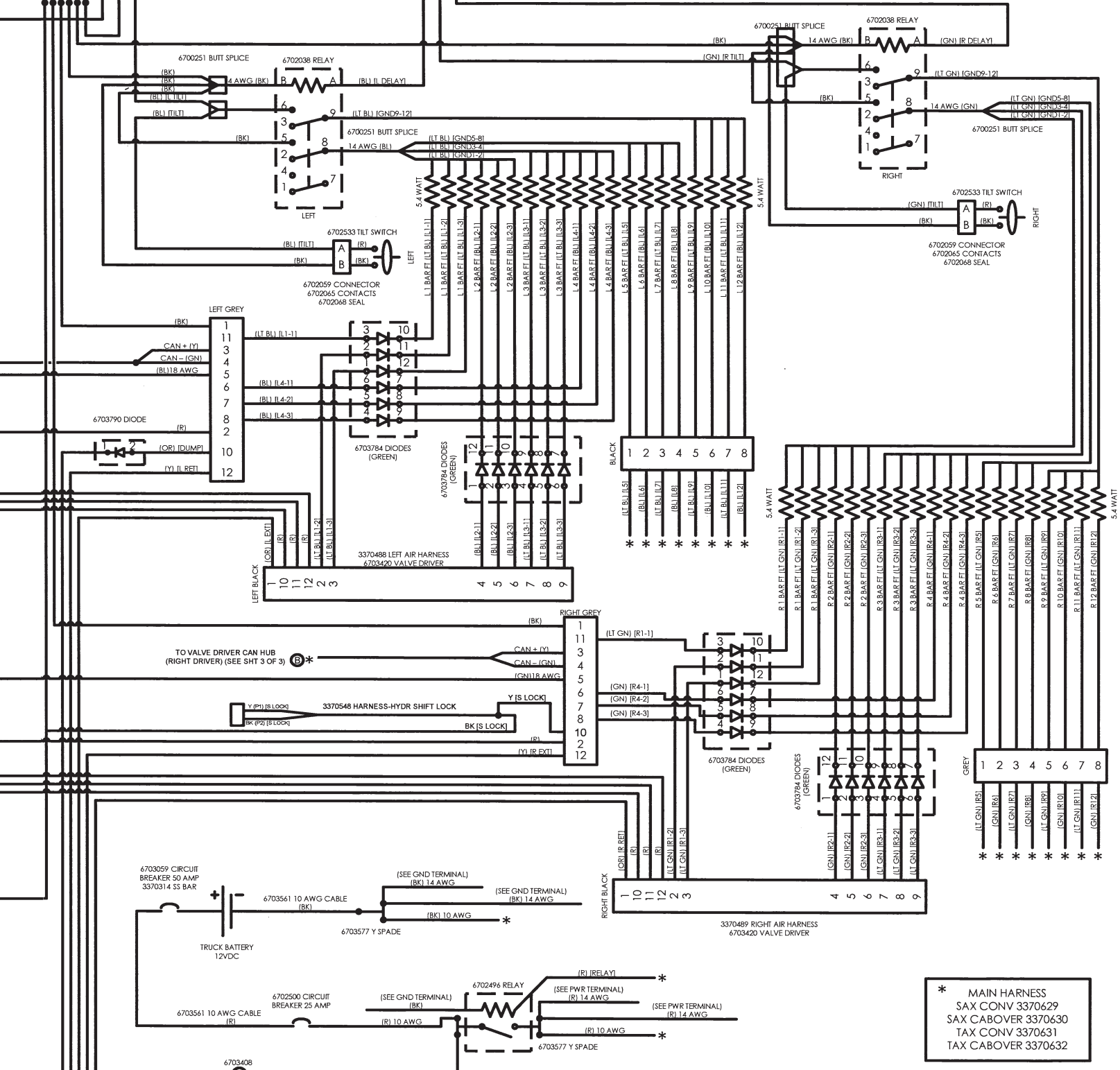
A

A

3370480 HARNESS  
6703480 BUSS  
14 AWG (BK)



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SMART CYL WIRING: PIN 19 WAS 26, PIN 18 WAS 25, REMOVED SHIELD	3/16/11	JSH
B	REVISED WIRING	8/31/11	
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH



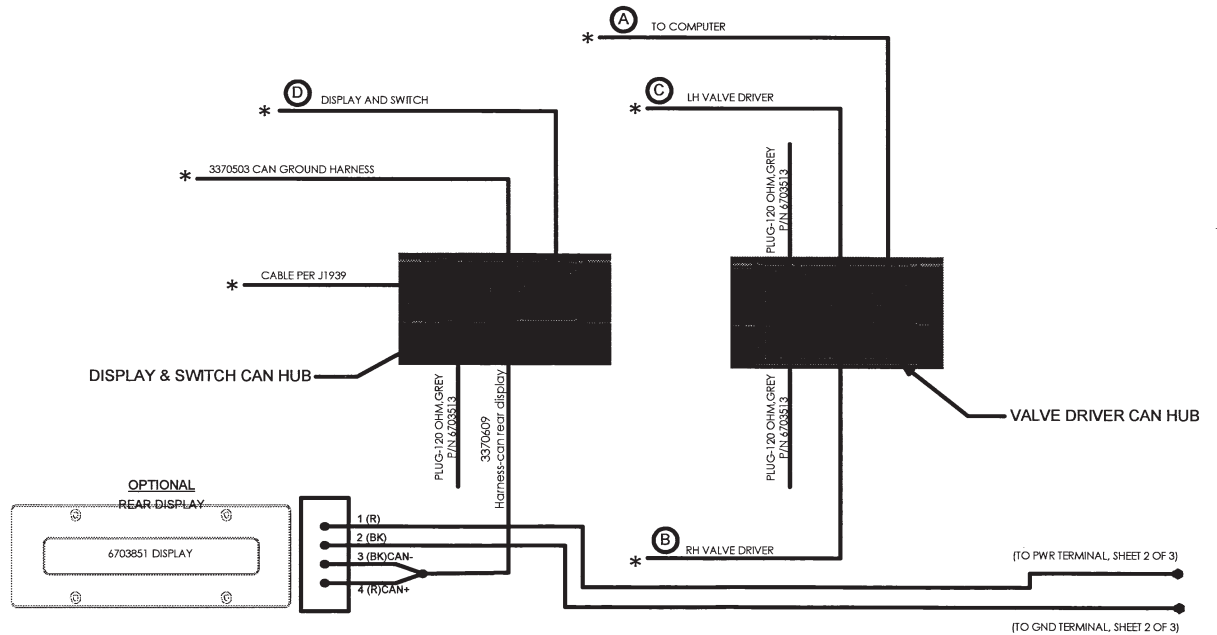
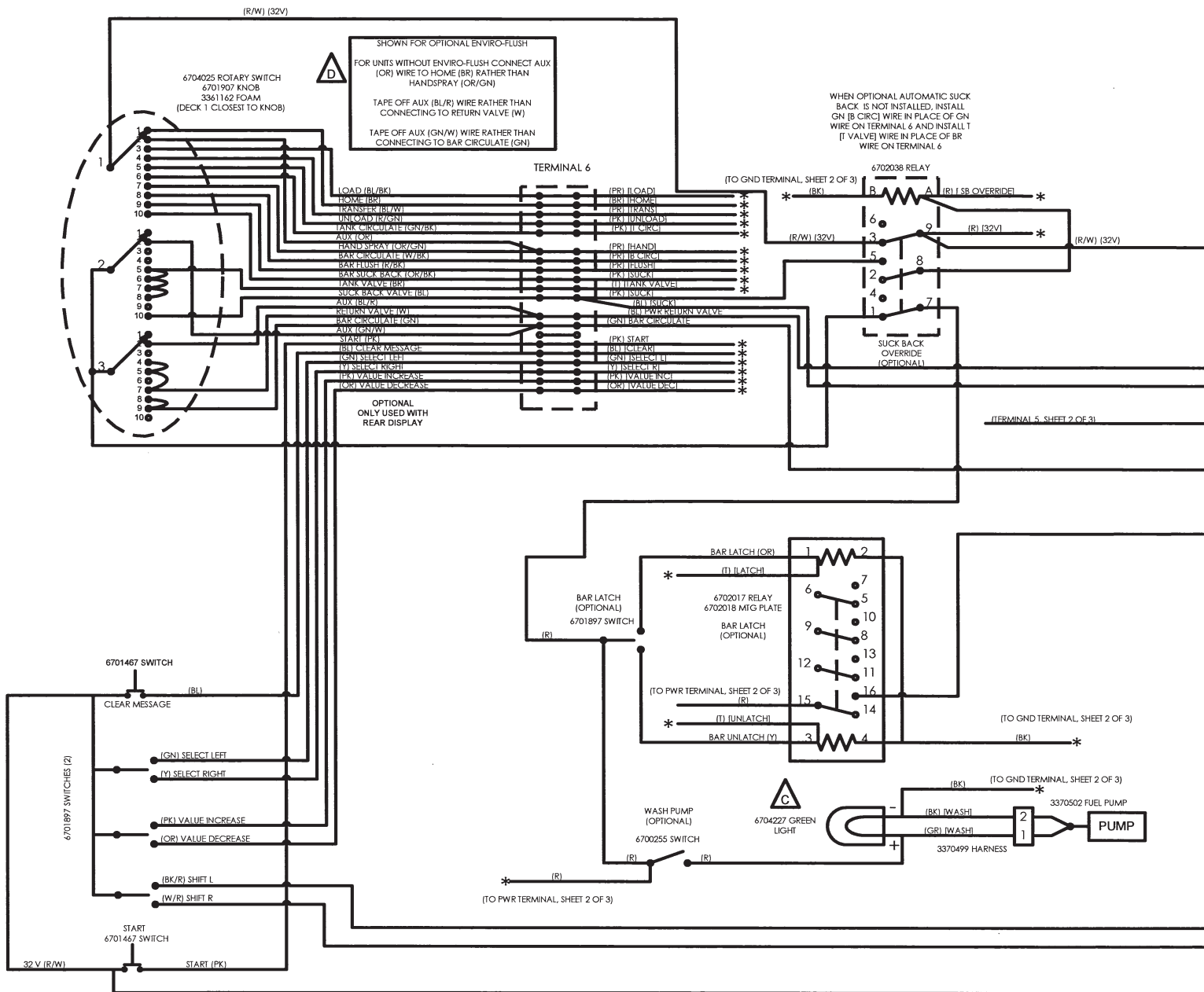
\* MAIN HARNESS  
SAX CONV 3370629  
SAX CABOVER 3370630  
TAX CONV 3370631  
TAX CABOVER 3370632

REMOVE ONLY SIX INCHES OF JACKETING FROM SHIELDED CABLES  
EXPOSED SHIELD MUST BE ENTIRELY COVERED WITH SHRINK SLEEVE

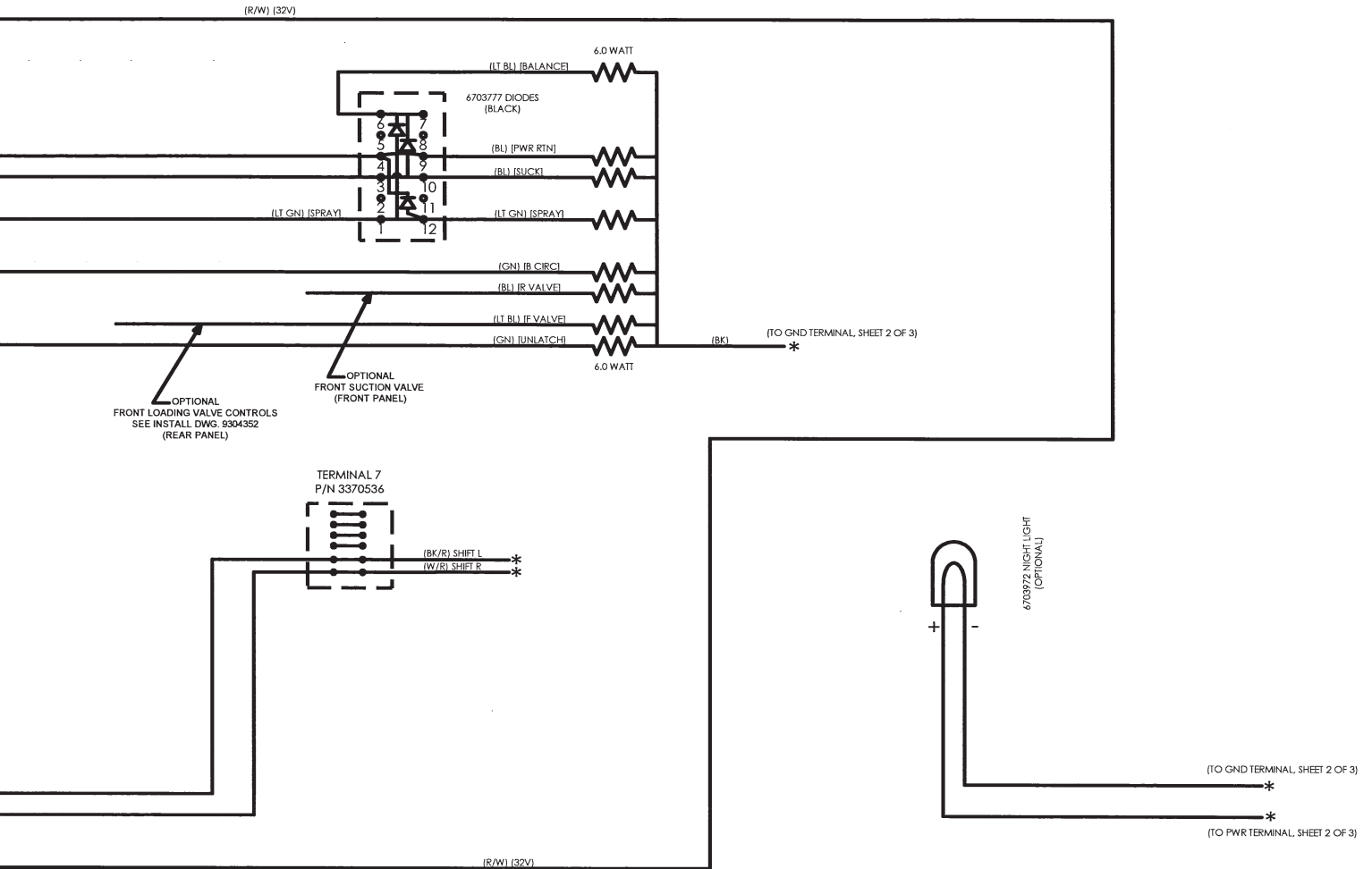
ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER.NO.: 55316 SIM.TO: WEIGHT: DRW FILE: VISIO	DFT: RKR CHKR: RKR ENGR: RKR APPD: TOLERANCE UNLESS SPECIFIED FRACTIONAL = 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE <b>ELECTRICAL SCHEMATIC-VWSB, 10</b> DWG NO. 9305034 DRAWING NO. 9305034 SCALE NONE DATE 10/3/07 SHEET 2 OF 3
	REV D		





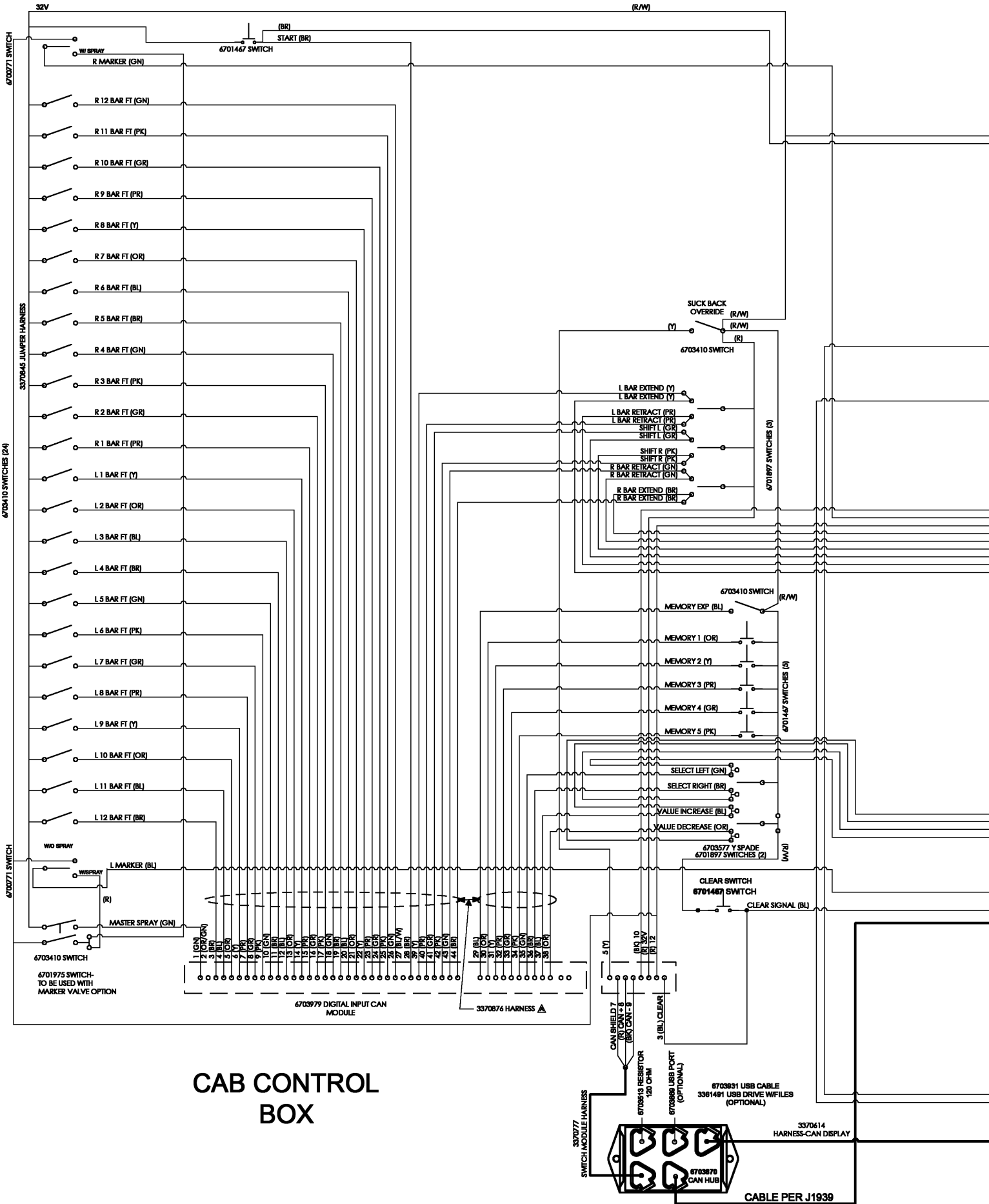
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SMART CYL WIRING: PIN 19 WAS 26, PIN 18 WAS 25, REMOVED SHIELD	3/16/11	JSH
B	REVISED WIRING	8/31/11	
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH



\* MAIN HARNESS  
 SAX CONV 3370629  
 SAX CABOVER 3370630  
 TAX CONV 3370631  
 TAX CABOVER 3370632

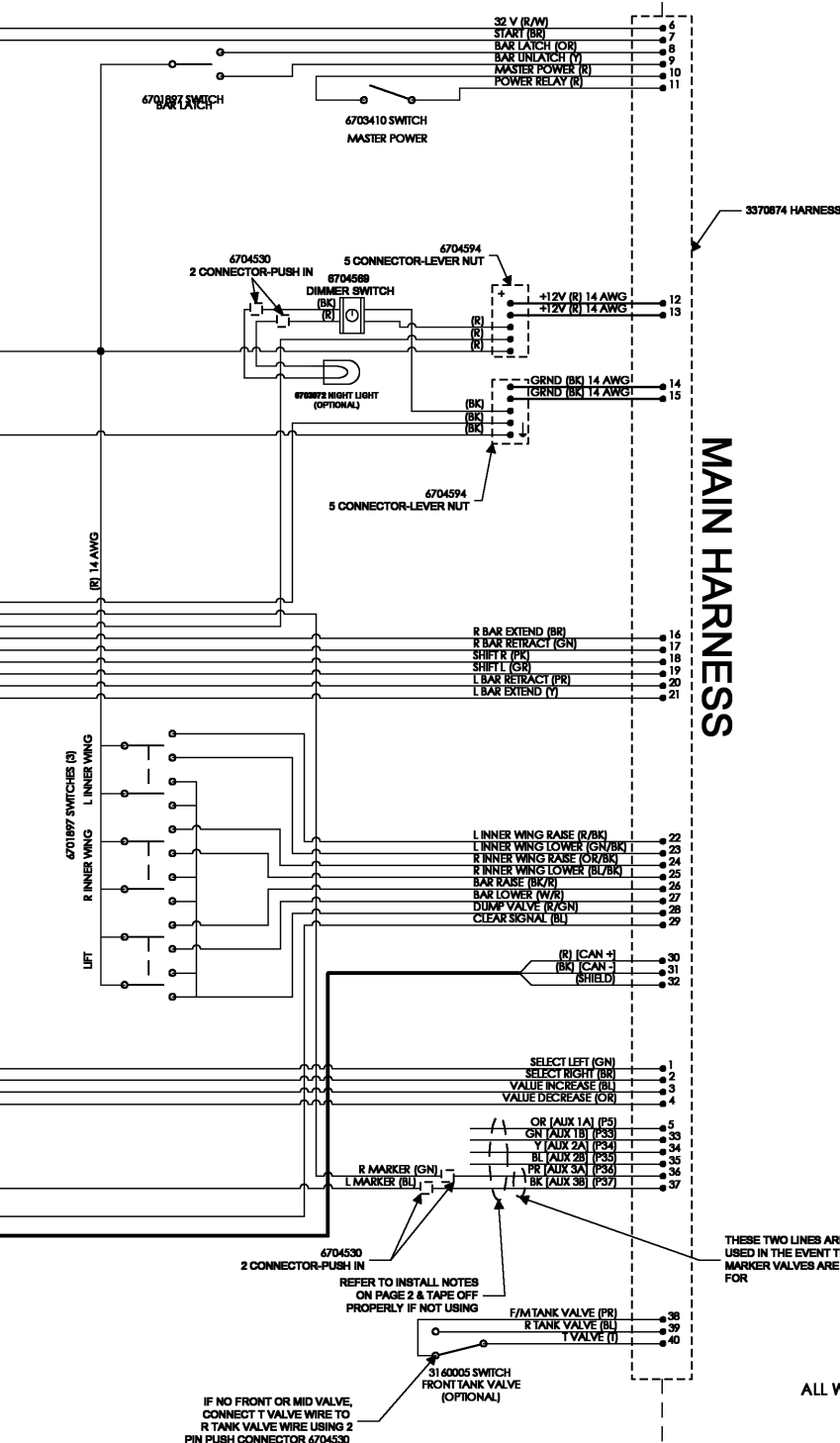
ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER. NO.: <u>S5316</u> SIM. TO: _____ WEIGHT: _____ DRW FILE: VISIO	DFTR: <u>RKR</u> CHKR: _____ ENGR: <u>RKR</u> APPD: _____ TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE <b>ELECTRICAL SCHEMATIC-VWSB, 2010</b> DWG NO. <b>9305034</b> DATE <b>9/1/2010</b> SHEET <b>3 OF 3</b>
	DWG SIZE: <b>D</b> SCALE: NONE	REV: <b>D</b>	



# CAB CONTROL BOX

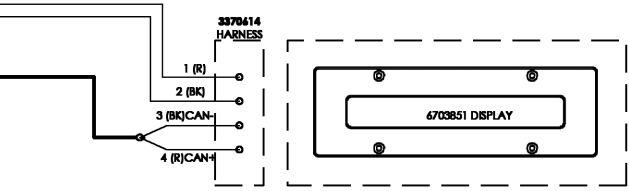
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	REPLACED HARNESS 3370806 W/ 3370874, ADDED INSTRUCTIONS FOR MARKER VALVES	8/15/2016	EAC



**MAIN HARNESS**

ALL WIRE 18 AWG UNLESS NOTED

MAIN HARNESS  
SAX CONV 3370817  
SAX CABOVER  
TAX CONV  
TAX CABOVER



COLOR CODE

BK = BLACK  
BL = BLUE  
BR = BROWN  
GN = GREEN  
GR = GRAY  
OR = ORANGE  
PK = PINK  
PR = PURPLE  
R = RED  
T = TAN  
V = VIOLET  
W = WHITE  
Y = YELLOW

GENERAL NOTES:  
REMOVE ALL BURRS  
SER.NC:  
SIMTO: 9306304  
WEIGHT:  
DRW FILE: VISIO

DFR: EAC  
CHKR:  
ENGR: EAC  
APPD:

TOLERANCE UNLESS SPECIFIED  
FRACTIONAL ± 1/32  
DECIMAL  
X ± .1  
JXX ± .03  
JXXX ± .010  
ANGLES ± 0° 30'

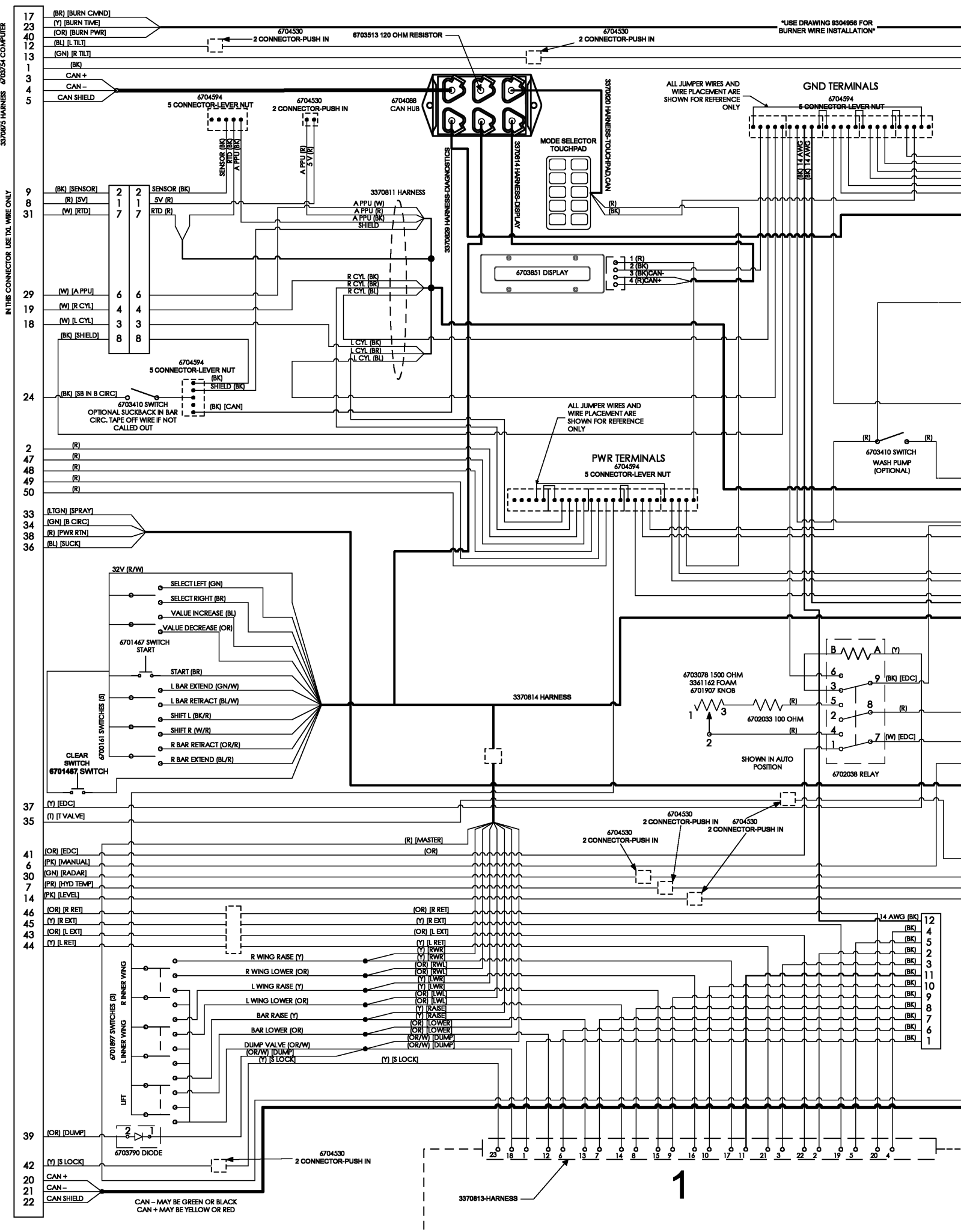
E.D. ETNYRE & CO.  
OREGON, IL. 61061

ALL DIMENSIONS IN INCHES DO NOT SCALE DWG

DRAWING TITLE  
ELECTRICAL SCHEMATIC-VWSB,16

DWG SIZE: D  
DRAWING NO.: 9306416  
REV: A

SCALE: NONE  
DATE: 6/24/16  
SHEET: 1 OF 3

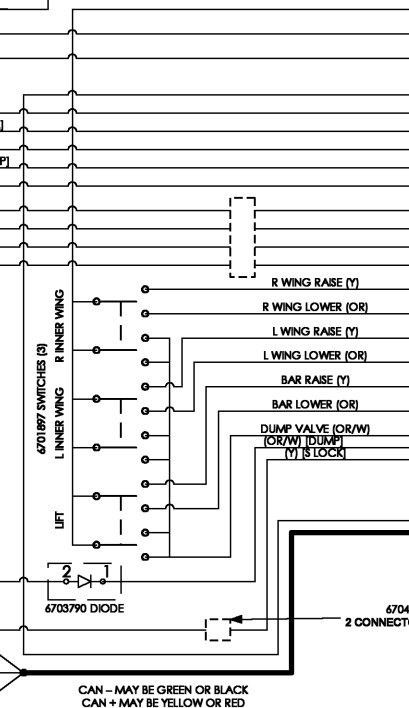
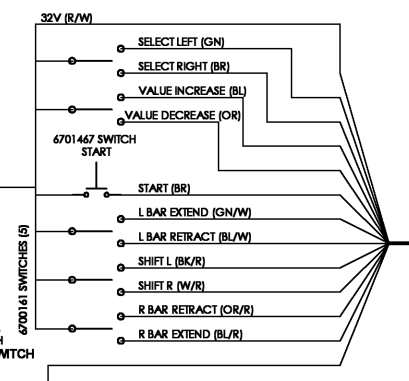
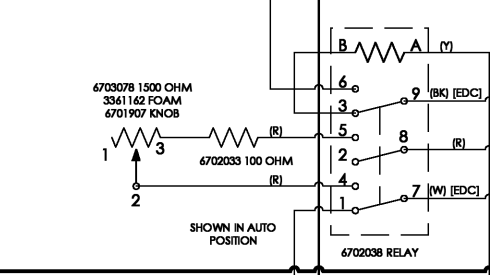
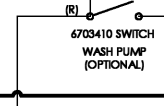
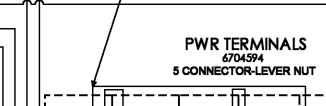
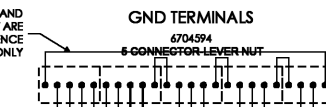
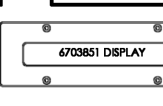


3370813 HARNESS 6703734 COMPUTER

IN THIS CONNECTOR USE DIAL WIRE ONLY

"USE DRAWING 9304956 FOR BURNER WIRE INSTALLATION"

- 17 (BR) [BURN CMND]
- 23 (Y) [BURN TIME]
- 40 (OR) [BURN PWR]
- 12 (BL) [L TILT]
- 13 (GN) [R TILT]
- 1 (BK)
- 3 CAN +
- 4 CAN -
- 5 CAN SHIELD
- 9 (BK) [SENSOR]
- 8 (R) [SV]
- 31 (W) [RTD]
- 29 (W) [A PPU]
- 19 (W) [R CYL]
- 18 (W) [L CYL]
- 8 (BK) [SHIELD]
- 24 (BK) [SB IN B CIRC]
- 2 (R)
- 47 (R)
- 48 (R)
- 49 (R)
- 50 (R)
- 33 (LTGN) [SPRAY]
- 34 (GN) [B CIRC]
- 38 (R) [PWR RTN]
- 36 (BL) [SUCK]
- 37 (Y) [EDC]
- 35 (I) [I VALVE]
- 41 (OR) [EDC]
- 6 (PK) [MANUAL]
- 30 (GN) [RADAR]
- 7 (PK) [HYD TEMP]
- 14 (PK) [LEVEL]
- 46 (OR) [R RET]
- 45 (Y) [R EXT]
- 43 (OR) [L EXT]
- 44 (Y) [L RET]
- 39 (OR) [DUMP]
- 42 (Y) [S LOCK]
- 21 CAN +
- 20 CAN -
- 22 CAN SHIELD



3370813-HARNESS

1

CAN - MAY BE GREEN OR BLACK  
CAN + MAY BE YELLOW OR RED

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	REPLACED HARNESS 3370808 W/ 3370876, ADDED INSTRUCTIONS FOR MARKER VALVES	8/15/2016	EAC

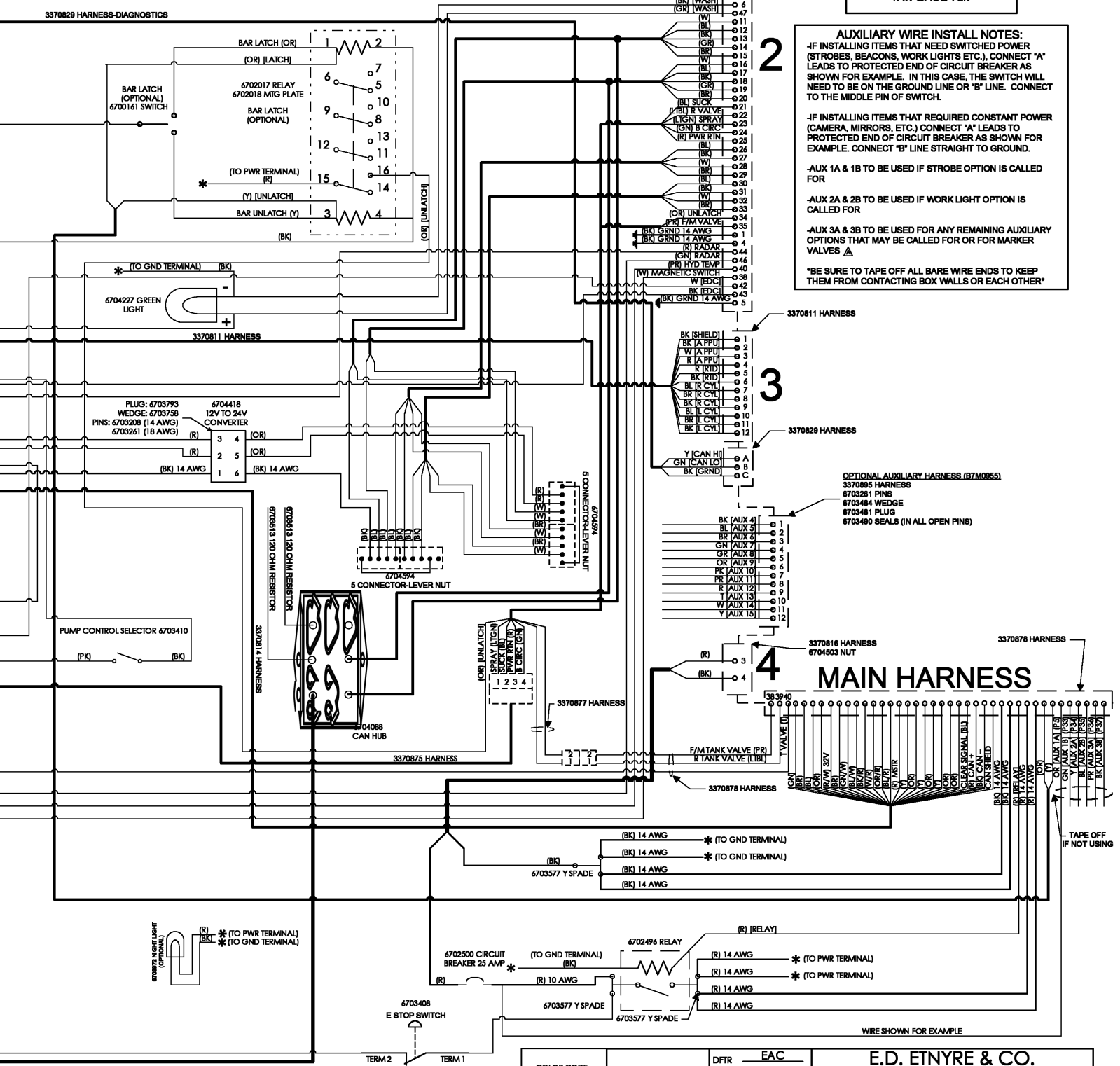
THE COMPUTER GROUND (BK) MUST BE IN THE SAME GROUNDING LEVER CONNECTOR AS BOTH SMART CYLINDER (BL) GROUNDS AS WELL AS ONE OF THE TWO MAIN 14 AWG GROUND LINES. EACH END OF THE GROUND TERMINAL STRING NEEDS TO HAVE ONE OF THE TWO MAIN 14 AWG GROUNDS

MAIN HARNESS  
SAX CONV 3370817  
SAX CABOVER  
TAX CONV  
TAX CABOVER

**AUXILIARY WIRE INSTALL NOTES:**

- IF INSTALLING ITEMS THAT NEED SWITCHED POWER (STROBES, BEACONS, WORK LIGHTS ETC.), CONNECT "A" LEADS TO PROTECTED END OF CIRCUIT BREAKER AS SHOWN FOR EXAMPLE. IN THIS CASE, THE SWITCH WILL NEED TO BE ON THE GROUND LINE OR "B" LINE. CONNECT TO THE MIDDLE PIN OF SWITCH.
- IF INSTALLING ITEMS THAT REQUIRED CONSTANT POWER (CAMERA, MIRRORS, ETC.) CONNECT "A" LEADS TO PROTECTED END OF CIRCUIT BREAKER AS SHOWN FOR EXAMPLE. CONNECT "B" LINE STRAIGHT TO GROUND.
- AUX 1A & 1B TO BE USED IF STROBE OPTION IS CALLED FOR
- AUX 2A & 2B TO BE USED IF WORK LIGHT OPTION IS CALLED FOR
- AUX 3A & 3B TO BE USED FOR ANY REMAINING AUXILIARY OPTIONS THAT MAY BE CALLED FOR OR FOR MARKER VALVES

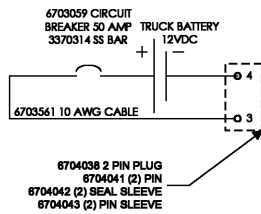
\*BE SURE TO TAPE OFF ALL BARE WIRE ENDS TO KEEP THEM FROM CONTACTING BOX WALLS OR EACH OTHER\*



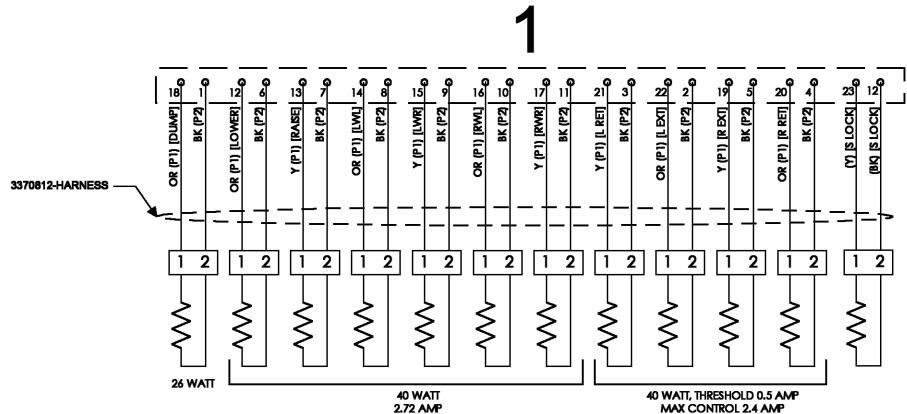
**REAR CONTROL BOX**  
ALL WIRE 18 AWG UNLESS NOTED

<b>COLOR CODE</b> BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	<b>GENERAL NOTES:</b> REMOVE ALL BURRS SER.NO: SIMATO: 9306304 WEIGHT: DRW FILE: VISIO	<b>TOLERANCE</b> UNLESS SPECIFIED FRACTIONAL: ± 1/32 DECIMAL: X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	DFTF: EAC CHKR: _____ ENGR: EAC APPD: _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061	
			ALL DIMENSIONS IN INCHES DO NOT SCALE DWG		DRAWING TITLE ELECTRICAL SCHEMATIC-VWSB,16
DWG SIZE: D		DRAWING NO.: 9306416		REV: A	
SCALE: NONE		DATE: 6/24/16		SHEET: 2 OF 3	

# OUTSIDE OF UNIT



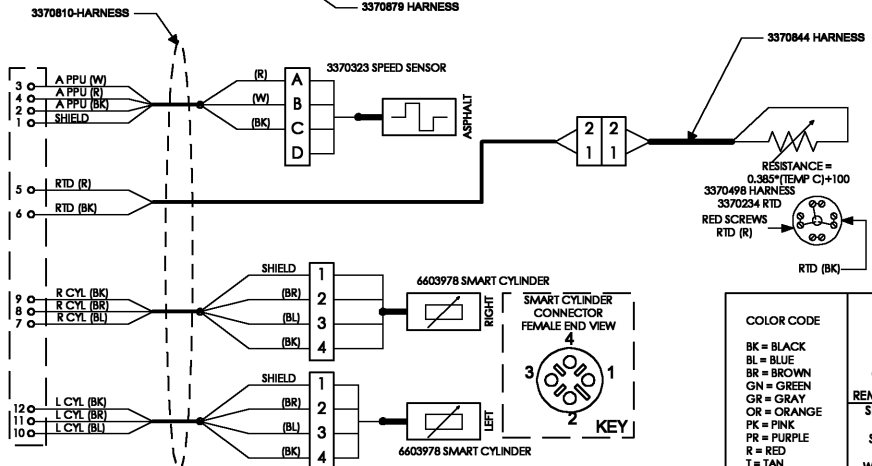
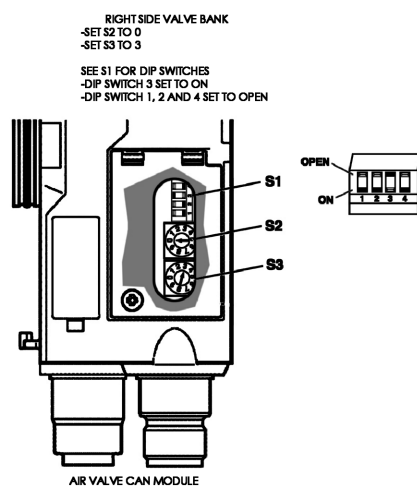
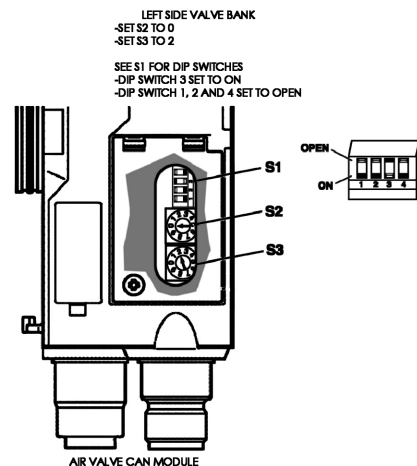
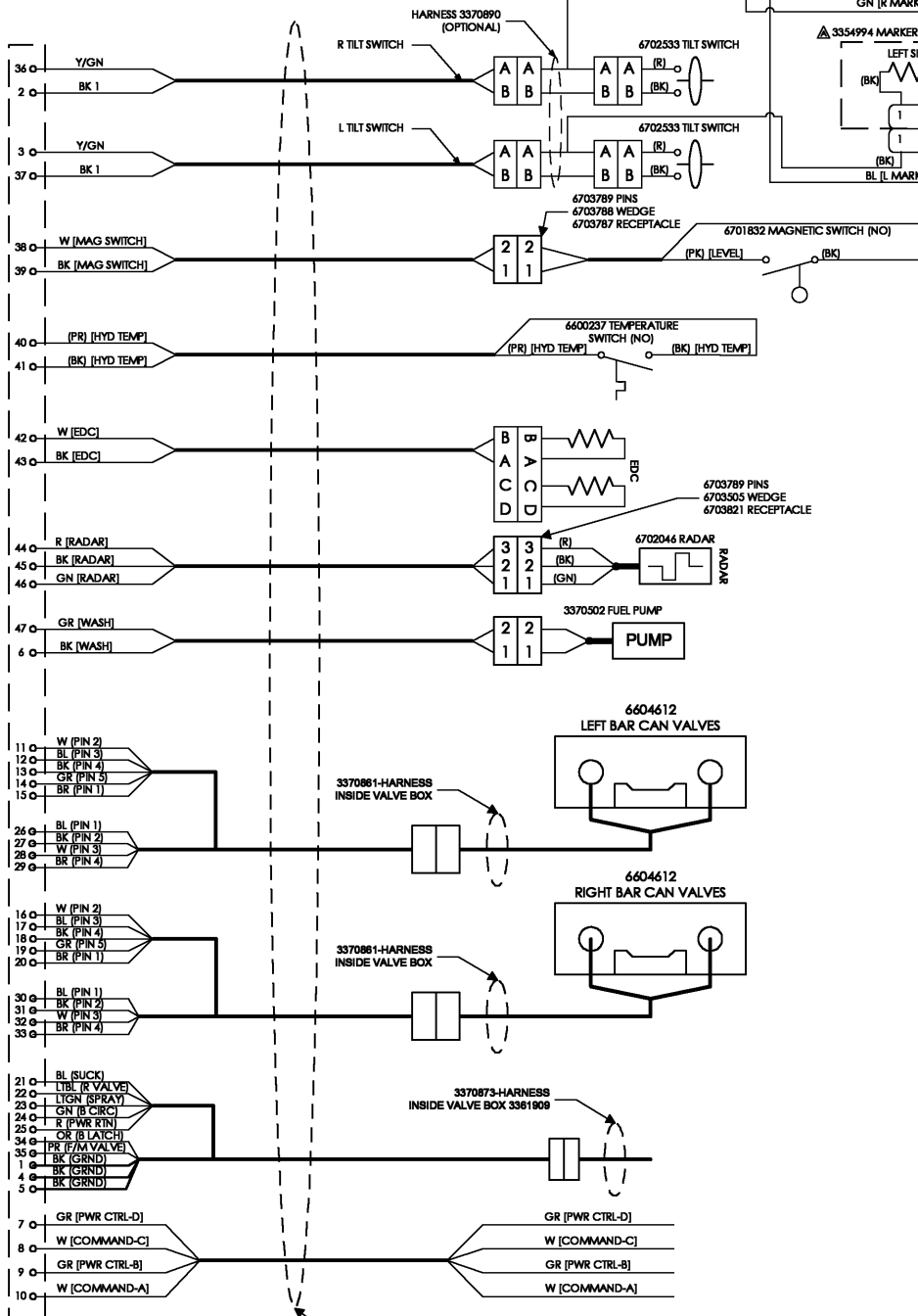
4



# MAIN HARNESS

REV	DESCRIPTION
A	REPLACED HARNESS 3370808 W/ 3370876, ADDED INSTRUCTIONS FOR MARKER VALVES

\*NOTE: CUT LOOSE WIRE TO LENGTH TO REACH MARKER VALVE BOX, THEN LOOM EXPOSED WIRE (6000107) AND HEAT SHRINK (6701736) THE MEETING POINT OF HARNESS LOOM (TO HOLD THE LOOMS TO EACH OTHER) THEN ADD DEUTSCH PLUG TO END\*

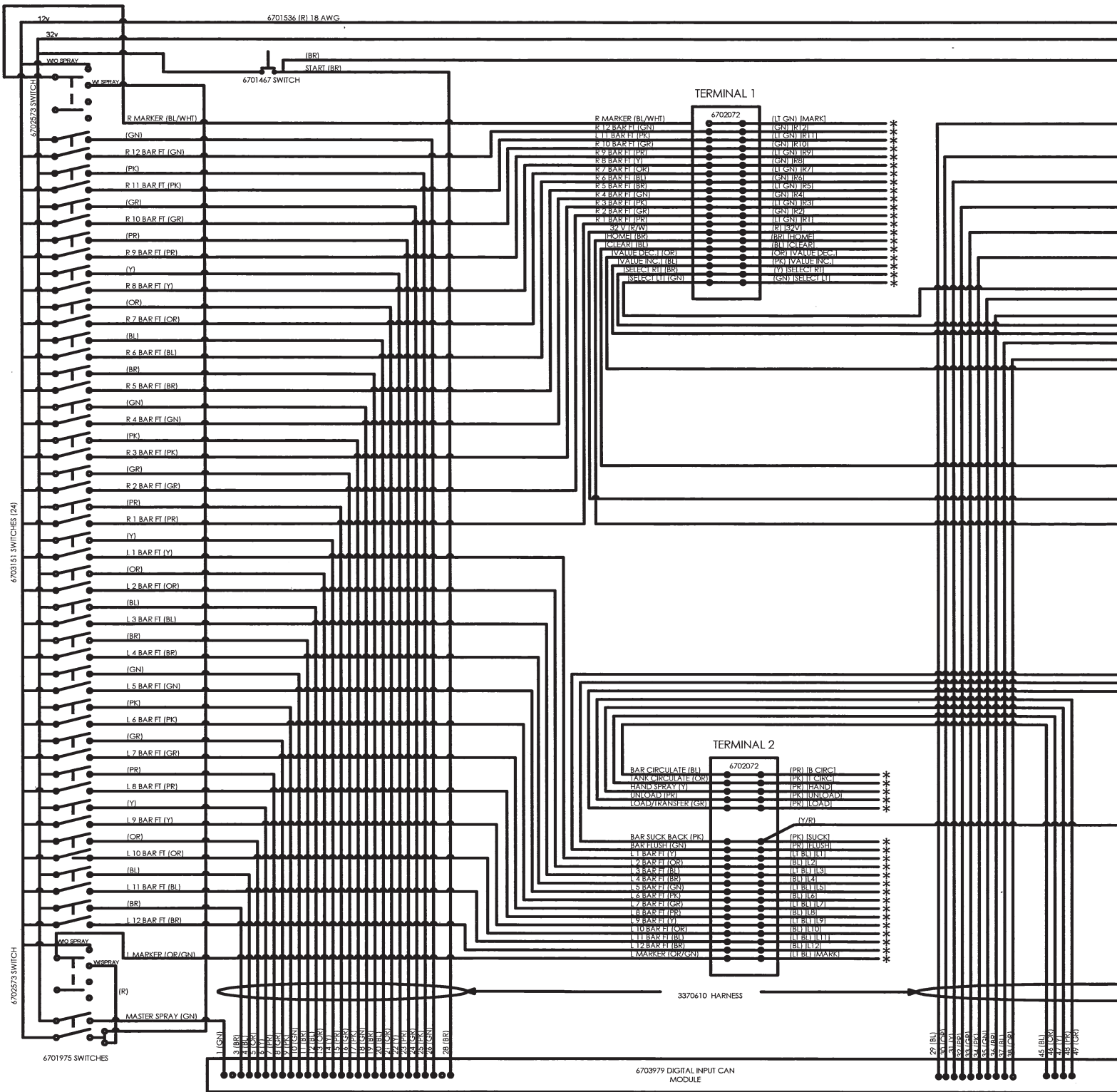


MAIN HARNESS  
 SAX CONV 3370817  
 SAX CABOVER  
 TAX CONV  
 TAX CABOVER

ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE		DFTM		E.D. ETNYRE & CO.	
BK = BLACK	BL = BLUE	CHKR	EAC	OREGON, IL. 61061	
BR = BROWN	GN = GREEN	ENGR	EAC	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG	
GR = GRAY	OK = ORANGE	APPD		DRAWING TITLE	
PK = PINK	PR = PURPLE	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .XX ± .03 .XXX ± .010		ELECTRICAL SCHEMATIC-VWSB,16	
R = RED	T = TAN	GENERAL NOTES:		DWG NO.	REV
V = VIOLET	W = WHITE	REMOVE ALL BURRS		SIZE	A
Y = YELLOW		SER.NO:		9306416	
		SIM.TO: 9306304		SCALE	NONE
		WEIGHT:		DATE	6/24/16
		DRW FILE: VISIO		SHEET	3 OF 3



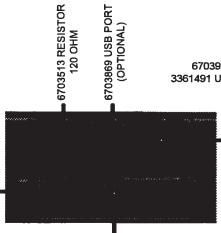


NO MORE THAN 1-1/2 IN OF EXPOSED UNSHIELDED WIRE. SHRINK SLEEVE SHIELD WIRE

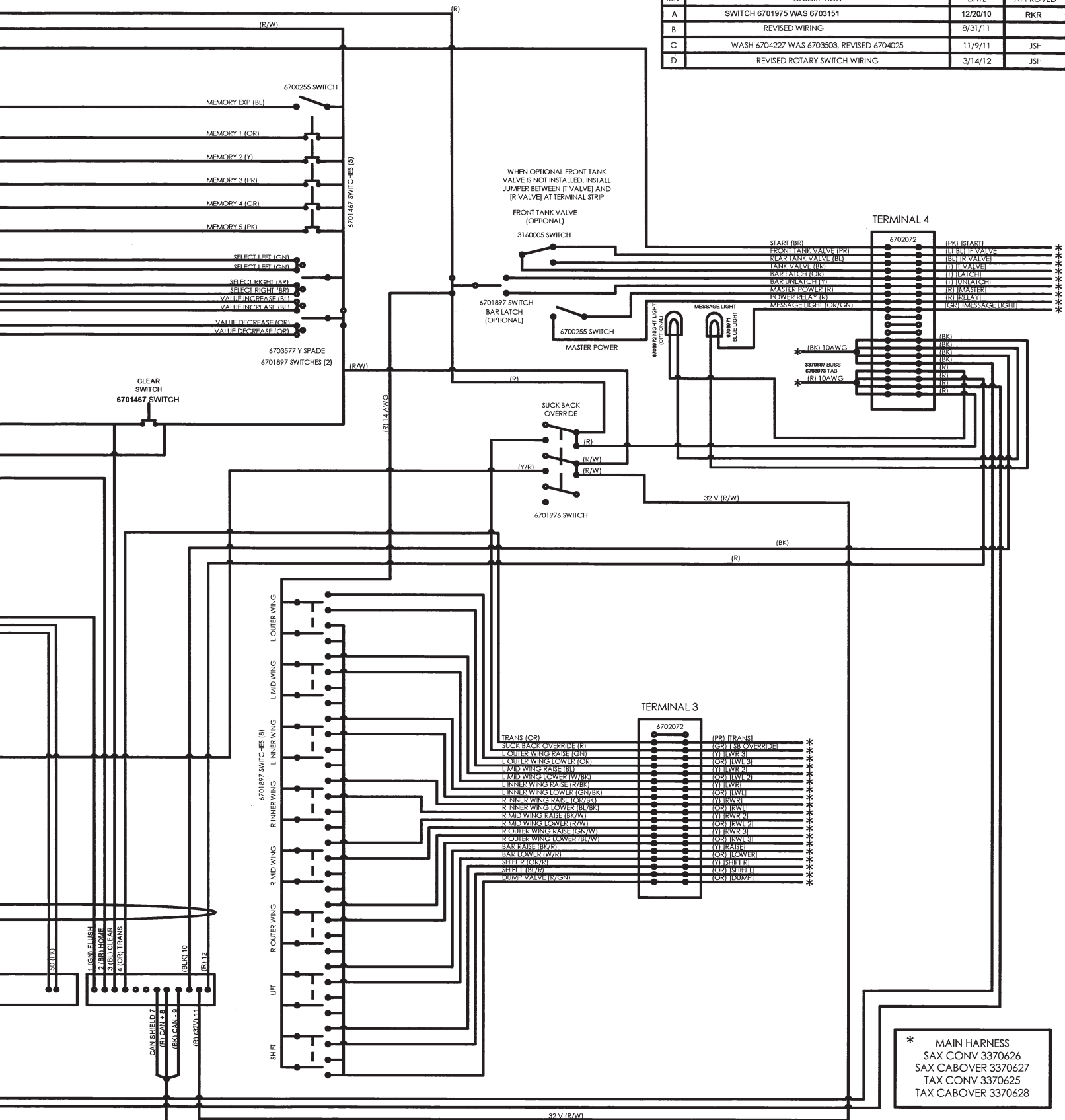
6703259 CONNECTOR  
6703280 WEDGE  
6703487 PIN-SOCKET (3)

A (Y)  
B (GN)  
C (SHIELD)

CABLE PER J1939

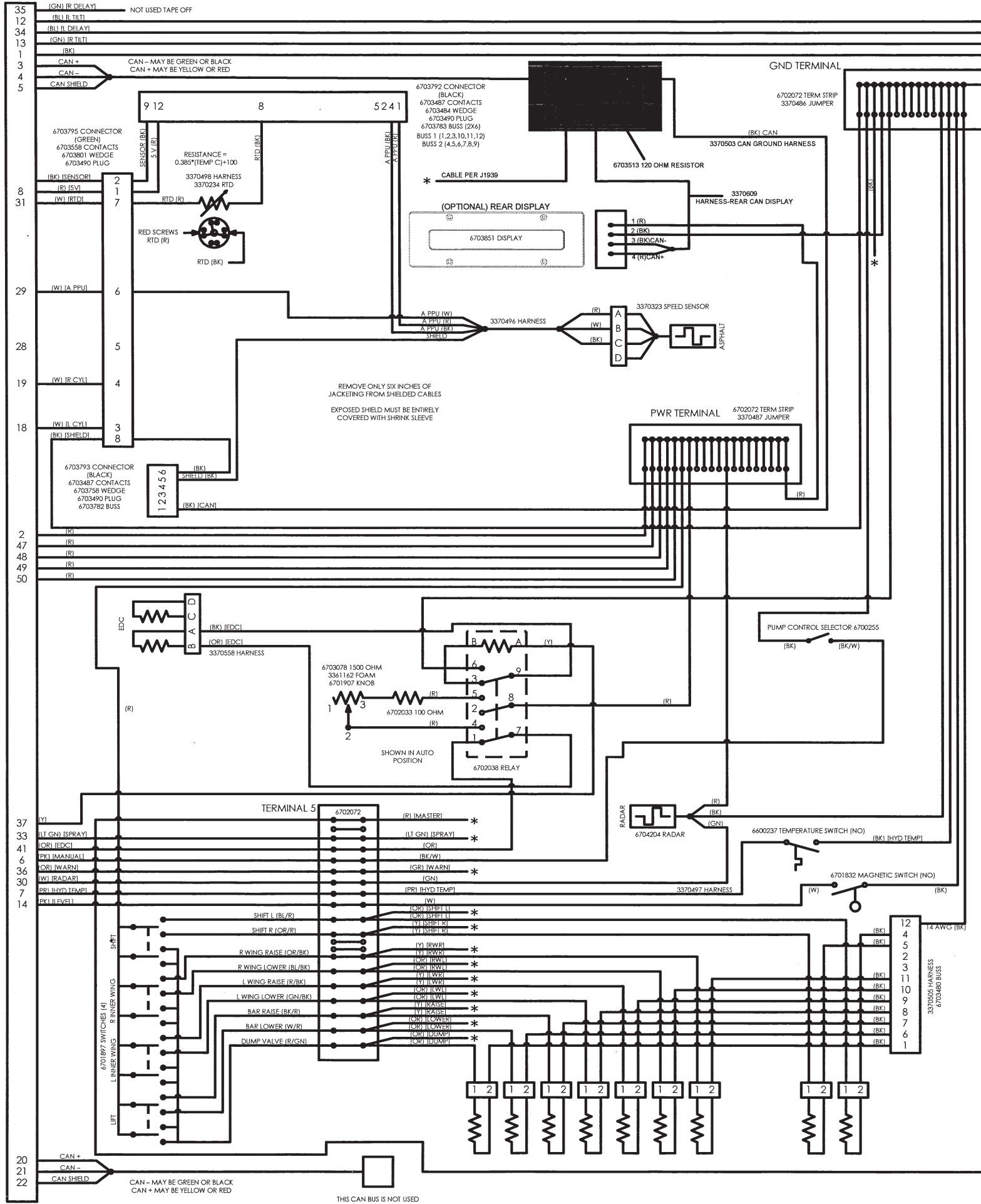


REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	SWITCH 6701975 WAS 6703151	12/20/10	RKR
B	REVISED WIRING	8/31/11	
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH

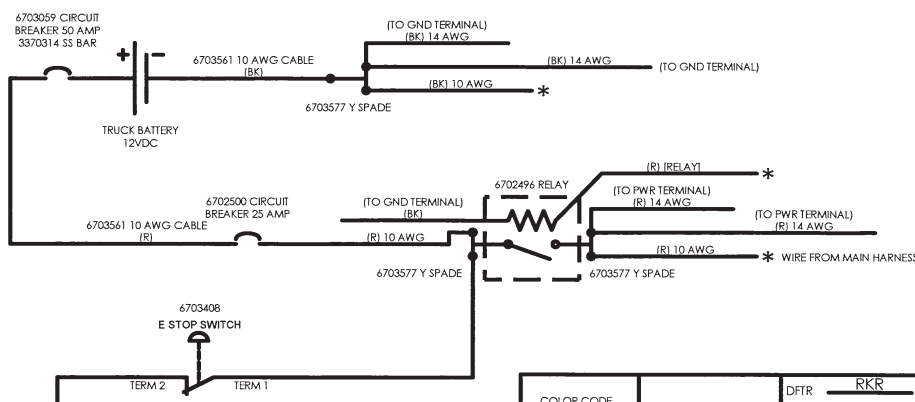
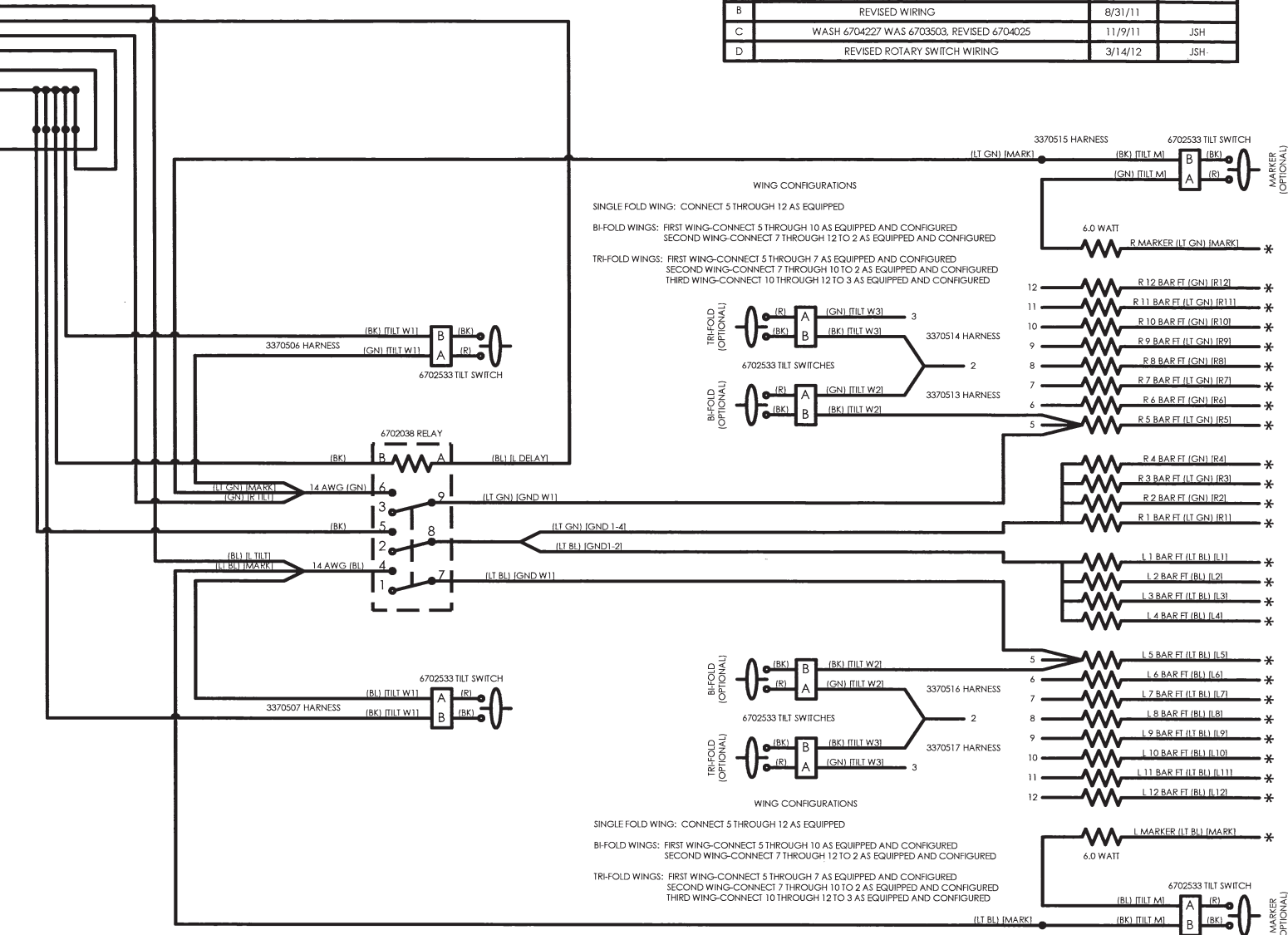


COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER. NO.: _____ SIM. TO: _____ WEIGHT: _____ DRW FILE: VISIO	DFR: <u>RKR</u> CHKR: _____ ENGR: <u>RKR</u> APPD: _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRICAL SCHEMATIC-FIT BAR, 2010	
		TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'		DWG NO. <u>9305032</u> REV <u>D</u>
		SCALE NONE DATE <u>8/26/10</u> SHEET <u>1</u> OF <u>3</u>		
		ALL WIRE 18 AWG UNLESS NOTED		

337690 HARNESS  
670354 COMPUTER



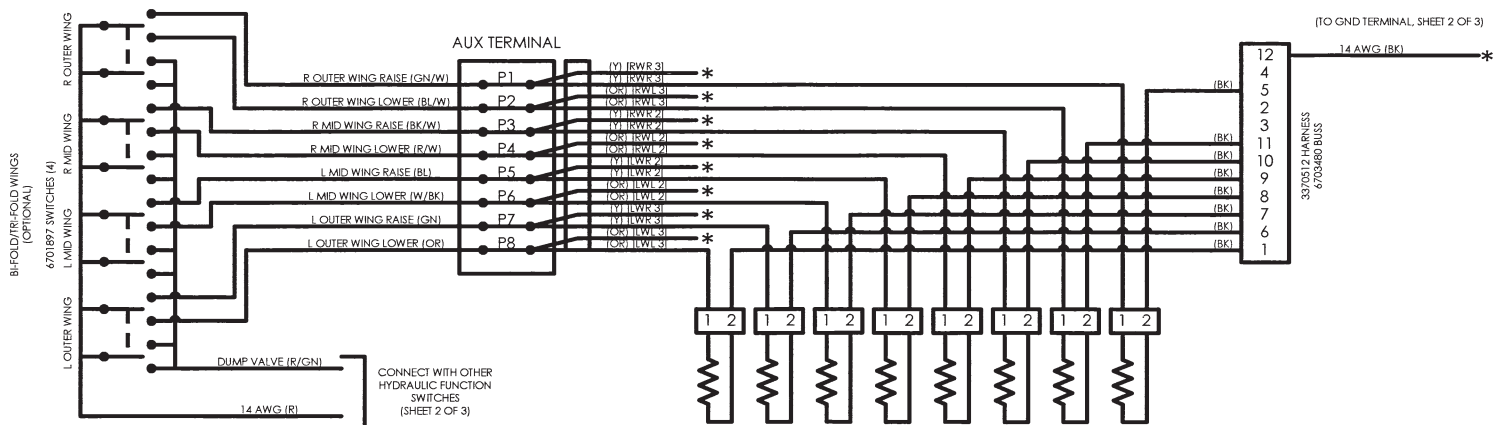
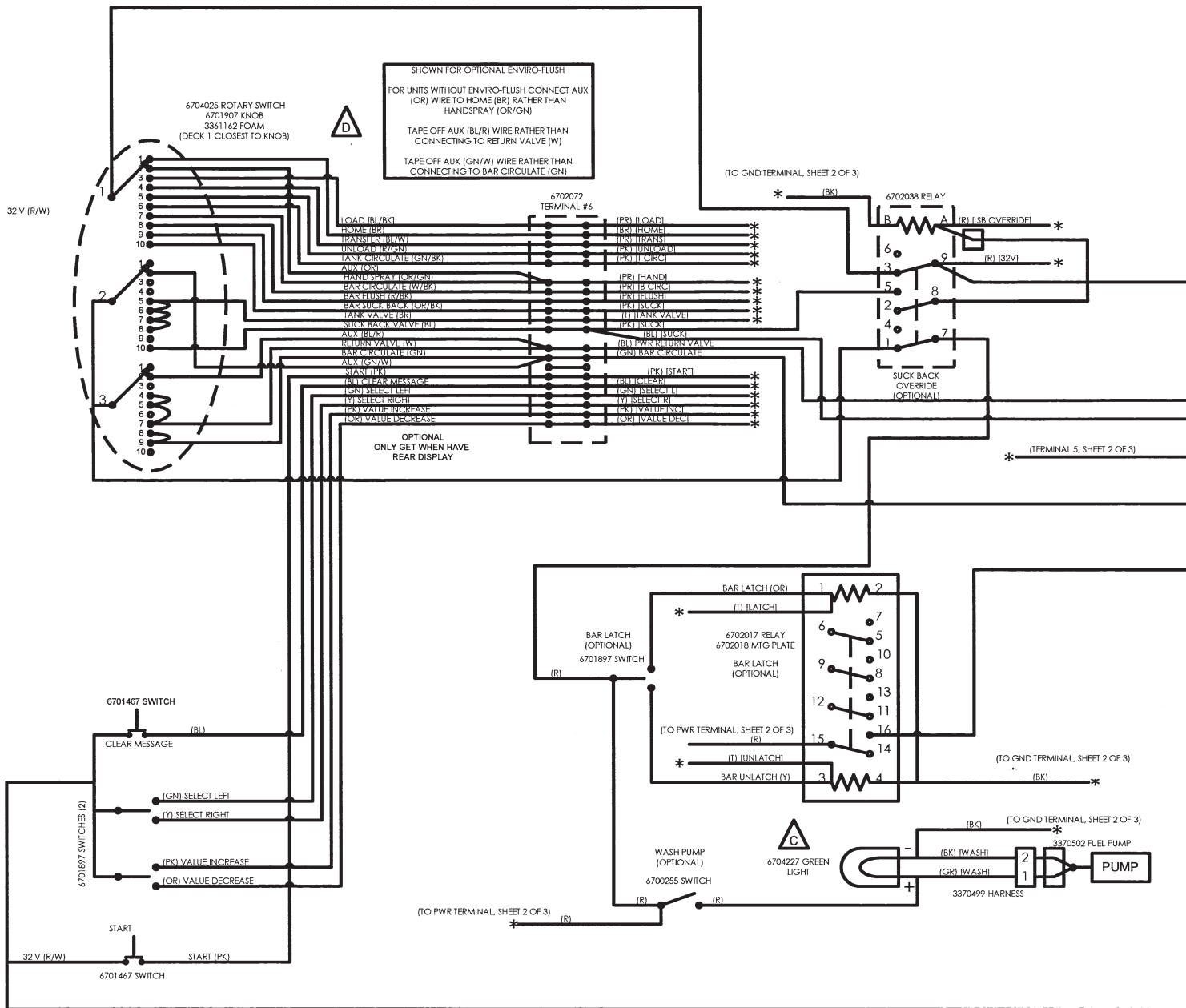
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
B	REVISED WIRING	8/31/11	
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH



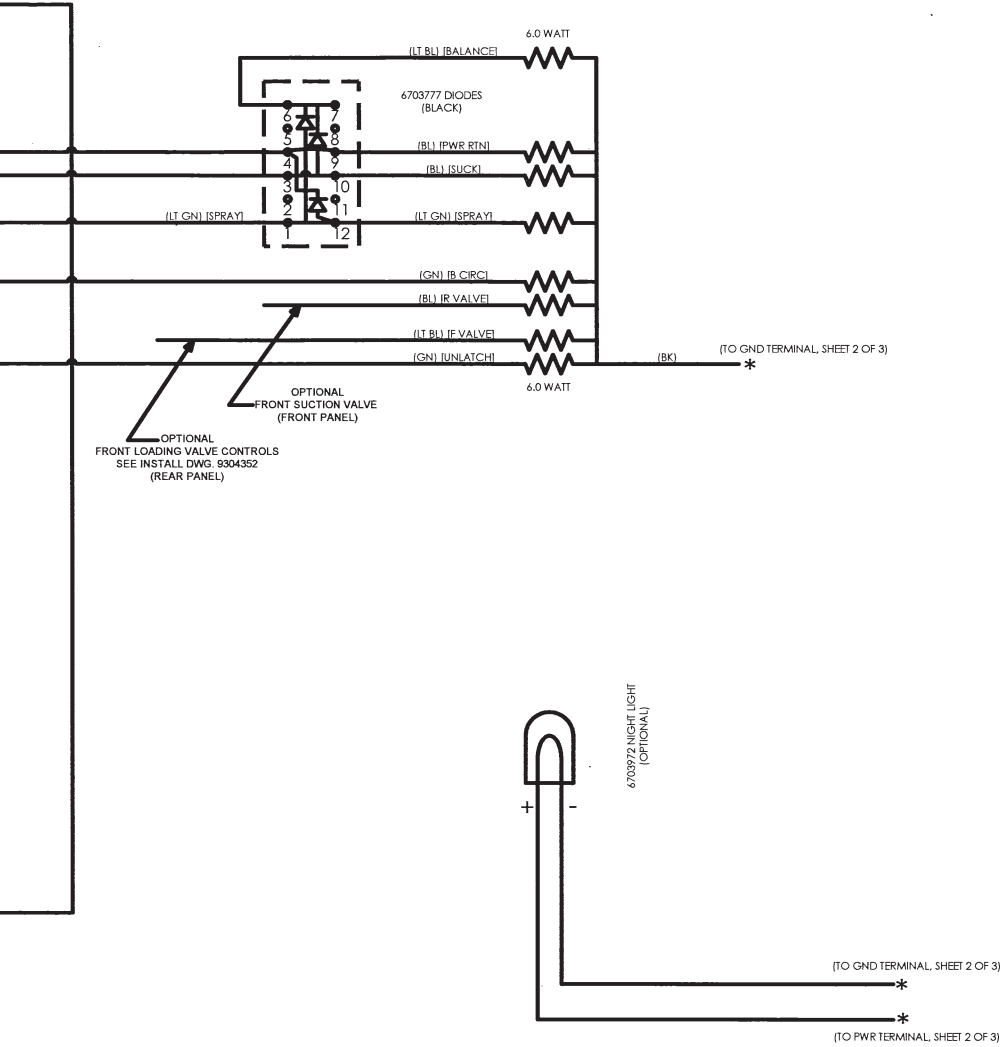
\* MAIN HARNESS  
SAX CONV 3370626  
SAX CABOVER 3370627  
TAX CONV 3370625  
TAX CABOVER 3370628

ALL WIRE 18 AWG UNLESS NOTED

<b>COLOR CODE</b> BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	<b>GENERAL NOTES:</b> REMOVE ALL BURRS SER.NO: _____ SIM.TO: _____ WEIGHT: _____ DRW FILE: VISIO	DFT: RKR CHKR: _____ ENGR: RKR APPD: _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRICAL SCHEMATIC-FI BAR, 2010
		TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .XX ± .1 .XXX ± .03 .XXX ± .010 ANGLES ± 0° 30'	DWG NO. 9305032 REV D SCALE NONE DATE 8/26/10 SHEET 2 OF 3



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
B	REVISED WIRING	8/31/11	
C	WASH 6704227 WAS 6703503, REVISED 6704025	11/9/11	JSH
D	REVISED ROTARY SWITCH WIRING	3/14/12	JSH

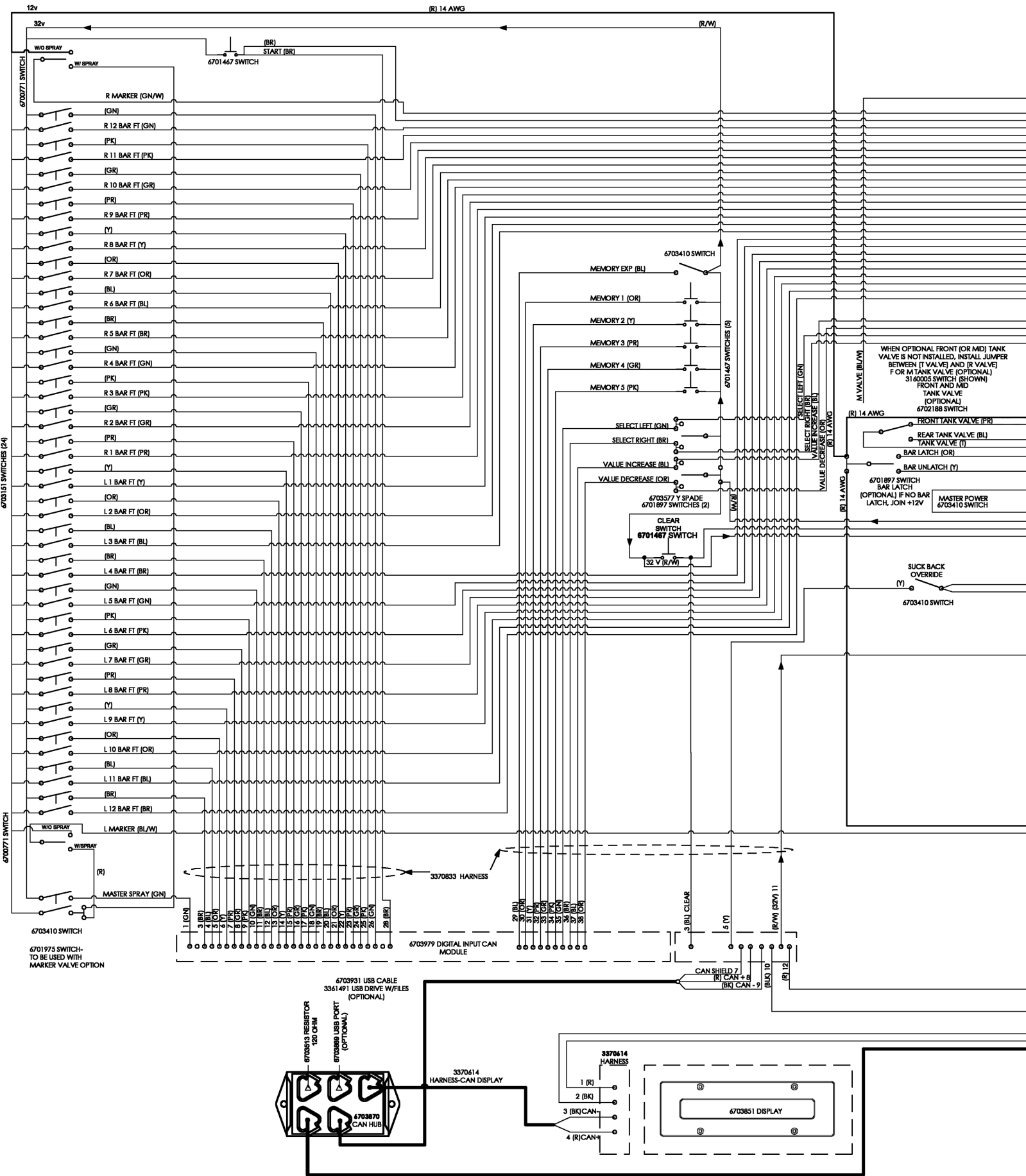


\* MAIN HARNESS  
 SAX CONV 3370626  
 SAX CABOVER 3370627  
 TAX CONV 3370625  
 TAX CABOVER 3370628

NOTE:  
 FOR OPTIONAL FRONT LOADING VALVE  
 SEE INSTALLATION DWG. 9304352

ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS	DFT: <u>RKR</u> CHKR: _____ ENGR: <u>RKR</u> APPD: _____	E.D. ETNYRE & CO. OREGON, IL. 61061
	SER. NO.: _____ SIM. TO: _____ WEIGHT: _____ DRW FILE: VISIO	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL X ± .1 XX ± .03 XXX ± .010 ANGLES ± 0° 30'	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRICAL SCHEMATIC-FIT BAR, 2010

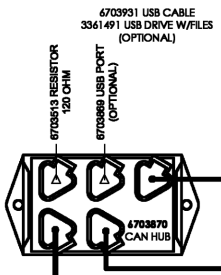


670071 SWITCH

670151 SWITCHES (24)

6703410 SWITCH  
6701975 SWITCH-  
TO BE USED WITH  
MARKER VALVE OPTION

6703979 DIGITAL INPUT CAN  
MODULE



WHEN OPTIONAL FRONT (OR MID) TANK VALVE IS NOT INSTALLED, INSTALL JUMPER BETWEEN (I VALVE) AND (R VALVE) F OR M TANK VALVE (OPTIONAL) 3140055 SWITCH (SHOWN) FRONT AND MID TANK VALVE (OPTIONAL) 6702188 SWITCH

6701897 SWITCH BAR LATCH (OPTIONAL) IF NO BAR LATCH, JOIN +12V  
MASTER POWER SWITCH

SUCK BACK OVERRIDE  
6703410 SWITCH

CAN SHIELD 7  
(R) CAN + 8  
(BK) CAN - 9  
(R) 12

29 (BL)  
30 (GN)  
31 (Y)  
32 (PK)  
33 (GR)  
34 (PR)  
35 (GN)  
36 (BL)  
37 (OR)  
38 (OR)

3 (BL) CLEAR  
5 (Y)

(R/W) 11  
(R) 12

12V (R) 14 AWG

(R/W)

6701467 SWITCH

6703410 SWITCH

MEMORY EXP (BL)

MEMORY 1 (OR)

MEMORY 2 (Y)

MEMORY 3 (PR)

MEMORY 4 (GR)

MEMORY 5 (PK)

SELECT LEFT (GN)

SELECT RIGHT (BR)

VALUE INCREASE (BL)

VALUE DECREASE (OR)

6703577 Y SPADE  
6701897 SWITCHES (2)

CLEAR SWITCH  
6701467 SWITCH

32 V (R/W)

6701467 SWITCHES (5)

SELECT LEFT (GN)  
SELECT RIGHT (BR)  
VALUE INCREASE (BL)  
VALUE DECREASE (OR)

(R) 14 AWG  
(R) 14 AWG

M VALVE (BL/W)

FRONT TANK VALVE (PR)  
REAR TANK VALVE (BL)  
TANK VALVE (I)

BAR LATCH (OR)  
BAR UNLATCH (Y)

6701897 SWITCH  
BAR LATCH (OPTIONAL) IF NO BAR LATCH, JOIN +12V

MASTER POWER SWITCH

SUCK BACK  
OVERRIDE

6703410 SWITCH

6703931 USB CABLE  
3361491 USB DRIVE W/FILES  
(OPTIONAL)

6703869 USB PORT  
(OPTIONAL)

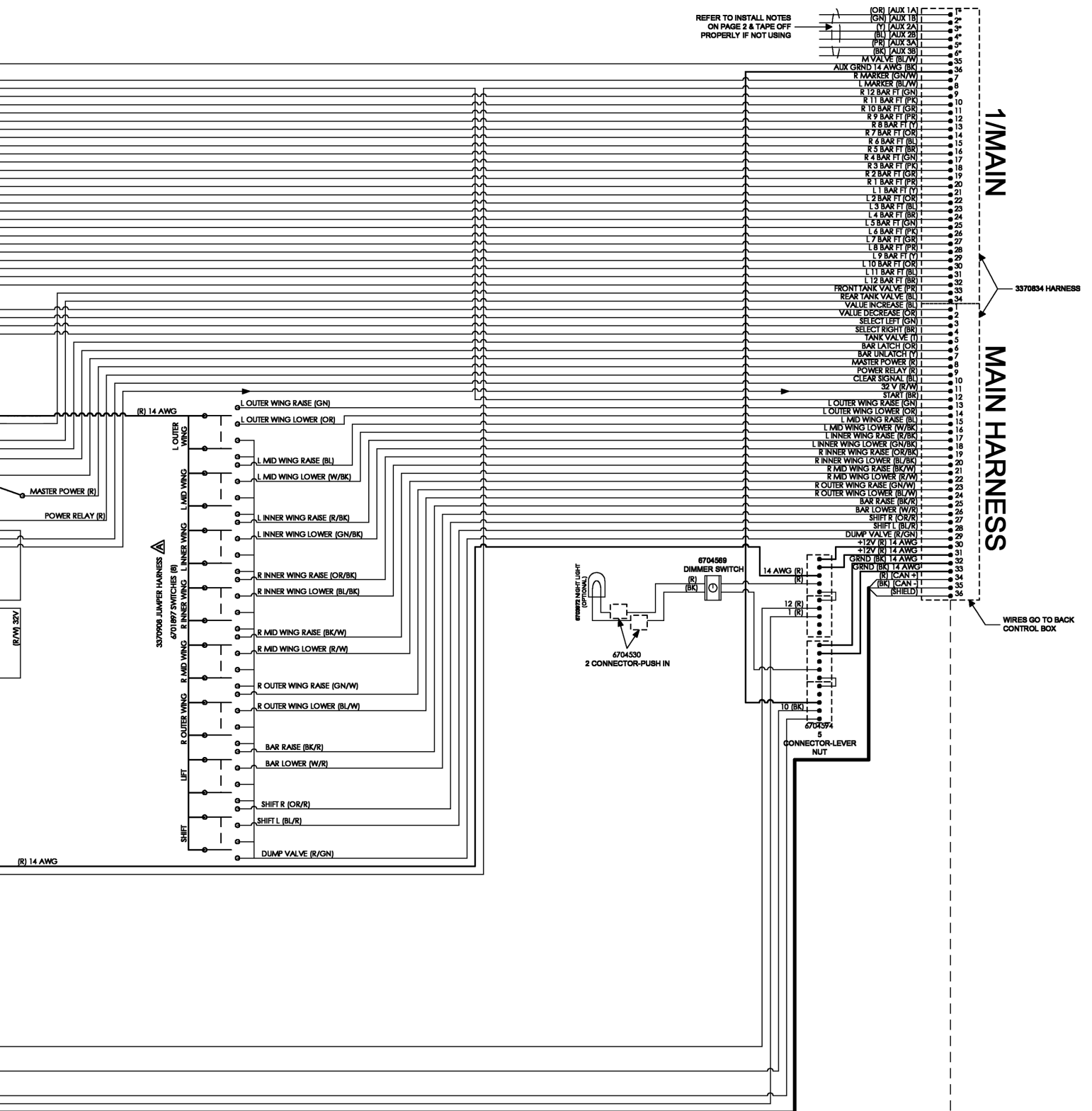
3370614 HARNESS-CAN DISPLAY

3370614 HARNESS

6703851 DISPLAY

1 (R)  
2 (BK)  
3 (BK) CAN-  
4 (R) CAN+

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED NOTE FOR HARNESS 3370908 PLACEMENT	12/12/16	EAC



\* INDICATES THAT LINES GO TO REAR CONTROL BOX

REFER TO INSTALL NOTES ON PAGE 2 & TAPE OFF PROPERLY IF NOT USING

- 1 (OR) (AUX 1A)
- 2 (GN) (AUX 1B)
- 3 (Y) (AUX 2A)
- 4 (BL) (AUX 2B)
- 5 (PR) (AUX 3A)
- 6 (BK) (AUX 3B)
- 7 M VALVE (BL/W)
- 8 AUX GRND (R/W/BK)
- 9 R MARKER (GN/W)
- 10 L MARKER (BL/W)
- 11 R 12 BAR FT (GN)
- 12 R 11 BAR FT (PK)
- 13 R 10 BAR FT (GR)
- 14 R 9 BAR FT (PR)
- 15 R 8 BAR FT (Y)
- 16 R 7 BAR FT (OR)
- 17 R 6 BAR FT (BL)
- 18 R 5 BAR FT (BR)
- 19 R 4 BAR FT (GN)
- 20 R 3 BAR FT (GR)
- 21 R 2 BAR FT (GR)
- 22 R 1 BAR FT (PR)
- 23 L 1 BAR FT (Y)
- 24 L 2 BAR FT (OR)
- 25 L 3 BAR FT (BL)
- 26 L 4 BAR FT (BR)
- 27 L 5 BAR FT (GN)
- 28 L 6 BAR FT (PK)
- 29 L 7 BAR FT (GR)
- 30 L 8 BAR FT (PR)
- 31 L 9 BAR FT (Y)
- 32 L 10 BAR FT (OR)
- 33 L 11 BAR FT (BL)
- 34 L 12 BAR FT (BR)
- 35 FRONT TANK VALVE (PR)
- 36 REAR TANK VALVE (BL)
- 1 VALVE INCREASE (BL)
- 2 VALVE DECREASE (OR)
- 3 SELECT LEFT (GN)
- 4 SELECT RIGHT (BR)
- 5 TANK VALVE (Y)
- 6 BAR LATCH (OR)
- 7 BAR UNLATCH (Y)
- 8 MASTER POWER (R)
- 9 POWER RELAY (R)
- 10 CLEAR SIGNAL (BL)
- 11 32 V (R/W)
- 12 START (BR)
- 13 L OUTER WING RAISE (GN)
- 14 L OUTER WING LOWER (OR)
- 15 L MID WING RAISE (BL)
- 16 L MID WING LOWER (W/BK)
- 17 L INNER WING RAISE (R/BK)
- 18 L INNER WING LOWER (GN/BK)
- 19 R INNER WING RAISE (OR/BK)
- 20 R INNER WING LOWER (BL/BK)
- 21 R MID WING RAISE (BK/W)
- 22 R MID WING LOWER (R/W)
- 23 R OUTER WING RAISE (GN/W)
- 24 R OUTER WING LOWER (BL/W)
- 25 BAR RAISE (BK/R)
- 26 BAR LOWER (W/R)
- 27 SHIFT R (OR/R)
- 28 SHIFT L (BL/R)
- 29 DUMP VALVE (R/GN)
- 30 -12V (R) 14 AWG
- 31 +12V (R) 14 AWG
- 32 GRND (BK) 14 AWG
- 33 (R) (CAN -1)
- 34 (BK) (CAN -1)
- 35 (SHIELD)
- 36

1/MAN

MAIN HARNESS

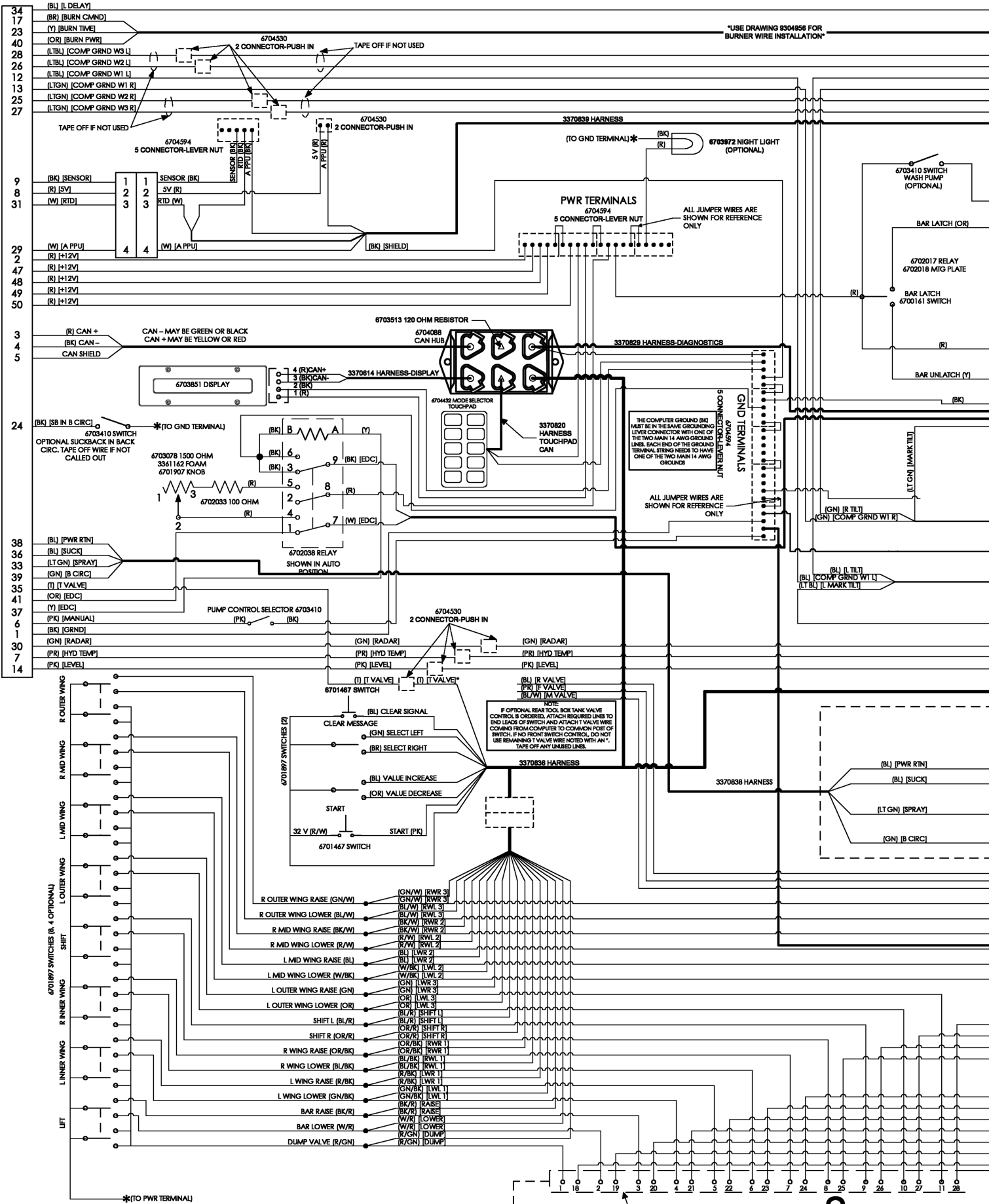
3370834 HARNESS

WIRES GO TO BACK CONTROL BOX

MAIN HARNESS  
SAX 3370835  
TAX 3370891  
TAX XL 3370892

GENERAL NOTES: REMOVE ALL BURRS		DFT: EAC	E.D. ETNYRE & CO. OREGON, IL. 61061	
SER. NO.: SMT: 9306293		CHKR: EAC	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG	
WEIGHT:		ENGR: EAC	DRAWING TITLE ELECTRIC SCHEMATIC-FT BAR, 2016	
DRW FILE: V510		APPD:	DWG SIZE: D	DRAWING NO. 9306498
TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'		SCALE: NONE	DATE: 9/30/2016	REV: A
			SHEET: 1 OF 3	





- 34 (BL) [L DELAY]
- 17 (BR) [BURN CMND]
- 23 (Y) [BURN TIME]
- 40 (OR) [BURN PWRT]
- 28 (LTBL) [COMP GRND W3 L]
- 26 (LTBL) [COMP GRND W2 L]
- 12 (LTBL) [COMP GRND W1 L]
- 13 (LTGN) [COMP GRND W1 R]
- 15 (LTGN) [COMP GRND W2 R]
- 27 (LTGN) [COMP GRND W3 R]
- 9 (BK) [SENSOR]
- 8 (R) [5V]
- 31 (W) [RTD]
- 29 (W) [A PPU]
- 2 (R) [-12V]
- 47 (R) [-12V]
- 48 (R) [-12V]
- 49 (R) [-12V]
- 50 (R) [-12V]
- 3 (R) CAN +
- 4 (BK) CAN -
- 5 CAN SHIELD
- 24 (BK) [SB IN B CIRC]
- 38 (BL) [PWR RTN]
- 36 (BL) [SUCK]
- 33 (LTGN) [SPRAY]
- 39 (GN) [B CIRC]
- 35 (T) [T VALVE]
- 41 (OR) [EDC]
- 37 (Y) [EDC]
- 6 (PK) [MANUAL]
- 1 (BK) [GRND]
- 30 (GN) [RADAR]
- 7 (R) [HYD TEMP]
- 14 (PK) [LEVEL]

- R OUTER WING
- R MID WING
- L MID WING
- L OUTER WING
- 6701897 SWITCHES (8, 4 OPTIONAL)
- SHIFT
- R INNER WING
- L INNER WING
- LEFT

NOTE:  
IF OPTIONAL REAR TOOL BOX TANK VALVE CONTROL IS ORDERED, ATTACH REQUIRED LINES TO END LEADS OF SWITCH AND ATTACH T VALVE WIRE COMING FROM COMPUTER TO COMMON POST OF SWITCH. IF NO FRONT SWITCH CONTROL, DO NOT USE REMAINING T VALVE WIRE NOTED WITH AN \* TAPE OFF ANY UNUSED LINES.

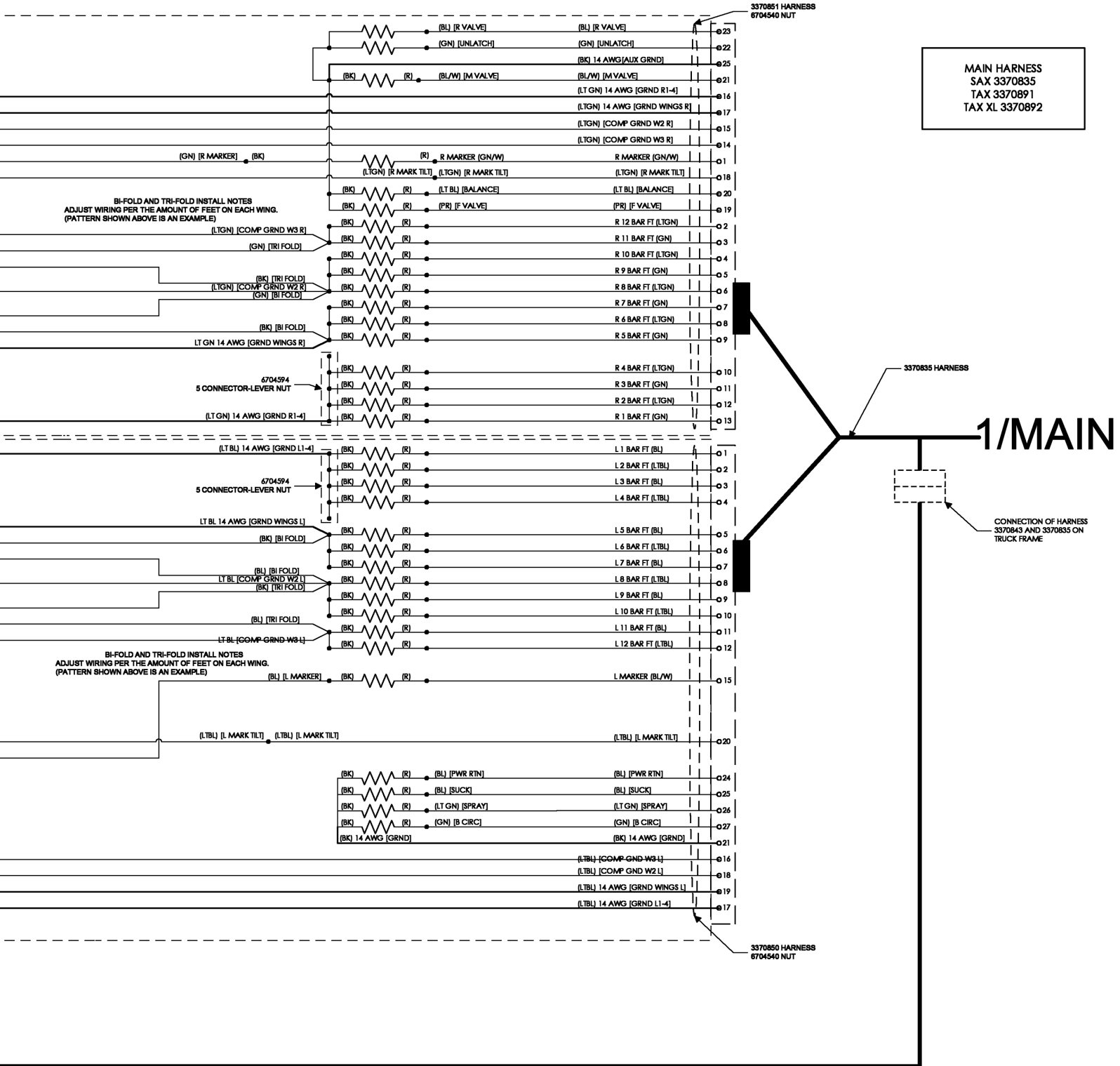




# R VALVE BANK

STANDARD STYLE: 3361930  
MANIFOLD STYLE: 3361926

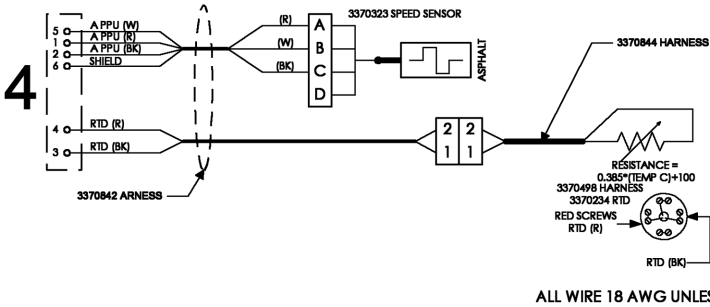
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED NOTE FOR HARNESS 3370908 PLACEMENT	12/12/16	EAC



MAIN HARNESS  
SAX 3370835  
TAX 3370891  
TAX XL 3370892

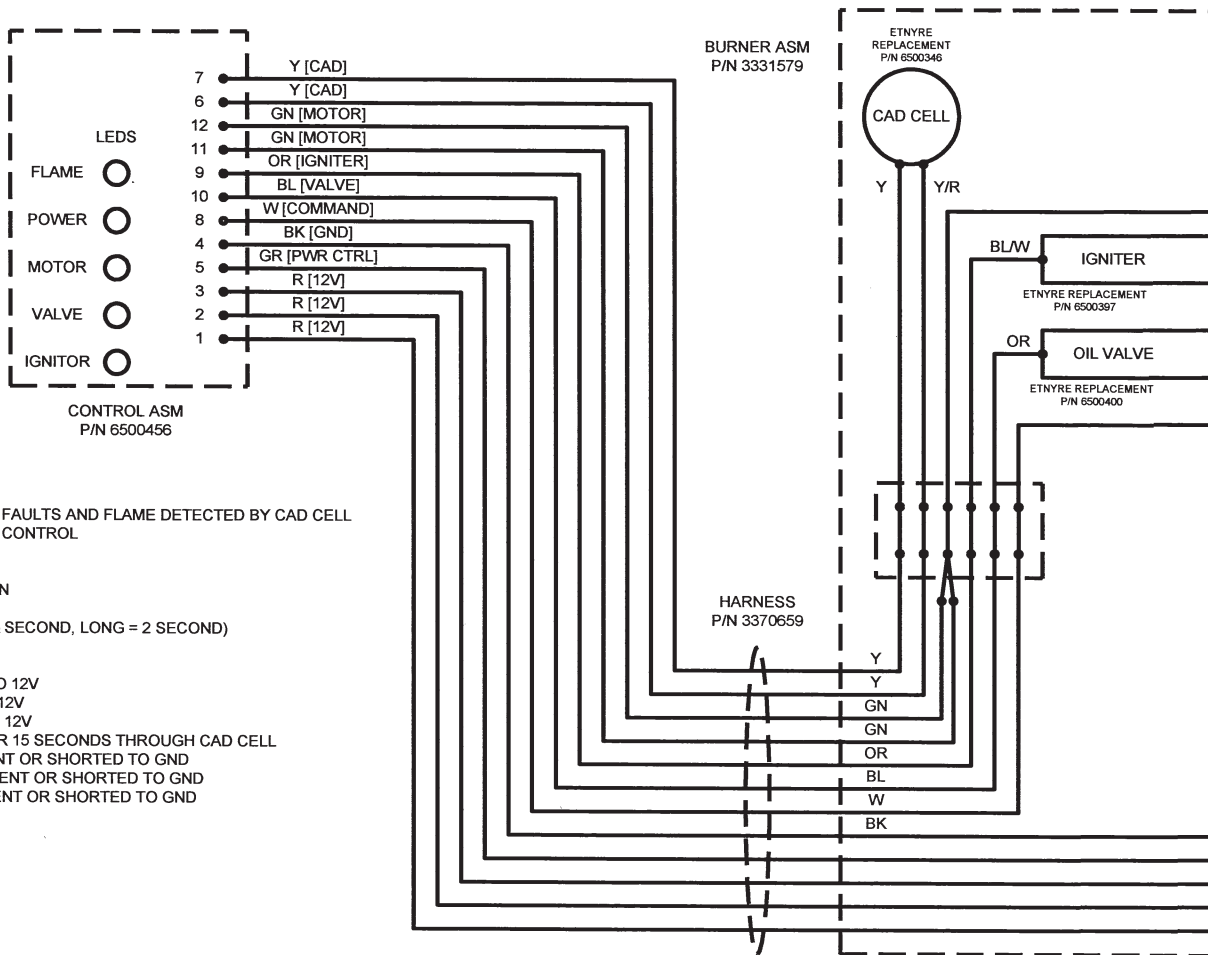
1/MANIFOLD

CONNECTION OF HARNESS 3370843 AND 3370835 ON TRUCK FRAME



## OUTSIDE OF UNIT

<b>COLOR CODE</b> BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	<b>GENERAL NOTES:</b> REMOVE ALL BURRS SER. NO.: SIMATO: 9306293 WEIGHT: DRW FILE: VISIO	DFTR <u>EAC</u> CHKR _____ ENGR <u>EAC</u> APPD _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRIC SCHEMATIC-FT BAR,2016
		TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	DWG SIZE D
SCALE NONE		DATE 9/30/2016	SHEET 3 OF 3



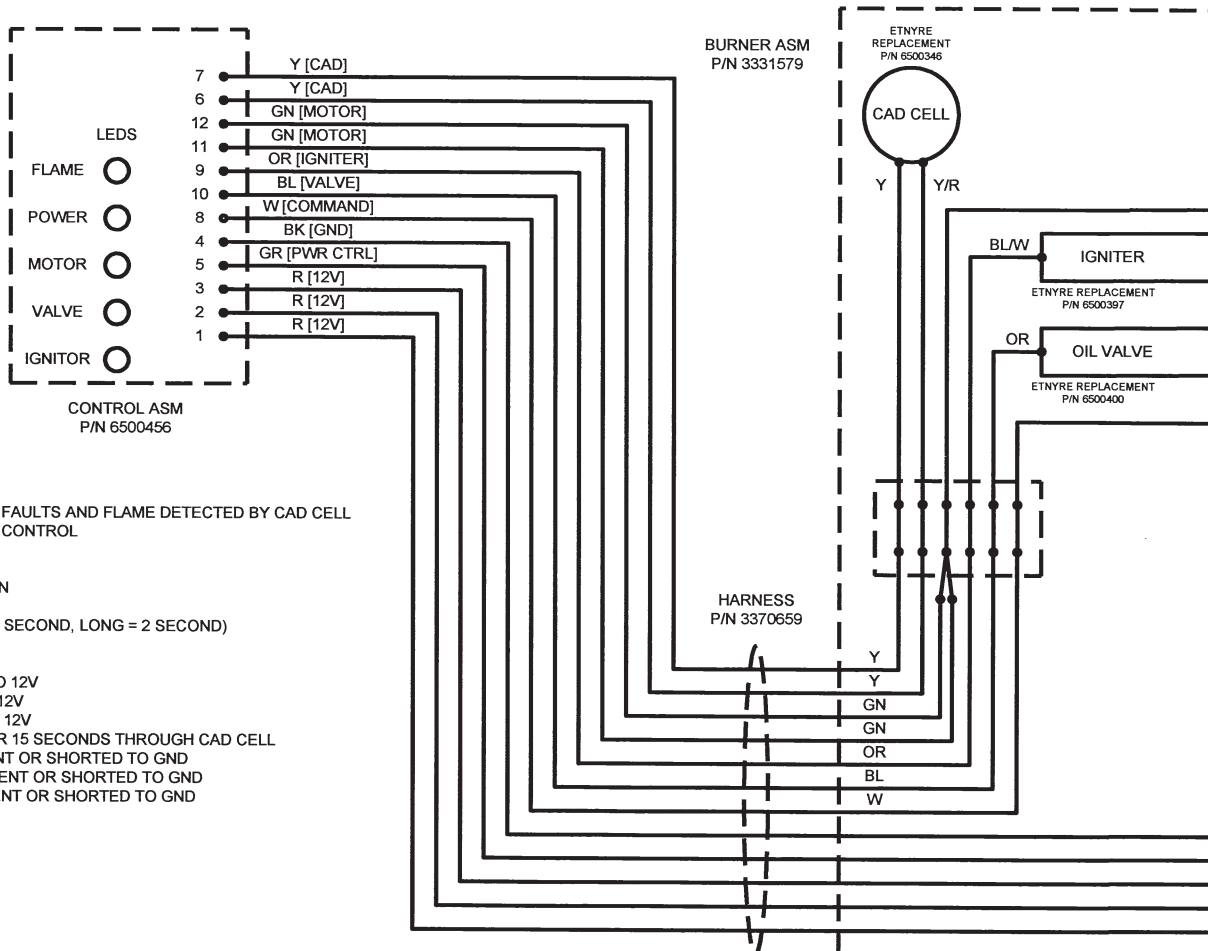
ORDER OF LEDS

FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED BY CAD CELL  
 POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
 MOTOR (GREEN) = ON WHEN MOTOR OUTPUT ON  
 VALVE (GREEN) = ON WHEN VALVE OUTPUT ON  
 IGNITOR (GREEN) = ON WHEN IGNITOR OUTPUT ON

FAULT FLASH PATTERNS OF RED LED (SHORT = 1/2 SECOND, LONG = 2 SECOND)

- 1 SHORT, 1 LONG = CAD > 20K ON POWER UP
- 2 SHORT, 1 LONG = IGNITOR OUTPUT SHORTED TO 12V
- 3 SHORT, 1 LONG = VALVE OUTPUT SHORTED TO 12V
- 4 SHORT, 1 LONG = MOTOR OUTPUT SHORTED TO 12V
- 5 SHORT, 1 LONG = NO IGNITION DETECTED AFTER 15 SECONDS THROUGH CAD CELL
- 6 SHORT, 1 LONG = VALVE OUTPUT OVER CURRENT OR SHORTED TO GND
- 7 SHORT, 1 LONG = IGNITOR OUTPUT OVER CURRENT OR SHORTED TO GND
- 8 SHORT, 1 LONG = MOTOR OUTPUT OVER CURRENT OR SHORTED TO GND

FAULTS CLEARED WITH COMMAND INPUT



ORDER OF LEDS

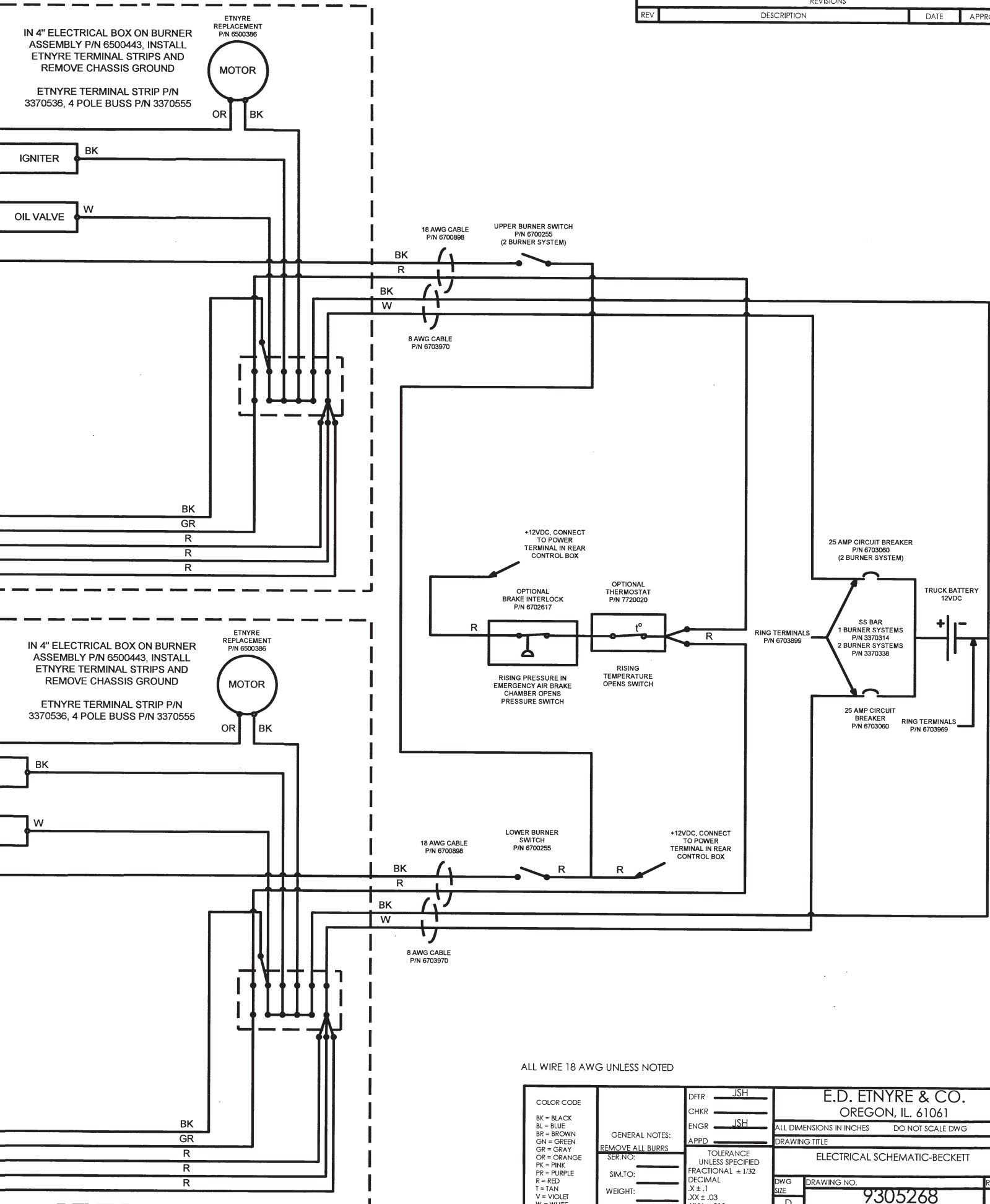
FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED BY CAD CELL  
 POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
 MOTOR (GREEN) = ON WHEN MOTOR OUTPUT ON  
 VALVE (GREEN) = ON WHEN VALVE OUTPUT ON  
 IGNITOR (GREEN) = ON WHEN IGNITOR OUTPUT ON

FAULT FLASH PATTERNS OF RED LED (SHORT = 1/2 SECOND, LONG = 2 SECOND)

- 1 SHORT, 1 LONG = CAD > 20K ON POWER UP
- 2 SHORT, 1 LONG = IGNITOR OUTPUT SHORTED TO 12V
- 3 SHORT, 1 LONG = VALVE OUTPUT SHORTED TO 12V
- 4 SHORT, 1 LONG = MOTOR OUTPUT SHORTED TO 12V
- 5 SHORT, 1 LONG = NO IGNITION DETECTED AFTER 15 SECONDS THROUGH CAD CELL
- 6 SHORT, 1 LONG = VALVE OUTPUT OVER CURRENT OR SHORTED TO GND
- 7 SHORT, 1 LONG = IGNITOR OUTPUT OVER CURRENT OR SHORTED TO GND
- 8 SHORT, 1 LONG = MOTOR OUTPUT OVER CURRENT OR SHORTED TO GND

FAULTS CLEARED WITH COMMAND INPUT

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER. NO.: _____ SIM. TO: _____ WEIGHT: _____ DRW FILE: VISIO	DFTR <u>JSH</u> CHKR _____ ENGR <u>JSH</u> APPD _____	E.D. ETNYRE & CO. OREGON, IL. 61061
		TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRICAL SCHEMATIC-BECKETT
DWG SIZE D		DRAWING NO. 9305268	REV _____
SCALE NONE	DATE 7/18/11	SHEET _____	1 OF 1

**D**

ORDER OF LEDES

FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED BY CAD CELL  
 POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
 MOTOR (GREEN) = ON WHEN MOTOR OUTPUT ON  
 VALVE (GREEN) = ON WHEN VALVE OUTPUT ON  
 IGNITER (GREEN) = ON WHEN IGNITER OUTPUT ON

FAULT FLASH PATTERNS OF RED LED (¼ SECOND FLASH, 2 SECOND PAUSE BETWEEN FAULTS)

1 FLASHES = CAD > 20K ON POWER UP  
 2 FLASHES = IGNITER OUTPUT SHORTED TO 12V  
 3 FLASHES = VALVE OUTPUT SHORTED TO 12V  
 4 FLASHES = MOTOR OUTPUT SHORTED TO 12V  
 5 FLASHES = NO IGNITION DETECTED AFTER 15 SECONDS THROUGH CAD CELL  
 6 FLASHES = VALVE OUTPUT OVER CURRENT OR SHORTED TO GND  
 7 FLASHES = IGNITER OUTPUT OVER CURRENT OR SHORTED TO GND  
 8 FLASHES = MOTOR OUTPUT OVER CURRENT OR SHORTED TO GND

FAULTS CLEARED WITH COMMAND INPUT

CONTROL ASM  
P/N 6500456

LEDS

FLAME ○

POWER ○

MOTOR ○

VALVE ○

IGNITOR ○

11 GN [MOTOR]

12 GN [MOTOR]

9 OR [IGNITOR]

10 BL [VALVE]

6 Y [CAD]

7 Y [CAD]

4 BK [GND]

5 GR [PWR CTRL]

8 W [COMMAND]

1 R [12V]

2 R [12V]

3 R [12V]

HARNESS  
P/N 3370659

BURNER ASM  
P/N 3331520

TERMINAL STRIP P/N 6703828  
4 POLE BUSS P/N 3370555

ETNYRE  
REPLACEMENT  
P/N 6500452

MOTOR

BURNER ASM  
P/N 3331520

CONTROL ASM  
P/N 6500456

LEDS

FLAME ○

POWER ○

MOTOR ○

VALVE ○

IGNITOR ○

11 GN [MOTOR]

12 GN [MOTOR]

9 OR [IGNITOR]

10 BL [VALVE]

6 Y [CAD]

7 Y [CAD]

4 BK [GND]

5 GR [PWR CTRL]

8 W [COMMAND]

1 R [12V]

2 R [12V]

3 R [12V]

HARNESS  
P/N 3370659

TERMINAL STRIP P/N 6703828  
4 POLE BUSS P/N 3370555

ETNYRE  
REPLACEMENT  
P/N 6500452

MOTOR

GROUND SPEED AND PRODUCT DISCHARGE INTERLOCK

**C**

NOTE: IF POWER TO "B" AND "D" IS  
CYCLED DURING BURNER  
OPERATION POWER TO "A" AND "C"  
MUST THEN BE CYCLED FOR  
FURTHER BURNER OPERATION

THERMOSTATIC CONTROL  
REQUIRES OPTIONAL  
TEMPERATURE READOUT IN  
DISPLAY

+12VDC, CONNECT TO POWER  
TERMINAL IN REAR CONTROL BOX

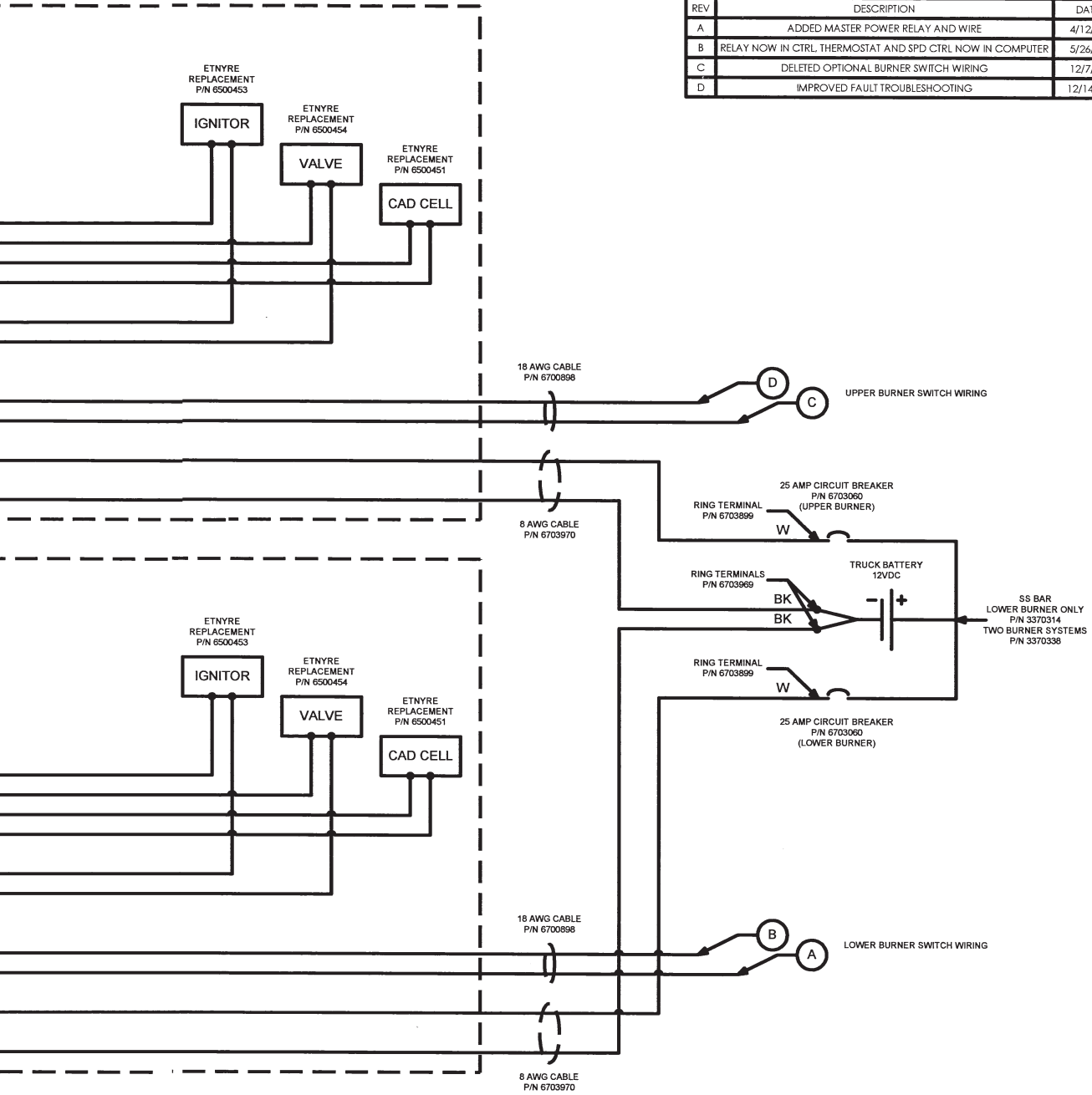
HARNESS P/N 3370500  
(COMPUTER PIN 40)

R

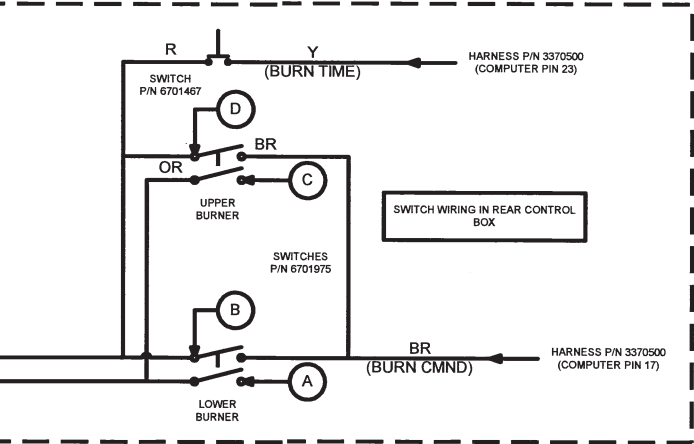
OR

(BURN PWR)

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED MASTER POWER RELAY AND WIRE	4/12/11	JSH
B	RELAY NOW IN CTRL THERMOSTAT AND SPD CTRL NOW IN COMPUTER	5/26/11	JSH
C	DELETED OPTIONAL BURNER SWITCH WIRING	12/7/11	JSH
D	IMPROVED FAULT TROUBLESHOOTING	12/14/12	JSH



CONTROL - REQUIRES BT1 SOFTWARE V4.5 OR LATER



ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS SER.NO.: _____ SIM.TO: _____ WEIGHT: _____ DRW FILE: VISIO	DFTR: JSH CHKR: _____ ENGR: JSH APPD: _____	E.D. ETNYRE & CO. OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE ELECTRICAL SCHEMATIC-WAYNE
		TOLERANCE UNLESS SPECIFIED FRACTIONAL $\pm 1/32$ DECIMAL .X $\pm .1$ .XX $\pm .03$ .XXX $\pm .010$ ANGLES $\pm 0^\circ 30'$	DWG NO. 9304956 REV D SCALE NONE DATE 4/19/10 SHEET 1 OF 1



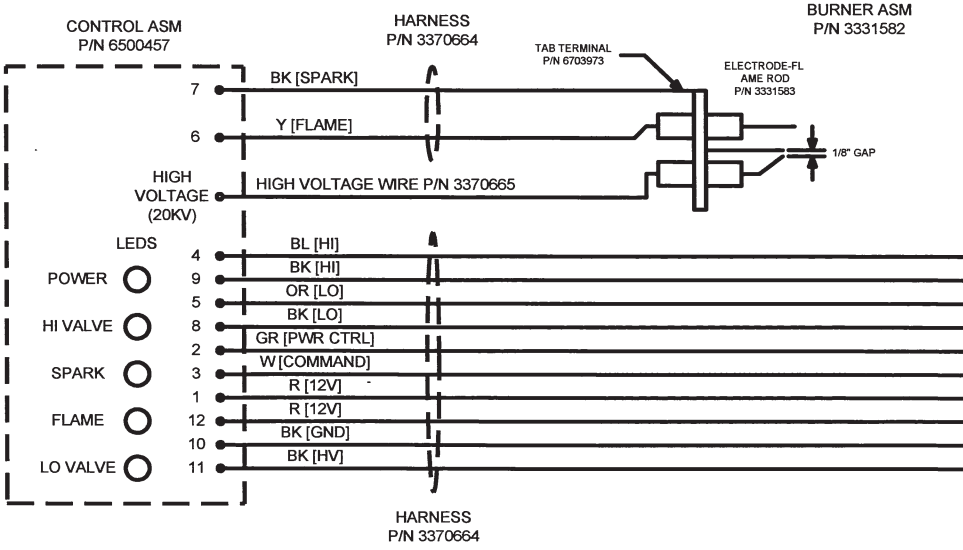
**ORDER OF LEDS**

POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
 HI VALVE (GREEN) = ON WHEN HI VALVE OUTPUT ON  
 SPARK (GREEN) = ON WHEN SPARK OUTPUT IS PULSING  
 FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED  
 LO VALVE (GREEN) = ON WHEN LO VALVE OUTPUT ON

FAULT FLASH PATTERNS OF RED LED (¼ SECOND FLASH, 2 SECOND PAUSE BETWEEN FAULTS)

1 FLASHES = HI VALVE OUTPUT SHORTED TO 12V  
 2 FLASHES = HI VALVE OUTPUT OVER CURRENT OR SHORTED TO GND  
 3 FLASHES = LO VALVE OUTPUT SHORTED TO 12V  
 4 FLASHES = LO VALVE OUTPUT OVER CURRENT OR SHORTED TO GND  
 5 FLASHES = LOCKOUT, FAILURE TO IGNITE AFTER FOUR TRIES  
 6 FLASHES = FLAME FAULT, FLAME PRESENT UPON START UP

FAULTS CLEARED WITH COMMAND INPUT



**IMPORTANT!**  
 ROUTE THE HIGH VOLTAGE WIRE AWAY FROM THE CONTROLLER, TERMINAL STRIP AND OTHER WIRING



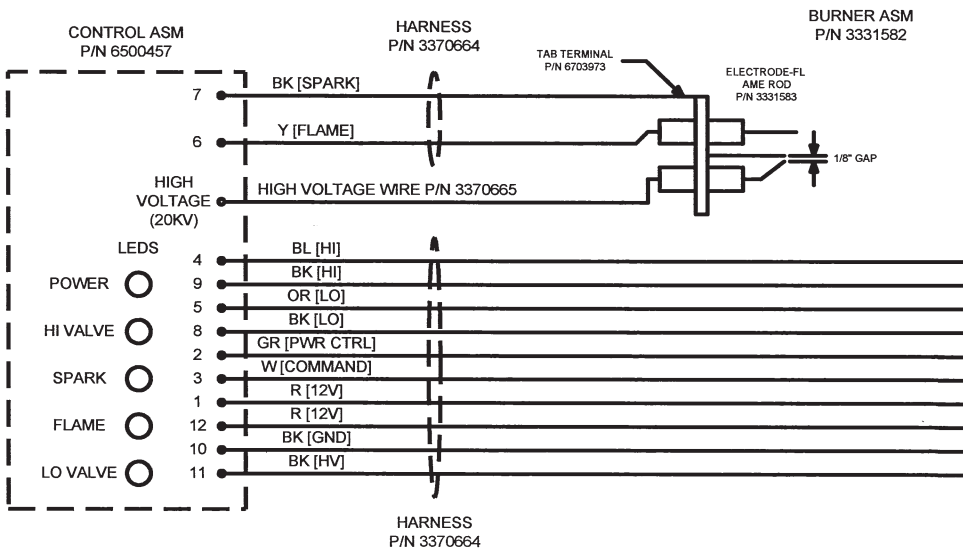
**ORDER OF LEDS**

POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
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 SPARK (GREEN) = ON WHEN SPARK OUTPUT IS PULSING  
 FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED  
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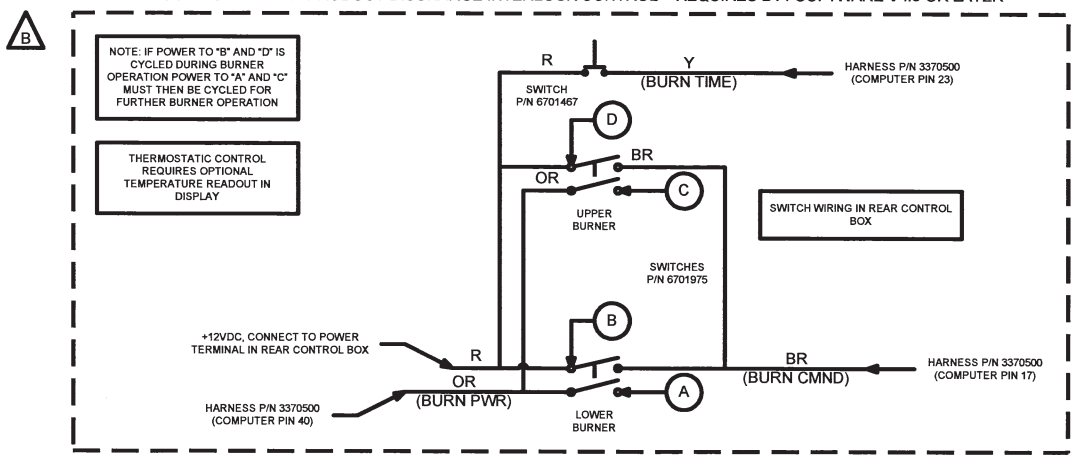
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FAULTS CLEARED WITH COMMAND INPUT

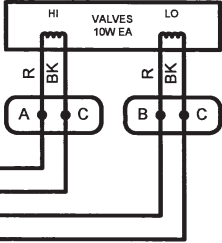


**GROUND SPEED AND PRODUCT DISCHARGE INTERLOCK CONTROL - REQUIRES BT1 SOFTWARE V4.5 OR LATER**

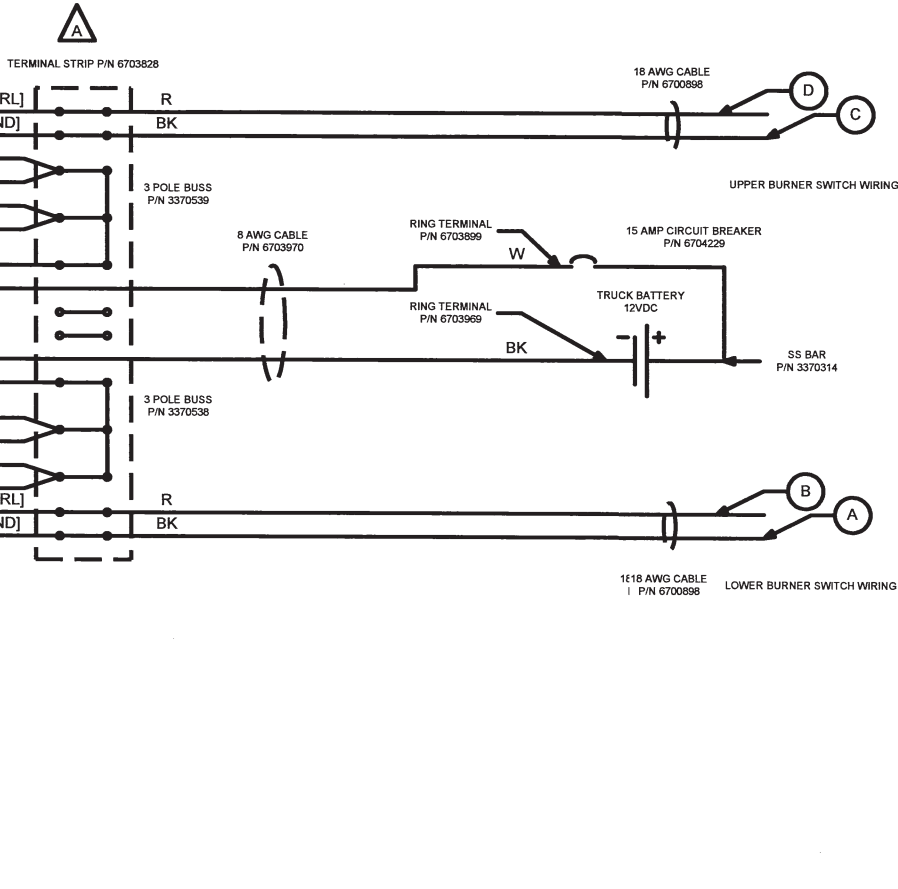
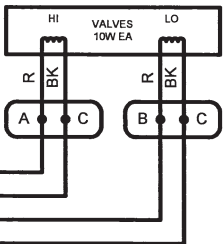


REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	ADDED NOTE, CHANGED WIRING AND BUSES AT TERMINAL STRIP	11/30/11	JSH
B	DELETED OPTIONAL BURNER SWITCH WIRING	12/7/11	JSH
C	IMPROVED FAULT TROUBLESHOOTING	12/14/12	JSH

ETNYRE  
REPLACEMENT  
VALVES  
P/N 7050864



ETNYRE  
REPLACEMENT  
VALVES  
P/N 7050864



ALL WIRE 18 AWG UNLESS NOTED

COLOR CODE BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW	GENERAL NOTES: REMOVE ALL BURRS	DFR <u>JSH</u> CHKR _____ ENGR <u>JSH</u> APPD _____	<b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061 ALL DIMENSIONS IN INCHES DO NOT SCALE DWG DRAWING TITLE
	SER.NO.: _____ SIM.TO.: _____ WEIGHT: _____ DRW FILE: VISIO	TOLERANCE UNLESS SPECIFIED FRACTIONAL ± 1/32 DECIMAL .X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'	ELECTRICAL SCHEMATIC-LP DWG SIZE <u>D</u> DRAWING NO. <u>9305202</u> REV <u>C</u> SCALE NONE DATE 4/19/10 SHEET 1 OF 1

**A**

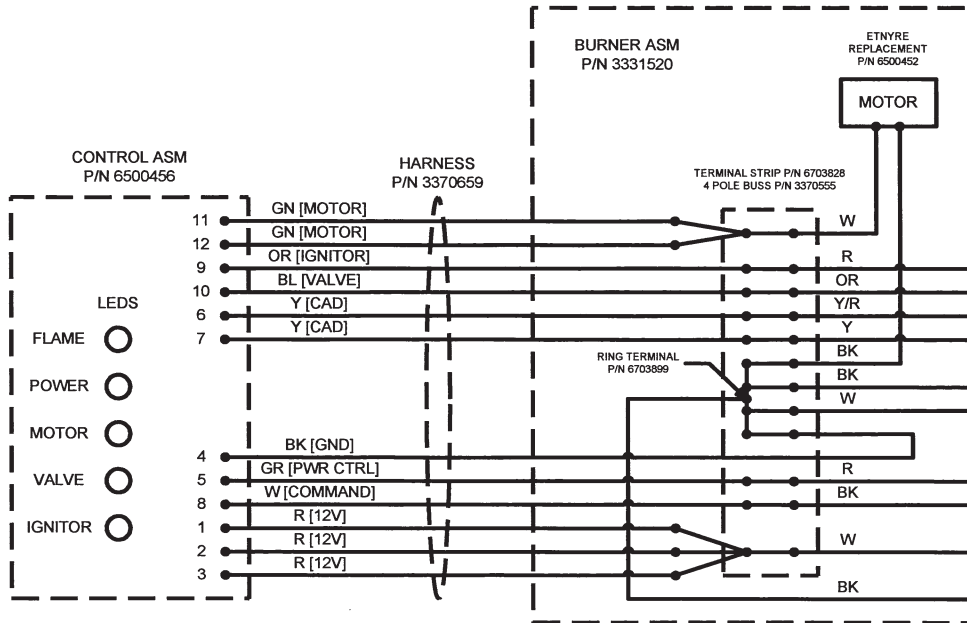
ORDER OF LEDES

FLAME (RED) = ON WHEN COMMAND APPLIED, NO FAULTS AND FLAME DETECTED BY CAD CELL  
 POWER (GREEN) = ON WHEN POWER APPLIED TO CONTROL  
 MOTOR (GREEN) = ON WHEN MOTOR OUTPUT ON  
 VALVE (GREEN) = ON WHEN VALVE OUTPUT ON  
 IGNITER (GREEN) = ON WHEN IGNITER OUTPUT ON

FAULT FLASH PATTERNS OF RED LED (¼ SECOND FLASH, 2 SECOND PAUSE BETWEEN FAULTS)

1 FLASHES = CAD > 20K ON POWER UP  
 2 FLASHES = IGNITER OUTPUT SHORTED TO 12V  
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 7 FLASHES = IGNITER OUTPUT OVER CURRENT OR SHORTED TO GND  
 8 FLASHES = MOTOR OUTPUT OVER CURRENT OR SHORTED TO GND

FAULTS CLEARED WITH COMMAND INPUT



**A**

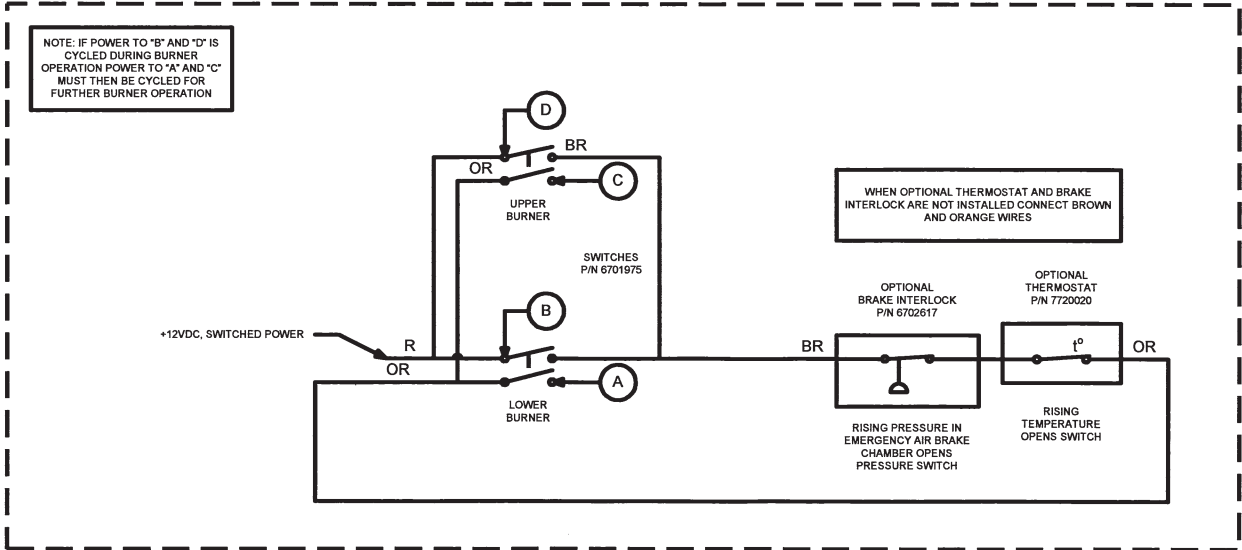
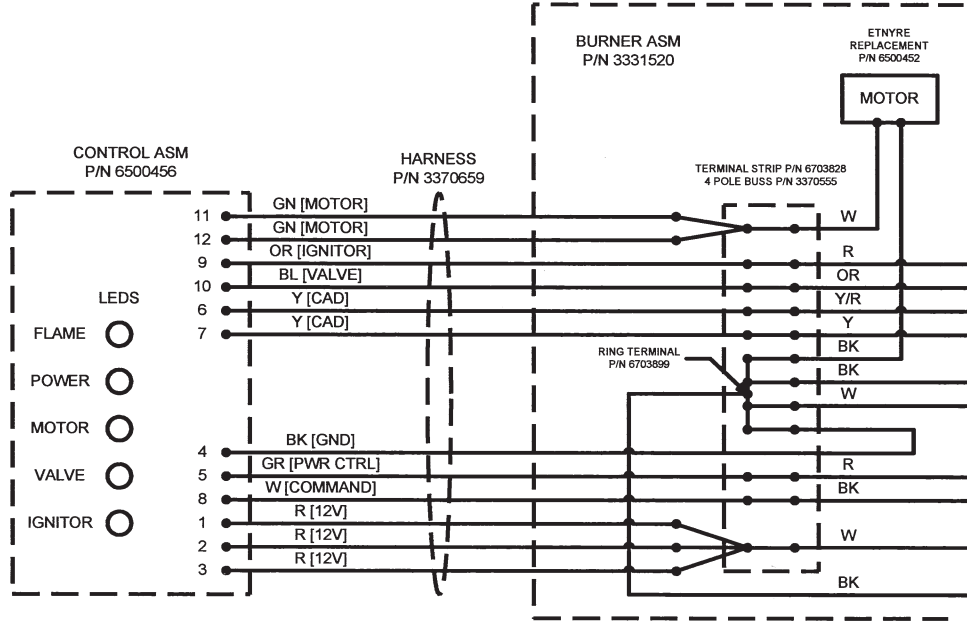
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 IGNITER (GREEN) = ON WHEN IGNITER OUTPUT ON

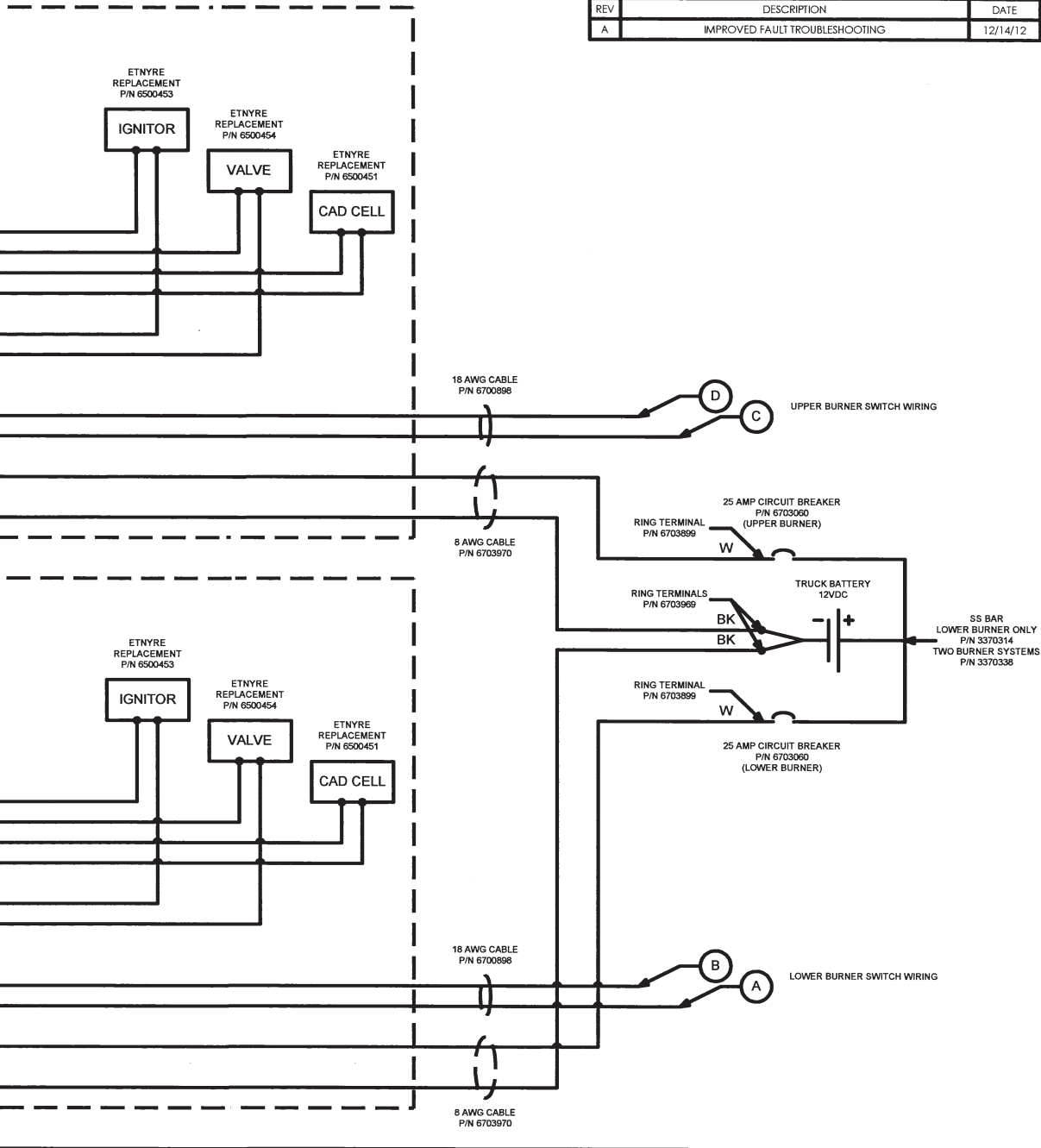
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FAULTS CLEARED WITH COMMAND INPUT



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	IMPROVED FAULT TROUBLESHOOTING	12/14/12	JSH



ALL WIRE 18 AWG UNLESS NOTED

<p>COLOR CODE</p> <p>BK = BLACK BL = BLUE BR = BROWN GN = GREEN GR = GRAY OR = ORANGE PK = PINK PR = PURPLE R = RED T = TAN V = VIOLET W = WHITE Y = YELLOW</p>	<p>GENERAL NOTES:</p> <p>REMOVE ALL BURRS</p> <p>SER.NO: _____</p> <p>SIM.TO: _____</p> <p>WEIGHT: _____</p> <p>DRW FILE: VISIO</p>	<p>DFTR: <u>JSH</u></p> <p>CHKR: _____</p> <p>ENGR: <u>JSH</u></p> <p>APPD: _____</p> <p>TOLERANCE UNLESS SPECIFIED FRACTIONAL = 1/32 DECIMAL X ± .1 .XX ± .03 .XXX ± .010 ANGLES ± 0° 30'</p>	<p><b>E.D. ETNYRE &amp; CO.</b> OREGON, IL. 61061</p> <p>ALL DIMENSIONS IN INCHES DO NOT SCALE DWG</p> <p>DRAWING TITLE</p> <p>ELECTRICAL SCHEMATIC-WAYNE,MU</p>
	<p>DWG SIZE</p> <p>D</p>	<p>DRAWING NO.</p> <p>9305456</p>	<p>REV</p> <p>A</p>
	<p>SCALE</p> <p>NONE</p>	<p>DATE</p> <p>1/19/12</p>	<p>SHEET</p> <p>1 OF 1</p>