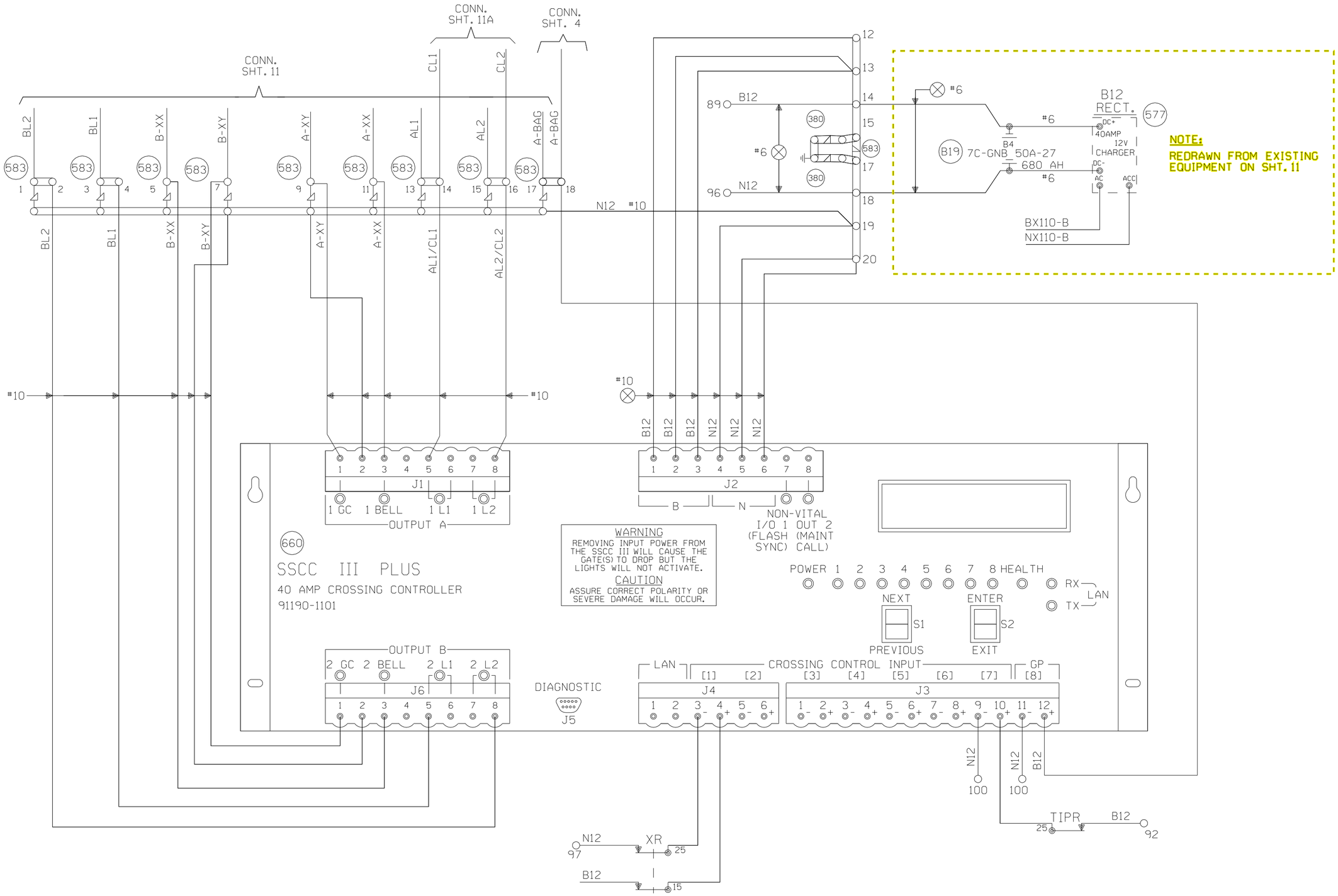


IMPORTANT

THE PROGRAM MCF AND ID LISTED BELOW MUST BE ENTERED IN THE PROGRAM SETUP ROUTINE FOR THIS SOLID STATE CROSSING CONTROLLER TO FUNCTION PROPERLY.

PROGRAM MCF: basicpls.mcf

PROGRAM ID: 087

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#:87864

IS: /WSD

/JMM/JTB

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHECKED	DR
LAST LEVEL MOD THIS TYPICAL	DR
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

Rev 02.01.09 4K ACDCSSCC.5

UNION PACIFIC

QUALITY PRODUCTIVITY SAFETY

SIGNAL DESIGN

Date: 08/06/09

Des: JMM

Chk: WSD

AFE: 87864

UNION PACIFIC RAILROAD

PALATINE, ILLINOIS

N. PLUM GROVE ROAD

HARVARD SUBDIVISION

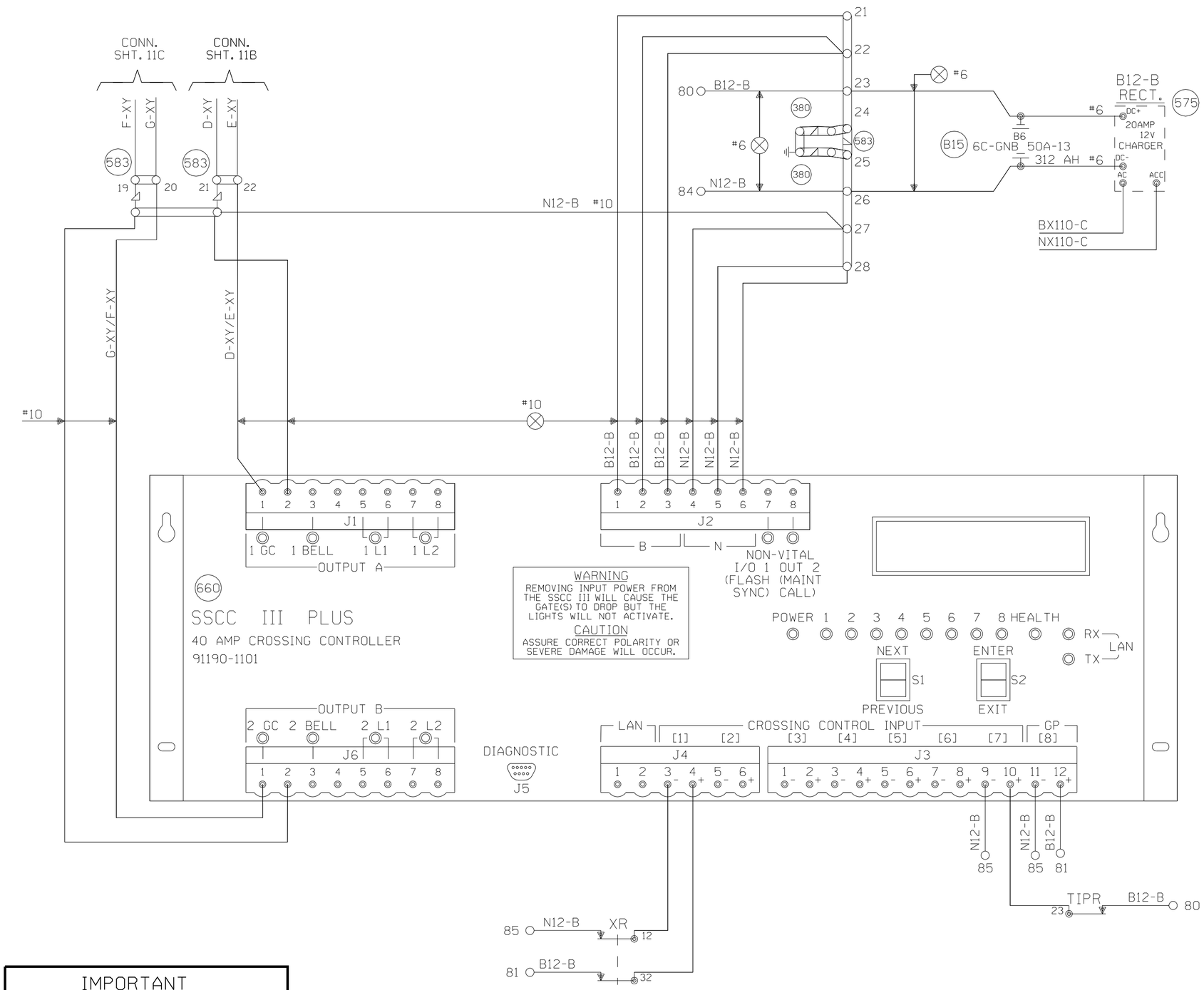
Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 10A

DOT 176939G

MP: 26.12

ID: HAR2612.10AX



IMPORTANT

THE PROGRAM MCF AND ID LISTED BELOW MUST BE ENTERED IN THE PROGRAM SETUP ROUTINE FOR THIS SOLID STATE CROSSING CONTROLLER TO FUNCTION PROPERLY.

PROGRAM MCF: basicpls.mcf

PROGRAM ID: 087

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#: 87864

IS: /WSD / /JMM/JTB

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHECKED	DR
LAST LEVEL MOD THIS TYPICAL	DR
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

Rev 02.01.09 4K ACDCSSCC.5

UNION PACIFIC

QUALITY PRODUCTIVITY SAFETY

SIGNAL DESIGN

Date: 08/06/09

Des: JMM

Chk: WSD

AFE: 87864

UNION PACIFIC RAILROAD

PALATINE, ILLINOIS

N. PLUM GROVE ROAD

HARVARD SUBDIVISION

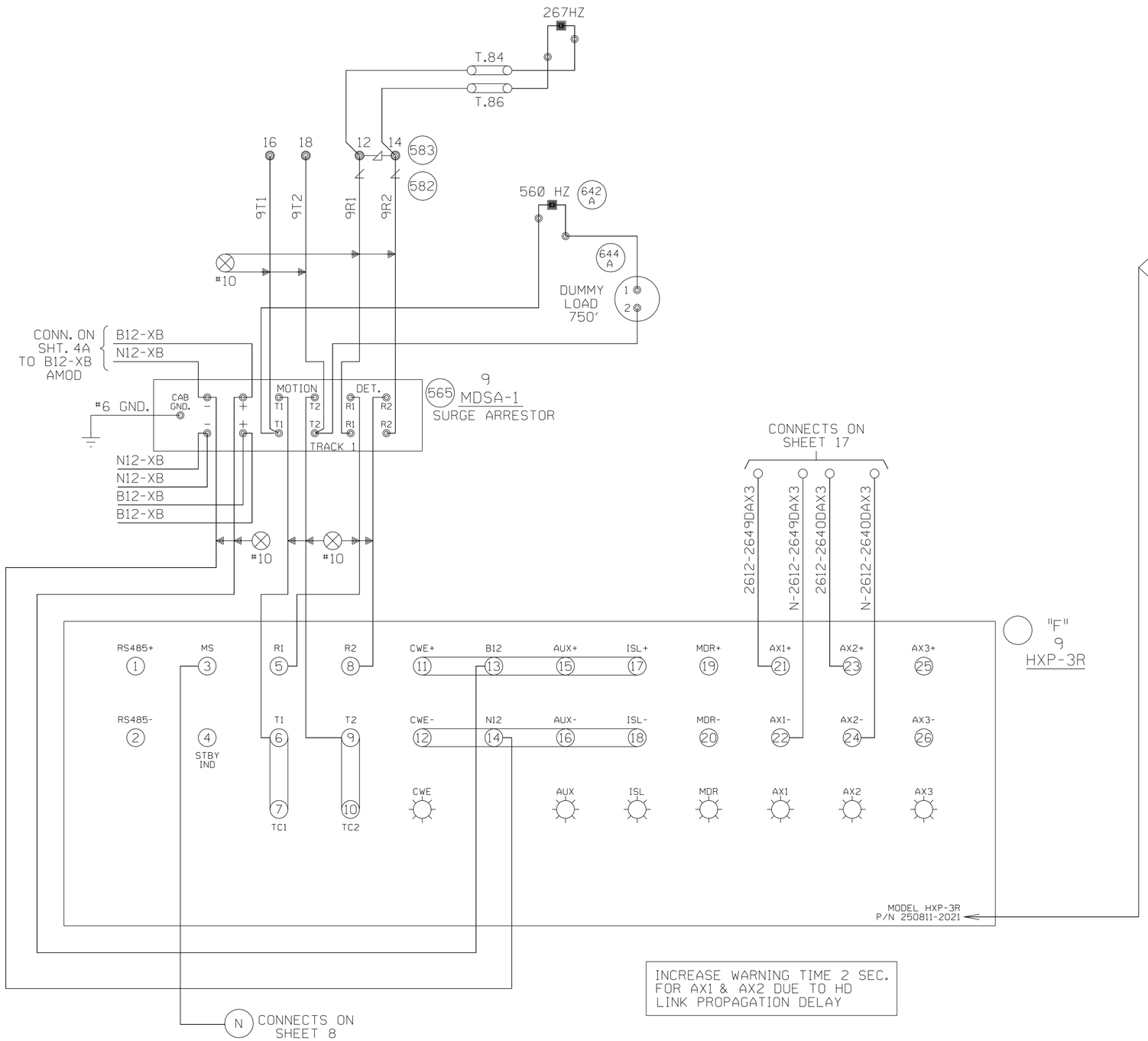
Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 10B

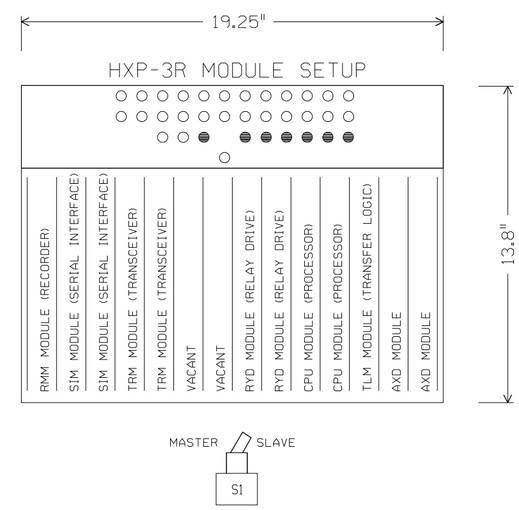
DOT 176939G

MP: 26.12

ID: HAR2612.10BX



NOTE:
THIS DRAWING WAS DESIGNED FOR A SPECIFIC APPLICATION. IF A MODIFICATION OR REDESIGN OF THIS DRAWING CAUSES ANY MODULES TO CHANGE, THE UNIT'S PART NUMBER MUST BE CHANGED TO CORRESPOND ACCORDINGLY.



INCREASE WARNING TIME 2 SEC. FOR AX1 & AX2 DUE TO HD LINK PROPAGATION DELAY

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G
PROJ.#

REV. 11-15-02
UPGRADED CROSSING CONTROL AS PER THE PALESTINE, IL CORRIDOR PROJECT
REC. #11127
5-30-02 JJF
JLK/WITT/WITT/JNM

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHK'D.	CY
LAST LEVEL MOD. THIS TYP.	CK
LAST LEVEL BY DESIGNER.	CZ
CHANGED FROM TYP.? Y/N	Y

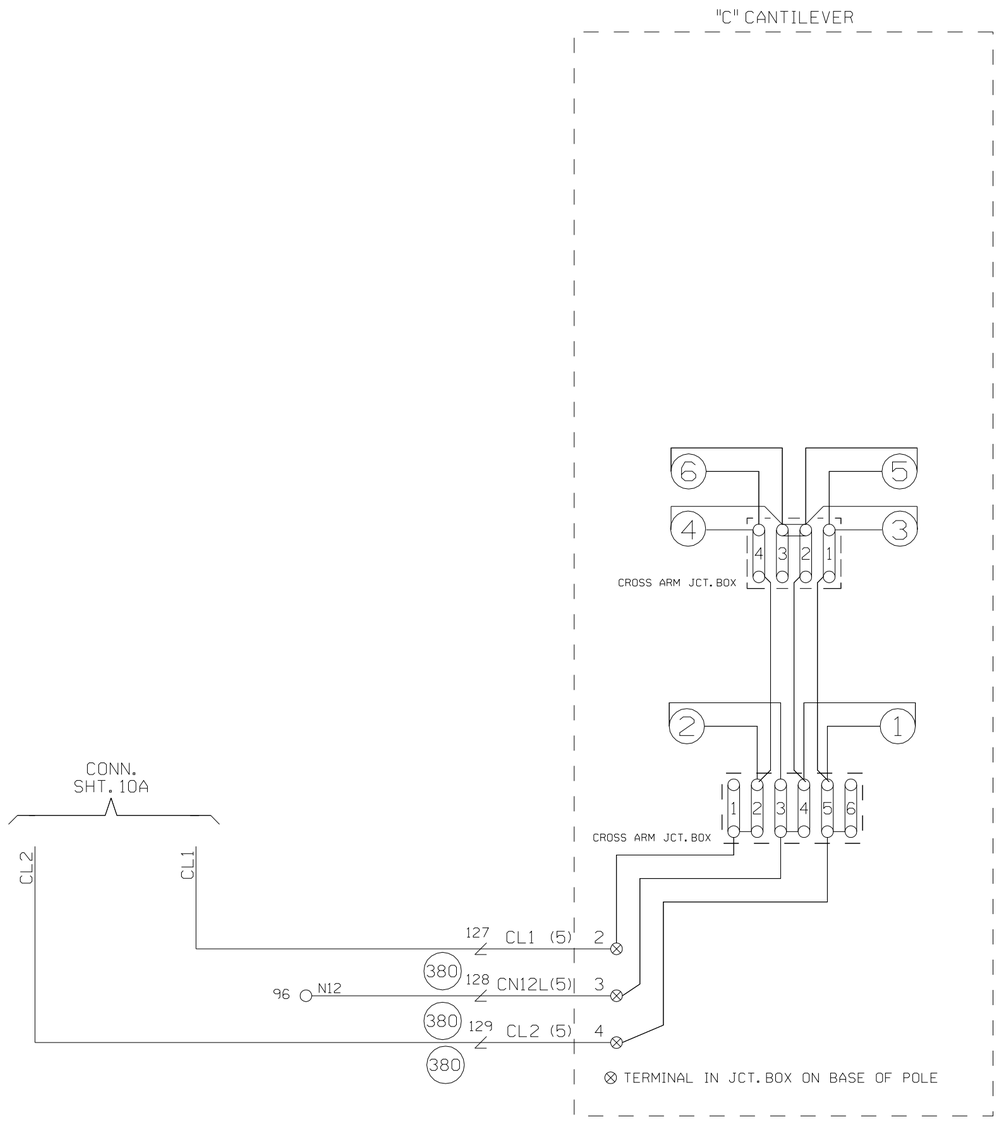
UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

DES: WITT.IND.
DIG: WITT.IND.
CHK: J.J.F.
A.F.E. 30724
ID= HAR2612.10X

UNION PACIFIC RAILROAD
EVANSVILLE, WISCONSIN
TO CHICAGO, ILLINOIS
C.T.C. CIRCUITS
OFFICE OF CHIEF ENG'R OMAHA NEBR.

DATE 3-21-00
SHEET 10
DWG 26.12
HAR

(REV. 4-4-00) (HX31TKBG.DGN)



CABLE TABULATION

CABLE NO. 5 5C NO.6 U.G.B.T.

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#: 87864
IS: /WSD
/ /JMM/JTB

MODIFICATION LEVEL	
Q. A. LAST LEVEL CHECKED	DR
LAST LEVEL MOD THIS TYPICAL	DR
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

REV 02.01.09 4K GFCTYP.5

UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

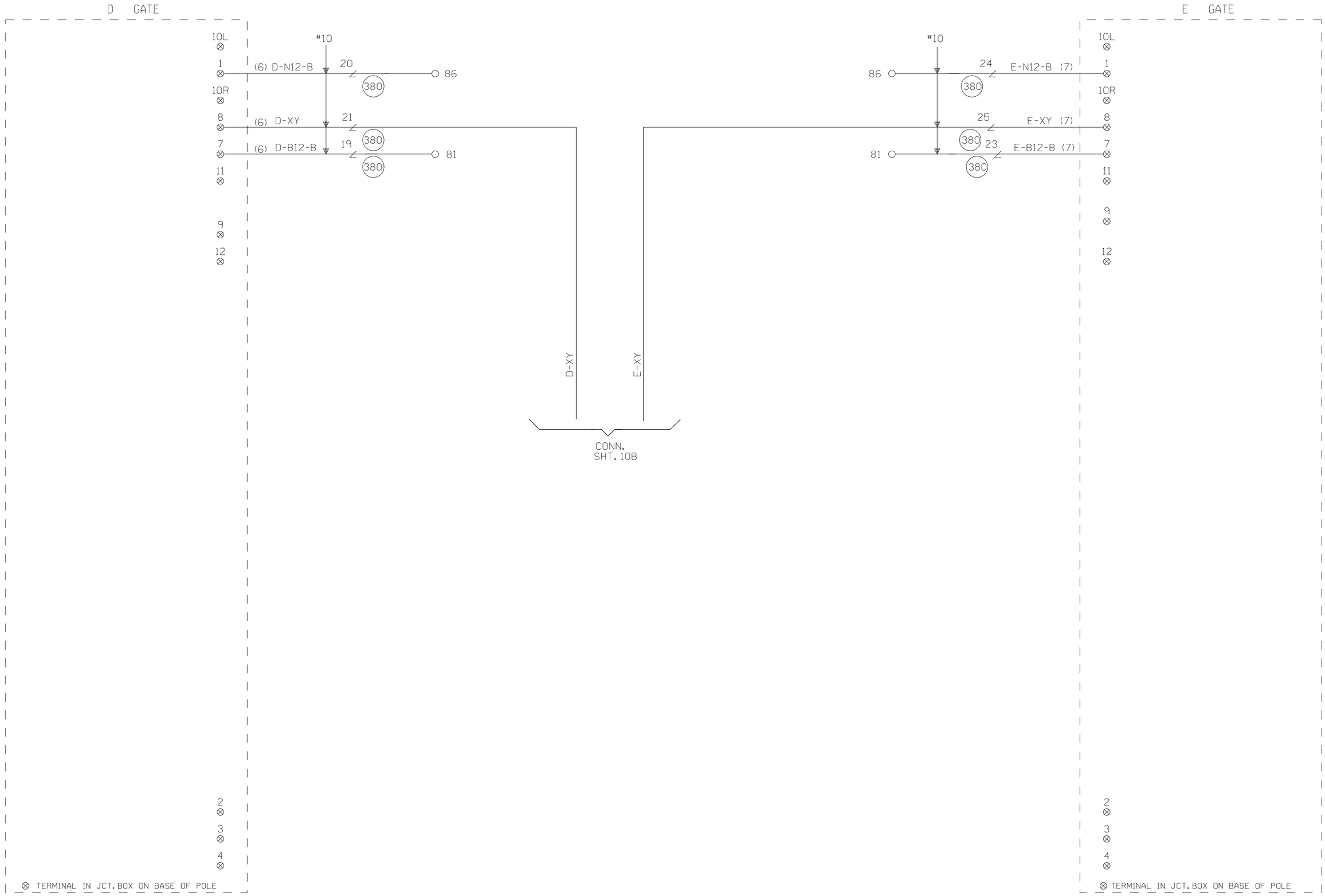
Date: 08/06/09
Des: JMM
Chk: WSD
AFE: 87864

UNION PACIFIC RAILROAD

PALATINE, ILLINOIS
N. PLUM GROVE ROAD
HARVARD SUBDIVISION

Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 11A
DOT 176939G
MP: 26.12
ID: HAR2612.11A



CABLE TABULATION

CABLE NO. 6 5C. NO.6 U.G.B.T.
CABLE NO. 7 5C. NO.6 U.G.B.T.

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#: 87864
IS: /WSD
/ /JMM/JTB

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHECKED	DS
LAST LEVEL MOD THIS TYPICAL	DS
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

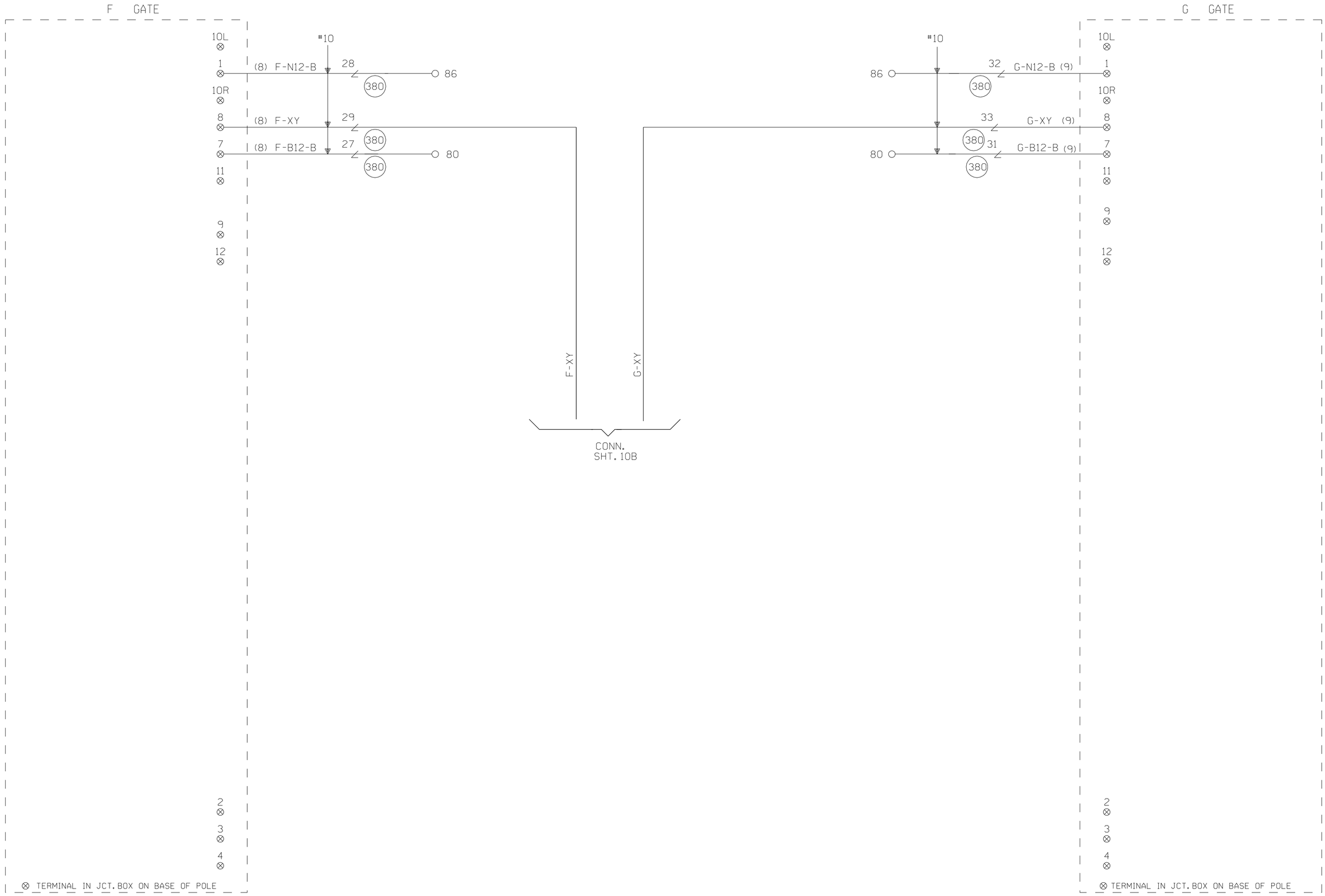
REV 09.02.09 4K 4GFTYP.5

UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

Date: 08/06/09
Des: JMM
Chk: WSD
AFE: 87864

UNION PACIFIC RAILROAD
PALATINE, ILLINOIS
N. PLUM GROVE ROAD
HARVARD SUBDIVISION
Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 11B
DOT 176939G
MP: 26.12
ID: HAR2612.11BX



CABLE TABULATION

CABLE NO. 8 5C. NO.6 U.G.B.T.
CABLE NO. 9 5C. NO.6 U.G.B.T.

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#: 87864
IS: /WSD
/ /JMM/JTB

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHECKED	DS
LAST LEVEL MOD THIS TYPICAL	DS
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

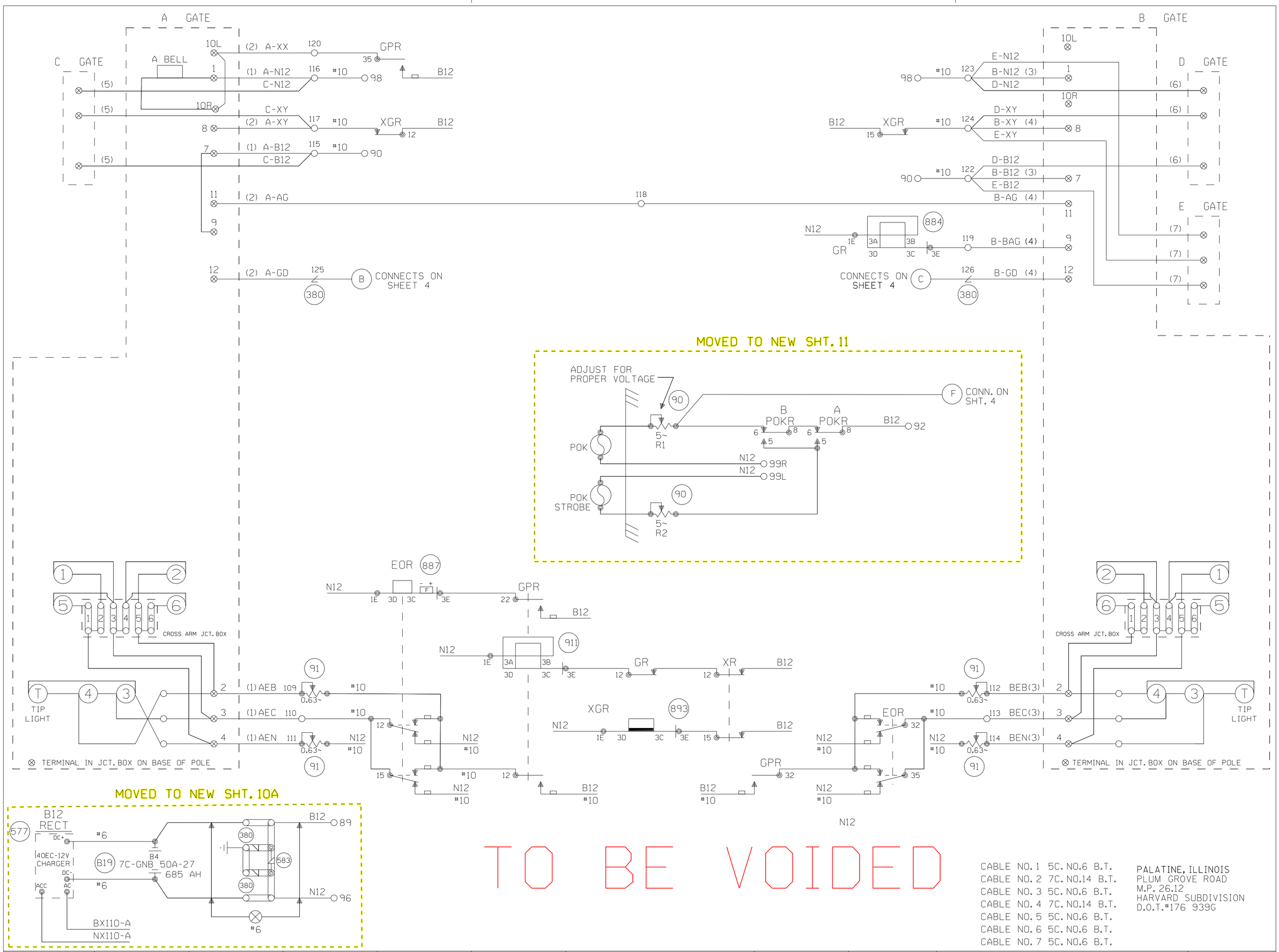
REV 09.02.09 4K 4GFTYP.5

UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

Date: 08/06/09
Des: JMM
Chk: WSD
AFE: 87864

UNION PACIFIC RAILROAD
PALATINE, ILLINOIS
N. PLUM GROVE ROAD
HARVARD SUBDIVISION
Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 11C
DOT 176939G
MP: 26.12
ID: HAR2612.11CX



TO BE VOIDED

CABLE NO. 1 5C. NO.6 B.T.
CABLE NO. 2 7C. NO.14 B.T.
CABLE NO. 3 5C. NO.6 B.T.
CABLE NO. 4 7C. NO.14 B.T.
CABLE NO. 5 5C. NO.6 B.T.
CABLE NO. 6 5C. NO.6 B.T.
CABLE NO. 7 5C. NO.6 B.T.

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

REV. 2-17-09
LODS REMOVED AND POK STROBE INSTALLED.

REC. #15606
I.S. 12-5-08
JAM/WITT

REV. 11-15-02
UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT
REC. #11127
5-30-02 JJF
JLK/WITT/WITT/JNM

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHK'D.	CY
LAST LEVEL MOD. THIS TYP.	CX
LAST LEVEL BY DESIGNER.	CZ
CHANGED FROM TYP.? Y/N	Y

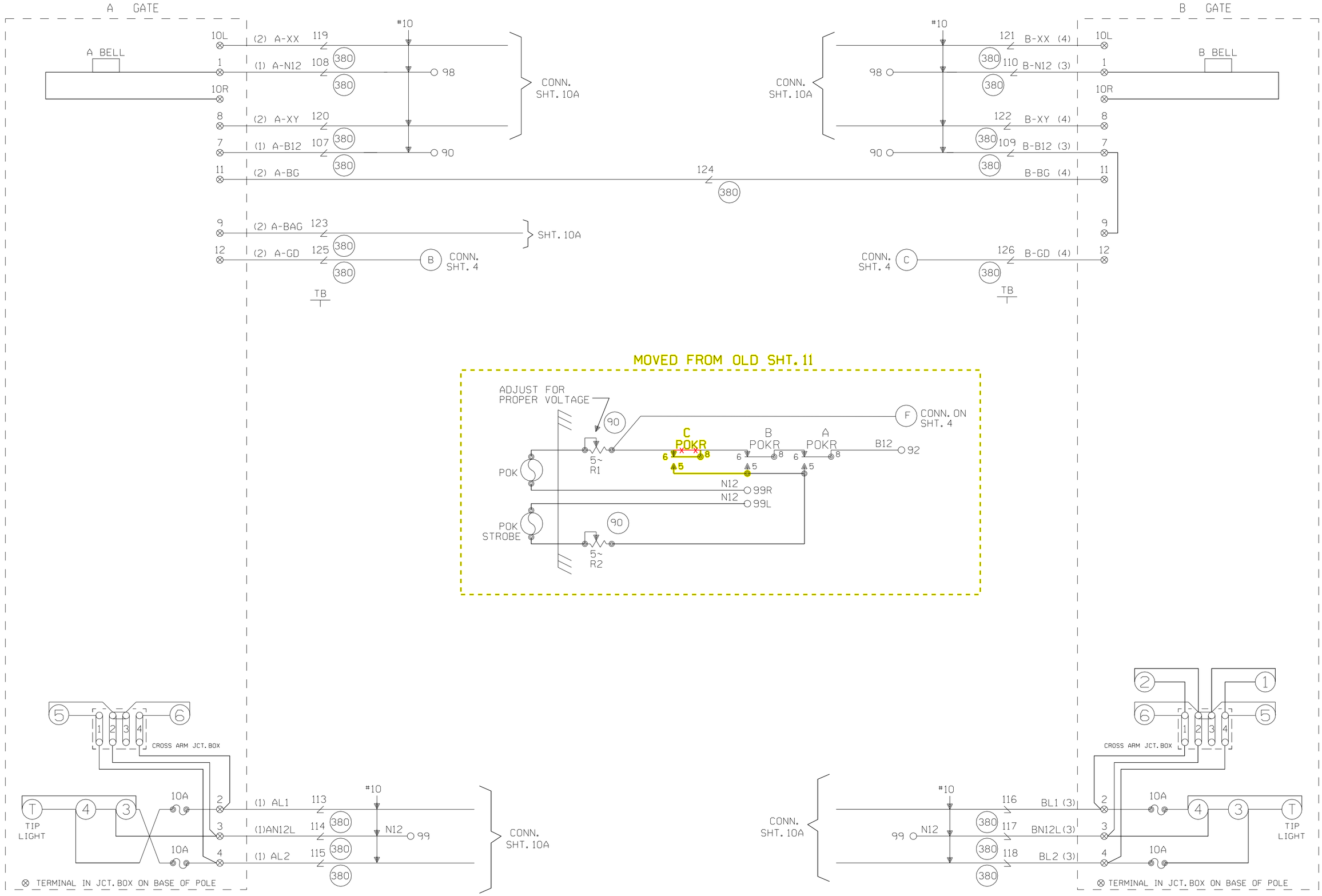
UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

DES: WITT.IND.
DIG: WITT.IND.
CHK: J.J.F.
A.F.E. 30724
ID= HAR2612.11X

UNION PACIFIC RAILROAD
EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS
C.T.C. CIRCUITS
Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.

DATE 3-21-00
SHEET 11
DWG 26.12
HAR

(REV. 4-4-00) (GFTYP.DGN)



CABLE TABULATION

CABLE NO. 1 5C. NO.6 U.G.B.T.
CABLE NO. 2 7C. NO.14 U.G.B.T.
CABLE NO. 3 5C. NO.6 U.G.B.T.
CABLE NO. 4 7C. NO.14 U.G.B.T.

NEW SHEET

Designed: 08-06-09

INSTALL A NEW CANTILEVER AND RELOCATE CROSSING GATES AND PED GATES FOR ROAD WIDENING

Rec#: WO#:87864
IS: /WSD
/ /JMM/JTB

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHECKED	DS
LAST LEVEL MOD THIS TYPICAL	DS
LAST LEVEL BY DESIGNER	DS
CHANGED FROM TYPICAL?	Y

REV 09.02.09 4K GFSLTYP.5

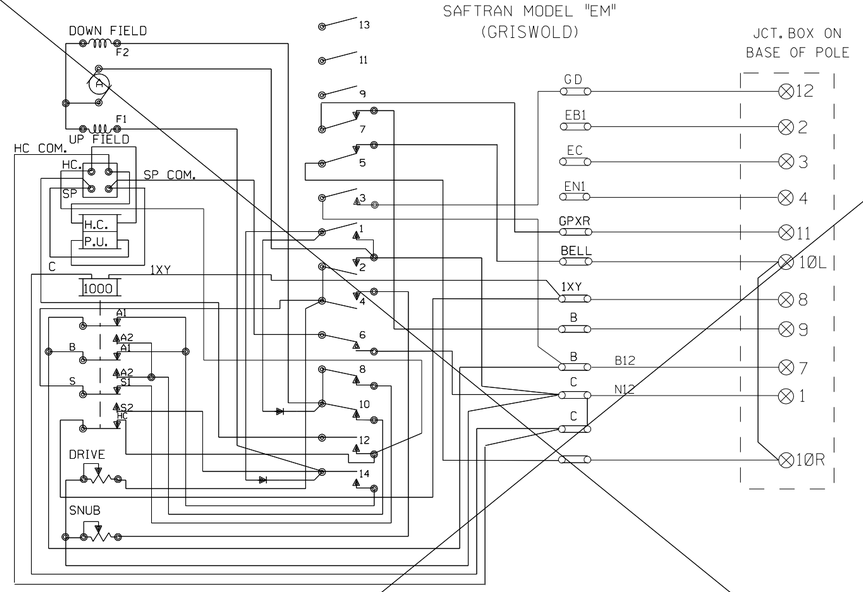
UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

Date: 08/06/09
Des: JMM
Chk: WSD
AFE: 87864

UNION PACIFIC RAILROAD
PALATINE, ILLINOIS
N. PLUM GROVE ROAD
HARVARD SUBDIVISION
Office of Sr AVP Engineering - Signal/TCO Omaha, Nebraska

Sh.: 11
DOT 176939G
MP: 26.12
ID: HAR2612.11X

SAFTRAN MODEL "EM" (GRISWOLD)



SHOW TYPE MECH. INSTALLED

SPACE NO.	CONTACT OPERATION: CONTACT CLOSED CLEARING	CONTACT OPERATION: CONTACT CLOSED RETURNING	CIRCUIT BREAKER FUNCTIONS: USE OF CONTACT
1	40°50°85°90°	90°85°50°40°	CONTROL OF ARC SUPRESSING RECTIFIERS
2	0°10°	10°0°	FINAL DOWN SNUB
3	0°5°	5°0°	GATE DOWN
4	0°44°	44°0°	DOWN SNUB
5	10°90°	90°10°	TO CUT OFF BELL WHEN GATE ARM IS DOWN
6	80°90°	90°80°	CONTROL OF SOLENOID PICK UP
7	80°90°	90°80°	TO CONTROL GPR RELAY & KEEP FLASHING LIGHTS OPERATING UNTIL GATES CLEAR
8	0°5°80°90°	90°80°5°0°	UP SNUB
9	—	—	SPARE
10	45°90°	90°45°	MOTOR CUTOUT(DOWN)
11	—	—	SPARE
12	0°90°	80°0°	OPERATED BY MOTOR CUTOUT SWITCH TO CUT OFF CURRENT FROM SOLENOID PICKUP
13	—	—	NO CAM
14	0°90°	80°0°	MOTOR CUTOUT(UP)

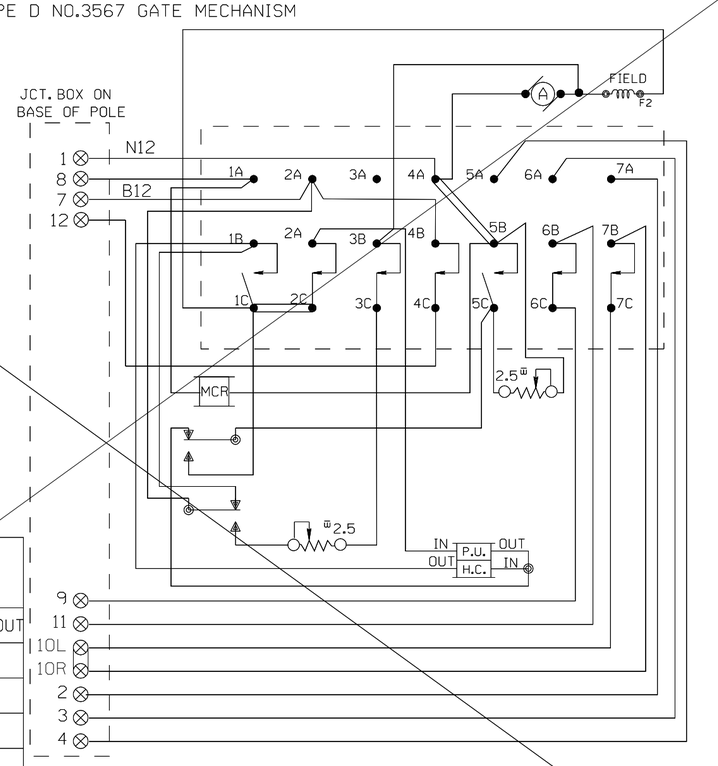
W.R.R.S. CO TYPE D NO.3567 GATE MECHANISM

SHOW TYPE MECH. INSTALLED

JCT. BOX ON BASE POLE

L	R	L	R
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

CONT. SPACE NO.	CLEARING (UP) CLOSES	CLEARING (UP) OPENS	RETURNING (DN.) CLOSES	RETURNING (DN.) OPENS	FUNCTION OF CONTACT
1	—	88°	78°	—	UP MOTOR CUTOUT
2	76°	85°	85°	76°	HOLD CLEAR CONTROL
3	50°	—	—	50°	DOWN MOTOR CUTOUT
4	—	5°	5°	—	GATE DOWN
5	—	5°	5°	—	SNUBBING
6	85°			85°	XGCP CONTROL
7	6°	—	—	6°	BELL CONTROL



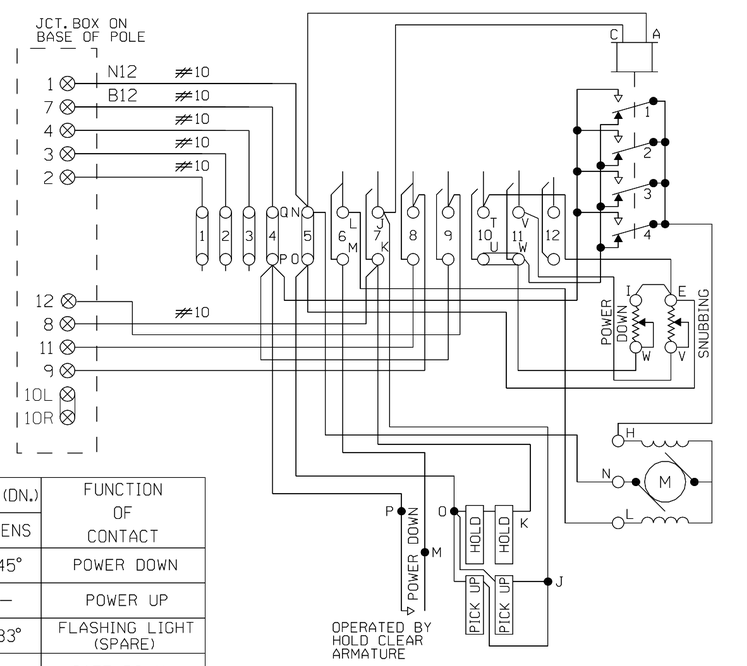
MECHANISM SHOWN IN CLEAR POSITION.

SAFETRAN PRODUCTS MODEL "S" MECHANISM

SHOW TYPE MECH. INSTALLED

JCT. BOX ON BASE POLE

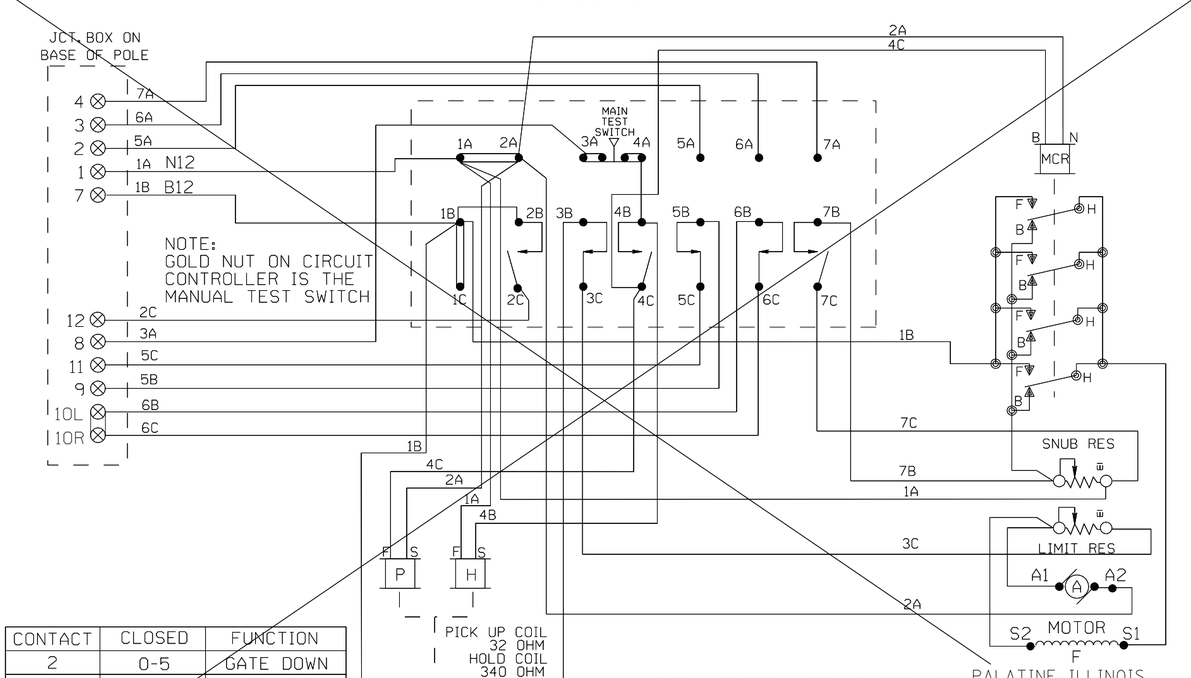
L	R	L	R
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	



CONT. SPACE NO.	CLEARING (UP) CLOSES	CLEARING (UP) OPENS	RETURNING (DN.) CLOSES	RETURNING (DN.) OPENS	FUNCTION OF CONTACT
6	45°	—	—	45°	POWER DOWN
7	—	89°	89°	—	POWER UP
8	83°	—	—	83°	FLASHING LIGHT (SPARE)
9	—	5°	5°	—	GATE DOWN
10	—	5°	5°	—	HORIZONTAL SNUB
11	—	45°	45°	—	DOWN SNUB
12	—	—	—	—	SPARE

MECHANISM SHOWN IN CLEAR POSITION.

WCH 3593-E



CONTACT	CLOSED	FUNCTION
2	0-5	GATE DOWN
3	45-90	MOTOR DOWN
4	0-89	MOTOR UP
5	86-90	GATE NORM
6	5-90	BELL
7	0-5	SNUB

SHOW TYPE MECH. INSTALLED

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

REV. 11-15-02
UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT
REC. #11127
5-30-02 JJF
JLK/WITT/WITT/JNM

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHK'D.	CY
LAST LEVEL MOD. THIS TYP.	CK
LAST LEVEL BY DESIGNER.	CZ
CHANGED FROM TYP.? Y/N	N

UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

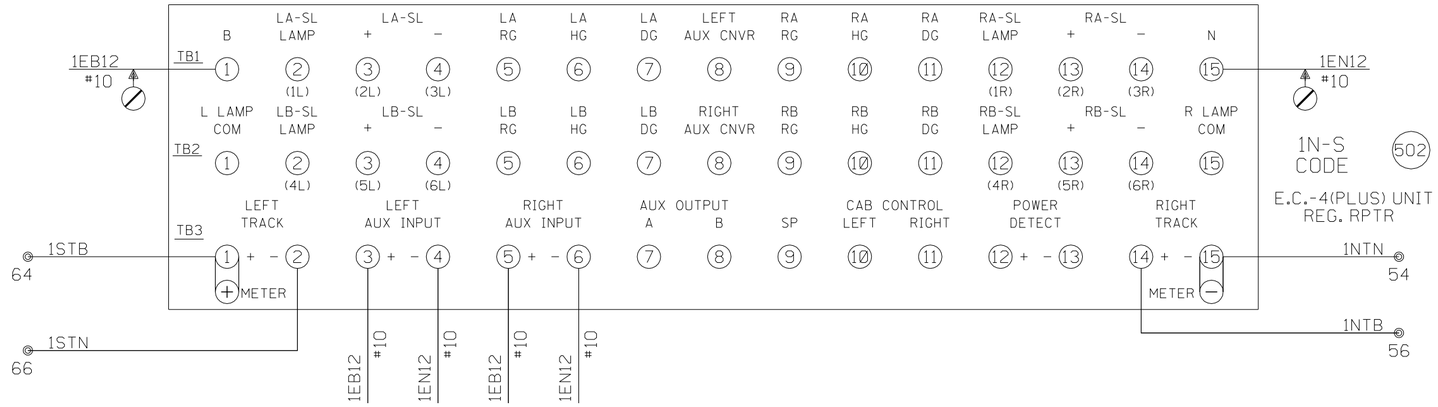
DES: WITT.IND.
DIG: WITT.IND.
CHK: J.J.F.
A.F.E. 30724
ID= HAR2612.12X

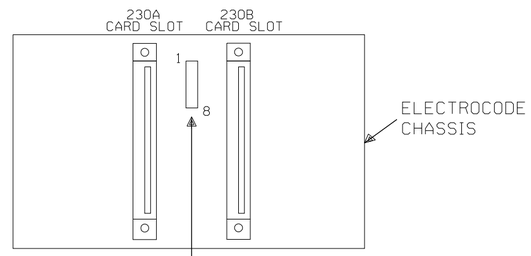
UNION PACIFIC RAILROAD EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS C.T.C. CIRCUITS

Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.

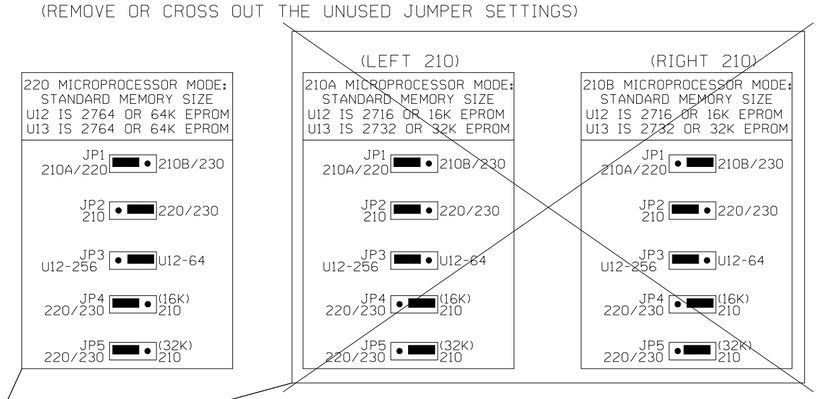
DATE 3-21-00
SHEET 12
DWG 26.12
HAR

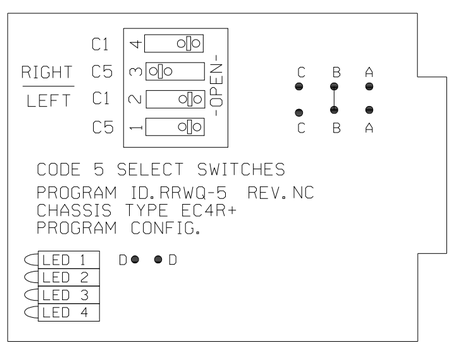
(REV. 4-4-00)(GWIRING.DGN)





USE JUMPER SETTING DETERMINED BY TYPE OF MICROPROCESSOR MODE USED
(REMOVE OR CROSS OUT THE UNUSED JUMPER SETTINGS)

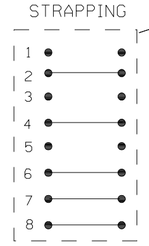




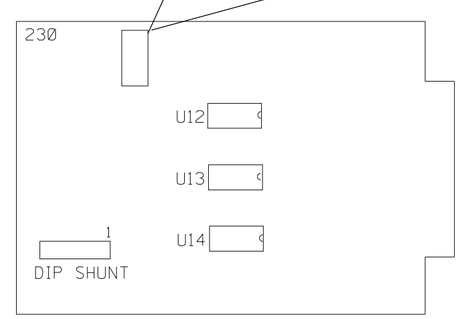
215D MODULE

215D "A" CONFIGURATION = "B" JUMPERED, "A","C" & "D" OPEN
215D "B" CONFIGURATION = "B" OPEN, "A","C" & "D" JUMPERED

ASSIGNED CHASSIS I.D. STRAPPING



SHUNT LOCATED ON BACK OF CHASSIS BETWEEN 230A & 230B CARD SLOT



230 MICROPROCESSOR

NOTES:

⊘ = OBSERVE CORRECT POLARITY EQUIPMENT WILL BE DAMAGED IF CONNECTIONS ARE REVERSED.

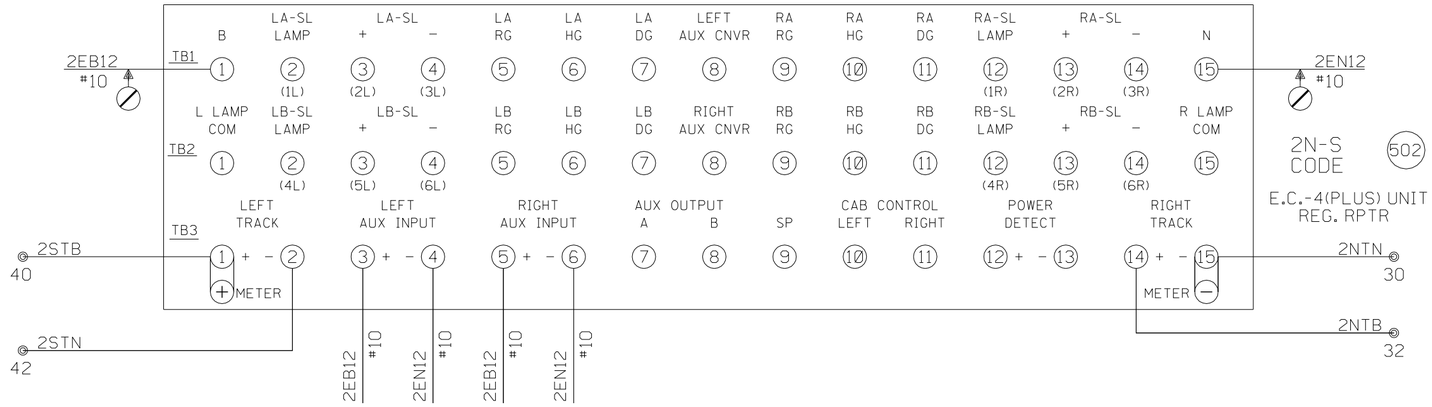
ENSURE TRACK POLARITY IS TRANSPOSED ACROSS ALL INSULATED JOINTS.

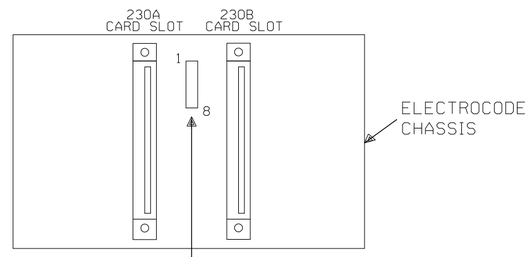
⧖ = TEST TERMINALS MUST BE INSTALLED ON ALL WIRING CONNECTED TO EXTERNAL CABLES (EXCEPT TRACK AND A.C. POWER WIRES).

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

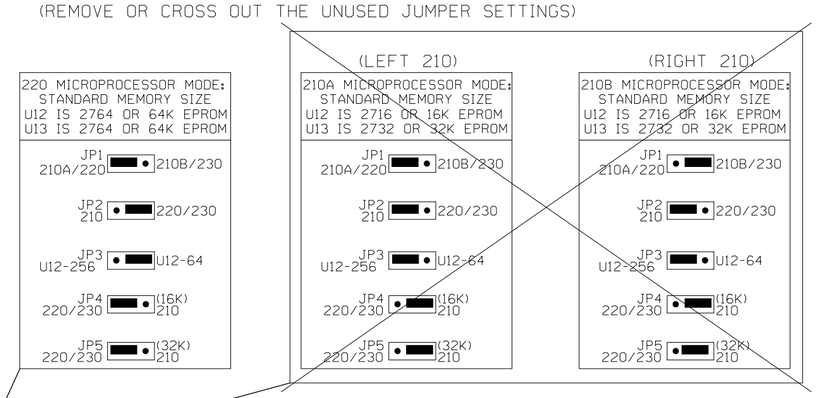
					REV. 11-15-02 UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT REC. #11127 5-30-02 RDD JLK/WITT/WITT/JNM	MODIFICATION LEVEL		UNION PACIFIC QUALITY PRODUCTIVITY SAFETY SIGNAL DESIGN	DES: WITT.IND.	UNION PACIFIC RAILROAD EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS C.T.C. CIRCUITS	DATE 3-21-00
						Q.A. LAST LEVEL CHK'D.	CY		DIG: WITT.IND.		SHEET 13
						LAST LEVEL MOD. THIS TYP.	CQ		CHK: R.D.D.		DWG 26.12
						LAST LEVEL BY DESIGNER.	CZ		A.F.E. 30724		HAR
						CHANGED FROM TYP.? Y/N	Y		ID= HAR2612.13S	Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.	

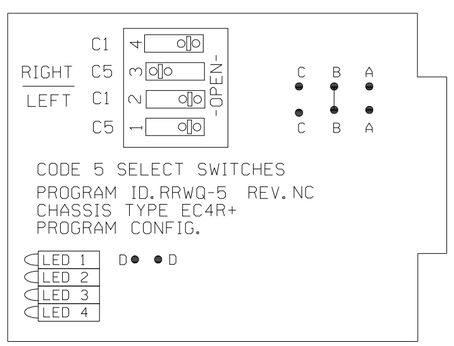
(REV. 4-4-00) (1TE4RGRC.1)





USE JUMPER SETTING DETERMINED BY TYPE OF MICROPROCESSOR MODE USED
(REMOVE OR CROSS OUT THE UNUSED JUMPER SETTINGS)

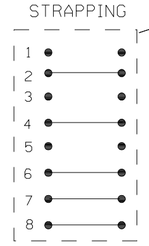




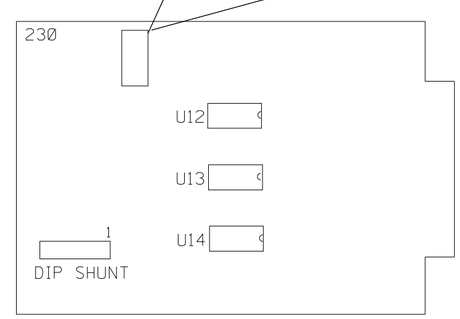
215D MODULE

215D "A" CONFIGURATION = "B" JUMPERED, "A","C" & "D" OPEN
215D "B" CONFIGURATION = "B" OPEN, "A","C" & "D" JUMPERED

ASSIGNED CHASSIS I.D. STRAPPING



SHUNT LOCATED ON BACK OF CHASSIS BETWEEN 230A & 230B CARD SLOT



230 MICROPROCESSOR

NOTES:

⊘ = OBSERVE CORRECT POLARITY EQUIPMENT WILL BE DAMAGED IF CONNECTIONS ARE REVERSED.

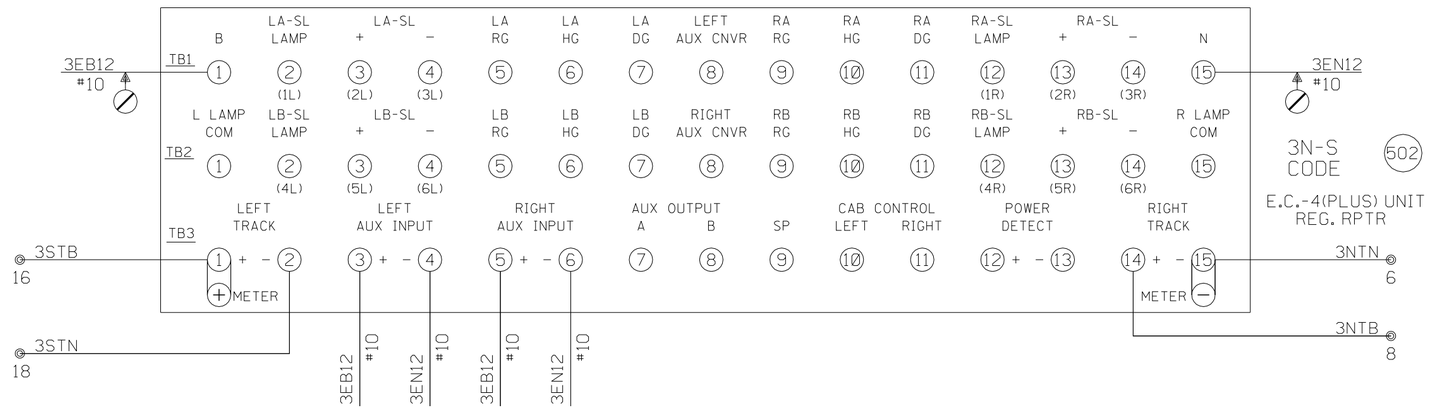
ENSURE TRACK POLARITY IS TRANSPOSED ACROSS ALL INSULATED JOINTS.

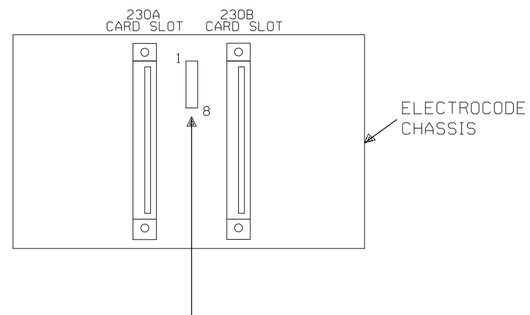
⧖ = TEST TERMINALS MUST BE INSTALLED ON ALL WIRING CONNECTED TO EXTERNAL CABLES (EXCEPT TRACK AND A.C. POWER WIRES).

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

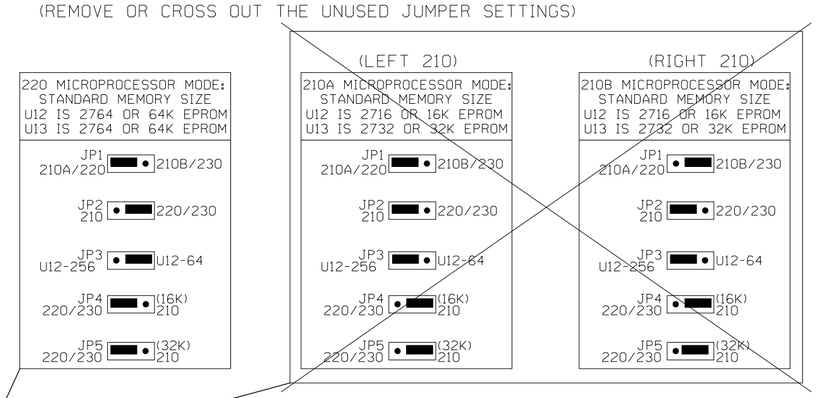
					REV. 11-15-02 UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT REC. #11127 5-30-02 RDD JLK/WITT/WITT/JNM	MODIFICATION LEVEL		UNION PACIFIC QUALITY PRODUCTIVITY SAFETY SIGNAL DESIGN	DES: WITT.IND.	UNION PACIFIC RAILROAD EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS C.T.C. CIRCUITS	DATE 3-21-00
						Q.A. LAST LEVEL CHK'D.	CY		DIG: WITT.IND.		SHEET 14
						LAST LEVEL MOD. THIS TYP.	CQ		CHK: R.D.D.		DWG 26.12
						LAST LEVEL BY DESIGNER.	CZ		A.F.E. 30724		HAR
						CHANGED FROM TYP.? Y/N	Y		ID= HAR2612.14S	Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.	

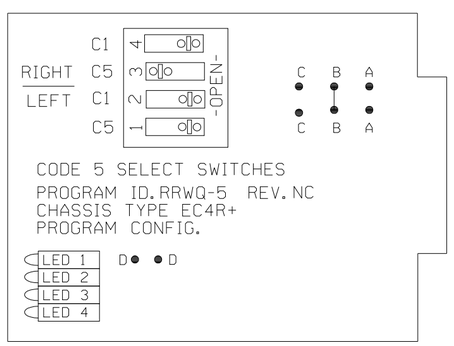
(REV. 4-4-00) (1TE4RGRC.1)





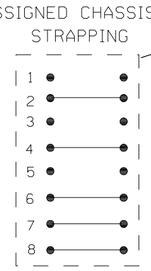
USE JUMPER SETTING DETERMINED BY TYPE OF MICROPROCESSOR MODE USED
(REMOVE OR CROSS OUT THE UNUSED JUMPER SETTINGS)



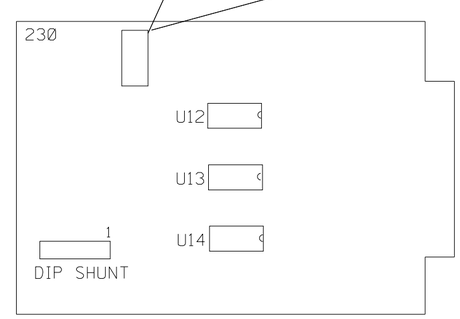


215D MODULE

215D "A" CONFIGURATION = "B" JUMPERED, "A","C" & "D" OPEN
215D "B" CONFIGURATION = "B" OPEN, "A","C" & "D" JUMPERED



SHUNT LOCATED ON BACK OF CHASSIS
BETWEEN 230A & 230B CARD SLOT



230 MICROPROCESSOR

NOTES:

⊘ = OBSERVE CORRECT POLARITY EQUIPMENT WILL BE DAMAGED IF CONNECTIONS ARE REVERSED.

ENSURE TRACK POLARITY IS TRANSPOSED ACROSS ALL INSULATED JOINTS.

⧖ = TEST TERMINALS MUST BE INSTALLED ON ALL WIRING CONNECTED TO EXTERNAL CABLES (EXCEPT TRACK AND A.C. POWER WIRES).

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

					REV. 11-15-02 UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT REC. #11127 5-30-02 RDD JLK/WITT/WITT/JNM	MODIFICATION LEVEL		UNION PACIFIC SIGNAL DESIGN	DES: WITT.IND.	UNION PACIFIC RAILROAD EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS C.T.C. CIRCUITS	DATE 3-21-00
						Q.A. LAST LEVEL CHK'D.	CY		DIG: WITT.IND.		SHEET 15
						LAST LEVEL MOD. THIS TYP.	CQ		CHK: R.D.D.		DWG 26.12
						LAST LEVEL BY DESIGNER.	CZ		A.F.E. 30724		HAR
						CHANGED FROM TYP.? Y/N	Y		ID= HAR2612.15S	Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.	

(REV. 4-4-00) (1TE4RGRC.1)

HD LINKER 03

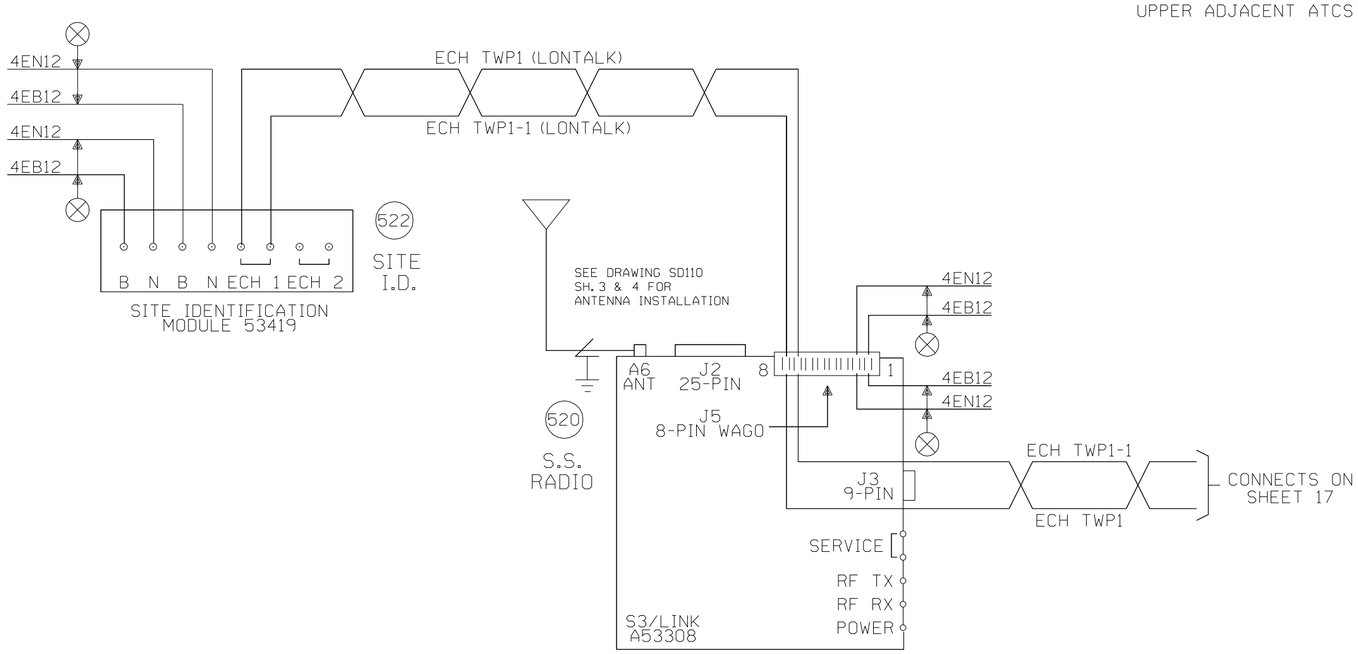
MODULE SIN	7.802.163.781.03	
MCF FILE NAME	78103001 .MCF	
FIELD UCN		
IN SERVICE UCN		
LEFT NEIGHBOR SIN / M.P.	7.802.163.780.03	MP 26.26
RIGHT NEIGHBOR SIN / M.P.	7.802.163.783.03	MP 26.04
LOWER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
LOWER TX/RX FREQUENCY SELECTION REGISTER 61.62		
UPPER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
UPPER TX/RX FREQUENCY SELECTION REGISTER 81.82		
UPPER ADJACENT ATCS ADDRESS REGISTERS 90,91		
LEFT NEIGHBOR PLAN		
RIGHT NEIGHBOR PLAN		

HD LINKER 04

MODULE SIN	7.802.163.781.04	
MCF FILE NAME	78104001 .MCF	
FIELD UCN		
IN SERVICE UCN		
LEFT NEIGHBOR SIN / M.P.	. . . .	RC.
RIGHT NEIGHBOR SIN / M.P.	. . . .	RC.
LOWER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
LOWER TX/RX FREQUENCY SELECTION REGISTER 61.62		
UPPER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
UPPER TX/RX FREQUENCY SELECTION REGISTER 81.82		
UPPER ADJACENT ATCS ADDRESS REGISTERS 90,91		
LEFT NEIGHBOR PLAN		
RIGHT NEIGHBOR PLAN		

HD LINKER 05

MODULE SIN	7.802.163.781.05	
MCF FILE NAME	78105001 .MCF	
FIELD UCN		
IN SERVICE UCN		
LEFT NEIGHBOR SIN / M.P.	. . . .	RC.
RIGHT NEIGHBOR SIN / M.P.	. . . .	RC.
LOWER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
LOWER TX/RX FREQUENCY SELECTION REGISTER 61.62		
UPPER ADJACENT ATCS ADDRESS TX/RX FREQ	. MHZ	
UPPER TX/RX FREQUENCY SELECTION REGISTER 81.82		
UPPER ADJACENT ATCS ADDRESS REGISTERS 90,91		
LEFT NEIGHBOR PLAN		
RIGHT NEIGHBOR PLAN		



NOTES:

1. ALL ECHELON WIRES MUST BE A SHIELDED TWISTED PAIR, PREFERABLY MADE BY BELDON. MAXIMUM WIRE SIZE IS 16 AWG.
2. MAKE ALL ECHELON WIRES AS SHORT AS POSSIBLE.
3. POLYPHASER SHOULD BE LOCATED NO MORE THAN 17 INCHES FROM THE ANTENNA CONNECTION ON THE RADIO.

PALATINE, ILLINOIS
PLUM GROVE ROAD
M.P. 26.12
HARVARD SUBDIVISION
D.O.T.#176 939G

REV. 11-15-02
UPGRADED CROSSING CONTROL AS PER THE PALATINE, IL CORRIDOR PROJECT
REC. #11127
5-30-02 JJF
JLK/WITT/WITT/JNM

MODIFICATION LEVEL	
Q.A. LAST LEVEL CHK'D.	CY
LAST LEVEL MOD. THIS TYP.	CK
LAST LEVEL BY DESIGNER.	CZ
CHANGED FROM TYP.? Y/N	Y

UNION PACIFIC
QUALITY PRODUCTIVITY SAFETY
SIGNAL DESIGN

DES: WITT.IND.
DIG: WITT.IND.
CHK: J.J.F.
A.F.E. 30724
ID= HAR2612.16X

UNION PACIFIC RAILROAD
EVANSVILLE, WISCONSIN TO CHICAGO, ILLINOIS
C.T.C. CIRCUITS
Office of Sr.AVP Engineering - Signal/TCO OMAHA NEBR.

DATE 3-21-00
SHEET 16
DWG 26.12
HAR

(REV. 4-4-00)(CIRCUIT.TYP)