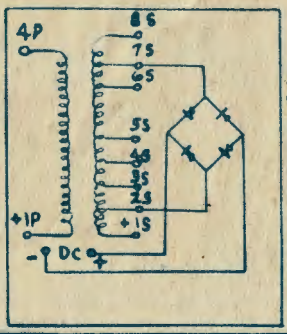
The Pennsylvania Railroad

Standard
Coded Track Circuits
Universal Code
On A C Electric Road

THE UNION SWITCH & SIGNAL CO
SH 544 - 10939 SWISSVALE PA U.S.A.

UNION RECTIFIER FOR POWER SUPPLY OF CODE EQUIP.
STYLE RQ-30 SPEC. 2626
PC NO 188699-C9135 SH.86 CYCLES-100
MAX D.C. VOLTS 17. MAX. CONT. AMPS. OUTPUT 1.7

PRIMARY		SECONDARY		SECONDARY	
VOLTS	TERM	TERM	VOLTS	TERM	VOLTS
112.5	+1P-4P	4S 5S	12.7	2S 3S	15.9
		4S-6S	13.1	2S-6S	16.3
		4S-7S	13.5	2S-7S	16.7
		4S-8S	13.9	2S-8S	17.1
		3S-5S	14.3	1S-3S	17.5
		3S-6S	14.7	1S-6S	17.9
		3S-7S	15.1	1S-7S	18.3
		3S-8S	15.5	1S-8S	18.7

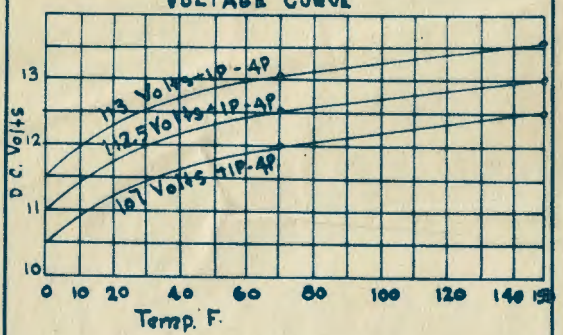


INSTRUCTIONS.
This Rectifier should be kept in a dry place & either set on a shelf or wall mounted. It should have a free circulation of Air the temperature of which should not exceed 160 °F

THE UNION SWITCH & SIGNAL CO.
SH. 545-10939 SWISSVALE, PA. U.S.A.

UNION RECTIFIER FOR POWER SUPPLY OF CODE EQUIP.
STYLE RQ-60 SPEC. 2630
PC. NO. 188693-C9135-SH.84 CYCLES-100
MAX. D.C. VOLTS 17. MAX. CONT. AMPS. OUTPUT 3.4

Sheet No. 1
See Sheet 2.



The secondary A.C. voltage should be adjusted so that the A.C. voltage at the terminals of the loaded rectifier will be as shown on the curves above for the line voltage and temperature existing at the time of adjustment.

To correctly measure the D.C. Volts or amperes use D.C. meters of permanent magnet type. The rectifier gives full wave rectification. The primary terminals are insulated from the D.C. terminals. The secondary terminals are not insulated from the D.C. terminals, but are connected electrically inside the rectifier.

The manufacturer does not assume responsibility for rectifiers which have been in any way dismantled.

Sheet No. 2

VOLTAGE ADJUSTMENT

STYLE RQ-30 & RQ-60 RECTIFIER

THE UNION SWITCH & SIGNAL CO.

SWISSVALE PA

IMPEDANCE COIL FOR TRACK CIRCUIT.

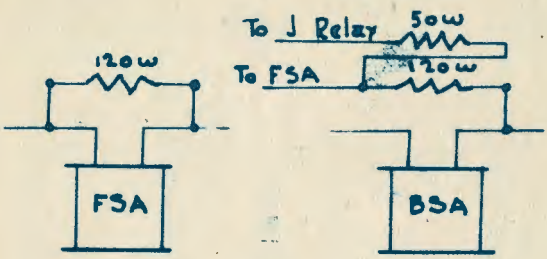
130426-C8025-2 SPEC. 672 60/100 CYCLE

V.T.S.

TAPS.	1-6	1-5	1-4	2-6	2-5	2-4	3-6	3-5	3-4	2-3	4-6	5-6
60 CYCLE OHM	1.03	.86	.71	.58	.46	.35	.26	.18	.11	.07	.05	.02
60 CYCLE MAX VOLTS	30	28	25	23	20	18	13	9	5.5	3.5	2.5	1.0
100 CYCLE OHM.	1.72	1.43	1.18	.97	.76	.58	.48	.30	.18	.12	.08	.03
60 CYCLE MAX. VOLTS	50	46	41	38	33	30	21	15	9	6	4	1.6

NOTE THIS COIL HAS AN AIR GAP OF .026"

Table No. 4
Decoding Relays for the Universal Code System.



	Maximum Front and Back Contacts of Relay	Type of Relay	Ohms Resistance of Relay	Ohms Resistance of Shunt	Piece Number of Relay
FSA or BSA	2F-2B	Union DN22	60	120	188686
	4F-4B	Union DN11	100	120	188774
	6F-6B	Union DN11	60	50	189933
H	4F-4B	Union DN11	100	50	188687
	6F-4B	Union DN11	100	50	188847
J	2F-2B	Union DN22	55	No Shunt	188770
	4F-4B	Union DN11	55	No Shunt	188688
	6F-4B	Union DN11	55	No Shunt	188690

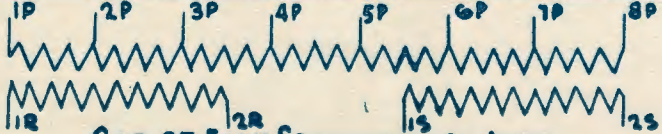
Table No. 3
Track Circuit Adjustment

300 ω Resistor SR. 32A
Ward Leonard.

Ohms.	Lead Connections	Jumpers On Resistor	
———	———	———	———
21	3-4	1-3	2-4
33	3-4	2-3	1-4
38	3-4	2-4	———
42	3-4	1-4	———
50	3-4	———	———
60	1-2	1-3	———
67	1-2	1-4	———
75	2 3	1-4	———
100	1-2	———	———
110	2 4	1-3	———
138	1-3	2-4	———
150	2-3	———	———
200	2-4	———	———
250	1-3	———	———
300	1-4	———	———

AUTO TRANSFORMER

110 VOLTS ON TERM	VOLTS ON TERMINALS							EACH SECONDARY 1R-2R, 1S-2S
	1P-2P	1P-3P	1P-4P	1P-5P	1P-6P	1P-7P	1P-8P	
1P-8P	55	64	74	86	100	105	110	25
1P-7P	57.5	67	77.5	90	10.5	110	115	27.5
1P-6P	60.5	70.5	81.5	94.5	110	116	121	30



CAP OF EACH SECONDARY 20 AMPS.
CAP OF AUTO. WINDING 200 VA.

THE UNION SWITCH & SIGNAL CO
SWISSVALE. PA.

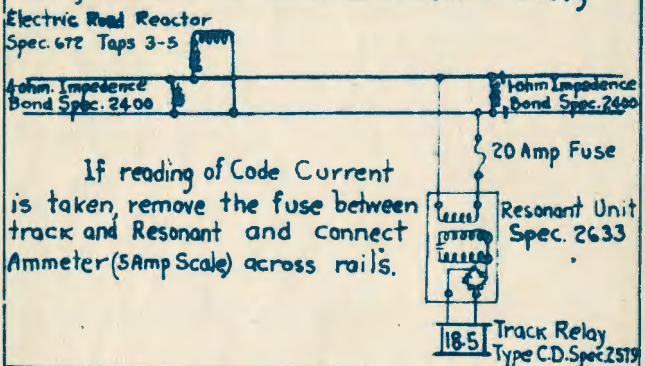
366-10939

300 VA W-10 TRANSFORMER 60/100 CYCLES

1999II-C9226-4 SPEC. 2073

Table No 1

Track Circuit Adjustment for Tracks Signaled in One Direction Only



If reading of Code Current is taken, remove the fuse between track and Resonant and connect Ammeter (5 Amp Scale) across rails.

Length of Track Circuit	Track Transformer Secondary Voltage		D.C. Volts Across Track Relay Terminals				Code Amperes at entering end of Track Circuit Use 5 Amp Scale on Met.		
	Norm.	Max.	Min Wet.	Norm Dry.	Max Dry		Min. wet	Norm. Dry	Max. Dry.
1000	1.75	2.10	1.70	1.85	2.22		1.95	2.05	2.46
1500	2.00	2.40	1.70	1.90	2.28		1.95	2.10	2.52
2000	2.40	2.90	1.70	1.95	2.34		1.95	2.15	2.58
2500	2.90	3.50	1.70	2.00	2.40		1.95	2.20	2.64
3000	3.25	3.90	1.70	2.10	2.52		1.95	2.25	2.70
3500	3.75	4.50	1.70	2.20	2.64		1.95	2.30	2.76
4000	4.40	5.30	1.70	2.25	2.70		1.95	2.40	2.88
4500	5.00	6.00	1.70	2.35	2.82		1.95	2.50	3.00
5000	5.65	6.80	1.70	2.50	3.00		1.95	2.70	3.24
5500	6.25	7.50	1.70	2.60	3.12		1.95	2.85	3.42
6000	7.25	8.70	1.70	2.75	3.30		1.95	3.10	3.72

THE UNION SWITCH & SIGNAL Co.

SH. 441-10939 SWISSVALE PA. U.S.A.

0.6 K.V.A. 60/100 CYCLES

"W-20" TRANSFORMER

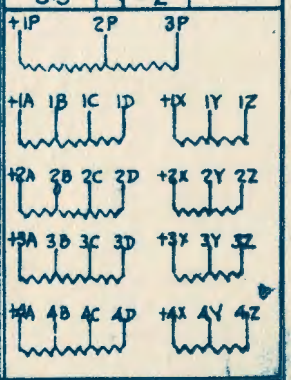
FOUR SECONDARIES.

172150-C9273-Sh.4 Spec. 2272

PRIMARY 1P-3P 110 VOLTS. 2P-3P 10 VOLTS

EACH "XYZ" WINDING MUST BE USED ONLY WITH CORRESPONDINGLY NUMBERED "ABCD" WINDING

EACH SECONDARY			EACH SECONDARY		
VOLTS	CONNECT TO TAPS	JUMPER ON TAPS	VOLTS	CONNECT TO TAPS	JUMPER TO TAPS
17.2	A-Z	D-X	4.9	A-Y	B-Z
16.7	A-Y	D-X	4.4	A-X	B-Y
16.2	A-Z	D-Y	3.9	C-Z	D-X
15.7	A-D	—	3.4	C-Y	D-X
15.2	A-Y	D-Z	2.9	C-Z	D-Y
14.7	A-Z	C-X	2.4	C-D	—
14.2	A-Y	C-X	2.0	C-Y	D-Z
13.8	A-Z	C-Y	1.5	X-Z	—
13.3	A-C	—	1.0	X-Y	—
12.8	A-Y	C-Z	0.5	Y-Z	—
12.3	A-X	C-Y			
11.8	B-Z	D-X			
11.3	B-Y	D-X			
10.8	B-Z	D-Y			
10.3	B-D	—			
9.8	B-Y	D-Z			
9.3	B-Z	C-X			
8.8	B-Y	C-X			
8.3	B-Z	C-Y			
7.9	B-C	—			
7.4	B-Y	C-Z			
6.9	A-Z	B-X			
6.4	A-Y	B-X			
5.9	A-Z	B-Y			
5.4	A-B	—			



CAPACITY EACH SEC. 9 AMPS.

RT 21

THE UNION SWITCH & SIGNAL CO.
342-10935 SWISSVALE PA.

UNION STYLE "RT" RECTIFIER

INSTRUCTIONS

MOUNT IN A DRY PLACE ON THE WALL, KEEPING TERMINAL BLOCK AT THE TOP, OR SET ON THE SHELF. ALLOW A FAIRLY FREE CIRCULATION OF AIR, THE TEMPERATURE OF WHICH SHOULD NOT EXCEED 160° FAHRENHEIT. CONNECT THE (+) D-C TERMINAL OF THE RECTIFIER TO THE (+) TERMINAL OF THE BATTERY. NO ATTENTION NEED BE GIVEN TO THE A-C POLARITY.

TO ADJUST THE CHARGING CURRENT, LOOSEN THE LARGE NUT ON THE TRANSFORMER AND SHIFT THE IRON BLOCK BY TURNING THE KNURLED THUMB NUT. HOLD THE ADJUSTMENT BY RE-TIGHTENING THE LARGE NUT. THE MARKINGS ON THE TRANSFORMER ARE FOR DESCRIBING ADJUSTMENTS AND DO NOT INDICATE ANY DEFINITE CHARGING CURRENT. FIND THE ACTUAL CHARGING CURRENT BY INSERTING A D-C AMMETER OF PERMANENT MAGNET TYPE IN THE LEADS BETWEEN THE RECTIFIER AND THE BATTERY. CONNECT (+) TERMINAL OF THE AMMETER TO THE (+) TERMINAL OF THE RECTIFIER AND CONNECT THE (+) TERMINAL OF THE BATTERY TO UNMARKED TERMINAL OF AMMETER. THE NORMAL A-C VOLTAGE IS GIVEN ON THE NAME PLATE BUT A LOWER A-C VOLTAGE MAY BE USED WHEN LESS THAN MAXIMUM CHARGING CURRENT IS REQUIRED.

IT MAY BE USED TO CHARGE ANY NUMBER OF CELLS IN SERIES AND OF ANY TYPE OR CAPACITY PROVIDING THE CHARGING CURRENT DOES NOT EXCEED THE MAXIMUM FOR THE RECTIFIER AND PROVIDING THE MAXIMUM VOLTAGE OF THE BATTERY DOES NOT EXCEED THE MAXIMUM D-C VOLTAGE FOR THE RECTIFIER.

STYLE "RT" RECTIFIERS GIVE FULL WAVE RECTIFICATION. THE A-C TERMINALS ARE INSULATED FROM THE D-C TERMINALS. - THE MANUFACTURER DOES NOT ASSUME RESPONSIBILITY FOR THE OPERATION OF ANY RECTIFIERS WHICH HAVE BEEN AT ANY TIME OR IN ANY WAY DISMANTLED.

THESE RECTIFIERS ARE SHIPPED CONNECTED AS SHOWN IN DIAGRAM FOR USE ON 60 CYCLES. IF MAXIMUM CHARGING CURRENT IS NEEDED WHEN OPERATING FROM 100 CYCLES, IT MAY BE NECESSARY TO INTERCHANGE 2P WITH 3P AND 2S WITH 3S.

THE TAPS 2P AND 2S ARE TAPED AGAINST WINDINGS OF TRANSFORMERS WHEN SHIPPED.

THE UNION SWITCH & SIGNAL CO.
SWISSVALE PA. U.S.A.

UNION STYLE RT RECTIFIERS

INSTRUCTIONS

MOUNT IN A DRY PLACE ON THE WALL, KEEPING THE TERMINALS AT THE TOP, OR SET ON A SHELF. ALLOW A FAIRLY FREE CIRCULATION OF AIR, THE TEMPERATURE OF WHICH SHOULD NOT EXCEED 160° FAHRENHEIT.

CONNECT (+) D-C TERMINAL OF THE RECTIFIER TO THE (+) TERMINAL OF THE BATTERY. NO ATTENTION NEED BE GIVEN TO A-C POLARITY.

TO ADJUST THE CHARGING CURRENT, LOOSEN THE LARGE NUT AT THE TOP OF THE TRANSFORMER AND SHIFT THE IRON BLOCK. HOLD THE ADJUSTMENT BY RETIGHTENING THE LARGE NUT. THE MARKINGS ON FRONT OF THE TRANSFORMER ARE FOR CONVENIENCE IN DESCRIBING ADJUSTMENTS AND DO NOT INDICATE ANY DEFINITE CHARGING CURRENT. FIND THE ACTUAL CHARGING CURRENT BY INSERTING A D-C AMMETER OF PERMANENT MAGNET TYPE IN THE LEADS BETWEEN THE RECTIFIER AND BATTERY. CONNECT THE (+) TERMINAL OF THE AMMETER TO THE (+) TERMINAL OF THE RECTIFIER AND CONNECT THE (+) TERMINAL OF THE BATTERY TO THE UNMARKED TERMINAL OF AMMETER.

THE NORMAL A-C VOLTAGE IS GIVEN ON THE NAME PLATE BUT A LOWER A-C VOLTAGE MAY BE USED WHEN LESS THAN MAXIMUM CHARGING CURRENT IS REQUIRED.

IT MAY BE USED TO CHARGE ANY NUMBER OF CELLS IN SERIES AND OF ANY TYPE OR CAPACITY PROVIDING THE CHARGING CURRENT DOES NOT EXCEED THE MAXIMUM FOR THE RECTIFIER AND PROVIDING THE MAXIMUM VOLTAGE OF THE BATTERY DOES NOT EXCEED THE MAXIMUM D-C VOLTAGE FOR THE RECTIFIER.

STYLE RT RECTIFIERS GIVE FULL WAVE RECTIFICATION THE A-C TERMINALS ARE INSULATED FROM THE D-C TERMINALS.

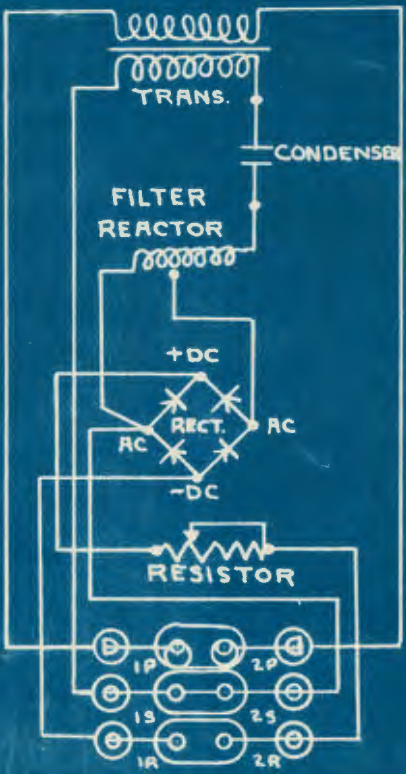
THE MANUFACTURER DOES NOT ASSUME RESPONSIBILITY FOR THE OPERATION OF ANY RECTIFIERS WHICH HAVE BEEN AT ANY TIME OR IN ANY WAY DISMANTLED.

THESE RECTIFIERS ARE SHIPPED CONNECTED AS SHOWN IN DIAGRAM FOR USE ON 60 CYCLES. IF MAXIMUM CHARGING CURRENT IS NEEDED WHEN OPERATING FROM 100 CYCLES IT MAY BE NECESSARY TO INTERCHANGE 2P WITH 3P AND 2S WITH 3S.

THE TAPS 2P AND 2S ARE TAPED AGAINST TRANSFORMERS WHEN SHIPPED.

THE UNION SWITCH & SIGNAL CO.
SH. S47-10939 SWISSVALE PA.

RESONANT TRAN. UNIT.
188696-C9464-SH.1 SPEC 1633

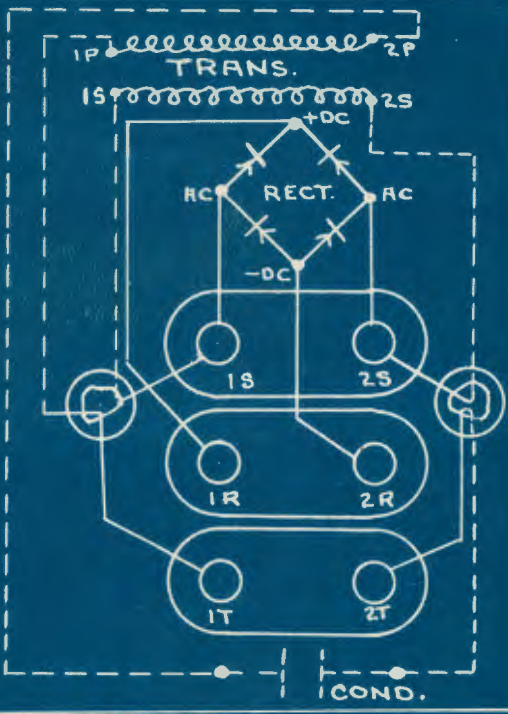


THE UNION SWITCH & SIGNAL CO
SH. 539-10939 SWISSVALE PA.

DECODING UNIT

180 CODE

188694 C9454 SH. 5 SPEC. 2580

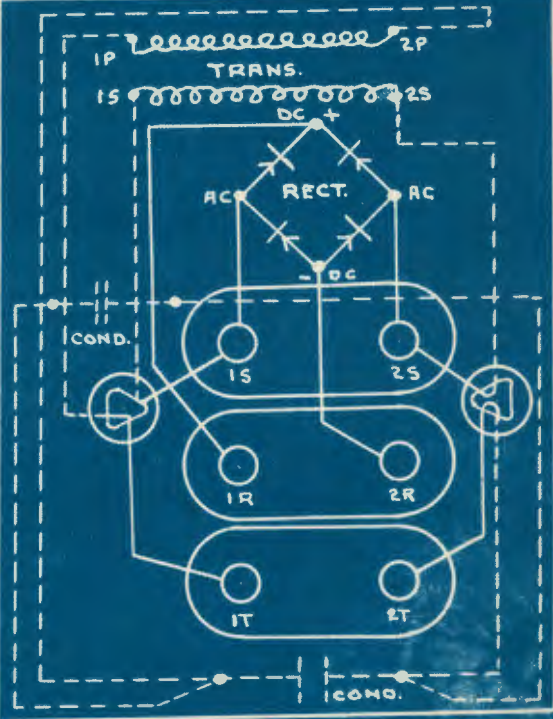


THE UNION SWITCH & SIGNAL
SH. 538-10939 SWISSVALE PA.

DECODING UNIT

120 CODE

188697-C9454-SH6 SPEC. 2580



THE UNION SWITCH & SIGNAL CO

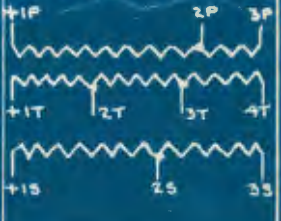
338-10939 SWISSVALE, PA.

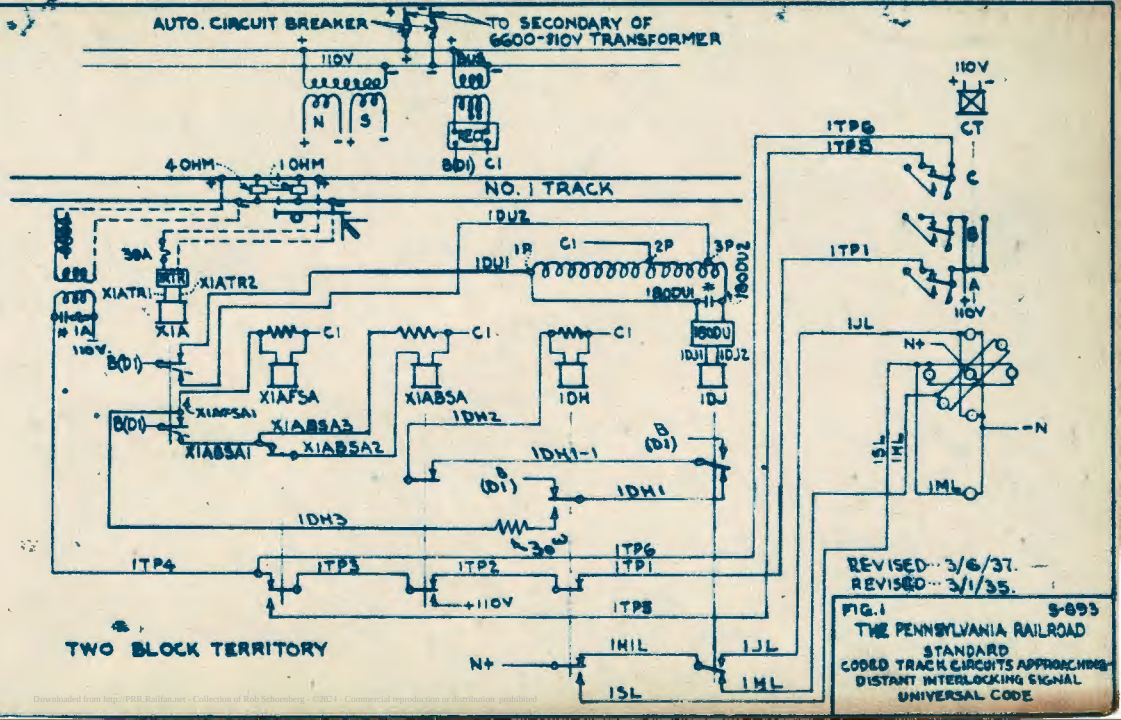
0.3 KVA. W10-TRANS. 60/100 CYCLES

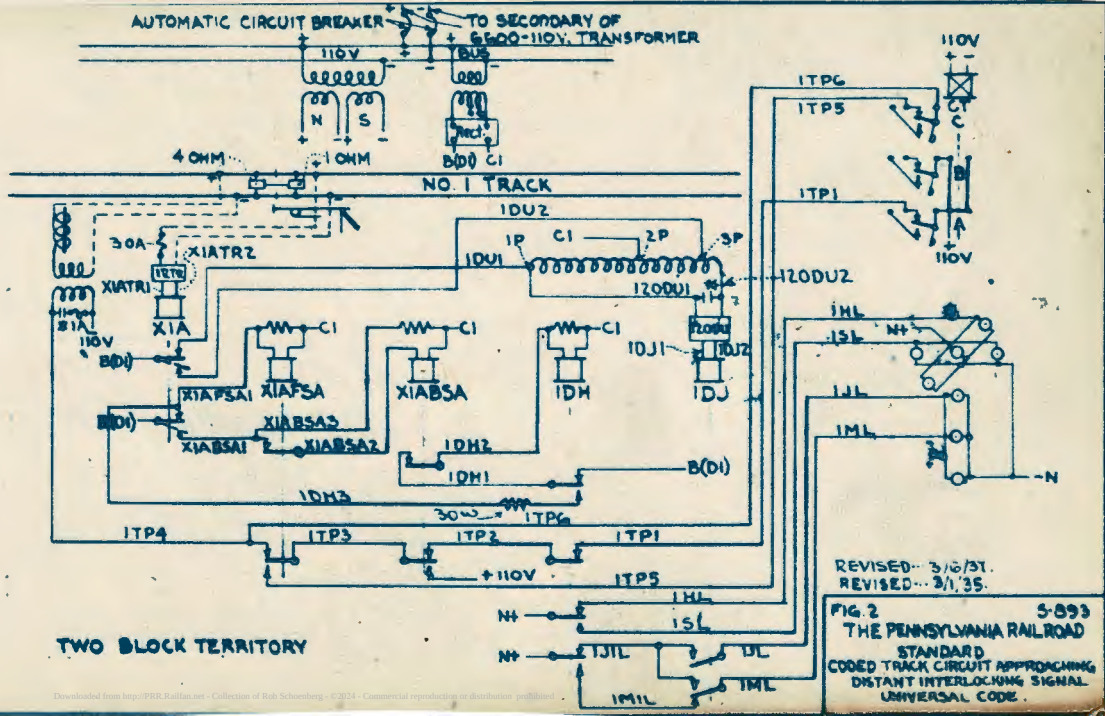
156455-C9228-SH.4 SPEC. 2019

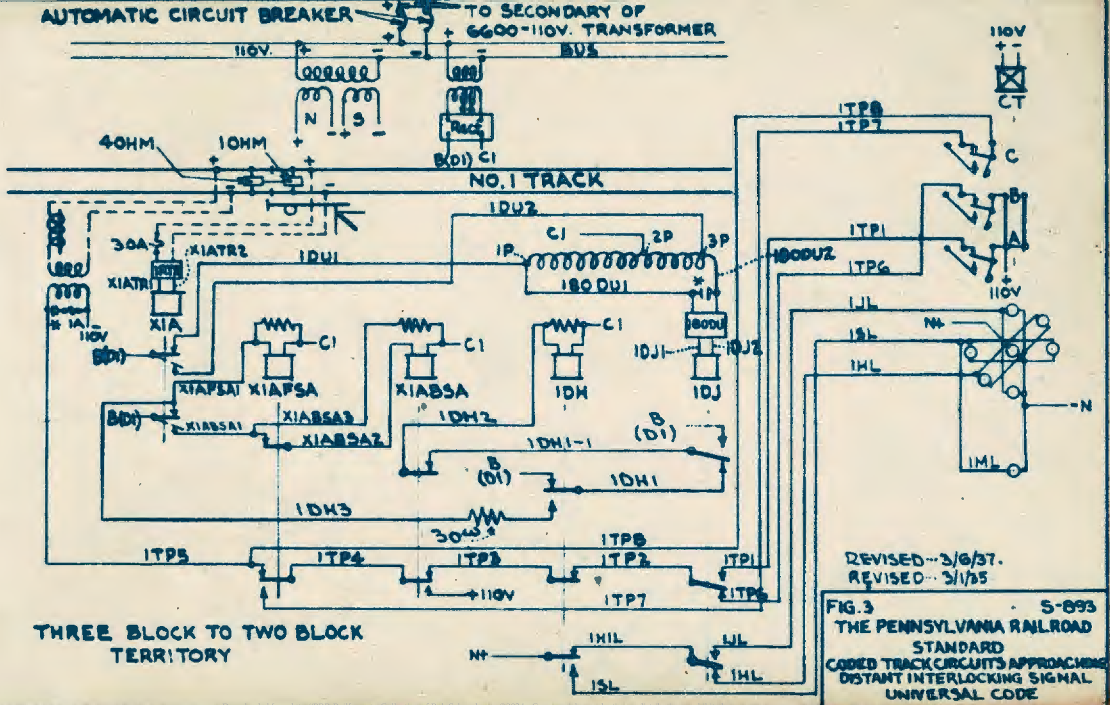
PRIMARY 110V, 1P-3P, 10V, 2P-3P

SECONDARY			SECONDARY (CON'T)		
VOLTS NO LOAD	CONNECT TO TAPS	JUMPER ON TAPS	VOLTS NO LOAD	CONNECT TO TAPS	JUMPER ON TAPS
17.0	1T-3S	4T-1S	6.8	2T-1S	3T-3S
16.6	1T-2S	4T-1S	6.4	1T-3S	2T-1S
16.2	1T-3S	4T-2S	6.0	1T-2S	2T-1S
15.9	1T-4T	——	5.7	1T-3S	2T-2S
15.5	1T-2S	4T-3S	5.3	1T-2T	——
15.1	1T-1S	4T-2S	4.9	1T-2S	2T-3S
14.7	1T-1S	4T-3S	4.5	1T-1S	2T-2S
14.4	1T-3S	3T-1S	4.1	1T-1S	2T-3S
14.0	1T-2S	3T-1S	3.8	3T-3S	4T-1S
13.6	1T-3S	3T-2S	3.4	3T-2S	4T-1S
13.2	1T-3T	——	3.0	3T-3S	4T-2S
12.8	1T-2S	3T-3S	2.6	3T-4T	——
12.5	1T-1S	3T-2S	2.3	3T-2S	4T-3S
12.1	1T-1S	3T-3S	1.9	3T-1S	4T-2S
11.7	2T-3S	4T-1S	1.5	3T-1S	4T-3S
11.3	2T-2S	4T-1S	1.1	1S-3S	——
11.0	2T-3S	4T-2S	0.15	1S-2S	——
10.6	2T-4T	——	0.37	2S-3S	——
10.2	2T-2S	4T-3S			
9.8	2T-1S	4T-2S			
9.5	2T-1S	4T-3S			
9.1	2T-3S	3T-1S			
8.7	2T-2S	3T-1S			
8.3	2T-3S	3T-2S			
7.9	2T-3T	——			
7.5	2T-2S	3T-3S			
7.2	2T-1S	3T-2S			



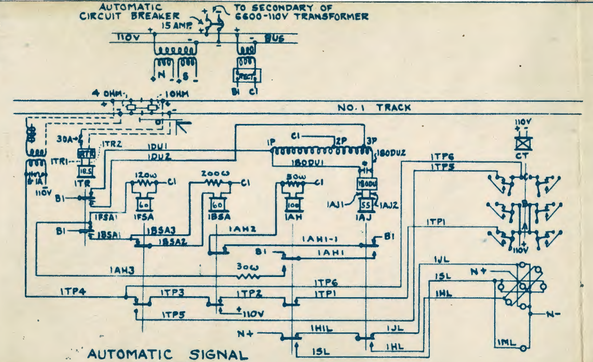


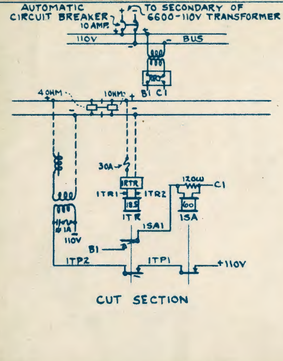


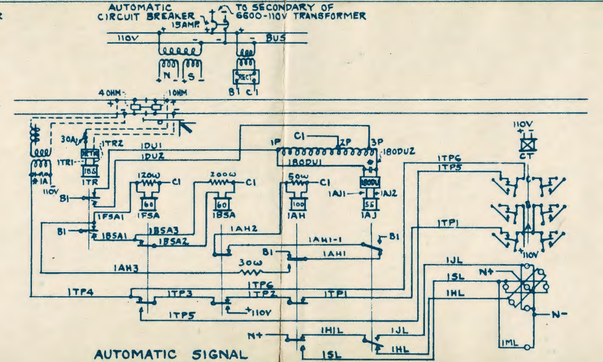


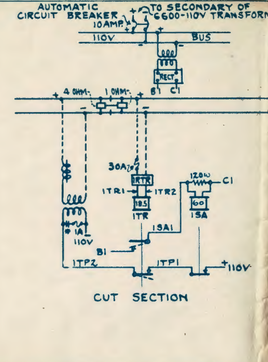
REVISED - 3/6/37.
REVISED - 3/1/35

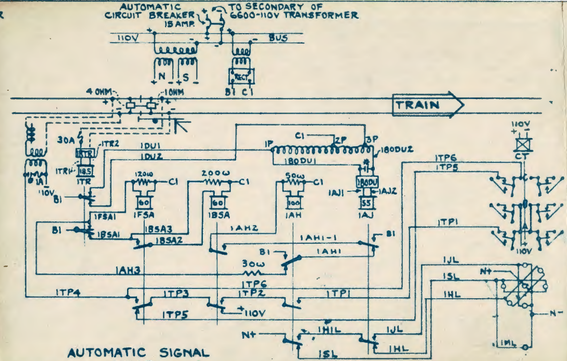
FIG. 3 S-893
THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS APPROACHING DISTANT INTERLOCKING SIGNAL
UNIVERSAL CODE





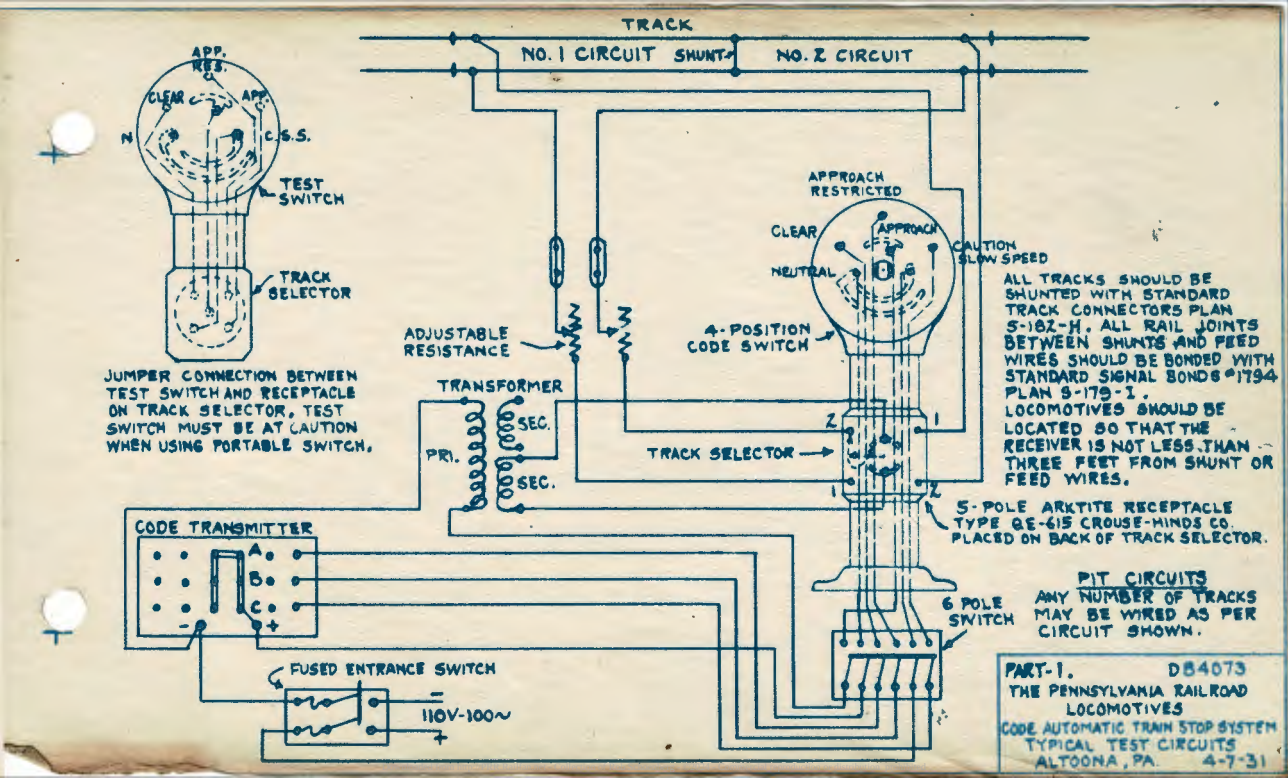






REVISED-9-15-37.

THE PENNSYLVANIA RAILROAD STANDARD CODED TRACK CIRCUITS IN AUTOMATIC TERRITORY UNIVERSAL CODE


TRACK
NO. 1 CIRCUIT
SHUNT
NO. 2 CIRCUIT
APP. RES.
CLEAR
APP.
N
C.S.S.
TEST SWITCH
TRACK SELECTOR
JUMPER CONNECTION BETWEEN TEST SWITCH AND RECEPTACLE ON TRACK SELECTOR. TEST SWITCH MUST BE AT CAUTION WHEN USING PORTABLE SWITCH.
APPROACH RESTRICTED
CLEAR
APPROACH
CAUTION SLOW SPEED
NEUTRAL
ADJUSTABLE RESISTANCE
4-POSITION CODE SWITCH
TRANSFORMER
PRI.
SEC.
SEC.
TRACK SELECTOR
ALL TRACKS SHOULD BE SHUNTED WITH STANDARD TRACK CONNECTORS PLAN S-182-H. ALL RAIL JOINTS BETWEEN SHUNTS AND FEED WIRES SHOULD BE BONDED WITH STANDARD SIGNAL BONDS #1794 PLAN S-179-1. LOCOMOTIVES SHOULD BE LOCATED SO THAT THE RECEIVER IS NOT LESS THAN THREE FEET FROM SHUNT OR FEED WIRES.
5-POLE ARKTITE RECEPTACLE TYPE QE-615 CROUSE-HINDS CO. PLACED ON BACK OF TRACK SELECTOR.
CODE TRANSMITTER
A
B
C
-
+
PIT CIRCUITS
ANY NUMBER OF TRACKS MAY BE WIRED AS PER CIRCUIT SHOWN.
6 POLE SWITCH
FUSED ENTRANCE SWITCH
110V-100~
=
~
PART-1. DB4073
THE PENNSYLVANIA RAILROAD
LOCOMOTIVES
CODE AUTOMATIC TRAIN STOP SYSTEM
TYPICAL TEST CIRCUITS
ALTOONA, PA. 4-7-31

NOTES:-

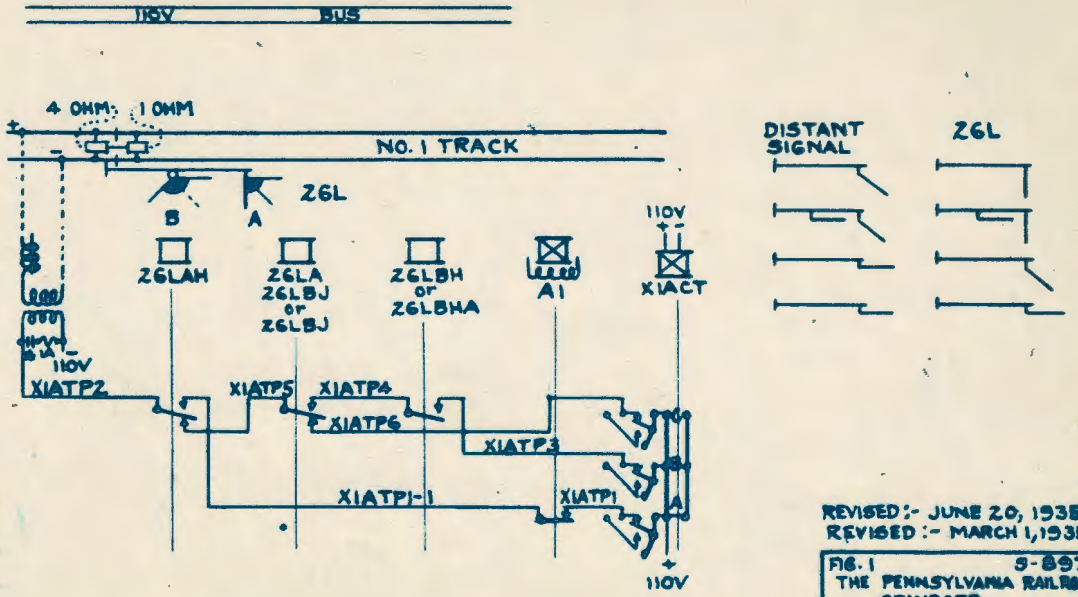
TRK. CIRCUITS SHALL NOT EXCEED - 6,000' STONE BALLAST, 5000' CINDER BALLAST.
BLOCKS SHORTER THEN 13,000' STONE BALLAST, 10,000' CINDER BALLAST.
FIG. 2 FOR 1 CUT, FIG. 4 FOR ADDITIONAL CUTS EXCEPT WHERE FIG. 1 IS NECESSARY.
BLOCKS LONGER THAN 13,000' STONE BALLAST, 10,000' CINDER BALLAST.
FIG. 5 FOR LONGEST CUT, FIG. 4 FOR ADDITIONAL CUTS.

* = SPARK ARRESTER (2.5 MF CONDENSER)

A = PROCEED INDICATION (180 CODE)
B = APPROACH RESTRICTING INDICATION (120 CODE)
C = APPROACH INDICATION (75 CODE)
100 CYCLE CODE
ELECTRIC ROAD
A.C. PROPULSION

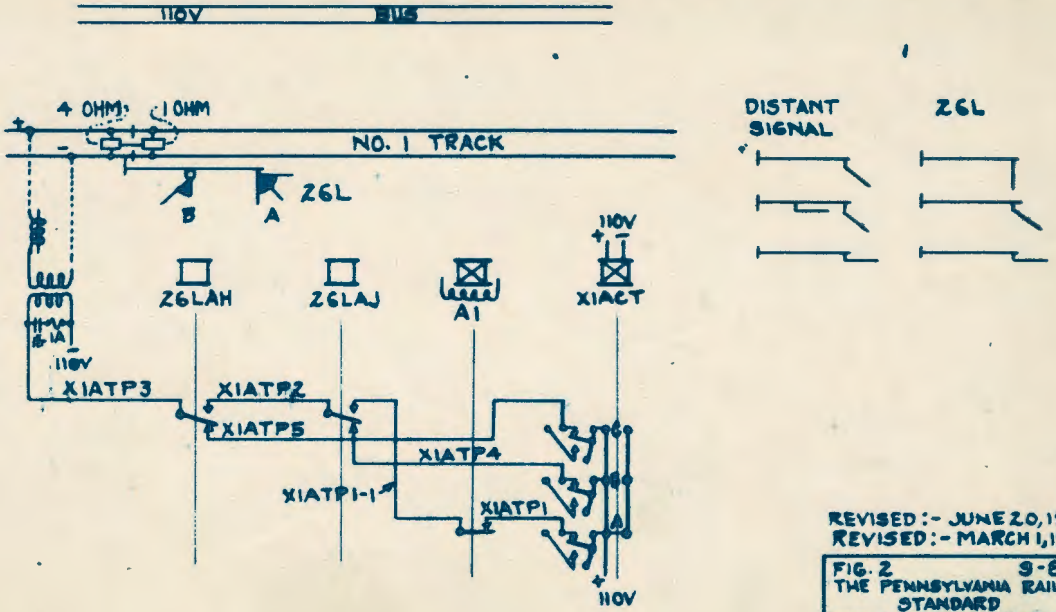
REVISED:- SEPT. 15, 1937.
REVISED:- MARCH 1, 1935.

NOTES S-897
THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS APPROACHING
HOME INTERLOCKING SIGNALS
UNIVERSAL CODE



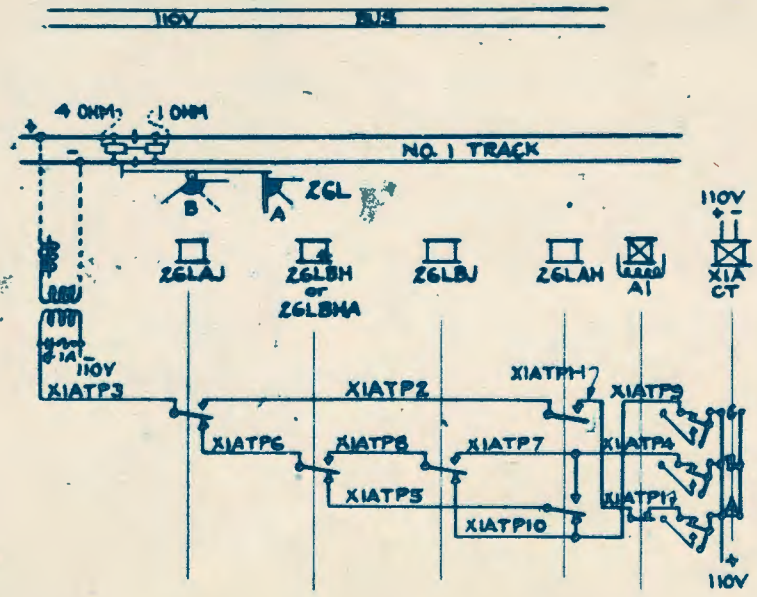
REVISED:- JUNE 20, 1935.
REVISED:- MARCH 1, 1935.

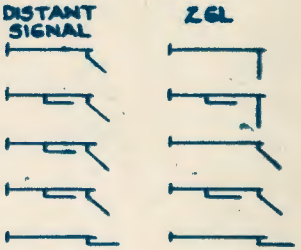
FIG. 1 S-897
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUIT&APPROACHING
NOME INTERLOCKING SIGNALS
UNIVERSAL CODE



REVISED:- JUNE 20, 1935.
REVISED:- MARCH 1, 1935.

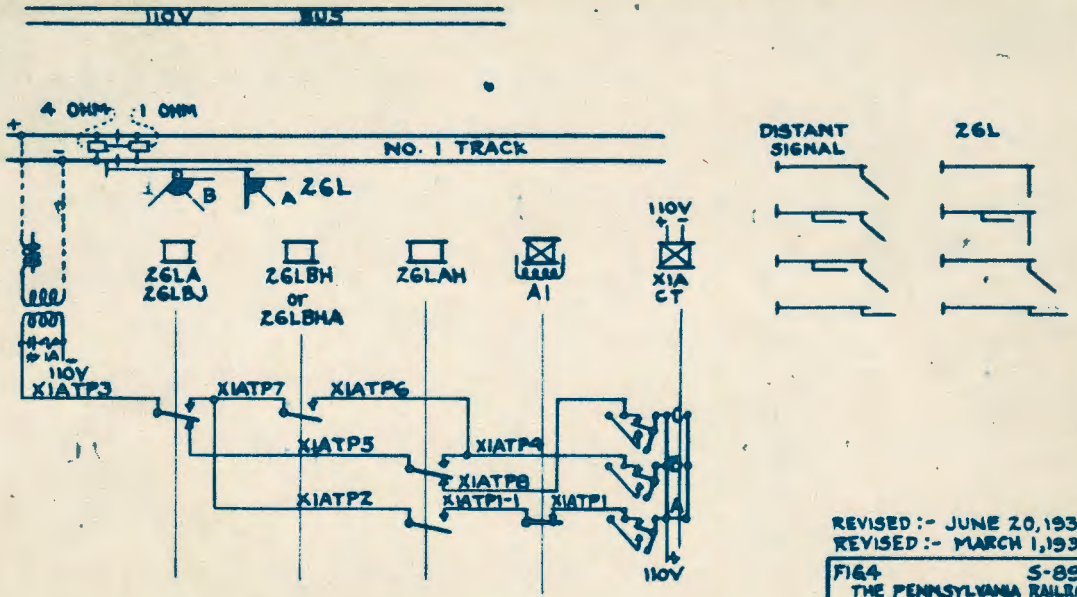
FIG. 2 9-897
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS APPROACHING HOME INTERLOCKING SIGNALS UNIVERSAL CODE





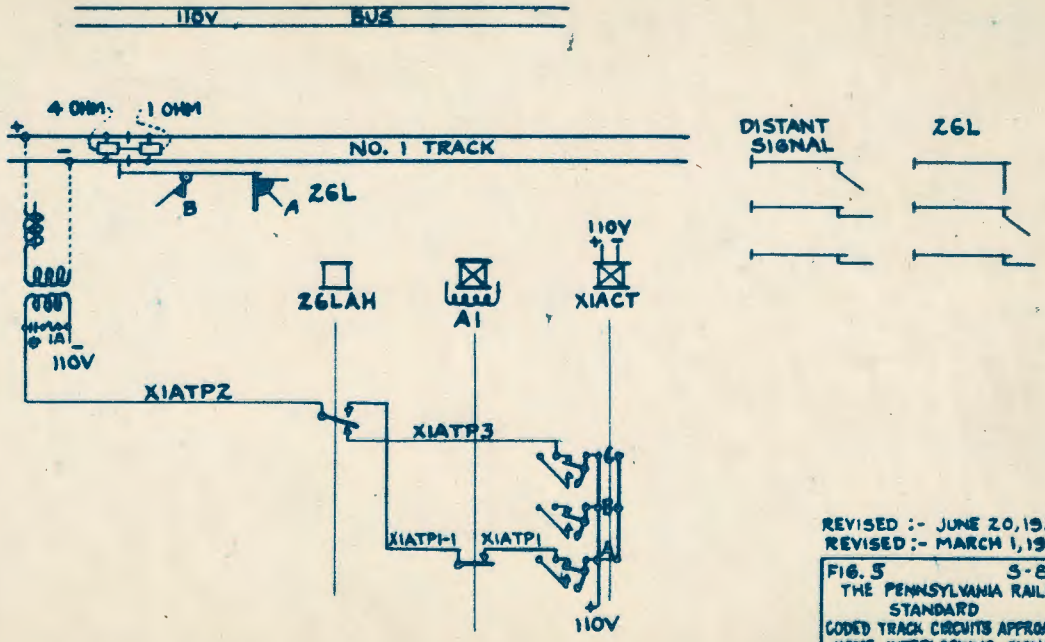
REVISED:- JUNE 20, 1935.
REVISED:- MARCH 1, 1935.

FIG. 3 S-897
THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS APPROACHING
HIGH INTERLOCKING SIGNALS
UNIVERSAL CODE



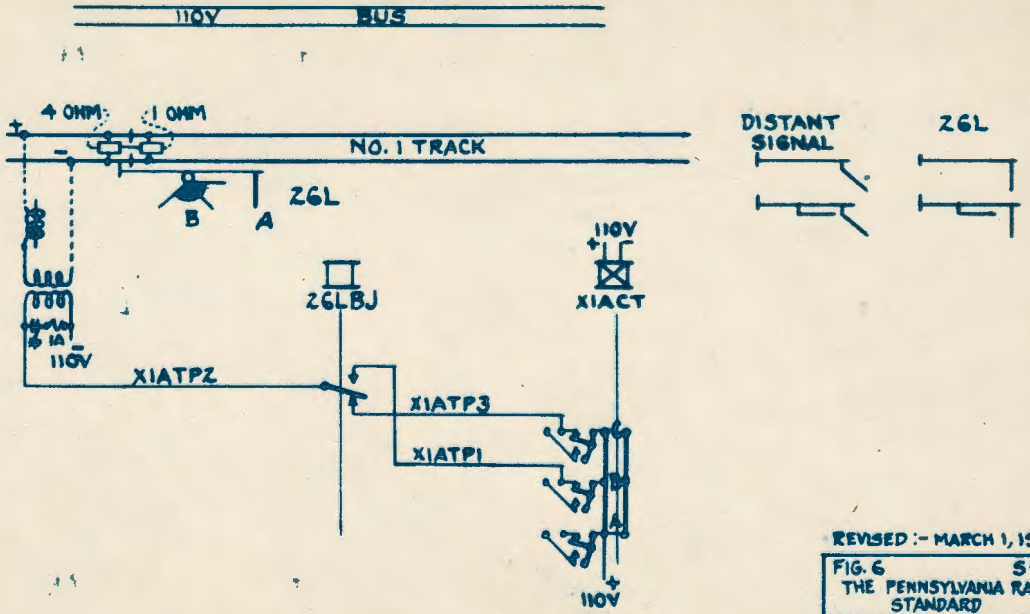
REVISED :- JUNE 20, 1935.
REVISED :- MARCH 1, 1935.

F164 S-897
THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS APPROACHING
HOME INTERLOCKING SIGNALS
UNIVERSAL CODE



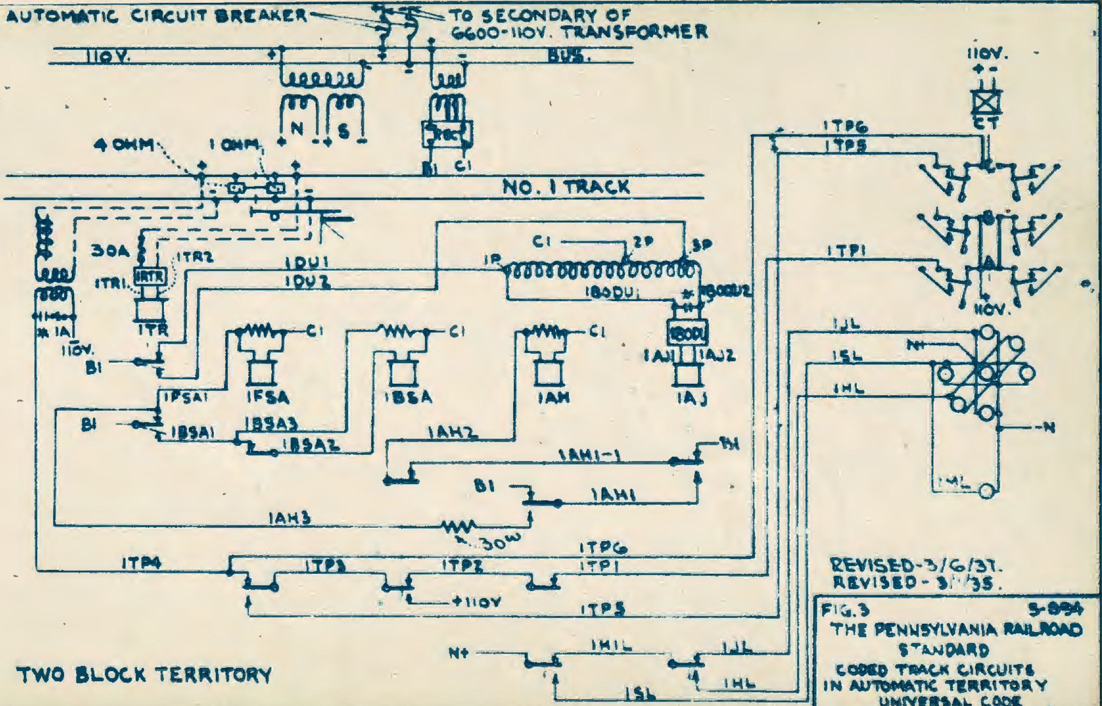
REVISED :- JUNE 20, 1935.
REVISED :- MARCH 1, 1935.

FIG. 5 S-897
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS APPROACHING HOME INTERLOCKING SIGNALS UNIVERSAL CODE



REVISED :- MARCH 1, 1935.

FIG. 6 S-897
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS APPROACHING HOME INTERLOCKING SIGNALS UNIVERSAL CODE

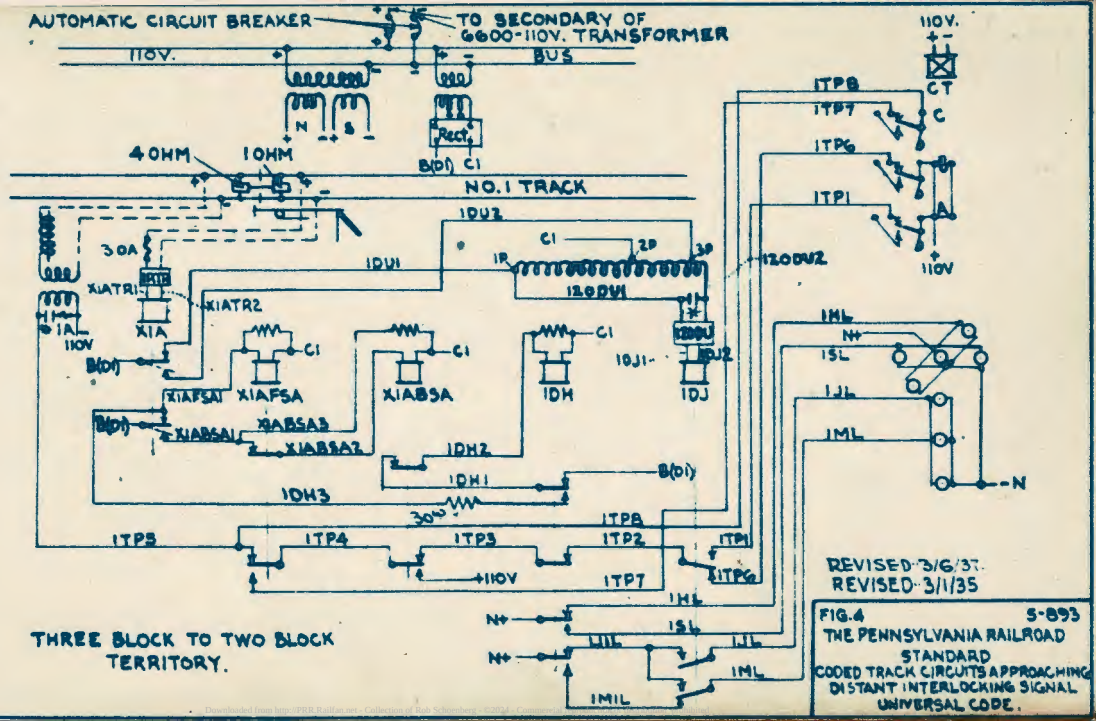


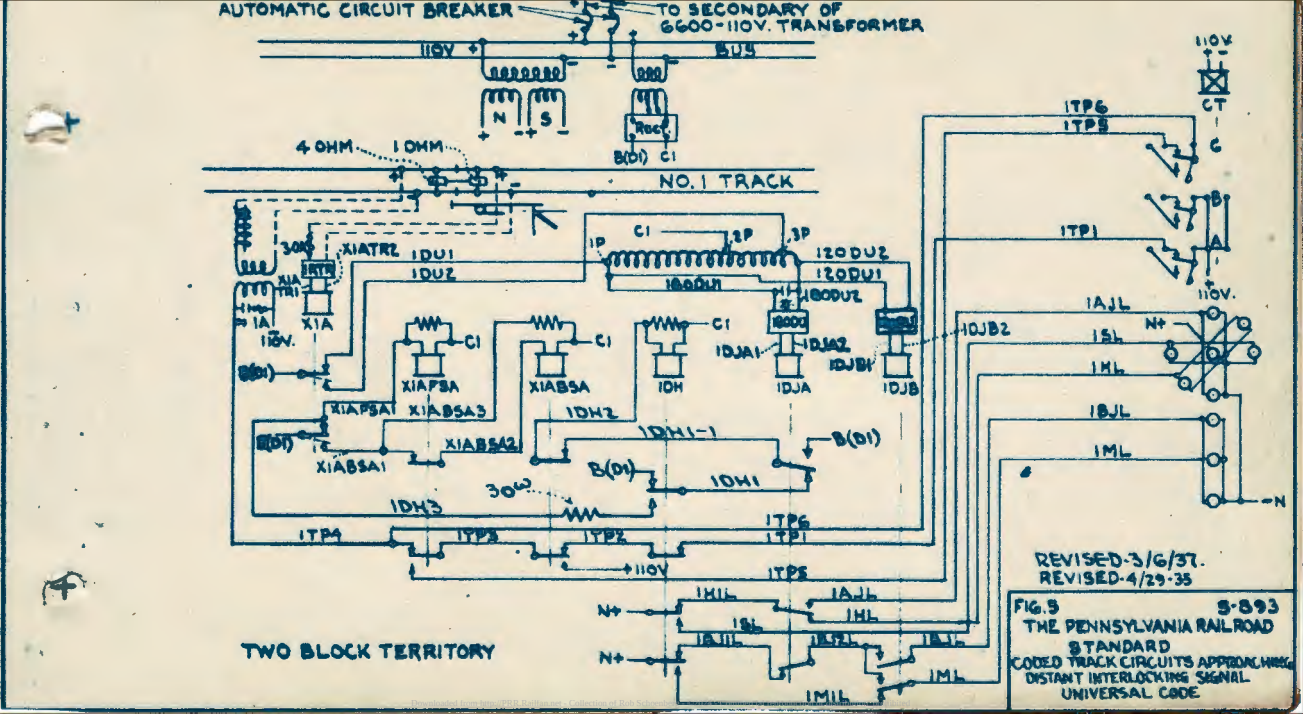
TWO BLOCK TERRITORY

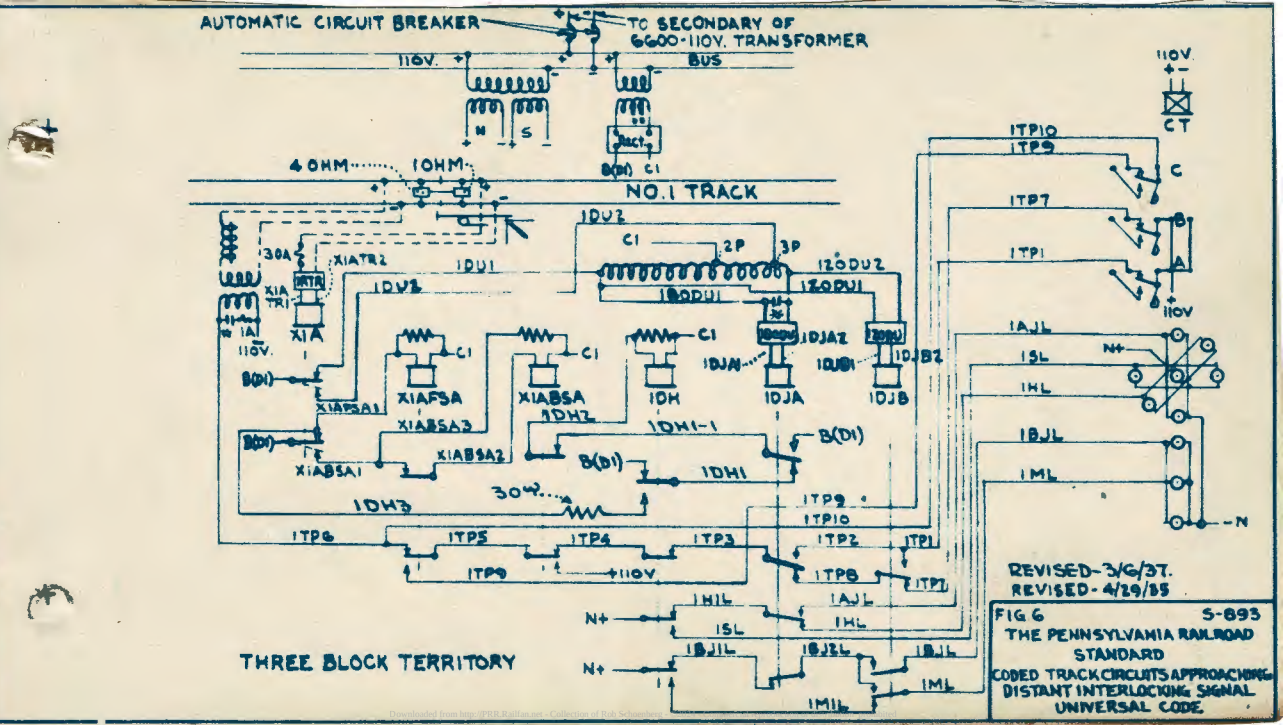
REVISED - 3/6/37.
REVISED - 3/ /35.

FIG. 3 — S-894

THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS
IN AUTOMATIC TERRITORY
UNIVERSAL CODE




AUTOMATIC CIRCUIT BREAKER
TO SECONDARY OF 6600-110V. TRANSFORMER
110V
BUS
N
S
Rect.
B(D1)
C1
4 OHM
1 OHM
NO. 1 TRACK
30Ω
XIATR2
XIA TR1
1A
110V.
XIA
1DU1
1DU2
C1
2P
1P
3P
120DU2
120DU1
1800Ω
1800Ω
1800Ω
1DJA2
1DJB1
1DJB2
1DJA1
XIAPSA
XIABSA
1DH
1DJA
1DJB
XIAPSA1
XIABSA3
XIABSA2
XIABSA1
1DH2
1DH1-1
1DH1
30Ω
1DH3
1TP4
1TP3
1TP2
1TP6
1TP1
1TP5
110V
1H1L
1AJL
1HL
N+
1SL
1BJL
1ML
1M1L
CT
1TP6
1TP5
1TP1
110V.
1AJL
N+
1SL
1HL
1BJL
1ML
N
TWO BLOCK TERRITORY
REVISED-3/6/37.
REVISED-4/29-35
FIG. 5
S-893
THE PENNSYLVANIA RAILROAD
STANDARD
CODED TRACK CIRCUITS APPROACHING DISTANT INTERLOCKING SIGNAL
UNIVERSAL CODE


AUTOMATIC CIRCUIT BREAKER
TO SECONDARY OF 6600-110V. TRANSFORMER
110V.
BUS
N
S
Batt.
4 OHM
1 OHM
B(D1) C1
NO. 1 TRACK
1DU2
C1
2P
3P
120DU2
1DU1
120DU1
30A
X1ATR2
X1A TR1
1DV2
1A
110V.
X1A
C1
1DJM
1DJA2
1DJB2
1DJA1
1DJB1
1DJA
1DJB
X1AFSA
X1ABSA
1DH2
1DH
X1AFSA1
X1ABSA3
X1ABSA1
X1ABSA2
1DH1-1
B(D1)
1DH1
1DH3
30W.
1TP9
1TP10
1TP6
1TP5
1TP4
1TP3
1TP2
1TP1
1TP8
1TP7
+110V.
1HL
1AJL
N+
1SL
1BJL
1ML
1BJ2L
1M1L
THREE BLOCK TERRITORY
110V.
CT
1TP10
1TP9
C
1TP7
B
1TP1
A
110V
1AJL
N+
1SL
1HL
1BJL
1ML
-N
REVISED-3/6/37.
REVISED-4/29/35
FIG 6
S-893
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS APPROACHING DISTANT INTERLOCKING SIGNAL UNIVERSAL CODE.

NOTES :-

1. FOR NOTES IN CONNECTION WITH SIGNAL LIGHTING CIRCUITS, SEE PLAN S-857, SH. 1
2. TRK. CIRCUITS SHALL NOT EXCEED-6000' STONE BALLAST, 5000' CINDER BALLAST.
   BLOCKS SHORTER THAN 13,000' STONE BALLAST, 10,000' CINDER BALLAST.
   FIG. 2 FOR 1 CUT, FIG. 4 FOR ADDITIONAL CUTS EXCEPT WHERE FIG. 1 IS NECESSARY
   BLOCKS LONGER THEN 13,000' STONE BALLAST, 10,000' CINDER BALLAST.
   FIG. 5 FOR LONGEST CUT, FIG. 4 FOR ADDITIONAL CUTS.
   FIG. 4 FOR ALL CUT-SECTIONS BETWEEN LEAVING END OF INTERLOCKING AND NEXT SIGNAL EXCEPT WHERE FIG. 1 OR FIG. 5 IS REQUIRED.

		MAXIMUM FRONT & BACK CONTACTS OF RELAY	TYPE OF RELAY	RESISTANCE OF RELAY	RESISTANCE OF SNUB	PIECE NUMBER OF RELAY
EXCEPT AS NOTED BELOW	SA	2F 2B	UNION-DN22	60 OHMS	120 OHMS	188686
		4F 4B	UNION-DN11	100 OHMS	120 OHMS	188774
		6F 6B	UNION-DN11	60 OHMS	30 OHMS	189933
	H	4F 4B	UNION-DN11	100 OHMS	50 OHMS	188687
		6F 4B	UNION-DN11	100 OHMS	50 OHMS	188647
	J	2F 2B	UNION-DN22	55 OHMS	NO SNUB	188770
		4F 4B	UNION-DN11	55 OHMS	NO SNUB	188688
		6F 6B	UNION-DN11	55 OHMS	NO SNUB	188698
WHERE USED AT SIG. LOC	BSA	2F 2B	UNION-DN22	60 OHMS	200 OHMS	206943
		4F 4B	UNION-DN11	100 OHMS	200 OHMS	206944
		6F 6B	UNION-DN11	60 OHMS	80 OHMS	206945

*= SPARK ARRESTER (2.5 MF. CONDENSER)

A = PROCEED INDICATION (180 CODE)
B = APPROACH RESTRICTING INDICATION (120 CODE)
C = APPROACH INDICATION (75 CODE)
100 CYCLE CODE
ELECTRIC ROAD
A.C. PROPULSION

REVISED:- SEPT. 15, 1937.
REVISED:- APRIL 29, 1935.

NOTES S-893 & S-894
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS IN AUTOMATIC TERRITORY
UNIVERSAL CODE

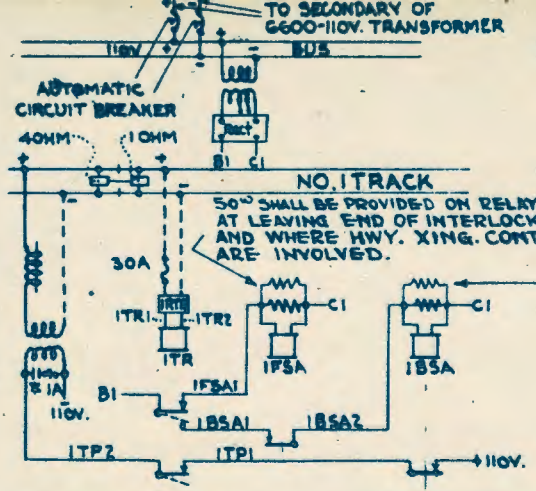


FIG. 1
CUT SECTION

SHALL BE PROVIDED WHERE APPROACH LOCKING OR HWY. XING. CONTROL STARTS AT THIS POINT EXCEPT WHERE FIG. 5 IS USED.

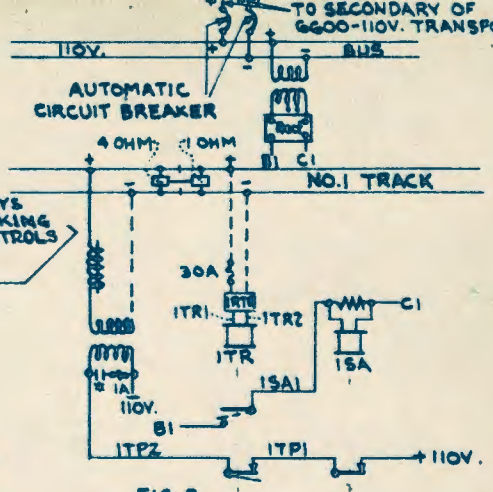


FIG. 2
CUT SECTION

SHALL BE PROVIDED AS SPECIFIED IN NOTES. (ALSO SEE FIG. 4)

REVISED-3/6/37.
REVISED- 3/1/35

FIG. 1&2 S-894
THE PENNSYLVANIA RAILROAD STANDARD
CODED TRACK CIRCUITS IN AUTOMATIC TERRITORY UNIVERSAL CODE