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[illegible]

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M-2 AND M-22 MECHANISM WIRING	2502	2 BLOCK COLOR LIGHT APPR. SIG. CIRCUITS	2544		2586
	2503	2 BLOCK 4 IND. SEARCHLIGHT APPR. SIG. CIRS.	2545		2587
	2504	2 BLOCK 4 IND. COLORLIGHT APPR. SIG. CIRS.	2546		2588
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[illegible]

SECTION AND PLANING
OF POINT
SCALE (2)

ELEVATION

PLAN

TRANSIT CLIP
SCALE (3)

A - 2-MANG. POINTS
B - 1-MANG. AND 1-O.H. FT.
C - 2-O.H. POINTS
D } ADJUSTMENTS FOR
E } 2-O.H. POINTS

ONE HALF PLAN AND ELEVATION
NO.2 METAL FOOT GUARD
SCALE 3/4"

CLIP DRILLING				
	NO.1 CLIP		NO.2 CLIP	
	F	G	F	G
HOLE A		$\frac{7}{16}$		$\frac{3}{16}$
HOLE B	$\frac{1}{32}$		$\frac{3}{32}$	

Technical drawing of a switch assembly, showing side and end views with dimensions and component labels.

Dimensions:

- Overall width: 4'-8 1/2"
- Top horizontal dimensions (from left to right): 20", 21", 20", 20", 20", 20", 20", 20", 18", 17", 18", 5', 5', 5', 5'
- Left vertical dimensions (from top to bottom): 2'-1", 12", 20"

Labels and Components:

- OPTIONAL
- VERTIX
- 1 1/2" BOLT WITH CUT THREAD, SPRING WASHER AND COTTER
- NO. 1 HEAD ROD
- 1 1/4" TURNED BOLT WITH CUT THREAD, COTTER AND SPRING WASHER
- NO. 2 ROD
- 1 1/2" BOLT WITH CUT THREAD, COTTER AND SPRING WASHER
- POSITION OF SWITCH POINT
- 4" THROW
- 3" RIVETS
- 3" BOLTS
- NO. 1 STOP
- NO. 1 FOOT GUARD
- NO. 2 STOP
- NO. 2 FOOT GUARD
- 3" BOLTS
- BEGINNING OF FLOATING TIES
- SWITCH ASSEMBLY

FROG TIE SPACING-S

FROG	TIE SPACING-S
NO. 8	20"
NO. 10	22"

Technical drawing of a switch point and lead rail assembly. The drawing shows a side view of the rail structure with various dimensions and labels. Key features include:

- TOP PLANING**: 7'-0"
- REINFORCING BARS**: 4'-6"
- TOP OF STOCK RAIL**: Dimensions include 16'-6", 24", 2 1/2", 2 3/4", 1", 1/4", 3/8", 1/8", 1/16", 1/32", 1/64", 1/128", 1/256", 1/512", 1/1024", 1/2048", 1/4096", 1/8192", 1/16384", 1/32768", 1/65536", 1/131072", 1/262144", 1/524288", 1/1048576", 1/2097152", 1/4194304", 1/8388608", 1/16777216", 1/33554432", 1/67108864", 1/134217728", 1/268435456", 1/536870912", 1/1073741824", 1/2147483648", 1/4294967296", 1/8589934592", 1/17179869184", 1/34359738368", 1/68719476736", 1/137438953472", 1/274877906944", 1/549755813888", 1/1099511627776", 1/2199023255552", 1/4398046511104", 1/8796093022208", 1/17592186044416", 1/35184372088832", 1/70368744177664", 1/140737488355328", 1/281474976710656", 1/562949953421312", 1/1125899906842624", 1/2251799813685248", 1/4503599627370496", 1/9007199254740992", 1/18014398509481984", 1/36028797018963968", 1/72057594037927936", 1/144115188075855872", 1/288230376151711744", 1/576460752303423488", 1/1152921504606846976", 1/2305843009213693952", 1/4611686018427387904", 1/9223372036854775808", 1/18446744073709551616", 1/36893488147419103232", 1/73786976294838206464", 1/147573952589676412928", 1/295147905179352825856", 1/590295810358705651712", 1/1180591620717411303424", 1/2361183241434822606848", 1/4722366482869645213696", 1/9444732965739290427392", 1/18889465931478580854784", 1/37778931862957161709568", 1/75557863725914323419136", 1/151115727451828646838272", 1/302231454903657293676544", 1/604462909807314587353088", 1/1208925819614629174706176", 1/2417851639229258349412352", 1/4835703278458516698824704", 1/9671406556917033397649408", 1/19342813113834066795298816", 1/38685626227668133590597632", 1/77371252455336267181195264", 1/154742504910672534362390528", 1/309485009821345068724781056", 1/618970019642690137449562112", 1/1237940039285380274899124224", 1/2475880078570760549798248448", 1/4951760157141521099596496896", 1/9903520314283042199192993792", 1/19807040628566084398385987584", 1/39614081257132168796771975168", 1/79228162514264337593543950336", 1/158456325028528675187087900672", 1/316912650057057350374175801344", 1/633825300114114700748351602688", 1/1267650600228229401496703205376", 1/2535301200456458802993406410752", 1/5070602400912917605986812821504", 1/10141204801825835211973625643008", 1/20282409603651670423947251286016", 1/40564819207303340847894502572032", 1/81129638414606681695789005144064", 1/162259276829213363391578010288128", 1/324518553658426726783156020576256", 1/649037107316853453566312041152512", 1/1298074214633706907132624082305024", 1/2596148429267413814265248164610048", 1/5192296858534827628530496329220096", 1/10384593717069655257060992658440192", 1/20769187434139310514121985316880384", 1/41538374868278621028243970633760768", 1/83076749736557242056487941267521536", 1/166153499473114484112975882535043072", 1/332306998946228968225951765070086144", 1/664613997892457936451903530140172288", 1/1329227995784915872903807060280344576", 1/2658455991569831745807614120560689152", 1/5316911983139663491615228241121378304", 1/10633823966279326983230456482242756608", 1/21267647932558653966460912964485513216", 1/42535295865117307932921825928971026432", 1/85070591730234615865843651857942052864", 1/170141183460469231731687303715884105728", 1/340282366920938463463374607431768211456", 1/680564733841876926926749214863536422912", 1/1361129467683753853853498429727072845824", 1/2722258935367507707706996859454145691648", 1/5444517870735015415413993718908291383296", 1/10889035741470030830827987437816582766592", 1/21778071482940061661655974875633165533184", 1/43556142965880123323311949751266331066368", 1/87112285931760246646623899502532662132736", 1/174224571863520493293247799005065324265472", 1/348449143727040986586495598010130648530944", 1/696898287454081973172991196020261297061888", 1/1393796574908163946345982392040522594123776", 1/2787593149816327892691964784081045188247552", 1/5575186299632655785383929568162090376495104", 1/11150372599265311570767859136324180752990208", 1/22300745198530623141535718272648361505980416", 1/4460149039706124628307143654

NOTE: WHEN ONE SWITCH POINT IS ORDERED (RIGHT OR LEFT HAND), THE TRANSIT CLIPS, STOPS, AND NO. 1 FOOT GUARD FOR IT SHALL BE FURNISHED.

BILL OF MATERIAL			
NAME	MARK	NO. PIECE	
SWITCH POINT	R-16-6 110RE	1	
SWITCH POINT	L-16-6 110RE	1	
CLIP #1 ROD	L-16-6 110RE	1	
CLIP #1 ROD	R-16-6 110RE	1	
CLIP #2 ROD	2-L-16-6 110RE	1	
CLIP #2 ROD	2-R-16-6 110RE	1	
STOP NO. 1		2	
STOP NO. 2		2	
FOOT GUARD NO.1		2	
FT. GD. NO.2 INCLUDING	3/4" BOLT	2	
HEAD ROD	1-110 RE	1	
BACK ROD	2-110 RE	1	
PLATE S-1-A	WITH AD- JUSTABLE BRACE AS- SEMBLED	S-1 A	4
PLATE S-1		S-1	6 (CR 5)
PLATE S-2	S-2-110RE		2
PLATE H-1	H-1-16-6-110RF		2
PLATE H-2	H-2-16-6-110RE		2
PLATE H-3	H-3-16-6-110RE		2
PLATE H-4	H-4-16-6-110RE		2
PLATE H-5	H-5-16-6 110RE		2

NOTE: WHEN INSTALLING SWITCH FOR INTERLOCKED SERVICE, SWITCH TIES NECESSARY FOR SUPPORTING INTERLOCKING APPARATUS SHALL BE USED AND THE ARRANGEMENT AT SWITCH POINTS SHALL BE IN ACCORDANCE WITH THE TYPE OF INTERLOCKING TO BE USED.

REQUISITION SHALL SPECIFY FOLLOWING INFORMATION

A - TYPE OF POINT IF OTHER THAN STANDARD OPEN-HEARTH.
B - INSULATED OR NONINSULATED RODS.
C - NUMBER OF S-I PLATES IF OTHER THAN MINIMUM IS REQUIRED.
D - DIMENSIONS "TH" AND "D" ON NO. 1 ROD.

Diagram illustrating the Switch Angle geometry. Key components and labels include:

- BEND IN STOCK RAIL
- SPREAD IN 12" = $\frac{3}{8}$ " (36396)
- GAGE LINE OF STOCK RAIL
- ANGLE = 1°-44'-11"
- GAGE LINE OF SWITCH POINT
- 16'-6" SWITCH POINT
- ACTUAL POINT OF SWITCH
- HEEL OF SWITCH
- 8 1/2" MINIMUM
- 10" MAXIMUM

NO SCALE

NOTE:
CHAMFER OUT—MAKE SWITCH POINT $\frac{1}{8}$ " THICK AND RUN
OUT IN 24" FROM END OF POINT, ROUND POINT TO $\frac{1}{2}$ " RADIUS
AND GRIND TO SHARP EDGE.

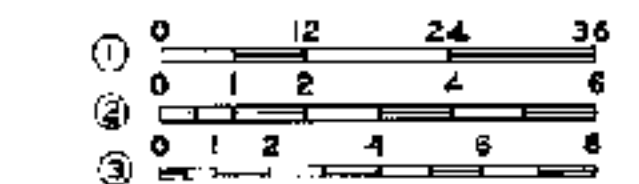
NAME OR INITIALS OF MANUFACTURER, SECTION AND WEIGHT OF RAIL, NAME AND YEAR MADE SHALL BE PLAINLY STAMPED IN FIGURES AND LETTERS ON A RAIL PORTION OF THE STRUCTURE NOT EXPOSED TO WHEEL WEAR AND WHERE PLAINLY VISIBLE. SMALLER FIGURES AND LETTERS MAY BE USED IF ABOVE IS ON A RUST PROOF PLATE RIVETED TO WEB OF RAIL.

BOLTS SHALL HAVE A CLEARANCE OF NOT MORE THAN $\frac{1}{16}$ IN DRILLED HOLES AND SHALL BE FITTED WITH SPRING WASHERS OF APPROVED DESIGN, AND COTTERS, HEADS SHALL BE REGULAR, SQUARE, AS PER TABLE 1; AND NUTS, HEAVY, SQUARE, AS PER TABLE 13 (A, B & C-1933). THREADS FOR BOLTS SHALL BE AS PER TABLE 11 AND T-HEADS FOR NUTS AS PER TABLE 12 (A.S.A. B-11-15).

MATERIAL SHALL CONFORM TO LATEST REVISION OF STANDARD SPECIFICATIONS R-13, SWITCHES, FROGS, CROSSINGS, AND GUARD RAIL. FOR DETAILS OF RAIL BRACE, SEE LATEST REVISION OF STANDARD DRAWING R-700, ADJUSTABLE TWO PIECE RAIL BRACE.

PLATES S-1 AND S-1-A TO BE LAGGED TO SWITCH T IMBER WITH F
LAG SCREWS AND FOUR DOUBLE COIL SPRING WASHERS; DRAWING I

SCALE IN INCHES



APPROVED FOR USE

THE CHESTERFIELD BIRD SMOKE
"BIRLINA" COMPANY

2019-8-22
VICE PRESIDENT
ERIE RAILROAD COMPANY

Bill Woodcock
VILLAGE LIAISON
-THE NEW YORKER, CHINAUG AND

ST. LOUIS RAILROAD COMPANY
[Signature]
 VICE PRESIDENT



A-7		MILS REF WATER	
S.M.H.	W.S.F	J.R.S.	
H.I.S.			

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD 110-LB. R.E.
16'-6" SPLIT SWITCH
WITH UNIFORM RISERS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED:  JUNE 16, 1931

SHEET 1 OF 2
R-573-A

SECTION AND PLANING
OF POINT
SCALE (2)

LEVATION

PLAN

TRANSIT CLIP
SCALE ③

-MANG. POINTS
 MANG. AND -O.H. PT.
 -O.H. POINTS
 ADJUSTMENTS FOR
 -O.H. POINTS

ONE HALF PLAN AND ELEVATION
NO.2 METAL FOOT GUARD
SCALE ③

NO. 1 METAL FOOT GUARD
SCALE (3)

CLIP DRILLING				
	NO. 1 CLIP		NO. 2 CLIP	
	F	G	F	G
HOLE A		$\frac{7}{16}$ "		$\frac{3}{16}$ "
HOLE B	$\frac{1}{8}$ "		$\frac{5}{32}$ "	

SWITCH ASSEMBLY

ELEVATION OF SWITCH POINT
SCALE (1)

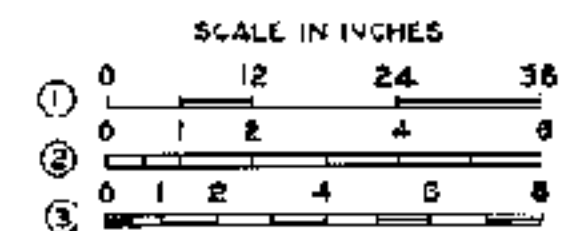
NOTE: WHEN ONE SWITCH POINT IS ORDERED (RIGHT OR LEFT HAND), THE TRANSIT GLIPS, STOPS, AND NO. 1 FOOT GUARD FOR IT SHALL BE FURNISHED.

BILL OF MATERIAL			
NAME		MARK	NO. PIECES
SWITCH POINT		H-16-5 10 RE	1
SWITCH POINT		L-16-5 10 RE	1
CLIP #1 ROD		L-16-5 10 RE	1
CLIP #1 ROD		R-16-6 10 RE	1
CLIP #2 ROD		2-L-16-6 10 RE	1
CLIP #2 ROD		2-R-16-6 10 RE	1
STOP NO. 1			2
STOP NO. 2			2
FOOT GUARD NO. 1			2
FT. GDS. NO. 2 INCLUDING 3/4" BOLT			2
HEAD ROD		H-10 RE	1
BACK ROD		B-10 RE	1
PLATE S-1-A	WITH ADJUSTABLE BRACE ASSEMBLED	S-1-A	4
PLATE S-1		S-1	6 (GR 8)
PLATE S-2	S-2-10 RE		12
PLATE H-1	H-1-16-6-10 RE		2
PLATE H-2	H-2-16-6-10 RE		2
PLATE H-3	H-3-16-6-10 RE		2
PLATE H-4	H-4-16-6-10 RE		2
PLATE H-5	H-5-16-6-10 RE		2

NOTE: WHEN INSTALLING SWITCH FOR INTERLOCKED SERVICE, SWITCH TIES NECESSARY FOR SUPPORTING INTERLOCKING APPARATUS SHALL BE USED AND TIE ARRANGEMENT AT SWITCH POINTS SHALL BE IN ACCORDANCE WITH THE TYPE OF INTERLOCKING TO BE USED.

REQUISITION SHALL SPECIFY FOLLOWING INFORMATION:

A-TYPE OF POINT IF OTHER THAN STANDARD OPEN-HEARTH.
B-INSULATED OR NONINSULATED RODS.
C-NUMBER OF S-I PLATES IF OTHER THAN MINIMUM IS REQUIRED.
D-DIMENSIONS "H" AND "D" ON NO. 1 ROD.



POINT STOP
SCALE (3)

DIAGRAM OF SWITCH ANGLE
NO SCALE

NOTE:
CHAMFER OUT—MAKE SWITCH POINT $\frac{1}{10}$ " THICK AND RUN
OUT IN 24" FROM END OF POINT. ROUND POINT TO $\frac{1}{2}$ " RADIUS
AND GRIND TO SHARP EDGE.

NAME OR INITIALS OF MANUFACTURER, SECTION AND WEIGHT OF RAIL, NAME AND YEAR MADE SHALL BE PLAINLY STAMPED IN $\frac{1}{2}$ FIGURES AND LETTERS ON A RAIL PORTION OF THE STRUCTURE NOT EXPOSED TO WHEEL WEAR AND WHERE PLAINLY VISIBLE. SMALLER FIGURES AND LETTERS MAY BE USED IF ABOVE IS ON A RUST PROOF PLATE RIVETED TO WEB OF RAIL. NAME AND WEIGHT OF RAIL SHALL BE NOT MORE THAN 1" IN

BOLTS SHALL HAVE A CLEARANCE OF NOT MORE THAN $\frac{1}{16}$ IN
DRILLED HOLES AND SHALL BE FITTED WITH SPRING WASHERS OF
APPROVED DESIGN, AND COTTERS. HEADS SHALL BE REGULAR,
SQUARE, AS PER TABLE 1; AND NUTS, HEAVY, SQUARE, AS PER
TABLE 13 (A. S. A. 8.2-1933). THREADS FOR BOLTS SHALL BE AS PER
TABLE 11 AND THREADS FOR NUTS AS PER TABLE 12 (A. S. A. 8.1-1935).

MATERIAL SHALL CONFORM TO LATEST REVISION OF STANDARD SPECIFICATIONS R-13, SWITCHES, FROGS, CROSSINGS, AND GUARD RAILS.

FOR DETAILS OF RAIL BRACE, SEE LATEST REVISION OF STANDARD
DRAWING R-700, ADJUSTABLE TWO PIECE RAIL BRACE.

PLATES 5-1 AND 5-1A TO BE LAGGED TO SWITCH TIMBER WITH FOUR $\frac{7}{8}$ LAG SCREWS AND FOUR DOUBLE COIL SPRING WASHERS; DRAWING R-523.

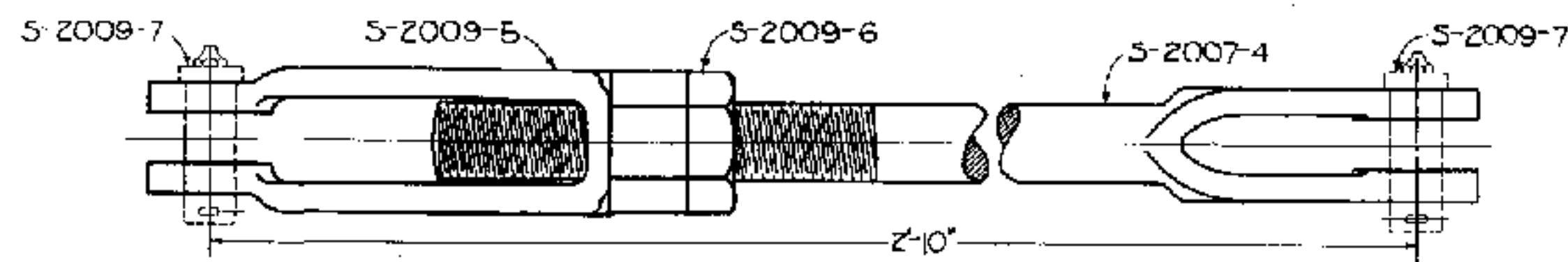
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>W. H. ...</i> VICE PRESIDENT		
PRINCIPAL LARSON COMPANY <i>Ed ...</i> VICE PRESIDENT		
THE BERRY MANUFACTURING COMPANY ST. LOUIS, MO. <i>W. H. ...</i> VICE PRESIDENT		
W. E. MARSHALL WILLIAMS COMPANY <i>W. H. ...</i> VICE PRESIDENT		
S.M.	W.S.F.	J.R.S.
M.S.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PETER MARQUETTE RAILWAY COMPANY

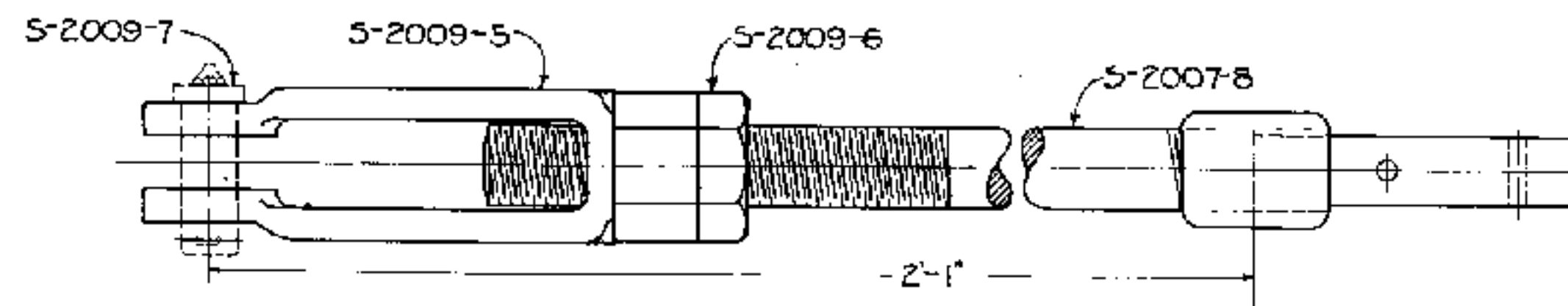
STANDARD 110-LB. R.E.
16'-6" SPLIT SWITCH
WITH UNIFORM RISERS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: _____ JUNE 18, 1931

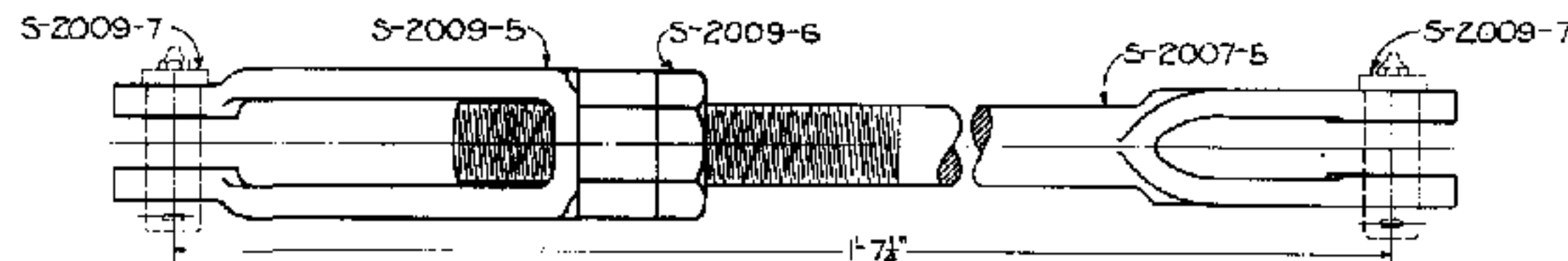
SHEET 1 OF 2
R-573-A



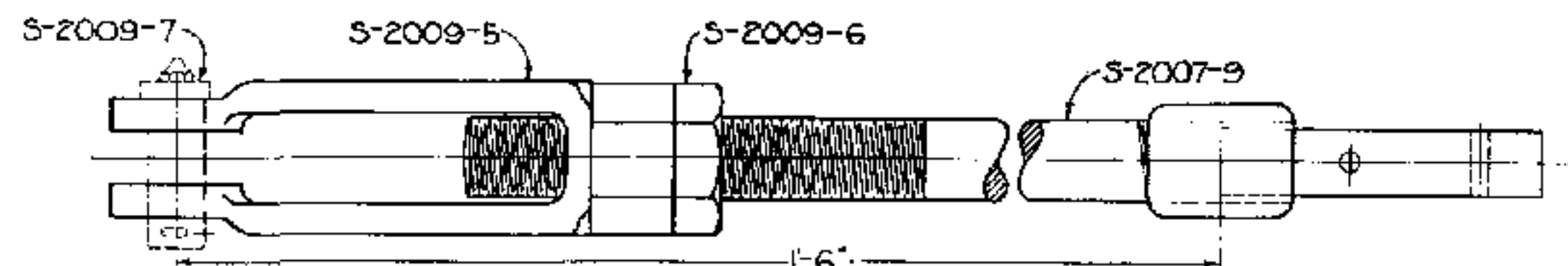
S-2006-1 PLUNGER LINK WITH PINS AND COTTERS COMPLETE
S-2006-2 PLUNGER LINK ONLY
OPEN HEARTH STEEL



S-2006-7 SCREW JAW WITH TANG END WITH PIN AND COTTER COMPLETE
S-2006-8 SCREW JAW WITH TANG END ONLY
OPEN HEARTH STEEL



S-2006-3 ADJUSTABLE LINK WITH PINS AND COTTERS COMPLETE
S-2006-4 ADJUSTABLE LINK ONLY
OPEN HEARTH STEEL



S-2006-5 TANG END WITH SCREW JAW WITH PIN AND COTTER COMPLETE
S-2006-6 TANG END WITH SCREW JAW ONLY
OPEN HEARTH STEEL

SCALE IN INCHES
0 1 2 3 4 5 6
FT.

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>[Signature]</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i> VICE PRESIDENT		
CBP	C.D.M.	A.J.P.
C.S.L.		

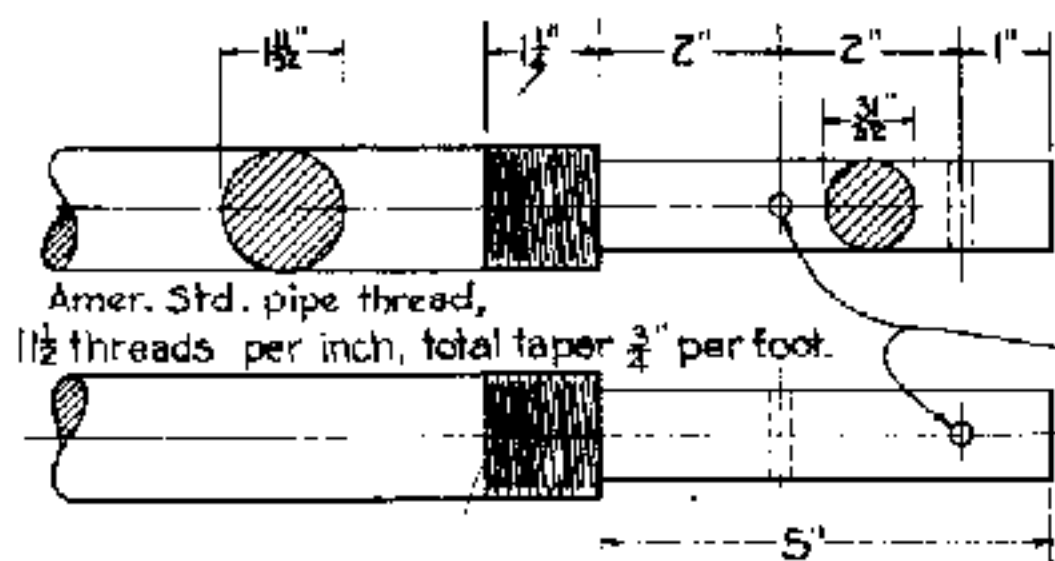
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SCREW JAW AND ADJUSTABLE LINK ASSEMBLIES

APPROVED
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]*
CHIEF ENGINEER

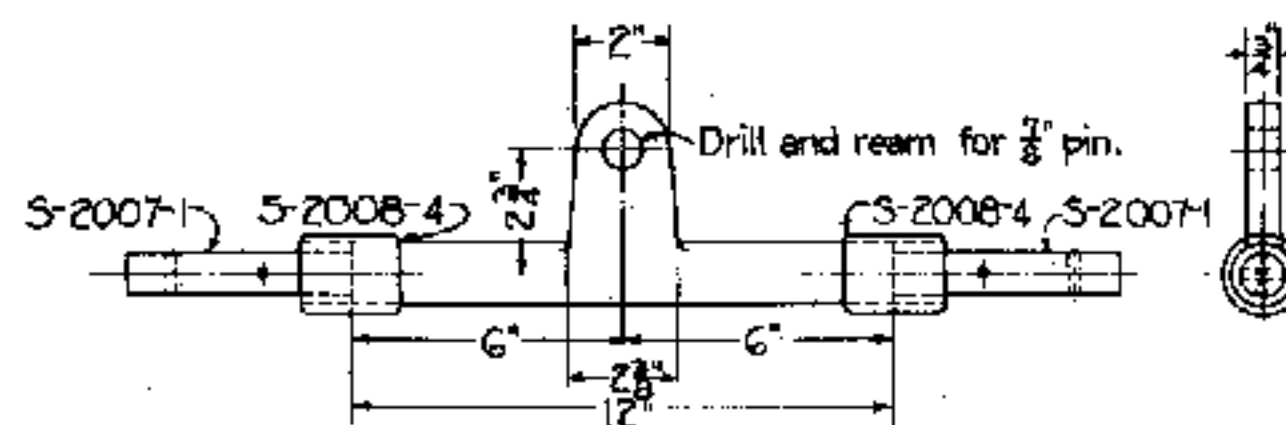
MAR. 17, 1931

S-2006

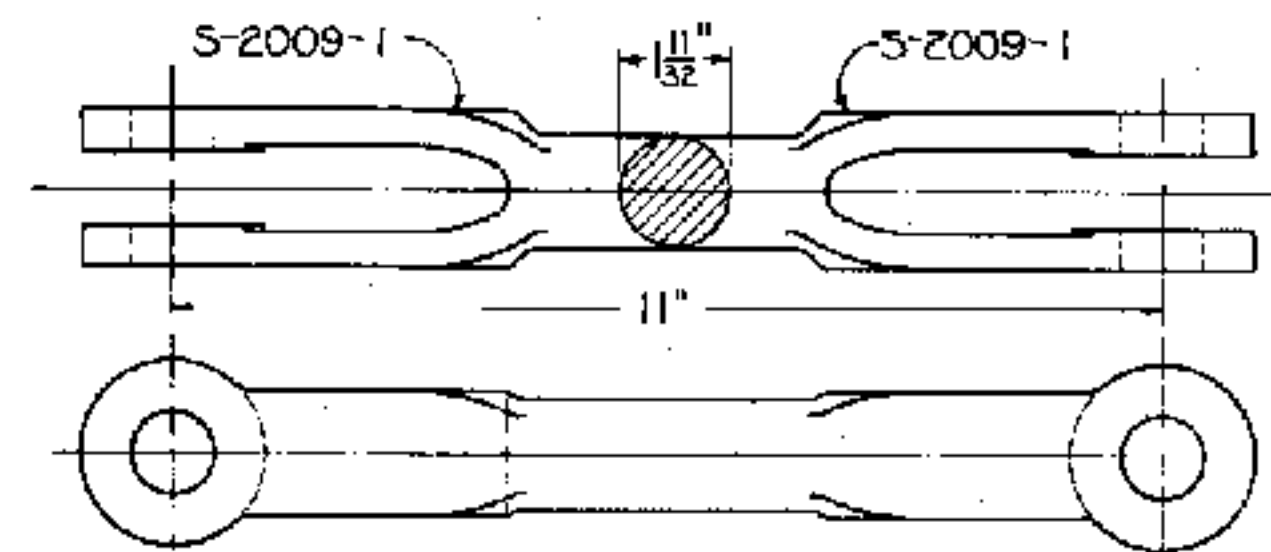


S-2007-1 DETAIL OF TANG END FOR 1" SIGNAL PIPE
OPEN-HEARTH STEEL
SCALE ②

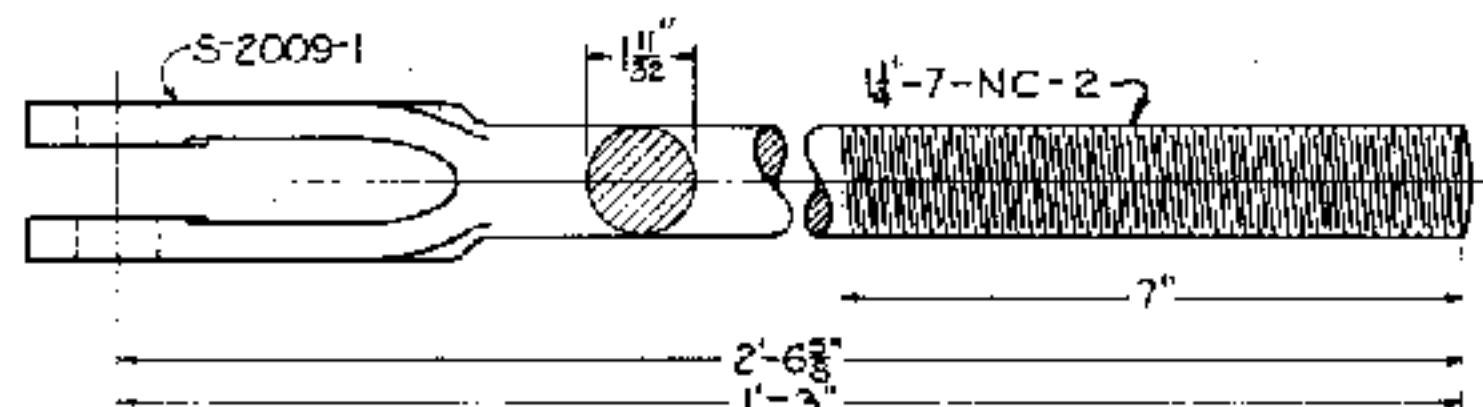
NOTE: Nominal diameter of tang end shall be $\frac{31}{32}$, Allowable Variation: Minimum $\frac{15}{16}$, Maximum $\frac{63}{64}$.
Drill 0.256 and remove sharp edges and burrs.



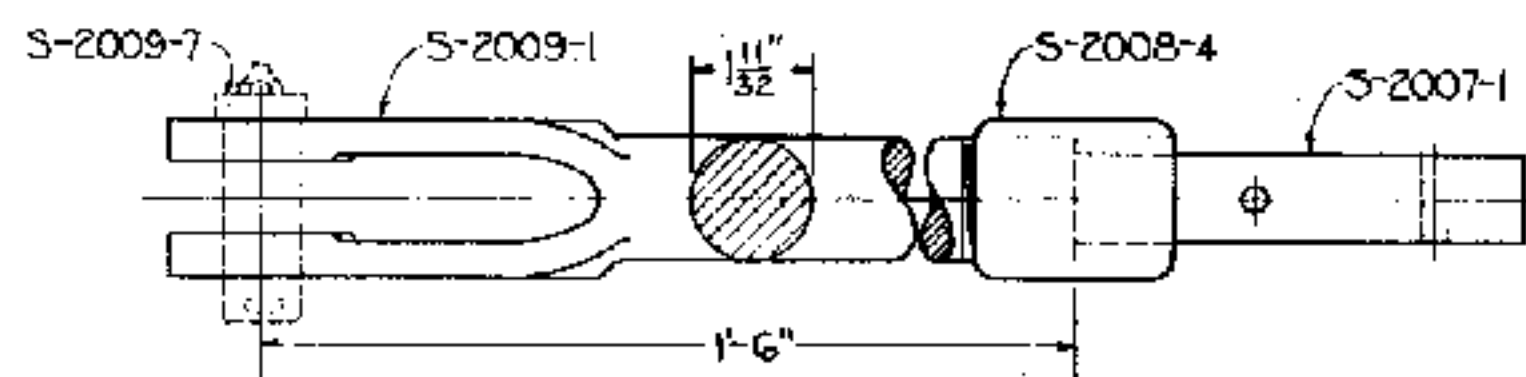
S-2007-2 LUG
OPEN-HEARTH STEEL
SCALE ①



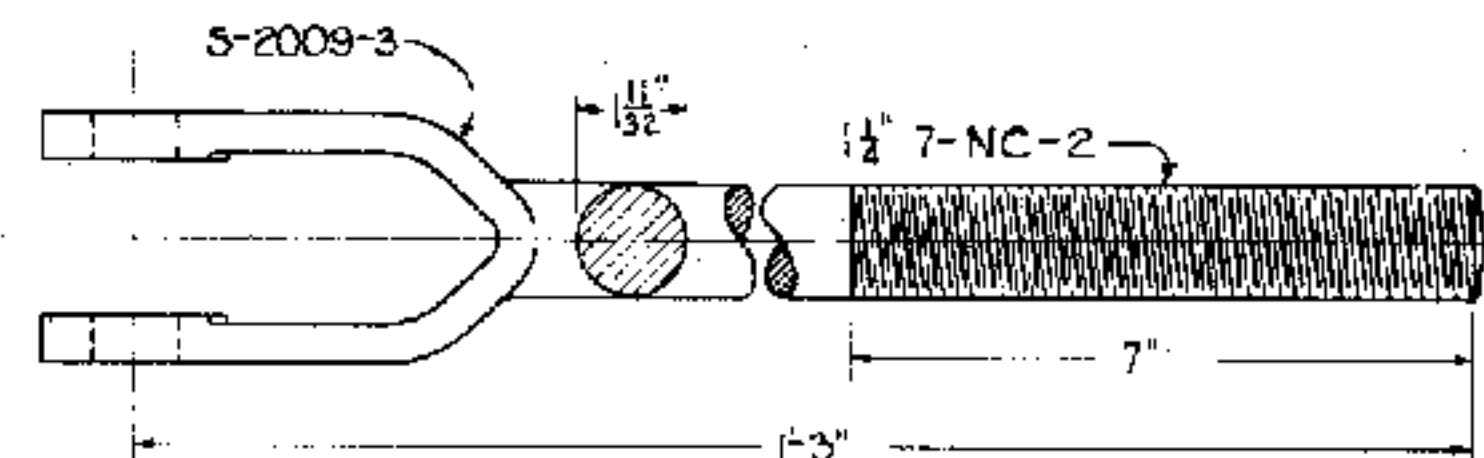
S-2007-3 COMPENSATOR LINK
OPEN-HEARTH STEEL
SCALE ②



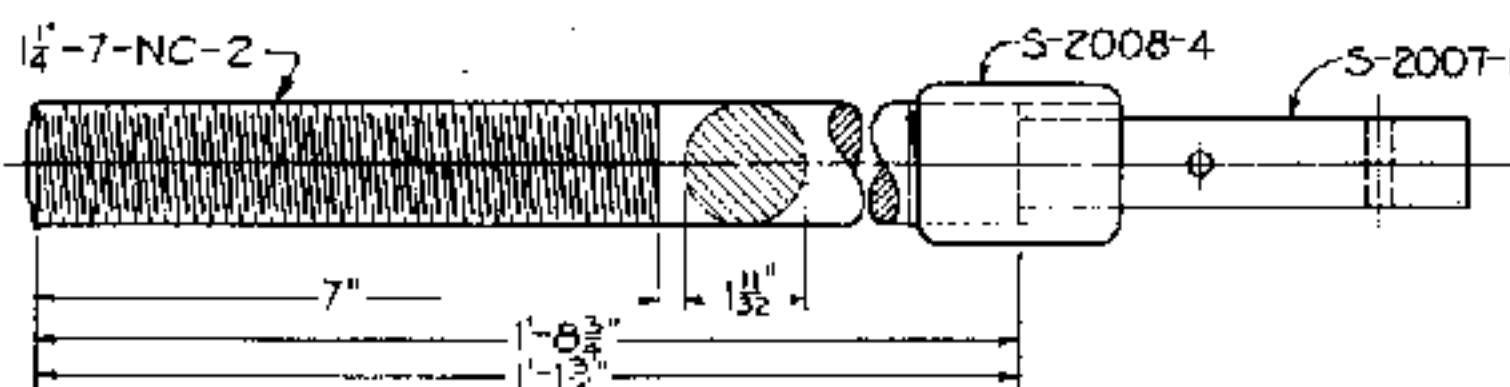
S-2007-4 SOLID JAW WITH THREADED END 2'-6 5/8" LONG
S-2007-5 SOLID JAW WITH THREADED END 1'-3" LONG
OPEN-HEARTH STEEL
SCALE ②



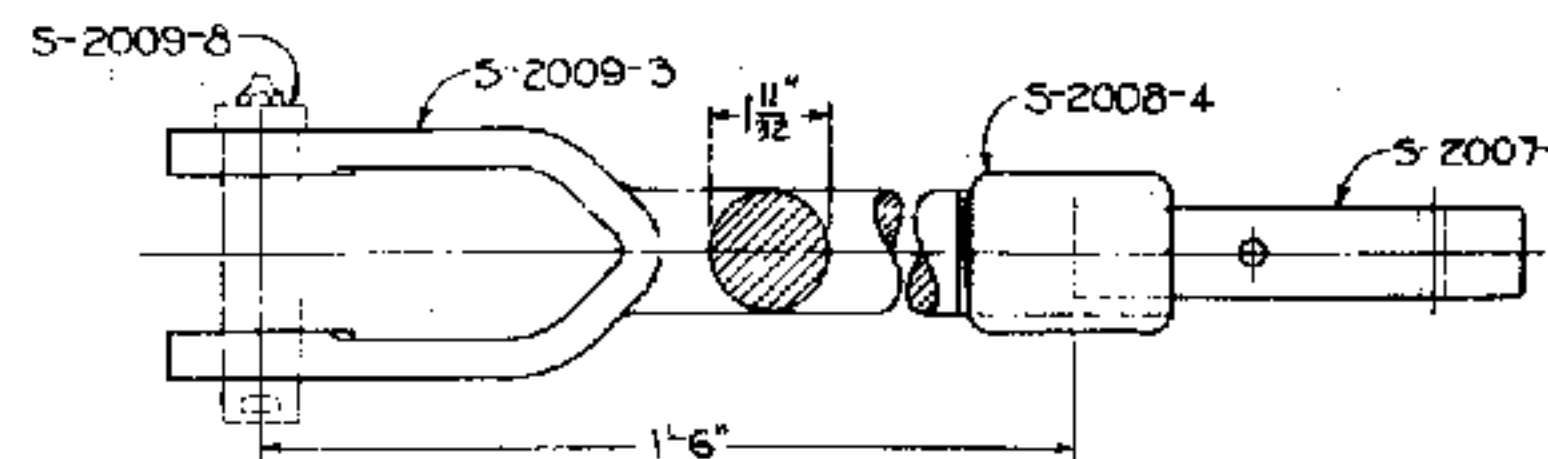
S-2007-6 STRAIGHT SOLID JAW WITH TANG END WITH PIN AND COTTER COMP.
S-2007-7 STRAIGHT SOLID JAW WITH TANG END ONLY
OPEN-HEARTH STEEL
SCALE ②



S-2007-12 WIDE JAW WITH THREADED END
OPEN-HEARTH STEEL
SCALE ②



S-2007-8 THREADED TANG END 1'-8 3/4" LONG
S-2007-9 THREADED TANG END 1'-1 3/4" LONG
OPEN-HEARTH STEEL
SCALE ②



S-2007-10 WIDE JAW WITH TANG END WITH PIN AND COTTER COMP.
S-2007-11 WIDE JAW WITH TANG END ONLY
OPEN-HEARTH STEEL
SCALE ②

SCALE IN INCHES
① 0 1 2 3 4 5 6 7 8 9 10 11 12
② 0 1 2 3 4 5 6

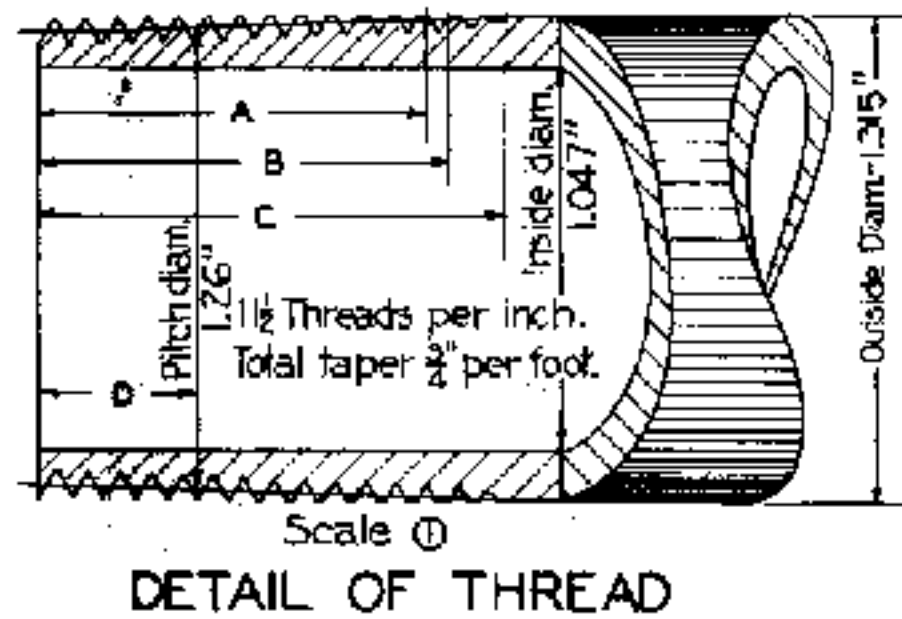
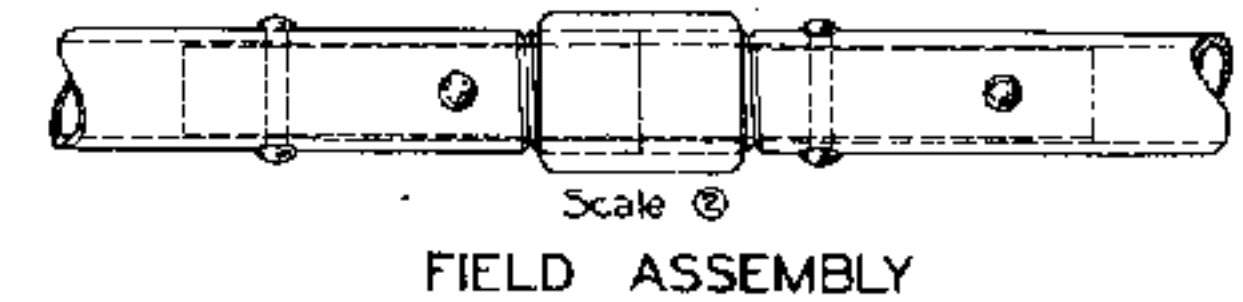
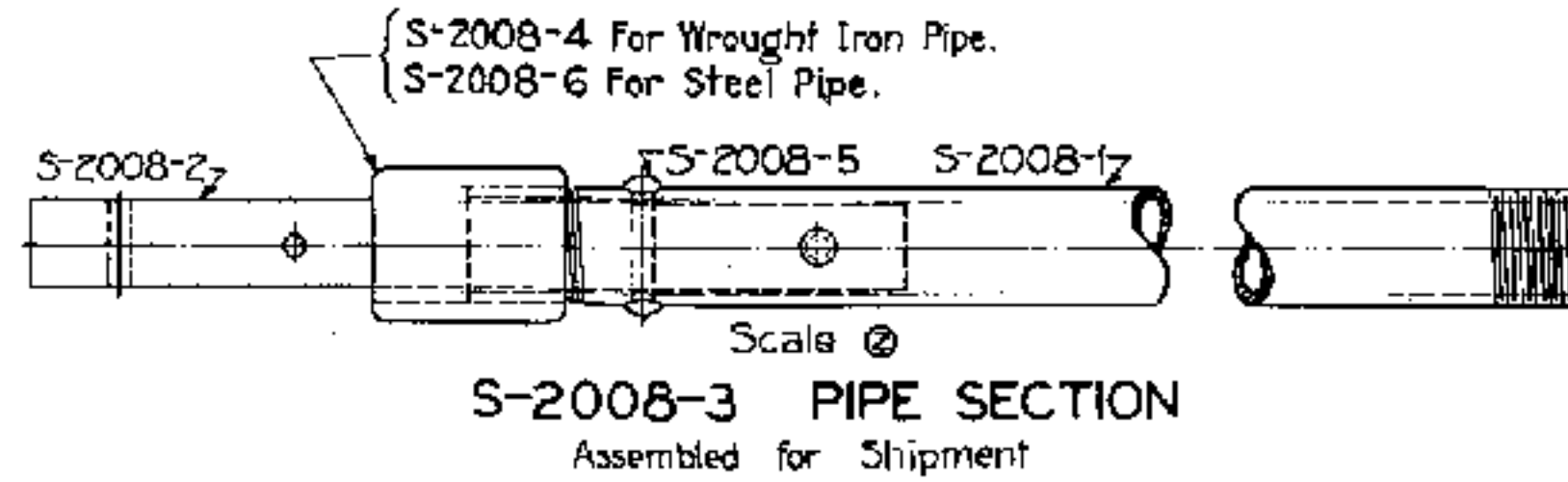
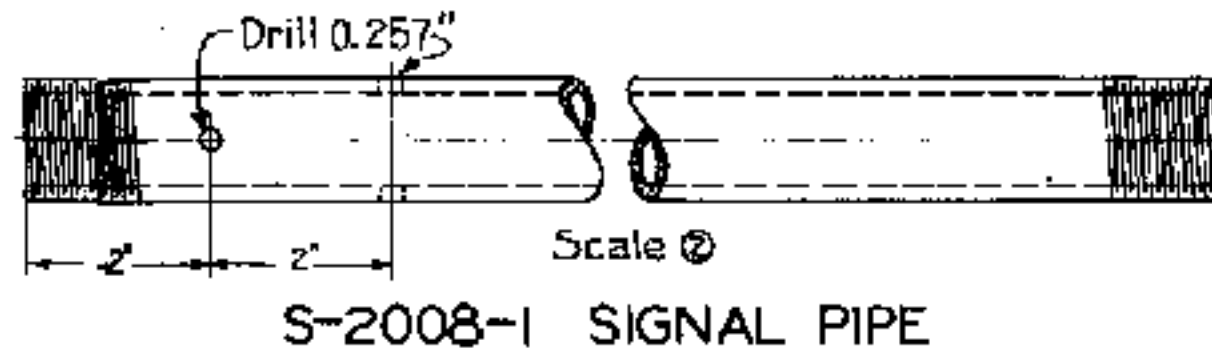
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
CBP	CDM	AJP
CSL		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

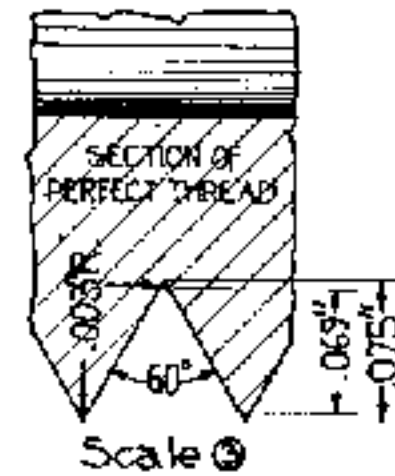
STANDARD TANG END, LUG, LINK, AND SOLID JAW

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]*
CHIEF ENGINEER
DEC. 13, 1934

S-2007-A



- DETAIL OF THREAD
LEGEND
- A — Length of perfect bottom thread, shop practice — 1.0625"
 - B — Nominal length of thread — 1.125"
 - C — Length of thread complete, shop practice 1.2797"
 - D — Length of five threads — 0.4348"



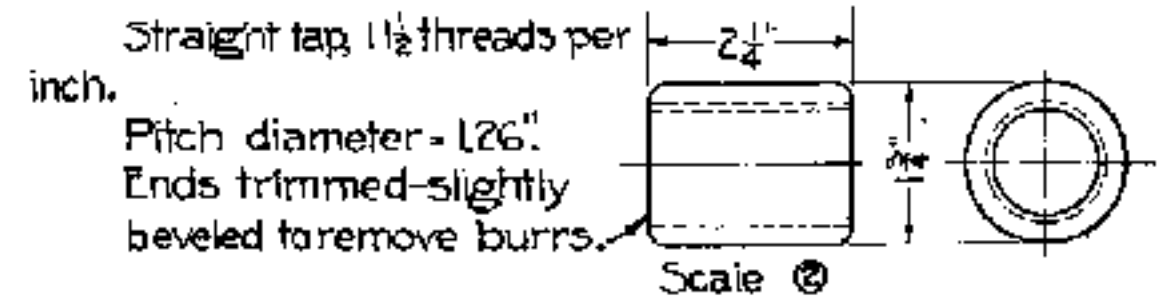
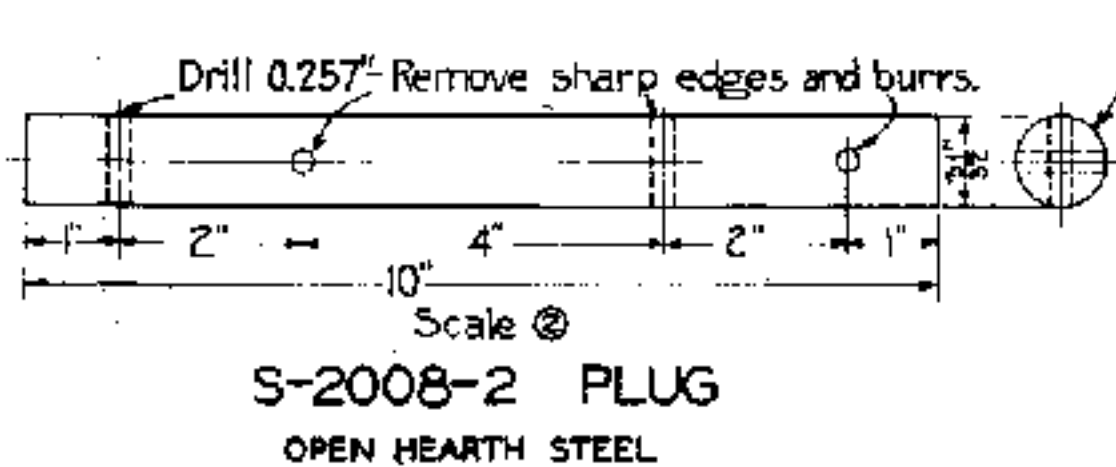
One-inch galvanized welded steel signal pipe shall be in accordance with latest revision of Standard Specifications S-1517, One-inch Galvanized Welded Steel Signal Pipe.

One-inch welded wrought iron signal pipe shall be in accordance with latest revision of Standard Specifications S-1509, One-inch Welded Wrought Iron Signal Pipe.

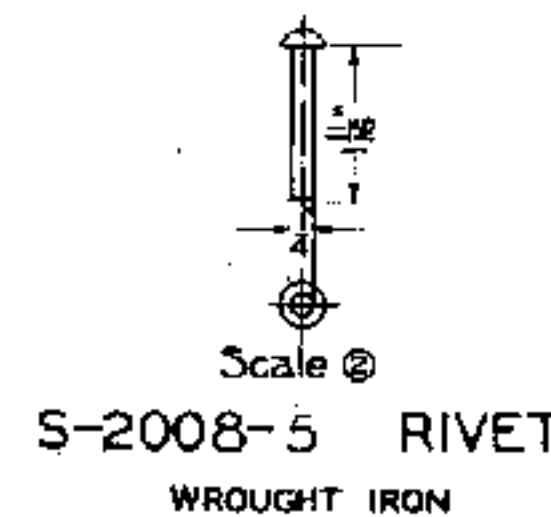
SCALE IN INCHES



NOTE: Nominal diameter of plug shall be $\frac{3}{32}$ ".
Allowable Variation:
Minimum $\frac{1}{16}$ " Maximum $\frac{3}{32}$ ".



S-2008-4 COUPLING
WROUGHT IRON
S-2008-6 COUPLING
STEEL



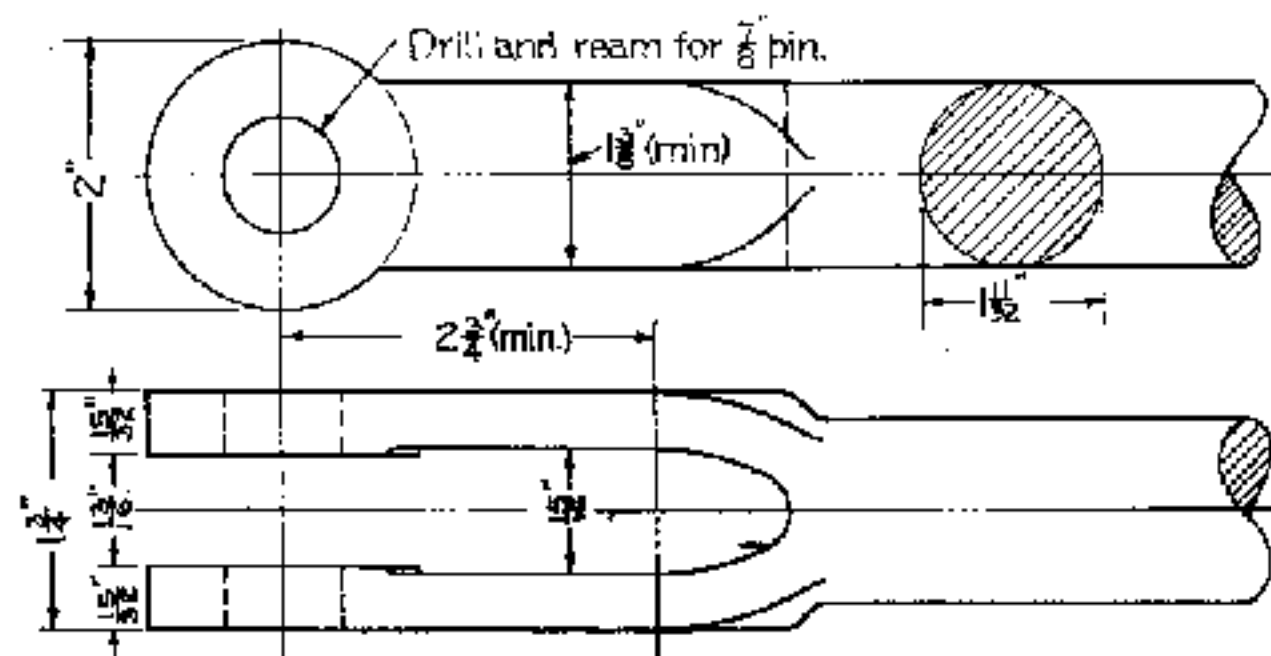
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>[Signature]</i>	VICE PRESIDENT
ERIE RAILROAD COMPANY	<i>[Signature]</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>[Signature]</i>	VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	<i>[Signature]</i>	VICE PRESIDENT
CSL	CDM	AJP

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

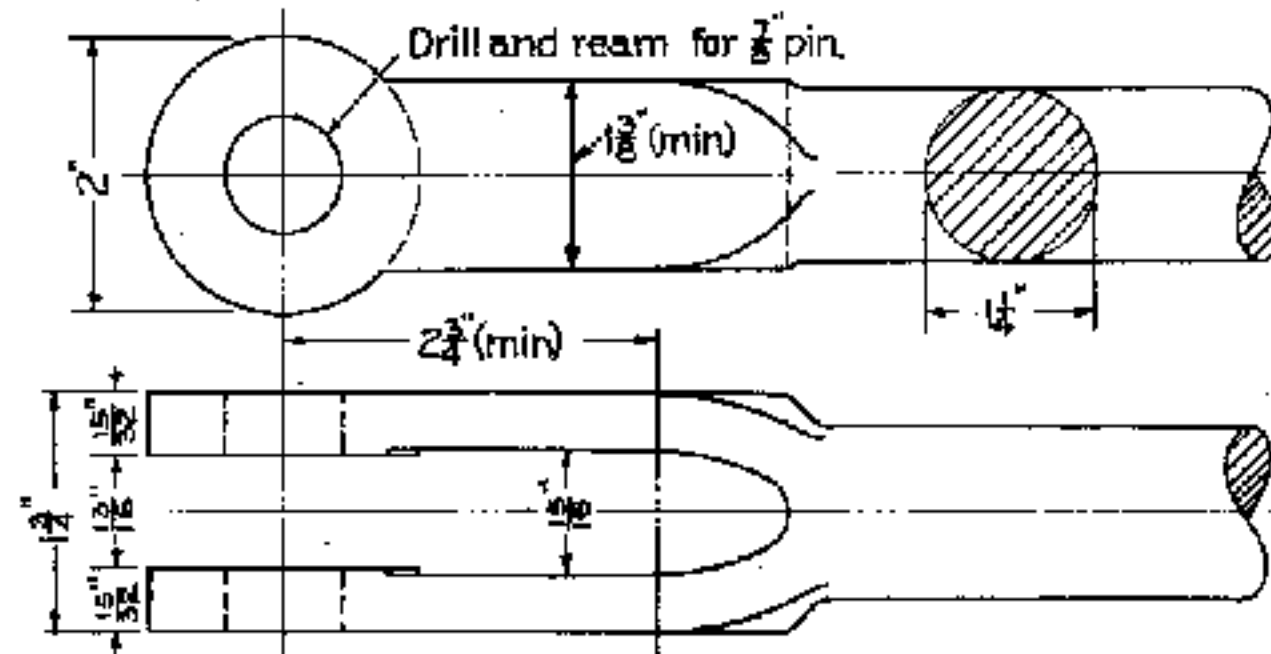
STANDARD ONE-INCH WELDED SIGNAL PIPE AND COUPLING

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED *[Signature]* CHIEF ENGINEER
MAR. 17, 1931

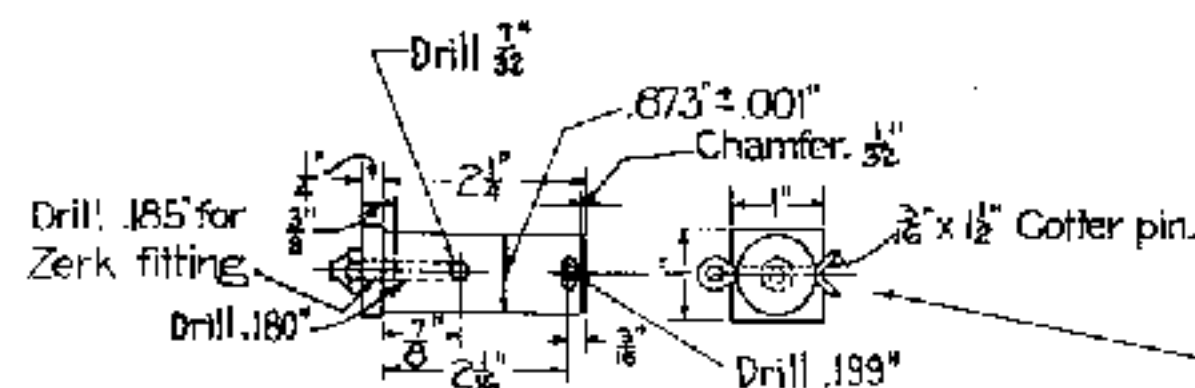
S-2008



SOLID JAW (DETAIL FOR REFERENCE ONLY)
S-2009-1
(OPEN HEARTH STEEL)

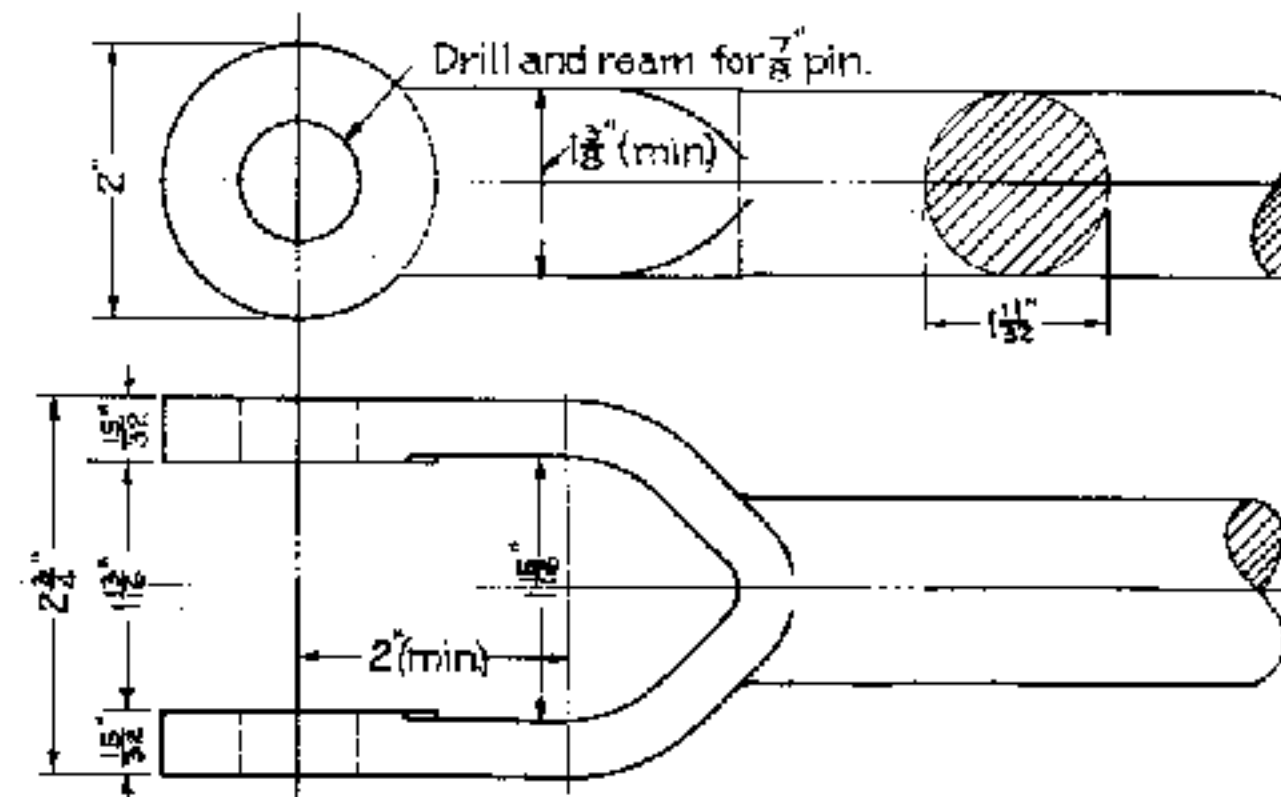


SOLID JAW (DETAIL FOR REFERENCE ONLY)
S-2009-2
(OPEN HEARTH STEEL)

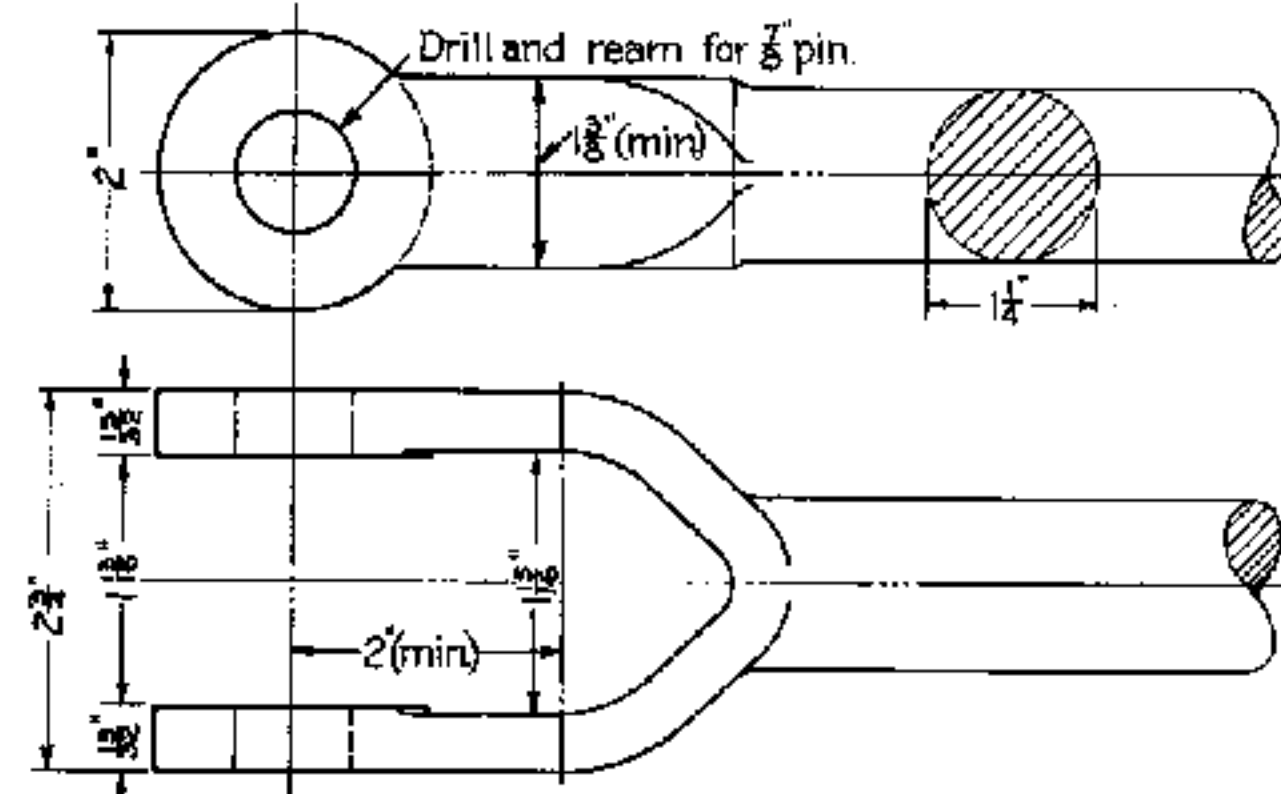


STANDARD JAW PIN (WITH ZERK FITTING)
S-2009-7
(COLD ROLLED STEEL)

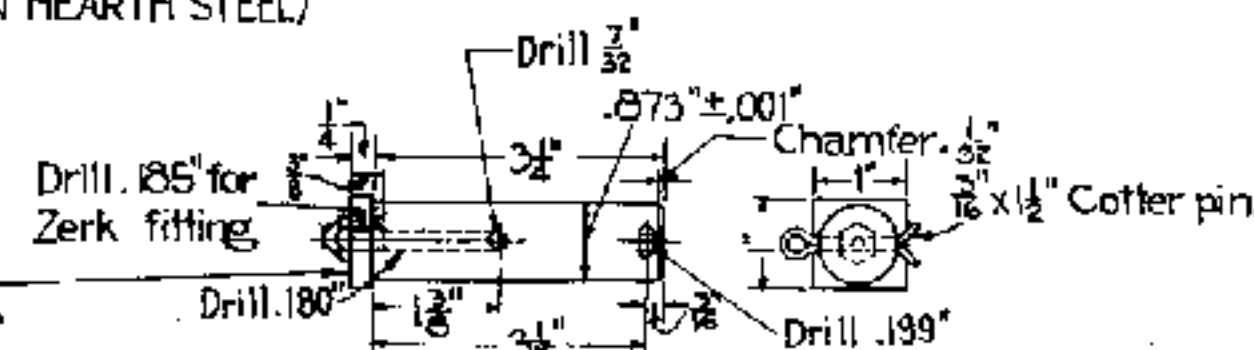
STANDARD JAW PIN (ONLY)
S-2009-9



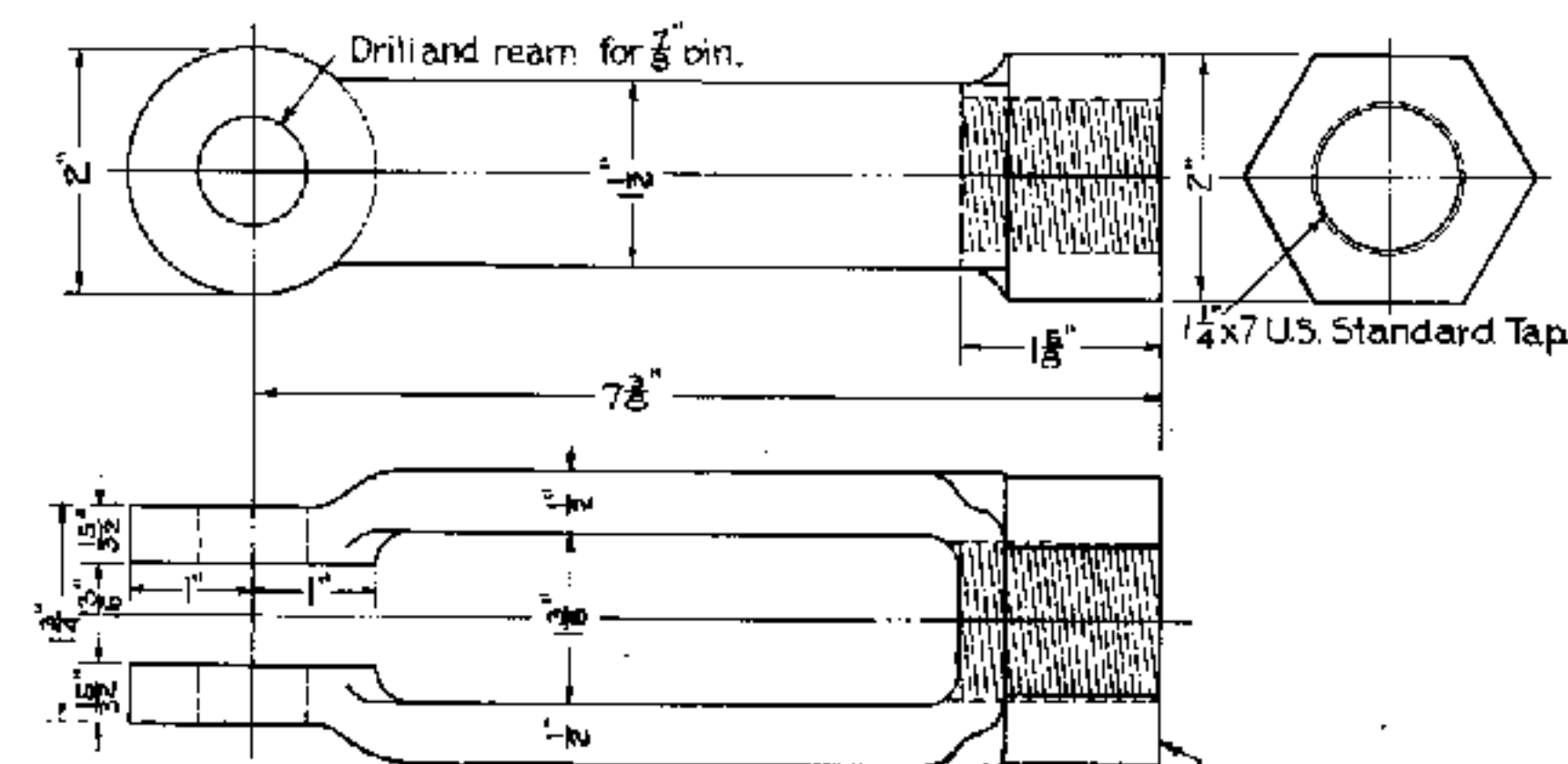
WIDE JAW (DETAIL FOR REFERENCE ONLY)
S-2009-3
(OPEN HEARTH STEEL)



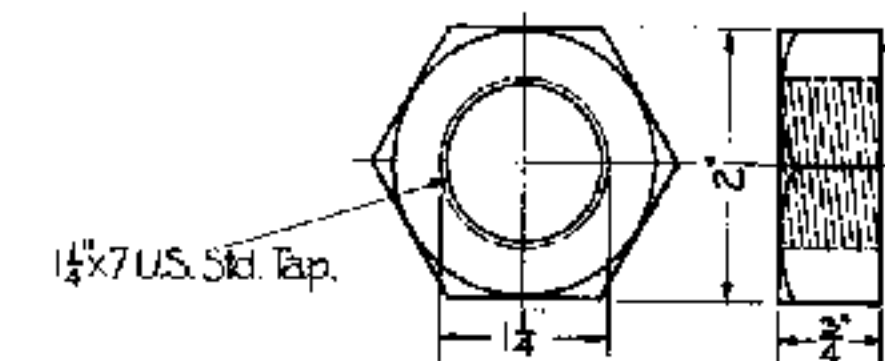
WIDE JAW (DETAIL FOR REFERENCE ONLY)
S-2009-4
(OPEN HEARTH STEEL)



STANDARD WIDE JAW PIN (WITH ZERK FITTING)
S-2009-8
(COLD ROLLED STEEL)
STANDARD WIDE JAW PIN (ONLY)
S-2009-10



SCREW JAW
S-2009-5
(OPEN HEARTH STEEL)



JAM NUT
S-2009-6
(COLD PUNCHED)

SCALE IN INCHES



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. H. Brown
VICE PRESIDENT

ERIE RAILROAD COMPANY

W. H. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Brown
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Brown
VICE PRESIDENT

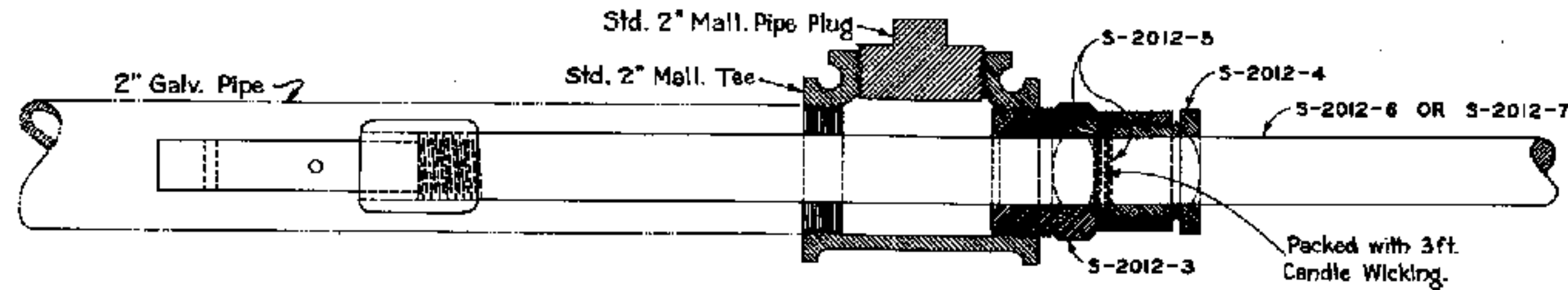
CBP. CSL. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD PIPE JAW DETAILS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Brown*
CHIEF ENGINEER
MAR. 17, 1931

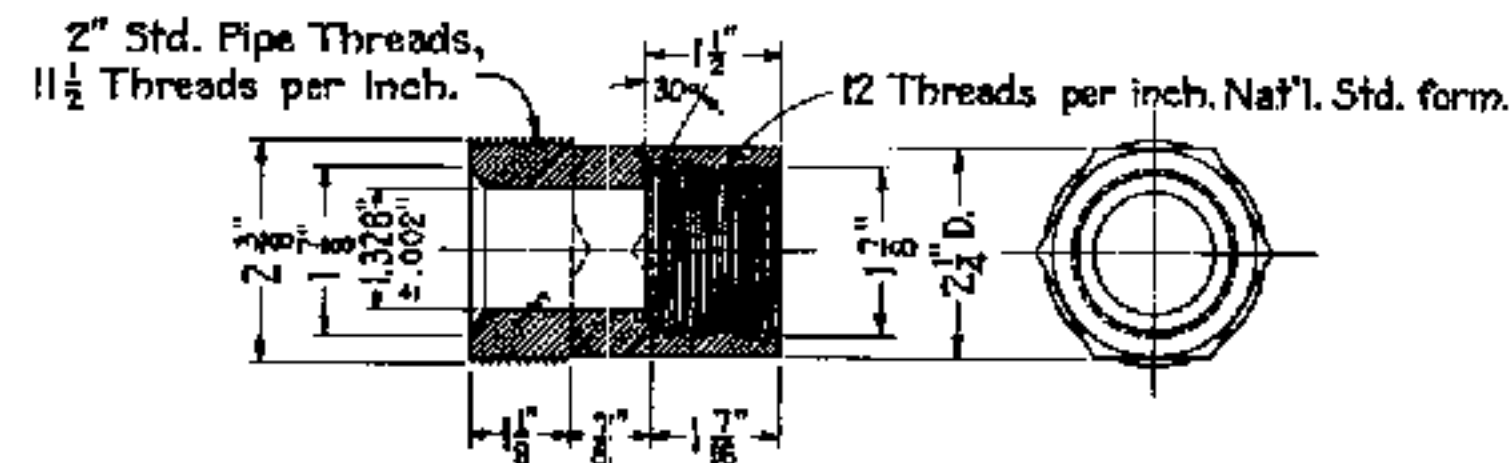
S-2009



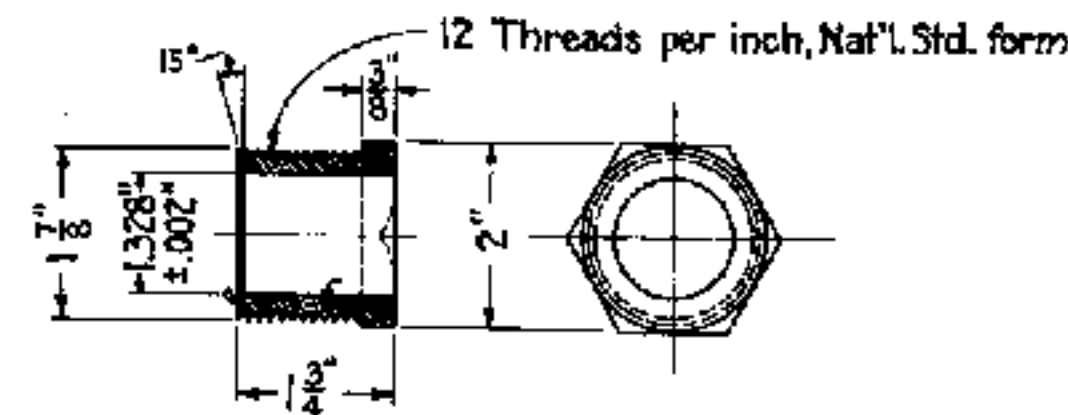
S-2012-1 STUFFING BOX COMPLETE WITH S-2012-6
S-2012-2 STUFFING BOX COMPLETE WITH S-2012-7

NOTES

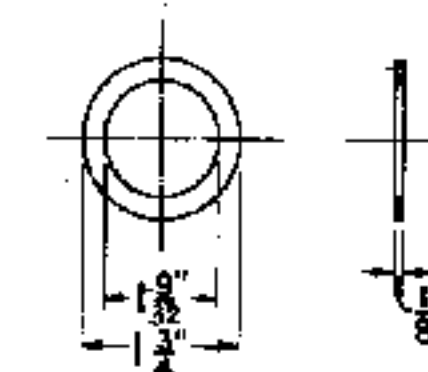
1. EITHER COLD ROLLED STEEL FINISH OR GROUND FINISH WILL BE SATISFACTORY.
2. COUPLINGS AND ONE INCH (1") PIPE THREADS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1509, ONE-INCH WROUGHT IRON SIGNAL PIPE.



S-2012-3 EXTENSION GLAND
MALLEABLE IRON

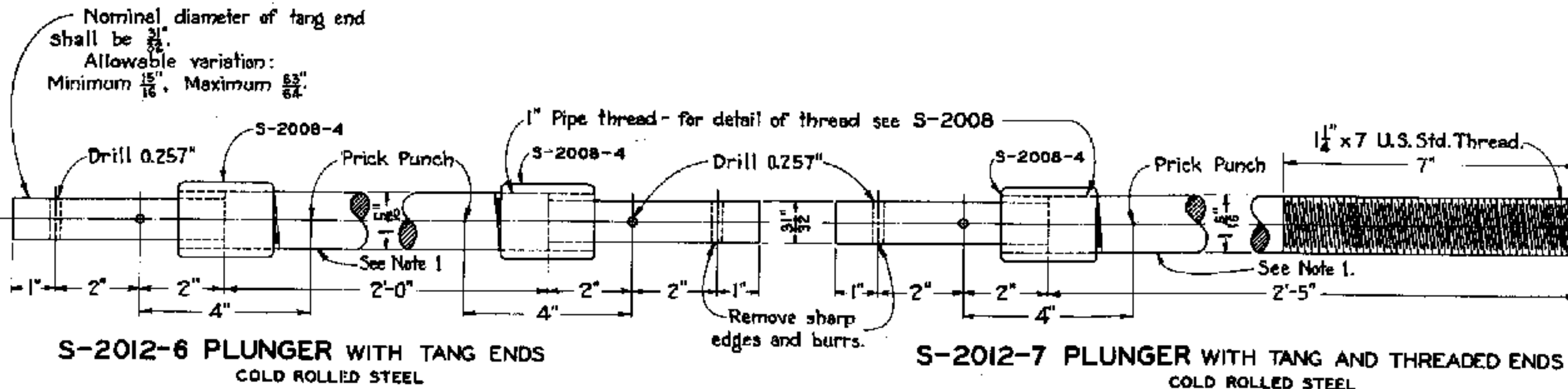


S-2012-4 BUSHING
CAST BRASS



S-2012-5 GASKET
LEATHER

SCALE IN INCHES
0 1 2 3 4 5 6



S-2012-6 PLUNGER WITH TANG ENDS
COLD ROLLED STEEL

S-2012-7 PLUNGER WITH TANG AND THREADED ENDS
COLD ROLLED STEEL

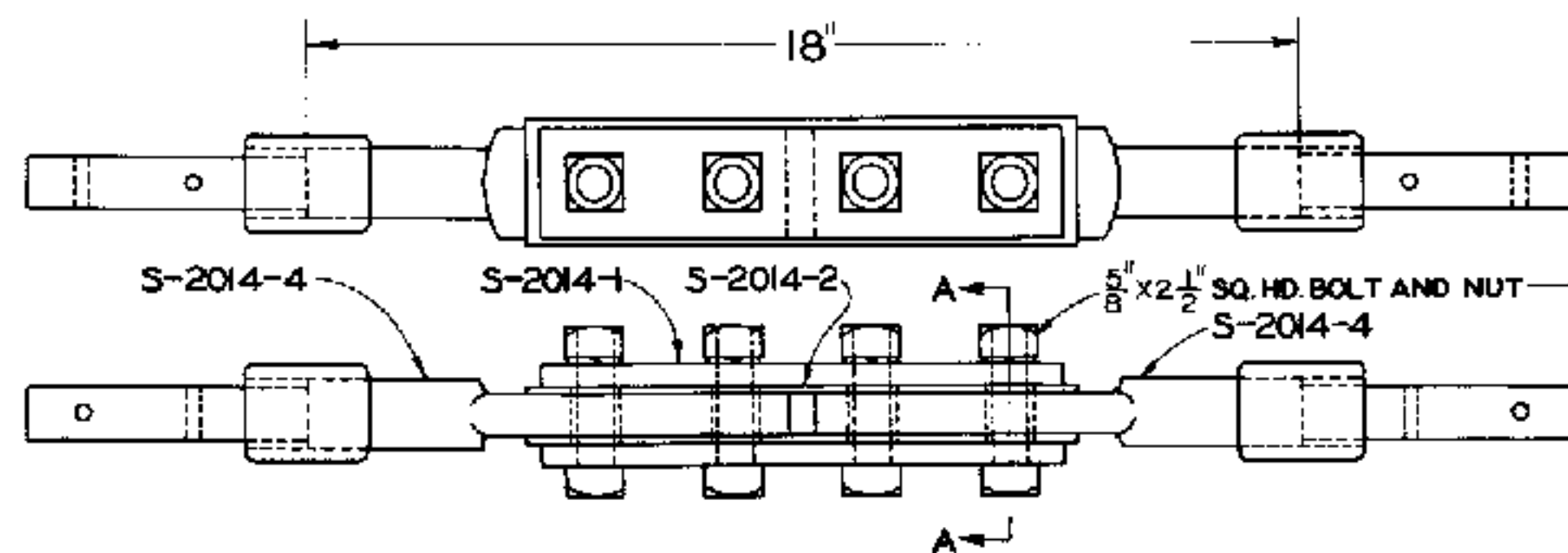
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C.B.P.	C.D.M.	A.I.P.
C.B.P.	C.D.M.	A.I.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

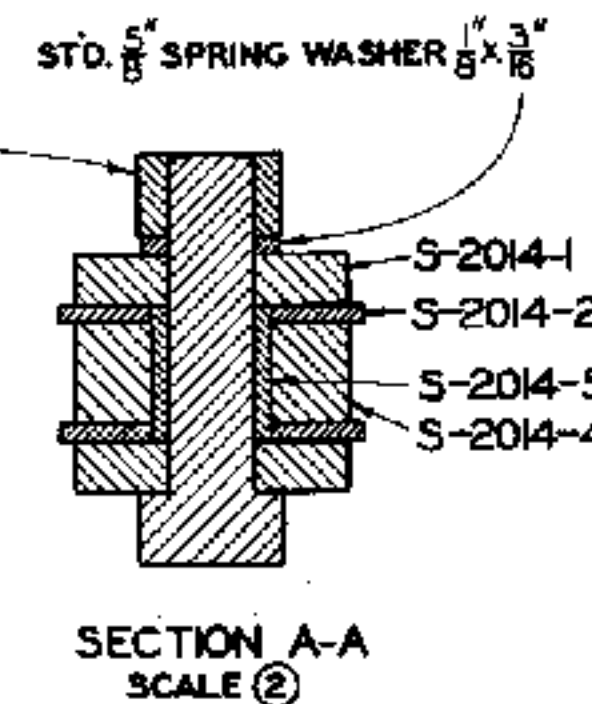
STANDARD STUFFING BOX FOR ONE INCH PIPE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* CHIEF ENGINEER
APRIL 21, 1931

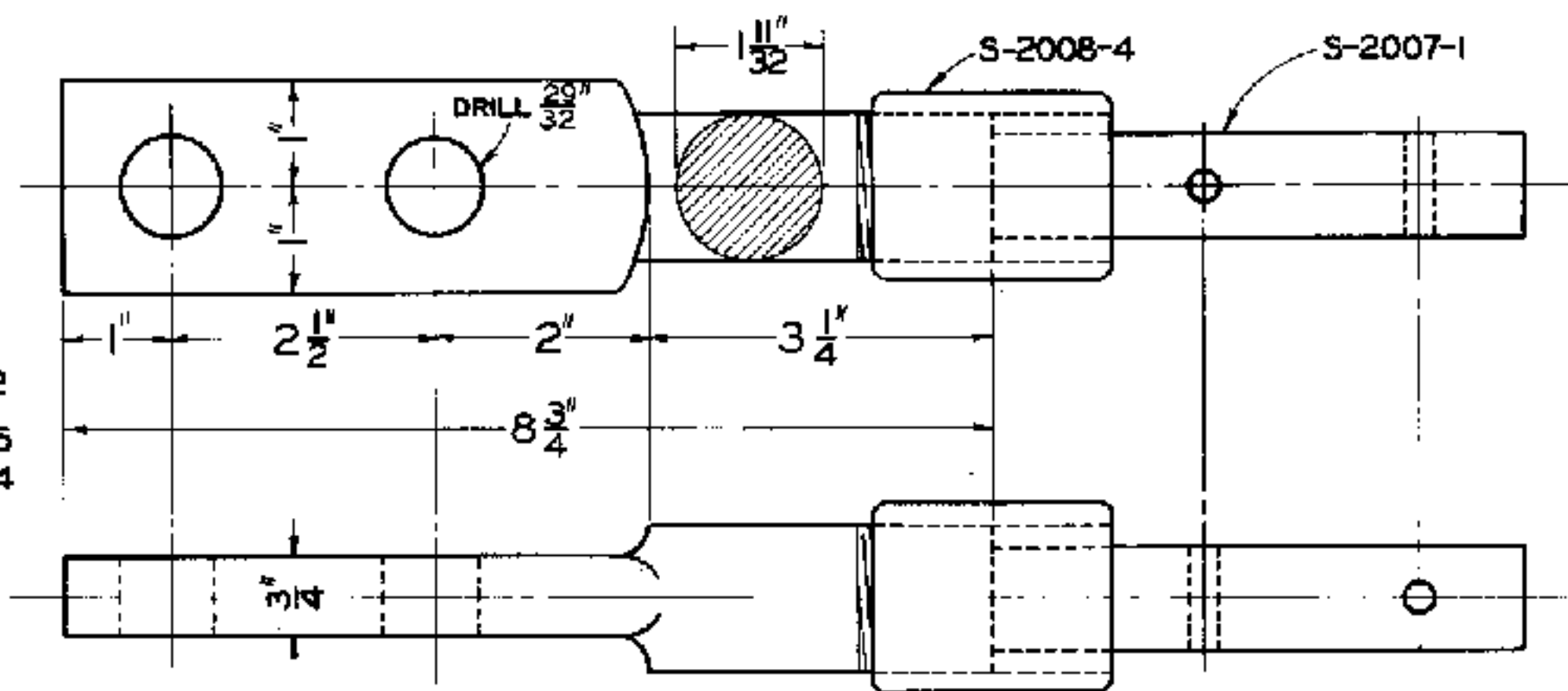
S-2012



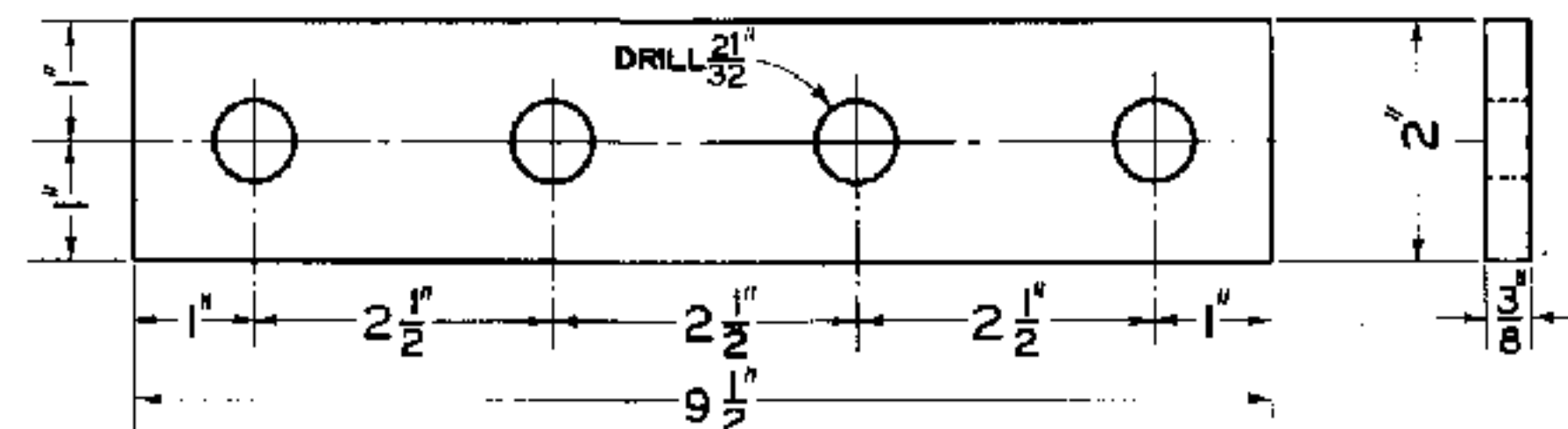
S-2014-6 PIPE LINE INSULATION COMPLETE
SCALE ①



SECTION A-A
SCALE ②

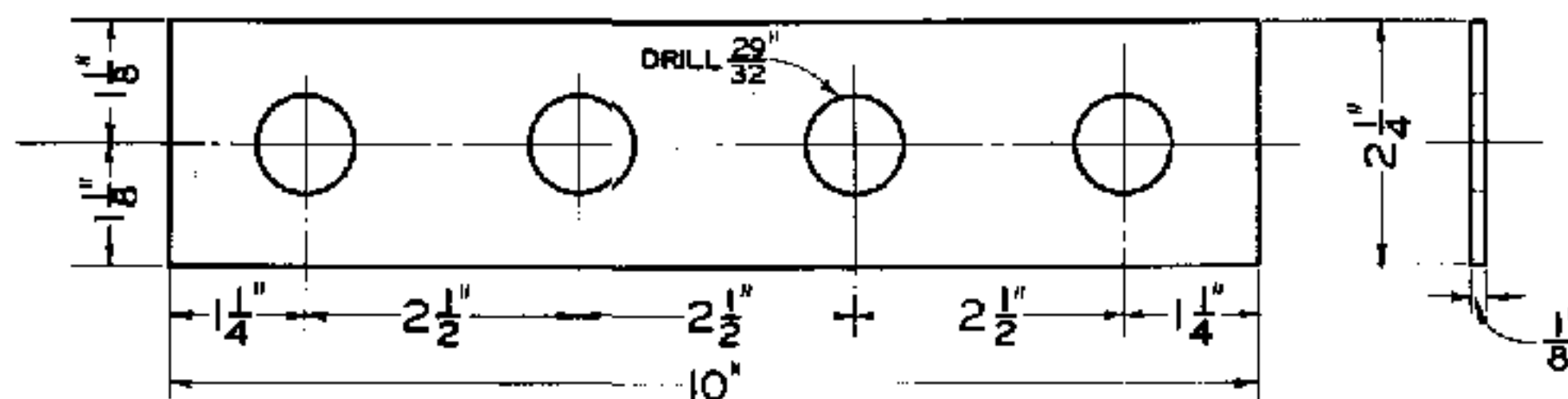


S-2014-3 TANGED END PLATE ONLY
S-2014-4 TANGED END PLATE WITH S-2008-4 COMPLETE
O.-H. STEEL
SCALE ②

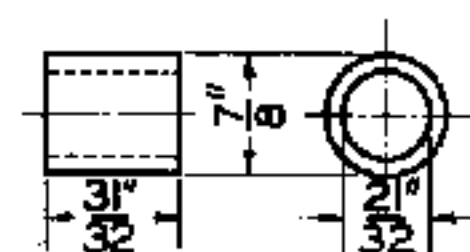


S-2014-1 SPLICE PLATE
O.-H. STEEL
SCALE ②

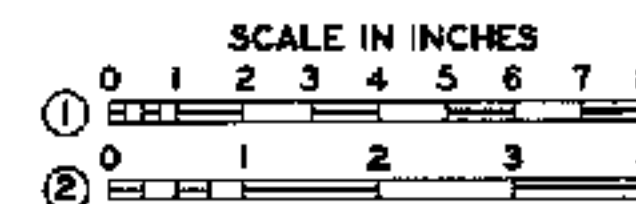
- NOTES**
1. FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, HARD FIBRE.
 2. ALL METAL PARTS, EXCEPT THREADS, SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



S-2014-2 INSULATION PLATE
FIBRE
SCALE ②



S-2014-5 INSULATION BUSHING
FIBRE
SCALE ②



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

E. H. Moore
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

E. H. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

A. H. Brown
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

A. H. Brown
VICE PRESIDENT

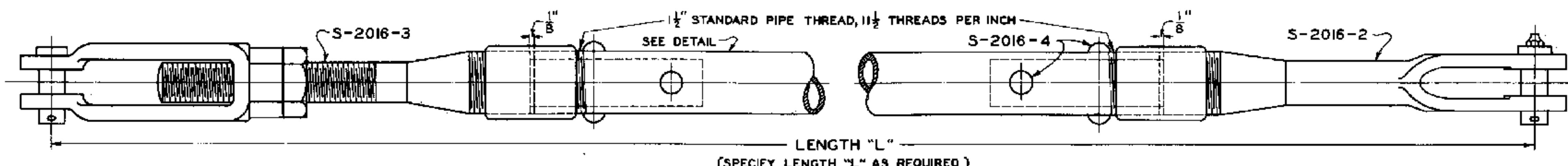
K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

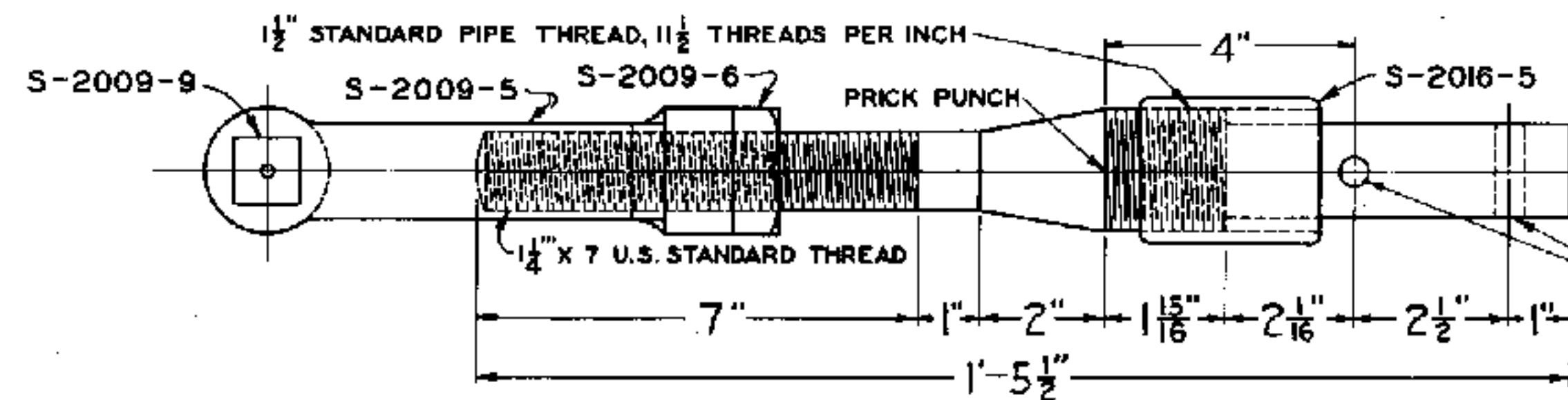
**STANDARD
PIPE LINE
INSULATION**

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Muehl*
CHIEF ENGINEER
JULY 22, 1931

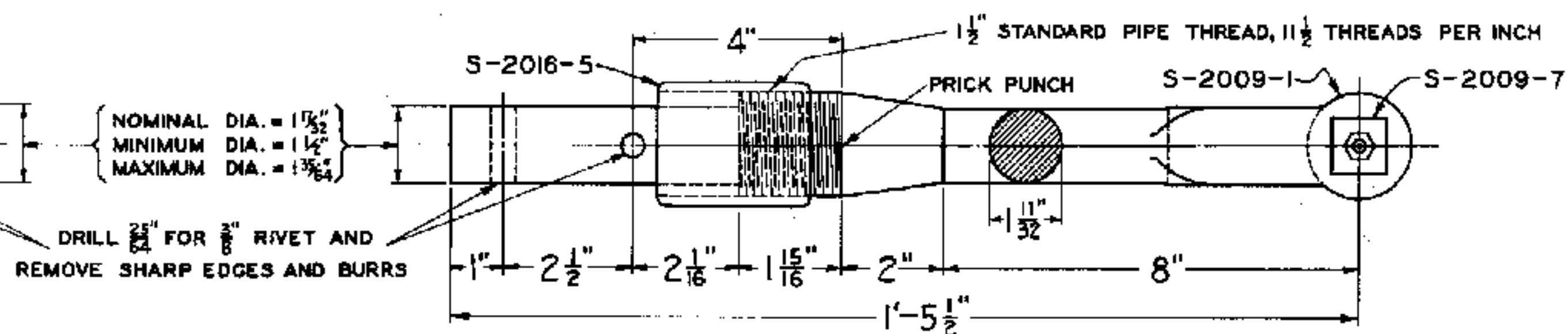
S-2014



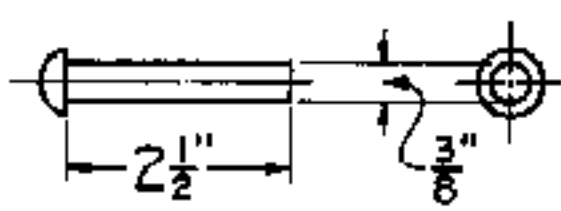
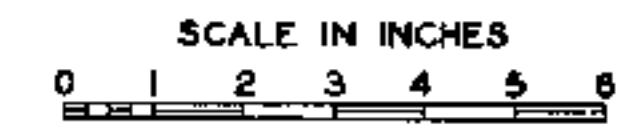
S-2016-1 DOWN ROD COMPLETE FOR ROCKING SHAFT AND VERTICAL CRANK LEADOUTS



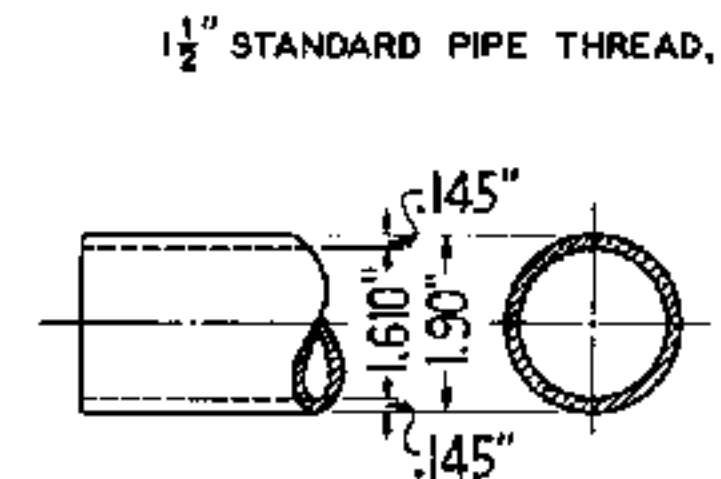
S-2016-3 SCREW JAW COMPLETE, TANGED FOR 1 1/2" STD. PIPE FORGED STEEL



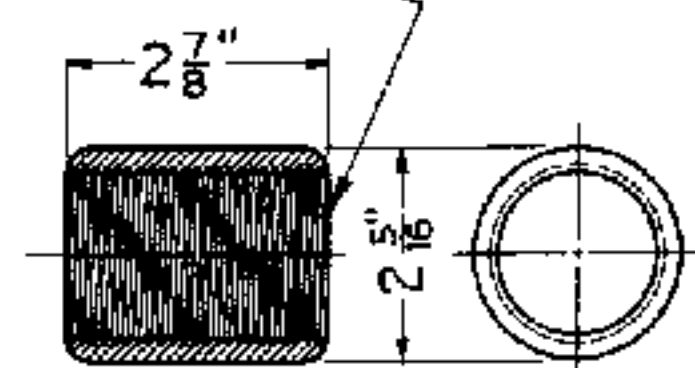
S-2016-2 SOLID JAW COMPLETE, TANGED FOR 1 1/2" STD. PIPE FORGED STEEL



**S-2016-4 RIVET
WROUGHT IRON**



**1 1/2 INCH PIPE SECTION
STEEL OR WROUGHT IRON**



**S-2016-5 COUPLING
WROUGHT IRON**

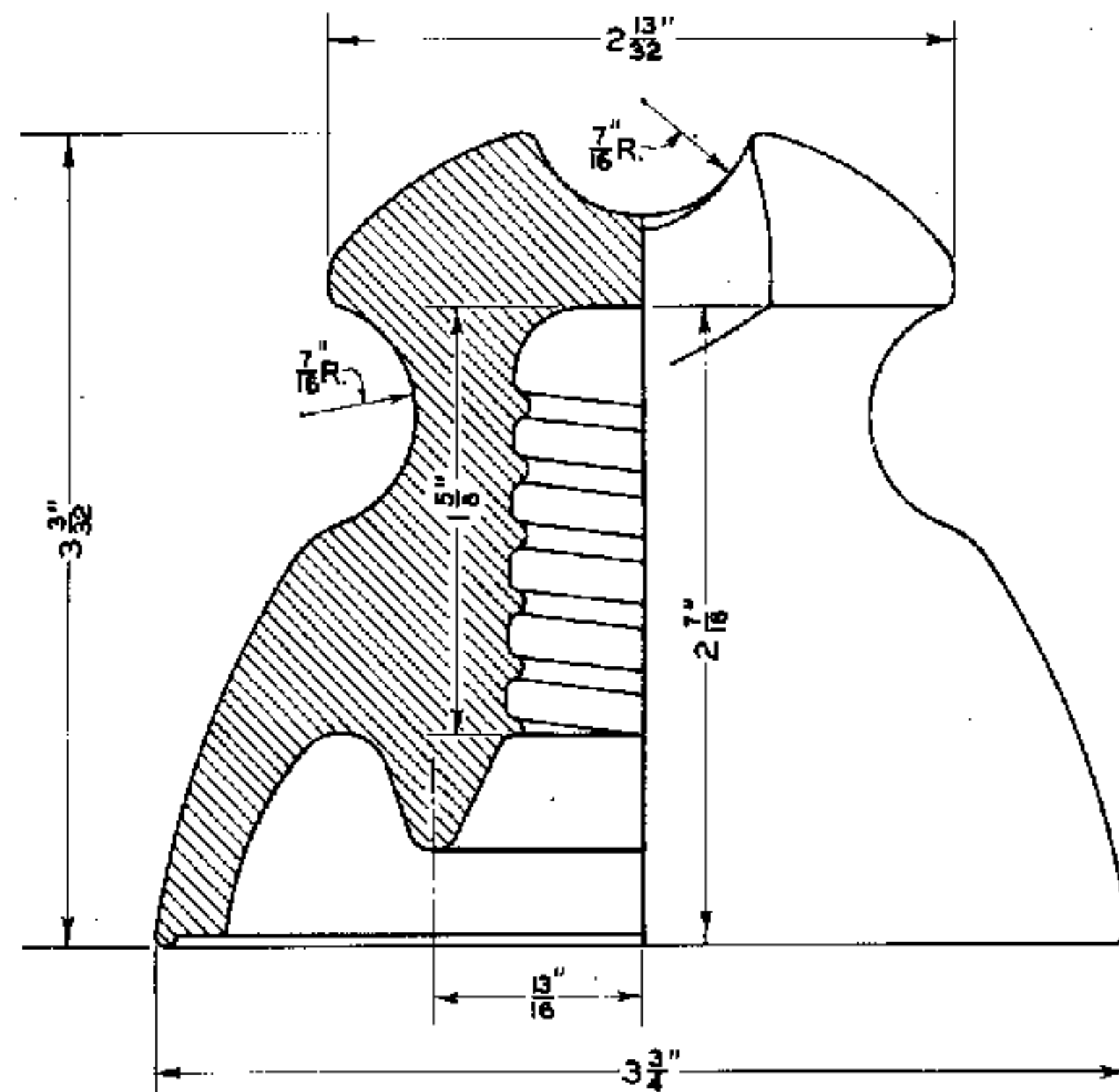
NOTE
ALL PARTS EXCEPT THREADS, BEARING SURFACES AND PIN HOLES SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>G. M. Moore</i>	VICE PRESIDENT
THE ERIE RAILROAD COMPANY	<i>E. L. Woodruff</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>A. J. P.</i>	VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	<i>A. J. P.</i>	VICE PRESIDENT
C. H. W.	C. D. M.	A. J. P.
C. B. R.		

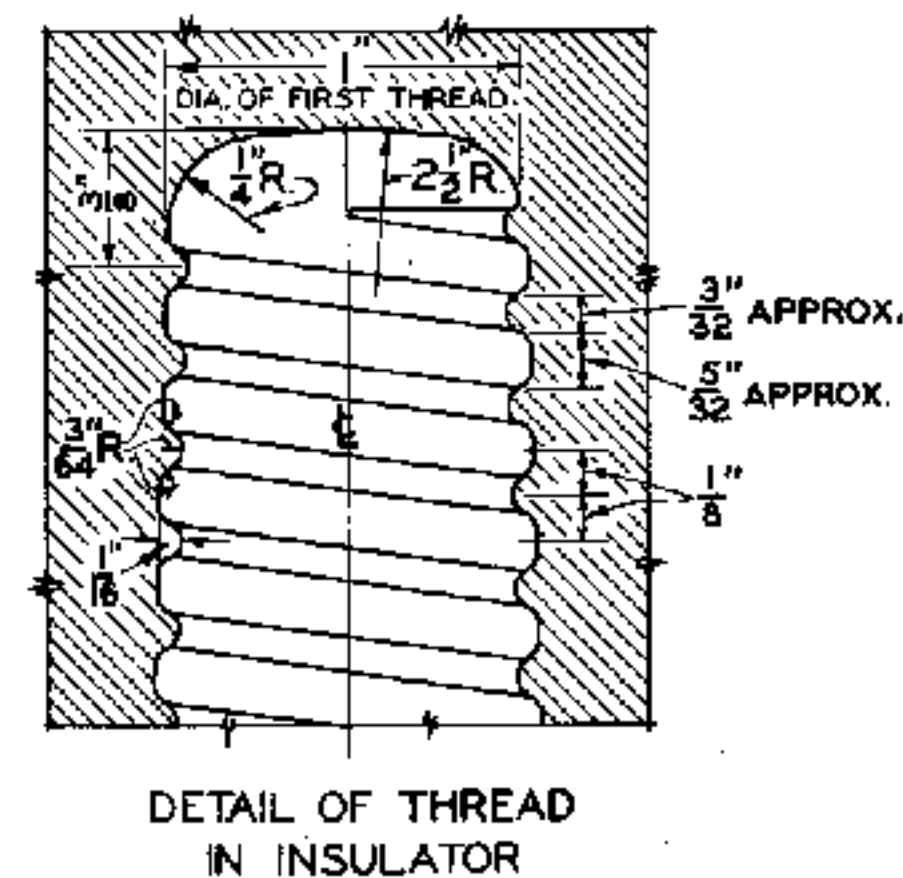
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD DOWN ROD

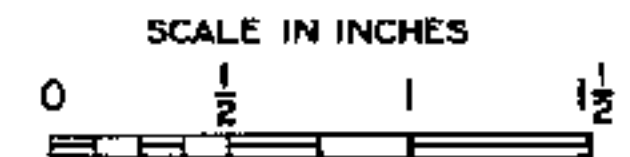
APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APPROVED: *A. J. P.*
 CHIEF ENGINEER
 APRIL 21, 1931



S-2021-I INSULATOR FOR 440 TO 6600 VOLTS



- NOTES
1. INSULATOR SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1550, PIN TYPE GLASS INSULATOR FOR 440 TO 6600 VOLT POWER LINE FOR SIGNAL PURPOSES.
 2. TOLERANCE, EXCEPT THREAD: MAXIMUM 3%, MINIMUM AS DIMENSIONED ON PLAN.



APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
 D. H. BROOKS VICE PRESIDENT		STANDARD PIN TYPE GLASS INSULATOR FOR 440 TO 6600 VOLTS APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: W. H. BUSHNELL CHIEF ENGINEER APRIL 18, 1933.	
 E. L. WOODRUFF VICE PRESIDENT			
 D. H. BROOKS VICE PRESIDENT			
 J. H. BROWN VICE PRESIDENT			
K.L.M.	C.D.M.	A.J.P.	S-2021

INTERLOCKING AND AUTOMATIC												MANUAL BLOCK																											
RULE	292				291	290					287	286	285					283	282				281							292		289		281					
FIGURE	A	B	C	D	A	B	A	B	C	D	E	A	B	A	B	C	D	E	A	C	A	B	C	D	A	B	C	D	E	A	B	E	F	A	B	F	G		
ASPECTS																																							
INDICATION	STOP				STOP; THEN PROCEED		PROCEED AT RESTRICTED SPEED.					PROCEED AT NOT EXCEED- ING SLOW SPEED.		PROCEED AT NOT EXCEED- ING MEDIUM SPEED PRE- PARED TO STOP AT NEXT SIGNAL.		PREPARE TO STOP AT NEXT SIG- NAL. TRAIN EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED.					PROCEED AT NOT EXCEEDING MEDIUM SPEED.		APPROACH NEXT SIGNAL AT NOT EXCEEDING MEDIUM SPEED.				PROCEED.					FREIGHT TRAINS PROCEED AT RE- STRICTED SPEED WITHOUT STOP- PING EXPECTING TO FIND A TRAIN IN THE BLOCK, BROKEN RAIL, OBSTRUCTION, OR SWITCH NOT PROPERLY SET.		STOP.		BLOCK OCCUPIED; PROCEED PREPARED TO STOP SHORT OF TRAIN AHEAD.		PROCEED; BLOCK CLEAR.	
	STOP				STOP; THEN PROCEED		PROCEED AT RESTRICTED SPEED.					PROCEED AT NOT EXCEED- ING SLOW SPEED.		PROCEED AT NOT EXCEED- ING MEDIUM SPEED PRE- PARED TO STOP AT NEXT SIGNAL.		PREPARE TO STOP AT NEXT SIG- NAL. TRAIN EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED.					PROCEED AT NOT EXCEEDING MEDIUM SPEED.		APPROACH NEXT SIGNAL AT NOT EXCEEDING MEDIUM SPEED.				PROCEED.					NOTE: MARKER SHALL BE A YEL- LOW DISC WITH OR WITHOUT THE LETTER "G."		STOP.		BLOCK OCCUPIED; PROCEED PREPARED TO STOP SHORT OF TRAIN AHEAD.		PROCEED; BLOCK CLEAR.	
NAME	STOP				STOP AND PROCEED.		RESTRICTING.					CLEAR SLOW.		MEDIUM APPROACH.		APPROACH.					CLEAR MEDIUM.		APPROACH MEDIUM.				CLEAR.					GRADE.		STOP.		PERMISSIVE.		CLEAR.	
	STOP				STOP AND PROCEED.		RESTRICTING.					CLEAR SLOW.		MEDIUM APPROACH.		APPROACH.					CLEAR MEDIUM.		APPROACH MEDIUM.				CLEAR.					GRADE.		STOP.		PERMISSIVE.		CLEAR.	

NOTES

* RULE 292 D - PURPLE MAY BE USED.

** 292 E, 289 A, AND 281 F COLOR LIGHT MANUAL BLOCK SIGNALS ARE SHOWN HERE, MAKING THEM AVAILABLE FOR USE AT SUCH LOCATIONS AS THE FOLLOWING:

1. AT INTERLOCKING IN MANUAL BLOCK TERRITORY.

2. AT END OF AUTOMATIC SIGNAL TERRITORY AND ENTRANCE INTO MANUAL BLOCK TERRITORY.

3. AT OTHER POINTS WHERE MECHANICAL CONNECTIONS TO SIGNAL ARE UNDESIRABLE.

LEGEND

R-RED

Y-YELLOW

G-GREEN

-NUMBER PLATE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

H. C. ...
EXECUTIVE VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

H. D. ...
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

R. ...
PRESIDENT

K.L.M. C.D.M. W.S.E.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

STANDARD

SIGNAL ASPECTS

AND INDICATIONS

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

JUNE 28, 1944

S-2024-A

RULE	1	2	3
FIGURE	A	A	A
ASPECT			
INDICATION	STOP ON MAIN TRACK AND REPORT FOR INSTRUCTIONS.	TAKE SIDING AND WHEN CLEAR OF MAIN TRACK REPORT FOR INSTRUCTIONS.	PROCEED REGARDLESS OF FOLLOWING SUPERIOR TRAINS.
NAME	STOP TELEPHONE TRAIN ORDER SIGNAL.	TAKE SIDING TELEPHONE TRAIN ORDER SIGNAL.	PROCEED TELEPHONE TRAIN ORDER SIGNAL.

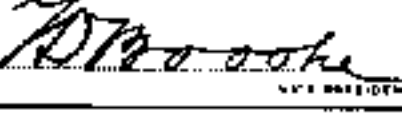
RULES APPLICABLE TO THE USE OF POSITION LIGHT TAKE SIDING AND TELEPHONE TRAIN ORDER SIGNALS

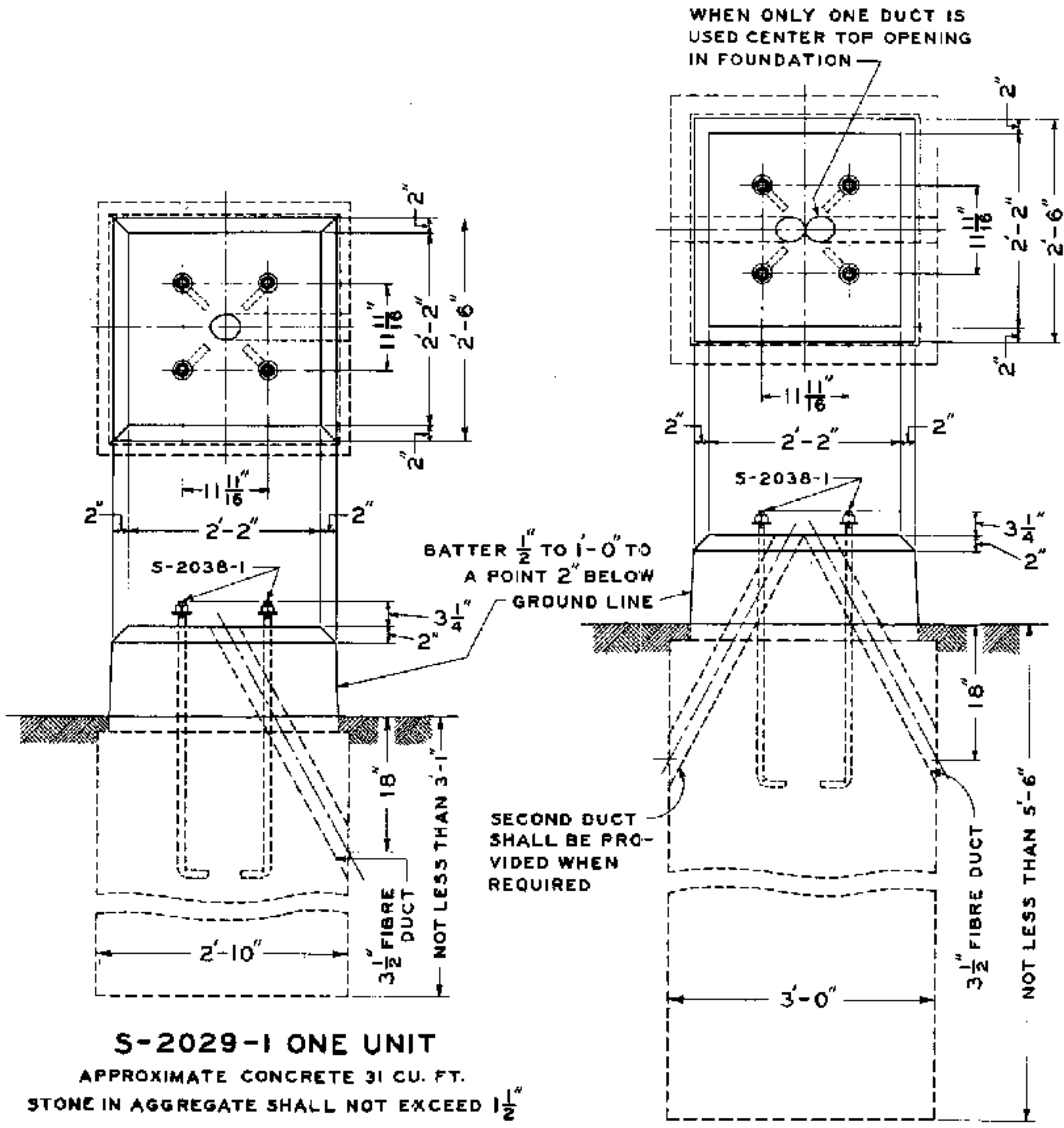
1. WHEN AN AUTOMATIC BLOCK SIGNAL LOCATED AT OR NEAR THE ENTRANCE OF A SIDING INDICATES "STOP THEN PROCEED", A TRAIN WHICH IS TO TAKE SIDING MAY PROCEED AT RESTRICTED SPEED, WITHOUT STOPPING, INTO THE SIDING. OTHERWISE, AUTOMATIC BLOCK SIGNAL INDICATIONS SHALL BE OBSERVED AS PROVIDED BY RULES.
2. POSITION LIGHT TAKE SIDING AND TELEPHONE TRAIN ORDER SIGNAL INDICATIONS DO NOT SUPERSEDE AUTOMATIC BLOCK SIGNAL INDICATIONS.
3. PERMISSION SHALL BE OBTAINED BEFORE USING CROSSOVER BETWEEN MAIN TRACKS WHERE A POSITION LIGHT TAKE SIDING AND TELEPHONE TRAIN ORDER SIGNAL IS LOCATED.
4. IT IS FORBIDDEN TO ACCEPT THE PROCEED INDICATION OF RULE 3, FIG. A, IF THERE IS ANY KNOWN CONDITION THAT WILL PREVENT MAKING USUAL RUNNING TIME. WHEN A TRAIN ACCEPTS THE PROCEED INDICATION OF RULE 3, FIG. A, AND IS UNABLE TO MAKE USUAL RUNNING TIME THE TRAIN MUST BE PROTECTED AS PRESCRIBED BY RULE 99.

NOTES

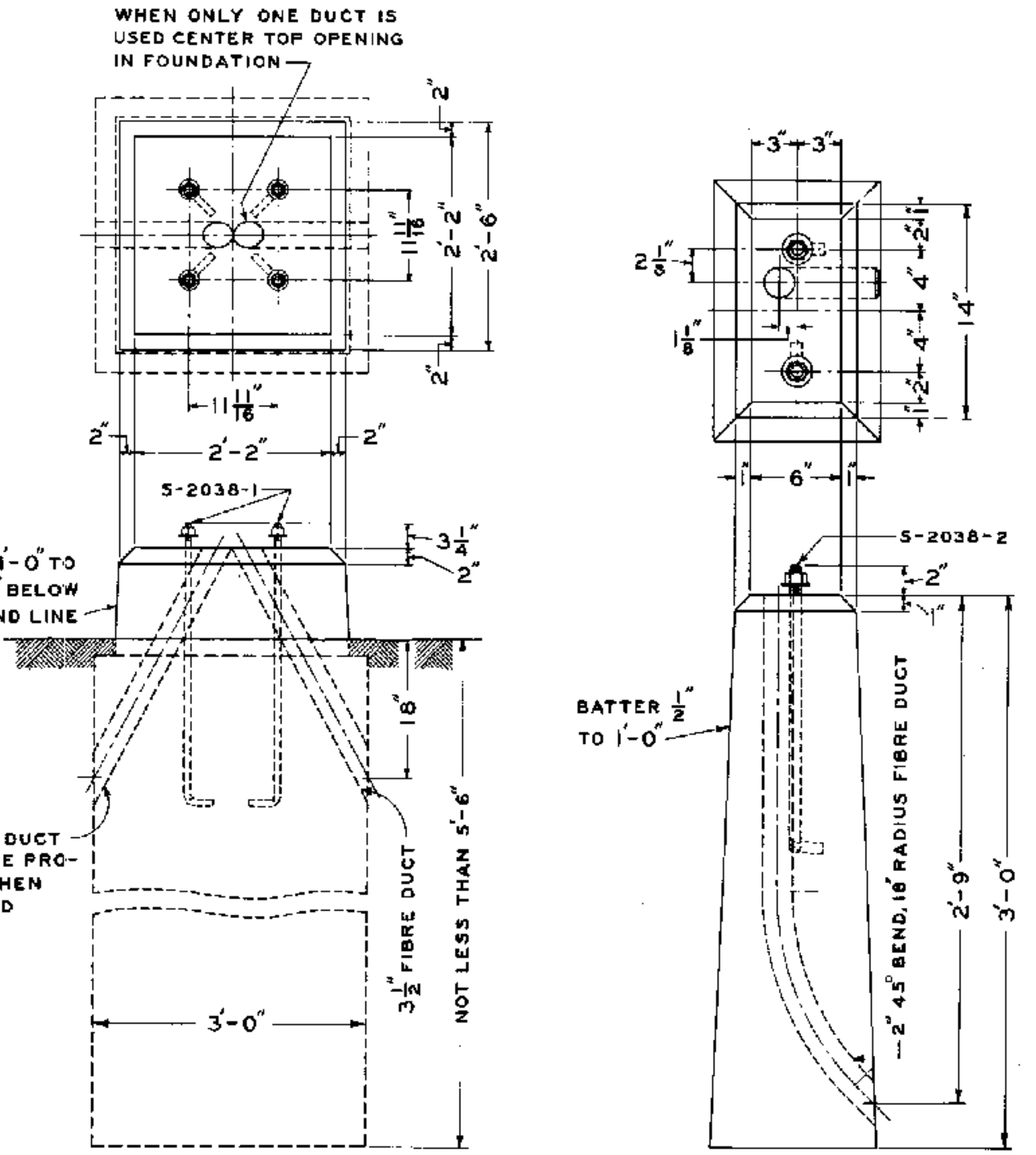
1. SIGNAL UNITS SHALL BE EQUIPPED WITH A $5\frac{3}{8}$ " INVERTED TORIC LENS SUPPLEMENTED BY A COVER GLASS OF NONGLARING COMPOSITION WHICH SHALL GIVE THE TRANSMITTED LIGHT A SLIGHT YELLOWISH TINGE.
2. POSITION LIGHT TAKE SIDING AND TELEPHONE TRAIN ORDER SIGNAL MAY BE LOCATED ON MAST WITH AUTOMATIC SIGNAL OR ON SEPARATE MAST.

NO SCALE

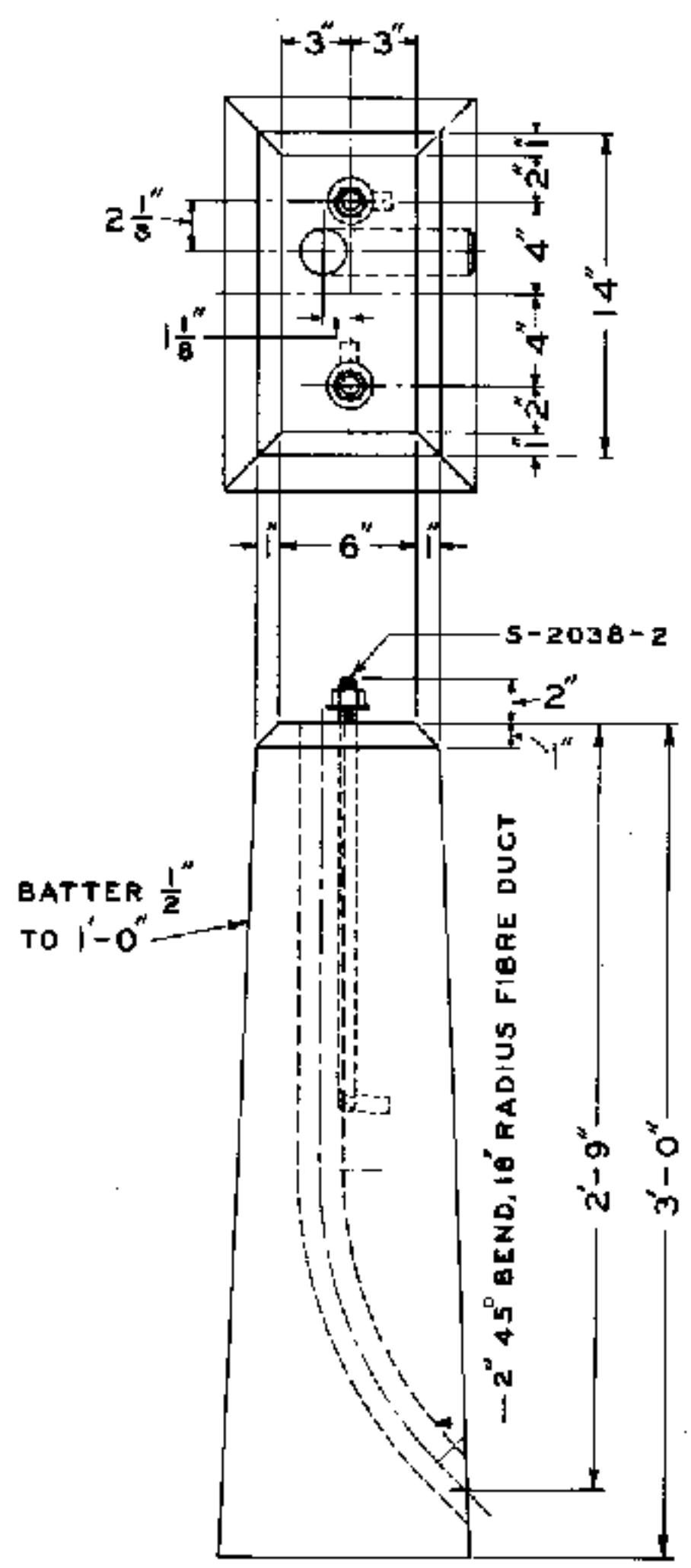
APPROVED FOR USE THE CHESAPEAKE AND OHIO RAILWAY COMPANY  VICE PRESIDENT ERIE RAILROAD COMPANY  VICE PRESIDENT THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY  VICE PRESIDENT PERE MARQUETTE RAILWAY COMPANY  VICE PRESIDENT		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY STANDARD ASPECTS AND INDICATIONS FOR POSITION LIGHT TAKE SIDING AND TELEPHONE TRAIN ORDER SIGNALS APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED:  CHIEF ENGINEER APRIL 21, 1938.
K. L. M. C. B. P.	C. D. M. A. J. P.	S-2025-A



S-2029-1 ONE UNIT
APPROXIMATE CONCRETE 31 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "



S-2029-2 TWO AND THREE UNIT
APPROXIMATE CONCRETE 55 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "



S-2029-3 DWARF
APPROXIMATE CONCRETE 3.75 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "

NOTES

1. FIBRE DUCT SHALL BE USED AS REQUIRED DEPENDING UPON LOCAL CONDITIONS.
2. TOP OF FOUNDATIONS FOR ONE, TWO, AND THREE UNIT SIGNALS SHALL BE SET LEVEL WITH TOP OF RAIL. TOP OF FOUNDATION FOR DWARF SIGNALS SHALL NOT BE SET BELOW THE TOP OF RAIL.
3. PRECAST FOUNDATIONS SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2500 POUNDS PER SQUARE INCH. WHEN CAST IN THE FIELD, THE PROPORTIONS, IF BY LOOSE VOLUME MEASUREMENT OF AGGREGATES, SHALL BE AS FOLLOWS:

SIZE OF STONE	MINIMUM BAGS OF CEMENT PER CUBIC YARD OF CONCRETE	APPROXIMATE MIX PROPORTIONS
LARGER THAN 1"	6.0	1-2½-3½
BETWEEN ¾" AND 1"	6.5	1-2½-3
SMALLER THAN ¾"	7.0	1-2½-2½

ONLY SUFFICIENT WATER SHALL BE USED TO OBTAIN A WORKABLE CONSISTENCY.

NO SCALE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

H. E. Swann
PRESIDENT

ERIE RAILROAD COMPANY

H. L. Barber
VICE PRESIDENT

THE NEW YORK CHICAGO AND ST. LOUIS RAILROAD COMPANY

J. M. Davis
PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

J. P. Bowman
PRESIDENT

W.S.E. W.S.E. W.N.H.

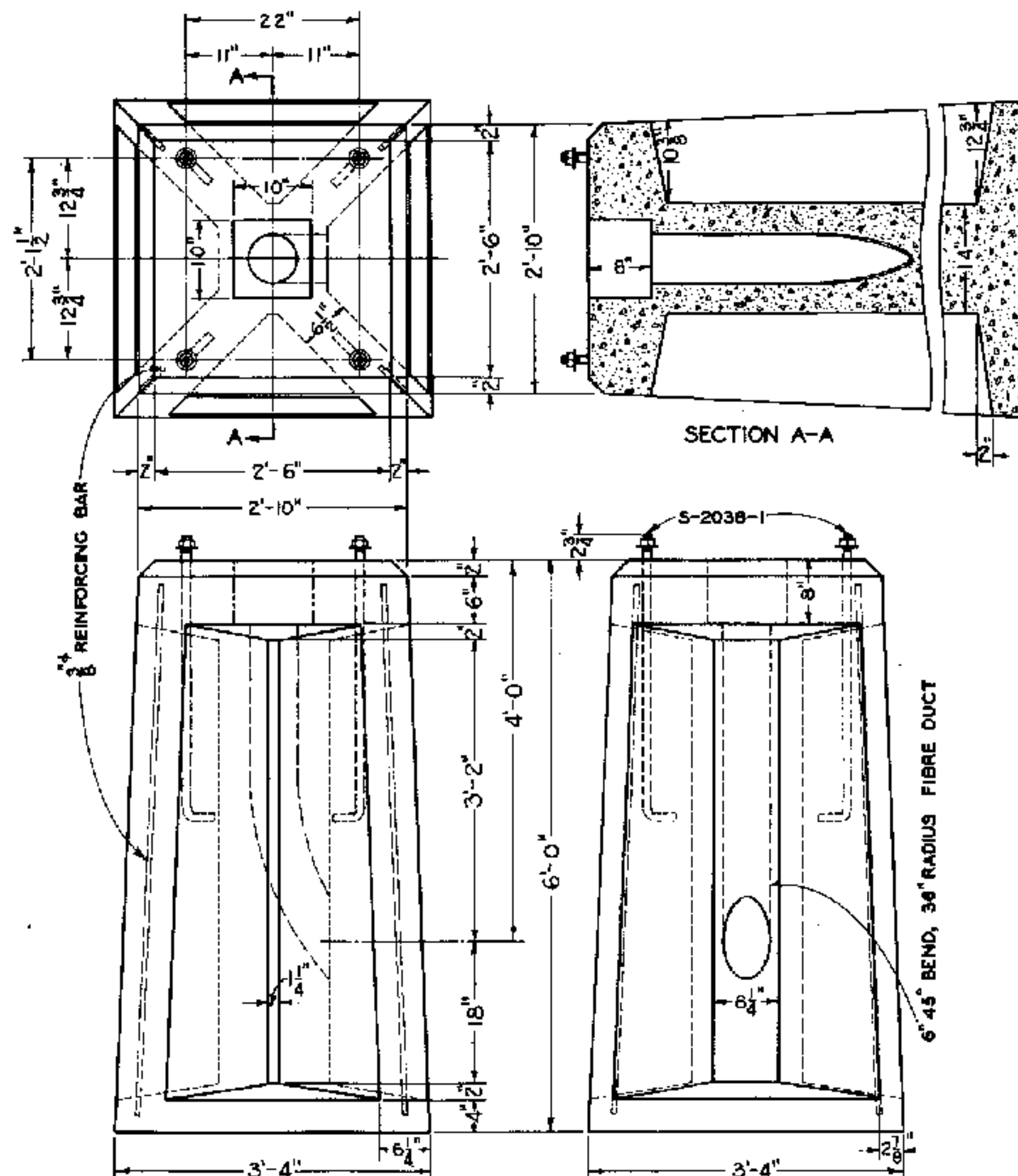
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
COLOR LIGHT
SIGNAL FOUNDATIONS**

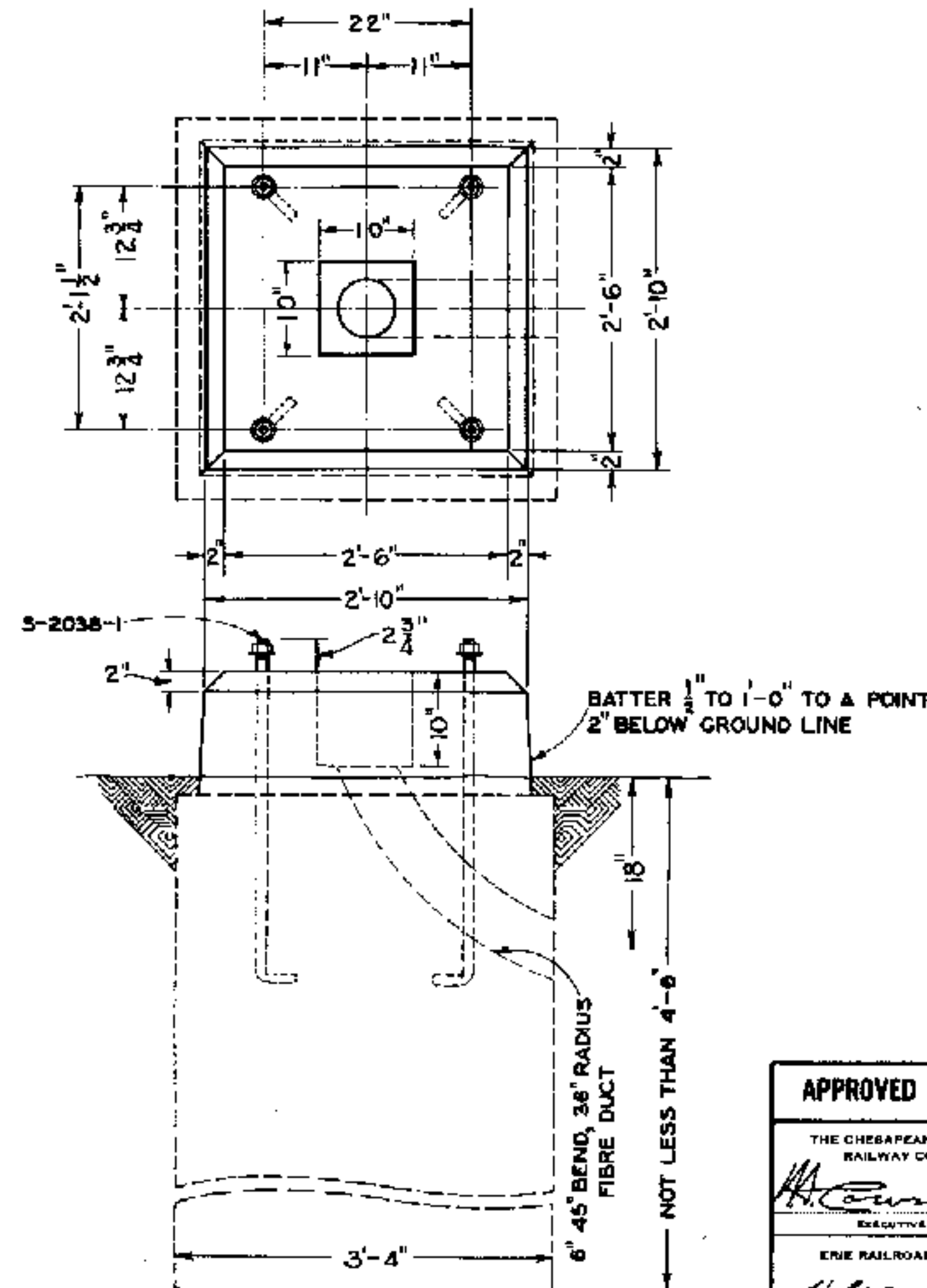
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

SEPT. 14, 1944
SHEET 1 OF 3
S-2029-A



S-2029-4 PRECAST ONE, TWO, AND THREE UNIT
FOR SIGNAL MOUNTED ON INSTRUMENT CASE
APPROXIMATE CONCRETE 31 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "



S-2029-5 ONE, TWO, AND THREE UNIT
FOR SIGNAL MOUNTED ON INSTRUMENT CASE
APPROXIMATE CONCRETE 58.5 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "

- NOTES**
1. FIBRE DUCT SHALL BE USED AS REQUIRED DEPENDING UPON LOCAL CONDITIONS.
 2. TOP OF FOUNDATIONS SHALL BE SET LEVEL WITH TOP OF RAIL.
 3. PRECAST FOUNDATIONS SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2500 POUNDS PER SQUARE INCH. WHEN CAST IN THE FIELD, THE PROPORTIONS, IF BY LOOSE VOLUME MEASUREMENT OF AGGREGATES, SHALL BE AS FOLLOWS:

SIZE OF STONE	MINIMUM BAGS OF CEMENT PER CUBIC YARD OF CONCRETE	APPROXIMATE MIX PROPORTIONS
LARGER THAN 1"	6.0	1 - $2\frac{1}{2}$ - $3\frac{1}{2}$
BETWEEN $\frac{3}{4}$ " AND 1"	6.5	1 - $2\frac{1}{2}$ - 3
SMALLER THAN $\frac{3}{4}$ "	7.0	1 - $2\frac{1}{2}$ - $2\frac{1}{2}$

ONLY SUFFICIENT WATER SHALL BE USED TO OBTAIN A WORKABLE CONSISTENCY.

NO SCALE

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>A. C. Cowmaster</i> EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. H. Barber</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>J. M. Davis</i> PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. J. Brown</i> PRESIDENT		
C.B.P.	W.S.E.	W.N.H.
C.S.L.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT SIGNAL FOUNDATIONS

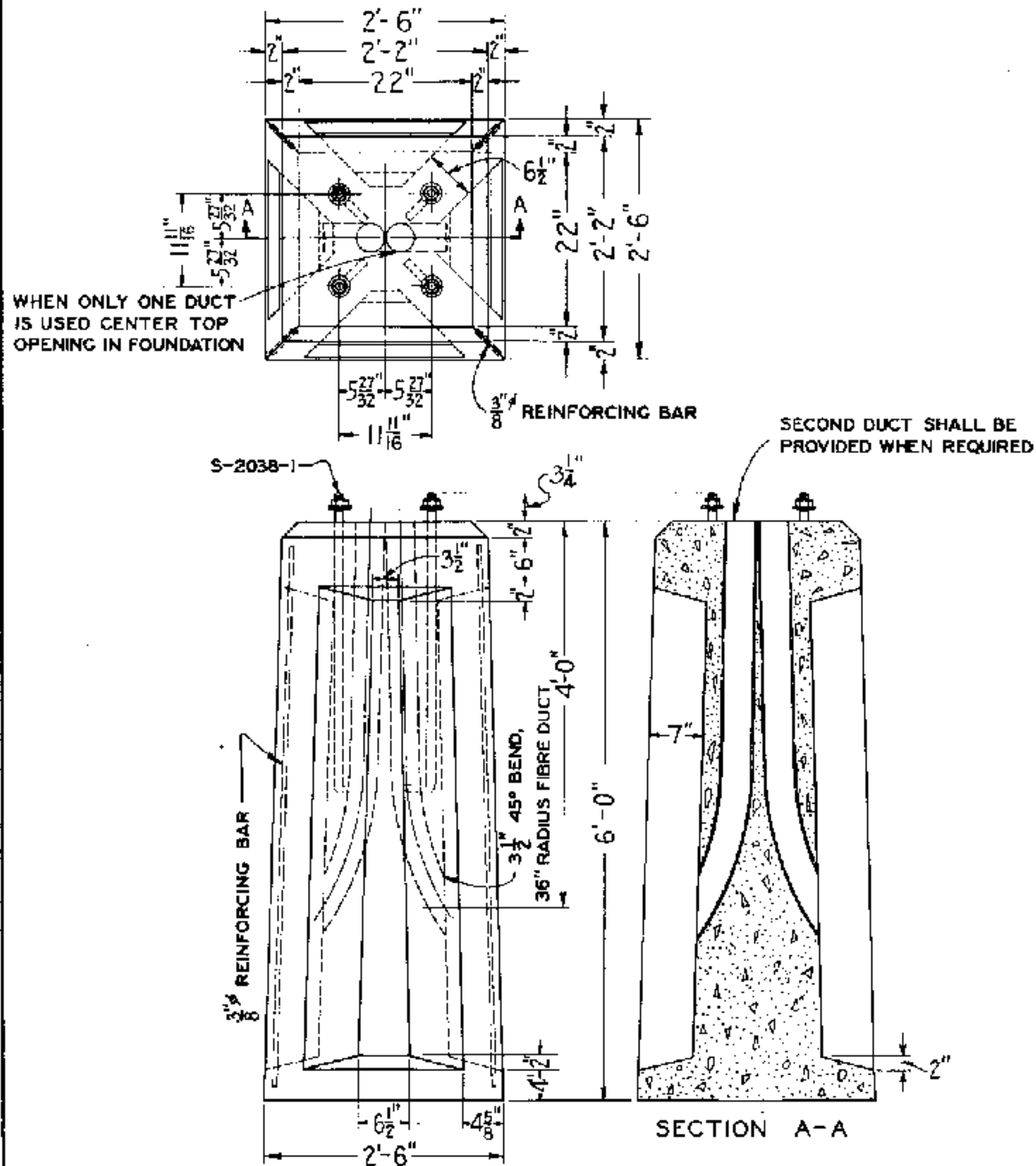
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

SEPT. 14, 1944
SHEET 2 OF 3

NOTES

1. FIBRE DUCT SHALL BE USED AS REQUIRED DEPENDING UPON LOCAL CONDITIONS.
2. TOP OF FOUNDATIONS SHALL BE SET LEVEL WITH TOP OF RAIL.
3. FOUNDATIONS SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2500 POUNDS PER SQUARE INCH.



S-2029-6 PRECAST ONE, TWO, AND THREE UNIT
 APPROXIMATE CONCRETE 23 CU. FT.
 STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "

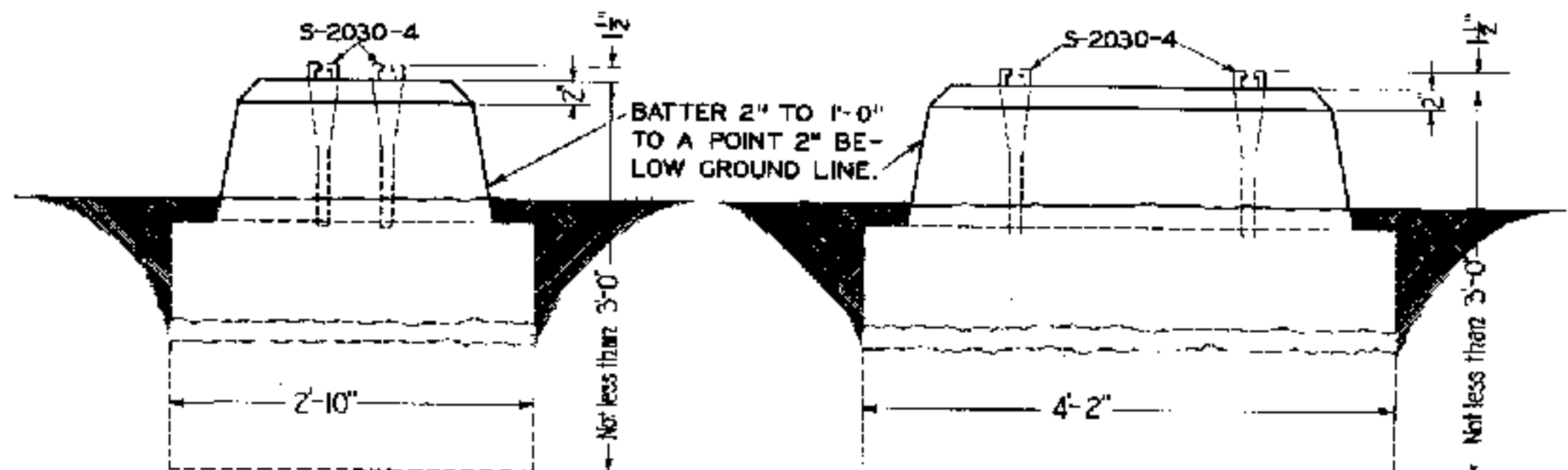
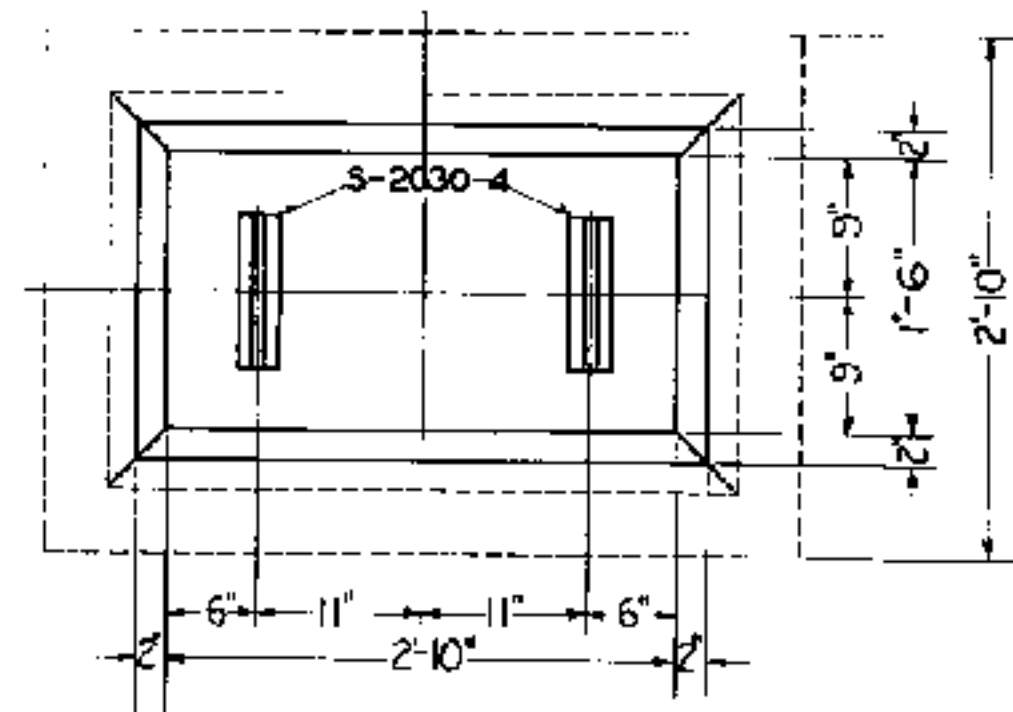
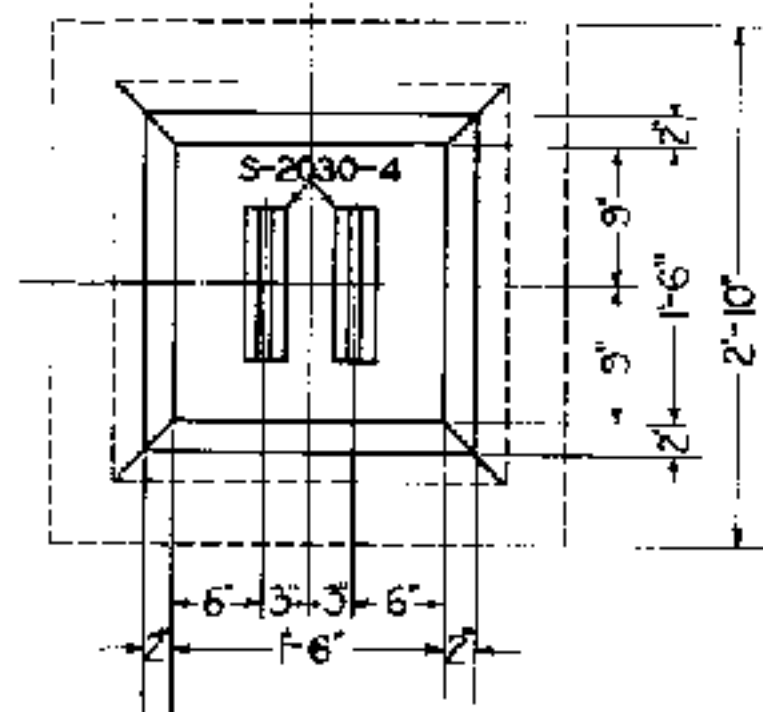
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. C. ...</i> EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. B. ...</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>J. M. ...</i> PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. B. ...</i> PRESIDENT		
C. S. L.	W. S. E.	W. N. H.
C. B. P.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT SIGNAL FOUNDATIONS

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

W. S. E.
 CHAIRMAN
 SEPT. 14, 1944

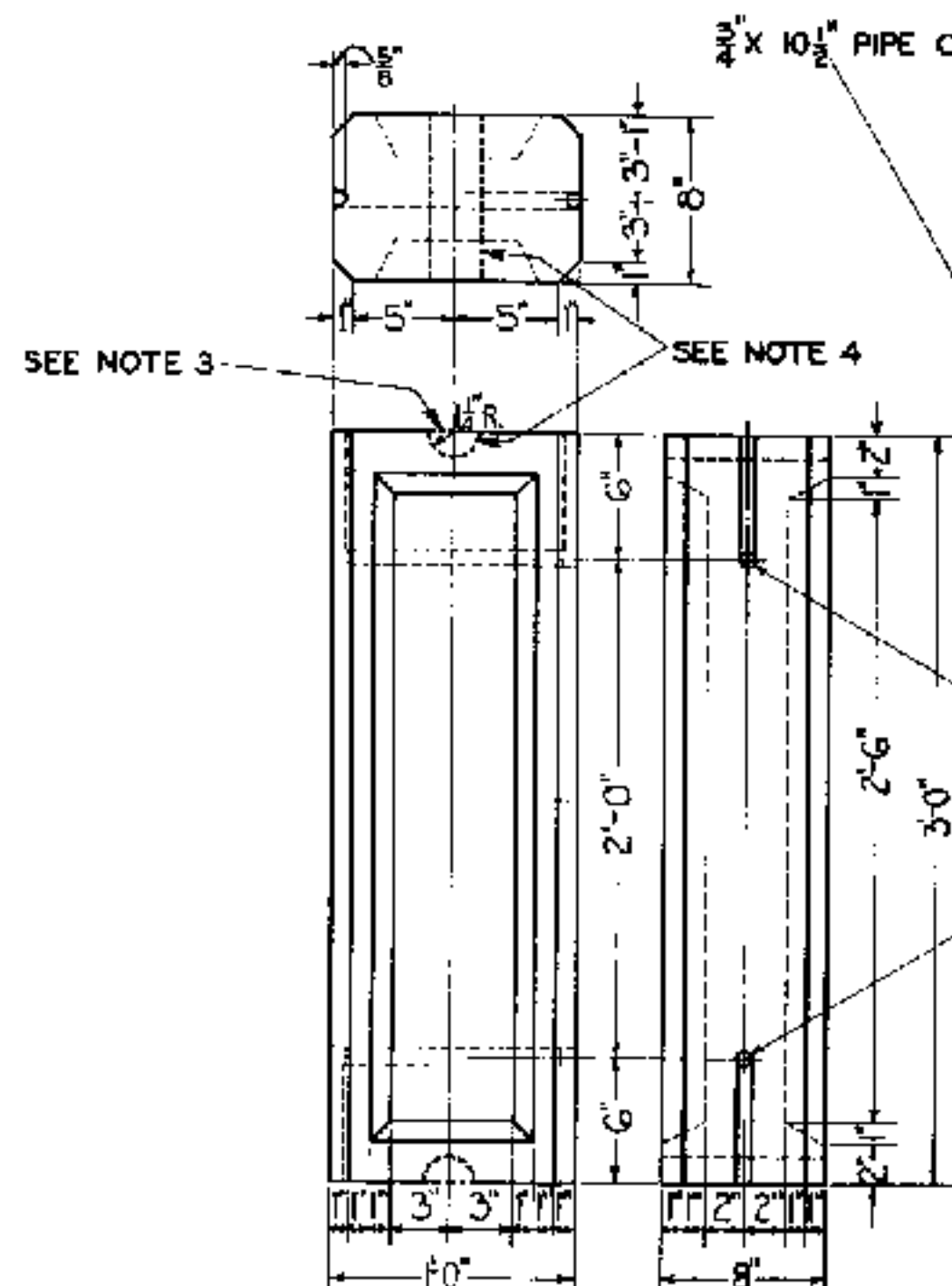


S-2030-1 HORIZONTAL CRANK

STONE IN CONCRETE NOT TO BE LARGER THAN $\frac{1}{2}$ "
APPROXIMATE CONCRETE 20 CU. FT.

S-2030-2 COMPENSATOR

STONE IN CONCRETE NOT TO BE LARGER THAN $\frac{1}{2}$ "
APPROXIMATE CONCRETE 30 CU. FT.



S-2030-3 PIPE CARRIER SEE NOTE 3

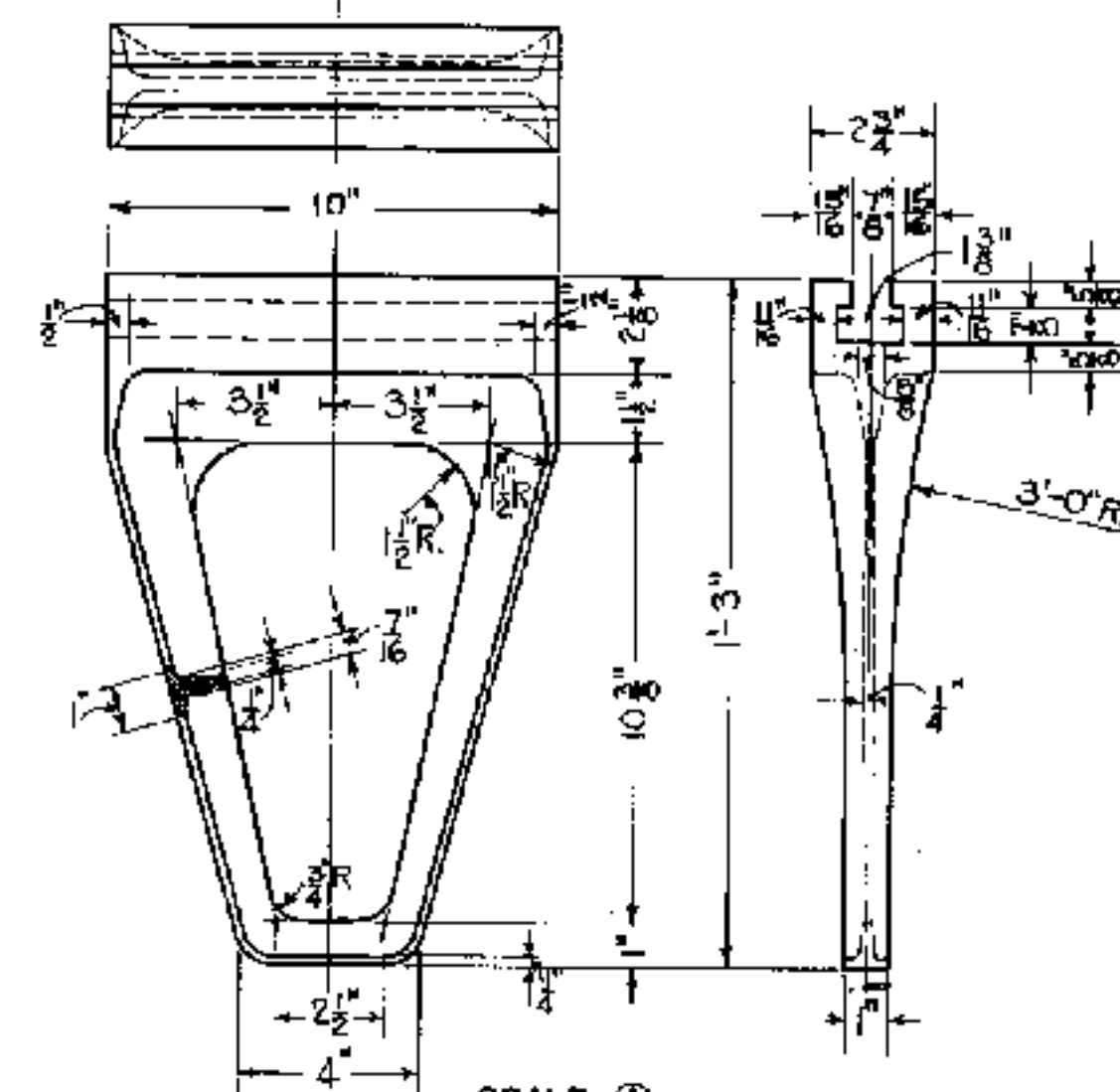
S-2030-5 AIR LINE SEE NOTE 4

STONE IN CONCRETE NOT TO BE LARGER THAN $\frac{3}{4}$ "

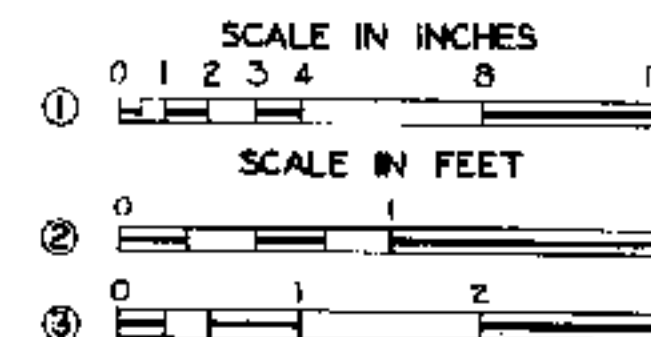
APPROXIMATE CONCRETE 2 CU. FT.

NOTES:

1. PRE-CAST FOUNDATIONS SHALL BE BUILT WITH COMPRESSION STRENGTH OF 2500 POUNDS IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-5.
2. FOUNDATIONS POURED IN FIELD SHALL HAVE MIXTURE OF 1-2-4.
3. TOP AND BOTTOM OF PIPE CARRIER FOUNDATION TO BE FLAT.
4. TOP AND BOTTOM OF AIR LINE FOUNDATION TO BE GROOVED, USING $1\frac{1}{4}$ " RADIUS.



S-2030-4 ANCHOR POST
CAST IRON



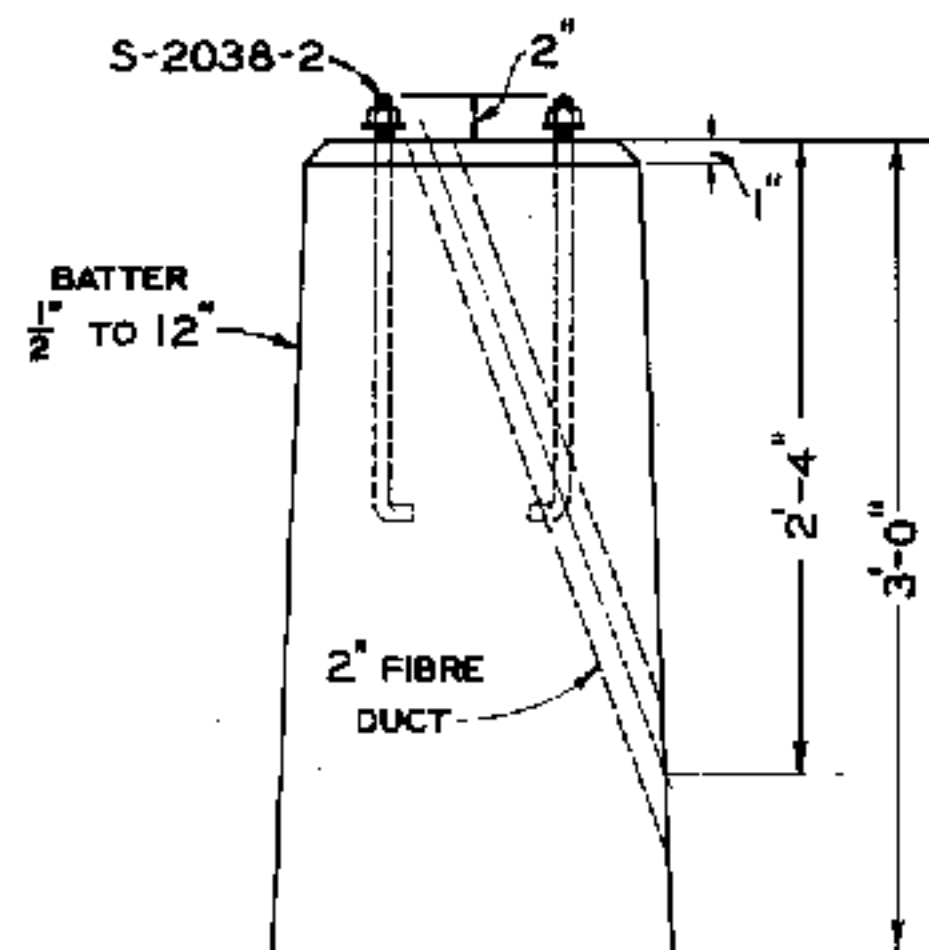
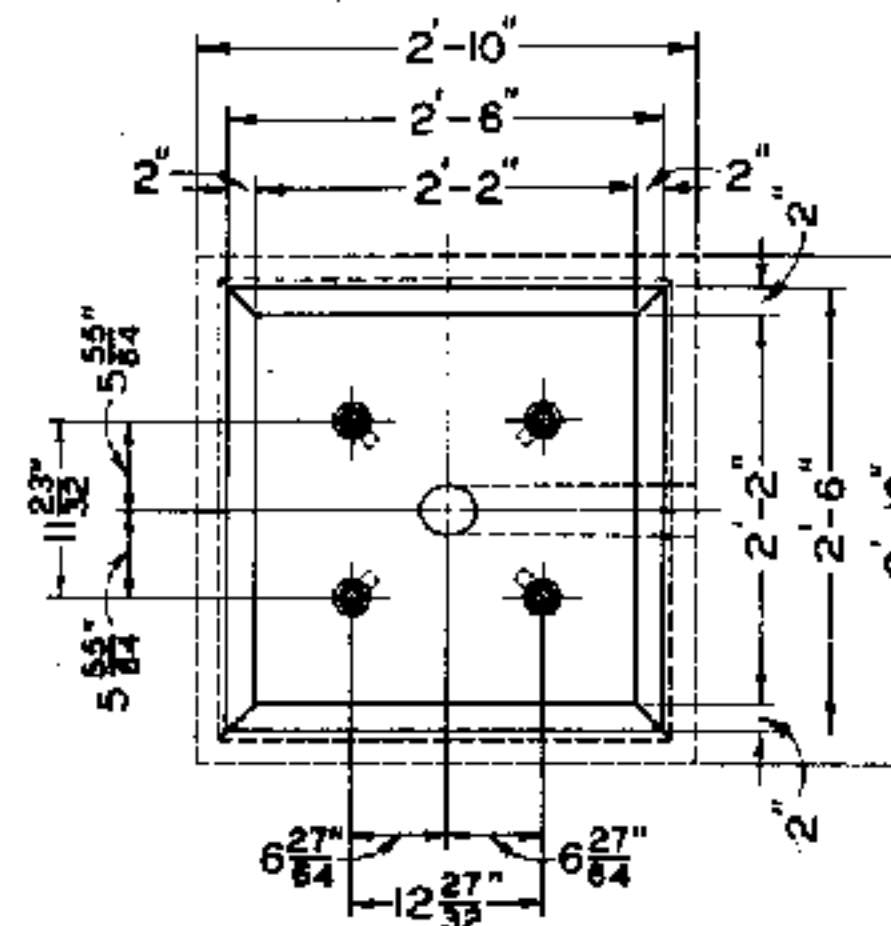
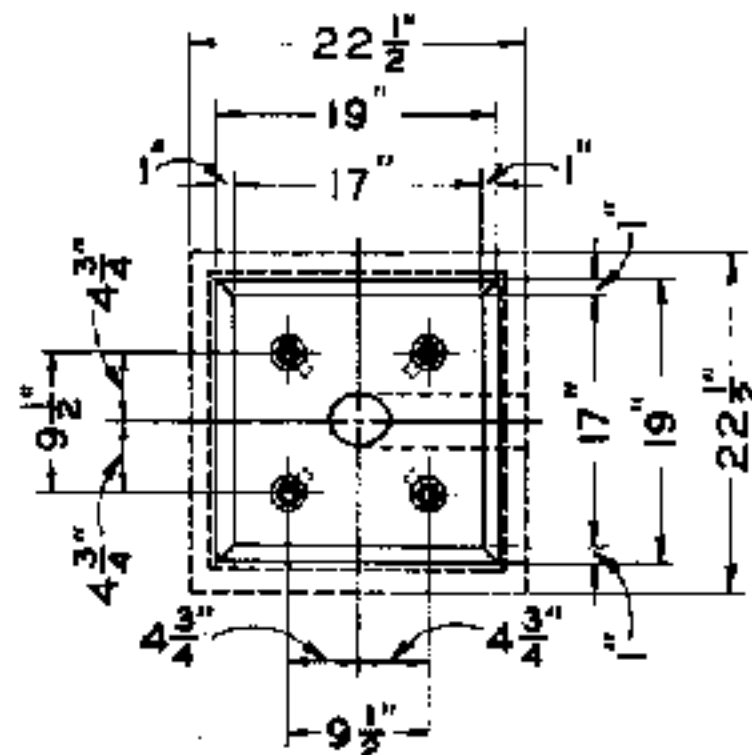
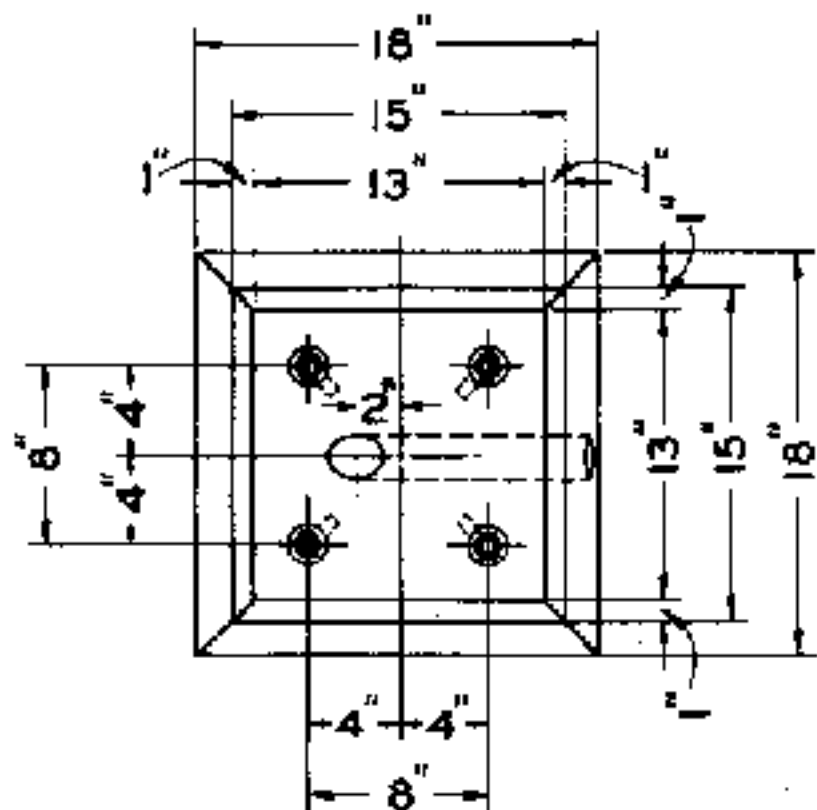
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
CSL	CDM	A.J.P.
CSL		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

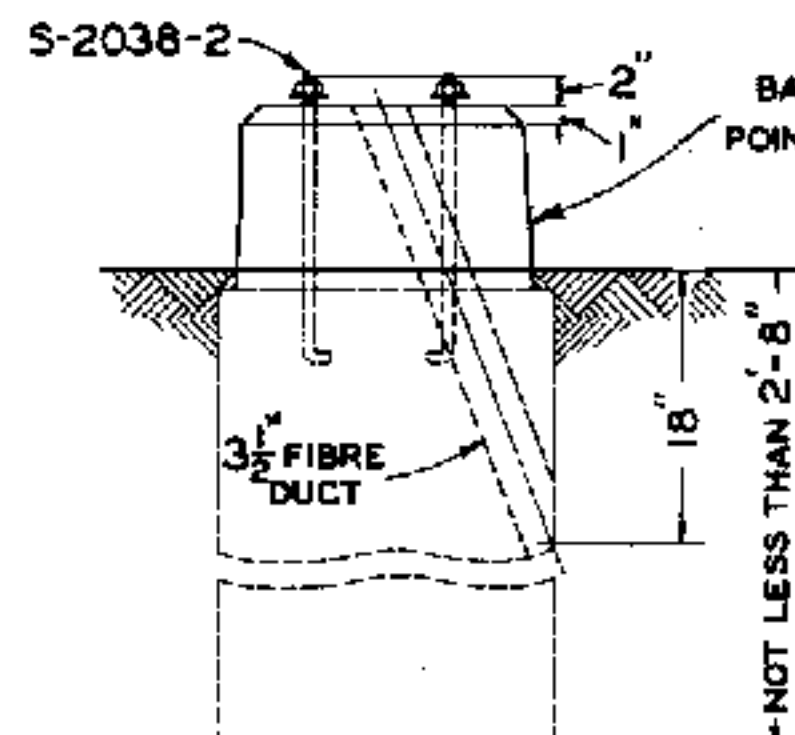
**STANDARD CRANK,
COMPENSATOR, PIPE CARRIER
AND AIR LINE FOUNDATIONS**

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 17, 1931
CHIEF ENGINEER

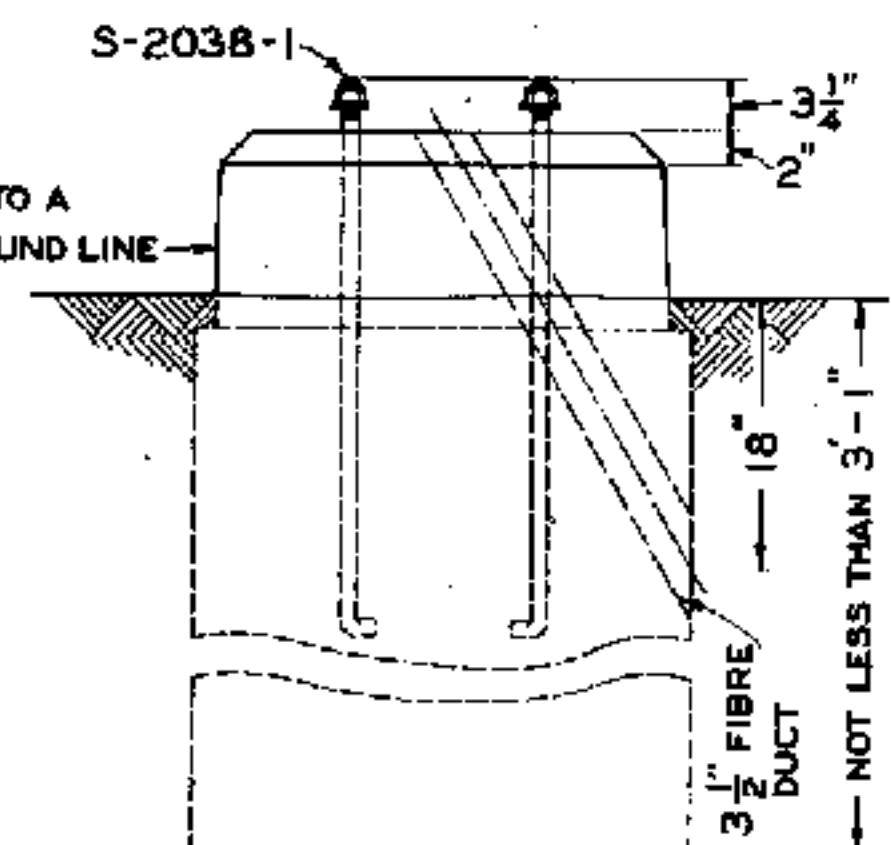
S-2030



S-2031-1 SEARCHLIGHT DWARF SIGNAL FOUNDATION
APPROXIMATE CONCRETE 5.7 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "
DWARF SIGNAL MOUNTED ON THIS FOUNDATION SHOULD BE EQUIPPED WITH $1\frac{1}{2}$ " FLEX. STEEL BOX CONNECTOR



S-2031-2 CABLE POST OR FLASHING CROSSING SIGNAL FOUNDATION
APPROXIMATE CONCRETE 12 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "



S-2031-3 CROSSING SIGNAL FOUNDATION FOR TYPE DW WIGWAG
APPROXIMATE CONCRETE 31 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "

NOTES

1. FIBRE DUCT SHALL BE USED AS REQUIRED DEPENDING UPON LOCAL CONDITIONS.
2. TOP OF FOUNDATION S-2031-1 FOR SEARCHLIGHT DWARF SIGNAL SHALL NOT BE SET BELOW THE TOP OF RAIL.
3. FOUNDATION S-2031-2 WHEN USED WITH CABLE POST SHALL BE SET WITH TOP OF FOUNDATION LEVEL WITH TOP OF RAIL WHEN PRACTICABLE.
4. FOUNDATION S-2031-2, WHEN USED WITH CROSSING SIGNAL, AND FOUNDATION S-2031-3 SHALL BE SET WITH TOP OF FOUNDATION NOT LESS THAN 6" ABOVE GROUND LINE.
5. PRECAST FOUNDATIONS SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2500 POUNDS PER SQUARE INCH, WHEN CAST IN THE FIELD, THE PROPORTIONS, IF BY LOOSE VOLUME MEASUREMENT OF AGGREGATES, SHALL BE AS FOLLOWS:

SIZE OF STONE	MINIMUM BAGS OF CEMENT PER CUBIC YARD OF CONCRETE	APPROXIMATE MIX PROPORTIONS
LARGER THAN 1"	6.0	1-2 $\frac{1}{2}$ -3 $\frac{1}{2}$
BETWEEN $\frac{3}{4}$ " AND 1"	6.5	1-2 $\frac{1}{2}$ -3
SMALLER THAN $\frac{3}{4}$ "	7.0	1-2 $\frac{1}{2}$ -2 $\frac{1}{2}$

ONLY SUFFICIENT WATER SHALL BE USED TO OBTAIN A WORKABLE CONSISTENCY.

NO SCALE

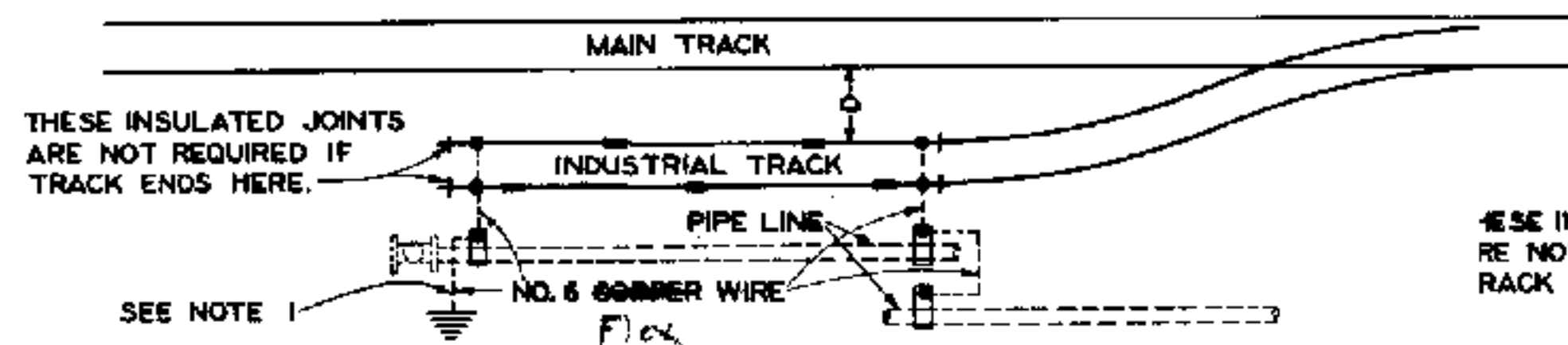
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THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>[Signature]</i>
ERIE RAILROAD COMPANY	<i>[Signature]</i>
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>[Signature]</i>
PERE MARQUETTE RAILWAY COMPANY	<i>[Signature]</i>
C.B.P.	C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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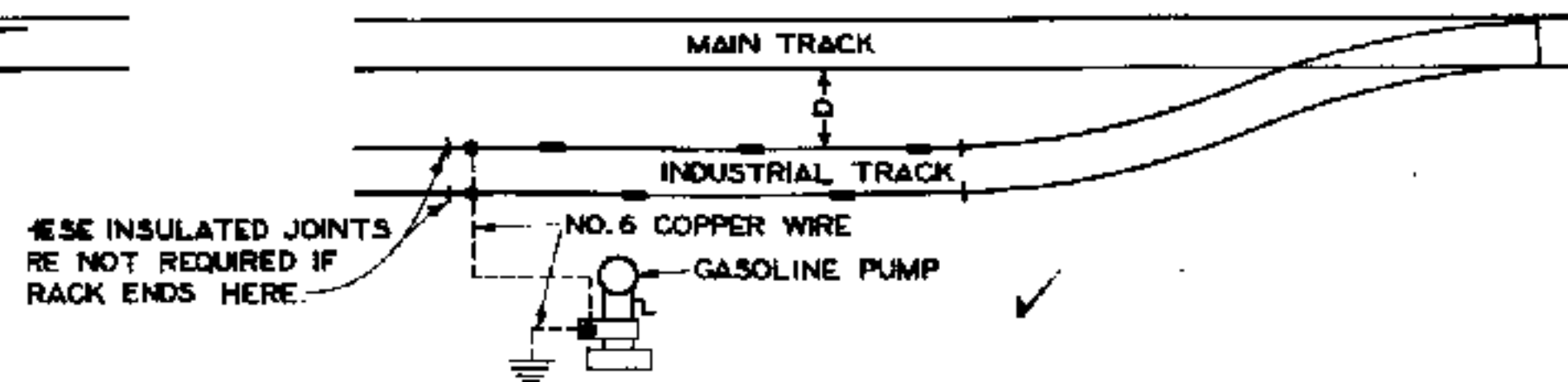
STANDARD CABLE POST, CROSSING SIGNAL, AND SEARCHLIGHT DWARF SIGNAL FOUNDATIONS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* FEB. 20, 1914
CHIEF ENGINEER

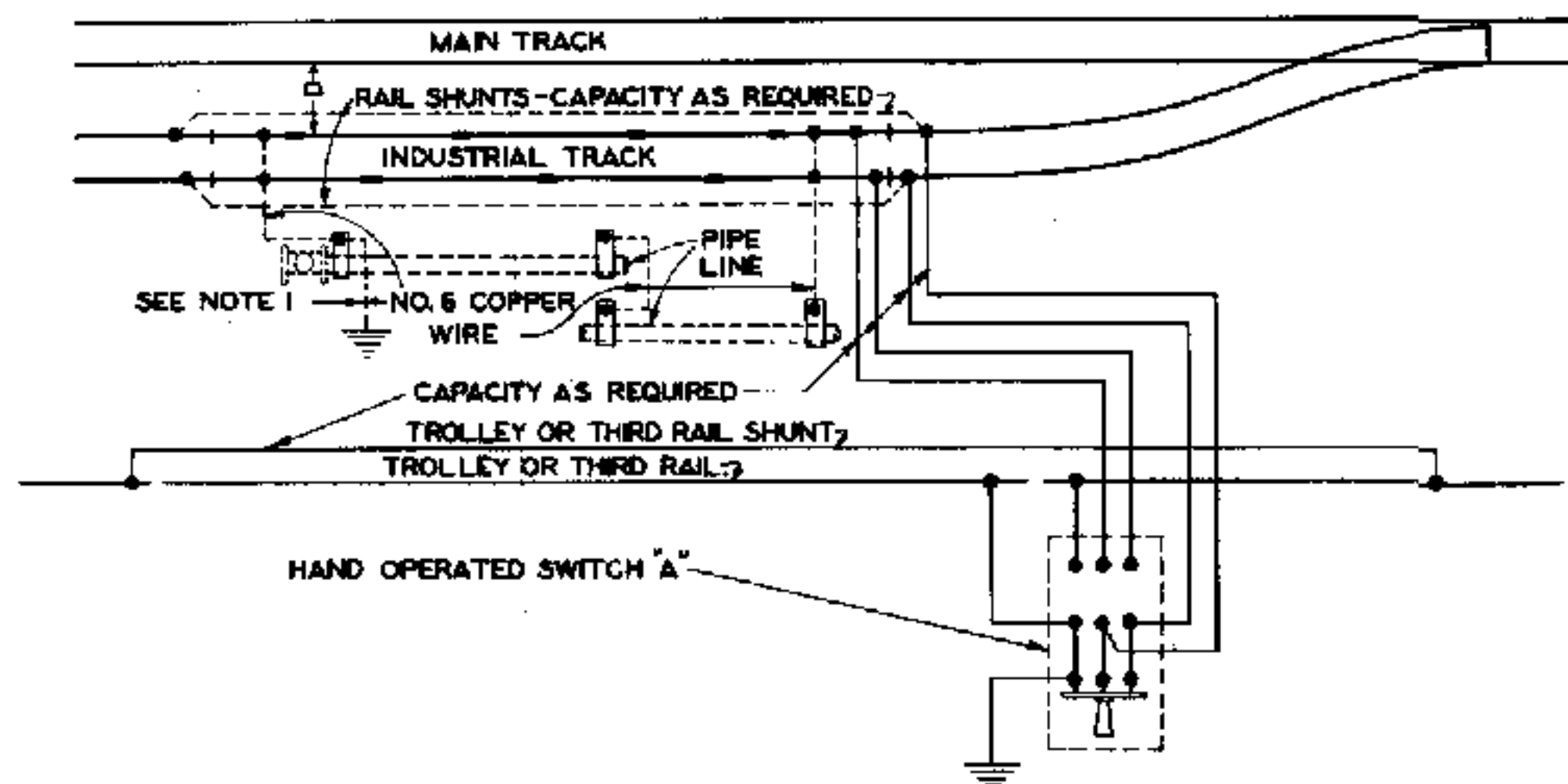
S-2031



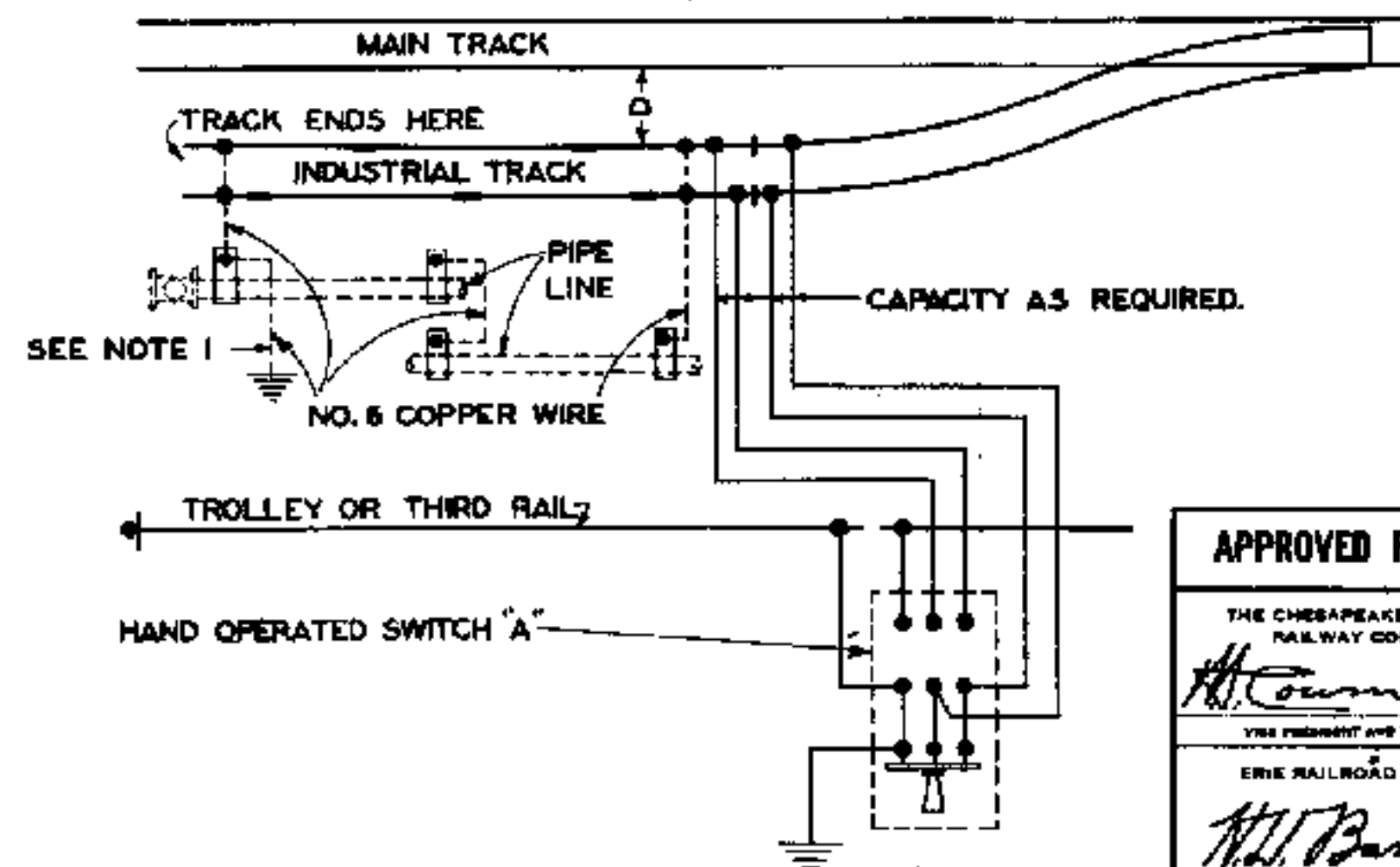
S-2033-1 FOR LOADING OR UNLOADING
TRACKS NOT IN ELECTRIFIED TERRITORY



S-2033-2 FOR ALL FILLING STATIONS
SERVING RAIL MOTOR COACHES AND
INTERNAL COMBUSTION LOCOMOTIVES.



S-2033-3 FOR LOADING OR UNLOADING TRACKS
IN ELECTRIFIED TERRITORY, ELECTRIFIED
BEYOND THE PROTECTED POINT.



S-2033-4 FOR LOADING OR UNLOADING
STUB TRACKS IN ELECTRIFIED TERRITORY.

NOTES

1. GROUND SHOWN IN S-2033-1, -3, AND -4 SHALL BE CONNECTED DIRECT TO RAIL WHEN PIPE IS NOT USED.
2. WHERE PIPE CONNECTED DERAIL IS USED, PIPE LINE SHALL BE INSULATED.
3. CONNECTIONS OF COPPER WIRE TO PIPE LINE SHALL BE PERMANENTLY CLAMPED, SOLDERED, OR BRAZED TO AN EXPOSED SECTION OF THE PIPE.
4. HAND OPERATED SWITCH "A" SHALL BE EITHER AN AIR BREAK OR OIL TYPE, THREE POLE, DOUBLE THROW, ENCLOSED SAFETY SWITCH WITH LOCKING DEVICE FOR LOCKING IN BOTH POSITIONS; CAPACITY AS REQUIRED, BUT NOT LESS THAN 100 AMPERES.
5. THE MINIMUM FOR "D", THE DISTANCE FROM NEAR RAIL OF MAIN TRACK TO NEAR RAIL UNDER CENTER OF SPOTTED CAR, SHALL BE AS PRESCRIBED BY STATE LAWS, CITY ORDINANCES, INTER-STATE COMMERCE COMMISSION REGULATIONS, AND NATIONAL BOARD OF FIRE UNDERWRITERS.
6. CARS SPOTTED FOR LOADING OR UNLOADING MUST NOT BRIDGE INSULATED RAIL JOINTS OR BE COUPLED TO CARS OUTSIDE OF THE INSULATED TRACK SECTION AT ANY TIME DURING LOADING OR UNLOADING OPERATIONS.
7. INSULATED JOINTS SHALL BE OF APPROVED TYPE.
8. SECTION 4 OF I.C.C. REGULATIONS PAGE 52, PARAGRAPH 697 (b), REQUIRE THAT EITHER CONSIGNOR OR CONSIGNEE PROVIDE A SUITABLE SIGN FOR MARKING LOADING OR UNLOADING SECTION.
9. BONDING SHALL BE DONE IN ACCORDANCE WITH APPROVED PRACTICE.

LEGEND
—+— INSULATED JOINT
—•— BONDED JOINT

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

H. C. Conmaster
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

H. L. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

D. B. Brooks
PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

A. J. Brown
VICE PRESIDENT

C.H.W.
K.L.M. W.S.E. C.A.T.

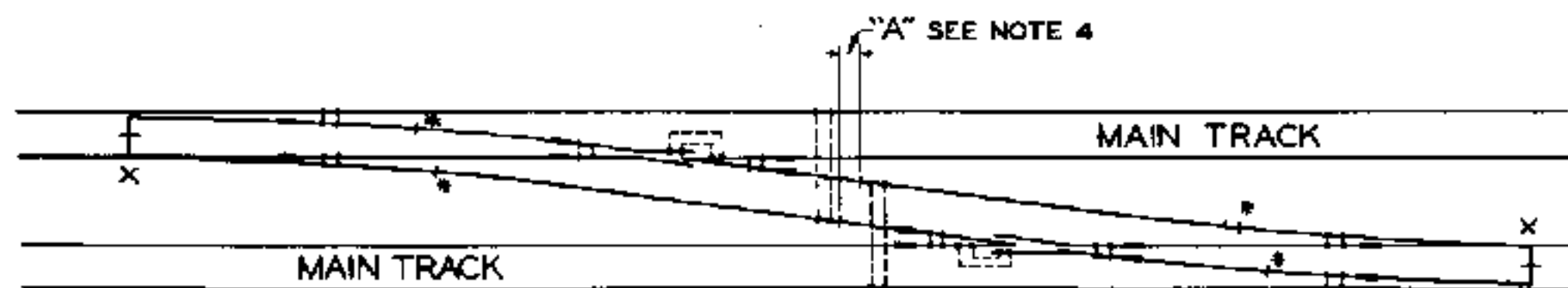
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
ELECTRICAL PROTECTION ON
TRACKS USED FOR LOADING OR
UNLOADING INFLAMMABLE LIQUIDS

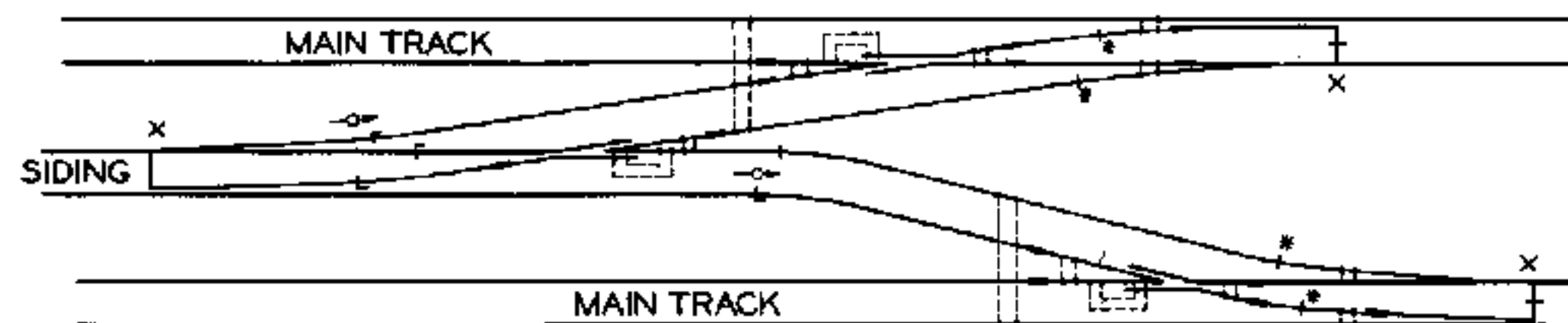
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

A. J. Brown
CHAIRMAN

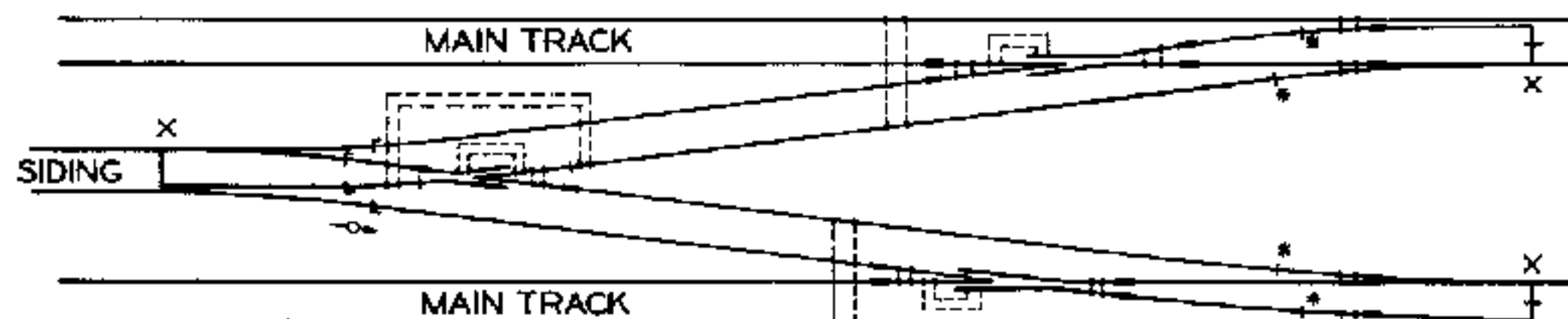
NOV. 9, 1939



S-2034-1 MAIN TO MAIN CROSSOVER



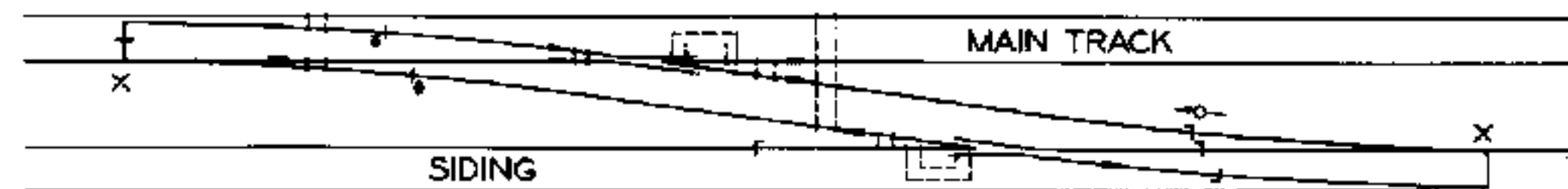
S-2034-2 CENTER SIDING



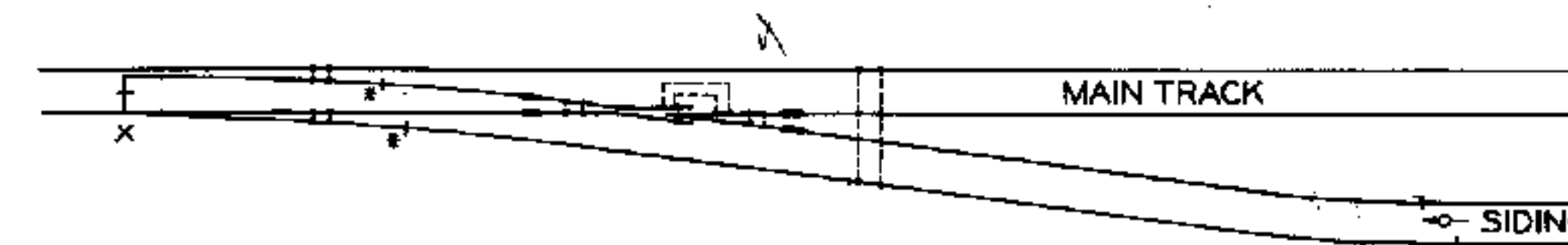
S-2034-3 CENTER SIDING



S-2034-4 SWITCH WITHIN FOULING



S-2034-5 MAIN TO SIDING CROSSOVER



S-2034-6 SINGLE SWITCH

- LEGEND**
- BONDED JOINT.
 - + INSULATED JOINT, TRACK CIRCUIT IN BOTH DIRECTIONS.
 - X SWITCH CIRCUIT CONTROLLER LOCATION.
 - INSULATED JOINT INDICATING TRACK CIRCUIT ON RIGHT, NONE ON LEFT.
 - INSULATED JOINT INDICATING TRACK CIRCUIT ON LEFT, NONE ON RIGHT.

NOTES

1. ALL INSULATED JOINTS AT LOCATIONS MARKED THUS * SHALL BE LOCATED TO PROVIDE PROPER CLEARANCE TO TAKE CARE OF EQUIPMENT OVERHANG.
2. NONINTERLOCKED CROSSOVER BETWEEN MAIN TRACKS, ONLY ONE OF WHICH IS TRACK CIRCUITED, SHALL BE INSULATED THE SAME AS CROSSOVER BETWEEN MAIN TRACK AND SIDING.
3. INSULATED JOINTS MARKED THUS * SHALL NOT BE STAGGERED MORE THAN FOUR FEET SIX INCHES (4'-6").
4. FOR CROSSOVER SHORTER THAN No. 16, "A" = FOUR FEET SIX INCHES (4'-6") MAXIMUM. FOR CROSSOVER No. 16 OR LONGER, "A" = TEN FEET (10'-0") MAXIMUM.

NO SCALE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

D. M. Moore

VICE PRESIDENT

ERIE RAILROAD COMPANY

E. L. Woodruff

VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

D. M. Moore

VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

J. H. Brown

VICE PRESIDENT

C. H. W.

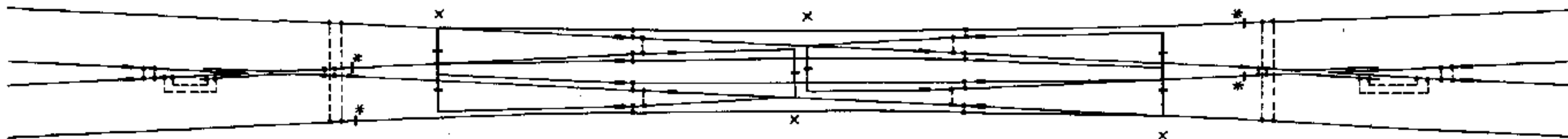
C. B. P.

C. D. M. A. J. P.

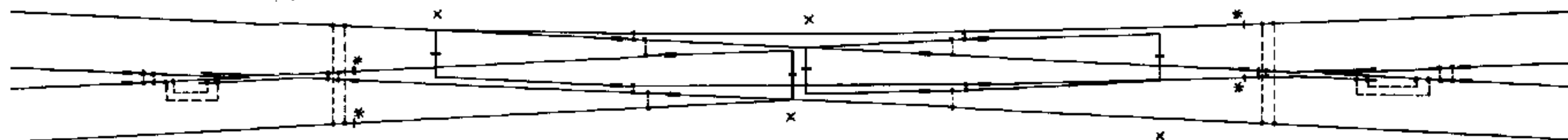
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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STANDARD FOULING AND BONDING FOR TURNOUTS AND CROSSOVERS

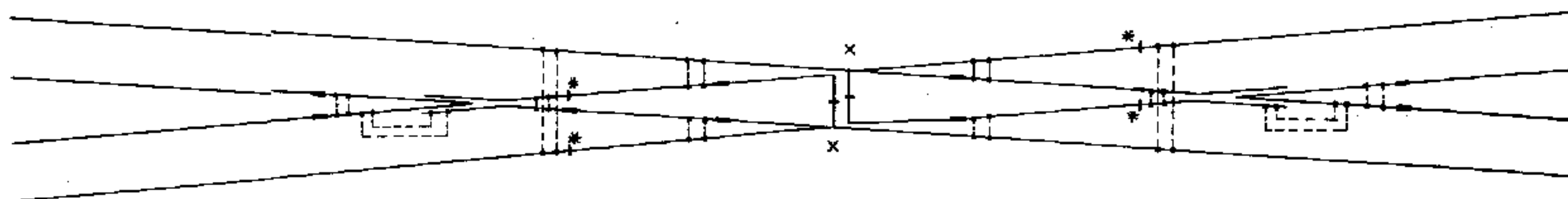
APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APPROVED: *[Signature]* JULY 21, 1936
 CHIEF ENGINEER



S-2035-1 DOUBLE SLIP SWITCHES AND MOVABLE POINT FROGS



S-2035-2 SINGLE SLIP SWITCHES AND MOVABLE POINT FROGS



S-2035-3 MOVABLE POINT FROGS

NOTE

INSULATED JOINTS MARKED THUS (*) SHALL NOT BE STAGGERED MORE THAN FOUR FEET SIX INCHES (4'-6").

LEGEND

- BONDING JOINT.
- INSULATED JOINT, TRACK CIRCUIT IN BOTH DIRECTIONS.
- X SWITCH CIRCUIT CONTROLLER LOCATION.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

R. D. Brooks
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. L. Woodruff
VICE PRESIDENT

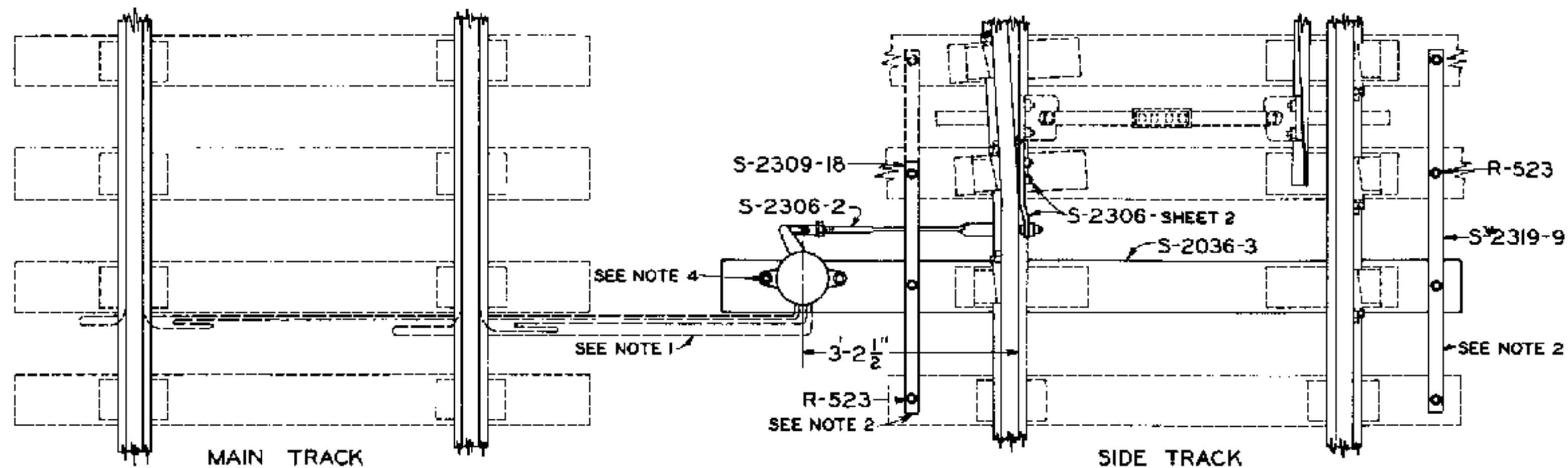
C.H.W. C.D.M. A.J.P.

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ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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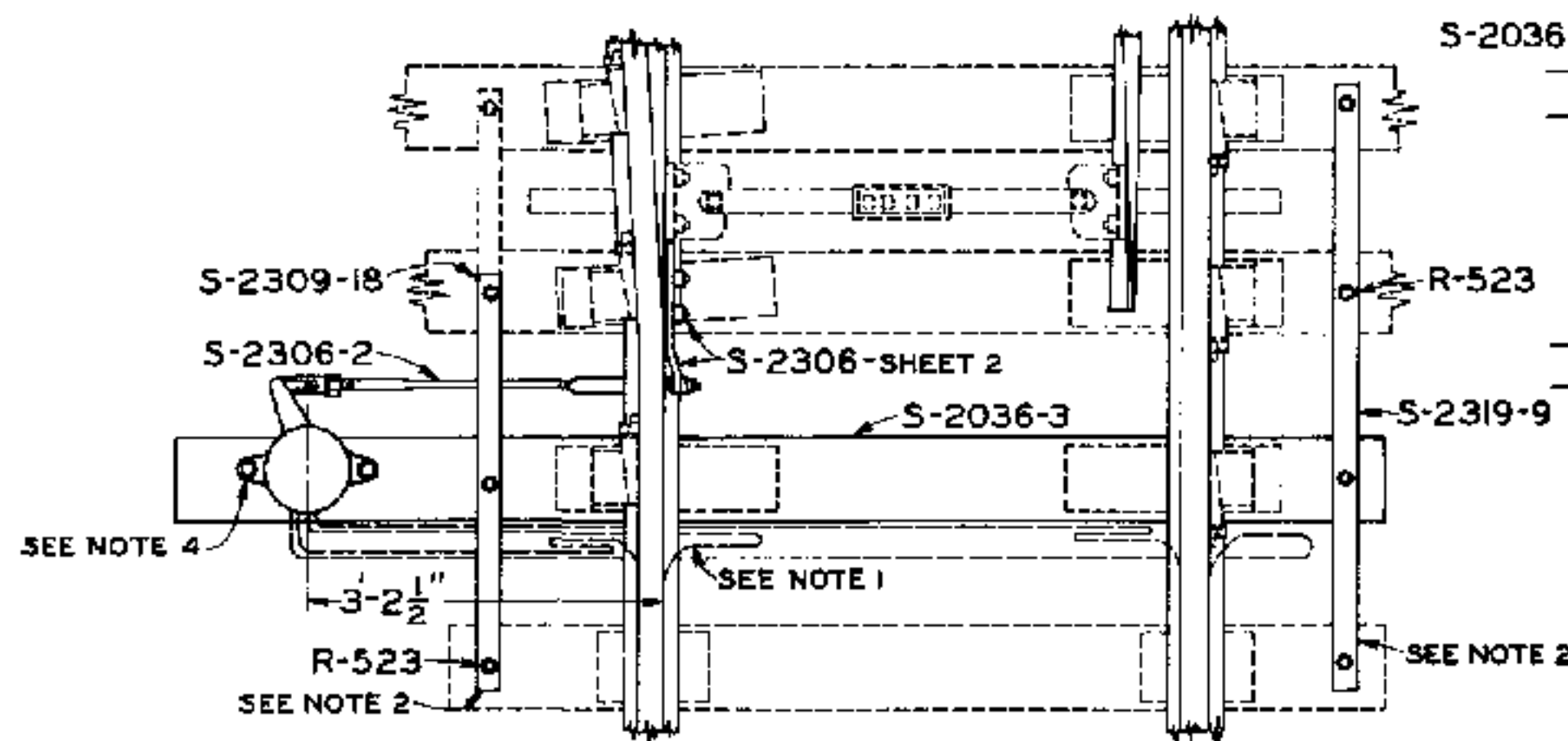
STANDARD FOULING AND BONDING FOR SLIP SWITCHES AND MOVABLE POINT FROGS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff* JULY 22, 1931
CHIEF ENGINEER

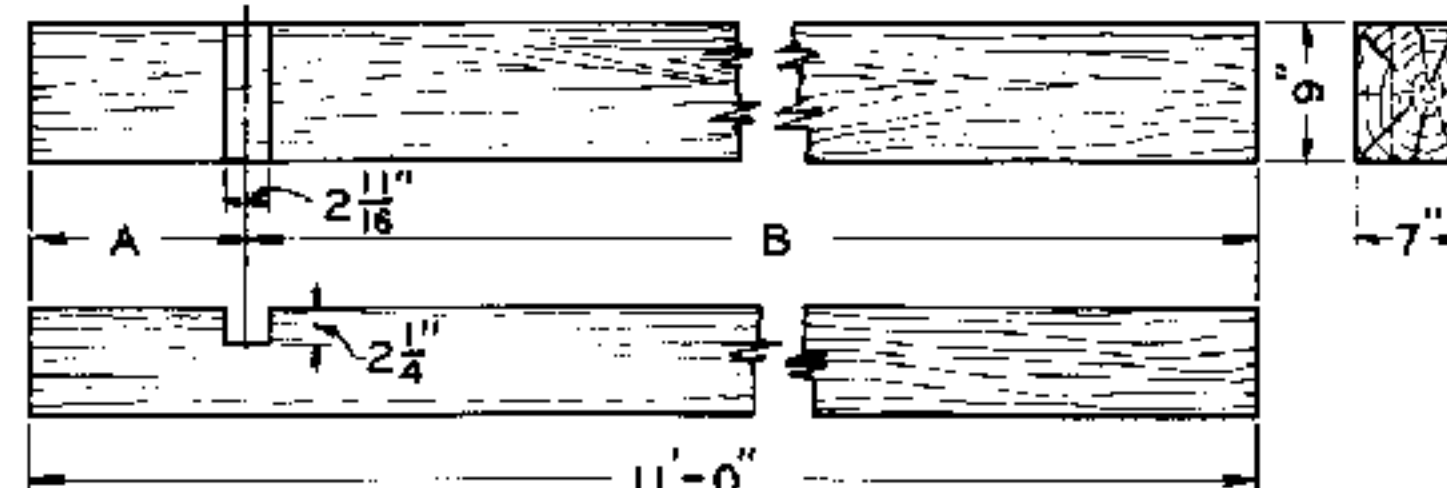
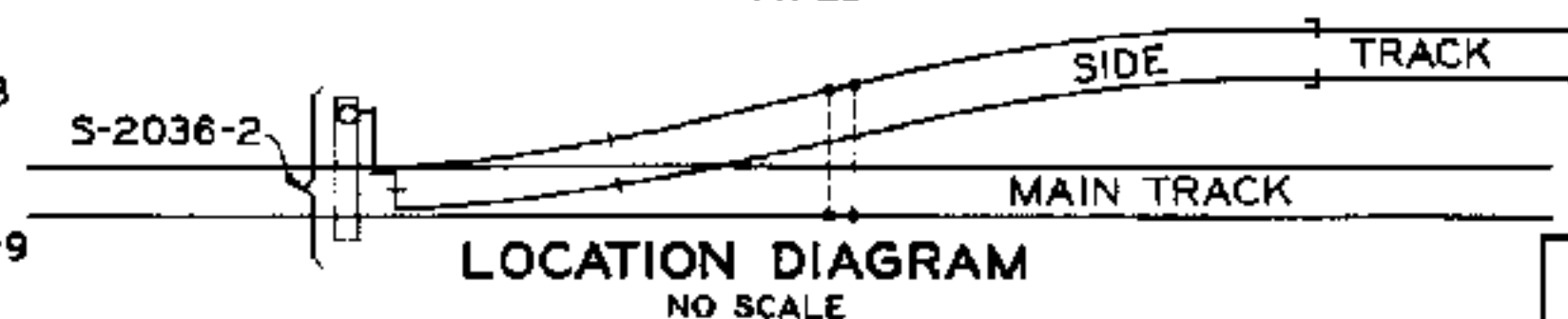
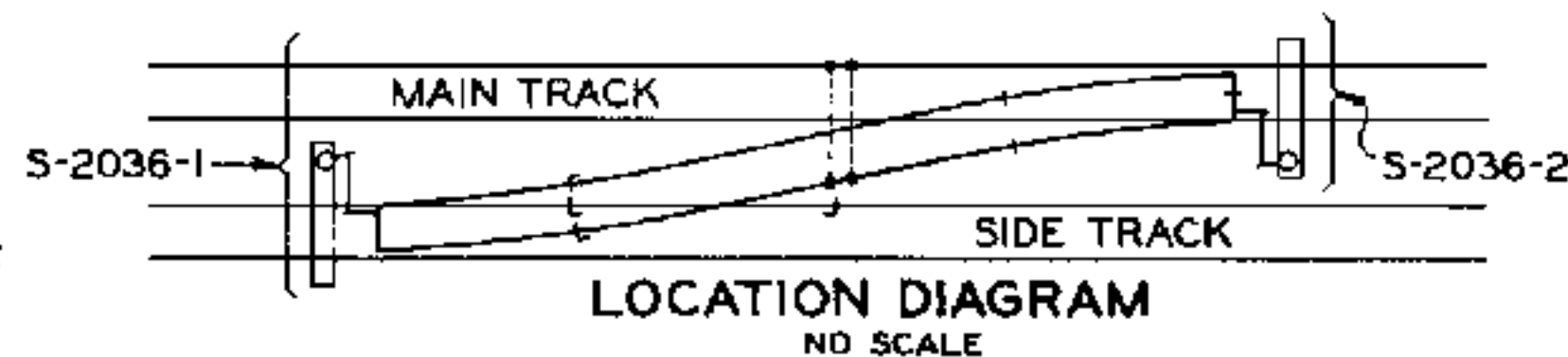
S-2035



S-2036-1 CROSSOVER SHUNT MAIN TO SIDING
SCALE ②



S-2036-2 SINGLE SWITCH SHUNT
SCALE ②



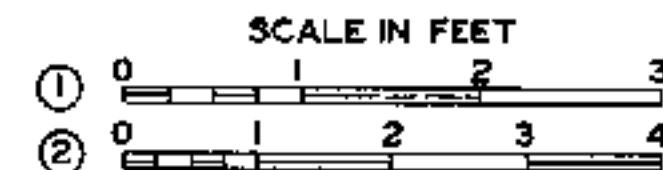
S-2036-3 TIE A=14 $\frac{1}{4}$ " B=9'-9 $\frac{3}{4}$ "
S-2036-4 " A=15 $\frac{3}{4}$ " B=9'-8 $\frac{1}{4}$ "
SCALE ①

NOTES

1. ELECTRICAL CONNECTIONS BETWEEN EACH RAIL AND SWITCH CIRCUIT CONTROLLER SHALL CONSIST OF TWO OR MORE FLEXIBLE WIRES, NO. 9 A.W.G. OR LARGER.
2. TIE STRAP S-2319-9 SHALL BE PLACED ON SIDE OF SWITCH OPPOSITE SWITCH STAND. TIE STRAP S-2309-18 SHALL BE PLACED ON SAME SIDE AS SWITCH STAND.
3. FOR FURTHER INFORMATION AS TO LOCATION OF INSULATED JOINTS SEE LATEST REVISION OF STANDARD DRAWING S-2034, STANDARD FOULING AND BONDING FOR TURNOUTS AND CROSSOVERS.
4. SWITCH CIRCUIT CONTROLLER SHALL BE SECURED TO TIE WITH TWO $\frac{3}{4}$ " X 6" HOT GALV. GIMLET POINT LAG SCREWS WITH CUT THREADS, WITH SPRING WASHER (R-523), AND FLAT WASHER.
5. TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER FRAMING, IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT FOR CROSS TIES OR SWITCH TIES.
6. AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED AS FOLLOWS:

DIA. OF LAG SCREW	SIZE BIT	APPROX. DEPTH
$\frac{7}{8}$ "	$\frac{5}{8}$ "	5 $\frac{1}{4}$ "
$\frac{3}{4}$ "	$\frac{9}{16}$ "	3"
$\frac{1}{2}$ "	$\frac{3}{8}$ "	2 $\frac{1}{2}$ "

7. ROD GUIDE, S-2036-8 SHALL BE SECURED TO TIE WITH TWO $\frac{1}{2}$ " X 4" HOT GALV. GIMLET POINT LAG SCREWS WITH CUT THREADS.
8. LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



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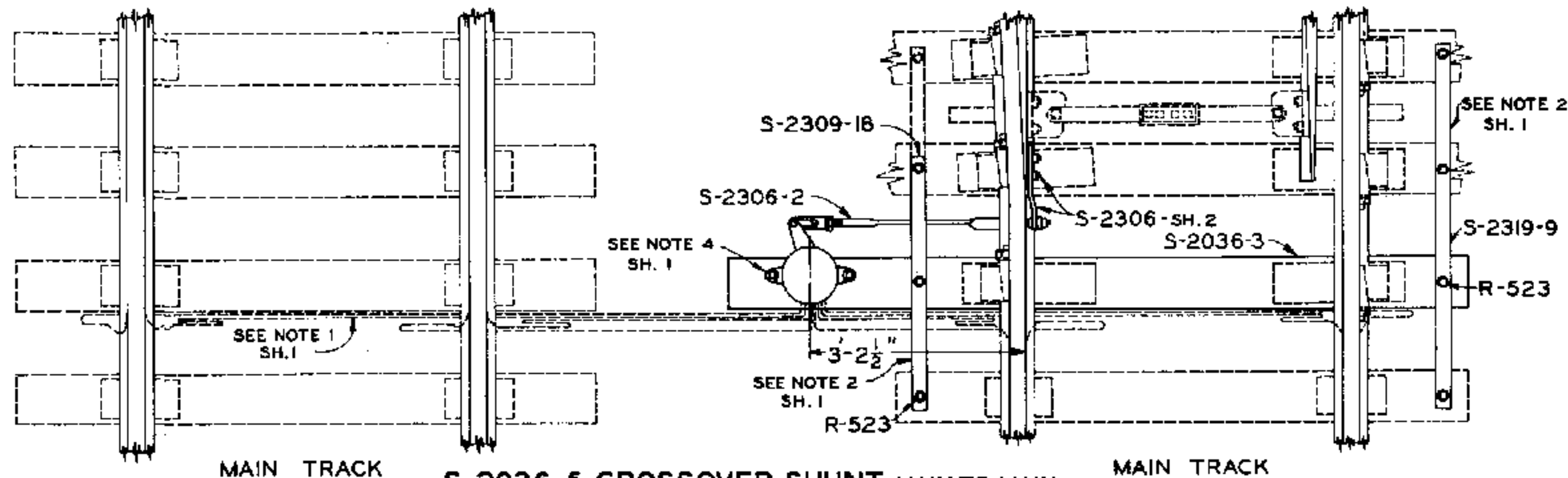
K.L.M. C.B.P. C.D.M. A.J.P.

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ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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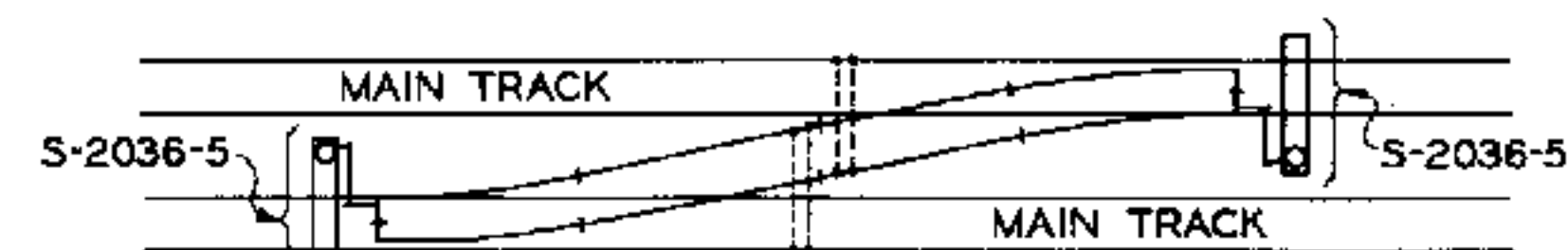
STANDARD TRACK SHUNTING ARRANGEMENTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* OCT. 15, 1934.
CHIEF ENGINEER

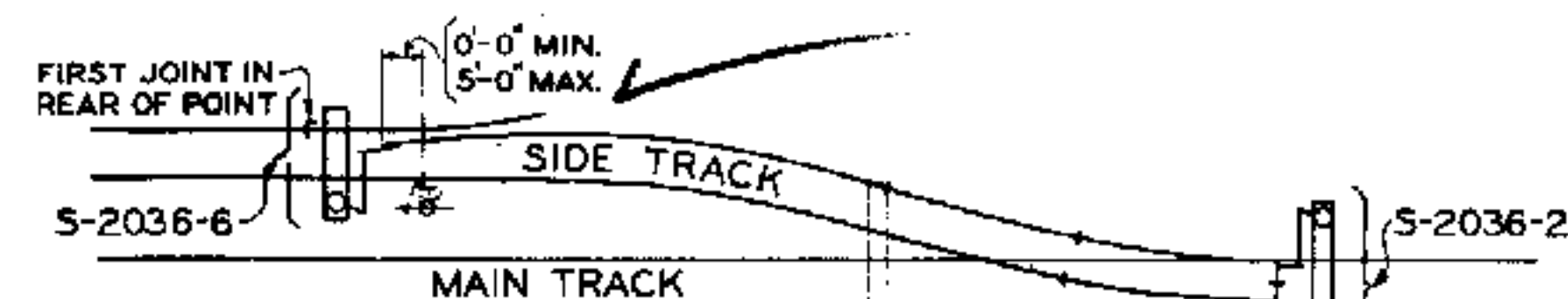
SHEET 1 OF 3
S-2036



S-2036-5 CROSSOVER SHUNT MAIN TO MAIN
(FOR BOTH ENDS OF CROSSOVER)



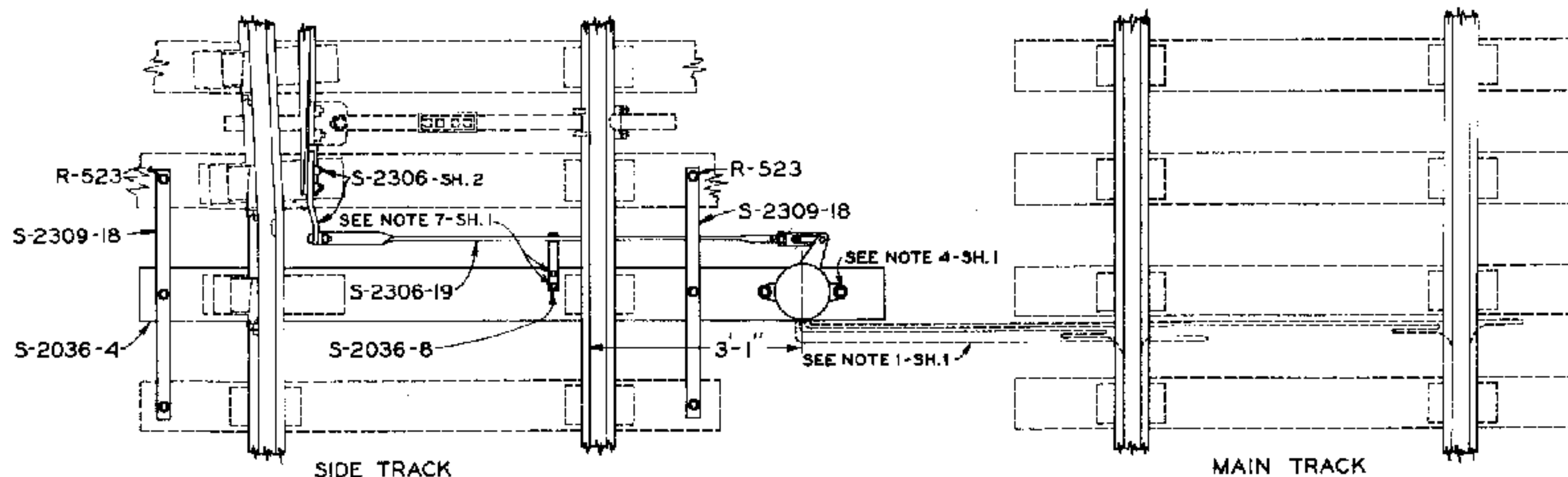
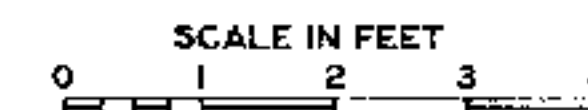
LOCATION DIAGRAM
NO SCALE



LOCATION DIAGRAM
NO SCALE

—•— INSULATED JOINT SHALL BE LOCATED TO PROVIDE PROPER CLEARANCE TO TAKE CARE OF EQUIPMENT OVERHANG.

SEE NOTES ON SHEET 1



S-2036-6 SPLIT POINT DERAIL SHUNT

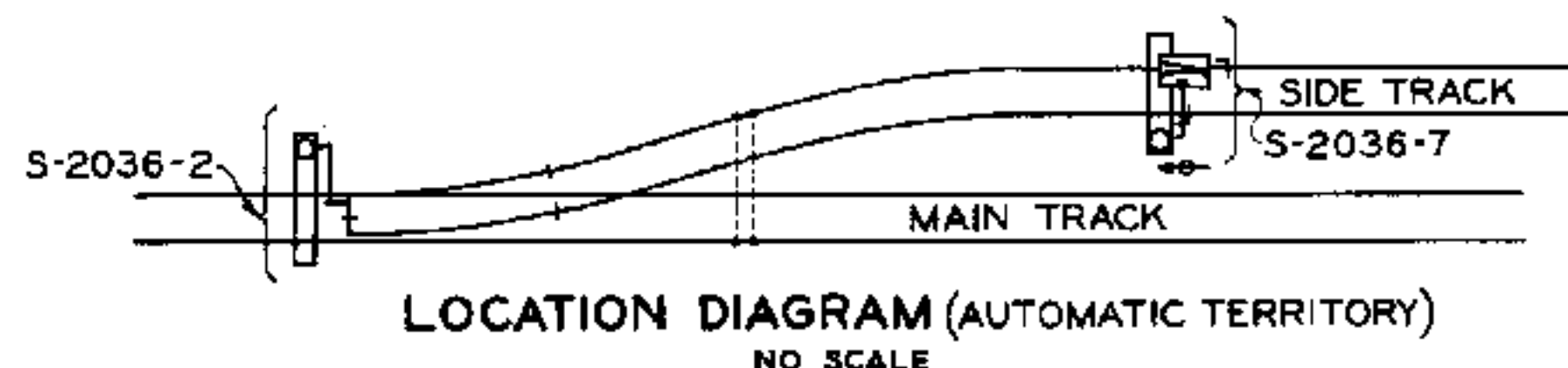
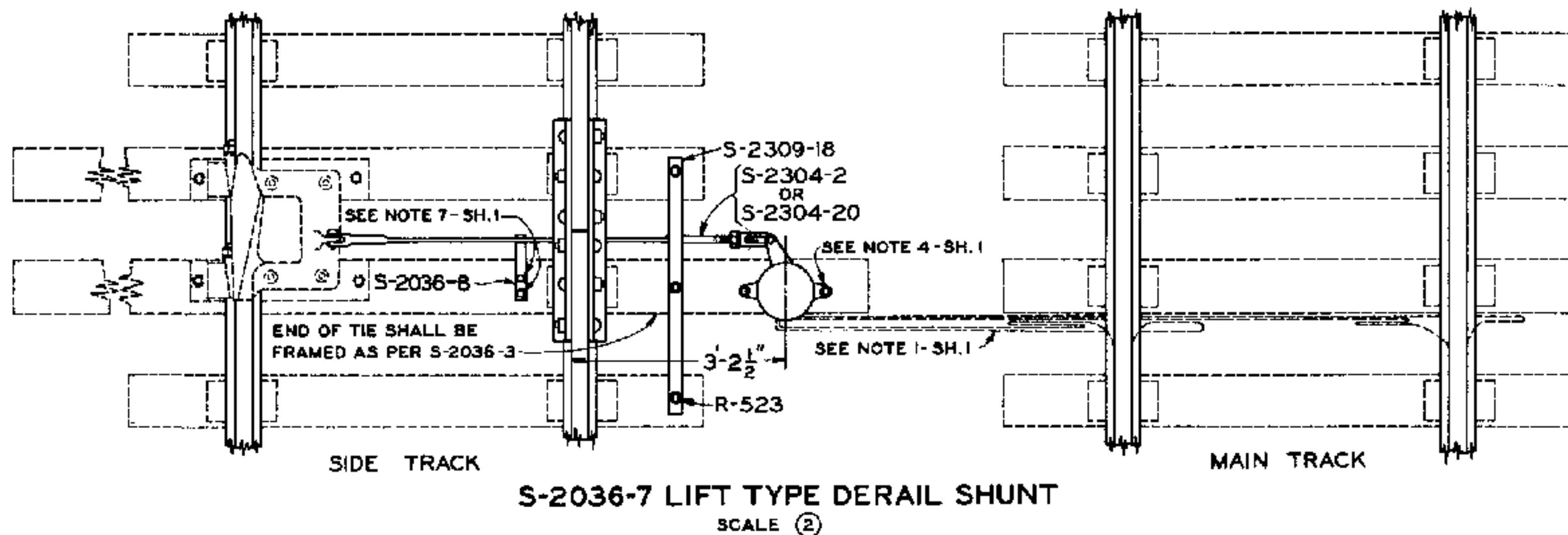
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ERIE RAILROAD COMPANY	<i>R. L. Woodruff</i>
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>D. M. Moore</i>
PERE MARQUETTE RAILWAY COMPANY	<i>A. J. P.</i>
K. L. M.	C. D. M. A. J. P.
G. B. P.	

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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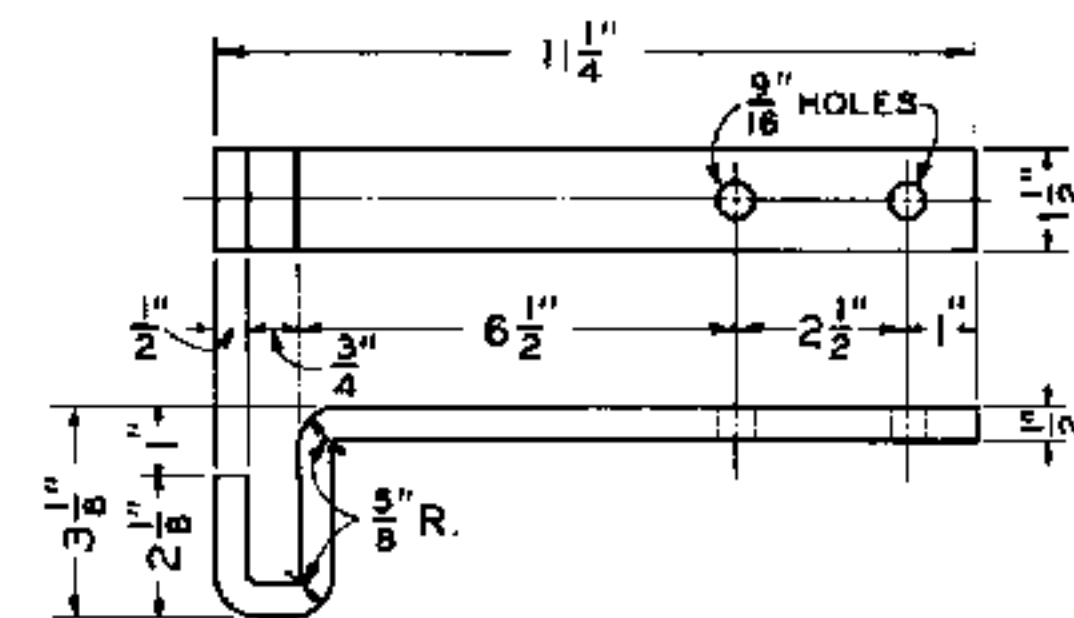
STANDARD TRACK SHUNTING ARRANGEMENTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
OCT. 16, 1934.
APPROVED: *E. L. M.*
CHIEF ENGINEER

SHEET 2 OF 3
S-2036



INSULATED JOINT SHALL BE LOCATED
TO PROVIDE PROPER CLEARANCE TO TAKE
CARE OF EQUIPMENT OVERHANG.



SEE NOTES ON SHEET 1



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THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>D. Brooks</i> VICE PRESIDENT	THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
ERIE RAILROAD COMPANY <i>R. Woodruff</i> VICE PRESIDENT	ERIE RAILROAD COMPANY	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>D. Brooks</i> VICE PRESIDENT	THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
PERE MARQUETTE RAILWAY COMPANY <i>A. H. H. H. H.</i> VICE PRESIDENT	PERE MARQUETTE RAILWAY COMPANY	
K. L. M. C. B. P.	C. D. M.	A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
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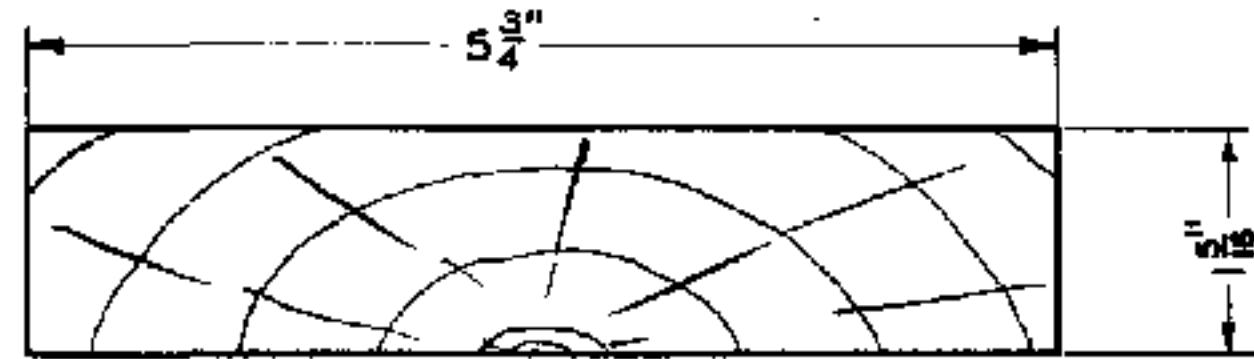
STANDARD TRACK SHUNTING ARRANGEMENTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. H. H.*
CHIEF ENGINEER
OCT. 16, 1934.

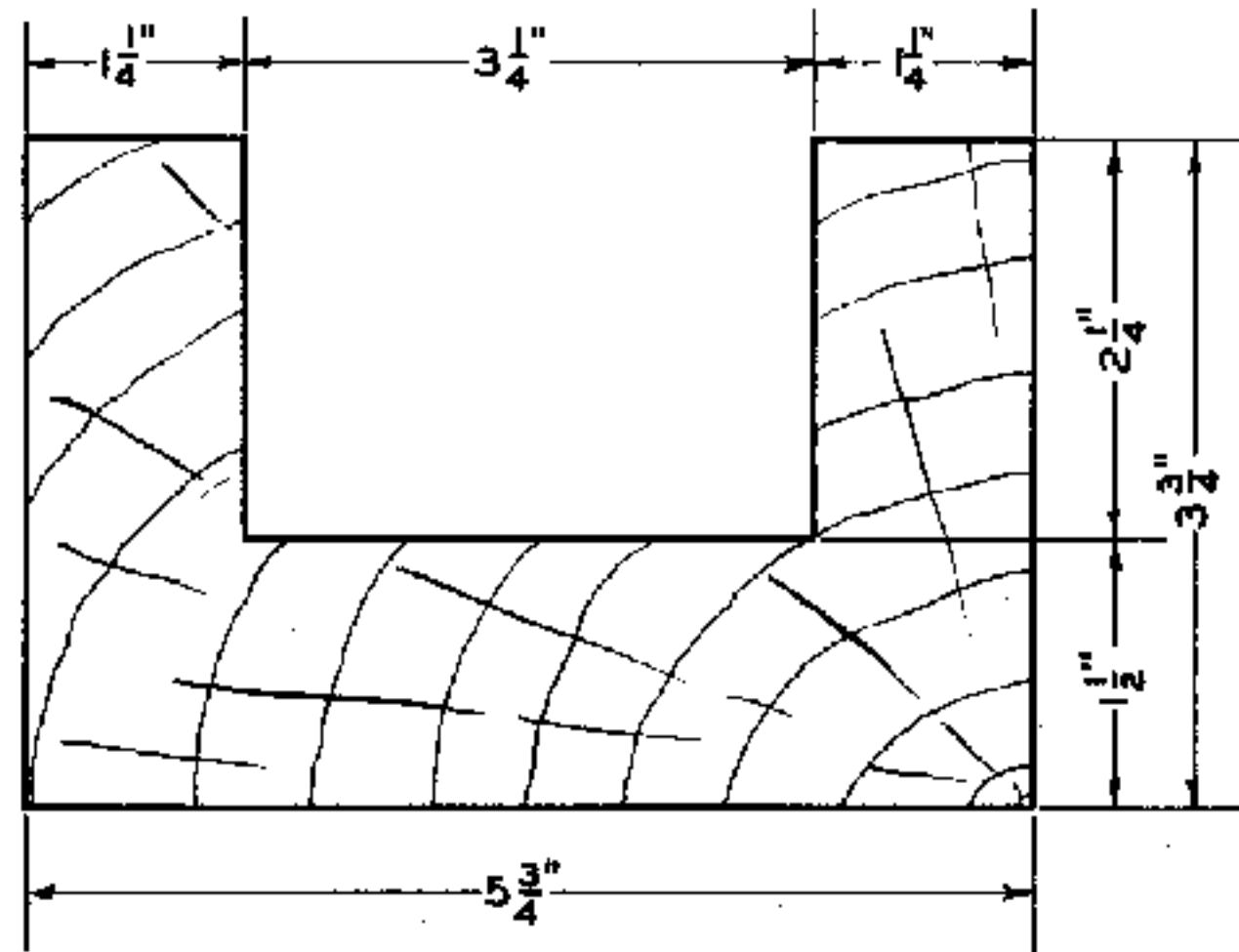
SHEET 3 OF 3

S-2036

NO. 6

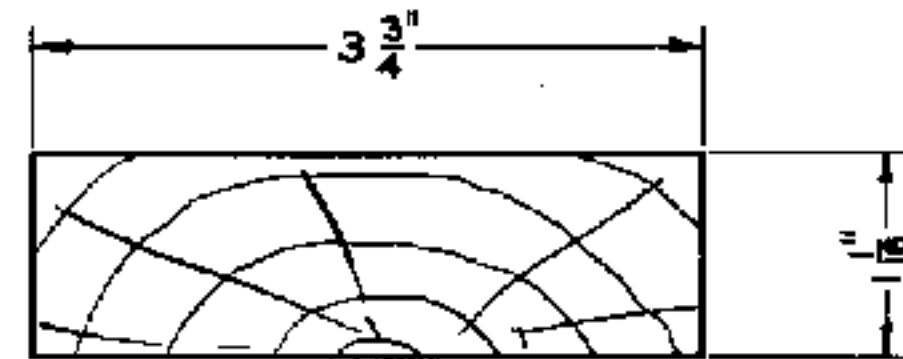


S-2037-1 CAPPING

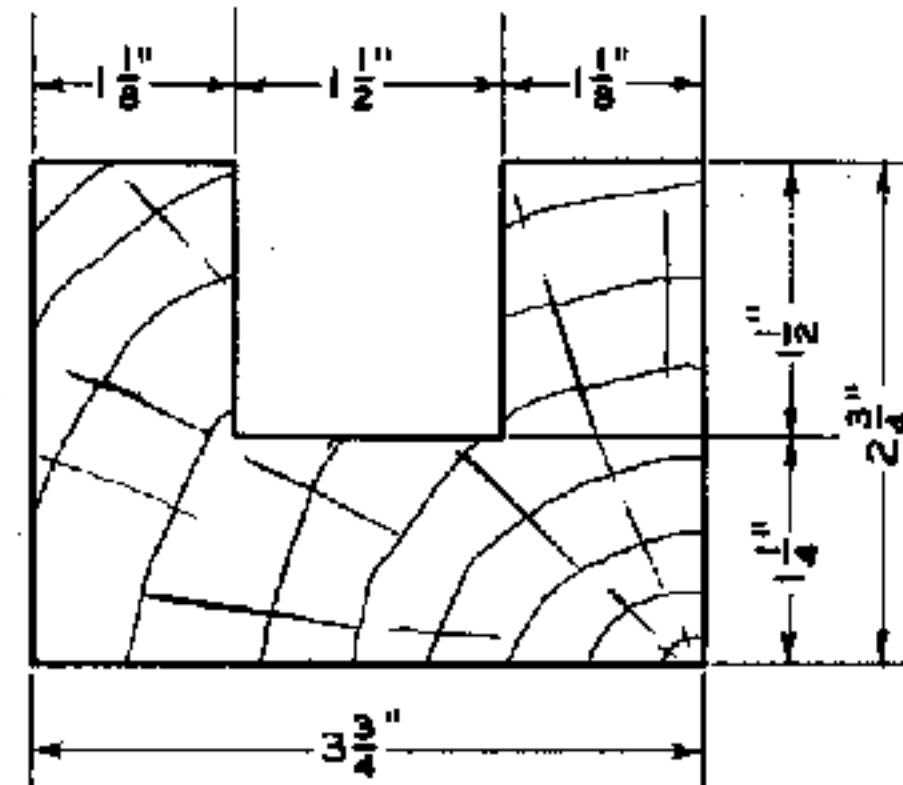


S-2037-2 TRUNKING

NO. 4



S-2037-3 CAPPING



S-2037-4 TRUNKING

NOTES

1. MATERIAL SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1539, WOOD TRUNKING AND CAPPING FOR SIGNALING PURPOSES.
2. TRUNKING AND CAPPING SHALL BE PAINTED IN THE FIELD IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

Brooke
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

Ellwood
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

Ham
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

Worman
VICE PRESIDENT

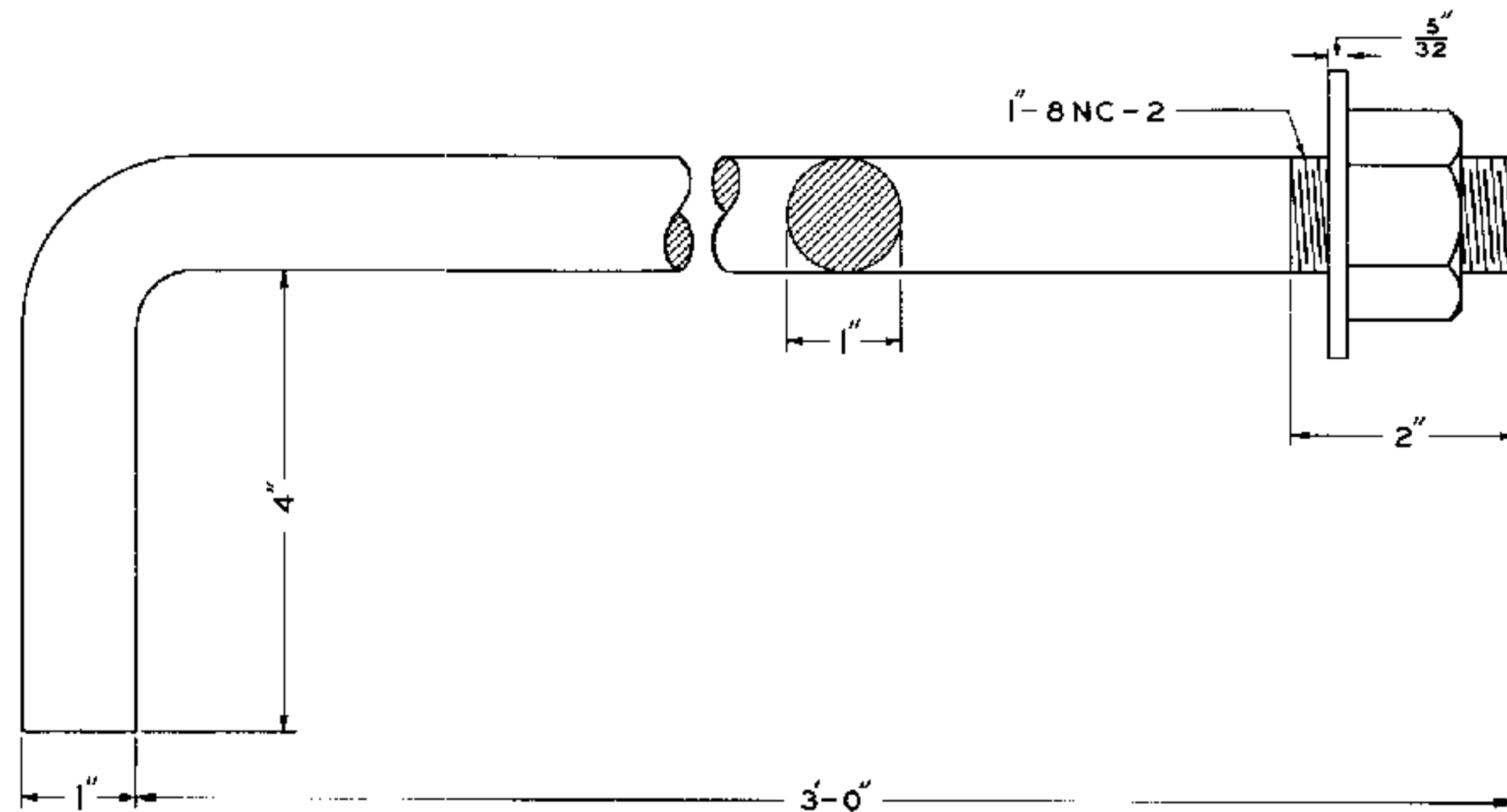
CBP. C.S.L. CDM. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

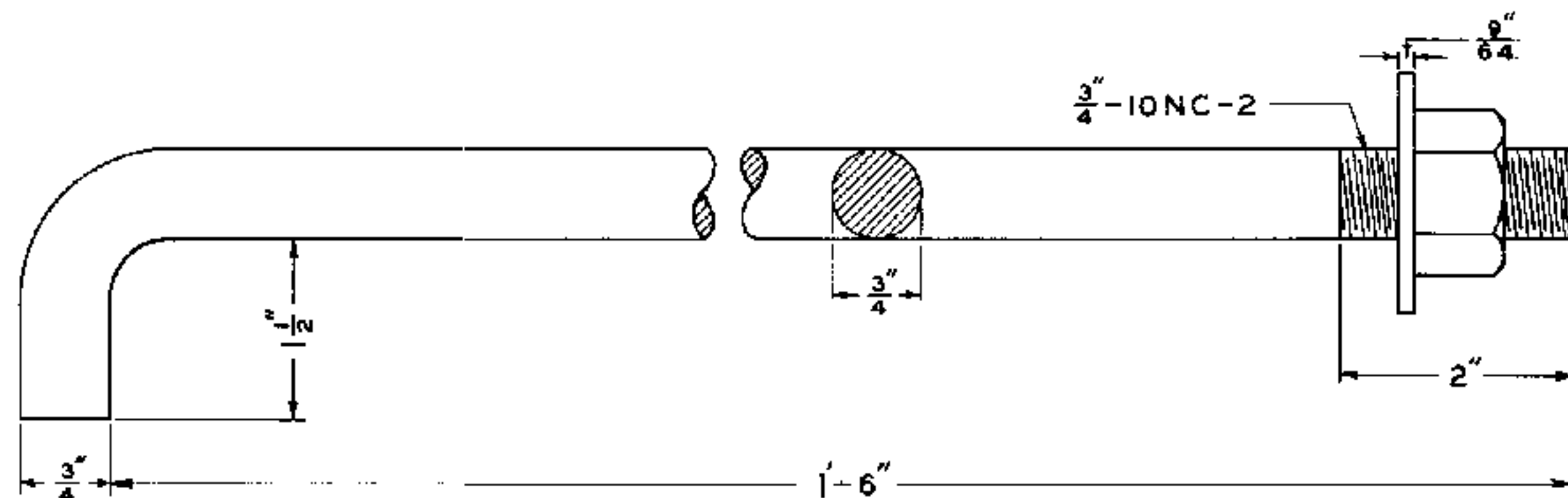
STANDARD
WOOD TRUNKING
AND CAPPING

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Michael* MAY 17, 1932.
CHIEF ENGINEER

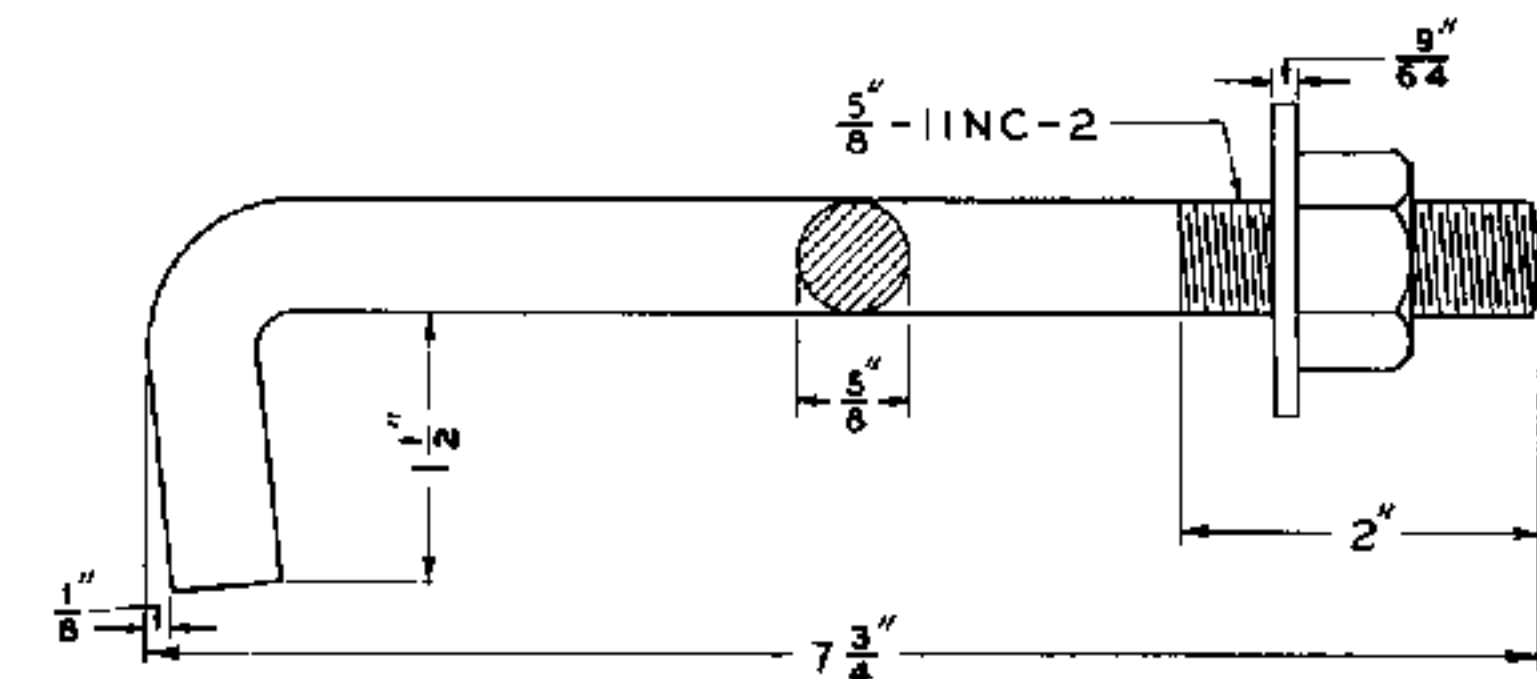
S-2037



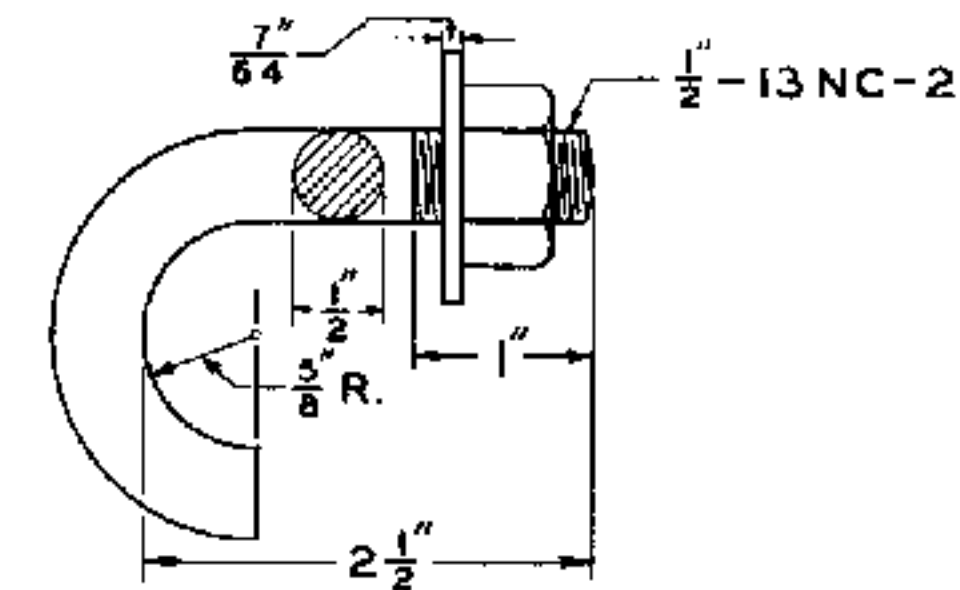
S-2038-1 BOLT COMPLETE WITH HEXAGON NUT AND PLAIN WASHER.
O.-H. STEEL FOR GROUND SIGNAL FOUNDATION.



S-2038-2 BOLT COMPLETE WITH HEXAGON NUT AND PLAIN WASHER.
O.-H. STEEL FOR FLASHER SIGNAL OR CABLE POST FOUNDATION.
FOR COLOR LIGHT DWARF SIGNAL FOUNDATION.



S-2038-4 BOLT COMPLETE WITH HEXAGON NUT AND PLAIN WASHER.
O.-H. STEEL FOR PIPE CARRIER, SWITCH VALVE, OR JUNCTION
BOX FOUNDATION.



S-2038-5 HOOK BOLT O.-H. STEEL
COMPLETE WITH HEXAGON NUT AND PLAIN WASHER.
FOR FASTENING PIPE CARRIER SIDE TO METAL PIPE CARRIER BASE.

SCALE IN INCHES
0 1 2 3

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>A. C. ...</i>		
EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. H. Barber</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>J. H. ...</i>		
PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>R. J. ...</i>		
PRESIDENT		
W.S.E.	W.S.E.	W.N.H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

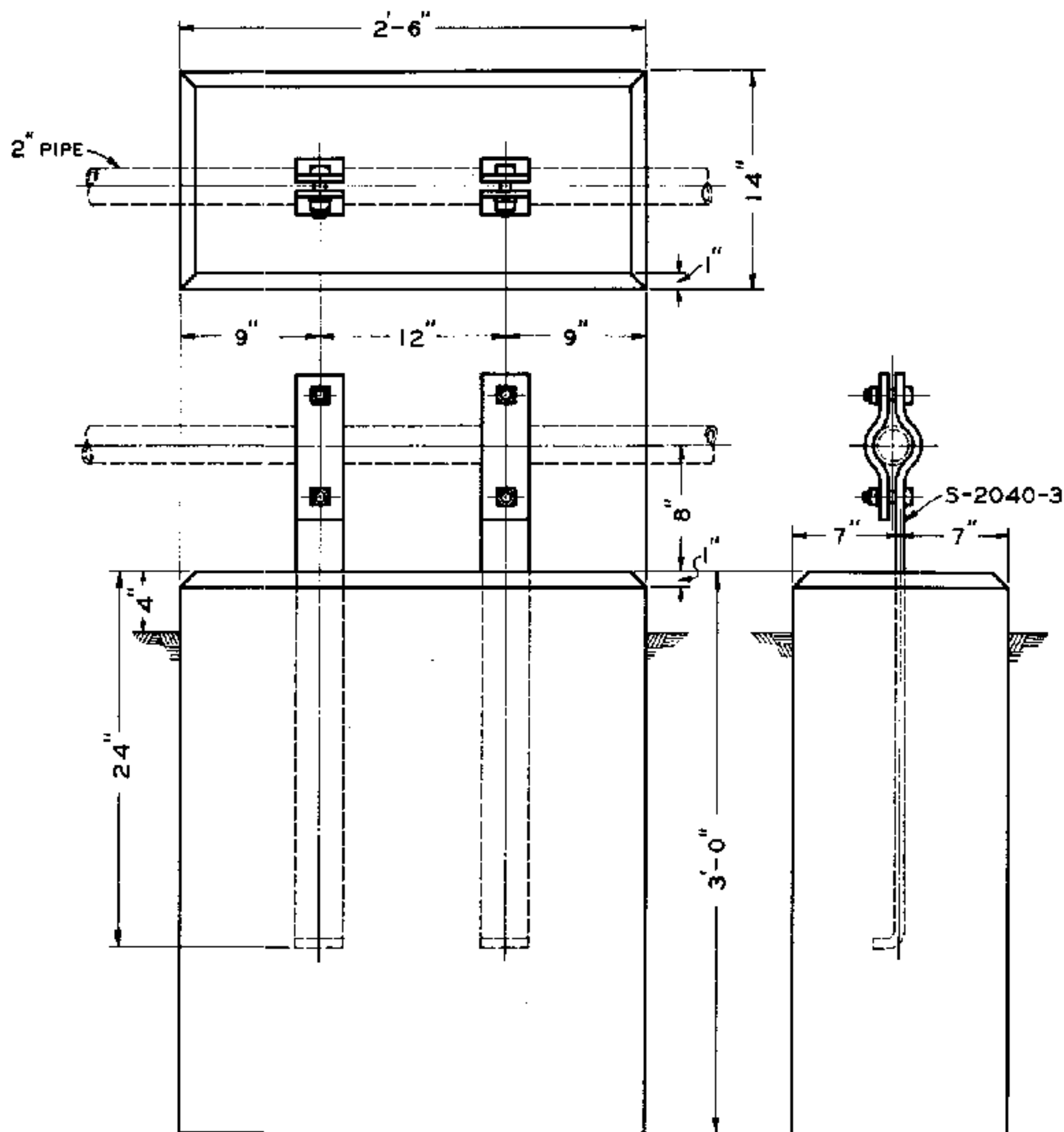
STANDARD FOUNDATION BOLTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Wallace
CHAIRMAN

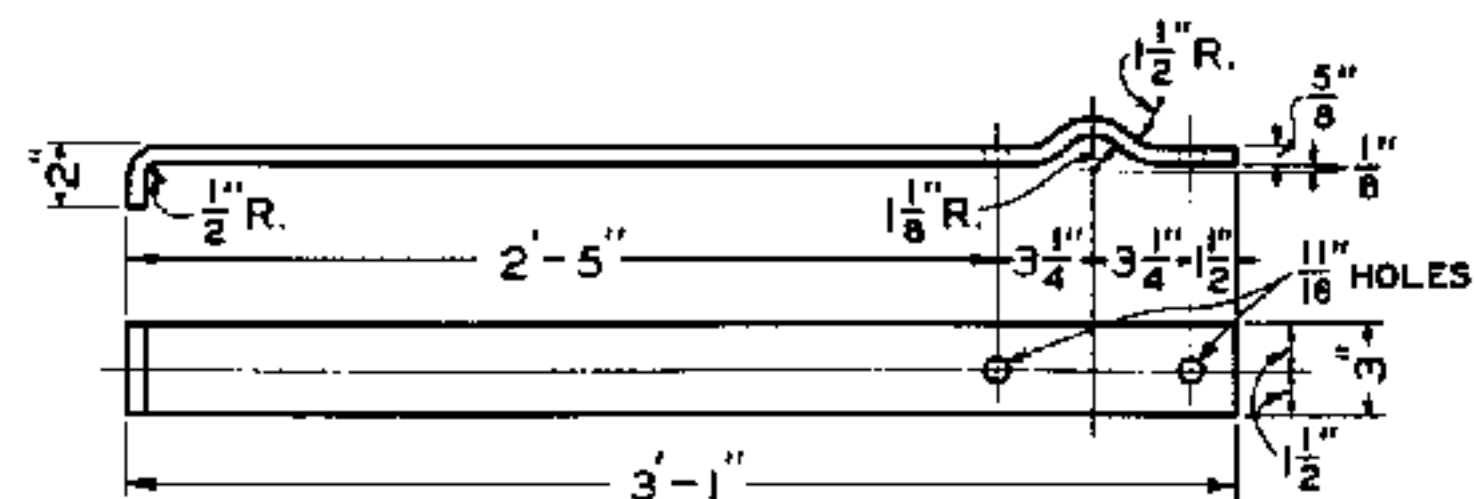
JANUARY 25, 1945

S-2038-A



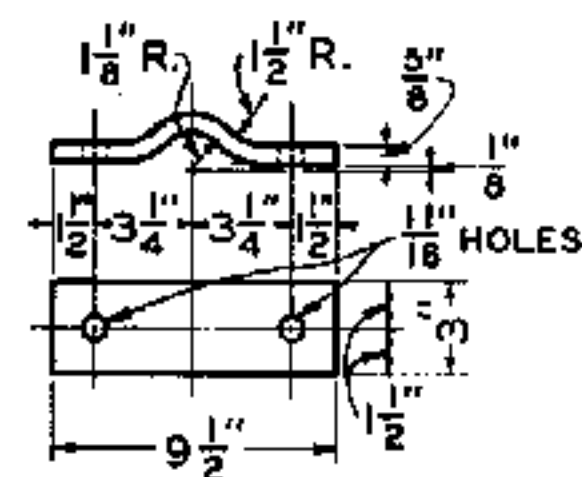
S-2040-1 AIR LINE FOUNDATION

APPROXIMATE CONCRETE 8.75 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED $1\frac{1}{2}$ "



S-2040-2 BRACKET ONLY

S-2040-3 " COMPLETE WITH CLAMP
S-2040-4, TWO $\frac{5}{8}$ " X $2\frac{3}{4}$ " AMER. STD. REGULAR SQ.
HD. BOLTS WITH HEAVY SQ. NUTS AND TWO $\frac{3}{16}$ " X $\frac{3}{16}$ "
SPRING WASHERS.
O.-H. STEEL



S-2040-4 CLAMP

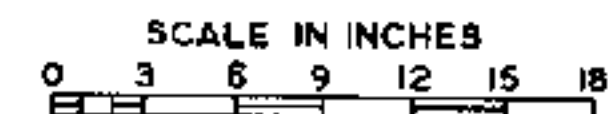
O.-H. STEEL

NOTES

1. BRACKET AND CLAMP SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. PRECAST FOUNDATION SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2500 POUNDS PER SQUARE INCH. WHEN CAST IN THE FIELD, THE PROPORTIONS, IF BY LOOSE VOLUME MEASUREMENT OF AGGREGATES, SHALL BE AS FOLLOWS:

SIZE OF STONE	MINIMUM BAGS OF CEMENT PER CUBIC YARD OF CONCRETE	APPROXIMATE MIX PROPORTIONS
LARGER THAN 1"	6.0	1 - $2\frac{1}{2}$ - $3\frac{1}{2}$
BETWEEN $\frac{3}{4}$ " AND 1"	6.5	1 - $2\frac{1}{2}$ - 3
SMALLER THAN $\frac{3}{4}$ "	7.0	1 - $2\frac{1}{2}$ - $2\frac{1}{2}$

ONLY SUFFICIENT WATER SHALL BE USED TO OBTAIN A WORKABLE CONSISTENCY.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

D. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

W. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

D. Moore
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. Woodruff
VICE PRESIDENT

C. H. W. C. B. P.

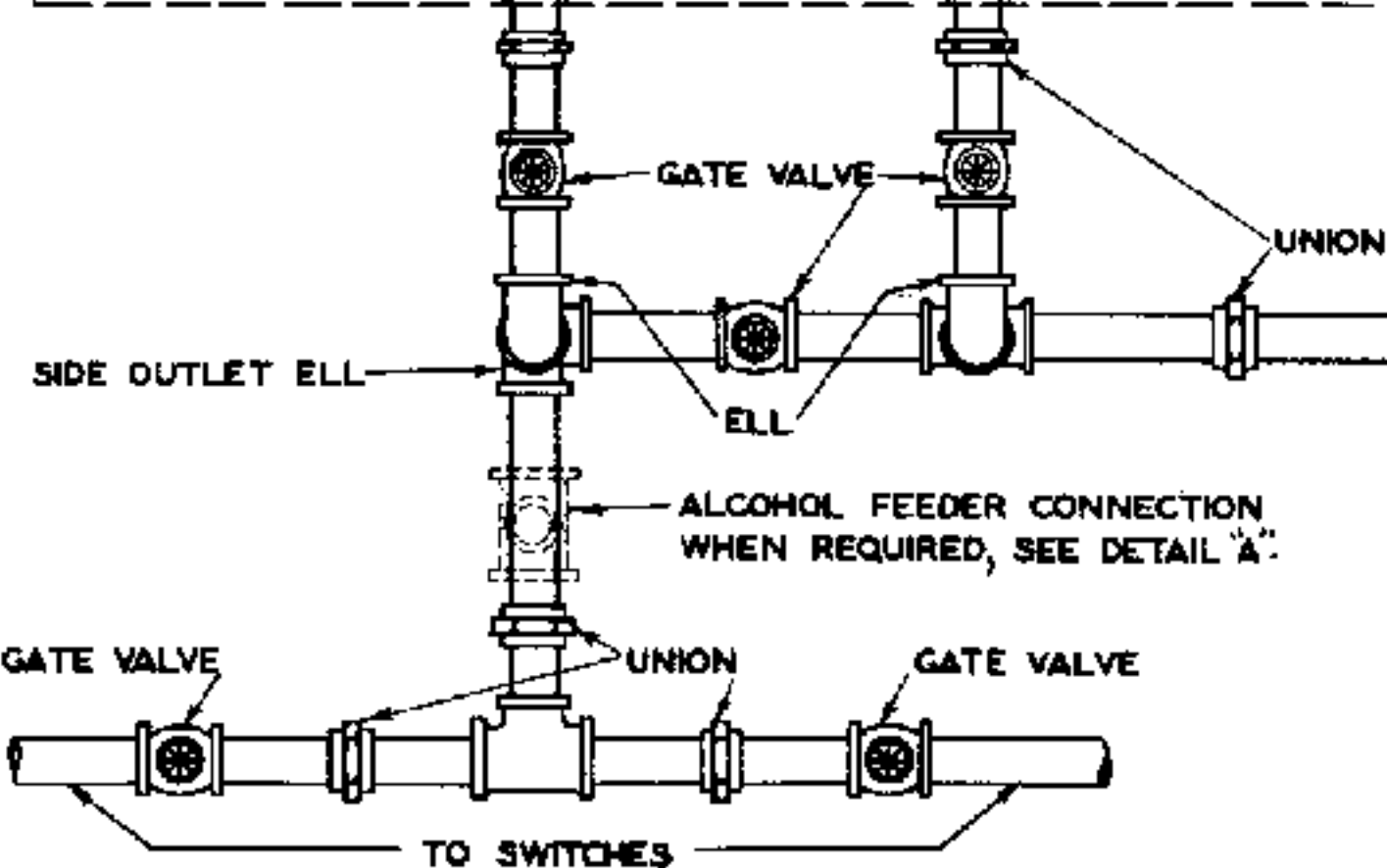
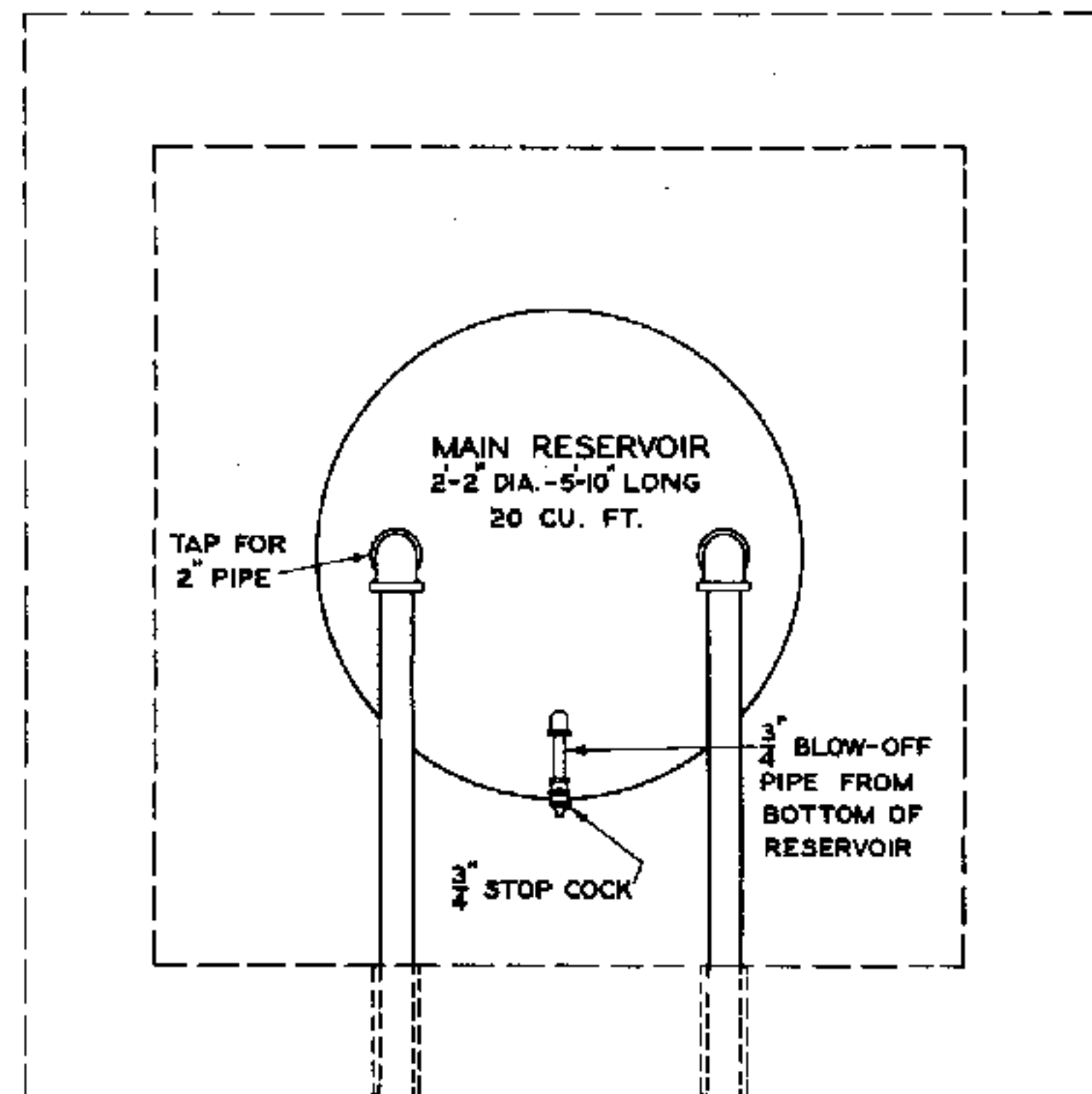
C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

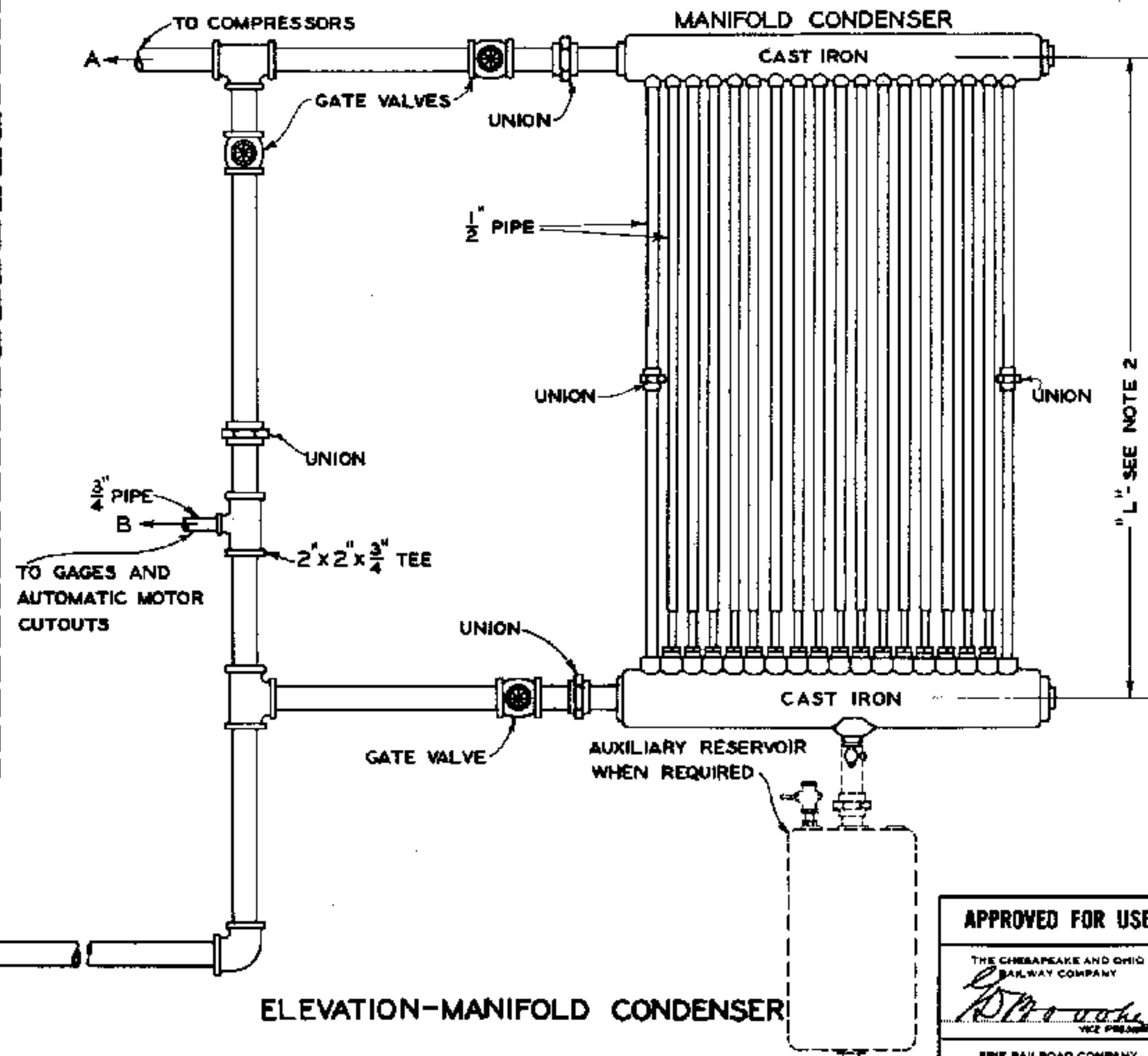
STANDARD FOUNDATION AND BRACKET FOR ANCHORING 2" AIR LINE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. Woodruff* JUNE 18, 1935
CHIEF ENGINEER

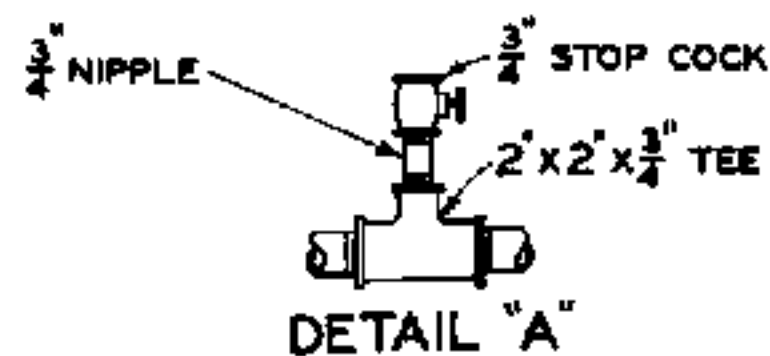
S-2040



PLAN - RESERVOIR



ELEVATION-MANIFOLD CONDENSER



DETAIL "A"

- NOTES
1. ALL FITTINGS AND PIPE TO BE 2" UNLESS OTHERWISE SHOWN.
 2. MANIFOLD CONDENSER MAY BE OBTAINED IN THREE SIZES WITH "L" DIMENSION AS FOLLOWS: 6'-3 1/2", 9'-3 1/2", 13'-6". SIZE SHALL BE AS REQUIRED.
 3. THIS PIPING IS FOR LOCAL COMPRESSORS FOR AIR PRESSURES OF 75 LBS. OR UNDER.
 4. MAIN RESERVOIR MAY EITHER BE SET ABOVE GROUND LINE OR IN PIT AS SHOWN.
 5. EMERGENCY CONNECTION FOR LOCOMOTIVE SHALL BE PROVIDED. LOCATION WILL DEPEND UPON LOCAL CONDITIONS.
 6. ALL PIPE FITTINGS SHALL BE SCREW FITTINGS.

NO SCALE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

R. M. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

R. H. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

R. M. Moore
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

R. H. Woodruff
VICE PRESIDENT

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *C. B. P.*
CHIEF ENGINEER

OCT. 7, 1935.

C.B.P. C.D.M. A.J.P.

K.L.M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

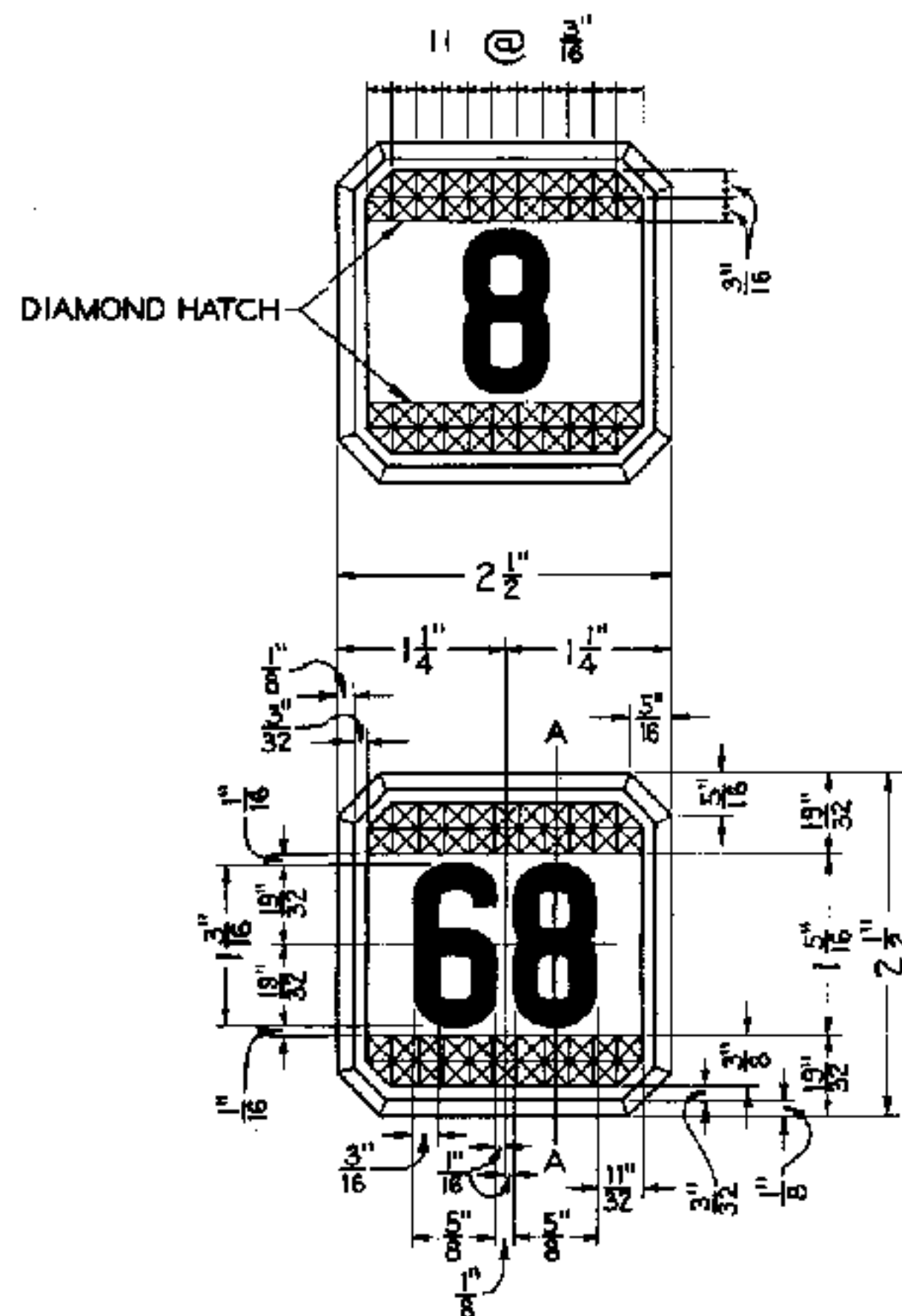
STANDARD

TYPICAL ARRANGEMENT OF
AIR PIPE AT TOWERS FOR
ELECTROPNEUMATIC INTERLOCKING

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *C. B. P.*
CHIEF ENGINEER

SHEET 2 OF 2

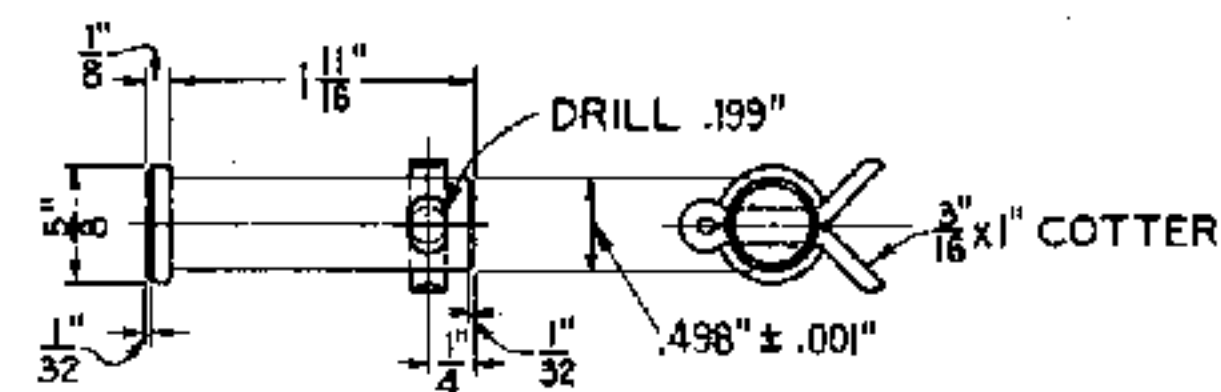
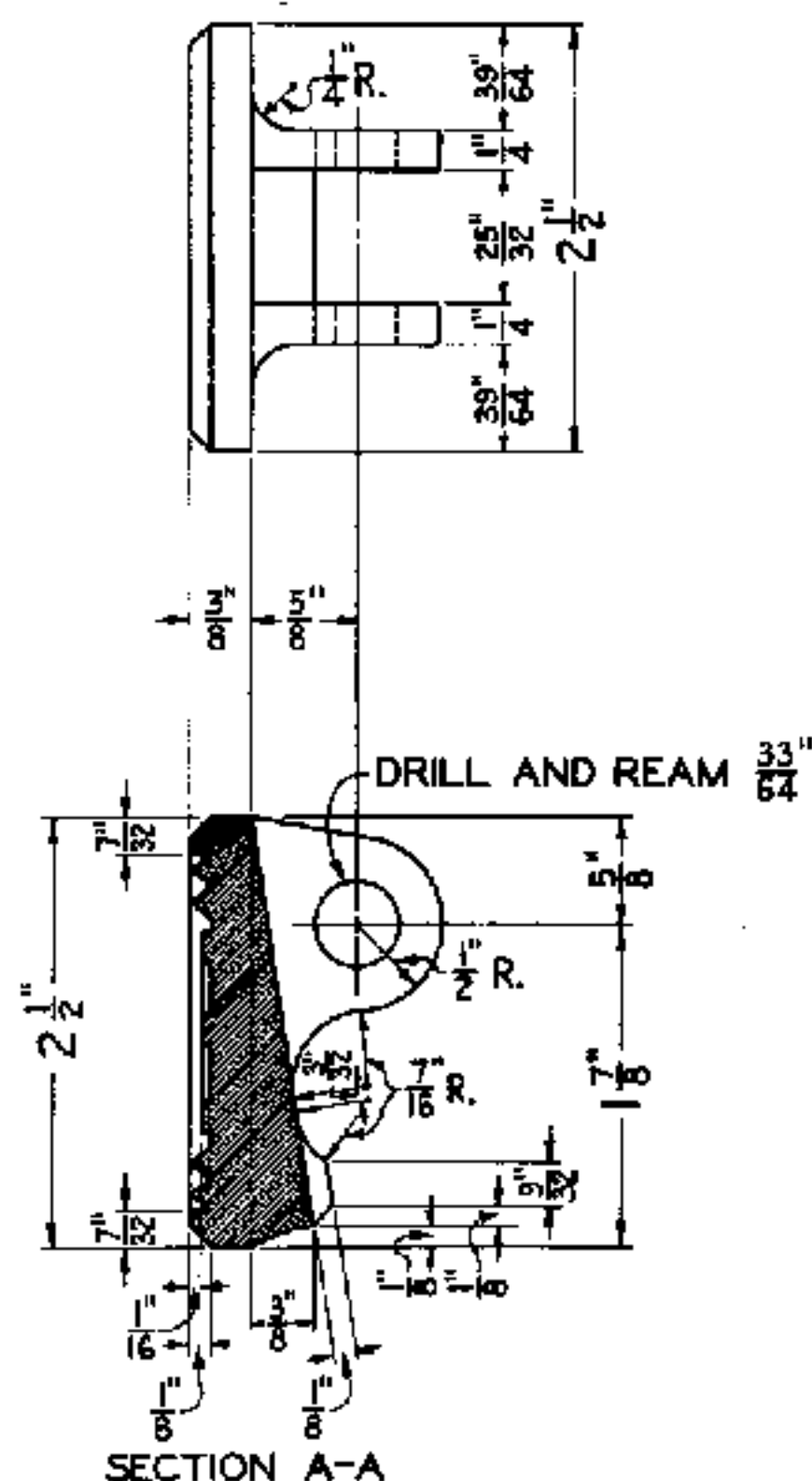
S-2041-A



S-2044-1 LEVER NUMBER PLATE ONLY
CAST IRON

S-2044-3 LEVER NUMBER PLATE COMPLETE WITH PIN, S-2044-2

NOTE
WHEN ORDERING SPECIFY LEVER NUMBER.



S-2044-2 PIN WITH COTTER
COLD ROLLED STEEL

SCALE IN INCHES
0 1 2 3

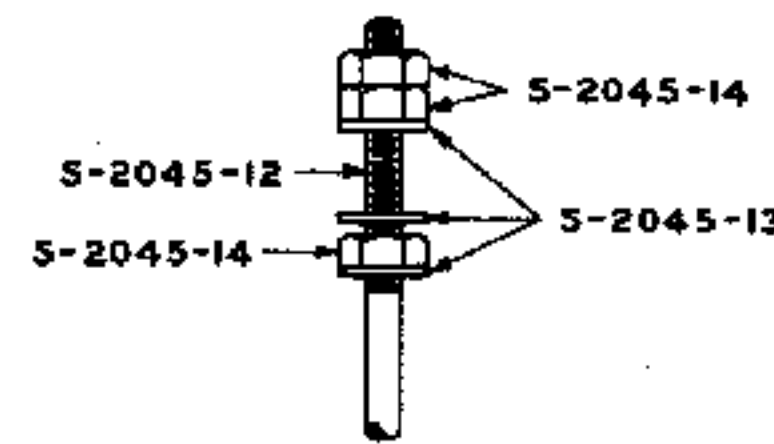
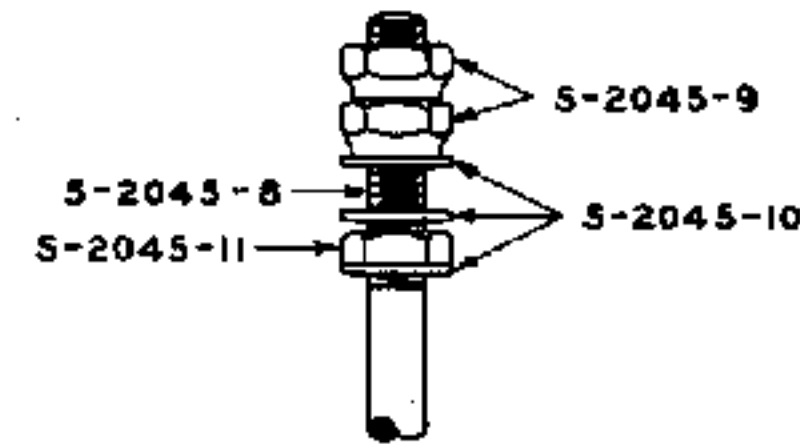
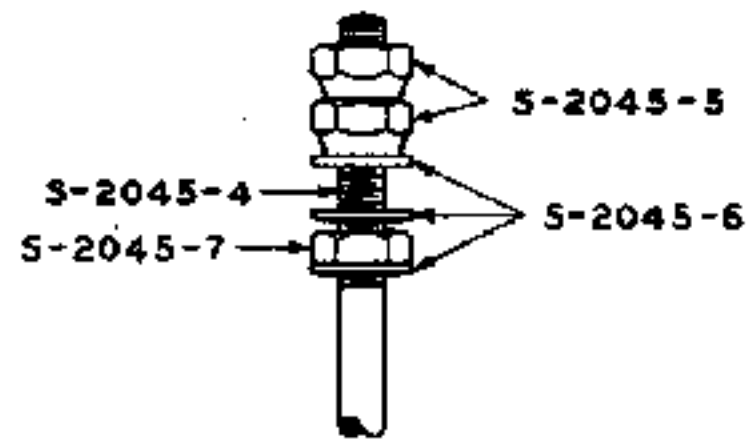
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>G. Brooks</i>		
VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>E. L. Woodruff</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>H. H. H. H.</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. H. H. H.</i>		
VICE PRESIDENT		
C. B. P.	C.D.M.	A.J.P.
C. B. P.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

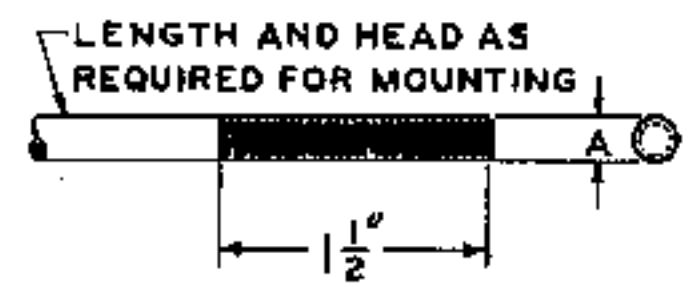
STANDARD LEVER NUMBER PLATE FOR MECHANICAL INTERLOCKING MACHINE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. H. H.* CHIEF ENGINEER
APRIL 21, 1931

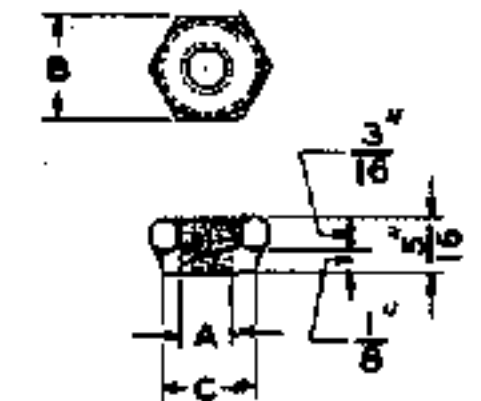
S-2044



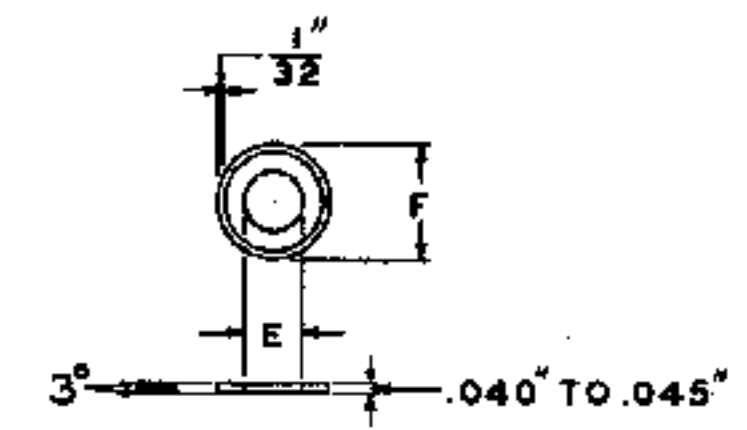
S-2045-1 BINDING POST 14-24 S-2045-2 BINDING POST $\frac{5}{16}$ "-18 S-2045-3 BINDING POST 10-32



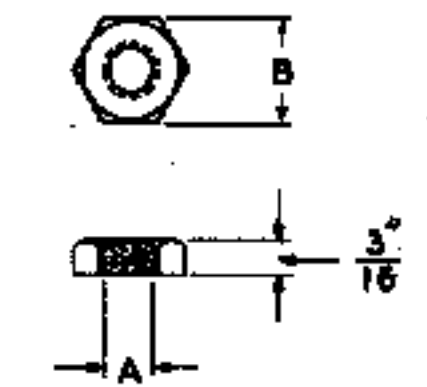
BOLT
COPPER BASE ALLOY
HIGH STRENGTH



BINDING NUT
BRASS



WASHER
NO. 18 B. & S. GAGE
HARD ROLLED COPPER



CLAMP NUT
BRASS

- NOTES**
1. BINDING POSTS SHALL BE COPPER BASE ALLOY HIGH STRENGTH WHICH SHALL BE IN ACCORDANCE WITH LATEST REVISION A. A. R. SIGNAL SECTION SPECIFICATION 159 AND PHYSICAL REQUIREMENTS OF A. A. R. SIGNAL SECTION BINDING POSTS DRAWING NUMBER 1070-F.
 2. NUTS SHALL BE MADE OF STOCK BRASS WHICH SHALL BE IN ACCORDANCE WITH LATEST REVISION OF A. S. T. M. STANDARD SPECIFICATION FOR FREE CUTTING BRASS ROD FOR USE IN SCREW MACHINES, A. S. T. M. DESIGNATION: B16.
 3. WASHERS SHALL BE MADE OF HARD ROLLED COPPER AND SHALL BE FREE OF ALL SHARP EDGES.
 4. ALL PARTS SHALL BE NICKEL PLATED.



BOLT	A
S-2045-4	14-24
S-2045-8	$\frac{5}{16}$ "-18
S-2045-12	10-32

BINDING NUT	A	B	C
S-2045-5	14-24	$\frac{1}{2}$ "	$\frac{7}{16}$ "
S-2045-9	$\frac{5}{16}$ "-18	$\frac{9}{16}$ "	$\frac{1}{2}$ "

WASHER	E	F
S-2045-6	$\frac{17}{64}$ "	$\frac{9}{16}$ "
S-2045-10	$\frac{21}{64}$ "	$\frac{5}{8}$ "
S-2045-13	$\frac{13}{64}$ "	$\frac{1}{2}$ "

CLAMP NUT	A	B
S-2045-7	14-24	$\frac{1}{2}$ "
S-2045-11	$\frac{5}{16}$ "-18	$\frac{9}{16}$ "
S-2045-14	10-32	$\frac{7}{16}$ "

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
A. C. Gurnea
SIGNALS AND STRUCTURES

ERIE RAILROAD COMPANY
H. D. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
V. D. Beale
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
R. Bowman
VICE PRESIDENT

C.B.P. W.S.E. W.N.H.

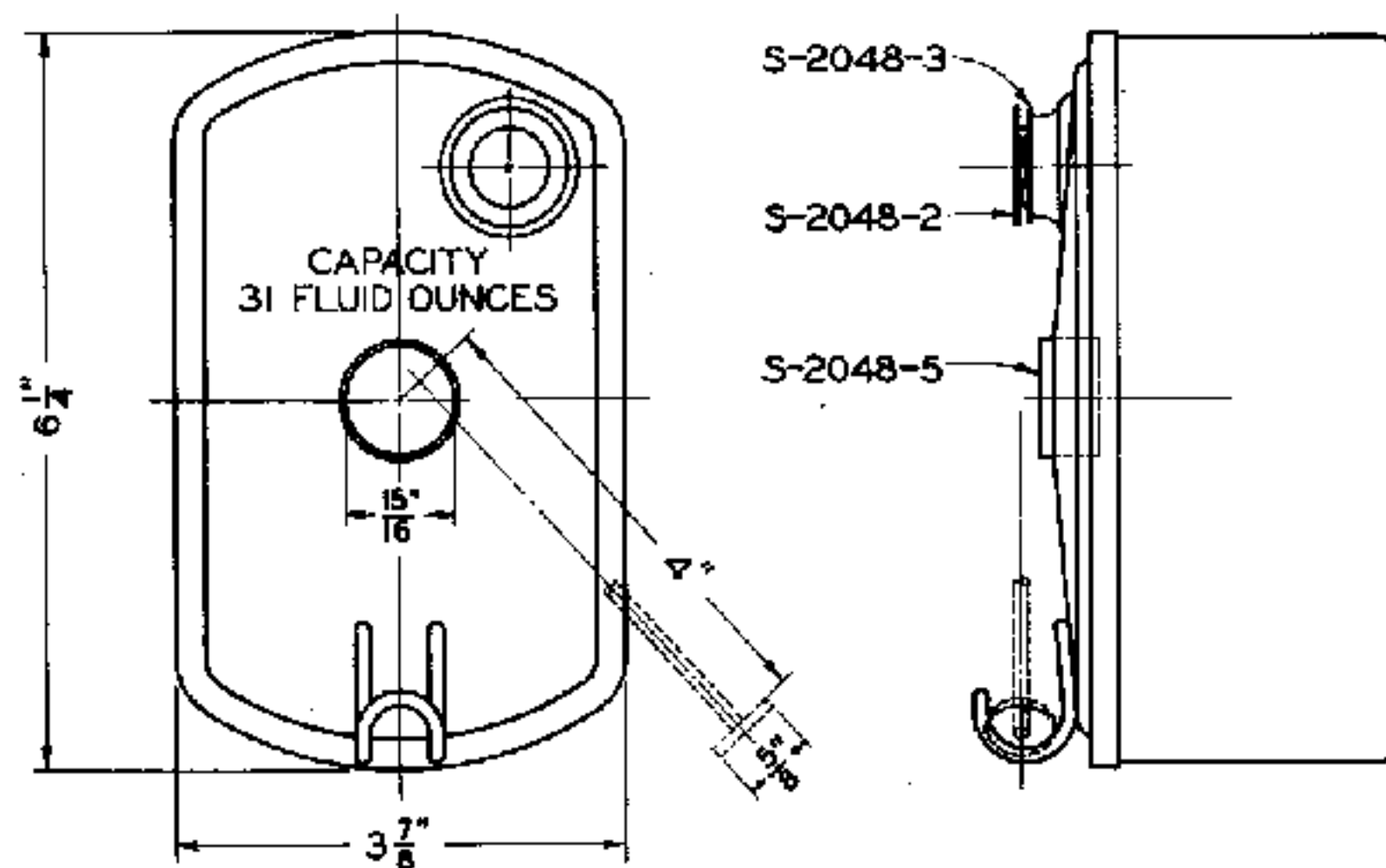
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
BINDING POSTS**

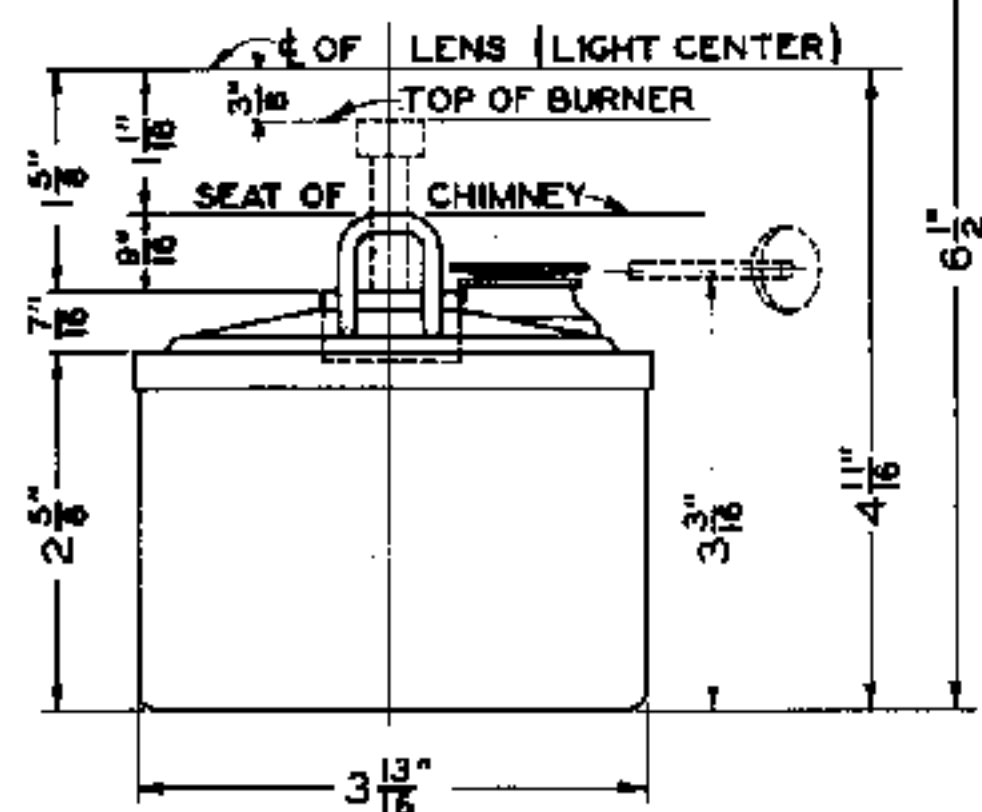
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
W. Wallace
CHAIRMAN

OCT. 25, 1943

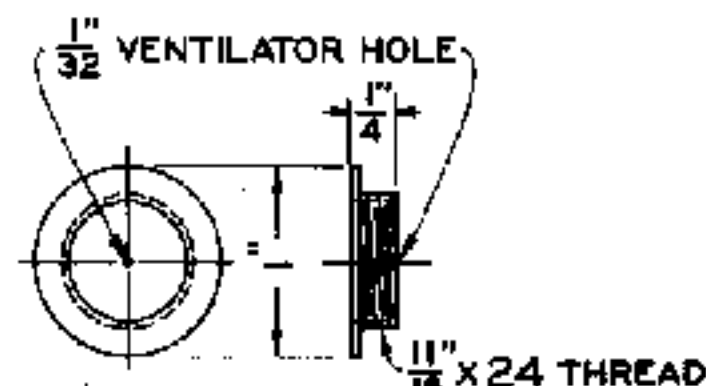
S-2045-B



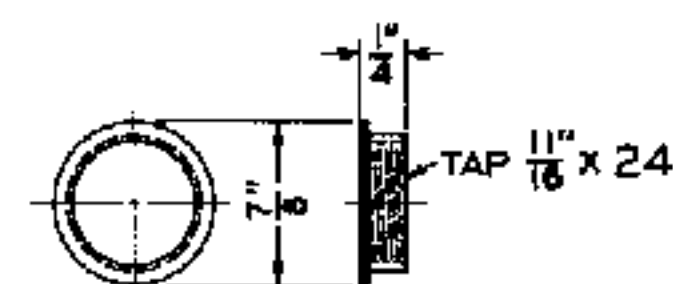
MAXIMUM HEIGHT OF CHIMNEY



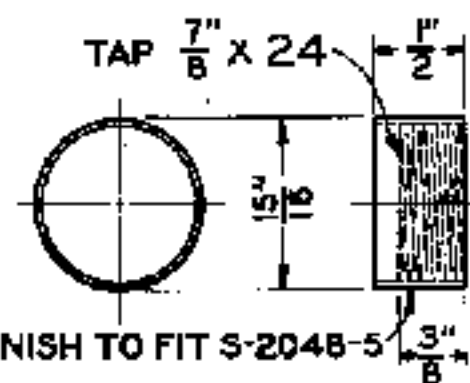
S-2048-1 FOUNT COMPLETE AS SHOWN
SCALE ①



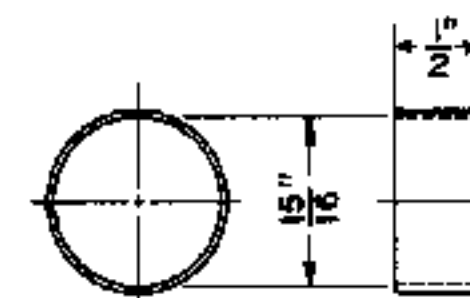
S-2048-2 FEEDER CAP
NO. 20 A.W.G. BRASS
SCALE ②



S-2048-3 FEEDER COLLAR
NO. 20 A.W.G. BRASS
SCALE ②

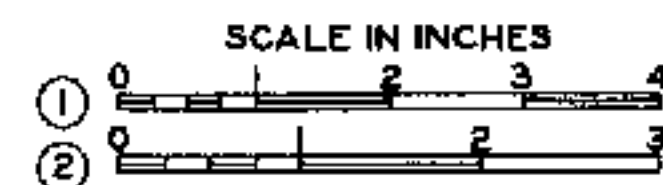


S-2048-4 BURNER COLLAR
NO. 20 A.W.G. BRASS TUBING
SCALE ②



S-2048-5 FOUNT COLLAR
NO. 20 A.W.G. BRASS TUBING
SCALE ②

NOTE
FOUNT SHALL BE MADE OF NO. 22 U.S. STANDARD GAGE DRAWN STEEL, TINNED.
BODY SHALL BE PRESSED OUT OF ONE PIECE, WITH TOP SOLDERED ON.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C. H. W.	C. D. M.	A. J. P.
C. B. P.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD OIL FOUNT FOR SEMAPHORE SIGNALS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]*
CHIEF ENGINEER

APRIL 18, 1933.

S-2048

REFERENCE NUMBER	WATTS	AMPS.	C.P.	VOLTS	BULB	BASE	FILAMENT			
							MAJOR SEC.	SHAPE	L. C. L.	TOLERANCE
S-2050-1	18 *		16.5	10	A-15	2-PS		C-2V	2 $\frac{7}{32}$ "	$\pm \frac{1}{64}$ "
S-2050-3	18		14.2	10	A-15	3-PS		2C-2V	2 $\frac{3}{16}$ "	$\pm \frac{1}{64}$ "
S-2050-6	10		9.35	8	S-11	SC		C-2V	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-8	10 *		9.35	10	S-11	SC		C-2V	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-9	10			10	CT-7	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-10	30		31.0	10	A-15	2-PS		C-2V	2 $\frac{7}{32}$ "	$\pm \frac{1}{64}$ "
S-2050-12	18		16.8	8	A-15	3-PS		C-2R	2 $\frac{3}{16}$ "	$\pm \frac{1}{64}$ "
S-2050-13	9.0		7.7	12	G-16 $\frac{1}{2}$	2-PS		C-2R	1.91"	$\pm \frac{1}{64}$ "
S-2050-16	13		12	8	S-11	SC	MF	C-2	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
	3.5		1.6				SF	C-12		
S-2050-17	5		3.85	8	S-11	SC		C-2V	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-18	5		3.95	10	S-11	SC		C-2V OR C-2R	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-19		0.250	2.6	13.5	+S-11	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{2}{64}$ "
S-2050-20		0.250		13.5	+S-11	ØDC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{2}{64}$ "
S-2050-21		0.170		12	T-2	SL. 1		C-21		
"		0.105-0.120		"	"	SL. 2	CARBON			
S-2050-22			3	12-16	G-6	DC		C-2R	$\frac{3}{4}$ "	
S-2050-23	1.25		0.6	12	+G-8	S. CAN		C-2V	1"	
S-2050-24		0.150		2.5	+S-11	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{2}{64}$ "
S-2050-25			3	18-24	+G-6	S. MIN		C-2V	$\frac{7}{8}$ "	
S-2050-27			3	12-16	G-6	SC		C-2R	$\frac{3}{4}$ "	
S-2050-29	3		1.88	4	S-11	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-30		~~0.25-0.48~~ 0.09-0.129		18	T-2	SL 2	CARBON			
S-2050-35	18		19.0	10	S-11	SC		C-2V	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-36		0.25		10	+S-11	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{2}{64}$ "
S-2050-37		0.300		3.5	+S-11	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{2}{64}$ "
S-2050-39	5			10	CT-7	SC		C-2R	1 $\frac{1}{4}$ "	$\pm \frac{1}{64}$ "
S-2050-40	18 *		16.5	10	A-15	2-PS	MF	C-2V	2 $\frac{7}{32}$ "	$\pm \frac{1}{64}$ "
	3.5		1.65				SF	CC-6		
S-2050-41	30		31.0	10	A-15	2-PS	MF	C-2V	2 $\frac{7}{32}$ "	$\pm \frac{1}{64}$ "
	6		4.0				SF	CC-6		

LEGEND

BULB:

SHAPE SEE CURRENT A. A. R. SIGNAL SECTION 1541
 COLOR CLEAR UNLESS OTHERWISE NOTED
 ATMOSPHERE GAS UNLESS OTHERWISE NOTED
 + VACUUM

BASE (SEE CURRENT A. A. R. SIG. SEC. 1542):

B. MIN BAYONET MINIATURE, SINGLE CONTACT
 SC BAYONET CANDELABRA, SINGLE CONTACT
 DC BAYONET CANDELABRA, DOUBLE CONTACT
 S. MIN SCREW MINIATURE
 S. CAN SCREW CANDELABRA
 S. MED SCREW MEDIUM
 2-PS REBASED WITH 2 PIN SLEEVE (U. S. & S. CO.)
 3-PS REBASED WITH 3 PIN SLEEVE (G. R. S. CO.)
 1825 USED WITH 2 AND 3 PIN SLEEVE
 SL. 1 SLIDE TELEPHONE SWITCHBOARD TYPE (902 W - G - 6RS)
 SL. 2 SLIDE TELEPHONE SWITCHBOARD TYPE (W. E. - U. S. & S.)

FILAMENT:

MF MAJOR FILAMENT
 SF SECONDARY FILAMENT

SHAPE SEE CURRENT A. A. R. SIG. SEC. 1543

INV. INVERTED

NOTE PLANE OF BASE PINS AT RIGHT ANGLES TO PLANE OF FILAMENT
 UNLESS OTHERWISE NOTED

⊖ PLANE OF BASE PINS PARALLEL TO PLANE OF FILAMENT

L. C. L. LIGHT CENTER LENGTH IN INCHES

TOLERANCE PLUS-MINUS DIMENSIONS IN INCHES ALLOWED ON L. C. L. AND A. A.
 (AXIAL ALIGNMENT). WHERE NO TOLERANCE IS SHOWN, MANU-
 FACTURER'S STANDARD TO APPLY.

MATERIAL TUNGSTEN UNLESS OTHERWISE NOTED UNDER MF

LIFE HOURS:

MANUFACTURER'S LABORATORY RATED AVERAGE BURNING HOURS
 OF A GROUP OF LAMPS TESTED UNDER SPECIFIED TEST CONDITIONS.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

H. C. Cowmaster
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

H. W. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

J. M. Baird
PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

J. J. Bowman
PRESIDENT

W. S. E. W. S. E. W. N. H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD INCANDESCENT SIGNAL LAMPS

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. H. Wallace
CHAIRMAN

DEC. 8, 1942

S-2050-B

3/30/53 C-21 TUNGSTEN FILAMENT
 9/28/50
 P. # 240194

REFERENCE NUMBER	RATED VOLTAGE	RATED LIFE IN BURNING HOURS AT RATED VOLTAGE	RECOMMENDED OPERATING VOLTAGE	RECOMMENDED BURNING HOURS	PURPOSE	REFERENCE
S-2050-1	10	1500	9.0	3000	STYLE R, R-2, TR-2, N, HC-2 AND HC-32 SIGNALS	U.S. & S. CO. PC. 142944 REF. AC. PL. B-2799
S-2050-3	10	1500	9.0		G. R. S. CO. COLOR LIGHT SIGNALS	G. R. S. CO. FIG. A2 PL. H-3011 DWG. 47438-6 GR. 3
S-2050-6	8	1000	7.3	930	FLASHERS, SEARCHLIGHT TYPE SIGNALS AND STORAGE BATTERY OPERATED WIGWAGS, HC-5, A. & W. CO. AND HALL FLASHERS, STOP SIGNALS	G. R. S. CO. 34866-43, U. S. & S. CO. PC. 142967 DWG. B-12409, SH. 8
S-2050-8	10	1000	9.0	1000	POSITION LIGHT DWARF SIGNALS, CROSSING GATE LAMPS, FLASHER LIGHT SIGNALS (PRIMARY BATTERY)	U. S. & S. CO. PC. 146930 DWG. B-12409-18
S-2050-9	10	1000	9.2	930	A. & W. CO. C. L. T. O. SIGNAL	GRAYBAR, G. R. S. CO. 34866-15, G. E. CO., W. L. CO.
S-2050-10	10	1500	9.0	3000	R-2, HUMP YARD SIGNALS AND OTHERS REQUIR. HIGH C.P. LAMPS	U. S. & S. CO. PC. 144543
S-2050-12	8	1500	7.3	1395	G. R. S. CO. STYLE G COLOR LIGHT SIGNALS	G. R. S. CO. 47438-9 GR. 4
S-2050-13	12	1500	11.0	1395	HC-1 FLASHERS, POSITION LIGHT HIGH SIGNALS	U. S. & S. CO. PC. 152591 DWG. B-12409-23, G. R. S. CO. FIG. F PL. H-3011 DWG. 47438-14 GR. 1
S-2050-16	8	1000	7.2	4000	SEARCHLIGHT SIGNALS	U. S. & S. CO. PC. 159440 DWG. B-12409-24, G. R. S. CO. 34866-37
S-2050-17	8	1000	7.2	1000	SEARCHLIGHT SIGNALS APP. LIGHTED FROM PRIMARY BATTERY, ALL TYPES WIGWAG SIGNALS, SWITCH IND. LIGHTS	U. S. & S. CO. PC. 168741 DWG. B-12409-5H. 18 (P23-U5037)
S-2050-18	10	1000	9.0	1000	ILLUMINATED STOP SIGNS, PRIMARY BATTERY OPERATED FLASHER SIGNALS, D. W. FLAGMAN, A. & W. CO. SIGNALS, SEMAPHORE, SWITCH, AND PIER LAMPS	U. S. & S. CO. PC. 148970, G. R. S. CO. 34866-38
S-2050-19	13.5	1000	11.0	4000	SEMAPHORE SIGNALS, AUTOMATIC FLAGMAN BANNERS, APPROACH LIGHTING, INTERLOCKING SIGNALS, CHART LIGHTS, CONTINUOUS LIGHTING SEMAPHORE SIGNALS (A. C. POWER), SWITCH IND. LIGHTS	U. S. & S. CO. PC. 120803, THOS. A. EDISON CO., G. E. CO., W. L. CO., G. R. S. CO. 34866-6
S-2050-20	13.5	1000	12.0	2000	SEMAPHORE SIGNALS, EDISON ADAPTERS, AND A. & W. CO. LAMP CASES	G. E. CO., W. L. CO., GRAYBAR, U. S. & S. CO. PC. 124019
S-2050-21	12			INDEFINITE	B-20 TABLE LEVERS, ANNUNCIATOR AND TRACK MODELS, CAR RETARDER MACHINES AND U. S. & S. CO. B-10 TABLE LEVERS	TYPE 2F SWITCHBOARD LAMP (W. E. CO. TEL. CAT.), G. R. S. CO. 52879-6, U. S. & S. CO. C. N. 71615, G. E. CO., W. L. CO.
S-2050-22	12-16	1000	9.0	1320 INDEFINITE	U. S. & S. CO. MODEL BOARD, NEW E. P. MACHINE LEVER LIGHTS, U. S. & S. CO. TABLE UNIT INDICATION LIGHTS AND SWITCH INDICATORS	MAZDA 68, G. R. S. CO. 48088-6, GRAYBAR, G. E. CO., W. L. CO., U. S. & S. CO. PC. 116342 DWG. B-12409-11
S-2050-23	12	1250	10.0	INDEFINITE	INDICATOR CABINETS, OLD E. P. MACHINE LEVER LIGHTS	U. S. & S. CO. PC. 75579 DWG. B-12409-11, G. E. CO., W. L. CO.
S-2050-24	2.5	1000			CONTINUOUS LIGHTING SEMAPHORE SIGNALS, PRIMARY BATTERY CROSSING GATE LAMPS, SWITCH INDICATORS, CONTINUOUS LIGHTING FROM 4 CELLS OF PRIMARY BATTERY FOR EACH LAMP USED	G. R. S. CO. 34866-65, G. E. CO., W. L. CO., U. S. & S. CO. PC. 188498 DWG. B-12409 SH. 12
S-2050-25	18-24	200	18.0	INDEFINITE	OLD E. P. MACHINE LEVER LIGHTS	GRAYBAR, U. S. & S. CO. PC. 120226 DWG. B-12409-11, G. E. CO., W. L. CO.
S-2050-27	12-16	1000	10.0	1320	G. R. S. CO. AND R. A. CO. TRACK MODELS, INDICATOR LIGHTS ON G. R. S. CO. AND SOME U. S. & S. CO. TABLE UNITS, G. R. S. CO. MACHINE AND T. O. CONTROL TABLE UNIT	MAZDA 67, GRAYBAR, G. E. CO., W. L. CO., G. R. S. CO. FIG. 61-A DWG. 48088-5 PL. G-2015, U. S. & S. CO. PC. 120270 DWG. B-12409-11
S-2050-29	4	1000	4.0	1000	G. R. S. CO. SEARCHLIGHT SIGNAL	G. R. S. CO. FIG. 34 DWG. 34866-35 PL. H-2619, U. S. & S. CO. PC. 176043 DWG. B-12409 SH. 18
S-2050-30	18				C. T. C. MACHINE <i>PL. #340194</i>	SWITCHBOARD LAMP, W. E. CO. 2-R, U. S. & S. CO. C. N. 71638
S-2050-35	10	1000	9.0	1000	WIGWAG AND HIGHWAY FLASHER LIGHT SIGNALS, SEMAPHORE AND COLOR-POSITION LIGHT SIGNALS, POSITION LIGHT DWARF SIGNALS	U. S. & S. CO. PC. 151138
S-2050-36	10	1000	9.2	930	SEMAPHORE, SWITCH AND PIER LAMPS	G. E. CO., W. L. CO., U. S. & S. CO. PC. 120801, G. R. S. CO. 34866-4
S-2050-37	3.5	1000	3.2	1000	APPROACH LIGHTED SEMAPHORE SIGNALS, SWITCH INDICATOR LIGHTS	U. S. & S. CO. PC. 120799 DWG. B-12409-12, G. E. CO., W. L. CO., G. R. S. CO. 34866-2
S-2050-39	10	1000	9.2	1000	A. & W. COLOR LIGHT SIGNALS PRIMARY BATTERY	W. L. CO., G. E. CO., G. R. S. CO. 34866-14
S-2050-40	10	1500	9.0	6600	STYLE R, R-2, TR-2, HC-2, AND HC-32 SIGNALS	U. S. & S. CO. PC. 214227
S-2050-41	10	1500	9.0	6600	R-2, HUMP YARD SIGNALS, & OTHERS REQUIR. HIGH C.P. LAMPS	U. S. & S. CO. PC. 189825

NOTE

DESIGN VOLTAGE FOR LAMPS SHOWN ON THIS DRAWING IS THE SAME AS THE RATED VOLTAGE EXCEPT AS FOLLOWS:

REF. NO. RATED VOLTAGE DESIGN VOLTAGE

S-2050-22	12-16	13
S-2050-25	18-24	22
S-2050-27	12-16	13

ABBREVIATIONS

A. & W. CO.	ADAMS & WESTLAKE CO.
G. E. CO.	GENERAL ELECTRIC CO.
G. R. S. CO.	GENERAL RAILWAY SIGNAL CO.
R. A. CO.	RAILROAD ACCESSORIES CORP.
U. S. & S. CO.	UNION SWITCH & SIGNAL CO.
W. E. CO.	WESTERN ELECTRIC CO.
W. L. CO.	WESTINGHOUSE LAMP CO.
DWG.	DRAWING NUMBER
PC.	PIECE NUMBER

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. E. Co. President
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. E. Co. President
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. E. Co. President
PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. E. Co. President
PRESIDENT

C. H. W. W. S. E. W. N. H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

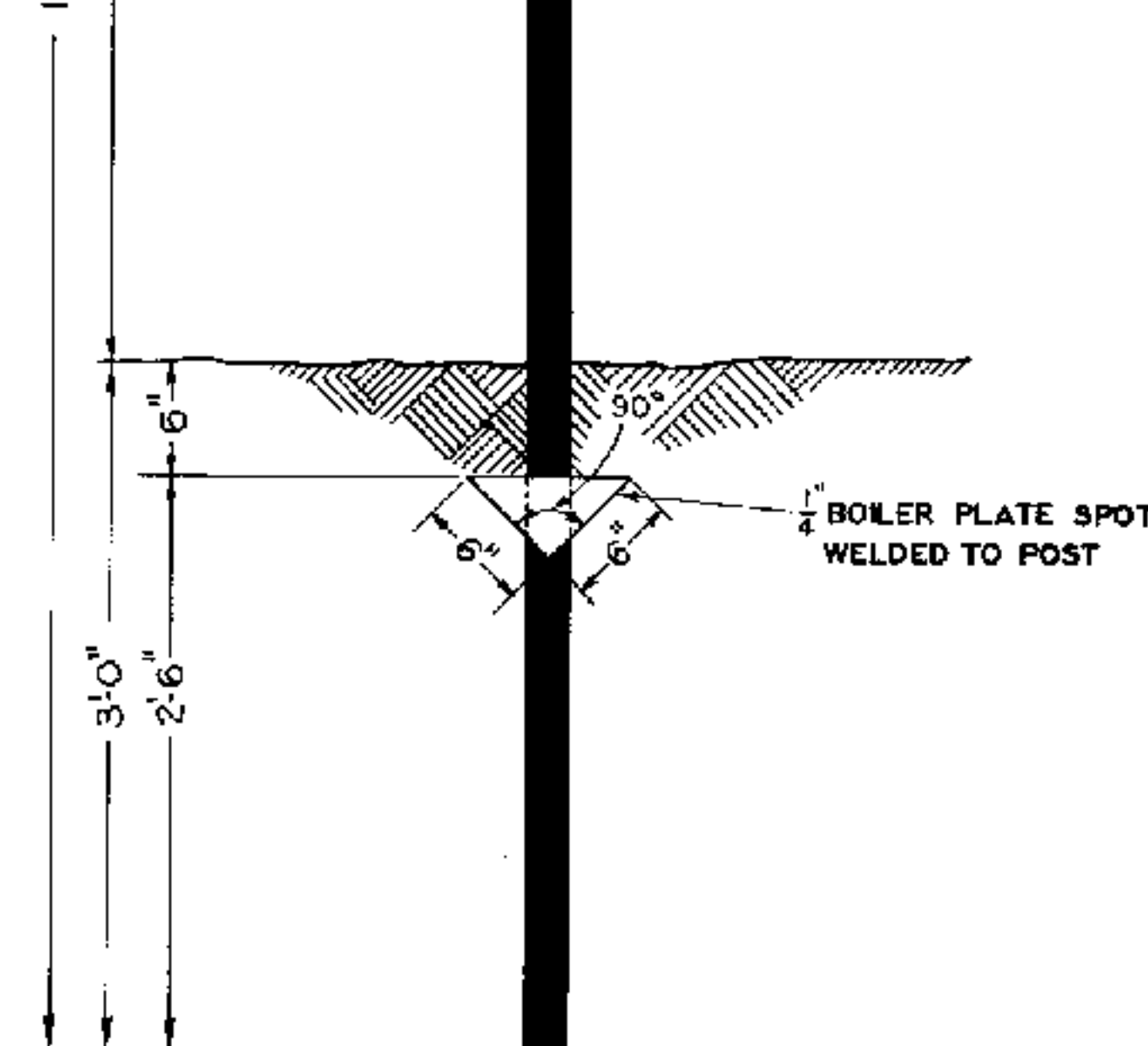
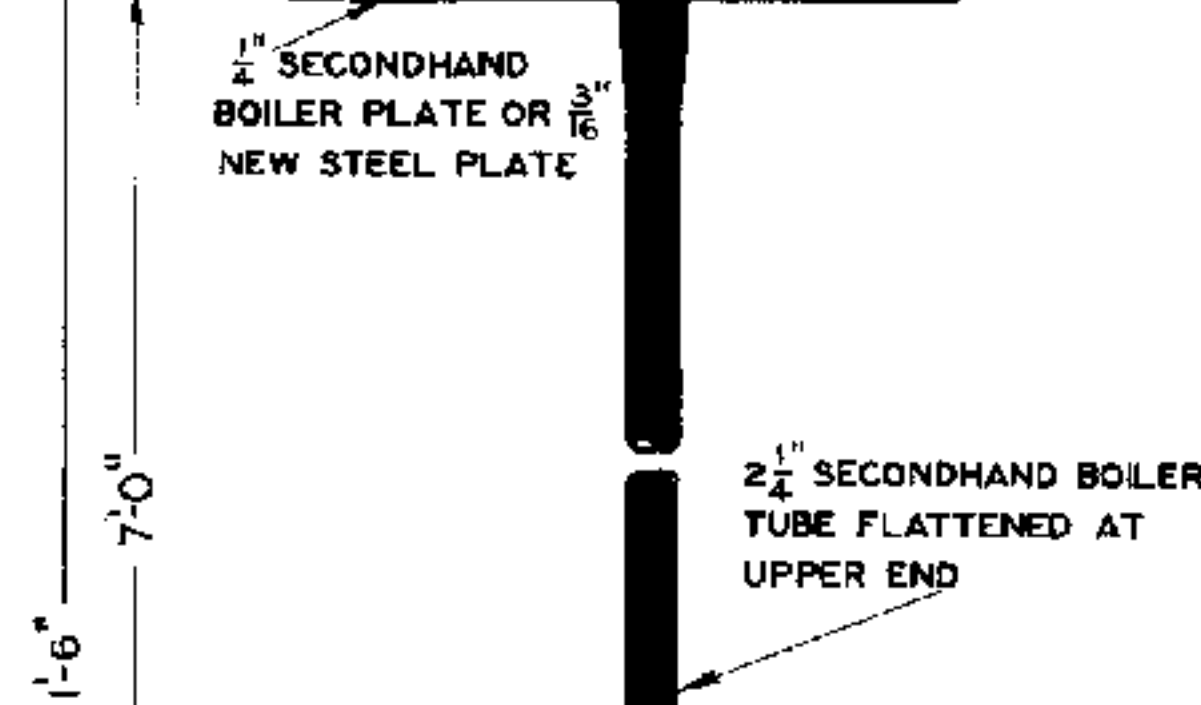
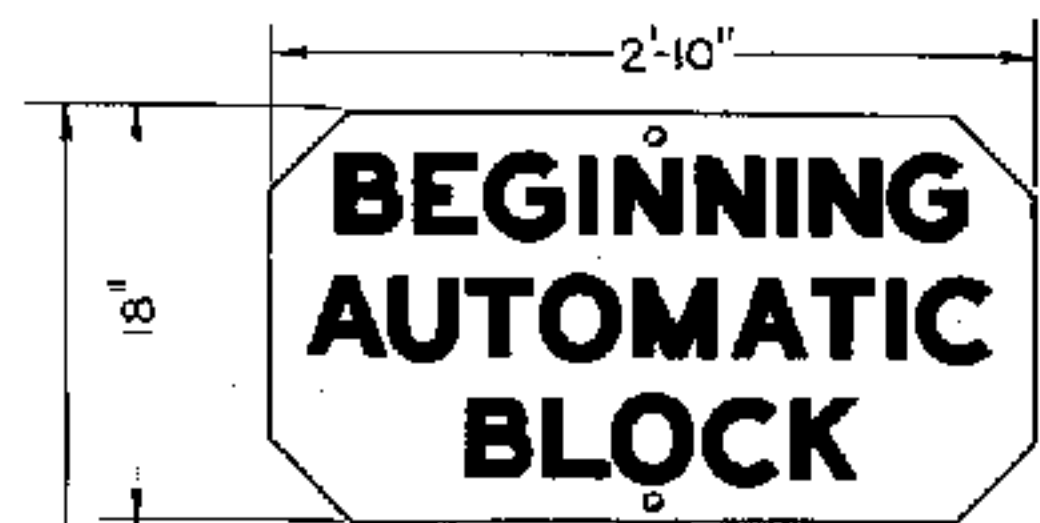
STANDARD FIELD AND OFFICE DATA CONCERNING INCANDESCENT SIGNAL LAMPS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

W. E. Co. President
CHAIRMAN

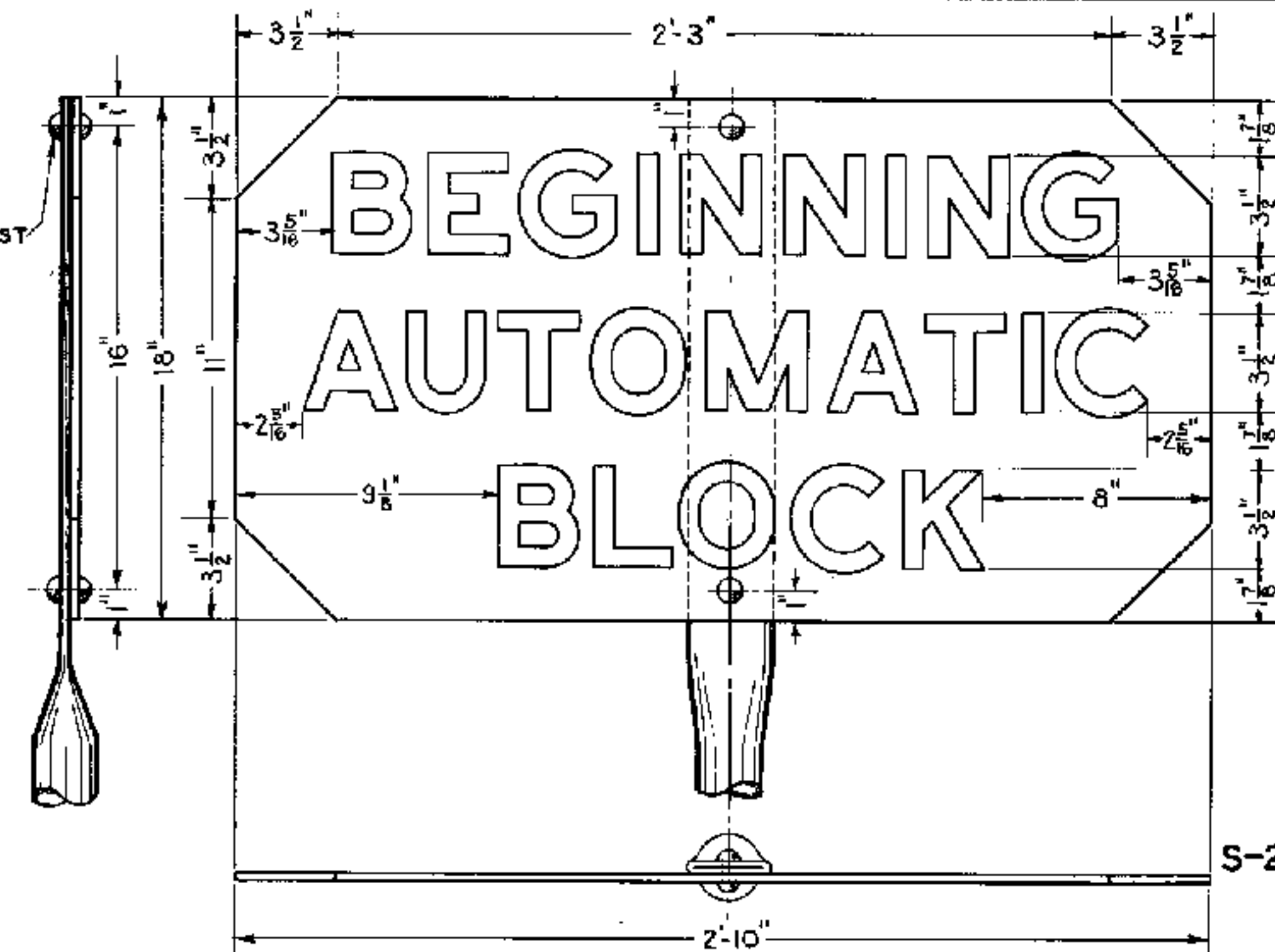
DEC. 8, 1942

S-2051-B



S-2055-1 BEGINNING AUTOMATIC BLOCK SIGN COMPLETE
SCALE ②

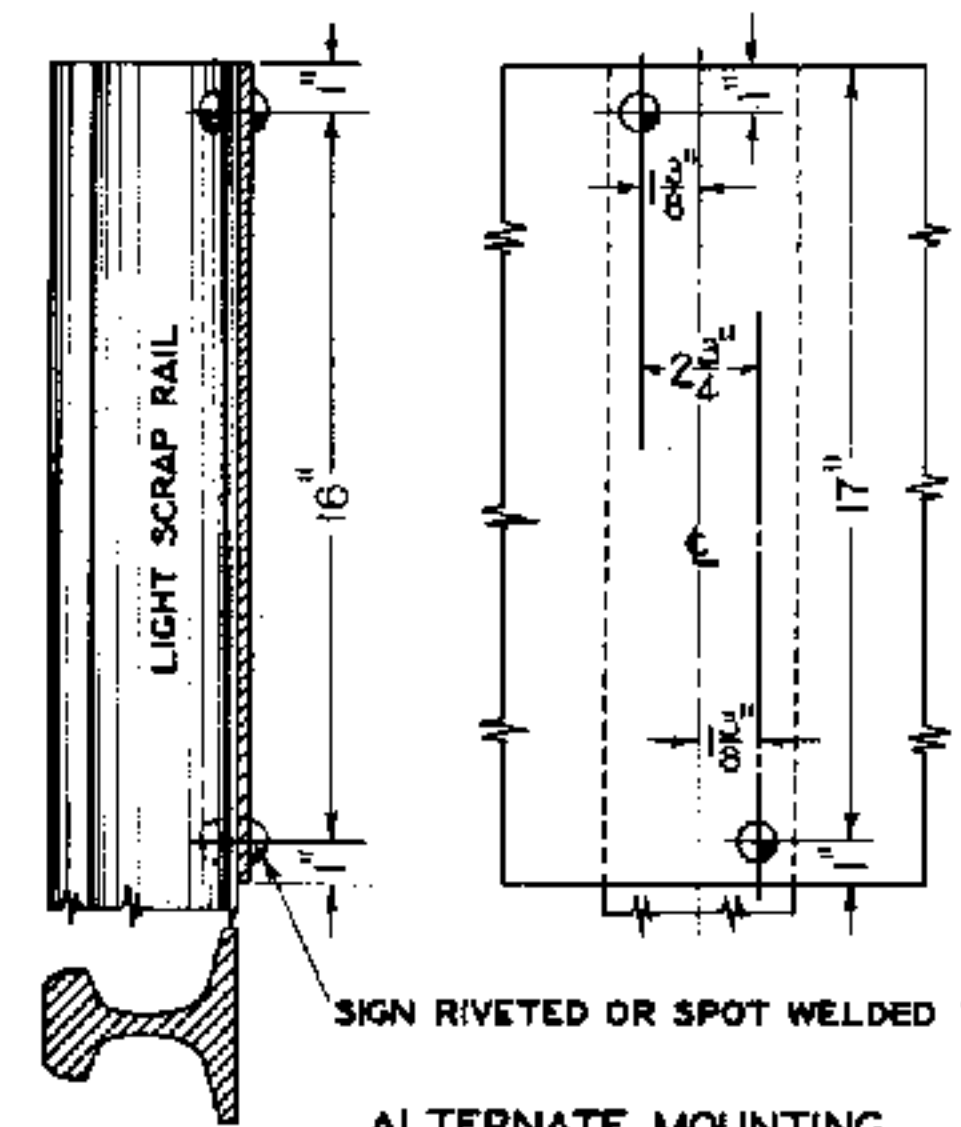
SIGN RIVETED OR
SPOT WELDED TO POST



S-2055-2 BEGINNING AUTOMATIC BLOCK SIGN ONLY
DRILLED FOR PIPE MOUNTING
SCALE ①

NOTES

1. LETTERS SHALL BE PAINTED BLACK ON WHITE BACKGROUND. BACK OF SIGN SHALL BE PAINTED BLACK. WHEN BOILER TUBE IS USED, TOP SHALL BE FLATTENED AND ENTIRE TUBE DIPPED IN ASPHALT PREPARATION.
2. SIGN SHALL BE LOCATED ON RIGHT HAND SIDE OF TRACK, WITH DIRECTION OF TRAFFIC, NOT CLOSER THAN 5'-0" FROM THE NEAR EDGE OF SIGN TO THE GAGE SIDE OF THE NEAREST RAIL, EXCEPT IN NO INSTANCE SHALL THE POST BE SET IN A DITCH.
3. FOR DETAIL OF LETTERS, SEE LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
4. S-2055-1, BEGINNING AUTOMATIC BLOCK SIGN COMPLETE, MAY BE FURNISHED WITH SIGN MOUNTED ON EITHER PIPE OR SCRAP RAIL.



S-2055-3 BEGINNING AUTOMATIC BLOCK SIGN ONLY
DRILLED FOR RAIL MOUNTING
SCALE ①

ALTERNATE MOUNTING



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
C.S.L.	C.D.M.	A.J.P.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
BEGINNING AUTOMATIC
BLOCK SIGN**

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAY 17, 1932.
CHIEF ENGINEER

S-2055



1. LETTERS SHALL BE PAINTED BLACK ON WHITE BACKGROUND. BACK OF SIGN SHALL BE PAINTED BLACK. WHEN BOILER TUBE IS USED, TOP SHALL BE FLATTENED AND ENTIRE TUBE DIPPED IN ASPHALT PREPARATION.
2. SIGN SHALL BE LOCATED ON RIGHT HAND SIDE OF TRACK, WITH DIRECTION OF TRAFFIC, NOT CLOSER THAN 8'-0" FROM THE NEAR EDGE OF SIGN TO THE GAGE SIDE OF THE NEAREST RAIL, EXCEPT IN NO INSTANCE SHALL THE POST BE SET IN A DITCH.
3. FOR DETAIL OF LETTERS, SEE LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
4. S-2056-1, END AUTOMATIC BLOCK SIGN COMPLETE, MAY BE FURNISHED WITH SIGN MOUNTED ON EITHER PIPE OR SCRAP RAIL.

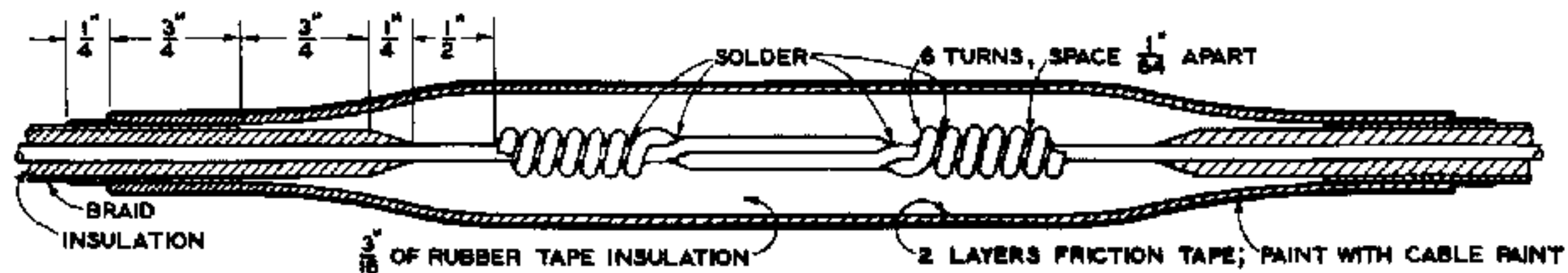


SCALE IN INCHES

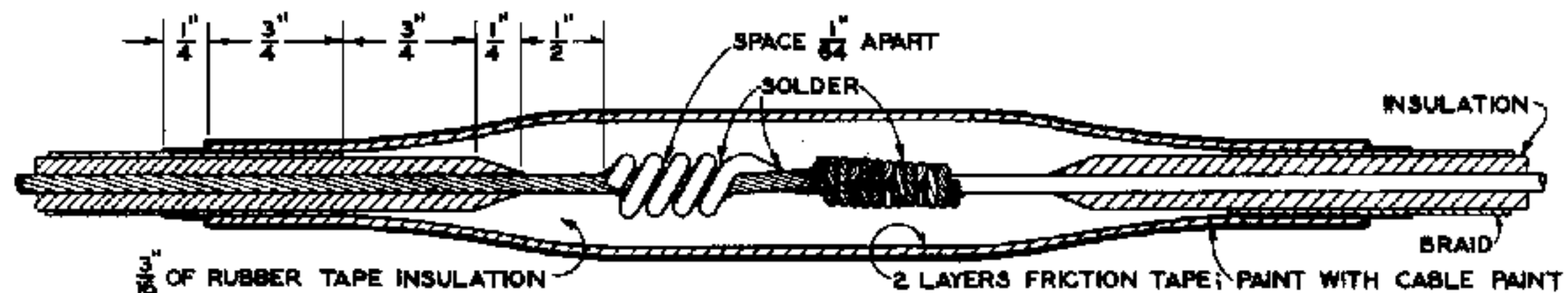
① 0 1 2 3 6 9 12

② 0 3 6 9 12 15 18 21 24

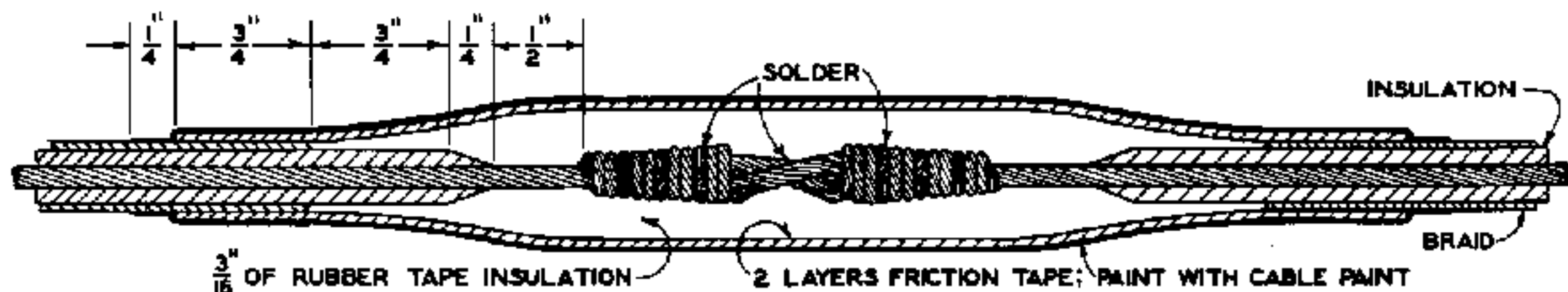
S-2056



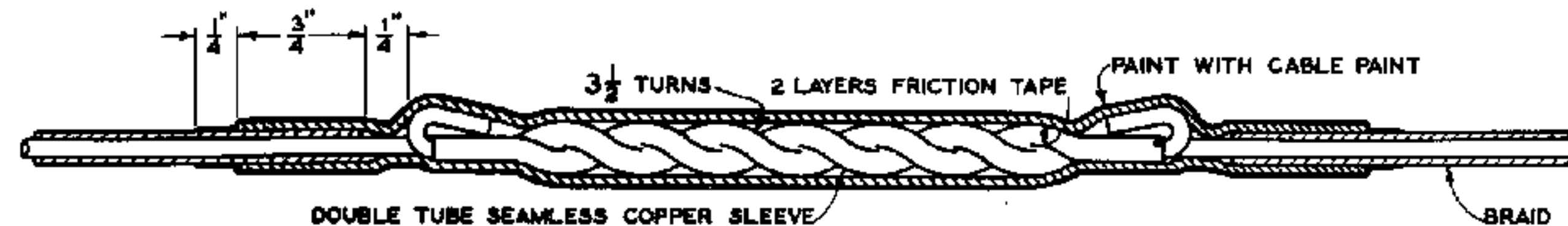
S-2057-1 SOLID COPPER WIRE JOINT



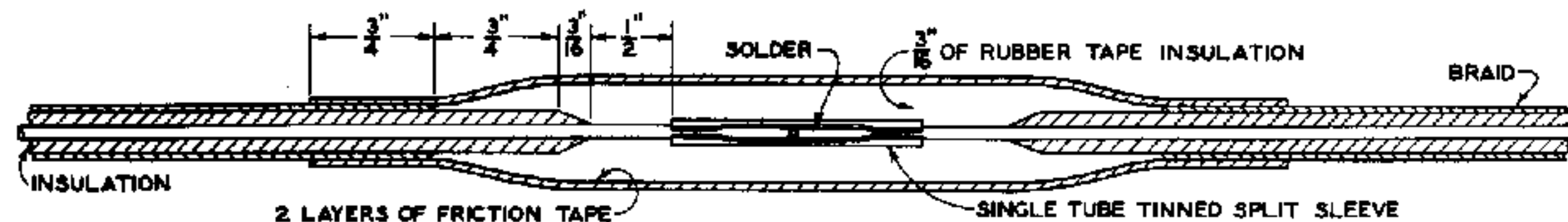
S-2057-2 STRANDED AND SOLID COPPER WIRE JOINT



S-2057-3 STRANDED COPPER WIRE JOINT



S-2057-4 SOLID LINE WIRE JOINT



S-2057-5 SOLID COPPER WIRE CABLE JOINT

NOTE
JOINTS IN INSULATED WIRES AND CABLE SHALL
BE MADE IN ACCORDANCE WITH LATEST REVISION
OF STANDARD SPECIFICATIONS S-1546, INSTRUCTIONS
FOR MAKING JOINTS IN INSULATED WIRES AND CABLES.

NO SCALE

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>D. M. Moore</i>		
ERIE RAILROAD COMPANY		
<i>R. L. Woodruff</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>D. M. Moore</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>J. H. Brown</i>		
C.B.P.	C.D.M.	A.J.P.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD WIRE JOINTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Marshall* APRIL 17, 1934.
CHIEF ENGINEER

S-2057-A

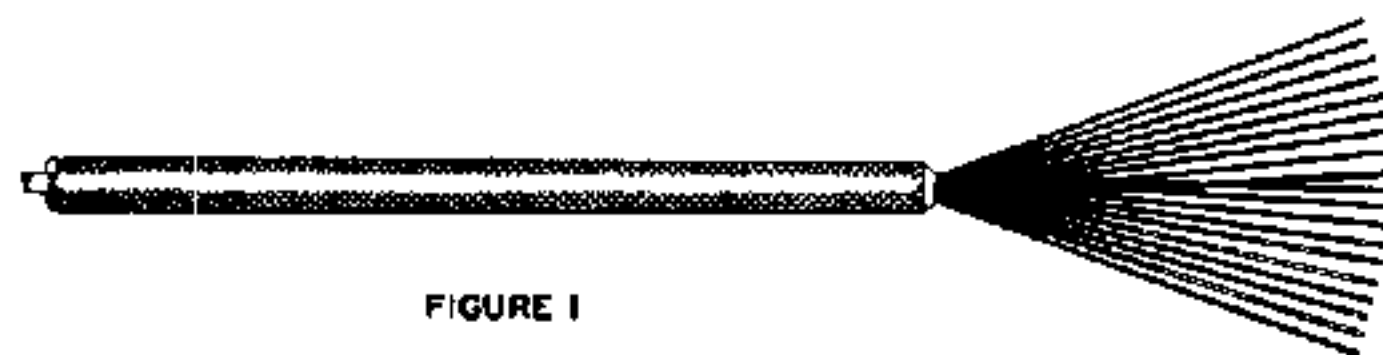


FIGURE 1

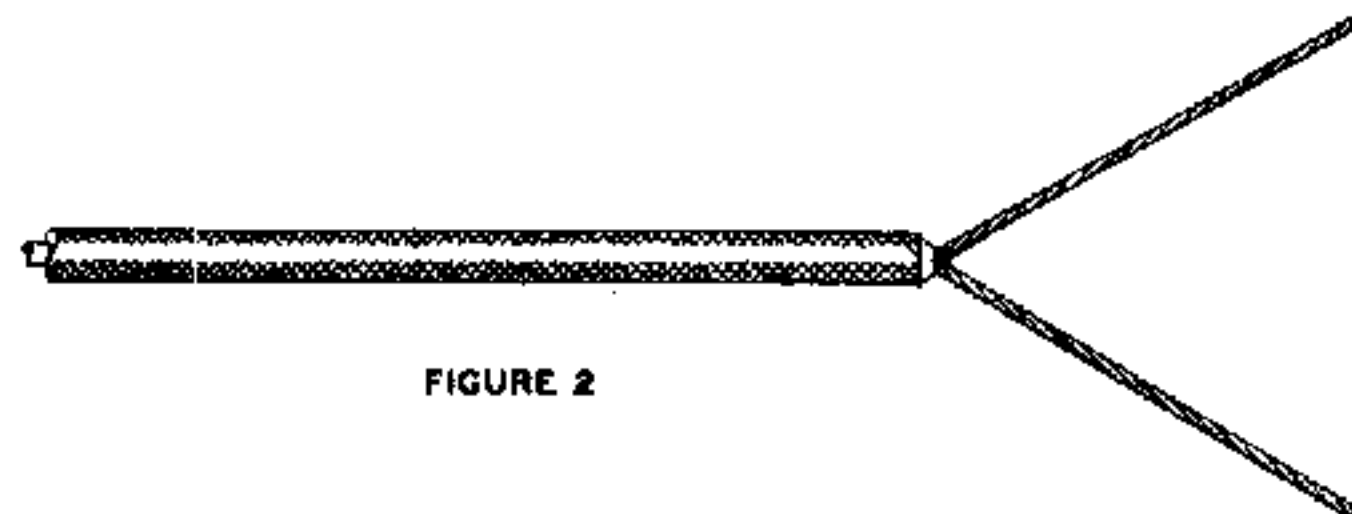


FIGURE 2

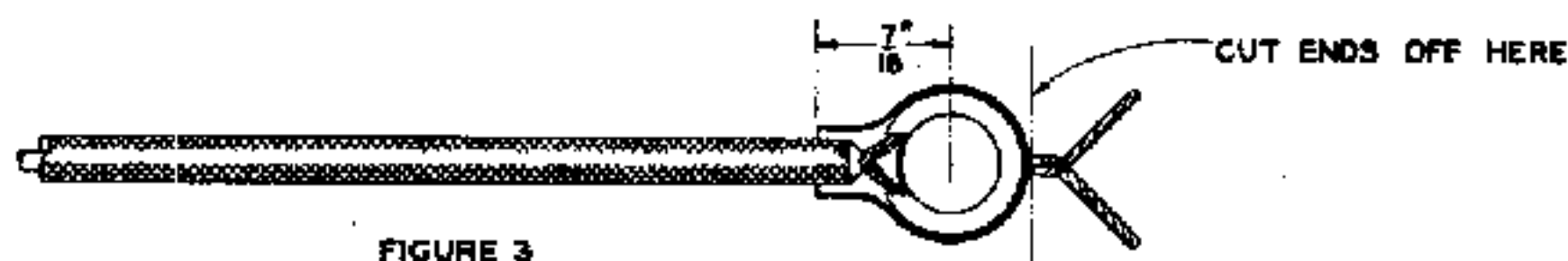


FIGURE 3

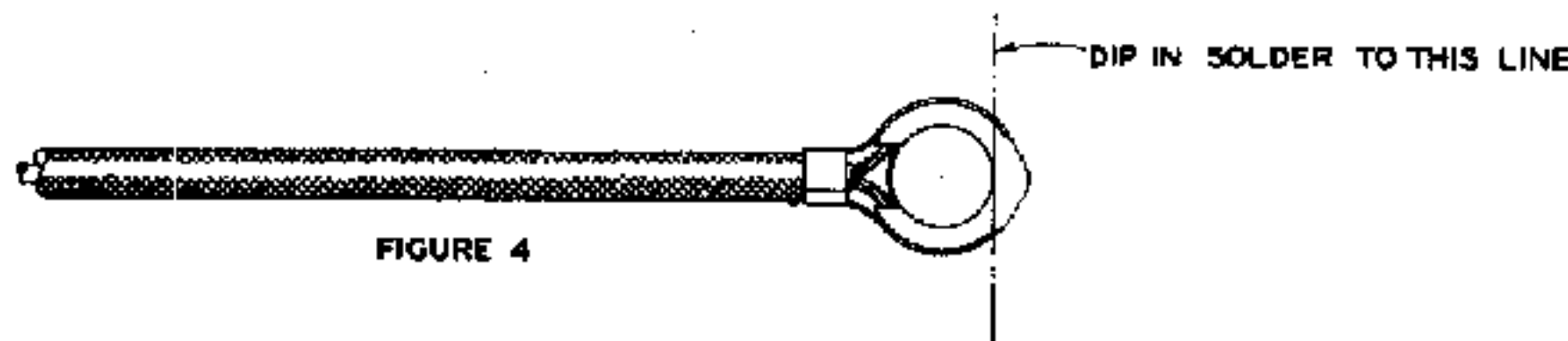


FIGURE 4

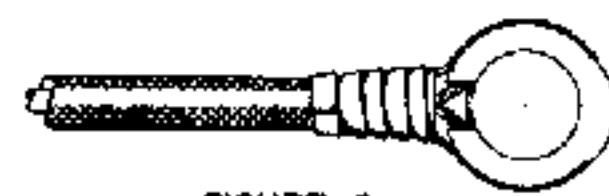


FIGURE 5

DIRECTIONS

1. Peel insulation from wire, separate strands, and clean each one thoroughly. See Figure 1.
2. Divide strands into two groups as nearly equal as possible and twist together as shown in Figure 2.
3. Place eyelet between the two twisted strands and twist projecting ends tightly together being careful to have the insulation extend into the shoulder of the eyelet as shown in Figure 3.
4. Form eyelet with parallel jaw pliers and cut off ends, (Figure 3), then solder as indicated in Figure 4.
5. Caution: Never solder the entire eyelet.
6. Shoulder may be taped with one (1) layer of friction tape, (Figure 5), and painted with one (1) coat of insulating paint.
7. Method of making eyelet connection applies to wire size No 16 A.W.G., 19 strands, or larger.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. M. Moore
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Allen
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Brown
VICE PRESIDENT

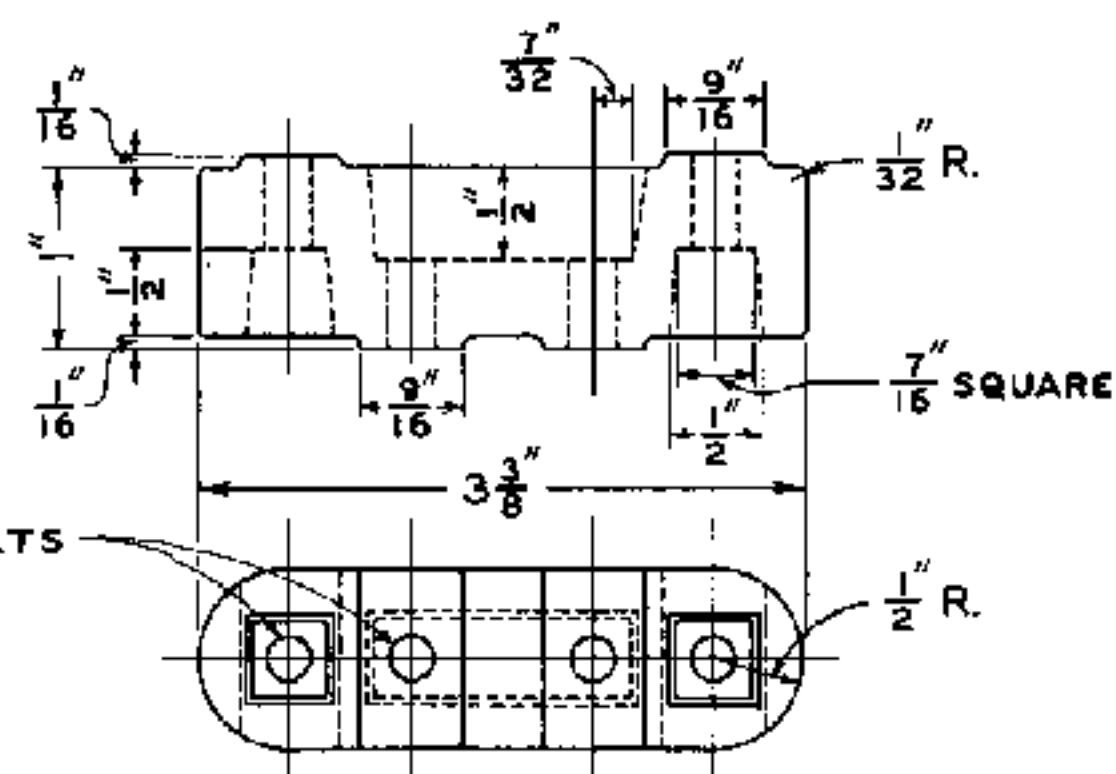
C.S.L. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

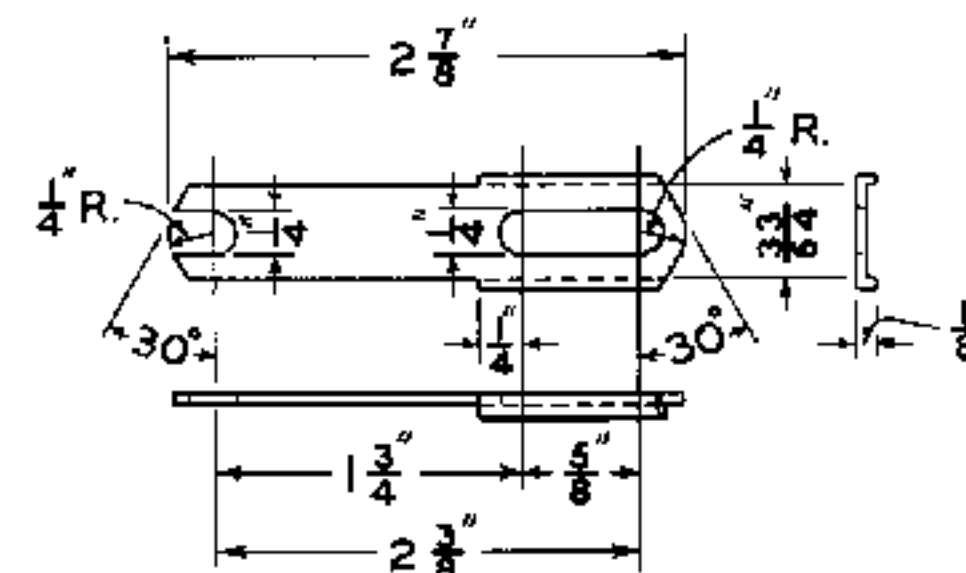
STANDARD WIRE EYELET CONNECTION

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Brown* NOV 17, 1931.
CHIEF ENGINEER

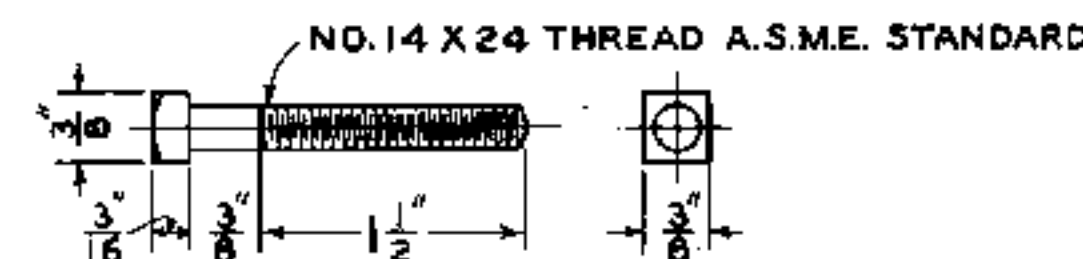
S-2058



S-2060-2 PORCELAIN BASE
REVERSIBLE



S-2060-3 CONNECTOR
COPPER NO. 18 B&S GAGE



S-2060-4 BINDING POST
EVERDUR BRONZE

NOTES

1. ALL METAL PARTS SHALL BE NICKEL PLATED.
2. DIMENSION "A" SHALL BE MAXIMUM ONE (1) INCH, MINIMUM SEVEN EIGHTHS (7/8) INCH.
3. ALL SURFACES EXCEPT TOP, BOTTOM, HOLES, AND RECESSES, SHALL BE GLAZED.
4. MATERIAL SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1521, PORCELAIN TERMINAL BLOCK.

SCALE IN INCHES



APPROVED FOR USE

THE CHEESAPEAKE AND OHIO
RAILWAY COMPANY

A. G. ...

ENIE RAILROAD COMPANY

A. L. Barber

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

W. Brooke

PERE MARQUETTE
RAILWAY COMPANY

B. Bowman

C. H. W.	W. S. E.	C. A.
K. L. M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD PORCELAIN TERMINAL BLOCK

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

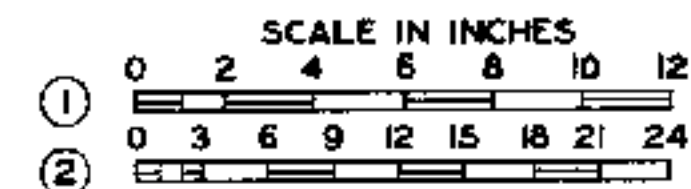
Chairman

JUNE 13, 1934

S-2060-A



1. LETTERS SHALL BE PAINTED BLACK ON WHITE BACKGROUND. BACK OF SIGN SHALL BE PAINTED BLACK. WHEN BOILER TUBE IS USED, TOP SHALL BE FLATTENED AND ENTIRE TUBE DIPPED IN ASPHALT PREPARATION.
2. SIGN SHALL BE LOCATED ON RIGHT HAND SIDE OF TRACK, WITH DIRECTION OF TRAFFIC, NOT CLOSER THAN 8'-0" FROM THE NEAR EDGE OF SIGN TO THE GAGE SIDE OF NEAREST RAIL, EXCEPT IN NO INSTANCE SHALL THE POST BE SET IN A DITCH.
3. FOR DETAIL OF LETTERS, SEE LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
4. S-2062-1 SPRING SWITCH SIGN COMPLETE, MAY BE FURNISHED WITH SIGN MOUNTED ON EITHER PIPE OR SCRAP RAIL.
5. WHEN CONDITIONS REQUIRE USE OF S-2062-1 SPRING SWITCH SIGN, IT SHALL BE LOCATED SO AS TO GIVE AMPLE WARNING AND THE DISTANCE TO THE SWITCH SHALL BE INDICATED ON THE SIGN.
6. S-2062-1, SPRING SWITCH SIGN, SHALL BE INSTALLED IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1556, SPRING SWITCHES AND THEIR SIGNAL PROTECTION.



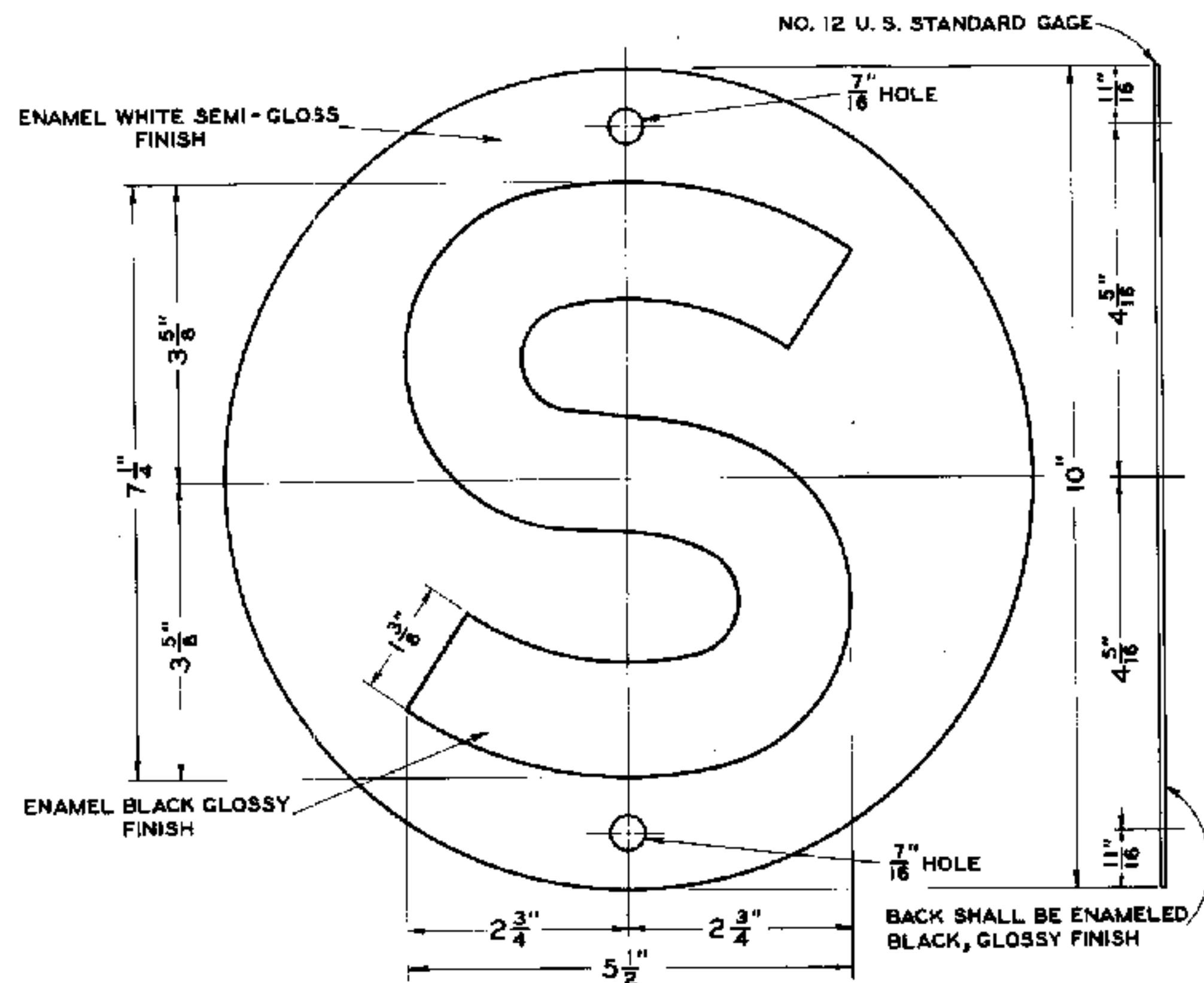
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>D. M. Brooke</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY <i>W. L. Woodruff</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>D. M. Brooke</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>A. J. P.</i> VICE PRESIDENT		
C. B. P.	C. D. M.	A. J. P.
K. L. M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
SPRING SWITCH SIGN

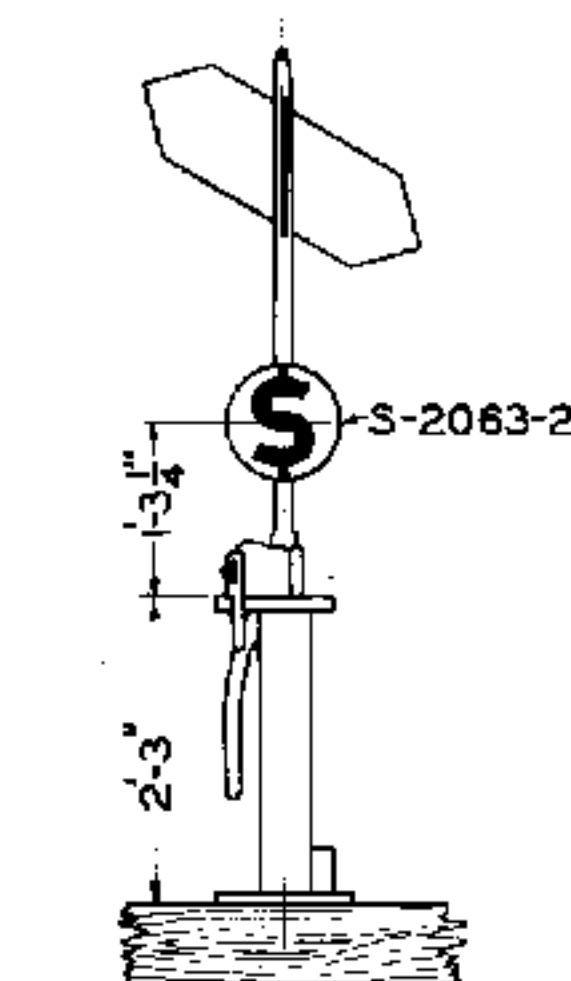
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: W. C. C. C. FEB. 20, 1934.
CHIEF ENGINEER

S-2062

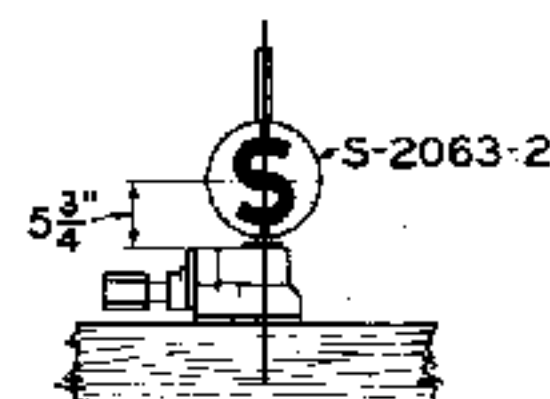


S-2063-1 DISC WITH LETTER "S" ONLY
S-2063-2 MARKER COMPLETE WITH TWO S-2063-1 DISCS AND TWO $\frac{3}{8}$ " X 2" U.S. ST'D. SQ. HD. BOLTS, HEX. NUTS, FOUR FLAT LEAD WASHERS, AND TWO $\frac{1}{8}$ " X $\frac{3}{32}$ " SPRING WASHERS. SEE NOTE 4.

SCALE ①



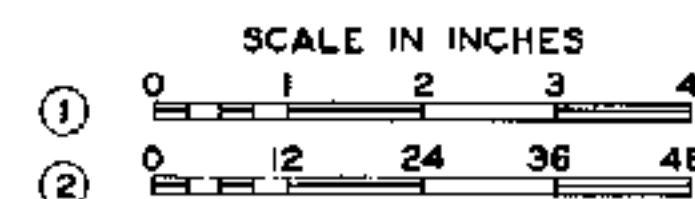
APPLICATION OF MARKER ON HIGH SWITCH STAND
 SCALE ②



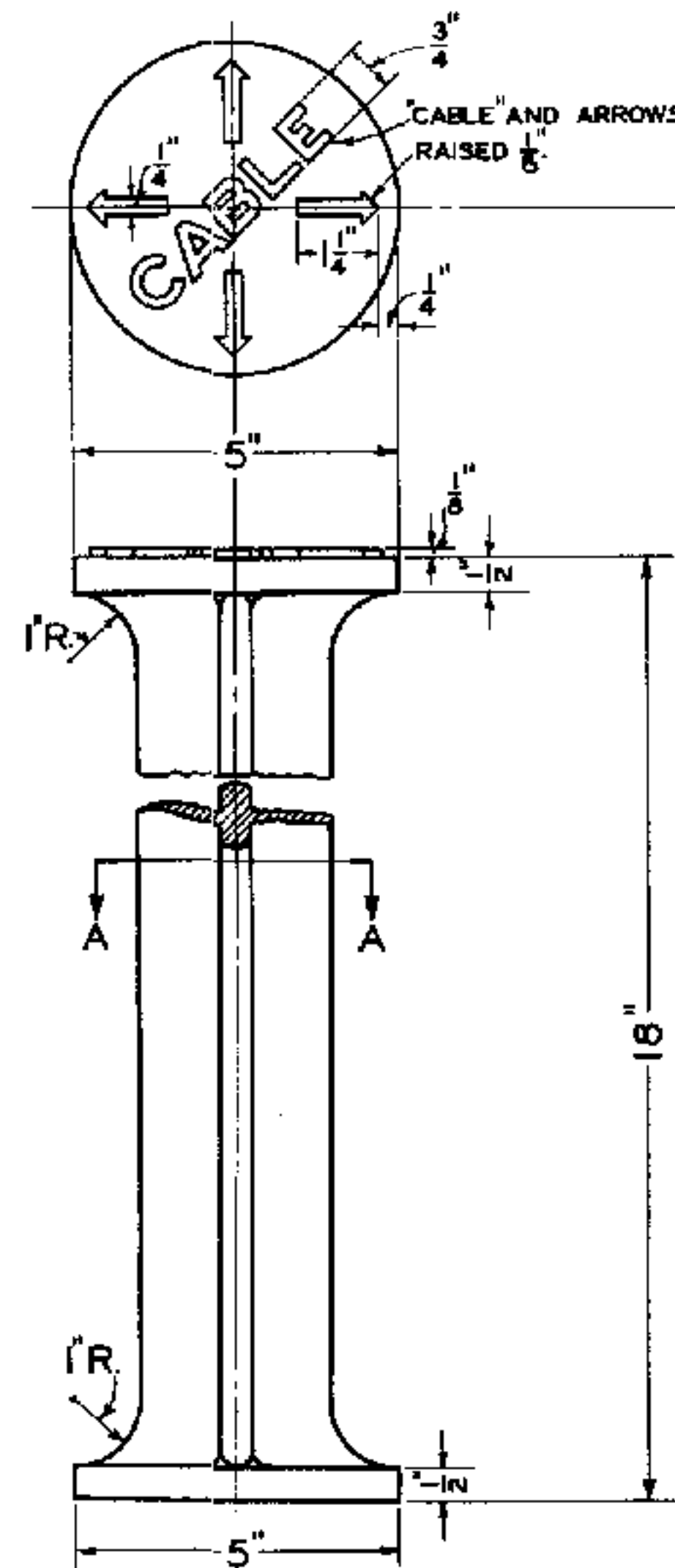
APPLICATION OF MARKER ON LOW SWITCH STAND
 SCALE ②

NOTES

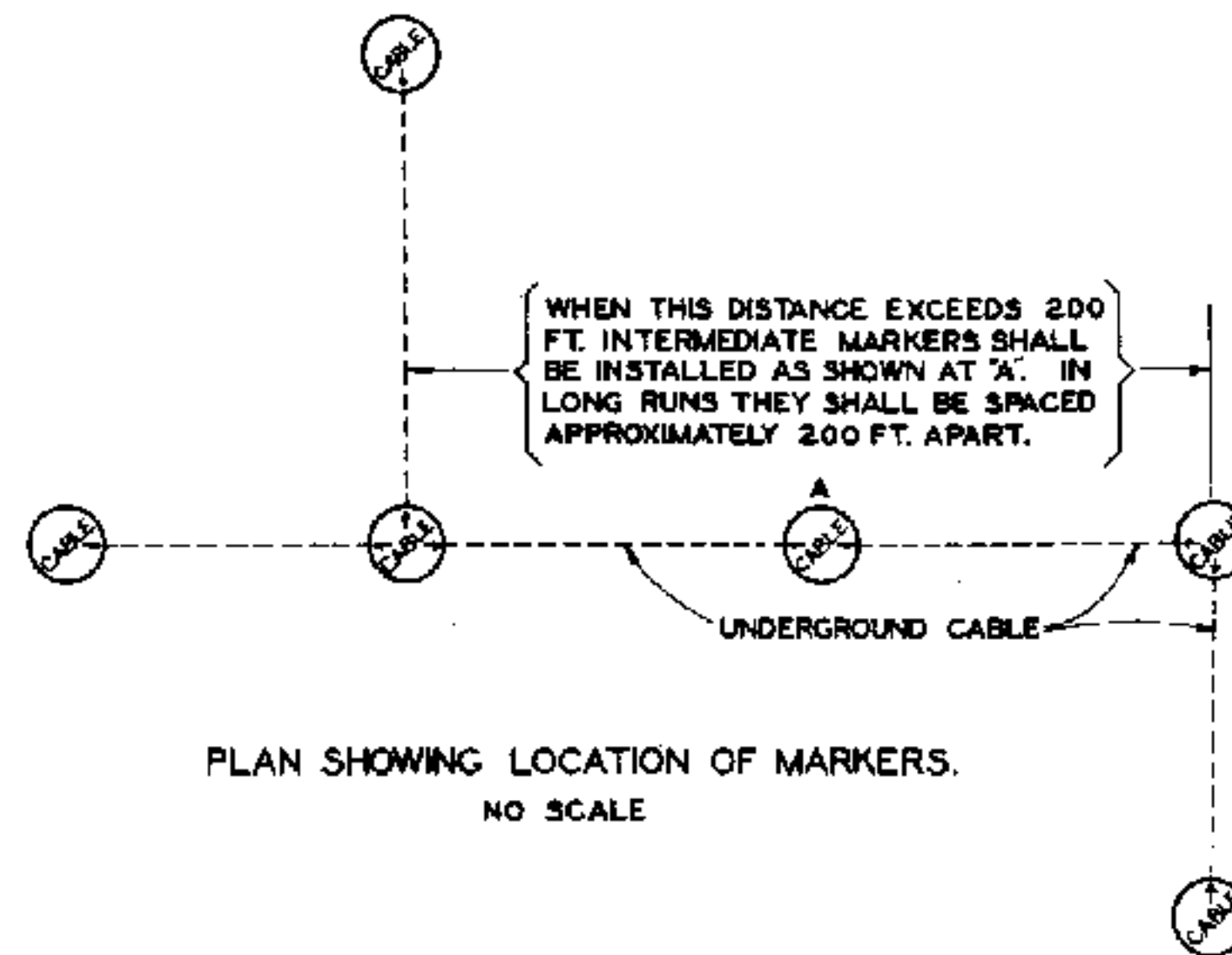
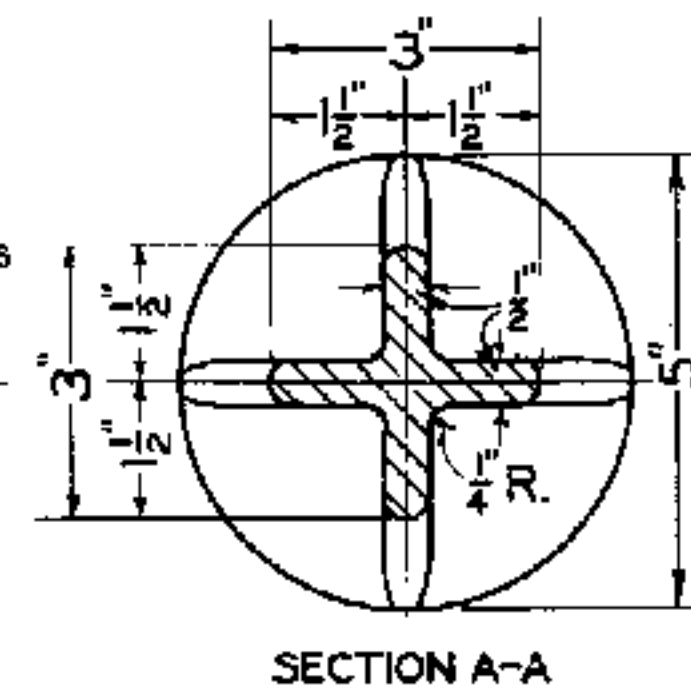
1. MARKER SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS, EXCEPT AS OTHERWISE SHOWN.
2. MARKER SHALL CONSIST OF TWO DISCS, ATTACHED TO SWITCH STAND AT RIGHT ANGLES TO TRACK AND SHALL BE OBSERVED FROM TRAILING OR FACING POINT SIDE OF SWITCH WHEN IN NORMAL POSITION. THE NORMAL POSITION OF SPRING SWITCHES WILL BE DESIGNATED BY SPECIAL INSTRUCTIONS.
3. FOR DETAIL OF LETTER "S" SEE LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
4. BOLTS, NUTS, AND SPRING WASHERS SHALL BE CADMIUM PLATED.



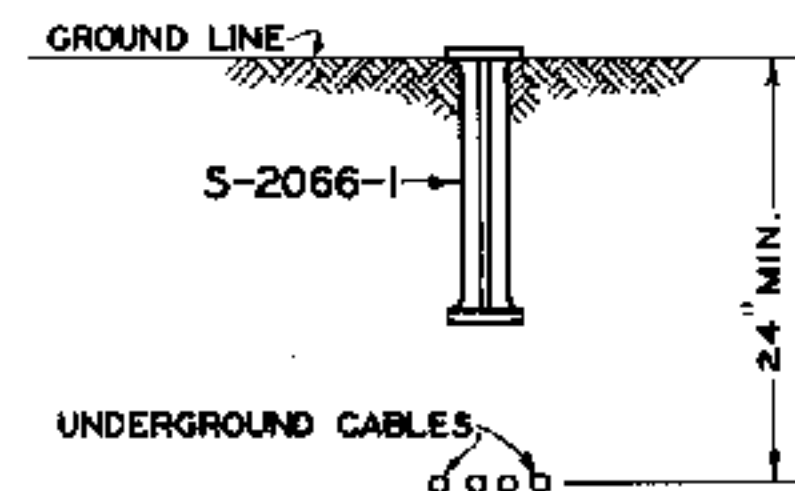
APPROVED FOR USE THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT ERIE RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT PERE MARQUETTE RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY STANDARD MARKER FOR SPRING SWITCHES APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>[Signature]</i> DEC. 14, 1933. CHIEF ENGINEER
C.B.P. C.B.P.	C.D.M. A.J.P.	S-2063



S-2066-1 MARKER
CAST IRON



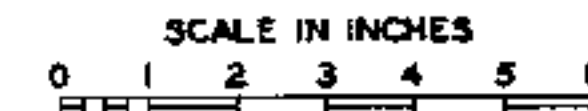
PLAN SHOWING LOCATION OF MARKERS.
NO SCALE



METHOD OF INSTALLATION
NO SCALE

NOTES

1. ARROWS NOT REQUIRED TO SHOW DIRECTION OF CABLE SHALL BE REMOVED WITH CHISEL.
2. CABLE MARKERS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

D. M. Moore
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. L. Woodruff
VICE PRESIDENT

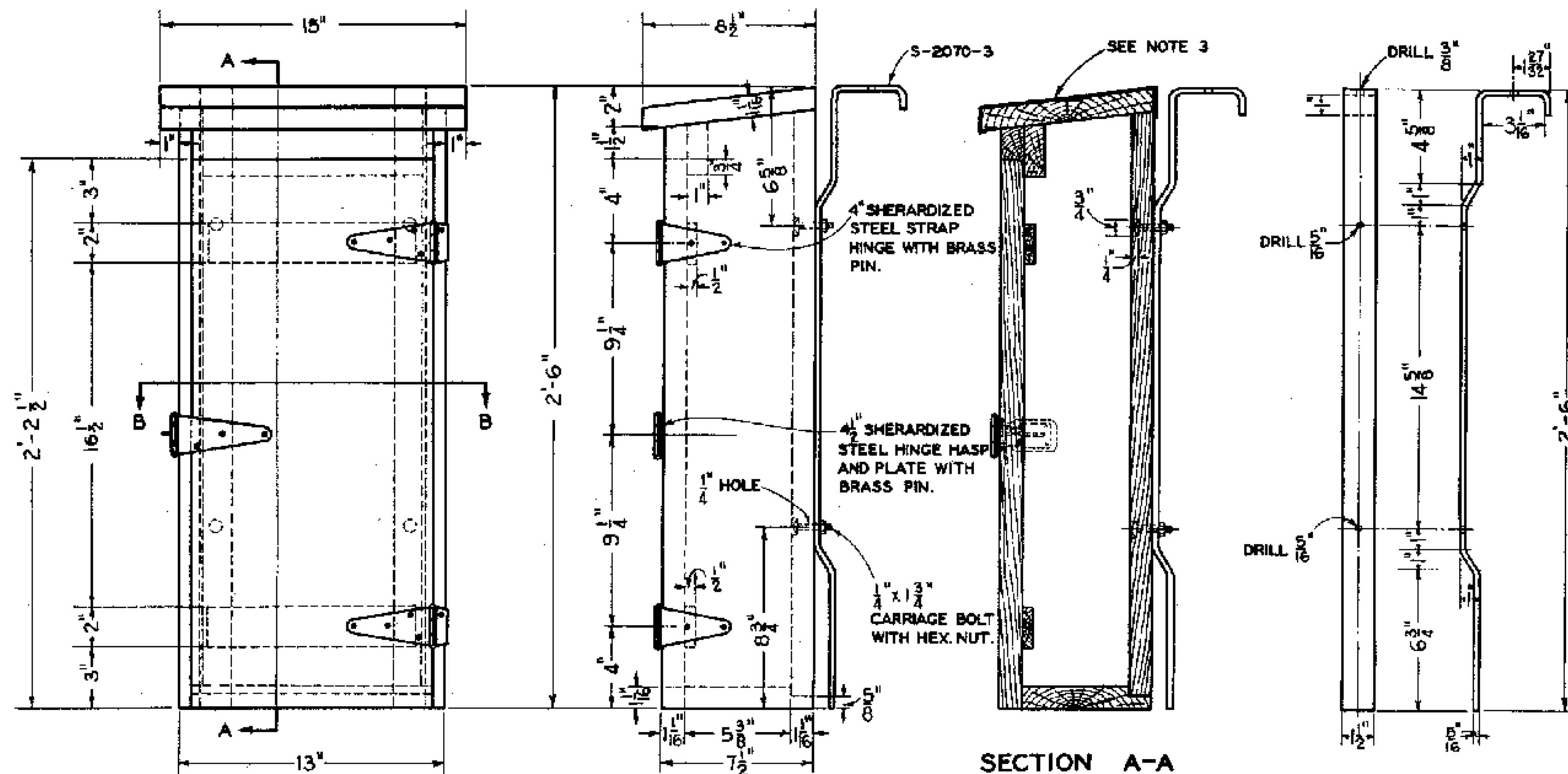
K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

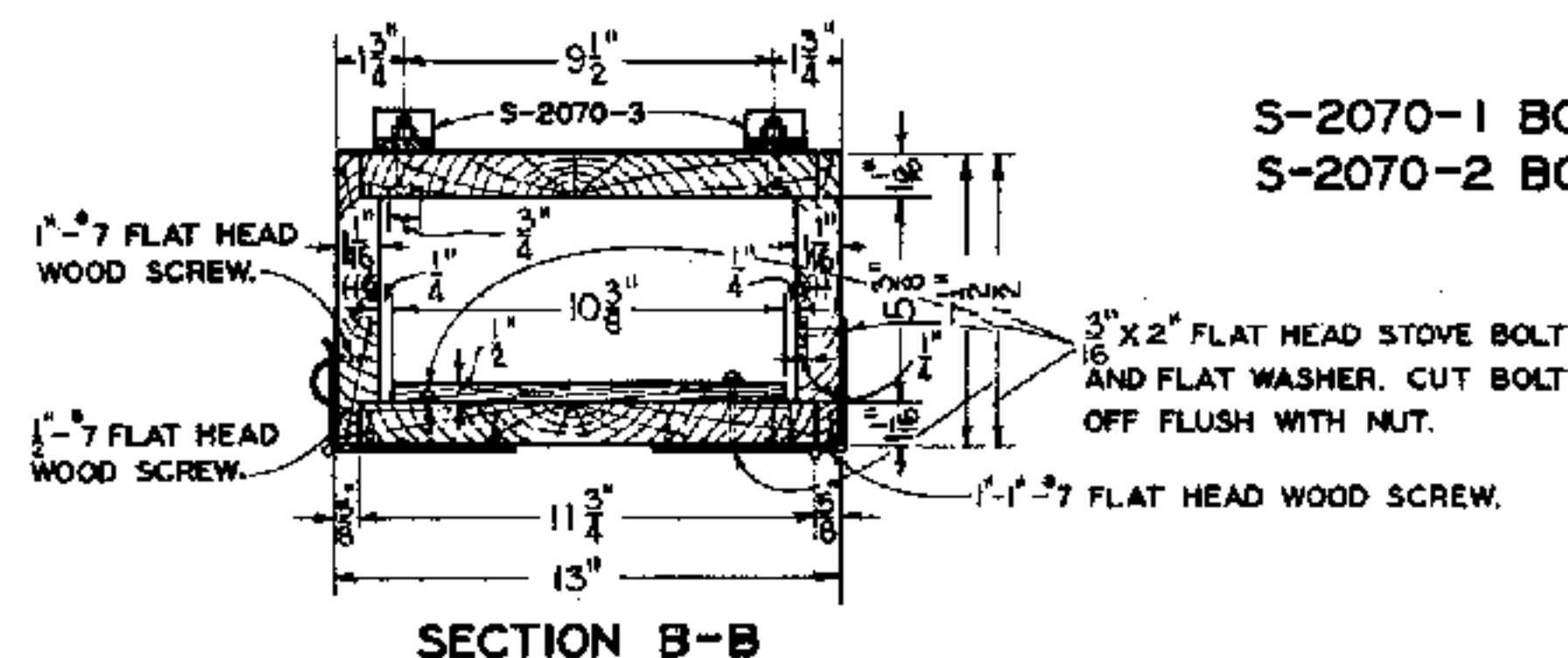
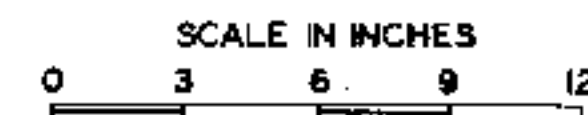
STANDARD MARKER FOR UNDERGROUND CABLE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff* MAY 17, 1932.
CHIEF ENGINEER

S-2066



- NOTES**
1. BOX SHALL BE MADE OF AIR SEASONED NO. 1 COMMON WHITE PINE. NO SPLITS WILL BE PERMITTED IN THE FINISHED PRODUCT. BOX SHALL BE WATER-TIGHT BEFORE PAINTING.
 2. JOINTS SHALL BE LAID IN WHITE LEAD AND NAILED WITH CEMENT COATED NAILS, COUNTERSUNK.
 3. TOP OF BOX SHALL BE COVERED WITH NO. 22 U. S. STANDARD GAGE GALVANIZED SHEET IRON. EDGES SHALL BE TURNED DOWN OVER JOINTS AND NAILED WITH CEMENT COATED NAILS.
 4. WORKMANSHIP SHALL BE FIRST CLASS IN EVERY RESPECT.
 5. NAIL HOLES SHALL BE PUTTIED AFTER FIRST COAT OF PAINT IS APPLIED.
 6. BOX AND PARTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT THAT EXTERIOR SURFACES OF BOX SHALL HAVE PRIMING COAT OF WHITE LEAD AND TWO COATS OF BLACK PAINT.
 7. USE $\frac{3}{16}$ x $1\frac{1}{2}$ LAG SCREWS FOR FASTENING S-2070-3, STRAP, TO CROSS ARM.



S-2070-1 BOX COMPLETE WITH TWO STRAPS AND FOUR BOLTS
S-2070-2 BOX ONLY

S-2070-3 STRAP
WROUGHT IRON
TWO REQUIRED

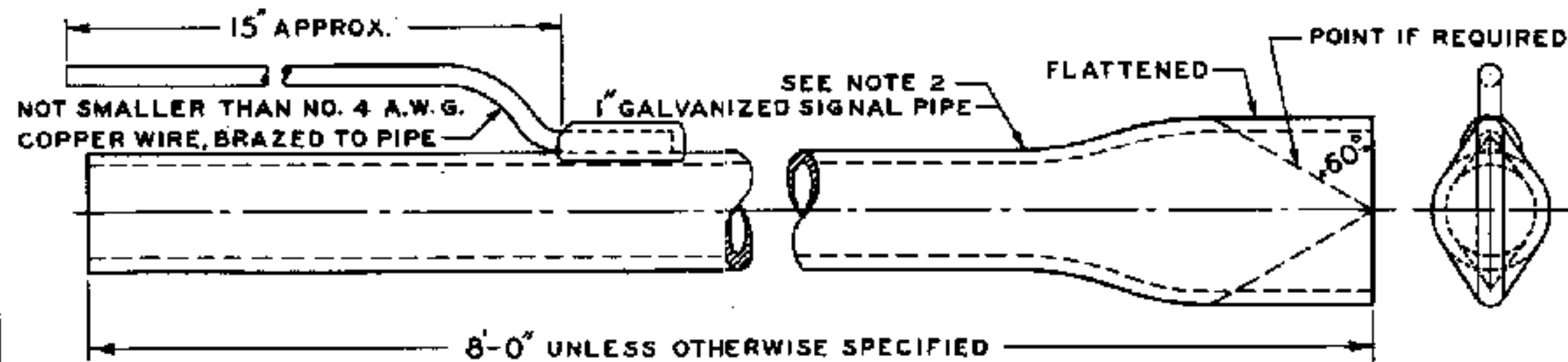
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
C.H.W.	CDM	A.J.P.
C.S.L.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD LIGHTNING ARRESTER BOX

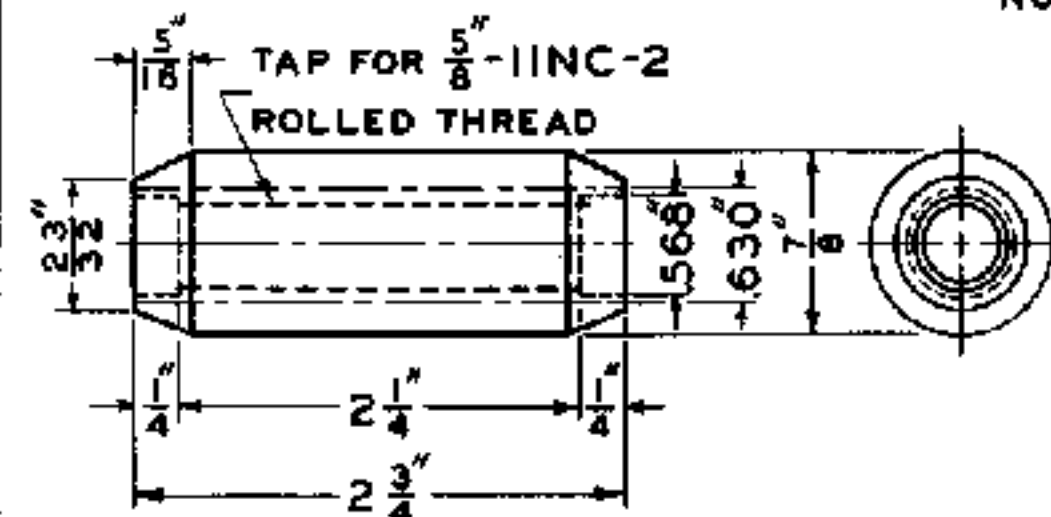
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAY 17, 1932.
CHIEF ENGINEER

S-2070

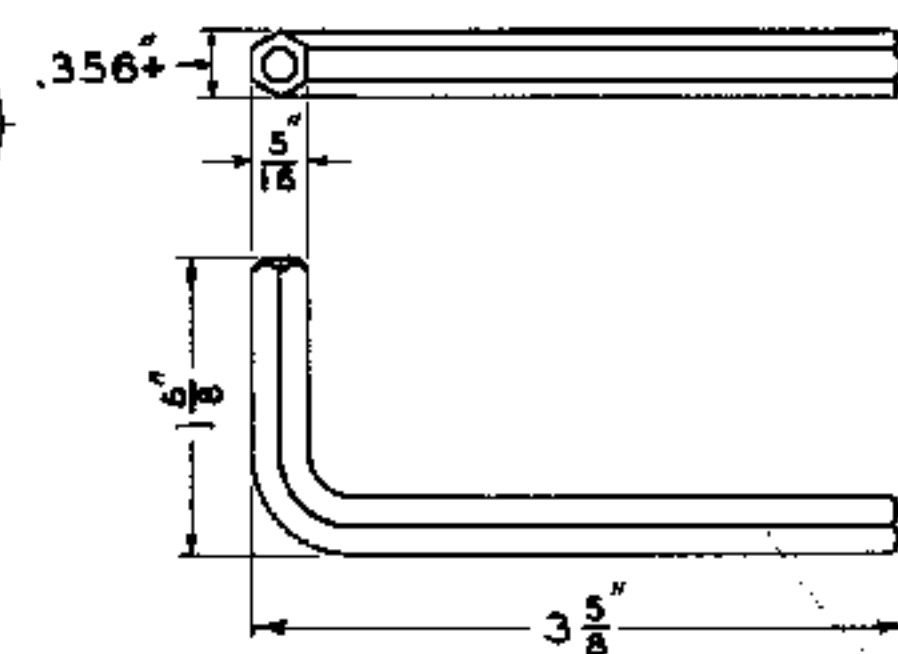
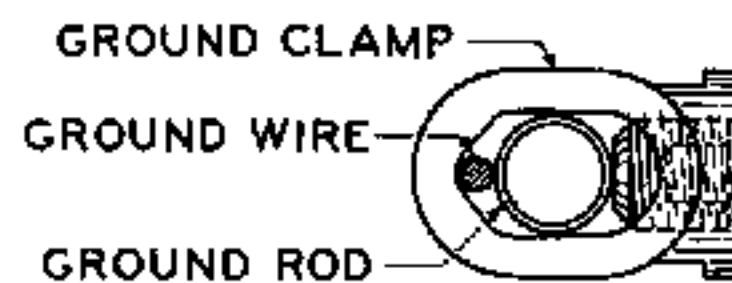
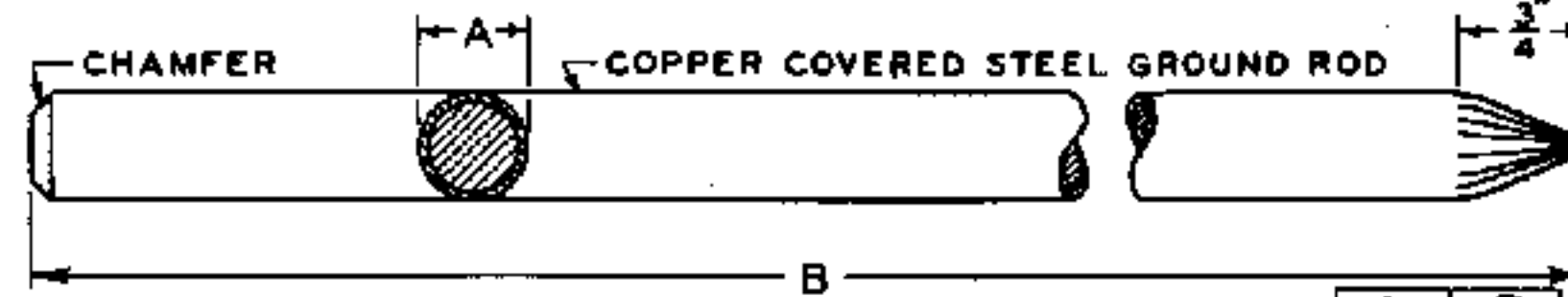


S-2075-1 GROUND ROD

NO SCALE

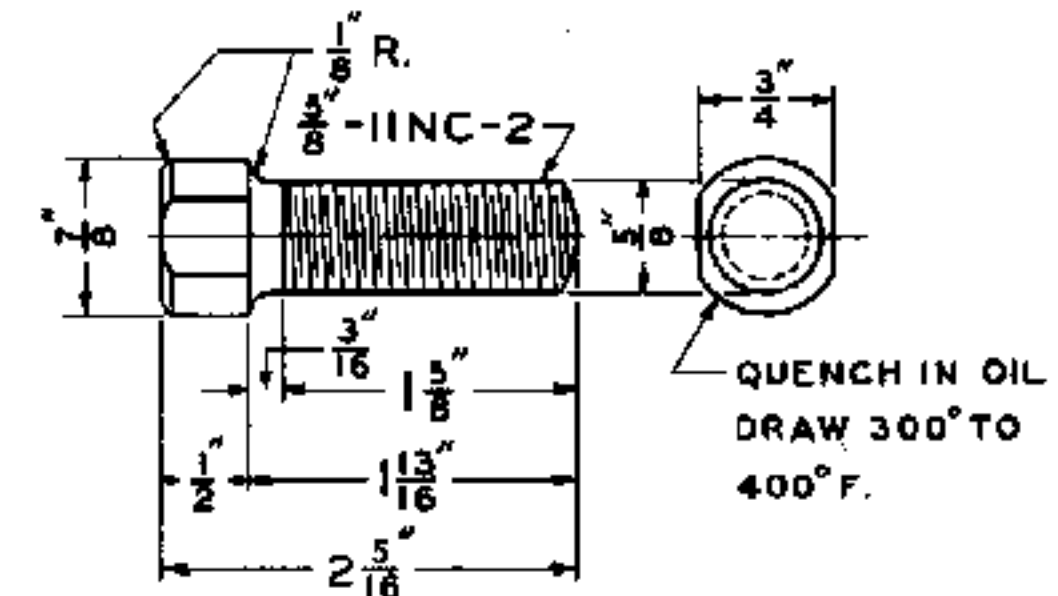


S-2075-14 COUPLING

BRONZE
NO SCALES-2075-4 WRENCH FOR
GROUND CLAMPSTOOL STEEL
NO SCALEASSEMBLY
NO SCALE

S-2075-5	GROUND ROD ONLY	5/8" - 8'-0"
S-2075-6	" WITH CLAMP S-2075-2	" - "
S-2075-7	" ONLY	5/8" - 10'-0"
S-2075-8	" WITH CLAMP S-2075-2	" - "
S-2075-9	" ONLY	3/4" - 6'-0"
S-2075-10	" WITH CLAMP S-2075-3	" - "

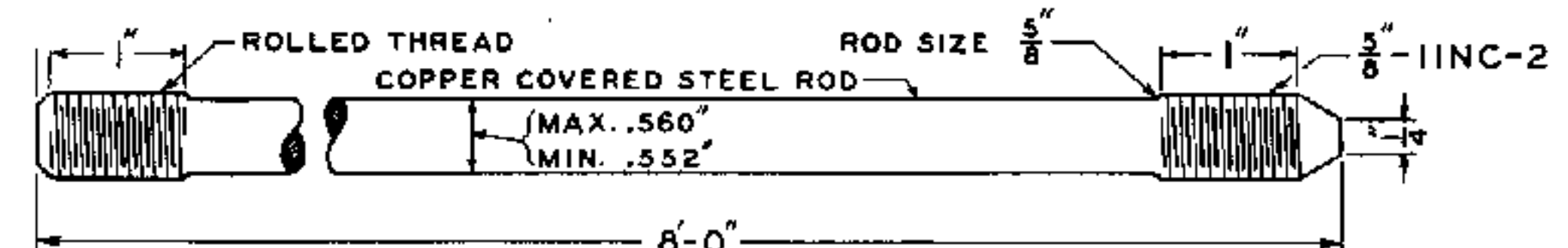
NO SCALE



S-2075-15 ROD DRIVER

CARBON STEEL (S.A.E. 1045)

NO SCALE

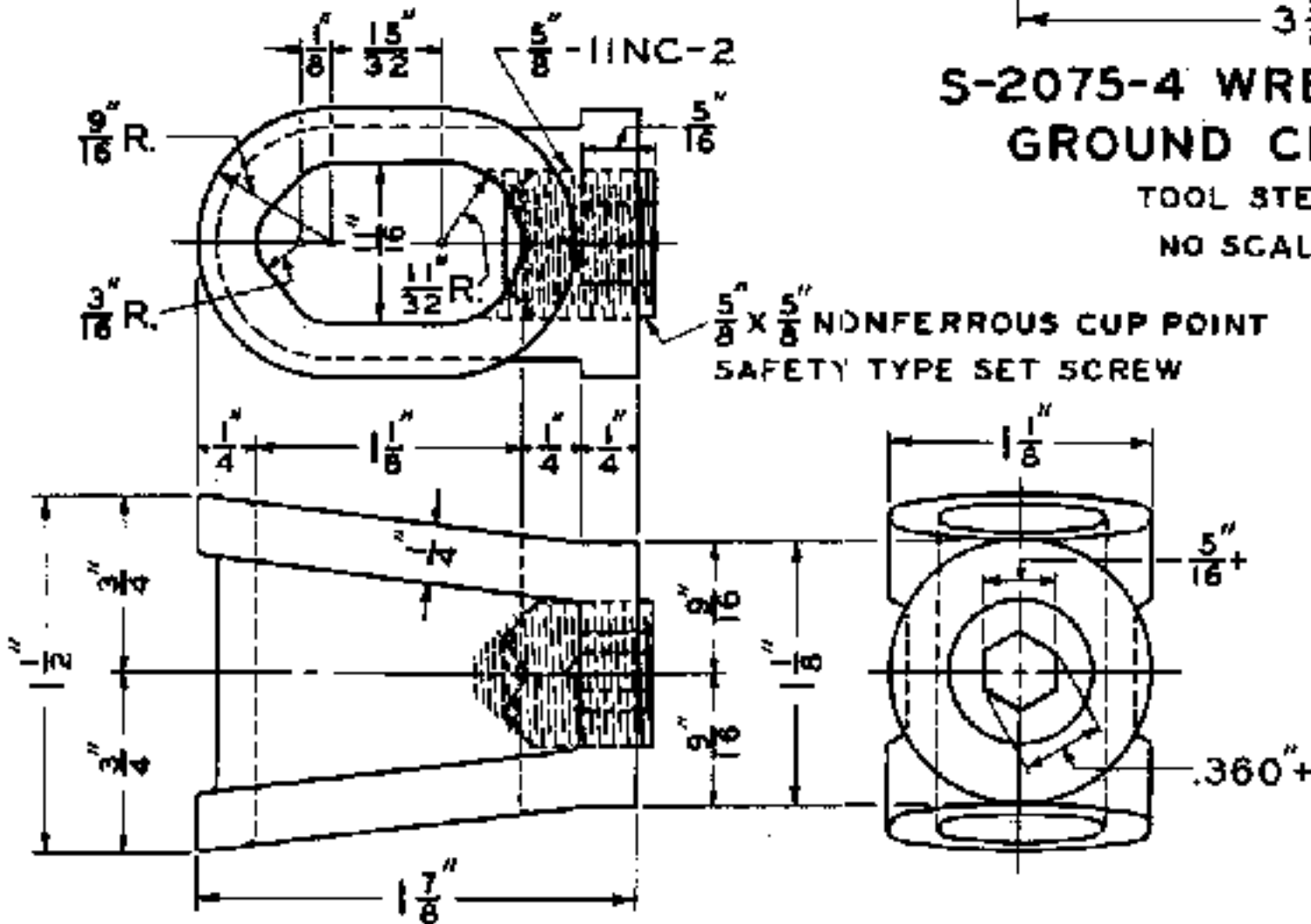
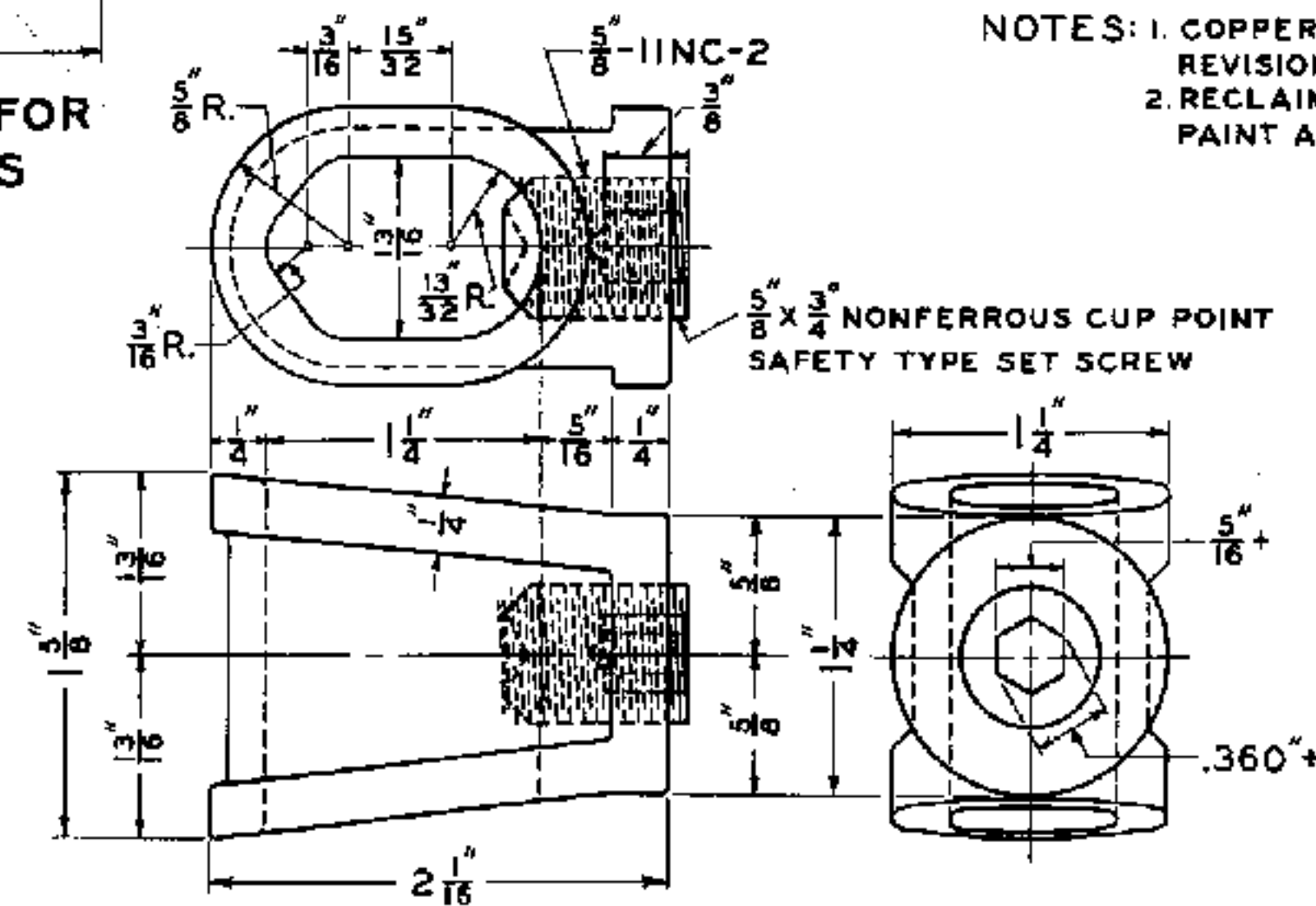


S-2075-11 SECTIONAL GROUND ROD ONLY

S-2075-12	"	"	" WITH CLAMP S-2075-2
S-2075-13	"	"	" WITH COUPLING S-2075-14

NO SCALE

NOTES: 1. COPPER COVERED STEEL GROUND RODS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1557, COPPER COVERED STEEL GROUND RODS.
2. RECLAIMED SIGNAL PIPE, IF IN GOOD CONDITION, MAY BE USED WHEN FREE FROM PAINT AND GREASE.

SCALE IN INCHES
0 1 2S-2075-2 GROUND CLAMP COMPLETE FOR 5/8" DIA. GROUND ROD
NONFERROUS METALS-2075-3 GROUND CLAMP COMPLETE FOR 3/4" DIA. GROUND ROD
NONFERROUS METAL

APPROVED FOR USE
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>H. C. Conmaster</i> VICE PRESIDENT
ERIE RAILROAD COMPANY <i>H. L. Barber</i> VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>J. M. Danin</i> PRESIDENT
PERE MARQUETTE RAILWAY COMPANY <i>M. M. Grand</i> VICE PRESIDENT AND GEN. MANAGER
W.S.E. W.S.E. W.N.H.

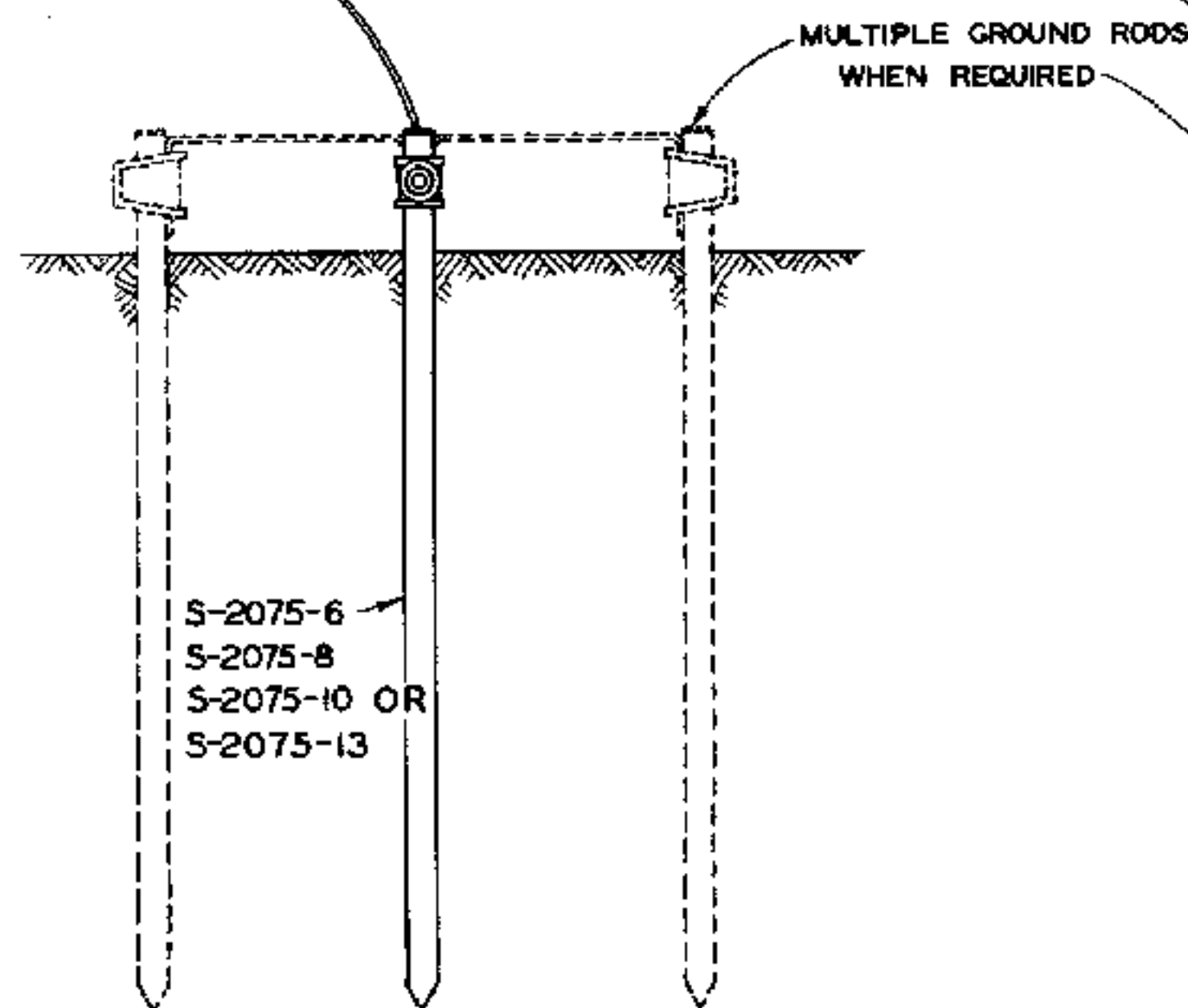
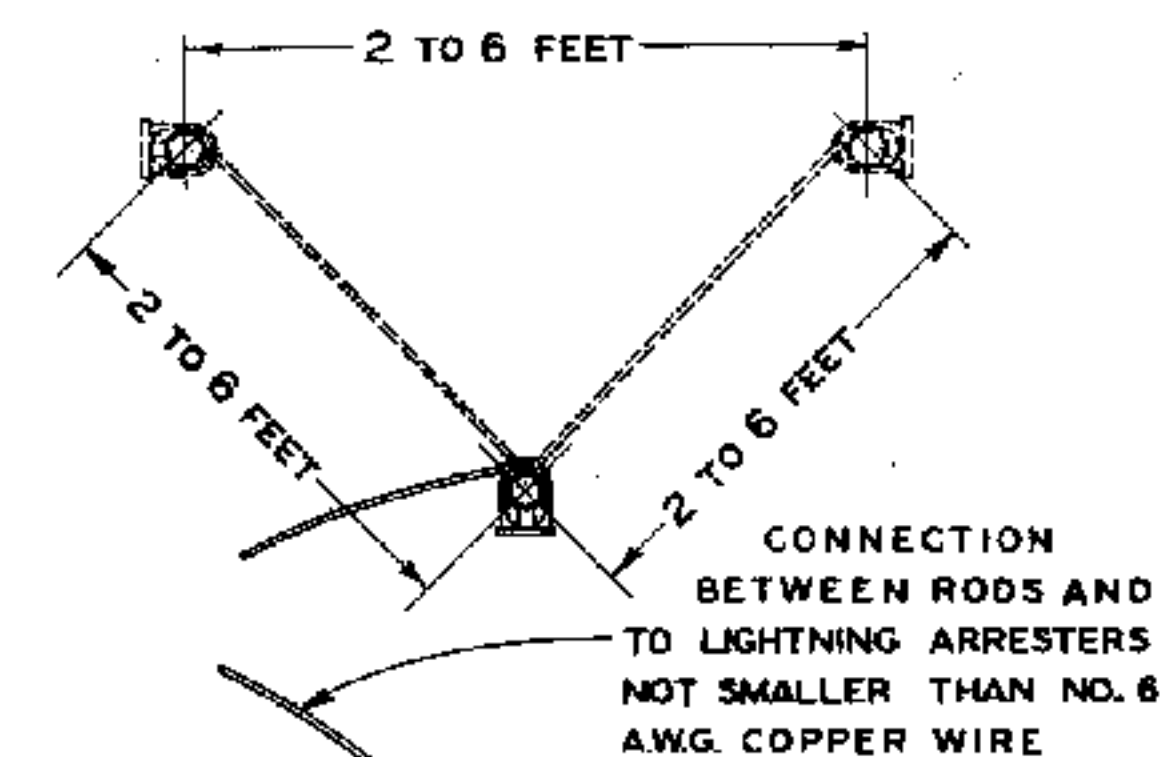
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD GROUND RODS AND CLAMPS

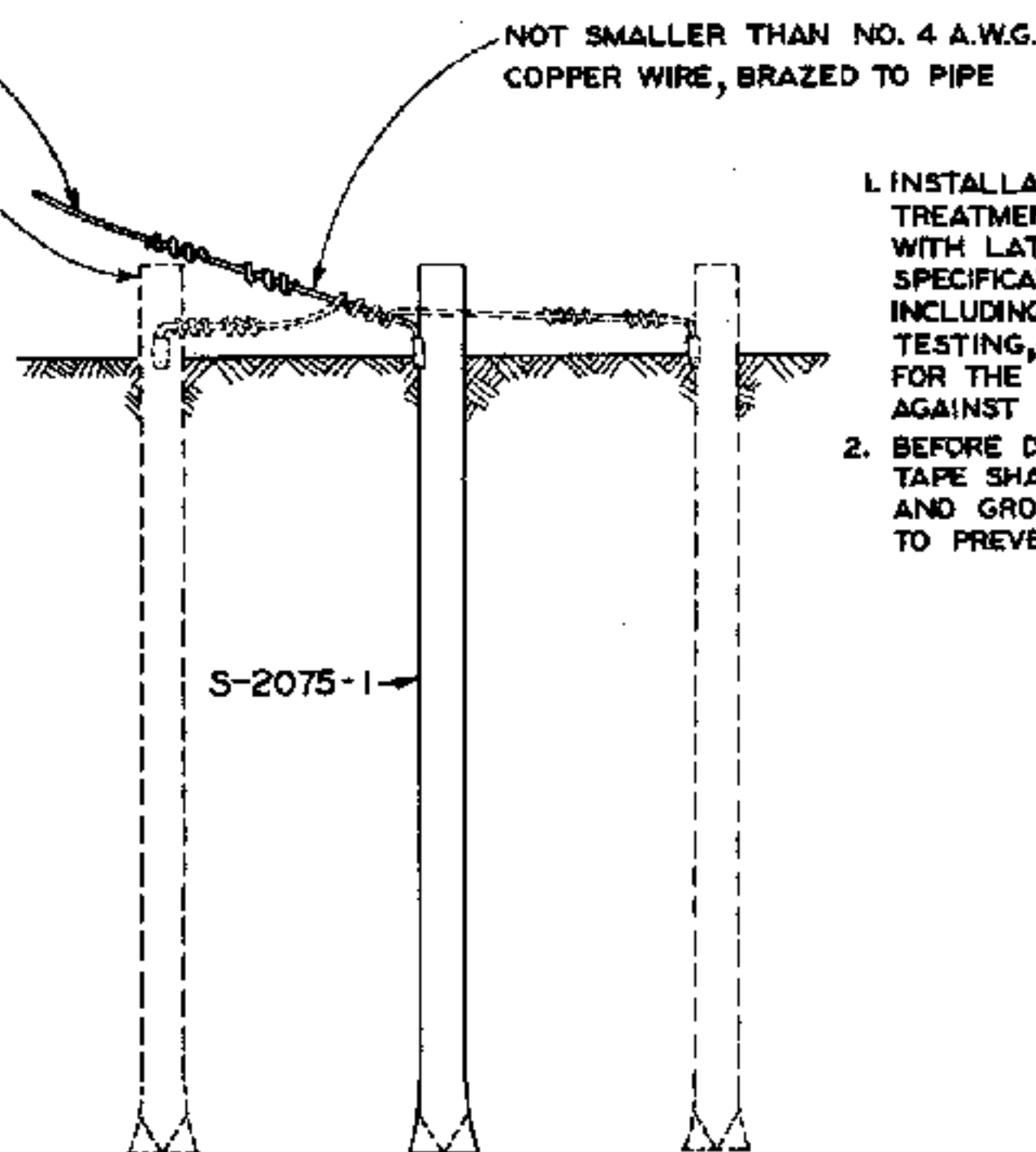
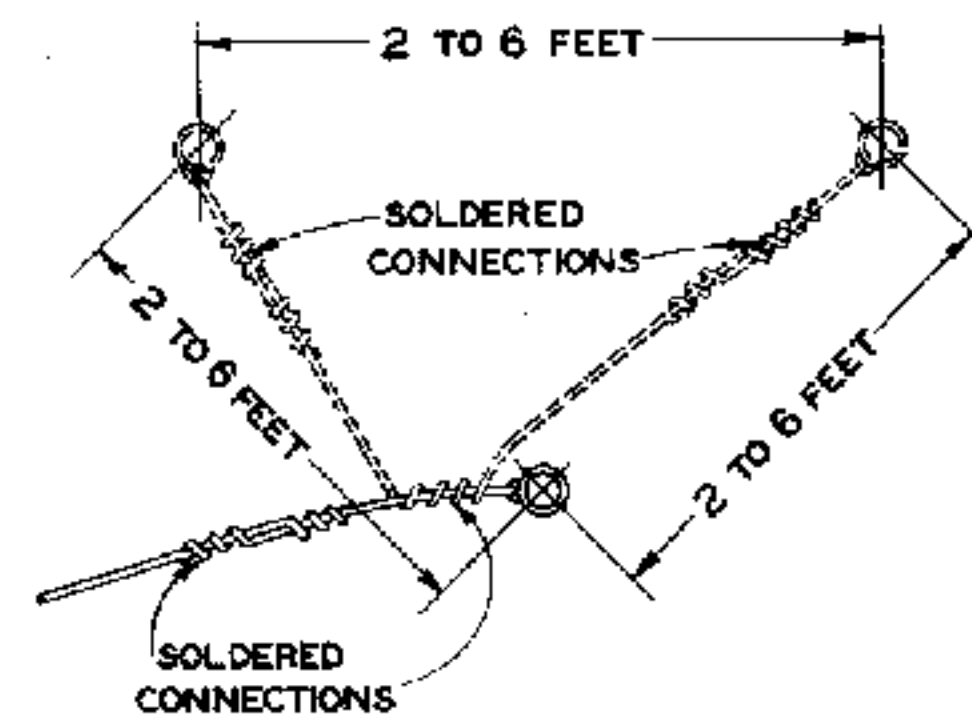
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. H. Wallace
CHAIRMAN

JAN. 20 1947



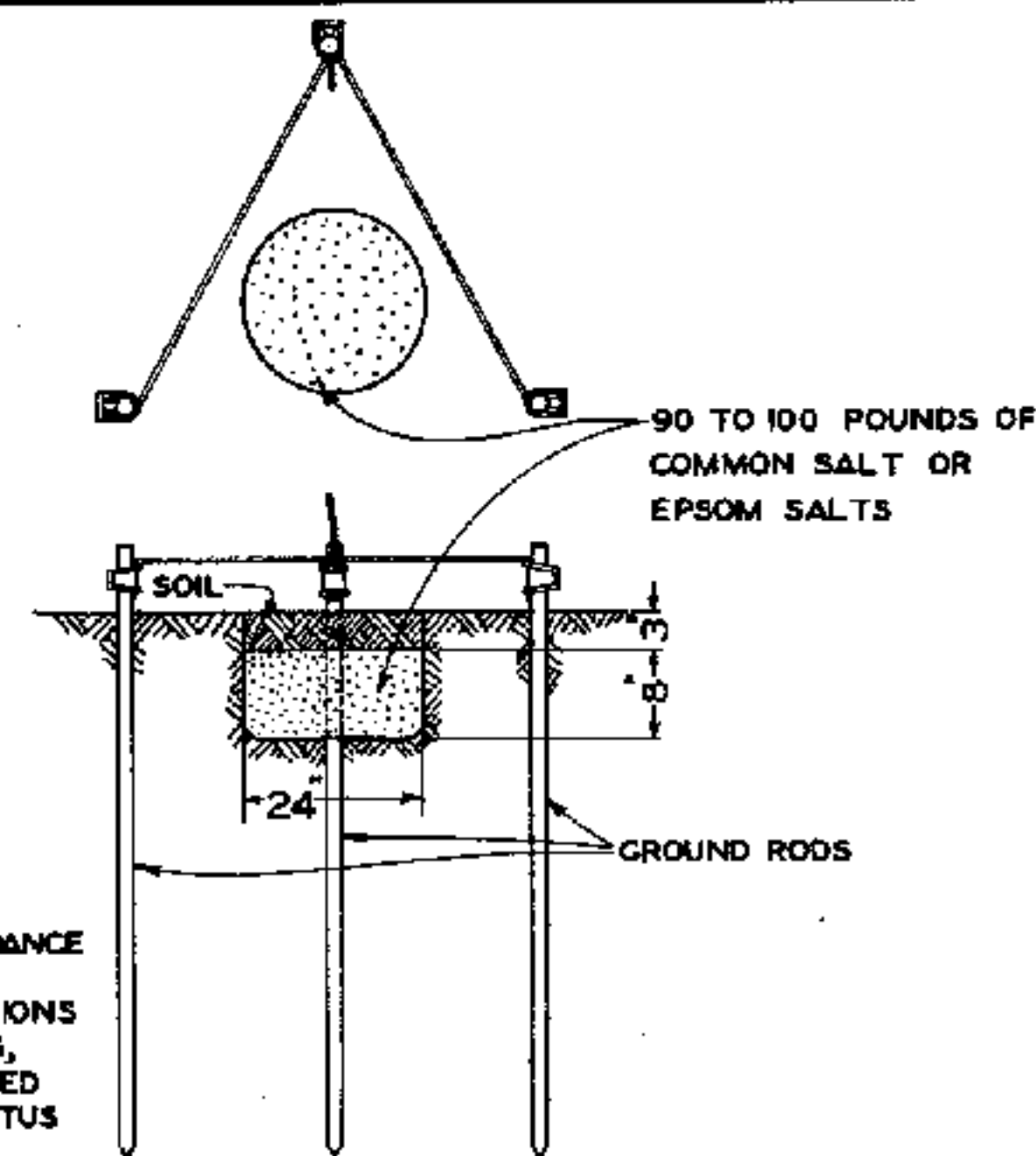
S-2076-1 INSTALLATION OF
COPPER COVERED STEEL
GROUND ROD



S-2076-2 INSTALLATION OF
GALVANIZED SIGNAL PIPE
GROUND ROD

NOTES

1. INSTALLATION OF GROUND RODS AND TREATMENT OF SOIL SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1906, FIELD SPECIFICATIONS INCLUDING INSTRUCTIONS FOR INSTALLING, TESTING, AND MAINTAINING GROUNDS USED FOR THE PROTECTION OF SIGNAL APPARATUS AGAINST LIGHTNING.
2. BEFORE DRIVING, SEVERAL TURNS OF FRICTION TAPE SHALL BE PLACED AROUND ROD S-2075-1 AND GROUND WIRE AT POINT BRAZED TO PREVENT BREAKAGE OF WIRE.



S-2076-3 METHOD OF SOIL TREATMENT

NO SCALE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

A. C. McMaster
EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY

H. W. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

E. W. Davis
PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

M. M. Leland
VICE PRES. AND GEN. MGR.

C.B.P. W.S.E. W.N.H.

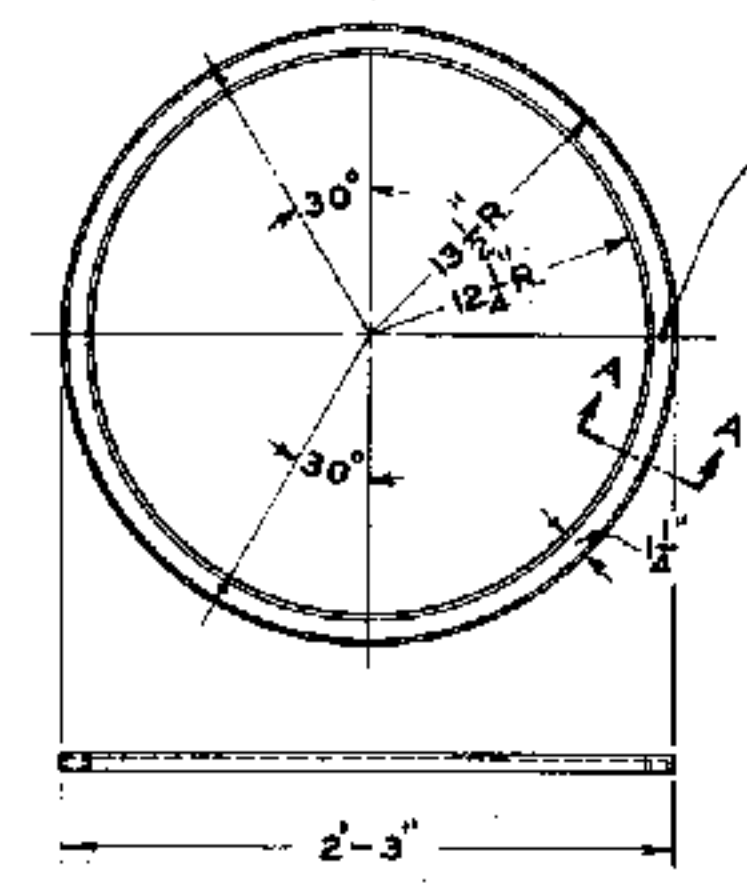
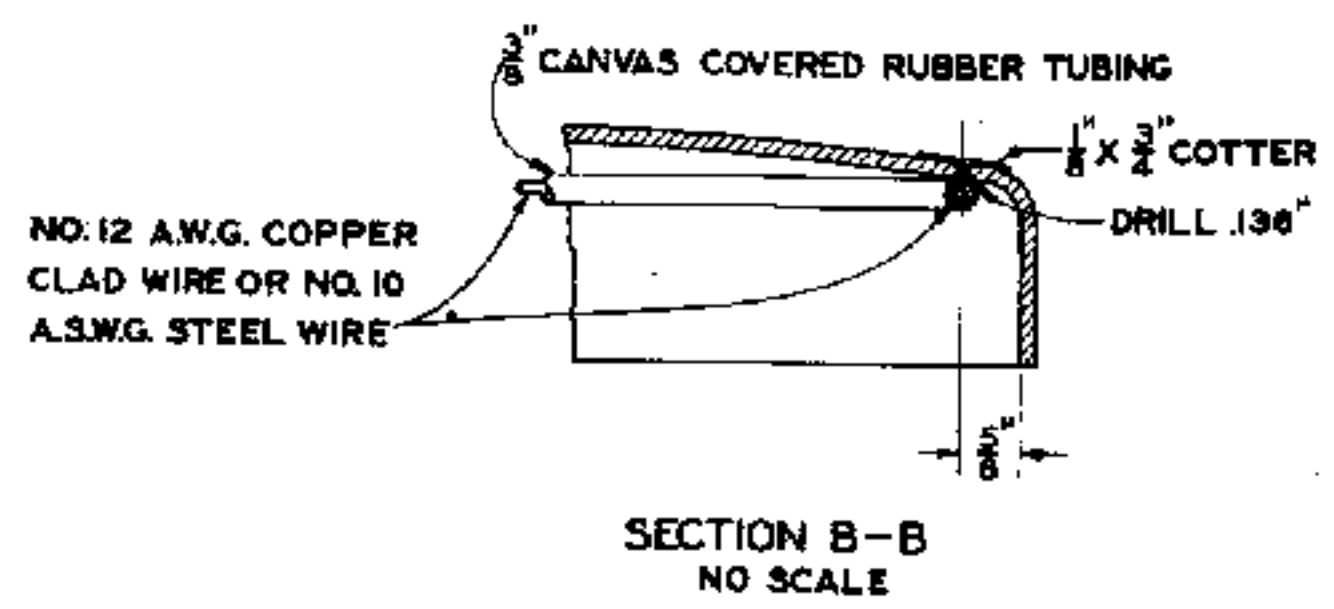
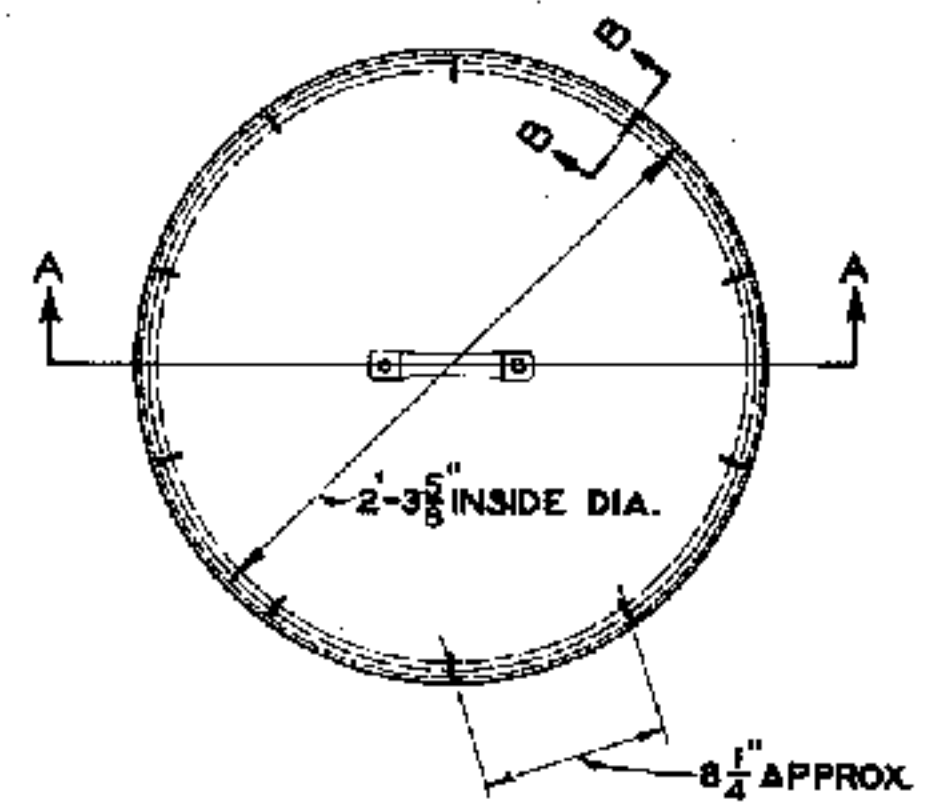
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD GROUND ROD INSTALLATION AND METHOD OF SOIL TREATMENT

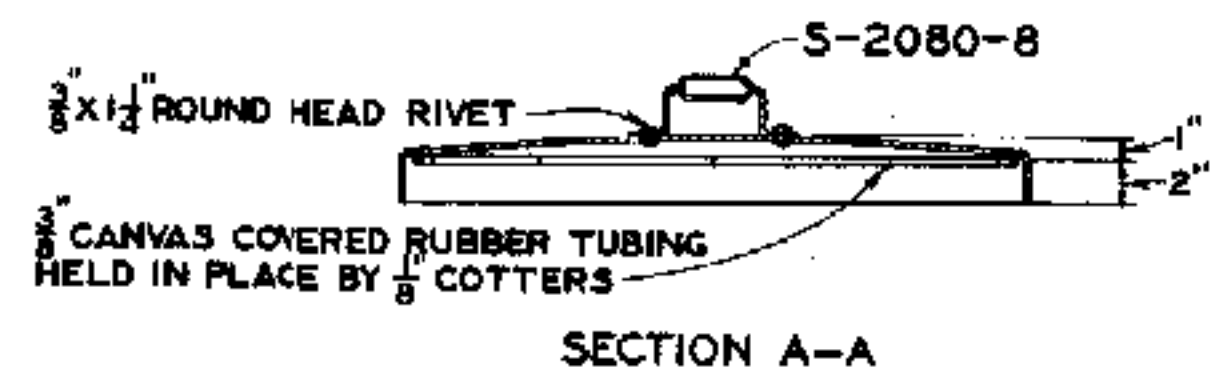
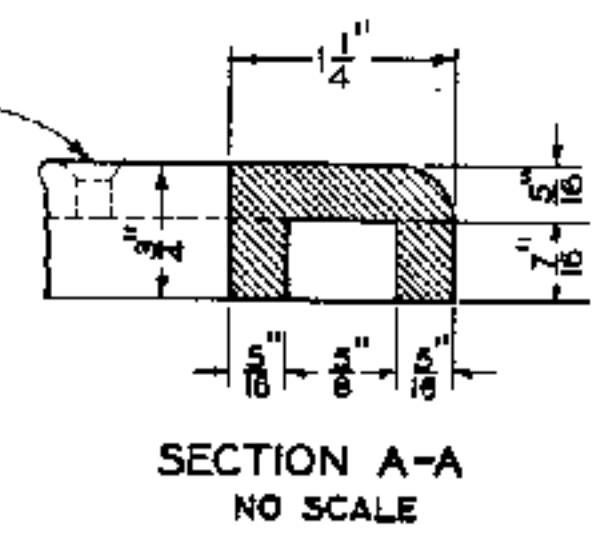
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

JAN. 7, 1947



S-2079-7 TOP RING
CAST IRON



S-2079-6 COVER COMPLETE
* 10 U.S. STANDARD GAGE STEEL, PRESSED

NOTES

1. METALLIC PARTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. METAL COVER SHALL BE PRESSED FROM PLATE, FREE FROM DEFECTS AND IN ONE PIECE.

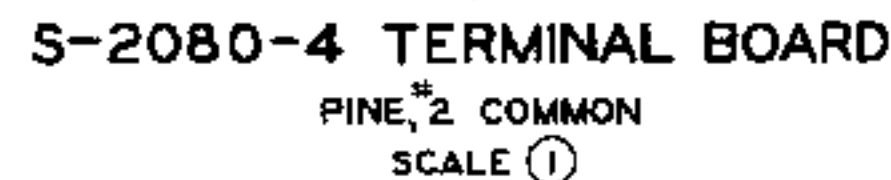


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THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C. B. P.	W. S. E.	W. N. H.
K. L. M.		

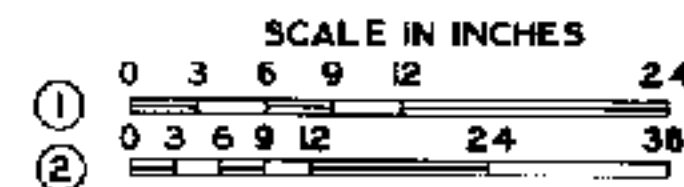
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SIX CELL CONCRETE BATTERY WELL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
[Signature]
CHAIRMAN
SEPT. 14 1944



1. BATTERY WELL SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 3000 POUNDS PER SQUARE INCH.
2. METALLIC PARTS, NOT GALVANIZED, SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. TERMINAL BOARDS AND SLAT FLOOR SHALL BE FURNISHED PAINTED TWO COATS OF INSULATING PAINT.



THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE
RAILWAY COMPANY

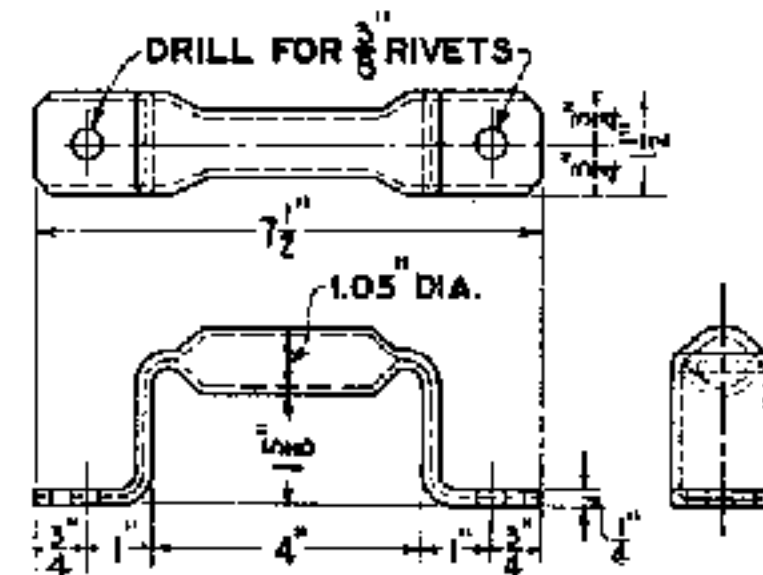
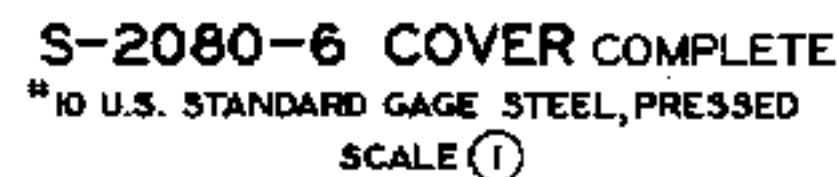
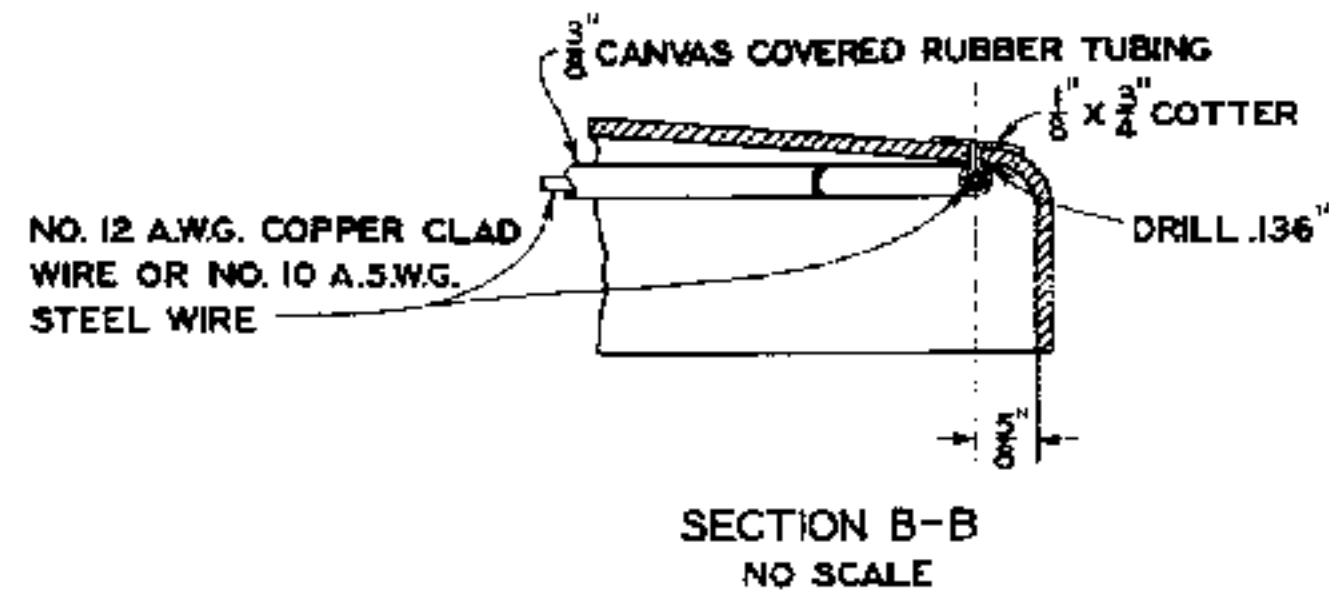
C. B. P.	C. D. M.	A. J. P.
K. L. M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD TEN CELL CONCRETE BATTERY WELL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAY 17, 1932.
CHIEF ENGINEER

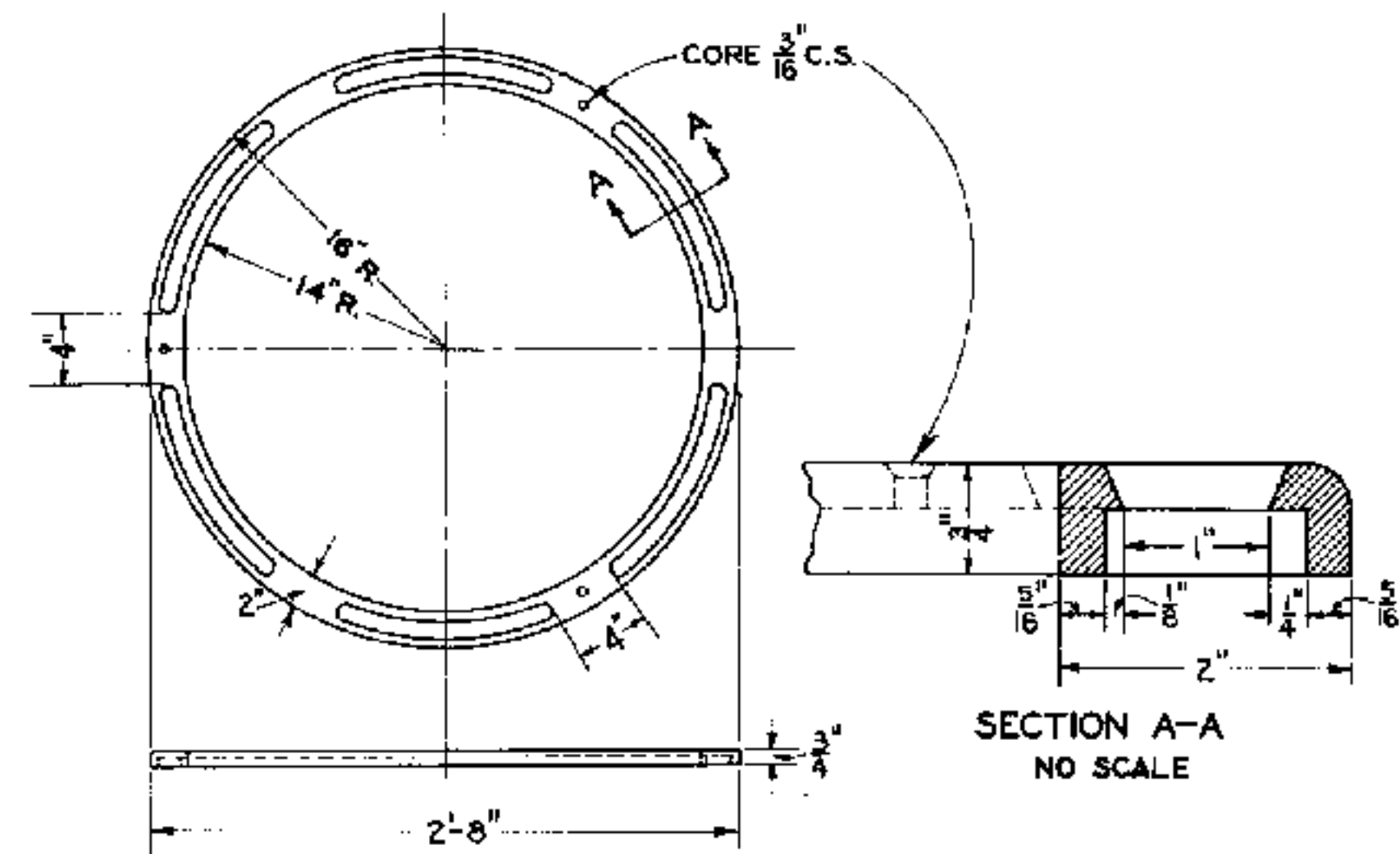
SHEET 1 OF 2
S-2080



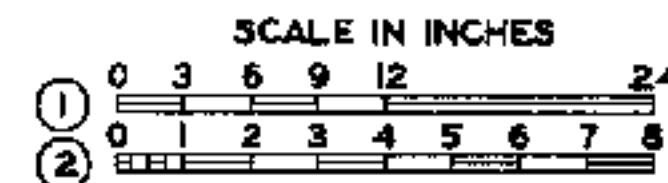
S-2080-8 HANDLE
 $\frac{3}{4}$ " WROUGHT IRON PIPE (1.05" O.D.)
 SCALE (2)

NOTES

1. METALLIC PARTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 3-150, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. METAL COVER SHALL BE PRESSED FROM PLATE, FREE FROM DEFECTS AND IN ONE PIECE.



S-2080-7 TOP RING
CAST IRON
SCALE (1)



APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE
RAILWAY COMPANY

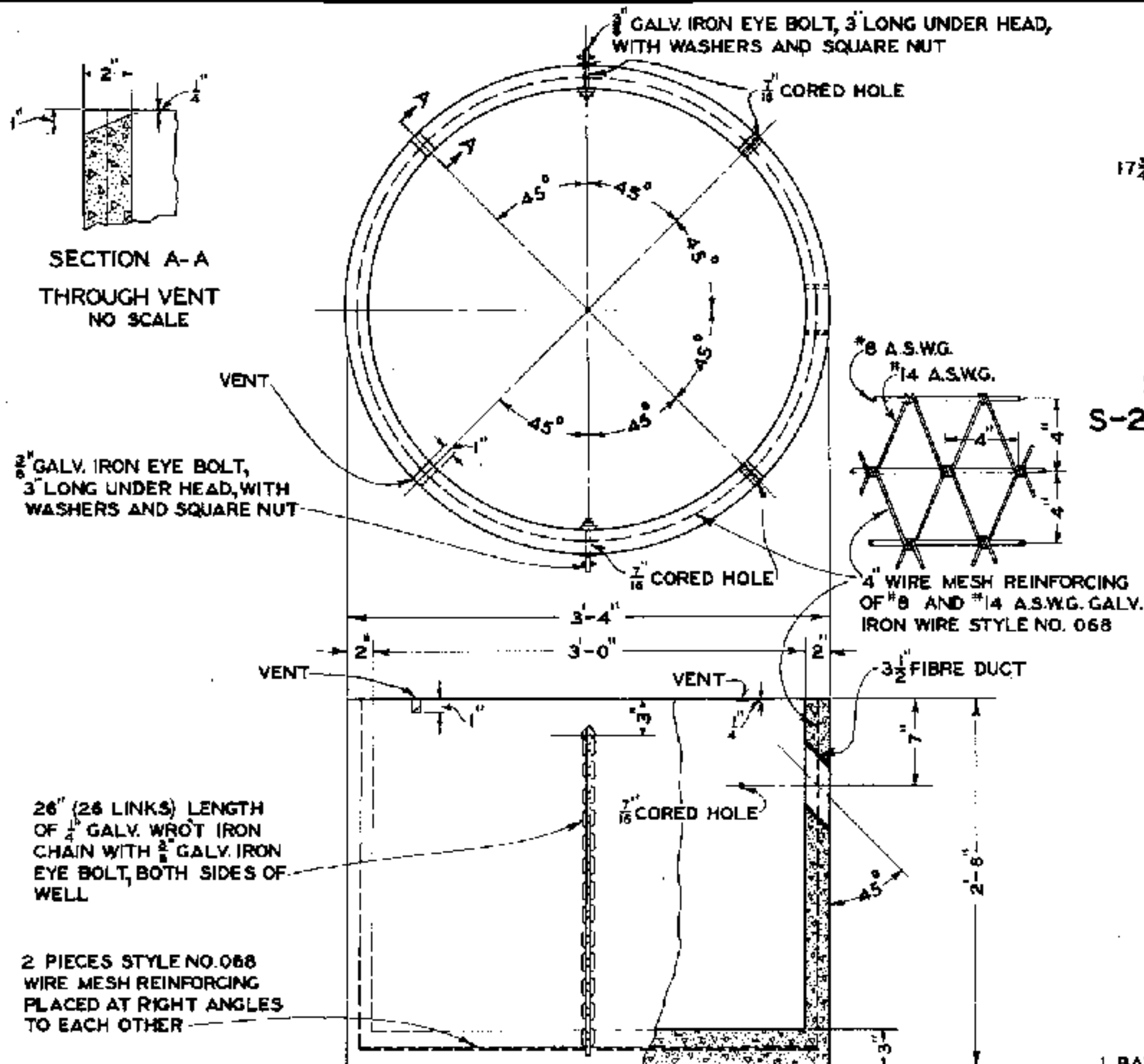
C. B. P.	C. D. M.	A. J. P.
K. L. M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD TEN CELL CONCRETE BATTERY WELL

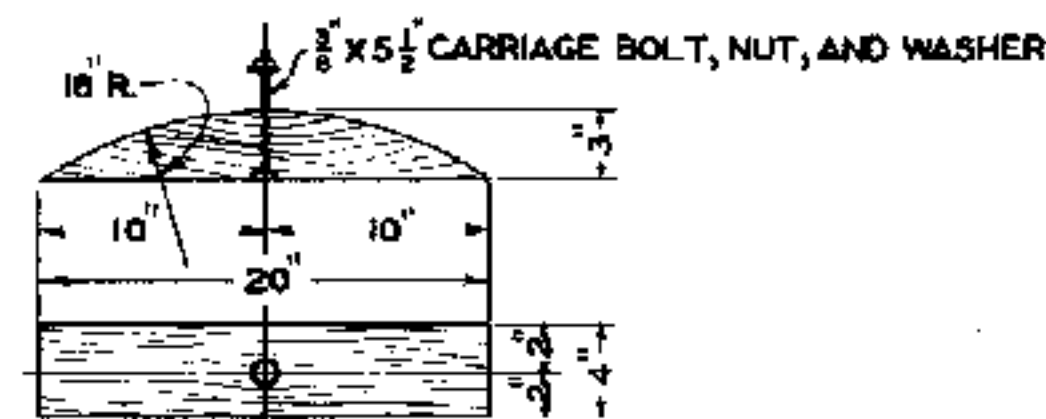
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Donald* MAY 17, 1932.
CHIEF ENGINEER

SHEET 2 OF 2
S-2080



S-2081-5 SIXTEEN CELL BATTERY WELL ONLY
STONE IN AGGREGATE SHALL NOT EXCEED $\frac{3}{4}$ "
SCALE (1)

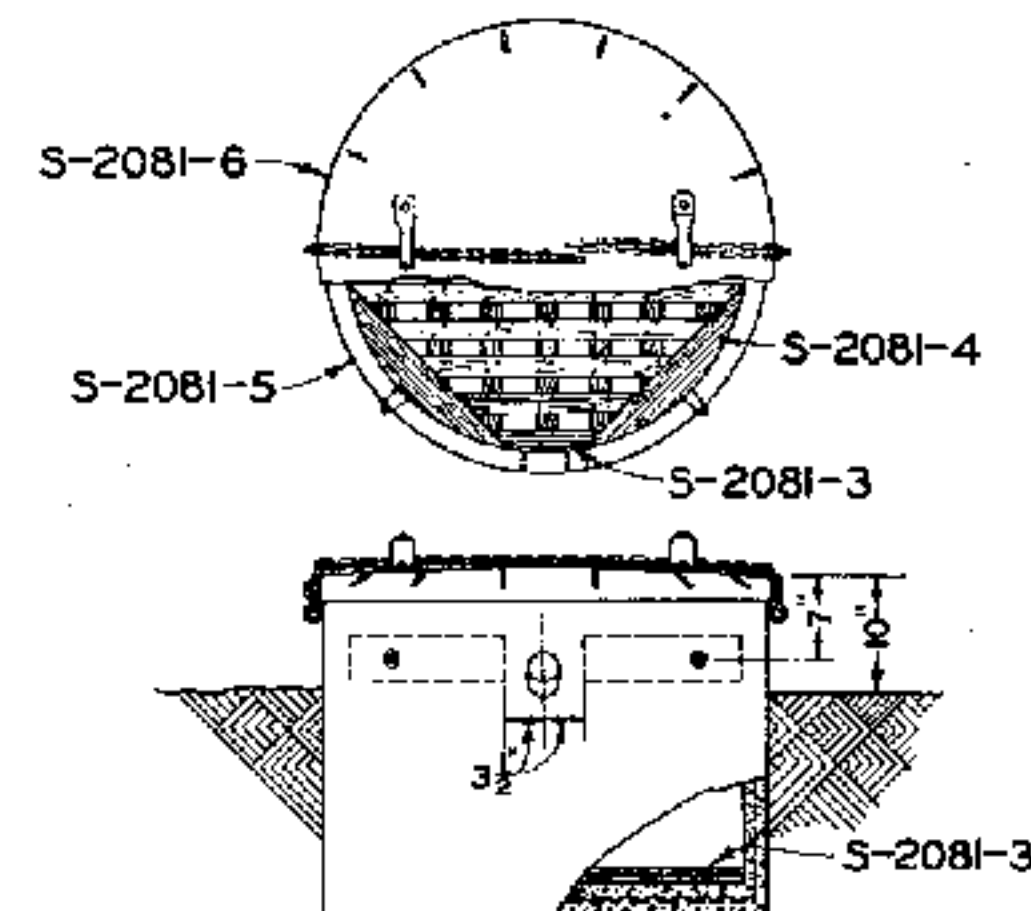
S-2081-2 SLAT FLOOR SECTION
S-2081-3 SLAT FLOOR COMPLETE (2 SECTIONS)
PINE, #2 COMMON
SCALE (1)



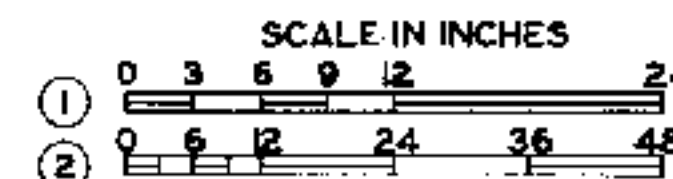
S-2081-4 TERMINAL BOARD
PINE, #2 COMMON
SCALE (1)

NOTES

1. BATTERY WELL SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 3000 POUNDS PER SQUARE INCH.
2. METALLIC PARTS, NOT GALVANIZED, SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. TERMINAL BOARDS AND SLAT FLOOR SHALL BE FURNISHED PAINTED TWO COATS OF INSULATING PAINT.



S-2081-1 SIXTEEN CELL BATTERY WELL COMP.
SCALE (2)



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

D. M. Moore
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. L. Woodruff
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. L. Woodruff
VICE PRESIDENT

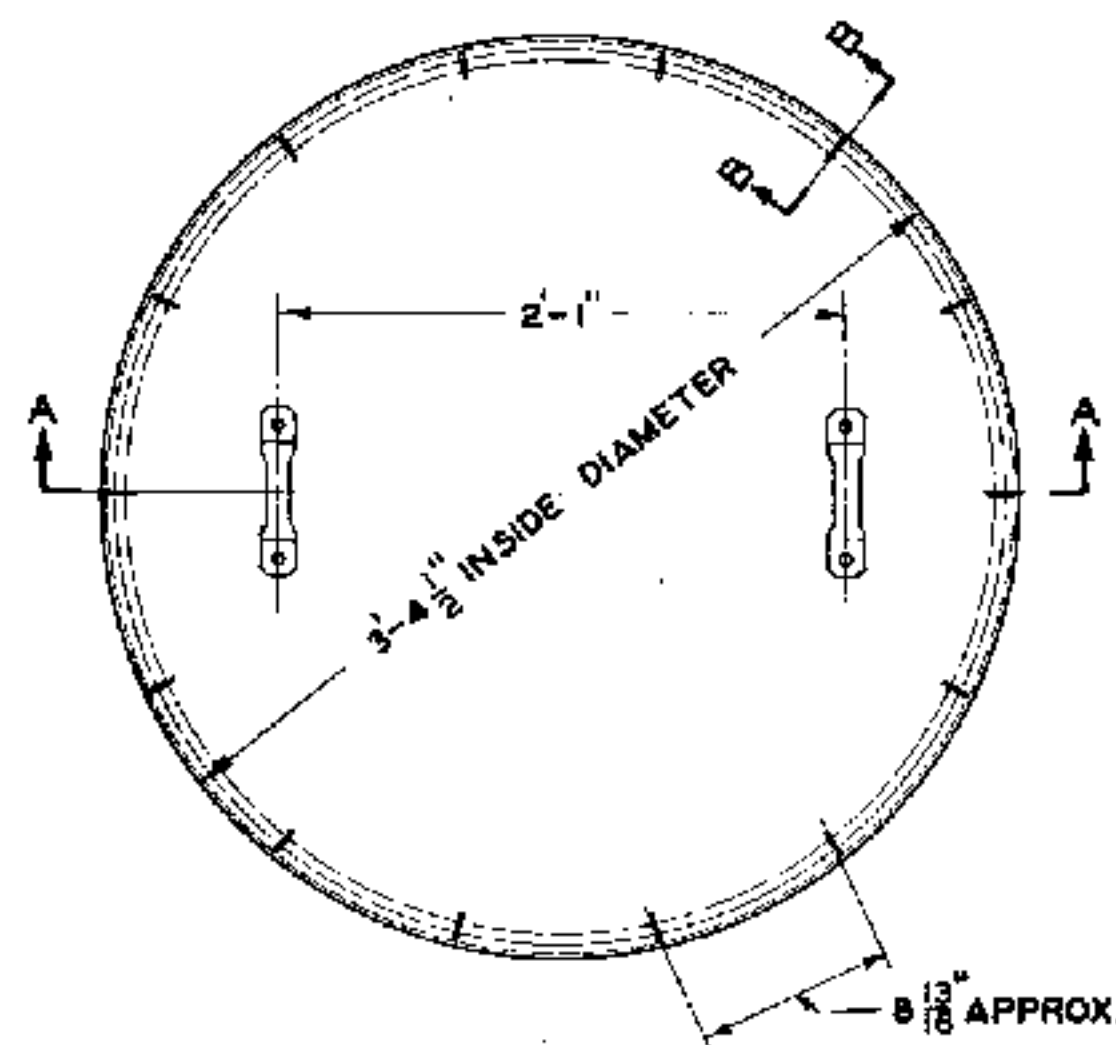
C. B. P. K. L. M. C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

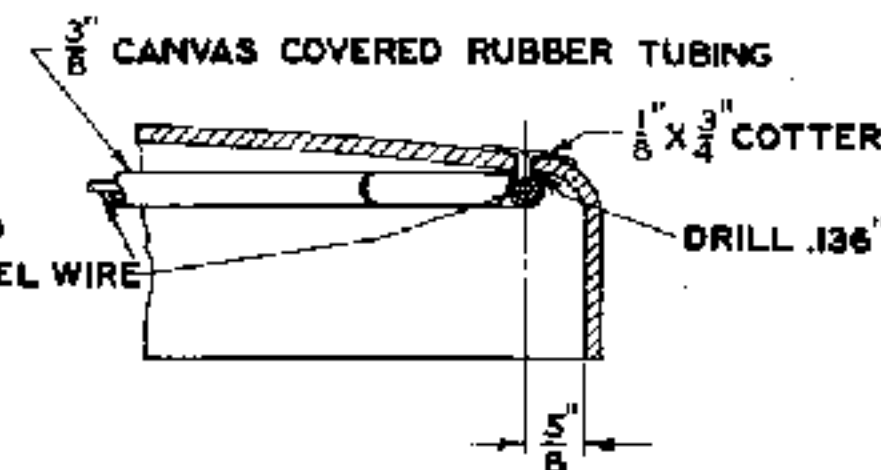
STANDARD SIXTEEN CELL CONCRETE BATTERY WELL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff*
CHIEF ENGINEER
AUG. 16, 1932.

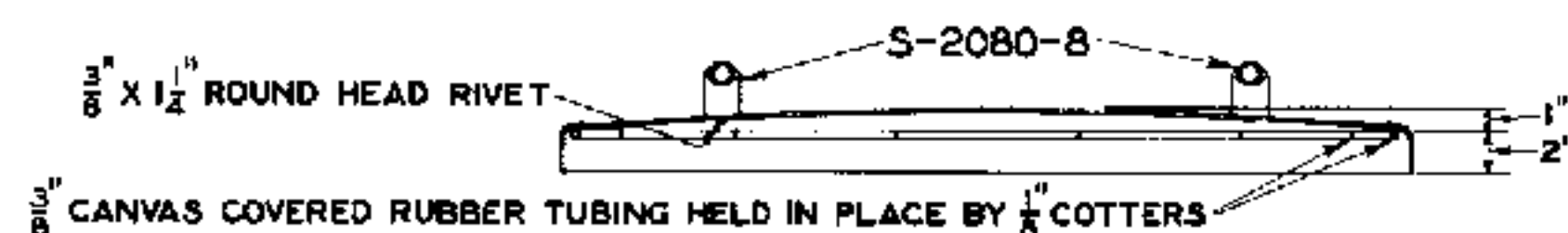
SHEET 1 OF 2
S-2081



NO. 12 A.W.G. COPPER CLAD
WIRE OR NO. 10 A.S.W.G. STEEL WIRE



SECTION B-B
NO SCALE

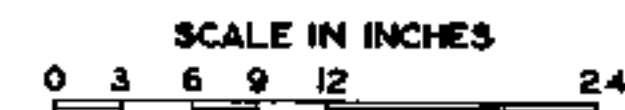


SECTION A-A

S-2081-6 COVER COMPLETE
#10 U.S. STANDARD GAGE STEEL, PRESSED

NOTES

1. METAL COVER SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. METAL COVER SHALL BE PRESSED FROM PLATE, FREE FROM DEFECTS AND IN ONE PIECE.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C.B.P.	C.D.M.	A.J.P.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SIXTEEN CELL CONCRETE BATTERY WELL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* AUG. 16, 1932.
CHIEF ENGINEER

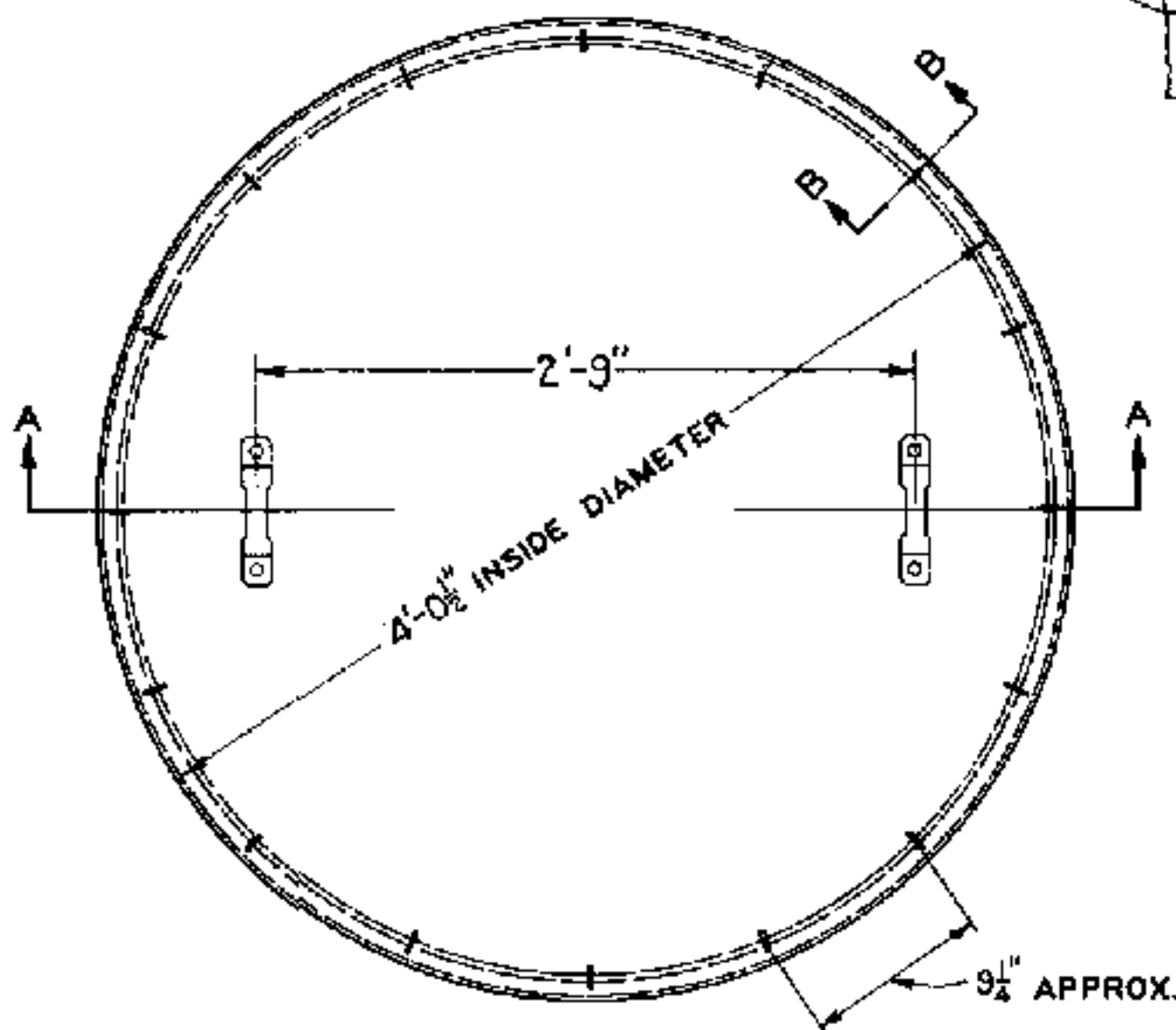
SHEET 2 OF 2
S-2081

NO. 12 A.W.G. COPPER CLAD WIRE
OR NO. 10 A.S.W.G. STEEL WIRE

$\frac{3}{8}$ " CANVAS COVERED RUBBER TUBING

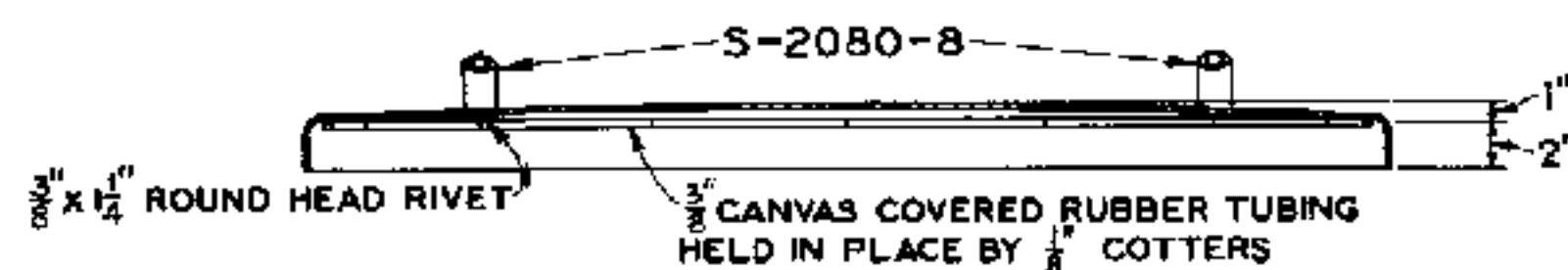
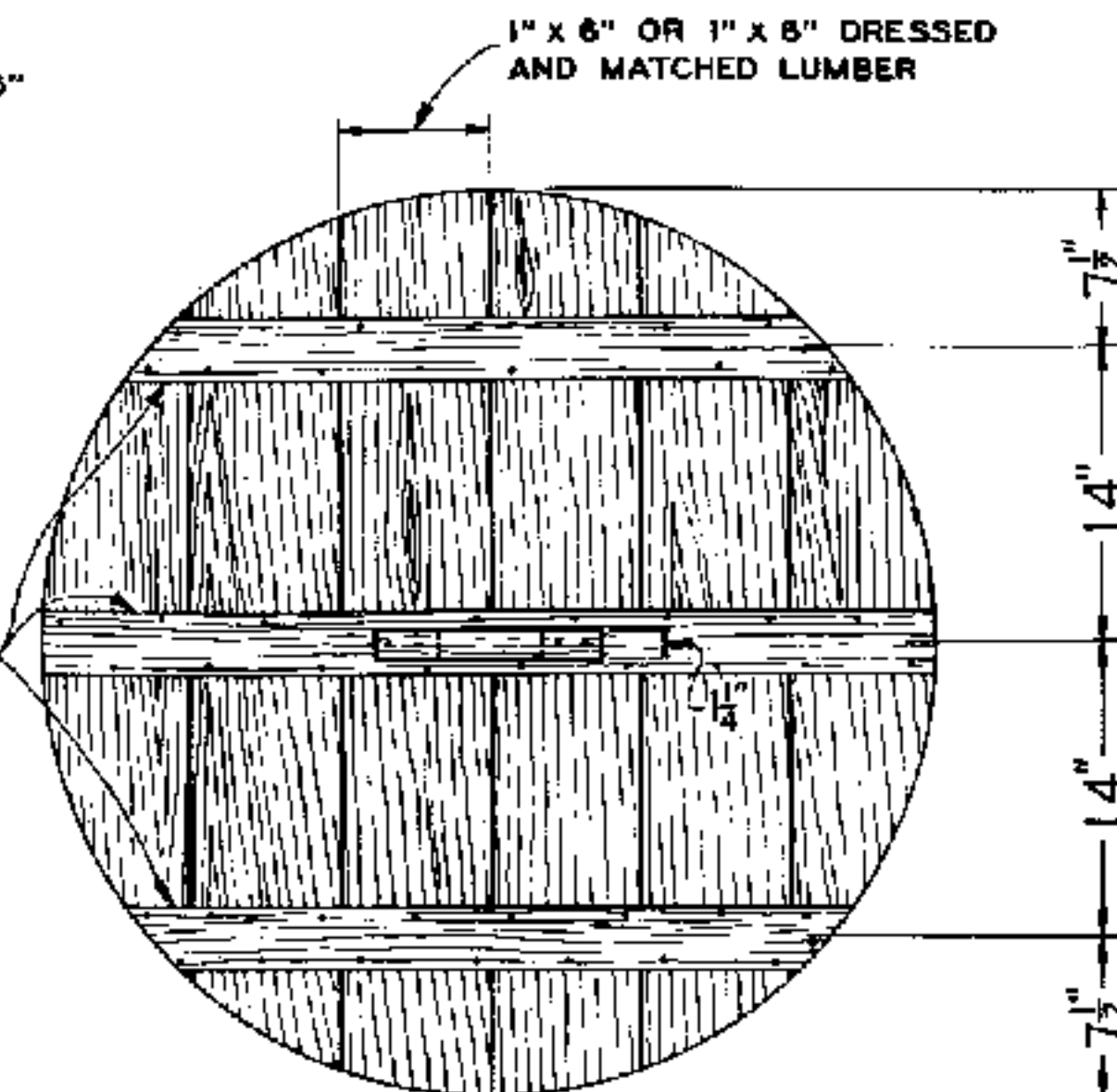
$\frac{1}{8}$ " x $\frac{3}{4}$ " COTTER

DRILL .136"



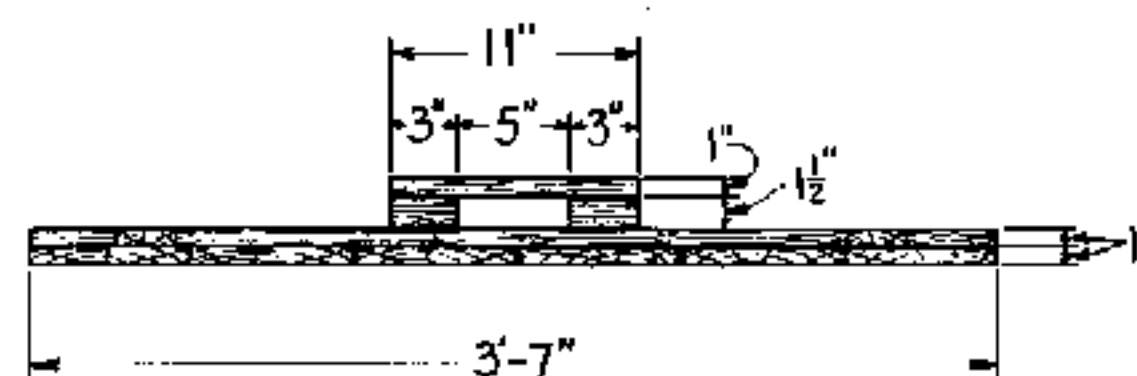
SECTION B-B
NO SCALE

1" x 3" BATTENS ROUGH
SIZE, SURFACED FOUR
SIDES SHALL BE NAILED
WITH 5 d NAILS,
CLINCHED ON BOTTOM



SECTION A-A

S-2082-6 COVER COMPLETE
*7 U.S. STANDARD GAGE STEEL, PRESSED



S-2082-7 WOOD FROST COVER
PINE, *2 COMMON

NOTES

1. METAL COVER SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. FROST COVER SHALL BE FURNISHED PAINTED TWO COATS OF INSULATING PAINT.
3. METAL COVER SHALL BE PRESSED FROM PLATE, FREE FROM DEFECTS AND IN ONE PIECE.

SCALE IN INCHES.
0 3 6 9 12 24

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

G. D. Woodruff
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

E. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

A. J. P.
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

A. J. P.
VICE PRESIDENT

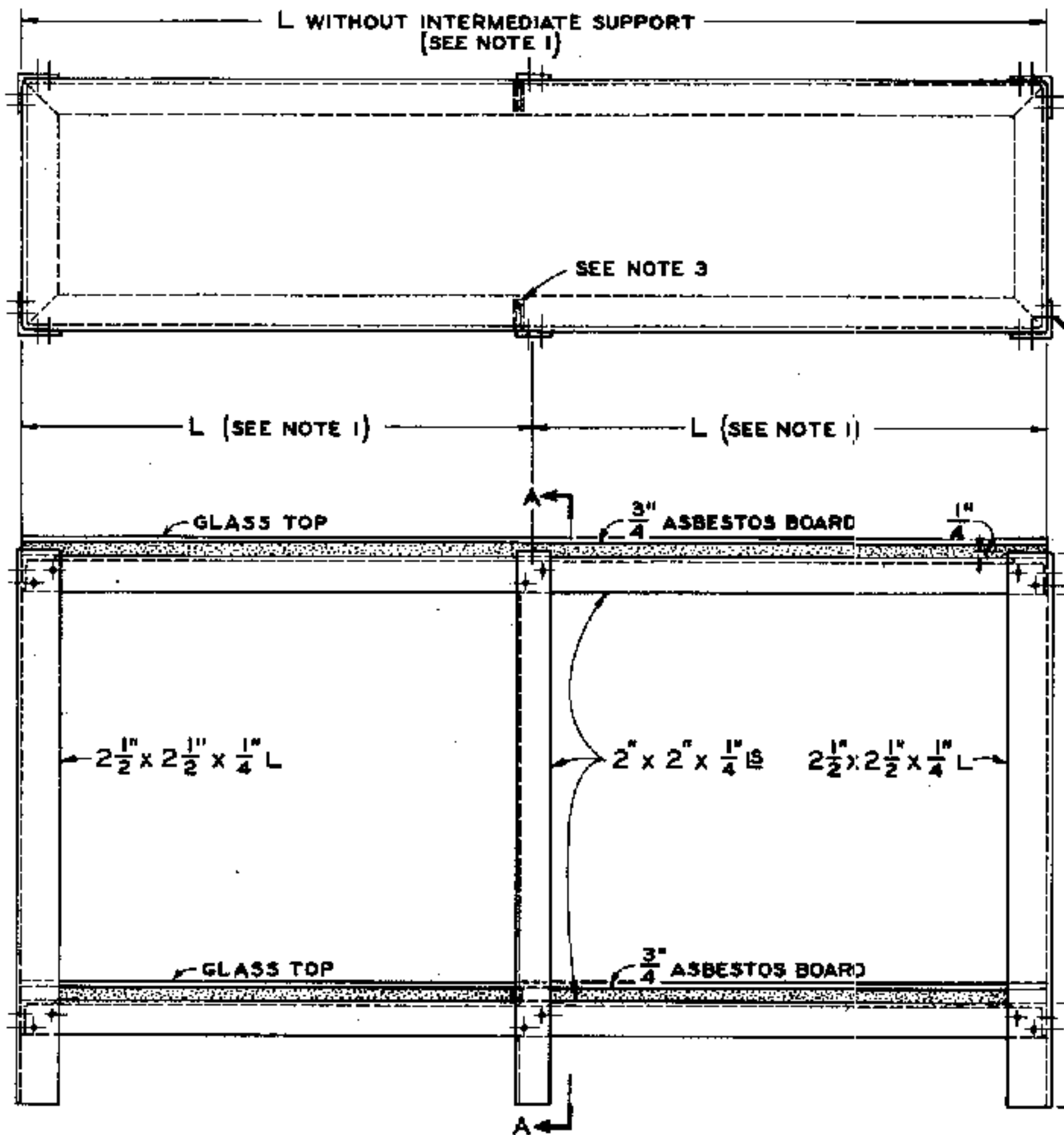
C. B. P. C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD TWENTY-FOUR CELL CONCRETE BATTERY WELL

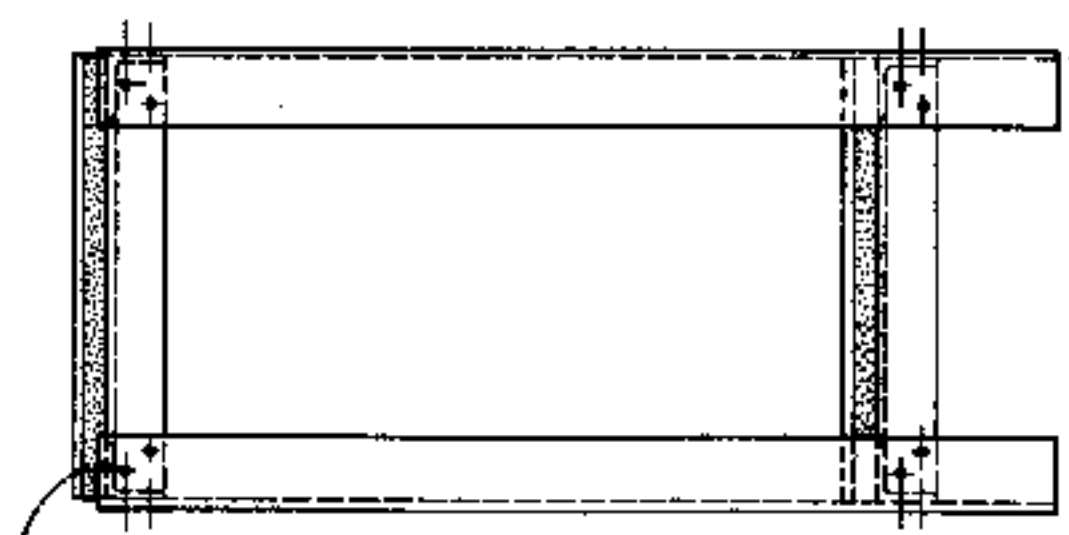
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *A. J. P.* MAY 17, 1932.
CHIEF ENGINEER

SHEET 2 OF 2
S-2082

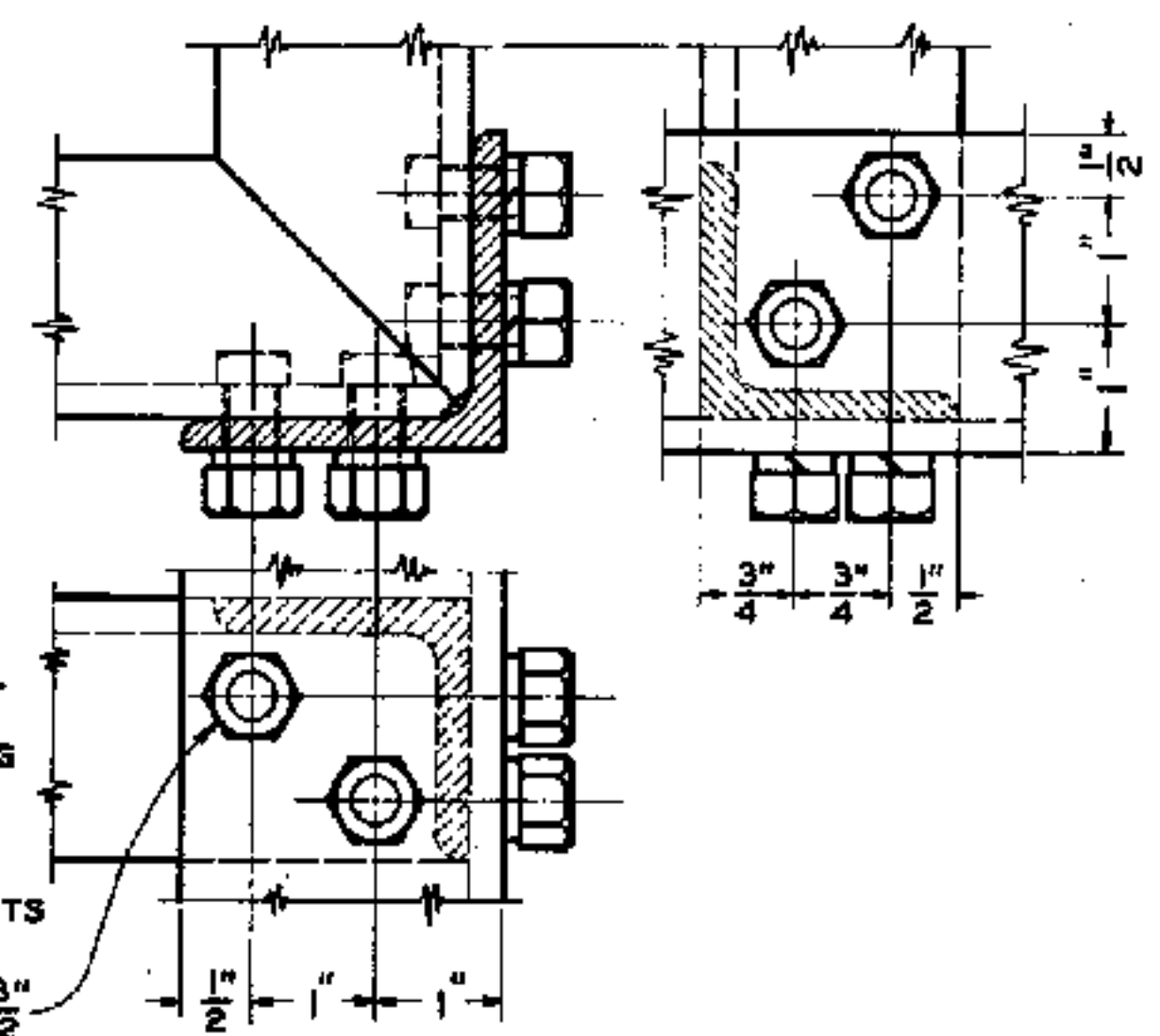


S-2083-1 BATTERY RACK

CAPACITY OF RACK SHALL BE DETERMINED BY LOCAL REQUIREMENTS



S-2083-2 DETAIL OF INTERMEDIATE SUPPORT



S-2083-3 DETAIL OF CORNER SUPPORT

SECTION A-A

NOTES

1. L = 5'-0" MAXIMUM FOR MAXIMUM UNIFORMLY DISTRIBUTED LOAD OF 342 POUNDS PER LINEAL FOOT. L = 6'-6" MAXIMUM FOR MAXIMUM UNIFORMLY DISTRIBUTED LOAD OF 171 POUNDS PER LINEAL FOOT.
2. ANGLE IRON CONNECTIONS MAY BE WELDED, RIVETED, OR BOLTED.
3. LOWER ASBESTOS BOARD SHALL BE NOTCHED AS SHOWN, TO FIT FREELY AROUND INTERMEDIATE SUPPORTING ANGLE WHEN USED.
4. ALL PARTS OF BATTERY RACK SHALL BE PAINTED WITH ACID RESISTING PAINT.
5. TOP OF ASBESTOS BOARDS SHALL BE PAINTED LIGHT GRAY.

NO SCALE

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
K. L. M.	W. S. E.	W. N. H.
C. B. P.		

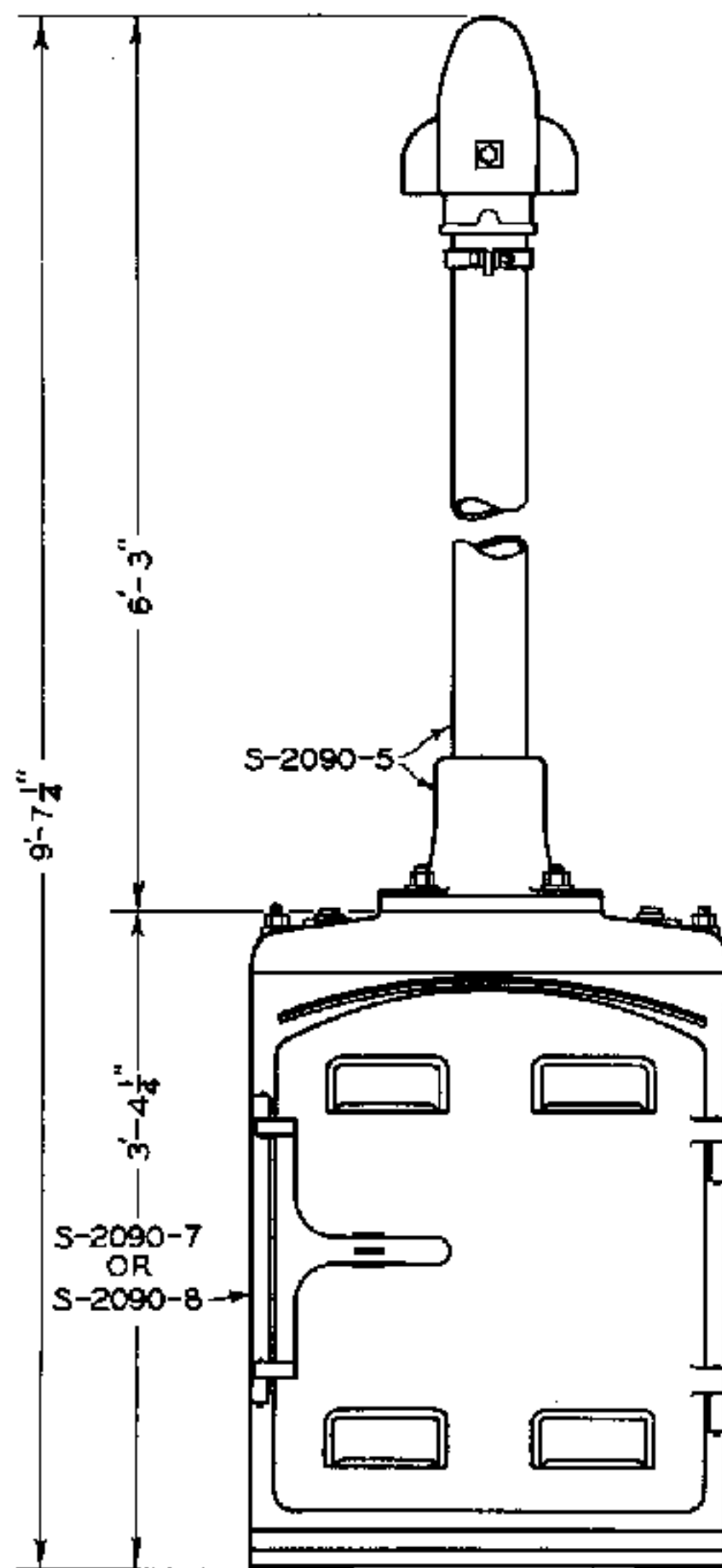
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD BATTERY RACK

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

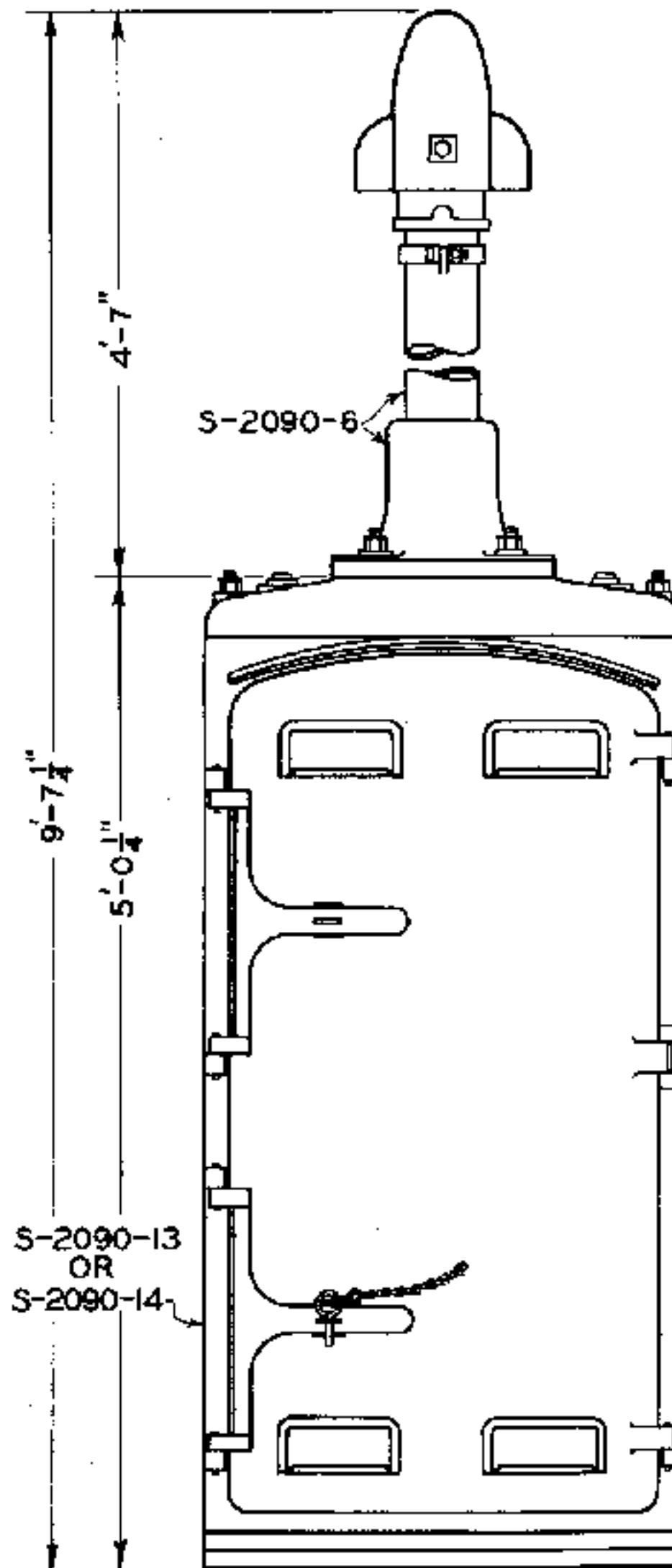
[Signature]
 CHAIRMAN

JUNE 28, 1944



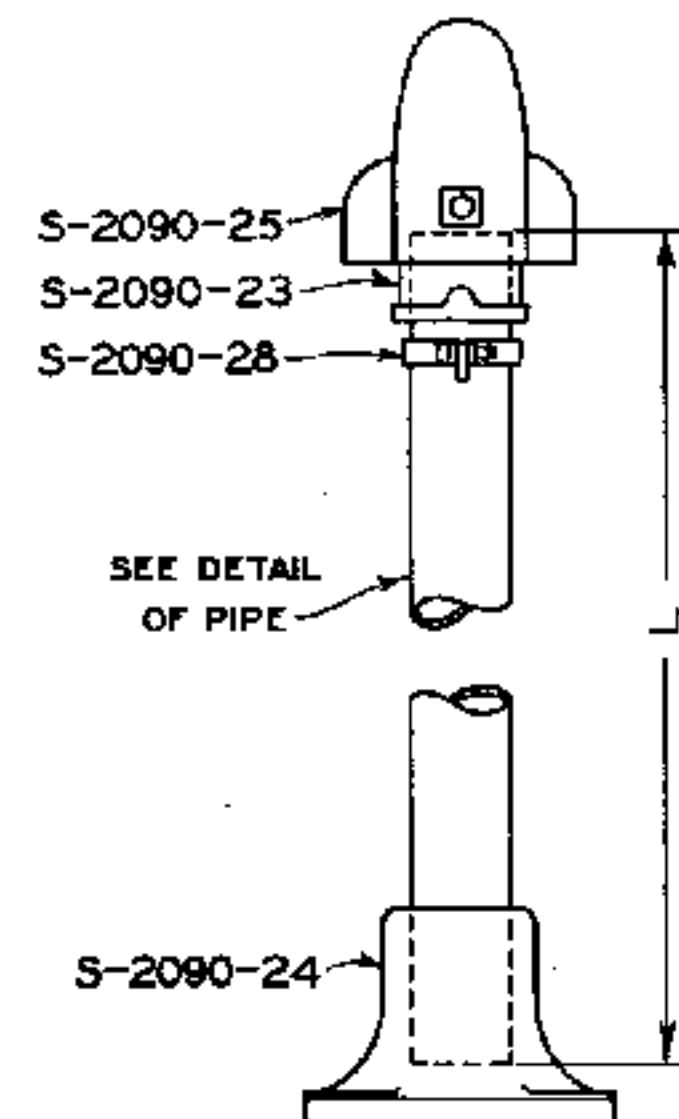
S-2090-1 INSTRUMENT CASE COMPLETE
AS SHOWN WITH LINING S-2090-31

S-2090-2 INSTRUMENT CASE COMPLETE
AS SHOWN WITHOUT LINING



S-2090-3 INSTRUMENT CASE COMPLETE
AS SHOWN WITH LINING S-2090-32

S-2090-4 INSTRUMENT CASE COMPLETE
AS SHOWN WITHOUT LINING



S-2090-5 CABLE POST COMPLETE
FOR USE ON INSTRUMENT CASE 3'-4 1/4" HIGH, L = 5'-3"

S-2090-6 CABLE POST COMPLETE
FOR USE ON INSTRUMENT CASE 5'-0 1/4" HIGH, L = 3'-7"



4 INCH PIPE SECTION
WROUGHT IRON OR STEEL

NOTE

INSTRUMENT CASES AND CABLE POST SHALL
BE FURNISHED PAINTED IN ACCORDANCE WITH
LATEST REVISION OF STANDARD SPECIFICATIONS
S-1510, SHOP AND FIELD PAINTING FOR SIGNAL
AND INTERLOCKING APPARATUS, EXCEPT FINISHING
COAT OF BLACK ON EXTERIOR SURFACES SHALL
BE OMITTED.

SCALE IN INCHES
0 3 6 9 12 15 18 21 24

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

D. W. O'Connell
VICE PRESIDENT

ERIE RAILROAD COMPANY

E. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

D. W. O'Connell
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

A. H. Brown
VICE PRESIDENT

C. H. W.
K. L. M.

C. D. M. A. J. P.

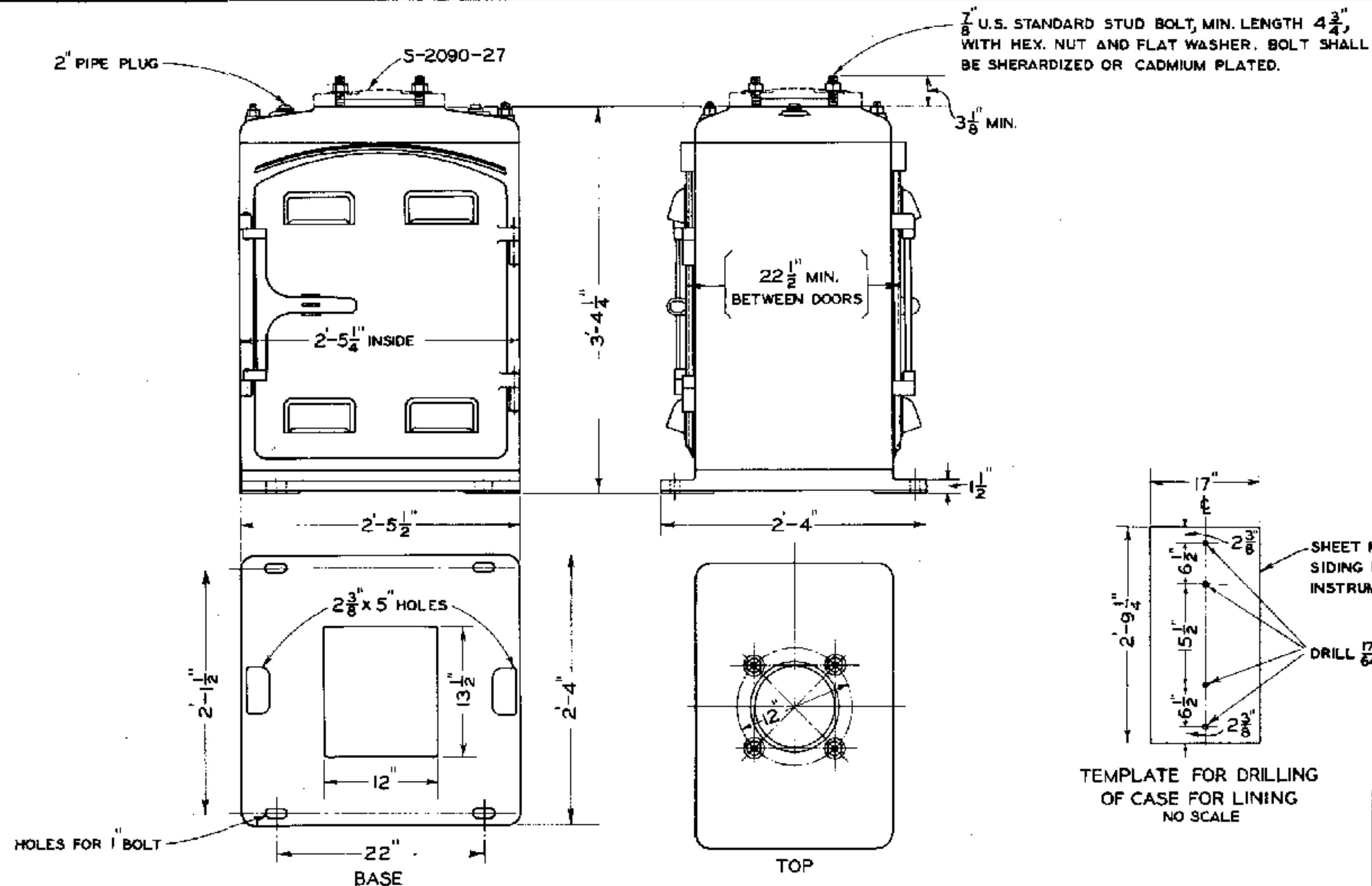
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD INSTRUMENT CASE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *A. H. Brown* JUNE 27, 1933
CHIEF ENGINEER

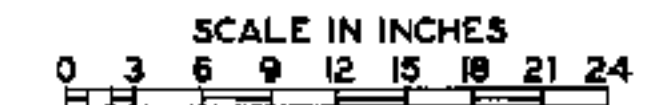
SHEET 1 OF 6

S-2090



NOTE

INSTRUMENT CASE SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.



TEMPLATE FOR DRILLING OF CASE FOR LINING
NO SCALE

S-2090-7 INSTRUMENT CASE ONLY WITH SHIPPING COVER	
S-2090-8	" WITH LINING S-2090-31 AND SHIPPING COVER
S-2090-9	" ONLY WITH COVER S-2090-27
S-2090-10	" WITH LINING S-2090-31 AND COVER S-2090-27
S-2090-11	" " 2" CABLE OUTLET S-2090-22 WITH LINING S-2090-31 AND SHIPPING COVER
S-2090-12	" ONLY WITH 2" CABLE OUTLET S-2090-22 AND SHIPPING COVER

APPROVED FOR USE
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
<i>G. D. Moore</i>
VICE PRESIDENT
ERIE RAILROAD COMPANY
<i>E. H. Woodruff</i>
VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
<i>G. D. Moore</i>
VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY
<i>A. H. Brown</i>
VICE PRESIDENT
C.H.W. C.D.M. A.J.P.
K.L.M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD INSTRUMENT CASE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Churchill* JUNE 27, 1933
CHIEF ENGINEER

SHEET 2 OF 6
S-2090

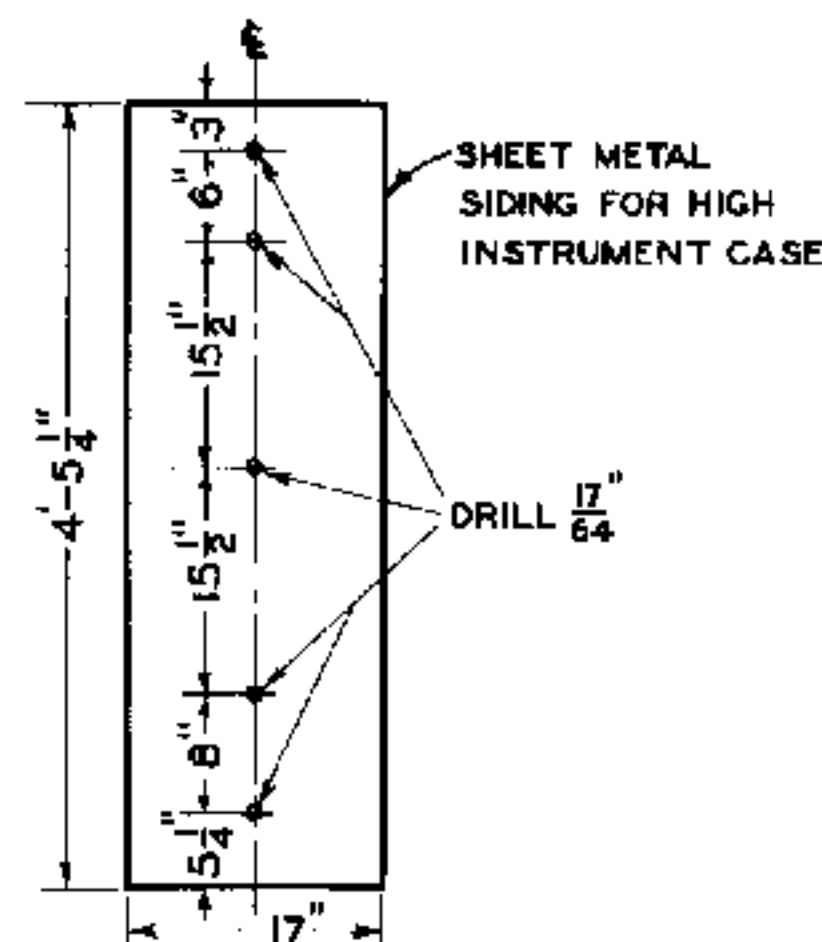
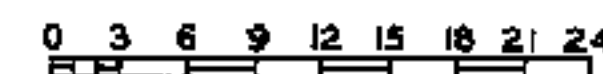


S-2090-13	INSTRUMENT CASE	ONLY WITH SHIPPING COVER
S-2090-14	" "	WITH LINING S-2090-32 AND SHIPPING COVER
S-2090-15	" "	ONLY WITH COVER S-2090-27
S-2090-16	" "	WITH LINING S-2090-32 AND COVER S-2090-27
S-2090-17	" "	" 2" CABLE OUTLET S-2090-22 WITH LINING S-2090-32 AND SHIPPING COVER
S-2090-18	" "	ONLY WITH 2" CABLE OUTLET S-2090-22 AND SHIPPING COVER

NOTES

1. INSTRUMENT CASE SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.
2. INSTRUMENT CASE SHALL BE EQUIPPED WITH APPROVED ENCLOSED TYPE DOOR STOP WHICH MAY BE ARRANGED IN FIELD TO BE EFFECTIVE AT EITHER 90 DEGREE OR 180 DEGREE DOOR OPENING.

SCALE IN INCHES



TEMPLATE FOR DRILLING
OF CASE FOR LINING
NO SCALE

APPROVED FOR USE

THE CINCINNATI AND OHIO
RAILWAY COMPANY

KNIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE
RAILWAY COMPANY

C.H.W.	C.D.M.	A.J.P.
K.L.M.		

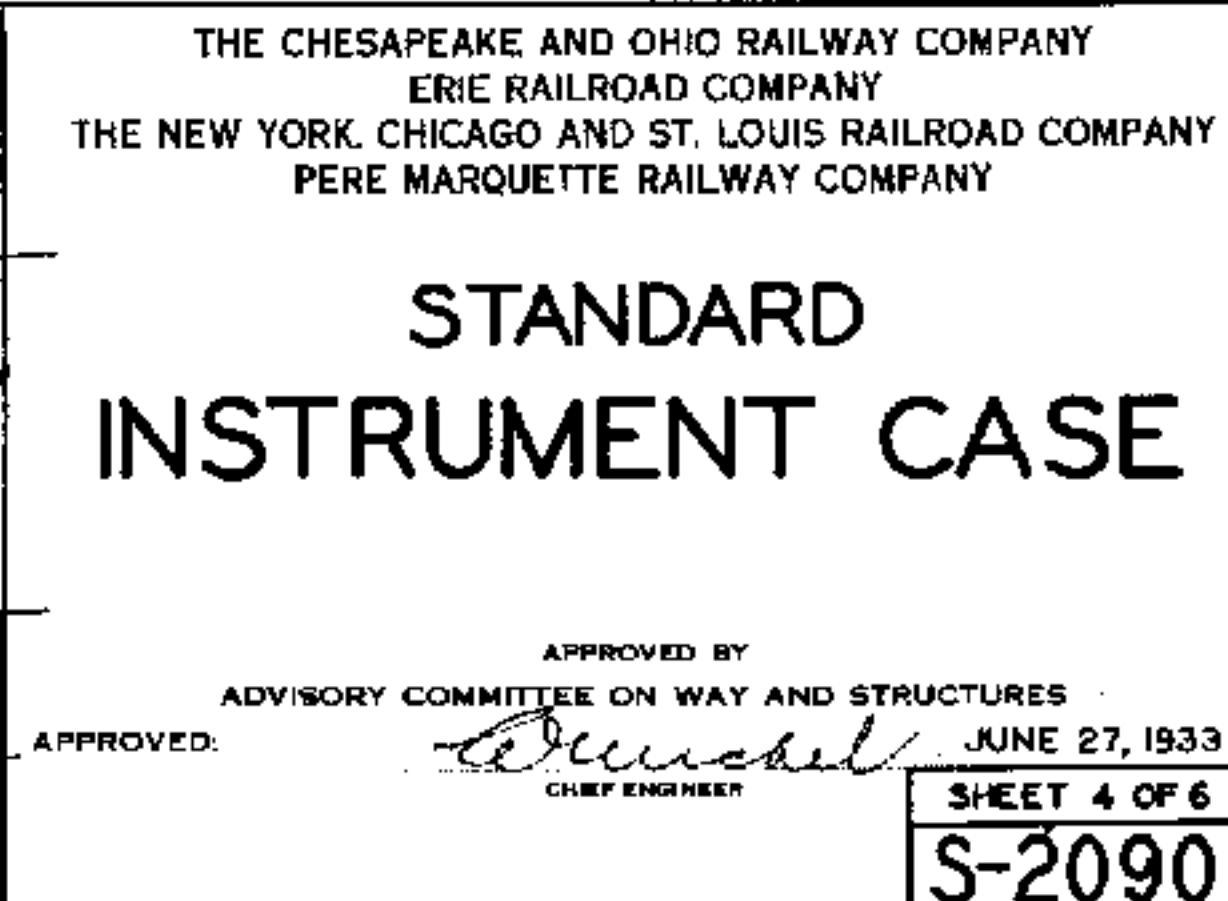
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

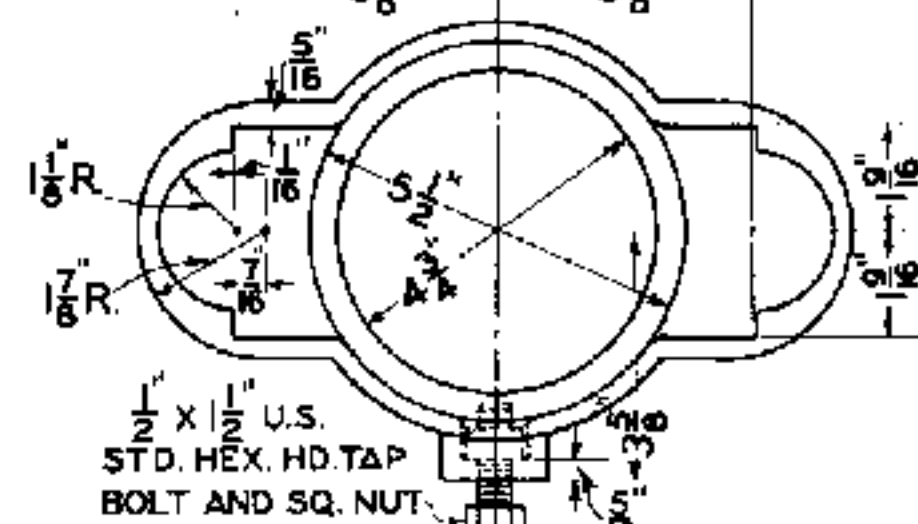
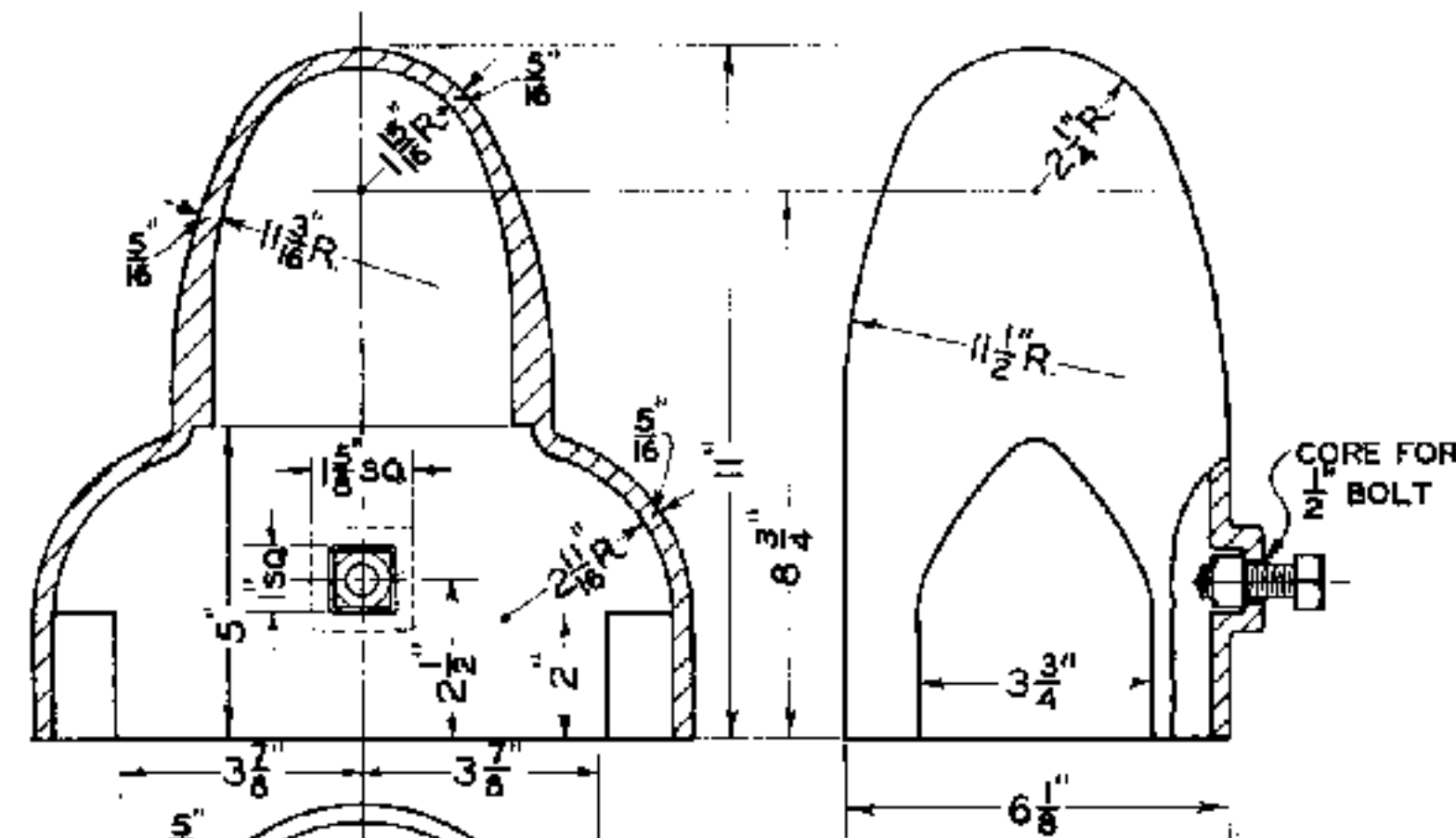
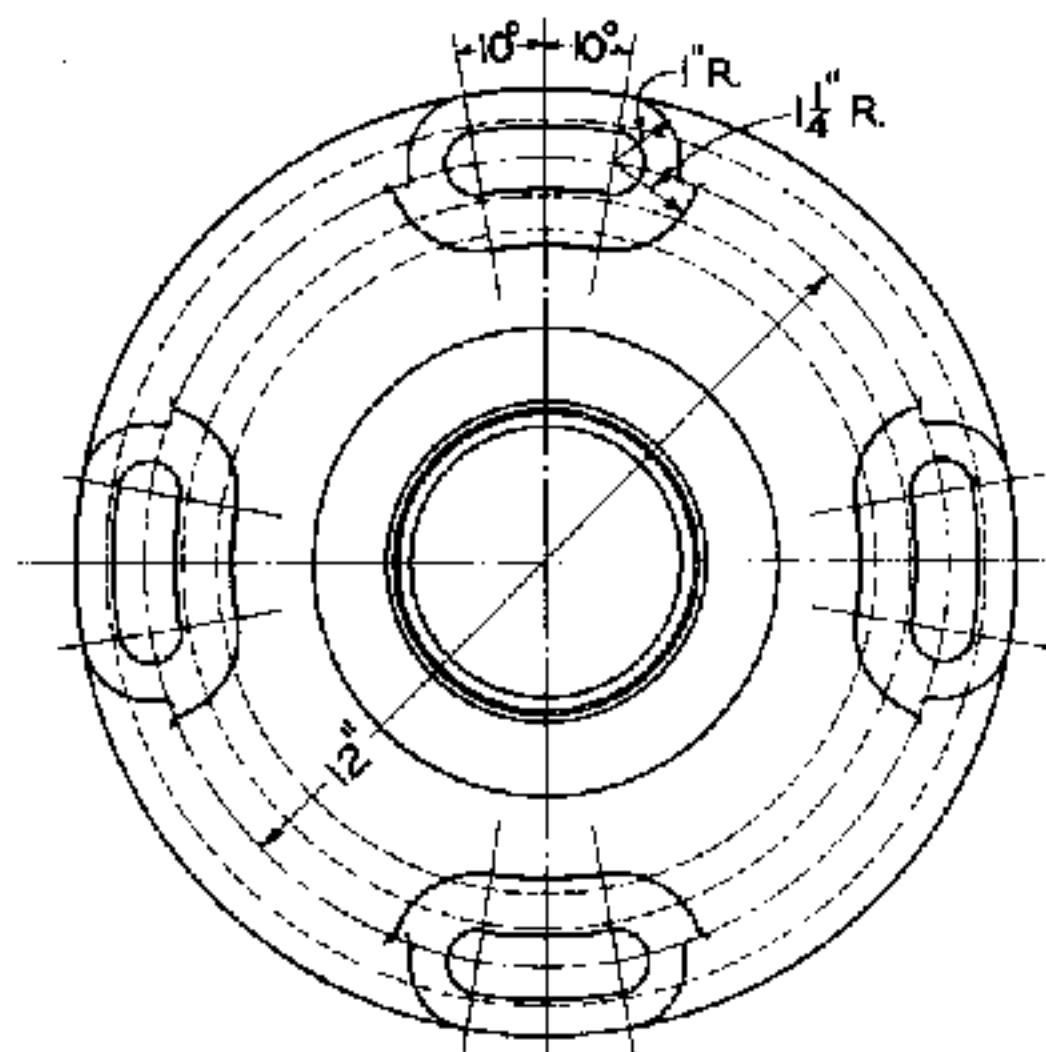
STANDARD INSTRUMENT CASE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* JUNE 27, 1933
CHIEF ENGINEER

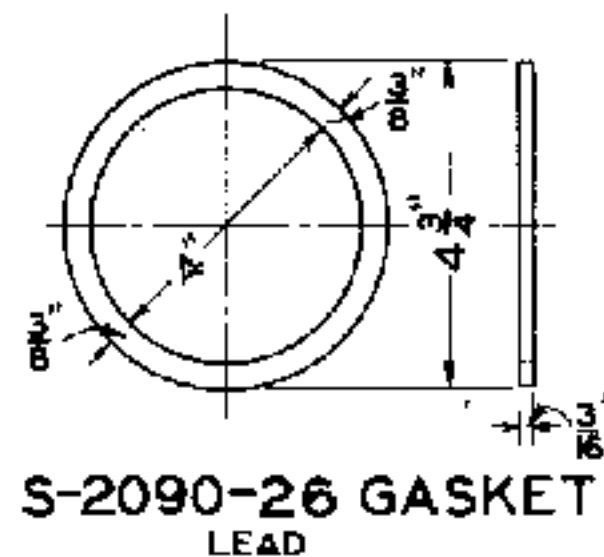
SHEET 3 OF 6

S-2090



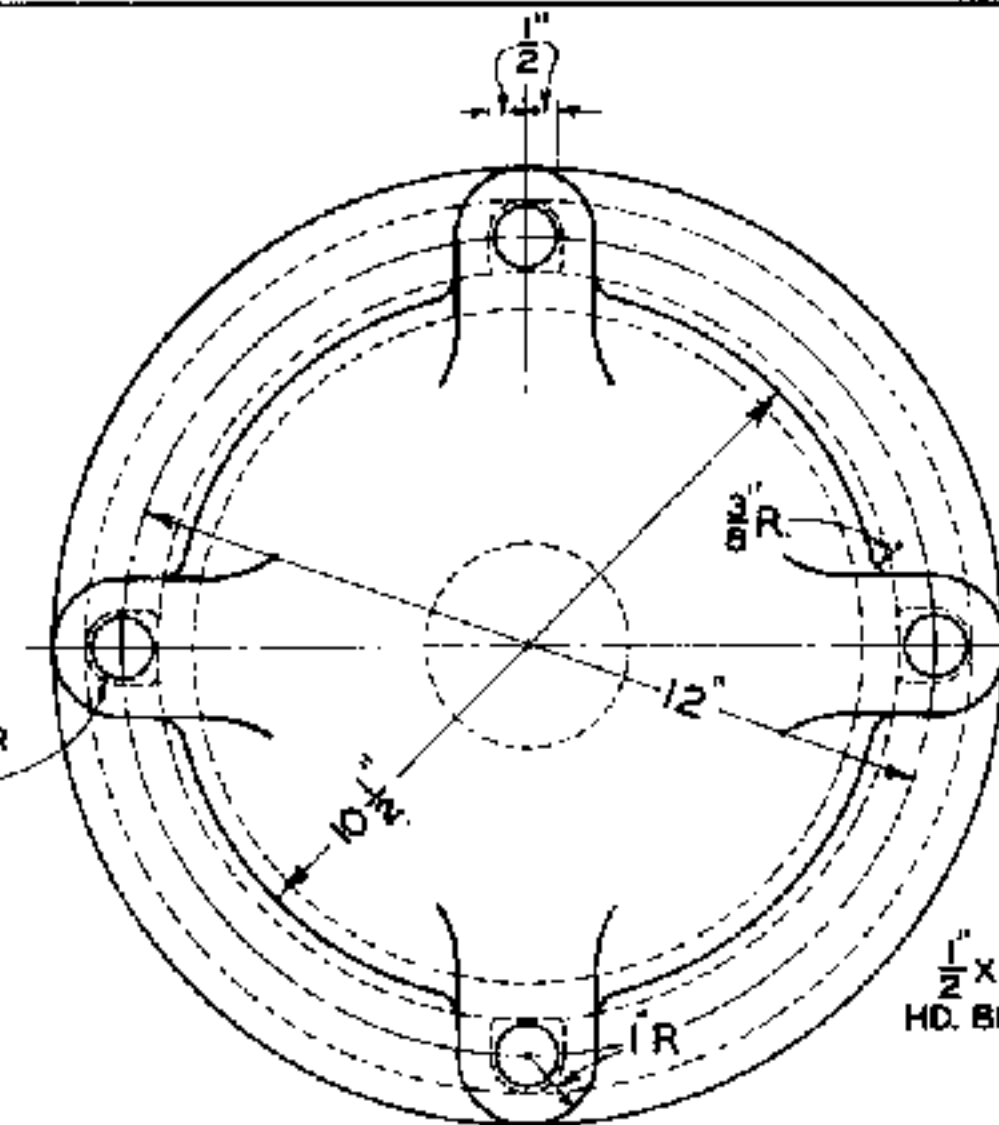


S-2090-25 CAP COMPLETE AS SHOWN
CAST IRON

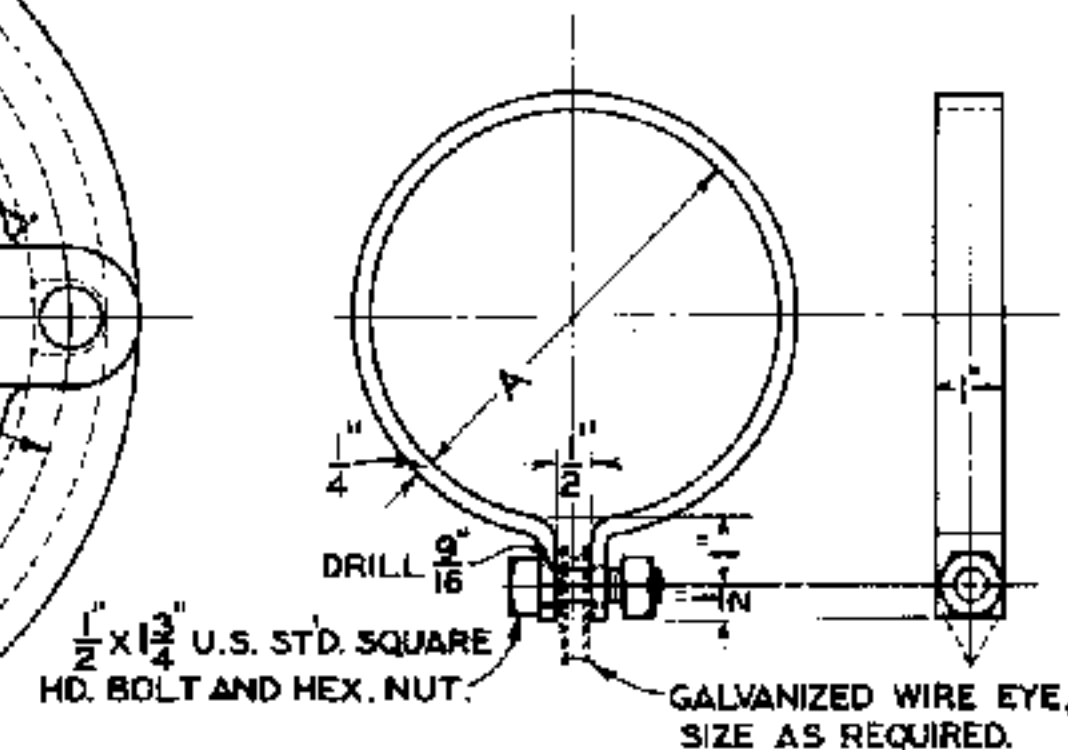
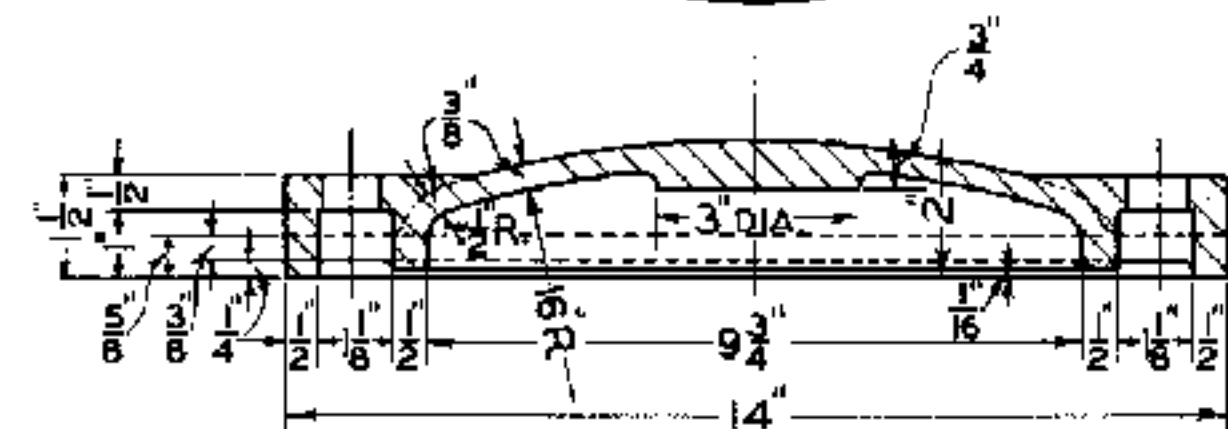


S-2090-26 GASKET
LEAD

NOTE
ALL PARTS EXCEPT S-2090-26, GASKET, SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.



S-2090-27 COVER ONLY
CAST IRON



S-2090-28 CLAMP COMPLETE AS SHOWN
FOR 4 INCH PIPE $A = 4 \frac{1}{2}$ "
S-2090-29 CLAMP COMPLETE AS SHOWN
FOR 5 INCH PIPE $A = 5 \frac{9}{16}$ "
S-2090-30 CLAMP COMPLETE AS SHOWN
FOR 6 INCH PIPE $A = 6 \frac{5}{8}$ "

SCALE IN INCHES
0 1 2 3 4 5 6 7 8

S-2090-24 SOCKET FOR 4 INCH PIPE WITH GASKET S-2090-26
CAST IRON

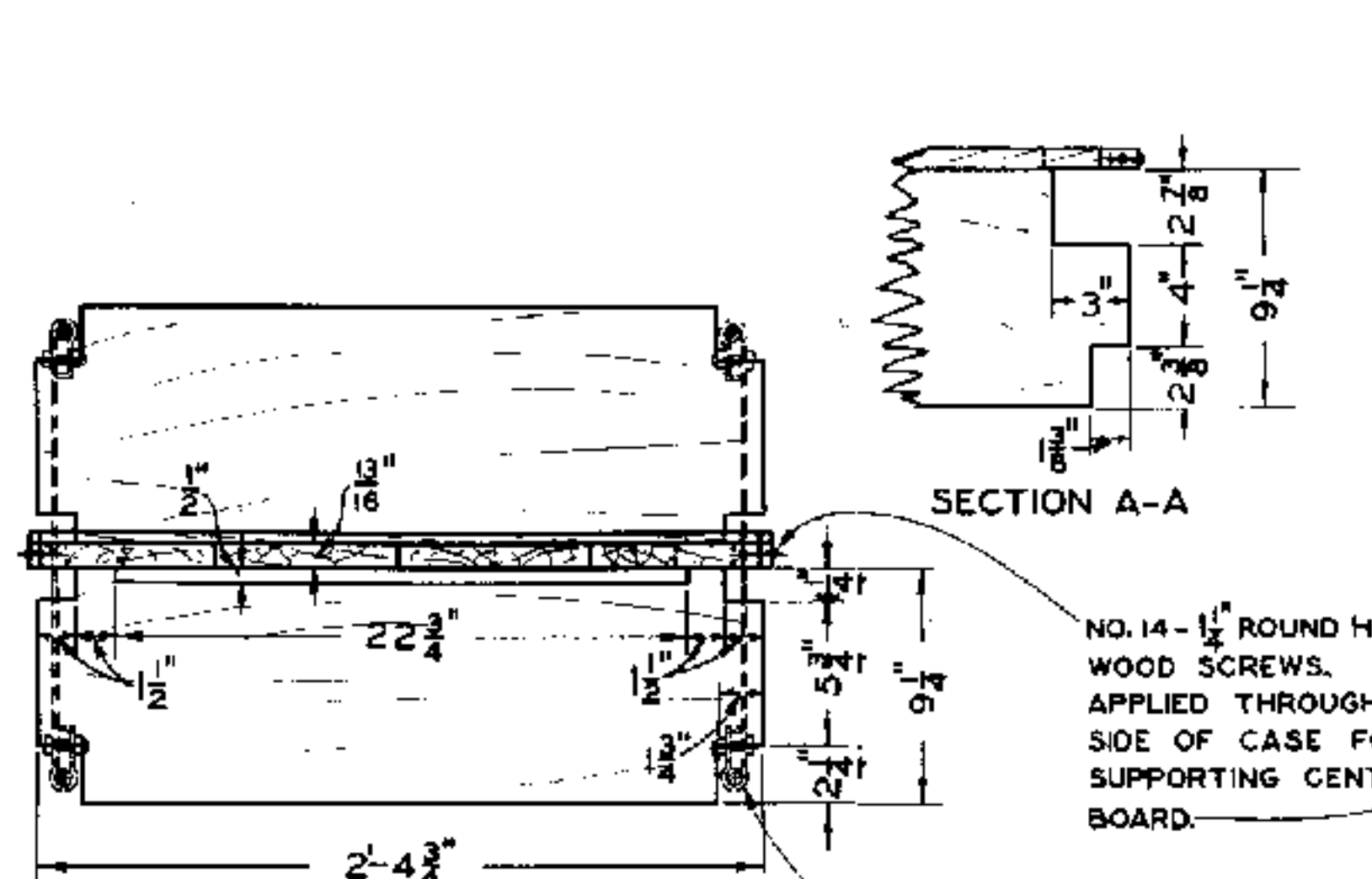
APPROVED FOR USE
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
W. H. Moore
VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
W. H. Moore
VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY
W. H. Moore
VICE PRESIDENT
C.H.W.
K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD INSTRUMENT CASE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Moore*
CHIEF ENGINEER
JUNE 27, 1933

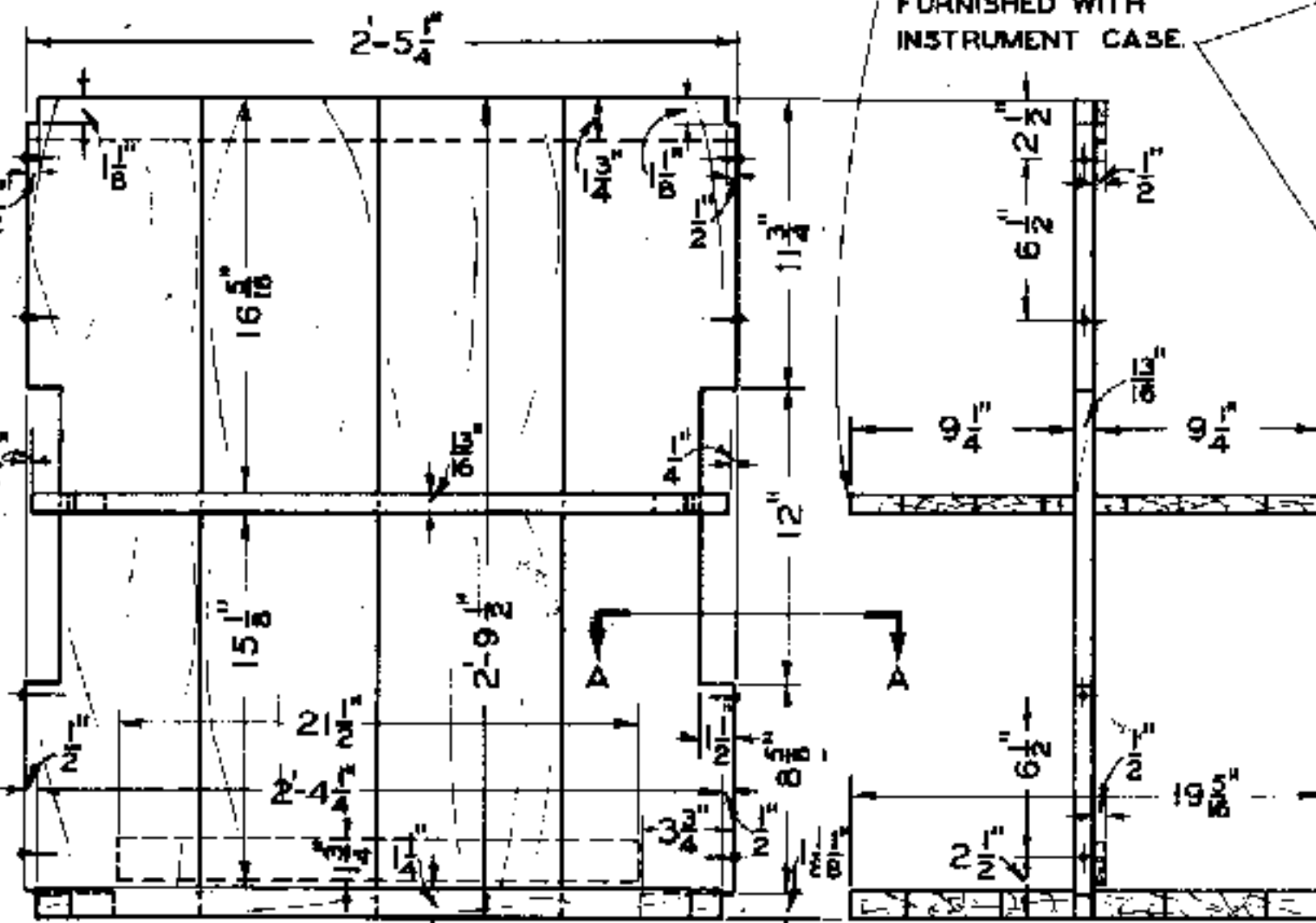
SHEET 5 OF 6
S-2090



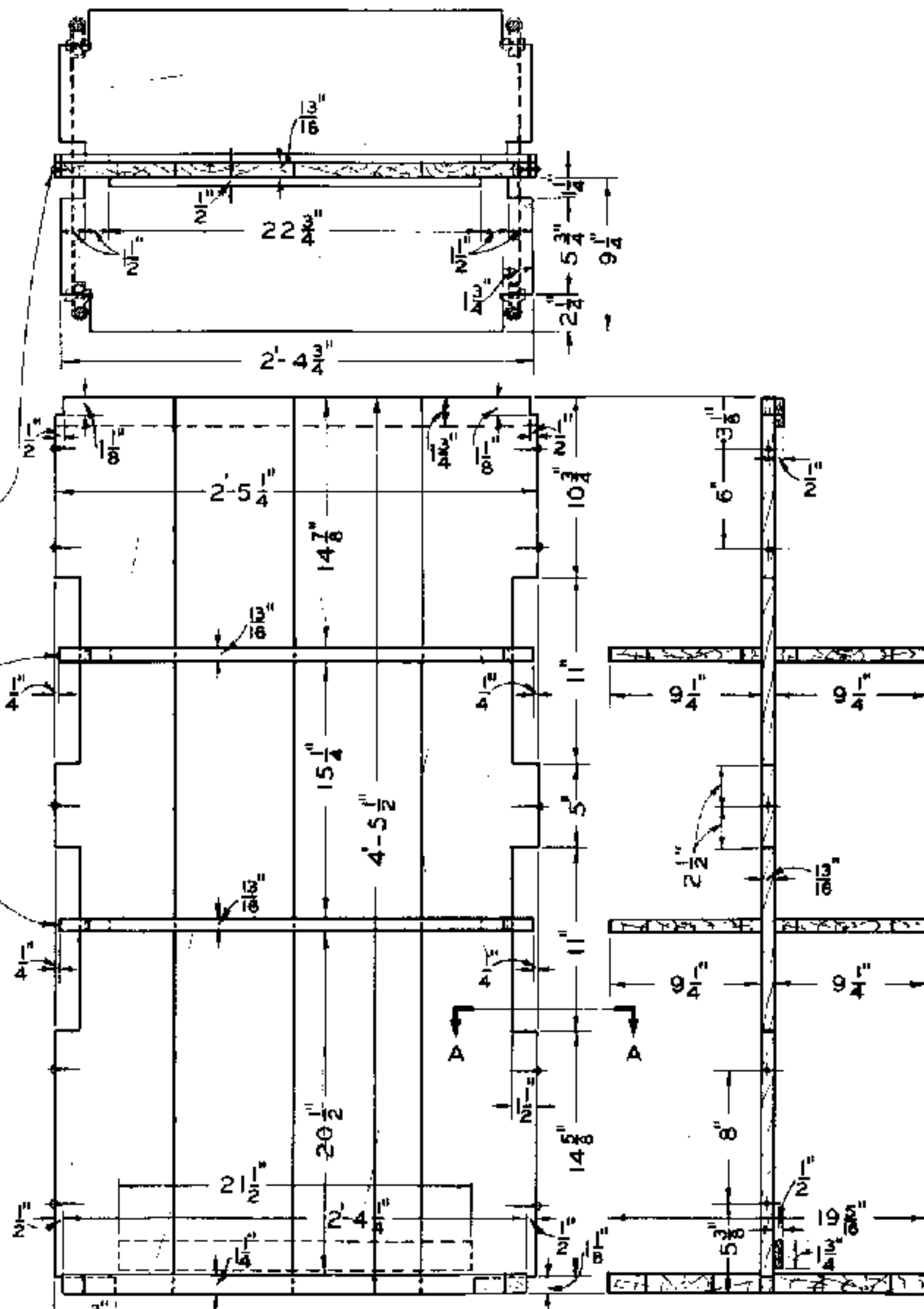
SECTION A-A

NO. 14 - 1 1/4" ROUND HEAD WOOD SCREWS, APPLIED THROUGH SIDE OF CASE FOR SUPPORTING CENTER BOARD.

SHELVES SUPPORTED BY IRON HANGERS FURNISHED WITH INSTRUMENT CASE.



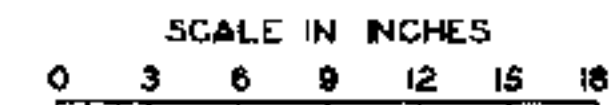
S-2090-31 INSTRUMENT CASE LINING COMPLETE



S-2090-32 INSTRUMENT CASE LINING COMPLETE

NOTES

1. LINING SHALL BE MADE OF AIR SEASONED 1" SHIP WHITE PINE.
2. LINING SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

D. W. Brooke

VICE PRESIDENT

ERIE RAILROAD COMPANY

W. H. Woodruff

VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

D. W. Brooke

VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Woodruff

VICE PRESIDENT

C.H.W. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD INSTRUMENT CASE

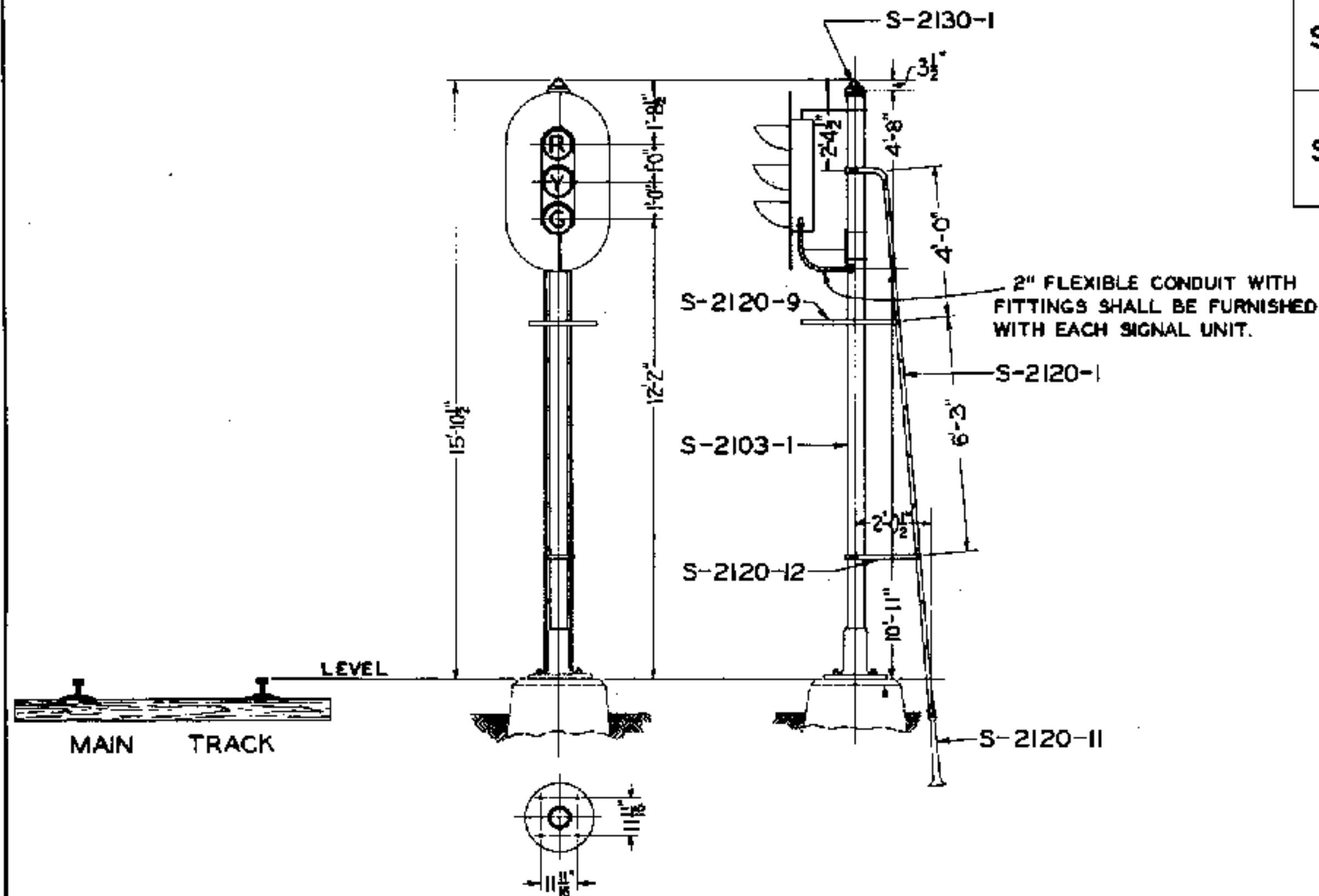
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *W. H. Woodruff* JUNE 27, 1933
CHIEF ENGINEER

SHEET 6 OF 6

S-2090

DRAWING NUMBER	DESCRIPTION	DRAWING NO. OF MAST ASSEMBLY
S-2100-1	ONE UNIT RYG COLOR LIGHT GROUND SIGNAL COMPLETE EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-1
S-2100-2	ONE UNIT RY COLOR LIGHT GROUND SIGNAL COMPLETE EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-2
S-2100-3	ONE UNIT RG COLOR LIGHT GROUND SIGNAL COMPLETE EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-2



S-2100-1 ONE UNIT THREE COLOR LIGHT GROUND SIGNAL

SCALE IN FEET
0 1 2 3 4 5 6 7 8

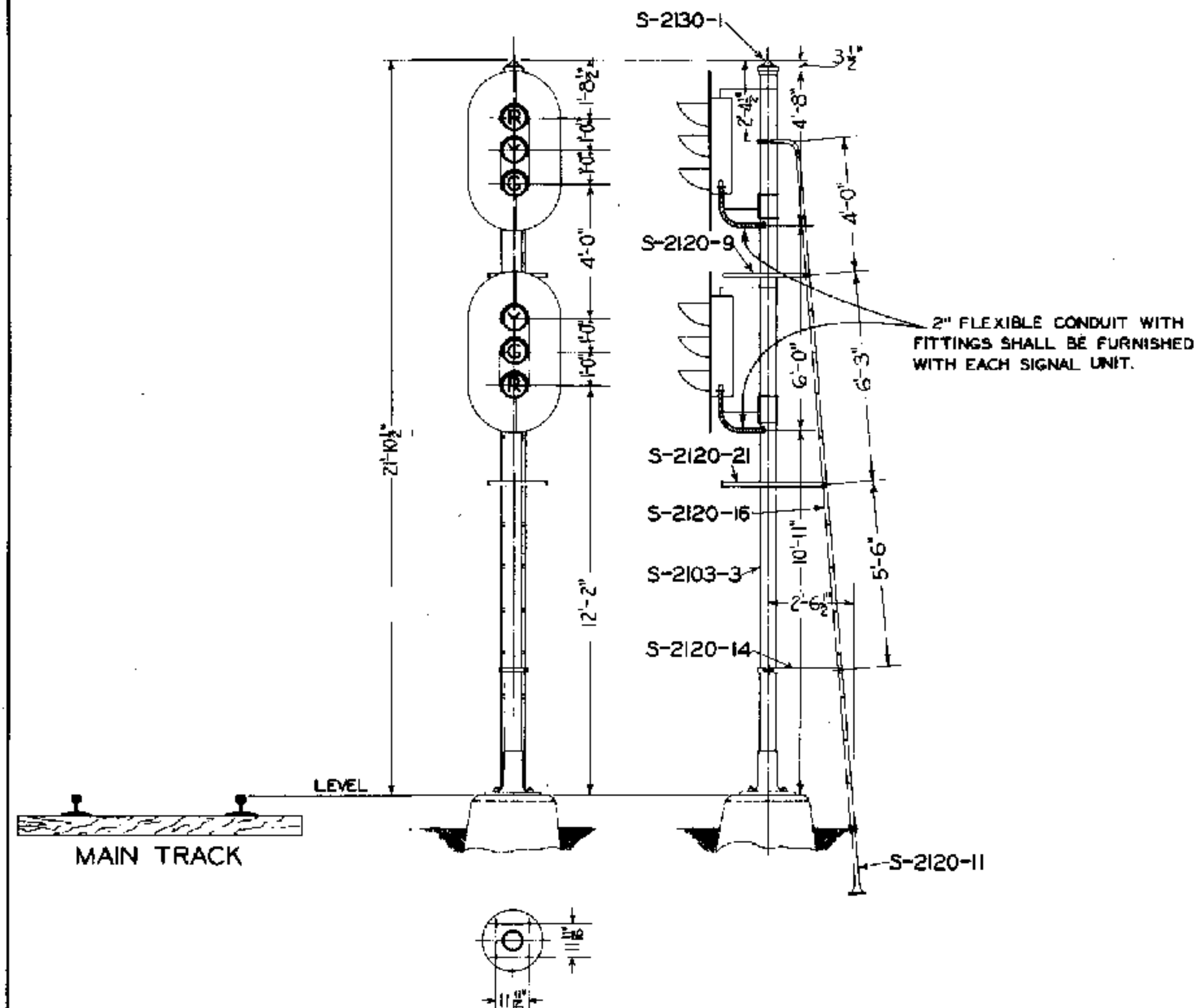
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT		
CHW. C.B.P.	C.D.M.	A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

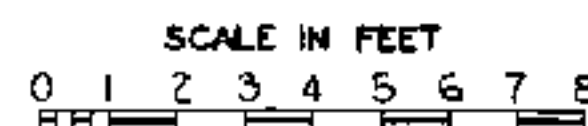
STANDARD COLOR LIGHT GROUND SIGNAL, VERTICAL TYPE, ONE UNIT HEIGHT MAST

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* APRIL 21, 1923
CHIEF ENGINEER

S-2100



S-2101-1 TWO UNIT THREE COLOR LIGHT GROUND SIGNAL



DRAWING NUMBER	DESCRIPTION	DRAWING NO. OF MAST ASSEMBLY
S-2101-1	TWO UNIT RYG-YGR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-3
S-2101-2	TWO UNIT RYG-GR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-3
S-2101-3	TWO UNIT RYG-YR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-3
S-2101-4	TWO UNIT RY-GR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-4
S-2101-5	TWO UNIT RY-YR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-4
S-2101-6	TWO UNIT RY-YGR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-4
S-2101-7	TWO UNIT RG-YGR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-4
S-2101-8	TWO UNIT RG-YR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-4
S-2101-9*	TWO UNIT RYG-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-5
S-2101-10*	TWO UNIT R-YGR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-6
S-2101-11*	TWO UNIT R-YR COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-6
S-2101-12*	TWO UNIT RG-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-7
S-2101-13*	TWO UNIT RY-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-7

* EACH SINGLE COLOR LIGHT UNIT SHALL BE FURNISHED WITH BACKGROUND FOR TWO-COLOR UNIT WITH EXTRA HOLE BLANKED.

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C.H.W.	C.D.M.	A.J.P.
C.S.L.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

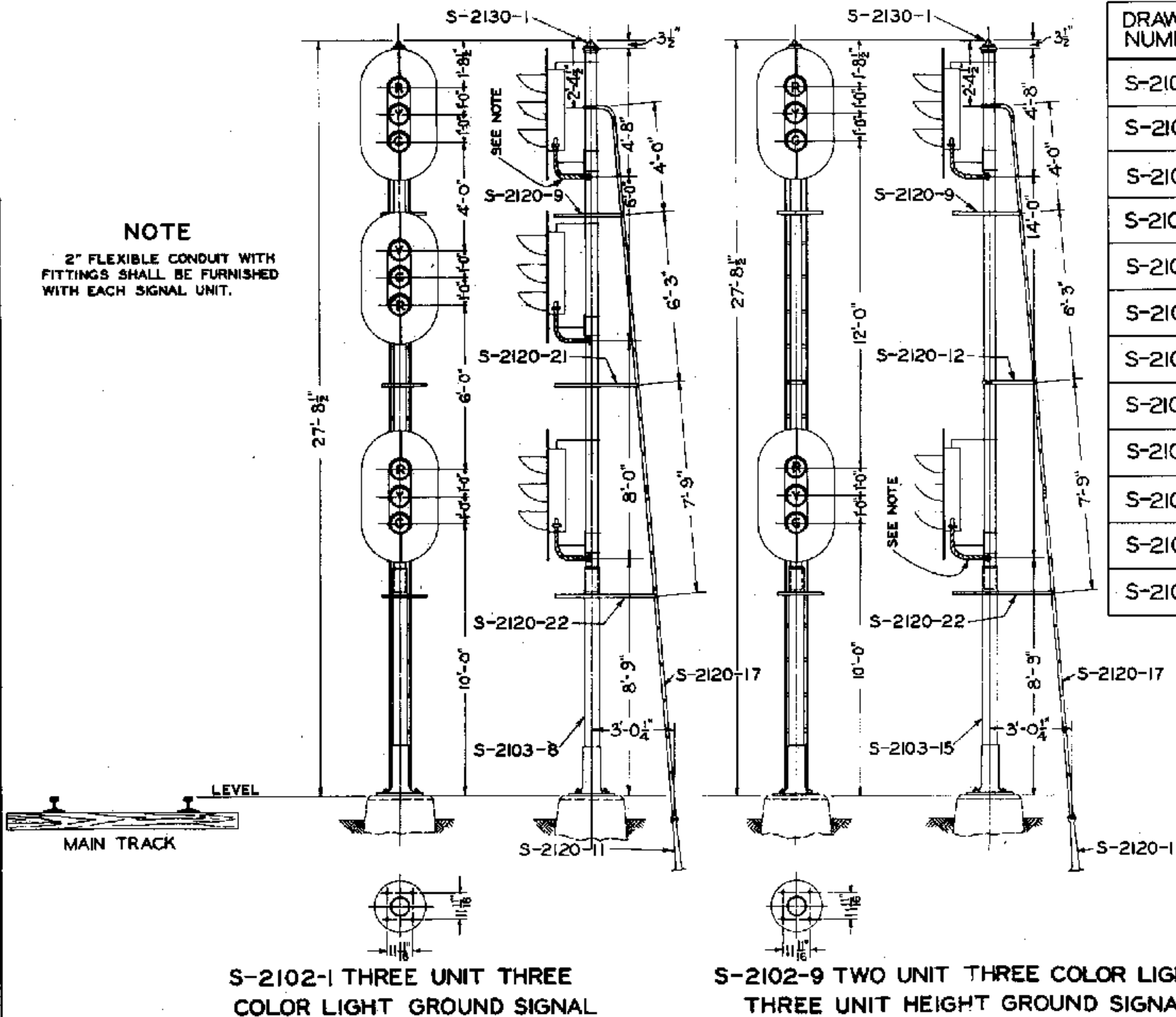
STANDARD COLOR LIGHT GROUND SIGNAL, VERTICAL TYPE, TWO UNIT HEIGHT MAST

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APPROVED: *[Signature]* APRIL 21, 1931
 CHIEF ENGINEER

S-2101

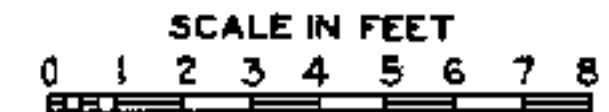
NOTE

2" FLEXIBLE CONDUIT WITH FITTINGS SHALL BE FURNISHED WITH EACH SIGNAL UNIT.

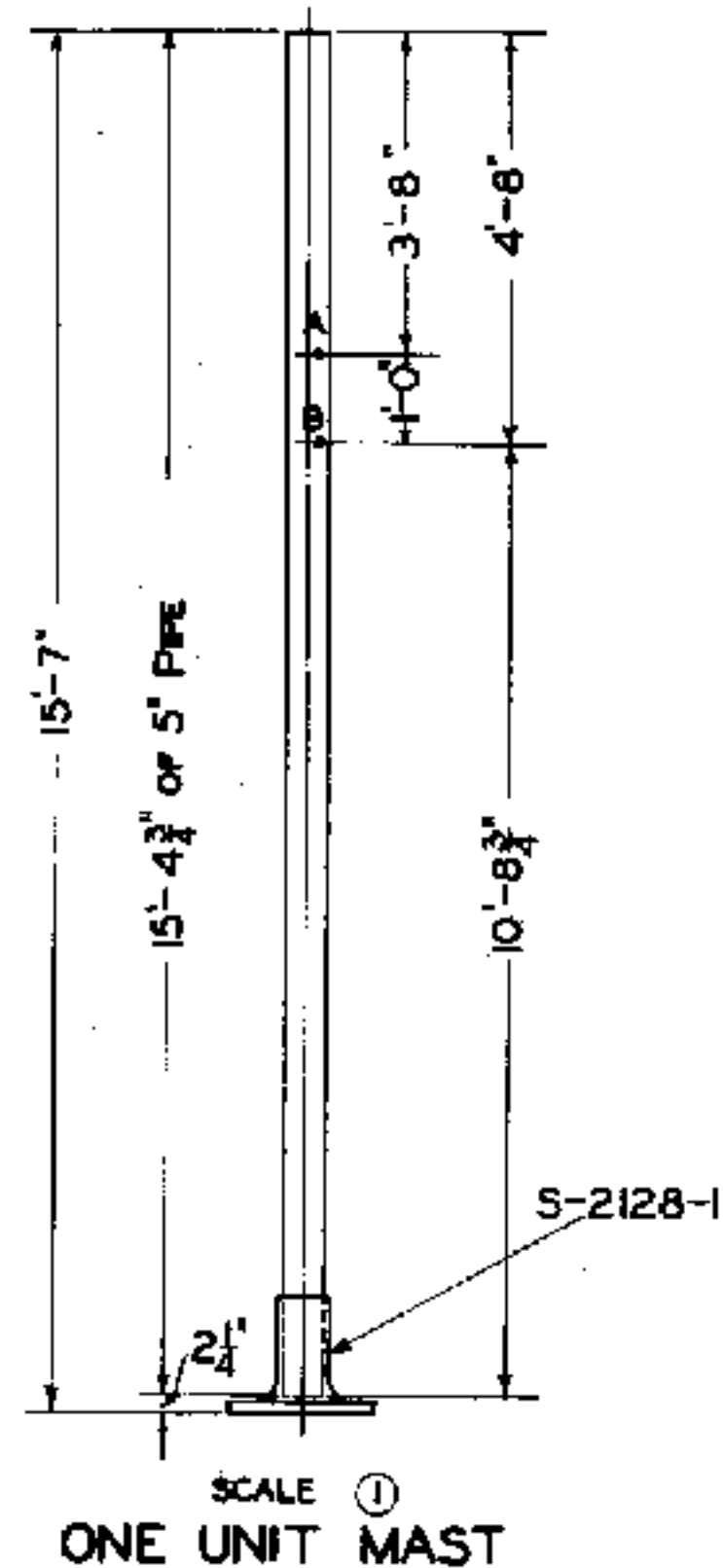


DRAWING NUMBER	DESCRIPTION	DRAWING NO. OF MAST ASSEMBLY
S-2102-1	THREE UNIT RYG-YGR-RYG COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-8
S-2102-2	THREE UNIT RYG-YGR-RY COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-9
S-2102-3	THREE UNIT RYG-YR-RY COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-9
S-2102-4	THREE UNIT RG-YGR-RY COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-10
S-2102-5*	THREE UNIT R-YGR-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-11
S-2102-6*	THREE UNIT R-YGR-RY COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-12
S-2102-7*	THREE UNIT RY-YGR-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-13
S-2102-8	TWO UNIT-THREE UNIT HEIGHT RY-RYG COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-14
S-2102-9	TWO UNIT-THREE UNIT HEIGHT RYG-RYG COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-15
S-2102-10*	TWO UNIT-THREE UNIT HEIGHT R-RYG COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-16
S-2102-11	TWO UNIT-THREE UNIT HEIGHT RYG-RY COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-17
S-2102-12*	TWO UNIT-THREE UNIT HEIGHT RYG-R COLOR LIGHT GROUND SIGNAL COMPLETE, EXCEPT WITHOUT LAMPS AND FOUNDATION BOLTS.	S-2103-18

* EACH SINGLE COLOR LIGHT UNIT SHALL BE FURNISHED WITH BACKGROUND FOR TWO-COLOR UNIT WITH EXTRA HOLE BLANKED.



APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
<i>[Signature]</i> VICE PRESIDENT		STANDARD COLOR LIGHT GROUND SIGNAL, VERTICAL TYPE, THREE UNIT HEIGHT MAST	
<i>[Signature]</i> VICE PRESIDENT			
<i>[Signature]</i> VICE PRESIDENT			
<i>[Signature]</i> VICE PRESIDENT			
APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>[Signature]</i> CHIEF ENGINEER		APRIL 21, 1931	
C.H.W. C.B.P.	CDM.	A.J.P.	S-2102

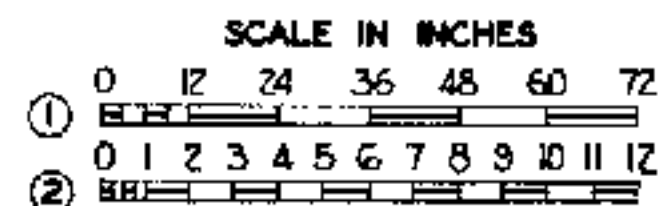
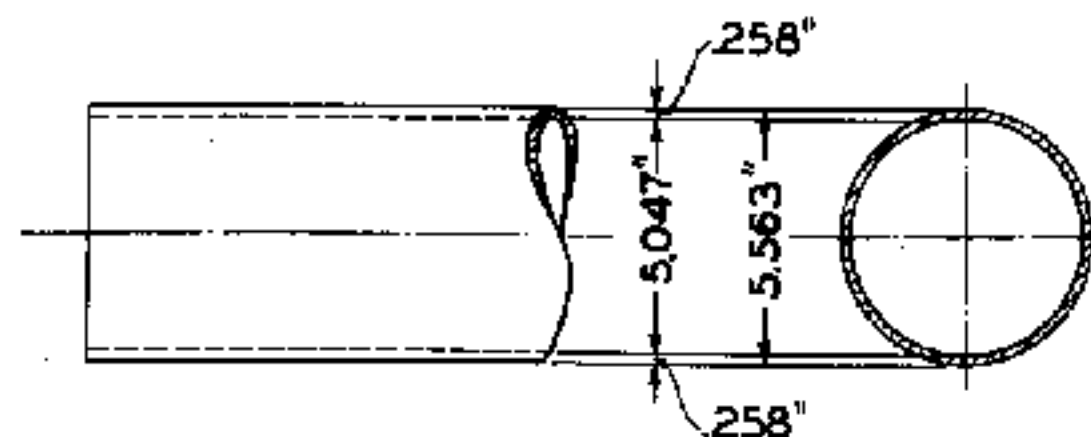


DRILLING OF MAST

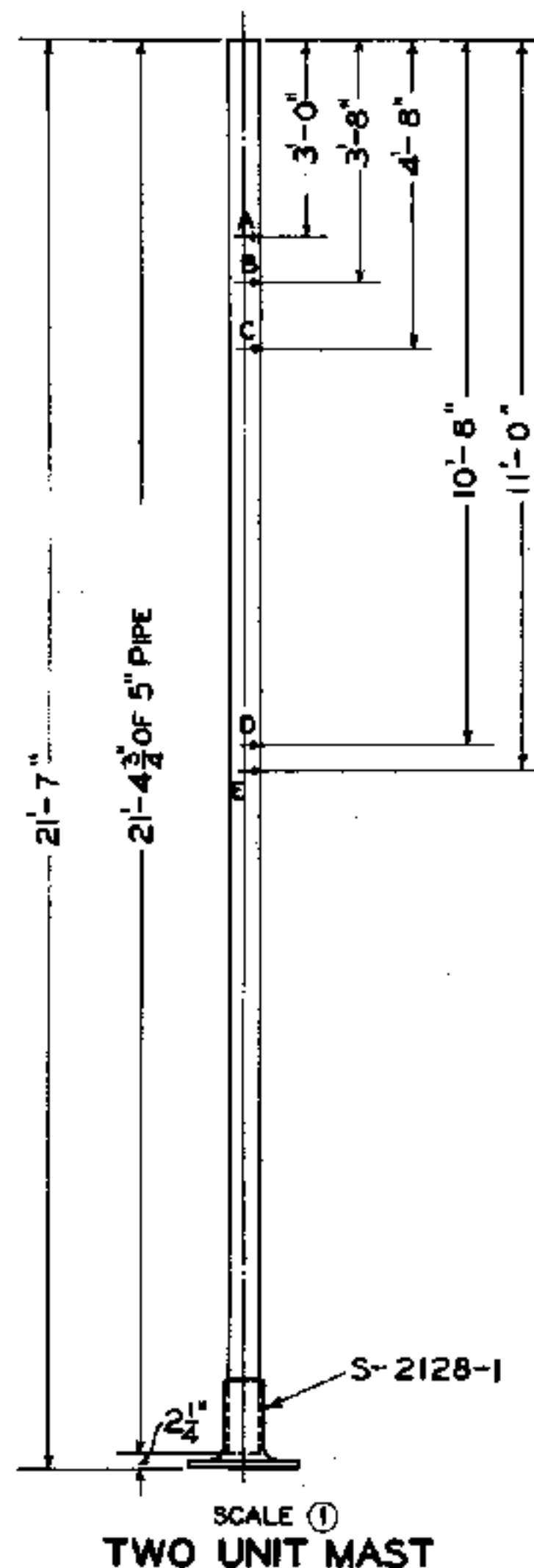
UNIT ARRANGEMENT			
FIGURE	1	2	3
DESCRIPTION OF DRILLING	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "B"	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "A"	
MAST	S-2103-1	S-2103-2	

NOTES

HOLE FOR CONDUIT OUTLET SHALL BE DRILLED
45° TO THE RIGHT OF FRONT CENTER LINE OF MAST.
MASTS SHALL HAVE PURCHASER'S DRAWING NUMBER
PAINTED ON BOTTOM OF BASE BEFORE SHIPMENT.
MASTS SHALL BE FURNISHED PAINTED INSIDE AND
OUT WITH ONE COAT OF METAL PRIMER IN ACCORDANCE
WITH LATEST REVISION OF STANDARD SPECIFICATIONS
S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND
INTERLOCKING APPARATUS.



APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
		STANDARD MASTS FOR VERTICAL TYPE COLOR LIGHT GROUND SIGNALS APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: APRIL 21, 1931 SHEET 1 OF 3 S-2103	
CHW CSL	C.D.M. A.J.P.		

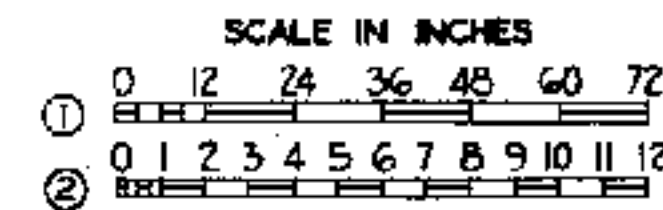
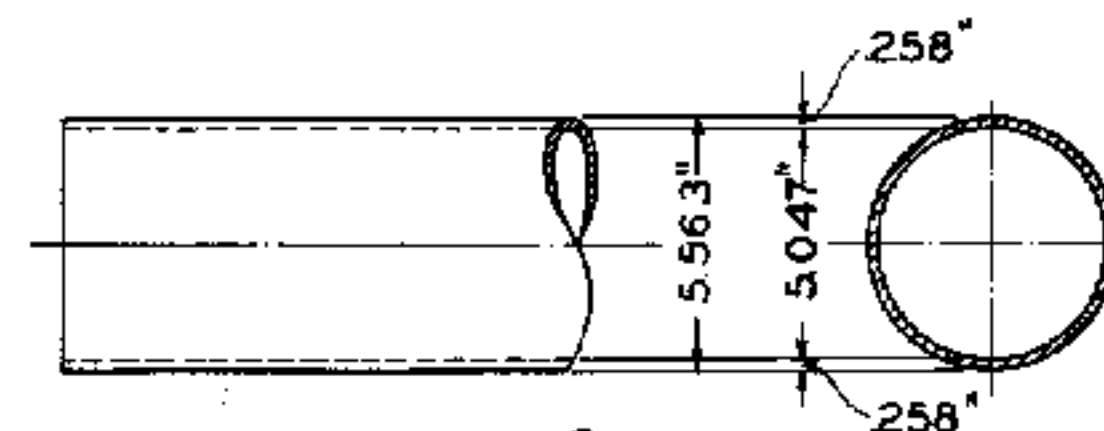


DRILLING OF MAST

UNIT ARRANGEMENT														
FIGURE	1	2	3	4	5	6	7	8	9	10	11	12	13	
DESCRIPTION OF DRILLING	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT 'C' AND 'D'			MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT 'B' AND 'D'					MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT 'C' AND 'E'		MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT 'A' AND 'D'		MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT 'B' AND 'E'	
MAST	S-2103-3			S-2103-4					S-2103-5		S-2103-6		S-2103-7	

NOTES

HOLES FOR CONDUIT OUTLET SHALL BE DRILLED 45° TO THE RIGHT OF FRONT CENTER LINE OF MAST.
 MASTS SHALL HAVE PURCHASER'S DRAWING NUMBER PAINTED ON BOTTOM OF BASE BEFORE SHIPMENT.
 MASTS SHALL BE FURNISHED PAINTED INSIDE AND OUT WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

[Signature] VICE PRESIDENT

ERIE RAILROAD COMPANY

[Signature] VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

[Signature] VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

[Signature] VICE PRESIDENT

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

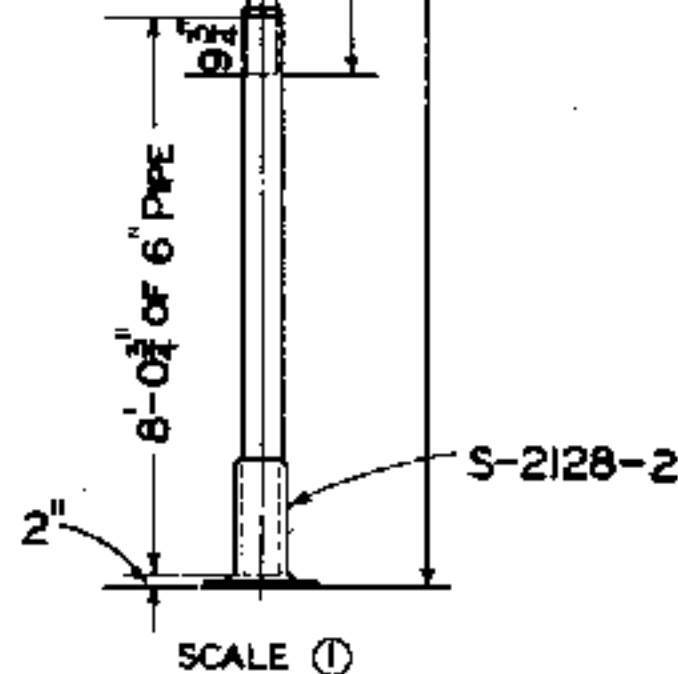
**STANDARD MASTS FOR
 VERTICAL TYPE COLOR
 LIGHT GROUND SIGNALS**

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APRIL 21, 1931

APPROVED: *[Signature]* CHIEF ENGINEER

CHW. C.D.M. A.J.P.

SHEET 2 OF 3
S-2103

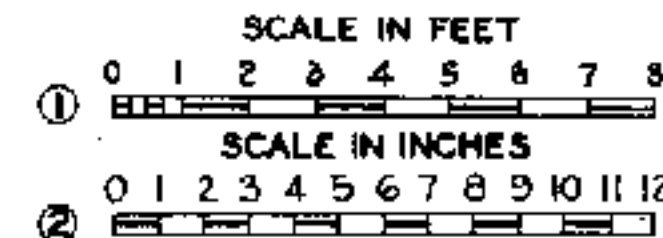


MASTS SHALL BE FURNISHED PAINTED INSIDE AND OUT WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

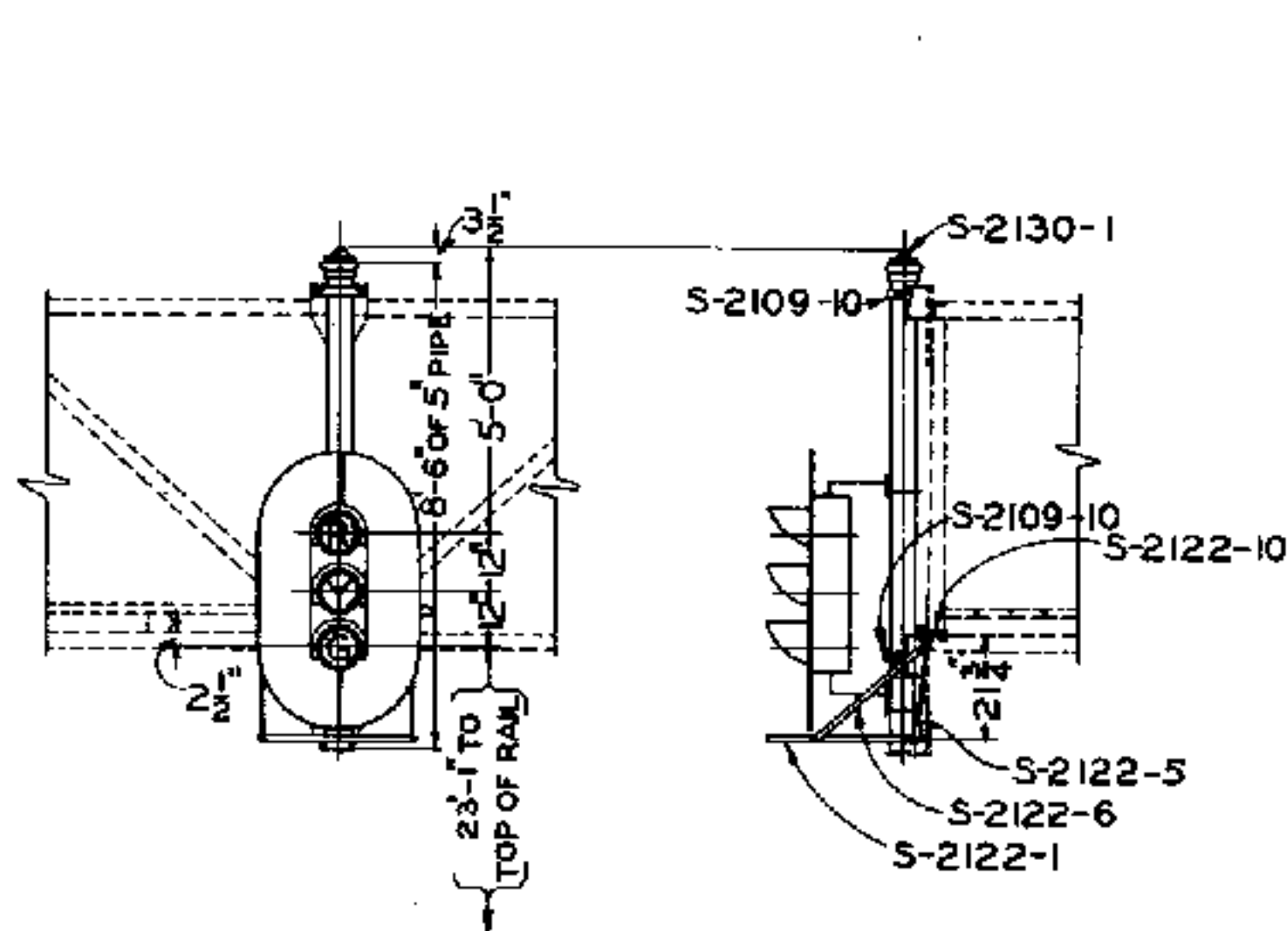
UNIT ARRANGEMENT	FIGURE	DESCRIPTION OF DRILLING	MAST
	1	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "C," "D" AND "H."	S-2103-8
	2	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "C," "D" AND "G."	S-2103-9
	3	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "B," "D" AND "G."	S-2103-10
	4	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "A," "D" AND "F."	S-2103-11
	5	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "A," "D" AND "G."	S-2103-12
	6	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "B," "D" AND "F."	S-2103-13

UNIT ARRANGEMENT	FIGURE	DESCRIPTION OF DRILLING	MAST
	8	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "B" AND "H."	S-2103-14
	9	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "C" AND "H."	S-2103-15
	10	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "A" AND "H."	S-2103-16
	11	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "C" AND "G."	S-2103-17
	12	MAST TO BE DRILLED AND TAPPED FOR 2" PANEL BOX CONNECTOR AS SHOWN AT "C" AND "E."	S-2103-18

SECTION A-A
JOINT BETWEEN 5" AND 6" PIPE
WROUGHT IRON OR STEEL

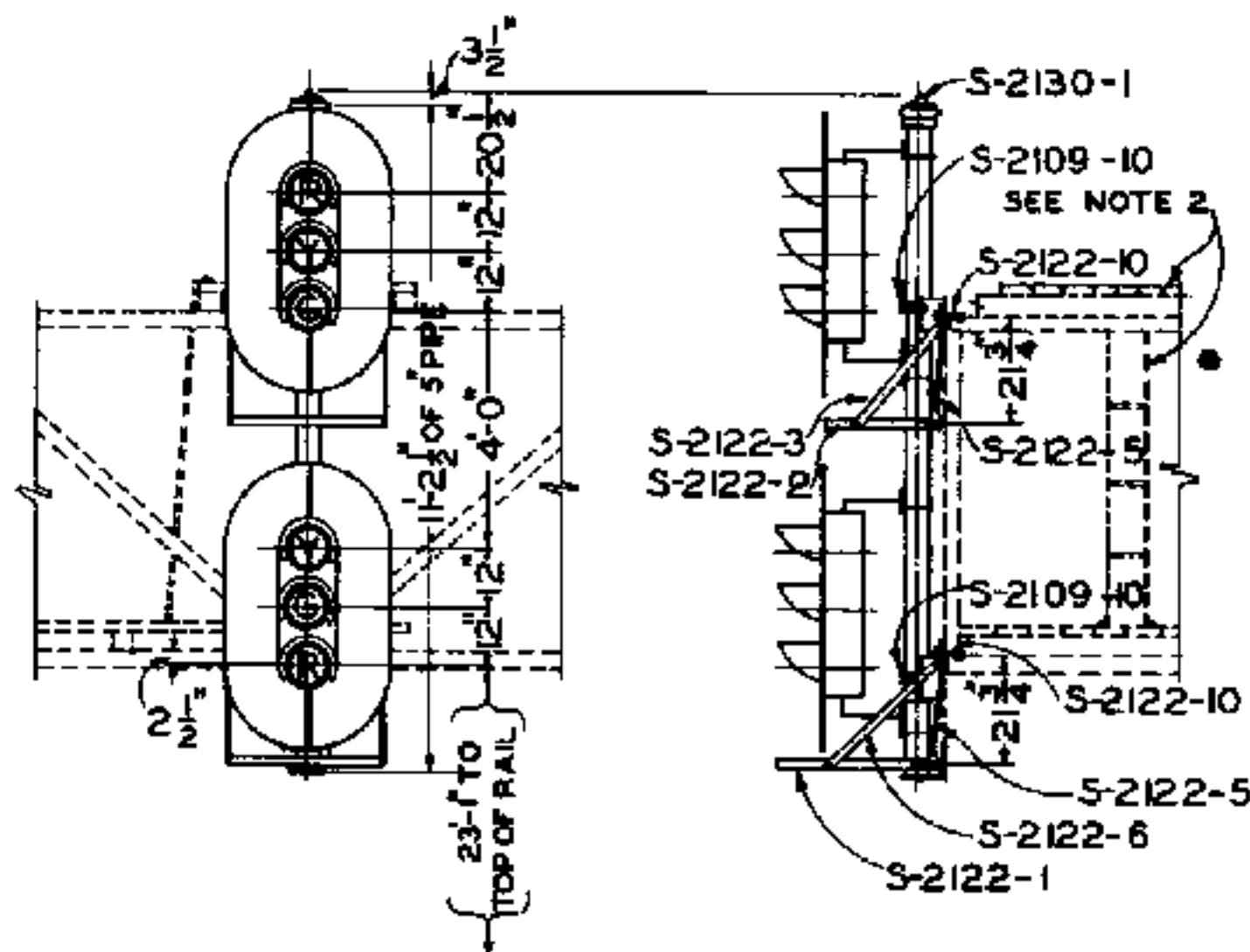


S-2103



S-2104-1 ONE UNIT THREE COLOR LIGHT
BRIDGE SIGNAL

SCALE ②

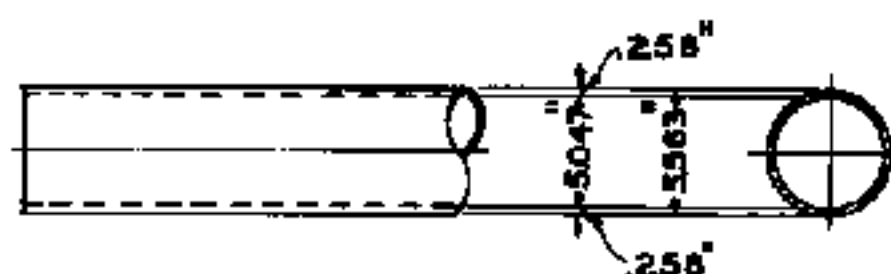


S-2104-4 TWO UNIT THREE COLOR LIGHT
BRIDGE SIGNAL

SCALE ②

NOTES

1. SIGNALS MAY BE ASSEMBLED WITH UNITS ON EITHER SIDE OR CENTER OF MAST, AS REQUIRED.
2. LADDER IS NOT INCLUDED IN SIGNAL ASSEMBLY. FOR DETAILS OF HANDRAIL, LADDER, AND PLATFORM ARRANGEMENT SEE STANDARD DRAWING S-2123.
3. SIGNAL ASSEMBLES ARE FOR APPLICATION TO STANDARD TWO, THREE, AND FOUR TRACK SIGNAL BRIDGE, S-2995.
4. MASTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.
5. EACH SINGLE LIGHT UNIT SHALL BE FURNISHED WITH ONE $\frac{3}{4}$ " BUSHING AND ALL OTHER UNITS SHALL BE FURNISHED WITH ONE 2" BUSHING IN WIRE OUTLET

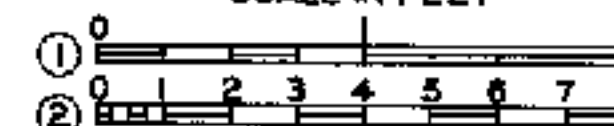


5" PIPE SECTION
WROUGHT IRON OR STEEL
SCALE ①

DRAWING NUMBER	DESCRIPTION
S-2104-1	ONE UNIT RYG COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS
S-2104-2	" " RY " " " " " " " " " "
S-2104-3	" " RG " " " " " " " " " "
S-2104-4	TWO UNIT RYG-YGR COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS
S-2104-5	" " RYG-GR " " " " " " " " " "
S-2104-6	" " RYG-YR " " " " " " " " " "
S-2104-7	" " RY-GR " " " " " " " " " "
S-2104-8	" " RY-YR " " " " " " " " " "
S-2104-9	" " RY-YGR " " " " " " " " " "
S-2104-10	" " RG-YGR " " " " " " " " " "
S-2104-11	" " RG-YR " " " " " " " " " "
S-2104-12*	" " RYG-R " " " " " " " " " "
S-2104-13*	" " R-YGR " " " " " " " " " "
S-2104-14*	" " R-YR " " " " " " " " " "
S-2104-15*	" " RG-R " " " " " " " " " "
S-2104-16*	" " RY-R " " " " " " " " " "

* EACH SINGLE COLOR LIGHT UNIT SHALL BE FURNISHED WITH BACKGROUND FOR TWO-COLOR UNIT WITH EXTRA HOLE BLANKED.

SCALE IN FEET



APPROVED FOR USE

THE CHELSEA AND OHIO
RAILWAY COMPANY

A. Cowmaster
VICE PRESIDENT AND GENERAL MANAGER

THE RAILROAD COMPANY

W. N. Barber

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

[Signature]

FBI WASH DC

PERE MARQUETTE
RAILWAY COMPANY

C.H.W.	W.S.F.	W.N.H.
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THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT
BRIDGE SIGNAL, VERTICAL TYPE

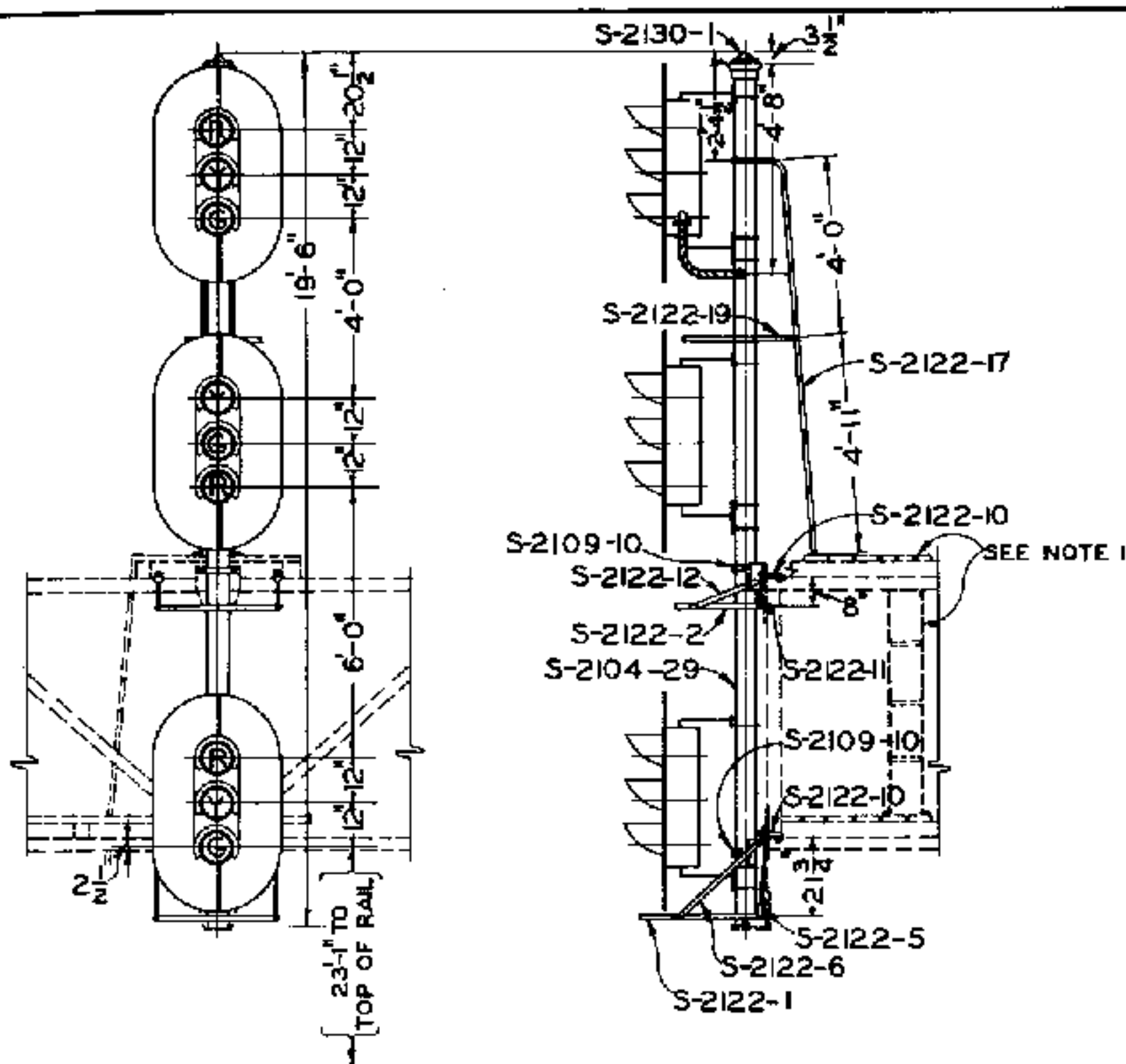
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Wallace
CHAIRMAN

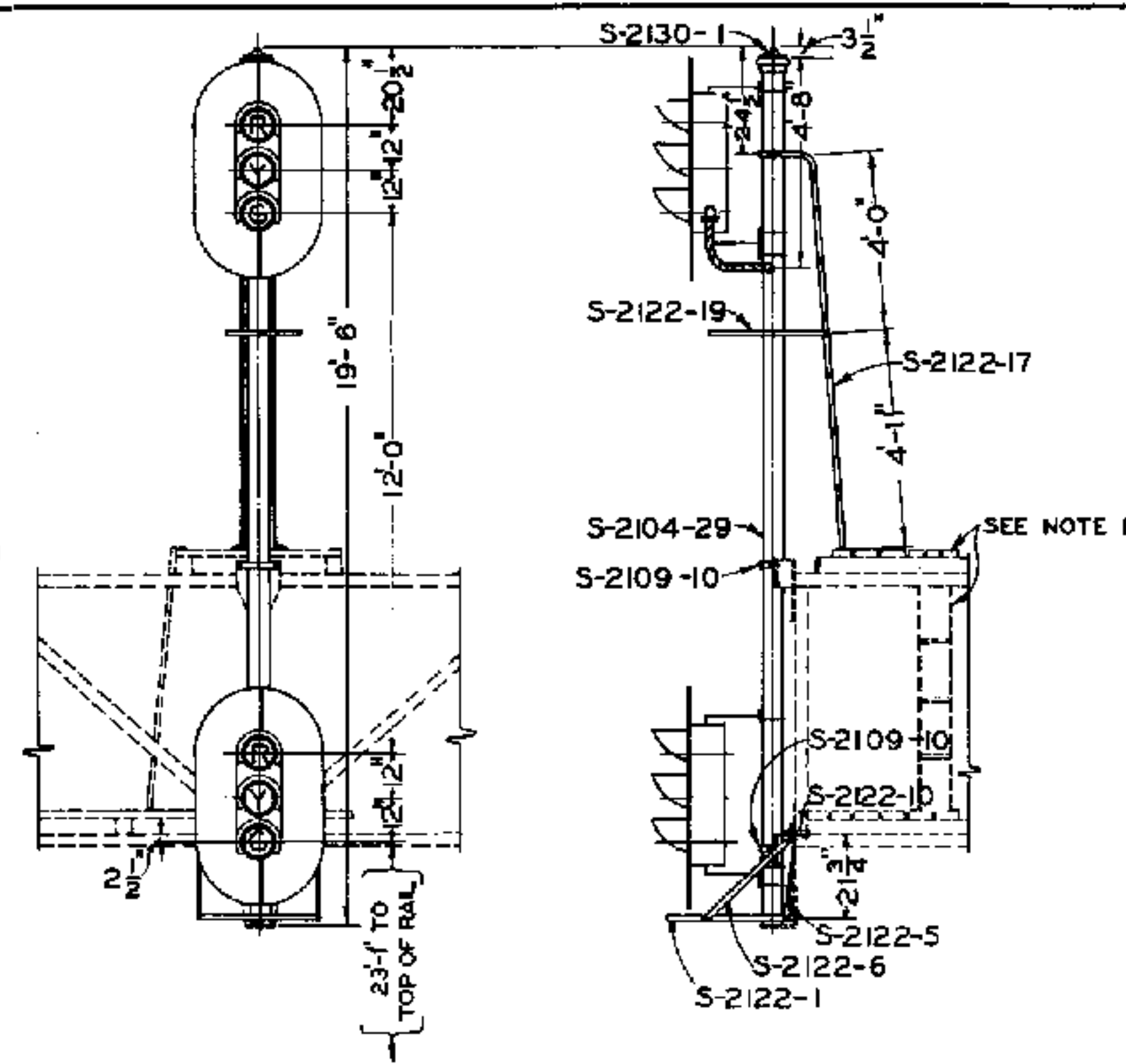
DEC. 7, 1942

SHEET 1 OF 2

S-2104-A

S-2104-17 THREE UNIT THREE COLOR LIGHT
BRIDGE SIGNAL

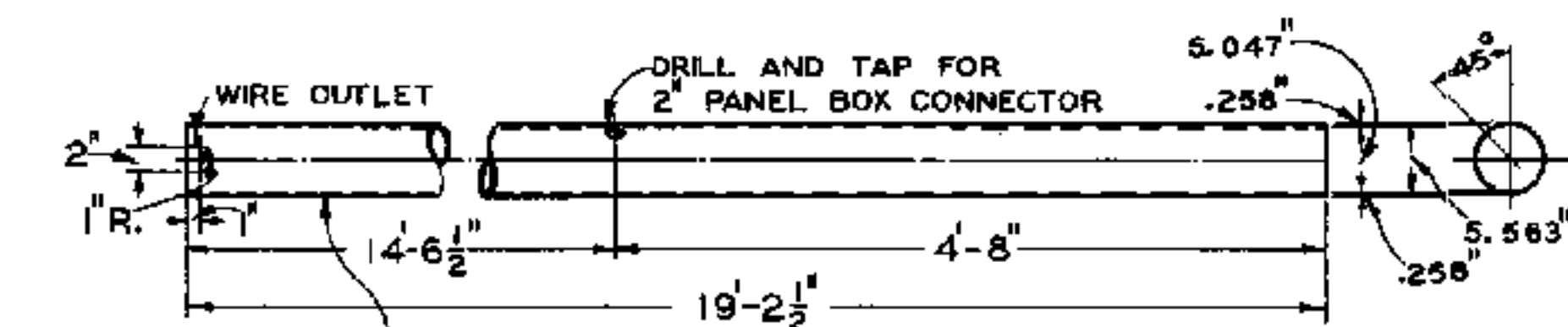
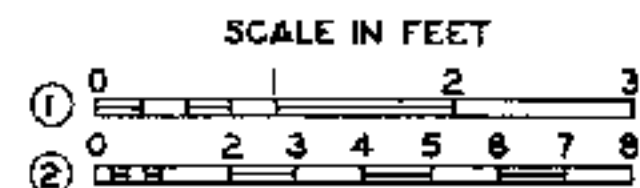
SCALE ②

S-2104-25 TWO UNIT THREE COLOR LIGHT
THREE UNIT HEIGHT BRIDGE SIGNAL

SCALE ②

DRAWING NUMBER	DESCRIPTION
S-2104-17	THREE UNIT RY-G-YGR-RY-G COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-18	THREE UNIT RY-G-YGR-RY COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-19	THREE UNIT RY-G-YR-RY COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-20	THREE UNIT RG-YGR-RY COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-21 *	THREE UNIT R-YGR-R COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-22 *	THREE UNIT R-YGR-RY COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-23 *	THREE UNIT RY-YGR-R COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-24	TWO UNIT-THREE UNIT HEIGHT RY-RY-G COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-25	TWO UNIT-THREE UNIT HEIGHT RY-G-RY-G COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-26 *	TWO UNIT-THREE UNIT HEIGHT R-RY-G COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-27	TWO UNIT-THREE UNIT HEIGHT RY-G-RY COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.
S-2104-28 *	TWO UNIT-THREE UNIT HEIGHT RY-G-R COLOR LIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS.

* EACH SINGLE COLOR LIGHT UNIT SHALL BE FURNISHED WITH BACKGROUND FOR TWO-COLOR UNIT WITH EXTRA HOLE BLANKED.



S-2104-29 THREE UNIT MAST

WROUGHT IRON OR STEEL

SCALE ①

NOTES

- LADDER IS NOT INCLUDED IN SIGNAL ASSEMBLY. FOR DETAILS OF HANDRAIL, LADDER, AND PLATFORM ARRANGEMENT SEE STANDARD DWG. S-2123.
- SIGNAL ASSEMBLIES ARE FOR APPLICATION TO STANDARD TWO, THREE, AND FOUR TRACK SIGNAL BRIDGE, S-2995.
- MASTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.
- EACH SINGLE LIGHT TOP UNIT SHALL BE FURNISHED WITH ONE 3/4" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT, FITTINGS AND 2" X 3/4" REDUCING BUSHING. ALL OTHER SINGLE LIGHT UNITS SHALL BE FURNISHED WITH ONE 3/4" BUSHING IN WIRE OUTLET.
- EACH TWO OR THREE COLOR LIGHT TOP UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS. ALL OTHER TWO OR THREE COLOR LIGHT UNITS SHALL BE FURNISHED WITH ONE 2" BUSHING IN WIRE OUTLET.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY*H. C. C.*
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

H. W. B.
VICE PRESIDENTTHE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY*M. W. S.*
PRESIDENTPERE MARQUETTE
RAILWAY COMPANY*A. S. M.*
PRESIDENTC.H.W. W.S.E. W.N.H.
C.H.W.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT
BRIDGE SIGNAL, VERTICAL TYPE

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

DEC. 7, 1942

SHEET 2 OF 2

S-2104-A



ONE UNIT COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL

ONE UNIT COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL

NOTE

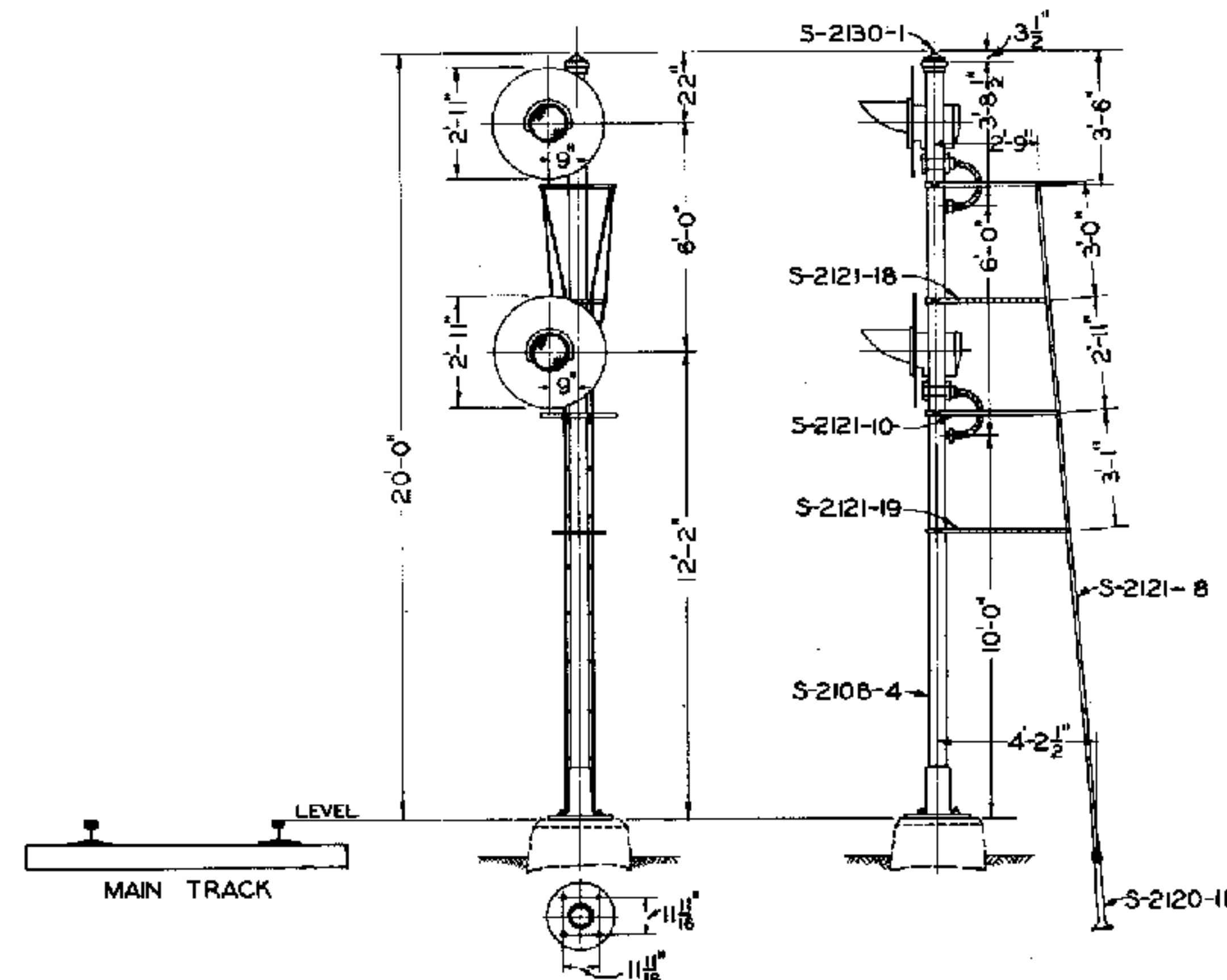
EACH SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALVANIZED FLEXIBLE CONDUIT AND FITTINGS.

SCALE IN FEET

0 1 2 3 4 5 6 7 8

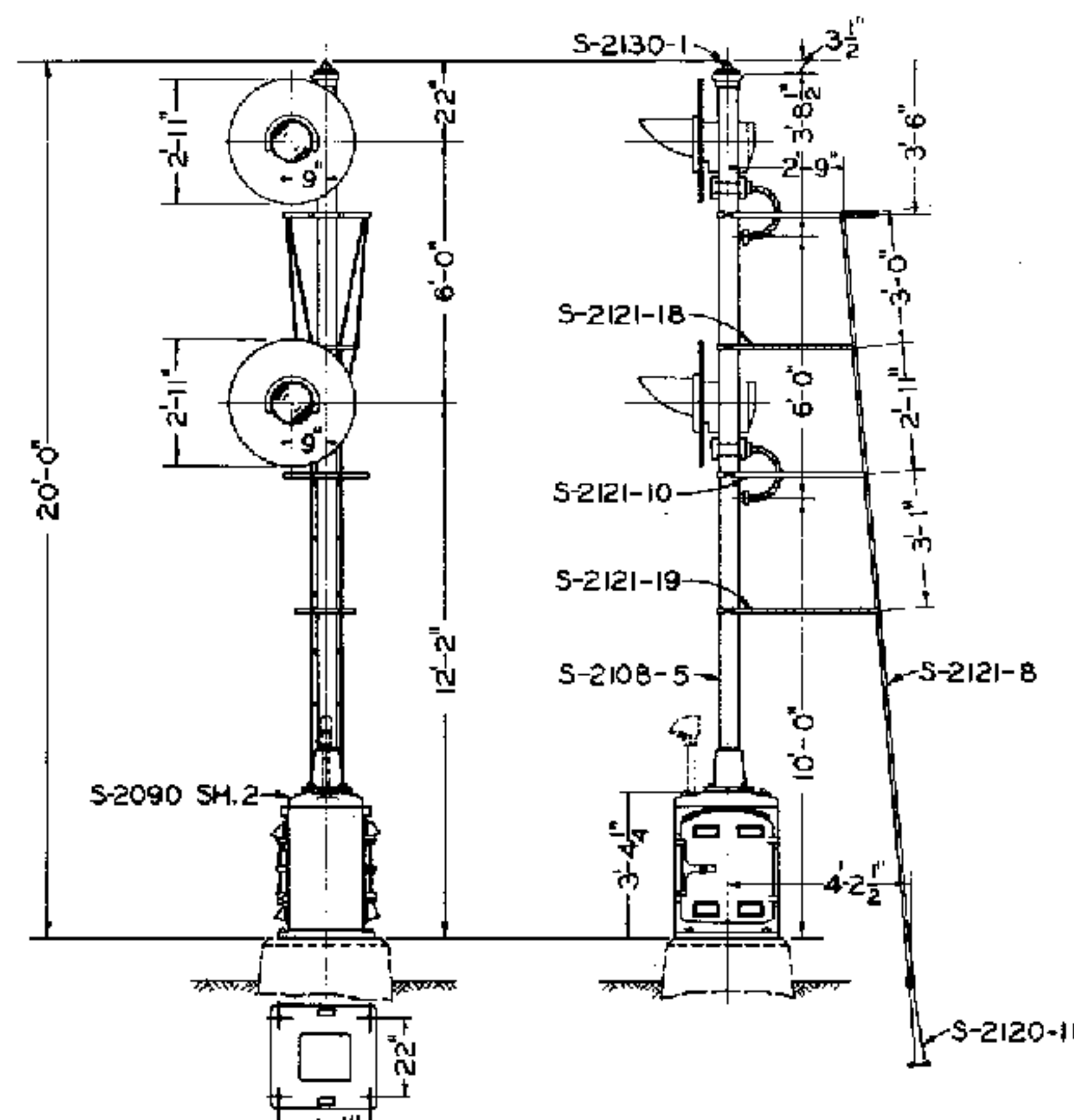


APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>D. Brooks</i> VICE PRESIDENT		STANDARD COLOR LIGHT SEARCHLIGHT GROUND SIGNAL, ONE UNIT HEIGHT MAST	
ERIE RAILROAD COMPANY <i>E. Woodruff</i> VICE PRESIDENT			
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>D. Brooks</i> VICE PRESIDENT			
PERE MARQUETTE RAILWAY COMPANY <i>A. Brown</i> VICE PRESIDENT			
C.H.W. K.L.M.		APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>A. Brown</i> CHIEF ENGINEER	
C.D.M. A.J.P.		JUNE 27, 1933	



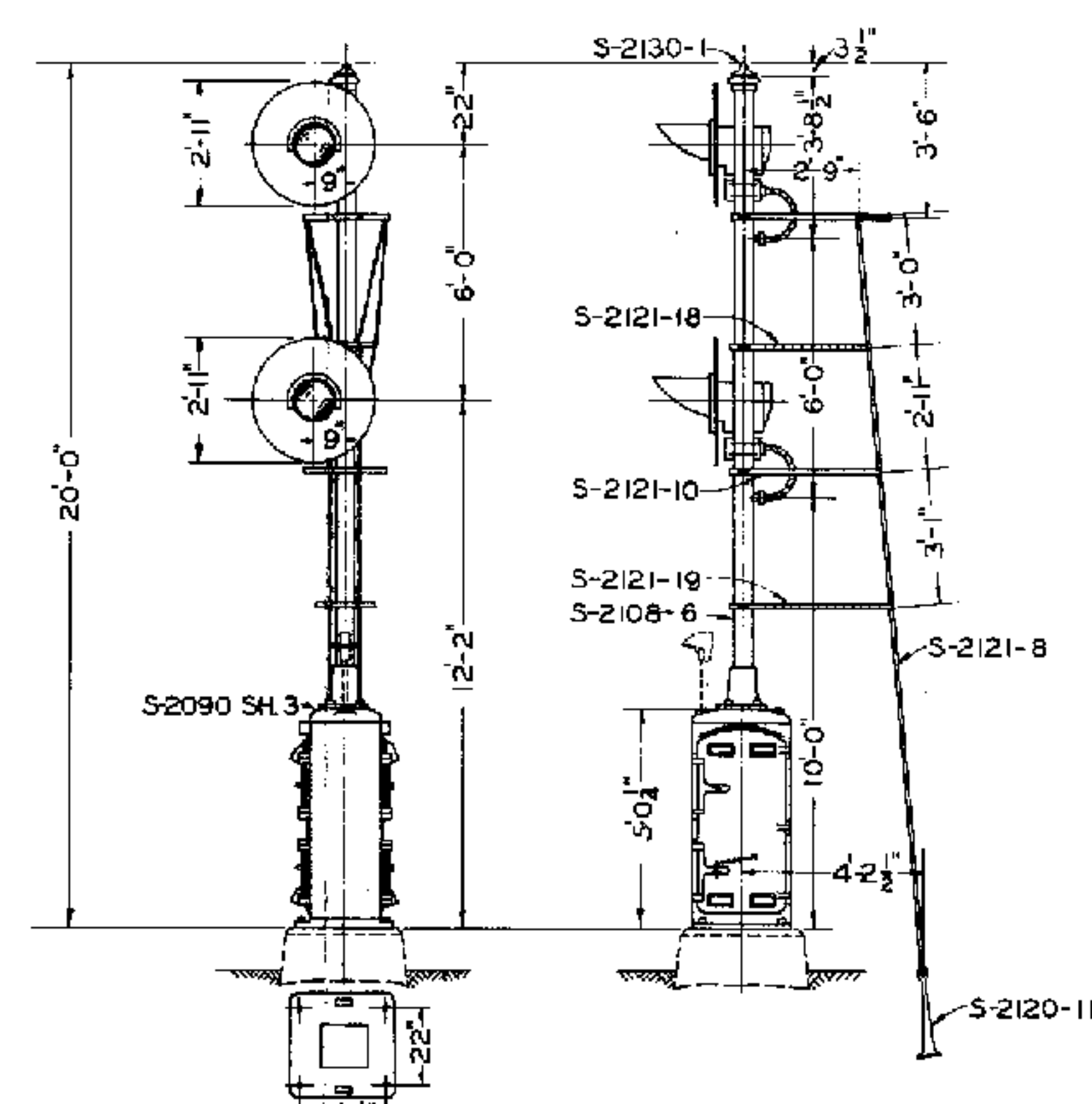
TWO UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2106-1	S-2106-2	TWO UNIT SEARCHLIGHT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS



TWO UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2106-3	S-2106-4	TWO UNIT SEARCHLIGHT GROUND SIGNAL WITH INSTRUMENT CASE 3'-4 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-31 OR 2" CABLE OUTLET S-2090-22



TWO UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

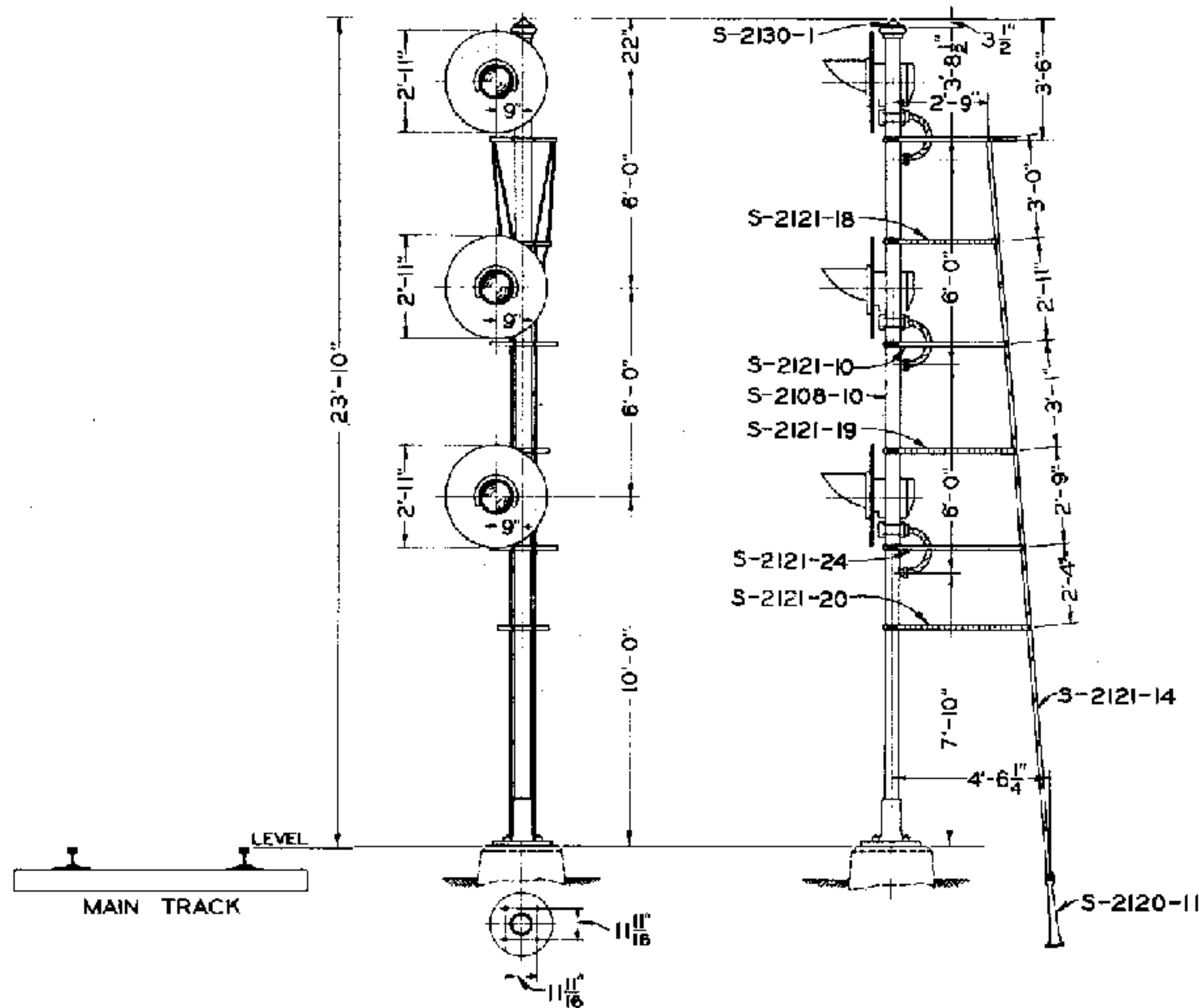
TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2106-5	S-2106-6	TWO UNIT SEARCHLIGHT GROUND SIGNAL WITH INSTRUMENT CASE 5'-0 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-32 OR 2" CABLE OUTLET S-2090-22

- NOTES
1. EACH OPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
 2. EACH INOPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT, FITTINGS AND 2" X 3/4" REDUCING BUSHING.
 3. SIGNAL UNITS MAY BE ASSEMBLED ON EITHER SIDE OF MAST TO MEET REQUIREMENTS.

SCALE IN FEET
0 1 2 3 4 5 6 7 8

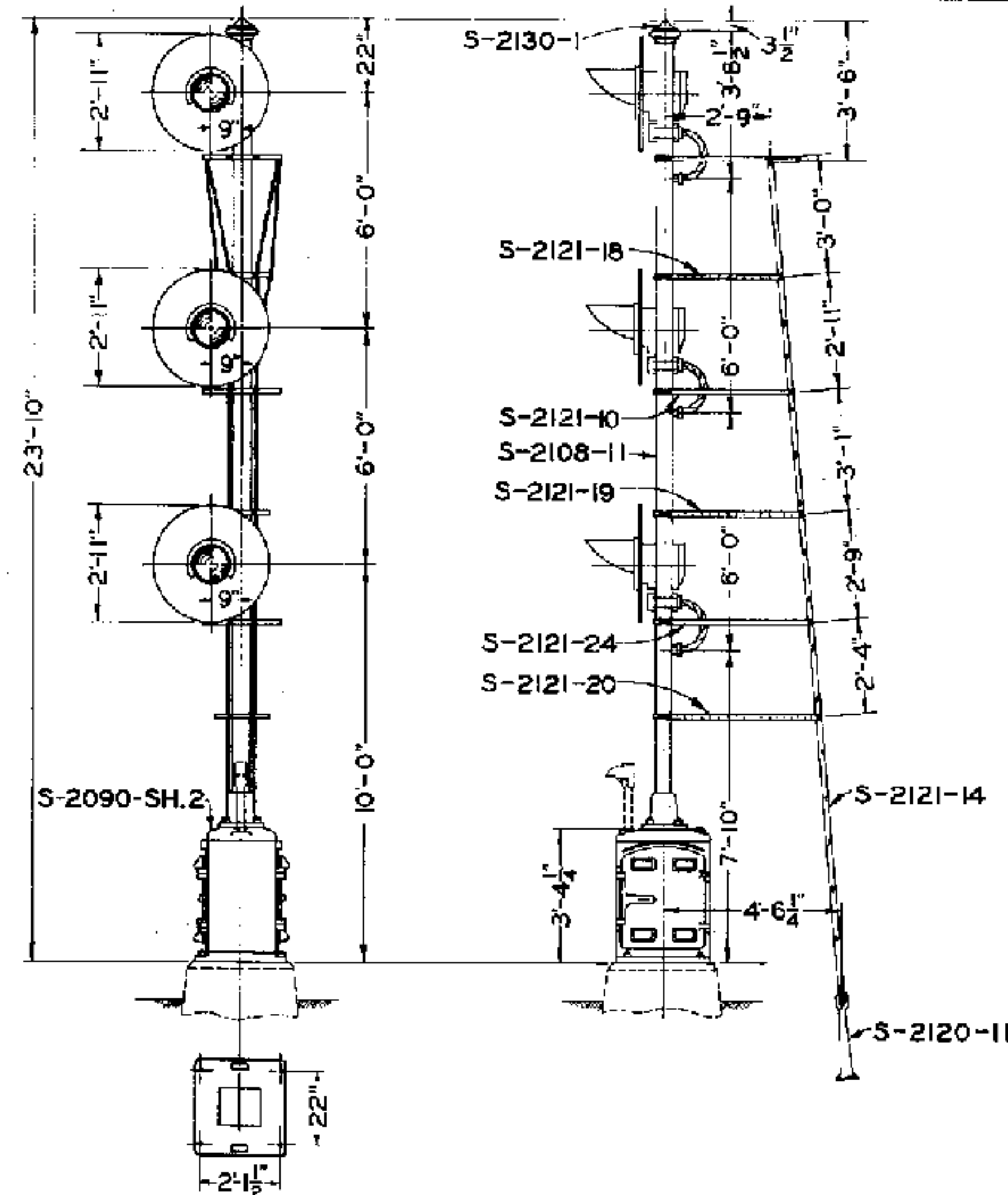
APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
VICE PRESIDENT		PERE MARQUETTE RAILWAY COMPANY	
VICE PRESIDENT		STANDARD COLOR LIGHT SEARCHLIGHT GROUND SIGNAL, TWO UNIT HEIGHT MAST	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		APPROVED BY	
VICE PRESIDENT		ADVISORY COMMITTEE ON WAY AND STRUCTURES	
PERE MARQUETTE RAILWAY COMPANY		APPROVED: JUNE 27, 1933	
VICE PRESIDENT		CHIEF ENGINEER	
C.H.W.	C.D.M. A.J.P.		
C.H.W.	C.D.M. A.J.P.		

S-2106



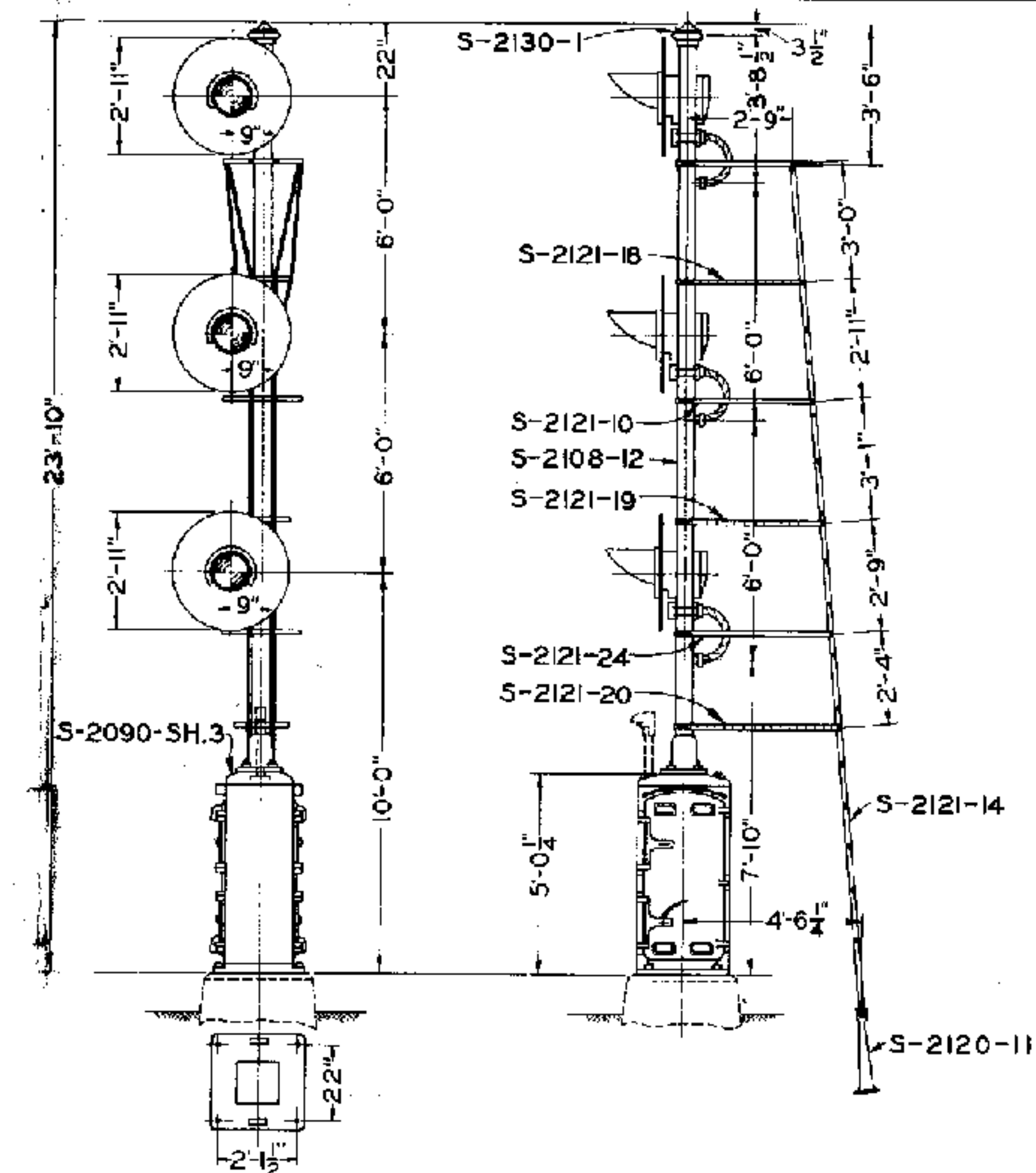
THRE E UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

THREE OPERATIVE UNITS	TWO OPERATIVE UNITS AND ONE INOPERATIVE UNIT	ONE OPERATIVE UNIT AND TWO INOPERATIVE UNITS	DESCRIPTION
S-2107-1	S-2107-2	S-2107-3	THREE UNIT SEARCHLIGHT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS.



THREE UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

THREE OPERATIVE UNITS	TWO OPERATIVE UNITS AND ONE INOPERATIVE UNIT	ONE OPERATIVE UNIT AND TWO INOPERATIVE UNITS	DESCRIPTION
S-2107-4	S-2107-5	S-2107-6	THREE UNIT SEARCHLIGHT GROUND SIGNAL WITH INSTRUMENT CASE 3'-4 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-31 OR 2" CABLE OUTLET S-2090-22



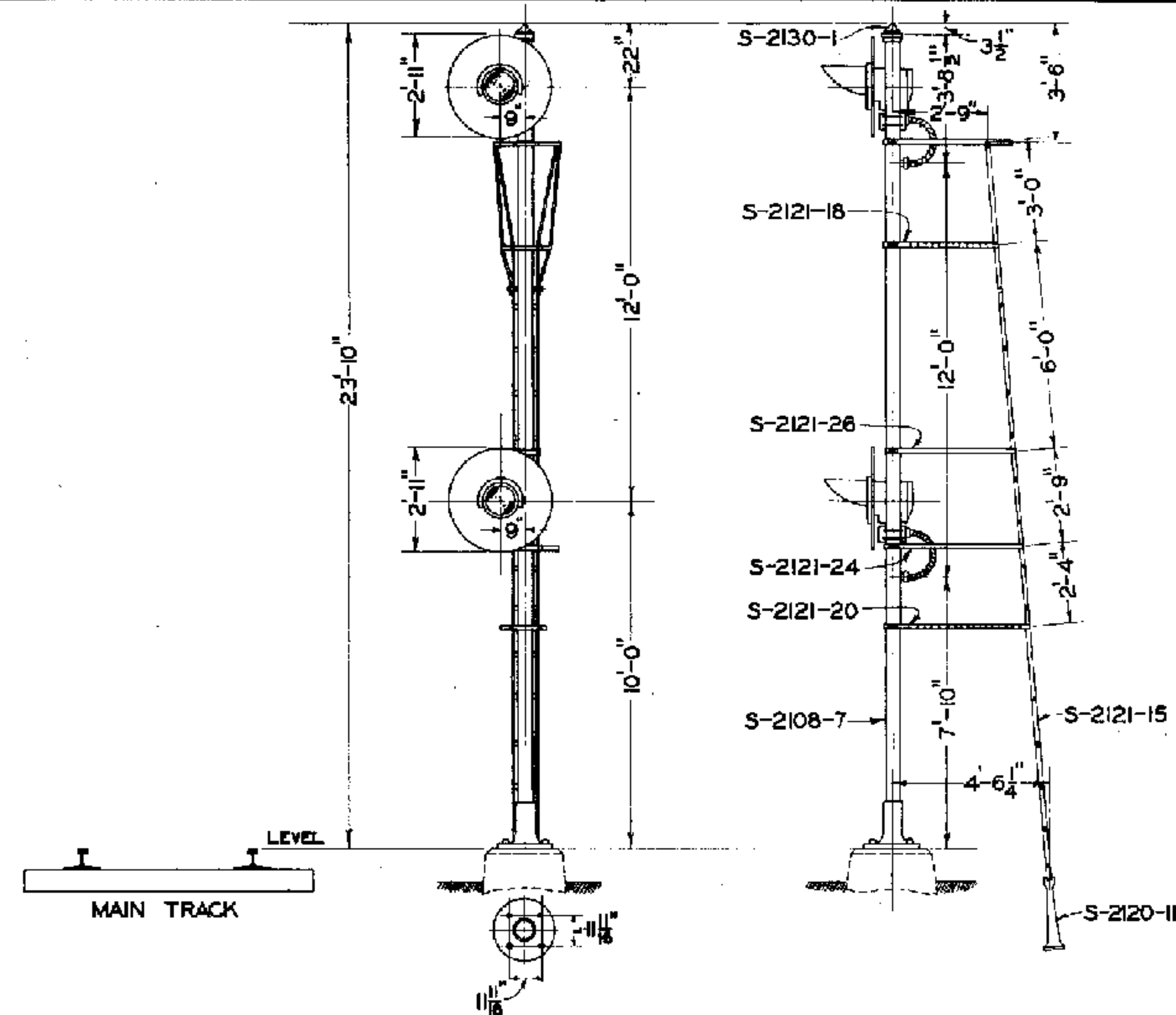
THREE UNIT COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

THREE OPERATIVE UNITS	TWO OPERATIVE UNITS AND ONE INOPERATIVE UNIT	ONE OPERATIVE UNIT AND TWO INOPERATIVE UNITS	DESCRIPTION
S-2107-7	S-2107-8	S-2107-9	THREE UNIT SEARCHLIGHT GROUND SIGNAL WITH INSTRUMENT CASE 5'-0 1/2" HIGH COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-32 OR 2" CABLE OUTLET S-2090-22

- NOTES
1. EACH OPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
 2. EACH INOPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 3/4" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT, FITTINGS AND 2" X 3/4" REDUCING BUSHING.

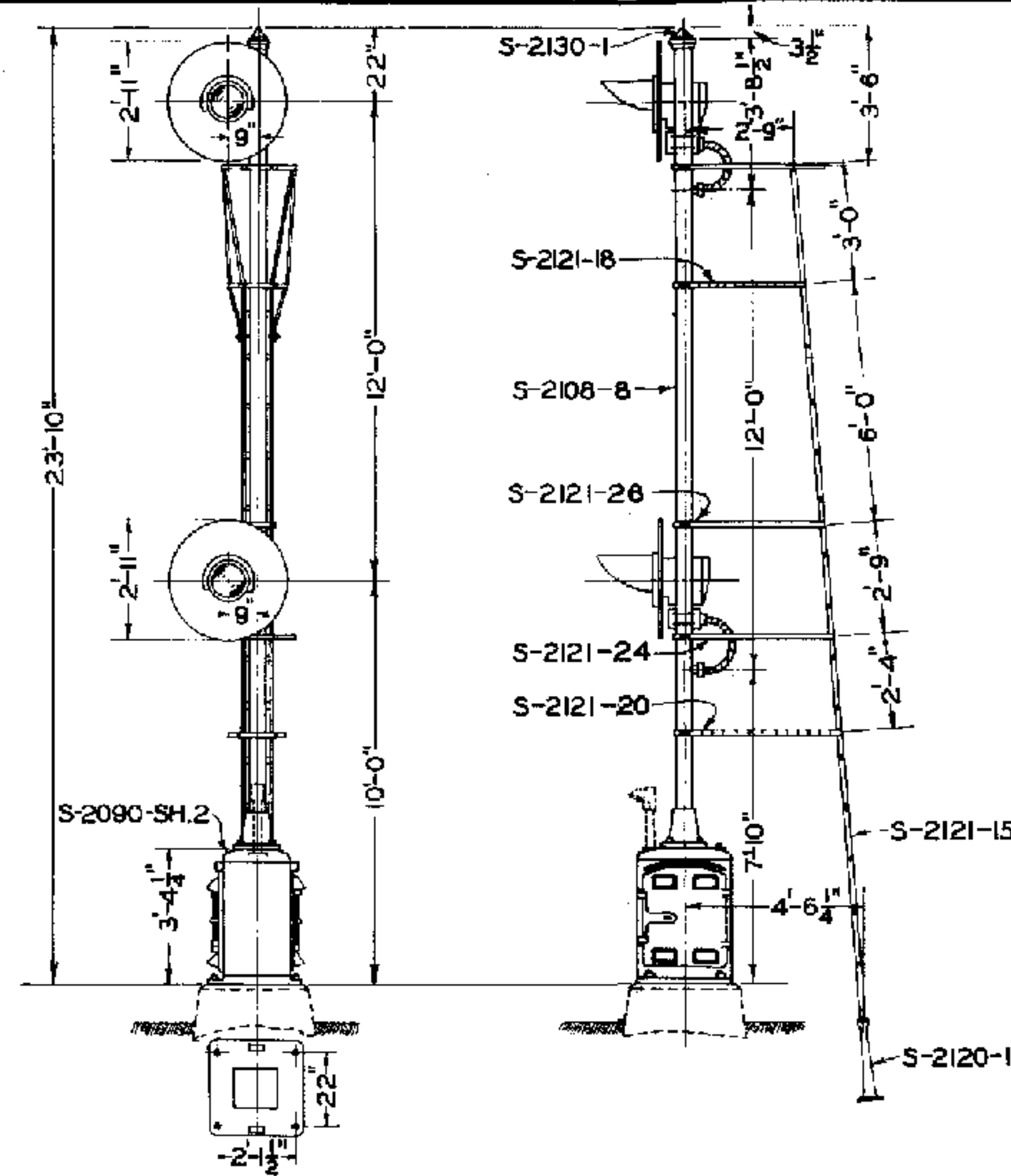
SCALE IN FEET
0 1 2 3 4 5 6 7 8

APPROVED FOR USE	THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY
 R. W. Woodruff VICE PRESIDENT	STANDARD COLOR LIGHT SEARCHLIGHT GROUND SIGNAL, THREE UNIT HEIGHT MAST
 R. W. Woodruff VICE PRESIDENT	APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: JUNE 27, 1933 C. H. W. C. B. P. C.D.M. A.J.P.
 R. W. Woodruff VICE PRESIDENT	SHEET 1 OF 2 S-2107



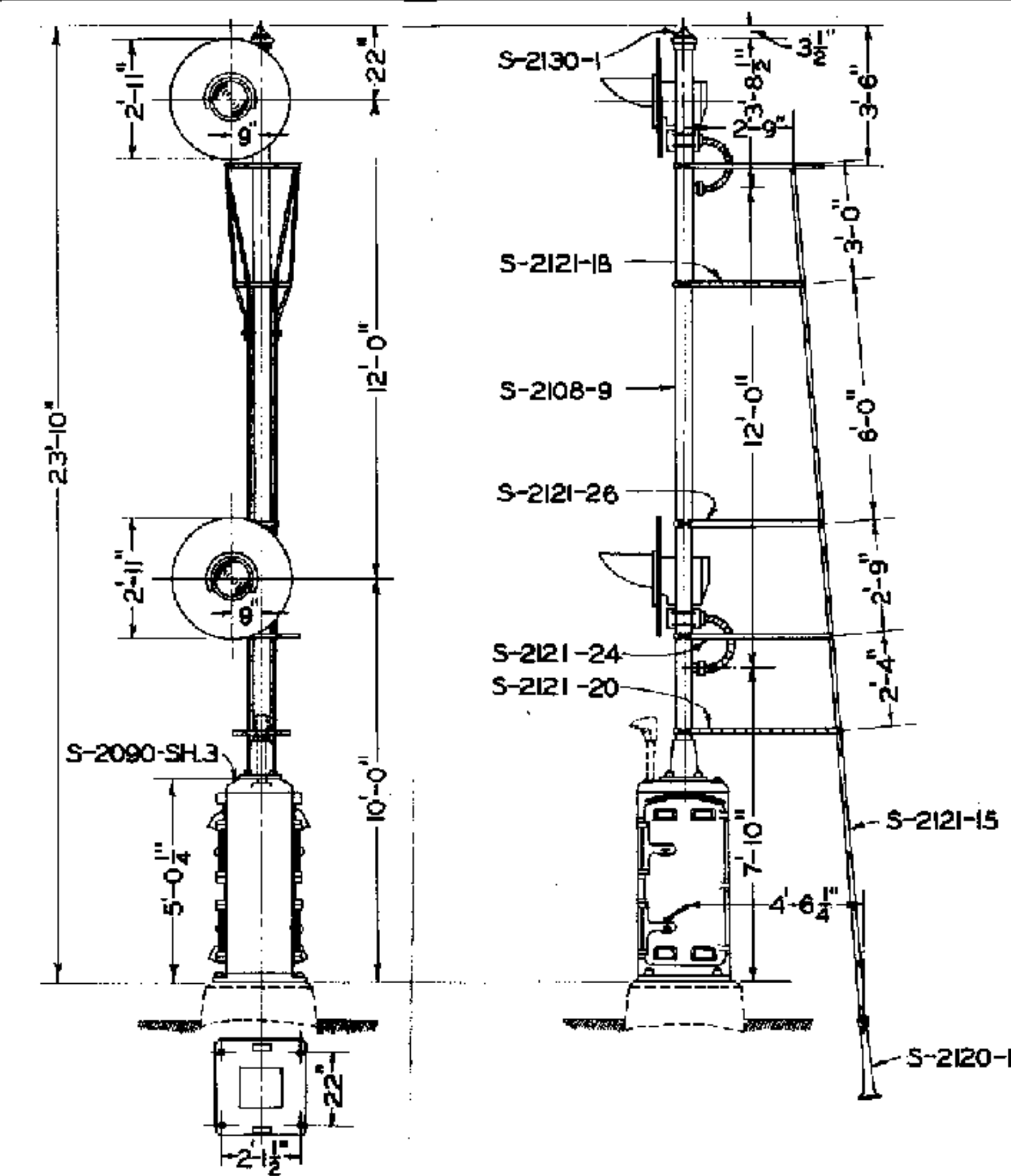
TWO UNIT-THREE UNIT HEIGHT COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2107-10	S-2107-11	TWO UNIT-THREE UNIT HEIGHT SEARCH-LIGHT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS



TWO UNIT-THREE UNIT HEIGHT COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2107-12	S-2107-13	TWO UNIT-THREE UNIT HEIGHT SEARCH-LIGHT GROUND SIGNAL WITH INSTRUMENT CASE 3'-4" HIGH COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-31 OR 2" CABLE OUTLET S-2090-22



TWO UNIT-THREE UNIT HEIGHT COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT	DESCRIPTION
S-2107-14	S-2107-15	TWO UNIT-THREE UNIT HEIGHT SEARCH-LIGHT GROUND SIGNAL WITH INSTRUMENT CASE 5'-0" HIGH COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING S-2090-32 OR 2" CABLE OUTLET S-2090-22

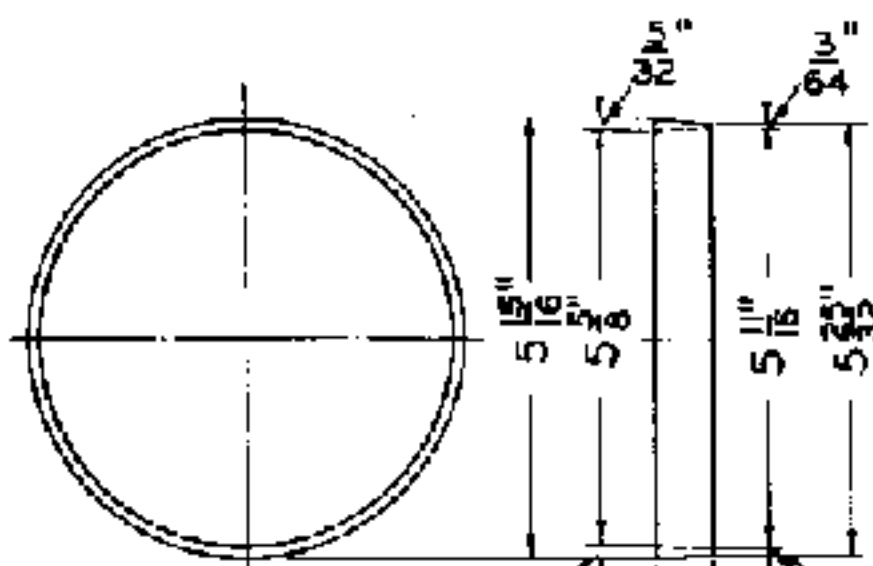
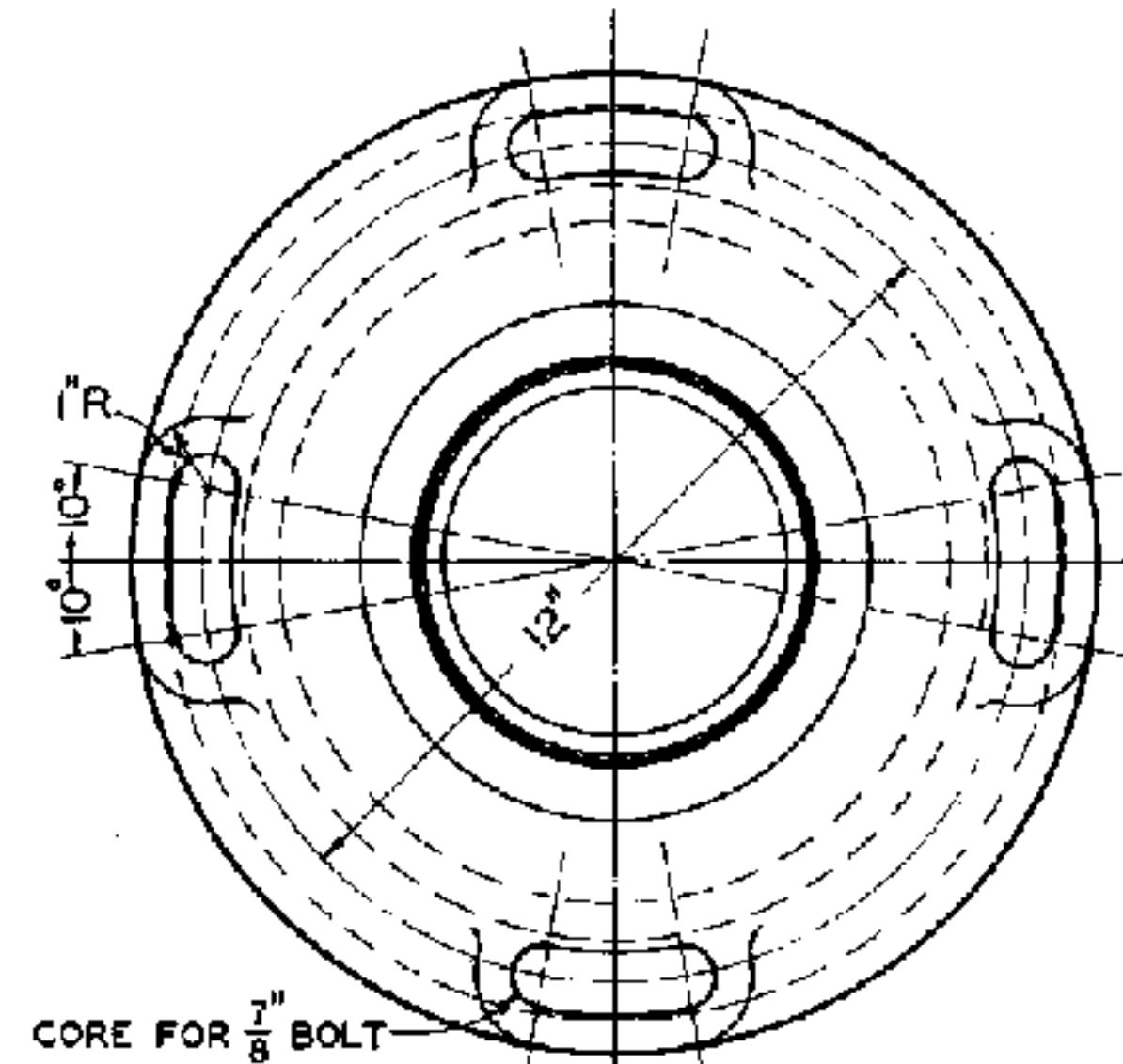
- NOTES
1. EACH OPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
 2. EACH INOPERATIVE SIGNAL UNIT SHALL BE FURNISHED WITH ONE 3/4" I.D. DOUBLE STRIP GALV. FLEXIBLE CONDUIT, FITTINGS AND 2" X 3/4" REDUCING BUSHING.

SCALE IN FEET
0 1 2 3 4 5 6 7 8

APPROVED FOR USE	THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY
<i>[Signature]</i> VICE PRESIDENT	
ERIE RAILROAD COMPANY	
<i>[Signature]</i> VICE PRESIDENT	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
<i>[Signature]</i> VICE PRESIDENT	
PERE MARQUETTE RAILWAY COMPANY	
<i>[Signature]</i> VICE PRESIDENT	
C.H.W. K.L.M.	C.D.M. A.J.P.

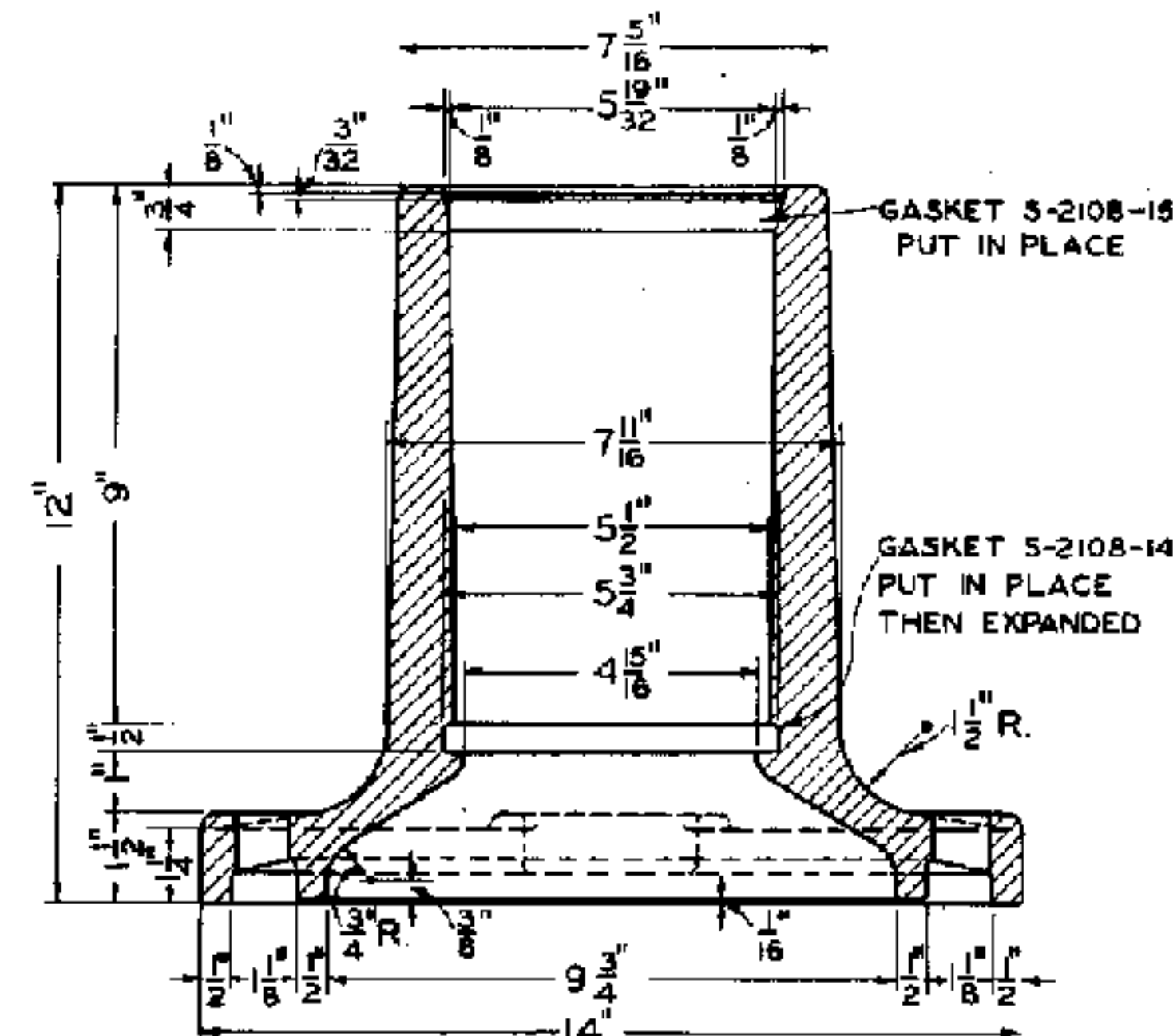
STANDARD COLOR LIGHT
SEARCHLIGHT GROUND SIGNAL,
THREE UNIT HEIGHT MAST

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* CHIEF ENGINEER
JUNE 27, 1933
SHEET 2 OF 2
S-2107



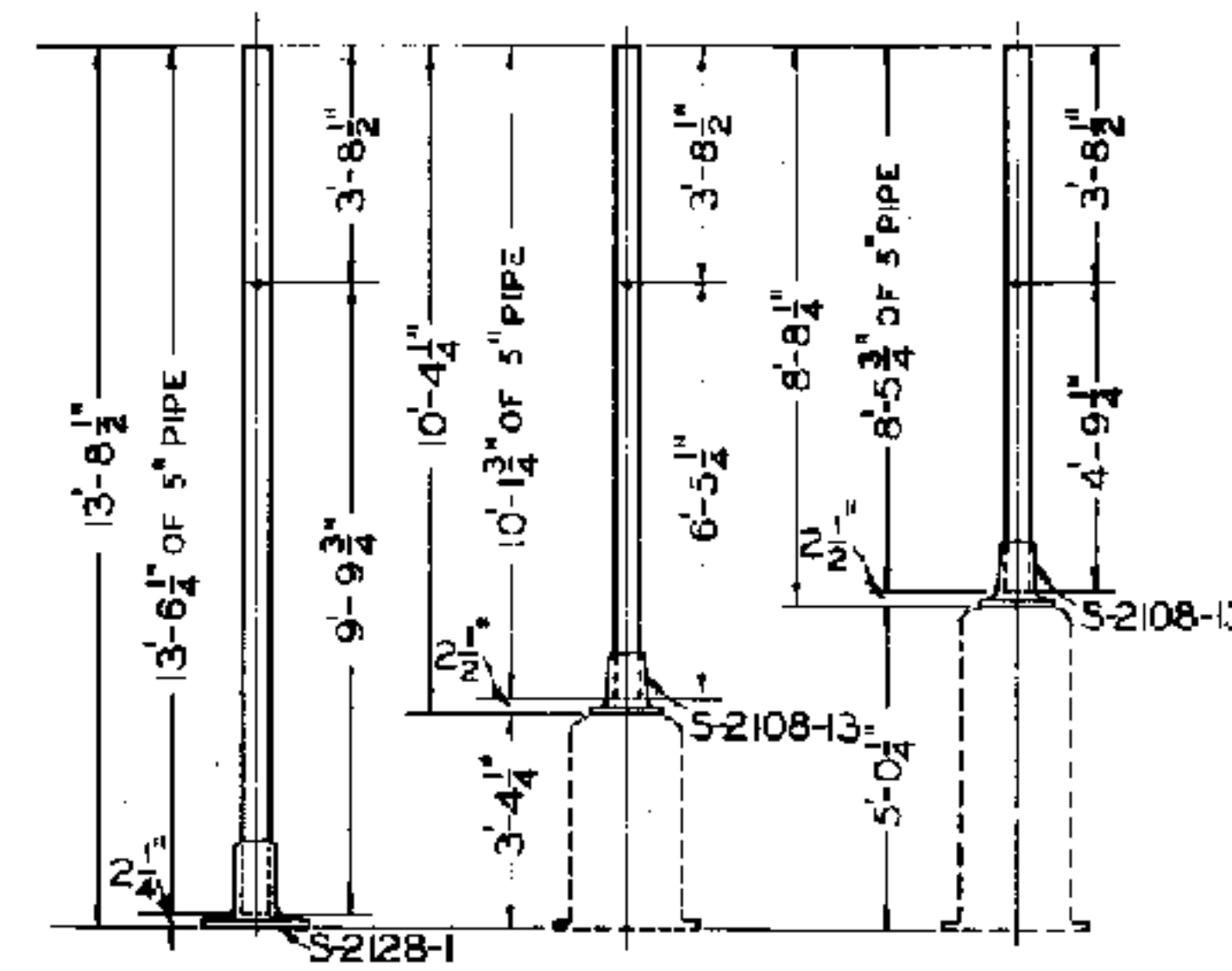
S-2108-15 GASKET

LEAD
SCALE (2)



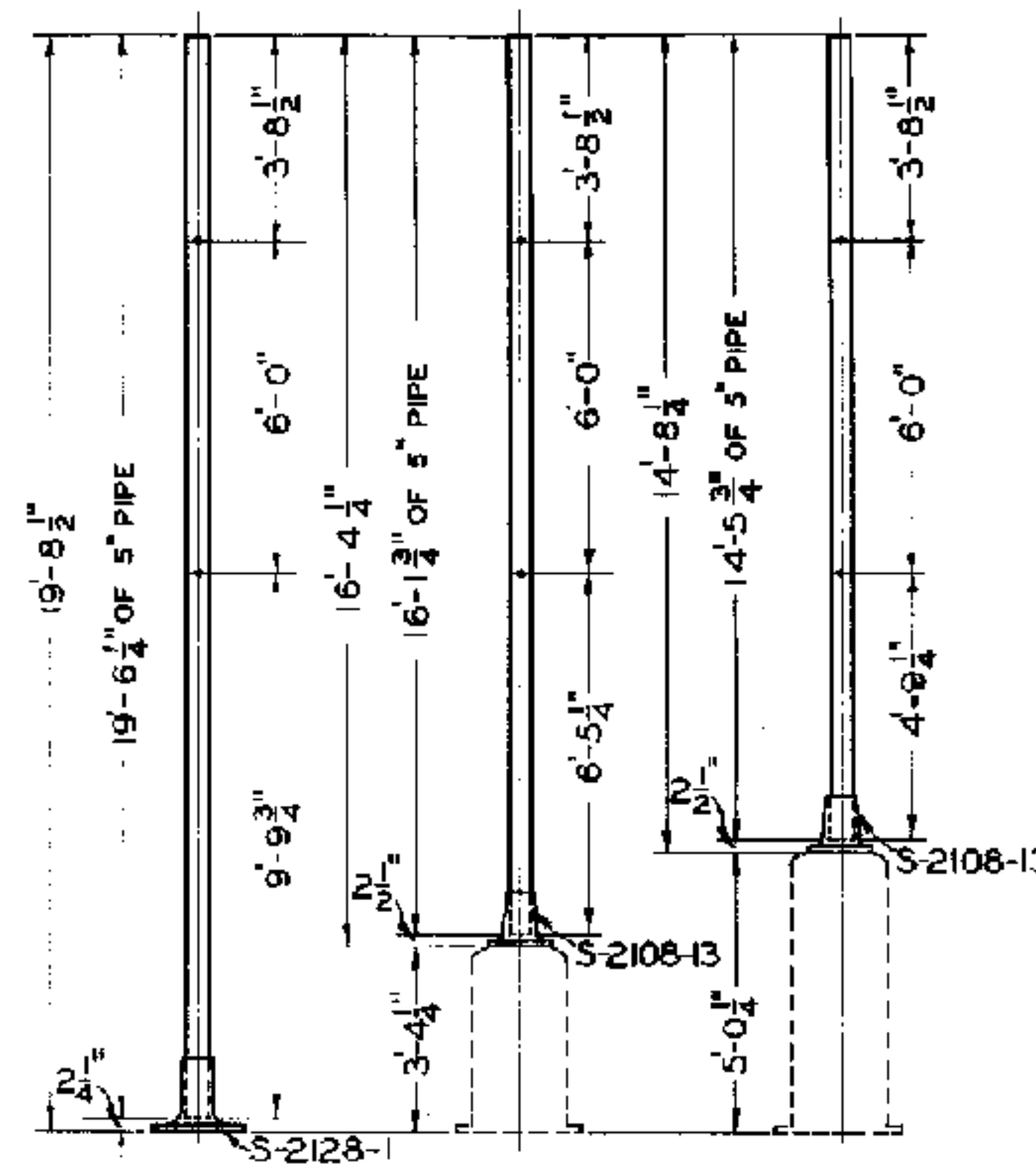
S-2108-14 GASKET

LEAD
SCALE (2)



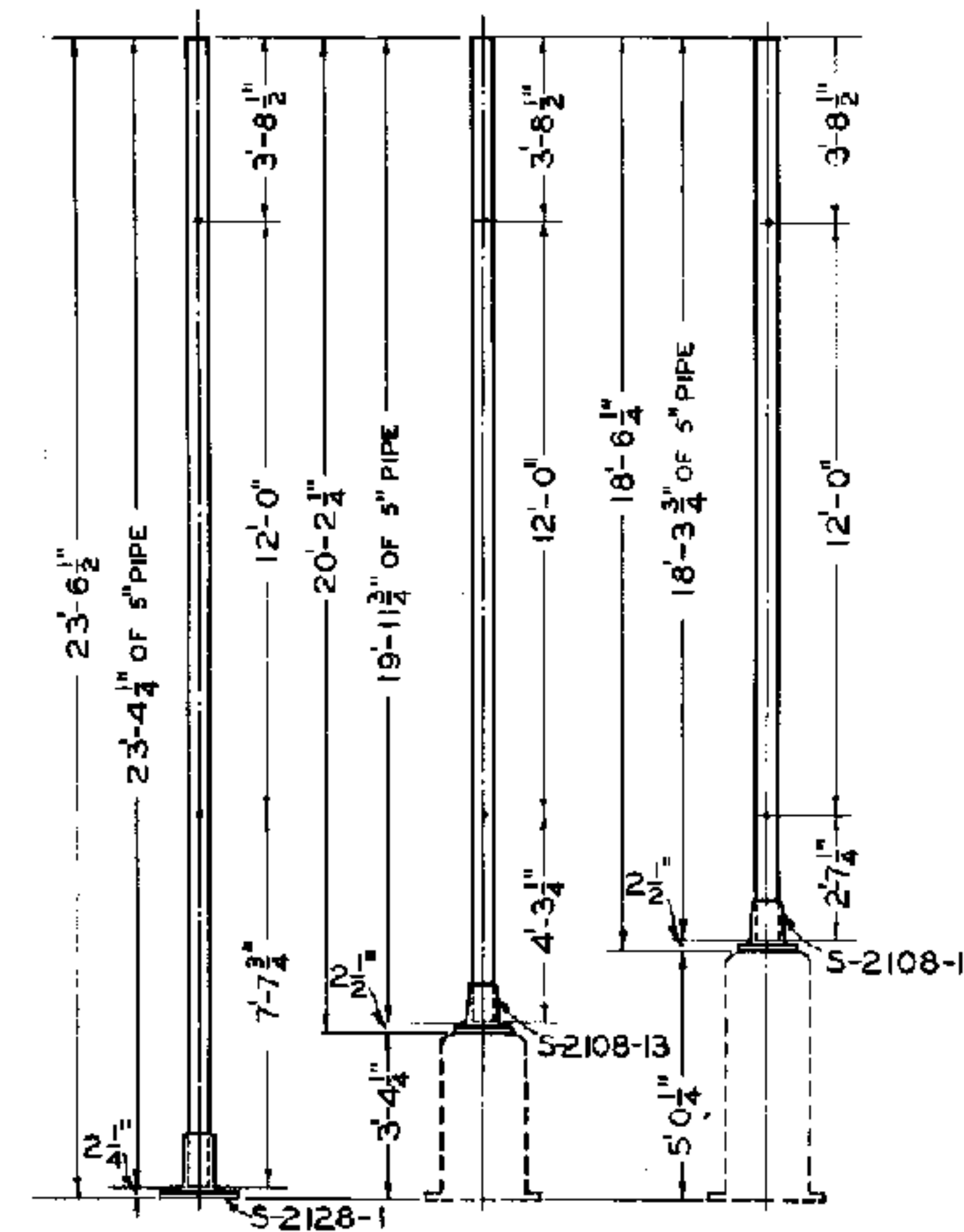
ONE UNIT MASTS

SCALE (1)



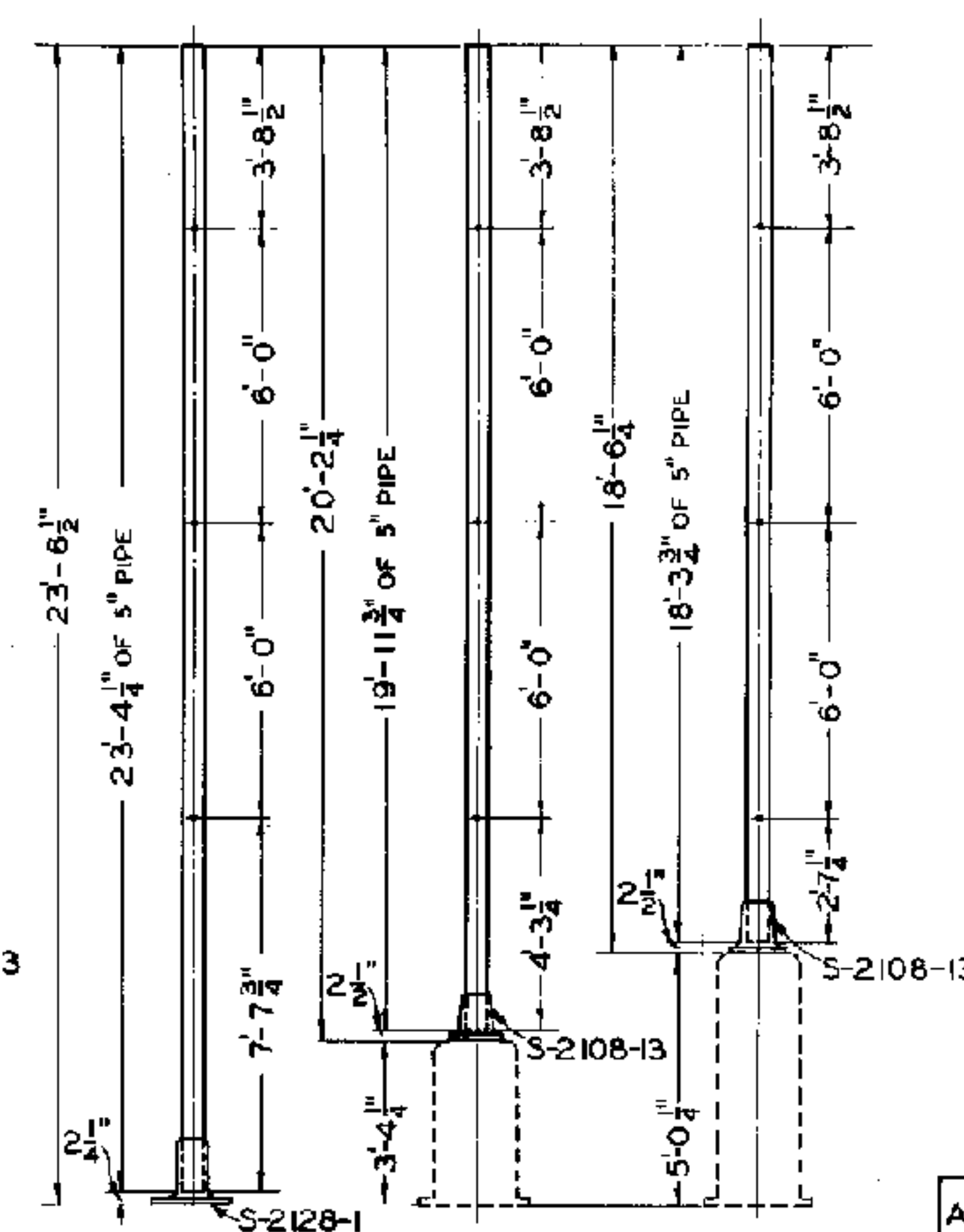
TWO UNIT MASTS

SCALE (1)



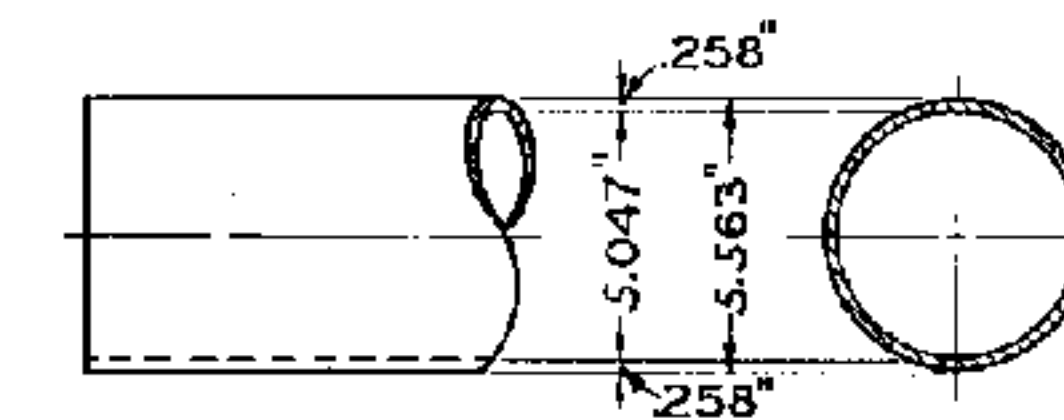
TWO UNIT-THREE UNIT HEIGHT MASTS

SCALE (1)



THREE UNIT MASTS

SCALE (1)



5" PIPE SECTION

WROUGHT IRON OR STEEL
SCALE (3)

SCALE IN INCHES

0	12	24	36	48	60	72	84	96
0	1	2	3	4	5	6	7	8
0	1	2	3	4	5	6	7	8

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

W. A. Wood
VICE PRESIDENT

THE ERIE RAILROAD COMPANY

W. A. Wood
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

W. A. Wood
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

W. A. Wood
VICE PRESIDENT

C.H.W. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

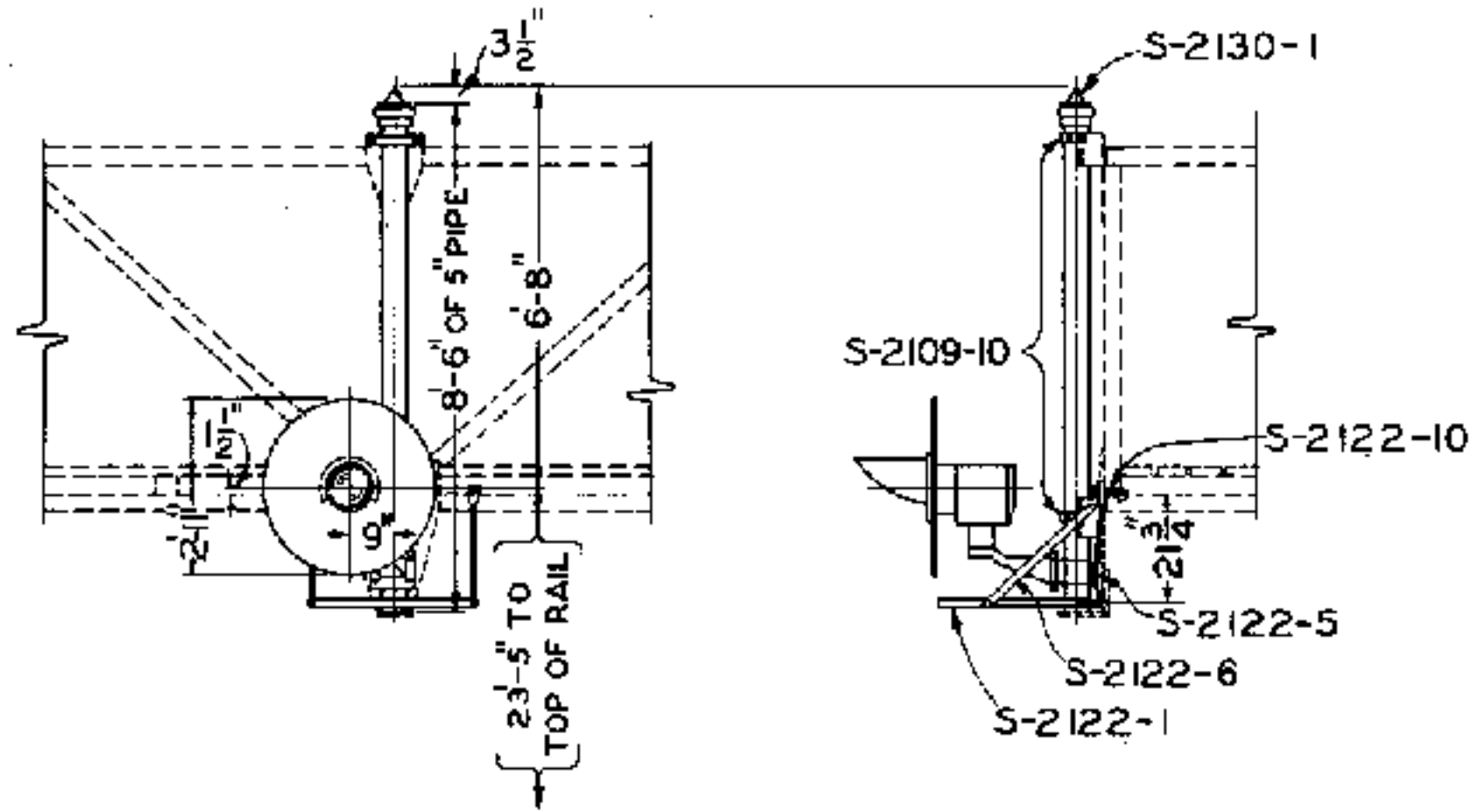
STANDARD MASTS FOR COLOR LIGHT SEARCHLIGHT GROUND SIGNALS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. A. Wood* JUNE 27, 1933
CHIEF ENGINEER

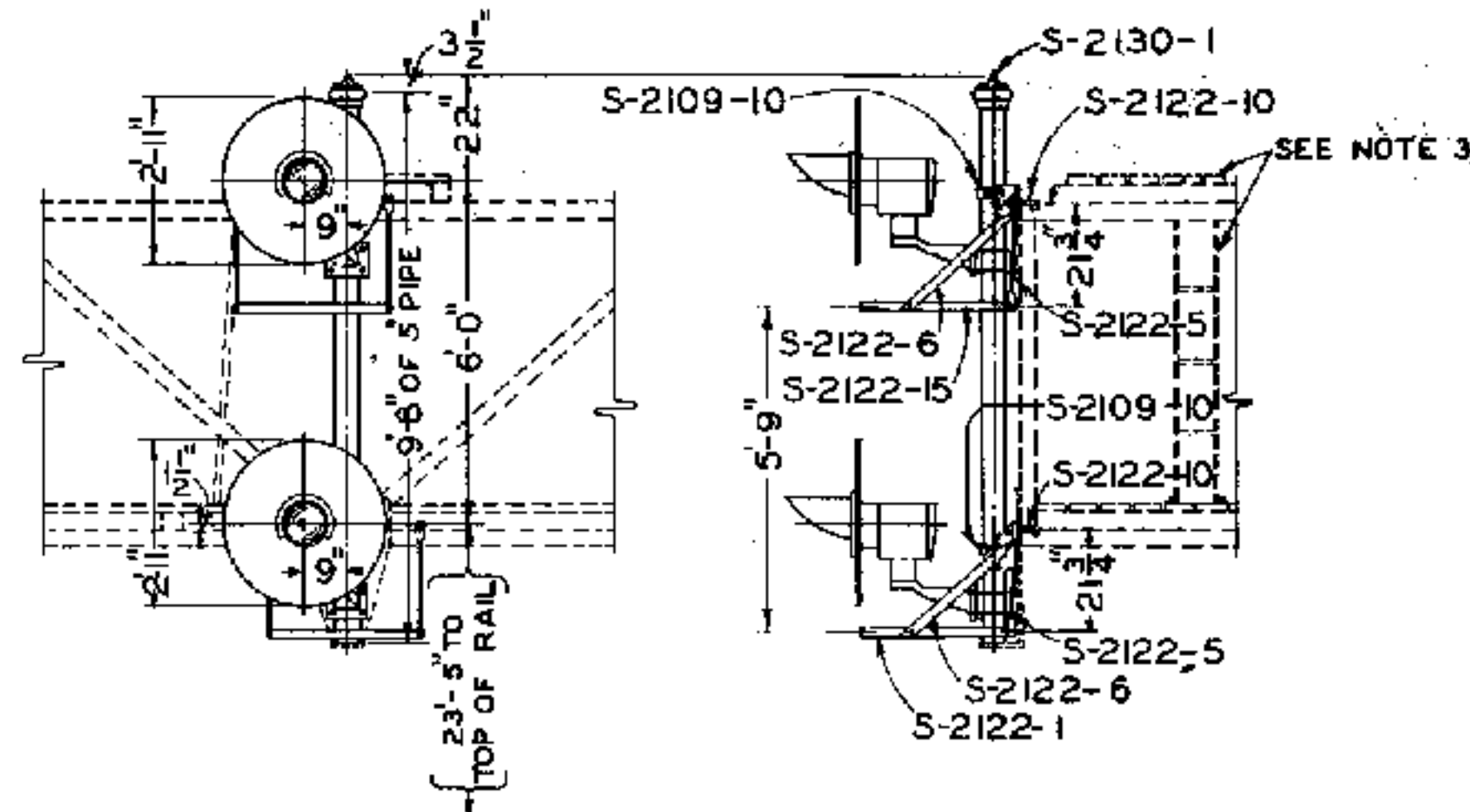
S-2108

NOTES

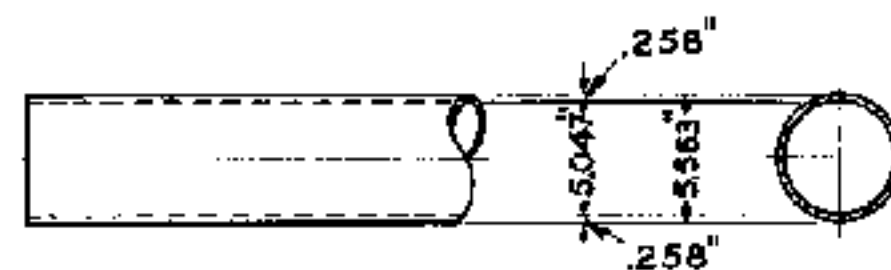
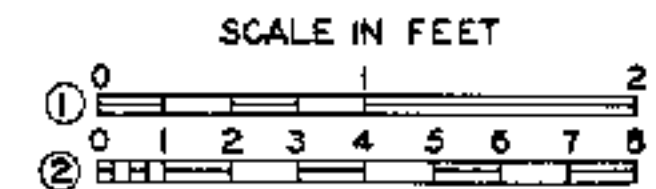
1. SIGNALS MAY BE ASSEMBLED WITH UNITS ON EITHER SIDE OF MAST, AS REQUIRED.
2. TOP PLATFORM MAY BE ASSEMBLED WITH TOP SIGNAL UNIT ON EITHER SIDE OF MAST BY INVERTING PLATFORM.
3. LADDER IS NOT INCLUDED IN SIGNAL ASSEMBLY. FOR DETAILS OF HANDRAIL, LADDER, AND PLATFORM ARRANGEMENT SEE STANDARD DRAWING S-2123.
4. SIGNAL ASSEMBLIES ARE FOR APPLICATION TO STANDARD TWO, THREE, AND FOUR TRACK SIGNAL BRIDGE, S-2993.
5. MASTS SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT FINISHING COAT OF BLACK ON EXTERIOR SURFACES SHALL BE OMITTED.
6. EACH OPERATIVE UNIT SHALL BE FURNISHED WITH ONE 2" BUSHING AND EACH INOPERATIVE UNIT SHALL BE FURNISHED WITH ONE 3/4" BUSHING IN WIRE OUTLET.



S-2109-1 ONE UNIT COLOR LIGHT SEARCHLIGHT
BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMP
SCALE ②



TWO UNIT COLOR LIGHT SEARCHLIGHT
BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS
SCALE ②



5" PIPE SECTION
WROUGHT IRON OR STEEL
SCALE ①

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT
S-2109-2	S-2109-3

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. C. ...</i>		
EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. W. ...</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>T. D. ...</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>R. ...</i>		
PRESIDENT		
C.R.W.	W.S.E.	W.N.H.
C.H.W.		

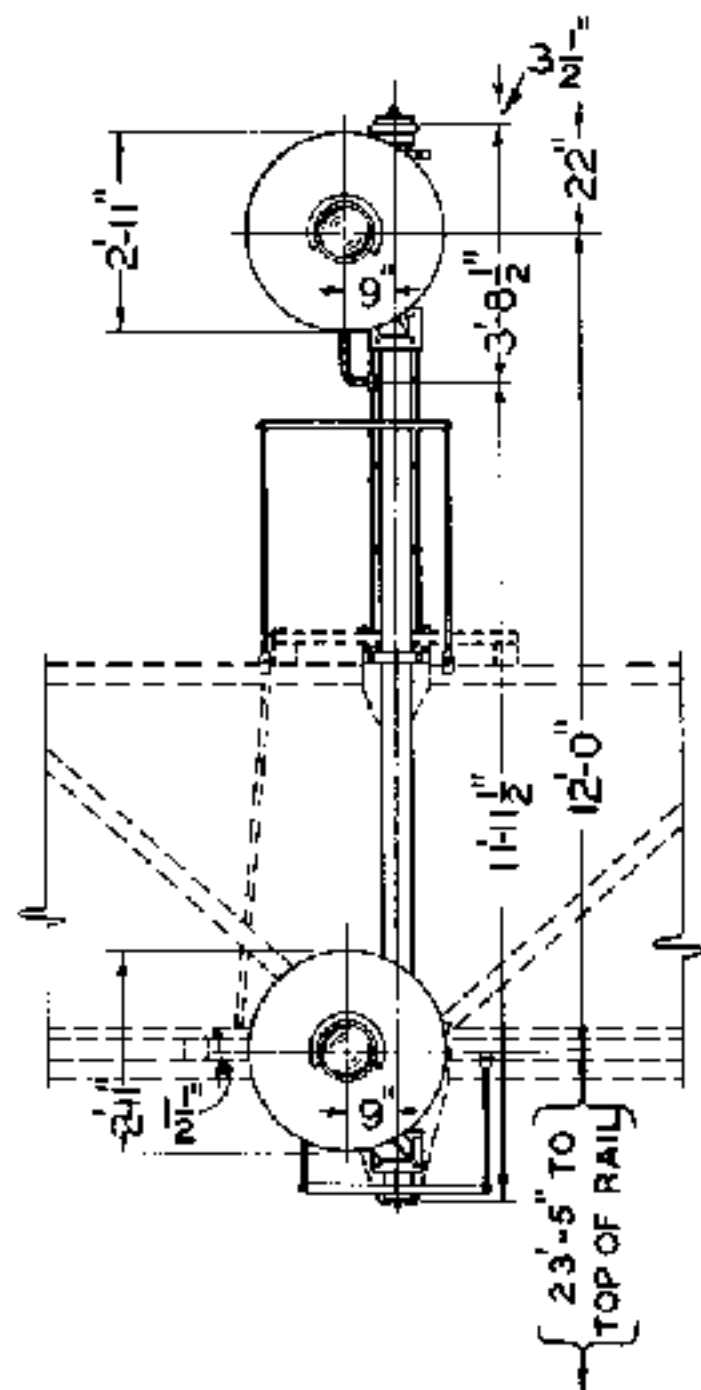
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT SEARCHLIGHT BRIDGE SIGNAL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
Wallace
CHAIRMAN

MARCH 15, 1943

SHEET 1 OF 2

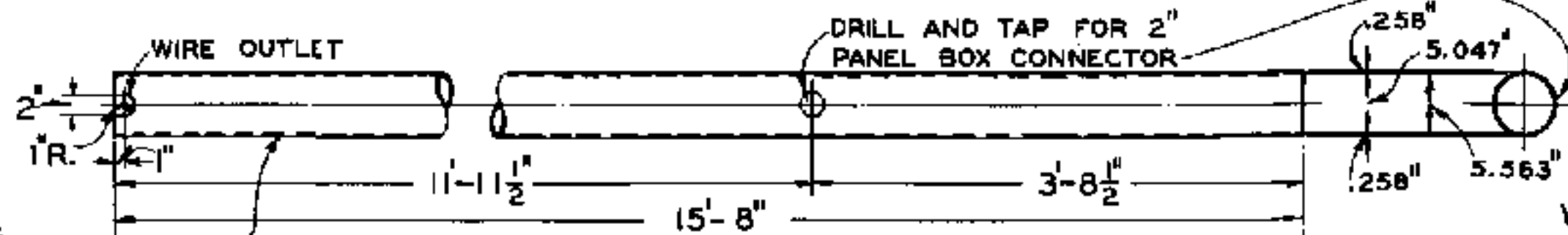


TWO UNIT-THREE UNIT HEIGHT COLOR LIGHT
SEARCHLIGHT BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS

SCALE ②

TWO OPERATIVE UNITS	ONE OPERATIVE UNIT AND ONE INOPERATIVE UNIT
S-2109-4	*S-2109-5

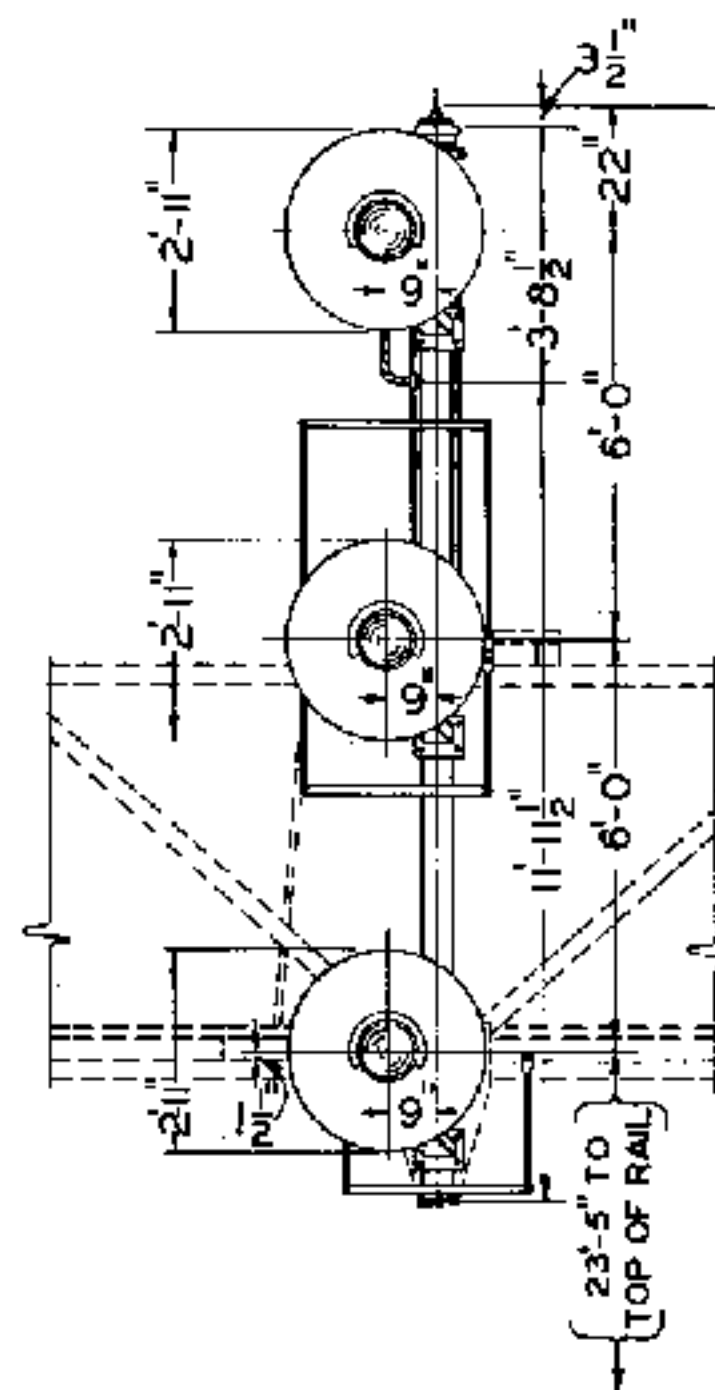
* ORDER SHALL SPECIFY WHETHER
TOP UNIT IS OPERATIVE OR
INOPERATIVE, SEE NOTES 3, 4, AND 5



S-2109-9 THREE UNIT MAST

WROUGHT IRON OR STEEL

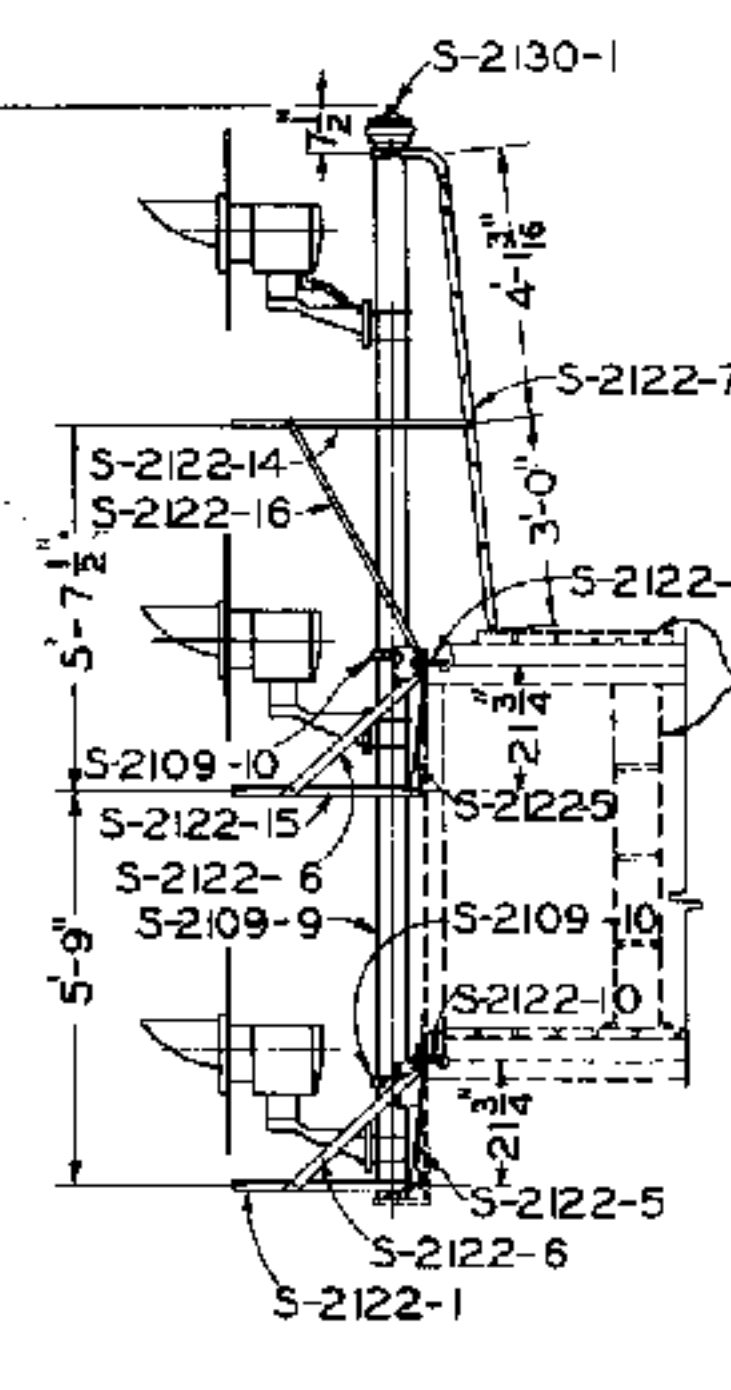
SCALE ①



THREE UNIT COLOR LIGHT SEARCHLIGHT
BRIDGE SIGNAL COMPLETE EXCEPT WITHOUT LAMPS

SCALE ②

THREE OPERATIVE UNITS	TWO OPERATIVE UNITS AND ONE INOPERATIVE UNIT	ONE OPERATIVE UNIT AND TWO INOPERATIVE UNITS
S-2109-6	*S-2109-7	*S-2109-8

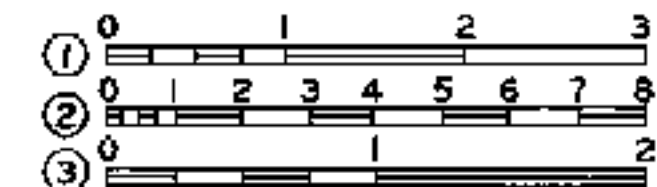


S-2109-10 W.I. CLAMP
WITH 2- $\frac{5}{8}$ " x $\frac{3}{4}$ " SQ. HD. BOLTS,
HEX. NUTS, AND $\frac{3}{16}$ " x $\frac{3}{4}$ " SPRING
WASHERS
SCALE ③

NOTES

1. LADDER IS NOT INCLUDED IN SIGNAL ASSEMBLY.
FOR DETAILS OF HANDRAIL, LADDER, AND PLATFORM
ARRANGEMENT SEE STANDARD DRAWING S-2123.
2. SIGNAL ASSEMBLIES ARE FOR APPLICATION TO
STANDARD TWO, THREE, AND FOUR TRACK SIGNAL
BRIDGE, S-2995.
3. FOR MIDDLE AND BOTTOM UNITS, EACH OPERATIVE UNIT
SHALL BE FURNISHED WITH ONE 2" BUSHING AND EACH
INOPERATIVE UNIT SHALL BE FURNISHED WITH ONE $\frac{3}{4}$ "
BUSHING IN WIRE OUTLET.
4. EACH OPERATIVE TOP UNIT SHALL BE FURNISHED
WITH ONE 2" I.D. DOUBLE STRIP GALV. FLEXIBLE
CONDUIT AND FITTINGS.
5. EACH INOPERATIVE TOP UNIT SHALL BE FURNISHED
WITH ONE $\frac{3}{4}$ " I.D. DOUBLE STRIP GALV. FLEXIBLE
CONDUIT, FITTINGS AND 2" x $\frac{3}{4}$ " REDUCING BUSHING.
6. MASTS SHALL BE FURNISHED PAINTED IN
ACCORDANCE WITH LATEST REVISION OF STANDARD
SPECIFICATIONS S-1310, SHOP AND FIELD PAINTING
FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT
FINISHING COAT OF BLACK ON EXTERIOR SURFACES
SHALL BE OMITTED.

SCALE IN FEET



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>A. Comstock</i>	EXECUTIVE VICE PRESIDENT
ERIE RAILROAD COMPANY	<i>H.W. Barber</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>T.D. Beale</i>	VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	<i>R.H. Brown</i>	PRESIDENT
C.H.W.	W.S.E.	W.N.H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD COLOR LIGHT SEARCHLIGHT BRIDGE SIGNAL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN
MARCH 15, 1943

SHEET 2 OF 2

S-2109-A

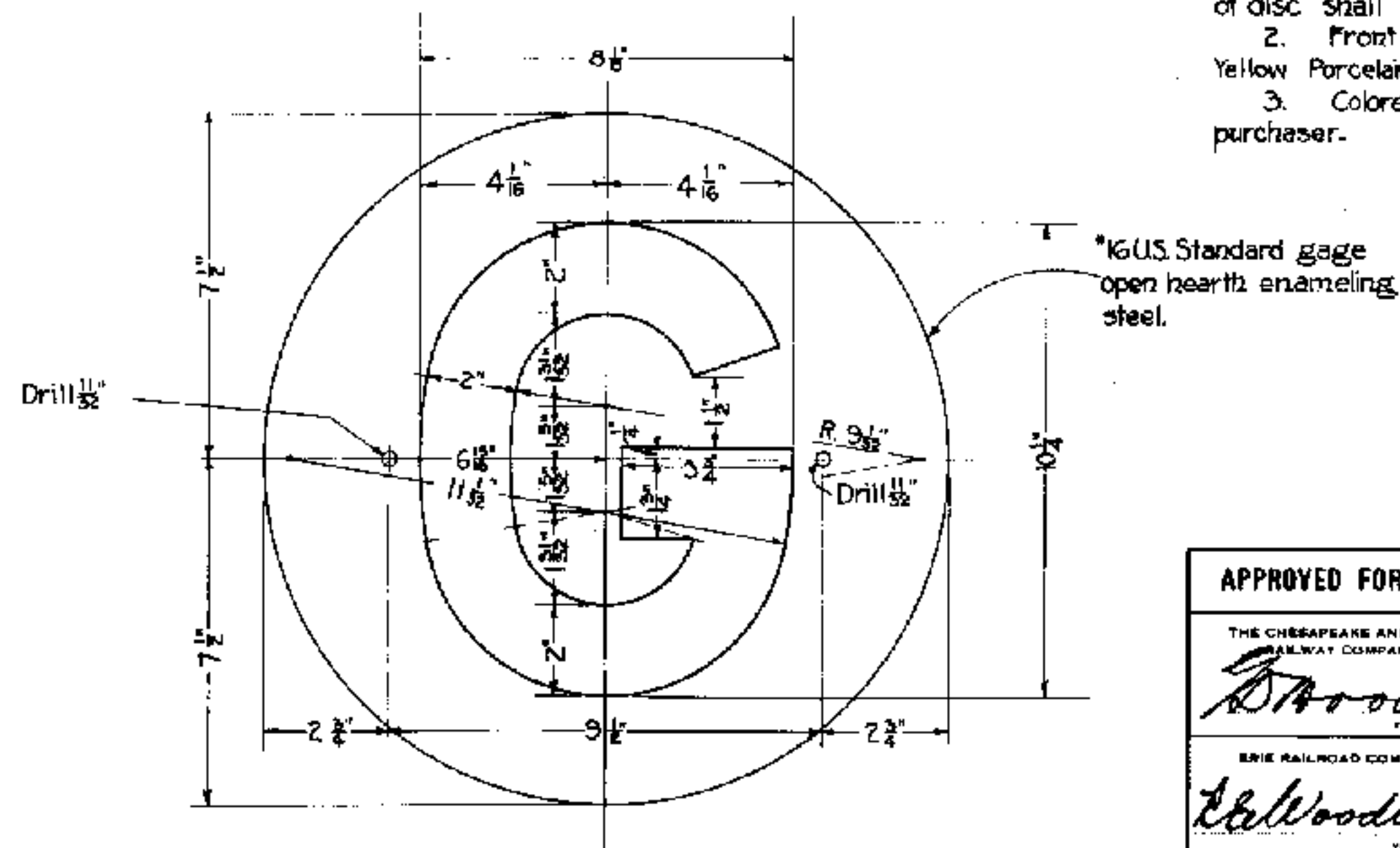


S-2110-1	MARKER	COMP	WITH	LETTER	"G"	FOR	5"	PIPE
S-2110-2	"	"	"	"	"	"	6"	"
S-2110-3	"	"	"	WITHOUT	"	"	5"	"
S-2110-4	"	"	"	"	"	"	6"	"

FIGURE					QUANTITY REQUIRED	DESCRIPTION OF MATERIAL	DRAWING NUMBER
①			1	1		DISC WITH LETTER "G"	S-2110-5
	1	1				DISC WITHOUT LETTER "G"	S-2110-6
②		2		2		ONE HALF CLAMP FOR 5" PIPE	S-2112-2
	2		2			" " " " " 6" "	S-2112-1
③	2	2	2	2		1/2" X 1 1/2" SQ. HEAD BOLT WITH HEX. NUT AND LOCK WASHER	
④	1	1	1	1		BACKSTRAP AND ANGLE IRON COMPLETE	S-2112-3
⑤	2	2	2	2		5/8" X 3/4" BRASS R.H. BOLT WITH SQ. NUT AND LOCK WASHER	
⑥	2	2	2	2		18 GAGE BRASS WASHER	S-2112-6

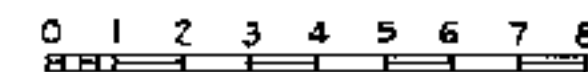
NOTES

1. Front of disc shall be Standard Semaphore Yellow Porcelain Enameled and the Letter "G" shall be Black Porcelain Enameled. Back of disc shall be Black Porcelain Enameled.
2. Front of disc without Letter "G" shall be Standard Semaphore Yellow Porcelain Enameled. Back of disc same as Note 1.
3. Colored sample, upon request, will be furnished manufacturer by purchaser.



S-2110-5 DISC WITH LETTER "G" SEE NOTE 1
S-2110-6 DISC WITHOUT LETTER "G" SEE NOTE 2

SCALE IN INCHES



APPROVED FOR USE

THE CHEESAPEAKE AND OHIO
RAILWAY COMPANY

UNION RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE
RAILWAY COMPANY

CBP	C.D.M.	A.J.P.
C.S.I.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD MARKER FOR GRADE SIGNALS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 17, 1931
CHIEF ENGINEER

S-2110

			DESCRIPTION OF MATERIAL	DRAWING NUMBER
FIGURE	QUANTITY			
①	1	1	DISC WITH LETTER "M"	S-2111-3
②	2	2	ONE HALF CLAMP FOR 5" PIPE	S-2112-2
	2	2	" " " " 8" "	S-2112-1
③	2	2	1/2" x 1 1/2" SQ. HEAD BOLT WITH HEX. NUT AND LOCK WASHER	
④	1	1	BACKSTRAP AND ANGLE IRON COMPLETE	S-2112-3
⑤	2	2	5/8" x 3" BRASS R.H. BOLT WITH SQ. NUT AND LOCK WASHER	
⑥	2	2	18 GAGE BRASS WASHER	S-2112-6

Front of disc shall be Standard Semaphore White Porcelain Enameled and the letter "M" shall be Black Porcelain Enameled. Back of disc shall be Black Porcelain Enameled.

SCALE IN INCHES



THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERF. MARQUETTE
RAILWAY COMPANY

C.B.P.	C.D.M.	A.J.F.
C.B.I.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

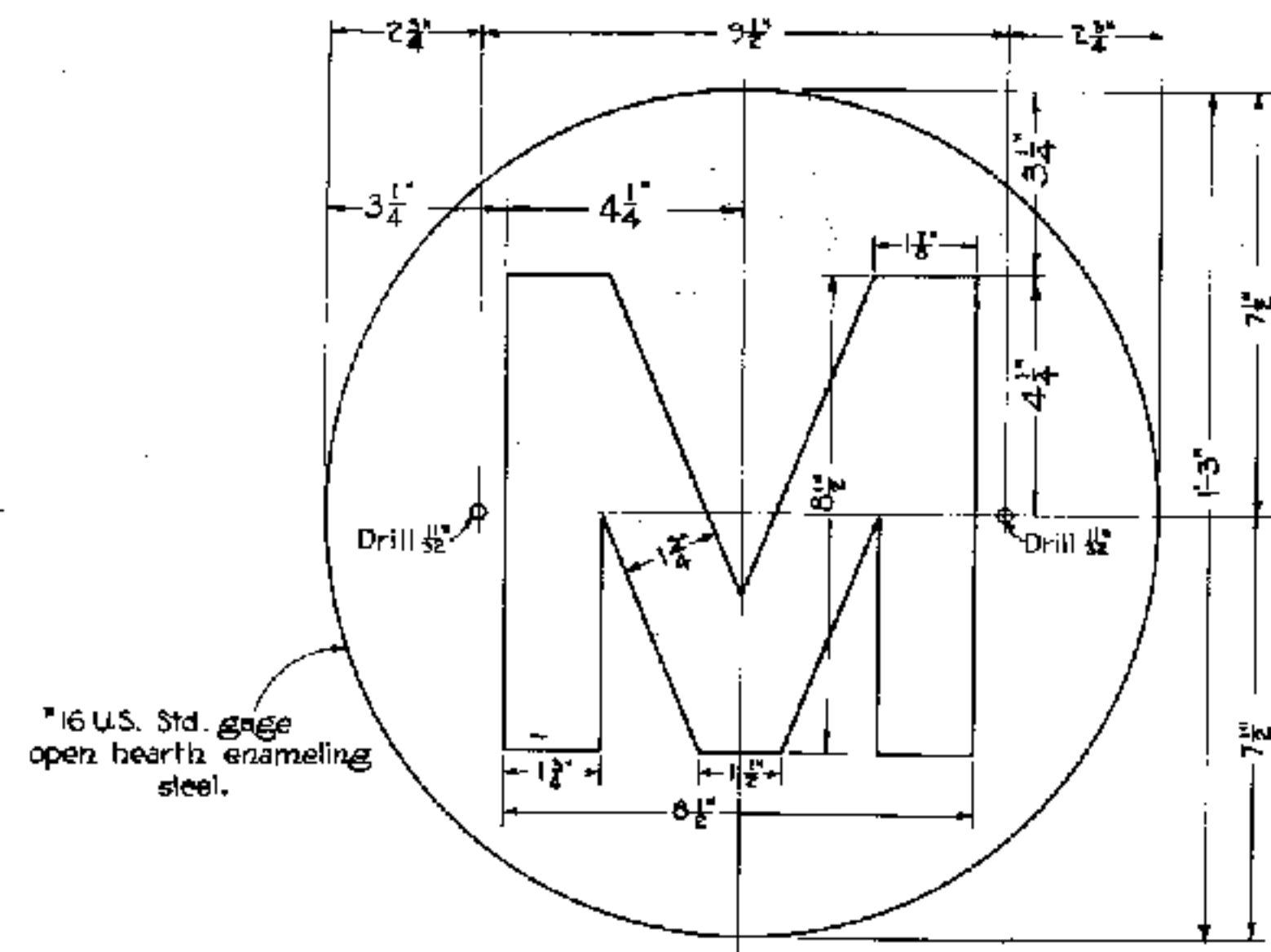
STANDARD MARKER FOR MANUAL BLOCK SIGNALS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 17, 1931
CHIEF ENGINEER

5-2111

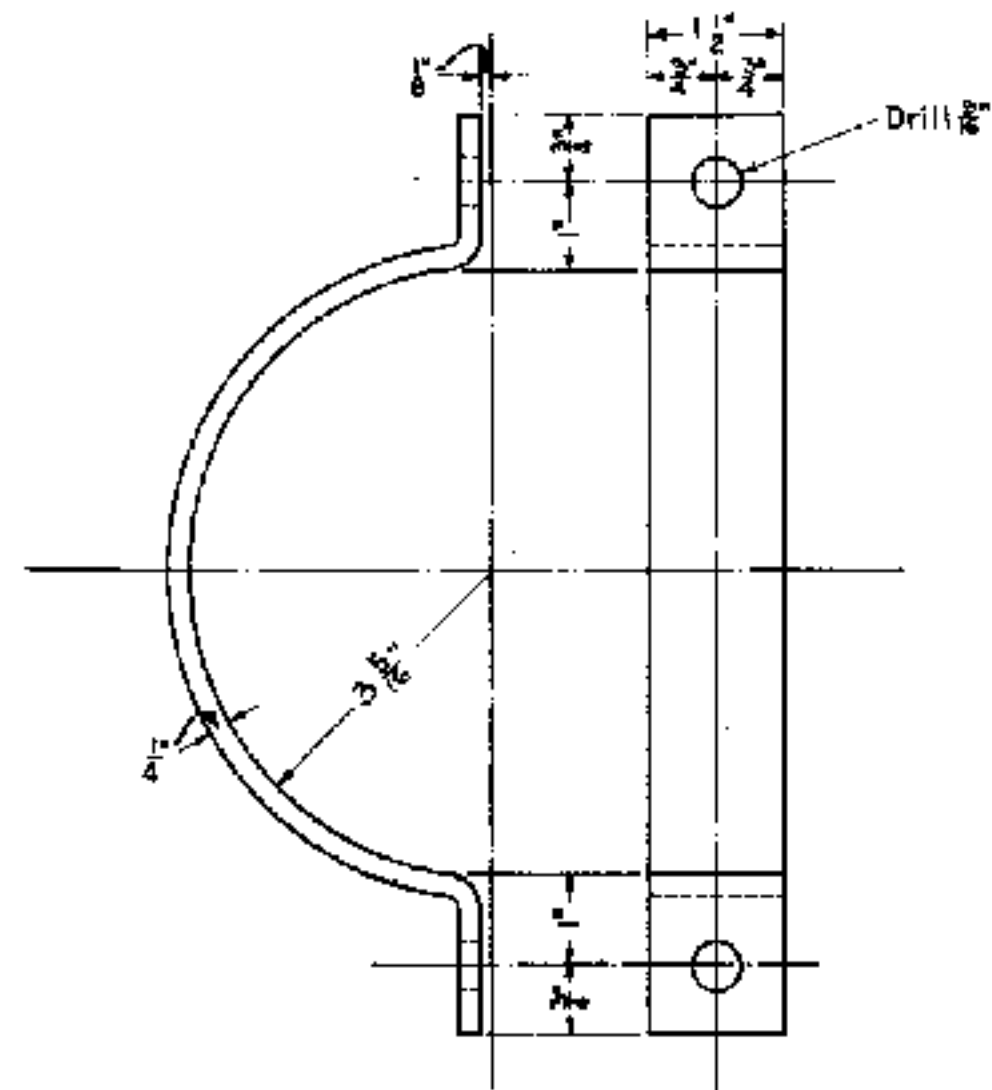
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ASSEMBLY

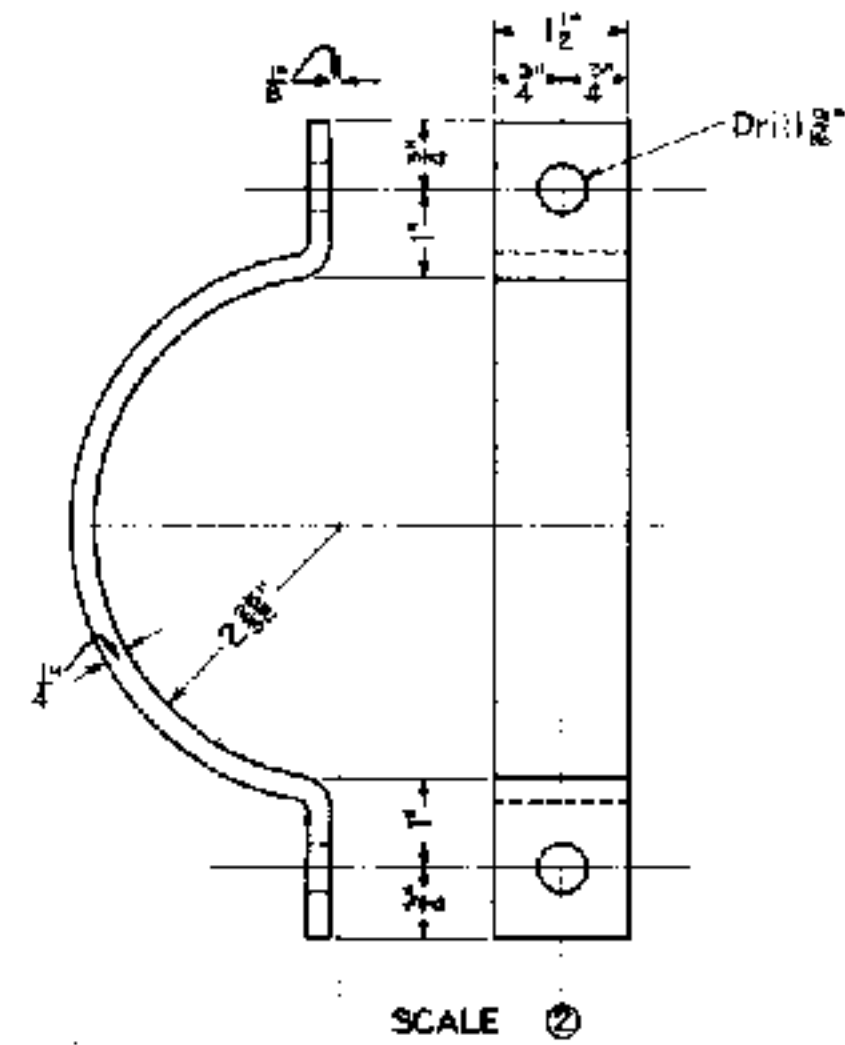


* 16 U.S. Std. gage
open hearth enameling
steel.

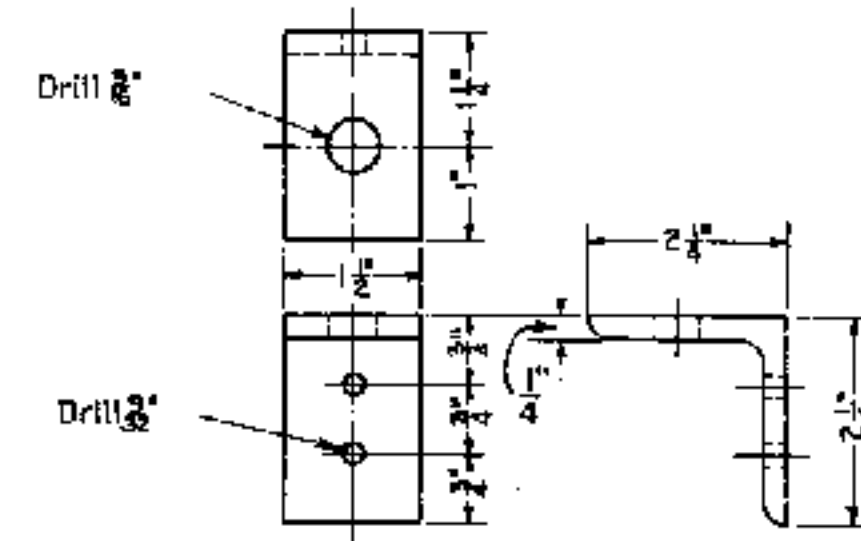
S-2111-3 DISC WITH LETTER 'M' SEE NOTE



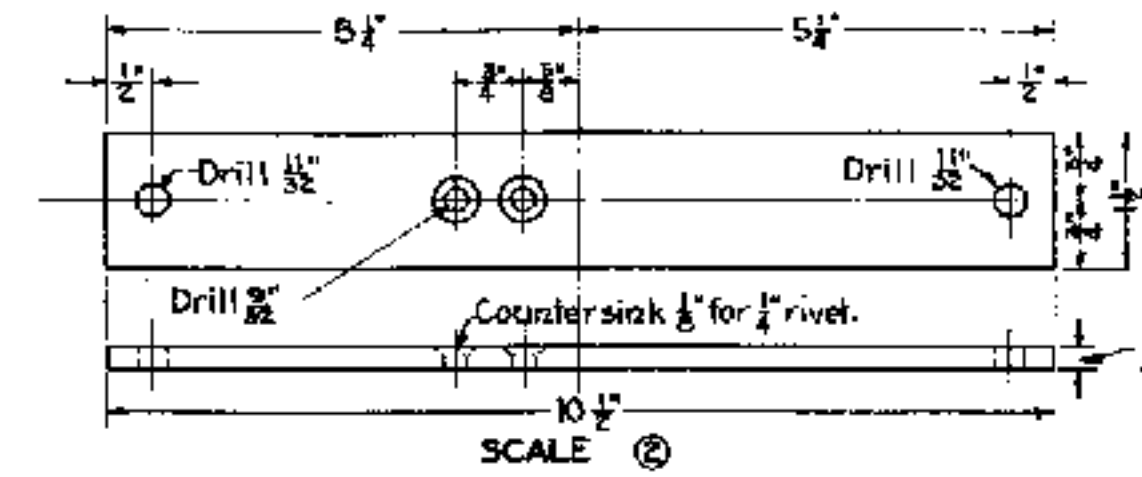
SCALE ②
S-2112-1 ONE HALF CLAMP FOR
6 INCH PIPE
OPEN HEARTH STEEL



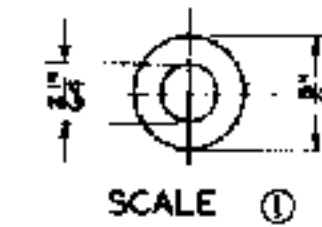
SCALE ②
S-2112-2 ONE HALF CLAMP FOR
5 INCH PIPE
OPEN HEARTH STEEL



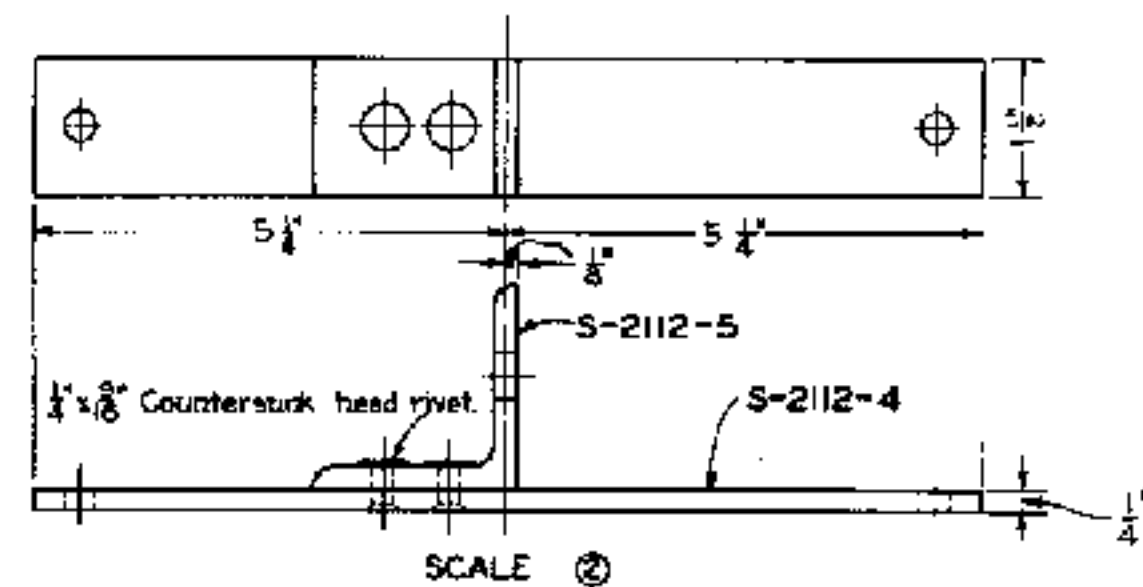
SCALE ②
S-2112-5 ANGLE IRON
HOT ROLLED STEEL



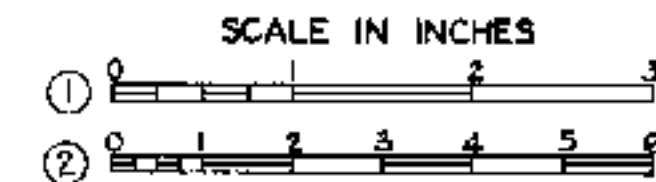
SCALE ②
S-2112-4 BACKSTRAP
OPEN HEARTH STEEL



SCALE ①
S-2112-6 WASHER
NO. 18 B&S BRASS



SCALE ②
S-2112-3 BACKSTRAP COMPLETE



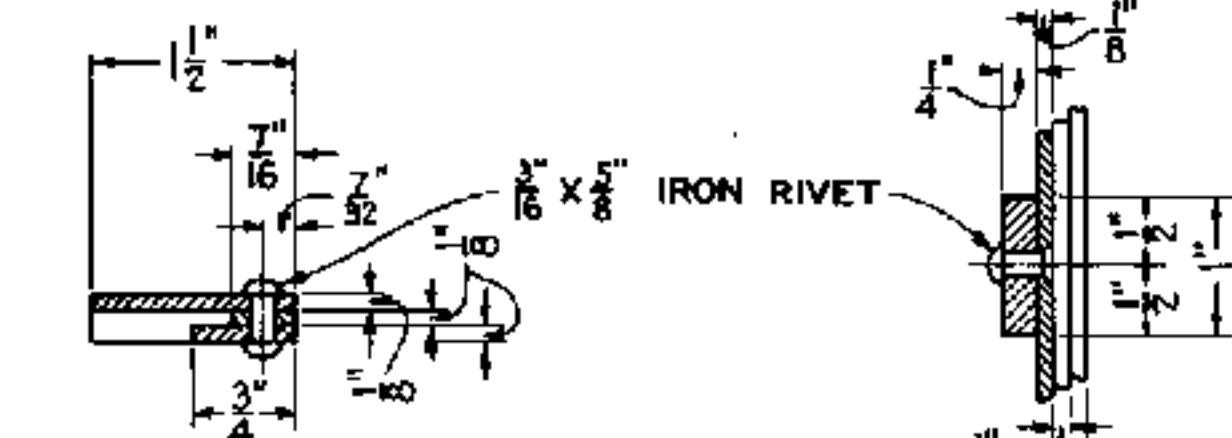
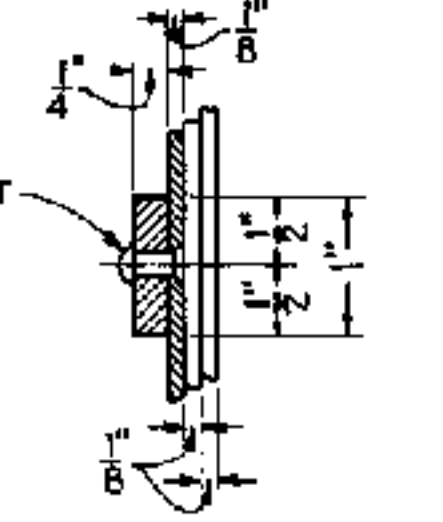
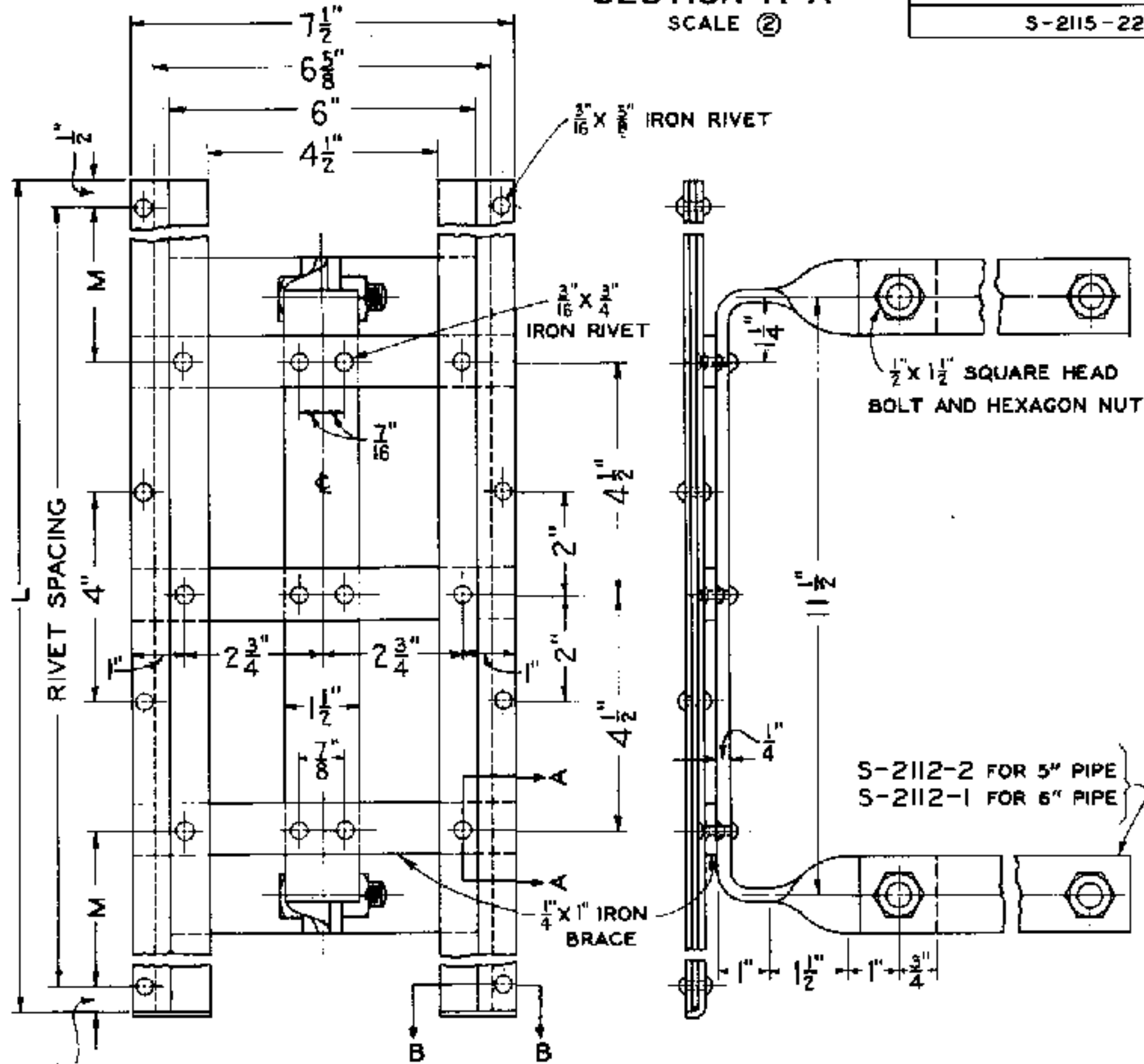
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>D. W. Brown</i>		
VICE PRES. & GEN. MGR.		
ERIE RAILROAD COMPANY		
<i>E. L. Woodruff</i>		
VICE PRES.		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>H. A. Hearn</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. J. P.</i>		
VICE PRESIDENT		
CBP	CDM	AJP
CSL		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD CLAMPS AND BACKSTRAP FOR SIGNAL MARKERS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *E. L. Woodruff* MAR. 17, 1931
CHIEF ENGINEER

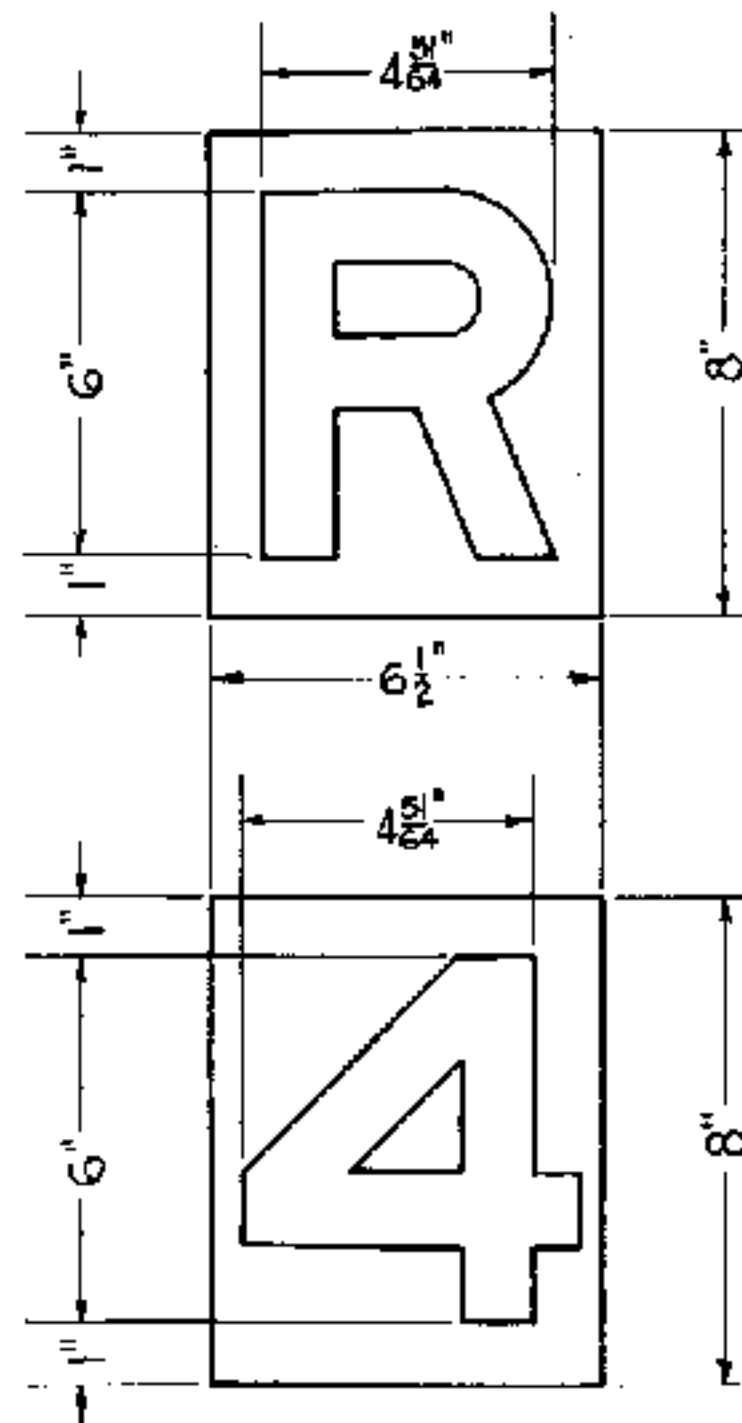
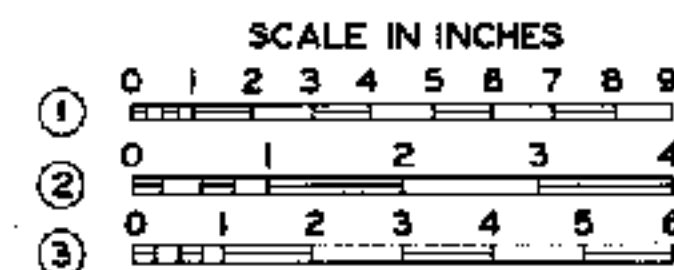
S-2112

SECTION B-B
SCALE ②SECTION A-A
SCALE ②VERTICAL RACKS
FOR NUMBER WITHOUT DASH
O.-H. STEEL (SHERARDIZED)
SCALE ③

VERTICAL RACKS FOR NUMBER WITHOUT DASH						
DRAWING REFERENCE, RACK LESS HALF CLAMPS AND BOLTS.	FOR 5" PIPE	FOR 6" PIPE	NUMBER OF CHARACTERS	LENGTH "L"	RIVET SPACING	DIMEN- SION "M"
	DRAWING REFERENCE, RACK COMPLETE WITH 4, S-2112-2 HALF CLAMPS AND 4 BOLTS.	DRAWING REFERENCE, RACK COMPLETE WITH 4, S-2112-1 HALF CLAMPS AND 4 BOLTS.				
S-2115-18	S-2115-23	S-2115-28	2	18"	5 1/2" - 4" - 5 1/2"	3"
S-2115-19	S-2115-24	S-2115-29	3	24"	5 1/2" - 4" - 4" - 4" - 5 1/2"	7"
S-2115-20	S-2115-25	S-2115-30	4	2'-8"	5 1/2" - 4" - 4" - 4" - 4" - 4" - 5 1/2"	11"
S-2115-21	S-2115-26	S-2115-31	5	3'-4"	5 1/2" - 4" - 4" - 4" - 4" - 4" - 4" - 5 1/2"	15"
S-2115-22	S-2115-27	S-2115-32	6	4'-0"	5 1/2" - 4" - 4" - 4" - 4" - 4" - 4" - 4" - 4" - 5 1/2"	19"

NOTES

1. BACK OF ALL LETTER AND NUMBER PLATES SHALL BE BLACK PORCELAIN ENAMELED; LETTER OR NUMERAL ON FRONT SHALL BE STANDARD SEMAPHORE WHITE PORCELAIN ENAMELED ON BLACK PORCELAIN ENAMELED BACKGROUND.
2. PAINTING OF RACK SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. LETTERS AND NUMERALS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
4. PLATES S-2115-1 SHALL BE ORDERED SEPARATELY, SPECIFYING LETTERS OR NUMERALS DESIRED.
5. SIGNAL LOCATIONS TAKE THEIR PRIMARY NUMBER FROM THE LOW NUMBERED MILE IN WHICH THEY ARE LOCATED. TO THE MILE NUMBER SHALL BE AFFIXED AN ODD DIGIT FOR WESTWARD OR NORTHWARD AND AN EVEN DIGIT FOR EASTWARD OR SOUTHWARD SIGNAL. WHERE PARALLEL TRACKS ARE SIGNALLED FOR OPERATION IN THE SAME DIRECTION, AN ADDITIONAL DIGIT MAY BE USED TO DESIGNATE THE TRACK NUMBER. A LETTER SHALL BE USED IN CONNECTION WITH THE NUMBER TO DESIGNATE SIGNALS ON BRANCH LINES.

S-2115-1 LETTER OR NUMBER PLATE
NO. 18 U.S. STANDARD GAGE OPEN-HEARTH ENAMELING STEEL
SCALE ①

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>D. Moore</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>E. Woodruff</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>D. Moore</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. Brown</i>		
VICE PRESIDENT		
C. H. W.	C. D. M.	A. J. P.
C. B. P.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

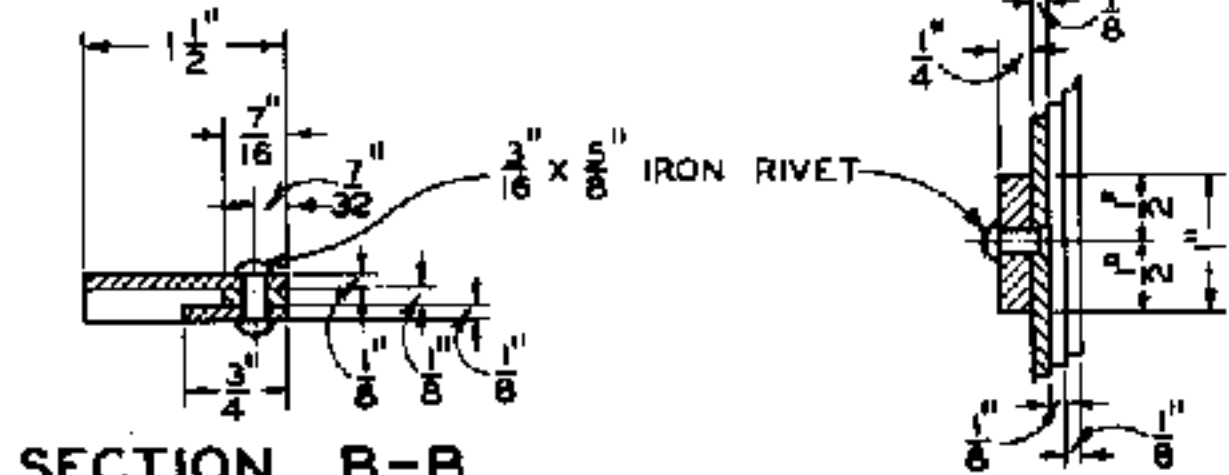
STANDARD NUMBER
PLATES AND RACKS
FOR AUTOMATIC SIGNALS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Stuebel*
CHIEF ENGINEER

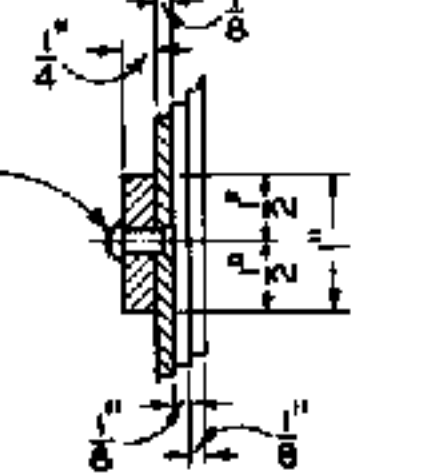
NOV. 5, 1936

SHEET 2 OF 3

S-2115-A

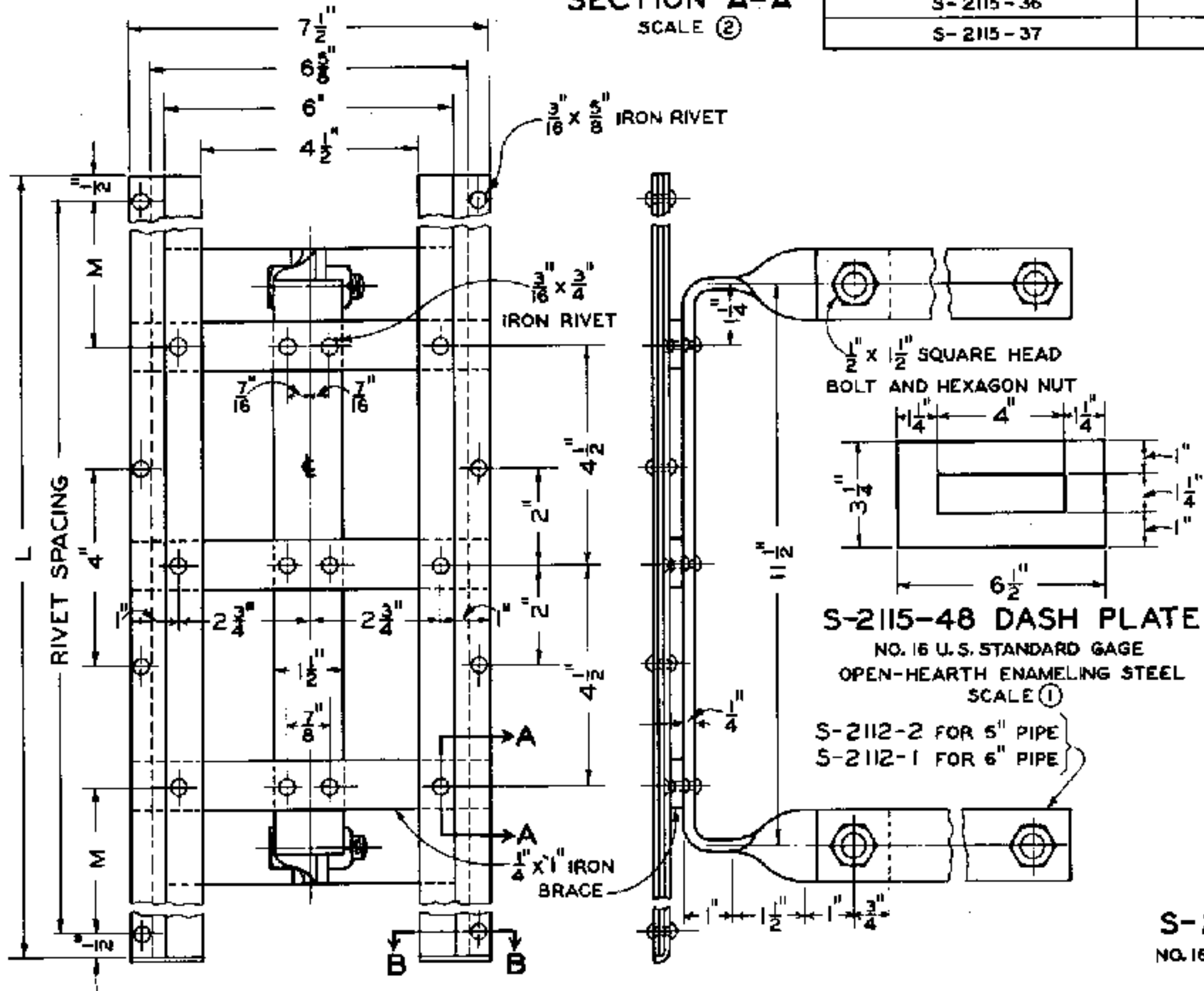


SCALE ②

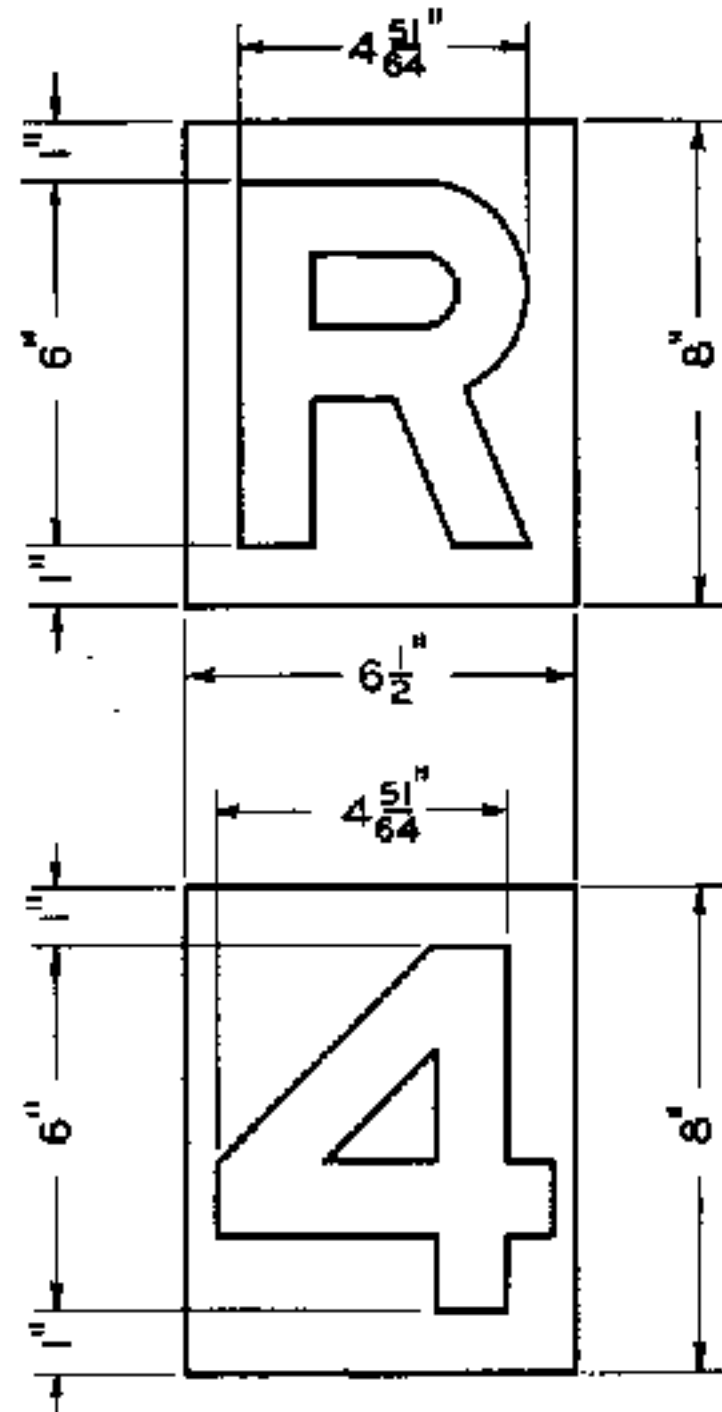


SCALE (2)

VERTICAL RACKS FOR NUMBER WITH DASH						
DRAWING REFERENCE, RACK LESS HALF CLAMPS AND BOLTS.	FOR 5" PIPE	FOR 6" PIPE	NUMBER OF CHARACTERS IN ADDITION TO DASH	LENGTH "L"	RIVET SPACING	DIMEN- SION "M"
	DRAWING REFERENCE, RACK COMPLETE WITH 4, S-2112-2 HALF CLAMPS AND 4 BOLTS.	DRAWING REFERENCE, RACK COMPLETE WITH 4, S-2112-1 HALF CLAMPS AND 4 BOLTS.				
S-2115-33	S-2115-38	S-2115-43	2	19 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "-4"-4"-4"-3 $\frac{1}{8}$ "	4 $\frac{5}{8}$ "
S-2115-34	S-2115-39	S-2115-44	3	2'-3 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "-4"-4"-4"-4"-4"-3 $\frac{1}{8}$ "	8 $\frac{5}{8}$ "
S-2115-35	S-2115-40	S-2115-45	4	2'-11 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "-4"-4"-4"-4"-4"-4"-4"-3 $\frac{1}{8}$ "	12 $\frac{5}{8}$ "
S-2115-36	S-2115-41	S-2115-46	5	3'-7 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "-4"-4"-4"-4"-4"-4"-4"-4"-4"-3 $\frac{1}{8}$ "	16 $\frac{5}{8}$ "
S-2115-37	S-2115-42	S-2115-47	6	4'-3 $\frac{1}{4}$ "	3 $\frac{1}{8}$ "-4"-4"-4"-4"-4"-4"-4"-4"-4"-4"-4"-3 $\frac{1}{8}$ "	20 $\frac{5}{8}$ "

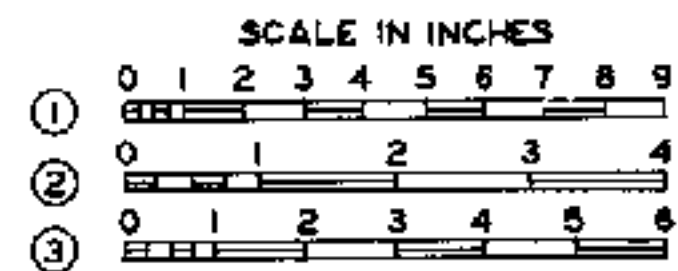


VERTICAL RACKS
FOR NUMBER WITH DASH
Q-H. STEEL (SHERARDIZED)
SCALE ③



S-2115-1 LETTER OR NUMBER PLATE
NO. 16 U.S. STANDARD GAGE OPEN-HEARTH ENAMELING STEEL
SCALE (1)

- ### NOTES
1. BACK OF ALL LETTER, NUMBER, AND DASH PLATES SHALL BE BLACK PORCELAIN ENEAMELED; LETTER, NUMERAL, OR DASH ON FRONT SHALL BE STANDARD SEMAPHORE WHITE PORCELAIN ENEAMELED ON BLACK PORCELAIN ENEAMELED BACKGROUND.
 2. PAINTING OF RACK SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
 3. LETTERS AND NUMERALS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD DRAWING R-549, STANDARD LETTERS AND FIGURES FOR SIGNS.
 4. PLATES S-2115-1 AND S-2115-48 SHALL BE ORDERED SEPARATELY SPECIFYING LETTERS OR NUMERALS DESIRED.
 5. SIGNAL LOCATIONS TAKE THEIR PRIMARY NUMBER FROM THE LOW NUMBERED MILE IN WHICH THEY ARE LOCATED. TO THE MILE NUMBER SHALL BE AFFIXED AN ODD DIGIT FOR WESTWARD OR NORTHWARD AND AN EVEN DIGIT FOR EASTWARD OR SOUTHWARD SIGNAL. WHERE PARALLEL TRACKS ARE SIGNALLED FOR OPERATION IN THE SAME DIRECTION, AN ADDITIONAL DIGIT MAY BE USED TO DESIGNATE THE TRACK NUMBER. A LETTER SHALL BE USED IN CONNECTION WITH THE NUMBER TO DESIGNATE SIGNALS ON BRANCH LINES.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK CHICAGO AND
ST. LOUIS RAILROAD COMPANY

FERE MARQUETTE
RAILWAY COMPANY

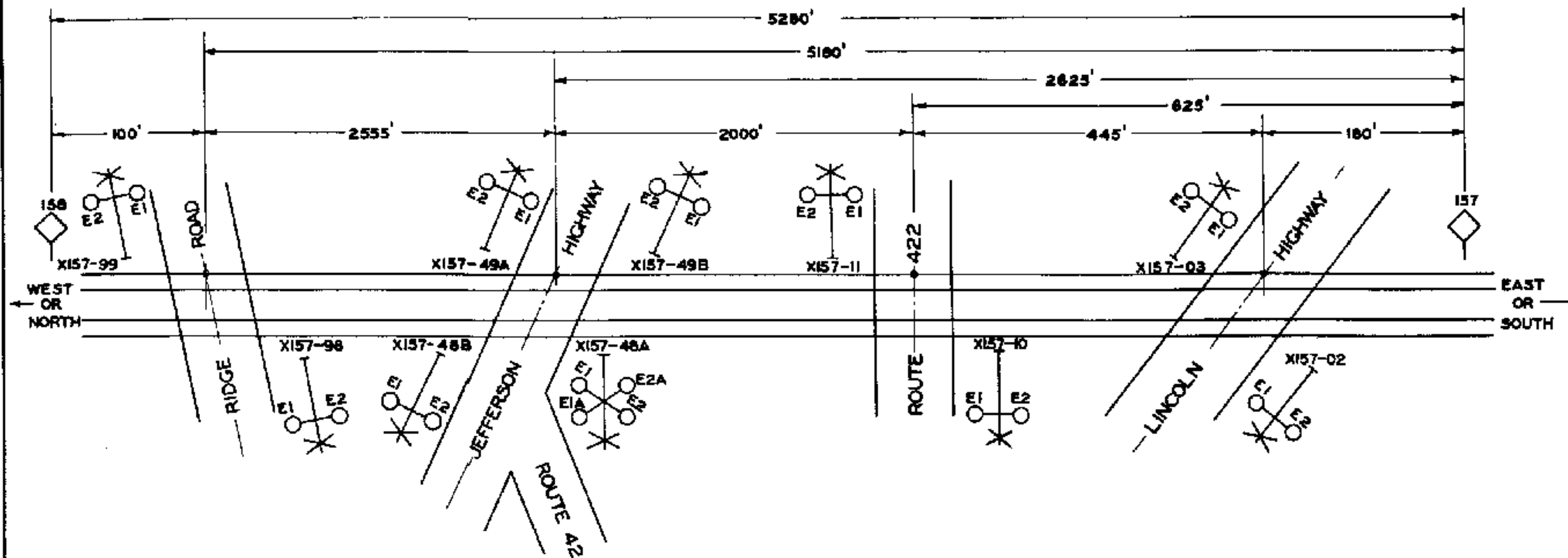
C.H.W.	C.D.M.	A.J.P.
C.H.W.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD NUMBER PLATES AND RACKS FOR AUTOMATIC SIGNALS

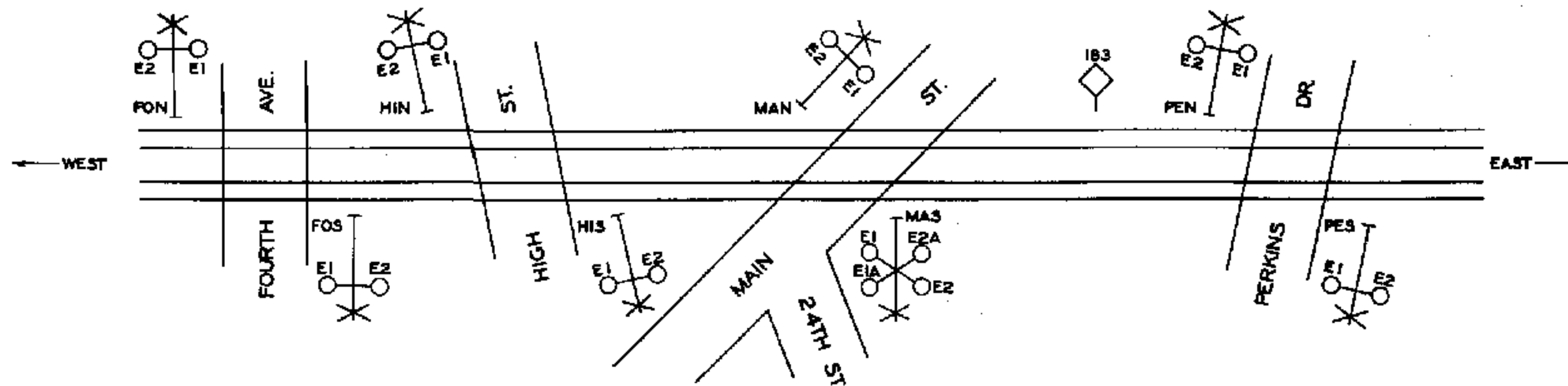
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. W. W. W.* NOV. 1964
CHIEF ENGINEER

NOV. 5, 1938



S-2116-1 "HUNDREDTHS" SYSTEM OF NUMBERING CROSSING SIGNALS

NOTE
SYSTEM OF NUMBERING AS SHOWN
ON THIS DRAWING IS FOR THE PURPOSE
OF DESIGNATING THE LOCATION OF HIGHWAY
CROSSING SIGNALS ON LAYOUT AND CIRCUIT
PLANS.



S-2116-2 "NAMES" SYSTEM OF DESIGNATING CROSSING SIGNALS

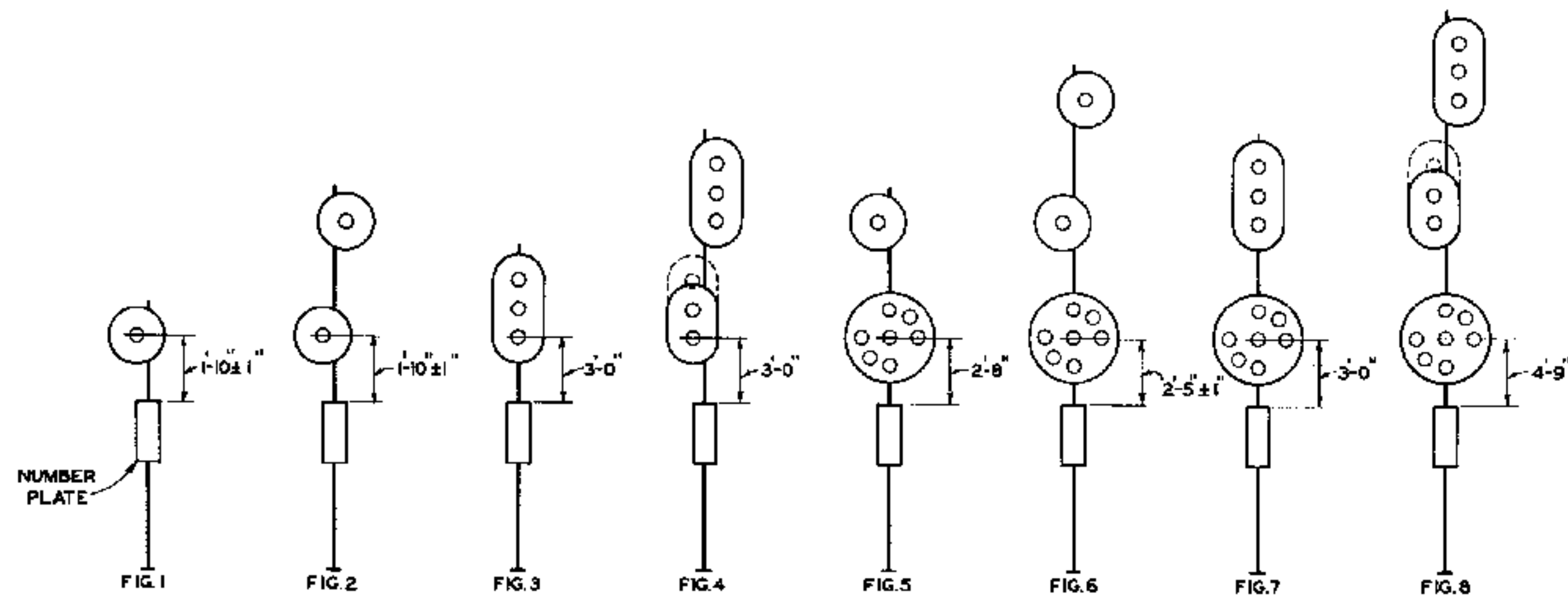
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
K.L.M.	C.D.M.	A.J.P.
K.L.M.		

NO SCALE
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

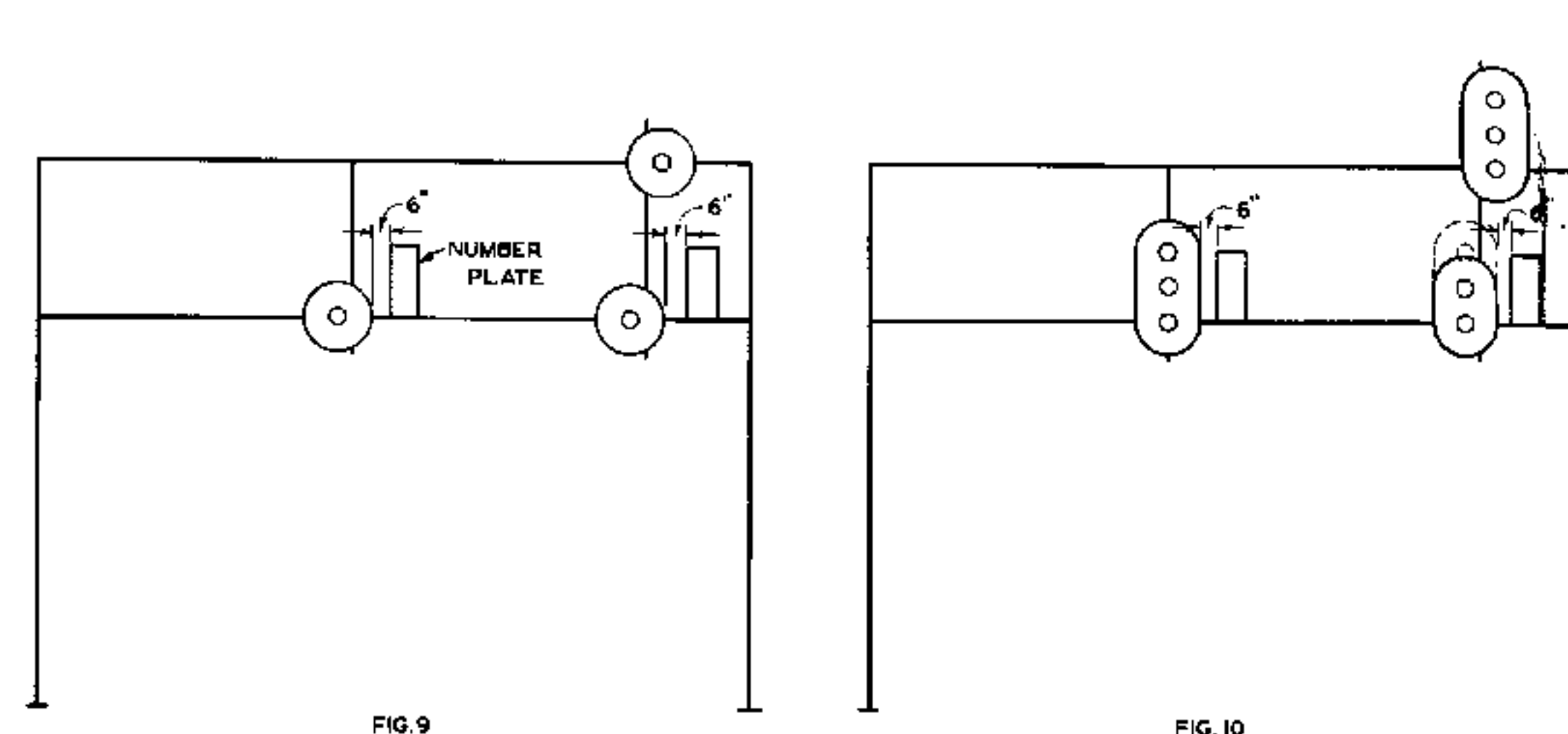
STANDARD HIGHWAY CROSSING SIGNAL NUMBERING

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* JUNE 19, 1934
CHIEF ENGINEER

S-2116

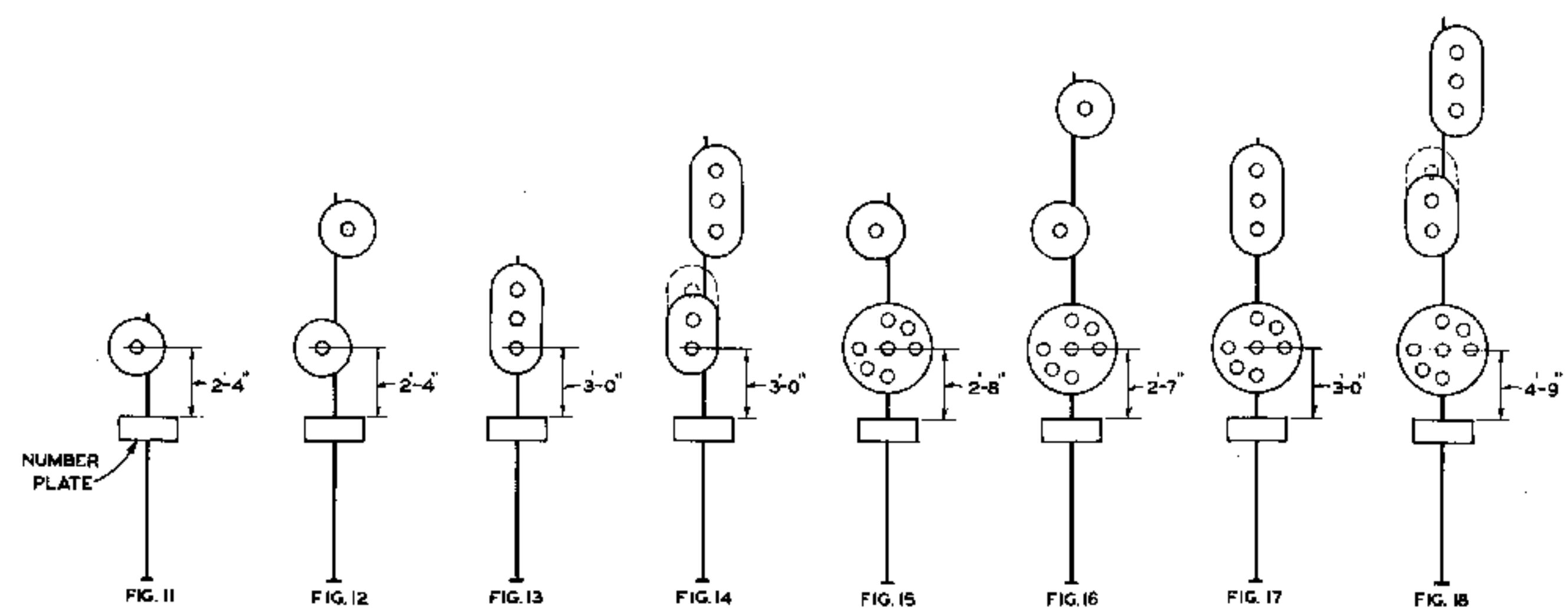


LOCATION OF VERTICAL NUMBER PLATES ON SIGNALS

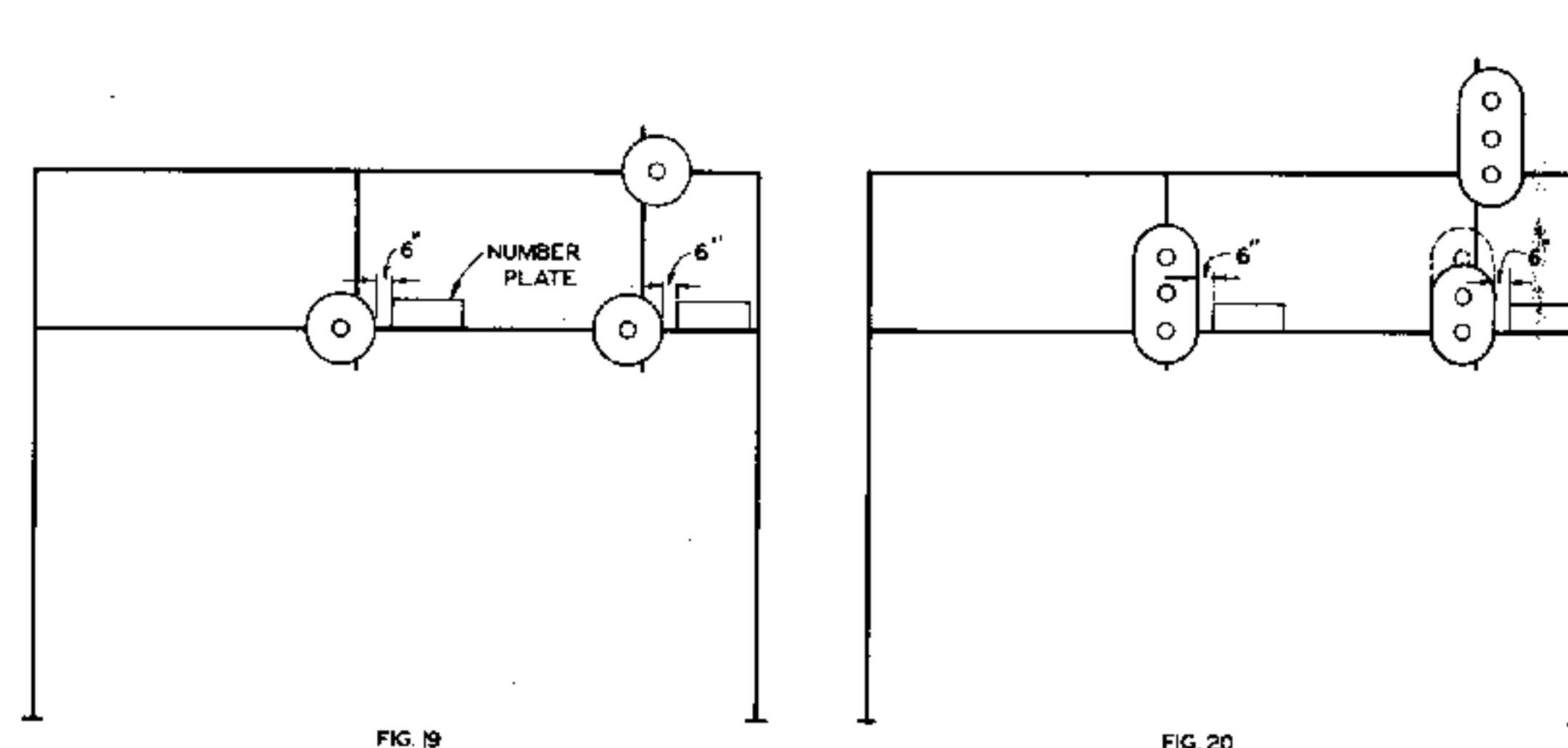


NOTES

1. NUMBER PLATES AND RACKS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD DRAWING S-2115, STANDARD NUMBER PLATES AND RACKS FOR AUTOMATIC SIGNALS.
2. GRADE MARKERS IN ACCORDANCE WITH LATEST REVISION OF STANDARD DRAWING S-2110, STANDARD MARKER FOR GRADE SIGNALS, SHALL BE MOUNTED ON SIGNALS AS REQUIRED.



LOCATION OF HORIZONTAL NUMBER PLATES ON SIGNALS



NO SCALE

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

STANDARD

LOCATION OF NUMBER PLATES ON SIGNALS

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]* APRIL 21, 1935

K.L.M. C.D.M. A.J.P.



S-2120-24 LADDER COMPLETE FOR ONE UNIT SIGNAL

1	S-2120-1	LADDER, ONE UNIT HEIGHT SIGNAL
1	S-2120-9	LADDER PLATFORM
1	S-2120-12	LADDER STAY, COMPLETE

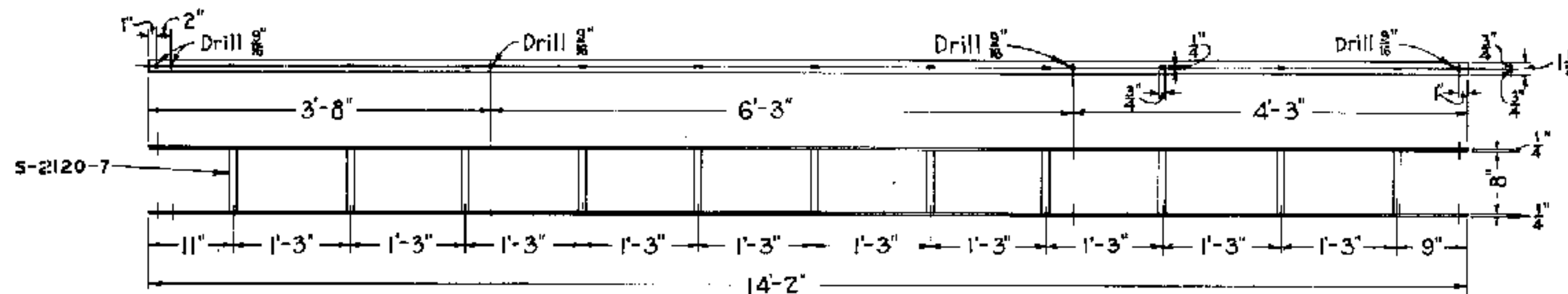
LADDER FOUNDATION, S-2120-II NOT INCLUDED IN ABOVE.

NOTE

LADDER, INCLUDING ALL PARTS, SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

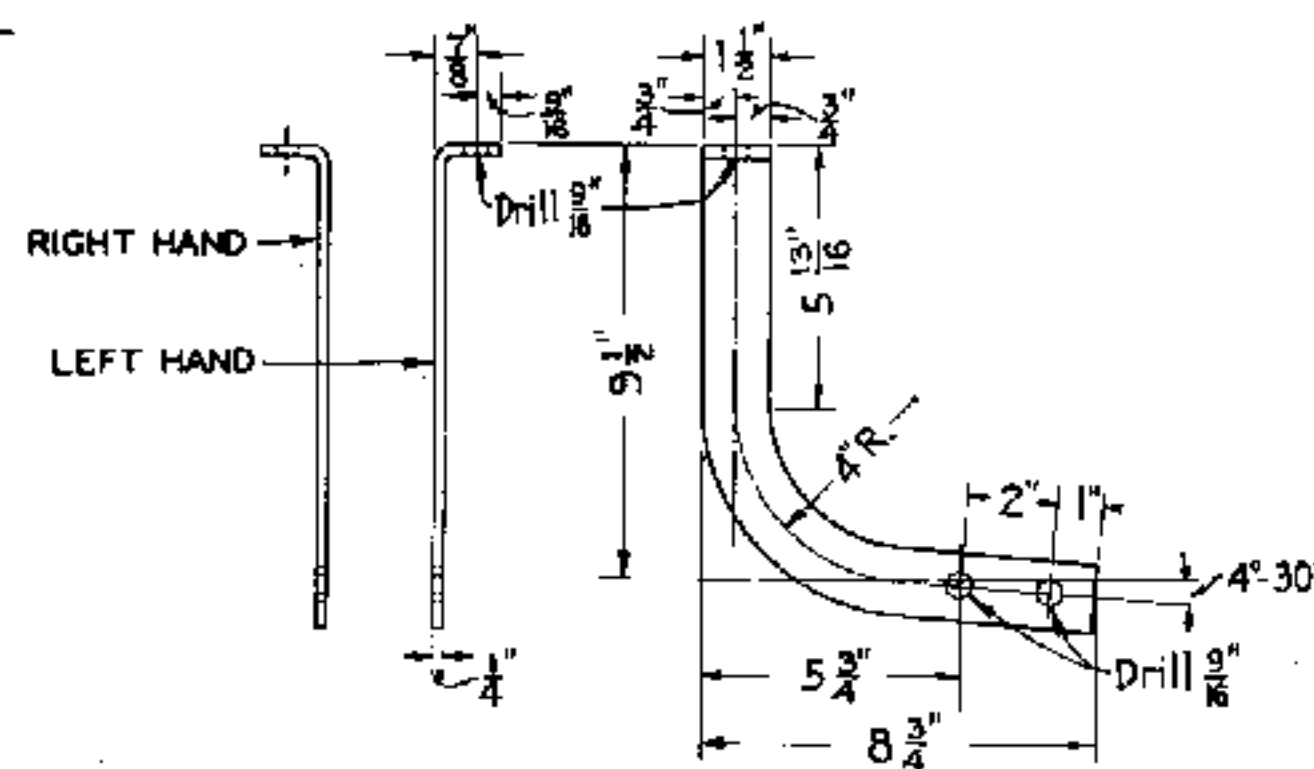
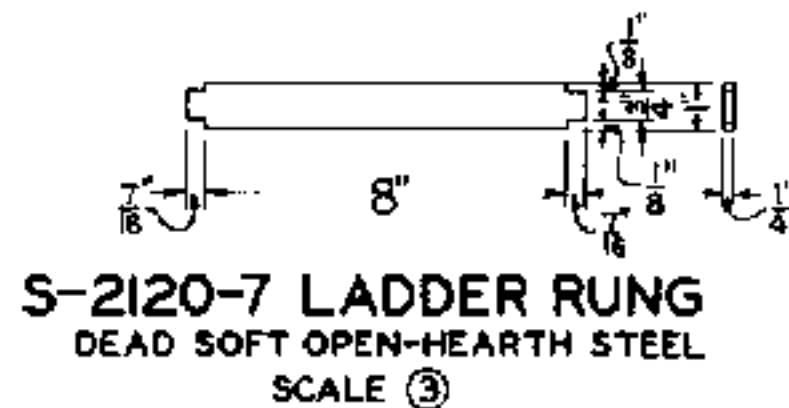


S-2120-1 LADDER-ONE UNIT HEIGHT SIGNAL



S-2120-2 LADDER ONLY

OPEN-HEARTH STEEL
SCALE ①



S-2120-5 LADDER TOP STAY RIGHT HAND
S-2120-6 " " " LEFT HAND

OPEN-HEARTH STEEL
SCALE ③

SCALE IN INCHES

① 0 3 6 9 12 15 18 21 24 27 30 33 36

② 0 1 2 3 4 5 6 7 8

③ 0 1 2 3 4 5 6 7 8 9 10 11 12

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>E. D. Brooke</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY <i>E. L. Woodcuff</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>H. Klein</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>A. Brown</i> VICE PRESIDENT		
CHW CBP	C.D.M.	A.J.P.

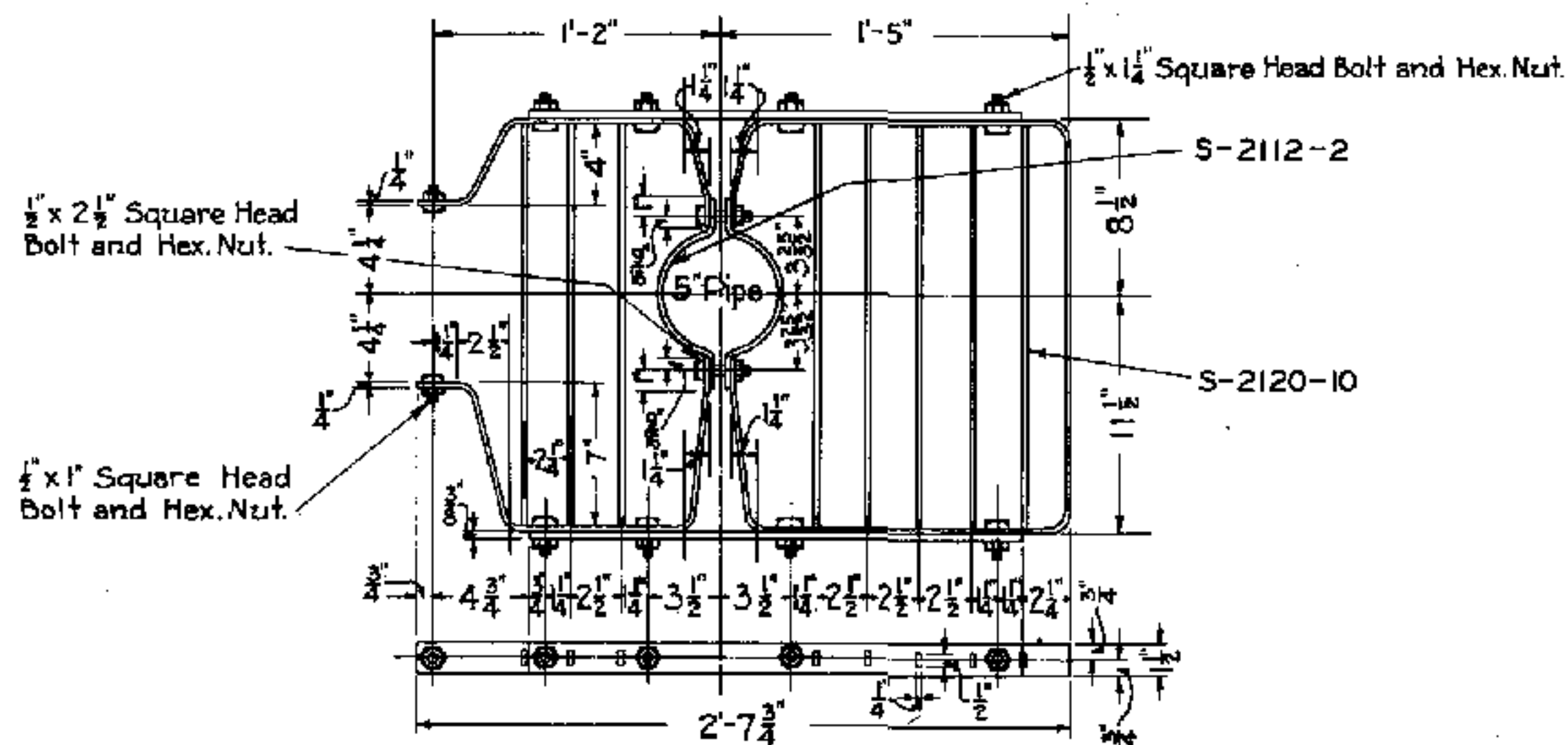
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD LADDER FOR COLOR LIGHT GROUND SIGNAL

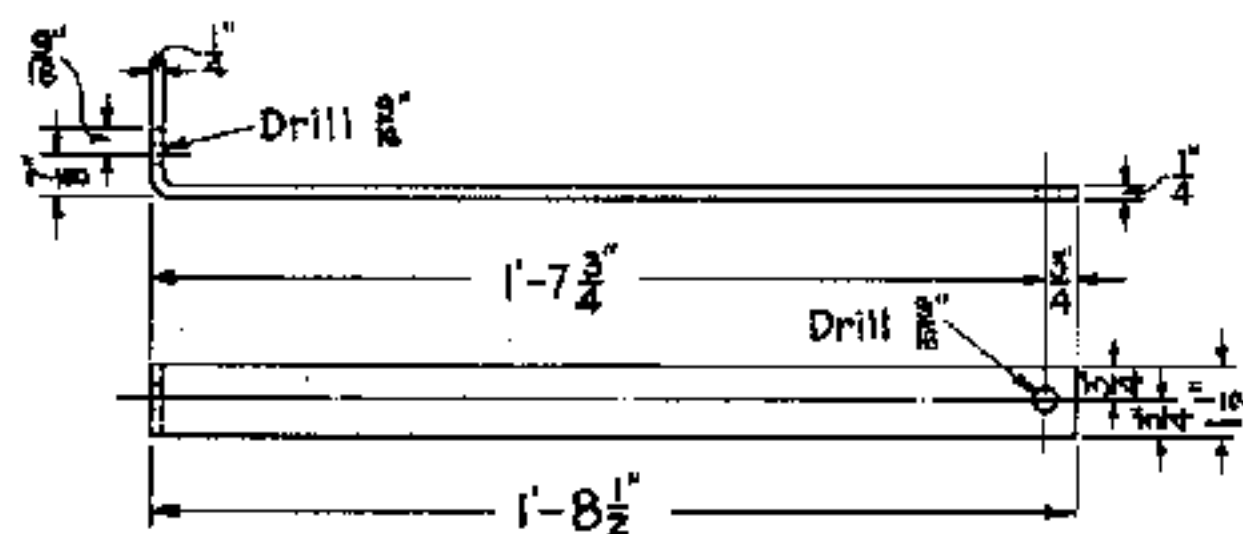
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Armedel* APRIL 21, 1931
CHIEF ENGINEER

SHEET 1 OF 2

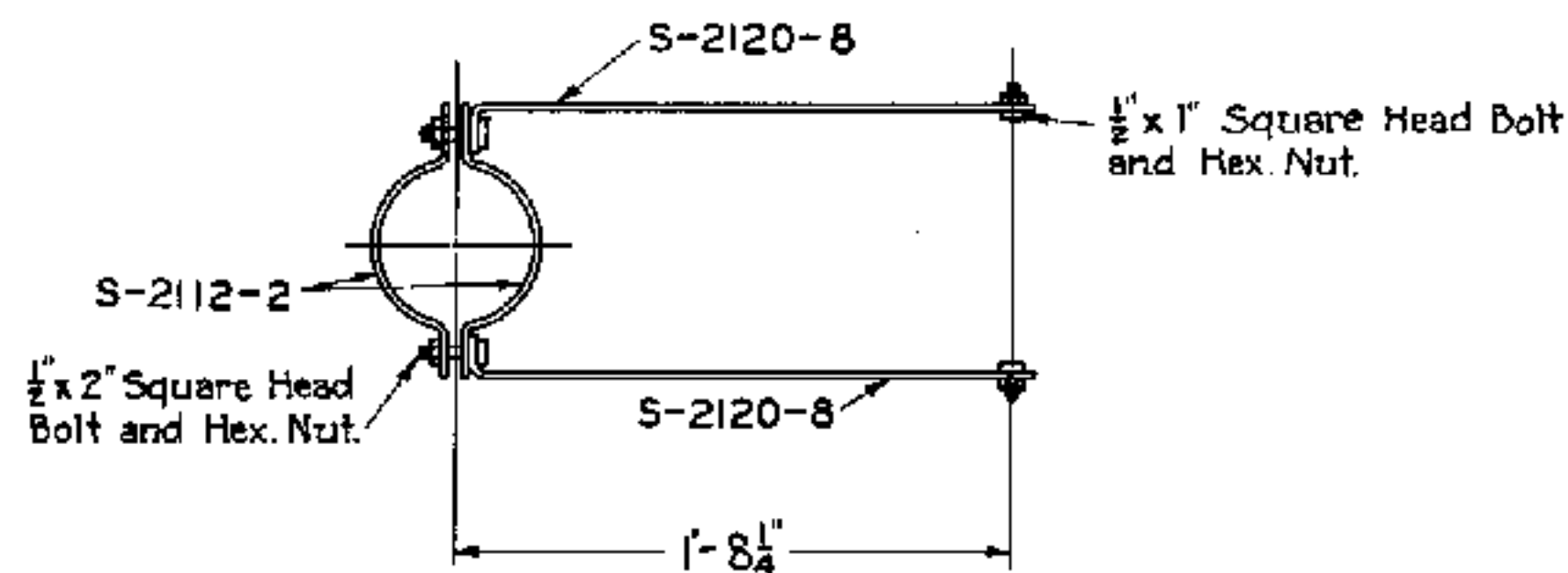
S-2120



S-2120-9 LADDER PLATFORM
OPEN-HEARTH STEEL
FOR TOP UNIT
SCALE ②



S-2120-8 LADDER STAY
OPEN-HEARTH STEEL
SCALE ①

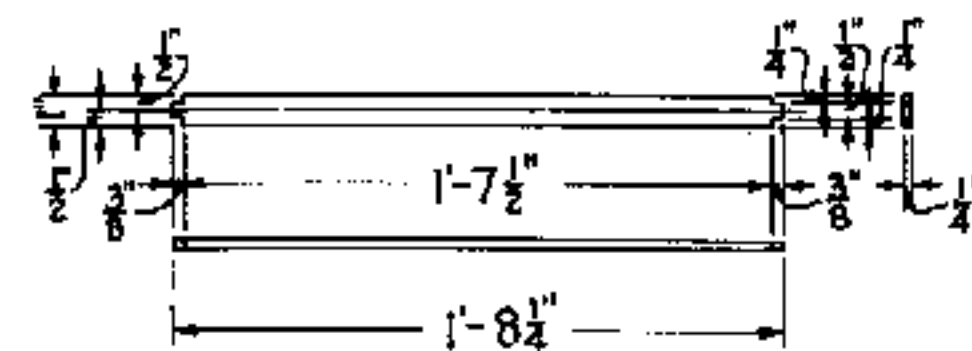


S-2120-12 LADDER STAY COMPLETE
SCALE ②

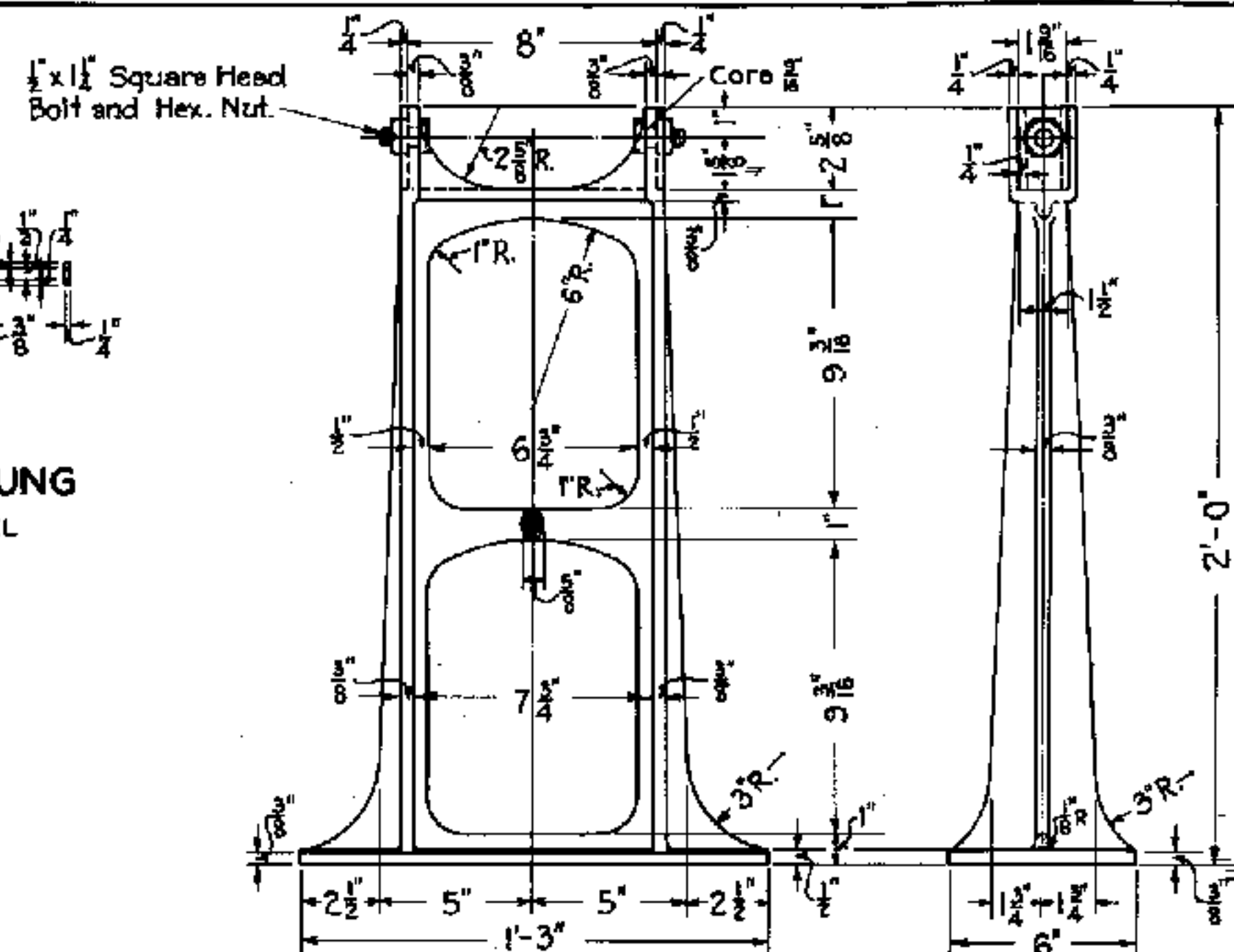
NOTES

ALL HOLES SHALL BE DRILLED $\frac{9}{16}$ " UNLESS OTHERWISE SHOWN.

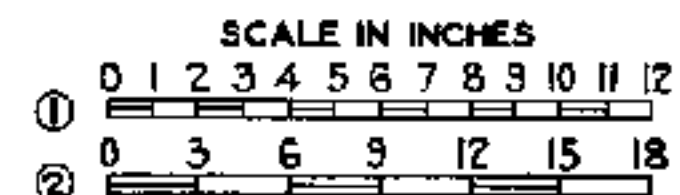
LADDER, INCLUDING ALL PARTS, SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



S-2120-10 PLATFORM RUNG
DEAD SOFT OPEN-HEARTH STEEL
SCALE ②



S-2120-11 LADDER FOUNDATION
CAST IRON
SCALE ①



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

G. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

W. Woodcock
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

H. Stein
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

H. Brown
VICE PRESIDENT

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *W. M. M. M.*
CHIEF ENGINEER

APRIL 21, 1931

CHW C.B.P.

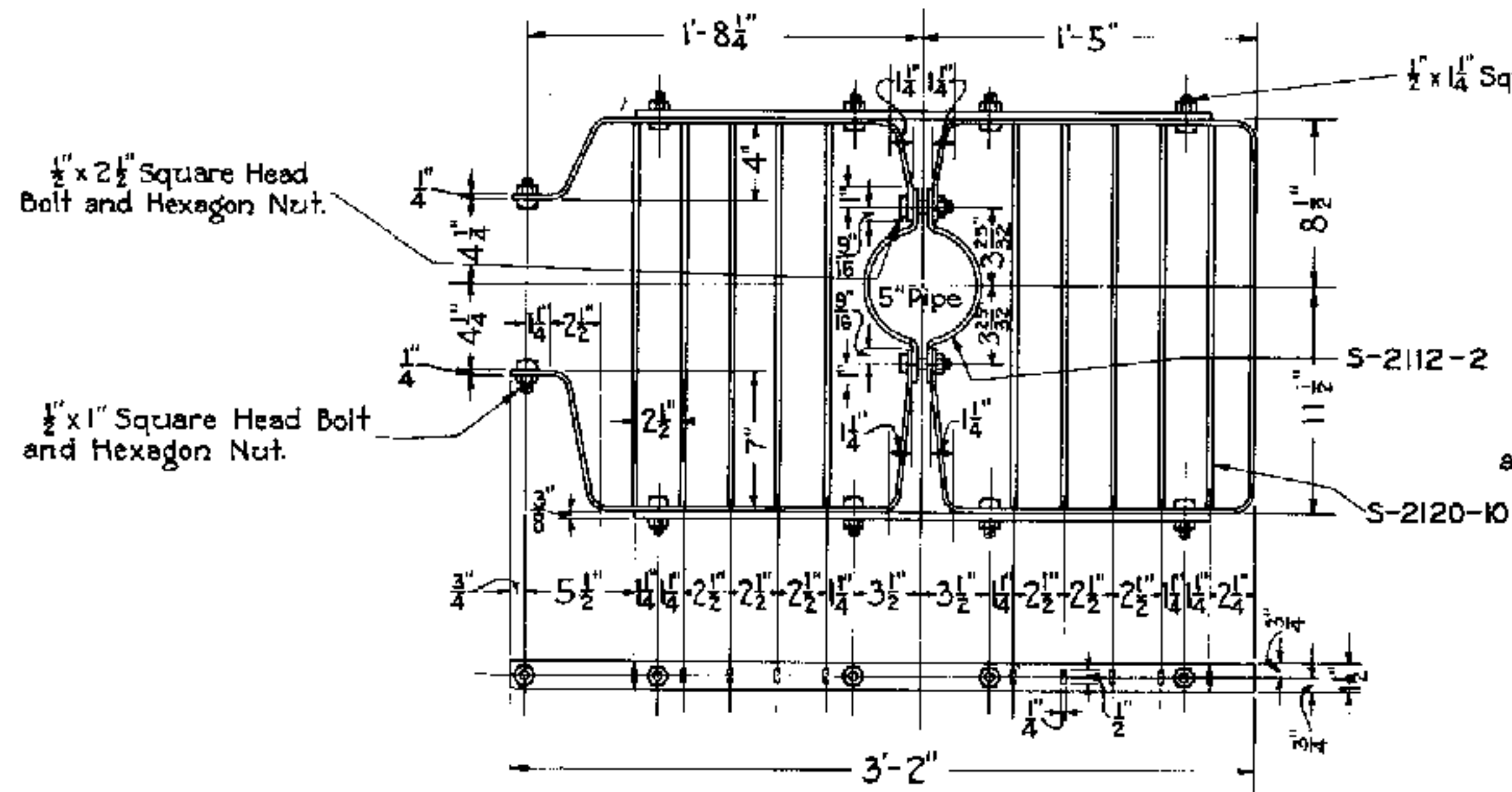
CDM. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD LADDER FOR COLOR LIGHT GROUND SIGNAL

SHEET 2 OF 5

S-2120

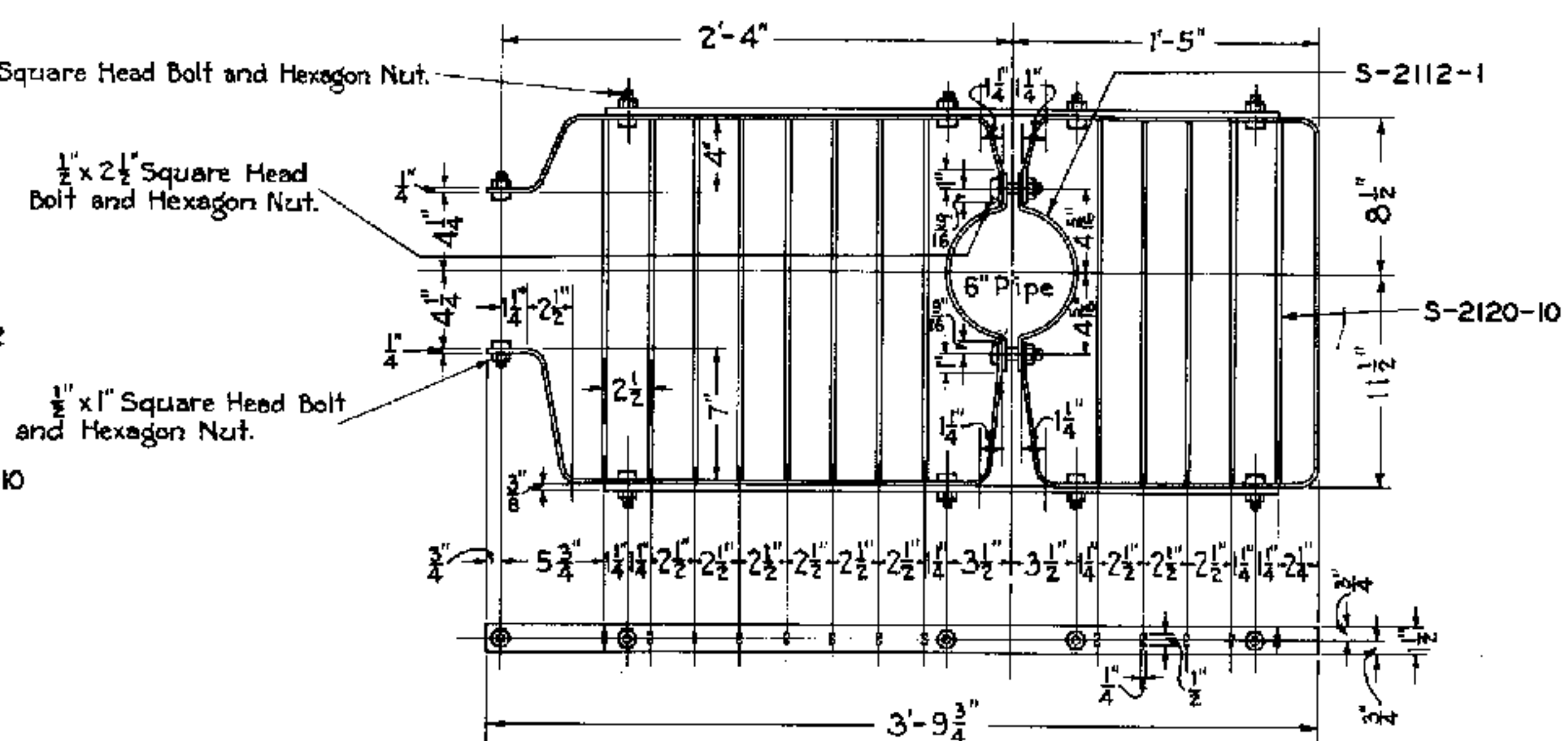


S-2120-21 LADDER PLATFORM
OPEN-HEARTH STEEL
FOR BOTTOM UNIT ON TWO UNIT MAST AND
MIDDLE UNIT ON THREE UNIT MAST
SCALE ①

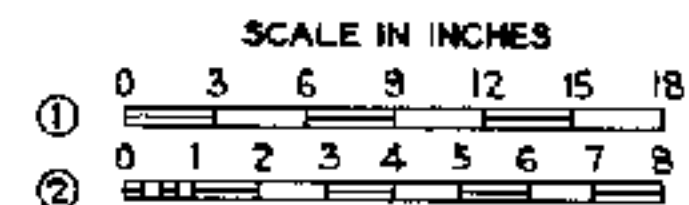
NOTES

ALL HOLES SHALL BE DRILLED $\frac{9}{16}$ "
UNLESS OTHERWISE SHOWN.

LADDER, INCLUDING ALL PARTS,
SHALL BE FURNISHED PAINTED WITH
ONE COAT OF METAL PRIMER IN ACCORD-
ANCE WITH LATEST REVISION OF STAND-
ARD SPECIFICATIONS S-1310, SHOP AND
FIELD PAINTING FOR SIGNAL AND INTER-
LOCKING APPARATUS.



S-2120-22 LADDER PLATFORM
OPEN-HEARTH STEEL
FOR BOTTOM UNIT ON THREE UNIT MAST
SCALE ①



APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

G. M. Brooks
VICE PRESIDENT

ERIE RAILROAD COMPANY

W. L. Woodcock
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

W. H. H. H.
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

W. H. H. H.
VICE PRESIDENT

CHW
CBP

C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

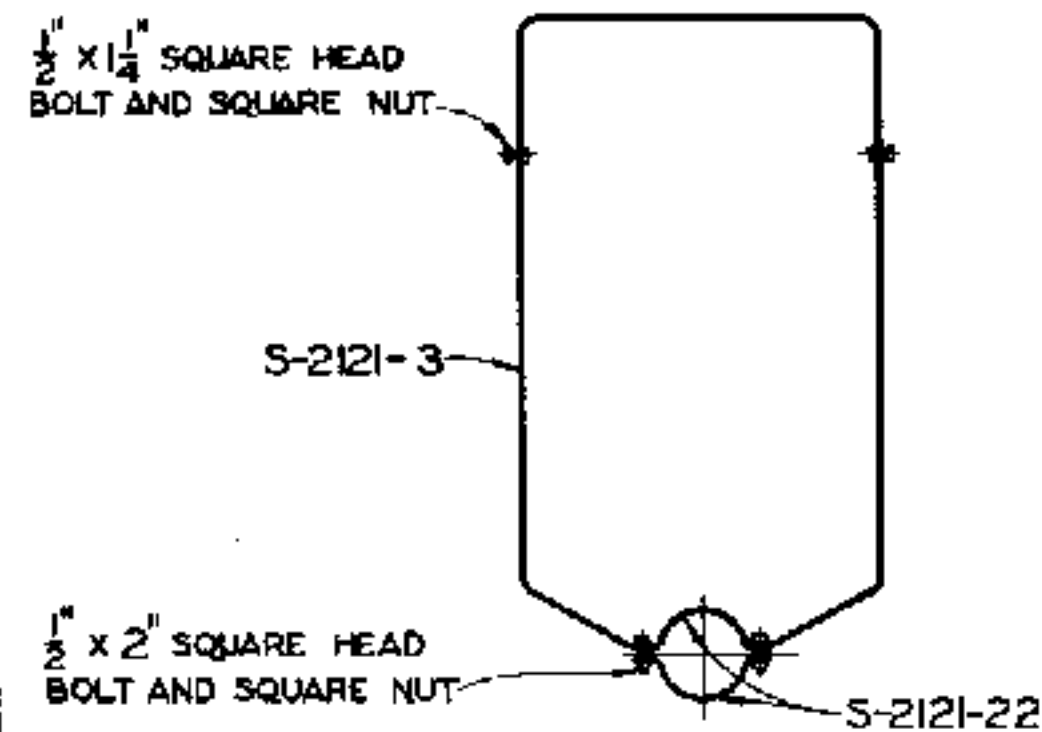
STANDARD LADDER FOR COLOR LIGHT GROUND SIGNAL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. H. H.*
CHIEF ENGINEER

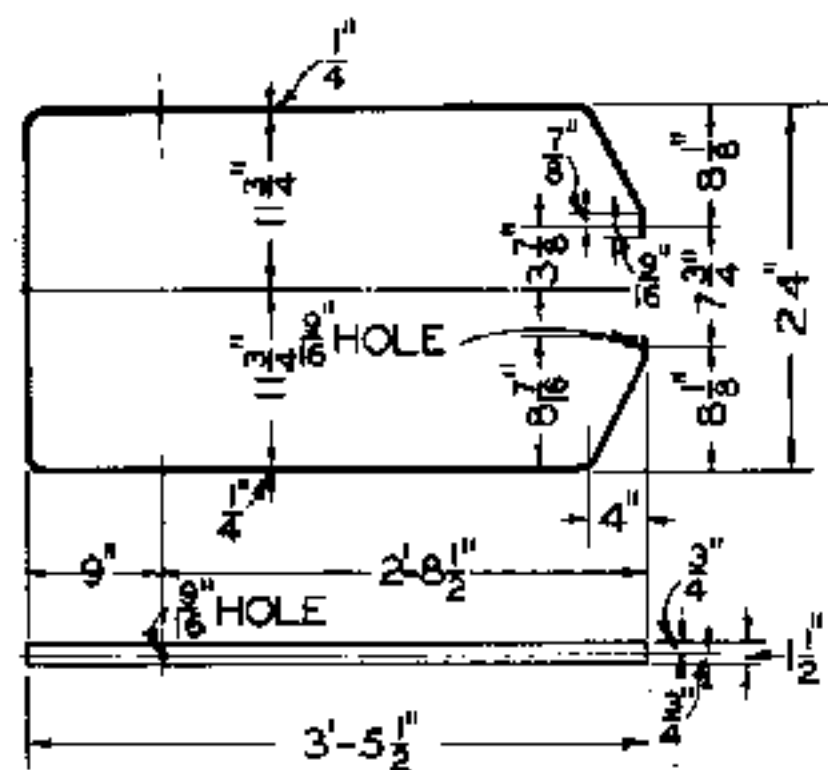
APRIL 21, 1931

SHEET 3 OF 5

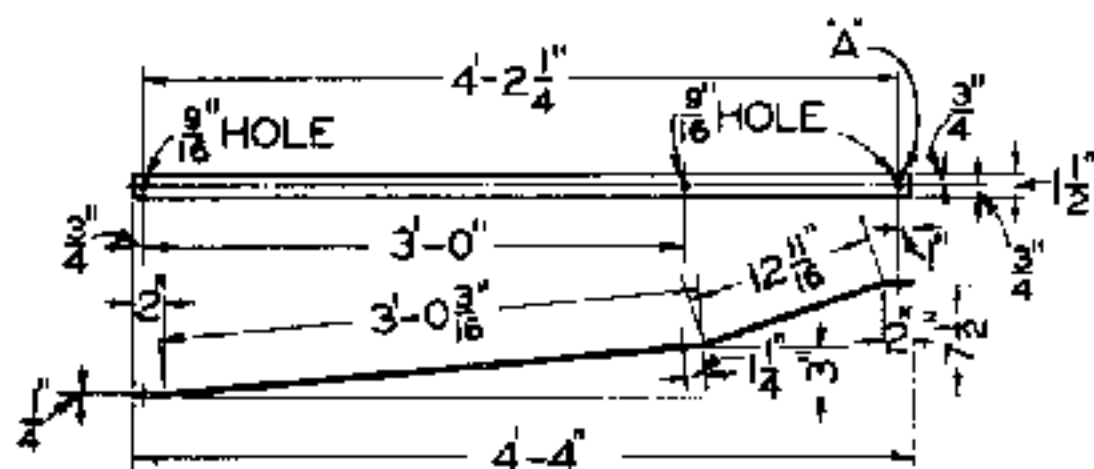
S-2120



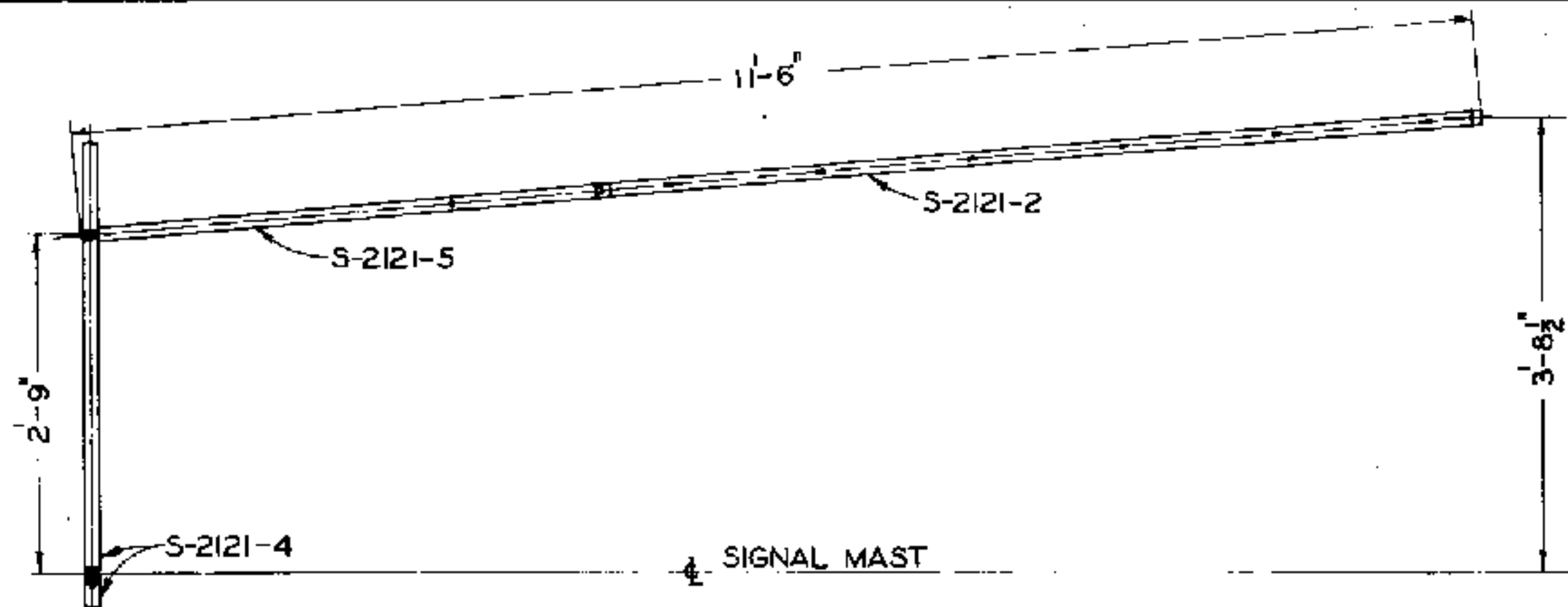
S-2121-4 TOP HANDRAIL COMPLETE



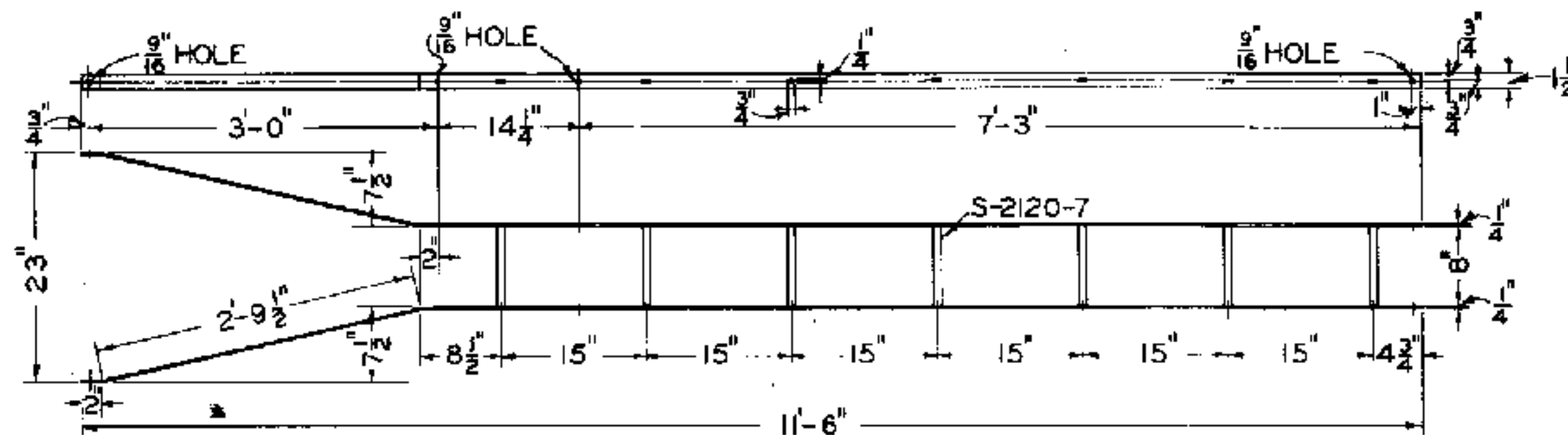
S-2121-3 TOP HANDRAIL
OPEN-HEARTH STEEL



S-2121-5 BRACE WITH $\frac{1}{2} \times 1$ SQUARE
HEAD BOLT AND SQUARE NUT FOR HOLE 'A'
OPEN-HEARTH STEEL



S-2121-1 LADDER-ONE UNIT HEIGHT SIGNAL



S-2121-2 LADDER ONLY
OPEN-HEARTH STEEL

THE FOLLOWING REFERENCE IS FOR LADDER COMPLETE
AND INCLUDES PARTS SHOWN IN TABLE.

S-2121-6 LADDER COMPLETE FOR ONE UNIT SIGNAL

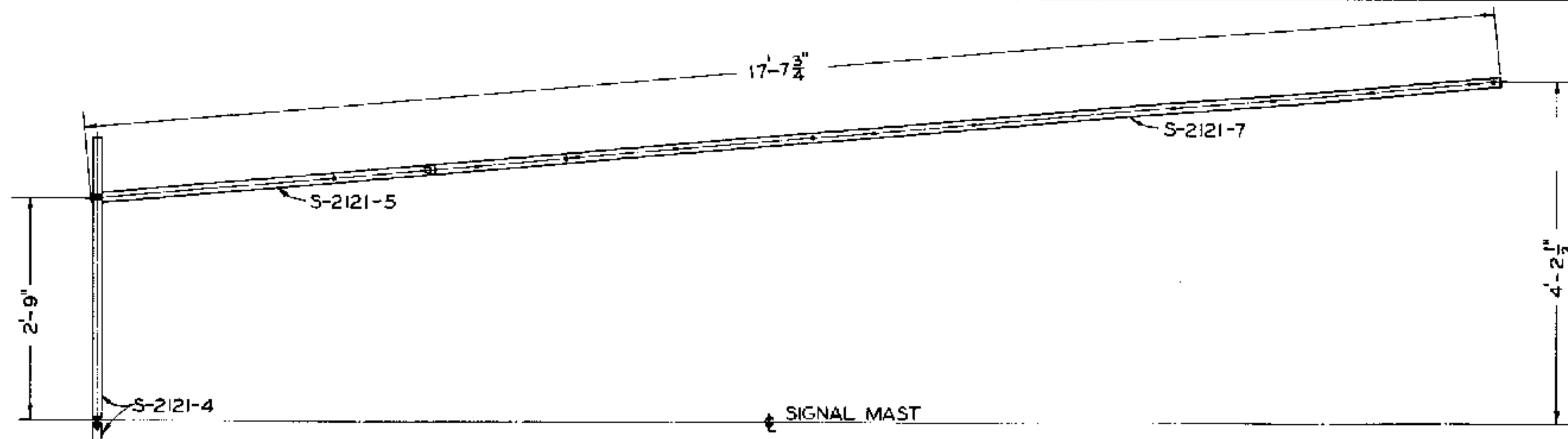
1	S-2121-1	LADDER, ONE UNIT HEIGHT SIGNAL
1	S-2121-18	LADDER PLATFORM

LADDER FOUNDATION S-2120-11 NOT INCLUDED IN ABOVE

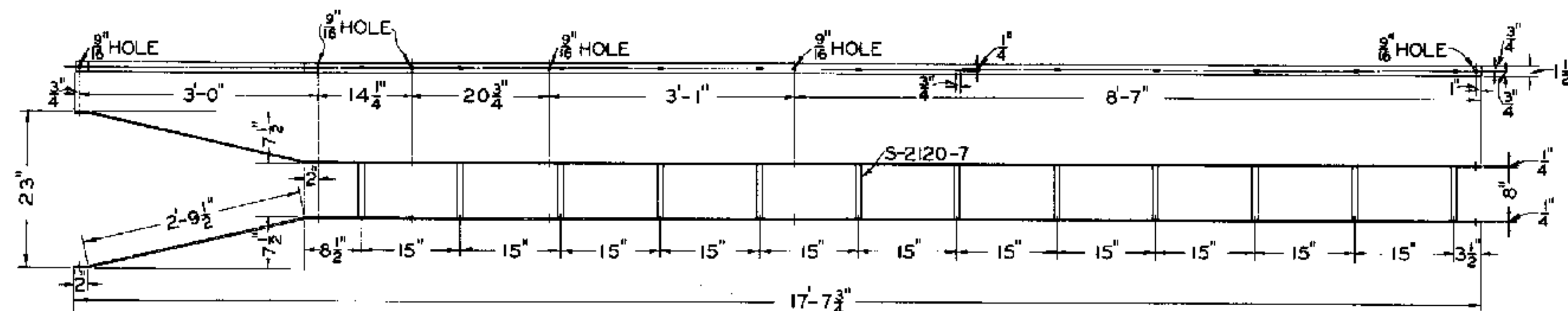
NOTE
LADDER, INCLUDING ALL PARTS, SHALL BE FURNISHED
PAINTED WITH ONE COAT OF METAL PRIMER IN
ACCORDANCE WITH LATEST REVISION OF STANDARD
SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR
SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES
0 6 12 24 36

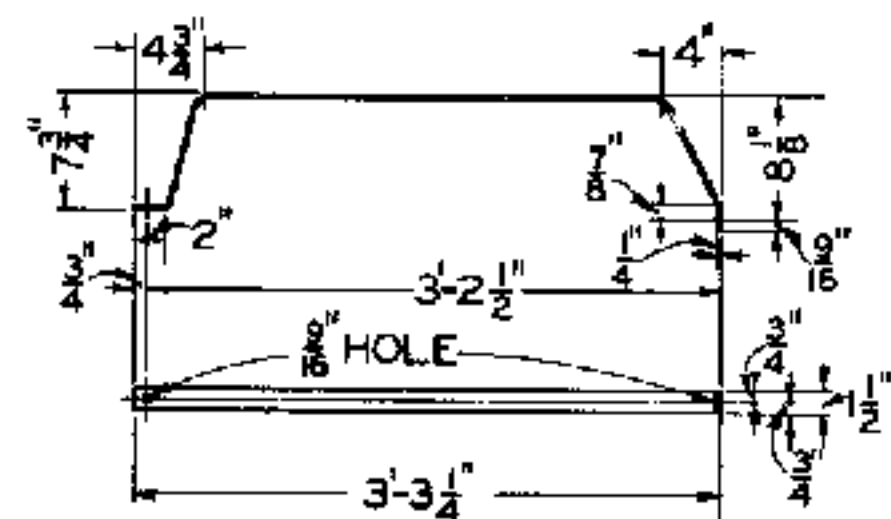
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 R. L. Woodruff VICE PRESIDENT			
 D. H. Brooks VICE PRESIDENT			
 J. H. Brown VICE PRESIDENT		APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: J. H. Brown CHIEF ENGINEER	
C.H.W. C.D.M. A.J.P. C.H.W.		JUNE 27, 1933 SHEET 1 OF 5 S-2121	



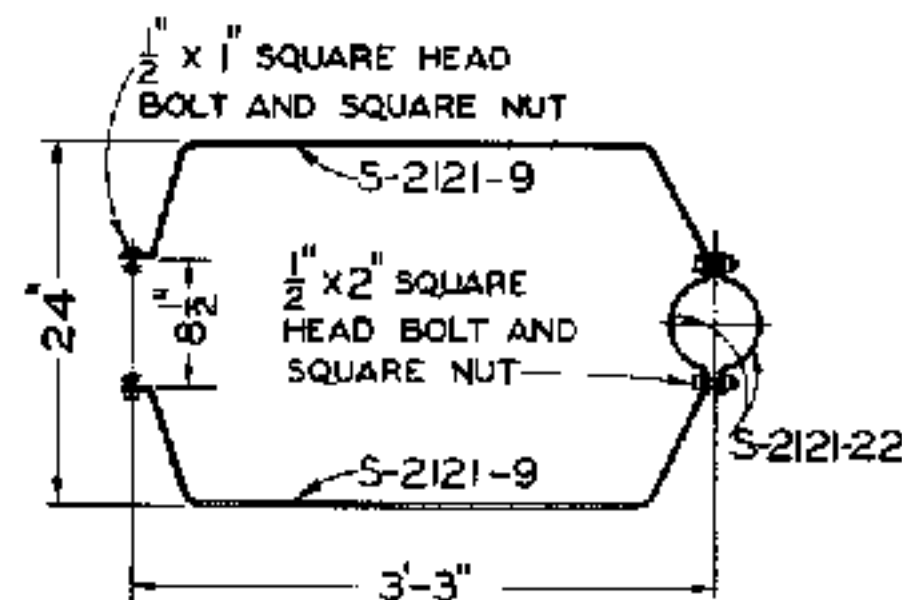
S-2121-8 LADDER-TWO UNIT HEIGHT SIGNAL



S-2121-7 LADDER ONLY
OPEN-HEARTH STEEL



S-2121-9 LADDER HANDRAIL SIDE
OPEN-HEARTH STEEL



S-2121-10 LADDER HANDRAIL COMPLETE
FOR BOTTOM UNIT ON TWO UNIT MAST
AND MIDDLE UNIT ON THREE UNIT MAST

THE FOLLOWING REFERENCE IS FOR LADDER COMPLETE
AND INCLUDES PARTS SHOWN IN TABLE.

S-2121-11 LADDER COMPLETE FOR TWO UNIT HEIGHT SIGNAL

1	S-2121-8	LADDER, TWO UNIT HEIGHT SIGNAL
1	S-2121-18	LADDER PLATFORM, TOP UNIT
1	S-2121-19	LADDER PLATFORM, BOTTOM UNIT
1	S-2121-10	LADDER HANDRAIL, COMPLETE, BOTTOM UNIT

LADDER FOUNDATION, S-2120-11 NOT INCLUDED IN ABOVE

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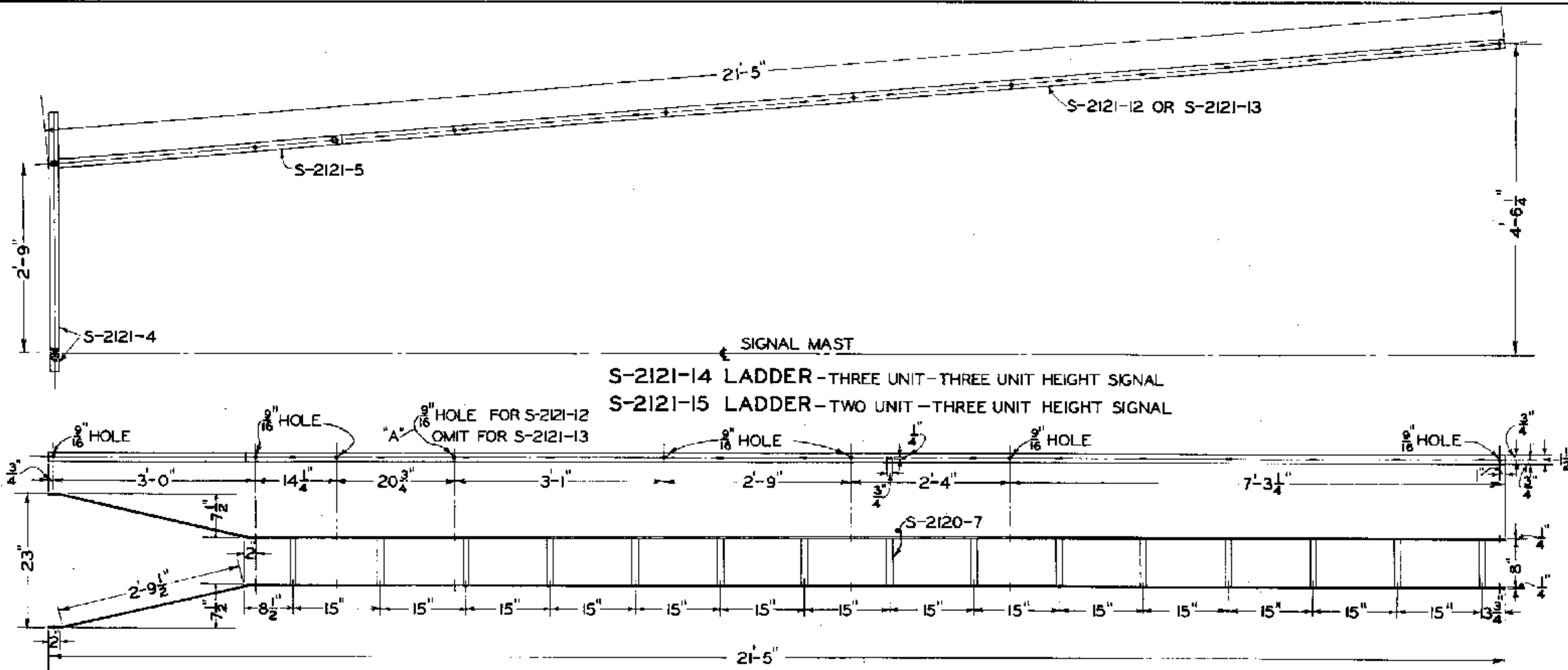
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STANDARD LADDER
FOR COLOR LIGHT SEARCHLIGHT
GROUND SIGNAL

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Brown* JUNE 27, 1933
CHIEF ENGINEER

SHEET 2 OF 5

S-2121



NOTE
LADDER, INCLUDING ALL PARTS, SHALL BE
FURNISHED PAINTED WITH ONE COAT OF
METAL PRIMER IN ACCORDANCE WITH LATEST
REVISION OF STANDARD SPECIFICATIONS S-1510,
SHOP AND FIELD PAINTING FOR SIGNAL AND
INTERLOCKING APPARATUS.



S-2121-12 LADDER ONLY FOR THREE UNIT-THREE UNIT HEIGHT SIGNAL WITH HOLE "A"
S-2121-13 LADDER ONLY FOR TWO UNIT-THREE UNIT HEIGHT SIGNAL WITHOUT HOLE "A"
OPEN-HEARTH STEEL

THE FOLLOWING REFERENCES ARE FOR LADDERS COMPLETE AND INCLUDE PARTS SHOWN IN TABLES

S-2121-16 LADDER COMPLETE FOR TWO UNIT-THREE UNIT HEIGHT SIGNAL S-2121-17 LADDER COMPLETE FOR THREE UNIT-THREE UNIT HEIGHT SIGNAL

1	S-2121-15	LADDER, TWO UNIT-THREE UNIT HEIGHT
1	S-2121-18	LADDER PLATFORM, TOP UNIT
1	S-2121-20	LADDER PLATFORM, BOTTOM UNIT
1	S-2121-24	LADDER HANDRAIL, COMPLETE, BOTTOM UNIT
1	S-2121-26	LADDER STAY, COMPLETE

1	S-2121-14	LADDER, THREE UNIT-THREE UNIT HEIGHT
1	S-2121-18	LADDER PLATFORM, TOP UNIT
1	S-2121-19	LADDER PLATFORM, MIDDLE UNIT
1	S-2121-20	LADDER PLATFORM, BOTTOM UNIT
1	S-2121-10	LADDER HANDRAIL, COMPLETE, MIDDLE UNIT
1	S-2121-24	LADDER HANDRAIL, COMPLETE, BOTTOM UNIT

LADDER FOUNDATION S-2120-11 NOT INCLUDED IN ABOVE

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[Signature]
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
[Signature]
VICE PRESIDENT

C.H.W. C.D.M. A.J.P.
K.L.M.

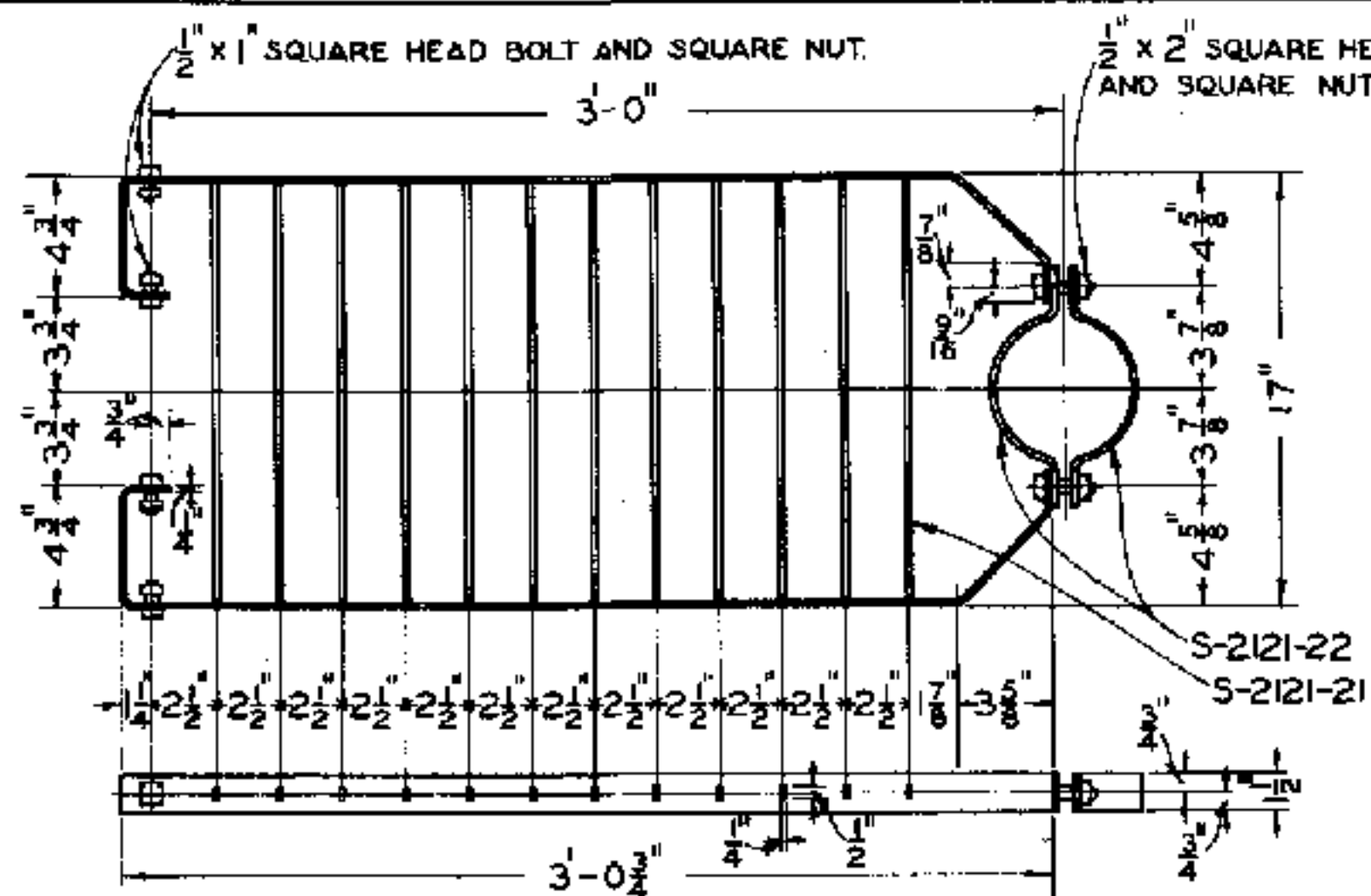
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STANDARD LADDER
FOR COLOR LIGHT SEARCHLIGHT
GROUND SIGNAL

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ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]*
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JUNE 27, 1933

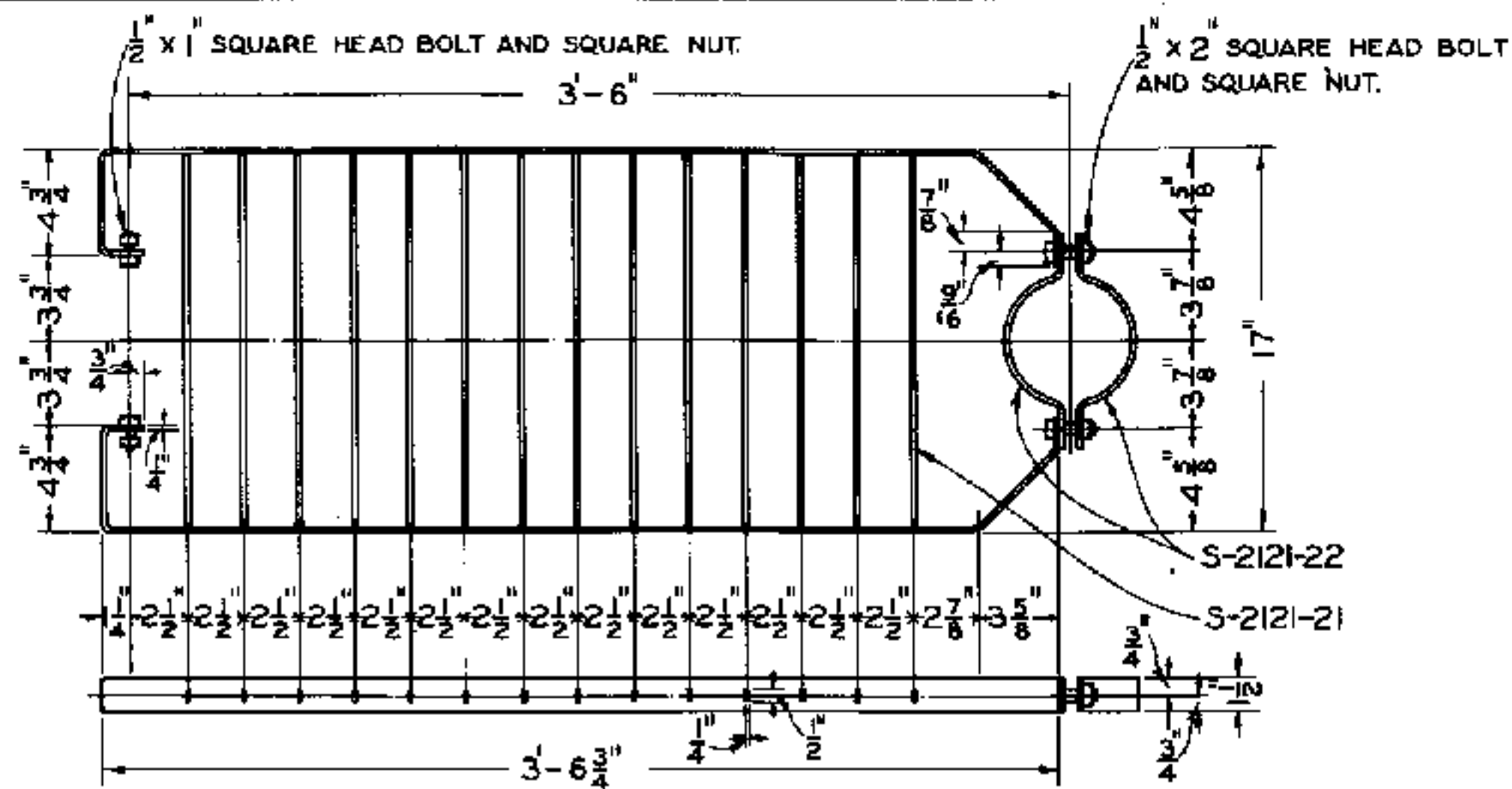
SHEET 3 OF 5
S-2121



S-2121-18 LADDER PLATFORM

OPEN-HEARTH STEEL

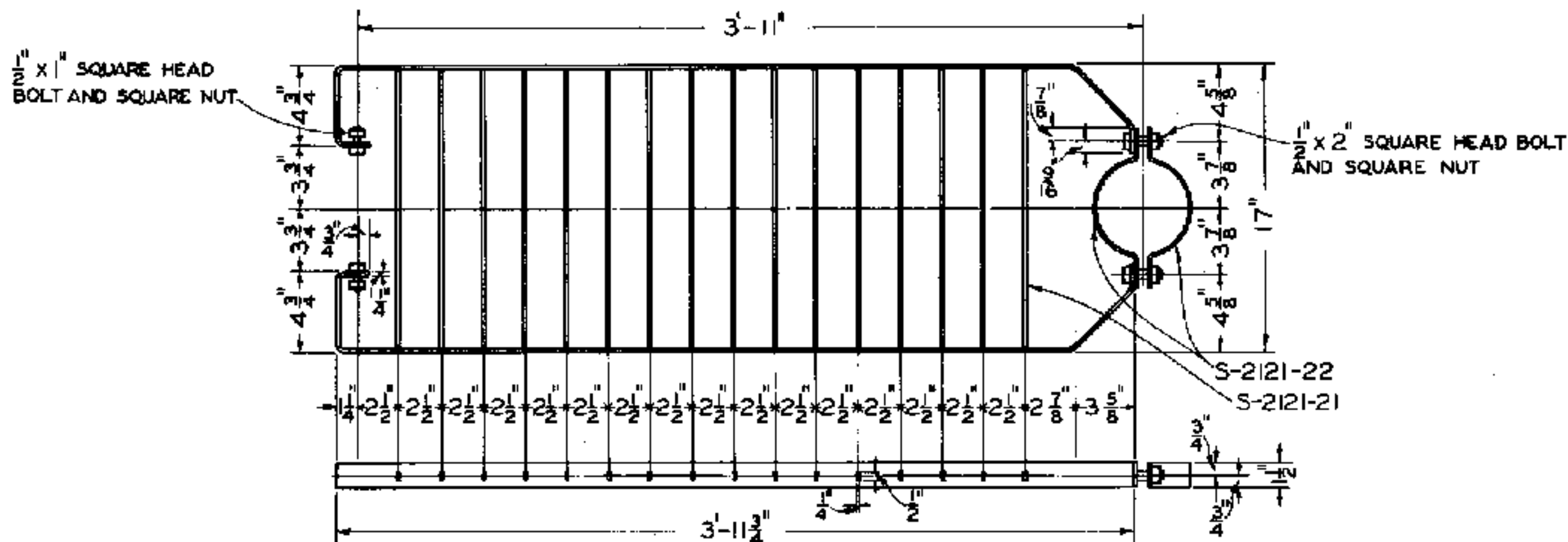
FOR TOP UNIT ON ONE, TWO, AND THREE UNIT MAST



S-2121-19 LADDER PLATFORM

OPEN-HEARTH STEEL

FOR BOTTOM UNIT ON TWO UNIT MAST AND
MIDDLE UNIT ON THREE UNIT MAST



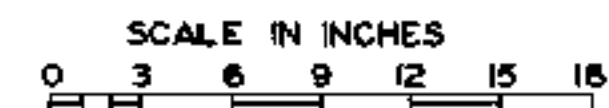
S-2121-20 LADDER PLATFORM

OPEN-HEARTH STEEL

FOR BOTTOM UNIT ON THREE UNIT MAST

NOTES

1. ALL HOLES SHALL BE $\frac{3}{16}$ UNLESS OTHERWISE SHOWN.
2. LADDER, INCLUDING ALL PARTS, SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 5-1510. SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



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C.H.W. C.D.M. A.J.P.

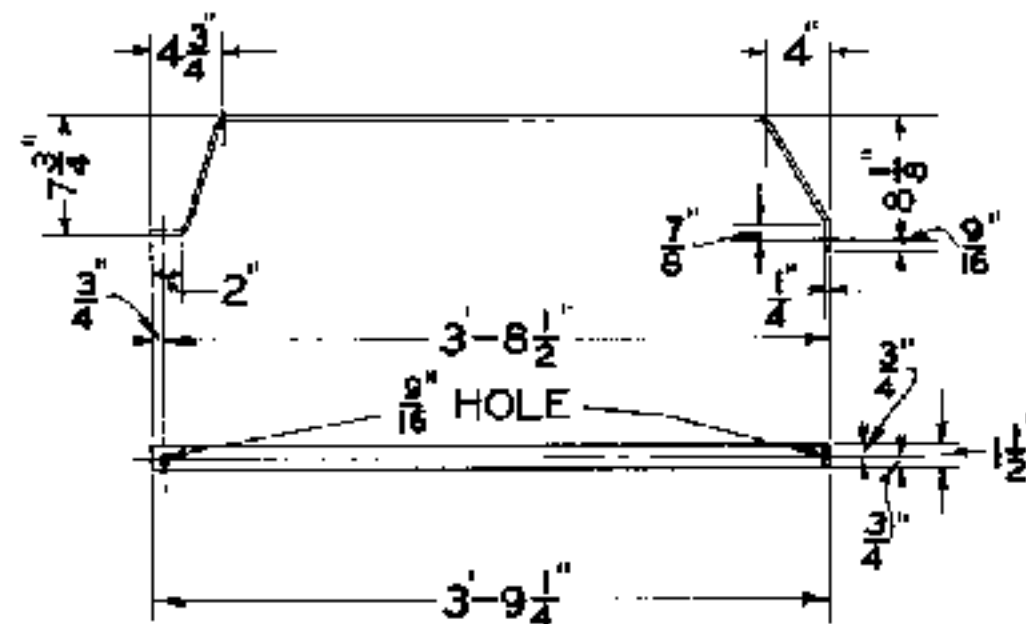
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**STANDARD LADDER
FOR COLOR LIGHT SEARCHLIGHT
GROUND SIGNAL**

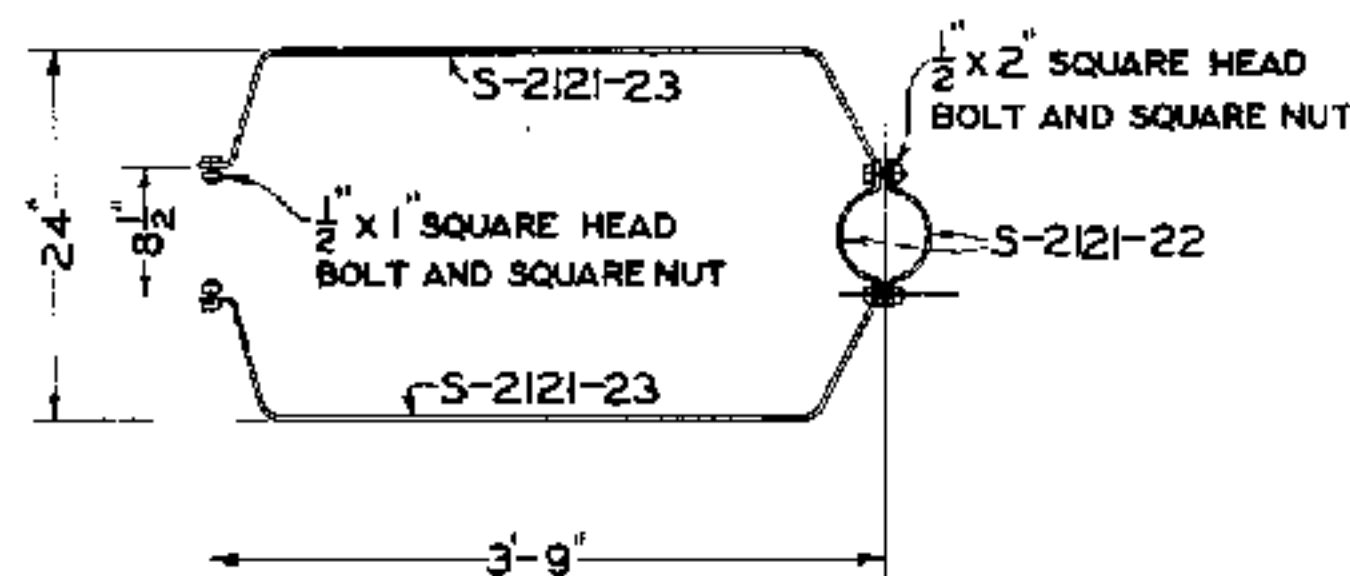
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ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. C. C.* JUNE 27, 1933
CHIEF ENGINEER

SHEET 4 OF 5

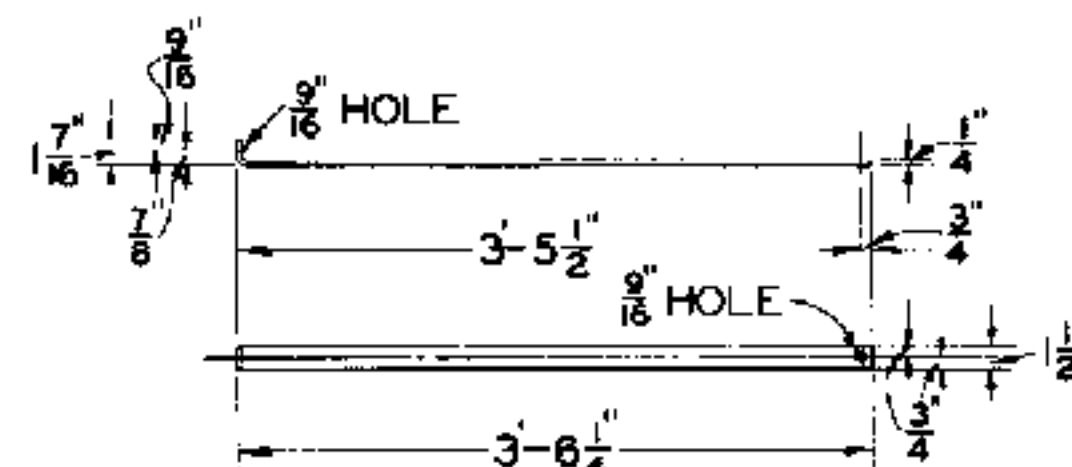
S-2121



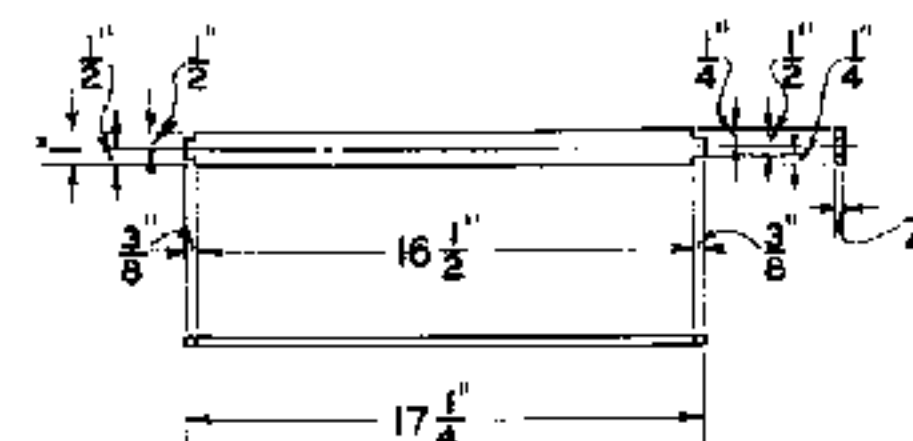
S-2121-23 LADDER HANDRAIL SIDE
OPEN-HEARTH STEEL
SCALE ①



S-2121-24 LADDER HANDRAIL COMPLETE
FOR BOTTOM UNIT ON
THREE UNIT HEIGHT MAST
SCALE ①

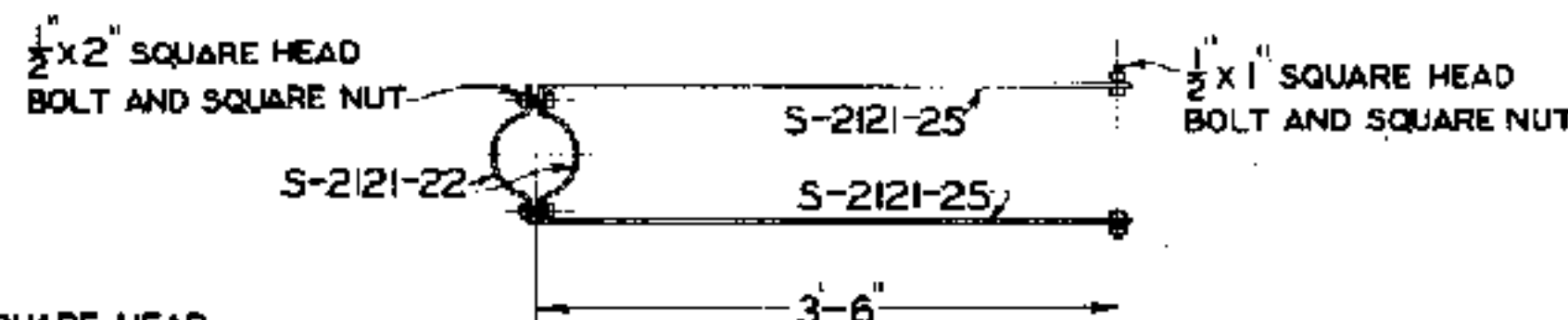


S-2121-25 LADDER STAY SIDE
OPEN-HEARTH STEEL
SCALE ①

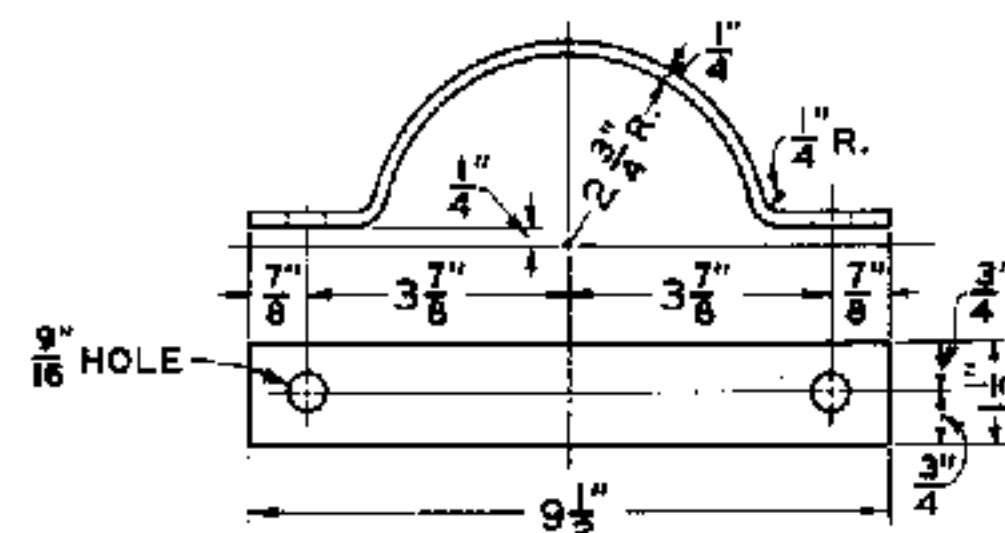


S-2121-21 PLATFORM RUNG
DEAD SOFT OPEN-HEARTH STEEL
SCALE ②

NOTE
LADDER PARTS SHALL BE FURNISHED PAINTED
WITH ONE COAT OF METAL PRIMER IN ACCORDANCE
WITH LATEST REVISION OF STANDARD SPECIFICATIONS
S-1310, SHOP AND FIELD PAINTING FOR SIGNAL
AND INTERLOCKING APPARATUS.



S-2121-26 LADDER STAY COMPLETE
FOR TWO UNIT-THREE UNIT HEIGHT MAST
SCALE ①



S-2121-22 ONE HALF CLAMP
FOR 5 INCH PIPE
OPEN-HEARTH STEEL
SCALE ③



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ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
C.H.W.	C.D.M.	A.J.P.
K.L.M.		

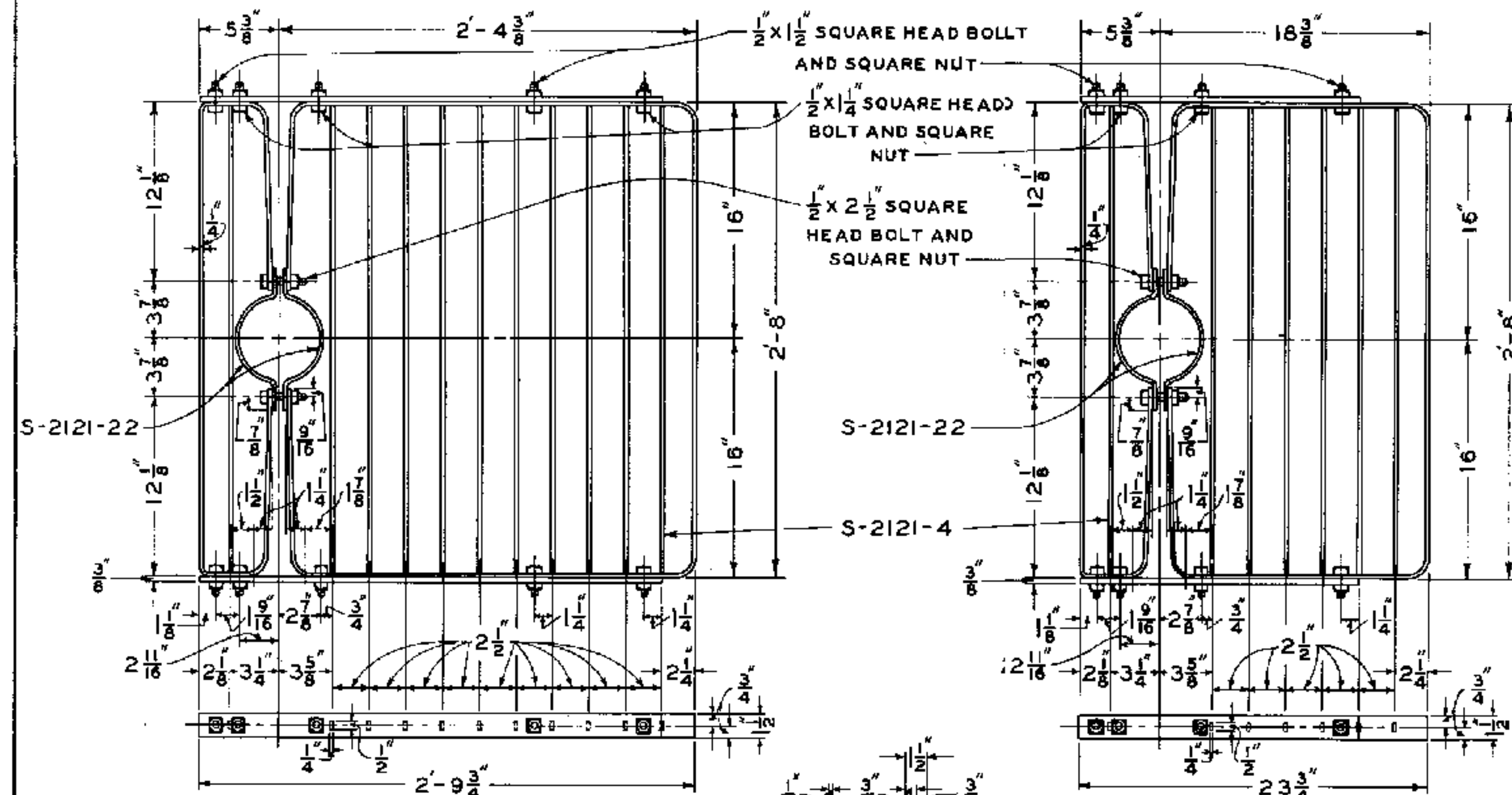
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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD LADDER FOR COLOR LIGHT SEARCHLIGHT GROUND SIGNAL

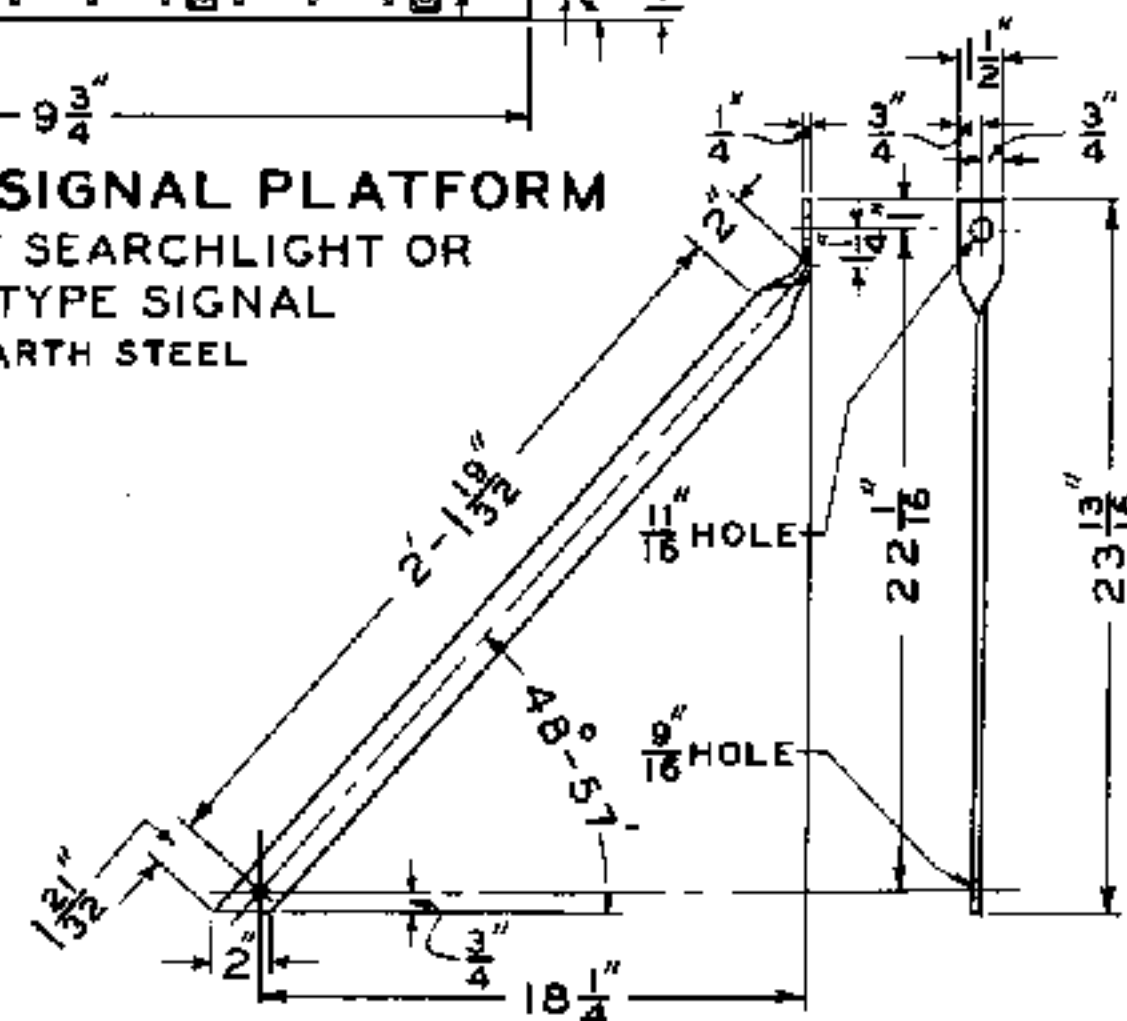
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* JUNE 27, 1933
CHIEF ENGINEER

SHEET 5 OF 5

S-2121

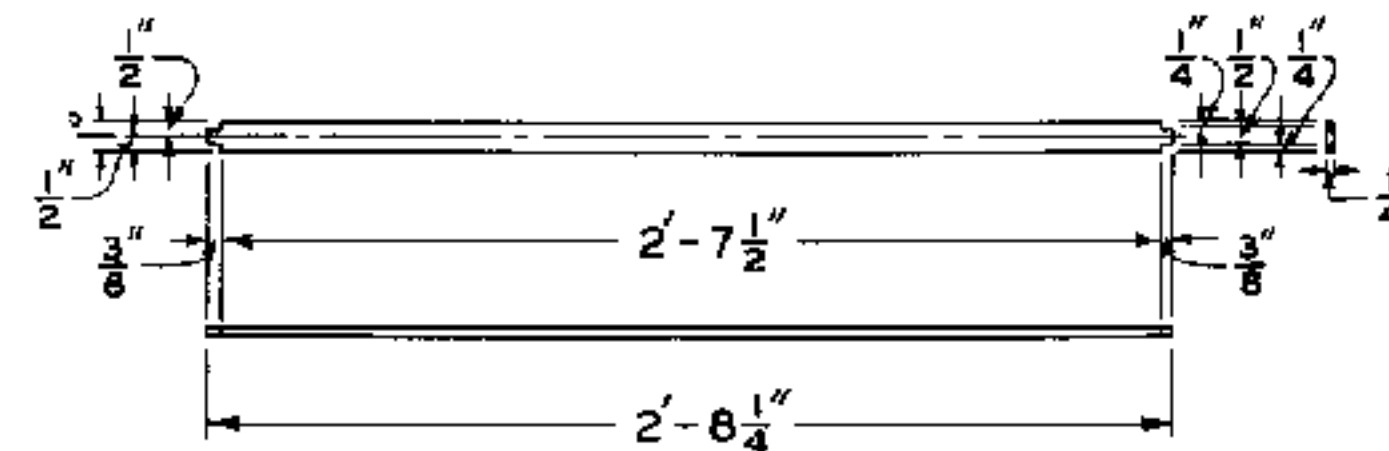


S-2122-1 BRIDGE SIGNAL PLATFORM
FOR LOWER UNIT SEARCHLIGHT OR
VERTICAL TYPE SIGNAL
OPEN-HEARTH STEEL

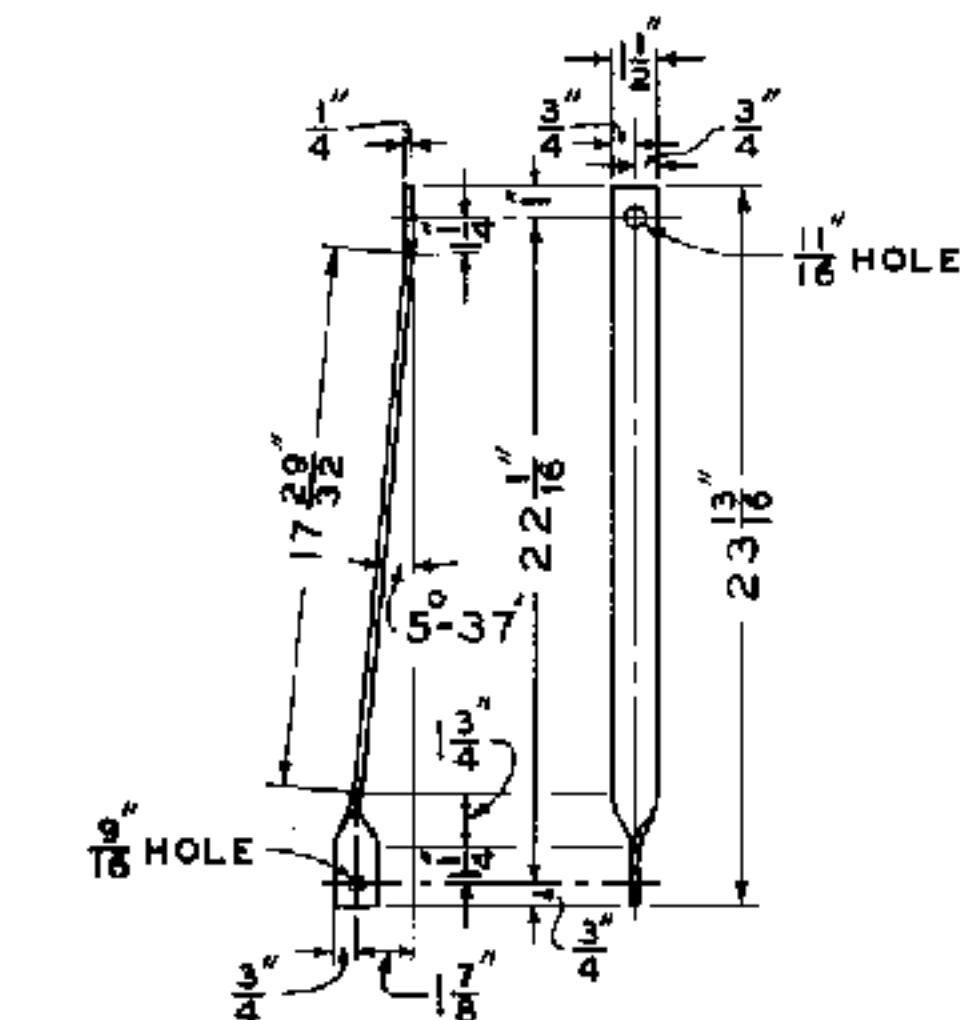


S-2122-3 PLATFORM STAY
OPEN-HEARTH STEEL

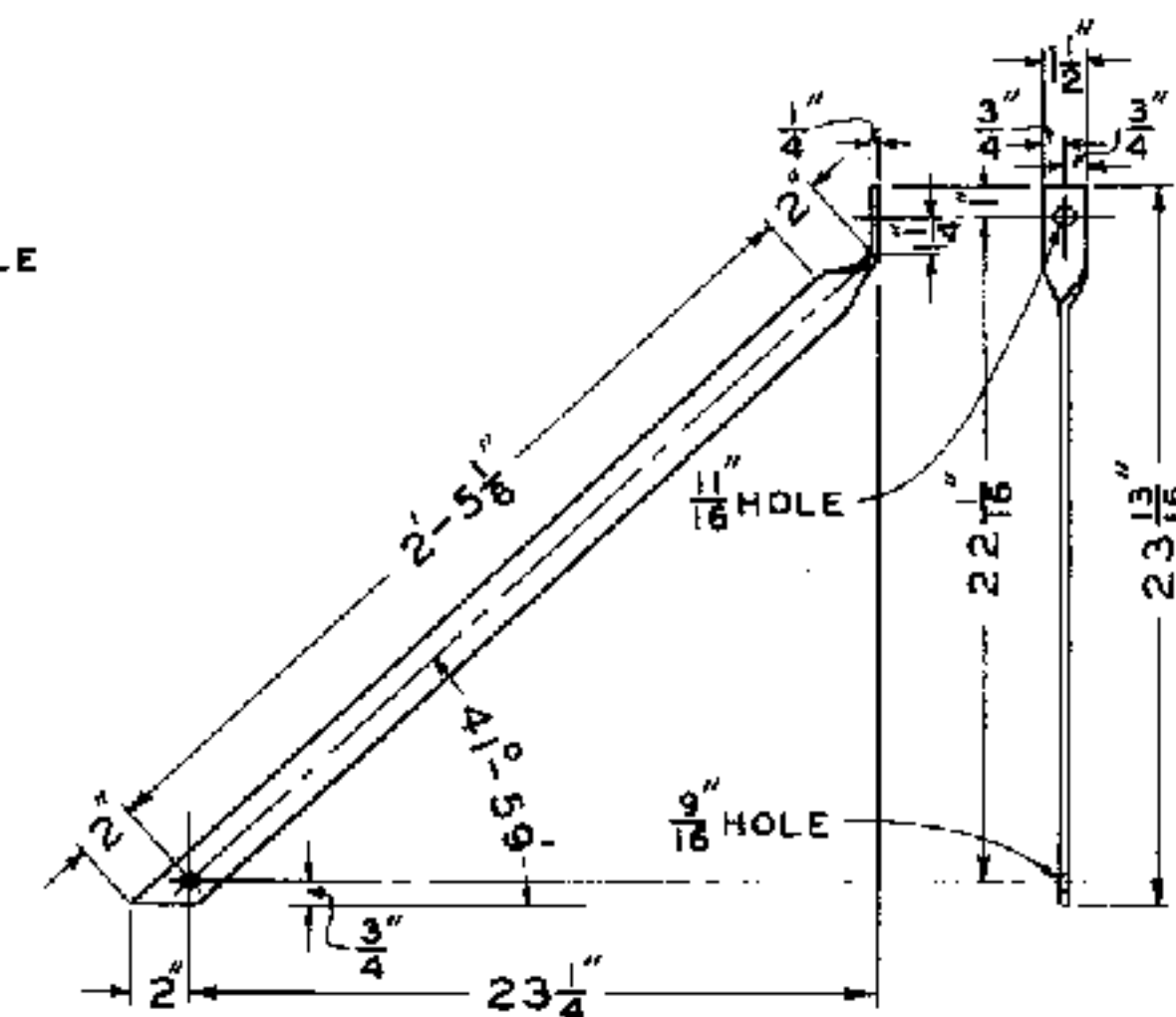
S-2122-2 BRIDGE SIGNAL PLATFORM
FOR TOP UNIT ON TWO UNIT OR MIDDLE
UNIT ON THREE UNIT VERTICAL TYPE SIGNAL
OPEN-HEARTH STEEL



S-2122-4 PLATFORM RUNG
DEAD SOFT OPEN-HEARTH STEEL



S-2122-5 PLATFORM STAY
OPEN-HEARTH STEEL



S-2122-6 PLATFORM STAY
OPEN-HEARTH STEEL

NOTE: PLATFORM AND STAYS SHALL BE FURNISHED PAINTED
WITH ONE COAT OF METAL PRIMER IN ACCORDANCE
WITH LATEST REVISION OF STANDARD SPECIFICATIONS
S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND
INTERLOCKING APPARATUS.

SCALE IN INCHES
0 3 6 9 12 15 18

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ERIE RAILROAD COMPANY

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STANDARD LADDER AND PLATFORM FOR COLOR LIGHT BRIDGE SIGNALS

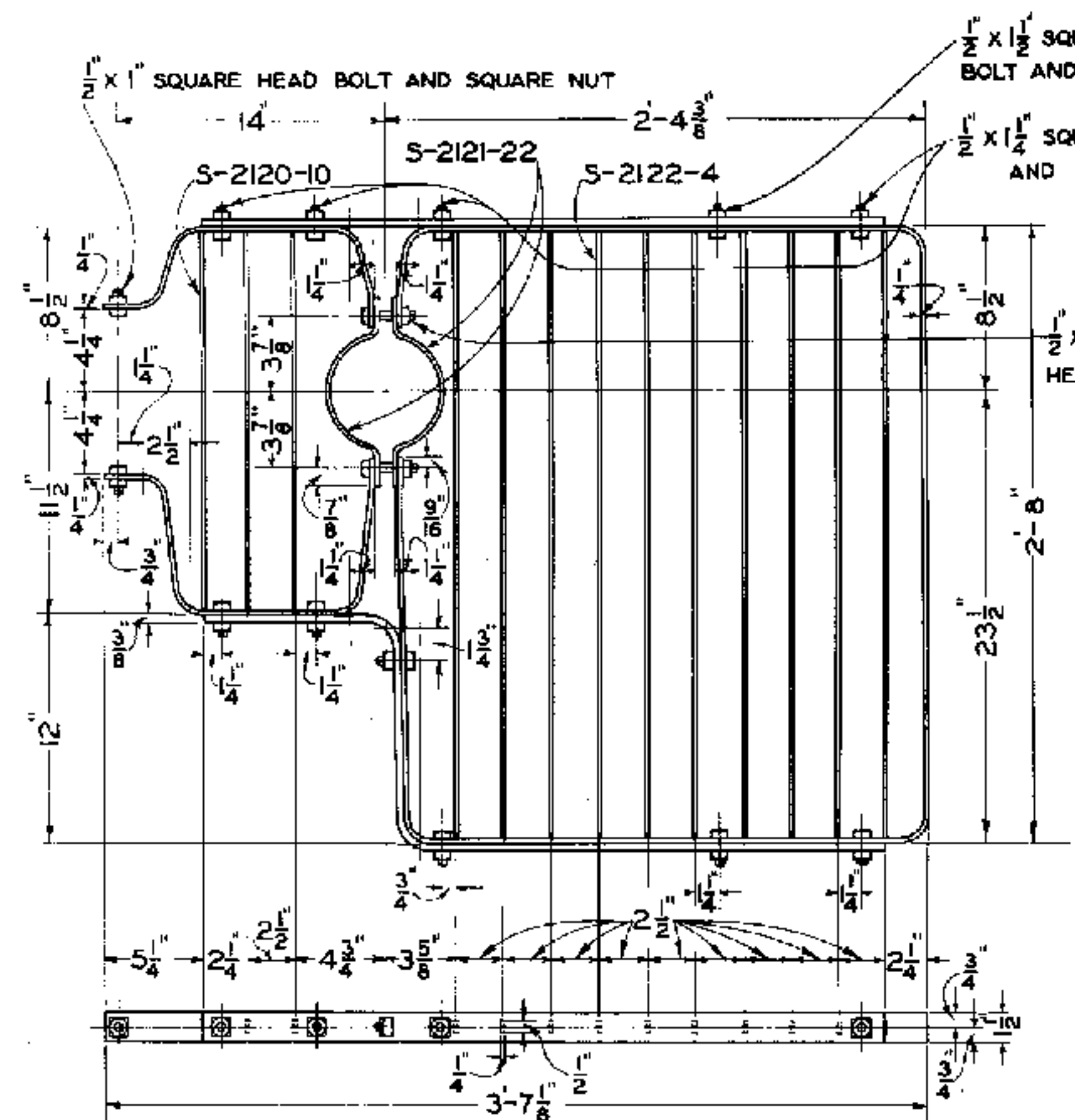
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. H. Wallace
CHAIRMAN

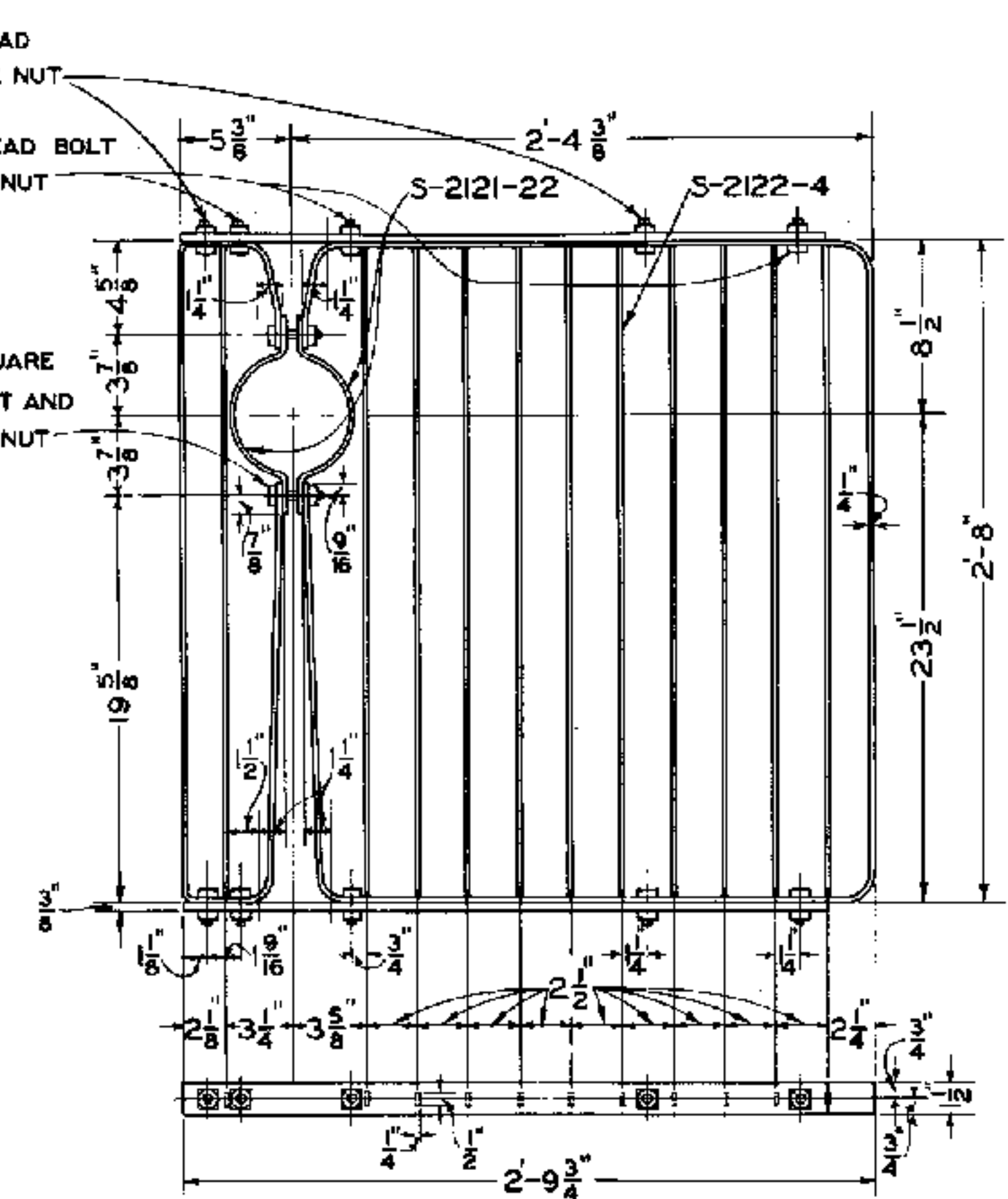
DEC. 7, 1942

SHEET 1 OF 4

S-2122-A

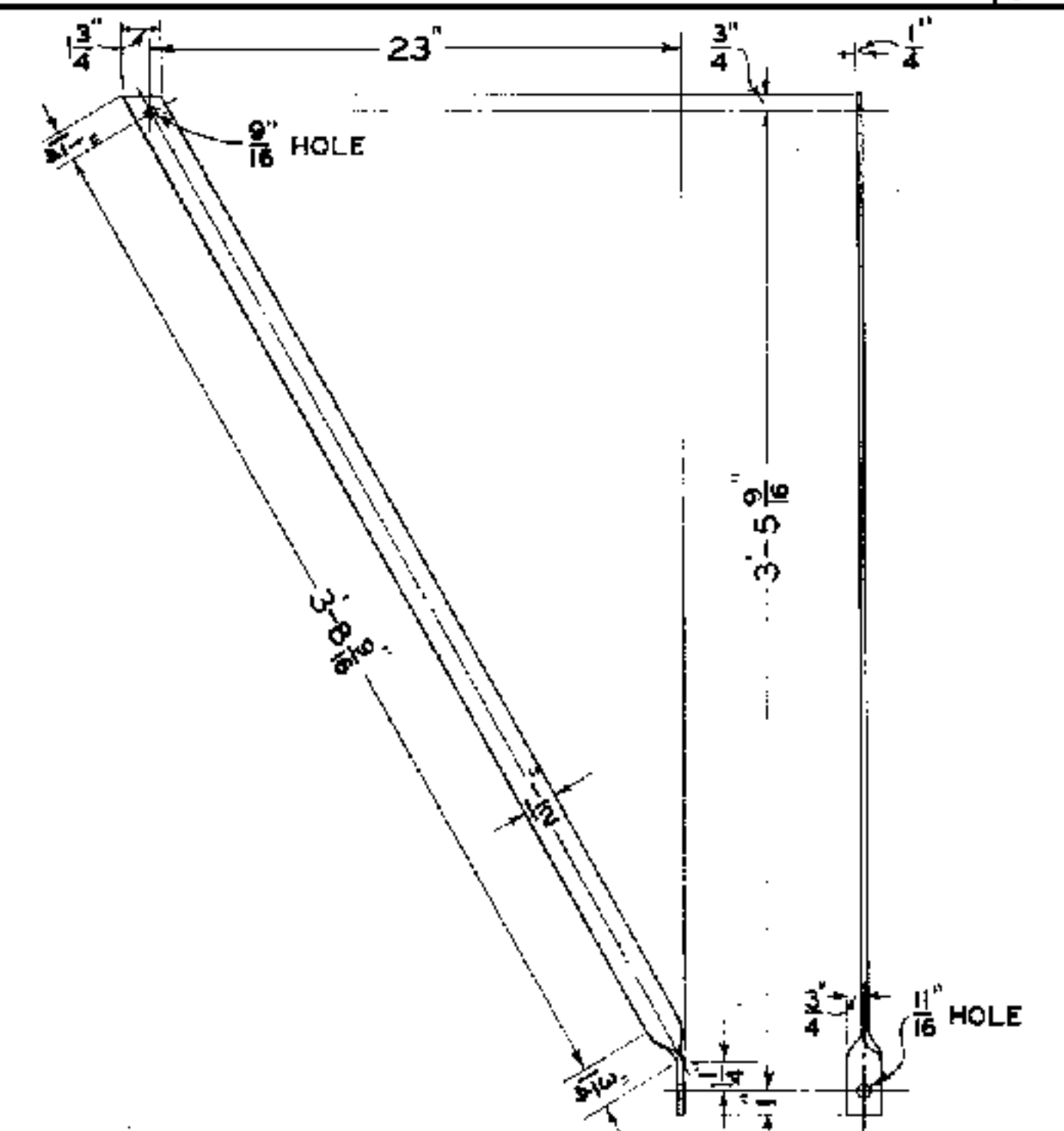


S-2122-14 LADDER PLATFORM
FOR TOP UNIT ON THREE UNIT SEARCH-
LIGHT TYPE SIGNALS
OPEN-HEARTH STEEL

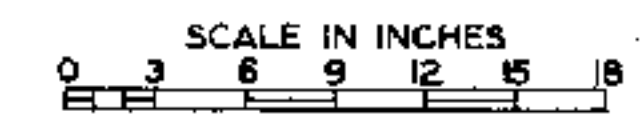


S-2122-15 BRIDGE SIGNAL PLATFORM
FOR TOP UNIT ON TWO UNIT OR MIDDLE UNIT ON
THREE UNIT SEARCHLIGHT TYPE SIGNALS
OPEN-HEARTH STEEL

NOTE
PLATFORM AND STAYS SHALL BE FURNISHED
PAINTED WITH ONE COAT OF METAL PRIMER
IN ACCORDANCE WITH LATEST REVISION OF
STANDARD SPECIFICATIONS S-1510, SHOP AND
FIELD PAINTING FOR SIGNAL AND INTERLOCKING
APPARATUS.



S-2122-16 PLATFORM STAY
OPEN-HEARTH STEEL



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VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
PRESIDENT		
C. H. W.	W. S. E.	W. N. H.
K. L. M.		

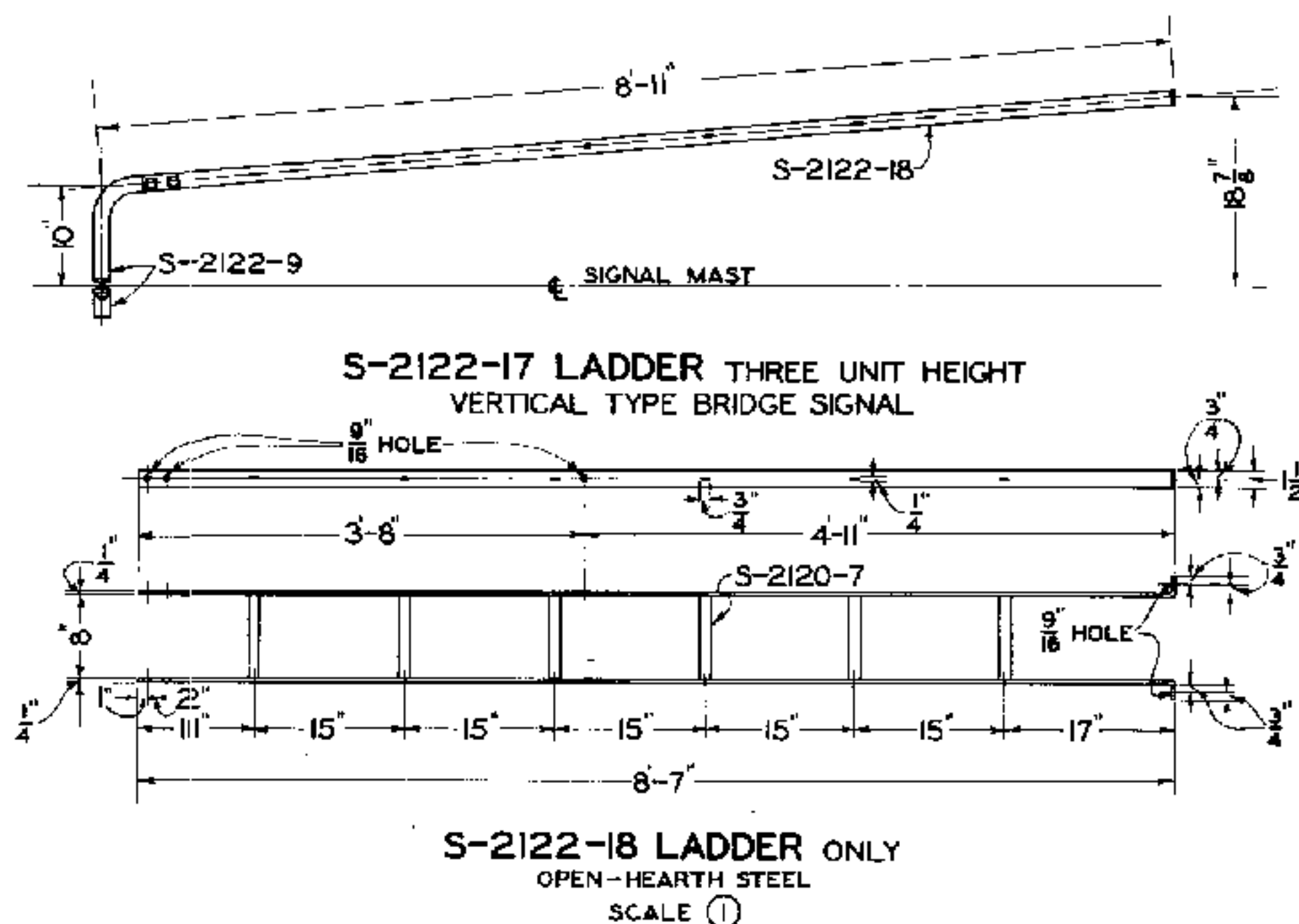
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**STANDARD LADDER
AND PLATFORM FOR
COLOR LIGHT BRIDGE SIGNALS**

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[Signature]
CHAIRMAN

DEC. 7, 1942

SHEET 3 OF 4
S-2122-A



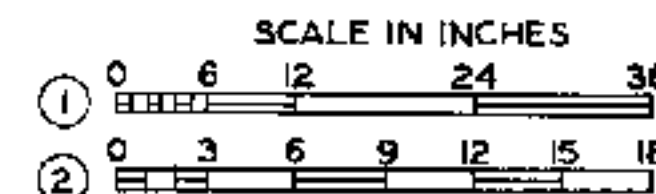
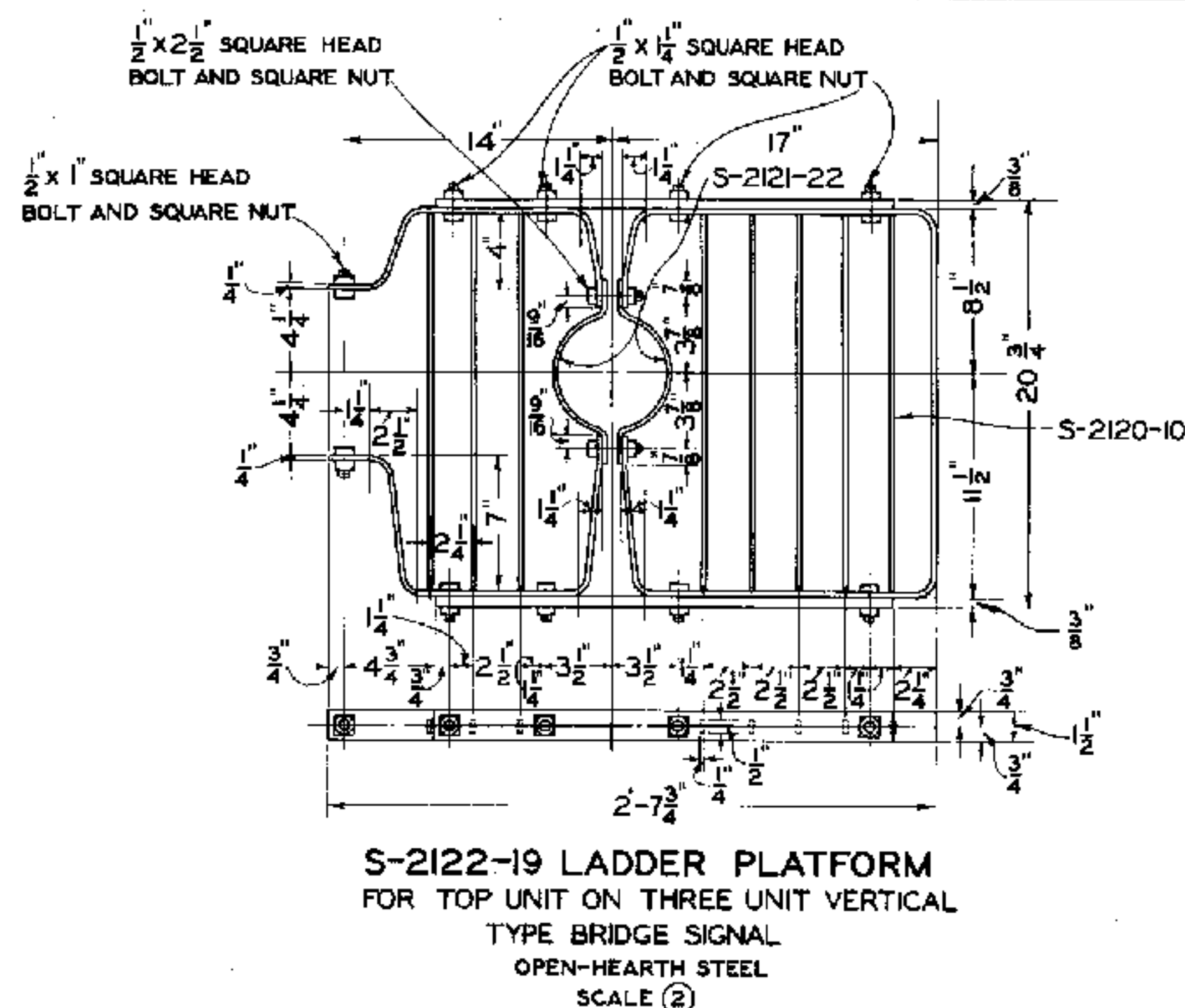
THE FOLLOWING REFERENCE IS FOR LADDER COMPLETE AND INCLUDES PARTS SHOWN IN TABLE

S-2122-20 LADDER COMPLETE FOR THREE UNIT HEIGHT VERTICAL TYPE BRIDGE SIGNAL

1	S-2122-17	LADDER THREE UNIT HEIGHT SIGNAL
1	S-2122-19	LADDER PLATFORM
2	—	1" x 2" LAG SCREWS GALVANIZED

NOTE

LADDER AND PLATFORM SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



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ERIE RAILROAD COMPANY

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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

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STANDARD LADDER AND PLATFORM FOR COLOR LIGHT BRIDGE SIGNALS

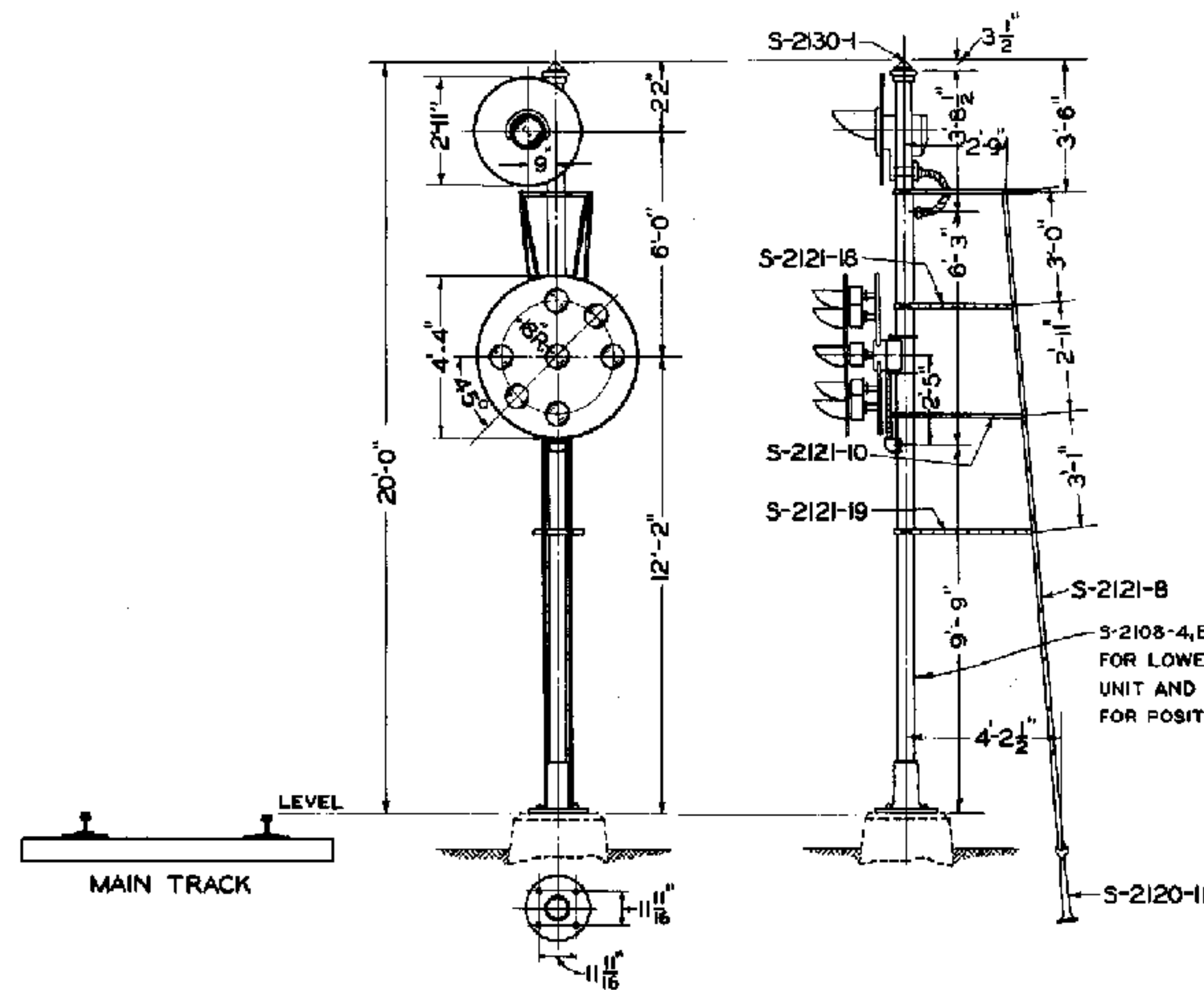
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. ...
CHAIRMAN

DEC. 7, 1942

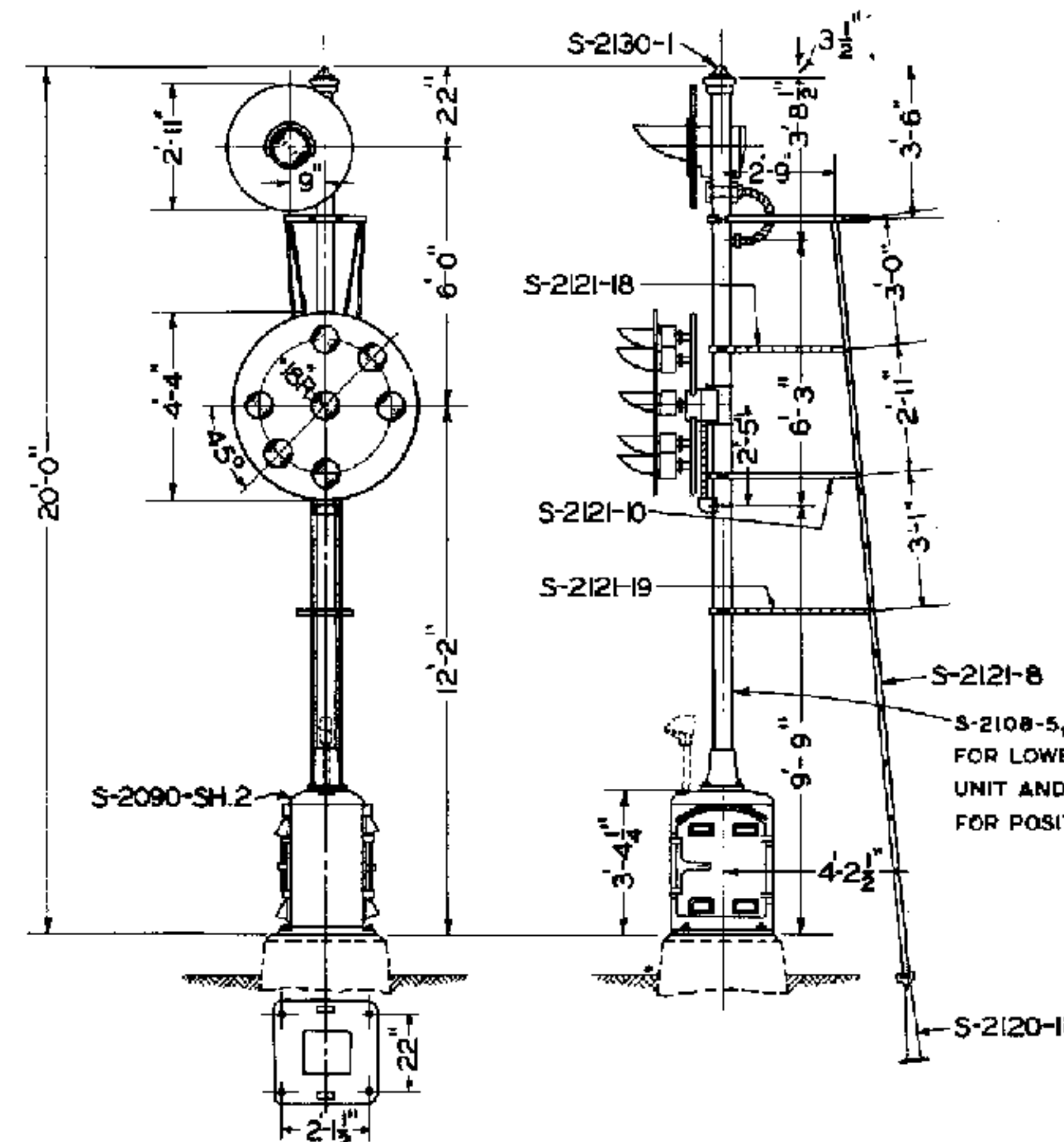
SHEET 4 OF 4





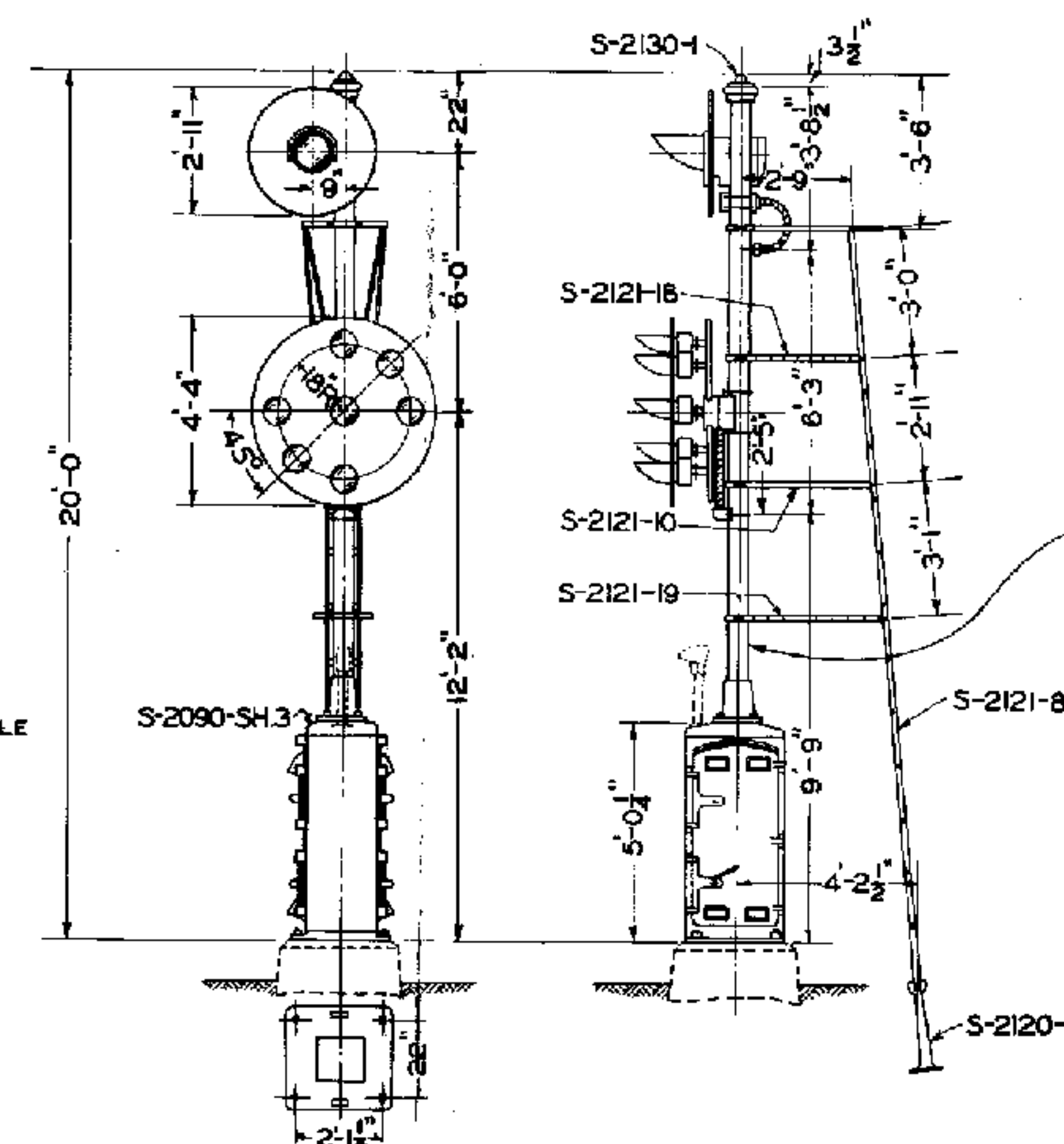
POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2124-1	ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUN- DATION, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS.



POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2124-2	ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT GROUND SIGNAL WITH INSTRUMENT CASE 3'-4 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING, S-2090-31 OR 2" CABLE OUTLET, S-2090-22.



POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2124-3	ONE SEARCHLIGHT UNIT AND ONE POSITION LIGHT UNIT GROUND SIGNAL WITH INSTRUMENT CASE 5'-0 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING, S-2090-32 OR 2" CABLE OUTLET, S-2090-22.

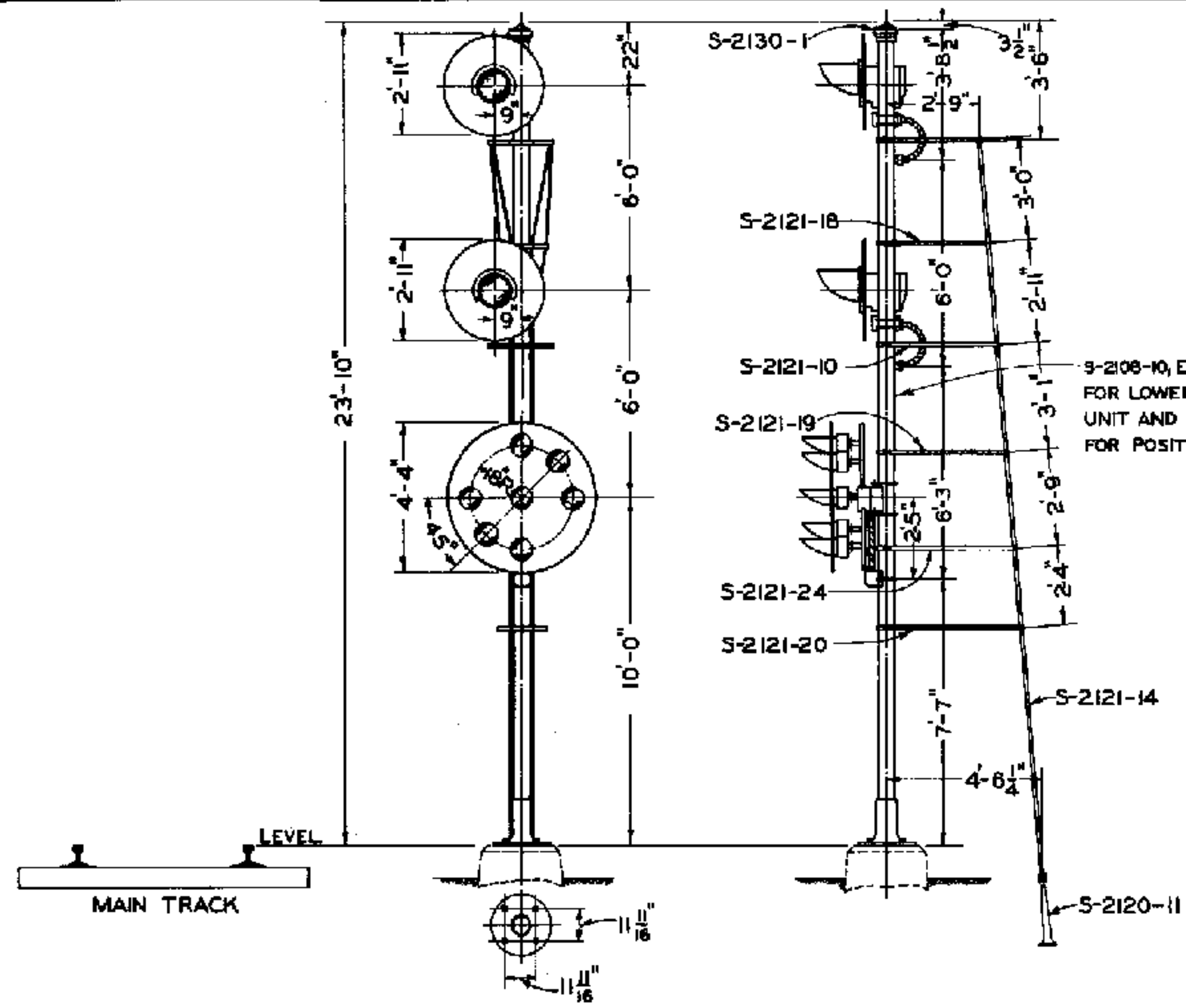
- NOTES
1. EACH SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. SINGLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
 2. THE WIRE OUTLET FITTING AT THE MAST USED WITH THE POSITION LIGHT UNIT SHALL BE OF A TYPE TO CLAMP TO MAST WITH A "U" BOLT, 1/8" HOLE BEING REQUIRED IN THE MAST FOR THE FITTING. IF MAST FURNISHED IS DRILLED FOR THE LOWER SEARCHLIGHT SIGNAL UNIT, THE HOLE SHALL BE PLUGGED WITH 2" PIPE PLUG.
 3. WHEN ORDERING POSITION LIGHT UNIT ONLY, SPECIFY 22" LENGTH OF FLEXIBLE CONDUIT.

S-2108-6, EXCEPT OMIT HOLE
FOR LOWER SEARCHLIGHT UNIT
AND DRILL 1/8" HOLE FOR
POSITION LIGHT UNIT

SCALE IN FEET
0 1 2 3 4 5 6 7 8

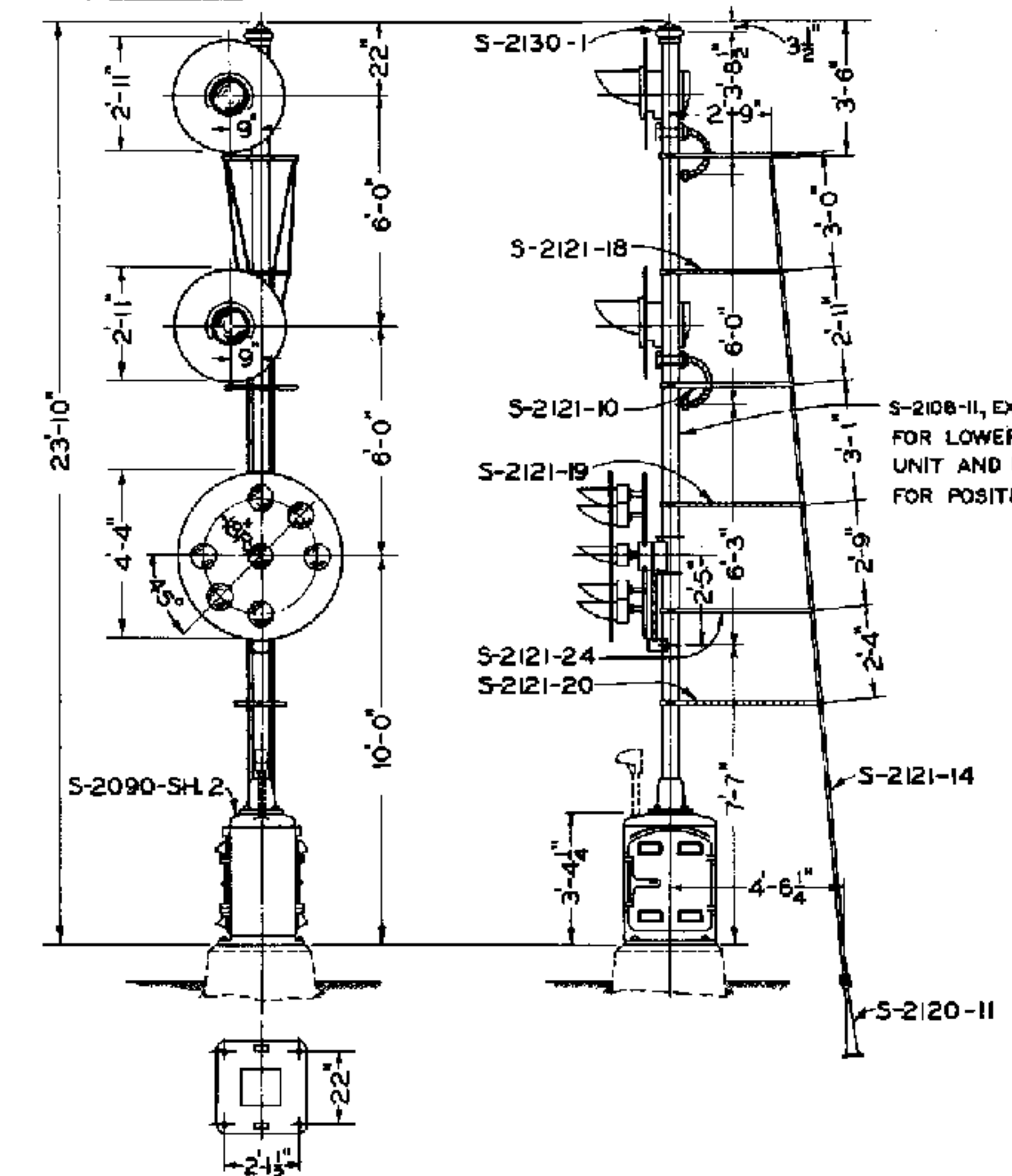
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VICE PRESIDENT
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K.L.M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY
STANDARD
APPLICATION OF POSITION LIGHT
TAKE SIDING AND TELEPHONE
TRAIN ORDER SIGNAL TO ONE UNIT
SEARCHLIGHT GROUND SIGNAL
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: JULY 21, 1936
CHIEF ENGINEER
S-2124



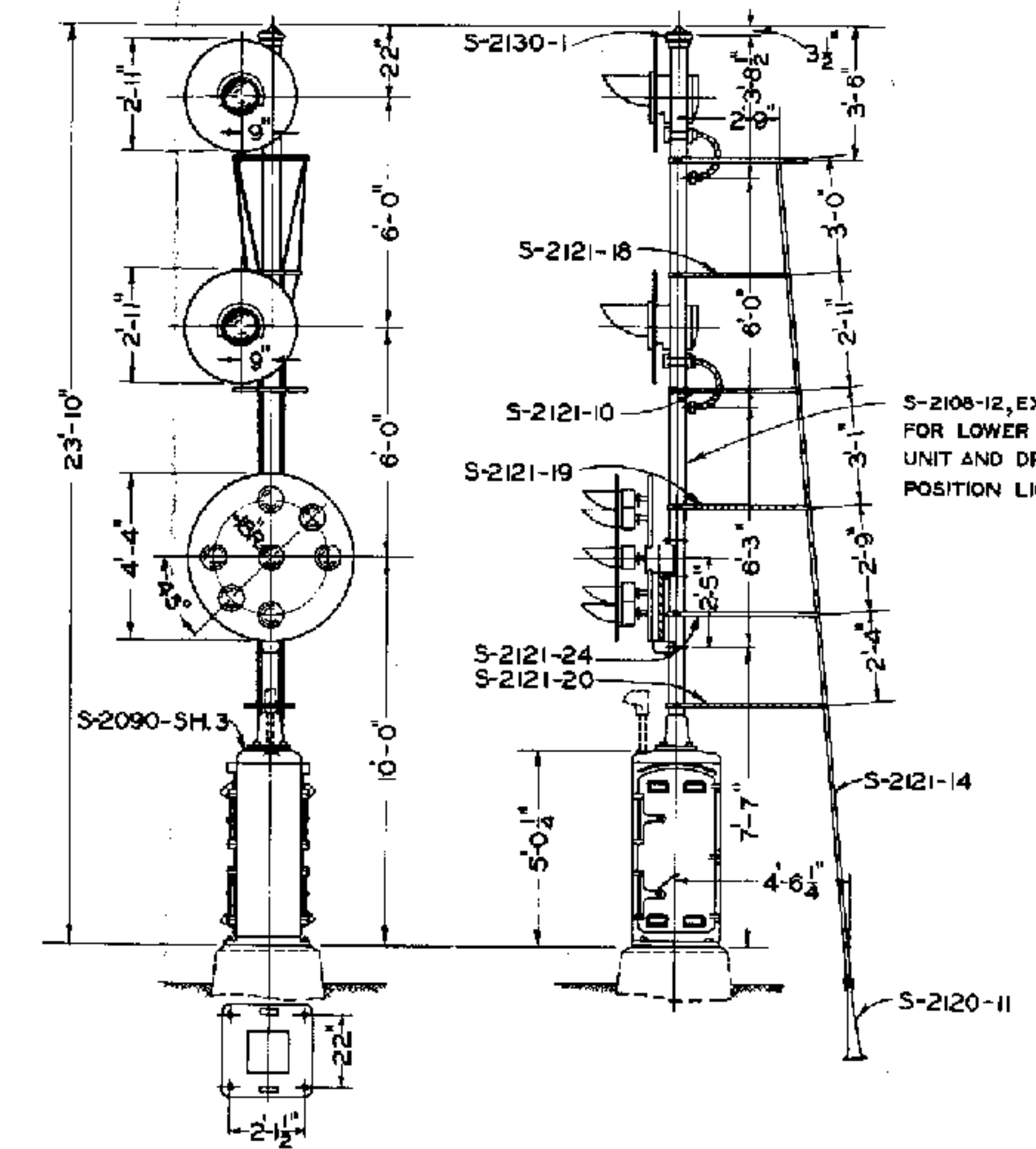
POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2125-1	TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS.



POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

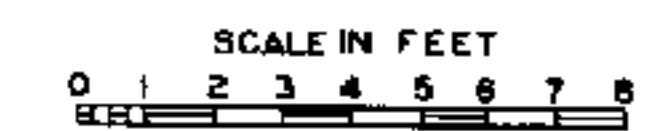
TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2125-2	TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT GROUND SIGNAL WITH INSTRUMENT CASE 3'-4 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING, S-2090-31 OR 2" CABLE OUTLET, S-2090-22.



POSITION LIGHT TAKE SIDING AND TELEPHONE
TRAIN ORDER-SEARCHLIGHT GROUND SIGNAL

TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2125-3	TWO SEARCHLIGHT UNITS AND ONE POSITION LIGHT UNIT GROUND SIGNAL WITH INSTRUMENT CASE 5'-0 1/2" HIGH, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS. SPECIFY WITH OR WITHOUT INSTRUMENT CASE LINING, S-2090-32 OR 2" CABLE OUTLET, S-2090-22.

- NOTES
1. EACH SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I. D. SINGLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
 2. THE WIRE OUTLET FITTING AT THE MAST USED WITH THE POSITION LIGHT UNIT SHALL BE OF A TYPE TO CLAMP TO MAST WITH A "U" BOLT, 1 1/8" HOLE BEING REQUIRED IN THE MAST FOR THE FITTING. IF MAST FURNISHED IS DRILLED FOR THE LOWER SEARCHLIGHT SIGNAL UNIT, THE HOLE SHALL BE PLUGGED WITH 2" PIPE PLUG.
 3. WHEN ORDERING POSITION LIGHT UNIT ONLY, SPECIFY 22" LENGTH OF FLEXIBLE CONDUIT.



APPROVED FOR USE

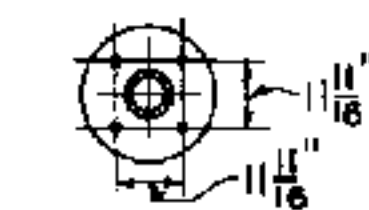
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY
STANDARD

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* JULY 21, 1936
CHIEF ENGINEER

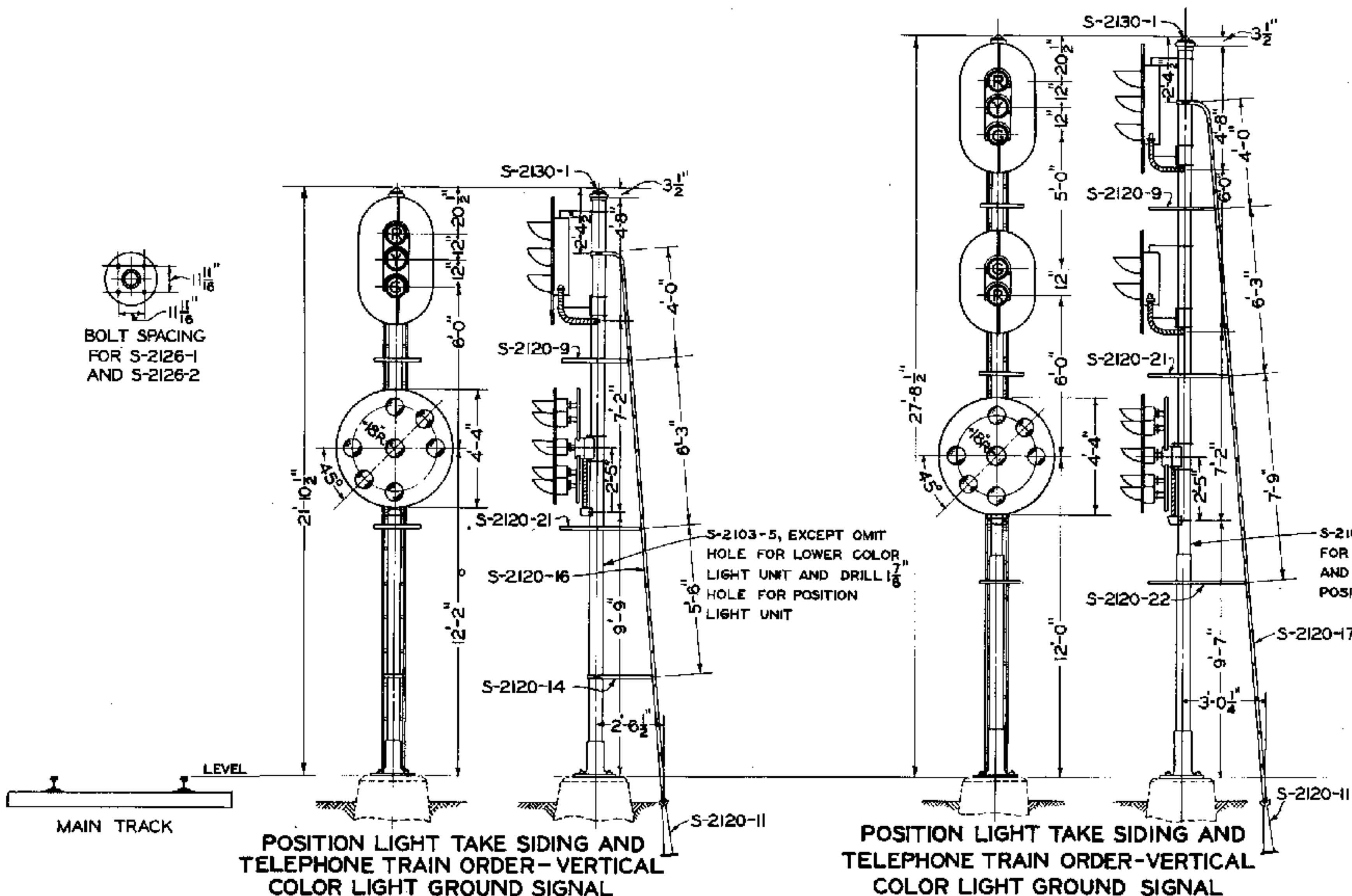
C.H.W. C.D.M. A.J.P.

APPLICATION OF POSITION LIGHT
TAKE SIDING AND TELEPHONE
TRAIN ORDER SIGNAL TO TWO UNIT
SEARCHLIGHT GROUND SIGNAL

S-2125



BOLT SPACING
FOR S-2126-1
AND S-2126-2



ONE VERTICAL COLOR LIGHT UNIT AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2126-1	ONE VERTICAL COLOR LIGHT UNIT AND ONE POSITION LIGHT UNIT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS.

TWO VERTICAL COLOR LIGHT UNITS AND ONE POSITION LIGHT UNIT	DESCRIPTION
S-2126-2	TWO VERTICAL COLOR LIGHT UNITS AND ONE POSITION LIGHT UNIT GROUND SIGNAL FOR MOUNTING ON CONCRETE FOUNDATION, COMPLETE EXCEPT WITHOUT FOUNDATION BOLTS AND LAMPS.

NOTES

1. EACH SIGNAL UNIT SHALL BE FURNISHED WITH ONE 2" I.D. SINGLE STRIP GALV. FLEXIBLE CONDUIT AND FITTINGS.
2. THE WIRE OUTLET FITTING AT THE MAST USED WITH THE POSITION LIGHT UNIT SHALL BE OF A TYPE TO CLAMP TO MAST WITH A "U" BOLT, $1\frac{7}{8}$ " HOLE BEING REQUIRED IN THE MAST FOR THE FITTING. IF MAST FURNISHED IS DRILLED FOR THE LOWER COLOR LIGHT SIGNAL UNIT, THE HOLE SHALL BE PLUGGED WITH 2" PIPE PLUG.
3. WHEN ORDERING POSITION LIGHT UNIT ONLY, SPECIFY 22" LENGTH OF FLEXIBLE CONDUIT.

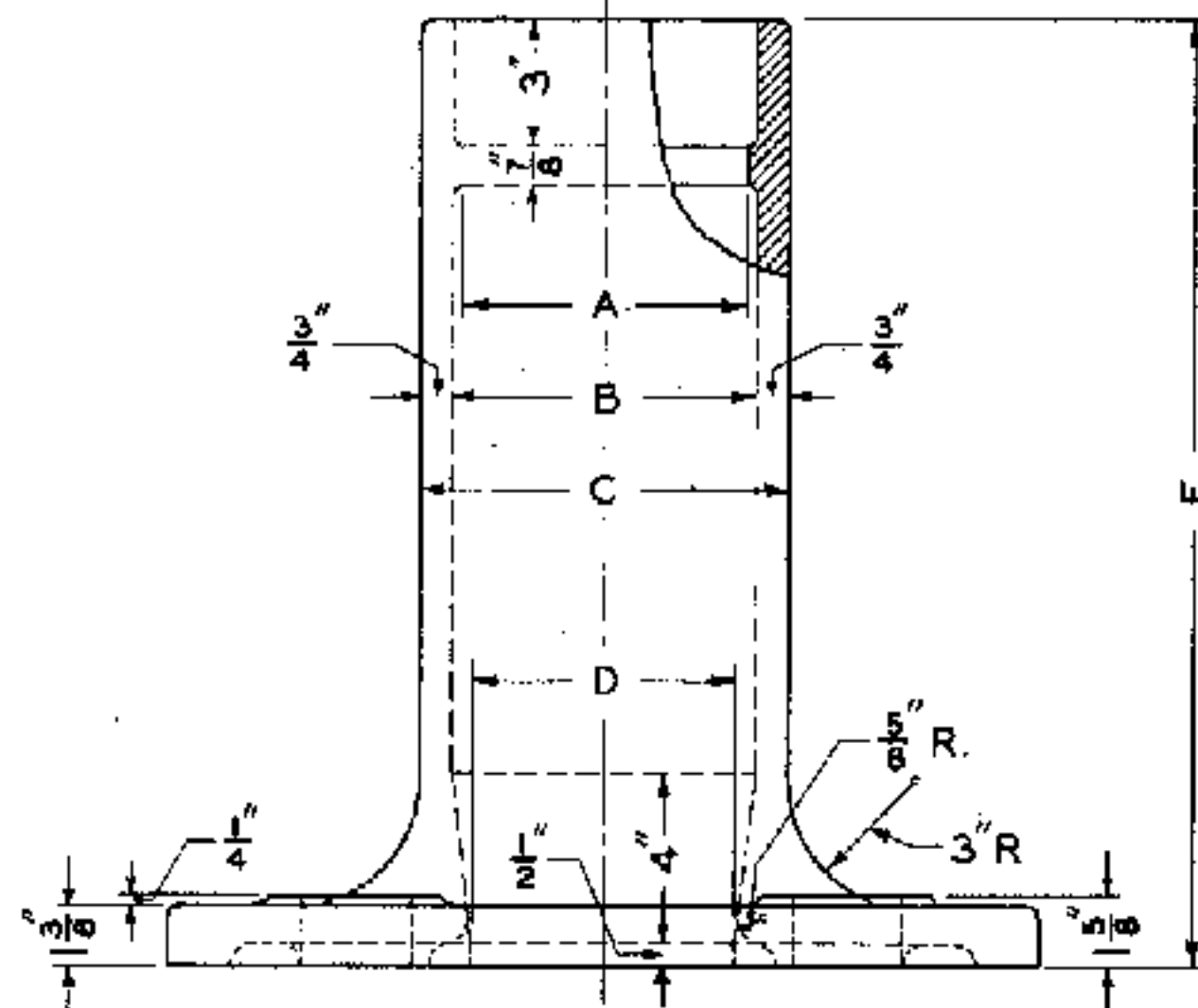
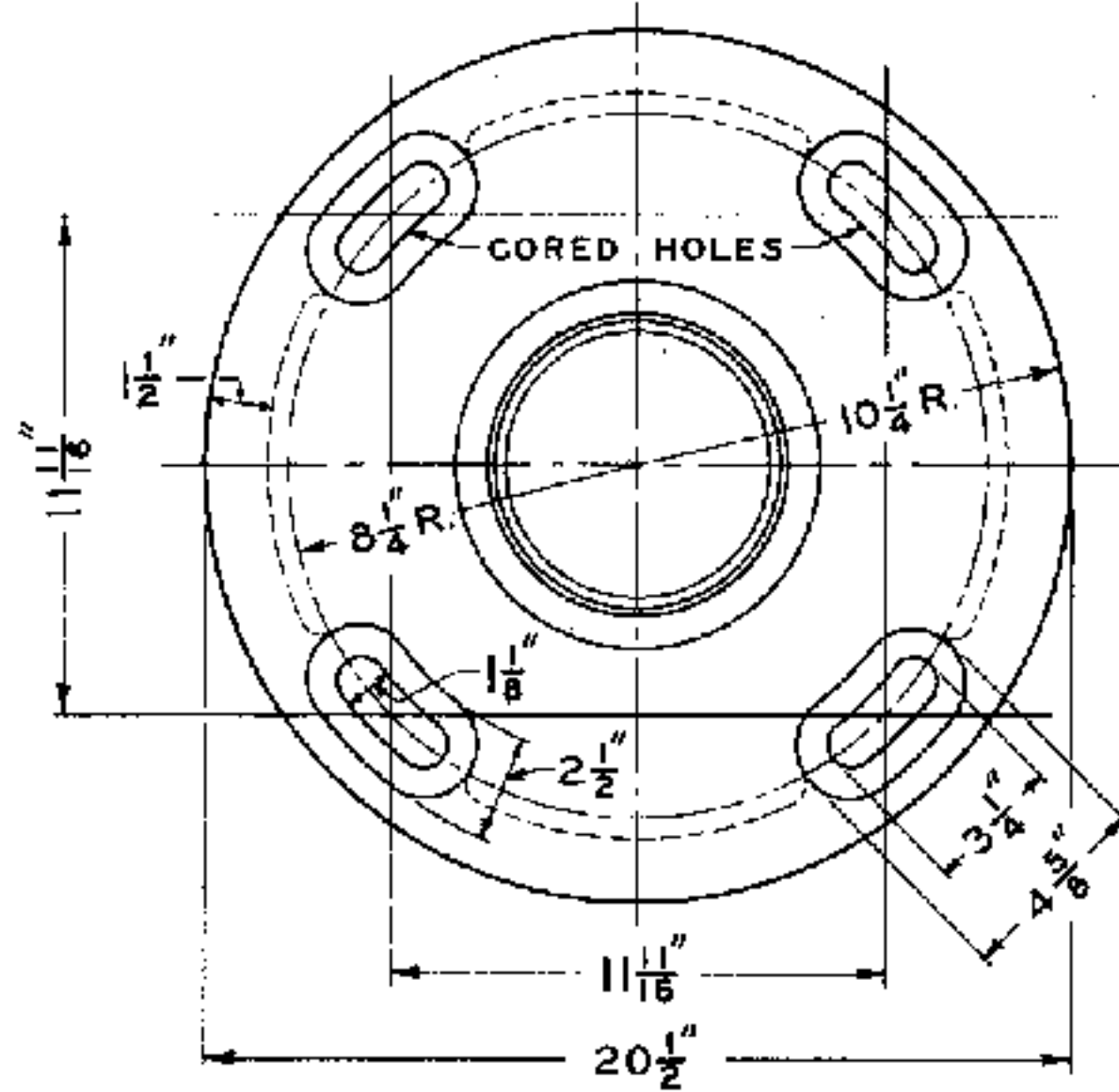
SCALE IN INCHES
0 1 2 3 4 5 6 7 8

APPROVED FOR USE
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>R. D. Moore</i> VICE PRESIDENT
ERIE RAILROAD COMPANY <i>R. E. Woodruff</i> VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>R. D. Moore</i> VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY <i>A. H. H. H.</i> VICE PRESIDENT
K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
APPLICATION OF POSITION LIGHT
TAKE SIDING AND TELEPHONE
TRAIN ORDER SIGNAL TO VERTICAL
COLOR LIGHT GROUND SIGNAL

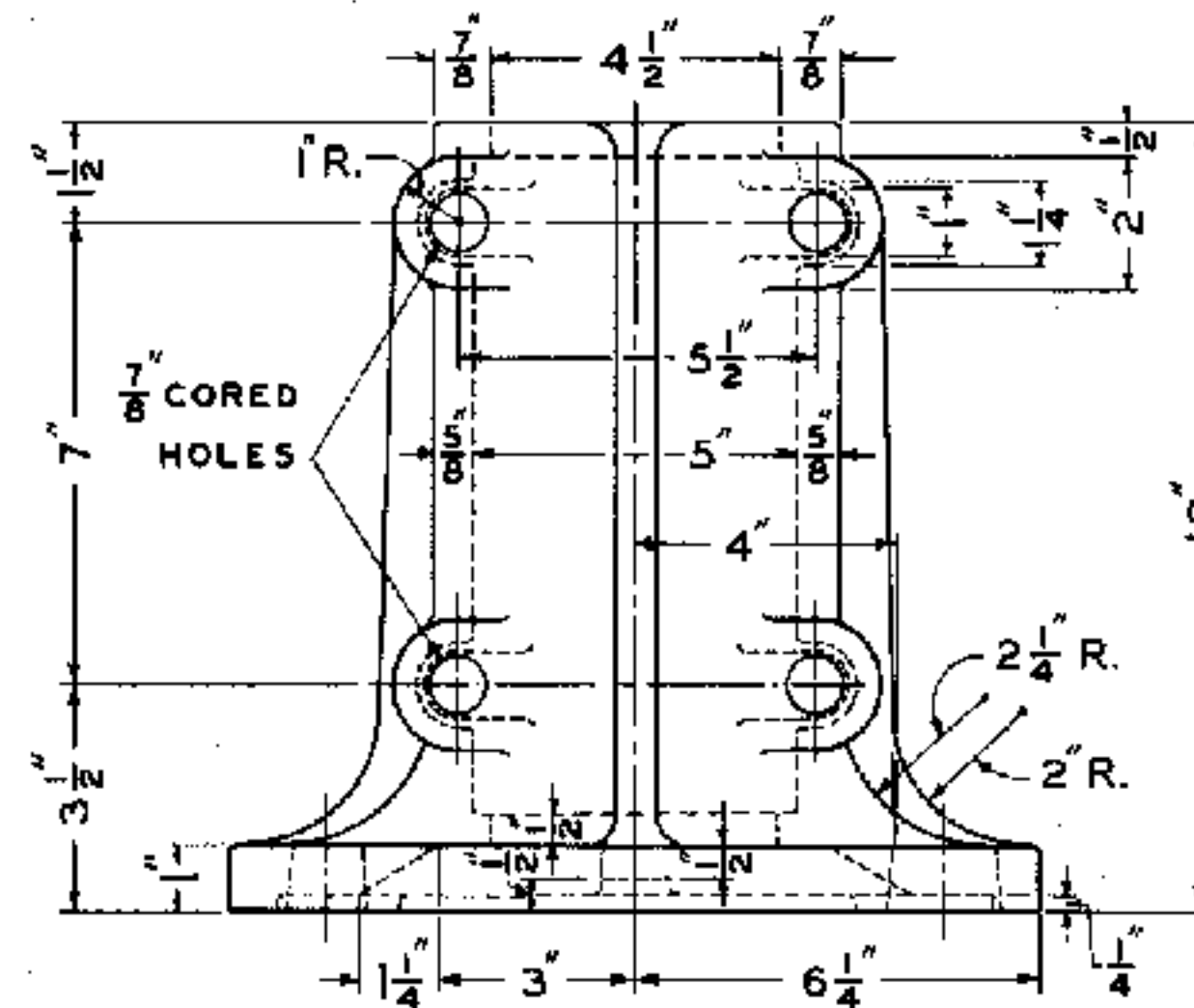
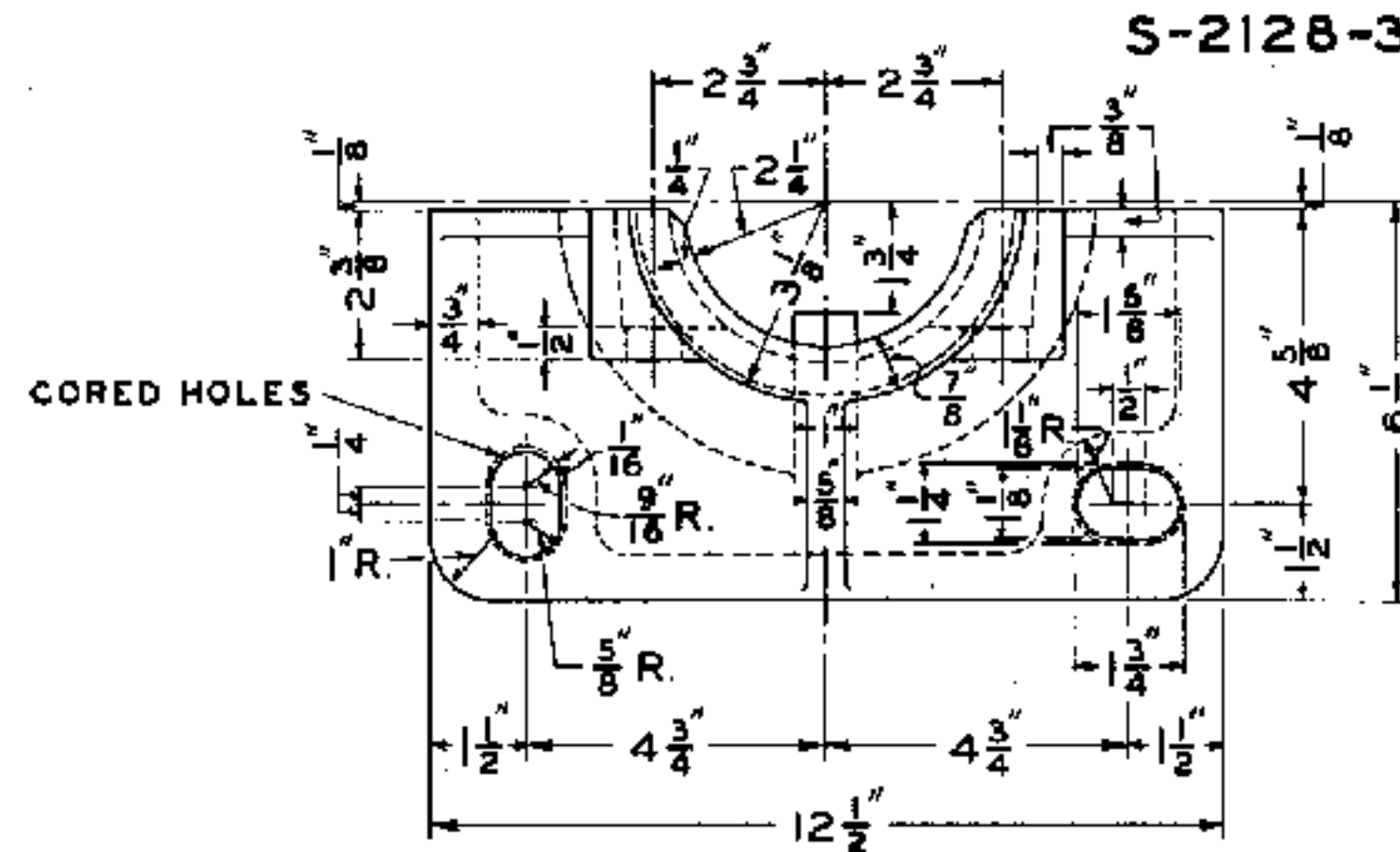
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *A. H. H. H.* JULY 21, 1936
CHIEF ENGINEER



SCALE ①

S-2128-1 GROUND SIGNAL BASE FOR 5" PIPE
S-2128-2 GROUND SIGNAL BASE FOR 6" PIPE
CAST IRON

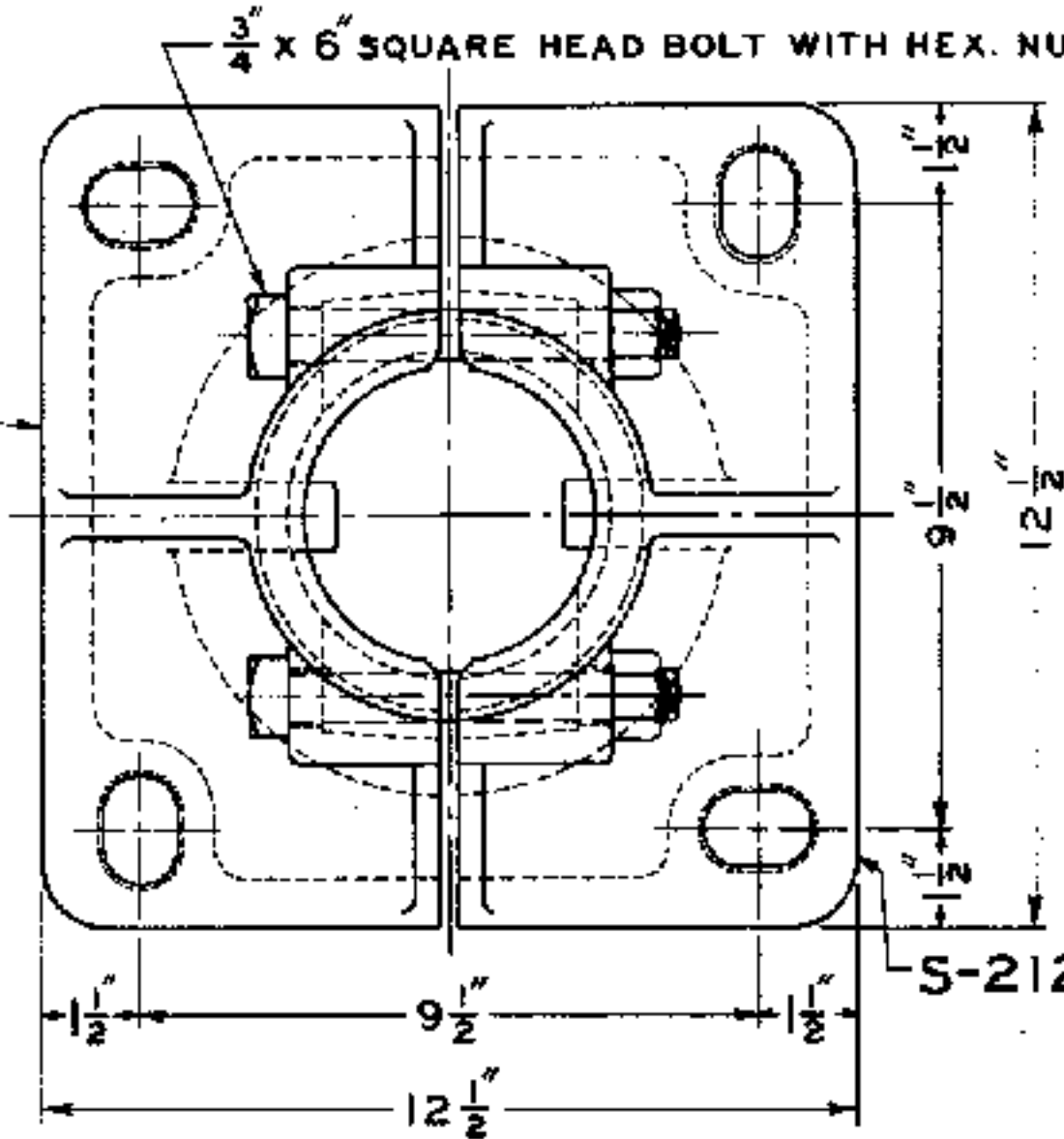
GROUND SIGNAL BASE					
REFERENCE	DIA. PIPE	A	B	C	D
S-2128-1	5"	$5\frac{21}{32} \pm \frac{1}{32}$	$6\frac{3}{32} \pm \frac{3}{32}$	$7\frac{19}{32} \pm \frac{13}{32}$	$5\frac{3}{32} \pm \frac{1}{32}$
S-2128-2	6"	$6\frac{3}{4}$	$7\frac{1}{8}$	$8\frac{5}{8}$	$6\frac{1}{4}$



SCALE ②

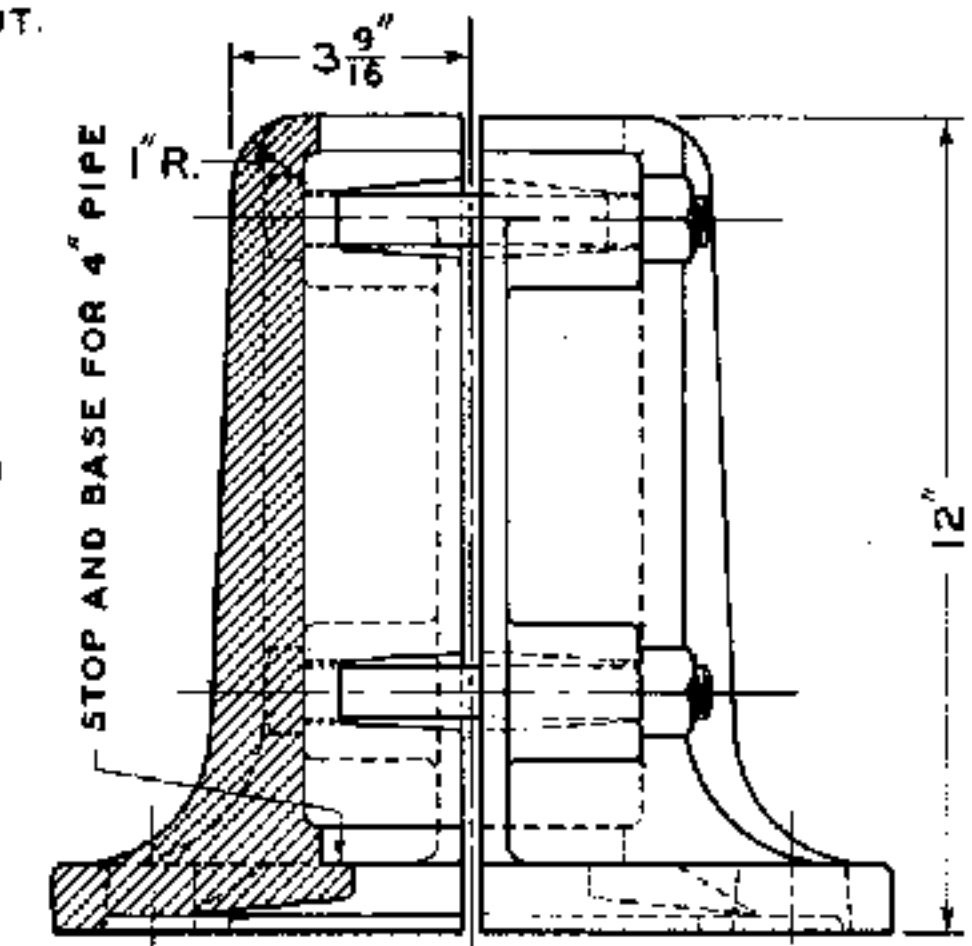
S-2128-3 CLAMP BASE HALF
CAST IRON

S-2128-3



SCALE ②

S-2128-4 CLAMP BASE
COMPLETE
FOR 4" PIPE



S-2128-3

SCALE ②

HALF SECTION-ELEVATION

NOTE:

BASES SHALL BE PAINTED INSIDE AND OUT WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY

VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

TREASURER

W.S.E. W.S.E. W.N.H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

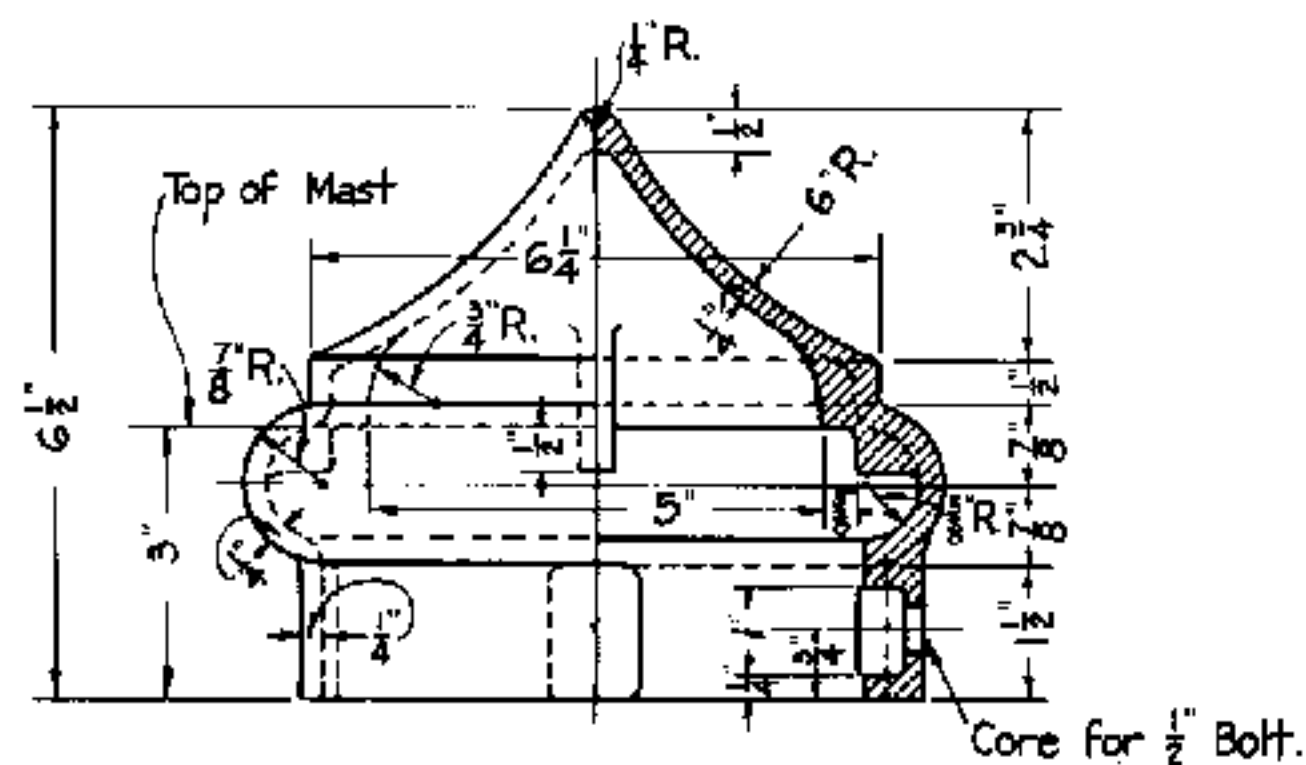
STANDARD BASES FOR 4, 5, AND 6 INCH PIPE MASTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

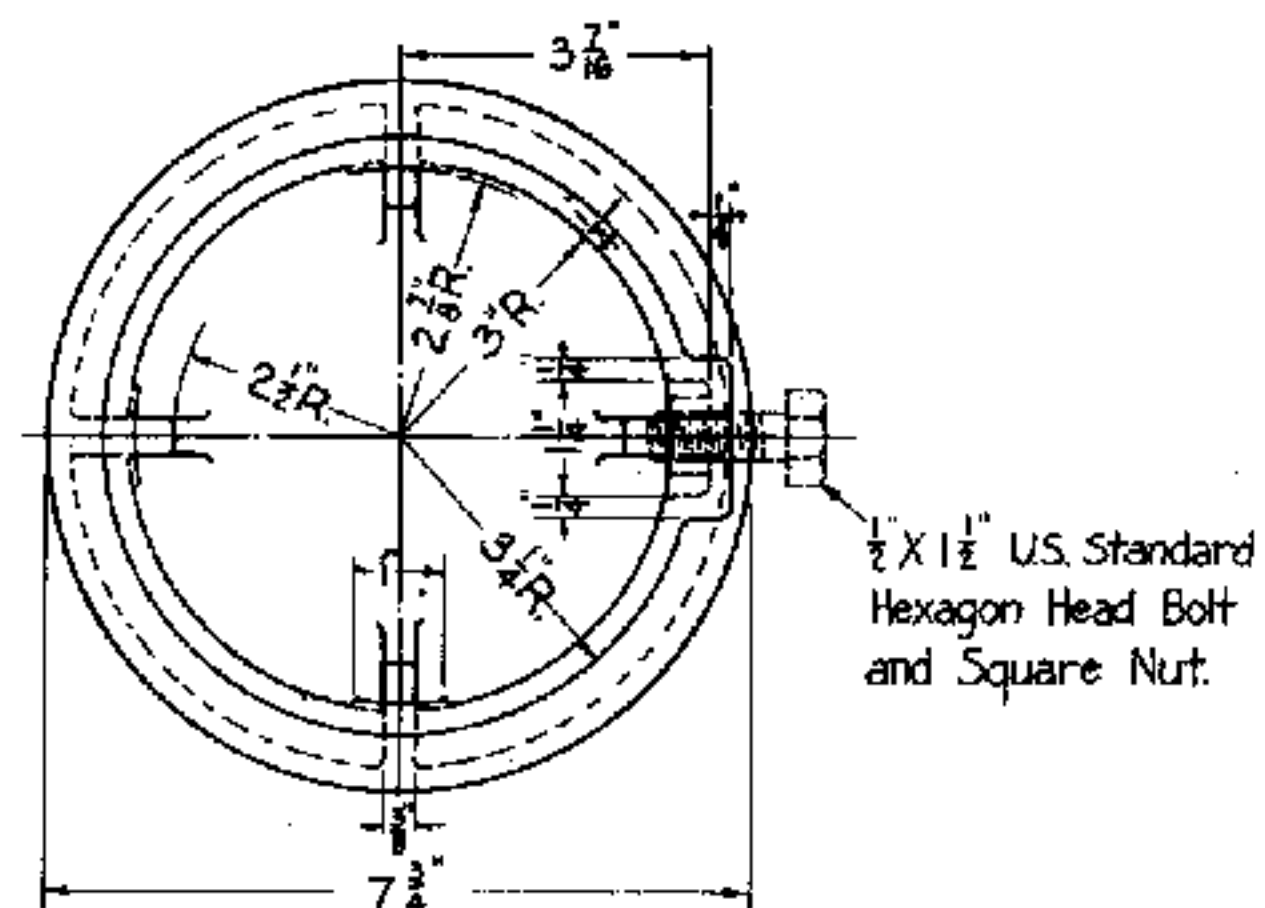
CHAIRMAN

SEPT. 14, 1944

S-2128-A



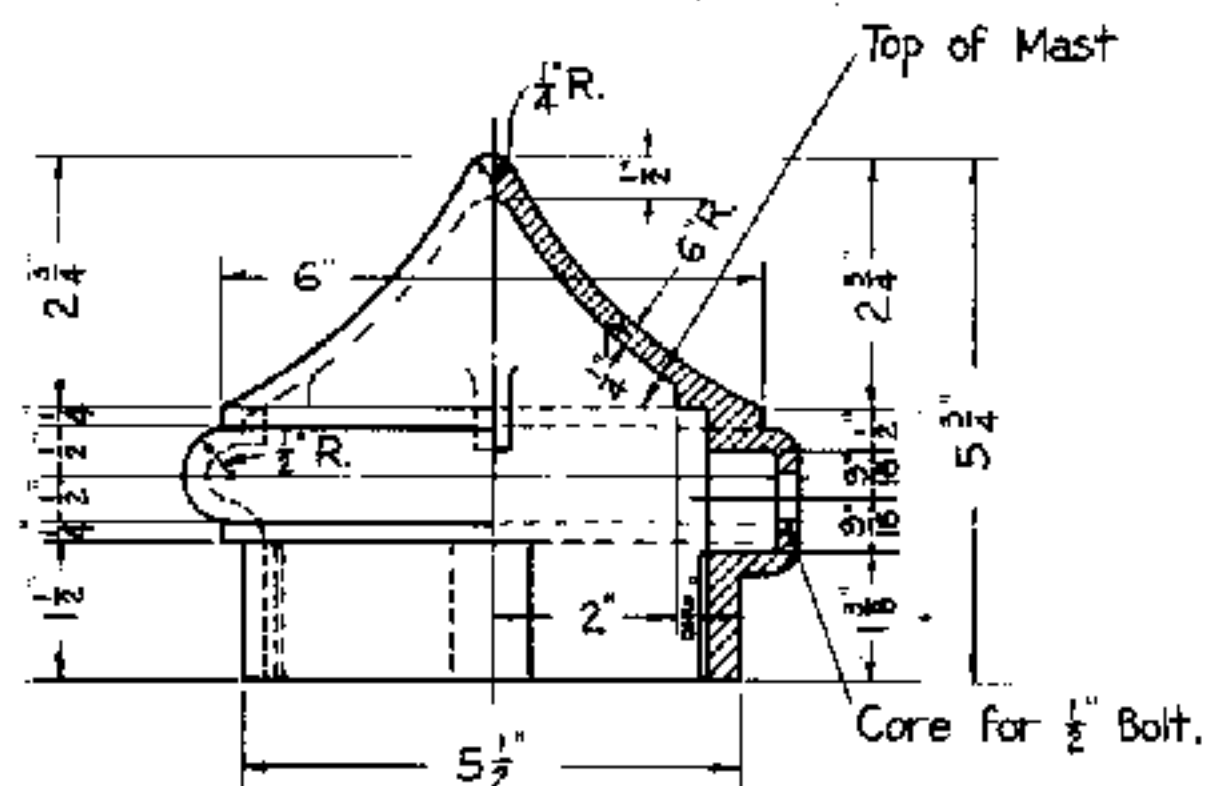
HALF SECTION



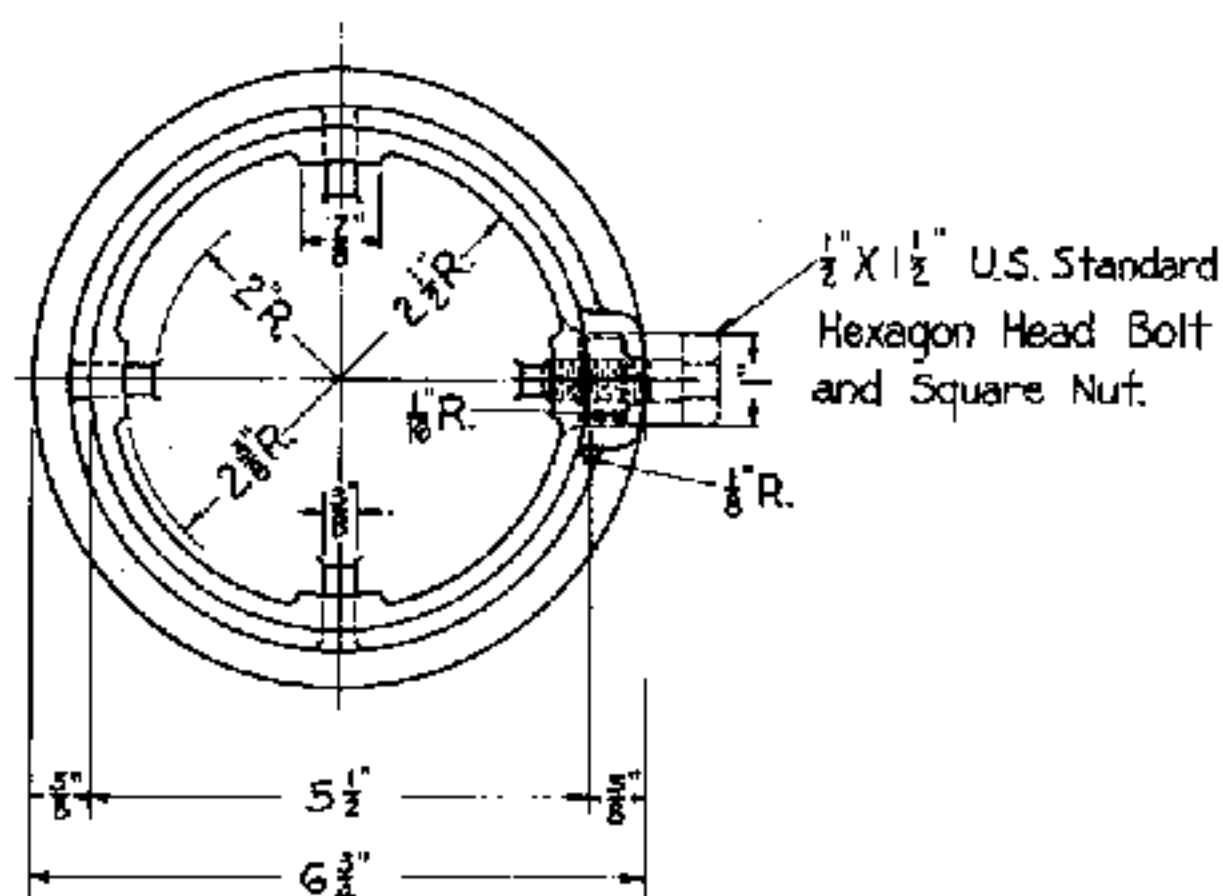
INVERTED VIEW

S-2130-1 PINNACLE FOR 5 INCH MAST

CAST IRON



HALF SECTION



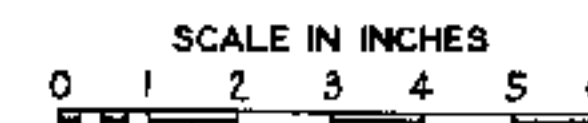
INVERTED VIEW

S-2130-2 PINNACLE FOR 4 INCH MAST

CAST IRON

NOTE

PINNACLES SHALL BE PAINTED INSIDE AND OUT WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>B. M. Moore</i>		
VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. Woodruff</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>A. Stein</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. Bowman</i>		
VICE PRESIDENT		
CAW	C.D.M.	A.J.P.
CAW		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

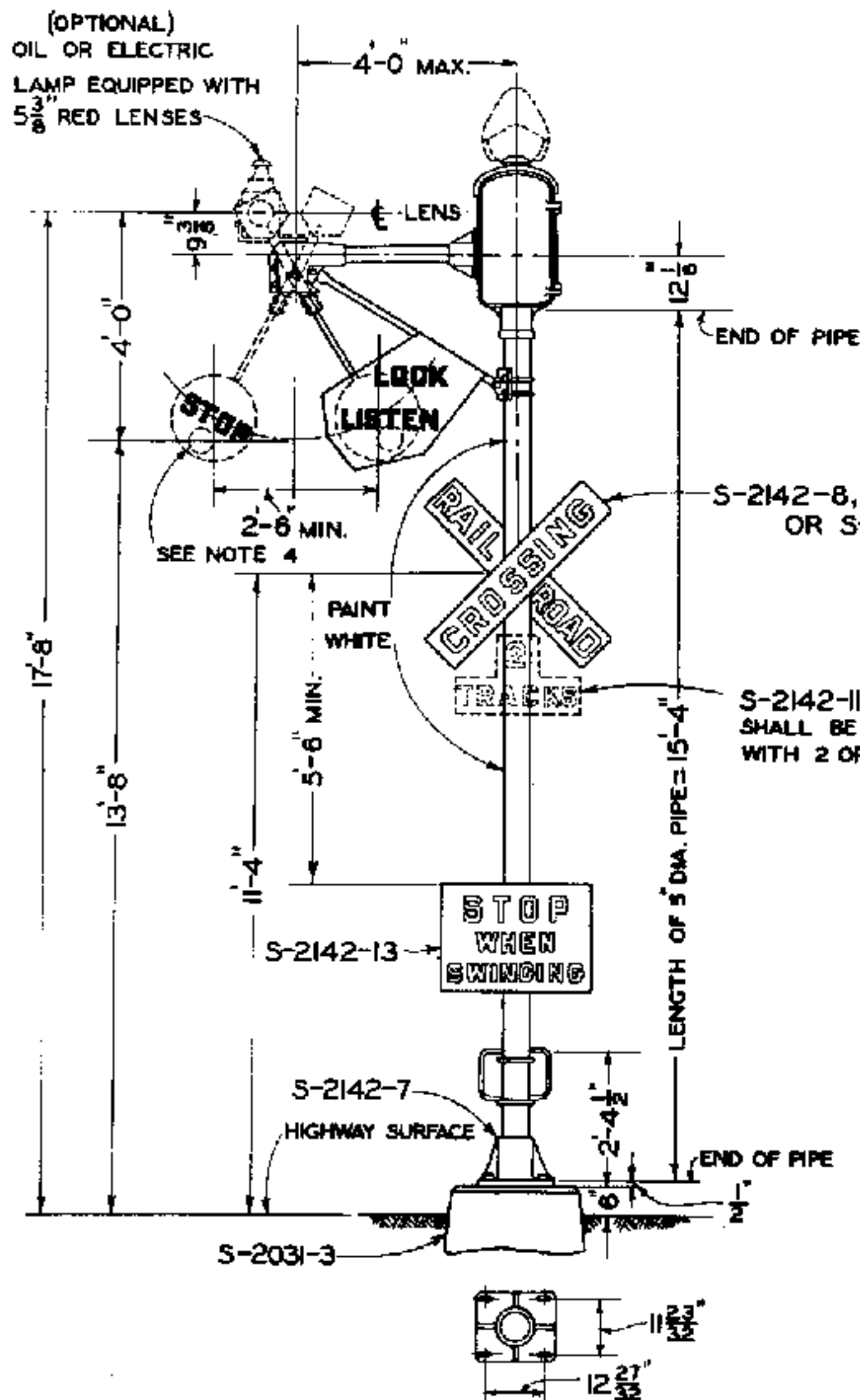
STANDARD PINNACLES FOR 4" AND 5" PIPE MASTS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. W. W. W.* CHIEF ENGINEER
APRIL 21, 1931

S-2130

NOTES

1. PAINTING—LEGEND ON MASK SHALL BE IN BLACK LETTERS ON WHITE BACKGROUND. LEGEND ON DISC SHALL BE IN WHITE LETTERS ON RED BACKGROUND. ASSEMBLY SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS, EXCEPT THAT FINISHING COAT SHALL BE WHITE. THIS COAT SHALL BE APPLIED IN THE FIELD.
2. EITHER A CAST IRON SIGN OR REFLECTOR SIGN SHALL BE USED WHERE REQUIRED FOR THE FOLLOWING: RAILROAD CROSSING—2 TRACKS.
3. MATERIAL AND DESIGN OF WIGWAG MECHANISM AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
4. THE DISC LIGHT UNIT SHALL BE EQUIPPED WITH 5 INCH DIAMETER RED FRONT LENS AND NOT LESS THAN 3 INCH DIAMETER RED BACK LENS.
5. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.



TYPICAL ASSEMBLY—FRONT ELEVATION
SCALE ①

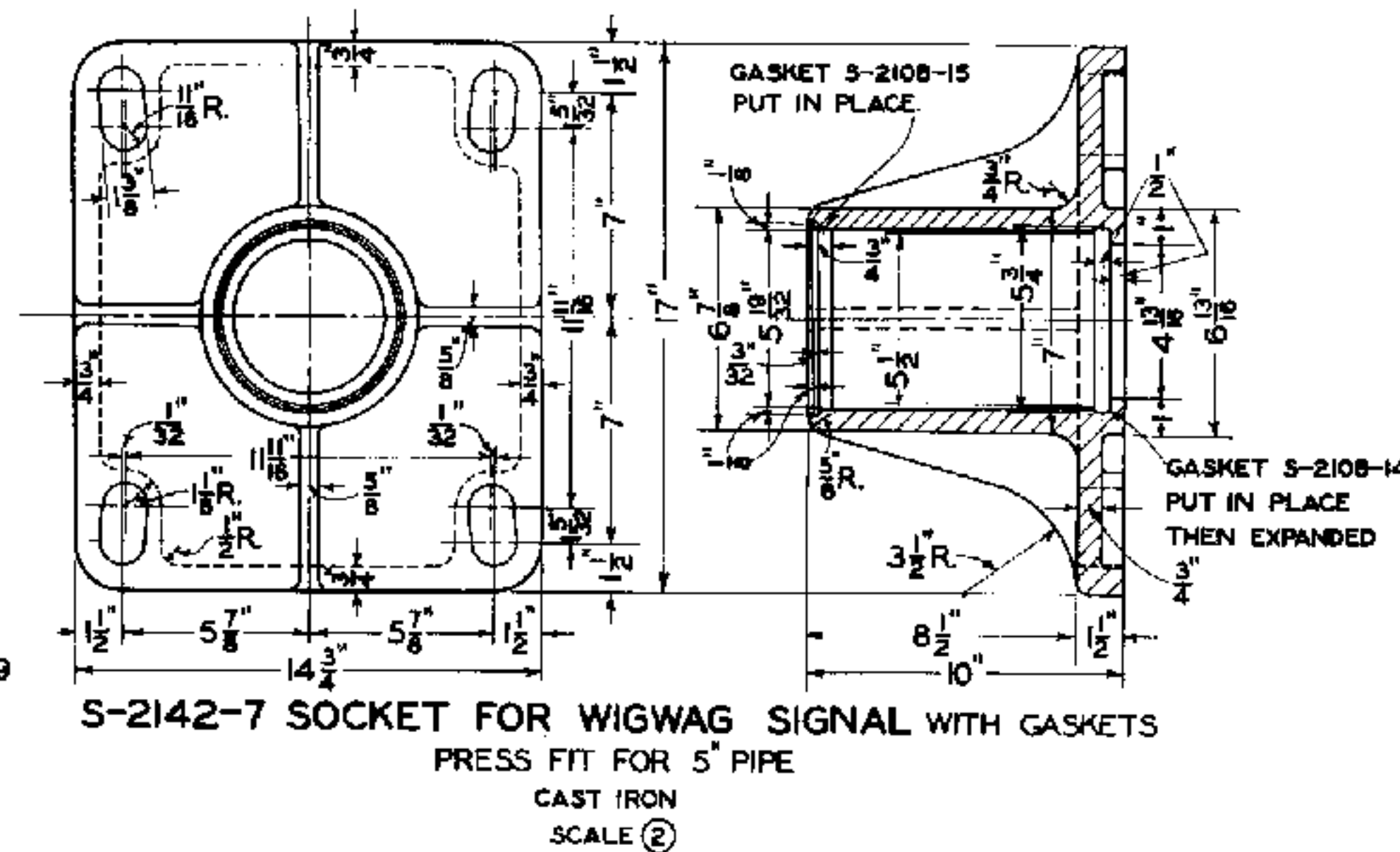


TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES

ASSEMBLY NUMBERS	SIGN	
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMERAL REQUIRED
S-2142-1	S-2142-8	
S-2142-2	S-2142-9	
S-2142-3	S-2142-10	
S-2142-4 *	S-2142-8	S-2142-11
S-2142-5 *	S-2142-9	S-2142-12
S-2142-6 *	S-2142-10	S-2142-12

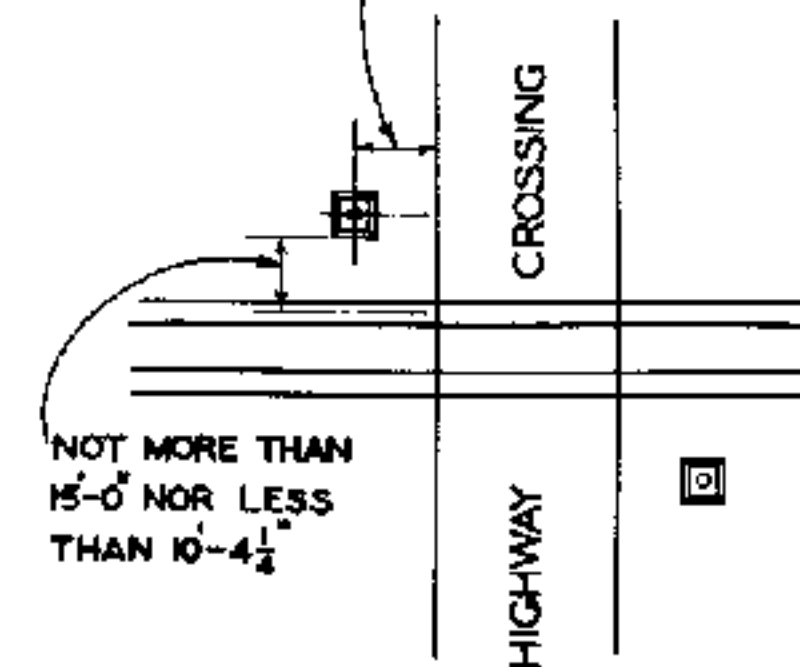
ASSEMBLY NUMBERS OF SIGNS
(FOR READY REFERENCE)

RAILROAD CROSSING, CAST IRON	S-2142-8
" " REFLECTOR ONE SIDE ONLY	S-2142-10
" " REFLECTOR ONE SIDE, EMBOSSED ENAMELED ONLY OTHER SIDE	S-2142-9
2 TRACKS, CAST IRON	S-2142-11
" " REFLECTOR	S-2142-12

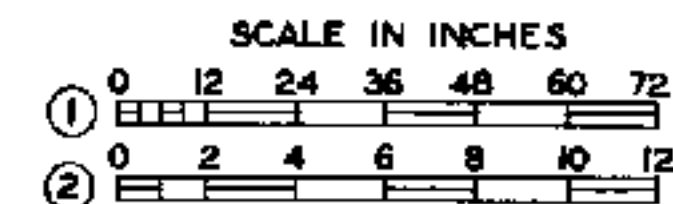
* FOR TWO OR MORE TRACKS

SPECIAL SIGNS MAY BE ADDED AS REQUIRED BY VARIOUS STATES.

NOT MORE THAN 10'-0" NOR LESS THAN 3'-6" EXCEPT WHERE LOCAL CONDITIONS WILL NOT PERMIT



LOCATION DIAGRAM
NO SCALE



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. H. Woodruff

VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Woodruff

VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Woodruff

VICE PRESIDENT

K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD WIGWAG SIGNAL FOR USE IN THE UNITED STATES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Woodruff*
CHIEF ENGINEER
APRIL 17, 1934

ASSEMBLY NUMBERS OF SIGNS FOR USE ON 5" PIPE

S-2142-8 90° CAST IRON CROSSING SIGN

S-2150-5 EXCEPT ASSEMBLED WITH 4 BOLTS, S-2142-16 FOR 5" PIPE, IN PLACE OF 4 BOLTS S-2150-4, FOR 4" PIPE.

S-2142-9 RAILROAD CROSSING SIGN REFLECTOR UNIT

S-2150-10 EXCEPT ASSEMBLED WITH 4 BOLTS, S-2142-16 FOR 5" PIPE, IN PLACE OF 4 BOLTS S-2150-4, FOR 4" PIPE.

S-2142-10 RAILROAD CROSSING SIGN REFLECTOR UNIT

S-2150-57 EXCEPT ASSEMBLED WITH 2 U BOLTS, S-2142-17 FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14, FOR 4" PIPE.

S-2142-11 TRACKS SIGN CAST IRON

S-2150-29 EXCEPT ASSEMBLED WITH 2 U BOLTS, S-2142-17 FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14, FOR 4" PIPE.

S-2142-12 TRACKS SIGN REFLECTOR UNIT

S-2150-48 EXCEPT ASSEMBLED WITH 2 U BOLTS, S-2142-17 FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14, FOR 4" PIPE.

S-2142-13 STOP WHEN SWINGING SIGN

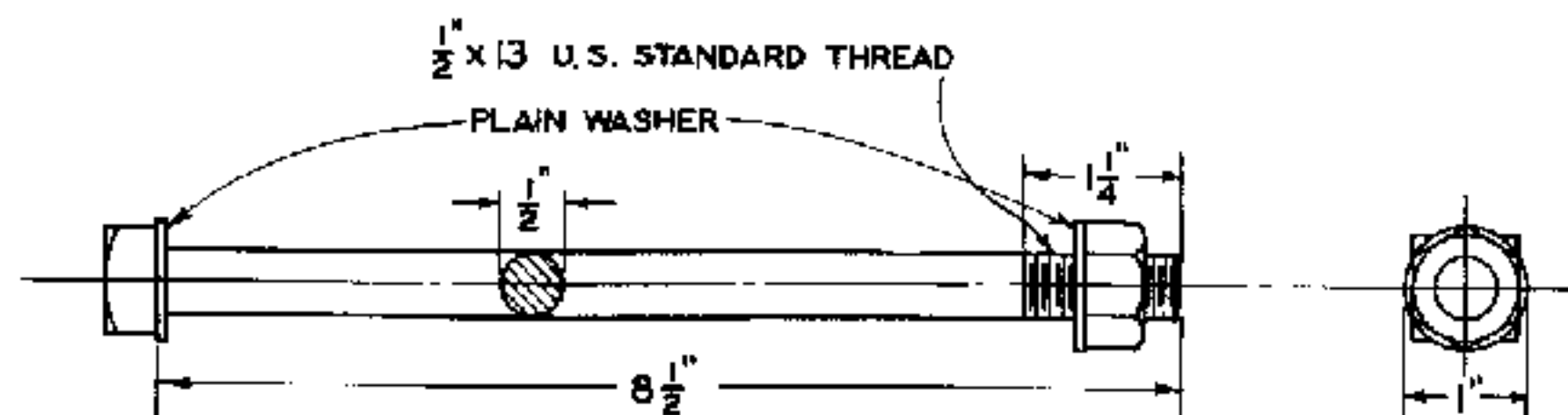
S-2150-59 EXCEPT ASSEMBLED WITH 2 U BOLTS S-2142-17, FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14 FOR 4" PIPE.

S-2142-14 DANGER SIGN CAST IRON

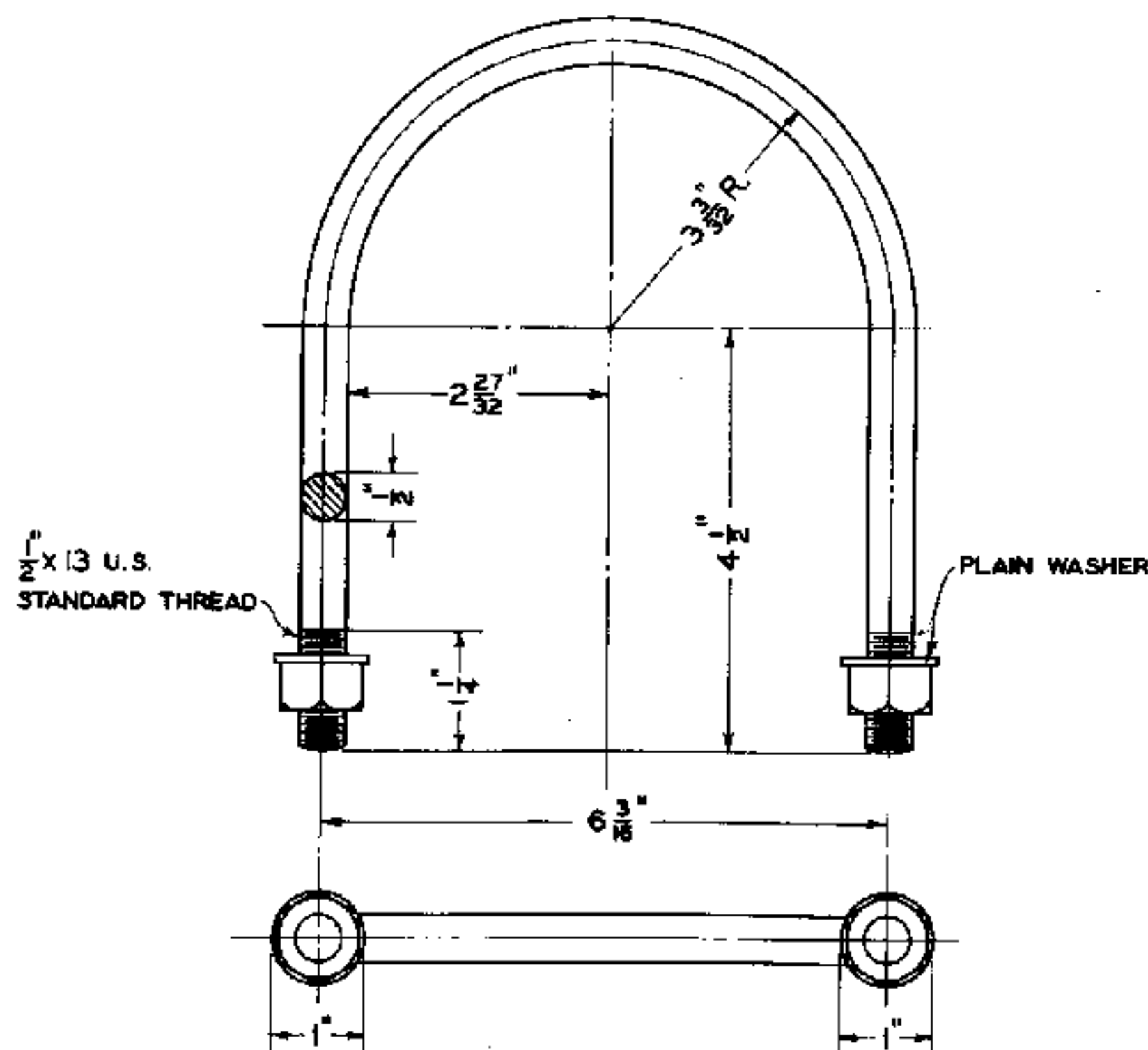
S-2150-16 EXCEPT ASSEMBLED WITH 2 U BOLTS S-2142-17, FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14, FOR 4" PIPE.

S-2142-15 DANGER SIGN REFLECTOR UNIT

S-2150-17 EXCEPT ASSEMBLED WITH 2 U BOLTS S-2142-17, FOR 5" PIPE, IN PLACE OF 2 U BOLTS S-2150-14, FOR 4" PIPE.



S-2142-16 BOLT FOR 5" PIPE
O.H. STEEL



S-2142-17 U BOLT
FOR 5" PIPE
O.H. STEEL

SCALE IN INCHES
0 1 2 3 4

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

P. D. Moore

ERIE RAILROAD COMPANY

R. L. Woodruff

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

P. D. Moore

PERE MARQUETTE
RAILWAY COMPANY

A. H. H. H. H.

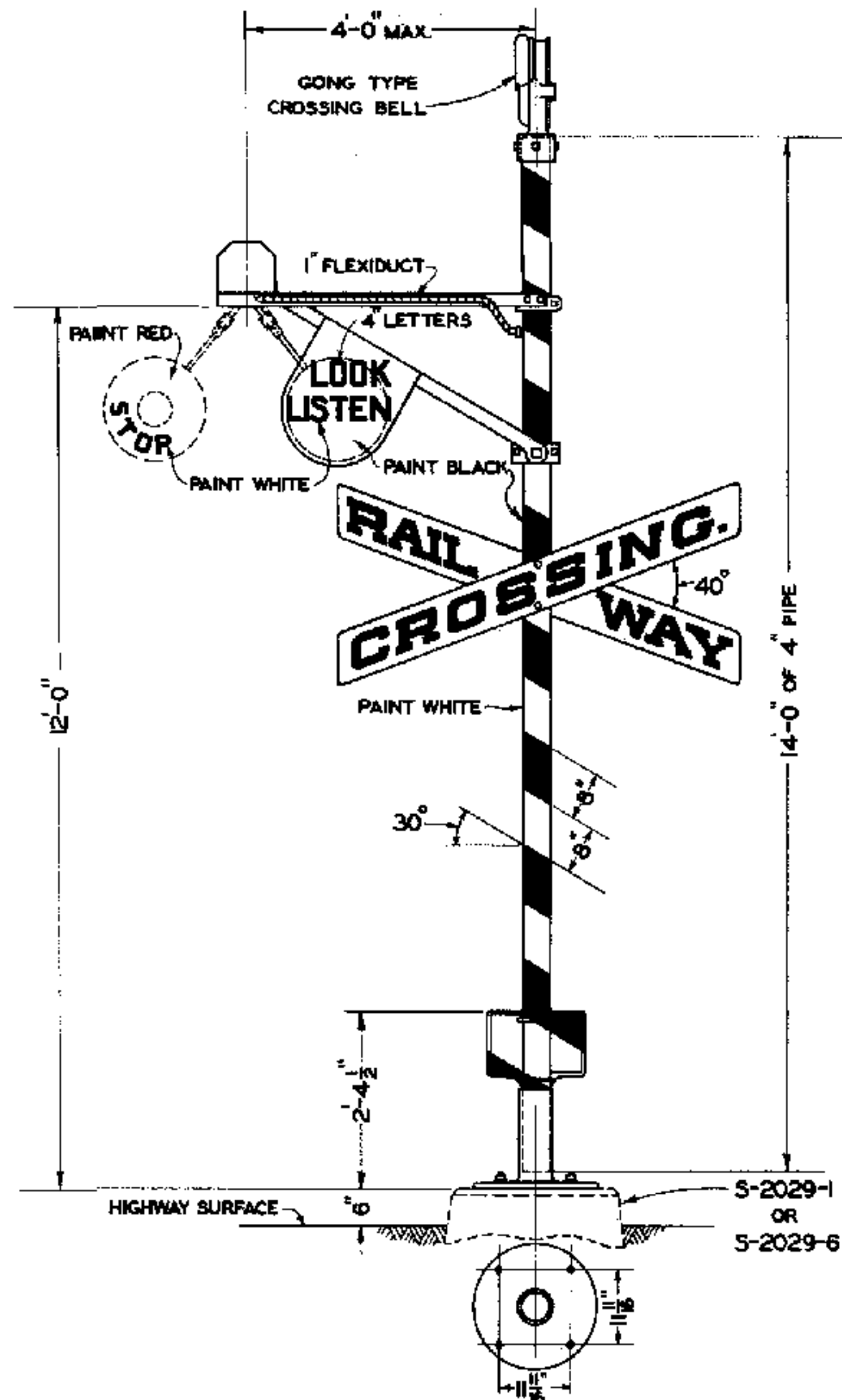
K. L. M. C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

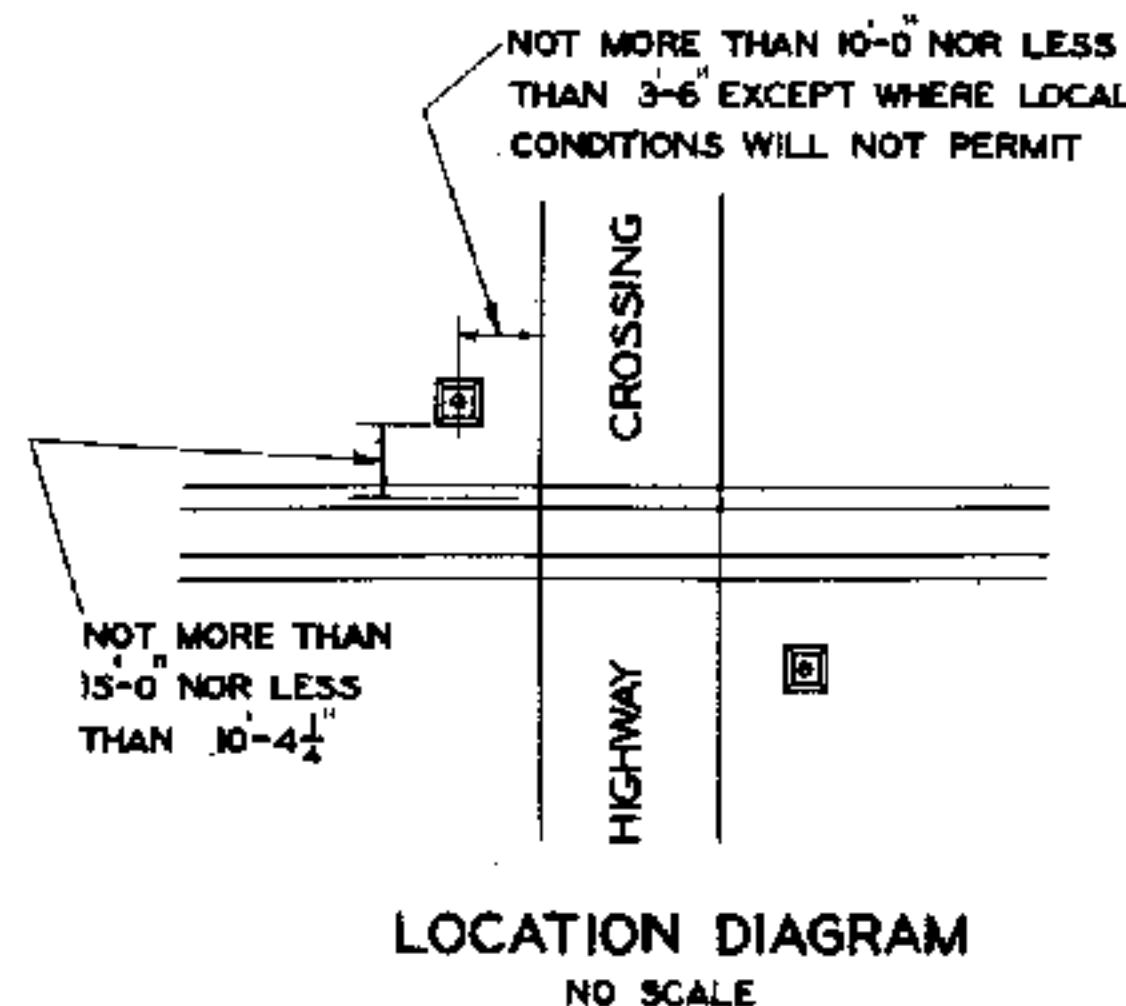
STANDARD WIGWAG SIGNAL FOR USE IN THE UNITED STATES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* APRIL 17, 1934
CHIEF ENGINEER

SHEET 2 OF 2
S-2142

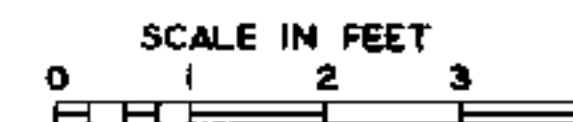


TYPICAL ASSEMBLY - FRONT ELEVATION

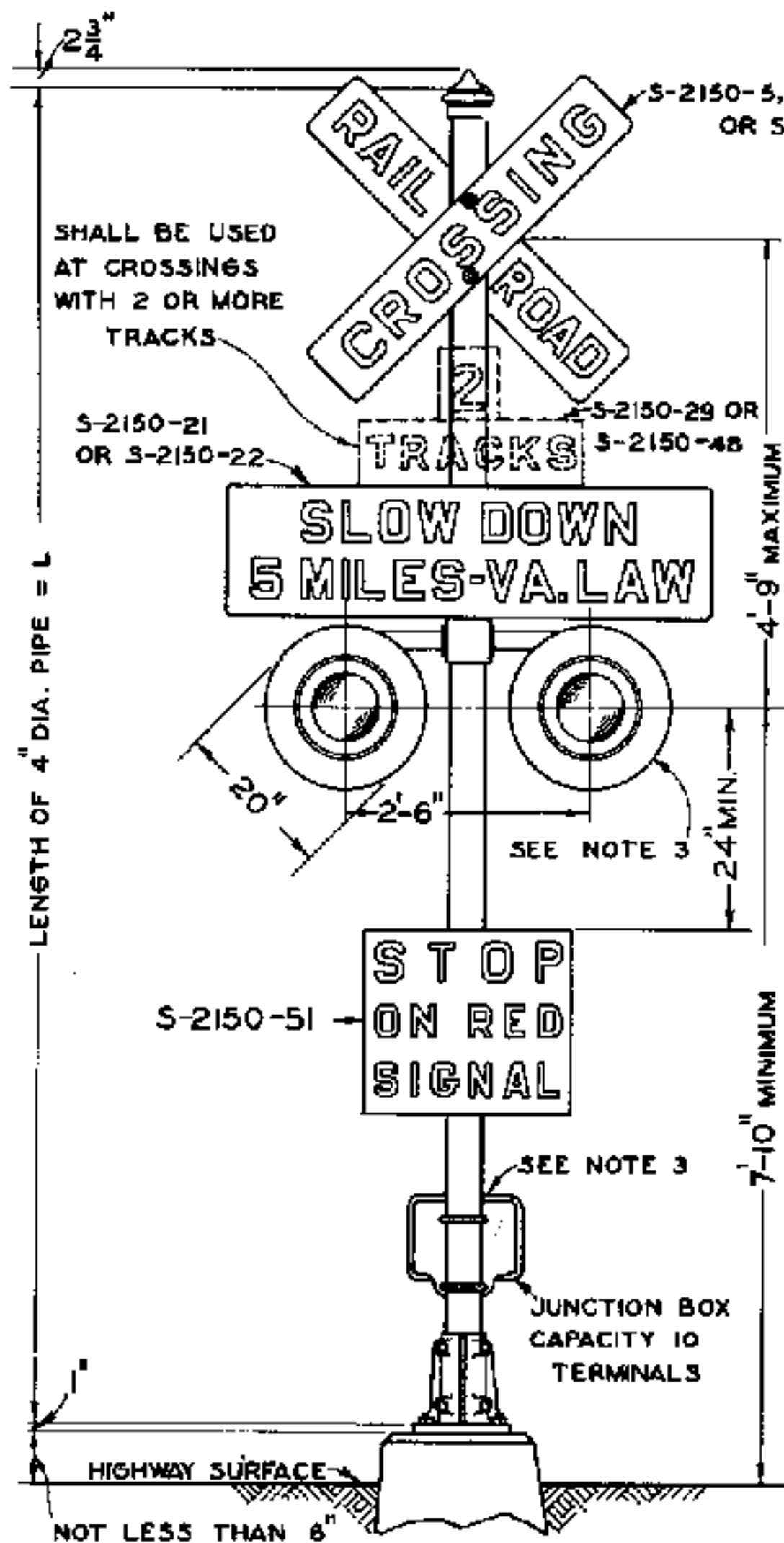


NOTES

1. BANNER SHALL BE EQUIPPED WITH $5\frac{3}{8}$ " DAY-LITE LENS AND ENAMELED RED WITH WORD "STOP" IN WHITE.
2. WIGWAG SHALL BE FURNISHED WITH 1" FLEXIDUCT AND FITTINGS FROM PIPE POST TO OPERATING MECHANISM AND A JUNCTION BOX WITH 4 TERMINALS ARRANGED FOR ENTRANCE OF UNDERGROUND CABLE THROUGH BASE OF WIGWAG MAST.
3. MATERIAL AND DESIGN OF WIGWAG MECHANISM, CROSSBUCK SIGN, AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
4. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.

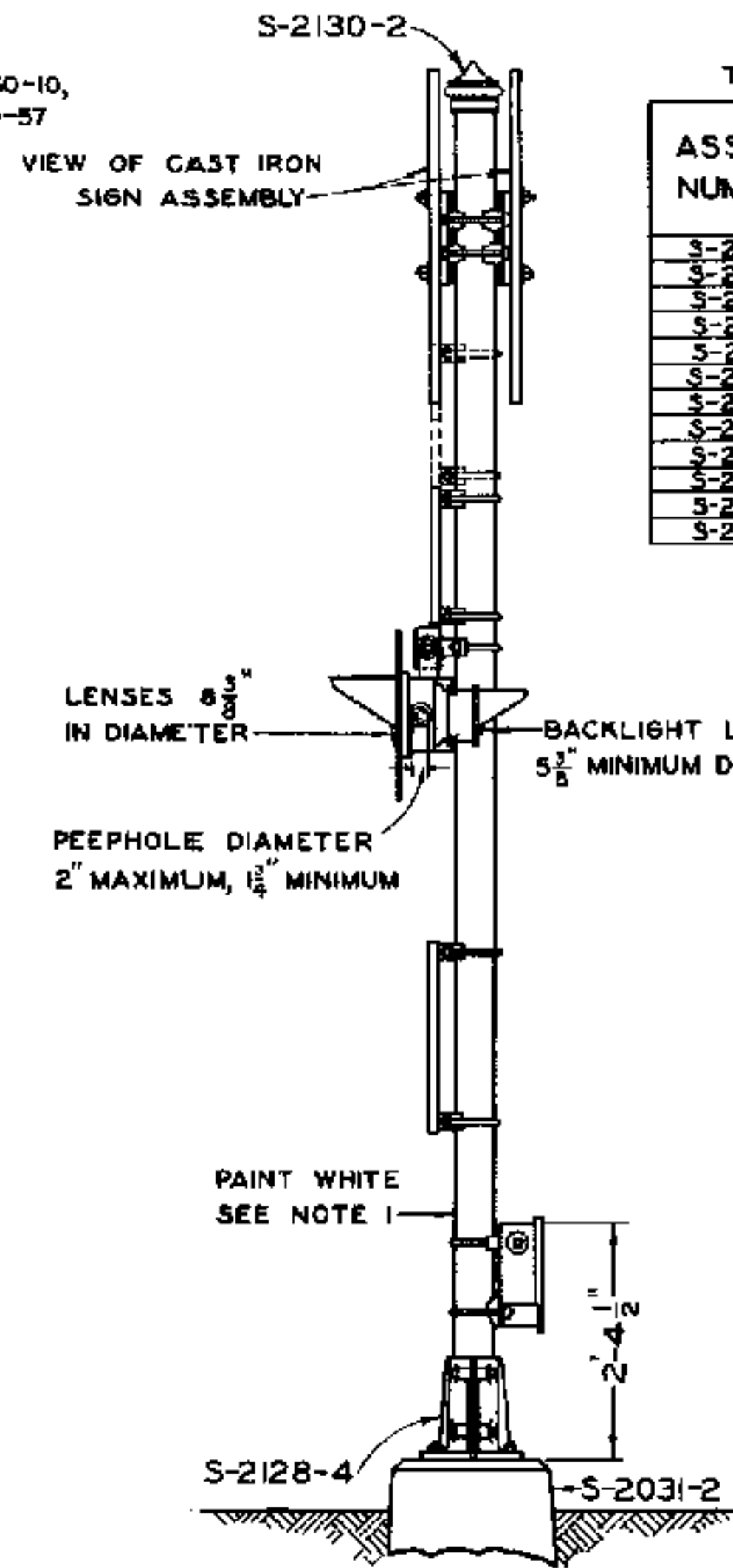


APPROVED FOR USE THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>R. M. Moore</i> VICE PRESIDENT THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>R. L. Woodruff</i> VICE PRESIDENT THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>R. M. Moore</i> VICE PRESIDENT PERE MARQUETTE RAILWAY COMPANY <i>R. M. Moore</i> VICE PRESIDENT C.B.P. K.L.M. C.D.M. A.J.P.			THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY STANDARD WIGWAG SIGNAL FOR USE IN CANADA APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>[Signature]</i> CHIEF ENGINEER APRIL 17, 1934.		
			S-2143		



TYPICAL ASSEMBLY-FRONT ELEVATION

L=13'-6\"/>



SIDE ELEVATION

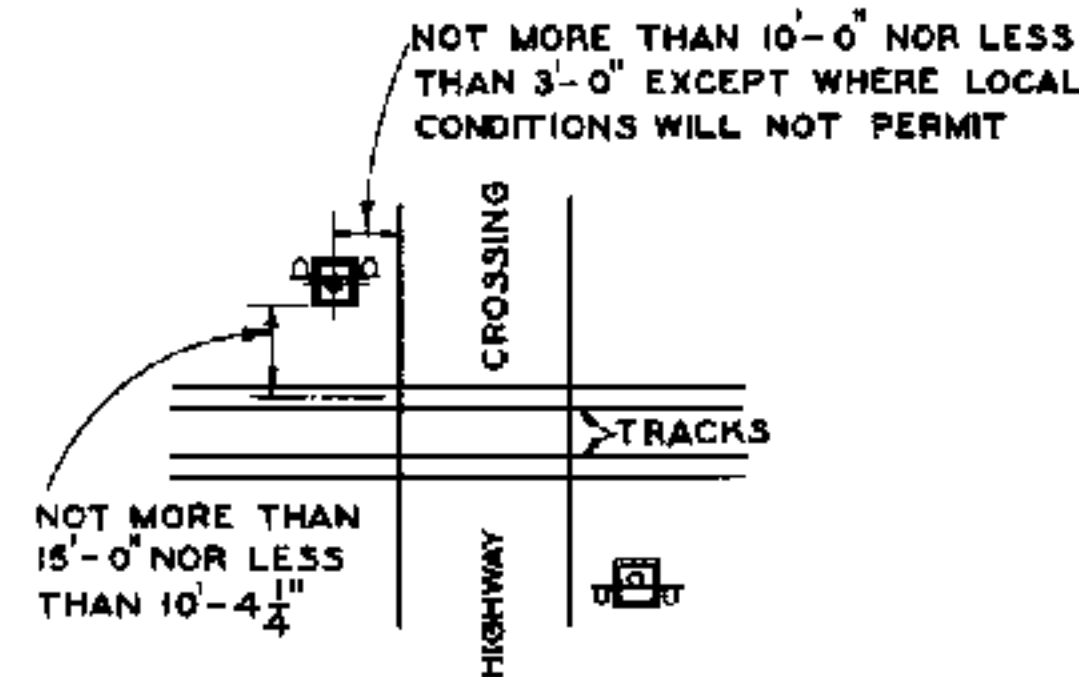
TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES

ASSEMBLY NUMBERS	SIGN			SETS OF FLASHER UNITS
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMBER-AL REQUIRED	SLOW DOWN 5 MILES-VA. LAW	
S-2145-1	S-2150-5		S-2150-21	ONE
S-2145-2	S-2150-10		S-2150-22	ONE
S-2145-3	S-2150-57		S-2150-22	ONE
S-2145-4*	S-2150-5	S-2150-29	S-2150-21	ONE
S-2145-5*	S-2150-10	S-2150-48	S-2150-22	ONE
S-2145-6*	S-2150-57	S-2150-48	S-2150-22	ONE
S-2145-7	S-2150-5		S-2150-21	TWO
S-2145-8	S-2150-10		S-2150-22	TWO
S-2145-9	S-2150-57		S-2150-22	TWO
S-2145-10*	S-2150-5	S-2150-29	S-2150-21	TWO
S-2145-11*	S-2150-10	S-2150-48	S-2150-22	TWO
S-2145-12*	S-2150-57	S-2150-48	S-2150-22	TWO

ASSEMBLY NUMBERS OF SIGNS
(FOR READY REFERENCE)

RAILROAD CROSSING, CAST IRON	S-2150-5
" " REFLECTOR ONE SIDE ONLY	S-2150-57
" " REFLECTOR ONE SIDE, EMBOSSED ENAMELED ONLY OTHER SIDE	S-2150-10
SLOW DOWN 5 MILES-VA. LAW, CAST IRON	S-2150-21
" " " " " " REFLECTOR	S-2150-22
2 TRACKS, CAST IRON	S-2150-29
" " REFLECTOR	S-2150-48

* FOR TWO OR MORE TRACKS

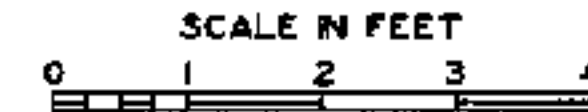


LOCATION DIAGRAM

NO SCALE

NOTES

1. PAINTING.- THE LAMP CASE, HOOD, AND BACKGROUND OF FLASHER UNITS SHALL BE PAINTED BLACK, ALL OTHER PARTS SHALL BE PAINTED WHITE EXCEPT LETTERED SIGNS SHALL BE PAINTED IN ACCORDANCE WITH DETAIL DRAWINGS. ALL PARTS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER. THE FINISHING COAT SHALL BE APPLIED IN THE FIELD.
2. EITHER A CAST IRON SIGN OR REFLECTOR SIGN SHALL BE USED WHERE REQUIRED FOR THE FOLLOWING: RAILROAD CROSSING - 2 TRACKS - SLOW DOWN 5 MILES-VA. LAW.
3. MATERIAL AND DESIGN OF FLASHER UNITS AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
4. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

R. D. Moore VICE PRESIDENT

ERIE RAILROAD COMPANY

W. H. Woodruff VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

R. D. Moore VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

R. D. Moore VICE PRESIDENT

K.L.M. C.H.W. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
HIGHWAY CROSSING
SIGNAL**

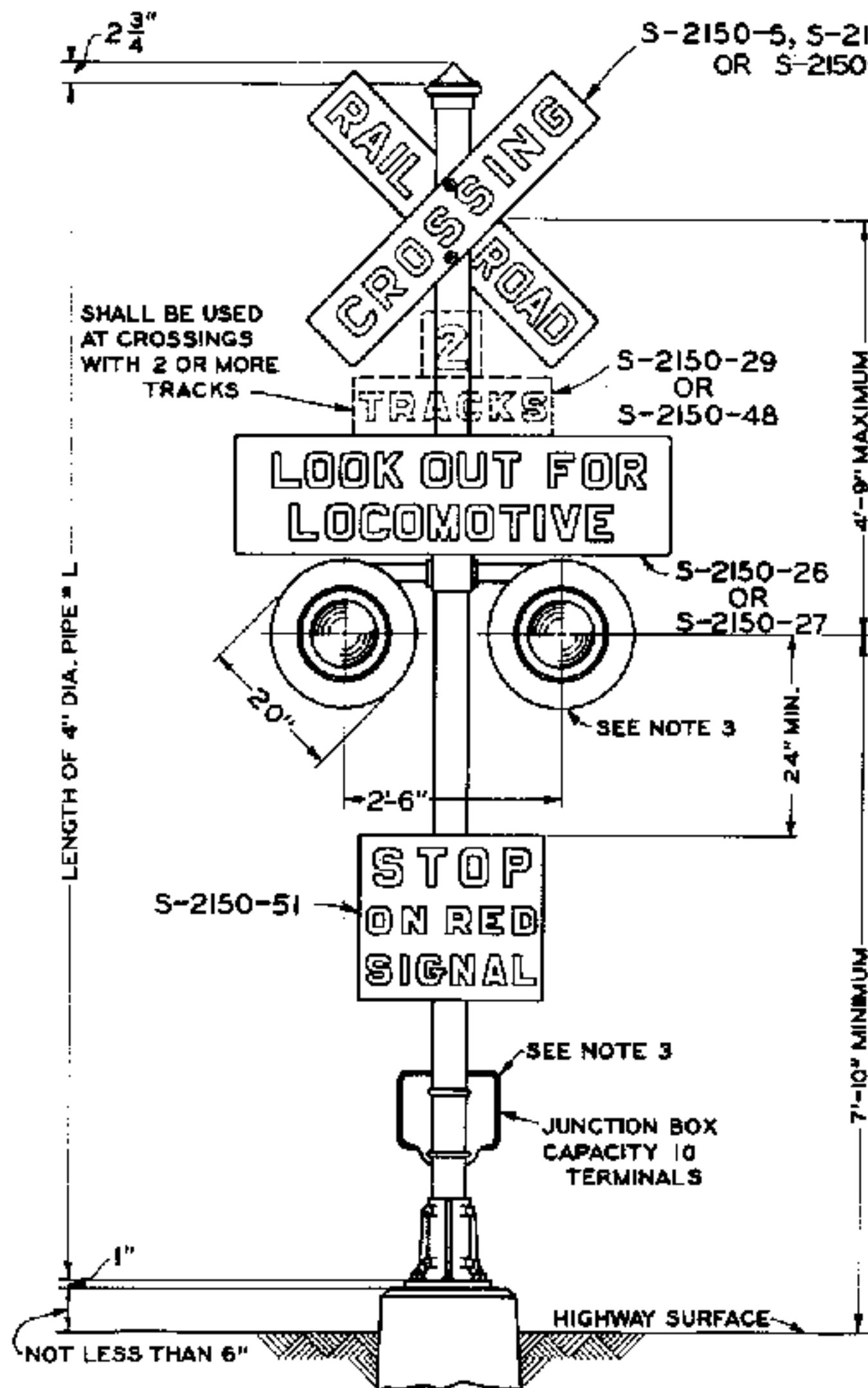
FOR USE IN VIRGINIA

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *W. H. Woodruff* CHIEF ENGINEER

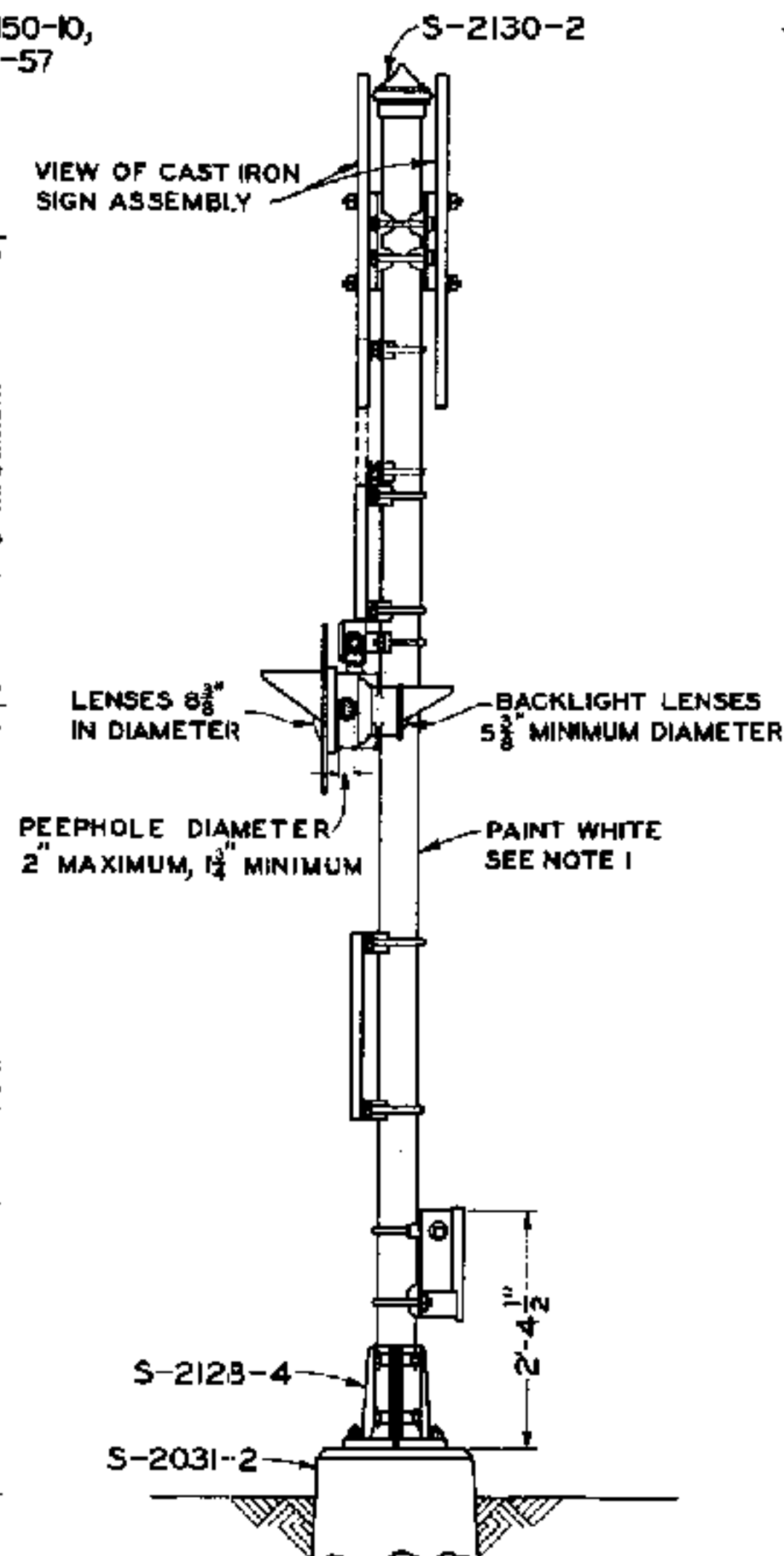
APRIL 17, 1934.

S-2145



TYPICAL ASSEMBLY - FRONT ELEVATION

L = 13'-6" FOR ONE SET OF FLASHER UNITS
L = 15'-6" FOR TWO SETS OF FLASHER UNITS



SIDE ELEVATION

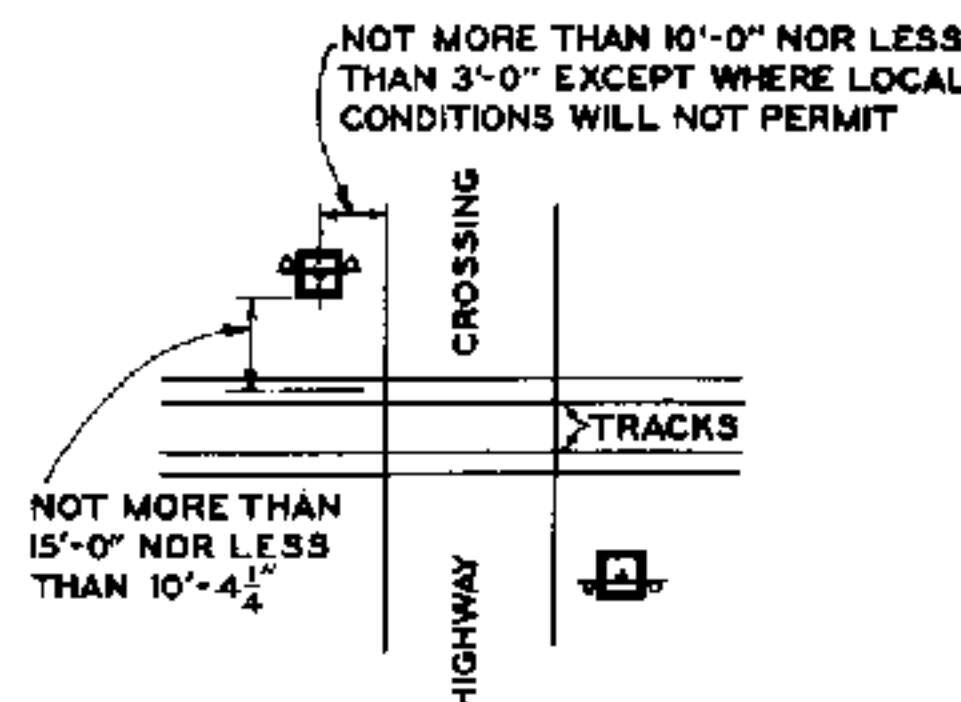
TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES

ASSEMBLY NUMBERS	SIGN			SETS OF FLASHER UNITS
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMBER-AL REQUIRED	LOOK OUT FOR LOCOMOTIVE	
S-2146-1	S-2150-5		S-2150-26	ONE
S-2146-2	S-2150-10		S-2150-27	ONE
S-2146-3	S-2150-57		S-2150-27	ONE
S-2146-4 *	S-2150-5	S-2150-29	S-2150-26	ONE
S-2146-5 *	S-2150-10	S-2150-48	S-2150-27	ONE
S-2146-6 *	S-2150-57	S-2150-48	S-2150-27	ONE
S-2146-7	S-2150-5		S-2150-26	TWO
S-2146-8	S-2150-10		S-2150-27	TWO
S-2146-9	S-2150-57		S-2150-27	TWO
S-2146-10 *	S-2150-5	S-2150-29	S-2150-26	TWO
S-2146-11 *	S-2150-10	S-2150-48	S-2150-27	TWO
S-2146-12 *	S-2150-57	S-2150-48	S-2150-27	TWO

ASSEMBLY NUMBERS OF SIGNS
(FOR READY REFERENCE)

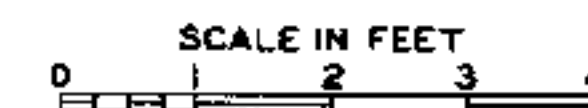
RAILROAD CROSSING, CAST IRON	S-2150-5
" " REFLECTOR ONE SIDE ONLY	S-2150-57
" " REFLECTOR ONE SIDE, EMBOSSED ENAMELED ONLY OTHER SIDE	S-2150-10
2 TRACKS, CAST IRON	S-2150-29
" " REFLECTOR	S-2150-48
LOOK OUT FOR LOCOMOTIVE, CAST IRON	S-2150-26
" " REFLECTOR	S-2150-27

* FOR TWO OR MORE TRACKS



LOCATION DIAGRAM
NO SCALE

- NOTES
1. PAINTING - THE LAMP CASE, HOOD, AND BACK-GROUND OF FLASHER UNITS SHALL BE PAINTED BLACK. ALL OTHER PARTS SHALL BE PAINTED WHITE EXCEPT LETTERED SIGNS SHALL BE PAINTED IN ACCORDANCE WITH DETAIL DRAWINGS. ALL PARTS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER. THE FINISHING COAT SHALL BE APPLIED IN THE FIELD.
 2. EITHER A CAST IRON SIGN OR REFLECTOR SIGN SHALL BE USED WHERE REQUIRED FOR THE FOLLOWING: RAILROAD CROSSING - 2 TRACKS - LOOK OUT FOR LOCOMOTIVE.
 3. MATERIAL AND DESIGN OF FLASHER UNITS AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
 4. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUIREMENTS S-1508, HIGHWAY CROSSING SIGNALS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

G. D. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

H. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

G. D. Moore
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

J. H. Brown
VICE PRESIDENT

K.L.M.
C.S.P.

C.D.M. A.J.P.

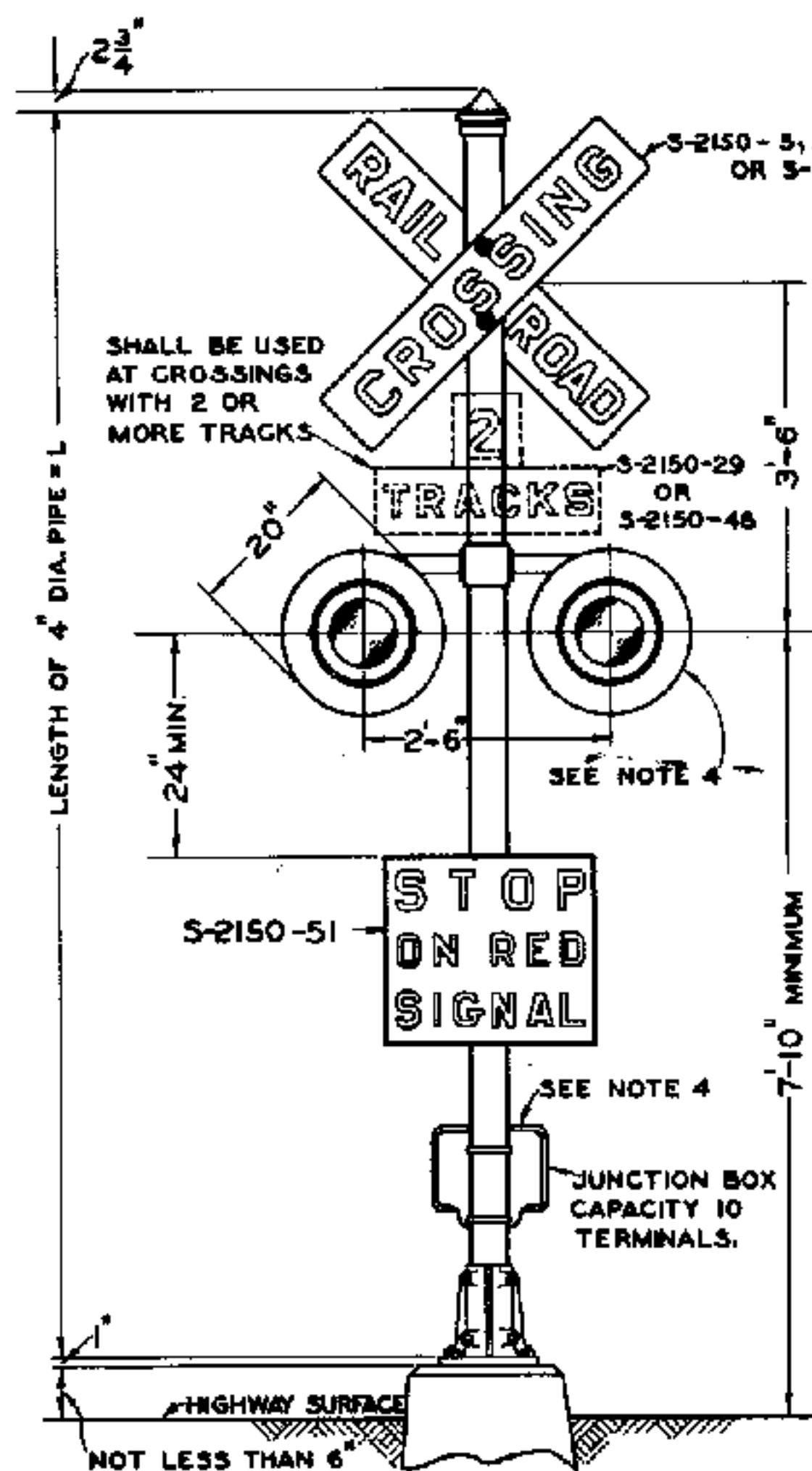
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD HIGHWAY CROSSING SIGNAL

FOR USE IN WEST VIRGINIA

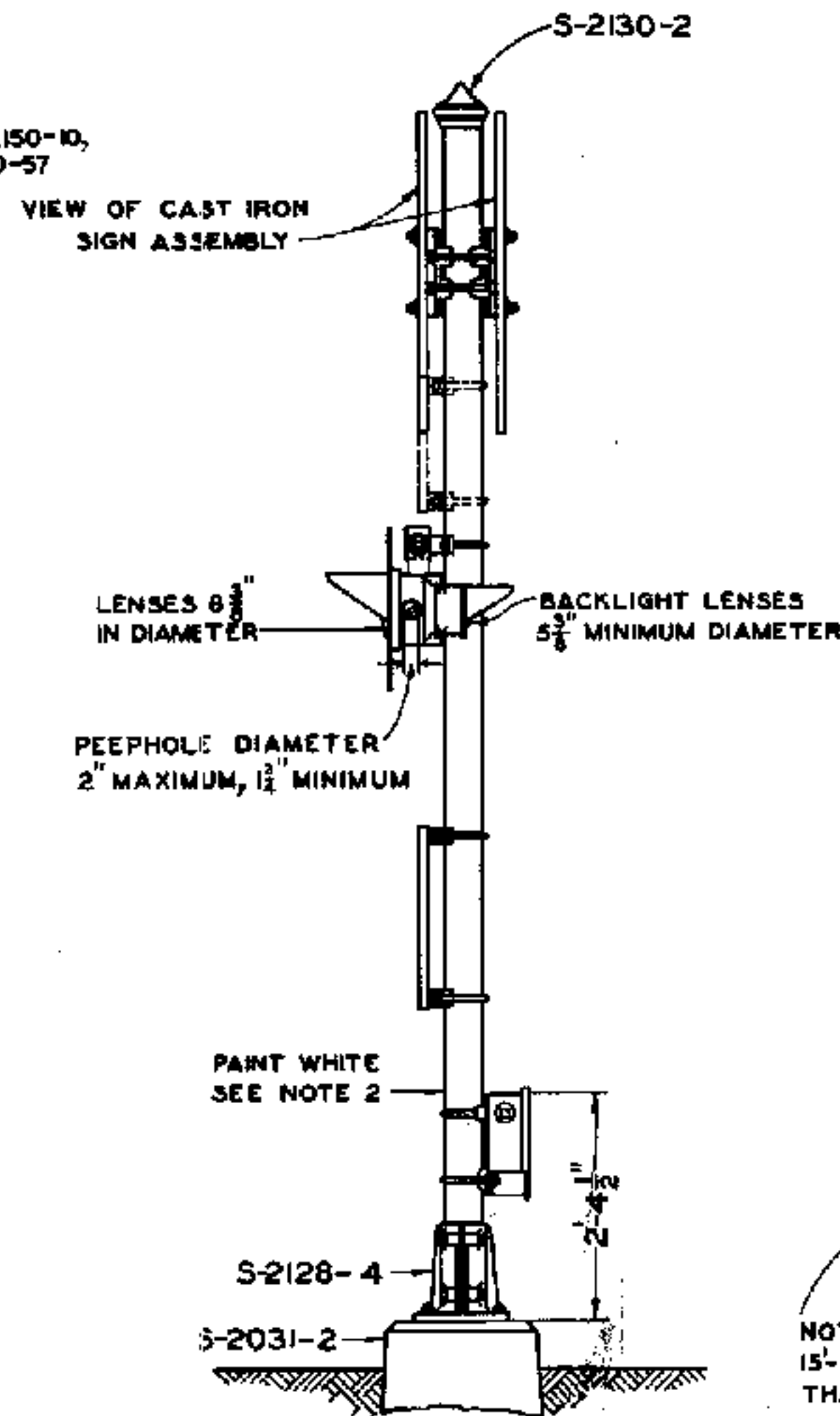
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *C. H. Crum*
CHIEF ENGINEER
APRIL 17, 1934.

S-2146

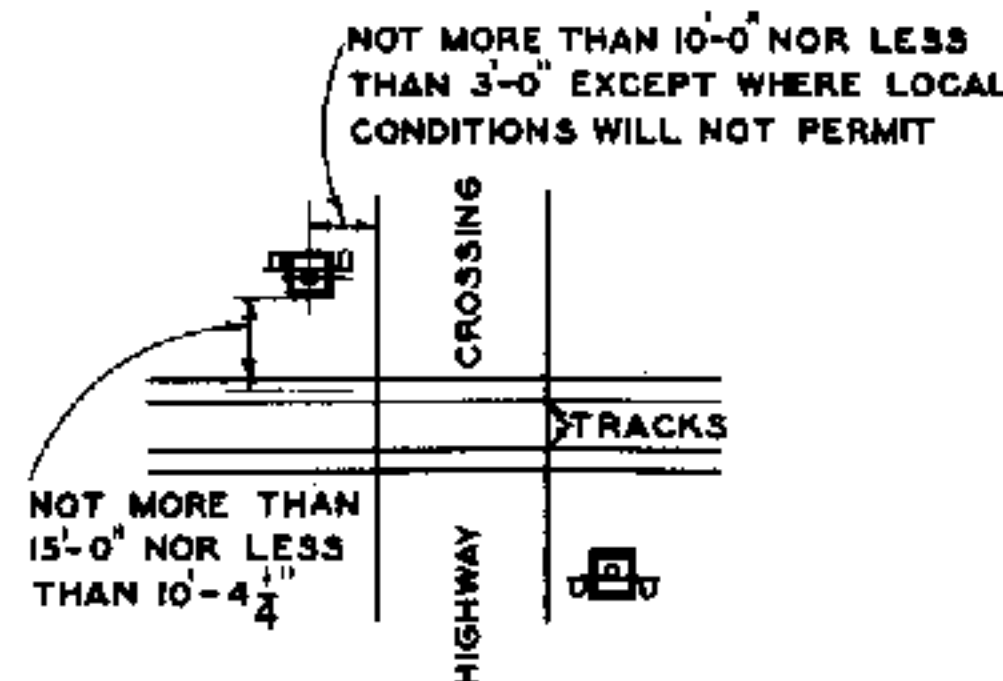


TYPICAL ASSEMBLY-FRONT ELEVATION

L=12'-6" FOR ONE SET OF FLASHER UNITS
L=14'-0" FOR TWO SETS OF FLASHER UNITS



SIDE ELEVATION



LOCATION DIAGRAM

NO SCALE

TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES

ASSEMBLY NUMBERS	SIGN		SETS OF FLASHER UNITS
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMERICAL REQUIRED	
S-2147-1	S-2150-5		ONE
S-2147-2	S-2150-10		ONE
S-2147-3	S-2150-57		ONE
S-2147-4*	S-2150-5	S-2150-29	ONE
S-2147-5*	S-2150-10	S-2150-48	ONE
S-2147-6*	S-2150-57	S-2150-48	ONE
S-2147-7	S-2150-5		TWO
S-2147-8	S-2150-10		TWO
S-2147-9	S-2150-57		TWO
S-2147-10*	S-2150-5	S-2150-29	TWO
S-2147-11*	S-2150-10	S-2150-48	TWO
S-2147-12*	S-2150-57	S-2150-48	TWO

ASSEMBLY NUMBERS OF SIGNS

(FOR READY REFERENCE)

RAILROAD CROSSING, CAST IRON	S-2150-5
" " REFLECTOR ONE SIDE ONLY	S-2150-57
" " REFLECTOR ONE SIDE, EMBOSSED ENAMELED ONLY OTHER SIDE	S-2150-10
2 TRACKS, CAST IRON	S-2150-29
" " REFLECTOR	S-2150-48

* FOR TWO OR MORE TRACKS

NOTES

1. ALL PLANS OF PROPOSED INSTALLATIONS OF FLASHING SIGNALS IN THE COMMONWEALTH OF PENNSYLVANIA MUST BE SUBMITTED TO THE BUREAU OF ACCIDENTS OF THE PUBLIC SERVICE COMMISSION FOR APPROVAL, PRIOR TO INSTALLATION.
2. PAINTING, THE LAMP CASE, HOOD, AND BACKGROUND OF FLASHER UNITS SHALL BE PAINTED BLACK. ALL OTHER PARTS SHALL BE PAINTED WHITE EXCEPT LETTERED SIGNS SHALL BE PAINTED IN ACCORDANCE WITH DETAIL DRAWINGS. ALL PARTS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER. THE FINISHING COAT SHALL BE APPLIED IN THE FIELD.
3. EITHER A CAST IRON SIGN OR REFLECTOR SIGN SHALL BE USED WHERE REQUIRED FOR THE FOLLOWING: RAILROAD CROSSING - 2 TRACKS.
4. MATERIAL AND DESIGN OF FLASHER UNITS AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
5. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.

SCALE IN FEET
0 1 2 3 4

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. H. Woodruff
VICE PRESIDENT

ERIE RAILROAD COMPANY

W. H. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Woodruff
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Woodruff
VICE PRESIDENT

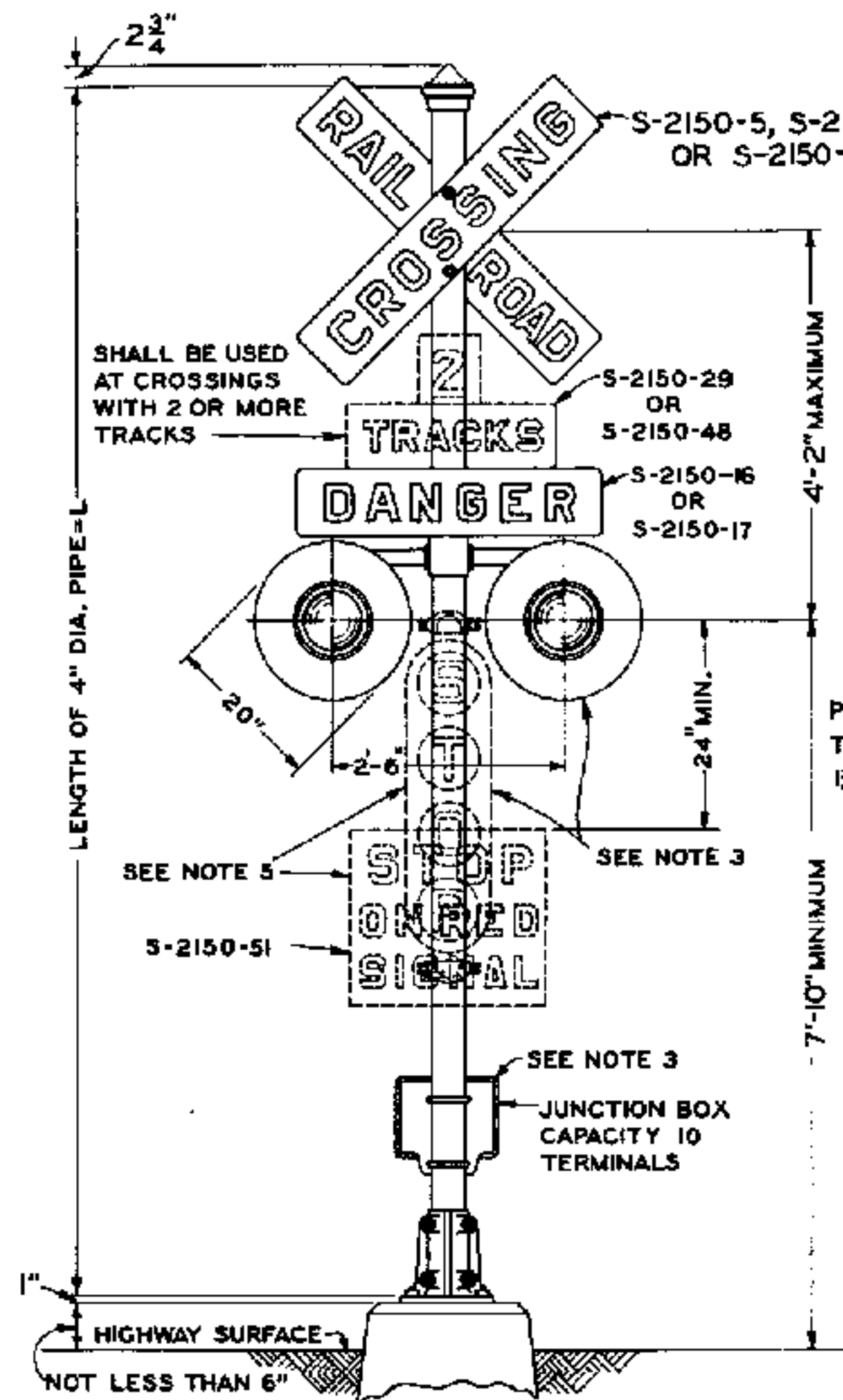
K.L.M. C.D.M. A.J.P.
C.H.W.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
HIGHWAY CROSSING SIGNAL
FOR USE IN ILLINOIS, KENTUCKY,
NEW JERSEY, OHIO, AND PENNSYLVANIA

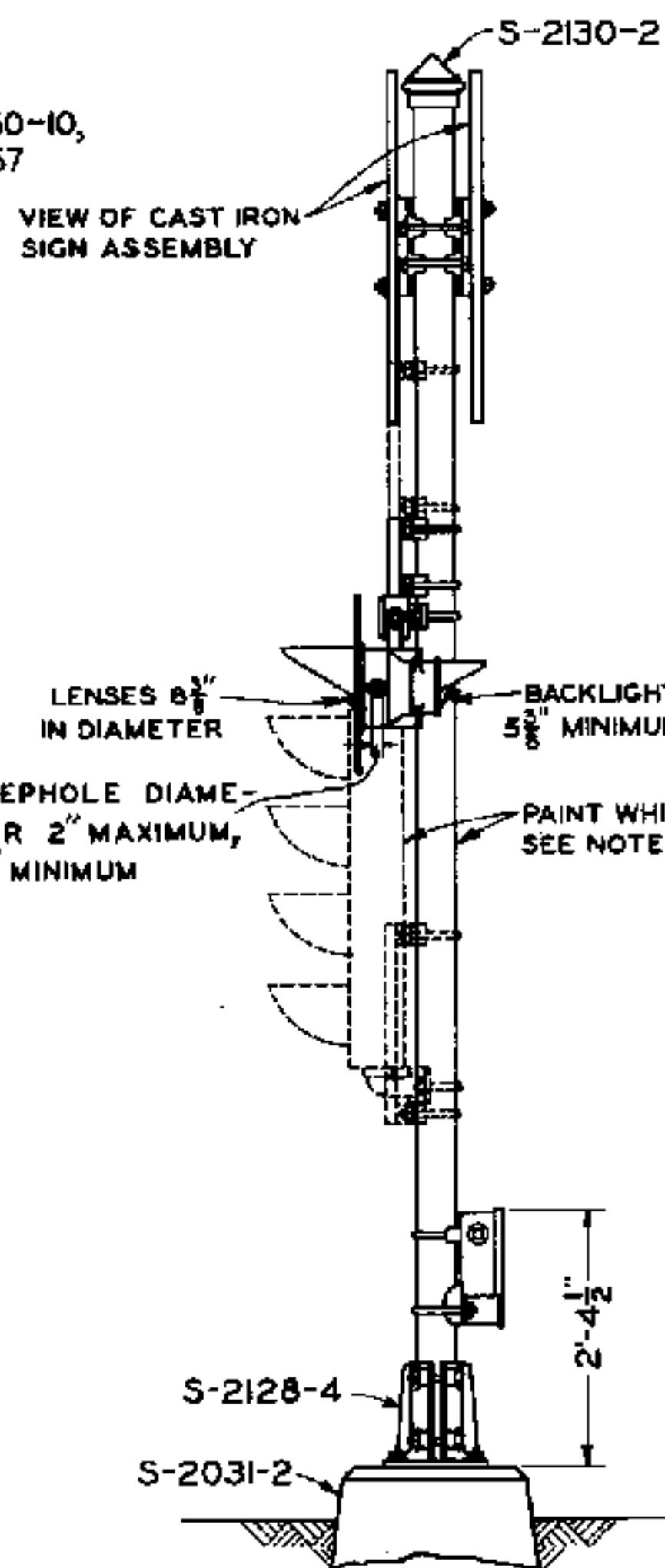
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Woodruff*
CHIEF ENGINEER

APR 17 1934

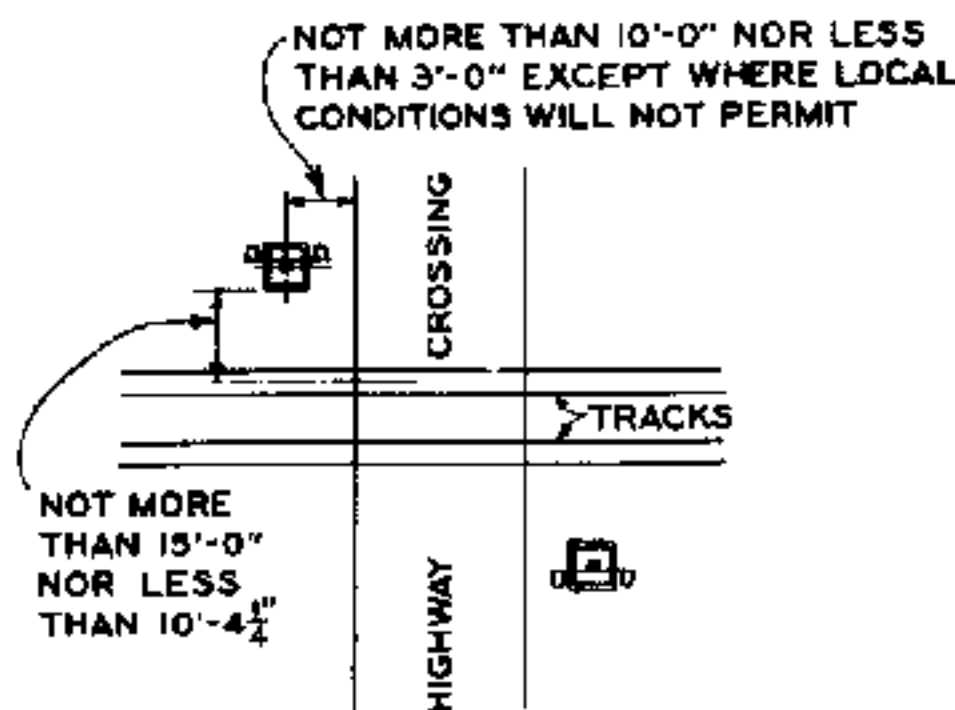


TYPICAL ASSEMBLY-FRONT ELEVATION

L = 13'-0" FOR ONE SET OF FLASHER UNITS
L = 15'-0" FOR TWO SETS OF FLASHER UNITS



SIDE ELEVATION



LOCATION DIAGRAM
NO SCALE

TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES

ASSEMBLY NUMBERS	SIGN			SETS OF FLASHER UNITS
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMER-AL REQUIRED	DANGER	
S-2148-1	S-2150-5		S-2150-16	ONE
S-2148-2	S-2150-10		S-2150-17	ONE
S-2148-3	S-2150-57		S-2150-17	ONE
S-2148-4 *	S-2150-5	S-2150-29	S-2150-16	ONE
S-2148-5 *	S-2150-10	S-2150-48	S-2150-17	ONE
S-2148-6 *	S-2150-57	S-2150-48	S-2150-17	ONE
S-2148-7	S-2150-5		S-2150-16	TWO
S-2148-8	S-2150-10		S-2150-17	TWO
S-2148-9	S-2150-57		S-2150-17	TWO
S-2148-10 *	S-2150-5	S-2150-29	S-2150-16	TWO
S-2148-11 *	S-2150-10	S-2150-48	S-2150-17	TWO
S-2148-12 *	S-2150-57	S-2150-48	S-2150-17	TWO

STOP ON RED SIGNAL SIGN S-2150-51 SHALL BE FURNISHED WITH EACH SIGNAL ASSEMBLY UNLESS OTHERWISE SPECIFIED.

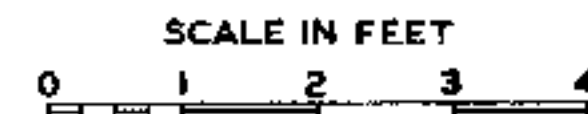
ASSEMBLY NUMBERS OF SIGNS
(FOR READY REFERENCE)

RAILROAD CROSSING, CAST IRON	S-2150-5
" " REFLECTOR ONE SIDE ONLY	S-2150-57
" " REFLECTOR ONE SIDE, EMBOSSED ENEAMELED ONLY OTHER SIDE	S-2150-10
2 TRACKS, CAST IRON	S-2150-29
" " REFLECTOR	S-2150-48
DANGER, CAST IRON	S-2150-16
" REFLECTOR	S-2150-17

* FOR TWO OR MORE TRACKS

NOTES

1. PAINTING.— THE LAMP CASE AND BACKGROUND OF FLASHER UNITS, HOODS, AND FACE OF ILLUMINATED STOP SIGN SHALL BE PAINTED BLACK. ALL OTHER PARTS SHALL BE PAINTED WHITE EXCEPT LETTERED SIGNS SHALL BE PAINTED IN ACCORDANCE WITH DETAIL DRAWINGS. ALL PARTS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER. THE FINISHING COAT SHALL BE APPLIED IN THE FIELD.
2. EITHER A CAST IRON SIGN OR REFLECTOR SIGN SHALL BE USED WHERE REQUIRED FOR THE FOLLOWING: DANGER—RAILROAD CROSSING— 2 TRACKS.
3. MATERIAL AND DESIGN OF FLASHER UNITS, ILLUMINATED STOP SIGN, AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
4. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.
5. EITHER STOP ON RED SIGNAL SIGN OR ILLUMINATED STOP SIGN SHALL BE USED ON EACH SIGNAL AS REQUIRED.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]* APRIL 17, 1934.

CHIEF ENGINEER

K. L. M. C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
HIGHWAY CROSSING
SIGNAL

FOR USE IN INDIANA

S-2148

NOTES

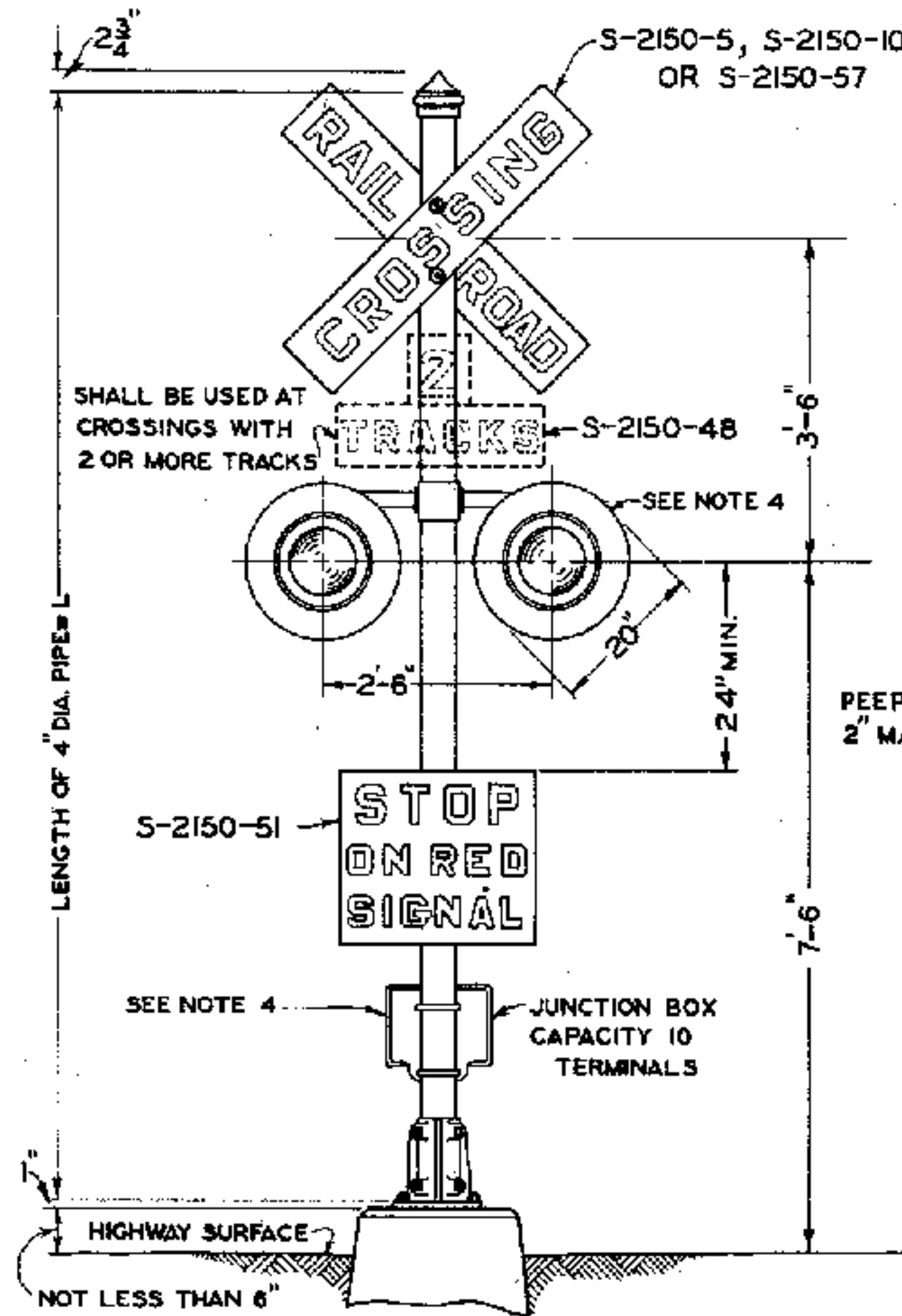
1. IN CASES WHERE PHYSICAL CHARACTERISTICS REQUIRE THAT EITHER OR BOTH SIGNALS SHALL BE LOCATED ON THE LEFT SIDE OF HIGHWAY, SUCH LOCATION MAY BE USED AFTER SPECIAL PERMISSION THEREFOR HAS BEEN SECURED FROM THE PUBLIC SERVICE COMMISSION.
2. PAINTING,—THE LAMP CASE, HOOD, AND BACKGROUND OF FLASHER UNITS SHALL BE PAINTED BLACK. ALL OTHER PARTS SHALL BE PAINTED WHITE EXCEPT LETTERED SIGNS SHALL BE PAINTED IN ACCORDANCE WITH DETAIL DRAWINGS. ALL PARTS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER. THE FINISHING COAT SHALL BE APPLIED IN THE FIELD.
3. EITHER A PAINTED OR REFLECTOR SIGN MAY BE USED FOR THE RAIL ROAD CROSSING SIGN.
4. MATERIAL AND DESIGN OF FLASHER UNITS AND JUNCTION BOX SHALL BE IN ACCORDANCE WITH PLAN APPROVED BY PURCHASER.
5. SIGNAL AND INSTALLATION MUST BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD REQUISITES S-1506, HIGHWAY CROSSING SIGNALS.
6. LOCATION PLANS OF PROPOSED INSTALLATION OF HIGHWAY CROSSING SIGNALS MUST BE SUBMITTED TO THE PUBLIC SERVICE COMMISSION FOR APPROVAL BEFORE INSTALLATION.

TABLE SHOWING DRAWING NUMBERS ASSIGNED VARIOUS ASSEMBLIES.

ASSEMBLY NUMBERS	SIGN		SETS OF FLASHER UNITS
	RAILROAD CROSSING	2 TRACKS SPECIFY NUMER-AL REQUIRED	
S-2149-1	S-2150-5	—	ONE
S-2149-2	S-2150-10	—	ONE
S-2149-3	S-2150-57	—	ONE
S-2149-4 *	S-2150-5	S-2150-48	ONE
S-2149-5 *	S-2150-10	S-2150-48	ONE
S-2149-6 *	S-2150-57	S-2150-48	ONE
S-2149-7	S-2150-4	—	TWO
S-2149-8	S-2150-10	—	TWO
S-2149-9	S-2150-57	—	TWO
S-2149-10 *	S-2150-5	S-2150-48	TWO
S-2149-11 *	S-2150-10	S-2150-48	TWO
S-2149-12 *	S-2150-57	S-2150-48	TWO

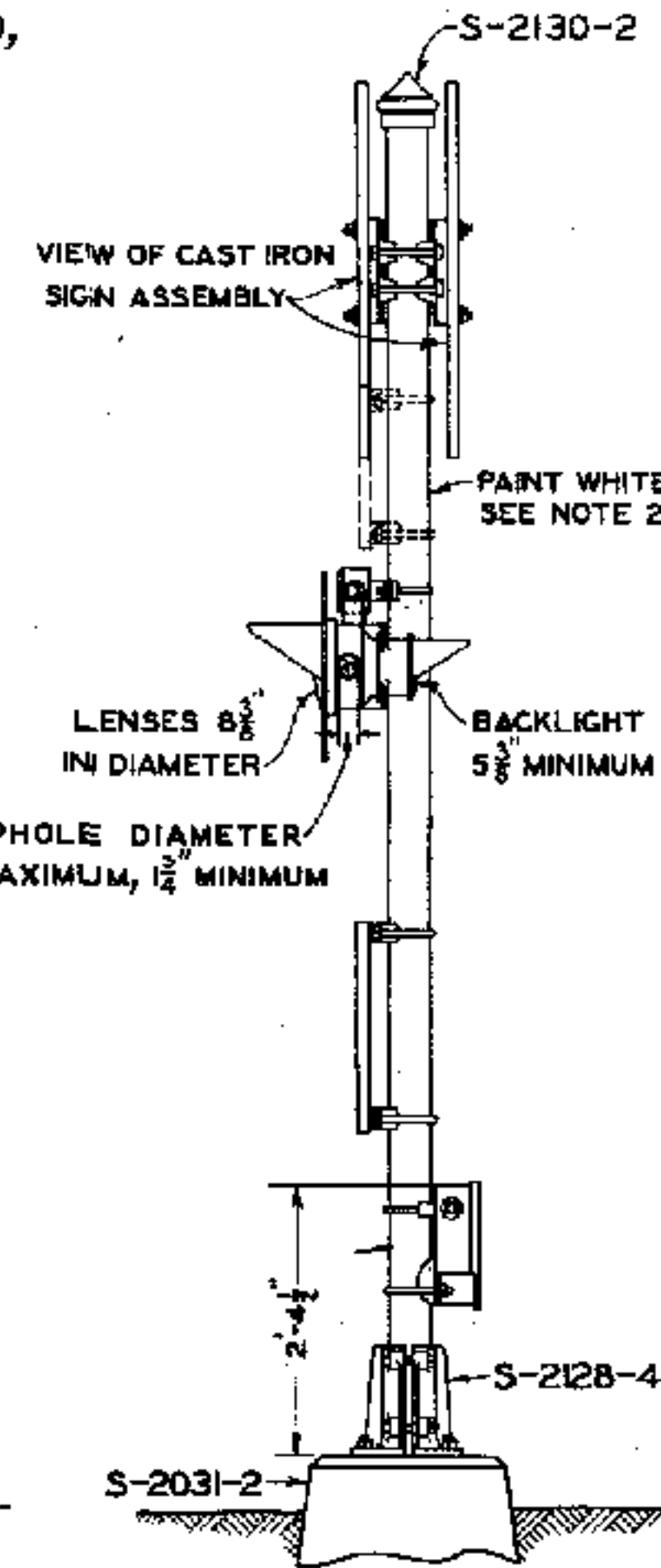
ASSEMBLY NUMBERS OF SIGNS
(FOR READY REFERENCE)

RAILROAD CROSSING, CAST IRON	S-2150-5
" " REFLECTOR ONE SIDE ONLY	S-2150-57
" " REFLECTOR ONE SIDE, EMBOSSED ENAMELED ONLY OTHER SIDE	S-2150-10
2 TRACKS, REFLECTOR * FOR TWO OR MORE TRACKS	S-2150-48

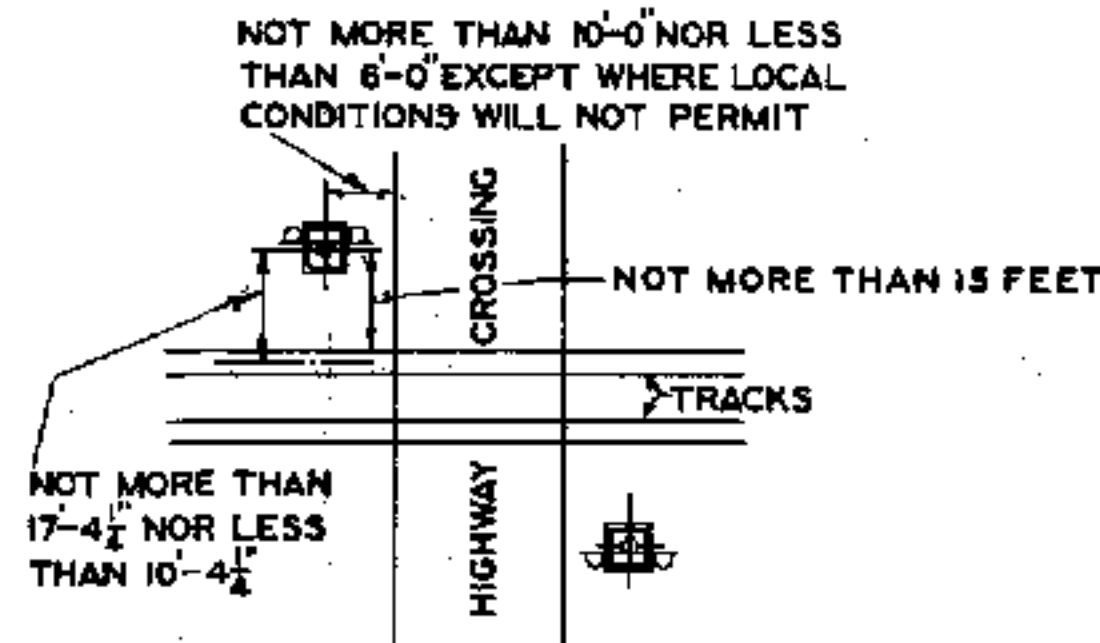


TYPICAL ASSEMBLY-FRONT ELEVATION

L = 12'-0" FOR ONE SET OF FLASHERS
L = 14'-0" FOR TWO SETS OF FLASHERS

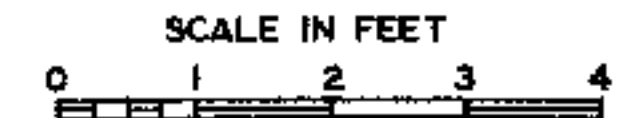


SIDE ELEVATION



LOCATION DIAGRAM

SEE NOTE 1
NO SCALE



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY

H. C. ...
EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY

H. D. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. D. ...
PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. ...
PRESIDENT

K.L.M. W.S.E. W.N.H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

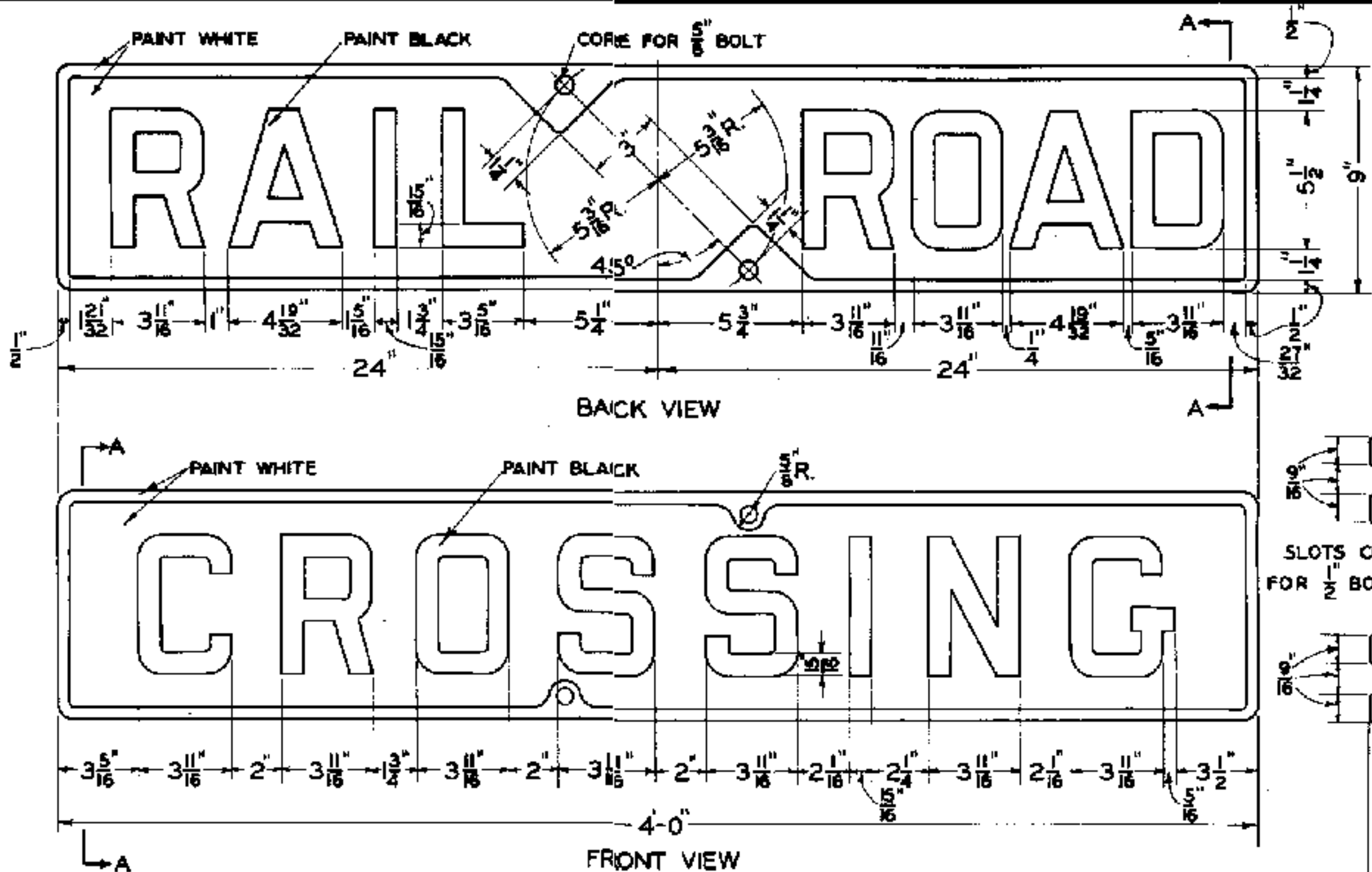
STANDARD HIGHWAY CROSSING SIGNAL

FOR USE IN NEW YORK

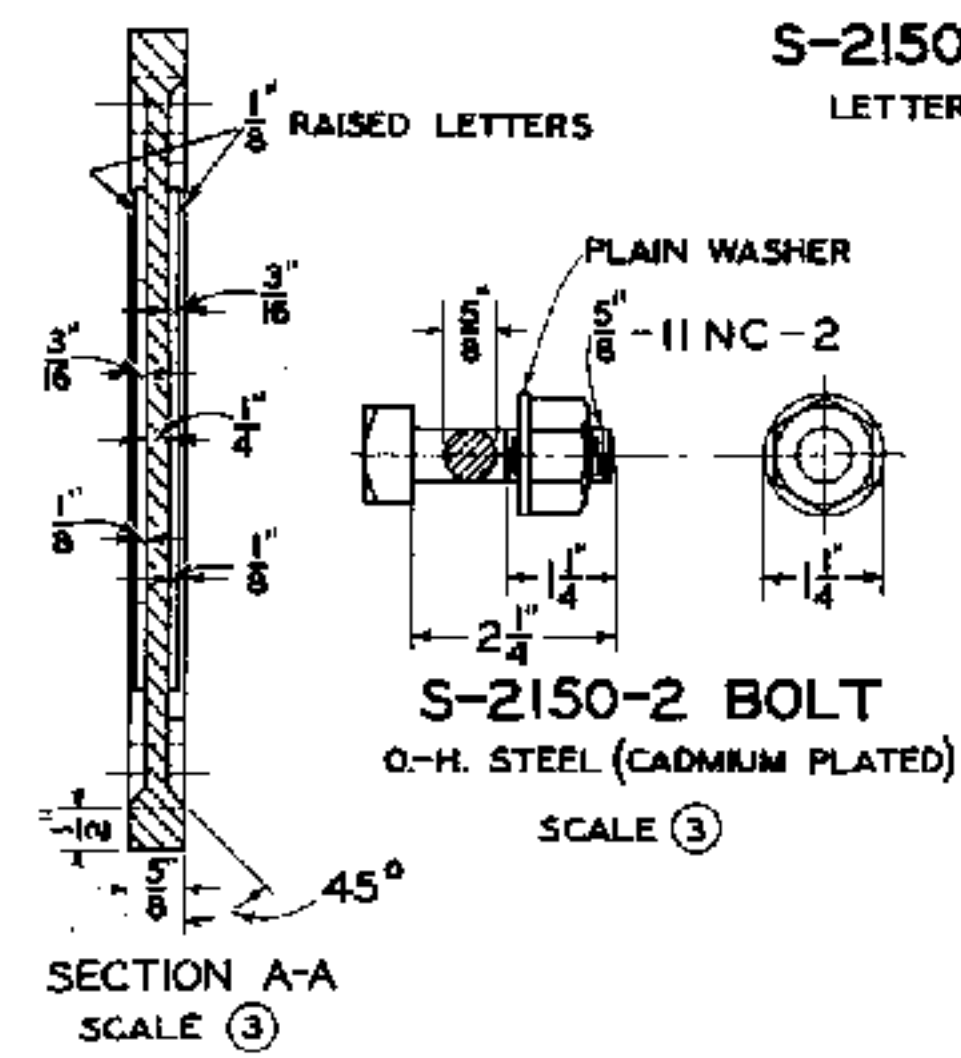
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

W. H. ...
CHAIRMAN

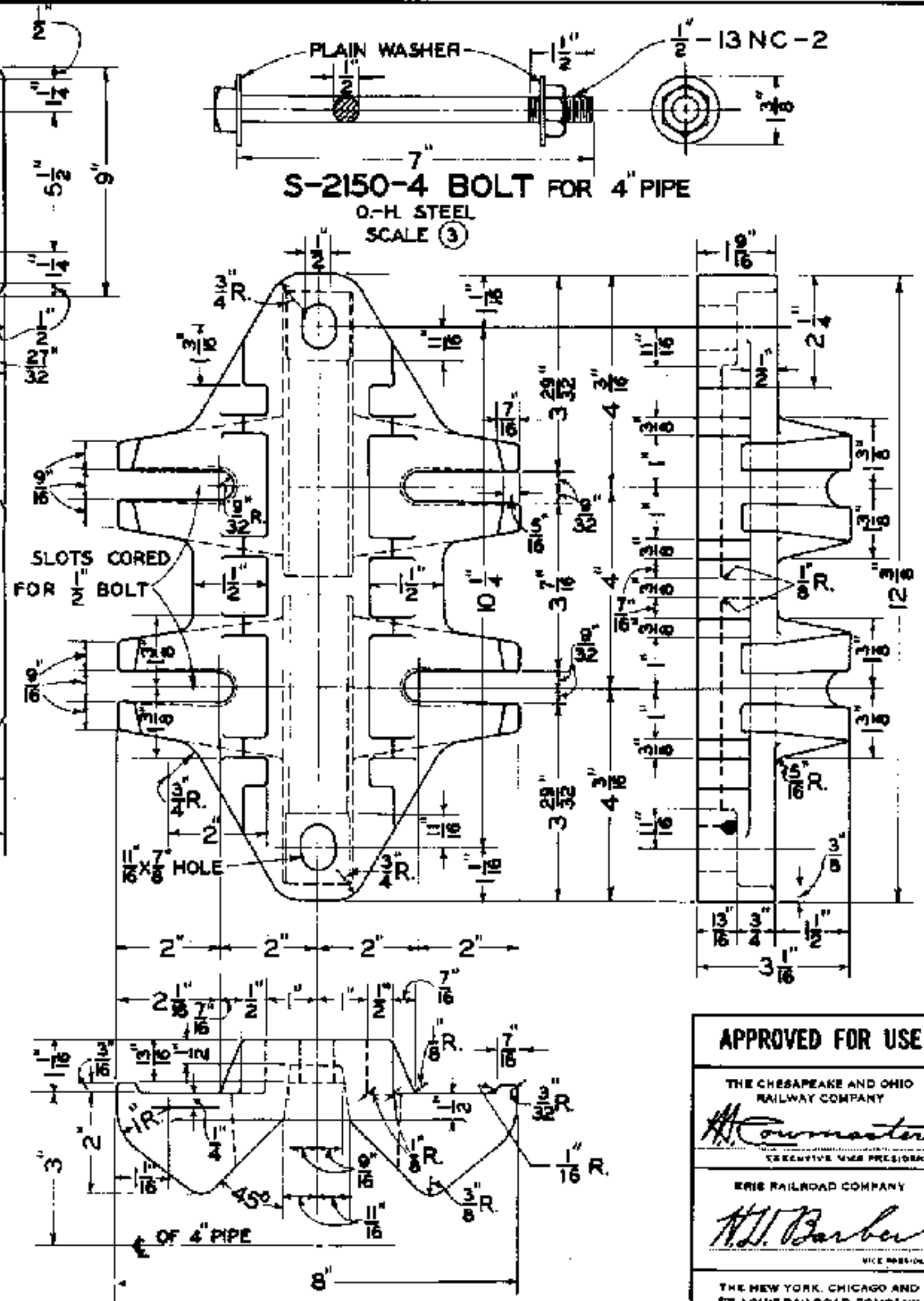
JUNE 28, 1944



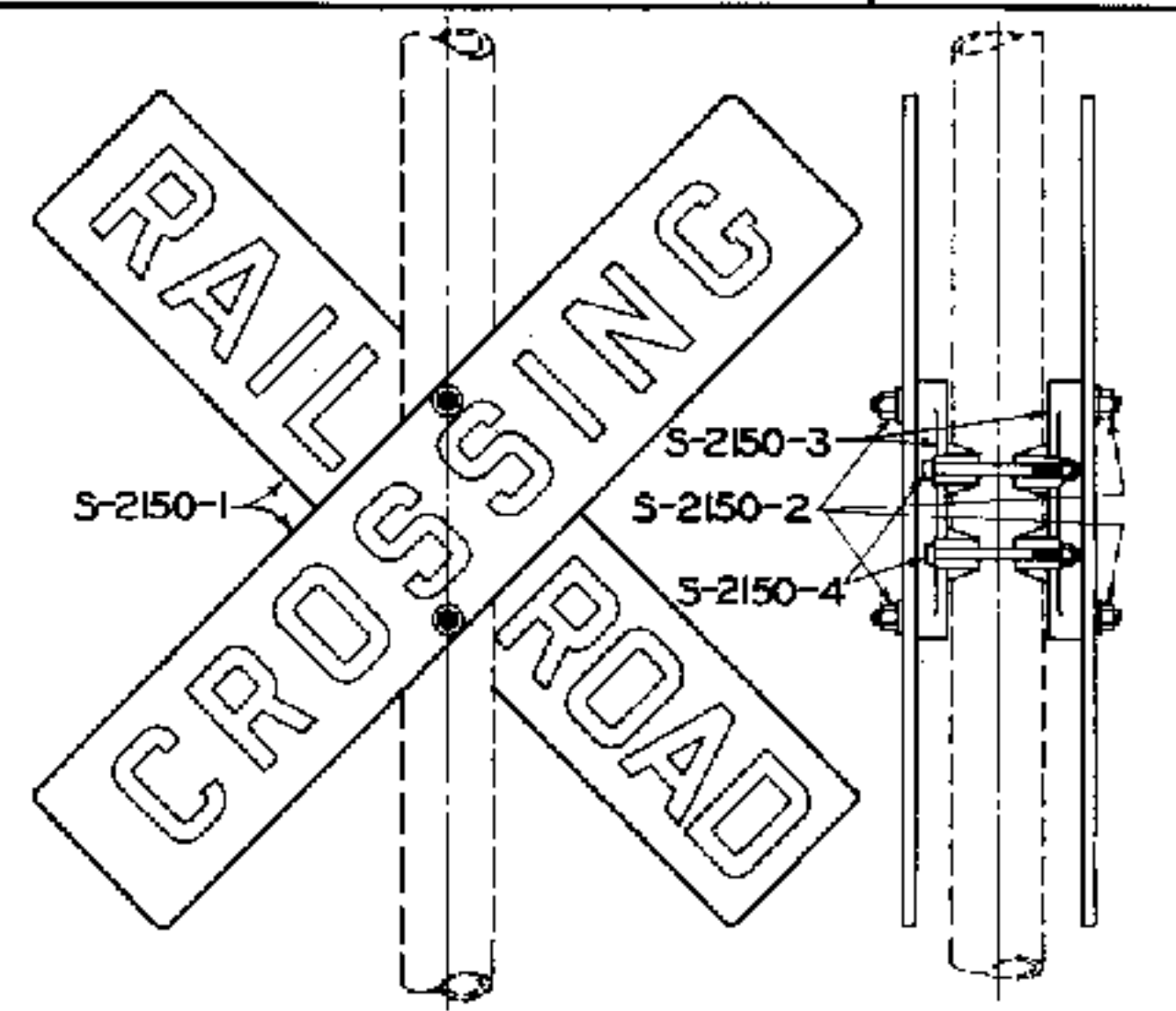
S-2150-1 CROSSING SIGN ONLY
LETTERED ON BOTH SIDES AS SHOWN
CAST IRON
SCALE ①



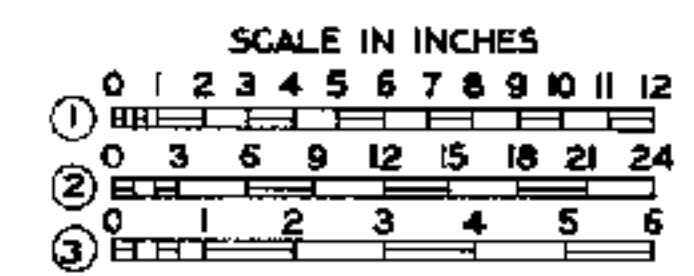
- NOTES**
1. CROSSING SIGN AND ADAPTER CLAMP SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS.
 2. PAINTING OF ADAPTER CLAMP SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
 3. BOLTS SHALL HAVE A S A REGULAR SQUARE HEADS AND HEAVY HEXAGON NUTS.



S-2150-3 ADAPTER CLAMP
CAST IRON
SCALE ③



S-2150-5 90° CAST IRON CROSSING SIGN
COMPLETE AS SHOWN
SCALE ②



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
W. J. Cowmaster
CREATIVE VICE PRESIDENT

ERIE RAILROAD COMPANY
W. L. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
F. D. Beale
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
W. J. Brown
PRESIDENT

C.H.W. W.S.E. W.N.H.
K.L.M.

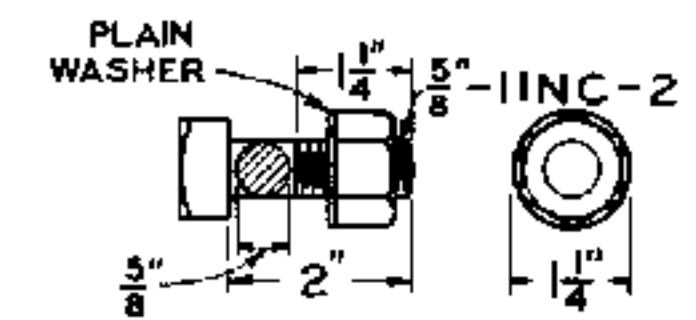
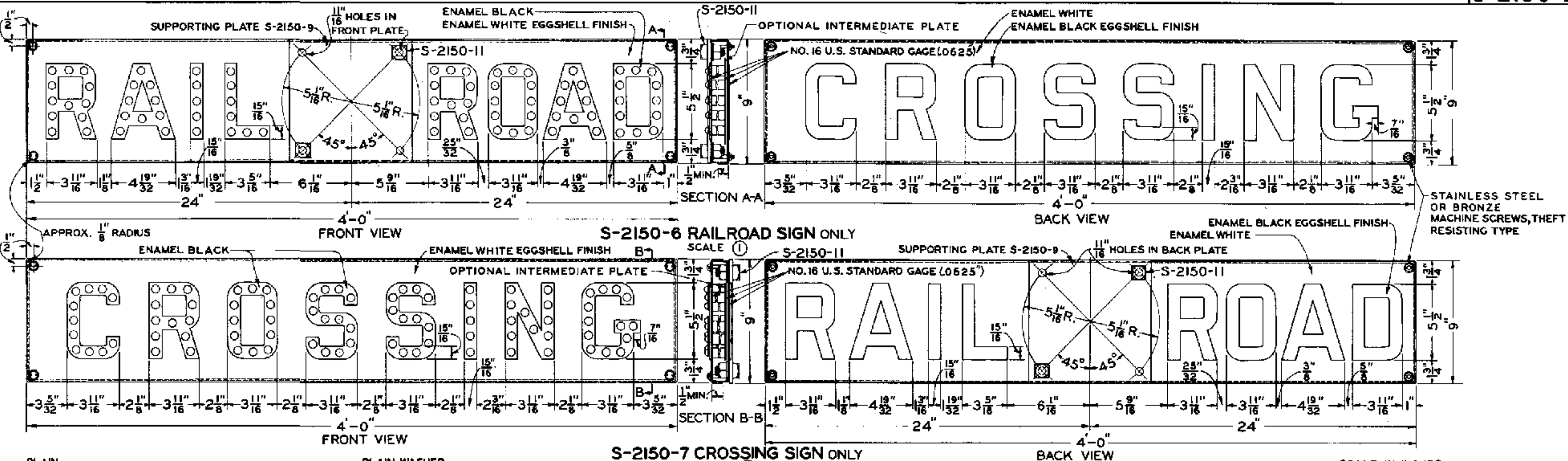
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD RAILROAD
HIGHWAY CROSSING
SIGNAL SIGNS**

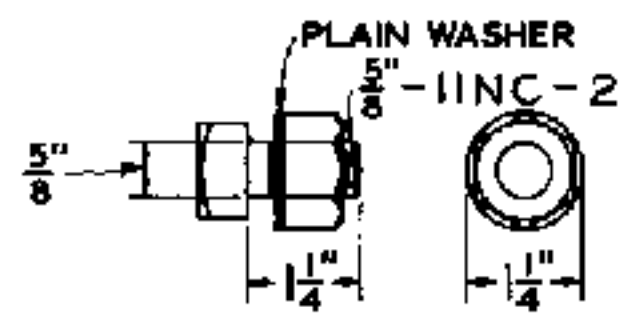
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
W. J. Brown
CHAIRMAN

OCT. 18, 1943.

SHEET 1 OF 10
S-2150-B



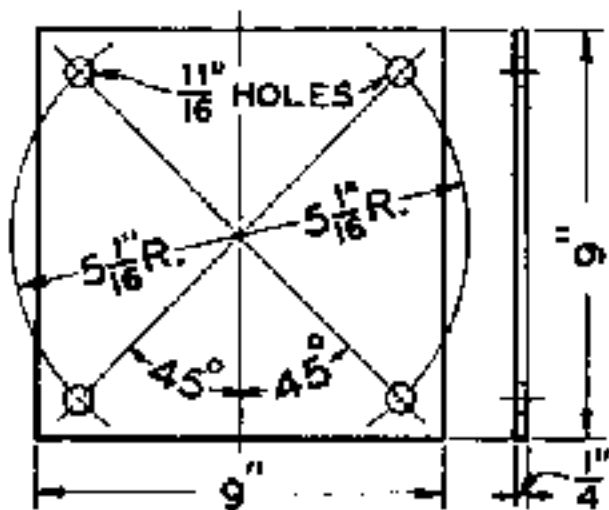
S-2150-8 BOLT
O.-H. STEEL (CADMIUM PLATED)
SCALE (3)



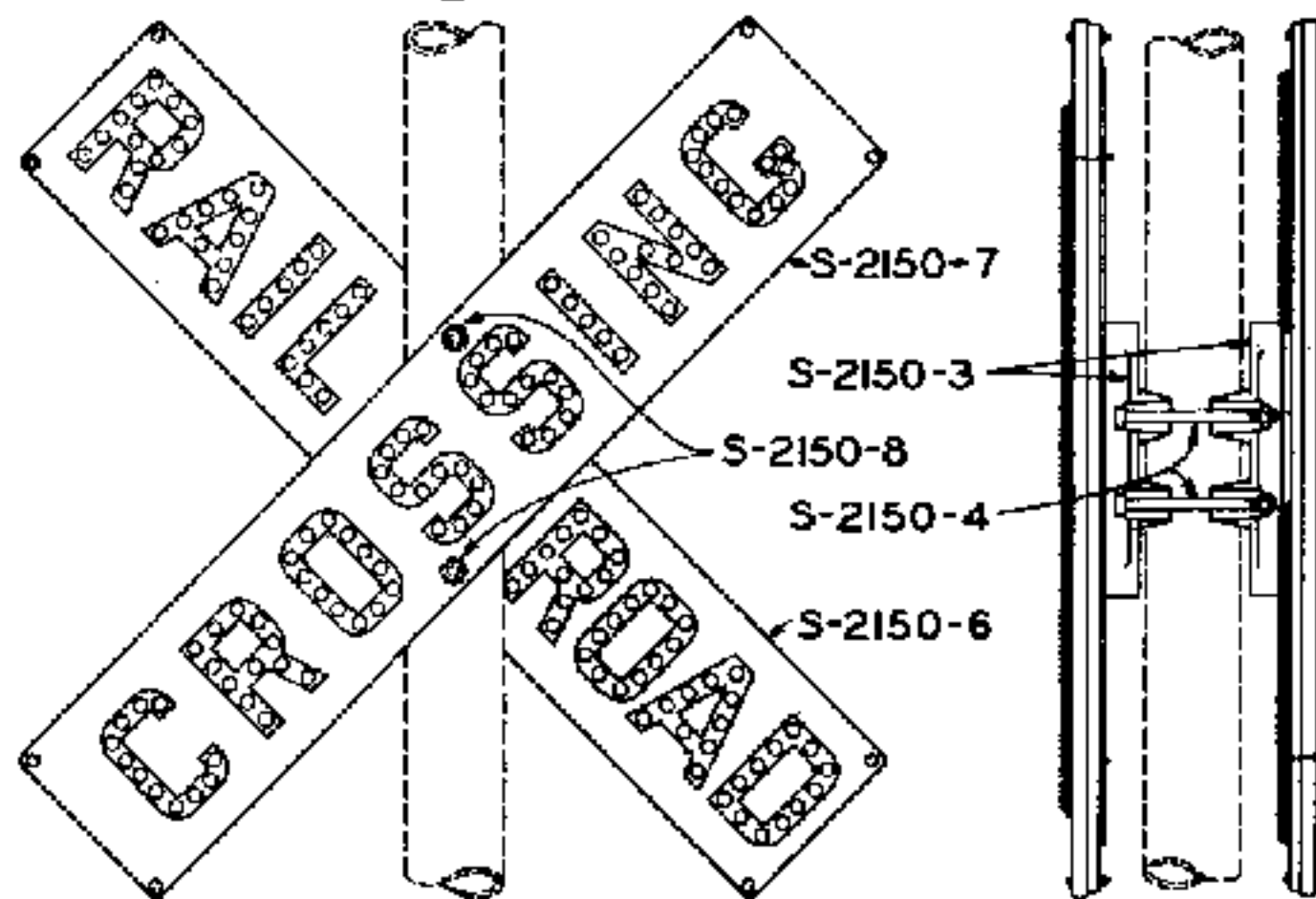
S-2150-11 BOLT
O.-H. STEEL (CADMIUM PLATED)
SCALE (3)

NOTES

1. SIGNS AND REFLECTOR UNITS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1352, RAILROAD HIGH-WAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS, AND STANDARD SPECIFICATIONS S-1551, COLORLESS REFLECTOR UNITS, RESPECTIVELY.
2. PAINTING OF SUPPORTING PLATE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN.
4. BOLTS SHALL HAVE A S A REGULAR SQUARE HEADS AND HEAVY HEXAGON NUTS.



S-2150-9 SUPPORTING PLATE
O.-H. STEEL
SCALE ①



S-2150-10 RAILROAD CROSSING SIGN COMPLETE AS SHOWN
SCALE (2)

SCALE IN INCHES

① 0 1 2 3 4 5 6 7 8 9 10 11 12

② 0 3 6 9 12 15 18 21 24

③ 0 1 2 3 4 5 6

APPROVED FOR USE

THE CHEESAPEAKE AND OHIO
RAILWAY COMPANY

H. Cowmaster
EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY

H. L. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

FD Beale
NICE 44-10007

PERE MARQUETTE
RAILWAY COMPANY

[Signature]
AGENT

C.H.W.	W.S.E.	W.N.H.
C.B.P.		

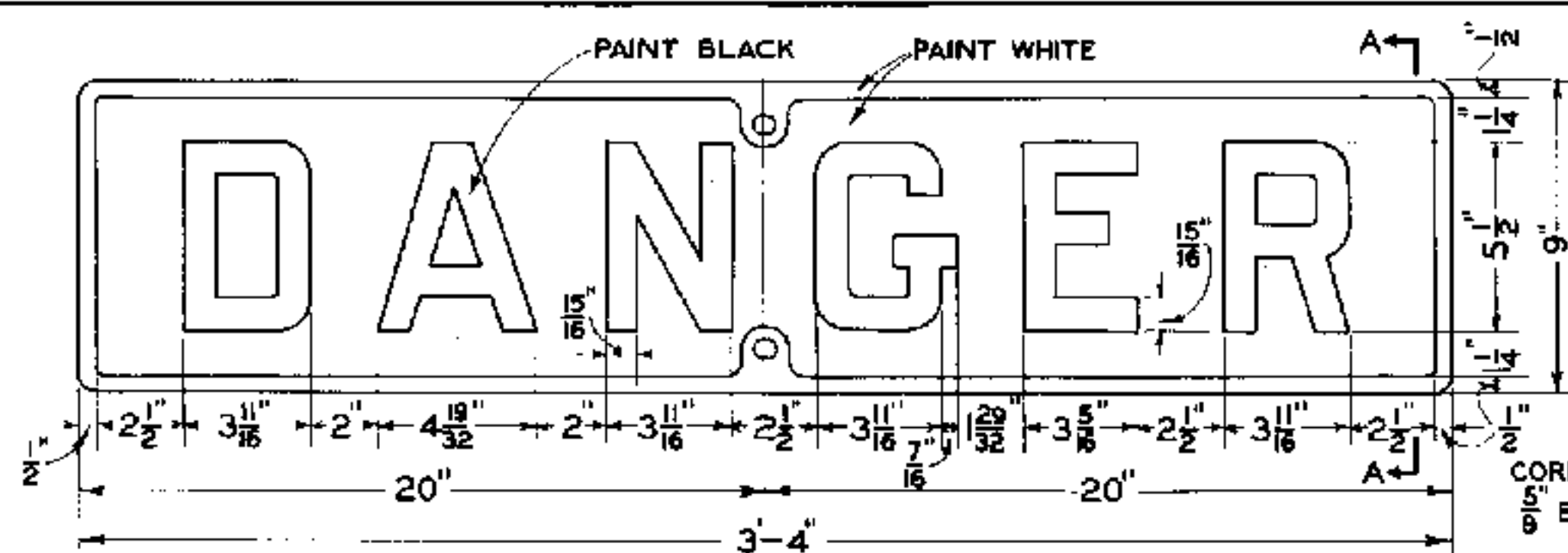
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD HIGHWAY CROSSING SIGNAL SIGNS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Chairman

OCT. 18, 1943.

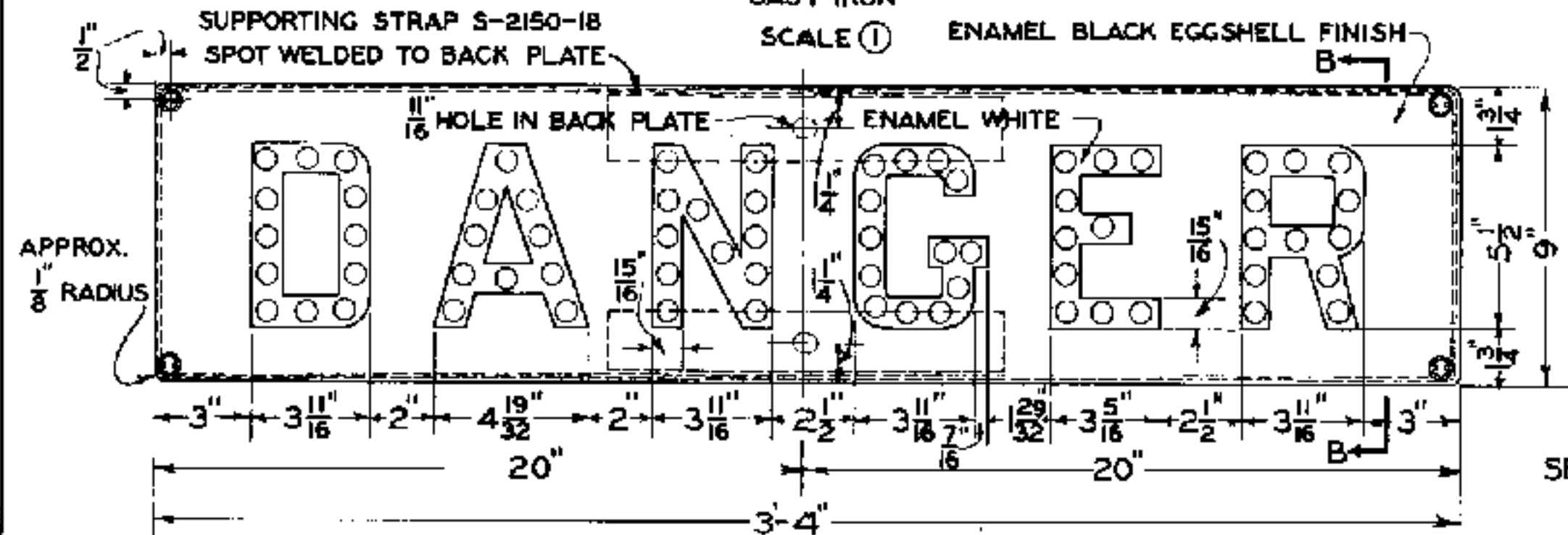


S-2150-12 DANGER SIGN ONLY

CAST IRON

ENAMEL BLACK EGGHELL FINISH

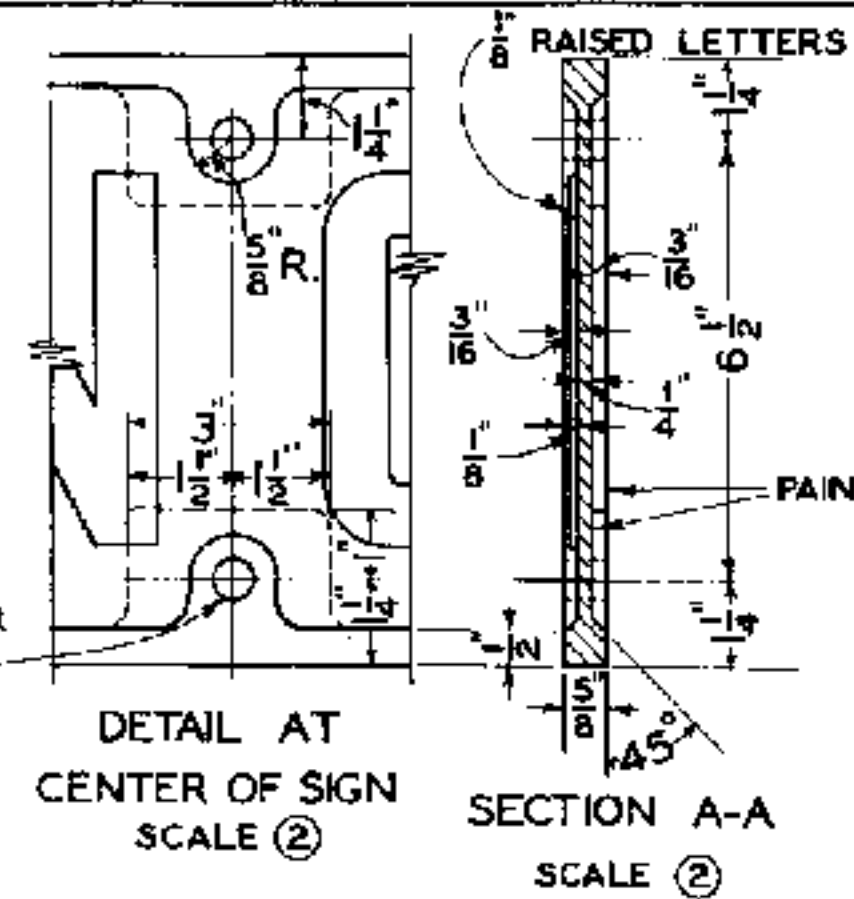
SCALE ①



S-2150-13 DANGER SIGN ONLY

SCALE ①

NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN



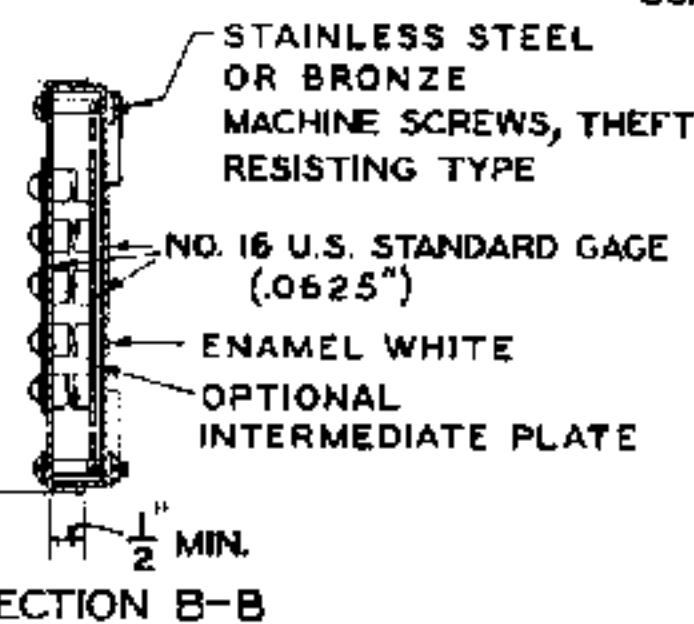
S-2150-16 DANGER SIGN COMPLETE AS SHOWN

SCALE ③



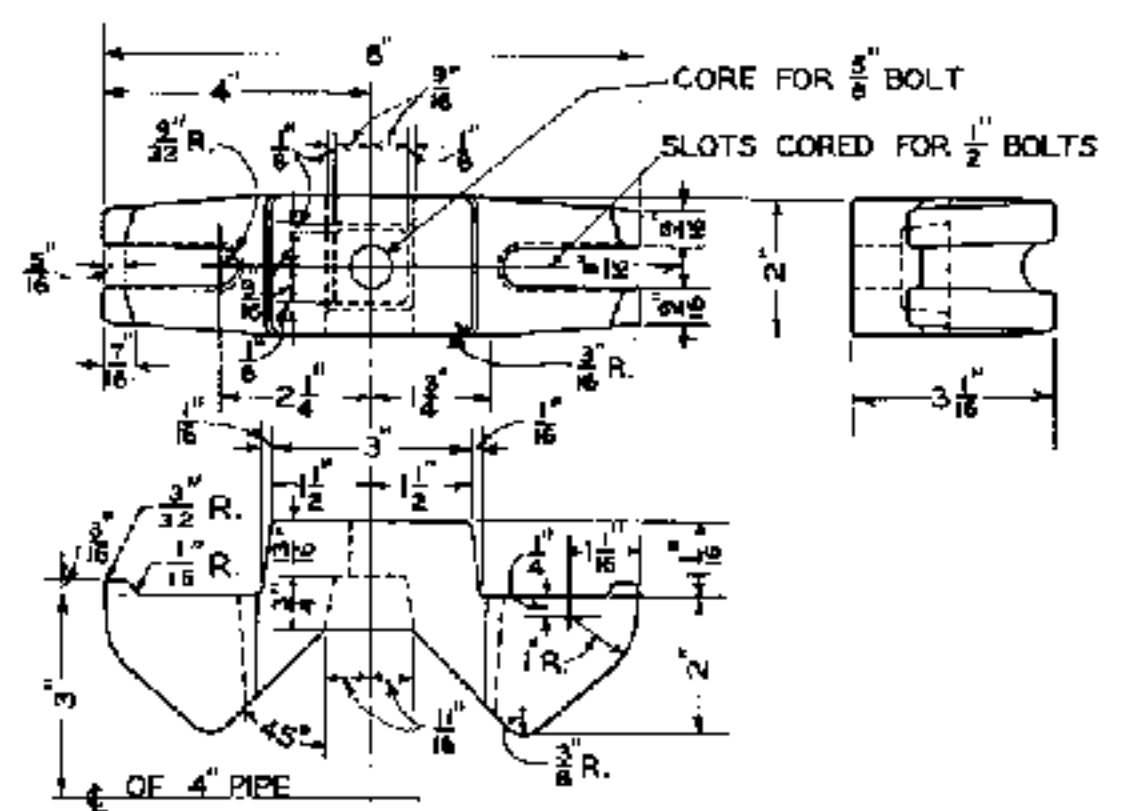
S-2150-17 DANGER SIGN COMPLETE AS SHOWN

SCALE ③



S-2150-14 U BOLT

FOR 4" PIPE
O.H. STEEL
SCALE ②



S-2150-15 ADAPTER CLAMP

CAST IRON
SCALE ②

NOTES

1. SIGNS AND ADAPTER CLAMP SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS. REFLECTOR UNITS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1551, COLORLESS REFLECTOR UNITS.
2. PAINTING OF ADAPTER CLAMP SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES

① 0 1 2 3 4 5 6 7 8 9 10 11 12

② 0 1 2 3 4 5 6 7 8

③ 0 3 6 9 12 15 18 21 24

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

H. C. Cowmaster
ENGINEERING VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

H. T. Barber
VICE PRESIDENT

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

V. D. Boale
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

H. C. Cowmaster
VICE PRESIDENT

C.H.W. K.L.M. W.S.E. W.N.H.

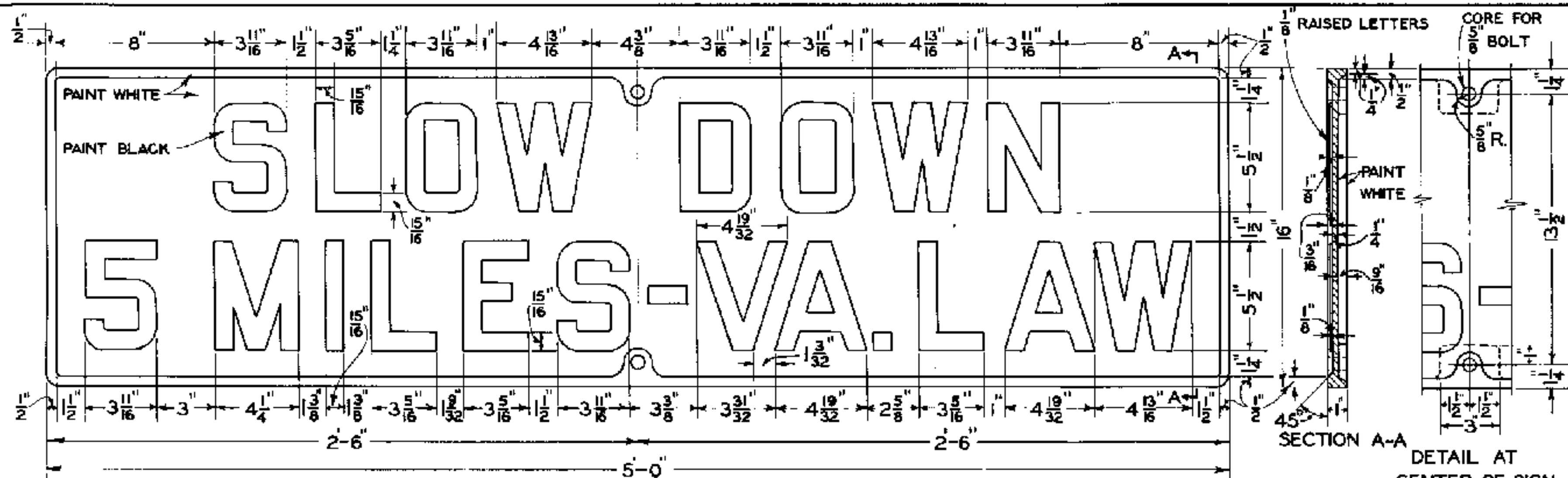
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD
HIGHWAY CROSSING
SIGNAL SIGNS

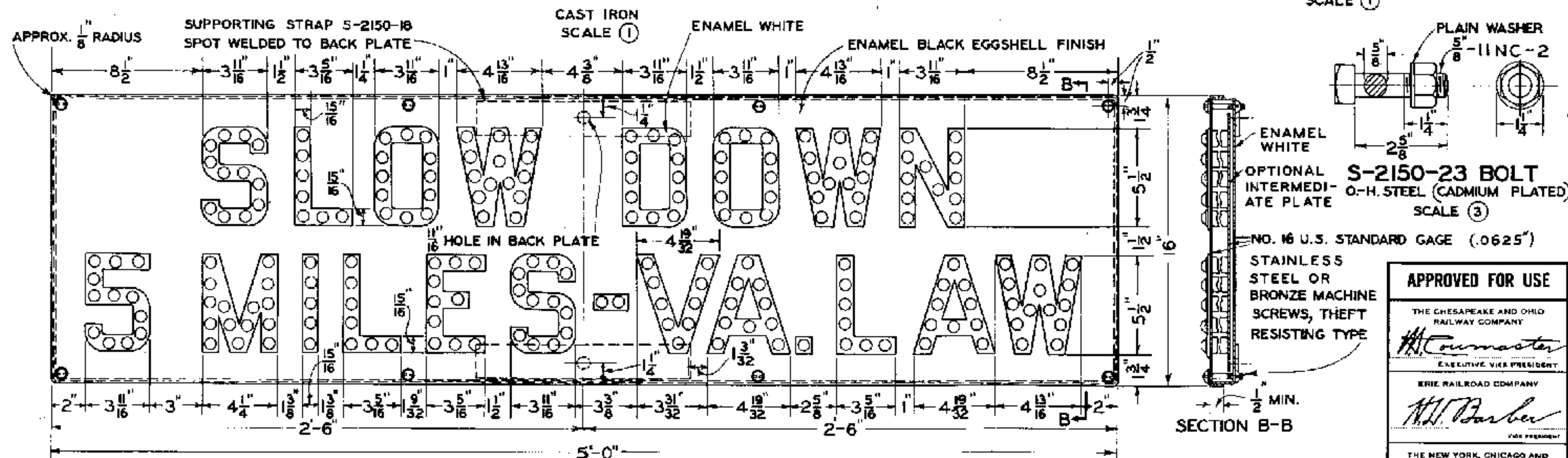
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
H. C. Cowmaster
CHAIRMAN

OCT. 18, 1943.

SHEET 3 OF 10
S-2150-B



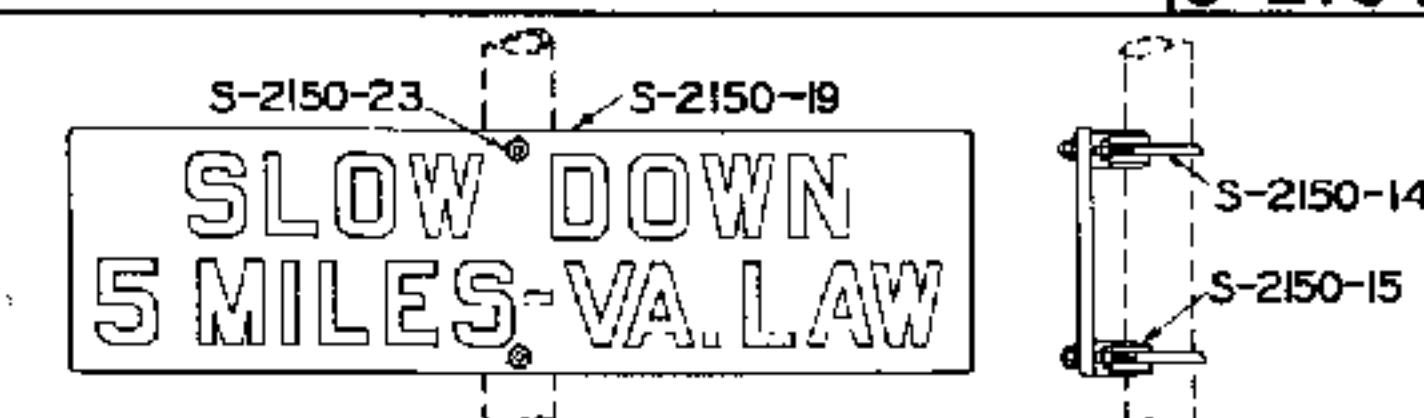
S-2150-19 SLOW DOWN 5 MILES-VA. LAW SIGN ONLY



S-2150-20 SLOW DOWN 5 MILES-VA. LAW SIGN ONLY

SCALE ①

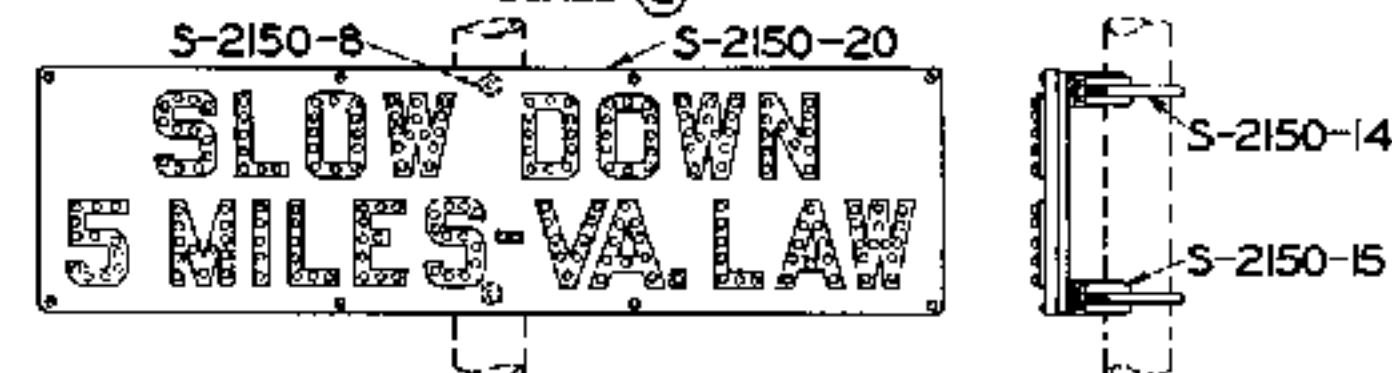
NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN



S-2150-21 SLOW DOWN 5 MILES-VA. LAW SIGN

COMPLETE AS SHOWN

SCALE ②



S-2150-22 SLOW DOWN 5 MILES-VA. LAW SIGN

COMPLETE AS SHOWN

SCALE ②

NOTES

1. SIGNS AND REFLECTOR UNITS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS, AND STANDARD SPECIFICATIONS S-1551, COLORLESS REFLECTOR UNITS, RESPECTIVELY.
2. BOLTS SHALL HAVE A REGULAR SQUARE HEADS AND HEAVY HEXAGON NUTS.

SCALE IN INCHES



APPROVED FOR USE

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H. J. Courmaster
EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY

H. L. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

F. D. Beale
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

H. J. Courmaster
PRESIDENTC. H. W.
K. L. M. W. S. E. W. N. H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD HIGHWAY CROSSING SIGNAL SIGNS

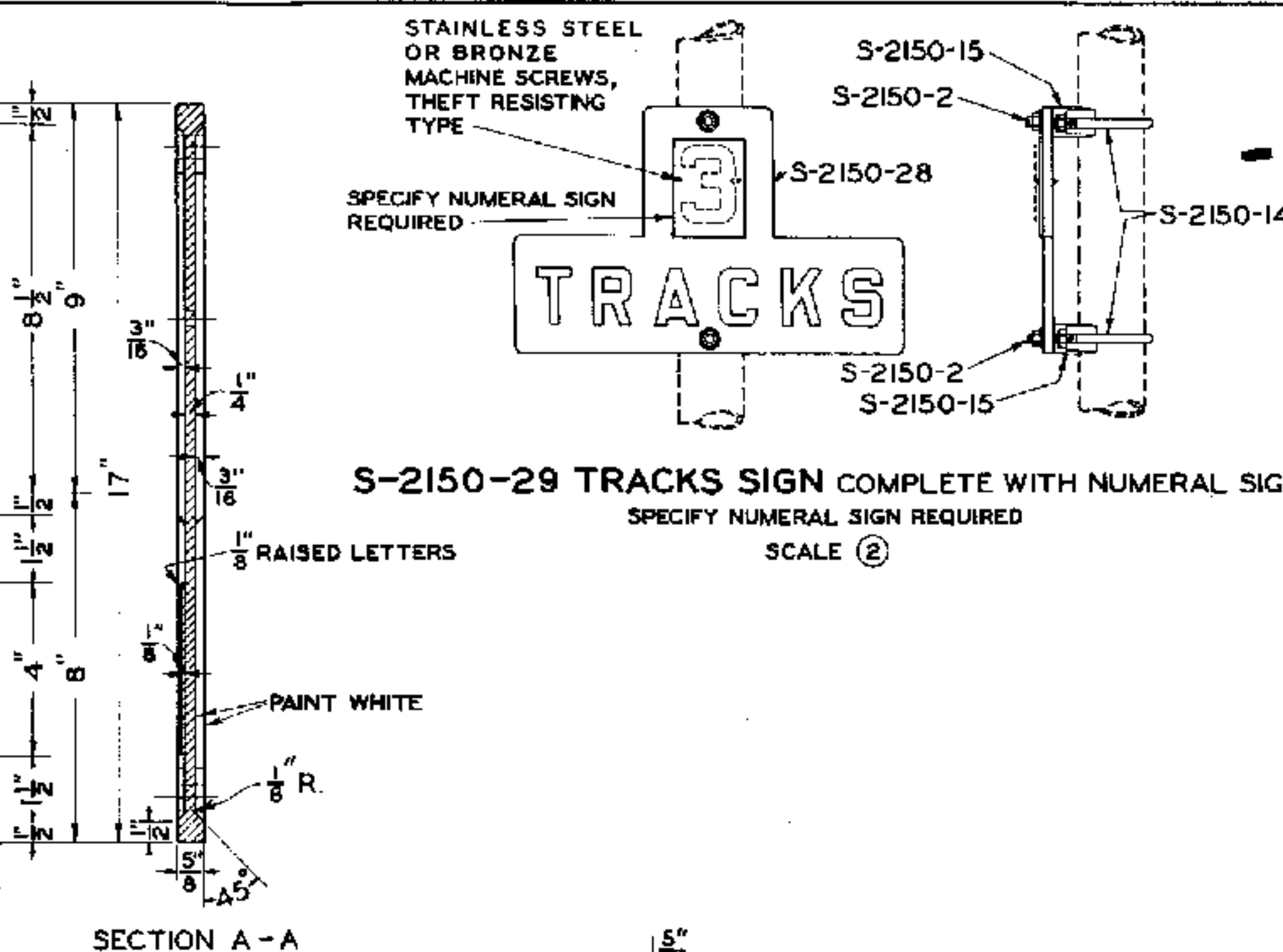
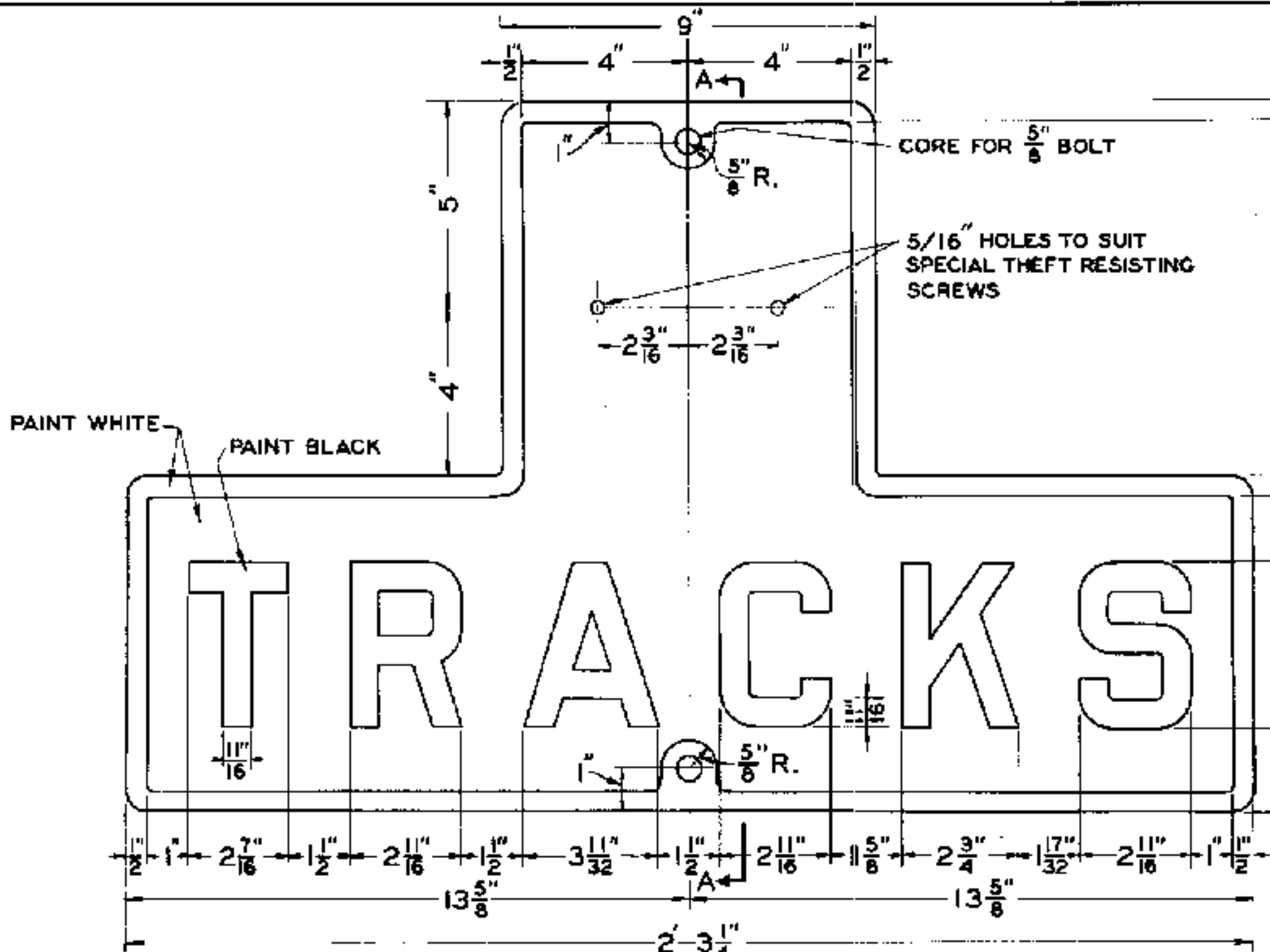
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

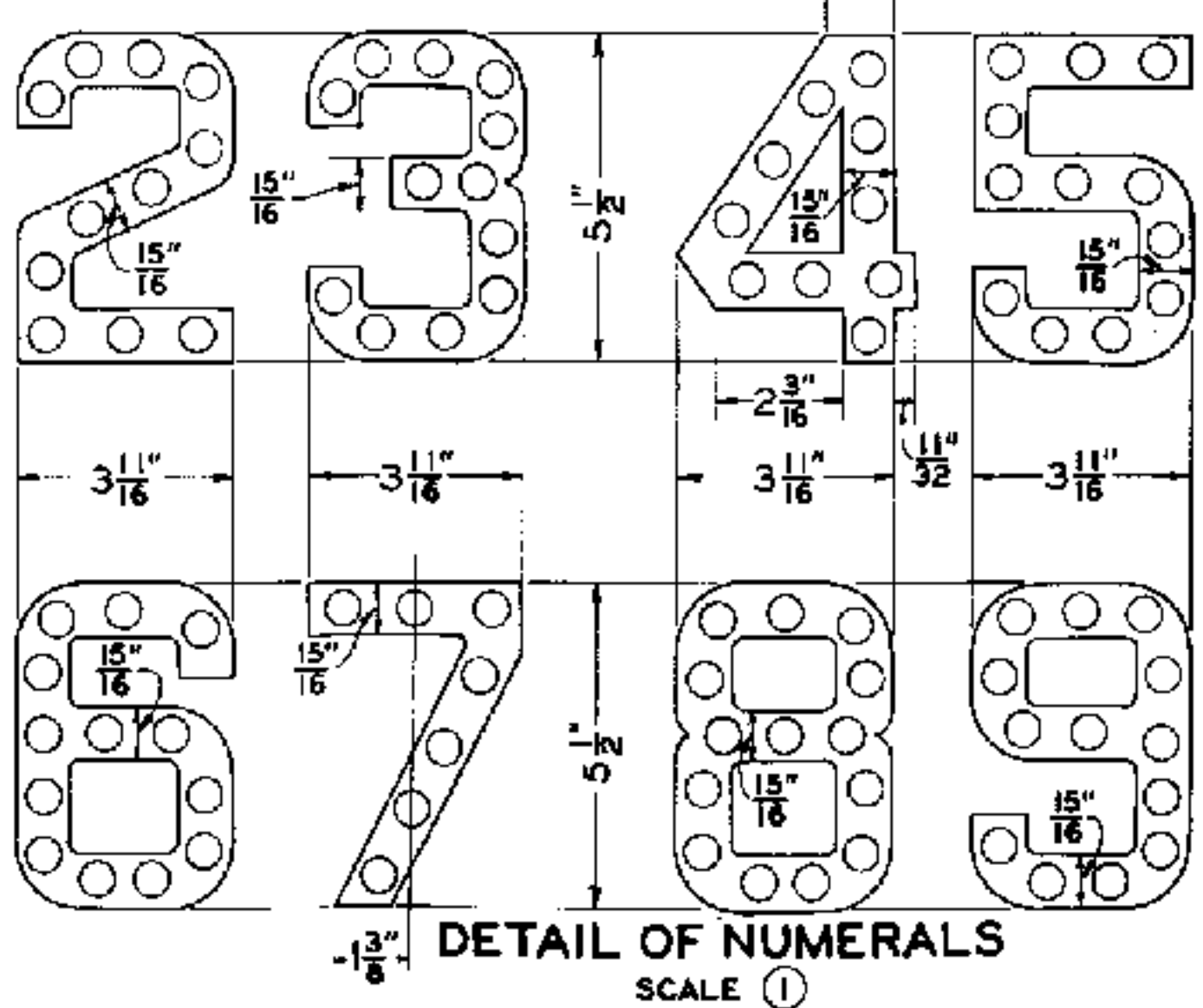
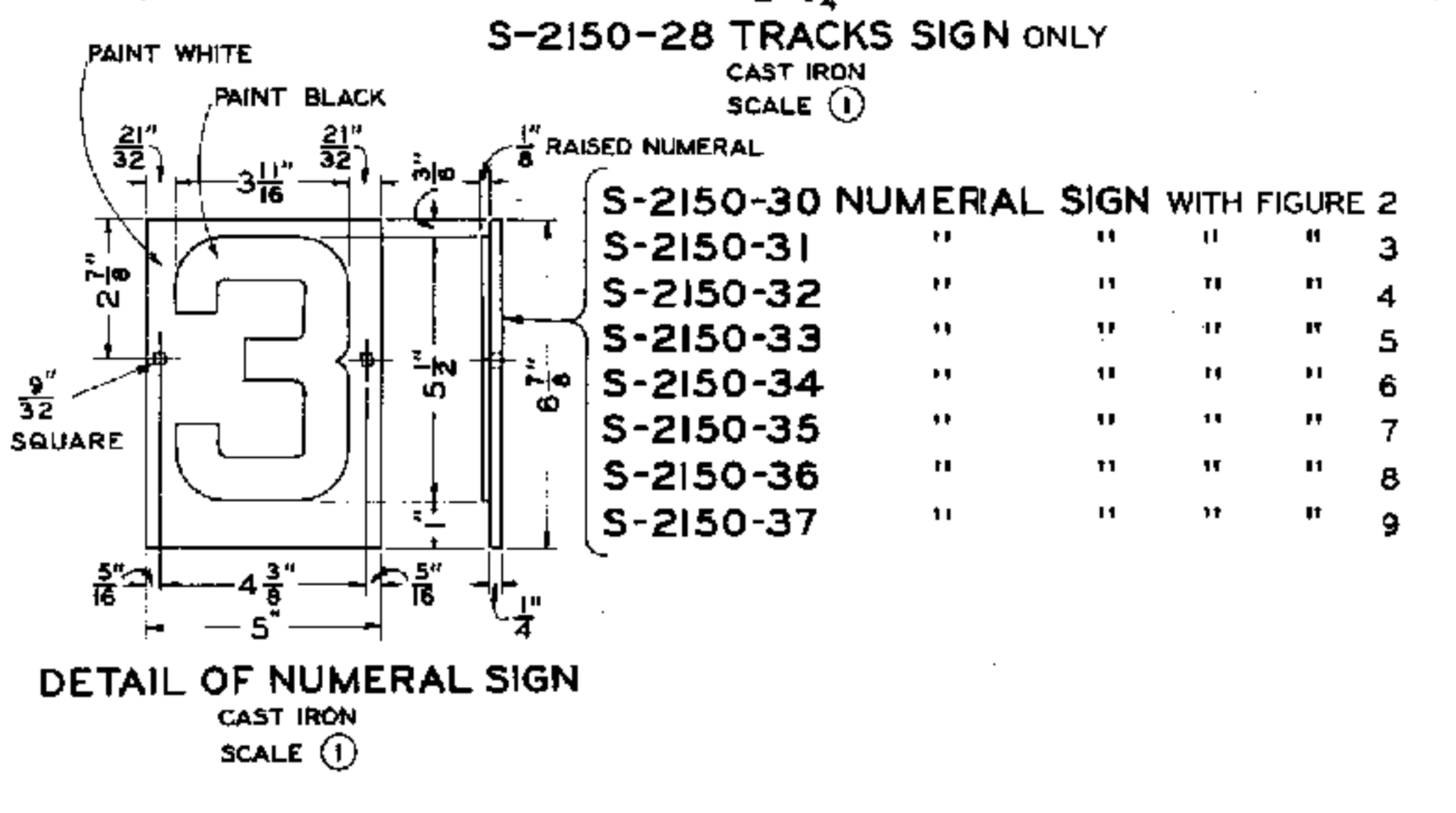
OCT. 18, 1943.

SHEET 4 OF 10

S-2150-B



- NOTES**
1. OUTLINES OF NUMERALS FOR REFLECTOR TRACKS SIGN AND CAST IRON TRACKS SIGN ARE IDENTICAL.
 2. NUMBER AND SPACING OF REFLECTOR UNITS WHEN USED IN NUMERAL SIGNS SHALL BE AS SHOWN.
 3. TRACKS SIGN SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
H. J. ...
EXECUTIVE VICE PRESIDENT

ERIE RAILROAD COMPANY
H. J. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
V. D. ...
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
H. J. ...
PRESIDENT

C.H.W. W.S.E. W.N.H.
K.L.M.

SCALE IN INCHES

① 0 1 2 3 4 5 6 7 8
② 0 3 6 9 12 15 18 21 24

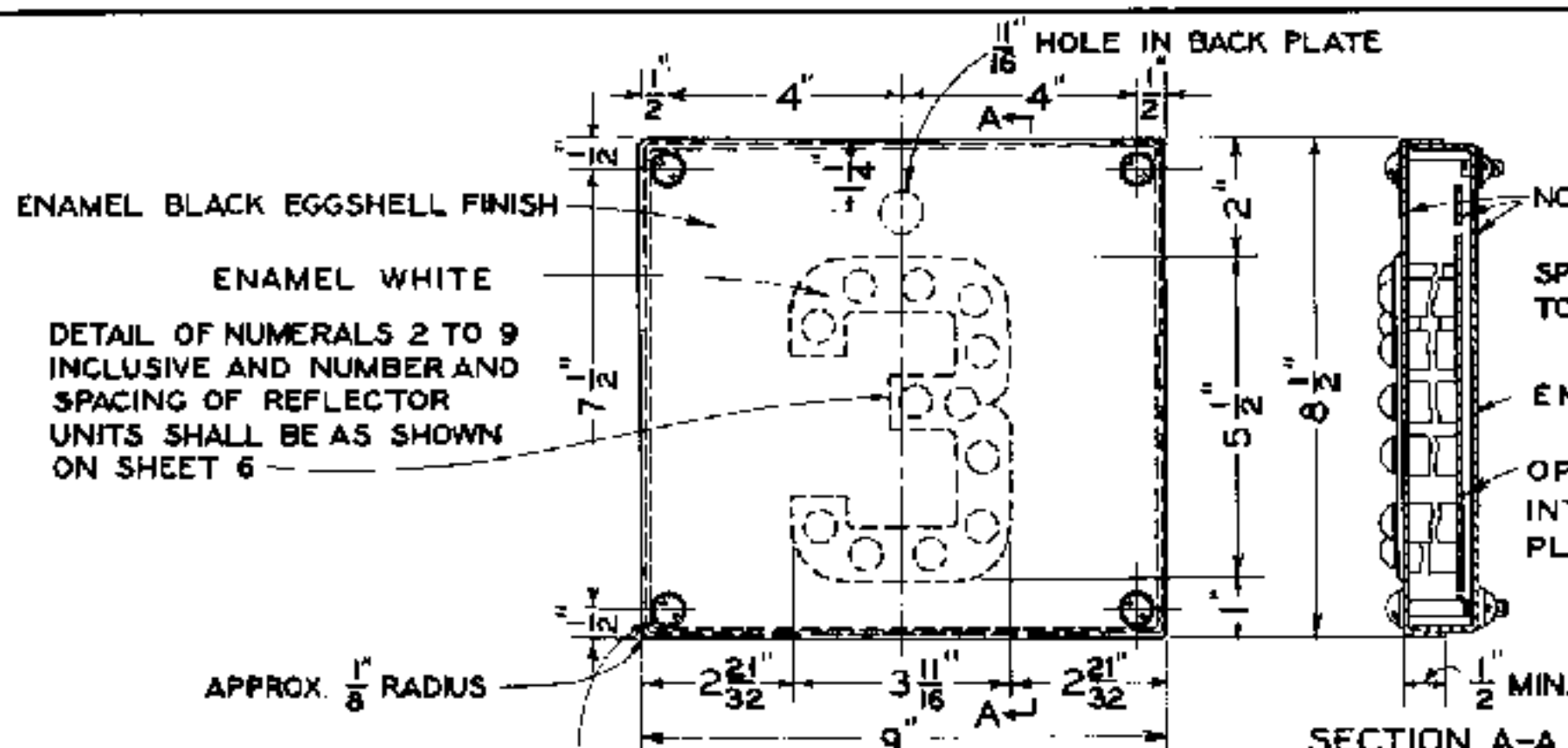
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD RAILROAD
HIGHWAY CROSSING
SIGNAL SIGNS**

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
J. Wallace
CHAIRMAN

OCT. 18, 1943.

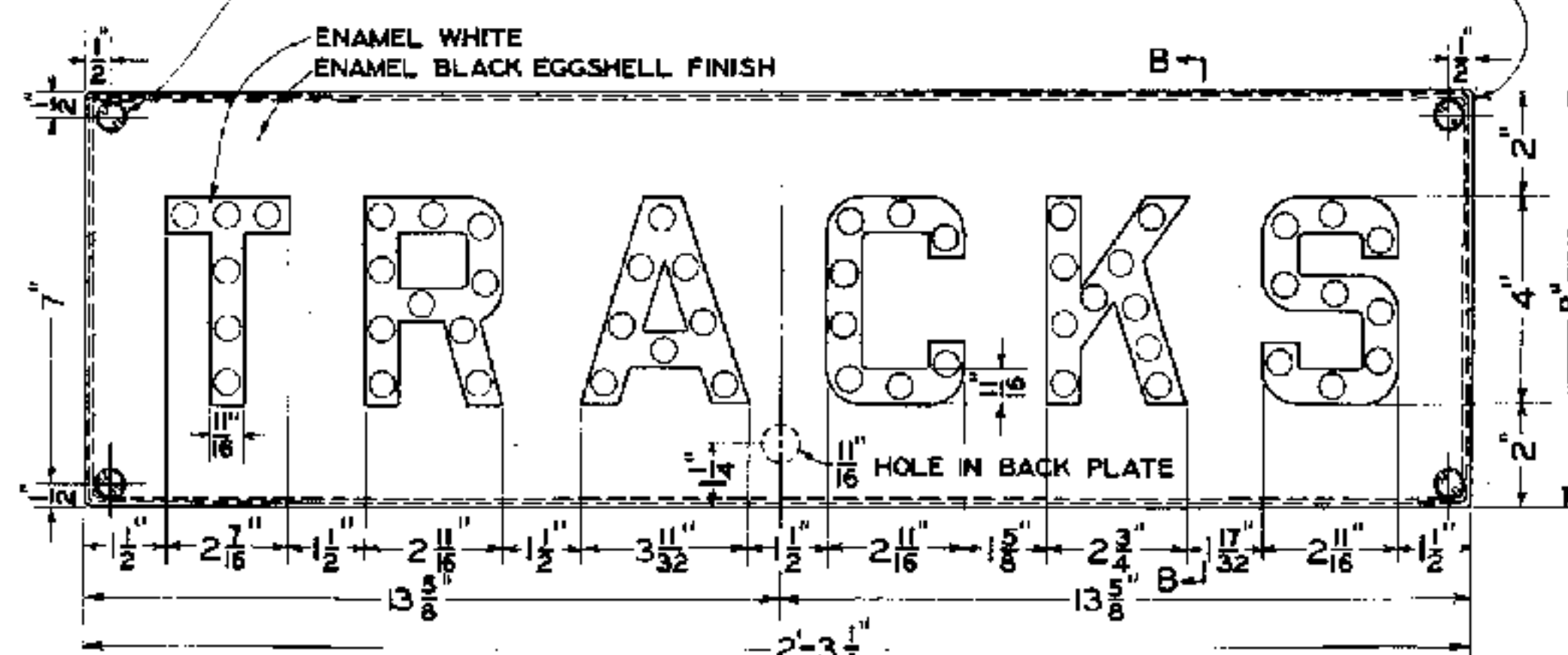
SHEET 6 OF 10
S-2150-B



S-2150-38 NUMERAL SIGN WITH FIGURE 2

S-2150-39	"	"	"	"	3
S-2150-40	"	"	"	"	4
S-2150-41	"	"	"	"	5
S-2150-42	"	"	"	"	6
S-2150-43	"	"	"	"	7
S-2150-44	"	"	"	"	8
S-2150-45	"	"	"	"	9

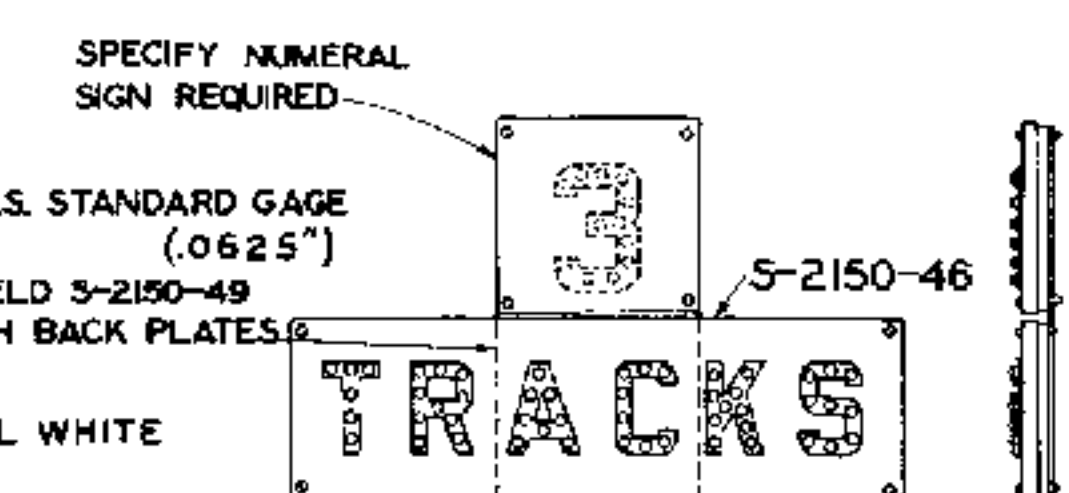
SCALE ①



S-2150-46 TRACKS SIGN ONLY

SCALE ①

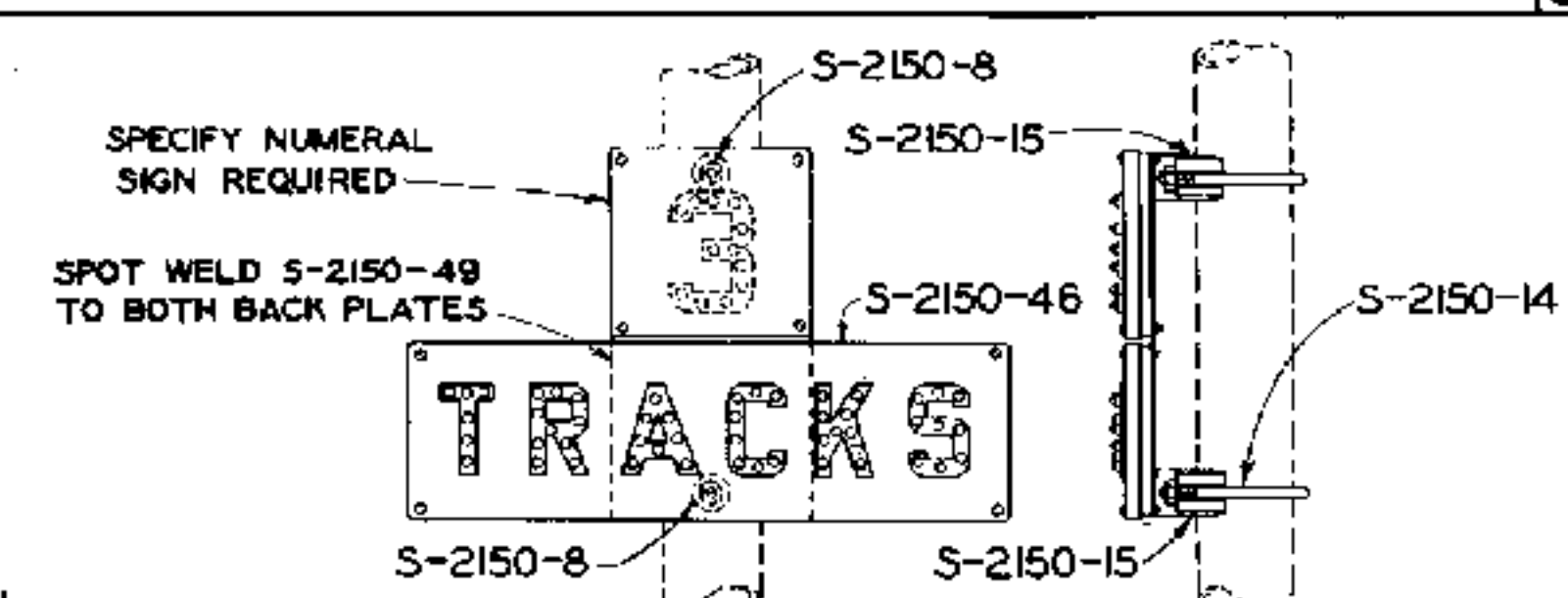
NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN



S-2150-47 TRACKS SIGN WITH NUMERAL SIGN

SPECIFY NUMERAL SIGN REQUIRED

SCALE ②



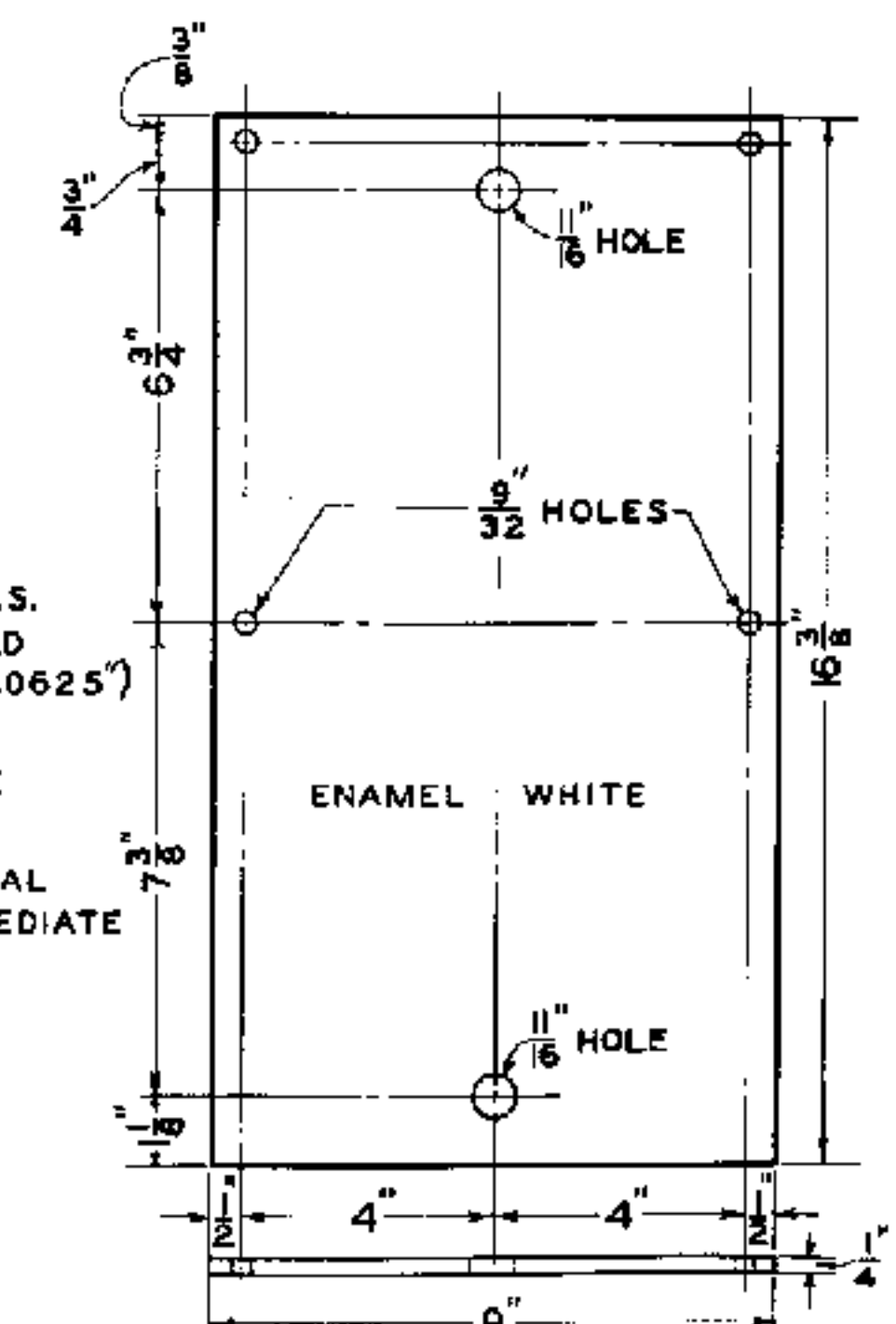
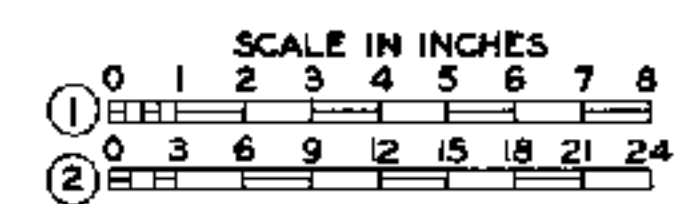
S-2150-48 TRACKS SIGN COMPLETE WITH NUMERAL SIGN

SPECIFY NUMERAL SIGN REQUIRED

SCALE ②

NOTE

SIGNS AND REFLECTOR UNITS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS AND OTHER RAILROAD SIGNS, AND STANDARD SPECIFICATIONS S-1551, COLORLESS REFLECTOR UNITS, RESPECTIVELY.



S-2150-49 SUPPORTING PLATE

O.H. STEEL
SCALE ①

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. T. Barber</i>		
EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. T. Barber</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>V. D. Beale</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>H. T. Barber</i>		
PRESIDENT		
C.H.W.	W.S.E.	W.N.H.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD HIGHWAY CROSSING SIGNAL SIGNS

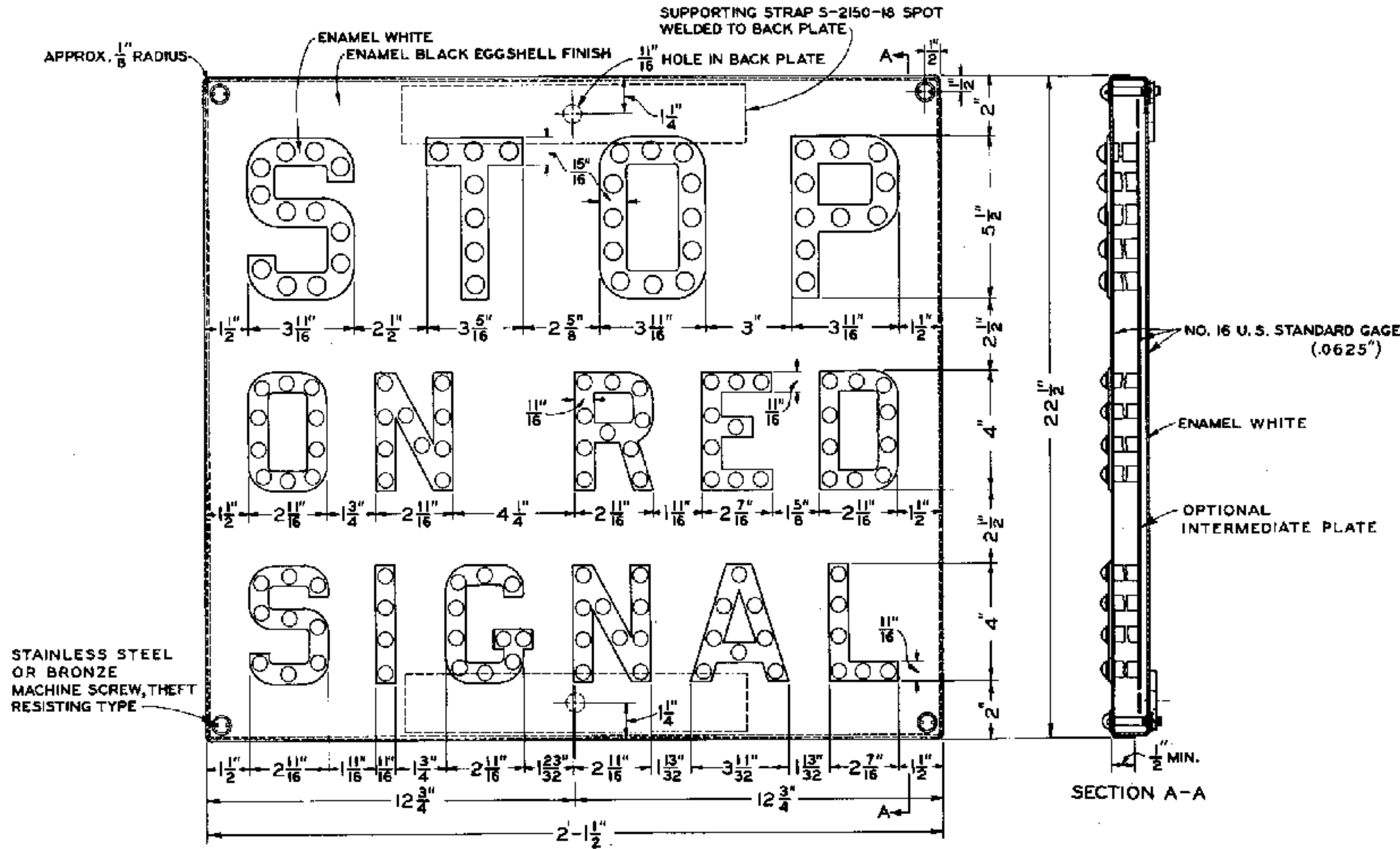
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

H. T. Barber
CHAIRMAN

OCT. 18, 1943.

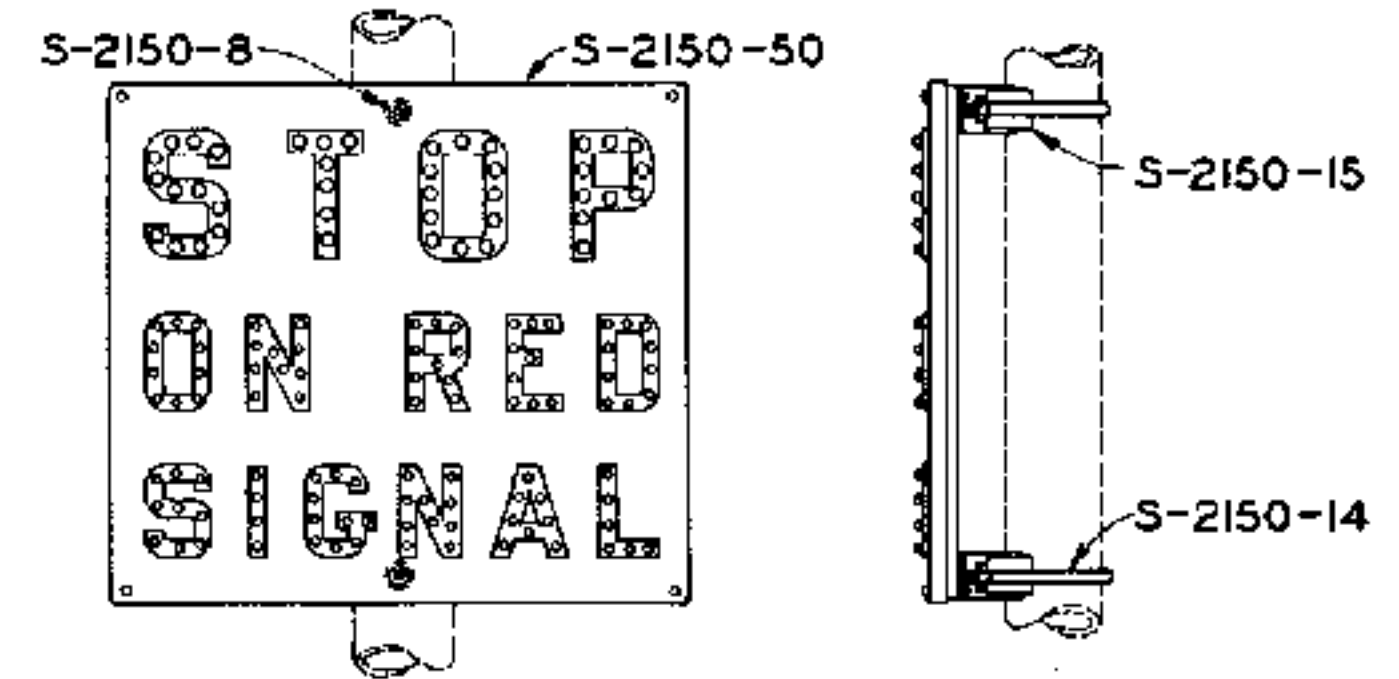
SHEET 7 OF 10

S-2150-B



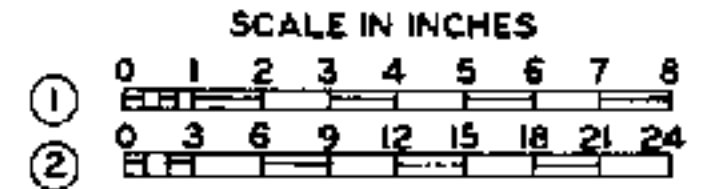
S-2150-50 STOP ON RED SIGNAL SIGN ONLY
SCALE (1)

NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN



S-2150-51 STOP ON RED SIGNAL SIGN COMPLETE AS SHOWN
SCALE (2)

NOTE
SIGN AND REFLECTOR UNITS SHALL BE IN ACCORD-
ANCE WITH LATEST REVISION OF STANDARD SPECI-
FICATIONS S-1552, RAILROAD HIGHWAY CROSSING
SIGNAL SIGNS AND OTHER RAILROAD SIGNS,
AND STANDARD SPECIFICATIONS S-1551,
COLORLESS REFLECTOR UNITS, RESPECTIVELY.



APPROVED FOR USE	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
<i>H. Coumster</i>	EXECUTIVE VICE PRESIDENT
ERIE RAILROAD COMPANY	
<i>H. H. Barber</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
<i>V. D. Beale</i>	VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	
<i>H. H. H. H.</i>	PRESIDENT
C.H.W.	W.S.E. W.N.H.
C.B.P.	

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD HIGHWAY CROSSING SIGNAL SIGNS

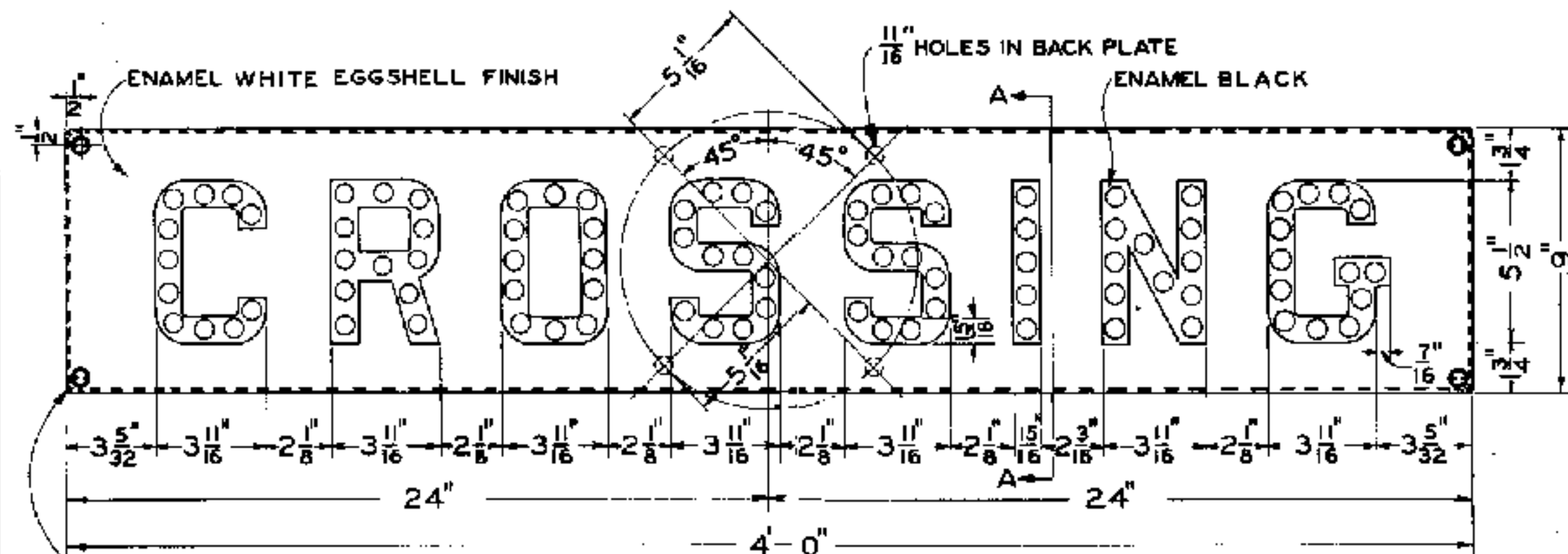
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

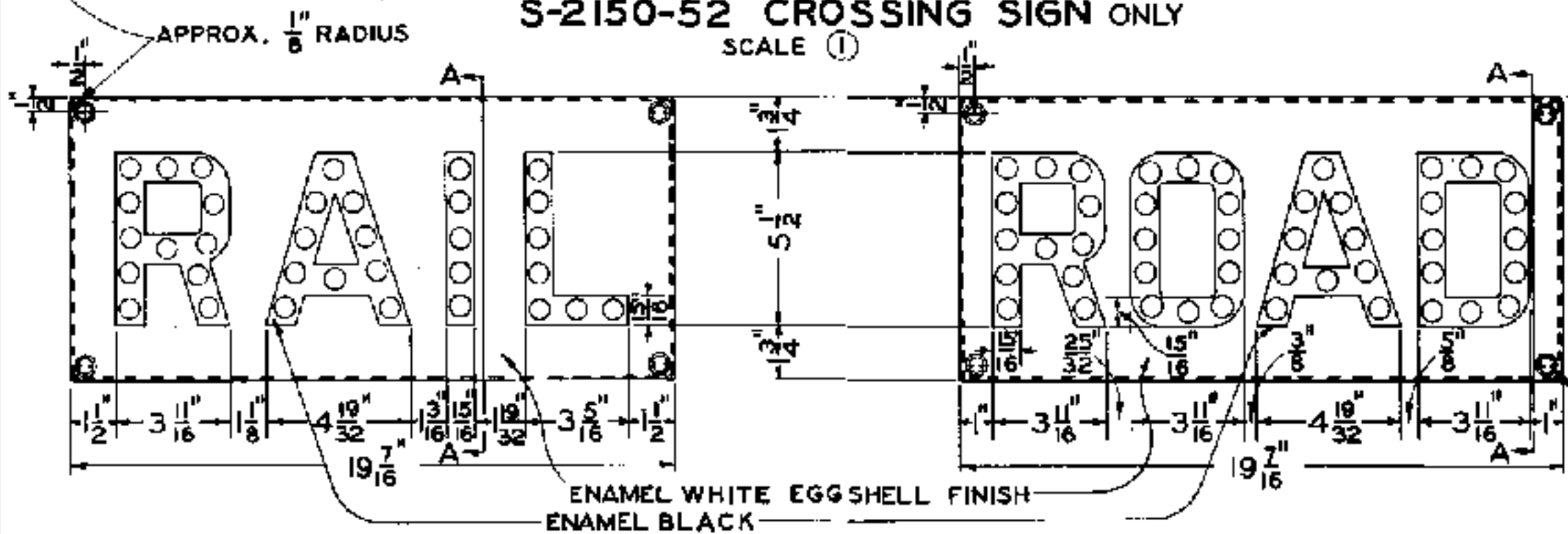
OCT. 18, 1943.

SHEET 8 OF 10

S-2150-B

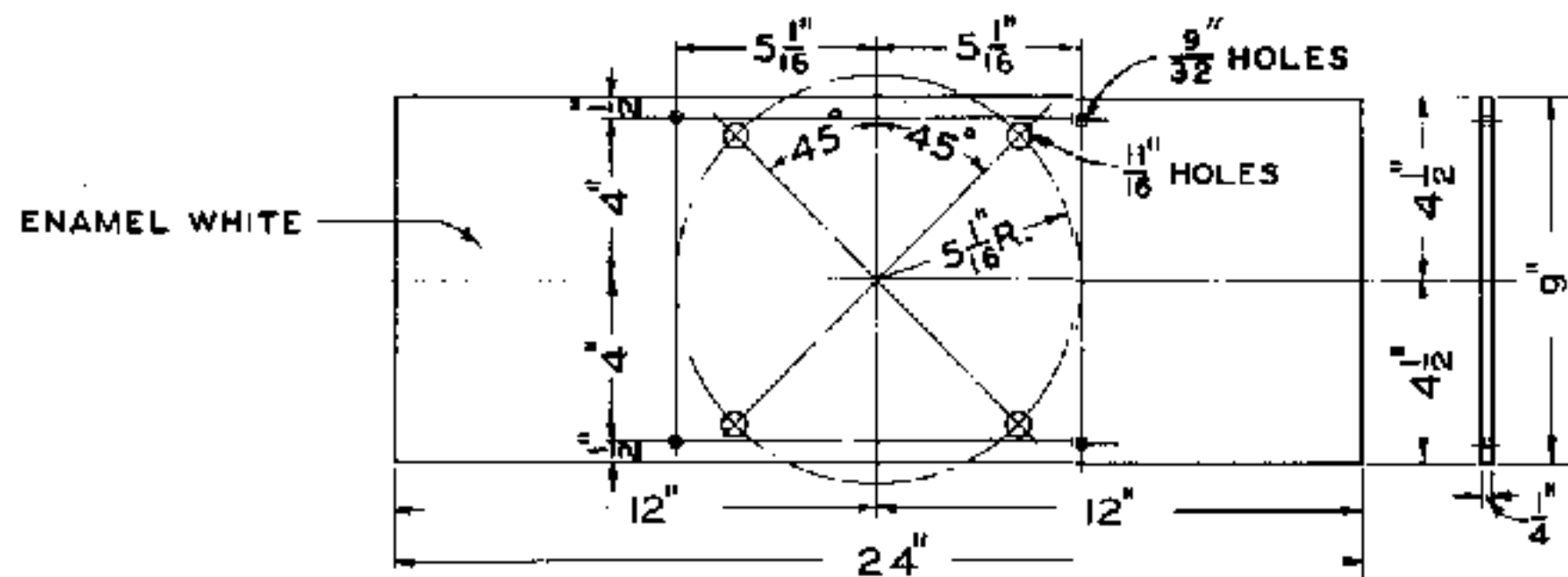


S-2150-52 CROSSING SIGN ONLY
SCALE ①

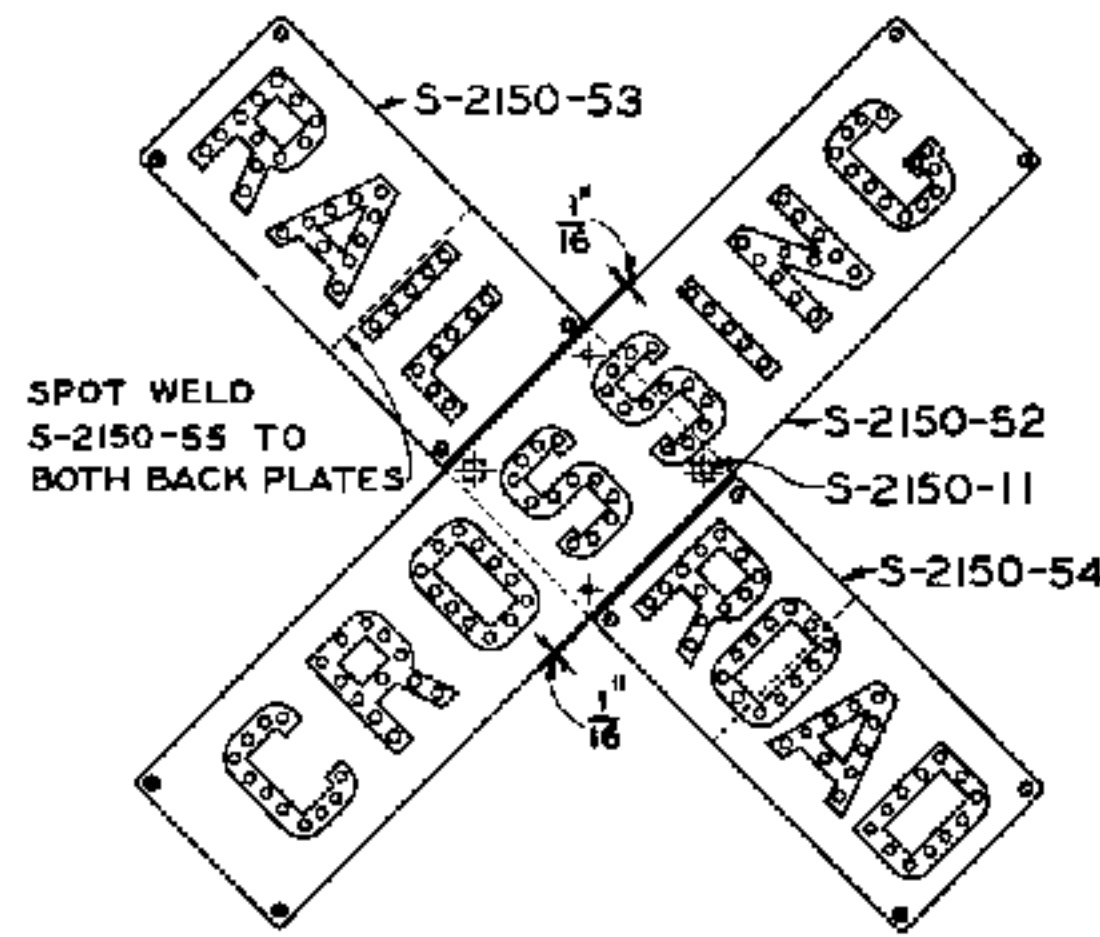


S-2150-53 RAIL SIGN ONLY
SCALE ①

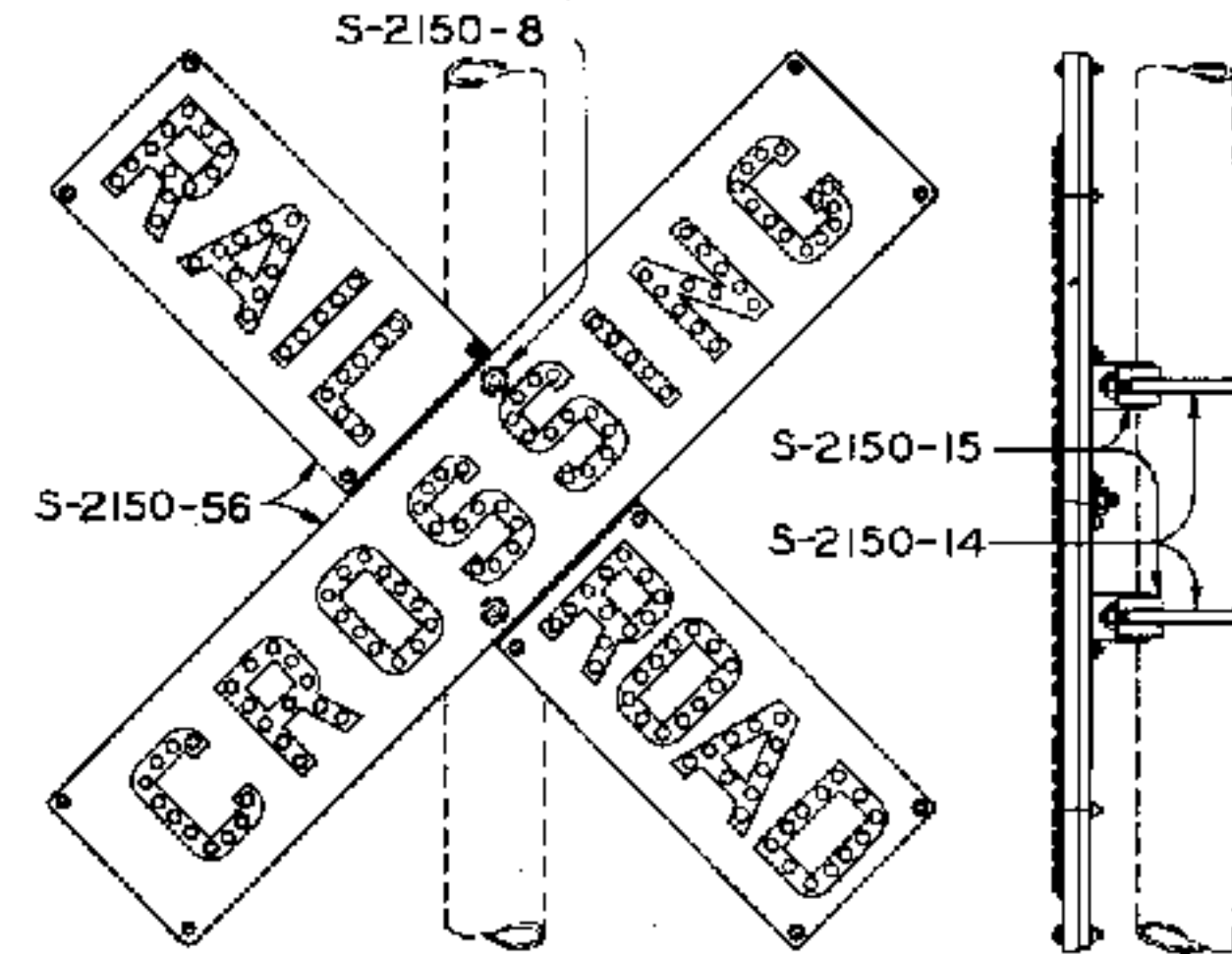
S-2150-54 ROAD SIGN ONLY
SCALE ①



S-2150-55 SUPPORTING PLATE
O.H. STEEL
SCALE ①



S-2150-56 RAILROAD CROSSING SIGN ONLY
SCALE ②



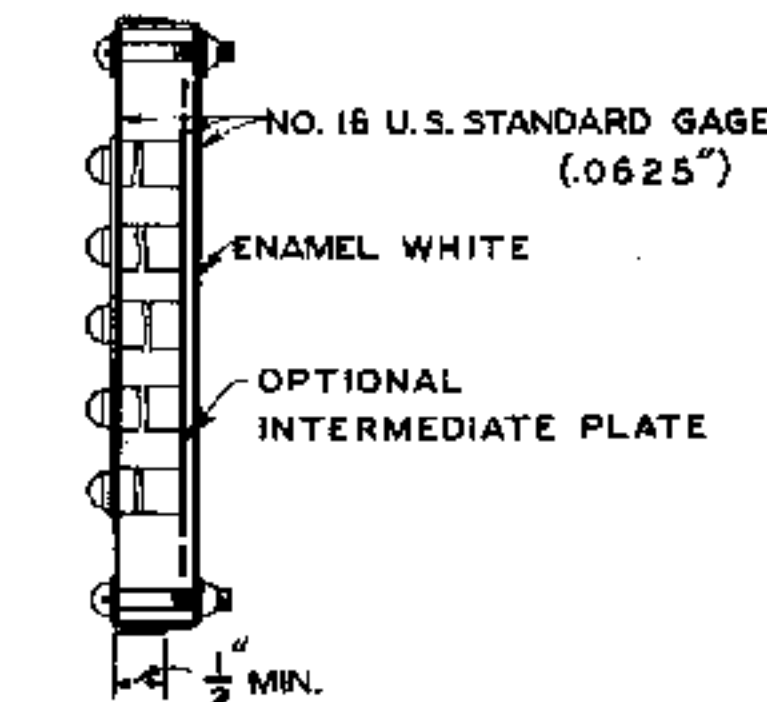
S-2150-57 RAILROAD CROSSING SIGN
COMPLETE AS SHOWN
SCALE ②

NOTES

1. SIGNS AND REFLECTOR UNITS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 5-1552, RAILROAD HIGHWAY CROSSING SIGNAL SIGNS, AND OTHER RAILROAD SIGNS, AND STANDARD SPECIFICATIONS 5-1551, COLORLESS REFLECTOR UNITS, RESPECTIVELY.
2. NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN.



STAINLESS STEEL
OR BRONZE
MACHINE SCREWS,
THEFT RESISTING TYPE



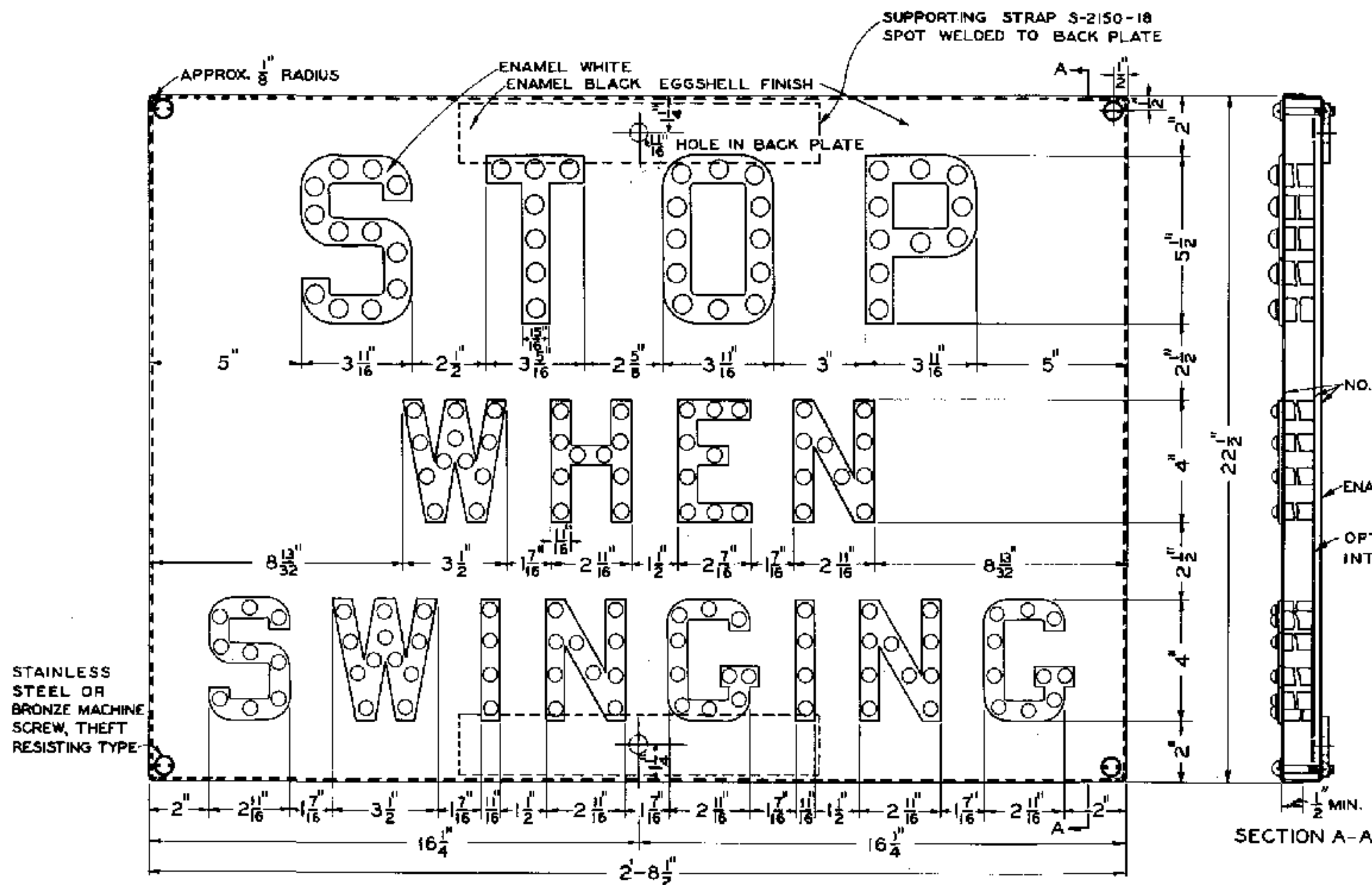
SECTION A-A
SCALE ③

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>W. H. Barber</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>F. D. Deale</i>	VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	<i>W. H. Barber</i>	PRESIDENT
C.H.W.	W.S.E.	W.N.H.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

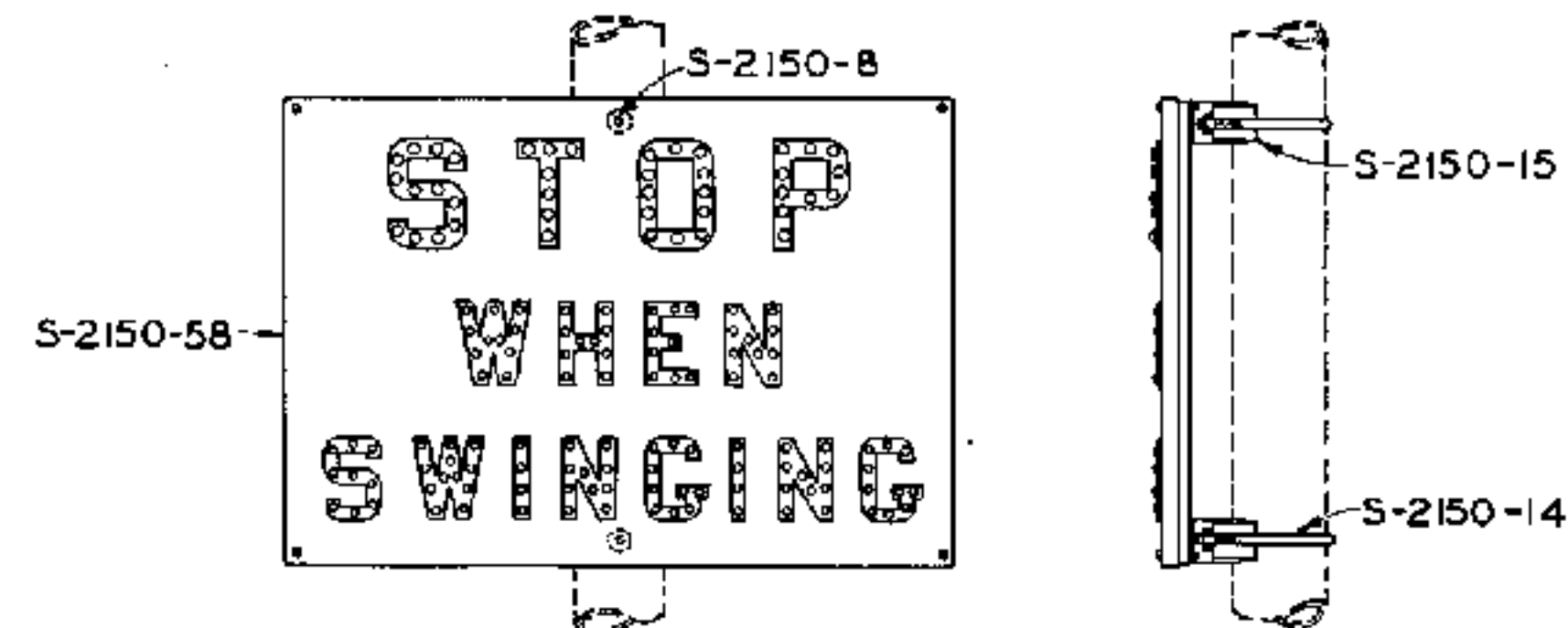
STANDARD HIGHWAY CROSSING SIGNAL SIGNS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
OCT. 18, 1943.
CHAIRMAN



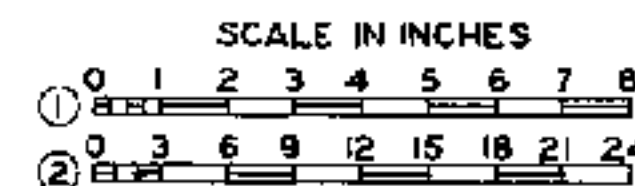
S-2150-58 STOP WHEN SWINGING SIGN ONLY
SCALE ①

NUMBER AND SPACING OF REFLECTOR UNITS SHALL BE AS SHOWN



S-2150-59 STOP WHEN SWINGING SIGN
COMPLETE AS SHOWN
SCALE ②

NOTE
SIGN AND REFLECTOR UNITS SHALL BE IN
ACCORDANCE WITH LATEST REVISION OF
STANDARD SPECIFICATIONS S-1552,
RAILROAD HIGHWAY CROSSING SIGNAL SIGNS
AND OTHER RAILROAD SIGNS, AND STAND-
ARD SPECIFICATIONS S-1551, COLORLESS
REFLECTOR UNITS, RESPECTIVELY.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. C. Cowmaster</i>		
EXECUTIVE VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>H. T. Barber</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>V. D. Beale</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>H. J. Bowman</i>		
PRESIDENT		
C.H.W.	W.S.E.	W.N.H.
C.H.W.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD RAILROAD HIGHWAY CROSSING SIGNAL SIGNS

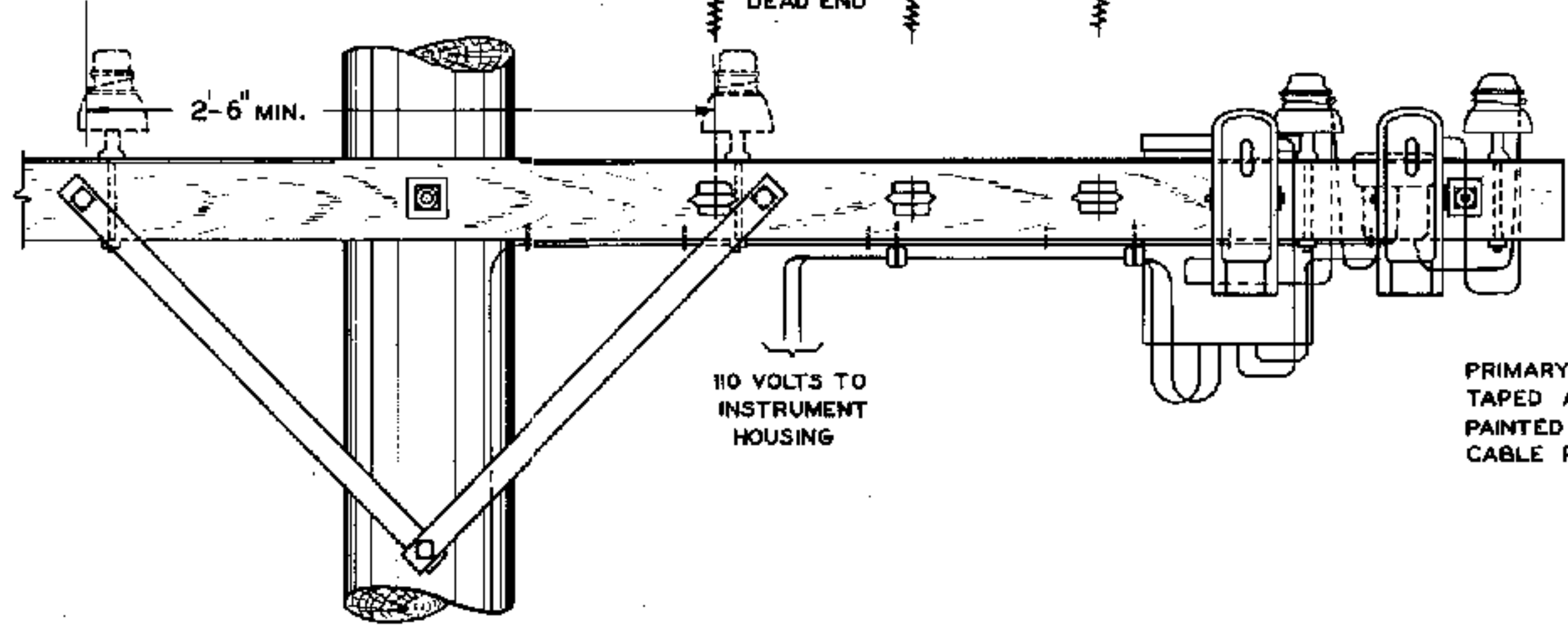
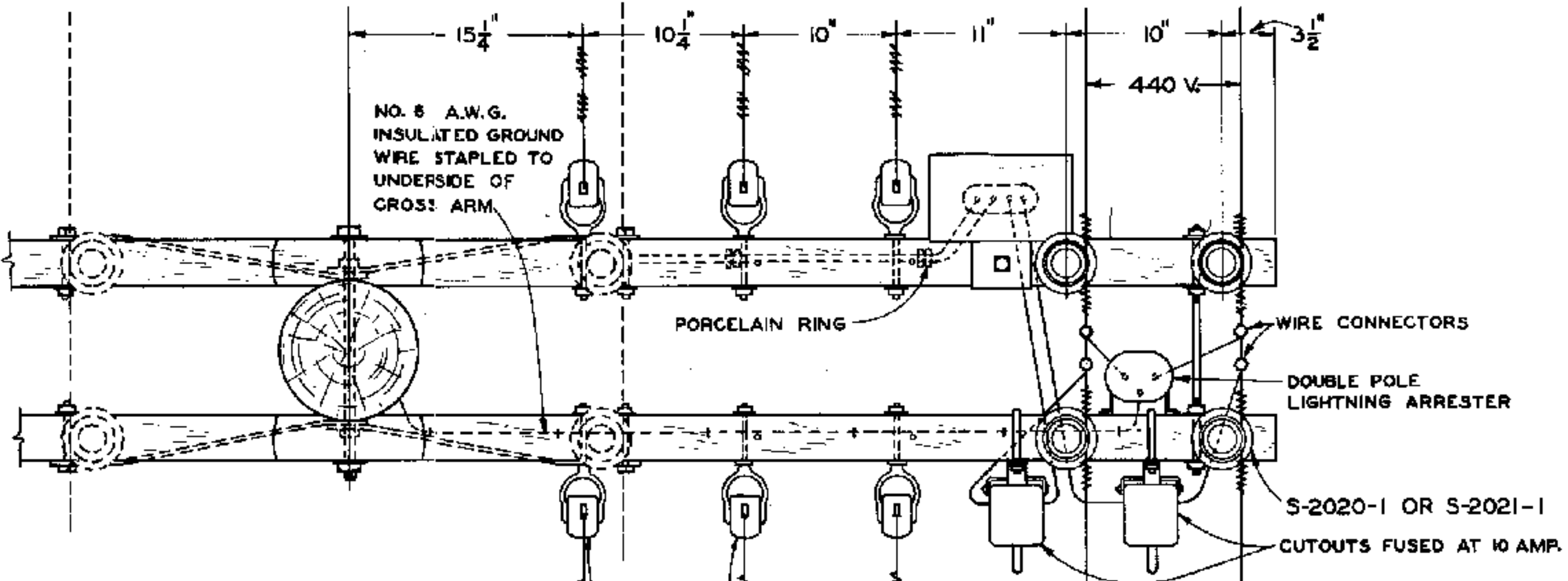
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

J. Wallace
CHAIRMAN

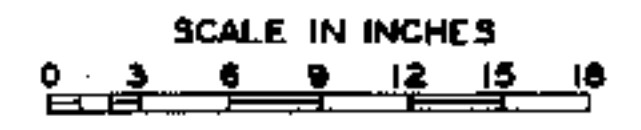
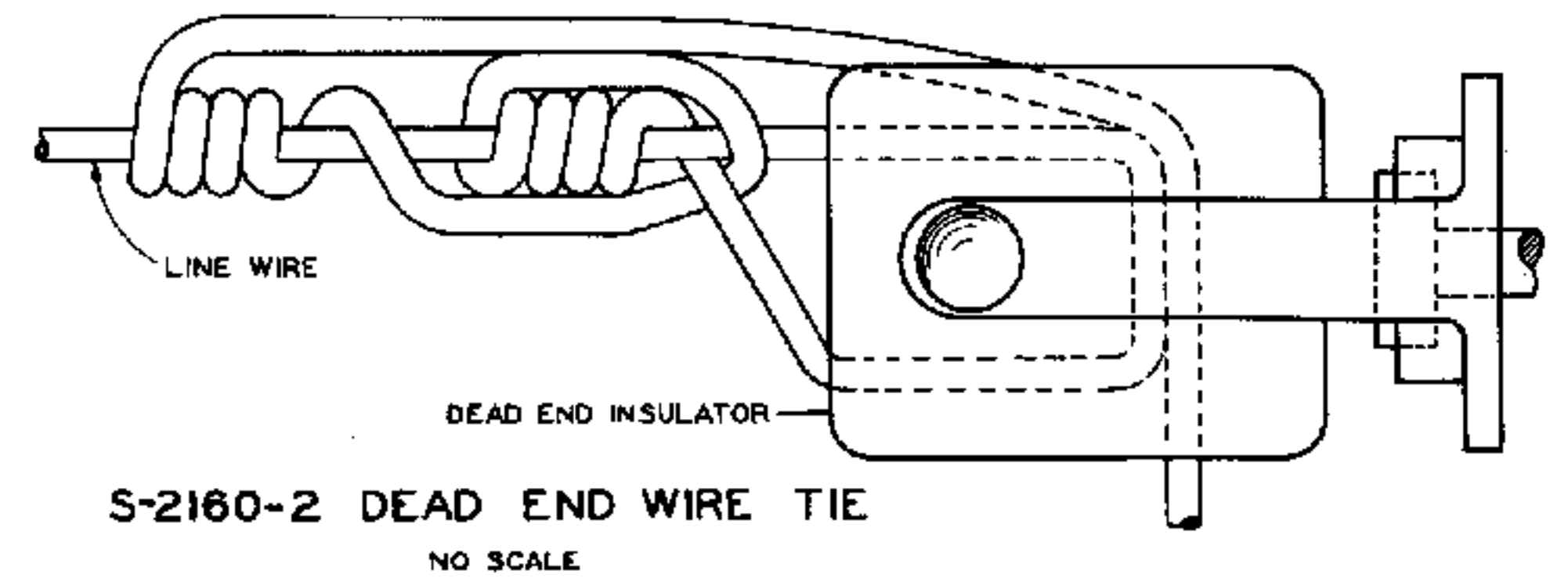
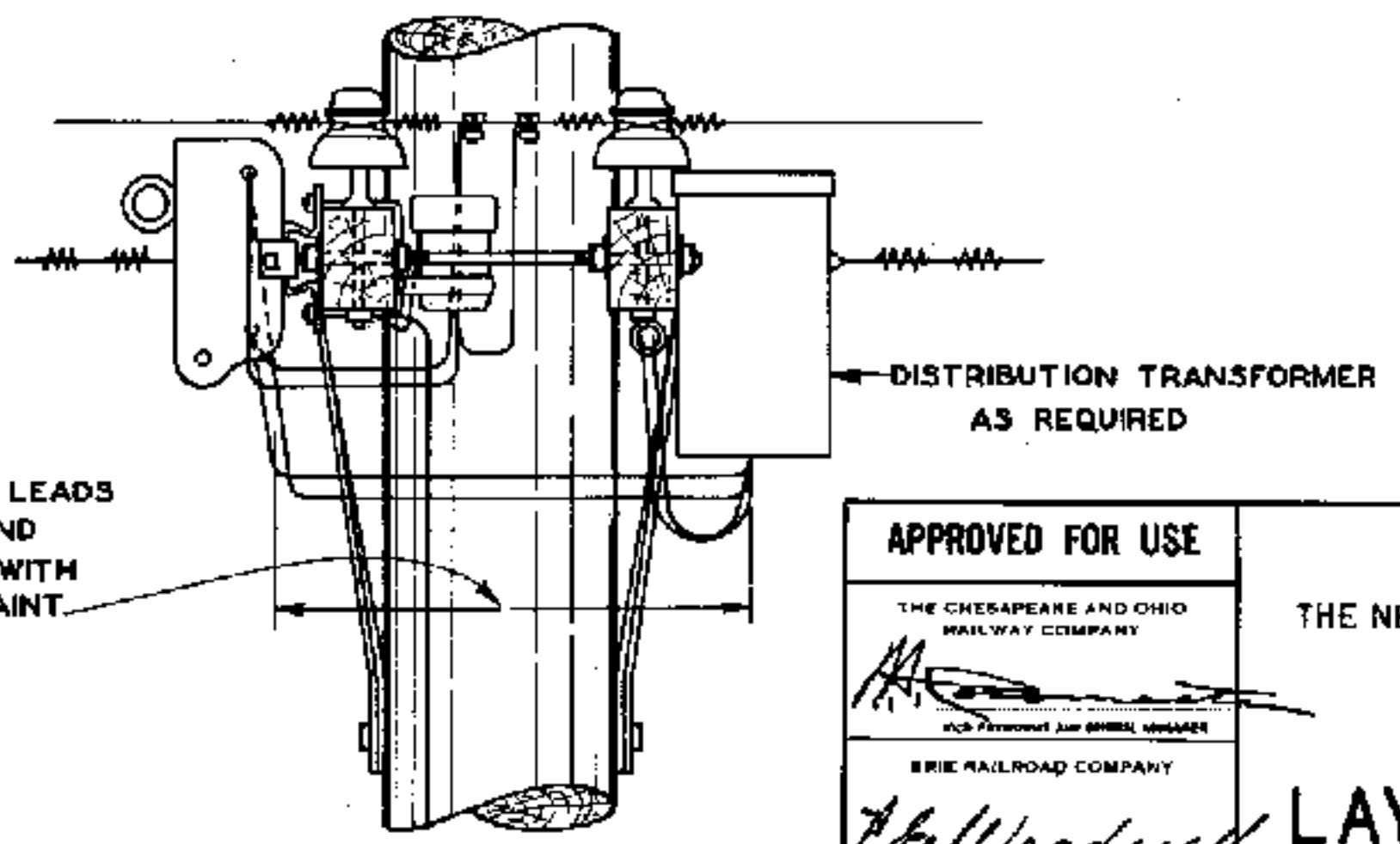
OCT. 18, 1943.

SHEET 10 OF 10

S-2150-B



S-2160-1 TRANSFORMER LAYOUT WITH POWER TAP

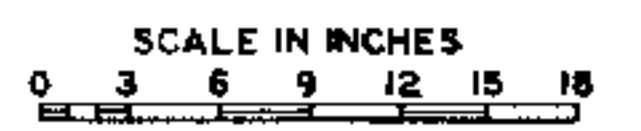
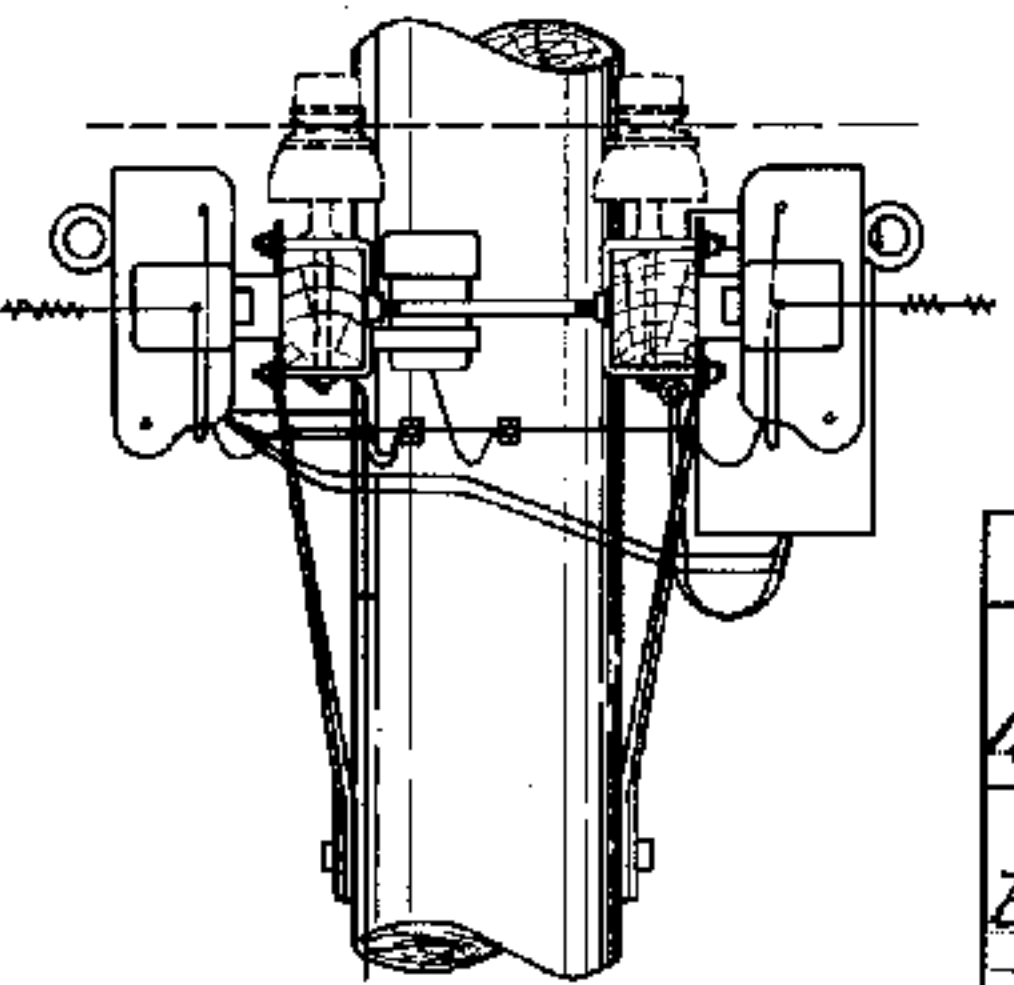
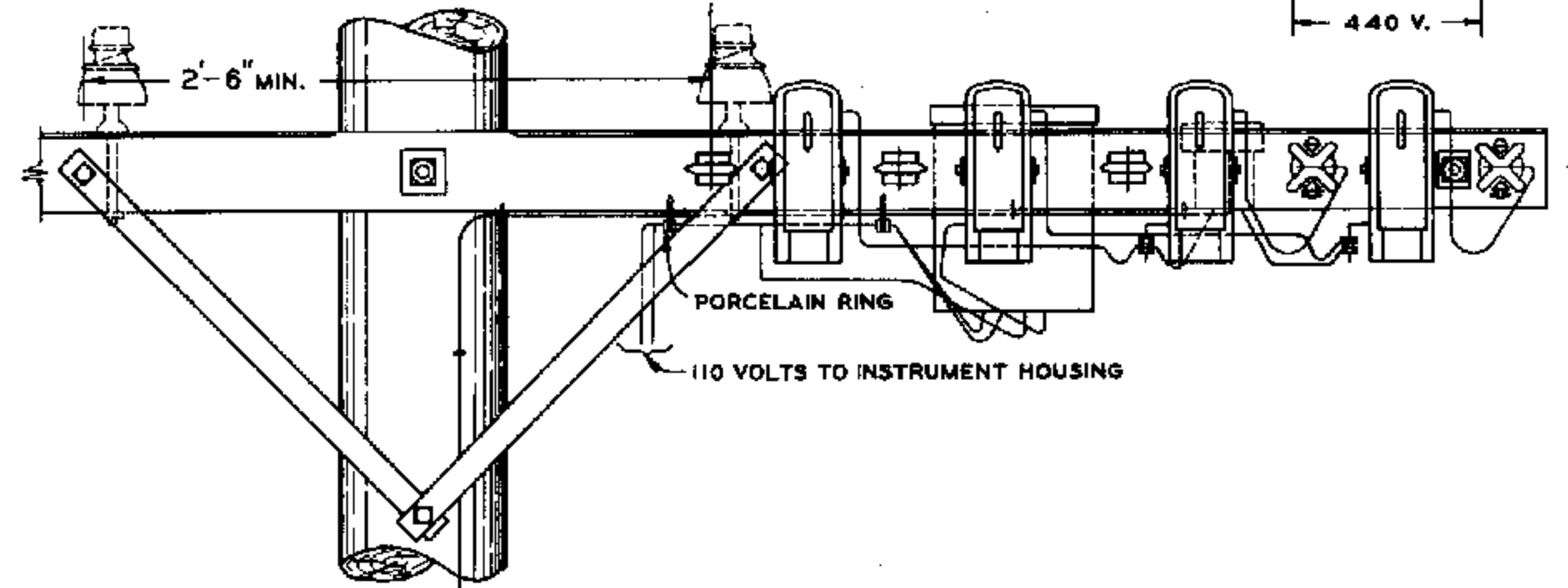
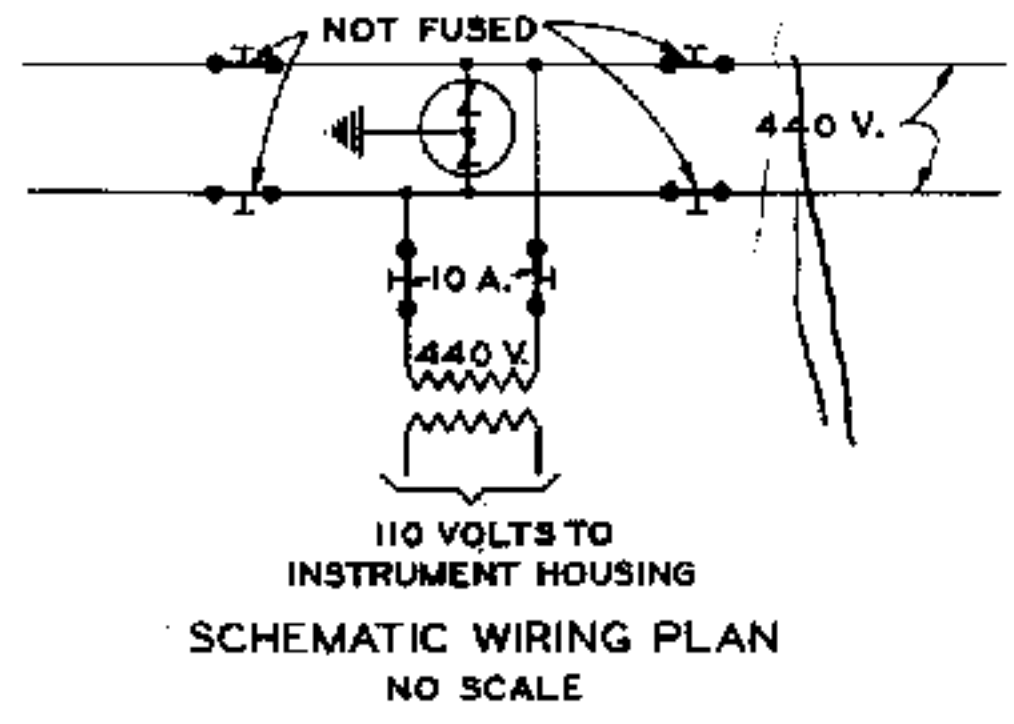
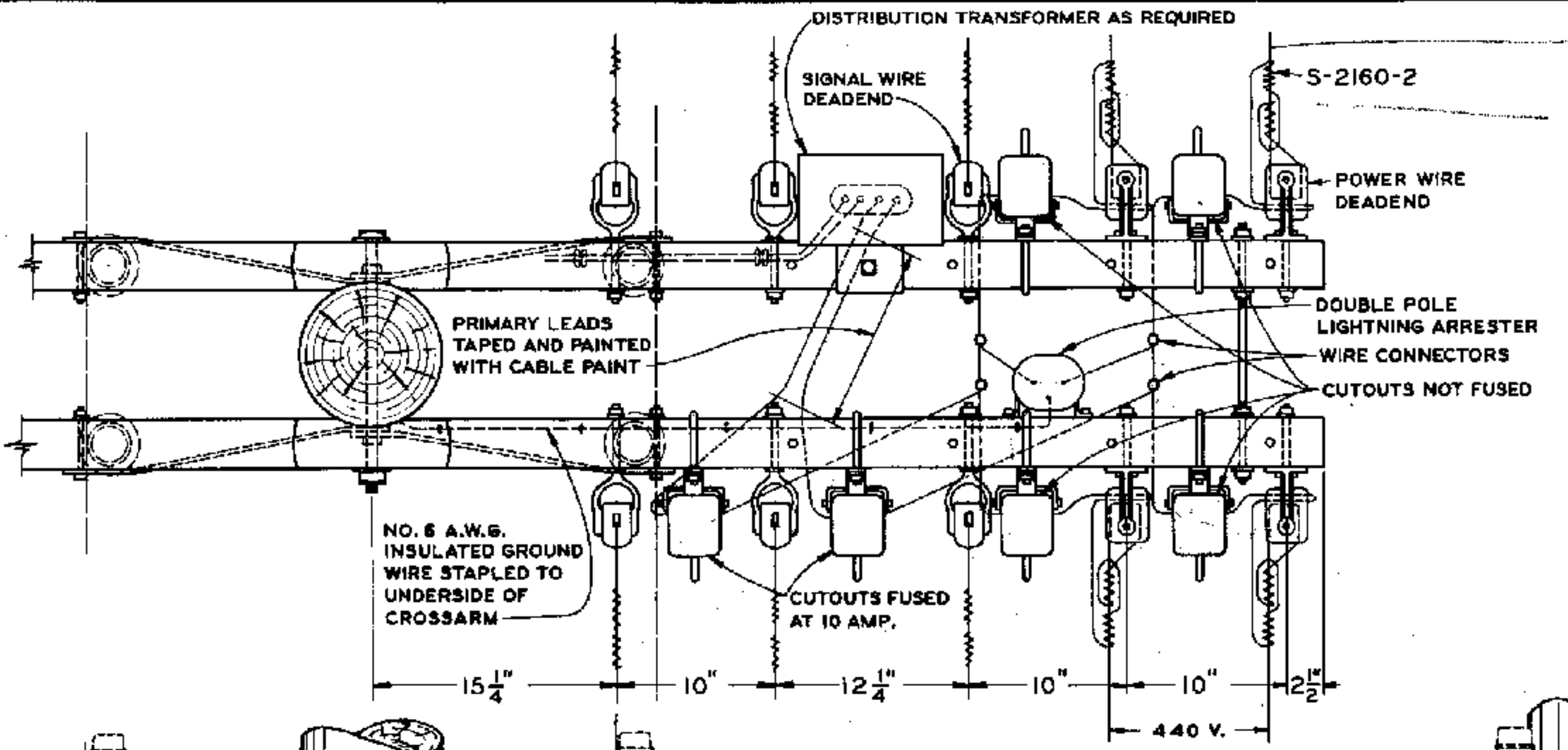


APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
ENGINEERING VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
C.H.W.	C.D.M.	A.J.P.
C.H.W.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD LAYOUT FOR TRANSFORMER CONNECTIONS ON 440 VOLT SIGNAL POWER LINE

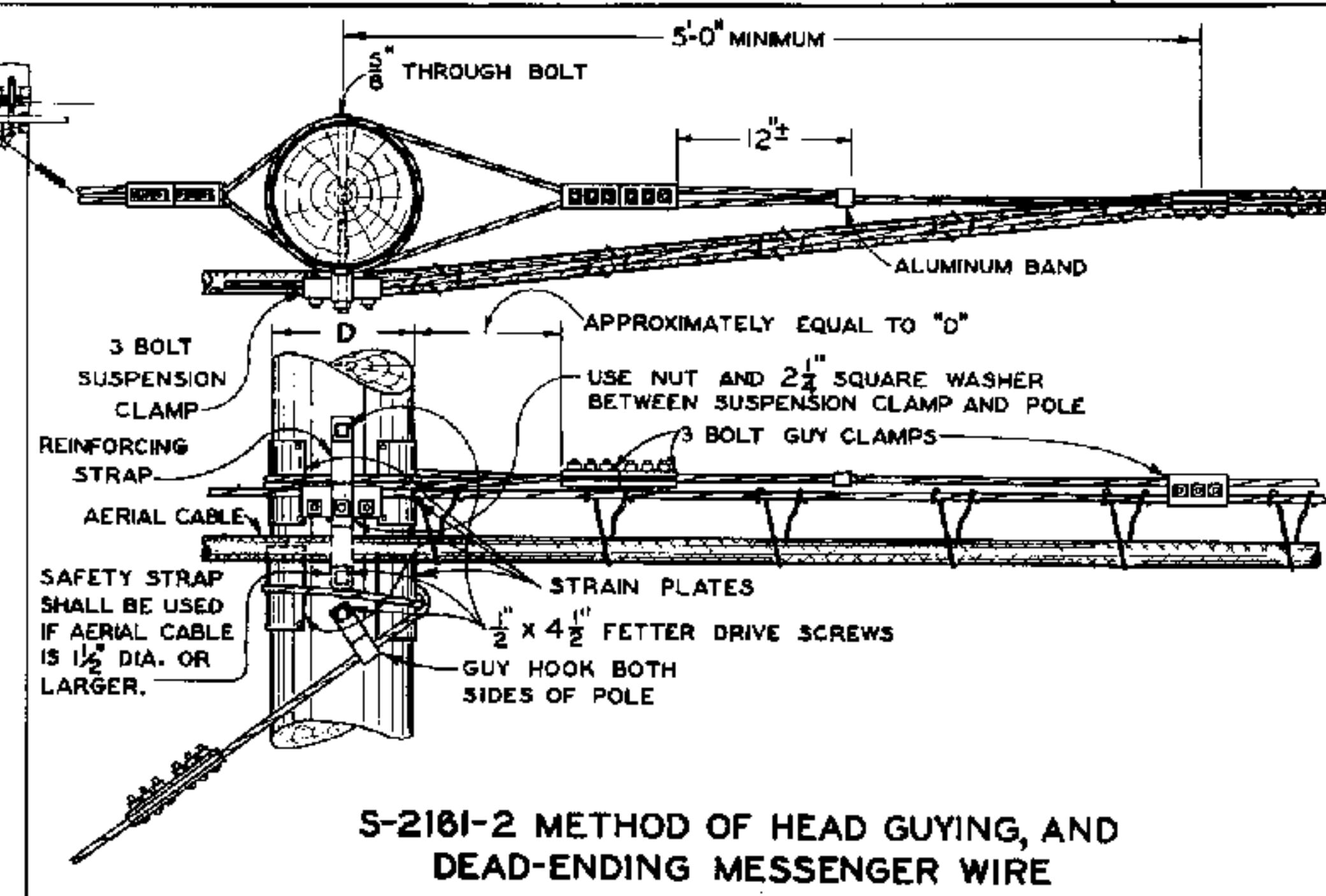
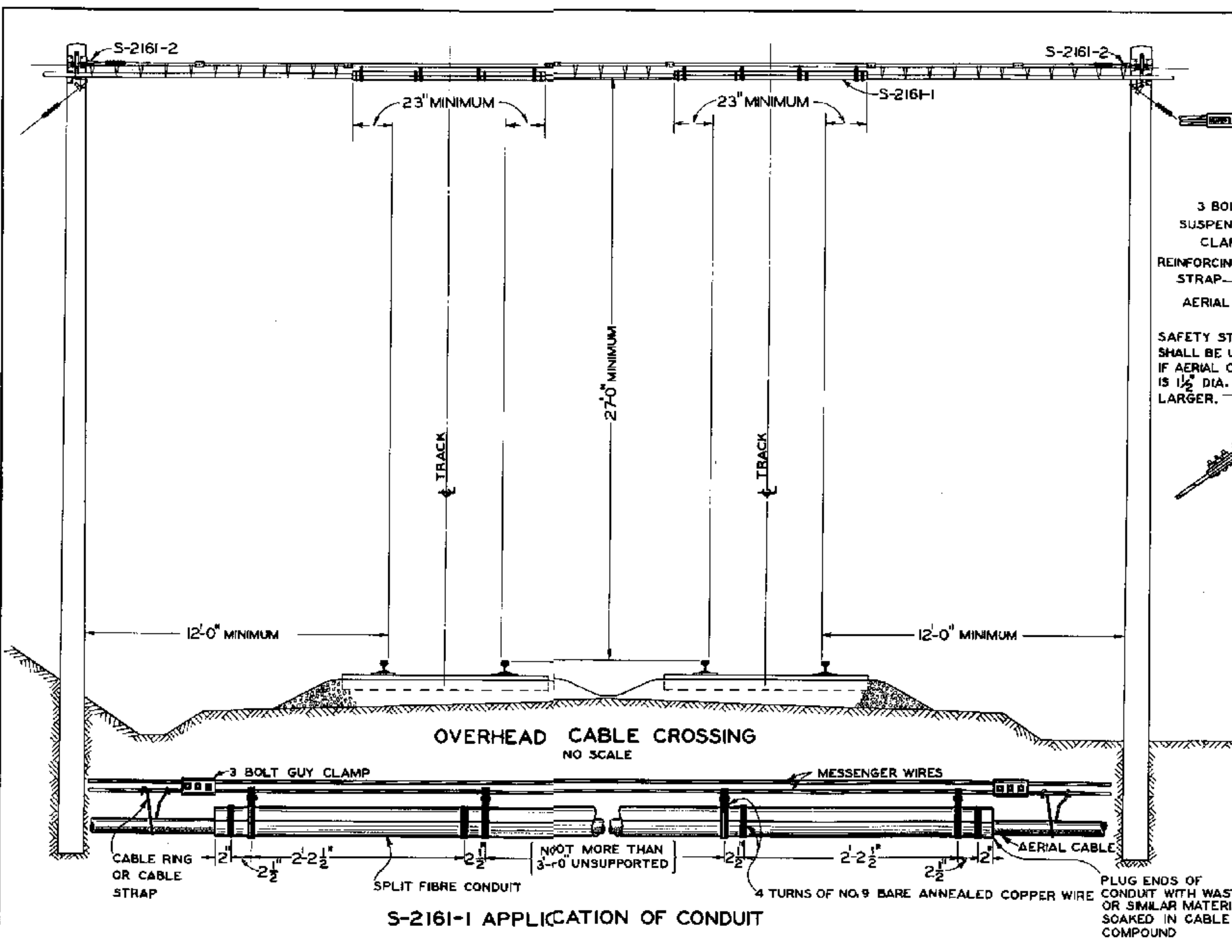
APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APPROVED: *[Signature]* MAR. 15, 1937
 CHIEF ENGINEER



S-2160-3 TRANSFORMER LAYOUT WITH SECTIONALIZING ARRANGEMENT

APPROVED FOR USE	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
PERE MARQUETTE RAILWAY COMPANY	
STANDARD	
LAYOUT FOR TRANSFORMER CONNECTIONS ON 440 VOLT SIGNAL POWER LINE	
APPROVED BY	
ADVISORY COMMITTEE ON WAY AND STRUCTURES	
APPROVED: <i>[Signature]</i> MAR. 15, 1937	
CHIEF ENGINEER	
C. H. W.	C. D. M. A. J. P.
C. B. P.	

SHEET 2 OF 2
S-2160



SCALE IN INCHES
0 12 24

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
VICE PRESIDENT AND GENERAL MANAGER
ERIE RAILROAD COMPANY
VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
VICE PRESIDENT
PERE MARQUETTE RAILWAY COMPANY
VICE PRESIDENT

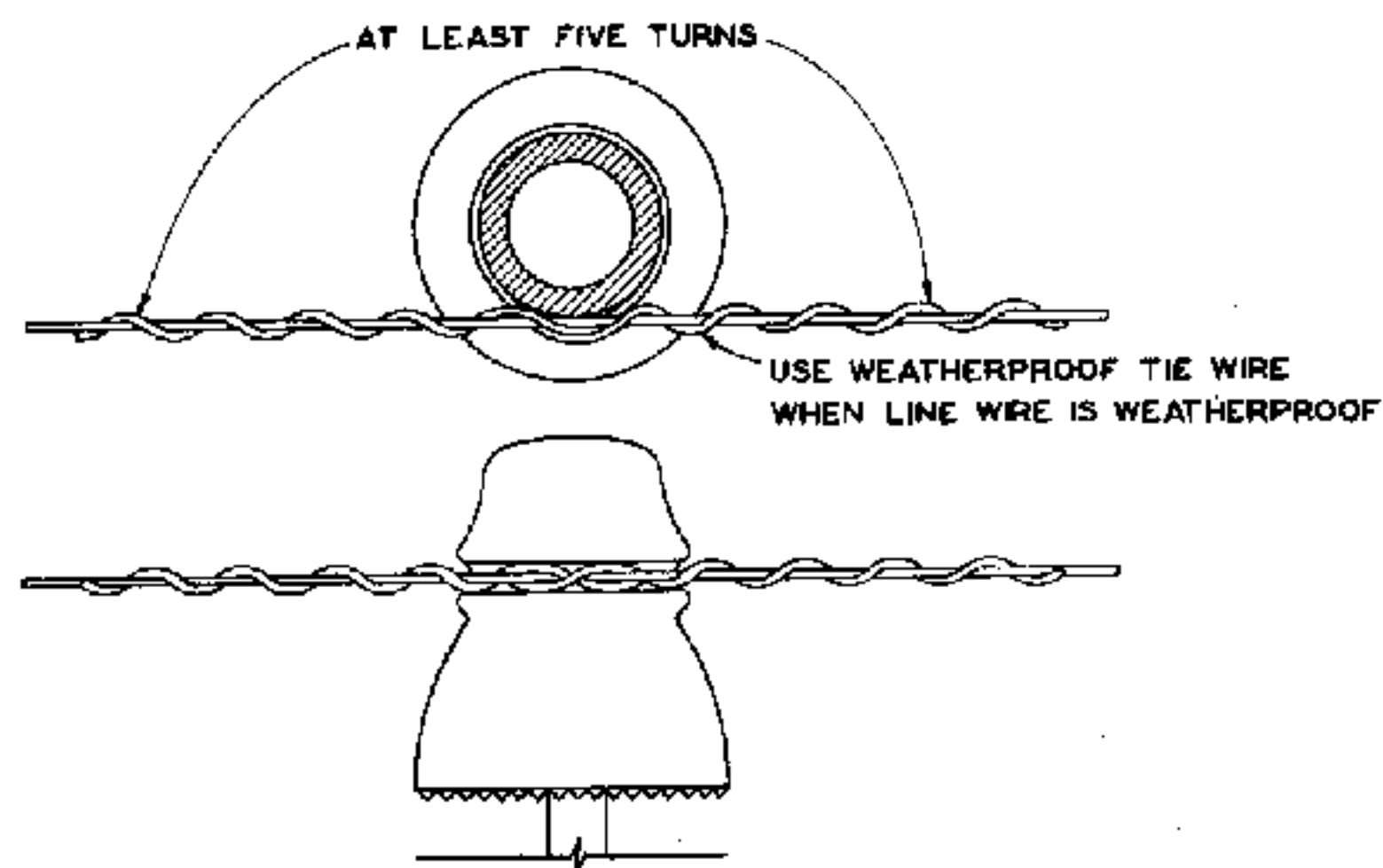
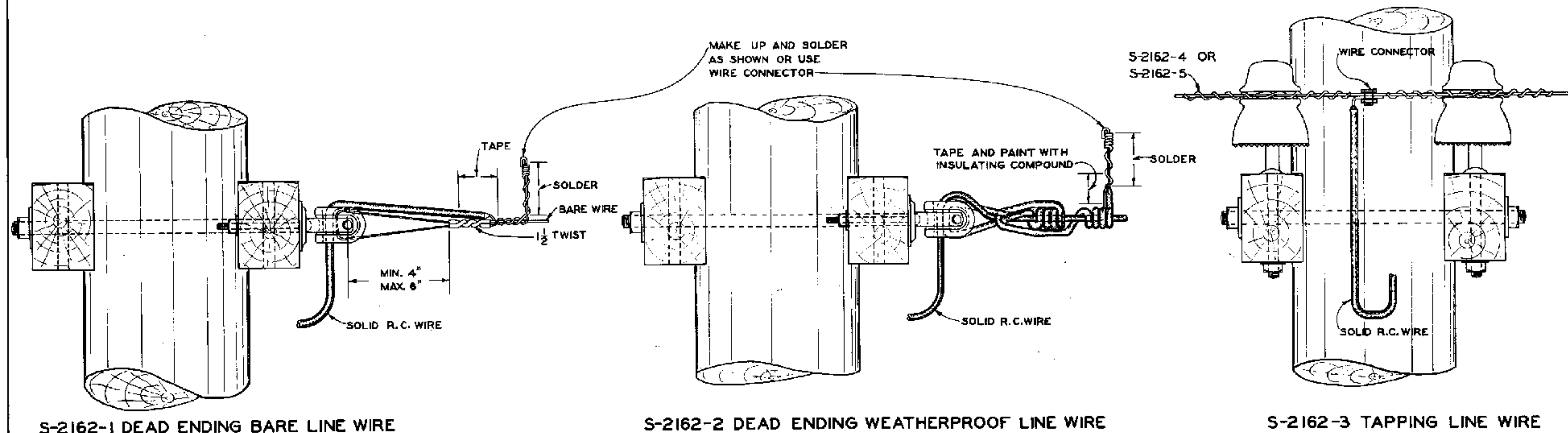
C.H.W. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

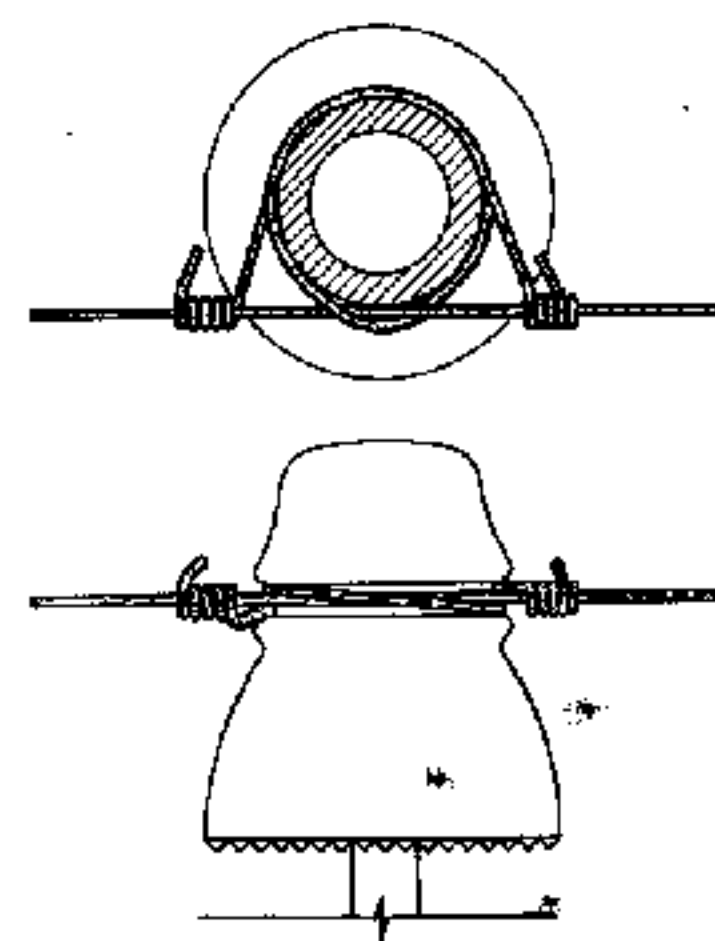
STANDARD OVERHEAD CABLE CROSSING PROTECTION

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 15, 1937
CHIEF ENGINEER

S-2161



S-2162-4 TIE WIRE DETAIL
FOR BARE OR WEATHERPROOF WIRE



S-2162-5 TIE WIRE DETAIL
OPTIONAL FOR WEATHERPROOF WIRE

NOTE
FOR INFORMATION CONCERNING
DEAD ENDING SIGNAL POWER
WIRES SEE STANDARD DRAWING
S-2160 SHEET 1, STANDARD
LAYOUT FOR TRANSFORMER
CONNECTIONS ON 440 VOLT
SIGNAL POWER LINE.

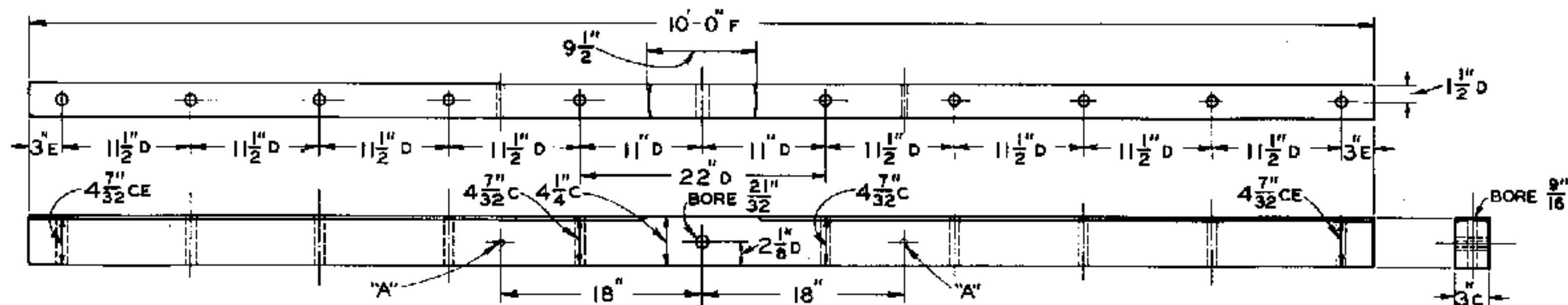
NO SCALE

APPROVED FOR USE	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
<i>[Signature]</i> VICE PRESIDENT AND GENERAL MANAGER	
ERIE RAILROAD COMPANY	
<i>[Signature]</i> VICE PRESIDENT	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
<i>[Signature]</i> SIXTH VICE PRESIDENT	
PERE MARQUETTE RAILWAY COMPANY	
<i>[Signature]</i> VICE PRESIDENT	
C.H.W.	C.D.M.
C.H.W.	C.D.M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

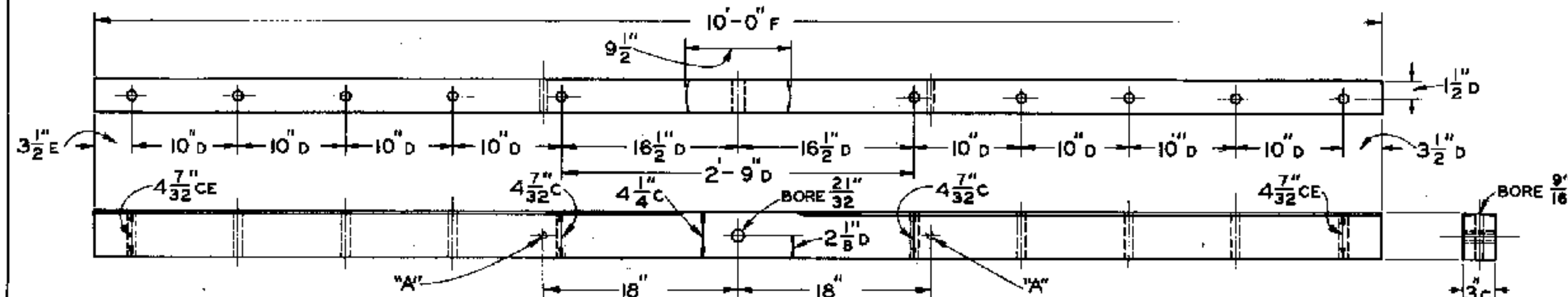
STANDARD METHOD OF DEAD ENDING AND TAPPING SIGNAL LINE WIRES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 15, 1937
CHIEF ENGINEER

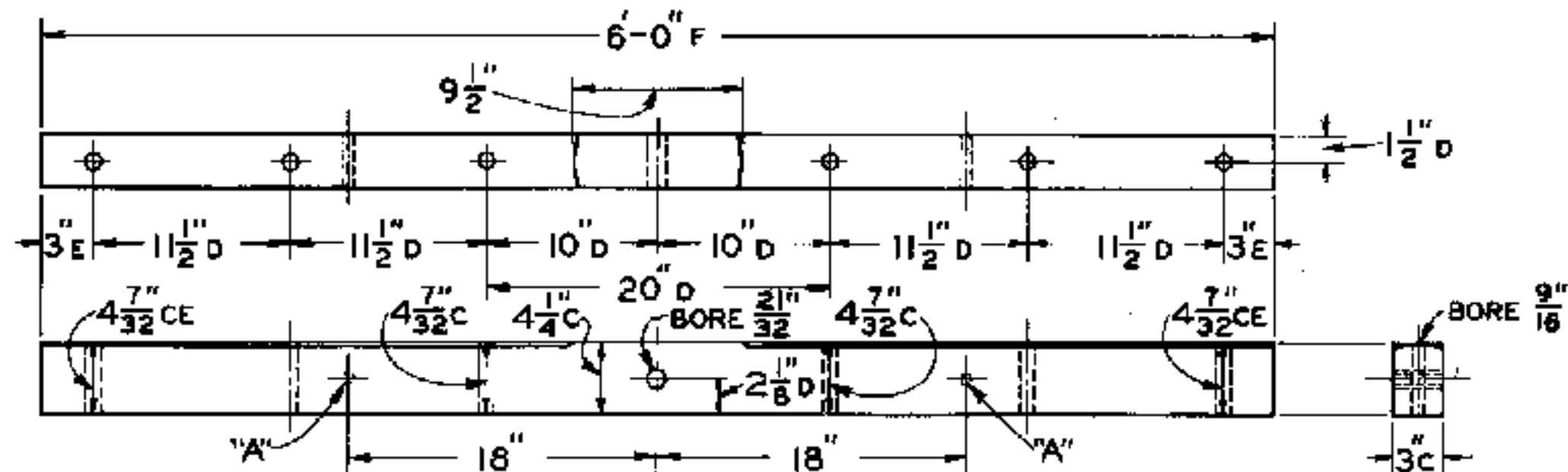


DOUGLAS FIR	UNTREATED SOUTHERN PINE	TREATED SOUTHERN PINE	DESCRIPTION
S-2165-1	S-2165-3	S-2165-5	TEN PIN CROSSARM WITH HOLES "A" BORED $\frac{13}{32}$ "
S-2165-2	S-2165-4	S-2165-6	TEN PIN CROSSARM WITHOUT HOLES "A"

NOTE
CROSSARMS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD MATERIAL SPECIFICATIONS J-58, SPECIFICATIONS AND INSTRUCTIONS FOR ORDERING AND INSPECTING LUMBER AND TIMBER FOR RAILWAY USES.



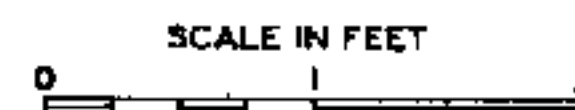
DOUGLAS FIR	UNTREATED SOUTHERN PINE	TREATED SOUTHERN PINE	DESCRIPTION
S-2165-7	S-2165-9	S-2165-11	TEN PIN CROSSARM WITH HOLES "A" BORED $\frac{13}{32}$ "
S-2165-8	S-2165-10	S-2165-12	TEN PIN CROSSARM WITHOUT HOLES "A"



DOUGLAS FIR	UNTREATED SOUTHERN PINE	TREATED SOUTHERN PINE	DESCRIPTION
S-2165-13	S-2165-15	S-2165-17	SIX PIN CROSSARM WITH HOLES "A" BORED $\frac{13}{32}$ "
S-2165-14	S-2165-16	S-2165-18	SIX PIN CROSSARM WITHOUT HOLES "A"

ALLOWABLE VARIATIONS

	OVER	UNDER
C	$\frac{1}{16}$	$\frac{1}{16}$
D	$\frac{1}{8}$	$\frac{1}{8}$
E	$\frac{1}{4}$	$\frac{1}{4}$
F	$\frac{1}{2}$	$\frac{1}{2}$
CE	$\frac{1}{16}$	$\frac{1}{4}$



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
CROSSARMS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
MAR. 15, 1937

APPROVED: *[Signature]*
CHIEF ENGINEER

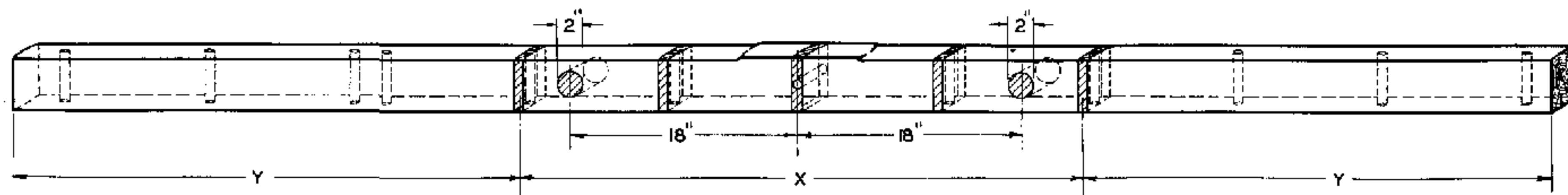
SHEET 1 OF 2
S-2165

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

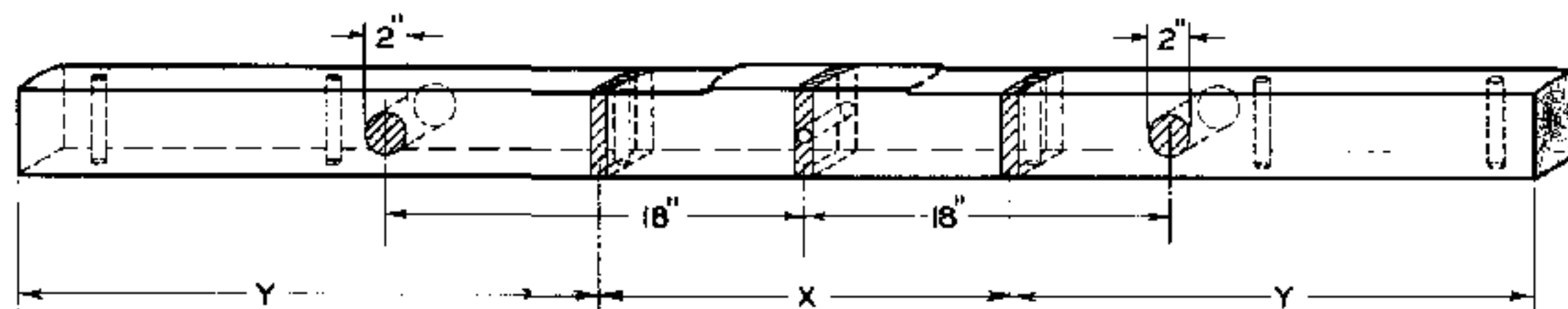
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
MAR. 15, 1937

APPROVED: *[Signature]*
CHIEF ENGINEER

SHEET 1 OF 2
S-2165



TEN PIN CROSSARM

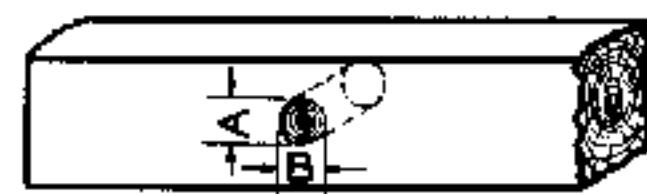


SIX PIN CROSSARM

TABLE A		
KINDS OF KNOTS		
SOUND AND BLACK	ENCASED, PARTIALLY ENCASED, AND LOOSE	ROTTEN
PERMITTED	PERMITTED PROVIDED THEY DRAIN WATER. LOOSE AND ENCASED KNOTS ARE NOT PERMITTED ON TOP SURFACE OF CROSSARM.	NOT PERMITTED

NOTES

1. SHADED PORTIONS OF THE CROSSARMS SHALL BE FREE FROM KNOTS.
2. SECTION X- IN THIS SECTION OF THE CROSSARM, EXCEPT IN SHADED PORTIONS, KNOTS AS NOTED IN TABLE "A" ARE PERMITTED PROVIDED THEY ARE NOT LARGER THAN $\frac{3}{4}$ " AVERAGE DIAMETER.
3. SECTION Y- IN THIS SECTION OF THE CROSSARM, EXCEPT IN SHADED PORTIONS, KNOTS AS NOTED IN TABLE "A" VARYING IN SIZE FROM NOT LARGER THAN $\frac{3}{4}$ " AVERAGE DIAMETER NEAR THE INNER END OF THE SECTION TO NOT MORE THAN $\frac{1}{2}$ " THE CROSS SECTION AT THE END OF THE CROSSARM ARE PERMITTED.



AXIS AT RIGHT ANGLES TO FACE
AVERAGE DIAMETER = $\frac{A+B}{2}$



AXIS NOT AT RIGHT ANGLES TO FACE
DIAMETER = A



DETERMINATION OF DIAMETER OF KNOTS

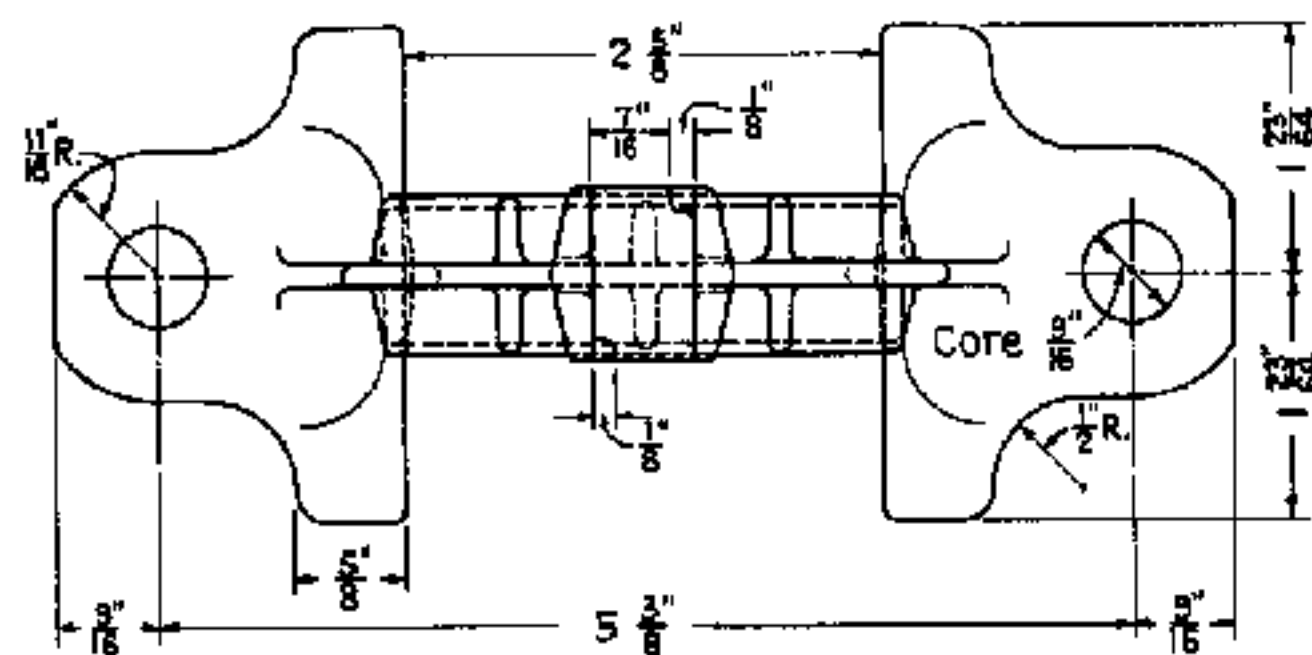
NO SCALE

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
EXECUTIVE VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
K.L.M.	C.D.M.	A.J.P.
K.L.M.		

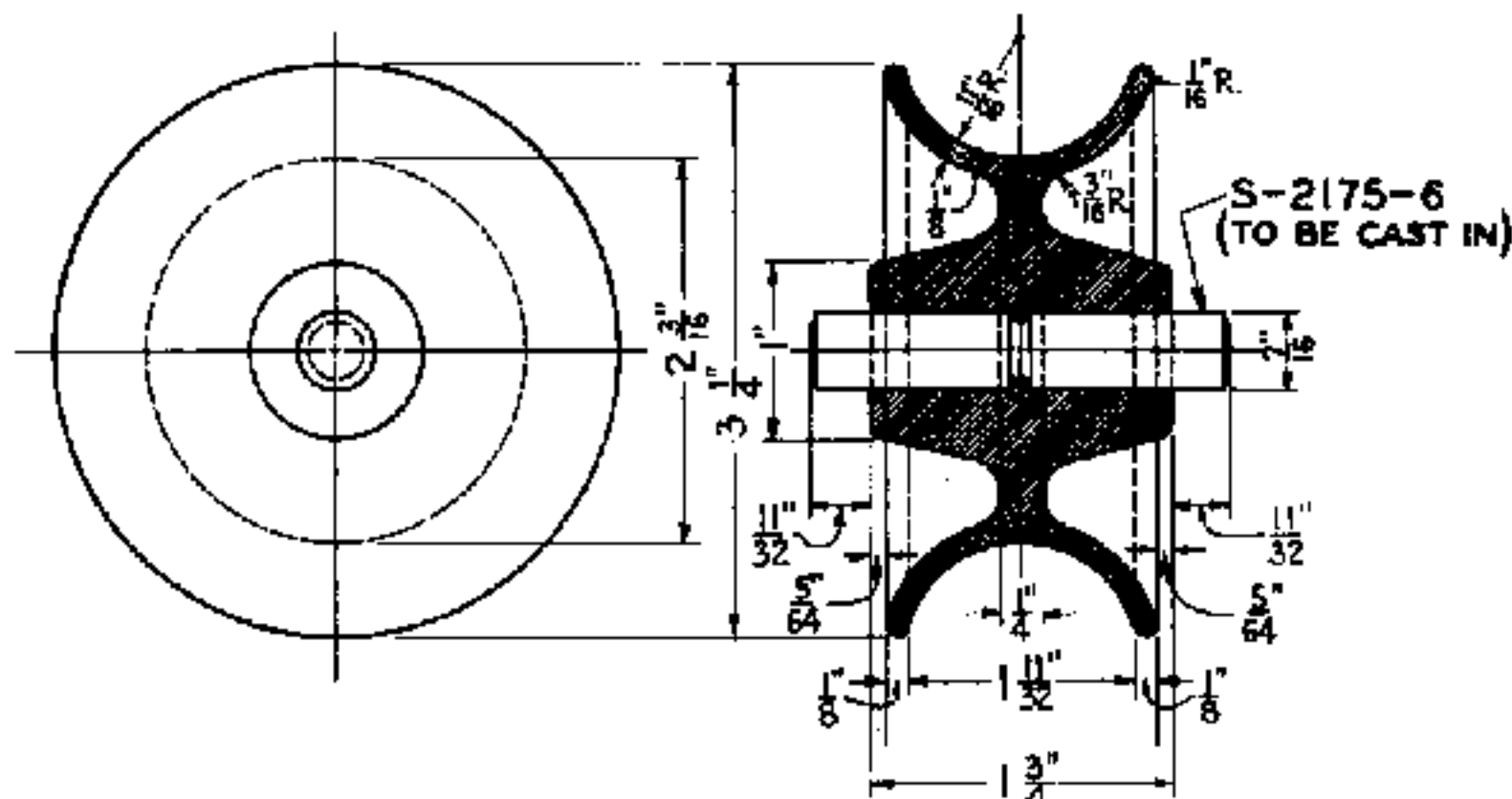
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
• ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
CROSSARMS

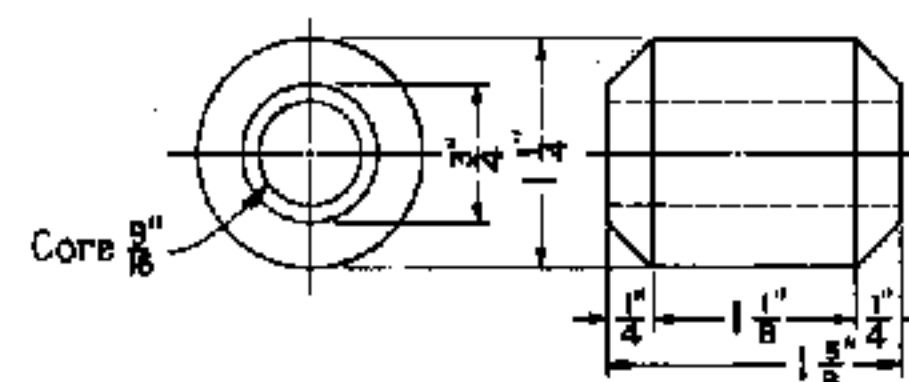
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 15, 1937
CHIEF ENGINEER



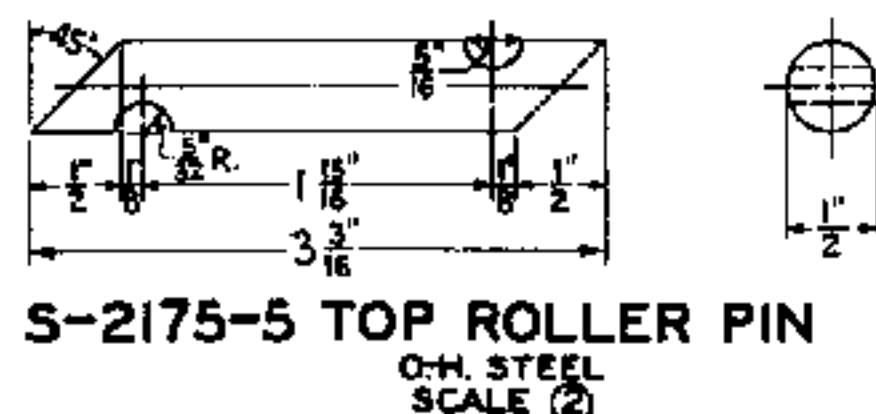
S-2175-2 PIPE CARRIER SIDE
MALL. IRON
SCALE ②



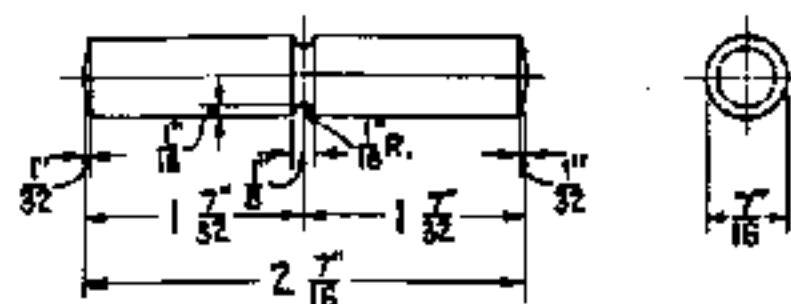
S-2175-3 BOTTOM ROLLER
CAST IRON
SCALE ②



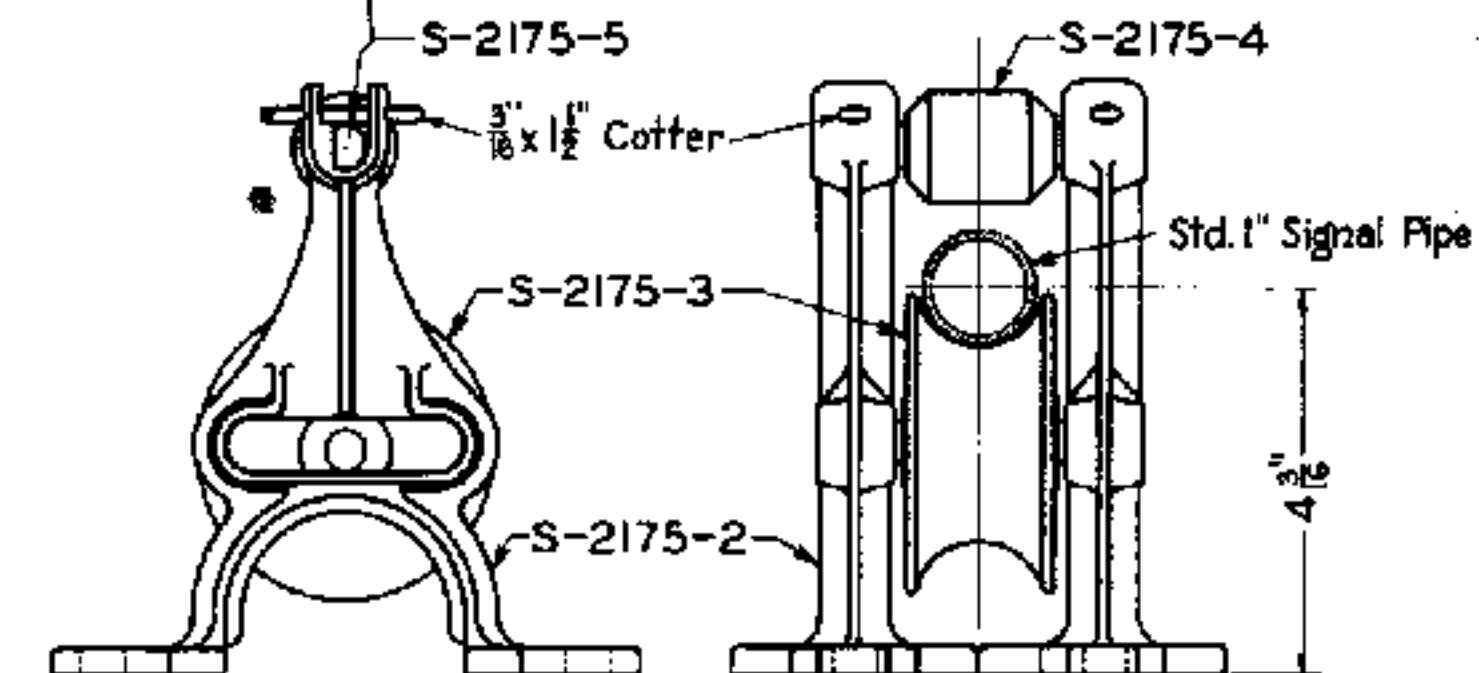
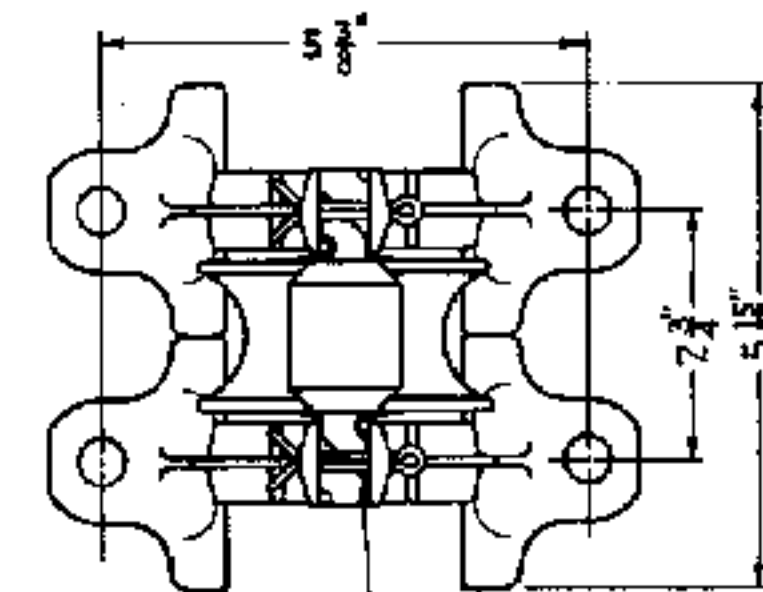
S-2175-4 TOP ROLLER
CAST IRON
SCALE ②



S-2175-5 TOP ROLLER PIN
O.H. STEEL
SCALE ②



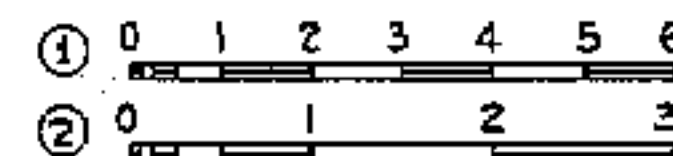
S-2175-6 BOTTOM ROLLER PIN
O.H. STEEL
SCALE ②



S-2175-1 ONE WAY UNIVERSAL PIPE CARRIER
COMPLETE
SCALE ①

NOTE
PIPE CARRIER SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. H. Woodcock
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

W. H. Woodcock
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Woodcock
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Woodcock
VICE PRESIDENT

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *W. H. Woodcock*
CHIEF ENGINEER

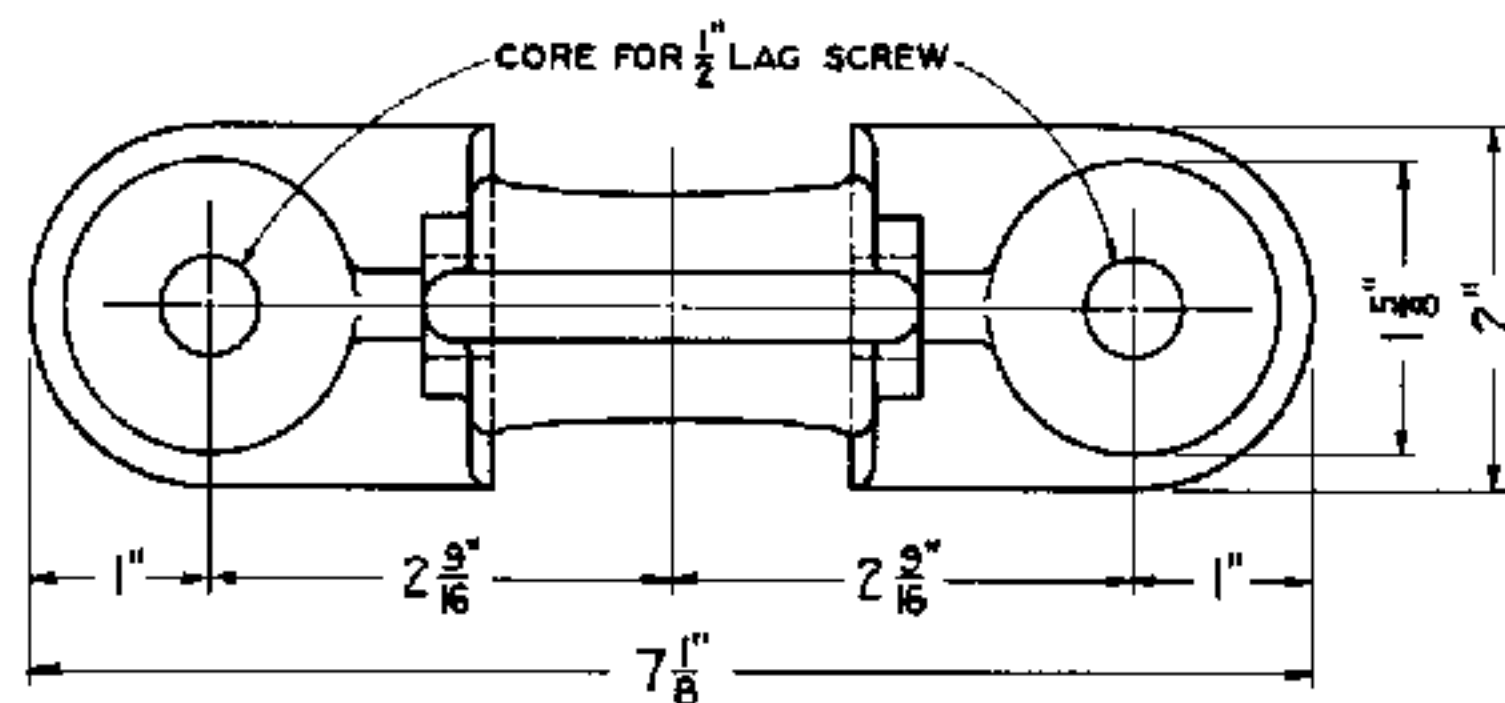
JUNE 17, 1931

C.B.P. C.D.M. A.J.P.

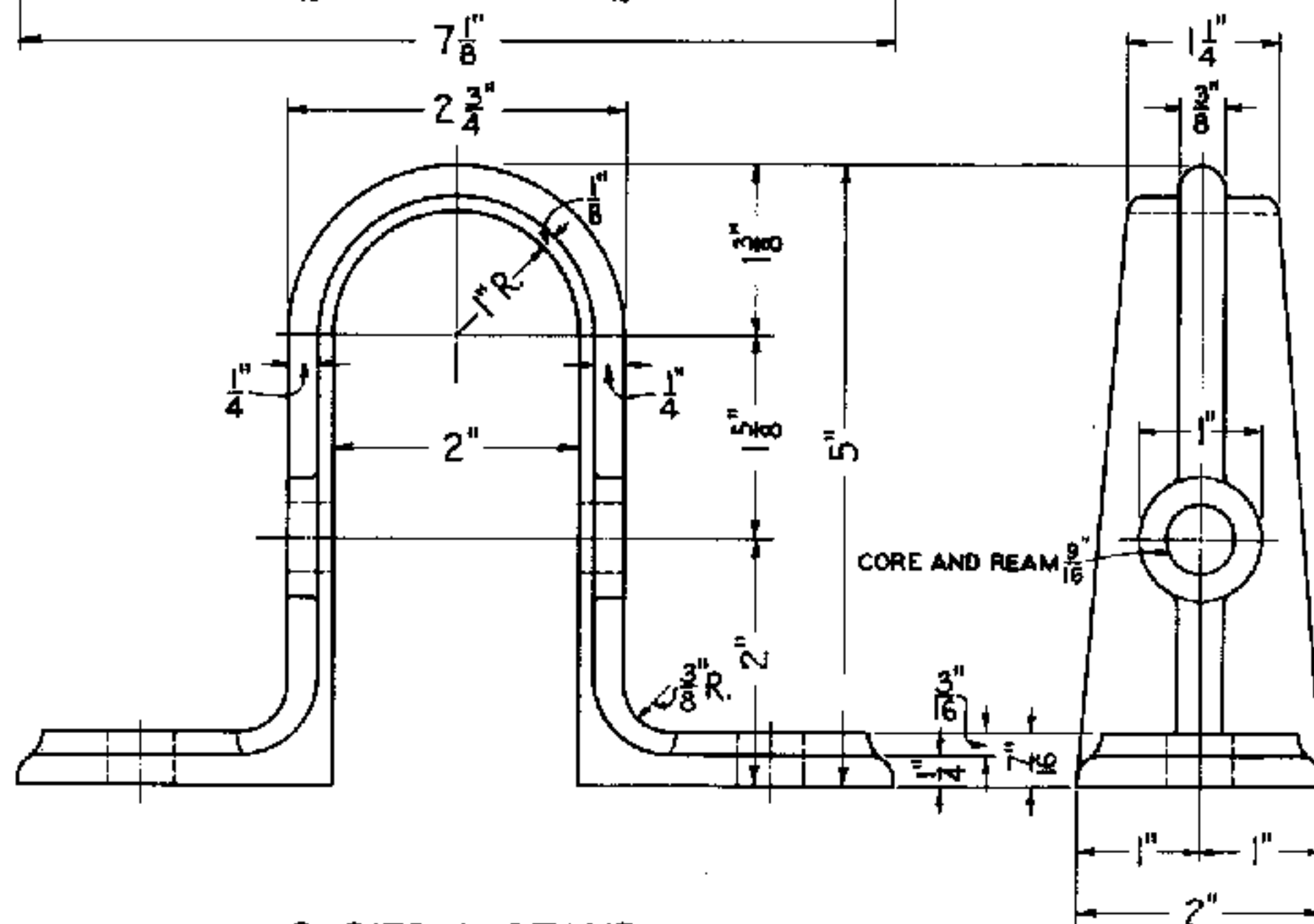
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
UNIVERSAL
PIPE CARRIER.**

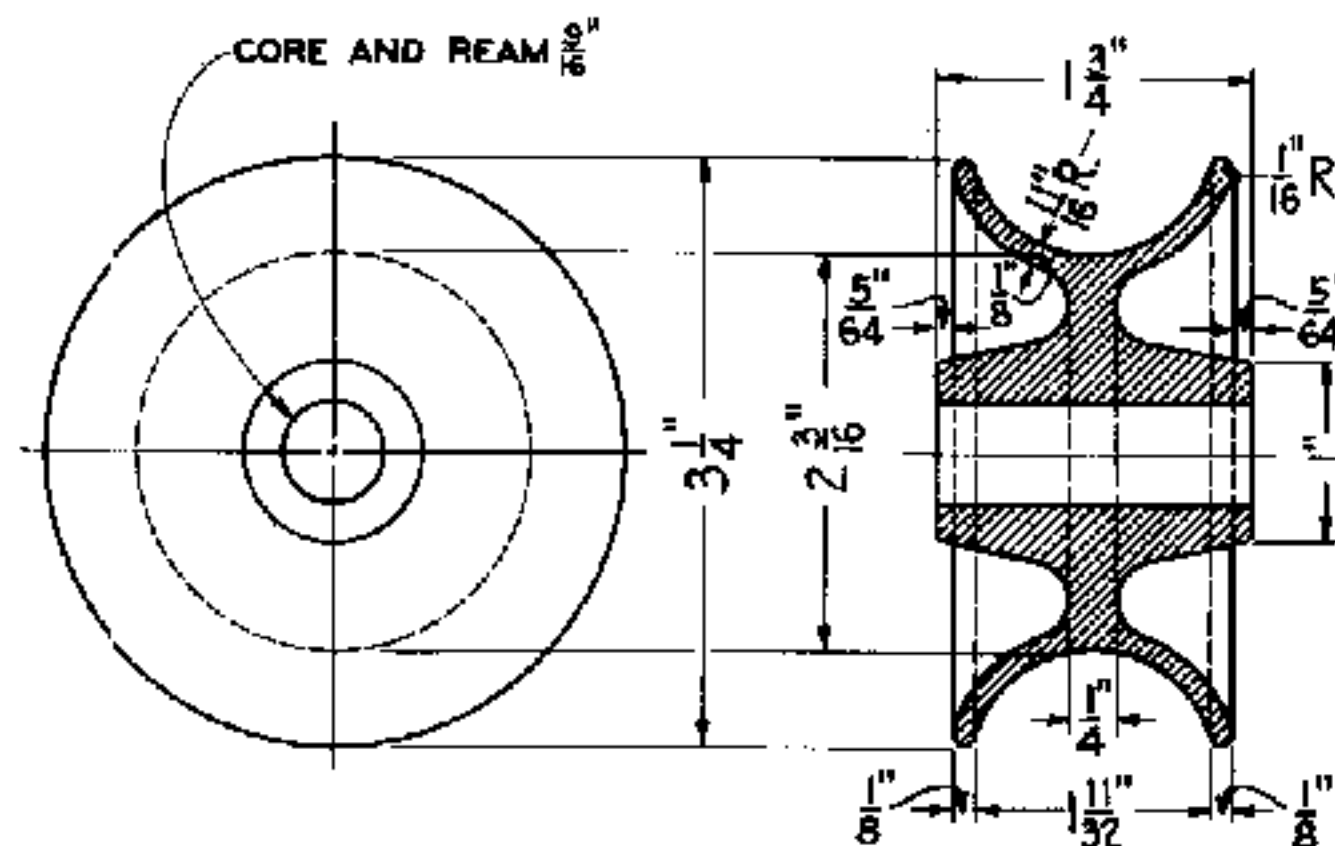
S-2175



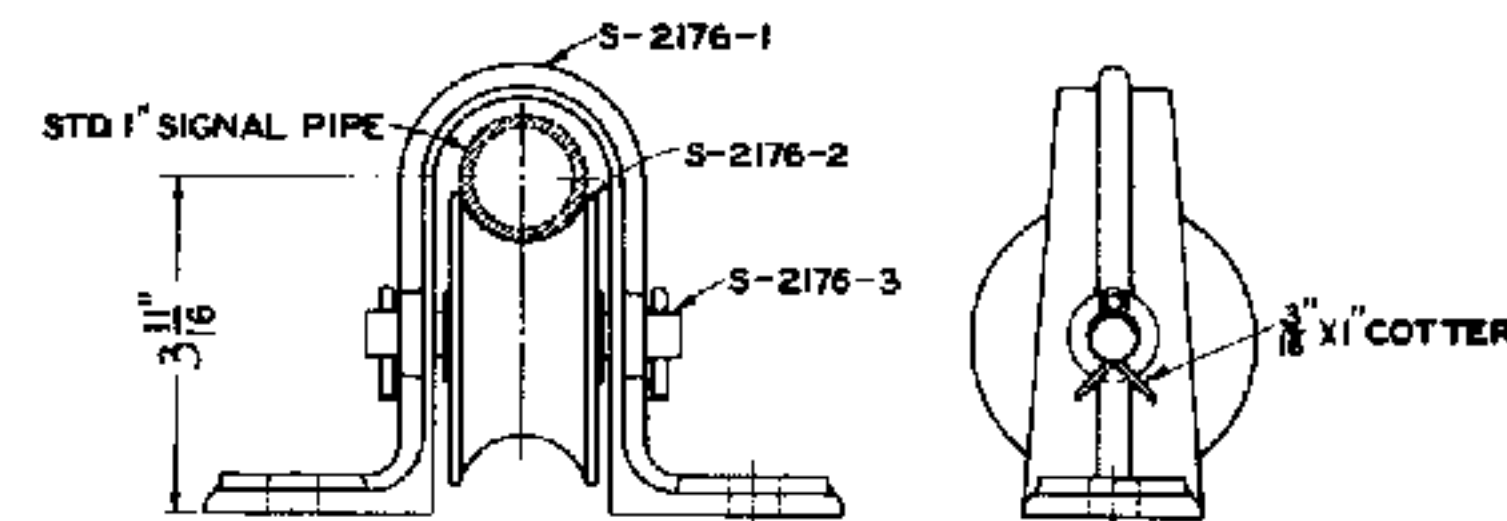
S-2176-1 STAND
MALLEABLE IRON
SCALE ②



S-2176-2 SHEAVE
CAST IRON
SCALE ②

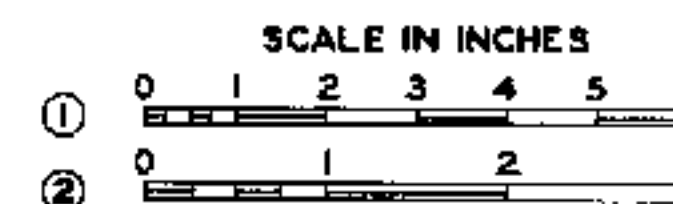


S-2176-3 PIN
COLD ROLLED STEEL
SCALE ②



S-2176-4 STRAP PIPE CARRIER COMPLETE
SCALE ①

NOTE
PIPE CARRIER SHALL BE FURNISHED PAINTED
IN ACCORDANCE WITH LATEST REVISION OF
STANDARD SPECIFICATIONS S-1510, SHOP AND
FIELD PAINTING FOR SIGNAL AND INTERLOCK-
ING APPARATUS.



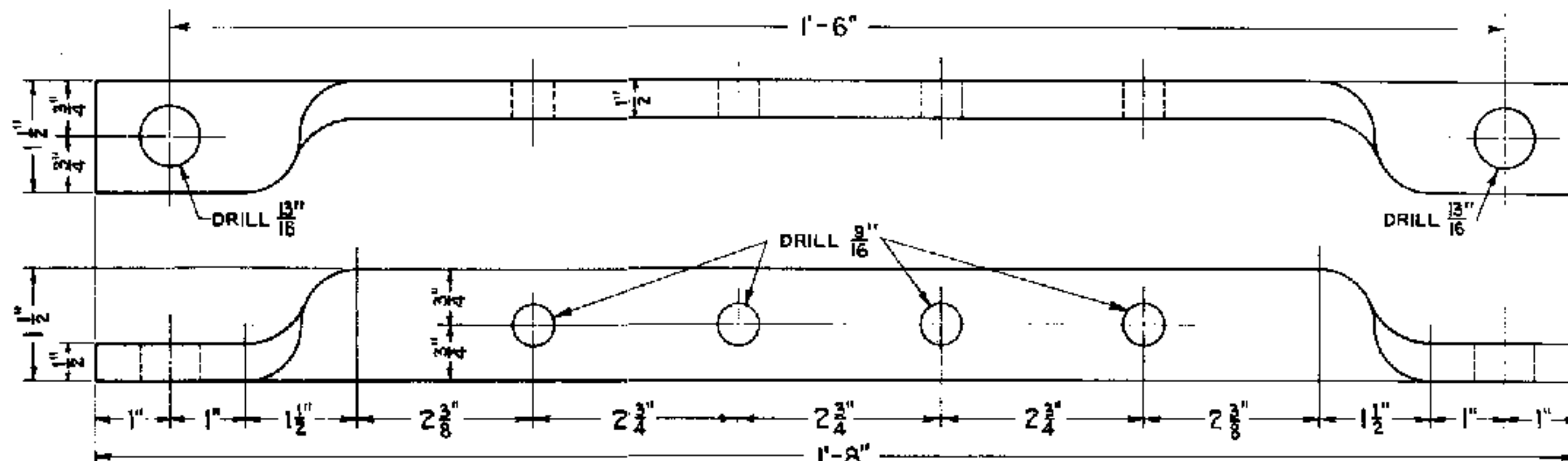
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
C.B.P.	C.D.M.	A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

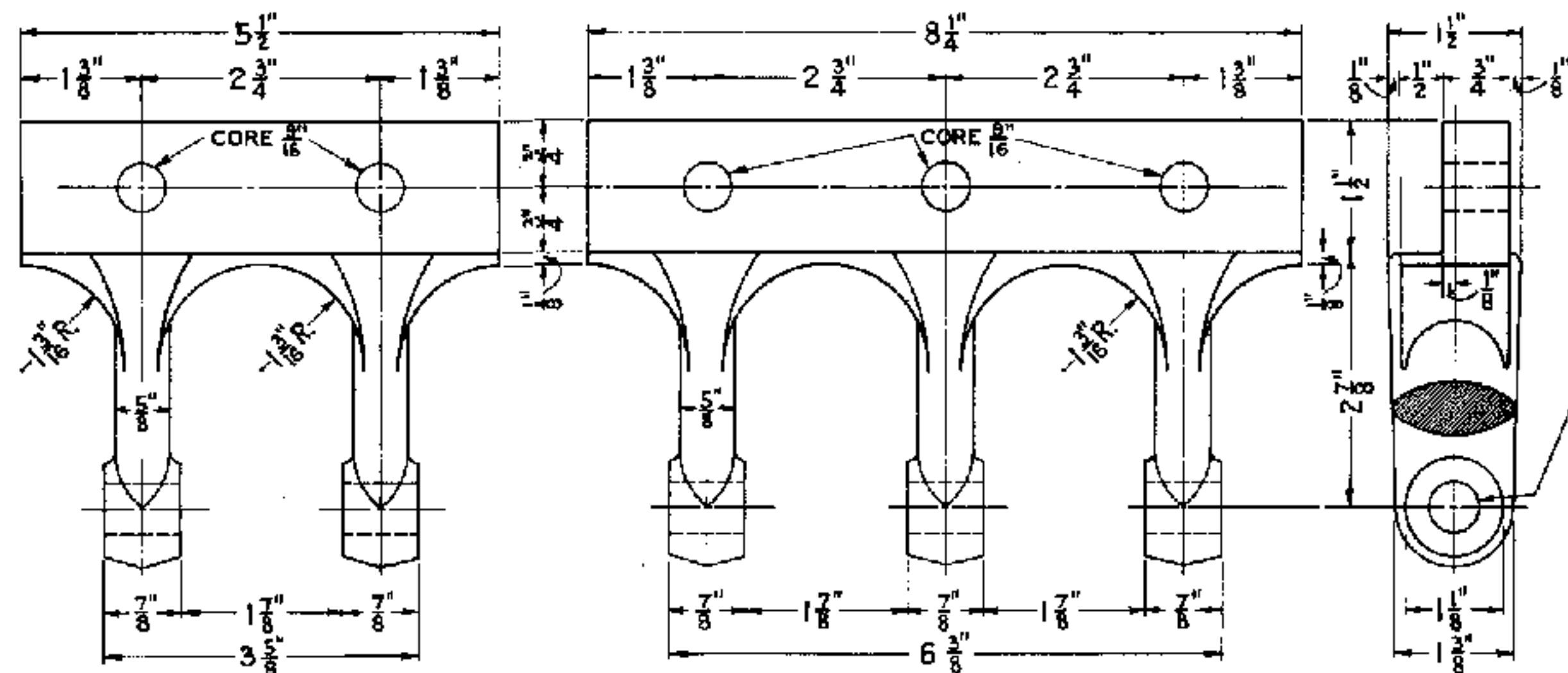
STANDARD STRAP PIPE CARRIER

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* OCTOBER 20, 1931
CHIEF ENGINEER

S-2176

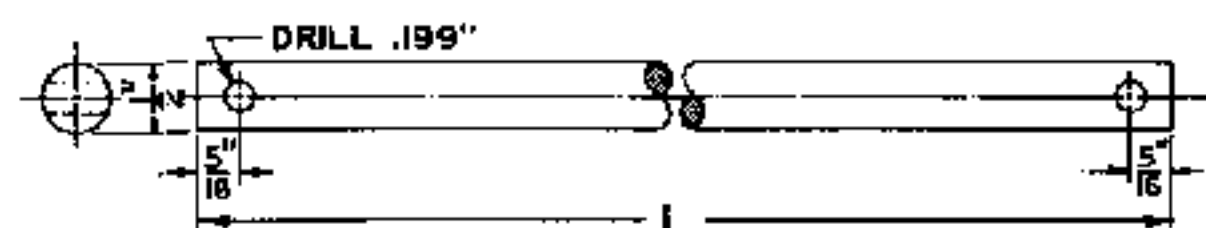


S-2177-1 SUPPORT
OPEN-HEARTH STEEL
SCALE ②



S-2177-2 ONE-WAY HANGER
CAST IRON
SCALE ②

S-2177-3 TWO-WAY HANGER
CAST IRON
SCALE ②



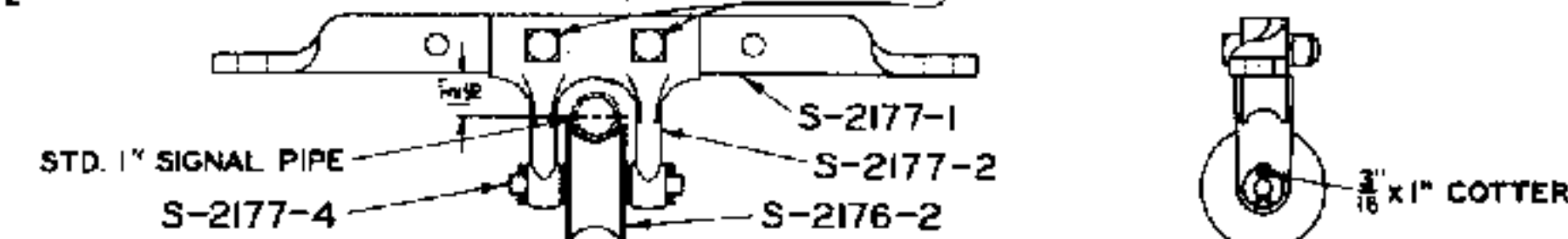
S-2177-4 ONE-WAY PIN, L=4 1/2"

S-2177-5 TWO-WAY PIN, L=7 1/4"

S-2177-6 THREE-WAY PIN, L=10"

ALL PINS COLD ROLLED STEEL
SCALE ②

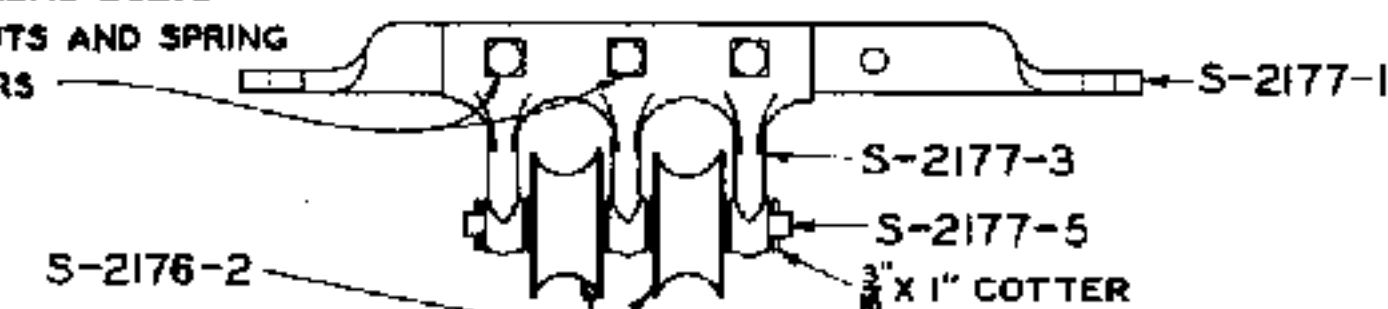
1/2" X 2" SQ. HEAD BOLTS WITH SQ. NUTS AND SPRING WASHERS



S-2177-7 ONE-WAY TRANSVERSE PIPE CARRIER COMPLETE

SCALE ①

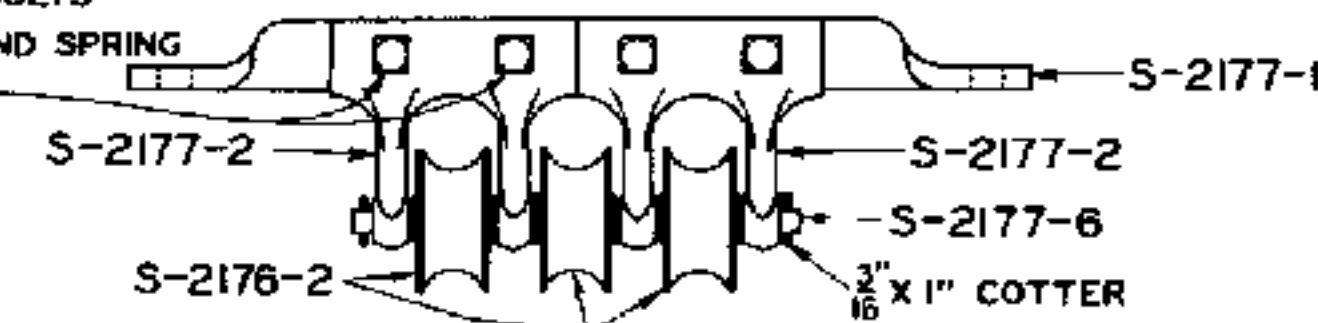
1/2" X 2" SQ. HEAD BOLTS
WITH SQ. NUTS AND SPRING
WASHERS



S-2177-8 TWO-WAY TRANSVERSE PIPE CARRIER COMPLETE

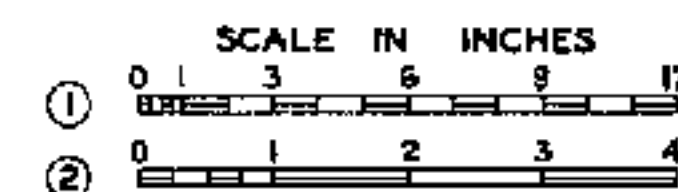
SCALE ①

1/2" X 2" SQ. HEAD BOLTS
WITH SQ. NUTS AND SPRING
WASHERS



S-2177-9 THREE-WAY TRANSVERSE PIPE CARRIER COMPLETE

SCALE ①



NOTE
PIPE CARRIER SHALL BE
FURNISHED PAINTED IN ACCORD-
ANCE WITH LATEST REVISION
OF STANDARD SPECIFICATIONS
S-1510, SHOP AND FIELD
PAINTING FOR SIGNAL AND
INTERLOCKING APPARATUS.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

G. W. Brooks
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

E. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

A. J. P.
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

A. J. P.
VICE PRESIDENT

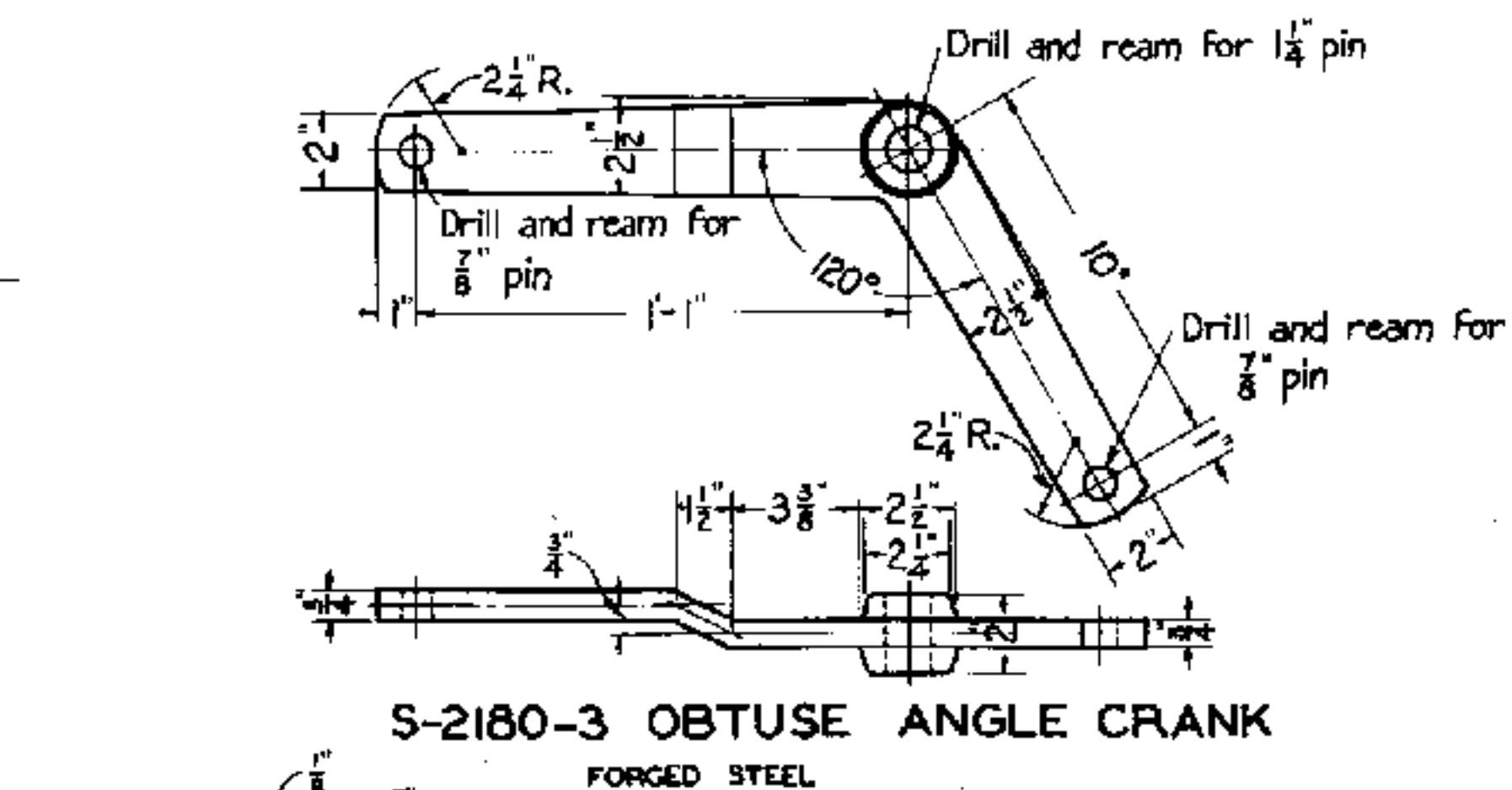
C. B. P. C. D. M. A. J. P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
TRANSVERSE PIPE CARRIER**

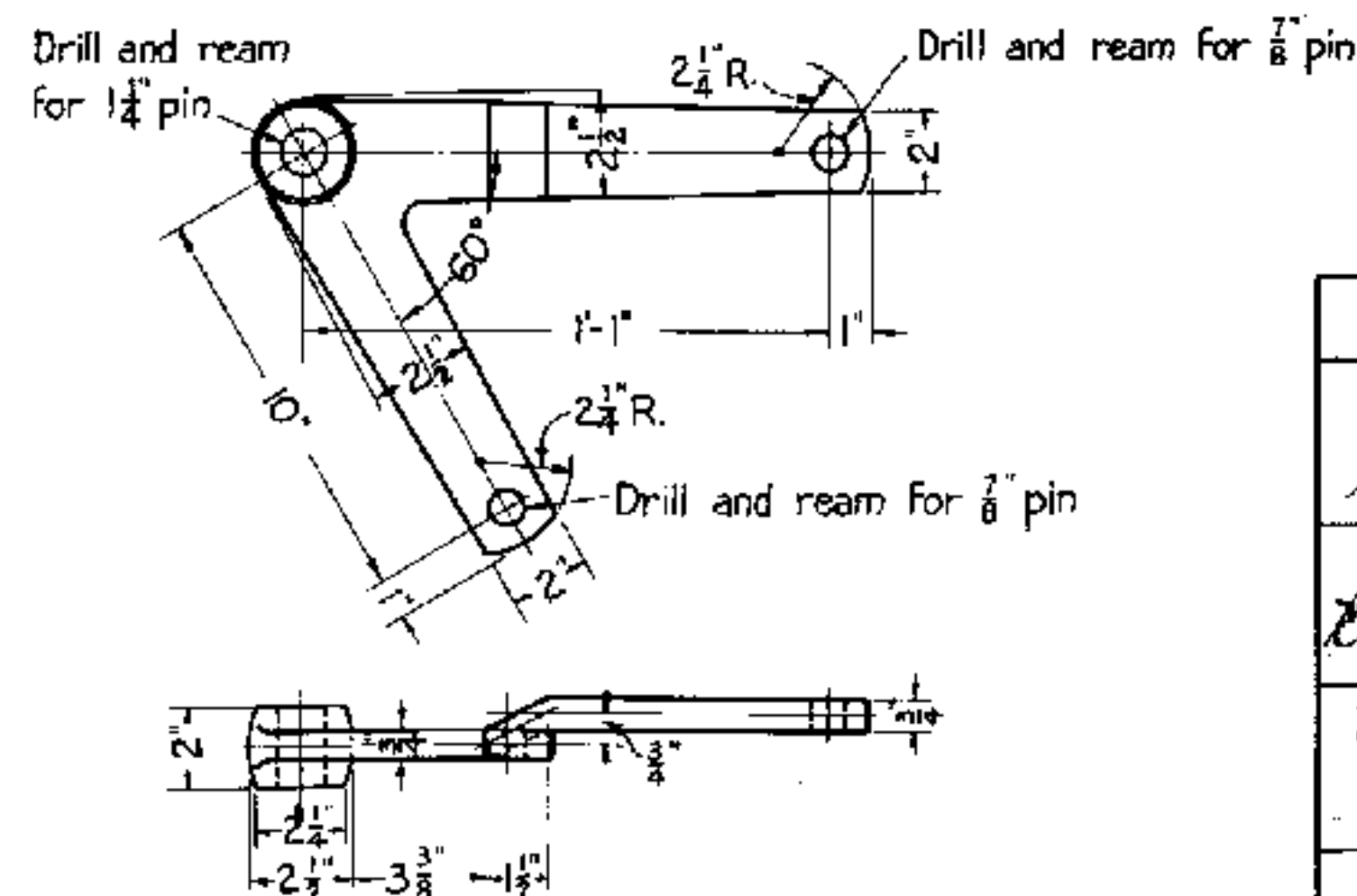
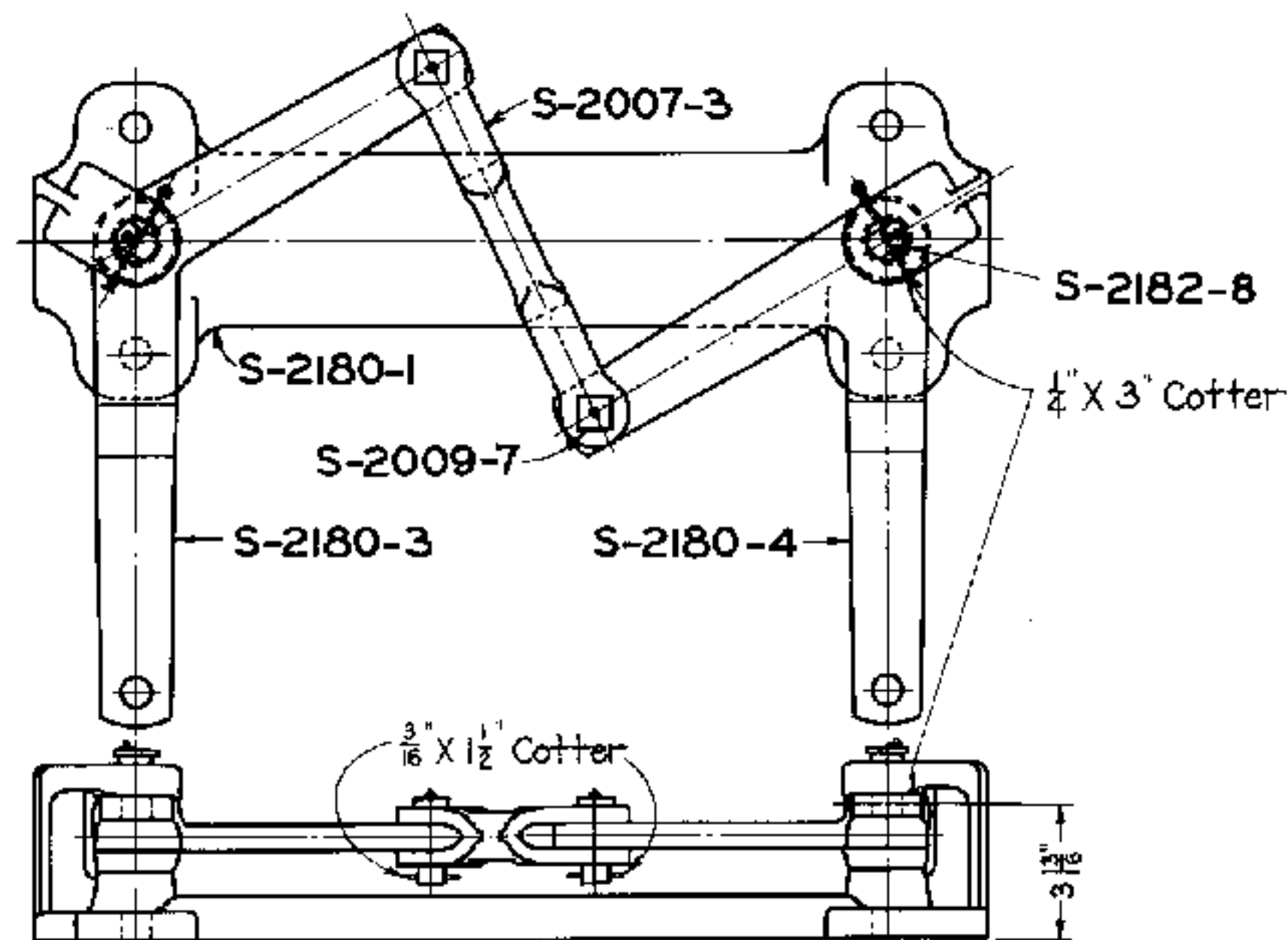
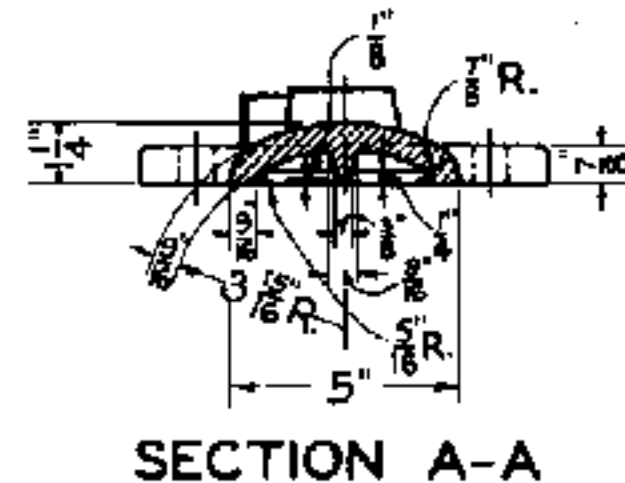
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *A. J. P.* JULY 22, 1931
CHIEF ENGINEER

S-2177



NOTE

COMPENSATOR SHALL BE FURNISHED WITH ALL ITS SURFACES EXCEPT HOLES, PINS, AND BEARING SURFACES, PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



SCALE IN INCHES

0 1 2 3 4 5 6 7 8 9 10 11 12

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY



Robb
ROBB INTELLIGENCE AND TRAINING MARK

ERIE RAILROAD COMPANY

10/10/10

Celloducy

THE NEW YORK CHICAGO AND

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

[Signature]

VICE PRESIDENT

PIRE MARQUETTE
RAILWAY COMPANY



YIELD PER SHOP

C.H.W.	CDM	A.J.F.
--------	-----	--------

C.H.W.		
--------	--	--

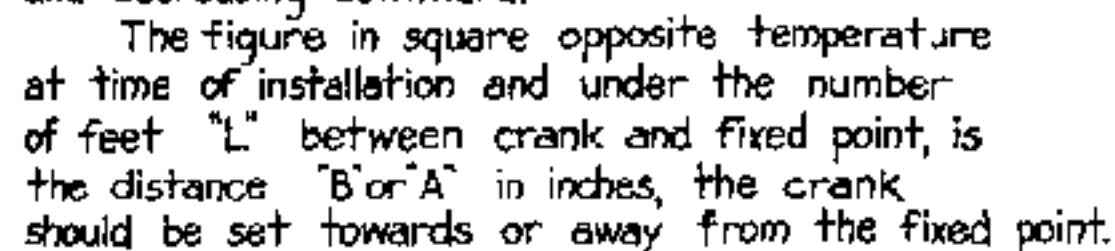
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD PIPE COMPENSATOR

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Wm. A. ...* MAY 19, 1931
CHIEF ENGINEER

S-2180

S-2180-2 PIPE COMPENSATOR COMPLETE.



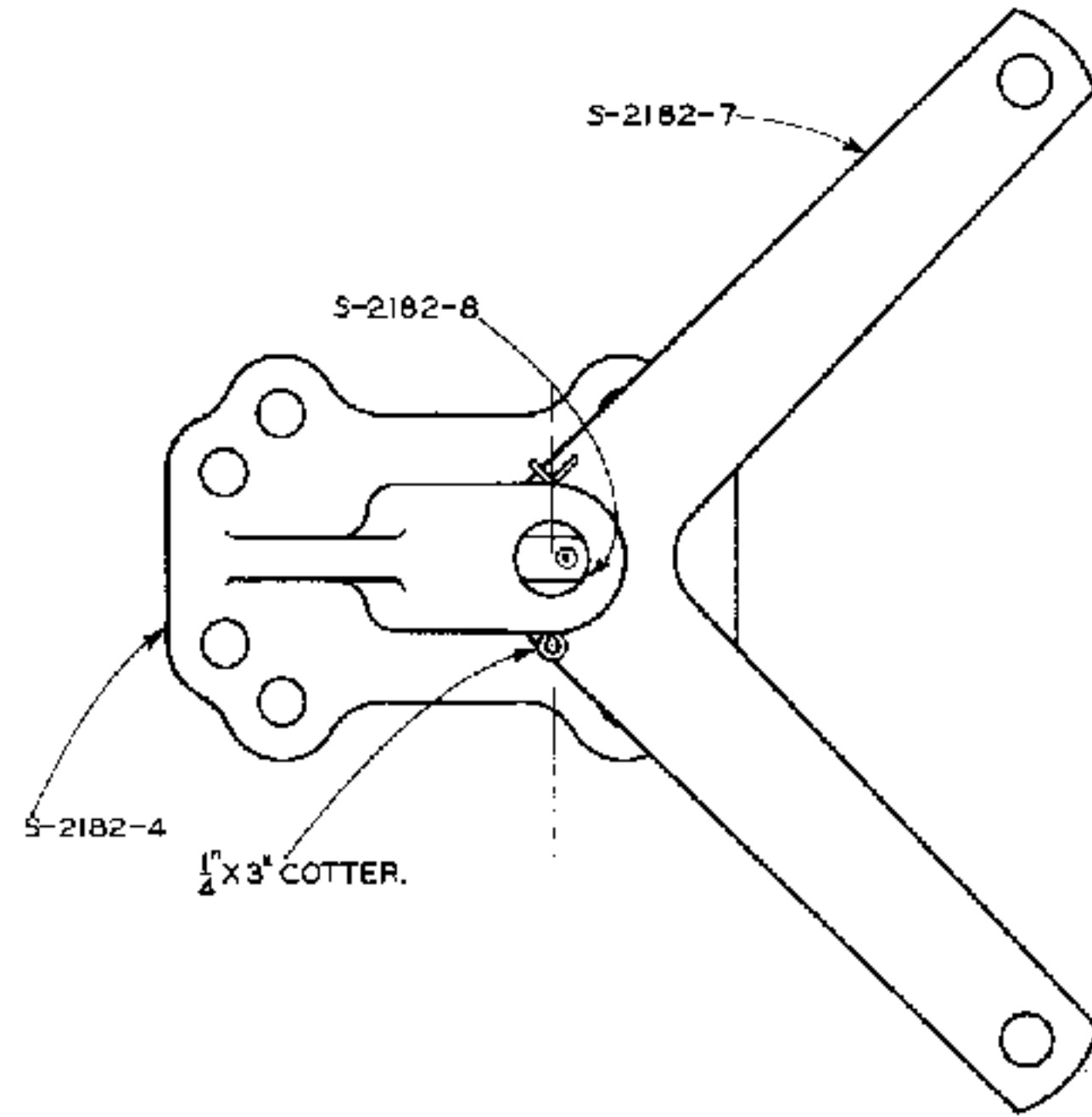
CRANK CHART

Suppose the mean temperature at point of installation is found to be 50° F. In this case the 70° line will be the second to the left of the vertical. Find intersection of this line with horizontal line marked 700 Ft. Follow up the nearest vertical line getting a reading of 20 3/8 inches for compensation centers.

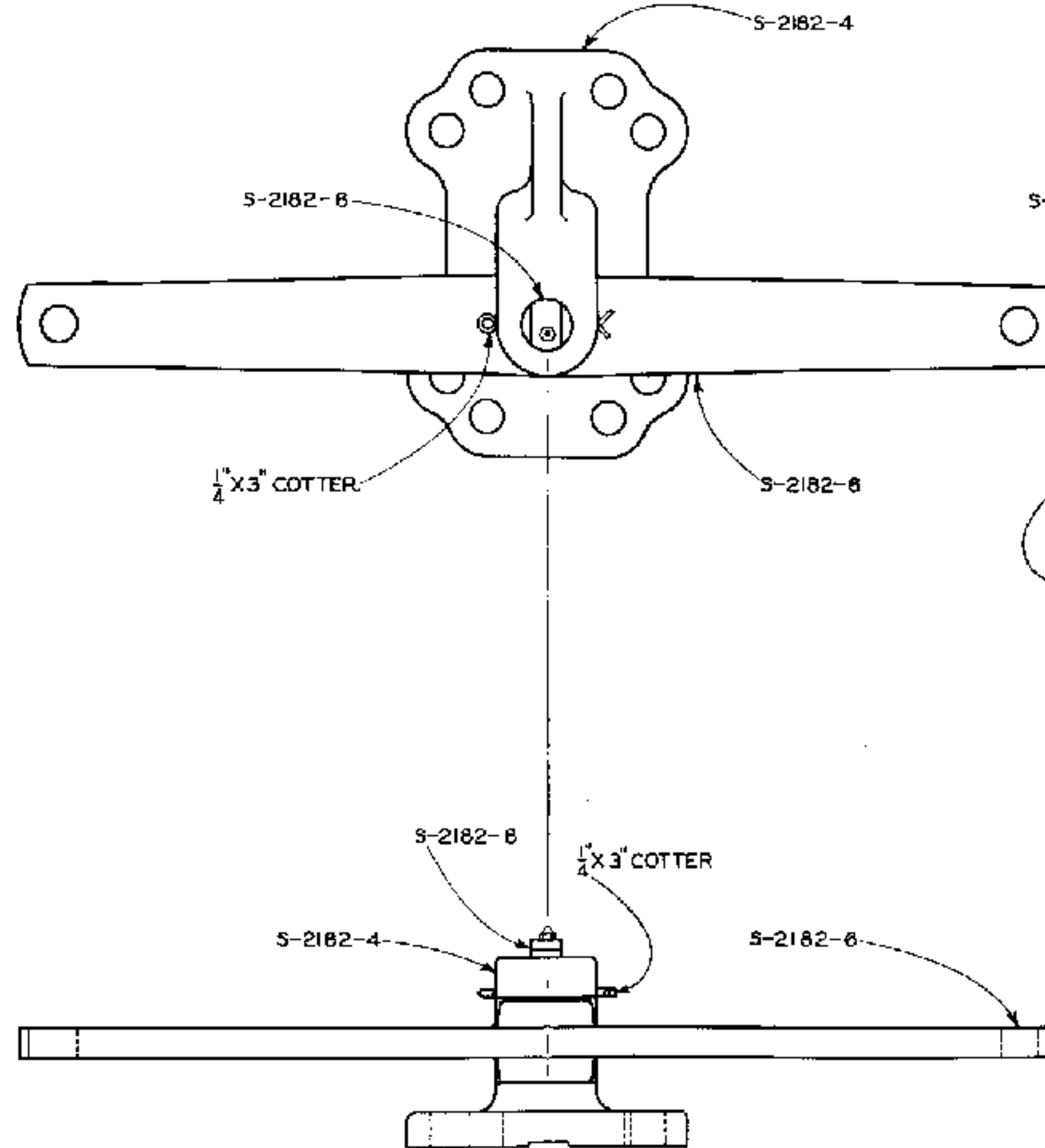


NOTE

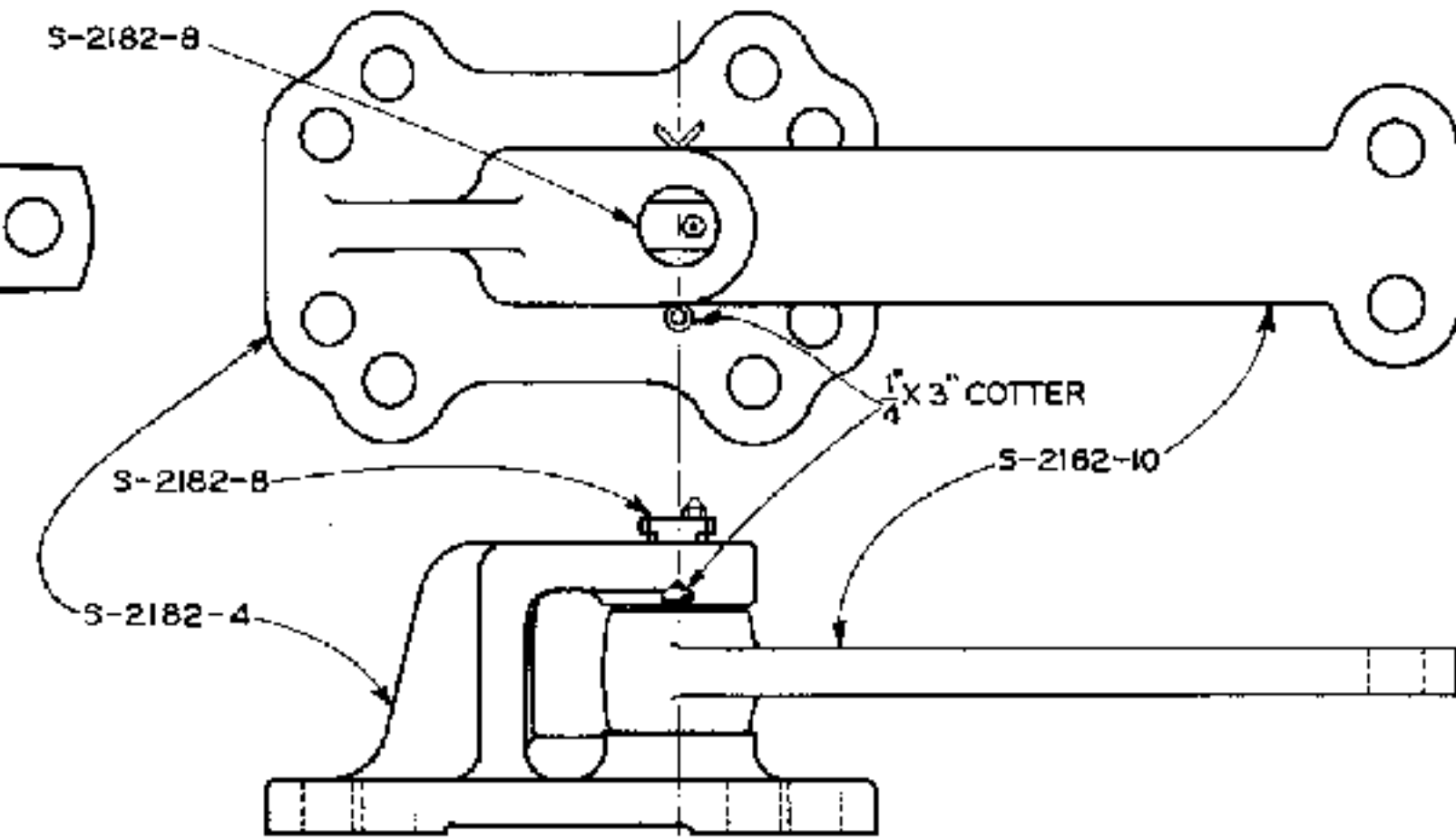
CRANKS AND STAND SHALL BE FURNISHED WITH ALL SURFACES EXCEPT PIN HOLES, PINS, AND BEARING SURFACES, PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



S-2182-1 RIGHT ANGLE CRANK AND STAND COMPLETE



S-2182-2 STRAIGHT ARM CRANK AND STAND COMPLETE

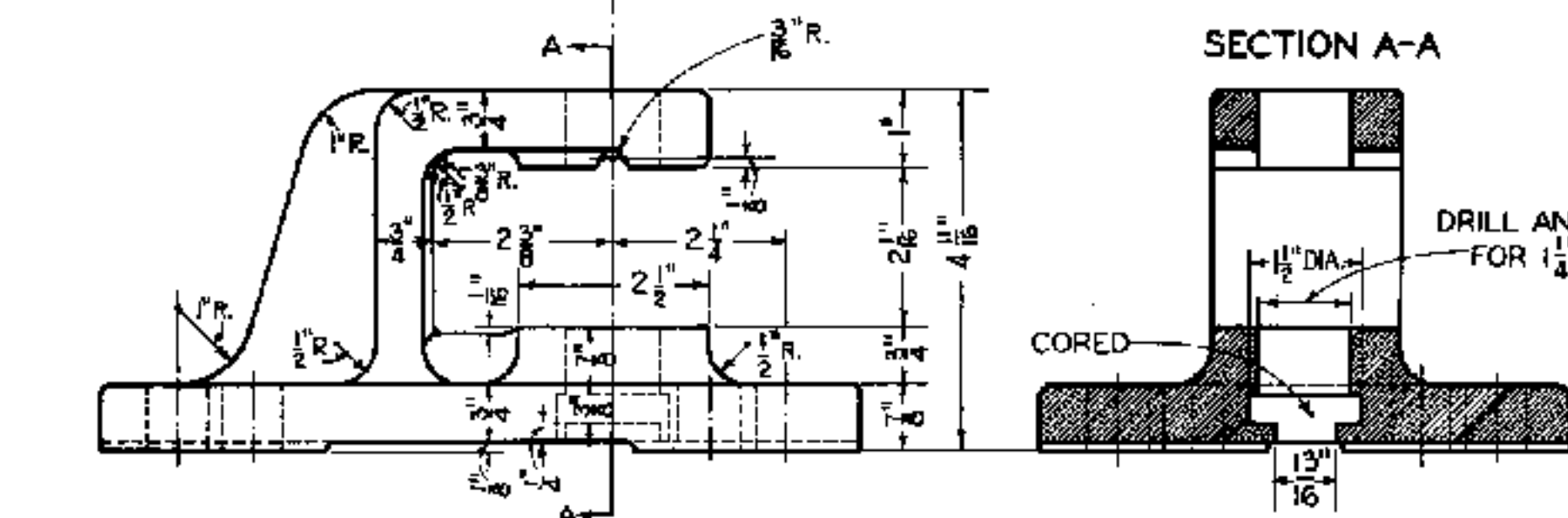


S-2182-3 RADIAL ARM AND STAND COMPLETE

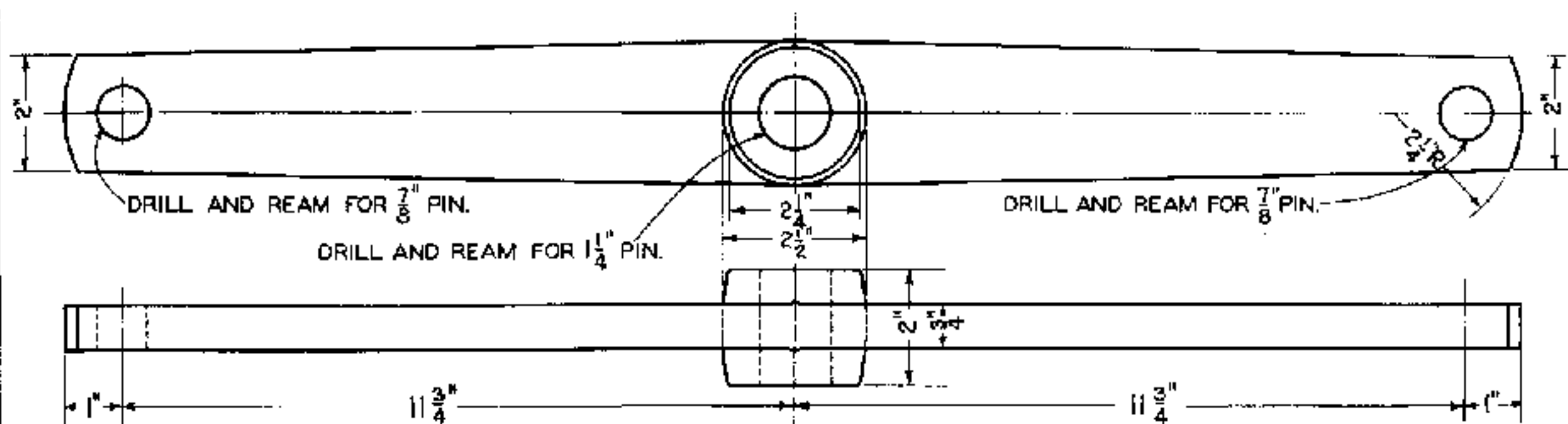
SCALE IN INCHES
0 1 2 3 4 5 6 7 8

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>W. H. Woodruff</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>W. H. Woodruff</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>W. H. Woodruff</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>W. H. Woodruff</i>		
VICE PRESIDENT		
C.S.L.	C.D.M.	A.J.P.
C.S.L.		

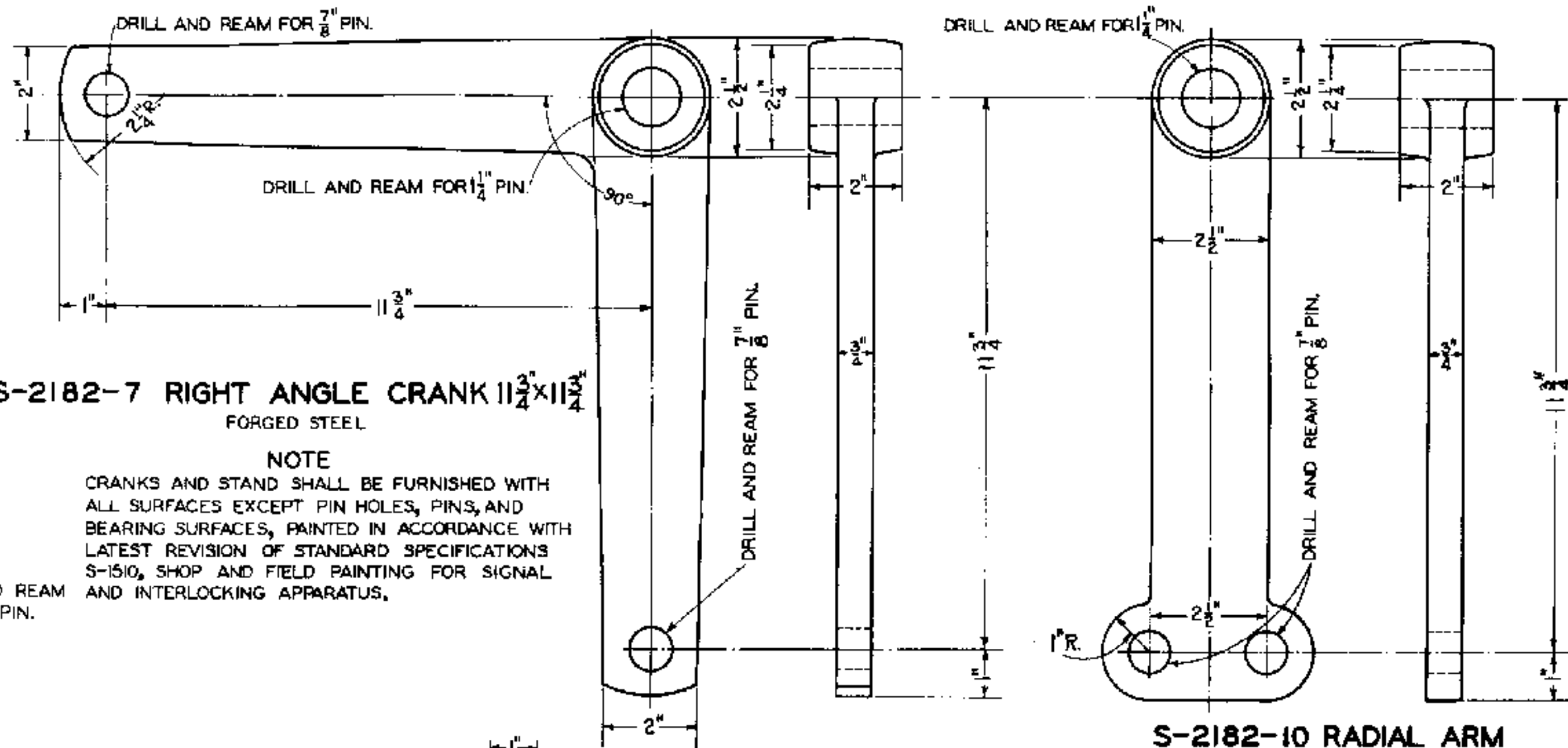
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
ERIE RAILROAD COMPANY	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
PERE MARQUETTE RAILWAY COMPANY	
STANDARD	
CRANKS AND STAND	
ONE-WAY HORIZONTAL	
APPROVED BY	
ADVISORY COMMITTEE ON WAY AND STRUCTURES	
APPROVED: <i>W. H. Woodruff</i>	OCTOBER 20, 1931
CHIEF ENGINEER	
SHEET 1 OF 2	
S-2182	



S-2182-4 ONE WAY CRANK STAND ONLY
S-2182-5 ONE WAY CRANK STAND WITH PIN S-2182-8
CAST IRON



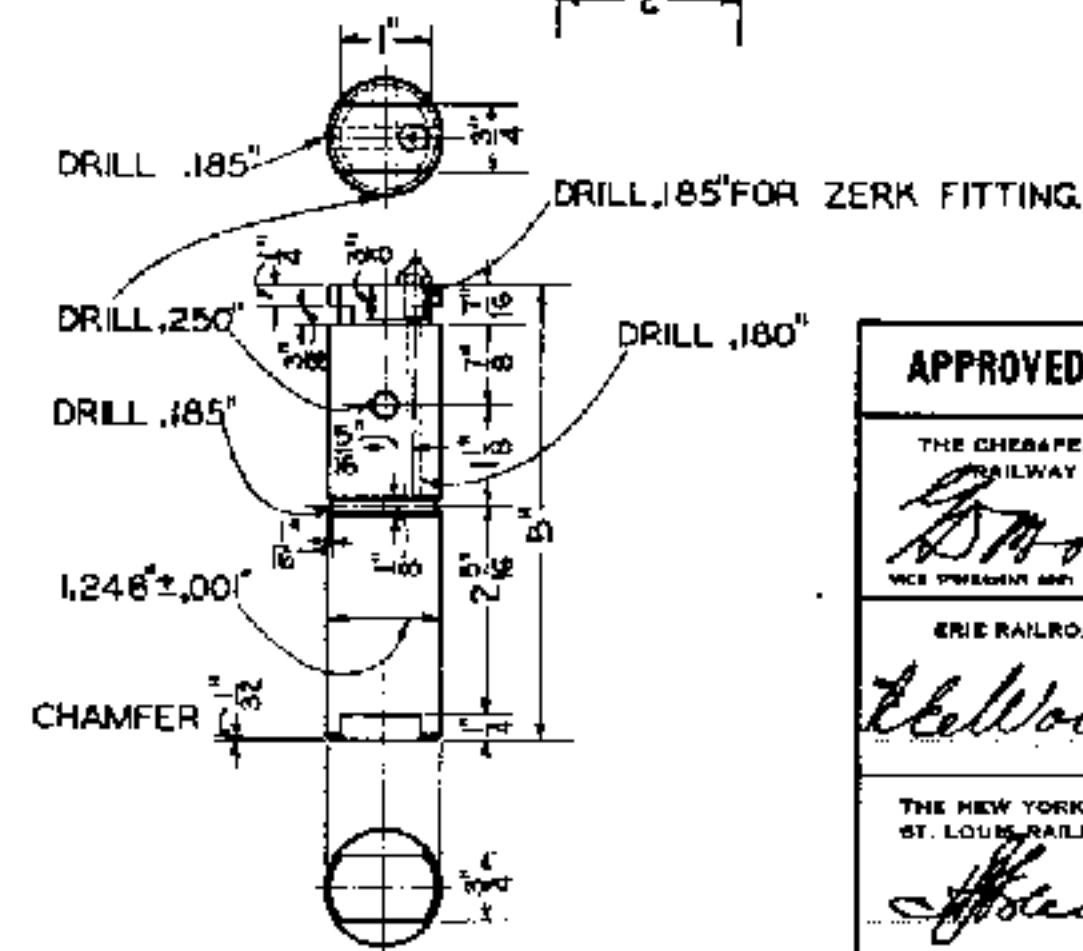
S-2182-6 STRAIGHT ARM CRANK $11\frac{3}{4}'' \times 11\frac{3}{4}''$
FORGED STEEL



S-2182-10 RADIAL ARM
FORGED STEEL

SCALE IN INCHES

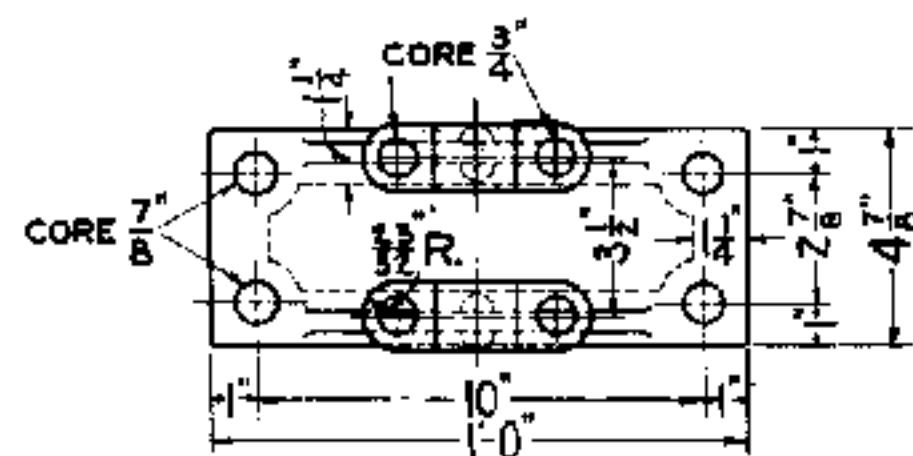
0 1 2 3 4 5 6

A horizontal scale bar with markings from 0 to 6 inches. The markings are labeled with integers from 0 to 6. There are tick marks at every integer and half-integer (0.5, 1.5, 2.5, 3.5, 4.5, 5.5). The bar is divided into segments by vertical lines. The segments between 0 and 1, 1 and 2, 2 and 3, 3 and 4, 4 and 5, and 5 and 6 are each divided into two equal parts by a vertical line, representing half-inch increments. The segments between 0 and 0.5, 0.5 and 1, 1 and 1.5, 1.5 and 2, 2 and 2.5, 2.5 and 3, 3 and 3.5, 3.5 and 4, 4 and 4.5, 4.5 and 5, 5 and 5.5, and 5.5 and 6 are each divided into two equal parts by a vertical line, representing quarter-inch increments. The segments between 0 and 0.25, 0.25 and 0.5, 0.5 and 0.75, 0.75 and 1, 1 and 1.25, 1.25 and 1.5, 1.5 and 1.75, 1.75 and 2, 2 and 2.25, 2.25 and 2.5, 2.5 and 2.75, 2.75 and 3, 3 and 3.25, 3.25 and 3.5, 3.5 and 3.75, 3.75 and 4, 4 and 4.25, 4.25 and 4.5, 4.5 and 4.75, 4.75 and 5, 5 and 5.25, 5.25 and 5.5, 5.5 and 5.75, 5.75 and 6 are each divided into two equal parts by a vertical line, representing eighth-inch increments. The segments between 0 and 0.125, 0.125 and 0.25, 0.25 and 0.375, 0.375 and 0.5, 0.5 and 0.625, 0.625 and 0.75, 0.75 and 0.875, 0.875 and 1, 1 and 1.125, 1.125 and 1.25, 1.25 and 1.375, 1.375 and 1.5, 1.5 and 1.625, 1.625 and 1.75, 1.75 and 1.875, 1.875 and 2, 2 and 2.125, 2.125 and 2.25, 2.25 and 2.375, 2.375 and 2.5, 2.5 and 2.625, 2.625 and 2.75, 2.75 and 2.875, 2.875 and 3, 3 and 3.125, 3.125 and 3.25, 3.25 and 3.375, 3.375 and 3.5, 3.5 and 3.625, 3.625 and 3.75, 3.75 and 3.875, 3.875 and 4, 4 and 4.125, 4.125 and 4.25, 4.25 and 4.375, 4.375 and 4.5, 4.5 and 4.625, 4.625 and 4.75, 4.75 and 4.875, 4.875 and 5, 5 and 5.125, 5.125 and 5.25, 5.25 and 5.375, 5.375 and 5.5, 5.5 and 5.625, 5.625 and 5.75, 5.75 and 5.875, 5.875 and 6 are each divided into two equal parts by a vertical line, representing sixteenth-inch increments. The segments between 0 and 0.0625, 0.0625 and 0.125, 0.125 and 0.1875, 0.1875 and 0.25, 0.25 and 0.3125, 0.3125 and 0.375, 0.375 and 0.4375, 0.4375 and 0.5, 0.5 and 0.5625, 0.5625 and 0.625, 0.625 and 0.6875, 0.6875 and 0.75, 0.75 and 0.8125, 0.8125 and 0.875, 0.875 and 0.9375, 0.9375 and 1, 1 and 1.0625, 1.0625 and 1.125, 1.125 and 1.1875, 1.1875 and 1.25, 1.25 and 1.3125, 1.3125 and 1.375, 1.375 and 1.4375, 1.4375 and 1.5, 1.5 and 1.5625, 1.5625 and 1.625, 1.625 and 1.6875, 1.6875 and 1.75, 1.75 and 1.8125, 1.8125 and 1.875, 1.875 and 1.9375, 1.9375 and 2, 2 and 2.0625, 2.0625 and 2.125, 2.125 and 2.1875, 2.1875 and 2.25, 2.25 and 2.3125, 2.3125 and 2.375, 2.375 and 2.4375, 2.4375 and 2.5, 2.5 and 2.5625, 2.5625 and 2.625, 2.625 and 2.6875, 2.6875 and 2.75, 2.75 and 2.8125, 2.8125 and 2.875, 2.875 and 2.9375, 2.9375 and 3, 3 and 3.0625, 3.0625 and 3.125, 3.125 and 3.1875, 3.1875 and 3.25, 3.25 and 3.3125, 3.3125 and 3.375, 3.375 and 3.4375, 3.4375 and 3.5, 3.5 and 3.5625, 3.5625 and 3.625, 3.625 and 3.6875, 3.6875 and 3.75, 3.75 and 3.8125, 3.8125 and 3.875, 3.875 and 3.9375, 3.9375 and 4, 4 and 4.0625, 4.0625 and 4.125, 4.125 and 4.1875, 4.1875 and 4.25, 4.25 and 4.3125, 4.3125 and 4.375, 4.375 and 4.4375, 4.4375 and 4.5, 4.5 and 4.5625, 4.5625 and 4.625, 4.625 and 4.6875, 4.6875 and 4.75, 4.75 and 4.8125, 4.8125 and 4.875, 4.875 and 4.9375, 4.9375 and 5, 5 and 5.0625, 5.0625 and 5.125, 5.125 and 5.1875, 5.1875 and 5.25, 5.25 and 5.3125, 5.3125 and 5.375, 5.375 and 5.4375, 5.4375 and 5.5, 5.5 and 5.5625, 5.5625 and 5.625, 5.625 and 5.6875, 5.6875 and 5.75, 5.75 and 5.8125, 5.8125 and 5.875, 5.875 and 5.9375, 5.9375 and 6 are each divided into two equal parts by a vertical line, representing thirty-second-inch increments. The segments between 0 and 0.03125, 0.03125 and 0.0625, 0.0625 and 0.09375, 0.09375 and 0.125, 0.125 and 0.15625, 0.15625 and 0.1875, 0.1875 and 0.21875, 0.21875 and 0.25, 0.25 and 0.28125, 0.28125 and 0.3125, 0.3125 and 0.34375, 0.34375 and 0.375, 0.375 and 0.40625, 0.40625 and 0.4375, 0.4375 and 0.46875, 0.46875 and 0.5, 0.5 and 0.53125, 0.53125 and 0.5625, 0.5625 and 0.59375, 0.59375 and 0.625, 0.625 and 0.65625, 0.65625 and 0.6875, 0.6875 and 0.71875, 0.71875 and 0.75, 0.75 and 0.78125, 0.78125 and 0.8125, 0.8125 and 0.84375, 0.84375 and 0.875, 0.875 and 0.90625, 0.90625 and 0.9375, 0.9375 and 0.96875, 0.96875 and 1, 1 and 1.03125, 1.03125 and 1.0625, 1.0625 and 1.09375, 1.09375 and 1.125, 1.125 and 1.15625, 1.15625 and 1.1875, 1.1875 and 1.21875, 1.21875 and 1.25, 1.25 and 1.28125, 1.28125 and 1.3125, 1.3125 and 1.34375, 1.34375 and 1.375, 1.375 and 1.40625, 1.40625 and 1.4375, 1.4375 and 1.46875, 1.46875 and 1.5, 1.5 and 1.53125, 1.53125 and 1.5625, 1.5625 and 1.59375, 1.59375 and 1.625, 1.625 and 1.65625, 1.65625 and 1.6875, 1.6875 and 1.71875, 1.71875 and 1.75, 1.75 and 1.78125, 1.78125 and 1.8125, 1.8125 and 1.84375, 1.84375 and 1.875, 1.875 and 1.90625, 1.90625 and 1.9375, 1.9375 and 1.96875, 1.96875 and 2, 2 and 2.03125, 2.03125 and 2.0625, 2.0625 and 2.09375, 2.09375 and 2.125, 2.125 and 2.15625, 2.15625 and 2.1875, 2.1875 and 2.21875, 2.21875 and 2.25, 2.25 and 2.28125, 2.28125 and 2.3125, 2.3125 and 2.34375, 2.34375 and 2.375, 2.375 and 2.40625, 2.40625 and 2.4375, 2.4375 and 2.46875, 2.46875 and 2.5, 2.5 and 2.53125, 2.53125 and 2.5625, 2.5625 and 2.59375, 2.59375 and 2.625, 2.625 and 2.65625, 2.65625 and 2.6875, 2.6875 and 2.71875, 2.71875 and 2.75, 2.75 and 2.78125, 2.78125 and 2.8125, 2.8125 and 2.84375, 2.84375 and 2.875, 2.875 and 2.90625, 2.90625 and 2.9375, 2.9375 and 2.96875, 2.96875 and 3, 3 and 3.03125, 3.03125 and 3.0625, 3.0625 and 3.09

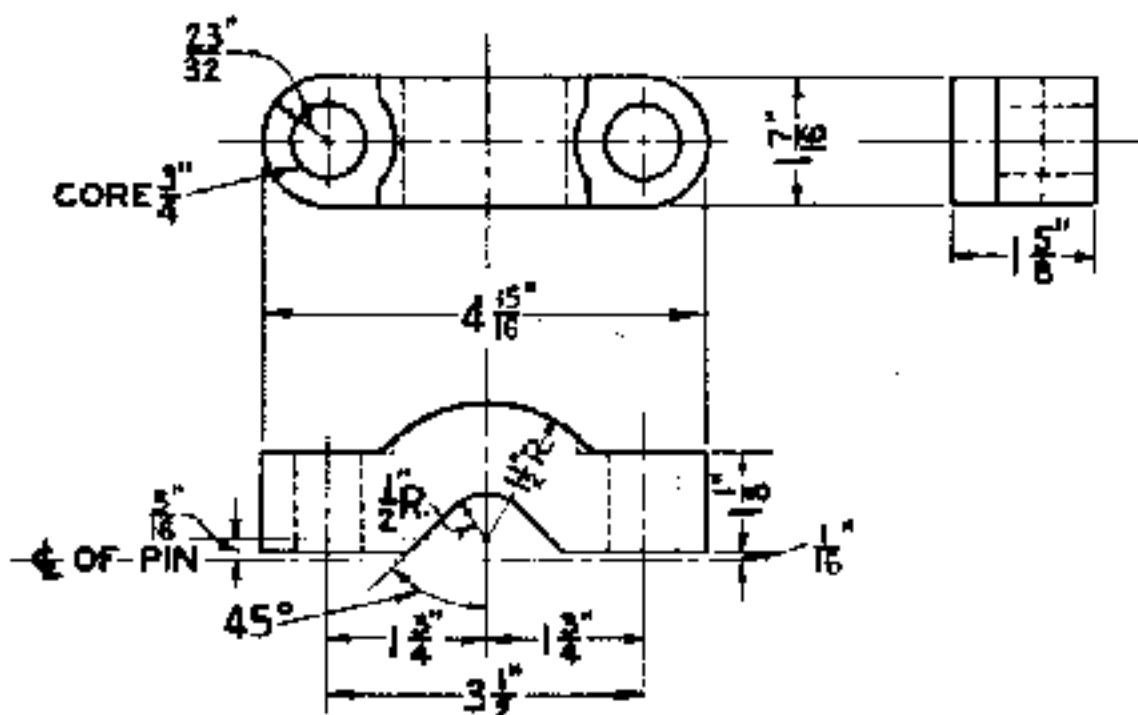
**S-2182-8 CRANK PIN
WITH ZERK FITTING**

S-2182-9 CRANK PIN ONLY
COLD ROLLED STEEL

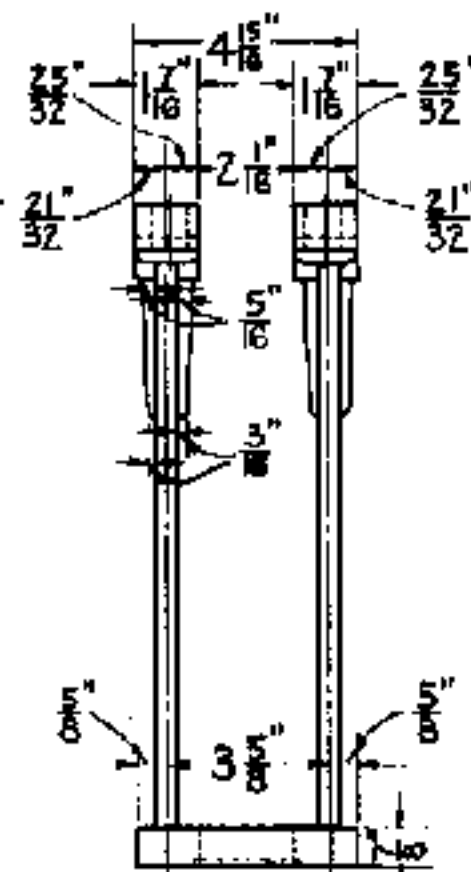
APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>G. M. Moore</i> VICE PRESIDENT AND GENERAL MANAGER		STANDARD CRANKS AND STAND ONE-WAY HORIZONTAL	
ERIE RAILROAD COMPANY <i>E. L. Woodruff</i> VICE PRESIDENT			
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>J. H. ...</i> VICE PRESIDENT			
PERE MARQUETTE RAILWAY COMPANY <i>H. ...</i> VICE PRESIDENT			
APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>W. ...</i> CHIEF ENGINEER		OCTOBER 20, 1931 SHEET 2 OF 2 S-2182	



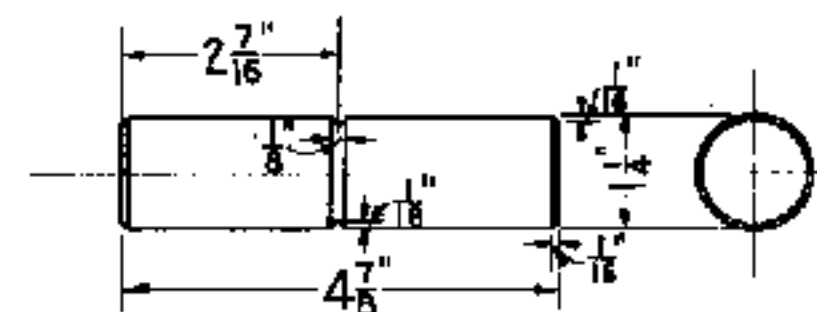
S-2184-1 ONE WAY VERTICAL CRANK STAND
CAST IRON
SCALE ①



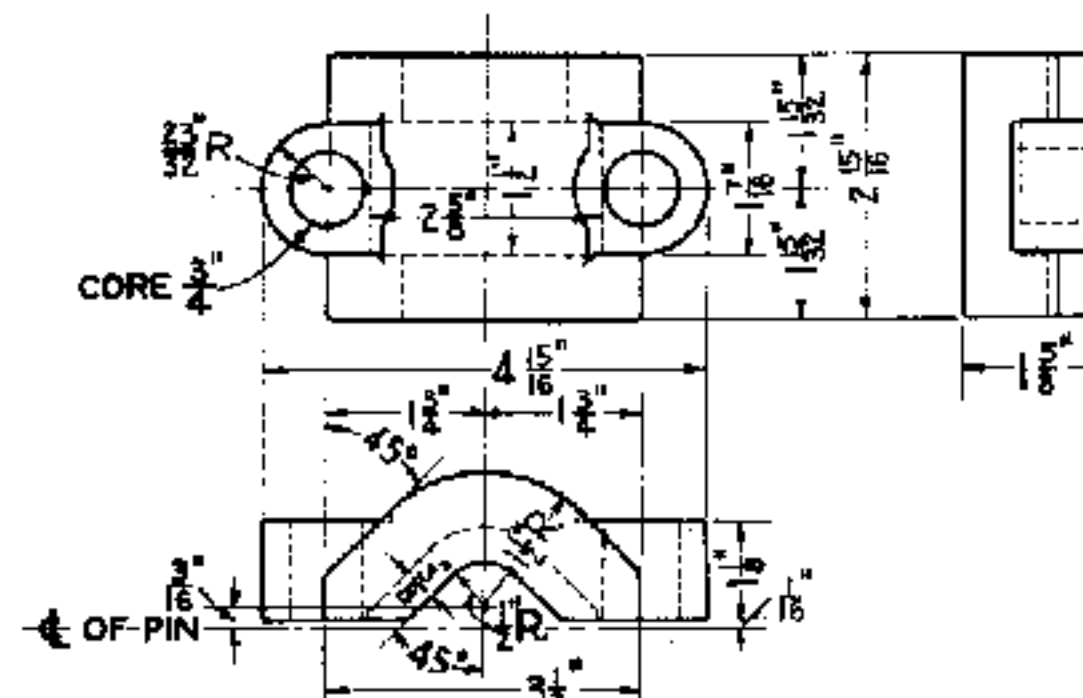
S-2184-4 END CAP
CAST IRON
SCALE ②



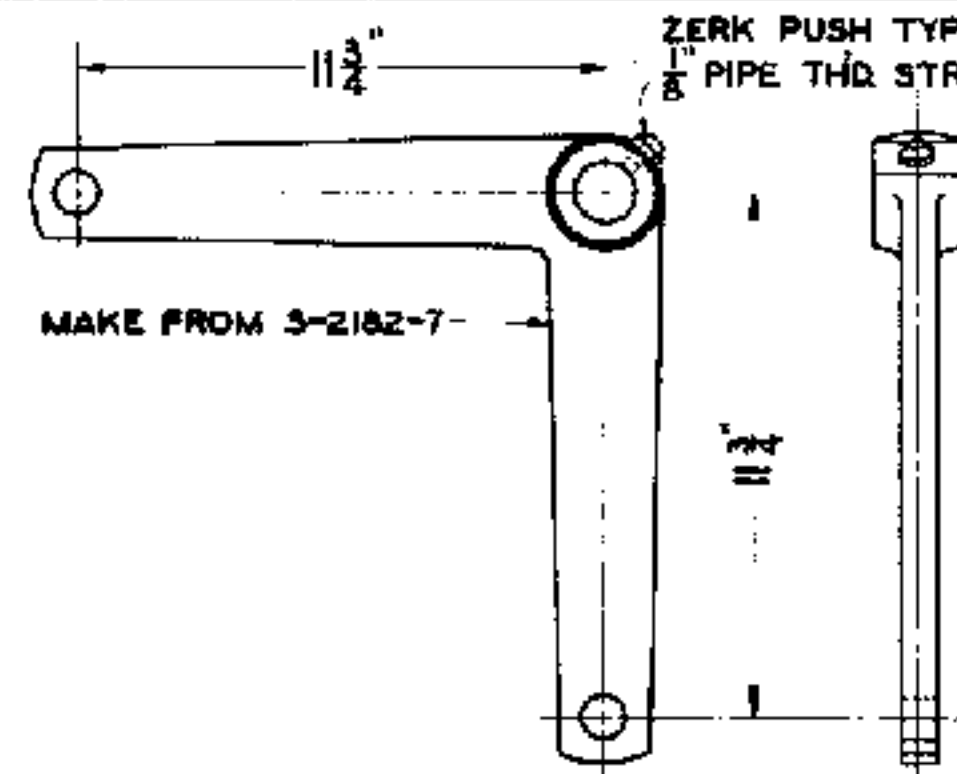
S-2184-2 RIGHT ANGLE CRANK 11 3/4" X 11 3/4"
FORGED STEEL
SCALE ①



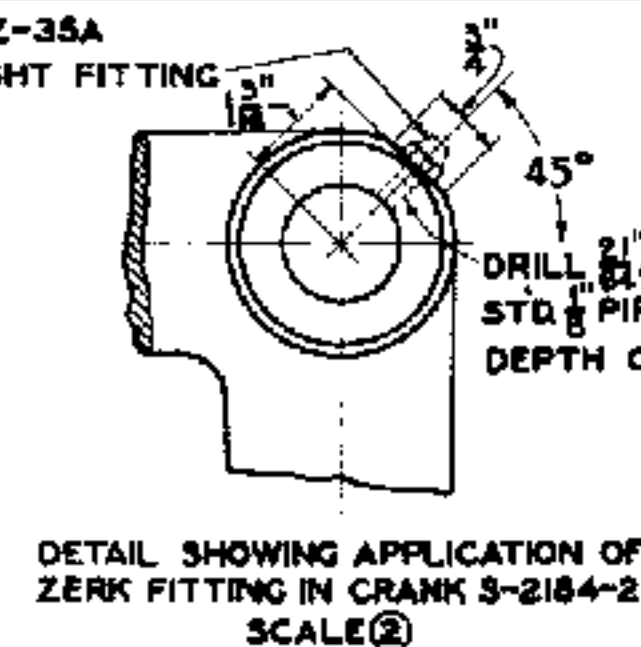
S-2184-3 PIN
COLD ROLLED STEEL
SCALE ②



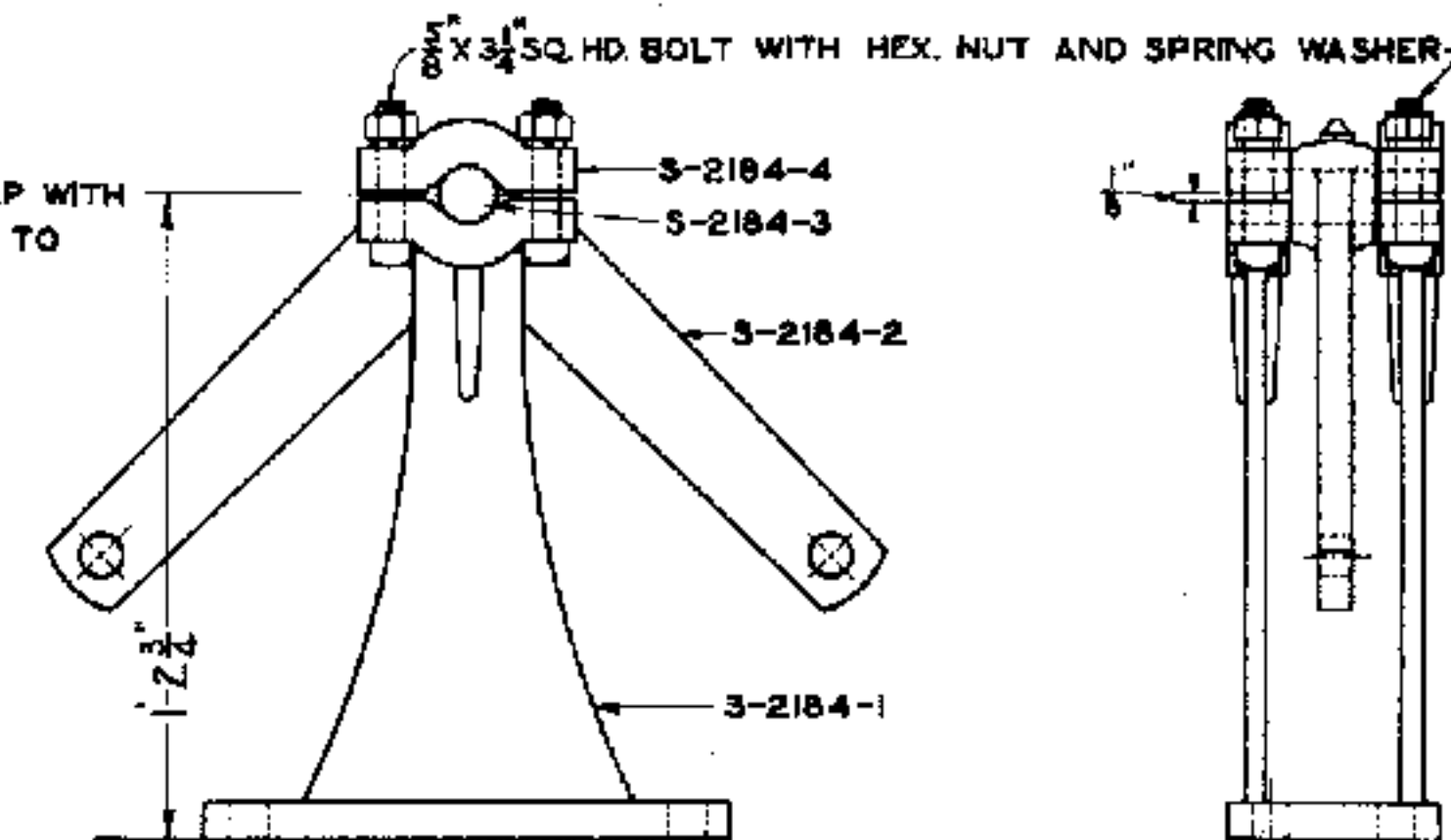
S-2184-5 INTERMEDIATE CAP
CAST IRON
SCALE ②



S-2184-2 RIGHT ANGLE CRANK 11 3/4" X 11 3/4"
FORGED STEEL
SCALE ①

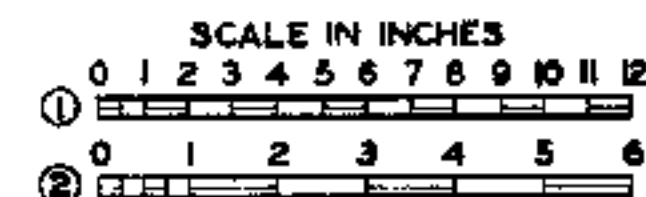


S-2184-2 RIGHT ANGLE CRANK 11 3/4" X 11 3/4"
FORGED STEEL
SCALE ①



S-2184-6 ONE WAY VERTICAL STAND AND CRANK COMPLETE
SCALE ①

NOTE
STANDS AND CRANKS SHALL BE FURNISHED WITH ALL SURFACES EXCEPT PINS, PIN HOLES, THREADS, AND BEARING SURFACES, PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

THE ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]*

CHIEF ENGINEER

NOV. 17, 1931.

SHEET 1 OF 2

S-2184

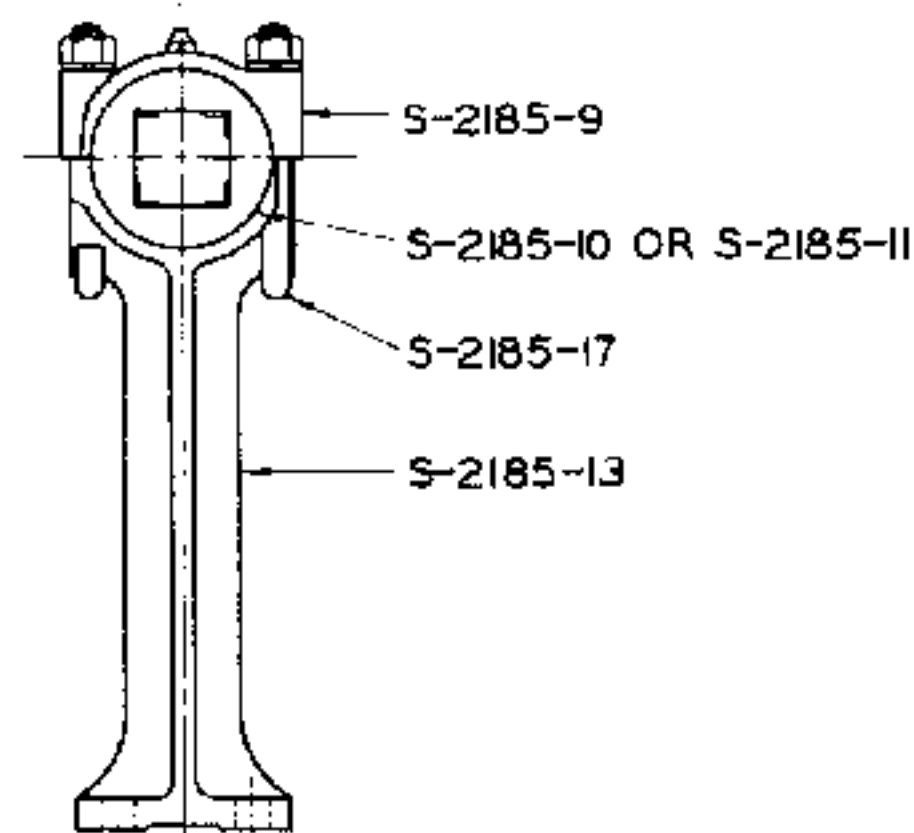
K.L.M. C.D.M. A.J.P.

K.L.M. C.D.M. A.J.P.

K.L.M. C.D.M. A.J.P.

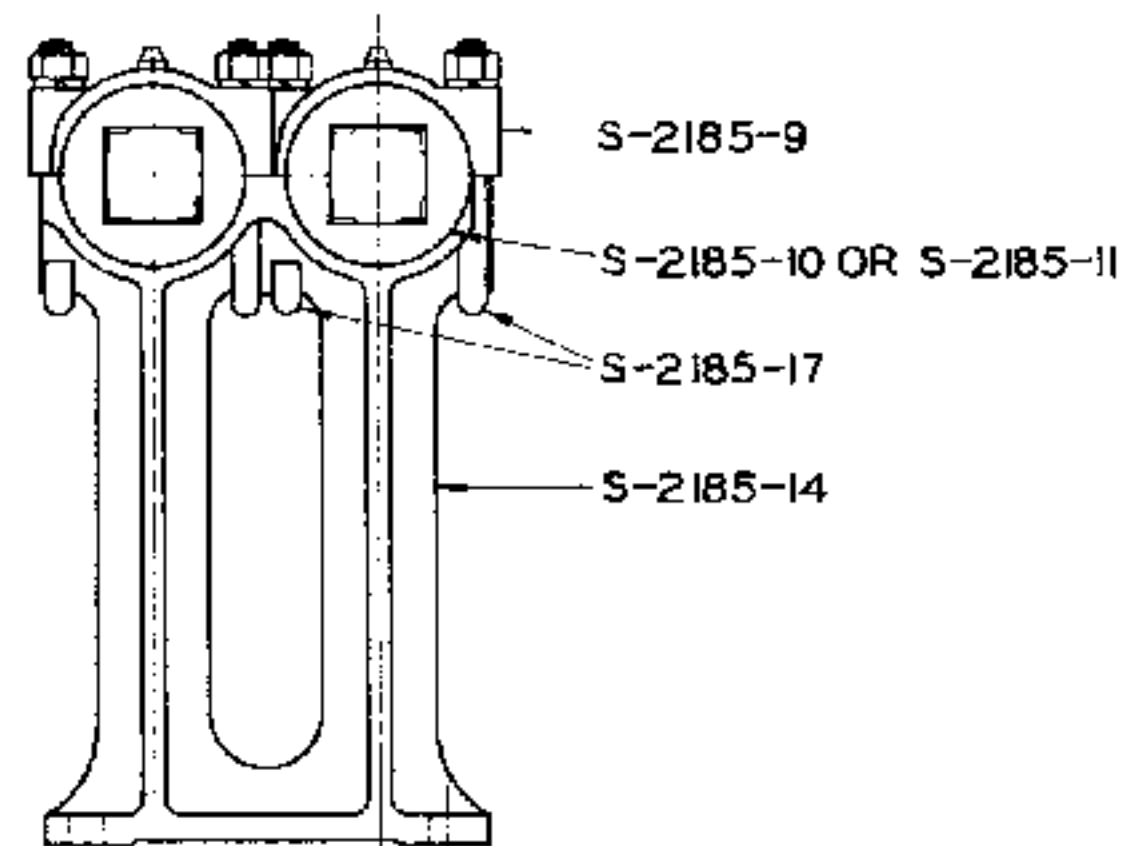
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K.L.M. C.D.M. A.J.P.



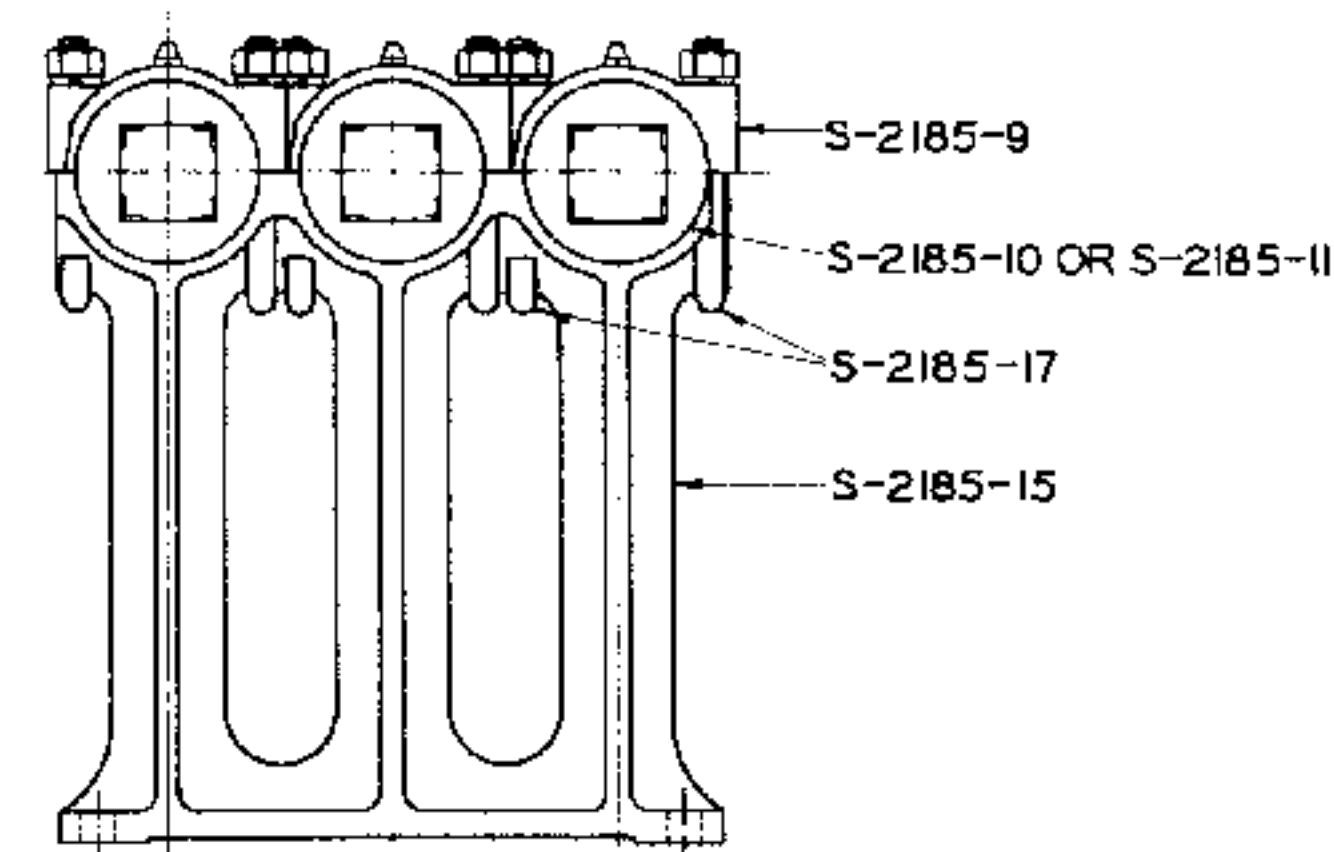
S-2185-1 ONE WAY BEARING
COMPLETE WITH 1 S-2185-10 PLAIN JOURNAL

S-2185-2 ONE WAY BEARING
COMPLETE WITH 1 S-2185-11 THRUST JOURNAL



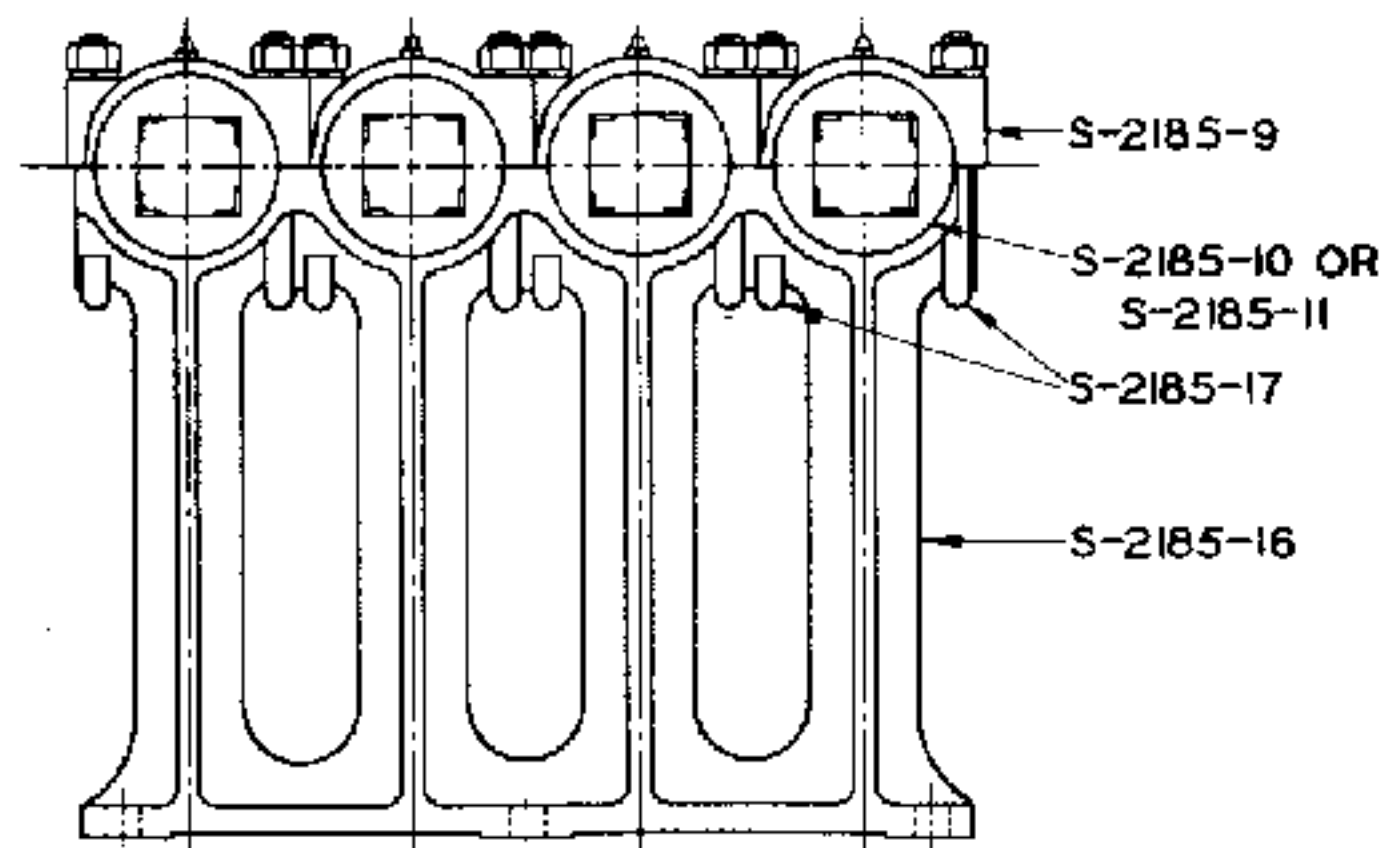
S-2185-3 TWO WAY BEARING
COMPLETE WITH 2 S-2185-10 PLAIN JOURNALS

S-2185-4 TWO WAY BEARING
COMPLETE WITH 2 S-2185-11 THRUST JOURNALS



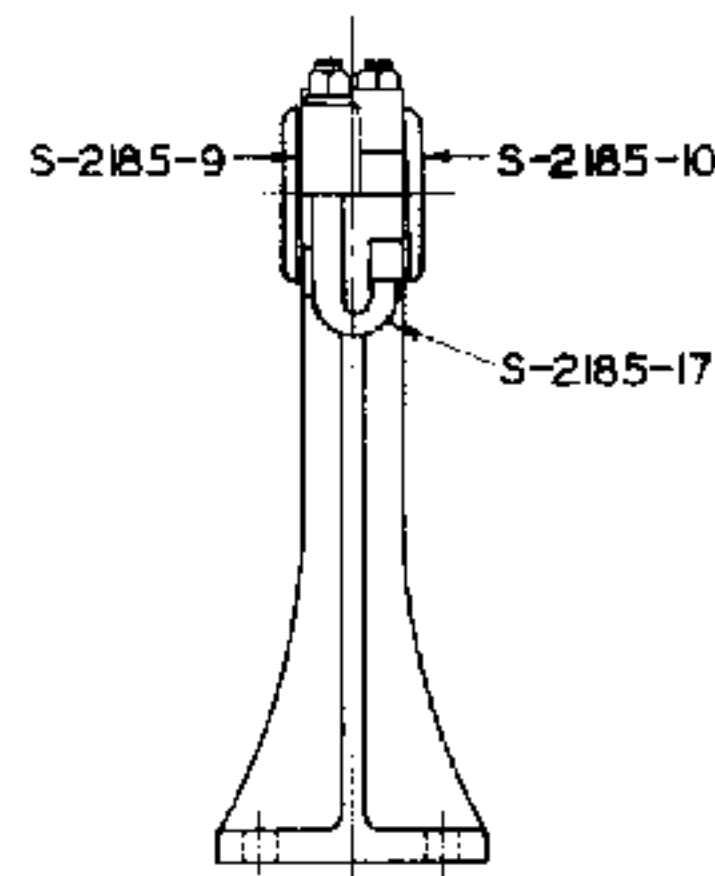
S-2185-5 THREE WAY BEARING
COMPLETE WITH 3 S-2185-10 PLAIN JOURNALS

S-2185-6 THREE WAY BEARING
COMPLETE WITH 3 S-2185-11 THRUST JOURNALS

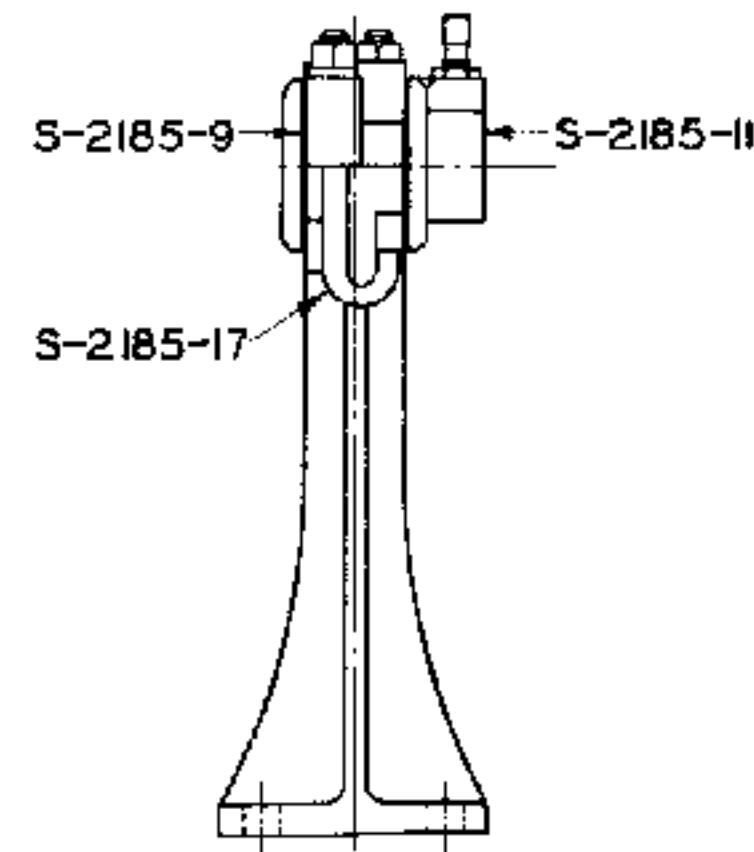


S-2185-7 FOUR WAY BEARING
COMPLETE WITH 4 S-2185-10 PLAIN JOURNALS

S-2185-8 FOUR WAY BEARING
COMPLETE WITH 4 S-2185-11 THRUST JOURNALS



END ELEVATION OF BEARING
FITTED WITH S-2185-10
PLAIN JOURNAL



END ELEVATION OF BEARING
FITTED WITH S-2185-11
THRUST JOURNAL

NOTE
ALL PARTS EXCEPT THREADS AND BEARING SURFACES SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES
0 1 2 3 6 9 12

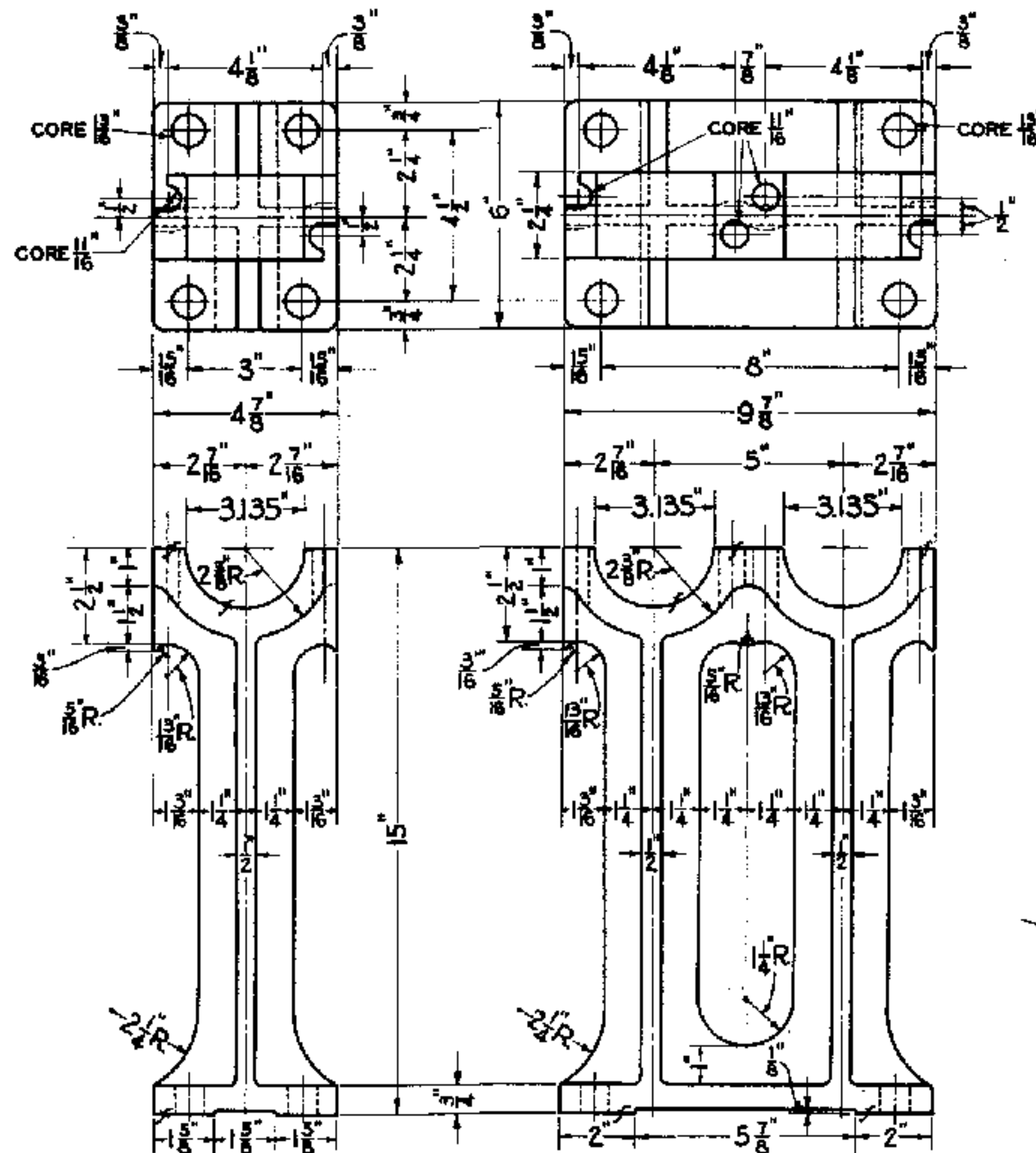
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>G. M. Moore</i> VICE PRESIDENT AND GENERAL MANAGER		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>Ed Woodruff</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>W. H. Brown</i> VICE PRESIDENT		
K.L.M.	C.D.M.	A.J.P.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD ROCKING SHAFT BEARINGS

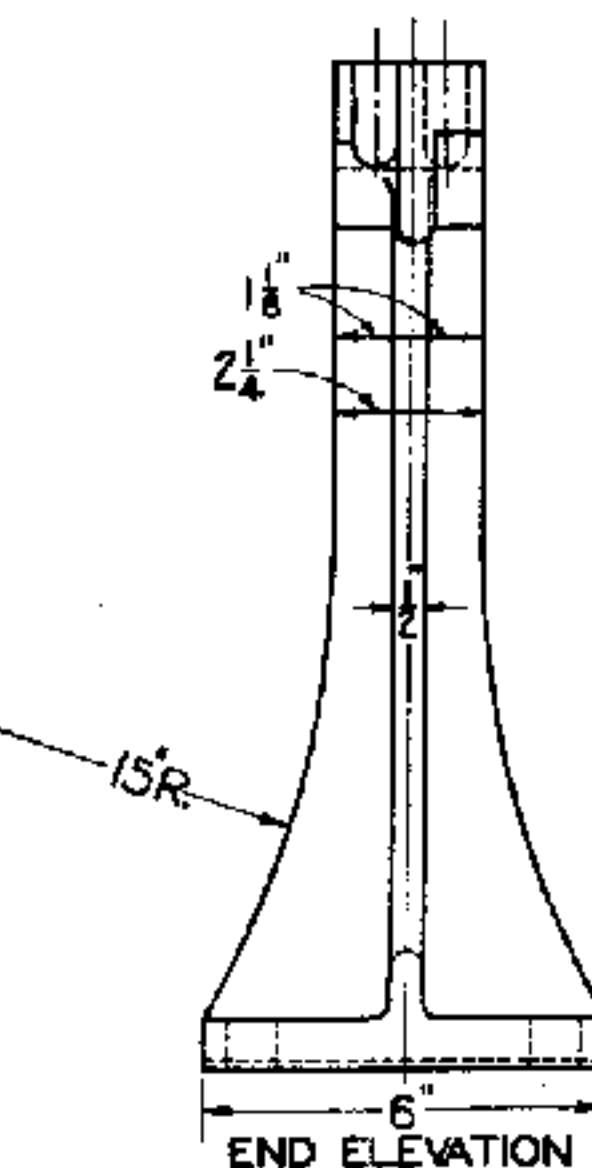
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Brown*
CHIEF ENGINEER
NOV. 17, 1931.

SHEET 1 OF 3
S-2185

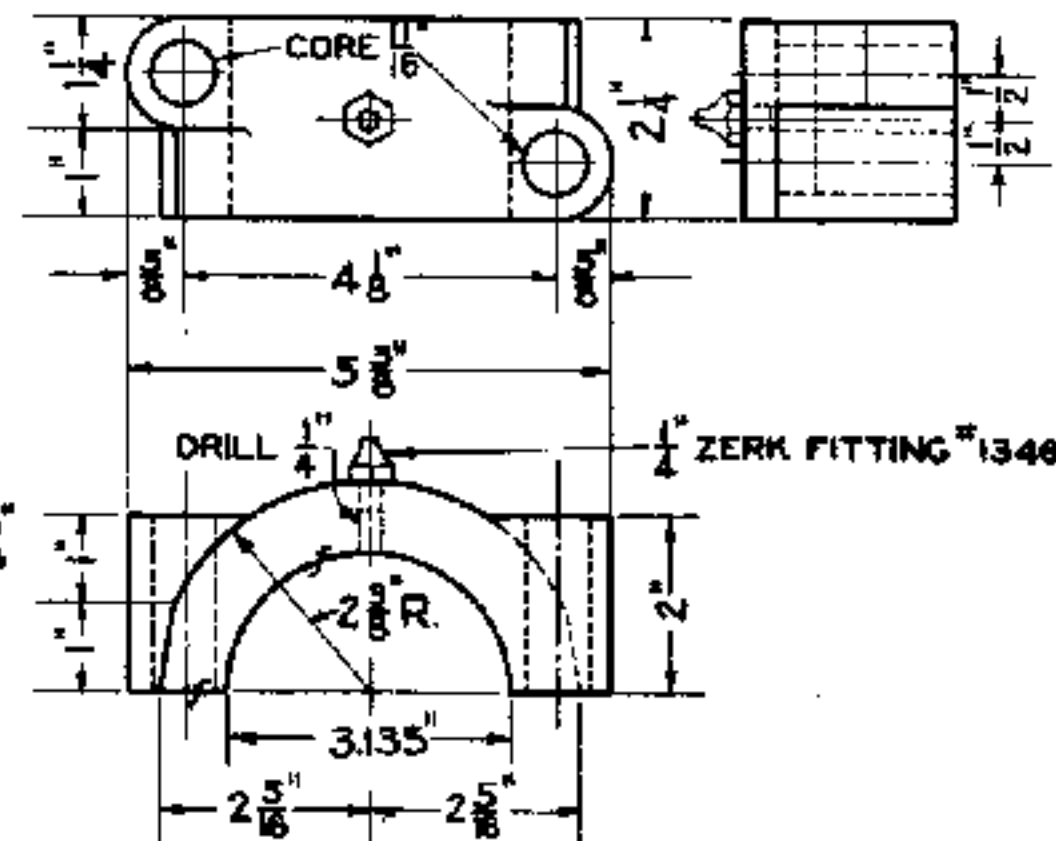


S-2185-13 ONE WAY STAND
CAST IRON
SCALE ①

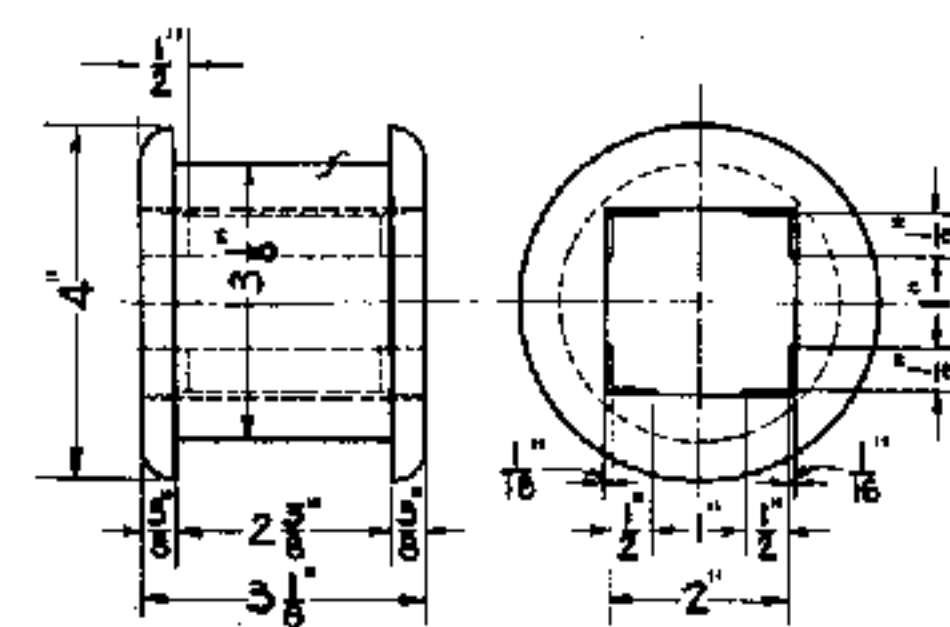
S-2185-14 TWO WAY STAND
CAST IRON
SCALE ①



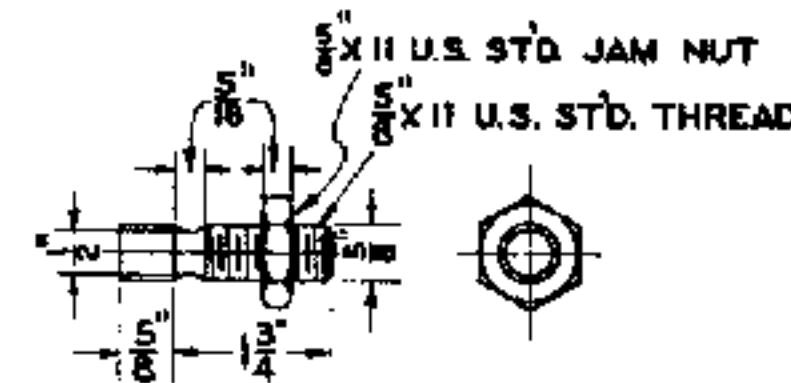
END ELEVATION



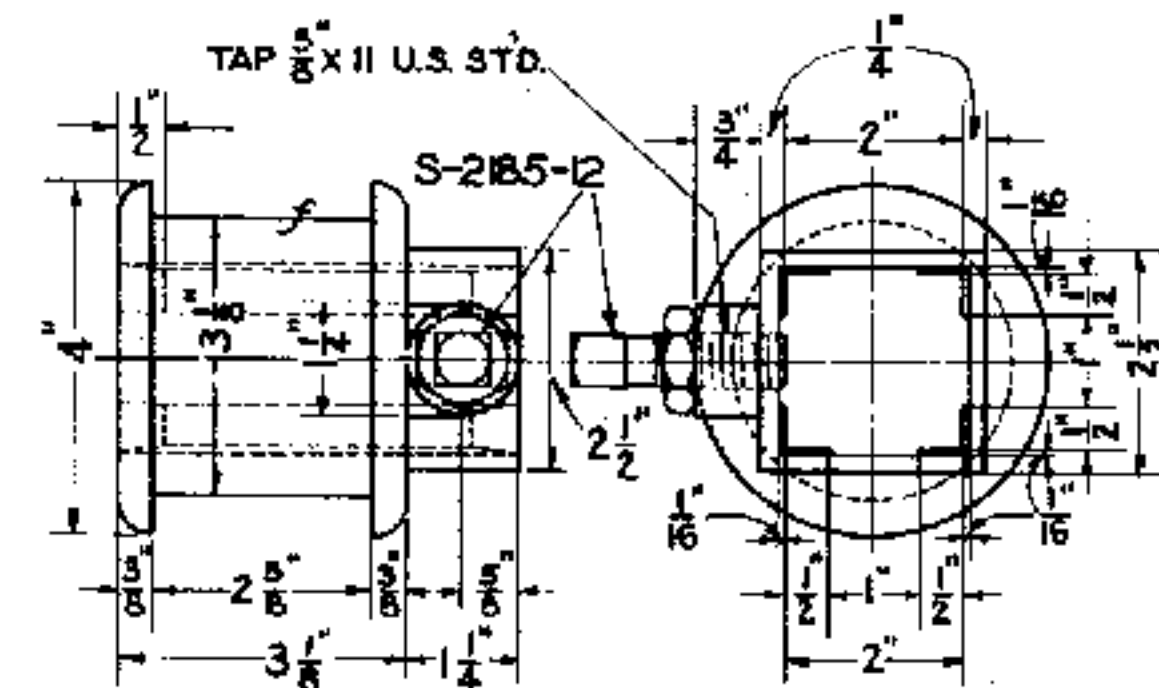
S-2185-9 CAP
CAST IRON
SCALE ②



S-2185-10 PLAIN JOURNAL
MALLEABLE IRON
SCALE ②



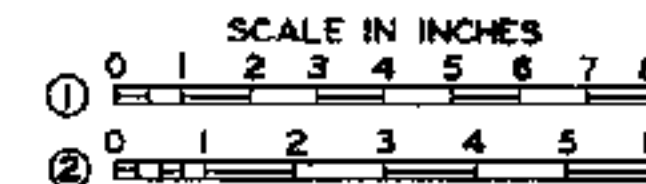
S-2185-12 SET SCREW
FORGED STEEL
SCALE ②



S-2185-11 THRUST JOURNAL
MALLEABLE IRON
SCALE ②

NOTE

ALL PARTS EXCEPT THREADS AND BEARING SURFACES SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

Brook
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

Holmes
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

Wheeler
VICE PRESIDENT

K.L.M. C.D.M. A.J.P.

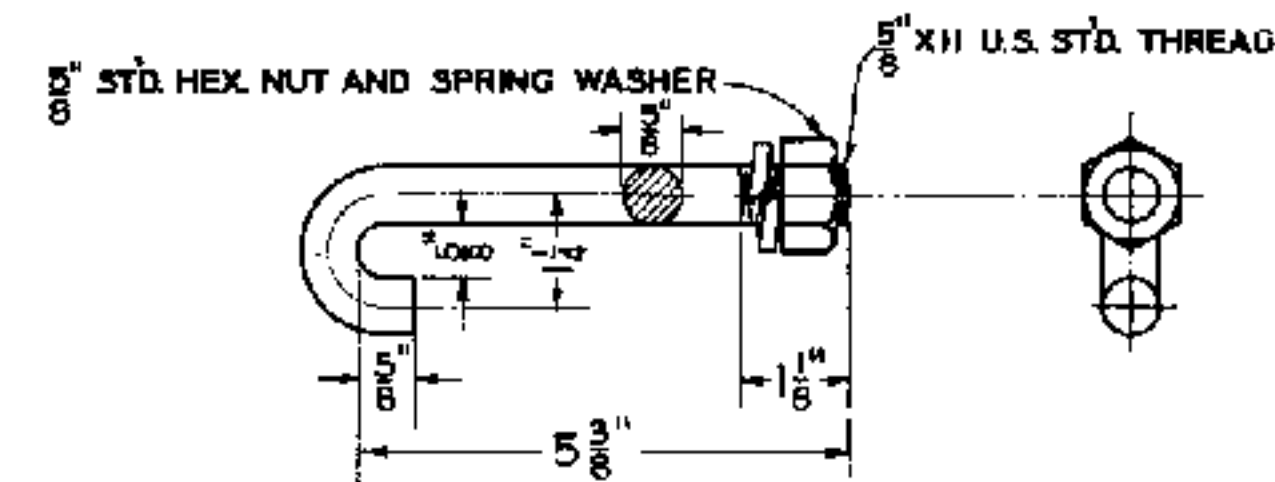
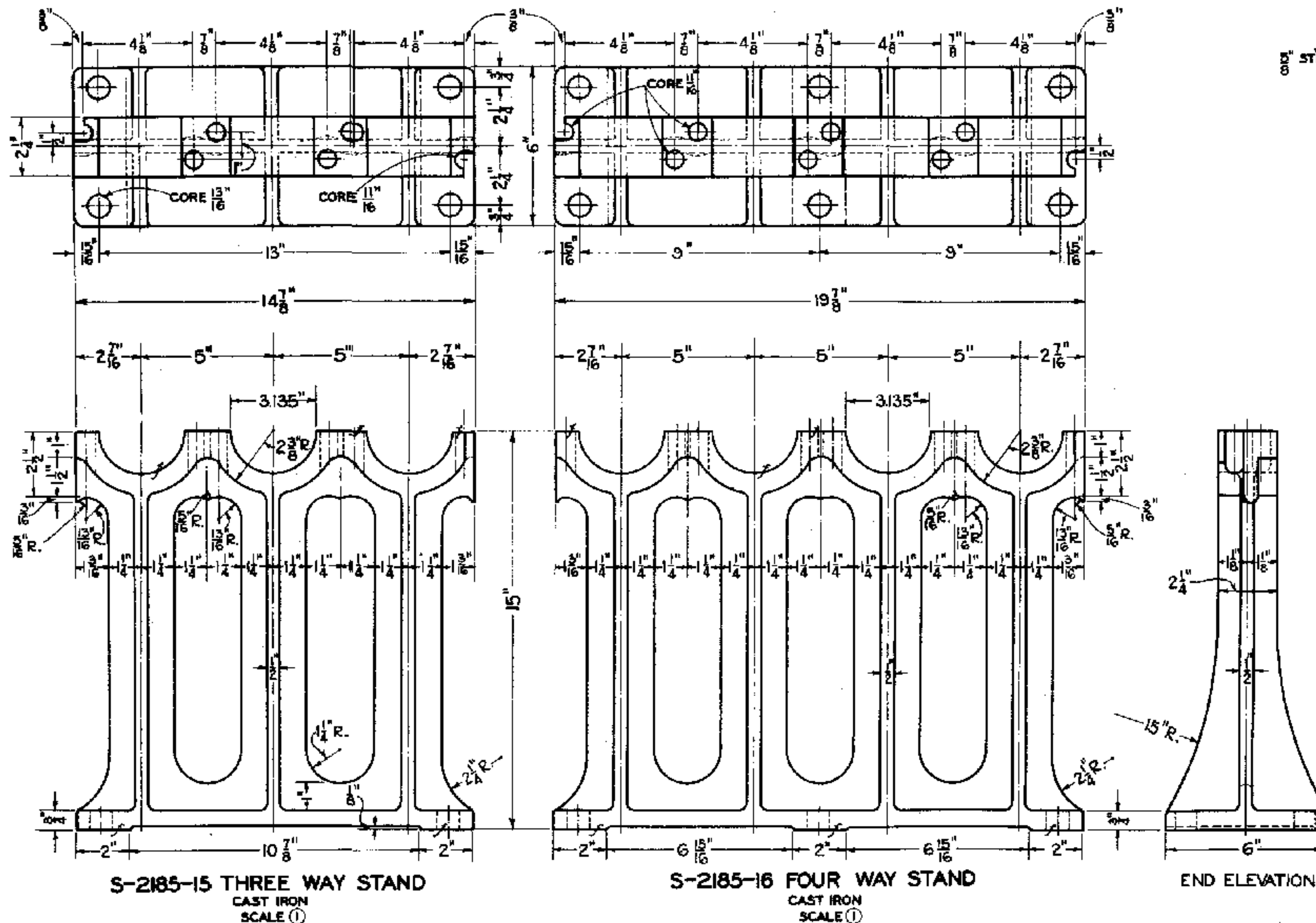
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD ROCKING SHAFT BEARINGS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED. *Wheeler*
CHIEF ENGINEER
NOV. 17, 1931

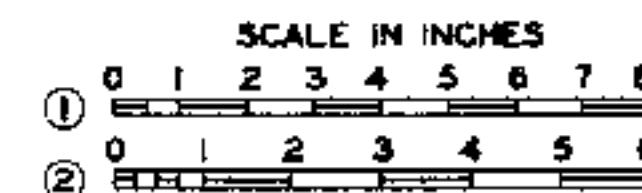
SHEET 2 OF 3

S-2185



S-2185-17 HOOK BOLT
Q-H. STEEL
SCALE ②

NOTE
ALL PARTS EXCEPT THREADS AND BEARING SURFACES SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

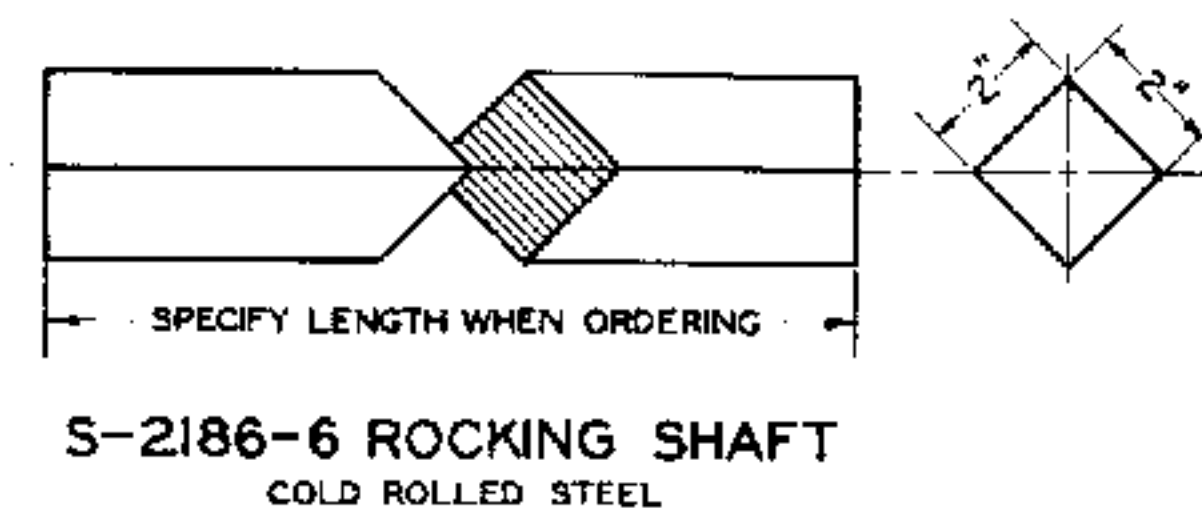


APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>[Signature]</i>		
VICE PRESIDENT		
R.L.M.	C.D.M.	A.J.P.
C.S.L.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

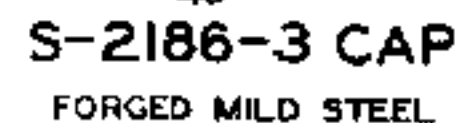
STANDARD ROCKING SHAFT BEARINGS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* NOV. 17, 1931.
CHIEF ENGINEER



NOTE

ALL PARTS EXCEPT THREADS AND PIN HOLES SHALL BE FURNISHED PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



SCALE IN INCHES

0 1 2 3 4 5 6 7 8

APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>D. B. Cooke</i> VICE PRESIDENT AND GENERAL MANAGER		THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
ERIE RAILROAD COMPANY <i>E. L. Woodruff</i> VICE PRESIDENT		STANDARD ROCKING SHAFT AND ARMS	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>J. H. Brown</i> VICE PRESIDENT			
PERE MARQUETTE RAILWAY COMPANY <i>J. H. Brown</i> VICE PRESIDENT			
K.L.M. K.L.M.	C.D.M. A.J.P.	APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>E. W. C. C. C. C.</i> NOV. 17, 1931. CHIEF ENGINEER	

D. - H. STEEL
SCALE (1)

O.H. STEEL
SCALE (2)

C.R. STEEL
SCALE (2)

O.-H. STEEL
SCALE (2)

SCALE ③

SCALE ③

S-230I-2 LEFT HAND LOCK PLATE

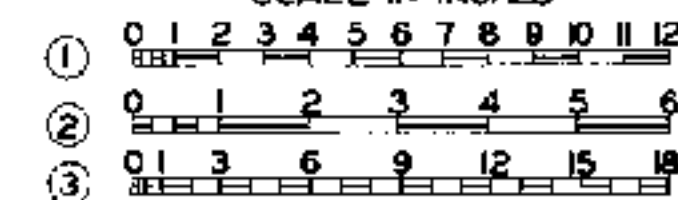
S-230I-3 RIGHT HAND LOCK PLATE

O.-H. STEEL
SCALE (f)

NOTE

ALL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 5-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES



APPROVED FOR USE

THE COMPANIES AND OHIO
 COMPANY

RAILWAY COMPANY

Book
OFFICE

ENIE RAILROAD COMPANY

4411

Chilwood

DATE: 11-11-68

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

Dr. Took.

✓16E Free -

PENE MARQUETTE
 RAILWAY COMPANY

Alfred

FILE 100-4

C.B.P.	C.D.M.	A.J.
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C.H.W.			
--------	--	--	--

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

STANDARD

LAYOUT FOR MECHANICAL SWITCH MECHANISM

FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

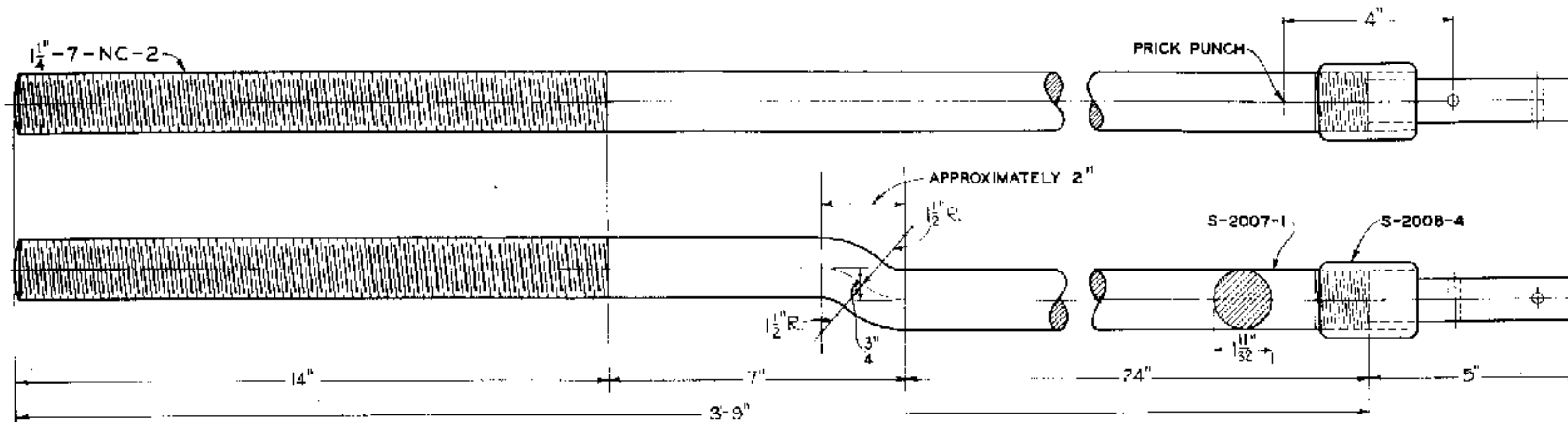
APPROVED

Amabel

JUNE 18, 1935

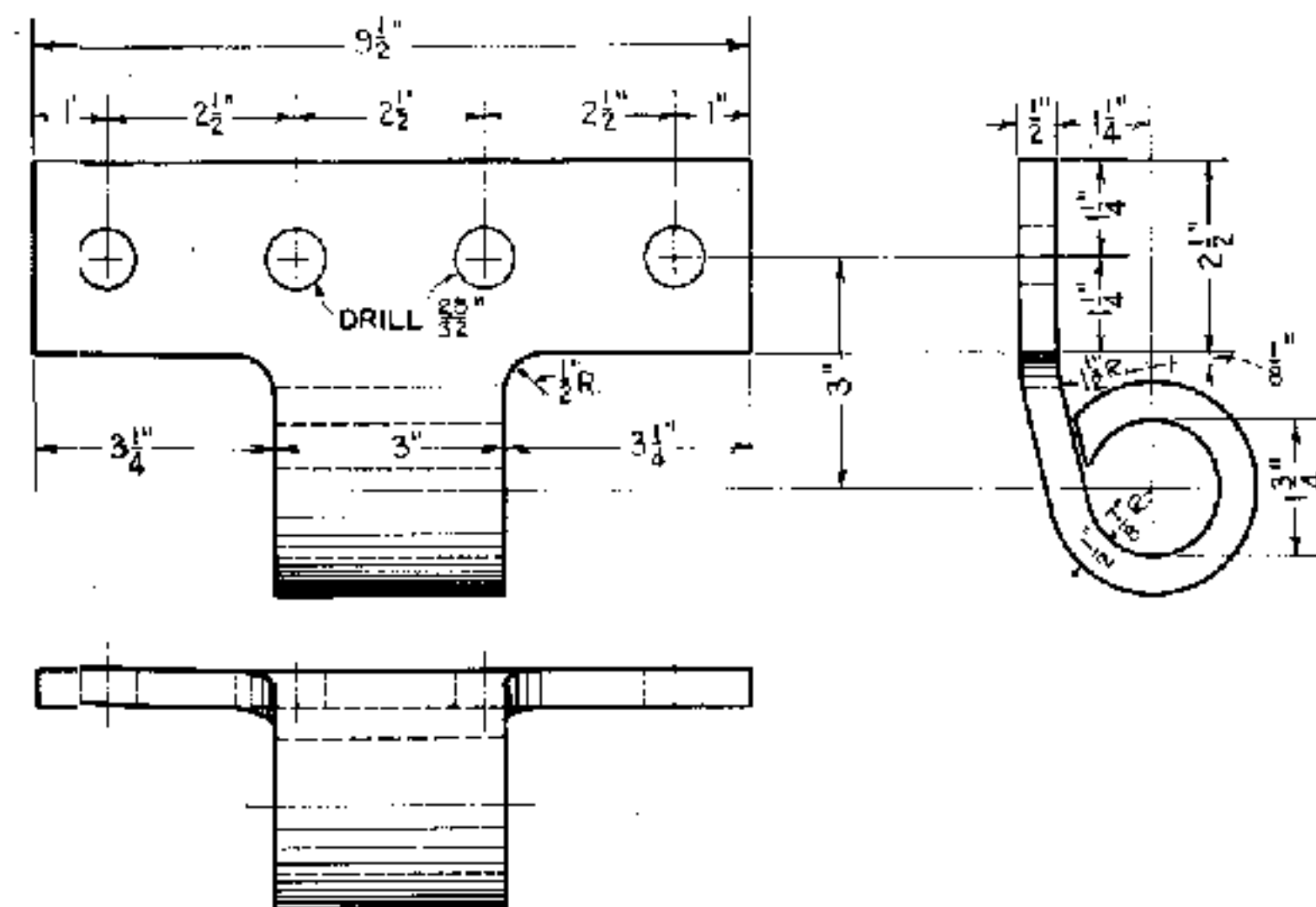
SHEET 3 OF 5

S-2301-



S-2301-9 OPERATING ROD TANG END WITH COUPLING
O. - H. STEEL

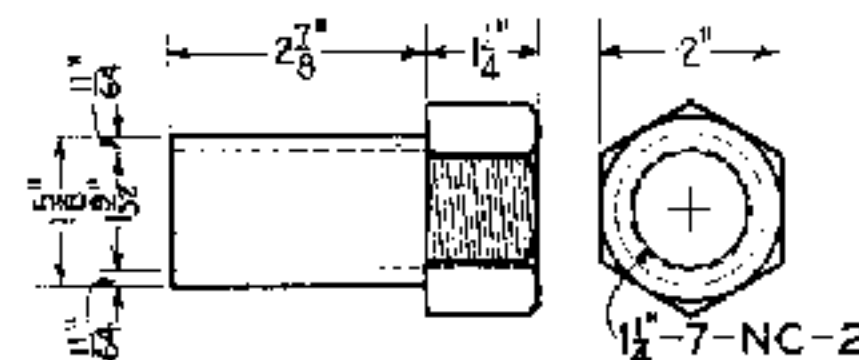
NOTE
ALL PARTS EXCEPT THREADED PORTIONS SHALL
BE FURNISHED PAINTED WITH ONE COAT OF METAL
PRIMER IN ACCORDANCE WITH LATEST REVISION
OF STANDARD SPECIFICATIONS S-1510, SHOP AND
FIELD PAINTING FOR SIGNAL AND INTERLOCKING
APPARATUS.



S-2301-10 SWITCH ADJUSTMENT BRACKET ONLY

**S-2301-11 SWITCH ADJUSTMENT BRACKET COMPLETE WITH SLEEVE S-2301-12 AND
THREE 1 1/4\"/>**

OPEN-HEARTH STEEL



S-2301-12 SLEEVE
MALLEABLE IRON

SCALE IN INCHES
0 1 2 3 4 5 6

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>G. D. Moore</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>W. L. Woodruff</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>G. D. Moore</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>W. L. Woodruff</i> VICE PRESIDENT		
C.S.L.	C.D.M.	A.J.P.
C.S.L.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

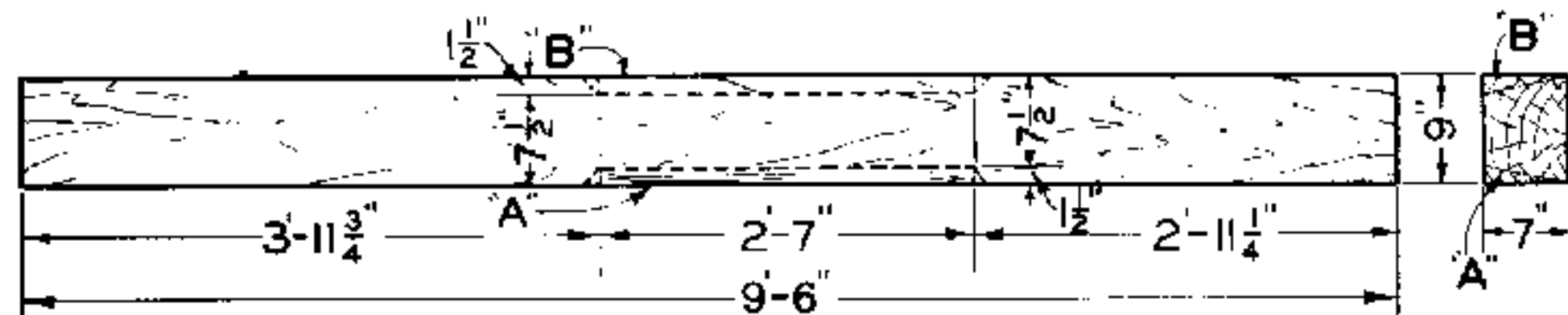
STANDARD
**LAYOUT FOR MECHANICAL
SWITCH MECHANISM**
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff*
CHIEF ENGINEER

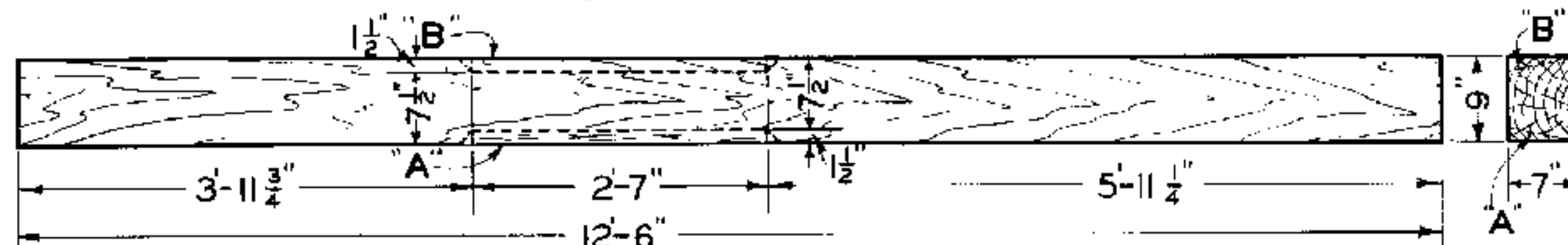
JUNE 18, 1935

SHEET 4 OF 5

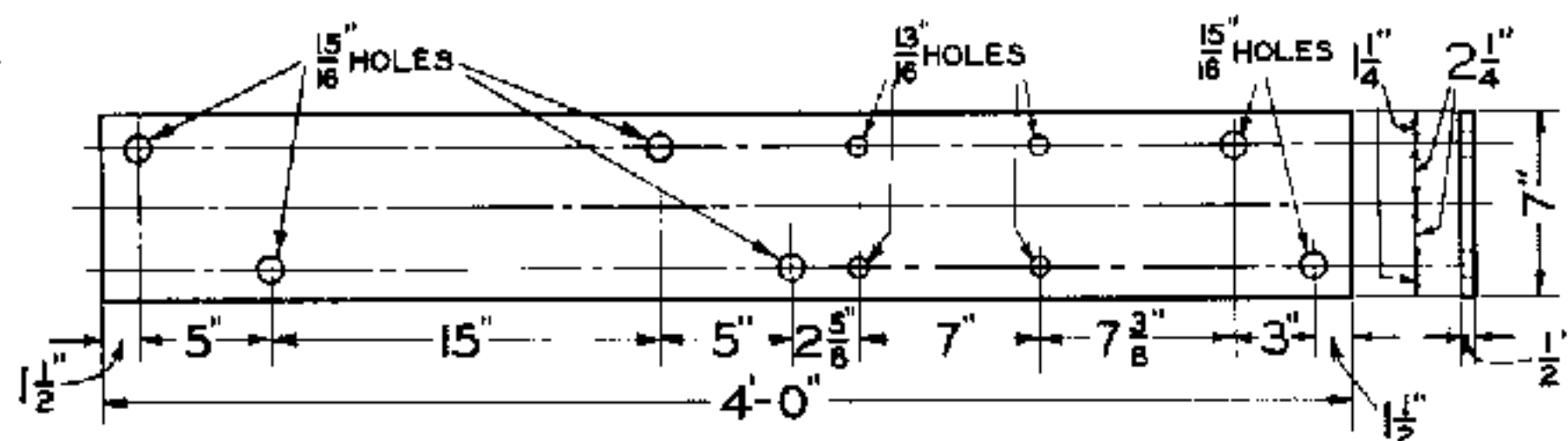
S-2301-A



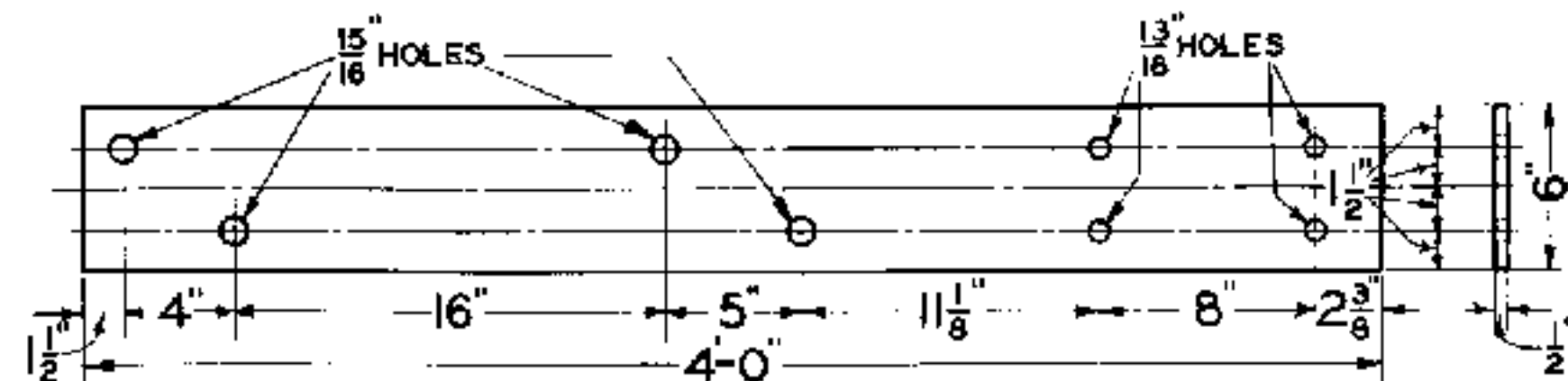
S-2301-13 TIE CHAMFERED AT "A" ONLY FOR L.H. SWITCH
S-2301-14 TIE CHAMFERED AT "B" ONLY FOR R.H. SWITCH
SCALE ①



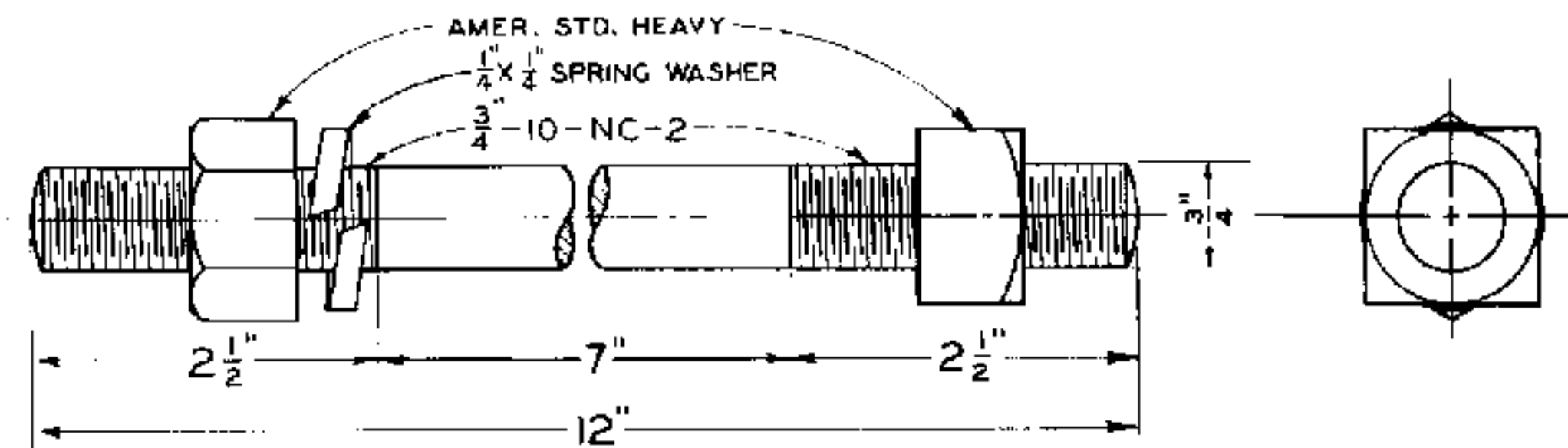
S-2301-15 TIE CHAMFERED AT "A" ONLY FOR L.H. SWITCH
S-2301-16 TIE CHAMFERED AT "B" ONLY FOR R.H. SWITCH
SCALE ①



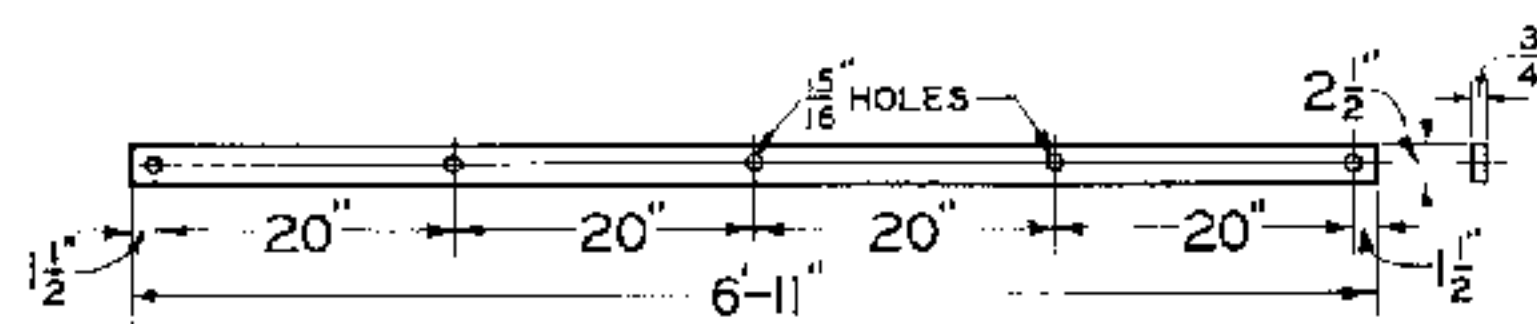
S-2301-17 PLUNGER LOCK PLATE
OPEN-HEARTH STEEL
SCALE ②



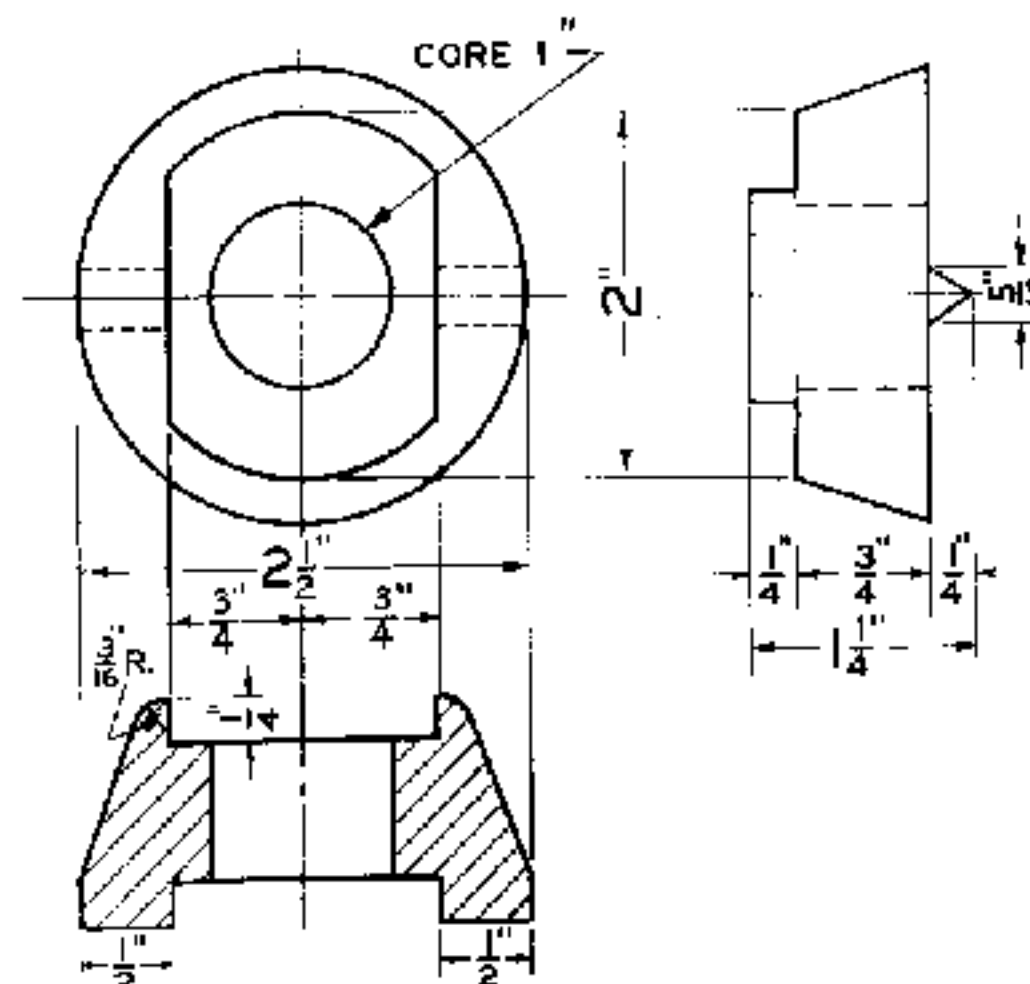
S-2301-18 CRANK PLATE
OPEN-HEARTH STEEL
SCALE ②



S-2301-20 STUD BOLT
OPEN-HEARTH STEEL
SCALE ③



S-2301-21 TIE STRAP
OPEN-HEARTH STEEL
SCALE ①

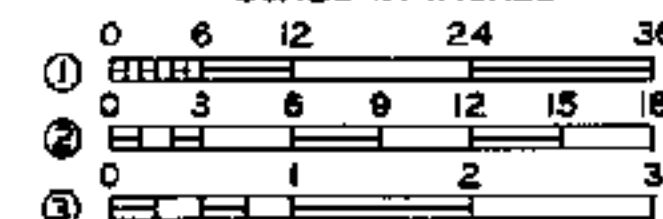


S-2301-19 CAST IRON WASHER
FOR 3/4" OR 7/8" AMER. STD. HEAVY SQ. NUTS
SCALE ③

NOTES

1. PLUNGER LOCK PLATE, CRANK PLATE, AND TIE STRAP, SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER FRAMING, IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT OF CROSS TIES OR SWITCH TIES.

SCALE IN INCHES



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>D. M. Brooke</i> VICE PRESIDENT		
ERIE RAILROAD COMPANY		
<i>W. L. Woodruff</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>D. M. Brooke</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>W. L. Woodruff</i> VICE PRESIDENT		
K.L.M.	C.D.M.	A.J.P.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

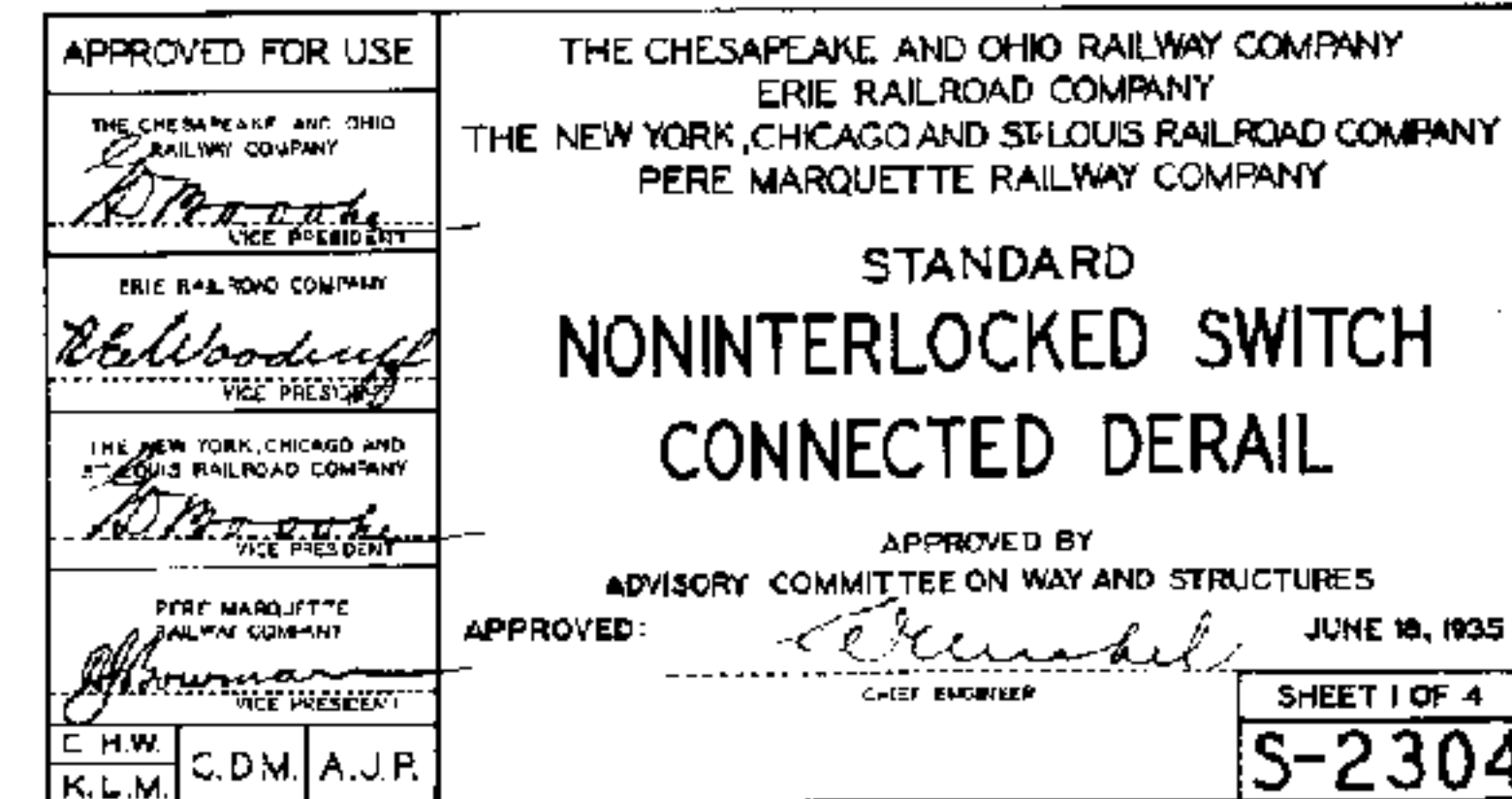
STANDARD LAYOUT FOR MECHANICAL SWITCH MECHANISM FOR SINGLE SWITCH

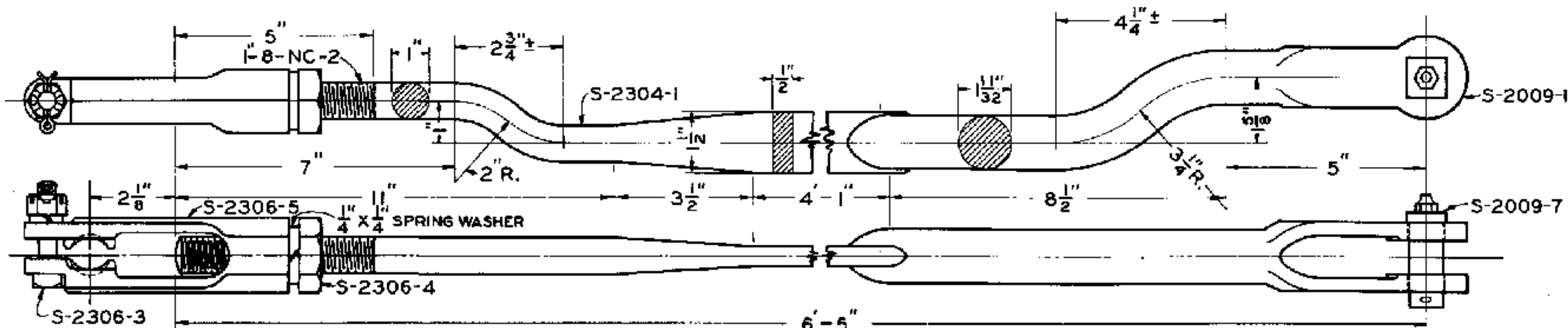
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff*
CHIEF ENGINEER

JUNE 18, 1935

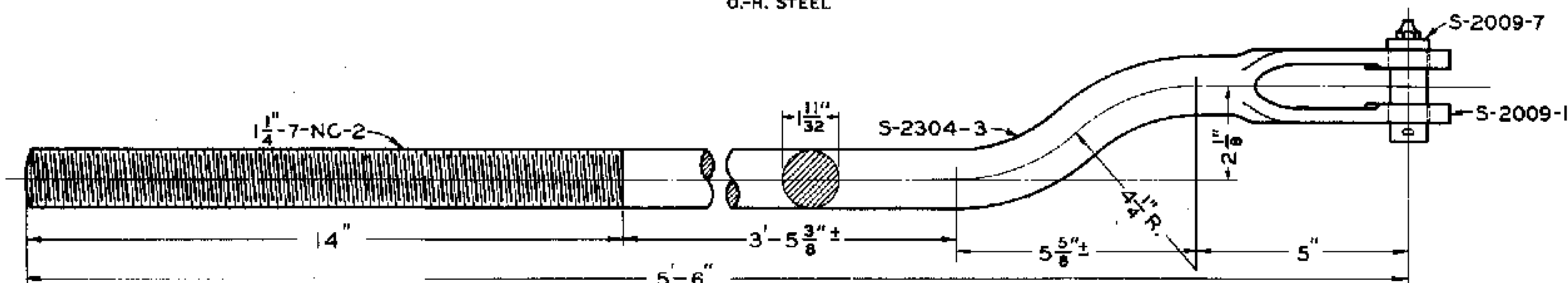
SHEET 5 OF 5

S-2301-A

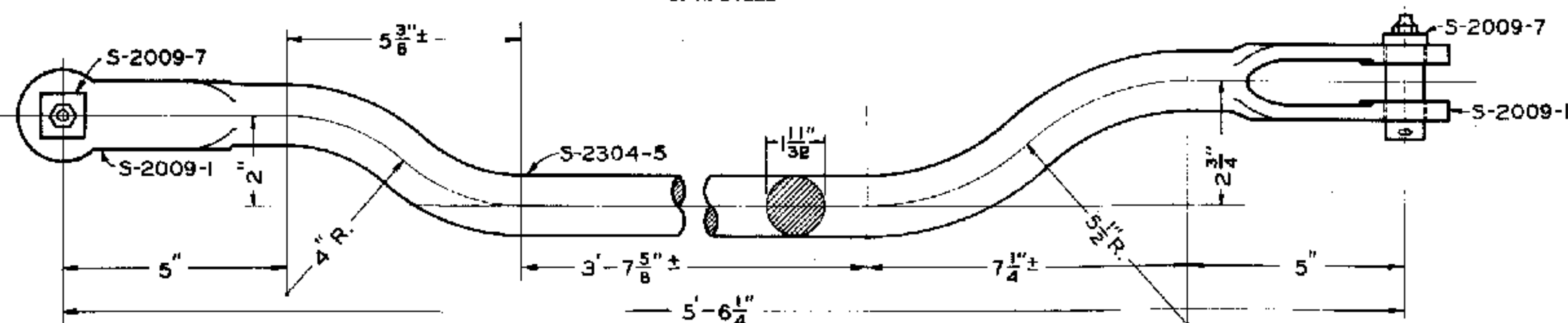




S-2304-1 CIRCUIT CONTROLLER ROD ONLY, FOR "TYPE H" DERAIL
 S-2304-2 " " " " FOR "TYPE H" DERAIL COMPLETE AS SHOWN
 O.-H. STEEL

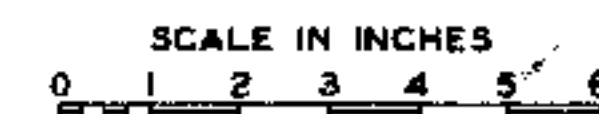


S-2304-3 OPERATING ROD ONLY
 S-2304-4 " " " " COMPLETE AS SHOWN
 O.-H. STEEL

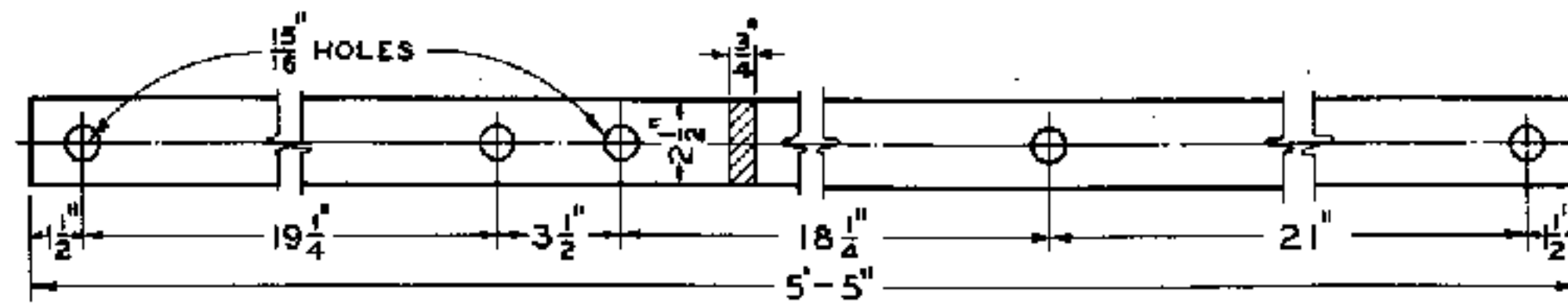


S-2304-5 OPERATING ROD ONLY, FOR "TYPE H" DERAIL
 S-2304-6 " " " " FOR "TYPE H" DERAIL COMPLETE AS SHOWN
 O.-H. STEEL

NOTE
 ALL PARTS EXCEPT THREADED PORTIONS SHALL
 BE FURNISHED PAINTED WITH ONE COAT OF METAL
 PRIMER IN ACCORDANCE WITH LATEST REVISION
 OF STANDARD SPECIFICATIONS S-1510, SHOP AND
 FIELD PAINTING FOR SIGNAL AND INTERLOCKING
 APPARATUS.



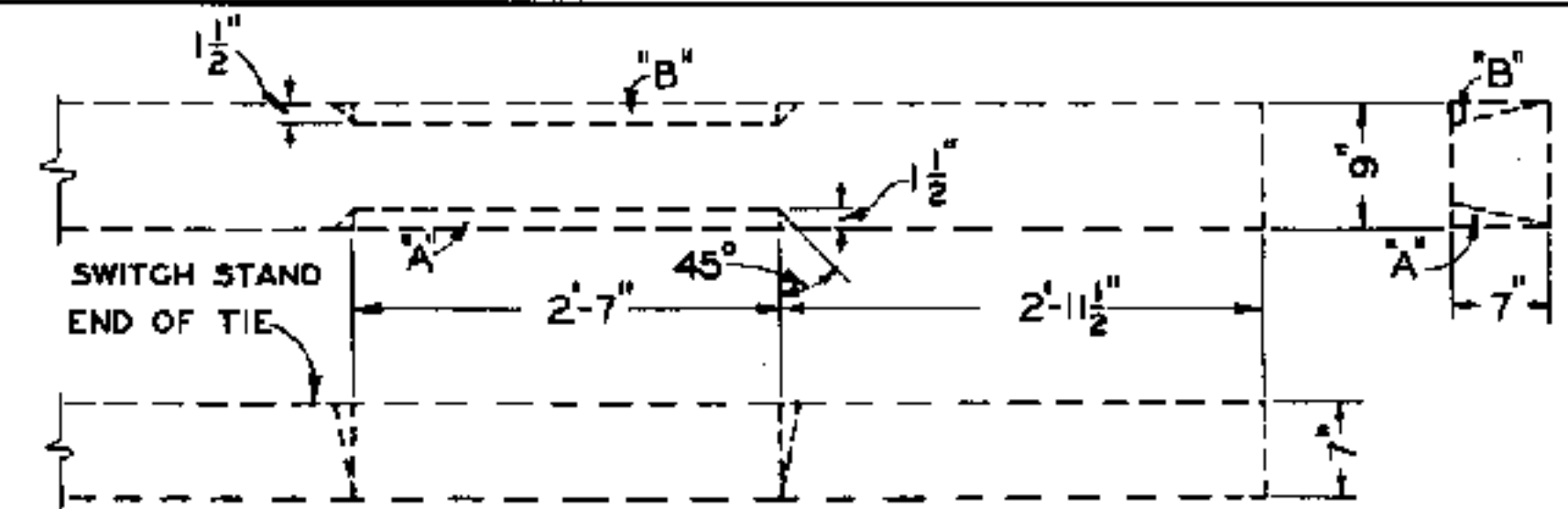
APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
 THE CHESAPEAKE AND OHIO RAILWAY COMPANY VICE PRESIDENT		 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY VICE PRESIDENT	
 PERE MARQUETTE RAILWAY COMPANY VICE PRESIDENT		APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: CHIEF ENGINEER	
C.H.W.	C.D.M.	A.J.P.	JUNE 18, 1935 SHEET 2 OF 2 S-230



S-2304-21 TIE STRAP

OPEN-HEARTH STEEL

SCALE ②

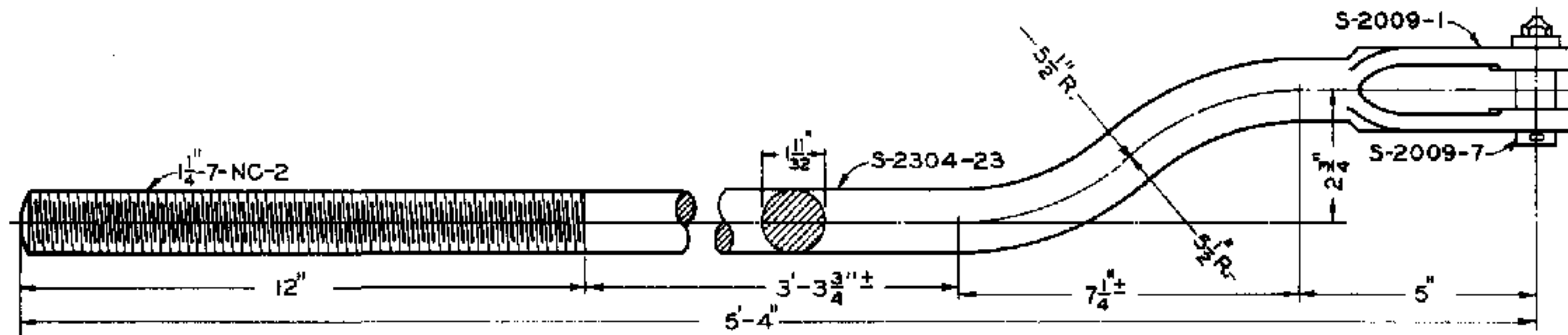


DETAIL OF FRAMING OF TIE BACK OF HEAD ROD

CHAMFER AT "A" FOR L.H. LAYOUT

CHAMFER AT "B" FOR R.H. LAYOUT

SCALE ③



S-2304-23 OPERATING ROD ONLY FOR TYPE "Q" DERAIL

S-2304-24 " " " " FOR TYPE "Q" DERAIL COMPLETE WITH TWO AMER. STD. HEAVY HEX. NUTS, PIN AND COTTER

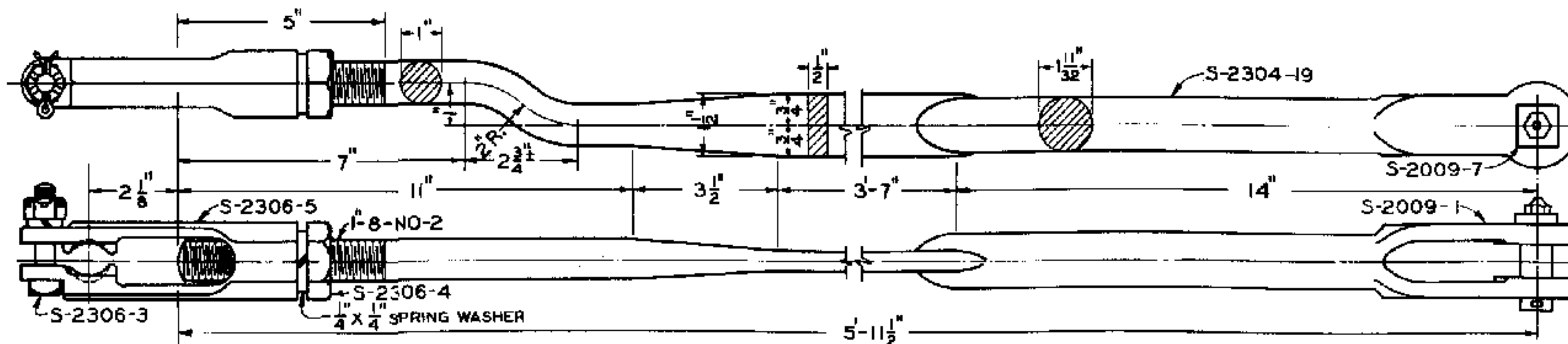
OPEN-HEARTH STEEL

SCALE ①

NOTE

ALL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

SCALE IN INCHES



S-2304-19 CIRCUIT CONTROLLER ROD ONLY FOR TYPE "Q" DERAIL

S-2304-20 " " " " FOR TYPE "Q" DERAIL, COMPLETE AS SHOWN

OPEN-HEARTH STEEL

SCALE ①

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

W. H. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

R. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

W. H. Moore
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Moore
VICE PRESIDENT

C.H.W. C.D.M. A.J.P.

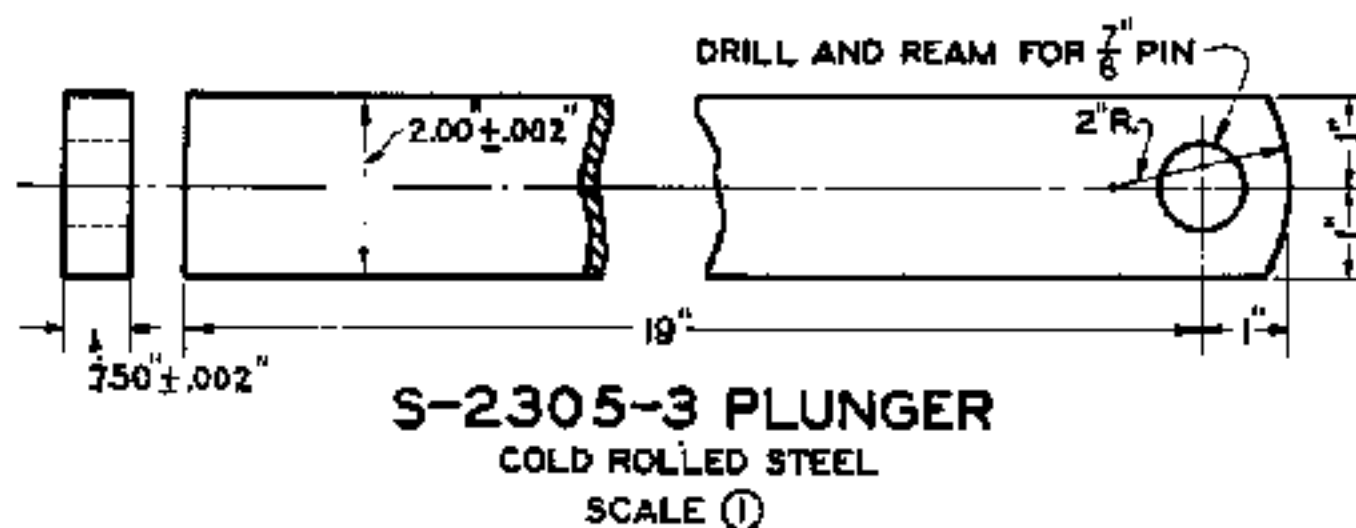
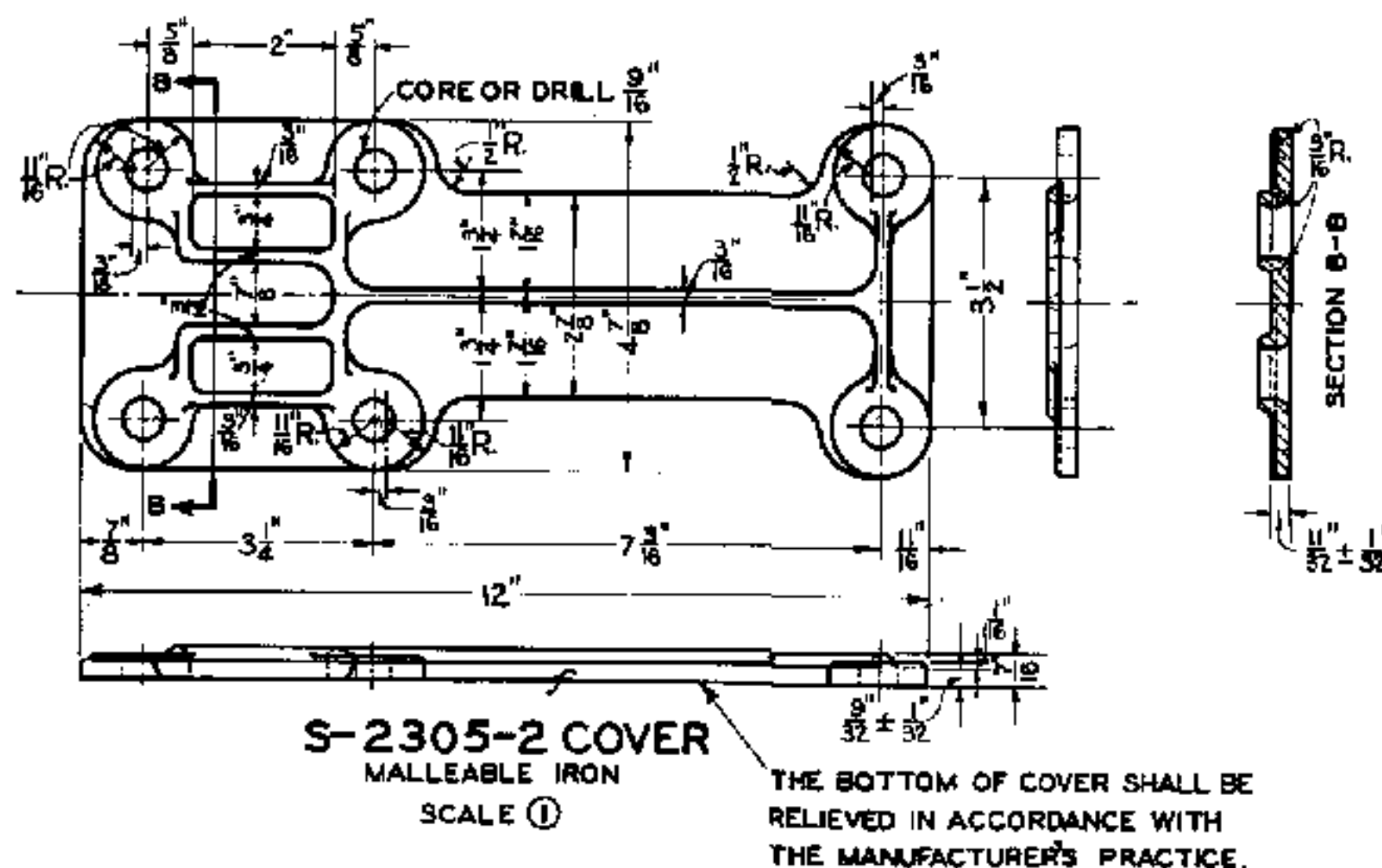
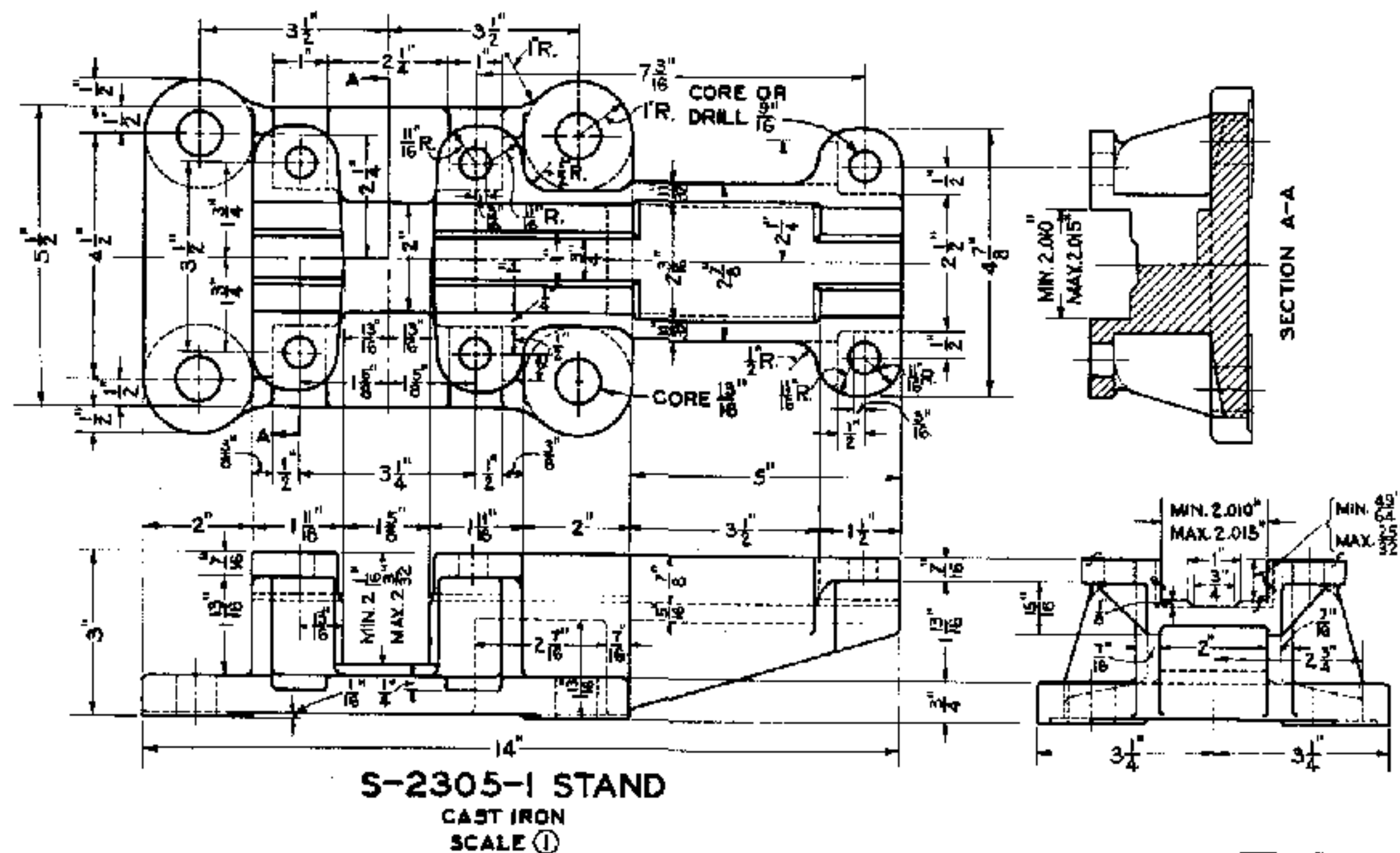
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
NONINTERLOCKED SWITCH
CONNECTED DERAIL**

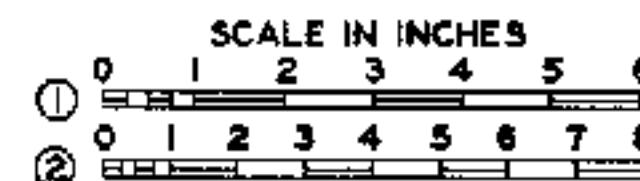
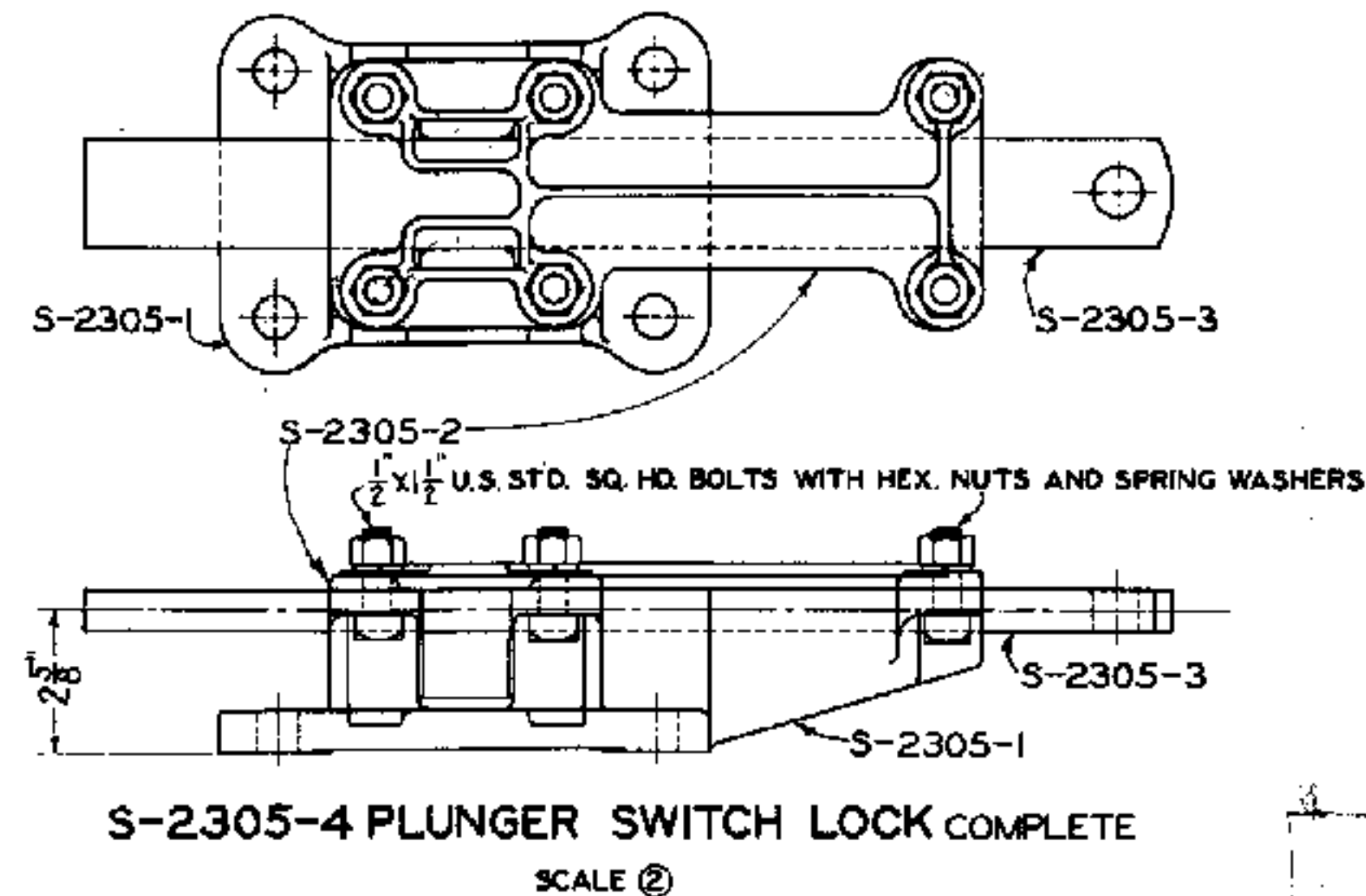
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Moore*
CHIEF ENGINEER
JUNE 18, 1935

SHEET 4 OF 4

S-2304



NOTE
PLUNGER SWITCH LOCK SHALL BE FURNISHED WITH ALL PARTS, EXCEPT BEARING SURFACES, PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>[Signature]</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>[Signature]</i> VICE PRESIDENT		
K.L.M.	C.O.M.	A.J.P.

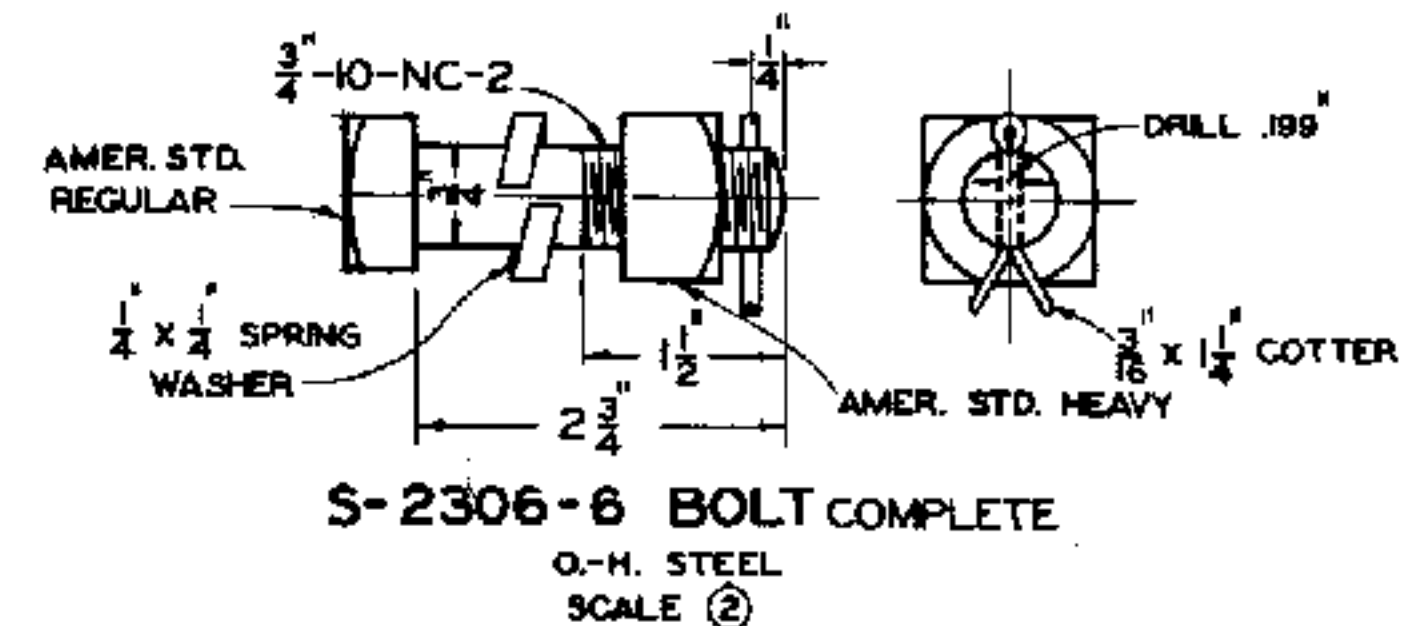
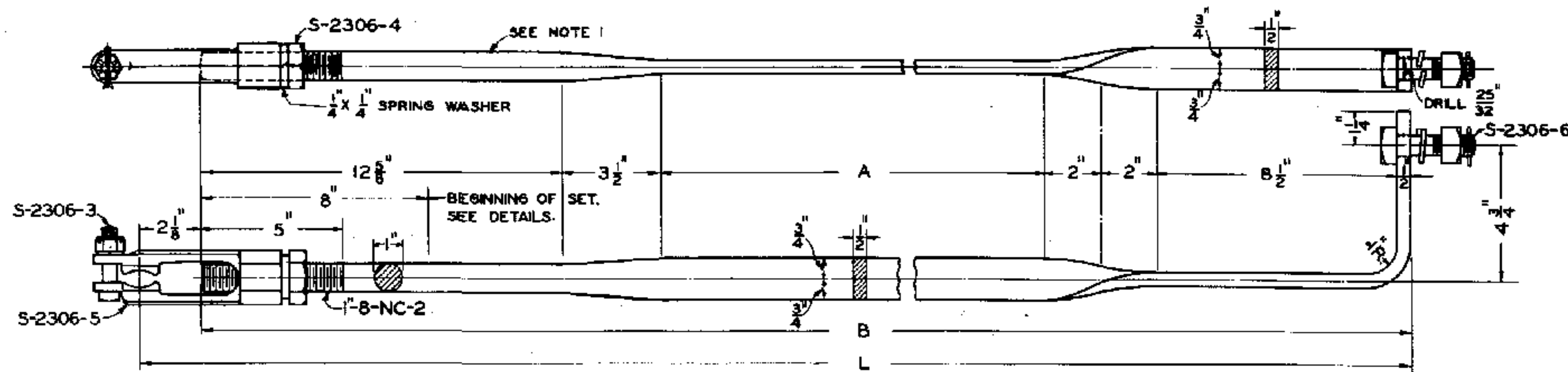
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD PLUNGER SWITCH LOCK

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]*
CHIEF ENGINEER

JAN. 12, 1932

S-2305



S-2306-1	SWITCH	CIRCUIT	CONTROLLER	ROD ONLY, A=13 1/2", B=3'-6 5/8"
S-2306-2	"	"	"	" COMPLETE AS SHOWN, L=3'-8 3/4"
S-2306-18	"	"	"	" ONLY A=4'-10 5/8", B=7'-3 7/8"
S-2306-19	"	"	"	" COMPLETE AS SHOWN, L=7'-5 9/16"

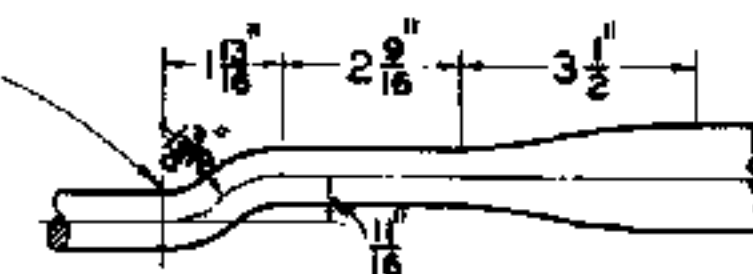
O.H. STEEL
SCALE ①

NOTES

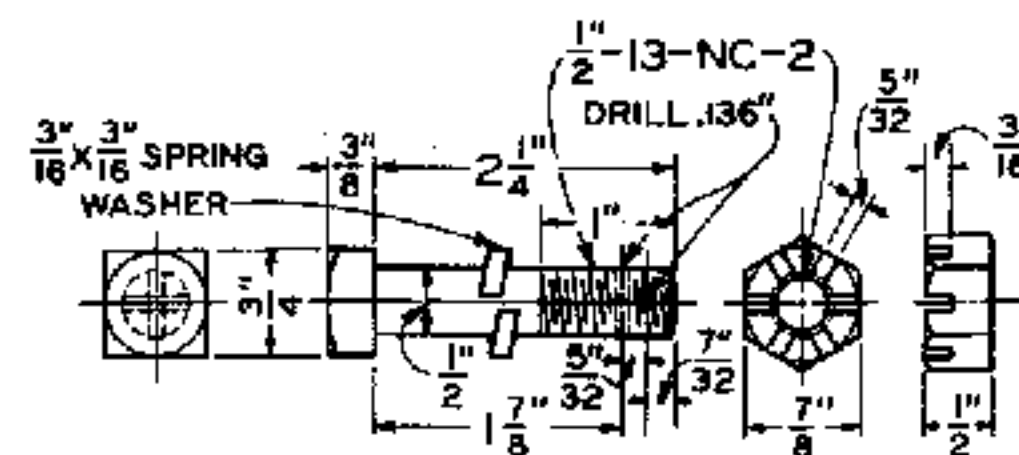
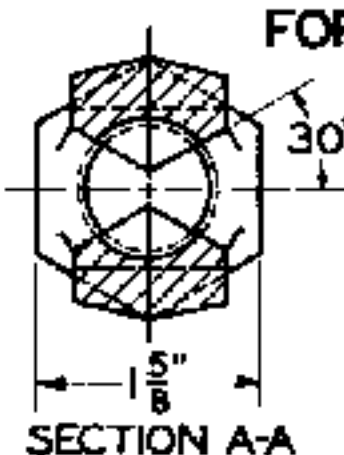
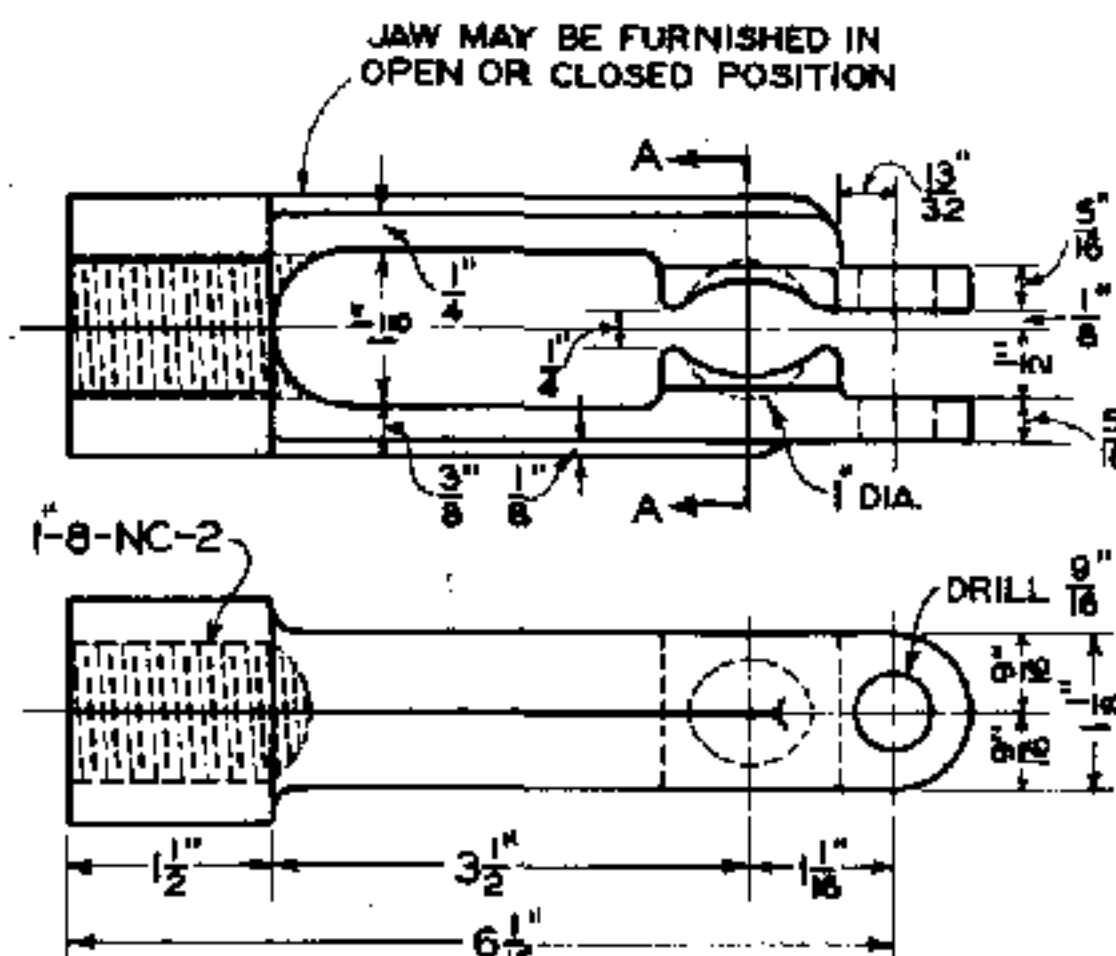
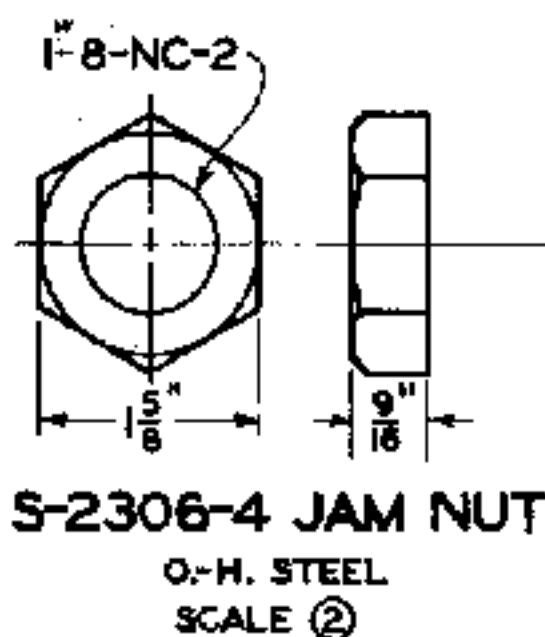
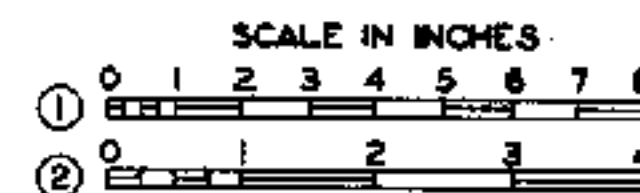
1. ROD SHALL BE UPSET OR DOWNSET BY FIELD FORCES AS REQUIRED.
2. ROD AND JAW EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-150, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



DETAIL OF UPSET IN ROD
FOR ROTARY TYPE CONTROLLER
SCALE ①



DETAIL OF DOWNSET IN ROD
FOR UNIVERSAL TYPE CONTROLLER
SCALE ①



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
ERIE RAILROAD COMPANY		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
PERE MARQUETTE RAILWAY COMPANY		
APPROVED BY		
ADVISORY COMMITTEE ON WAY AND STRUCTURES		
APPROVED: <i>W. H. Woodruff</i>		
CHIEF ENGINEER		
C.H.W.	C.D.M.	A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

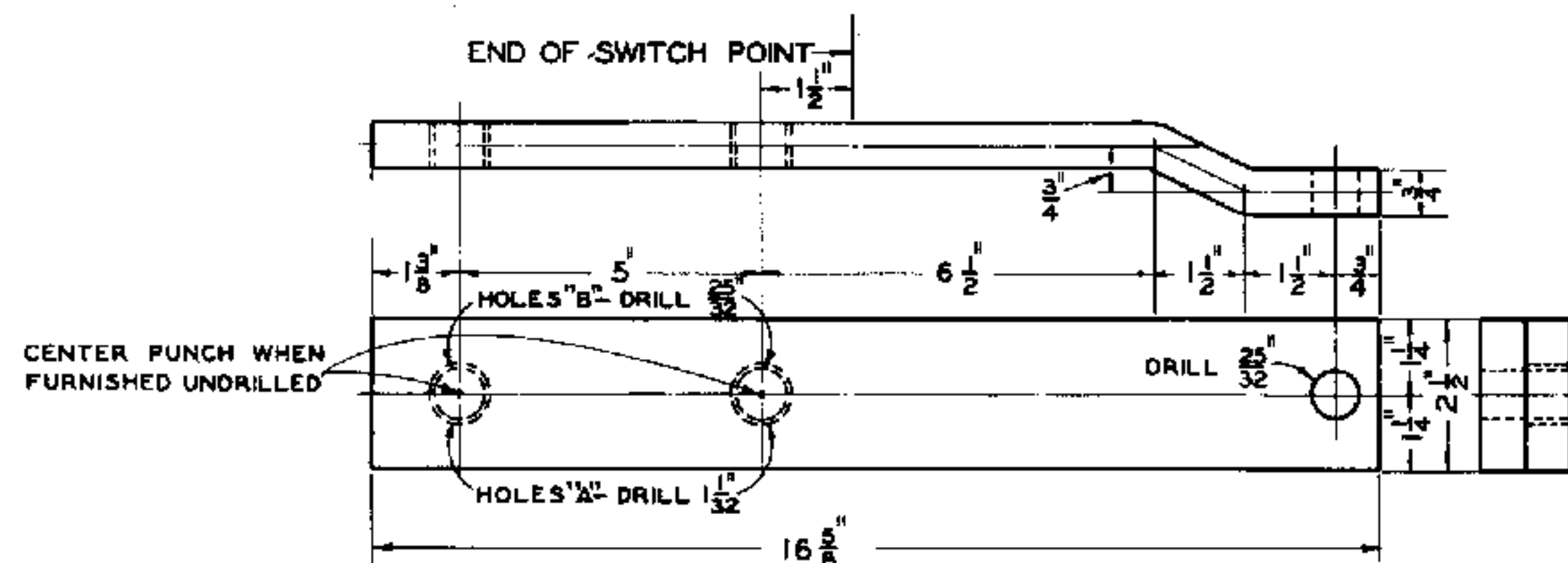
STANDARD SWITCH CIRCUIT CONTROLLER ROD

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Woodruff*
CHIEF ENGINEER

OCT. 7, 1935

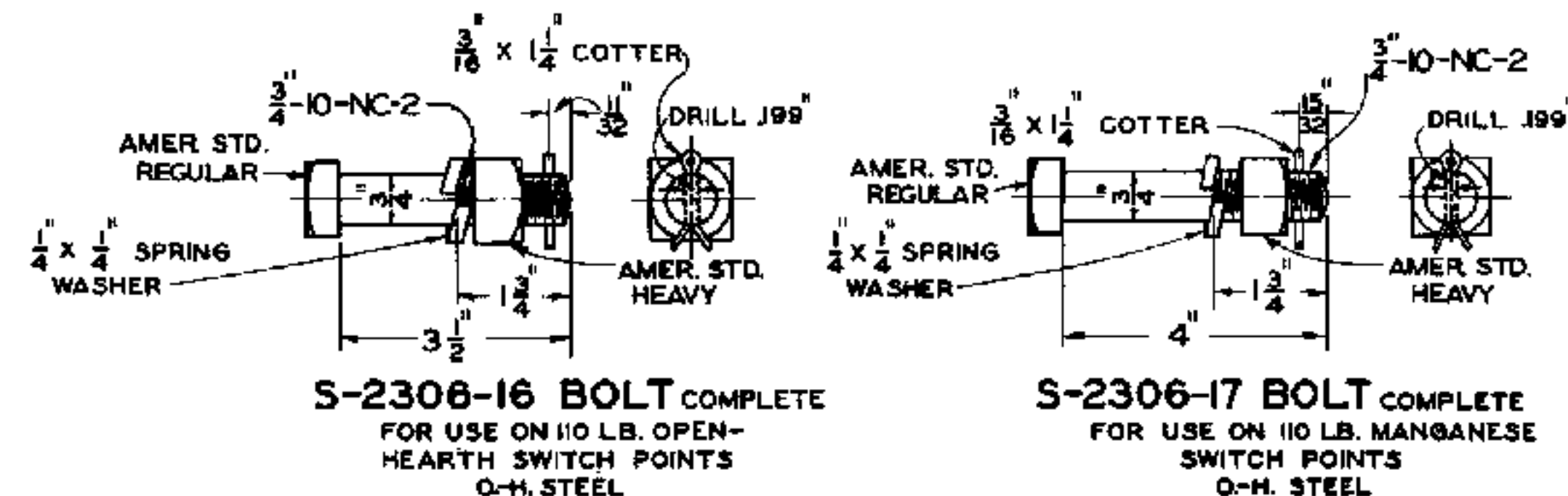
SHEET 1 OF 2

S-2306-A



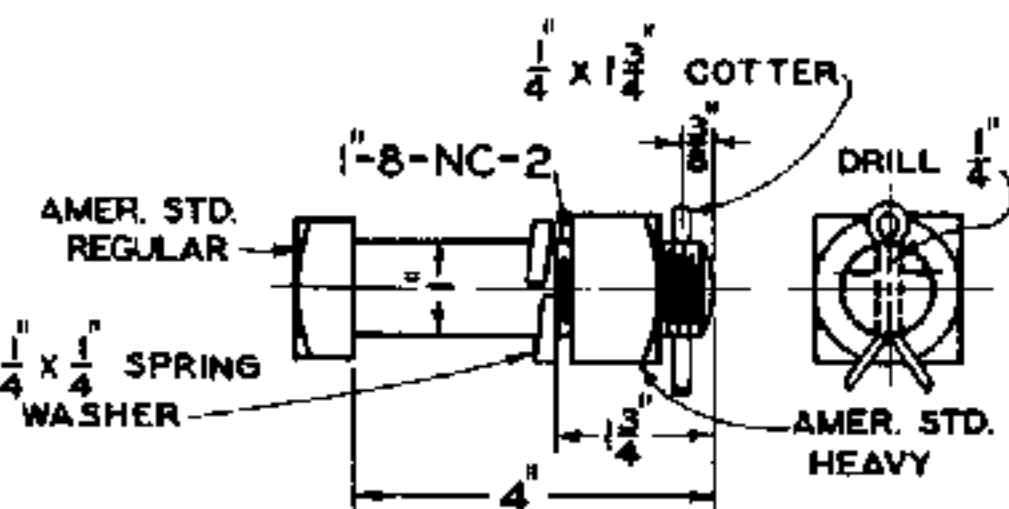
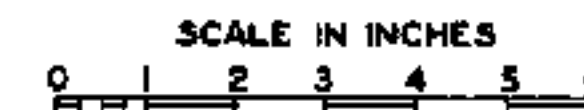
S-2306-7	SWITCH POINT LUG WITHOUT HOLES "A" OR "B"
S-2306-8	" " " " WITH "A"
S-2306-9	" " " " " " "B"
S-2306-10	" " " " WITH HOLES "A" AND TWO S-2306-14 BOLTS
S-2306-11	" " " " " " "A" " " S-2306-15 "
S-2306-12	" " " " " " "B" " " S-2306-16 "
S-2306-13	" " " " " " "B" " " S-2306-17 "

O-H. STEEL

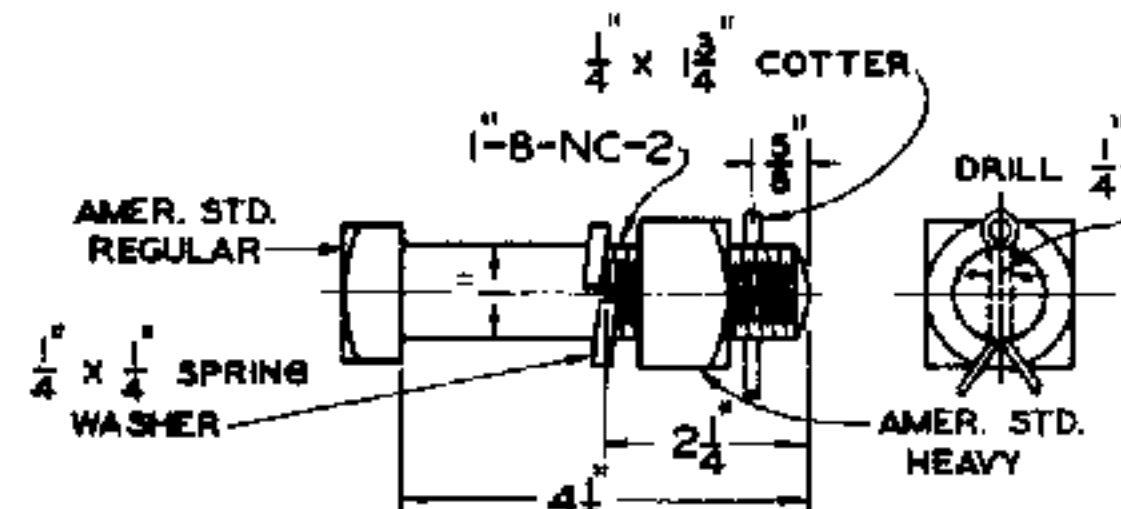


NOTE

SWITCH POINT LUG SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



S-2306-14 BOLT COMPLETE
FOR USE ON 112, 130, AND 131 LB.
OPEN-HEARTH SWITCH POINTS
O-H. STEEL



S-2306-15 BOLT COMPLETE
FOR USE ON 112, 130, AND 131 LB.
MANGANESE SWITCH POINTS
O-H. STEEL

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

[Signature]

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

[Signature]

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

[Signature]

PERE MARQUETTE RAILWAY COMPANY

[Signature]

C.H.W. C.D.M. A.J.P.

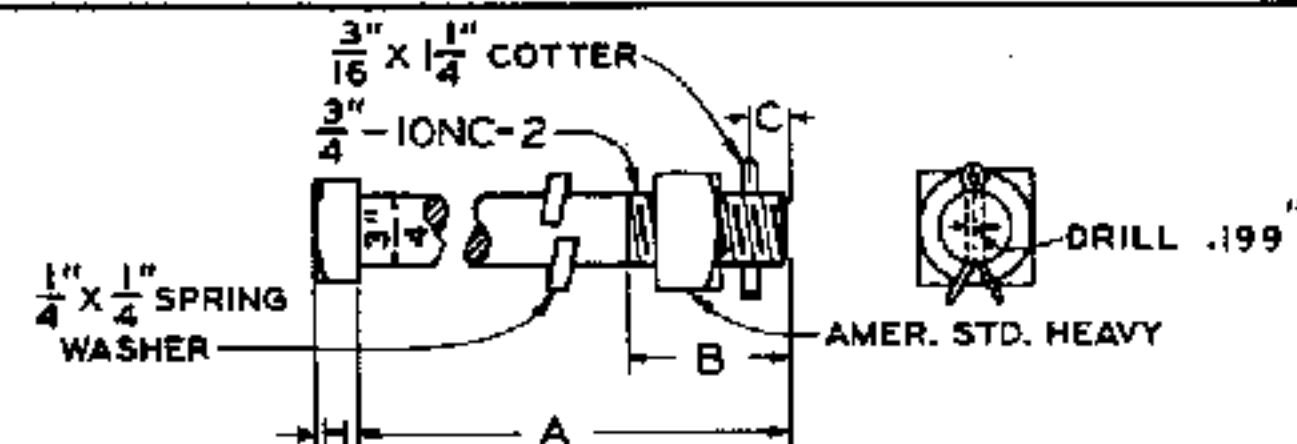
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SWITCH CIRCUIT CONTROLLER ROD

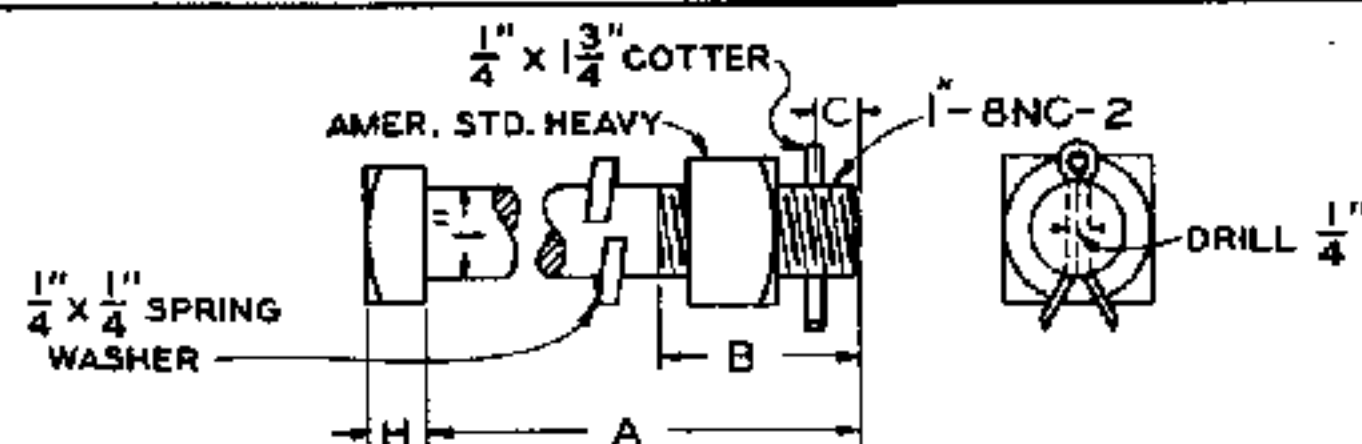
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* OCT. 7, 1935.
CHIEF ENGINEER

SHEET 2 OF 2

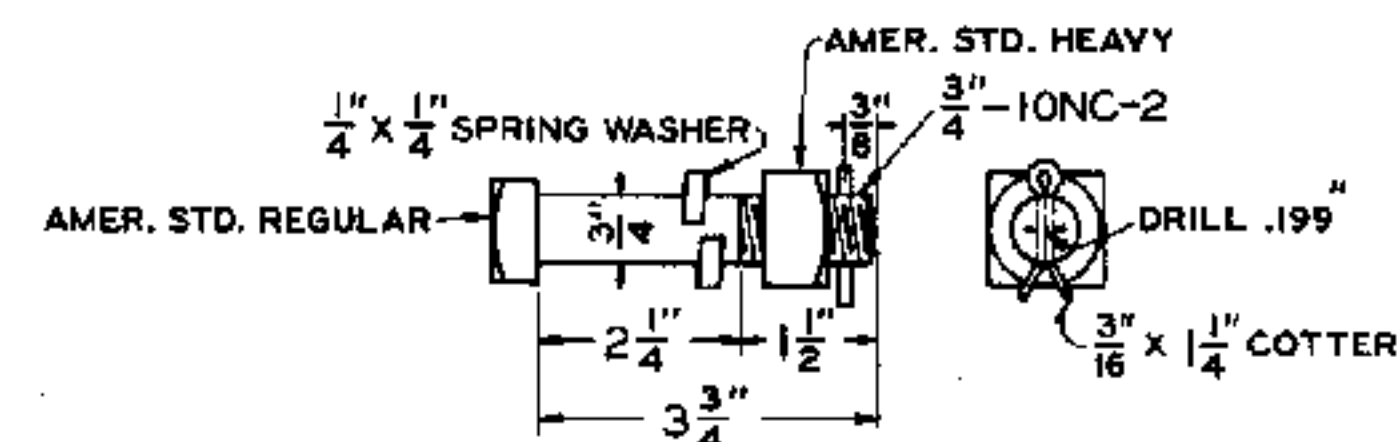
S-2306-A



BOLT COMPLETE FOR 110 LB. R.E. SWITCH POINTS
CARBON OR ALLOY STEEL, HEAT TREATED
SCALE (2)



BOLT COMPLETE FOR 112, 130, AND 131 LB. R.E. SWITCH POINTS
CARBON OR ALLOY STEEL, HEAT TREATED
SCALE (2)



S-2307-4 BOLT COMPLETE
SIX REQUIRED
O.-H. STEEL
SCALE (2)

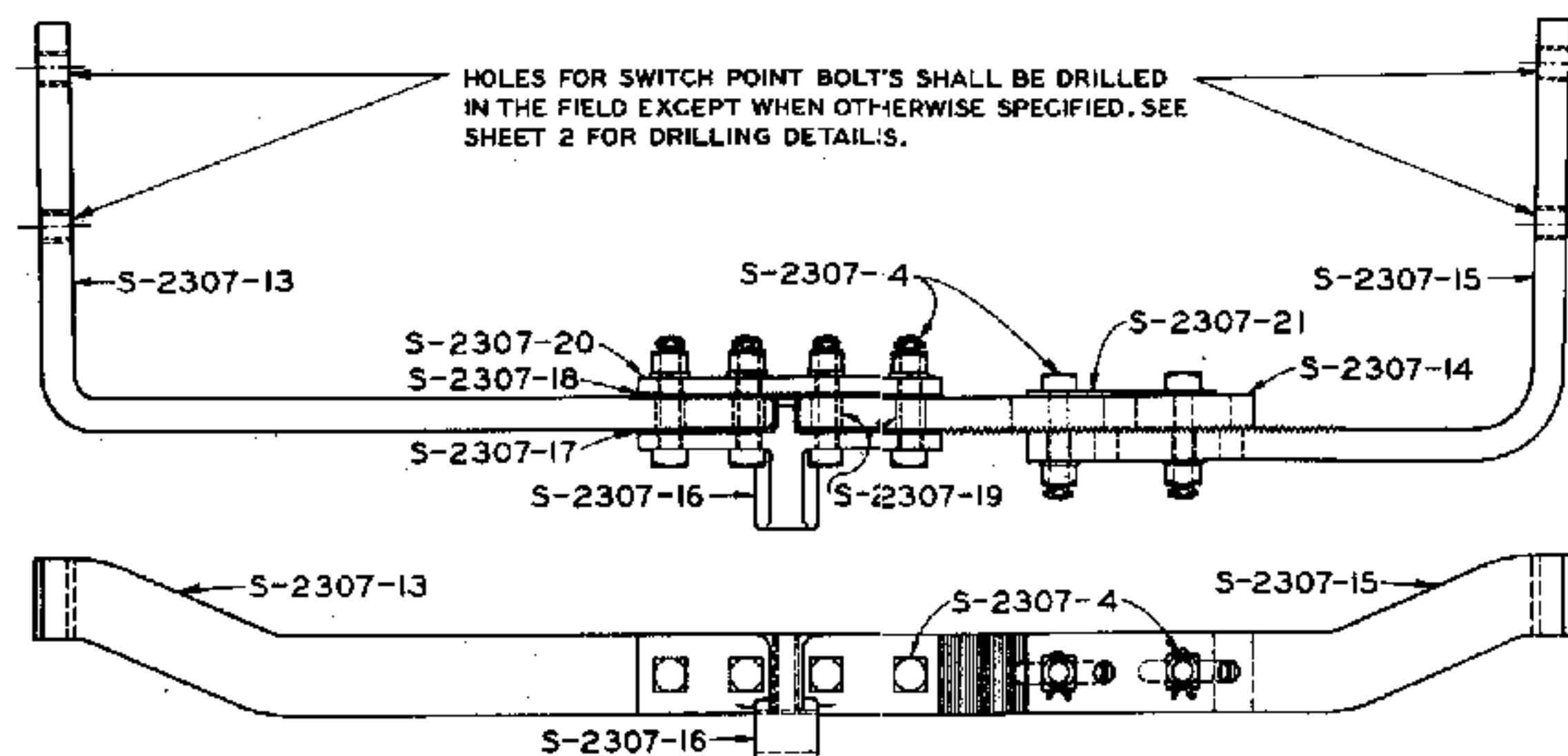
NOTES

1. FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, HARD FIBRE.
2. BOLTS FOR USE WITH SPRING SWITCH POINTS OF SAMSON TYPE ARE ALSO APPLICABLE TO ORDINARY OPEN-HEARTH POINTS WITH 1/4 INCH REINFORCING BAR.
3. TENSILE STRENGTH REQUIREMENTS OF BOLTS FOR FASTENING FRONT RODS AND POINT LUGS TO SWITCH POINTS SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-13, SWITCHES, FROGS, CROSSINGS AND GUARD RAILS.

REFERENCE	BOLTS FOR STANDARD SWITCH, 110 LB. R.E. RAIL	A	B	C	H
S-2307-5	FOR FASTENING FRONT ROD TO OPEN-HEARTH SWITCH POINT	4"	1 1/2"	19/32"	*
S-2307-6	FOR FASTENING FRONT ROD AND POINT LUG TO OPEN-HEARTH SWITCH POINT	4 1/2"	1 3/4"	11/32"	*
S-2307-7	FOR FASTENING FRONT ROD TO MANGANESE SWITCH POINT	4 1/2"	1 3/4"	23/32"	*
S-2307-8	FOR FASTENING FRONT ROD AND POINT LUG TO MANGANESE SWITCH POINT	5"	1 3/4"	15/32"	*
REFERENCE	BOLTS FOR SPRING SWITCH, 110 LB. R.E. RAIL	A	B	C	H
S-2307-22	FOR FASTENING FRONT ROD TO SAMSON TYPE SWITCH POINT, SEE NOTE 2.	5"	1 3/4"	23/32"	3/8"
S-2307-23	FOR FASTENING FRONT ROD AND POINT LUG TO SAMSON TYPE SWITCH POINT, SEE NOTE 2.	5 1/2"	1 3/4"	15/32"	3/8"

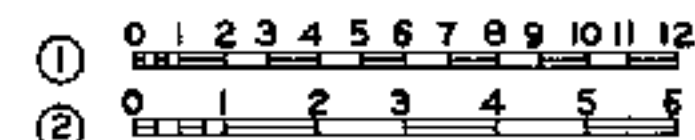
REFERENCE	BOLTS FOR STANDARD SWITCH, 112, 130, AND 131 LB. R.E. RAIL	A	B	C	H
S-2307-9	FOR FASTENING FRONT ROD TO OPEN-HEARTH SWITCH POINT	4 1/2"	2 1/4"	5/8"	*
S-2307-10	FOR FASTENING FRONT ROD AND POINT LUG TO OPEN-HEARTH SWITCH POINT	5"	2 1/4"	3/8"	*
S-2307-11	FOR FASTENING FRONT ROD TO MANGANESE SWITCH POINT	4 1/2"	2 1/4"	3/8"	*
S-2307-12	FOR FASTENING FRONT ROD AND POINT LUG TO MANGANESE SWITCH POINT	5 1/2"	2 1/4"	5/8"	*
REFERENCE	BOLTS FOR SPRING SWITCH, 112, 130, AND 131 LB. R.E. RAIL	A	B	C	H
S-2307-28	FOR FASTENING FRONT ROD TO SAMSON TYPE SWITCH POINT, SEE NOTE 2.	5"	2 1/4"	3/8"	3/8"
S-2307-26	FOR FASTENING FRONT ROD AND POINT LUG TO SAMSON TYPE SWITCH POINT, SEE NOTE 2.	6"	2 1/4"	5/8"	3/8"

* AMER. STD. REGULAR HEAD



S-2307-1 FRONT ROD COMPLETE AS SHOWN, ROD UNDRILLED FOR SWITCH POINT BOLTS
S-2307-2 " " " " " " DRILLED FOR BOLTS FOR 110 LB. R.E. SWITCH POINTS
S-2307-3 " " " " " " " " " " " " " " " " 112, 130, AND 131 LB. R.E. SWITCH POINTS
SCALE (1)

SCALE IN INCHES



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H. Woodruff
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D. W. ...
EXECUTIVE VICE PRESIDENT

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H. ...
VICE PRESIDENT

C. B. P. C.D.M. A.J.P.

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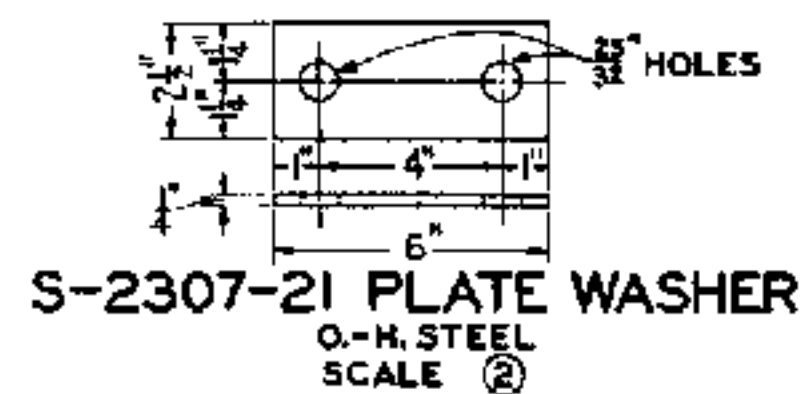
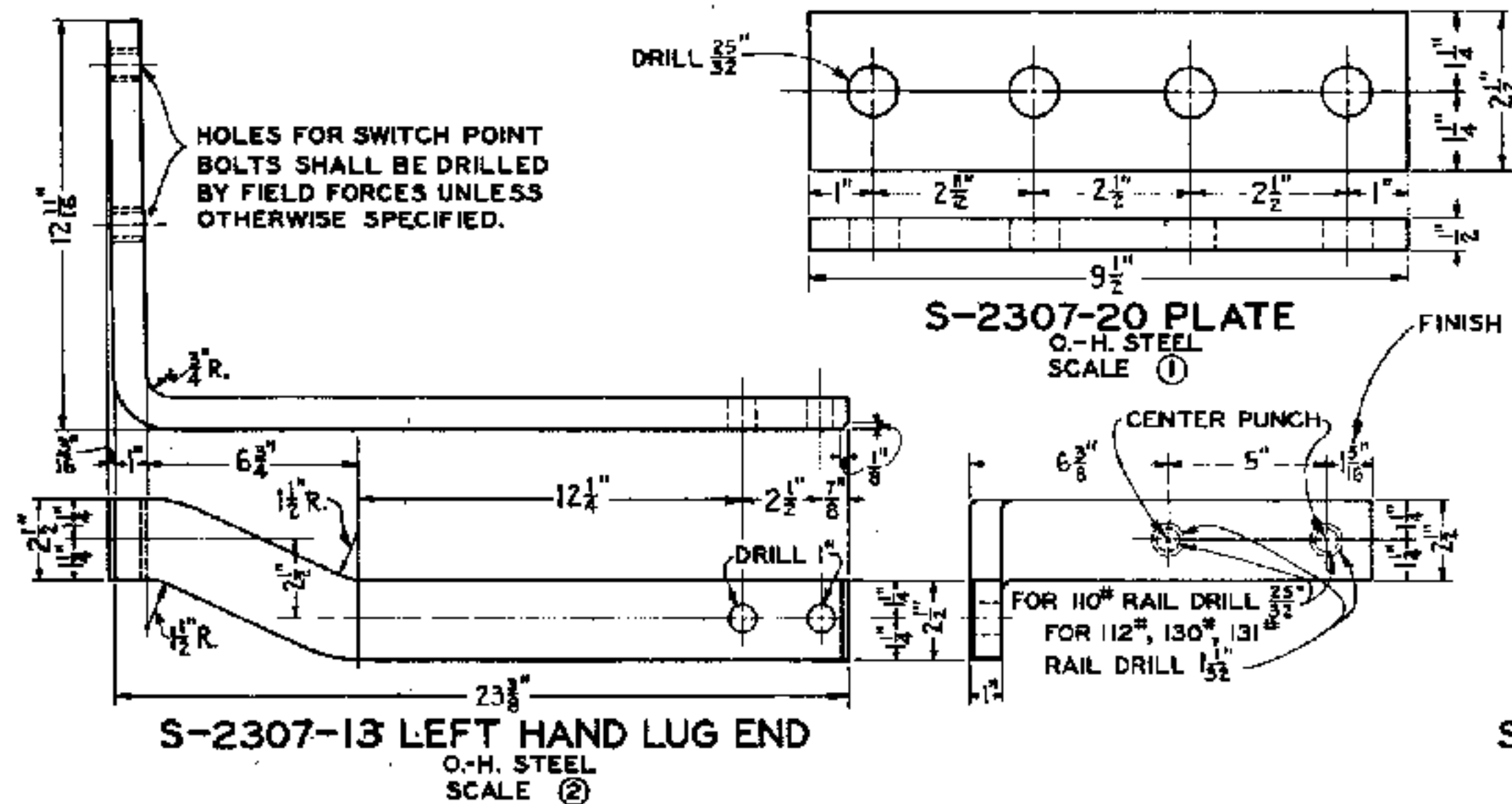
STANDARD FRONT ROD FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *H. ...*
CHIEF ENGINEER

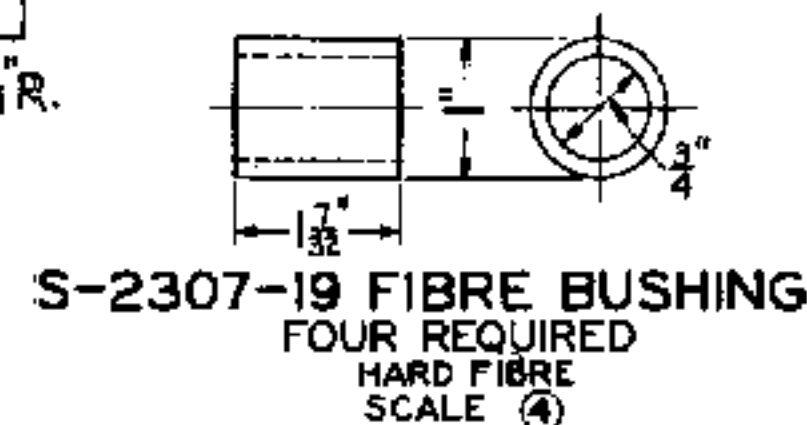
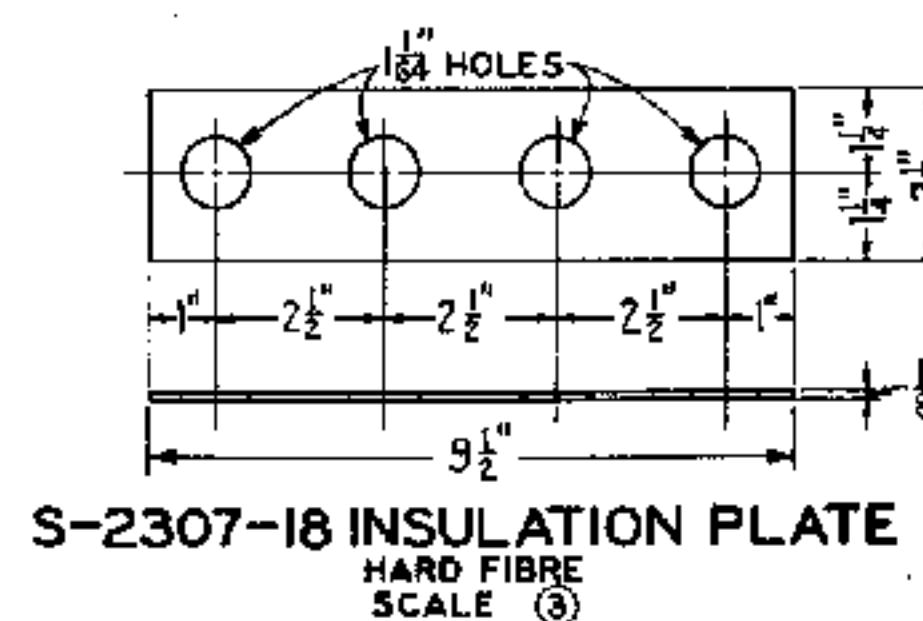
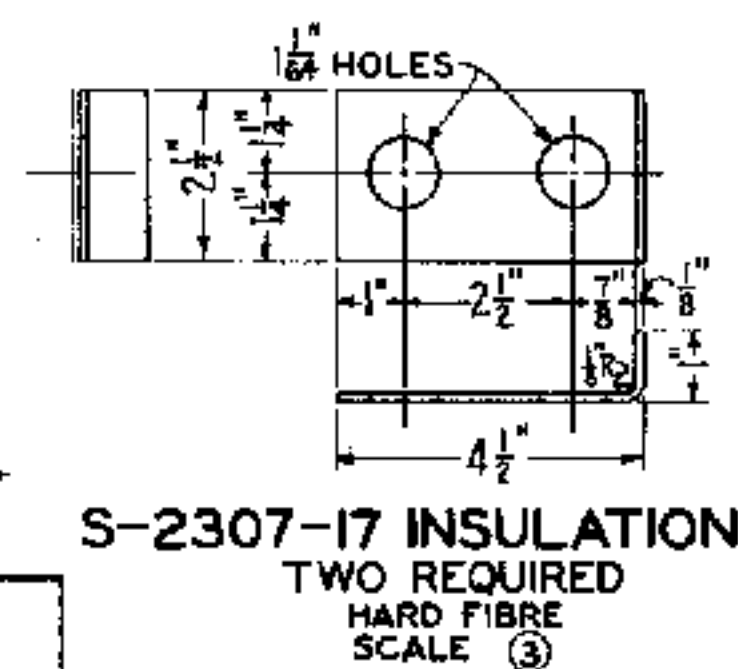
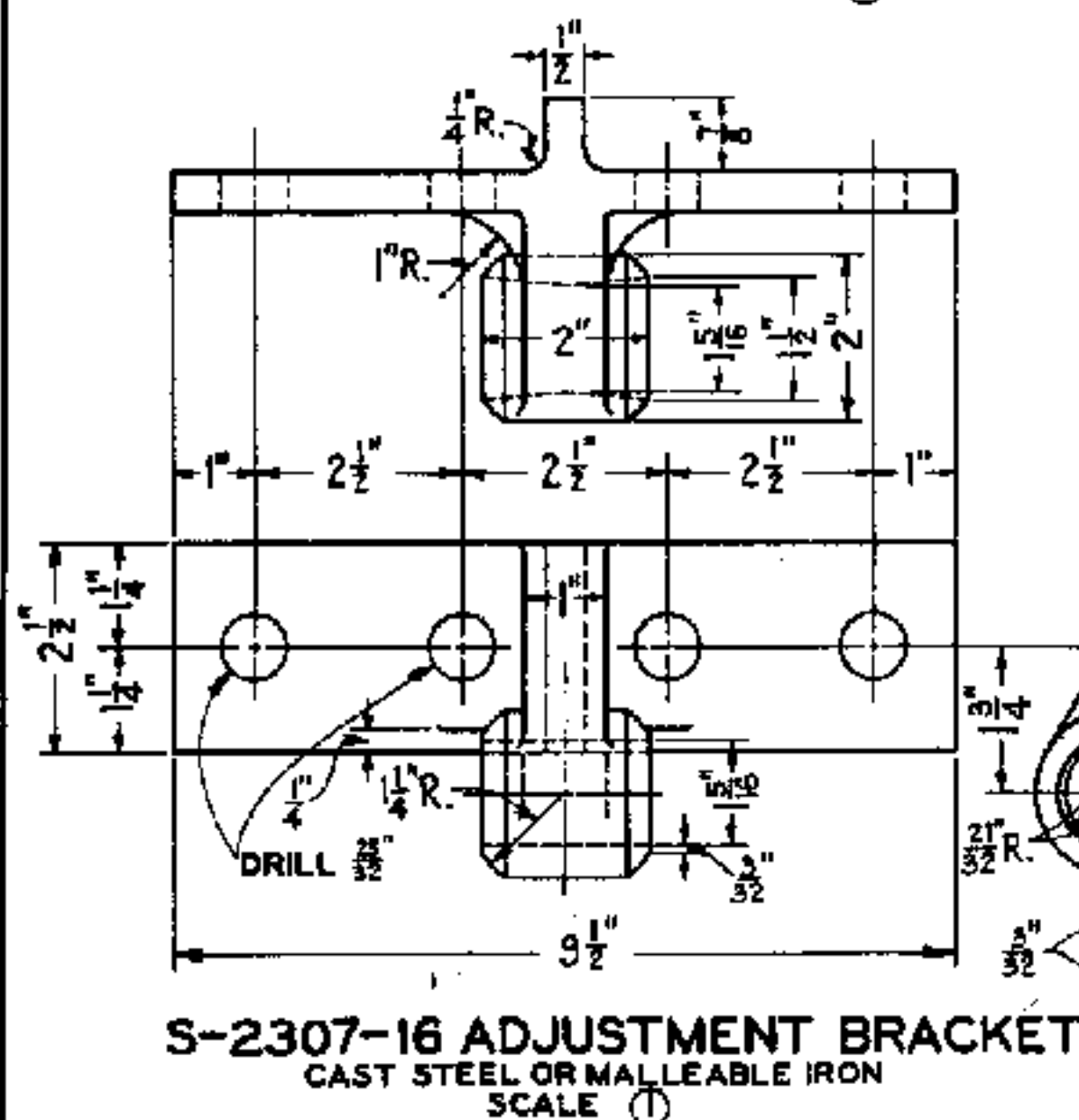
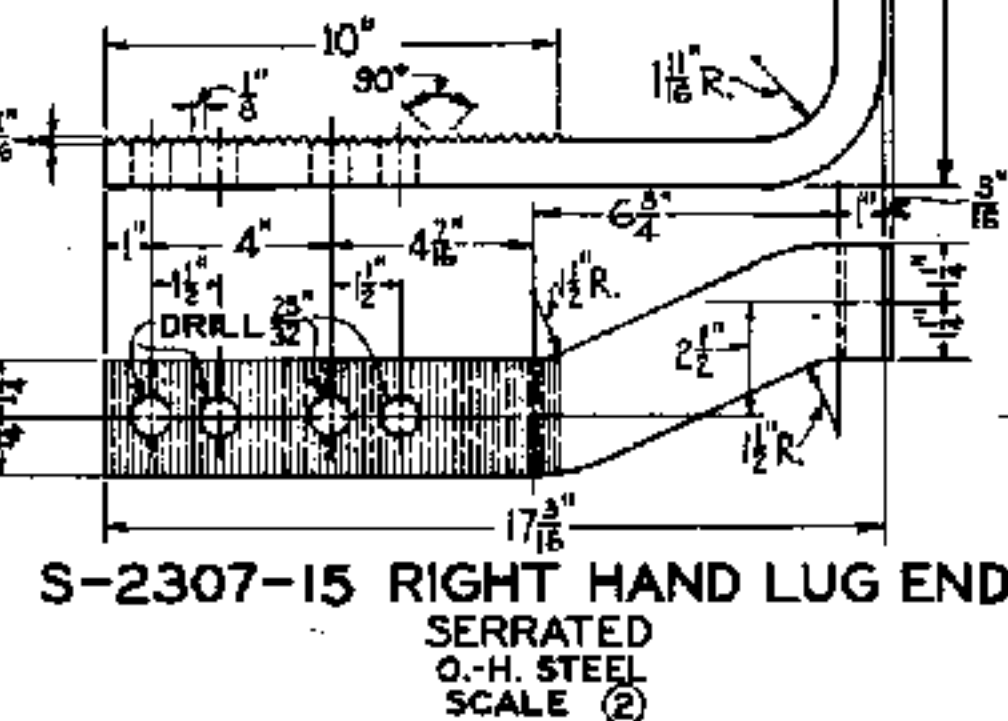
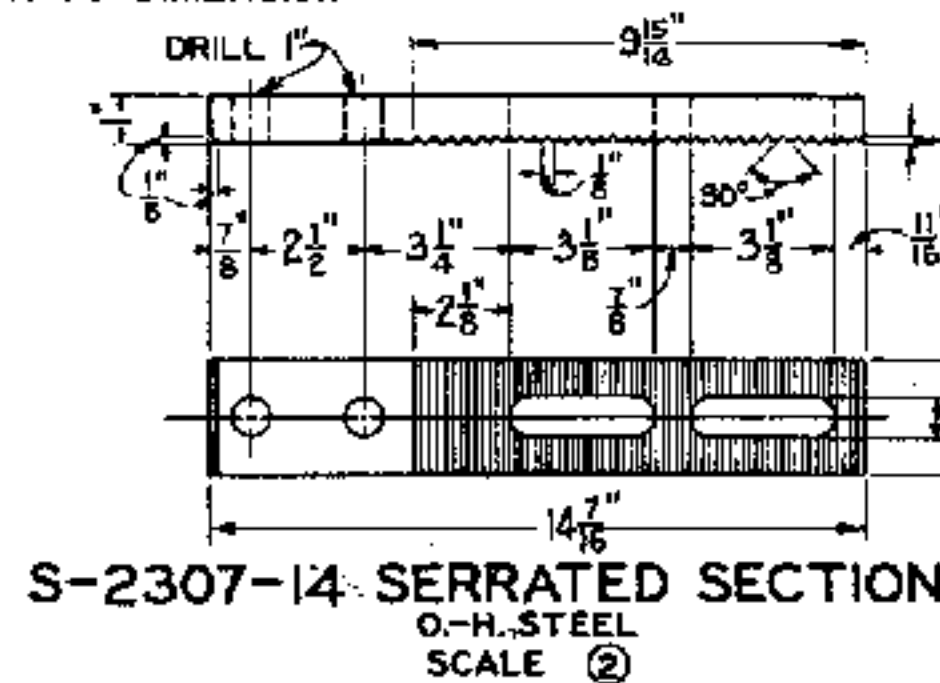
DEC 10 1937

SHEET NO. 2

S-2307-



HOLES FOR SWITCH POINT BOLTS SHALL BE DRILLED BY FIELD FORCES UNLESS OTHERWISE SPECIFIED.



NOTE
FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, HARD FIBRE.

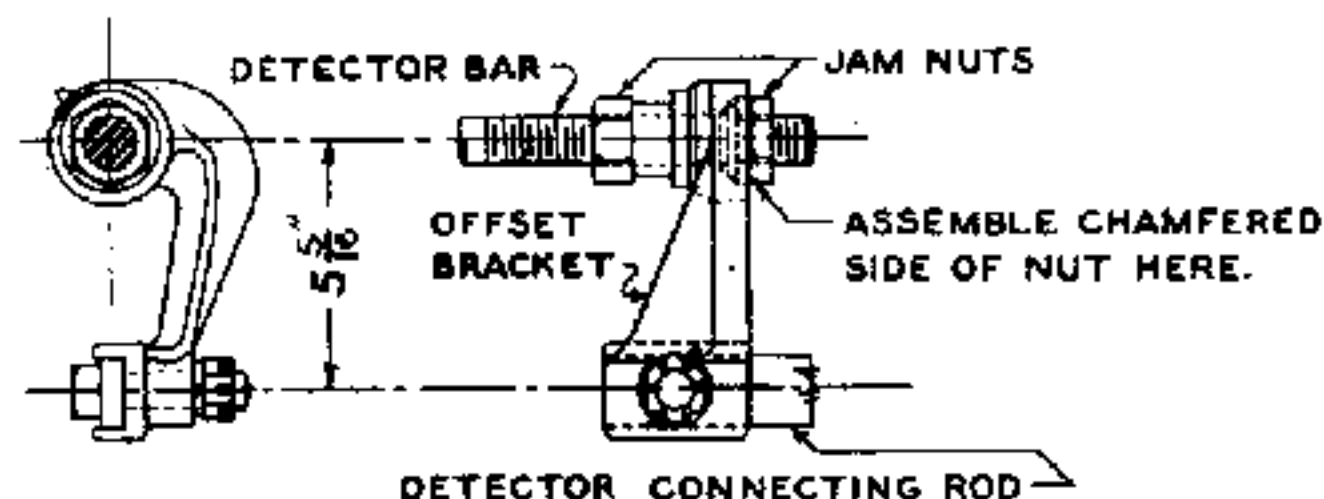
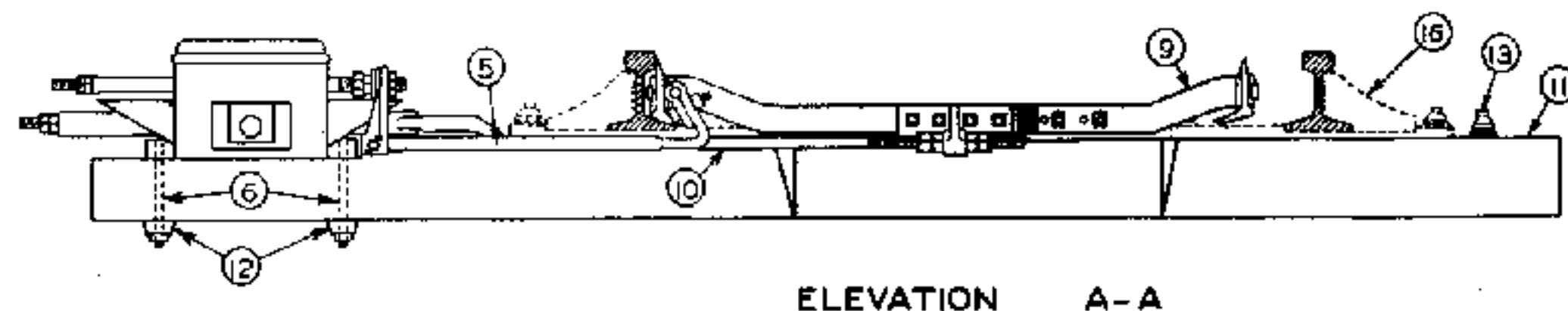
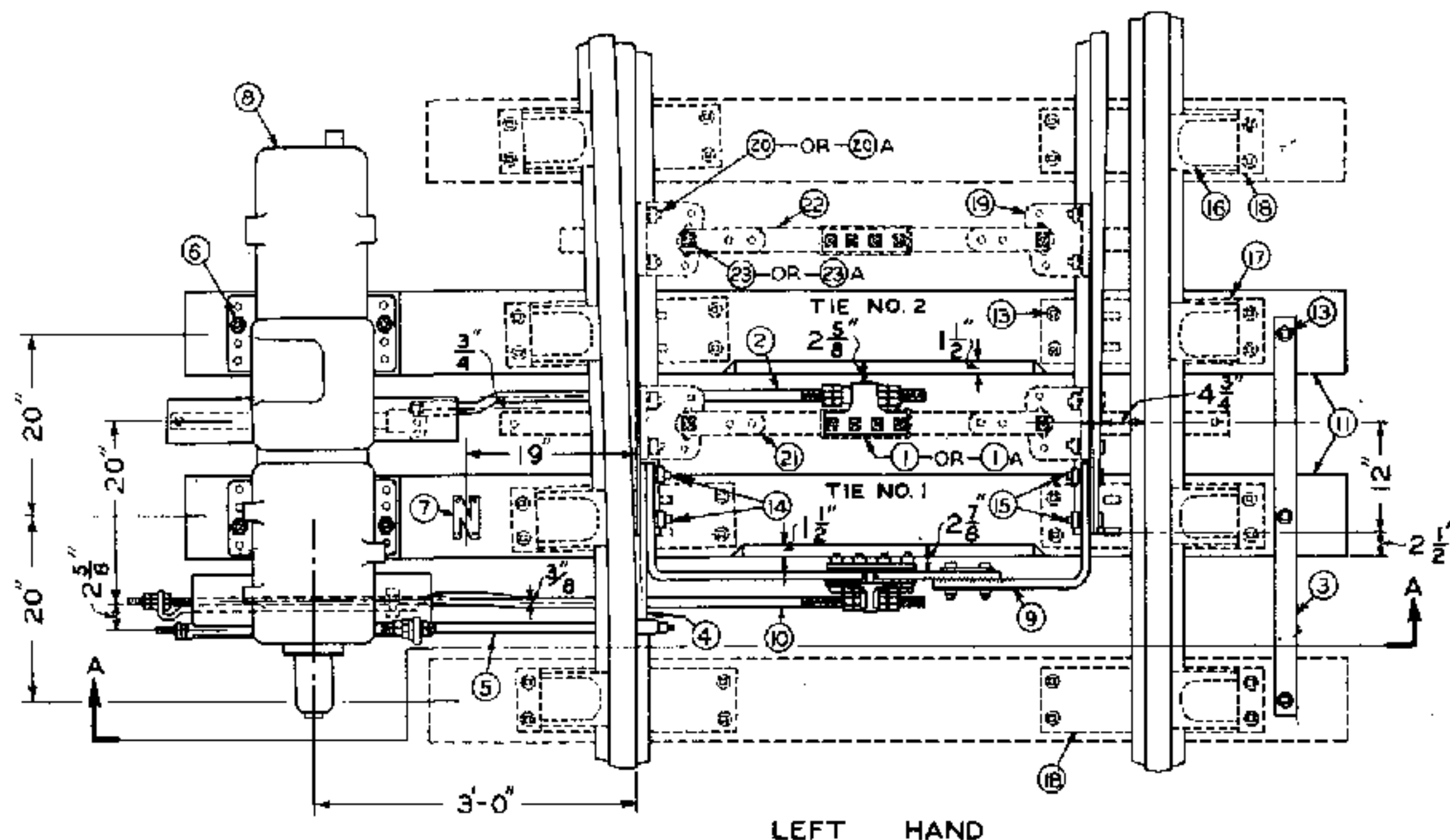


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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
<i>W. H. Woodruff</i> EXECUTIVE VICE PRESIDENT	
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C. B. P.	C. D. M. A. J. P.

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STANDARD FRONT ROD FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Woodruff*
CHIEF ENGINEER



"X" SEE NOTE NO. 4
NO SCALE

BILL OF MATERIAL

FIGURE	DESCRIPTION	REQUIRED	REFERENCE
(1)	SWITCH ADJUSTMENT BRACKET, OPEN TYPE, COMPLETE WITH SLEEVE AND JAM NUTS	1	S-2301-11
OR (1) A	" " " " ENCLOSED TYPE, " " " " " "	1	"
(2)	OPERATING ROD, COMPLETE WITH PIN AND COTTER	1	S-2309-4
(3)	TIE STRAP 3/4 X 2 1/2 X 3-7"	1	S-2309-18
(4)	SWITCH POINT LUG, SEE DRILLING TABLE, SHEET 3	1	S-2309
(5)	DETECTOR CONNECTING ROD, COMPLETE WITH CLAMP AND BOLT	1	S-2309-14
(6)	1/2 X 11" MACHINE STUD BOLT WITH HEX. NUT, SQUARE NUT, AND SPRING WASHER	4	S-2309-19
(7)	LETTER PLATE "N" WITH 2 1/2" - #8 FLAT HEAD WOOD SCREWS	1	S-2308-1
(8)	MODEL M-2 ELEC. S. & L. MACH. WITH OFFSET BRACKET AND POINT DETECTOR BAR "X" SPECIFY L.H. OR R.H.	1	"
(9)	FRONT ROD COMPLETE, SEE DETAIL DRAWINGS	1	S-2307-
(10)	LOCK ROD COMPLETE, WITH LOCK PLATE, BOLT, AND NUTS	1	S-2309-3
(11)	NO. 1 AND 2 SAWED, TREATED, TIE 7 X 9 X 10'-9" FOR L.H. LAYOUT	1 SET	S-2309-22
OR (11) A	NO. 1 AND 2 SAWED, TREATED, TIE 7 X 9 X 10'-9" FOR R.H. LAYOUT	1 SET	S-2309-23
(12)	CAST IRON WASHER	4	S-2301-19
(13)	LAG SCREW AND SPRING WASHER	3	R-523
(14)	BOLT, SPECIFY SIZE, SEE DETAIL DRAWINGS, SHEET 1	2	S-2307-
(15)	" " " " " " " " " " " "	2	S-2307-

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED

FIGURE	DESCRIPTION	REQUIRED	REFERENCE
(13)	LAG SCREW AND SPRING WASHER	32	R-523
(16)	RAIL BRACE (SPECIFY WEIGHT OF RAIL)	8	R-700
(17)	SLIDE PLATE S-1-A	4	SEE R DRAW- INGS FOR LAYOUTS
(18)	SLIDE PLATE S-1	4	
(19)	TRANSIT CLIP	4	
(20)	1" X 4 1/2" BOLT WITH NUT, WASHER AND COTTER	8	
OR (20) A	3/4" X 3 3/4" BOLT WITH NUT, WASHER AND COTTER	8	
(21)	NO. 1 HEAD ROD, INSULATED	1	
(22)	NO. 2 ROD, INSULATED	1	
(23)	1 1/8" X 5" BOLT WITH NUT, WASHER AND COTTER	4	
OR (23) A	1" X 4 1/4" BOLT WITH NUT, WASHER AND COTTER	4	

NOTES

- AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED WITH 5/8" BIT TO A DEPTH OF APPROXIMATELY 5 3/4".
- LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 8-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
- ALL ITEMS IN BILL OF MATERIAL ARE INTERCHANGEABLE FOR EITHER LEFT OR RIGHT HAND LAYOUT EXCEPT ITEMS (11) AND (11) A.
- WHEN ORDERING DETECTOR CONNECTING ROD FIG. 5 FOR REPLACING FORMER STANDARD RIGID ROD ON EXISTING LAYOUTS, OFFSET BRACKET AND POINT DETECTOR BAR "X" MUST BE ORDERED SEPARATELY.

SCALE IN INCHES
0 6 12 24 36

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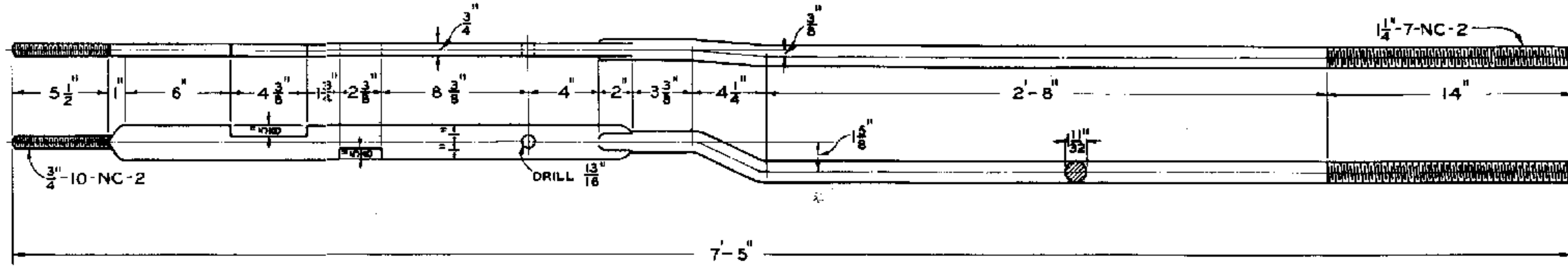
STANDARD
LAYOUT FOR STYLE M-2
ELECTRIC SWITCH MECHANISM
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

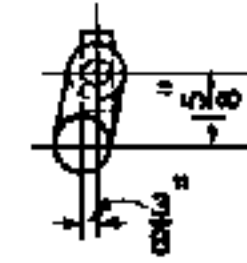
CHAIRMAN

NOV. 9, 1939

SHEET 1 OF 4
S-2309-B

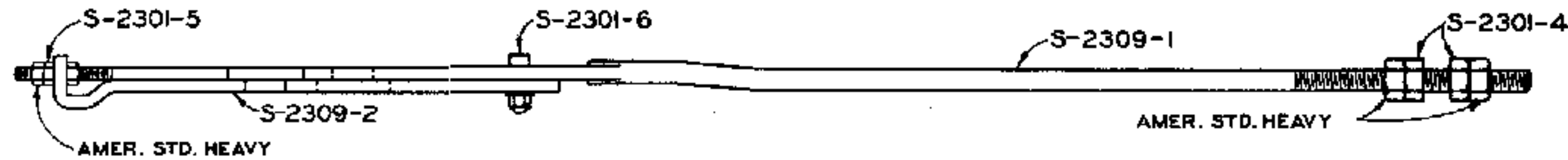


S-2309-1 LOCK ROD ONLY

O.-H. STEEL
SCALE ①

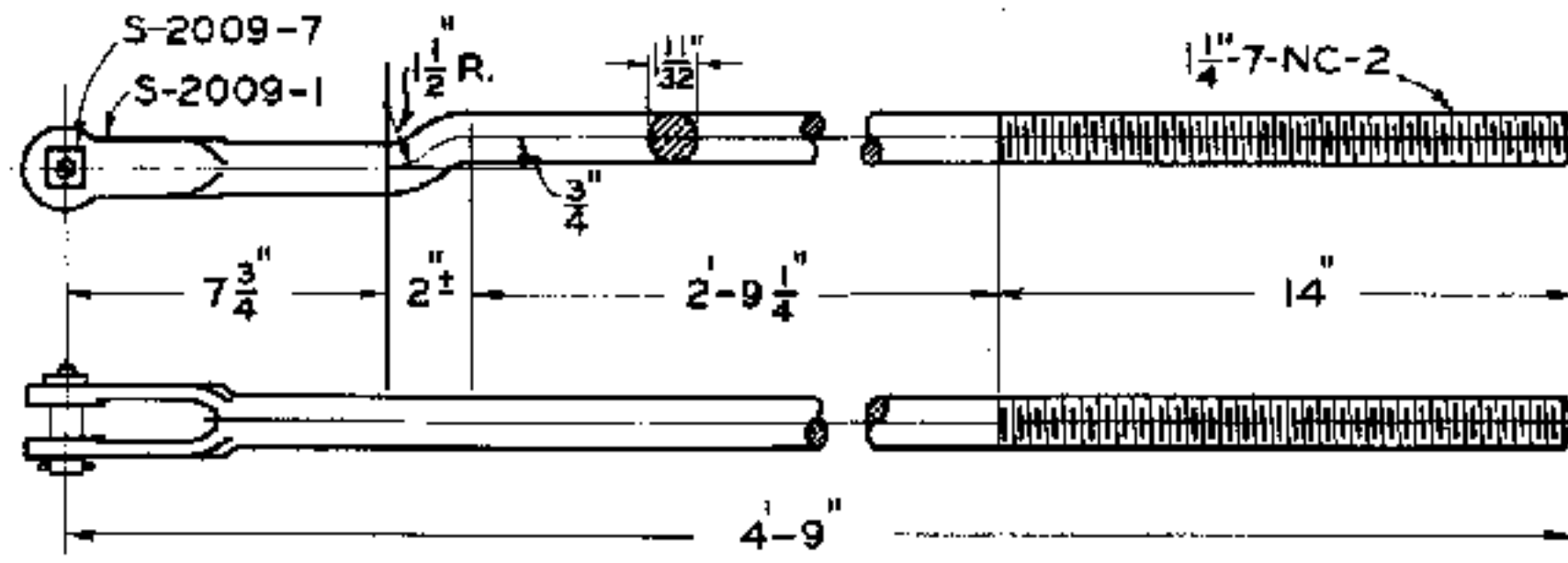
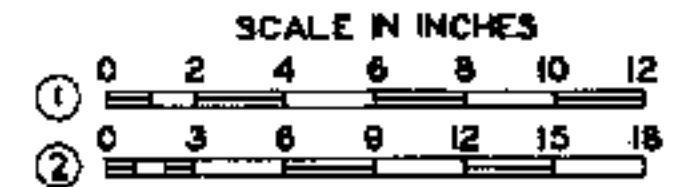
NOTE

ALL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

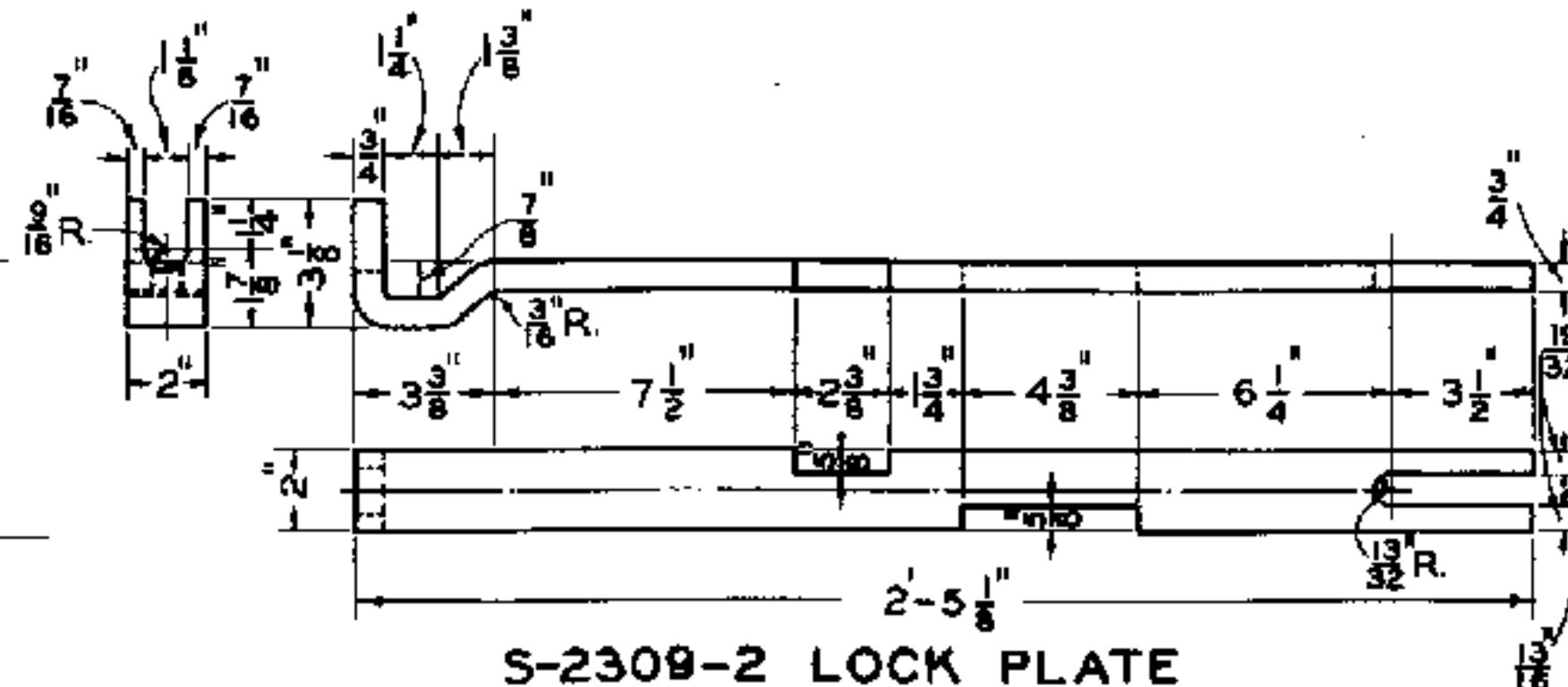


S-2309-3 LOCK ROD COMPLETE AS SHOWN

SCALE ②



S-2309-4 OPERATING ROD COMPLETE AS SHOWN

O.-H. STEEL
SCALE ①

S-2309-2 LOCK PLATE

O.-H. STEEL
SCALE ①

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STANDARD
LAYOUT FOR STYLE M-2
ELECTRIC SWITCH MECHANISM
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

CHAIRMAN

NOV. 9, 1939

SHEET 2 OF 4

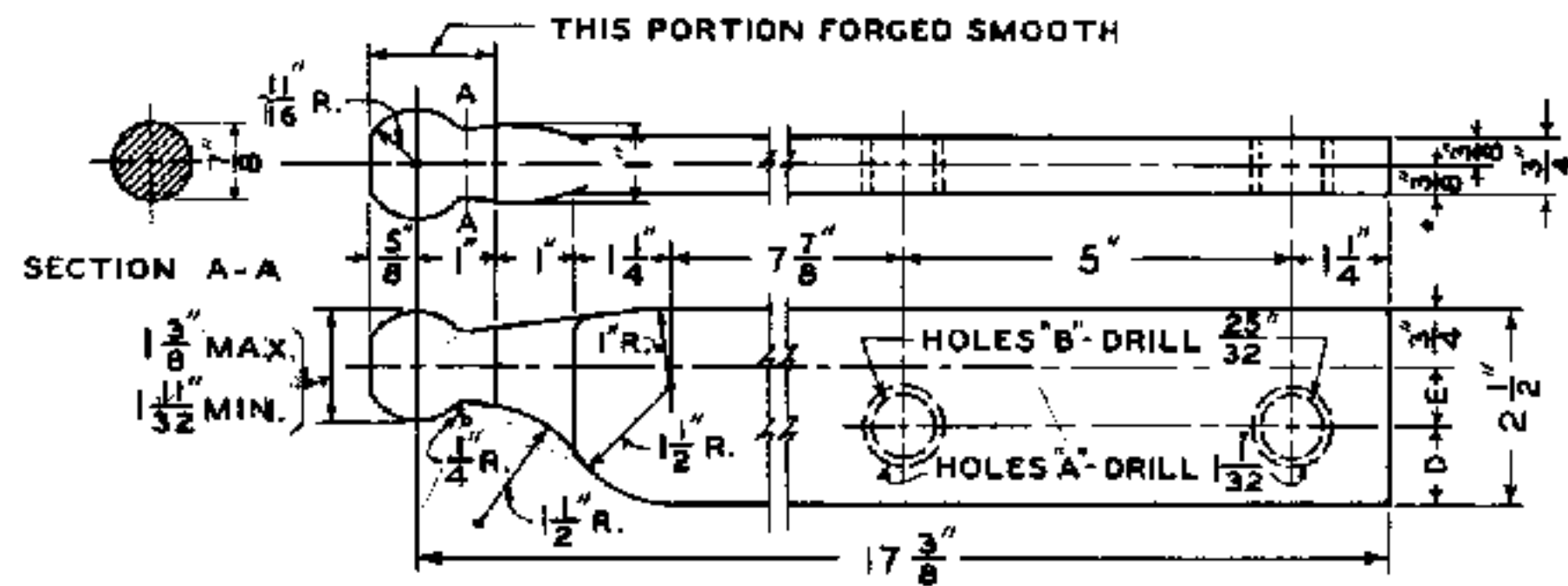


TABLE SHOWING SWITCH POINT LUG DRILLING		
	D	E
FOR 110 LB. R.E. RAIL, HOLES "B"	1"	3/4"
FOR 112, 130, AND 131 LB. R.E. RAIL, HOLES "A"	1 1/4"	1/2"

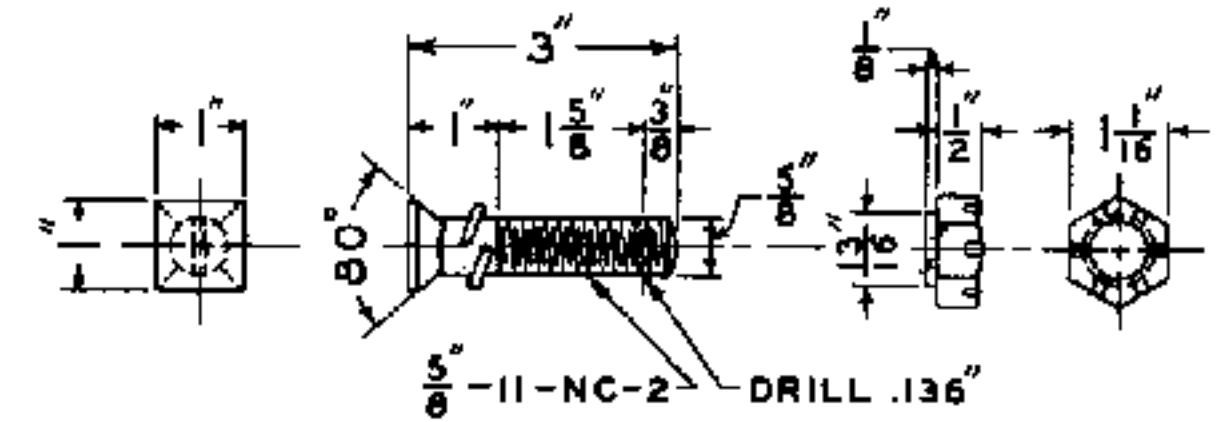
S-2309-6 SWITCH POINT LUG WITHOUT HOLES "A" OR "B"

S-2309-7	"	"	"	WITH	"	"	"	"	"
S-2309-8	"	"	"	"	"	"	"	"	"
S-2309-9	"	"	"	WITH	HOLES "A" AND TWO	S-2307-10 BOLTS			
S-2309-10	"	"	"	"	"	"	"	"	"
S-2309-11	"	"	"	"	"	"	"	"	"
S-2309-12	"	"	"	"	"	"	"	"	"

O.-H. STEEL
SCALE ①

S-2309-5 CLAMP FOR DETECTOR ROD

M. I.
SCALE ①



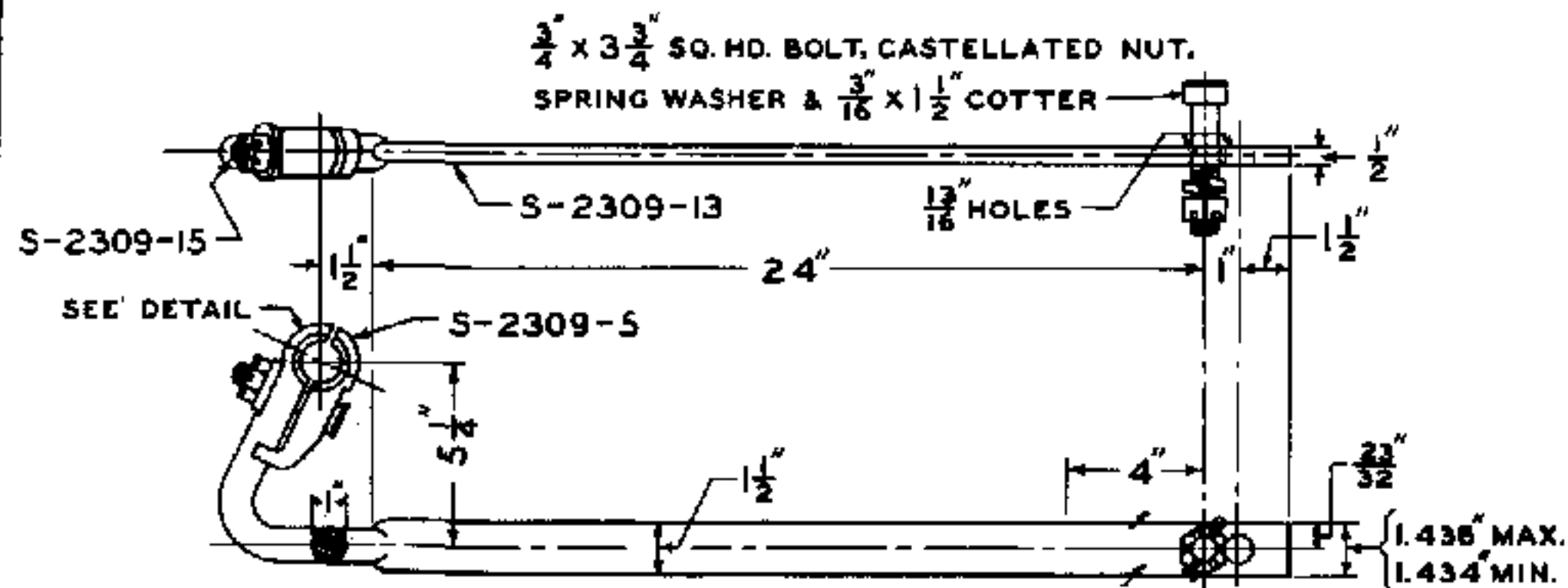
S-2309-15 BOLT COMPLETE WITH NUT,
1/8 X 1/2 COTTER AND 13/64 X 3/8 SPRING WASHER

O.-H. STEEL
SCALE ①

NOTE

ALL PARTS EXCEPT THREADED PORTIONS SHALL
BE FURNISHED PAINTED WITH ONE COAT OF METAL
PRIMER IN ACCORDANCE WITH LATEST REVISION
OF STANDARD SPECIFICATIONS S-1510, SHOP AND
FIELD PAINTING FOR SIGNAL AND INTERLOCKING
APPARATUS.

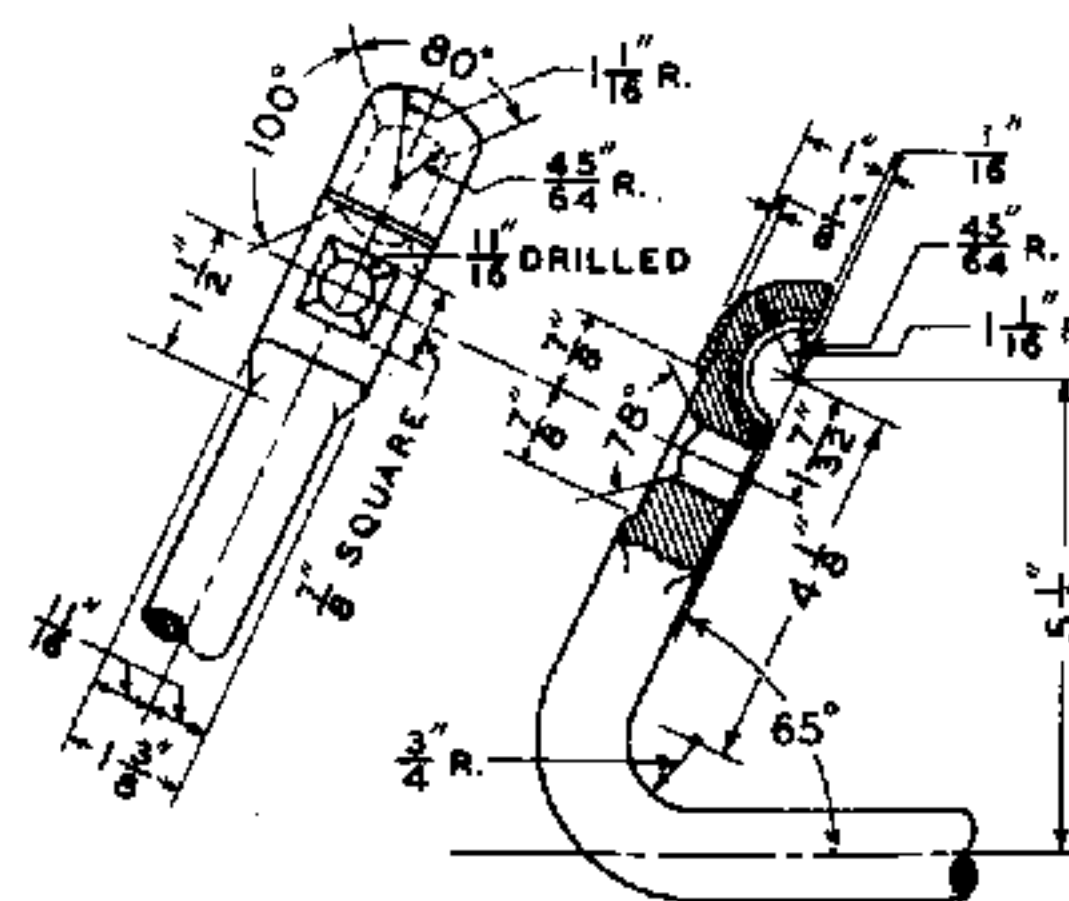
SCALE IN INCHES



S-2309-13 DETECTOR CONNECTING ROD ONLY

S-2309-14 " " " COMPLETE AS SHOWN

O.-H. STEEL
SCALE ②



DETAIL OF SOCKET

SCALE ①

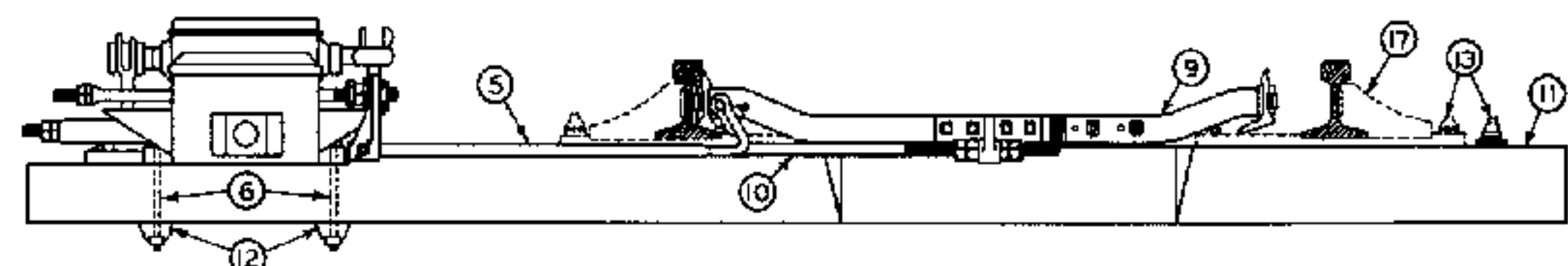
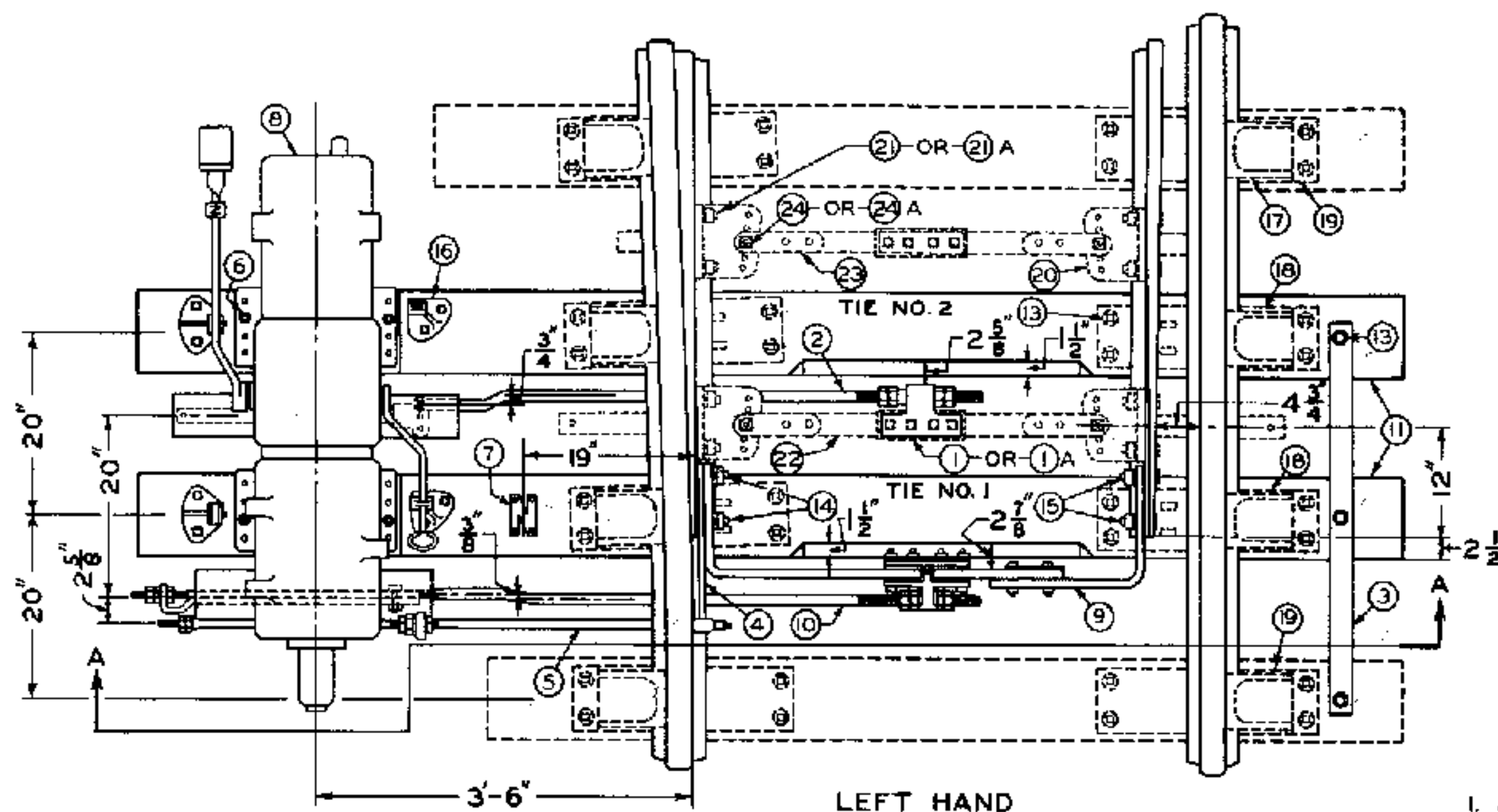
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THE PRESIDENT		
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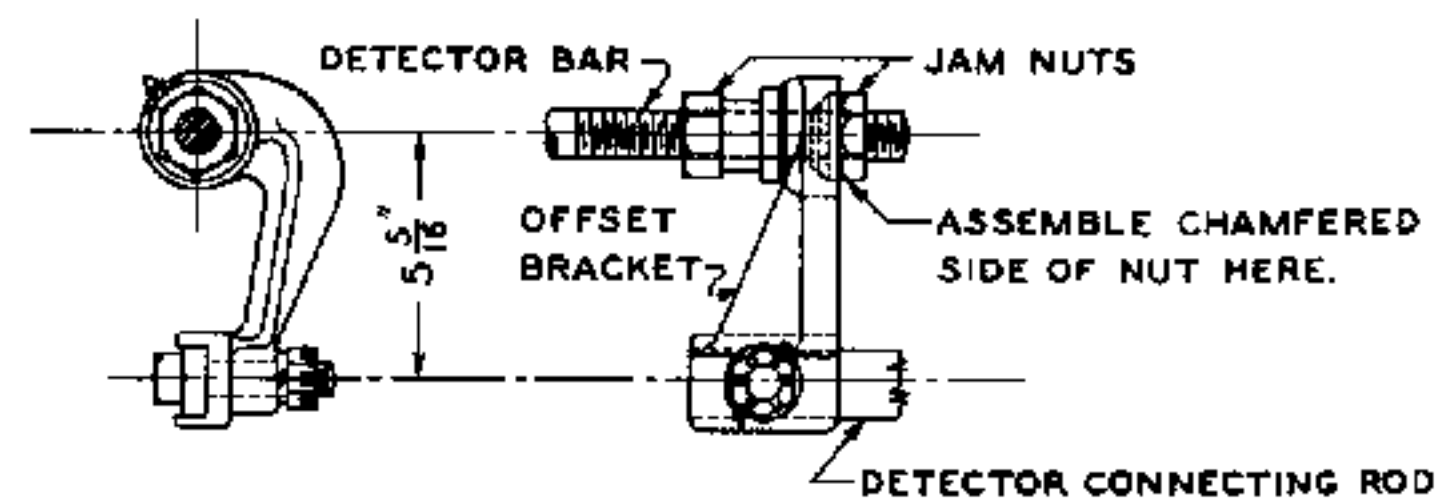
STANDARD
LAYOUT FOR STYLE M-2
ELECTRIC SWITCH MECHANISM
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

A. C. Astor
CHAIRMAN
NOV. 9, 1939



ELEVATION A-A



"X" SEE NOTE NO. 4
NO SCALE

BILL OF MATERIAL			
FIGURE	DESCRIPTION	REQUIRED	REFERENCE
①	SWITCH ADJUSTMENT BRACKET, OPEN TYPE, COMPLETE WITH SLEEVE AND JAM NUTS	1	S-2301-II
OR ① A	" " " " ENCLOSED TYPE, " " " " " "	1	"
②	OPERATING ROD, COMPLETE WITH PIN AND COTTER	1	S-2312-3
③	TIE STRAP 3/4" X 2 1/2" X 3'-7"	1	S-2309-18
④	SWITCH POINT LUG, SEE DRILLING TABLE, DETAILED DRAWINGS, SHEET 3	1	S-2309-
⑤	DETECTOR CONNECTING ROD, COMPLETE WITH CLAMP AND BOLT	1	S-2312-7
⑥	3/8" X 11" MACHINE STUD BOLT WITH HEX. NUT, SQUARE NUT, AND SPRING WASHER	4	S-2308-19
⑦	LETTER PLATE "N" WITH 2 1/2" - 8 FLAT HEAD WOOD SCREWS	1	S-2308-1
⑧	MODEL M-22 ELEC. S. & L. MACH. WITH OFFSET BRACKET AND POINT DETECTOR BAR "X", SPECIFY L.H. OR R.H.	1	"
⑨	FRONT ROD COMPLETE, SEE DETAIL DRAWINGS	1	S-2307-
⑩	LOCK ROD COMPLETE, WITH LOCK PLATE, BOLT, AND NUTS	1	S-2312-2
⑪	NO. 1 AND 2 SAWED, TREATED, TIE, 7' X 9' X 11'-9" FOR L.H. LAYOUT	1 SET	S-2312-10
OR ⑪ A	NO. 1 AND 2 SAWED, TREATED, TIE, 7' X 9' X 11'-9" FOR R.H. LAYOUT	1 SET	S-2312-11
⑫	CAST IRON WASHER	4	S-2301-19
⑬	LAG SCREW AND SPRING WASHER	3	R-523
⑭	BOLT, SPECIFY SIZE, SEE DETAILED DRAWINGS, SHEET 1	2	S-2307-
⑮	" " " " " " " " " " " "	2	S-2307-
⑯	3/4" X 4 1/2" HOT GALV. GIMLET POINT LAG SCREW WITH CUT THREADS	8	"

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED			
FIGURE	DESCRIPTION	REQUIRED	REFERENCE
⑬	LAG SCREW AND SPRING WASHER	32	R-523
⑰	RAIL BRACE (SPECIFY WEIGHT OF RAIL)	8	R-700
⑱	SLIDE PLATE S-1-A	4	SEE R DRAWINGS FOR LAYOUTS
⑲	SLIDE PLATE S-1	4	
⑳	TRANSIT CLIP	4	
㉑	1" X 4 1/2" BOLT WITH NUT, WASHER, AND COTTER	8	
OR ㉑ A	3/4" X 3 3/4" BOLT WITH NUT, WASHER, AND COTTER	8	
㉒	NO. 1 HEAD ROD, INSULATED	1	
㉓	NO. 2 ROD, INSULATED	1	
㉔	1 1/8" X 5" BOLT WITH NUT, WASHER, AND COTTER	4	
OR ㉔ A	1" X 4 1/4" BOLT WITH NUT, WASHER, AND COTTER	4	



- NOTES**
- AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED AS FOLLOWS:

DIA. OF LAG SCREW	SIZE BIT	APPROX. DEPTH
7/8"	5/8"	5 3/4"
3"	9/16"	3"

- LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTER-LOCKING APPARATUS.
- ALL ITEMS IN BILL OF MATERIAL ARE INTERCHANGEABLE FOR EITHER LEFT OR RIGHT HAND LAYOUT EXCEPT ITEMS ⑪ AND ⑪ A.
- WHEN ORDERING DETECTOR CONNECTING ROD FIG. 5 FOR REPLACING FORMER STANDARD RIGID ROD ON EXISTING LAYOUTS, OFFSET BRACKET AND POINT DETECTOR BAR "X" MUST BE ORDERED SEPARATELY.

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VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
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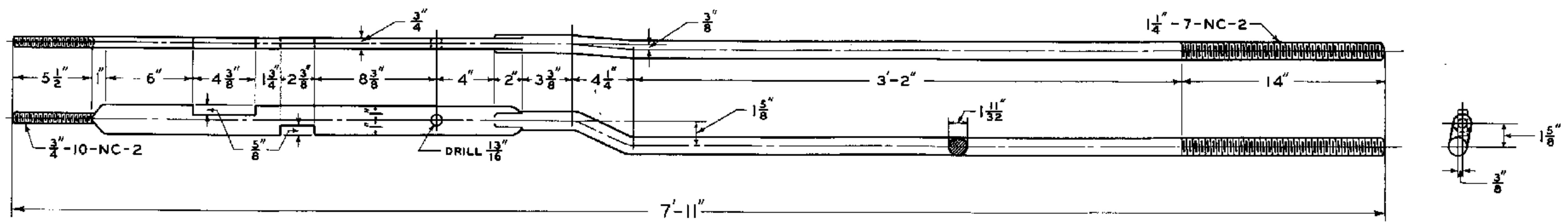
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THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD
LAYOUT FOR STYLE M-22
ELECTRIC SWITCH MECHANISM
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
A. C. Farney
CHAIRMAN

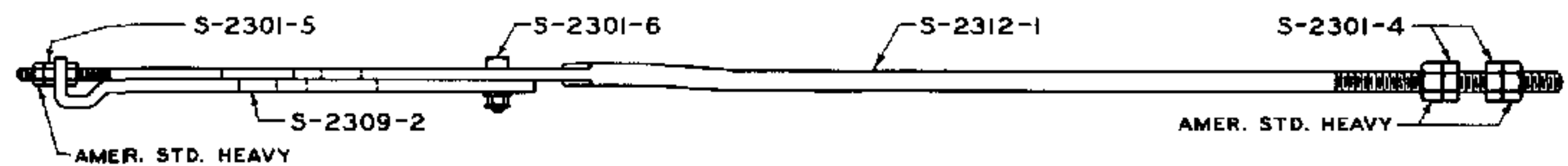
NOV. 9, 1939
SHEET 1 OF 3
S-2312-B



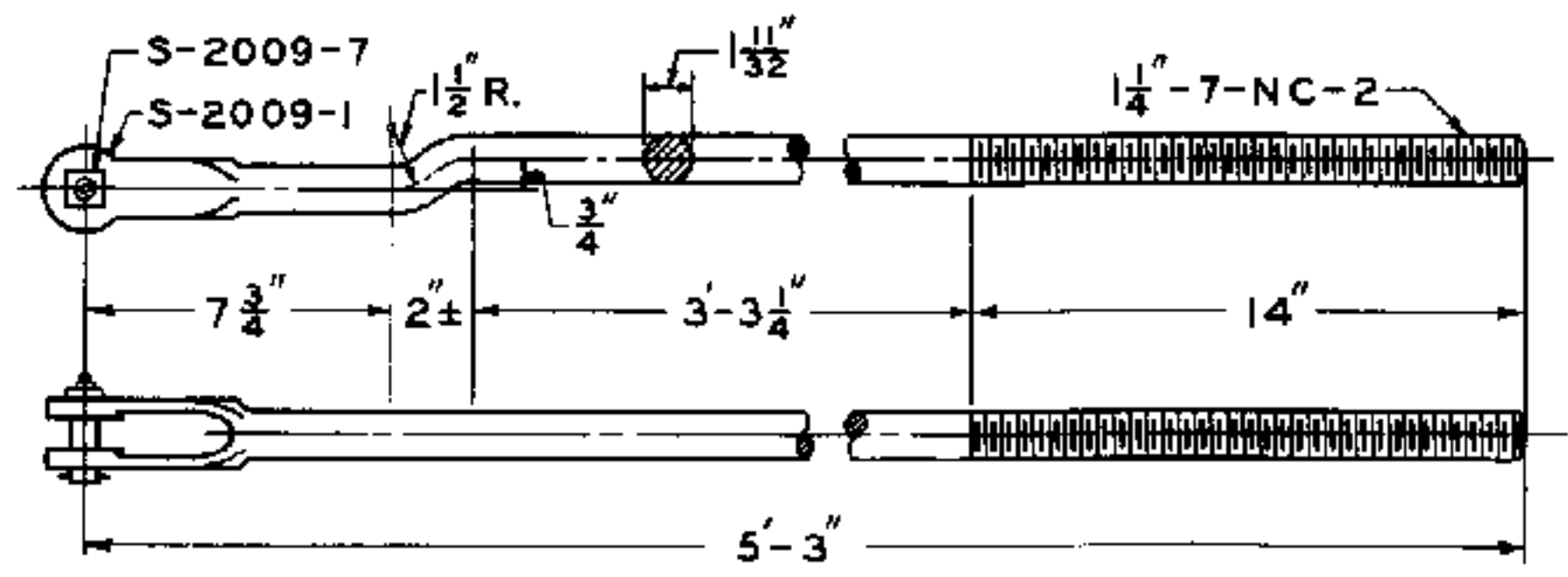
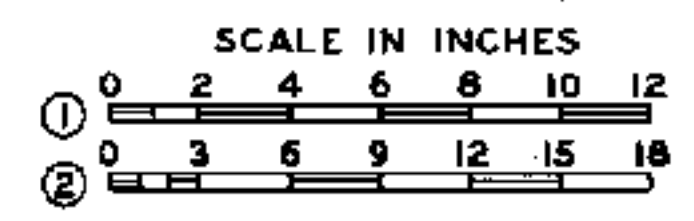
S-2312-1 LOCK ROD ONLY
O.-H. STEEL
SCALE ①

NOTE

ALL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



S-2312-2 LOCK ROD COMPLETE AS SHOWN
SCALE ②



S-2312-3 OPERATING ROD COMPLETE AS SHOWN
O.-H. STEEL
SCALE ①

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>H. Cowmaster</i>	VICE PRESIDENT AND GENERAL MANAGER
ERIE RAILROAD COMPANY	<i>H. T. Barker</i>	VICE PRESIDENT
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>R. D. Brooke</i>	PRESIDENT
PERE MARQUETTE RAILWAY COMPANY	<i>R. Brown</i>	VICE PRESIDENT
C.H.W.	W.S.E.	C.A.T.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD
LAYOUT FOR STYLE M-22
ELECTRIC SWITCH MECHANISM
FOR SINGLE SWITCH**

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
A. J. J. J.
CHAIRMAN

NOV. 9, 1939
SHEET 2 OF 3
S-2312-B

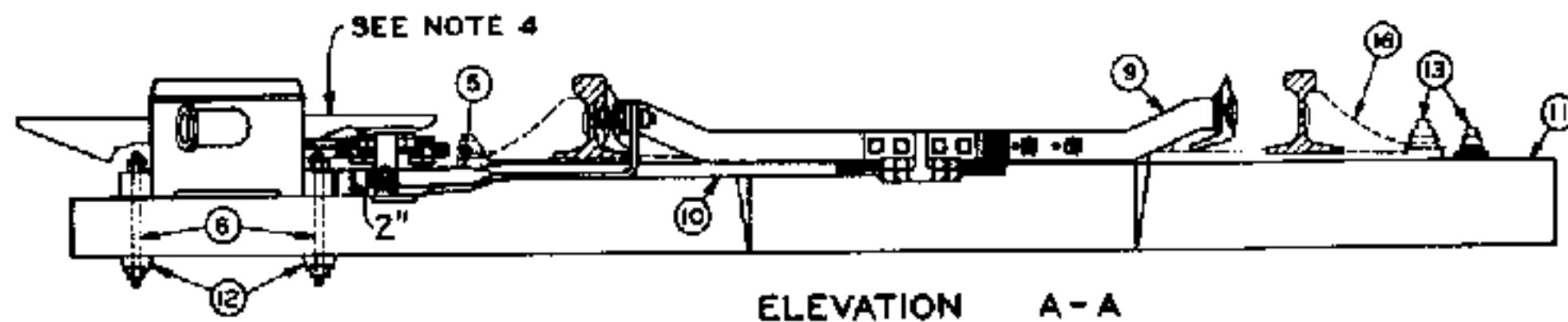
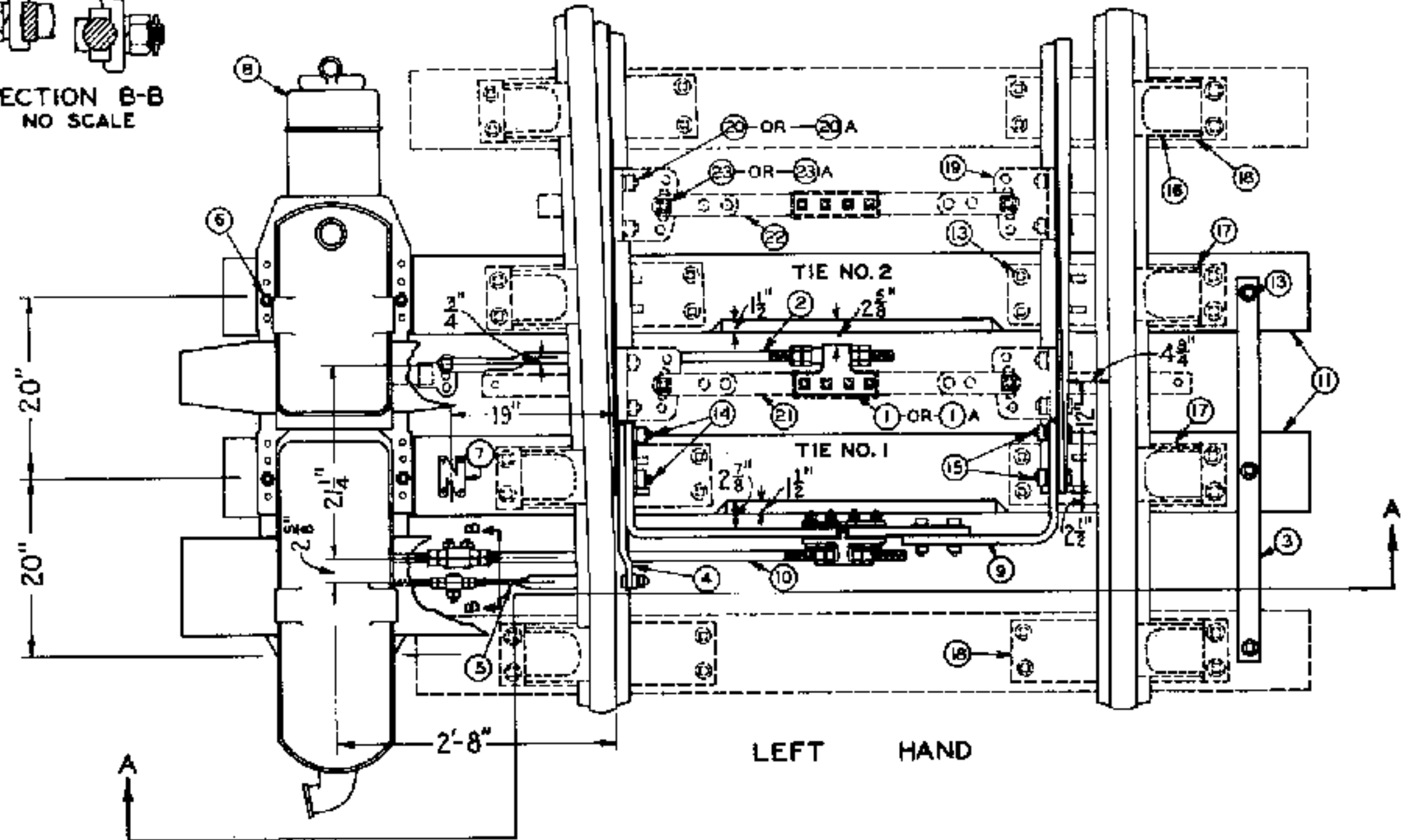
SECTION B-B
NO SCALE

FIGURE	DESCRIPTION	REQUIRED	REFERENCE
①	SWITCH ADJUSTMENT BRACKET, OPEN TYPE, COMPLETE WITH SLEEVE AND JAM NUTS	1	S-2301-11
OR ①A	" " " " ENCLOSED TYPE, " " " " " "	1	"
②	OPERATING ROD, COMPLETE WITH PIN AND COTTER	1	S-2314-3
③	TIE STRAP 3/4" x 2 1/2" x 3'-7"	1	S-2309-18
④	SWITCH POINT LUG, SEE DRILLING TABLE, DETAILED DRAWINGS, SHEET 3	1	S-2314
⑤	DETECTOR ROD, COMPLETE WITH BOLTS	1	S-2314-8
⑥	3/4" x 11" MACHINE STUD BOLT WITH HEX, NUT, SQUARE NUT, AND SPRING WASHER	4	S-2314-9
⑦	LETTER PLATE "N" WITH 2 1/2" x 8 FLAT HEAD WOOD SCREWS	1	S-2308-1
⑧	MODEL 5A OR 5C SWITCH MACHINE WITH SHORT LOCK ROD LUG. SPECIFY L.H. OR R.H.	1	"
⑨	FRONT ROD COMPLETE, SEE DETAIL DRAWINGS	1	S-2307-
⑩	LOCK CONNECTING ROD, COMPLETE WITH BOLTS AND NUTS	1	S-2314-2
⑪	NO. 1 AND 2 SAWED, TREATED, TIE, 7" x 9" x 10'-3" FOR L.H. LAYOUT	2	S-2314-5
OR ⑪A	NO. 1 AND 2 " " " " " " " " FOR R.H. LAYOUT	2	S-2314-6
⑫	CAST IRON WASHER	4	S-2301-19
⑬	LAG SCREW AND SPRING WASHER	3	R-523
⑭	BOLT, SPECIFY SIZE, SEE DETAILED DRAWINGS, SHEET 1	2	S-2307-
⑮	" " " " " " " " " " " "	2	S-2307-

FIGURE	DESCRIPTION	REQUIRED	REFERENCE
⑬	LAG SCREW AND SPRING WASHER	32	R-523
⑮	RAIL BRACE [SPECIFY WEIGHT OF RAIL]	8	R-700
⑯	SLIDE PLATE S-1-A	4	SEE R DRAW- INGS FOR LAYOUTS
⑰	" " " S-1	4	
⑱	TRANSIT CLIP	4	
⑲	1" x 4 1/2" BOLT WITH NUT, WASHER AND COTTER	8	
OR ⑲A	3/4" x 3 1/2" " " " " " " " "	8	
⑳	NO. 1 HEAD ROD, INSULATED	1	
㉑	NO. 2 ROD, INSULATED	1	
㉒	1 1/2" x 5" BOLT WITH NUT, WASHER AND COTTER	4	
OR ㉒A	1" x 4 1/2" " " " " " " " "	4	

SCALE IN INCHES
0 6 12 24 36

NOTES

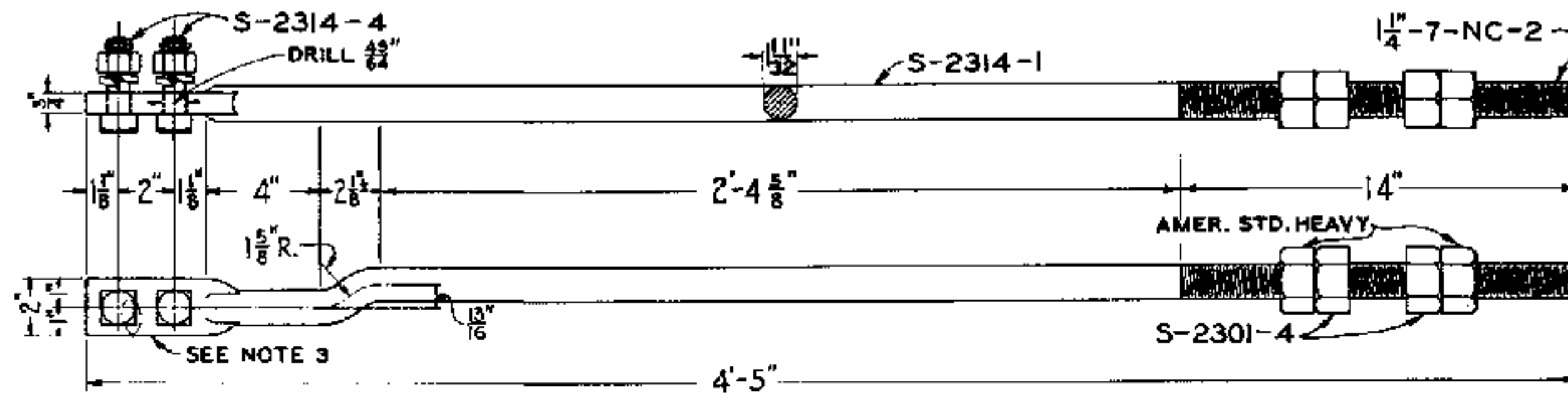
1. AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED WITH 5/8" BIT TO A DEPTH OF APPROXIMATELY 5 1/2".
2. LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. ALL ITEMS IN BILL OF MATERIAL ARE INTERCHANGEABLE FOR EITHER LEFT OR RIGHT HAND LAYOUT EXCEPT ITEMS ⑪ AND ⑪A.
4. ONLY PORTION OF GUARDS SHOWN IN ORDER TO MORE CLEARLY SHOW ROD CONNECTIONS AT MACHINE.

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. H. Barber</i> VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>H. H. Barber</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>H. H. Barber</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>H. H. Barber</i> VICE PRESIDENT		
C.H.W.	W.S.E.	C.A.T.
C.B.P.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
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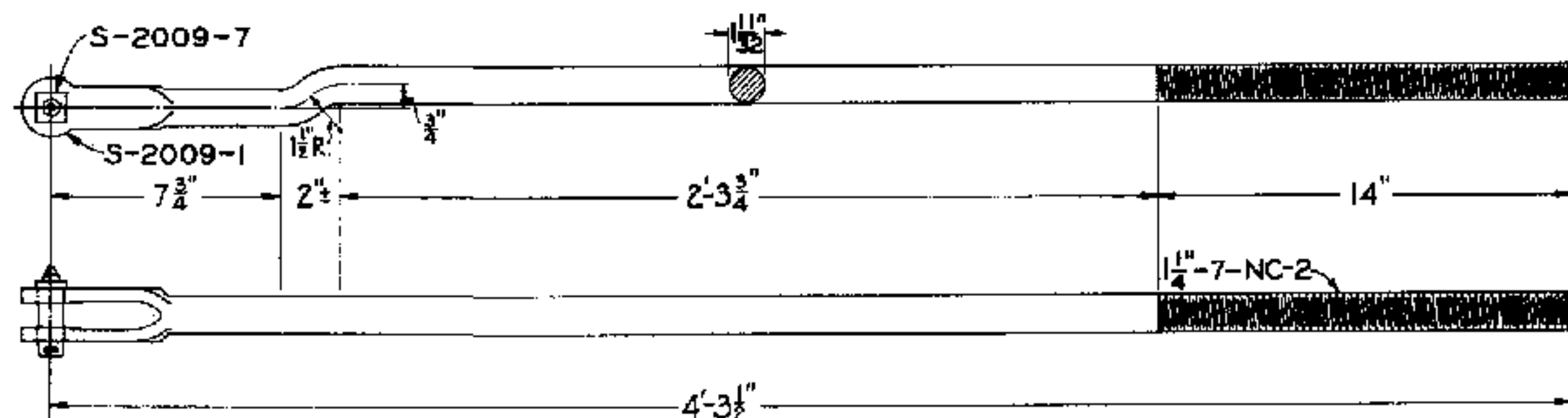
STANDARD
 LAYOUT FOR MODEL 5A OR 5C
 ELECTRIC SWITCH MECHANISM
 FOR SINGLE SWITCH

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
Asst. Sec. Tarnes
 CHAIRMAN
 NOV. 9, 1939



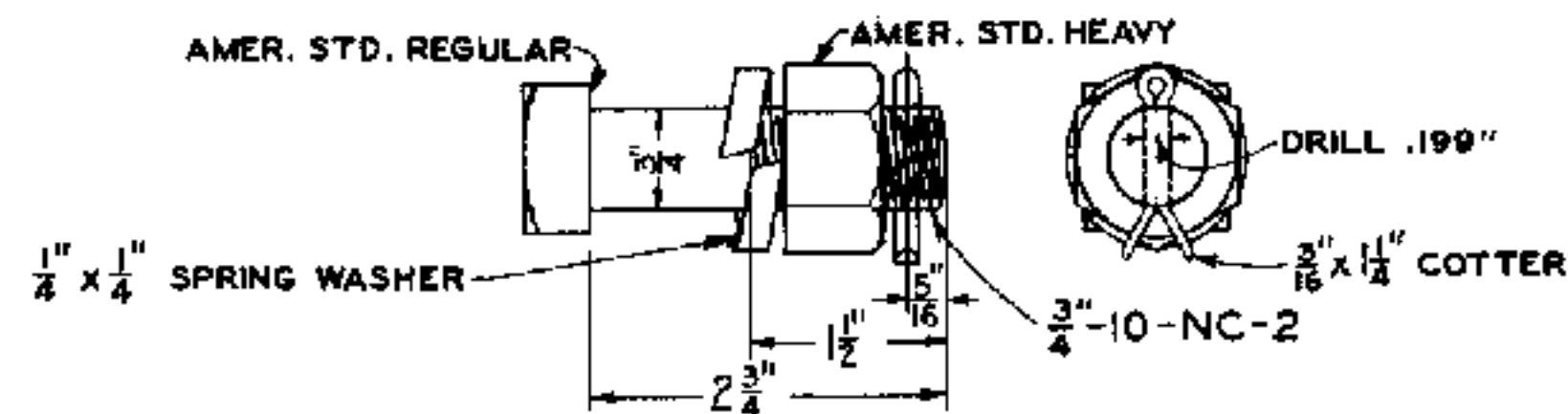
S-2314-1 LOCK CONNECTING ROD ONLY
S-2314-2 LOCK CONNECTING ROD COMPLETE AS SHOWN

O.-H. STEEL
SCALE ①

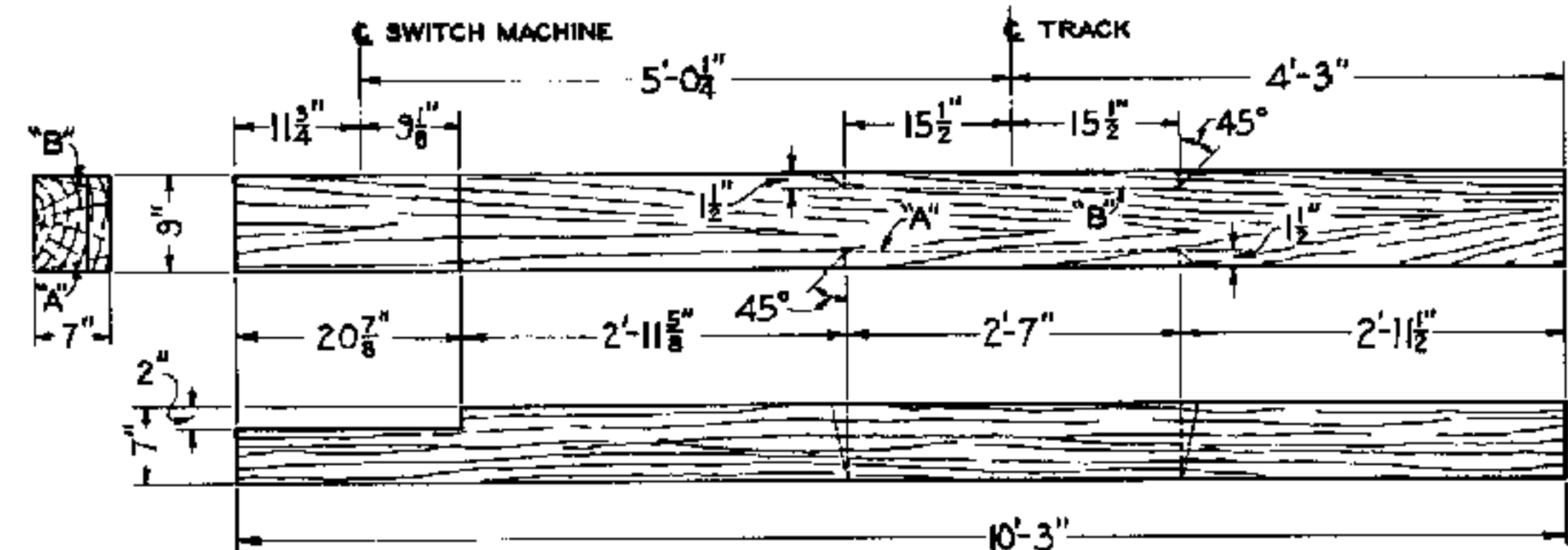


S-2314-3 OPERATING ROD COMPLETE AS SHOWN

O.-H. STEEL
SCALE ①

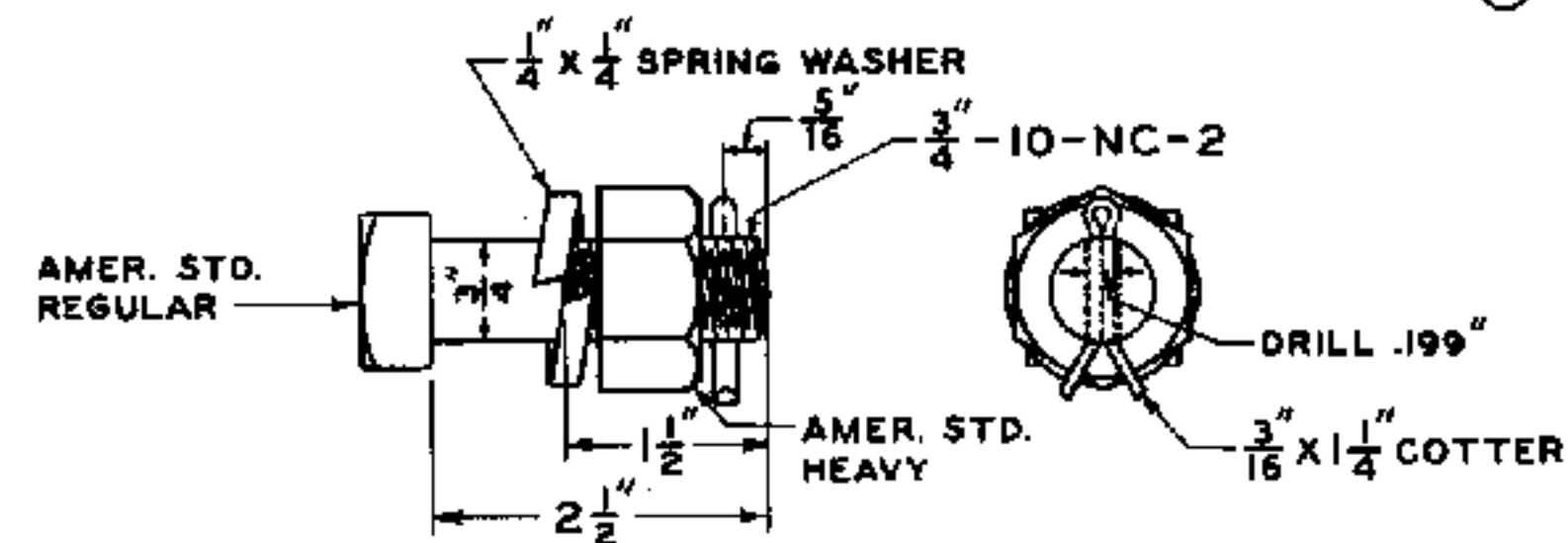


S-2314-4 BOLT COMPLETE
O.-H. STEEL
SCALE ②

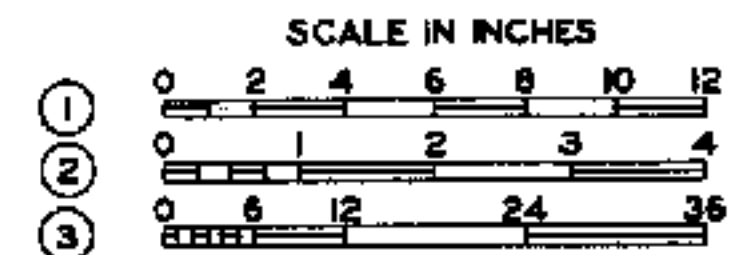


S-2314-5 TIE CHAMFER AT "A" FOR L. H. LAYOUT
S-2314-6 TIE " " "B" " R. H. " "

SCALE ③



S-2314-10 BOLT COMPLETE
O.-H. STEEL
SCALE ②



NOTES

1. RODS, EXCEPT THREADED PORTIONS, SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER FRAMING, IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT OF CROSS TIES OR SWITCH TIES.
3. FOR LOCK PLATES SEE MANUFACTURER'S CATALOG.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

H. C. Brown
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

H. T. Barber
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

R. M. Moore
PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

A. J. H. H. H.
VICE PRESIDENT

C.B.P. W.S.E. C.A.T.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
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PERE MARQUETTE RAILWAY COMPANY

STANDARD LAYOUT FOR MODEL 5A OR 5C ELECTRIC SWITCH MECHANISM FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

A. J. H. H. H.
CHAIRMAN

NOV. 9, 1939

SHEET 2 OF 3

S-2314-B

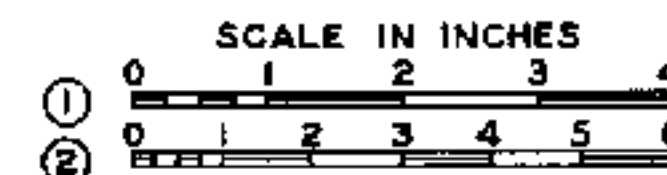


Technical drawing of a mechanical part, likely a switch point, showing dimensions and labels:

- END OF SWITCH POINT**: Label at the top left.
- 1 1/2"**: Dimension for the length of the switch point.
- 1/4"**: Dimension for the width of the switch point.
- 5"**: Dimension for the length of the switch point.
- HOLES "B" - DRILL 25/32**: Label for the two holes on the left.
- 8 1/8"**: Dimension for the length of the main body.
- 3/4"**: Dimension for the width of the main body.
- 1 1/2"**: Dimension for the length of the main body.
- 1 1/2"**: Dimension for the length of the main body.
- 3/4"**: Dimension for the width of the main body.
- DRILL 25/32**: Label for the hole on the right.
- HOLES "A" - DRILL 1 1/32**: Label for the two holes on the left.
- 18 1/8"**: Dimension for the total length of the part.
- 2 1/2"**: Dimension for the width of the part.
- 1 1/4"**: Dimension for the width of the part.
- 1 1/4"**: Dimension for the width of the part.

S-2314-12	"	"	"	WITH	"	"A"			
S-2314-13	"	"	"	"	"	"B"			
S-2314-14	"	"	"	WITH	HOLES	"A" AND	TWO	S-2307-10 BOLTS	
S-2314-15	"	"	"	"	"	"A"	"	"	S-2307-12 "
S-2314-16	"	"	"	"	"	"B"	"	"	S-2307-6 "
S-2314-17	"	"	"	"	"	"B"	"	"	S-2307-8 "

O.-H. STEEL
SCALE (2)

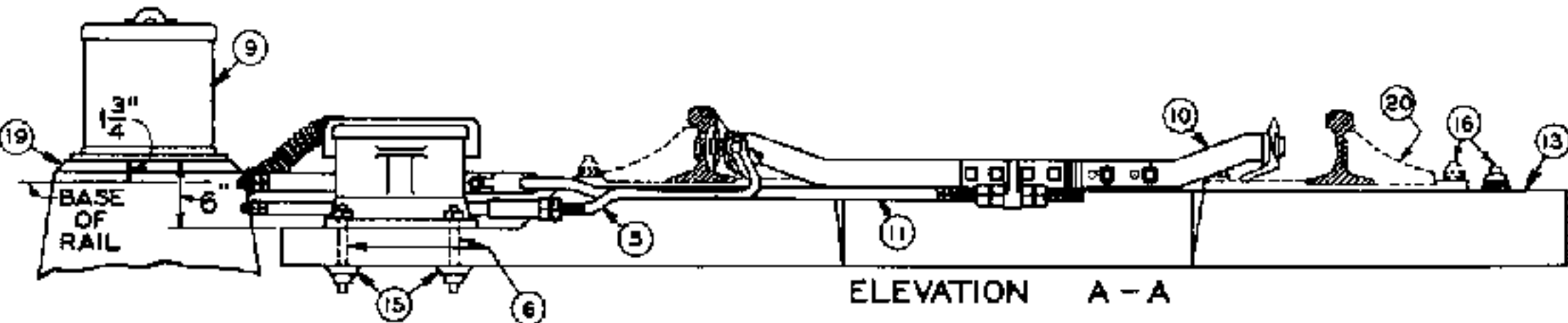


C.	B.	P.	W.	S.	E.	C.	A.	T.
----	----	----	----	----	----	----	----	----

As Farney
CHAIRMAN

S-23|4-B

NOTE
ROD SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



NOTES

1. AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED WITH $\frac{5}{8}$ " BIT TO A DEPTH OF APPROXIMATELY $5\frac{3}{4}$ ".
2. LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
3. ALL ITEMS IN BILL OF MATERIAL ARE INTER-CHANGEABLE FOR EITHER LEFT OR RIGHT HAND LAYOUT EXCEPT ITEMS (11), (11)A, (13), (13)A, (14), (14)A, (19), AND (19)A.

SCALE IN INCHES

0 5 12 24 36

A horizontal scale bar with markings at 0, 5, 12, 24, and 36 inches. The bar is divided into segments by vertical lines corresponding to these markings. The segments are labeled with their respective inch values: 0 to 5, 5 to 12, 12 to 24, and 24 to 36. The segment from 0 to 5 is the shortest, followed by 5 to 12, then 12 to 24, and finally 24 to 36, which is the longest segment. The markings are evenly spaced along the bar.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
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 PERE MARQUETTE RAILWAY COMPANY

STANDARD LAYOUT FOR STYLE A-5 ELECTRO- PNEUMATIC SWITCH MECHANISM FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

As Farvey
CHAIRMAN

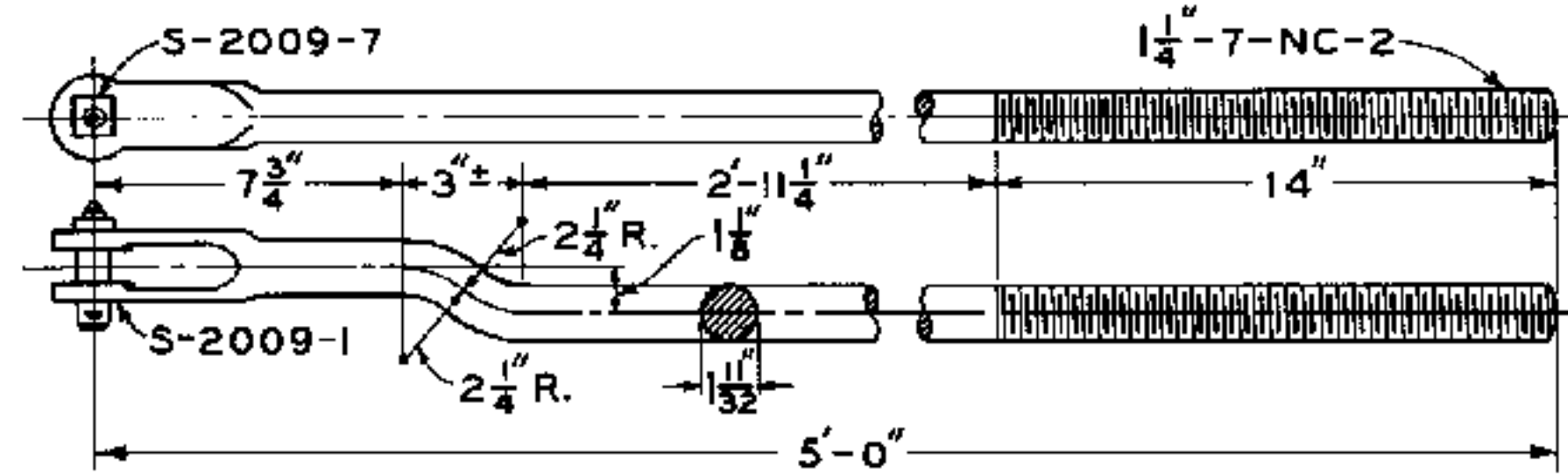
NOV. 9, 1939

SHEET 1 OF 4

S-2319-B

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED			REFERENCE
FIGURE	DESCRIPTION	REQUIRED	
(16)	LAG SCREW AND SPRING WASHER	32	R-523
(20)	RAIL BRACE (SPECIFY WEIGHT OF RAIL)	8	R-700
(21)	SLIDE PLATE S-1-A	4	SEE R DRAW- INGS FOR LAYOUTS
(22)	" " S-1	4	
(23)	TRANSIT CLIP	4	
(24)	1" x 4 1/2" BOLT WITH NUT, WASHER, AND COTTER	8	

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED			REFERENCE
FIGURE	DESCRIPTION	REQUIRED	
OF (24) A	3/4" x 3 3/4" BOLT WITH NUT, WASHER, AND COTTER	8	SEE R DRAW- INGS FOR LAYOUTS
(25)	NO. 1 HEAD ROD, INSULATED	1	
(26)	NO. 2 ROD, INSULATED	1	
(27)	1 1/8" x 5" BOLT WITH NUT, WASHER, AND COTTER	4	
OF (27) A	1" x 4 1/4" " " " " " " "	4	



S-2319-1 OPERATING ROD COMPLETE AS SHOWN
Q.-H. STEEL
SCALE ②

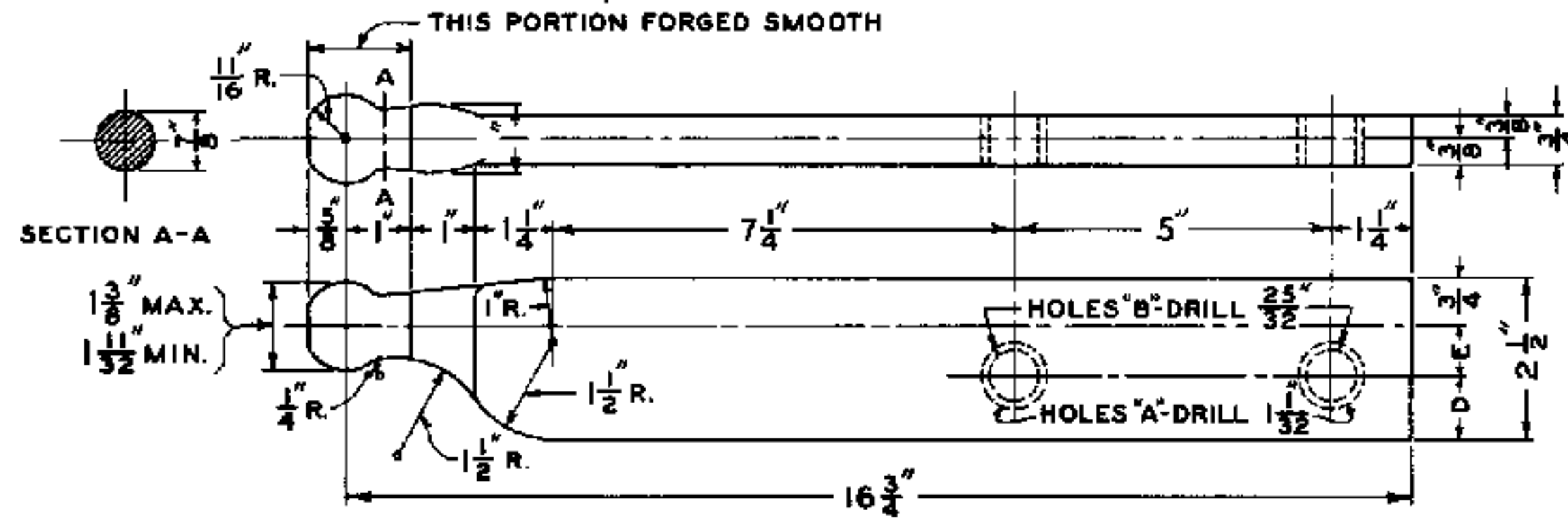
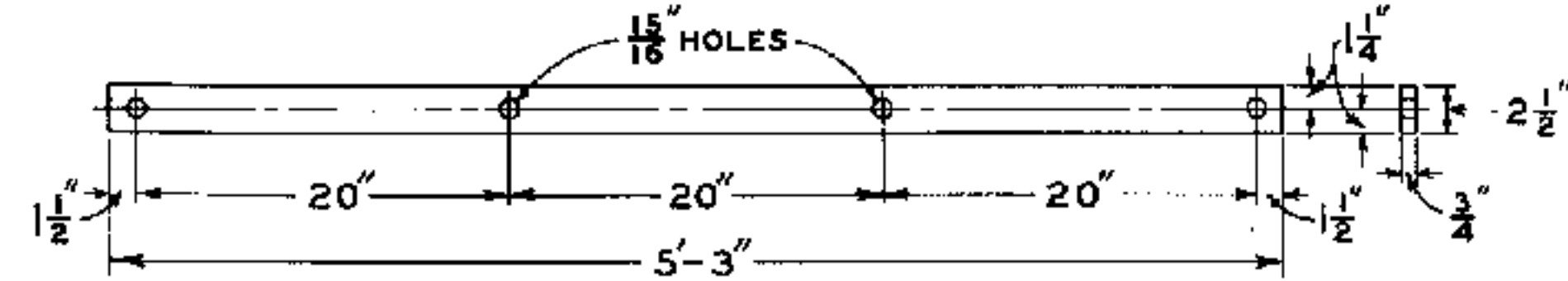


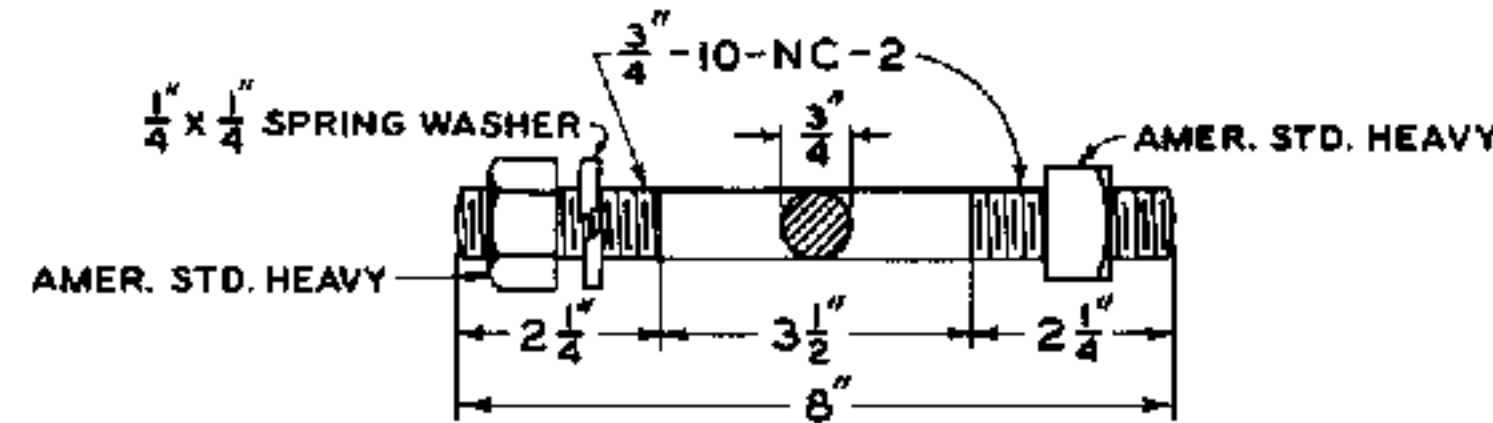
TABLE SHOWING SWITCH POINT LUG DRILLING		D	E
FOR 110 LB. R.E. RAIL, HOLES "B"		1"	3/4"
FOR 112, 130, AND 131 LB. R.E. RAIL, HOLES "A"		1 1/4"	1/2"

S-2319-2	SWITCH POINT LUG WITHOUT HOLES "A" OR "B"
S-2319-3	" " " WITH " "A"
S-2319-4	" " " " " "B"
S-2319-5	" " " WITH HOLES "A" AND TWO S-2307-10 BOLTS
S-2319-6	" " " " " "A" " " S-2307-12 "
S-2319-7	" " " " " "B" " " S-2307-6 "
S-2319-8	" " " " " "B" " " S-2307-8 "

Q.-H. STEEL
SCALE ①

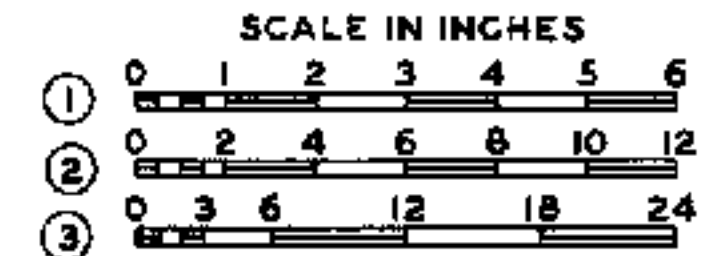


S-2319-9 TIE STRAP
Q.-H. STEEL
SCALE ③



S-2319-10 MACHINE STUD BOLT COMPLETE AS SHOWN
Q.-H. STEEL
SCALE ①

NOTE
ALL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. J. Barber</i>		
VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>H. J. Barber</i>		
VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>D. Brooks</i>		
PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>W. E. C. A. T.</i>		
VICE PRESIDENT		
K. L. M.	W. S. E.	C. A. T.
C. B. P.		

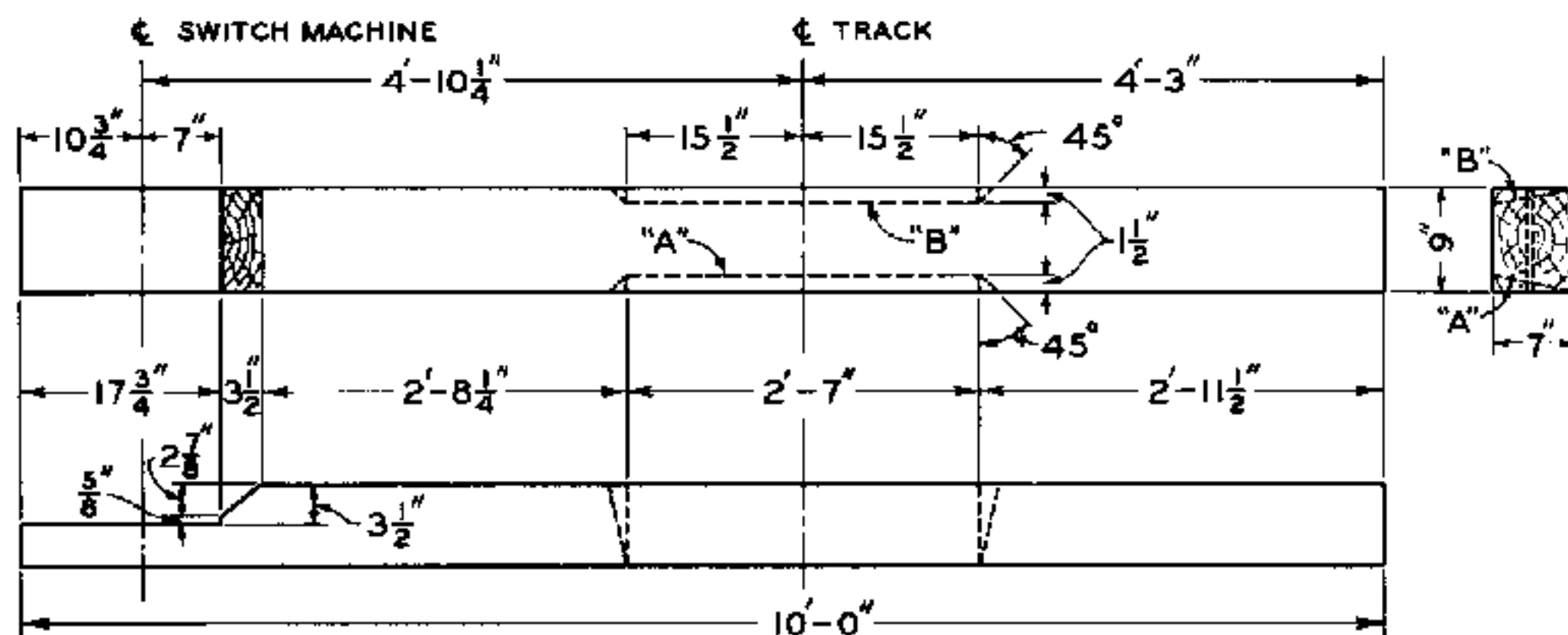
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PERE MARQUETTE RAILWAY COMPANY

**STANDARD LAYOUT
FOR STYLE A-5 ELECTRO-
PNEUMATIC SWITCH MECHANISM
FOR SINGLE SWITCH**

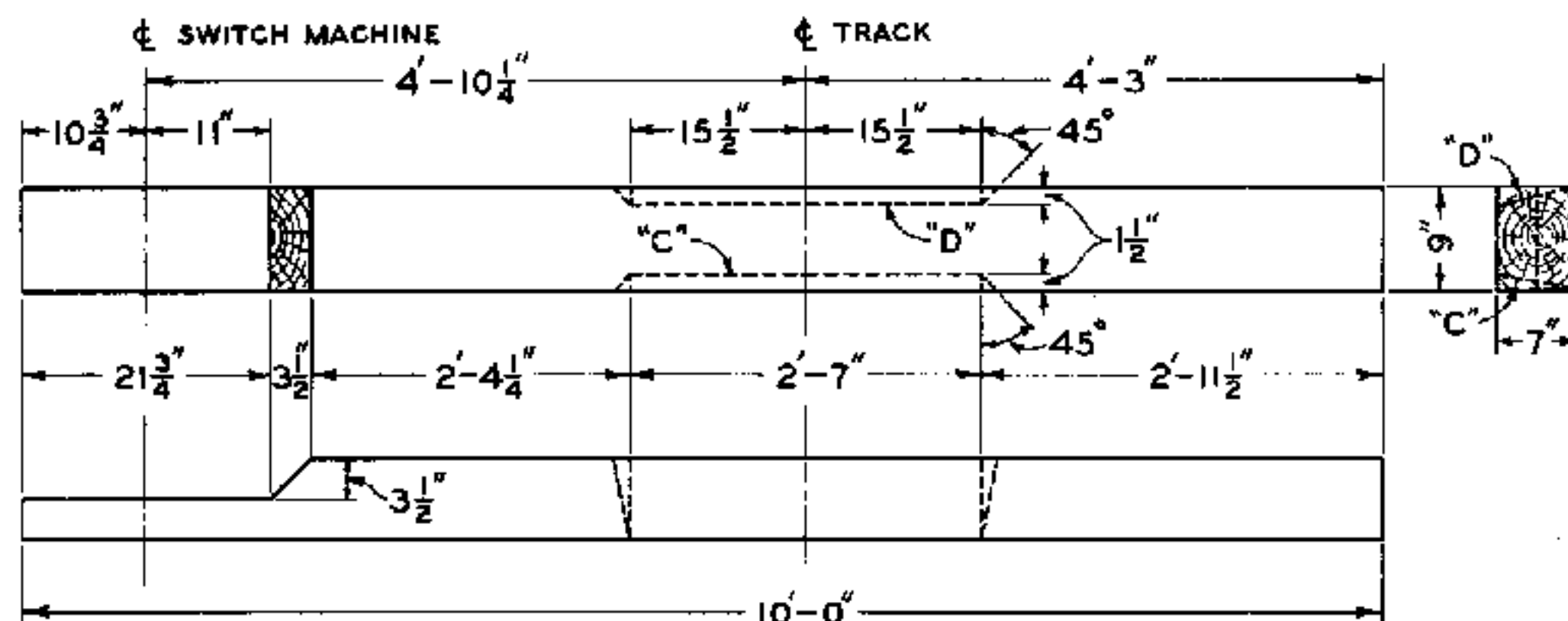
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ADVISORY COMMITTEE ON WAY AND STRUCTURES

Acstony
CHAIRMAN

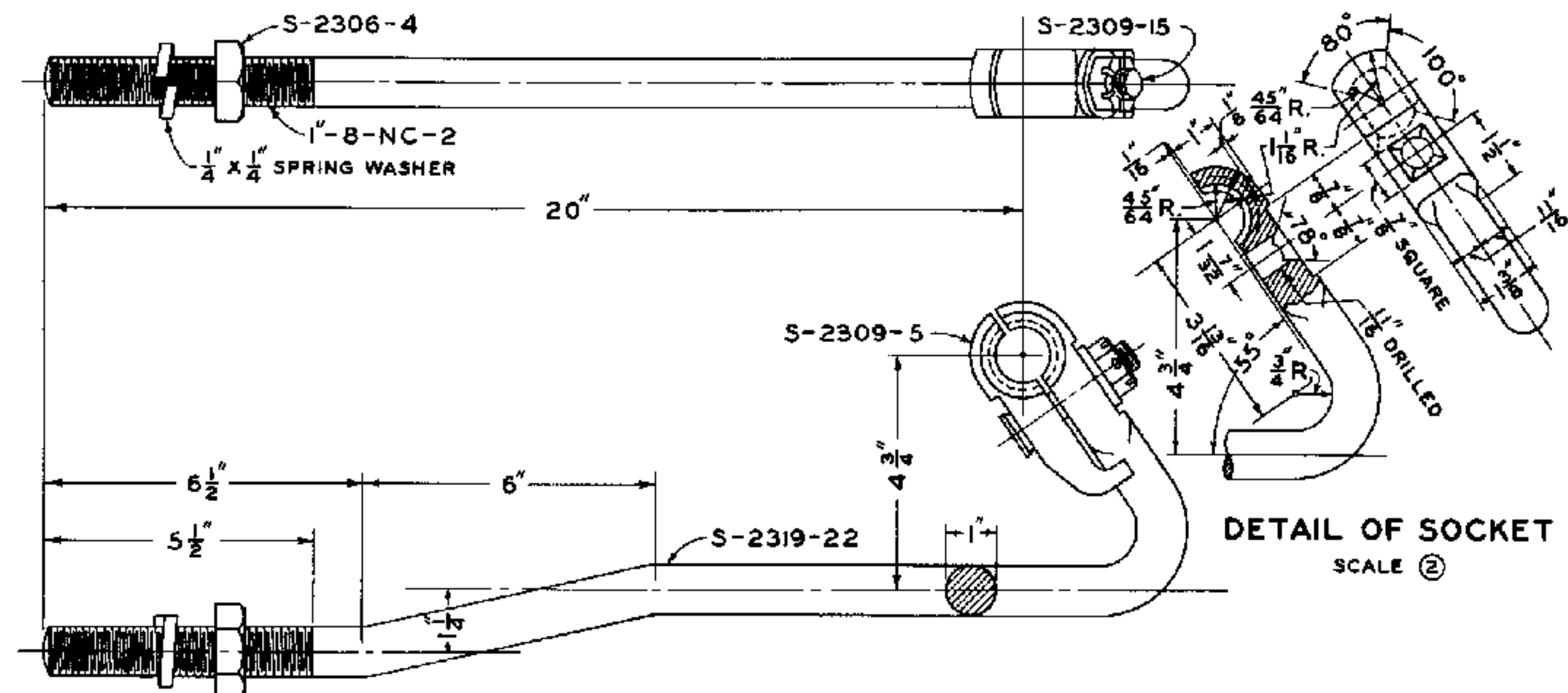
NOV. 9, 1939



S-2319-17 TIE CHAMFER AT "A" FOR L.H. LAYOUT
S-2319-18 " " " "B" " R.H. "
S-2319-19 " WITHOUT CHAMFER
SCALE (1)



S-2319-20 TIE CHAMFER AT "C" FOR L.H. LAYOUT
S-2319-21 " " " " "D" " R.H. "
SCALE (1)

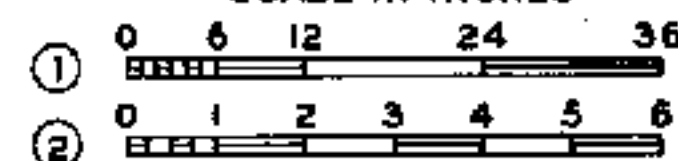


S-2319-22 DETECTOR CONNECTING ROD ONLY
S-2319-23 " " " COMPLETE AS SHOWN

O.-H. STEEL
SCALE (2)

DETAIL OF SOCKET
SCALE (2)

SCALE IN INCHES



NOTES

1. ALL METAL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER FRAMING, IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT OF CROSS TIES OR SWITCH TIES.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

Cournoter
VLS FREIGHT AND GENERAL MANAGE

ERIE RAILROAD COMPANY

N.L. Barber

THE NEW YORK CHICAGO AND
ST. LOUIS RAILROAD COMPANY

Brooke

PERE MARQUETTE
RAILWAY COMPANY)

[Signature]
THE PRESS

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C. B. P.		

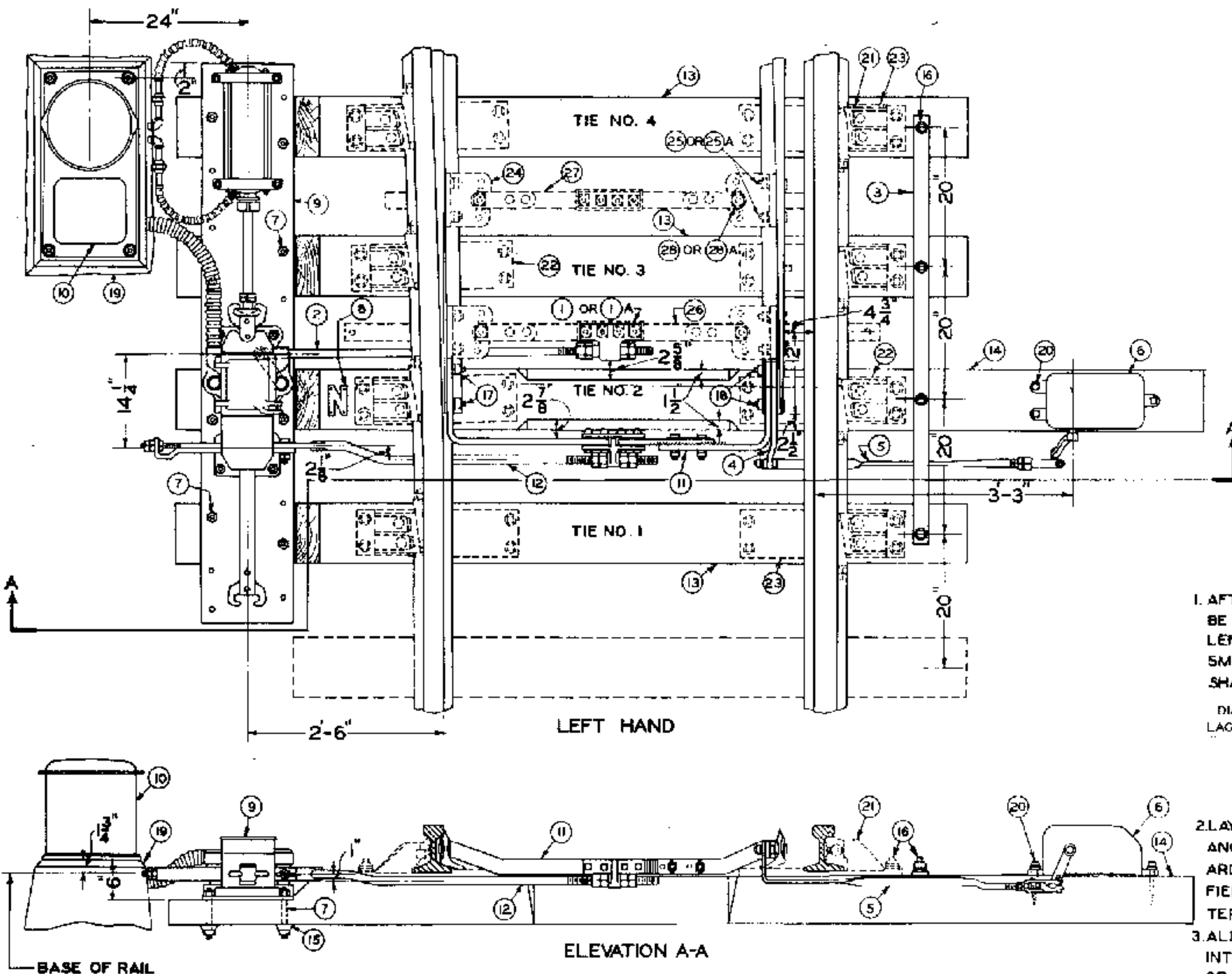
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD LAYOUT FOR STYLE A-5 ELECTRO- PNEUMATIC SWITCH MECHANISM FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Acstorney
CHAIRMAN

NOV. 9, 1939



BILL OF MATERIAL			
FIGURE	DESCRIPTION	REQUIRED	REFERENCE
(1)	SWITCH ADJUSTMENT BRACKET, OPEN TYPE, COMPLETE WITH SLEEVE AND JAM NUTS	1	S-2301-11
OR (1A)	" " " " ENCLOSED TYPE " " " "	1	" " " "
(2)	OPERATING ROD COMPLETE WITH PIN AND COTTER	1	S-2319-1
(3)	TIE STRAP $\frac{3}{4}$ X 2 X 5-3"	1	S-2319-9
(4)	SWITCH POINT LUG, SEE DRILLING TABLE, SHEET 2	1	S-2306-
(5)	SWITCH CIRCUIT CONTROLLER ROD COMPLETE WITH SCREW JAW AND BOLTS	1	S-2306-2
(6)	SWITCH CIRCUIT CONTROLLER	1	" " " "
(7)	$\frac{3}{4}$ X 8" MACHINE STUD BOLT WITH HEX. NUT, SQ. NUT, AND SPRING WASHER	8	S-2319-10
(8)	LETTER PLATE "N" WITH 2 $\frac{1}{2}$ X 8 FLAT HEAD WOOD SCREWS	1	S-2308-1
(9)	MODEL "A-1" ELECTROPNEUMATIC SWITCH AND LOCK MACHINE COMPLETE WITH FLEXIBLE CONDUIT, SPECIFY L.H. OR R.H.	1	" " " "
(10)	STYLE C ELECTROPNEUMATIC SWITCH VALVE WITH AIR HOSE AND FITTINGS	1	" " " "
(11)	FRONT ROD COMPLETE, SEE DETAILED DRAWINGS	1	S-2307-
(12)	LOCK ROD COMPLETE WITH LOCK PLATE, BOLT, AND NUTS, SPECIFY L.H. OR R.H.	1	" " " "
(13)	NO. 1, 3, AND 4 SAWED TREATED TIE 7' X 9' X 10'-0"	3	S-2319-19
(14)	NO. 2 SAWED TREATED TIE 7' X 9' X 13'-0"	1	S-2323-5
(15)	CAST IRON WASHER	8	S-2301-19
(16)	LAG SCREW AND SPRING WASHER	4	R-523
(17)	BOLT, SPECIFY SIZE, SEE DETAILED DRAWINGS, SHEET 1	2	S-2307-
(18)	" " " " " " " " " " " " " "	2	S-2307-
(19)	FOUNDATION FOR E.P. VALVE, LEFT HAND	1	S-2323-1
OR (19A)	" " " " " " " " " " " " " " RIGHT HAND	1	S-2323-2
(20)	$\frac{3}{4}$ X 6" HOT GALV. GIMLET POINT LAG SCREW WITH CUT THREADS, WITH SPRING WASHER (R-523) AND FLAT WASHER	3	" " " "

NOTES

1. AFTER STARTING LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED AS FOLLOWS:

DIA OF LAG SCREW	SIZE BIT	APPROX. DEPTH
$\frac{1}{2}$ "	$\frac{5}{8}$ "	$5\frac{3}{4}$ "
$\frac{3}{4}$ "	$\frac{7}{8}$ "	3"

2. LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.

3. ALL ITEMS IN BILL OF MATERIAL ARE INTERCHANGEABLE FOR EITHER RIGHT OR LEFT HAND LAYOUT EXCEPT ITEMS (12), (19), AND (19A).

SCALE IN INCHES
0 6 12 24 36

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED			REFERENCE
FIGURE	DESCRIPTION	REQUIRED	
(16)	LAG SCREW AND SPRING WASHER	32	R-523
(21)	RAIL BRACE (SPECIFY WEIGHT OF RAIL)	8	R-700
(22)	SLIDE PLATE S-1-A	4	SEE R DRAWINGS FOR LAYOUTS
(23)	" " S-1	4	
(24)	TRANSIT CLIP	4	
(25)	1" X 4 $\frac{1}{2}$ " BOLT WITH NUT, WASHER, AND COTTER	8	

OTHER TRACK MATERIAL WHICH MAY BE REQUIRED			REFERENCE
FIGURE	DESCRIPTION	REQUIRED	
OR (25A)	$\frac{3}{4}$ X 3 $\frac{3}{4}$ " BOLT WITH NUT, WASHER, AND COTTER	8	SEE R DRAWINGS FOR LAYOUTS
(26)	NO. 1 HEAD ROD, INSULATED	1	
(27)	NO. 2 ROD, INSULATED	1	
(28)	1 $\frac{1}{2}$ X 5" BOLT WITH NUT, WASHER, AND COTTER	4	
OR (28A)	1" X 4 $\frac{1}{4}$ " " " " " " " " "	4	

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ERIE RAILROAD COMPANY

R. Woodruff
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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

D. Brooker
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

J. Brown
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K.L.M.

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THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
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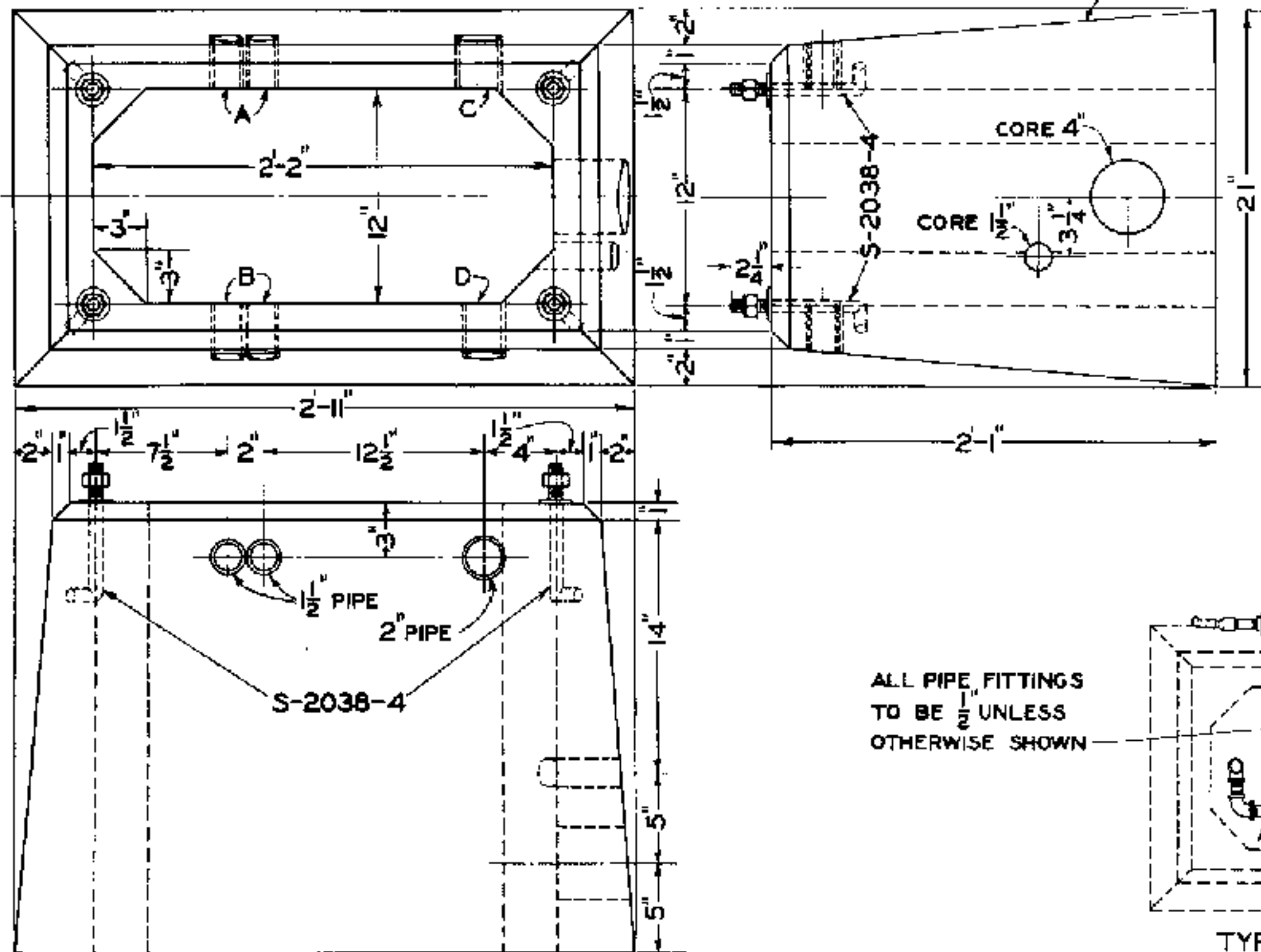
STANDARD LAYOUT FOR STYLE A-1 ELECTRO- PNEUMATIC SWITCH MECHANISM FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *W. Churchill*
CHIEF ENGINEER

JUNE 18, 1935

SHEET 1 OF 2
S-2323-A



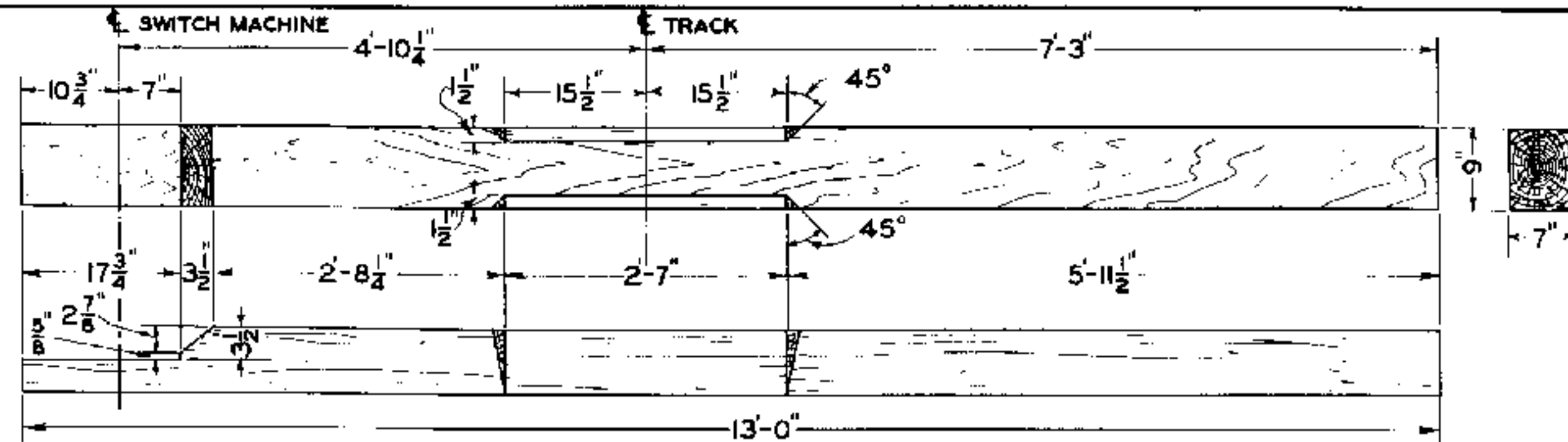
FOUNDATION FOR VALVES

APPROXIMATE CONCRETE 5 CU. FT.
STONE IN AGGREGATE SHALL NOT EXCEED 3/4"

SCALE ①

FOUNDATIONS FOR VALVES

DRAWING NUMBER	FOR USE WITH	CORE HOLES
S-2323-1	ONE L.H. ELECTROPNEUMATIC SWITCH AND LOCK MACHINE	A-C
S-2323-2	ONE R.H. ELECTROPNEUMATIC SWITCH AND LOCK MACHINE	B-D
S-2323-3	ONE L.H. ELECTROPNEUMATIC SWITCH AND LOCK MACHINE AND ONE ADDITIONAL SWITCH AND LOCK MACHINE OPERATED FROM SAME VALVE.	A-B-C
S-2323-4	ONE R.H. ELECTROPNEUMATIC SWITCH AND LOCK MACHINE AND ONE ADDITIONAL SWITCH AND LOCK MACHINE OPERATED FROM SAME VALVE.	A-B-D



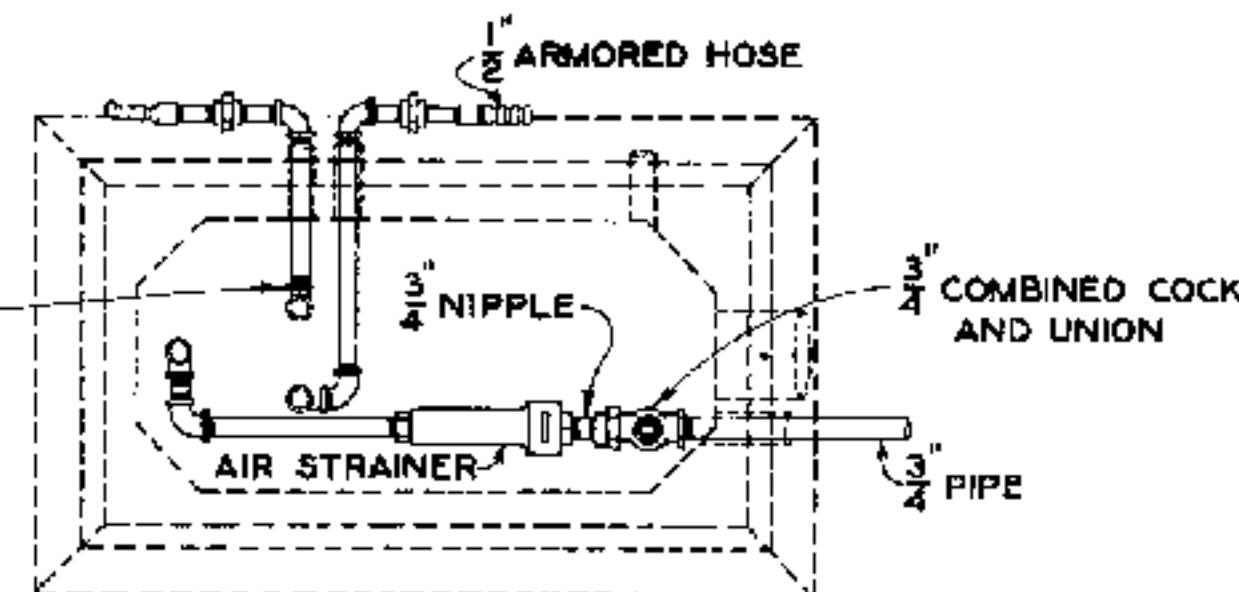
S-2323-5 TIE

SCALE ②

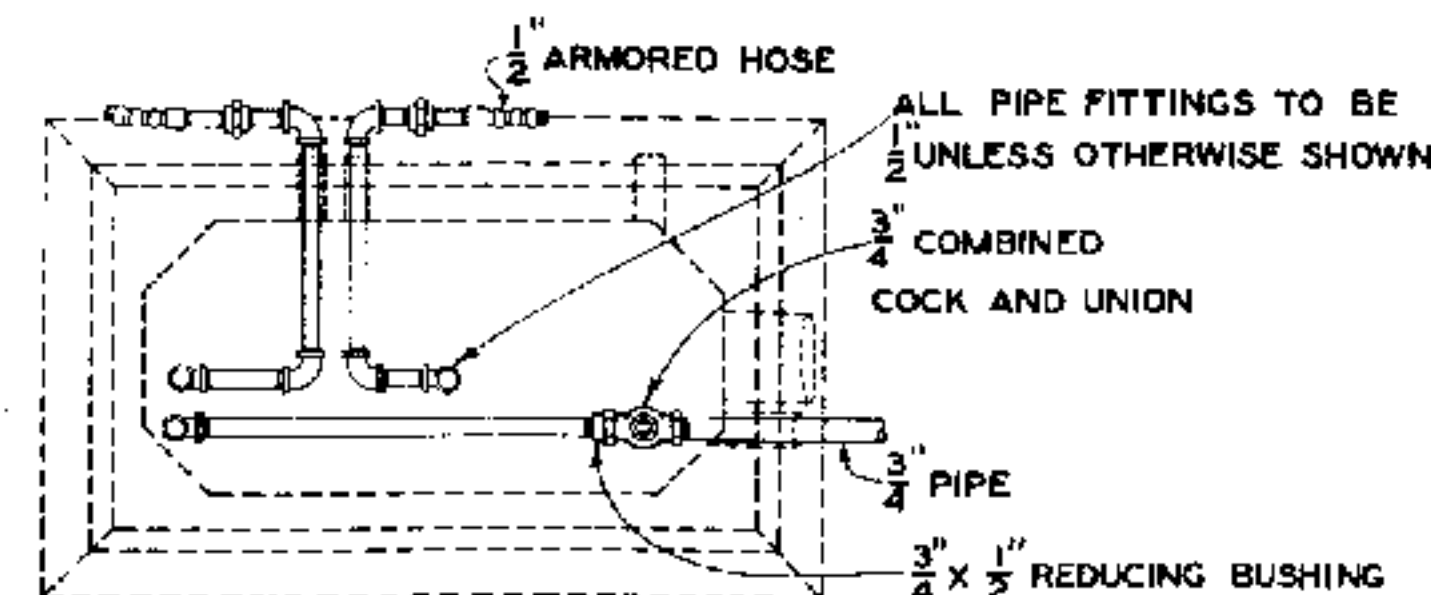
NOTES

- FOUNDATIONS SHALL BE MADE OF PORTLAND CEMENT CONCRETE BY THE WATER CEMENT RATIO METHOD TO TEST 2000 POUNDS PER SQUARE INCH.
- TOP OF FOUNDATIONS SHALL BE SET 1 1/4" ABOVE BASE OF RAIL.
- TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER FRAMING, IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT OF CROSS TIES OR SWITCH TIES.
- PIPING SHOWN IS TYPICAL FOR SWITCH MACHINE LOCATED ON NORMALLY CLOSED POINT SIDE. IF NECESSARY, IN ORDER TO RETAIN A GIVEN VALVE FOR NORMAL OPERATION, REVERSE AIR LEADS TO CYLINDER BY CHANGING CONNECTIONS WITHIN FOUNDATION.

ALL PIPE, FITTINGS
TO BE 1/2" UNLESS
OTHERWISE SHOWN



TYPICAL PLAN OF C VALVE
PIPING IN FOUNDATION
NO SCALE



TYPICAL PLAN OF CP VALVE
PIPING IN FOUNDATION
NO SCALE

SCALE IN INCHES



APPROVED FOR USE

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PERE MARQUETTE RAILWAY COMPANY

ERIE RAILROAD COMPANY

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ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILWAY COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD LAYOUT FOR STYLE A-1 ELECTRO- PNEUMATIC SWITCH MECHANISM FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. H. H.* JUNE 18, 1935.
CHIEF ENGINEER

SHEET 2 OF 2

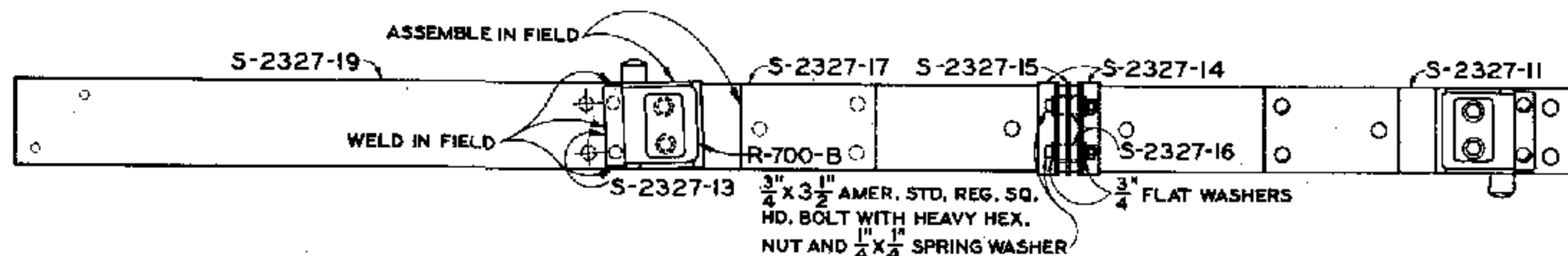
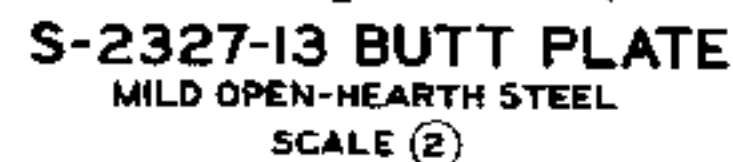
S-2323-A



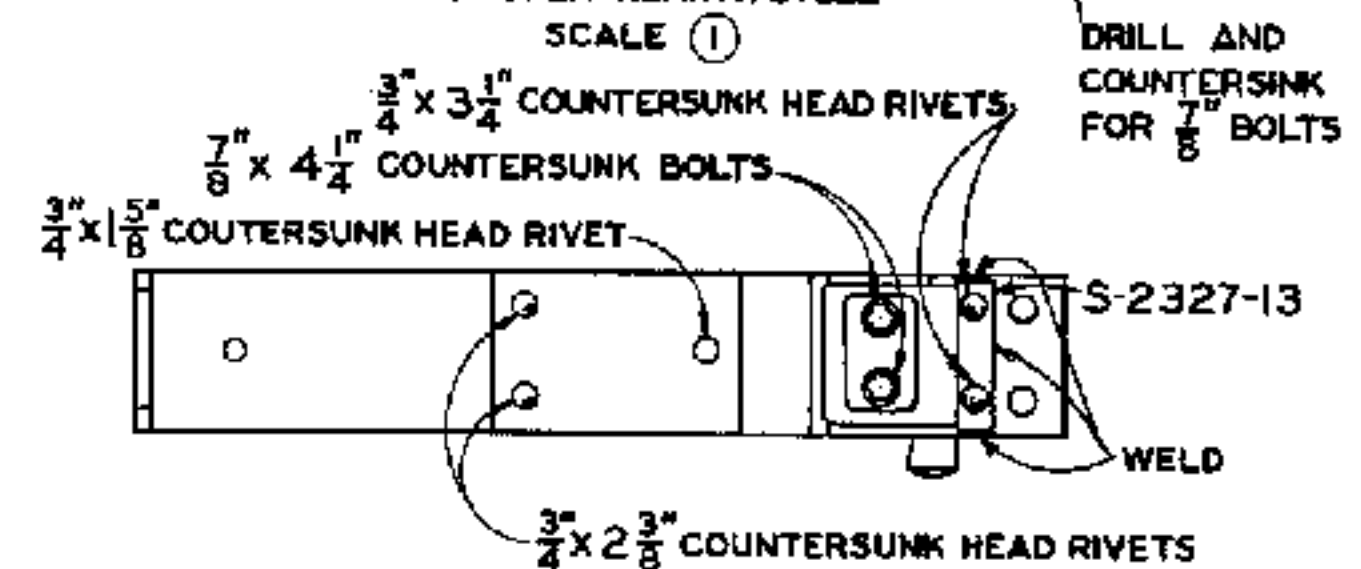
1. LAYOUT SHALL BE PAINTED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. ALL ITEMS IN BILL OF MATERIAL ARE INTERCHANGEABLE FOR EITHER LEFT OR RIGHT HAND LAYOUT EXCEPT ITEMS ⑩, ⑩A, ⑪, ⑪A, ⑫, ⑫A.
3. AFTER STARTING, LAG SCREWS SHALL BE SCREWED DOWN THEIR ENTIRE LENGTH INTO HOLES CONTAINING A SMALL AMOUNT OF CREOSOTE. HOLES SHALL BE BORED WITH $\frac{5}{8}$ " BIT TO A DEPTH OF APPROXIMATELY $5\frac{3}{4}$ ".
4. SWITCH ADJUSTMENT BRACKET SHALL BE LOCATED AS SHOWN IN DASHED LINES FOR RIGHT HAND LAYOUT.
5. STAFF AND TARGET ARE FURNISHED WITH S-3 MECHANISM ONLY. PURCHASER WILL SPECIFY LENGTH OF STAFF, DETAILS OF TARGET AND POSITION FOR MOUNTING SPRING SWITCH MARKER IF USED. FOR MARKER DETAIL SEE LATEST REVISION OF STANDARD DRAWING S-2063.

0 6 12 24 36
SCALE IN INCHES

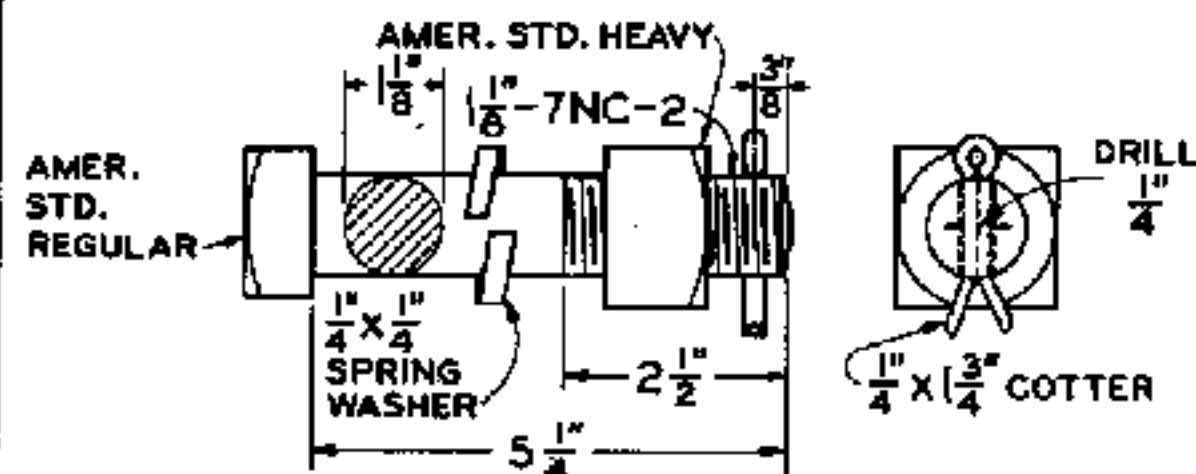
SHEET 1 OF 5
S-2327-A



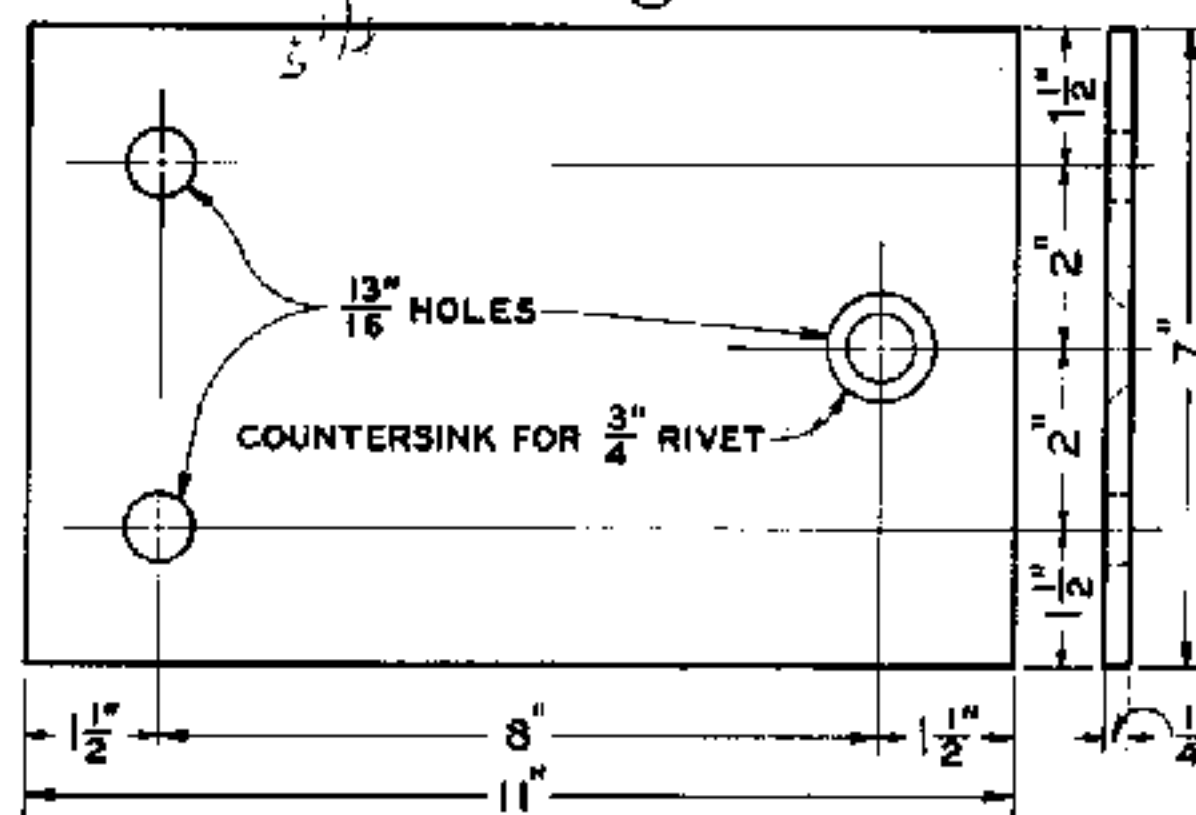
S-2327-16 INSULATION BUSHING
FIBRE
SCALE (2)



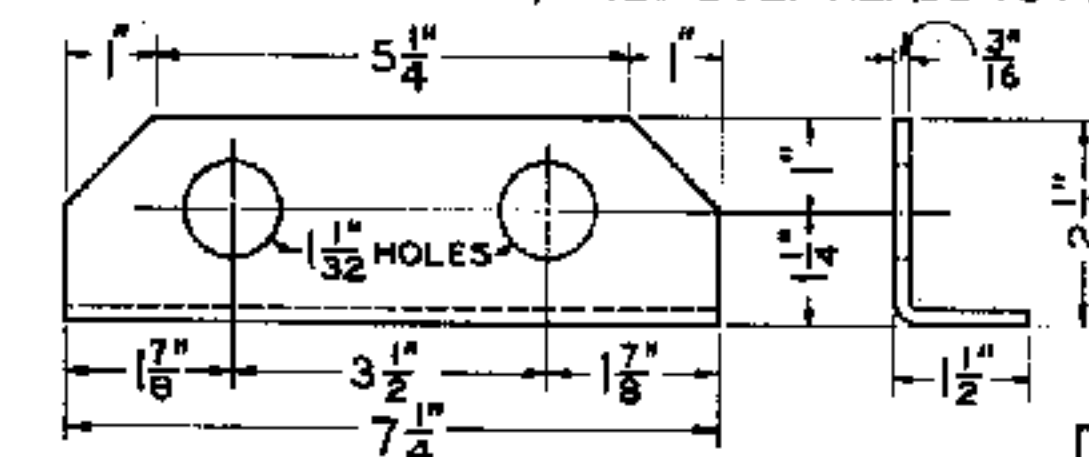
S-2327-II GAGE PLATE COMPLETE AS SHOWN
SPECIFY WEIGHT OF RAIL
SCALE (1)



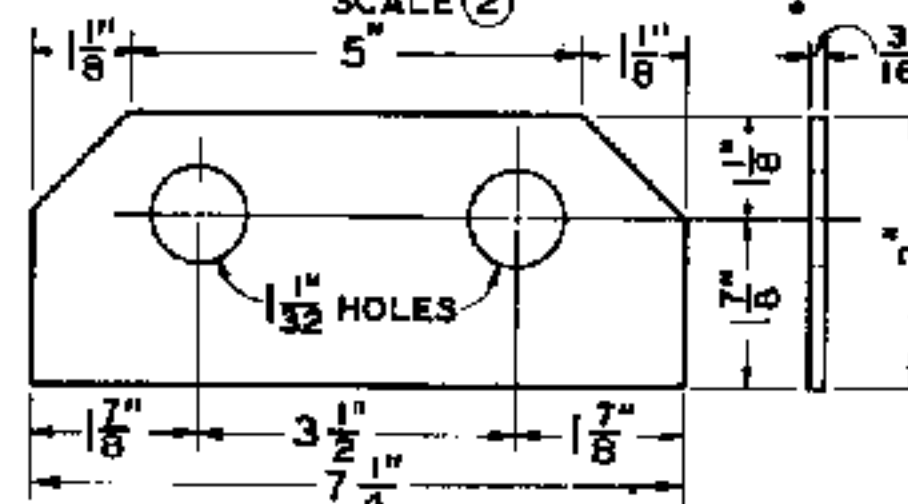
S-2327-18 BOLT COMPLETE
CARBON OR ALLOY STEEL, HEAT TREATED
SCALE (2)



S-2327-17 RISER PLATE
MILD OPEN-HEARTH STEEL
SCALE (2)

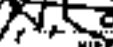
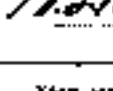


S-2327-14 INSULATION ANGLE *
PLATE
FIBRE
SCALE (2)



S-2327-15 INSULATION END POST
FIBRE
SCALE (2)

- ### NOTES
1. ALL METAL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 5-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
 2. FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS 5-1516, HARD FIBRE.

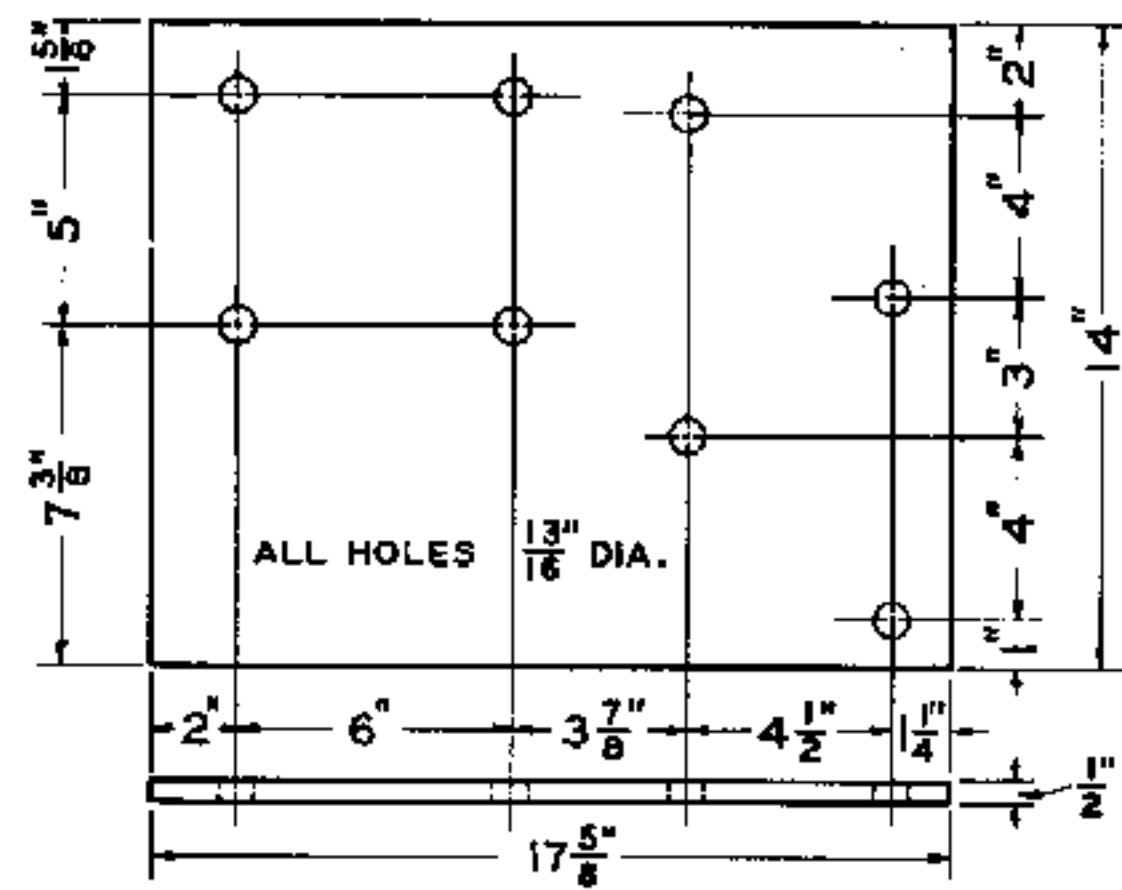
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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
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 VICE PRESIDENT		
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C.B.P.		

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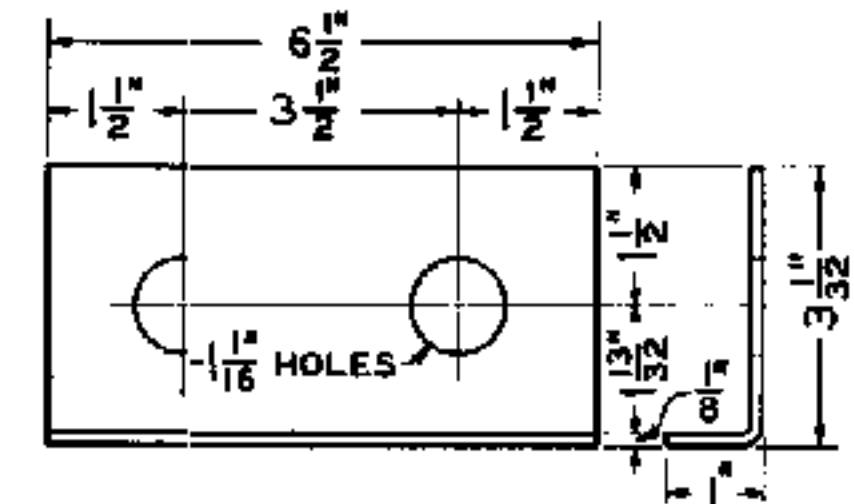
STANDARD
SPRING SWITCH LAYOUT
USING S-2 FACING POINT LOCK
APPLIED TO 16'-6" SWITCH, TYPE P.M. BUFFER

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

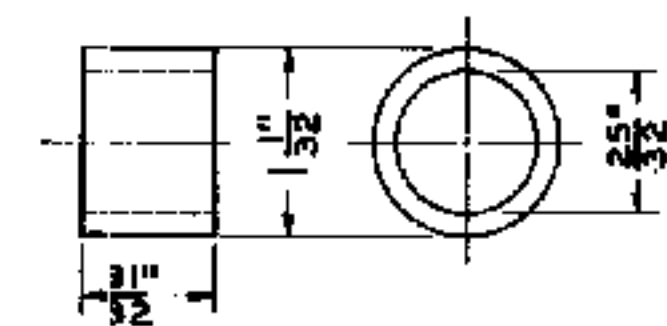
As farney NOV. 9, 1935
CHAIRMAN



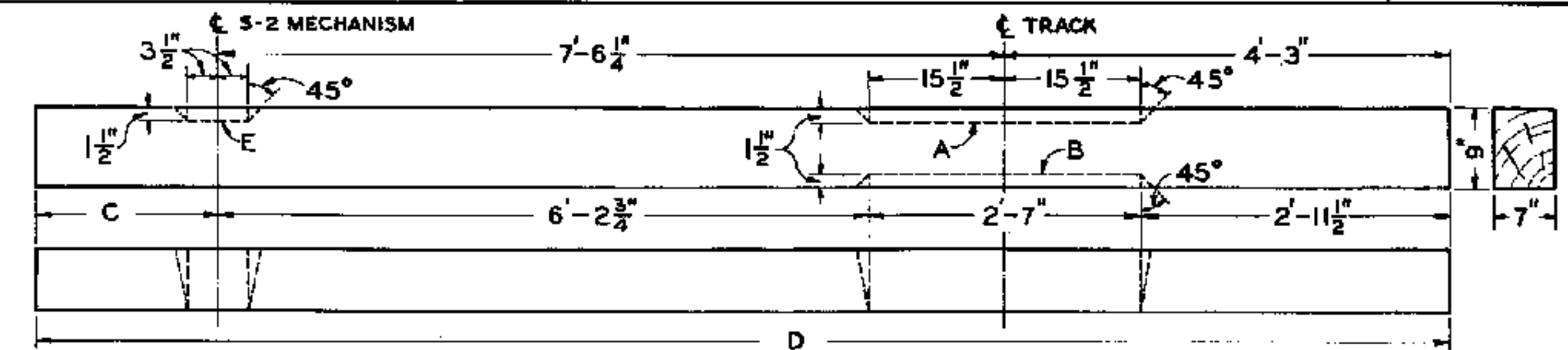
S-2327-20 CRANK PLATE
O.-H. STEEL
SCALE ①



S-2327-2 INSULATION PLATE
FIBRE
SCALE ②



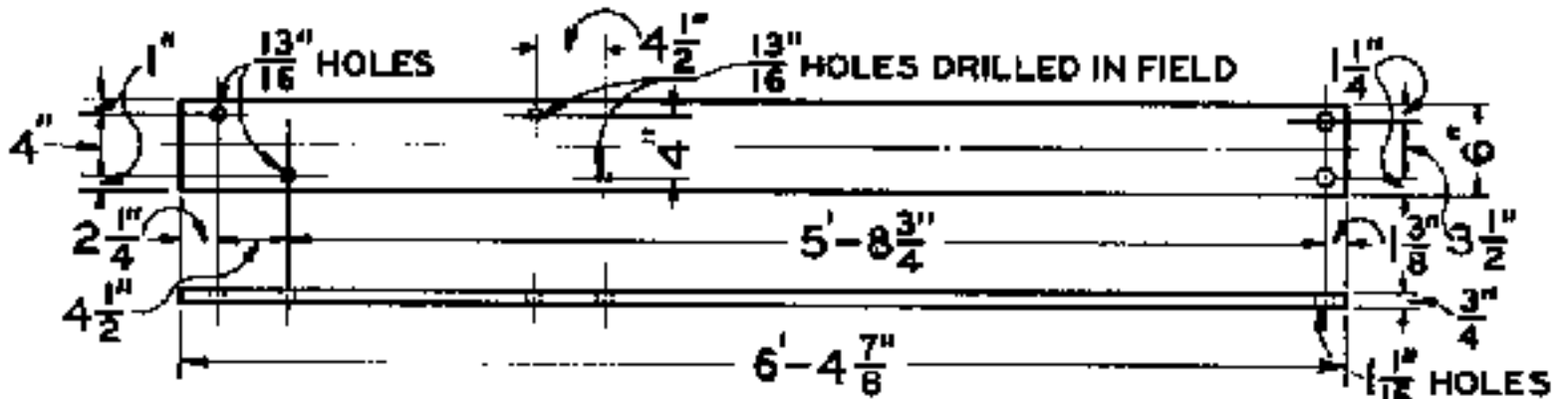
S-232-31 INSULATION BUSHING
FIBRE
SCALE ④



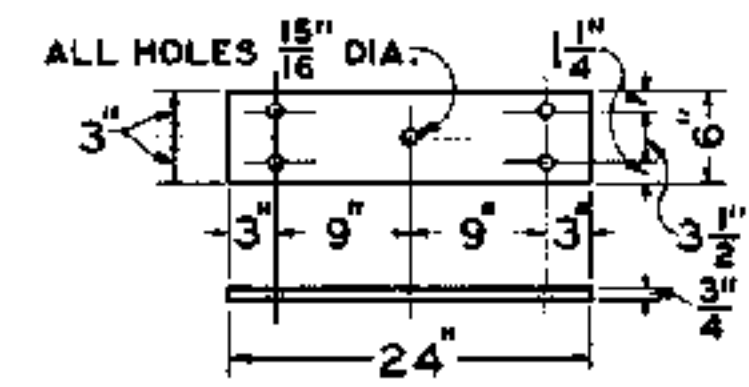
S-2327-25 TIE WITHOUT CHAMFERING, "C" = 8 3/4" AND "D" = 12'-6"
S-2327-26 " " " " "C" = 20 3/4" AND "D" = 13'-6"
S-2327-27 " WITH CHAMFERING "B" AND "E" FOR L. H. LAYOUT, "C" = 20 3/4" AND "D" = 13'-6"
S-2327-28 " " " " "A" FOR R. H. LAYOUT, "C" = 20 3/4" AND "D" = 13'-6"
S-2327-29 " " " " "E" " " " "C" = 20 3/4" AND "D" = 13'-6"
 SCALE ③

NOTES

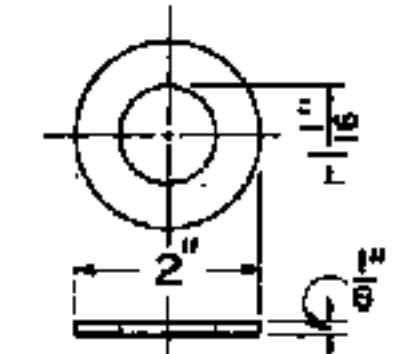
1. ALL METAL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
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3. FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, HARD FIBRE.



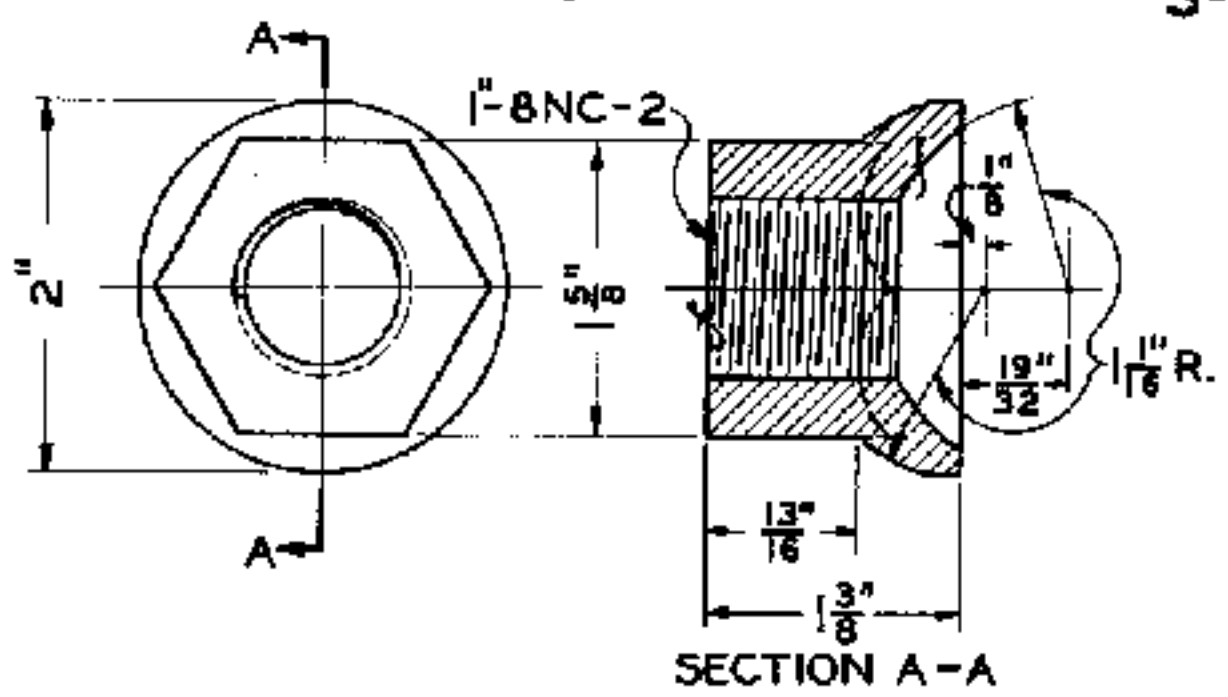
S-2327-24 MECHANISM CONNECTING PLATE
O.-H. STEEL
SCALE ③



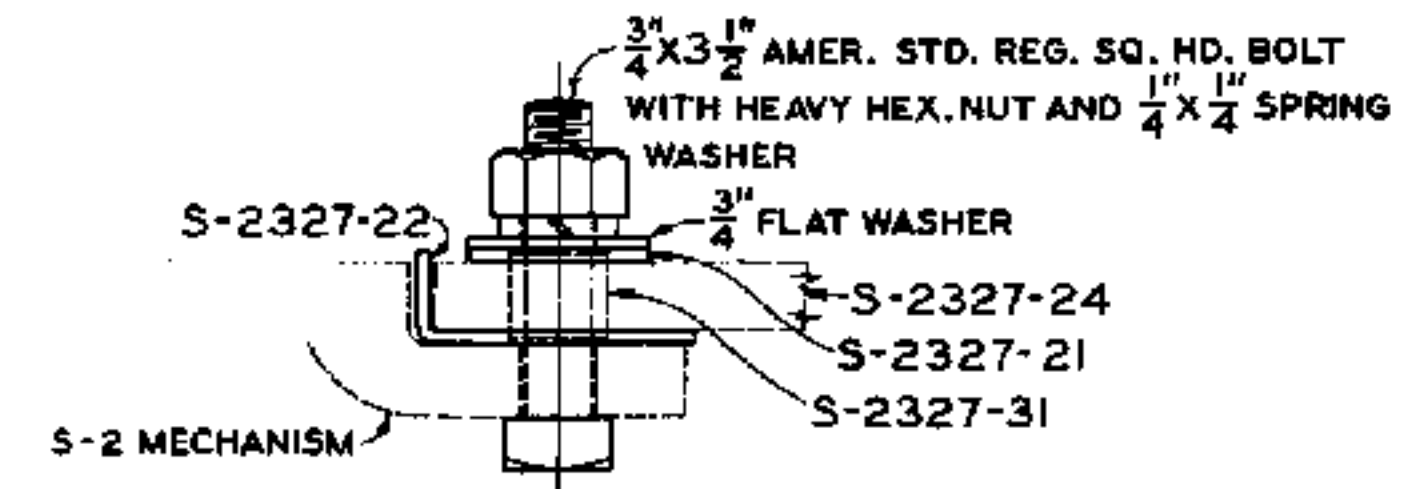
S-2327-30 TIE PLATE
O.-H. STEEL
SCALE ③



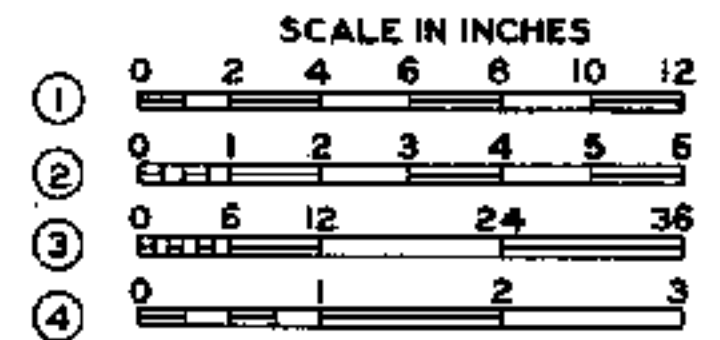
S-232-21 INSULATION WASHER
FIBRE
SCALE ②



S-2327-42 CUPPED NUT
MALL. IRON
SCALE ④



S-2327-23 BOLT, COMPLETE WITH HEX. NUT, SPRING WASHER, INSULATION WASHER S-2327-21, FLAT WASHER, INSULATION PLATE S-2327-22, AND INSULATION BUSHING S-2327-31
SCALE ②



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

[Signature]
VICE PRESIDENT AND GENERAL MANAGER

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

[Signature]
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

[Signature]
VICE PRESIDENT

C.H.W.
C.B.R.

W.S.E. C.A.T.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

**STANDARD
 SPRING SWITCH LAYOUT
 USING S-2 FACING POINT LOCK**

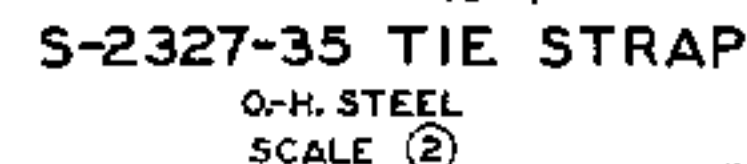
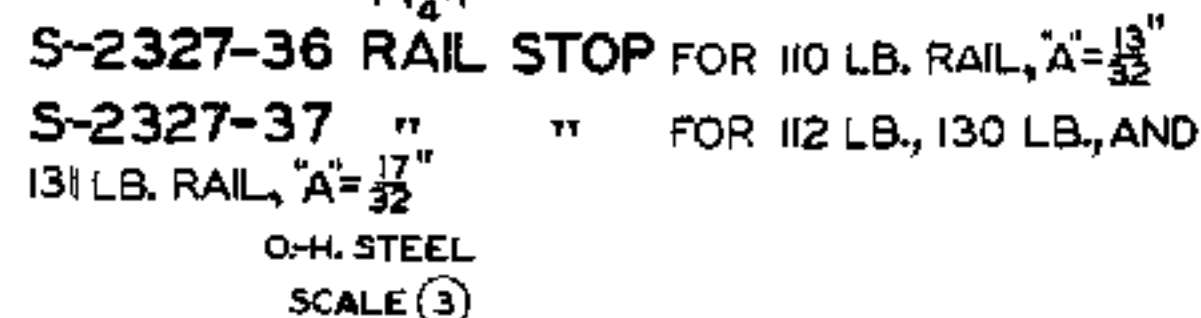
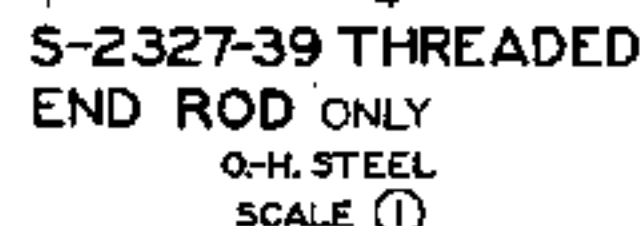
APPLIED TO 16'-6" SWITCH, TYPE P.M. BUFFER

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

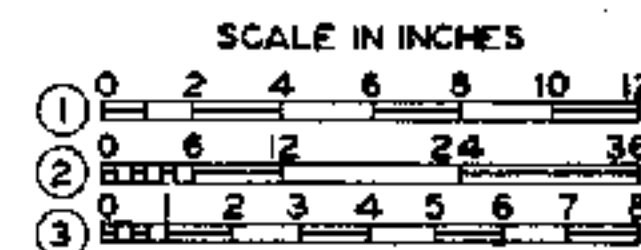
[Signature]
CHAIRMAN

NOV. 9, 1939

SHEET 4 OF 5
S-2327-A



1. ALL METAL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.
2. FIBRE SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1516, HARD FIBRE.



THE CHEBAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

11/15/20

THE NEW YORK, CHICAGO AND
BENSON RAILROAD COMPANY

FERE MANQUETTE
RAILWAY COMPANY

C.H.W.	W.S.E.	C.A.
C.H.W.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

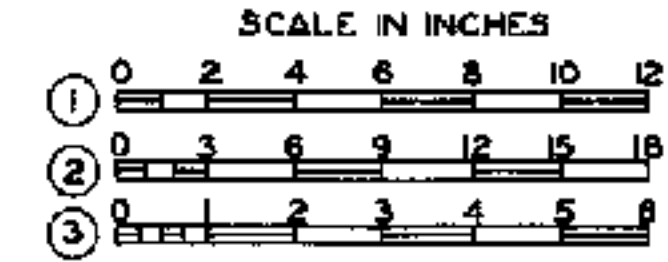
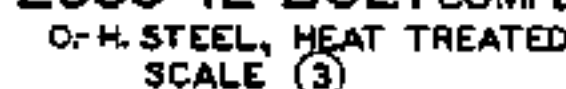
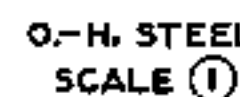
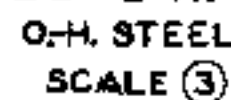
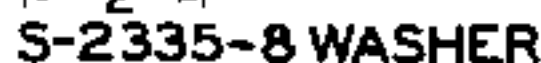
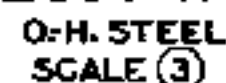
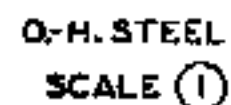
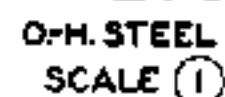
STANDARD SPRING SWITCH LAYOUT USING S-2 FACING POINT LOCK

APPLIED TO 16'-6" SWITCH, TYPE P.M. BUFFER

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

CHAIRMAN NOV. 9, 1933
SHEET 5 OF 5

SHEET 5 OF 5
S-2327-



NOTE
ALL PARTS EXCEPT THREADED PORTIONS
SHALL BE FURNISHED PAINTED WITH ONE
COAT OF METAL PRIMER IN ACCORDANCE
WITH LATEST REVISION OF STANDARD
SPECIFICATIONS 3-1510, SHOP AND FIELD
PAINTING FOR SIGNAL AND INTERLOCKING
APPARATUS.

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>H. T. Commaster</i> VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY <i>H. T. Barber</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>D. W. Brooks</i> PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>J. B. Brown</i> VICE PRESIDENT		
C.H.W.	W.S.E.	C.A.T.
C.H.W.	W.S.E.	C.A.T.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD
LAYOUT FOR STYLE T-10 HAND
OPERATED SWITCH MECHANISM
FOR SINGLE SWITCH

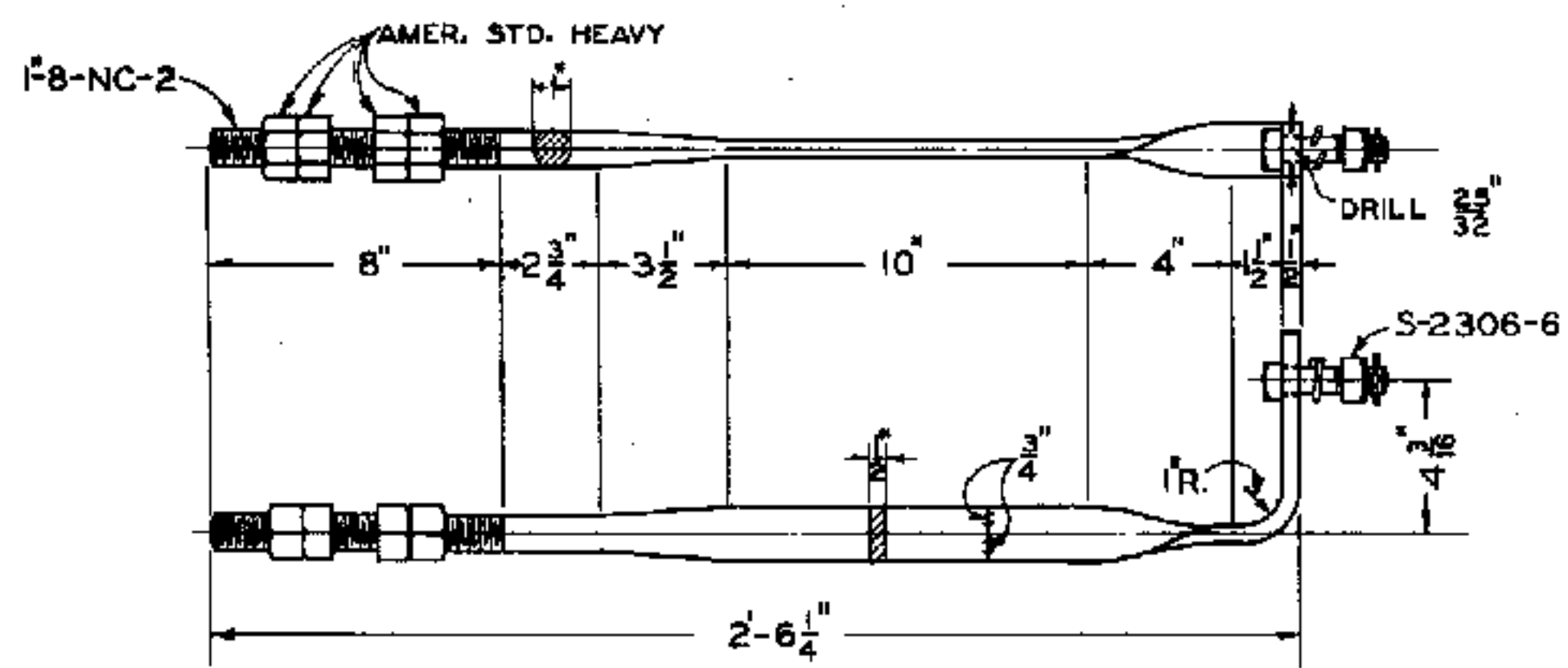
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Asst. Attorney General
CHAIRMAN

NOV. 9, 1939

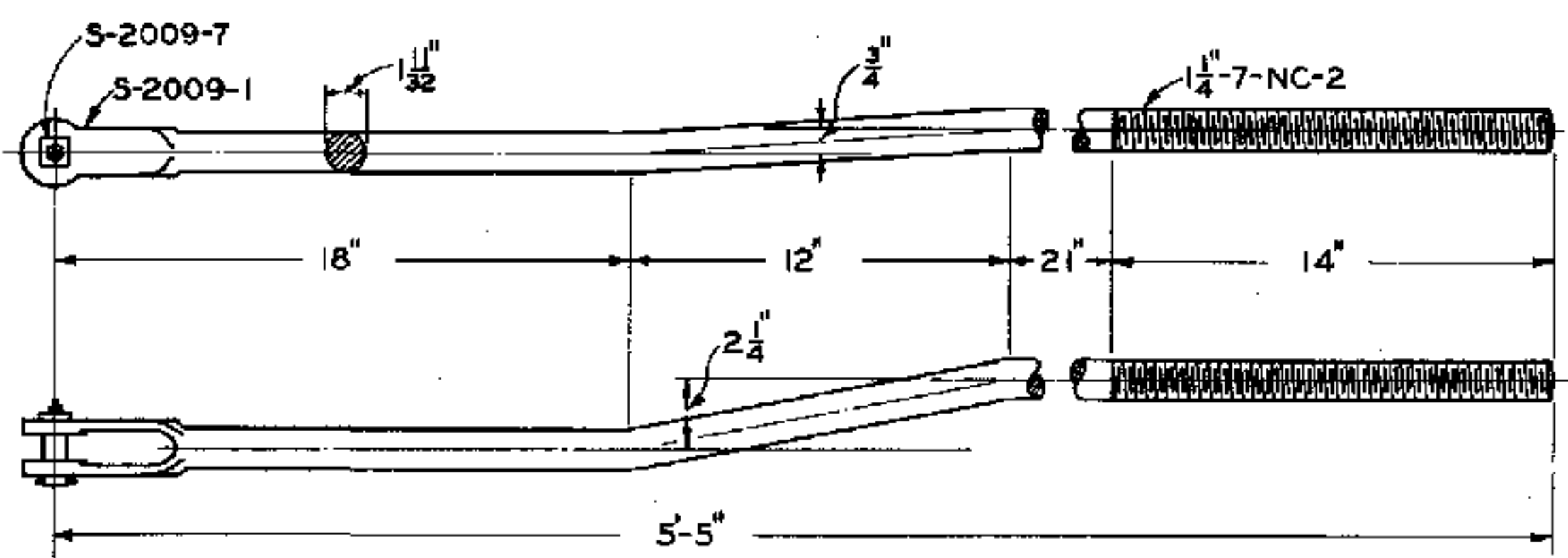
SHEET 2 OF 3

S-2335-A



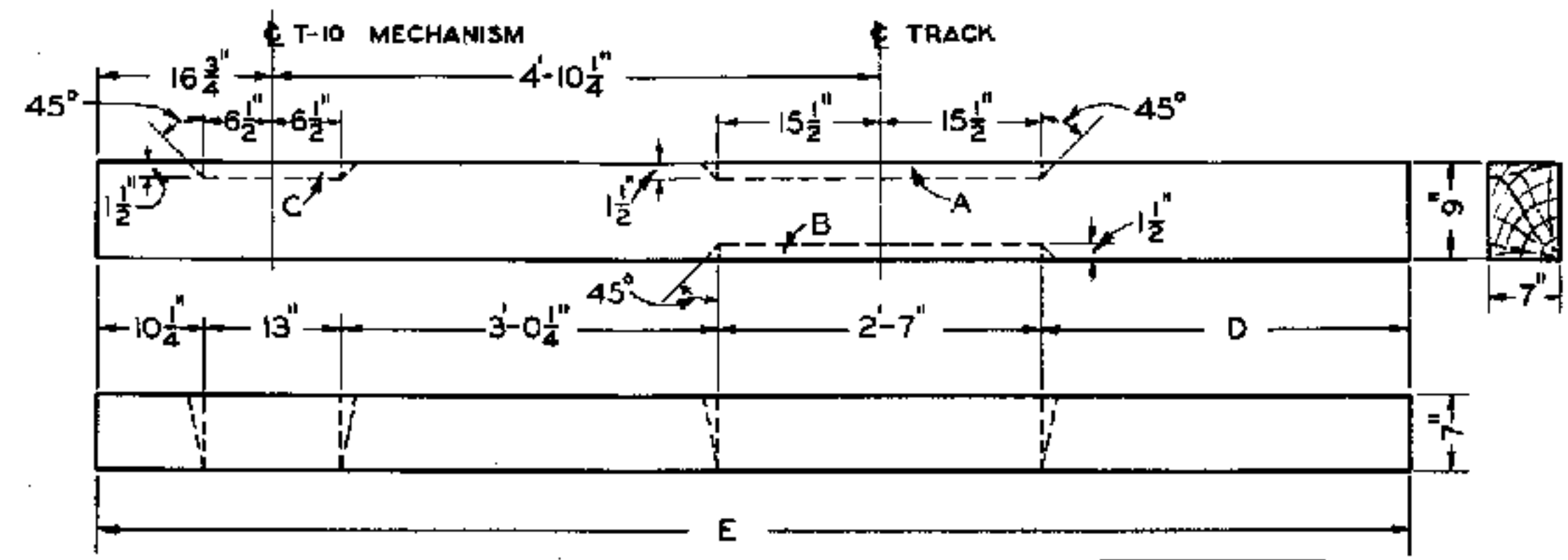
S-2335-13 DETECTOR CONNECTING ROD ONLY
S-2335-14 " " " COMPLETE AS SHOWN

O.H. STEEL
SCALE ①



S-2335 23 OPERATING ROD COMPLETE AS SHOWN

O.H. STEEL
SCALE ①



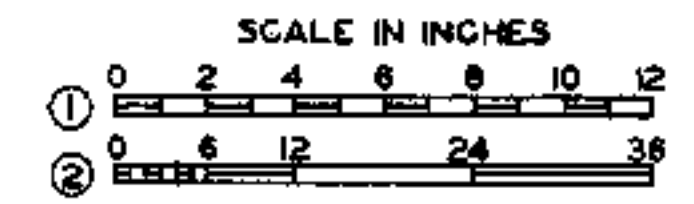
S-2335-15 TIE WITHOUT CHAMFERING FOR L.H. LAYOUT
S-2335-16 " WITH CHAMFER 'A,B & C' " " "
S-2335-17 " " " 'A' " R.H. "
S-2335-18 " " " 'A & C' " " "
S-2335-19 " " " 'A,B & C' " L.H. "
S-2335-20 " " " 'A' " R.H. "
S-2335-21 " WITHOUT CHAMFERING FOR L.H. "
S-2335-22 " WITH CHAMFER 'A & C' " R.H. "

D	E
10'-6"	10'-6"
2'-11 1/2"	"
"	"
"	"
5'-11 1/2"	13'-6"
"	"
—	"
5'-11 1/2"	"

SCALE ②

NOTES

1. TIES SHALL BE FURNISHED IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-2, SWITCH TIES, AND SHALL BE TREATED, AFTER CHAMFERING IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-17, PRESERVATIVE TREATMENT OF CROSS TIES OR SWITCH TIES.
2. ALL METAL PARTS EXCEPT THREADED PORTIONS SHALL BE FURNISHED PAINTED WITH ONE COAT OF METAL PRIMER IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS S-1510, SHOP AND FIELD PAINTING FOR SIGNAL AND INTERLOCKING APPARATUS.



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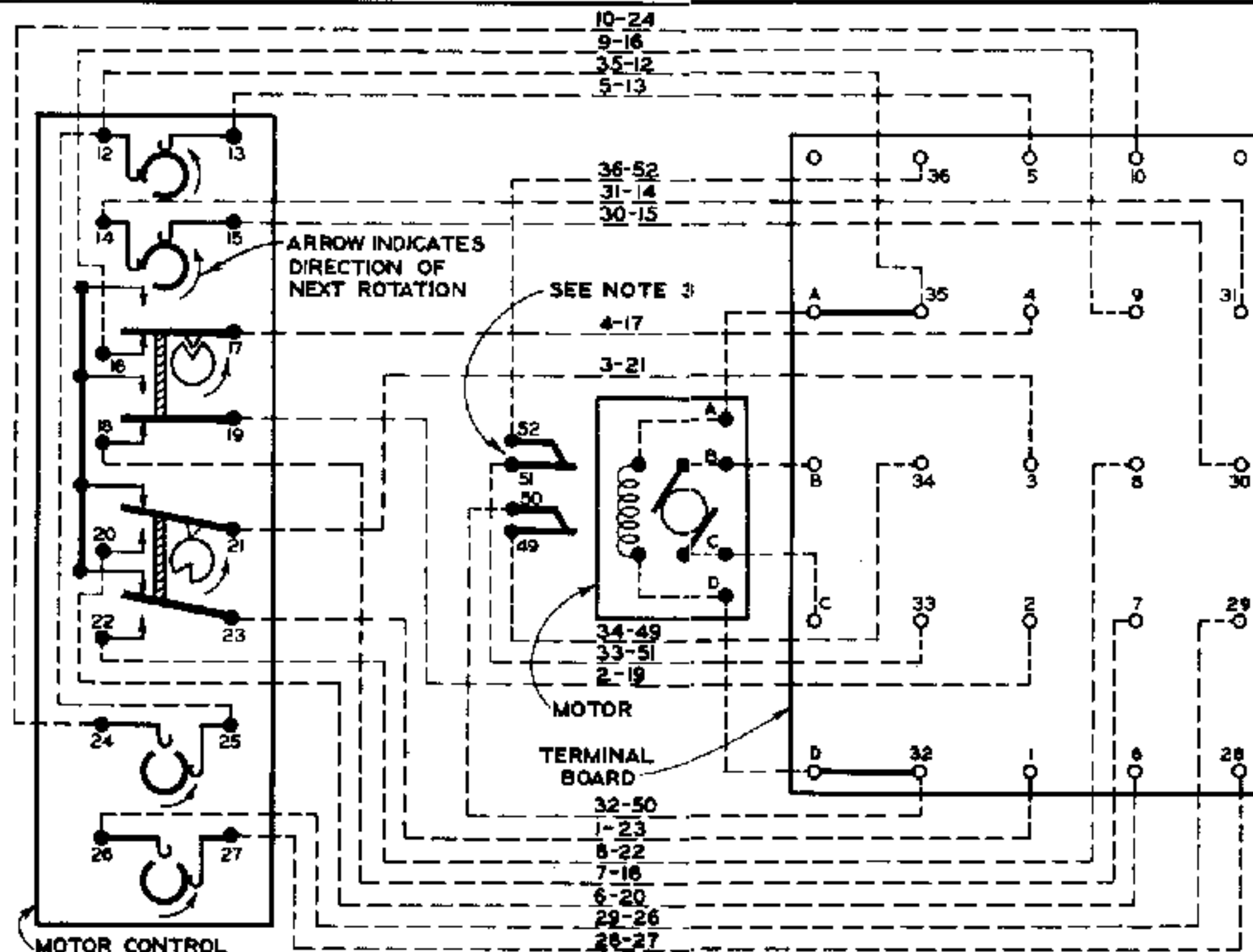
STANDARD
LAYOUT FOR STYLE T-10 HAND
OPERATED SWITCH MECHANISM
FOR SINGLE SWITCH

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Acstoney
CHAIRMAN

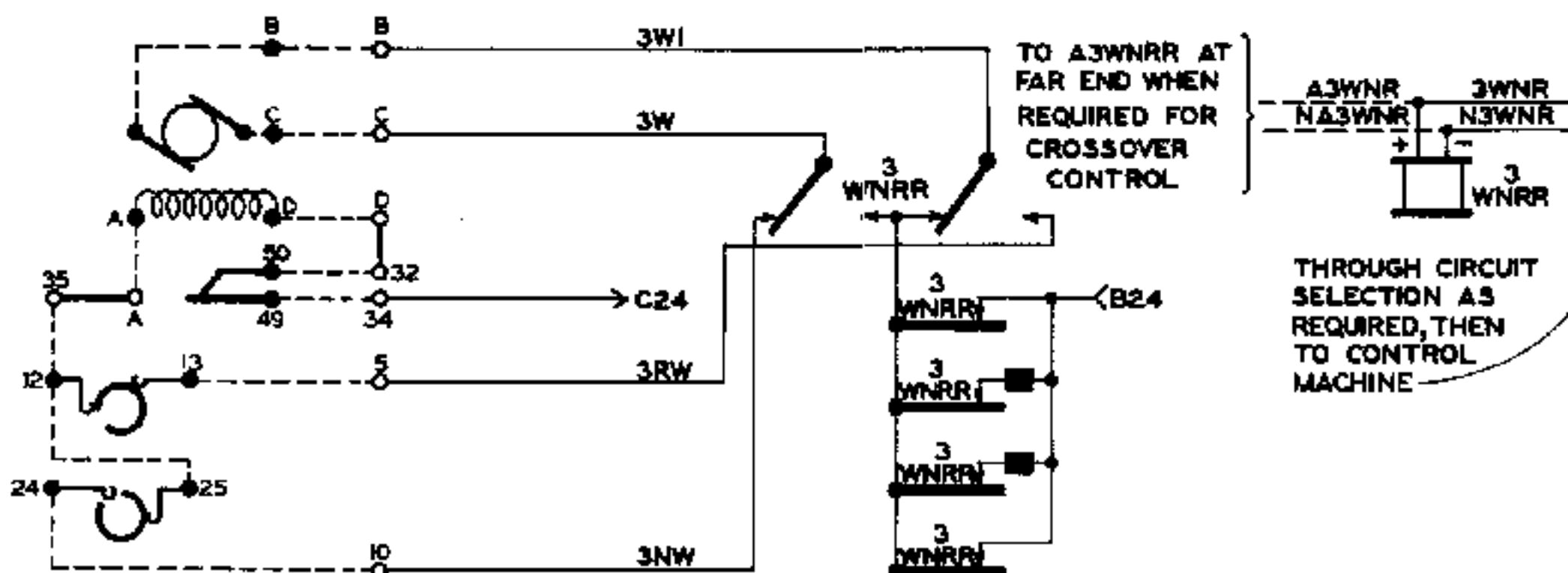
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SHEET 3 OF 3
S-2335-A

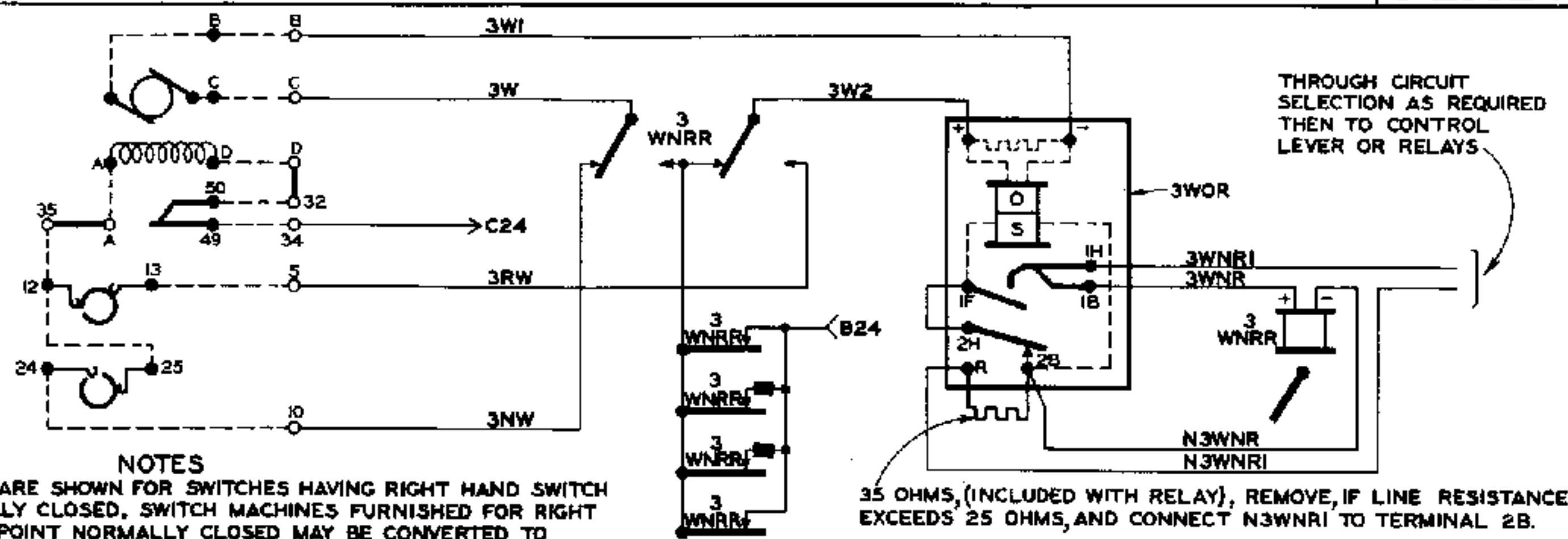


S-2502-1 STANDARD WIRING FOR M-2 AND M-22 SWITCH MECHANISMS

WIRING SHOWN IN DASHED LINES FURNISHED IN MACHINE BY MANUFACTURER



S-2502-3 CONTROL CIRCUIT FOR SINGLE SWITCH OR EITHER END OF CROSSOVER WITHOUT OVERLOAD PROTECTION
FOR USE WITH POWER INTERLOCKING



S-2502-2 CONTROL CIRCUIT FOR SINGLE SWITCH WITH OVERLOAD PROTECTION

FOR USE WITH POWER INTERLOCKING AND ALL CODED CONTROL SYSTEMS. THIS CIRCUIT SHALL NOT BE USED WHERE WNRR LINE RESISTANCE EXCEEDS 65 OHMS WITH 10 VOLT BATTERY AT CONTROL POINT, OR 90 OHMS WITH 12 VOLT BATTERY AT CONTROL POINT. IF LINE RESISTANCE EXCEEDS THESE VALUES USE CIRCUIT S-2502-4.

APPARATUS

WNRR = DP-14 OR EQUAL
WOR = OR-II " "

NOTES

1. ALL CIRCUITS ARE SHOWN FOR SWITCHES HAVING RIGHT HAND SWITCH POINT NORMALLY CLOSED. SWITCH MACHINES FURNISHED FOR RIGHT HAND SWITCH POINT NORMALLY CLOSED MAY BE CONVERTED TO OPERATE SWITCH HAVING LEFT HAND POINT NORMALLY CLOSED AS FOLLOWS: INTERCHANGE EXTERNAL LEADS TO TERMINALS 5 AND 10 AND INTERCHANGE EXTERNAL LEADS TO TERMINALS B AND C. REVERSE INDICATION CONTROLLER CAMS.

2. OPERATION OF MOTOR CONTROL AND INDICATION CIRCUIT CONTACTS SHALL BE AS FOLLOWS:

- (a) MOTOR CONTROL CONTACTS 12-13 AND 24-25 MUST BE CLOSED WHEN SLIDE BAR IS MORE THAN $\frac{1}{2}$ INCH FROM FULL NORMAL OR REVERSE POSITION.
- (b) CONTACT 24-25 MUST BE OPEN WHEN SLIDE BAR IS IN FULL NORMAL POSITION FOR RIGHT HAND SWITCH POINT NORMALLY CLOSED OR FULL REVERSE FOR LEFT HAND SWITCH POINT NORMALLY CLOSED.
- (c) CONTACT 12-13 MUST BE OPEN WHEN SLIDE BAR IS IN FULL REVERSE POSITION FOR RIGHT HAND SWITCH POINT NORMALLY CLOSED OR FULL NORMAL FOR LEFT HAND SWITCH POINT NORMALLY CLOSED.
- (d) INDICATION CIRCUIT CONTACTS 16-17, 18-19, 20-21, AND 22-23 ARE OPERATED BY SLIDE BAR MOVEMENT AS WELL AS POINT DETECTOR ROD AND MUST BE SO ADJUSTED THAT SLIDE BAR MOVEMENT WILL CLOSE THE OPEN MOTOR CONTROL CONTACT BEFORE THE CLOSED INDICATION CIRCUIT CONTACTS OPEN.

3. (a) CONTACTS 49-50 AND 51-52 ON M-2 MACHINE SHALL BE FURNISHED WITH LATCH REQUIRING MAINTAINER TO RESTORE CONTACTS TO NORMAL AFTER USE OF CRANK.

(b) CONTACTS 49-50 AND 51-52 ON M-22 MACHINE OPEN WHEN SELECTOR LEVER IS PLACED IN HAND OPERATING POSITION AND CLOSE WHEN SELECTOR LEVER IS PLACED IN POWER OPERATING POSITION.

4. WHEN CONDITIONS REQUIRE TRAIN OPERATION BY SIGNAL INDICATION WHILE SELECTOR LEVER OF M-22 MACHINES ARE IN HAND OPERATION POSITION, THE SWITCH REPEATER CIRCUIT WIRING FOR M-22 MACHINES SHALL BE THE SAME AS FOR M-2 MACHINES IN ACCORDANCE WITH NOTE ON EACH SWITCH REPEATER CIRCUIT.

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CHAIRMAN

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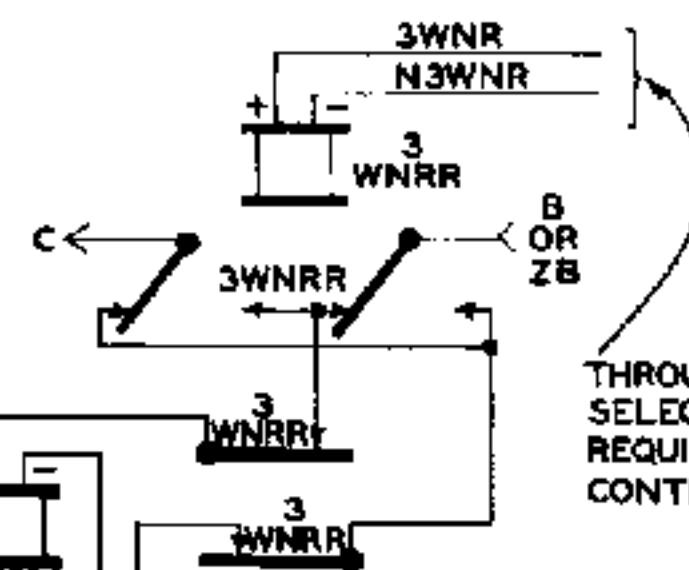
STANDARD TYPICAL CIRCUITS FOR RELAY CONTROLLED M-2 AND M-22 SWITCH MECHANISMS

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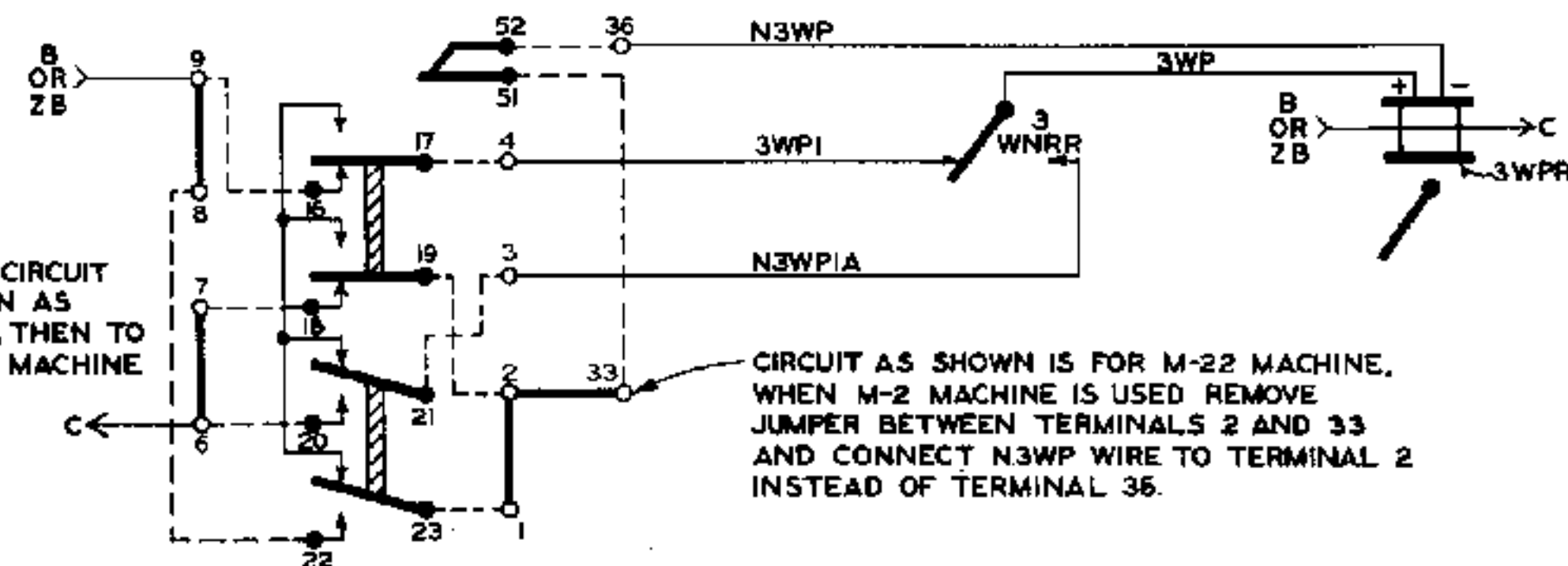
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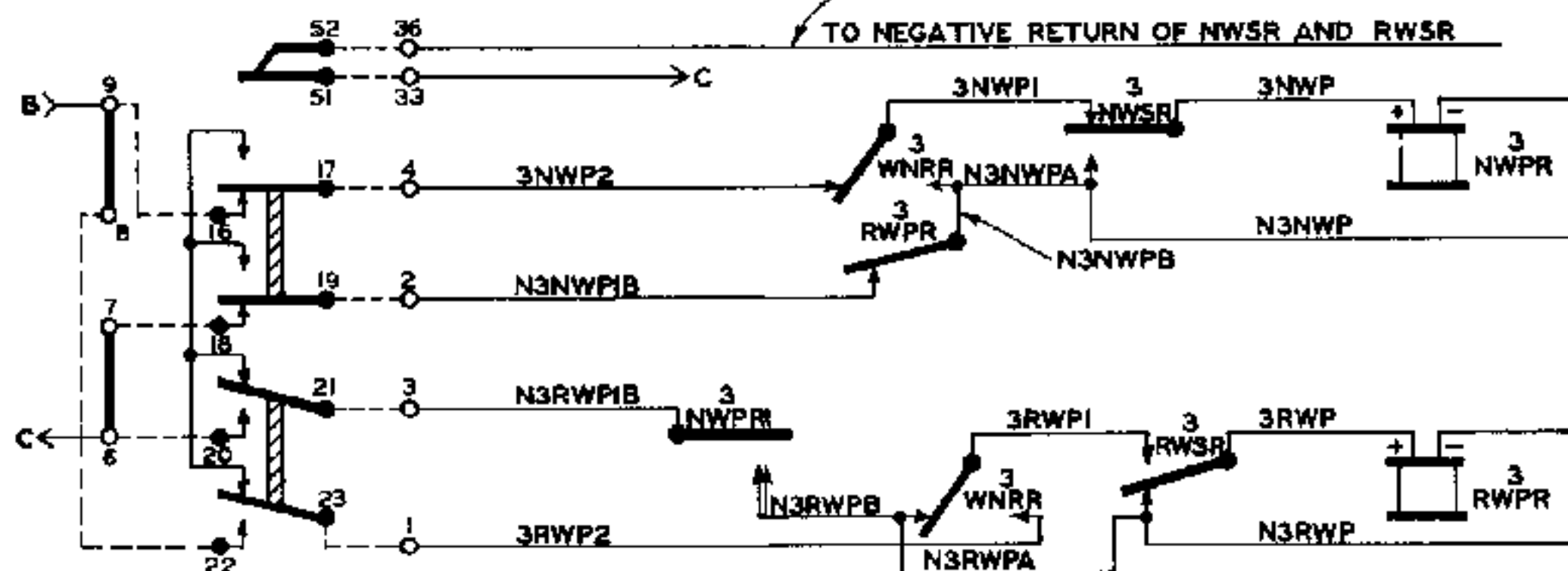
SHEET 1 OF 6



THROUGH CIRCUIT
SELECTION AS
REQUIRED, THEN TO
CONTROL MACHINE



- CIRCUIT AS SHOWN IS FOR M-22 MACHINE.
WHEN M-2 MACHINE IS USED REMOVE
JUMPER BETWEEN TERMINALS 2 AND 33
AND CONNECT N3WP WIRE TO TERMINAL 2
INSTEAD OF TERMINAL 35.

[illegible]

SEE NOTES ON SHEET 1

APPARATUS			
WNR	= DP-14	OR	EQUAL
WNRPR	= DP-14	"	"
WOR	= OR-11	"	"
WPR	= DP-17	"	"
NWPR	= DN-11	"	"
RWPR	= DN-11	"	"
ZR	= DP-14	"	"

S-2502-A



FOR USE WITH POWER INTERLOCKING AND ALL CODED CONTROL SYSTEMS.

CIRCUIT AS SHOWN IS FOR M-22 MACHINE, IF M-2 MACHINE IS USED CONNECT NEGATIVE RETURN OF NWSR AND RWSR DIRECT TO C

TO NEGATIVE RETURN OF NWSR AND RWSR



FOR USE WITH TIME CODE CONTROL SYSTEMS WITH SWITCH CONTROL CIRCUIT 5-2502-B

SEE NOTE 4.5 SHEET 1.

WOR = OR-11 OR EQUAL
WNRR = DP-14 OR EQUAL
NWPR = DN-11 " "
RWPR = DN-11 " "

SEE NOTES ON SHEET 1

THE CHESAPEAKE AND OHIO
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Answer:

DATE: 11-11-2011

ERIE RAILROAD COMPANY

11-11-73 /

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STANDARD TYPICAL CIRCUITS FOR RELAY CONTROLLED M-2 AND M-22 SWITCH MECHANISMS

Chairman

NOV. 20. 1940

SHEET 1 OF 6

0 2502

S-2302-A



WDR = OR-11 OR EQUAL
WNRR = DP-14 " "
WNRPR = DP-14 " "
WPR = DP-17 " "

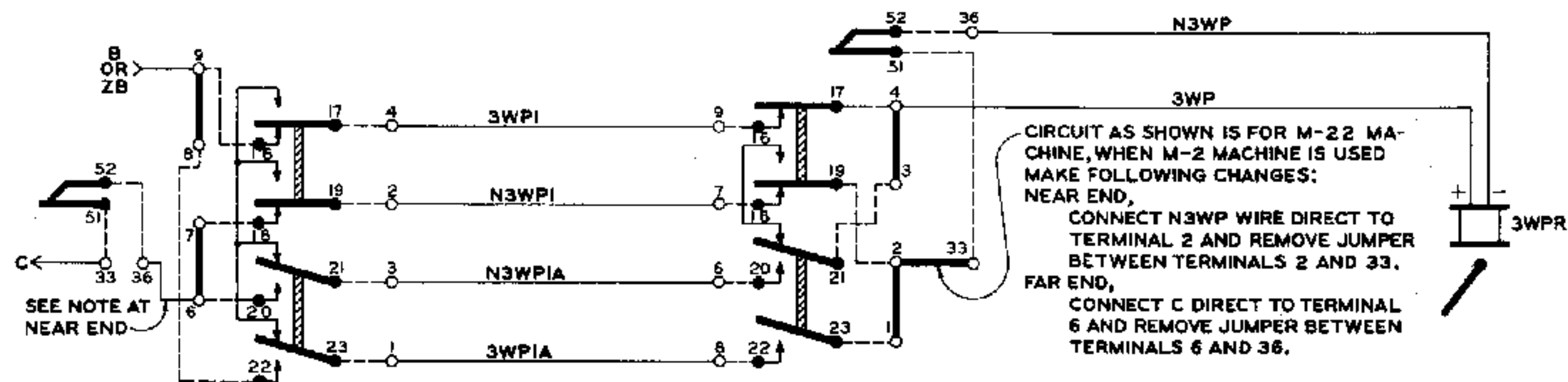


CONNECT N3WP WIRE DIRECT TO
TERMINAL 2 AND REMOVE JUMPER
BETWEEN TERMINALS 2 AND 33.
FAR END,
CONNECT N3WP2 WIRE DIRECT TO
TERMINAL 6 AND REMOVE JUMPER
BETWEEN TERMINALS 6 AND 36.

SEE NOTES ON SHEET 1

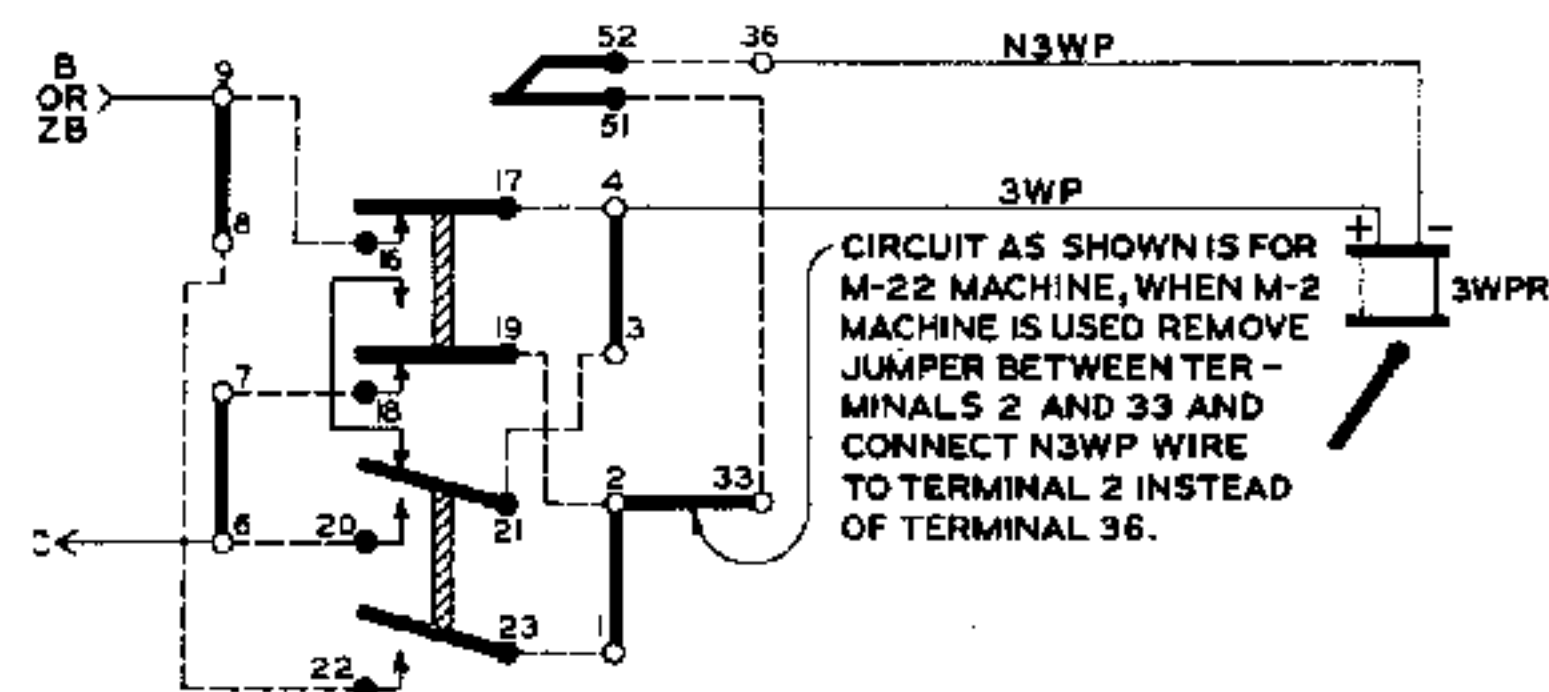
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S-2502-14 POLARIZED SWITCH REPEATER CIRCUIT FOR CROSSOVER
FOR USE ONLY WITH LEVER EQUIPPED WITH QUICK SWITCH
SEE NOTE 4, SHEET 1.

APPARATUS
WPR=DP-14 OR EQUAL



S-2502-15 POLARIZED SWITCH REPEATER CIRCUIT FOR SINGLE SWITCH
FOR USE ONLY WITH LEVER EQUIPPED WITH QUICK SWITCH
SEE NOTE 4 SHEET 1.

SEE NOTES ON SHEET 1

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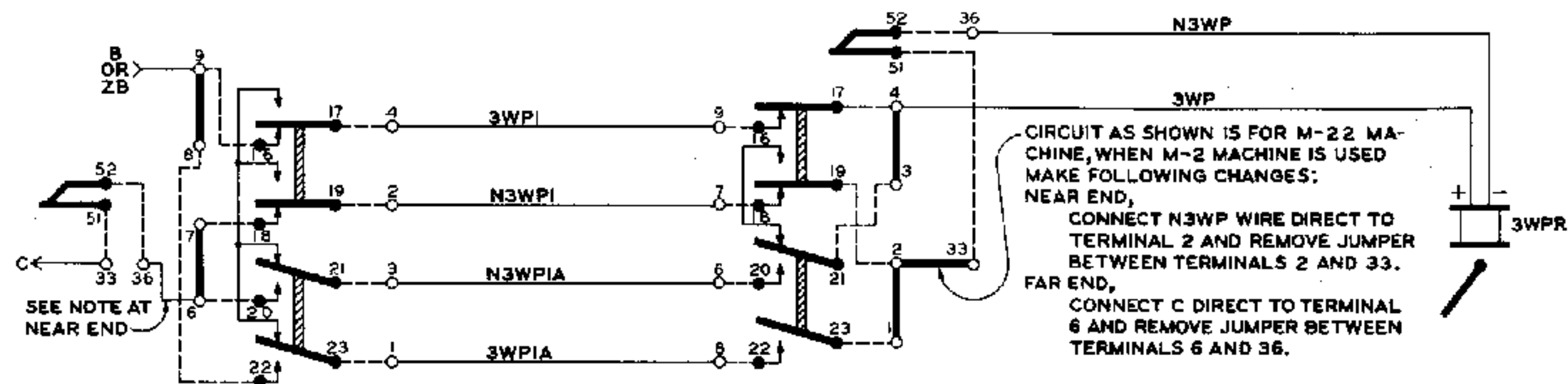
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STANDARD TYPICAL CIRCUITS FOR RELAY CONTROLLED M-2 AND M-22 SWITCH MECHANISMS

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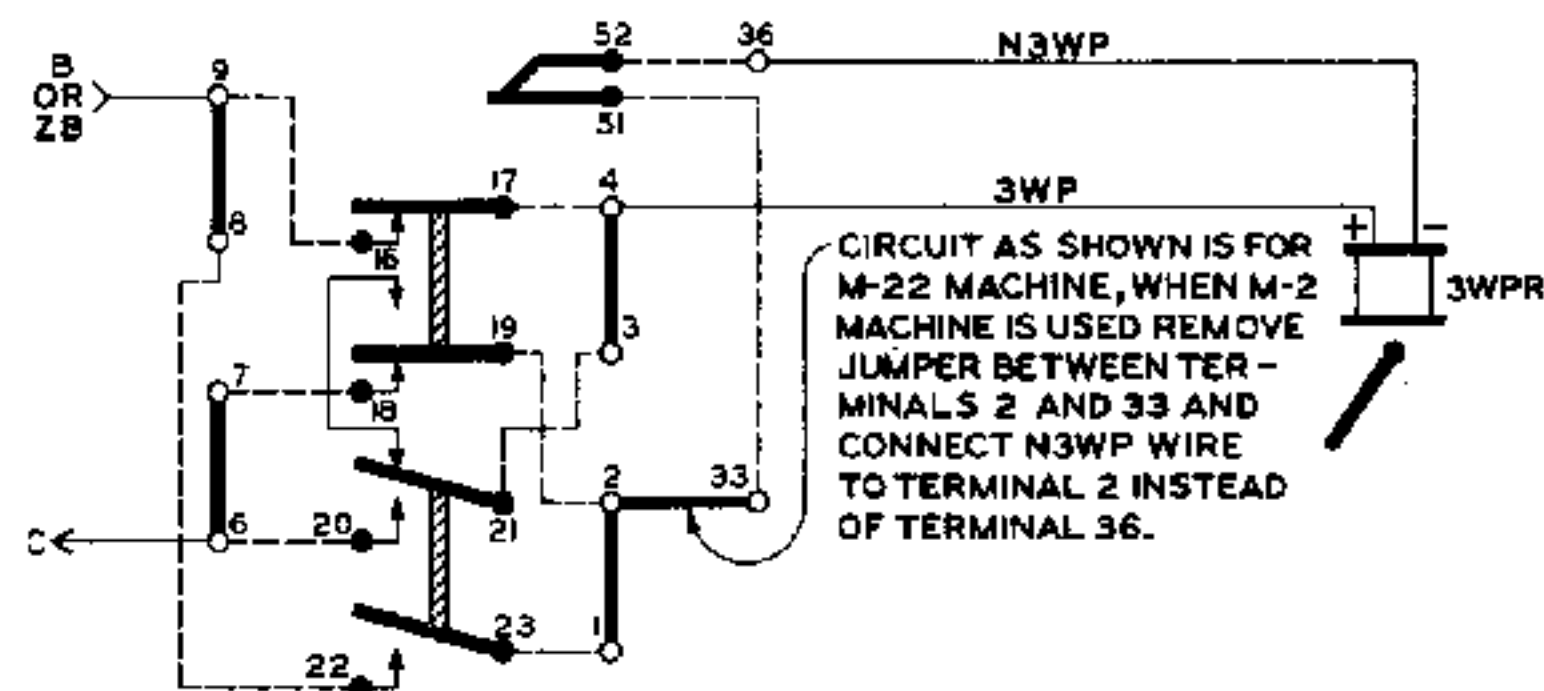
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NOV. 20, 1940



S-2502-14 POLARIZED SWITCH REPEATER CIRCUIT FOR CROSSOVER
FOR USE ONLY WITH LEVER EQUIPPED WITH QUICK SWITCH
SEE NOTE 4, SHEET 1.

APPARATUS
WPR=DP-14 OR EQUAL



S-2502-15 POLARIZED SWITCH REPEATER CIRCUIT FOR SINGLE SWITCH
FOR USE ONLY WITH LEVER EQUIPPED WITH QUICK SWITCH
SEE NOTE 4 SHEET 1.

SEE NOTES ON SHEET 1

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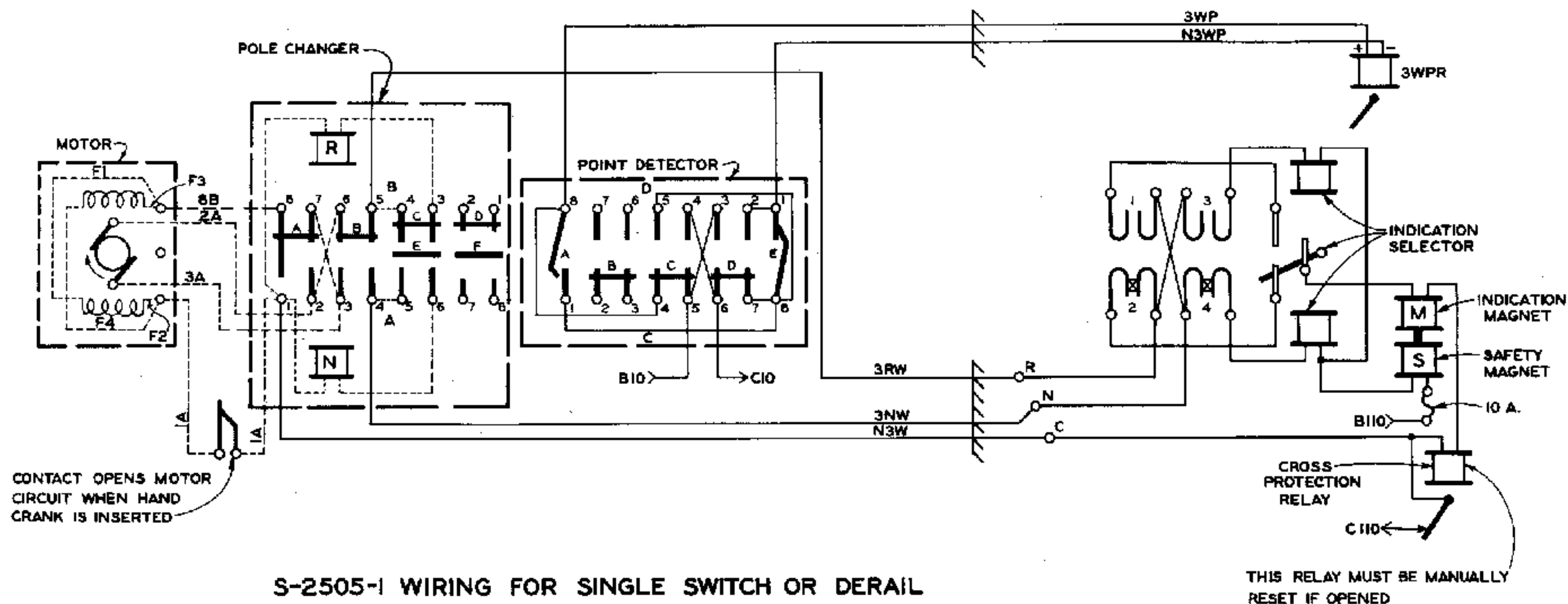
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**STANDARD
TYPICAL CIRCUITS FOR RELAY
CONTROLLED M-2 AND M-22
SWITCH MECHANISMS**

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CHAIRMAN

NOV. 20, 1940



NOTES

1. DOTTED PORTION OF WIRING FURNISHED IN MACHINE BY MANUFACTURER.
2. ADDITIONAL WIRING SHOWN SOLID.
3. WIRING AS SHOWN IS FOR RIGHT HAND SWITCH LAYOUT; FOR LEFT HAND SWITCH LAYOUT INTERCHANGE NW AND RW WIRES, ALSO INTERCHANGE WP AND NWP WIRES.
4. CONTACT OPERATION OF POINT DETECTOR AND POLE CHANGER CIRCUIT CONTROLLERS IS AS FOLLOWS:

NORMAL TO REVERSE

 - (a) POLE CHANGER BAR E CLOSES CONTACTS 5-6 WHEN SLIDE BAR MOVES $\frac{1}{2}$ " TOWARD THE UNLOCKED POSITION.
 - (b) JUST AFTER POLE CHANGER CONTACTS 5-6 ARE CLOSED BY BAR E, POINT DETECTOR BARS C AND D MOVE TO CENTER POSITION; OPENING CONTACTS 4-5 AND 6-7; AFTER WHICH SHUNT CONTACT A CLOSES.
 - (c) POINT DETECTOR BARS C AND D CLOSE CONTACTS 5-4 AND 3-2 JUST AFTER SHUNT CONTACT E OPENS WHEN SLIDE BAR IS WITHIN $\frac{1}{2}$ " OF FULL REVERSE LOCKED POSITION.
 - (d) POLE CHANGER BAR C OPENS CONTACTS 4-3 JUST AFTER POINT DETECTOR BARS C AND D CLOSE CONTACTS 5-4 AND 3-2.
 - (e) POLE CHANGER BARS A AND B ARE MECHANICALLY MOVED TO REVERSE POSITION CLOSING CONTACTS 8-2 AND 3-4 AND OPENING CONTACTS 8-7 AND 6-5, JUST AFTER BAR C OPENS CONTACTS 4-3.

REVERSE TO NORMAL

 - (f) OPERATION OF CONTACTS IS IN THE SAME SEQUENCE AS OUTLINED ABOVE EXCEPT IN THE REVERSE DIRECTION.
5. POLE CHANGER COIL R OR N MOVE BARS A AND B WHEN CONTROL LEVER IS REVERSED IN MID-STROKE, REVERSING DIRECTION OF OPERATION OF THE MECHANISM AND KEEPING MECHANISM AND LEVER IN CORRESPONDENCE.

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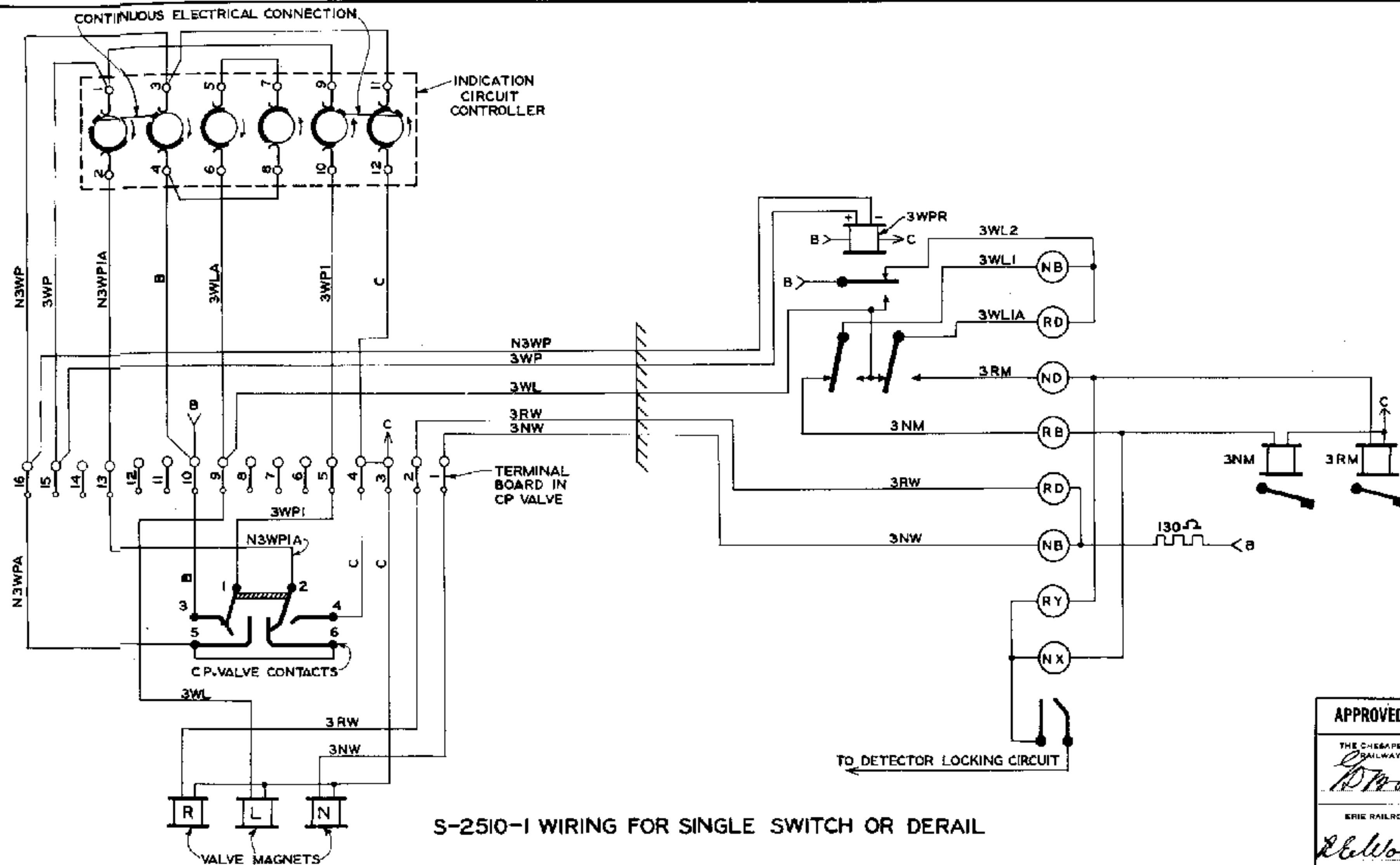
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STANDARD WIRING FOR 5A SWITCH MECHANISM WITH DYNAMIC INDICATION

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CHIEF ENGINEER

S-2505



S-2510-1 WIRING FOR SINGLE SWITCH OR DERAIL

- NOTES
1. WIRING SHOWN IS FOR EITHER RIGHT OR LEFT HAND LAYOUT.
 2. CONTACT OPERATION OF INDICATION CIRCUIT CONTROLLER IS AS FOLLOWS:-

NORMAL TO REVERSE

- (a) CONTACTS 1-2 AND 3-4 CLOSE REVERSE INDICATION CIRCUIT AT END OF SLIDE BAR MOVEMENT. IN FULL REVERSE POSITION CONTACTS ARE CLOSED $\frac{1}{8}$ " MEASURED ON THE DRUM.
- (b) CONTACTS 5-6 OPEN REVERSE RESTORING CIRCUIT JUST AFTER CONTACTS 1-2 AND 3-4 CLOSE. IN FULL REVERSE POSITION CONTACTS 5-6 ARE OPEN $\frac{1}{16}$ " MEASURED ON THE DRUM.

REVERSE TO NORMAL

- (c) CONTACTS 9-10 AND 11-12 CLOSE NORMAL INDICATION CIRCUIT AT END OF SLIDE BAR MOVEMENT. IN FULL NORMAL POSITION CONTACTS ARE CLOSED $\frac{1}{8}$ " MEASURED ON THE DRUM.
- (d) CONTACTS 7-8 OPEN NORMAL RESTORING CIRCUIT JUST AFTER CONTACTS 9-10 AND 11-12 CLOSE. AT FULL NORMAL POSITION CONTACTS 7-8 ARE OPEN $\frac{1}{16}$ " MEASURED ON THE DRUM.

SHUNT CONTACTS

- (e) CONTACTS 1-3 AND 9-11 SHUNT INDICATION CIRCUIT JUST AFTER INDICATION CIRCUIT CONTACTS OPEN.
- (f) ADDITIONAL SHUNTING SEGMENTS ARE USED ON CONTROLLERS APPLIED AT INTERMEDIATE OR FAR END OF A COMBINATION INVOLVING THE OPERATION OF TWO OR MORE SWITCH MACHINES FROM THE SAME LEVER. CONTACTS 1-3 SHUNT REVERSE INDICATION CIRCUIT DURING TIME NORMAL INDICATION CONTACTS ARE CLOSED AND CONTACTS 9-11 SHUNT NORMAL INDICATION CIRCUIT DURING TIME REVERSE INDICATION CONTACTS ARE CLOSED. THESE SHUNTING SEGMENTS MUST BE REMOVED FROM ALL CONTROLLERS USED ON SINGLE SWITCH OR DERAIL OR ON THE NEAR END OF A COMBINATION OPERATED FROM THE SAME LEVER.

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STANDARD WIRING FOR A-5 SWITCH MECHANISM WITH CP VALVE

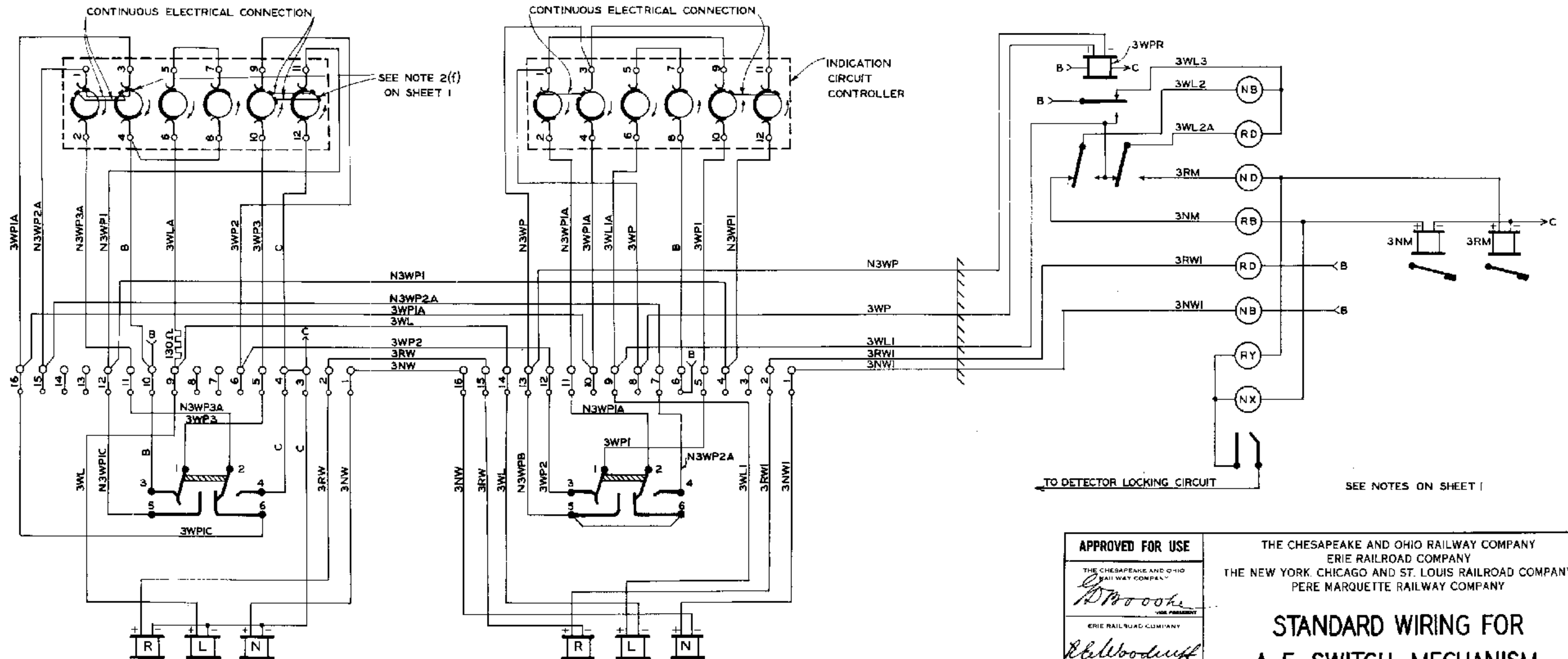
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OCT. 16, 1934.

SHEET 1 OF 2

S-2510



S-2510-2 WIRING FOR CROSSOVER OR SINGLE SWITCH AND DERAIL

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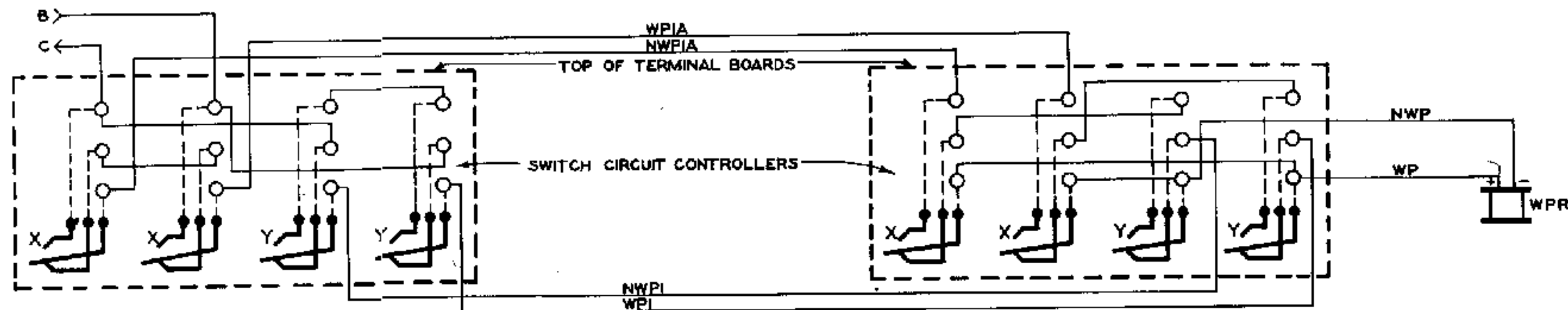
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STANDARD WIRING FOR A-5 SWITCH MECHANISM WITH CP VALVE

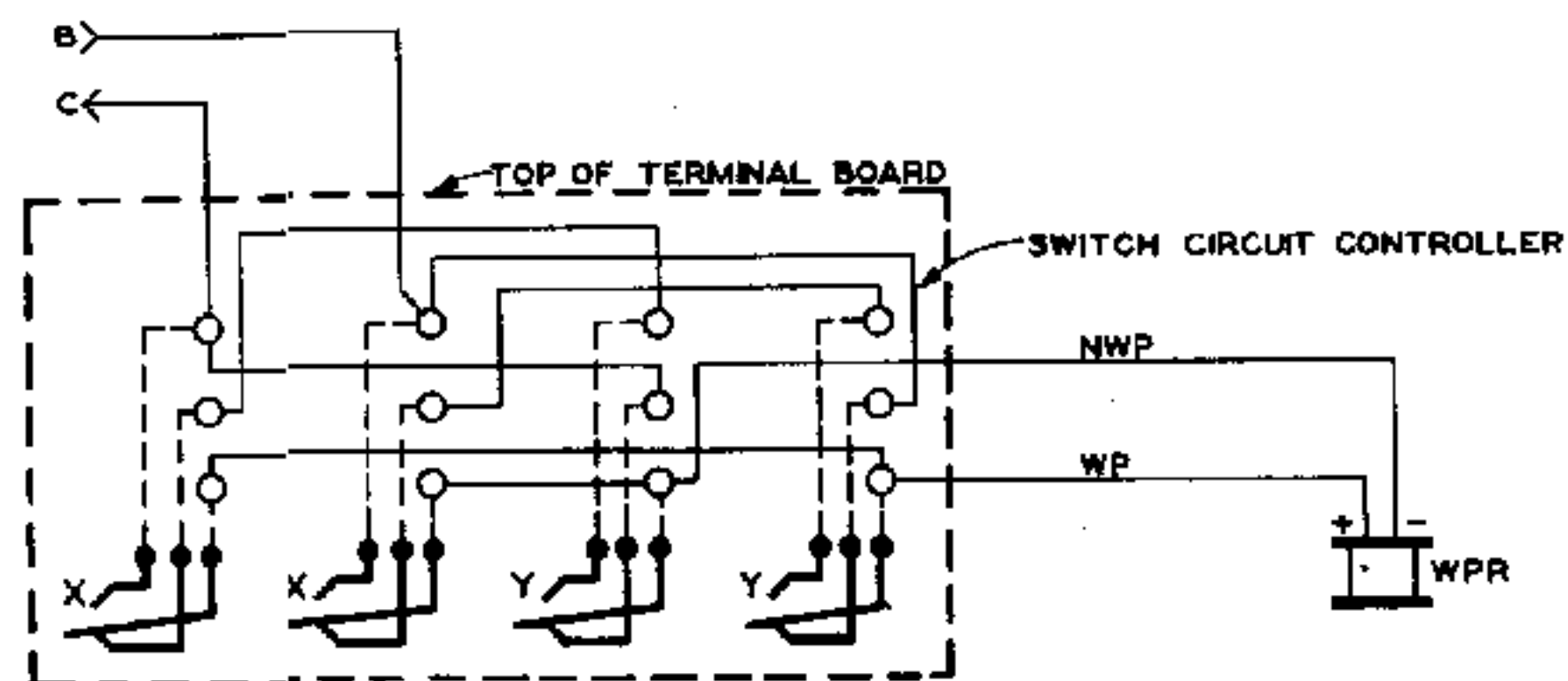
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SHEET 2 OF 2

S-2510



S-2520-1 WP CIRCUIT FOR CROSSOVER OR SWITCH AND DERAIL



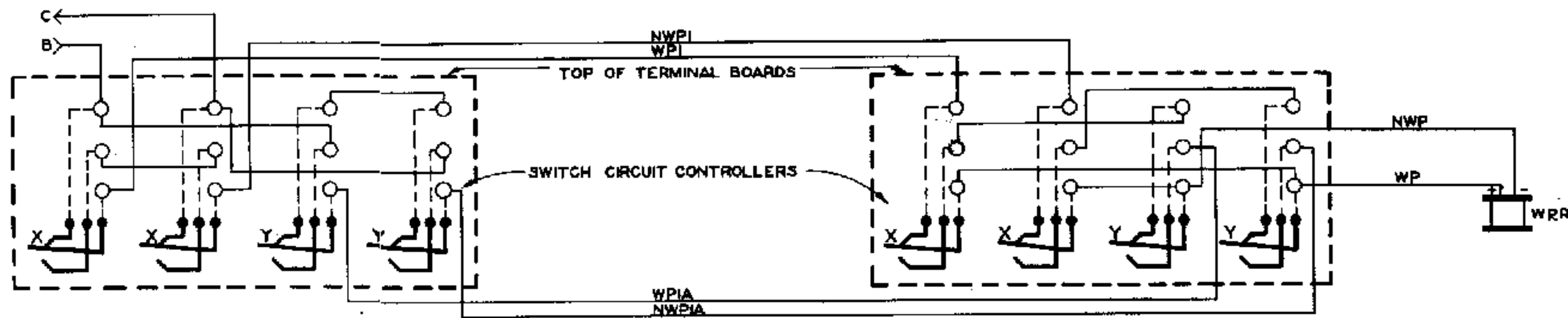
S-2520-2 WP CIRCUIT FOR SINGLE SWITCH OR DERAIL

NOTES

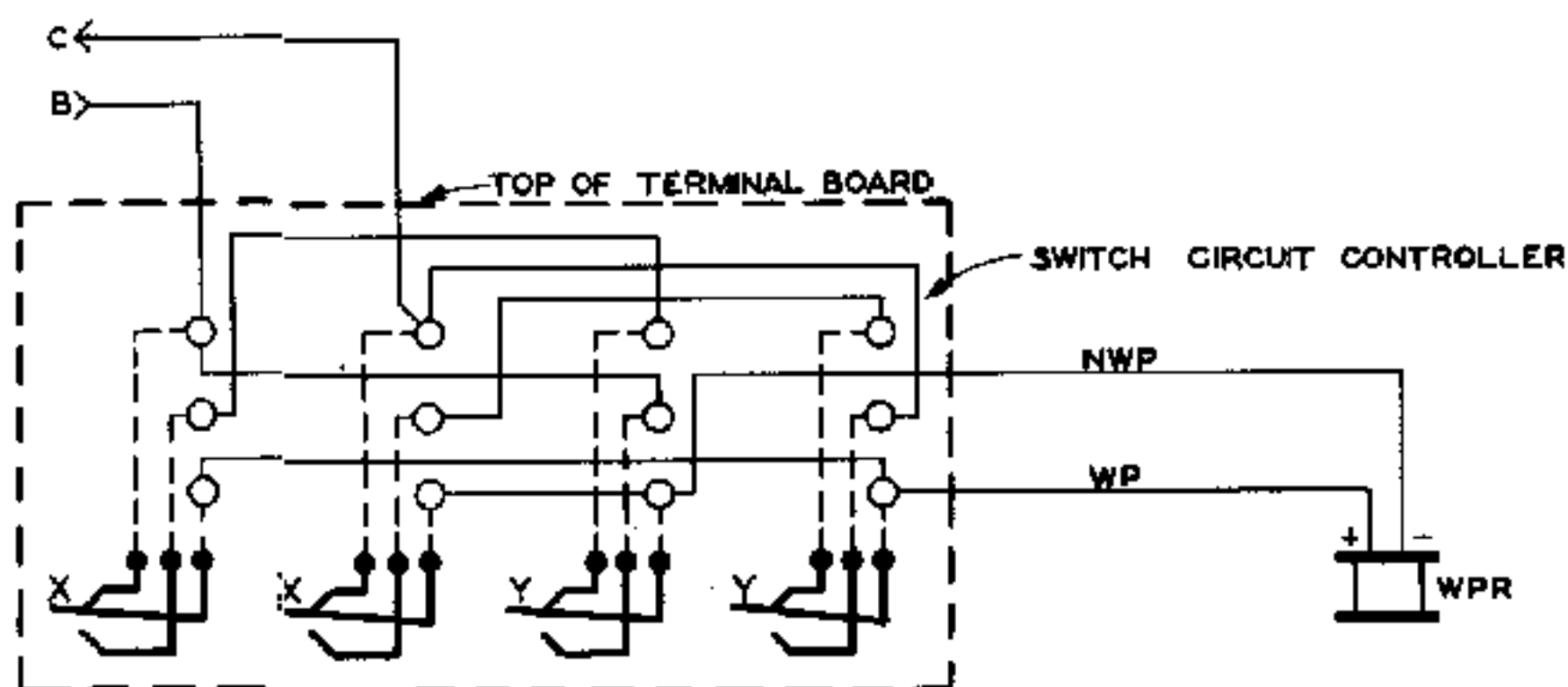
1. ADJUSTMENT OF CONTACTS SHALL BE AS FOLLOWS:
 - (a) CONTACTS "X" AND "Y" SHALL BE NORMALLY CLOSED AS SHOWN WHEN SWITCH POINTS ARE LESS THAN $\frac{1}{4}$ INCH FROM FULL NORMAL TO FULL NORMAL POSITION.
 - (b) CONTACTS "Y" SHALL BE CLOSED IN THE OPPOSITE POSITION WHEN SWITCH POINTS ARE $\frac{1}{4}$ INCH OR MORE FROM FULL NORMAL POSITION.
 - (c) CONTACTS "X" SHALL BE CLOSED IN OPPOSITE POSITION WHEN SWITCH POINTS ARE LESS THAN $\frac{1}{4}$ INCH FROM FULL REVERSE TO FULL REVERSE POSITION.

CIRCUIT FOR USE WHEN TYPE U-3 AND U-5 SWITCH CIRCUIT CONTROLLERS ARE LOCATED ON OPEN POINT SIDE OF SWITCH.

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APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>[Signature]</i> OCT. 7, 1935. CHIEF ENGINEER			SHEET 1 OF 2 S-2520		
C.H.W.	C.D.M.	A.J.P.			



S-2520-3 WP CIRCUIT FOR CROSSOVER OR SWITCH AND DERAIL



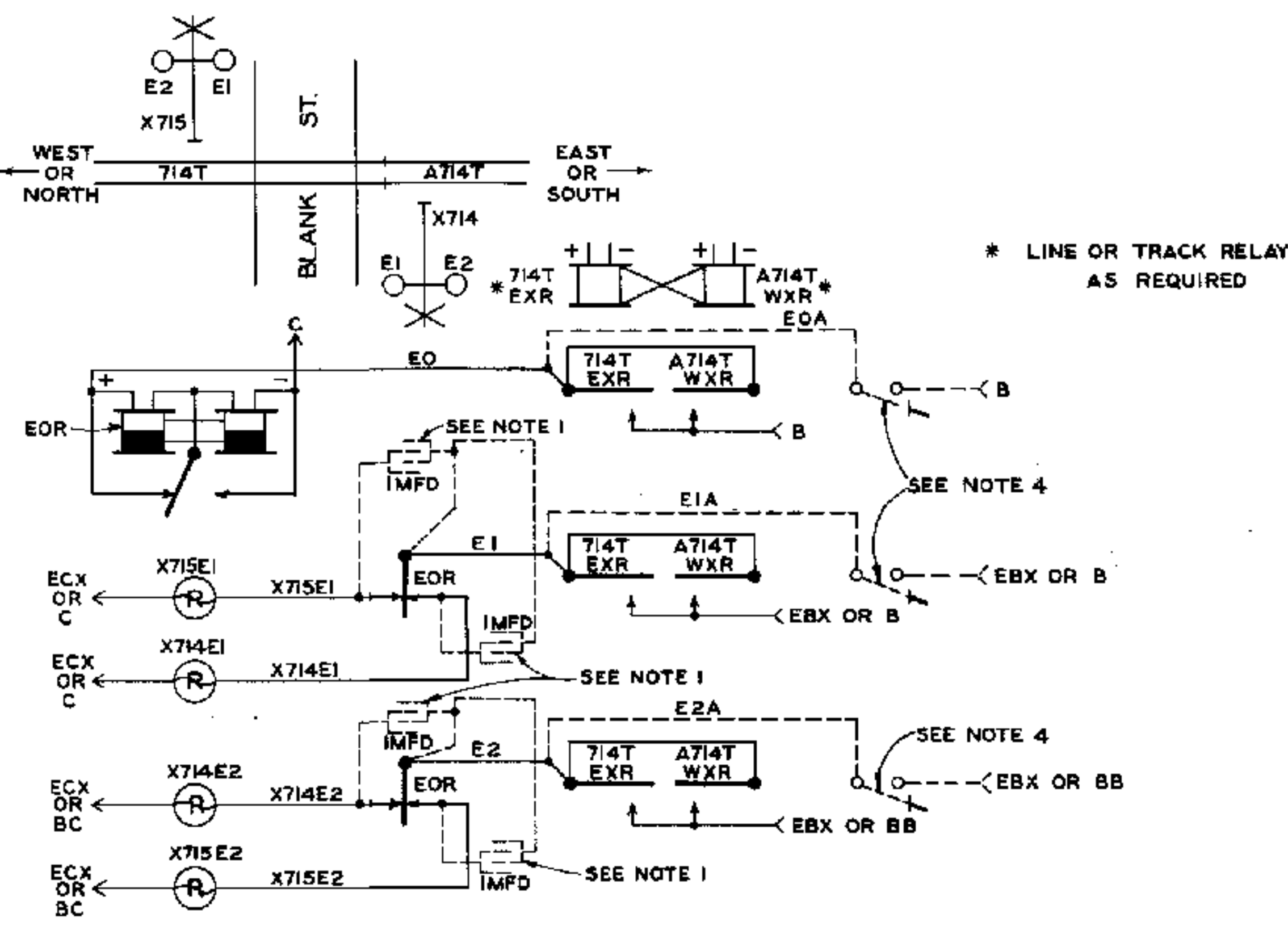
S-2520-4 WP CIRCUIT FOR SINGLE SWITCH OR DERAIL

NOTES

1. ADJUSTMENT OF CONTACTS SHALL BE AS FOLLOWS:
 - (a) CONTACTS "X" AND "Y" SHALL BE NORMALLY CLOSED AS SHOWN. WHEN SWITCH POINTS ARE LESS THAN $\frac{1}{4}$ INCH FROM FULL NORMAL TO FULL NORMAL POSITION.
 - (b) CONTACTS "X" SHALL BE CLOSED IN THE OPPOSITE POSITION WHEN SWITCH POINTS ARE $\frac{1}{4}$ INCH OR MORE FROM FULL NORMAL POSITION.
 - (c) CONTACTS "Y" SHALL BE CLOSED IN OPPOSITE POSITION WHEN SWITCH POINTS ARE LESS THAN $\frac{1}{4}$ INCH FROM FULL REVERSE TO FULL REVERSE POSITION.

CIRCUIT FOR USE WHEN TYPE U-3 AND U-5 SWITCH CIRCUIT CONTROLLERS ARE LOCATED ON CLOSED POINT SIDE OF SWITCH.

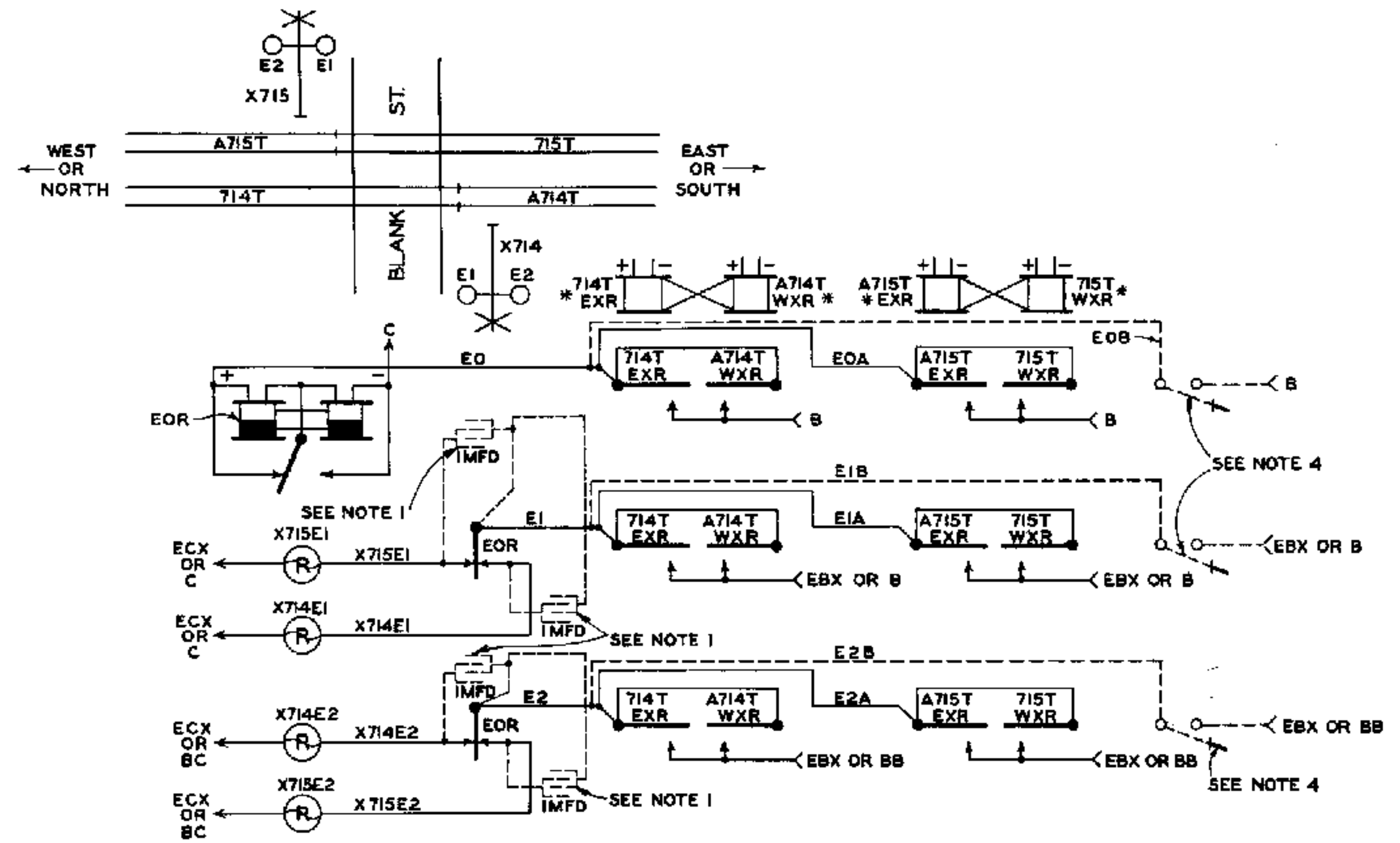
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<i>D. M. Moore</i> VICE PRESIDENT				
<i>P. H. W. W. W.</i> VICE PRESIDENT				
APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES OCT. 7, 1935.		APPROVED: <i>W. W. W.</i> CHIEF ENGINEER		
C.H.W.	C.D.M.	A.J.P.	SHEET 2 OF 2 S-2520	



S-2530-1 FLASHER CIRCUIT
USING INTERLOCKING RELAY
SINGLE TRACK

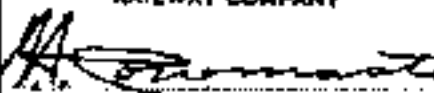
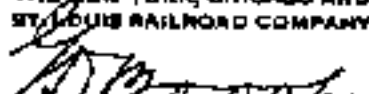
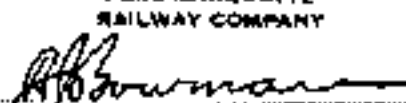
NOTES

1. ADD 0086 MANSBRIDGE TYPE CONDENSERS OR EQUAL ON LIGHT CONTACTS AS REQUIRED.
2. AT LEAST TWO RETURN WIREES SHALL BE PROVIDED FOR THE LIGHTS ON EACH MAST.
3. TRACK CIRCUIT NUMBERING SHOWN APPLIES ONLY IN NONSIGNALLED TERRITORY.
4. TEST SWITCHES, WHERE USED, MAY BE TRIPLE POLE, SINGLE THROW, KNIFE SWITCHES OR OTHER SUITABLE DEVICE SO ARRANGED THAT DOOR OF TEST BOX CANNOT BE CLOSED UNLESS CIRCUIT IS OPEN.
5. WHERE PRIMARY BATTERY IS USED EXCLUSIVELY, TWO SETS OF BATTERIES SHALL BE USED AND CONNECTED IN MULTIPLE. THE FIRST BATTERY SHALL BE DESIGNATED BY B AND C, THE SECOND BATTERY BY BB AND BC.
6. FOR TYPICAL BATTERY CHARGING AND POWER TRANSFER CIRCUITS SEE LATEST REVISION OF STANDARD DRAWING S-2535, TYPICAL POWER TRANSFER AND BATTERY CHARGING CIRCUITS.



S-2530-2 FLASHER CIRCUIT
USING INTERLOCKING RELAYS
MULTIPLE TRACK

APPARATUS
XR= DX-13 OR EQUAL
EOR= NF-2 " "

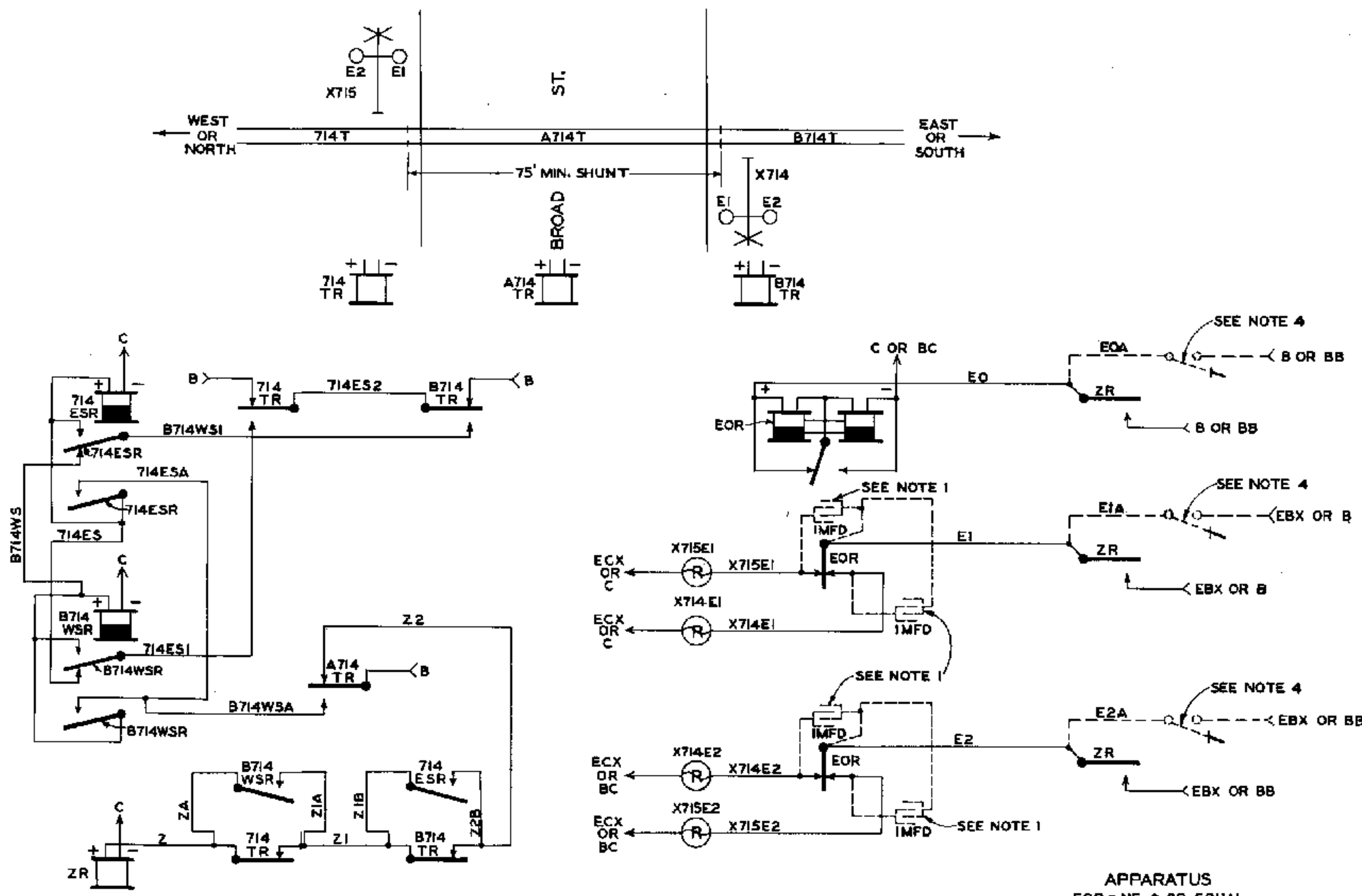
APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
 VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
 VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
 PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
 VICE PRESIDENT		
K.L.M.	W.S.E.	C.A.T.
K.L.M.	W.S.E.	C.A.T.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD TYPICAL
HIGHWAY CROSSING
SIGNAL CIRCUITS
MAKE AND BREAK TYPE

NOV. 25, 1940

SHEET 1 OF 5

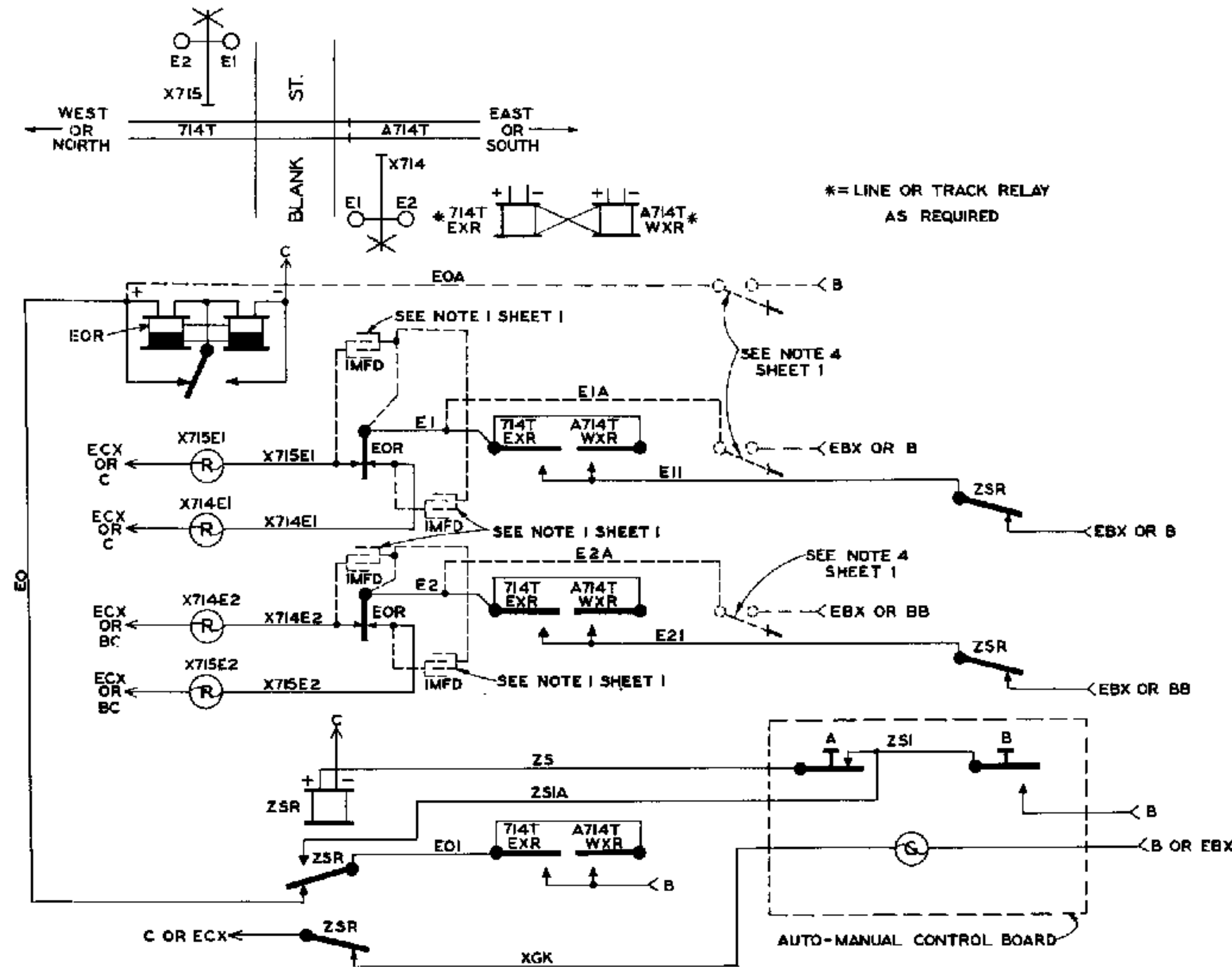


S-2530-3 FLASHER CIRCUIT
USING STICK RELAYS

APPARATUS
EOR = NF-2 OR EQUAL
TR = DN-11 " "
SR = " " "
ZR = " " "

- NOTES
1. ADD 0086 MANSBRIDGE TYPE CONDENSERS OR EQUAL ON LIGHT CONTACTS AS REQUIRED.
 2. AT LEAST TWO RETURN WIRES SHALL BE PROVIDED FOR THE LIGHTS ON EACH MAST.
 3. TRACK CIRCUIT NUMBERING SHOWN APPLIES ONLY IN NONSIGNALLED TERRITORY.
 4. TEST SWITCHES, WHERE USED, MAY BE TRIPLE POLE, SINGLE THROW, KNIFE SWITCHES OR OTHER SUITABLE DEVICE SO ARRANGED THAT DOOR OF TEST BOX CANNOT BE CLOSED UNLESS CIRCUIT IS OPEN.
 5. WHERE PRIMARY BATTERY IS USED EXCLUSIVELY, TWO SETS OF BATTERIES SHALL BE USED AND CONNECTED IN MULTIPLE. THE FIRST BATTERY SHALL BE DESIGNATED BY B AND C, THE SECOND BATTERY BY BB AND BC.
 6. FOR TYPICAL BATTERY CHARGING AND POWER TRANSFER CIRCUITS SEE LATEST REVISION OF STANDARD DRAWING S-2535, TYPICAL POWER TRANSFER AND BATTERY CHARGING CIRCUITS.

APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
		STANDARD TYPICAL HIGHWAY CROSSING SIGNAL CIRCUITS MAKE AND BREAK TYPE	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES	
PERE MARQUETTE RAILWAY COMPANY		NOV. 25, 1940	
		SHEET 2 OF 5	
K.L.M. K.L.M.	W.S.E. C.A.T.	S-2530-B	



S-2530-4 FLASHER CIRCUIT WITH AUTO-MANUAL CONTROL
USING INTERLOCKING RELAY
SINGLE TRACK

APPARATUS
EOR = NF-2 OR EQUAL
XR = DX-13 " "
ZSR = DN-11 " "

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>H. J. Barber</i> VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY		
<i>H. J. Barber</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>D. M. Moore</i> PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY		
<i>H. J. Barber</i> VICE PRESIDENT		
K.L.M.	W.S.E.	C.A.T.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD TYPICAL HIGHWAY CROSSING SIGNAL CIRCUITS MAKE AND BREAK TYPE

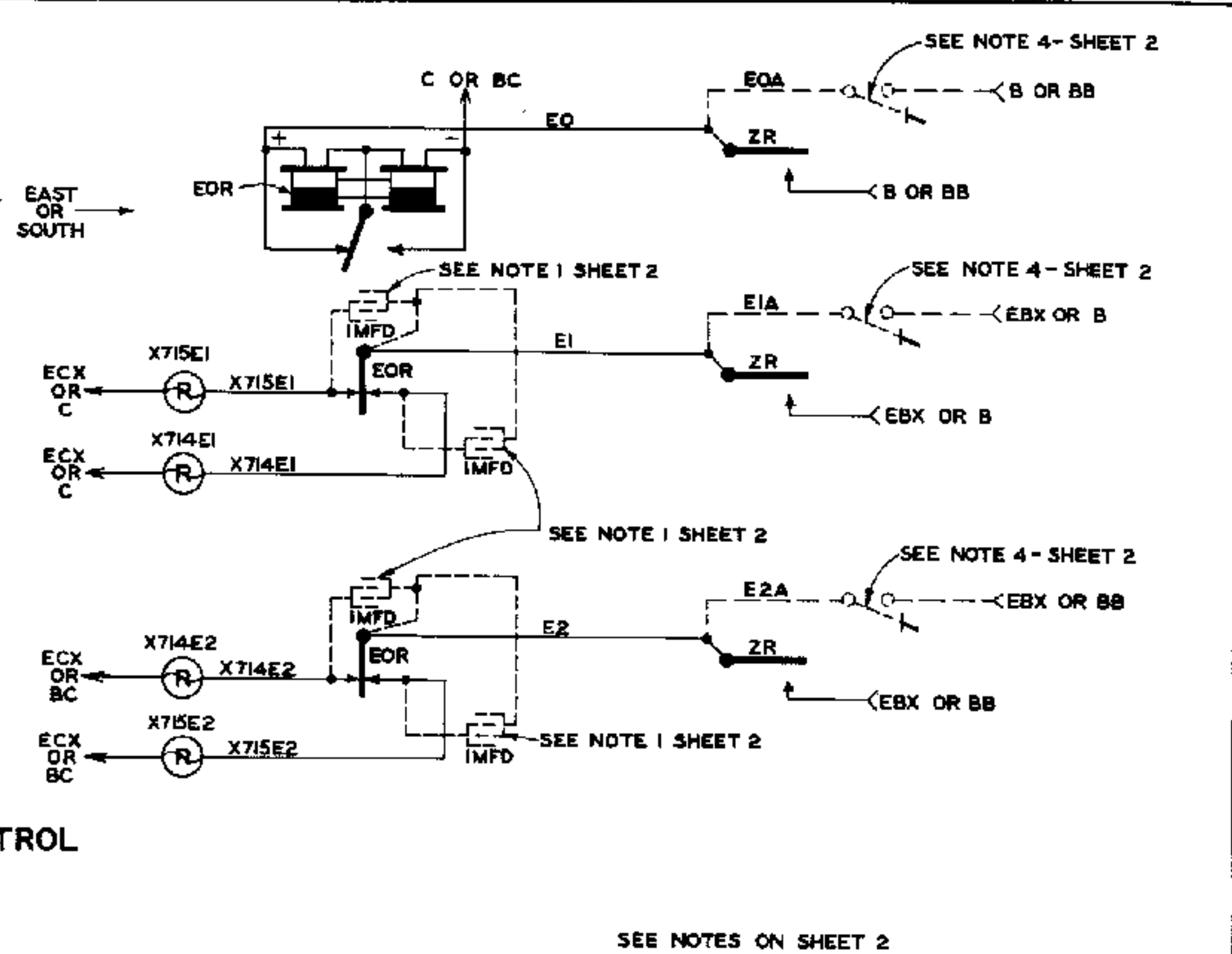
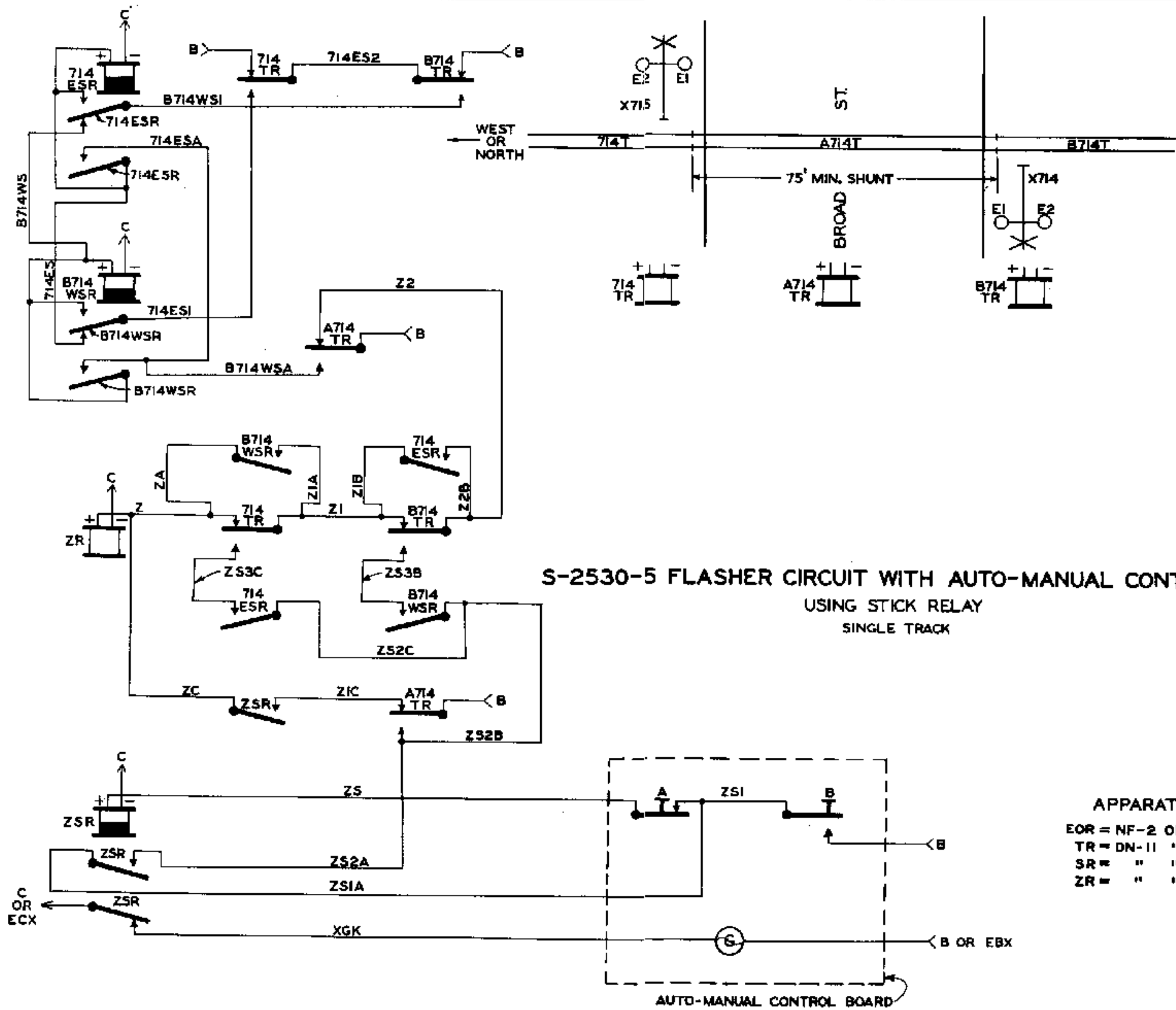
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

Asst. Secy
CHAIRMAN

NOV. 25, 1940

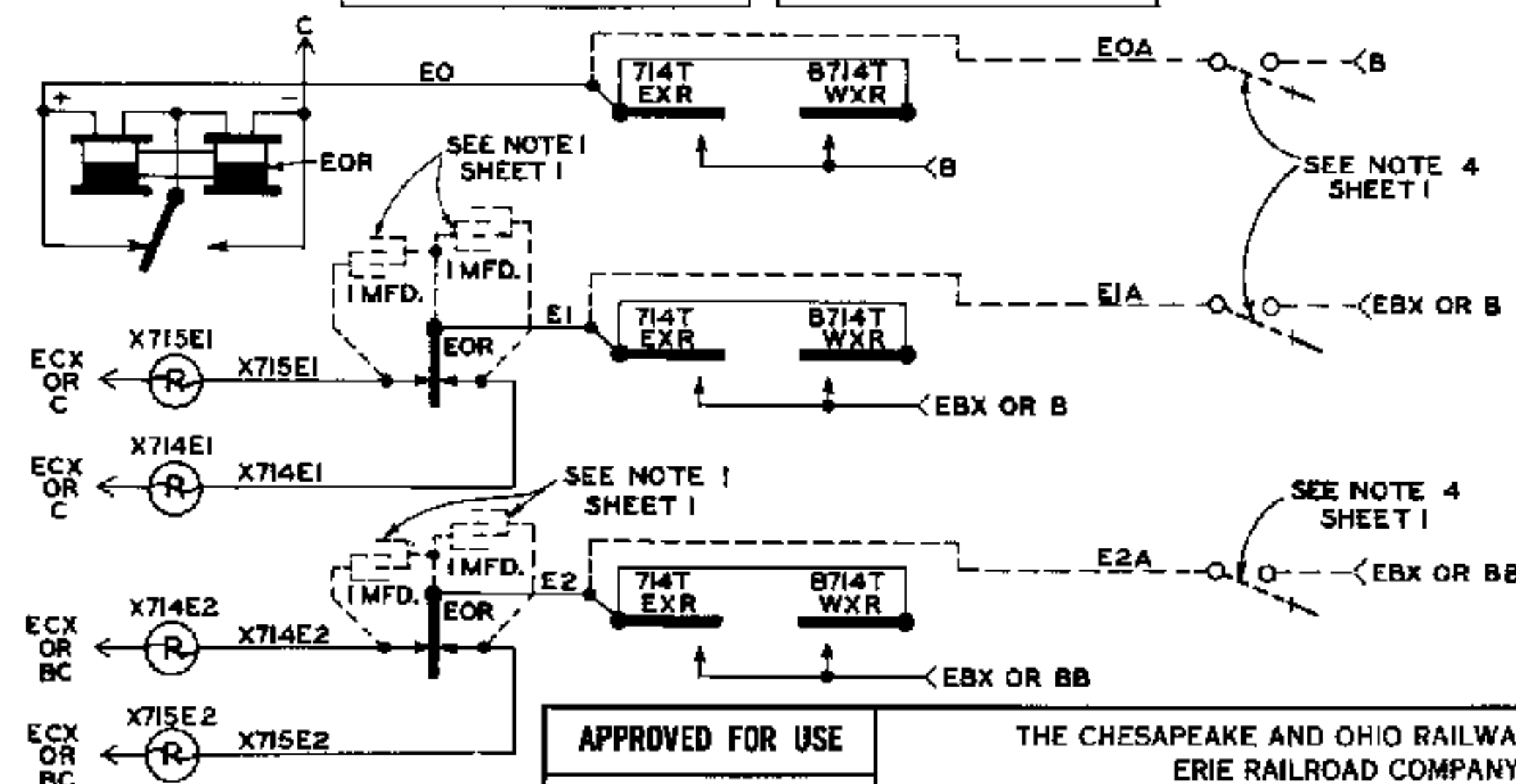
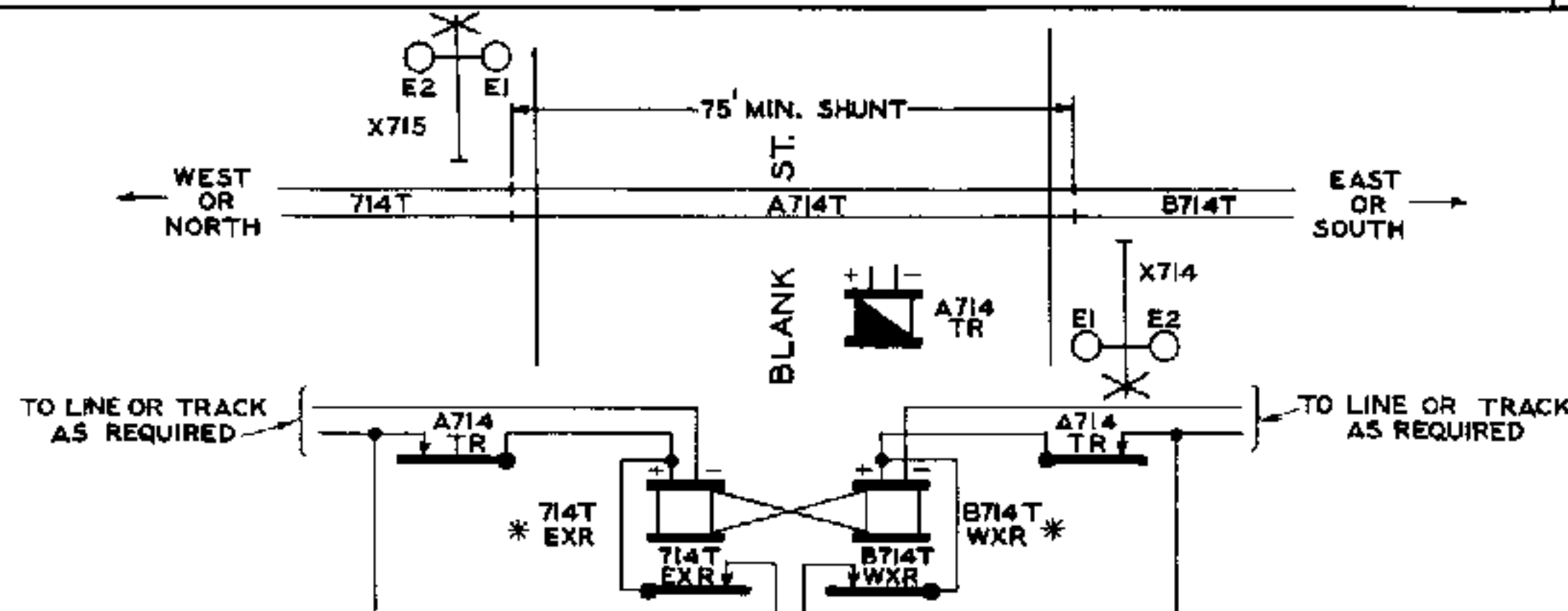
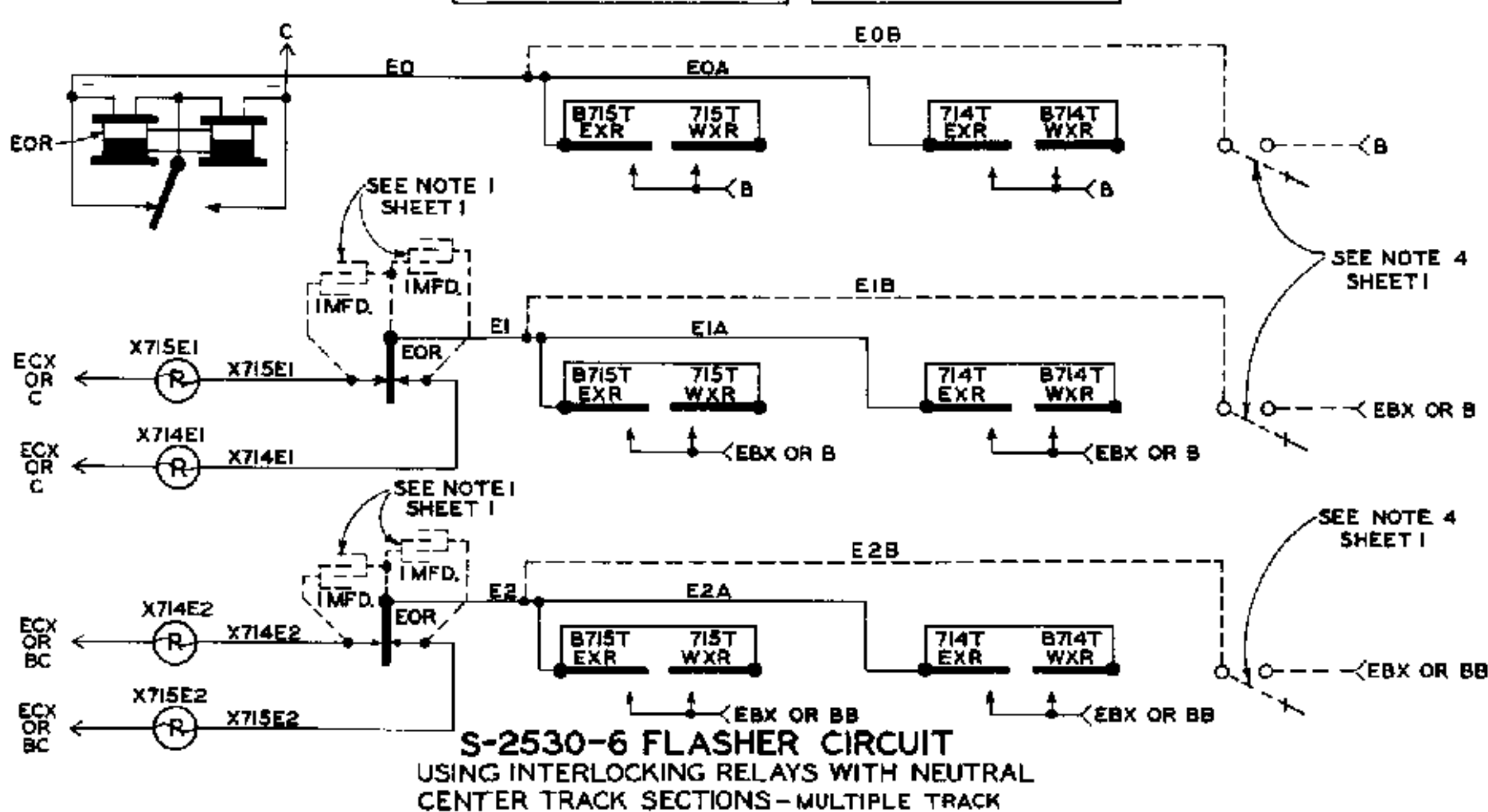
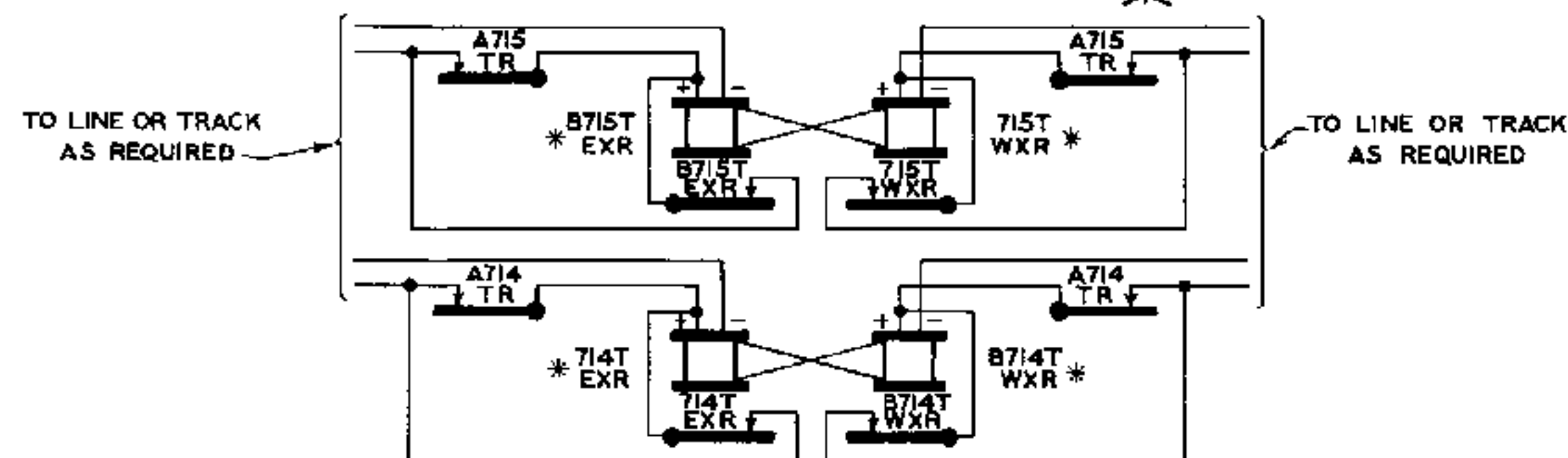
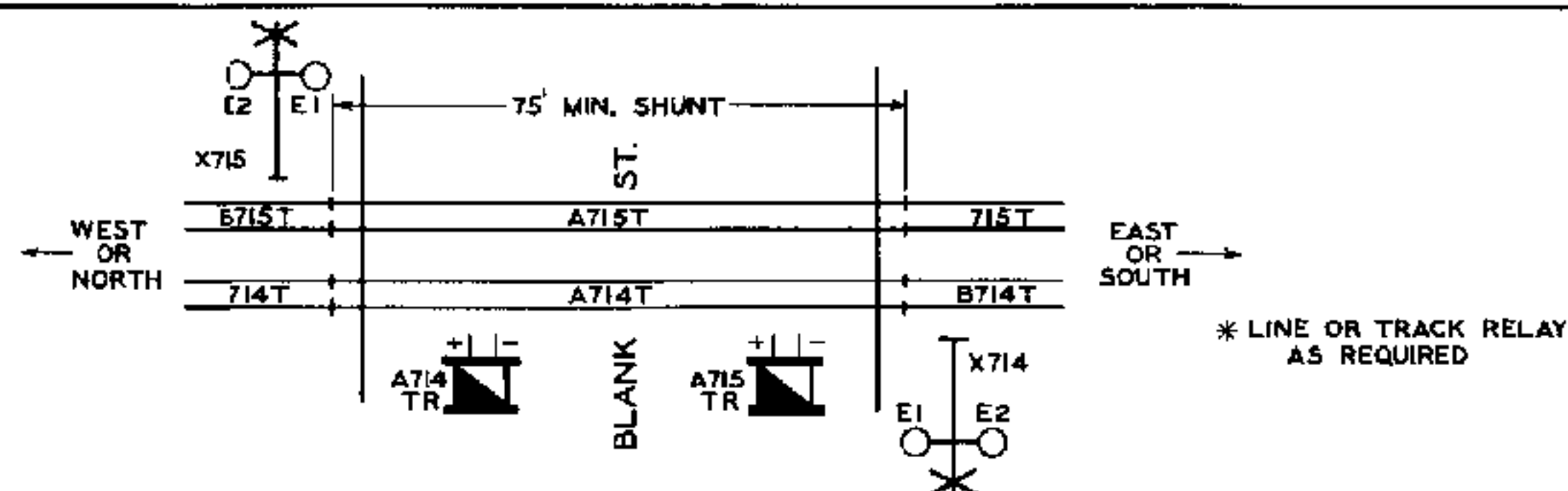
SHEET 3 OF 5

S-2530-B



APPARATUS
EOR = NF-2 OR EQUAL
TR = DN-11 " "
SR = " " "
ZR = " " "

APPROVED FOR USE		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY STANDARD TYPICAL HIGHWAY CROSSING SIGNAL CIRCUITS MAKE AND BREAK TYPE APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES NOV. 25, 1940 CHAIRMAN
THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>H. J. Barber</i> VICE PRESIDENT AND GENERAL MANAGER		
ERIE RAILROAD COMPANY <i>H. J. Barber</i> VICE PRESIDENT		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>H. J. Barber</i> VICE PRESIDENT		
PERE MARQUETTE RAILWAY COMPANY <i>H. J. Barber</i> VICE PRESIDENT		SHEET 4 OF 5 S-2530-B
K.L.M. K.L.M.	W.S.E. C.A.T.	



S-2530-7 FLASHER CIRCUIT
USING INTERLOCKING RELAY WITH NEUTRAL
CENTER TRACK SECTION
SINGLE TRACK

APPARATUS
XR = DX-13 OR EQUAL
EOR = NF-2 " "
TR = DN-11 " "

SEE NOTES ON SHEET 1

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
ERIE RAILROAD COMPANY		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
PERE MARQUETTE RAILWAY COMPANY		
C.H.W.	W.S.E.	C.A.T.
K.L.M.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

**STANDARD TYPICAL
HIGHWAY CROSSING
SIGNAL CIRCUITS**
MAKE AND BREAK TYPE

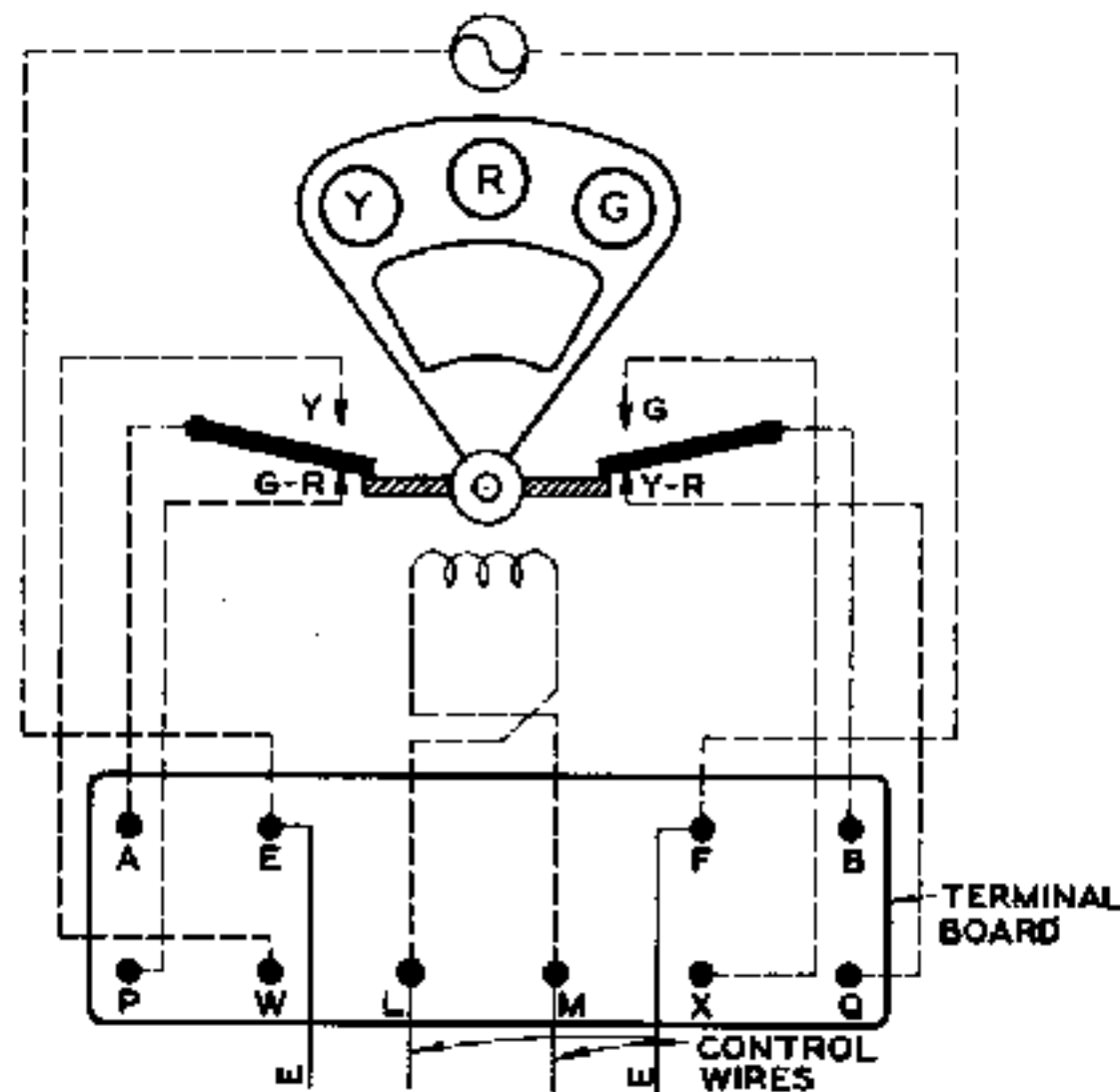
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

CHAIRMAN

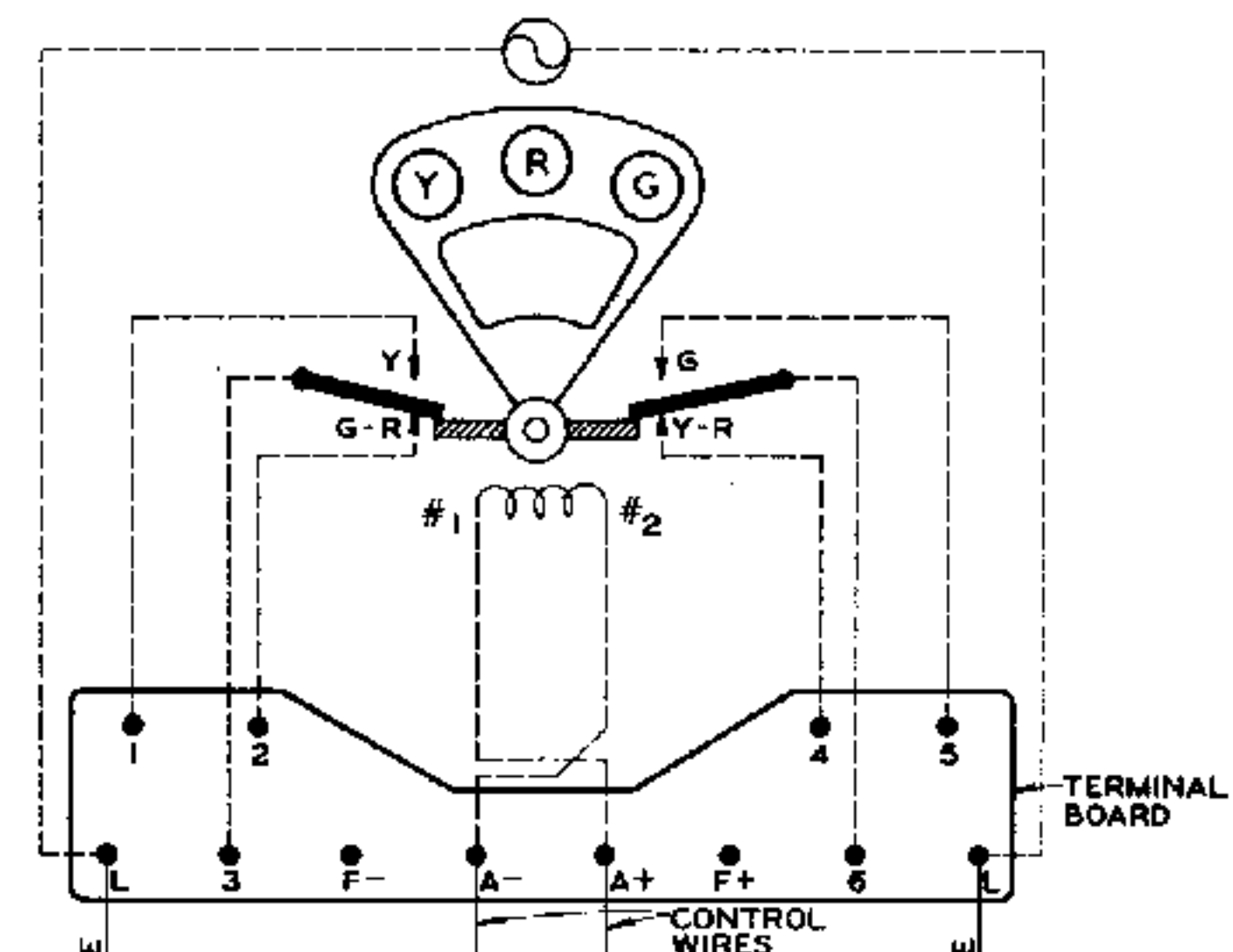
NOV. 25, 1940

SHEET 5 OF 5

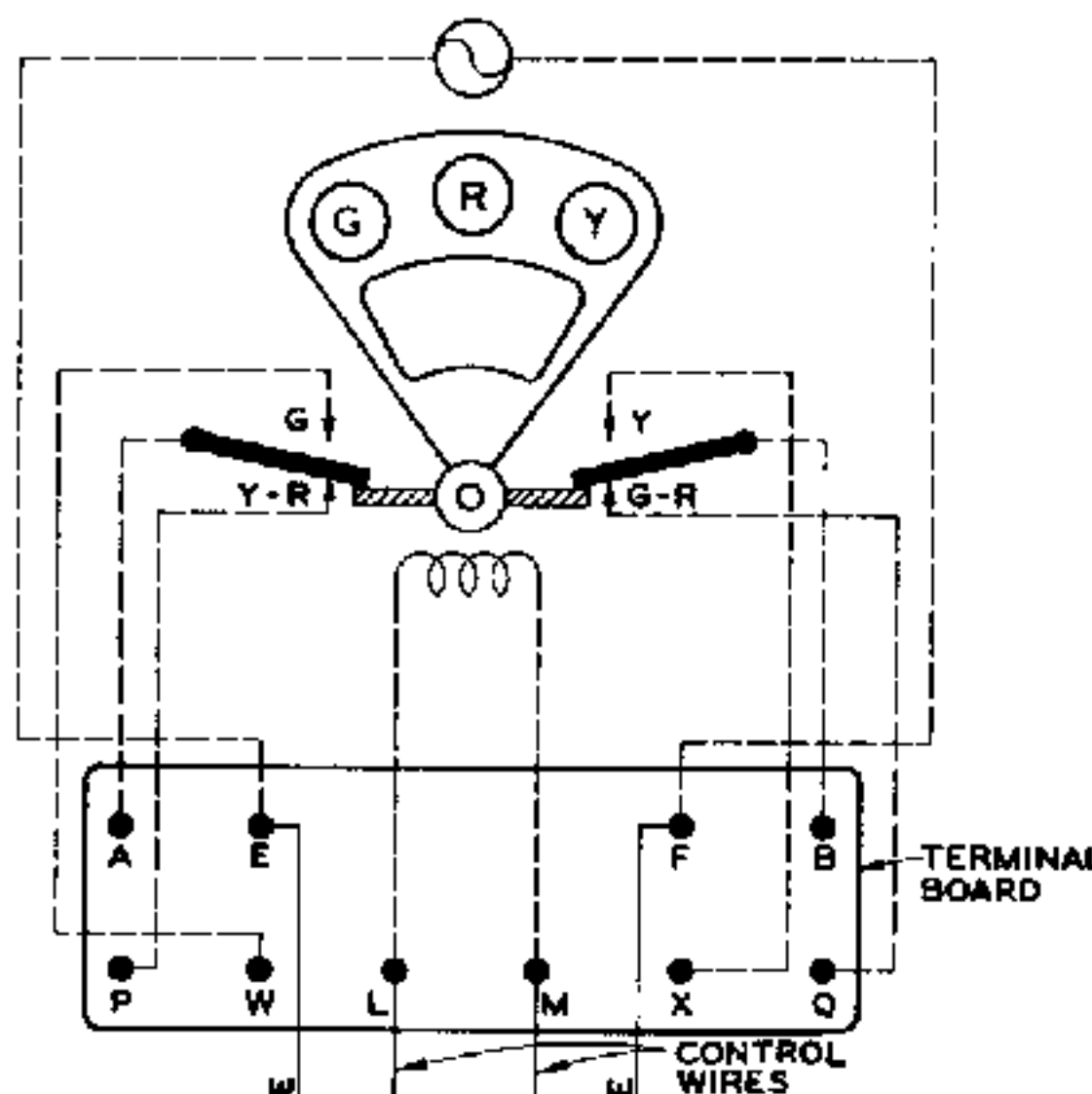
S-2530-B



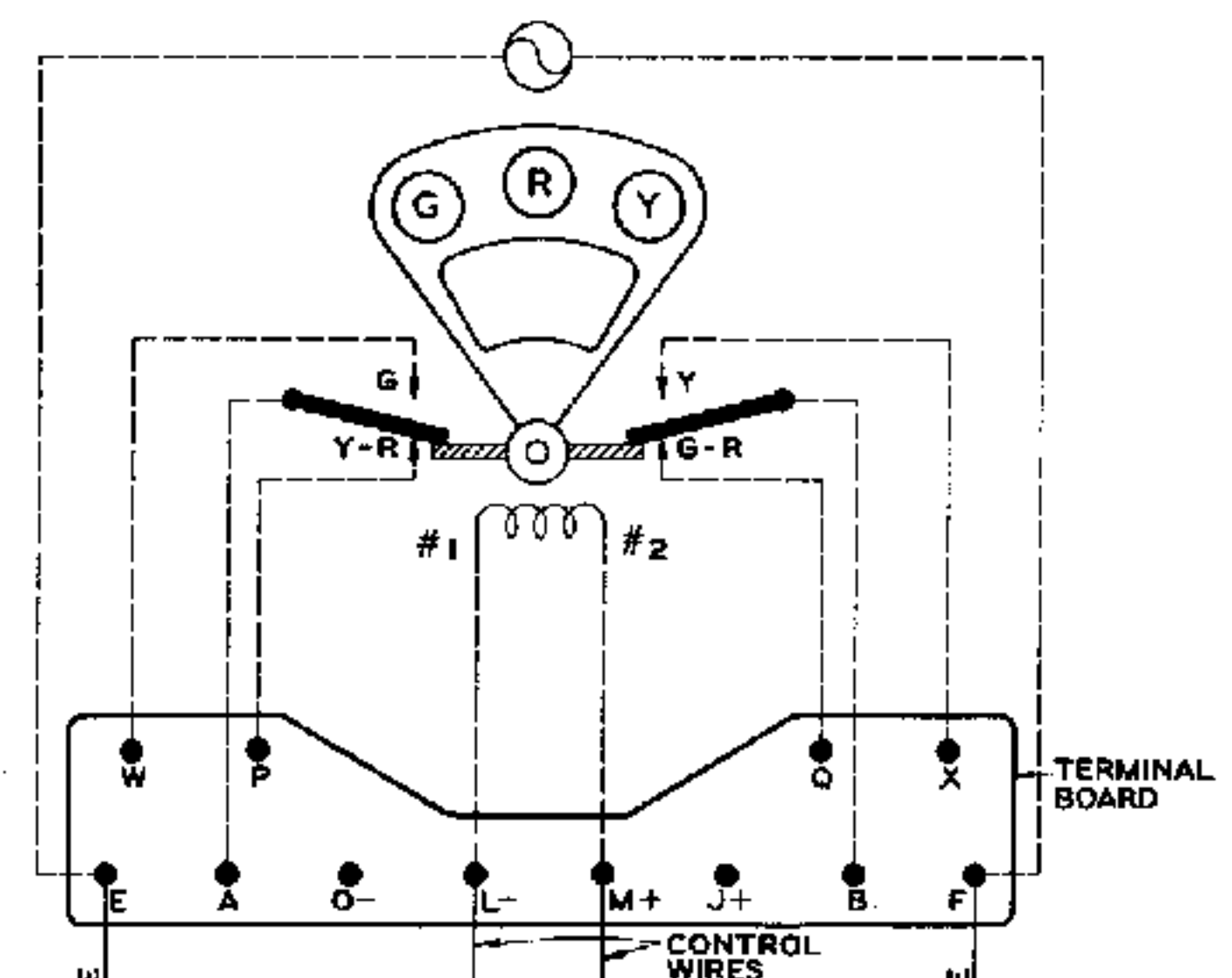
S-2542-1 WIRING FOR G.R.S. CO. SIGNAL
YELLOW TO LEFT - GREEN TO RIGHT



S-2542-2 WIRING FOR U.S. & S. CO. SIGNAL
YELLOW TO LEFT - GREEN TO RIGHT



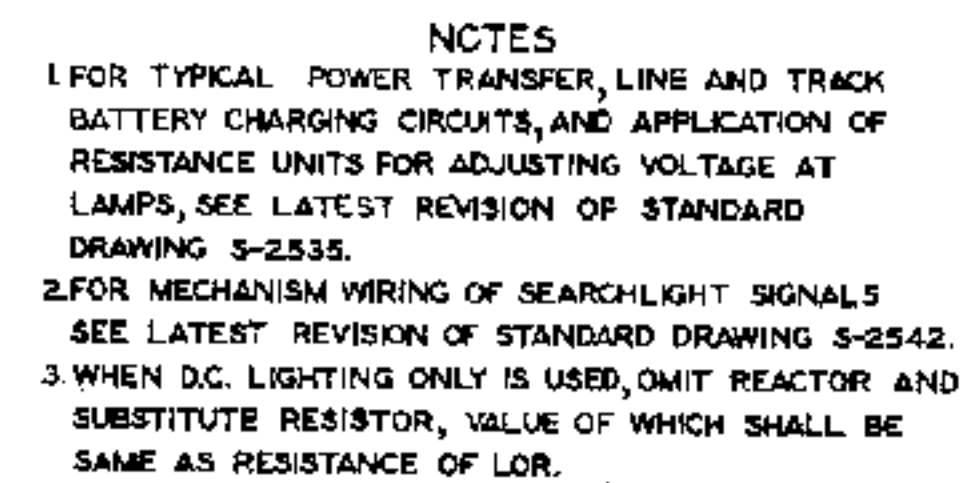
S-2542-3 WIRING FOR G.R.S. CO. SIGNAL
GREEN TO LEFT - YELLOW TO RIGHT



S-2542-4 WIRING FOR U.S. & S. CO. SIGNAL
GREEN TO LEFT - YELLOW TO RIGHT

- NOTES
1. THE SIGNAL WILL DISPLAY YELLOW WHEN POSITIVE BATTERY IS CONNECTED TO TERMINAL POST A+, DIAGRAM S-2542-2; TERMINAL POST M, DIAGRAMS S-2542-1 AND S-2542-3; OR M+, DIAGRAM S-2542-4. THE SIGNAL WILL DISPLAY GREEN WHEN NEGATIVE BATTERY IS CONNECTED TO TERMINAL POSTS DESIGNATED ABOVE.
 2. SIGNAL IS SHOWN IN DEENERGIZED POSITION.
 3. WIRING SHOWN DASHED IS FURNISHED BY THE MANUFACTURER.
 4. ROUNDELS AS SEEN FROM TERMINAL BOARD SIDE OF RELAY.

APPROVED FOR USE THE CHESAPEAKE AND OHIO RAILWAY COMPANY <i>H. C. ...</i> VICE PRESIDENT AND GENERAL MANAGER ERIE RAILROAD COMPANY <i>W. L. Woodruff</i> VICE PRESIDENT THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>W. B. ...</i> VICE PRESIDENT PERE MARQUETTE RAILWAY COMPANY <i>W. B. ...</i> VICE PRESIDENT		THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY	
STANDARD MECHANISM WIRING FOR SEARCHLIGHT SIGNALS		APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES <i>W. B. ...</i> CHIEF ENGINEER APPROVED: <i>W. B. ...</i> SEPT. 14, 1937	
C.H.W. C.B.P.		C.D.M. A.J.P.	



**S-2547-1 NEUTRAL TRACK, POLARIZED CONTROL
APPROACH LIGHTING**

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

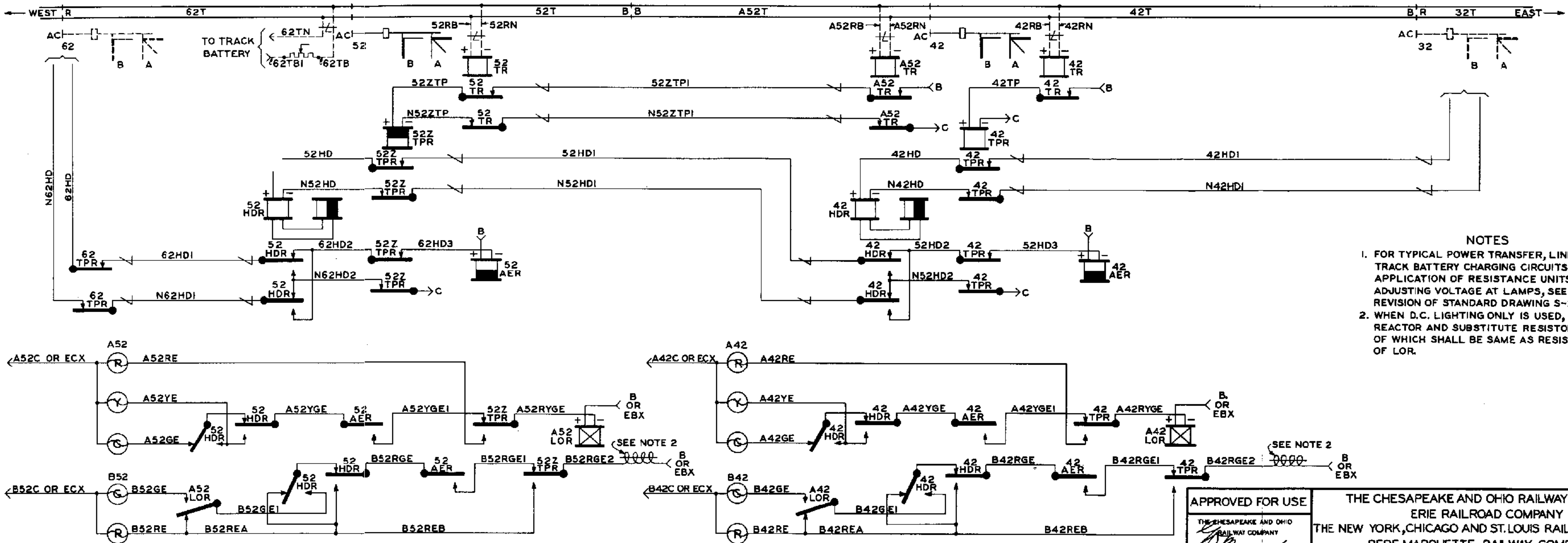
STANDARD

TYPICAL CIRCUITS FOR 3 BLOCK
 4 INDICATION AUTOMATIC
 SEARCHLIGHT SIGNALS

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: _____ SEPT. 14, 1937
 CHIEF ENGINEER

S-2547-A



- NOTES
1. FOR TYPICAL POWER TRANSFER, LINE AND TRACK BATTERY CHARGING CIRCUITS, AND APPLICATION OF RESISTANCE UNITS FOR ADJUSTING VOLTAGE AT LAMPS, SEE LATEST REVISION OF STANDARD DRAWING S-2535.
 2. WHEN D.C. LIGHTING ONLY IS USED, OMIT REACTOR AND SUBSTITUTE RESISTOR, VALUE OF WHICH SHALL BE SAME AS RESISTANCE OF LOR.

S-2548-I NEUTRAL TRACK, POLARIZED LINE CONTROL
APPROACH LIGHTING

APPARATUS

HDR = DP-21 OR EQUAL
 AER = DN-22 " "
 ZTPR = DN-18 " "
 LOR = ANL-2 " "
 TPR = DN-11 " "
 TR = DN-11 " "
 REACTOR = VT-10 OR EQUAL. IMPEDANCE AND D.C. RESISTANCE SAME AS LOR. SEE NOTE 2.

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
[Signature]
 VICE PRESIDENT

ERIE RAILROAD COMPANY
[Signature]
 VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
[Signature]
 VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY
[Signature]
 VICE PRESIDENT

K.L.M. C.D.M. A.J.P.
 C.B.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

STANDARD
 TYPICAL CIRCUITS FOR 3 BLOCK
 4 INDICATION AUTOMATIC
 COLOR LIGHT SIGNALS

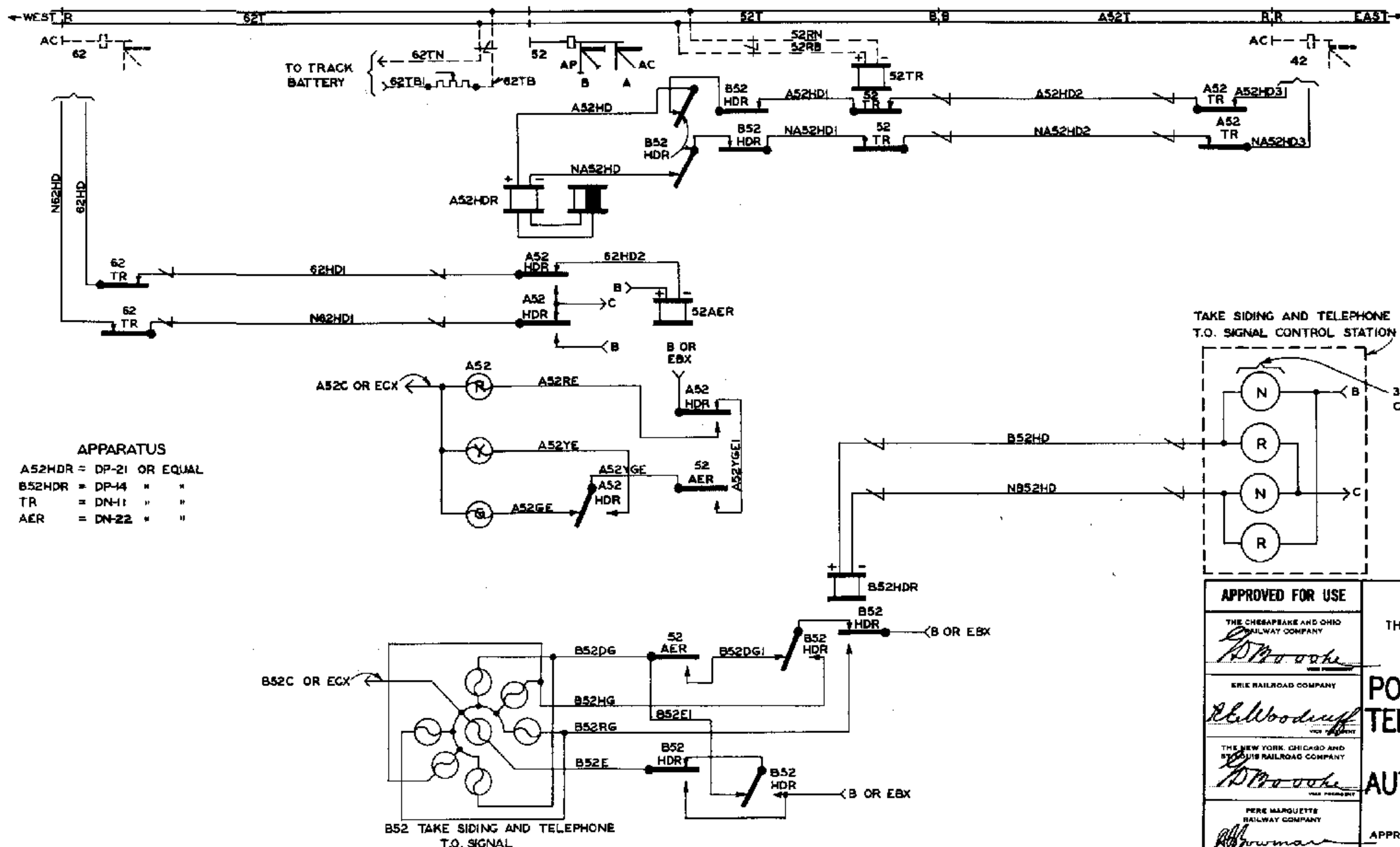
APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]*
 CHIEF ENGINEER

JUNE 10, 1935

SHEET 1 OF 2

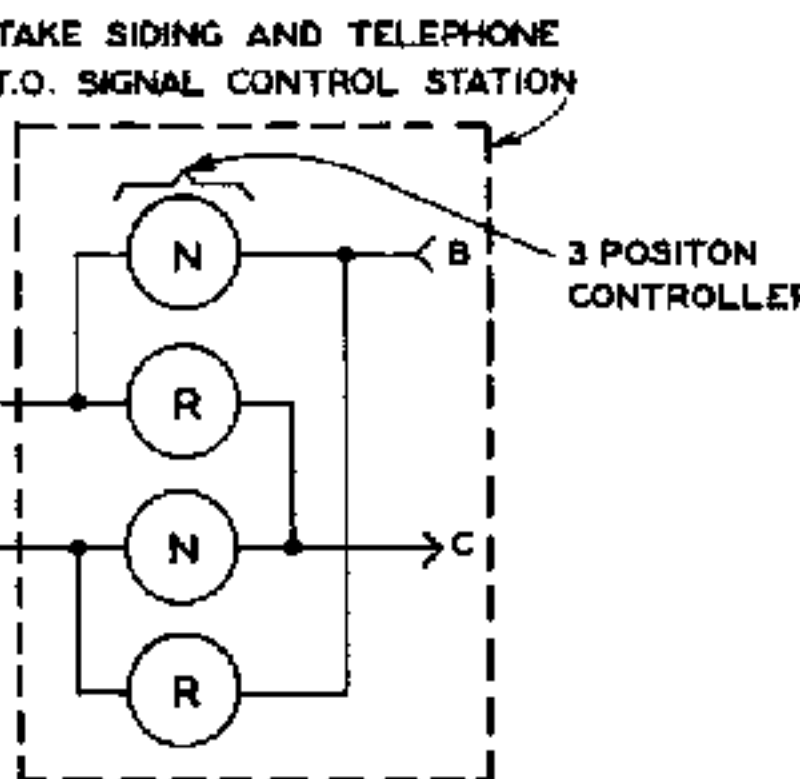
S-2548



NOTE
 FOR TYPICAL POWER TRANSFER, LINE
 AND TRACK BATTERY CHARGING CIRCUITS
 AND APPLICATION OF RESISTANCE UNITS
 FOR ADJUSTING VOLTAGE AT LAMPS, SEE
 LATEST REVISION OF STANDARD DRAWING
 S-2535.

- APPARATUS
- A52HDR = DP-21 OR EQUAL
 - B52HDR = DP-14 " "
 - TR = DN-11 " "
 - AER = DN-22 " "

S-2555-1 POLARIZED LINE CONTROL
 APPROACH LIGHTING



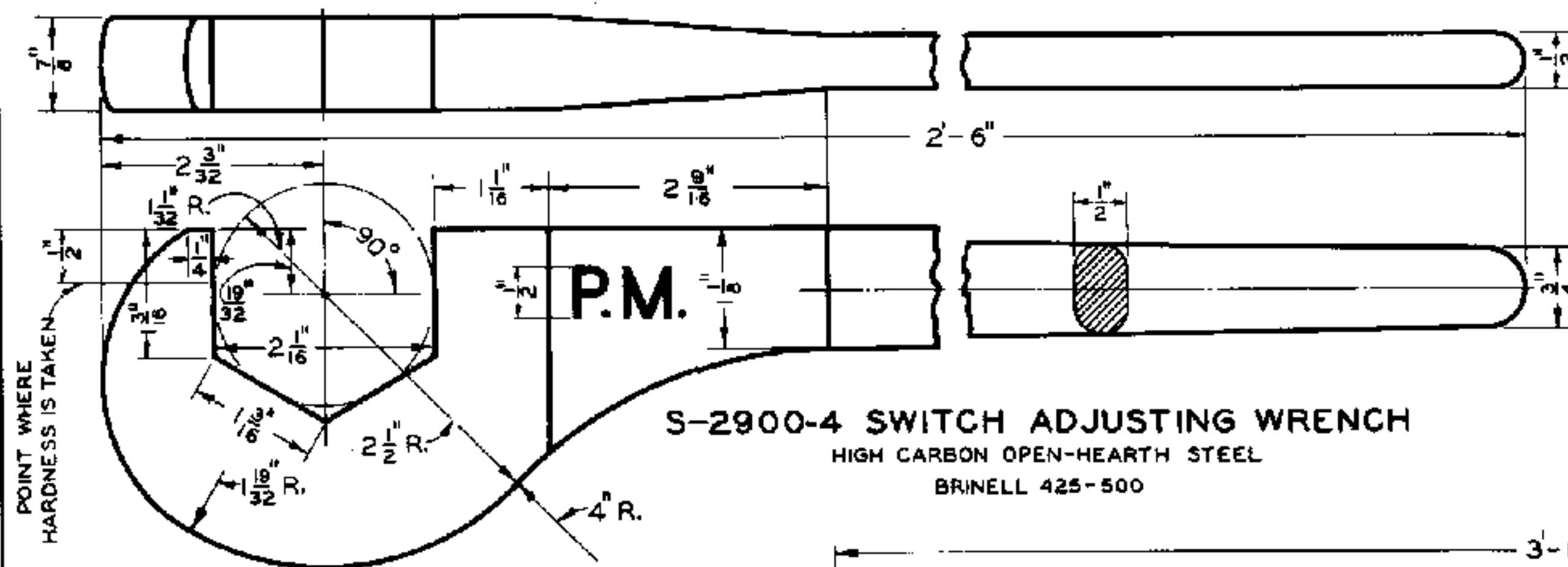
APPROVED FOR USE	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	<i>[Signature]</i>
ERIE RAILROAD COMPANY	<i>[Signature]</i>
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	<i>[Signature]</i>
PERE MARQUETTE RAILWAY COMPANY	<i>[Signature]</i>
K.L.M.	C.D.M. A.J.P.
C.H.W.	

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
 ERIE RAILROAD COMPANY
 THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
 PERE MARQUETTE RAILWAY COMPANY

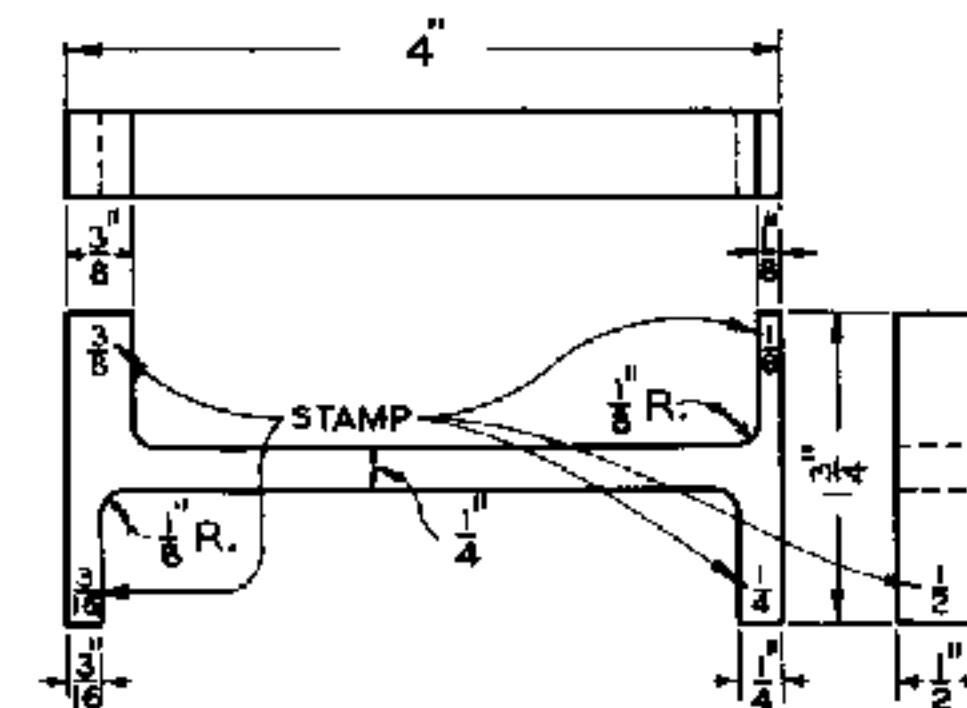
**STANDARD TYPICAL CIRCUITS FOR
 POSITION LIGHT TAKE SIDING AND
 TELEPHONE TRAIN ORDER SIGNAL
 WITH 2 BLOCK 3 INDICATION
 AUTOMATIC COLOR LIGHT SIGNALS**

APPROVED BY
 ADVISORY COMMITTEE ON WAY AND STRUCTURES
 APPROVED: *[Signature]* JUNE 12, 1935
 CHIEF ENGINEER

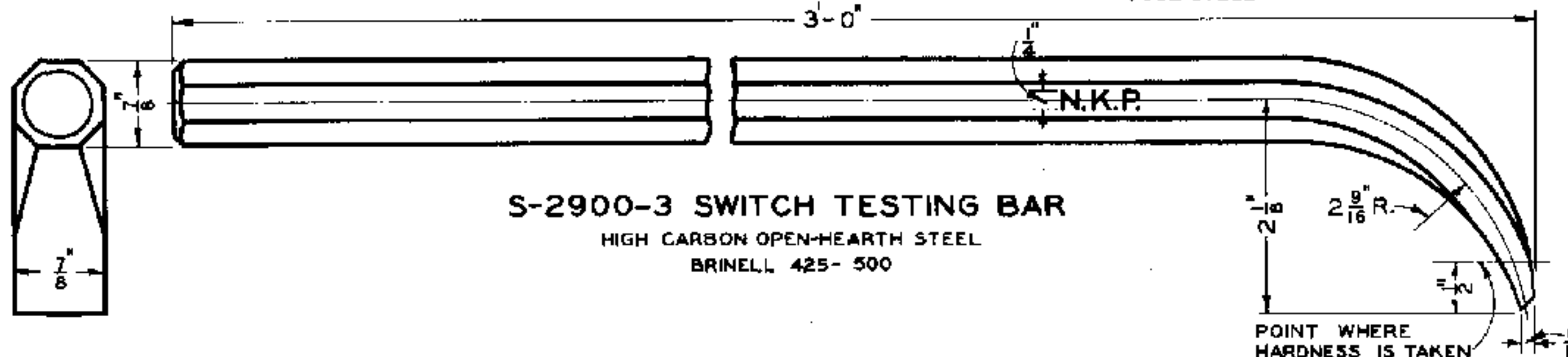
S-2555



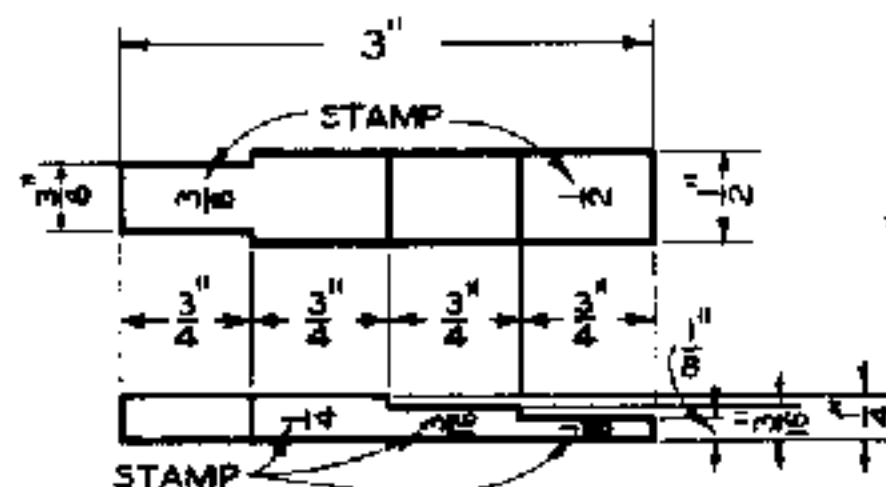
S-2900-4 SWITCH ADJUSTING WRENCH
HIGH CARBON OPEN-HEARTH STEEL
BRINELL 425-500



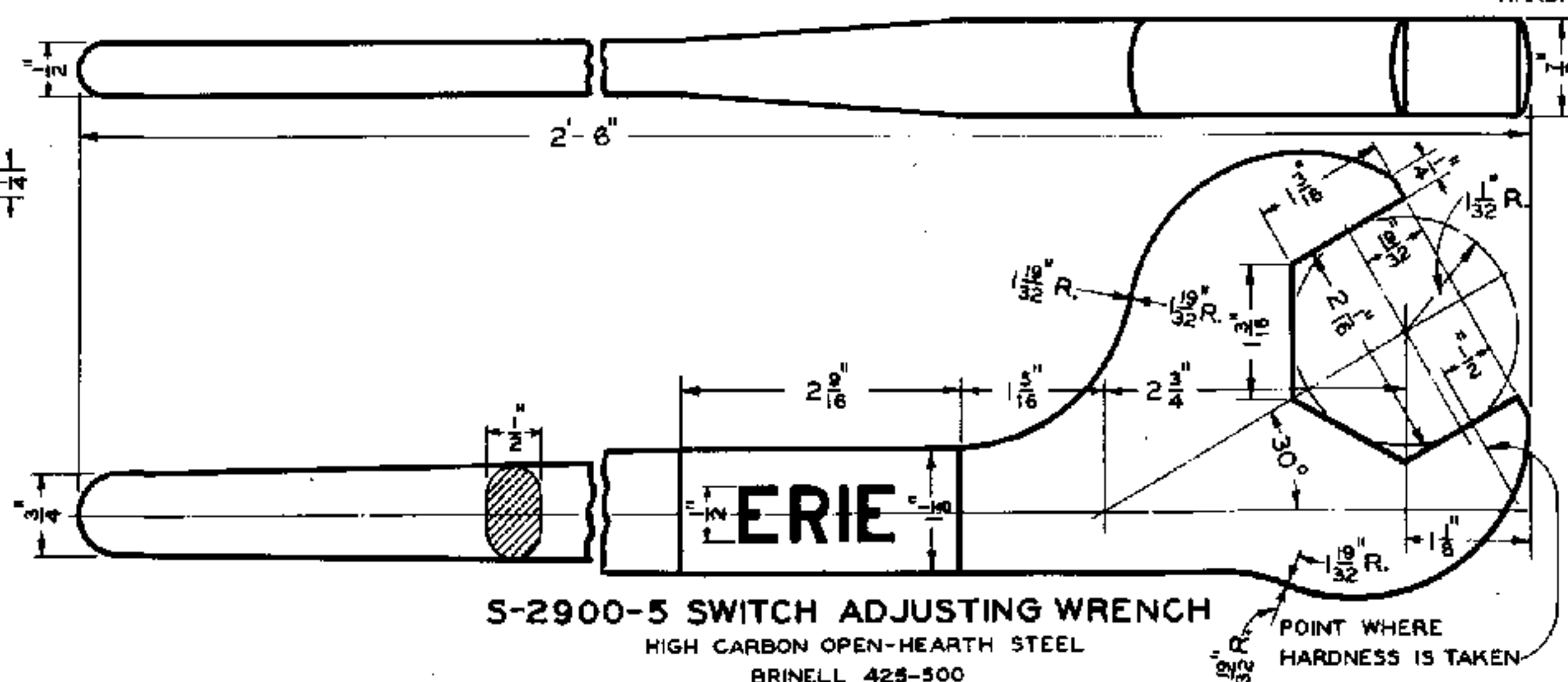
S-2900-1 SWITCH OBSTRUCTION GAGE
(H TYPE)
TOOL STEEL



S-2900-3 SWITCH TESTING BAR
HIGH CARBON OPEN-HEARTH STEEL
BRINELL 425-500



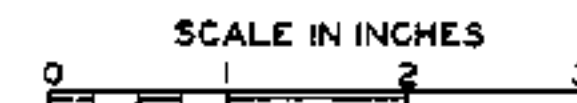
S-2900-2 SWITCH OBSTRUCTION GAGE
(STRAIGHT TYPE)
TOOL STEEL



S-2900-5 SWITCH ADJUSTING WRENCH
HIGH CARBON OPEN-HEARTH STEEL
BRINELL 425-500

NOTES

- NAME OR INITIALS OF RAILROAD SHALL BE STAMPED ON SWITCH ADJUSTING WRENCHES AND TESTING BAR AS FOLLOWS:
CHESAPEAKE AND OHIO _____ C. & O.
ERIE _____ ERIE
NICKEL PLATE _____ N.K.P.
PERE MARQUETTE _____ P.M.
- GAGES SHALL BE MADE OF TOOL STEEL MACHINED TO .005" OVERSIZE AND FINISHED BY FILING.
- GAGES SHALL BE TEMPERED BY HEATING IN ELECTRIC FURNACE, OIL QUENCHING AND REHEATING TO REMOVE BRITTLINESS.
- SWITCH ADJUSTING WRENCH JAW SHALL BE MILLED TO EXACT DIMENSIONS SHOWN.
- ONE WRENCH SHALL BE TESTED FROM EACH LOT OF FIVE DOZEN OR LESS BY APPLYING A LOAD OF 300 POUNDS AT A POINT DISTANT FROM THE JAW END EQUAL TO 95 PER CENT OF THE TOTAL LENGTH ONE MINUTE WITHOUT ANY SPREAD OF JAW OR PERMANENT SET IN HANDLE.
- ONE SWITCH TESTING BAR SHALL BE TESTED FROM EACH LOT OF FIVE DOZEN OR LESS BY APPLYING A LOAD OF 200 POUNDS AT A POINT DISTANT FROM THE CURVED END EQUAL TO 95 PER CENT OF THE TOTAL LENGTH ONE MINUTE WITHOUT ANY PERMANENT SET.
- TOLERANCE FOR SWITCH ADJUSTING WRENCHES AND TESTING BAR: 2 PER CENT ON LENGTH AND 5 PER CENT ON CROSS SECTION.



APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

R. D. Moore
VICE PRESIDENT

ERIE RAILROAD COMPANY

R. L. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

R. D. Moore
VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

J. H. Brown
VICE PRESIDENT

C.H.W. C.D.M. A.J.P.

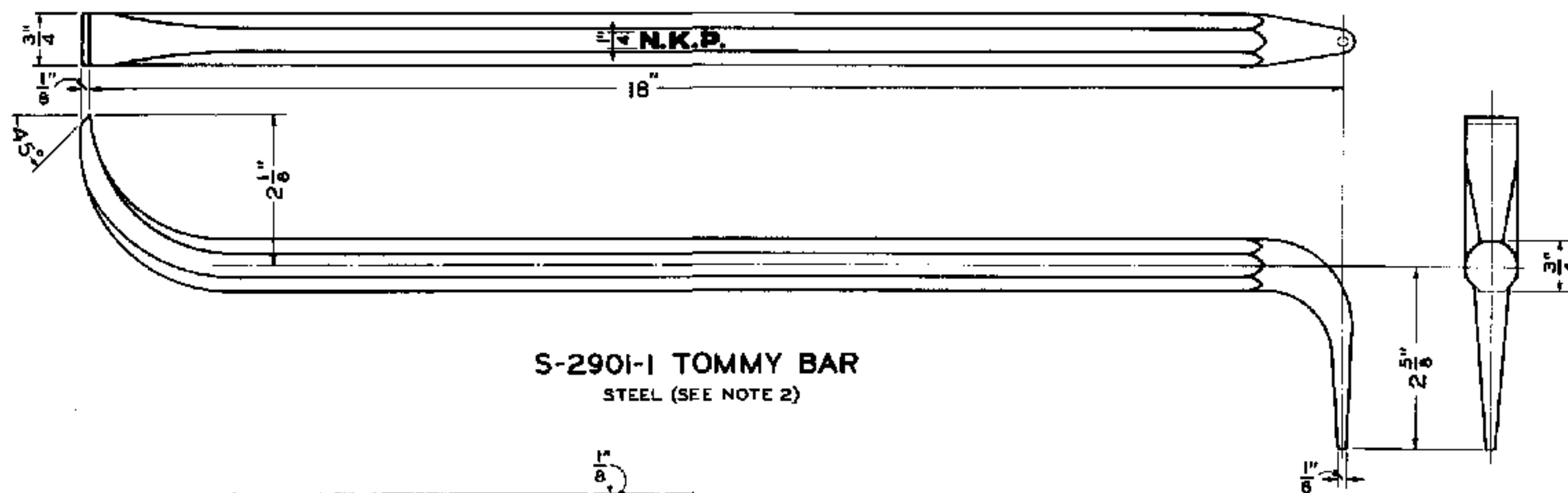
C.H.W. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

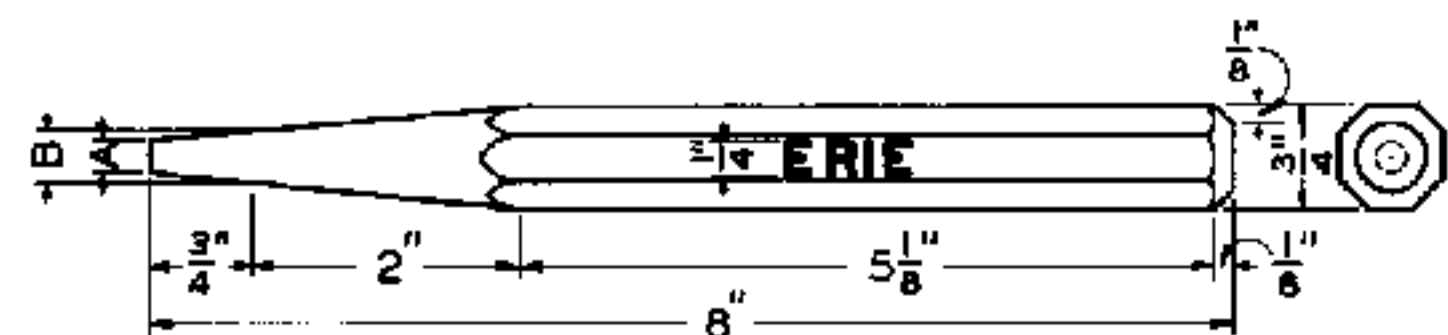
STANDARD SWITCH TESTING BAR, ADJUSTING WRENCHES, AND OBSTRUCTION GAGES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *C. H. Woodruff* APRIL 17, 1934
CHIEF ENGINEER

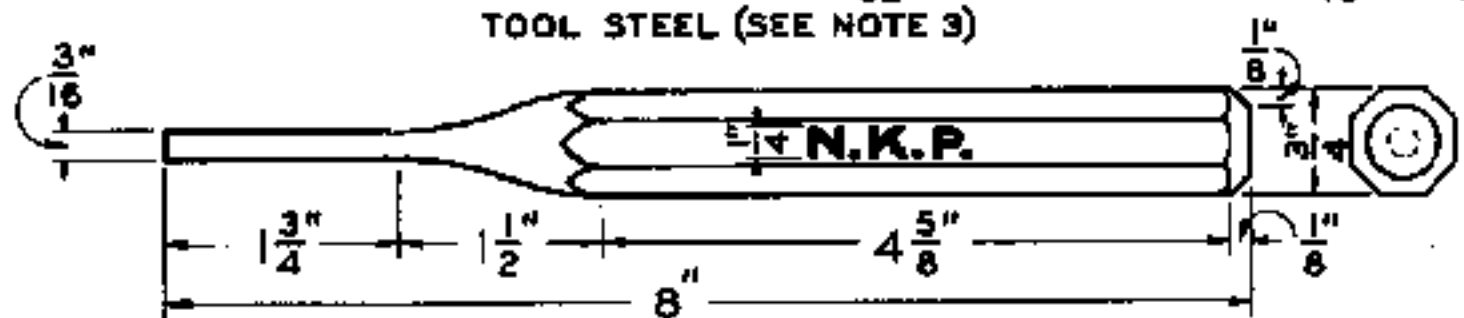
S-2900



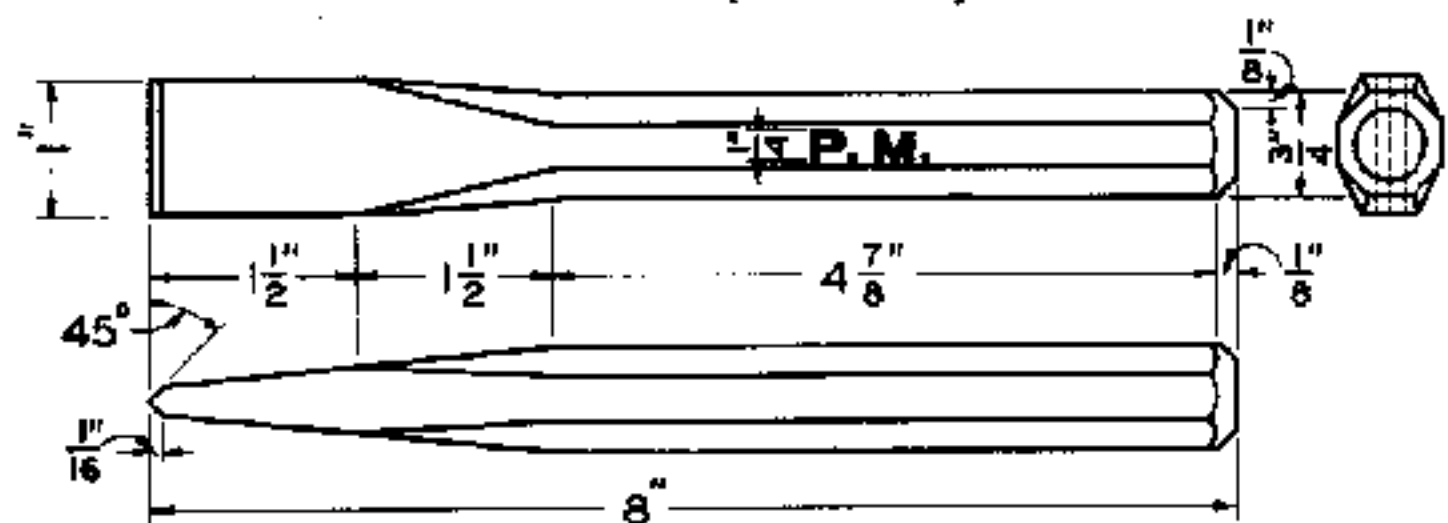
S-2901-1 TOMMY BAR
STEEL (SEE NOTE 2)



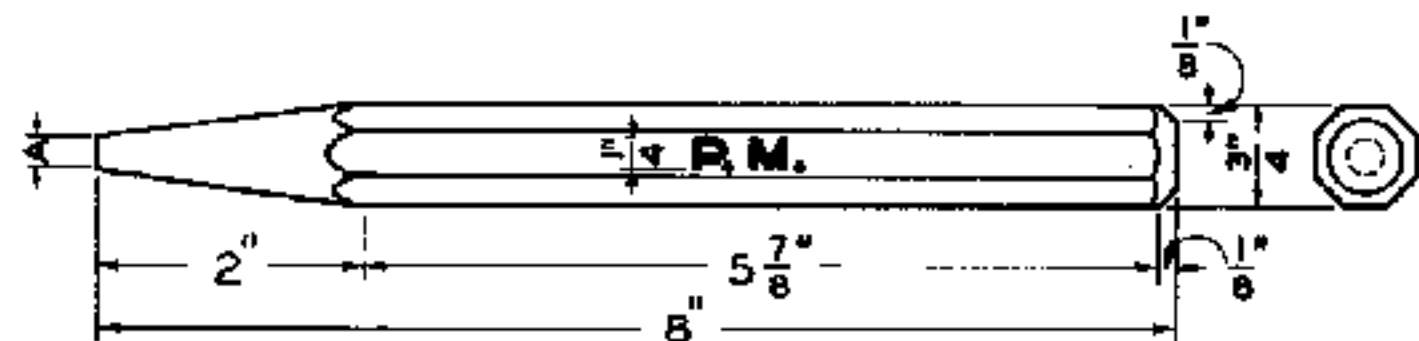
S-2901-2 DRIFT PUNCH FOR $\frac{3}{8}$ " CHANNEL PIN, $A = \frac{3}{32}$ ", $B = \frac{3}{8}$ "
S-2901-3 DRIFT PUNCH FOR $\frac{9}{32}$ " CHANNEL PIN, $A = \frac{3}{16}$ ", $B = \frac{9}{32}$ "
TOOL STEEL (SEE NOTE 3)



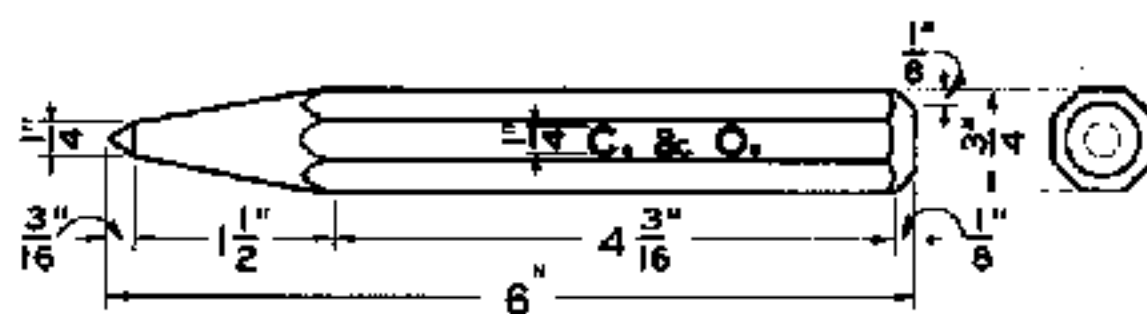
S-2901-6 DRIFT PUNCH FOR PIPE RIVET
TOOL STEEL (SEE NOTE 3)



S-2901-8 COLD CHISEL
TOOL STEEL (SEE NOTE 3)



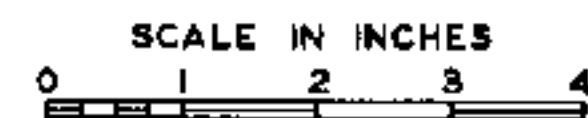
S-2901-4 STARTING PUNCH FOR $\frac{3}{8}$ " CHANNEL PIN, $A = \frac{11}{32}$ "
S-2901-5 STARTING PUNCH FOR $\frac{9}{32}$ " CHANNEL PIN, $A = \frac{1}{4}$ "
TOOL STEEL (SEE NOTE 3)



S-2901-7 CENTER PUNCH
TOOL STEEL (SEE NOTE 3)

NOTES

1. NAME OR INITIALS OF RAILROAD SHALL BE STAMPED ON TOMMY BAR, CENTER PUNCH, COLD CHISEL, AND PUNCHES AS FOLLOWS:
CHESAPEAKE AND OHIO _____ C. & O.
ERIE _____ ERIE
NICKEL PLATE _____ N. K. P.
PERE MARQUETTE _____ P. M.
2. TOMMY BAR SHALL BE MADE OF STEEL OF SUCH QUALITY TO INSURE TOUGHNESS WHEN HARDENED AND DRAWN. THE BRINELL HARDNESS $\frac{1}{2}$ INCH FROM POINTS SHALL BE 375-450.
3. COLD CHISEL AND PUNCHES SHALL BE MADE OF TOOL STEEL SUITABLE FOR COLD WORKING TOOLS. THEY SHALL BE HARDENED AND DRAWN TO GIVE HARDNESS AS FOLLOWS:
 $\frac{1}{2}$ INCH FROM POINTS, BRINELL 477-532
 $\frac{1}{2}$ INCH FROM HEADS, BRINELL 285-340



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ERIE RAILROAD COMPANY

[Signature]
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

[Signature]
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

[Signature]
VICE PRESIDENT

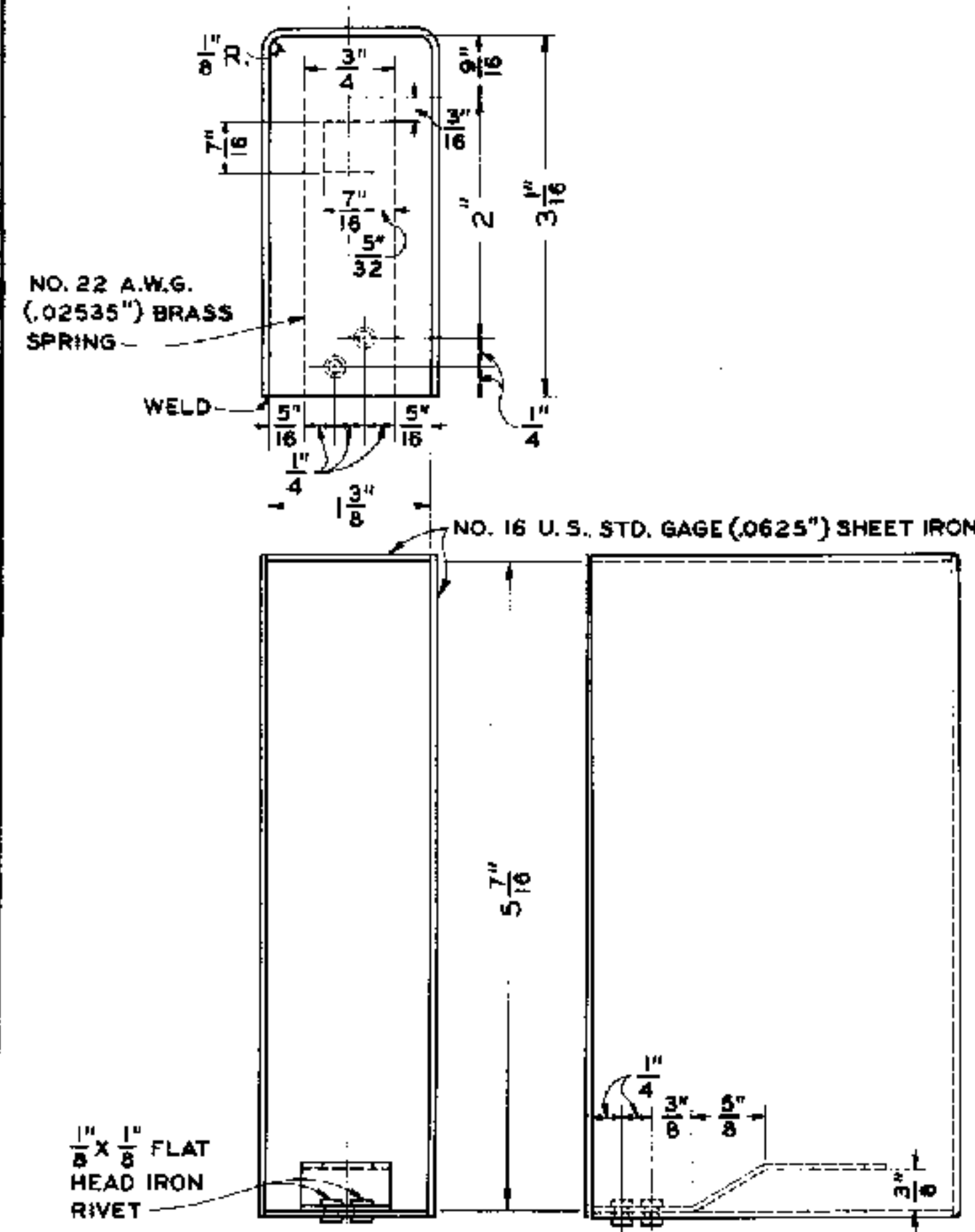
C. H. W. C. D. M. A. J. P.
C. B. P.

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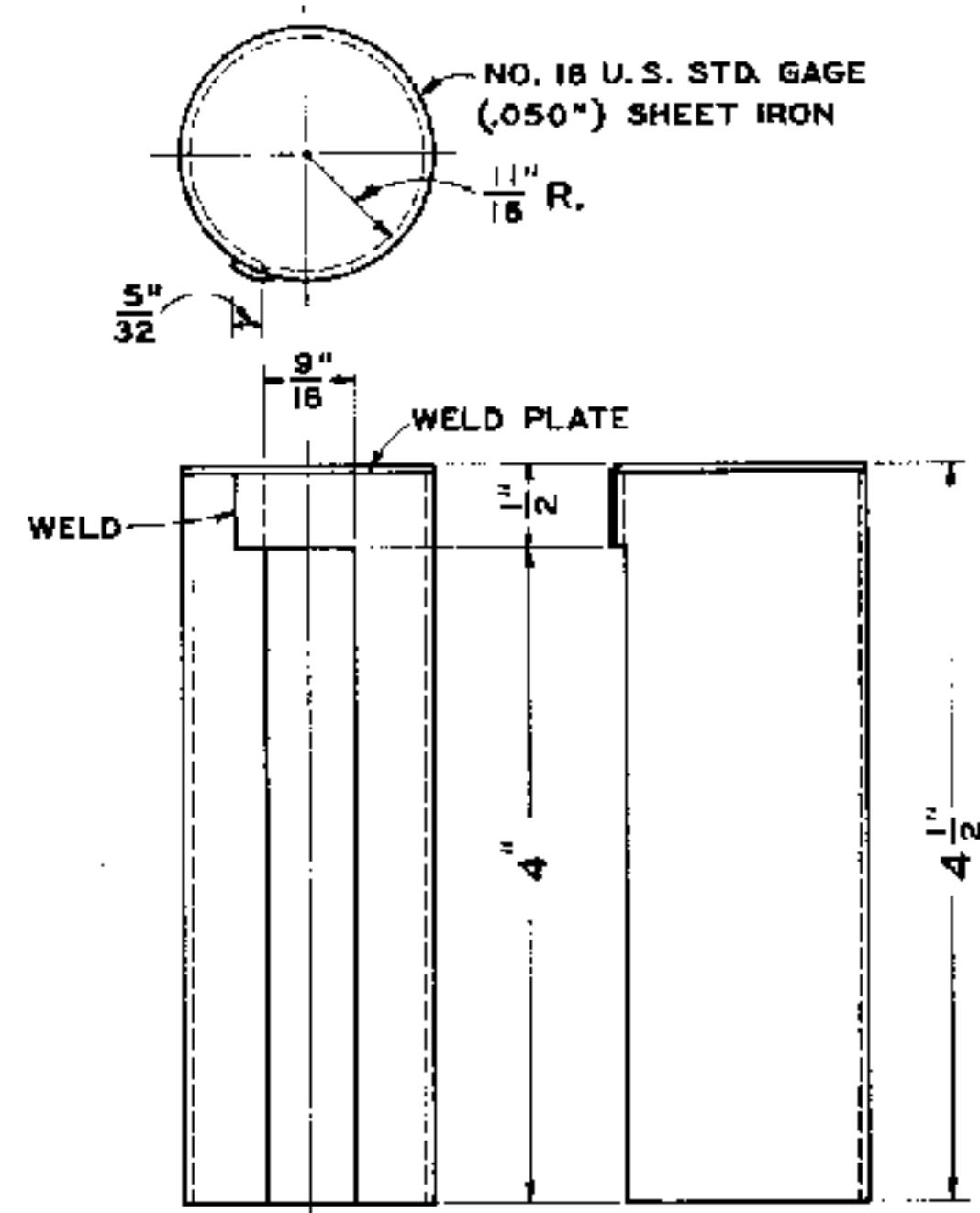
STANDARD SMALL TOOLS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 15, 1937
CHIEF ENGINEER

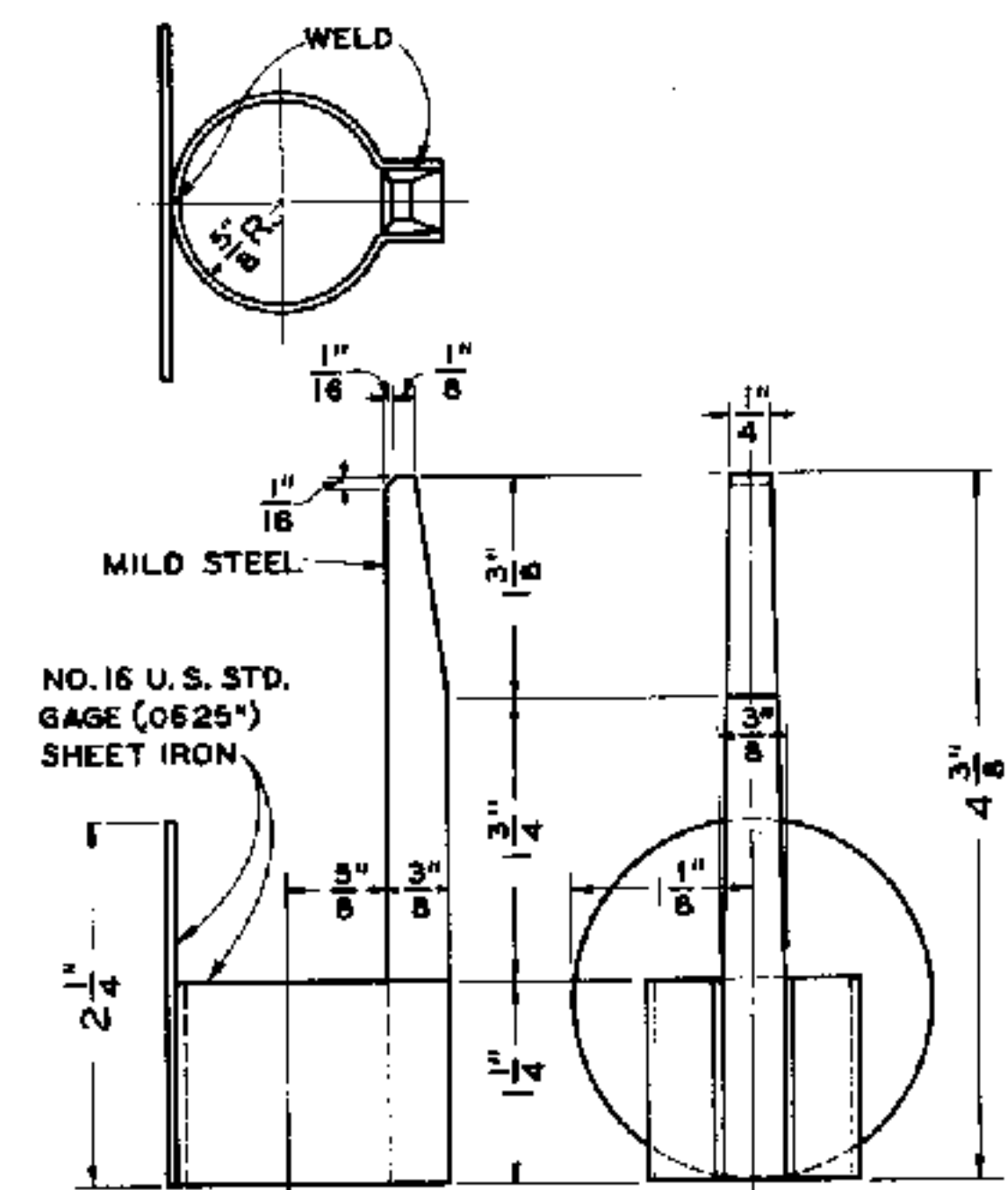
S-2901



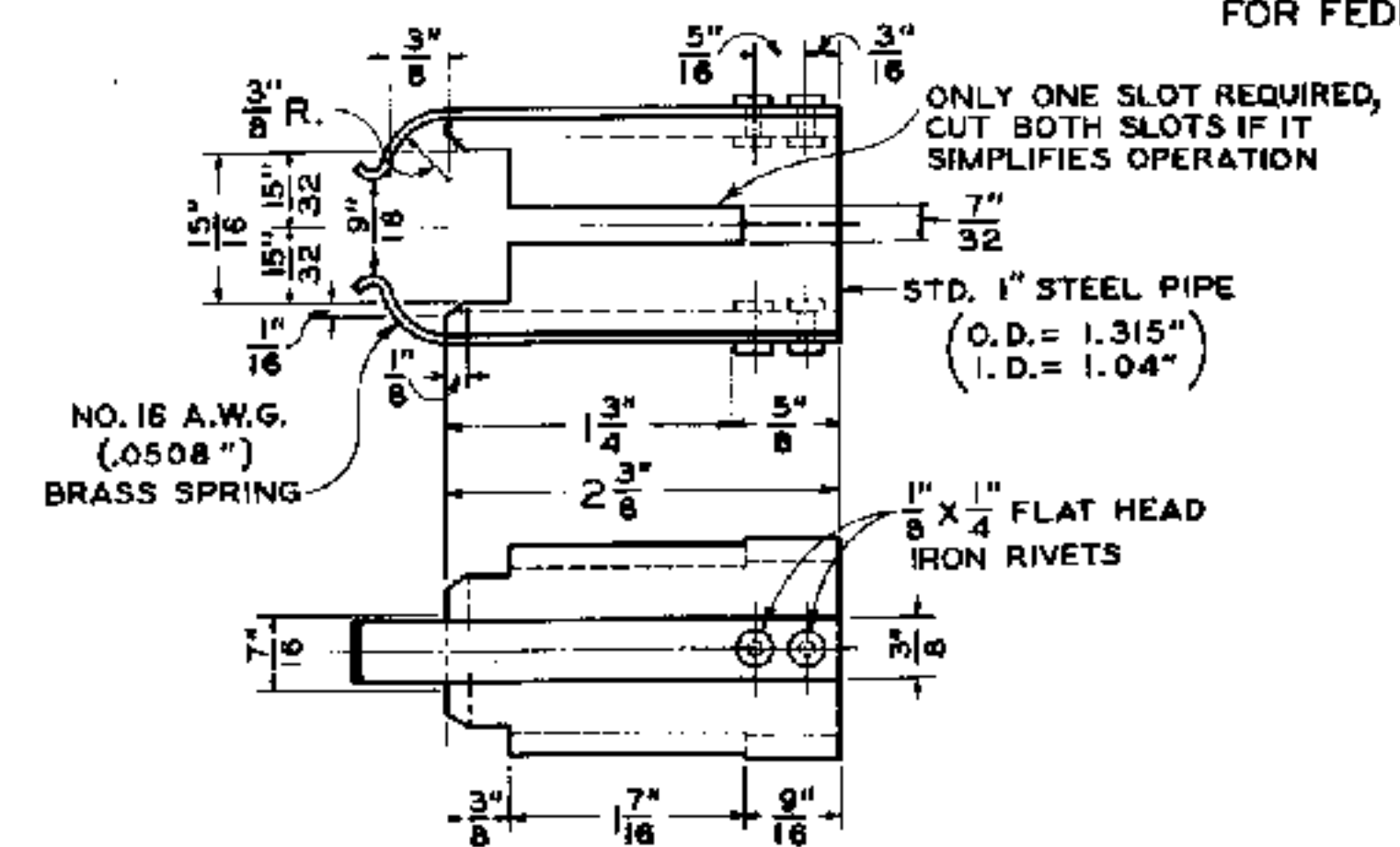
S-2907-5 LEVER BLOCK
FOR G.R.S. CO. MODEL 2 UNIT LEVER TYPE



S-2907-6 LEVER BLOCK
FOR G.R.S. CO. MODEL 2 LEVER



S-2907-7 LEVER BLOCK
FOR FEDERAL TYPE ELECTRIC LEVER



S-2907-8 LEVER BLOCK
FOR U.S. & S. CO. THUMB PIECE TYPE LEVERS

NOTE
ALL PARTS SHALL BE PAINTED RED.



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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE RAILWAY COMPANY

STANDARD

BLOCKING DEVICES FOR INTERLOCKING MACHINE LEVERS

APPROVED BY

ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]* CHIEF ENGINEER

C. H. W. C. B. P. C. D. M. A. J. P.

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ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

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STANDARD

BLOCKING DEVICES FOR INTERLOCKING MACHINE LEVERS

APPROVED BY

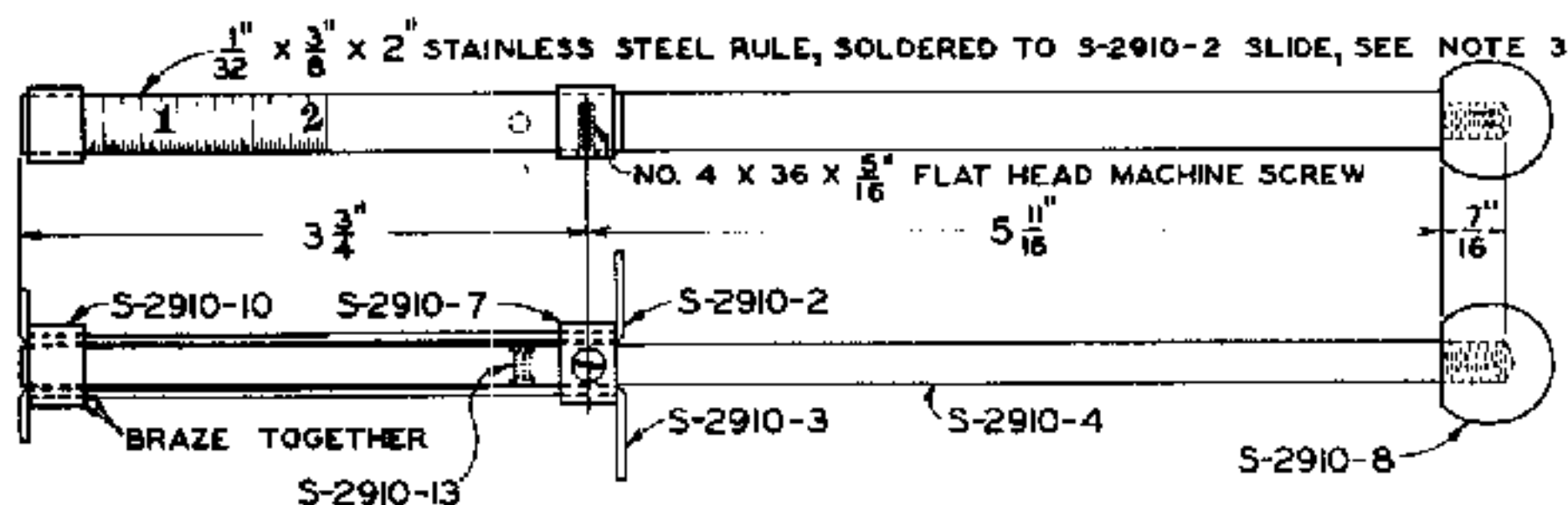
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *[Signature]* CHIEF ENGINEER

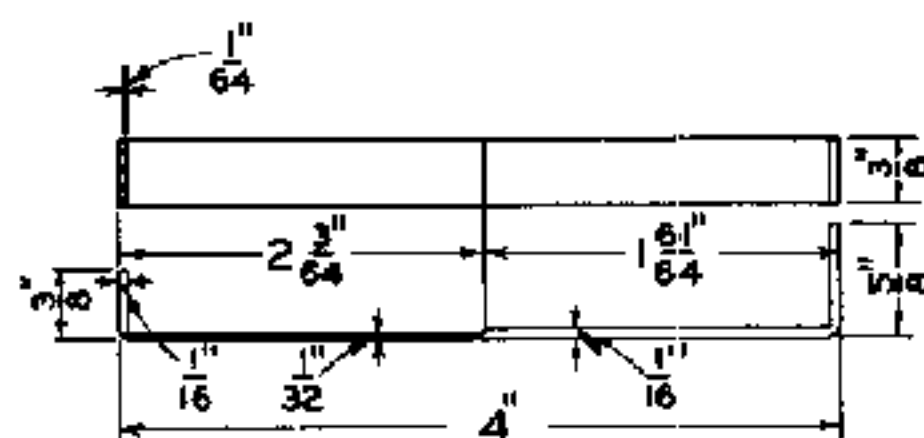
JUNE 22, 1927

SHEET 2 OF 2

S-2907



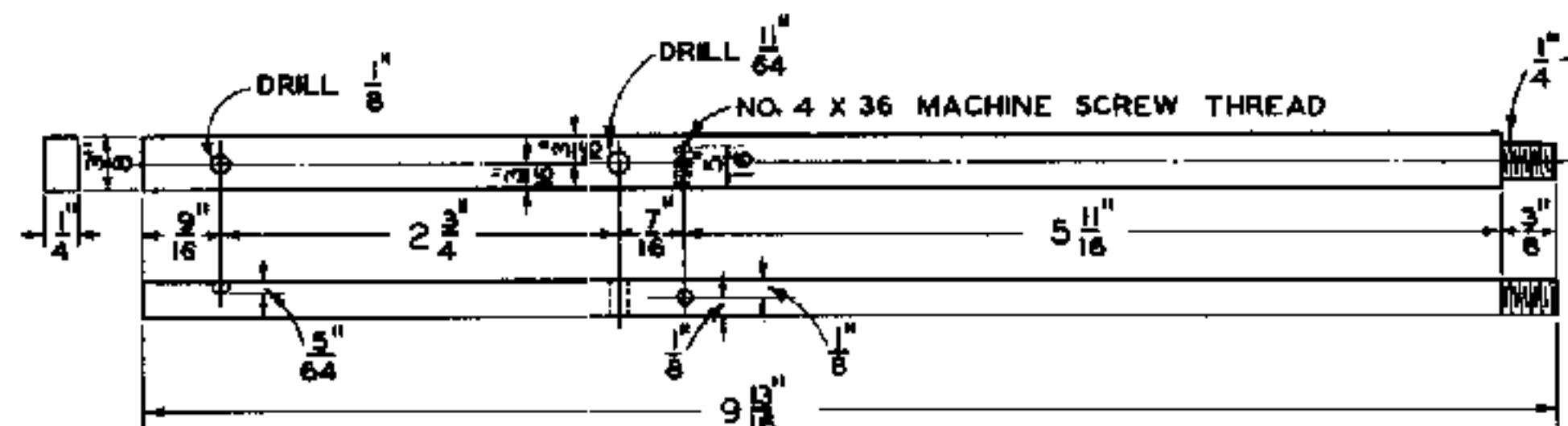
S-2910-1 GAGE COMPLETE



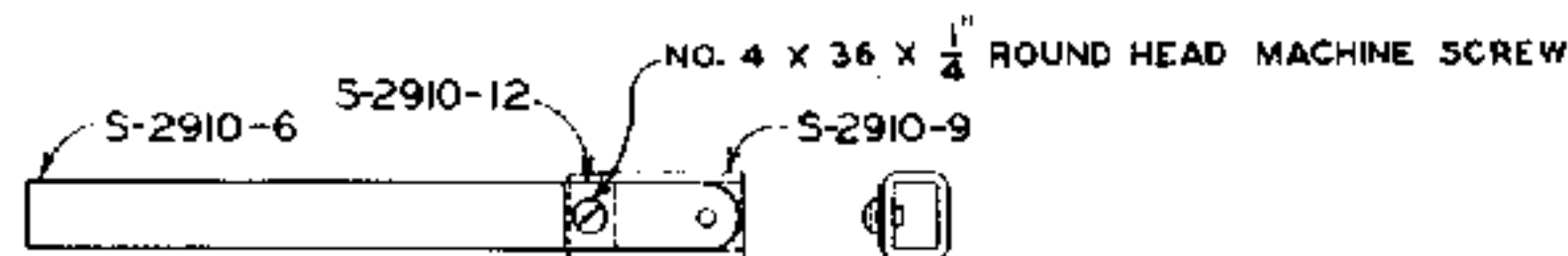
S-2910-2 SLIDE
STAINLESS STEEL



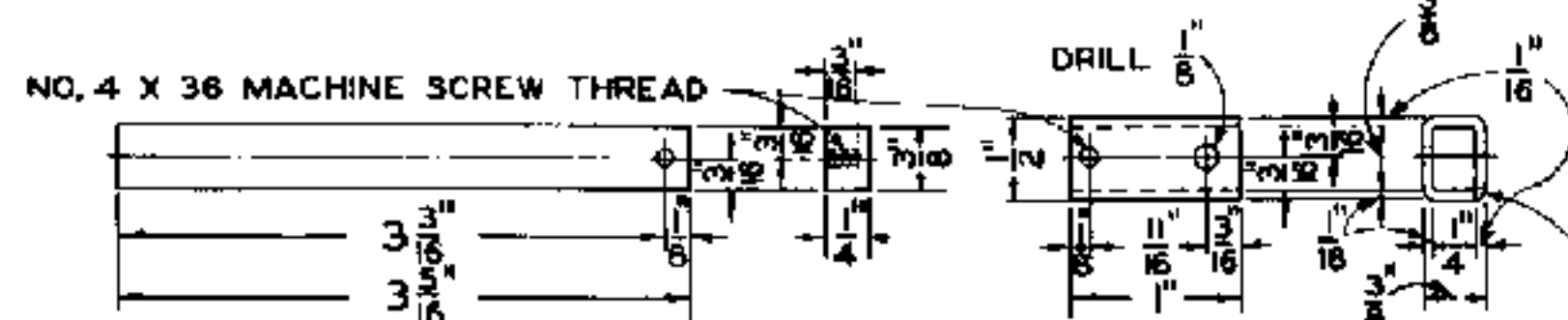
S-2910-3 SLIDE
STAINLESS STEEL



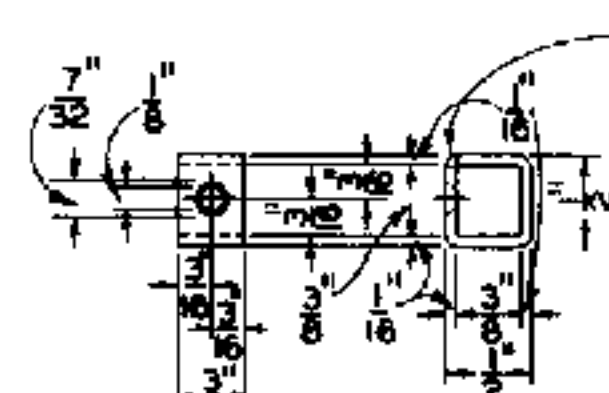
S-2910-4 STAFF
STAINLESS STEEL



S-2910-5 GAGE EXTENSION COMPLETE

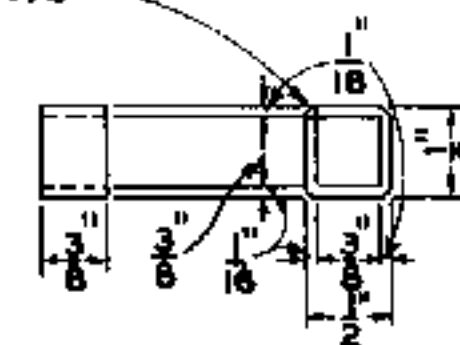


S-2910-6 EXTENSION
STAINLESS STEEL

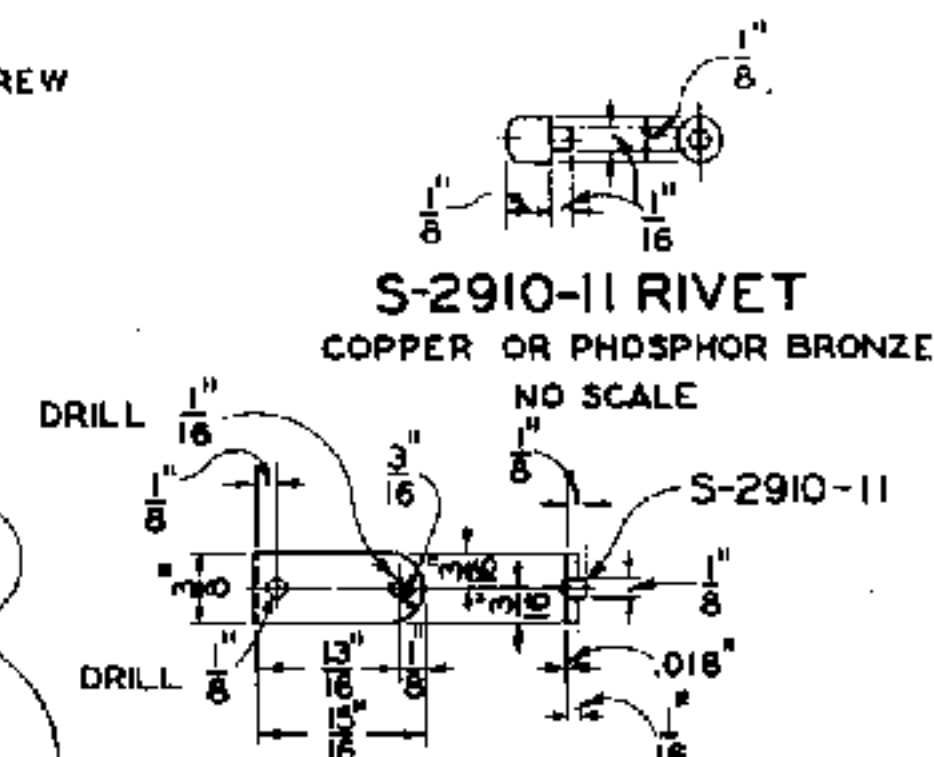


S-2910-7 GUIDE
STAINLESS STEEL

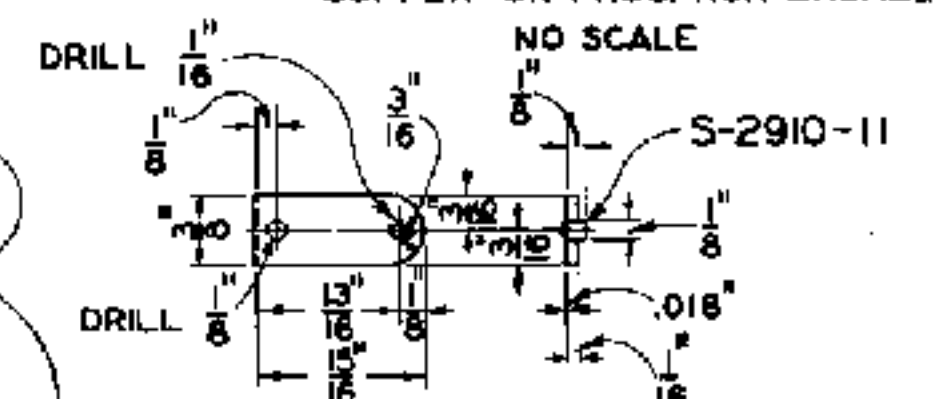
BRAZED JOINTS



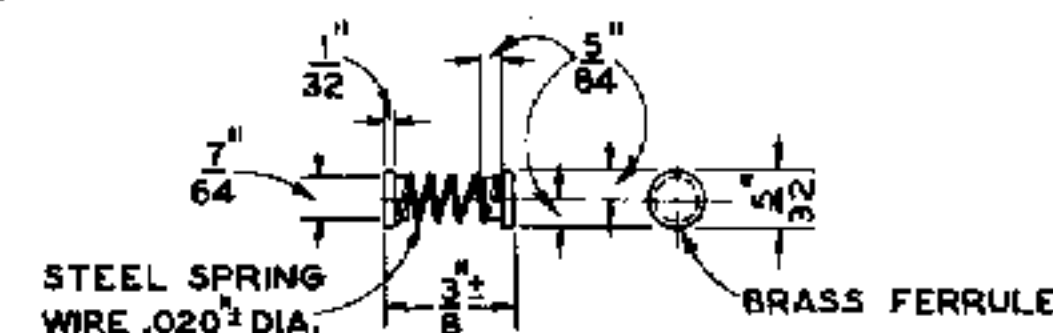
S-2910-9 COUPLING
STAINLESS STEEL



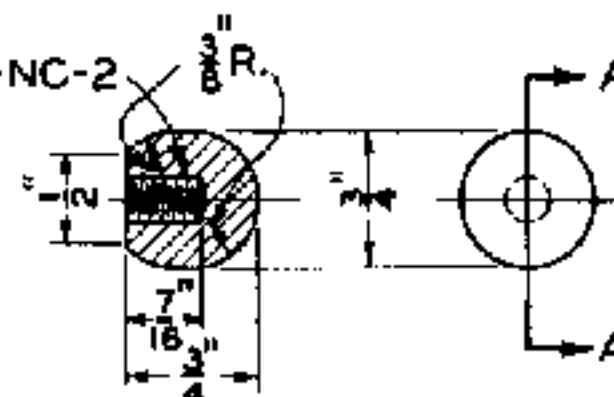
S-2910-11 RIVET
COPPER OR PHOSPHOR BRONZE



S-2910-12 SPRING
PHOSPHOR BRONZE



S-2910-13 SPRING COMPLETE
NO SCALE



SECTION A-A
S-2910-8 KNOB
STAINLESS STEEL

NOTES

1. GAGE PARTS SHALL BE MACHINED AND FINISHED SO AS TO PROVIDE SMOOTH MOVEMENT OF SLIDES AND TIGHT FIT OF GAGE EXTENSION.
2. FOR USE OF GAGE SEE SHEETS 2 AND 3.
3. THE SOLDER SHALL BE RYERSONS ALLEGHENY METAL SOLDER OR EQUAL USED WITH RYERSONS ALLEGHENY SOLDERING FLUX OR EQUAL. AFTER THE SOLDER IS APPLIED TO THE JOINT, THE SLIDE SHALL BE PLACED BETWEEN HOT CLAMPS AND ALLOWED TO COOL.



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VICE PRESIDENT		
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STANDARD GAGE FOR CHECKING LOCKING TOLERANCES OF INTERLOCKING MACHINES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. M. M. M.* MAR. 11, 1935
CHIEF ENGINEER

SHEET 1 OF 4

S-2910

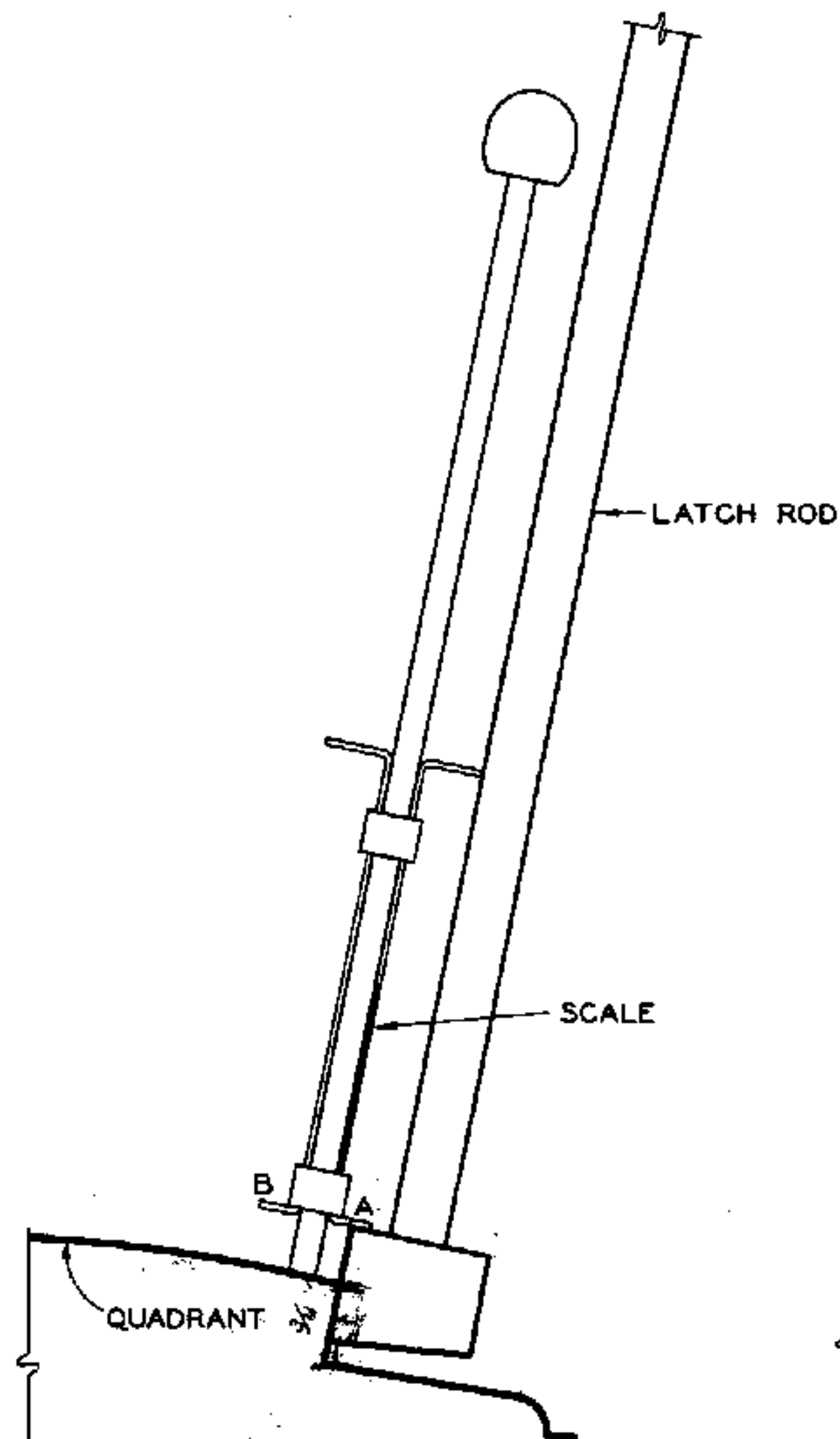


FIGURE 1

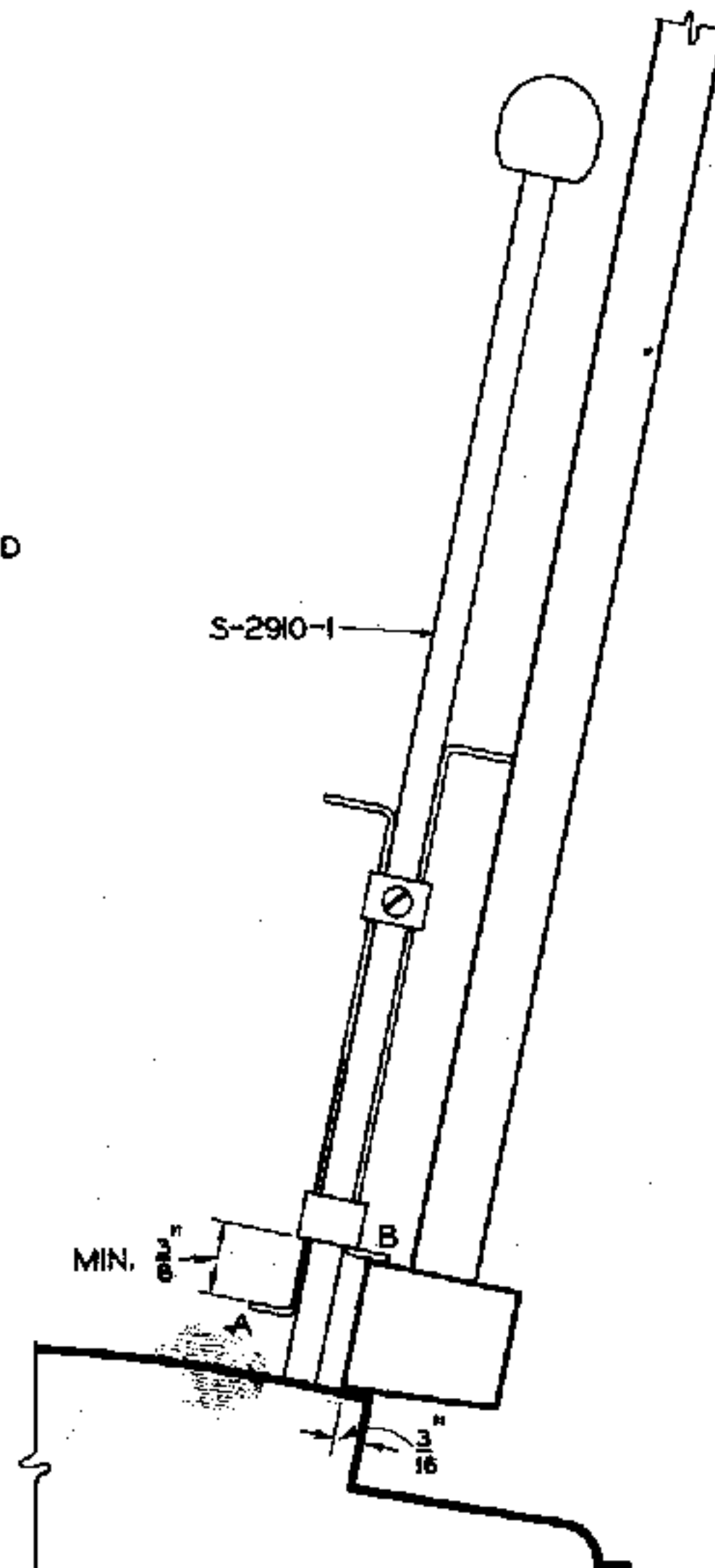


FIGURE 2

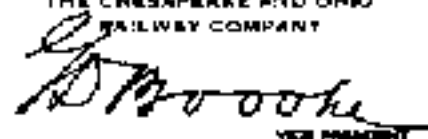
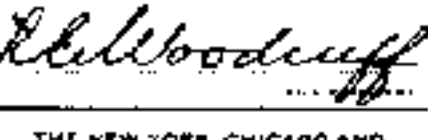
USE OF GAGE ON MECHANICAL MACHINE

NOTES

METHOD OF CHECKING LOCKING TOLERANCES

1. LOCK THE LEVER WITH LEVER AGAINST WHICH IT IS TO BE CHECKED AND LIFT LATCH AS FAR AS POSSIBLE. WITH BOTH SLIDES PUSHED DOWN TO END OF GAGE AND WITH GAGE PARALLEL TO LATCH ROD PLACE LUG "A" ON TOP OF LATCH ROD PROJECTION AND PUSH GAGE DOWN UNTIL END RESTS ON TOP OF QUADRANT, FIGURE 1.
2. SET LATCH ON TOP OF QUADRANT AND PLACE LUG "B" ON TOP OF LATCH ROD PROJECTION AND PUSH GAGE DOWN UNTIL THE END RESTS ON TOP OF QUADRANT, FIGURE 2. DIFFERENCE BETWEEN POSITION OF GAGE IN FIGURE 1 AND FIGURE 2 AS READ ON SCALE IS THE DISTANCE BETWEEN BOTTOM OF LATCH ROD AND TOP OF QUADRANT WITH ALL SLACK TAKEN UP IN LOCKING.

NO SCALE

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 VICE PRESIDENT		STANDARD GAGE FOR CHECKING LOCKING TOLERANCES OF INTERLOCKING MACHINES	
 VICE PRESIDENT			
 VICE PRESIDENT			
 VICE PRESIDENT			
APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED:  CHIEF ENGINEER		MAR. 11, 1935 SHEET 2 OF 4 S-2910	

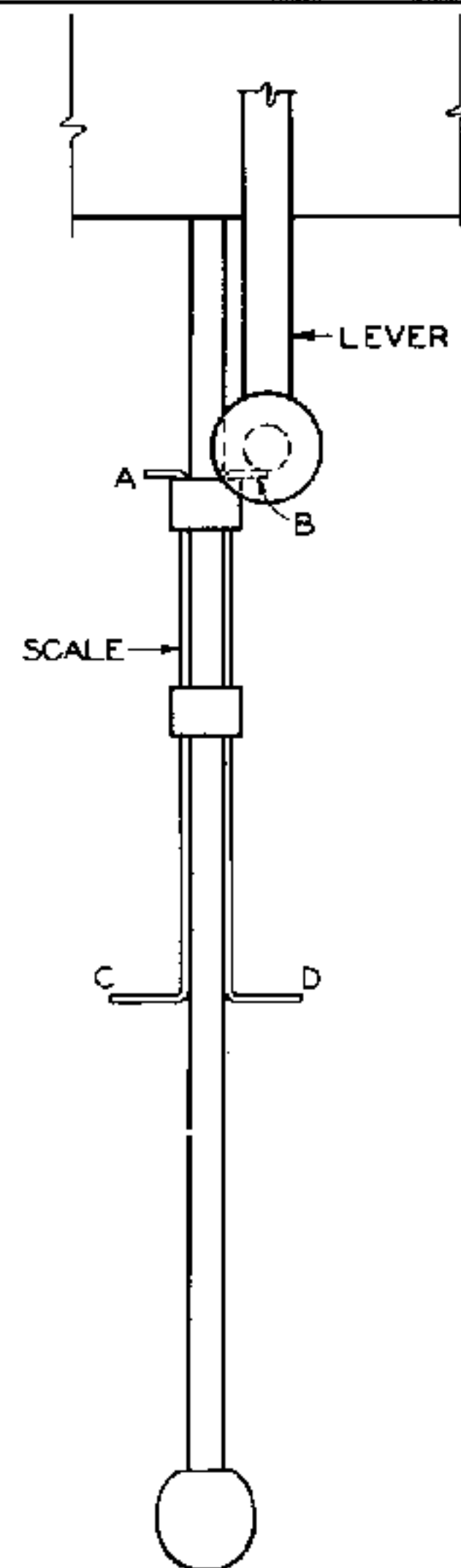


FIGURE 1

LEVER IN NORMAL POSITION

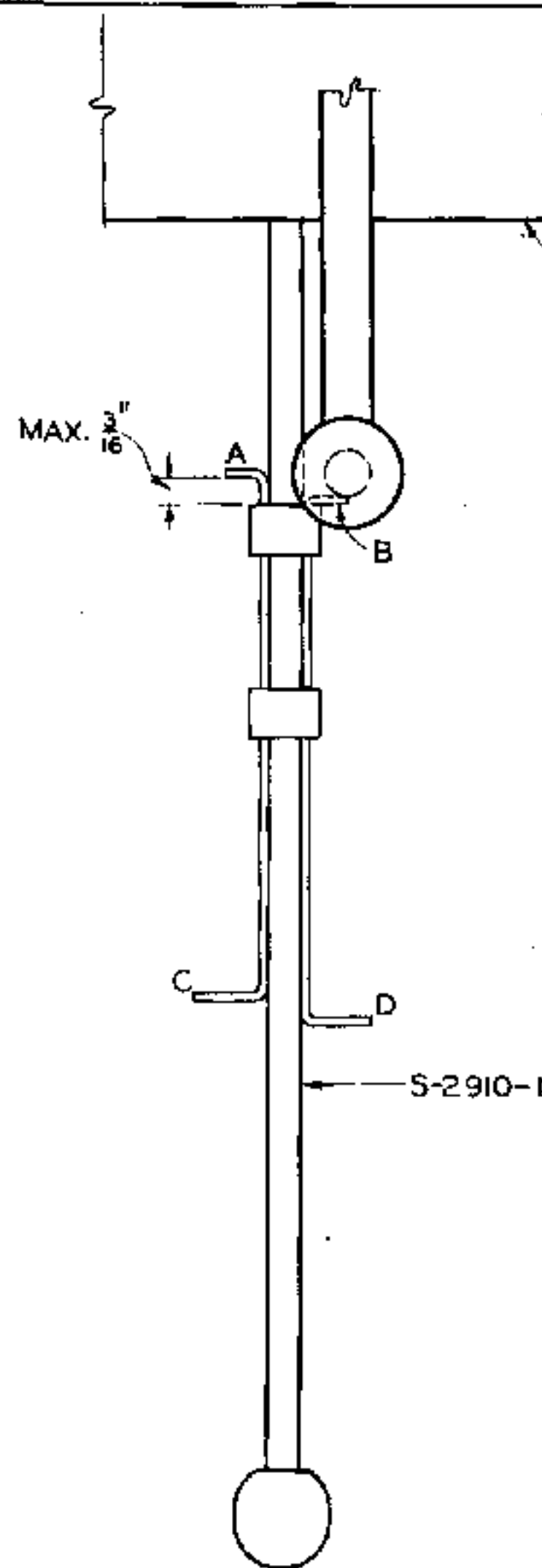


FIGURE 2

USE OF GAGE ON G. R. S. TYPE ELECTRIC MACHINES

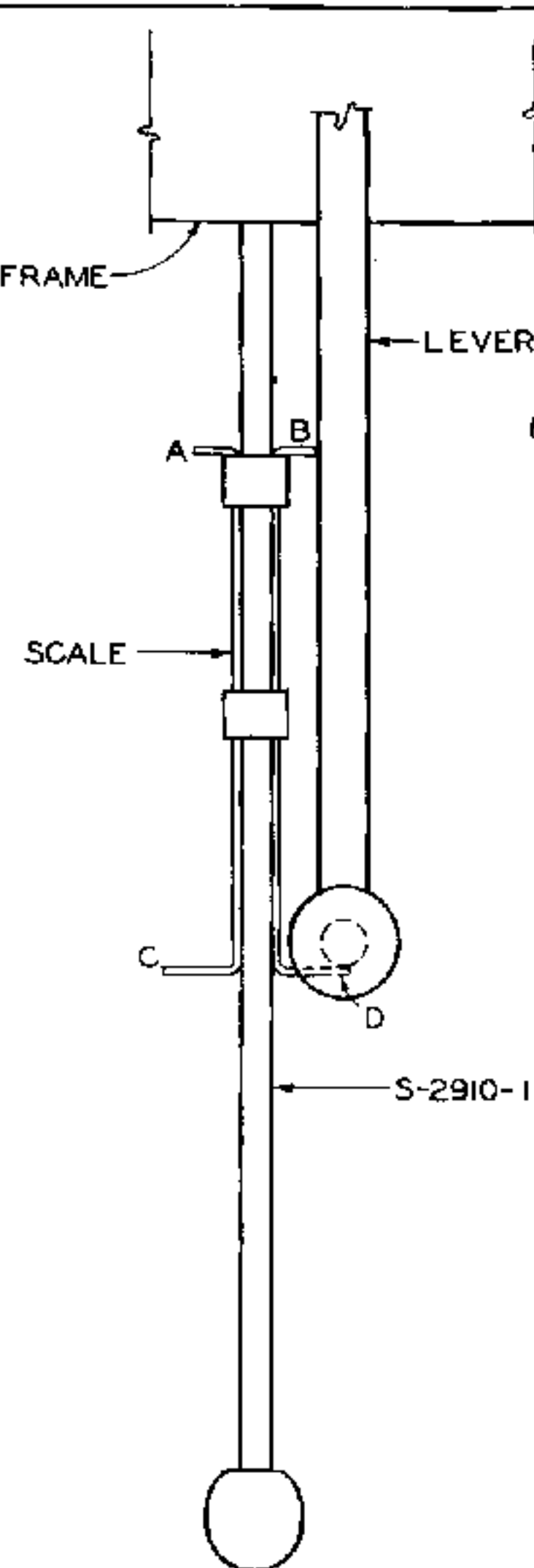


FIGURE 3

LEVER IN REVERSE POSITION

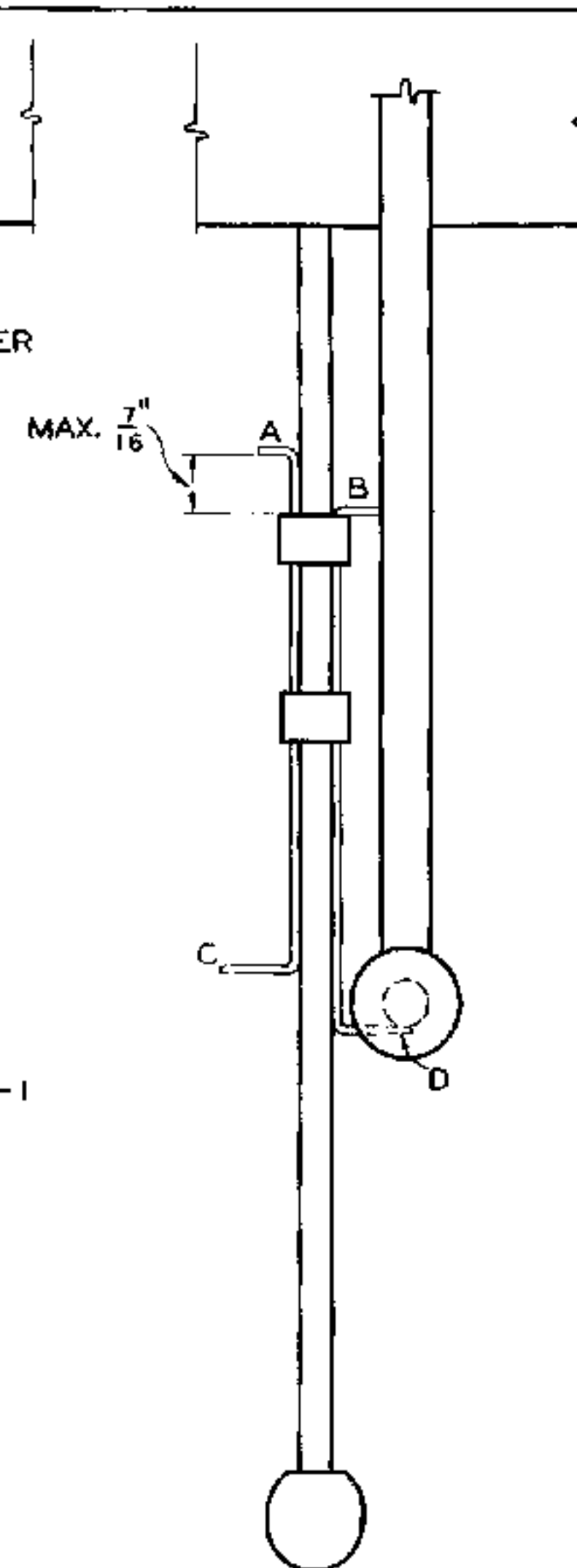


FIGURE 4

NOTES

METHOD OF CHECKING LOCKING TOLERANCES NORMAL POSITION OF LEVER

1. PLACE LEVER IN FULL NORMAL POSITION AS SHOWN IN FIGURE 1 AND LOCK BY LEVER AGAINST WHICH IT IS TO BE CHECKED. PULL BOTH SLIDES TOWARD KNOB OF GAGE, PLACE GAGE PARALLEL TO LEVER, WITH END AGAINST MACHINE FRAME. PUSH SLIDES DOWN ON GAGE UNTIL LUG "B" RESTS AGAINST LEVER.
2. PULL LEVER OUT AS FAR AS POSSIBLE AS SHOWN IN FIGURE 2, MOVING LUG "B". SCALE READING IS LOST MOTION - NORMAL.

REVERSE POSITION OF LEVER

1. PLACE LEVER IN FULL REVERSE POSITION AND LOCK BY LEVER AGAINST WHICH IT IS TO BE CHECKED. MOVE LEVER TOWARD NORMAL POSITION AS FAR AS POSSIBLE AS SHOWN IN FIGURE 3. PLACE GAGE PARALLEL TO LEVER, WITH END AGAINST MACHINE FRAME AND PUSH SLIDES DOWN ON GAGE UNTIL LUG "D" RESTS AGAINST LEVER.
2. PULL LEVER OUT AS FAR AS POSSIBLE AS SHOWN IN FIGURE 4, MOVING LUG "B". SCALE READING IS LOST MOTION - REVERSE.
3. ON SOME MACHINES ON WHICH CABINETS HAVE BEEN CHANGED IT MAY BE NECESSARY TO USE THE GAGE EXTENSION TO TAKE REVERSE READINGS AND LUG "D" INSTEAD OF "B" USED ON NORMAL READINGS.

NO SCALE

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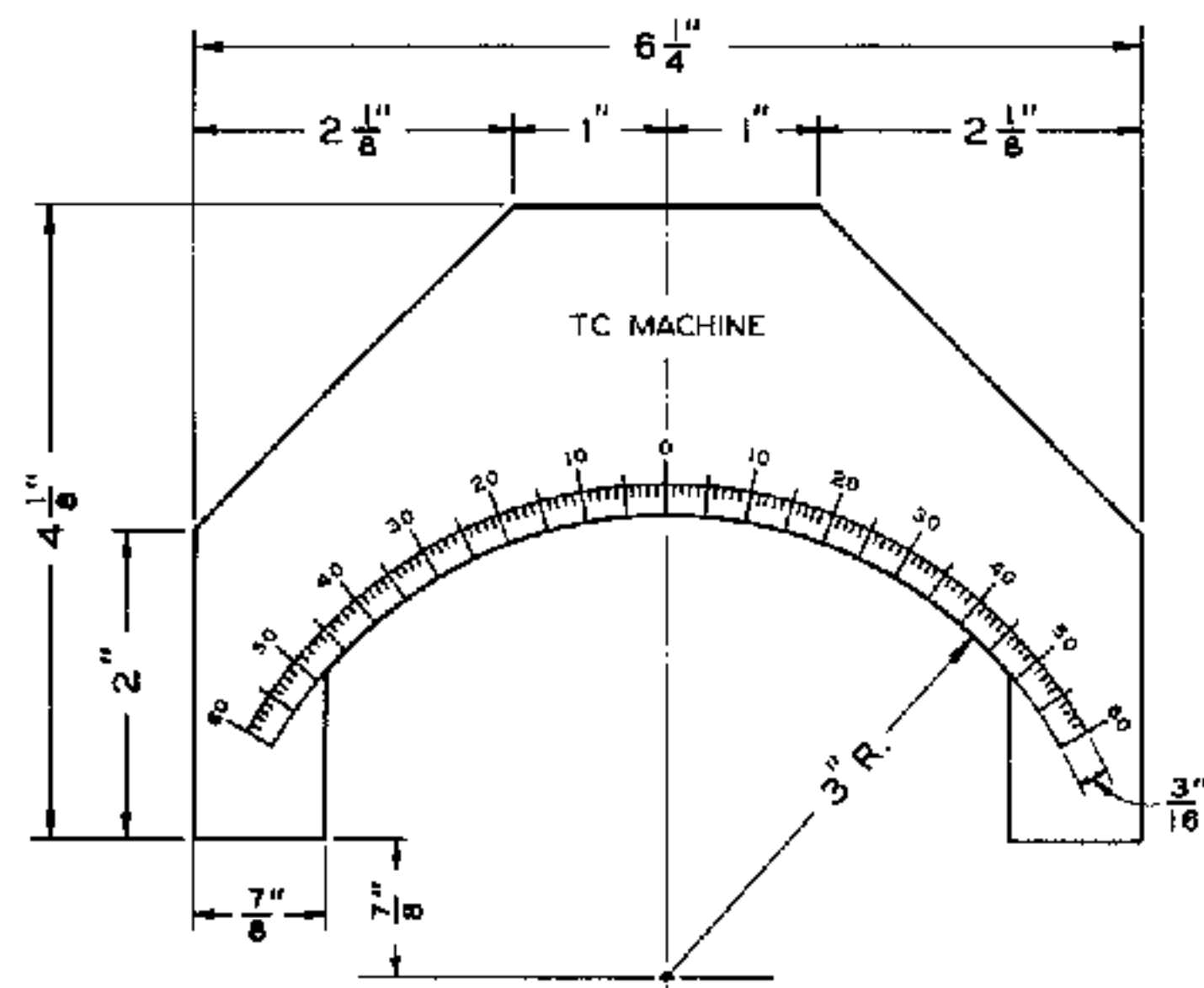
STANDARD GAGE FOR CHECKING LOCKING TOLERANCES OF INTERLOCKING MACHINES

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. M. M.*
CHIEF ENGINEER

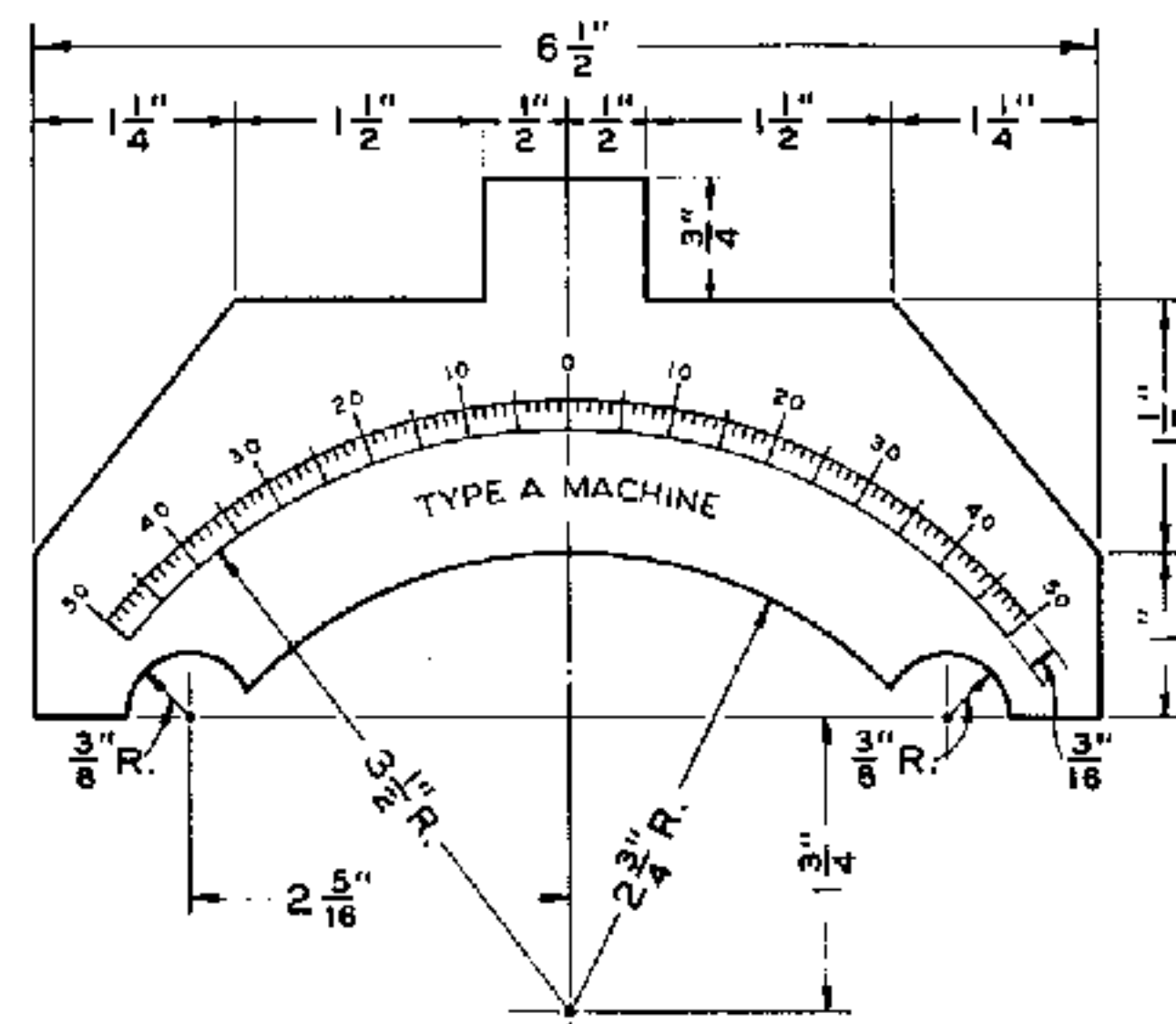
MAR. 11, 1935

SHEET 3 OF 4

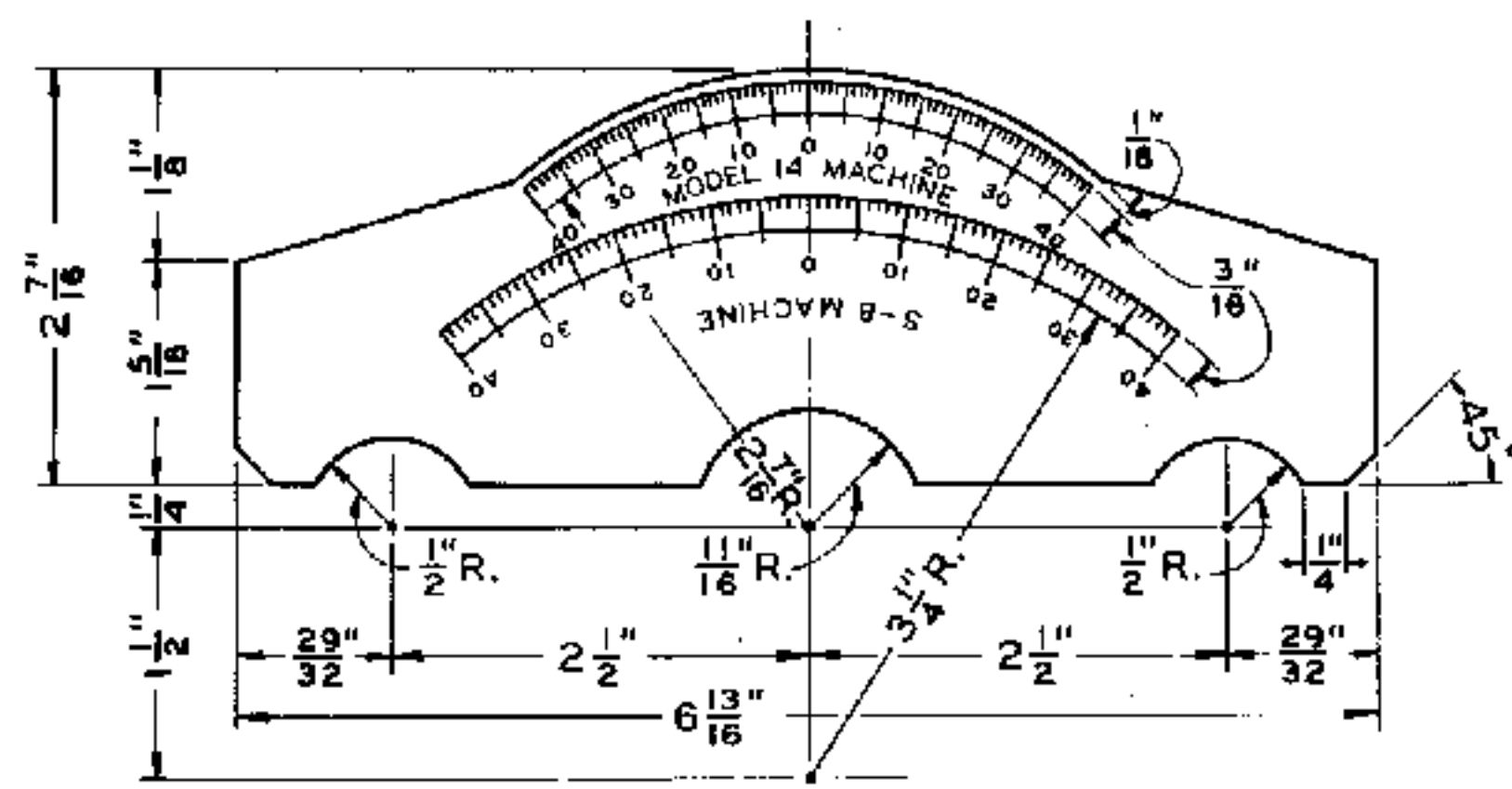
S-2910



S-2910-19 PROTRACTOR GAGE
FOR U.S. & S. CO. STYLE "TC" MACHINE



S-2910-20 PROTRACTOR GAGE
FOR G.R.S. CO. TYPE "A" MACHINE



S-2910-21 PROTRACTOR GAGE
FOR MODEL 14 AND S-8 MACHINES

NOTES

1. PROTRACTOR GAGE S-2910-19 AND S-2910-21 SHALL BE MADE OF $\frac{1}{16}$ " THICK TRANSPARENT CELLULOID.
2. PROTRACTOR GAGE S-2910-20 SHALL BE MADE OF .041" THICK TRANSPARENT CELLULOID.
3. DEGREE LINES, LETTERS, AND NUMBERS SHALL BE STAMPED INTO FACE OF PROTRACTOR AND COLORED WHITE.
4. FOR TOLERANCES IN MECHANICAL LOCKING SEE LATEST REVISION OF STANDARD SPECIFICATIONS S-1901, FIELD SPECIFICATIONS INCLUDING INSTRUCTIONS FOR INSPECTING AND TESTING MECHANICAL LOCKING OF INTERLOCKING MACHINES.

SCALE IN INCHES



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STANDARD GAGE FOR CHECKING LOCKING TOLERANCES OF INTERLOCKING MACHINES

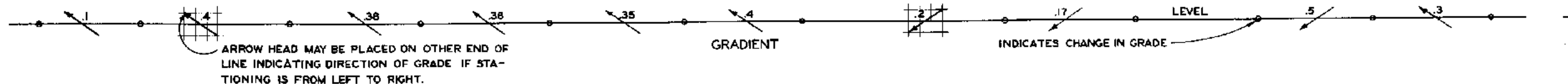
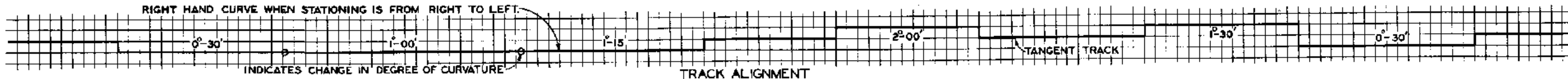
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APPROVED: *A. C. Smith*
CHIEF ENGINEER

MAR. 11, 1935

SHEET 4 OF 4

S-2910

RIGHT HAND CURVE WHEN STATIONING IS FROM RIGHT TO LEFT.

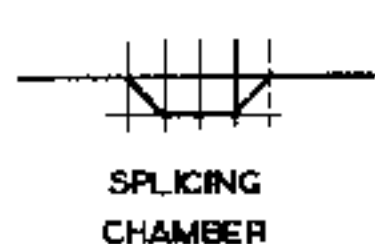


USE LETTER TO DENOTE TYPE OF SWITCH MACHINE

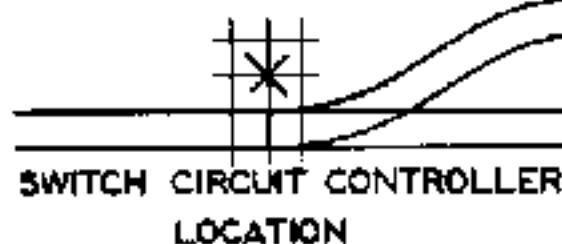
E-ELECTRIC
EP-ELECTRO-PNEUMATIC



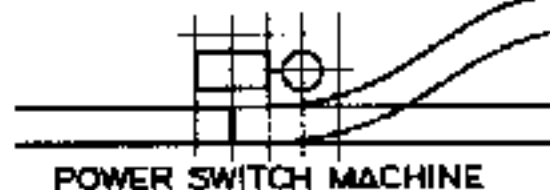
MANIFOLD CONDENSER



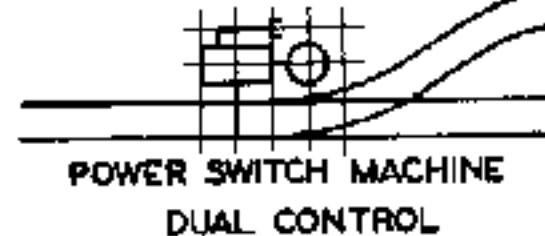
SPLICING CHAMBER



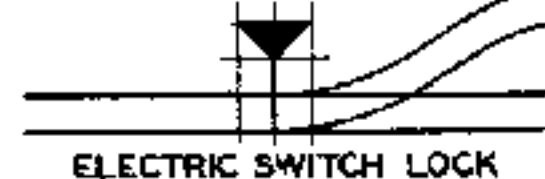
SWITCH CIRCUIT CONTROLLER LOCATION



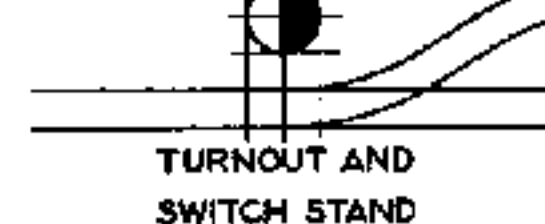
POWER SWITCH MACHINE



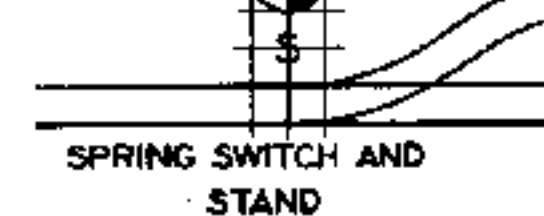
POWER SWITCH MACHINE DUAL CONTROL



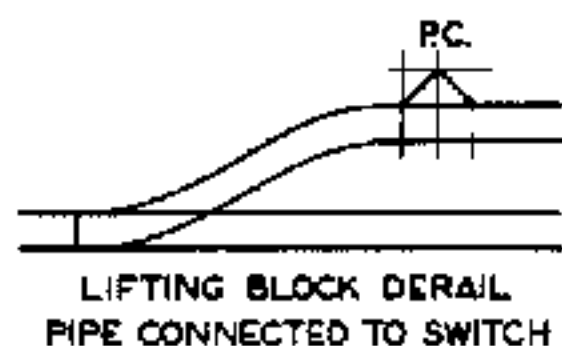
ELECTRIC SWITCH LOCK



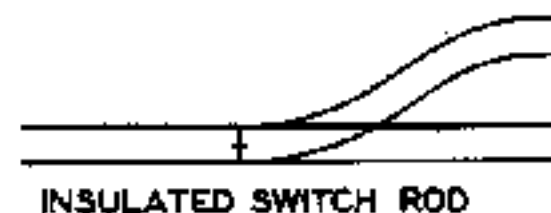
TURNOUT AND SWITCH STAND



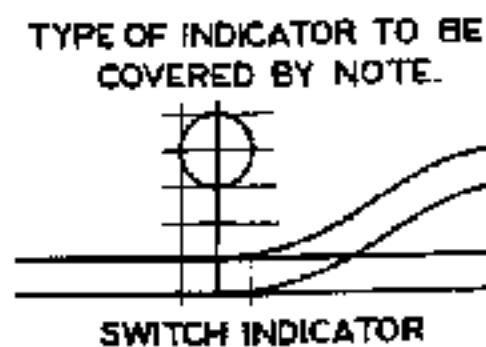
SPRING SWITCH AND STAND



LIFTING BLOCK DERAIL PIPE CONNECTED TO SWITCH



INSULATED SWITCH ROD



SWITCH INDICATOR

SEE NOTE ON SHEET 1

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K.L.M.

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STANDARD SYMBOLS FOR SIGNAL PLANS

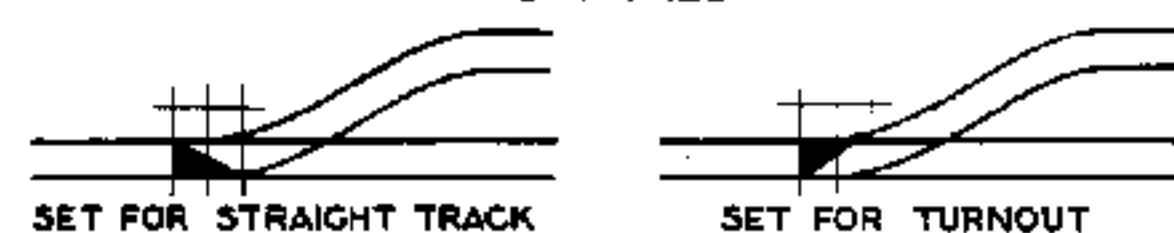
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. L. Woodruff* MAY 17, 1932.
CHIEF ENGINEER

SHEET 2 OF 10
S-2986

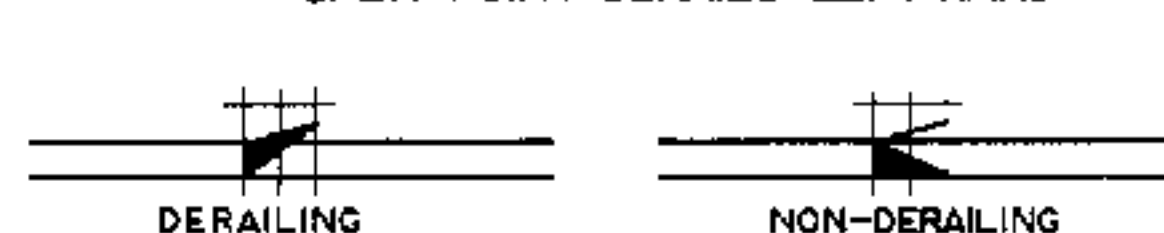
POSITION OF INTERLOCKING SWITCHES, DERAILS, M.P.F., AND SLIP SWITCHES.

NONINTERLOCKED FUNCTIONS SHALL BE SHOWN SAME AS INTERLOCKED
FUNCTIONS EXCEPT SHADING IN TRIANGLES SHALL BE OMITTED.

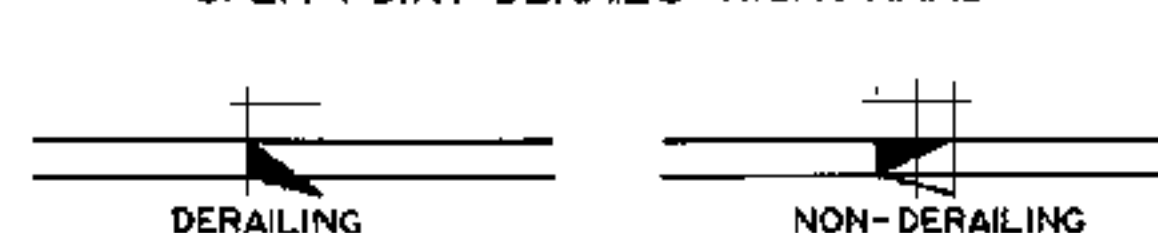
SWITCHES



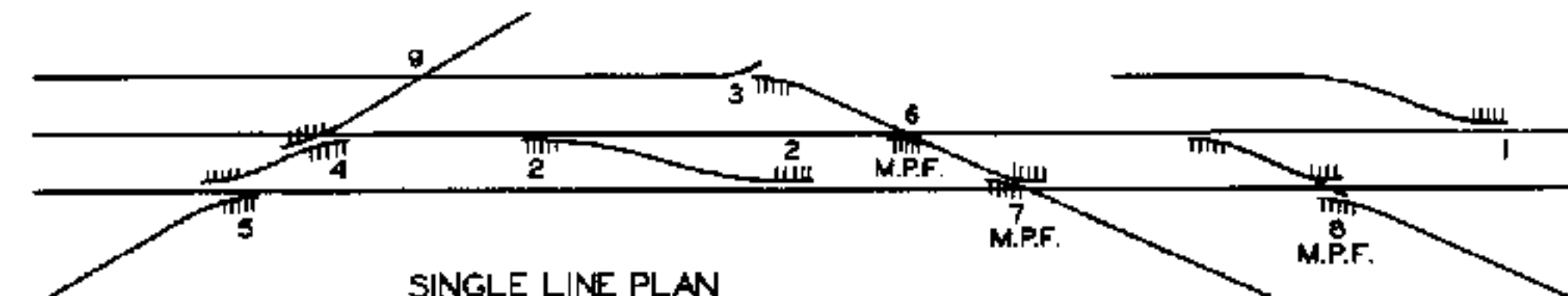
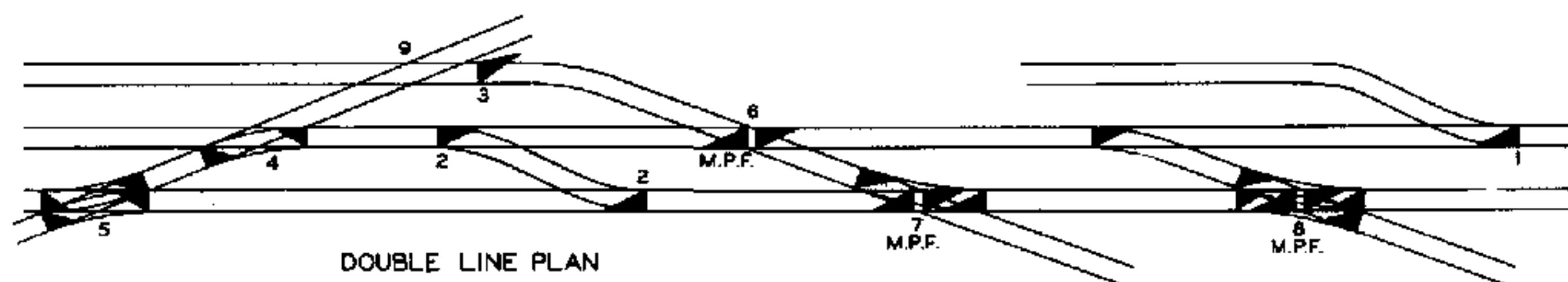
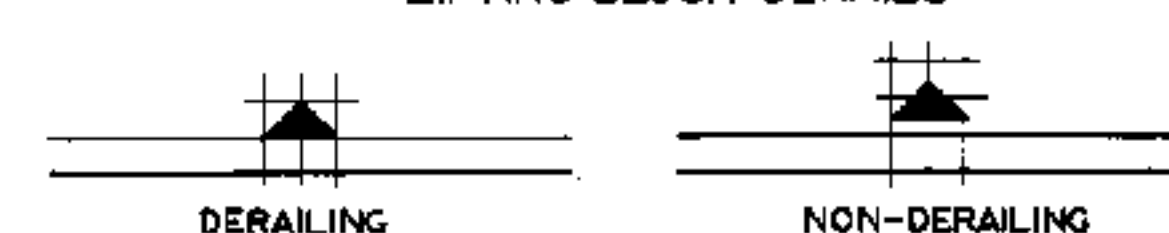
SPLIT POINT DERAILS-LEFT HAND



SPLIT POINT DERAILS-RIGHT HAND



LIFTING BLOCK DERAILS



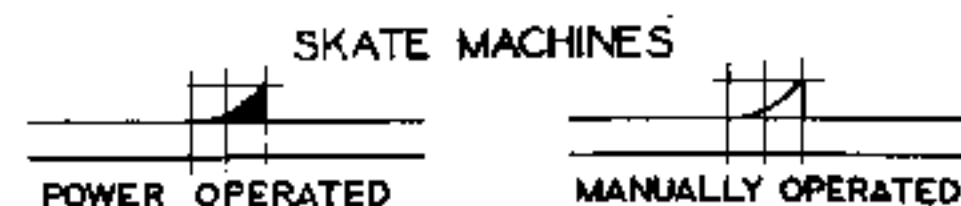
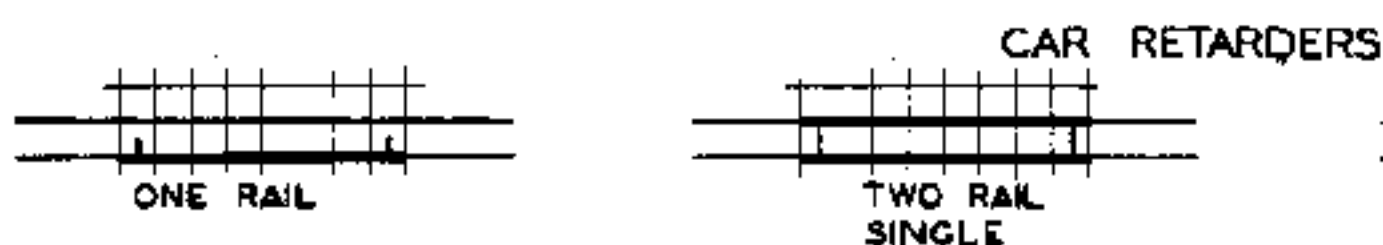
ABBREVIATIONS FOR OTHER SWITCH FUNCTIONS

S.L.M.-SWITCH AND LOCK MOVEMENT
B.L.-BOLT LOCK
F.P.L.-FACING POINT LOCK

REFERENCE EXPLANATION FOR SINGLE AND DOUBLE LINE PLANS

- | | | |
|------------------------|---|-----------------------------------|
| 1. SIMPLE TURNOUT | 4. SINGLE SLIP SWITCH | 7. SINGLE SLIP SWITCH WITH M.P.F. |
| 2. SIMPLE CROSS-OVER | 5. DOUBLE SLIP SWITCH | 8. DOUBLE SLIP SWITCH WITH M.P.F. |
| 3. DERAIL-SINGLE POINT | 6. MOVABLE POINT CROSSING FROG (M.P.F.) | 9. RIGID CROSSING FROG. |

SEE NOTE ON SHEET 1



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VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

W. H. Woodruff
VICE PRESIDENT

APPROVED BY

W. H. Woodruff
VICE PRESIDENT

K.L.M. C.D.M. A.J.P.

K.L.M. C.D.M. A.J.P.

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THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

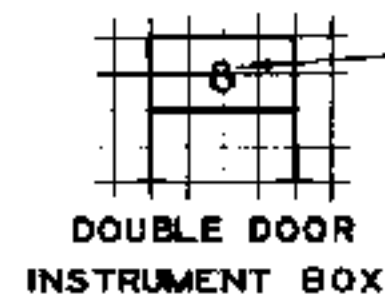
STANDARD SYMBOLS FOR SIGNAL PLANS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. Woodruff*
CHIEF ENGINEER

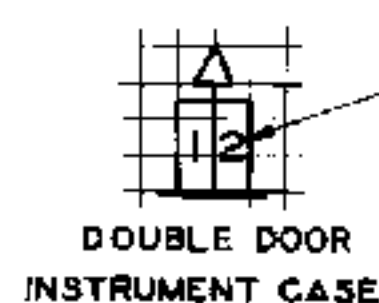
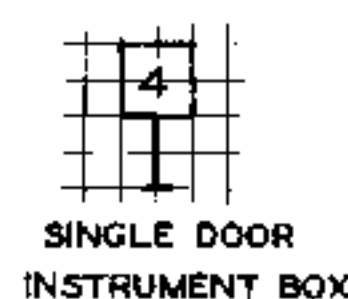
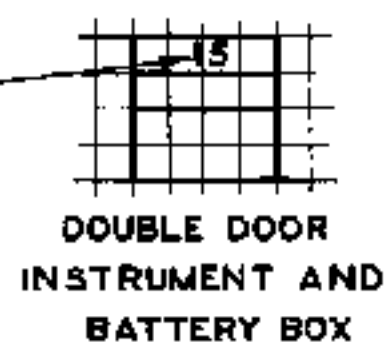
MAY 17, 1932.

SHEET 3 OF 10

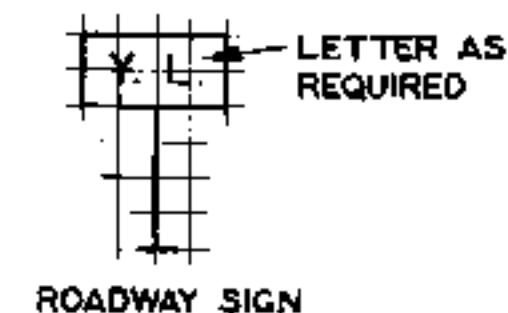
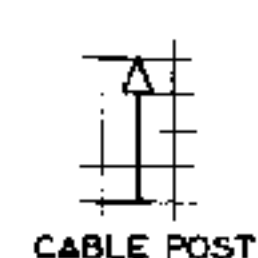
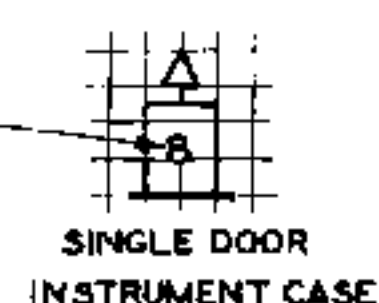
S-2986



TOTAL
CAPACITY

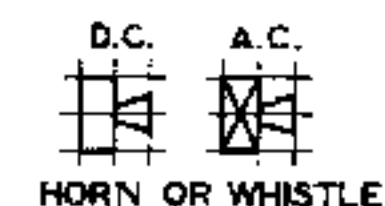
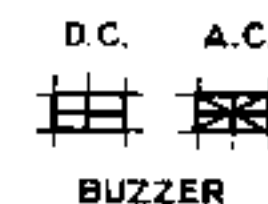
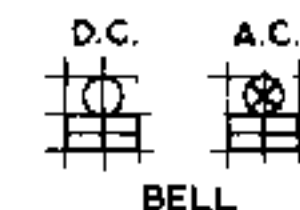
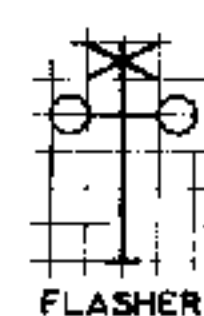
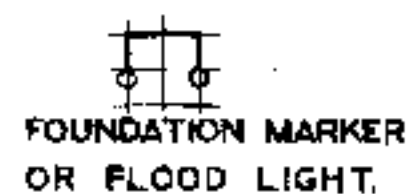
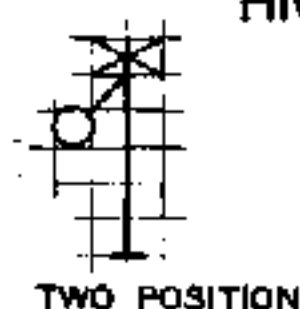
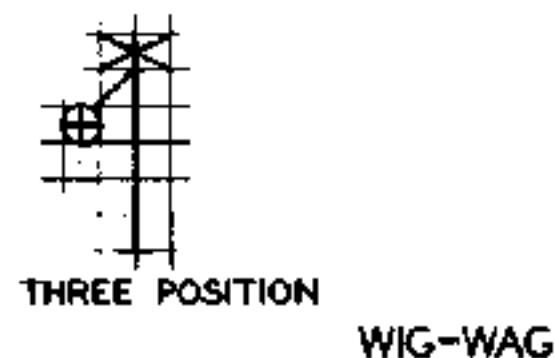


TOTAL
CAPACITY

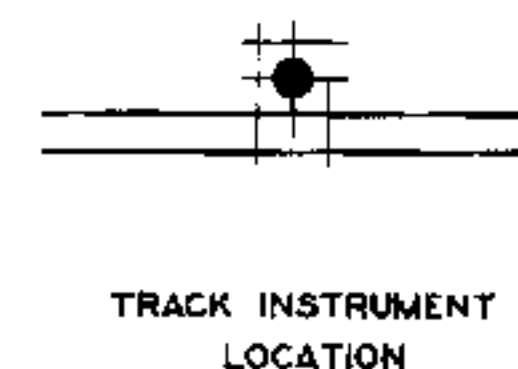
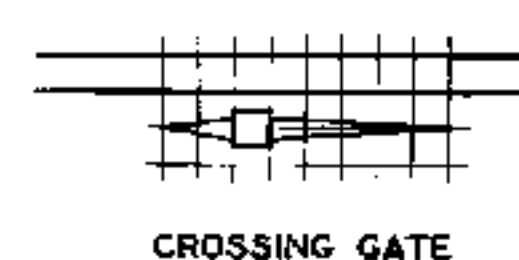
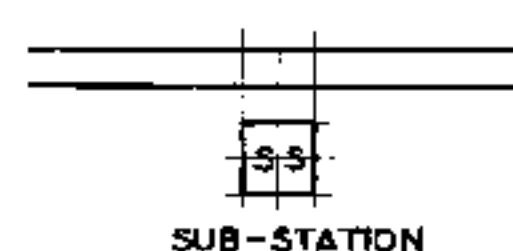
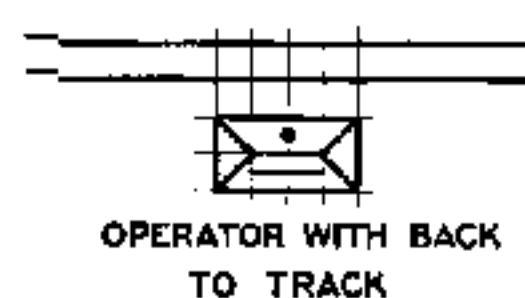
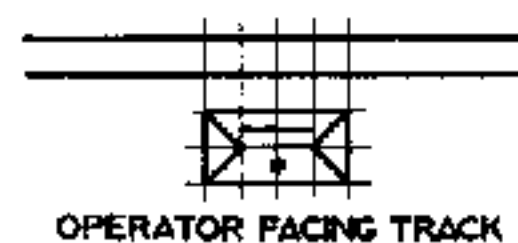
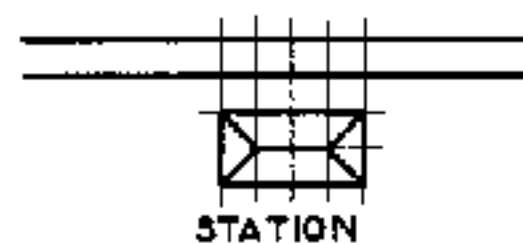


LETTER AS
REQUIRED

HIGHWAY CROSSING SIGNALS

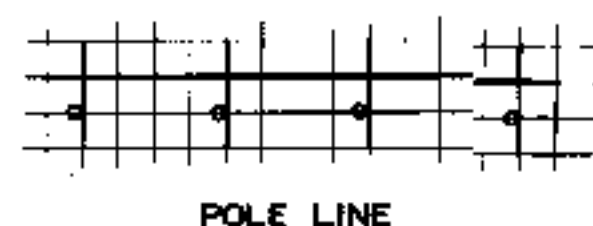


INTERLOCKING OR BLOCK STATIONS

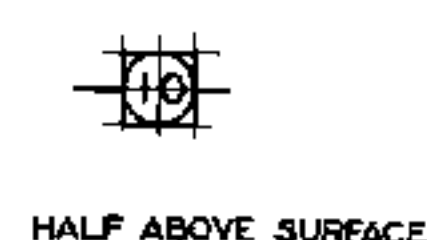
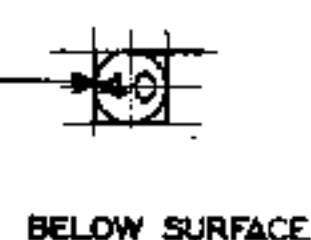


SEE NOTE ON SHEET 1

BATTERY SHELTERS



CAPACITY



APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

Brooke
VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

Ellwood
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

Allen
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

Shawman
VICE PRESIDENT

K.L.M. C.D.M. A.J.P.
K.L.M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

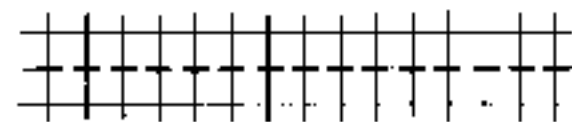
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Crushell* MAY 17, 1932.
CHIEF ENGINEER

SHEET 4 OF 10
S-2986

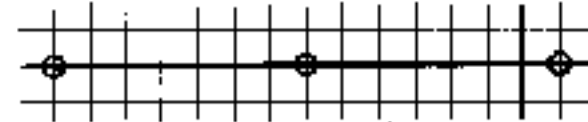
COMBINATIONS



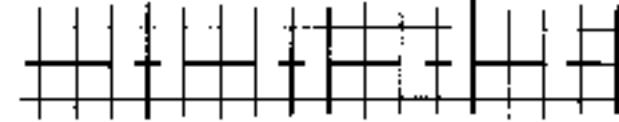
PIPE OR WIRE
(MECHANICAL)



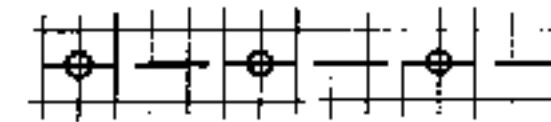
WIRE DUCT



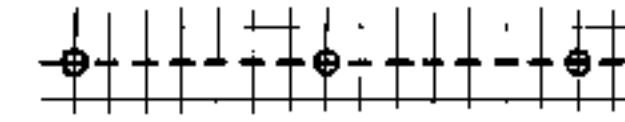
COMPRESSED AIR



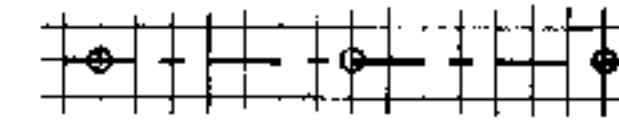
PIPE OR WIRE, AND DUCT



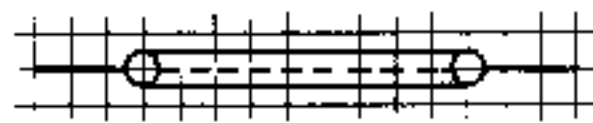
PIPE OR WIRE, AND AIR



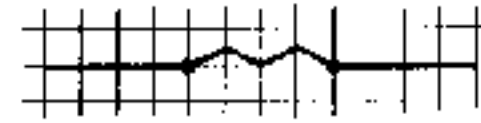
DUCT AND AIR



PIPE OR WIRE, DUCT, AND AIR



PIPE RUN THRU 2" PIPE



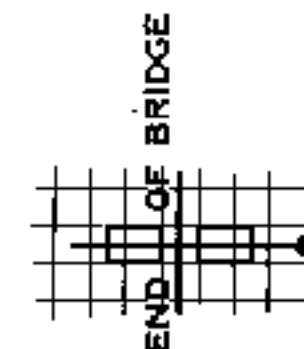
COMPENSATOR



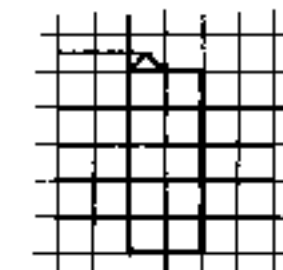
ARROW INDICATES
DIRECTION OF MOVEMENT
FROM NORMAL TO REVERSE



RAIL LOCKS



BRIDGE LOCK



MECHANICAL
BRIDGE COUPLER



1 WAY

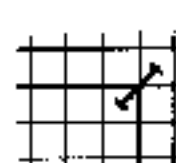


2 WAY

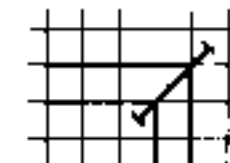


3 WAY

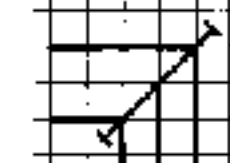
BOLT LOCKS



1 WAY



2 WAY



3 WAY

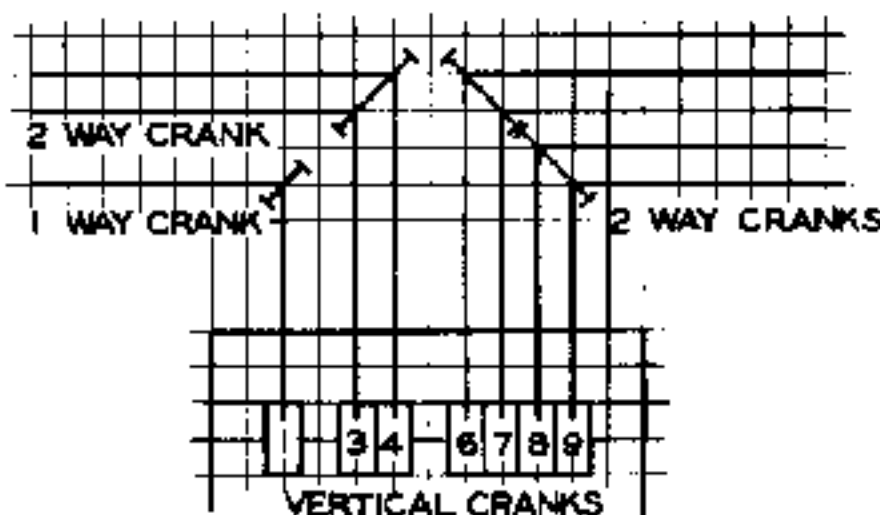
CRANKS



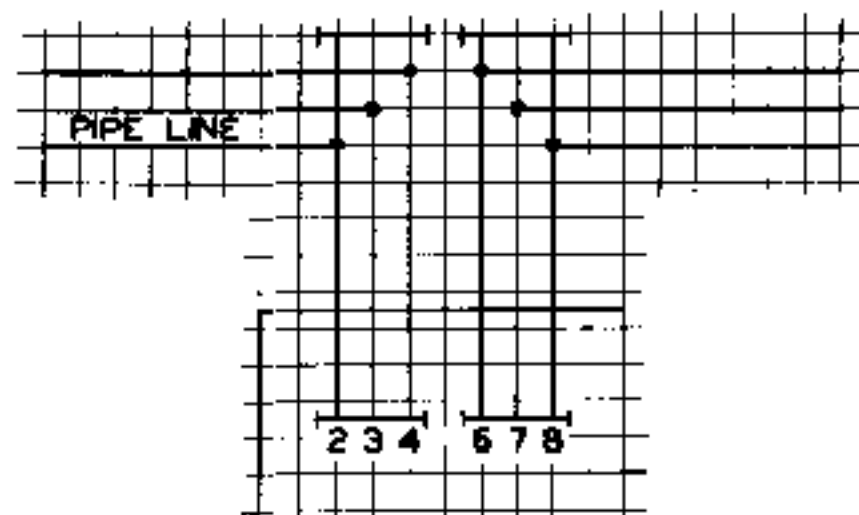
GROUND LEVERS



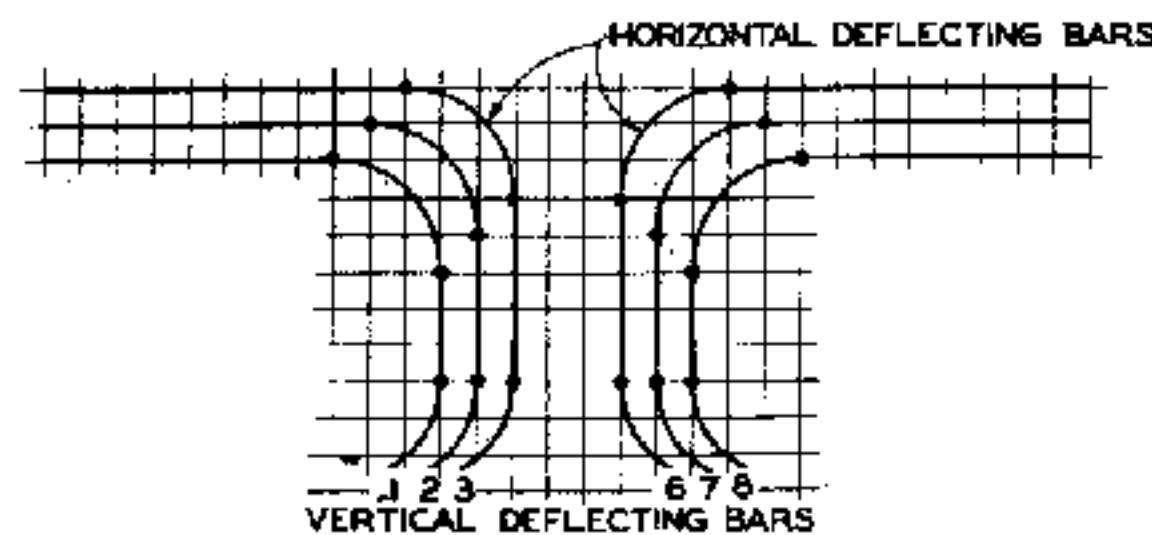
DWARF MACHINE



CRANK LEAD-OUT



ROCKING SHAFT LEAD-OUT



DEFLECTING BAR LEAD-OUT

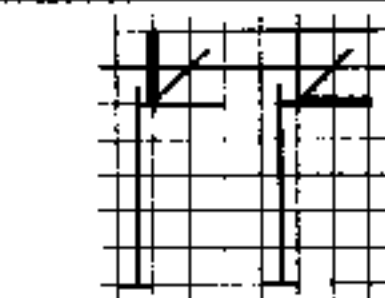
SEE NOTE ON SHEET 1

APPROVED FOR USE		
THE CHESAPEAKE AND OHIO RAILWAY COMPANY		
<i>G. M. Woodruff</i>		
Vice President		
ERIE RAILROAD COMPANY		
<i>E. L. Woodruff</i>		
Vice President		
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY		
<i>A. J. P.</i>		
Vice President		
PERE MARQUETTE RAILWAY COMPANY		
<i>A. J. P.</i>		
Vice President		
C.B.P.	C.D.M.	A.J.P.
C.H.W.		

THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
ERIE RAILROAD COMPANY	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY	
PERE MARQUETTE RAILWAY COMPANY	
STANDARD SYMBOLS FOR SIGNAL PLANS	
APPROVED BY	
ADVISORY COMMITTEE ON WAY AND STRUCTURES	
APPROVED: <i>A. J. P.</i>	MAY 17, 1932.
CHIEF ENGINEER	
SHEET 5 OF 10	
S-2986	

CHARACTERISTICS	POSITION OR EQUIVALENT	NON-AUTOMATIC	SEMI-AUTOMATIC		AUTOMATIC	SPECIAL, REQUIRES REFERENCE TO NOTES
			STICK	NON-STICK		
	0° U.Q. 45°					
	0° L.Q. 45°					
	0° U.Q. 90°					
	U.Q. 45° L.Q. 45°					
	U.Q. 45° U.Q. 90°					
	L.Q. 45° U.Q. 90°					
	0° U.Q. 45° L.Q. 45°					
	0° U.Q. 45° U.Q. 90°					
	0° U.Q. 90° L.Q. 45°					
	U.Q. 45° U.Q. 90° L.Q. 45°					

SIGNAL OPERATING CHARACTERISTICS



HEAVY LINE INDICATES
NORMAL POSITION OR
ITS EQUIVALENT

ABBREVIATIONS

E-ELECTRIC SEMAPHORE
P-POSITION LIGHT
CP-COLOR POSITION LIGHT
M-MECHANICAL
C-COLOR LIGHT.

IF ABBREVIATION IS USED, PREFIX LETTER
"A" TO INDICATE APPROACH LIGHTING.



DWARF SIGNAL



GROUND MAST



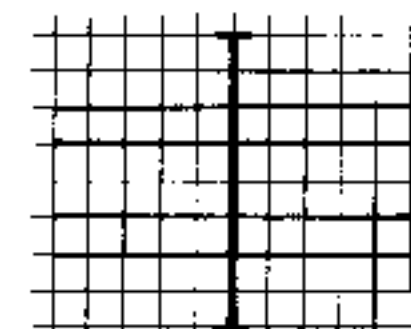
GROUND MAST WITH
CANTILEVER ATTACHMENT



BRACKET POST



CANTILEVER
SIGNAL BRIDGE

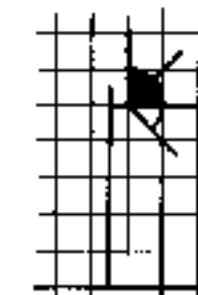


SIGNAL BRIDGE

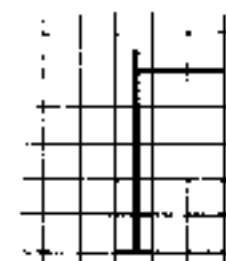
EXPLANATORY DATA



3 POSITION
SEMI-AUTOMATIC STICK U.Q. 45° TO 90°
SEMI-AUTOMATIC NON-STICK 0° TO U.Q. 45°



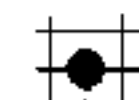
4 POSITION
SEMI-AUTOMATIC STICK 0° TO U.Q. 45° TO 90°
SEMI-AUTOMATIC NON-STICK 0° TO L.Q. 45°



NON-OPERATING



MARKERS, CONTINUOUS LIGHT



NON-STICK



STICK

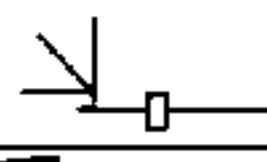
MARKERS, NONCONTINUOUS LIGHT



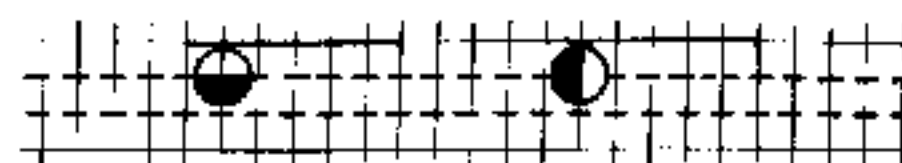
NON-STICK



STICK



RELATION OF SIGNAL TO THE
TRACK AND DIRECTION OF TRAFFIC



POWER MECHANICAL
SMASH BOARD SIGNALS

SEE NOTE ON SHEET 1

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

Brooks
VICE PRESIDENT

ERIE RAILROAD COMPANY

Belwood
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

Allen
VICE PRESIDENT

PERE MARQUETTE
RAILWAY COMPANY

Johnson
VICE PRESIDENT

K.L.M. C.D.M. A.J.P.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Orin*
CHIEF ENGINEER

MAY 17, 1932.

SHEET 8 OF 10

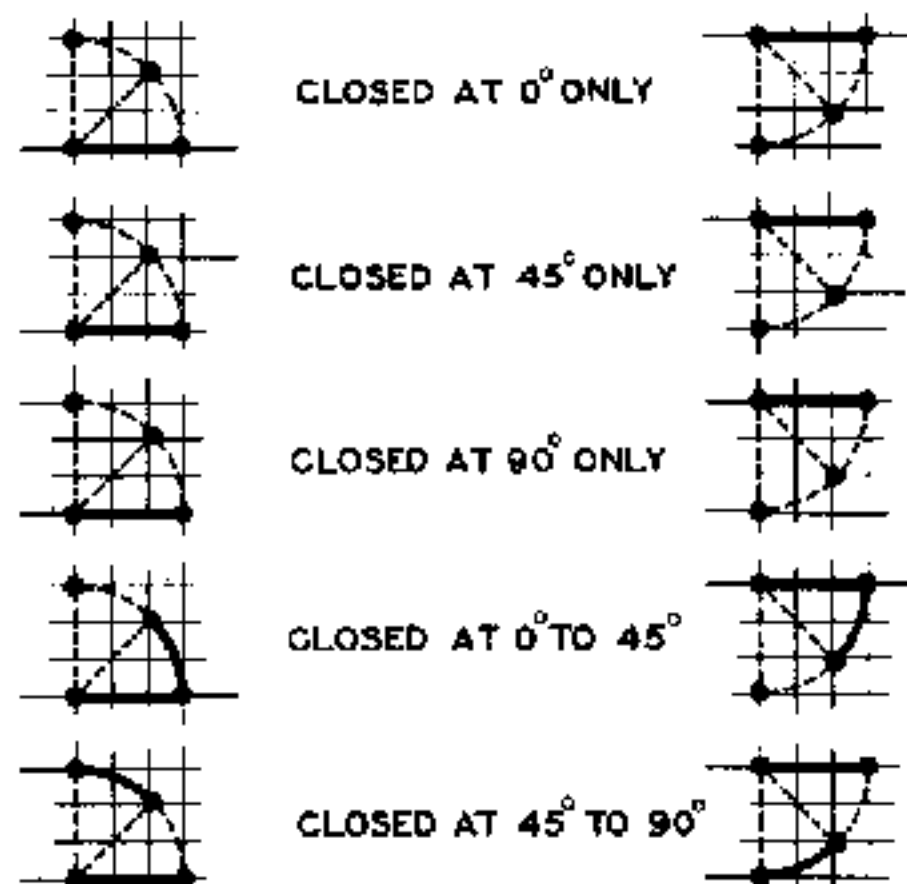
S-2986

CIRCUIT CONTROLLERS OPERATED BY SIGNALS

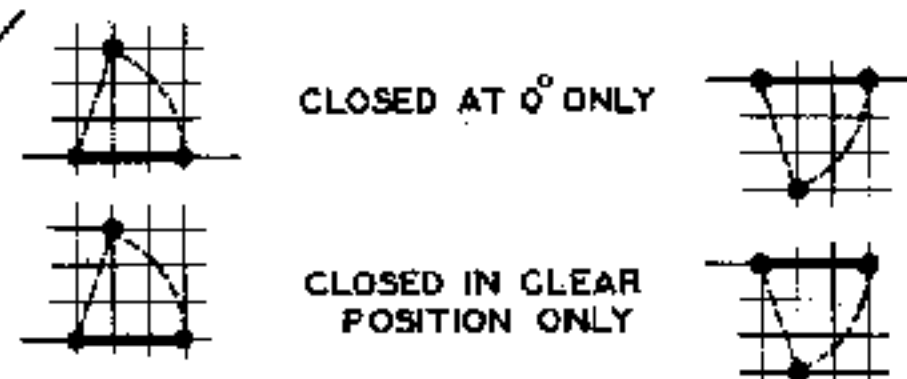
UPPER QUADRANT

LOWER QUADRANT

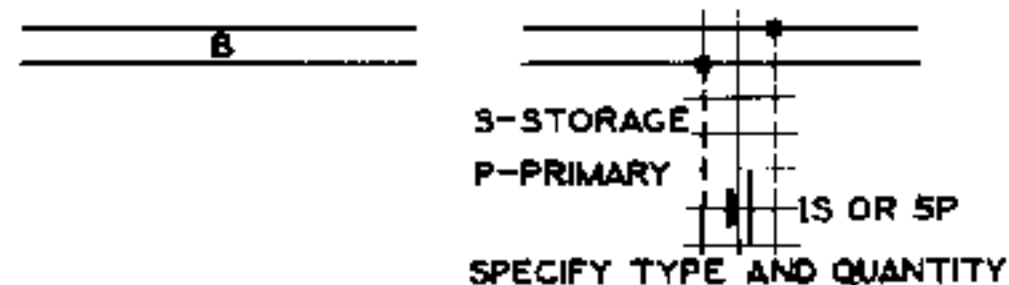
3 POSITION
SIGNALS



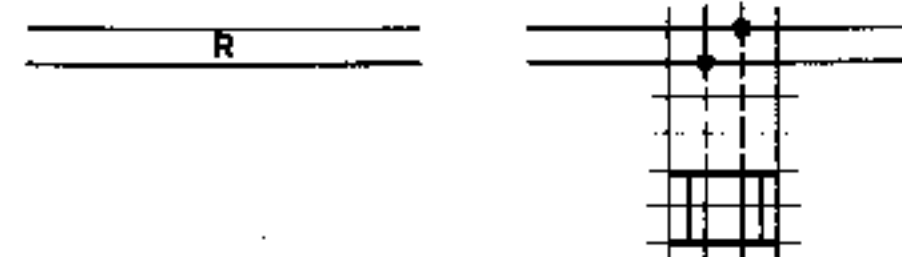
60°, 70°, OR
75°, SIGNALS



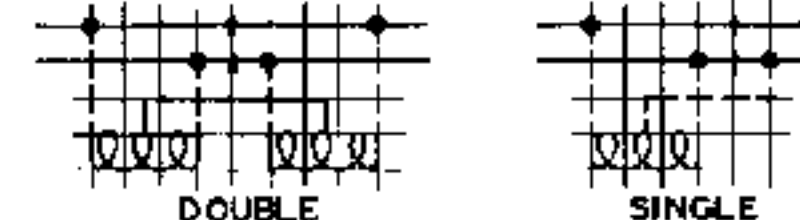
TRACK BATTERY



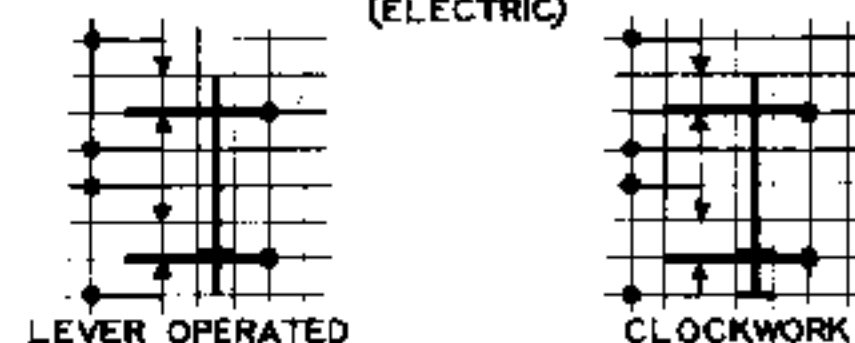
TRACK RELAY



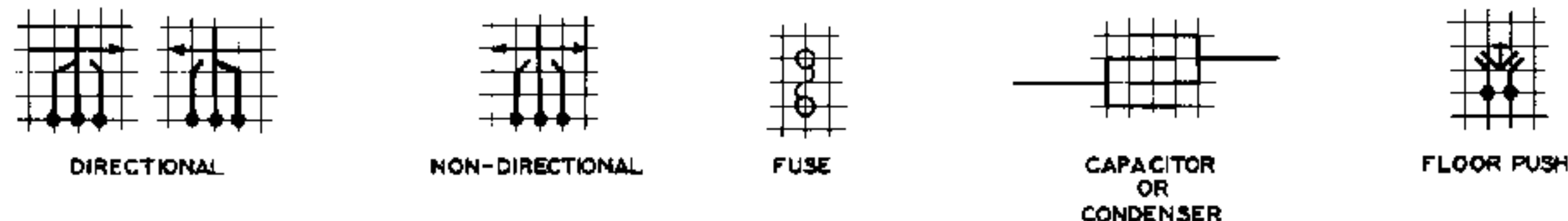
IMPEDANCE BONDS



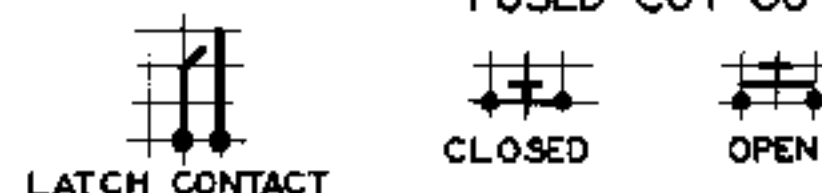
TIME RELEASES (ELECTRIC)



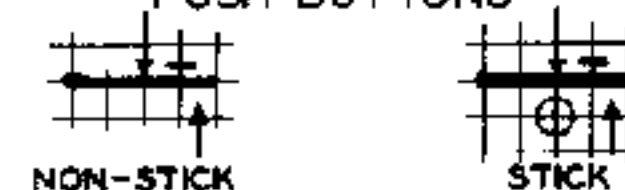
TRACK INSTRUMENT CONTACTS



FUSED CUT-OUT



PUSH BUTTONS

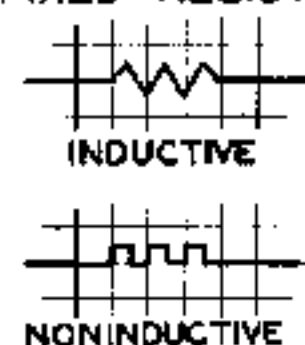


LIVE INDUCTOR

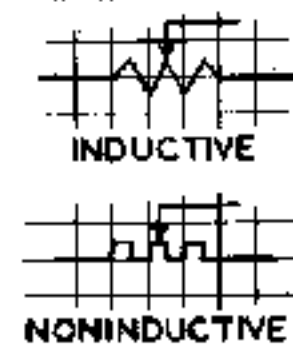
DEAD INDUCTOR LOCATION

SEE NOTE ON SHEET I

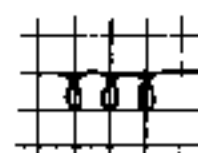
FIXED RESISTOR



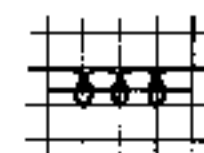
VARIABLE RESISTOR



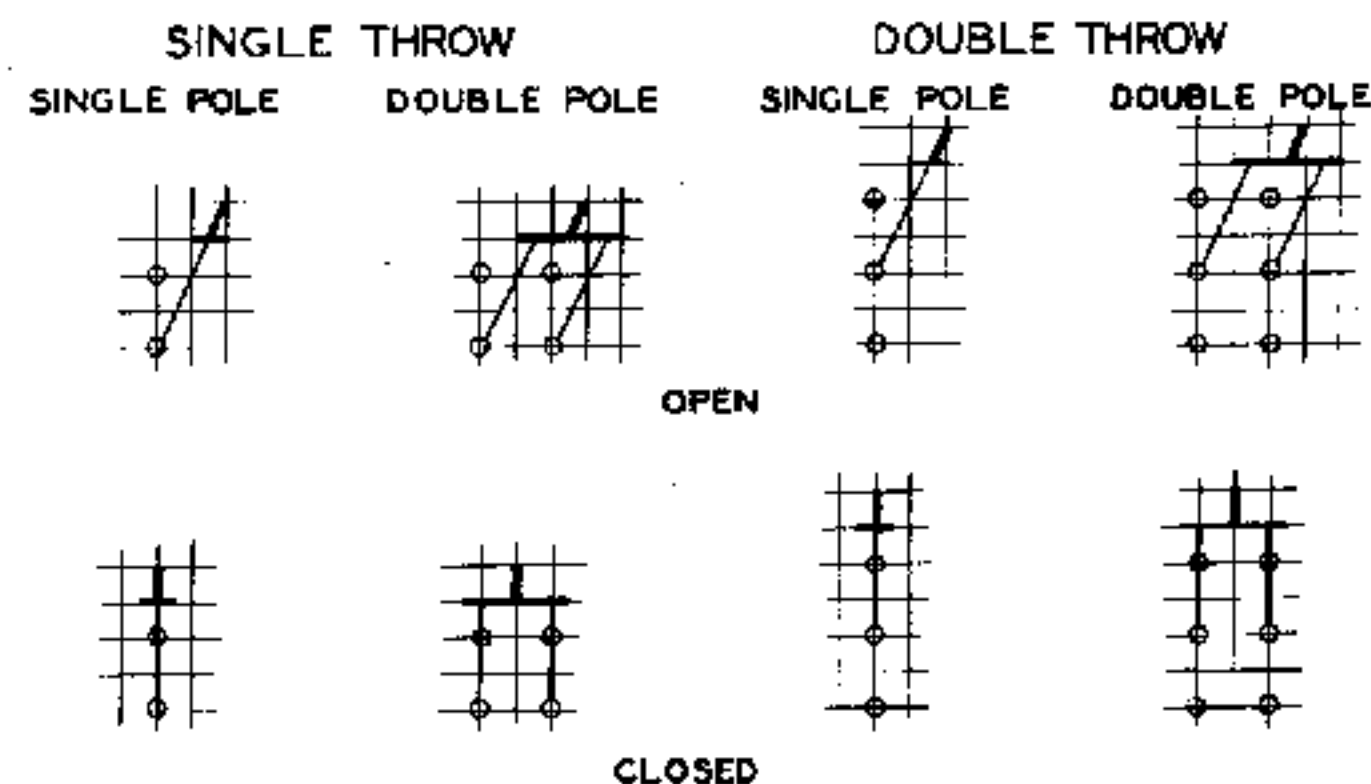
IMPEDANCE
WITHOUT IRON CORE



IMPEDANCE
WITH IRON CORE



AIR BREAK SWITCHES



APPROVED FOR USE

THE CHESAPEAKE AND OHIO
RAILWAY COMPANY

ERIE RAILROAD COMPANY

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

PERE MARQUETTE
RAILWAY COMPANY

K.L.M. C.D.M. A.J.P.

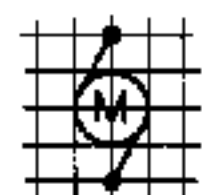
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAY 17, 1932.
CHIEF ENGINEER

SHEET 7 OF 10

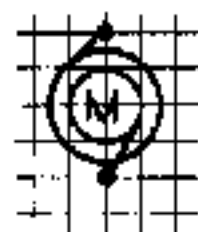
S-2986



D.C. MOTOR



D.C. GENERATOR



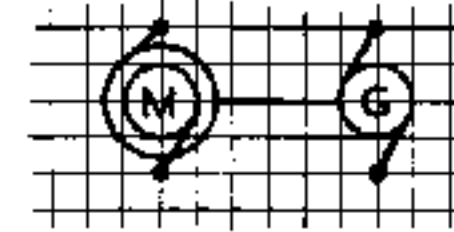
A.C. MOTOR



A.C. GENERATOR

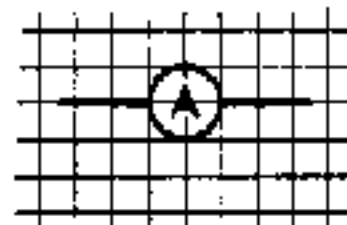


D.C.-D.C. MOTOR GENERATOR

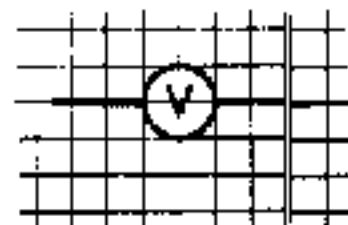


A.C.-D.C. MOTOR GENERATOR

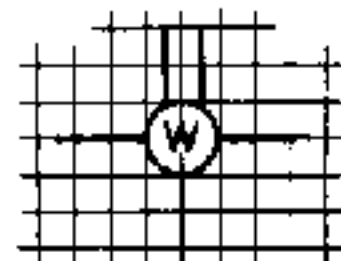
USE LETTER FOR COLOR WHEN
OTHER THAN WHITE COVER GLASS
IS USED. G- GREEN, Y- YELLOW,
R- RED, P- PURPLE.



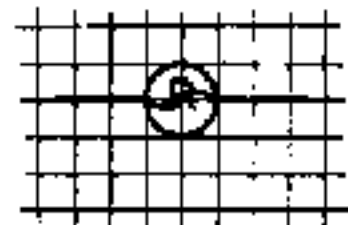
AMMETER



VOLTMETER



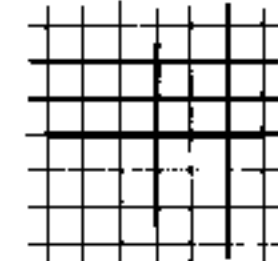
WATTMETER



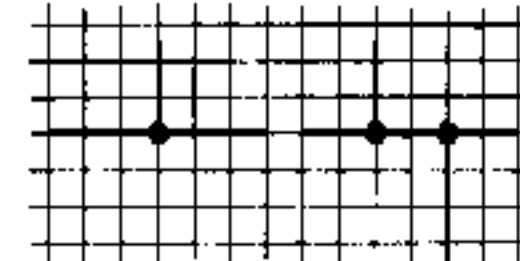
ELECTRIC LAMP
OR BULL'S EYE



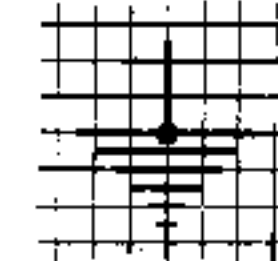
LIGHTNING
ARRESTER



WIRES CROSS



WIRES JOIN

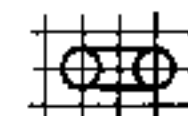


GROUND

TERMINALS



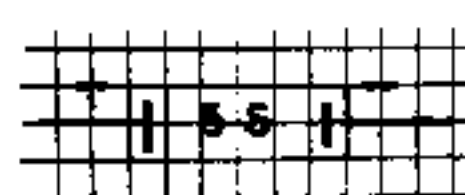
SINGLE



DOUBLE



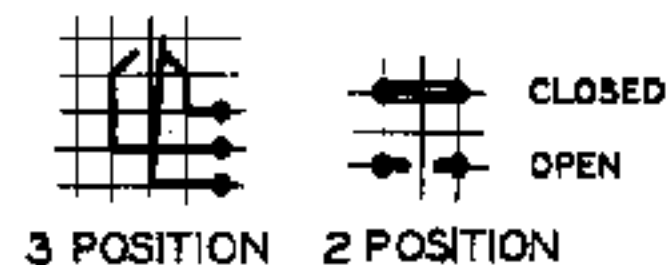
CELLS IN MULTIPLE



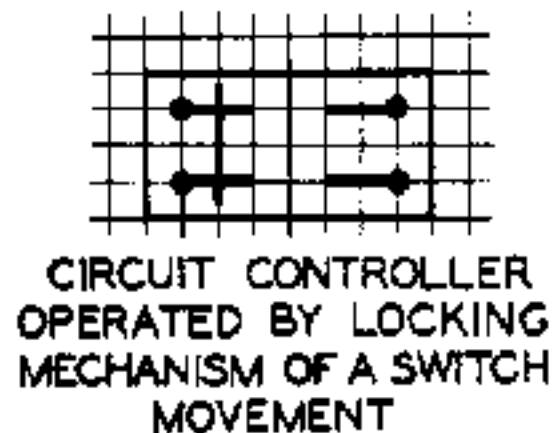
CELLS IN SERIES

SPECIFY TYPE AND NUMBER OF CELLS
D- DRY BATTERY G- GRAVITY BATTERY
P- POTASH BATTERY S- STORAGE BATTERY
EXAMPLES- 15P, 10S, ETC.

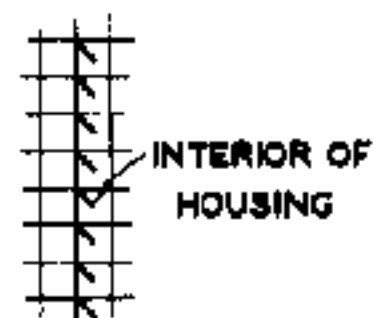
SWITCH CIRCUIT CONTROLLER CONTACTS



3 POSITION 2 POSITION



CIRCUIT CONTROLLER
OPERATED BY LOCKING
MECHANISM OF A SWITCH
MOVEMENT



TOWER OR
APPARATUS
HOUSING
WALL

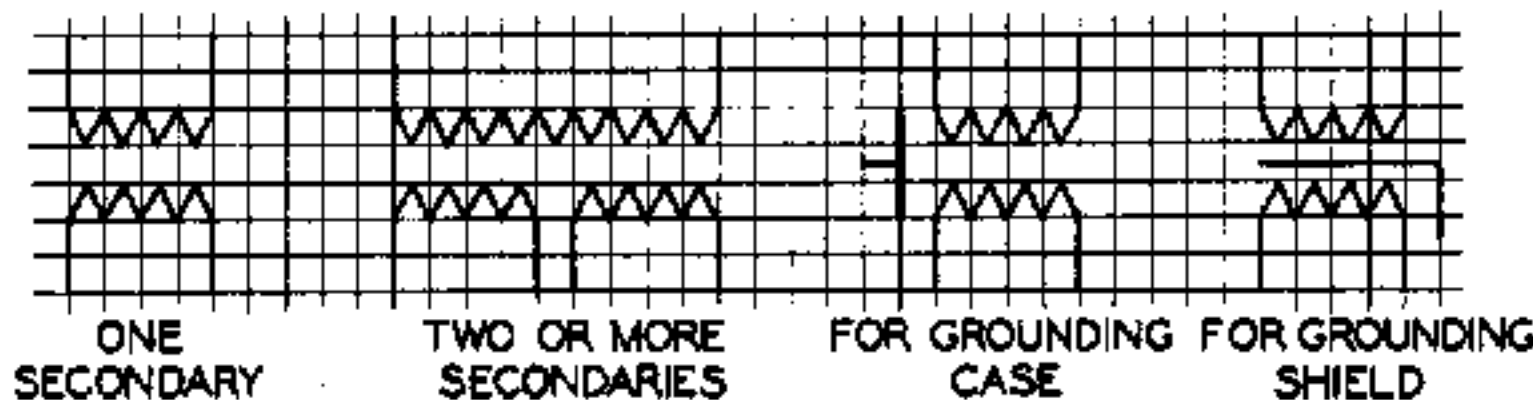


POLE CHANGING
CIRCUIT CONTROLLER



BRIDGE CIRCUIT CONTROLLER

TRANSFORMERS



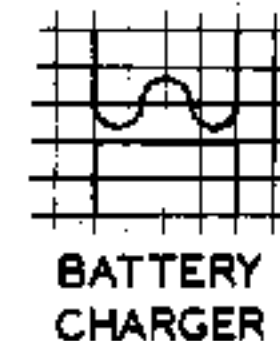
ONE
SECONDARY

TWO OR MORE
SECONDARIES

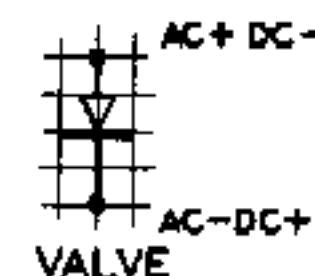
FOR GROUNDING
CASE

FOR GROUNDING
SHIELD

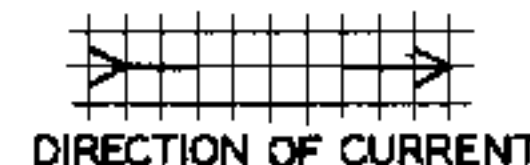
RECTIFIERS



BATTERY
CHARGER



VALVE



DIRECTION OF CURRENT

SEE NOTE ON SHEET I

APPROVED FOR USE

THE CHESAPEAKE AND OHIO
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ERIE RAILROAD COMPANY

Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND
ST. LOUIS RAILROAD COMPANY

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ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

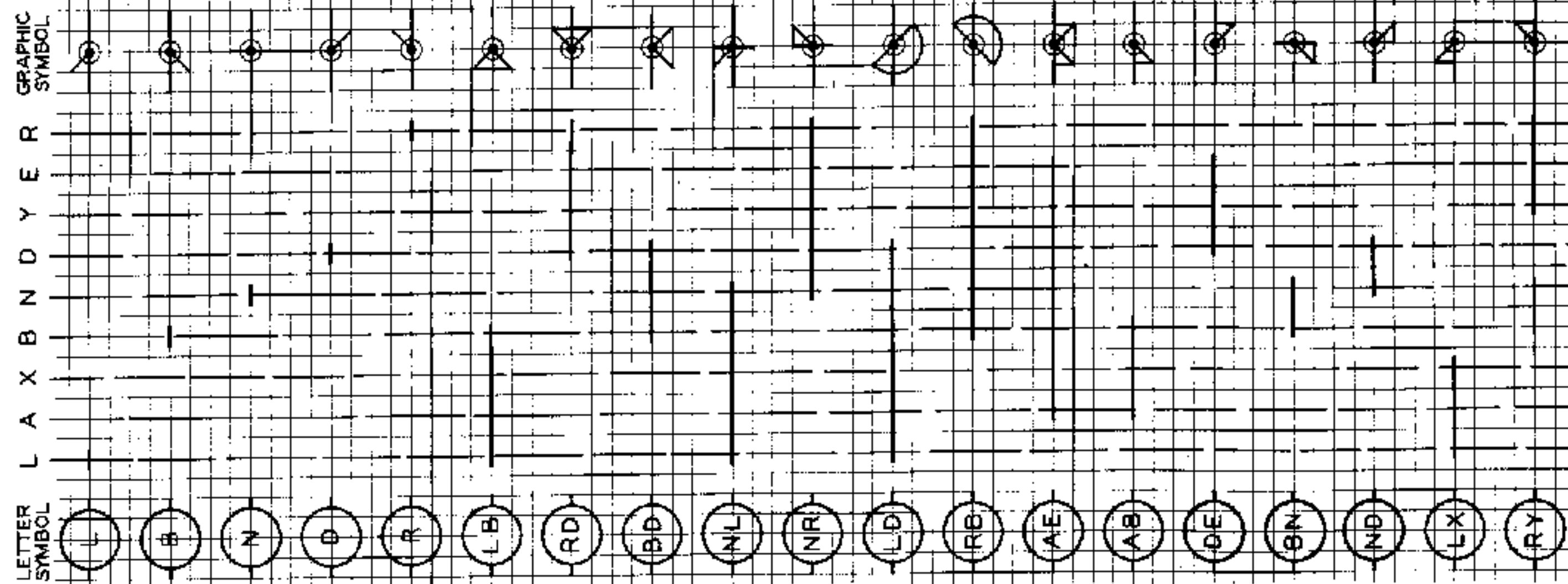
APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *W. H. ...* MAY 17, 1932.
CHIEF ENGINEER

SHEET 8 OF 10
S-2986

CIRCUIT CONTROLLER CONTACT CHART

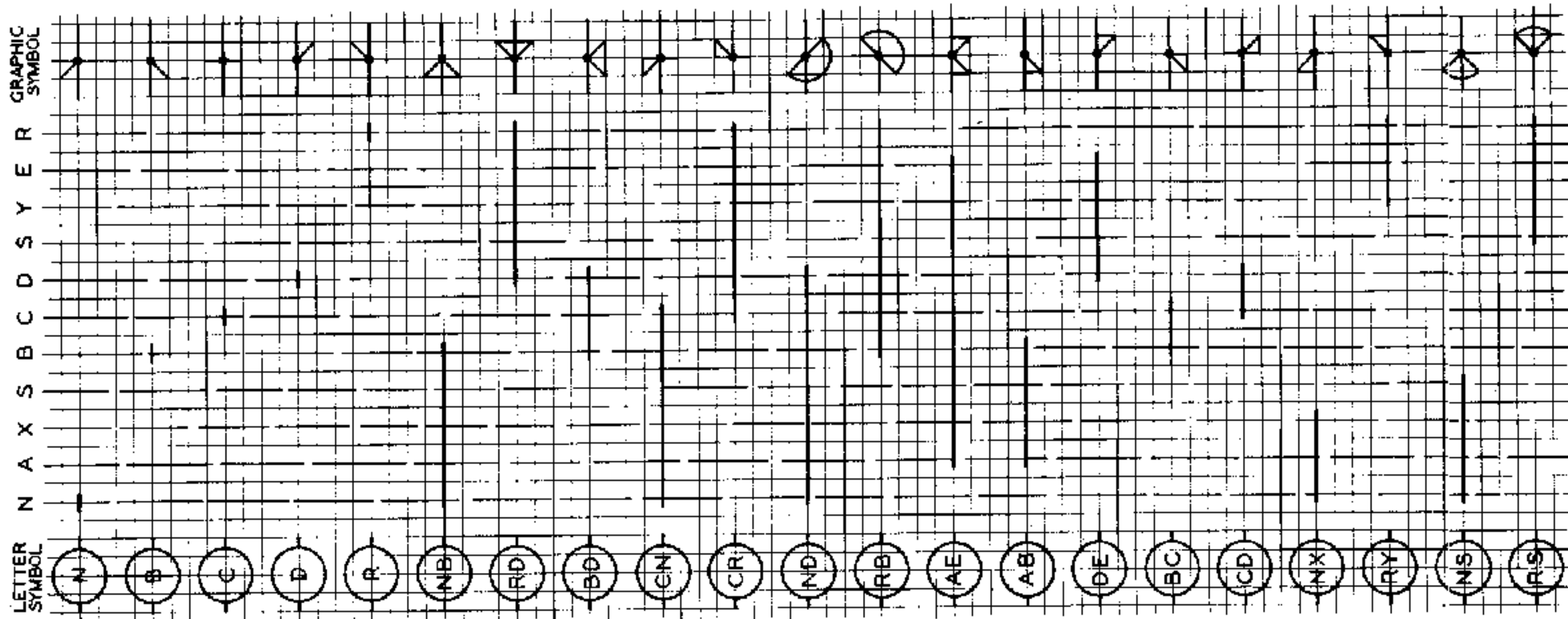
CONTROLLER OPERATED BY LEVER.
LEVERS WITH MIDDLE POSITION AS NORMAL.
LEVER POSITIONS.

N - NORMAL POSITION.
L - FULL REVERSE POSITION TO THE LEFT.
B - INDICATION POSITION TO THE LEFT.
D - INDICATION POSITION TO THE RIGHT.
R - FULL REVERSE POSITION TO THE RIGHT.



CONTROLLER OPERATED BY LEVER OR LATCH.
LEVERS WITH EXTREME END POSITION AS NORMAL.
LEVER POSITIONS.

N - FULL NORMAL POSITION OF LEVER.
B - NORMAL INDICATION POSITION.
C - CENTRAL POSITION.
D - REVERSE INDICATION POSITION.
R - FULL REVERSE POSITION.



*REFER TO TABLE ABOVE NOTES FOR LATCH POSITIONS
OF MECHANICAL INTERLOCKING MACHINES.

MECHANICAL INTERLOCKING MACHINE CIRCUIT CONTROLLERS OPERATED BY LATCH

N - FULL NORMAL POSITION OF LEVER, LATCH DOWN.
A - LATCH RAISED $\frac{1}{8}$ FROM NORMAL POSITION.
X - " " $\frac{1}{3}$ WAY OUT OF NORMAL CATCH.
S - " " $\frac{1}{2}$ " " " " " "
B - " " $\frac{2}{3}$ " " " " " "
C - " " FULL " " " " " "
D - " " $\frac{2}{3}$ " " " REVERSE " "
S - " " $\frac{1}{2}$ " " " " " "
Y - " " $\frac{1}{3}$ " " " " " "
E - " " $\frac{1}{8}$ FROM REVERSE POSITION.
R - FULL REVERSE POSITION OF LEVER, LATCH DOWN.
ANY ADJUSTMENT SHOWN CAN BE USED ON ANY LEVER.
TRAVEL OF LATCH = $\frac{3}{4}$ "

NOTES

1. LETTER SYSTEM TO BE USED ON CIRCUIT PLANS, GRAPHIC SYSTEM SHOWN ONLY FOR INFORMATION.
2. HEAVY HORIZONTAL LINES INDICATE THE PORTION OF CYCLE OF LEVER THROUGH WHICH CIRCUIT IS CLOSED.

SEE NOTE ON SHEET 1

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

G. Brooks
VICE PRESIDENT AND GENERAL MANAGER

PRIT RAIL ROAD COMPANY

E. H. Woodruff
VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

A. H. Allen
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THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *Crushel*
CHIEF ENGINEER
MAY 17, 1932.

SHEET 10 OF 10
S-2986



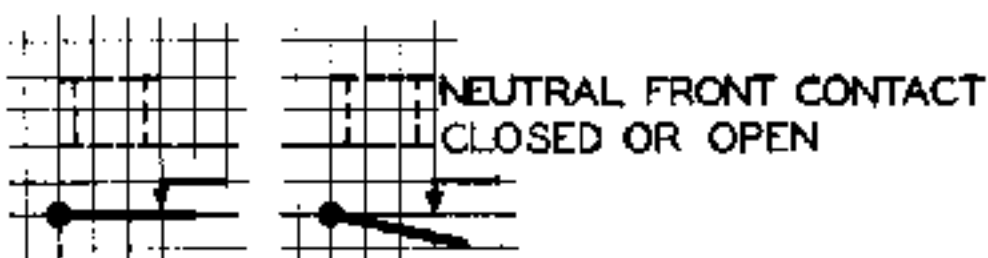
D.C. ELECTRO-MAGNET



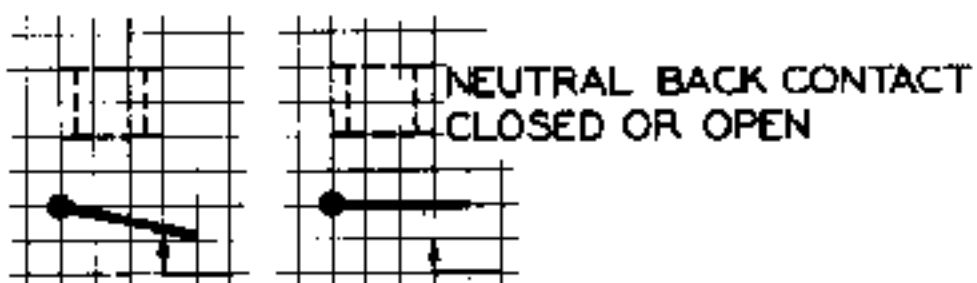
A.C. ELECTRO-MAGNET



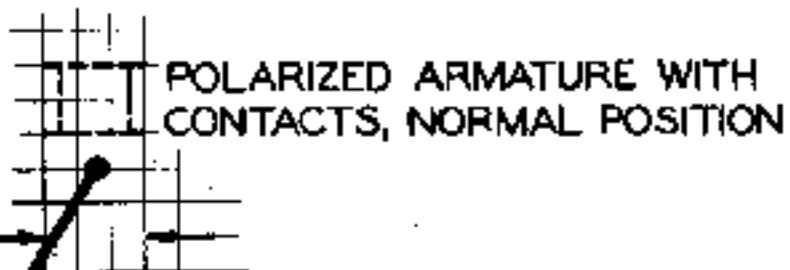
COIL ENERGIZED
OR DE-ENERGIZED



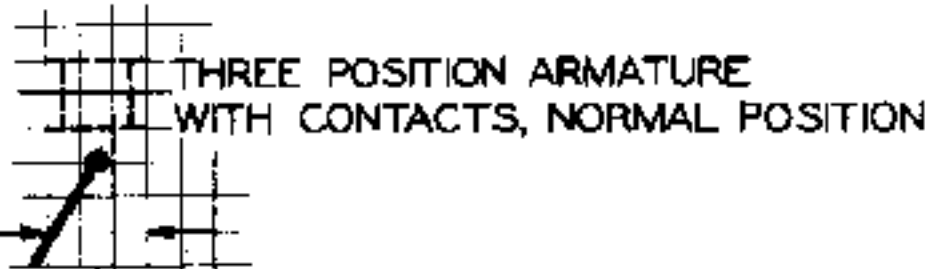
NEUTRAL FRONT CONTACT
CLOSED OR OPEN



NEUTRAL BACK CONTACT
CLOSED OR OPEN



POLARIZED ARMATURE WITH
CONTACTS, NORMAL POSITION



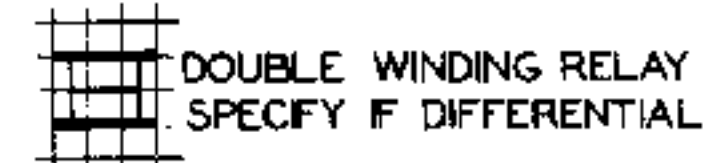
THREE POSITION ARMATURE
WITH CONTACTS, NORMAL POSITION



BACK CONTACT MAKES
BEFORE FRONT CONTACT
BREAKS



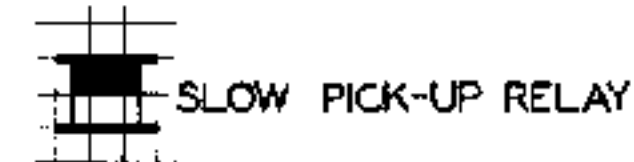
HIGH CURRENT CONTACT



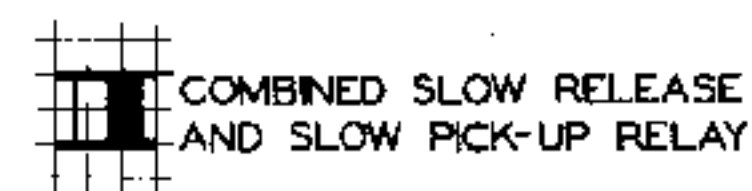
DOUBLE WINDING RELAY
SPECIFY IF DIFFERENTIAL



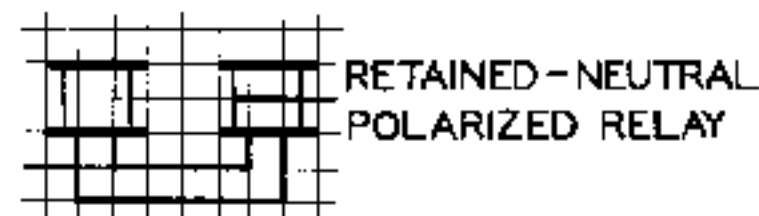
SLOW RELEASE RELAY



SLOW PICK-UP RELAY



COMBINED SLOW RELEASE
AND SLOW PICK-UP RELAY



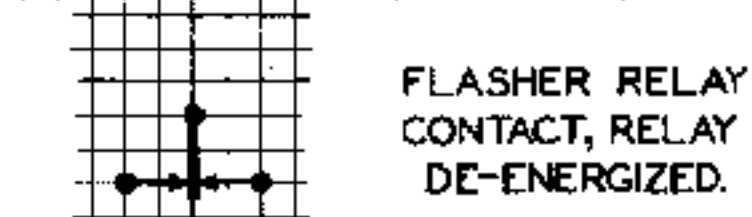
RETAINED-NEUTRAL
POLARIZED RELAY



FLASHER RELAY



WIRING OF
FLASHER RELAY



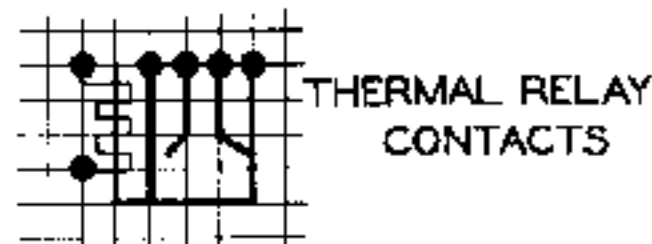
FLASHER RELAY
CONTACT, RELAY
DE-ENERGIZED.



TIME ELEMENT RELAY



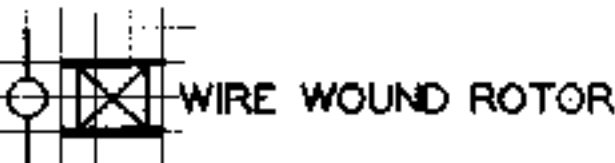
THERMAL RELAY



THERMAL RELAY
CONTACTS



BANK OF CODING
RELAYS



WIRE WOUND ROTOR



STATIONARY WINDING



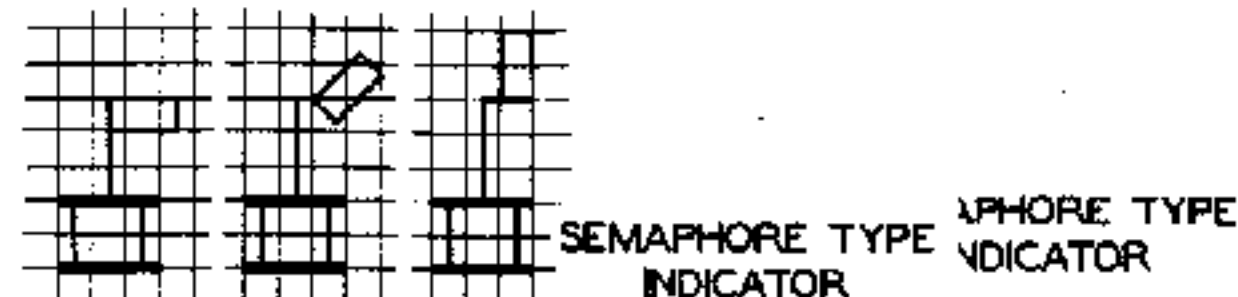
INTERLOCKING RELAY

RELAY



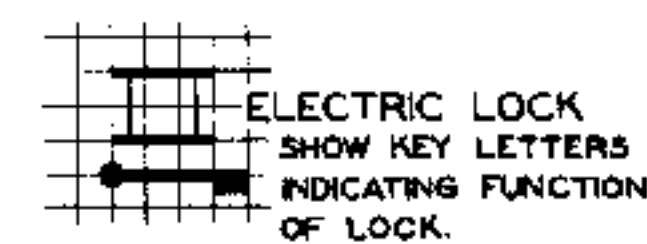
DISC TYPE INDICATOR

INDICATOR



SEMAPHORE TYPE
INDICATOR

SEMAPHORE TYPE
INDICATOR



ELECTRIC LOCK
SHOW KEY LETTERS
INDICATING FUNCTION
OF LOCK.

N = NORMAL LOCK

R = REVERSE LOCK

B = NORMAL INDICATION LOCK, 2 POSITION LEVER OR
LEFT INDICATION LOCK, 3 POSITION LEVER.

D = REVERSE INDICATION LOCK, 2 POSITION LEVER OR
RIGHT INDICATION LOCK, 3 POSITION LEVER.



QUICK RELEASE RELAY



POLARIZED RELAY WITH
NEUTRALIZING COILS

SEE NOTE ON SHEET 1

APPROVED FOR USE

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

E. D. Moore

VICE PRESIDENT AND GENERAL MANAGER

ERIE RAILROAD COMPANY

E. L. Woodruff

VICE PRESIDENT

THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

A. H. Brown

VICE PRESIDENT

PERE MARQUETTE RAILWAY COMPANY

A. H. Brown

VICE PRESIDENT

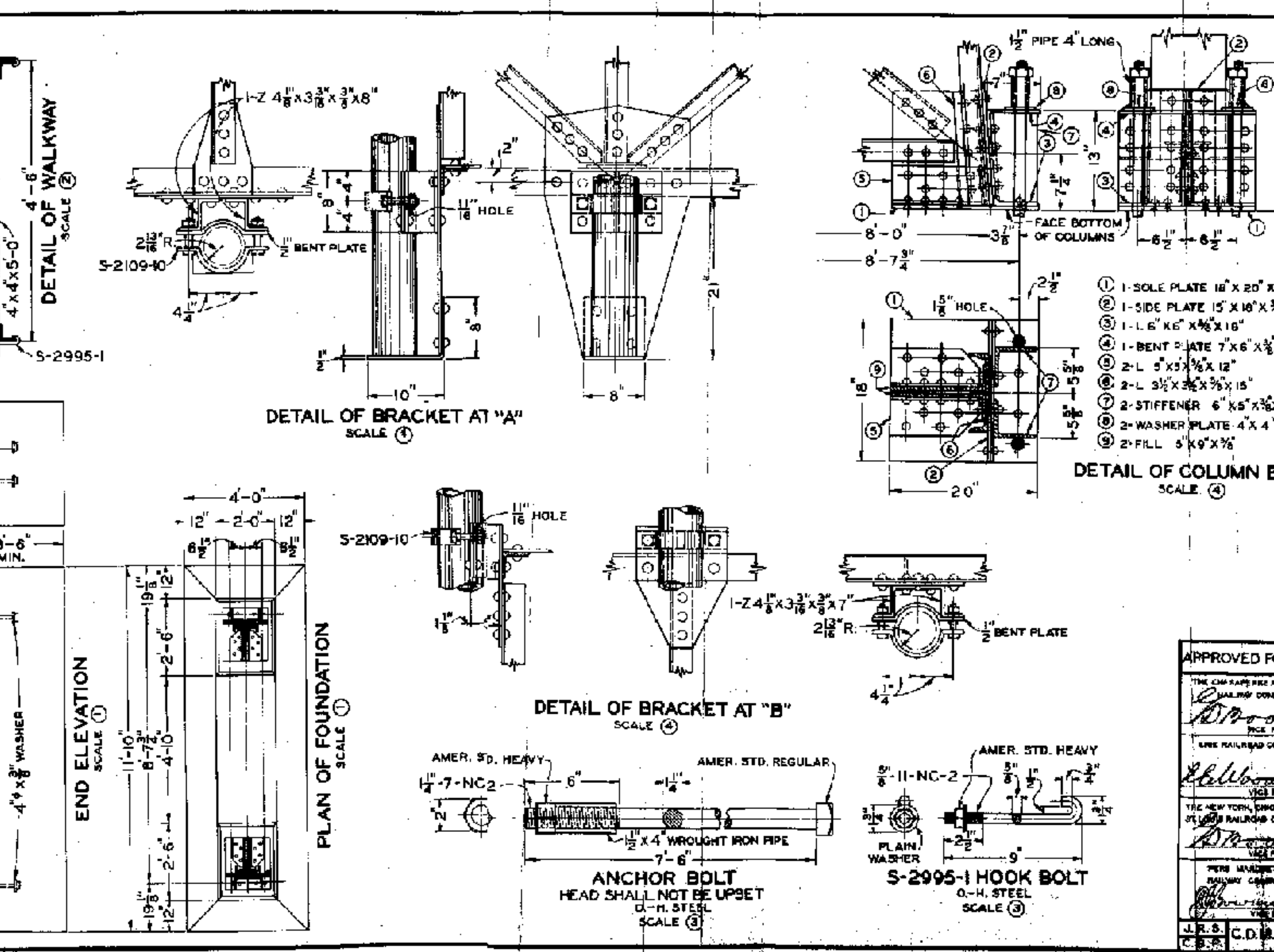
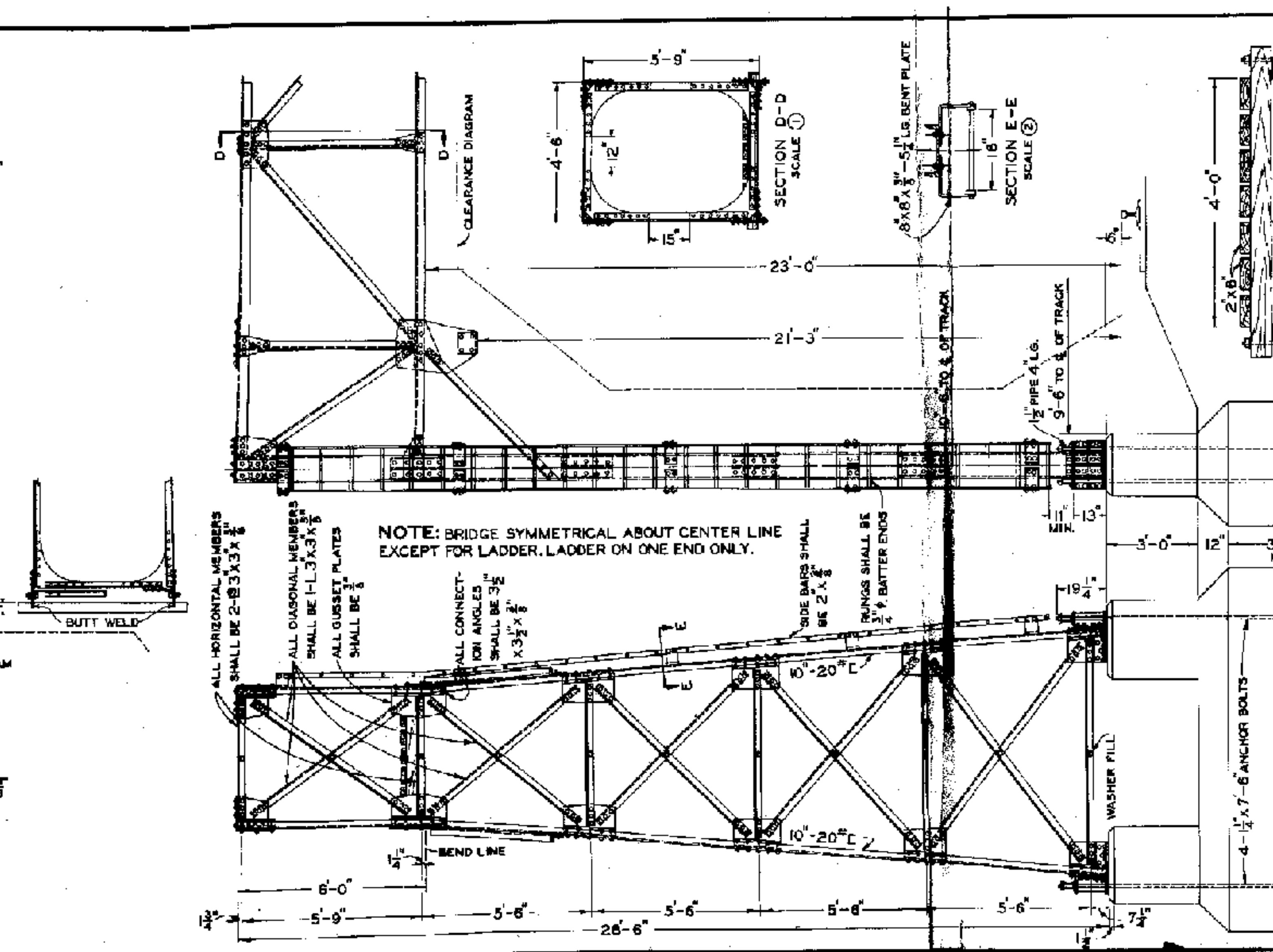
C. H. M.

THE CHESAPEAKE AND OHIO RAILWAY COMPANY
ERIE RAILROAD COMPANY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY

STANDARD SYMBOLS FOR SIGNAL PLANS

APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES

APPROVED: *A. H. Brown* MAY 17, 1927



- NOTES
1. THESE BRIDGES ARE BASED ON 13'-0" TRACK CENTERS.
 2. MATERIALS, WORKMANSHIP, AND SHOP AND FIELD PAINTING SHALL BE IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS B-3001, STEEL RAILWAY BRIDGES, EXCEPT COPPER BEARING STEEL SHALL BE USED.
 3. FOUNDATION SHALL BE OF CLASS IV CONCRETE TO TEST 2500 POUNDS PER SQUARE INCH IN ACCORDANCE WITH LATEST REVISION OF STANDARD SPECIFICATIONS R-5, PORTLAND CEMENT CONCRETE, PLAIN AND REINFORCED.
 4. ALL GUSSET PLATES SHALL BE $\frac{3}{8}$ " THICK.
 5. ALL RIVETS SHALL BE $\frac{3}{4}$ " DIAMETER EXCEPT RIVETS IN LADDER SHALL BE $\frac{3}{8}$ " DIAMETER.
 6. BLAST PLATES SHALL BE FURNISHED AND INSTALLED ABOVE ALL TRACKS.
 7. SIGNAL MASTS, LADDERS, PLATFORMS, AND CLAMP 5-2109-10 SHALL BE FURNISHED BY THE SIGNAL DEPARTMENT.
 8. WALKWAY SHALL BE MADE OF TREATED LUMBER FURNISHED BY THE RAILWAY COMPANY. THE LUMBER SHALL BE AS SPECIFIED FOR GANG PLANK AND SCAFFOLD PLANK IN ACCORDANCE WITH LATEST REVISION OF STANDARD MATERIAL SPECIFICATIONS J-55, SPECIFICATIONS AND INSTRUCTIONS FOR ORDERING AND INSPECTING LUMBER AND TIMBER FOR RAILWAY USES.
- SCALE IN FEET
- ① 0 1 2 3 4 5 6
- ② 0 1 2 3
- SCALE IN INCHES
- ③ 0 2 4 6 8 10 12
- ④ 0 3 6 9 12 15 18 21 24
- FOR USE
- AND OHIO
RAILWAY
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY
PERE MARQUETTE RAILWAY COMPANY
- STANDARD
TWO, THREE, AND FOUR
TRACK SIGNAL BRIDGE
- APPROVED BY
ADVISORY COMMITTEE ON WAY AND STRUCTURES
APPROVED: *[Signature]* MAR. 19
CHIEF ENGINEER
- A. I. R.

APPROVED FOR USE	THE CHESAPEAKE AND OHIO RAILWAY COMPANY ERIE RAILROAD COMPANY THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY PERE MARQUETTE RAILWAY COMPANY
THE CHESAPEAKE AND OHIO RAILROAD COMPANY <i>D. B. Smith</i> VICE PRESIDENT	STANDARD TWO, THREE, AND FOUR TRACK SIGNAL BRIDGE
ERIE RAILROAD COMPANY <i>H. L. Woodruff</i> VICE PRESIDENT	
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY <i>D. B. Smith</i> VICE PRESIDENT	
PERE MARQUETTE RAILWAY COMPANY <i>H. L. Woodruff</i> VICE PRESIDENT	
J.R.S. C.B.R.	APPROVED BY ADVISORY COMMITTEE ON WAY AND STRUCTURES APPROVED: <i>H. L. Woodruff</i> MAR. 11 CHIEF ENGINEER