

ADVISORY MECHANICAL COMMITTEE
EQUIPMENT ENGINEERING DEPARTMENT

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

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

- 1-Steam Chest Bushing: Apply at not less than 10 nor more than 20 tons gauge pressure. With bushing shouldered, ports must take standard gauge. Bushings $1/32$ " or more out of round must be rebored. Bushings more than $3/8$ " over drawing diameter must be renewed. $1/4$ " LAST BORE Bushings with width of ports $1/16$ " or more over standard gauge must be renewed. Bushings more than $1/16$ " over standard gauge between admission edges of ports must be renewed. Steam passages, ports, cylinder openings, etc. must be free of carbon and foreign matter.
- 2-Piston Valve: Distance over and between rings must be exact to standard gauge. Test packing springs before applying.
- 3-Slide Valve: Ports and valves must be to standard gauges with their admission and exhaust edges straight and parallel to each other when valve is connected to crosshead.
- 4-Valve Gear: Distances between pin centers other than eccentric and reach rods must tram to drawing. Link block pin hole must be central and link radius true. Relocate link trunnions more than $3/64$ " off center with link slide. Renew link blocks more than $1/32$ " loose in link.
- 5-Valve Gear Assembly: All parts to work freely in all positions with the minimum required lost motion. Do not heat any part except in blacksmith shop or by other approved method. Valve crosshead to have $1/32$ " vertical and lateral guide clearance. Eccentric crank key to have $1/32$ " clearance at top. Offset keys not permitted. Keyways in eccentric crank that do not line up with keyway in crank pin are to be built up solid and re-slotted in accordance with S.M.E.I. No. 6.
- 6-Lost Motion, Baker Gear: Check lost motion at each quarterly inspection, at other times when there is any indication of an excess and when setting valves. The unsprung lost motion in valve gear in full forward and back-up positions is not to exceed $1/32$ " when setting valves at Class 3 or better repairs nor $1/8$ " at other times.
- 7-Gauges: Keep in good condition all gauges and trams shown on attached sheets and use no other means for the checking or tramping for which these are intended.

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING.

- 8-When to set Valves: Check valve setting at all classified repairs, whenever setting may have been affected by wreck or otherwise and when lost motion exceeds the limit.
- 9-Locating Dead Centers: See that all pedestal wedges are set up and bearings down on journals. Then rotate wheels backwards until main crank pin is about six to eight inches below front or above back center. From a point prick punched on crosshead, with crosshead tram scribe an arc on guide. Prick punch a point on this arc. From a point prick punched on frame, with wheel tram scribe an arc on outer face of main tire near top. Scribe an arc around top of tire about one inch below tread. Prick punch the intersection of the two arcs. Move engine back until crosshead on return stroke passes the point at which arc was scribed on guide. Then move engine ahead until tram falls exactly in prick mark on guide. From prick mark on frame, with wheel tram scribe arc on tire and prick punch its intersection with arc around tire. Locate and prick punch center point between the two prick marks on tire. Move engine ahead until tram falls exactly in center prick mark. Engine will then be on "Dead" center.
- 10-Locating "Still Valve" Position: With all valve motion parts except eccentric rod connected up, swing connecting rod (Baker) or link (Walschaert) to center of its travel and clamp it in this position. With valve tram scribe an arc on valve stem. Reverse valve gear to extreme forward and back-up positions and if valve stem moves, adjust and re-clamp connecting rod or link in a position where there is no movement of valve stem when reversing gear and with tram record its position on some stationary part.
- 11-Setting Eccentric Crank, Locating Lead Marks and Determining Length of Eccentric Rods: With connecting rod or link secured in "Still Valve" position and eccentric rods removed, move engine ahead to nearest "Dead" center and with valve tram scribe lead arc on valve stem and with one end of a tram, set to specified length of eccentric rod, held in center hole of connecting rod or link tail pin set eccentric crank to other end and clamp crank. Scribe crosshead extreme travel on guide. Move engine ahead to other "Dead" center and repeat these operations, except if eccentric crank setting does not check to tram, move crank one half the distance it is off and adjust tram to eccentric crank pin center. If adjustment to tram is more than $1/8"$, move ahead to first "Dead" center and recheck eccentric crank setting, repeating until setting checks on both "Dead" centers. Lay off and set eccentric rod to final tram length and with any suitable tram record position of crank on wheel center.
- 12-Port Marks: Move valve until steam edge of ring or slide valve is line and line with that of port and from permanent center with valve tram scribe port arcs on valve stem. In like manner locate exhaust port arcs on valve stem.
- 13-Reverse Shaft and (Baker) Reach Rod: If on swinging links through their arcs of normal travel, with valve gears on center, one valve moves, set reverse shaft arms, by uniformly heating reverse shaft for about twelve inches near center and twisting shaft, until neither valve moves. If on swinging (Baker) connecting rods through their arcs of normal travel, with reverse yokes on centers, one valve moves more than a minimum and reverse shaft arms are in proper alignment with each other adjust gear reach rods until neither valve moves more than a minimum.

3 STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

- 14-Eccentric Throw: Measure eccentric throw from extreme crank travel scribed with a tram on a board secured horizontally at axle center level to guide yoke end or other stationary part.
- 15-Checking Valve Events: Move engine ahead until crosshead returning from either end of travel is at the distance specified under "Percent of Piston Stroke" in table from that end. Then move valve gear from full forward position toward center until valve tram falls exactly on steam port mark for that end. Secure gear against movement from this position. Moving engine ahead check leads, port openings, and crosshead travel to points of cut-off and release. Then with engine on "Dead" center, release reverse gear and recheck for "Still" valve both sides.
- 16-Valve Setting - Adjustments and Tolerances: All valve events and setting of parts must be within the tolerances specified herein. All adjustments necessary to obtain "Still" valve, the correct setting of eccentric crank, length of eccentric rod, setting of reverse shaft arm, gear reach rod length, and proper location of port or lead marks must be made before checking valve events. In making adjustments prior to or after checking valve events no part is to be changed from drawing dimensions or location, or from standard gauge except of eccentric rod, valve stem, gear reach rod and reverse rod and setting of reverse shaft arms and except only on Erie Railroad the length of radius bar or valve rod may be changed from drawing up to a maximum of 1/4". No changes that will not give a "Still" valve when on "Dead" centers is to be made in eccentric crank setting or eccentric rod to correct eccentric throw or for any other purpose. All adjustments necessary to correct valve events must be made in valve stem, except only on Erie radius bar or valve rod may be changed. When adjustments of other parts are indicated recheck setting and dimensions of part; if correct, make no change; if incorrect, correct or reset and recheck all events and other settings affected before making other adjustments.

TOLERANCES

All four leads, Front & Back, both sides equal.....	1/64"
Total of Front & Back leads each side the specified total....	Minus 1/32"t Plus 1/16"
Exhaust clearances as specified.....	3/64"
Eccentric throw as specified.....	1/4"
All four cut-offs, Front & Back, both sides equal.....	3/4"
All four releases, Front & Back, both sides equal.....	1"

- 17-Setting Gear Stops and Checking Reach Rod Length: When engine is hot make necessary adjustments in reverse rod from reverse gear to lever and in reach rod between reverse gear and valve gear so that when valve gear is on dead center when checked as in Par. 13 the reverse gear will be at the center of its travel and the lever at the center of the quadrant. Then with gear in full forward travel position, moving engine under its own steam, check valve travel and port openings. If specified travel is not obtained the reverse rod and reach rod may be adjusted to provide full valve travel, provided when adjustments are completed the valve gear will be on dead center when reverse lever is on center.

4

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-G

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

17-Setting Gear Stops and Checking Reach Rod Length: (Continued)

Remove thoroughly all old marks and mark quadrant center distinctly. In like manner check full travel in back-up to see that it does not exceed that specified and set all reverse and valve gear stops. See that quadrant on all road engines is so arranged that lever cannot be locked to operate at less than ³³(25) per cent cut-off.

18-Investigation of Irregularities: If "Still" valve is unobtainable, check link radius. If eccentric throw is incorrect, see that crank is as set, recheck eccentric crank length and setting, see that valve gear was in "Still" valve position, frame wedges up, frames approximately level, at least two gauges of water in boiler and all driving bearings down on journals when eccentric crank was set and gear connecting rod or link tail are to drawing. If any valve event cannot be made right by changes in valve stem, place engine on "Dead" center and check for "Still" valve, if valve moves check eccentric rod length, if correct make check same as for incorrect eccentric throw, if valve is "Still" check parts for being to drawing, check offset at top of combination lever, link trunnion and block pin hole for being central with link slide, setting of reverse shaft arms and length of valve gear reach rods (Baker) and see that lost motion at full gear position is a minimum.

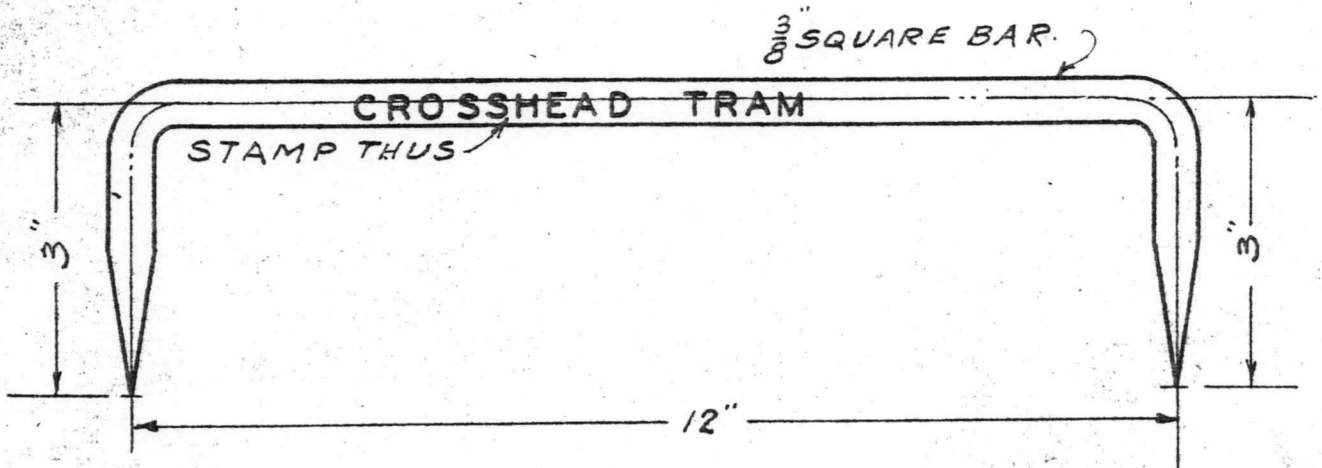
19-General: If on any locomotive, after a thorough investigation, the shops are unable to set valves to these instructions within specified limits, the Chief Mechanical Engineer is to be advised.

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

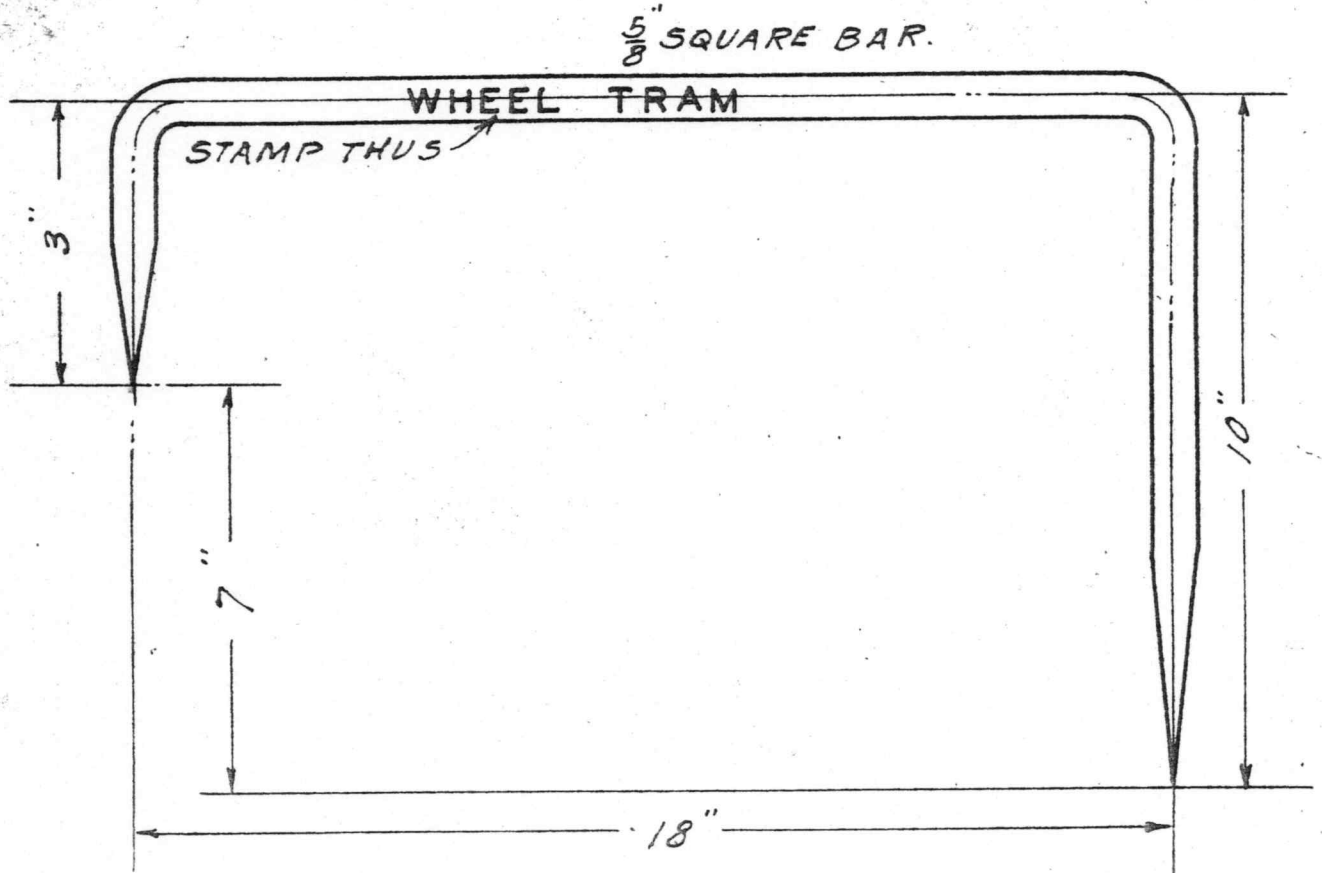
STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

STANDARD TRAMS

CROSSHEAD TRAM

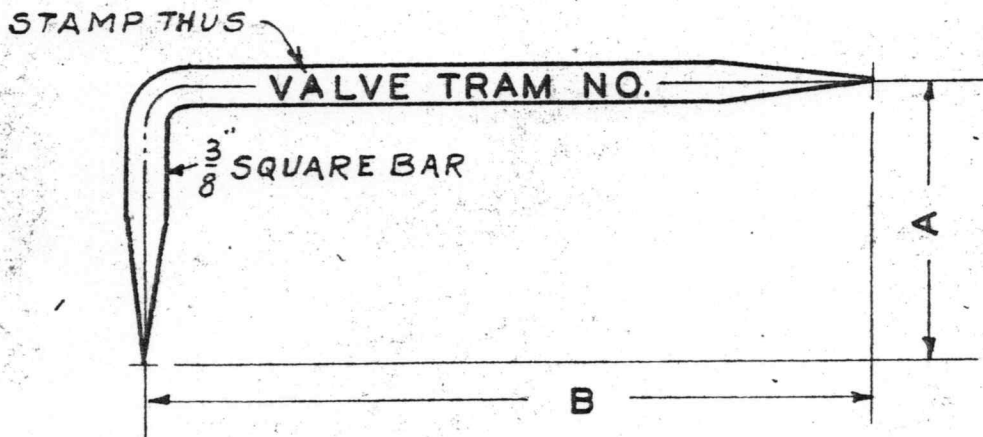


WHEEL TRAM



6

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C
 STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING
 STANDARD VALVE TRAMS



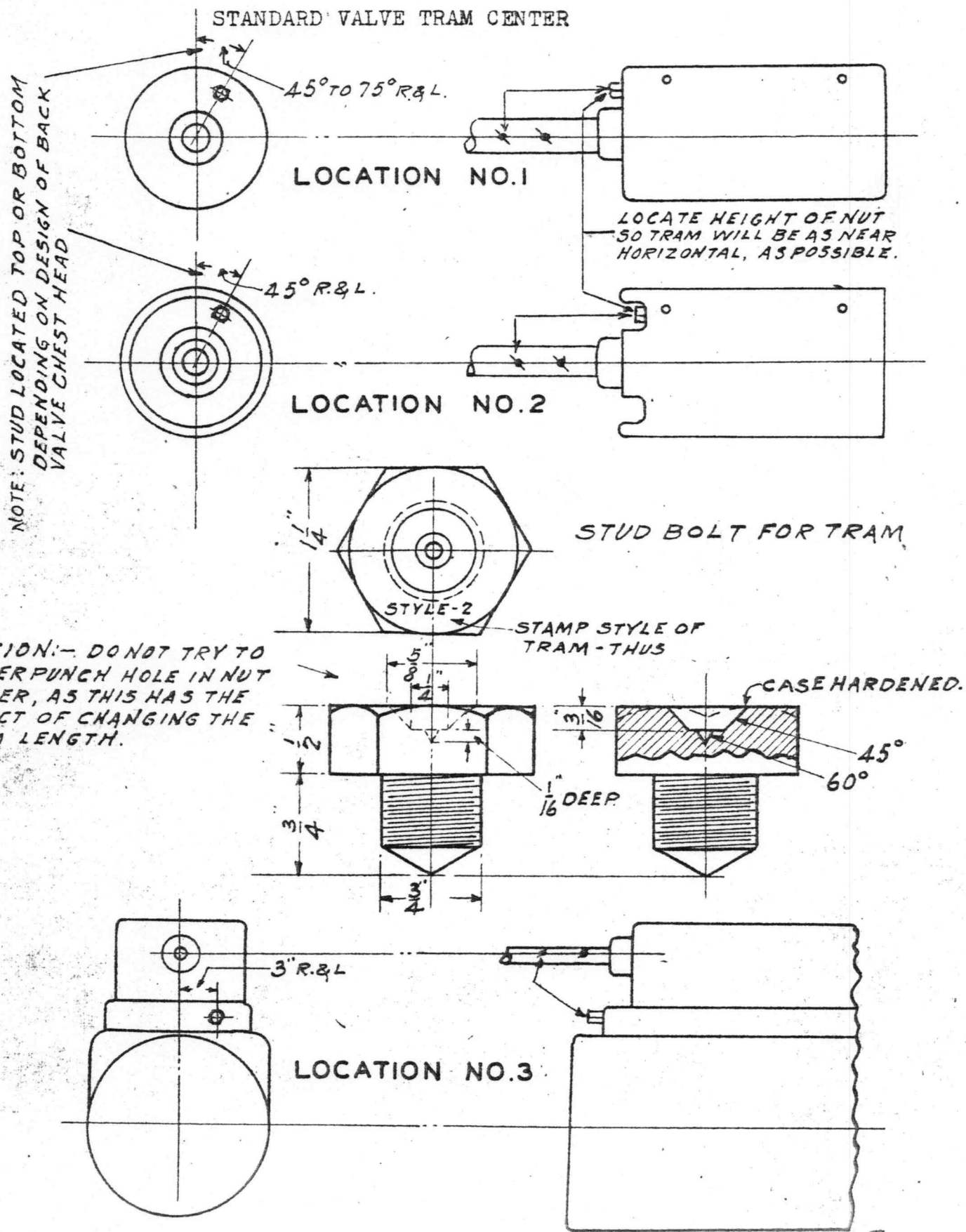
STYLE	A	B
1	3"	8 $\frac{1}{2}$ "
2	3 $\frac{3}{4}$ "	12 $\frac{1}{2}$ "
3	3"	5 $\frac{1}{2}$ "
4	3"	21"
5	8 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "

NOTE:-

SHOPS TO MAKE AND KEEP IN GOOD CONDITION
 ONLY THOSE STYLES USED ON CLASSES OF
 LOCOMOTIVES REPAIRED

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

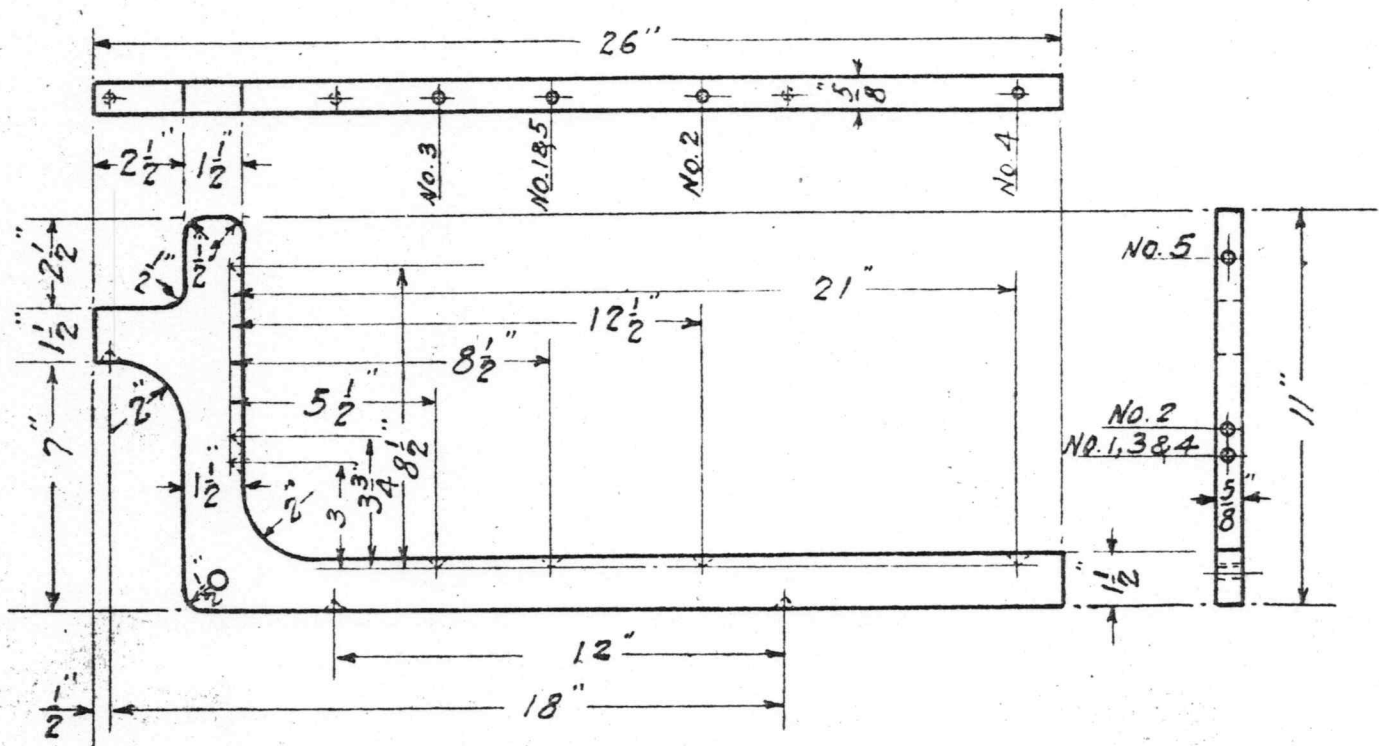
STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING



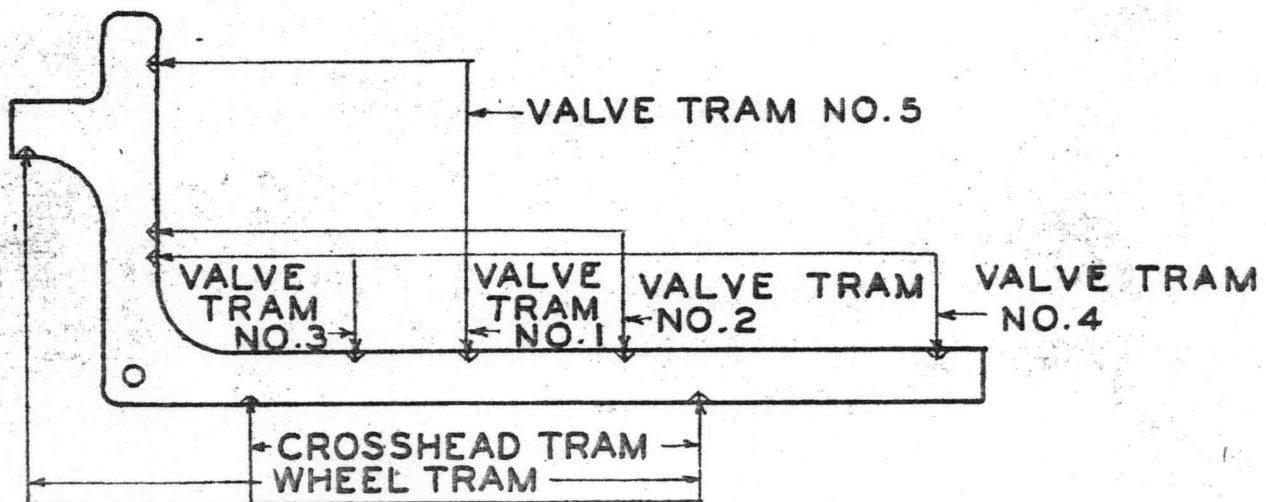
STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

TRAM MASTER GAUGE

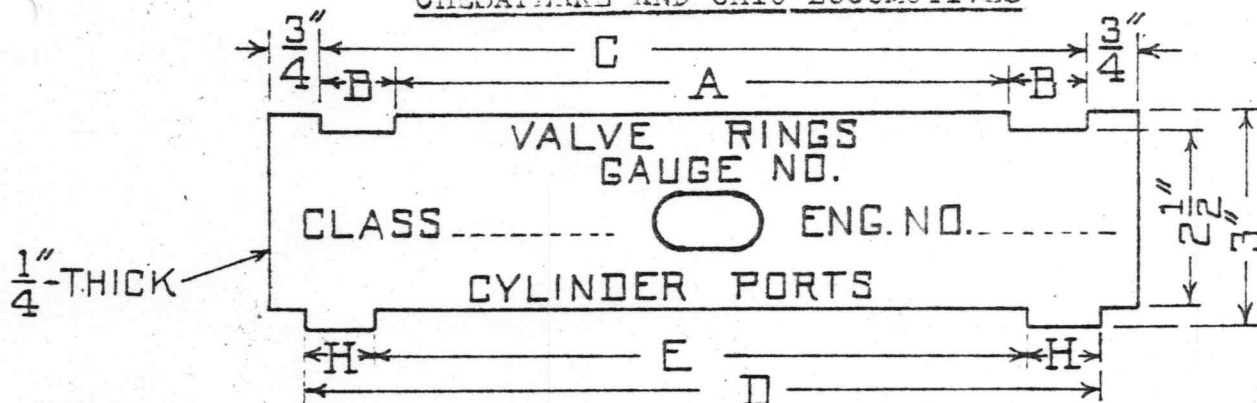


APPLICATION



9

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C
 Steam Chest, Valves, Valve Gear and Valve Setting
 Cylinder Port and Valve Ring Gauge
 CHESAPEAKE AND OHIO LOCOMOTIVES



CLASS	ENGINE NUMBERS	GAUGE NOS.	BETWEEN RINGS A	ACROSS RINGS B	OVER RINGS C	OVER PORTS D	BETWEEN PORTS E	PORT WIDTH H
A-16	275-294	25	23"	2-1/2"	28"	28-1/4"	25"	1-5/8"
B-1	2950-2959	43	19"	3-3/8"	25-3/4"	26"	21-1/4"	2-3/8"
C-12	130-144		16-1/4"	2-3/4"	21-3/4"	21-3/4"	18-1/4"	1-3/4"
C-14	70-79 & 100-109		25"	2-3/4"	30-1/2"	30-1/2"	27"	1-3/4"
C-15	110-124		25"	2-3/4"	30-1/2"	30-1/2"	27"	1-3/4"
C-16	175-254		24-1/2"	3"	30-1/2"	30-1/2"	27"	1-3/4"
F-15	430-456	27	23"	2-7/16"	27-7/8"	28-1/4"	25"	1-5/8"
F-16	460-467	28	17-3/4"	2-9/16"	22-7/8"	23-1/4"	19-3/4"	1-3/4"
17	470-475	28	17-3/4"	2-9/16"	22-7/8"	23-1/4"	19-3/4"	1-3/4"
F-18	480-485	87	16-3/8"	2-9/16"	21-1/2"	21-7/8"	19"	1-7/16"
F-19	490-494	76	25"	2-3/4"	30-1/2"	30-7/8"	27-5/8"	1-5/8"
H-3-HP	1275-1299		16-1/4"	2-3/4"	21-3/4"	22-1/4"	18-1/4"	2"
LP			6-1/2"	3-1/8"	12-3/4"	10-1/2"	5-3/4"	2-3/8"
H-4-HP	1326-1473		16-1/4"	2-3/4"	21-3/4"	22-1/4"	18-1/4"	2"
LP			6-1/2"	3-1/8"	12-3/4"	10-1/2"	5-3/4"	2-3/8"
H-4A-F&B	1470		23"	2-3/4"	28-1/2"	28-3/4"	25-1/2"	1-5/8"
H-5-HP	1520-1539	78	25"	2-3/4"	30-1/2"	31"	27"	2"
H-6-HP	1475-1519	33	16-1/4"	2-3/4"	21-3/4"	22-1/4"	18-1/4"	2"
H-7-F&B	1540-1564	34	23"	2-5/8"	28-1/4"	28-1/2"	25"	1-3/4"
H-7-F&B	1570-1589	39	23"	2-3/4"	28-1/2"	28-3/4"	25-1/4"	1-3/4"
H-8 F&B	1600-1644		26-15/16"	3-29/32"	34-3/4"	34-3/4"	29-13/16"	2-15/32"
J-1	540-542	35	24-1/2"	3"	30-1/2"	30-7/8"	26-7/8"	2"
J-2	543-549	36	25"	2-3/4"	30-1/2"	30-7/8"	27-1/2"	1-11/16"
J-3	600-606		22-3/4"	3-1/2"	29-3/4"	30-1/8"	25-1/2"	2-5/16"
K-1	1089-1155	37	24-1/2"	3"	30-1/2"	30-3/4"	26-7/8"	1-15/16"
K-2 & 3	1160-1259	80	25"	2-3/4"	30-1/2"	30-3/4"	27-1/2"	1-5/8"
K-3	2300-2349	80	25"	2-3/4"	30-1/2"	30-3/4"	27-1/2"	1-5/8"
K-4	2700-2739		25-1/4"	4"	33-1/4"	33-3/8"	28-5/8"	2-3/8"
L-2	300-307		26-1/4"	3-1/4"	32-3/4"	33-1/8"	29"	2-1/16"
T-1	3000-3039	88	25-1/8"	4-3/16"	33-1/2"	33-1/2"	29"	2-1/4"

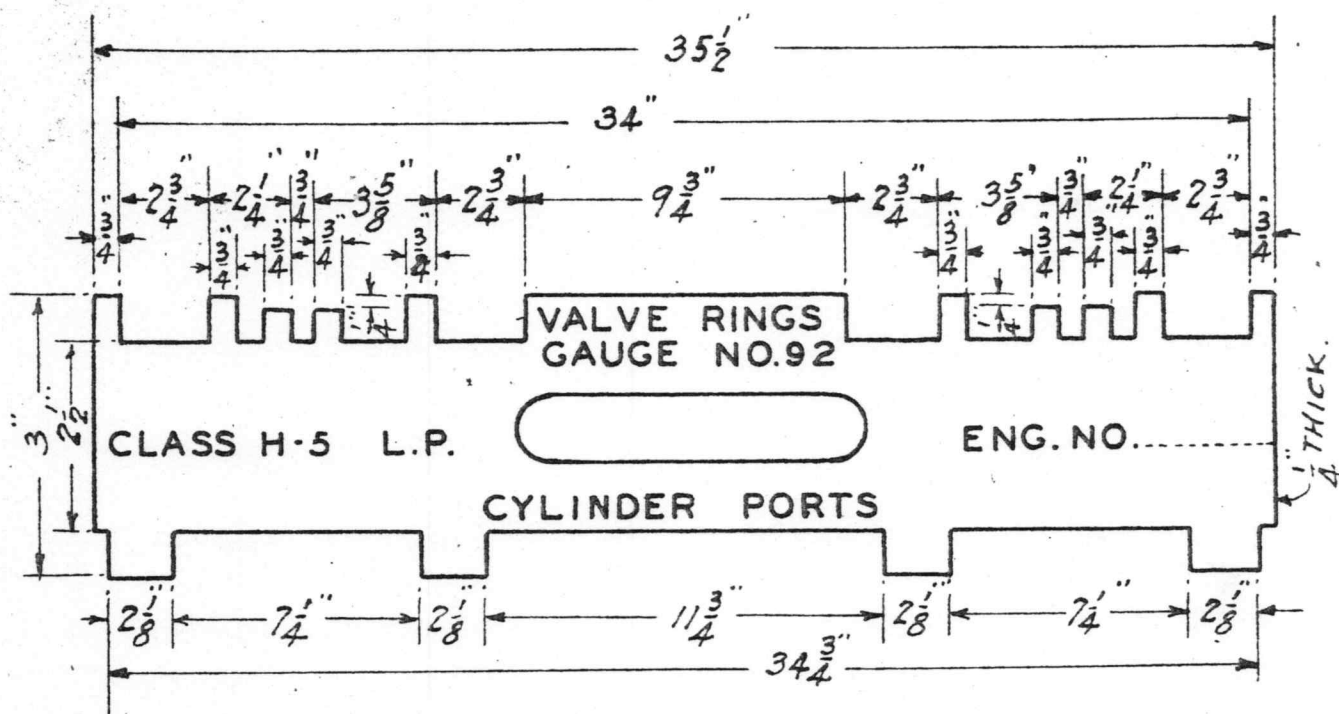
Changes made in J-1 dimensions. 12/14/37.

Adding J-3 Baker Gear, J-3-A, L-2 and H-8. Revised 4/29/42.

Adding C-12, 14, 15, 15A, 16, & 16A and H-3, 4, & 4A. Revised 10/28/42.

Adding K-4 and changing H-8 Eng. Nos. Revised July 15, 1944.

CHESAPEAKE AND OHIO LOCOMOTIVES
CLASS H-5 - LOW PRESSURE



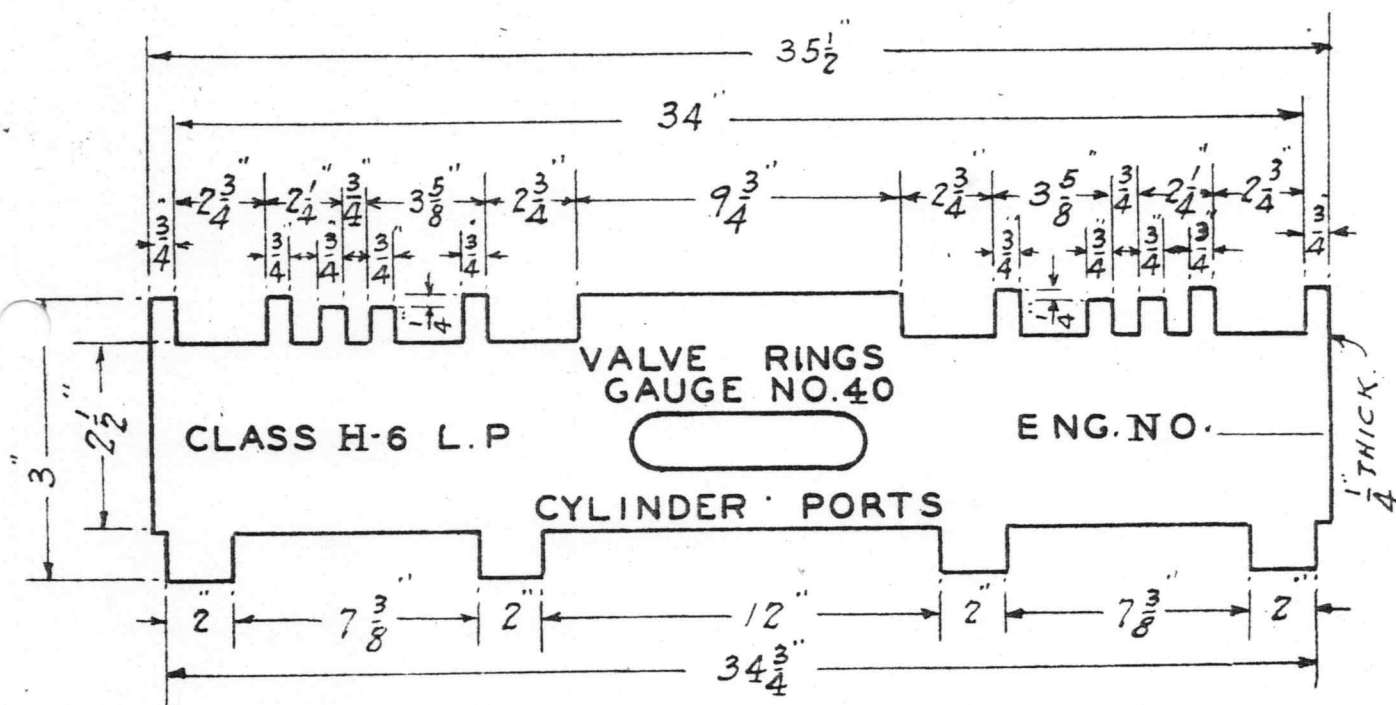
STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

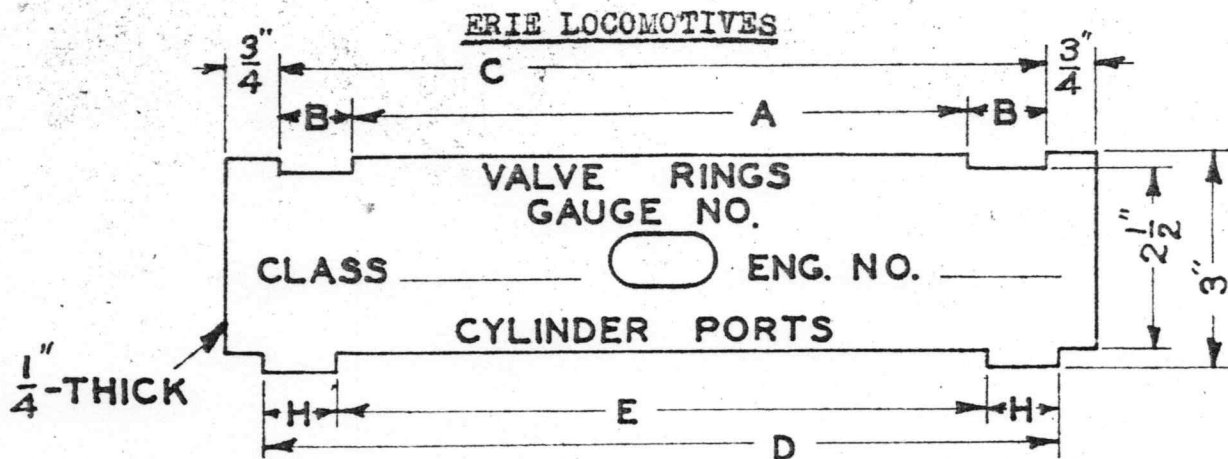
CYLINDER PORT & VALVE RING GAUGE

CHESAPEAKE AND OHIO LOCOMOTIVES

CLASS H-6 = LOW PRESSURE



STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C
 STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING
 CYLINDER PORT AND VALVE RING GAUGE



CLASS	ENGINE NUMBERS	GAUGE NOS.	BETWEEN RINGS A	ACROSS RINGS B	OVER RINGS C	OVER PORTS D	BETWEEN PORTS E	PORT WIDTH H
C-1	120-135	17	25"	2-3/4"	30-1/2"	30-1/2"	27"	1-3/4"
C-3, 3A	200-254	18	24-1/2"	3"	30-1/2"	30-1/2"	27"	1-3/4"
C-4	298-299	19	24-3/4"	2-3/4"	30-1/4"	30-1/4"	26-3/4"	1-3/4"
E-4	535	1	23-1/2"	2-5/8"	28-3/4"	29"	25-5/8"	1-11/16"
F-15A&B	950-974	2	23-1/2"	2-5/8"	28-3/4"	28-7/8"	25-1/2"	1-11/16"
H-20-B	1570-1615	3	19-1/8"	2-9/16"	24-1/4"	24-3/8"	21-1/8"	1-5/8"
H-20-C	2100-2102	4	18-1/4"	3-5/16"	24-7/8"	25"	21"	2"
H-20 & B	1616-1790	3	19-1/8"	2-9/16"	24-1/4"	24-3/8"	21-1/8"	1-5/8"
	2000-2084							
F-2	2425-2499	5	22-1/4"	3"	28-1/4"	28-1/4"	24-3/4"	1-3/4"
K-1	2510-2568	1	23-1/2"	2-5/8"	28-3/4"	29"	25-5/8"	1-11/16"
K-2 & 2A	2900-2914	6	21-3/8"	2-9/16"	26-1/2"	26-7/8"	23-5/8"	1-5/8"
K-3	2509	20	29-7/8"	2-7/8"	35-5/8"	36"	32-1/4"	1-7/8"
K-4	2700-2743	7	29-1/4"	2-3/4"	34-3/4"	35"	31-3/8"	1-15/16"
K-4-B	2744-2753	8	29-1/4"	2-3/4"	34-3/4"	35-1/8"	31-3/8"	1-7/8"
E-5 & 5A	2915-2944, 2945 & 2960	9	25"	2-3/4"	30-1/2"	31"	27-1/2"	1-3/4"
-1	3000-3154	13	21-1/8"	2-11/16"	26-1/2"	26-5/8"	23-3/8"	1-5/8"
-2	3200-3214	11	25"	2-3/4"	30-1/2"	30-1/2"	27-1/4"	1-5/8"
-3	3155-3194	10	21-3/8"	2-9/16"	26-1/2"	26-5/8"	23-3/8"	1-5/8"
-3-A	3199	12	19-7/8"	3-5/16"	26-1/2"	26-5/8"	23-3/8"	1-5/8"
-1 & 2	4000-4041 4100-4129	10	21-3/8"	2-9/16"	26-1/2"	26-5/8"	23-3/8"	1-5/8"
-3	4200-4224	21	25"	3"	31"	31"	27-1/4"	1-7/8"
-1	3300-3324	15	25-1/2"	3-3/4"	33"	33"	29"	2"
-2	3325-3349	16	23-7/16"	5-5/8"	34-11/16"	34-9/16"	28-11/16"	2-15/16"
-3	3350-3384	15	25-1/2"	3-3/4"	33"	33"	29"	2"
-4	3385-3404	16	23-7/16"	5-5/8"	34-11/16"	34-9/16"	28-11/16"	2-15/16"

av. -1-45 Adding C-1, C-3, C-3A, C-4, K-3, R-3 Engines

Removed E-5 Engines

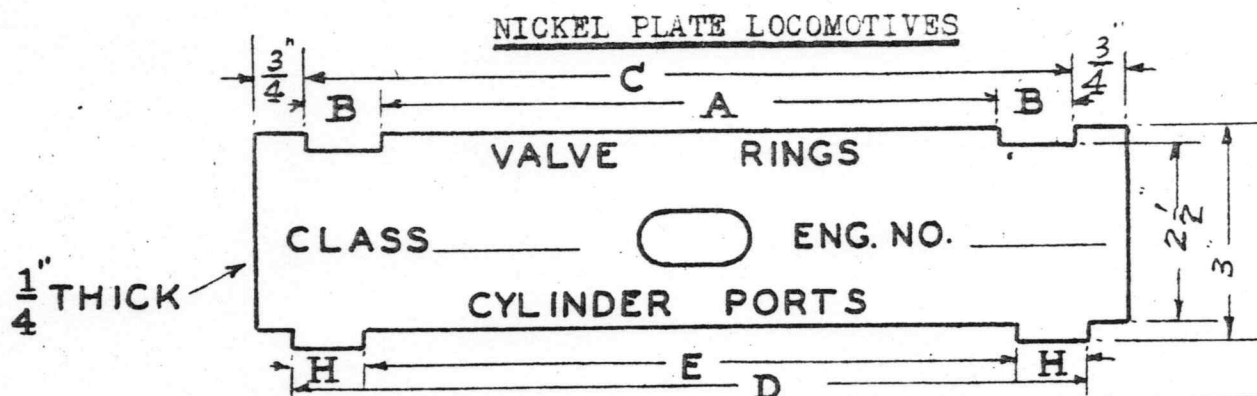
Erie - Sheet #9

14-2

13
STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

CYLINDER PORT & VALVE RING GAUGE



CLASS	ENG. NOS.	GAUGE NOS.	BETWEEN RINGS A	ACROSS RINGS B	OVER RINGS C	OVER PORTS D	BETWEEN PORTS E	PORT WIDTH H
G-6V	475-484	1	30"	2-5/8"	35-1/4"	35-1/4"	32"	1-5/8"
F-7	890-894	2	23-1/4"	2-1/2"	28-1/4"	28-1/4"	25"	1-5/8"
F-8	901-905	2	23-1/4"	2-1/2"	28-1/4"	28-1/4"	25"	1-5/8"
F-9	906-916	2	23-1/4"	2-1/2"	28-1/4"	28-1/4"	25"	1-5/8"
F-10A	860-871	2	23-1/4"	2-1/2"	28-1/4"	28-1/4"	25"	1-5/8"
F-16V	485-493	1	30"	2-5/8"	35-1/4"	35-1/4"	32"	1-5/8"
F-17	497-499	1	30"	2-5/8"	35-1/4"	35-1/4"	32"	1-5/8"
F-4	377-398	3	24-3/4"	3"	30-3/4"	30-3/4"	26-3/4"	2"
F-5A,B	500-534	1	30"	2-5/8"	35-1/4"	35-1/4"	32"	1-5/8"
F-6A,B	586-631	4	25"	2-3/4"	30-1/2"	30-1/2"	27"	1-3/4"
F,D & O								
F-6E & F	632-671	5	25"	3"	31"	31-1/4"	27-3/8"	1-15/16"
F-1A & B	160-169	4	25"	2-9/16"	30-1/8"	30-1/2"	27"	1-3/4"
F-1A & B	170-177	6	25"	2-11/16"	30-3/8"	30-3/4"	27-1/2"	1-5/8"
F-6	454-458	7	21-1/2"	2-13/16"	27-1/8"	27-1/4"	23-1/2"	1-7/8"
F	152-158	8	21-1/2"	2-13/16"	27-1/8"	27-1/4"	23-5/8"	1-13/16"
S,S-1,S-2	700-769	9	25-1/4"	4"	33-1/4"	33-3/8"	28-5/8"	2-3/8"

Revised - Adding S-1. 4/29/42

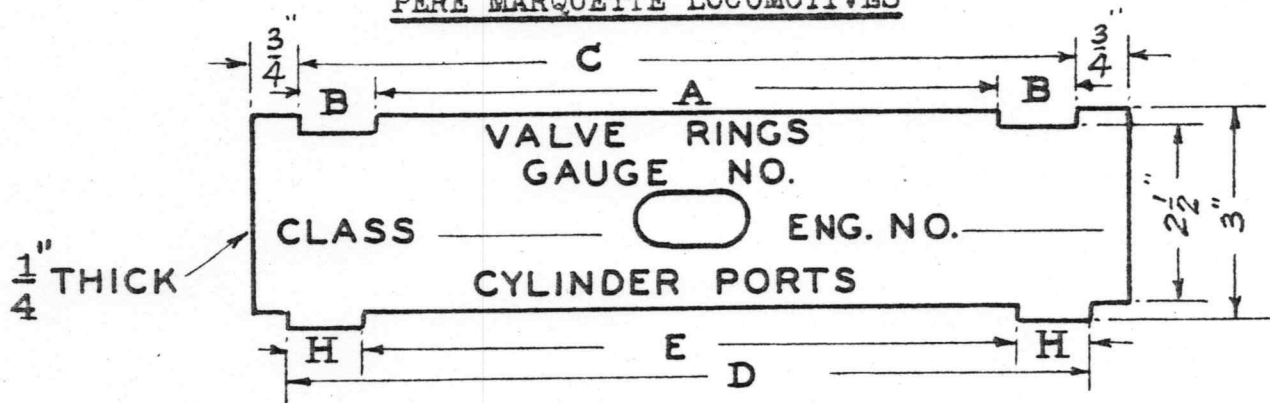
Revised - Adding S-2 and changing S,S-1 and H-6E & F dimensions July 15, 1944

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

CYLINDER PORT & VALVE RING GAUGE

PERE MARQUETTE LOCOMOTIVES



CLASS	ENGINE NUMBERS	GAUGE NOS.	BETWEEN RINGS A	ACROSS RINGS B	OVER RINGS C	OVER PORTS D	BETWEEN PORTS E	PORT WIDTH H
	601-625		24-3/4"	2-3/4"	30-1/4"	30-1/4"	26-3/4"	1-3/4"
K	1001-1010		18-1/2"	2-13/16"	24-1/8"	24-1/8"	21-1/8"	1-1/2"
K-1	1011-1040		24-7/8"	2-13/16"	30-1/2"	30-1/2"	27"	1-3/4"
K-2	1041-1050		25"	2-3/4"	30-1/2"	30-5/8"	27-1/2"	1-9/16"
K-6	1095-1099		21-3/8"	2-9/16"	26-1/2"	26-5/8"	23-3/8"	1-5/8"
N-1, N-2	1201-1239		25-1/4"	4"	33-1/4"	33-3/8"	28-5/8"	2-3/8"
N-2	701-705		24-3/4"	2-11/16"	30-1/8"	30-1/2"	26-7/8"	1-13/16"
C	901-925		30-5/8"	2-13/16"	36-1/4"	36-1/4"	32-3/4"	1-3/4"
F	1101-1115		26-3/4"	2-3/4"	32-1/4"	32-1/4"	28-7/8"	1-11/16"
F-6	1198-1199		19"	3-3/8"	25-3/4"	26"	21-1/4"	2-3/8"
P	706-710		24-3/4"	2-3/4"	30-1/4"	30-5/8"	26-7/8"	1-7/8"
P-2	725-729		18-3/8"	2-13/16"	24"	24-3/8"	20-5/8"	1-7/8"
P-3	711-722		21-3/4"	2-3/4"	27-1/4"	27-5/8"	23-7/8"	1-7/8"

Revised - Adding N and N-1. 4/29/42.

Revised - Adding N-2 and changing N and N-1 dimensions - July 15, 1944

15
STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

Valve Setting

CHESAPEAKE AND OHIO LOCOMOTIVES

Valve and Valve Gear Dimensions in Inches

LOCO. CLASS	LOCO. NOS.	GEAR	VALVE TRAVEL	VALVE LAP	LEAD	EXH. CLEAR.	PERCENT OF PISTON STROKE SEE NOTE	ECCEN. THROW	ECCEN. CRANK LENGTH
A-16	275-294	W	6	1	3/16	1/8	9-1/8	18	15-3/4
B-1	2950-2959	W	8-F & 6-B	1-1/8	1/4	1/8	11-3/16	18-1/4	18-5/8
C-12	130-144	W	6	1	1/16	L&L	9-13/16	18-13/16	15-11/16
C-14	70-79 & 100-109	B	6-3/4	1	1/8	L&L	9-13/16	20-1/4	18
C-15	110-124	B	6-3/4	1	1/8	L&L	9-13/16	20-1/4	18
C-16	175-254	B	8-1/2	1-1/4	1/8	L&L	9-13/16	25	19-13/16
F-15	430-456	W	6	1	3/16	3/16	9-13/16	17-3/4	16-5/8
F-16	460-467	W	6	1	1/4	3/16	9-13/16	18-5/16	16-23/32
F-17	470-475	W	6	1	1/4	3/16	9-13/16	19-3/4	17-1/4
F-18	480-485	B	9	1-5/16	5/16	3/16	9-13/16	23-1/2	19-1/4
F-19	490-494	B	9	1-5/16	5/16	3/16	9-13/16	23-1/2	19-7/16
H-3 HP	1275-1299	W	6-1/2	1	3/16	1/4	11-3/16	17-5/8	18-5/8
H-3 LP		W	6	1-1/8	1/4	3/8	11-3/16	16-3/4	17-5/8
H-4 HP	1326-1473	W	6-1/2	1	3/16	1/4	11-3/16	17-5/8	18-5/8
H-4 LP		W	6	1-1/8	1/4	3/8	11-3/16	16-3/4	17-5/8
H-5 Fr.	1470	W	7-F & 6 1/2-B	1-1/4	3/16	1/8	11-3/16	18-7/8	18-1/2
H-5 Bk.		W	7-F & 6 1/2-B	1-1/4	3/16	1/8	11-3/16	16-3/4	18-1/4
H-6 HP	1520-1539	B	6	1	1/8	1/4	11-3/16	20-1/4	19-1/2
H-6 LP	1520-1539	B	6	1	1/8	3/8	11-3/16	20-1/4	19-1/2
H-6 HP	1475-1519	W	6-1/2	1	1/8	1/4	11-3/16	19-1/8	19-1/4
H-6 LP	1475-1519	W	6	1-1/8	3/16	3/8	11-3/16	18-3/8	19
H-7 Fr.	1540-1564	W	6	1	1/8	1/8	11-3/16	20-5/8	18-5/8
H-7 Bk.	1540-1564	W	6	1	1/8	1/8	11-3/16	17-15/16	17-1/4
H-7 Fr.	1570-1589	W	8-F & 7 1/2-B	1-1/8	1/4	1/8	11-3/16	23-1/2	19-7/16
H-7 Bk.	1570-1589	W	8-F & 7 1/2-B	1-1/8	1/4	1/8	11-3/16	20	18-7/16
H-8 F&B	1600-1644	B	8	1-7/16	3/16	L&L	16-1/2	20	19-3/4
J-1	540-542	W	7	1-1/4	1/4	3/16	9-13/16	22-3/4	17-13/16
J-2	543-547	B	7	1-1/4	1/4	3/16	10-1/2	20-1/4	19
J-2	548-549	W	7	1-1/4	3/16	3/16	10-1/2	22-1/8	19
J-3	600-606	B	8	1-3/8	5/16	3/16	15	20	19-3/16
K-1	1089-1155	W	7*	1-3/16	3/16	1/8	9-13/16	22-1/2	17-13/16
K-2	1160-1209	B	8-3/4	1-1/4	1/4	1/8	10-1/2	23-1/2	19-7/8
K-3	1210-1259	B	8-3/4	1-1/4	1/4	1/8	11-3/16	23-1/2	20-11/16
K-3	2300-2349	B	8-3/4	1-1/4	1/4	1/8	11-3/16	23-1/2	20-11/16
L-2	300-307	B	8	1-3/8	5/16	3/16	10-1/2	20	19
T-1	3000-3039	B	9	1-15/16	3/16	L&L	11-7/8	25	22-9/16
K-4	2700-2739	B	8	1-1/16	3/16	1/16	11-15/16	25	22-3/8

Note: Check valve setting of H-8 and J-3, ~~1944~~ (Baker Gear) at 50 per cent and all other classes at 35 per cent cut-off. Dimensions shown in this column are corresponding per cent (35 or 50) of piston stroke.

* Engines 1091-3, 1097-9 to have 8" valve travel.
Adding K-4 and changing H-8 Eng. Nos. Revised July 15, 1944
Changes made in valve travel from 6" to 7" for J-2 Engines 543 to 547. Class J-3 added also. 10/11/35. Changes made in J-1 dimensions. 12-14-37. Adding J-3 Baker Gear, J-3-A, L-2 and H-8. 4/28/42. Added C-12, 14, 15, 15A, 16, 16A, and I-3, 4, and 4A. 10/27/42.

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

CHESAPEAKE AND OHIO LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	ECCEN. ROD LENGTH	RADIUS BAR OR VALVE ROD LENGTH	UNION LINK LENGTH	COMB. LEVER SHORT ARM LENGTH	COMB. LEVER LONG ARM LENGTH	COMB. LEVER OFFSET	RE-VERSE ROD LENGTH	RADIUS BAR LIFTER LENGTH
A-16	66-3/16	64-5/8	12-5/8	4-1/4	41-1/8	0	-	13
B-1	78-1/2	71-3/4	27-3/8	2-7/8	29-7/8	0	-	25
C-12	58-15/16	63	23-5/8	3-1/8	36-7/8	0	-	15
C-14	63-5/8	49-1/2	17-1/2	2-7/8	30-3/8	9/16	30	-
C-15	63-5/8	49-1/2	17-1/2	2-7/8	30-3/8	9/16	30	-
C-16	60-7/8	52-9/16	18-1/4	3-1/2	30-1/8	1	23-1/4	-
F-15	58-1/8	64-1/2	14-5/8	3-7/8	40-5/8	0	-	13
F-16	60-7/8	63	24	4-1/2	46	0	-	*12
F-17	61-1/8	68	26-1/4	4-1/2	46	0	-	13
F-18	74-7/16	50-13/16	25	5-9/16	40-7/16	1-1/8	33	-
F-19	71-5/8	46-1/8	18-9/16	4-3/8	31-1/2	7/8	36	-
J-3 H.P.	60-3/4	65	24	3-1/4	40-1/2	0	-	16-1/2
L.P.	55-7/8	72	23	3-7/8	45-1/8	0	-	18
J-4 H.P.	60-3/4	65	24	3-1/4	40-1/2	0	-	16-1/2
L.P.	55-7/8	72	23	3-7/8	45-1/8	0	-	18
J-4a Fr.	55-1/4	72	24	4-1/8	40-1/2	0	-	15
Bk.	59-7/8	64	24	4-1/8	40-1/2	0	-	17
L-5 H.P.	76-5/8	48-3/4	18-7/8	2-3/4	33-5/8	9/16	40-3/4	-
L.P.	69-3/8	56-3/8	17-5/8	2-3/8	28-3/4	1/2	91-1/4	-
L-6 H.P.	53-11/16	72	26-1/8	3	38-1/2	0	-	16
L.P.	55-1/8	70	22-1/8	3-5/8	39-1/2	0	-	16
L-7 F	65-3/4	68-3/4	24-5/8	2-3/4	35-1/4	0	-	None
540-1564 B	64	71-3/8	24-5/8	2-3/4	35-1/4	0	-	12
L-7 F	66-11/16	69	24-3/4	3-3/8	35-1/2	0	-	12
570-1589 B	64-3/8	71-3/8	24-3/4	3-3/8	35-1/2	0	-	13
L-8 Fr. & Bk	65-3/8	80-5/8	26-3/8	3-1/8	27-7/8	0	23	-
-1	106-1/4	69	53-1/4	5-5/8	46-7/8	0	-	15
-2 543-547	75-3/4	36-7/8	19-1/2	3-11/16	31-3/16	0	41-1/4	-
-2 548-549	59-1/8	57-1/4	19-3/8	3-1/8	28-3/4	0	-	12
-3 Baker	69-3/4	55-11/16	23-3/4	4-3/16	32-13/16	3/16	30-3/4	-
-1	76-1/8	67-1/2	23-1/4	5-3/8	47	0	-	18
-2	82-7/8	63-5/16	23-9/16	3-3/4	31-3/4	3/4	44	-
-3	82-7/8	63-3/16	23-9/16	3-1/2	31-3/4	11/16	44	-
210-1259								
-3	82-7/8	62-3/16	23-9/16	3-1/2	31-3/4	11/16	44	-
300-2349								
-4	88-3/4	59-1/2	29-1/4	3-15/16	30-5/8	3/8	46	-
-2	83-3/16	50-5/8	25-1/4	4	30-3/4	3/16	34-11/16	-
-1	89-1/4	59-9/16	31-1/16	4-3/4	32-5/8	3/8	46	-

- Radius bar lifter length to be 13" on Engine 463 and 12" on all other F-16 Engines.

Revised - Changing radius bar lifter Class F-16.
 Revised - Adding J-3 Baker Gear J-3A, L-2 & H-8.
 Added C-12, 14, 15, 15A, 16, 16A & H-3, 4, & 4A.
 Revised - Adding K-4 July 15, 1944

June 9, 1941
 April 28, 1942
 October 27, 1942

C&O Table -
 Sheet #2

(4-2)

17

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

ERIE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	LOCO. NOS.	GEAR	VALVE TRAVEL	VALVE LAP	LEAD	EXH. CLEAR.	PER CENT OF PISTON STROKE SEE NOTE	ECCEN. THROW	ECCEN. CRANK LENGTH
E-4	535-536	B	6-1/4	1-1/16	1/4	1/8	9-1/8	17-1/2	16-1/4
E-5	537	B	6-1/2	1-1/16	5/16	1/8	9-1/8	20-1/4	16-3/4
G-15A	950-974	B	6-1/2	1	1/4	1/16	9-1/8	17-1/2	16-3/8
G-15B	950-974	W	6-1/2	1	1/4	1/16	9-1/8	15-1/2	15-1/2
H-20B	1570-1615	B	6-1/4	1	3/16	1/16	11-3/16	17-1/2	19
H-20C	2100-2102	W	9	1-3/8	1/4	1/16	11-3/16	22-7/8	19-9/16
H-21A	1616-1790	B	6	1	3/16	1/16	11-3/16	17-1/2	18-7/8
& B	2000-2084								
J-2	2425-2499	W	6-1/2	1-1/4	3/16	L&L	9-3/16	14-5/8	16-1/4
K-1	2510-2568	B	6-1/2	1-1/16	5/16	1/8	9-1/8	17-1/2	16-1/4
K-2	2900-2904	B	6-1/4	1-1/8	1/4	3/16	9-13/16	17-1/2	17-1/8
K-2-A	2905-2914	B	6-1/2	1-1/8	1/4	3/16	9-13/16	20-1/4	18
K-4	2700-2733	B	6-1/2	1-1/16	3/16	1/8	9-13/16	17-1/2	17-1/8
K	2734-2743	B	6-1/2	1-1/16	3/16	1/8	9-13/16	17-1/2	17-7/16
K-4-B	2744-2753	B	7	1-1/16	1/4	3/16	9-13/16	20-1/4	17-15/16
K-5	2915-2934, 2945	B	7	1-1/4	1/4	1/4	9-13/16	20-1/4	18-1/8
K-5-A	2935-2944, 2960	B	7	1-1/4	1/4	1/4	9-13/16	19-7/8	18-1/8
N-1	3000-3154	B	7	1-1/8	1/4	1/16	11-3/16	18-1/4	19-1/4
N-2	3200-3214	W	7	1-1/8	3/16	L&L	11-3/16	19-1/4	18-7/8
N-3	3155-3194	B	6	1	1/4	1/16	11-3/16	20-1/4	19-5/8
N-3-A	3199	B	7	1-3/4	1/4	1/16	11-3/16	22-1/2	20-1/4
R-1	4000-4041	B	6-1/2	1	3/16	1/16	11-3/16	20-1/4	19-13/16
R-2	4100-4129	B	6-1/2	1	3/16	1/16	11-3/16	20-1/4	19-13/16
S-1	3300-3324	B	9	1-3/4	1/4	L&L	11-3/16	25	21-3/8
S-2	3325-3349	B	9	2-5/8	1/4	1/16	11-3/16	25	21-3/8
						Lap			
S-3	3350-3384	B	9	1-3/4	1/4	L&L	11-3/16	25	21-3/8
S-4	3385-3404	B	9	2-5/8	1/4	1/16	11-3/16	25	21-3/8
						Lap			

NOTE:--- Check Valve Setting of all classes of locomotives at 35 per cent cut-off
Dimensions shown in this column are 35 per cent of piston stroke.

R. 1/29/37 - S-2 and S-4, Exh. Clear.
Rev. 6/24/43 - Changing Eccentric Throw K-5-A and omitting
N-1 with 6" and 9" travel.

18

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

ERIE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	ECCEN. ROD LENGTH	RADIUS BAR OR VALVE ROD LENGTH	UNION LINK LENGTH	COMB. LEVER SHORT ARM LENGTH	COMB. LEVER LONG ARM LENGTH	COMB. LEVER OFFSET	REVERSE ROD LENGTH	RADIUS BAR LIFTER LENGTH
E-4	103-1/8	57-1/16	35-5/16	3-1/8	27-1/4	5/8	53-3/4	-
E-5	95-1/8	46-3/4	18-7/8	3-5/16	26-1/8	5/8	56-3/4	-
G-15-A	79-1/2	44-3/4	32-1/8	3-1/2	31-1/8	5/8	37-1/4	-
G-15-B	66	63	12-1/4	2-7/8	27-7/8	0	-	None
H-20-B	77-3/8	69-3/4	46-5/16	3-1/8	37-1/4	5/8	46	-
H-20-C	88-15/16	63	15	3-1/2	30-7/16	0	-	13
H-21-A&B	75-9/16	71-1/2	48-9/16	3-1/8	37-1/4	5/8	42-3/4	-
J-2	63	66	20-1/2	3-1/8	27-5/16	0	-	15-1/2
K-1	84	39-13/16	13	3-1/8	24-5/8	3/4	43-1/4	-
K-2	91-5/8	40-1/8	17-1/4	3-5/8	32	5/8	51-1/4	-
K-2-A	90-1/4	44-1/16	23-1/4	3-1/2	30-1/8	11/16	45	-
K-4	82-1/8	37-3/8	17-3/8	3-5/8	35-5/8	5/8	46-1/2	-
2700-2733								
K-4	82-3/8	38-3/16	25	3-1/8	29-5/8	3/4	46-1/2	-
2743								
K-4-B	79-1/4	40-3/4	25	3-1/4	30-7/8	5/8	41	-
K-5& 5-A	87-5/8	41-3/4	17-1/2	4	31-1/2	13/16	41-1/4	-
N-1	68-5/8	62-1/2	40-7/8	3-1/2	35-7/8	5/8	33-1/2	-
With Comb. Lever Connected to Bell Crank.								
N-1	68-5/8	68-1/4	19-7/8	3-1/8	31	5/8	33-1/2	-
With Comb. Lever connected to Valve Crosshead.								
N-2	80-7/8	64	20-1/4	2-7/8	31-3/4	0	-	13
N-3	79-7/16	56-1/16	20	2-15/16	32-3/16	9/16	42	-
N-3-A	79-13/16	55-15/16	20	4-11/16	32-1/4	0	42	-
R-1	78-1/4	62-3/8	23-3/4	2-3/4	31-11/16	5/8	40-1/2	-
R-2	81-1/8	59-1/2	23-3/4	4-3/8	51-3/8	5/8	43-1/2	-
4100-4101								
R-2	81-1/8	59-1/2	23-3/4	2-3/4	31-11/16	5/8	43-1/2	-
4102-4129								
S-1& 3	85-11/16	63-1/8	29-7/16	4-9/16	31-7/16	1/2	43-1/4	-
S-2& 4	85-11/16	61-15/16	29-7/16	6-13/16	31-3/8	1	42-3/4	-

Rev. 6/24/43 - Omitting N-1 with 6" and 9" Travel.

VALVE SETTING

NICKEL PLATE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	LOCO NOS.	GEAR	VALVE TRAVEL	VALVE LAP	LEAD	EXH. CLEAR.	PER CENT OF PISTON STROKE SEE NOTE	ECCEN. THROW	ECCEN. CRANK LENGTH
G-6-V	475-484	W	6-1/2	1	3/16	I&L	11-3/16		19-7/16
G-7	890-894	B	6-1/4	7/8	1/8	I&L	9-13/16	20-1/4	17-3/4
G-8	901-905	B	6-1/4	7/8	1/8	I&L	9-13/16	20-1/4	17-3/4
G-9	906-916	B	6-1/4	7/8	1/8	I&L	9-13/16	20-1/4	17-3/4
G-10-A	860-861 863,867, 871	B	6-1/4	7/8	1/8	I&L	9-13/16	20-1/4	17-3/4
G-16-V	485-493	W	6-1/2	1	3/16	I&L	11-3/16		19-7/16
G-16-W	497-499	W	6-1/2	1	3/16	I&L	11-3/16		19-7/16
G-44	377-398	B	6-1/4	15/16	1/4	I&L	10-1/2	20-1/4	18-1/2
H-5-A	500-509	B	6-3/8	1	5/32	I&L	11-3/16	20-1/4	19-5/8
H-5-B	510-534	B	7	1	5/32	I&L	11-3/16	20-1/4	19-5/8
H-6-A B,C,D & O	586-631	W	6-1/2	1	3/16	I&L	15	17-7/8	17-11/16
H- & F	632-671	B	8-3/4	1-3/4	1/4	1/8	15	23-1/2	20-1/8
K-1A & B	160-169	W	7	1	1/4	3/16	9-1/8	16	15-7/8
L-1A & B	170-177	W	8-1/2	1-1/4	1/4	3/16	9-1/8	22-9/16	17-1/2
N-6	454-458	W	6	1	7/32	1/16	9-13/16	18-3/4	17
R	152-158	W	6	1-1/16	1/4	1/16	9-1/8	13-3/4	15-1/8
S,S-1,S-2	700-769	B	8	1-11/16	3/16	1/16	17	25	22-3/8

Note:- Check valve setting of H-6-A,B,C,D,E,F & O and S and S-1,S-2 at 50 per cent and all other classes at 35 per cent cut-off. Dimensions shown in this column are corresponding per cents (35 or 50) of piston stroke.

Add S-1 and change engine numbers. 4/28/42.

Adding S-2 and changing H-6E & F dimensions - Rev. July 15, 1944

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

NICKEL PLATE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	ECCEN. ROD LENGTH	RADIUS BAR OR VALVE ROD LENGTH	UNION LINK LENGTH	COMB. LEVER SHORT ARM LENGTH	COMB. LEVER LONG ARM LENGTH	COMB. LEVER OFFSET	REVERSE ROD LENGTH	RADIUS BAR LIFTER LENGTH
G-6-V								
G-7	88	49-3/8	17-13/16	3-1/4	39-1/8	5/8	52-1/4	
G-8	80-1/2	56-11/16	25-5/8	3-1/4	39-1/8	5/8	44-1/2	
G-9	80-1/2	55-13/16	25-5/8	3-1/4	39-1/8	5/8	44-1/2	
G-10-A	88	49-3/8	17-13/16	3-1/4	39-1/8	5/8	52-1/4	
G-16-V								
G-16-W								
G-44	87	54	11-7/8	2-1/2	26-3/4	7/16	49-1/4	
H-5-A	79-3/4	57-1/2	20-3/4	2-1/2	30-1/4	1/2	41	
H-5-B	79-3/4	56-1/2	20-3/4	2-1/2	30-1/4	1/2	41	
H-6-A, B,C,D, & O	80-3/8	64	20-1/4	2-11/16	30-3/4	0	-	13
H- & F	74-1/8	62-11/16	20-1/2	3-7/16	30-7/16	11/16	36-1/2	
K-1A & B	56-3/8	68	17-1/4	3-3/16	29-3/16	0	-	16
L-1A & B	71-7/8	51	17-1/4	3-5/8	27-1/8	0	-	None
N-6	75-1/4		15	3-7/8	40-5/8	0	-	
R	84-11/16	60	16-3/8	4-1/8	36-3/4	0	-	None
S, S-1, S-2	88-3/4	59-1/2	29-1/4	3-15/16	30-5/8	3/8	46	

Revised - Adding S-1. April 28, 1942.
 Revised - Adding S-2. July 15, 1944

21

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

PERE MARQUETTE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	LOCO. NOS.	GEAR	VALVE TRAVEL	VALVE LAP	LEAD	EXH. CLEAR.	PER CENT OF PISTON STROKE SEE NOTE	ECCEN. THROW	ECCEN. CRANK LENGTH
C	601-625	W	6	1	3/16	L&L	10-1/2	17-1/2	17-3/8
WK	1001-1010	W	7	1-5/16	3/16	L&L	10-1/2	16-15/16	
WK-1	1011-1040	W	6-1/2	1-1/16	3/16	L&L	10-1/2	17-7/8	17-11/16
WK-2	1041-1050	B	9	1-1/4	1/4	1/16	10-1/2	23-1/2	19-13/16
WK-6	1095-1099	B	6	1	1/4	1/16	11-3/16	17-1/2	18-15/16
P-2	701-705	W	6	1-1/16	1/4	3/16	9-1/8	17-1/2	16
BC	901-925	W	6-1/2	1-1/16	3/16	L&L	10-1/2	17-1/4	17-7/8
BF	1101-1115	B	6-3/4	1-1/16	3/16	L&L	11-3/16	20-1/4	19-7/8
BF-6	1198-1199	W	8-1/4	1-1/8	1/4	1/8	11-3/16	18-1/4	18-5/8
BP	706-710	W	6	1-1/16	1/4	3/16	9-13/16	18-1/2	17-1/8
BP-2	725-729	W	6-1/2	1-1/8	1/4	3/16	9-13/16	16-1/16	16-5/16
BP-3	711-722	B	7	1-1/16	1/4	3/16	9-13/16	20-1/4	18
N, N-1-2	1201-1239	B	8	1-11/16	3/16	1/16	11-15/16	25	22-3/8

Note:- Check valve setting of all classes of locomotives at 35 per cent cut-off. Dimensions shown in this column are 35 per cent of piston stroke.

Adding N & N-1. 4/28/42.

Adding N-2 Revised July 15, 1944

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

VALVE SETTING

PERE MARQUETTE LOCOMOTIVES

VALVE AND VALVE GEAR DIMENSIONS IN INCHES

LOCO. CLASS	ECCEN. ROD LENGTH	RADIUS BAR OR VALVE ROD LENGTH	UNION LINK LENGTH	COMB. LEVER SHORT ARM LENGTH	COMB. LEVER LONG ARM LENGTH	COMB. LEVER OFFSET	REVERSE ROD LENGTH	RADIUS BAR LIFTER LENGTH
C	83-1/2	63	21-1/4	4-1/8	45-3/8	0	-	18
MK	81-1/2	60	24	4-1/2	40-1/2	0	-	18
MK-1	80-3/8	64	20-1/4	2-11/16	30-3/4	0	-	13
MK-2	82-3/4	55-1/16	20-1/2	3-9/16	30-1/16	3/4	-	-
MK-6	68-5/8	62-1/2	40-7/8	3-1/8	36-1/4	5/8	33-1/2	-
P-2	72-3/4	57	19	4-1/2	38	0	-	None
Se	81-1/2	61	18-1/8	4-1/8	45-3/8	0	-	16
SF	70-7/8	51-1/8	20-1/4	2-3/4	30	9/16	36-1/2	-
SF-6	78-1/2	71-3/4	27-3/8	2-7/8	29-7/8	0	-	25
SP	72-3/4	57	21-1/4	4-1/2	41-3/8	0	-	None
SP-2	66-13/16	60	19-1/2	4-3/4	43-3/16	0	-	16
SP	86-3/16	38-1/4	18-1/2	3-1/8	28-1/8	5/8	43	-
M& 1, N-2	88-3/4	59-1/2	29-1/4	3-15/16	30-5/8	3/8	46	-

Revised - Adding N and N-1, April 28, 1942.
 Revised - Adding N-2 July 15, 1944

STANDARD MAINTENANCE EQUIPMENT INSTRUCTIONS NO. 14-C

STEAM CHEST, VALVES, VALVE GEAR AND VALVE SETTING

Approved:

The Chesapeake and Ohio Railway Company



Chief Mechanical Officer

Approved:

Advisory Mechanical Committee
Equipment Engineering Department



Chief Mechanical Engineer

Approved:

Erie Railroad Company



Supt. Motive Power

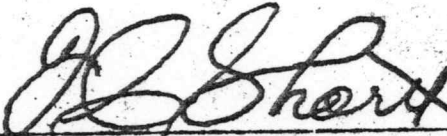
Revision "A" - 11/13/34:- Correcting reverse rod dimensions C&O Class H-5 and changes in Paragraph 2.

Revision "E" - 12/20/35: Revising paragraphs 6 and 7 and valve lap for PM Class "MK" Locomotives.

Revision "C" - 10/27/42: Changing title of SMEI, including slide valves, rewording parts of SMEI, omitting requirements on lubrication casehardening and others covered elsewhere or generally understood and adding C&O Classes C-12,14,15, 15A,16,16A and H-3,4 and 4A, also reclassifying C&O locomotives and changing C&O J-1 eccentric throw.

Approved:

The New York, Chicago and St. Louis
Railroad Company



Chief Mechanical Officer

Approved:

Pere Marquette Railway Company



Chief Mechanical Officer

Advisory Mechanical Committee
Equipment Engineer Department
Cleveland, Ohio - November 21, 1933.