

THE PENNSYLVANIA RAILROAD

Locomotive Maintenance Instructions No. L-20-E

ISSUED ALTOONA, PA.

FEBRUARY 15, 1928

Instructions for Recording Inspection and Test of Locomotive Boilers and Their Appurtenances, and Filing Reports

(Superseding Locomotive Maintenance Instructions No. L-20-D, Dated December 1, 1922)

GENERAL

1. The following Rules apply to All Locomotive Boilers, which are in direct charge of the Master Mechanic to whose district they are assigned. A locomotive boiler which is in stationary service will be subject to these rules instead of the rules governing stationary boilers as long as the boiler remains on the locomotive frames. All instructions contained in Locomotive Maintenance Instructions No. L-19 shall be followed for the testing of the boilers and their appurtenances. Unless otherwise specified, the latest issues of instructions, tracings and circulars mentioned herein are intended.

2. In recording information covered by these instructions, it must be understood that no erasure, either on the original or duplicate record, is permitted; but where errors have been made and it is necessary to make corrections, the original entry must have a line drawn through it and the correct figures shown adjoining the original entry.

DAILY REPORT

3. At each engine house or point where locomotive boilers are washed and otherwise inspected and cared for, a report on standard blank M. P. 207-A shall be prepared daily, giving a record of all work performed during the preceding twenty-four hours, under the headings shown thereon.

4. One report, M. P. 207-A, bearing the signatures of the Inspectors, Foremen and witnesses of boiler tests, shall be forwarded promptly to the Master Mechanic having jurisdiction over the engine house or shop, for his use in posting the permanent record of condition of boilers and fire-boxes, M. P. 207-B, and also to be filed by him, constituting his signed record of boilers washed, tested, etc., as required by law. At all engine houses or shops at which the office of the Master Mechanic is not located, one report M. P. 207-A, signed as above, shall be filed for a local record. A copy of the M. P. 207-A should be furnished the Road Foreman of Engines. In case of a joint terminal, a copy should be sent to the Master Mechanic of the Division to which the locomotive is assigned.

5. All work done on a borrowed locomotive must be reported to the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region to whom the locomotive is assigned, either by forwarding him a copy of the M. P. 207-A report covering the day on which the work was performed, or a complete record on M. P. 207-B when the locomotive is returned to its home Division.

REPORT OF WASHING OF BOILERS

6. Record of all boiler washes must be made on M. P. 207-A and information entered therefrom on record blank M. P. 207-B.

7. The Boiler Washer or Inspector who inspects the boiler after it has been washed must sign the M. P. 207-A reports.

8. Where the gauge and water glass cocks are not cleaned or inspected by the Boiler Washer or Inspector, the employe who did the work must sign the M. P. 207-A reports and the M. P. 162-A or M. P. 164-A.

9. When the boiler wash period differs from that of the regular monthly or annual inspection, a metal tag, made in accordance with the standard tracing entitled "Record Tag for Boiler Wash, etc.," and showing the place and date of boiler wash, must be attached to the throttle lever fulcrum post.

REPORT OF STAYBOLT TESTS, FORMS IN M. P. 262 SERIES

10. Four copies of the report showing all staybolts and crown bolts found defective and all bolts renewed, must be made on proper standard blank in M. P. 262 series. In preparing these reports the Inspector must adhere strictly to the method of indicating bolts which are broken, cracked, etc., as set forth on each blank. The words "right" and "left" which appear on the M. P. 262 blanks refer to the right and left sides of the boiler when looking forward and downward from the rear of the locomotive. Where the right or left side is not indicated on any of the diagrams on existing blanks, the Inspector must clearly mark the same thereon. One copy of the report must be retained for file in the office where they are prepared and three copies forwarded to the General Superintendent Motive Power of the Region to which the locomotive is assigned, who, after scrutiny, will forward one copy through the usual channel to the Master Mechanic under whose jurisdiction the locomotive is being operated, one copy to the Chief of Motive Power, Altoona, Pa., and retain the other copy for his file. When returning a borrowed locomotive, the Master Mechanic must send his file copies of the reports to the Division to which the locomotive is assigned. Reports covering the various examinations of staybolts must be conspicuously marked, "Special Staybolt Examination," "Regular Staybolt Examination" or "Between Boiler Wash." Proper form in M. P. 262 series must also be prepared and signed for all new boilers and new fireboxes and marked "New Boiler" or "New Firebox," and disposed of as outlined above.

REPORT OF SPECIAL EXAMINATION OF CROWN SHEETS, FORM IN M. P. 262 SERIES

11. When a special examination of a crown sheet is made, due to indications of low water in the boiler, a record must be kept on proper form in M. P. 262 series, showing the location of all crown bolts that were found leaking or defective.

MONTHLY AND ANNUAL INSPECTION AND REPAIR REPORTS FORMS M. P. 162-A AND 164-A

12. At intervals not exceeding one month, an Inspection Report on Form M. P. 162-A must be prepared at the time of staybolt test for each locomotive that is to continue in service after the date when the monthly inspection is due. This monthly report is not required for the month for which the Annual Inspection Report M. P. 164-A is filed.

13. An Inspection Report on Form M. P. 164-A must be prepared at the time of hydrostatic test for each locomotive that is to continue in service after the date when the annual inspection is due.

14. Two attested copies of the monthly and the annual inspection reports, Forms M. P. 162-A and M. P. 164-A, must be forwarded as promptly as possible to the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region who is responsible for the operation of the locomotive and who must file one copy with the Federal District Inspector of Locomotives, Interstate Commerce Commission, within ten days after the date of inspection and retain the other copy for his file as required by the Federal Rules. A third copy must be placed in the frame provided therefor in the locomotive cab.

15. When the boiler of a locomotive for which a "Final Report" has not been filed is placed in stationary boiler service, the regular monthly and annual Inspection Reports, Forms M. P. 162-A and M. P. 164-A, must be prepared and filed the same as though the locomotive was in locomotive service, except that the items of the reports pertaining to the parts of the locomotive and tender other than the boiler should be answered: "Boiler in Stationary Service."

16. A notation must be made on the backs of inspection reports and cab cards, showing the full calendar months that the boiler has been out of service stored in good order since the last hydrostatic test, removal of flexible staybolt caps, removal of flues and removal of jacket and lagging. This is necessary in order to get an extension of time for these tests and inspections. As no credit is given when the boiler is out of service for only a portion of a month, no notation need be made of any period less than a full calendar month. This record should be carried forward on all inspection reports and cab cards until the work is done.

17. Monthly and annual Inspection Reports, Forms M. P. 162-A and M. P. 164-A, cover the locomotive and tender as well as the boiler. See Locomotive Maintenance Instructions L-21, for instructions on preparing these forms.

18. No locomotive shall be placed in service without a copy of the monthly or annual Inspection Report, Form M. P. 162-A or M. P. 164-A, in the frame provided therefor in the cab, neither shall a locomotive be permitted to remain in service after the Inspection Report has expired. These reports must be signed by the Inspectors but need not be sworn to. The annual report, Form 164-A, must be retained underneath the monthly report, Form M. P. 162-A, until the next annual inspection is made.

"OUT OF SERVICE" REPORT

19. When a locomotive is not given the monthly or annual inspection in any calendar month, on account of having been taken out of service on or before the date the inspection is due, the Master Mechanic under whose jurisdiction the locomotive is held out of service must prepare two or more copies of the "Out of Service" Report, Form M. P. 162-A, on which the month, number and initials of locomotive and name of operating company are filled in, and diagonally across the face of which is written: "Out of Service from.....(Date).....and is now located at(Shop or Enginehouse).....for.....(Repairs or Storage).....and will not be used again until inspection report is filed. This report dated....." The report shall be signed at the bottom by the man in charge of the point where the locomotive is being held out of service, giving his title in the space before the words, "Officer in Charge." The officer in charge is not required to take oath to this report. A similar report shall be prepared each month thereafter while the locomotive is out of service. The report shall be filed instead of the monthly or annual Inspection Report with the Federal District Inspector of Locomotive Boilers

by the Works Manager, the General Superintendent of Motive Power of the Western Region, or the Superintendent Motive Power in the Eastern or Central Region to whom the locomotive is assigned. Prior to being placed in service again, the locomotive must be inspected and Inspection Report, Form M. P. 162-A or M. P. 164-A, prepared and forwarded in the usual manner. The "Out of Service" Report must be dated the last day of the calendar month for which it is intended and it must be filed within ten days thereafter. Where a locomotive is out of service for only part of a month and is inspected and returned to service on or before the last day of the same calendar month, the "Out of Service" Report must not be prepared, but the following notation with proper dates inserted must be made in the upper left-hand corner on the face of the Inspection Report, Form M. P. 162-A or 164-A: "Out of Service from.....to....."

GENERAL INSTRUCTIONS PERTAINING TO INSPECTION AND "OUT OF SERVICE" REPORTS

20. In forwarding Inspection Reports and "Out of Service" Reports to the Federal District Inspector, the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region must send therewith a carbon copy of the letter of transmission to be returned by the Inspector as a receipt.

21. Inspection Reports and "Out of Service" Reports for a borrowed locomotive must be filed with the Federal District Inspector by the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region to whom the locomotive is loaned. When the borrowed locomotive is returned all file copies of reports thus filed, together with all other reports filed and the M. P. 170 and M. P. 207-B records must be sent to the Division to which the locomotive is permanently assigned.

22. (a) The Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region must keep a card record on Form M. P. 170 of all Inspection Reports and "Out of Service" Reports that are filed. This record must show that either a monthly or an annual Inspection Report or an "Out of Service" Report was filed during each month for each locomotive in the assignment. The record for each individual locomotive must be continuous until a Final Report is filed and notation thereof is made on the record.

(b) When the locomotive number is changed or a boiler is transferred from one locomotive to another the first inspection report filed thereafter must show the old locomotive number and the new locomotive number thus:

Old No. 0000

New No. 0000

LOCOMOTIVE INSPECTION CLEANING AND TEST RECORD, FORM M. P. 278

23. Each locomotive in service must have a copy of Form M. P. 278 posted in the frame provided therefor in the cab. The form must be properly filled out as designated in Locomotive Maintenance Instructions No. L-21.

BOILER SPECIFICATION CARD, FORM M. P. 165-C

24. A Boiler Specification Card, Form M. P. 165-C, must be filed for each new locomotive boiler as promptly as possible after it is placed in service. The Works Manager must send to the Office of the Chief of Motive Power, Altoona, Pa., an incomplete Boiler Specification Card, Form M. P. 165-C, on which have been entered the items of information that must be taken from the

boiler by the Inspector. An attested copy of the Inspection Report, Form M. P. 164-A, must accompany the incomplete specification card. For new locomotive boilers built by outside manufacturers for the Pennsylvania Railroad Company the Engineer of Tests must have these forms prepared and sent to the Office of the Chief of Motive Power, Altoona, Pa.

25. A new Boiler Specification Card will be prepared and filed to replace the last card that was filed for an existing locomotive, when an error is found on the Specification Card or an alteration is made to the boiler affecting the stresses or tensile strength previously reported.

NOTE—The increase in the size of staybolts when repairs are made will not affect the stresses reported, which are always based on tracing dimensions.

26. All completed Boiler Specification Cards will be prepared in the Office of the Chief of Motive Power and one attested copy (not a carbon copy) of each card will be sent to the Works Manager or the General Superintendent Motive Power for filing with the Federal District Inspector of Locomotives, and also an unattested copy for file in the office of the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region.

27. The Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region, is responsible for the filing of a Specification Card for each locomotive in his assignment and must keep a file copy of each Specification Card at some convenient point. When a locomotive is permanently transferred, the Specification Card file for that locomotive must also be transferred.

REPORT OF ALTERATIONS ON LOCOMOTIVE BOILER, FORM M. P. 167

28. When repairs or changes are made which affect the data shown on the Boiler Specification Card, Form M. P. 165-C, an approved Alteration Report, Form M. P. 167, must be filed by the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region, to whom the locomotive is assigned within 30 days from the date of their completion. This report should cover:

- (a) Application of new barrel sheets, domes or new back ends.
- (b) Application of patches to barrels or domes of boiler or to portion of wrapper sheet of crown-bar boilers which is not supported by staybolts.
- (c) Longitudinal seam reinforcements.
- (d) Changes in size or number of braces.
- (e) Initial application of superheaters, arch or water tubes, giving number and dimensions of tubes.
- (f) Changes in number or capacity of safety valves or in the working pressure for which they are set.
- (g) Renumbering of a locomotive or transferring of a boiler from one locomotive to another.

29. Each copy of the report of a patch must be accompanied by a drawing or blue print of the patch, showing its location with respect to the center line of the boiler, giving all necessary dimensions and details; and, if defects exist, showing the nature and location of the same. If there are no defects, as is usually the case when an inside liner only is applied, the sketch must show "No Defects." Patches previously applied should be reported the first time the boiler is stripped to permit an examination.

NOTE—Where the word "patch" is used it is intended to cover the application of an inside or outside liner, or both, irrespective of whether or not the original sheet is defective.

30. An alteration report covering the application of a new barrel sheet or a new section of a barrel sheet must specify the manufacturer's serial number of the plate used or the actual tensile strength as shown by the test records of the Test Department.

31. An original and two carbon copies of this report must be made on Form M. P. 167 and forwarded through the regular channel to the Chief of Motive Power, Altoona, Pa., who will retain one carbon copy for his file. The original, after having been approved by the Mechanical Engineer, will be returned, together with the remaining carbon copy to the Works Manager or the General Superintendent Motive Power, who will have the original filed with the Federal District Inspector of Locomotives and the carbon copy placed in the specification card file.

32. All patches for which this report has been made must be stamped "M. P. 167."

FINAL REPORT

33. When a locomotive is permanently retired from locomotive service on account of being sold, scrapped or the boiler removed from the frames and scrapped or used in stationary boiler service, a Final Report must be prepared on Form M. P. 164-A, diagonally across the face of which must be written the heading "FINAL REPORT," followed underneath by the locomotive number, the boiler number, the date, the reason for retirement (whether sold, scrapped or the boiler removed from the frames and scrapped or used in stationary boiler service and, if sold, to whom), with the statement that the locomotive complete or the boiler only (as the case may be) will not be used again by this Company in locomotive service. If the Final Report is to cover the permanent retirement only of the boiler, it should state that the locomotive is to continue in service after being equipped with another boiler, which boiler may be new or one transferred from another locomotive.

34. The original of this report must be signed and sworn to by the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region, to whom the locomotive is assigned, and filed with the Federal District Inspector. A carbon copy shall be forwarded promptly to the Chief of Motive Power, Altoona, Pa., for his file. A Final Report must not be filed as long as there is a possibility of the boiler of a locomotive being returned by this Company to locomotive service.

REMOVAL OF BOILER FROM LOCOMOTIVE

35. When a boiler is removed from a locomotive, the Works Manager, the General Superintendent Motive Power of the Western Region or the Superintendent Motive Power in the Eastern or Central Region, must report the disposition of same to the Federal District Inspector of Locomotives by filing an approved Alteration Report, Form M. P. 167, or a Final Report, as the case may require.

36. In case the boiler removed is applied to another locomotive, an Alteration Report, Form M. P. 167, covering the same, must be prepared and sent to the Chief of Motive Power, Altoona, Pa., for approval within ten days after locomotive is placed in service.

F. W. HANKINS,

Chief of Motive Power.

P E N N S Y L V A N I A R A I L R O A D

REVISION OF

LOCOMOTIVE MAINTENANCE INSTRUCTIONS NO. L-20-E
(Paragraphs Nos. 26, 27, 28, 31 and 35)

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Altoona, Pa., Oct. 24, 1934
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The paragraphs referred to have been revised to read as shown below, effective this date. The revision will be included in the next reissue of the Circular.

26. An original and two carbon copies of the completed Boiler Specification Card will be prepared by the Mechanical Engineer in Office of Chief of Motive Power, Altoona, Pa. The attested and approved original (not a carbon copy) will be filed by the Chief of Motive Power, Altoona, Pa., direct with the Chief Inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, Washington, D.C. One unattested carbon copy of each card will be filed in the Office of Mechanical Engineer and one unattested carbon copy of each card will be filed in the Office of the Works Manager, the General Superintendent Motive Power of the Western Region or New York Zone, or the Superintendents Motive Power in the Eastern or Central Regions.

27. The Works Manager, the General Superintendents Motive Power of the Western Region and New York Zone and the Superintendents Motive Power in the Eastern and Central Regions must keep a file copy of each Specification Card for each locomotive in his assignment at some convenient point. When a locomotive is permanently transferred, the Specification Card file for that locomotive must also be transferred.

REPORT OF ALTERATIONS ON LOCOMOTIVE BOILER, FORM MP-167.

28. When repairs or changes are made which affect the data shown on the Boiler Specification Card, form MP-165-C, and approved Alteration Report, MP-167, must be filed within 30 days from date of completion of the Alterations. This report should cover:

- (a) Application of new barrel sheets, domes or new back ends.
- (b) Application of patches to barrels or domes of boiler or to portion of wrapper sheet of crown-bar boilers which is not supported by staybolts.
- (c) Longitudinal seam reinforcements.
- (d) Changes in size or number of braces.
- (e) Initial application of superheaters, arch or water tubes, giving number and dimensions of tubes.

(f) Changes in number or capacity of safety valves or in the working pressure for which they are set.

(g) Renumbering of a locomotive or transferring of a boiler from one locomotive to another.

31. An original and two carbon copies of this report must be prepared on form MP-167, and forwarded through the regular channels to the Chief of Motive Power, Altoona, Pa., who will retain one of the carbon copies for the Specification Card file in the office of Mechanical Engineer. The original, after having been approved by the Mechanical Engineer, will be filed by the Chief of Motive Power, Altoona, Pa., direct with the Chief Inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, Washington, D. C. One of the carbon copies will be stamped to indicate approval of the Mechanical Engineer and returned through the regular channels for the Specification Card file in the office of Works Manager, General Superintendent Motive Power of the Western Region or the New York Zone, or Superintendents Motive Power in the Eastern or Central Region.

35. When a boiler is removed from a locomotive the disposition of the same must be reported through the regular channels, either by preparing an Alteration Report, form MP-167, or a Final Report on form MP-164-A, as the case may require.

F. W. HANKINS

Chief of Motive Power.

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REVISION OF L-20-E (Pars. 26, 27, 28, 31 & 35)

THE PENNSYLVANIA RAILROAD

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OMISSION OF PARAGRAPH 9

LOCOMOTIVE MAINTENANCE INSTRUCTIONS NO. L-20-E

INSTRUCTIONS FOR RECORDING INSPECTION AND TEST OF LOCOMOTIVE BOILERS
AND THEIR APPURTENANCES, AND FILING REPORTS

Philadelphia, Pa.
June 25, 1942

Cancel paragraph 9 of the present issue of this circular,
on account of discontinuing the use of metal record tags.

H. W. JONES
Chief of Motive Power.