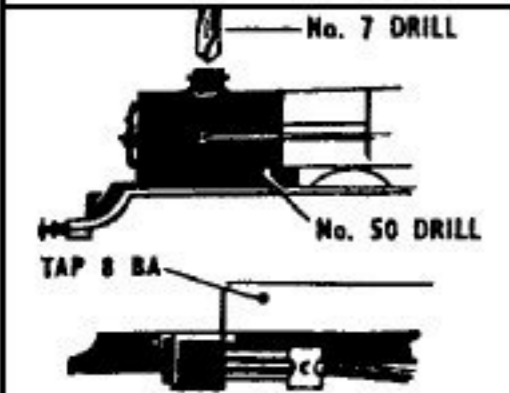


SMOKE UNIT—R.520 (Patented System)

INSTRUCTIONS FOR FITTING TO LOCOMOTIVES PRODUCED BEFORE 1st JANUARY, 1961
 Before undertaking this work it is advisable to ensure that the necessary tools and parts are available (see text) and that provision is made for clamping, or otherwise retaining, the locomotive firmly in position during drilling operations.

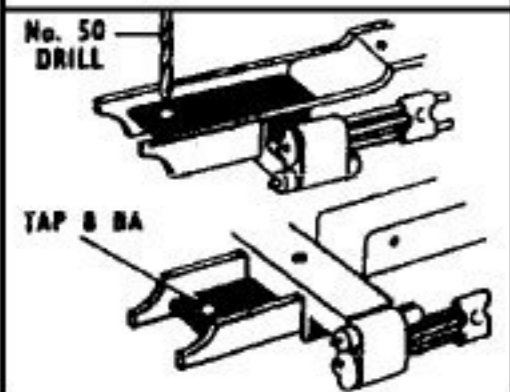
PART I—LOCOMOTIVES R.50, R.53, R.54, R.56, R.258

STAGE 1—Modification of Body (and body-fixing arrangements)



R.50, R.53, R.258

Remove front bogie. With locomotive supported on its side, drill body and weight to a depth of $\frac{1}{8}$ " with No. 50 drill, at position indicated, immediately forward of the lubricator box. Remove body from chassis. Open out hole in body slightly to give clearance for new body screw S.1061. Countersink by hand using No. 18 drill. Open out chimney with No. 7 drill. Tap hole in front weight with No. 7 drill. Tap hole in front weight using 8BA Taper Tap.



R.54 & R.56

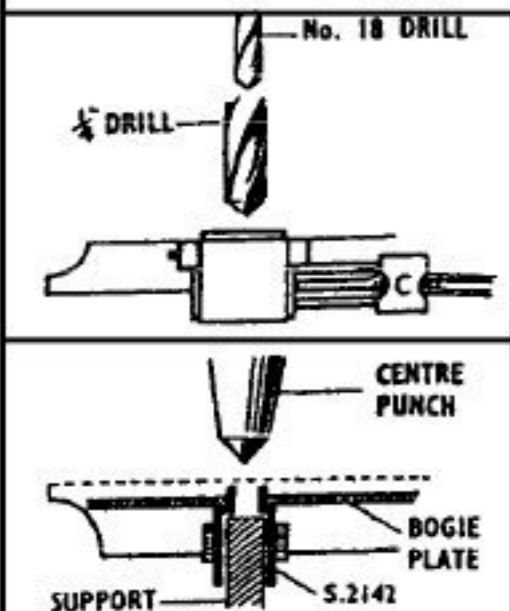
Remove front bogie. Turn loco upside down. Support front end and drill through bogie plate and body with No. 50 drill $\frac{1}{16}$ " from front edge. Remove body from chassis. Open out hole in body slightly, to give clearance for new body screw S.1072 (R.54) or S.1090 (R.56). Open out chimney with No. 7 drill. Tap hole in bogie plate with 8BA Taper Tap.



R.54 ONLY

Cut off top of lamp bracket along a line just above the eyelets and remove projection at rear.

STAGE 2—Chassis Modification

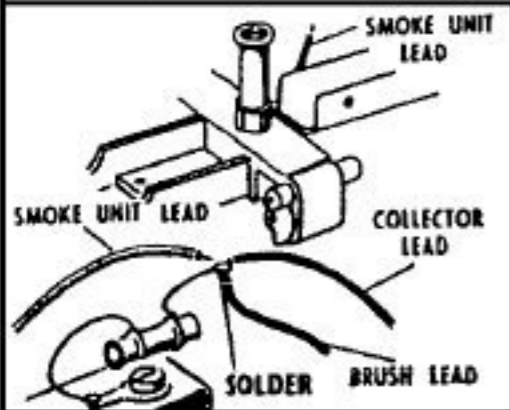


Support front of chassis in an upright position. Using existing hole as a guide, drill cylinder block with a $\frac{1}{8}$ " drill which should just enter but not pierce the metal bogie plate. Using same hole, drill right through bogie plate with a No. 18 drill.

Insert Smoke Unit Holder S.2142 in the hole in the cylinder block and turn chassis upside down. The inside of the Smoke Unit Holder must be suitably supported on a rod or punch and the lower end opened out by means of a centre punch to rivet it to the bogie plate.

NOTE—R.50, R.53 & R.258 "Princess" models manufactured during the latter part of 1960 have a raised extension on the front weight. Chassis modification for these models is described in PART 4—STAGE 2.

STAGE 3—Fitting Smoke Unit



Pass the lead on the smoke unit down through the smoke unit holder. Keeping the lead taut, enter the smoke generator into the holder and push home. Do not kink the lead and make sure that the insulation covering is tight up to the base of the generator. Bring end of lead up behind the cylinder block on the right hand side of the chassis and solder to the collector lead where it joins the suppressor.

STAGE 4—Testing

Check that the smoke pipe is in position in the smoke generator and insert two or three drops of smoke oil. In the case of the R.54, fit lamp bracket and lamp, inserting the lamp plugs in the eyelets. Test by running on the track for a short period. Refit body to chassis using the appropriate screw as under:—
 R.50, R.53, R.258—Screw No. S.1061
 R.54—Screw No. S.1072, R.56—Screw No. S.1090.
 Take care not to overtighten the S.1061 screw in "Princess" bodies. Refit front bogie and give the complete locomotive a further track test.

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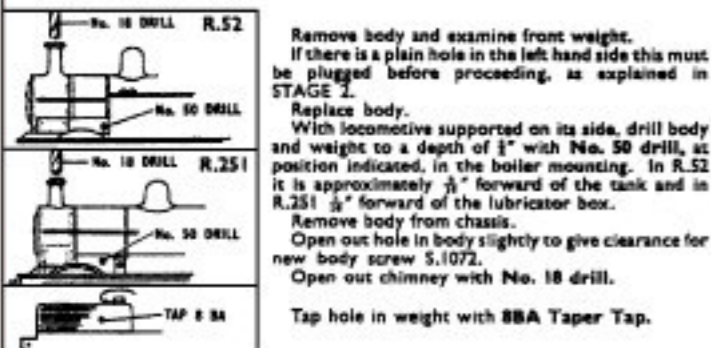
SMOKE UNIT—R.520 (Patented System)

INSTRUCTIONS FOR FITTING TO LOCOMOTIVES PRODUCED BEFORE 1st JANUARY, 1961

Before undertaking this work it is advisable to ensure that the necessary tools and parts are available (see text) and that provision is made for clamping, or otherwise retaining, the locomotive firmly in position during drilling operations.

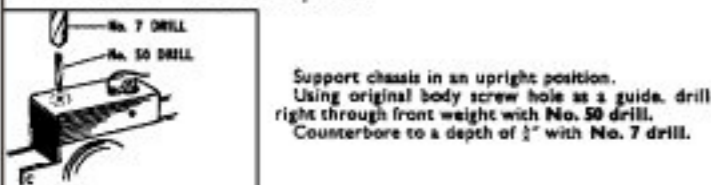
PART 2—LOCOMOTIVES R.52, R.251

STAGE 1—Modification of Body (and body-fixing arrangements)



Remove body and examine front weight. If there is a plain hole in the left hand side this must be plugged before proceeding, as explained in STAGE 2. Replace body. With locomotive supported on its side, drill body and weight to a depth of $\frac{1}{8}$ " with No. 50 drill, at position indicated, in the boiler mounting. In R.52 it is approximately $\frac{1}{8}$ " forward of the tank and in R.251 $\frac{1}{8}$ " forward of the lubricator box. Remove body from chassis. Open out hole in body slightly to give clearance for new body screw S.1072. Open out chimney with No. 18 drill. Tap hole in weight with 8BA Taper Tap.

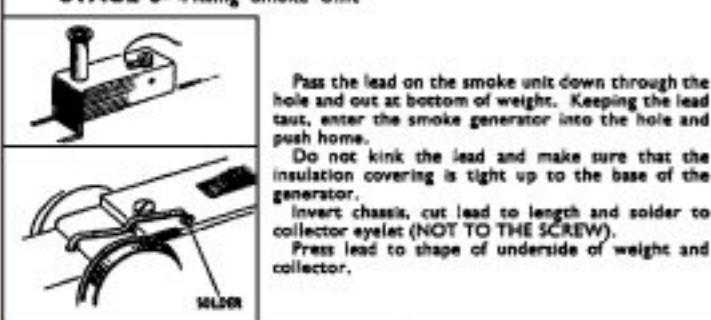
STAGE 2—Chassis modification



Support chassis in an upright position. Using original body screw hole as a guide, drill right through front weight with No. 50 drill. Counterbore to a depth of $\frac{1}{8}$ " with No. 7 drill.

NOTE—Later models have an extension on the front weight which should be cut off after drilling No. 50 but before using No. 7 drill (Stage 2). Some models also have a plain hole in the side of the front weight. This should be tapped 8BA and plugged with screw S.1023, cut off and filed smooth, before commencing Stage 1.

STAGE 3—Fitting Smoke Unit



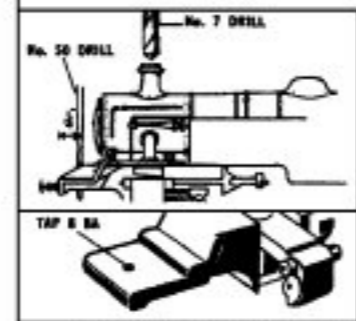
Pass the lead on the smoke unit down through the hole and out at bottom of weight. Keeping the lead taut, enter the smoke generator into the hole and push home. Do not kink the lead and make sure that the insulation covering is tight up to the base of the generator. Invert chassis, cut lead to length and solder to collector eyelet (NOT TO THE SCREW). Press lead to shape of underside of weight and collector.

STAGE 4—Testing

Check that the smoke pipe is in position in the smoke generator and insert two or three drops of smoke oil. Test by running on track for a short period. Refit body to chassis using S.1072 screw. Give the complete loco a further track test.

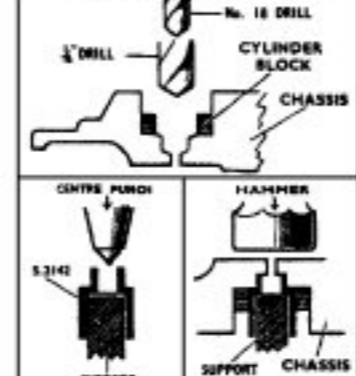
PART 3—LOCOMOTIVE R.59

STAGE 1—Modification of Body (and body-fixing arrangements)



Remove front pony truck. Support front end of chassis and drill down through body and chassis casting with No. 50 drill at position indicated, $\frac{1}{8}$ " in from front edge of body. Remove body from chassis. Open out hole in body slightly to give clearance for new body screw S.1072. Open out hole in chimney with No. 7 drill. Tap hole in chassis casting with 8BA Tap.

STAGE 2—Chassis Modification

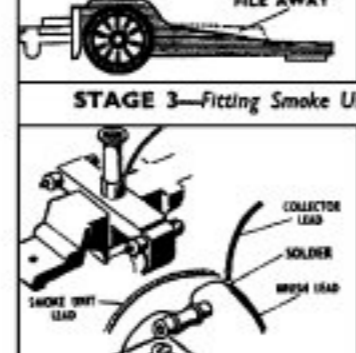


Support chassis in an upright position. Using original body screw hole as a guide, drill through cylinder block moulding with a $\frac{1}{8}$ " drill, to just enter the metal chassis. Using the same hole, drill down into the chassis casting with No. 18 drill to a depth of $\frac{1}{8}$ ". This is to take the narrow base of Smoke Unit holder S.2142.

Support base of holder S.2142 upside down on a punch or rod and, using a centre punch, enlarge the base slightly until it will grip inside the No. 18 hole drilled in the chassis.

Place chassis upside down over the smoke unit holder and hammer to force solder home. It should now remain in place when the chassis is removed from the support.

STAGE 3—Fitting Smoke Unit



File away section of the top of the front pony truck frame to clear the smoke unit lead when fitted.

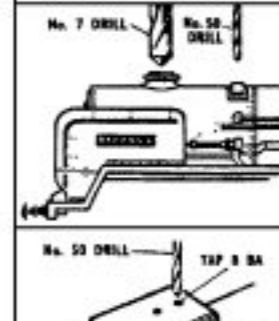
Pass the lead on the smoke unit down through the smoke unit holder. Keeping the lead taut, enter the smoke generator into the holder and push home. Do not kink the lead and make sure that the insulation covering is tight up to the base of the generator. Bring end of lead up behind the cylinder block on the right hand side of the chassis and solder to the collector lead where it joins the suppressor.

STAGE 4—Testing

Check that the smoke pipe is in position in the smoke generator and insert two or three drops of smoke oil. Test by running on track for a short period. Refit body to chassis using S.1072 screw in new hole. Refit modified front pony truck and give complete locomotive a further track test.

PART 4—LOCOMOTIVE R.259

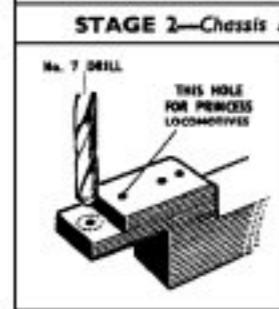
STAGE 1—Modification of Body (and body-fixing arrangements)



Remove front bogie. Support front of chassis and drill through body at centre of inspection cover using No. 50 drill. Drill should only just touch the metal bench. Open out hole in body slightly to give clearance for original body screw S.1029. Countersink by hand using No. 18 drill. Open out chimney with No. 7 drill.

In some models it will be found that a hole is already present and tapped to take the body screw in its new position. In other models, drill the weight to a depth of $\frac{1}{8}$ " with No. 50 drill and tap with 8BA Taper Tap.

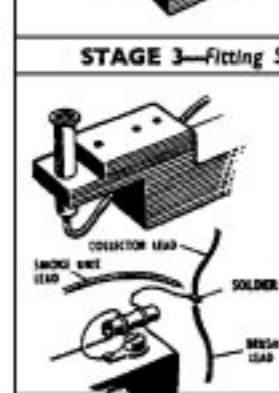
STAGE 2—Chassis Modification



Support front of chassis. Using original body screw hole as a guide, drill through the extension on the front weight using No. 7 drill.

(In some "Princess" locos built during the latter part of 1960, this type of front weight is used. For these models the second hole from the front should be drilled No. 7 to take the smoke generator.)

STAGE 3—Fitting Smoke Unit



Pass the lead on the smoke unit down through the No. 7 hole in the weight and push the smoke generator down into the hole as far as it will go. Do not kink the lead and make sure that the insulation covering is tight up to the base of the generator. Bring end of lead back along right hand side of the weight and solder to the collector lead where it joins the suppressor.

STAGE 4—Testing

Check that the smoke pipe is in position in the smoke generator and insert two or three drops of smoke oil. Test by running on the track for a short period. Refit body to chassis using original S.1029 screw in new hole. Refit front bogie and give complete locomotive a further track test.