CENTRAL LOCOMOTIVE WORKS

PACKING LIST

E.M.D. 1500 HP GP-15 Section 1 Page 1

2	1035-3	Body bolster
2	1035-3B	Body bolster insert - bottom
2	1035-3T	Body bolster insert - top
2	1015-4	Chassis underframe
2	1040-6	Fuel tank end
1	1015-41	Fuel tank wrapper - formed
1	1003-47	Coupling sleeve-truck - rear
1	1003-48	Coupling sleeve -truck - front
1	1015-49L	Coupling shaft - long - trucks
1	1015-49S	Coupling shaft - short - motor
2	1013	Grommet - standard - large bore
2	1013-S	Grommet - small bore
2	1014	Electrical terminal lug - standard
2	1014-P	Electrical terminal lug - push-on
2	1042	Intermediate gearbox assembly
1	1043	End gearbox assembly
1	1044	Transfer gearbox assembly
1	8523	D.C. motor
3	UN-4	Universal joint - self-telescoping - 3/16 x 3/16
1	UN-5	Universal joint - self-telescoping - 5/32 x 3/16
2	1005PH	Motor bracket

SCREWS

2	4-40 x 3/8	Round head
2	6-32 x 5/16	Round head
4	1/16 x 1/2	Cotter pins
4	1/16 x 5/16	Roll pins

DRAWINGS

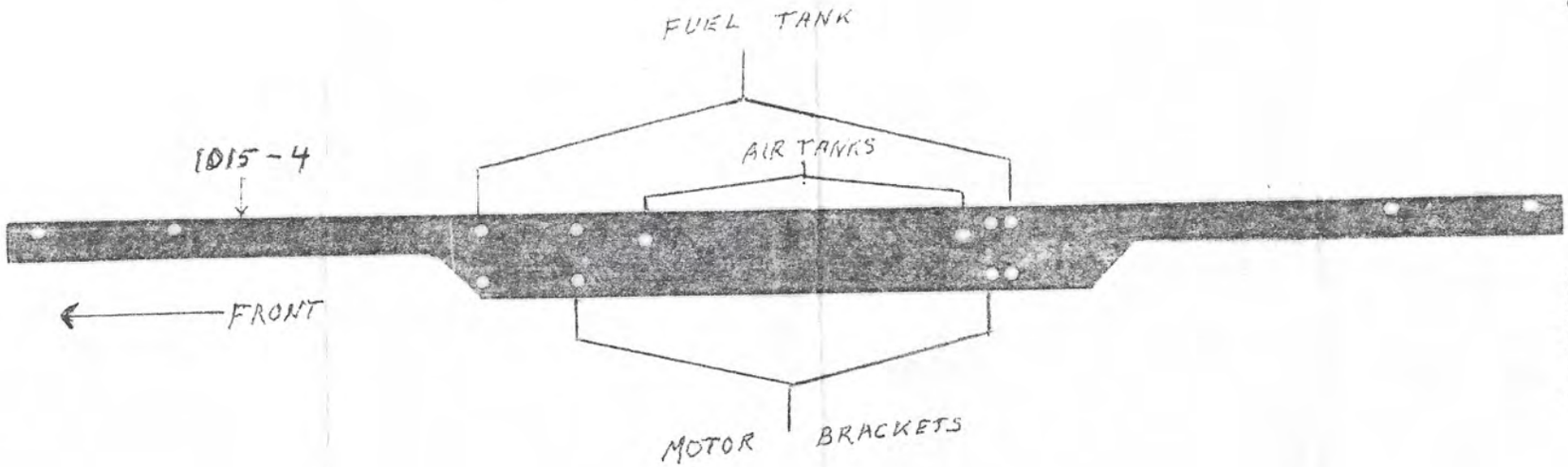
1003-15	Chassis assembly
1035-04B	Truck assembly

NOTE: See separate packing list for truck parts and instructions.

(over for page 2)

GP-15

FIG. 1



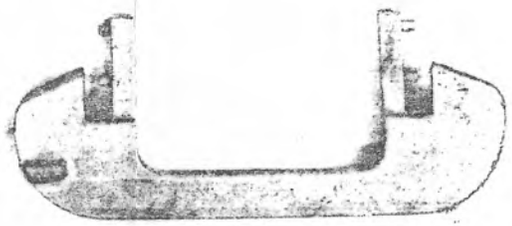
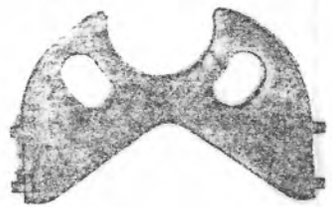


FIG. 2



Instruction Sheet: E.M.D. F-3 and F-7 Section 1 Page 3

Drawings: 1003-5 and 1035-04

Drills needed: 42

Taps needed: None

HELPFUL SUGGESTIONS

A. Read the instructions carefully before starting any assembly work. Drawings that are furnished show all parts "exploded". Parts numbers are keyed to instructions.

B. It is suggested that considerable time be spent in acquainting yourself with the various parts, their proper location and use, so that when actual construction is begun, no time need be lost in identifying the parts and the work will proceed more smoothly.

C. Remove all "gates" from castings carefully. Although this may seem a tedious chore to do all at once, you will find it much more pleasant to have this task behind you when you start assembly. Be sure to clean surfaces of castings where any soldering is to be done. These two steps are mentioned here so they need not be refered to in each of the assembly steps. Take your time, and FOLLOW INSTRUCTIONS. Note that numbers shown on drawing give only the dash number rather than full part number as shown on packing list.

D. The use of solder paste and a resistance soldering machine are most helpful in model work. If you don't have these, you can still build models of course but they are certainly more efficient. They are well worth the investment.

ASSEMBLY STEPS

1. Refering to drawing 1003-5 and Fig. 1 on page 2, the chassis frames (-4) are to be made into left and right sides. Cut off excess length approximately 1/8" beyond end holes as shown in Fig. 1, noting which series of holes are toward front of chassis. Using your #42 drill, countersink, ever so slightly, all the holes on the OUTSIDE of each frame. The countersunk areas will provide better "anchor" space when you rivet the parts to the frame. If you wish, you can also secure the riveted areas with solder but it is not really necessary.

2. Before riveting any of castings to frames, check to see that each pair of pins fit into their respective holes in f rames. Also check for over-all width of motor brackets (1005PH) andtank end castings (-6) as shown in Fig. 2. Make any corrections necessary. These should be quite accurate as they will control width of f rames and you will want them straight in final assembly.

Mount front motor bracket to right frame putting the motor bracket in your vise so edge with pins in it is just slightly above surface of vise jaws. This will make it more solid when riveting. Then install rear motor bracket in same right

frame. Now put the fuel tank wrapper (-41) onto fuel tank end castings (-6).The snug fit will keep them in place while mounting the to the right frame. Put a strong piece of steel or some other metal into your vise jaws allowing end to extend about 5/8" from edge of jaws. This will provide an "anvil"on which to lay the "arm" part of casting while riveting. When both fuel tank end castings have been secured to the right frame, then put one of the battery boxes (-9) in place on right frame and rivet. NOTE: When riveting, use gentle taps with your ball peen hammer so as not to distort the frame metal.

3. Now secure the other battery box to the left frame. Place left frame over pins on castings already mounted to right frame and proceed to rivet all in place on your "anvil" bar in your vise.

4. When the motor brackets, battery boxes and fuel tank endsare allsecure to both chassis frames, the body bolsters (-3) may be installed. These bolsters have a spot mark on each of the tabs. Drill these with #42. The superstructure will be mounted with screws at these four locations in completion. Depending on type of vise you have, you can probably put casting in vise with surface of casting at base of pins just above surface of vise jaws and rivet one side at a time. When assembled, check for squareness of alignment. If necessary, frame assembly can be twisted slightly to remove any misalignment.

5. Carefully fit the body bolster top insert (-3T) in square recessed area on top side of body bolster (-3). Break corners ever so slightly so that it is a snug fit. The bottom insert (-3B) should need no fitting but make sure the holes line up as truck kingpin must pivot freely when trucks are mounted in place. Inserts may be cemented in place if you prefer.

6. Now insert the rubber motor grommets (1013) in slots in REAR motor bracket. These have the large bore for the 6-32 screws. Insert the grommets with the small bore (1013-S) into slots in FRONT motor bracket. Using the UN-5 universal joint, place it on the REAR shaft of motor -- this being the shaft on opposite end of motor from the motor terminals.Secure to shaft with one of the 1/16" diameter roll pins furnished. It will be a snug fit so be sure to line up the holes perfectly or you could possibly damage the universal joint. Put motor in place between its brackets using the 6-32 screws at rear end and the 4-40 screws at front end.

7. If you haven't already assembled the sprung trucks, do so now using the separate instructions and drawing furnished.

8. Install the gearboxes in the trucks using the small coupling sleeve (-47) in rear truck with the transfer gearbox (1044) and one of the intermediate gearboxes (1042). Make sure the sleeve slides over worm shaft freely but not sloppy. Install the other intermediate gearbox (1042) and end gearbox assembly (1043) using the longer sleeve (-48).NOTE: Before final assembly where you'll start running your model, put a light drop of oil in sleeves and all exposed steel shafts to help prevent rust from starting if you have any moisture problems where you live.

Install a UN-4 universal joint on each end of truck coupling shaft using the roll pins. Put other end of ONE of the universal joints on worm shaft of rear truck and secure with a cotter pin furnished. Place frame assembly on truck kingpins, first inserting truck coupling shaft through open area above fuel tank wrapper. Connect that end universal joint to front truck wormshaft and secure with another cotter pin. Then put a 6-32 nut on each of the truck kingpins and tighten firmly but not too much where you'll strip the cast threads.

Check again to make sure trucks pivot freely.

9. Install the electrical terminal lugs (1014-P and 1013) on ends of your pick-up wire. Note the open ends of 1014-P -- these "wrap" around end of wire and can be closed using your long nosed pliers. Be very careful not to damage the round ends that press on the motor terminal extensions. Insert the other end of wire into the 1013 lugs and squeeze them closed in your vise. Make wires long enough where they won't bind on curves but not too long where they might get caught on shafts or cotter pins. Place the larger lugs (1013) over truck king-pin on each truck and secure with a second 6-32 nut. Do not connect to motor terminals just yet.

10. Put the remaining UN-4 universal joint on end of motor coupling shaft (-49S) using a roll pin. Then insert other end of this shaft into the universal joint on motor shaft using a cotter pin. Now, by pivoting the rear truck somewhat,you can slip the universal joint onto top shaft of transfer gearbox. Use a cotter pin here also. These cotter pins facilitate disconnecting the shafts if ever so desired.

11. Very carefully, press the small terminal lugs onto the motor terminals and you're ready for a trial run!

Remember to oil the truck journals periodically as with proper servicing, as with all mechanical products, this drive will last next to forever.

This completes Section 1.

PACKING LIST

1	1015-1	Mainframe - floor
1	1015-2R	Mainframe side - right
1	1015-2L	Mainframe side - left - with air duct top plate
1	1015-2B	Battery box - right
1	1015-2C	Battery box - left
2	1015-5R	Pilot steps - right
2	1015-5L	Pilot steps - left
2	1035-7	Endsill
2	1035-7A	Endsill bracket
2	1035-7B	Endsill footboard
1	1038-12A	Low hood end
1	1015-12B	Low hood wrapper - formed
1	1015-12C	Low hood coverplate
1	1035-13	Handbrake housing
1	1035-14	Handbrake mechanism
2	1015-17	Cab step
1	1038-18	Cab - one-piece etching
2	1038-18A	Cab side overlay plate
1	1038-19	Cab roof
2	1015-20	Long hood - formed - both versions - A & B
1	1015-20A	Long hood top plate - front with guide holes
1	1015-C	Long hood top plate - upper - B version only
2	1040-20D	Air intake grills
1	1038-20E	Electrical cabinet door
1	1015-20H	Long hood step
1	1038-20H	Dust bin blower cover
1	1015-20R	Access door
1	1015-20L	Access door
1	1035-21	Long hood end
1	1038-22	Traction motor blower duct - standard
1	1015-22S	Traction motor blower duct - small
1	1015-23A	Radiator grid inside plate
2	1015-23B	Radiator grid
2	1035-24	Sand box filler cap
4	1035-25	Classification light
2	1035-26	Walkway light
2	1035-27	Coverplate - round
8	1035-28	Hinge
6	1035-29	Lifting hook
2	1015-30	Exhaust plate
1	1035-31	Airhorn
7	1035-32	Handrail stanchion - long
13	1035-33	Handrail stanchion - medium
8	1035-34	Handrail stanchion - platform
6	1035-37	Lifting ring
2	1038-38	Cab window visor
2	1015-39	Intake screen mesh
1	1038-40	Electrical cabinet air filter box
1	1015-46	Footplate - rigid
2	1015-47	Anti-climber
2	934	Snowplow - with doors

Continued on Page 2 (over)

PACKING LIST

SCREWS

4	2-56 x 1/4	Fillister head - brass
2	2-56 x 1/4	Round head - aluminum
12	2-56	Hex nuts

WIRE

3 feet	1/32	Brass wire

DRAWINGS

1035-01	Frame assembly
1015-02	Superstructure assembly
1015-03	Pilot step assembly
1038-38	Some details location

oo oo

CENTRAL LOCOMOTIVE WORKS

Instruction sheet GP-15 Section 2 Page 1

Drawings: 1035-01, 1015-02 and 1015-03

Drills needed:

Taps needed:

HELPFUL SUGGESTIONS

A. These instructions are written to cover the assembly of our EMD GP-15 diesel unit only. There are two different versions of the GP-15. This kit will build either version -- it's your choice. For an in-depth study, we recommend purchasing the March 1991 back-issue ofMainline Modeler for the Conrail/MoPac/UP version and the April 1991 issue for details on the CNW/Frisco/BN/Apalachiacola Northern version.Also, the Chessie GP-15T version could be kit-bashed with some modifications.Refer to the February 1991 issue for plans and details for this version. For these issues, contact Bob Hundman, Mailine Modeler, 5115 Monticello Dr., Edmonds, WA 98026.

B. Read the instructions carefully before starting any assembly work.Drawings that are furnished show superstructure parts "exploded" fpr clarity.Note that the numbers shown on drawings give only the dash number rather than the full number shown on packing list.

C. It is suggested that you spend considerable time inacquainting yourself with the various parts, their proper location and use, so that when actual construction is begun, no time need be lost in identifying the parts and the work will proceed more smoothly.

D. Remove all "gates" from castings. Although this may seem a tedius task to do all at once, you will find it more pleasant to have this chore done when you start assembly. Be sure to clean surfaces of castings where any soldering is to be done. These two steps are mentioned here so that they need not be refered to in each step of assembly. Take your time and FOLLOW INSTRUCTIONS!!!!!

E. Very carefully, file off all the small "tangs" on the etchings. They are very sharp so be careful of your fingers when handling them.Also be sure you do not file away any part of the edges of the etchings as these are right to size.CAUTION: do not damage any of the etchings while woring on them as they can only be had in complete sets. NO individual piece can be replaced under any circumstance.

F. On drawing 1015-02, at center of left side, there is a box with letters A and B. These designate which parts are peculiar to each version so be sure to follow them. These instructions will not mention them each time so if instructions say to install, for instance, the hinged footplate and your version does not use same, then ignore the instructions on that part.

ASSEMBLY STEPS

1. There are three spot marks on the endsill bracket (-7A) that locate the three corresponding pins on back of endsill casting (-7). Using a #60 drill, clean out these holes so that they fit over the pins and so that the face of each casting meet and are flush. Before soldering together, lay out coupler mounting hole on center of bottom surface of coupler pocket on endsill. Drill through bottom of coupler pocket and part way through top of the pocket, being careful not to break through the ang-

ular surface of top side, using #50. Tap 2-56. Now fit the endsill footboard casting (-7B) to endsills. These will be almost a "snap" fit unless some flash prevents it from fitting into place. Here is a place to check which version you are building. On modern diesels the actual footboards have been removed which you can do at this point if you prefer. Be sure they fit all the way back on the vertical braces on the endsill where pins are. You will need a clearance hole in center area to remove coupler mounting screw at time of painting. Locate accurately and drill with #36 to clear head of screw. It is suggested that head of screw be filed down in diameter to clear this #36 hole rather than enlarge the hole.

The small brackets for coupler lift bar are cast on endsill and are spot marked for drilling. Be very careful to have endsill absolutely square with your #66 drill or you will break out the edge of hole. After you have drilled the outer hole, pass drill right on throuh it to drill the inner bracket. Flip endsill and repeat operation for other two brackets. Repeat for other endsill.

Right above the two center lift bar brackets are two more "cast on" brackets to which the hinged footplate (-46) will mount. Note: Most prototypes used the hinged footplate arrangement but there were some that didn't.so it's up to you to follow your choice. If you are building the CNW/Frisco/BN version, trim front of floor using the etched lines on under side of the floor front as a guide. Do NOT trim this area away if you are building the other version.

There are eight spot marks on face of endsill where air and steam lines mount. If you are going to add these details which are optional, check the parts you will use and drill to size accordingly. These details can be added later. Now solder endsill bracket (-7A) to endsilland then the footboard (-7B) first making sure they are square and even.

2. If you are building theCNW/Frisco/BN version, refer to Fig. 1, your floor will look like this after you trimmed the one end as mentioned above. Lay out the four holes as shown and drill #53.The platform handrail stanchions will be mounted in these locations later.. On other end of floor, lay out the locations following the contour of floor end.

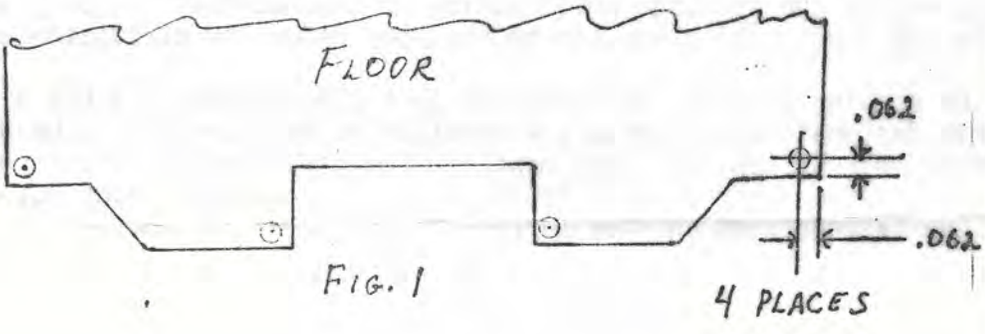
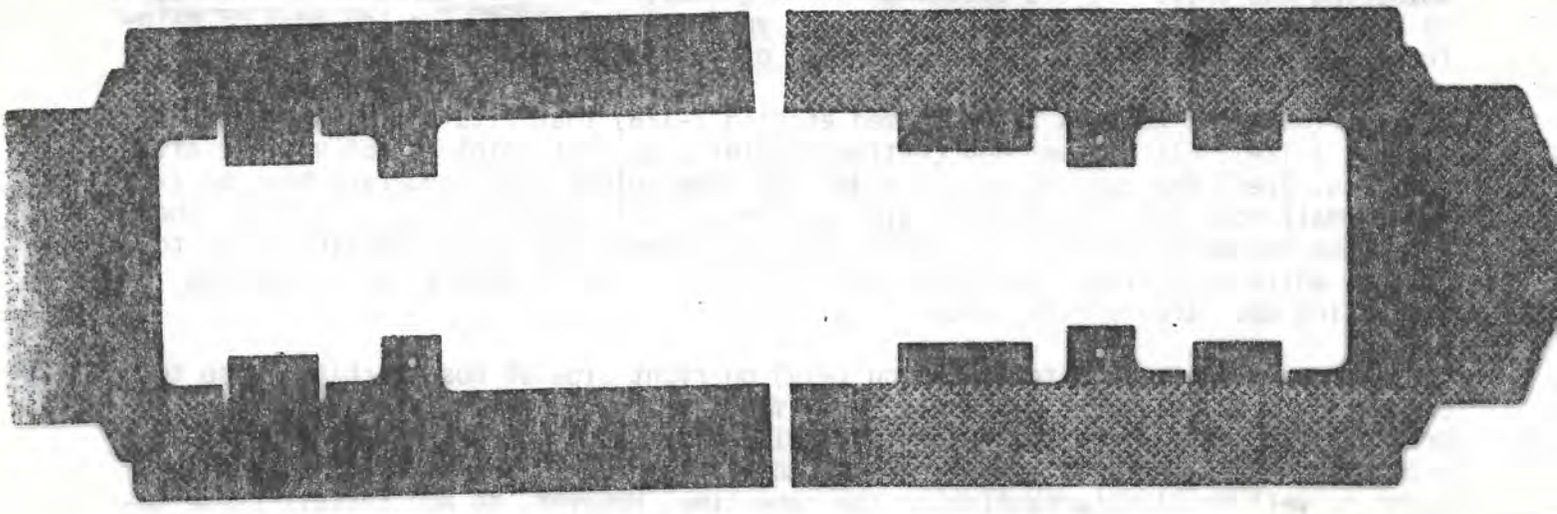


FIG. 1

There are a number of tabs on inner opening of floor. At the proper time, you will be instructed to bend these upward at 90° to the floor so do NOT bend ANY of them at this time. The second pair of tabs from each end of floor have small holes etched in as shown in Fig. 2. Run a #50 drill through all four and tap 2-56. Then run the two ALUMINUM 2-56 screws furnished, in from BOTTOM of one pair of tabsand tighten

firmly. Spread a small amount of solder paste on surface of tab around the aluminum screws. Take two of the brass 2-56 nuts furnished and run them down to surface of floor and tighten firmly. Apply heat and you have the hex nuts soldered to the floor which gives more thread surface for the screws that hold chassis assembly to floor. Back out the aluminum screws and repeat operation on tabs at other end of floor. The screws, being aluminum, will not have the solder adhere to them. Keep them separate from your other screws as you may have occasion to use them again in a similar operation. These tabs are shown plainly in Fig. 2 below. Remember, do NOT bend any of the tabs at this point of assembly.



3. The coupler lift bars can now be made. It is suggested that they be made in three pieces. Form the handle section as on any other type of lift bar. Allow the straight section that passes through the brackets to extend to center of endsill. Form loop section and solder in place. The slight overlap will not be noticed asit is covered somewhat by the overhang.

4. The pilot steps (-5R & L)are etchings with safety tread. Refer to drawing 1015-03 and follow instruction on that drawing. Before forming them, note the small hole spot mark on the vertical wall. Drill all four etchings with #66. This is where bottom of handrail will be anchored later. When all are formed, put aside until later.

5. Before soldering endsill assemblies to floor, put them in place and check fit and alignment of pilot steps you just prepared. When satisfied with fit, solder endsill assembly to floor being careful to see they are in proper place and at exactly right angle tofloor.

6. The two mainframe sides (-2R & L)have holes already in them where handrail stanchions are to be mounted.Very carefully, run a #59 drill through them all and then take a couple stanchions and try them for size.Diameters of castings may vary slighty from run to run and it will be easier to redrill the sides, if necessary, while they are unmounted. Hold one of the sides in place and put a step assembly in positionto see if any fitting is necessary. The vertical portion of steps should be flush with edge of floor. When you have all four sets of steps fitted to your satisfaction, solder them in place on floor making sure they are properly aligned.

You will note that the left mainframe side (-2L) has the air duct top plate integral with the side and that there is a score line on back side. Carefully bend a short length ata time, moving it along in your vise. Do NOT try to make the full 90° bend

at one time. When formed through entire length, check to see that it is exactly 90° with the side.; then bend down the small end piece to close up the end.

Now the mainframe floor and carefully bend all tabs(except those where you mounted the hex nuts) UPWARD to exactly 90° with floor. Put one mainframe side in place,checking its alignment and then tack each end with solder, also a spot in the center. Then double check to make sure you have it properly aligned at right angle to floor. When satisfied, finish soldering by alternating soldering area so as not to get too much heat at any one place at any one time. and warping the side. Before doing any of the soldering and while you are checking for alignment, check back surfaces of framesides to see if there are any burrs around holes you have redrilled. The top edge of mainframe sides MUST be FLUSH with top surface of floor.

7. The low front hood is also a formed etching (-12B) that fits on the low hood end casting (-12A). Fit wrapper and casting carefully so that joint is not visible after painting. Blend the casting to the sides and then solder. The handbrake housing (-13) has a small hole cast in. Open it with your #50 drill. Insert the split pin on the handbrake mechanism (-14) in the hole. Press in firmly and spread the split pin to hold it while soldering. Then solder assembly to inside of hood with the housing straddling open area of the hood.

There are two spot marks for grabiron (-10) on right side of nose etching; also two on top surface. There are also spot marks for grabirons on front of nose casting. Drill all of these with #64. Refer to drawing 1015-02 for these and following locations and parts. The same parts are also mounted on rear nose casting (-21) so you might as well drill this casting at the same time. However, do NOT install these details on rear nose casting at this time. Details (-28), hinge and lifting hook (-29) are cast in a group and are left that way when they are packed in kit to avoid losing these small parts. Refer to upper right hand corner of drawing for enlarged view of these details. Drill spot marks with #55 for hinge (-28) and lifting hook (-29).Note that two of the -29 are on front face of nose casting and one on each side of etching as shown on drawing.

The sandbox filler cap (-24) and classification light (-25) are also cast in a group. Carefully separate them leaving about 1/8" stem on each. Drill #46 for filler caps and classification lights. Then redrill the classification lights ONLY with #22. Be sure to use correct spot marks for respective parts. The two round coverplates (27) are used on rear casting as shown on drawing. Drill #43. After installing all details and grabirons, put completed low hood and rear nose assemblies aside until later.

8. The cab (-18) is a one-piece etching.Before any forming is done, there are a couple operations to do while cab is still in flat form. First, the cab window visor (-38) locating holes can be put in. These were intentionally left out during chemical milling as many roads did not use the visors and it's easier to put holes in rather than to cover them up. Refer to Fig. 4 for laying out the holes and drilling with #64.

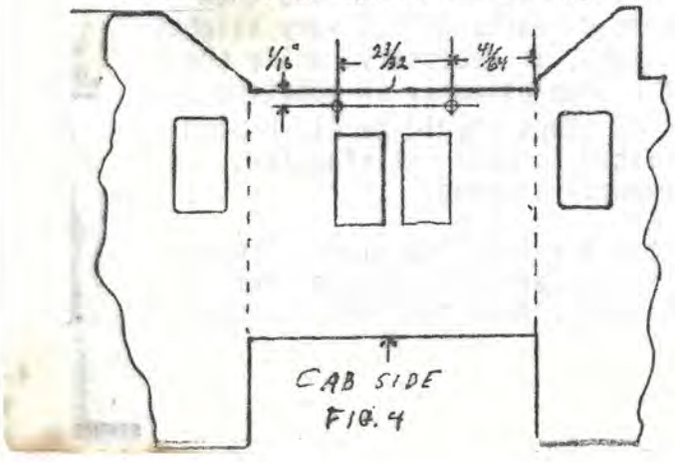


FIG. 4

Be very accurate with your dimensions or you'll spoil the appearance of your model. The pins on the visor will give you a rugged mounting method when you solder them LATER.

The overlay plate around the cab window area is simulated with a small etching shown in Fig. 5.


FIG. 5

There are two small holes etched in each plate. Handrail end will anchor in these. Redrill them with #67. Note that thin area of overlay plate goes toward bottom, Otherwise they will not line up with holes in cab. A good way to mount these to cab is to tin both mounting surfaces slightly. Then take two pieces of the handrail wire that is furnished in kit and place them in holes to align plate and cab perfectly. Then clamp them together, REMOVE wires and sweat-solder together.

Now fit the headlight box (-16) into its space in cab front. As mentioned before, castings do vary so carefully file each end of etching until it is a firm fit. Drill spot mark on top of light box with #57 where horn will be mounted later. Make certain that you do not install box upside down -- wide border is at top. When fitted correctly, solder in place. (The box is cast open so that you may add working headlight. It is recommended that you arrange for headlight mounting at this time.

On rear surface of cab etching there are four score lines. Remember, the score lines go to INSIDE of bend. Bend the cab sides so that they are at right angles to cab front. Then bend rear halves at right angles to sides. Make sure all corners are square so the rear halves are in line with each other. Take a small piece of scrap brass approximately 3/4" long and 1/2" wide and solder to OUTSIDE of cab rear making sure the edges are TIGHTLY together and in line at the corners. Now fit the cab roof (-19) in place. When satisfied with fit, so that all edges are together, you can solder roof to cab keeping it all square and true. NOTE: you may want to leave the soldering of roof to cab until you have mounted the cab to the floor which will allow you to see inside better. It will be just as easy at that time later in these instructions.

There are two tabs on cab front and two tabs on each rear half. Bend all six tabs OUTWARD. This time it puts the score lines on OUTSIDE of bends. Put cab assembly aside until later after you have soldered the cab window visors in place.

9. With the floor assembly literally complete, you can install the anti-climber and plow in whatever combination of the version you are following.

10. Choose the proper long hood for the version you are building. First fit the rear end casting to the hood. You will need to do a little filing at upper corners here so that hood fits up against the casting on the shoulder. Fit very carefully. While working on this end casting, add the two small, triangular shaped etchings just under the number boards. These are the inspection doors on prototype; since that area of the locomotive is occupied by radiators/fans, etc, so that the light bulbs in the number boards can be changed. These doors are shown in Fig.6 below as -21D.

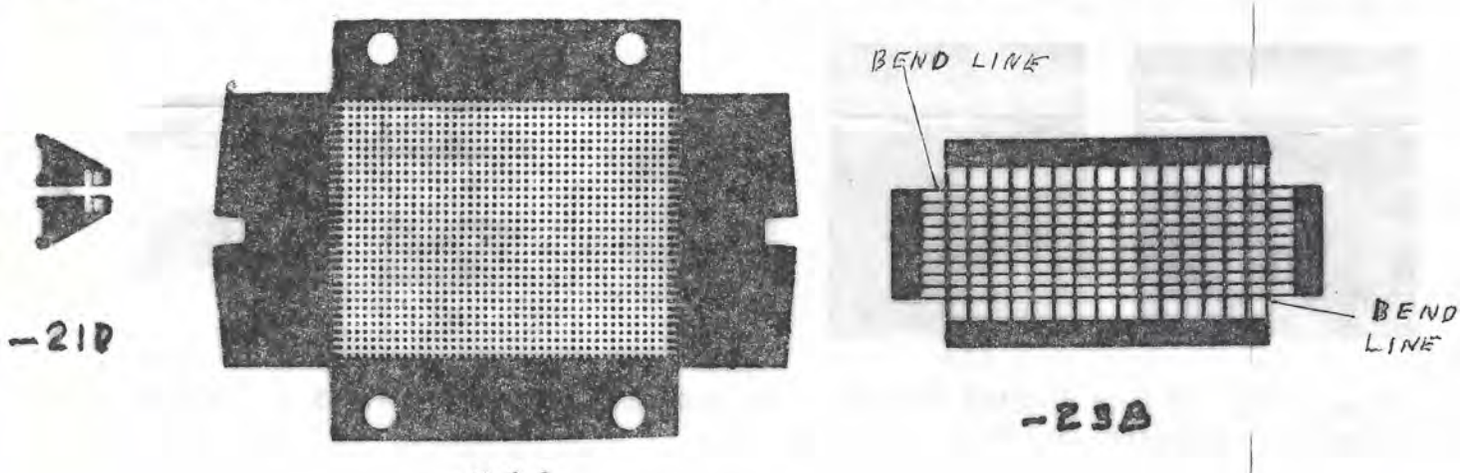


FIG. 6

Now take the radiator grid inside plate (-23A), shown in Fig. 6. It has four sides that protrude from the grid area in the center. With the etched grid detail UP, fold the two short sides with the V-shaped notch DOWN 90° to make the radiator ends, and the two longer sides (with holes) are to be folded UP to make brackets to solder this plate to insides of hood.

Observe the top surface of the long hood. There are two rectangular areas etched open here. Also observe the two narrow tabs inside each opening. These two tabs need to be bent UP almost 90°. Take exreme care here. You may want to practice this fold on the hood you are not using. Push the inside plate up inside the openings. The angle on the tabs should match the angle of the v-shaped notch on the end of the radiator plate. You may need to do some minor fit and filing to the opening to have a good fit. when perfect, solder in place.

You might as well install the screen mesh (-39) while working in this area. You can either solder them in place or use epoxy or any of the modern cement or glue. Just do not get any into the holes in the mesh.

11. Here, for the moment, we'll handle each long hood separately for clarity. Follow the version specific steps below:

Conrail/Mopac version long hood: On forward left side of hood, just above the air duct cover, are two vertical holes etched in. The blower duct casting (-22) will be mounted here. While redrilling these with #43, also do the two horizontal holes just above them where the air inlet grill castings (-20D) mount on both sides of hood. On right side of hood, just below the two holes you just opened up, there is a single hole so open this with #43 also. The electrical cabinet door casting (-20E) mounts here. Install all four castings with 2-56 nuts. These castings are shown on drawing 1038-38.

CNW/Frisco/BN version long hood: Solder access door (-20R) to fireman's side of hood only, centered over the first pair of hood doors. Form and solder the small side step (-20H) to the left side of hood. There is a slot for the tab on the step to slip into. This access door has latches and hinges only. There is a rectangular area etched on forward section on left side of hood with rivet detail within the etched lines. This is where the small blower duct (-22S) mounts. Locate a point centered in the width and 1/2" down from top etched line. Centerpunch and drill #43. Use a 2-56 nut to secure in place. If you find, when you assemble hood to floor, that this casting is too low or too high, you can slot the hole as it will not show. The casting should seat tight on top of air duct.

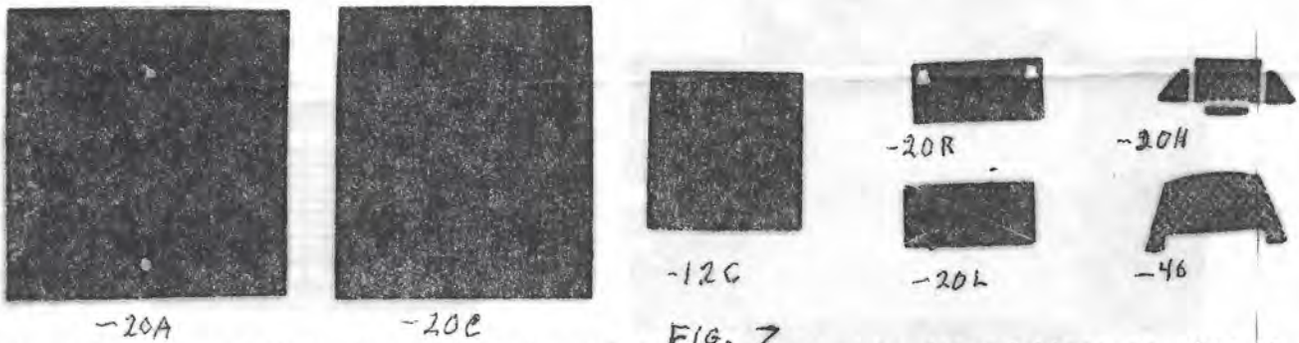


FIG. 7

Cover plate -12 C is located on top of low hood shown by dotted lines on 1015-02 according to chosen version.

12. If you haven't installed all the detail parts on rear hood end casting (-21), as mentioned earlier in the instructions, do so now. When all complete, solder casting to rear end of hood and blend edges of casting and etching.

13. There are four spot marks on top of hood where lifting rings will mount. Two more will mount on cover plate (-20C) which have to be located on the plate as shown on sketch herewith.Lifting ring number is -37. Use #64 drill but do not mount rings at this time.

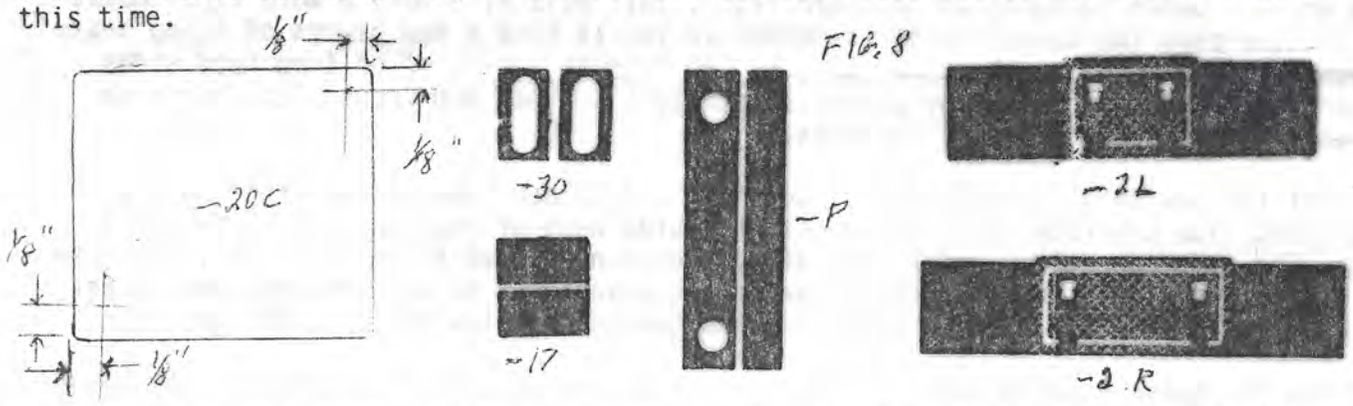


FIG. 8

There are two oval holes in top of long hood. These locate the exhaust plates (-30). Solder them in place. These are shown in Fig. 8.

14. Now for a little delicate work and that is installing the radiator grid (-23B). This is shown flat in Fig. 6. These pieces are quite fragile so do be very careful in fitting them. They are packed in small separate envelope for their protection from getting damaged in kit box by other parts. CAUTION: Do NOT cut away the bars on the sides as these act as support when in place. You will note that there are rivet detail where the bars and tangs meet. Where you bend them determines their width so refer to Fig. 6 again which shows the line to be just outside edge of the outer bars. If by any chance you break any tangs, you can still salvage them by cementing them in place. When formed properly, they will just drop into area formed by the ends of -23A and the narrow strips you bent upward on center open area on hood top. When fitted correctly, put aside as these wil be about the last pieces to assemble into the unit.

15. You now have three assemblies ready to be mounted to floor. First put the long hood in place sliding it between the air duct cover and tabs on left side and over the tabs on right side of floor. Front end of hood should come exactly to end of air duct cover. At rear end of hood, the end casting will just cover edges of safety tread on floor. With hood in place, put cab in position so tabs on cab rear go to inside of long hood. It should also line up with cab sides sitting on top edges of mainframe sides.

Now put the low nose assembly in place with tabs on cab front going inside the nose etching. You may need to adjust tabs slightly so that they contact each surface at their locations. With the upper tabs on cab rear keeping the front sides of hood in perfect alignment with rest of hood sides, fit the front top plate (-20A) to top edges of hood sides. The plate has two locating holes. If you are building the Conrail/Mopac version, open these holes with your #43 drill. The dust bin blower cover (-20H) will be installed here. If you follow the other version,do not drill the holes as the top plate (-20C) will mount on top of the-20A plate..The casting is shown on drawing 1015-02 and is secured with two hex nuts but do not mount at this time.

16. With the long hood still in place, you can start soldering the floor tabs to the hood from within. If you have some soft aluminum wire or something similar, you can

gently wrap it around the hood and floor so as to keep floor firmly against bottom edges of hood so that no gaps are present. Also be very sure that left front edge of hood is exactly flush with front edge of air duct on left mainframe side. ALWAYS be sure to check alignments as you proceed with assembly.

17. Put the cab assembly in place with all tabs in their proper locatiin as previously mentioned. It is suggested that you take two pieces of scrap brass about 1/2" x 1" and solder them inside on surface of cab sides where they seat on top edge of mainframe side so that outer surfaces of each are flush. This will also make a more rigid mounting for the cab. (We have lots of trimmings so you'll find a few pieces of scrap brass in your kit.) Now solder the upper tabs on cab rear to inside of of long hood sides. Be certain that hood sides stay perfectly straight so that top front plate edges do not extend over the hood side surfaces.

18. Put the low hood assembly back into place and solder tabs on cab front to low hood sides. You can flow some solder around inside base of nose casting to secure to floor. Too, you can solder under side of nose etching to cab front which will increase the rigidity of the mounting. That's one of the advantages of solder paste and resistance soldering --- you can get into spots that wouldn't allow for a solder gun, etc.

19. Now the battery boxes can be installed - (-2B and -2c. Refer to Fig. 8. The longer one (-2C) has two spotmark holes in it where a grab iron is mounted. Drill with #67. Both have score lines on rear side. Bend each 90° first installing grab iron on -2C. Fit them in place as shown on drawing 1015-02. Make sure top surfaces of the battery boxes remain flush with top edges of mainframe sides.

There are two small cab step etchings (-17) shown in Fig. 8. Both have score lines for bending to 90° with score lines INSIDE. The plain surface will locate their height from floor and also give you a soldering surface for rigidity. Solder one to the battery box -2B and the other below right rear cab door.

20. Applying solder paste as you have right along, solder front top plate (-20A) in position on hood but first mounting the dust bin blower casting (-20H) with two hex nuts. Be sure that hole nearest edge of plate goes toward rear of unit. There are wo rectangular etchings with two holes in each(-P) shown in Fig. 8. They also have score lines . These are optional for reenforcements for soldering roof to cab. If you choose to use them, with score line INSIDE, bend an angle to match that of cab side and the slope of the cab front and rear. The narrow side of the angle braces is to mount on on inside of cab side above the windows. Solder to cab side first. Then applying solder paste to all surfaces, including top edges of cab front and rear, solder roof to cab. Turning the unit upside down, you can also flow solder sparingly into the holes for additional strength.

21. Handrail stanchions (-32, 33 and 34)may now be mounted. Note that there are three different sizes. The platform stanchions (-34) are mounted in holes you drilled in the beginning. Refer to drawing 1015-02 for locating the other sizes. The upper end of stanchion has a semi-formed loop. Using small pliers, carefully bend loop to a closed position, leaving loop open enough to insert the handrail wire furnished. When all stanchions are soldered in place, form handrails as shown on drawing. After checking to see if level and straight, close loops over wire and secure with solder. Use solder sparingly here fo appearance.

22. Install all other detail parts such as the lifting rings, air horn, etc, Then

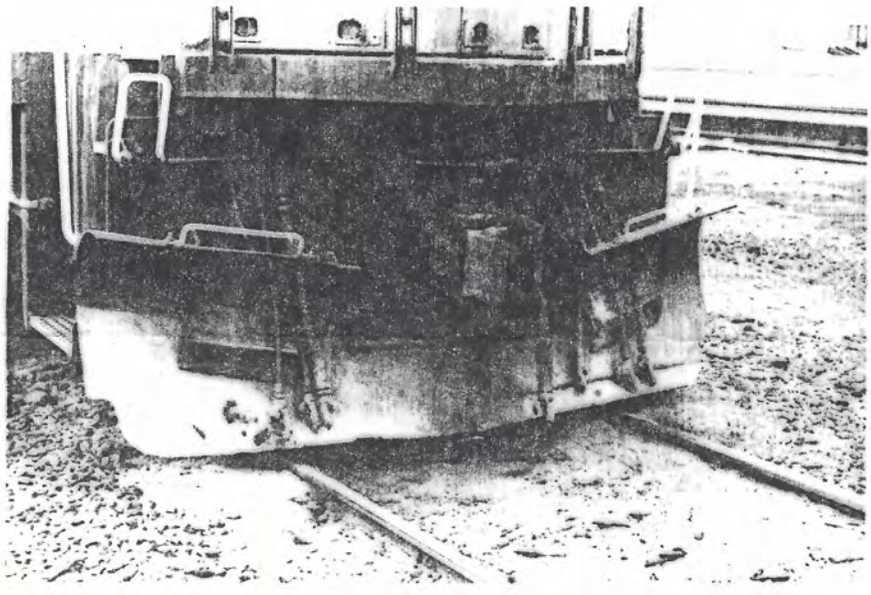
put the grills in position and secure with whatever cement or epoxy you use. The rivet detail on bars should seat on top edge of hood which will locate their height.

23. Refer to drawing 1038-38 to locate the electrical cabinet air filter box (-40). The open side goes toward cab. Secure with solder.

After mounting couplers of your choice, your model is now finished and ready for test running and painting. Be sure all excess solder is removed before painting.

You have a well-engineered model so give it the good paint job it deserves. With proper servicing, as with all mechanical items, it will give you many years of service and enjoyment.

This completes Section 2.



CENTRAL LOCOMOTIVE WORKS

Packing list and instructions forassembly of EMD 4 wheel trucks.

4	1035-50	EMD Blomberg truck sideframe 4 wheel
2	1035-51A	Truck bolster
4	1035-51B	Truck bolster support block
4	1035-52R	Truck brake cylinder - right
4	1035-52L	Truck brake cylinder - left
8	1035-53	Truck journal - bronze
4	1035-54	Truck swing hanger
4	1035-55R	Pedestal binder & brakeshoe - right
4	1035-55L	Pedestal binder & brakeshoe
16	1035-56	Journal coil spring
8	1-72 x 1/4	Fillister head screws

ASSEMBLY STEPS

!. These instructions cover the assembly of the new style truck bolsters that have eliminated the problem of sideframes tipping. Before starting any assembly, study the drawing 1035-04A. First clean all the gates off the castings so you won't have to stop each time to do it during assembly. The large hole in each bolster support block (-51B) has been machine-reamed at the factory so the small amount of fitting is to be done on the post on the back of the sideframe. Do NOT try to open the large hole in the least!

There are two spot marks in each block making sure the casting is at right angle to your drill, use #53 and tap 1-72. Take one sideframe and block at a time and keep them matched as you do them. Note how block mounts on sideframe as shown on drawing -- the two extensions on block fit into the cavity on back side of sideframe. The post on sideframe will have to be polished down a bit until the block just slides on. It should be a bearing fit. Do NOT make a sloppy fit or you will void the purpose of the design.

When you have a block fitted properly, try inserting a snap ring into the groove on post. If too tight, carefully file outer surface of block (marked "X" on the drawing) until ring will just go on. It should allow the block to pivot on post without being sloppy but still allowing the sideframe to equalize after assembly. Repeat operations on the other three blocks leaving the rings in place on parts.

2. The bolster (-51A) has four spot marks. Drill all with #49. Assembl bolster to blocks and check for equalization on each pair. Disassemble them all and it is suggested that you keep each pair together in the event one post needed more polishing than another. Having done so, you can start assembly of trucks.

3. Insert the split pins on the truck swing hanger (-54) in respective holes in truck sideframe (-50). Spread pins over and peen very carefully. They may also be soldered. The journals (-53) have spot marks for drilling axle hole. If you have one of our journal-drilling clamps, use it and you can do four at a time. Otherwise be sure to hold them square with your drill or they will bind on axles in assembly. Fit journals into slots in sideframe very carefully. They must slide freely, but not sloppy, or they will bind instead of "floating" properly when the springs are in place. It is best to polish the sliding surfaces of both journals and sideframes.

Fit the pedestal binder and brakeshoe castings (-55R and (55L).Note that these are right and left. The small pin at top of brakeshoe hanger fits into hole in the hanger at each end of sideframe. When fitted properly, insert journal into

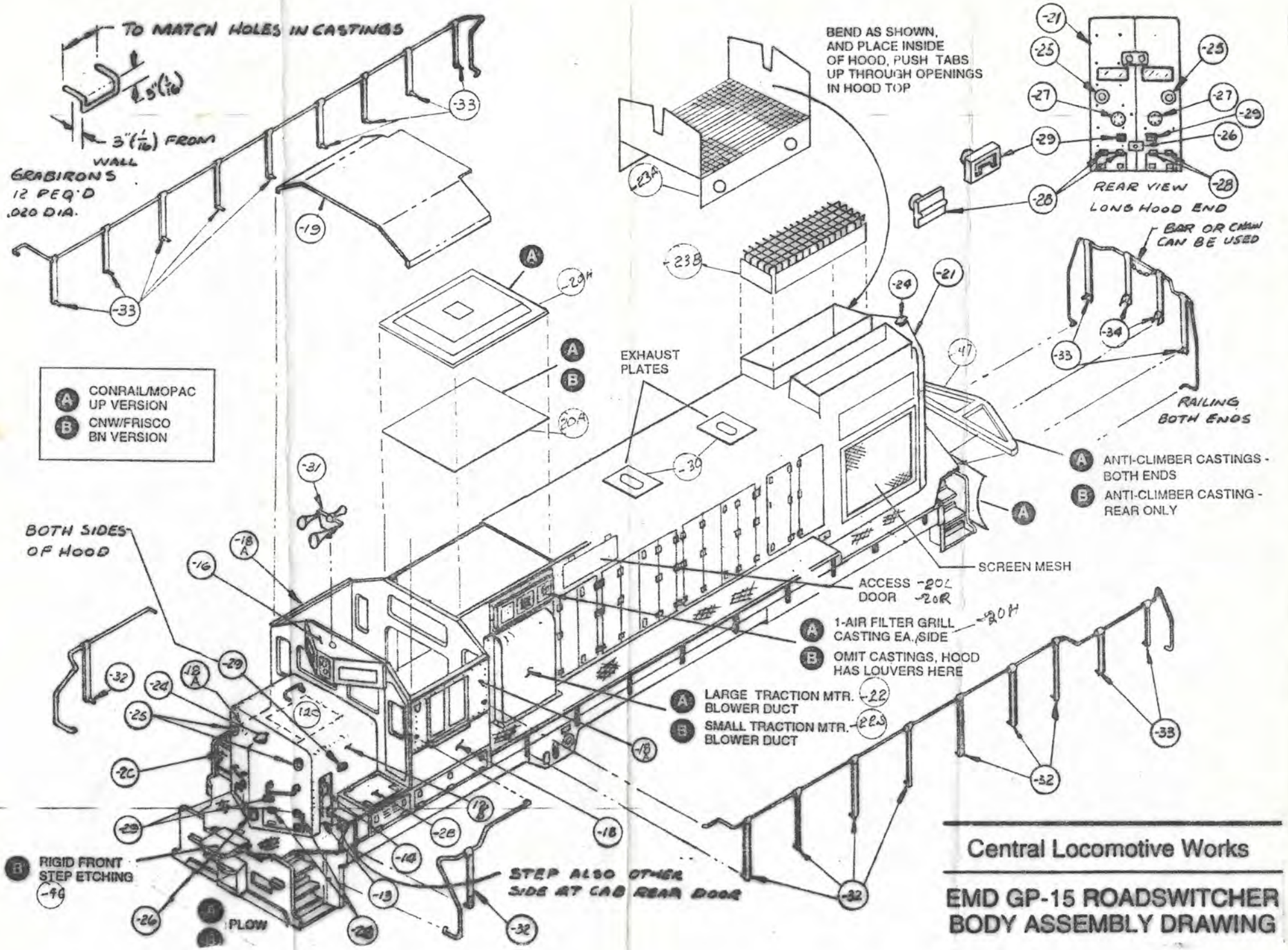
(over)

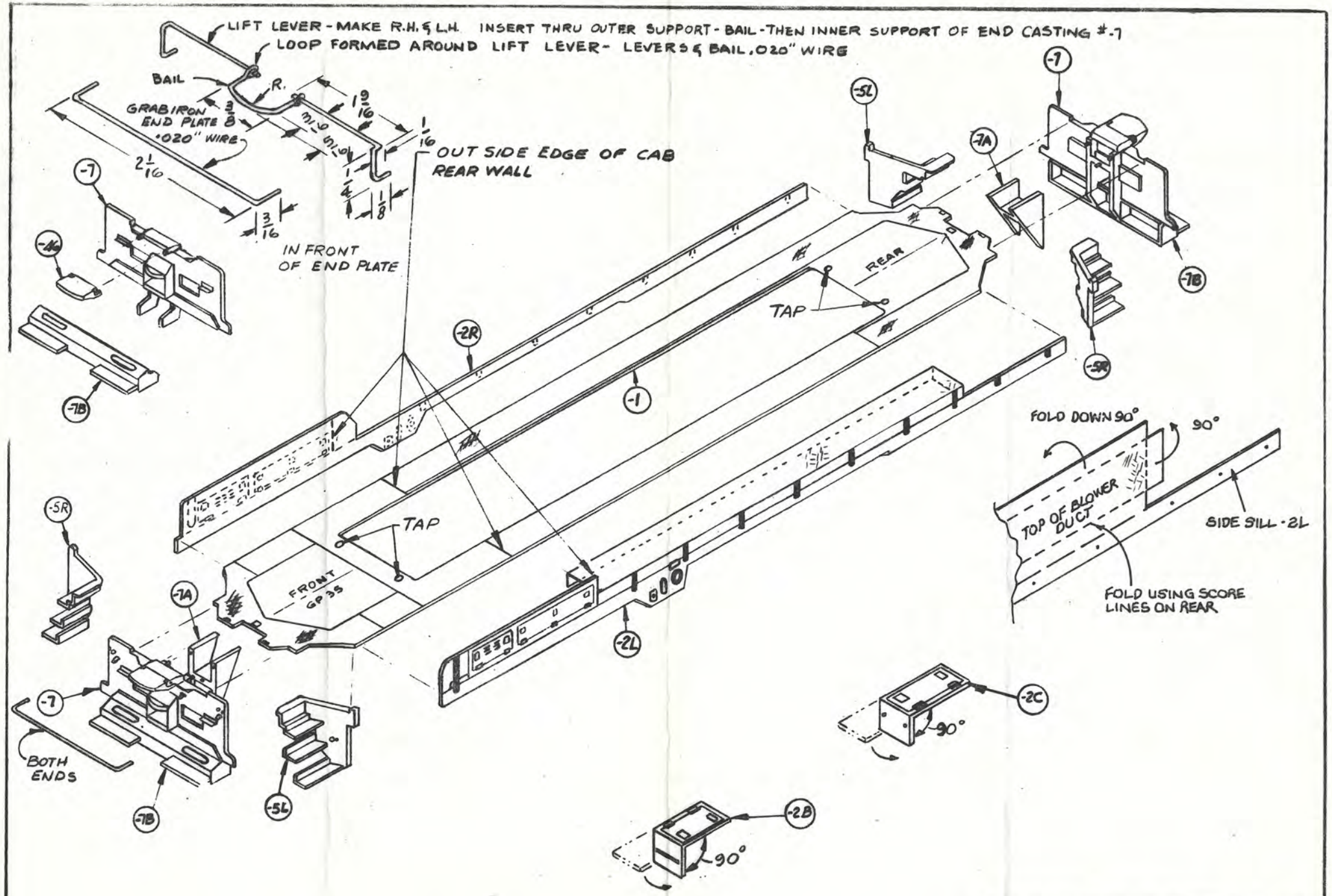
slot and tack solder the retainer. Check journal for free and proper movement within the slot. When all is correct, finish soldering and don't forget to solder the top of hanger. Repeat operations on other three sets of journals and sideframes.

4. Insert split pin on brake cylinder casting(-52R and 52L) noting there is a right and left. Check drawing to identify properly. Spread pins over and peen as you did on the spring hanger and can be soldered if you desire.

Now the coil springs may be installed. THese springs are furnished a bit on the "strong" side in event you want to add weight to finished model. You will have to determine if springs need to be shortened by how much weight you may want to use.

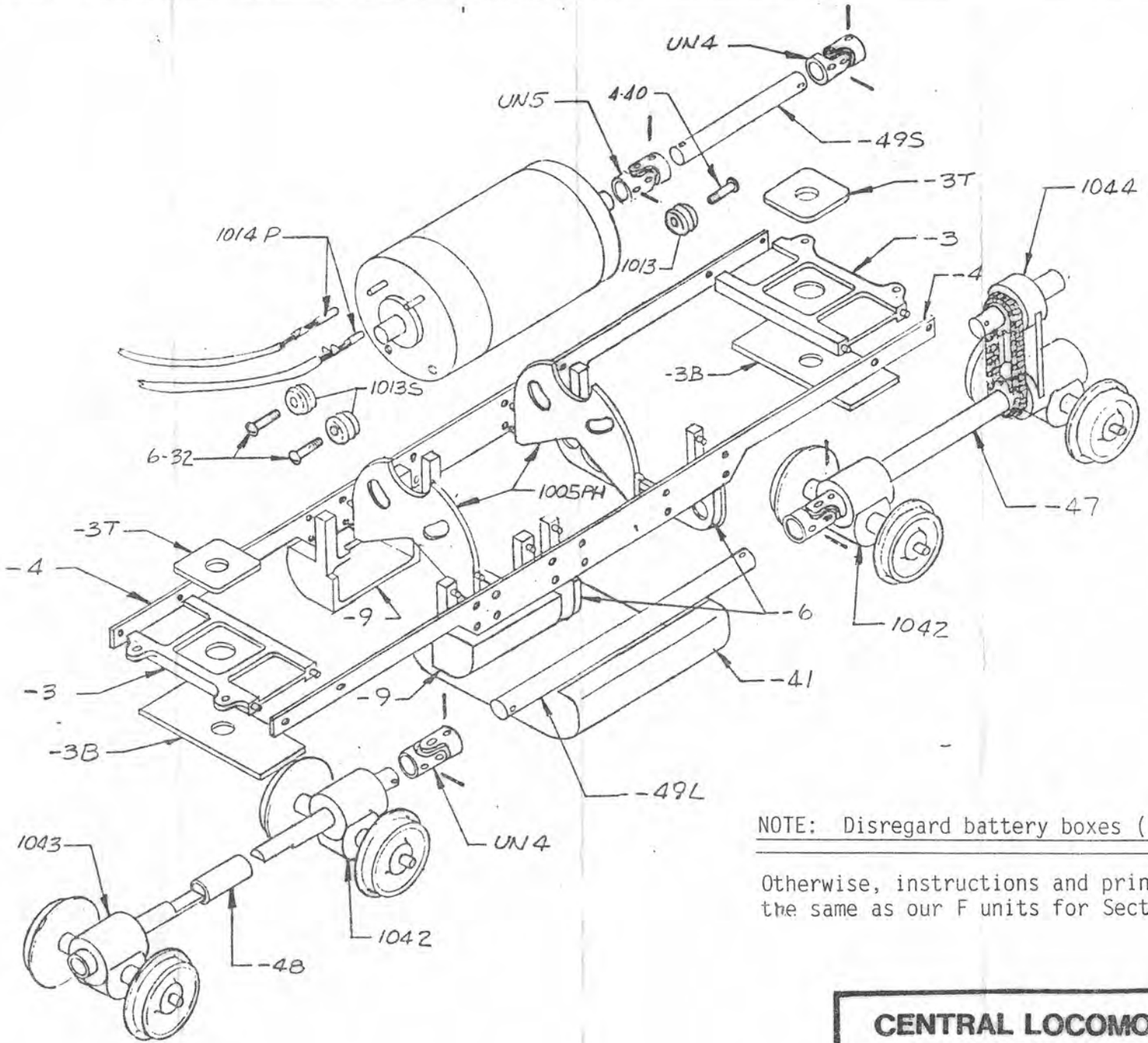
Your trucks are now ready for final assembly around gearboxes or just plain wheels. Be sure to lubricate the journals before you start running them on your layout.


TO MATCH HOLES IN CASTINGS
1.5"(1/16)
3"(1/16) FROM WALL
GRABIRONS
12 REQ'D
.020 DIA.
-33
-19
BEND AS SHOWN, AND PLACE INSIDE OF HOOD, PUSH TABS UP THROUGH OPENINGS IN HOOD TOP
-23A
-21
-25
-27
-29
-26
-28
REAR VIEW
LONG HOOD END
BAR OR CANVAS CAN BE USED
-34
-33
RAILING BOTH ENDS
-23B
-24
-21
-47
A
-29H
A
B
-20A
EXHAUST PLATES
-30
A CONRAIL/MOPAC UP VERSION
B CNW/FRISCO BN VERSION
-31
A ANTI-CLIMBER CASTINGS - BOTH ENDS
B ANTI-CLIMBER CASTING - REAR ONLY
BOTH SIDES OF HOOD
-18A
-16
SCREEN MESH
ACCESS DOOR -20L -20R
-20H
A 1-AIR FILTER GRILL CASTING EA. SIDE
B OMIT CASTINGS, HOOD HAS LOUVERS HERE
-32
-24
-25
-29
-12C
-20
A LARGE TRACTION MTR. BLOWER DUCT -22
B SMALL TRACTION MTR. BLOWER DUCT -22A
-18
-28
-14
-13
-26
B RIGID FRONT STEP ETCHING -9G
B PLOW
STEP ALSO OTHER SIDE AT CAB REAR DOOR
-32
-33
-32
Central Locomotive Works
EMD GP-15 ROADSWITCHER
BODY ASSEMBLY DRAWING



NOTE : ALL PART Nº ARE 1035-(Nº SHOWN IN CIRCLE) : EXAMPLE FRAME TOP PLATE 1035-1

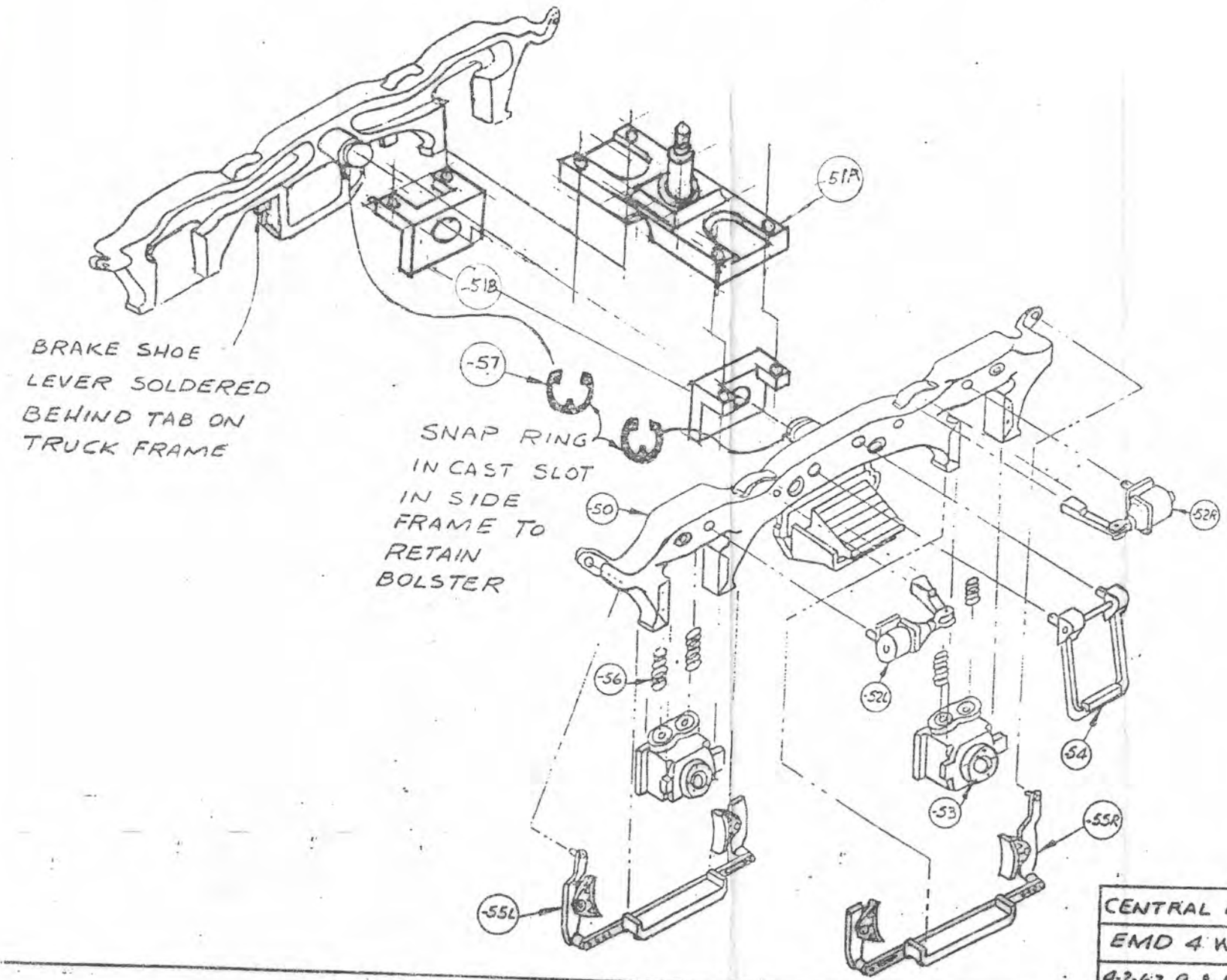
CENTRAL LOCOMOTIVE WORKS	
FRAME ASSEMBLY	
4-2-67 a.g.k.	DR. Nº 1035-01



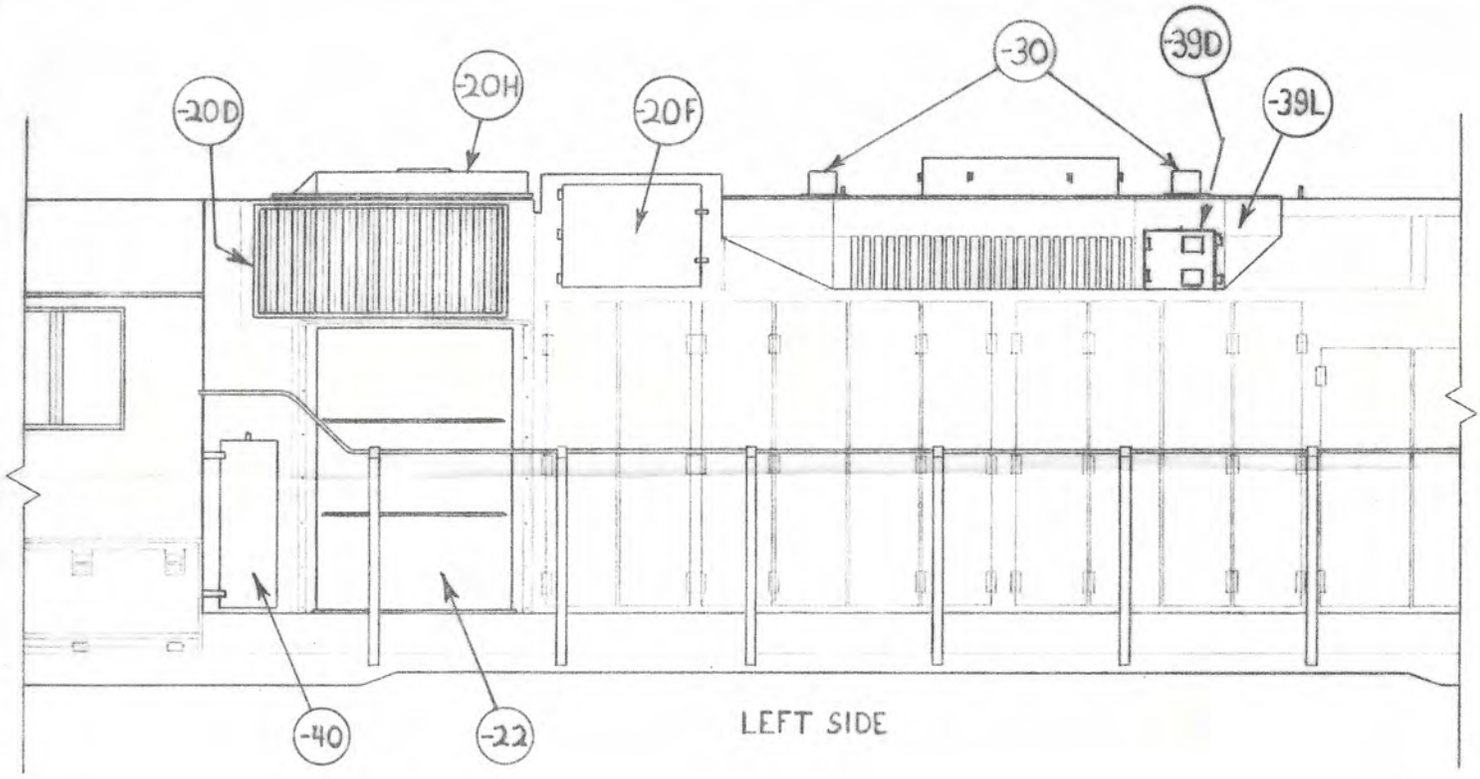
NOTE: Disregard battery boxes (-9).

Otherwise, instructions and prints are the same as our F units for Section 1.

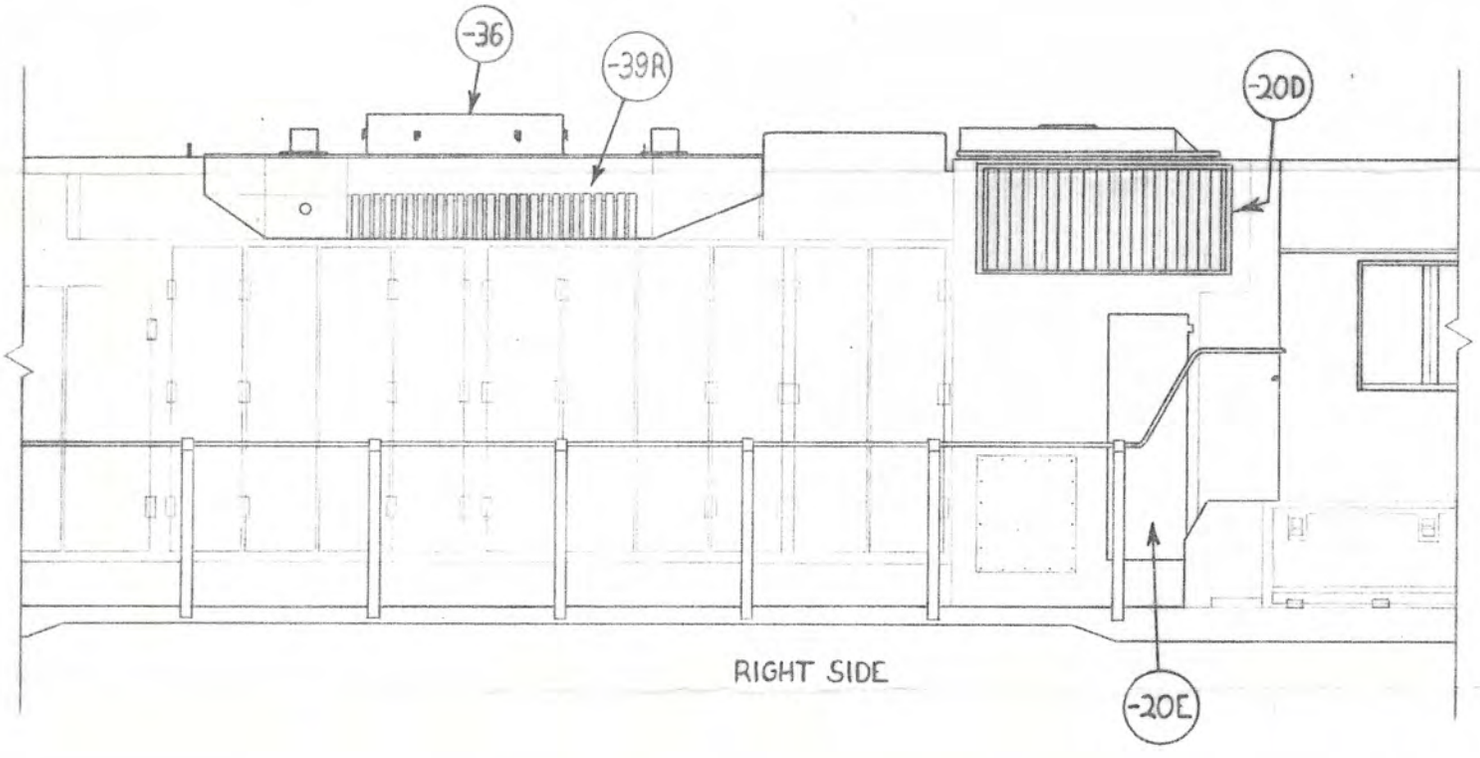
CENTRAL LOCOMOTIVE WORKS	
GP-15 UNIT CHASSIS	
Drawn by R. A.	Dwg No. 1023-15



CENTRAL LOCOMOTIVE WORKS	
EMD 4 WHEEL TRK. ASM.	
4-2-67 a.j.k.	DR. NO. 1035-04B

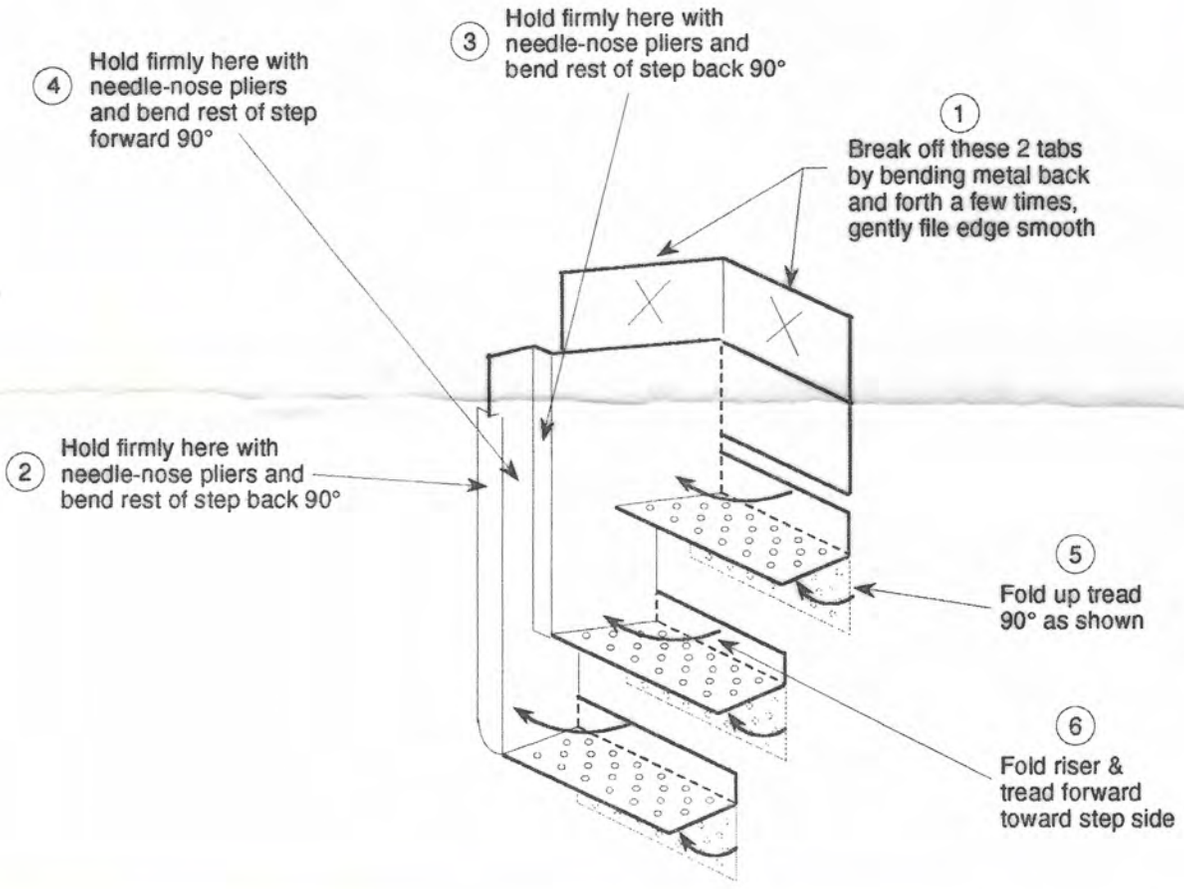


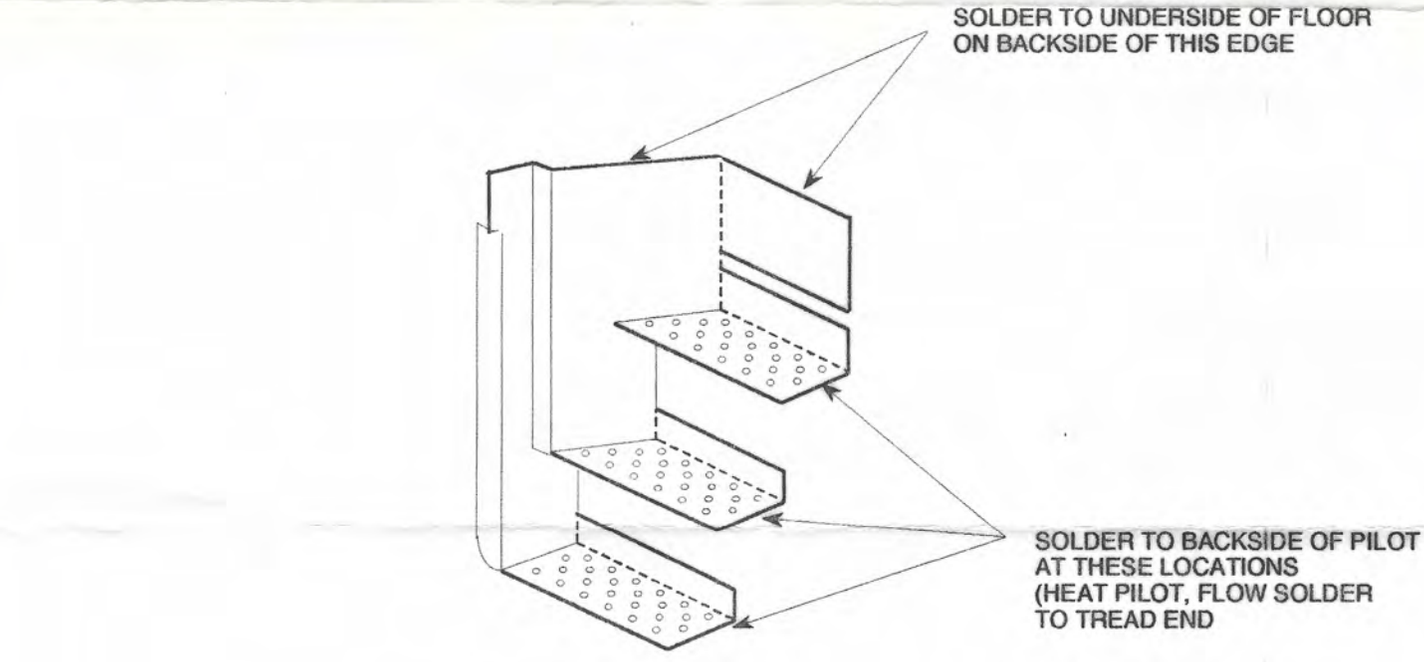
LEFT SIDE



RIGHT SIDE

CENTRAL LOCOMOTIVE WORKS	
CARBODY CENTER SECTION	
DWG. NO: 1038-38	





GP 15 STEP FORMING & SOLDERING DIAGRAM

1015-03