

# Boulder Valley Models ..... KD-01 Deluxe Cab Conversion ..... Instructions & Ideas

**Note:** The “Kitbasher’s Delight” kits are a bit different from our regular conversion kits. This series includes the basic parts to kick-start and simplify your kitbashing efforts plus ideas for further detailing. These ideas are intended as a starting point for customizing projects to your own tastes and your railroad’s needs. These pages include instructions for the parts included along with suggestions for using additional parts (not included) for further modification. Be creative & have fun!

**Also note:** We’ve provided the “Deluxe” KD-01 instructions with kits KD-02 and KD-03, which do *not* include all of the parts mentioned; refer to parts listing for details.

## ★ Wash the Parts!

Before you begin, soak all of the resin parts in warm water with a powdered soap such as Comet or Bon Ami. Rinse, scrub lightly with a soft toothbrush and allow them to air dry on a paper towel. Note that there are many small parts. Use a strainer and work with bowls on the kitchen counter -- **NOT** over the sink! (You’ll lose parts down the drain.)



★ **Choosing Adhesives:** If this is your first resin kit, we strongly recommend using 5-minute epoxy. Mix small batches (a few drops for each joint) following the manufacturer’s instructions. Otherwise, use a slow-setting ACC (super glue) with fine tip applicators. In all cases, familiarize your self with the parts and check their alignment before applying the adhesive! It may be necessary to trim or file parts for a proper fit.

★ **“Secret” Tip on Adhesives:** If you use 5-minute epoxy or ACC on unpainted parts, you will have a more-or-less “permanent” bond -- very difficult to un-do. On the other hand, if you use these adhesives to join pre-painted parts, you’ll usually find that the joint can be “broken” if you need to fix the alignment. It may be necessary to touch up the paint after doing this, but it can save some aggravation!

★ **Stars and Check-off Boxes:** We’ve used “stars” to bullet important pieces of information, suggestions and general notes. We’ve used “boxes” for the actual assembly steps so you can keep track of progress -- since you may be working on various components or subassemblies while others are in the paint shop!

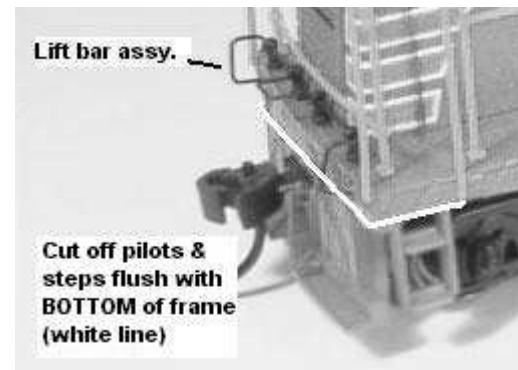
★ **Painting Tip:** Use a solvent-based primer on the resin assemblies to provide a good base for brushed, air-brushed or spray-painted finish coats. For example: Testor’s Flat Gray Primer or Flat White spray-paint or Floquil primer with an airbrush.

## Plan Ahead!

- ★ The “Instructions & Ideas” are outlined to walk you through a basic kitbash, starting with disassembly of the Bachmann loco and proceeding thru assembly of the kit components and some detailing ideas. Please read thru everything and consider your own preferences. You may wish to approach some of the steps in a different order, add some ideas of your own and skip some of the ideas presented.
- ★ The cab is designed to fit the Bachmann HO scale GE 44-ton switcher. We suggest using the newer, single-motor version for this kitbash. The false floor for the cab is made to fit this version. You may use the older, dual-motor version, but you’ll have to modify or replace the false floor.
- ★ The pilots and cab are designed to work with a deck that is widened to 7’ (scale). Kit #KD-01 provides the material for this adaptation.
- ★ A summary of additional/suggested materials is provided on the parts sheet. A list of detail parts used on the finished sample is provided at the end of these pages. A variety of substitutions may be made depending on your preferences.
- ★ **Note:** for brevity styrene dimensions are listed as 040x080. These refer to fractional dimensions, such as .040” x .080” etc.

## Preparing the 44-ton body & widening the deck

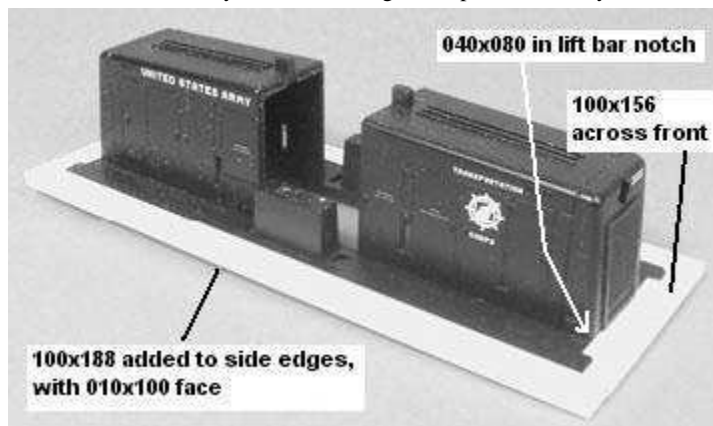
- Test run loco prior to disassembly or modification** -- just in case you need warranty service! Turn loco over & remove two screws securing body shell; remove body shell. Note plastic lugs retaining cab; pinch & remove cab.
- ★ **Suggestion:** remove window stock from cab & use this piece to test any paint remover that you plan to use on the body shell. Also, use this piece for practice if you wish to use a chisel blade to remove molded-on detail.
- Remove add-on details, such as grab-irons, railings, headlight lenses & couplers.
- Gently pry-off the lift bar assembly at each end of the deck. This is a small plastic piece with stanchion posts and wire detail. (See photo below.)
- Strip paint from body shell using your favorite paint remover & follow appropriate instructions. (Photos show details added to a painted shell for photo clarity only.)
- ★ **Good news / advance warning:** The trickiest part of this entire project is modifying the deck -- the good news is that the “hardest” part is using a bit of care and patience. You may wish to skip ahead and assemble the cab to get a feeling of progress, then come back and do this part to keep it rolling.
- ★ Use a razor saw (such as Atlas Snap-Saw) to cut off the pilots flush with the bottom of the chassis. Cut through the steps and coupler mounting posts. Be careful



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to avoid injury. The cuts can be sanded afterwards, and you'll add styrene that will even things up.

- **Optional:** cut away the fuel tank skirts at the center of the frame. We chose to eliminate these; you may wish to retain or move/re-use these parts.
- Okay -- that was the hardest part! Now we'll add some styrene pieces and finish the deck modifications. Use styrene cement to glue strip stock to body shell.



- Cut a piece of 040x080 styrene (Part Q) to fit in the notch left by the lift bar assembly - just under 4' scale. Test fit in place as shown. If the rounded contour of the body shell protrudes, sand that down a bit so the filler piece provides a straight front edge. Once satisfied, glue in place & repeat for other end. (See photo.)
- ★ **Note:** the following step lengthens the deck as shown in photos. You may substitute other widths of .100" strip stock to increase or decrease the overall length if desired.
- Cut a piece of 100x156 styrene (Part R) to match the width of the frame, approximately 5'4" scale. Test fit this piece -- narrow edge against frame; wide side up. Note that the rounded corners of the original frame will leave a small gap -- this will be covered with a thin styrene overlay (below) or it may be filled with putty. Glue in place & repeat for other end.
- Cut a piece of 100x188 styrene (Part S) to fit the new overall length of the frame; this piece will fit against the sides of the original frame and across the ends of the pieces added in the previous step. Length is approx. 18' scale. Test fit this piece -- narrow edge against frame; wide side up. Glue in place & repeat for other side.
- Cut a piece of 010x100 styrene (Part P) to match the new side sills -- this will provide a smooth edge. Test fit; glue in place along the outside edge; repeat for other side. (You may substitute channel stock for variety.)
- ★ **Optional techniques:** material is provided for an .005" styrene overlay, which we used to produce a smooth deck surface. If desired, you can cut a single piece with an opening for the hoods and the bulges in the cab area -- make a paper template to check measurements. We chose to "keep it simple" and cut one long piece for each side (notched for those cab bulges) and a shorter piece to fit each end (notched for the radiator bulge). You may wish to eliminate the overlay and simply use putty to fill any gaps.

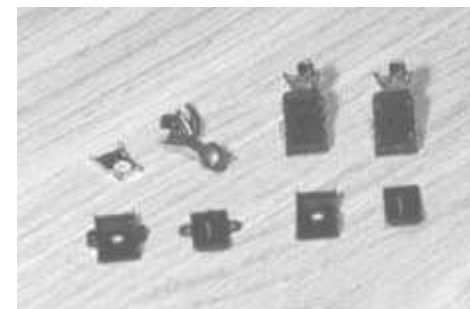
- Loosely fit the .005" styrene (Part T) against the top of the deck. Notice that it will slip under the door detail. Determine whether you wish to cut a single piece or multiple pieces as described above. Glued overlay piece(s) in place.



- Test fit pilots (Part H) against front of frame; make sure that coupler opening is clear. Modify a pair of Kadee #5 couplers as shown in the next section & test fit these prior to gluing pilots in place. Use ACC (super glue) to glue resin parts to shell. Glue pilots in place as shown. (Photo shows modified radiator as described further on.)
- Notice that the corner steps (Parts I & J) are made in left and right side versions. Test fit and glue in place as shown.
- Use Squadron White Putty to fill any gaps between the pilot and deck; allow to dry and sand smooth.

### Prepare Kadee #5 Couplers

**Photo** -- Stock parts with "ears" are shown at left front. Modified parts with the ears removed are shown at right front. Completed couplers are shown at right rear.



- ★ The pilots are designed to accept Kadee #5 couplers with the ears removed from the Kadee draft gear boxes. Many On30 modelers use these HO couplers. If you prefer a different style, test fit and modify parts as needed prior to assembly.
- ★ **Painting suggestion:** We like to spray paint the assembled Kadee couplers prior to installation; this makes it easier to weather/chalk the couplers. The ones shown on the finished model were painted with a light mist of Testor's flat black. Be sure to apply a thin, dry coat and test couplers to make sure the parts don't become bound.
- Assemble Kadee #5 couplers, with the "ears" removed from the top and bottom of the draft gear box (**Photo**). Use a tiny dab of ACC to secure the lid to the box.

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★ Do not glue couplers in place -- at this point, just use for testing. You'll want to complete painting and other details prior to coupler installation.

## Assemble the new cab, floor & roof

★ **Design notes:** the cab sides fit *between* the cab ends. The cab ends provide openings that follow the approximate contour of the existing hoods. This may need to be filed out or filled in slightly. If you fill in the top louvers as described below, you'll need to open the center notch on the ends a bit.

□ Pre-drill #75 holes in door latches on cab ends (Part A); this will make it easier to add the door handles later.

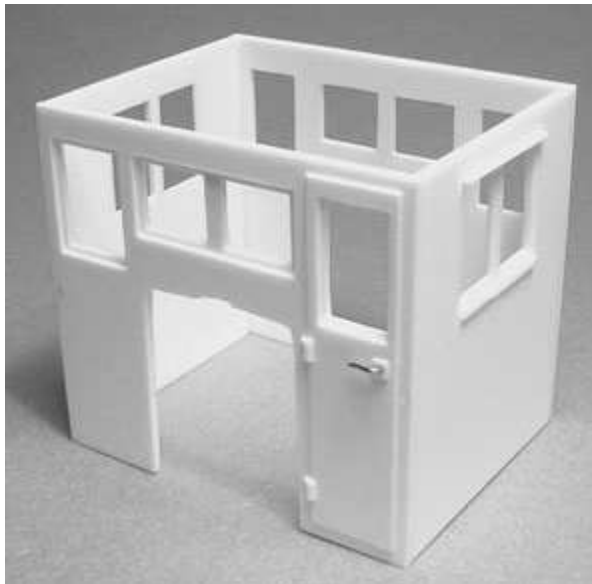
□ Test fit cab sides (Part B) between cab ends. "Scuff" (lightly sand) the edges of the cab sides and the back of the cab ends where they will be glued together -- this insures a good joint on small gluing surfaces.

□ Glue one side to one end, with outer edge of the cab end flush with the cab side; use a metal square to insure alignment. Add second side. Add second end.

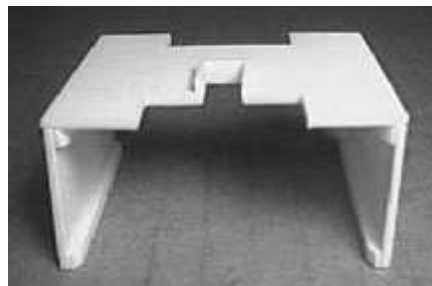
□ Door latches: hold a piece of .020" wire (Part M) with needle nose pliers and make a bend approx. 4" scale from the end. Cut length approx. 6" scale from bend. Press short end into hole drilled in cab door and glue in place from inside. Repeat for other side. Make sure wire doesn't protrude into cab, as it will interfere with floor.

□ Test fit cab on modified body assembly but **do not glue** at this point. The cab ends will straddle the back ends of the louvers on top of the short hoods. If you modify these louvers as described further on, you'll need to open up the small notch in the cab ends. If the cab fits too tightly on the hoods, it may not sit straight -- so file out the openings as needed. Small gaps between the cab assembly and hoods can be filled **later** with a thin bead of gap-filling ACC (super glue). **Do not glue** the cab in place until you've completed the false floor and any other modifications to the body shell. Also, we found it easier to paint the cab assembly separate for our two-tone scheme.

★ **Design note / false floor:** this assembly is provided to hide the mechanism, which would be visible thru the cab windows. It is designed to fit over the mechanism of the newer, single-motor 44-ton locos. Additional interior details, such as controls, could



be added -- we simply painted most of the interior black or dark gray and used exterior detail to create areas of interest.



□ Add risers (Part E) to cab floor (Part C) as shown above left -- these are glued to the bottom (smooth side) of the floor casting. Make sure they do not protrude beyond the floor sides or ends.

□ Test fit assembly between hoods as shown above right. The opening in the floor assembly should clear the capacitor on the circuit board (single-motor 44-ton loco).

□ Remove assembly from body/mechanism. Add floor cap (Part D) to cover capacitor opening as shown here.



★ **Do not glue** floor assembly in place until other body modifications are done. We'll add some additional filler to cover the gaps between the floor and hoods during the final assembly. Meanwhile, you might want to prime / paint the floor assembly as a separate unit at this time.

□ Test fit the roof insert (Part G) inside the cab; it should provide a plug fit but shouldn't be too tight. File if needed.

□ Make pencil marks on the underside of roof (Part F) making lines 3" scale from each edge. Use these as a guide for centering roof insert; glue roof insert in place as shown.



★ **Painting tip:** You may wish to pre-paint the roof assembly and the roof stock separately if you're planning a multi-color paint scheme.

□ Make pencil marks on the styrene roof stock (Part K) -- draw lines 2" scale from the front and back edges; 1" scale from the outer (cab side) edges. Use your fingers to gently curl the styrene. Glue one edge as shown in photo & allow to set; then proceed to glue and wrap the roof stock.

★ **Design note / removable roof:** The roof is a plug-fit, so that it can be removed to add interior detail & window stock, change figures, etc.

★ **Test fit assemblies & plan ahead:** Now's a good time to loosely place the cab, floor and roof assemblies on the modified Bachmann body shell and plan any other modifications that you might like.

## The “Rules” of kitbashing -- some ideas

- ★ **Kitbashing is fun:** It provides an opportunity to change & rearrange existing parts and items to produce a new item or at least a new look for your equipment.
- ★ **Use what you have or what you find:** For example, I decided that I wanted to change the headlights on my center cab, so I looked thru the castings I had on hand. Nothing seemed “right” so I decided to see if I could build some headlights and brackets with materials on hand -- only had to go out & find the MV lenses.
- ★ **Consider using “something else”:** If you can’t find materials suggested, look at ways to use the items you can find ... the results will be creative & interesting!
- ★ **Make up a story:** Pretend you work on your model railroad, as an engineer or in the maintenance shop; decide what you would customize if it were really your loco!
- ★ **If you’re not having fun:** You’re not doing it right! Take your time, ask for ideas or help where needed, go back & see the previous “rules”.

## Idea #1: Replacing the hood latches

- ★ Suggested materials: .020” or other fine wire; #75 drill; hobby knife w/ chisel blade. (There’s enough of the wire provided, Part M, to complete this step!)
- ★ I used a chisel blade (hobby knife) to remove the cast-on latches from the Bachmann hoods. If you haven’t done this before, practice on the left-over original cab or other items in your scrap bin. Place the beveled edges of the blade against the body shell and chisel away the unwanted detail. Drill holes & bend new latches from .020” wire; glue from inside.
- ★ This provides a nice free-standing detail that helps “up-size” the overall appearance for O scale. I used the 4x6” dimensions described for the cab door latches.



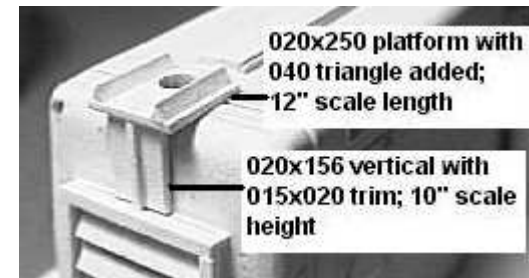
## Idea #2: “Beef up” the radiator (recommended!)

- ★ Suggested materials: 010x080 and 030x040 styrene strip.
- ★ The radiator detail on the original hoods is good, but I wanted a chunkier appearance. I cut lengths of 010x080 strip to match the length of the original louvers and glued one of these over *every other* original louver, starting from the top.
- ★ I then cut lengths of 030x040 strip to match the exterior framing of the radiator, and glued these *on edge* to the face of the original framing.
- ★ Holes from the small metal details removed from the shell were filled with Squadron white putty and sanded smooth.
- ★ This is probably the most visually dramatic change to the original shell -- it’s easy to do and highly recommended!



## Idea #3: Alter or replace the headlights

- ★ You can simply remove the visors from the originals and keep the small original headlights ... or check through your parts bins for suitable castings. Headlights can be omitted on industrial locos or moved to various locations. I ended up scratchbuilding mine from materials on hand plus some MV lenses (#L-199).

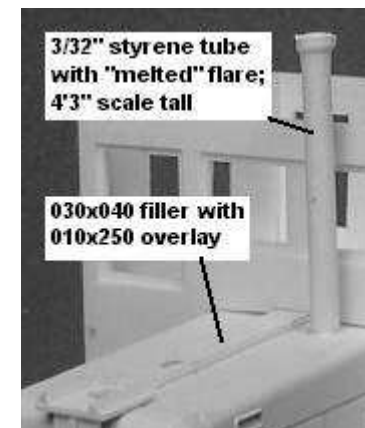


- ★ Suggested materials for headlights & brackets shown: 015x020, 020x156 and 020x250 styrene strip; 040 styrene triangle (Plastruct); 1/4” styrene tube; aluminum tube for insert. Scrap styrene for headlight back (.010” thick). MV L-199 lenses.
- ★ I built the brackets as shown here -- covering the original hole in the body shell and keeping the front piece vertical. The platform was placed to overhang the front and provide a little more “3-D” effect. I drilled this so I can eventually add a small bulb.
- ★ I cut 15” scale lengths of styrene tube for the headlights; glued .010” thick scrap to the back and sanded the edges. Then added a scrap of aluminum tube inside so the styrene wouldn’t “glow” when I eventually add a small bulb. MV L-199 lenses (were glued in place -- small holes drilled in back per their suggestions).
- ★ **“Rules” reminder:** This arrangement is what I came up with based on materials on hand -- see what you’ve got or what you can find & have fun with it!



## Idea #4: Exhaust & top louvers

- ★ Suggested materials: 3/32” styrene tube; 010x250 and 030x040 styrene strip.
- ★ For a GE-style loco, the exhaust pipes should be short and centered on the hoods. I chose to freelance a tall, offset style. Lengths of 3/32” styrene tube were cut, then held near (not in!) a candle flame until slightly softened ... then pressed against the workbench to form the flare. (It took 2-3 attempts to make each one.)
- ★ Covering the louvers on top of the hood is strictly a matter of taste -- I set lengths of 030x040 filler in the grooves on the hood casting & covered with 010x250 styrene strip.



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## Idea #5: Open cab window

- ★ I decided to leave one of the cab side windows “open” ... so I cut away 3/4 of the window frame members in that area as shown here.



## Idea #6: Paint masking

- ★ Before you go on to final assembly, consider how to tackle your paint job. I did mine in sub-assemblies. The hoods were masked from the frame as shown here to make the two-tone paint job a little easier to manage.
- ★ The yellow used is a mixture of Polly S BAR Yellow and Earth -- blended to warm up (redden) and slightly dull the yellow.
- ★ Also, the Bachmann truck sideframes were removed and sprayed with Testor's flat black to make it easier to add chalks.



## Final Assembly

- ★ **Important:** Remove the body shell from mechanism and/or take appropriate cautions to avoid getting glue on mechanism!
- Finish body modifications and pre-paint sub-assemblies where desired.
- Replace the false floor assembly on the body as shown on page 3. **Important:** the body shell and the mechanism both have arrows to indicate their proper orientation. Make sure that you locate the floor to clear the capacitor in its proper orientation!
- Check to make sure that the floor assembly is centered side to side; glue in place.
- Place the completed cab assembly over the floor and recheck alignment and fit against the hoods. File out where needed. If you added a cover to the louvers on the hood top, you'll need to enlarge the small notch in the cab ends.
- Important:** If you decided to “open” one of the cab windows, make sure the cab is oriented in the intended direction to place the window on the correct side!
- Consider your preference for gluing -- you can add a bead to the bottom of the cab and drop it in place or add glue to the frame instead. Glue cab assembly in place.



- The photo below left shows the cab placed on the hood assembly and the thin gap between the parts. Use a fine-tip applicator to run a fine bead of gap-filling ACC between these assemblies to fill the gap. **Suggestion:** Practice on scrap-box items if you're not immediately comfortable with this!
- Cut pieces of window stock (Part L) and fit these to the cab windows from inside. Use Micro-Scale Kristal Kleer or other clear-drying adhesive to glue in place. Make sure the top of the pieces are low enough to clear the roof insert.

## Idea #7: Poling rods & brackets

- ★ Poling rods were used when a loco on one track was used to push a car on an adjacent track. I whittled the poles from 4x4" scale lumber and added grain by drawing the edge of a razor saw down the length. Brackets were cut & bent from 015x060 flat brass. The poles are approximately 12' scale length. (See color photos for reference.)

## Idea #8: Handrails or grab-irons

- ★ Suggested materials: .020" wire.
- ★ The railings on the PC&L #16 are somewhat elaborate for a loco of this size. “Originally” the loco was delivered with a simple grab-rail along the side of the hoods. The stanchions from the Bachmann lift-bar assembly could be used for that sort of arrangement. The crew requested some new railings that would be a little less nerve-shattering to use while the loco is moving.
- ★ The railings are set at a height of 36" scale from the deck. They were bent from .020" wire, with the ends glued into #75 holes. The “unions” (welds) between the uprights and railings are simply small fillets of gap-filling ACC.
- ★ A simpler arrangement might be more prototypical, but the crew likes these!



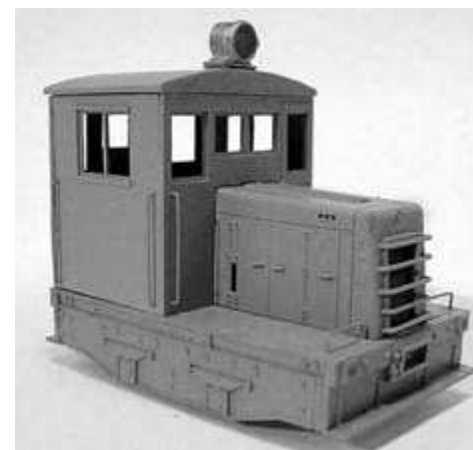
## Detailing Notes & Ideas

- ★ The PC&L #16 is admittedly a bit cluttered ... the crew has a theory that it makes them “look busy” and somehow pleases the boss! Use what you can find & vary to suit your tastes! See color photos for some close-ups. Most of the detail parts were set in place with small dabs of Micro-Scale Kristal Kleer, since it dries clear.
- ★ **Figures shown:** Arttista #1175 Another Engineer and #1306 Brakeman Holding On. Note -- the engineer figure was cut near the waist with a cut-off disk in a motor-tool. The metal castings are very hard -- wear goggles to protect your eyes against flying metal bits (really!). **Dogs:** Arttista #1131 Two Dogs ... yes, I'll add water bowls!



### **More kitbashing ideas**

- ★ Sam Barbose created this interesting and rugged looking loco using the new cab, half of the 44-ton hood assembly, a frame from our Boxcab and parts from our Mighty Midget (wow!).
- ★ **Radiator:** Sam cut out the louvers on the Bachmann shell and added a piece of metal screen inside the opening; he then added grille guards formed from heavy wire.
- ★ **Headlight:** Sam removed the headlight from the 44-ton hood and filled in the opening, then mounted a casting from his parts box on the cab.
- ★ This is an excellent example of how kitbashing allows you to customize projects to your own tastes and parts on hand!



### **Personal Notes**

- ★ Boulder Valley Models is owned & operated by Dallas Mallerich -- an On30 modeler who shares your interests and enthusiasm. Please feel free to write or email with any questions or ideas that you may have!
- ★ Kitbashing can be an awful lot of fun ... but occasionally frustrating in the early stages. If that's the case for you, keep building and bashing -- shoot for "progress" and "improvements" rather than perfection and you'll have a great time.
- ★ Photos of BVM kits built and/or kitbashed by customers are included on our web page -- please send photos of your completed project! (Digital photos by email works best.)
- ★ Our web page also has some painting tips that might be useful, please visit.
- ★ The "PC&L" stands for Phaedrus Coke & Lumber -- my fictional railroad set "somewhere" in West Virginia. So far, I've made a lot more progress on rolling stock and locomotives than the actual railroad! (But I'm still hopeful.)
- ★ **Thank you for your continued support, interest, ideas and encouragement!**

*-- Dallas*

## **Boulder Valley Models**

<http://hometown.aol.com/On30resinkits/index.html>

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**Check our Website for more great On30 kits!**

- ★ **Bell:** Grandt Line #105; cord made from .012" brass wire curved with finger tips & set into small hole drilled in cab front.
- ★ **Bucket with Brush:** From "Gilbert Gibi Creations" in Switzerland; picked that up at a train show -- Berkshire Valley and Mile Post Model Works have a variety of castings for buckets & such.
- ★ **Buck Saws:** Evergreen Hill Designs #EH8014 Hand Buck Saws.
- ★ **Chain:** Leftover Builders-in-Scale chain, not currently in production. Check with your local hobby shop and/or model ship suppliers for suitable chains. (We've heard that the Builders-in-Scale line will soon be re-introduced by CC Crow.)
- ★ **Hand Tools:** Berkshire Valley #577 Tool Set A (hammers/pliers), #578 Tool Set B (shovels), #579 Tool Set C (picks/axes) and Evergreen Hill Designs #EH8035 Wrench and File set.
- ★ **Hydraulic Jacks:** Mile Post Model Works #2936 Hydraulic Pump Jack.
- ★ **Leather Tool Bags:** Mile Post Model Works #3866 Carpenter's Tool Bag.
- ★ **Lettering:** from various Woodland Scenics dry transfer letter & number sets.
- ★ **Metal Toolbox:** Casting by Keith Wiseman (available from Caboose Hobbies); I believe the shovel standing upright is also a Keith Wiseman casting.
- ★ **Milk Can:** Evergreen Hill Designs #EH8059 Milk Cans.
- ★ **Oil Bottles:** Berkshire Valley #559 Oil Bottles.
- ★ **Water Cooler:** Mile Post Model Works #2805 Water Cooler.
- ★ **Wood Toolboxes:** BVM #404 Wood toolboxes (email for info).