

Idaho Springs Mine

Kit #433

Instructions



The Idaho Springs Mine has been adapted to model railroad use from a prototype structure which still stands near Idaho Springs, Colorado. The mine building was designed to be used at a rather narrow place which would make it necessary to construct the bridge over the railroad to dump worthless materials into the tailing pile. The prototype building is in a narrow canyon and the tailings were dumped across the canyon from the mine.

Read through the instructions and try to visualize each step before starting construction. The orthographic drawings are full size to enable the modeler to use them as templates when necessary. In using the drawings as templates first check them against the wood parts. Sometimes changes in humidity or temperature will cause the paper and wood to shrink or swell, making the drawings slightly out of scale. If the wood parts do not fit the drawings exactly work from the center, splitting the difference. A few of the wood parts are "stock" sizes and must be cut to fit as construction progresses. Remember to use the stock-length wood wisely. Do not discard any excess material after a part has been cut. Save all end-cuts and when cutting other parts use the shortest pieces whenever possible.

Through experience we have found it most advantageous to cover with masking tape, the inside surfaces of all wooden wall sections that have die-cut openings which need to be trimmed out by the modeler. Cover only the area of the openings and immediate surroundings. This will lessen chances of splitting the walls. The tape should be applied running the opposite direction of the wood grain. When the tape is in place, trim out all of the die-cut openings using a very sharp knife. We recommend using X-acto, No. 11 blade for all cutting and trimming. When all openings are cleared, turn each part over and very carefully remove the tape. Now test-fit the plastic parts in their respective openings. Trim the wood again if needed for proper fit, but do not glue any plastic parts in place at this time.

Whatever wood parts are to be stained should be done before construction begins since the glue will seal the wood and the stain will not "take" at these joints. A weathered stain is recommended for all of the wooden structural parts of the kit. When painting the plastic parts use a paint that will "not attack" them.

Finish cutting out all of the wall and roof cards from the cards with a very sharp knife. Using a pencil, identify each wall or roof card on the back with its appropriate letter (A, B, C, D, etc.). Trim out all of the window and door openings now. When all of the openings have been cleared check the fit of the plastic parts. If necessary, trim the cards for proper fit, but do not glue any of the plastic parts in place yet.

Examine the kit carefully and notice that there is several scale heights of corrugated aluminum provided for the cardstock wall and roof cards. These cards are lined and noted as to the sizes to be used on each particular wall or roof. There is also an "overlap" area between each horizontal row of the aluminum which is indicated.

Also notice the longer wood strips have been bundled and are not packaged in the plastic bags because of their length. These strips are of different dimensions and are not to be mistaken for being all the same size.

STEP 1: THE CORRUGATED ALUMINUM

The corrugated aluminum is very easy to work with and will have a clean edge if cut with a very sharp knife. Use several light strokes as opposed to one firm stroke to cut thru the material. We do not recommend cutting with scissors.

For bonding the aluminum to the cardstock use either Walther's "Goo" or Wilhold's "RC-56 Glue". Five Minute Epoxy is another good choice. Commercial white glue such as Elmer's or Blue Bird are not satisfactory for use with the aluminum.

If you prefer to lay your corrugation in one sheet across the length of the walls then this can be easily accomplished by simply gluing the strips of aluminum to the cardstock and cutting off the excess at each end. However, the buildings will have much more character if the aluminum is cut in scale width panels and glued to the cardstock, each panel vertically lapping the other.

Most prototype corrugation comes in 26 inch widths so when overlapped they cover a 2 foot section. Begin by cutting all of the aluminum into scale 26 inch panels (approximately 5/16" wide).

STEP 2: CORRUGATING THE WALL CARDS

| | | |
|--------|----------------------|------------------|
| 1 pc. | 8 HO scale ft. x 7" | #801 corrugation |
| 3 pcs. | 10 HO scale ft. x 7" | #802 corrugation |
| 1 pc. | 12 HO scale ft. x 7" | #803 corrugation |

On the walls A and B it is absolutely necessary that the aluminum is glued in place to extend 3/32" to 1/8" past the length of each wall on each side. The excess length will be folded around the corners of the buildings when the four main walls of the structure are assembled.

Glue the corrugation completely over all of the door and window openings. Also do not attempt to follow the gable angles or any angle-cut tops with "pre-cut" aluminum, simply use full size pieces and when all of the material is glued in place to the cardstock and is thoroughly dry, the door and window openings will be re-cut and all angles trimmed.

To corrugate all wall cards begin at the bottom of each cardstock piece aligning the top edge of the corrugation with the line indicated for that row. Lay the panels vertically lapping each other by about 2 or 3"ribs" in a horizontal row. When the bottom row is complete, move up the wall to the next row aligning the top edge of the material

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on the proper line and vertically lap each panel in another horizontal row. Continue up the wall with as many rows of corrugation as is indicated until the wall is complete. Omit aluminum in all areas noted. With all walls corrugated, turn them face-down on a piece of waxed paper and weight them so they will not warp. When all are thoroughly dry, clear all window and door openings and trim all top angles flush with the card edges, but remember to leave the "wrap-around" extensions on the sides of walls A and B.

STEP 3: CORRUGATING THE ROOF CARDS

| | | |
|--------|---------------------|------------------|
| 2 pcs. | 6 HO scale ft. x 7" | #805 corrugation |
|--------|---------------------|------------------|

The roof cards are corrugated in the same manner as the wall cards except that an excess of 1/32" of material must extend past the bottom and side edges of each card. At the peak of each roof card the aluminum will be flush. Place all roof cards face down on waxed paper to dry flat.

STEP 4: PAINTING THE ALUMINUM WALLS AND ROOFS

Painting the aluminum is easy. Floquil products have proved to be the best paint available for this material, but before starting to paint give the aluminum roofs and walls an even spray coat of Testors Dullcote. The aluminum has a tendency to be slippery and the Dullcote will give a little texture so the paint will hold.

When the spray is dry, paint the roofs and walls with Floquil's Lettering Gray. The light gray paint will give the material an "oxidized" look or will serve as a good base coat if you have chosen to give your buildings that "rusted" effect. Wait until the paint is thoroughly dry and lightly spray the pieces again with Dullcote. Let this dry, then if you wish the "iron" look use Floquil's Model Railroad Weathering Kit. Use "a dry-brush" technique and add Rust to the panels by brushing up with single, uneven strokes from the bottom edges to about the center of each panel. With the panels overlapped some dirt would have accumulated. Thus, dry-brush Grime and Weathered Black at the edges of the overlap seams. Do not overstroke as this will cause the paint and spray to lift from the aluminum leaving shiny streaks.

STEP 5: THE DOOR TRIM

| | | | |
|----|-------|----------------------|--------------------|
| B8 | 1 pc. | 1/16 x 1/16 x 6-1/4" | Door trim material |
|----|-------|----------------------|--------------------|

Lay the front and back walls (A and B) face down on a flat surface. Use the B8 wood to trim the openings in walls A and B as shown in the front and back views. Cut and glue in place the horizontal (top) sections first, then the vertical (side) trim sections in place.

Allow to dry thoroughly with the B8 trim flush with the exterior surfaces of the walls.

STEP 6: THE BIN FRONT WALL

| | | | |
|----|--------|------------------------|------------------------|
| A1 | 1 pc. | 3/64 x 7/8 x 2-3/16" | Front wall section |
| A2 | 1 pc. | 3/64 x 1-3/4 x 2-3/16" | Front wall section |
| A8 | 1 pc. | 3/64 x 1-3/4 x 5/8" | Chute gate material |
| B2 | 3 pcs. | 3/32 x 3/32 x 6-1/4" | Wall framing material |
| B3 | 1 pc. | 1/16 x 3/32 x 6-1/4" | Wall framing material |
| B9 | 1 pc. | 1/32 x 3/64 x 2" | Chute framing material |

Attach waxed paper over Figure 1. Using Figure 1 as a template, glue wall sections A1 and A2 together and weight to dry flat. Removable double sided sticky tape is useful in holding the pieces in place while drying.

Referring to the front view, cut a section of B2 material to run along the top of section A1 flush with the top and both sides. Now cut the

four vertical B2 braces and glue them in place as shown.

Cut the B3 material to fit between the B2 vertical braces and glue these in place flush with the bottom of the wall. Cut the chute support rod brace from remnant B8 material used in Step 5. Using Figure 8 as a guide, drill four holes in the B8 brace using a #76 drill in a pin vise. Glue the B8 brace in place.

From the B9 material cut the chute framing sections and glue in place as shown. Cut the two A8b sections from the A8 material using Figure 2 as a guide. Glue the two A8b chute gates in place behind the openings, flush with the bottom of the opening.

Glue the corrugated wall A to the top of the bin wall and allow to dry thoroughly.

STEP 7: THE WALL SUPPORTS

| | | | |
|----|--------|----------------------|-----------------------|
| B2 | 8 pcs. | 3/32 x 3/32 x 6-1/4" | Wall support material |
|----|--------|----------------------|-----------------------|

Using the Right and Left View as a guide, on the inside of the walls, mark the angle of the bin floor supports. On the right wall cut and glue in place two vertical supports to run flush with the edges of the wall from top to bottom.

Cut a horizontal support to fit between the two vertical supports. Glue this in place flush with the top of the wall. Now cut the bin floor support and glue in place between the vertical supports at the mark you made earlier.

Repeat these steps on the left wall. On the left and back walls cut and glue in place the B2 support material as shown in the areas marked "no corrugation". The support on the back wall should be stained your wood color. On the front and back walls measure in 1/8" from the outside edges and make a mark at the top edges. Cut the roof supports to fit flush with the top edges of the walls and glue in place flush with the marks.

STEP 8: THE SHED

| | | | |
|----|-------|------------------------|----------------------|
| A4 | 1 pc. | 3/64 x 1-1/2 x 1-1/16" | Shed front wall |
| A5 | 1 pc. | 3/64 x 1-1/2 x 1-1/16" | Shed back wall |
| A6 | 1 pc. | 3/64 x 7/8 x 2" | Shed side wall |
| B1 | 1 pc. | 5/32 x 5/32 x 2-1/2" | Corner post material |

If you have not cut out the door opening in wall A4 do so at this time. Test-fit the C1 door in place and trim the opening if necessary for a perfect fit.

Cut the B1 corner post in half and glue in place to the A4 and A5 wall sections as shown in the drawings, being certain that they are flush with the bottom allowing the excess to protrude at the top. When thoroughly dry use a razor blade or sharp knife to cut the corner post flush with the wall angle. Glue the three wall sections together being certain they dry square.

STEP 9: THE PLASTIC DOOR AND WINDOWS

| | | | |
|----|--------|--------------|---------|
| C1 | 1 pc. | Plastic #912 | Door |
| C2 | 4 pcs. | Plastic #901 | Windows |

Glue the door and windows in their respective locations. Using Figure 4 as a template, cut the acetate to size and attach the "window glass" behind the windows.

STEP 10: ASSEMBLING THE WALLS

| | | | |
|----|--------|------------------------|--------------------|
| A7 | 2 pcs. | 3/64 x 1-3/4 x 2-3/32" | Bin floor sections |
|----|--------|------------------------|--------------------|

Edge glue the two A7 floor sections together and weight to dry flat. It

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will be necessary to trim the floor to fit. Use Figure 9 as a guide to cut the floor to size and to notch the corners.

Glue the four main walls together being certain the assembly dries square. Test-fit the floor in place and trim for a perfect fit if necessary. When satisfied with the fit glue the floor in place.

Now glue the shed in place to the main structure as shown.

STEP 11: THE ORE CHUTES

| | | | |
|----|--------|---------------------|---------------------|
| B7 | 1 pc. | 1/32 x 5/32 x 3" | Chute side material |
| C4 | 2 pcs. | .020 dia. x 2-7/32" | Chute support wires |

If you have not cut the A8a chute bottoms from the A8 material shown in Figure 2 do so at this time. Using the Right and Left Views as a guide cut the four chute sides from the B7 material and glue them to the A8a chute bottoms as shown. Cut and bend to shape the four support wires as shown in Figure 3.

Put the bent portion of the wire in the holes in the B8 section and attach to the sides of the chutes.

STEP 12: THE MINE TRACK

| | | | |
|----|--------|----------------------|------------------------|
| A8 | 7 pcs. | 3/64 x 1-3/4 x 5/8" | Track walkway sections |
| B2 | 4 pcs. | 3/32 x 3/32 x 6-1/4" | Track supports |
| B6 | 4 pcs. | 3/64 x 3/64 x 6-1/4" | Rail material |

Attach the Plan View to a flat working surface. Attach waxed paper over the Plan View. Spot glue a piece of scrap wood to the waxed paper running along the full length of the A8 track walkway. This will help align the walkway sections. ("Removable" double sided sticky tape is useful to hold parts in place while they dry.) Edge-glue the A8 sections together over their drawing counterparts as shown. Glue the B6 "rails" in place as shown. If you are using a specific brand of ore car you may wish to use it to gauge your track. Weight and dry thoroughly.

When the track is thoroughly dry carefully remove it from the waxed paper and turn it face down. Glue the B2 support beams in place to the underside of the track flush with both edges. Weight the entire assembly to dry flat.

When thoroughly dry slip it through the two main structure door openings and glue it in place as shown in the Plan View.

STEP 13: INSTALLING THE ROOFS

| | | | |
|----|-------|----------------------|-----------|
| B8 | 1 pc. | 1/16 x 1/16 x 6-1/4" | Cap strip |
|----|-------|----------------------|-----------|

From a section of excess B2 material used in Step 7, cut a roof support beam to fit between the two roof peaks and glue it in place. Lay the two roof sections (A and B) face down and butt the peak edges and scotch tape them together. Paint the under edges of the cards which will be exposed as eaves after the roof is installed. When the paint is dry mark the location of the B4 rafter tails on the eaves.

Test-fit the roof in place. When satisfied, glue the roofs in place. From the B8 material cut a cap strip and glue it in place in the gap between the two roof peaks.

Glue roof C in place to the shed leaving equal overhang on both sides.

STEP 14: FASCIA STRIPS AND RAFTER TAILS

| | | | |
|----|--------|----------------------|----------------------|
| B4 | 3 pcs. | 1/32 x 3/32 x 6-1/4" | Fascia & rafter tail |
| B5 | 1 pc. | 1/32 x 1/16 x 6-1/4" | Shed fascia material |

Begin by cutting the four B4 fascia strips and gluing them in place under the overhanging aluminum. Cut the twenty-four rafter tails from the remaining B4 material using the front and back views as guides. Glue these in place at the mark made under the eaves.

Using the B5 material cut and glue in place the shed fascia under the overhanging aluminum.

STEP 15: THE TRESTLE BENTS

| | | | |
|----|--------|----------------------|-------------------------|
| B2 | 4 pcs. | 3/32 x 3/32 x 6-1/4" | Trestle bent material |
| B3 | 2 pcs. | 1/16 x 3/32 x 6-1/4" | Bridge support material |
| B4 | 2 pcs. | 1/32 x 3/32 x 6-1/4" | Cross brace material |
| B5 | 9 pcs. | 1/32 x 1/16 x 6-1/4" | Retaining wall material |

Attach Figures 5 and 6 to a flat working surface. Attach a separate piece of waxed paper over each template. Begin by cutting the B2 bents, cap beams and footing beams to form two tall bents and one short bent.

Spot glue a B2 footing beam over its drawing counterpart. Glue the three legs in place and glue the cap beam on top. Cut and glue in place a B4 cross brace to this bent. Allow to dry. Carefully lift this bent, waxed paper and all, from the drawing and build another bent the same way.

Now build up the small bent by spot gluing the cap beam in place then the legs and one cross brace. Turn over one tall and the short bent and cut and glue in place the other cross brace. Using Figure 6 as a template cut the bottom board of the retaining wall and spot glue it in place over the drawing to the waxed paper.

Cut the remaining boards and glue them in place as you cut each board to size. Attach the unbraced side of the remaining bent to the retaining wall flush with the bottom and centered on the wall. Allow these assemblies to dry thoroughly. Once dry, glue the bents in place as shown to the B2 mine track supports.

From the remaining B5 material cut the trestle supports as shown in the Right and Left Views and glue them in place to the short bent, track stringers, and track supports.

From the B3 material cut the ten diagonal track supports and glue in place to the bents and bin frame as shown.

STEP 16: THE TRUSS BRIDGE

| | | | |
|----|--------|----------------------|-----------------------|
| B2 | 3 pcs. | 3/32 x 3/32 x 6-1/4" | Truss bridge material |
| C3 | 8 pcs. | Plastic #925 | Nut & bolt casting |
| C4 | 2 pcs. | .020 dia. x 2-7/32" | Support rod material |

Referring to the Right and Left Views, cut the bridge sections from the B2 material. Cover the Right and Left Bridge Views with waxed paper. Spot glue the bridge components to the waxed paper and to each other. Allow these assemblies to dry thoroughly.

When dry, carefully remove the two bridge sections from the waxed paper. Using a #76 drill carefully drill holes through the center of the top timbers as shown in the drawings.

Using Figure 8 as a guide cut two bridge support beams from remaining B8 material and again using a #76 drill, drill holes for the support rods as shown.

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Glue C3 bolt castings to the bottom of the B8 support over the holes. Glue the supports in place, aligning the support rod holes. Cut four C4 support rods 1-1/16" long each. Slip these into the holes, and then glue the remaining four C3 bolts over each hole in the bridge header beam.

STEP 17: THE TUNNEL ENTRANCE

| | | | |
|----|--------|---------------|---------------------------------|
| A3 | 3 pcs. | 3/64 x 1 x 1" | Mine entrance wall/roof section |
|----|--------|---------------|---------------------------------|

Cut two pieces of remnant B2 material 1 inch long each, and glue them flush with the inside (not scribed) edges of two of the A3 sections as shown.

Trim 3/32" from the third A3 section and glue in place scribed side up to the top edges of the A3 wall sections. Cut one more B2 section 1 inch long and glue it to the tops of the B2 support timbers, A3 wall sections and front edge of the A3 roof section.

Paint the cardstock tunnel backing flat black. Glue the tunnel backing card against the back edges of the A3 sections. Cut two braces from remnant B4 material as shown and glue in place to the B2 support timbers. Now glue the tunnel entrance in place to the end of the track and the braces to the B2 track stringers above the short trestle bent as shown in the Right and Left Views.

STEP 18: FINISHING THE MINE

From remnant B8 material cut a track stopping block for over the tailings pile and glue in place to the "rails". Touch up any exposed wood or metal surfaces with paint or stain.

The Idaho Springs Mine was designed to serve narrow gauge railroads. However, it can also serve standard gauge as well if smaller locomotives and rolling stock are used. It may be necessary to push cars under the ore chutes because of a lack of clearance for locos.

Your Idaho Springs Mine is completed. However, with the addition of some miners, mine dump cars, supply wagons and some boxes and barrels your mine can become a showpiece on your layout.