

INSTRUCTIONS & TIPS

Owl Mt Models #3004 – “Narrow” Modular Lumber Load Kit (4 panel sprues/kit)

This kit contains modular pieces of molded plastic representing lumber that can be assembled in a nearly endless variety of combinations into a load for either a “narrow” (8’3” to 9’ wide) 36-50 ft. flat car or gondola (8’ 6” to 9’ wide). Figure 1 illustrates some possible design concepts for building this kit. Before beginning assembly, choose which “design concept” and type of car (flatcar or gondola) you plan the load to fit onto.

Brief History: Starting in the early days of US railroading, lumber moved by rail. Different combinations of loading, stacking, and bracing were used over the years. The Master Car Builders Association (MCB) developed recommended practices and standards for loading open-top cars by 1908. The American Railway Association (ARA), which later became the Association of American Railroads (AAR) continued to update and standardize the practices. These AAR standards are incorporated in the assembly steps below.

Prior to about 1960, rough-cut lumber was over-sized to make finished on-size lumber, not the under-sized dimensional lumber of today. After about 1960, most lumber that was shipped in open cars was clean cut within 1/4” of final lengths and held together with high-tension steel bands to form rectangular “Paletized” Units for forklifts to easily unload. Therefore, the design of this kit fits the pre-1960 era best.

Different lumber mills loaded their shipments slightly differently. In photos of large trains this shows as groups of 15-20 cars from one mill with the next block loaded, braced, banded, or wired together in a different way within the same train. So don't think you have to model all your loads the same way!

Brief Overview of Kit:

Panels: This kit includes four plastic “panel” sprues with six Panels each (Fig. 2), for a total of 24 Panels per kit. Each sprue contains hollow and solid panels. The hollow Panels are designed to reduce weight and material costs. The solid Panels are for the top of lumber units (and elsewhere as desired). Some Stakes and other “Sticker” material are also molded inside the hollow panels. The kit has enough material to build 2 Stacks of lumber for a 36' to 50' car with a maximum stack height of 9’3” and overall height of 11 feet above the deck.

Stickers & Dunnage: In the lumber industry, “Stickers” are pieces of wood used as separators to let lumber dry or to act as spacers between Units or within a Unit. In railroad terminology, “Dunnage” is material used to secure cargo for transport. This kit includes a sprue with various Stickers and Dunnage (Fig. 3). Some extra Stakes (B), Separators (D) and Cross Ties (C) are also included in the Panel sprues (Fig. 2) because larger loads might require extra materials, and some loads may need the narrower notched stakes (B1 or B2) to fit inside narrower gondolas or medium width flatcars..

Weighted Load? Weighting is generally **not needed**. Most modelers that looked at the first test shot loads said, “Oh, you left room for me to weight the load!” Actually we should want to reduce the weight. Two full Stacks of lumber using hollow Panels from this kit weigh 1.9 oz. For all but the very lightest of cars, you shouldn't need to add extra weight.

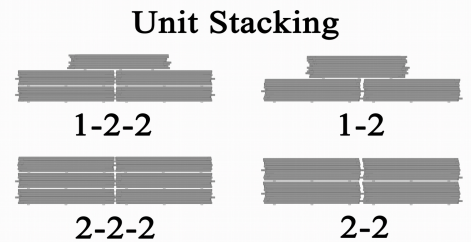


Figure 1. “Design concepts.”

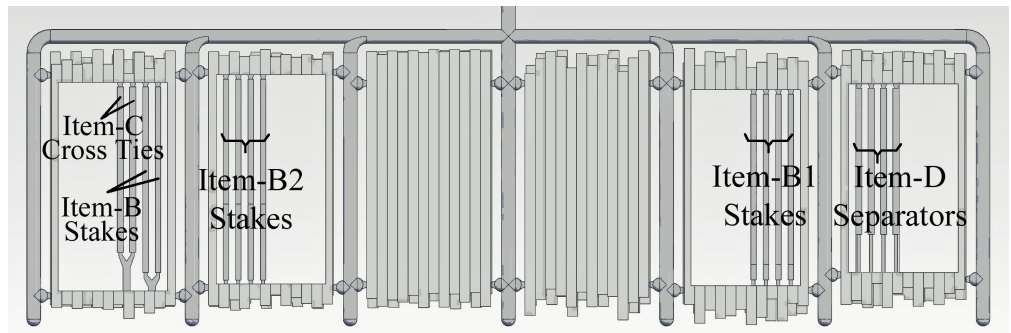


Figure 2. Panel sprue with extra stakes and stickers molded inside the hollow panels.

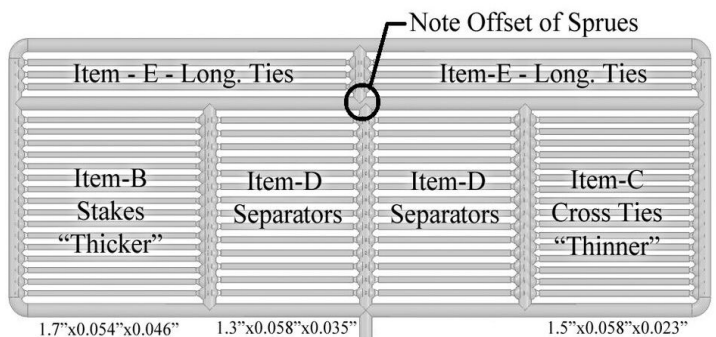


Figure 3. Sticker sprue.

Assembly Instructions:

Separate the pieces from each sprue with a flush-cutting sprue cutters, Xacto knife, etc. Also remove the extra Stakes and other pieces from within the hollow Panels. There will probably be more stakes than you will need for the #3004 kit, but B1 Stakes are for use when the load is narrower than the flatcar deck, and B2 Stakes are notched to fit into gondolas when the width is too tight to fit with standard Stakes.

Clean up the injection gates and board ends with a file or sandpaper as needed. If desired, use fine grit sandpaper to make some scratches down the length of the boards (on each Panel and on the Dunnage boards shown in Figures 2 and 3) for the weathering washes and techniques to highlight. Painting & weathering may be done before the parts are assembled or at various stages during assembly (see Painting & Weathering section on page 4). Wood grain effects (scratching and weathering) are best done before the Stakes and Dunnage are in place, in some cases before the Panels are glued together.

Arranging the Load: Groups of 4 to 6 stacked Panels form “Units” (Figure 4), which are then stacked with separator pieces into “Stacks” (Figure 5), and then multiple Stacks are put on a flatcar or gondola to form the “Load.” Generally shorter height Units can be stacked 3-high, while only 2 taller Units may fit into the height limit for the load (generally 10 foot high limit). Figure 1 illustrates some possible configurations of Units and Stacks for a load, including single Units bridging across lower Stacks.. Each Panel in the sprue differs in how long the boards are and how random the ends are. The look of the Units can be varied by rotating, inverting and/or offsetting the Panels. In typical trains, some cars had Units with very orderly ends positioned back-to-back and the random ends toward the outboard ends of the car. Other cars had the outboard ends even with the random ends interwoven toward the center of the car. Yet other cars had random Stacks on both ends as the lumber shifted or the foreman of the lumber mill didn't care. If you need shorter panels, or prefer more even-ended loads, you can cut off ends of boards that “stick out” too far. All of these options are open to you with this kit. For an authentic look, you can design Units and Stacks to meet AAR standards (details at www.owlmtmodels.com/aar.html). You can also research pictures of real lumber loads online or in railroad history books to assist in your load design.

Units (Figure 4): Dry-fit groups of 3 to 5 stacked hollow panels and a solid panel on top to form “Units” and experiment with the “look” of the load. Once you've decided how you want to assemble the Units, glue the Panels together with a liquid plastic glue (Tamiya, Testors, 10X7 glue) or ACC(CA)-type super glues. You may have to clean off the mating surfaces of the Panels and Dunnage boards if they were pre-painted and weathered. This can be done with the tip of a No.11 Xacto blade at the desired location of the joint. A small brush is ideal for applying the glue. Be sure to hold the joints for 30-60+ seconds for the plastic glue to melt and weld the plastic together or the ACC to bond to the surfaces. Space out and glue 3 to 4 Item-D “Separator” boards (see Figs. 2 & 3) on the bottom of each Unit to support it evenly on the floor of the car or Unit below. Repeat the process for additional Units (the kit contains enough Panels for 4 to 6 Units). Depending on how high each Unit is, there may be extra Panels left over.

Stacks (Figure 5): Dry-fit two or more Units of lumber on the car to form Stacks up to 10' high, allowing a minimum of 12” space from the vertical staff brake wheel (flatcars only). Confirm how you want the Stacks to sit, clear and interface, such that no boards from adjacent Stacks interfere with each other. When satisfied with the arrangement of the Units, glue Units together into Stacks. Be sure that Separators (Item-D) are included vertically between Units. Center the Stacks on the width of the car, and trim the Separators to clear the inside edge of the stake pockets on flatcars or inside gondola sides.

Removable or Permanent? Many prototype modelers will say that the loads must be glued to the car so that all of

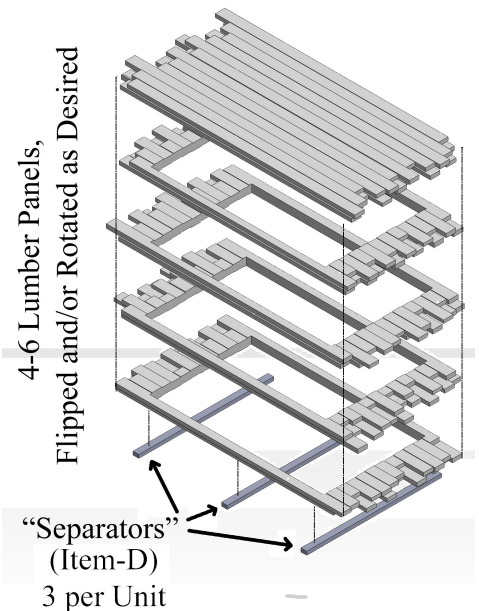


Figure 4. Unit assembly.

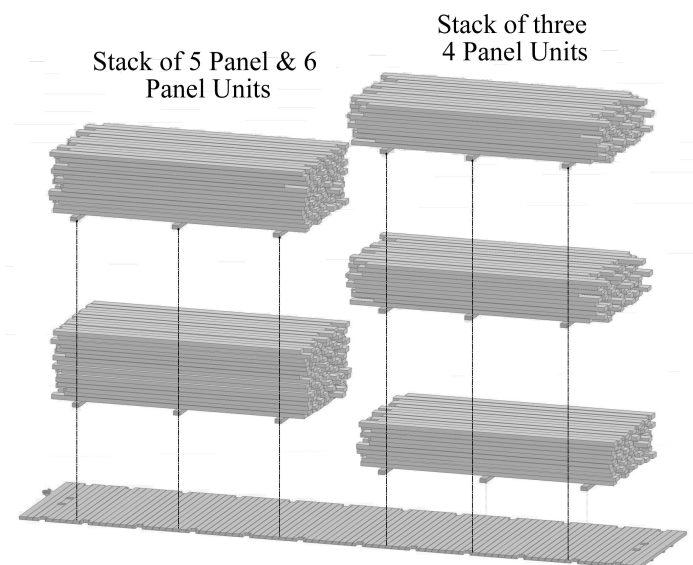


Figure 5. Arranging Units into Stacks.

the bracing, etc. can be modeled accurately. However, many modelers wish to operate their cars, sending them to local lumber mills to get loaded or to finishing mills or lumber yards to unload for sale. In this case, they may want to have the loads removable for the returning empty movement. Also now and then the operating modeler may wish to change things up and put a different load on the car. The loads may also be reversed or shuffled between cars if you build multiple kits, increasing the versatility of the modular loads. Just be sure to mark the bottom of the load for what type of car you're designing it to fit on!

The major downside of removable loads is the appearance of stakes below the stake pockets. On most newer HO scale flatcar models, the stake pockets are not large enough to allow a scale Stake to extend through the pocket as was done on the prototype. Modelers wanting to make the Stakes appear to extend below the pockets and have the full look of the ARA/AAR practices can glue a small section of whittled excess Stake material below the stake pockets to represent the Stake extending all the way through the pocket. Modeling of wedging in pockets may also be done if desired. "Faking" the Stakes below the pockets may be done on cars with removable loads, but then the car will look a little weird when the load is removed or the Stakes do not line up with the Stakes glued on below the pockets. Each modeler will have to decide which way to build the kit in this aspect. The following instructions will be for those modelers wishing to construct the load to be removable, where Stakes, Bracing and Dunnage is glued to the load only (not glued to the car).

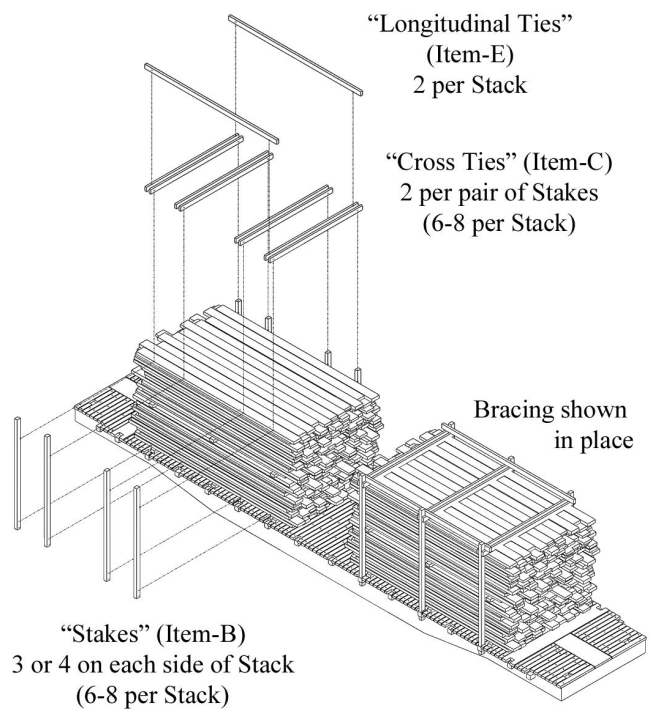


Figure 6. Stakes, Bracing & Dunnage recommendations.

Stakes, Bracing & Dunnage. Figure 6 illustrates recommended positioning of Stakes, Bracing & Dunnage according to AAR standards. Decide which stake pockets will be used to secure the Stacks. Even spacing is recommended, and at least 3 pairs of Stakes (Item-B) should be used per Stack. Stakes should not be placed too close to the end of the load (6-12" from the end of the shortest boards), or the Stakes will not restrain the load properly. When all these criteria cannot be met, closer spacing (using adjacent stake pockets) may be necessary, as shown in the left stack of the flatcar photo on the package label.

For Flatcars, dry-fit each Stake-B against the side of each Stack, resting the Stake-B on top of the pocket (since it won't fit into the pocket). If the width of the flatcar deck between stake pockets is excessively wide, try shimming with extra pieces of Item-D, Item-C, or Item-E between the Stakes and the Stack. Keeping Stakes tight against the load was needed to prevent shifting of the prototype load en route.

Glue the Stakes onto the Stack with the bottom extending below the top surface of the flatcar deck so that the Stakes touch the top of the stake pockets. For cars with overhanging decks, as on the Owl Mt Models F-50-series flatcars, the deck is notched to clear the Stakes. On cars without overhanging decks, you may wish to drill and insert a small piece of about 0.020" diameter wire to form a pin in the bottom of some of the Stakes to help guide and keep the load in place.

For Gondolas, dry-fit Stakes against the side of the stacks and check fit when inserting into the gondola. If the Stakes won't slide into the gondola, use the narrower notched Stakes (Item B1 or B2 shown in Fig. 2) on one or both sides of the car. Slip a B2 Stake between the lumber and the gondola side, then trim the bottom end enough that the notch will rest on top of gondola side (see Figure 7). For extremely narrow gondolas such as Athern 50 ft. and MDC 40 ft gondolas, stakes will only fit above the car sides.

Gondolas may or may not have collapsible stake pockets. For gondolas without stake pockets, the loads can be wedged into the car with stakes (either B or B2 as needed for the model of gondola) that extend above the car side to hold the higher parts of the load. For cars with collapsible stake pockets, but without the interior detailing (Walthers 46 ft gondola, for example), you can make the stakes look in the correct position by aligning the stakes to rivets on the outside of the gondola wall which should indicate where the stake pockets would be located. For Walthers/P2K and other cars with interior pocket details, B1 Stakes can be wedged into the molded-on collapsible stake pockets.

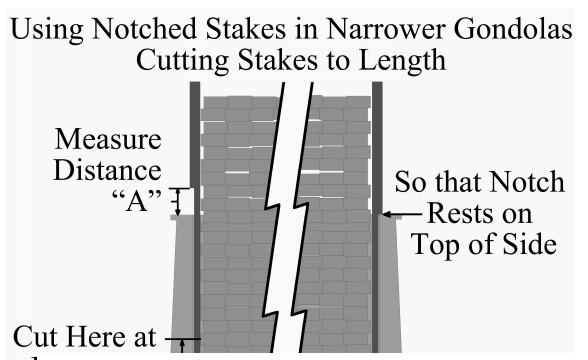


Fig.7. Notched Stakes for Gondolas/

Figure 8 shows assembly of the remaining Bracing and Dunnage. “Cross Ties” (Item-C) are provided in the kit for top bracing (or see Tips & Advanced section below for alternative bracing methods). Glue Cross Ties on each side of each Stake down against the top Panel. Then cut the ends off flush with the outside edge of the Stakes (Figure 8).

Dry-fit “Longitudinal Ties” (Item-E) down the length of the load, inside of the Stakes (Item-B). Cut Item-E so it extends at least 4” beyond the last Stake on each end of the Stack. Glue in place.

Cut off excess length (height) of Stakes as desired. On some loads the Stakes were left high. In other cases, the Stakes were cut down to leave only a few inches to one foot of height above the Longitudinal Ties.

Painting & Weathering: The plastic for this kit is colored to approximate a natural wood color. This means that you do not have to paint the raw plastic, although Dullcoating is at least recommended for the washes and weathering to have some “tooth” to stick to. Many modelers will paint the parts anyway. Light tan and dull orange colors streaked onto the boards simulate fir wood quite well. A wash of darker color (Roof Brown works nicely) is ideal for emphasizing any scratching, scribing, and/or coarse sanding that has been added to the surface.

There are many techniques used with plastic parts to simulate wood grain appearance. For example, a soft wide brush (3/8”) can be used to apply a semi-wash, where streaks are drawn down the length of each board. If too much paint is applied, a paper towel drawn quickly down the length of the load with light pressure will remove some of the paint, leaving desired streaks. This process is rather like the wood graining tools sold that remove some of the top layer of paint, revealing the lower color. Additional tips for weathering OwlMtModels.com/2000-series/F-50_weather.html.

Tips & Advanced Techniques — Alternate ways to build your kit:

Iron Wire (1800s-1955): Some mills replaced the Cross Ties (Item-C) with iron wire wrapped around the Stakes (Item-B). This is best simulated with 2 lb. Test Fishing Line. Color the Fishing Line with a Sharpie Marker, either black or brown. See Figure 9 on how to tourniquet the wire in place and hold it with the small wood board made from a cut-down Cross Tie (Item-C). Iron Wire was also used to clinch the top Unit of lumber on a load, about 1/4 to 1/3 the way in from each end, to prevent shifting of the top layers of lumber.

High-Tension Steel Bands (1954-Modern) began to replace Iron Wire about 1954 and continued to gain use through the late 1950s. By the Mid-1960s, even the use of wooden stakes was replaced by Steel Bands tied into the stake pockets. A 1963 photo shows the wooden stakes replaced and only steel banding used. However, wooden stakes were still occasionally used later. One 1964 photo shows a load with stakes, documenting that most of the stakes failed when a load shifted. Modeling High-Tension Bands has been covered by many modern era modelers using “ChartPak” 1/64” Drafter's Vinyl Black Chart Tape, available at your local drafting store, Amazon.com, or Duall.com.

Other Notes: Additional sprues of Panels are available as add-on kits (OMM #3015) for modelers wanting taller Units or more Stacks. Note the OMM #3005 is basically the same kit with six (rather than the 4 in this kit) sprues of Panels for 52 and 53 ft gondola cars with three lumber stacks. Please visit www.owlmtmodels.com/3001-series/tips.html for more about other prototypical methods of securing the load, painting, weathering, and kitbashing your own versions of this kit.

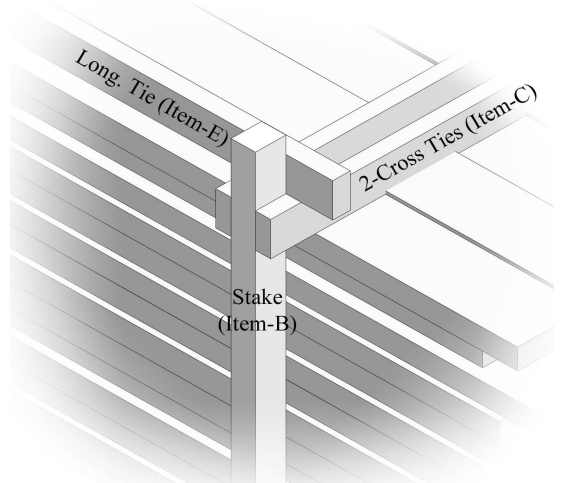


Figure 8. Close-up of Joint between Items-B, -C and -E.

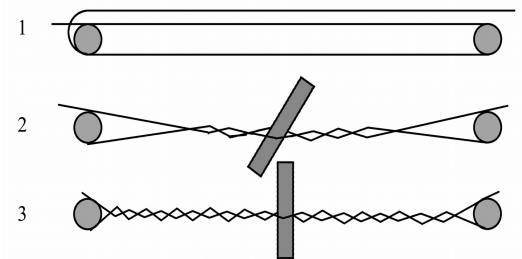


Figure 9. Iron wire twisted between stakes with wood scrap.



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