

4 Building and Detailing Self-Propelled and Towed Artillery

Self-propelled artillery pieces are almost always built up on chassis designs similar to tanks, except that they do not have to carry heavy armor plating. The track systems are similar—there are sprockets, idlers, road wheels, return rollers, and the tracks. These are built up just like any other tank model, so refer to Chapter 3 for tips on how to assemble the chassis and track systems. The similarities between self-propelled artillery and towed artillery are the guns themselves, so let's start there and move onto the recoil, framing, and suspension systems.



Gun barrels. Building up gun barrels on artillery is similar to working on tanks, except that on large-caliber guns you do not have to be as careful about distorting the round shape of the barrel when you scrape and sand the seam area. Fit-check the part halves and remove any alignment pins that cause a problem. Sometimes the lower part of the barrel halves may be very slightly different in size. If you have this problem, try to work the misalignment into any area where you cannot see it. For example, if you remove all the alignment pins and the forward half of the barrel fits perfectly, there may still be a slight misalignment at the back end where the reinforcing rings are. This sometimes happens on long barrels. To fix this problem, align the rear top half—the bottom rear area will most likely be covered up by the slide. If I can cover up or hide a problem, I don't expend any time trying to correct it.

Tape the halves together with small strips of masking tape and then run a bead of super glue along the seam lines. Remove the tape and add glue to the remaining areas. Once the glue is dry, use a number 11 X-acto blade to scrape the glue flat carefully and gently. Here is where your fit checks and alignment efforts come in handy—you will not have to do much scraping, and the only sanding you'll have to do will be to smooth out the glue and blend it into the plastic. On large barrels I use sandpaper in combination with a Flex-I-File. The Flex-I-File is great for getting into the seam areas between the reinforcing rings of the lower barrel area. You can also cut the sanding strip of the Flex-I-File to a smaller width to get into those really tight areas. Like a Waldron punch tool, you will find a thousand and one uses for this simple but handy device.

Be careful about scraping and sanding around the muzzle brake area of the barrel. You don't want to distort the shape of the corners and edges. To check the seam areas, give the parts a coat of Testors silver paint, add more super glue if necessary, sand smooth, and remove the paint with Polly-S paint and decal remover. After using this paint remover, wash the parts in soap and water to remove the residue.

Once the barrel is complete, move onto the breech and slide assembly. Fix any imperfections on these parts, because they will be noticeable on the breech area. Be careful when cleaning up and gluing the interior ribbing of the breech. When assembling the slide, be sure to fill in the interior seam of the lower area, since this will stand out like a sore thumb. I use small amounts of filler applied with the tip of a stencil knife to fill in the seam. I then cut thin lengths of sanding sticks to get into these tight areas and sand the putty smooth by wet-sanding. Wet-sanding will prevent the sanding stick from getting clogged with putty residue. When cleaning up the teeth or gears on the bottom of the slide, use the tip of a number 11 X-acto blade. Sand the tooth surfaces with the edge of a sanding

stick to remove scratches from your scraping and smooth out the surface.

Recoil systems. The recoil systems for large-caliber artillery pieces are nothing more than giant shock absorbers. Most are hydraulic, but some also have internal or external springs to absorb the recoil. For hydraulic systems, be sure that the small-diameter stem fits tightly into the face opening of the larger cylinder. If there is any space, you will need to glue a new surface onto the large cylinder face and drill out new openings so there is a tight fit. To simulate the polished metal surfaces of the small-diameter stem length that fits into the larger cylinder, paint the stem with Testors chrome color. Use a flat brush and rotate the stem as you paint it, so any noticeable brush strokes will simulate turned metal. Be sure the masking tape fits tightly around the diameter of the stem for a sharp demarcation line. To help ensure that the paint will not bleed under the masking tape, use minimal amounts of paint on the brush when you paint around the tape. Small-caliber towed artillery guns do not usually have recoil systems other than the gun slide, and some do not even have that.

Support framing. Support framing for large-caliber artillery depends on whether it is for a self-propelled gun or a towed gun. For self-propelled guns, the frame is nothing more than a carriage for the gun and slide assembly. The carriage contains the gears for elevation and rotation as well as the aiming mechanisms. Assembly is usually straightforward, but the manufacturers' instructions almost always depict inserting the slide assembly into the carriage as it is being assembled. I always assemble the carriage separately, fix any seam problems, and position the slide inside the carriage and let it snap into place. I have never had a problem pushing the upper wings of the carriage area slightly apart to slip the slide into place.

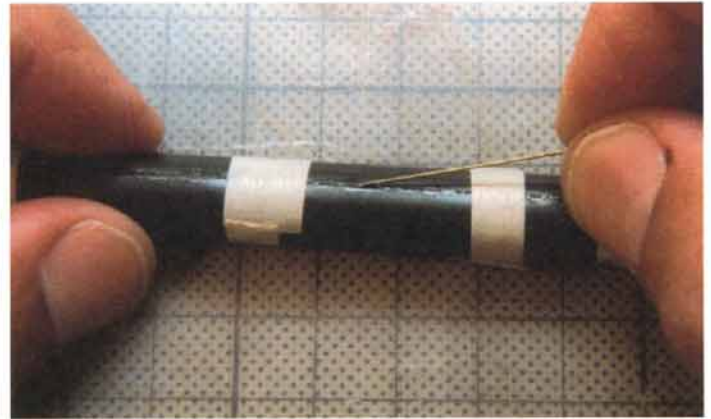
Support framing for large-caliber towed guns consists of the carriage as well as long rectangular shapes that are built up like a box. To help ensure that the framing will be straight and square, add small reinforcing strips of Evergreen strip stock to the interior of the framing as you build it up. Tape the four sides together with small strips of masking tape and continue to make adjustments to the parts until the framing fits together correctly. This process is repetitive, so be patient. Some manufacturers have lip guides along the interior edges of the framing to help position the parts against one another, but others do not. You can always glue small lengths of Evergreen strips to the inside of the part to create a positioning lip. When the parts are positioned, apply tiny amounts of super glue along one seam line between two parts. Once these two parts are dry, check the positioning of the remaining parts again and then apply super glue along the seam line on the other side of the part.

Now you have three sides glued into place. You can add the reinforcing plastic strips to the interior area and then finish the job. Small-caliber towed artillery framing is usually cast as either two halves with associated seam work or as one piece, so all you will have to do is remove the casting lines. When you scrape and sand, be careful not to distort the shape of the frame. Once the framing is completed, add details such as grab handles, racks, tool supports, and decals.

Suspension systems. Suspension systems for towed artillery range from complex axle, tie rod, leaf spring, and brake systems to just an axle and a set of wheels. When working with complex suspension systems, work from the inside out and be careful when removing the thin tie rods from their trees. It is very easy to break these parts. Cut around the trees that these parts are attached to so that you isolate the tie rod parts. Then gently cut the thin plastic connecting

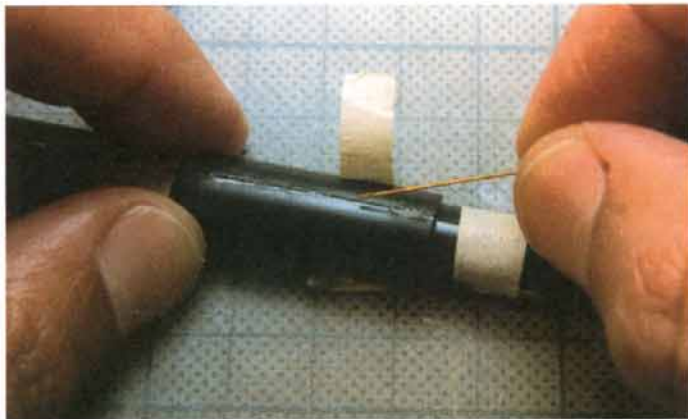
the part to the tree by placing the cut location directly over a hard surface such as a small block of wood. Be sure to use a sharp number 11 X-acto blade. Once you have completed the assembly of the suspension system, paint it, drybrush the corners and edges, and then add the wheels.

Weathering. In all the photos I have seen of self-propelled and towed artillery, the small-caliber artillery pieces always seem to look more weathered and used. Maybe it's because they are more easily moved by smaller vehicles, so they get a lot more abuse. This may also be because smaller-caliber artillery has a much shorter range, and consequently they are on the front lines while their larger brothers can lob projectiles from a considerable distance away from the front. Whatever the reason, your weathering should reflect this. Smaller-caliber artillery should get heavier coats of mud and dirt on the frames, suspension systems, and tires.



Assemble and glue big-diameter gun barrels the same way as little ones. Always check the fit first, especially around the reinforcing rings.

Here again, use small amounts of super glue to seal the seam line.



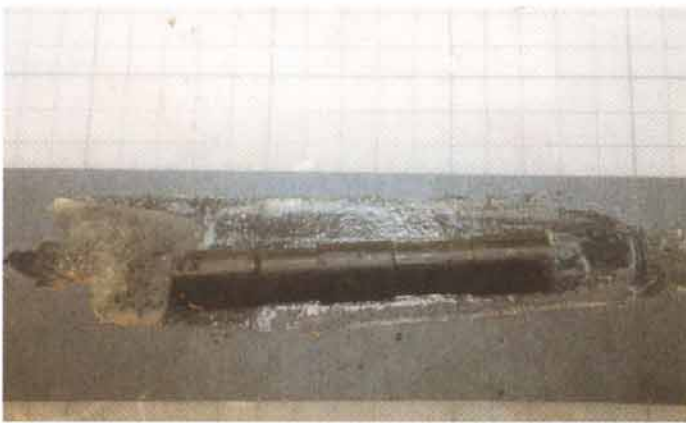
The opening at this seam location will need several application of super glue to fill it in.



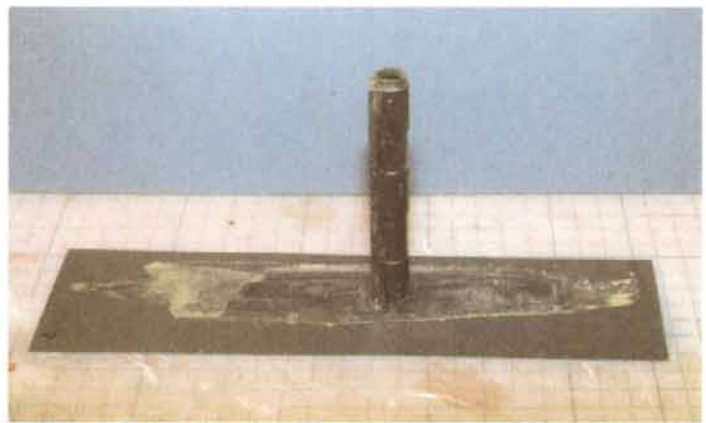
While you still need to be careful when scraping and sanding large-diameter barrels, distorting their round shape is less of a problem.



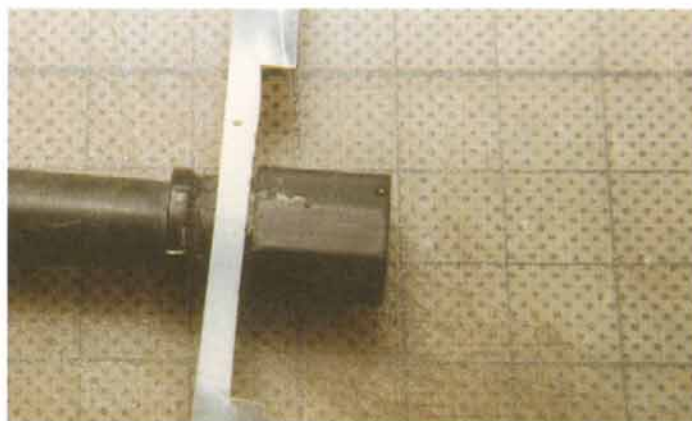
A Flex-I-File comes in handy when you need to sand around gun barrel reinforcing rings.



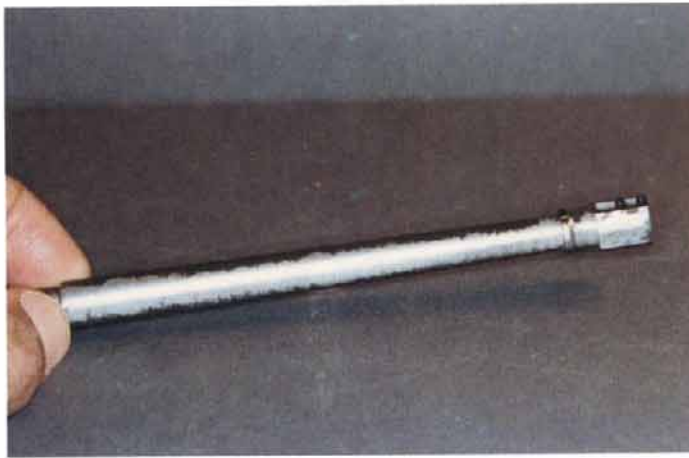
To sand smooth the flat bottom of the barrel, run it across a stationary piece of sandpaper. Sometimes I wet-sand to polish, and sometimes I wet-sand to prevent the sandpaper from getting clogged with sanding dust.



The end of this barrel was not flat because of a slight misalignment, but here again the solution is simple. It takes only a few passes across the sandpaper to fix these types of problems. Be sure to rotate the part so that you get an even surface.



To get into tight locations, simply cut the Flex-I-File sandpaper strip.



Once again, use Testors silver paint to check for any remaining flaws.



To fix the seamline and sink mark on the back side of this breech assembly, use a combination of super glue and Testors putty.



Sand smooth the face of the breech by running it across a stationary piece of sandpaper.



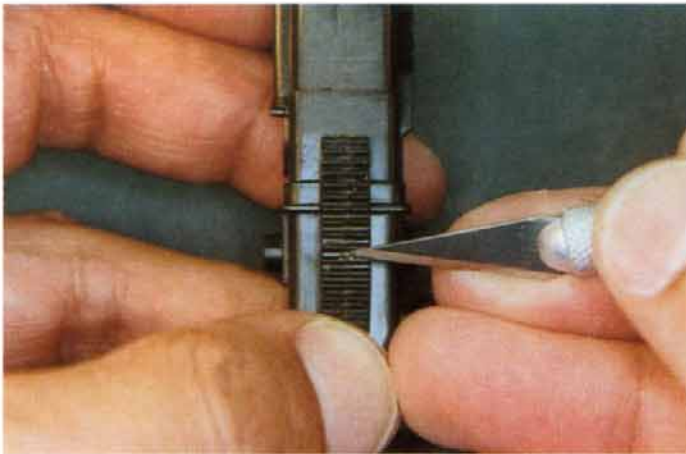
This breech assembly is ready to be attached to the barrel. The ribbing adds an extra level of detail to this model.



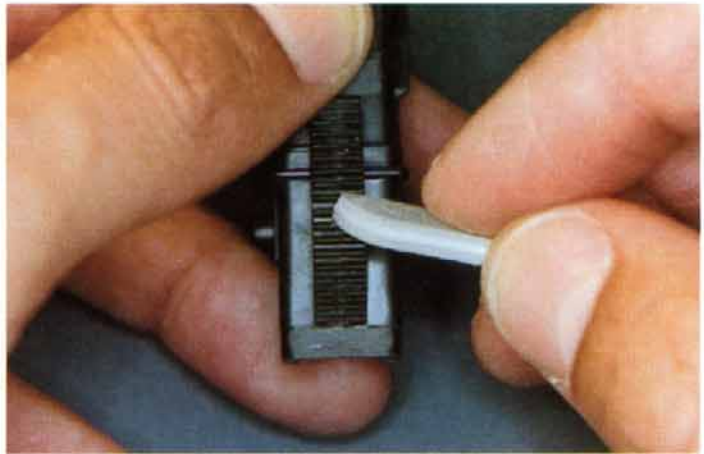
The interior seam area of slide assemblies can be hard to get to. The only area you need to be concerned with is what will be seen. Apply automotive filler with a flat-faced X-acto blade.



Sand the putty smooth with sanding sticks cut into thin lengths. To cut the sanding sticks, use a single-edged razor blade.



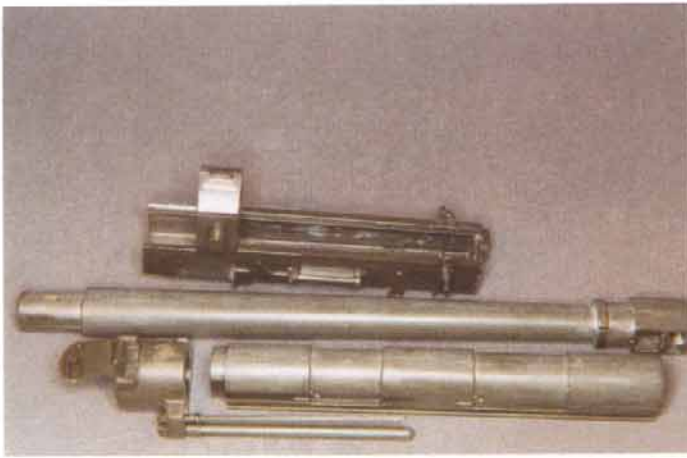
Be careful when scraping seam or mold lines on gears.



Use the edge of a sanding stick to smooth the plastic after scraping the gears.

tips

- Use Testors putty or Evergreen plastic strips to hide sink marks in locations that are hard to get to.
- To get into tight places, cut your sanding sticks into thinner lengths using a single-edged razor blade.
- Use a Flex-I-File to help shape gun barrel reinforcing rings.



The completed subassemblies on this Italeri M-110 are now ready for priming and painting.



The breech assembly on this German 75mm antitank gun had injection marks and dimples that were in very tight locations. The solution was to cover them with small bits of Evergreen stock and disks punched out with a Waldron punch tool.



The painted barrel and breech assembly on this ARV Club 155mm Long Tom have been painted, and it is ready to be slid into the carriage assembly. Note how clean the breech assembly looks. Model by Richard Boutin, Sr.



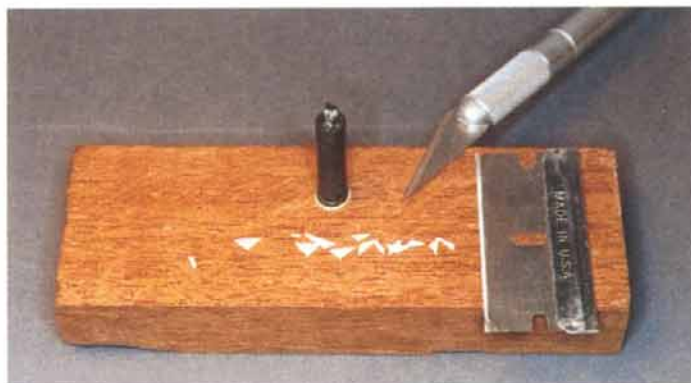
Don't forget to paint the hydraulic cylinder stems on the underside of the slide assembly.



The openings on the faces of these hydraulic cylinders are too big for the stems. Once they are painted, the finished assembly would not be accurate or realistic—the fluid inside the cylinders would pour out. To fix this problem, you'll have to attach new faces to the cylinders.



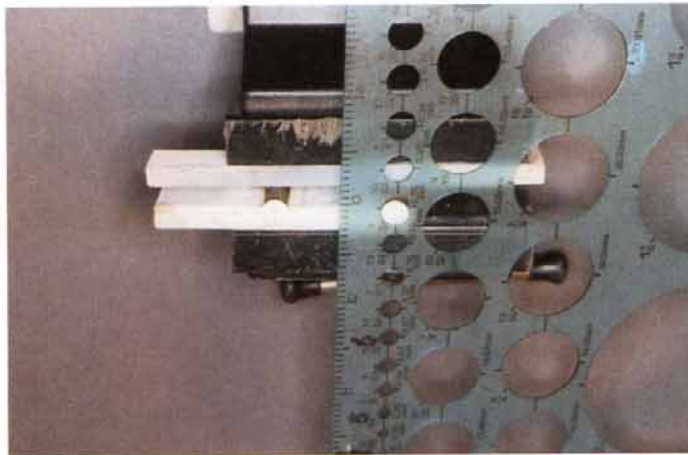
Glue scraps of Evergreen sheet stock to the faces of the cylinders. Be sure that the gluing surfaces are completely coated with super glue. Since you will be drilling through the sheet stock, use .020"-thick stock.



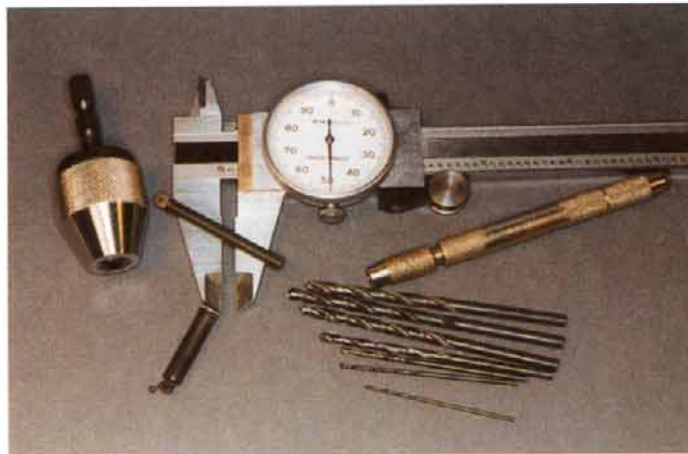
Use sharp blades to make tangential cuts on the sheet stock around the rim of the cylinder face.



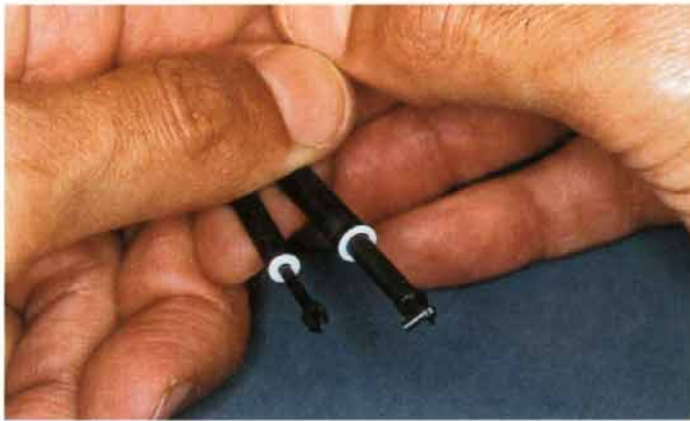
To round out the new face and blend it into the edge of the cylinder, wrap sandpaper around the end of the cylinder and then twist the part.



Next, you'll have to locate the center of the new face for drilling. I used a drafting circle template to locate the center.



I then selected the drill bits I planned to use. I measured the diameter of the stem using a caliper and selected several drill bits so that the hole would get progressively bigger.



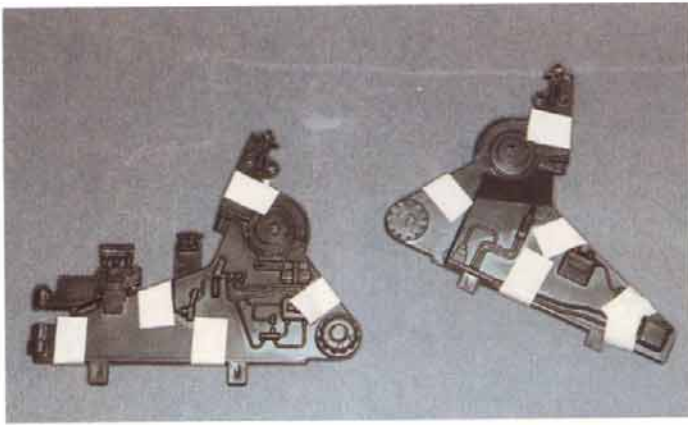
The stems now have a nice tight fit inside the opening of the cylinder faces.



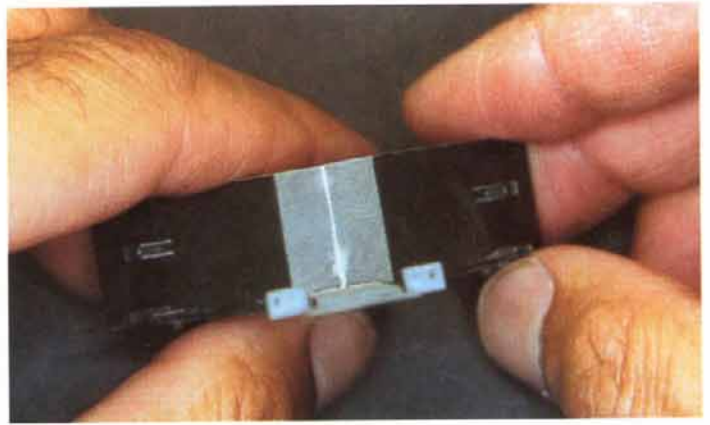
To set the demarcation line on the stems, wrap masking tape tightly around the stem. I use Testors chrome color applied with a small flat brush to simulate polished metal. To simulate the turned appearance of the metal, rotate the stem and apply the paint at a right angle to the stem. The surface of the chrome paint will have a subtle streaky appearance that simulates turned metal.



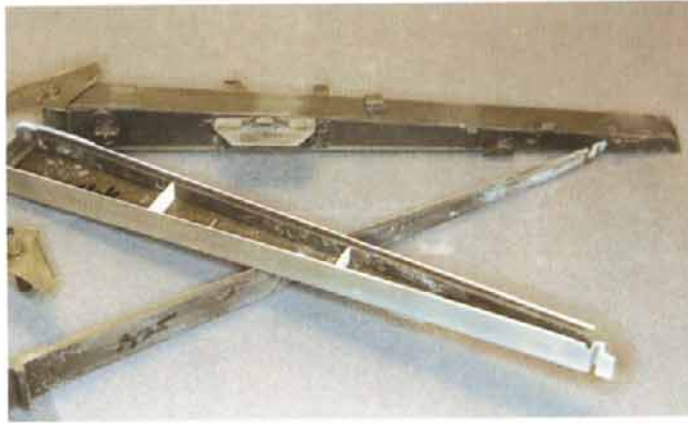
The finished stem has a sharp demarcation line.



Careful positioning and taping of the cradle halves will ensure a minimal amount of seam work along the perimeter of these subassemblies.



This cradle base is an excellent example of good seam work. Model by Richard Boutin, Sr.



Evergreen strips help to build up and position the long rectangular panels of framing on this ARV Club Long Tom. Model by Richard Boutin, Sr.



A small piece of sheet stock added to the inside lip area of this Long Tom cradle helps increase the strength of the gluing surface. Model by Richard Boutin, Sr.



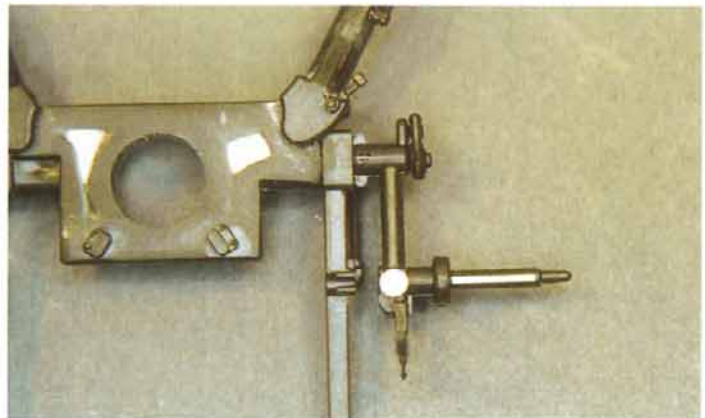
The cradle base and framing on this ARV Long Tom is starting to take shape. Model by Richard Boutin, Sr.



This is one of those exciting moments in scale modeling—a test-fitting of all the major subassemblies. Model by Richard Boutin, Sr.



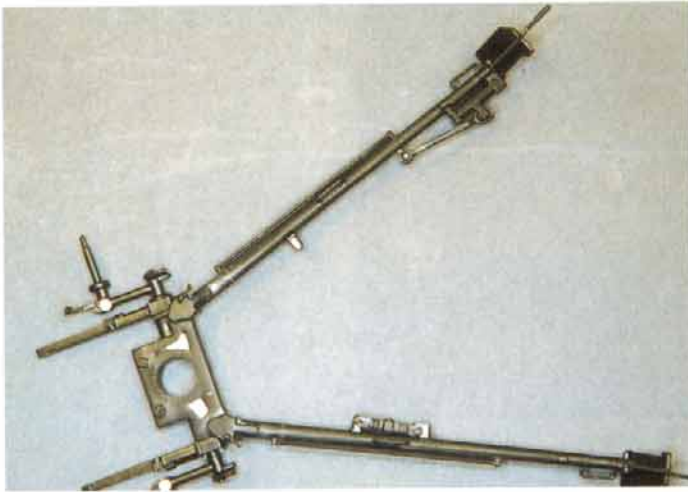
Test-fitting and assembly on small-caliber towed guns is pretty straightforward. Typically, the base and framing are single pieces that do not require a lot of assembly. The real challenge of this kit was dealing with the sink holes and injection marks.



Some of the sink holes and injection marks were in locations that were hard to fix or where the parts were too delicate to work with. In these cases, hide the problems. I used a Waldron punch tool and .005" sheet stock to make this disk.



Adding all the small details along the length of the framing of this Italeri 75mm antitank gun was easy, but removing all the mold lines from the parts prior to gluing took some time and care. These small parts are delicate and break very easily.



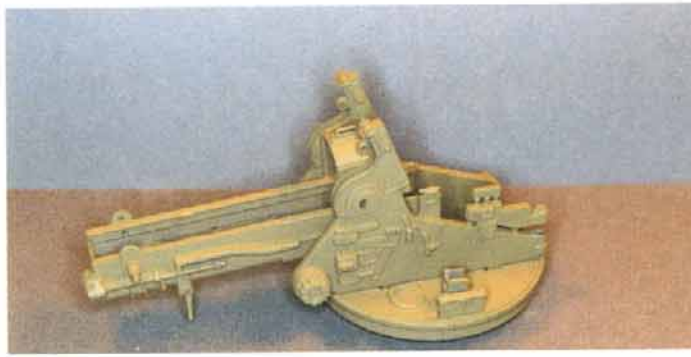
The completed base and framing on this antitank gun is now ready for priming and painting.



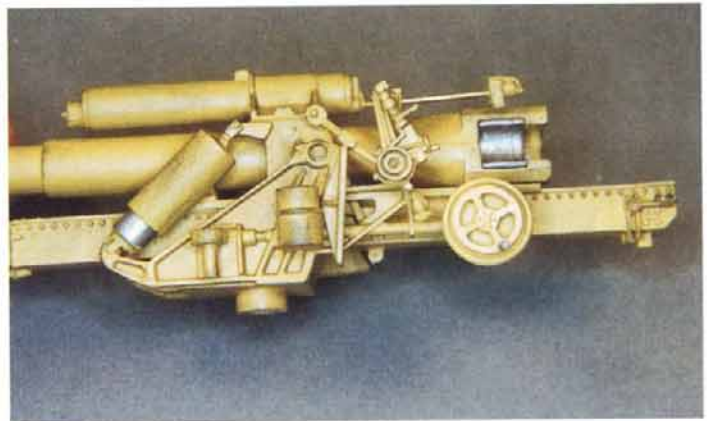
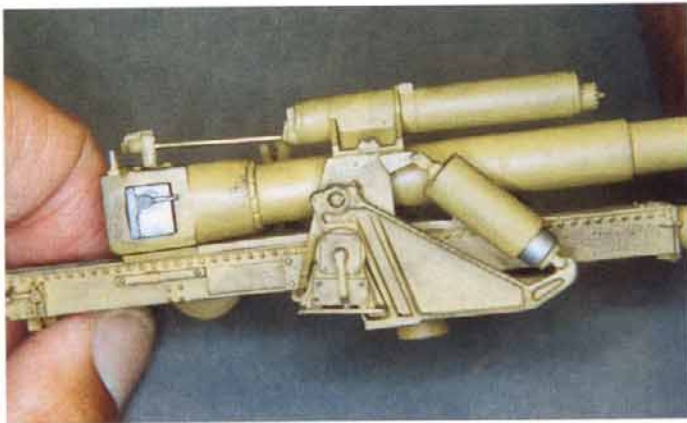
The gun shield for this antitank gun is almost a model in itself. Note again the use of punched-out disks to hide flaws.



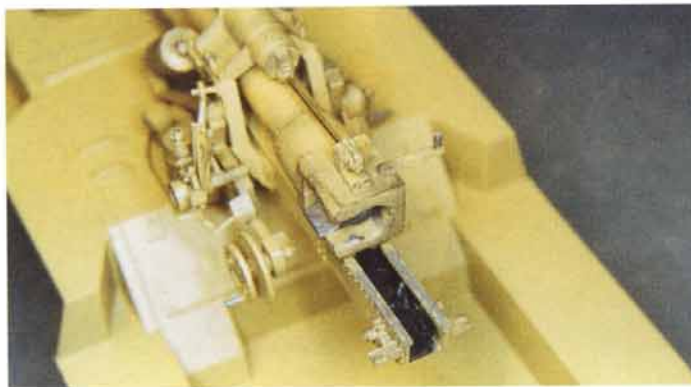
This self-propelled artillery gun shovel had injection marks all over the framing, but here the solution was to scrape the sink marks until they blended into the surrounding plastic.



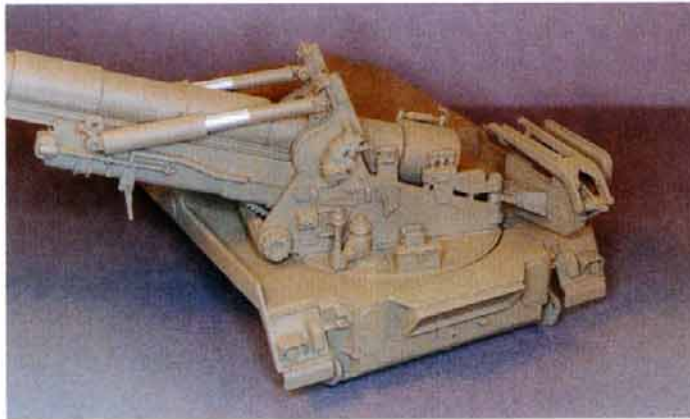
After completing, test-fitting, and painting all the subassemblies, it's time to start putting it all together. This base, cradle, and slide assembly are ready for the barrel/breech assembly. Note here that the base and cradle were assembled and painted and then the slide assembly was added by popping it into place.



The completed gun assembly on this DML Hummel has been painted and weathered. Note the clean appearance of the assembly. No sink holes, injection marks, or mold lines are visible, and the weathering is very subtle. Model by Bill Teehan



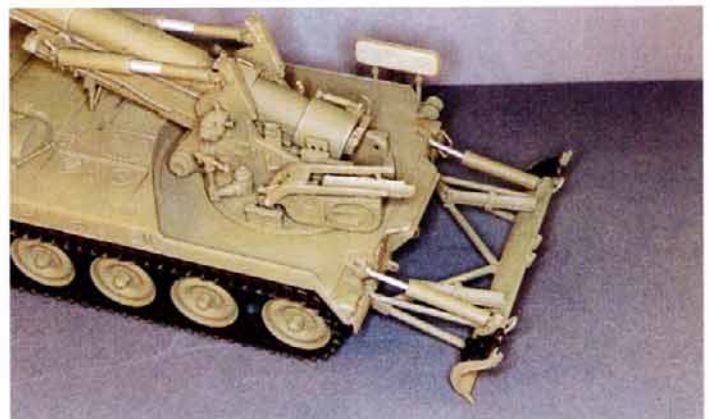
The inside of the slide has a seam that was almost impossible to repair, so its appearance was hidden using a heavy coat of black paint. Note the use of pastel pencil dust to simulate the smoke and soot of gunpowder stains. Model by Bill Teehan



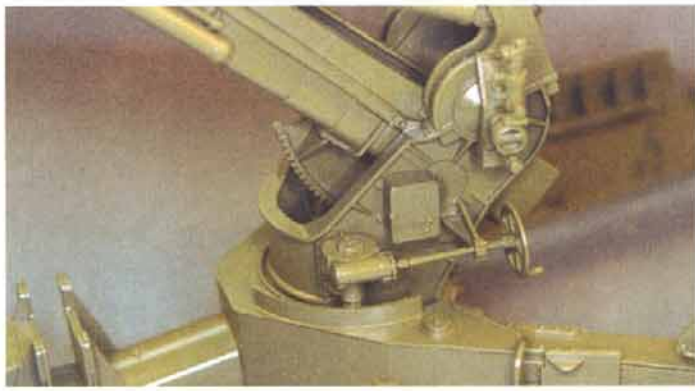
Test-fit the completed gun assembly on this Italeri M-110 on the hull. I checked the clearance on the assembly and found that the shell carriage loader was going to interfere with parts that were to be attached on the right and left sides of the hull. The solution was to install the gun assembly before adding these additional parts. Otherwise, I would have had to break off the shell carriage or the surrounding parts to install the gun assembly.



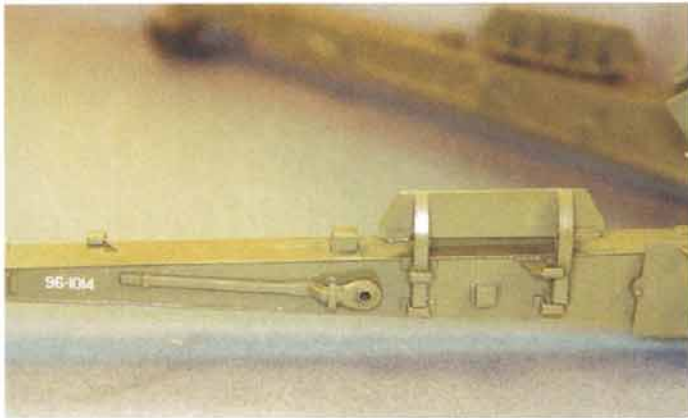
This DML Hummel gun assembly is getting its final fit check. The next step is to add the sprockets, road wheels, idlers, and tracks and then attach all the fittings on the upper hull. Model by Bill Teehan.



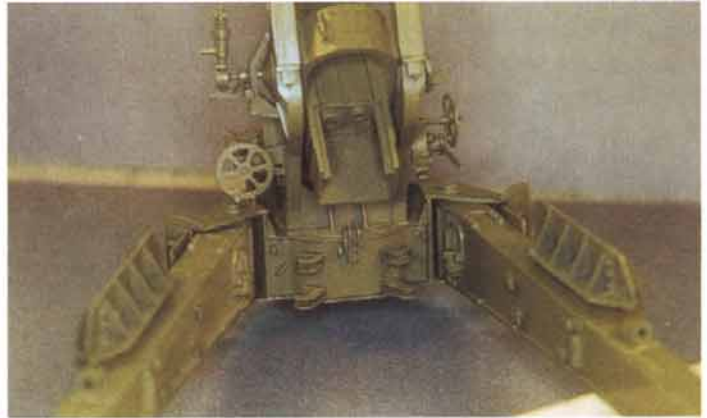
The shovel assembly on this M-110 is now installed and the remaining hull fitting will be the last assembly step. Note the different shades of olive drab. The difference in the colors is very subtle, but your eyes can pick them up, making details and shapes really stand out.



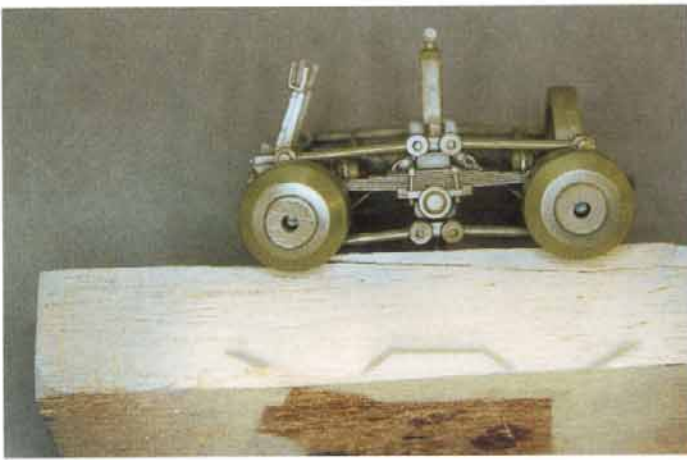
The gear and wheel detailing on the elevation and aiming equipment on this ARV club Long Tom are outstanding. Drybrushing and washes will really make these parts stand out. Note how clean the model appears. It has a gloss coat, because it is ready for decaling. Model by Richard Boutin, Sr.



Paint small parts like these tools separately and then attach them using white glue. Be sure to glue these parts in place prior to glossing the surface, since white glue sticks best to flat painted surfaces. Model by Richard Boutin, Sr.



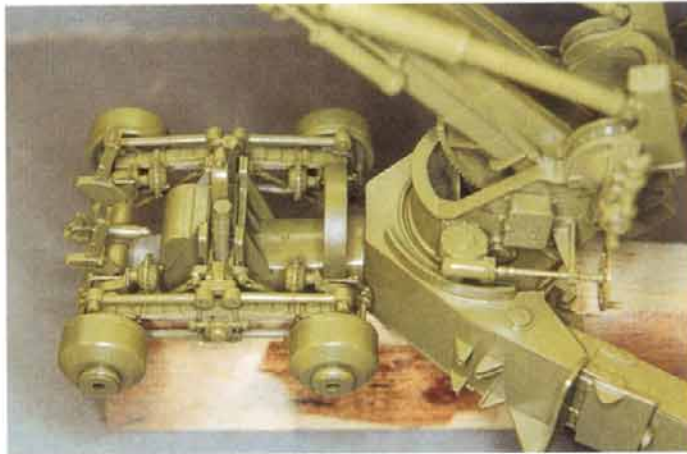
There is an extensive level of surface detailing and fittings on this Long Tom. Since the framing legs on this model can rotate, it's easy to install the gun assembly onto the slide by pushing the frame legs apart and sliding the gun assembly up into the cradle/slide assembly. Model by Richard Boutin, Sr.



Install the torsion bars on the suspension system of this Long Tom, and the assembly is almost ready for weathering. Model by Richard Boutin, Sr.



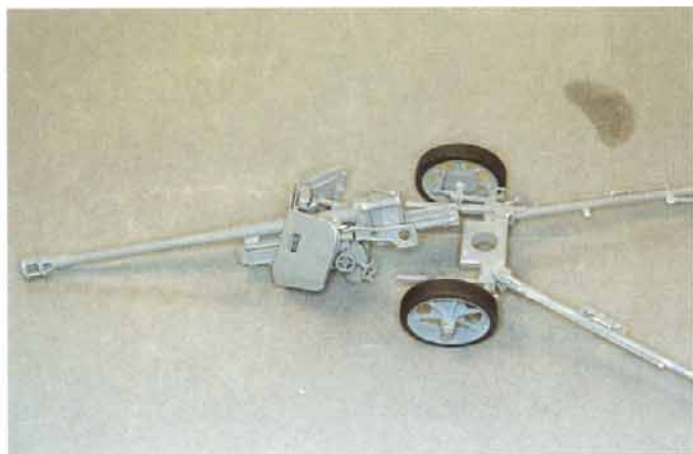
The level of detail on this ARV Club suspension system is superb. Every the tiny individual linkage rods are included. Cutting these small, delicate parts from their trees required a lot of patience. Model by Richard Boutin, Sr.



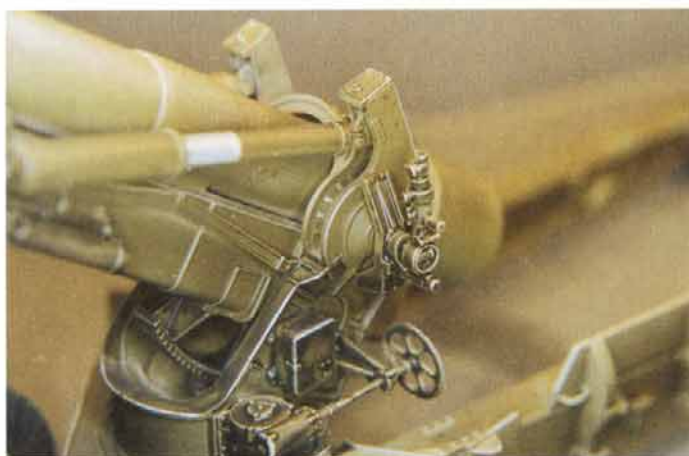
Because the suspension system was made up of many small parts, it was not possible to test-fit it by assembling the main components with masking tape. Luckily, the suspension system fit perfectly.



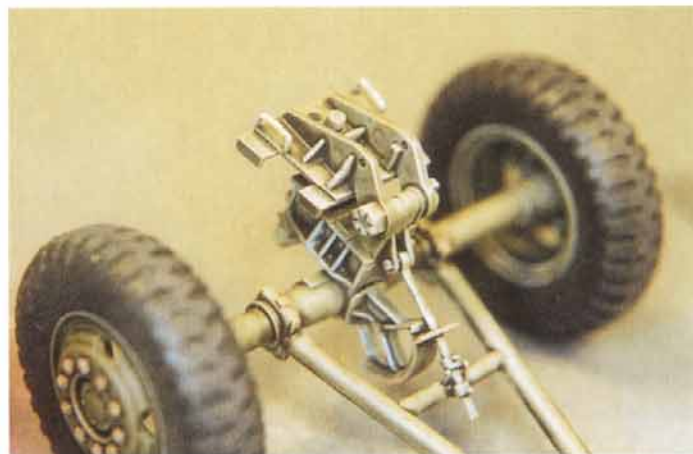
The Long Tom trailer frame assembly is complete and ready for its tires. The travel lock on this assembly also rotates. Model by Richard Boutin, Sr.



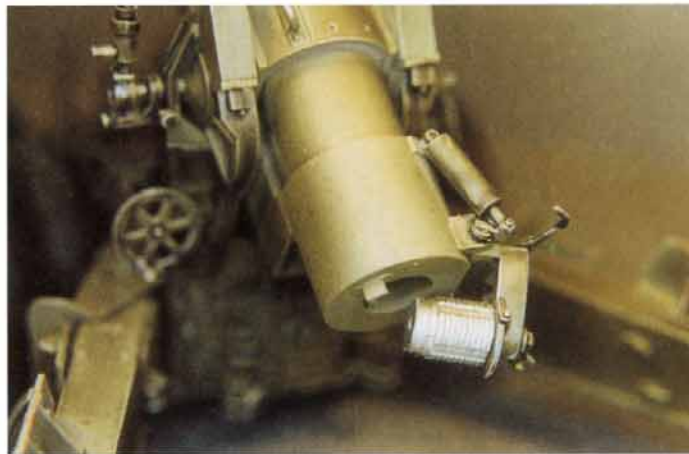
This 75mm antitank gun assembly is a good example of how to deviate from the instructions. The base, frames, and wheels make up one assembly and the gun, shield, slide, and cradle the other. After the two subassemblies are attached, the completed model will get several dilute coats of mud, dirt, and dust.



Note how a dilute coat of Testors umber color in combination with drybrushing brings out all the detail on this Long Tom. Model by Richard Boutin, Sr.



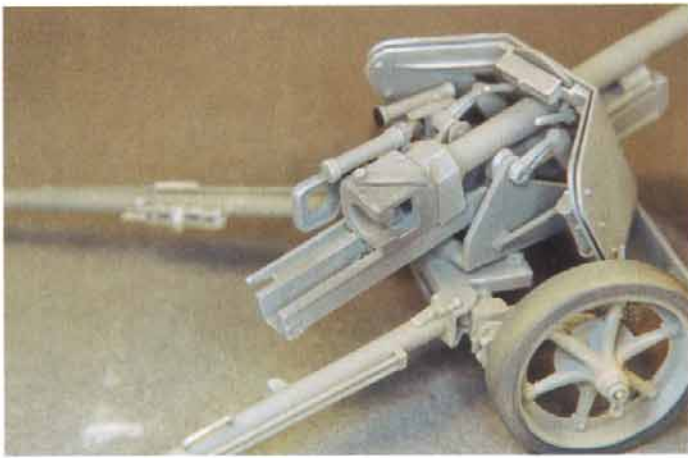
The dilute umber paint settles into the nooks, inner edges, and corners so that these details also stand out. Model by Richard Boutin, Sr.



The breech assembly of this Long Tom is one of the eye-catchers on this model. Note that the ribbed area of the breech is a much lighter color so that it will stand out. Model by Richard Boutin, Sr.

tips

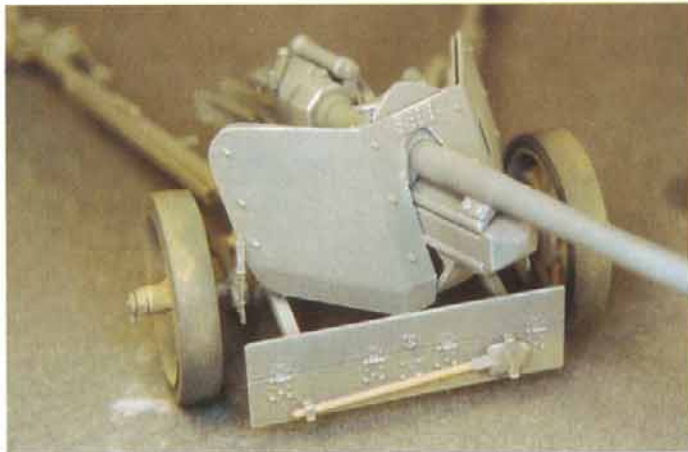
- Don't forget to drybrush all the edges with Testors silver paint.
- Black pencil pastel dust applied with a soft brush onto flat paint works well for gunpowder burns.
- Seal pastel dust with Testors clear Dullcote.



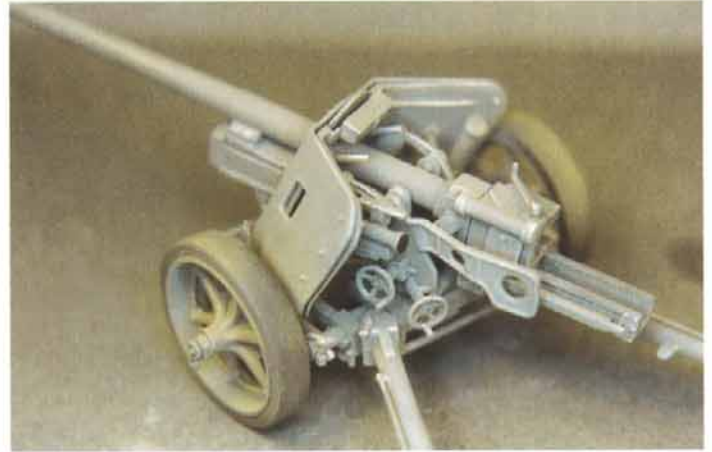
This antitank gun has received its dilute coats of mud, dirt, and dust. Notice that the black rubber tires now appear very dirty, yet you can still tell they are black.



Add the suspension system, complete with tires, to the Long Tom. If it were not for the umber color wash and the drybrushing with silver paint, the little details on this model would not be visible. Model by Richard Boutin, Sr.



Note the subtle drybrushing around the edges of the gun shield and on the bolt heads and hinges.



Here again, weathering and drybrushing help make details stand out. Ink the sighting tube face with a fine-tipped disposable drawing pen.