This scene depicts a Rolls-Royce armored car in the Middle East during the 1920s.

Scratchbuilding a 1/24 scale Rolls-Royce armored car

Sheet plastic and patience produce an interesting World War One conversion

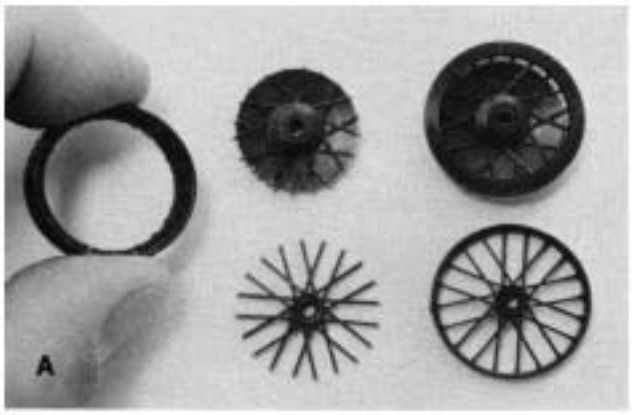
BY JON LOPEZ

WHILE PAGING through a book on World War One armor, I came across a chapter covering early armored cars. The Rolls-Royce Mark IA 1920 Pattern armored car caught my eye; clad in steel plate and rivets, it resembled Jules Verne's *Nautilus*. As far as I knew, there wasn't a kit of this car, so I felt a unique model could be produced by scratchbuilding. My first step was research. The Franklin Mint issued a 1/24 scale model of the 1907 Rolls-Royce Silver Ghost, the basis for the 1914 and 1920 Pattern armored cars, which I used as a detailing guide. I also ordered prints of the 1920 Pattern armored car at the Tank Museum in Bovington Camp, England. The museum also provided photographs of certain details on this car which proved helpful when making hinges, handles, and the interior.

Heller's 1/24 scale Bentley 4.5L Blower provided key components for this project. These included tires, headlamps, chassis frame, front axle, I beam, front and rear brake face plates, fenders, tie rod, and steering arm assembly. I also used the universal joint and the drive shaft front housing bell, but converted them to other things.

Building the Mark IA armored car was straightforward but involved. My basic techniques could be applied to other armor, aircraft, or ship modeling projects, so read on!

Jon started with a Heller Bentley kit and scratchbuilt the car's body and turret. Rivets were made and attached one at a time.



Wheels. The project required ten wheels and tires, eight for the car and two for my display, so I made a master of the wheel and molded copies of it. I cut the spokes out of the Heller wheels and glued the rims together (**A**).

The wheels had a convex face on one side and a concave face on the other. To reproduce the convex face, I cut a 27/32" segment from a 1½" wooden ball. The concave face, again a 27/32"-diameter circle, came from the bottom of a Cool Whip tub. These pieces were epoxied into the wheel rims and the tires epoxied to them. The Heller tires have authentic and beautiful tread and are the correct width.

Using the methods described in the October 1987 FSM article "Making epoxy-resin castings in RTV molds," I made a latex mold and cast ten wheel/tire pieces using a half-and-half mixture of Fixall Plaster Patch and Amaco Figure Casting Compound. The plaster patch provides strength and the casting compound helps details come through. Using these materials was faster, cheaper, and

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THE ROLLS-ROYCE ARMORED CAR

The Belgians were the first to use armored cars in World War One when they fitted standard Rolls-Royce touring cars (Silver Ghosts) with steel boiler plates on the front and sides as protection against small-caliber weapons. They also equipped these vehicles with Maxim, then Vickers, .303 machine guns.

The Belgians' success prompted the Royal Navy to outfit several cars. The Royal Naval Armored Car Division, formed in 1914, under the command of Commander E. L. Boothby, comprised fifteen squadrons, each with twelve cars. One squadron was sent to the east coast of England to guard against invasion, one to Russia, and two to Gallipoli. After a short and ineffective stay there, they were transferred to Egypt for defense of the Suez Canal.

The armored cars were to act in concert with reconnaissance aircraft to rescue downed pilots. However, the cars proved too slow and the road conditions too primitive to be successful on the Western Front.

Because of their weight the cars were ungainly and unwieldy in certain types of terrain such as German South West Africa, where the cars literally had to be jacked up and carried by hand to solid ground.

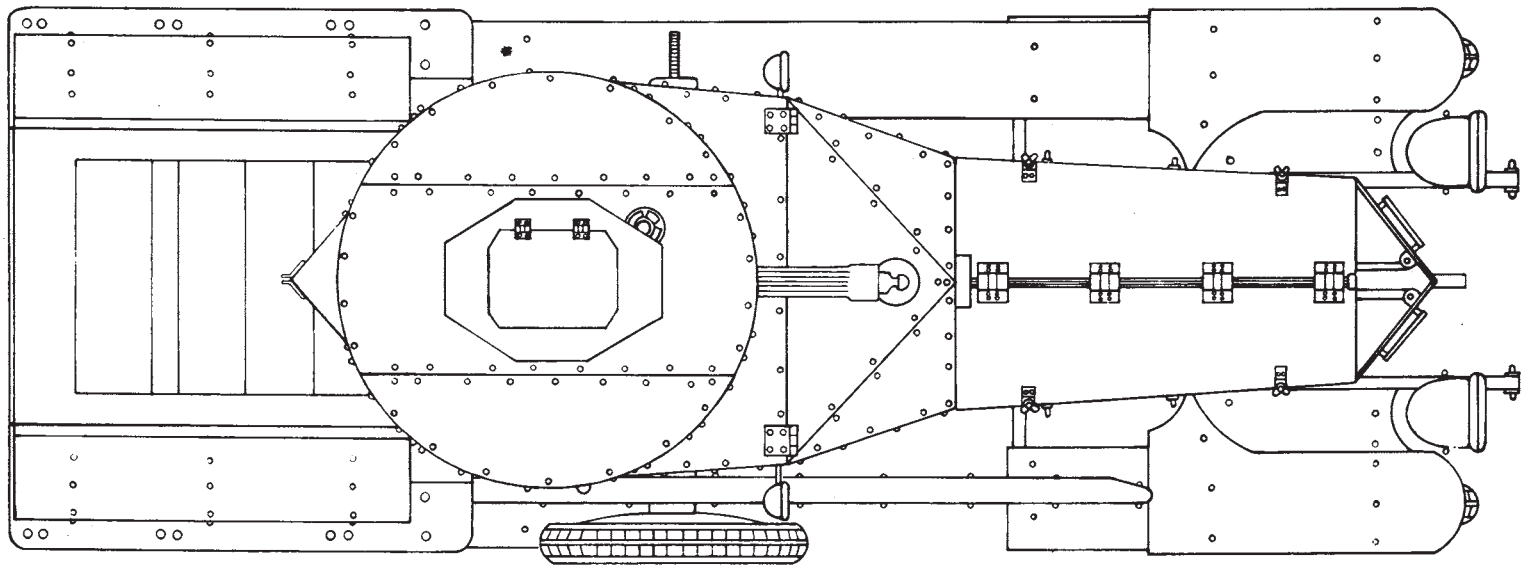
In 1915 the R. N. A. C. was disbanded and the cars became part of the British Army's Light Armored Motor Batteries of the Motor Machine Gun Corps. Units in this corps were made up of four or eight armored cars, their supply tenders, and lorries. They operated independently in Egypt, Syria, Palestine, Persia, and Mesopotamia. The British Army chose not to keep the armored cars of other manufacturers, preferring the Rolls-Royce because of its performance and dependability.

Colonel T. E. Lawrence (Lawrence of Arabia) used the Light Armored Batteries against the Turks in Palestine. He mentions the "Blue Mist," a 1913 Rolls-Royce Silver Ghost, which was an armor-sided tender. Many of the armored cars were given names by their crews such as "Wedding Bells" and "Cockatrice."

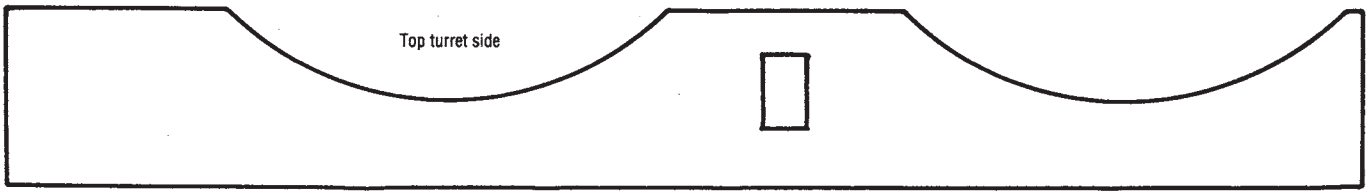
The Rolls-Royce 1920 Pattern Mark IA, like the 1914 Pattern vehicle, was based on the Silver Ghost. A machine gun was mounted in a revolving turret on what was basically a standard Silver Ghost chassis. A heavier leaf-spring suspension and dual rear wheels supported the 3½-ton vehicle. The interior consisted of a wood floor and bench seats.

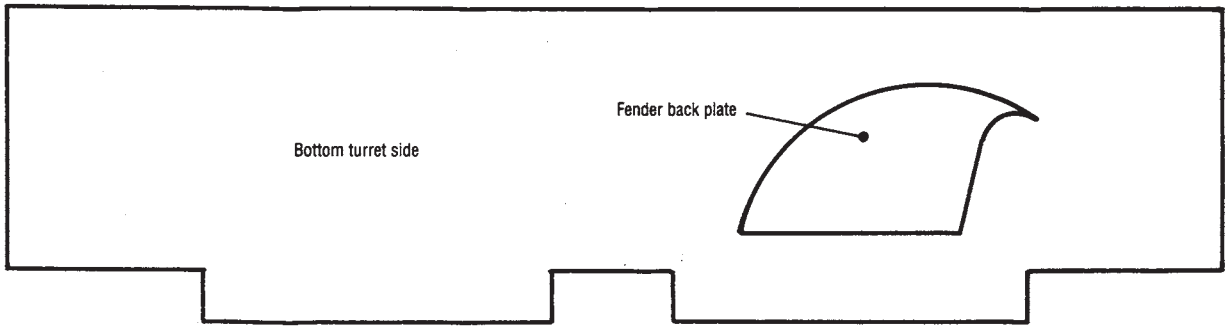
The Rolls-Royce had rear-wheel drive unlike Austin and Peerless armored cars. The 1920 car had improvements over the earlier version, including a self-starter, larger radiator, louvered radiator doors, and engine improvements. No form of synchro-mesh was available to aid in shifting gears, so considerable driver skill was required. The tires were often filled with semisolid material to counter having the tires shot out.

Rolls-Royce armored cars saw service in Russia and were used by the British for crowd control in Ireland, Iraq, India, Shanghai, and Palestine. Following one incident where an armored car was overturned and set on fire, some cars were modified to allow the armor plate to be electrified. Even so, the vehicles proved unsuitable for riot control.

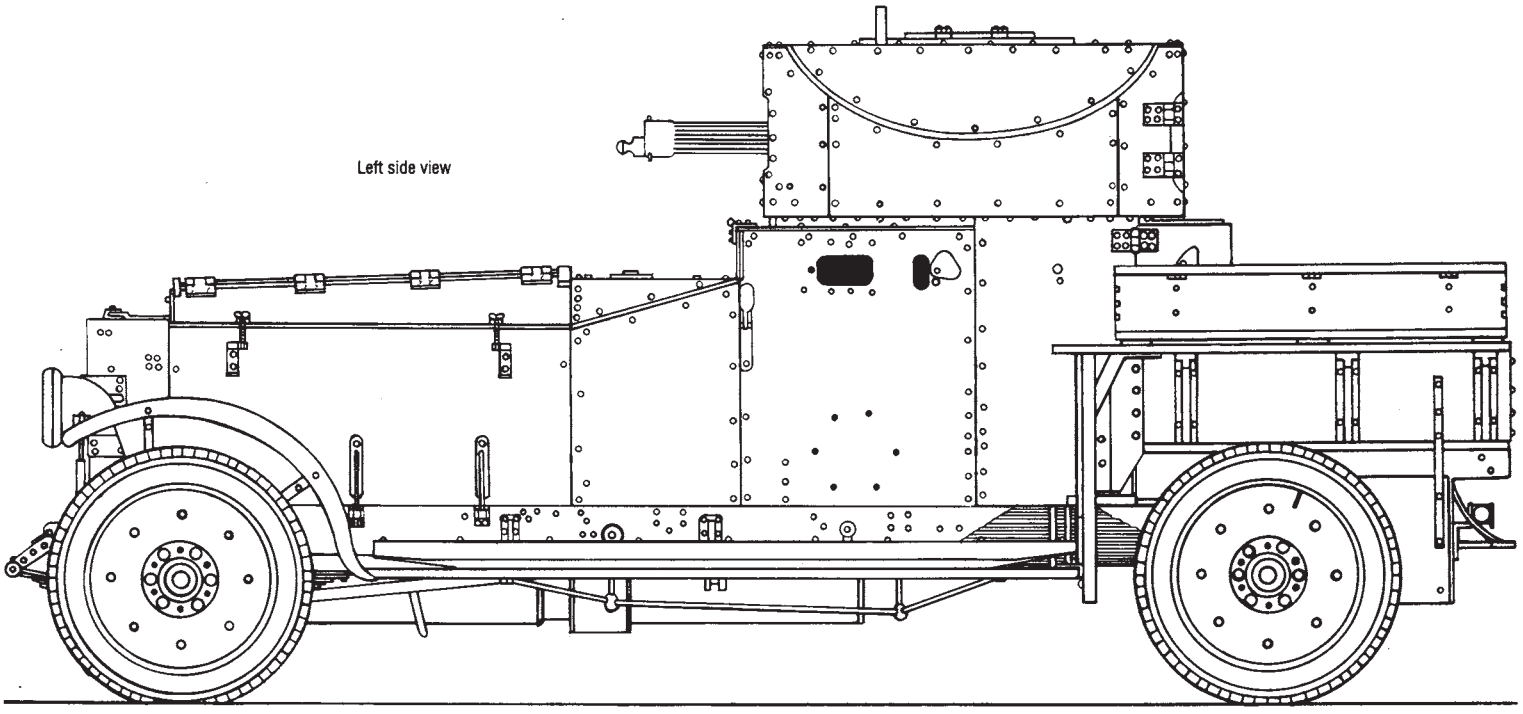


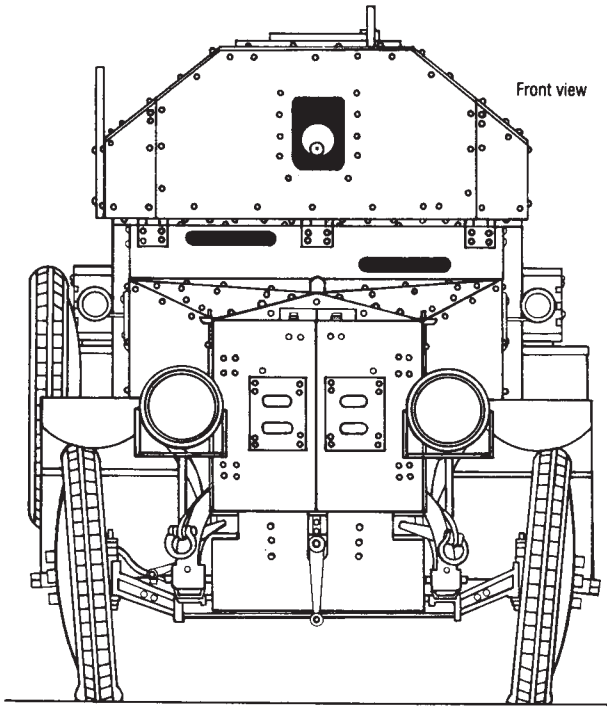
Top view



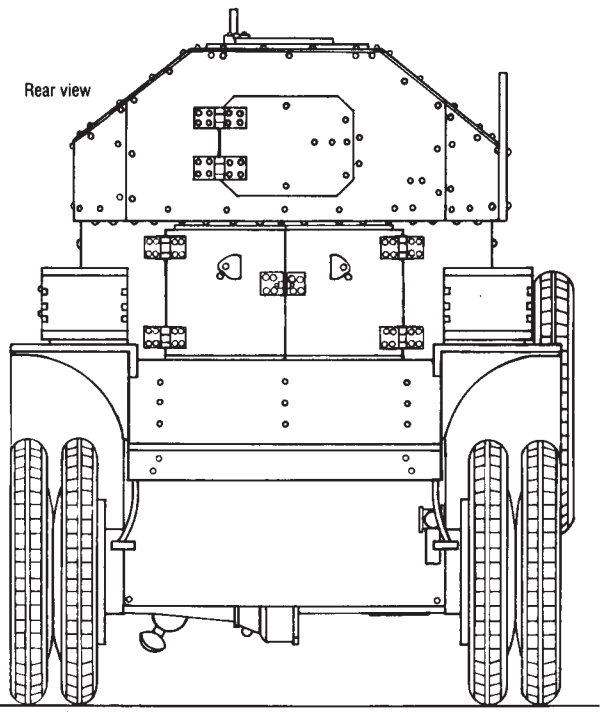


Left side view

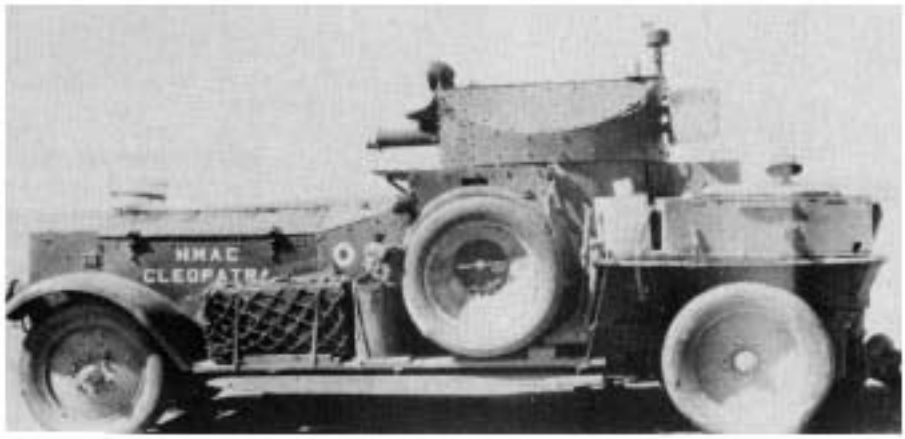




Front view



Rear view

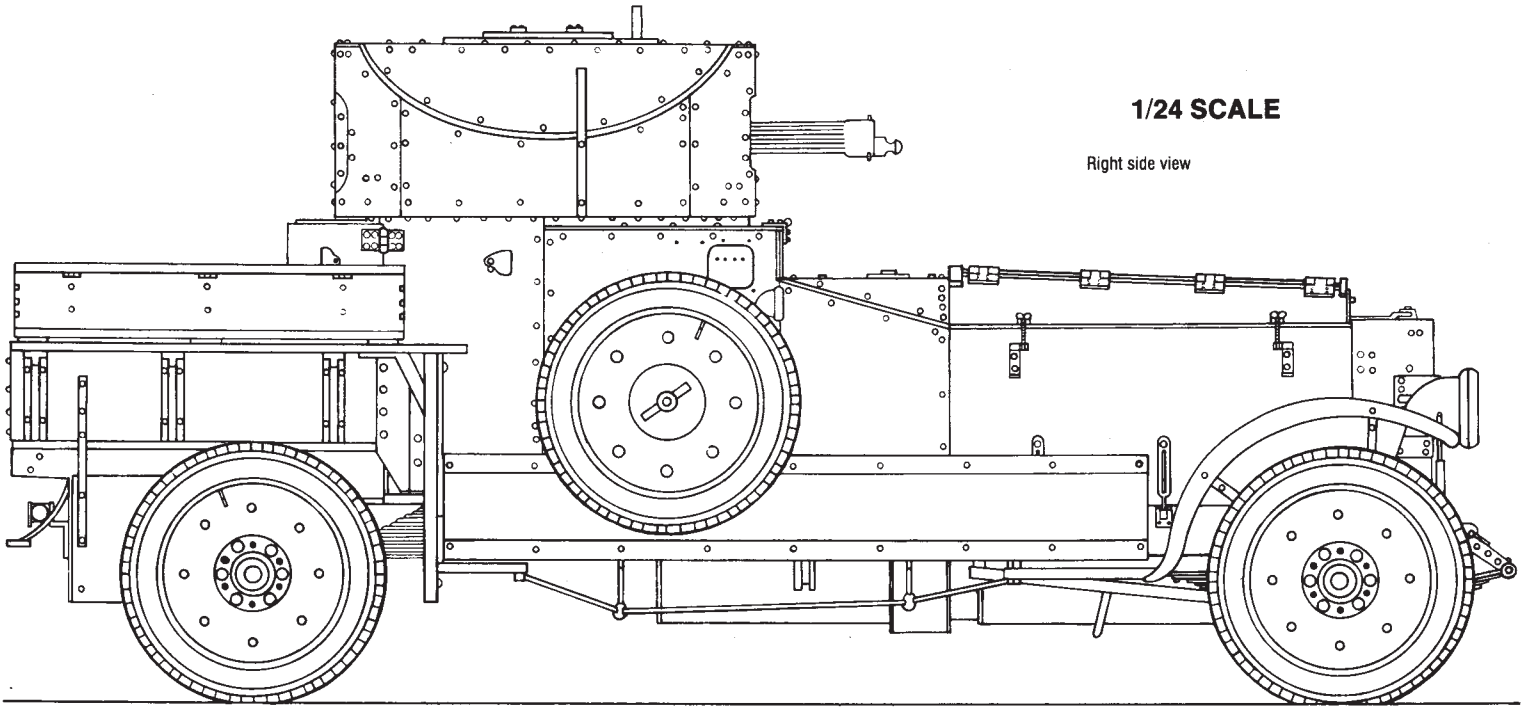


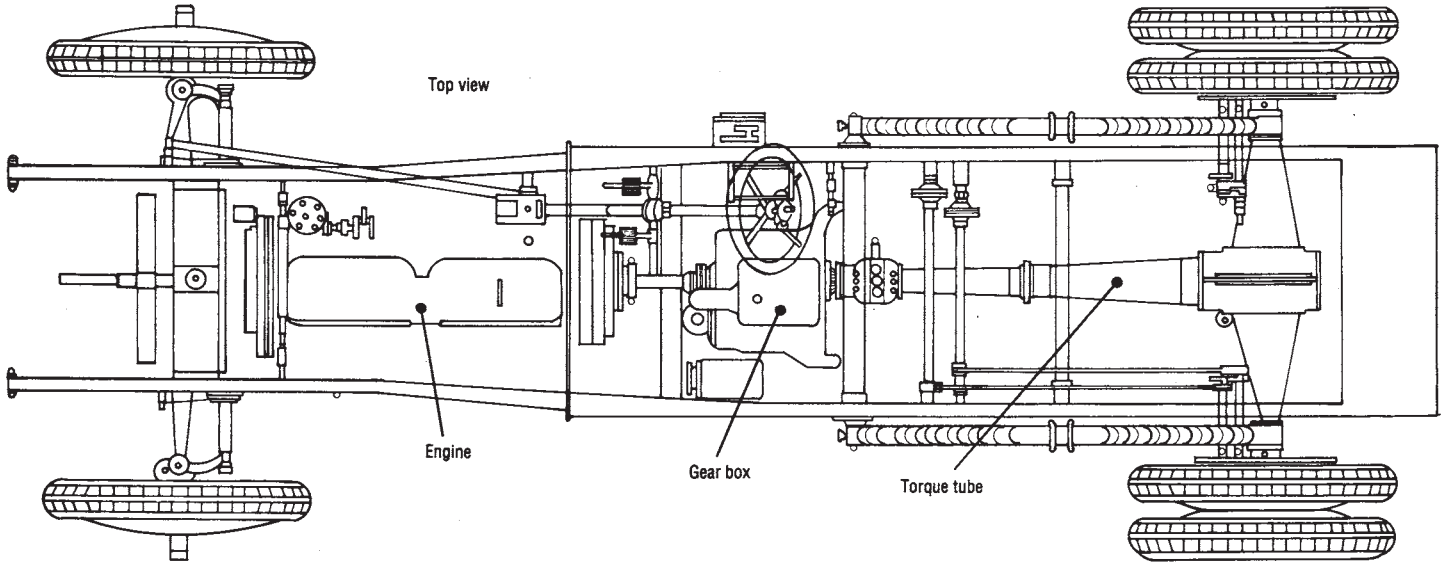
1920 Pattern Rolls-Royce armored car, Mark IA

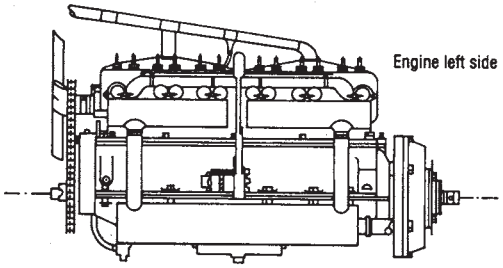
Length:	16′ 8½″
Width:	7′ 2″
Height:	7′ 8″
Combat weight:	10,213 lbs.
Ground clearance:	10″
Wheel track:	Front 4′ 8¼″
Engine:	Rolls-Royce 6-cylinder, water-cooled in-line gas engine
Armor:	Maximum 0.335″
Armament:	1 x .303 Vickers machine gun
Ammunition:	3,000 rounds
Fuel capacity:	18 Imperial gallons, 5 reserve
Operating range:	192 miles
Maximum speed:	Road, 55 mph; cross country, 38 mph
Crew:	3 or 4

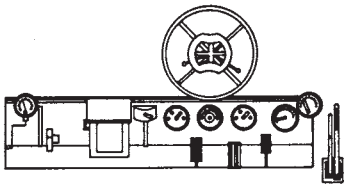
1/24 SCALE

Right side view

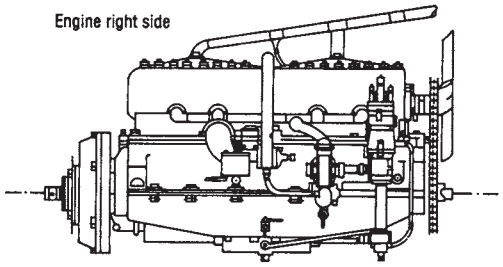








PREPARED FOR
FINESCALE MODELER
BY
Jon Lopez



1/24 SCALE

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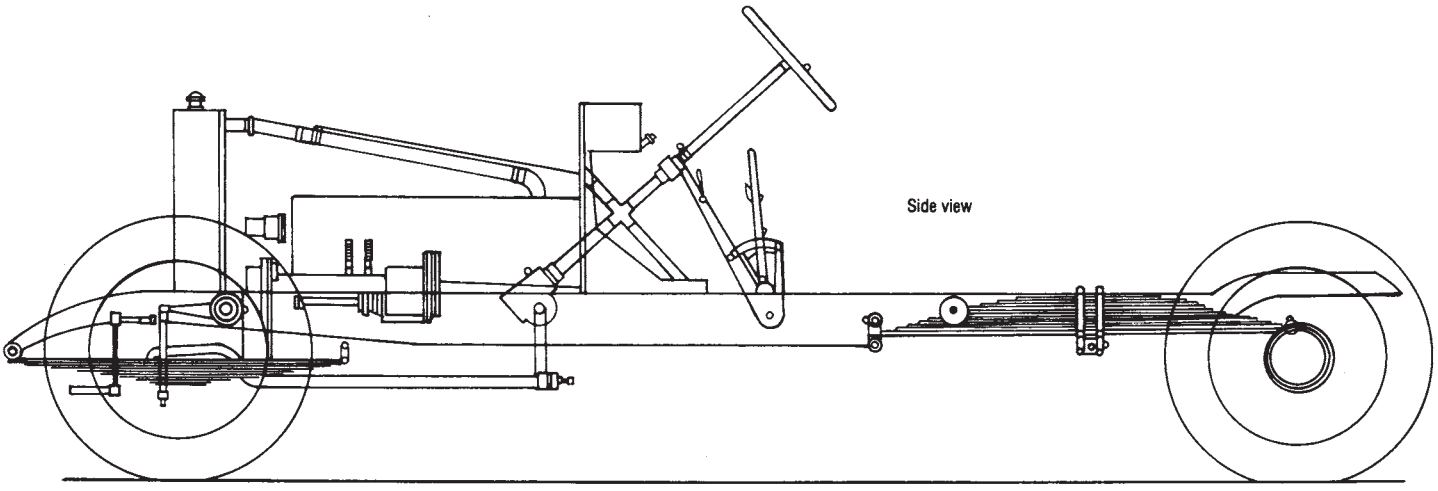
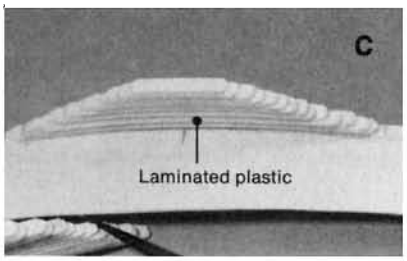
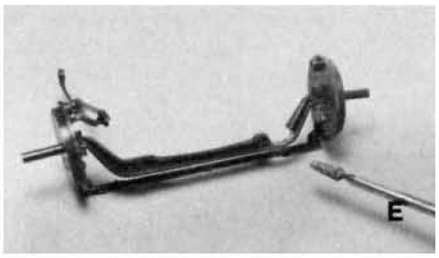
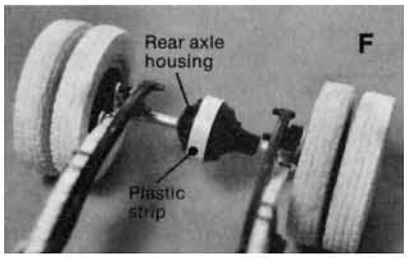
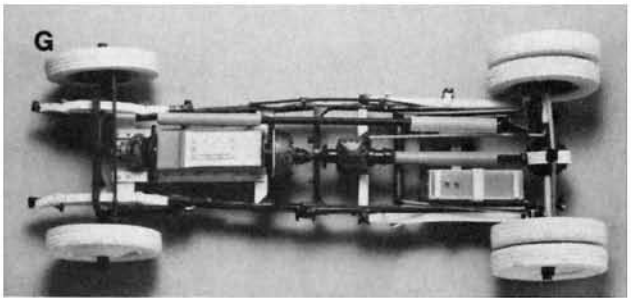
1/35 — 68.6% 1/48 — 50% 1/72 — 33.3%

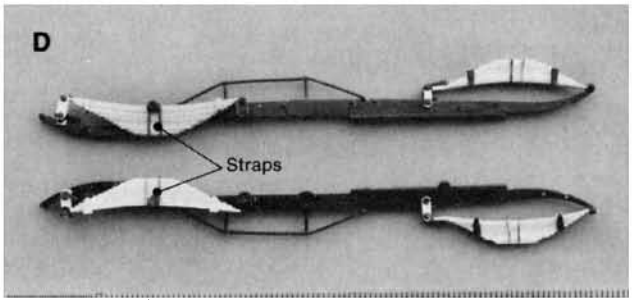












Continued from page 35.

easier to clean up than resin (**B**). I used the squash method of casting described in the August 1986 FSM article "The squash method of epoxy casting."

Chassis. Following the Heller instructions, I assembled the front I beam/axle, brake drums, steering arms, and tie rods. I cut the leaf springs off the chassis frame and removed other items.

Leaf springs were made from 1/16" strips of .020" styrene laminated with liquid plastic glue — 13 strips for the front and 15 strips for the rear (**C**). After drying them for an hour, I dipped the springs in boiling water for a few seconds and bent them to the proper shape. Use leather gloves or a tool to hold the parts. The springs were glued to the chassis and stretched-sprue straps added (**D**).

Two channels 1/8" deep and 1/16" wide were carved into the front I beam and the chassis parts with spring assemblies were glued in the channels (**E**). The channel lowers the suspension and allows the car to sit at the correct height. Two small flanges were removed from the chassis using a circular saw.

I added the drive shaft support brackets to the chassis along with a 1/4" x 1/8" plastic strip mounted between the front wheels as the engine bearing plate. After cutting 1/8" off each front axle, I epoxied on the front wheels. Mount the wheels towed slightly in, with the concave side facing in.

I used the kit universal joint to make a rear axle housing by cutting the arms off, turning it sideways, drilling a hole for metal tubing 2 11/16" long x 3/32" diameter, and wrapping a strip of plastic around the center (**F**). This assembly and two rear brake drums were epoxied to the rear chassis.

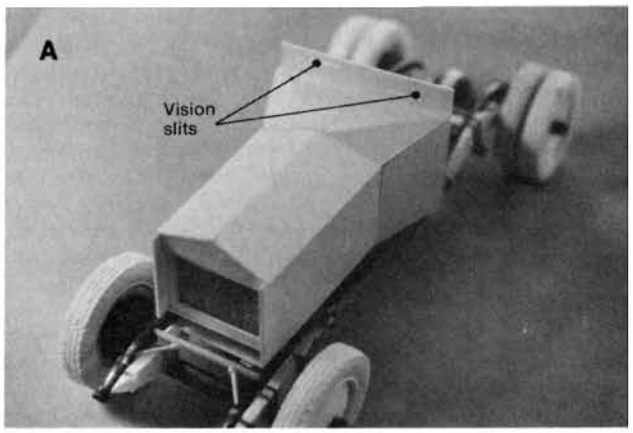
The armored cars had dual rear wheels; mount the wheels with the convex sides face to face and the concave sides out. Epoxy the wheels together and then epoxy each pair to the rear axle.

I detailed the underside using the Franklin Mint model and drawings as guides, adding brake lines, wire braces, exhaust pipe, gas tank, and wheel hubs (**G**). The kit drive shaft assembly was used, but I replaced the shaft with metal tubing.

The body. One of the delights of this model was that the model body could be made in much the same fashion as the prototype. The plastic panels were cut from .020" styrene sheet using the drawings as patterns; the edges don't need to be beveled.

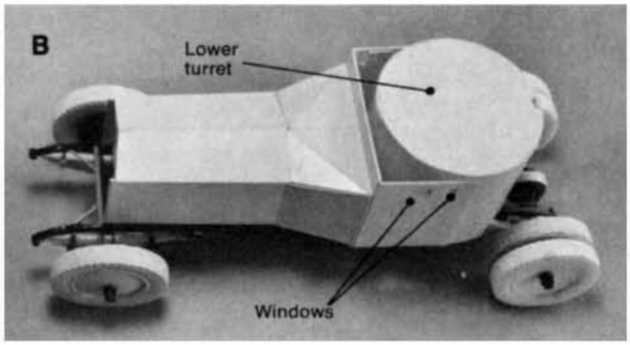
Assembly started with the radiator. I cut a piece of brass wire mesh 1 1/16" x 3/4" and sandwiched it between two pieces of styrene. This assembly was glued to the front of the chassis and the engine and driver's compartments boxed in behind it (**A**). The 1/32"-high vision slits were first drilled out at the corners, then sliced open with a knife blade.

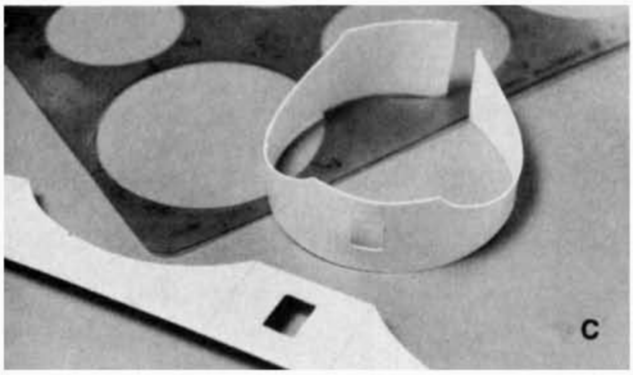
The turret. The turret is basically two cylinders mounted one atop the other. For the lower turret, I cut a 1 5/8" x 6 1/4" rectangle from sheet styrene, rolled it into a circle, and immersed it in boiling water for a few seconds. The hot water helps the plastic hold the rolled shape. A 2"-diameter disk glued into the top of the cylinder provides structural rigidity. Notches cut in the bottom of the turret allow it to clear the rear suspension and transmission housing. The lower turret is boxed in by

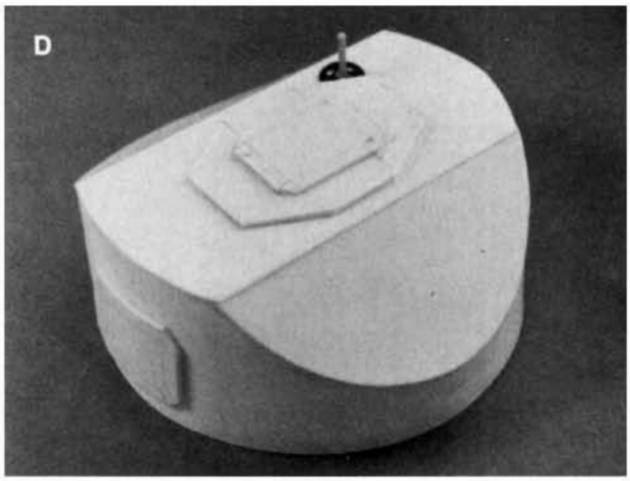


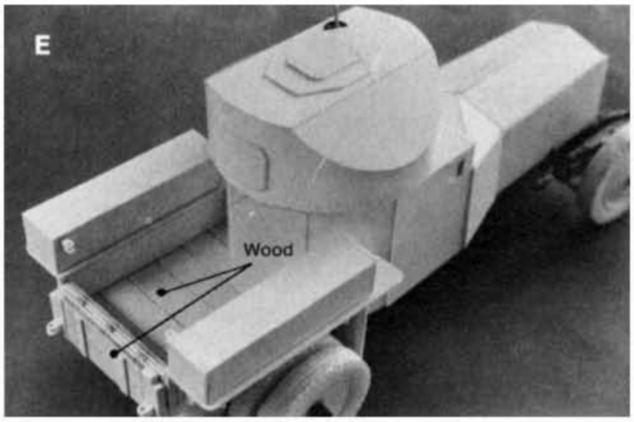
panels with windows cut out and plastic glued inside to simulate sliding panels (**B**).

Using the drawing as a template, I cut the upper turret from .020" styrene sheet, cut the machine gun port,









and rolled the sheet into a circle that slipped into the 2¼″ hole of a plastic circle template (**C**). I immersed this in boiling water and glued a disk into the base; the disk was recessed about 1/16″ inside the cylinder so the upper turret will slide down over the lower.

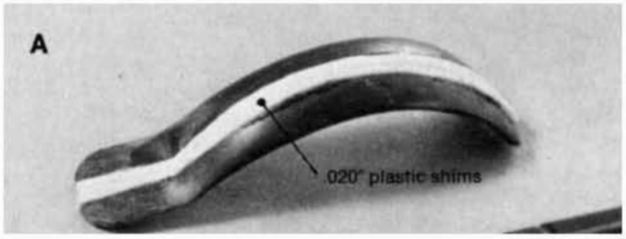
I cut the three top panels and fit them in place. This took patience and required trimming and sanding to get the pieces to fit. The machine gun exterior mounting post and the hatches were then added (**D**).

Rear deck. The rear deck on the Mark IA was made almost entirely of wood with the exception of steel straps and braces. Most of the area was painted and couldn't be distinguished from metal, so I used wood in construction only where it would have shown, on the rear deck and tail gate door. I used 1/16″ aircraft grade plywood scored with an X-acto knife to simulate planking (**E**). I believe nothing simulates wood as well as real wood. The rest of the rear area was made from .020″ styrene sheet and sprue.

Fenders. The fenders help make this vehicle unique, and the kit fenders can be used with modifications. I removed the mounting arms and immersed the fenders in boiling water until the rear of each was soft enough to bend into a flare. The fenders are too narrow, so I cut them in half and added three layers of .020″ plastic as a shim and glued the halves back together. A fender half was used as a template to cut the shims to the correct shape. Finally, I cut a filler panel for the fenders and added the assembly to the body (**A**).

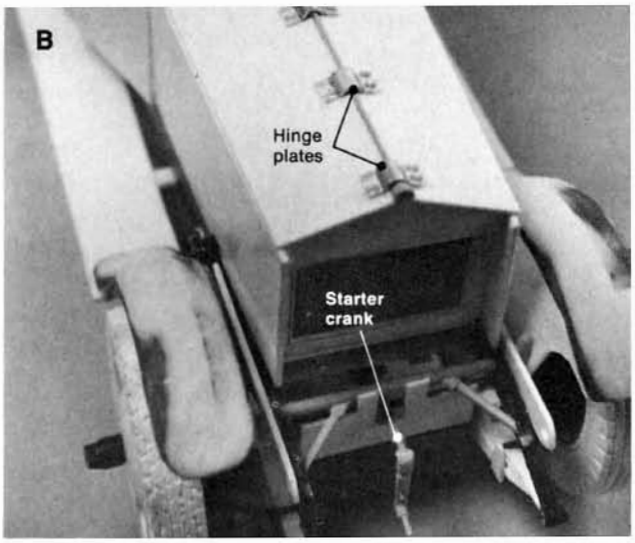
Details. I cut running boards from .020″ styrene sheet and glued them in place. Hinge plates were made from card stock and attached using white glue (**B**). I painted the radiator grille dark gray, instead of black, for a better scale appearance. The cross braces on the front of the radiator, the armored doors, and louver operating rod arms were added (**C**). Note that the small doors on the radiator doors are repeated on the inside. These doors don't fit flush, but should stand away from the larger doors by 1/32″. A starter crank and sheet armor plate under it were added before mounting the head lamps.

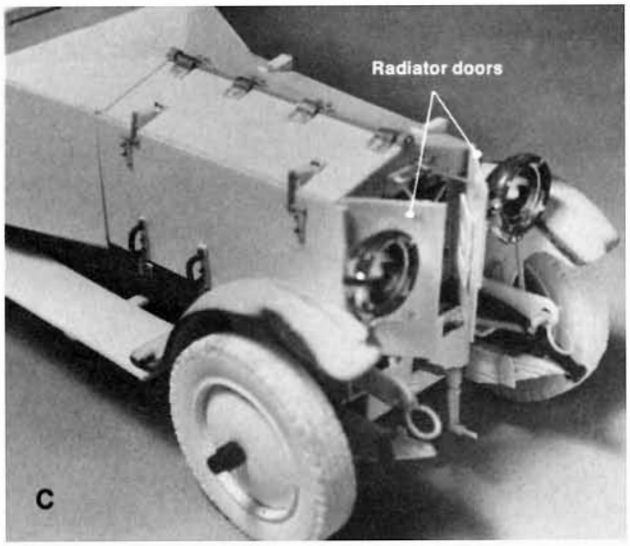
The kit head lamps were mounted on top of short lengths of sprue. I sanded off the chrome finish on the exterior of the head lamps, but left it on the inside. Mask the inside when painting to preserve the chrome finish.

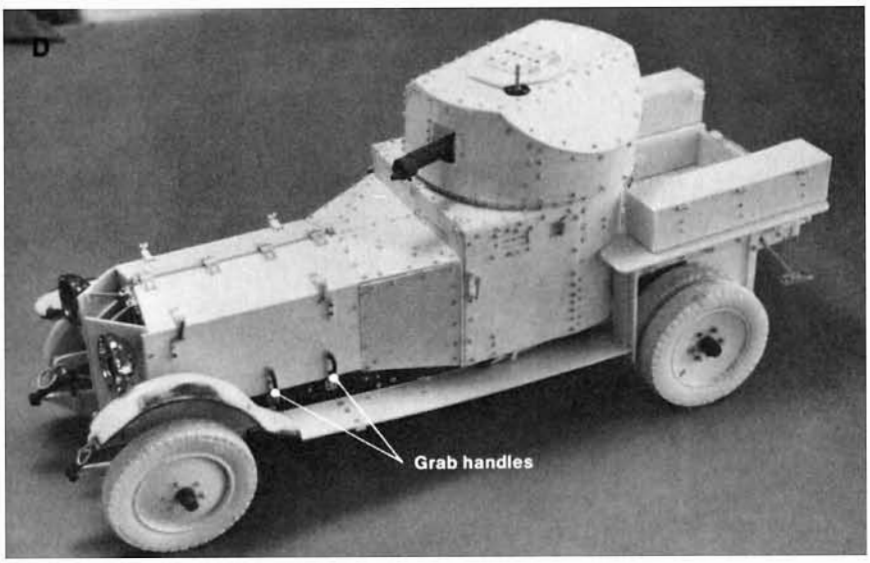


Grab handles on the engine compartment were made from 1/32″ insulated copper wire (**D**). The wing nut hood closures are sheet styrene. I made more than 500 rivets by slicing them from stretched sprue. A drop of liquid cement brushed over the rivets rounded them off to the proper domed shape.

I scratchbuilt the Vickers machine gun from plastic rod with ten pieces of 1/32″ sprue attached lengthwise to simulate ribbing. Rear steps were made from 1/32″ copper wire; the diamond tread pattern on the foot plate is from an antihistamine wrapper. The trench-spanning boards







were made from sheet styrene with rivet detail added.

Painting and weathering. The interior of all armored panels was white, except the radiator doors which were green. The engine compartment and hull interior also appear green, as is the chassis.

I selected a color scheme from illustrations of vehicles serving in the Middle East during the 1920s. The entire vehicle was sprayed Floquil Armor Yellow and allowed to dry. I then oversprayed a haze pattern using a 50/50 mix of Floquil white and earth. The subtle but distinct differences between the colors make the car appear weathered and as though the yellow paint is discoloring.

The British roundels on both sides of the car came from my spares box (1/72 scale BAC Lighting markings). I oversprayed the vehicle with a coat of Floquil Flat before weathering, then gave the car a wash of burnt umber oil paint thinned with Japanese Dryer. If spots of the wash start to appear too large or dark, use the Japanese Dryer to brush them out. I dry-brushed highlights using lighter shades of yellow ocher mixed with white oil paint. The tires were painted an 80/20 mix of Floquil SP Lark Dark Gray and Floquil Engine Black and highlighted with oil paints.

After a final few light coats of Floquil Flat Finish, the head lamp glass was white glued in place.

The base. Armored cars received heavy use in the field; like all fighting vehicles they were mobile homes for their crews. Photographs show the cars carrying a wide variety of equipment: spare tires, bedrolls, binocular cases, boots, buckets, shovels, picks, gas cans, and assorted baggage.

I made a building from plywood, using corner molding as the building molding. Miniature plaster bricks and patching material form the finish. The building and ground were given a light overspray of diluted white glue before being painted with Floquil Railroad Colors and oils.

The project was a lot of fun, and the only skill needed was cutting straight on plastic sheet! I had never made a master pattern and latex mold before this project; the skills I learned to reproduce the wheels will be used on other models. That's what makes model building a nice hobby; it gives us the chance to try something new with each project. FSM

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SOURCES

- Amaco casting compound: American Art Clay Co., Indianapolis, IN 46222
- Dowman's Fixall: Dowman's Products, Inc., San Bernardino, CA 92406
- Styrene sheet: Plastics Supply Inc., Tacoma, Washington
- Synkoloid's Latex Spackle: Synkoloid's, Bayonne, NJ 07002