Building a 1/35 scale WLC Motorcycle

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Background

During WWII, the Harley-Davidson company was engaged to build motorcycles for the Allied forces. The bikes were essentially a flathead Harley V-twin engine with frames and suspension modified for combat conditions. For US forces, these motorcycles were designated as WLA and the ones used by the Canadian forces were designated WLC.

The WLA and WLC motorcycles were essentially the Harley-Davidson street versions converted to military use. The engines were V-twin flatheads (side valves) that displaced 740 cc (45 cubic inches) and the civilian model was commonly called the

WL45. The engine was mated with three-speed transmission and put out a whopping 23 HP. The sides of the fenders were removed to prevent mud from building up and they came with a rugged rear luggage rack and options such as a passenger seat, leg protectors, windshield, skidplate and rifle scabbard.

There were a number of significant differences between the WLA and WLC models as they came off the assembly line. In addition, design elements changed during the production run of about 70,000 motorcycles and of course, modifications were made in the field. This article is a description of how to turn a 1/35 scale MiniArt WLA motorcycle model into one variation of the WLC Canadian Army version. A couple of wartime photos of WLCs are shown on the previous page.

Research

I began researching through the internet to find photos and articles about the WLC motorcycles and came across a few excellent sources, noted at the end of the article. I decided to build a generic WLC based on a compilation of information gathered from the photographs that were found.

Model Kit

Until recently, the only kit version of this motorcycle is a 1/9 scale model released by ESCI and later picked up by Italeri (or vice versa). For those that want to do this WLC conversion in a larger scale, these kits are still available on online auction sites but because of the age and size, will be upwards of $50.

Over the last several years, a number of manufacturers have produced WWII motorcycle kits in 1/35 scale. These kits have solved an age old problem with trying to mould spokes in injection plastic by replacing with photo etch pieces. This had improved the realism immensely. In 2009, MiniArt (out of the Ukraine) began releasing model kits featuring the WLA:

- U.S. WWII Motorcycle WLA - contains a single model motorcycle (kit number 35080)
- U.S. Military Police - contains two complete motorcycles and two police figures (kit number 35085)
- U.S. Motorcycle Repair Crew – contains two motorcycles and three figures (kit number 35101)

All three kits are readily available online and from local hobby stores.

Having built some other 1/35 scale motorcycles in the past, I've learned (the hard way) you have to very careful as so many of the parts are extremely small and can easily get broken and/or lost. This model was no exception to that curse.

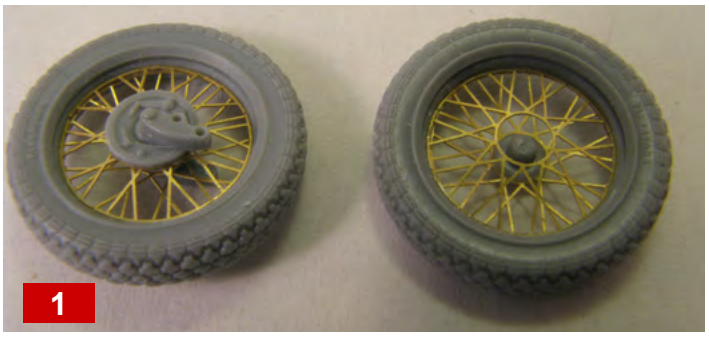
Wheels

The wheels were the most daunting part of the build. Unlike other 1/35 scale kits, where the photoetch spokes are sandwiched between the rims, the ones in the MiniArt kit a fit (just barely) inside the rim, with no attachment point or means of support. In addition, the rear hub can fall right through the hole in the middle because they were almost the same diameter.

To solve these problem, the spokes were:

- first shaped (using a two part 'mold' supplied in the kit) into a concave parts
- edges were CA glued
- spokes were placed inside wheel and as soon as it was centered in the rim, a bead of CA glue bead was run around the outside
- hub was added and CA glued on the edge

The hubs for both front and rear wheels were attached before painting. Both wheels can be glued on after painting. This allowed the wheel to be painted first, masked and then the tire painted. **(Photo 1}**



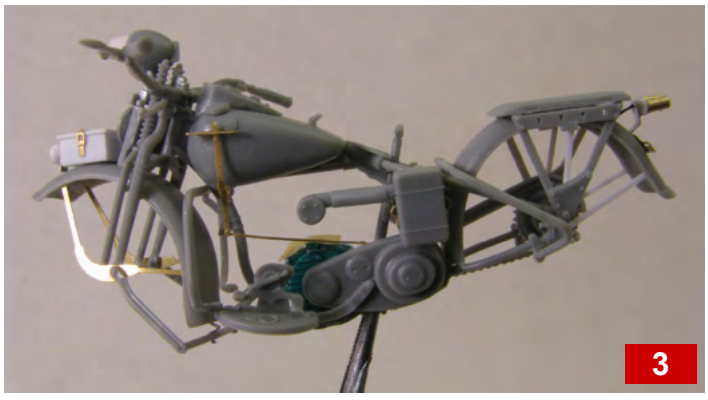
Engine

Since the engine will be painted mostly in a metallic silver paint, I tried to build most of it before attaching to the chassis. You can do this with the main engine block and cylinders (**Photo 2}**. One part of the engine casing is moulded with the frame. This was painted silver first and then a liquid mask was used. (**Photo 2}**

Chassis and additional parts

The chassis was assembled pretty much as per the instructions, leaving off the exhaust and right side foot controls in order to paint things more easily. **(Photo 3}**

There are photos of WLC bikes with and without rear seats; with and without saddlebags; with high mounted headlights (and equipment box on the front fender) and with low mounted headlights; with and without right handlebar clutch levers; with and without windshields and with different style small headlights - so you have a number of options in completing your own variation. I decided to leave off both the rear seat and saddlebags, (to give a more utilitarian look) and to mount the headlight high with an equipment box on the front fender, which



was quite common for the WLC bikes.

Kit parts not used

- windshield
- brackets on both sides of front wheel
- equipment box on left side of front wheel and rifle scabbard on right side
- saddlebags
- taillights
- one headlight
- skid plate under engine

WLC specific parts that were added

Smaller Taillights

The taillights were scratchbuilt using a 1.2 mm (3/64") diameter brass tube, a strip of 0.25 mm (0.010") thick styrene and some pop can aluminum. All of these were CA glued together and mounted on a cut down piece of the photoetched kit taillight mounting bracket. Two small diameter wires were added to the front end of the lights and routed to a hole in the rear fender. After painting, two pieces of 0.8 mm (0.030") diameter aluminum wire, polished at one end and with a spot of clear red paint, were slipped inside the brass tube. The lights might be a bit big, but capture the idea of the smaller WLC lights. **(Photo 4a, Photo 4b, Photo 4c, Photo 5)**

Front Bike Stand

The rear stand was taken from the second kit (which will be built as a civilian version with a sidestand) and used at the front. A pop can aluminum bracket was bent to shape and attached to the inside rear of the front fender. This will hold up the front stand, similar to the bracket on the rear fender for the rear stand.

Equipment box on front fender

An equipment box was scratchbuilt using 2.5 mm x 4.8 mm (0.100" x 0.188") styrene strip (narrowed to about 4 mm), with a top of 0.4 mm (0.015") sheet styrene for the top and the kit photoetch pieces.

Shroud and location of headlight

A bracket was made of 0.4 mm (0.015") sheet styrene and the headlight mounted above the height of the front springs. A piece of 4.8 mm (0.188 mm) styrene rod was thinned to about 4 mm and a half round shroud filed into the front part. This was then inserted into the headlight lens location.

Front fender mounted light

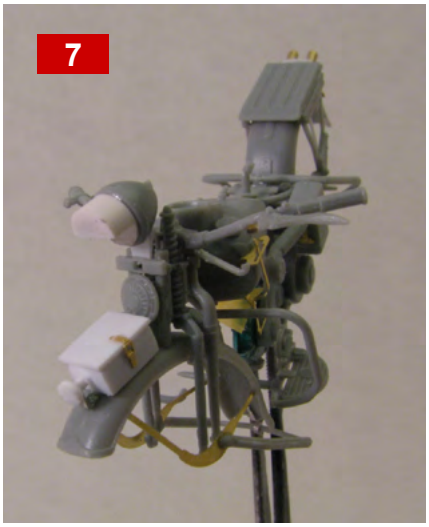
There were two styles of smaller lights mounted on the front fender. One was very similar to the rear light, while the other one, (usually with the equipment box) was larger in diameter and not as long. After losing two of the kit parts while trying to modify them, I gave up and turned a new one on my lathe and mounted with another pop can aluminum bracket. **(Photo 6a, Photo 6b)**

Windshield Brackets

Since the windshield wasn't going to be used in this variation, the handlebar mounting brackets were carefully removed.

Some additional items were added to detail the model a bit more.

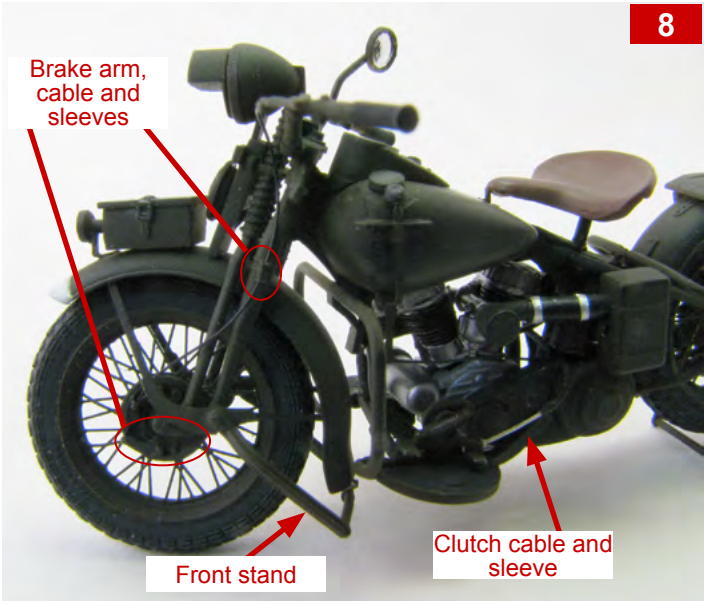
The rear fender needed two more supports, both were made of 0.25 mm x 0.50 mm (0.010" x 0.020") styrene strip. Some 0.6 mm photoetch hex heads were added to the end of the support that is seen on the rear frame.



A front brake arm was made from 0.25 mm (0.010") styrene strip, sanded to shape. The brake cable is thin black wire, which is run through some 0.6 mm OD brass micro tubing pieces, one at either end and a guide mounted on the front fork. A clutch cable was made from the extra thin grain of wheat bulb wire, stripped at one end and bent to route behind the rear cylinder. The insulated part was brush painted Olive Drab. **(Photo 8)**

An oil line was made of 0.5 mm (0.020") diameter wire, with aluminum micro tubing connectors. There are two lines but one usually runs behind the other and is often hidden. A speedometer cable was added and attached to the rear wheel mount on the right side. **(Photo 9)**

Bare Metal Foil was used on both the rear view mirror (on the right handlebar to accommodate the English propensity to drive on the wrong side of the road) and for clamps on the air intake tube.



Painting

Tamiya Olive Drab acrylic was airbrushed on the mostly assembled frame, the completed wheels and a few of other separate items (right foot controls and rearview mirror). This green seems too dark based on the colour of restored bikes, but it will have to do. The wheels were then masked and the tires sprayed with NATO Black. Flat black was sprayed on the exhaust, Alclad Aluminum on the engine and Tamiya Red-Brown on the seat. Brush painting was done for the flat black on the engine cylinder heads and air intake tube and NATO Black on the foot platforms and handlebar grips.

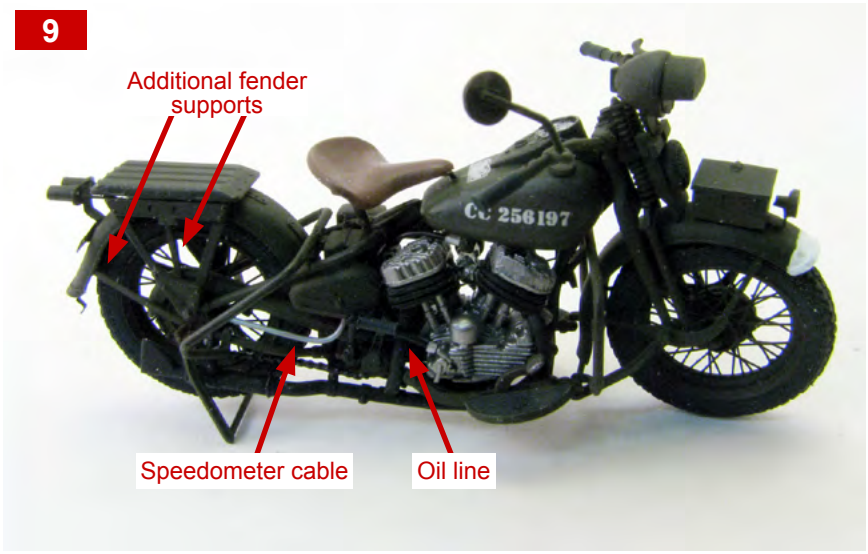
Markings

The markings on the photos of WLCs that I found usually had an identification number on the right side of the gas tank (actually, that side of the tank is filled with oil). The left side sometimes did not have any marking because the suicide shifter took up a lot of space. The numbers usually started with “CC”. Luckily, the decal sheet in the kit had two ID numbers, both starting with “C”. So I just concatenated* the two together and attached them to the tank. The only other marking was the white flash on the front fender. No, the markings don’t depict an actual motorcycle, but are meant to represent a generic variation of a WLC that could have existed during the war.

* - yeah, I had to look it up, too. (Ed.)

Acknowledgements and References

Along with Wikipedia (search for "**Harley-Davidson WLA**") the most comprehensive site for all things WLA and WLC related is a Belgian site **www.theliberator.be/indexmenu.html** Many thanks to Johan Willeart for the wonderful information he has made available and for the use of some of the photos from his site.



About the author

Evan Jones is a mechanical engineer working in the building energy performance industry. He was born, raised and still lives in Guelph ON and is a member of the Guelph Plastic Modellers Group. His primary interests are motorcycles, cars and sci-fi, with the occasional forays into other subjects. He initiated and still helps organize an annual Model Motorcycle Display and Contest during the Motorcycle Supershow event each January at the International Centre in Toronto. His website is **www.eajonesgue.com/scalemodels** .

beaveRTales

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Cheers,

Chris Aleong
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