

# ACHIEVEMENT PROGRAM MASTER BUILDER CARS STATEMENT OF QUALIFICATIONS FORM May 2006

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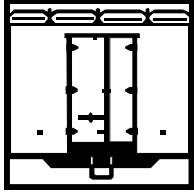
### To qualify for this certificate you must:

1. Build eight operable scale models of railroad cars. There must be at least four different types of cars represented in the total of eight. One of these must be a passenger car and at least four must be scratch built. The remaining four cars, if not scratch built, must be super detailed either with scratch built parts or with commercial parts as defined in the "DEFINITIONS" section.

2. Earn a Merit Award with four of the above models either via an NMRA sponsored model contest or AP Merit Award Judging.

3. Submit a completed Statement of Qualifications (SOQ) which shall include the following:

- Attachment giving detailed descriptions of the models.
- Identification of the scratch built features.
- List of all the commercial components appearing on each model.
- Materials used in building the models.
- Verification of the Merit Awards.



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	Description of Model	Scratch Built	Merit Award	Verified By	Date	NMRA #
1	HO scale cylindrical hopper	Yes				
2						
3						
4						
5						
6						
7						
8						

**Member's Statement and Agreement:**

I certify that I have completed all of the requirements for this Certificate of Achievement as listed above and that I will agree to assist other members in this subject whenever possible, whether or not they are participants in the Achievement Program.

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

**Certification of Regional Achievement Program Chair**

As the NMRA Regional Achievement Program Chair of the \_\_\_\_\_, I certify that I have examined this SOQ and, having compared it to the stated requirements for this certificate, I am satisfied that the stated requirements have been met.

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

Region Cert #: \_\_\_\_\_

**Approval by AP National Executive Vice Chair**

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

## Attachment 1

### Car 5- HO scale cylindrical hopper car



A picture of a prototype cylindrical hopper Car being modeled.

Photo by Model Railroader

During research on various types of railroad cars I found an Ambroid car kit that was partially assembled. The kit contained the original instructions and construction plans that were scaled to HO scale. I duplicated the wooden parts using various sized and shaped styrene plastic and following the instructions built the car in HO scale. The roof hatches and hopper doors were used as a part of the build.



### CAR COMPONENTS

#### General

Tru-color TCP-005 White paint.

Testor 1181-RM11811-0611 Aluminum Matt paint.

Gorilla Super glue gel

Evergreen #9040 - .040 plastic styrene sheet (used as subfloor for flooring)

Evergreen #297 - ¼" styrene plastic angle)

Kadee #2040 Ajax Brake wheel

A Line Products #29220, tie down chain-black- 27 links per inch

Microscale #82273 clear on white decal paper.

Artminds 1-1/2" x 3" x 12" basswood carving block – cut and sanded to shape of cylindrical hopper.

26 gauge metal music wire used for grab rails and hand rails.

Evergreen #114, .015" x .080" styrene strips

Evergreen # 142, .040" x .040" styrene square

Plastruct #90582, 3/32" styrene channel

Evergreen #153, .060" x .060" styrene square  
Evergreen #9010, .010" styrene sheets  
Evergreen #9009, .005" styrene sheets  
Ambroid #3 Second Series, special 1 Of 5000 , two in one, ACF Center Flow Car Kit instructions and scaled drawing.

Hatches

Drop doors

### Undercarriage of car

#### Coupling assembly- (parts purchased)

- 2- Kaydee #5 couplers
- 2- Kaydee #234 gear boxes
- 2- Kaydee #634 centering springs
- 2- Kaydee 256 Nylon insulated screws
- 2- Kaydee #438 Air hose angle cock
- 2- Kaydee #442 Brake pads

#### Trucks- (parts purchased)

- 2-KD #554 Bettendorf T-section metal trucks
- Plano Model Products #104 3 bay Covered Hopper walkway kit- Apex platform – front range car
- Aline #29002 Stirrup Steps – style c

## HOW THE CAR WAS CONSTRUCTED



The project started with fabrication of the hopper. Using a 1-1/2" x 3" x 12" basswood. Using a rip saw and drum sander the basswood was shaped to duplicate hopper piece from the kit. Hand sanding was also done with 100 and 300 grit sandpaper to get the wood to the final shape.



Next a piece of .040 sheet styrene was cut to size to fit the bottom (flat) side of the hopper. Then the styrene was attached to the basswood using Pliobond adhesive. After the adhesive cured a piece of .005 sheet styrene was cut to size to cover the remainder of the hopper. Again Pliobond adhesive was used and the styrene was clamped into place. The completed hopper was set aside overnight to allow the adhesive to cure.





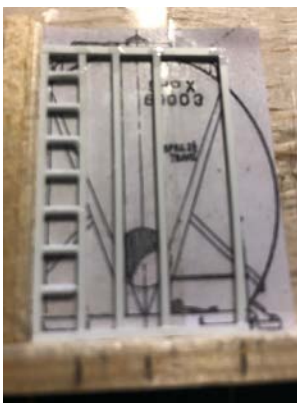
Then a piece of .010 sheet styrene was cut to size and attached to the hopper body using Pliobond adhesive. Clamps and rubber bands were used to keep the styrene in contact with the basswood hopper body while the adhesive as curing. The excess styrene was removed with an Xacto knife and the ends were sanded with 300 grit sand paper.



The ends of the hopper body were made from .040 sheet styrene, cut to shape, then glued to both ends using Pliobond adhesive.



The car body and end bracing were added to each end and the bottom of the hopper body using the constructed car bottom, Evergreen styrene strips and square block material. The ends were now sanded to be flush with the hopper body using 300 grit sand paper.



The ladder ends were constructed using forms various styrene plastic. Copies of the ladder end plans were attached to a jig using double sided tape. Then the appropriate styrene strip or square sizes were assembled to replicate what was shown on the plan. These were set aside to be used later due to the need to install B end braking system

parts which would be inside the ladder assembly on that end as well as decals which would go inside the same areas.



The hopper door castings were then added to the bottom of the hopper body using Gorilla gel glue. A #66 hole was drilled in the hopper bottom to facilitate small locating rod of the castings prior to mounting of the castings.



The truck bolsters and trucks were now added to the hopper body using built up styrene plastic pieces and Kaydee trucks.

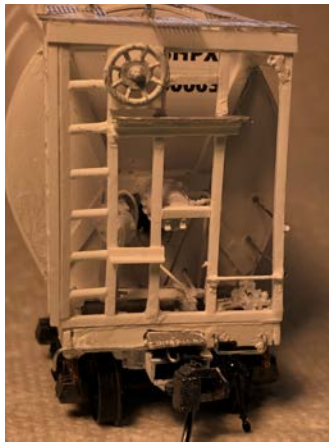
Details consisting of the top hatches, shell stiffeners, airline and other items were now added to the hopper body.



Decals were now put in place on the entire hopper body including the ends. Due to the age of the decals supplied in the kit, they had to be replicated in Microsoft Word and printed on decal paper using a Laserjet printer. Several coats of Microsol were needed to succeed in having the decals flow into the white background paint and surface changes. Walkway supports were added using styrene plastic shaped to the radius of the hopper car and glued in place using Gorilla gel glue.



The B end was then worked on. The braking system was installed so that it would be in place and painted prior to the installation of the ladder assembly due to the access needed. The brake assembly was then painted.

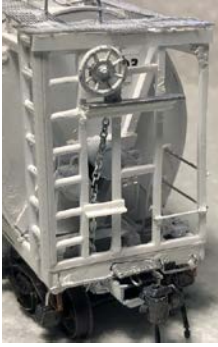


The B and A end ladder assemblies were then installed. Also handrails were installed as called for on the drawings. Stirrup steps were also installed on opposite ends of the car. Grab rails were also installed on the ladder corners of the walkways and both ends. The handrails and grab rails were made using a Micromark grab rail jig.



The walkways were then test fitted and then mounted on top of the walkway supports using Gorilla gel glue. After the adhesive dried three coats of white paint were applied to the walkway material.





The manual brake handle, chain, and other brake related parts were then installed. Also cut levers and air hose and air cocks were installed. After completion of the car build it was weathered using various paints. The cut levers were made from a lightweight piano wire and bent as needed.

The Cylindrical Hopper Car after finishing and weathering.



I was not able to locate a prototype photo of this particular car with the Shipper's Car Line Markings. However I was able to find a photo of an ACF and CSXT car of the same type and built by ACF (American Car and Foundry Company).

