

Intermountain Santa Fe Caboose
By Steve Sandifer

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Updated 7-25-10

A full review of the Intermountain early ATSF cabooses appeared in *The Warbonnet* 2009:4. Since the 1950's version was not produced, many may choose to build the kit (CCS1199).

At the 2010 Convention, John Moore gave a clinic on the Santa Fe Steel Waycars. His materials are posted on this site (see both prototype and modeling sections; prototype is divided in to two files plus a handout file).

Released in December 2009, were:

- CCS1101 1650-1749 Class Original (A.T.& S.F., black roof walk & hand railings) #1651, 1693, 1709, 1736
- CCS1103 1875-1978 Class w/wigwag (A.T.& S.F., black roof walk & hand railings) #1877, 1915, 1928, 1964
- CCS1107 1750-1874 Class Radio Equipped (ATSF, white grabs, Scotch lite reflectors, generator door) #1761, 1786, 1842, 1862

Coming in Jun/Jul 2010 are:

- CCS1105 1979-2000 Class, post 1943 lettering (ATSF) 1981, 1988, 1993, 1997
- CCS1106 1650-1749 Class w/wigwag (A.T.S.F) 1665, 1684, 1712, 1740
- CCS1108 Black Roof (ATSF) 1623, 1628R, 1649R, 1813

Use caution in ordering the CCS1108 group as it had a different grab iron configuration on the roof of the cupola than the kits already released. It is unknown if Intermountain is producing a new cupola.

The Intermountain instructs are incomplete. Peter Aue has produced a more detailed set of instructions for the construction of the cars (available on this website).

For those building kits, you are encouraged to do some research of the prototype prior to construction as there are many variables.

- In the early days, cabooses were assigned to a conductor, not pooled. Therefore, they would stay in one locality for a period of time, and frequently on the same run. If you find a photo of a caboose in your time frame and modeling location, it probably was assigned to that area.
 - James Burke recorded every locomotive and caboose he saw in 1948-49. Some of that information has been transcribed into MS Excel and PDF for you to use. Most of the sightings are in Emporia, El Dorado, and Chanute Kansas. These files can be found elsewhere on this website.
- Secure photographs of the caboose you choose to model. Details varied considerably. A copy of the Ellington and/or Priest caboose books is invaluable.

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- The kit includes:
 - 2 tool cellars. The wooden one is too long for use with AB brakes and must be shortened.
 - 2 smoke jacks.
 - 3 platform ends: 1 vertical staff brake and 2 Ajax brake heights. All cabooses delivered prior to 1949 were delivered with 30-inch end railings.
 - 2 brake connectors: one for vertical staff, one for Ajax.
 - 2 brake systems: K and AB. John Moore has provided a list from 12-1-52 of Santa Fe non-interchange cars that still had "K" brakes. The cabooses are on page 3 of the list and shown below.

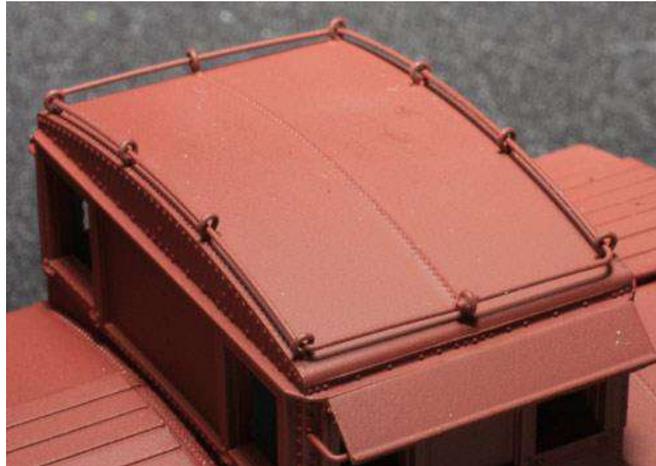
| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|
| 1004 | 1189 | 1354 | 1429 | 1537 | 1592 | 1659 | 1707 | 1757 | 1821 | 1899 |
| 1019 | 1200 | 1356 | 1430 | 1540 | 1593 | 1660 | 1709 | 1758 | 1822 | 1900 |
| 1021 | 1218 | 1359 | 1432 | 1542 | 1594 | 1661 | 1710 | 1760 | 1825 | 1905 |
| 1022 | 1224 | 1362 | 1434 | 1544 | 1596 | 1662 | 1711 | 1762 | 1826 | 1914 |
| 1025 | 1232 | 1367 | 1436 | 1545 | 1598 | 1663 | 1712 | 1763 | 1827 | 1915 |
| 1032 | 1302 | 1374 | 1438 | 1546 | 1599 | 1664 | 1713 | 1765 | 1829 | 1932 |
| 1033 | 1306 | 1376 | 1441 | 1547 | 1600 | 1665 | 1714 | 1766 | 1830 | 1933 |
| 1035 | 1307 | 1382 | 1442 | 1548 | 1602 | 1667 | 1715 | 1767 | 1831 | 1935 |
| 1038 | 1308 | 1387 | 1443 | 1549 | 1613 | 1669 | 1719 | 1768 | 1832 | 1936 |
| 1053 | 1309 | 1388 | 1444 | 1550 | 1621 | 1671 | 1722 | 1770 | 1834 | 1937 |
| 1070 | 1311 | 1389 | 1447 | 1552 | 1622 | 1673 | 1724 | 1772 | 1845 | 1941 |
| 1073 | 1314 | 1391 | 1448 | 1553 | 1623 | 1674 | 1725 | 1777 | 1853 | 1943 |
| 1094 | 1315 | 1394 | 1449 | 1557 | 1624 | 1676 | 1728 | 1778 | 1866 | 1953 |
| 1108 | 1316 | 1399 | 1500 | 1558 | 1626 | 1678 | 1729 | 1779 | 1868 | 1960 |
| 1109 | 1320 | 1407 | 1501 | 1560 | 1628 | 1681 | 1733 | 1783 | 1869 | 1966 |
| 1117 | 1321 | 1410 | 1502 | 1565 | 1629 | 1684 | 1734 | 1786 | 1872 | 1967 |
| 1118 | 1323 | 1412 | 1504 | 1566 | 1630 | 1685 | 1737 | 1795 | 1873 | 1972 |
| 1119 | 1324 | 1413 | 1506 | 1567 | 1634 | 1686 | 1738 | 1798 | 1874 | 1973 |
| 1120 | 1327 | 1414 | 1507 | 1573 | 1638 | 1690 | 1739 | 1802 | 1879 | 1975 |
| 1121 | 1332 | 1415 | 1511 | 1577 | 1639 | 1691 | 1741 | 1803 | 1881 | 1977 |
| 1123 | 1338 | 1416 | 1512 | 1583 | 1640 | 1692 | 1749 | 1808 | 1887 | 1986 |
| 1125 | 1341 | 1418 | 1513 | 1584 | 1645 | 1693 | 1750 | 1809 | 1889 | 1992 |
| 1126 | 1342 | 1420 | 1514 | 1585 | 1647 | 1695 | 1751 | 1811 | 1891 | 1997 |
| 1127 | 1343 | 1421 | 1525 | 1587 | 1648 | 1696 | 1752 | 1812 | 1892 | 1998 |
| 1132 | 1344 | 1422 | 1528 | 1588 | 1649 | 1700 | 1753 | 1814 | 1893 | 1999 |
| 1134 | 1347 | 1424 | 1533 | 1589 | 1651 | 1702 | 1754 | 1815 | 1894 | |
| 1167 | 1350 | 1426 | 1534 | 1590 | 1654 | 1703 | 1755 | 1819 | 1896 | |
| 1168 | 1352 | 1428 | 1535 | 1591 | 1657 | 1706 | 1756 | 1820 | 1898 | |

- Three roof walk configurations, one metal, two wooden. There were other variations on these. None of these cars were built with metal roof walks.
- Optional firecracker radio, generator door, and large wig-wag signal. Some cars also used the small wigwags which are not included. (See Priest 164, 167, and below.)
- Trucks with plastic wheelsets
- No couplers, but Kadee 78 are recommended as the kit was designed for the narrow coupler pocket.
- The kit is correct for 1500-2000 class waycars. The only difference between these and the 2001-2200 class is that the lower panels on the later cars have 4 panels instead of 2. This is easily overlooked.

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- The kit provides uncoupling levers for top uncoupling. You will need to make your own levers for bottom uncoupling.
- AMB Laserkit 152-341 provides superior side window screens for the car (right). The screen door on the kit does not fit the Intermountain car, but those screens seldom appear in photos.
- The platform whistle provided in the kit does not match prototype photos (lower right). Precision Scale also makes a similar part (31762), but it also doesn't match ATSF prototype.
- The kit does not include marker lights, and no one makes appropriate markers in brass or plastic. The Santa Fe markers connected at a 45-degree angle and had 4 lenses.
- The kit cupola roof grabs are designed to be one piece surrounding the cupola. The eyes are oversize, and appearance could be improved with smaller eyes. This represents only one of 5 configurations used by the Santa Fe. Again, refer to photos. The 5 are:
 - 1 piece shown below, as in the Intermountain kit.



- 1 piece, as in the Intermountain kit, but with 5 front and rear supports instead of 4 (See Priest p. 19 and 20 of 1516, 1587, and 1607)
- 2 "C" shaped pieces with the ends riveted to the roof on each side over the window. (See Priest p. 24 and 25 of 1716, 1735, 1658, 1667)
- 4 pieces. 2 "C" shaped pieces over the side windows and 2 straight pieces on the apex of the roof. (See Priest 17 of 1623 and 1627).
- 4 corner grabs, as on the corners of freight cars. (See Priest 33 and 35 of 2189, 2191, 2192, 2194)

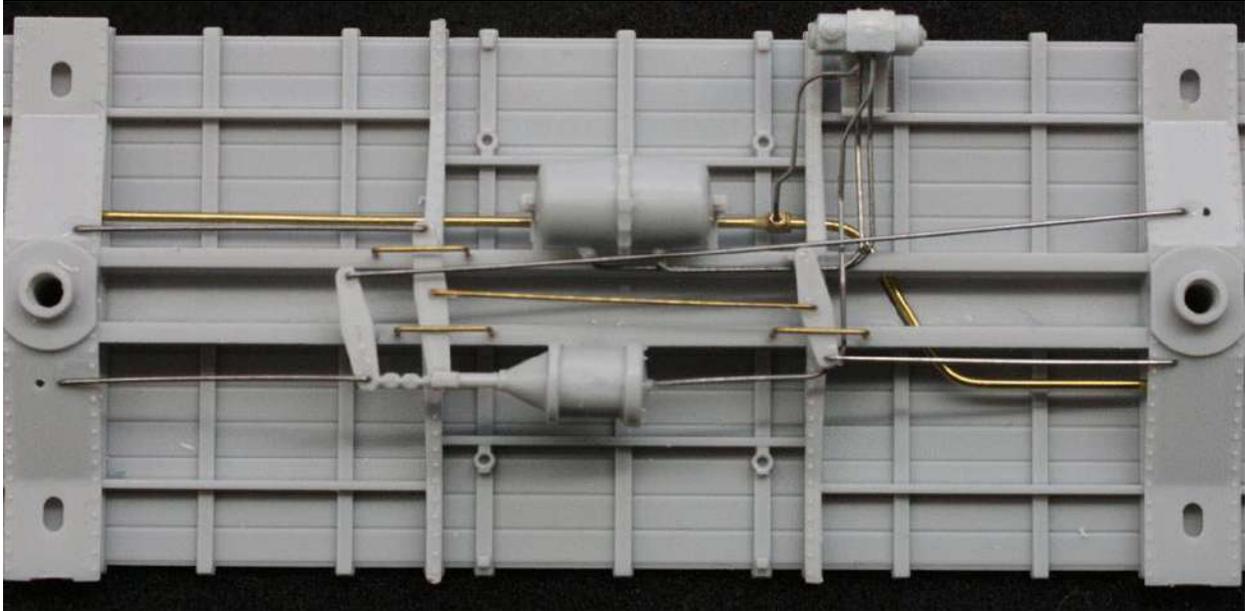
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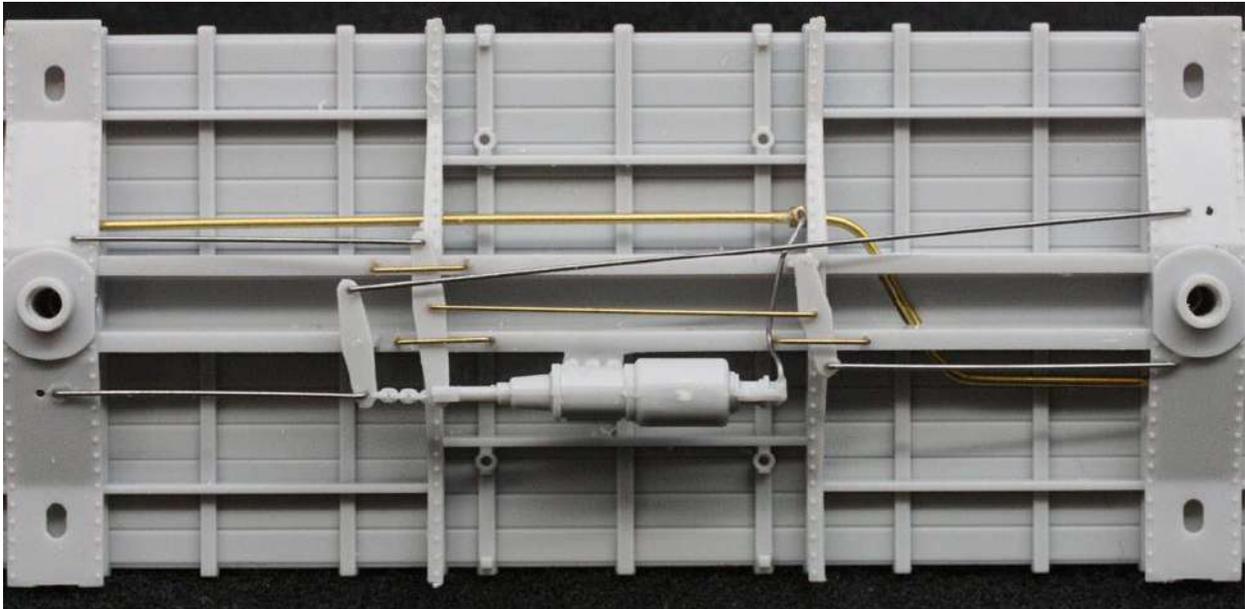
- Microscale MC-4401 is the correct decal set for these cars. Refer to photos for details such as whether or not the car number appeared on the ends of the cupola.
- Painting. Photos are essential. Options include:
 - Brown roof or black roof. If black, what is the treatment on the cupola?
 - Brown walkways or black walkways.
 - Black, brown, or white grabs and ladder rungs. Which grabs?
- Decide up front if lights are to be installed, as the electrical connections may change whether you glue the floor in or add screw mounts. The weight may also need drilling to allow for wiring. An example of using LED markers appears later in this document.

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Some hopefully helpful photos:

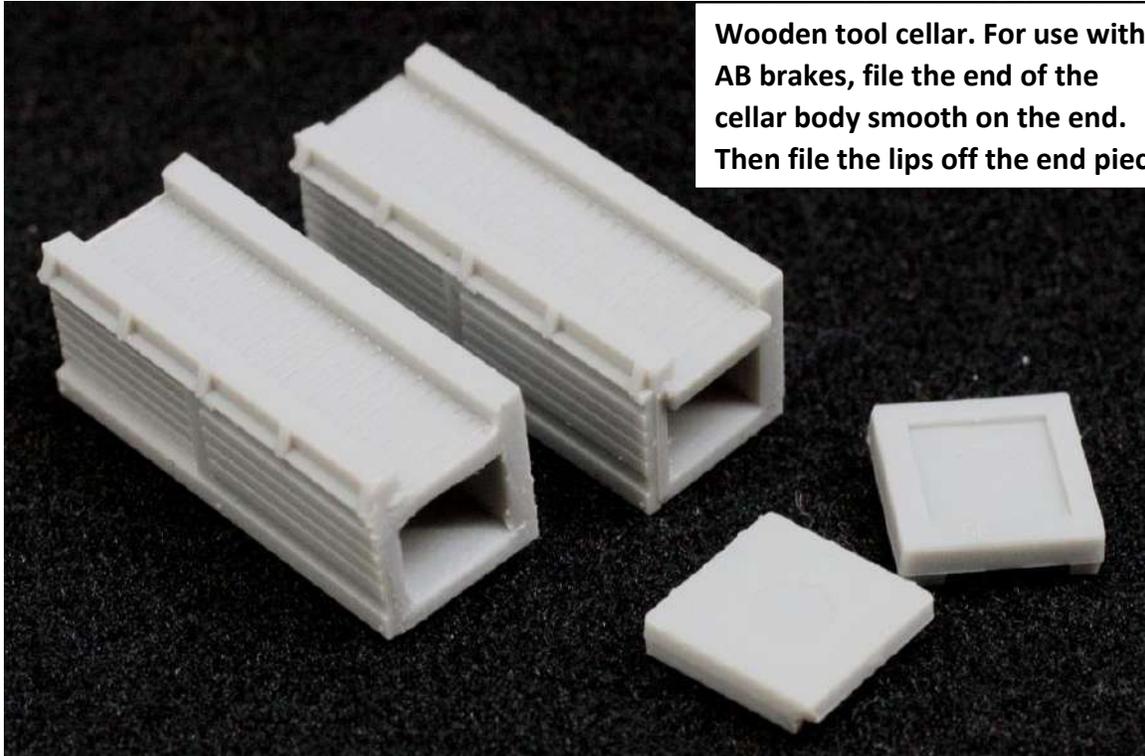


AB Brake installation.

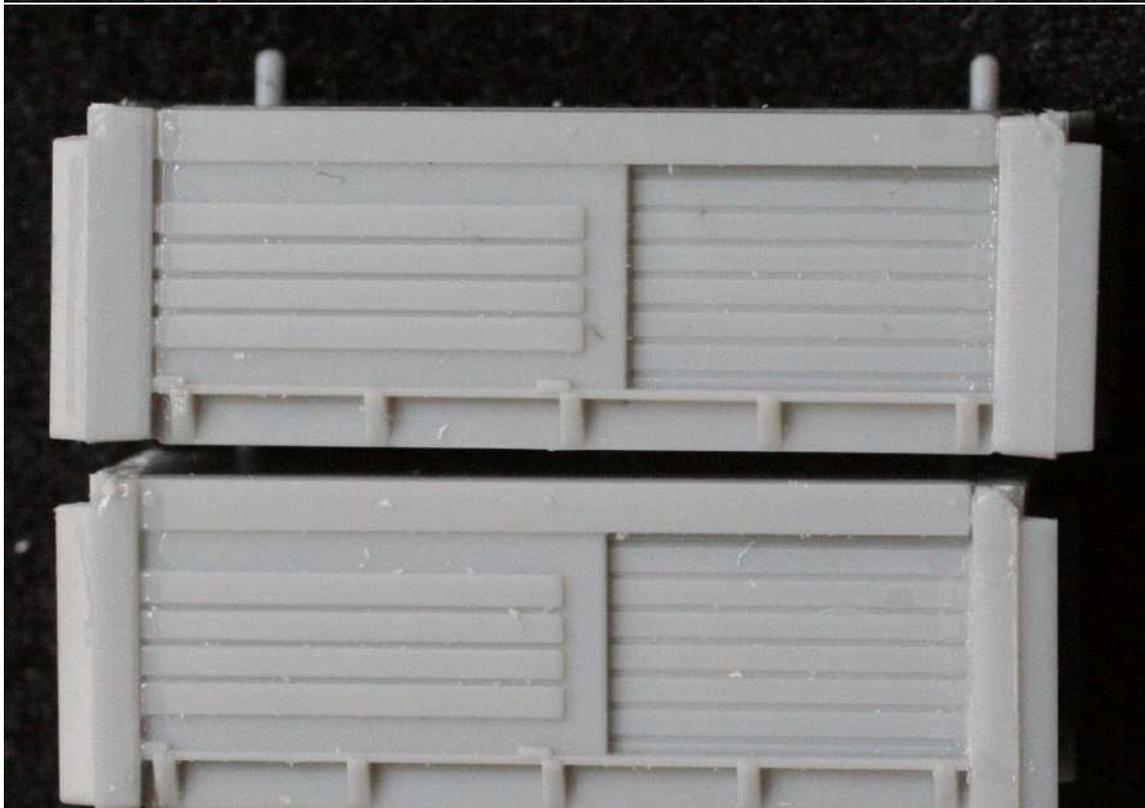


K Brake installation.

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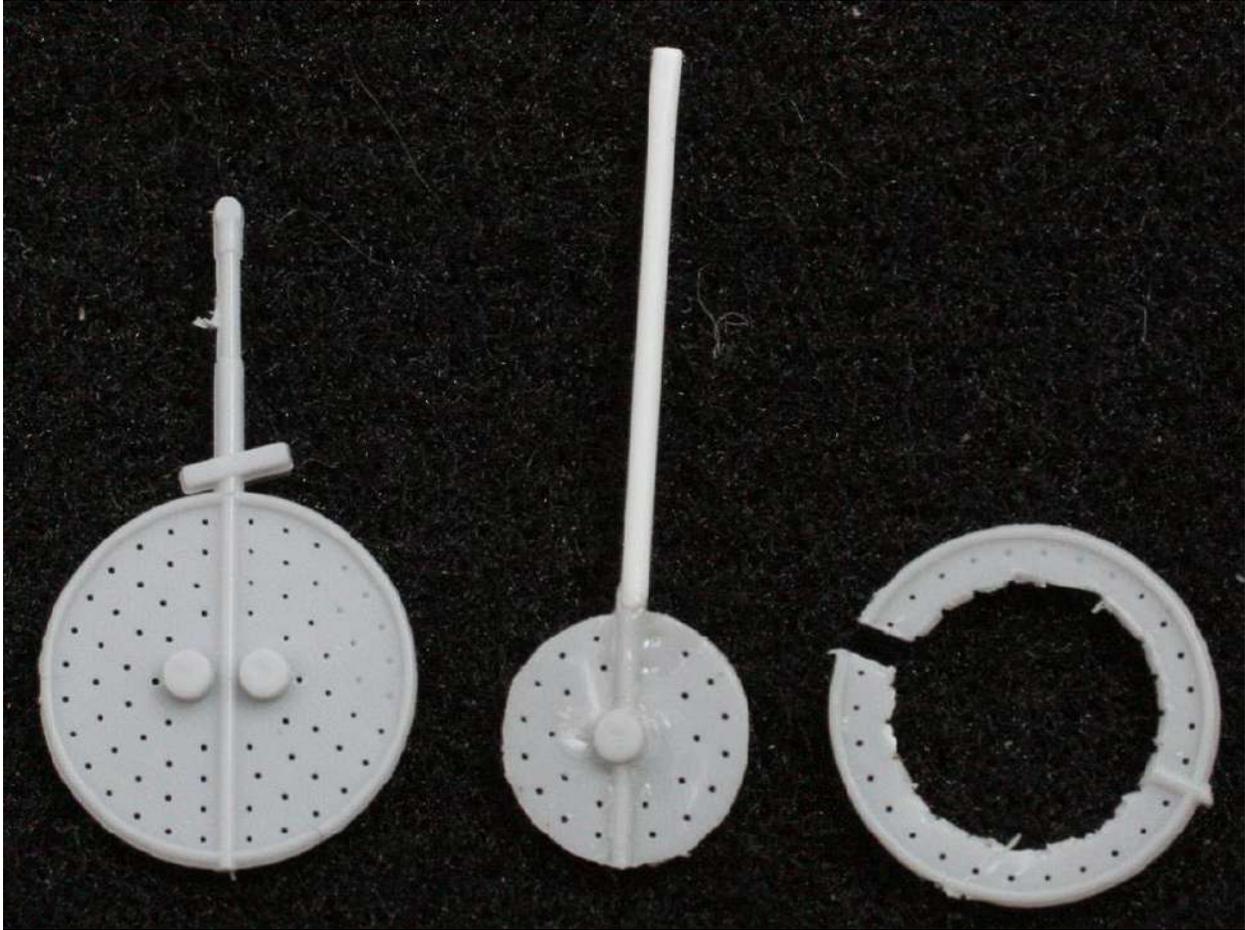


Wooden tool cellar. For use with AB brakes, file the end of the cellar body smooth on the end. Then file the lips off the end piece.



The result makes the end straps narrower and allows room for the AB brake to fit. I also cut the mounting tabs from the bottom of the brake platform and move it over to

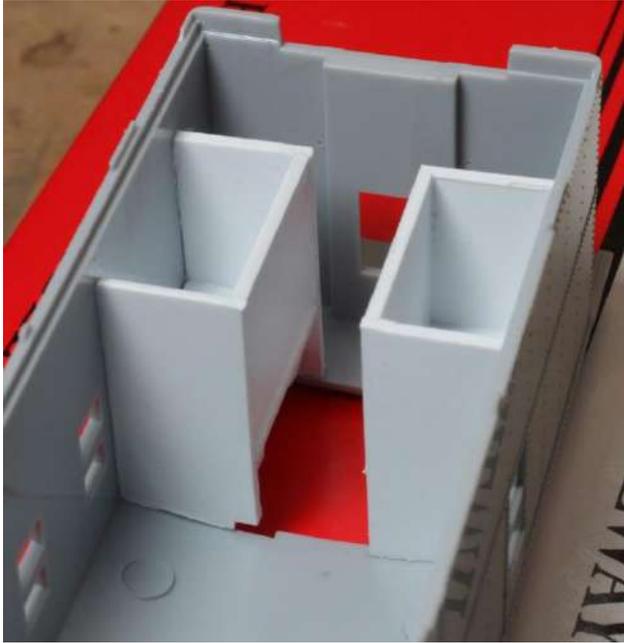
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The Intermountain wig-wag can be used to make an early 18" wig-wag. Carefully remove the diagonal mounting piece from the shaft. Cut the shaft off at a 45-degree angle. Cut the light cans from the front and back of the wig-wag and keep them for the next step. Cut the disk circularly on the 2nd row of holes and remove the "donut." Use a file to smooth down the outside surface and tweak it to make it round. Glue one light can back in the middle of the disk. Glue Evergreen round styrene to make the new shaft. The reason for the 45-degree cut is to give more gluing surface. Consult photos for painting, for there were 3 schemes used, the last being orange.

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Seats can be added to put a conductor in the cupola and to serve as a view block
Simple styrene can be used for this purpose.



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1716 (Staff AB brakes, black roof, wood tool chest)



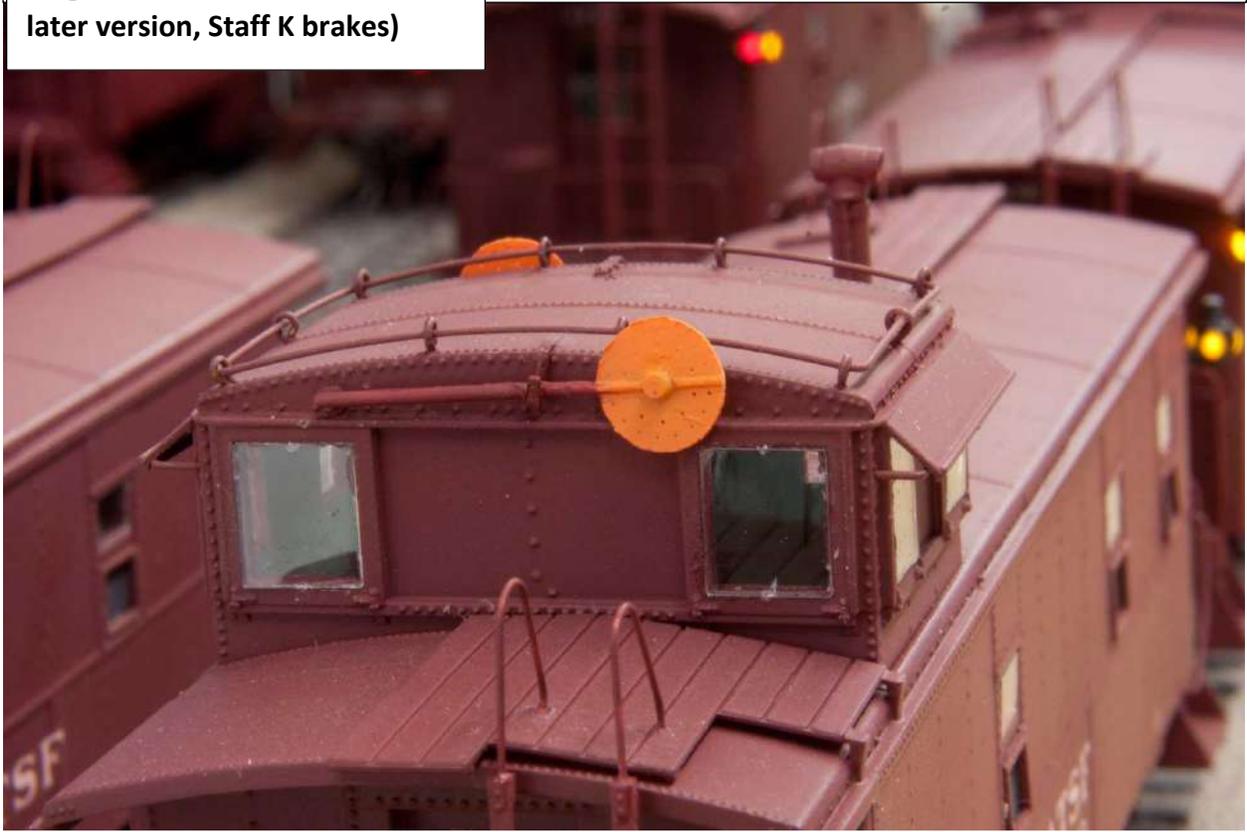
1727 (Staff AB brakes, wood tool chest)



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1699 (Stencil lettering, early wig wag, made from Intermountain later version, Staff K brakes)



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1901 (High platform rails, Ajax AB brakes, steel tool chest, different roof grab configuration)



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1893 (high platform rails, Ajax AB brakes, steel tool chest)



2128 (Low platform rails, Ajax AB brakes, reversed ladders, wig-wag removed)



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**ATSF Howard Branch
LED Marker Lamps**

Updated 1-20-10, more photos to come.



Model railroaders are used to working lights on their locomotives, but few have ventured into marker lights on their cabooses. One of the problems has been making good track-caboose contact to constant lighting. With 603 LEDs, this is no longer a problem. Below is my way of lighting cabooses.

Modeling the Santa Fe, no one makes (to my knowledge) a good representation of a Santa Fe marker light. Instead, I began with a Precision Scale brass 31334 marker.



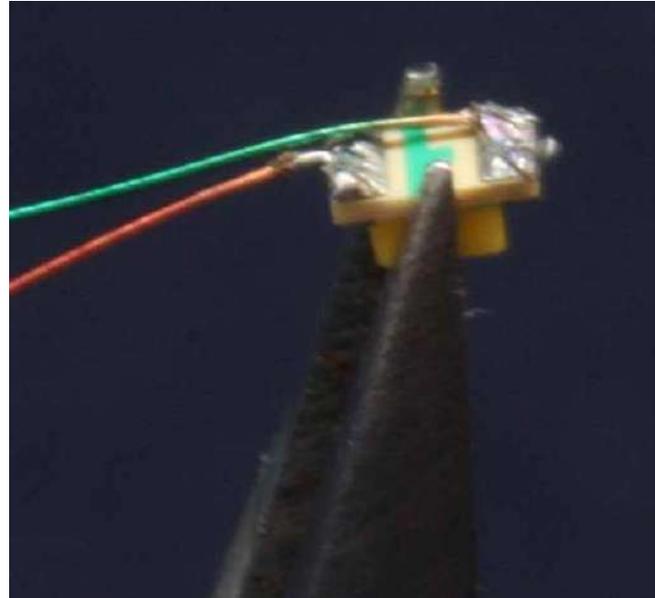
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The first revision is to allow the insertion of a 603 LED. If you are unfamiliar with these, you can get them from Richmond Controls

(<http://www.richmondcontrols.com/>), prewired. Be sure to specify that you want them wired for "ditch lights." This means both wires are soldered to come out on the same side of the LED. Use Red Insulating Varnish to coat the back so that your brass marker will not short out the LED. Here is a video of wiring 603s

(https://www.youtube.com/watch?v=_G-wt9ViiqY).



Take a #56 or 55 drill and drill out in inside of the marker lamp from the bottom. I use the drill in a single speed Dremel tool with a sewing machine foot control to get the speed slow enough for this work. I use pliers with smooth jaws to hold the marker without leaving grip marks. Use tape around the drill bit as a depth gauge to ensure that you don't drill too far.

Then use a #70 drill to drill out the lens backs. Since the Santa Fe used markers with 4 lenses, and the precision scale only has three, drill one through and out the back.

Cut off the brass tab that would otherwise be used to mount the marker. File the back smooth so that the marker is round.

If you plan to mount the marker to your caboose with a piece of piano wire, drill an appropriate size hole in the marker at a 45-degree angle to the normal light beam directions.

Finally, use that #55 drill to countersink the extra lens you added to the marker.



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You are now ready to insert the 603 LED. To make it easy to align it, connect it to a 3V power source so the light is illuminated while you do this procedure.

The next product you need is Pacer Formula 560 Canopy Cement. It is used by model airplane folks, looks like Elmer's, and dries clear. Squirt it inside the marker. Then insert the LED so that the back of the LED is toward the mounting hole you drilled (the 45-degree hole). Turn the LED slightly to that you get light out of all 4 lenses. Now sit it down and let the glue dry for a few minutes.

Now use a drop of Gallery Glass (Hobby Lobby, Window Color by Plaid Enterprises) to make the lenses. Ruby Red (16015) and Sunny Yellow (16004) are good for ATSF purposes. The lenses pictures here were made with my previous method which was not as good.

You are now ready to paint the marker black. In ATSF case, the rear is red, the others are amber.



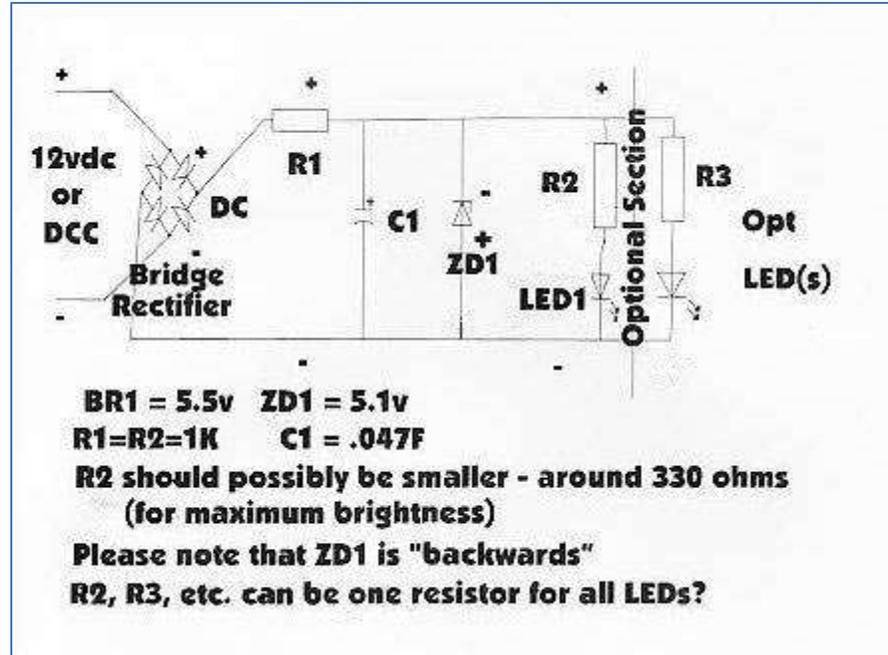
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Now for the power supply. The beauty of the LED is that they use almost no power. Therefore, a simple circuit with a capacitor can power the LEDs even after the car is removed from the track. Once the capacitor is charged, going over unpowered frogs or dirty track will not cause the least bit of flicker. The LEDs are wired in parallel.

I use both a commercial circuit available from Richmond Controls, and a homemade circuit designed by modeler Jim Betz. (jimbetz@jimbetz.com) Jim Betz will even sell you a kit with all the parts very inexpensively. Miniatronics also has a circuit. The homemade circuit pictured cost less than \$3

I cut a piece of piano wire into an "L" shape and drill an appropriate hole in the marker lamp mounting location at a 45-degree angle to the caboose walls. One leg of the "L" is inserted through the hole from the inside and glued with ACC.

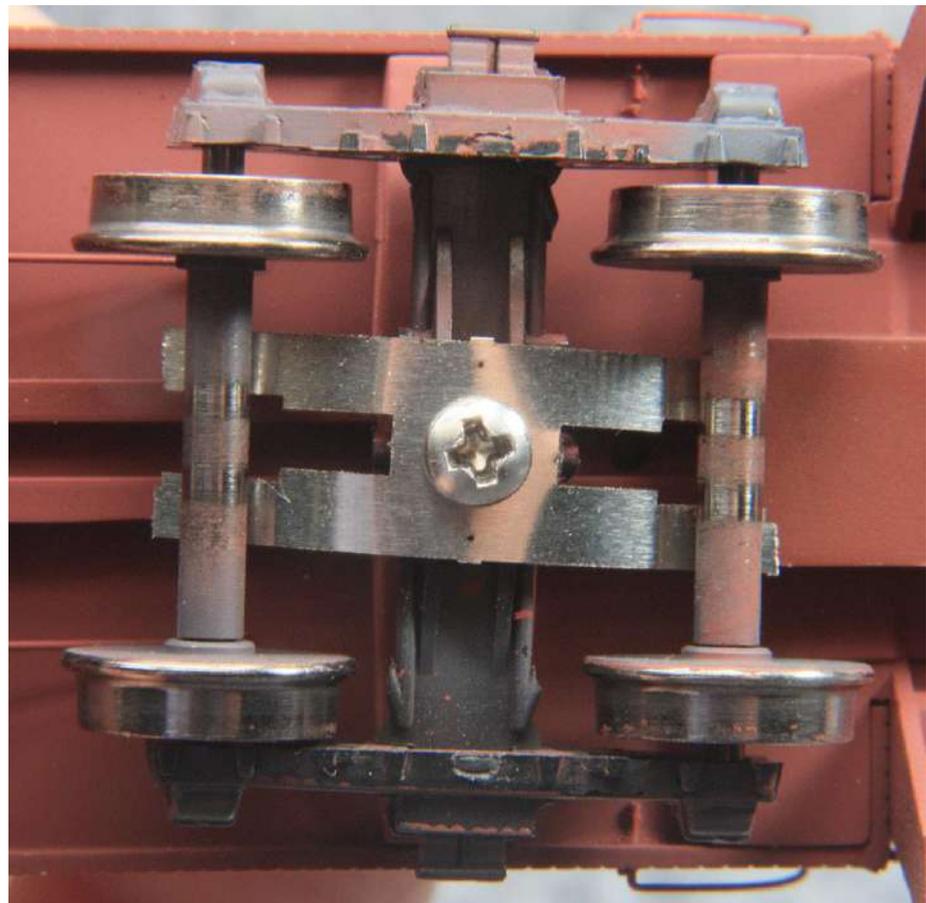


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Drill #80 holes in the back wall of your caboose to let the wires inside the body, then solder them to the circuit and mount it to the roof of the caboose with double sided foam tape.

For power pickup, I use Intermountain wheelsets in plastic trucks. The "H" shaped wipers come from Richmond Controls (EZ61-WPRS), though you can do similar pickup with phosphor bronze wire. Remember, you don't have to have perfect power pickup for this to operate. The 2/56 screw which holds the truck on goes through the floor to the inside of the body of the caboose where power wires are attached to the circuit board.



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Finally, I include some finished product photos. These are on a Walther's wood side ATSF caboose and Intermountain Santa Fe kit.



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