

# **Oahu Railway and Land Co.**

## **Car 57**

### **Historic Structures Report and Preservation Assessment**



OR&L Coach No. 57 ca. 1941, Fred Stindt Photograph, Hawaiian Railway Society Collection

**Prepared for the Hawaiian Railway Society**

**By**

**Randy Hees**

**February 2011**

## **Introduction**

This report is to support the preservation and restoration of Oahu Railway and Land Company (OR&L) coach No. 57.

Car 57, built in 19200, is now held and preserved by the Hawaiian Railway Society, at their museum at Ewa.

I had a great deal of assistance writing this report, particularly historical information provided by Jeff Livingston, Bob Paoa , Stanley Komura, and Phil Chase. Their comprehensive research is reflected throughout this report. Restoration manager Glen Houlton provided access to loose parts from the car preserved in the group's collection.

HRS Member John DeYeso has lead the efforts to disassemble and document the car. This has been the difference between a restoration, and an autopsy. The significance cannot be understated.

The restoration efforts have been funded by Ms. Suzanne Avina. Without her support, this significant Hawaiian historic artifact may have been lost.

This is an informal report documenting the preservation and restoration efforts as of February 2010.

## **Car History (with Jeff Livingston)**

No. 57 is one of ten “excursion” cars (Nos. 54 – 63) built by the Oahu Railway and Land Company in their Iwilei car shops. Construction was authorized under General Manager’s Order No. 173 dated 29 January 1921 at a cost of \$2,250.00 each. Five were completed in 1921 and placed in service with the remaining five completed in 1922. Although classified simply as “coaches” under the Interstate Commerce Commission reporting requirements then in effect, these cars were considered “2<sup>nd</sup> Class Coaches” by the OR&L as they had plain wooden seats and spare interior appointments. During World War Two these cars became known as “Commuter Coaches” as they were used extensively, along with most all the OR&L passenger equipment, in daily service between Pearl Harbor and Honolulu. Following abandonment of the OR&L main line on 31 December 1947 these and most all OR&L equipment became excess and offered for sale. No. 57 was one of fifteen OR&L passenger cars sold for \$300.00 each to the United States Army Air Force in March 1948 for use at Hickam Army Air Field which was providing “on base only” commuter service at least to 1949. Through unknown means the U.S. Navy acquired No. 57 and placed it in service at Naval Magazine Lualualei.

No. 57 was one of a number of pieces of Hawaiian railroad equipment purchased by Mr. Hal Wilmunder in the late 1960’s for use on his “Camino, Cable & Northern” private tourist railroad located in northern California. Acquired by the Hawaiian Railway Society in 1974, No. 57 returned to Hawaii and Lualualei where the Society’s operations were then located. No. 57 was in poor condition on arrival, with a very deteriorated roof, and more than 50 years of wear and tear.

Today, the car is the only one of her type remaining. Through the financial support of Ms. Suzanne Avina and the efforts of Mr. John DeYeso, No. 57 is finally receiving the attention it deserves. Disassembly of the coach is in progress with each piece removed fully documented in drawings and photographs. Following disassembly, No. 57 will be restored/rebuilt to her original condition and placed in limited passenger service.

## **Significance**

Car 57 is longer, and simpler, than car No 2 or No 64 also held by the HRS. All were built in the Iwilei shops. Car 57, the last of the three in the collection, was built in the shadow of WWI, and as a result used more wood, and in many ways was a throwback to the technology of earlier cars built in the 1890’s by the Carter Brothers, who built the first cars received by the OR&L. Car 57 uses wooden bolsters, lacks a full wall truss, instead using individual wall braces, but does have corner wall trusses.

Car 57 was intended for 2<sup>nd</sup> class service, and so has simple wood slat seats. Her interior trim is sparse. She was equipped with electric lighting from the time of her construction. Today she is equipped with a

freight car derived arch bar swing motion wood transom truck. (The car may have once had more traditional wood frame iron pedestal type trucks as found on cars 2 and 64.)

As built and equipped, the car represents the lower class, economy class accommodations offered for commuters, usually working class passengers, particularly speaks to service to Pearl Harbor during World War II.

Mechanically represents a throwback to earlier construction styles, using more wood than steel used in the shadow of World War I, with its shortages of steel.

### **Restoration planning, phasing or steps...**

Note... the following is a guide... you will find that many of the parts can and should be made in the shop before needed. There are lots of things that can be done out of order. The end rails can be cleaned primed and painted (and threads chased) now... but won't be needed until later. Discrete assemblies like steps can be made early, and again, stored. Window sash could be made now, but again, won't be needed until later. Particularly with your unique "tourist" seasonal skilled workforce, you have unique opportunities, but the parts needed should be identified, with quantities of each needed, drawings of what is needed on hand, material on hand, with a management system in place to know what has been stockpiled, and where.

### **Phase I – Preparation and rebuilding the under-frame**

- 1) Disassemble car (currently underway)
- 2) Document and draw each part (the drawings being done are really good... )
- 3) Begin reconstruction/restoration (When car is stripped to sills and platforms...)
- 4) Inspect center and intermediate sills for any rot, termite erosion, or other damage, repair or reconstruct with epoxy or by splicing or sistering (also known as dutchmen) aka new wood (bedded in epoxy)
- 5) I suggest that the project move inside at this point, if not move inside at step
- 6) In any case, set up horses, level, to support the car. Built the new car frame upside down.
- 7) Set center and intermediate sills on horses upside down.
  - 7a) Crew is cleaning, painting truss rods, queen posts, socket washers, center plates, side bearings and other metal parts (time sensitive, needed by step 12)
  - 7b) Crew is cleaning, rebuilding and painting trucks
  - 7c) Crew is rebuilding brake cylinder/piston and other brake assemblies (rebuilt cylinder/piston/triple valve needed in step 16)
  - 7d) Crew is cleaning, painting, and preparing platform hardware (truss rods and anchors) draft gear, buffer and railings (hardware and some draft gear and buffer parts needed in step 14)
- 8) Cut side sills, cut tenons, drill as needed.
- 9) Cut and prepare bolsters
- 10) Cut and prepare end beams

- 11) Cut and prepare truss or queen post beams
- 12) Assemble sills, end beams, bolsters, truss beams with truss rods (this results in a complete under frame) (It may be easier to install brake pipe at this time)
- 13) Cut, shape, drill platform sills, platform end beam
- 14) Fit draft gear stops and buffer parts to platform sills and end beam
- 15) Assemble platforms, bolt to center and intermediate sills
- 16) Install brake cylinder, brake pipe and lever hangers (not levers or rods)
- 17) Turn under frame with platforms over
- 18) At this point you start to assemble the car body (phase II)

#### Material Needed:

For the under frame, you will need;

- 2 side sills
- 2 end beams
- 2 bolsters
- 2 truss or queen post beams

Additionally I suggest you get the material for the platforms:

- 4 center platform sills
- 4 intermediate platform sills
- 2 platform end beams
- I believe there is a cross member under the center platform sills

You will likely also need some epoxy to consolidate the center and intermediate sills... There are a couple of sources. Generally the architectural people turn to Abatron while the boat people turn to West Systems. Abatron says call for overseas shipments (I assume including Hawaii) while West Marine has locations in the Islands. I like the Abatron better, but the West System works.

#### **Phase II – Assembling the car-body**

Note: at this point the project needs to (must!) move into the shop... I suggest the center track, at the rear. The car frame can either sit on the trucks (having been rebuilt) or sit on horses. I suggest horses, blocked and level, allowing the car body to sit a bit lower than it would on trucks.

Based on the drawings, (phase I, step 2) you will have a shop crew making parts, for example left and right wall posts, braces, carlines... You will need to establish a place to stack and organize parts. Separately, you will have a crew making new tension rods and other iron parts. Again, a place to store and organize the parts produced is critical. Of course, there needs to be someone keeping track of what

will be needed, what can be reused from the salvaged parts (along with work needed to prepare the old parts), and what has been made.

- 1) Starting at one end, assemble the end (I suspect much of the framing around the door might be reusable, if needed consolidate with epoxy). Brace as needed to keep plumb.
- 2) Put truss plank in place (loose, not attached)
- 3) At each wall post location, mortise for the wall posts, drill for tension and brace rods.
- 4) Assemble wall, post by post towards starting at one end.
- 5) At each end, drill for, and install the corner truss and truss post
- 6) As wall progresses, install wall header, belt rail, nailing girths, and letter-board, and individual wall braces with brace tension rods. Bolt posts to truss plank
- 7) Either brace walls with temporary carlines, or install carlines.
- 8) Check car body frame for square and plumb (ongoing)
- 9) Install sub-flooring and flooring
- 10) Install inside sheeting (below windows)
- 11) Complete roof system (carlines)
- 12) Sheath roof
- 13) Adjust tension rods (truss rods, corner trusses, braces) to square and level body

At this point you have a complete car body frame, without sheathing, sash, or interior trim. But it will be recognizable as a railroad car.

### **III Finishing the car body**

III a As before there needs to be a system to prepare parts for the car including:

- 1) Window sash (with glazing)
- 2) Window stops
- 3) Interior trim between windows
- 4) Sandblast, prime and paint seat frames (locate and acquire 9 replacement frames)
- 5) Manufacture wood slat seats
- 6) Identify interior light fixtures
- 7) If needed, salon (bathroom) walls, doors, seat
- 8) Identify and acquire hardware needed.

III b finishing the car body (many steps not order specific)

- 1) Install exterior car siding, prime
- 2) Wire car for interior lighting
- 3) Install canvas roof

- 4) Paint, finish canvas roof
- 5) Paint exterior
- 6) Deck platform (after draft gear and buffers installed, step IV )
- 7) Install steps
- 8) Install platform railings
- 9) Install window sash and doors
- 10) Install window hardware
- 11) Install window stops (holding windows in place)
- 12) Install interior trim above belt rail (between windows, interior  
above windows
- 13) Install light fixtures
- 14) Install Saloon (toilet compartment with dry hopper and seat)
- 15) Install seat frames, seats
- 16) Finish car exterior paint
- 17) Letter car

#### **IV Mechanical systems**

Again, listed items are not order specific, many can take place simultaneously with IIIb. Many components started in phase I.

- 1) Install couplers
- 2) Install buffers
- 3) Install foundation brake rigging
- 4) Place car on trucks, install king pins
- 5) Connect brake rods

#### **V Celebration of completion**

Dave's blessing ceremony for car 64 included a memorable "moon rise"... I suggest you drop that part of the ceremony... but a celebration is in order. It can be both the celebration of the newly restored car, and a kickoff for car No 2.