

# Tram Painting

## Current Best Practice or Traditional



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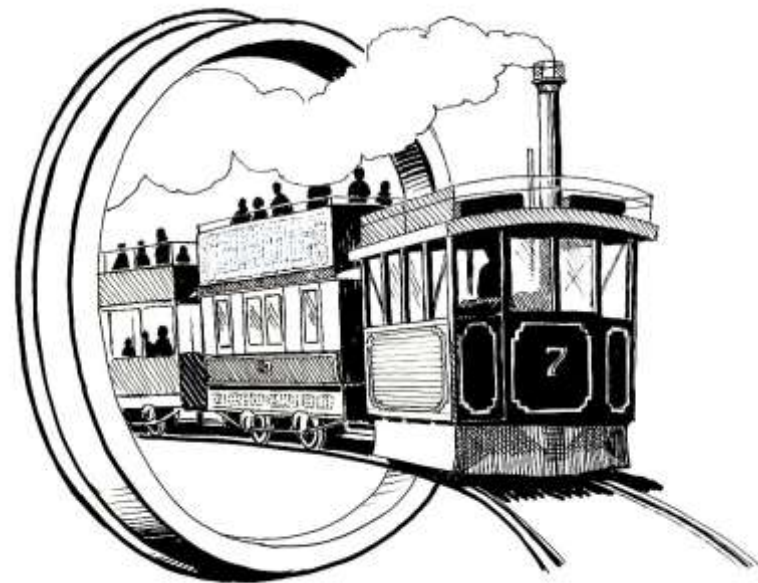
Heritage Tramways Trust

Daniel King

Resene Automotive

# Resene

*Automotive & Light Industrial*



COTMA CONFERENCE CHRISTCHURCH 2016

# Introduction

- ▣ Introduction
- ▣ Why we looked at change
- ▣ System we Chose and Way
- ▣ The heritage debate
  
- ▣ Original Finishes Generally Used
- ▣ Modern Equivalent Available

# Why We Looked At Change

No single reason but our existing paint systems were not performing in a number of ways.

- ▣ City Tramway environment
- ▣ Life span of paint and gloss level
- ▣ Colour matching
- ▣ Application times
- ▣ Maintenance and cleaning

# What Were We Using

## Modern equivalent of Original Products

### Primers and Sealers

- ▣ 2 Pack Epiglass Everdure Epoxy Sealer
- ▣ Single Pack Metal Etches and Primers
- ▣ Single Pack Oil Undercoats

### Top Coats

- ▣ Modern House Oil Enamels
- ▣ Marine Single Pack Varnish



# Factors

- ▣ Heritage Factors
- ▣ Ability to produce the original colours
- ▣ Durability
- ▣ Usability
- ▣ Signwriting
- ▣ Time
- ▣ Weather
- ▣ Ongoing maintenance
- ▣ Cost      Materials vs Labour
- ▣ H&S
- ▣ Support from suppliers

# Paint Options We Looked At

- ▣ Stay with Modern equivalent of original products
- ▣ Import more traditional equivalents from England
- ▣ Acrylic water base paint
- ▣ Automotive Single Pack
- ▣ Automotive Water Borne
- ▣ Automotive Base Coat & Clear Coat
- ▣ Automotive Solid Colour 2K



# What We Have Settled On

Resene Automotive 2 pack Solid Colour

Traffic 2 K Polyurethane

Acythane 805ML Acrylic-Urethane

Chromaclear Acrylic Copolymer Clear Coat

Etch & Primer

81A2k Etch Primer

Durepox 2 K Primer Epoxy Urethane

Varnish

Altex Timbercote Exterior Marine Gloss Varnish

Altex Carbothane Acrylic-Polyurethane

# What it Takes Use Them

Learning new skills

Investment in equipment

Spray Tent

Spray Guns and Mixing

Storage

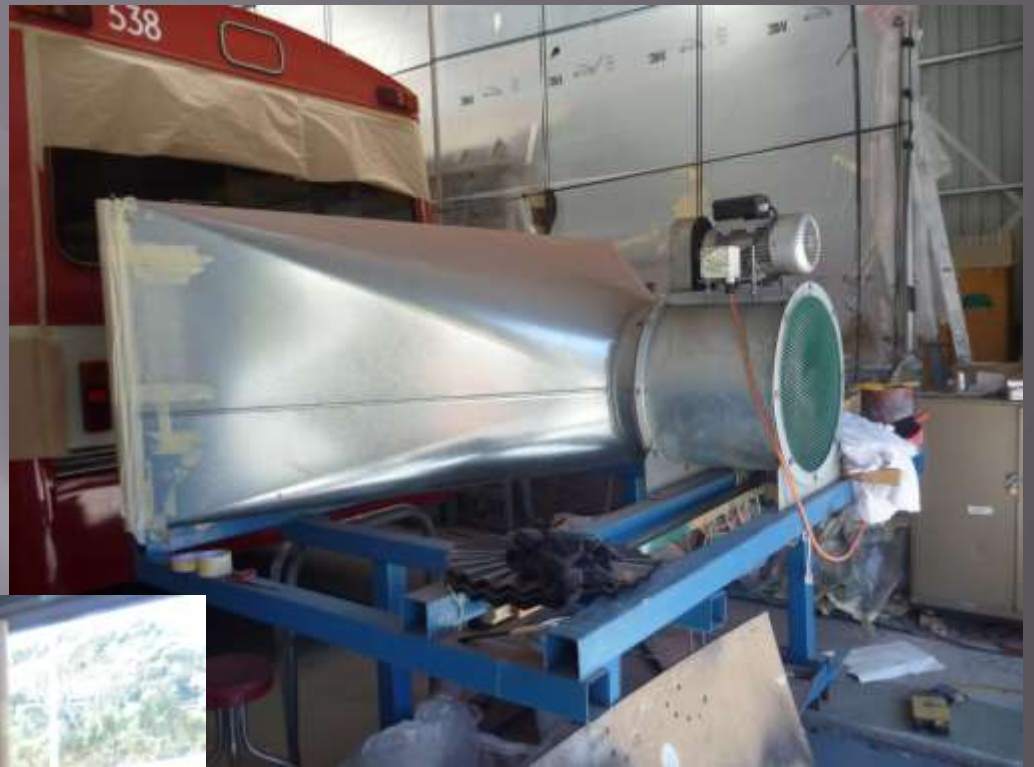
Masking

Compressor & Dryers

Breathing Masks

Sanders for Preparation

# Filter & Fan



## Inlet Filter



# Compressor & Dryer



# Masking



LOOK  
FOR  
TRAMS



# Mix Of Old And New





# The Heritage Argument

## Heritage Charters Australia - NZ

### What is a Heritage Charter

- Provides guidance for the conservation and management of places of cultural significance

### Australia

- The Burra Charter (The Australia ICOMOS Charter for Places of Cultural Significance 2013)

### New Zealand

- ICOMOS New Zealand Charter for The Conservation of Places of Cultural Heritage Value Revised 2010

# The Burra Charter

## Conservation Principles

### Article 4. Knowledge, skills and techniques

4.2 Traditional techniques and materials are preferred for the *conservation* of significant *fabric*. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate

# What Are The Substantial Conservation Benefits

- ▣ Original products are no longer available
- ▣ Greater protection for historic fabric under it
- ▣ Longer life span
- ▣ Ability reproduce original colours
- ▣ Better durability
- ▣ More workable with in time frames available

# Paint Preparation

Cleaning

Surface Preparation

Repairs

Corrosion removal

Sanding & Scotch Briteing

Stripping

Filling

Sealing

Cleaning

Etch & Under Coat

Sanding & Filling

Cleaning

Top Coating







# Historic Products Used By Boon & Co

## Primers and Fillers

White Lead

Cedar Filling

Filling up

Coach Grey Priming

Willeys Priming oil

Nobel & Hoare's Ground Filling

Wood Filler

Kearsley Filling Paste

Grain filler

Raw Linseed Oil

Boiled Linseed Oil

Repolin Thinnings

Turpentine



# Varnishes

Best Pale Durable Body Varnish Harlands

Best Pale Body Varnish Harlands

Hard Carriage Varnish Harlands

Hard Drying Varnish Harlands

Finishing Body Varnish

Flatting Varnish Harlands

Best Clear Enamel Varnish Kearleys

Albion Carriage Varnish

Extra Pale Body Varnish

Extra Pale Finishing Varnish

Harlands Finishing Body Varnish for White  
Work

# Paints

Willey's Tramway Green

Willey's Coach Blacks Special

Oxford Ochre Green

Lead Colour

Emergency Red

Brunswick Green

Burnt Sienna

Motor Black Enamel

Dry Indian Red

Orange Chrome

Buff Colour

French Orange

Turkey Amber

Ivory White Repolin

Black

Patent Dryers

# Signwriting

Different Types we Use:

Traditional Signwriting

Computer Cut Vinyl

Blending the Two

# Traditional Signwriting

Traditional Signwriting  
covers:

Hand brush painting

Lining wheel

Metal leafing

Water transfers

Screen printing





















# MONOMERIC VINYL

**RECOMMENDED USE:** Interior work and short term external applications where life span is expected to be 2, 3 and 3-5 years and are usually 75-85 microns thick.

## **PROS:**

- ▣ Ideal for flat sided applications
- ▣ Suitable for most customers job requirements
- ▣ Can be lower in price than polymeric and cast vinyls
- ▣ Short to medium life span
- ▣ Stiffer/thicker films make handling easier
- ▣ The thicker films allow for greater abrasion resistance
- ▣ Usually 75-85 microns thick
- ▣ Expected life span is 2, 3 and 3-5 years

## **CONS:**

- ▣ Not suitable for applications onto uneven or contoured surfaces
- ▣ Can be susceptible to slight shrinkage over the life span of the vinyl



# POLYMERIC VINYL

**RECOMMENDED USE:** Interior work and short term external applications where life span is expected to be 2, 3 and 3-5 years and are usually 75-85 microns thick.

## **PROS:**

- Ideal for flat sided applications
- Suitable for most customers job requirements
- Can be lower in price than polymeric and cast vinyls
- Short to medium life span
- Stiffer/thicker films make handling easier
- The thicker films allow for greater abrasion resistance
- Usually 75-85 microns thick
- Expected life span is 2, 3 and 3-5 years

## **CONS:**

- Not suitable for applications onto uneven or contoured surfaces
- Can be susceptible to slight shrinkage over the life span of the vinyl

# CAST VINYL

**RECOMMENDED USE:** Due to a cast films long life, stability and quality it is suitable for most types of work where there is any doubt as to which type of vinyl is best to use, and is a premium vinyl for interior and external applications. Normally cast films are 8-10 year films and are 50-60 microns thick, soft, thin and flexible so are ideal for all types of vehicle wraps.

## PROS:

- The longest life span for vinyls
- The quality raw materials used give cast vinyls the highest levels of durability
- No shrinkage
- Soft, flexible and thin so is conformable over complex contours (i.e. rivets, corrugations etc) as well as for use on flat sided surfaces
- A greater level of vinyl colour choices are available
- Bespoke colours can be more easily manufactured than with calendared vinyls
- Colour matching between batches is more accurate
- Cast vinyls maintain vinyl colour and other properties better than other vinyl films, resulting in better pigments and UV absorber performance
- Usually 50-60 microns thick
- Expected life span is 8-10 years

## CONS:

- None! If a high level of conformability and/or durability is needed then Cast vinyls are your choice



# Cast Vinyl Replaces Transfers



# Blending The Two

Using Monomeric or Stencil Film for signwriting and lining out.

- ▣ Use to enable using 2 Pack paints for signwriting and lining
- ▣ Cost reduction on signwriting
- ▣ Reduction on time



# Paint Maintenance

Washing

Polishing

Waxing

Repairs

Recoating

# Managing The Paint System

Technical Data & MSDS Sheets

Spray Outs

Paint Formula Information

Recording

## PAINT SYSTEM AND COLOURS

**Object: BARINEY Tram No 15**

**Date: 2013**

**System:**

### **Products:**

Resene 120 SX Standard MS 2K Clear  
Resene Durepox 2K primer Grey  
Resene Acrythane 805 2K  
Resene Traffic 2K Polyurethane  
Resens Dupont Centari 600 Base Coat  
Akzo Nobel Gold Spar Original Boat Varnish

### **Paint Colours:**

Exterior - Traffic MAROON R4/R416  
Roof / Exterior Grey - Acrythane RAL 7030 (FC5 1/359) Grey PDB  
Interior - Traffic MAHAGONIBRAUN R4/R351 RAL 8016-GL  
Ceiling - Acrythane Tram Cream White PDB  
Vent Registers - Centari Mars Gold Effect AH2 F8518 Suzuki  
Truck - Acrythane Standard Black



THE END