

**REPAIRS OF RAILWAY
CAR EQUIPMENT:
WITH PRICES OF
LABOR AND MATERIAL**

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Repairs of Railway Car Equipment: With Prices of Labor and Material by H. M. Perry

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H. M. PERRY

**REPAIRS OF RAILWAY
CAR EQUIPMENT:
WITH PRICES OF
LABOR AND MATERIAL**

REPAIRS
OF
RAILWAY CAR EQUIPMENT
WITH
PRICES OF LABOR AND MATERIAL.

A REFERENCE BOOK FOR RAILWAY OFFICIALS, WITH AVERAGE
SHOP COST OF REPAIRS TO PASSENGER
AND FREIGHT CARS.

DETAIL BILLS OF MATERIAL FOR CARS, TRUCKS, PLATFORMS, ROOFS, DOORS,
ETC.; TABLES OF WEIGHTS OF IRON AND OTHER MATERIAL;
BOARD MEASURE; SIZES AND WEIGHTS OF BOLTS,
NUTS, WASHERS, NAILS, TIN, ETC.

BY
H. M. PERRY, M. C. E.

CHICAGO:
THE RAILWAY AGE,
1899.



PREFACE.

After an experience of over thirty years in railway car work, and recognizing the growing necessity of a book devoted entirely to the subject of car repairs, it is the purpose of the author, in offering this work to the railway fraternity, to furnish a ready means of reference on this subject; especially for estimating the cost of repairs, making out damaged car reports, checking up bills, comparing the different methods of doing work, making out bills of material, etc.

The prices for both labor and material are based, as far as possible, on the Master Car Builders' Code of Rules governing repairs to cars, thus making them applicable to any section of the country, and damaged car reports based on these prices would not only be correct, but when made out by different employes would be approximately alike.

The useful information, such as tables, and weights of all classes of material, has been carefully compiled, and is intended to cover all the information required to answer the various problems arising in car-shop work.

H. M. P.



Figure 1: A scatter plot showing the relationship between the number of children and the number of books. The x-axis is labeled 'Number of children' and ranges from 0 to 10. The y-axis is labeled 'Number of books' and ranges from 0 to 10. There are 10 data points plotted, showing a positive correlation. The points are approximately at (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), (6, 6), (7, 7), (8, 8), (9, 9), and (10, 10).

The data points in Figure 1 show a strong positive linear relationship between the number of children and the number of books. Each child has exactly one book, resulting in a perfect correlation.

The following table summarizes the data points shown in Figure 1:

Number of children	Number of books
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

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**AVERAGE COST OF REPAIRS
TO
STANDARD PASSENGER EQUIPMENT.**

These prices include the labor of removing old material, and the labor and material for replacing new, unless otherwise specified.

	Amount of Material.	Cost of Mate'l.	Cost of Labor.	Total Cost.
Removing old siding, filling between studs, renewing siding and mouldings, burning off letter board and posts and finishing ready to paint, 340 hours.....			\$85 00	
Whitewood lumber.....	1462 feet.	\$98 00		
Ash ".....	300 "	9 00		
Total cost ready for paint.....				\$132 00
or about 25c per sq. foot.				
Repairing surfaces of 100 sq. feet or less, filling in frame, siding, and painting, estimate 60c per sq. foot.				
Removing and replacing siding but <i>not</i> filling in frame, burning off old paint and finishing car ready for paint, 100 hours.....			25 00	
Whitewood lumber.....	750 "	19 50		
Ash ".....	300 "	9 00		
Total cost ready for paint.....				53 50
or about 10c per sq. foot.				
Repairing surfaces of 100 sq. feet or less, siding and painting, estimate 45c per sq. foot.				
Painting car outside, complete, costs about 25c per sq. foot.				

REPAIRS TO PASSENGER EQUIPMENT—CONTINUED.

	Amount of Material.	Cost of Mats'l.	Cost of Labor.	Total Cost.
Burning off old paint and finishing outside of car ready for paint, 100 hours				\$21 75
Removing and replacing belt rail.....	160 feet.	\$ 5 00	\$ 8 00	13 00
Length of car costs about 12½c per foot. Shorter lengths " " 25c "				
Removing and replacing letter board, crown moulding and fascia	200 "	6 00	12 50	18 50
For painting, estimate 25c per foot. " lettering, " 15c per letter, gold.				
Repairing short lengths — for woodwork painted and varnished, estimate 60c per foot, with 15c per letter extra for gold letters.				
Baggage and mail cars cost about the same as coaches for the same class of work.				
Tinning roof, complete, copper flashing	852 "	41 24	22 76	64 00
" " lower deck, " "	367 "	28 02	12 48	40 50
" " upper deck	285 "	13 22	9 28	23 50
Canvas roof, complete, copper flashing	73 sq. yd.			48 00
Copper flashing	60 lbs.	11 50		
Tin roof, complete, copper flashing, per sq. ft.				10
" " without " " " " "				08
Canvas roof, " " " " per sq. yard.				50
" " with " " " " "				66

REPAIRS TO PASSENGER EQUIPMENT—CONTINUED.

	Amount of Material.	Cost of Mater'l.	Cost of Labor.	Total Cost.
Removing "Miller" platform timbers and replacing new, using old castings and forgings, one end of car.....	340 feet.	\$18 00	\$12 00	\$30 00
Removing and replacing same platform.....	48 "	1 20		10 00
End sill, including removing and replacing platform, and siding ready for paint.....	68 "	2 00	15 00	18 20
Siding and moulding one end of car, complete..	68 "	2 00	3 00	5 00
Painting and varnishing " " "				22 00
1 door post, removed and replaced new.....	20 "	60	4 40	5 00
1 corner post, " " " ".....	20 "	60	4 40	5 50
1 end carline, " " " ".....	25 "	75	2 50	3 25
1 " corner, " " " ".....	6 "	18	2 50	2 63
2 " " " " " ".....	12 "	36	5 00	5 36
1 " arm, " " " ".....	16 "	50	2 50	3 00
2 " " " " " ".....	32 "	1 00	5 00	6 00
1 end carline and 2 corners removed and replaced new.....	37 "	1 10	5 00	6 10
1 end carline and 2 corners, and 2 arms removed and replaced new.....	69 "	2 10	10 00	12 10
Removing and renewing hood, complete.....		10 00	20 00	30 00
Splicing roofing at end plate, lower deck.....	20 "	50	1 00	1 50
" " " " upper ".....	40 "	1 00	1 50	2 50
Lining underside of hood.....	33 "	1 00	2 00	3 00
Tinning hood, complete.....				5 00
" " lower deck.....				2 00
" " upper ".....				3 00
Canvas on hood, complete.....				2 50

REPAIRS TO PASSENGER EQUIPMENT—CONTINUED.

	Cost of Material.	Cost of Labor.	Total Cost.
Applying "Pullman" vestibule, including remodeling hood and platform, 1 end of car	\$485 00	\$190 00	\$675 00
Applying vestibule after the platform and hood have been remodeled, 1 end.....	200 00	110 00	400 00
Removing old platform and applying new Janney-Miller platform to receive vestibule and crediting old material, 1 end.....	160 00	40 00	200 00
Removing old hood and applying a new one to receive vestibule, 1 end	35 00	40 00	75 00
1 end door, complete, mahogany, trimmed.....			24 00
1 set of glass and trimmings for 1 door.....			8 00
4 vestibule doors, complete, mahogany, 1 end			48 50
1 set of glass and trimmings for 4 doors.....			27 50
1 " " " beveled for 4 doors.....			10 50
1 vestibule door, mahogany, not trimmed.....			5 25
2 vestibule posts.....			6 50
1 " dome			9 50
1 " lamp			18 00
2 " steps, curved risers, not trimmed			8 00
2 sets bronze ornaments for step risers.....			6 00
Gear brake attachment, one end of car			25 00
Body hand rails, bronze, 1 end of car.....			7 50
Platform " " " 1 " "			5 00