

Second Edition.

2M.3.05.

Part Catalogue B. 6004.

The Prices herein supersede previous quotations, and are subject to change without notice.

Prices are F.O.R. Manchester.

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Parts

—OF—

Westinghouse Nos. 46 & 46M
Tramway Motors.

THE BRITISH
WESTINGHOUSE ELECTRIC & MANUFACTURING CO., Ltd.,
LONDON AND MANCHESTER.

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Nos. 46 & 46M TRAMWAY MOTORS.

General View.

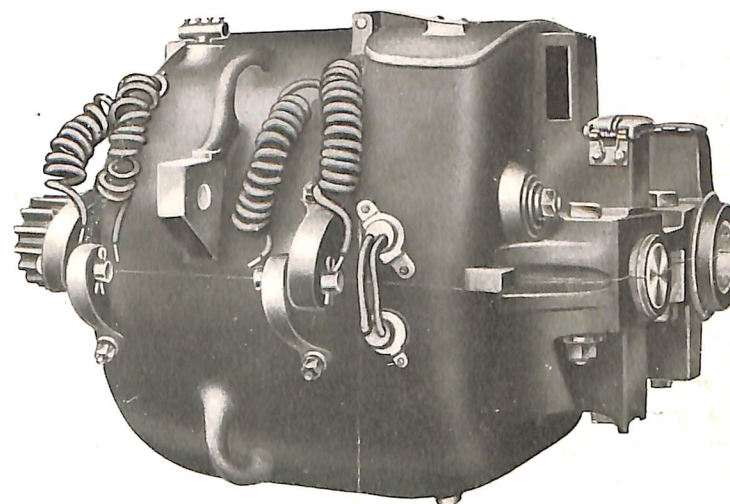


FIG. 1.

The Nos. 46 and 46M Tramway Motors, although of the same general design, differ slightly in that the 46M has larger armature bearings, pressed instead of screwed wiper rings, and sunken band wires. Parts which are not interchangeable are identified in this catalogue by having the type of motor to which they belong printed before the Style Numbers. Parts not so indicated are suitable for use with either the No. 46 or 46M Motor.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

STYLE NUMBER INDEX.

Style No.	Illustrated on page	List Price on page	Style No.	Illustrated on page	List Price on page
72.....	10	11	2867.....	—	17
130.....	6	9	2869.....	14	17
254.....	14	15	2885 (As No. 3803 in Fig.)	14	15
265.....	18	19	2887 (As No. 3805 in Fig.)	14	15
304.....	12	11	2891.....	12	11
306.....	12	11	2892.....	12	11
307.....	12	11	2893.....	12	11, 13
310.....	6	7	2894.....	12	11
323.....	10	11	2895.....	12	11
324.....	6, 10	11	3024.....	18	19
325.....	6	7	3031.....	18	19
332.....	10	11	3032.....	18	19
341.....	—	17	3063.....	6, 18	7, 19
343.....	8	9	3064.....	18	19
462.....	8	9	3065.....	6	7, 19
463.....	8	9	3066.....	12	11
464.....	8	9	3068.....	10	11
465.....	8	7	3069 (As No. 3695 in Fig.)	8	17
503.....	10	7	3070.....	6	7, 19
505.....	10	11	3071.....	8, 10, 12	11, 13, 17
506.....	10	7	3072.....	12	11
1783.....	6	7	3073.....	12	11
1798.....	6	7	3074.....	12	11
1990.....	12	11	3082.....	18	19
1991.....	12	11	3085.....	12	11
1992.....	12	11	3086.....	12	11
2732.....	12	11	3087.....	10	11
2733.....	12	11	3090.....	8	17
2821.....	14	15	3108.....	12	11
2825.....	8	9	3109.....	12	11
2827.....	6	7	3110.....	12	11
2842.....	16	17	3271.....	12	11
2847.....	10	11	3272.....	12	13
2849.....	10	11	3286.....	8	17
2850.....	10	11	3287.....	8	17
2859 (As No. 3638 in Fig.)	6	19	3294.....	14	15
2864.....	8	17	3335.....	12	11
2865.....	—	17	3506.....	—	7
2866.....	8	17	3620.....	10	11

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

STYLE NUMBER INDEX—Continued.

Style No.	Illustrated on page	List Price on page	Style No.	Illustrated on page	List Price on page
3621.....	10	7, 11	3816.....	10	7
3629.....	18	19	3817.....	10	11
3630.....	18	19	3820.....	10	11
3631.....	18	19	3831.....	6	7
3632.....	18	19	3832.....	6	7
3635.....	—	7	3833.....	6	7
3637.....	6	7	3834.....	6	7
3681.....	10	11	3835.....	6	7
3684.....	10	11	3836.....	6	7
3685.....	16	17	3838.....	6, 18	7, 19
3686.....	16	17	3839.....	18	19
3687.....	—	17	3840.....	18	19
3688.....	16	17	3844.....	6	7
3689.....	16	17	3845.....	6	7
3690.....	16	17	3846.....	6	7
3691.....	16	17	3859.....	6	7
3692.....	16	17	3893.....	14	15
3693.....	16	17	8017.....	—	17
3694.....	16	17	8018.....	—	17
3695.....	8	9	9166.....	—	15
3697.....	8	9	9183.....	—	15
3698.....	14	15	9184.....	—	15
3699.....	14	15	9185.....	—	15
3700.....	14	15	9186.....	—	15
3801.....	14	15	9187.....	—	15
3802.....	14	15, 17	9188.....	—	15
3804.....	14	15	9189.....	—	19
3806.....	—	15	9190.....	—	7
3807.....	10	11	9191.....	—	9
3808.....	—	9	9192.....	—	9
3809.....	8	9	9230.....	—	15
3814.....	10	11	9231.....	—	15
3815.....	10	11	9243.....	—	9

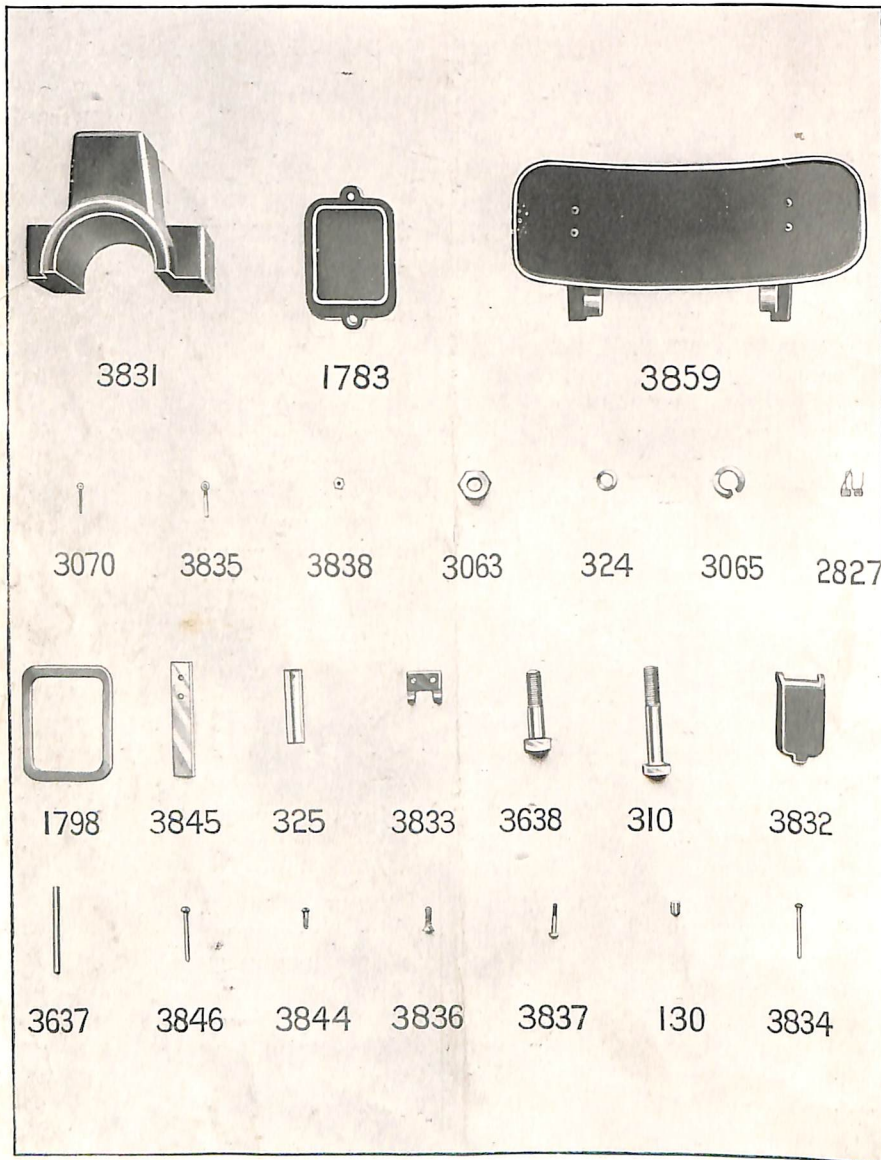


FIG. 2.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Frame.

Style No.	Number per Motor.	Description.	Price.		
			£	s.	d.
3831	2.	Cap under axle bearing	1	4	3
310	8.	Bolt for holding frame together, and axle caps to frame, without nuts or washers, $\frac{7}{8}$ " x 7".....	0	8	0
3063	8.	Nut for bolts, No. 310, $\frac{7}{8}$ "	0	1	10
3065	8.	Lock washer for bolts, No. 310, $\frac{7}{8}$ ".....	0	0	6
3070	8.	Split pin, $\frac{3}{16}$ " x 1 $\frac{1}{4}$ "	0	0	3
325	2.	Hinge pin for halves of frame, 1" x 4".....	0	0	6
3835	4.	Split pin for No. 325, $\frac{1}{4}$ " x 1 $\frac{1}{2}$ ".....	0	0	5
3859	1.	Commutator cover with springs complete ...	0	10	7
9190	1.	Commutator cover without springs	0	10	0
3845	2.	Spring for commutator cover, 1" x 6" x $\frac{1}{8}$ ",	0	0	6
3844	4.	Rivet for spring, No. 3845, $\frac{1}{4}$ " x 1", ...	0	0	3
3846	2.	Hinge pin for commutator cover, $\frac{1}{4}$ " x 2 $\frac{1}{8}$ ",	0	0	6
3832	4.	Grease box cover without hinge pin	0	0	9
3834	4.	Hinge pin for grease box covers, $\frac{1}{4}$ " x 2 $\frac{5}{8}$ ",	0	0	3
2827	4.	Spring for grease box covers	0	2	3
3833	4.	Hinge for grease box cover	0	0	6
3635	8.	Bolt for No. 3833, $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "	0	0	9
3838	8.	Nut for No. 3635, $\frac{1}{4}$ "	0	0	5
1783	1.	Hand-hole cover	0	3	3
3836	2.	Screw for hand-hole cover, No. 24—16" x 1 $\frac{1}{4}$ ",	0	0	9
1798	1.	Rubber gasket for hand-hole cover	0	1	9
503	4.	Wooden bushing with two holes for insulating leads from frame	0	1	0
3816	4.	Brass clamp for No. 503.....	0	0	3
3621	8.	Screw for No. 3816, No. 14—24" x $\frac{1}{2}$ ".....	0	0	4
506	1.	C.B. ground terminal	0	3	0
3506	4.	Binding screw for No. 506, No. 14, 24" x $\frac{3}{8}$ "	0	0	4
465	4.	Oil plug.	0	3	3
3637	4.	Brass tube of bearing, $\frac{3}{8}$ " x 4 $\frac{1}{2}$ "	0	1	0

Order by Style Number.

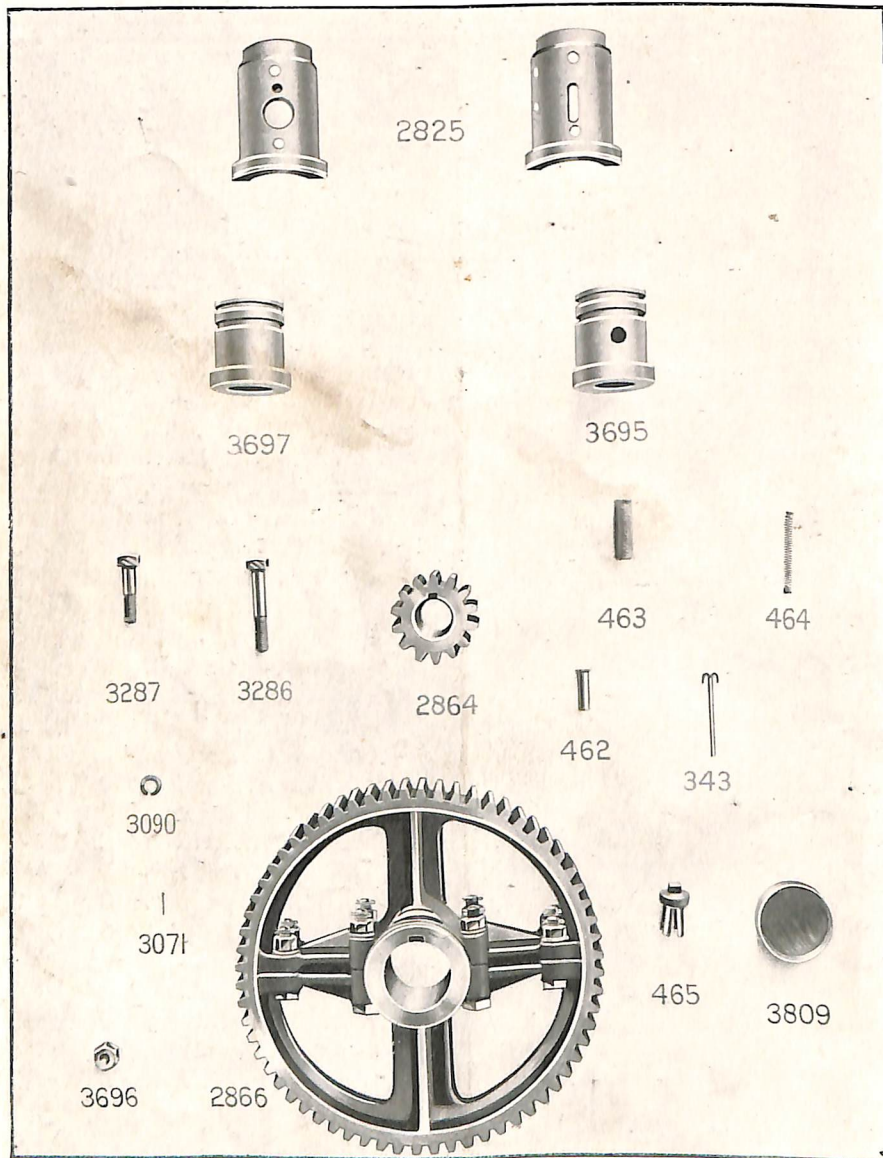


FIG. 3.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Bearings.

Style No.	Number per Motor	Description.	Price.
			£ s. d.
2825	2.	Split axle bearing, 3 $\frac{3}{4}$ " x 7" (babbitted) each	1 2 0
3808	2.	Split axle bearing, 4" x 7" (babbitted) each	1 2 0
46 3695	1.	Solid armature bearing, pinion end, 2 $\frac{1}{2}$ " x 5 $\frac{3}{4}$ "	1 1 6
46 3697	1.	Solid armature bearing, commutator end, 2 $\frac{1}{2}$ " x 5 $\frac{1}{4}$ "	0 16 4
46M 9191	1.	Solid armature bearing, pinion end, 3" x 7"	1 0 0
46M 9192	1.	Solid armature bearing, commutator end, 2 $\frac{1}{2}$ " x 6 $\frac{1}{4}$ "	1 0 0
130	4.	Dowel pin for bearings, $\frac{1}{2}$ " x $\frac{5}{8}$ " each	0 0 3
3809	1.	Dust cap for solid armature bearing	0 0 6
9243	4.	Wick.....each	0 0 3
462	4.	Tin tube.....each	0 0 3
464	4.	Spring.....each	0 0 3
343	4.	Feed wire.....each	0 0 6
463	4.	Wick complete with tin tube.....each	0 0 6

Order by Style Number.

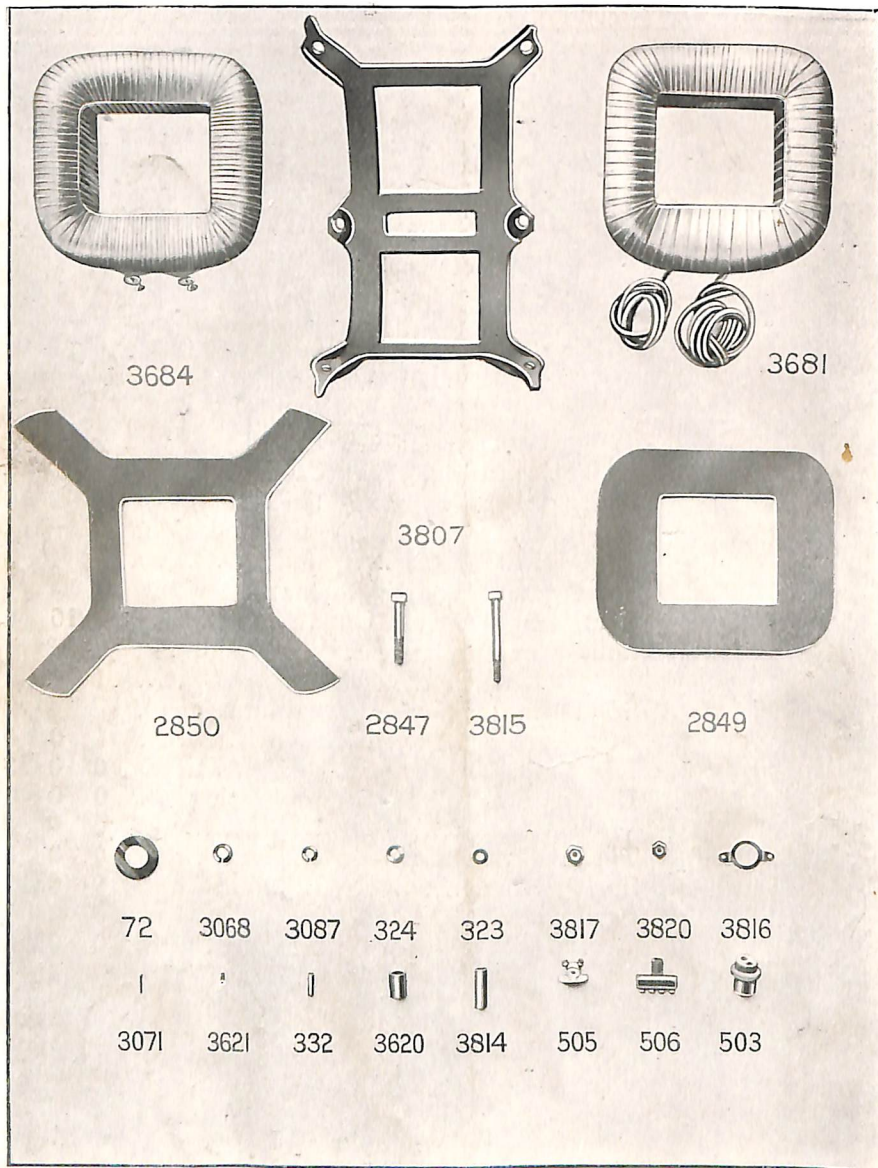


FIG. 4.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Field Coils.

Style No.	Number per Motor.	Description.	Price.		
			£	s.	d.
3681	2.	Upper field coil with cable leads c'plete...each	6	5	0
3684	2.	Lower field coil with terminals c'plete ...each	6	3	0
505	4.	Terminal for lower field coileach	0	1	3
3621	8.	Screw for No. 505, No. 14—24 x 1/2".....per doz.	0	0	4
3807	2.	C.B. coil supporteach	1	3	0
2849	4.	Leatheroid washer for insulating field coil from frameeach	0	2	0
2850	4.	Leatheroid washer for insulating field coil from supporteach	0	2	0
2847	4.	Bolt for No. 3807, 5/8" x 3 3/4"per doz.	0	3	0
3815	8.	" " " 1/2" x 4 3/4"per doz.	0	2	4
3817	4.	Nut for No. 2847, 5/8"per doz.	0	1	0
3068	4.	Lock washer for No. 2847, 5/8"per doz.	0	0	5
3071	12.	Split pin for Nos. 2847 and 3815, 1/8" x 1"per doz.	0	0	3
3820	8.	Nut for No. 3815, 1/2"per doz.	0	0	10
3087	8.	Lock washer for No. 3815, 1/2"per doz.	0	0	5
72	8.	Washer for No. 3815, 1/2"per doz.	0	0	3
3814	8.	Fullerboard bush for No. 3815, 3/4" x 2 1/2" .. each	0	0	9
3620	4.	Gas pipe for No. 2847, 3/4" x 1 1/2"each	0	0	3
324	4.	Lead washer for No. 2847, 5/8".....each	0	0	3
323	8.	Lead washer for No. 3815, 1/2".....each	0	0	3

Order by Style Number.

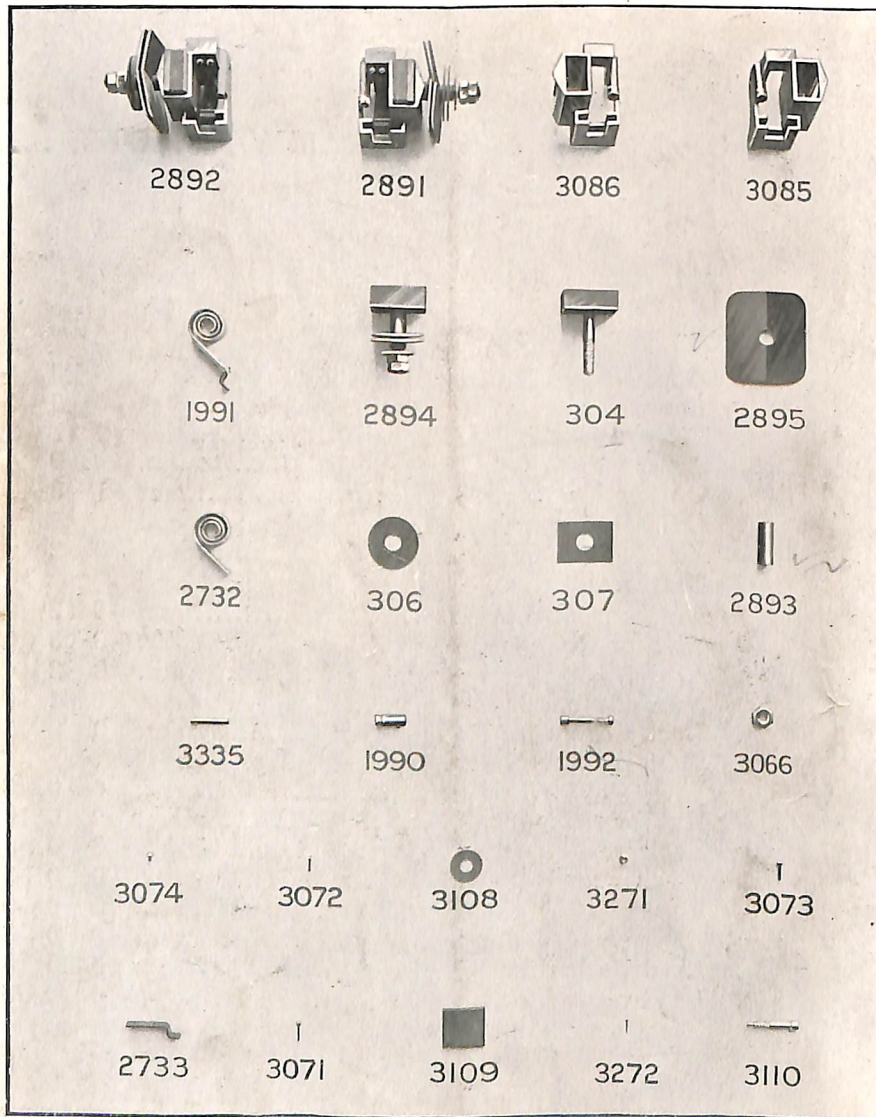


FIG. 5.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Brush Holders.

Style No.	Number per Motor.	Description.	Price.		
			£	s.	d.
2891	1.	Right hand brush holder, complete	3	3	0
2892	1.	Left hand brush holder, complete.....	3	3	0
3085	1.	Right hand brush holder without parts	0	17	4
3086	1.	Left hand brush holder without parts	0	17	4
2894	2.	Brush holder bolt, complete, with insulation, tube, nuts, washers, etc.....each	0	12	0
304	2.	Brush holder bolt without detail parts ...each	0	6	0
2893	2.	Fullerboard and mica bushing for bolt, No. 304	0	1	0
1991	2.	Brush holder spring and tip, complete ...each	0	2	5
2732	2.	Brush holder spring without tip.....each	0	2	3
2733	2.	Hard copper tip for spring	0	1	3
3074	4.	Copper rivets, $\frac{3}{16}$ " x $\frac{3}{8}$ ", for fastening tip to spring	0	1	3
2895	4.	Bent fullerboard washer	0	0	9
306	4.	Round fullerboard washer	0	0	3
307	2.	Sheet steel guide piece	0	1	6
1992	2.	Worm screw and collar, complete	0	1	6
3110	2.	Worm screw without collar.....each	0	1	0
3271	2.	Collar for worm screw	0	0	6
3272	2.	Split pin for collar, $\frac{3}{32}$ " x $\frac{5}{8}$ "	0	0	3
1990	2.	Worm wheel	0	1	3
3335	2.	Worm wheel spindle	0	0	6
3072	2.	Taper pin for worm wheel spindle No. 0 x 1"	0	0	6
3073	4.	Machine screw for clamping leads, No. 14—24 x 1"	0	0	9
3066	4.	Lock nut, $\frac{3}{4}$ "	0	1	0
3108	4.	Plain washer, $\frac{3}{4}$ "	0	0	6
3071	2.	Split pin, $\frac{1}{8}$ " x 1", for bolt No. 304	0	0	3
3109	2.	Carbon brush, $\frac{1}{2}$ " x $2\frac{3}{8}$ " x $2\frac{3}{4}$ "	0	0	9
332	2.	Brass sleeve for armature leads.....each	0	0	6

Order by Style Number.

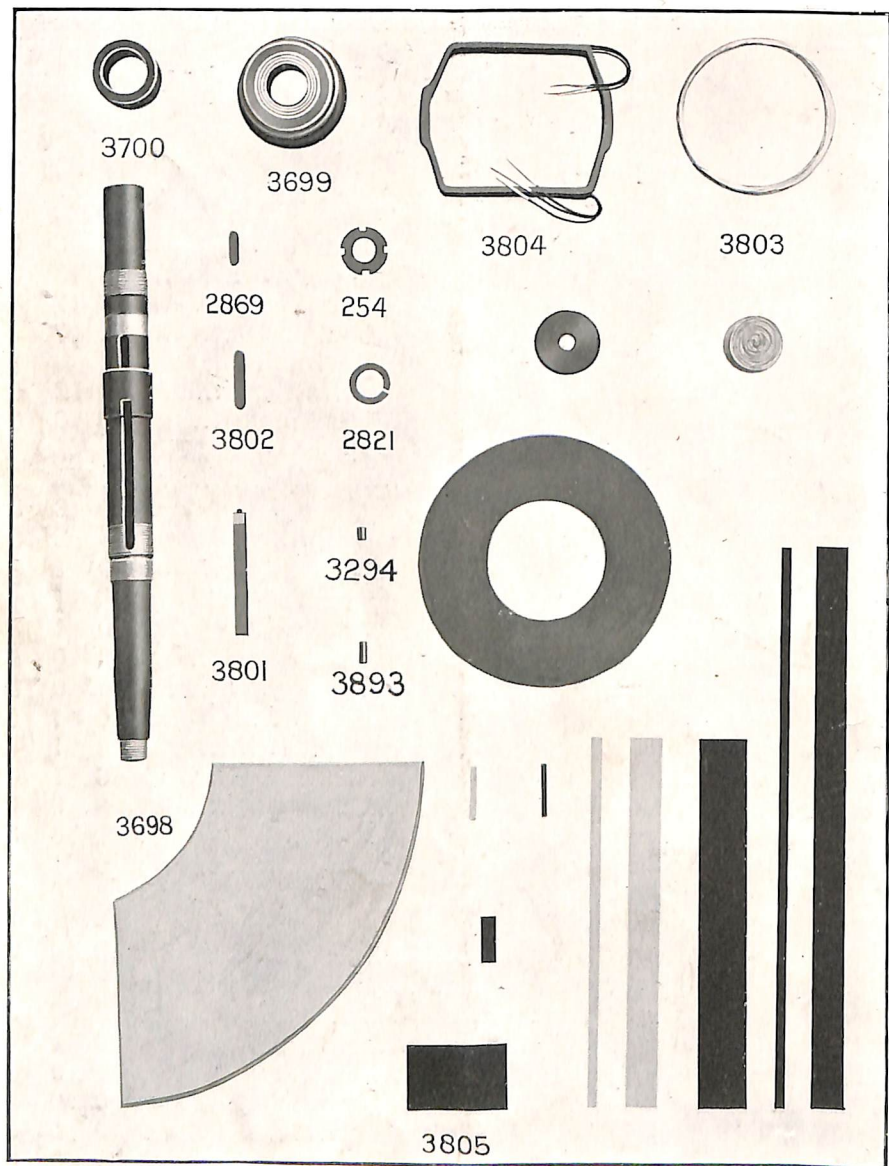


FIG. 6.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Armature.

	Style No.	Number per Motor.	Description.	Price		
				£	s.	d.
46	3806	1.	Armature complete, including commutator and shaft.....	39	16	0
46M	9183	1.	Armature complete, including commutator and shaft.....	41	0	0
46	9184	35.	Armature coil mould No. 383P.....each	0	5	0
	3804	35.	" " " " No. 425P.....each	0	4	10
	9185	1.	Complete set of rewinding material for one armature, including No. 425P coils and insulation.....	10	8	8
46	3698	1.	Shaft, turned, threaded, and key seated	2	2	6
46M	9186	1.	" " " " " " " " " " " "	2	5	6
	2869	1.	Steel key for commutator, $\frac{1}{2}$ " x $\frac{1}{2}$ " x 2", rd. ended.....	0	0	9
	3801	1.	Steel key for laminations, $\frac{1}{2}$ " x $\frac{1}{2}$ " x $7\frac{1}{8}$ " sq. ended.....	0	1	0
	3802	1.	Steel pinion key, $\frac{5}{8}$ " x $\frac{5}{8}$ " x $3\frac{3}{4}$ ".....	0	1	0
46	3700	1.	Armature nut, drilled and tapped.....	0	3	3
46M	9188	1.	" " " " " " " " " " " "	0	3	3
	3699	1.	M.I. wiper ring, commutator end, for 46 and 46M, and pinion end for No. 46 only.....	0	12	0
46M	9187	1.	M.I. wiper ring, pinion end.....	0	10	8
	3893	2.	Set screw for No. 3699.....per doz.	0	1	3
	254	1.	Pinion nut.....	0	1	0
	2821	1.	Lock washer for end of shaft, $1\frac{3}{4}$ ".....	0	0	5
	2887	1.	Insulating material for rewinding armature includes:— $\frac{1}{2}$ lb. black Hartford tape, 6 yards surgical braid, 2 fuller-board strips, 6 pieces best mica white, 25 yards waxed twine, 4 pieces bond paper and mica, 6 pieces bond paper and mica, 2 oil duck washers, 3 oil duck strips, 37 paraffined fuller-board cells, 1 drilling cap.....	0	12	0
	2885	1.	3lb. steel banding wire.....per lb.	0	1	7
	9230	39.	Banding clips, short.....per doz.	0	0	6
	9231	26.	" " " " long.....per doz.	0	0	9
	9166	6.	" " " " anchor.....per doz.	0	1	3
	3294	1.	Locking screw for armature nut, $\frac{1}{2}$ " x $\frac{3}{4}$ ".....per doz.	0	1	3

Order by Style Number

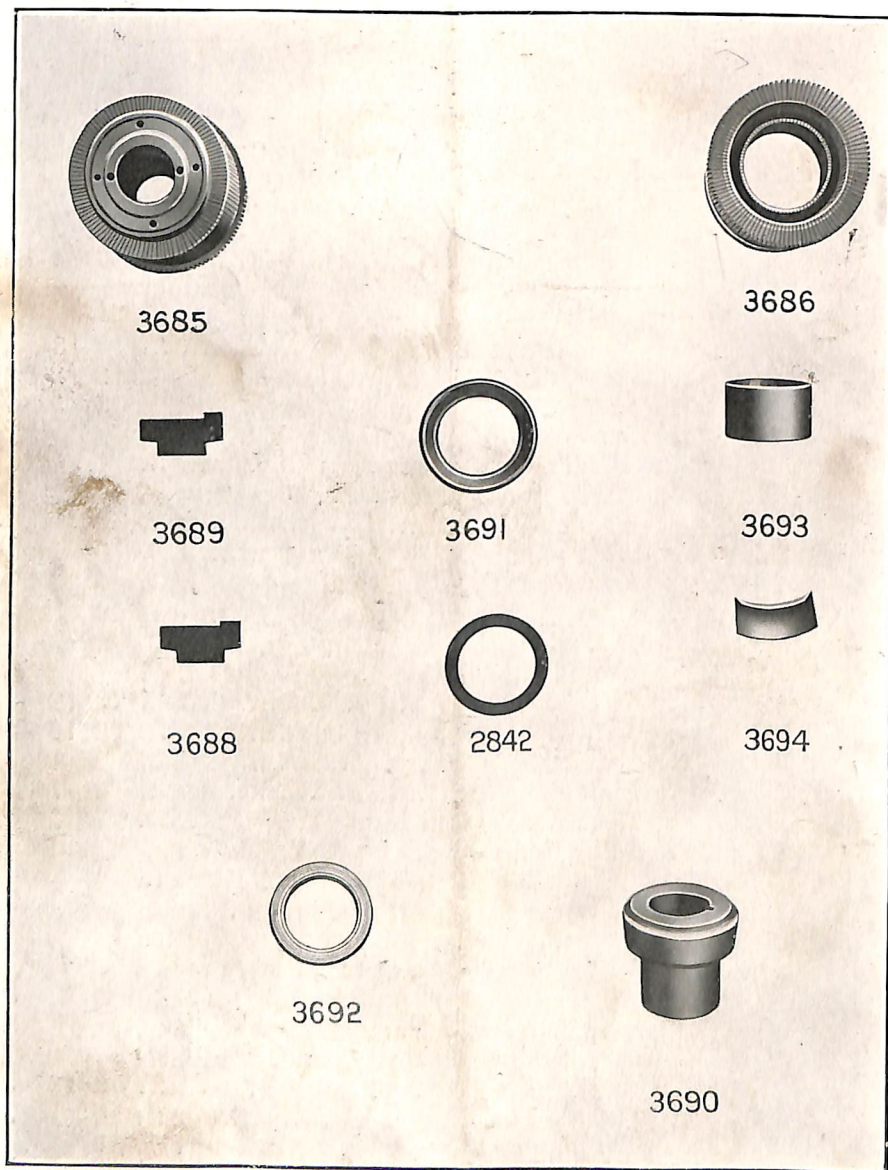


FIG. 7.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Commutator.

Style No.	Number per Motor.	Description.	Price.
			£ s. d.
3685	1.	Commutator complete	11 16 0
3686	1.	Set of copper and mica segments (105), set and finished (but without bush, etc.).....	6 15 0
3688	105.	Copper segment (unfinished)	0 0 9
3689	105.	Mica segment, unfinished..... each	0 0 6
3687	1.	Set of mica segments (105), finished	2 11 0
3694	2.	Mica V ring..... each	0 15 0
3693	1.	Mica bushing	0 9 8
3690	1.	C.I. commutator bush	0 14 3
3692	1.	C.B. commutator nut.....	0 13 0
2842	1.	Sheet steel washer, $4\frac{1}{2}'' \times 5\frac{3}{4}'' \times \frac{1}{32}''$	0 0 3
3691	1.	C.B. commutator V. ring	1 6 0
2869	1.	Steel key, $\frac{1}{2}'' \times \frac{1}{2}'' \times 2''$	0 0 9

Gears.

2864	1.	Forged steel pinion, 14 teeth, 5" face	0 19 3
2865	1.	Forged steel pinion, 18 teeth, 5" face	1 2 3
2866	1.	Steel gear wheel, 68 teeth, 5" face, 4" bore ..	4 16 4
8017	1.	Steel gear wheel, 68 teeth, 5" face, $3\frac{3}{4}''$ bore..	4 16 4
2867	1.	Steel gear wheel, 64 teeth, 5" face, $3\frac{3}{4}''$ bore..	4 12 4
8018	1.	Steel gear wheel, 64 teeth, 5" face, 4" bore ...	4 12 4
3287	4.	Machine bolt, without nut or washer, for bolting together halves of gear, $\frac{3}{4}'' \times 3\frac{1}{2}''$	0 3 6
3286	4.	Machine bolt, without nut or washer, for bolting together halves of gear, $\frac{3}{4}'' \times 5''$	0 4 6
3090	8.	Lockwashers, $\frac{3}{4}''$	0 0 5
3069	8.	Nut, $\frac{3}{4}''$	0 1 3
3071	8.	Split pin, $\frac{1}{8}'' \times 1''$	0 0 3
3802	1.	Steel pinion key, $\frac{5}{8}'' \times \frac{5}{8}'' \times 3\frac{3}{4}''$	0 0 9
341	1.	Steel gear key, $1'' \times 1'' \times 5''$	0 2 4

Order by Style Number.

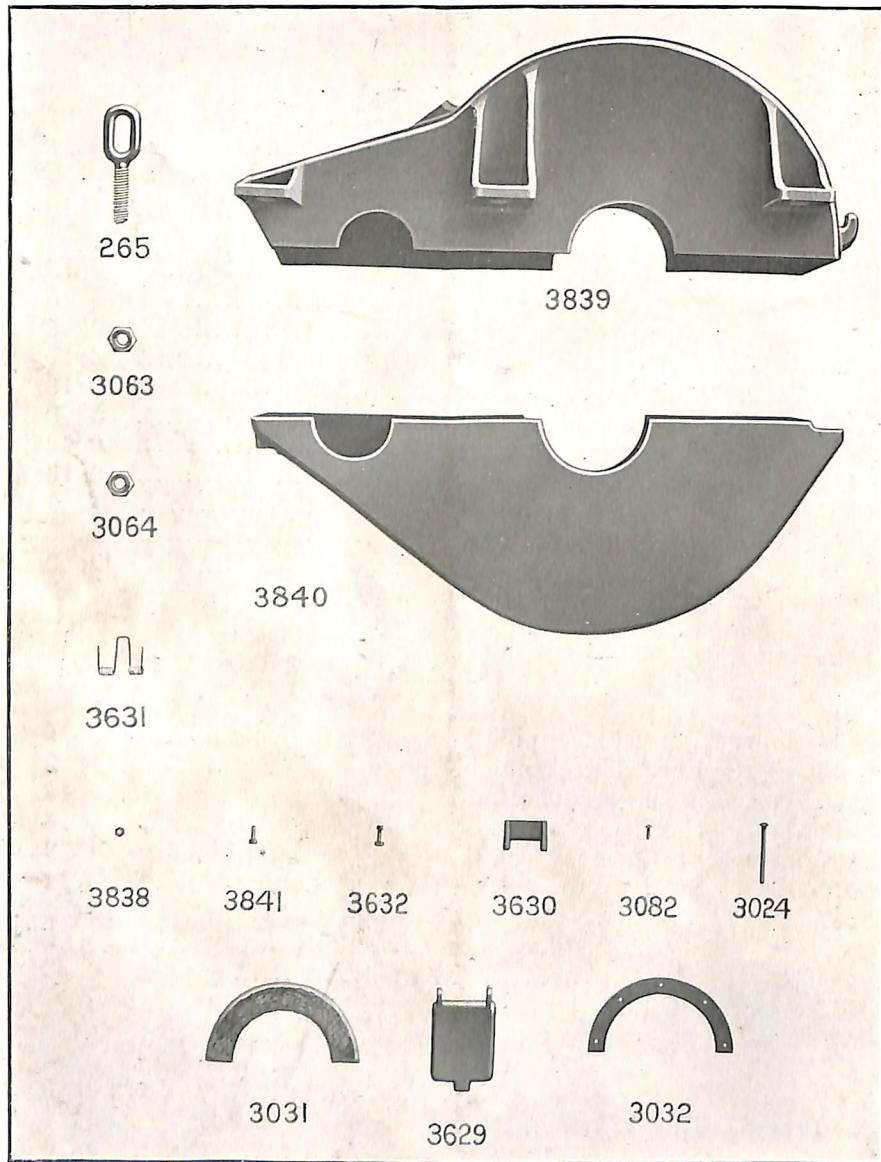


FIG. 8.

PARTS OF Nos. 46 & 46M TRAMWAY MOTORS.

Continued.

Gear Case.

Style No	Number per Motor.	Description.	Price.		
			£	s.	d.
9189	1.	Gear case complete, without bolts for fastening to frame	5	17	3
3839	1.	M.I. upper half gear case	3	6	9
3840	1.	M.I. lower half gear case, with bolts, Nos. 2860 and 265.	2	10	6
3032	2.	Sheet iron half ring for fixing felt half wiper ring to gear case	0	0	3
3031	2.	Felt half wiper ring.....	0	1	0
3082	10.	Iron rivets for fastening half rings to gear case, $\frac{1}{8}$ " x $\frac{3}{4}$ ".....	0	1	0
2859	4.	Bolt for bolting halves of gear case together, and to frame, $\frac{7}{8}$ " x $3\frac{1}{2}$ ".....	0	4	6
265	1.	Eye bolt for bolting two halves of gear case together.....	0	3	6
3063	5.	Nut for bolts, Nos. 2859 and 265, $\frac{7}{8}$ "...per doz.	0	1	10
3064	1.	Lock nut for bolts, Nos. 265 and 2859, $\frac{7}{8}$ "	0	1	10
3070	5.	Split pin, $\frac{3}{16}$ " x $1\frac{1}{4}$ ".....	0	0	3
3065	4.	Lock washer for No. 2859, $\frac{7}{8}$ "	0	0	6
3629	1.	Gear case cover without spring, hinge, or pin	0	2	9
3630	1.	Hinge for cover	0	0	9
3631	1.	Spring for cover	0	2	3
3024	1.	Hinge pin, $\frac{1}{4}$ " x $3\frac{1}{2}$ ".....	0	2	0
3632	2.	Bolt with nut for fastening hinge, $\frac{1}{4}$ " x $\frac{7}{8}$ "	0	0	7
3838	2.	Nut for No. 3632, $\frac{1}{4}$ "	0	0	5

Order by Style Number.

The British Westinghouse Electric & Mfg. Co., Ltd.

This Company operates in the British Empire with the exception of Canada
and also in Norway and Sweden.

Head Offices:

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