

# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4089,A STARTING MOTOR PARTS LIST

MZ-4089,A

Frame & Field Assembly With Terminal Stud & Parts Used With					Starter Clutch Assembly & Parts Used With									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2112A)	1	Frame & Field Assy.					MAD-95	1	Retainer, Yoke Spring					
MAK-80	1	Washer, Insulating					**	1	Starter Clutch					
MAW-39A	1	Insulating Block					MAX-52	1	Pin, Yoke					
MU-31	1	Bushing, Insulating					MZ-142	1	Spring, Yoke					
MZ-12‡	2	Brush					MZ-2500	1	Yoke					
MZ-30A	1	Insulation, Field Connection					8X-179	1	Nut, Yoke Pin, Hex., 3/8-16					
MZ-32	2	Connector, Field Coil					12X-201	1	Washer, Lock, Yoke Pin, 3/8					
MZ-38A	4	Screw, Pole Shoe					<u>Miscellaneous Parts</u>							
MZ-74	1	Equalizer					MN-18	1	Washer, Thrust, D.E.					
MZ-109	1	Stud, Terminal					MZ-24A	1	Band, Cover					
MZ-1007D	1	Coil, Field, U.L.					PS-1173	1	Housing Assy., Pinion					
MZ-1008	1	Coil, Field, L.R.					MP-41A	1	Bearing, Absorbent Bronze					
MZ-1009	1	Coil, Field, L.L.					8X-118	1	Screw, Attaching, Pinion Housing, Fil. hd., #10-32x3/4					
MZ-1010D	1	Coil, Field, U.R.					12X-544	4	Washer, Lock, #10					
SW-764A	1	Contact, Switch, Lower					8X-715	1	Screw, Cover Band, Rd. hd., #10-32x1 1/4					
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					8X-794	1	Nut, Cover Band, Square, #10-32					
<u>Comm. End Head Assembly &amp; Parts Used With</u>						8X-900	3	Screw, Attaching, Pinion Housing, Fil. hd., #10-32x7/8						
MZ-2105	1	Head Assy., Comm. End					1 2 3 4 5							
MAD-110	1	Felt					(Issued 3-8-44)							
MZ-16	2	Holder, Brush					Assembly No.	Starter Clutch						
MZ-19	4	Spring, Brush					MZ-4089	MAD-3099						
MZ-1034‡	2	Brush, Grounded					MZ-4089A	MAW-3132						
X-390	1	Oiler												
8X-532	4	Rivet												
12X-544	4	Washer, Lock, C.E. Head Screw, #10												
8X-902	4	Screw, Attaching, C.E. Head, Fil. hd., #10-32x3/8												
<u>Armature Assembly &amp; Parts Used With</u>														
MAD-96	1	Washer, Arm. Thrust, C.E.												
MU-54	*	Washer, Thrust, 1/32" thick												
MU-54A	*	Washer, Thrust, 1/64" thick												
MU-54B	*	Washer, Thrust, 3/64" thick												
MZ-2108	1	Armature Assy.												
MAW-31	1	Spacer, Armature Shaft												
<u>Switch Assembly &amp; Parts Used With</u>														
SW-2813	1	Switch, Starter												
12X-201	1	Washer, Lock, 3/8												
8X-830	1	Nut, Hex., 3/8-16												
12X-196	1	Washer, Lock, #10												
8X-321	2	Screw, Mtg. Switch, Rd. hd., #10-32x5/16												
X-1270	2	Washer, Skpf., Switch Mtg. Sc., #10												
8X-1368	1	Screw, Rd. hd., #10-32x7/16												
		1	2	3	4	5								

‡ Brush Set, Service, MZ-2012S.

\* Use as required.

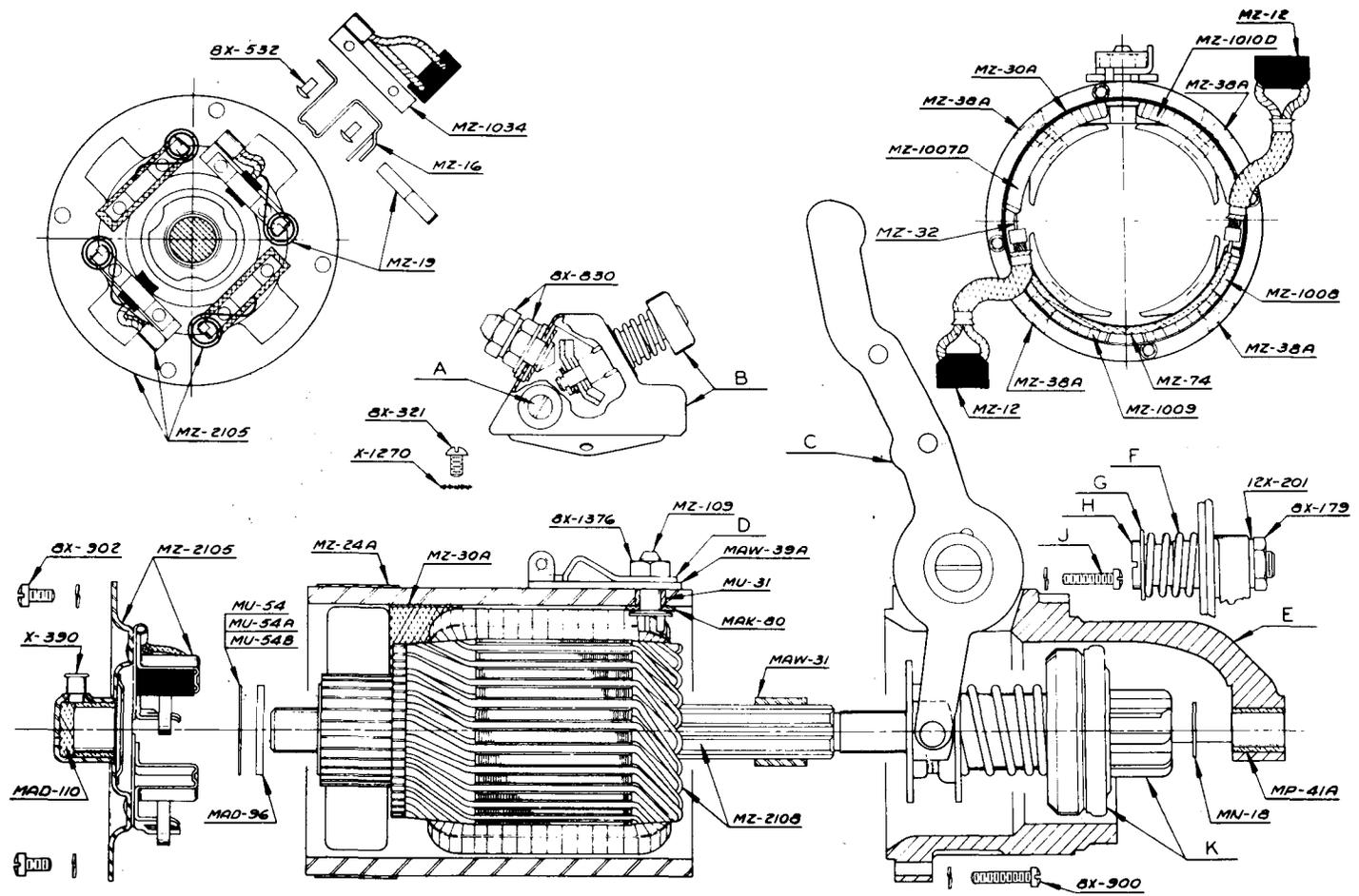
\*\* See table following parts list for part number applying to assembly wanted.

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Equipment & Parts List Binder

"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."

MZ-4089, A STARTING MOTOR ILLUSTRATION



UNIT	A	B	C	D	E	F	G	H	J	K
MZ-4089	BX-1368	SW-2813	MZ-2500	SW-764A	PS-1173	MZ-142	MAD-95	MAX-52	BX-118	MAD-3099
MZ-4089A	BX-1368	SW-2813	MZ-2500	SW-764A	PS-1173	MZ-142	MAD-95	MAX-52	BX-118	MAW-3132

# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4095 STARTING MOTOR PARTS LIST

MZ-4095  
(Issued 6-21-55)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2001	1	Frame & Field Assembly	EBA-2	1	BENDIX DRIVE ASSEMBLY
MAB-31A	1	Washer, Ins., Term. Stud, Outer Terminal	EB-108	2	Lockwasher
MU-14	1	Terminal	EB-7806	1	Screw, Spring, Head
MU-28	1	Stud, Terminal, 5/16-24	EB-7807	1	Screw, Spring, Shaft
MU-31	1	Bushing, Ins., Term. Stud	EB-7819S	1	Sleeve, Compression
MU-37	1	Washer, Plain, Term. Stud, 5/16	EB-8503	1	Head, Drive
MU-39A	1	Washer, Ins., Term. Stud, Inner	EB-8705	1	SPRING; DRIVE
MZ-12‡	2	Brush, Insulated	EB-8734	1	Ring, Take Up
MZ-30A	1	Insulation, Field Connection	EBA-211	1	Shaft & Pinion
MZ-38A	4	Screw, Pole Shoe	MZ-126	1	Washer, Thrust
MZ-74	1	Equalizer	MZ-127	1	Washer, Felt
MZ-3005S	1	FIELD COIL PACKAGE	MZ-128	1	Gasket, Int. Bearing
MZ-32	2	Connector, Field Coil	MZ-1024J	1	Band, Cover
MZ-1007	1	Coil, Field, U. L.	MZ-1125	1	Bearing Assy., Intermediate
MZ-1008	1	Coil, Field, L. R.	MZ-44A	1	BEARING, ABSORBENT BRONZE
MZ-1009	1	Coil, Field, L. L.	PS-1163A	1	Housing Assy., Pinion
MZ-1010	1	Coil, Field, U. R.	MG-77A	1	BEARING, ABSORBENT BRONZE
12X-1014	2	Lockwasher, Term. Stud, 5/16	X-195	4	Lockwasher, Bearing Screw, #8
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	X-342	4	Screw, Housing, Flat Hd. #10-32x7/8
Comm. End Head Assembly & Parts Used With			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MZ-2002B	1	Head Assy., Comm. End	8X-794	1	Nut, Cover Band, Square, #10-32
MAD-110	1	Felt	8X-878	4	Screw, Int. Bearing, Fill. Hd. #8-32x7/16
MZ-19	4	Spring, Brush	X-1621	4	Washer, Skpf., Housing Screw, #10
MZ-1034S‡	2	Brush, Grounded	‡ BRUSH SET, SERVICE MZ-2012AS.		
X-196	4	Lockwasher, Head Screw, #10	* Use as required.		
X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
Armature Assembly & Parts Used With					
MU-54	1	Washer, Arm. Thrust, Intermediate, 1/32"			
MU-54	*	Washer, Arm. Thrust, C. E., 1/32"			
MU-54B	*	Washer, Arm. Thrust, C. E., 3/64"			
MZ-2049	1	ARMATURE ASSEMBLY			
MZ-51	1	Spacer, Bearing Thrust			
X-261	1	Key, Woodruff, #6			

UNIT	APPLICATION
MZ-4095	Case (Tractor)

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking such parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4098 STARTING MOTOR PARTS LIST

MZ-4098

Frame & Field Assembly With Terminal Stud & Parts Used With					Miscellaneous Parts								
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part				
		1	2	3	4	5			1	2	3	4	5
(MZ-2001)	1	Frame & Field Assy.					EBA-6	1	Bendix Drive Assy.				
MAB-31	1	Washer, Ins., Term. Stud, Outer					EB-6501	1	Shaft				
MU-14	1	Terminal					EB-6502	1	Stop				
MU-28	1	Stud, Terminal, 5/16-24					EB-6504	1	Pinion				
MU-31	1	Bushing, Ins., Term. Stud					EB-6505	1	Spring, Drive				
MU-37	1	Washer, Plain, Term. Stud, 5/16					EB-6513	1	Spring, Anti-Drift				
MU-39	1	Washer, Ins., Term. Stud, Inner					EB-6526	1	Sleeve, Anti-Drift Spring				
MZ-12†	2	Brush, Insulated					EB-6529	1	Collar, Spacing				
MZ-30A	1	Insulation, Field Connection					EB-6823	2	Washer, Thrust				
MZ-32	2	Connector, Field Coil					EB-6824	1	Support, Drive Spring				
MZ-38A	4	Screw, Pole Shoe					EB-6825	1	Spring, Meshing				
MZ-74	1	Equalizer					EB-6827	1	Washer, Pinion				
MZ-1007	1	Coil, Field, U.L.					EB-6828	1	Nut, Hex., Castellated				
MZ-1008	1	Coil, Field, L.R.					MZ-1024J	1	Band, Cover				
MZ-1009	1	Coil, Field, L.L.					MAZ-1114	1	Head Assy., Drive End				
MZ-1010	1	Coil, Field, U.R.					MAK-39	1	Bearing, Absorbent Bronze				
X-1014	1	Washer, Lock, Term. Stud, 5/16					8X-119	4	Screw, Attaching, Drive End Head, Fil. hd., #10-32x1/2				
5X-1376	1	Nut, Term. Stud, Hex., 5/16-24					X-196	4	Washer, Lock, D.E. Head Screw, #10				
X-1014	1	Washer, Lock, Term. Stud, 5/16					X-308	1	Screw, Cover Band, Rd. hd., #10-32x1 3/8				
5X-1376	1	Nut, Term. Stud, Hex., 5/16-24					8X-794	1	Nut, Cover Band, Square, # 10-32 1 2 3 4 5				
<u>Comm. End Head Assembly &amp; Parts Used With</u>						(Issued 3-8-44)							
MZ-2002B	1	Head Assy., Comm. End											
MZ-16	2	Holder, Brush											
MZ-19	4	Spring, Brush											
MZ-1034†	2	Brush, Grounded											
8X-532	4	Rivet, Brush Holder											
X-544	4	Washer, Lock, Attaching, C.E. Head, #10											
8X-902	4	Screw, Attaching, C.E. Head, Fil. hd., #10-32x3/8											
<u>Armature Assembly &amp; Parts Used With</u>													
MAK-54	1	Washer, Thrust											
MU-54	1	Washer, Thrust											
MZ-2113	1	Armature											
		1	2	3	4	5							

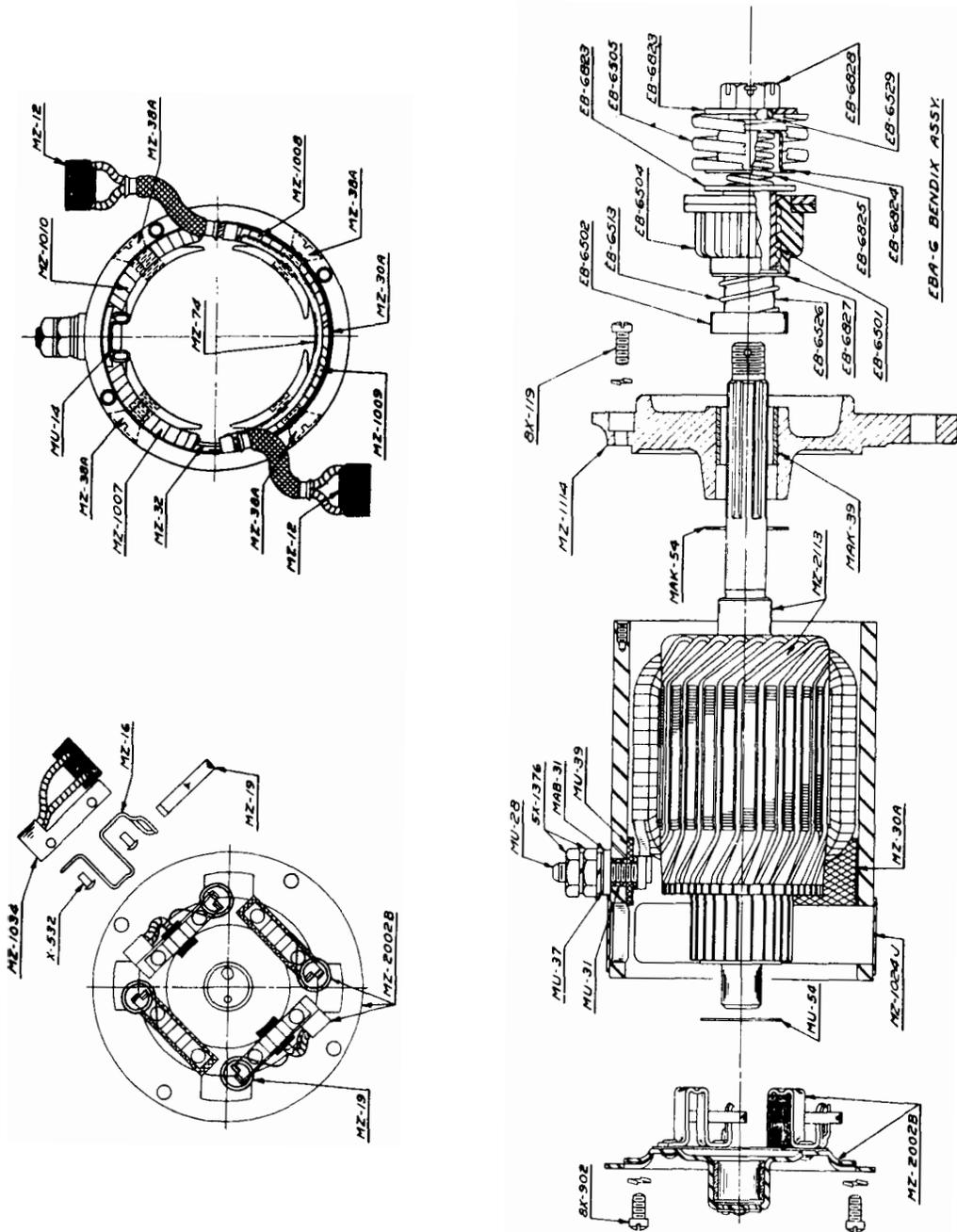
† Brush Set, Service, MZ-2012S.

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# MZ-4098 STARTING MOTOR ILLUSTRATION



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4103 STARTING MOTOR PARTS LIST

MZ-4103

<u>Frame &amp; Field Assembly With Terminal Stud &amp; Parts Used With</u>					<u>Armature Assembly &amp; Parts Used With</u>									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2001)	1	Frame & Field Assy.					MU-54	2	Washer, Arm Thrust, Comm. End & Intermediate					
MAB-31	1	Washer, Ins., Term. Stud, Outer					MZ-2154	1	Armature Assy.					
MU-14	1	Terminal					MZ-35	1	Spacer, Bearing Thrust					
MU-28	1	Stud, Terminal, 5/16-24					<u>Miscellaneous Parts</u>							
MU-31	1	Bushing, Ins., Term. Stud					EBA-35	1	Bendix Drive Assembly					
MU-37	1	Washer, Plain, Term. Stud, 5/16					EBA-513	1	Spring, Anti-Drift					
MU-39	1	Washer, Ins., Term. Stud, Inner					EBA-525	1	Spring, Meshing					
MZ-12†	2	Brush, Insulated					EBA-1233	1	Ring, Retaining					
MZ-30A	1	Ins., Field Connection					EBA-2008	1	Ring, Lock					
MZ-32	2	Connector, Field Coil					EBA-3505	1	Spring, Drive					
MZ-38A	4	Screw, Pole Shoe					EBA-3507	2	Plate, Spring Anchor					
MZ-74	1	Equalizer					EBA-3531	1	Shaft					
MZ-1007	1	Coil, Field, U.L.					EBA-3532	1	Pinion					
MZ-1008	1	Coil, Field, L.R.					MZ-124	1	Pin, Bendix					
MZ-1009	1	Coil, Field, L.L.					MZ-1024	1	Band, Cover					
MZ-1010	1	Coil, Field, U.R.					MZ-1153	1	Head Assy., Drive End					
X-1014	2	Lockwasher, Term. Stud, 5/16					MZ-46A	1	Bearing, Absorbent Bronze					
5X-1376	2	Nut, Term. Stud, Hex., 5/16-24					8X-119	4	Screw, Attaching, Drive End Head, Fil. Hd., #10-32x1/2					
<u>Comm. End Head Assembly &amp; Parts Used With</u>					X-196	4	Lockwasher, D.E. Head Screw, #10							
MZ-2002B	1	Head Assy., Comm. End					X-308	1	Screw, Cover Band, Rd. Hd., #10-32x1 3/8					
MZ-16	2	Holder, Brush					8X-794	1	Nut, Cover Band, Square, #10-32					
MZ-19	4	Spring, Brush					1	2	3	4	5			
MZ-1034†	2	Brush, Grounded												
8X-532	4	Rivet, Brush Holder												
X-544	4	Lockwasher, Attaching, C.E. Head, #10												
X-902	4	Screw, Attaching, C.E. Head, Fil. Hd., #10-32x3/8												
		1	2	3	4	5								

† Brush Set, Service, MZ-2012S.

(Issued 2-12-46)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4106, A STARTING MOTOR PARTS LIST

MZ-4106, A  
(Issued 4-2-53)

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2093	1	Frame & Field Assy.
MAB-31A	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39A	1	Washer, Ins., Term. Stud, Inner
MZ-12†	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U. L.
MZ-1008	1	Coil, Field, L. R.
MZ-1009	1	Coil, Field, L. L.
MZ-1010	1	Coil, Field, U. R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, C. E. Head Screw #10
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	1	Washer, Thrust, C. E., 1/32" Thick
MZ-2134	1	ARMATURE
X-261	1	Key, Woodruff, D. E. #6

## Switch Assembly & Parts Used With

Part No.	No. Used	Name of Part
**	1	Connector
SS-4001	1	SOLENOID STARTING SWITCH
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
8X-832	2	Nut, Hex. 5/16-24
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1274	2	Washer, Switch Mtg., Skpf. #10

## Miscellaneous Parts

EBA-53	1	BENDIX DRIVE ASSY.
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2008	1	Ring, Lock
EBA-2031	1	Shaft, Screw
EBA-3307	2	Plate, Spring Anchor
EBA-4505	1	SPRING, DRIVE
EBA-5332	1	Pinion
MN-18	1	Washer, Thrust, D. E.
MZ-177	4	Screw, Pinion Housing, Hex. Hd. #10-32x3/4
MZ-1024	1	Band, Cover
PS-1189	1	Housing Assy., Pinion
MP-41A	1	BEARING, ABSORBENT BRONZE
12X-196	4	Lockwasher, Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

\*\* See table following parts list for part number applying to assembly wanted.

Assembly No.	Connector, Switch to Motor
MZ-4106	SS-6L
MZ-4106A	SS-6R

UNIT	APPLICATION
MZ-4106	Chris Craft, Owens Yacht
MZ-4106A	Chris Craft

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4111 STARTING MOTOR PARTS LIST

MZ-4111

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2093)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12†	2	Brush, Insulated
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex., 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
X-196	4	Lockwasher, C.E. Head Sc., #10
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

Part No.	No. Used	Name of Part
MAK-54	1	Washer, Thrust, D.E.
MU-54	1	Washer, Thrust, C.E., 1/32"
MZ-2085	1	ARMATURE

## Miscellaneous Parts

EB-79	1	BENDIX DRIVE ASSEMBLY
EB-6505	1	SPRING, DRIVE
EB-6813	1	Spring, Anti-Drift
EB-6823	2	Washer, Thrust
EB-6824	1	Support, Drive Spring
EB-6825	1	Spring, Meshing
EB-6826	1	Sleeve, Anti-Drift Spring
EB-6827	1	Washer, Pinion
EB-6828	1	Nut
EB-7901	1	Shaft
EB-7902	1	Drive Stop
EB-8104S	1	Pinion
X-528	1	Cotter Pin
MZ-1024	1	Band, Cover
MZ-1136	1	Head Assy., Drive End
MAK-39	1	BEARING ABS. BRONZE
X-196	2	Lockwasher, Switch Mtg., #10
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-196	4	Lockwasher, D.E. Head Sc., #10
8X-794	1	Nut, Cover Band, Square #10-32
X-902	4	Screw, D.E. Head, Fill. Hd. #10-32x3/8

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4111	Miniature Train

(Issued 4-19-50)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4114 STARTING MOTOR PARTS LIST

MZ-4114  
(Issued 6-21-55)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2001F	1	Frame & Field Assembly	EBA-4	1	BENDIX DRIVE ASSEMBLY
MAB-31A	1	Washer, Ins. , Term. Stud, Outer	EB-108	2	Lockwasher
MU-14	1	Terminal	EB-7819S	1	Sleeve, Compression
MU-28	1	Stud, Terminal, 5/16-24	EB-8503	1	Head, Drive
MU-31	1	Bushing, Ins. , Term. Stud	EB-8506	1	Screw, Spring, Head
MU-37	1	Washer, Plain, Term. Stud, 5/16	EB-8507	1	Screw, Spring, Shaft
MU-39A	1	Washer, Ins. , Term. Stud, Inner	EB-8734	1	Ring, Take up
MZ-12‡	2	Brush, Insulated	EB-9911	1	Shaft & Pinion
MZ-30A	1	Insulation, Field Connection	EBA-405	1	SPRING, DRIVE
MZ-38A	4	Screw, Pole Shoe	MZ-1024Y	1	Band, Cover
MZ-74	1	Equalizer	MZ-1129A	1	Head Assy. , Drive End
MZ-3005S	1	FIELD COIL PACKAGE	MZ-44A	1	BEARING, ABSORBENT BRONZE
MZ-32	2	Connector, Field Coil	8X-119	4	Screw, D. E. Head, Fill. Hd. #10-32x1/2
MZ-1007	1	Coil, Field, U. L.	12X-196	4	Lockwasher, Head Screw, #10
MZ-1008	1	Coil, Field, L. R.	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MZ-1009	1	Coil, Field, L. L.	8X-794	1	Nut, Cover Band, Square #10-32
MZ-1010	1	Coil, Field, U. R.			
12X-1014	2	Lockwasher, Term. Stud, 5/16			
8X-1376	2	Nut, Term. Stud, Hex. , 5/16-24			
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2002E	1	Head Assy. , Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S‡	2	Brush, Grounded			
12X-196	4	Lockwasher, Head Sc. , #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MU-54	2	Washer, Arm. Thrust, Comm. End & Intermediate			
MZ-2053	1	ARMATURE ASSEMBLY			
MZ-35	1	Spacer, Bearing Thrust			
X-261	1	Key, Woodruff, #6			

‡ BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4114	Case (Tractor)

Printed in U. S. A.

File in  
Equipment & Parts List Binder

“NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed.”



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4115 STARTING MOTOR PARTS LIST

MZ-4115

## Frame & Field Assembly With Terminal Stud & Parts Used With

Part No.	No. Used	Name of Part				
		1	2	3	4	5
(MZ-2176A)	1	Frame & Field Assy.				
MAK-80	1	Washer, Ins., Term. Stud				
MAW-39A	1	Ins. Block				
MU-31	1	Bushing, Ins., Term. Stud				
MZ-12†	2	BRUSH				
MZ-30A	1	Insulation, Field Connection				
MZ-32	2	Connector, Field Coil				
MZ-38A	4	Screw, Pole Shoe				
MZ-74	1	Equalizer				
MZ-109	1	Stud, Terminal				
MZ-1007D	1	Coil, Field, U.L.				
MZ-1008	1	Coil, Field, L.R.				
MZ-1009	1	Coil, Field, L.L.				
MZ-1010D	1	Coil, Field, U.R.				
SW-763A	1	Contact, Switch, Lower				
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24				

## Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End				
MAD-110	1	Felt				
MZ-16	2	Holder, Brush				
MZ-19	4	Spring, Brush				
MZ-1034†	2	BRUSH, GROUNDED				
8X-532	4	Rivet, Brush Holder				
12X-544	4	Lockwasher, C.E. Head Sc., #10				
8X-902	4	Screw, C.E. Head, Fil. Hd. #10-32x3/8				

## Armature Assembly & Parts Used With

MAD-96	1	Washer, Thrust				
MU-54	*	Washer, Thrust, 1/32" Thick				
MU-54A	*	Washer, Thrust, 1/64" Thick				
MU-54B	*	Washer, Thrust, 3/64" Thick				
MZ-2108	1	ARMATURE ASSEMBLY				
MAW-31	1	Spacer, Armature Shaft				
		1	2	3	4	5

## Switch Assembly & Parts Used With

Part No.	No. Used	Name of Part				
		1	2	3	4	5
SW-2677A	1	STARTING SWITCH				
12X-201	1	Washer, Lock, 3/8				
8X-830	1	Nut, Hex., 3/8-16				
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16				
X-1270	2	Washer, Switch Mtg., Skpf. #10				

## Starter Clutch Assembly & Parts Used With

MAW-3132	1	STARTER CLUTCH				
MZ-175	1	Screw, Pivot				
MZ-2188	1	Yoke				
8X-179	1	Nut, Yoke Pivot, Hex. 3/8-16				
12X-201	1	Lockwasher, Yoke Pivot, 3/8				

## Miscellaneous Parts

MN-18	1	Washer, Thrust				
MZ-24A	1	Band, Cover				
PS-1197	1	Housing Assy., Pinion				
MP-41A	1	BEARING, ABS. BRONZE				
12X-544	4	Lockwasher, Housing Sc. #10				
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2				
8X-794	1	Nut, Cover Band, Square #10-32				
8X-900	4	Screw, Pinion Housing, Fil. Hd. #10-32x7/8				
		1	2	3	4	5

\* Use as required.

† BRUSH SET, Service MZ-2012S.

Unit	Application
MZ-4115	Dodge Truck

Printed in U. S. A.

(Issued 2-19-47)  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4118 STARTING MOTOR PARTS LIST

MZ-4118

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part				
		1	2	3	4	5
(MZ-2001)	1	Frame & Field Assy.				
MAB-31	1	Washer, Ins., Term. Stud Outer				
MU-14	1	Terminal				
MU-28	1	Stud, Terminal, 5/16-24				
MU-31	1	Bushing, Ins., Term. Stud				
MU-37	1	Washer, Plain, Term. Stud 5/16				
MU-39	1	Washer, Ins., Term. Stud Inner				
MZ-12†	2	Brush, Insulated				
MZ-30A	1	Insulation, Field Conn.				
MZ-32	2	Connector, Field Coil				
MZ-38A	4	Screw, Pole Shoe				
MZ-74	1	Equalizer				
MZ-1007	1	Coil, Field, U.L.				
MZ-1008	1	Coil, Field, L.R.				
MZ-1009	1	Coil, Field, L.L.				
MZ-1010	1	Coil, Field, U.R.				
X-1014	2	Lockwasher, Term. Stud., 5/16				
5X-1376	2	Nut, Term. Stud, Hex., 5/16-24				

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End				
MZ-19	4	Spring, Brush				
MZ-1034S†	2	Brush, Grounded				
X-544	4	Lockwasher, C.E. Head Screw, #10				
8X-902	4	Screw, C.E. Head, Fil. Hd., #10-32x3/8				

## Armature Assembly & Parts Used With

MU-54	2	Washer, Thrust 1/32" thick				
MZ-2089	1	ARMATURE ASSY.				
MZ-51	1	Spacer, Bearing Thrust				
X-261	1	Key, Woodruff, C.E. #6				

## Miscellaneous Parts

Part No.	No. Used	Name of Part				
		1	2	3	4	5
EBA-36	1	BENDIX DRIVE ASSEMBLY				
EB-108	2	Lockwasher				
EB-7819S	1	Sleeve, Compression				
EB-8503	1	Head, Driving				
EB-8506	1	Screw, Head Spring				
EB-8507	1	Screw, Spring Shaft				
EB-8734	1	Ring, Take-Up				
EBA-405	1	SPRING, DRIVE				
EBA-3611	1	Shaft & Pinion				
MAB-2040	1	BEARING ASSY., INTERMEDIATE				
MG-77A	1	Bearing, Absorbent Bronze				
MZ-52	4	Screw, Pinion Housing Hex. Hd., #10-32x31/32				
MZ-1024	1	Band, Cover				
PS-1214	1	Housing Assy., Pinion				
MAB-88	1	Pin Dowel				
MP-41A	1	Bearing, Absorbent Bronze				
X-196	4	Lockwasher, Housing Screw, #10				
8X-714	1	Screw, Cover Band, Rd. Hd., #10-32x1 1/2				
8X-794	1	Nut, Cover Band, Square, #10-32 1 2 3 4 5				

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4118	Mobilift

(Issued 10-3-47)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4118M STARTING MOTOR PARTS LIST

MZ-4118M  
(Issued 4-12-51)

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2001G)	1	Frame & Field Assy.
MAB-31A	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31A	1	Bushing, Ins., Term. Stud, Inner
MU-37G	1	Washer, Plain, Term. Stud, 5/16
MU-39A	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38C	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
X-180	2	Nut, Term. Stud, Hex. 5/16-24
12X-1014	2	Lockwasher, Term. Stud, 5/16

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
19X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54F	2	Washer, Thrust, C.E. & Intermediate, 1/32" Thick
MZ-2089M	1	ARMATURE
X-261	1	Key, Woodruff, D.E., #6

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-36A	1	BENDIX DRIVE ASSEMBLY
EB-108A	2	Lockwasher
EB-7819SA	1	Sleeve, Compression
EB-8503A	1	Head, Driving
EB-8506A	1	Screw, Spring, Head
EB-8507A	1	Screw, Spring, Shaft
EB-8734A	1	Ring, Take-Up
EBA-405A	1	SPRING, DRIVE
EBA-3611A	1	Shaft & Pinion
MAB-2040C	1	BEARING ASSY., INTERMEDIATE
MG-77A	1	Bearing, Abs. Bronze
MZ-52A	4	Screw, Housing, Hex. Hd. #10-32x31/32
MZ-1024Z	1	Band, Cover
PS-1214A	1	Housing Assy., Pinion
MAB-88A	1	Pin, Dowel
MP-41A	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Housing Screw, #10
X-2875	1	Nut, Cover Band, Square #10-32
X-2882	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4118M	Wisconsin

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File in  
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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."







# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

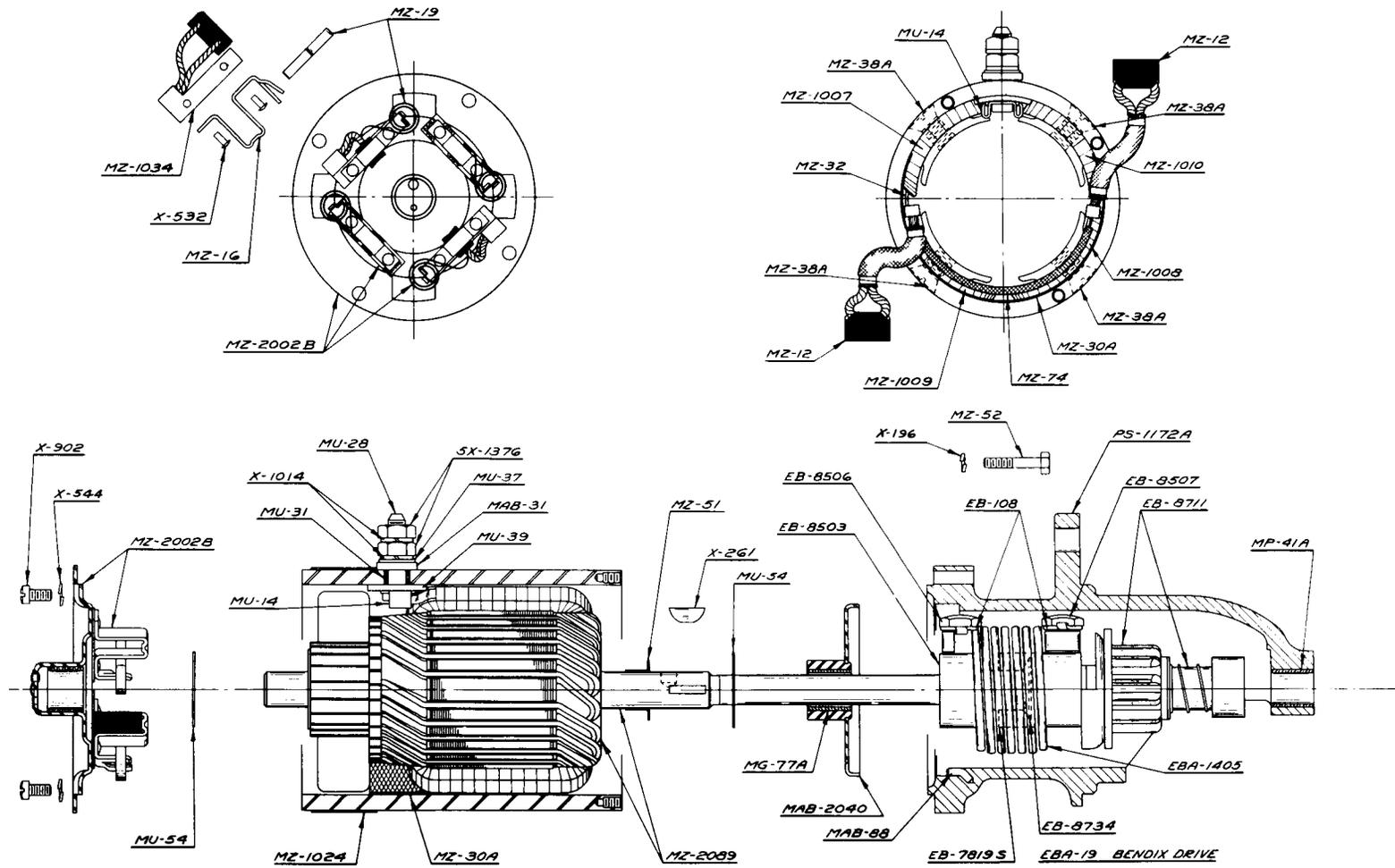
MZ-4123 STARTING MOTOR PARTS LIST

MZ-4123

<u>Frame &amp; Field Assembly With Terminal Stud &amp; Parts Used With</u>					<u>Miscellaneous Parts</u>								
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part				
		1	2	3	4	5			1	2	3	4	5
(MZ-2001)	1	Frame & Field Assy.					EBA-19	1	Bendix Drive Assy.				
MAB-31	1	Washer, Ins., Term. Stud, Outer					EB-108	2	Washer, Lock				
MU-14	1	Terminal					EB-7819S	1	Sleeve Compression				
MU-28	1	Stud, Terminal, 5/16-24					EB-8503	1	Head, Driving				
MU-31	1	Bushing, Ins., Term. Stud					EB-8506	1	Screw, Spring, Head				
MU-37	1	Washer, Plain, Term. Stud, 5/16					EB-8507	1	Screw, Spring, Shaft				
MU-39	1	Washer, Ins., Term. Stud, Inner					EB-8711	1	Shaft & Pinion				
MZ-12†	2	Brush, Insulated					EB-8734	1	Ring, Take Up				
MZ-30A	1	Insulation, Field Conn.					EBA-1405	1	Spring, Drive				
MZ-32	2	Connector, Field Coil					MAB-2040	1	Bearing Assy., Intermediate				
MZ-38A	4	Screw, Pole Shoe					MG-77A	1	Bearing, Absorbent Bronze				
MZ-74	1	Equalizer					MZ-52	4	Screw, Pinion Housing, Hex. hd., #10-32x31/32				
MZ-1007	1	Coil, Field, U.L.					MZ-1024	1	Band, Cover				
MZ-1008	1	Coil, Field, L.R.					PS-1172A	1	Housing Assy., Pinion				
MZ-1009	1	Coil, Field, L.L.					MAB-88	1	Pin, Dowel				
MZ-1010	1	Coil, Field, U.R.					MP-41A	1	Bearing, Absorbent Bronze				
X-1014	1	Washer, Lock, Term. Stud, 5/16					X-196	4	Washer, Lock, Pinion Housing Screw, #10				
5X-1376	1	Nut, Term. Stud, Hex., 5/16-24					X-308	1	Screw, Cover Band, Rd. hd., #10-32x1 3/8				
X-1014	1	Washer, Lock, Term. Stud, 5/16					8X-794	1	Nut, Cover Band, Square, #10-32				
5X-1376	1	Nut, Term. Stud, Hex., 5/16-24							(Issued 4-25-44)				
<u>Comm. End Head Assembly &amp; Parts Used With</u>													
MZ-2002B	1	Head Assy., Comm. End											
MZ-16	2	Holder, Brush											
MZ-19	4	Spring, Brush											
MZ-1034†	2	Brush, Grounded											
8X-532	4	Rivet, Brush Holder											
X-544	4	Washer, Lock, Attaching, C.E. Head, #10											
X-902	4	Washer, Lock, Cover Holding Screw, #10											
<u>Armature Assembly &amp; Parts Used With</u>													
MU-54	2	Washer, Arm. Thrust, Comm. End & Intermediate											
MZ-2089	1	Armature Assy.											
MZ-51	1	Spacer, Bearing Thrust											
X-261	1	Key, Woodruff, #6											
		1	2	3	4	5							

† Brush Set, Service, MZ-2012S.

MZ-4123 STARTING MOTOR ILLUSTRATION



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4127 STARTING MOTOR PARTS LIST

MZ-4127

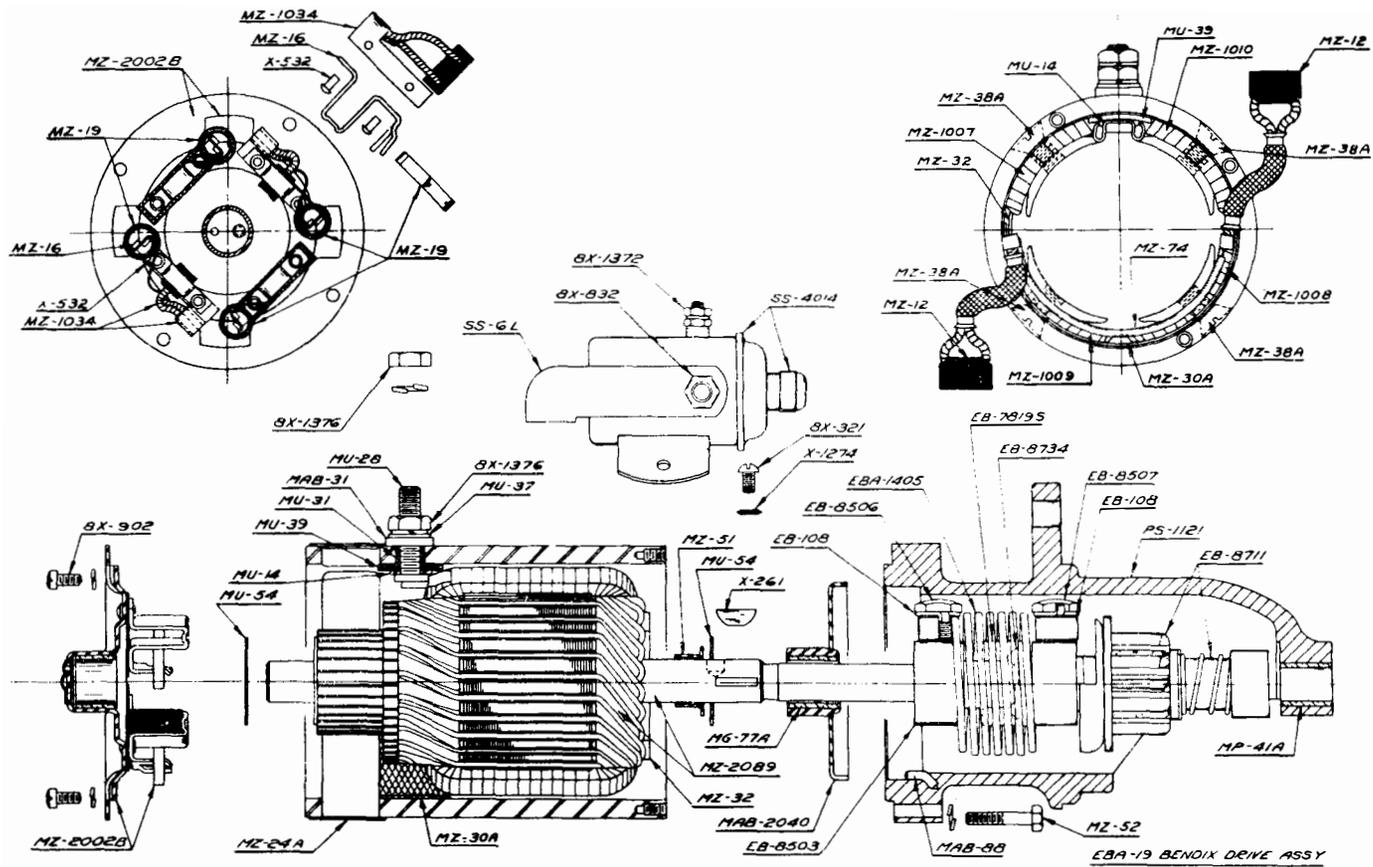
Frame & Field Assembly With Terminal Stud & Parts Used With					Switch Assembly & Parts Used With								
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part				
		1	2	3	4	5			1	2	3	4	5
(MZ-2202)	1	Frame & Field Assy.					SS-6L	1	Connector				
MAB-31	1	Washer, Ins., Term. Stud, Outer					SS-4014	1	Switch, Starting				
MU-14	1	Terminal					12X-196	1	Washer, Lock, #10				
MU-28	1	Stud, Terminal					8X-832	2	Nut, Hex., 5/16-24				
MU-31	1	Bushing, Ins., Term. Stud					12X-1014	2	Washer, Lock, 5/16				
MU-37	1	Washer, Plain, Term. Stud					8X-1372	1	Nut, Hex., #10-32				
MU-39	1	Washer, Ins., Term. Stud, Inner					8X-321	2	Screw, Mtg. Switch, Rd. hd., #10-32x5/16				
MZ-12†	2	Brush					X-1274	2	Washer, Skpf. Switch Mtg., #10				
MZ-30A	1	Insulation, Field Connection					<u>Miscellaneous Parts</u>						
MZ-32	2	Connector, Field Coil					EBA-19	1	Bendix Drive Assy.				
MZ-38A	4	Screw, Pole Shoe					EB-108	2	Washer, Lock				
MZ-74	1	Equalizer					EB-7819S	1	Sleeve, Compression				
MZ-1007	1	Coil, Field, U.L.					EB-8503	1	Head, Driving				
MZ-1008	1	Coil, Field, L.R.					EB-8506	1	Screw, Spring, Head				
MZ-1009	1	Coil, Field, L.L.					EB-8507	1	Screw, Spring, Shaft				
MZ-1010	1	Coil, Field, U.R.					EB-8711	1	Shaft & Pinion				
X-1014	1	Washer, Lock, Term. Stud, 5/16					EB-8734	1	Ring, Take up				
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					EBA-1405	1	Spring, Drive				
X-1014	1	Washer, Lock, Term. Stud, 5/16					MAB-2040	1	Bearing Assy., Intermediate				
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					MG-77A	1	Bearing, Absorbent Bronze				
X-1014	1	Washer, Lock, Term. Stud, 5/16					MZ-24A	1	Band, Cover				
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					MZ-52	4	Screw, Pinion Housing, Hex. hd., #10-32x31/32				
<u>Comm. End Head Assembly &amp; Parts Used With</u>						PS-1121	1	Housing Assy., Pinion					
MZ-2002B	1	Head Assy., Comm. End					MAB-88	1	Pin, Dowel				
MZ-16	2	Holder, Brush					MP-41A	1	Bearing, Absorbent Bronze				
MZ-19	4	Spring, Brush					X-308	1	Screw, Cover Band, Rd. hd., #10-32x1 3/8				
MZ-1034†	2	Brush, Grounded					8X-794	1	Nut, Cover Band, Square, #10-32				
8X-532	4	Rivet, Brush Holder							1	2	3	4	5
X-544	4	Washer, Lock, Attaching, C.E. Head, #10					(Issued 3-8-44)						
X-902	4	Screw, Attaching, C.E. Head, Fil. hd., #10-32x3/8											
<u>Armature Assembly &amp; Parts Used With</u>													
MU-54	2	Washer, Arm. Thrust, Comm. End & Intermediate											
MZ-2089	1	Armature Assy.											
MZ-51	1	Spacer, Bearing Thrust											
X-261	1	Key, Woodruff, #6											
		1	2	3	4	5							

† Brush Set, Service, MZ-2012S.

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."

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MZ-4127 STARTING MOTOR ILLUSTRATION

# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4130,A STARTING MOTOR PARTS LIST

MZ-4130,A

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2001E)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MAK-54	1	Washer, Thrust, Arm. Shaft, D.E.
MU-54	1	Washer, Thrust, C.E., 1/32" Thick
MZ-2113	1	ARMATURE

## Switch Assembly & Parts Used With

SS-6R	1	Connector, Switch to Motor
SS-4020	1	SOLENOID SWITCH
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
8X-832	2	Nut, Hex. 5/16-24
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1274	2	Washer, Switch Mtg., Skpf., #10

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-6	1	BENDIX DRIVE ASSY.
EB-6501	1	Shaft
EB-6502	1	Stop
EB-6505	1	SPRING, DRIVE
EB-6513	1	Spring, Anti-Drift
EB-6529	1	Collar, Spacing
EB-6823	2	Washer, Thrust
EB-6824	1	Support, Drive Spring
EB-6825	1	Spring, Meshing
EB-6828	1	Nut, Castellated
EBA-604S	1	Pinion
EBA-635	1	Sleeve, Anti-Drift Spring
X-528	1	Pin, Cotter
MZ-1024U	1	Band, Cover
MZ-1114	1	Head Assy., Drive End
MAK-39	1	BRG. ABS. BRONZE
8X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2
12X-196	4	Lockwasher, Head Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

(Issued 8-2-49)

UNIT	APPLICATION
MZ-4130	B.F. Avery, Atlas Diesel
MZ-4130A	Hercules

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4131 STARTING MOTOR PARTS LIST

MZ-4131

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2203)	1	Frame & Field Assy.	SS-224	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SS-4001	1	SOLENOID STARTING SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex. #10-32
MU-28	1	Stud, Terminal	12X-196	1	Lockwasher, #10
MU-31	1	Bushing, Ins., Term. Stud	8X-832	2	Nut, Hex., 5/16-24
MU-37	1	Washer, Plain, Term. Stud, 5/16	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	8X-321	2	Screw, Mtg., Switch, Rd. Hd. #10-32x5/16
MZ-12 †	2	Brush	X-1274	2	Lockwasher, Skpf. Switch Mtg., #10
MZ-30A	1	Insulation, Field Conn.			
MZ-38A	4	Screw, Pole Shoe			<u>Miscellaneous Parts</u>
MZ-74	1	Equalizer	EBA-4	1	BENDIX DRIVE ASSY.
MZ-3005S	1	FIELD COIL PACKAGE	EB-108	2	Lockwasher
MZ-32	2	Connector, Field Coil	EB-7819S	1	Sleeve, Compression
MZ-1007	1	Coil, Field, U.L.	EB-8503	1	Head, Drive
MZ-1008	1	Coil, Field, L.R.	EB-8506	1	Screw, Spring, Head
MZ-1009	1	Coil, Field, L.L.	EB-8507	1	Screw, Spring, Shaft
MZ-1010	1	Coil, Field, U.R.	EB-8734	1	Ring, Take-Up
12X-1014	2	Lockwasher, Term. Stud, 5/16	EB-9911	1	Shaft & Pinion
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	EBA-405	1	SPRING, DRIVE
			MZ-1024U	1	Band, Cover
			MZ-1129A	1	Head Assy., Drive End
			MZ-44A	1	BEARING, ABS. BRONZE
			8X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2
			12X-196	4	Lockwasher, D.E. Head Screw, #10
			X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
			8X-794	1	Nut, Cover Band, Square, #10-32
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2002B	1	Head Assy., Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S †	2	Brush, Grounded			
12X-196	4	Lockwasher, C.E. Head, #10			
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MU-54	2	Washer, Thrust, C.E. & Inter., 1/32" Thick			
MZ-2053	1	ARMATURE ASSY.			
MZ-35	1	Spacer, Bearing Thrust			
X-261	1	Key, Woodruff, #6			

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4131	Massey Harris

(Issued 6-3-49)

Printed in U. S. A.

File in  
Equipment & Parts List Binder

"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking such parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4133 STARTING MOTOR PARTS LIST

MZ-4133

Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2210)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12†	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-209	1	Stud, Terminal
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
8X-164	2	Nut, Term. Stud, Hex. 5/16-18
12X-1014	2	Lockwasher, Term. Stud, 5/16

Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, C.E. Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used

Part No.	No. Used	Name of Part
MAK-61	1	Washer, Thrust, Comm. End
MU-54	*	Washer, Thrust, C.E. & D.E., 1/32" Thick
MU-54A	*	Washer, Thrust, C.E. & D.E., 1/64" Thick
MU-54B	*	Washer, Thrust, C.E. & D.E., 3/64" Thick
MZ-2211	1	ARMATURE
X-261	1	Key, Woodruff, #6

Miscellaneous Parts

EBB-8	1	BENDIX DRIVE ASSEMBLY
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2007	2	Plate, Spring Anchor
EBA-2008	1	Ring, Lock
EBA-2031	1	Shaft
EBA-2105	1	SPRING, DRIVE
EBB-832	1	Pinion
MAW-2129	1	BRG. ASSY., INTERMEDIATE
MAW-130	1	Bearing, Abs. Bronze
MZ-24A	1	Band, Cover
PS-1253	1	Housing Assy., Pinion
MAW-131	1	Pin, Dowel
MG-77A	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8

\* Used as Required.

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4133	Dodge; Plymouth

(Issued 4-17-50)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4134 STARTING MOTOR PARTS LIST

MZ-4134  
(Issued 1-22-51)

Frame & Field Assembly & Parts Used With			Armature Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2212)	1	Frame & Field Assy.	MU-54	1	Washer, Thrust, 1/32" Thick
MAB-31	1	Washer, Ins., Term. Stud, Outer	MZ-2213	1	ARMATURE
MU-14	1	Terminal	<u>Miscellaneous Parts</u>		
MU-28	1	Stud, Terminal	MZ-24A	1	Band, Cover
MU-31	1	Bushing, Ins., Term. Stud	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MU-37	1	Washer, Plain, Term. Stud, 5/16	8X-794	1	Nut, Cover Band, Square #10-32
MU-39	1	Washer, Ins., Term. Stud, Inner	† BRUSH SET, SERVICE MZ-2012AS.		
MZ-12 †	2	Brush			
MZ-30A	1	Insulation, Field Connection			
MZ-38A	4	Screw, Pole Shoe			
MZ-74	1	Equalizer			
MZ-3005S	1	FIELD COIL PACKAGE			
MZ-32	2	Connector, Field Coil			
MZ-1007	1	Coil, Field, U.L.			
MZ-1008	1	Coil, Field, L.R.			
MZ-1009	1	Coil, Field, L.L.			
MZ-1010	1	Coil, Field, U.R.			
X-1014	2	Lockwasher, Term. Stud, 5/16			
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24			
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2002B	1	Head Assy., Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
X-196	3	Lockwasher, C.E. Head Screw, #10			
X-902	3	Screw, C.E. Head, Fill. Hd. #10-32x3/8			

UNIT	APPLICATION
MZ-4134	Dura Co.

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File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4135 STARTING MOTOR PARTS LIST

MZ-4135

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2001E)	1	Frame & Field Assy.	SS-6R	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SS-4001	1	SOLENOID STARTING SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex. #10-32
MU-28	1	Stud, Terminal, 5/16-24	12X-196	1	Lockwasher, #10
MU-31	1	Bushing, Ins., Term. Stud	8X-832	2	Nut, Hex. 5/16-24
MU-37	1	Washer, Plain, Term. Stud, 5/16	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12†	2	Brush, Insulated	X-1274	2	Washer, Switch Mtg., Skpf. #10
MZ-30A	1	Insulation, Field Connection	<u>Miscellaneous Parts</u>		
MZ-38A	4	Screw, Pole Shoe	EBA-14	1	BENDIX DRIVE ASSY.
MZ-74	1	Equalizer	EB-108	2	Lockwasher
MZ-3005S	1	FIELD COIL PACKAGE	EB-7819S	1	Sleeve, Compression
MZ-32	2	Connector, Field Coil	EB-8503	1	Head, Driving
MZ-1007	1	Coil, Field, U.L.	EB-8506	1	Screw, Spring, Head
MZ-1008	1	Coil, Field, L.R.	EB-8507	1	Screw, Spring, Shaft
MZ-1009	1	Coil, Field, L.L.	EB-8734	1	Ring, Take-Up
MZ-1010	1	Coil, Field, U.R.	EBA-211	1	Shaft & Pinion
12X-1014	2	Lockwasher, Term. Stud, 5/16	EBA-1405	1	SPRING, DRIVE
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	MAB-2040	1	BEARING ASSY., INTERMEDIATE
<u>Comm. End Head Assembly &amp; Parts Used With</u>			MG-77A	1	Bearing, Abs. Bronze
MZ-2002B	1	Head Assy., Comm. End	MZ-24A	1	Band, Cover
MAD-110	1	Felt	MZ-52	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32
MZ-19	4	Spring, Brush	PS-1172	1	Housing Assy., Pinion
MZ-1034S†	2	Brush, Grounded	MAB-88	1	Pin, Dowel
12X-196	4	Lockwasher, C.E. Head Screw, #10	MG-77A	1	BEARING, ABS. BRONZE
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	12X-196	4	Lockwasher, Housing Sc., #10
<u>Armature Assembly &amp; Parts Used With</u>			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MU-54	2	Washer, Thrust, C.E. & Intermediate, 1/32" Thick	8X-794	1	Nut, Cover Band, Square #10-32
MZ-2049	1	ARMATURE ASSEMBLY	† BRUSH SET, SERVICE MZ-2012AS.		
MZ-51	1	Spacer, Bearing Thrust			
X-261	1	Key, Woodruff, #6			

UNIT	APPLICATION
MZ-4135	Universal

(Issued 4-19-50)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4136 STARTING MOTOR PARTS LIST

MZ-4136

<u>Frame &amp; Field Assembly With Terminal Stud &amp; Parts Used With</u>					<u>Armature Assembly &amp; Parts Used With</u>									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2210A)	1	Frame & Field Assy.					MAK-61	1	Washer, Arm. Thrust, Comm. End					
MAB-31	1	Washer, Ins., Term. Stud, Outer					MU-54	2	Washer, Arm. Thrust, Comm. End & Intermediate					
MU-14	1	Terminal					MZ-2211	1	Armature					
MU-28	1	Stud, Terminal					X-261	1	Key, Woodruff, #6					
MU-31	1	Bushing, Ins. Term. Stud					<u>Miscellaneous Parts</u>							
MU-37	1	Washer, Plain, Term. Stud, 5/16					EBA-33	1	Bendix Drive Assembly					
MU-39	1	Washer, Ins., Term. Stud, Inner					EBA-1213	1	Spring, Anti-Drift					
MZ-12†	2	Brush					EBA-1225	1	Spring, Meshing					
MZ-30A	1	Insulation, Field Connection					EBA-1232	1	Pinion					
MZ-32	2	Connector, Field Coil					EBA-1233	1	Ring, Retaining					
MZ-38A	4	Screw, Pole Shoe					EBA-2006	1	Locating Pin					
MZ-74	1	Equalizer					EBA-2007	2	Plate, Spring Anchor					
MZ-1007	1	Coil, Field, U.L.					EBA-2008	1	Lock Ring					
MZ-1008	1	Coil, Field, L.R.					EBA-2031	1	Shaft					
MZ-1009	1	Coil, Field, L.L.					EBA-2105	1	Spring, Drive					
MZ-1010	1	Coil, Field, U.R.					MAW-2129	1	Bearing Assy., Intermediate					
12X-1014	2	Lockwasher, Term. Stud 5/16					MAW-130	1	Bearing, Absorbent Bronze					
8X-1376	2	Nut, Term. Stud Hex. 5/16- 24					MZ-24A	1	Band, Cover					
<u>Comm. End Head Assembly &amp; Parts Used With</u>						PS-1257	1	Housing Assy., Pinion						
MZ-2105C	1	Head Assy., Comm. End					MAW-131	1	Pin, Dowel					
MZ-16	2	Holder, Brush					MG-77A	1	Bearing, Absorbent Bronze					
MZ-19	4	Spring, Brush					12X-196	4	Lockwasher, Housing Screw, #10					
MZ-1034†	2	Brush, Grounded					8X-308	1	Screw, Cover Band, Rd. Hd. #10-32x1 3/8					
X-532	4	Rivet, Brush Holder					8X-794	1	Nut, Cover Band, Square #10-32					
12X-544	4	Lockwasher, C.E. Head Screw, #10					X-2944	4	Screw, Pinion Housing, Hex. Hd. #10-32x5/8					
X-902	4	Screw, C.E. Head, Fil. Hd. #10-32x3/8							1	2	3	4	5	
		1	2	3	4	5								

† Brush Set, Service MZ-2012S.

(Issued 9-18-46)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4137 STARTING MOTOR PARTS LIST

MZ-4137

<u>Frame &amp; Field Assembly With Terminal Stud &amp; Parts Used With</u>					<u>Switch Assembly &amp; Parts Used With</u>									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2215)	1	Frame & Field Assembly					SW-2677A	1	Starting Switch					
MAK-80	1	Washer, Ins., Term. Stud					12X-201	1	Washer, Lock, 3/8					
MAW-39A	1	Insulating Block					8X-830	1	Nut, Hex., 3/8-16					
MU-31	1	Bushing, Ins., Term. Stud					12X-196	2	Lockwasher, Switch Mtg., #10					
MZ-12†	2	Brush					X-321	2	Screw, Switch Mtg., Rd. Hd., #10-32x5/16					
MZ-30A	1	Insulation, Field Connection					<u>Starter Clutch Assembly &amp; Parts Used With</u>							
MZ-32	2	Connector, Field Coil					MAW-3132	1	Starter Clutch					
MZ-38A	4	Screw, Pole Shoe					MZ-175	1	Screw, Pivot					
MZ-74	1	Equalizer					MZ-2217	1	Yoke					
MZ-109	1	Stud, Terminal					8X-179	1	Nut, Yoke Pivot, Hex., 3/8-16					
MZ-1007D	1	Coil, Field, U.L.					12X-201	1	Lockwasher, Yoke Pivot, 3/8					
MZ-1008	1	Coil, Field, L.R.					<u>Miscellaneous Parts</u>							
MZ-1009	1	Coil, Field, L.L.					MZ-24A	1	Band, Cover					
MZ-1010D	1	Coil, Field, U.R.					MZ-52	4	Screw, Pinion Housing, Hex. Hd., #10-32x31/32					
SW-763A	1	Contact, Switch, Lower					MZ-2223	1	Bearing Assembly., Intermediate					
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					ML-92A	1	Bearing, Absorbent Bronze					
<u>Comm. End Head Assembly &amp; Parts Used With</u>						PS-1256	1	Housing Assembly Pinion						
MZ-2216	1	Head Assembly., Comm. End					MAB-88	1	Pin, Dowel					
MZ-16	2	Holder, Brush					12X-196	4	Lockwasher, Housing Screw, #10					
MZ-19	4	Spring, Brush					X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2					
MZ-1034†	2	Brush, Grounded					8X-794	1	Nut, Cover Band, Square #10-32					
X-532	4	Rivet, Brush Holder							1	2	3	4	5	
12X-544	4	Lockwasher, C.E. Head Screw, #10												
X-902	4	Screw, C.E. Head, Fil. Hd., #10-32x3/8												
<u>Armature Assembly &amp; Parts Used With</u>														
MAD-96	1	Washer, Armatur Thrust, C.E.												
MU-54	*	Washer, Thrust 1/32" thick												
MU-54A	*	Washer, Thrust, 1/64" thick												
MU-54B	*	Washer, Thrust, 3/64" thick												
MZ-2214	1	Armature												
		1	2	3	4	5								

\* Use as required.

† Brush Set, Service MZ-2012S.

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4138 STARTING MOTOR PARTS LIST

MZ-4138

Frame & Field Assembly With Terminal Stud & Parts Used With					Armature Assembly & Parts Used With								
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part				
		1	2	3	4	5			1	2	3	4	5
(MZ-2001)	1	Frame & Field Assy.					MU-54	2	Washer, Thrust 1/32" thick				
MAB-31	1	Washer, Ins., Term. Stud, Outer					MZ-2049	1	Armature Assy.				
MU-14	1	Terminal					MZ-51	1	Spacer, Bearing Thrust				
MU-28	1	Stud, Terminal, 5/16-24					X-261	1	Key, Woodruff, #6				
MU-31	1	Bushing, Ins., Term. Stud					<u>Miscellaneous Parts</u>						
MU-37	1	Washer, Plain, Term. Stud, 5/16					EBA-65	1	Bendix Drive Assy.				
MU-39	1	Washer, Ins., Term. Stud, Inner					EB-108	2	Washer, Lock				
MZ-12†	2	Brush, Insulated					EB-7819S	1	Sleeve, Compression				
MZ-30A	1	Ins., Field Connection					EB-8503	1	Head, Drive				
MZ-32	2	Connector, Field Coil					EB-8506	1	Screw, Spring, Head				
MZ-38A	4	Screw, Pole Shoe					EB-8507	1	Screw, Spring, Shaft				
MZ-74	1	Equalizer					EB-8734	1	Ring, Take Up				
MZ-1007	1	Coil, Field, U.L.					EBA-1405	1	Spring, Drive				
MZ-1008	1	Coil, Field, L.R.					EBA-6411	1	Shaft & Pinion				
MZ-1009	1	Coil, Field, L.L.					MAB-2040	1	Bearing Assy., Intermediate				
MZ-1010	1	Coil, Field, U.R.					MG-77A	1	Bearing, Abs. Bronze				
X-1014	2	Lockwasher, Term. Stud, 5/16					MZ-52	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32				
5X-1376	2	Nut, Term. Stud, Hex., 5/16-24					MZ-1024	1	Band, Cover				
<u>Comm. End Head Assembly &amp; Parts Used With</u>					PS-1064	1	Housing Assy., Pinion						
MZ-2002B	1	Head Assy., Comm. End					MAB-88	1	Pin, Dowel				
MZ-16	2	Holder, Brush					MG-77A	1	Bearing, Abs. Bronze				
MZ-19	4	Spring, Brush					12X-196	4	Lockwasher, Housing Sc., #10				
MZ-1034†	2	Brush, Grounded					X-308	1	Screw, Cover Band, Rd. Hd. #10-32x1 3/8				
8X-532	4	Rivet, Brush Holder					8X-794	1	Nut, Cover, Band, Square #10-32 1 2 3 4 5				
12X-544	4	Lockwasher, C.E. Hd. Sc., #10											
X-902	4	Screw, C.E. Hd., Fil. Hd. #10-32x3/8 1 2 3 4 5											

† Brush Set, Service MZ-2012S.

Unit	Application
MZ-4138	LeRoi

(Issued 1-14-47)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4140 STARTING MOTOR PARTS LIST

MZ-4140

## Frame & Field Assembly & Parts Used

Part No.	No. Used	Name of Part
(MZ-2225)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Ins., Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	2	Washer, Thrust, C.E. & Intermediate, 1/32" Thick
MZ-2089	1	ARMATURE ASSY.
MZ-51	1	Spacer, Bearing Thrust
X-261	1	Key, Woodruff, #6

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-19	1	BENDIX DRIVE ASSEMBLY
EB-108	2	Lockwasher
EB-7819S	1	Sleeve, Compression
EB-8503	1	Head, Driving
EB-8506	1	Screw, Spring, Head
EB-8507	1	Screw, Spring, Shaft
EB-8711	1	Shaft & Pinion
EB-8734	1	Ring, Take-Up
EBA-1405	1	SPRING, DRIVE
MZ-24A	1	Band, Cover
MZ-52	4	Screw, Pinion Housing, Rd. #10-32x31/32
MZ-126	1	Washer, Thrust
MZ-127	1	Washer, Felt
MZ-128	1	Gasket, Int. Bearing
MZ-1125	1	BEARING ASSY., INTERMEDIATE
MZ-44A	1	Bearing, Abs. Bronze
PS-1261	1	Housing Assy., Pinion
MP-41A	1	BEARING, ABS. BRONZE
12X-195	4	Lockwasher, Int. Bearing Sc., #8
12X-196	4	Lockwasher, Housing Screw, #10
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x 1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-878	4	Screw, Int. Bearing, Fill. Hd. #8-32x7/16

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4140	Continental

(Issued 6-25-49)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4143 STARTING MOTOR PARTS LIST

MZ-4143

Frame & Field Assembly With Terminal Stud  
& Parts Used With

Part No.	No. Used	Name of Part					
			1	2	3	4	5
(MZ-2176A)	1	Frame & Field Assy.					
MAK-80	1	Washer, Ins., Term. Stud					
MAW-39A	1	Insulating Block					
MAW-205	1	Insulation, Sw. Contact					
MU-31	1	Bushing, Ins., Term. Stud					
MZ-12†	2	Brush					
MZ-30A	1	Insulation, Field Connection					
MZ-32	2	Connector, Field Coil					
MZ-38A	4	Screw, Pole Shoe					
MZ-74	1	Equalizer					
MZ-109	1	Stud, Terminal					
MZ-1007D	1	Coil, Field, U.L.					
MZ-1008	1	Coil, Field, L.R.					
MZ-1009	1	Coil, Field, L.L.					
MZ-1010D	1	Coil, Field, U.R.					
SW-763A	1	Contact, Switch, Lower					
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					

Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End					
MAD-110	1	Felt					
MZ-19	4	Spring, Brush					
MZ-1034S†	2	Brush, Grounded					
12X-544	4	Lockwasher, C.E. Head Sc., #10					
8X-902	4	Screw, C.E. Head, Fil. Hd. #10-32x3/8					

Armature Assembly & Parts Used With

MAD-96	1	Washer, Arm. Thrust, C.E.					
MU-54	*	Washer, Thrust, 1/32" thick					
MU-54A	*	Washer, Thrust, 1/64" thick					
MU-54B	*	Washer, Thrust, 3/64" thick					
MZ-2108	1	Armature Assy.					
MAW-31	1	Spacer, Armature Shaft					
			1	2	3	4	5

Switch Assembly & Parts Used With

Part No.	No. Used	Name of Part					
			1	2	3	4	5
SW-2677A	1	Starting Switch					
12X-201	1	Lockwasher, 3/8					
8X-830	1	Nut, Hex., 3/8-16					
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16					
X-1270	2	Washer, Switch Mtg., Skpf. #10					

Starter Clutch Assembly & Parts Used With

MAD-95	1	Retainer, Yoke Spring					
MAW-161	1	Spring, Yoke					
MAW-3132	1	Starter Clutch					
MAX-52	1	Pin, Yoke					
MZ-2233	1	Yoke					
8X-179	1	Nut, Yoke Pivot, Hex. 3/8-16					
12X-201	1	Lockwasher, Yoke Pivot, 3/8					

Miscellaneous Parts

MN-18	1	Washer, Thrust, D.E.					
MZ-24A	1	Band, Cover					
PS-1197A	1	Housing Assembly, Pinion					
MP-41A	1	Bearing, Absorbent Bronze					
12X-544	4	Lockwasher, Housing Sc., #10					
8X-714	1	Screw, Cover Band, Rd. Hd., #10-32x1 1/2					
8X-794	1	Nut, Cover Band, Square #10-32					
8X-900	4	Screw, Pinion Housing, Fil. Hd. #10-32x7/8					
			1	2	3	4	5

† Brush Set, Service MZ-2012AS

\* Use as required.

UNIT	APPLICATION
MZ-4143	Dodge (Truck)

(Issued 11-5-47)

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File in  
Equipment & Parts List Binder

"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4144 STARTING MOTOR PARTS LIST

MZ-4144

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2210)	1	Frame & Field Assy.	EBA-52	1	BENDIX DRIVE ASSEMBLY
MAB-31	1	Washer, Ins., Term. Stud, Outer	EBA-1213	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-1225	1	Spring, Meshing
MU-31	1	Bushing, Ins., Term. Stud	EBA-1233	1	Ring, Retaining
MU-37	1	Washer, Plain, Term. Stud, 5/16	EBA-2006	1	Pin, Locating
MU-39	1	Washer, Ins., Term. Stud, Inner	EBA-2007	2	Plate, Spring Anchor
MZ-12 †	2	Brush	EBA-2008	1	Ring, Lock
MZ-30A	1	Insulation, Field Connection	EBA-2031	1	Screw Shaft
MZ-38A	4	Screw, Pole Shoe	EBA-2105	1	SPRING, DRIVE
MZ-74	1	Equalizer	EBA-7632	1	Pinion
MZ-209	1	Stud, Terminal, 5/16-18	MAW-2129	1	BEARING ASSY., INTERMEDIATE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-130	1	Bearing, Absorbent Bronze
MZ-32	2	Connector, Field Coil	MZ-24A	1	Band, Cover
MZ-1007	1	Coil, Field, U.L.	PS-1253C	1	Housing Assy., Pinion
MZ-1008	1	Coil, Field, L.R.	MAW-131	1	Pin, Dowel
MZ-1009	1	Coil, Field, L.L.	MG-77A	1	Bearing, Abs. Bronze
MZ-1010	1	Coil, Field, U.R.	12X-196	4	Lockwasher, Housing Screw, #10
8X-164	2	Nut, Term. Stud, Hex., 5/16-18	X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
12X-1014	2	Washer, Lock, Term. Stud, 5/16	8X-794	1	Nut, Cover Band, Square #10-32
			X-2944	4	Screw, Pinion Housing, Hex. Hd. #10-32x5/8
Comm. End Head Assembly & Parts Used With			† BRUSH SET, SERVICE MZ-2012AS.		
MZ-2105B	1	Head Assy., Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S †	2	Brush, Grounded			
12X-544	4	Lockwasher, C.E. Head Screw, #10			
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8			
Armature Assembly & Parts Used With					
MAK-61	1	Washer, Arm. Thrust, Comm. End			
MU-54	*	Washer, Arm. Thrust, C.E., 1/32" Thick			
MU-54A	*	Washer, Arm. Thrust, C.E., 1/64" Thick			
MU-54B	*	Washer, Arm. Thrust, C.E., 3/64" Thick			
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, #6			

UNIT	APPLICATION
MZ-4144	Buda, Toolcraft

Printed in U. S. A.

(Issued 6-15-48)

File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4144M STARTING MOTOR PARTS LIST

MZ-4144M  
(Issued 4-13-51)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2210D)	1	Frame & Field Assy.	EBA-52A	1	BENDIX DRIVE ASSY.
MAB-31A	1	Washer, Ins., Term. Stud, Outer	EBA-4808	1	Ring, Lock
MU-14	1	Terminal	EBA-4833	1	Ring, Retaining
MU-28	1	Stud, Terminal	EBA-7213	1	Spring, Anti-Drift
MU-31A	1	Bushing, Ins., Term. Stud	EBA-7225	1	Spring, Meshing
MU-37G	1	Washer, Plain, Term. Stud, 5/16	EBA-7232	1	Pinion
MU-39A	1	Washer, Ins., Term. Stud, Inner	EBA-7905	1	SPRING, DRIVE
MZ-12 †	2	Brush	EBA-7906	1	Pin, Locating
MZ-30A	1	Insulation, Field Connection	EBA-7907	2	Plate, Spring Anchor
MZ-38C	4	Screw, Pole Shoe	EBA-7931	1	Shaft, Screw
MZ-74	1	Equalizer	MAW-2129A	1	BEARING ASSY., INTERMEDIATE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-130	1	Bearing, Abs. Bronze
MZ-32	2	Connector, Field Coil	MZ-1024T	1	Band, Cover
MZ-1007	1	Coil, Field, U. L.	PS-1253E	1	Housing Assy., Pinion
MZ-1008	1	Coil, Field, L. R.	MAW-131A	1	Pin, Dowel
MZ-1009	1	Coil, Field, L. L.	MG-77A	1	BEARING, ABS. BRONZE
MZ-1010	1	Coil, Field, U. R.	12X-196	4	Lockwasher, Housing Screw, #10
X-180	2	Nut, Term. Stud, Hex. 5/16-24	X-2875	1	Nut, Cover Band, Square #10-32
12X-1014	2	Lockwasher, Term. Stud, 5/16	X-2882	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
<u>Comm. End Head Assembly &amp; Parts Used With</u>			19X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8
MZ-2105F	1	Head Assy., Comm. End	† BRUSH SET, SERVICE MZ-2012AS.		
MAD-110	1	Felt	* Use as required.		
MZ-19A	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, Head Screw, #10			
19X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MAK-61A	1	Washer, Arm. Thrust, C. E.			
MU-54F	*	Washer, Thrust, C. E. & Intermediate, 1/32" Thick			
MU-54G	*	Washer, Thrust, C. E. & Intermediate, 1/64" Thick			
MU-54J	*	Washer, Thrust, C. E. & Intermediate, .046" Thick			
MZ-2211M	1	ARMATURE			
X-261	1	Key, Woodruff, D. E., #6			

UNIT	APPLICATION
MZ-4144M	Silent Hoist & Crane

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File in  
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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4145 STARTING MOTOR PARTS LIST

MZ-4145

Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part				
		1	2	3	4	5
(MZ-2001F)	1	Frame & Field Assy.				
MAB-31	1	Washer, Ins., Term. Stud, Outer				
MU-14	1	Terminal				
MU-28	1	Stud, Terminal				
MU-31	1	Bushing, Ins., Term. Stud				
MU-37	1	Washer, Plain, Term. Stud				
MU-39	1	Washer, Ins., Term. Stud, Inner				
MZ-12 †	2	Brush, Insulated				
MZ-30A	1	Insulation, Field Connection				
MZ-38A	4	Screw, Pole Shoe				
MZ-74	1	Equalizer				
MZ-3005S	1	FIELD COIL PACKAGE				
MZ-32	2	Connector, Field Coil				
MZ-1007	1	Coil, Field, U.L.				
MZ-1008	1	Coil, Field, L.R.				
MZ-1009	1	Coil, Field, L.L.				
MZ-1010	1	Coil, Field, U.R.				
12X-1014	2	Lockwasher, Term. Stud, 5/16				
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24				

Comm. End Head Assembly & Parts Used With

MZ-2002E	1	Head Assy., Comm. End				
MAD-110	1	Felt				
MZ-19	4	Spring, Brush				
MZ-1034S †	2	Brush, Grounded				
12X-544	4	Lockwasher, C.E. Head Screw, #10				
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8				

Armature Assembly & Parts Used With

MU-54	2	Washer, Arm. Thrust, C.E. & Intermediate				
MZ-2049	1	ARMATURE ASSY.				
MZ-51	1	Spacer, Bearing Thrust				
X-261	1	Key, Woodruff, #6				
		1	2	3	4	5

Miscellaneous Parts

Part No.	No. Part	Name of Part				
		1	2	3	4	5
EBA-4	1	BENDIX DRIVE ASSEMBLY				
EB-108	2	Lockwasher				
EB-7819S	1	Sleeve, Compression				
EB-8503	1	Head, Driving				
EB-8506	1	Screw, Spring, Head				
EB-8507	1	Screw, Spring, Shaft				
EB-8734	1	Ring, Take Up				
EB-9911	1	Shaft & Pinion				
EBA-405	1	SPRING, DRIVE				
MAB-2040	1	BEARING ASSY., INTERMEDIATE				
MG-77A	1	Bearing, Absorbent Bronze				
MZ-52A	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32				
MZ-1024Y	1	Band, Cover				
PS-1064A	1	Housing Assy., Pinion				
MAB-88	1	Pin, Dowel				
MG-77A	1	BEARING, ABSORBENT BRONZE				
12X-196	4	Lockwasher, Housing Screw, #10				
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2				
8X-794	1	Nut, Cover Band, Square #10-32				
		1	2	3	4	5

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4145	Aerco Corp.

Printed in U. S. A.

(Issued 4-22-48)

File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4146,A STARTING MOTOR PARTS LIST

MZ-4146,A  
(Issued 6-27-51)

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2202A)	1	Frame & Field Assy.	SS-6L**	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SST-4002**	1	SOLENOID SWITCH
MU-14	1	Terminal	8X-164	2	Nut, Hex. 5/16-24
MU-28	1	Stud, Terminal	8X-173	1	Nut, Hex. #10-32
MU-31	1	Bushing, Ins., Term. Stud	12X-196	1	Lockwasher, #10
MU-37	1	Washer, Plain, Term. Stud	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	8X-321**	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12†	2	Brush	X-1270**	2	Washer, Switch Mtg. Sc. Skpf. #10
MZ-30A	1	Insulation, Field Connection	<u>Miscellaneous Parts</u>		
MZ-38A	4	Screw, Pole Shoe	EBA-4	1	BENDIX DRIVE ASSEMBLY
MZ-74	1	Equalizer	EB-108	2	Lockwasher
MZ-3005S	1	FIELD COIL PACKAGE	EB-7819S	1	Sleeve, Compression
MZ-32	2	Connector, Field Coil	EB-8503	1	Head, Driving
MZ-1007	1	Coil, Field, U.L.	EB-8506	1	Screw, Spring, Head
MZ-1008	1	Coil, Field, L.R.	EB-8507	1	Screw, Spring, Shaft
MZ-1009	1	Coil, Field, L.L.	EB-8734	1	Ring, Take-Up
MZ-1010	1	Coil, Field, U.R.	EB-9911	1	Shaft & Pinion
12X-1014	2	Lockwasher, Term. Stud, 5/16	EBA-405	1	SPRING, DRIVE
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	MAB-2040	1	BEARING ASSY., INTERMEDIATE
<u>Comm. End Head Assembly &amp; Parts Used With</u>			MG-77A	1	Bearing, Absorbent Bronze
MZ-2002E	1	Head Assy., Comm. End	MZ-52A	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32
MAD-110	1	Felt	MZ-1024AA	1	Band, Cover
MZ-19	4	Spring, Brush	PS-1172B	1	Housing Assy., Pinion
MZ-1034S†	2	Brush, Grounded	MAB-88	1	Pin, Dowel
12X-196	4	Lockwasher, C.E. Head Sc., #10	MG-77A	1	BEARING, ABSORBENT BRONZE
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	12X-196	4	Lockwasher, Housing Sc., #10
<u>Armature Assembly &amp; Parts Used With</u>			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MU-54	*	Washer, Thrust, C.E., 1/32" Thick	8X-794	1	Nut, Cover Band, Square #10-32
MU-54B	*	Washer, Thrust, C.E., 3/64" Thick	† BRUSH SET, SERVICE MZ-2012AS.		
MZ-2049	1	ARMATURE ASSY.	* Used as Required.		
MZ-51	1	Spacer, Bearing Thrust	** These parts used on MZ-4146 only.		
X-261	1	Key, Woodruff, #6			

UNIT	APPLICATION
MZ-4146,A	Massey Harris

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4147 STARTING MOTOR PARTS LIST

MZ-4147

Frame & Field Assembly & Parts Used With					Armature Assembly & Parts Used With									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2001F)	1	Frame & Field Assy.					MU-54	2	Washer, Arm. Thrust, C.E. & Intermediate					
MAB-31	1	Washer, Ins., Term. Stud, Outer					MZ-2053	1	ARMATURE ASSY.					
MU-14	1	Terminal					MZ-35	1	Spacer, Bearing Thrust					
MU-28	1	Stud, Terminal					X-261	1	Key, Woodruff, #6					
MU-31	1	Bushing, Ins., Term., Stud					<u>Miscellaneous Parts</u>							
MU-37	1	Washer, Plain, Term. Stud					EBA-97	1	BENDIX DRIVE ASSY.					
MU-39	1	Washer, Ins., Term. Stud, Inner					EB-108	2	Lockwasher					
MZ-12 †	2	Brush, Insulated					EB-7819S	1	Sleeve, Compression					
MZ-30A	1	Insulation, Field Connection					EB-8503	1	Head, Driving					
MZ-38A	4	Screw, Pole Shoe					EB-8506	1	Screw, Spring, Head					
MZ-74	1	Equalizer					EB-8507	1	Screw, Spring, Shaft					
MZ-3005S	1	FIELD COIL PACKAGE					EB-8734	1	Ring, Take-Up					
MZ-32	2	Connector, Field Coil					EBA-405	1	SPRING, DRIVE					
MZ-1007	1	Coil, Field, U.L.					EBA-9711	1	Shaft, & Pinion					
MZ-1008	1	Coil, Field, L.R.					MZ-24A	1	Band, Cover					
MZ-1009	1	Coil, Field, L.L.					MZ-1129A	1	Head Assy., Drive End					
MZ-1010	1	Coil, Field, U.R.					MZ-44A	1	BEARINGS, ABS. BRONZE					
12X-1014	2	Lockwasher, Term. Stud, 5/16					8X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2					
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24					12X-196	4	Lockwasher, D.E. Hd. Sc. #10					
<u>Comm. End Head Assembly &amp; Parts Used With</u>						8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2						
MZ-2002E	1	Head Assy., Comm. End					8X-794	1	Nut, Cover Band, Square #10-32 1 2 3 4 5					
MAD-110	1	Felt					† BRUSH SET, SERVICE MZ-2012AS.							
MZ-19	4	Spring, Brush												
MZ-1034S†	2	Brush, Grounded												
12X-544	4	Lockwasher, C.F. Head Sc., #10												
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8												
		1	2	3	4	5								

UNIT	APPLICATION
MZ-4147	Crosley

(Issued 4-21-48)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4148 STARTING MOTOR PARTS LIST

MZ-4148

Frame & Field Assembly With Terminal Stud & Parts Used With					Starter Clutch Assembly & Parts Used With						
Part No.	No. Used	Name of Part			Part No.	No. Used	Name of Part				
		1	2	3	1	2	3	4	5		
(MZ-2176A)	1	Frame & Field Assy.			MAD-95	1	Retainer, Yoke Spring				
MAK-80	1	Washer, Ins., Term. Stud			MAW-161	1	Spring, Yoke				
MAW-39A	1	Insulating Block			MAW-3132	1	STARTER CLUTCH				
MAW-205	1	Insulation, Switch Contact			MAX-52	1	Pin, Yoke				
MU-31	1	Bushing, Ins., Term. Stud			MZ-2235	1	Yoke Assembly				
MZ-12†	2	Brush			8X-179	1	Nut, Yoke Pivot, Hex. 3/8-16				
MZ-30A	1	Insulation, Field Connection			12X-201	1	Lockwasher, Yoke Pivot, 3/8				
MZ-32	2	Connector, Field Coil			<u>Miscellaneous Parts</u>						
MZ-38A	4	Screw, Pole Shoe			MN-18	1	Washer, Thrust D.E.				
MZ-74	1	Equalizer			MZ-24A	1	Band, Cover				
MZ-109	1	Stud, Terminal			PS-1197A	1	Housing Assy., Pinion				
MZ-1007D	1	Coil, Field, U.L.			MP-41A	1	BEARING, ABS. BRONZE				
MZ-1008	1	Coil, Field, L.R.			12X-544	4	Lockwasher, Housing Sc., #10				
MZ-1009	1	Coil, Field, L.L.			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2				
MZ-1010D	1	Coil, Field, U.R.			8X-794	1	Nut, Cover Band, Square #10-32				
SW-764A	1	Contact, Switch, Lower			8X-900	4	Screw, Pinion Housing, Fil. Hd. #10-32x7/8				
8X-1376	1	Nut, Term. Stud, Hex., 5/16-24					1	2	3	4	5
<u>Comm. End Head Assembly &amp; Parts Used With</u>					<u>† BRUSH SET, SERVICE MZ-2012S.</u>						
MZ-2105B	1	Head Assy., Comm. End			* Use as Required.						
MAD-110	1	Felt									
MZ-16	2	Holder, Brush									
MZ-19	4	Spring, Brush									
MZ-1034†	2	Brush, Grounded									
8X-532	4	Rivet, Brush Holder									
12X-544	4	Lockwasher, C.E. Head Sc., #10									
8X-902	4	Screw, C.E. Head, Fil Hd. #10-32x3/8									
<u>Armature Assembly &amp; Parts Used With</u>											
MAD-96	1	Washer, Arm. Thrust, C.E.									
MZ-2108	1	ARMATURE ASSY.									
MAW-31	1	Spacer, Armature Shaft									
MU-54	*	Washer, Thrust, 1/32" thick									
MU-54A	*	Washer, Thrust, 1/64" thick									
MU-54B	*	Washer, Thrust, 3/64" thick									
<u>Switch Assembly &amp; Parts Used With</u>											
SW-2813	1	STARTING SWITCH									
12X-201	1	Washer, Lock 3/8									
8X-830	1	Nut, Hex., 3/8-16									
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16									
X-1270	2	Washer, Switch Mtg., Skpf. #10									
		1	2	3	4	5					

UNIT	APPLICATION
MZ-4148	Dodge Truck

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4149 STARTING MOTOR PARTS LIST

MZ-4149

Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2224)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12†	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	Field Coil Package
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-544	4	Lockwasher, C.E. Head Sc., #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used With

MAK-61	1	Washer Arm. Thrust, C.E.
MU-54	*	Washer, Thrust 1/32" Thick
MU-54A	*	Washer, Thrust, 1/64" Thick
MU-54B	*	Washer, Thrust, 3/64" Thick
MZ-2211	1	Armature
X-261	1	Key, Woodruff, #6

Switch Assembly & Parts Used With

Part No.	No. Used	Name of Part
SS-6RA	1	Connector
SST-4004	1	Solenoid Switch
8X-164	2	Nut, Hex. 5/16-18
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1274	2	Washer, Switch Mtg. Sc., Skpf. #10

Miscellaneous Parts

EBB-5	1	Bendix Drive Assy.
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2007	2	Plate, Spring Anchor
EBA-2008	1	Ring, Lock
EBA-2031	1	Shaft
EBA-2105	1	Spring, Drive
EBB-532	1	Pinion
MAW-2129	1	Bearing Assy., Intermediate
MAW-130	1	Bearing, Absorbent Bronze
MZ-24A	1	Band, Cover
PS-1253D	1	Housing Assy., Pinion
MAW-131	1	Pin, Dowel
MG-77A	1	Bearing, Abs. Bronze
12X-196	4	Lockwasher, Housing Sc., #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8

† Brush Set, Service MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4149	Towmotor

Printed in U. S. A.

(Issued 7-15-48)

File in  
Equipment & Parts List Binder

"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4150 STARTING MOTOR PARTS LIST

MZ-4150

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2001E)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush, Insulated
MZ-30A	1	Insulation, Field Conn.
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	Field Coil Package
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002E	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S †	2	Brush, Grounded
12X-544	4	Lockwasher, C.E. Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	2	Washer, Thrust, 1/32" Thick
MZ-2049	1	Armature Assy.
MZ-51	1	Spacer, Bearing Thrust
X-261	1	Key, Woodruff, #6

## Switch Assembly & Parts Used With

SS-6RA	1	Connector
SST-4004	1	Solenoid Switch
8X-164	2	Nut, Hex. 5/16-18
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1270	2	Washer, Switch Mtg. Sc., #10

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-14	1	Bendix Drive Assembly
EB-108	2	Lockwasher
EB-7819S	1	Sleeve, Compression
EB-8503	1	Head, Driving
EB-8506	1	Screw, Head Spring
EB-8507	1	Screw, Spring Shaft
EB-8734	1	Ring, Take-Up
EBA-211	1	Shaft & Pinion
EBA-1405	1	Spring, Drive
MAB-2040	1	Bearing Assy., Intermediate
MG-77A	1	Bearing, Absorbent Bronze
MZ-52A	4	Screw, Housing Hex. Hd. #10-32x31/32
MZ-1024Y	1	Band, Cover
PS-1172B	1	Housing Assy., Pinion
MAB-88	1	Pin, Dowel
MG-77A	1	Bearing, Absorbent Bronze
12X-196	4	Lockwasher, Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† Brush Set, Service MZ-2012AS.

UNIT	APPLICATION
MZ-4150	Continental

Printed in U. S. A.

(Issued 7-15-48)

File in  
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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4151 STARTING MOTOR PARTS LIST

MZ-4151

Frame & Field Assembly & Parts Used With					Miscellaneous Parts									
Part No.	No. Used	Name of Part					Part No.	No. Used	Name of Part					
		1	2	3	4	5			1	2	3	4	5	
(MZ-2210B)	1	Frame & Field Assy.					EBA-33	1	BENDIX DRIVE ASSY.					
MAB-31	1	Washer, Ins., Term. Stud, Outer					EBA-1213	1	Spring, Anti-Drift					
MU-14	1	Terminal					EBA-1225	1	Spring, Meshing					
MU-28	1	Stud, Terminal, 5/16-24					EBA-1232	1	Pinion					
MU-31	1	Bushing, Ins., Term Stud					EBA-1233	1	Ring, Retaining					
MU-37	1	Washer, Plain, Term. Stud, 5/16					EBA-2006	1	Pin, Locating					
MU-39	1	Washer, Ins., Term. Stud, Inner					EBA-2007	2	Plate, Spring Anchor					
MZ-12 †	2	Brush					EBA-2008	1	Ring, Lock					
MZ-30A	1	Insulation, Field Connection					EBA-2031	1	Shaft					
MZ-32	2	Connector, Field Coil					EBA-2105	1	SPRING, DRIVE					
MZ-38A	4	Screw, Pole Shoe					MZ-24A	1	Band, Cover					
MZ-74	1	Equalizer					MZ-1236	1	BEARING ASSY., INTERMEDIATE					
MZ-1007	1	Coil, Field, U.L.					MAW-130	1	Bearing, Abs. Bronze					
MZ-1008	1	Coil, Field, L.R.					PS-1290	1	Housing Assy., Pinion					
MZ-1009	1	Coil, Field, L.L.					MG-77A	1	BEARING, ABS. BRONZE					
MZ-1010	1	Coil, Field, U.R.					12X-196	6	Lockwasher, Housing Sc. & Int. Bearing Sc., #10					
12X-1014	2	Lockwasher, Term. Stud, 5/16					8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2					
8X-1376	2	Nut, Term. Stud, Hex., 5/16-24					8X-794	1	Nut, Cover Band, Sq. #10-32					
						8X-1368	2	Screw, Int. Bearing, Rd. Hd. #10-32x7/16						
						8X-2987	4	Screw, Pinion Housing, Hex. Hd. #10-32x7/8						
								1	2	3	4	5		
Comm. End Head Assembly & Parts Used With														
MZ-2105E	1	Head Assy., Comm. End					* Use As Required.							
MZ-19	4	Spring, Brush					† BRUSH SET, SERVICE MZ-2012AS.							
MZ-1034S †	2	Brush, Grounded					NOTE: - Part number shown in parenthesis are not recommended for service.							
12X-544	4	Lockwasher, C.E. Head Screw, #10												
8X-902	4	Screw, C.E. Head, Fil. Hd., #10-32x3/8												
Armature Assembly & Parts Used With														
MAK-61	1	Washer, Arm Thrust, Comm. End												
MU-54	*	Washer, Thrust, 1/32" thick												
MU-54A	*	Washer, Thrust, 1/64" thick												
MU-54B	*	Washer, Thrust, 3/64" thick												
MZ-2211	1	ARMATURE												
X-261	1	Key, Woodruff, D.E., #6												
		1	2	3	4	5								

UNIT	APPLICATION
MZ-4151	Studebaker

(Issued 12-4-47)

Printed in U. S. A.

File in  
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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4152 STARTING MOTOR PARTS LIST

MZ-4152

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2224)	1	Frame & Field Assy.	SS-6LB	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SST-4004	1	SOLENOID SWITCH
MU-14	1	Terminal	8X-164	2	Nut, Hex. 5/16-18
MU-28	1	Stud, Terminal	8X-173	1	Nut, Hex. #10-32
MU-31	1	Bushing, Ins., Term. Stud	12X-196	1	Lockwasher, #10
MU-37	1	Washer, Plain, Term. Stud	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12	† 2	Brush	X-1274	2	Washer, Switch Mtg., Skpf. #10
MZ-30A	1	Insulation, Field Connection	<u>Miscellaneous Parts</u>		
MZ-38A	4	Screw, Pole Shoe	EBB-5	1	BENDIX DRIVE ASSY.
MZ-74	1	Equalizer	EBA-1213	1	Spring, Anti-Drift
MZ-3005S	1	FIELD COIL PACKAGE	EBA-1225	1	Spring, Meshing
MZ-32	2	Connector, Field Coil	EBA-1233	1	Ring, Retaining
MZ-1007	1	Coil, Field, U.L.	EBA-2006	1	Pin, Locating
MZ-1008	1	Coil, Field, L.R.	EBA-2007	2	Plate, Spring Anchor
MZ-1009	1	Coil, Field, L.L.	EBA-2008	1	Ring, Lock
MZ-1010	1	Coil, Field, U.R.	EBA-2031	1	Shaft
12X-1014	2	Lockwasher, Term. Stud, 5/16	EBA-2105	1	SPRING, DRIVE
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	EBA-532	1	Pinion
<u>Comm. End Head Assembly &amp; Parts Used With</u>			MAW-2129	1	BEARING ASSY., INTERMEDIATE
MZ-2105B	1	Head Assy., Comm. End	MAW-130	1	Bearing, Abs. Bronze
MAD-110	1	Felt	MZ-1024Y	1	Band, Cover
MZ-19	4	Spring, Brush	PS-1253D	1	Housing Assy., Pinion
MZ-1034S	† 2	Brush, Grounded	MAW-131	1	Pin, Dowel
12X-544	4	Lockwasher, C.E. Head Screw, #10	MG-77A	1	BEARING, ABS. BRONZE
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	12X-196	4	Lockwasher, Housing Screw, #10
<u>Armature Assembly &amp; Parts Used With</u>			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MAK-61	1	Washer, Thrust, Comm. End	8X-794	1	Nut, Cover Band, Square #10-32
MU-54	*	Washer, Thrust, 1/32" Thick	8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8
MU-54A	*	Washer, Thrust, 1/64" Thick	† BRUSH SET, SERVICE MZ-2012AS.		
MU-54B	*	Washer, Thrust, 3/64" Thick	* Used as required.		
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, D.E., #6			

UNIT	APPLICATION
MZ-4152	Lincoln Electric, Federal Mach.

(Issued 1-4-49)

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4153 STARTING MOTOR PARTS LIST

MZ-4153

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2202A)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S †	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MAK-54	1	Washer, Thrust, Arm. Shaft, D.E.
MU-54	1	Washer, Thrust, C.E., 1/32" Thick
MZ-2085	1	ARMATURE

## Switch Assembly & Parts Used With

SS-6LB	1	Connector
SS-4001	1	SOLENOID STARTING SWITCH
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
8X-832	2	Nut, Hex. 5/16-24
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1270	2	Washer, Switch Mtg. Sc., Skpf. #10

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EB-79	1	BENDIX DRIVE ASSEMBLY
EB-6505	1	SPRING, DRIVE
EB-6813	1	Spring, Anti-Drift
EB-6823	2	Washer, Thrust
EB-6824	1	Support, Drive Spring
EB-6825	1	Spring, Meshing
EB-6826	1	Sleeve, Anti-Drift Spring
EB-6827	1	Washer, Pinion
EB-6828	1	Nut
EB-7901	1	Shaft
EB-7902	1	Drive Stop
EB-8104S	1	Pinion
X-528	1	Cotter Pin
MZ-101A	4	Screw, D.E. Head, Hex. Hd. #10-32x9/16
MZ-1024Y	1	Band, Cover
MZ-1237	1	Head Assy., Drive End
MAK-39	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Head Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4153	Universal Motor

(Issued 6-3-49)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4154 STARTING MOTOR PARTS LIST

MZ-4154  
(Issued 11-29-51)

Frame & Field Assembly & Parts Used With			Starter Clutch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2112A)	1	Frame & Field Assy.	MAD-95	1	Retainer, Yoke Spring
MAK-80	1	Washer, Ins., Term. Stud	MAX-52	1	Pin, Yoke
MAW-39A	1	Insulation, Switch Contact	MAX-3160	1	STARTER CLUTCH
MU-31	1	Bushing, Ins., Term. Stud	MZ-142	1	Spring, Yoke
MZ-12 †	2	Brush	MZ-2500	1	Yoke
MZ-30A	1	Insulation, Field Connection	8X-179	1	Nut, Yoke Pin, Hex. 3/8-16
MZ-38A	4	Screw, Pole Shoe	12X-201	1	Lockwasher, Yoke Pin, 3/8
MZ-74	1	Equalizer			<u>Miscellaneous Parts</u>
MZ-109	1	Stud, Terminal	MZ-24A	1	Band, Cover
MZ-3005BS	1	FIELD COIL PACKAGE	PS-1173	1	Housing Assy., Pinion
MZ-32	2	Connector, Field Coil	MP-41A	1	BEARING, ABS. BRONZE
MZ-1007D	1	Coil, Field, U.L.	8X-118	1	Screw, Pinion Housing, Fill. Hd. #10-32x3/4
MZ-1008	1	Coil, Field, L.R.	12X-196	4	Lockwasher, Housing Sc., #10
MZ-1009	1	Coil, Field, L.L.	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MZ-1010D	1	Coil, Field, U.R.	8X-794	1	Nut, Cover Band, Square #10-32
SW-764A	1	Contact, Switch, Lower	8X-900	3	Screw, Pinion Housing, Fill. Hd. #10-32x7/8
8X-1376	1	Nut, Term. Stud, Hex. 5/16-24			
<u>Comm. End Head Assembly &amp; Parts Used With</u>			<u>Miscellaneous Parts</u>		
MZ-2105B	1	Head Assy., Comm. End	MZ-24A	1	Band, Cover
MAD-110	1	Felt	PS-1173	1	Housing Assy., Pinion
MZ-19	4	Spring, Brush	MP-41A	1	BEARING, ABS. BRONZE
MZ-1034S†	2	Brush, Grounded	8X-118	1	Screw, Pinion Housing, Fill. Hd. #10-32x3/4
12X-196	4	Lockwasher, C.E. Head Sc., #10	12X-196	4	Lockwasher, Housing Sc., #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
<u>Armature Assembly &amp; Parts Used With</u>			8X-794	1	Nut, Cover Band, Square #10-32
MAD-96	1	Washer, Thrust, Comm. End	8X-900	3	Screw, Pinion Housing, Fill. Hd. #10-32x7/8
MN-18	1	Washer, Thrust, D.E.			
MZ-2108	1	ARMATURE ASSY.			
MAW-31	1	Spacer			
MU-54	*	Washer, Thrust, C.E., 1/32" Thick			
MU-54A	*	Washer, Thrust, C.E., 1/64" Thick			
MU-54B	*	Washer, Thrust, C.E., 3/64" Thick			
<u>Switch Assembly &amp; Parts Used With</u>					
SW-2813	1	SWITCH, STARTER			
12X-201	1	Lockwasher, 3/8			
8X-830	1	Nut, Hex. 3/8-16			
12X-196	1	Lockwasher, Term. Sc., #10			
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16			
X-1270	2	Washer, Switch Mtg. Sc., Skpf. #10			
8X-1368	1	Screw, Switch Terminal, Rd. Hd. #10-32x7/16			

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4154	Indian Motorcycle Tri-Wheel Motor

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4155 STARTING MOTOR PARTS LIST

MZ-4155  
(Issued 3-9-51)

Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2001F)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush, Insulated
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

Comm. End Head Assembly & Parts Used With

MZ-2002E	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used With

MU-54	2	Washer, Thrust, 1/32" Thick
MZ-2053	1	ARMATURE ASSY.
MZ-35	1	Spacer, Bearing Thrust
X-261	1	Key, Woodruff, #6

Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-14	1	BENDIX DRIVE ASSEMBLY
EB-108	2	Lockwasher
EB-7819S	1	Sleeve, Compression
EB-8503	1	Head Driving
EB-8506	1	Screw, Spring, Head
EB-8507	1	Screw, Spring, Shaft
EB-8734	1	Ring, Take-Up
EBA-211	1	Shaft & Pinion
EBA-1405	1	SPRING, DRIVE
MZ-1024Y	1	Band, Cover
MZ-1129A	1	Head Assy., Drive End
MZ-44A	1	BEARING, ABS. BRONZE
8X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2
12X-196	4	Lockwasher, Head Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4155	Gladden Products

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File in  
Equipment & Parts List Binder

"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4156 STARTING MOTOR PARTS LIST

MZ-4156

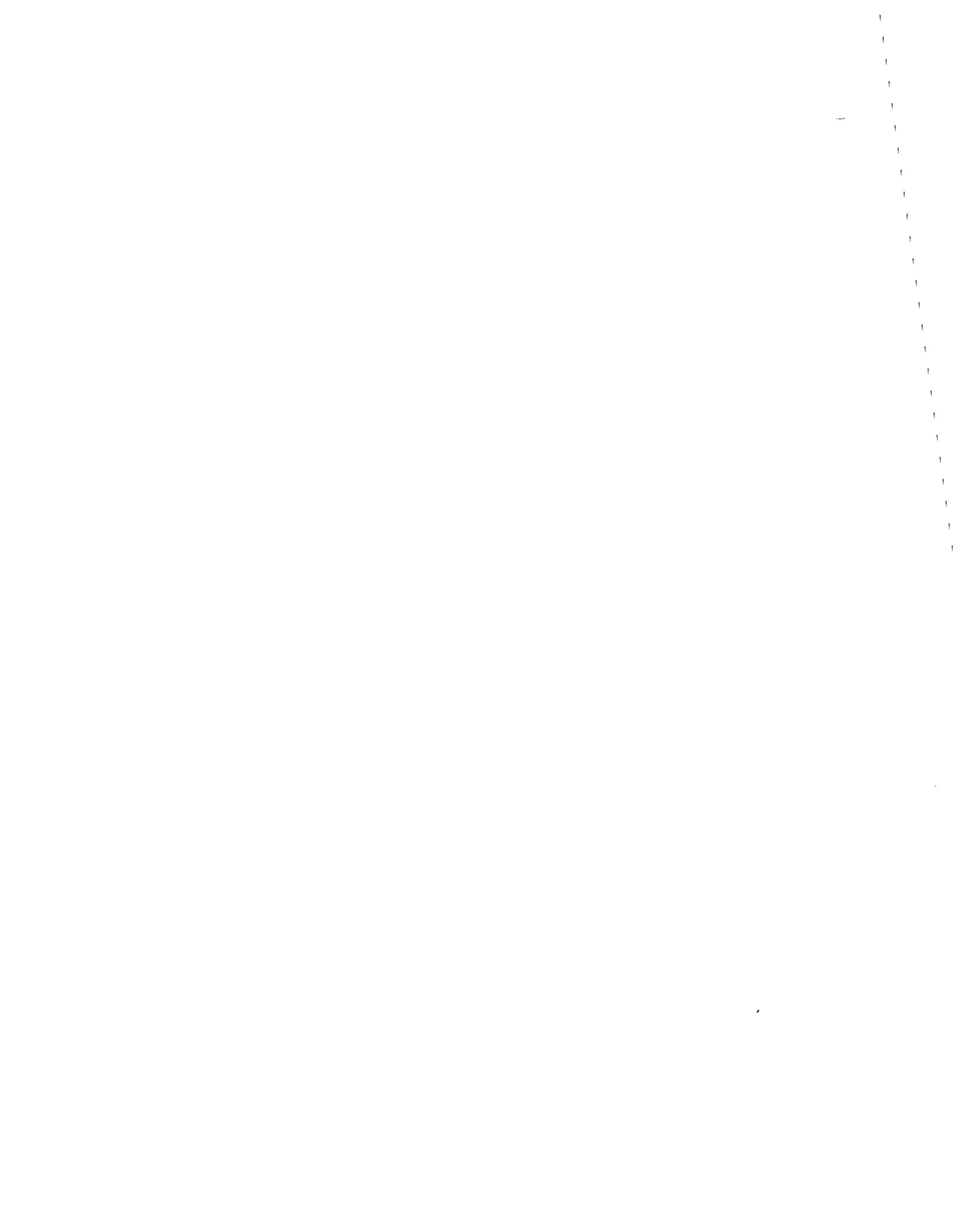
Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2224)	1	Frame & Field Assy.	EBB-5	1	BENDIX DRIVE ASSY.
MAB-31	1	Washer, Ins., Term. Stud, Outer	EBA-1213	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-1225	1	Spring, Meshing
MU-28	1	Stud, Terminal	EBA-1233	1	Ring, Retaining
MU-31	1	Bushing, Ins., Term. Stud	EBA-2006	1	Pin, Locating
MU-37	1	Washer, Plain, Term. Stud	EBA-2007	2	Plate, Spring Anchor
MU-39	1	Washer, Ins., Term. Stud, Inner	EBA-2008	1	Ring, Lock
MZ-12 †	2	Brush	EBA-2031	1	Shaft
MZ-30A	1	Insulation, Field Connection	EBA-2105	1	SPRING, DRIVE
MZ-38A	4	Screw, Pole Shoe	EBB-532	1	Pinion
MZ-74	1	Equalizer	MAW-2129	1	BEARING ASSY., INTERMEDIATE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-130	1	Bearing, Abs. Bronze
MZ-32	2	Connector, Field Coil	MZ-1024Y	1	Band, Cover
MZ-1007	1	Coil, Field, U.L.	PS-1253D	1	Housing Assy., Pinion
MZ-1008	1	Coil, Field, L.R.	MAW-131	1	Pin, Dowel
MZ-1009	1	Coil, Field, L.L.	MG-77A	1	BEARING, ABS. BRONZE
MZ-1010	1	Coil, Field, U.R.	12X-196	4	Lockwasher, Housing Screw, #10
12X-1014	2	Lockwasher, Term. Stud, 5/16	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8
Comm. End Head Assembly & Parts Used With					
MZ-2105B	1	Head Assy., Comm. End	† BRUSH SET, SERVICE MZ-2012AS. * Use as required.		
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, Head Screw, #10			
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8			
Armature Assembly & Parts Used With					
MAK-61	1	Washer, Thrust, Comm. End			
MU-54	*	Washer, Thrust, 1/32" Thick			
MU-54A	*	Washer, Thrust, 1/64" Thick			
MU-54B	*	Washer, Thrust, 3/64" Thick			
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, D.E., #6			
Switch Assembly & Parts Used With					
SS-6LB	1	Connector			
SST-4004	1	SOLENOID SWITCH			
8X-164	2	Nut, Hex. 5/16-18			
8X-173	1	Nut, Hex. #10-32			
12X-196	1	Lockwasher, #10			
12X-1014	2	Lockwasher, 5/16			
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16			
X-1274	2	Washer, Switch Mtg., Skpf. #10			

(Issued 1-4-49)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4157 STARTING MOTOR PARTS LIST

MZ-4157

**Frame & Field Assembly & Parts Used With**

Part No.	No. Used	Name of Part
(MZ-2210C)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	Field Coil Package
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

**Comm. End Head Assembly & Parts Used With**

MZ-2105E	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S †	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

**Armature Assembly & Parts Used With**

MAK-61	1	Washer, Thrust, Comm. End
MU-54	*	Washer, Thrust, C.E. & Int., 1/32" Thick
MU-54A	*	Washer, Thrust, C.E. & Int., 1/64" Thick
MU-54B	*	Washer, Thrust, C.E. & Int., 3/64" Thick
MZ-2211	1	Armature
X-261	1	Key, Woodruff, #6

**Miscellaneous Parts**

Part No.	No. Used	Name of Part
EBA-33	1	Bendix Drive Assembly
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1232	1	Pinion
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2007	2	Plate, Spring Anchor
EBA-2008	1	Ring, Lock
EBA-2031	1	Shaft
EBA-2105	1	Spring, Drive
MZ-24A	1	Band, Cover
MZ-1236	1	Bearing Assy., Intermediate
MAW-130	1	Bearing, Abs. Bronze
PS-1290	1	Housing Assy., Pinion
MG-77A	1	Bearing, Abs. Bronze
12X-196	4	Lockwasher, Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
X-1274	2	Lockwasher, Skfp., #10
8X-1368	2	Screw, Rd. Hd. #10-32x7/16
8X-2987	4	Screw, Pinion Housing, Hex. Hd. #10-32x7/8

\* Use as required.

† Brush Set, Service MZ-2012AS.

UNIT	APPLICATION
MZ-4157	Studebaker

(Issued 8-22-49)

Printed in U. S. A.

File in  
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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4159 STARTING MOTOR PARTS LIST

MZ-4159

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2313)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12†	2	Brush
MZ-30A	1	Insulation, Field Conn.
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002F	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	*	Washer, Thrust, C.E. & D.E., 1/32" Thick
MU-54A	*	Washer, Thrust, C.E. & D.E., 1/64" Thick
MU-54B	*	Washer, Thrust, C.E. & D.E., 3/64" Thick
MZ-2312	1	ARMATURE
MZ-309	1	Spacer

## Switch Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-319	1	Connector
SS-4001	1	SOLENOID STARTING SWITCH
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
8X-832	2	Nut, Hex. 5/16-24
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1737	2	Washer, Switch Mtg., Sc., Skpf. #10

## Miscellaneous Parts

EBB-7	1	BENDIX DRIVE ASSY.
EBA-513	1	Spring, Anti-Drift
EBA-525	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2008	1	Ring, Lock
EBA-3505	1	SPRING, DRIVE
EBA-3507	2	Plate, Spring Anchor
EBA-3531	1	Shaft
EBB-732	1	Pinion
MZ-24A	1	Band, Cover
MZ-124	1	Pin, Bendix
MZ-1003	1	Head Assy., Drive End
MCL-27	1	BEARING, ABS. BRONZE
X-3048	4	Screw, Drive End Head, Flat Hd. #10-32x3/8
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4159	Hudson

(Issued 10-10-49)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4160 STARTING MOTOR PARTS LIST

MZ-4160  
(Issued 11-27-50)

Frame & Field Assembly & Parts Used With		
Part No.	No. Used	Name of Part
(MZ-2225)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

Comm. End Head Assembly & Parts Used With		
Part No.	No. Used	Name of Part
MZ-2002F	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush Ground
12X-196	4	Lockwasher, C.E. Head Screw, #10
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used With		
Part No.	No. Used	Name of Part
MAD-47	1	Washer, Thrust, D.E.
MU-54	*	Washer, Thrust, C.E., 1/32" Thick
MU-54B	*	Washer, Thrust, C.E., 3/64" Thick
MZ-99	1	Washer, Thrust, D.E.
MZ-2327	1	ARMATURE

Miscellaneous Parts

MZ-24A	1	Band, Cover
MZ-1325	1	Head Assy., Drive End
MBD-257	1	BEARING, ABS. BRONZE
X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2
12X-196	4	Lockwasher, D.E. Head Screw, #10
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4160	Nash (Canada)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4161 STARTING MOTOR PARTS LIST

MZ-4161  
(Issued 4-13-51)

Frame & Field Assembly & Parts Used With		
Part No.	No. Used	Name of Part
(MZ-2210E)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-209	1	Stud, Terminal, 5/16-18
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
8X-164	2	Nut, Term. Stud, Hex. 5/16-18
12X-1014	2	Lockwasher, Term. Stud, 5/16

Comm. End Head Assembly & Parts Used With		
Part No.	No. Used	Name of Part
MZ-2105B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used With		
Part No.	No. Used	Name of Part
MAK-61	1	Washer, Arm. Thrust, C.E.
MU-54	*	Washer, Thrust, C.E. & Intermediate, 1/32" Thick
MU-54A	*	Washer, Thrust, C.E. & Intermediate, 1/64" Thick
MU-54B	*	Washer, Thrust, C.E. & Intermediate, 3/64" Thick
MZ-2211	1	ARMATURE
X-261	1	Key, Woodruff, D.E., #6

Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part
SS-6RA	1	Connector
SS-4001	1	SOLENOID STARTING SWITCH
8X-173	1	Nut, Hex. #10-32
12X-196	1	Lockwasher, #10
8X-832	2	Nut, Hex. 5/16-24
12X-1014	2	Lockwasher, 5/16
8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
X-1274	2	Washer, Switch Mtg., Skpf. #10

### Miscellaneous Parts

EBA-52	1	BENDIX DRIVE ASSEMBLY
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2007	2	Plate, Spring Anchor
EBA-2008	1	Ring, Lock
EBA-2031	1	Screw, Shaft
EBA-2105	1	SPRING, DRIVE
EBA-7632	1	Pinion
MAW-2129	1	Bearing Assy., Intermediate
MAW-130	1	Bearing, Abs. Bronze
MZ-24A	1	Band, Cover
PS-1253C	1	Housing Assy., Pinion
MAW-131	1	Pin, Dowel
MG-77A	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8

† BRUSH SET, SERVICE MZ<sup>2</sup>2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4161	Kohler Co.

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4163 STARTING MOTOR PARTS LIST

MZ-4163

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2336)	1	Frame & Field Assy.	MAX-89L	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SS-4014	1	STARTING SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex., #10-32
MU-28	1	Stud, Terminal	12X-196	1	Lockwasher, #10
MU-31	1	Bushing, Ins., Term. Stud	8X-832	2	Nut, Hex., 5/16-24
MU-37	1	Washer, Plain, Term.. Stud, 5/16	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12 †	2	Brush	X-1274	2	Washer, Switch Mtg., Skpf. #10
MZ-30A	1	Insulation, Field Connection	<u>Miscellaneous Parts</u>		
MZ-38A	4	Screw, Pole Shoe	EBA-39	1	BENDIX DRIVE ASSEMBLY
MZ-74	1	Equalizer	EBA-1213	1	Spring, Anti-Drift
MZ-3005S	1	FIELD COIL PACKAGE	EBA-1225	1	Spring, Meshing
MZ-32	2	Connector, Field Coil	EBA-1233	1	Ring, Retaining
MZ-1007	1	Coil, Field, U.L.	EBA-2006	1	Pin, Locating
MZ-1008	1	Coil, Field, L.R.	EBA-2008	1	Ring, Lock
MZ-1009	1	Coil, Field, L.L.	EBA-2031	1	Screw Shaft
MZ-1010	1	Coil, Field, U.R.	EBA-2032	1	Pinion
12X-1014	2	Lockwasher, Term. Stud, 5/16	EBA-2105	1	SPRING, DRIVE
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	EBA-3307	2	Plate, Spring Anchor
<u>Comm. End Head Assembly &amp; Parts Used With</u>			MZ-24A	1	Band, Cover
MZ-2328	1	Head Assy., Comm. End	MZ-1236	1	BEARING ASSY., INTERMEDIATE
MAD-110	1	Felt	MAW-130	1	Bearing, Abs. Bronze
MZ-19	4	Spring, Brush	PS-304	1	Housing, Pinion
MZ-1034S†	2	Brush, Grounded	12X-196	4	Lockwasher, Housing Screw, #10
12X-196	4	Lockwasher, Head Screw, #10	X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	8X-794	1	Nut, Cover Band, Square #10-32
<u>Armature Assembly &amp; Parts Used With</u>			X-1274	2	Washer, Int. Brg. Screw, Skpf. #10
MU-54	*	Washer, Thrust, C.E. & D.E., 1/32" Thick	X-1368	2	Screw, Int. Bearing Rd. Hd. #10-32x7/16
MU-54B	*	Washer, Thrust, C.E. & D.E., 3/64" Thick	X-2994	4	Screw, Pinion Housing, Fill. Hd. #10-32x9/16
MZ-2337	1	ARMATURE	† BRUSH SET, SERVICE MZ-2012AS.		
X-261	1	Key, Woodruff, #6	* Use as required.		

UNIT	APPLICATION
MZ-4163	Henry J.

(Issued 9-29-50)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4164 STARTING MOTOR PARTS LIST

MZ-4164

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2341)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	1	Lockwasher, Term. Stud, 5/16
8X-1376	1	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002F	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S †	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	*	Washer, Thrust, C.E. & D.E., 1/32" Thick
MU-54B	*	Washer, Thrust, C.E. & D.E., 3/64" Thick
MZ-2312	1	ARMATURE
MZ-309	1	Spacer

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBB-7	1	BENDIX DRIVE ASSY.
EBA-513	1	Spring, Anti-Drift
EBA-525	1	Spring, Meshing
EBA-1233	1	Ring, Retaining
EBA-2008	1	Ring, Lock
EBA-3505	1	SPRING, DRIVE
EBA-3507	2	Plate, Spring Anchor
EBA-3531	1	Shaft
EBB-732	1	Pinion
MZ-24A	1	Band, Cover
MZ-124	1	Pin, Bendix
MZ-1003A	1	Head Assy., Drive End
MG-77A	1	BEARING, ABS. BRONZE
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
X-3048	4	Screw, Drive End Head, Flat Hd. #10-32x3/8

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4164	Hudson

(Issued 10-17-50)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4165 STARTING MOTOR PARTS LIST

MZ-4165  
(Issued 11-27-50)

Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
(MZ-2225)	1	Frame & Field Assy.
MAB-31	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	Brush
MZ-30A	1	Ins., Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U.L.
MZ-1008	1	Coil, Field, L.R.
MZ-1009	1	Coil, Field, L.L.
MZ-1010	1	Coil, Field, U.R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

Comm. End Head Assembly & Parts Used With

MZ-2002F	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034†	2	Brush, Grounded
12X-196	4	Lockwasher, Head Screw, #10
X-902	4	Screw, D.E. Head, Fill. Hd. #10-32x3/8

Armature Assembly & Parts Used With

Part No.	No. Used	Name of Part
MAD-47	1	Washer, Thrust, D.E.
MU-54	*	Washer, Thrust, C.E., 1/32" Thick
MU-54B	*	Washer, Thrust, C.E., 3/64" Thick
MZ-99	1	Washer, Thrust, D.E.
MZ-2342	1	ARMATURE

Miscellaneous Parts

MZ-24A	1	Band, Cover
MZ-1325	1	Head Assy., Drive End
MBD-257	1	BEARING, ABS. BRONZE
X-119	4	Screw, D.E. Head, Fill. Hd. #10-32x1/2
12X-196	4	Lockwasher, Head Screw #10
X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

\* Use as required.

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4165	Nash (Canada)

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File in  
Equipment & Parts List Binder

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

## MZ-4166 STARTING MOTOR PARTS LIST

MZ-4166  
(Issued 6-27-51)

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2224)	1	Frame & Field Assy.	SS-6RA	1	Connector
MAB-31	1	Washer, Ins., Term. Stud, Outer	SS-4020	1	SOLENOID SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex. #10-32
MU-28	1	Stud, Terminal	12X-196	1	Lockwasher, #10
MU-31	1	Bushing, Ins., Term. Stud	8X-832	2	Nut, Hex. 5/16-24
MU-37	1	Washer, Plain, Term. Stud	12X-1014	2	Lockwasher, 5/16
MU-39	1	Washer, Ins., Term. Stud, Inner	8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12 †	2	Brush	X-1274	2	Washer, Switch Mtg., Skpf. #10
MZ-30A	1	Insulation, Field Connection			
MZ-38A	4	Screw, Pole Shoe			
MZ-74	1	Equalizer			
MZ-3005S	1	FIELD COIL PACKAGE			
MZ-32	2	Connector, Field Coil			
MZ-1007	1	Coil, Field, U.L.			
MZ-1008	1	Coil, Field, L.R.			
MZ-1009	1	Coil, Field, L.L.			
MZ-1010	1	Coil, Field, U.R.			
12X-1014	2	Lockwasher, Term. Stud, 5/16			
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24			
<u>Comm. End Head Assembly &amp; Parts Used With</u>			<u>Miscellaneous Parts</u>		
MZ-2105B	1	Head Assy., Comm. End	EBB-5	1	BENDIX DRIVE ASSY.
MAD-110	1	Felt	EBA-1213	1	Spring, Anti-Drift
MZ-19	4	Spring, Brush	EBA-1225	1	Spring, Meshing
MZ-1034S†	2	Brush, Grounded	EBA-1233	1	Ring, Retaining
12X-196	4	Lockwasher, Head Screw, #10	EBA-2006	1	Pin, Locating
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8	EBA-2007	2	Plate, Spring Anchor
<u>Armature Assembly &amp; Parts Used With</u>			EBA-2008	1	Ring, Lock
MAK-61	1	Washer, Thrust, Comm. End	EBA-2031	1	Shaft
MU-54	*	Washer, Thrust, C.E. & Intermediate 1/32" Thick	EBA-2105	1	SPRING, DRIVE
MU-54A	*	Washer, Thrust, C.E. & Intermediate 1/64" Thick	EBB-532	1	Pinion
MU-54B	*	Washer, Thrust, C.E. & Intermediate 3/64" Thick	MAW-2129	1	BEARING ASSY., INTERMEDIATE
MZ-2211X	1	ARMATURE	MAW-130	1	Bearing, Abs. Bronze
X-261	1	Key, Woodruff, #6	MZ-24A	1	Band, Cover
			PS-1253F	1	Housing Assy., Pinion
			MAW-131	1	Pin, Dowel
			MG-77A	1	BEARING, ABS. BRONZE
			12X-196	4	Lockwasher, Hsg. Screw, #10
			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
			8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4166	Towmotor



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4167 STARTING MOTOR PARTS LIST

MZ-4167  
(Issued 3-9-51)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
(MZ-2341A)	1	Frame & Field Assy.	EBB-7	1	BENDIX DRIVE ASSY.
MAB-31	1	Washer, Ins., Term. Stud, Outer	EBA-513	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-525	1	Spring, Meshing
MU-31	1	Bushing, Ins., Term. Stud	EBA-1233	1	Ring, Retaining
MU-37	1	Washer, Plain, Term. Stud, 5/16	EBA-2008	1	Ring, Lock
MU-39	1	Washer, Ins., Term. Stud, Inner	EBA-3505	1	SPRING, DRIVE
MZ-12 †	2	Brush	EBA-3507	2	Plate, Spring Anchor
MZ-30A	1	Insulation, Field Connection	EBA-3531	1	Shaft
MZ-38A	4	Screw, Pole Shoe	EBB-732	1	Pinion
MZ-74	1	Equalizer	MZ-24A	1	Band, Cover
MZ-209	1	Stud, Terminal, 5/16-18	MZ-124	1	Pin, Bendix
MZ-3005S	1	FIELD COIL PACKAGE	MZ-1003A	1	Head Assy., Drive End
MZ-32	2	Connector, Field Coil	MG-77A	1	BEARING, ABS. BRONZE
MZ-1007	1	Coil, Field, U.L.	X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MZ-1008	1	Coil, Field, L.R.	8X-794	1	Nut, Cover Band, Square #10-32
MZ-1009	1	Coil, Field, L.L.	X-3048	4	Screw, D.E. Head, Flat Hd. #10-32x3/8
MZ-1010	1	Coil, Field, U.R.			
8X-164	1	Nut, Term. Stud, Hex. 5/16-18			
12X-1014	1	Lockwasher, Term. Stud, 5/16			
Comm. End Head Assembly & Parts Used With					
MZ-2002F	1	Head Assy., Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, Head Screw, #10			
8X-902	4	Screw, C.E. Head, Fill. Hd. #10-32x3/8			
Armature Assembly & Parts Used With					
MU-54	*	Washer, Thrust, C.E. & D.E., 1/32" Thick			
MU-54B	*	Washer, Thrust, C.E. & D.E., 3/64" Thick			
MZ-2312	1	ARMATURE			
MZ-309	1	Spacer			

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4167	Hudson (6)



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4170 STARTING MOTOR PARTS LIST

MZ-4170  
(Issued 3-1-55)

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2210E	1	Frame & Field Assembly	SS-6RA	1	Connector
MAB-31A	1	Washer, Ins., Term. Stud, Outer	SS-4001	1	SOLENOID STARTING SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex. #10-32
MU-31	1	Bushing, Ins., Term. Stud	12X-196	1	Lockwasher, #10
MU-37	1	Washer, Plain, Term. Stud	8X-832	2	Nut, Hex. 5/16-24
MU-39A	1	Washer, Ins., Term. Stud, Inner	12X-1014	2	Lockwasher, 5/16
MZ-12†	2	Brush	8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-30A	1	Insulation, Field Connection	X-1274	2	Washer, Switch Mtg. Screw, Skpf. #10
MZ-38A	4	Screw, Pole Shoe			
MZ-74	1	Equalizer			<u>Miscellaneous Parts</u>
MZ-209	1	Stud, Terminal	EBB-23	1	BENDIX DRIVE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-2129	1	Bearing Assy., Intermediate
MZ-32	2	Connector, Field Coil	MAW-130	1	BEARING, ABS. BRONZE
MZ-1007	1	Coil, Field, U. L.	MZ-24A	1	Band, Cover
MZ-1008	1	Coil, Field, L. R.	PS-1253C	1	Housing Assy., Pinion
MZ-1009	1	Coil, Field, L. L.	MAW-131	1	Pin, Dowel
MZ-1010	1	Coil, Field, U. R.	MG-77A	1	BEARING, ABS. BRONZE
8X-164	2	Nut, Term. Stud, Hex. 5/16-18	12X-196	4	Lockwasher, Housing Screw, #10
12X-1014	2	Lockwasher, Term. Stud, 5/16	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
			8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Pinion Housing, Hex. Hd. #10-32x5/8
					† BRUSH SET, SERVICE MZ-2012AS.
					* Use as required.
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2105B	1	Head Assy., Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, C. E. Head Screw, #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MAK-61	1	Washer, Thrust, Comm. End			
MU-54	1	Washer, Thrust, Int., 1/32" Thick			
MU-54	*	Washer, Thrust, C. E., 1/32" Thick			
MU-54B	*	Washer, Thrust, C. E., 3/64" Thick			
MU-54K	*	Washer, Thrust, C. E., .080" Thick			
MU-54L	*	Washer, Thrust, C. E., 1/16" Thick			
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, D. E., #6			

UNIT	APPLICATION
MZ-4170	Lycoming-Spencer

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4172 STARTING MOTOR PARTS LIST

MZ-4172  
(Issued 11-5-52)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2210F	1	Frame & Field Assy.	EBA-33	1	BENDIX DRIVE ASSEMBLY
MAB-31A	1	Washer, Ins., Term. Stud, Outer	EBA-1213	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-1225	1	Spring, Meshing
MU-28	1	Stud, Terminal	EBA-1232	1	Pinion
MU-31	1	Bushing, Ins., Term. Stud	EBA-1233	1	Ring, Retaining
MU-37	1	Washer, Plain, Term. Stud	EBA-2006	1	Pin, Locating
MU-39A	1	Washer, Ins., Term. Stud, Inner	EBA-2008	1	Ring, Lock
MZ-12 †	2	Brush	EBA-2031	1	Screw Shaft
MZ-30A	1	Insulation, Field Connection	EBA-2105	1	SPRING; DRIVE
MZ-38A	4	Screw, Pole Shoe	EBA-3307	2	Plate, Spring Anchor
MZ-74	1	Equalizer	MZ-24A	1	Band, Cover
MZ-3005S	1	FIELD COIL PACKAGE	MZ-177	4	Screw, Pinion Housing, Hex. Hd. #10-32x3/4
MZ-32	2	Connector, Field Coil	MZ-1236	1	BEARING ASSY., INTERMEDIATE
MZ-1007	1	Coil, Field, U.L.	MZ-339	1	Bearing, Abs. Bronze
MZ-1008	1	Coil, Field, L.R.	PS-1318	1	Housing Assy., Pinion
MZ-1009	1	Coil, Field, L.L.	MG-77A	1	BEARING, ABS. BRONZE
MZ-1010	1	Coil, Field, U.R.	12X-196	4	Lockwasher, Housing Sc. #10
12X-1014	2	Lockwasher, Term. Stud, 5/16	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	8X-794	1	Nut, Cover Band, Square #10-32
<b>Comm. End Head Assembly &amp; Parts Used With</b>			X-1274	2	Washer, Interm. Bearing Sc., Skpf. #10
MZ-2105B	1	Head Assy., Comm. End	8X-1368	2	Screw, Interm. Bearing, Rd. Hd. #10-32x7/16
MAD-110	1	Felt	† BRUSH SET, SERVICE MZ-2012AS.		
MZ-19	4	Spring, Brush	* Use as required.		
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, C. E. Head Screw, #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<b>Armature Assembly &amp; Parts Used With</b>					
MU-54	*	Washer, Thrust, C. E. & Interm., 1/32" Thick			
MU-54B	*	Washer, Thrust, C. E. & Interm., 3/64" Thick			
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, D. E., #6			

UNIT	APPLICATION
MZ-4172	Hudson (6)

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4174 STARTING MOTOR PARTS LIST

MZ-4174  
(Issued 2-8-54)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2354	1	Frame & Field Assy.	EBB-5	1	BENDIX DRIVE ASSY.
MAB-31A	1	Washer, Ins. , Term. Stud, Outer	EBA-1213	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-1225	1	Spring, Meshing
MU-28	1	Stud, Terminal	EBA-1233	1	Ring, Retaining
MU-31	1	Bushing, Ins. , Term. Stud	EBA-2006	1	Pin, Locating
MU-37	1	Washer, Plain, Term. Stud	EBA-2008	1	Ring, Lock
MU-39A	1	Washer, Ins. , Term. Stud, Inner	EBA-2031	1	Shaft, Screw
MZ-12†	2	Brush	EBA-2105	1	SPRING, DRIVE
MZ-30A	1	Insulation, Field Connection	EBA-3307	2	Plate, Spring Anchor
MZ-38A	4	Screw, Pole Shoe	EBB-532	1	Pinion
MZ-74	1	Equalizer	MAW-2129	1	BEARING ASSY. , INTERMEDIATE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-130	1	Bearing, Abs. Bronze
MZ-32	2	Connector, Field Coil	MZ-24A	1	Band, Cover
MZ-1007	1	Coil, Field, U. L.	PS-1322	1	Housing Assy. , Pinion
MZ-1008	1	Coil, Field, L. R.	MAW-131	1	Pin, Dowel
MZ-1009	1	Coil, Field, L. L.	MG-77A	1	BEARING, ABS. BRONZE
MZ-1010	1	Coil, Field, U. R.	12X-196	4	Lockwasher, Head Screw, #10
12X-1014	2	Lockwasher, Term. Stud, 5/16	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Housing, Hex. Hd. #10-32x5/8
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2105B	1	Head Assy. , Comm. End	† BRUSH SET, SERVICE MZ-2012AS.		
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, Head Screw, #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8	* Use as required.		
<u>Armature Assembly &amp; Parts Used With</u>					
MAK-61	1	Washer, Thrust, Comm. End			
MU-54	1	Washer, Thrust, Int. , 1/32" Thick			
MU-54	*	Washer, Thrust, C. E. , 1/32" Thick			
MU-54A	*	Washer, Thrust, C. E. , 1/64" Thick			
MU-54B	*	Washer, Thrust, C. E. , 3/64" Thick			
MZ-2211X	1	ARMATURE			
X-261	1	Key, Woodruff, D. E. , #6			

UNIT	APPLICATION
MZ-4174	Towmotor

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4175 STARTING MOTOR PARTS LIST

MZ-4175  
(Issued 2-8-54)

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2001M	1	Frame & Field Assy.
MAB-31A	1	Washer, Ins. , Term. Stud, Outer
MU-14	1	Terminal
MU-28	1	Stud, Terminal, 5/16-24
MU-31	1	Bushing, Ins. , Term. Stud
MU-37	1	Washer, Plain, Term. Stud
MU-39A	1	Washer, Ins. , Term. Stud, Inner
MZ-12†	2	Brush
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U. L.
MZ-1008	1	Coil, Field, L. R.
MZ-1009	1	Coil, Field, L. L.
MZ-1010	1	Coil, Field, U. R.
12X-1014	2	Lockwasher, Term. Stud, 5/16
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002B	1	Head Assy. , Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, C. E. Head Sc. , #10
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

MU-54	2	Washer, Thrust, C. E. & Int. , 1/32" Thick
MZ-2089	1	ARMATURE ASSY.
MZ-51	1	Spacer, Bearing Thrust
X-261	1	Key, Woodruff, D. E. , #6

## Miscellaneous Parts

Part No.	No. Used	Name of Part
EBB-36A	1	BENDIX DRIVE ASSY.
EB-108A	2	Lockwasher
EB-7819SA	1	Sleeve, Compression
EB-8503A	1	Head, Drive
EB-8506A	1	Screw, Spring, Head
EB-8507A	1	Screw, Spring, Shaft
EB-8734A	1	Ring, Take-Up
EBA-405A	1	SPRING, DRIVE
EBB-3611A	1	Shaft & Pinion
MAB-2040	1	BEARING ASSY. , INTERMEDIATE
MG-77A	1	Bearing, Abs. Bronze
MZ-52	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32
MZ-1024U	1	Band, Cover
PS-1214	1	Housing Assy. , Pinion
MAB-88	1	Pin, Dowel
MP-41A	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Pinion Housing Screw, #10
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4175	Wisconsin

Printed in U. S. A.

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking su -parts the complete part can be assembled as needed."



# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4176 STARTING MOTOR PARTS LIST

MZ-4176  
(Issued 2-8-54)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2210	1	Frame & Field Assy.	EBA-52	1	BENDIX DRIVE ASSEMBLY
MAB-31A	1	Washer, Ins., Term. Stud, Outer	EBA-1213	1	Spring, Anti-Drift
MU-14	1	Terminal	EBA-1225	1	Spring, Meshing
MU-31	1	Bushing, Ins., Term. Stud	EBA-1233	1	Ring, Retaining
MU-37	1	Washer, Plain, Term. Stud, 5/16	EBA-2006	1	Pin, Locating
MU-39A	1	Washer, Ins., Term. Stud, Inner	EBA-2008	1	Ring, Lock
MZ-12†	2	Brush	EBA-2031	1	Screw Shaft
MZ-30A	1	Insulation, Field Connection	EBA-2105	1	SPRING, DRIVE
MZ-38A	4	Screw, Pole Shoe	EBA-3307	2	Plate, Spring Anchor
MZ-74	1	Equalizer	EBA-7632	1	Pinion
MZ-209	1	Stud, Terminal	MAW-2129	1	BEARING ASSY., INTERMEDIATE
MZ-3005S	1	FIELD COIL PACKAGE	MAW-130	1	Bearing, Abs. Bronze
MZ-32	2	Connector, Field Coil	MZ-24A	1	Band, Cover
MZ-1007	1	Coil, Field, U. L.	PS-1253C	1	Housing Assy., Pinion
MZ-1008	1	Coil, Field, L. R.	MAW-131	1	Pin, Dowel
MZ-1009	1	Coil, Field, L. L.	MG-77A	1	BEARING, ABS. BRONZE
MZ-1010	1	Coil, Field, U. R.	12X-196	4	Lockwasher, Housing Screw, #10
8X-164	2	Nut, Term. Stud, Hex. 5/16-18	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
12X-1014	2	Lockwasher, Term. Stud, 5/16	8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Pinion Housing, Hex. Hd. #10-32x5/8
<u>Comm. End Head Assembly &amp; Parts Used With</u>					
MZ-2105B	1	Head Assy., Comm. End	† BRUSH SET, SERVICE MZ-2012AS.		
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, C. E. Head Sc., #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MAK-61	1	Washer, Thrust, Comm. End			
MU-54	*	Washer, Thrust, C. E. & Int., 1/32" Thick			
MU-54A	*	Washer, Thrust, C. E. & Int., 1/64" Thick			
MU-54B	*	Washer, Thrust, C. E. & Int., 3/64" Thick			
MZ-2211	1	ARMATURE			
X-261	1	Key, Woodruff, D. E., #6			

UNIT	APPLICATION
MZ-4176	Case Engine

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File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4177 MOTOR PARTS LIST

MZ-4177  
(Issued 10-3-55)

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2355	1	Frame & Field Assy.
MAB-31A	2	Washer, Ins. , Term. Stud
MBG-50	1	Insulation, Field Connection, C. E.
MBG-52	1	Insulation, Term. Stud, Inner
MBG-53	1	Stud, Terminal
MBG-55	1	Insulation, Field Connection, 8" Long
MU-14	1	Terminal
MU-28	1	Stud, Terminal
MU-31	2	Bushing, Ins. , Term. Stud
MU-37	2	Washer, Plain, Term. Stud
MU-39A	1	Washer, Ins. , Term. Stud, Inner
MZ-32	2	Connector, Field Coil
MZ-38A	4	Screw, Pole Shoe
MZ-356	1	Terminal, Field Coil
MZ-1007	1	COIL, FIELD, U. L.
MZ-1008D	1	COIL, FIELD, L. R.
MZ-1009E	1	COIL, FIELD, L. L.
MZ-1010	1	COIL, FIELD, U. R.
MZ-1012A	2 †	Brush
8X-55	1	Screw, Brush Lead, Rd. Hd. #8-32x3/8
12X-195	2	Lockwasher, Brush Lead Sc. , #8
8X-304	1	Screw, Brush Lead, Rd. Hd. #8-32x5/16
12X-1014	4	Lockwasher, Term. Stud, 5/16
8X-1376	4	Nut, Term. Stud, Hex. 5/16-24

## Comm. End Head Assembly & Parts Used With

MZ-2002L	1	Head Assy. , Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
12X-196	4	Lockwasher, C. E. Head Sc. , #10
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2352	1	ARMATURE
MU-54	*	Washer, Thrust, C. E. , 1/32" Thick
MU-54B	*	Washer, Thrust, C. E. , 3/64" Thick

## Miscellaneous Parts

MBG-56	1	Head, D. E.
MZ-24A	1	Band, Cover
12X-196	4	Lockwasher, D. E. Head Sc. , #10
X-367	1	BEARING, BALL, SEALED, S. A. E. #202
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-1151	4	Screw, D. E. Head, Rd. Hd. #10-32x13/16

† BRUSH SET, SERVICE MZ-2012HS.

\* Use as required.

UNIT	APPLICATION
MZ-4177	J. S. Barnes

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File in  
Equipment & Parts List Binder

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4180 STARTING MOTOR PARTS LIST

MZ-4180  
(Issued 3-1-55)

Frame & Field Assembly & Parts Used With			Armature Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2354	1	Frame & Field Assembly	MAK-61	1	Washer, Thrust, Comm. End
MAB-31A	1	Washer, Ins., Term. Stud, Outer	MU-54	*	Washer, Thrust, C. E., 1/32" Thick
MU-14	1	Terminal	MU-54B	*	Washer, Thrust, C. E., 3/64" Thick
MU-28	1	Stud, Terminal	MZ-2211	1	ARMATURE
MU-31	1	Bushing, Ins., Term. Stud	X-261	1	Key, Woodruff, D. E., #6
MU-37	1	Washer, Plain, Term. Stud, 5/16			<u>Miscellaneous Parts</u>
MU-39A	1	Washer, Ins., Term. Stud, Inner	EBA-52	1	BENDIX DRIVE ASSEMBLY
MZ-12†	2	Brush	EBA-1213	1	Spring, Anti-Drift
MZ-30A	1	Insulation, Field Connection	EBA-1225	1	Spring, Meshing
MZ-38A	4	Screw, Pole Shoe	EBA-1233	1	Ring, Retaining
MZ-74	1	Equalizer	EBA-2006	1	Pin, Locating
MZ-3005S	1	FIELD COIL PACKAGE	EBA-2008	1	Ring, Lock
MZ-32	2	Connector, Field Coil	EBA-2031	1	Screw Shaft
MZ-1007	1	Coil, Field, U. L.	EBA-2105	1	SPRING, DRIVE
MZ-1008	1	Coil, Field, L. R.	EBA-3307	2	Plate, Spring Anchor
MZ-1009	1	Coil, Field, L. L.	EBA-7632	1	Pinion
MZ-1010	1	Coil, Field, U. R.	MAW-2129	1	Bearing Assy., Intermediate
12X-1014	2	Lockwasher, Term. Stud, 5/16	MAW-130	1	BEARING, ABS. BRONZE
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	MZ-1024AA	1	Band, Cover
			PS-1253C	1	Housing Assy., Pinion
			MAW-131	1	Pin, Dowel
			MG-77A	1	BEARING, ABS. BRONZE
			12X-196	4	Lockwasher, Housing Screw, #10
			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
			8X-794	1	Nut, Cover Band, Square #10-32
			8X-2944	4	Screw, Pinion Housing, Hex. Hd. #10-32x5/8
					† BRUSH SET, SERVICE MZ-2012AS.
					* Use as required.

Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S†	2	Brush, Grounded
12X-196	4	Lockwasher, C. E. Head Screw, #10
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8

UNIT	APPLICATION
MZ-4180	J. I. Case

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File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4183 STARTING MOTOR PARTS LIST

MZ-4183

(Issued 10-3-55)

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2202	1	Frame & Field Assy.	SS-6L	1	Connector
MAB-31A	1	Washer, Ins., Term. Stud, Outer	SS-4014	1	SOLENOID STARTING SWITCH
MU-14	1	Terminal	8X-173	1	Nut, Hex. #10-32
MU-28	1	Stud, Terminal	12X-196	1	Lockwasher, #10
MU-31	1	Bushing, Ins., Term. Stud	8X-832	2	Nut, Hex. 5/16-24
MU-37	1	Washer, Plain, Term. Stud	12X-1014	2	Lockwasher, 5/16
MU-39A	1	Washer, Ins., Term. Stud, Inner	8X-321	2	Screw, Switch Mtg., Rd. Hd. #10-32x5/16
MZ-12 †	2	Brush	X-1274	2	Washer, Switch Mtg., #10
MZ-30A	1	Insulation, Field Conn.			
MZ-38A	4	Screw, Pole Shoe			
MZ-74	1	Equalizer			
MZ-3005S	1	<b>FIELD COIL PACKAGE</b>			
MZ-32	2	Connector, Field Coil			
MZ-1007	1	Coil, Field, U. L.			
MZ-1008	1	Coil, Field, L. R.			
MZ-1009	1	Coil, Field, L. L.			
MZ-1010	1	Coil, Field, U. R.			
12X-1014	2	Lockwasher, Term. Stud, 5/16			
8X-1376	2	Nut, Term. Stud, Hex., 5/16-24			
<b>Comm. End Head Assembly &amp; Parts Used With</b>			<b>Miscellaneous Parts</b>		
MZ-2002B	1	Head Assy., Comm. End	EBA-19	1	BENDIX DRIVE ASSY.
MAD-110	1	Felt	EB-108	2	Lockwasher
MZ-19	4	Spring, Brush	EB-7819S	1	Sleeve, Compression
MZ-1034S †	2	Brush, Grounded	EB-8503	1	Head, Drive
12X-196	4	Lockwasher, C. E. Head, #10	EB-8506	1	Screw, Spring, Head
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8	EB-8507	1	Screw, Spring, Shaft
			EB-8711	1	Shaft & Pinion
			EB-8734	1	Ring, Take-Up
			EBA-1405	1	SPRING, DRIVE
			MAB-2040	1	Bearing Assy., Intermediate
			MG-77A	1	BEARING, ABS. BRONZE
			MZ-24A	1	Band, Cover
			MZ-52	4	Screw, Pinion Housing, Hex. Hd., #10-32x31/32
			PS-1172A	1	Housing Assy., Pinion
			MAB-88	1	Pin, Dowel
			MP-41A	1	BEARING, ABS. BRONZE
			12X-196	4	Lockwasher, Housing Sc., #10
			8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
			8X-794	1	Nut, Cover Band, Square #10-32
<b>Armature Assembly &amp; Parts Used With</b>					
MU-54	2	Washer, Thrust, C. E. & Int., 1/32" Thick			
MZ-2089	1	ARMATURE ASSY.			
MZ-51	1	Spacer, Brg. Thrust			
X-261	1	Key, Woodruff, D. E., #6			

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4183	Continental

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4184 STARTING MOTOR PARTS LIST

MZ-4184  
(Issued 10-3-55)

<u>Frame &amp; Field Assembly &amp; Parts Used With</u>			<u>Miscellaneous Parts</u>		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2001M	1	Frame & Field Assy.	EBB-45A	1	BENDIX DRIVE ASSY.
MAB-31A	1	Washer, Ins. , Term. Stud, Outer	EB-108A	2	Lockwasher
MU-14	1	Terminal	EB-7819SA	1	Sleeve, Compression
MU-28	1	Stud, Terminal, 5/16-24	EB-8503A	1	Head, Drive
MU-31	1	Bushing, Ins. , Term. Stud	EB-8506A	1	Screw, Spring, Head
MU-37	1	Washer, Plain, Term. Stud	EB-8507A	1	Screw, Spring, Shaft
MU-39A	1	Washer, Ins. , Term. Stud, Inner	EBA-405A	1	Spring, Drive
MZ-12 †	2	Brush	EBB-4511A	1	Shaft & Pinion
MZ-30A	1	Insulation, Field Connection	MZ-52	4	Screw, Pinion Housing, Hex. Hd. #10-32x31/32
MZ-38A	4	Screw, Pole Shoe	MZ-359	1	Gasket, Int. Bearing
MZ-74	1	Equalizer	MZ-1024U	1	Band, Cover
MZ-3005S	1	FIELD COIL PACKAGE	MZ-1360	1	BEARING ASSY. , INTERMEDIATE
MZ-32	2	Connector, Field Coil	PS-1330	1	Housing Assy. , Pinion
MZ-1007	1	Coil, Field, U. L.	MZ-358	1	Bearing Cap
MZ-1008	1	Coil, Field, L. R.	MZ-364	1	BEARING, ABS. BRONZE
MZ-1009	1	Coil, Field, L. L.	XA-832	1	Oil Seal
MZ-1010	1	Coil, Field, U. R.	8X-63	4	Screw, Int. Bearing, Flat Hd. #8-32x3/8
12X-1014	2	Lockwasher, Term. Stud, 5/16	12X-196	4	Lockwasher, Pinion Housing Screw, #10
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
<u>Comm. End Head Assembly &amp; Parts Used With</u>			8X-794	1	Nut, Cover Band, Square #10-32
MZ-2002B	1	Head Assy. , Comm. End	† BRUSH SET, SERVICE MZ-2012AS.		
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S†	2	Brush, Grounded			
12X-196	4	Lockwasher, C. E. Head Screw, #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
<u>Armature Assembly &amp; Parts Used With</u>					
MU-54	1	Washer, Thrust, C. E. , 1/32" Thick			
MZ-357	2	Washer, Thrust, Int.			
MZ-365	1	Washer, Spring, Int.			
MZ-2366	1	ARMATURE ASSY.			
X-261	1	Key, Woodruff, D. E. , #6			

UNIT	APPLICATION
MZ-4184	Wisconsin

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

## MZ-4185 STARTING MOTOR PARTS LIST

MZ-4185  
(Issued 10-3-55)

Frame & Field Assembly & Parts Used With			Miscellaneous Parts		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ-2001F	1	Frame & Field Assy.	MZ-24A	1	Band, Cover
MAB-31A	1	Washer, Ins. , Term. Stud, Outer	MZ-1129A	1	Head Assy. , Drive End
MU-14	1	Terminal	MZ-44A	1	BEARING, ABS. BRONZE
MU-28	1	Stud, Terminal	8X-119	4	Screw, D. E. Head, Fill. Hd. #10-32x1/2
MU-31	1	Bushing, Ins. , Term. Stud	12X-196	4	Lockwasher, D. E. Head Screw, #10
MU-37	1	Washer, Plain, Term. Stud	8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
MU-39A	1	Washer, Ins. , Term. Stud, Inner	8X-794	1	Nut, Cover Band, Square #10-32
MZ-12 †	2	Brush			
MZ-30A	1	Insulation, Field Connection			
MZ-38A	4	Screw, Pole Shoe			
MZ-74	1	Equalizer			
MZ-3005S	1	FIELD COIL PACKAGE			
MZ-32	2	Connector, Field Coil			
MZ-1007	1	Coil, Field, U. L.			
MZ-1008	1	Coil, Field, L. R.			
MZ-1009	1	Coil, Field, L. L.			
MZ-1010	1	Coil, Field, U. R.			
12X-1014	2	Lockwasher, Term. Stud, 5/16			
8X-1376	2	Nut, Term. Stud, Hex. 5/16-24			
Comm. End Head Assembly & Parts Used With					
MZ-2002E	1	Head Assy. , Comm. End			
MAD-110	1	Felt			
MZ-19	4	Spring, Brush			
MZ-1034S †	2	Brush, Grounded			
12X-196	4	Lockwasher, C. E. Head Screw, #10			
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8			
Armature Assembly & Parts Used With					
MU-54	2	Washer, Thrust, C. E. & D. E. , 1/32" Thick			
MZ-2053	1	ARMATURE ASSY.			
MZ-35	1	Spacer, Bearing Thrust			

† BRUSH SET, SERVICE MZ-2012AS.

UNIT	APPLICATION
MZ-4185	Chief Industries

Printed in U. S. A.

File in  
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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ-4186 MOTOR PARTS LIST

MZ-4186  
(Issued 11-11-55)

## Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2001F	1	Frame & Field Assy.
MAB-31A	1	Washer, Ins., Term. Stud, Outer Terminal
MU-14	1	Stud, Terminal
MU-28	1	Bushing, Ins., Term. Stud
MU-31	1	Washer, Plain, Term. Stud
MU-37	1	Washer, Ins., Term. Stud, Inner
MU-39A	1	Brush
MZ-12 †	2	Insulation, Field Connection
MZ-30A	1	Screw, Pole Shoe
MZ-38A	4	Equalizer
MZ-74	1	FIELD COIL PACKAGE
MZ-3005S	1	Connector, Field Coil
MZ-32	2	Coil, Field, U. L.
MZ-1007	1	Coil, Field, L. R.
MZ-1008	1	Coil, Field, L. L.
MZ-1009	1	Coil, Field, U. R.
MZ-1010	1	Lockwasher, Term. Stud, 5/16
12X-1014	2	Nut, Term. Stud, Hex. 5/16-24
8X-1376	2	

## Comm. End Head Assembly & Parts Used With

MZ-2002E	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S, †	2	Brush, Grounded
12X-196	4	Lockwasher, C. E. Head Sc., #10
8X-902	4	Screw, C. E. Head, Fill. Hd. #10-32x3/8

## Armature Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2352	1	ARMATURE
MU-54	*	Washer, Thrust, C. E., 1/32" Thick
MU-54B	*	Washer, Thrust, C. E., 3/64" Thick

## Miscellaneous Parts

MBG-56	1	Head, D. E.
MZ-24A	1	Band, Cover
12X-196	4	Lockwasher, D. E. Head Sc., #10
X-367	1	BEARING, BALL, SEALED, S. A. E. #202
8X-714	1	Screw, Cover Band, Rd. Hd. #10-32x1 1/2
8X-794	1	Nut, Cover Band, Square #10-32
8X-1151	4	Screw, D. E. Head, Rd. Hd. #10-32x13/16

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4186	J. S. Barnes

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

MZ- 4187 STARTING MOTOR PARTS LIST

MZ- 4187  
(Issued 10-29-56)

Frame & Field Assembly & Parts Used With			Switch Assembly & Parts Used With		
Part No.	No. Used	Name of Part	Part No.	No. Used	Name of Part
MZ- 2224	1	Frame & Field Assy.	SS- 6RA	1	Connector
MAB- 31A	1	Washer, Ins. , Term, Stud, Outer	SST- 4010	1	SOLENOID STARTING SWITCH
MU- 14	1	Terminal	8X- 164	2	Nut, Hex. 5/16- 18
MU- 28	1	Stud, Terminal	8X- 173	1	Nut, Hex. #10- 32
MU- 31	1	Bushing, Ins. , Term. Stud	12X- 196	1	Lockwasher, #10
MU- 37	1	Washer, Plain, Term. Stud	12X- 1014	2	Lockwasher, 5/16
MU- 39A	1	Washer, Ins. , Term. Stud Inner	8X- 321	2	Screw, Switch Mtg. , Rd. Hd. #10- 32x5/16
MZ- 12†	2	Brush	X- 1274	2	Washer, Switch Mtg. Sc. , Skpf. #10
MZ- 30A	1	Insulation, Field Connection			
MZ- 38A	4	Screw, Pole Shoe	<u>Miscellaneous Parts</u>		
MZ- 74	1	Equalizer	EBB- 5	1	BENDIX DRIVE ASSY.
MZ- 3005S	1	FIELD COIL PACKAGE	EBA- 1213	1	Spring, Anti- Drift
MZ- 32	2	Connector, Field Coil	EBA- 1225	1	Spring, Meshing
MZ- 1007	1	Coil, Field, U. L.	EBA- 1233	1	Ring, Retaining
MZ- 1008	1	Coil, Field, L. R.	EBA- 2006	1	Pin, Locating
MZ- 1009	1	Coil, Field, L. L.	EBA- 2008	1	Ring, Lock
MZ- 1010	1	Coil, Field, U. R.	EBA- 2031	1	Shaft, Screw
12X- 1014	2	Lockwasher, Term. Stud, 5/16	EBA- 2105	1	SPRING DRIVE
8X- 1376	2	Nut, Term. Stud, Hex. 5/16- 24	EBA- 3307	2	Plate, Spring Anchor
			EBB- 532	1	Pinion
			MAW- 2129	1	BEARING ASSY. , INTERMEDIATE
			MAW- 130	1	Bearing, Abs. Bronze
			MZ- 24A	1	Band, Cover
			PS- 1322	1	Housing Assy. , Pinion
			MAW- 131	1	Pin, Dowel
			MG- 77A	1	BEARING, ABS. BRONZE
			12X- 196	4	Lockwasher, Housing Sc. , #10
			8X- 714	1	Screw, Cover Band, Rd. Hd. #10- 32x1 1/2
			8X- 794	1	Nut, Cover Band, Square #10- 32
			8X- 2944	4	Screw, Housing Hex. Hd. #10- 32x5/8
					† BRUSH SET, SERVICE MZ- 2012AS.
					* Use as Required.
Comm. End Head Assembly & Parts Used With			Armature Assembly & Parts Used With		
MZ- 2105B	1	Head Assy. , Comm. End	MAK- 61	1	Washer, Thrust, Comm. End
MAD- 110	1	Felt	MZ- 2211X	1	ARMATURE
MZ- 19	4	Spring, Brush	MU- 54	*	Washer, Thrust, C. E. & Int. , 1/32" Thick
MZ- 1034S†	2	Brush, Grounded	MU- 54B	*	Washer, Thrust, C. E. & Int. , 3/64" Thick
12X- 196	4	Lockwasher, C. E. Head Sc. , #10	X- 261	1	Key, Woodruff, D. E. , #6
8X- 902	4	Screw, C. E. Head, Fill. Hd. #10- 32x3/8			

UNIT	APPLICATION
MZ- 4187	TOWMOTOR

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# ELECTRIC AUTO-LITE EQUIPMENT & PARTS LISTS

## MZ-4189 STARTING MOTOR PARTS LIST

MZ-4189  
(Issued 6-29-56)

### Frame & Field Assembly & Parts Used With

Part No.	No. Used	Name of Part
MZ-2210	1	Frame & Field Assy.
MAB-31A	1	Washer, Ins., Term. Stud, Outer
MU-14	1	Terminal
MU-31	1	Bushing, Ins., Term. Stud
MU-37	1	Washer, Plain, Term. Stud, 5/16
MU-39A	1	Washer, Ins., Term. Stud, Inner
MZ-12 †	2	BRUSH
MZ-30A	1	Insulation, Field Connection
MZ-38A	4	Screw, Pole Shoe
MZ-74	1	Equalizer
MZ-209	1	Stud, Terminal
MZ-3005S	1	FIELD COIL PACKAGE
MZ-32	2	Connector, Field Coil
MZ-1007	1	Coil, Field, U. L.
MZ-1008	1	Coil, Field, L. R.
MZ-1009	1	Coil, Field, L. L.
MZ-1010	1	Coil, Field, U. R.
8X-164	2	Nut, Term. Stud, Hex. 5/16-18
12X-1014	2	Lockwasher, Term. Stud, 5/16

### Comm. End Head Assembly & Parts Used With

MZ-2105B	1	Head Assy., Comm. End
MAD-110	1	Felt
MZ-19	4	Spring, Brush
MZ-1034S †	2	BRUSH, GROUNDED
12X-196	4	Lockwasher, C. E. Head Sc., 10
8X-902	4	Screw, C. E. Head, Fill. Hd. 10-32x3/8

### Armature Assembly & Parts Used With

MAK-61	1	Washer, Thrust, Comm. End
MU-54	*	Washer, Thrust, C. E. & Int., 1/32" Thick
MU-54B	*	Washer, Thrust, C. E. & Int., 3/64" Thick
MZ-2211	1	ARMATURE
X-261	1	Key, Woodruff, D. E., 6

### Miscellaneous Parts

Part No.	No. Used	Name of Part
EBA-33	1	BENDIX DRIVE ASSEMBLY
EBA-1213	1	Spring, Anti-Drift
EBA-1225	1	Spring, Meshing
EBA-1232	1	Pinion
EBA-1233	1	Ring, Retaining
EBA-2006	1	Pin, Locating
EBA-2008	1	Ring, Lock
EBA-2031	1	Screw Shaft
EBA-2105	1	SPRING, DRIVE
EBA-3307	2	Plate, Spring Anchor
MAW-2129	1	Bearing Assy., Intermediate
MAW-130	1	BEARING, ABS. BRONZE
MZ-1024AA	1	Band, Cover
PS-1253C	1	Housing Assy., Pinion
MAW-131	1	Pin, Dowel
MG-77A	1	BEARING, ABS. BRONZE
12X-196	4	Lockwasher, Housing Screw, 10
8X-714	1	Screw, Cover Band, Rd. Hd. 10-32x1 1/2
8X-794	1	Nut, Cover Band, Square 10-32
8X-2944	4	Screw, Pinion Housing, Hex. Hd. 10-32x5/8

† BRUSH SET, SERVICE MZ-2012AS.

\* Use as required.

UNIT	APPLICATION
MZ-4189	J. I. Case

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"NOTE: Where part numbers are shown in parenthesis they are for reference only. By stocking sub-parts the complete part can be assembled as needed."

