

*See Vol 4-A
See Vol 4-A Feb 14 1930*

VOL. 4-A

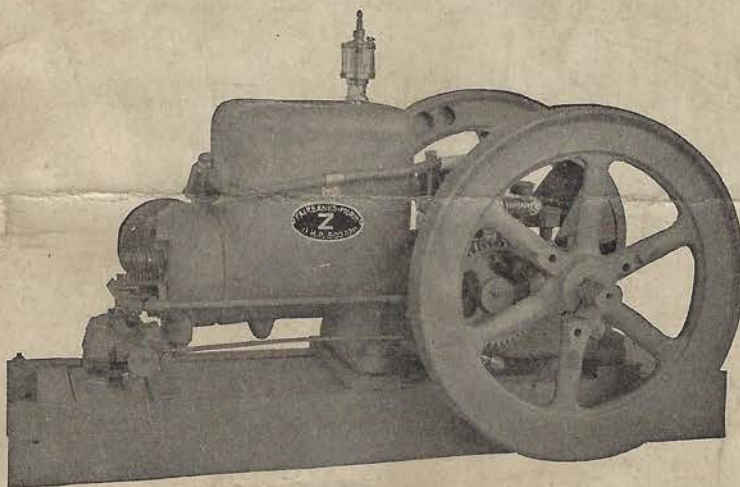
REPAIR PRICE LIST NO. 9625B

Fairbanks-Morse

1½, 3 and 6 H. P. "Z" Engines

With

Bosch Magneto



1½ H. P. "Z" THROTTLING GOVERNOR ENGINE ON SUB-BASE

(3776G)

FAIRBANKS, MORSE & CO.

(INCORPORATED)

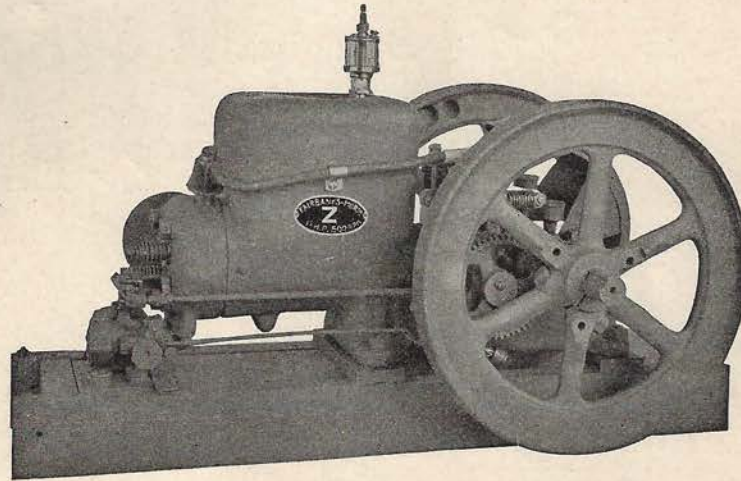
CHICAGO

Copyright, 1929, by Fairbanks, Morse & Co.

Second Edition (P)
June, 1929

FAIRBANKS-MORSE

1½ H. P. "Z" Engine With Bosch Magneto



(3776G)

This shows the 1½ H. P. throttling governor "Z" engine, with Bosch magneto. (First engine of this type and size was No. 386199.) After this number, all 1½ H. P. "Z" engines had Bosch magnetos except the following: Nos. 391124 to 391323, inclusive. (Had Sumter Rotary Magneto.)

- Nos. 386399 to 387001, inclusive
- 387836 to 388539, inclusive
- 388771 to 389370, inclusive
- 389629 to 390622, inclusive
- 390824 to 391123, inclusive
- 391389 to 391688, inclusive
- 391988 to 392187, inclusive
- 392588 to 392887, inclusive
- 393405 to 393504, inclusive
- 394268 to 394459, inclusive
- 394461 to 394467, inclusive
- 395018 to 395117, inclusive

(Had Sumter Oscillating Magneto.)

On this type of engine it will be noted that the Bosch magneto is located on a bracket attached to the engine base near the crankshaft. The magneto is operated by means of a pin in the large gear coming in contact with the lever on the magneto.

Below will be found a brief description of the changes, made in this engine, affecting repairs.

Cam Gear Bracket

Effective on Engine No. 463610.

The cam gear bracket was changed so as to use a clamp and two studs, instead of four cap screws, to hold magneto in place. (See Group 37B-C, for old style bracket.)

Cam Gear Bracket

Effective on Engine No. 506674.

The cam gear bracket complete with cam gear and governor was changed on account of the spiral gears, there was no change in the cam gear bracket itself. (See group 37C-C, for cam gear bracket complete for engines No. 463610 to 506971, inclusive.)

Cam Gear

Effective on Engine No. 463610.

The cam gear and shaft were changed to increase length of bearing. (See Group 28B for cam gear with short bearing.)

Cam Gear

Effective on Engine No. 491702.

The construction of this detail was changed to make the cam and cam shaft in one piece and to attach the gear with a woodruff key. The new gear complete with cam and shaft will be sent to replace the cam gear which was effective on Engine No. 463610.

Cam Gear

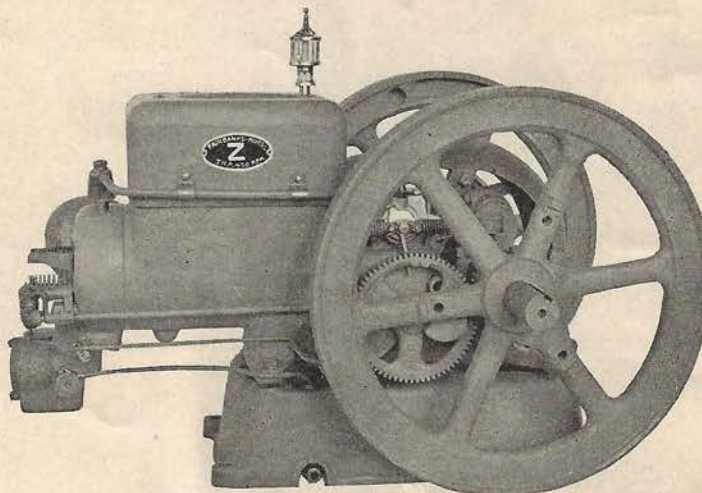
Effective on Engine No. 506674.

The cam gear was changed from spur teeth to spiral teeth. (See Group 28D-C, for cam gear for engines from No. 463610 to 506971, inclusive.)

- Crankshaft** Effective on Engine No. 463610.
A thrust collar $\frac{13}{16}$ " thick was placed between the crankshaft pinion and the main bearing to allow use of cam gear with long bearing. (See Group 25B for crankshaft with thin thrust washers.)
- Crankshaft Pinion** Effective on Engine No. 506674.
The crankshaft pinion was changed from spur teeth to spiral teeth. (See 29A for pinion for engines previous to No. 506674.)
- Governor** Effective on Engine No. 506674.
The construction of the governor was changed to use a spiral gear; at the same time the spindle was made integral with the gear, and the head which carries the weights was threaded to the spindle. (See Group 81A-C for governor previous to Engine No. 506972.)
- Governor Pull Rod** Effective on Engine No. 463610.
The governor pull rod was lengthened to accommodate cam gear bracket change effective on same engine. (For shorter governor pull rod, see Group 205A-C.)
- Governor Pull Rod** Effective on Engine No. 463610.
The adjustment on the governor pull rod was changed from the butterfly valve end to the governor end. The new rod complete as shown by parts number 205D and 405A, will be sent for repairs.
- Magneto Trip Lever** Effective on Engine No. 463610.
The magneto was lowered to allow the use of a short magneto trip lever. (See repair number 64962 for long trip lever.)
- Magneto Trip Pin** Previous to Engine No. 451893.
This pin was screwed in the gear and riveted; for repairs it will be furnished with a roller. (See Group 337A.)
- Magneto Trip Pin** Used from Engine No. 451893 to 463610.
This pin was driven in the gear and riveted; for repairs it will be furnished with a roller. (See Group 337B.)
- Magneto Trip Pin** Effective on Engine No. 463610.
This trip pin is driven in the gear and is $\frac{3}{64}$ " longer than the previous pins. (See Group 337C.)
- Piston** Effective on 1½ H. P. Engine No. 577648 (see Group 58B-C) the piston was changed to use three narrow rings instead of three wide rings. When a piston **with rings** is ordered for repairs, the narrow ring piston will be furnished. When a piston **only** is ordered for the engines built previous to the above number, the wide ring piston will be furnished. (See Group 5A-C.)
- Piston Rings** Effective on 1½ H. P. Engine No. 577648 (See Group 5B-C). The rings were made half the width of those formerly used. When rings are ordered with the piston for repairs, the narrow rings will be furnished. When rings **only** are ordered for the engines built previous to the above numbers, the wide rings will be furnished. (See Group 5A-C.)

FAIRBANKS-MORSE

3 and 6 H. P. "Z" Engines With Bosch Magneto



(3780G)

This shows the 3 and 6 H. P. engines with Bosch magneto. The first engine of this type is No. 388640.

On this type of engine it will be noted that the Bosch magneto is located on a bracket attached to the engine base near the crankshaft. The magneto is operated by means of a pin in the large gear coming in contact with the trip lever on the magneto.

Below will be found a brief description of the changes made in these engines affecting repairs.

**Cam Gear
Bracket**

Effective on 3 H. P. Engine No. 489408.

Effective on 6 H. P. Engine No. 488381.

The cam gear bracket was changed so as to use a clamp and two studs, instead of four cap screws, for holding the magneto in place. For repairs the new bracket will be furnished.

See Group 37C-C for bracket complete.

See Group 37D for bracket only.

**Cam Gear
Bracket**

Effective on Engine No. 506674.

The cam gear bracket complete with cam gear and governor was changed on account of the spiral gears, there was no change in the cam gear bracket itself. (See Group 37C-C, for cam gear bracket complete for 3 H. P. engines from No. 489408 to 506673, inclusive, and 6 H. P. engines from No. 488381 to 506871, inclusive.)

Cam Gear

Effective on 3 H. P. Engine No. 492154.

Effective on 6 H. P. Engine No. 492528.

The construction of this detail was changed to make the cam and cam shaft in one piece and to attach the gear with a wood-ruff key. The new gear complete with cam and shaft will be sent to replace old style.

Cam Gear Effective on Engine No. 506674.

The cam gear was changed from spur teeth to spiral teeth. (See Group 28D-C, for cam gear for 3 H. P. engines from No. 492154 to 506673, inclusive, and 6 H. P. engines from No. 492528 to 506971, inclusive.)

Crankshaft Pinion Effective on Engine No. 506674.

The crankshaft pinion was changed from spur teeth to spiral teeth. (See 29A for pinion for 3 H. P. engines previous to No. 506674 and 6 H. P. engine No. 506872.)

Governor Effective on Engine No. 506674.

The construction of the governor was changed to use a spiral gear; at the same time the spindle was made integral with the gear, and the head which carries the weights was threaded to the spindle. (See Group 81A-C for governor previous to 3 H. P. engine No. 506674 and 6 H. P. Engine No. 506872.)

Governor Pull Rod Effective on Engine No. 506674.

The adjustment on the governor pull rod was changed from the butterfly valve end to the governor end. The new rod complete as shown by parts Number 205D and 405A, will be sent for repairs.

Piston Effective on 3 H. P. Engine No. 586674 and on 6 H. P. Engine No. 581731 (see Group 5B-C) the piston was changed to use three narrow rings instead of three wide rings. When a piston **with rings** is ordered for repairs, the narrow ring piston will be furnished. When a piston **only** is ordered for engines built previous to the above numbers, the wide ring piston will be furnished, see Group 5A-C.

Piston Rings Effective on 3 H. P. Engine No. 586674 and on 6 H. P. Engine No. 581731 (See Group 5B-C) the rings were made half the width of those formerly used. When rings are ordered with the piston for repairs, the narrow rings will be furnished. When rings **only** are ordered for engines built previous to the above numbers, the wide rings will be furnished, see Group 5A-C.

REPAIR PRICE LIST

FOR

1½, 3 AND 6 H. P. ENGINE

WITH

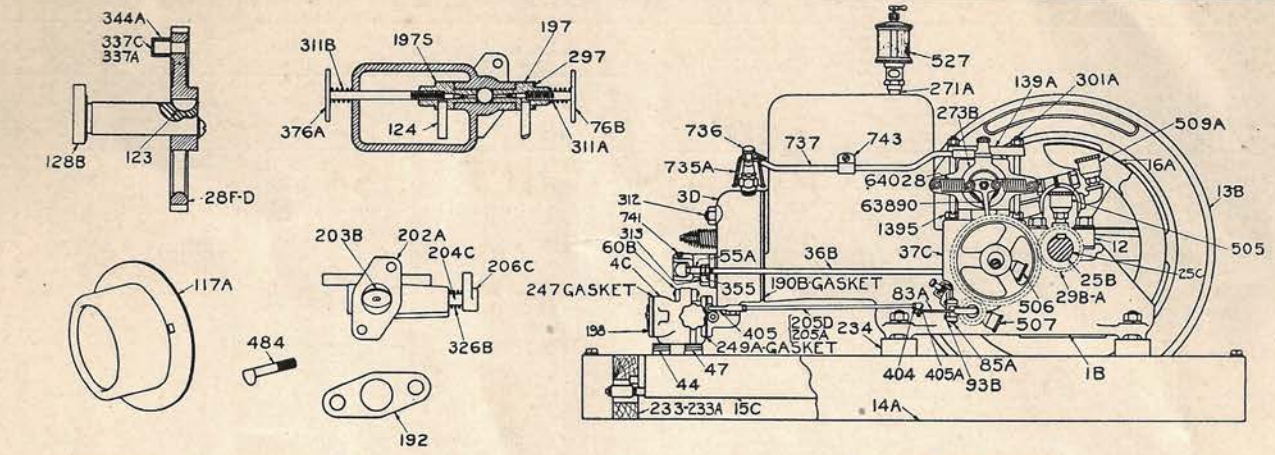
BOSCH MAGNETO

To avoid delay, give the complete description of the part or parts wanted as shown in the following example:

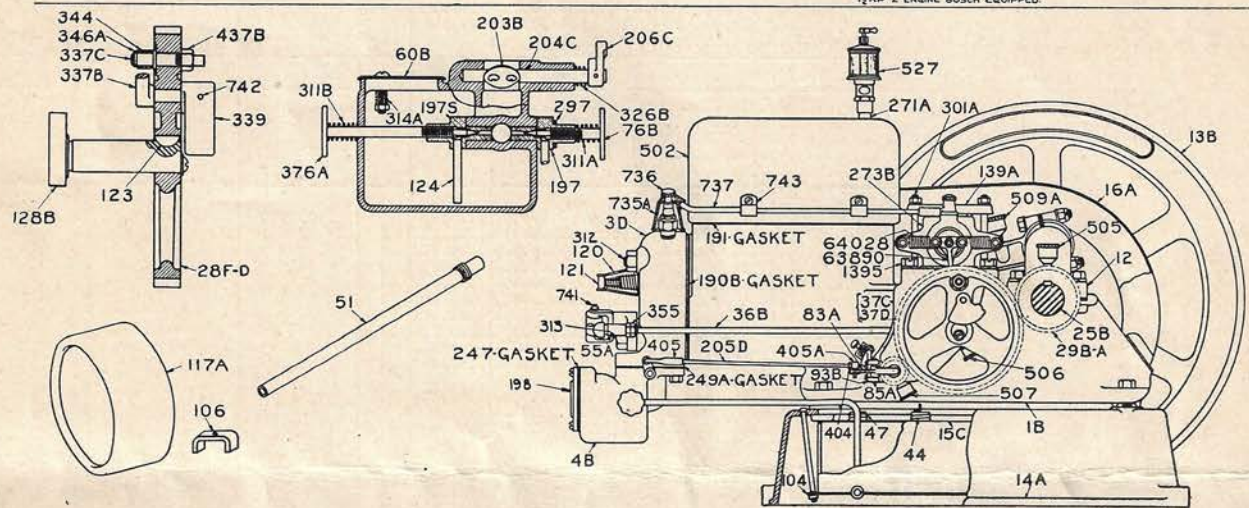
Description of Part	<ol style="list-style-type: none"> 1. Quantity of parts wanted, "one." 2. Repair number "1D." 3. Name of part, "cylinder." 	<ol style="list-style-type: none"> 4. Size of engine, "1½ H. P." 5. Type of engine, "throttling governor." 6. Engine serial No., "576189."
Repair Order	The repair order, in this case, should read: "One 1D cylinder for 1½ H. P. throttling governor engine, serial number 576189."	
Engine Serial Number	IMPORTANT: The most important items of the above information are the repair number and the engine serial number. The latter is stamped on the hopper of the engine.	

HOW TO USE THE REPAIR LIST AND THE REPAIR CHARTS

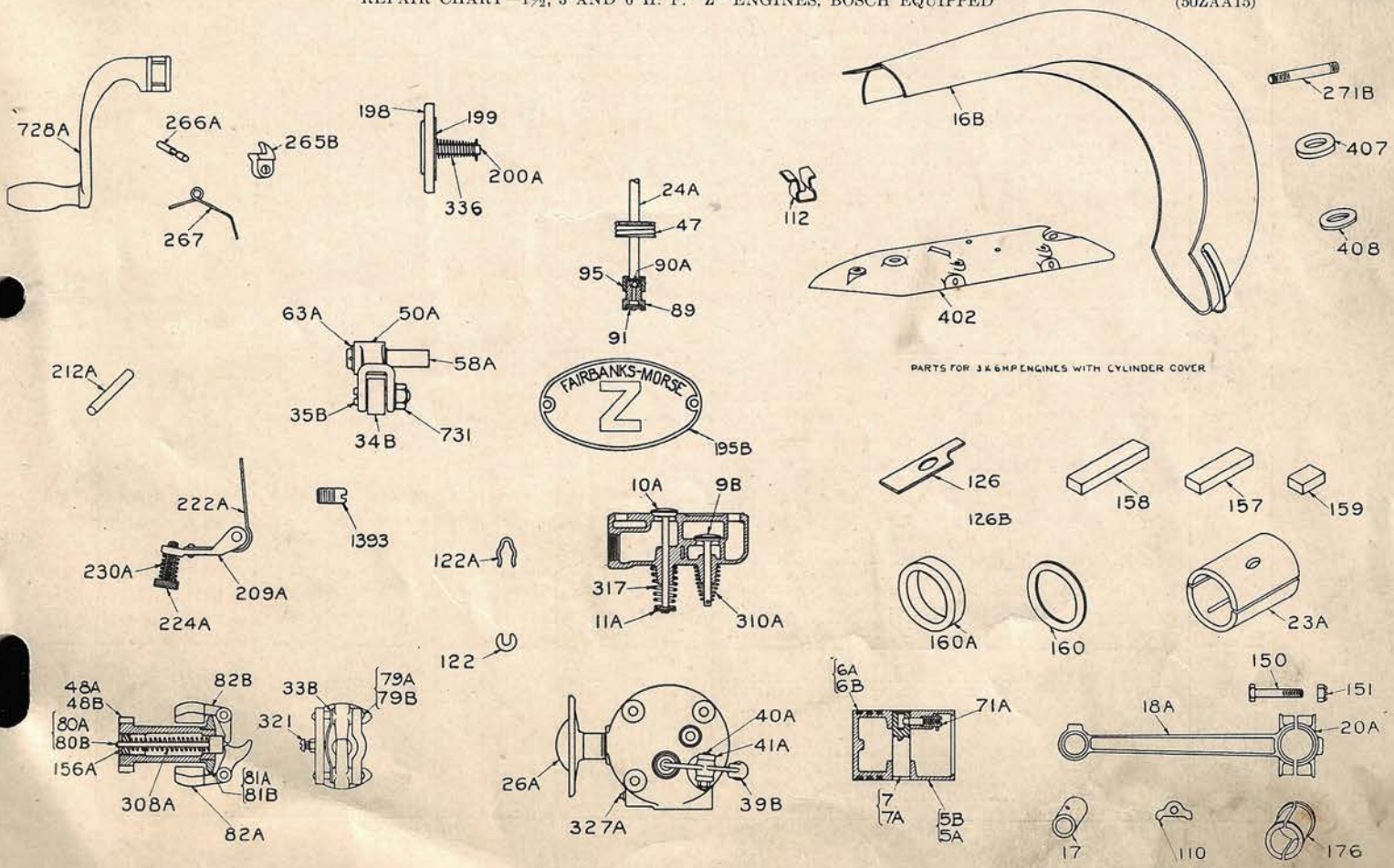
Numerical Arrangement	The first column at the left of each page shows the repair numbers of all complete groups and all separate parts, arranged in numerical order.
Complete Group	The repair number, when shown in bold-faced type and followed by a dash and the letter "C" (indicating complete), is a group number which covers all the items to the next horizontal line.
"Group Part" Column	The second column from the left contains the repair numbers of all of the parts included in each of these groups.
Bracketed Group	Parts, which are followed by the words "always with" are not furnished separately, but only with the parts included within the brackets.
"Number Used" Column	The number of parts used in each group is shown in the "Number Used" column. The total number of parts used is shown when the part is arranged in numerical order.
Repair Charts	The repair charts show all the parts which have repair numbers. The part wanted can be found by locating its repair number on the repair chart, and the name of the part when found by locating the same repair number, in numerical order, in the repair list.
Ordering by Groups	Always order by group number if possible. Before doing so, carefully check over the group to make sure that all parts included therein are wanted, for they will all be furnished unless otherwise specified. If it is found that in a group every part but one or two are wanted, order the group and specify "less" the repair numbers not wanted; i. e., in the 5A-C group every part is wanted except the piston rings; the order should read: 5A-C piston, less rings 61A.
Parts Without Repair Numbers	If any part without a repair number is wanted, such as a stud, cap screw, bolt, etc., refer to the repair chart and find the number of the part with which it is used. Then by referring to the repair list, the part without a repair number will be found following the numbered part with which it is used. In some cases, the part without a repair number will be found following the numbered part in the numerical arrangement of the repair numbers. Use the name and the size of the parts, as shown in the repair list, when ordering parts which have no repair numbers. If the size of these parts is the same on all sizes of the product, only one dimension is shown following the part (in the "NAME OF PART" column) when arranged in numerical order. If the sizes of the parts without repair numbers are different, each dimension is listed in the same order as in the "Number Used" column.



1 1/2 HP "Z" ENGINE BOSCH EQUIPPED.



REPAIR CHART—1½, 3 AND 6 H. P. "Z" ENGINES, BOSCH EQUIPPED (50ZAA15)



PARTS FOR 3 & 6 HP ENGINES WITH CYLINDER COVER

REPAIR CHART—1½, 3 AND 6 H. P. "Z" ENGINES, BOSCH EQUIPPED (50ZAA14)

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equip. "Z" Engines

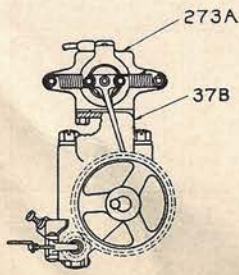
Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
1B-C		1B-C Cylinder and Base	1		\$24.30	1		\$42.00	1		\$65.00
	1B	Cylinder and Base—always with	1	ZA1		1	ZBA1		1	ZCA1	
	312	Cylinder to Head Stud (short)	3	½"x3 7/8"		3	5/8"x4 1/8"		3	¾"x5 1/4"	
	313	Cylinder to Head Stud (long)	1	½"x4 1/4"		1	5/8"x4 7/8"		1	¾"x5 3/8"	
	12	Main Bearing Cap	2	DJ12		2	ZB12		2	ZC12	
		Main Bearing Hex. Head Cap Screw	4	½"x1 3/4"		4	½"x1 3/4"		4	5/8"x2 1/4"	
		Main Bearing Lockwasher	4	1/2"		4	1/2"		4	5/8"	
	126	Main Bearing Shims Thick	4	ZAA126A	23.15	4	ZBA126A	34.15	4	ZCA126	52.90
	126B	Main Bearing Shims Thin	8	ZAA126B		8	ZBA126B		8	ZCA126B	
	126D	Main Bearing Shims Thin	12	ZAA126C		12	ZBA126C		12	ZCA126C	
	195B	Name Plate	1	ZAA195							
		Name Plate Screw	2								
		Name Plate Screw Nut	2								
		Name Plate Washer	2	2NPW							
	271A	Cylinder Oiler Pipe	1	¼"x5 1/4"		1	¼"x7 1/4"		1	¼"x9 1/4"	
		Base Drain Plug	1	1/4"		1	1/4"		1	1/4"	
	502	Hopper with Name Plate and Screw	1	ZBA2		1	ZBA2	4.90	1	ZC2	7.75
		Hopper to Cylinder Carriage Bolt	4	1/2"x1 3/4"		4	1/2"x1 3/4"	.06	6	1/2"x1 3/4"	.06
		Hopper to Cylinder Square Nut	4	1/2"		4	1/2"		6	1/2"	
		Hopper to Cylinder Plate Washer	4	1/2"		4	1/2"	.02	6	1/2"	.02
	191	Hopper to Cylinder Gasket	1	ZBA191		1	ZBA191	.04	1	ZC191	.06
	23A	Main Bearing Liners (furnished in pairs only)	2 Pr.	ZA23	.58	2 Pr.	ZB23	1.26	2 Pr.	ZC23	1.90
		Cylinder to Head C. P. S. F. Nuts	4	1/2"	.04	4	3/8"	.06	4	3/4"	.08
3D-C		3D-C Cylinder Head	1		6.55	1		9.60	1		12.00
	3D	Cylinder Head	1	ZAA3	5.50	1	ZBA3	7.90	1	ZCA3	10.00
	327A	Cylinder Head Drain Plug	1	3/8"		1	3/8"		1	3/8"	
	9B-C	Suction Valve	1	9B-C	.52	1	9B-C	.97	1	9B-C	1.06
	10A-C	Exhaust Valve	1	10A-C	.53	1	10A-C	.74	1	10A-C	.91
4B-C		4B-C Reservoir 3 and 6 H. P.				1	ZBA4A	9.00	1	ZCA4A	9.10
	4B	Reservoir—always with	1			1	ZBA124	5.35	1	ZBA124	5.35
	331A	Reservoir Drain Plug	1	1/2"		1	ZBA197A		1	ZCA197	
	124	Starting Fuel Tube	1			1	ZBA376	.11	1	ZBA376	.11
	197S	Starting Throttle Valve Seat	1			1	#784	.06	1	#784	.06
	376A	Starting Fuel Throttle Valve	1	ZBA60	.06	1	ZBA60	.06	1	ZBA60	.06
	311A	Starting Fuel Throttle Valve Spring	1	#923	.04	1	#923	.04	1	#923	.04
	60B	Reservoir Cover	1	3/16"x1"	.02	1	3/16"x1"	.02	1	3/16"x1"	.02
	314A	Reservoir Cover Spring	1	3/16"	.02	1	3/16"	.02	1	3/16"	.02
		Reservoir Cover Stove Bolt	1	197-C	1.52	1	197-C	1.52	1	197-C	1.63
		Reservoir Cover Stove Bolt Nut	1	ZBA297	.02	1	ZBA297	.02	1	ZBA297	.02
	197-C	Fuel Throttle Valve Seat	1	1/4"x1"	.02	2	1/4"x1"	.02	2	1/4"x1"	.02
	297	Fuel Throttle Valve Seat Clamp	2	1/4"x1"	.02	2	1/4"x1"	.02	2	1/4"x1"	.02
		Fuel Throttle Valve Seat Clamp Screw	1	198-C	.57	1	198-C	.57	1	198-C	.57
	198-C	Air Valve Seat	1	ZBA247	.02	1	ZBA247	.02	1	ZBA247	.02
	247	Air Valve Seat Gasket	2	1/4"x3/8"	.02	2	1/4"x3/8"	.02	2	1/4"x3/8"	.02
		Air Valve Seat R. H. M. Screw	2	1/4"	.02	2	1/4"	.02	2	1/4"	.02
		Air Valve Seat Lockwasher	2	1/4"	.02	2	1/4"	.02	2	1/4"	.02
	203B-C	Butterfly Valve	1	203B-C	1.14	1	203B-C	1.14	1	203B-C	1.14
		Reservoir to Head Cap Screw (short)	1	3/8"x1"	.04	1	3/8"x1"	.04	1	3/8"x1"	.04
		Reservoir to Head Cap Screw (long)	1	3/8"x1 1/4"	.04	1	3/8"x1 1/4"	.04	1	3/8"x1 1/4"	.04
		Reservoir to Head Lockwasher	2	3/8"	.02	2	3/8"	.02	2	3/8"	.02
4C-C		4C-C Reservoir 1½ H. P.	1	ZAA4A	5.40						
	4C	Reservoir—always with	1	1/2"							
	331A	Reservoir Drain Plug	1	ZAA124	3.45						
	124	Starting Fuel Tube	1	ZAA197							
	197S	Starting Throttle Valve Seat	1	ZAA60							
	60B	Reservoir Cover	1	#320							
	335A	Reservoir Cover Pin	1	ZAA376A	.10						
	376A	Starting Fuel Throttle Valve	1	#888	.04						
	311A	Starting Fuel Throttle Valve Spring	1	197-C	1.19						
	197-C	Fuel Throttle Valve Seat	1	ZAA297	.02						
	297	Fuel Throttle Valve Seat Clamp	1	1/4"x1"	.02						
		Fuel Throttle Valve Seat Clamp R.H.M. Screw	1	ZAA247	.48						
	198-C	Air Valve Seat	1	#10-24x1/2"	.02						
	247	Air Valve Seat Gasket	2	3/16"	.02						
		Air Valve Seat R. H. M. Screw	2		.02						
		Air Valve Seat Lockwasher	2		.02						
		Reservoir to Valve Casing R. H. M. Screw	2	1/4"x3/4"	.02						
		Reservoir to Valve Casing Lockwasher	2	1/4"	.02						
5A-C		5A-C Piston	1	See 5B-C		1	See 5B-C		1	See 5B-C	
	5A	Piston with Ring Stop Pin	1	DJ5A1	3.75	1	ZB5A	5.20	1	ZCA5A1	7.80
	6A	Piston Ring	3	DJ6B1	.26	3	ZB6A	.30	3	ZCA6	.55
	7	Piston Pin	1	DJ7A2	.53	1	ZBA7A	.76	1	ZCA7A1	1.06
		Piston Pin Taper Lock Pin with	1	ZAA71A1	.06	1	ZAA71A1	.06	1	ZAA71A1	.06
	71A	Piston Pin Taper Lock Pin Cotter	1	1/8"x1/8"		1	3/8"x1"		1	1/8"x1 1/4"	
		Note. —When a piston with rings is ordered for a 1½ H.P. engine built previous to engine No. 577648 or a 3 H.P. previous to engine No. 586674 furnish 5B-C, also on 6 H.P. engine previous to No. 581731.									
5B-C		5B-C Piston, first used on engine	1	#577648	5.10	1	586674	6.90	1	581731	10.55
	5B	Piston	1	ZAA5B	3.75	1	ZBA5A	5.20	1	ZCA5B	7.80
	6B	Piston Ring	3	16FM38F2	.26	3	16FM38F3	.30	3	16FM38F4	.55
	7A	Piston Pin	1	DJ7A2	.53	1	ZBA7A	.76	1	ZCA7A1	1.06
		Piston Pin	1	ZAA71A1	.06	1	ZAA71A1	.06	1	ZAA71A1	.06
	71A	Piston Pin Taper Lock Pin with Cotter	1	ZAA71A1	.06	1	ZAA71A1	.06	1	ZAA71A1	.06
9B-C		9B-C Suction Valve	1		.52	1		.97	1		1.06
	*9B	Suction Valve with	1	ZAA409A							
	9B	Suction Valve Collar	1	ZA11	.38						
	122	Suction Valve Collar Lock	1	ZAA122A							
	*9B	Suction Valve	1			1	ZBA409	.55	1	ZCA409	.65
	120	Suction Valve Friction Spring	1			1	ZB120	.25	1	ZB120	.25
	121	Suction Valve Spring Collar	1	ZA11	.04	1	ZB121	.08	1	ZB121	.08
	122A	Suction Valve Spring Collar Lock	1	ZAI22A	.02	1	ZBA122A	.02	1	ZBA122A	.02
	310B	Suction Valve Spring	1	ZAA310A	.08	1	#927	.08	1	#929	.08

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
10A-C		10A-C Exhaust Valve	1		\$.53	1		\$.74	1		\$.91
10A	*10A	Exhaust Valve.....	1	ZA410	.40	1	ZBA410	.57	1	ZCA410	.68
11A	*11A	Exhaust Valve Spring Collar.....	1	ZA11	.04	1	ZB11	.04	1	ZB11	.04
	122	Exhaust Valve Spring Collar Lock.....	1	ZA122	.02	1	ZBA122	.02	1	ZBA122	.02
	317	Exhaust Valve Spring.....	1	#885	.10	1	#717A	.11	1	#759A	.15
12		Main Bearing Cap.....	2	DJ12	.46	2	ZB12	.65	2	ZC12	1.14
		Main Bearing Hex. Head Cap Screw.....	4	½"x1¾"	.06	4	½"x1¾"	.06	4	½"x2¼"	.11
		Main Bearing Lockwasher.....	4	½"	.02	4	½"	.02	4	½"	.02
13B		Flywheel—always with.....	2	ZA13		2	ZBA13		2	ZCA13E	
		Flywheel Clamp Bolt and Nut.....	2	½"x4"	6.10	2	⅝"x5¼"	10.50	2	¾"x6¾"	21.00
		Flywheel Clamp Machine Bolt.....	2	½"x4"		2	⅝"x5¼"		2	¾"x6¾"	
		Flywheel Clamp Bolt C. P. S. F. Hex. Nut.....	2	½"	.11	2	⅝"	.15	2	¾"	.23
14A-C		14A-C Sub-Base (1½ H. P.)	1		4.40						
	14A	Sub-Base—always with.....	2	ZAA14A							
	233	Sub-Base Spacer Cylinder End.....	2	ZAN233A							
14A	233A	Sub-Base Spacer Crank End.....	1	ZA233B	2.70						
		Sub-Base Spacer Carriage Bolt.....	2	¼"x9¾"							
		Sub-Base Spacer Rough Sq. Nut.....	2	¼"							
	234	Sub-Base Fill-up Piece.....	2	ZA234							
	15C	Fuel Tank.....	1		1.71						
14A-C		14A-C Sub-Base (3 and 6 H. P.)									
	14A	Sub-Base.....	1			1	ZB62D	9.90	1	ZC62D	15.20
	15C	Fuel Tank.....	1			1		7.70	1		12.60
14A	104	Fuel Tank Strap.....	1			1	ZB104	2.00	1	ZC104	2.38
		Fuel Tank Strap Carriage Bolt.....	2	⅝"x5¼"		2	⅝"x5¼"	.15	2	⅝"x7"	.15
		Fuel Tank Strap Rough Square Nut.....	2	⅝"		2	⅝"	.04	2	⅝"	.04
		Engine to Sub-Base Machine Bolt.....	4	½"x5¼"	.06						
		Engine to Sub-Base Hex. C. P. S. F. Nut.....	4	½"	.04						
		Engine to Sub-Base Lockwasher.....	4	½"	.02						
		Engine to Sub-Base Cap Screw.....	4	½"x1¾"		4	½"x1¾"	.08	4	⅝"x1¾"	.08
15C		15C Fuel Tank (1½ H.P.)	1		1.71						
	15C	Fuel Tank—always with.....	1	ZAA15							
	104	Fuel Tank Straps.....	2	ZAA104B							
	44	Fuel Tank Filler Cap.....	1	ZB44							
15C		Fuel Tank Drain Fitting Bushing.....	1	¼"x1½"	1.71						
		Fuel Tank Drain Fitting Nipple.....	1	⅝"x1¼"							
		Fuel Tank Drain Fitting Coupling.....	1	⅝"							
		Fuel Tank Drain Fitting Pipe Plug.....	1	⅝"							
		Fuel Tank Drain Nipple.....	1	⅝"x1¼"	.04						
		Fuel Tank Drain Coupling.....	1	⅝"	.08						
		Fuel Tank Drain Pipe Plug.....	1	⅝"	.04						
15C		15C Fuel Tank (3 and 6 H.P.)				1		2.00	1		2.38
	15C	Fuel Tank—always with.....	1			1	ZBA15		1	ZCA15	
	44	Fuel Tank Filler Cap.....	1			1	ZB44		1	ZB44	
		Fuel Tank Drain Fitting.....	1			1		2.00	1		2.38
		Fuel Tank Drain Pipe Plug.....	1	¼"		1	¼"		1	¼"	
		Fuel Tank Drain Pipe Plug.....	1	¼"	.04	1	¼"	.04	1	¼"	.04
16A		Oil Shield with Clips.....	1	ZAA16	.67	1	ZB16	.87	1	ZC16A	1.06
		Oil Shield Stove Bolt.....	1	¼"x1"		1	¼"x1"		1	¼"x1"	
		Oil Shield Stove Bolt Nut.....	1	¼"	.02	1	¼"	.02	1	¼"	.02
		Oil Shield Stove Bolt Lockwasher.....	1	¼"		1	¼"		1	¼"	
17		Piston Pin Bushing.....	1	23T1	.46	1	ZB17	.82	1	ZC17	1.06
18A-C		18A-C Connecting Rod	1		5.50	1		7.55	1		10.20
	18A	Connecting Rod—always with.....	1	ZAA18B		1	ZB18		1	ZC18	
	17	Connecting Rod Cap.....	1	ZAA20B	4.25	1	ZB20	5.90	1	ZC20	7.35
	110	Connecting Rod Piston Pin Bushing.....	1	ZAA17		1	ZB17		1	ZC17	
	110A	Connecting Rod Shims Thick—Price per Set.....	8	ZAA110A	.06	8	ZBA110A	.06	8	ZCA110A	.06
	110B	Connecting Rod Shims Thin—Price per Set.....	8	ZAA110B	.08	8	ZBA110B	.08	8	ZCA110B	.08
	150	Connecting Rod Shims—Price per Set.....	15	ZAA110C	.06	10	ZBA110C	.06	10	ZCA110C	.06
		Connecting Rod Bolt.....	2	DJ150		2	ZB150		2	ZC150	
		Connecting Rod Bolt Cotter.....	2	⅝"x½"	.17	2	⅝"x½"	.19	2	⅝"x½"	.29
	151	Connecting Rod Bolt Nuts Castellated.....	2	⅝"SAE	.06	2	⅝"SAE	.06	2	⅝"SAE	.11
	176	Connecting Rod Crank Pin Liner.....	1 Pr.	DJ176	.68	1 Pr.	ZB176	1.03	1 Pr.	ZC176A	1.90
20A		Connecting Rod Cap (with ¼" Plug on 1½ H.P.).....	1	ZAA20	1.14	1	ZB20	1.41	1	ZC20	1.90
23A		Main Bearing Liners (furnished in pairs only).....	2 Pr.	ZA23	.58	2 Pr.	ZB23	1.26	2 Pr.	ZC23	1.90
24A		Fuel Suction Tube (not furnished separately).....	1	ZA24		1	ZBA24		1	ZCA24	
25B		25B Crankshaft . Used on.....	1		7.25	1		12.70	1		18.00
		1½ H.P. Engines Previous to #463610.....									
		3 H.P. Engines Previous to #506674.....									
		6 H.P. Engines Previous to #506872.....									
		Fitted with Pinion having Cut Spur Teeth.....									
	25B	Crankshaft—always with.....	1	ZAA25		1	ZBA25		1	ZCA25	
25B	29A	Crankshaft Pinion.....	1	ZA29	7.25	1	ZBA29	12.70	1	ZCA29	18.00
	159	Crankshaft Pinion Key.....	1	#842		1	#872		1	#1072	
	160	Crankshaft End Thrust Washer.....	2	DJ160							
25C		25C Crankshaft . Effective on 1½ H.P. engines from #463610 to #506971, inclusive. This shaft is fitted with one thrust collar 1½" thick between crankshaft pinion and main bearing, and has pinion with Spur Teeth.....	1		7.25						
	25C	Crankshaft—always with.....	1	ZAA25							
	29A	Crankshaft Pinion.....	1	ZA29							
25C	159	Crankshaft Pinion Key.....	1	#842	7.25						
	160A	Crankshaft End Thrust Collar.....	1	ZAA160							
25E		25E Crankshaft, Effective on	1		7.60	1		13.20	1		18.50
		1½ H.P. Engine #506972.....									
		3 H.P. Engine #506674.....									
		6 H.P. Engine #506872.....									
		Fitted with Spiral Pinion.....									
	25B	Crankshaft—always with.....	1	ZAA25		1	ZBA25		1	ZCA25	
	29B	Crankshaft Pinion.....	1	ZAA29A	7.60	1	ZBA29B	13.20	1	ZCA29B	18.50
25E	159	Crankshaft Pinion Key.....	1	#842		1	#872		1	#1072	
	160A	Crankshaft End Thrust Collar.....	1	ZAA160							

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6 NAME OF PART	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
	26A	Exhaust Silencer.....	1	ZA26	\$.61	1	ZB26	\$.72	1	ZC26A	\$1.03
	28B	*28B Cam Gear. Cam Gear—used previous to 1½ H.P. engine #463610 had a short cam shaft and measured 1 11/16" face of cam to face of gear.....	1		3.34						
	28B	28B Cam Gear—always with.....	1	ZAA28A							
	128A	Cam Shaft.....	1	ZAA128C							
	123	Cam to Gear Woodruff Key.....	1	#9							
	337B	Cam to Gear Hex. Head Cap Screw.....	1	¼"x 3/8"	3.34						
	344	Cam to Gear Lockwasher.....	1	ND209							
		Magneto Trip Pin.....	1	ZAA337B							
		Magneto Trip Pin Roller.....	1	ZAA344							
	28C	Cam Gear—Used on 1½ H.P. engines from #463610 to #491702.....	1								
	28B-C	Cam Gear used on 3 and 6 H.P. engines previous to 3 H.P. #492154, 6 H.P. #492528..... On this type of cam gear the gear was fastened to the cam shaft by means of a screw key, and neither part was furnished without the other..... On Repair Orders, 28D-C will be furnished in place of 28C. 28D-C will be furnished in place of 28B-C 28D-C less 337-C and 339-C will be furnished in place of 28B for 3 and 6 H.P.				1			1		
	28D-C	*28D-C Cam Gear (Spur), used on 1½ H.P. engines #491702 to #506971, inclusive. 3 H.P. engines #492154 to #506673, inclusive. 6 H.P. engines #492528 to #506871, inclusive.	1		3.34	1		6.28	1		6.28
	28D	28D Cam Gear—always with.....	1	ZAA28A	1.86	1	ZBA28F3	2.70	1	ZBA28F3	2.70
	128B	Magneto Trip Pin.....	1	337B		1	ZBA128B	2.00	1	ZBA128B	2.00
	123	Cam and Shaft.....	1	ZAA128B	1.43	1	#9	.02	1	#9	.02
		Cam Shaft to Gear Woodruff Key.....	1	#9	.02	1	¼"x 3/8"	.02	1	¼"x 3/8"	.02
		Cam Shaft to Gear R. H. M. Screw.....	1	¼"x 3/8"	.02	1	11FM1A17	.02	1	11FM1A17	.02
		Cam Shaft to Gear Lockwasher.....	1	11FM1A17	.02	1	337-C	.38	1	337-C	.38
	337-C	Magneto Trip Pin.....	1			1	339-C	1.14	1	339-C	1.14
	339-C	Early and Late Device.....	1			1			1		
		Note. —This Gear 28D-C furnished for repairs in place of 28B-C for 3 and 6 H.P. and in place of 28C for 1½ H.P.									
	28F-C	28F-C Cam Gear (Spiral), Effective on 1½ H.P. engine #506972. 3 H.P. engine #506674. 6 H.P. engine #506872.	1		3.34	1		6.28	1		6.28
	28F	28F Cam Gear—always with.....	1	ZAA28C	1.86	1	ZBA28D1	2.70	1	ZBA28D1	2.70
	128B	Magneto Trip Pin.....	1	337B		1	ZBA128B	2.00	1	ZBA128B	2.00
	123	Cam and Shaft.....	1	ZAA128B	1.43	1	#9	.02	1	#9	.02
		Cam Shaft to Gear Woodruff Key.....	1	#9	.02	1	¼"x 3/8"	.02	1	¼"x 3/8"	.02
		Cam Shaft to Gear R. H. M. Screw.....	1	¼"x 3/8"	.02	1	11FM1A17	.02	1	11FM1A17	.02
		Cam Shaft to Gear Lockwasher.....	1	11FM1A17	.02	1	337-C	.38	1	337-C	.38
	337-C	Magneto Trip Pin.....	1			1	339-C	1.14	1	339-C	1.14
	339-C	Early and Late Device.....	1			1			1		
	*29A	Crankshaft Pinion (Spur), used previous to..... 1½ H.P. engine #506972. 3 H.P. engine #506674. 6 H.P. engine #506872.	1	ZA29	.72	1	ZBA29	1.03	1	ZCA29	1.03
	29B	Crankshaft Pinion (Spiral), effective on..... 1½ H.P. engine #506972. 3 H.P. engine #506674. 6 H.P. engine #506872.	1	ZAA29	1.10	1	ZBA29B	1.60	1	ZCA29B	1.60
	*33B	Governor Drag Spring.....	1	ZA33	.10	1	ZA33	.10	1	ZA33	.10
	34B	Exhaust Roller.....	1	ZAA34	.22	1	ZBA34	.26	1	ZBA34	.26
	35B	Exhaust Roller Pin.....	1	ZAA35	.12	1	ZBA35	.14	1	ZBA35	.14
	36B-C	36B-C Exhaust Rod	1		.42	1		.62	1		.65
	36B	Exhaust Rod.....	1	ZAA36	.19	1	ZBA36	.29	1	ZCA36	.32
	55A	Exhaust Rod End.....	1	ZAA55	.19	1	ZBA55	.29	1	ZBA55	.29
	355	Exhaust Rod End Hex. Nut.....	1	¾"SAE	.04	1	¾"SAE	.04	1	¾"SAE	.04
	37B-C	37B-C Cam Gear Bracket Previous to 1½ H.P. Engine #463610. Previous to 3 H.P. Engine #489408. Previous to 6 H.P. Engine #488381.	1		17.00	1	When 37B-C is ordered 37C-C will be furnished. When 37B is ordered 37D will be furnished.		1	When 37B-C is ordered 37C-C will be furnished. When 37B is ordered 37D will be furnished.	



1½ H.P., 3 and 6 H.P.

(Group Continued on Next Page)

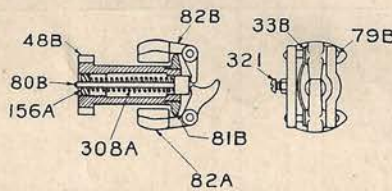
*Included in "Z" engine Service Cabinet.

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.				
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each		
(Group Continued from Preceding Page)													
37B	37B	Cam Gear Bracket, always fitted with.....	1	ZAA37	\$6.65								
	58A	Exhaust Roller Rocker Pin.....	1	ZAA58									
	63A	Exhaust Roller Rocker Pin Washer.....	1	15UK									
		Exhaust Roller Rocker Pin Cotter.....	1	½" x ⅜"									
	50A-C	Exhaust Roller Rocker.....	1		1.92								
	28B	Cam Gear.....	1		3.34								
	28B-C	Cam Gear.....	1										
93B-C	Governor Lever Bracket.....	1		1.82									
81A-C	Governor Spindle.....	1		3.29									
On orders for 37B-C for 3 and 6 H.P. 37C-C will be furnished—On orders for 37B for 3 and 6 H.P.—37D will be furnished.													
37C-C		37C-C Cam Gear Bracket, used on. 1½ H.P. Engine #463610 to #506971, inclusive. 3 H.P. Engine #489408 to #506673, inclusive. 6 H.P. Engine #488381 to #506871, inclusive.	1		14.95	1		\$19.45	1		\$19.45		
37C	37C	Cam Gear Bracket—always with.....	1	ZAA37C	4.20	1	ZBA37F	5.45	1	ZBA37F	5.45		
	58A	Governor Shaft Pinion Washer.....	1	ZAA2831A			1		ZAA2831A			1	ZAA2831A
		Exhaust Roller Rocker Pin.....	1	ZAA58A			1		ZAA58A			1	ZAA58A
		Exhaust Roller Rocker Pin Ring.....	1	PCD346A			1		PCD346A			1	PCD346A
	50A-C	Exhaust Roller Rocker.....	1		1.92	1		2.10	1		2.10		
	28D-C	Cam Gear.....	1		3.34	1		6.28	1		6.28		
	93B-C	Governor Lever Bracket.....	1		1.82	1		1.86	1		1.86		
	81A-C	Governor Spindle.....	1		2.75	1		2.85	1		2.85		
	507	Governor Grease Cup.....	1	#000x ⅜"	.08	1	#000x ⅜"	.08	1	#000x ⅜"	.08		
	506	Cam Shaft Grease Cup.....	1	#000x ⅜"	.08	1	#000x ⅜"	.08	1	#000x ⅜"	.08		
	139A	Magneto Clamp.....	1	ZAA139	.29	1	ZAA139	.29	1	ZAA139	.29		
	301A	Magneto Clamp Stud.....	2	ZAA301	.15	2	ZBA301	.15	2	ZBA301	.15		
		Magneto Clamp Stud Nut.....	2	⅝"	.02	2	⅝"	.02	2	⅝"	.02		
		Magneto Clamp Stud Lockwasher.....	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02		
	Governor Lever Bracket Screw.....	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02			
	Governor Lever Bracket Lockwasher.....	2	⅝"	.02	2	⅝"	.02	2	⅝"	.02			
37D		Cam Gear Bracket to replace 37B Cam Gear Bracket on 3 and 6 H.P. Engines.	1			1		8.30	1		8.30		
	37C	Cam Gear Bracket—always with.....	1			1	ZBA37F		1	ZBA37F			
	58A	Governor Shaft Pinion Washer.....	1			1	ZAA2831A		1	ZAA2831A			
	37D	139A	Exhaust Roller Rocker Pin.....	1			1	ZAA58		1	ZAA58		
		301A	Exhaust Roller Rocker Pin Ring.....	1			1	PCD346A		1	PCD346A		
			Magneto Clamp.....	1			1	ZAA139		1	ZAA139		
			Magneto Clamp Stud.....	2			2	ZBA301	8.30	2	ZBA301	8.30	
		Magneto Clamp Stud Nut.....	2			2	⅝"		2	⅝"			
1393	Magneto Clamp Stud Lockwasher.....	2			2	⅝" x ⅝"		2	⅝" x ⅝"				
	Magneto Dowels.....	2			2	⅝"		2	⅝"				
37F-C		37F-C Cam Gear Bracket	1		14.95	1		19.45	1		19.45		
	Effective on Engine.....												
	37C	Cam Gear Bracket—always with.....	1	#506972	4.20	1	#506674	5.45	1	#506872	5.45		
	58A	Governor Shaft Pinion Washer.....	1	ZAA37C			1		ZBA37F			1	ZBA37F
		Exhaust Roller Rocker Pin.....	1	ZAA2831A			1		ZAA2831A			1	ZAA2831A
		Exhaust Roller Rocker Pin Ring.....	1	ZAA58			1		ZAA58			1	ZAA58
	50A-C	Exhaust Roller Rocker.....	1	PCD346A	1.92	1	PCD346A	2.10	1	PCD346A	2.10		
	28F-C	Cam Gear.....	1		3.34	1		6.28	1		6.28		
	93B-C	Governor Lever Bracket.....	1		1.82	1		1.86	1		1.86		
	81F-C	Governor Spindle.....	1		2.75	1		2.85	1		2.85		
	507	Governor Grease Cup (⅜" Pipe Thread).....	1	#000	.08	1	#000	.08	1	#000	.08		
	506	Cam Shaft Grease Cup (⅜" Pipe Thread).....	1	#000	.08	1	#000	.08	1	#000	.08		
	139A	Magneto Clamp.....	1	ZAA139	.29	1	ZAA139	.29	1	ZAA139	.29		
	301A	Magneto Clamp Stud.....	2	ZAA301	.15	2	ZBA301	.15	2	ZBA301	.15		
	Magneto Clamp Stud Nut.....	2	⅝"	.02	2	⅝"	.02	2	⅝"	.02			
	Magneto Clamp Stud Lockwasher.....	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02			
	Governor Lever Bracket Screw.....	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02	2	⅝" x ⅝"	.02			
	Governor Lever Bracket Lockwasher.....	2	⅝"	.02	2	⅝"	.02	2	⅝"	.02			
39B	Exhaust Valve Rocker.....	1	ZAA39	.87	1	ZBA39	1.16	1	ZCA39	1.29			
40A-C	40A	40A-C Exhaust Valve Rocker Fulcrum Pin	1		.42	1		.44	1		.44		
		Exhaust Valve Rocker Fulcrum Pin with.....	1	ZAA40	.38	1	ZBA40	.38	1	ZBA40	.38		
		Exhaust Valve Rocker Fulcrum Pin Jam Nut.....	1	⅜"	.02	1	⅜"	.04	1	⅜"	.04		
	Exhaust Valve Rocker Fulcrum Pin Lockwasher.....	1	⅜"	.02	1	⅜"	.02	1	⅜"	.02			
41A-C	41A	41A-C Exhaust Valve Rocker Bracket	1		2.30	1		2.80	1		3.00		
	39B	Exhaust Valve Rocker Bracket.....	1	ZAN41A	1.01	1	ZBA41	1.20	1	ZCA41	1.29		
	40A-C	Exhaust Valve Rocker.....	1	ZAA39	.87	1	ZBA39	1.16	1	ZCA39	1.29		
		Exhaust Valve Rocker Fulcrum Pin.....	1		.42	1		.44	1		.44		
44	Fuel Tank Filler Opening Cap.....	1	1" Terne	.04	1	1" Terne	.04	1	1" Terne	.04			
47	Fuel Tank Suction Opening Cap.....	1	ZA47	.04	1	ZA47	.04	1	ZA47	.04			
*48A	Governor Gear.....	1	ZA48	.61	1	ZBA48A	.67	1	ZBA48A	.67			
48B	Governor Gear.....	1	ZAA48C	.84	1	ZBA48C	.96	1	ZBA48C	.96			
48D		Effective on Engine.....		#506972	.84		#506674	.96		#506872	.96		
		Governor Pinion, with Shaft.....	1	ZAA48D2			ZBA48D2			ZBA48D2			
50A-C	50A	50A-C Exhaust Roller Rocker	1		1.92	1		2.10	1		2.10		
	34B	Exhaust Roller Rocker.....	1	ZAA50	1.52	1	ZBA50	1.62	1	ZBA50	1.62		
	35B	Exhaust Roller.....	1	ZAA34	.22	1	ZBA34	.26	1	ZBA34	.26		
		Exhaust Roller Pin.....	1	ZAA35	.12	1	ZBA35	.14	1	ZBA35	.14		
	731	Exhaust Roller Pin Nut.....	1	ZA731	.06	1	ZBA731	.08	1	ZBA731	.08		
51	Fuel Tank Filler Tube.....	1			1	ZC51	.19	1	ZC51	.19			
55A	Exhaust Rod End.....	1	ZAA55A&B	.19	1	ZBA55A&B	.29	1	ZBA55A&B	.29			
	Exhaust Rod End Nut.....	1	⅝" SAE	.04	1	⅝" SAE	.04	1	⅝" SAE	.04			
58A	Exhaust Roller Rocker Fulcrum Pin.....	1	ZAA58	.19	1	ZAA58	.19	1	ZAA58	.19			
60B		Exhaust Roller Rocker Fulcrum Pin Cotter.....	1	⅜" x ⅜"		1	⅜" x ⅜"		1	⅜" x ⅜"			
		Reservoir Cover.....	1	ZAA60	.19	1	ZBA60	.06	1	ZBA60	.06		
	Reservoir Cover Stove Bolt.....	1			1	⅝" x 1"	.02	1	⅝" x 1"	.02			
	Reservoir Cover Stove Bolt Nut.....	1			1	⅝"	.02	1	⅝"	.02			
63A	Exhaust Roller Rocker Pin Washer.....	1	15UK	.02	1	15UK	.02	1	15UK	.02			
71	Piston Pin Taper Lock Pin.....	1	DJ71	.04	1	DJ71	.04	1	DJ71	.04			
72	Piston Pin Taper Lock Pin Set Screw.....	1	⅜" x ⅝"	.04	1	⅜" x ⅝"	.04	1	⅜" x ⅝"	.04			
71A		Above 71 and 72 not furnished for repairs, we send:											
		Piston Pin Taper Lock Pin with.....	1	ZAA71A1	.06	1	ZAA71A1	.06	1	ZAA71A1	.06		
	Piston Pin Taper Lock Pin Cotter.....	1	⅜" x ⅜"		1	⅜" x ⅜"		1	⅜" x ⅜"				

*Included in "Z" engine Service Cabinet.

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
76B		Fuel Throttle Valve.....	1	ZAA76	\$.10	1	ZBA76	\$.11	1	ZBA76	\$.11
79A		Governor Weight Pins.....	2	#318	.02	2	#318	.02	2	#318	.02
79B		Governor Weight Pins (with spiral gears).....	2	ZAA79A	.02	2	ZAA79A	.02	2	ZAA79A	.02
80A		Governor Sleeve Pin Head.....	1	ZAS6	.38	1	ZAS6	.38	1	ZAS6	.38
80B		Governor Sleeve Pin Head (with spiral gears).....	1	ZAA86A	.38	1	ZAA86A	.38	1	ZAA86A	.38
81A-C		81A-C Governor Spindle.....	1	#506972		1	#506674		1	#506872	
		Used Previous to Engine.....									
		Note.—When 81A-C is ordered, 81G-C Governor Spindle will be furnished.									
											
81A	81A	Governor Spindle with Head.....	1	ZAA81A	2.00	1	ZAS1	2.00	1	ZAS1	2.00
80A	80A	Governor Sleeve Pin with Pin Head.....	1	ZAS6		1	ZAS6		1	ZAS6	
82A	82A	Governor Weight with Ball.....	1	ZAA82	.19	1	ZAA82	.19	1	ZAA82	.19
82B	82B	Governor Weight, Plain.....	1	ZAA82A	.19	1	ZAA82A	.19	1	ZAA82A	.19
308A	308A	Governor Weight Spring.....	1	ZAA308A	.08	1	ZAA308A	.08	1	ZAA308A	.08
156A	156A	Governor Weight Spring Adjusting Screw.....	1	ZAI56	.08	1	ZAI56	.08	1	ZAI56	.08
33B	33B	Governor Weight Friction Spring.....	1	ZA33	.10	1	ZA33	.10	1	ZA33	.10
321	321	Governor Weight Friction Spring Screw.....	1	#10-24x¾"	.02	1	#10-24x¾"	.02	1	#10-24x¾"	.02
		Governor Weight Friction Spring Nut.....	1	#10-24		1	#10-24		1	#10-24	
79A	79A	Governor Weight Pin.....	2	#318	.02	2	#318	.02	2	#318	.02
48A	48A	Governor Gear.....	1	ZAA48	.61	1	ZBA48A	.67	1	ZBA48A	.67
81F-C		81F-C Governor.....	1	#506972	2.75	1	#506674	2.85	1	#506872	2.85
		Effective on Engine.....									
81E-C	81E-C	Governor Head.....	1	ZAA81A2	1.38	1	ZAA81A2	1.38	1	ZAA81A2	1.38
80B	80B	Governor Sleeve Pin.....	1	ZAA86A	.38	1	ZAA86A	.38	1	ZAA86A	.38
308A	308A	Governor Weight Spring.....	1	#919B	.08	1	#919B	.08	1	#919B	.08
156A	156A	Governor Weight Spring Adjusting Screw.....	1	ZAI56	.08	1	ZAI56	.08	1	ZAI56	.08
48B	48B	Governor Gear.....	1	ZAA48C	.84	1	ZBA48C	.96	1	ZBA48C	.96
81E-C		81E-C Governor Head (effective on Engine).....	1	#506972	1.38	#506674	1.38	#506874	1.38	#506874	1.38
81B	81B	Governor Head.....	1	ZAA81A2	.84	1	ZAA81A2	.84	1	ZAA81A2	.84
82A	82A	Governor Weight with Ball.....	1	ZAA82	.19	1	ZAA82	.19	1	ZAA82	.19
82B	82B	Governor Weight, Plain.....	1	ZAA82A	.19	1	ZAA82A	.19	1	ZAA82A	.19
33B	33B	Governor Weight Friction Spring.....	1	ZA33	.10	1	ZA33	.10	1	ZA33	.10
321	321	Governor Weight Friction Spring Screw.....	1	#10-24x¾"	.02	1	#10-24x¾"	.02	1	#10-24x¾"	.02
		Governor Weight Friction Spring Nut.....	1	#10/24	.02	1	#10/24	.02	1	#10/24	.02
79B	79B	Governor Weight Pins.....	2	ZAA79A	.02	2	ZAA79A	.02	2	ZAA79A	.02
81G-C		81G-C Governor.....	1	ZAA81B2	2.75	1	ZAA81B2	2.85	1	ZAA81B2	2.85
81B	81B	Governor Head.....	1	ZAA81B2	.84	1	ZAA81B2	.84	1	ZAA81B2	.84
82A	82A	Governor Weight, with Ball.....	1	ZAA82	.19	1	ZAA82	.19	1	ZAA82	.19
82B	82B	Governor Weight (Plain).....	1	ZAA82A	.19	1	ZAA82A	.19	1	ZAA82A	.19
79B	79B	Governor Weight Pin.....	2	ZAA79A	.02	2	ZAA79A	.02	2	ZAA79A	.02
33B	33B	Governor Weight Friction Spring.....	1	ZA33	.10	1	ZA33	.10	1	ZA33	.10
321	321	Governor Weight Friction Spring Screw.....	1	#10-24x¾"	.02	1	#10-24x¾"	.02	1	#10-24x¾"	.02
		Governor Weight Friction Spring Screw Nut.....	1	#10-24	.02	1	#10-24	.02	1	#10-24	.02
80B	80B	Governor Sleeve Pin.....	1	ZAS0A	.38	1	ZAS0A	.38	1	ZAS0A	.38
308A	308A	Governor Weight Spring.....	1	ZAA308A	.08	1	ZBA308A	.08	1	ZBA308A	.08
156A	156A	Governor Weight Spring Adjusting Screw.....	1	ZAI56	.08	1	ZAI56	.08	1	ZAI56	.08
48D	48D	Governor Pinion, with Shaft.....	1	ZAA48D	.84	1	ZBA48D	.96	1	ZBA48D	.96
83A		Governor Lever.....	1	ZAS3A	.49	1	ZBAS3A	.53	1	ZBAS3A	.53
85A		Governor Lever Fulcrum Pin or Rivet.....	1	¾" x 1 ½"	.02	1	¾" x 1 ½"	.02	1	¾" x 1 ½"	.02
*89		Fuel Check Valve Body (with 91).....	1	ZAS9	.29	1	ZAS9	.29	1	ZAS9	.29
*90A		Fuel Check Valve Ball.....	1	¾"	.02	1	¾"	.02	1	¾"	.02
91		Fuel Check Valve Strainer (not furnished separately).....	1	ZA91		1	ZA91		1	ZA91	
93B-C		93B-C Governor Lever Bracket.....	1	ZAA93B	1.82	1	ZAA93B	1.86	1	ZAA93B	1.86
93B	93B	Governor Lever Bracket.....	1	ZAA93B	.76	1	ZAA93B	.76	1	ZAA93B	.76
83A	83A	Governor Lever.....	1	ZAS3A	.49	1	ZBAS3A	.53	1	ZBAS3A	.53
85A	85A	Governor Lever Fulcrum Pin or Rivet.....	1	¾" x 1 ½"	.02	1	¾" x 1 ½"	.02	1	¾" x 1 ½"	.02
209A-C	209A-C	Speed Regulator Lever.....	1	ZAS110B	.53	1	ZAS110B	.53	1	ZAS110B	.53
212A	212A	Speed Regulator Lever Fulcrum Pin.....	1	¾" x 1"	.02	1	¾" x 1"	.02	1	¾" x 1"	.02
		Governor Lever Bracket Screw.....	2	¼" x 5/8"	.02	2	¼" x 5/8"	.02	2	¼" x 5/8"	.02
		Governor Lever Bracket Lockwasher.....	2	¼"	.02	2	¼"	.02	2	¼"	.02
95		Fuel Suction Tube Connection (not furnished separately).....	1	ZA95		1	ZA95		1	ZA95	
104		Fuel Tank Strap.....	1	ZB104		1	ZB104	.15	1	ZB104	.15
		Fuel Tank Strap Carriage Bolt.....	2	½" x 5/8"		2	½" x 5/8"	.04	2	½" x 5/8"	.04
		Fuel Tank Strap Carriage Bolt Nut.....	2	½"		2	½"	.04	2	½"	.04
106		Pulley to Flywheel Clip.....	3	ZB106		3	ZB106	.04	3	ZB106	.04
		Pulley to Flywheel Machine Bolt.....	3	½" x 2 ½"		3	½" x 2 ½"	.06	3	½" x 2 ½"	.06
		Pulley to Flywheel Machine Bolt Nut.....	3	½"		3	½"	.02	3	½"	.02
110		Connecting Rod Shims—Thick, Price per Set.....	8	ZAA110A	.06	8	ZBA110A	.06	8	ZCA110A	.06
110A		Connecting Rod Shims—Thin, Price per Set.....	8	ZAA110B	.08	8	ZBA110B	.08	8	ZCA110B	.08
110B		Connecting Rod Shims—Price per Set.....	10	ZAA110C	.06	10	ZAA110C	.06	10	ZAA110C	.06
117A		Pulley with Bolts.....	1	ZAA454	1.14	1	ZB117A	1.75	1	ZC117	2.28
		Note.—ZC117 cannot be used on engines previous to 320000.									
*120		Suction Valve Drag Spring.....	1	ZB120		1	ZB120	.25	1	ZB120	.25
*121		Suction Valve Spring Collar.....	1	ZB121		1	ZB121	.08	1	ZB121	.08
*122		Exhaust Valve Spring Collar Lock.....	1	ZAI22	.02	1	ZBA122	.02	1	ZBA122	.02
*122A		Suction Valve Spring Collar Lock.....	1	ZBA122A	.02	1	ZBA122A	.02	1	ZBA122A	.02
123		Cam to Gear Woodruff Key.....	1	#9	.02	1	#9	.02	1	#9	.02
124		Starting Fuel Tube (not furnished separately).....	1	ZAA124		1	ZBA124		1	ZBA124	
126		Main Bearing Shims—Thick, Price per Set.....	4	ZAA126A	.04	4	ZBA126A	.06	4	ZCA126A	.08
126B		Main Bearing Shims—Thin, Price per Set.....	8	ZAA126B	.04	8	ZBA126B	.06	8	ZCA126B	.08
126D		Main Bearing Shims—Price per Set.....	12	ZAA126C	.04	12	ZBA126C	.06	12	ZCA126C	.08

*Included in "Z" engine Service Cabinet.

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.			
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	
128A	128B	Cam (not furnished separately).....		#491702		#492154		#492528				
128B		Cam and Shaft, Effective on Engines.....	1	ZAA128B	\$1.43	1	ZBA128B	\$2.00	1	ZBA128B	\$2.00	
139A		Cam and Shaft.....	1	ZAA139B	.29	1	ZAA139B	.29	1	ZAA139B	.29	
150		Magneto Clamp.....	2	DJ150	.17	2	ZB150	.19	2	ZC150	.29	
151		Connecting Rod Bolt with Cotter.....	2	½" SAE	.06	2	½" SAE	.06	2	½" SAE	.11	
156A		Governor Spring Adjusting Screw.....	1	ZA156	.08	1	ZA156	.08	1	ZA156	.08	
157		Flywheel Key Opposite Governor.....	1	#868	.06	1	#878	.08	1	#10812	.10	
158		Flywheel Key Governor Side.....	1	#8610	.08	1	#8710	.08	1	#10812½	.11	
159		Crankshaft Pinion Key.....	1	#842	.02	1	#872	.02	1	#1072	.04	
160		End Thrust Washer Opposite Governor.....	1	DJ160	.04	1	ZB160	.04	1	ZC160	.04	
160		End Thrust Washer Governor Side—Previous to Engine #463610.....	2	DJ160	.04							
160A		Flywheel Spacer—Governor Side—Effective on Engine #463610.....	1	ZAA160A1	.23							
*176		Connecting Rod Crank Pin Liners (Furnished in Pairs (2 Pieces) only).....	1 Pr.	DJ176	.68	1 Pr.	ZB176	1.03	1 Pr.	ZC176	1.90	
*190B		Cylinder Head Gasket (Copper Asbestos).....	1	ZAA190A	.38	1	ZBA190A1	.48	1	ZCA190A1	.53	
191		Cylinder to Hopper Gasket.....	1	ZAA191	.02	1	ZBA191	.04	1	ZC191	.06	
192		Cylinder Head to Butterfly Valve Casing Gasket.....	1	ZA192	.02							
195B	Name Plate.....	1	ZAA195	.11	1	ZBA195	.19	1	ZCA195	.21		
	Name Plate Screw.....	2	11FM38A1	.02	2	#10-24x½"	.02	2	11FM38A1	.02		
	Name Plate Screw Nut.....	2	#10-24	.02	2	#10-24	.02	2	#10-24	.02		
	Name Plate Washer.....	2	2NPW	.02	2	2NPW	.02	2	2NPW	.02		
197-C	197	197-C Fuel Throttle Valve Seat	1		1.19	1		1.52	1		1.63	
		197	Fuel Throttle Valve Seat with.....	1	ZAA197		1	ZBA197A		1	ZCA197	
		24A	Fuel Suction Tube.....	1	ZA24		1	ZBA24		1	ZCA24	
		95	Fuel Suction Tube Connection.....	1	ZA95	.74	1	ZA95	1.04	1	ZA95	1.15
		47	Fuel Tank Suction Opening Cap.....	1	ZA47		1	ZA47		1	ZA47	
		89	Fuel Check Valve Body with Strainer #91.....	1	ZA89	.29	1	ZA89	.29	1	ZA89	.29
		90A	Fuel Check Ball.....	1	¾"	.02	1	¾"	.02	1	¾"	.02
	76B	Fuel Throttle Valve.....	1	ZAA76	.10	1	ZBA76	.11	1	ZBA76	.11	
	311A	Fuel Throttle Valve Spring.....	1	#913	.04	1	#784	.06	1	#784	.06	
197S-C	197S	197S-C Starting Throttle Valve Seat	1		.76	1		.95	1		.95	
		197S	Starting Throttle Valve Seat with.....	1	ZAA197		1	ZBA197A		1	ZCA197	
		124	Starting Fuel Tube.....	1	ZAA124	.60	1	ZBA124	.78	1	ZBA124	.78
		376A	Starting Throttle Valve.....	1	ZAA376A	.10	1	ZBA376	.11	1	ZBA376	.11
	311B	Starting Throttle Valve Spring.....	1	#888	.06	1	#784	.06	1	#784	.06	
198-C	198	198-C Air Valve Seat	1		.48	1		.57	1		.57	
		198	Air Valve Seat—always with.....	1	ZA198		1	ZBA198B		1	ZCA198	
		200A	Air Valve Guide and Cotter.....	1	ZA200	.38	1	ZBA200	.48	1	ZBA200	.48
		*199	Air Valve.....	1	ZA199	.04	1	ZBA199A	.04	1	ZCA199	.04
		336	Air Valve Spring.....	1	#889	.06	1	#926	.06	1	#928	.06
200A	200A	Air Valve Seat to Reservoir Screw.....	2	#10-24x½"	.02	2	¼"x½"	.02	2	¼"x½"	.02	
		200A	Air Valve Seat to Reservoir Lockwasher.....	2	¾"	.02	2	¾"	.02	2	¾"	.02
		200A	Air Valve Guide.....	1	ZA200	.10	1	ZBA200	.10	1	ZBA200	.10
		200A	Air Valve Guide Cotter.....	1	¼"x½"		1	¼"x½"		1	¼"x½"	
202A-C	202A	202A-C Butterfly Valve Casing (1½ H.P.)	1		1.98							
		202A	Butterfly Valve Casing.....	1	ZAA202	1.06						
		203B-C	Butterfly Valve.....	1	203B-C	.91						
		Valve Casing to Head Cap Screw.....	2	¾"x¾"	.04							
203B-C	203B	203B-C Butterfly Valve	1		.91	1		1.14	1		1.14	
		203B	Butterfly Valve.....	1	ZA203	.17	1	ZBA203	.19	1	ZCA203	.19
		204C	Butterfly Valve Stem—not furnished without 206C.....	1	ZAA204A		1	ZBA204A		1	ZCA204B	
		206C	Butterfly Valve Machine Screw.....	1	#8-32x¼"	.68	2	#8-32x¼"	.89	2	#8-32x¼"	.89
		326B	Butterfly Valve Lever—not furnished without 204C.....	1	ZAA206A		1	ZAA206B		1	ZCA206B	
		Butterfly Valve Spring.....	1	#891A	.06	1	#920	.06	1	#920	.06	
205A-C	205A	Send 205A-C on 1½ H.P. previous to engine #463610 and 205D-C after 1½ H.P. #463610, and on all 3 and 6 H.P. 205A-C Governor Pull Rod	1		.42	When ordered for 205 D-C						
		205A	Previous to 1½ H.P. Engine #463610. Always Furnished Complete for 1½ H.P., as follows,—									
		205A	Governor Pull Rod.....	1	ZAA205C							
		405A	Governor Pull Rod End.....	1	ZAA405A							
		404	Governor Pull Rod End Nut.....	1	ZAA404	.42						
		Governor Pull Rod Cotters.....	2	¼"x¾"								
205D-C	205D	205D-C Governor Pull Rod	1		.48	1		.48	1		.51	
		205D	Governor Pull Rod.....	1	ZBA205B	.27	1	ZBA205B	.27	1	ZCA205B	.30
		405A	Governor Pull Rod End.....	1	ZAA405A	.15	1	ZAA405A	.15	1	ZAA405A	.15
		404	Governor Pull Rod End Nut.....	1	ZAA404	.06	1	ZAA404	.06	1	ZAA404	.06
			Governor Pull Rod Cotters.....	2	¼"x¾"		2	¼"x¾"		2	¼"x¾"	
206C	206C	Butterfly Valve Stem Arm not furnished without 204C.....	1	ZAA206A		1	ZBA206B		1	ZCA206B		
		206C	Butterfly Valve Stem Arm Pin.....	1	#209	.68	1	#209	.89	1	#209	.89
209A-C	209A	209A-C Regulator Lever	1		.55	1		.55	1		.55	
		209A	Speed Regulator Lever with.....	1	ZAA209	.34	1	ZAA209	.34	1	ZAA209	.34
		222A	Speed Regulator Leaf Spring.....	1	ZAA222	.15	1	ZAA222	.15	1	ZAA222	.15
		224A	Speed Regulator Adjusting Screw.....	1	ZAA224	.15	1	ZAA224	.15	1	ZAA224	.15
		230A	Speed Regulator Adjusting Screw Spring.....	1	#888	.06	1	#888	.06	1	#888	.06
212A	234	Speed Regulator Lever Fulcrum Pin.....	1	¾"x1" Rivet	.02	1	¾"x1" Rivet	.02	1	¾"x1" Rivet	.02	
222A		Speed Regulator Leaf (not furnished separately).....	1	ZAA222		1	ZAA222		1	ZAA222		
224A		Speed Regulator Adjusting Screw.....	1	ZAA224	.15	1	ZAA224	.15	1	ZAA224	.15	
230A		Speed Regulator Adjusting Screw Spring.....	1	#888	.06	1	#888	.06	1	#888	.06	
233		Sub-Base Spacer—Cylinder End.....	1	ZA233A	.23							
233A		Sub-Base Spacer—Crank End.....	1	ZA233B	.23							
		Sub-Base Spacer Carriage Bolt.....	2	¼"x9¾"	.04							
		Sub-Base Spacer Square Nut.....	2	¼"	.02							
		Sub-Base Spacer Plate Washer.....	2	¼"	.02							
		Sub-Base Fill-Up Pieces.....	2	ZA234	.21							
		Sub-Base End Carriage Bolt.....	4	¼"x3½"	.02							
		Sub-Base End Square Nut.....	4	¼"	.02							
		Sub-Base End Plate Washer.....	4	¼"	.02							

*Included in "Z" engine Service Cabinet.

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equipt. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6 NAME OF PART	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
247		Air Valve Seat Gasket.....	1	ZAA247	\$.02	1	ZBA247	\$.02	1	ZBA247	\$.02
249A		Reservoir Gasket.....	1	ZAA249	.02	1	ZBA249A	.02	1	ZBA249A	.02
265B		Starter Crank Pawl.....	1	ZAA265A	.11	1	ZAA265A	.11	1	ZAA265A	.11
266A		Starter Crank Pawl Pin.....	1	ZAA266	.13	1	ZAA266	.13	1	ZAA266	.13
267		Starter Crank Pawl Spring.....	1	ZAA267A	.06	1	ZAA267A	.06	1	ZAA267A	.06
271A		Cylinder Oiler Pipe.....	1	¼"x6"	.10	1	¼"x7¼"	.11	1	¼"x9¼"	.15
273A		When Magneto AB33 is ordered AB34 is shipped with Clamp 139A.									
273A	273A	273A Magneto Previous to 1½ H.P. Engine #463610.			Price on Application						
	1955	Magneto with Clamp 139A.....	1	AB34Bosch							
	323	Magneto Trip Lever.....	1	CL12932							
		Magneto Trip Lever Springs.....	2	ZAA323A							
273A		Magneto to Bracket Cap Screw.....	2	¾"x 7/8"	.04						
		Magneto to Bracket Cap Screw.....	2	¾"x 3/4"	.04						
		Magneto to Bracket Lock Washers.....	4	¾"	.02						
273A		273A Magneto Previous to 3 H.P. Engine #489408 and 6 H.P. Engine #488381.					Price on Application			Price on Application	
273A	273A	Magneto with Clamp 139A.....				1	AB34Bosch		1	AB34Bosch	
	1955A	Trip Lever.....				1	ZAA1955A		1	ZAA1955A	
	323A	Trip Lever Springs.....				2	ZBA323A		2	ZBA323A	
		Magneto to Bracket Stud.....				4	¾"x1½"	.06	4	¾"x1½"	
		Magneto to Bracket Stud Nut.....				4	¾"	.04	4	¾"	
273B		273B Magneto	1		Price on Application	1		Price on Application	1		
		Effective on 1½ H.P. Engine #463610.									
		Effective on 3 H.P. Engine #489408.									
		Effective on 6 H.P. Engine #488381.									
273B	273B	Magneto with Clamp 139A.....	1	AB34Bosch		1	AB34Bosch		1	AB34Bosch	
	1393	Magneto to Bracket Dowel.....	2	ZAA1393		2	ZAA1393		2	ZAA1393	
	*63890	Magneto Trip Lever.....	1	ZAA1955A		1	ZAA1955A		1	ZAA1955A	
	*64028	Magneto Trip Lever Springs.....	2	ZBA323A		2	ZBA323A		2	ZBA323A	
297		Fuel Throttle Valve Seat Clamp.....	1	ZAA297	.02	1	ZBA297	.02	1	ZBA297	
		Valve Seat Clamp Screw.....	1	¼"x1"	.02	2	¼"x1"	.02	2	¼"x 3/8"	
301A		Magneto Clamp Stud.....	2	ZAA301	.15	2	ZBA301	.15	2	ZBA301	
		Magneto Clamp Stud Nut.....	2	5/16"	.02	2	5/16"	.02	2	5/16"	
		Magneto Clamp Stud Lockwasher.....	2	5/16"	.02	2	5/16"	.02	2	5/16"	
308A		Governor Weight Spring.....	1	ZAA308A	.08	1	ZBA308A	.08	1	ZBA308A	
*310A		Suction Valve Spring.....	1	#884	.08	1	#927	.08	1	#929	
311A		Fuel Throttle Valve Spring.....	1	#913	.04	1	#784	.06	1	#784	
311B		Fuel Throttle Valve Spring.....	1	#888	.06	1	#784	.06	1	#784	
312		Cylinder Head Stud (short).....	3	½"x3 7/8"	.08	3	5/8"x4 1/2"	.10	3	¾"x5 1/4"	
313		Cylinder Head Stud (long).....	1	½"x4 1/4"	.08	1	5/8"x4 1/2"	.10	1	¾"x5 3/8"	
314A		Reservoir Cover Spring.....	1	#923	.04	1	#923	.04	1	#923	
*317		Exhaust Valve Spring.....	1	#885	.10	1	#717A	.11	1	#759A	
321		Governor Friction Spring Adjusting Screw.....	1	#10-24x¾"	.02	1	#10-24x¾"	.02	1	#10-24x¾"	
		Governor Friction Spring Adjusting Screw Nut.....	1	#10-24	.02	1	#10-24	.02	1	#10-24	
326B		Butterfly Valve Torsion Spring.....	1	#891A	.06	1	#920	.06	1	#920	
327A		Cylinder Head Drain Plug.....	1	¼"	.04	1	3/8"	.04	1	3/8"	
328A		Base Drain Plug.....	1	¼"	.04	1	¼"	.04	1	¼"	
331A		Reservoir Drain Plug.....	1	1/8"	.04	1	1/8"	.04	1	1/8"	
335A		Reservoir Cover Pin.....	1	#320	.02	1	1/8"	.04	1	1/8"	
*336		Air Valve Spring.....	1	#889	.06	1	#926	.06	1	#928	
337A	337A	Magneto Trip Pin—Effective on 1½ H.P. previous to #451893.	1	ZAA337A	.23						
	344	Magneto Trip Pin with.....	1	ZAA344							
*337B	337B	Magneto Trip Pin—Effective on 1½ H.P. #451893 to #463610.	1	ZAA337B	.23						
	344	Magneto Trip Pin Roller.....	1	ZAA344							
337C	337C	Magneto Trip Pin—Effective on 1½ H.P. #463610.....	When ordered furnish 337-B.	ZAA337C							
	344A	Magneto Trip Pin Roller.....	1	ZAA344A							
*337B	337B	Magneto Trip Pin—always with.....	1	ZBA337D	.38	1	ZBA337D	.38	1	ZBA337D	
	344	Magneto Trip Pin Roller.....	1	ZAA344		1	ZAA344		1	ZAA344	
	346A	Magneto Trip Pin Roller Spring Ring.....	1	ZBA346		1	ZBA346		1	ZBA346	
	437B	Magneto Trip Pin Nut.....	1	3/8" SAE		1	3/8" SAE		1	3/8" SAE	
	347	Magneto Trip Pin Lockwasher.....	1	3/8"		1	3/8"		1	3/8"	
		Magneto Trip Pin Fill-Up Collars.....	2	ZBA347	2	ZBA347	2	ZBA347			
337C	337C	Magneto Trip Pin—Effective on Engine.....	1	#462126	.38	1	#462126	.38	1	#462740	
	344	Magneto Trip Pin—always with.....	1	ZBA337D		1	ZBA337D		1	ZBA337D	
337C	346A	Magneto Trip Pin Roller.....	1	ZAA344	.38	1	ZAA344	.38	1	ZAA344	
	437B	Magneto Trip Pin Roller Spring Ring.....	1	ZBA346		1	ZBA346		1	ZBA346	
		Magneto Trip Pin Nut.....	1	3/8" SAE		1	3/8" SAE		1	3/8" SAE	
		Magneto Trip Pin Lock Washer.....	1	3/8"	1	3/8"	1	3/8"			
339C	339	Early and Late Device.....	1	ZBA339B	1.14	1	ZBA339B	1.14	1	ZBA339B	
		Early and Late Weight—always with.....	1	ZBA338		1	ZBA338		1	ZBA338	
339		Early and Late Arm (not furnished separately).....	1	ZBA338	1.14	1	ZBA338	1.14	1	ZBA338	
		Early and Late Taper Pin.....	1	#1x1"		1	#1x1"		1	#1x1"	
344		Magneto Trip Pin Roller—Previous to #463610 on 1½ H.P.	1	ZAA344	.06	1	ZAA344	.06	1	ZAA344	
344A		Magneto Trip Pin Roller.....	1	ZAA344A	.06						
346A		Magneto Trip Pin Roller Spring Ring.....	1	ZBA346	.04	1	ZBA346	.04	1	ZBA346	
346B		Exhaust Roller Rocker Pin Spring Ring.....	1	PCD346A	.04	1	PCD346A	.04	1	PCD346A	
347		Magneto Trip Pin Fill-up Collar.....	2	ZBA347	.08	2	ZBA347	.08	2	ZBA347	
355		Exhaust Rod End Nut.....	1	5/16" SAE	.04	1	3/8" SAE	.04	1	3/8" SAE	
376A		Starting Fuel Throttle Valve.....	1	ZAA376A	.10	1	ZBA376	.11	1	ZBA376	
404		Governor Pull Rod End Nut.....	1	ZAA404	.06	1	ZAA404	.06	1	ZAA404	
405		Governor Pull Rod End, Furnish.....	1	205D-C		1	205D-C		1	205D-C	
405A		Governor Pull Rod End.....	1	ZAA405A	.15	1	ZAA405A	.15	1	ZAA405A	
437B		Magneto Trip Pin Nut.....	1	3/8"	.04	1	3/8"	.04	1	3/8"	
484		Pulley Bolts.....	3	ZAA484	.02						
		Pulley Bolts Nuts.....	3	5/16"	.02						

*Included in "Z" engine Service Cabinet.

Repair Price List—1½ H. P., 3 H. P., 6 H. P. Bosch Equip. "Z" Engines

Repair Numbers		Before Ordering Repair Parts Read the Instructions on Page 6	1½ H.P.			3 H.P.			6 H.P.		
Arranged Numerically	Group Parts		Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each	Used	Symbol or Size	Price, Each
502	751	Hopper with Name Plate Attached.....				1	ZBA2	\$4.90	1	ZC2	\$7.75
		Hopper Baffle.....				1	ZBA751		6	½"x1¾"	.05
		Hopper to Cylinder Carriage Bolt.....				4	½"x1¾"	.05	6	½" sq.	.02
		Hopper to Cylinder Carriage Bolt Nut.....				4	½"	.02	6	½"	.02
		Hopper to Cylinder Carriage Bolt Plate Washer.....				2	1"x¼"	.08	2	#1x¼"	.08
505		Main Bearing Grease Cup.....	2	#0x¼"	.08	1	#000x½"	.08	1	#000x½"	.08
503		Cam Shaft Grease Cup.....	1	#000x½"	.08	1	#000x½"	.08	1	#000x½"	.08
507		Governor Grease Cup.....	1	#0x¼"	.08	1	#000x½"	.08	1	#1x¼"	.12
509A		Connecting Rod Grease Cup.....	1	#0x¼"	.08	1	#1x¼"	.12	1	#1x¼"	.12
		Connecting Rod Grease Cup Street Elbow.....	1	¼"	.04						
527	Cylinder Oiler—Glass (Special 1½ and 3 H.P.).....	1	48A32B	1.43	1	48A32B	1.43	1	48A53B	1.62	
527A	Cylinder Oiler—Metal (Standard).....	1	527ZAN4	.95	1	527ZAN4	.95				
728A-C		728A-C Starter Crank	1		1.14	1		1.52	1		1.90
		Starter Crank—always with.....	1	ZA728B		1	ZB14		1	ZC14	
728A	728A	Starter Crank Pawl.....	1	ZA265A	1.14	1	ZA265A	1.52	1	ZA265A	1.90
	235B	Starter Crank Pawl Pin.....	1	ZA266		1	ZA266		1	ZA266	
	236A	Starter Crank Pawl Spring.....	1	ZA267A		1	ZA267A		1	ZA267A	
731	237	Exhaust Roller Pin Nut.....	1	ZA731	.06	1	ZA731	.08	1	ZA731	.08
735A		Spark Plug Cover with Conduit 737.....	1	ZAN735A2	.22	1	ZAN735A2	.26	1	ZAN735A2	.32
736		Spark Plug Nut.....	1	ZAA736	.13	1	ZAA736	.13	1	ZAA736	.13
737		Magneto Cable Conduit with Cover 735A.....	1	ZAA737B1	.22	1	ZBA737A1	.26	1	ZCA737A1	.32
741		Exhaust Valve Rocker Oil Cup.....	1		.15	1		.15	1		.15
742		Early and Late Taper Pin.....	1			1	#1x1"	.02	1	#1x1"	.02
743		Magneto Cable Conduit Clip.....	1	ZAA743	.04	2	ZBA743	.04	2	ZCA743	.06
		Magneto Cable Conduit R. H. M. Screw.....	1	¼"x½"	.02	2	¼"x½"	.02	2	¼"x½"	.02
746		Magneto Cable Conduit Clip Washer.....	1	ZAA746	.02	2	ZAA746	.02	2	ZAA746	.02
752		Magneto Cable.....	1	64781	.26	1	64782	.30	2	64783	.34
1393		Magneto Dowels.....	2	ZAA1393	.06	2	ZAA1393	.06	2	ZAA1393	.06
1395		Cam Gear Bracket Cap Screw.....	2	ZAA1395	.06	2	½"x1¼"	.06	2	½"x1¼"	.06
		Cam Gear Bracket Lockwasher.....	2	½"	.02	2	½"	.02	2	½"	.02
2831		Gov. Pinion Shaft Washer.....	1	ZAA2831A	.04	1	ZAA2831A	.04	1	ZAA2831A	.04
619		Spark Plug (Factory does not furnish for repairs).....	1	Champion No. 7		1	Champion No. 7		1	Champion No. 7	
743A-C		743A-C Complete Set of Springs	1		.60	1		.67	1		.71
	308A	Governor Weight Spring.....	1	#919B	.08	1	#919B	.08	1	#919B	.08
	310A	Suction Valve Spring.....	1	#884	.08	1	#927	.08	1	#929	.08
	311A	Throttle Valve Spring.....	1	#913	.04	1	#784	.06	1	#784	.06
	230A	Speed Regulator Adjusting Screw Spring.....	1	#888	.06	1	#888	.06	1	#888	.03
	317	Exhaust Valve Spring.....	1	#885	.10	1	#717A	.11	1	#759A	.15
	326B	Butterfly Valve Torsion Spring.....	1	#891A	.06	1	#920	.06	1	#920	.06
	336	Auxiliary Air Valve Spring.....	1	#889	.06	1	#926	.06	1	#928	.06
	314A	Reservoir Spring.....	1			1	#923	.04	1	#923	.04
	311B	Starting Throttle Valve Spring.....	1	#888	.06	1	#784	.06	1	#784	.06
	267	Starting Crank Pawl Spring.....	1	ZA267A	.06	1	ZA267A	.06	1	ZA267A	.03
749B-C		749B-C Complete Set of Gaskets	1		.44	1		.56	1		.63
	190B	Cylinder Head Gasket.....	1	ZAA190A	.38	1	ZBA190A1	.48	1	ZCA190A1	.53
	191	Cylinder to Hopper Gasket.....	1			1	ZBA191	.04	1	ZC191	.06
	192	Butterfly Valve Casing Gasket.....	1	ZA192	.02						
	247	Air Valve Seat Gasket.....	1	ZAA247	.02	1	ZBA247	.02	1	ZBA247	.02
	249A	Reservoir Gasket.....	1	ZAA249	.02	1	ZBA249A	.02	1	ZBA249A	.02
		Tools									
		Open End Wrench.....	1	ZA350	.19	1	#7	.67	1	#8	.86
		Funnel.....				1	½ pt.	.10	1	½ pt.	.10
		Hand Oil Can.....				1	#3	.21	1	#3	.21
402-C		402-C Parts for Engines With Cylinder Cover				1		7.80	1		10.30
	13B	Oil Shield with Clips.....	1			1	ZBA316	.89	1	ZCA316	1.14
		Clip Stove Bolts.....	2	¼"x¾"	.02	2	¼"x¾"	.02	2	¼"x¾"	.02
	112	Cylinder Cover Bolt Clip.....	4		.06	4	ZBA112	.06	6	ZBA112	.06
	271B	Cylinder Oiler Nipple.....	1	ZBA103	.11	1	ZBA103	.11	1	ZBA103	.11
	402	Cylinder Oiler Nipple Pipe Lock Nut.....	1	¼"	.04	1	¼"	.04	1	¼"	.04
		Cylinder Cover.....	1	ZBA402	5.85	1	ZCA402	7.65	1	ZCA402	7.65
		Cylinder Cover Machine Bolt.....	4	½"x3"	.06	6	½"x3"	.06	6	½"x3"	.06
		Cylinder Cover Machine Bolt Nut.....	4	½"	.02	6	½"	.02	6	½"	.02
	407	Cylinder Cover Bolt Gasket.....	4	ZBA407A	.02	6	ZBA407A	.02	6	ZBA407A	.02
	407	Oiler Nipple Nut Gasket.....	1	ZBA407A	.02	1	ZBA407A	.02	1	ZBA407A	.02
	408	Cylinder Cover Bolt Washer.....	4	ZBA408A	.06	6	ZBA408A	.06	6	ZBA408A	.06
	191	Cylinder Cover Gasket.....	1	ZBA191	.04	1	ZCA191	.04	1	ZCA191	.04
	195B	Name Plate.....	1	ZBA195	.19	1	ZCA195	.19	1	ZCA195	.21
		Name Plate R. H. M. Screw.....	2	#10-24x¼"	.02	2	#10-24x¼"	.02	2	#10-24x¼"	.02
		Name Plate Washer.....	2	2NPW	.02	2	2NPW	.02	2	2NPW	.02

Fairbanks, Morse & Co.

(INCORPORATED)

MANUFACTURERS

Executive Offices: Chicago, Ill.

Branches

Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Boston, Mass.
Buffalo, N. Y.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Denver, Colo.
Des Moines, Iowa
Detroit, Mich.
Indianapolis, Ind.
Jacksonville, Fla.
Kansas City, Mo.
Los Angeles, Calif.



Louisville, Ky.
Milwaukee, Wis.
Minneapolis, Minn.
New Orleans, La.
New York, N. Y.
Omaha, Nebr.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
Salt Lake City, Utah
San Francisco, Calif.
Seattle, Wash.
Spokane, Wash.
St. Louis, Mo.
St. Paul, Minn.
Stuttgart, Ark.

FOREIGN DIVISION, CHICAGO, U. S. A.

Cable Address, "Eclipse, Chicago"

Foreign Division Branches

New York	London	Buenos Aires	Rio de Janeiro
Sydney (N.S.W.)	Auckland	Havana	Antwerp

The Canadian Fairbanks-Morse Co., Limited

St. John	Ottawa	Regina
Quebec	Toronto	Calgary
Montreal	Windsor	Vancouver
Edmonton	Winnipeg	Victoria