

P-61/P-63/P-63A/P-63B/P-63C

E N G I N E B R A K E S

Parts Manual



Application: Detroit Diesel Series 60®

PACBRAKE®
ENGINE BRAKES

Questions

THIS MIGHT ANSWER IT

How are engine brake kits for the Detroit Series 60® engine ordered?

With Pacbrake applications on Series 60® engines you need to order two separate part numbers; one for a base kit and one for a control group.

- if 11.1L order base kit, part no. P61001
- if 12.7L order base kit, part no. P63008
- if DDEC II order control group P60150
- if DDEC III or IV order control group P60155

How can you tell the difference between P-63 & P-63A, B & C?

Externally P-63A, B & C are labeled with a metal tag on each cast housing assembly. P-63 has no metal tag.

Internally the following characteristics are unique to each brake housing:

P-63	P-63A	P-63B	P-63C
Orificed small ¹ inner slave piston	Orificed large ² inner slave piston	Orificed large ² inner slave piston	Solid large ² inner slave piston
Solid small ¹ outer slave piston	Solid large ² outer slave piston	Solid large outer ² slave piston	Solid large ² outer slave piston
Ball check master piston	Ball check master piston	Orifice master piston	Orifice master piston
Single bridge spring	Single bridge spring	Single bridge spring	Double bridge spring
Three (3) accumulator springs	Single accumulator spring ⁵	Double accumulator springs	Single accumulator spring
Two (2) control valve springs	Single control valve spring ⁵	Single control valve spring	Single control valve spring
Red Paclash adjusting screw ³	Red Paclash adjusting screw ³	Red Paclash adjusting screw ³	Natural Paclash adjusting screw ⁴

- 1) Small piston diameter is 0.750"
- 2) Large piston diameter is 0.875"
- 3) Paclash piston protrusion is 0.114" (red)
- 4) Paclash piston protrusion is 0.025" (natural)
- 5) Initial production used both multiple and single springs. See parts page for serial number reference.

Why the differences?

• The evolution of the Pacbrake for the Detroit Series 60 is directly related to engine changes and technological advancements of the brake's engineering. In 1998 Pacbrake changed the accumulator and control valve springs to facilitate ease of servicing. The change to single springs did not improve performance and was therefore not subject to campaign. In addition to the spring change, again in 1998, Pacbrake made a change in the slave piston dimensions that resulted in reduced housing pressures, which offered lower cam loading thereby reducing wear and tear on the engine. These changes required the generation of the P-63A engine brake. The close of '98 saw Detroit change the Series 60, which required more changes to the Pacbrake engine brake. The initial change required minor changes to the accumulator springs and the master piston was redesigned to an orifice piston (P-63 & P-63A have a ball check master piston) thus the P-63B came to be. At the same time Detroit launched their Premium engine which utilized oil cooled pistons. This additional oil utilization reduced the engine base oil pressure, which demanded a second reconfiguration of the Pacbrake. Hence the P-63C was launched.

How can you tell the difference between P-61 and P-63 brakes?

• The main difference between the older model brakes would be the color of the Paclash adjusting screws. P-61 only uses GREEN (P60122) adjusting screws. The P-63 used primarily a RED screw, however, some units contained a YELLOW screw (for more details and serial number info, refer to P-63 parts page). Because of the similarity of P-61 and P-63, for a period of time, the P-61 housing displayed a P-63 serial tag but contained GREEN adjusting screws (serial no. 027600 - 030187). As of March 30, 1998 all P-61 housings are using a serial tag marked accordingly, starting from serial no. 001000.



Base Kits

P - 61 - P 61001

Item	Part No.	Description	Qty./Kit
1	P60010	Housing assembly	3
2	P60023	Spacer bar	2
3	P60050	Attaching group	1

P - 63 - P 63000

No longer available. Use P-63A base kit P63008 as a replacement.

P - 63 A

No longer available.

P - 63 B

No longer available.

P - 63 C - P 63008

Item	Part No.	Description	Qty./Kit
1	P60006	Housing assembly	3
2	P60023	Spacer bar	2
3	P60050	Attaching group	1

Control Groups

P - 61/P - 63 C

DDEC II - P 60150

Item	Part No.	Description	Qty./Grp.
1	P02970	H-M-L switch assy.	1
2	P01304	On-off switch	1
3	P01305	On-off switch plate	1
4	P01495	Clutch switch assy.	1
5	P60045	Relay	1
6	P60100	Screw	1
7	P01300	Fuse harness	1
8	P60014	Plastic tie	12
9	P60046	DDEC Harness	1
10	P60047	Thru-head harness	1
11	P60048	Under-cover harness	1
12	P64206	Solenoid terminal	3

P - 61/P - 63 C

DDEC III, IV - P 60155

Item	Part No.	Description	Qty./Grp.
1	P02970	H-M-L switch assy.	1
2	P01304	On-off switch	1
3	P01305	On-off switch plate	1
4	P60014	Plastic tie	12
5	P60048	Under-cover harness	1
6	P60049	Jumper wire	1
7	P60063	Thru-head harness	1
8	P64206	Solenoid terminal	3
9	M8069	Push-on terminal	3

Most vehicles with DDEC III or DDEC IV are prewired at the VOEM plant. If the vehicle is not prewired contact the appropriate VOEM for the cab harness.

Attaching Group

P - 61/P - 63 C - P 60050

Item	Part No.	Description	Qty./Group
1	P60021	Capscrew	9
2	P60022	Washer	9

Option Items

P - 61/P - 63 C

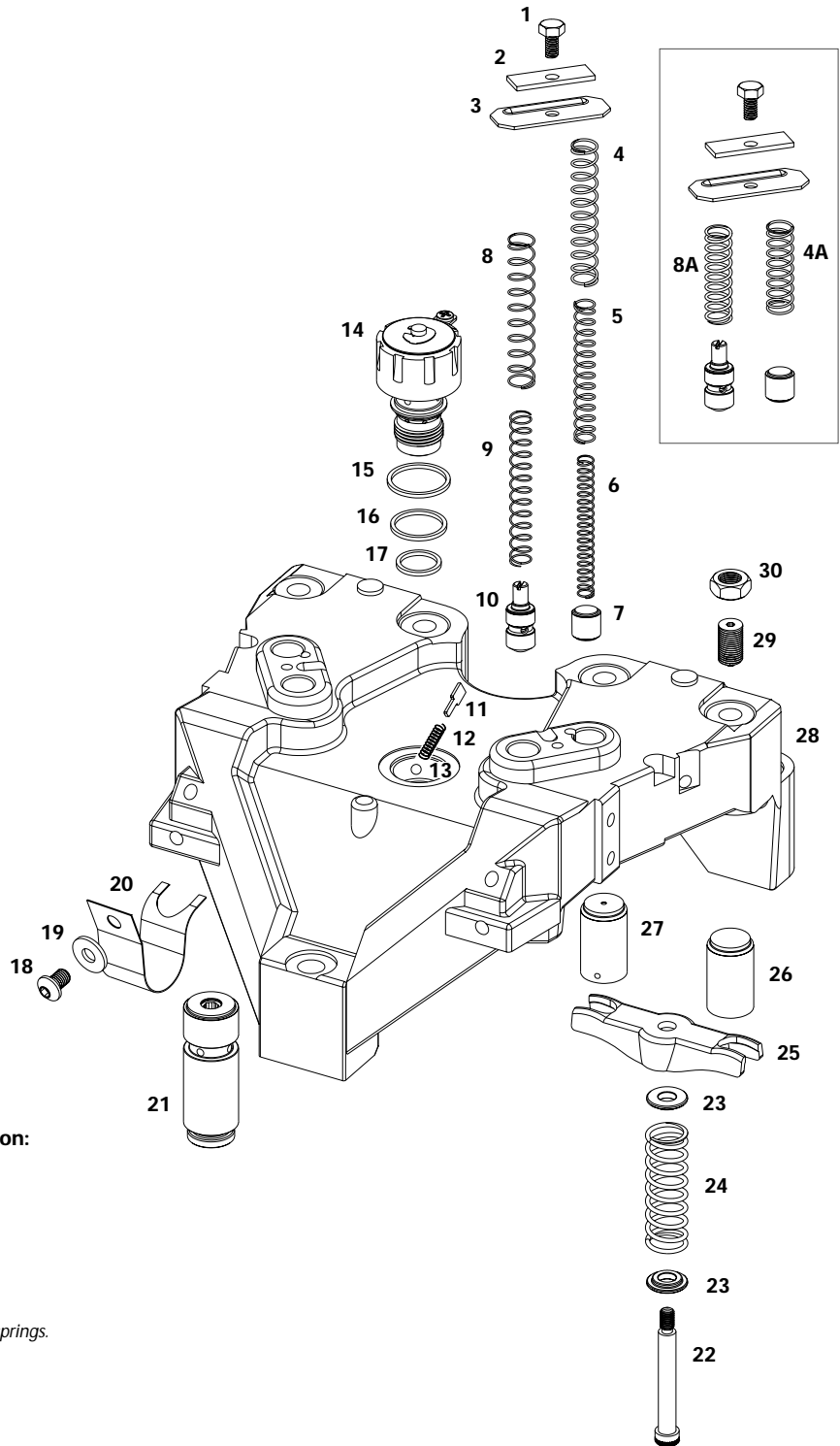
Item	Part No.	Description	Quantity
1	P12261T	Clutch switch assembly	1
2	P11494	Solenoid wrench	1
3	P60085	C.O.E. extension harness	1

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Housing Parts

P - 61 ENGINE BRAKE

Item	Part No.	Description	Qty./Hsg.
1	P01492	Capscrew	2
2	P60019	Spring plate	2
3	P34650	Control valve cover	2
4	P60036	Outer accumulator spring	2
4A	P60054	Accumulator spring*	2
5	P60037	Center accumulator spring	2
6	P60038	Outer accumulator spring	2
7	P60060	Accumulator piston	2
8	P60033	Outer control valve spring	2
8A	P60053	Control valve spring*	2
9	P60032	Inner control valve spring	2
10	P01500	Control valve (2 holes)	2
11	P60042	Ball check retainer	1
12	P60041	Ball check spring	1
13	P60039	Ball check	1
14	P04205	Solenoid	1
15	P01081	Upper solenoid seal	1
16	P01082	Center solenoid seal	1
17	P01083	Lower solenoid seal	1
18	P03795	Button head screw	2
19	P38015	Washer	2
20	P60013	Master piston spring	2
21	P60016	Master piston assembly	2
22	P60079	Socket head screw	2
23	P60080	Stepped washer	4
24	P60030	Bridge spring	2
25	P60070	Slave piston bridge	2
26	P05612	Outer slave piston	2
27	P60008	Inner slave piston	2
28	NA	Bare housing	
29	P60122	Paclash screw (11.1L)(green)	4
30	P09355	Nut	4
Ni	P60010	Complete Hsg. Assy. (per brake)	3
Ni	P60101	Complete Tune-up Kit (sold separate)	



*P-61 accumulator/control valve spring information:

SERIAL NO.	CONFIGURATION
40397 - 41295	single spring (4A, 8A)
027600 - 028327	multi spring (4, 5, 6, 8, 9)
028328 - 030187	single spring (4A, 8A)
001000 - above	single spring (4A, 8A)

CAUTION: Do not mix single and multi springs in housings. When service is required single springs should be used to replace multi springs.

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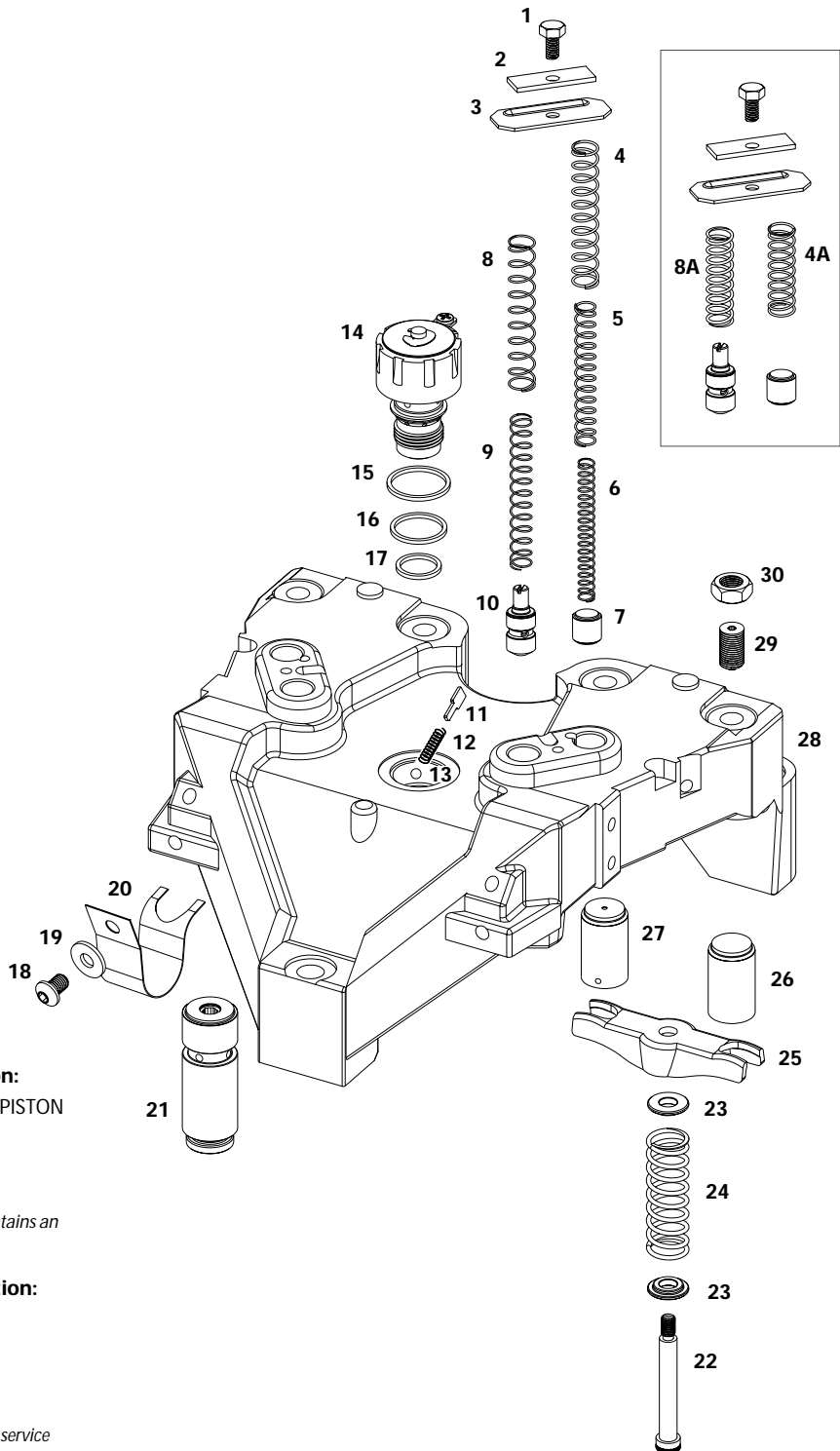
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Canada: 19594 - 96 Ave, Surrey, BC V4N 4C3 • USA: P.O. Box 1822, 250 H St, Blaine, WA 98231-1822

Housing Parts

P - 63 ENGINE BRAKE

Item	Part No.	Description	Qty./Hsg.
1	P01492	Capscrew	2
2	P60019	Spring plate	2
3	P34650	Control valve cover	2
4	P60036	Outer accumulator spring	2
4A	P60054	Accumulator spring**	2
5	P60037	Center accumulator spring	2
6	P60038	Outer accumulator spring	2
7	P60060	Accumulator piston	2
8	P60033	Outer control valve spring	2
8A	P60053	Control valve spring**	2
9	P60032	Inner control valve spring	2
10	P01500	Control valve (2 holes)	2
11	P60042	Ball check retainer	1
12	P60041	Ball check spring	1
13	P60039	Ball check	1
14	P04205	Solenoid	1
15	P01081	Upper solenoid seal	1
16	P01082	Center solenoid seal	1
17	P01083	Lower solenoid seal	1
18	P03795	Button head screw	2
19	P38015	Washer	2
20	P60013	Master piston spring	2
21	P60016	Master piston assembly*	2
22	P60079	Socket head screw	2
23	P60080	Stepped washer	4
24	P60030	Bridge spring	2
25	P60070	Slave piston bridge	2
26	P05612	Outer slave piston	2
27	P60008	Inner slave piston	2
28	NA	Bare housing	
29	P40072	Paclash screw (12.7L)*(red)	4
30	P09355	Nut	4
Ni	P60005	Complete Hsg. Assy. (per brake)	3
Ni	P60101	Complete Tune-up Kit (sold separate)	



*P-63 Paclash screw and master piston information:

SERIAL NO.	PACLASH SCREW	MASTER PISTON
Prior to 12693	P60120 (yellow)	P60016
12693 – 14111	P40072 (red)	P60020
After 14111	P40072 (red)	P60016

CAUTION: P60016 piston contains a ballcheck. P60020 piston contains an orifice. DO NOT intermix these pistons in the housings.

**P-63 accumulator/control valve spring information:

SERIAL NO.	CONFIGURATION
40397 – 41295	single spring (4A, 8A)
027600 – 028327	multi spring (4, 5, 6, 8, 9)
028328 – above	single spring (4A, 8A)

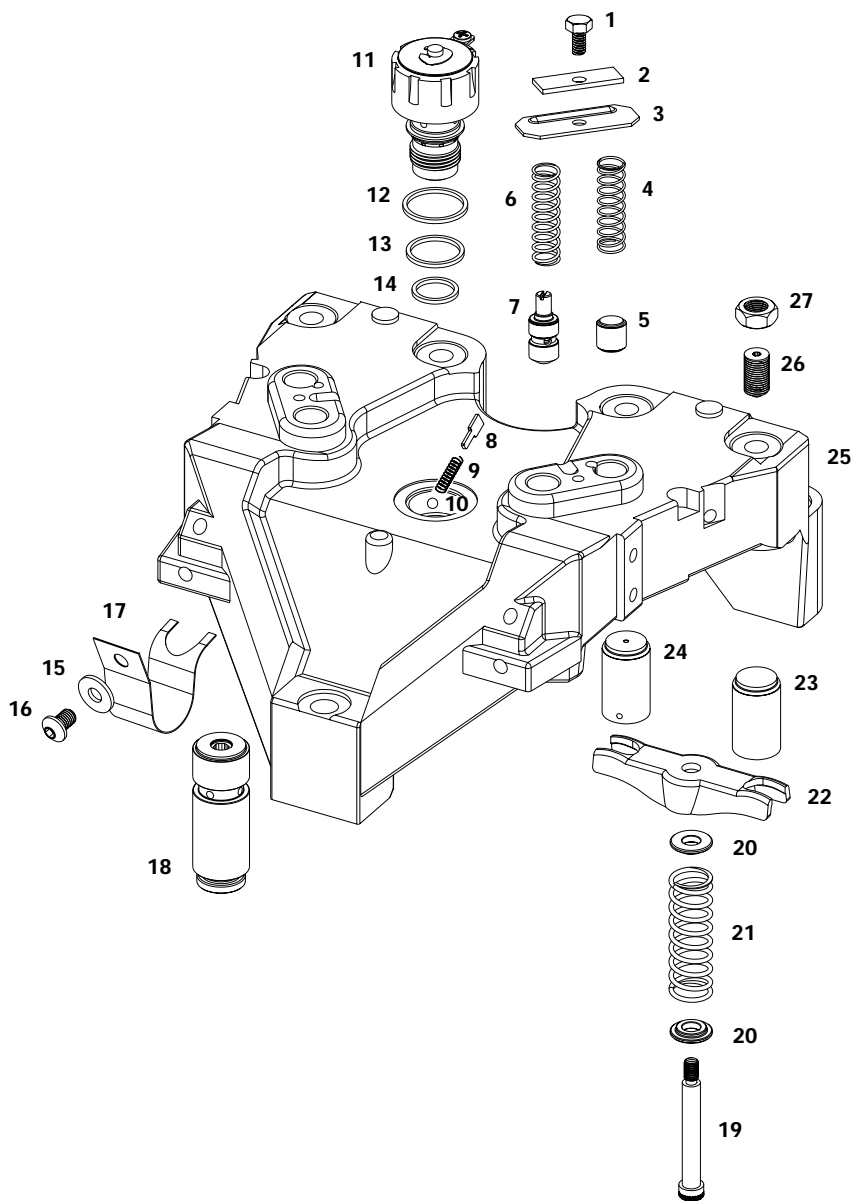
CAUTION: Do not mix single and multi springs in housings. When service is required single springs should be used to replace multi springs.

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Housing Parts

P - 6 3 A ENGINE BRAKE

Item	Part No.	Description	Qty./Hsg.
1	P01492	Capscrew	2
2	P60019	Spring plate	2
3	P34650	Control valve cover	2
4	P60054	Accumulator spring	2
5	P60060	Accumulator piston	2
6	P60053	C.V. spring (blue)	2
7	P01500	Control valve (2 holes)	2
8	P60042	Ball check retainer	1
9	P60041	Ball check spring	1
10	P60039	Ball check	1
11	P04205	Solenoid	1
12	P01081	Upper solenoid seal	1
13	P01082	Center solenoid seal	1
14	P01083	Lower solenoid seal	1
15	P38015	Spring washer	2
16	P03795	Button head screw	2
17	P60013	Master piston spring	2
18	P60031	Master piston assembly	2
19	P60079	Socket head screw	2
20	P60080	Stepped washer	4
21	P60030	Bridge spring	2
22	P60070	Slave piston bridge	2
23	P60004	Outer slave piston	2
24	P60029	Inner slave piston	2
25	NA	Bare housing	
26	P40072	Paclash screw (12.7L) (red)	4
27	P09355	Nut	4
Ni	P60007	Complete Hsg. Assy. (per brake)	3
Ni	P60101	Complete Tune-up Kit (sold separate)	



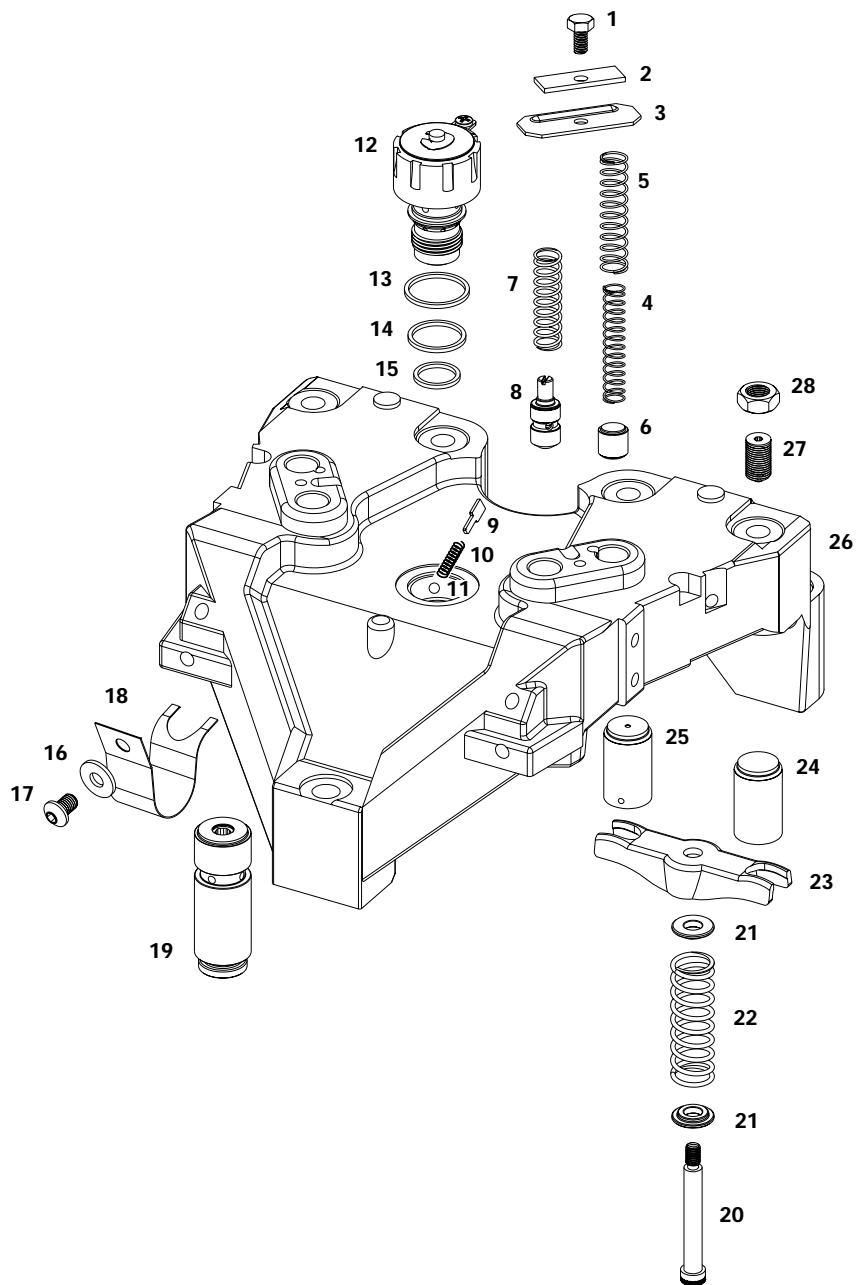
NOTE: Not all P-63A brakes had single control valve and accumulator springs. Two batches of field trial housings were released with single springs before the final release. In between these field trials, production of multiple spring housings was continued.

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Housing Parts

P - 6 3 B ENGINE BRAKE

Item	Part No.	Description	Qty./Hsg.
1	P01492	Capscrew	2
2	P60019	Spring plate	2
3	P34650	Control valve cover	2
4	P60059	Inner accumulator spring (yel)	2
5	P60061	Outer accumulator spring (red)	2
6	P60060	Accumulator piston	2
7	P60053	C.V. spring (blue)	2
8	P01500	Control valve (2 holes)	2
9	P60042	Ball check retainer	1
10	P60041	Ball check spring	1
11	P60039	Ball check	1
12	P04205	Solenoid	1
13	P01081	Upper solenoid seal	1
14	P01082	Center solenoid seal	1
15	P01083	Lower solenoid seal	1
16	P38015	Spring washer	2
17	P03795	Button head screw	2
18	P60013	Master piston spring	2
19	P60064	Master piston assembly orficed	2
20	P60079	Socket head screw	2
21	P60080	Stepped washer	4
22	P60030	Bridge spring	2
23	P60070	Slave piston bridge	2
24	P60004	Outer slave piston	2
25	P60029	Inner slave piston	2
26	NA	Bare housing	
27	P40072	Paclash screw (12.7L) (red)	4
28	P09355	Nut	4
Ni	P60009	Complete Hsg. Assy. (per brake)	3
Ni	-----	Complete Tune-up Kit (not available at time of printing, please contact Pacbrake Co.)	

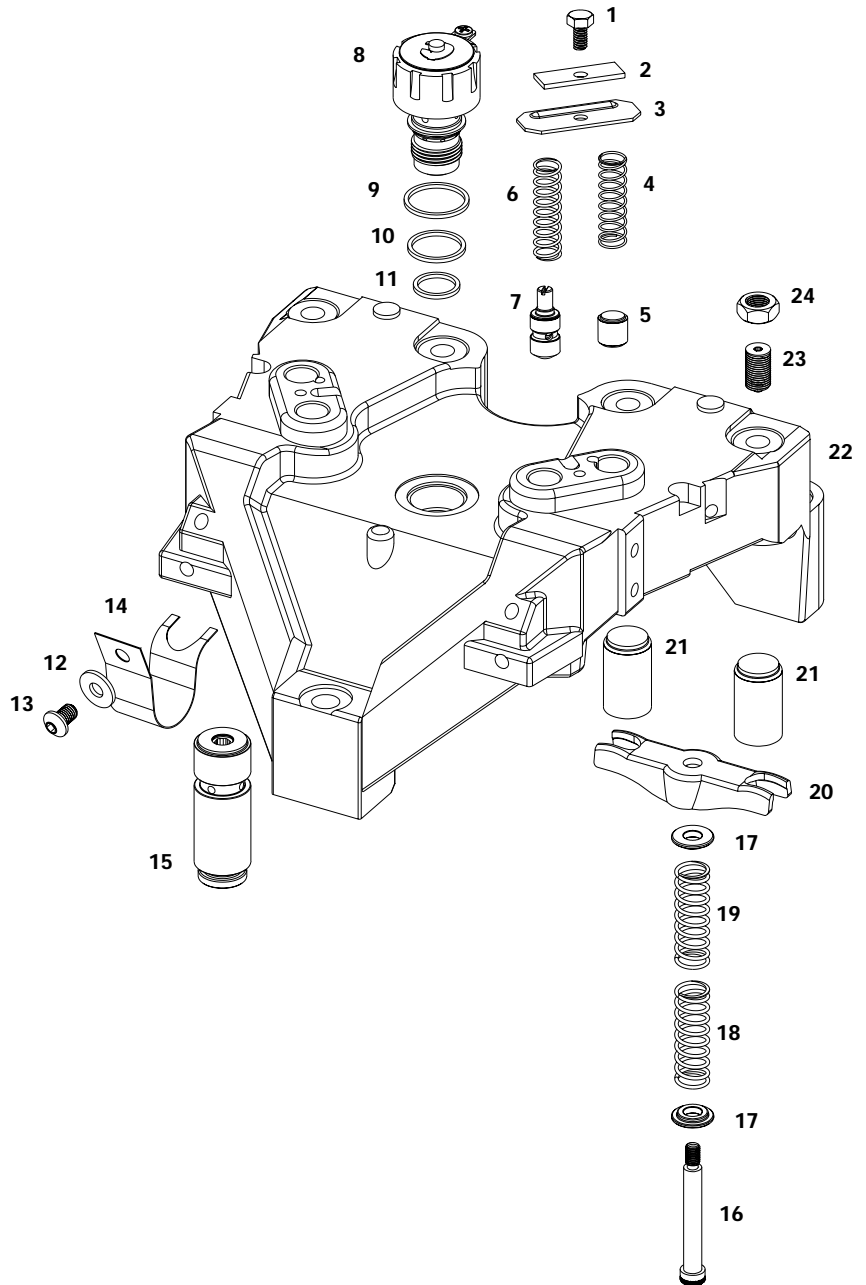


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Housing Parts

P - 6 3 C ENGINE BRAKE

Item	Part No.	Description	Qty./Hsg.
1	P01492	Capscrew	2
2	P60019	Spring plate	2
3	P34650	Control valve cover	2
4	P60061	Accumulator spring (red)	2
5	P60060	Accumulator piston	2
6	P60053	C.V. spring (blue)	2
7	P01500	Control valve (2 holes)	2
8	P04205	Solenoid	1
9	P01081	Upper solenoid seal	1
10	P01082	Center solenoid seal	1
11	P01083	Lower solenoid seal	1
12	P38015	Spring washer	2
13	P03795	Button head screw	2
14	P60013	Master piston spring	2
15	P60064	Master piston assembly	2
16	P60079	Socket head screw	2
17	P60086	Stepped washer	4
18	P60057	Inner bridge spring	2
19	P60058	Outer bridge spring	2
20	P60070	Slave piston bridge	2
21	P60004	Slave piston	4
22	NA	Bare housing	
23	P60073	Paclash screw (12.7L) (natural)	4
24	P09355	Nut	4
Ni	P60006	Complete Hsg. Assy. (per brake)	3
Ni	-----	Complete Tune-up Kit (not available at time of printing, please contact Pacbrake Co.)	



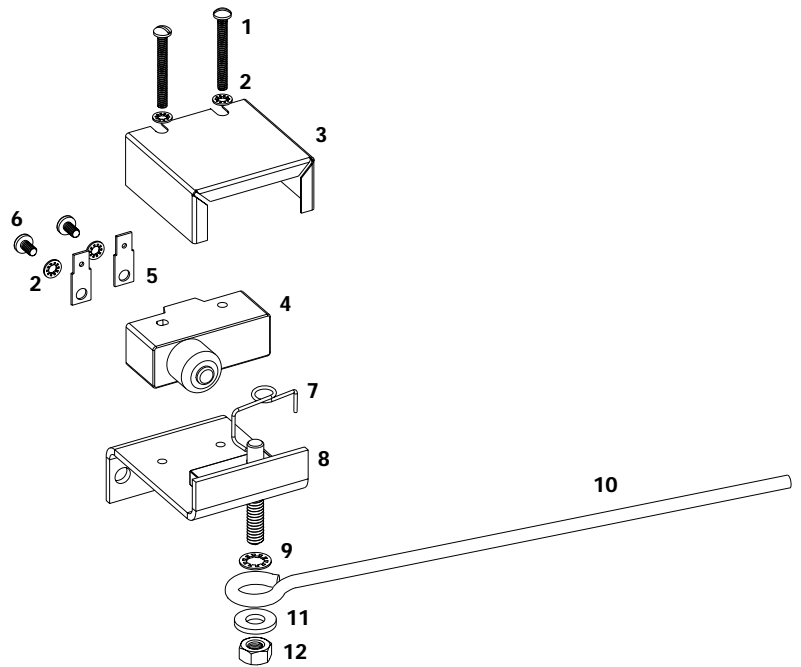
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Switch Parts

P - 6 1 / P - 6 3 C - P 0 1 4 9 5

Item	Part No.	Description	Qty./Assy.
1	P01244	Self-tapping screw	2
2	P01559	Lock washer	4
3	P01506	Switch cover	1
4	P01218	Switch	1
5	P01040	Terminal	2
6	P01558	Binder screw	2
7	P01497	Switch spring	1
8	P02198	Bracket assembly	1
9	P02191	Tooth washer	1
10	P02183	Actuating rod	1
11	P02190	Flat washer	1
12	P02186	Nut	1

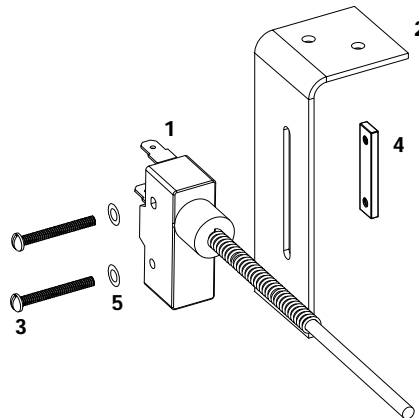
NOTE: P01495 is the standard switch shipped with Pacbrake control groups.



P - 6 1 / P - 6 3 C - P 1 2 2 6 1 T

Item	Part No.	Description	Qty./Assy.
1	P12246T	Wobble switch	1
2	P12269	Mounting bracket	1
3	P02744	Machine screw	2
4	P01531	Switch clamp	1
5	P01538	Washer	2

NOTE: P12261T is an optional item that must be ordered separately.



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