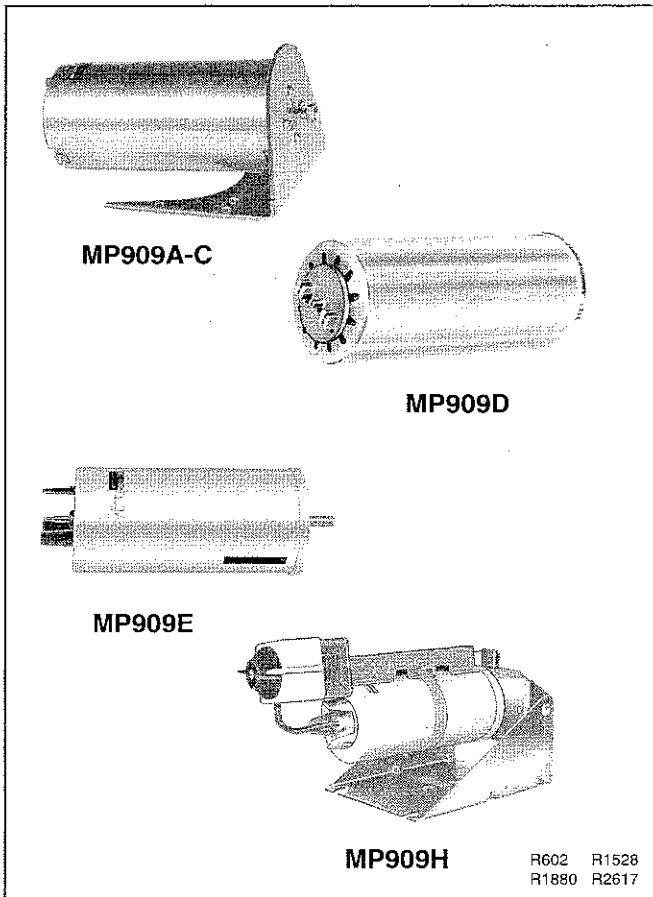


MP909A-E and H Pneumatic Damper Actuators

SERVICE DATA



MP909D models replace most MP909A models and MP909E models replace most MP909B models. The MP918B replaces MP909C models.

APPLICATION

These actuators are used for proportional control of variable-volume terminal units, mixing boxes, and small- to medium-sized dampers. Figure 1 shows a typical damper control application.

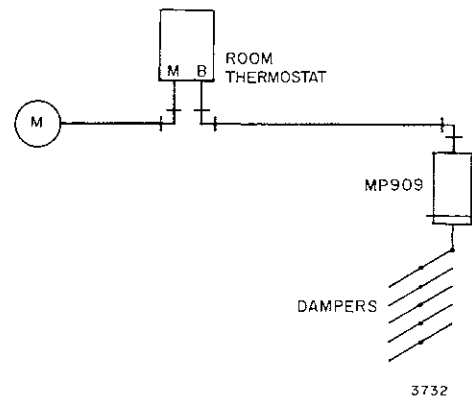


Fig. 1. Typical MP909 Damper Control Application.

GENERAL

The MP909 Pneumatic Damper Actuators are rolling diaphragm, piston-type pneumatic damper actuators. MP909A, B, and C Actuators were manufactured with steel housings and in many stroke length and spring range combinations. They were packaged with many different mounting brackets and associated hardware. The MP909D and E are manufactured with aluminum alloy housings and in only two stroke lengths and four spring ranges. The MP909H is an MP909E with a positive positioner providing adjustable start point and 3, 5, or 10 psi (20, 35, or 70 kPa) span (operating range). An MP909E with a 5 to 10 psi (34 to 69 kPa) spring range can be converted to an equivalent MP909H by adding the MP909E Positive Positioner Retrofit Kit (see PARTS AND ACCESSORIES).

SPECIFICATIONS

Spring Range or Span:
See Table 1

Stroke:
See Table 1

Effective Diaphragm Area:
MP909A: 2.75 in²
MP909B: 6.5 in²
MP909C: 10.0 in²
MP909D: 3.0 in²
MP909E: 6.6 in²
MP909H: 6.6 in²

Maximum Safe Air Pressure:
MP909A-C: 25 psi (172 kPa)
MP909D: 30 psi (207 kPa)
MP909E, H: 29 psi (200 kPa)

Ambient Temperature:
MP909A-C, E & H: -20 to 160F (-29 to 71C)
MP909D: 50 to 140F (10 to 60C)

Damper Load Ratings:
See Tables 2 and 3. Damper load ratings for Honeywell Moduflow Dampers are figured by totaling the "B" dimension (Fig. 2) of all damper sections.

NOTE: This rating does not apply to D640SD, D641SD, D644SD, and D645SD Leakage Rated (Smoke) Dampers. These dampers require specific actuators per section. See D640SD, D641SD Moduflow Smoke Dampers 77-5129 and D644SD, D645SD Moduflow Low Leakage Smoke Dampers 77-5140 for model numbers.

Table 1. MP909 Spring Range/Span, Model Number, and Stroke.

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
A1009	5 to 10 (35 to 70)	3.5 (89)	*	—
A1017	2 to 7 (15 to 50)	2.5 (64)	G	3/8 - 16
A1025	7 to 13 (50 to 90)	2.5 (64)	G	3/8 - 16
A1033	5 to 10 (35 to 70)	2.5 (64)	G	3/8 - 16
A1041	3 to 13 (20 to 90)	3.5 (89)	J	3/8 - 16
A1058	5 to 10 (35 to 70)	3.5 (89)	*	—
A1066	2 to 7 (15 to 50)	3.5 (89)	A	—
A1074	7 to 13 (50 to 90)	3.5 (89)	A	—
A1082	5 to 10 (35 to 70)	3.5 (89)	A	—
A1090	5 to 10 (35 to 70)	3.5 (89)	A	—
A1108	5 to 10 (35 to 70)	3.5 (89)	A	—
A1116	2 to 7 (15 to 50)	3.5 (89)	A	—
A1124	7 to 13 (50 to 90)	3.5 (89)	A	—
A1132	2 to 7 (15 to 50)	2.5 (64)	J	—
A1140	5 to 10 (35 to 70)	1.0 (25)	E	1/4 - 28
A1157	13 to 21 (95 to 125)	1.0 (25)	E	1/4 - 28
A1165	5 to 10 (35 to 70)	2.5 (64)	K	—
A1173	2 to 7 (15 to 50)	2.5 (64)	C	—
A1181	7 to 13 (50 to 90)	2.5 (64)	C	—
A1199	5 to 10 (35 to 70)	2.5 (64)	C	—
A1207	2 to 7 (15 to 50)	3.5 (89)	C	—
A1215	7 to 13 (50 to 90)	3.5 (89)	C	—
A1223	5 to 10 (35 to 70)	3.5 (89)	C	—
A1231	2 to 7 (15 to 50)	2.5 (64)	H	—
A1249	7 to 13 (50 to 90)	2.5 (64)	H	—
A1256	5 to 10 (35 to 70)	2.5 (64)	H	—
A1264	2 to 7 (15 to 50)	3.5 (89)	*	—
A1272	7 to 13 (50 to 90)	3.5 (89)	*	—
A1280	7 to 13 (50 to 90)	2.5 (64)	*	—
A1298	5 to 10 (35 to 70)	3.0 (76)	*	—

* Sales Special
† Made in Canada

Table 1. MP909 Spring Range/Span, Model Number, and Stroke (Continued).

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
A1306	5 to 10 (35 to 70)	1.0 (25)	J	1/4 - 28
A1314	5 to 10 (35 to 70)	1.0 (25)	J	1/4 - 28
A1322	7 to 13 (50 to 90)	1.35 to 2.2 (34 to 56)	A	—
A1330	5 to 10 (35 to 70)	3.5 (89)	*	—
A1355	2 to 7 (15 to 50)	1.0 (25)	B	1/4 - 28
A1363	7 to 13 (50 to 90)	1.0 (25)	B	1/4 - 28
A1413	7 to 13 (50 to 90)	2.5 (64)	A	—
A1421	7 to 13 (50 to 90)	1.0 (25)	*	—
A1454	2 to 7 (15 to 50)	2.5 (64)	A	—
A1462	7 to 13 (50 to 90)	2.5 (64)	A	—
A1470	10 to 15 (70 to 105)	1.75 (44)	C	—
A1488	10 to 15 (70 to 105)	2.0 (50)	C	—
A1496	2 to 7 (15 to 50)	1.5 (38)	B	1/4 - 28
A1504	7 to 13 (50 to 90)	1.5 (38)	B	1/4 - 28
A1512	10 to 15 (70 to 105)	1.0 (25)	A	1/4 - 28
A1520	10 to 15 (70 to 105)	1.5 to 2.0 (38 to 50)	J	—
A1538	7 to 13 (50 to 90)	3.5 (89)	A	—
A1603	5 to 10 (35 to 70)	1.0 (25)	C	1/4 - 28
A1611	5 to 10 (35 to 70)	1.75 (44)	C	—
A1629	5 to 10 (35 to 70)	2.0 (50)	C	—
A1637	5 to 10 (35 to 70)	3.5 (89)	J	—
A1645	3 to 13 (20 to 90)	3.5 (89)	J	—
A1652	2 to 7 (15 to 50)	3.5 (89)	J	—
A1660	7 to 13 (50 to 90)	3.5 (89)	J	—
A1678	5 to 10 (35 to 70)	1.0 (25)	A	1/4 - 28
A1686	7 to 13 (50 to 90)	2.5 (64)	A	—
A1694	7 to 13 (50 to 90)	1.35 to 2.2 (34 to 56)	C	—
A1702	7 to 13 (50 to 90)	2.5 (64)	A	—
A1710	5 to 10 (35 to 70)	2.5 (64)	A	—
A1728	3 to 13 (20 to 90)	3.5 (89)	A	—
B1007	3 to 13 (20 to 90)	3.5 (89)	J	—
B1015	5 to 10 (35 to 70)	4.0 (102)	*	—
B1023	5 to 10 (35 to 70)	4.0 (102)	*	—
B1031	2 to 7 (15 to 50)	4.0 (102)	A	—
B1049	7 to 13 (50 to 90)	4.0 (102)	A	—
B1056	5 to 10 (35 to 70)	4.0 (102)	A	—
B1064	5 to 10 (35 to 70)	4.0 (102)	*	—
B1072	5 to 10 (35 to 70)	4.0 (102)	A	—
B1080	2 to 7 (15 to 50)	4.0 (102)	A	—
B1098	7 to 13 (50 to 90)	4.0 (102)	A	—
B1106	3 to 13 (20 to 90)	3.5 (89)	L	—
B1114	5 to 10 (35 to 70)	4.0 (102)	L	—
B1122	2 to 10 (15 to 70)	3.5 (89)	F	—
B1155	5 to 10 (35 to 70)	2.1 to 3.9 (53 to 99)	C	—
B1163	2 to 7 (15 to 50)	2.1 to 3.9 (53 to 99)	A	—
B1171	7 to 13 (50 to 90)	21 to 3.9 (53 to 99)	A	—
B1189	5 to 10 (35 to 70)	2.1 to 3.9 (53 to 99)	A	—
B1197	2 to 7 (15 to 50)	4.0 (102)	H	—

* Sales Special

† Made in Canada

Table 1. MP909 Spring Range/Span, Model Number, and Stroke (Continued).

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
B1205	7 to 10 (50 to 70)	4.0 (102)	H	—
B1213	5 to 10 (35 to 70)	4.0 (102)	H	—
B1221	2 to 7 (15 to 50)	4.0 (102)	C	—
B1239	7 to 13 (50 to 90)	4.0 (102)	C	—
B1247	5 to 10 (35 to 70)	4.0 (102)	C	—
B1254	5 to 10 (35 to 70)	2.5 (64)	H	—
B1262	5 to 10 (35 to 70)	4.0 (102)	A	—
B1270	3 to 13 (20 to 90)	3.5 (89)	F	—
B1288	7 to 13 (50 to 90)	4.0 (102)	C	—
B1296	7 to 13 (50 to 90)	4.0 (102)	C	—
B1304	2 to 7 (15 to 50)	4.0 (102)	F	—
B1312	7 to 13 (50 to 90)	4.0 (102)	F	—
B1320	2 to 7 (15 to 50)	2.5 (64)	C	—
B1338	11 to 15 (75 to 105)	2.5 (64)	C	—
B1346	2 to 7 (15 to 50)	3.5 (89)	J	—
B1379	5 to 10 (35 to 70)	3.0 (76)	J	—
B1387	2 to 7 (15 to 50)	4.0 (102)	J	—
B1395	7 to 13 (50 to 90)	4.0 (102)	J	—
B1411	2 to 7 (15 to 50)	2.1 to 3.9 (53 to 99)	J	—
B1429	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	J	—
B1452	7 to 13 (50 to 90)	4.0 (102)	A	—
B1460	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	C	—
B1486	2 to 7 (15 to 50)	3.0 (76)	J	—
B1494	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	J	—
B1528	10 to 15 (70 to 105)	3.0 (76)	D	—
B1536	7 to 13 (50 to 90)	1.5 to 3.0 (38 to 76)	M	—
B1569	10 to 15 (70 to 105)	2.1 to 2.9 (53 to 74)	F	—
B1601	2 to 7 (15 to 50)	2.5 (64)	J	—
B1635	5 to 10 (35 to 70)	3.0 (76)	D	—
B1643	5 to 10 (35 to 70)	4.0 (102)	J	—
B1650	3 to 13 (20 to 90)	3.5 (89)	A	—
B1668	7 to 13 (50 to 90)	3.5 (89)	A	—
B1676	5 to 10 (35 to 70)	4.0 (102)	J	—
B1684	3 to 13 (20 to 90)	3.5 (89)	J	—
B1692	2 to 7 (15 to 50)	3.5 (89)	J	—
B1700	7 to 13 (50 to 90)	3.5 (89)	J	—
B1726	7 to 13 (50 to 90)	4.0 (102)	A	—
B1734	3 to 13 (20 to 90)	3.5 (89)	†	—
B1742	3 to 13 (20 to 90)	3.5 (89)	A	—
B1759	2 to 7 (15 to 50)	4.0 (102)	†	—
B1767	7 to 13 (50 to 90)	4.0 (102)	†	—
B1775	3 to 13 (20 to 90)	3.5 (89)	†	—
B1783	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	†	—
B1791	5 to 10 (35 to 70)	2.1 to 3.9 (53 to 99)	†	—
B1809	2 to 7 (15 to 50)	4.0 (102)	†	—
B1817	7 to 13 (50 to 90)	4.0 (102)	†	—

* Sales Special
 † Made in Canada

Table 1. MP909 Spring Range/Span, Model Number, and Stroke (Continued).

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
B1825	7 to 13 (50 to 90)	4.0 (102)	†	—
B1833	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	†	—
B1841	7 to 13 (50 to 90)	2.1 to 3.9 (53 to 99)	†	—
B1866	5 to 10 (35 to 70)	3.0 (76)	†	—
B1874	3 to 13 (20 to 90)	3.5 (89)	†	—
B1882	5 to 10 (35 to 70)	4.0 (102)	†	—
B1890	10 to 15 (70 to 105)	3.0 (76)	J	—
C1005	3 to 13 (20 to 90)	3.5 (89)	A	—
C1013	5 to 10 (35 to 70)	4.0 (102)	*	—
C1021	2 to 7 (15 to 50)	4.0 (102)	A	—
C1039	7 to 13 (50 to 90)	4.0 (102)	A	—
C1047	5 to 10 (35 to 70)	4.0 (102)	A	—
C1054	3 to 13 (20 to 90)	3.5 (89)	J	—
C1062	2 to 7 (15 to 50)	4.0 (102)	H	—
C1070	2 to 13 (15 to 90)	4.0 (102)	H	—
C1088	5 to 10 (35 to 70)	4.0 (102)	H	—
C1096	2 to 7 (15 to 50)	4.0 (102)	A	—
C1104	7 to 13 (50 to 90)	4.0 (102)	A	—
C1120	7 to 13 (50 to 90)	4.0 (102)	C	—
C1138	7 to 13 (50 to 90)	2.0 to 3.9 (50 to 99)	A	—
C1146	5 to 10 (35 to 70)	4.0 (102)	—	—
C1153	5 to 10 (35 to 70)	4.0 (102)	—	—
C1161	2 to 7 (15 to 50)	3.5 (89)	J	—
C1179	7 to 13 (50 to 90)	3.5 (89)	J	—
C1187	7 to 13 (50 to 90)	4.0 (102)	A	—
C1278	7 to 13 (50 to 90)	1.5 to 3.0 (38 to 76)	M	—
C1286	5 to 10 (35 to 70)	4.0 (102)	J	—
C1294	3 to 13 (20 to 90)	3.5 (89)	NONE	—
C1302	7 to 13 (50 to 90)	3.5 (89)	NONE	—
C1310	2 to 7 (15 to 50)	4.0 (102)	M	—
C1328	3 to 13 (20 to 90)	3.5 (89)	J	—
C1336	2 to 7 (15 to 50)	3.5 (89)	J	—
C1344	7 to 13 (50 to 90)	3.5 (89)	J	—
C1369	10 to 15 (70 to 105)	4.0 (102)	A	—
C1377	3 to 13 (20 to 90)	3.5 (89)	NONE	—
C1385	5 to 10 (35 to 70)	4.0 (102)	A	—
D1003	5 to 10 (35 to 70)	4.0 (102)	—	—
D1011	5 to 10 (35 to 70)	4.0 (102)	—	—
D1029	5 to 10 (35 to 70)	4.0 (102)	—	—
D1037	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1045	8 to 13 (55 to 90)	2-3/8 (60)	NONE	3/8 - 16
D1052	5 to 10 (35 to 70)	2-3/8 (60)	NONE	3/8 - 16
D1060	3 to 8 (20 to 55)	2-3/8 (60)	NONE	1/4 - 28 tap
D1078	8 to 13 (55 to 90)	2-3/8 (60)	NONE	1/4 - 28 tap
D1086	5 to 10 (35 to 70)	2-3/8 (60)	NONE	1/4 - 28 tap
D1094	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1102	8 to 13 (55 to 90)	2-3/8 (60)	NONE	3/8 - 16
D1110	5 to 10 (35 to 70)	2-3/8 (60)	J	3/8 - 16
D1128	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1136	8 to 13 (55 to 90)	2-3/8 (60)	C	3/8 - 16
D1144	5 to 10 (35 to 70)	2-3/8 (60)	C	3/8 - 16
D1151	3 to 8 (20 to 55)	2-3/8 (60)	J	3/8 - 16

* Sales Special
† Made in Canada

Table 1. MP909 Spring Range/Span, Model Number, and Stroke (Continued).

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
D1169	8 to 13 (55 to 90)	2-3/8 (60)	J	3/8 - 16
D1177	5 to 10 (35 to 70)	2-3/8 (60)	C	3/8 - 16
D1185	3 to 8 (20 to 55)	2-3/8 (60)	J	3/8 - 16
D1193	5 to 10 (35 to 70)	3.0 (76)	NONE	3/8 - 16
D1201	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1219	8 to 13 (55 to 90)	2-3/8 (60)	NONE	3/8 - 16
D1227	5 to 10 (35 to 70)	2-3/8 (60)	NONE	3/8 - 16
D1235	3 to 8 (20 to 55)	2-3/8 (60)	NONE	1/4 - 28 tap
D1243	8 to 13 (55 to 90)	2-3/8 (60)	NONE	1/4 - 28 tap
D1250	5 to 10 (35 to 70)	2-3/8 (60)	NONE	1/4 - 28 tap
D1268	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1276	8 to 13 (55 to 90)	2-3/8 (60)	NONE	3/8 - 16
D1284	8 to 13 (55 to 90)	2-3/8 (60)	C	3/8 - 16
D1292	5 to 10 (35 to 70)	2-3/8 (60)	C	3/8 - 16
D1300	3 to 8 (20 to 55)	2-3/8 (60)	J	3/8 - 16
D1318	8 to 13 (55 to 90)	2-3/8 (60)	J	3/8 - 16
D1326	5 to 10 (35 to 70)	2-3/8 (60)	C	3/8 - 16
D1334	5 to 10 (35 to 70)	2-3/8 (60)	J	3/8 - 16
D1342	5 to 10 (35 to 70)	2-3/8 (60)	C	3/8 - 16
D1359	3 to 8 (20 to 55)	2-3/8 (60)	J	3/8 - 16
D1367	5 to 10 (35 to 70)	3.0 (76)	NONE	3/8 - 16
D1375	5 to 10 (35 to 70)	3.0 (76)	NONE	3/8 - 16
D1383	8 to 13 (55 to 90)	2-3/8 (60)	J	3/8 - 16
D1391	5 to 10 (35 to 70)	2-3/8 (60)	NONE	3/8 - 16
D1409	8 to 13 (55 to 90)	2-3/8 (60)	NONE	3/8 - 16
D1417	5 to 10 (35 to 70)	3.0 (76)	NONE	3/8 - 16
D1433	3 to 8 (20 to 55)	2-3/8 (60)	NONE	3/8 - 16
D1441	5 to 10 (35 to 70)	3.0 (76)	U	#8 - 32 tap
D1458	3 to 8 (20 to 55)	2-3/8 (60)	U	#8 - 32 tap
D1466	8 to 13 (55 to 90)	2-3/8 (60)	U	#8 - 32 tap
D1474	5 to 10 (35 to 70)	2-3/8 (60)	U	#8 - 32 tap
D1490	3 to 6 (21 to 42)	2.36 (60)	A	3/8 - 32 tap
E1000	3 to 13 (20 to 90)	4.0 (102)	J	3/8 - 32 tap
E1018	3 to 13 (20 to 90)	4.0 (102)	J	3/8 - 16
E1026	3 to 13 (20 to 90)	4.0 (102)	A	3/8 - 16
E1034	5 to 10 (35 to 70)	4.0 (102)	J	3/8 - 16
E1042	5 to 10 (35 to 70)	4.0 (102)	A	3/8 - 16
E1059	5 to 10 (35 to 70)	2.1 to 3.4 (53 to 86)	A	3/8 - 16
E1067	5 to 10 (35 to 70)	2.1 to 3.4 (53 to 86)	C	3/8 - 16
E1075	2.5 to 6.5 (17 to 45)	3.1 (79)	J	3/8 - 16
E1083	2.5 to 6.5 (17 to 45)	3.1 (79)	J	3/8 - 16
E1091	2.5 to 6.5 (17 to 45)	3.1 (79)	A	3/8 - 16
E1109	2.5 to 6.5 (17 to 45)	2.1 to 3.1 (53 to 79)	A	3/8 - 16
E1117	2.5 to 6.5 (17 to 45)	2.1 to 3.1 (53 to 79)	J	3/8 - 16
E1125	2.5 to 6.5 (17 to 45)	2.1 to 3.1 (53 to 79)	J	3/8 - 16
E1133	9 to 13 (62 to 90)	3.1 (79)	J	3/8 - 16
E1158	9 to 13 (62 to 90)	3.1 (79)	A	3/8 - 16
E1166	9 to 13 (62 to 90)	3.1 (79)	A	3/8 - 16
E1174	9 to 13 (62 to 90)	3.1 (79)	J	3/8 - 16

* Sales Special
 † Made in Canada

Table 1. MP909 Spring Range/Span, Model Number, and Stroke (Continued).

MP909 Model No.	Spring Range psi (kPa)	Stroke in. (mm)	Fig. 10 Detail	Shaft Thread
E1182	9 to 13 (62 to 90)	3.1 (79)	C	3/8 - 16
E1190	9 to 13 (62 to 90)	2.1 to 3.1 (53 to 79)	C	3/8 - 16
E1208	9 to 13 (62 to 90)	2.1 to 3.1 (53 to 79)	J	3/8 - 16
E1216	9 to 13 (62 to 90)	2.1 to 3.1 (53 to 79)	A	3/8 - 16
E1232	5 to 10 (35 to 70)	4.0 (102)	NONE	3/8 - 16
E1240	5 to 10 (35 to 70)	3.1 (79)	A	3/8 - 16
E1257	2.5 to 6.5 (17 to 45)	3.1 (79)	A	3/8 - 16
E1265	5 to 10 (35 to 70)	4.0 (102)	J	3/8 - 16
E1273	3 to 13 (20 to 90)	4.0 (102)	J	3/8 - 16
E1349	3 to 13 (20 to 90)	4.0 (102)	R	3/8 - 16
E1356	3 to 13 (20 to 90)	4.0 (102)	P	3/8 - 16
E1364	5 to 10 (35 to 70)	4.0 (102)	P	3/8 - 16
E1372	2.5 to 6.5 (17 to 45)	3.1 (79)	P	3/8 - 16
E1380	9 to 13 (62 to 90)	3.1 (79)	P	3/8 - 16
E1398	9 to 13 (62 to 90)	3.1 (79)	R	3/8 - 16
E1406	3 to 13 (20 to 90)	4.0 (102)	N	3/8 - 16
E1414	5 to 10 (35 to 70)	4.0 (102)	R	3/8 - 16
E1422	5 to 10 (35 to 70)	4.0 (102)	N	3/8 - 16
E1430	2.5 to 6.5 (17 to 45)	3.1 (79)	N	3/8 - 16
E1448	3 to 8 (20 to 55)	3.0 (76)	J	3/8 - 16
H1281	3 psi (20 kPa) Span	4.0 (102)	J	3/8 - 16
H1299	5 psi (35 kPa) Span	4.0 (102)	J	3/8 - 16
H1307	10 psi (70 kPa) Span	4.0 (102)	J	3/8 - 16
H1315	3 psi (20 kPa) Span	4.0 (102)	S	3/8 - 16
H1323	5 psi (35 kPa) Span	4.0 (102)	NONE	3/8 - 16
H1331	10 psi (70 kPa) Span	4.0 (102)	S	3/8 - 16
H1343	3 psi (20 kPa) Span	4.0 (102)	P	3/8 - 16
H1350	5 psi (35 kPa) Span	4.0 (102)	P	3/8 - 16
H1368	10 psi (70 kPa) Span	4.0 (102)	P	3/8 - 16
H1376	3 psi (20 kPa) Span	4.0 (102)	R (n.c.)	3/8 - 16
H1384	5 psi (35 kPa) Span	4.0 (102)	R (n.c.)	3/8 - 16
H1392	10 psi (70 kPa) Span	4.0 (102)	R (n.c.)	3/8 - 16
H1400	3 psi (20 kPa) Span	4.0 (102)	N	3/8 - 16
H1418	5 psi (35 kPa) Span	4.0 (102)	N	3/8 - 16
H1426	10 psi (70 kPa) Span	4.0 (102)	N	3/8 - 16
H1442	10 psi (70 kPa) Span	4.0 (102)	T	3/8 - 16
H1459	10 psi (70 kPa) Span	4.0 (102)	T	3/8 - 16

* Sales Special

† Made in Canada

Table 2. Maximum Damper Actuator Rating in Inches (Millimeters) of "B" Dimension, for Pneumatic Actuators in Modulating Service.

Actuator	Spring Range psi (kPa)	External Mounting				Internal Mounting			
		Normally Open		Normally Closed		Normally Open		Normally Closed	
		D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645
MP909A	2 to 7 (14 to 48)	10 (254)	8 (203)	10 (254)	8 (203)	—	—	—	—
	3 to 13 (21 to 90)	14 (356)	12 (305)	14 (356)	12 (305)	—	—	—	—
	5 to 10 (34 to 69)	14 (356)	12 (305)	14 (356)	12 (305)	—	—	—	—
	7 to 13 (48 to 90)	14 (356)	12 (305)	14 (356)	12 (305)	—	—	—	—
MP909B	2 to 7 (14 to 48)	22 (559)	18 (457)	22 (559)	18 (457)	—	—	—	—
	3 to 13 (21 to 90)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
	5 to 10 (34 to 69)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
	7 to 13 (48 to 90)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
MP909C	2 to 7 (14 to 48)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
	3 to 13 (21 to 90)	48 (1219)	40 (1016)	48 (1219)	40 (1016)	—	—	—	—
	5 to 10 (34 to 69)	48 (1219)	40 (1016)	48 (1219)	40 (1016)	—	—	—	—
	7 to 13 (48 to 90)	48 (1219)	40 (1016)	48 (1219)	40 (1016)	—	—	—	—
MP909D	3 to 8 (21 to 55)	8 (203)	—	8 (203)	—	—	—	—	—
	5 to 10 (48 to 69)	8 (203)	—	8 (203)	—	—	—	—	—
	8 to 13 (55 to 90)	8 (203)	—	8 (203)	—	—	—	—	—
MP909E	2.5 to 6.5 (18 to 45)	26 (660)	22 (559)	22 (559)	26 (660)	26 (660)	22 (559)	26 (660)	22 (559)
	3 to 13 (21 to 90)	33 (838)	27 (686)	40 (1016)	33 (838)	33 (838)	28 (711)	36 (914)	30 (762)
	5 to 10 (48 to 69)	33 (838)	27 (686)	40 (1016)	33 (838)	33 (838)	28 (711)	36 (914)	30 (762)
	9 to 13 (60 to 90)	33 (838)	27 (686)	40 (1016)	33 (838)	33 (838)	28 (711)	36 (914)	30 (762)
MP909H	All	88 (2235)	72 (1829)	67 (1702)	60 (1524)	91 (2311)	75 (1905)	60 (1524)	49 (1245)

Table 3. Maximum Damper Actuator Rating in Inches (Millimeters) of "B" Dimension, for Pneumatic Actuators in Two-Position Service.

Actuator	Spring Range psi (kPa)	External Mounting				Internal Mounting			
		Normally Open		Normally Closed		Normally Open		Normally Closed	
		D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645	D640, D641	D642, D643, D644, D645
MP909A	2 to 7 (14 to 48)	10 (254)	8 (203)	10 (254)	8 (203)	—	—	—	—
	3 to 13 (21 to 90)	14 (356)	12 (305)	14 (356)	12 (305)	—	—	—	—
	5 to 10 (34 to 69)	23 (584)	12 (305)	23 (584)	12 (305)	—	—	—	—
	7 to 13 (48 to 90)	23 (584)	12 (305)	23 (584)	12 (305)	—	—	—	—
MP909B	2 to 7 (14 to 48)	22 (559)	18 (457)	22 (559)	18 (457)	—	—	—	—
	3 to 13 (21 to 90)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
	5 to 10 (34 to 69)	54 (1372)	26 (660)	54 (1372)	26 (660)	—	—	—	—
	7 to 13 (48 to 90)	54 (1372)	26 (660)	54 (1372)	26 (660)	—	—	—	—
MP909C	2 to 7 (14 to 48)	32 (813)	26 (660)	32 (813)	26 (660)	—	—	—	—
	3 to 13 (21 to 90)	48 (1219)	40 (1016)	48 (1219)	40 (1016)	—	—	—	—
	5 to 10 (34 to 69)	82 (2083)	40 (1016)	82 (2083)	40 (1016)	—	—	—	—
	7 to 13 (48 to 90)	82 (2083)	40 (1016)	82 (2083)	40 (1016)	—	—	—	—
MP909D	3 to 8 (21 to 55)	28 (711)	22 (559)	8 (203)	—	—	—	—	—
	5 to 10 (48 to 69)	22 (559)	18 (457)	14 (356)	12 (305)	—	—	—	—
	8 to 13 (55 to 90)	14 (356)	12 (305)	22 (559)	18 (457)	—	—	—	—
MP909E	2.5 to 6.5 (18 to 45)	112 (2845)	92 (2337)	27 (686)	22 (559)	116 (2946)	95 (2413)	30 (762)	25 (635)
	3 to 13 (21 to 90)	55 (1397)	45 (1143)	40 (1016)	33 (838)	57 (1448)	47 (1194)	36 (914)	29 (727)
	5 to 10 (48 to 69)	88 (2235)	72 (1829)	67 (1702)	60 (1524)	91 (2311)	75 (1905)	60 (1524)	49 (1245)
	9 to 13 (60 to 90)	49 (1245)	40 (1016)	98 (2489)	81 (2057)	50 (1270)	41 (1041)	107 (2718)	88 (2235)
MP909H	All	88 (2235)	72 (1829)	67 (1702)	60 (1524)	91 (2311)	75 (1905)	60 (1524)	49 (1245)

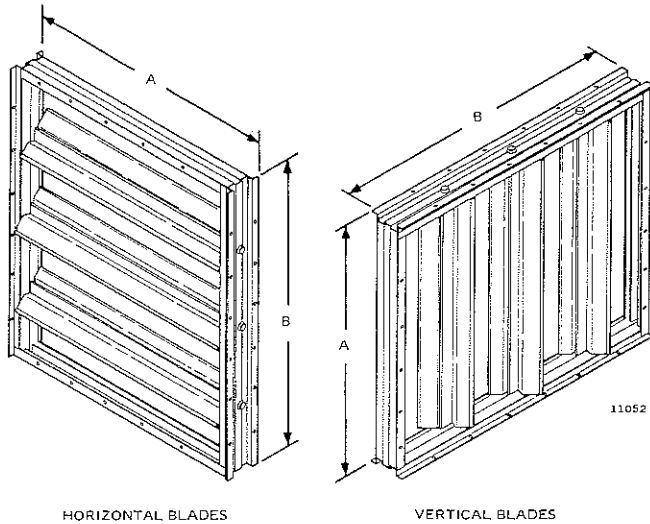


Fig. 2. Honeywell Moduflow Dampers Showing A and B Dimensions.

OPERATION

In a standard damper application, air from the branch line of the controller enters the chamber (2) of the MP909 (Fig. 3) through (1). On an increase in air pressure, the diaphragm (3) strokes the piston (4) against the opposing force of the spring (6) and damper. The stroke stops when the spring and piston/diaphragm forces are equal. On a decrease in air pressure, the spring returns the shaft, piston, diaphragm, and damper to their rest positions.

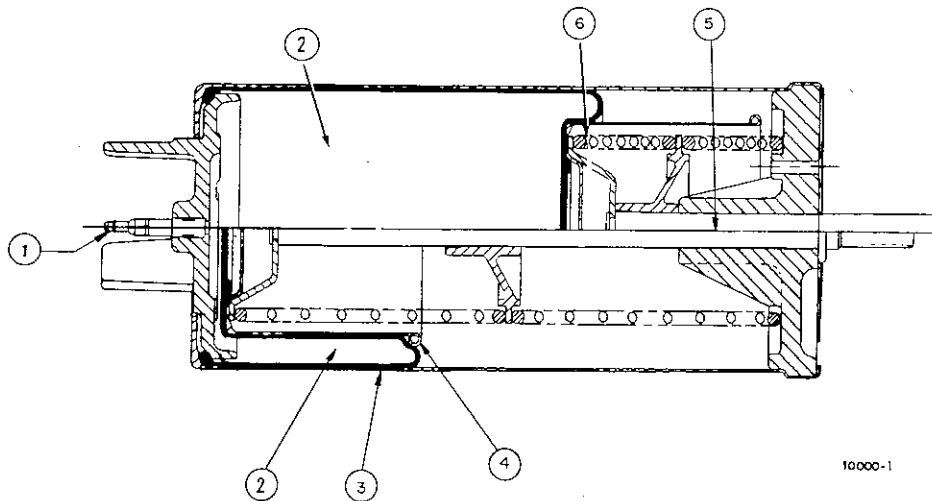


Fig. 3. MP909 Cutaway View.

MAINTENANCE

General

Routine inspection of MP909 Actuators is recommended.

Operational Check

To assure smooth consistent system operation, make the following checks:

1. Visually check that air tubing and bracket connections are tight and solid.
2. Check that damper blades, linkage, and actuator are free from damage and not binding.

3. Check that dampers open and close fully when controller is adjusted to provide changes in air pressure through the full operating range of the actuator.
4. Check that linkage and other moving parts are lubricated.

Stroke Adjustment

The adjustable stroke option, available on some MP909E models for terminal unit applications, may be added to an MP909E by ordering two stops (see ACCESSORIES). To set stops for desired stroke see Figure 4. Tighten the band firmly (25 lb-in. minimum torque).

MP909H Positive Positioner Start Point Adjustment

Calibrated scale on the positioner setpoint knob allows 1.5 to 13 psi (10 to 90 kPa) start point adjustment. The start point

setting is held by means of the pointer on the positioner cover against detents on the setpoint knob. Each detent changes the start point approximately 1/4 psi (1.72 kPa).

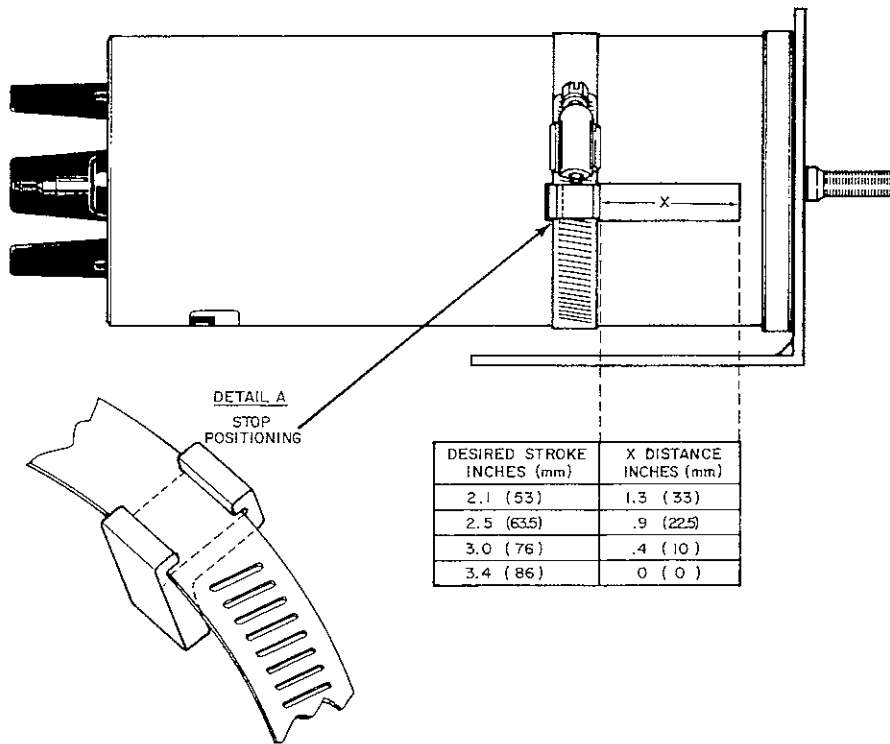


Fig. 4. MP909E Adjustable Stroke Adjustment.

TROUBLESHOOTING

Equipment Required

Pressure Bulb #852 or PRV with restriction.
0 to 30 psi pressure gage.

Procedure

1. Disconnect controller from the actuator.
2. Use a pressure bulb, Memphis Service Center #852, or install a PRV and a 0.005 or 0.007 in. restrictor in the line (Fig. 5).
3. Install a pressure gage in the line as shown.
4. Refer to Troubleshooting Flowchart (Fig. 6) for operational problem diagnosis.

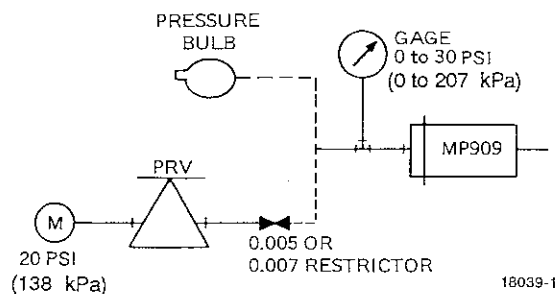
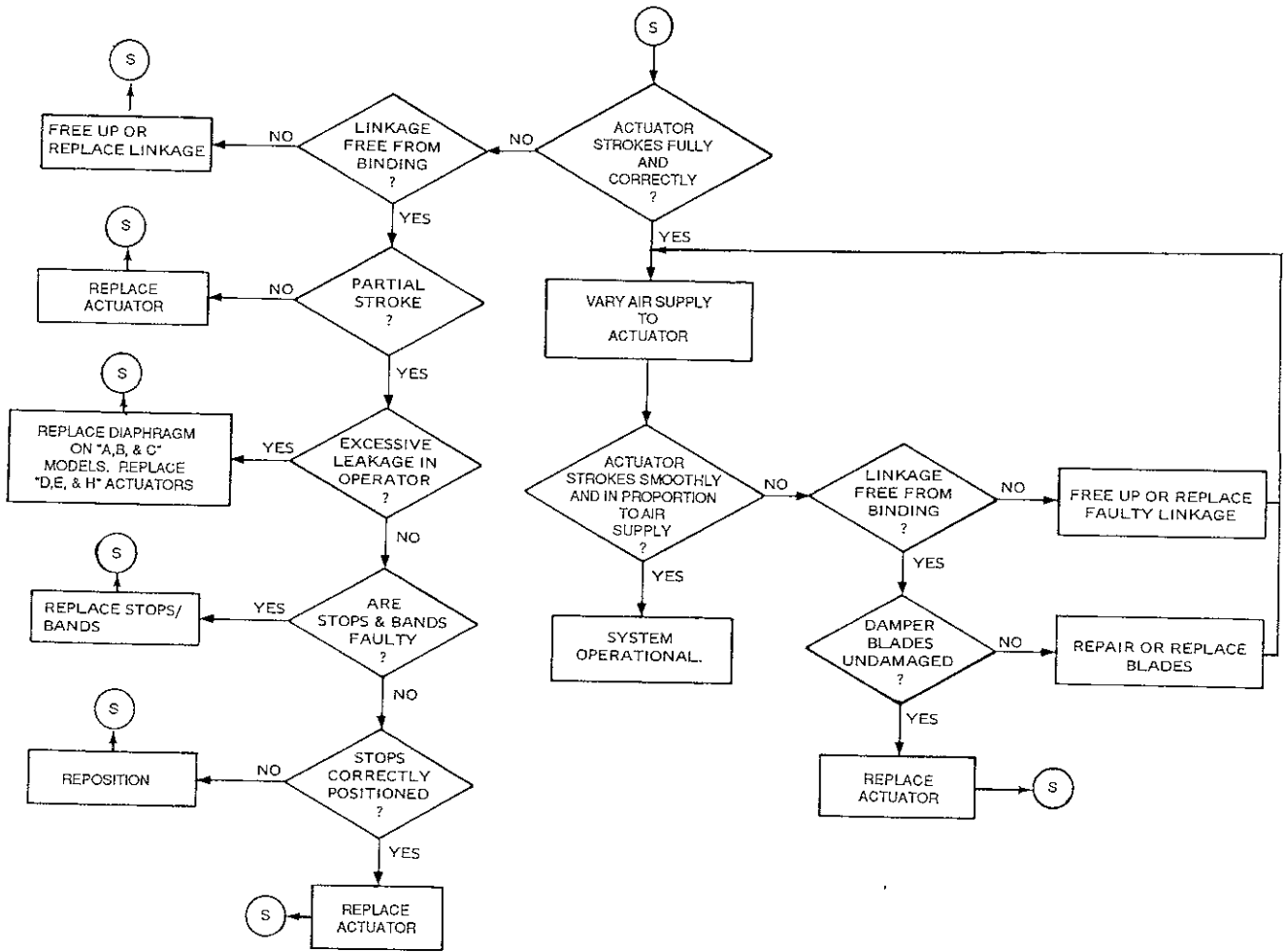


Fig. 5. MP909 Troubleshooting Setup.



18040-1

Fig. 6. MP909 Troubleshooting Flowchart.

REPAIR

General

Diaphragm replacement for the MP909A, B, and C is the only field repair recommended. MP909D, E, and H are permanently sealed units and must be replaced with another unit if defective. A positive positioner retrofit kit is available for the MP909E, 5 to 10 psi (34 to 69 kPa) spring range models (see ACCESSORIES). With the addition of the retrofit kit, the MP909E functions as an MP909H.

Diaphragm Assembly Replacement—MP909A-C

The diaphragm (Fig. 7) may be replaced without removing the fittings from the actuator or the actuator from the mounting bracket.

! CAUTION

If the actuator is removed from the mounting bracket to replace the diaphragm, leave the nut on the shaft. This prevents the spring from pushing the shaft back through the bearing and damaging the bearing.

1. Remove air line from actuator.
2. Press end cap in to free lugs from lockslot and rotate counterclockwise to remove end cap assembly.
3. Remove two hex nuts from end cap assembly and disassemble.
4. Replace diaphragm. Make sure bead on inside of diaphragm is over lip of cup.
5. Reassemble end cap assembly. See Figure 8 for spring clip orientation.
6. Blow air into fitting on end cap to fully extend diaphragm. Place a finger over fitting. Place piston against diaphragm and push gently, allow air to escape from extended diaphragm but do not allow the diaphragm to collapse. When the diaphragm has smoothly and completely covered the piston, remove finger.

7. Push end cap in and rotate clockwise until lugs are in the locked position.
8. Reconnect air line to actuator.

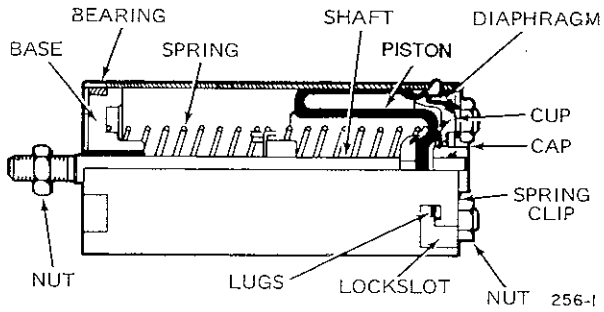


Fig. 7. MP909 Cross-Section Detail.

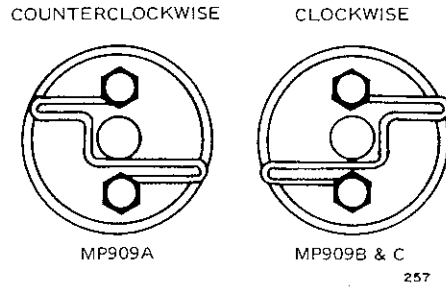


Fig. 8. Spring Clip Orientation.

MP909E Positive Positioner Retrofit Kit

Follow the instructions supplied with the kit.

PARTS AND ACCESSORIES

Parts List

Diaphragms:

- MP909A: 314100
- MP909B: 314231
- MP909C: 314503
- MP909D, E, and H: Not available.



Positive Positioner:


- MP909H: Use MP909E Positive Positioner Retrofit Kit. See ACCESSORIES.

Serviceline Replacement Actuators: See Table 4.

Shaft End Assemblies: See Table 1 and Figure 10.

Table 4. Serviceline MP909 Replacement Actuators.

Order No.	Description	Replacement For
MP909A1728	3 to 13 psi (21 to 90 kPa) Spring Range, 3-1/2 in. (89 mm) Stroke	MP909A1041, A1645
MP909E1026	3 to 13 psi (21 to 90 kPa) Spring Range, 4 in. (102 mm) Stroke	MP903B1003, B1011, B1029, B1037, B1078, B1086  MO903B1, B2, B3, B4, B5  MP909B1007, B1106, B1650, B1684, B1742 MP909E1000, E1018, E1742

 Order one 315781-605 balljoint for these applications.

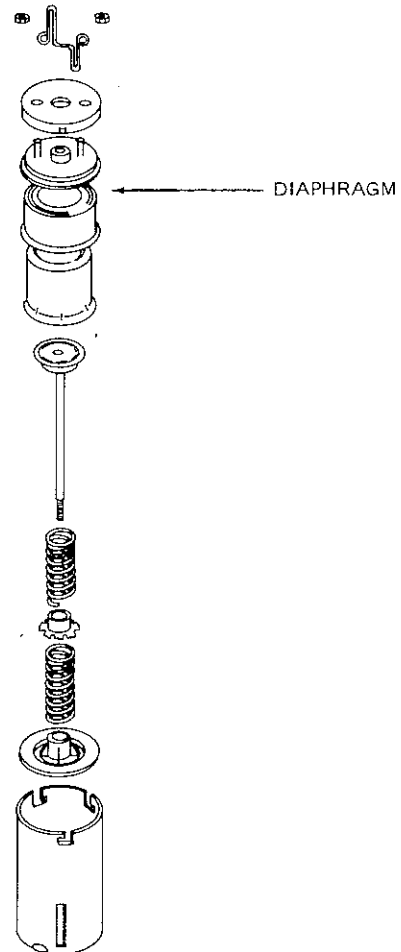
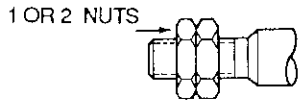


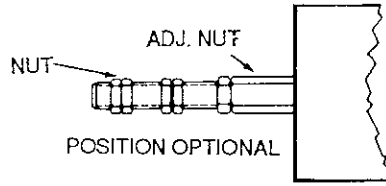
Fig. 9. MP909A-C Housing Assembly.

DETAIL "A"



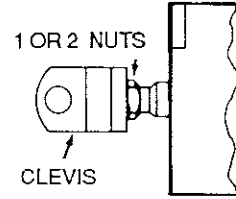
Nut, Hex (3/8-16 UNC x 9/16 in.)
 Nut, Hex (1/4-28) (2 for A1512)

DETAIL "B"



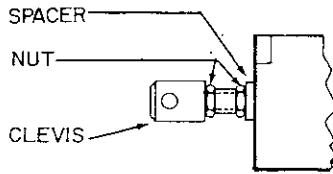
Nut, Adjustment
 (for A1355, A1363, A1496, and A1504)
 Nut, Hex (5) 1/4-28 Jam

DETAIL "C"



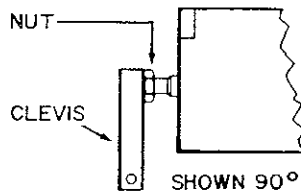
Nut, Hex (3/8-16 UNC x 9/16 in.)

DETAIL "D"



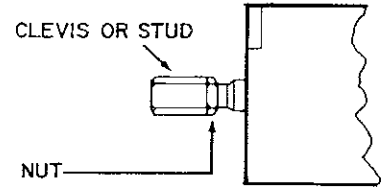
Nut, Hex (2)
 (3/8-16 UNC x 9/16 in.)

DETAIL "E"



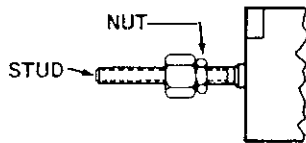
Nut, Hex (1/4-28 Jam)

DETAIL "F"



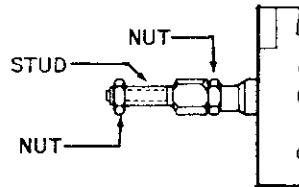
Stud (for B1122)
 Clevis (for B1569)
 Nut, Hex (3/8-16 UNC x 9/16 in.)

DETAIL "G"



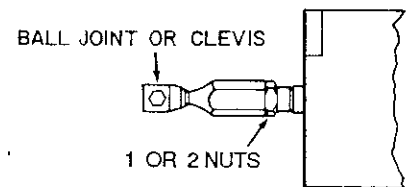
Nut, Hex (3/8-16 UNC x 9/16 in.)
 Stud (1/4-20)

DETAIL "H"



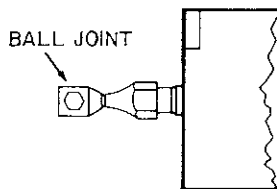
Nut, Hex (3/8-16 UNC x 9/16 in.)
 Stud (1/4-20)
 Nut, Hex (1/4-20 x 3/16 in.)

DETAIL "J"

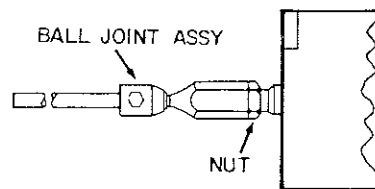


Ball Joint (1/4-28) for A1306 and A1314
 Clevis for A1520
 Nut, Hex (3/8-16 UNC x 9/16 in.) for
 B1650, B1668, C1294 and C1302
 Nut, Hex (1/4-28 Jam)
 for A1306 and A1314

DETAIL "K"

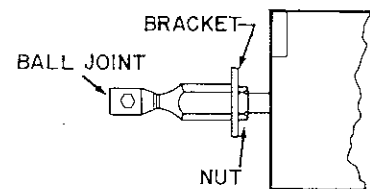


DETAIL "L"



Ball Joint Assy
 B1114 - 6.9 in. rod
 B1106 - 2.28 in. rod
 Nut, Hex (3/8-16 UNC x 9/16 in.)

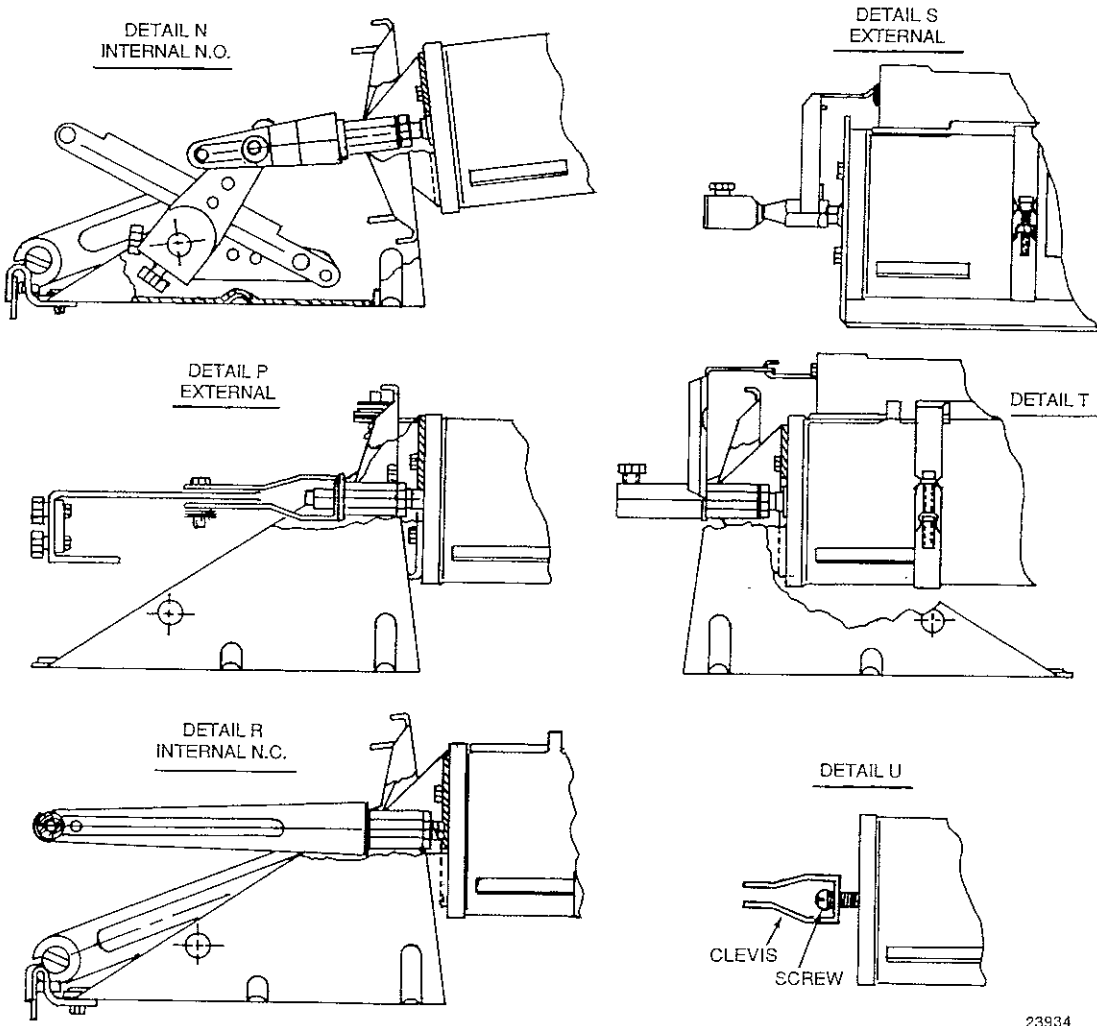
DETAIL "M"



Nut, Hex (3/8-16 UNC x 9/16 in.)

23933

Fig. 10. MP909 Shaft End Details.



23934

Fig. 10. MP909 Shaft End Details. (Continued)

Accessories

MP909E Positive Positioner Retrofit Kit, 14004137-001.

Includes Feedback Spring Kit 14004210-001.

Mounting Kit Bag Assemblies:

Internally Mounted, Normally Closed Damper 14000716-001

Internally Mounted, Normally Open Damper 14000693-003

Externally Mounted 312867H

Mounting Brackets:

MP909A, D, E, and H External 14002850-001

MP909A, D, E, and H 14003640-001

MP909B 313478-00767

MP909E, H External 14004062-001

MP909E, H Internal n.c. 14004062-002

MP909E, H Internal n.o. 14004062-003

Terminal Units 14002851-001

Actuator Shaft Balljoints:

3/8-16 UNC, 315781-605

1/4-28 UNC, 315887-605

Crankarms:

3/8-in. shaft, 1-1/8 to 4-5/8 in. long 26025B

7/16-in. shaft, adjustable 1-1/8 to 4-5/8 in. 27174B

7/16-in. shaft, adjustable 1-1/8 to 2-1/2 in. 314316A

1/2-in. Shaft, 1-1/8 to 4-5/8 in. 312867C

Crankarm Balljoint:

Balljoint 315781-605 connect actuator to pushrod

Balljoint 27518-00605 connect pushrod to crankarm

Pushrod:

12 in. 27520C

24 in. 27520G

36 in. 27520K

48 in. 27520L

Clamp (Terminal Unit Application) 313343

Hex Nut (Terminal Unit Application) 304814-767

Clevis, Clevis Pin, and Cotter Pin Assembly 314440A

Hitch Pin Bag Assembly 14004241-002

Stroke Adjustment for MP909E and H and some MP909B models having slotted housing:

314959 Stops (2)

313343 Band

Honeywell

Home and Building Control
Honeywell Inc.
Honeywell Plaza
P.O. Box 524
Minneapolis, MN 55408-0524

Home and Building Control
Honeywell Limited-Honeywell Limitée
740 Ellesmere Road
Scarborough, Ontario
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