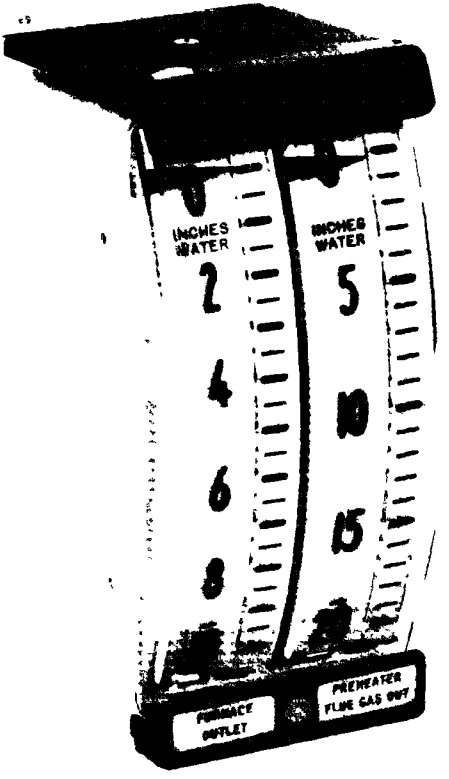
Multi-Pointer Gage
Type PG



Form M42 2 1A L tho n U S A 1276

Babcock & Wilcox
Ba ey Meter Company U S A

WARNING

DO NOT NSTALL MA NTA N OR OPERATE TH S EQU P MENT WITHOUT READ NG UNDERSTAND NG AND FOL LOW NG PROPER Bailey Babcock & Wilcox N STRUCT ONS AND MANUALS OTHERW SE NJURY OR DAMAGE MAY RESULT

INDEX

NOTE Many references are made throughout th s nstruct on to Mode des gnat ons Recent PG gages have been supp ed w th new nomenc ature Refer to the tab es fo ow ng

TYPE P G □ □ □ □	
	Mu t -po nter gage w th 7" vert ca sca e
	Ind cators
1	one
2	two
3	one nd cator one pneumat c transm tter*
	Il uminat on
A	Standard 118 V ac 50/60 Hz
B	No um nat on
	Trim Color
0	B ack
1	S ate gray
2	Moss green
4	P at num
	Mounting
F	F ush ndoor nsta at on
S	Sem f ush, ndoor nsta at on
V	F ush outdoor nsta at on
T	Sem f ush, outdoor nsta at on

*Standard outdoor nsta at on gages (Types PG3A□V and PG3A□T) a ways nc ude transm tter n the r ght-hand pos t on actuated by the mechan sm n the eft hand pos t on R ght-hand sca e s b ank w thout po nter

Mode □□□□ □□□□ Two four character a pha numer c sets chosen from Tab es thru V the f rst set represent ng the eft s de of the gage as you ook at t and the second set represent ng the r ght s de of the gage

Older Mode	Newer Model	Mechanism
AA	W	be ows (pneumat c rece ver)
AB	V	
AD	E	be ows pressure, eve vacuum)
B1	F	Bourdon tube (pressure)
DA	L	d aphragm (draft or pressure)
DB	H	
DC	J	d aphragm d fferent a pressure)
DD	K	
PA	R	transm tter
PB	S	
NO	Z	empty

STANDARD RANGES & MODELS TABLE II (Bourdon Tube Mechanism)

PRESSURE Scale Range psig	MODEL* Beryllium Copper Bourdon Tube
0 to 30	B 415
0 to 40	B 5 4
0 to 50	B1515
0 to 60	B1516
0 to 70	B1517
0 to 80	B 5 8
0 to 00	B1520
0 to 150	B 52
0 to 200	B1522
0 to 300	B1523
0 to 400	B 524
0 to 500	B1525
0 to 600	B1526
0 to 800	B1528
0 to 1000	B1530
0 to 200	B1532
0 to 1500	B 535
0 to 2000	B 540
20 to 40	B 654
20 to 50	B1655
20 to 80	B1658
50 to 50	B166
00 to 400	B1664
200 to 500	B1665
200 to 700	B1667
300 to 600	B 666
300 to 800	B 668
300 to 1 00	B1671
400 to 1200	B1673

*Suffix must be added to MODEL designation to indicate scale color W white B blue G-green N-orange R-red Y yellow

STANDARD RANGES & MODELS TABLE IV (Pneumatic Transmitter)

Transmitter Range (psig)	MODEL
3 27	PA100
3 15	PB 00

STANDARD RANGES AND MODELS (Diaphragm Mechanism)

TABLE III

DRAFT Scale Range H_2O	MODEL*
−0 3 to +0 3	DA 0
−0 5 to 0	DA1 1
0 5 to +0 1	DA112
−0 5 to +0 3	DA1 3
−0 5 to +0 5	DA1 4
0 6 to 0	DA 15
0 6 to +0 2	DA116
−0 8 to +0 2	DA117
1 0 to 0	DA118
1 0 to +0 1	DA 19
1 0 to +0 5	DA120
1 0 to +1 0	DA121
5 to 0	DA 22
2 to 0	DA123
2 to +2	DA124
3 to 0	DA 25
3 to +	DA126
4 to 0	DA 27
4 to +	DA128
5 to 0	DA129
6 to 0	DA 30
8 to 0	DA 31
10 to 0	DA 32
2 to 0	DA133
15 to 0	DA134
20 to 0	DB135
30 to 0	DB136
Scale Range mm H_2O	
15 to 0	DA1b0
20 to 0	DA 61
25 to 0	DA162
30 to 0	DA 63
40 to 0	DA 64
50 to 0	DA165
60 to 0	DA1b6
80 to 0	DA168
100 to 0	DA170
150 to 0	DA 7
200 to 0	DA172
250 to 0	DA181
300 to 0	DA173
−400 to 0	DA174
500 to 0	DB175
600 to 0	DB176
800 to 0	DB 78
10 to +5	DA188
15 to +15	DA 90
25 to +25	DA 92
50 to +50	DA194
100 to +50	DA 97
150 to +50	DA 98
100 to +100	DA199

PRESSURE Scale Range H_2O	MODEL*
0 to +0 5	DA210
0 to +0 6	DA21
0 to +0 8	DA212
0 to +1 0	DA2 3
−0 5 to + 0	DA2 4
0 to +1 5	DA2 5
0 to +2	DA2 6
−0 5 to +2	DA2 7
0 to +3	DA2 8
0 5 to +3	DA2 9
0 to +4	DA230
−0 5 to +4	DA23
0 to +5	DA232
0 to +6	DA233
1 to +6	DA234
0 to +8	DA235
0 to + 0	DA236
0 to +12	DA237
0 to +15	DA238
0 to +20	DB239
0 to +30	DB230
0 to +40	DB23
0 to +50	DB232
0 to +60	DB233
0 to +80	DB234
0 to + 00	DB235
Scale Range psig	
0 to +2	DB250
0 to +3	DB251
0 to +4	DB252
Scale Range (mm H_2O	
0 to + 5	DA260
0 to +20	DA26
0 to +25	DA262
0 to +30	DA263
0 to +40	DA264
0 to +50	DA265
0 to +b0	DA266
0 to +80	DA268
0 to + 00	DA,70
0 to +150	DA,7
0 to +200	DA,72
0 to +250	DA,81
0 to +300	DA,73
0 to +400	DA,74
0 to +500	DB 75
0 to +600	DB,76
0 to +800	DB178
0 to + 000	DB180

DIFFERENTIAL PRESSURE Scale Range H_2O	MODEL*
0 to 0 5	DC3 0
0 to 0 6	DC311**
0 to 0 8	DC312
0 to 0	DC313
0 to 1 5	DC315
0 to 2	DC316
0 to 3	DC318
0 to 4	DC320
0 to 5	DC322
0 to 6	DC323
0 to 8	DC325
0 to 10	DC326
0 to 12	DC327
0 to 15	DC328
0 to 20	DD329
0 to 30	DD330
0 to 40	DD331
0 to 50	DD332
0 to 60	DD333
0 to 80	DD334
0 to 100	DD335
Scale Range mm H_2O	
0 to 5	DC360 *
0 to 70	DC361
0 to 25	DC362
0 to 30	DC363
0 to 40	DC364
0 to 50	DC365
0 to 60	DC366
0 to 80	DC3b8
0 to 00	DC370
0 to 150	DC37
0 to 200	DC379
0 to 250	DC381
0 to 300	DC373
0 to 400	DC374
0 to 500	DD375
0 to 600	DD376
0 to 800	DD378
0 to 000	DD380

* Not for use with pneumatic transmitter

STANDARD RANGES AND MODELS (Bellows Mechanism)

TABLE V

PRESSURE Scale Range psig	MODEL*
0 to 5	AD4 0
0 to 0	AD4
0 to 5	AD41?
0 to 20	AD4 3
0 to 75	AD414
0 to 30	AD4 5

PRESSURE Scale Range Hg	MODEL*
0 to 10	AD42
0 to 15	AD42?
0 to 20	AD423
0 to 25	AD424
0 to 30	AD425
0 to 35	AD426
0 to 0	AD431
5 to 0	AD432
20 to 0	AD433
25 to 0	AD434
30 to 0	AD435

PRESSURE Scale Range Hg to psig	MODEL*
5 to +5	AD440
5 to + 0	AD44
5 to +15	AD44?
5 to +10	AD443
5 to +25	AD444
0 to +5	AD445
0 to + 1	AD446
0 to + 5	AD447
0 to +20	AD448
0 to +25	AD449
5 to +5	AD450
5 to + 0	AD45
15 to +15	AD452
5 to +20	AD453
20 to +5	AD454
2 to +10	AD455
20 to +15	AD456
20 to +20	AD457
25 to +5	AD458
25 to +10	AD459
25 to +15	AD460
30 to +5	AD46
10 to + 0	AD462
30 to + 5	AD4b3

LEVEL Scale Range H_2O	MODEL*
0 to 15	AD402
0 20	AD403
0 to 75	AD404
0 to 30	AD405
0 to 40	AD406
0 to 50	AD407
0 to 60	AD408

VACUUM Scale Range Hg	MODEL*
0 to 0	AD47
0 to 5	AD47?
0 20	AD473
0 to 25	AD474
0 to 30	AD475

PNEUMATIC RECEIVING Scale Range	MODEL* 3 27 psig	3 15 psig
0 to 00 Linear Scale	AA 01	AB 0
0 to 00% Square Root Scale	AA10?	AB102
Any Range Specified	AA	AB
Tables V V to V		

*Suffix must be added to MODEL designation to indicate scale color W white B blue G-green N-orange R-red Y yellow

**The third fourth and fifth characters in MODEL designation are a 3 digit code number identifying the scale range See Tables V V and V

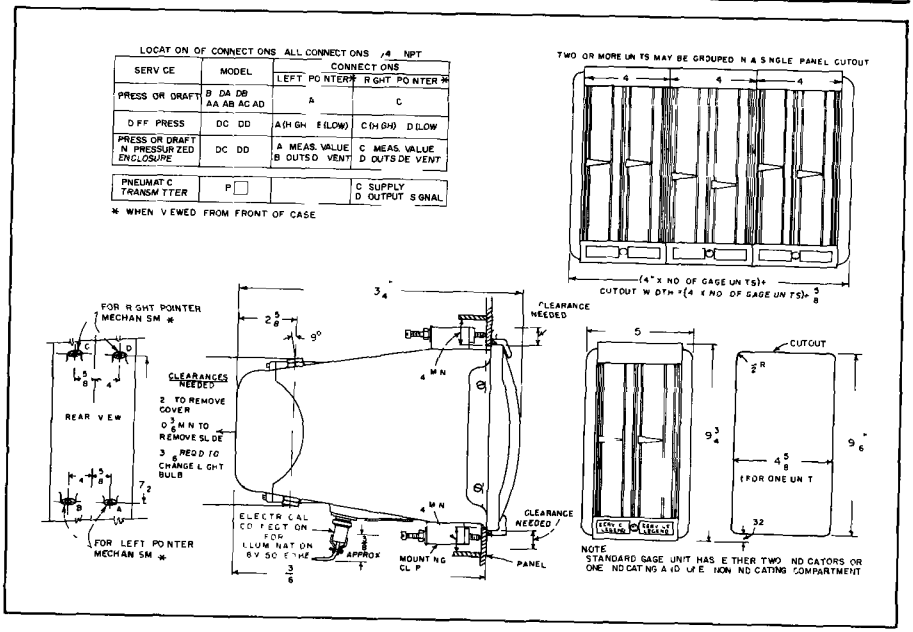


FIGURE 1 Mounting Dimensions for Flush Mounted Type PG Gage

INSTALLATION

UNPACKING

1 Remove all packing from shipping carton Remove Type PG Multi Pointer Gage from carton

2 Check for any obvious damage to carton or contents (see inside front cover)

3 NOTE If a bench test of the Type PG Multi Pointer Gage is desired before installation, refer to "Adjustment and Calibration"

MOUNTING

1 Make panel cutout in accordance with Figure 1 or 2 for flush or semi flush mounting, respectively

2 Assemble left and right side plates (shown in Figure 12 or 13) to Gage with four screws and lockwashers (Note that side plates for semi flush mounted Gages are not interchangeable)

3 For semi flush mounting, assemble dust cover to top of Gage

4 Insert Gage in cutout from front of panel

5 For semi flush mounting, assemble mounting support to top of Gage unit

6 Place mounting clips over clip washers then tighten mounting screws Tighten locknut to secure clip screw (refer to Figure 12 or 13)

7 Remove protective tape from scale cover Clean cover with soap and water or "Plastar" plastic cleaner and polish (obtainable from Bailey Meter Company in 10 ounce jars specify Pt No

199274 1) Do not use a solvent which will react with plastic cover

8 Remove rear cover from Gage and remove protective tape from pointer assembly

CONNECTING TUBING

1 Each Gage unit is letter coded (A, B, C, and D) for Gage connection identification For pneumatic transmitter or bellows receiver mechanism (Model P□ AA or AB) make tubing connections as designated in the tables in Figures 1 and 2 and in accordance with the letter code

2 Refer to Instruction Section G18 2 for recommended installation and maintenance of pneumatic tubing

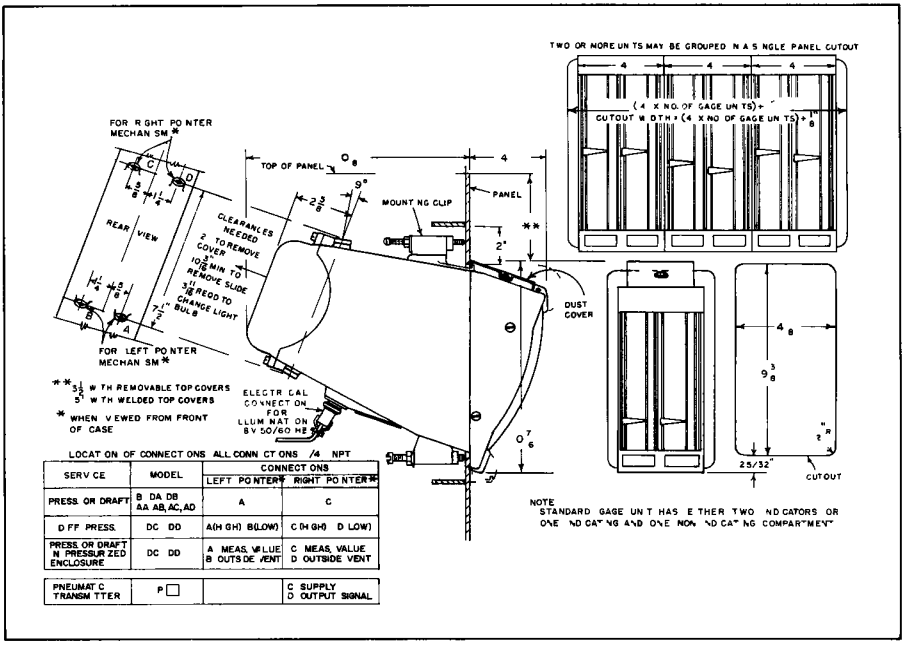
3 Check connecting tubing for leakage while under pressure with a leak detecting solution

CONNECTING PIPING

1 Refer to Figures 1 and 2 For direct connected bellows or Bourdon tube mechanisms (Model AD or B1), refer to Instruction Section G18 1 for recommended piping arrangements For Model AD bellows mechanism for liquid level measurement, however, refer to Instruction Section G91-4 for correct piping installation

2 For diaphragm mechanism (Model D□), make piping connections at draft or pressure source as shown in Figure 4 Install connecting piping from draft or pressure installation to diaphragm mechanism as shown in Figure 3

3 To facilitate blowdown procedure a four way blowdown valve similar to that shown in Figure 5, may be installed in piping line near instrument The four way valve can be connected



LOCATION OF CONNECTIONS ALL CONNECTIONS 1/4 NPT

SERVICE	MODEL	CONNECTIONS	
		LEFT POINTER*	RIGHT POINTER*
PRESS. OR DRAFT	B DA, DB AA, AB, AC, AD	A	C
DIFF PRESS.	DC DD	A(HIGH) B(LOW)	C(HIGH) D(LOW)
PRESS. OR DRAFT IN PRESSURIZED ENCLOSURE	DC DD	A MEAS. VALUE B OUTSIDE VENT	C MEAS. VALUE D OUTSIDE VENT

PNEUMATIC TRANSMITTER	P□		C SUPPLY D OUTPUT SIGNAL

FIGURE 2 Mounting Dimensions for Semi Flush Mounted Type PG Gage

to open the instrument to atmosphere when blowing compressed air back toward pressure or draft source

4 Check connecting piping for leakage while under pressure with a leak-detecting solution

INTERNAL ILLUMINATION

1 Refer to Figure 12 or 13 Make wiring connection from power source (115v AC, 50Hz or 60Hz) to lamp socket at bottom of Gage

2 To remove lamp unit for servicing, remove rear cover and slide lamp assembly out rear of Gage When replacing lamp in Gage make certain slide assembly makes complete contact with socket at front of Gage

PLACING IN SERVICE

1 For Model PD instruments refer to Table I for required supply pressure to Booster Relay Turn ON supply pressure to Booster Gage should respond immediately

2 For all other models, Gage should respond immediately when tubing and piping connections are made to measured pressure source

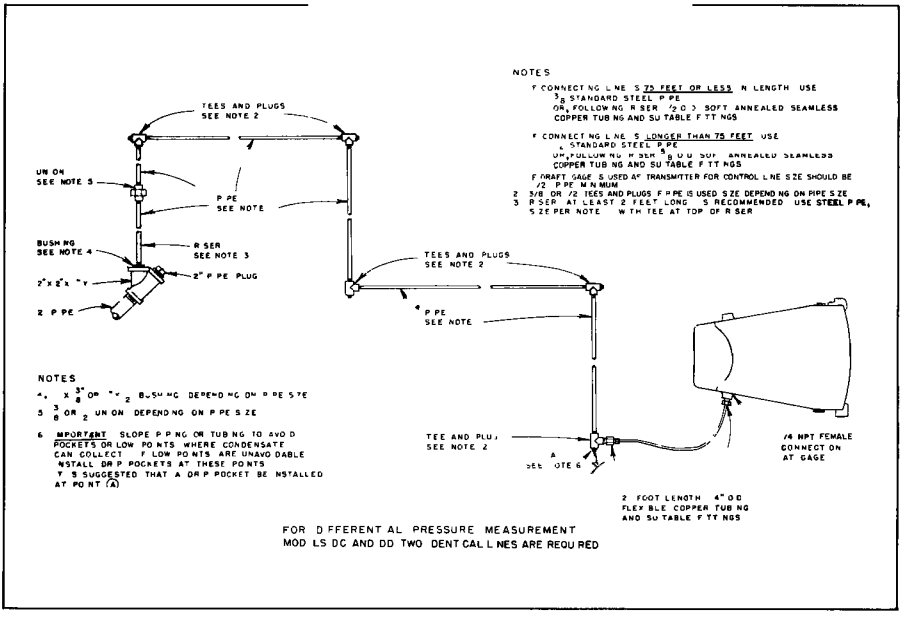
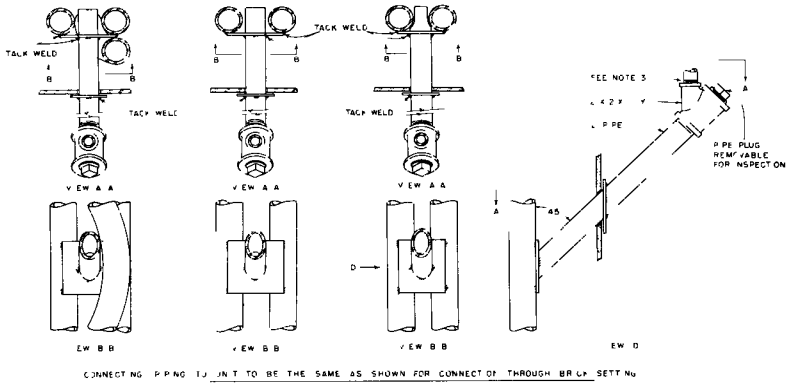


FIGURE 3 Recommended Connecting Piping Arrangement for Diaphragm Mechanism Mode. D□



NOTE

FOR INSTALLATION IN ROOF, HORIZONTAL WALL OR INCLINED WALL, INSTALL PIPE SLEEVE PERPENDICULAR TO WALL AS SHOWN IN LOWER RIGHT ILLUSTRATION.

FOR INSTALLATION IN VERTICAL DUCT WALL, INSTALL PIPE SLEEVE AT 45° TO WALL AS SHOWN AT VIEW D.

NOTE 2

WHEN IT IS DESIRABLE TO CONNECT TWO INSTRUMENTS OR ONE INSTRUMENT AND ONE CONTROLLER TO ONE CONNECTION, CONNECT THE SECOND LINE TO THE CROSS SHOWN.

DO NOT RUN A SINGLE LINE DOWN AND THEN TEE OFF AT OR NEAR THE INSTRUMENTS.

NOTE 3

INSERT WHATEVER BUSHING IS REQUIRED TO REDUCE OUTLET TO SIZE OF CONNECTING PIPING USED IN THE INSTALLATION.

NOTE 4

THE PIPING FROM CONNECTION CROSS SHOWN SHOULD RUN AS DIRECT AS POSSIBLE TO METER, CASE OR CONTROLLER AND MUST HAVE NO BRANCH CONNECTIONS TO OTHER EQUIPMENT.

NOTE 5

CLEANING PLATES WELDED TO PIPE SLEEVE TO KEEP SLEEVE FROM TURNING IN BOILER SETTING WHEN PLUG AT END OF SLEEVE IS REMOVED FOR CLEANING. PLATES TO BE FURNISHED AND WELDED TO SLEEVE IN FIELD BY CUSTOMER.

FIGURE 4 Recommended Connections to Boiler Settings and Ducts for Diaphragm Mechanism, Model D□

ROUTINE MAINTENANCE

PERIODICALLY

1 Periodically blow down connecting piping as follows

a For direct connected bellows (Model AD) and Bourdon tube (Model B1) mechanisms, blow down connecting piping as outlined in Instruction Section G18 1

b For diaphragm (Model D□) mechanism, disconnect piping and blow compressed air back toward pressure or draft source (See Figure 5 Also see step 3 under "Connecting Piping" in "Installation" section)

2 Periodically clean Gage scale cover or window as outlined under "Mounting", step 7

To remove scale cover or window, refer to "Removing Gage Window or Scale "

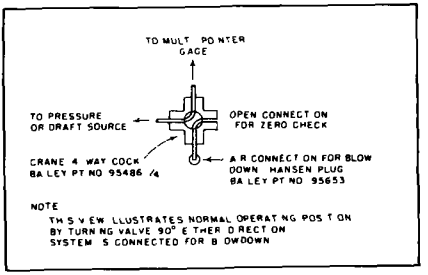


FIGURE 5 Four Way Blowdown Valve for Diaphragm Mechanism

NOTE Do not oil moving parts Oil, instead of being beneficial, tends to collect dirt which interferes with operation

CORRECTIVE MAINTENANCE

If Multi Pointer Gage fails to operate correctly after performing the applicable adjustments outlined under "Adjustment and Calibration", check for broken or damaged parts If parts have become damaged and must be replaced, refer to applicable mechanism listed below for correct disassembly procedures For a pneumatic transmitter, check operation of the Booster Relay as outlined under "Corrective Maintenance" in Instruction Section P99 7

BELLOWS MECHANISM DISASSEMBLY AND PRE-CALIBRATION

1 Remove Gage from panel (see "Removing Multi Pointer Gage") Then remove window and side scale holder (see "Removing Gage Window or Scale") Remove mechanism from case

2 Refer to Figure 14 Remove screw (14), and nut and washer (10 and 9) Unscrew elastic stop nut (15) above bellows Remove overtravel stop (3)

3 Remove nuts (13) and lockwashers (28) Then remove two screws (26) and lockwashers (27) and remove pad (6) holding bellows beam assembly (17)

4 Remove hex nut (13) and pivot (24) (using drift and hammer) to remove spring adjustment arm (25)

5 Remove screws (10) Then remove three screws (29) and bellows and piping assembly (4)

6 To reassemble mechanism, follow the reverse order of above "Disassembly" Before returning bellows mechanism to case (step 1), however, make the following pre calibration adjustments Refer to Figure 6

NOTE When making these adjustments, mount mechanism in suitable calibration fixture to simulate the case (such as a cut away case) and mount fixture at same angle as case will be mounted in panel

a Adjust counterweight so it drives the pointer upward

b Loosen overtravel stop screws so stop does not interfere with bellows motion

c Apply midrange pressure to bellows connection Turn spring adjustment screw until bellows beam is parallel to base

d Apply maximum range pressure plus 0 2 psig to mechanism Turn maximum stop screw in until it rests against bellows frame Tighten elastic stop nut against overtravel stop

e Apply minimum range pressure minus 0 2 psig (for suppressed ranges only) to mechanism Turn minimum stop screw in until head rests against overtravel stop Tighten hex nut against bellows frame

f Loosen two screws on pointer drive arm and position drive arm parallel to bellows beam

g Check calibration as outlined under "Bellows Mechanism" before placing in service

BOURDON TUBE MECHANISM DISASSEMBLY AND PRE-CALIBRATION

1 Remove Gage from panel (see "Removing Multi-Pointer Gage") Then remove window and side scale holder (see "Removing Gage Window or Scale")

2 Refer to Figure 15 Remove three screws (17) and remove mechanism from case

3 Detach connecting link (3) at pivot (9)

4 Loosen locknuts (6) and back off jeweled bearings (5) from support (1) Then remove pointer assembly (4)

5 Remove screws and washers (15 and 16) and dismount stop support assembly (14) from Bourdon tube assembly

6 Remove screws (17), disengage Bourdon tube mounting support (1) from base

7 Remove screws (7) and detach Bourdon tube mounting support (1) from Bourdon tube assembly

8 To reassemble mechanism, follow the reverse order of above "Disassembly" Before returning Bourdon tube mechanism to case (step 2), however, make the following pre calibration adjustments Refer to Figure 7

NOTE When making these adjustments, mount mechanism in suitable calibration fixture to simulate case (such as a cut away case) and mount fixture at same angle as case will be mounted in panel

a Adjust counterweight so it drives the pointer upward

b Loosen minimum and maximum stops

c Apply maximum range pressure plus 0 2 psig to mechanism Then tighten maximum stop nut

d Apply minimum range pressure minus 0 2 psig to mechanism Then adjust minimum stop screw

e Check calibration as outlined under "Bourdon Tube Mechanism" before placing in service

DIAPHRAGM MECHANISM DISASSEMBLY AND PRE-CALIBRATION

Replacing Diaphragm in Diaphragm Mechanism

1 Remove Gage from panel (see "Removing Multi Pointer Gage ") Then remove window and side scale holder (see "Removing Gage Window or Scale")

2 Refer to Figure 16 Remove four screws (51) and lift mechanism from case

3 Remove screws (21) from housing bottom (7) Separate housing bottom from housing spacer (8) (tap lightly with rubber mallet)

4 Refer to Figure 17 Firmly hold diaphragm center plates and remove screw (2) from diaphragm assembly (1) Avoid bending push rod(3) *at pivot point Pull diaphragm assembly away* from housing spacer

5 Position replacement diaphragm assembly (1) on housing spacer DO NOT USE SEALING COMPOUND Attach replacement diaphragm assembly on push rod (3) and secure with screw (2)

CAUTION Make certain flat end of push rod is perpendicular to pivot (Item 11, Figure 16) and push rod moves freely

6 Refer to Figure 16 Align housing bottom (7), diaphragm assembly (48 or 49), and housing spacer (8) and secure with screws (21) Test for leakage at 8 psi static pressure For differential instruments, (Models DC and DD), loosen magnet

clamp screw and deflect external magnet arm so that magnet touches cover clamp (24). Insert 0.007 inch non-magnetic feeler gage between cover plate (25) and external magnet. Tighten magnet clamp screw. Pre-calibrate replacement diaphragm assembly as outlined in steps below.

Models DA and DB Only

7. Install diaphragm mechanism and scale holder temporarily in Gage case (see steps 5 and 6 above). PLACE GAGE ON TEST BENCH AT SAME ANGLE AS WHEN PANEL MOUNTED.

8. Remove plug button (Item 55, Figure 12 or 13), screw (4), and washer (3) from housing bottom (7), and replace screw (4) only. Do not use washer. (See Figure 16.)

9. Using calibration setup as described under "Diaphragm Mechanism", apply midrange pressure to mechanism (connection A or C) and turn pointer zero adjustment screw (Figure 8) until indicating pointer is on midscale.

10. Turn front zero adjustment (Figure 8) counterclockwise until pointer just stops moving, indicating diaphragm has reached its mid position. Pointer should move downward when turning front zero adjustment counterclockwise. If not, turn front zero adjustment clockwise until upward motion of pointer is noted. Then turn counterclockwise until pointer just stops moving.

11. With midrange pressure applied to unit, loosen two screws on drive arm (Figure 8) to obtain a right angle relationship between connecting link and range arm (Angle "A" equals 90°).

12. Remove diaphragm mechanism from Gage, remove screw (4) and replace washer (3) and screw (4).

13. Before returning diaphragm mechanism to case (step 5), adjust counterweight (Figure 8) so it drives pointer upward with no input pressure applied.

14. Return diaphragm mechanism and plug button (Item 55, Figure 12 or 13) to case and mount case in Gage (see step 1).

15. Check calibration as outlined under "Diaphragm Mechanism" before placing in service.

Models DC and DD Only

16. Mount mechanism in suitable calibration fixture to simulate case (such as a cut away case). PLACE GAGE OR TEST FIXTURE ON TEST BENCH AT SAME ANGLE AS WHEN PANEL MOUNTED.

17. Refer to Figure 16. Remove screw (45) and nut (44). Replace with 10-32 x 3/16 screw tightened against bottom of diaphragm housing.

18. Using calibration setup as described under "Diaphragm Mechanism", apply midrange pressure to mechanism (connection A or C), and turn pointer zero adjustment screw (Figure 8) until indicating pointer is on midscale.

19. Turn front zero adjustment (Figure 8) counterclockwise until pointer just stops moving indicating diaphragm has reached its mid position. (The pointer should move downward when front zero adjustment is turned counterclockwise. If not, turn front zero adjustment clockwise until pointer begins to move upward. Then turn counterclockwise until pointer just stops moving.

20. With midrange pressure applied to unit loosen two screws on drive arm (Figure 8) to obtain a right angle relationship between connecting link and range arm (Angle "A" equals 90°).

21. Remove 10-32 x 3/16 screw and replace with screw (45) and nut (44) removed in step 17.

22. Make the following pre-calibration adjustments.

23. Set maximum and minimum stops as outlined in steps 23a, 23b and 23c below (refer to Figure 16).

(a) Apply pressure so pointer goes to top of scale holder. Then turn maximum stop screw (46) clockwise until pointer is just touching case. Lock screw with nut (44).

(b) Remove pressure from instrument.

(c) Turn front zero adjustment (Figure 8) counterclockwise until pointer rests at bottom of scale holder. Then turn minimum stop screw (45) clockwise until pointer is just touching case. Lock screw with nut (44). Turn front zero adjustment

CLOCKWISE to place pointer on minimum scale line

24 Return diaphragm mechanism and plug button (Item 55, Figure 12 or 13) to Gage case

25 Check calibration as outlined under "Diaphragm Mechanism" before placing in service

Replacing Range Spring in Diaphragm Mechanism

1 Remove diaphragm mechanism from case (see steps 1 and 2 under "Replacing Diaphragm")

2 Refer to Figure 16 Remove upper screws (21) and lift off top cover (connecting linkage arm and top cover will come off together on differential unit)

3 Remove two screws (20) and loosen two clamping screws (14) Then remove four screws (43) and lockwashers (32)

4 Remove spring and replace with new spring

5 To reassemble perform above steps in reverse order

6 Check calibration as outlined under "Diaphragm Mechanism" before placing in service

Disassembly of Magnet Assembly, Model DC and DD

1 Remove diaphragm mechanism (Model DC or DD) from case (see steps 1 and 2 under "Replacing Diaphragm")

2 Refer to Figure 16 Remove screw (23), cover clamp (24), cover plate (25), and cover gasket (26)

3 Remove two screws (21) from follower arm hinge (29) and lift off magnet arm assembly

4 Remove screw (4) and washer (3) then loosen magnet clamp screw and remove internal magnet

5 Assemble magnet assembly as follows

a Insert internal magnet in range arm assembly (37) and position by holding flat, soft iron plate against face of casting and allowing magnet to draw itself against casting Tighten magnet clamp (27a) Leave plate in place

b Slide magnet clamp and range arm tip on magnet assembly (27) to respective midpositions Secure resulting assembly to housing cover with screws (21)

c Counterbalance arm (37) to cause magnet to balance 1/ 6 inch below center of opening if diaphragm assembly is mounted in lower position or 1/16 inch above center of opening if diaphragm assembly is mounted in upper position Remove iron plate from front of internal magnet

d To reassemble mechanism, follow the reverse of above "Disassembly"

e Apply 8 psi static pressure and test for leakage

6 Perform steps 16 thru 25 under "Replacing Diaphragm"

Changing Range of Diaphragm Mechanism

Refer to Figure 16 After making any change as listed below, recalibrate mechanism as outlined under "Diaphragm Mechanism"

1 RANGE SCREW ADJUSTMENT Under table heading "RANGE SPAN" are minimum and maximum range values For changes within the limits shown, recalibrate mechanism as outlined under "Adjustment and Calibration"

2 CLAMP POSITION Under table heading "Position" are position numbers If change in range is great enough to necessitate a clamp position change, remove diaphragm mechanism top cover, and screws (14) and slide beam clamp (15) and spacer (16) to new position Replace screws (14) and top cover

3 RANGE SPRING Under table heading "Item 38", are part numbers of range springs If change in range necessitates a range spring change, follow procedure under "Replacing Range Spring in Diaphragm Mechanism", above

4 DIAPHRAGM ASSEMBLY Refer to Items 48 and 49 in the "List of Parts" for part numbers of Diaphragm Assemblies If a change in range requires a diaphragm change follow procedure under "Replacing Diaphragm in Diaphragm Mechanism", this section

PNEUMATIC TRANSMITTER DISASSEMBLY AND PRE-CALIBRATION

1 Remove Gage from panel (see "Removing Multi Pointer Gage", below)

2 Refer to Figure 18 Detach link (10) from adjustable end (3) Remove screws (6) to separate transmitter mechanism from Gage case

3 Refer to Figure 19 To replace O rings (11), remove screws (38) and lockwashers (39) and separate Relay (14) from transmitter mechanism support block (25) Remove one O ring (11) from counterbore in support block and two O rings from Relay To disassemble Booster Relay, refer to Instruction Section P99 7

4 Remove screw (19) to separate connector assembly (21) from support block (25), remove O ring (13)

5 Remove nut (36), lockwasher (35), screw (40), and lockwasher (41)

6 Remove link (10) between vane assembly (3) and offset drive arm (9)

7 Remove four screws (22) from tapped pads (16) and remove the following items from support block (25) as a complete assembly bellows assembly (2), bellows beam (20), bellows beam hinge spring (18), nozzle assembly (4), and clamp block (17)

8 Turn bellows assembly (2) counterclockwise to remove it from support block (25) Remove O ring (12) from counterbore on support block

9 Remove two screws (28) and lockwashers (34) Remove pivot (27) (using drift and hammer) Then lift out spring support (8)

10 To reassemble mechanism, follow reverse order of above "Disassembly" Before returning transmitter mechanism to case (step), however, make the following pre calibration adjustments

a Make certain that link (Item 10 Figure 19) is positioned in holes furthest from nozzle for direct loading operation or in holes closest to nozzle for reverse loading operation

b Apply normal supply pressure (see Table I) with suitable calibration device and cycle output thru full range ten times by moving drive arm (Item 9 Figure 19) by hand

c Refer to Figure 9 Rotate range arm to obtain midrange output pressure (9 psig for Model PB or 15 psig for Model PA) With midrange pressure applied to mechanism, turn beam adjustment screw until bellows beam is parallel with transmitter base

d Loosen nozzle clamp screw and position nozzle (maintaining midrange pressure) so vane is parallel with bellows beam

11 With midrange pressure applied to transmitter, turn vane adjustment screw until vane connecting link forms right angles with vane drive arm and vane (see Angle "A" Figure 11)

12 Install transmitter in Gage case (step 2)

13 Check calibration as outlined under "Pneumatic Transmitter" before placing in service

REMOVING MULTI POINTER GAGE

To remove a single Gage from the panel, proceed as follows Refer to Figure 1 or 2

1 Close valves in pressure line before disconnecting tubing

2 Tag connecting tubing to identify correct connections when Gage is remounted When more than one Gage is removed, note position of each Gage in bank of Gages

3 Unplug supply power line from connector at bottom of Gage

4 Loosen locknuts on top and bottom mounting screws loosen screws several turns

5 Push mounting clips forward and remove mounting clip washers

6 Remove Gage thru front of panel

7 To remount Gage, perform steps 1 thru 6 in reverse order

REMOVING GAGE WINDOW OR SCALE

To remove Gage window or vertical scale for cleaning, replacement, or to free indicating pointer for Gage mechanism removal, proceed as follows Refer to Figure 12 or 13

1 Hold lower trim cover (3) and top trim cover (33) open with cover catches (5)

2 Remove Gage window (2) by loosening four retaining screws until screws are free of housing (1)

3 Remove scale holder (36) by removing two screws (Item 35, Figure 12 or Item 11 Figure 13)

4 Slide scale (37) and color shield (43) out of scale holder

ADJUSTMENT AND CALIBRATION

Measuring or transmitting mechanisms included in the Multi Pointer Gage are factory calibrated and should require no further adjustment Before placing in service, however, check applicable measuring or transmitting mechanism calibration as outlined below (Note that scale rests correctly on scale holder as shown in Figure 12 or 13 to assure accurate readings)

NOTE If Gage is to be removed from panel for testing refer to "Removing Multi Pointer Gage " POSITION GAGE ON BENCH AT SAME ANGLE AS WHEN PANEL MOUNTED

BELLOWS MECHANISM MODEL A□

1 Check installation while under pressure for leakage

2 If bellows mechanism operates a pneumatic transmitter, check transmitter calibration as outlined under "Pneumatic Transmitter", this section, before proceeding

3 Refer to Figure 6 Connect suitable calibrating device (such as mercury column or test

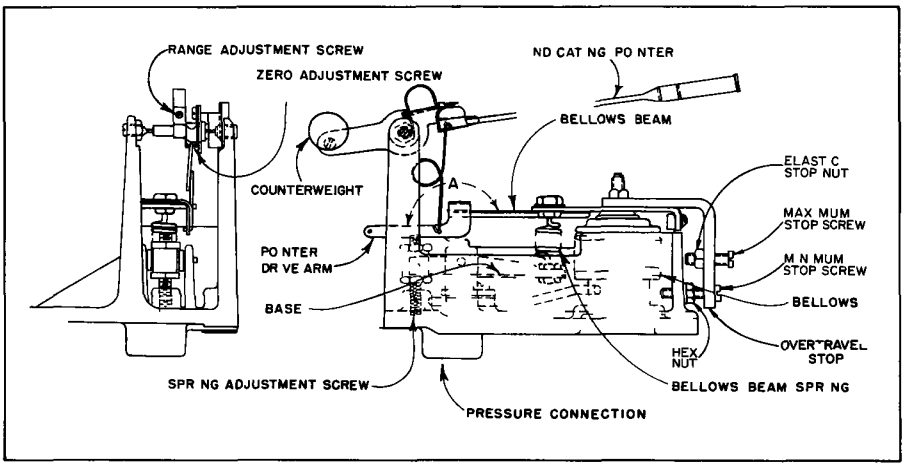


FIGURE 6 Adjustments for Bellows Mechanism, Model A□

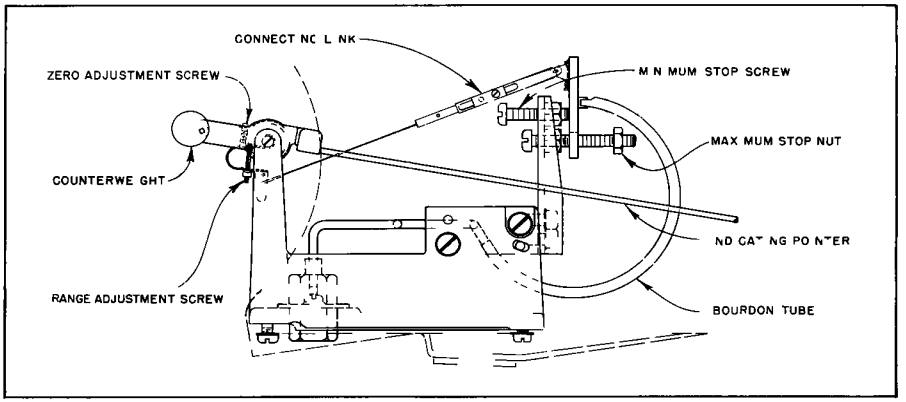


FIGURE 7 Adjustments for Bourdon Tube Mechanism, Model B1

gage) to bellows mechanism pressure connection Refer to "Explanation of Nomenclature" for applicable measured range and output pressure range

4 Apply minimum measured range pressure to bellows mechanism If indicating pointer does not read minimum scale, turn zero adjustment screw (Figure 6) to obtain correct readings

5 Apply maximum measured range or output pressure If indicating pointer does not read maximum scale, turn range adjustment screw to obtain correct reading

6 Repeat steps 4 and 5 until correct minimum and maximum scale readings are obtained

7 Apply midrange pressure to bellows mechanism If pointer motion is non linear, (pointer motion above and below midscale is not equal) and

a pointer reads low at midscale, loosen two screws on pointer drive arm and rotate arm to decrease angle "A" (see Figure 6),

b pointer reads high at midscale, loosen two screws on pointer drive arm and rotate arm to increase angle "A"

8 Repeat steps 4 thru 7 until correct minimum maximum and midrange scale readings are obtained for applied measured or output pressure values

9 If correct readings cannot be obtained, refer to "Corrective Maintenance"

BOURDON TUBE MECHANISM MODEL B1

1 Check installation while under pressure for leakage

2 Refer to Figure 7 Connect suitable calibrating device (such as a dead weight tester) to Bourdon tube mechanism pressure connection

3 Apply midrange pressure to Bourdon tube mechanism If indicating pointer does not read midscale turn zero adjustment screw clockwise to increase or counterclockwise to decrease reading

4 Apply minimum and maximum measured pressure to Bourdon tube and note pointer readings If pointer does not read minimum and maximum scale, respectively, turn range adjustment screw clockwise to increase or counterclockwise to decrease pointer travel

5 If pointer motion is non linear (pointer motion above and below midscale is not equal) and

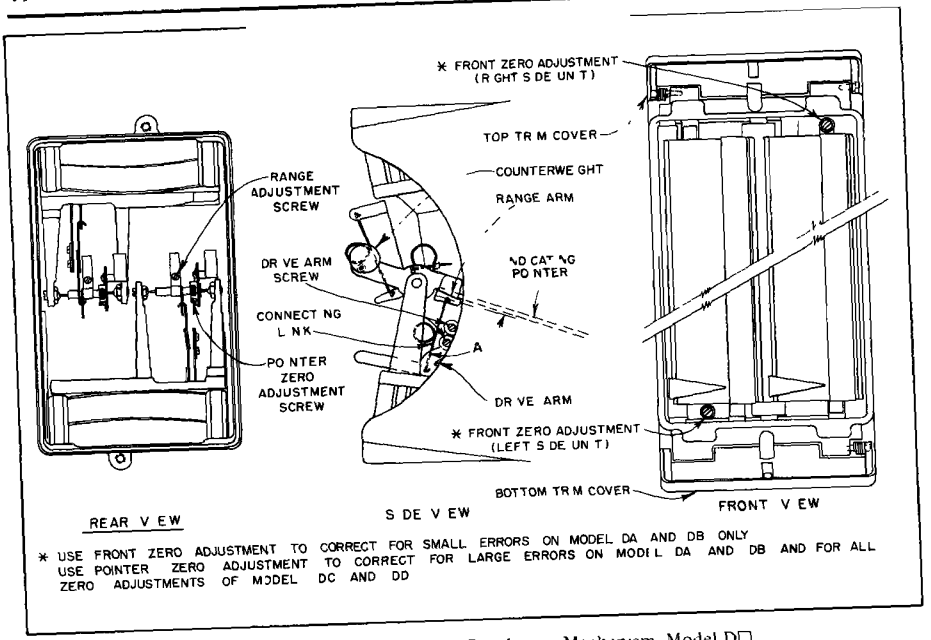


FIGURE 8 Adjustments for Diaphragm Mechanism Model D□

a pointer reads low at midscale, loosen connecting link screw and shorten link

b pointer reads high at midscale, loosen connecting link screw and lengthen link

6 Repeat steps 3 thru 5 until correct minimum, maximum, and midrange scale readings are obtained for applied measured pressure

7 If correct readings cannot be obtained, refer to "Corrective Maintenance"

DIAPHRAGM MECHANISM MODEL D□

1 Check installation while under pressure for leakage

2 If diaphragm mechanism operates a pneumatic transmitter, check transmitter calibration as outlined under "Pneumatic Transmitter" before proceeding

NOTE When calibrating a Type PG□3, Model DC and DD mechanisms, make certain that supply pressure is maintained to the pneumatic transmitter mechanism Transmitter must be operating when calibration is being checked

3 Refer to Figure 8 Connect suitable calibrating device (such as inclined manometer for very low draft, differential, or pressure ranges) or a mercury or vertical water monometer (for high ranges) to diaphragm mechanism

4 Apply minimum range draft or pressure to diaphragm mechanism For differential pressure measurement apply minimum differential to "A" or "C" connection (see table in Figure 1 or 2) leaving "B" or "D" connection open to atmosphere If indicating pointer does not read minimum scale, turn front zero adjustment (for Model DA and DB instruments) or pointer zero adjustment screw (for Model DC and DD instruments) Refer to Figure 8 If step 4 must be repeated as a

rest t of adjustments in the following steps. CORRECT FOR ZERO ERRORS WITH THE POINTER ZERO ADJUSTMENT SCREW FOR ALL MODELS

NOTE Model DC and DD diaphragm mechanisms for differential measurement are equipped with minimum and maximum stops Use pointer zero adjustment screw to correct for zero errors (to avoid the necessity of resetting the stops) DO NOT USE FRONT ZERO ADJUSTMENT FOR THIS PURPOSE

5 Apply maximum draft or pressure to mechanism If indicating pointer does not read maximum scale, turn range adjustment screw clockwise to increase or counterclockwise to decrease range

6 Repeat step 4 (using pointer zero adjustment screw) and step 5 until correct minimum and maximum scale readings are obtained

7 Apply midrange draft or pressure to diaphragm mechanism If pointer reads high at midscale, loosen two screws on pointer drive arm and move arm toward pointer assembly slightly, if pointer reads low at midscale, move arm away from pointer assembly

8 Repeat steps 4 thru 7 until correct minimum maximum, and midrange scale readings are obtained for applied draft or pressure values

9 If correct readings cannot be obtained, refer to "Corrective Maintenance"

PNEUMATIC TRANSMITTER MODEL P□

The pneumatic transmitter is factory calibrated for either direct or reverse loading operation For direct loading, transmitter output pressure increases as measured variable increases (link in hole furthest from nozzle) For reverse loading transmitter output decreases as measured variable increases (link in hole closest to nozzle) Refer to Figure 19

1 Refer to Figures 1 and 2 Attach an accurate, laboratory type gage to transmitter output connection "D" Apply normal supply pressure to connection "C" (see Table I)

TABLE I

Model	Output Pressure Range	Supply Pressure
PA	3 27 psig	30 psig
PB	3 15 psig	18 psig

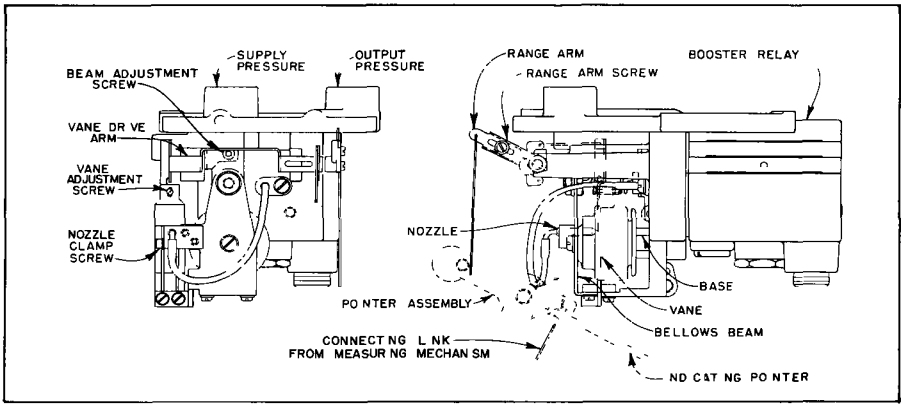


FIGURE 9 Adjustments for Pneumatic Transmitter Model P□

2 Refer to Figure 9 Disconnect connecting link between measuring mechanism and pointer assembly so pointer may be moved freely by hand

3 Hold pointer on minimum scale If output pressure gage does not read 3 psig (or, for reverse loading, 27 and 15 psig for Model PA and PB respectively), turn transmitter zero adjustment to obtain correct output pressure

4 Hold pointer on maximum scale If output pressure gage does not read 27 and 15 psig for Model PA and PB respectively (or, for reverse loading, 3 psig), loosen screw on range arm and shorten range arm to increase or lengthen arm to decrease output pressure

5 Repeat steps 3 and 4 until correct minimum and maximum output pressures are obtained

6 Hold pointer at midscale If output pressure is high, turn vane adjustment screw counterclockwise If output pressure is low, turn screw clockwise to correct reading

7 Repeat steps 3 thru 6 until transmitter output pressure corresponds to indicating pointer readings at minimum maximum and midscale

NOTE If it appears that the Booster Relay operation is faulty refer to Instruction Section P99 7

8 Reconnect link between measuring mechanism and pointer assembly, then check measuring mechanism calibration as outlined under applicable calibration instructions

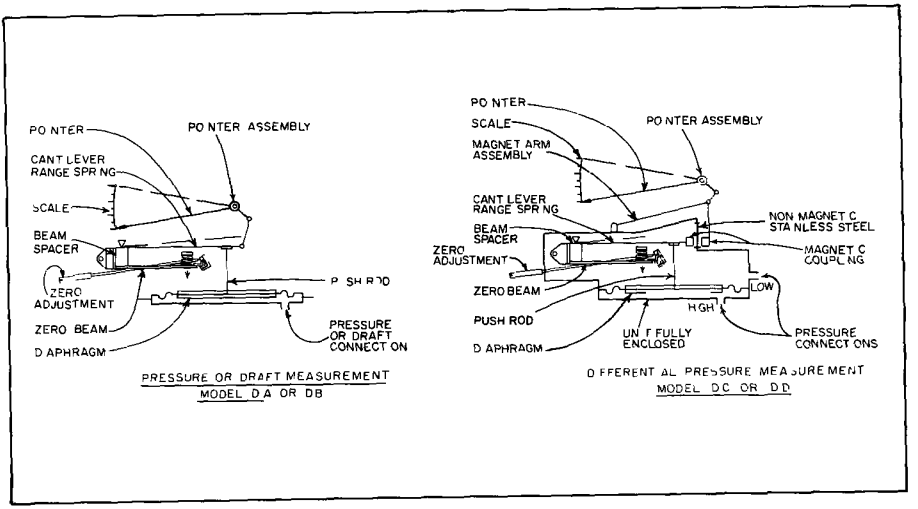


FIGURE 10 Diaphragm Mechanism, Model DD

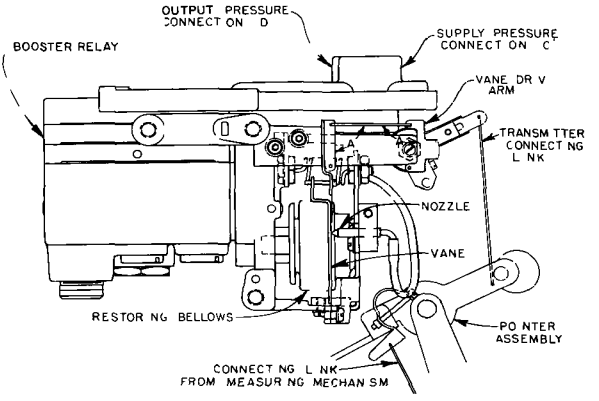


FIGURE 11 Pneumatic Transmitter, Model P□

DESCRIPTION OF OPERATION

BELLOWS MECHANISM MODEL A□

Refer to Figure 6. The bellows mechanism consists of a bellows connected by a spring loaded bellows beam to the pointer drive arm. Increases and decreases in measured pressure expand and contract the bellows, producing movement of the bellows beam. This motion is transmitted thru the pointer drive arm and connecting linkage to produce proportional movement of the indicating pointer.

BOURDON TUBE MECHANISM MODEL B1

Refer to Figure 7. The Bourdon tube mechanism for pressure measurement consists of a Bourdon tube connected to a pressure source and to connecting linkage which positions an indicating pointer. An increase or decrease in pressure applied to the Bourdon tube causes the tube to move. Motion of the tube end is transmitted thru connecting linkage to produce proportional movement of the indicating pointer.

DIAPHRAGM MECHANISM MODEL D□

Refer to Figure 10. The Model DA or DB mechanism for draft or pressure measurement consists of a diaphragm connected by a push rod, range spring, and connecting linkage to an indicating pointer. An increase or decrease in measured draft or pressure, applied to the bottom of the diaphragm, causes the diaphragm to move. This motion is transmitted thru the push rod, range spring, and connecting linkage to produce proportional movement of the indicating pointer.

The Model DC or DD mechanism for differential pressure measurement consists of a diaphragm connected by a push rod, range spring, magnetic coupling, and connecting linkage to an indicating pointer. (The magnetic coupling is formed between the inside and outside of the diaphragm housing by two permanent magnets, one attached to the range spring and the other to the magnetic arm assembly.) High pressure is applied to the bottom of the diaphragm and low pressure to the

top An increase or decrease in applied differential pressure causes the diaphragm to move This motion is transmitted thru the push rod, range spring, magnet assembly, and connecting linkage to produce proportional movement of the indicating pointer

PNEUMATIC TRANSMITTER MODEL P□

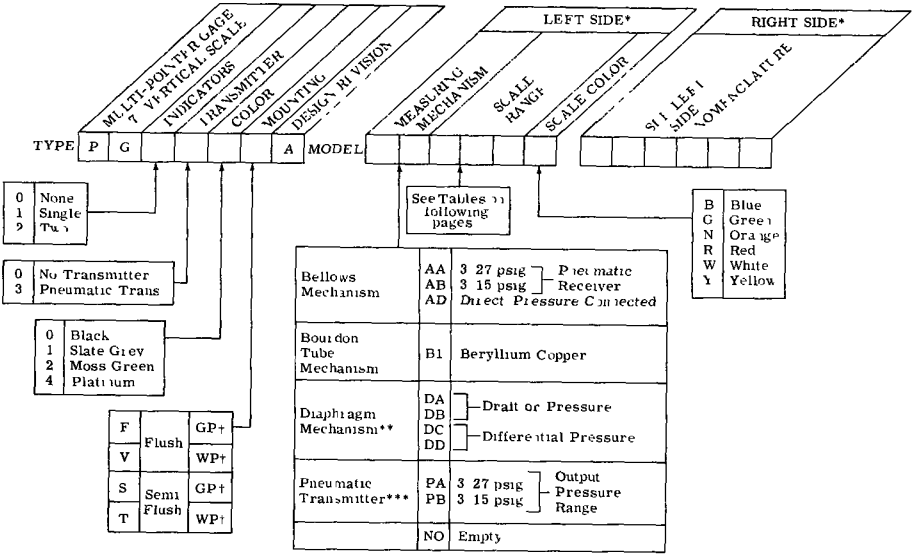
Refer to Figure 1. The pneumatic transmitter transmits an output pressure proportional to a measured variable This transmitter is always mounted in the upper (right side) position in the Gage and is operated by a measuring mechanism mounted in the lower (left side) position

An increase or decrease in the measured variable causes the measuring mechanism to move This motion is transmitted thru the pointer assembly and connecting linkage to the vane drive arm Rotation of the vane drive arm respositions the vane in relation to the nozzle to produce a proportional change in output pressure transmitted by the Booster Relay (For operation of the Booster Relay, refer to Instruction Section P99-7)

EXPLANATION OF NOMENCLATURE

Nomenclature consists of TYPE and MODEL, such as TYPE PG700FA, MODEL DA110W DC310R Basic enclosure details are covered by TYPE designation Left and right gage details (mechanism and range), in that order are covered by MODEL designation

NOTE Three digit code number 100 in MODEL designation indicates a blank scale Three digit code number 900 in MODEL designation indicates a scale for ranges other than the standard ranges shown in Tables II, III, IV and V



*Viewed from front of Gage

**When installed in a pressurized panel board for the measurement of draft or low pressure a Model DC or DD Diaphragm Unit is used The measured medium is connected to one inlet and the other inlet is connected to tubing open to atmosphere outside the pressurized panel

***Right Side Only

†GP General Purpose NEMA I

†WP Weatherproof NEMA III (Type PG13 Only)

Refer to the nameplate on the bottom of the Type PG Multi Pointer Gage for the Nomenclature designation. An X in any Nomenclature position indicates that the variation is special. An X as a suffix to either Type or Model Nomenclature indicates that the Gage includes a special feature not covered by Nomenclature

STANDARD RANGES & MODELS TABLE II
(Bourdon Tube Mechanism)

PRESSURE Scale Range psig	MODEL* Beryllium Copper Bourdon Tube
[illegible] 40	4[illegible]
[illegible] 40	[illegible] 514
0 [illegible] 50	5[illegible]
0 [illegible]	5[illegible]
0 [illegible] 0	B 5[illegible]
0 [illegible] 80	B 5[illegible]
0 [illegible]	52[illegible]
0 [illegible]	B 52
0 [illegible] 200	B 5[illegible]
0 [illegible] 300	B 5[illegible]
0 [illegible] 400	B 5[illegible]4
0 [illegible] 500	B 5[illegible]5
0 [illegible] 600	B 5[illegible]
[illegible] 800	B 528
0 [illegible] 000	B 530
0 [illegible]	B [illegible]
0 [illegible] 5 0	B [illegible] 5
0 [illegible] 00	B 540
20 [illegible] 40	B [illegible]54
20 [illegible] 50	B 655
20 [illegible] 8	B 658
50 [illegible] 150	B 66
30 [illegible] 403	B [illegible]
200 [illegible] 00	B 66[illegible]
200 [illegible] 00	B 667
300 [illegible] 600	B 66[illegible]
300 [illegible] 900	B [illegible]
30 [illegible] 00	B [illegible]
400 [illegible] 0	B 67[illegible]

*Suffix must be added to MODEL designation to indicate scale color W white B blue G—green N orange R red Y yellow

STANDARD RANGES & MODELS TABLE IV
(Pneumatic Transmitter)

Transmitter Range psig	MODEL
3 [illegible]	PA 00
3 [illegible]	PB 0[illegible]

STANDARD RANGES AND MODELS
(Diaphragm Mechanism)

TABLE I

DRAFT

Scale Range	MODEL*
Scale Range H_2O	
0 3 [illegible] +0	DA [illegible]
0 5 [illegible] 0	DA
0 5 [illegible] 0	DA [illegible]
0 5 [illegible] +0 3	DA
0 5 [illegible] 0 5	DA 4
0 6 [illegible] 0	DA 5
0 6 [illegible] +0	DA 6
0 8 [illegible] +0	DA 7
0 [illegible] 0	DA 8
0 [illegible] +0	DA [illegible]
[illegible] + [illegible]	DA 2
0 [illegible] 0	DA 2
5 [illegible] 0	DA 22
2 [illegible] 0	DA
[illegible] +2	DA 24
[illegible] 0	DA 5
3 [illegible] +	DA 26
4 [illegible] 0	DA 27
4 [illegible] +	DA 28
5 [illegible]	DA 29
6 [illegible] 0	DA 30
8 [illegible] 0	DA [illegible]
0 [illegible]	DA 32
2 [illegible] 0	DA 33
5 [illegible] 0	DA 34
20 [illegible] 0	DB 35
30 [illegible]	DB 36
Scale Range mm H_2O	
5 [illegible] 0	DA 60
20 [illegible]	DA 61
25 [illegible] 0	DA [illegible]
30 [illegible] 0	DA 63
40 [illegible] 0	DA 64
50 [illegible]	DA16
60 [illegible] 0	DA 66
80 [illegible]	DA 68
00 [illegible] 0	DA 70
150 [illegible]	DA 7
200 [illegible] 0	DA 7[illegible]
250 [illegible] 0	DA 8
300 [illegible] 0	DA 73
400 [illegible] 0	DA 74
500 [illegible] 0	DB 75
600 [illegible] 0	DB 76
800 [illegible]	DB 78
0 [illegible] +5	DA 88
5 [illegible] + 5	DA 40
25 [illegible] 25	DA 9[illegible]
50 [illegible] +50	DA 94
00 [illegible] +50	DA 97
150 [illegible] 50	DA198
[illegible] 00	DA 99

PRESSURE

Scale Range	MODEL*
Scale Range H_2O	
0 [illegible] +0 5	DA [illegible] 0
0 [illegible] +0 6	DA[illegible]
[illegible] +0 8	DA
0 [illegible] +	DA[illegible] 3
0 5 [illegible] + 0	DA[illegible] 4
0 [illegible] 5	DA[illegible]
0 [illegible] +	DA[illegible] 6
0 5 [illegible] +[illegible]	DA[illegible]
[illegible] +3	DA[illegible] 8
0 5 [illegible] +3	DA [illegible]
0 [illegible]	DA[illegible]
0 5 [illegible] +4	DA[illegible]
[illegible] 5	DA[illegible]
0 [illegible] 6	DA[illegible]
[illegible] 6	DA 4
[illegible] 8	DA 5
0 [illegible] + [illegible]	DA[illegible]6
0 [illegible] + [illegible]	DA[illegible]7
[illegible] 5	DA[illegible] 8
[illegible]	B229
0 [illegible] +30	DB [illegible] 0
0 [illegible] + 0	DB[illegible]
0 [illegible] 50	DB[illegible]3[illegible]
0 [illegible] 30	DB[illegible]3
0 [illegible] +80	DB [illegible]4
0 [illegible] + 00	DB[illegible]35
Scale Range psig	
0 [illegible] +2	DB[illegible]0
0 [illegible]	DB[illegible]5
[illegible] +4	DB25
Scale Range mm H_2O	
0 [illegible] 5	DA[illegible]
0 [illegible] 20	DA[illegible]
0 [illegible] + [illegible]	DA[illegible]
0 [illegible] +30	DA[illegible]
[illegible] +40	DA 264
0 [illegible] +50	DA[illegible]
0 [illegible] 60	DA[illegible]
0 [illegible] +80	DA [illegible]
0 [illegible] + 00	DA 7
0 [illegible] + 50	DA 7
0 [illegible] +200	DA[illegible]
0 [illegible] +250	DA28
3 [illegible] 300	DA2 [illegible]
[illegible] 400	DA[illegible]74
0 [illegible] +500	DE[illegible]75
0 [illegible] +600	DE[illegible]76
0 [illegible] +800	DE[illegible]79
0 [illegible] + 00	DE[illegible]80

DIFFERENTIAL PRESSURE

Scale Range	MODEL*
Scale Range H_2O	
[illegible] 5	D[illegible] 3 0
0 [illegible] 0	DC3 1
0 [illegible] 0 8	DC3 [illegible]
0 [illegible] 0	DC[illegible] 3
0 [illegible] 1 5	DC3 5
[illegible]	D[illegible] 6
[illegible] 3	DC[illegible] 6
0 [illegible] 4	D[illegible]320
0 [illegible] 5	D[illegible]2
0 [illegible]	D 3[illegible]
0 [illegible] 8	DC325
0 [illegible] 0	D[illegible] 6
0 [illegible]	DC327
0 [illegible] 6	DC3[illegible]
0 [illegible] 20	DC3[illegible]
0 [illegible]	DD33[illegible]
0 [illegible] 4	DD3[illegible]
0 [illegible] 50	DD[illegible]2
[illegible] 60	DD 33
0 [illegible] 80	DD334
0 [illegible] 0	DD335
Scale Range mm H_2O	
0 [illegible] 5	DC360
0 [illegible] 2	D[illegible]36
0 [illegible]	D[illegible]62
0 [illegible] 30	D[illegible] 6
[illegible] 40	D[illegible] 364
0 [illegible] 50	D[illegible] 365
0 [illegible] 60	D[illegible] 366
0 [illegible] 8	D[illegible] 368
0 [illegible] 00	DC370
0 [illegible] 50	D[illegible] 37
0 [illegible] 200	D[illegible] 72
0 [illegible] 50	DD381
0 [illegible] 3 0	D[illegible] 373
0 [illegible] 400	DC374
[illegible] 00	DD [illegible]75
[illegible] 600	DD [illegible]
0 [illegible] 90	DD[illegible] 8
0 [illegible] 000	DD39

Suffix must be added to MODEL designation to indicate scale color W white B blue G—green N—orange R—red Y yellow

**No [illegible] or use with pneumatic [illegible] transmitter

STANDARD RANGES AND MODELS
(Bellows Mechanism)

TABLE V

PRESSURE

Scale Range psig	MODEL*
0 [illegible] 5	AD4 [illegible]
0 [illegible] 0	AD4
0 [illegible] 5	AD4 [illegible]
0 to 20	AD4 3
0 [illegible] 25	AD4 4
0 [illegible] 30	AD4 5

PRESSURE

Scale Range Hg to psig	MODEL*
5 [illegible] +5	AD440
5 [illegible] + [illegible]	AD44
5 [illegible] + 5	AD442
5 [illegible] +20	AD443
5 [illegible] +25	AD444
0 [illegible] +5	AD445
0 [illegible]	AD44[illegible]
0 [illegible] + [illegible]	AD44
10 [illegible] +20	AD44[illegible]
0 [illegible] +25	AD44[illegible]
5 [illegible] +5	AD451
5 [illegible] + 0	AD45
5 [illegible] + 5	AD45[illegible]
5 [illegible] +20	AD453
20 [illegible] +5	AD454
20 [illegible] 0	AD455
20 [illegible] + 5	AD456
20 [illegible] +20	AD45[illegible]
25 [illegible] +5	AD458
25 [illegible] + 0	AD459
25 [illegible] + [illegible]	AD460
30 [illegible] 5	AD46
30 [illegible] 0	AD46[illegible]
30 [illegible] + 5	AD463

LEVEL

Scale Range H_2O	MODEL*
0 [illegible] 5	AD40[illegible]
0 [illegible] 20	AD40[illegible]
0 [illegible] 25	AD404
0 [illegible] 30	AD405
[illegible] 40	AD406
0 [illegible] 50	AD407
0 [illegible] 60	AD40[illegible]

PNEUMATIC RECEIVING

Scale Range	MODEL 3 27 psig	MODEL 3 15 psig
0 [illegible] 100 [illegible]	AA	AB [illegible]
0 [illegible] 00 [illegible]	AA1 [illegible]	AB102
A [illegible] T [illegible]	AA	AB

PRESSURE

Scale Range Hg	MODEL*
0 [illegible] 0	AD4[illegible]
0 [illegible] 5	AD4[illegible]
0 [illegible] 20	AD4[illegible]3
0 [illegible] 25	AD4[illegible]
0 to 30	AD4 5
0 [illegible] 35	AD4[illegible]6
[illegible] 0	AD43
5 [illegible] 0	AD43[illegible]
0 [illegible] 0	AD433
5 [illegible] 0	AD434
30 [illegible] 0	AD435

VACUUM

Scale Range Hg	MODEL
0 [illegible] 0	AD4
0 [illegible] 15	AD4[illegible]2
0 [illegible] 20	AD47[illegible]
0 [illegible] 25	AD474
0 [illegible] 30	AD475

Suffix must be added to MODEL designation to indicate scale color W white B blue G—green N—orange R red Y yellow

*The third fourth and fifth character in MODEL designation are a 3 digit code number identifying the scale range See Tables

SPECIFICATIONS

Standard ranges	See Tab es thru V
Accuracy*	D rect Pressure or Draft ±1% of span Pneumat c Rece ver ±1/2% of span Pneumat c Transm tter ±1/2% of span
Construction	Enc osure H gh mpact z nc Prov des space for two nd cators or one nd cator and o ie pneumat c transm tter Weather proof ng s m ar to NEMA Type 3 s standard on a un ts equ pped w th pneu mat c transm tter and s ava ab e on nd cat ng gages Mechan sm See Nome ic ature Spr ng Constant modu us a oy P vots Sta n ess stee Sca e cover C ear mo ded p ast c
Mounting	F ush or sem f ush Each un t mounts separate y regard ess of number mounted n a s ng e pane cutout
Indicating scale	Sca e s constructed n two parts grad uat ons and range f gu es on c ear po y styrene n front, po ystyrene co or sh e d n rear Co or sh e d ava ab e n wh te b ue green, orange, red, or ye ow Stand ard sca es have b ack f gures and etters w th 4 5, 6 8, or 10 major d v s ons and 20 25 30 40, or 20 m nor d v s ons respect ve y Max mum number of range f gures s 7 Each range f gure s m ted to a max mum of 3 characters Numera 1 and dec ma po nt are 1/2 characters)
Service legend	Located be ow nd v dua nd cators Two nes w th max mum of 12 characters and spaces per ne
Transmitter air requirements	30 ps g for 3 27 ps g range 18 ps g for 3 15 ps g range A r consumpt on ess than 0 10 scfm at ba ance on dead-end serv ce
External connections	1/4 18NPT fema e
Electrical supply (internal illumination)	Standard 118v AC, 50/60Hz nterna um nat on standard on a un ts

*As def ned by SAMA Standard PMC20

NOTE SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

REPLACEMENT PARTS

SPARE PARTS KITS

The Spare Parts Kits shown in Figures 12 thru 19 should be carried in stock Specify the Spare Parts Kit part number to order a complete kit

ORDERING INDIVIDUAL PARTS

Figures 12 thru 19 are Parts Drawings of the Type PG Multi Pointer Gage Normally, these drawings will apply to the Gages furnished However, there may be individual differences in specific Gages because of

1 Design changes made since the printing of this Instruction Section, or

2 Special design of equipment furnished to make it suitable or a specific application

Therefore, when ordering individual parts, assure receipt of correct replacements by specifying on order

a Complete nomenclature code number, part number, series label number and S O number of equipment for which parts are desired, and

b The Parts Drawing Number on which each part is illustrated (The Parts Drawing Number is given in the Figure caption)

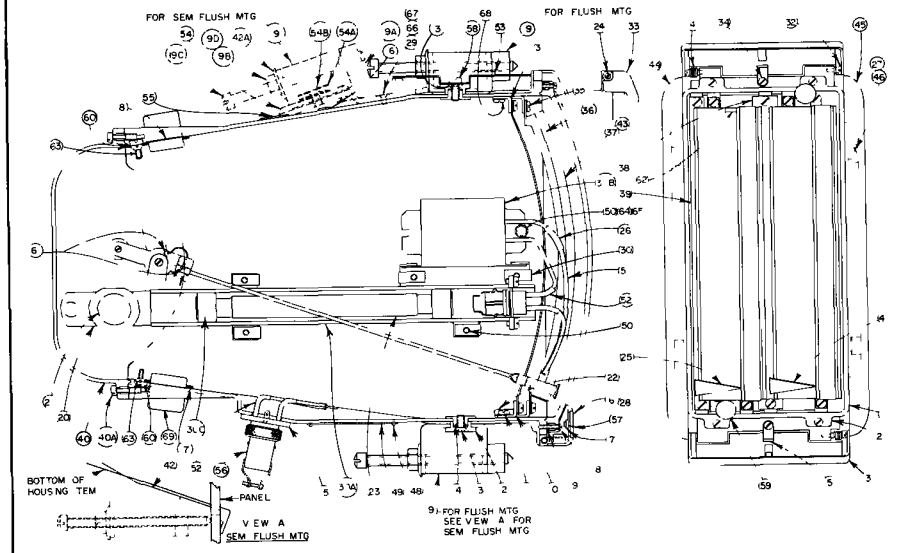


FIGURE 1? Parts Drawing M4? 25, Case and Pointer Assembly

ITEM	PART NO	NAME
1	451857 1	HOUSING
2	451914 1	WINDOW
3	SEE TABLE B	LOWER TRIM COVER
4	451943 1	COVER SPRING 2 REQD
5	45 994 1	COVER CATCH 2 REQD
6	451938 □	LEGEND PLATE 2 REQD (SPECIFY ENGRAVING)
7	5 32	PUSH ON TYPE SPEED NUT
8	4 40x1 2	PAN HEAD SCREW 4 REQD
9	197242 4	RETAINING RING 4 REQD
10	451927 1	BOTTOM SUPPORT
	6 32x5 16	PAN HEAD EXT SEMS
12	451939 1	MOUNTING CLIP WASHER 2 REQD
13	10 32x3 8	FLAT HD SCREW
14	451940 1	SPECIAL NUT 2 REQD
15	94198" 2	PLUG
16	1998 10	PLUG BUTTON AS REQD
17	4x2021 1	GASKET 2 REQD
18	452049 1	COVER AS REQD
19	35652 1	MOUNTING CLIP ASSY 2 REQD FOR FLUSH MTG 1 REQD FOR SEMI FLUSH MTG INCLUDES ITEMS 19A 9B 19C, & 19D
19A	35428	MOUNTING CL P
19B	1 4 20	HEX NUT
9C	19"255 1	MOUNTING SCREW
19D	4914 14 01	SHKPRF PYRAMIDAL LKWASH
20	45 918 1	LAMP SL DE ASSY
2	194834 2	STARTER
22	661719 2	WIRE CLAMP
23	94156b 1	FLUORESCENT LAMP
24	4x204e 1	COVER SCREW 2 REQD
25	SEE TABLE A	POINTER ASSY

ITEM	PART NO	NAME
26	1941566 1	SOLDERLESS WIRE CONNECTION
27	1110 00	SHKPRF LKWASH, 4 REQD
29	10 32x1 4	FLAT HD SCREW 2 REQD FOR SEMI FLUSH MOUNTING
30	451917 1	BALLAST AND SL DE INCLUDES
30A	451919 1	CHANNEL SLIDE ASSY
30B	194783 1	BALLAST
30C	1941497 1	POLARIZED SOCKET
31	451926 1	TOP SUPPORT
32	451993-1	SHOULDERED SCREW, 2 REQD
33	SEE TABLE B	TOP TRIM COVER
34	3 48x1 4	FLAT HEAD SCREW, 2 REQD
35	6 32x1 8	PAN HEAD EXT SEMS, 8 REQD
36	451925 1	SCALE HOLDER
37	452012-□	SCALE TYPE PG10 REQUIRES 1 TYPE PG20 REQUIRES 2 (SPECIFY ENGRAVING)
38	451929 2	SCALE MASK
39	451929-1	SCALE MASK
40	451904-1	REAR COVER INCLUDES
40A	666719 1	SPECIAL SCREW 2 REQD
41	SEE TABLE A	POINTER ASSY
42	452256 1	BOTTOM MOUNTING CLIP ASSY, SEMI FLUSH MTG, INCLUDES ITEMS 42A 19 3 & 19C
42A	4814 14 01	SHKPRF DISH TOOTH PERIPHERAL LOCKWASHER
43	SEE TABLE C	COLOR SHIELD 2 REQD
44	SEE TABLE B	LEFT SIDE PLATE
45	SEE TABLE B	RIGHT SIDE PLATE
46	10 32x5 16	PHILLIPS FIL HD SCR 4 REQD
48	0 x1 8	PARKER KALON TYPE 1 DRIVE SCREW 2 REQD

ITEM	PART NO	NAME
49	1961490 1	NAMEPLATE
50	6 32x1 4	FLAT HD SCREW 5 REQD
51	R2041 003	BMCO NO 8 LEADWIRE, 42 REQD
52	R9 23 0122	BMCO NO .32x7/8 LG TUB 4 REQD
53	SEE TABLE B	DUST COVER (FOR SEMI FLUSH MOUNTING)
54	SE TABLE B	SEMI FLUSH MTG SPT ASSY, INCLUDES ITEMS 54A & 54B
54A	35325 1	MOUNTING CLIP WASHER
54B	10 32x1 2	FLAT HEAD SCREW
55	19681 4	PLUG BUTTON
56	194198" 1	SOCKET
57	452148 1	SUPPORT PLATE
58	10 32x "	PAN HD SCR (SEMI FLUSH MTG 10 32x3 8 2 REQD FOR FLUSH MTG)
59	452215 1	RUBBER PLUG 2 REQD
60	8 32x1 "	PAN HEAD EXT SEMS 6 REQD FOR TYPE PG2 3 REQD FOR TYPE PG1
61	49126 8	SCREW
	451879 1	NUT
62	5324438 1	SCALE RETAINING CLIP 2 REQD
63	8 32x1 2	FLAT HD MACH SCREW 2 REQD
64	6 32	HEX NUT
65	1106 00	SHAKEPROOF LOCKWASHER
66	10 32x3 16	PAN HD SCR 2 REQD FOR FLUSH MTG
67	NO 10	TYPE A, PLAIN WASH 2 REQD FOR FLUSH MTG
68	6 32x3 16	PAN HD SEMS EXT, 3 REQD
69	452150 1	SURGE DAMP PLUG, SEE TABLE D

TABLE A

MODEL	ITEM 25 LEFT SIDE MECH*	ITEM 41 RGT SIDE MECH*
AA AB AD DA DB DC DD B1	451880 1	451880 2
	452064 1	452064 2

SPARE PARTS KIT	
SPARE PARTS KIT PART NUMBER 250001 1	
QUANTITY	ITEM NUMBER
1 EACH OF	21 & 23

TABLE B

COLOR	ITEM 3	ITEM 33	ITEM 44*		ITEM 45*		ITEM 53	ITEM 54
			FLUSH MTG	SEMI FLUSH MTG	FLUSH MTG	SEMI FLUSH MTG		
BLACK	451934 1	451933 1	451969 1	451992 2	451969 1	451992 1	452149 1	451989 1
GRAY	451934 2	451933 2	451969 2	451992 4	451969 2	451992 3	452149 2	451989 2
GREEN	451934 3	451933 3	451969 3	451992-6	451969 3	451992 5	452149 3	4519d9 3
PLATINUM (BMCO USA	451934 9	451933 5	451969 5	451992 10	451969 5	451992 9	452149 5	451989 5
PLATINUM (BMCO CANADA)	451934 10	451933 5	451969 5	451992 10	451969 5	451992 9	452149 5	451989 5

TABLE C

ITEM 43	COLOR
451996 1	WHITE
451996 2	GREEN
451996 3	BLUE
451996 4	PINK
451996 5	ORANGE
451996 6	YELLOW

* AS VIEWED FROM FRONT OF GAGE

TABLE D

ITEM 69 SURGE DAMP PLUG

MODEL	PORTS A & B	PORTS C & D
DA, DB	A	C
DC, DD	A & B	C & D

for Type PG□0 (GP) Multi Pointer Gage

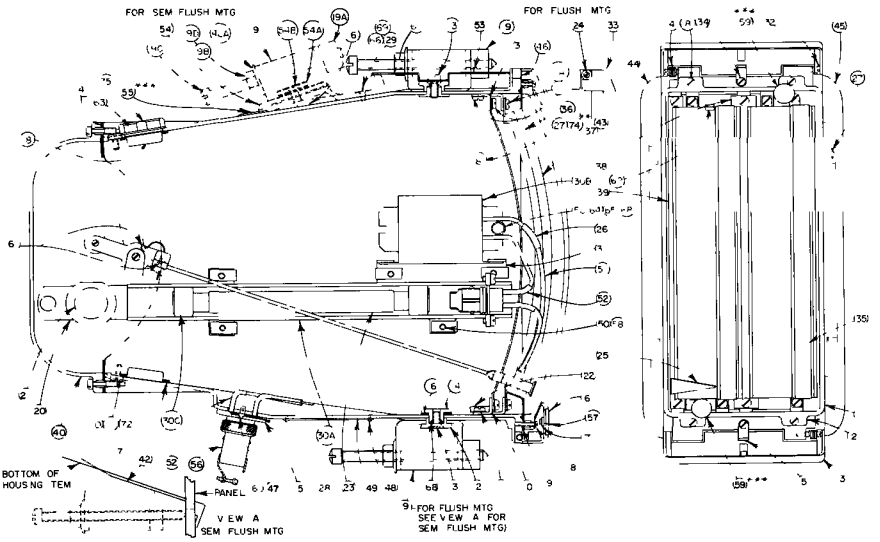


TABLE A										
TYPE	MODEL	ITEM 19	ITEM 25	ITEM 29	ITEM 42	ITEM 53	ITEM 54	ITEM 66	ITEM 69	ITEM 73
PG13□VA	A□ & D□	2	451880 1	0	0	0	0	0	2	10 32x3 8 FLAT HEAD SCREW
	B1		452064 1							
PG13□TA	A□ & D□	1	451880 1	2	1	1	1	2	0	452219 5
	B1		452064 1							

TABLE C	
ITEM 43	COLOR
451996 1	WHITE
451996 2	GREEN
451996 3	BLUE
451996 4	PINK
451996 5	ORANGE
451996 6	YELLOW

TABLE D (ITEM 75)		
MODEL	PORTS A & B	PORTS C & D
DA DB	A	C
DC DD	A & B	C & D

SPARE PARTS KIT	
SPARE PARTS KIT PART NUMBER 250001 1	
QUANTITY	ITEM NUMBER
1 EACH OF	21 & 23

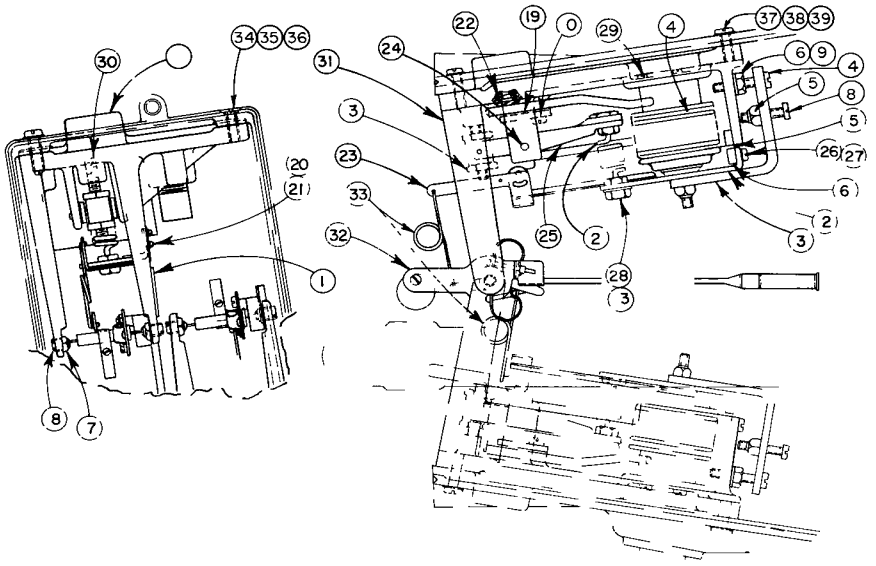
FIGURE 13 Parts Drawing M42-23 Case and Pointer Assembly for

ITEM	PART NO	NAME
1	45185? 1	HOUSING
2	451914 1	WINDOW
3	SEE TABLE B	LOWER TRIM COVER
4	451943 1	COVER SPRING 2 REQD
5	451994 1	COVER CATCH ? REQD
6	451938 □	LEGEND 2 REQD SPECIFY ENGRAVING
	5 32	PUSH ON TYPE SPEED NUT
8	4 40 x 1 2	PAN HD STN STL MACH SCREW 4 REQD
9	19?249 4	RETAINING RING 4 REQD
10	451927 1	BOTTOM SUPPORT
11	6 32 x 3 16	PAN HEAD CD PL STL SEMS EXT 11 REQD
11A	6 32 x 5 16	PAN HD CD PL STL SEMS EXT
12	451939 1	MTG CLIP WASH 2 REQD
13	10 32 x 1 2	FLAT HD STN STL MACH SCREW
14	451940 1	SPECIAL NUT 2 REQD
15	194198? 2	PLUG
16	452262 1	GASKET? 8 1 D 2 REQD
17	452021 1	GASKET 2 REQD
18	452049 1	COVER AS REQD
19	35652 1	MOUNTING CLIP ASSY SEE TABLE A INCLUDES ITEMS 19A 19B 19C & 19D
19A	35426 1	MOUNTING CLIP
19B	4 20	HEX NUT
19C	197255 1	MOUNTING SCREW
19D	4914 14 01	SHKPF PYRAMIDAL LOCKWASHER
20	451918 1	LAMP SLIDE ASSY
21	194834 2	STARTER
22	561?19 2	WIRE CLAMP
23	194156? 1	FLUORESCENT LAMP
24	452148 1	COVER SCREW 2 REQD
25	SEE TABLE A	POINTER ASSY (LEFT SIDE MECHANISM*)
26	1941566 1	SOLDERLESS WIRE CONNECTOR
27	452219 2	10 32 x 3 8 SEALING SCR 4 REQD
28	452218 1	GASKET
29	10 32 x 1 4	FLAT HD STN STL MACH SCREW SEE TABLE A
30	451917 1	BALLAST & SLIDE ASSY INCLUDES
30A	451919 1	CHANNEL SLIDE ASSY
30B	194?83 1	BALLAST
30C	1941497 1	POLARIZED SOCKET
31	451926 1	TOP SUPPORT
32	451993 1	SHOULDERED SCR ? REQD
33	SEE TABLE B	TOP TRIM COVER
34	3 48 x 1 4	FLAT HD STN STL MACH SCREW 2 REQD
35	451936 1H1	BLANK SCALE
36	451925 1	SCALE HOLDER 2 REQD
3	452012 □	SCALE (SPECIFY ENGRAVING)
38	451929 2	SCALE MASK
39	451929 1	SCALE MASK
40	452226 1	REAR COVER ASSY
41	R9410 0011	NO 4108 1 8 THICK X 1 4 WIDE POLYURETHANE FOAM WITH ADH BACK 25
42	452256 1	BOTTOM MTG CLIP ASSY SEE TABLE A INCLUDES ITEMS 42A 19B & 19C
42A	4814 14 01	SHKPF DISH TOOTHED PERIPHERY LOCKWASHER
43	SEE TABLE C	COLOR SHIELD ? REQD
44	SEE TABLE B	LEFT SIDE PLATE
45	SEE TABLE B	RIGHT SIDE PLATE
46	R9410 0011	NO 4108 1 8 THICK X 1 4 WIDE POLYURETHANE FOAM WITH ADHESIVE BACK 22
47	4 40 x 1 4	FLAT HD STN STL MACH SCREW 2 REQD
48	0 x 1 8	RD HD STN STL THREAD FRMG SCR TYPE L 2 REQD
49	1961400 1	NAMEPLATE
50	6 32 x 3 8	FLAT HD STN STL MACH SCREW 6 REQD
51	R2041 0030	NO 8 BMCO LEADWIRE WHT 42 REQD
52	R9023 0122	NO 32 BMCO INS TUBING 7 8 LG 4 REQD
53	SEE TABLE B	DUST COV SEE TABLE A
54	SEE TABLE B	SEMI FLUSH MTG SPT SEE TABLE A INCLUDES ITEMS 54A & 54B
54A	35325 1	MOUNTING CLIP WASHER
54B	10 32 x 1 2	FLAT HEAD SCREW
55	19981 4	PLUG BUTTON
56	4522b1 1	WEATHERPROOF SOCKET ASSY
57	452148 1	SUPPORT PLATE
58	197496 6	NO 6 NYLON SEALING WASHER 5 REQD
59	452215 1	RUBBER PLUG 2 REQD
60	197496 4	NO 4 NYLON SEALING WASHER 2 REQD
61	49126 8 4518?9 1	SCREW NUT
62	5324438 1	SCALE RET CLIP, 2 REQD
63	19?495 1	SEALING LOCKNUT 4 REQD
64	6 32	STN STL HEX NUT
65	1106 00	STN STL SHAKEPROOF LOCKWASHER
66	197496 11	NO 10 NYLON SEALING WASHER SEE TABLE A
67	452216 1	RUBBER SEALING PLUG 6 REQD
68	452262 3	GASKETS 161 DIA REQD
69	452219 2	10 32 x 3 8 SEALING SCR SEE TABLE A
70	197496 8	NO 8 NYLON SEALING WASHER 2 REQD
71	452219 1	8 32 x 1 2 SEALING SCR 6 REQD
72	8 32 x 1 2	FLAT HEAD STN STL MACHINE SCR 2 REQD
73	SEE TABLE A	STN STL MACH SCR
74	R9411 J016	NO 4108 (1 8 THICK X 1 WIDE) POLYURETHANE FOAM AS REQD
75	452150 1	SURGE DAMP PLUG SEE TABLE D

*AS VIEWED FROM FRONT OF GAGE
**TO SEAL UNITS WHEN MOUNTED SIDE BY SIDE APPLY SEALANT PT NO 1951188 1 TO TAPPED HOLES AND ADD ITEM 74 SEAL SIDE PLATE ITEMS 44 AND 45 WITH SEALANT PT NO 1951188 1 AND ITEM 27
***APPLY SEALANT PT NO 195118 1 TO HOLE AND PRESS PLUG IN REMOVE EXCESS WHEN DRY

TABLE B

COLOR	ITEM 3	ITEM 33	ITEM 44*		ITEM 45*		ITEM 53	ITEM 54
			FLUSH MTG	SEMI FLUSH MTG	FLUSH MTG	SEMI FLUSH MTG		
BLACK	451934 1	451933 1	451969 1	451992 2	451969 1	451992 1	452149 1	451989 1
GRAY	451934 2	451933 2	451969 2	451992 4	451969 2	451992 3	452149 2	451989 2
GREEN	451934 3	451933 3	451969 3	451992 6	451969 3	451992 5	452149 3	451989 3
PLATINUM (BMCO USA	451934 9	451933 5	451969 5	451992 10	451969 5	451992 9	452149 5	451989 5
PLATINUM (BMCO CANADA)	451934 10	451933 5	451969 5	451992 10	451969 5	451992 9	452149 5	451989 5



SPARE PARTS KITS											
SPARE PARTS KIT PART NO 25460 1				SPARE PARTS KIT PART NO 254060 2				SPARE PARTS KIT PART NO 254060 3			
MODEL	RANGE	QTY	ITEM	MODEL	RANGE	QTY	ITEM	MODEL	RANGE	QTY	ITEM
AA AD	3 27 PSIG 30 PSIG MAX SPAN	1 EACH	4 22 33 & SPRING ASSY 452255 1	AB AD	3 15 PSIG 15 PSIG MAX SPAN	1 EACH	4 22 33 & SPRING ASSY 683080 1	AD	6 5 PSIG MAX SPAN	1 EACH	4 22 33 & SPRING ASSY 682586 1

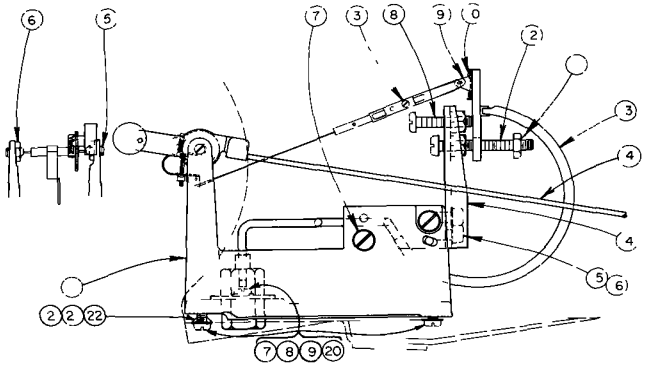
FIGURE 14 Parts Drawing M4- -1 Bellows Mechanism

ITEM	PART NO	NAME
1		CODE LABEL SPECIFY NO WHEN ORDERING PARTS
2		SEE TABLE SPRING ASSEMBLY**
3	452263 1	OVERTRAVEL STOP
4	452156 1	BELLOWS & PIPING ASSY
5	68820 1	BELLOWS BEAM HINGE
6	68824 1	TAPPED PAD 2 REQD
8	6 32x5 8	PAN HD CD PL STL MACH SCR
9	1106 00	CD PL STL SHKPRF LKWASH
10	6 32x1 4	PAN HD CD PL STL EXT SEMS
11	452029 1	RECEIVER MTG SUPPORT FOR TYPE PGDJ (GP)
	452221 1	RECEIVER MTG SUPPORT FOR TYPE PGIC (WP)
12	68823 1	BELLOWS BEAM ASSY
13	8 32	CD PL STL HEX NUT 4 REQD
14	6 32x7 8	PAN HD CD PL STL MACH SCR
15	19"120 3	ELASTIC STOP NUT, 2 REQD
16	6 32	CD PL STL HEX NUT
17	197132 4	PAL NUT 2 REQD
18	451850 1	JEWELED BRG, 2 REQD
19	452154 1	MANIFOLD CLAMP
20	49126 1	SPECIAL SCREW 2 REQD
21	68507 1	SPECIAL WASH 2 REQD
22	5311428 10	O RING
23	452027 1	OFFSET DRIVE ARM
24	68411 1	PIVOT
25	683108 1	SPRING ADJ ARM
26	3 48x1 4	PAN HD CD PL STL MACH SCR 4 REQD
27	1103 00	CD PL STL SHKPRF LKWASH 4 REQD
28	1108 00	CD PL STL SHKPRF LKWASH
29	4 40x5 16	PAN HD CD PL STL EXT SEMS 3 REQD
30	8 32x1 1 4	HDLS SLOT CD PL STL CUP PT SET SCR
31		SEE TABLE RECEIVER ASSY*
32		POINTER ASSY, SEE PTS DWG M42 25
33	452026 1	LINK 1 REQD FOR TYPE PG10 & PG13, 2 REQD FOR TYPE PG20
34	197496 8	NO 8 NYLON SEALING WASHER, AS REQD
35	8 32x1 2	FLT HD SST MACH SCR AS REQD
36	8 32x1 2	FLT HD CD PL STL MACH SCR, AS REQD
37	452216 1	RUBBER PLUG, AS REQD
38	19981 10	PLUG BUTTON AS REQD
39	452219 1	SEALING SCR AS REQD

*ITEM 31 INCLUDES ITEMS 1 THRU 30
**SPRINGS FOR CODE LABEL 003 ASSEMBLIES MAY BE USED FOR REPLACEMENT IN CODE LABEL 002 ASSEMBLIES

TABLE

TYPE	MODEL	RANGE	RANGE LIMIT MIN	RANGE LIMIT MAX	ITEM 2	ITEM 31
PG□□□□A	AA	3 2" PSIG			452255 1	452028 1
	AB	3 15 PSIG			683080 1	452028 2
	AD	RANGE SPAN				
		30 PSIG	15 PSIG	+30 PSIG	452255 1	452028 1
		15 PSIG	15 PSIG	+15 PSIG	683080 1	452028 2
		6 5 PSIG	6 5 PSIG	+6 5 PSIG	682586 1	452028 3
PG13□□A	AA	3 2" PSIG			452255 1	452028 4
	AB	3 15 PSIG			683080 1	452028 5
	AD	RANGE SPAN				
		30 PSIG	15 PSIG	+30 PSIG	452255 1	452028 4
		15 PSIG	15 PSIG	+15 PSIG	683080 1	452028 5
		6 5 PSIG	6 5 PSIG	+6 5 PSIG	682586 1	452028 6



ITEM	PART NO	NAME
1	452058 1	MOUNTING SUPPORT
2	8 32x3 8	FLAT HEAD CD PL STL MACHINE SCREW SEE TABLE
3	452070 1	CONN LINK ASSY
4	452064 □	POINTER ASSY SEE NOTE1
5	451850 1	JEWELED BRG 2 REQD
6	197132 4	PAL NUT 2 REQD
7	10 32x3 8	PAN HD CD PL STL EXT SEMS 2 REQD
8	10 32x3 4	PAN HEAD CD PL STL MACHINE SCREW
9	4021084 1	CONN LINK PIVOT
10	2 56x1 8	PAN HEAD CD PL STL EXT SEMS 2 REQD
11	19712 5	ELASTIC STOP NUT
12	10 32x1 5 8	PAN HEAD CD PL STL MACHINE SCREW
13	452139 □	BOURDON TUBE ASSY SEE NOTE 2
14	452111 1	STOP SUPPORT ASSY
15	10 32x3 8	HEX SOC HEAD CD PL STL CAP SCREW 3 REQD
16	NO 10	CD PL STL REG SPRING LOCKWASHER 3 REQD
17	8 32x5 16	PAN HD CD PL STL EXT SEMS SEE TABLE
18	452219 4	8 32x5 16 SEALING SCR, SEE TABLE
19	29981 10	PLUG BUT SEE TABLE
20	452916 1	RUBBER PLUG SEE TABLE
21	19 496 6	NO 8 NYLON SEALING WASHER SEE TABLE
22	8 32x3 8	FLAT HEAD STN STL MACHINE SCREW SEE TABLE

NOTES 1 FOR CASE PARTS INCLUDING POINTER ASSY SEE PARTS DRAWING M42 25 or M42 93

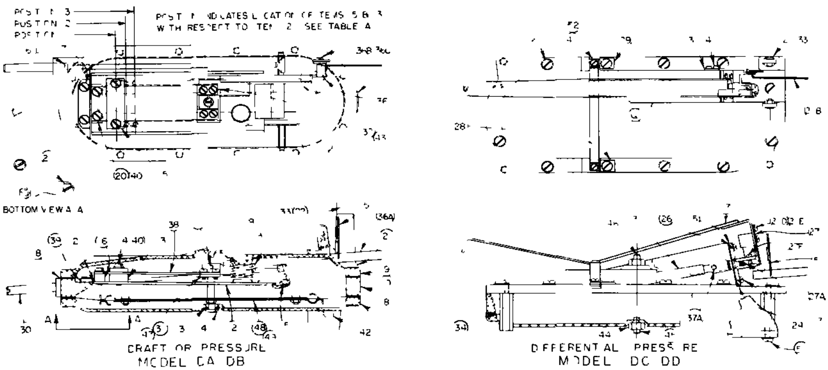
2 BOURDON TUBE CAN BE REPLACED ONLY AS AN ASSEMBLY SPECIFY COMPLETE NOMENCLATURE AND SERIAL NUMBER STAMPED ON GAGE NAMEPLATE

SPARE PARTS KIT
PART NO 254058 1
1 EACH OF ITEMS 3 & 9

TABLE

TYPE	ITEM 3	ITEM 17	ITEM 18	ITEM 19	ITEM 20	ITEM 21	ITEM 22
PG10 (GP	2	2	0	8	0	0	0
PG20 (GP)	2	4	0	6	0	0	0
PG10 (WP	0	0	2	0	9	1	1
PG13 (WP	0	0	5	3	5	2	2
PG20 WP	0	0	4	0	6	2	2

FIGURE 15 Parts Drawing M42 29, Bourdon Tube Mechanism for Type PG Multi Pointer Gage Model B1

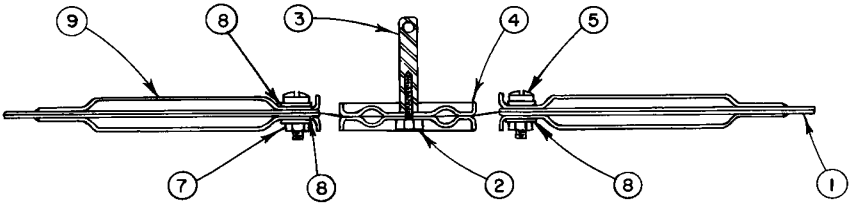


ITEM	PART NO	NAME
	96 056	CODE LABEL SPE FY NUMBER WHEN ORDERING PARTS
2	4520 2	BEAM HINGE SPR NG
3	45 876	SCREW GASKET
4	0 32x3 16	PAN HD CD PL STL MACH S R
5	45 836	PIVOT SHAFT
6	53 478 10	O R NG
	45 856	HSG BOT F R D ?F
	4 2? 3	HS BOT FOR D0 WP AND P? WP
8	45 855 1	HOUSING SPACE
3	451854 1	HO SING COVER MODEL DA DB
0	45 854 2	HOUSING COVER MODEL DC DD
	451830 1	PUSHER ROD PIVOT
12	451845 1	ZERO BEAM ASSY
13	451861	BEAM SPACER
4	1941235 3	SPECIAL SCREW 2 REQD
5	451862 1	BEAM CLAMP
16	451859	BEAM SPACER
7	8 32x5 16	PAN HD CD PL STL EXT SEMS 2 REQD
8	451842	DIAPHRAGM GASKET
9	451866 1	ZERO BEAM SPRING
20	1941235 2	SPECIAL SCREW 2 REQD
21	8 32x ?	PAN HD CD PL STL EXT SEMS 24 REQD
22	45 850 1	JEWELED BEARING 2 REQD
23	3 48x5 16	PAN HD CD PL STL EXT SEMS 4 REQD MODEL DC DD
24	45 903 1	COVER LAMP (MODEL DC DD
??	45 902	COVER PLATE MODEL DC DD
26	45 90	COVER GASKET MODEL DC DD
27	45 896	MAGNET FOLLOWER ARM ASSY MODEL DC DD INCLUDES
27A	451853	MAGNET ASSY
27B	45 886	ARM TIP
27C	45188 1	MAGNET CLAMP ASSY
27D	2 56x1 8	PAN HEAD SCREW 4 REQD
2 E	NO 2 SAE	SPRING LOCKWASHER 4 REQD
27F	? 56x3 8	PAN HEAD BRASS SCREW
28	452017 1	FOLLOWER ARM HINGE ASSY MODEL D DD
29	452017 2	FOLLOWER ARM HINGE ASSY MODEL DC DD
30	45 867 1	ADJUSTING ROD
3	451958 1	CLAMP PLATE 2 REQD
32	NO 2	CD PL STL REG SPRING LOCKWASHER 4 REQD
33	19 132 4	PAL NUT 2 REQD
34	451881	SUPPORT STUD 4 REQD
36	45 865	RANGE ARM ASSY MODEL DA DB INCLUDES
36A	451888 1	ARM TIP
36B	2 56x 8	PAN HEAD SCREW 2 REQD
36C	NO 2 SAE	SPRING LOCKWASHER 2 REQD
37	45 884	RANGE ARM ASSY MODEL DC DD INCLUDES
37A	2 56x1 2	PAN HEAD BRASS SCREW
38	SEE TABLE	RANGE SPRING
39	451860 1	BEAM LAMP PLATE
40	NO 6	STL LOCKWASHER 4 REQD
4	3 48x 8	PAN HD CD PL STL MACH SCR 2 REQD MODEL DC DD
42	452150 1	SURGE DAMPENER PLUG REQD FOR MODEL DA DB ? REQD FOR MODEL DC DD
43	? 56x3 6	PAN CD PL STL HD SCR 4 REQD
44	74	DYNALO LKNUT 2 REQD MODEL DC DD
45	10 32x3 8	HEX SOC HDLS CD PL STL CUP POINT SET SCR MODEL DC DD
46	? ? 3	STOP SCREW POINT SET S R MODEL DC DD
47	NO 10	CD PL STL FLAT WASHER MODEL DA DB
48	4 1979 1	DIAPHRAGM ASSY MODEL DA DC SEE PARTS DWG M42 30
49	4 19 8	MASKED DIAPHRAGM ASSY MODEL DB DD SEE PARTS DWG M42 30
50	4 1900 1	LINK NOT INCLUDED WITH DIAPH MECH PT NO 451985 □
51	8 32x 2	PAN HD SEMS EXT 4 REQD NOT INCLUDED WITH DIAPHRAGM MECHANISM PT NO 451985 □
52	1 03 00	CD PL STL SHKPRF LOCKWASHER ? REQD FOR MODEL DC DD

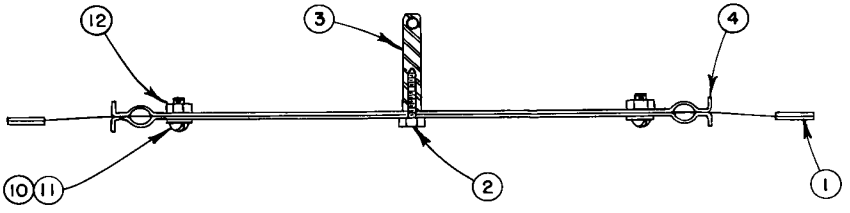
DIAPHRAGM MECHANISM							
DRAFT OR PRESSURE		DIFFERENTIAL PRESSURE		RANGE SPAN IN H_2O		POSITION	ITEM 38
MODEL DA		MODEL DC					
TYPE PG□0	TYPE PG13	TYPE PG□0	TYPE PG 3				
451985 1	4 1985 31	451985 16	45 985 46	50	79		45 863 2
451985 ?	45 985 32	451985 17	45 985 47	80	49	2	45 863 2
451985 3	45 985 33	451985 8	45 985 48	1 50	1 99	3	45 863 2
45 985 4	45 985 34	451985 19	451985 49	2 00	3 99	1	45 863 3
451985 5	45 985 35	45 985 20	45 985 50	4 00	4 99	2	451863 3
45 985 6	451985 36	45 985 21	451985 51	5 00	5 99	3	45 863 3
451985 7	451985 37	451985 22	45 985 52	6 00	9 39	1	45 863 4
45 985 8	451985 38	45 985 23	45 985 53	9 40	12 59	2	451863 4
45 985 9	45 985 39	451985 24	45 987 54	2 60	5 79	3	45 863 4
MODEL DB		MODEL DD		RANGE SPAN IN H_2O		POSITION	ITEM 38
TYPE PG□0	TYPE PG 3	TYPE PG□0	TYPE PG13				
45 985 0	451985 40	45 985 25	45 985 55	5 80	18 89		45 863 3
45 985	45 985 4	45 985 26	45 985 56	8 90	27 89	?	451863 ?
451985 12	45 985 42	45 985 27	451985 57	2 90	34 99	3	45 863 ?
45 985 3	45 985 43	451985 28	45 985 58	35 00	63 49	1	45 863 4
451985 4	45 985 44	451985 29	45 985 59	63 50	95 69	2	451863 4
451985 15	451985 45	45 985 30	45 985 60	95 70	44 50	3	45 363 4

SPARE PARTS KIT NUMBERS	
PT NO 254055 FOR MODEL DA OR DC	PT NO 254055 2 FOR MODEL DB OR DD
CONTAINS OF ITEM 48	CONTAINS OF ITEM 49
CONTAINS EACH OF ITEMS 6 8 & CONTAINS 2 OF ITEM 3	

FIGURE 16 Parts Drawing M42 26, Diaphragm Mechanism for Type PG Multi Pointer Gage, Model D□



H GH RANGE DIAPHRAGM ASSY, PART NO 45 1978-1

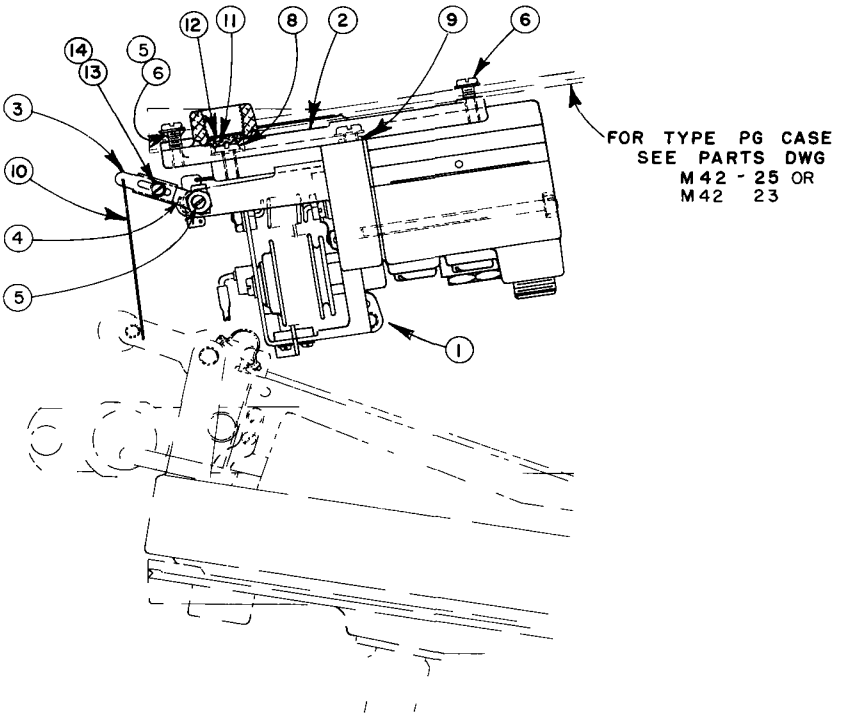


LOW RANGE DIAPHRAGM ASSY, PART NO 45 1979-1

TEM	PART NO	NAME	TEM	PART NO	NAME
1	SEE TABLE	D A?H & GSKT ASSY	7	NO 6 32	HEX NUT 4 REQD
2	45 975	SPEC AL SCREW	8	45 977	ST FFEN NG R NG 2 REQD
3	45 831 1	PUSHER ROD			
4	SEE TABLE	D A?H CLAMP 2 REQD	9	451839 1	D APH MASK 2 REQD
5	6 32x7/16	PAN HD MACH SCR 4 REQD	10	3 48x 4	PAN HD SCR 2 REQD
			11	NO 4	STL WASHER 2 REQD
			12	NO 3-48	HEX NUT 2 REQD

	TEM 1 D APH & GSKT ASSY	TEM 4 D APH CLAMP
PART NO 451978 1	45?024	451837 1
PART NO 45 979	452025	45 838

FIGURE 17 Parts Drawing M42 30, Diaphragm Assemblies for Diaphragm Mechanism, Model D□



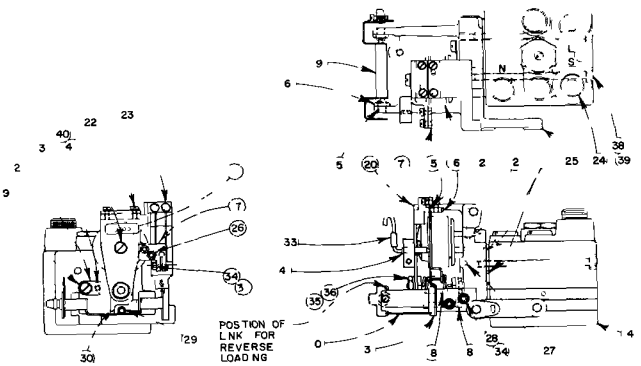
ITEM	PART NO	NAME
1	SEE TABLE	PNEU TRANSMITTER
2	452003 1	MANIFOLD
3	68549 3	ADJUSTABLE END
4	6845" 4	DRIVE ARM
5	3 48x3 1b	PAN HD CD PL STL EXT SEMS
6	452219 1	8 32 x 1 9 SEALING SCR 3 REQD
8	10 32 x 3 8	PAN HD CD PL STL EXT SEMS 2 REQD
9	5311428 9	O RING 2 REQD
10	452041 1	LINK
11	5320414 1	FELT PAD 2 REQD
12	5320413 1	WIRE MESH DISC 2 REQD
13	2 56 x 1 8	PAN HD CD PL STL SCR
14	1[illegible]734 1	WASHER
15	1[illegible]496 6	NO 8 NYLON SEAL WASH
16	8 32 x 1 2	FLAT HD SST MACH SCR

TABLE

MODEL	RANGE	ASSEMBLY*	ITEM 1	PNEUMATIC TRANSMITTER
PA	3 27 PSIG	452042 1	452043 2	FOR TRANSMITTER DETAILS
PB	3 15 PSIG	452042 2	452043 4	SEE PARTS DA[illegible] Pgs 23

*ASSEMBLY 452042 □ INCLUDES ITEMS 1 THRU 16

FIGURE 18 Parts Drawing M42 28, Pneumatic Transmitter for Type PG Multi Pointer Gage, Model P□



L S T O F P A R T S

TEM	PART NO	N A M E
	CODE LABEL	SPECIFY NO WHEN ORDERING PTS
2	45 2007	BELLOWS ASSEMBLY
3	45 953	VANE ASSEMBLY
4	45 949	NOZZLE ASSEMBLY
5	45 850	JEWELED BEAR NG 2 REQ
6	97 32 4	PAL NUT, 2 REQ
7	45 956	CLAMP P ATE
8	45 2009	SPR NG SJPPORT
9	45 2035	OFFSET CR VE ARM
0	45 2039	L NK
	53 428 2	O R NG, 3 REQ
2	53 428 3	O-R NG
3	53 428 10	O R NG
4	SEE TABLE	BOOSTER RELAY
5	68 820	BELLOWS BEAM H NGE SPR NG
6	68 824	TAPPED PAD, 2 REQ
7	SEE ABLE	CLAMP BLOCK
8	SEE TABLE	RANGE SPR NG
9	6 32 X 3/16"	PAN HD NT SEMS
20	45 2040	BELLOWS BEAM
2	45 945	CONNECTCR ASSEMBLY
22	3 48 X 1/4"	PAN HD EXT SEMS 4 REQ
23	2 56 X 3/16"	PAN HD NT SEMS 2 REQ
24	95 04	P PE PLUG SEE TABLE

TEM	PART NO	N A M E
25	SEE TABLE	SUPPORT BLOCK
26	4 40 X 1/4"	PAN HD SCREW 2 REQ
27	68 4	P VOT
28	4 40 X 5/16"	SOC HD SCREW, 2 REQ
29	4 40 X 5/8"	SOC HD CAP SCREW
30	45 2032	ADJ SCREW BRACKET
3	4 40 X 1/4	SOC HD SCREW
33	R9023 029	BM CO NO 38 NSULATION TUB NG 5 LG
34	NO 4 SAE	SPR NG LOCKWASHER 5 REQ
35	208 00	SHKPRF LOCKWASHER 2 REQ
36	8 32	HEX NUT 2 REQ
38	8 32 X 2 1/2"	FL HD SCREW, 2 REQ
39	NO. 8 SAE	SPR NG LOCKWASHER 2 REQ
40	6 32 X 1/8"	PAN HD SCREW
4	206 00	SHKPRF LOCKWASHER

TABLE

USE	RANGE PS G	PNEUMAT C TRANSM TTER PART NO	TEM 25 SUPPORT BLOCK	TEM 4 BOOSTER RELAY	TEM 8 RANGE SPRING	TEM 24 P P PLUG	TEM 7 CLAMP BLOCK
CLASS PA TRANSM TTER	3 27	45 2043	45 2005	53 9700-3	68 870	OM T	68 246
CLASS PB TRANSM TTER	3 5	45 2043-3	45 2005-	53 9700 3	68 97	OM T	68 246
TYPE PG MULT PO NTER GAGE, MODI L PA	3 27	45 2043 2	45 2005 2	53 9700-2	68 870	2 REQ	68 834
TYPE PG MULT POINTER GAGE, MODI L PB	3 5	45 2043 4	45 2005-2	53 9700-2	68 97	2 REQ	68 834
HALF CHART APPL CAT ON, CLASS PA□	3 27	45 2043 2	45 2005	53 9700-3	68 2474	OM T	68 246
HALF CHART APPL CAT ON, CLASS PB□	3 5	45 2043	45 2005-	53 9700 3	68 870	OM T	68 246

SPARE PARTS K T PART NO 256 60		
USE	QTY	TEM NO
CLASS PA TRANSM TTER TYPE PG MULT PO NTER GAGE MODEL PA HALF CHART APPL CLASS PB2 & PB3	EA	2 0 2, 3 & 8
	3 EA	

SPARE PARTS K T PART NO 256 60 2		
USE	QTY	ITEM NO.
CLASS PB TRANSM TTER TYPE PG MULT PO NTER GAGE, MODEL PB	EA	2 0 2 3 & 8
	3 EA	

SPARE PARTS K T PART NO 256 60 3		
USE	QTY	ITEM NO
HALF CHART APPL CAT ON CLASS PA2 PA3	EA	2 0 2 3 & 8
	3 EA	

FIGURE 19 Parts Drawing P99 23 Model P□ Pneumatic Transmitter Details

Product Warranty

Bailey Meter Company warrants the products manufactured by t to be free from defects in material and workmanship and will repair or replace, at its option, free of charge, f o b its factory, such part or parts which prove defective within one year from date of shipment In respect to any products which are not an integral part of a product manufactured by the Company, the warranty given by the manufacturer thereof shall apply

Shipping Damage

We strongly recommend that you inspect and test your instrument as soon as you receive it If the instrument is damaged or operates improperly, notify the carrier for inspection of the shipment The carrier's c aim agent will prepare a report of damage, a copy of which should be forwarded to your nearest Bailey District Office (see back cover for location) The District Office will then tell you how to have the instrument repaired or replaced

Service

The Bailey Meter Company is v tally concerned that your Ba ley instrument prov des continued, fine performance This instruction manual s designed to fully describe the correct insta lation, operation and maintenance of your instrument under recommended conditions If the need arises, factory tra ned Serv ce Engineers are on call for prompt, in plant ma rtenance Te.ephone or wire your nearby Bai ey Distr ct Office to make arrangements for this service

Replacement Parts and Supplies

Complete parts draw ngs and recommended spare parts kit information are included in this instruction manual When replacement parts or supp ies are required for maintenance of your Bai ey instrument contact your nearest Bai ey District Office (see back cover for location) Always spec fy complete data on the instrument nameplate on your inquiry or order for parts Common parts are available for shipment within 48 hours on a speed order basis

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