



Bulletin 2537-M3/USA Service Bulletin Series FM

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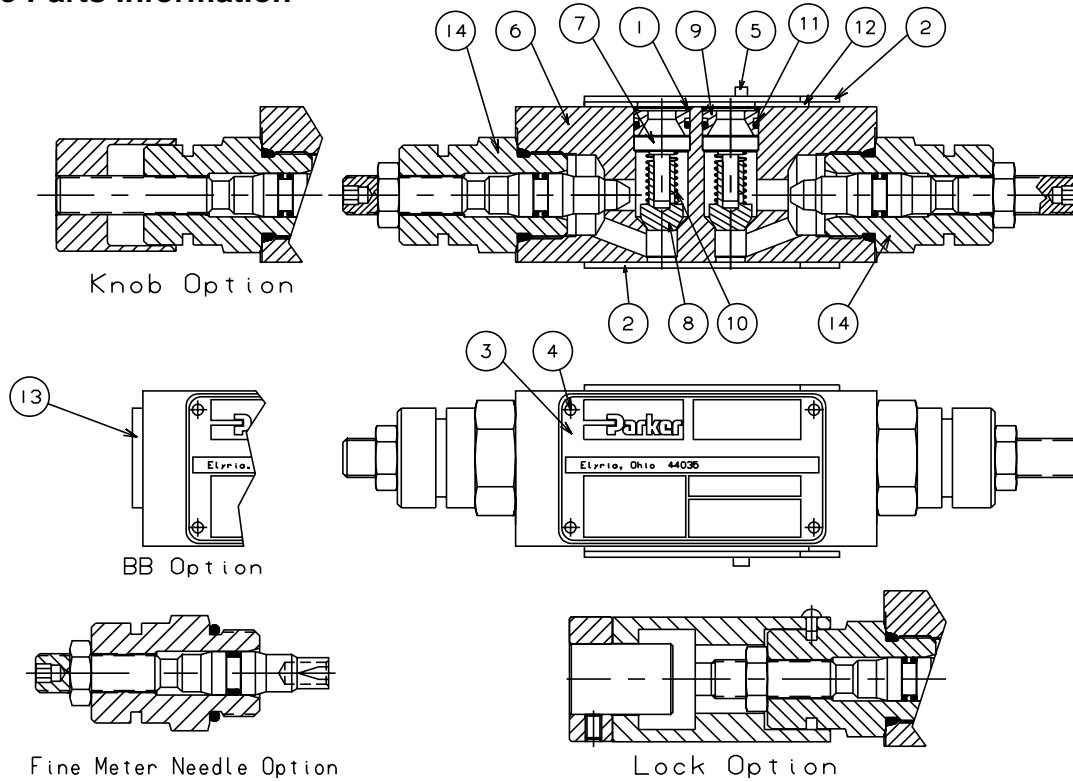
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Service Parts Information



Ordering Information

FM2

Flow Control
Manapak

Meter
Option

Needle
Option

Adjustment
Option

Seal
Option

55

Design
Code

Item	Part No.	Quantities				Description
		DD	AA	BB	PP	
6	1301414	1	1	1	-	Body
	1820088	-	-	-	1	
7	002505	2	1	1	-	Spring Retainer
8	001490	2	1	1	-	Poppet
9	002514	2	2	2	-	Plug Retainer
10	001516	2	1	1	-	Spring
11	2-013O-7	2	2	2	-	O-Ring
12	002199	1	1	1	-	O-Ring Plate
13	10HP50O-S	-	1	1	-	Plug

Item	Part No.	Qty	Description
1	2-012O-7	4	O-Ring
2	697628	2	Shipping Plate
3	1300448	1	Nameplate
4	1301066	4	Stick Screw
	33 x 99		Drive Screw
5	99 x 37	1	Roll Pin

○ Denotes Seal Compound.

Code	Description
S	Screw
K	Knob
L	Lock

Code	Description
V	Fluorocarbons
N	Nitrile

Code	Description	Item	Part No.	Qty.	Description
Omit	Standard	14	NC2	2	Needle Cart. Ass'y
D	Fine Meter	14	NC2D	2	Needle Cart. Ass'y

SAE Bolt Kits

Manapak & Valve Combination	Bolt Kit	Description	Qty./Kit	Torque IN-LBS.
D1VW Valve (Non-explosion proof)	BK209	10-24 X 1.25	4	50
1 Manapak & D1VW Valve	BK243	10-24 X 2.88	4	50
2 Manapak & D1VW Valve	BK225	10-24 X 4.38	4	50
3 Manapak & D1VW Valve	BK244	10-24 X 6.00	4	50
4 Manapak & D1VW Valve	BK245	10-24 X 7.50	4	50

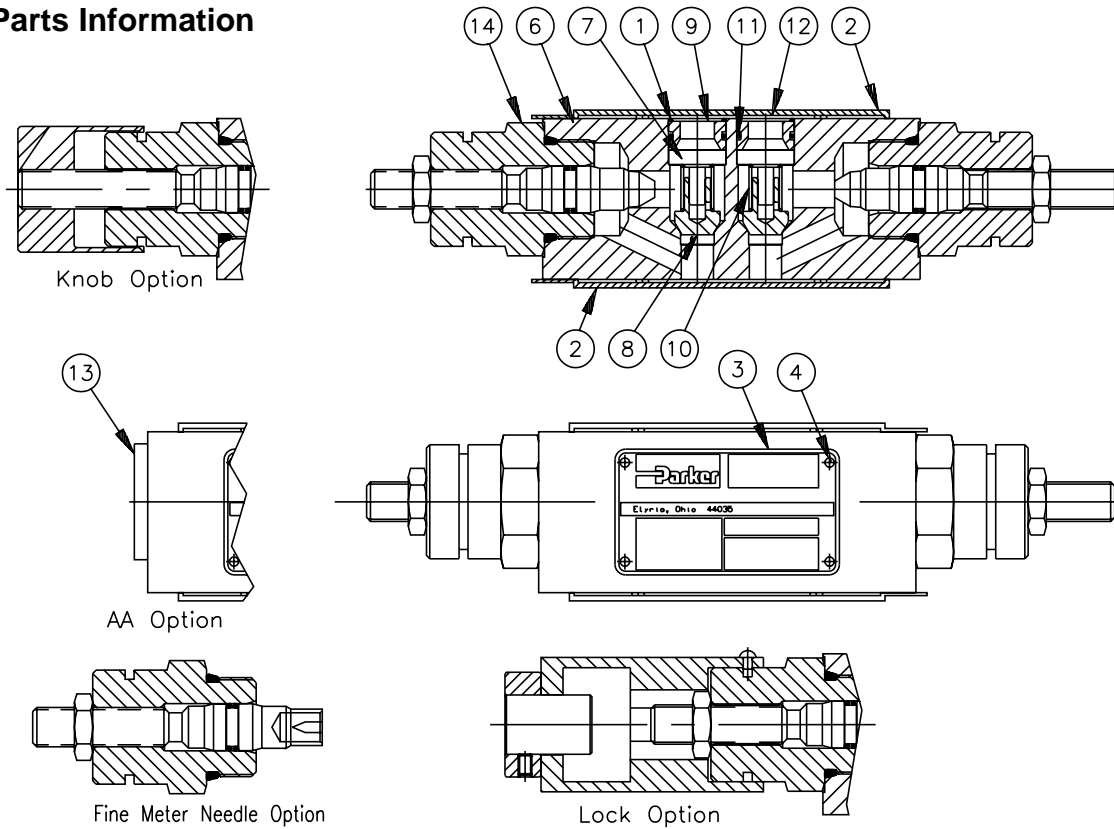
Note: Bolt kits must be ordered separately.

Metric Bolt Kits

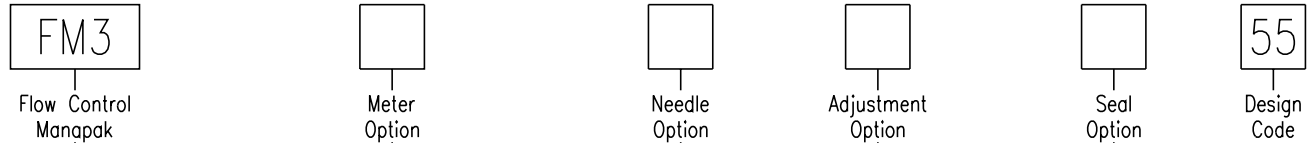
Manapak & Valve Combination	Bolt Kit	Description	Qty./Kit	Torque NM
D1VW Valve (Non-explosion)	BK375	M5-0.8 X 30	4	5.7
1 Manapak & D1VW Valve	BK400	M5-0.8 X 70	4	5.7
2 Manapak & D1VW Valve	BK405	M5-0.8 X 110	4	5.7
3 Manapak & D1VW Valve	BK429	M5-0.8 X 150	4	5.7
4 Manapak & D1VW Valve	TK400	M5-0.8 X 205	4	5.7

Note: Bolt kits must be ordered separately.

Service Parts Information



Ordering Information



Item	Part No.	Quantities				Description
		DD	AA	BB	PP	
6	1301393	1	1	1	-	Body
	1820179	-	-	-	1	
7	004970	2	1	1	-	Spring Retainer
8	004374	2	1	1	-	Poppet
9	004977	2	2	2	-	Plug Retainer
10	004394	2	1	1	-	Spring
11	2-015 \square -7	2	2	2	-	O-Ring
12	700499	1	1	1	-	O-Ring Plate
13	14HP50 \square -S	-	1	1	-	Plug

Code	Description
S	Screw
K	Knob
L	Lock

Code	Description
V	Fluorocarbons
N	Nitrile

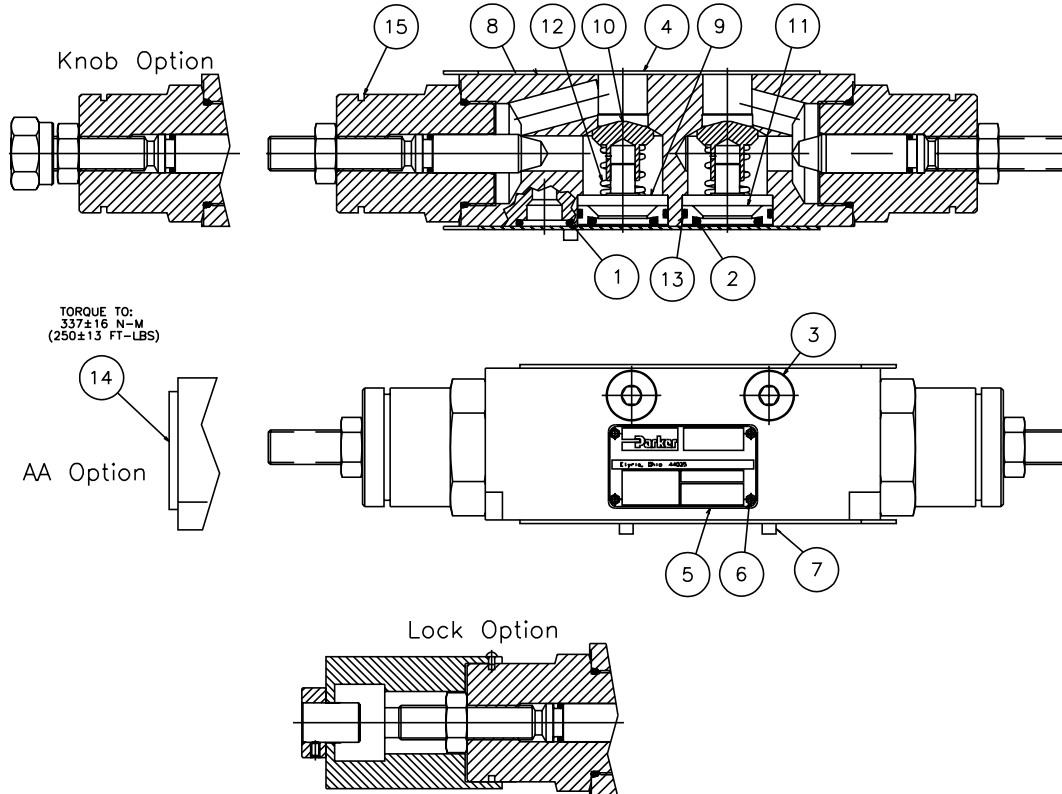
Code	Description	Item	Part No.	Qty.	Description
Omit	Standard	14	NC3	2	Needle Cart. Ass'y
D	Fine Meter	14	NC3D	2	Needle Cart. Ass'y

Item	Part No.	Qty	Description
1	2-014 \square -7	4	O-Ring
2	697192	2	Shipping Plate
3	1300448	1	Nameplate
4	1301066	4	Stick Screw
	33 x 99		Drive Screw

\square Denotes Seal Compound.

SAE Bolt Kits					
Manapak/Valve Combination	D3W-14	D3 Manaplug w/ Extension	Bolt length Inch	D3DW/D31VW D3W-30	Bolt length Inch
D3 (Non-explosion proof)	BK226	BK80	2.25	BK98	1.63
1 Manapak +D3	BK61	BK91	4.25	BK141	3.50
2 Manapak +D3	BK62	BK94	6.25	BK142	5.50
3 Manapak +D3	BK63	BK95	8.25	BK33	7.50
-Bolt Kits are ordered separately. -All bolts are 1/4-20 and grade 8. -Torque for all D3 bolts: 12' ft-lbs. -Size 3 Manapaks are 2.0 thick.					
Metric Bolt Kits					
Manapak/Valve Combination	D3W-14	D3 Manaplug w/ Extension	Bolt length Inch	D3DW/D31VW D3W-30	Bolt length Inch
D3 (Non-explosion proof)	BK310	BKM80	55	BKM98	41.28
1 Manapak +D3	BK311	BKM91	105	BKM141	88.9
2 Manapak +D3	BK312	BKM94	169	BKM142	139.7
3 Manapak +D3	BK313	BKM95	219	BKM33	190.5
-Bolt kits are ordered separately. -All bolts are M6-1 and grade 12.9. -Torque for all D3 bolts: 16.3 NM. -Size 3 Manapaks are 50.0 thick.					

Service Parts Information



Ordering Information

FM6	□	□	□	□	□	45
Flow Control Manapak	Meter Option	Needle Option	Adjustment Option	Seal Option	Design Code	

Item	Part No.	Quantities			Description
		DD	AA	BB	
9	011146	2	1	1	Spring Retainer
10	010600-3	2	1	1	Poppet
11	011147	2	2	2	Plug Retainer
12	025314	2	1	1	Spring
13	2-127O-9	2	2	2	O-Ring
14	24HP50O-S	-	1	1	Plug

Code	Description
S	Screw
K	Knob
L	Lock

Code	Description
V	Fluorocarbons
N	Nitrile

Code	Description	Item	Part No.	Qty.	Description
Omit	Standard	14	NC2	2	Needle Cart. Ass'y

Item	Part No.	Qty	Description
1	2-210O-9	2	O-Ring
2	2-014O-9	4	O-Ring
3	8HP50N-S	2	plug
4	691139	2	Shipping Plate
5	1300448	1	Nameplate
6	1301066	4	Stick Screw
	33 x 99		Drive Screw
7	99 x 125	2	Roll Pin
8	1301404	1	BODY

○ Denotes Seal Compound.

Bolt Kits					
Manapak & Valve Combination	Bolt Kit	Description	Qty./Kit	Torque In-lbs.	
D6 VW Valve	BK 70	1/2-13 X 2.50	6	80	
1 Manapak & D6*VW Valve	BK121	1/2-13 X 5.25	6	80	
2 Manapak & D6*VW Valve	BK122	1/2-13 X 8.00	6	80	
3 Manapak & D6*VW Valve	BK123	1/2-13 X 10.75	6	80	
4 Manapak & D6*VW Valve	BK124	1/2-13 X 13.50	6	80	

Note: Bolt kits must be ordered separately.

Operation

The function of a flow control valve is to control the rate of fluid flow in its leg of the circuit. It performs its function by being a higher than normal adjustable restriction for the system. In the control flow direction, a check valve forces the flow through a variable orifice needle valve. The standard needle provides fine adjustment for the first three turns and coarse adjustment for the last three turns. In the free flow

direction, an increase in pressure, overcoming the pressure of the spring, will open up the check allowing flow through the check and the variable orifice. This allows for high flow at a low pressure drop. Option fine and microfine needle are available providing finer control. However, use of these options will also decrease maximum flow capability through the valve.

Trouble-Shooting

Symptom	Cause	Solution
Improper flow rate	<i>Needle valve adjustment incorrect</i>	Readjust needle valve.
	<i>Restrictions in valve passages or orifice areas</i>	Disassemble and flush system.
	<i>Valve installed backwards</i>	Reverse connection.
	<i>Broken spring</i>	Replace spring.



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