

ROBWEN FOAM SYSTEMS
HYDRO-FLO SERIES
100B

Distributed By:
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COMPONENT DESCRIPTION

Control Panel (consists of 4 valves)

SELECTOR VALVE

The SELECTOR valve is a two chamber, six-port valve that serves as a positive shut off when in the “off” position for both water and foam. When set to the “on” position, water is allowed to pass from the check-vent to the filter and on to the power head activating the drive side piston for foam production. When placed in the winterize mode, using the right, rear port, the system can be manually charged with RV antifreeze or blown dry with compressed air.

FLUSH VALVE

This three-port valve performs the prime, flush and foam functions. When set at 3:00, it will either prime or flush depending on the position of the foam/water supply valve. When the supply valve is in the “foam” position, the FLUSH valve will allow concentrate to discharge to atmosphere as part of the priming process. When the supply valve is in the “water” position, the FLUSH valve will allow water to discharge to atmosphere as part of the flush operation. When both the FLUSH valve and the supply valve are in the “foam” position, the system is ready for operation.

SUPPLY VALVE

This three-way valve supplies foam from the foam tank when the valve is placed in the “foam” position. It supplies pressurized water from the discharge side of the pump for flushing purposes when placed in the “water” position.

METERING VALVE

This valve is infinitely adjustable from 0.1% to 1.0%. It utilizes a graduated groove around a rotor that allows the desired amount of foam to pass from the foam side of the power head to the foam side of the check-vent.

CHECK-VENT

This valve is both a check valve and a venturi, hence the name. It is plumbed on the discharge side of the water pump. Its location will determine which discharges are foam capable. The venturi action diverts water to the power head while the check valve prevents foam from entering the water pump. The pressure loss through this valve is 10 psi per 100 gpm for a maximum of 50 psi. Various thread configurations are available to suit your needs.

POWER HEAD

This device consists of two pistons on a common shaft and functions much like a pressure pump. As water passes from the check-vent and enters the water side of the power head, it activates the drive piston. As the drive piston reaches the end of its stroke, by way of a four way check valve, it reverses itself and the pump piston activates on the foam side of the power head. As this pump piston activates, a vacuum is created to generate foam flow. You will notice a barb fitting on the water side of the power head. This is a water exhaust port. As foam is drawn in to the system, an equivalent amount of water will discharge from this port. It is perfectly foam-free water and may be plumbed back to a static port (non-pressure) on the water tank. Piston velocity will increase as the volume of foam and/or water increases.

FILTER

Each Hydro-Flo system includes a self-cleaning filter. Water passes through the filter prior to entering the power head and is designed to keep foreign matter out. The filter should be installed between the selector valve and the power head. The filter is equipped with a spring loaded handle which, when depressed, reverses the flow through the internal filter element and cleans it out. The water will flow from the filter to atmosphere during this operation.

INSTALLATION OF THE HF100

Install the control panel, check-vent, power head and filter. There is no restriction on the distance between components, however, it is important to note that the further apart the components are, the longer the time required to prime the system. **It is important to note that the power head must be mounted in a location lower than the foam tank.** One way check valves should be placed in both ports of the supply valve to prevent foam from entering the water tank or water from entering the foam tank. Once these components have been installed, it is a matter of running your hoses between the different ports as per the enclosed color coded diagram and the hose description chart. The hose should be ½" i.d. and should be rated according to the pump. Keep in mind that the power head may need to be removed if service is ever required. Looking at the plumbing diagram, you will note that on the water side of the power head there is a port labeled "water discharge". As foam is pumped through the system, an approximate equivalent amount of water will discharge from this port. It is perfectly clean water as it may be desirable to run this back to the water tank. The "flush water discharge" is simply run to atmosphere.

HOSE DESCRIPTION

GREEN LINE:

WATER LINE RUNNING FROM THE INLET SIDE OF THE CHECK-VENT TO THE SELECTOR VALVE ON THE CONTROL PANEL

PURPLE LINE:

FOAM LINE RUNNING FROM THE LEFT SIDE OF THE FLUSH VALVE ON THE CONTROL PANEL TO THE CHECK-VENT

RED LINE:

WATER LINE RUNNING FROM THE SELECTOR VALVE ON THE CONTROL PANEL TO THE FILTER

BLUE LINE:

FOAM LINE RUNNING FROM THE FOAM OUTLET SIDE OF THE POWER HEAD TO THE METERING VALVE

YELLOW LINE: (yellow)

THIS IS A FOAM LINE WHEN YOU ARE IN THE FOAM MODE AND A WATER LINE WHEN YOU ARE FLUSHING. IT RUNS FROM THE SUPPLY VALVE TO THE FOAM INLET PORT ON THE POWER HEAD

BROWN LINE:

THIS IS A WATER LINE RUNNING FROM THE FILTER OUTLET PORT TO THE LOWER (INLET) PORT ON THE WATER SIDE OF THE POWER HEAD

ORANGE LINE:

THIS IS A FOAM LINE RUNNING FROM THE FOAM TANK TO THE FORWARD (CLOSEST TO THE PANEL) LEFT PORT OF THE SELECTOR VALVE. A ½" CHECK VALVE SHOULD BE INSTALLED BETWEEN THE FOAM TANK AND THE SELECTOR VALVE

BLACK LINES (3):

THESE ARE DISCHARGE LINES.

- 1) ONE RUNS FROM THE RIGHT SIDE OF THE FLUSH VALVE TO ATMOSPHERE.
- 2) THE SECOND BLACK LINE RUNS FROM THE UPPER (OUTLET) PORT ON THE WATER SIDE OF THE POWER HEAD TO, EITHER ATMOSPHERE, OR THE WATER TANK IF IT IS DESIRABLE TO RECAPTURE THIS DISCHARGE WATER.
- 3) THE THIRD BLACK LINE IS THE FILTER FLUSH WATER DISCHARGE LINE. IT IS ACTIVATED THE FILTER HANDLE IS DEPRESSED TO CLEAN THE FILTER.

OPERATION

TO MAKE FOAM

1. Turn the SUPPLY valve to the “foam” position.
2. Turn the SELECTOR valve to the “on” position.
3. Turn the FLUSH valve to the “prime/flush” position.
When you observe foam concentrate discharging, system is primed and ready for use.
4. Turn the FLUSH valve to the “foam” position.
5. Set the METERING valve to the desired setting.

TO FLUSH THE SYSTEM

1. With the Selector valve in the “on” position, run the pump at Idle.
2. Close discharges.
3. Turn the SUPPLY valve to the “water” position.
4. Turn the FLUSH valve to the “prime/flush” position.
5. Flush for two minutes.

TO WINTERIZE YOUR SYSTEM

1. Attach a line to the winterize port (right rear port on the Selector Valve).
2. Turn the Selector Valve to the Winterize position.
3. Turn the Prime/Flush/Foam valve to the Prime/Flush position.
4. Pump R/V style anti-freeze through the system until you see the anti-freeze discharging to atmosphere.
5. Following the above steps will charge both the foam side and water side of the system. We have not found any compatibility issues between approved class “A” concentrates and RV anti-freeze.

MAINTENANCE

Robwen foam systems are designed to offer hours and hours of trouble free operation while requiring minimal maintenance. The most important maintenance procedure is to perform the flush operation described in this document. Failure to flush after every use will leave foam residue in the power head, which will cause the quad check to stick rendering the system unable to produce foam.

If the system will be stored in an unheated facility during the winter season, it should be charged with antifreeze.

ONE YEAR LIMITED WARRANTY

(DESCRIPTION)

Robwen warrants that at the time of shipment, the products manufactured by Robwen and sold hereunder shall be in conformity with applicable written specifications and descriptions referred to or set forth herein, free from defects in material and workmanship, merchantable, and suitable for a particular purpose, provided such is implied by State law under the circumstances of this sale. Robwen agrees to repair or furnish a replacement for, but not to remove or install, any product or component thereof which, within one (1) year from date of purchase, shall upon test and examination by Robwen or an authorized dealer prove defective within the above warranty. No product will be accepted for return without prior notice and authorization by Robwen. Upon such authorization, and in accordance with instructions from Robwen, the product will be returned at Robwen's expense. Robwen will assume the cost of returning the repaired or replaced goods.

TROUBLE SHOOTING GUIDE

PROBLEM	SOLUTION
When the system is in the on position, water discharges straight to atmosphere	Check the position of the filter dump handle.
System primes but will not draw foam	Do a thorough flush. Use hot water if available.
Foam seems to be entering water tank.	Make sure there is a check valve located between the water tank and the flush valve.
Foam appears to be leaking at the control panel.	Remove the snap ring at the rear of the metering valve, remove the spool and inspect the o-rings.
System is discharging pure foam on to the ground.	Turn the Prime/Flush/Foam valve to the foam setting.
There is evidence of a gasket protruding from the power head	System was not properly winterized. Contact us at (800) 365-9281.

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
A	Powerhead Assembly	HF100B Powerhead
A1	Outer Cylinder Drive Head	PH1001
A2	5/16-18 x 5/8 Socket Head Cap Screw	PH1002
A3	5/16 Lock Washer	PH1003
A4	Drive Piston	PH1004
A5	568-223 O-Ring	PH1005
A6	568-034 O-Rings (2)	PH1006
A7	Composite Cylinder, Drive	PH1007
A8	Inner Cylinder Drive Head	PH1008
A9	568-206 Waxed O-Rings (2)	PH1009
A10	Cylinder Spacer	PH1010
A11	8-32 x 1/2 Socket Head Cap Screw (2)	PH1011
A12	1/2 Trip Ring (2)	PH1012
A13	Drive Shaft	PH1013
A14	Inner Cylinder Pump Head	PH1014
A15	568-032 O-Rings (2)	PH1015
A16	Composite Cylinder, Pump	PH1016
A17	Pump Piston	PH1017
A18	568-225 O-Ring	PH1018
A19	Outer Cylinder Pump Head	PH1019
A20	5/16 X 9" Tie Rods (4)	PH1020
A21	5/16-24 Nylon Lock Nuts (8)	PH1021
A22	Teflon Seal, Pump	PH1022
A23	Pump Piston Cap	PH1023
A24	Teflon Seal, Drive	PH1024
A25	Drive Piston Cap	PH1025

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
B	Selector Valve (ON/OFF/Winterize)	HF100B Selector
B1	Drive Shaft Retainer	SV2001
B2	Handle	SV2002
B3	1/2-20 Chrome Acorn Nut	SV2003
B4	Drive Shaft	SV2004
B5	568-011 O-Rings (2)	SV2005
B6	Shaft Connector	SV2006
B7	Body (left)	SV2007
B8	Teflon Seals (4)	SV2008
B9	Selector Balls (2)	SV2009
B10	Retainer Ball NPT (2)	SV2010
B11	1/2 Pipe Plug (2)	SV2011
B12	90° Elbow	SV2012

Diagram Reference Number	Description	Robwen Part Number
C	Metering Valve	HF100B Metering
C1	3/8-18 Pipe Plug	MV3001
C2	1 1/2" Retaining Ring	MV3002
C3	Body	MV3003
C4	568-218 O-Rings (3)	MV3004
C5	Calibration Ring (Dial)	MV3005
C6	10-32 X3/16 Set Screw	MV3006
C7	Spool	MV3007

Diagram Reference Number	Description	Robwen Part Number
D	Flush Valve (1/2" 3-Way)	FV100B
D1	Flush Knob (Mount Handle)	
D2	10-32 X 5/16 Socket Head Cap Screw (2)	

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
<i>E</i>	<i>Check Vent</i>	<i>HF100B Check-Vent</i>
E1	Barrel	CV4001
E2	1/4-20 X1/2 Socket Head Cap Screw (2)	CV4002
E3	568-134 O-Rings (2)	CV4003
E4	Venturi	CV4004
E5	2 3/16 Internal Retaining Ring	CV4005
E6	5/16 Castle Nut (2)	CV4006
E7	5/16 SS Flat Washer	CV4007
E8	Flange Poppet	CV4008
E9	568-222 O-Ring	CV4009
E10	Spider Seat	CV4010
E11	568-136 O-Ring	CV4011
E12	Poppet Shaft	CV4012
E13	71499S Spring	CV4013
E14	Spacer	CV4014
E15	Brass Washer	CV4015
E16	Cotter Pin (2)	CV4016

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
F	Water Filter	HF100B Water Filter
F1	Filter Handle	WF5001
F2	8-32 X 1/4 Socket Head Cap Screw	WF5002
F3	3/4 External Retaining Ring (3)	WF5003
F4	568-113 O-Rings (3)	WF5004
F5	Filter Spool	WF5005
F6	1/16 Pipe Plug	WF5006
F7	Filter Base	WF5007
F8	10-32 X 3/8 Flat Head Cap Screw	WF5008
F9	7605 Spring	WF5009
F10	568-226 O-Ring	WF5010
F11	Filter Element	WF5011
F12	Filter Cover	WF5012
F13	3/32 X 5/8 SS Pin (2)	WF5013

Diagram Reference Number	Description	Robwen Part Number
G	Quad Check Assembly (Check Valve)	HF100B Quad Check
G1	Body	QC6001
G2	1/16 Pipe Plug (6)	QC6002
G3	Delrin Seat (4)	QC6003
G4	1/2 Delrin Ball (4)	QC6004
G5	Spring (4)	QC6005
G6	Spring Retainer (4)	QC6006
G7	568-016 O-Rings (4)	QC6007
G8	Base	QC6008
G9	568-012 O-Rings (2)	QC6009
G10	8-32 X 3/4 Flat Head Cap Screw (2)	QC6010
Totals		

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
H	Manifold Block	HF100B Manifold
H1	Body	MB7001
H2	1/16 Pipe Plug	MB7002
H3	568-011 O-Ring	MB7003
H4	Spool	MB7004
H5	568-018 O-Ring	MB7005
H6	Plug	MB7006
H7	7/8 SS Internal Retaining Ring	MB7007
H8	568-012 O-Rings (2)	MB7008
H9	Connector	MB7009
H10	568-010 O-Ring	MB7010

Diagram Reference Number	Description	Robwen Part Number
J	Operating Valve	HF100B Operating Valve
J1	Crank Pin	OV8001
J2	Crank	OV8002
J3	8-32 X 1/2 Set Screw	OV8003
J4	8-32 X 1/2 Socket Head Cap Screw	OV8004
J5	3/8 Teflon Washer (2)	OV8005
J6	Pilot Spool	OV8006
J7	568-010 Waxed O-Rings (2)	OV8007
J8	1/16 Pipe Plug (14)	OV8008
J9	Plug, Long	OV8009
J10	568-014 O-Ring (2)	OV8010
J11	Operating Valve Piston	OV8011
J12	Body	OV8012
J13	Plug, Short	OV8013
J14	3/8 External Retaining Ring	OV8014

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Hydro Flo 100 Parts List

Diagram Reference Number	Description	Robwen Part Number
K	Water/Foam Supply Valve (3 Way)	WF Supply Valve 100B
K1	Mount Handle Short	
K2	10-32 X 5/16 Socket Head Cap Screw (2)	

Diagram Reference Number	Description	Robwen Part Number
L	Hydro Flo 100 Panel	
L1	1/4-20 X 5/8 FHSCS	
Misc.	1/2 Street Elbows	

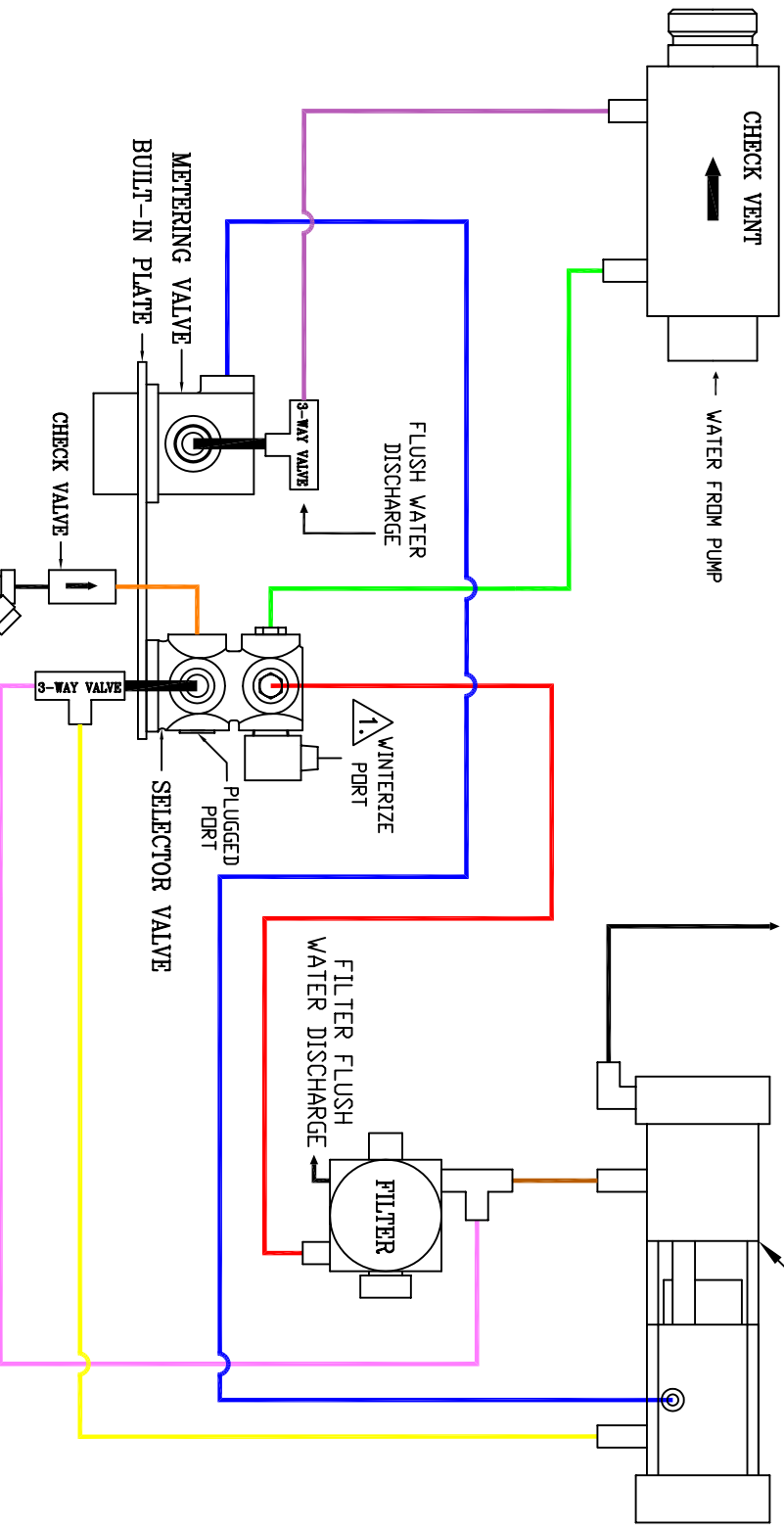
Diagram Reference Number	Description	Robwen Part Number
M	Winterizing Valve Air	Winterize Air 100B
M1	Air Filter	
M2	Check Valve	
M3	1/2" Modified Nipple	
M4	1/2" Female to Male Ball Valve	
M	Winterizing Valve RV Anti-freeze	Winterize RV 100B
M2	Check Valve	
M5	1/2" Nipple	
M6	1/2" Female to Female Ball Valve	

Diagram Reference Number	Description	Robwen Part Number
N	FOAM FILTER	HF100B FOAM FILTER
N1	Base	FF9001
N2	Filter Element	FF9002
N3	Tube	FF9003
N4	2-034 O-ring	FF9004
N5	Retainer Tube	FF9005
N6	Cap	FF9006

ZONE	REV	DESCRIPTION	DATE	APPROVED
B-3	A	WINTERIZE PORT RE-DESIGNED. FILTER ADDED TO SELECTOR VALVE TEE ADDED TO FILTER FOR RE-PLUMBING	03/20/03	JRG

REVISIONS

OPERATING WATER DISCHARGE (OVERBOARD OR PLUMB BACK TO TANK)



NOTES:
 1. SEE REF 'M' DRAWING FOR WINTERIZE OPTIONS

UNLESS OTHERWISE SPECIFIED TOLERANCES INTERPRET PER MIL-STD-100 DIMENSIONS ARE IN INCHES SURFACE TEXTURE SHALL BE

XXX ± .005
 XX ± .010
 X ± .050

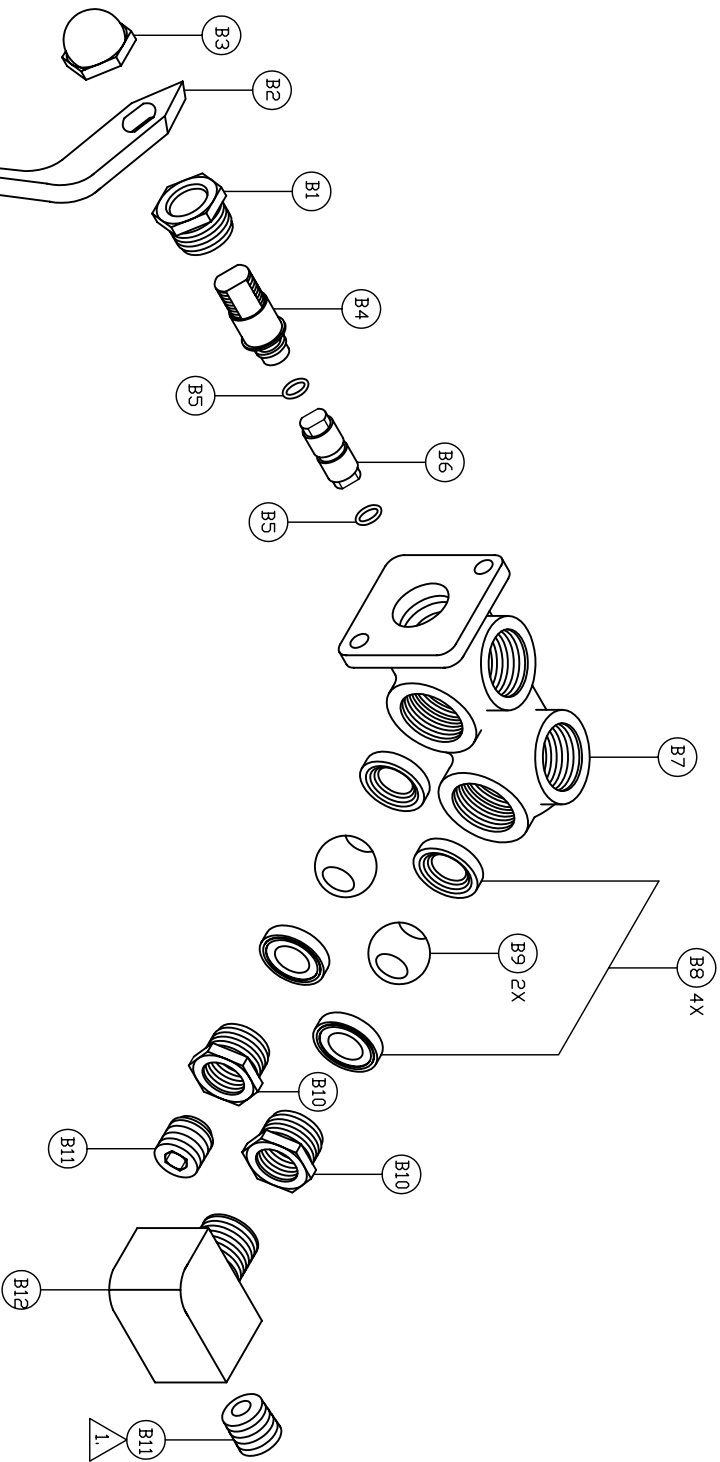
ROBWEIN INC

SCHEMATIC, HYDRD-FLO 100

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CHECKED	John Grindley	03/20/03	SCALE:	NONE	PAGE: 1
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REVISIONS			DATE	APPROVED
ZONE/REV	DESCRIPTION			
B-2	A	WINTERIZING VALVE ASSY. REMOVED. WINTERIZING BALL VALVE ASSY. ADDED	03/14/03	JRG



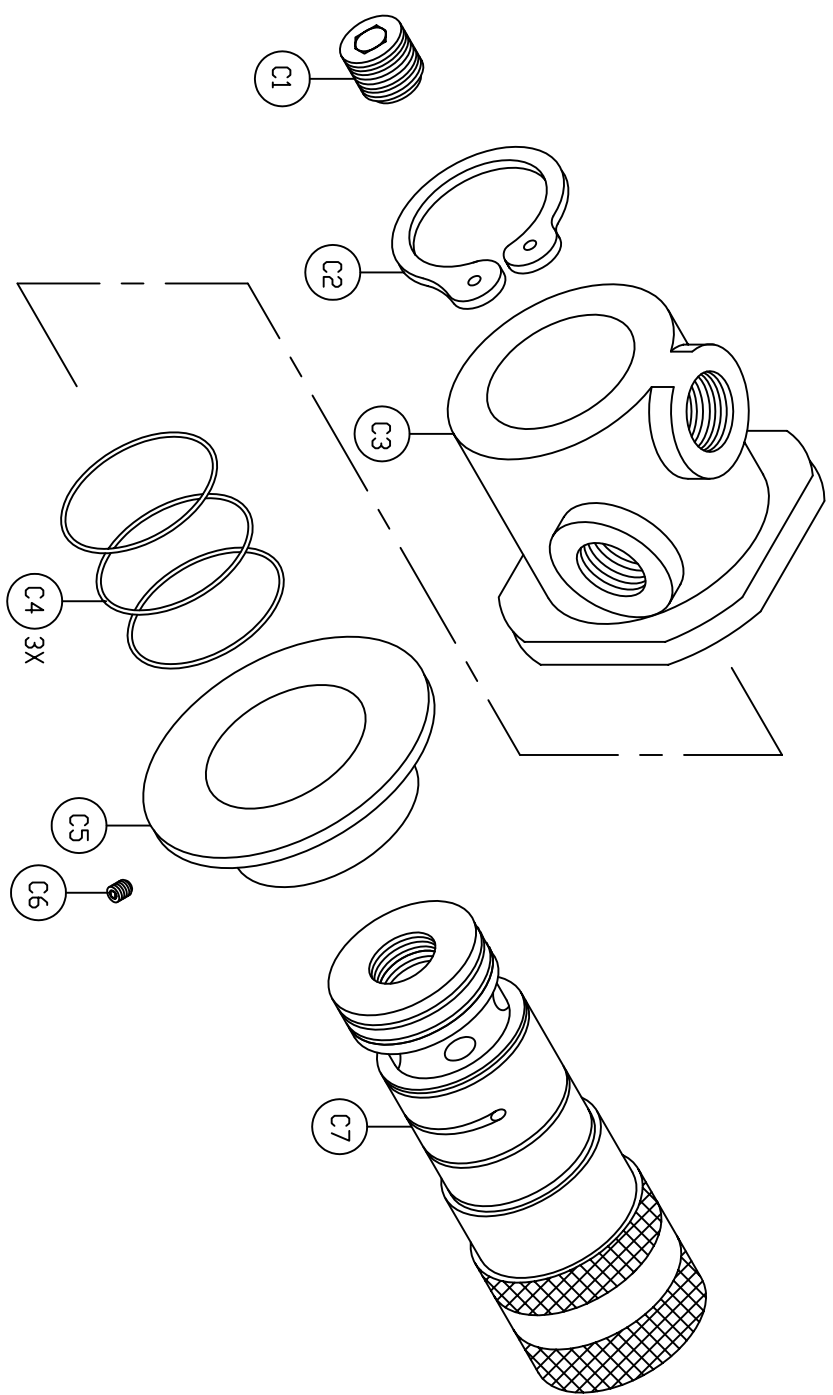
NOTES:
 1. BALL VALVE WITH FEMALE PORT TO BE USED ON AIR ONLY.
 BALL VALVE WITH MALE PORT TO BE USED ON RV ONLY.
 (SEE REF. "M" DRAWING)

UNLESS OTHERWISE SPECIFIED INTERPRET PER MIL-STD-100 DIMENSIONS ARE IN INCHES		TOLERANCES ON DECIMAL DIMENSIONS			
SURFACE TEXTURE SHALL BE		.XXX ± .005 .XX ± .010 X ± .050			
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SELECTOR VALVE ASSY. HYDRD 100					

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UNLESS OTHERWISE SPECIFIED
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 DIMENSIONS ARE IN INCHES

SURFACE TEXTURE
 SHALL BE

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TOLERANCES
 ON DECIMAL
 DIMENSIONS

.XXX ± .005
 .XX ± .010
 X ± .050

ROBWFEN INC

METERING VALVE HYDRD 100

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D C B A

D C B A

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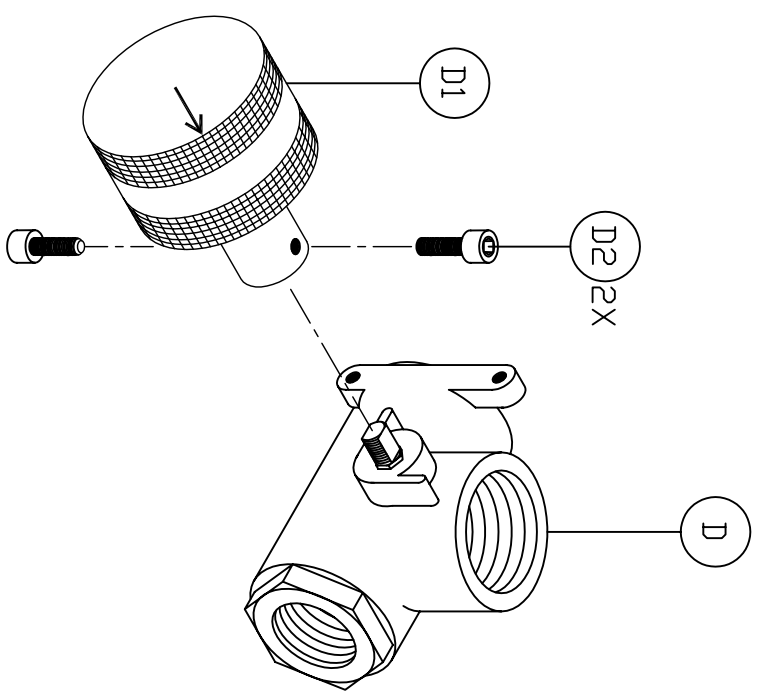
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REVISIONS				
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SURFACE TEXTURE SHALL BE		.XXX ± .005 .XX ± .010 .X ± .050			
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FLUSH VALVE KNOB HYDRD 100

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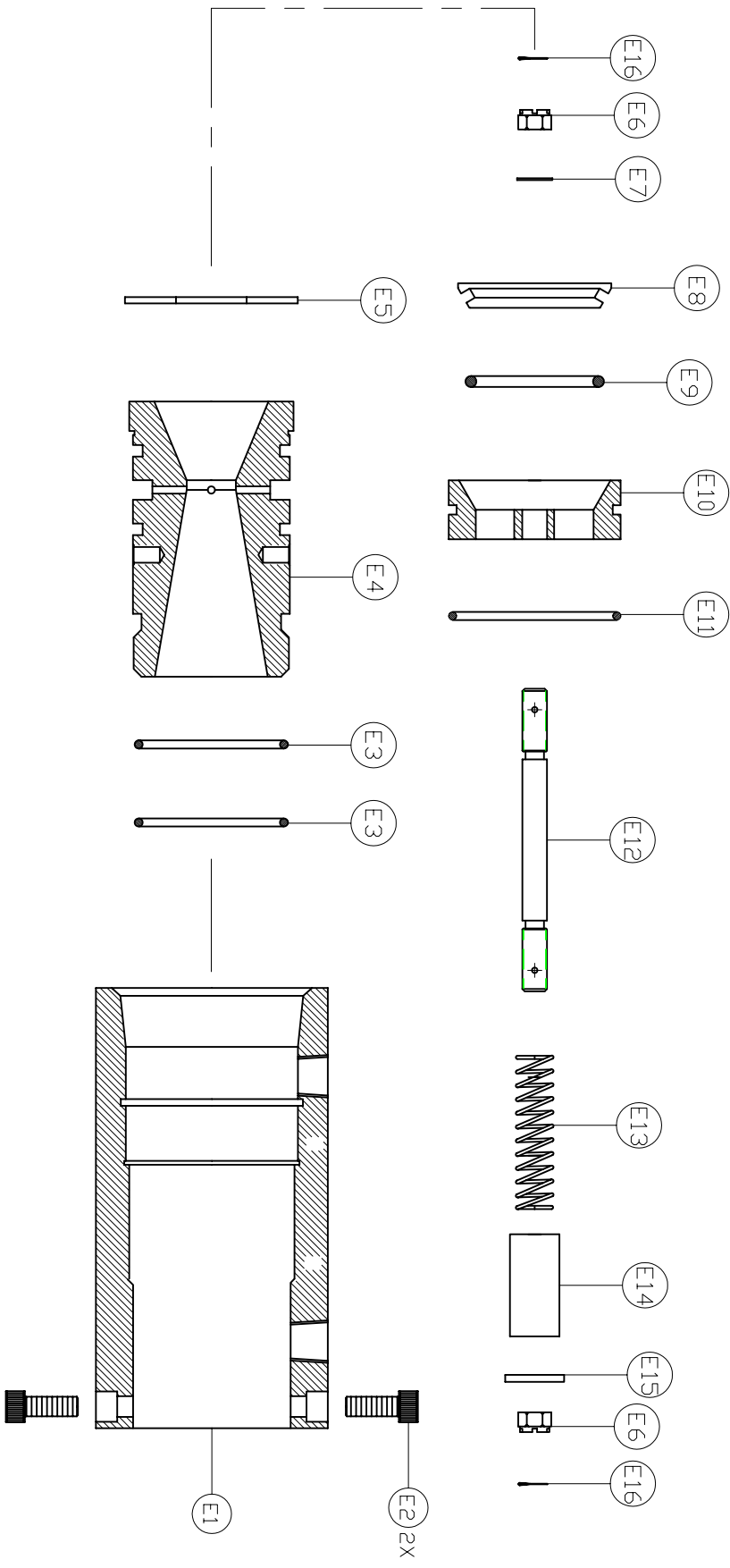
A

B

C

D

REVISIONS			DATE	APPROVED
ZONE	REV.	DESCRIPTION	DATE	APPROVED
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C-3	B	E6, E12 AND E16 ADDED	08/31/04	JRG



UNLESS OTHERWISE SPECIFIED
 INTERPRET PER MIL-STD-100
 DIMENSIONS ARE IN INCHES

TOLERANCES
 ON DECIMAL
 DIMENSIONS

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 X ± .050

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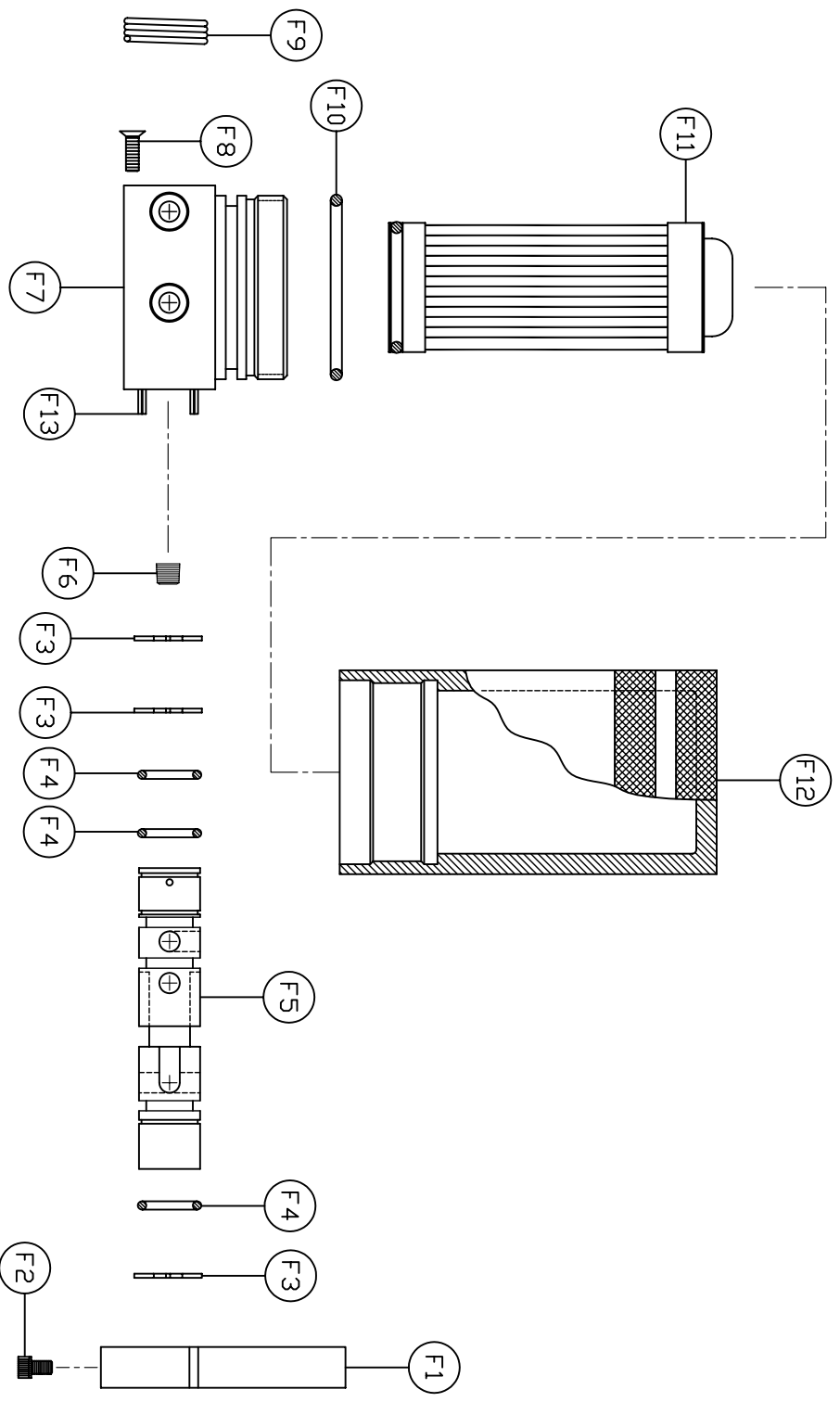
VENTURI ASSY HYDRO 100

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 DATE: 10/03/01
 SIZE: C
 CODE NO.: 32762
 REF. E

CHECKED: John Grindley
 DATE: 03/20/03
 SCALE: FULL

PAGE: 1 OF 1

REVISIONS			
ZONE/REV.	DESCRIPTION	DATE	APPROVED
B-3 A	ID NUMBERS ADDED FOR CLARITY	03/14/03	JRG



UNLESS OTHERWISE SPECIFIED
 INTERPRETE PER MIL-STD-100
 DIMENSIONS ARE IN INCHES

TOLERANCES
 ON DECIMAL
 DIMENSIONS

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 X ± .050

SURFACE TEXTURE
 SHALL BE

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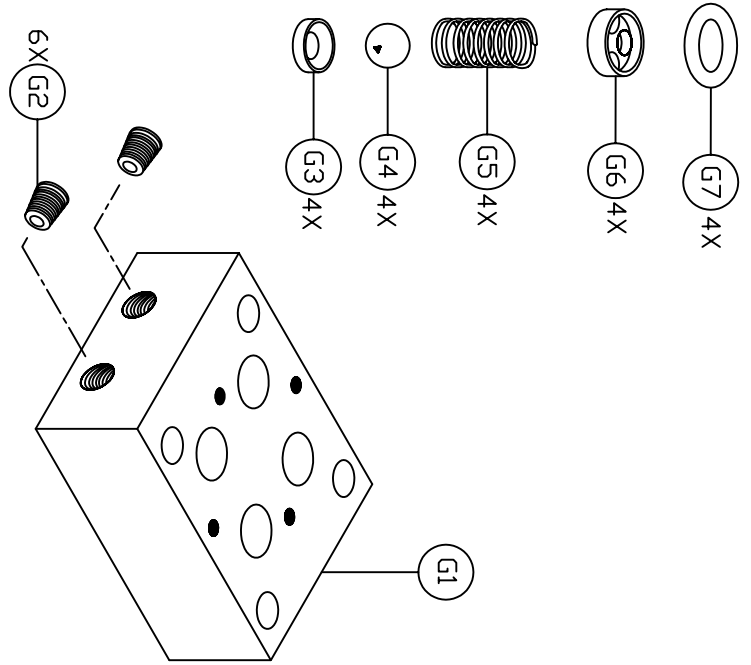
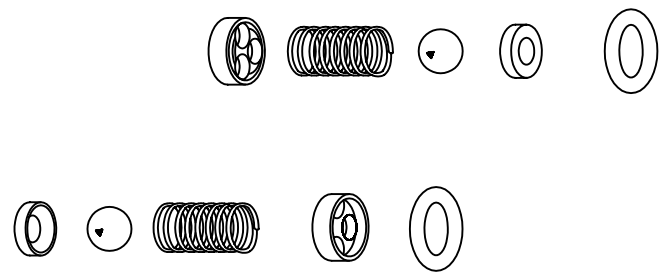
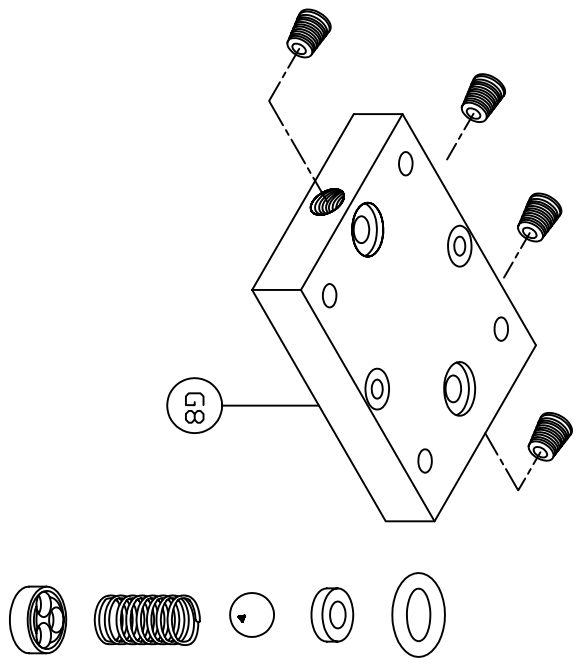
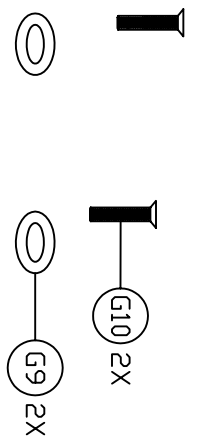
FILTER ASSY HYDRD 100

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REVISIONS		DATE	APPROVED
ZONE/REV	DESCRIPTION		
D-4			
C-2			
B-2	A	03/14/03	JRG
QTY. ADDED FOR CLARITY			



UNLESS OTHERWISE SPECIFIED
 INTERPRET PER MIL-STD-100
 DIMENSIONS ARE IN INCHES
 SURFACE TEXTURE
 SHALL BE

ROBWIEN INC
 CHECK VALVE ASSY HYDRD 100

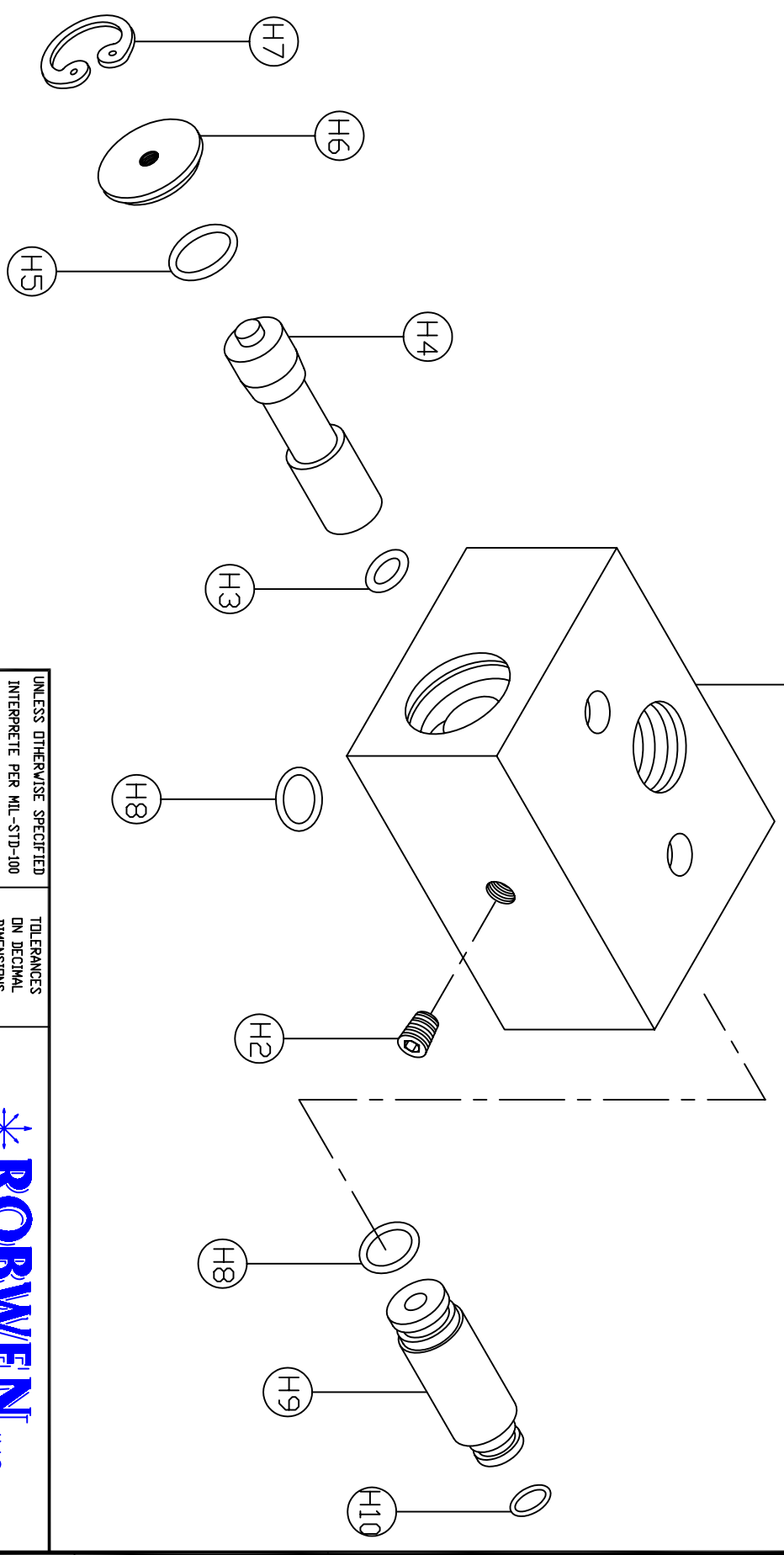
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 PAGE 1 OF 1

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REVISIONS				
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B-4	A	ANGLE ADDED FOR CLARITY	03/14/03	JRG



UNLESS OTHERWISE SPECIFIED
 INTERPRETE PER MIL-STD-100
 DIMENSIONS ARE IN INCHES
 SURFACE TEXTURE
 SHALL BE

ROBWEIN INC
 MANIFOLD BLOCK ASSY HYDRD 100

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CHECKED	John Grindley	03/20/03

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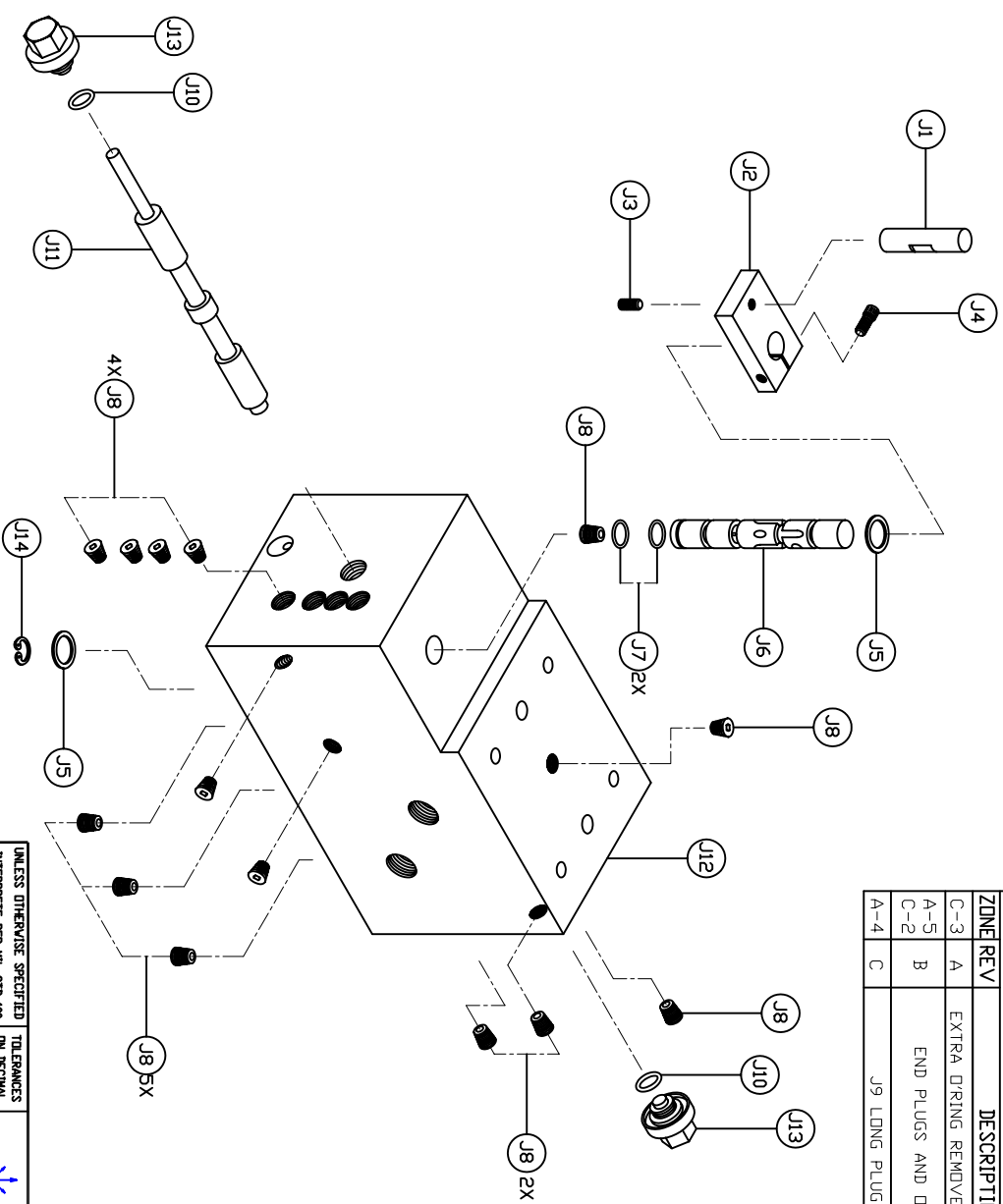
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A B C D A B C D A

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REVISIONS			
ZONE/REV	DESCRIPTION	DATE	APPROVED
C-3	A	EXTRA O-RING REMOVED FROM DRAWING	01/23/03
A-5	B	END PLUGS AND DRINGS ADDED	03/17/03
C-2			JRG
A-4	C	J9 LONG PLUG REMOVED	04/07/03
			JRG



ROBWIEN INC

OPERATING VALVE ASSY HYDRO 100

UNLESS OTHERWISE SPECIFIED
 INTERPRET PER MIL-STD-100
 DIMENSIONS ARE IN INCHES

SURFACE TEXTURE
 SHALL BE

TOLERANCES ON DECIMAL DIMENSIONS
 .XXX ± .005
 .XX ± .010
 X ± .050

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DRAWN	C. HIDALGO	10/23/01	D	32762	REF. J
CHECKED	John Grindley	03/20/03	SCALE	FULL	C

PAGE 1 OF 1

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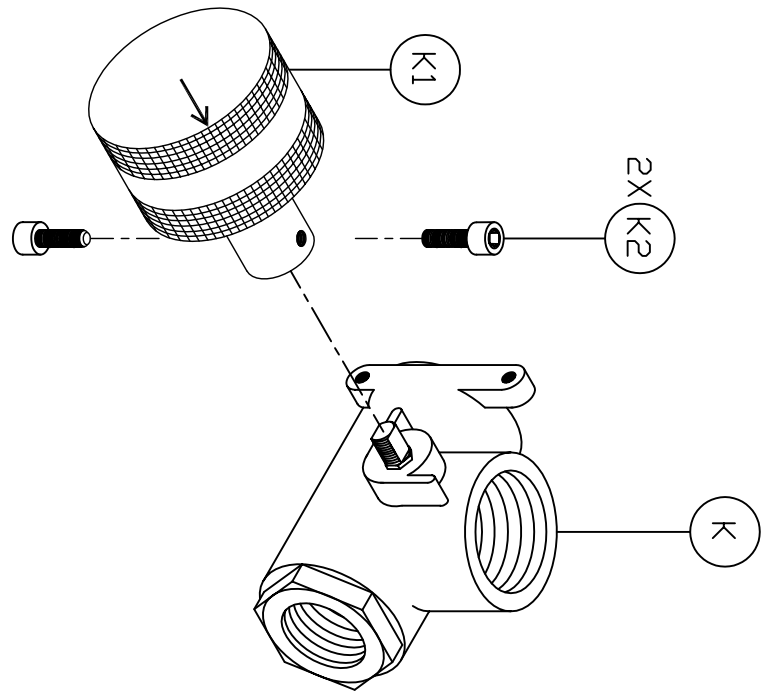
4

3

2

1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



UNLESS OTHERWISE SPECIFIED INTERPRETE PER MIL-STD-100 DIMENSIONS ARE IN INCHES		TOLERANCES ON DECIMAL DIMENSIONS	
SURFACE TEXTURE SHALL BE		.XXX ± .005 .XX ± .010 .X ± .050	
BY	SIGNATURE	DATE	
DRAWN	C. HIDALGO	08/10/98	
CHECKED	John Grindley	03/20/03	
 ROBWEN INC		SIZE	CODE
		B	32762
MOUNT HANDLE, SHORT HYDRD 100		REF.	K
SCALE: FULL		PAGE: 1	OF: 1

A

B

C

D

5

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1

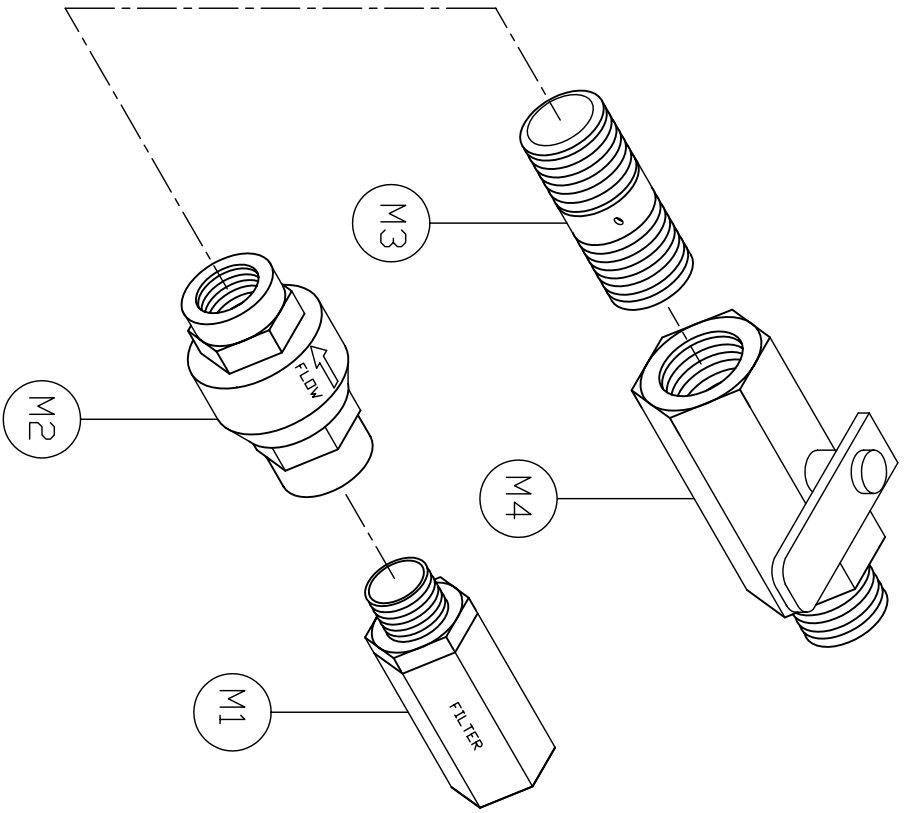
A

B

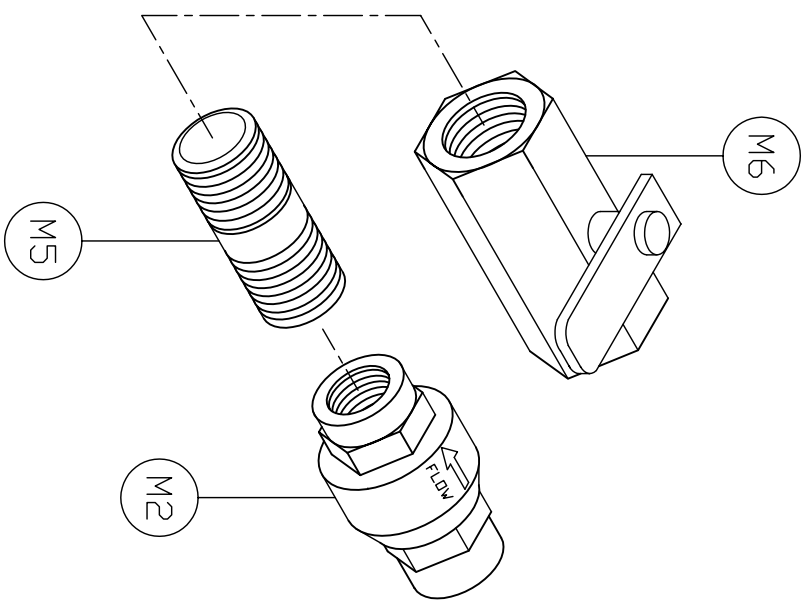
C

D

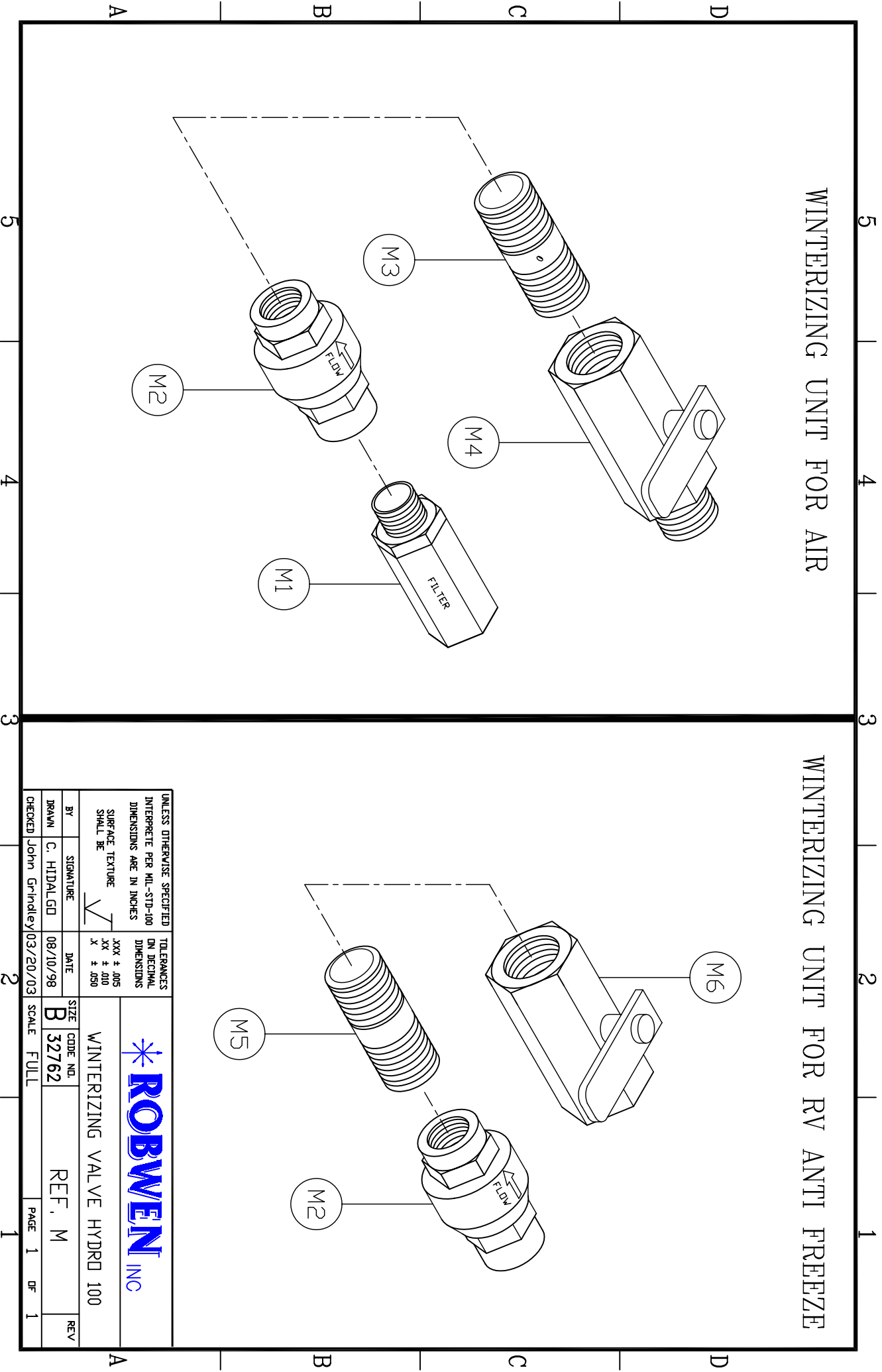
WINTERIZING UNIT FOR AIR



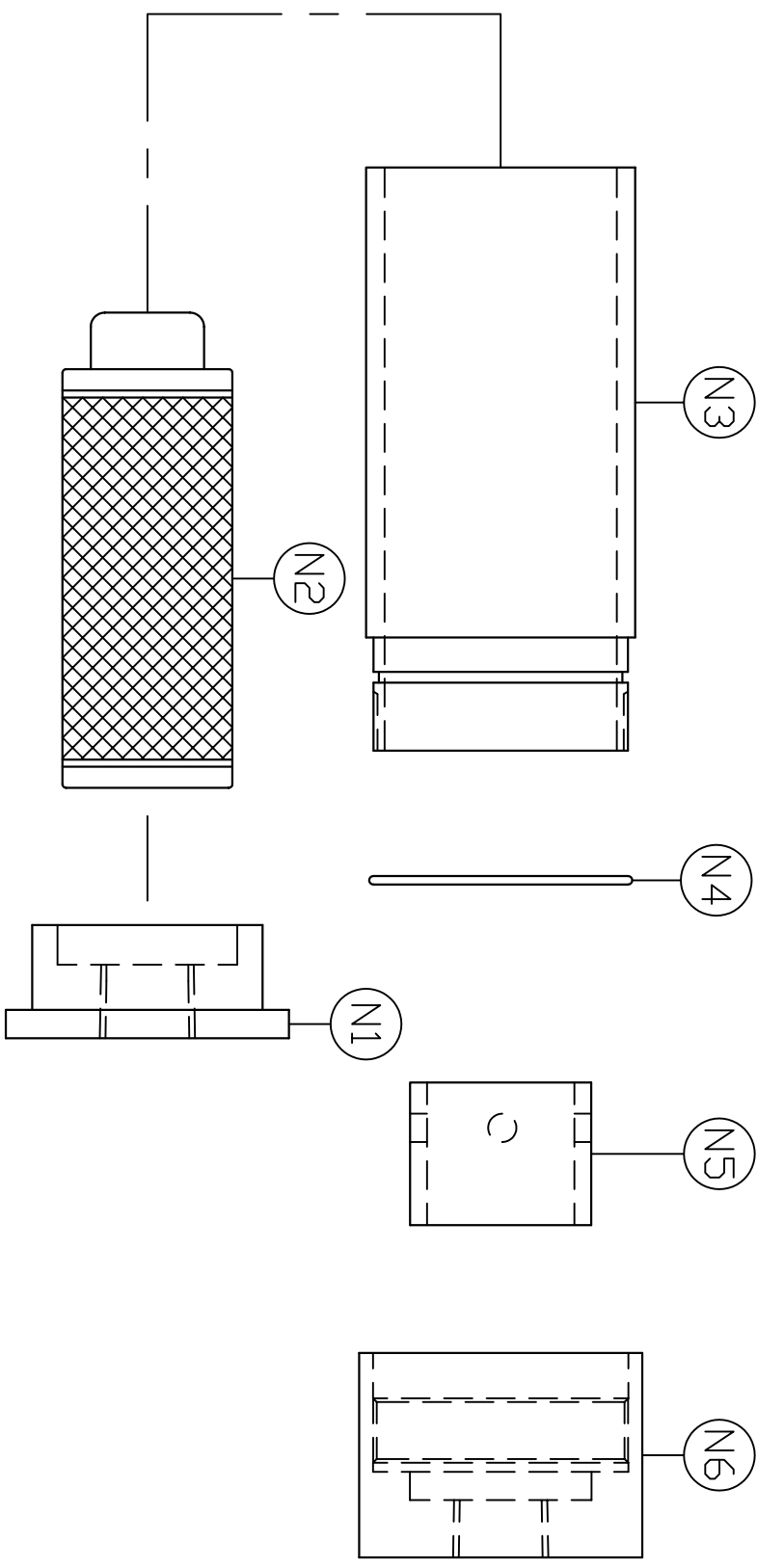
WINTERIZING UNIT FOR RV ANTI FREEZE



UNLESS OTHERWISE SPECIFIED INTERPRET PER MIL-STD-100 DIMENSIONS ARE IN INCHES		TOLERANCES ON DECIMAL DIMENSIONS		WINTERIZING VALVE HYDRD 100	
SURFACE TEXTURE SHALL BE		.XXX ± .005 .XX ± .010 .X ± .050		ROBWIEN INC	
BY	SIGNATURE	DATE	SIZE	CODE NO.	REF. M
DRAWN	C. HIDALGO	08/10/98	B	52762	
CHECKED	John Grindley	03/20/03	SCALE	FULL	PAGE 1 OF 1



REVISIONS			DATE	APPROVED
ZONE	REV	DESCRIPTION		



UNLESS OTHERWISE SPECIFIED INTERPRETE PER MIL-STD-100 DIMENSIONS ARE IN INCHES		TOLERANCES ON DECIMAL DIMENSIONS XXX ± .005 .XX ± .010 X ± .050		
SURFACE TEXTURE SHALL BE				
BY	SIGNATURE			DATE
DRAWN	C. HIDALGO			03/09/04
CHECKED	John Grindley	03/30/04		

ROBOWEN INC

FOAM FILTER HOUSING ASSY

SIZE B REF. N

SCALE: FULL PAGE: 1 OF 1

