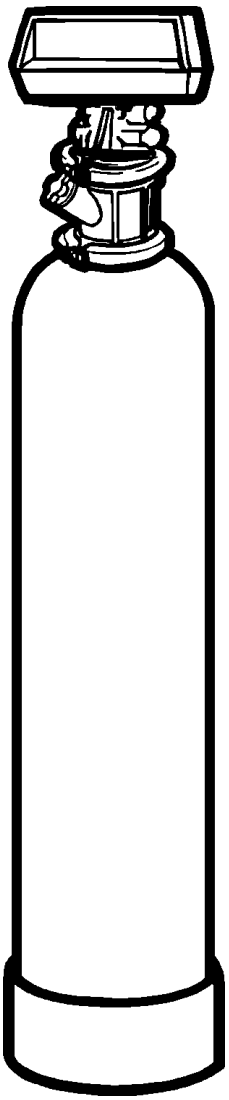
INSTALLATION AND OPERATING INSTRUCTIONS

NBW SERIES RESIDENTIAL BACKWASH FILTERS



MODELS

NBW1000	**NBW1001**
NBW1500	**NBW1501**
NBW2000	**NBW2001**
NBW2500	**NBW2501**
NBW1628	**NBW1628-1**

Manufactured by:

Cuno Water Treatment
12628 U.S. 33 North, Churubusco, IN 46723
Water Treatment Division of CUNO

IN123G(03-014)

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SECTION 1: BEFORE INSTALLATION

INSPECTING AND HANDLING YOUR FILTER:

Inspect the equipment for shipping damage. If damaged, notify the transportation company and request a damage inspection.

Handle the filter with care. Damage can occur if dropped or set on sharp, uneven projections on the floor. Do not turn the filter upside down.

MAKE SURE YOUR WATER HAS BEEN THOROUGHLY TESTED:

An analysis of your water should be made prior to the selection of your water conditioning equipment. Your dealer will generally perform this service for you, and may send a sample to the factory for analysis and recommendations Enter your analysis below for a permanent record.

NOTE: Hydrogen sulfide (H_2S) must be tested for at the well site. For accuracy, the sample must be drawn with the pump RUNNING and the test be completed within ONE minute after the sample is drawn.

ANALYSIS OF YOUR WATER

Hardness	_____ gpg
Iron (Fe)	_____ ppm
Manganese (Mn)	_____ ppm
pH	_____
Tannins (Humic Acid)	_____ ppm
Hydrogen Sulfide (H_2S)	_____ ppm
Other _____	_____
Other _____	_____

There are several different filter media which can be used in this filter. Each is designed to improve a particular aesthetic problem. None of them should be used to make non-potable water safe to drink. The following descriptions indicate not only what the media is designed to do, but also points out their limitations.

ACTIVATED CARBON

Activated carbon is generally used to remove objectionable tastes and odors from water, chlorine being the most common. Activated carbon works primarily on the concept of adsorption. Each particle of carbon has numerous pores through which the water passes. It is in these pores that the removal of unwanted constituents occurs. During backwash, these "collected" contaminants are knocked off and flushed away to drain. Since the pores in the carbon are very important, the presence of sedimemt in the water which can plug these pores will greatly shorten the run time and life span of the carbon.

Activated carbon can be used to remove Radon gas and organic compounds from water. Check with the local board of health for the acceptability of using carbon for the removal of these contaminants. The life span of the carbon depends on the amount of contaminant in the water and amount of water filtered per day. Rarely will the carbon last more than three (3) years.

FILTER AG

Filter Ag is used to remove turbidity from water. While it is good general purpose filtering media, it has its limitations. It will remove particles down to approximately 20 micron in size, but cannot be used to filter out sand. The material to be removed must have a density less than that of Filter Ag itself.

If it is the same or heavier it will not be removed from the filter during the backwash process and will remain in the tank. Eventually the filter will plug up causing excessive pressure drop and requiring the filter tank be emptied and new filter ag be used.

Filter Ag will generally last an indefinite period of time, if the frequency of backwash and the backwash flow rate are adequate. Replacement is usually necessary when the filter fails to properly remove the turbidity or pressure drop becomes excessive.

NEUTRALIZER

Neutralizer media is typically a blend of calcium carbonate (calcite) and magnesium oxide (corosex). This media is used to elevate the pH of acid water and is generally used when the pH is approximately 6.0-6.5. The filter media dissolves when water with a low pH passes through. The blend is used to take advantage of the fast, vigorous pH adjusting capabilities of corosex and the slow, long-lasting capabilities of the calcite. Neutralizer is typically not recommended when the pH of the raw water is below 5.5, because the dissolve rate would be high and thus constant maintenance of the filter would be necessary. In these cases a chemical feed pump injecting soda ash is usually recommended.

Neutralizer media will require replenishment periodically. The frequency is dependent on the raw water pH and your water consumption habits. The lower the pH and the higher the water usage, the more frequently replenishment will be required. One easy way of determining when to replenish is by placing a mark on the outside of the tank at the level of the media when first installed. Periodically shine a bright light through the tank and compare the current level to the mark, if it is down more than three (3) inches, add media to the mark. If you are unable to see through the tank, remove the control valve and measure down to the top of the media. The tank should be 2/3 full, if not, add media.

CAUTION: Since neutralizer media dissolves as it raises pH, it will increase the hardness. If your home is equipped with a tankless water heater, a water softener must be installed after the filter to prevent the coil from plugging.

FILTER SAND

Filter Sand performs a similar function to filter ag (discussed earlier). It is used to remove turbidity and has the same limitations as filter ag. Due to its coarse physical structure, filter sand will "scrub" itself clean and, for this reason, it may be better for removing oxidized iron and sulfur from water than filter ag.

COROSEX OR CALCITE

Corosex and calcite, like neutralizer which is a blend of these two items, are used to adjust pH. Corosex can be used alone, when it is desirable to have a media which is very vigorous in its adjustment of pH. Calcite can be used alone, when only a slight pH adjustment is required. Both media are sacrificial (dissolve) when adjusting pH and will thus increase hardness as well. Replenishment will be required

CAUTION: Since both media increase hardness, if your home contains a tankless water heater, a water softener must be installed after the filter to prevent the coil from plugging.

BIRM

Birm can be used to remove iron from water, but has limitations which typically do not make it a practical alternative to other iron filters, such as the Chem-Free filter. When used to remove iron, the pH of the water must be 6.8 or higher and the dissolved oxygen (D.O.) level must be equal to 15% of the iron concentration. If used to remove manganese, the pH must be 8.0-9.0. Birm should not be used to remove hydrogen sulfide and cannot be used if the water contains organic compounds.

Birm will require periodic replacement. Although it is not sacrificial, it will lose its effectiveness over time.

CHECK YOUR WATER PRESSURE AND PUMPING RATE:

Two water system conditions must be checked carefully to avoid unsatisfactory operation or equipment damage:

1) Minimum water pressure required at the filter tank inlet is 20 psi. IF PRESSURE IS OVER 100 PSI, A PRESSURE REDUCING VALVE MUST BE INSTALLED IN THE WATER SUPPLY LINE.

   NOTE: If you have a municipal or a community water supply and daytime water pressure is 85 psi or more, nighttime pressure may exceed 100 psi. Call your local water department or plant operator to obtain pressure readings. If you have a private well, the gauge on the pressure tank will indicate high and low system pressure. Record your water pressure data below:

   WATER PRESSURE

   Low _____psi High _____psi

2) The pumping rate of your well pump must be sufficient for satisfactory BACKWASH. Although the density of a media normally determines the backwash rate, all the media discussed earlier will require the same flow rate. Model NBW1001 requires a 5 gpm rate (refer to SPECIFICATIONS AND OPERATING DATA for the backwash requirement for other models). To measure the pumping rate of your pump, follow these instructions:

   a. Make certain no water is being drawn. Open spigot nearest pressure tank. When pump starts, close spigot and measure time (in seconds) to refill pressure tank (when pump shuts off). This figure represents CYCLE TIME.

b. With the pressure tank full, draw water into a container of known volume, measure the number of gallons drawn until the pump starts again. This is DRAW-DOWN. Divide this figure by CYCLE TIME and multiply by 60 to arrive at the PUMPING RATE in gallons per minute (gpm). To aid in your calculation, insert the data in the following formula:

DRAW-DOWN ____ (gals.) ÷ CYCLE TIME ____ (secs.) x 60

= PUMPING RATE _____ (gpm)

EXAMPLE: CYCLE TIME is 63 secs.; DRAW-DOWN is 8 gals.; then PUMPING RATE equals:

8 gals. ÷ 63 secs.x 60 = 7.6 gpm

LOCATE WATER CONDITIONING EQUIPMENT CORRECTLY:

Select the location of your filter tank with care. Various conditions which contribute to proper location are as follows:

1) Locate as close as possible to water supply source.

2) Locate as close as possible to a floor or laundry tub drain.

3) Locate in correct relationship to other water conditioning equipment.

4) Filters and softeners should be located in the supply line BEFORE the water heater. Temperatures above 100°F (38°C) damage filters and softeners and will void the factory warranty.

5) Do NOT install a filter or softener in a location where freezing temperatures occur. Freezing may cause permanent damage to this type equipment and will also void the factory warranty.

6) Allow sufficient space around the unit for easy servicing.

THE IMPORTANCE OF YOUR PRESSURE TANK:

A properly sized pressure tank will require a minimum pump cycle of 60 seconds to refill from pump on-to-off pressure settings.

NOTE: If your pressure tank (or any part of your water system) is not functioning properly, corrective action MUST be taken before installation of your filter.

FACTS TO REMEMBER WHILE PLANNING YOUR INSTALLATION:

1) All installation procedures MUST conform to local and state plumbing codes.

2) All lawn sprinkling, a swimming pool, geothermal heating/cooling or water for other devices/activities are to be treated by the filter, a larger model filter must be selected to accomodate the higher flow rate demands of these items. The pumping rate of the well pump must be sufficient to accomodate these items plus the backwashing requirement of the filter. Consult your dealer for alternative instructions if the pumping rate is insufficient.

3) Remember that the filter INLET is attached to the pipe that supplies water (i.e., runs to the pump) and the OUTLET is the line that runs toward the water heater.

4) Before commencing the installation it is advisable to study the existing piping system and to determine the size, number and type of fittings required.

NOTE: If the plumbing system is used as the ground leg of the electric supply, continuity should be maintained by installing ground straps around any non-conductive plastic piping used in installation.

5) ***IMPORTANT:*** Always use thread tape on threaded plastic fittings. NEVER use pipe dope, as it will deteriorate the plastic fittings.

SECTION 2: INSTALLATION

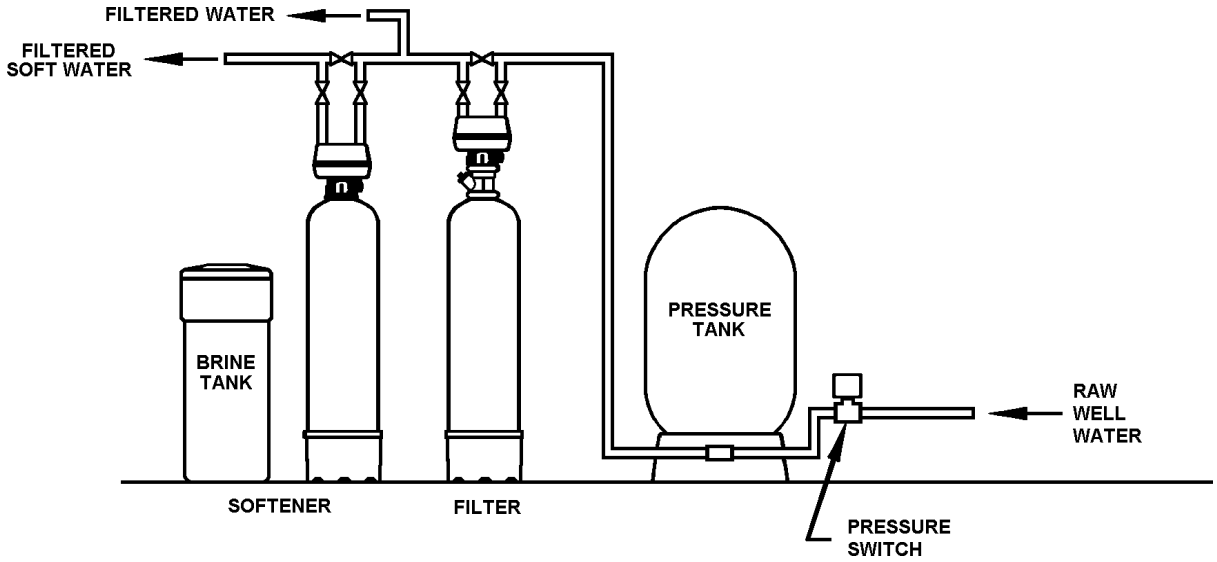


Figure 1. INSTALLATION SEQUENCE

Step 1. (a) Add media thru fillport adaptor using funnel (See Figure 2). Fillport cap can be removed by removing quick release clip. NEVER ADD MEDIA ABOVE LINE INDICATED ON SIDE OF TANK. You may have received more media than required for the initial fill, save extra media for future replenishment.

(b) Reinstall fillport cap. Make sure cap is fully inserted before reinstalling clip.

(c) If BYPASS VALVE/YOKE ASSEMBLY is not factory pre-installed, attach using clips and screws shown in Figure 3.

Step 2. Shut off all water at main supply. On a private well system, turn off power to pump and drain pressure tank. Make certain pressure is relieved from complete system by opening nearest faucet to drain system. SHUT OFF FUEL SUPPLY TO WATER HEATER.

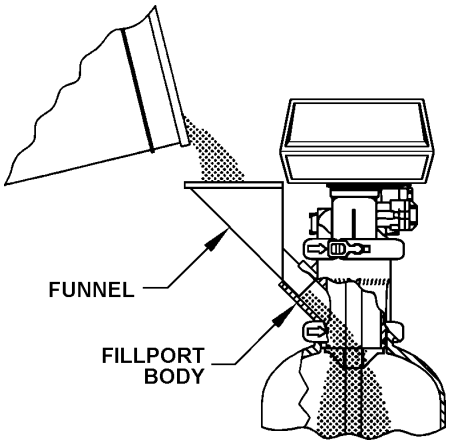
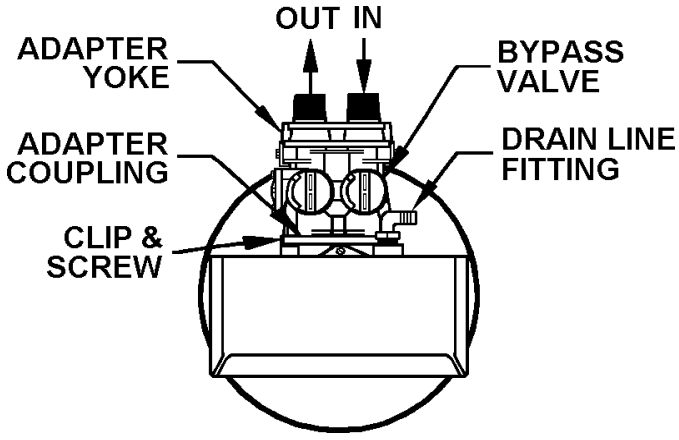


Figure 2. FILLING MEDIA TANK

Step 3. Cut main supply line as required to fit plumbing to INLET and OUTLET of BYPASS VALVE ASSEMBLY.

Step 4. Attach plumbing. DO NOT apply heat to any fitting connected to BYPASS or CONTROL VALVE, as damage may result to internal parts or connecting adapters. MAKE CERTAIN WATER FLOW ENTERS THROUGH **INLET** AND DISCHARGES THROUGH **OUTLET.**

NOTE: Always use thread tape on threaded plastic fittings. Never use pipe dope, unless specially formulated for plastic fittings, as it will deteriorate plastic fittings.



Fligure 3. INLET/OUTLET CONNECTIONS

Step 5. Attach DRAIN LINE to DRAIN LINE FITTING.To prevent back pressure from reducing the flow rate below minimum required for backwash, DRAIN LINE MUST be sized according to run length and relative height. Be careful not to bend flexible drain tubing sharply enough to cause "kinking" (if kinking occurs DRAIN LINE MUST be replaced!). Typical examples of proper DRAIN LINE diameters are:

1) 1/2 in. ID up to 15 ft. when discharge is lower than inlet.

2) 5/8 in. ID up to 15 ft. when discharge is slightly higher than inlet.

3) 3/4 in. ID when drain is 25 ft. away.

Avoid installing drain overhead or using flexible vinyl tubing, either may result in failure.

Some areas prohibit the use of flexible drain lines. Check with local code officials prior to installation.

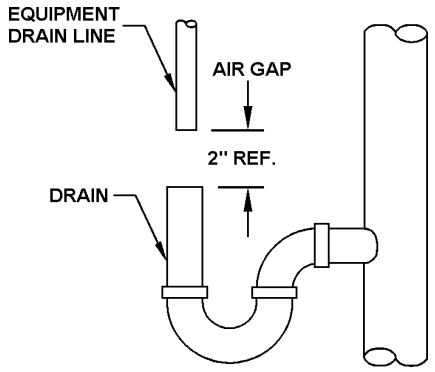


Figure 4. DRAIN

Step 6. Position DRAIN LINE over drain and secure firmly. To prevent back-siphoning of sewer water, provide an air gap of at least 2 inches or 2 pipe diameters between end of drain hose and drain (See FIGURE 4). Do not raise DRAIN LINE more than 10 ft. above floor.

Step 7. Make certain both INLET and OUTLET KNOBS of BYPASS VALVE are in "BYPASS" position. Turn on power to well pump or completely open main supply valve. Check for leaks and correct as necessary.

Step 8. (a) Manually stage control to BACKWASH position (see "HOW TO MANUALLY CYCLE PROGRAM"). Open BYPASS VALVE INLET KNOB approximately 1/4 of the way to full open ("SERVICE" position) allowing unit to fill slowly. This will purge any entrapped air in the bed.

IMPORTANT: Filters containing activated carbon, filter ag or birm must be saturated for at least 2 hours prior to subjecting the unit to full backwash flow rates. Failure to do this may result in loss of mineral during initial backwash procedure.

(b) Once a steady stream of water is flowing to drain (see IMPORTANT note above) open both INLET and OUTLET KNOBS OF BYPASS VALVE completely. Leave unit in backwash for at least 10 minutes OR until drain line water runs clear, whichever is longer.

Step 9. After this preliminary backwash, manually advance CONTROL VALVE to "SERVICE" position and plug timer into a 110V, 60Hz properly grounded non-switched power source.

Step 10. Set time of day (see "HOW TO SET TIME CONTROL") and set BACKWASH frequency (see "DETERMINING BACKWASH FREQUENCY"). Installation is now complete.

NOTE: During the initial backwashings, a small amount of media may be observed in drain water. This is normal and beneficial for efficient operation of your filter system.

Step 11. Manually initiate a complete "regeneration" process, allowing the unit to automatically proceed through a backwash and rapid rinse. See "HOW TO MANUALLY BACKWASH YOUR FILTER AT ANY TIME", Page 2-3. Check drain water at end of rapid rinse cycle, if water is cloudy repeat the BACKWASH process. RESTORE FUEL SUPPLY OR POWER TO WATER HEATER.

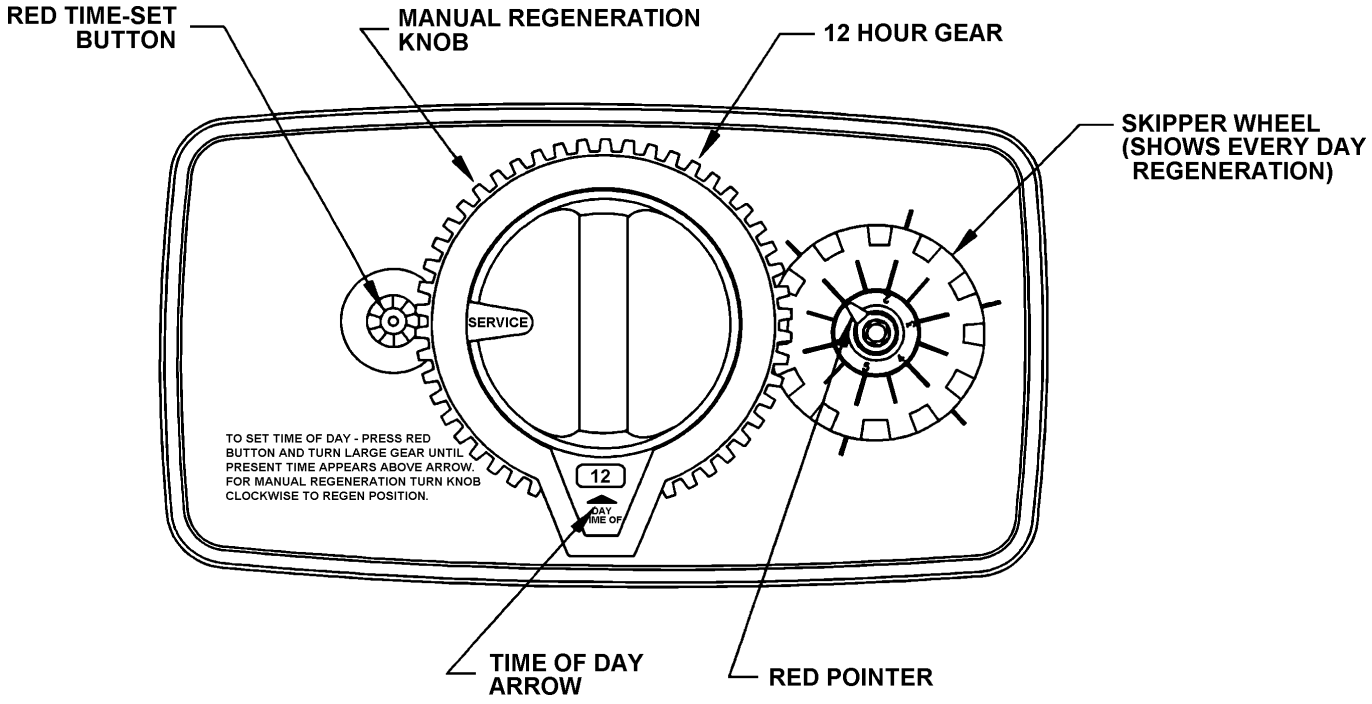
DETERMINING BACKWASH FREQUENCY:

The exact backwashing frequency depends on the quality of the raw water, but it is recommended that filters containing activated carbon, birm, filter ag or filter sand be programmed to backwash at least once every six days. If pressure drop becomes excessive or contaminant reappears in the treated water before six days, increase the frequency.

Filters containing neutralizer, calcite or corosex should be backwashed every other day to prevent the media particles from "cementing" together.

See "HOW TO SET TIME CONTROL" for procedure.

HOW TO SET TIME CONTROL



HOW TO SET TIME OF DAY:

1) Press and hold the red button in to disengage the drive gear.

2) Turn the large gear until the actual time of day shows in the time of day window. Unit will now be set to backwash at 1:00 a.m.(See note below to adjust this time.)

3) Release the red button to again engage the drive gear.

HOW TO SET THE SKIPPER WHEEL:

If you are setting the TIME CONTROL after MIDNIGHT but before NOON (i.e. A.M.) the red pointer on the SKIPPER WHEEL MUST be between two numbers (as shown) if you are setting the TIME CONTROL after NOON but before MIDNIGHT (i.e. P.M.) the red pointer MUST be COVERING one of the numbers. Setting the SKIPPER WHEEL in this manner will provide a 1:00 A.M. BACKWASHING **TIME.**

CAUTION: If directions above on HOW TO SET THE SKIPPER WHEEL are not followed, BACKWASHING will not take place at the appropriate time of day.

HOW TO SET DAYS ON WHICH FILTER IS TO BACKWASH:

Set the days that backwash is to occur by sliding tabs on the skipper wheel outward to expose trip fingers. Each tab is one day. Extend or retract fingers to obtain the desired backwashing schedule. Typically, these units are backwashed every third day. Consult your dealer for their recommendations for your water.

HOW TO MANUALLY BACKWASH YOUR FILTER AT ANY TIME:

Turn the manual backwash knob clockwise until the knob engages the program wheel. This slight movement of the knob will start the backwash program.

The backwash knob will make one revolution in approximately three hours and stop in the position shown in the drawing. Even though it takes three hours for the knob to complete one revolution, the backwash cycle of your unit might be about 20 minutes in duration.

In any event, filtered water may be drawn after rinse water stops flowing from the filter drain line.

NOTE: Should it be necessary to change the time of day which backwash is to start, the time on 24 hour gear must be altered. For example, if 2:00 a.m. is desired instead of 1:00 a.m.,set the 24 hour gear one hour earlier than actual time.

SECTION 3: MAINTENANCE

1) At least every six months you should check the time of day setting. Power outages will cause the unit to lose time.

2) If your unit contains activated carbon, you must replace the carbon and gravel underbed at least every three (3) years. Replacement may be required sooner, if the taste and odor being removed reappears in the treated water or pressure drop, due to fouling of the media, becomes excessive.

3) Filter Ag and Filter Sand will last an indefinite period of time. It may be necessary to replace them, if the pressure drop across the filter becomes too great or filtration results drop.

4) Neutralizer media, calcite or corosex must be replenished at least annually. At the time of installation, it is advisable to mark the level of the media on the outside of the tank. At a later date you can shine a bright light through the tank comparing the current level with the mark. If the level is down by more than three (3) inches, add media back to the original mark.

5) Birm should be replaced when iron reappears in the treated water and backwashing does not return the media to a functional form.

TO REPLENISH (REBED) MEDIA:

1) Pressure must be relieved on system by turning both INLET and OUTLET KNOBS of BYPASS VALVE to "BYPASS" position and manually rotating CONTROL VALVE to "BACKWASH" position.

2) Remove fillport cap by removing the clip. Some water will spill out.

3) Using a small tube, syphon water from the tank through the fillport.

4) Add media through the fillport using a funnel. Do not add media to a level above the line indicated on the side of the tank.

5) Reinstall fillport cap. Make sure cap is fully inserted before reinstalling clip.

SPECIAL SERVICE INSTRUCTIONS:

Under normal circumstances removal of valve should never be required. However, if it must be removed, it can be done by disassembling the quick release clamp, by removing latch. Pressure should be relieved before attempting any disassembly. Upon reassembly, all o-rings should be lubricated with silicone grease. Reassemble clamp as shown in Figure 5. MAKE SURE ARROWS ON LATCH SIDE OF CLAMP ARE ALIGNED.

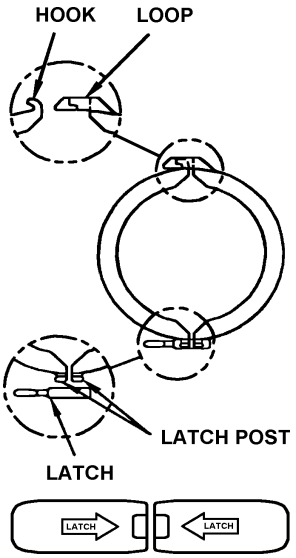


Figure 5. CLAMP ASSEMBLY

SECTION 4: TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
1) Excessive pressure drop through filter	A) Filter not backwashing.	1) Check motor by manually initiating a regeneration, replace as necessary. 2) Check for uninterrupted power supply. 3) Check backwash frequency. Change program if necessary.
	B) Filter bed loaded with sand.	1) Verify sediment being removed is less dense than the filter media.
	C) "Cementing" or "Channeling" of media.	1) Probe bed for this condition. Verify adequate pumping rate for backwashing. 2) Check for frozen, plugged or restricted drain line. 3) Check for adequate backwash frequency.
	D) Top Screen Fouled	1) Remove screen and clean as necessary.
2) Contaminant not being properly removed	A) Leaking bypass valve.	1) Check bypass valve in "SERVICE" position. Repair or replace if necessary.
	B) Internal valve leak.	1) Check piston and spacers and seals. Replace as necessary.
	C) Distributor not properly seated in control valve.	1) Make sure distributor is in tube adaptor protruding from bottom of control valve. 2) Check distributor tube o-ring. Replace as necessary.
	D) Flow rate too high for filter.	1) Check demand requirements against filter recommended flow rates.
3) Filter raises pH too high (Neutralizer)	A) Filter is brand new.	1) Crack the bypass valve allowing some water to bypass the unit.
	B) Wrong media used.	1) Corosex used when neutralizer blend should have been used. Crack bypass or rebed unit.
4) Filter fails to raise pH (Neutralizer)	A) Flow rates too high.	1) Verify demand rate does not exceed filter rating.
	B) Filter bed cemented or channeled.	1) Verify adequate pumping rate for backwashing unit. 2) Check drain line for freezing, plugging or restrictions.
5) Filter fails to remove iron (Birm)	A) pH too low.	1) pH of raw water must be 6.8 or higher. Adjust with proper equipment.
	B) Dissolved oxygen level inadequate.	1) Aerator may be installed prior to filter.

SECTION 5: SPECIFICATIONS AND OPERATING DATA

ITEM	NBW1001	NBW1501	NBW2001	NBW2501	NBW1628-1
Filter Media Volume, cu.ft. (cu.mtr.)	1.0 (0.03)	1.5 (0.05)	2.0 (0.06)	2.5 (0.08)	1.5 (0.05)
Gravel Underbed, lbs. (kg.)	18 (8.2)	18 (8.2)	22 (10.0)	25 (11.3)	35 (15.9)
Operating Flow Rate, gpm (lpm) (Note 1):					
Continuous (no duration limit)	3 (11)	3 (11)	4 (15)	5 (19)	6 (23)
Service (10 mins. or less)	5 (19)	6 (23)	7 (26)	8 (30)	10 (38)
Backwash Flow Rate, gpm (lpm) (Note 2)	5 (19)	5 (19)	7 (26)	7 (26)	10 (38)
Service Pipe Size, in. (cm.)	1 (2.54)	1 (2.54)	1 (2.54)	1 (2.54)	1 (2.54)
Tank Diameter x Height, in. (cm.)	10 x 44 (25 x 112)	10 x 54 (25 x 137)	12 x 54 (31 x 137)	13 x 54 (33 x 137)	16 x 28 (41 x 71)
Minimum Space Required, in. (cm.):					
Width	12 (31)	12 (31)	12 (31)	13 (33)	16 (41)
Depth	18 (46)	18 (46)	18 (46)	18 (46)	18 (46)
Height	56 (142)	66 (168)	66 (168)	66 (168)	40 (102)
Approximate Shipping Weight, lbs. (kg.) l/media	45 (20)	51 (23)	57 (26)	68 (31)	66 (30)

Maximum operating temperature 100°F (38°C); Electrical requirements 110V,60Hz (220V, 50 Hz); Operating pressure 20-100 psi (138-689 kPa). Specifications subject to change without notice.

NOTES:

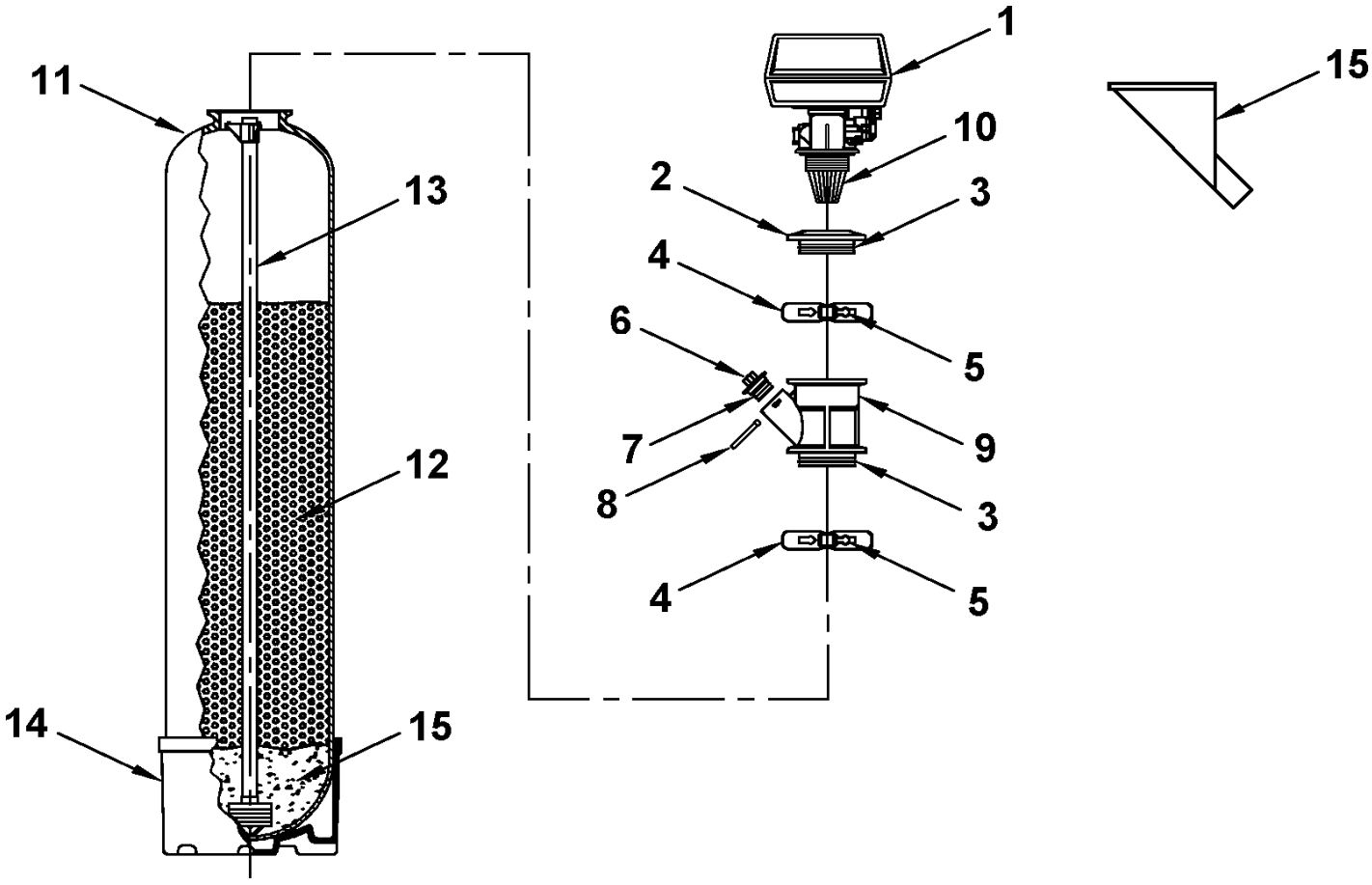
(1) For satisfactory performance, indicated durations should not be exceeded. Flow rates specified are adequate for normal residential applications. Do not use Service Flow Rates when sizing commercial applications or if treated water is to supply a geothermal heat pump, swimming pool, etc.

(2) For system to operate properly, pumping rate of well pump MUST be sufficient to backwash unit at rate specified.

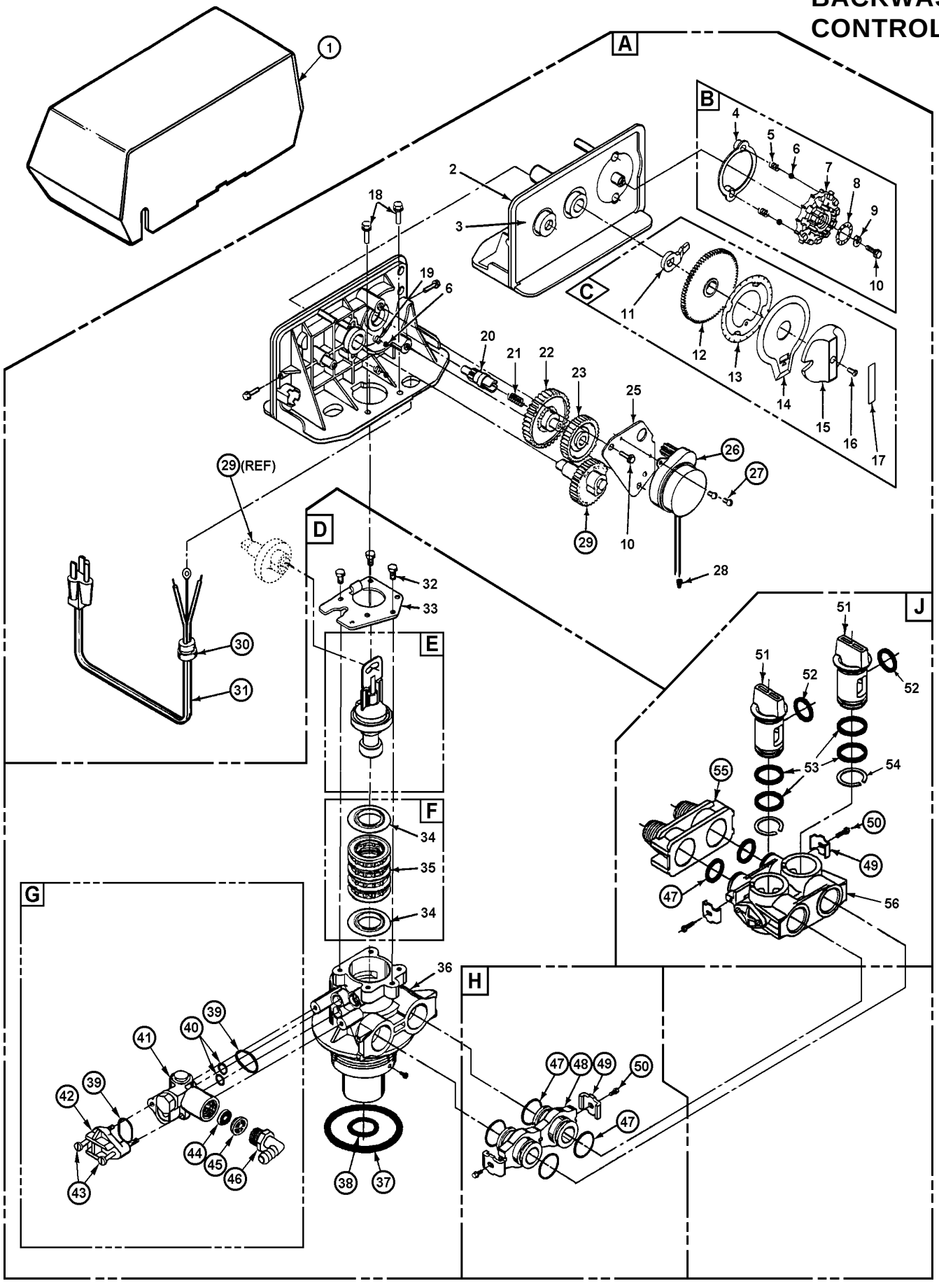
COMPONENT PARTS LIST

Ref. No.	Description	NBW1001	NBW1501	NBW2001	NBW2501	NBW1628-1
1	Control Valve w/Cover, l/Bypass	N200500	N200500	N200700	N200700	N200000
2	Adapter Assy., Flange-Thrd (Incl.Ref. 3)	FA45CX	FA45CX	FA45CX	FA45CX	FA45CX
3	O-ring	ORG-234	ORG-234	ORG-234	ORG-234	ORG-234
4	Clamp Assy. (Incl. Ref. 5)	FC45XX	FC45XX	FC45XX	FC45XX	FC45XX
5	Latch, Clamp	FC45C	FC45C	FC45C	FC45C	FC45C
6	Fillport Cap Assy. (Incl. Ref. 7 & 8)	FF45CX	FF45CX	FF45CX	FF45CX	FF45CX
7	O-ring	ORG-214	ORG-214	ORG-214	ORG-214	ORG-214
8	Quick Release Clip	QRC20	QRC20	QRC20	QRC20	QRC20
9	Fillport Adapter Assy., Blank Cap, (Incl. Ref. 3, 6, 7 & 8)	FF45BX	FF45BX	FF45BX	FF45BX	FF45BX
10	Top Screen	18280	18280	18280	18280	18280
11	Media Tank w/Base	MTP1044FB	MTP1054FB	MTP1254FB	MTP1354B	MTP1628FB
12	Media (Various Types)	(1.0 CF)	(1.5 CF)	(2.0 CF)	(2.5 CF)	(1.5 CF)
13	Distributor	C37S-16-45	C37S-16-55	C37S-16-55	T37S-16-55	C37S-16-29
14	Tank Base	T06-10P	T06-10P	T06-12P	T06A-13P	T06A-16PF
15	Gravel Underbed	QC-18	QC-18	QC-22	QC-25	QC-35
--	Adapter Assy., Thrd-Flange (Not Shown)	--	--	--	FA45RX	--
--	O-ring, Adapter Assy. (Not Shown)	--	--	--	10381	--

NOTE: When ordering components, always specify model number.



"N"" SERIES BACKWASH CONTROL



"N" SERIES BACKWASH CONTROL PARTS LIST

ONLY THOSE PARTS CIRCLED IN DRAWING AND/OR LISTED BELOW ARE STOCK ITEMS. ALL OTHERS ARE SPECIAL ORDER, NON-RETURNABLE.

REF.	PART NO.	DESCRIPTION
A	60351-BW	Powerhead Assy., Complete, L/Cover, 110V/60Hz (Incl. Ref. Items 1-27)
	60351-BW-220/50	Powerhead Assy., Complete, L/Cover, 220V/50Hz (Incl. Ref. Items 1-27)
B	19231X	Skipper Wheel Assy. (incl. Ref. Items 4-9)
C	19235X	12-Hour Gear Assy. (Incl. Ref. Items 10-15)
D	14554X	Control Valve Body Assy. (Incl. Ref. Items 30-36 E & G)
E	60102-52	Piston Assembly
F	60125	Seal Kit (incl. Ref. items 32& 33)
G	60384X	Drain Line Flow Control Assy. (Incl. Ref. Items 37-44)
H	10090X	Adapter Coupling Assy. (Incl. Ref. Items 45-48)
J	60049/18706X	1" NPT Bypass Valve Assy. (Incl. Ref. Items 49-58)
	60049/18706-10X	1" BSP Bypass Valve Assy. (Incl. Ref. Items 49-58)
	60049/18706-02X	3/4" NPT Bypass Valve Assy. (Incl. Ref. Items 49-58)
1	22601X	Valve Cover, Specify Model No.
26	19170	Motor, 110V/60 Hz
	18825	Motor, 220V/50Hz
27	11384	Motor Mtg. & Ground Screw
29	19171	Main Drive Gear
30	13547	Strain Relief - Flat Cord
31	11842	Power Cord, 110V,60Hz, US Plug
	12972	Power Cord, 220V,50Hz, European Plug
37	12281	Tank O-Ring
38	13304	Distributor Tube O-Ring 1"
39	13303	Injector Cover O-Ring
40	13301	Injector O-Ring
41	13163	Injector/Drain Housing
42	13166	Injector Cover
43	13315	Injector Mtg. Screw
44		Drain Line Flow Control Button:
	12092	5.0 GPM
	12408	7.0 GPM
45	13173	Drain Line Flow Control Button Retainer
46	12338	Drain Line Fitting
47	13305	Coupling O-Ring
48	13709	Adapter Coupling
49	13255	Adapter Clip
50	13314	Screw - Adapter Coupling
55	18706	Adapter Yoke, 1" NPT
	18706-10	Adapter Yoke, 1" BSP
	18706-02	Adapter Yoke, 3/4" NPT

FIVE YEAR LIMITED WARRANTY

GENERAL CONDITIONS

Damage to any part of this water conditioner because of misuse, misapplication, neglect, alteration, accident, installation or operation contrary to our printed instructions, or damage caused by freezing, flood, fire, vacuum or Act of God, is not covered by this warranty. In all such cases, regular parts and service charges will apply.

We assume no warranty liability in connection with this water conditioner other than specified herein. This warranty is in lieu of all other warranties, expressed or implied, including warranties of fitness for a particular purpose. We do not authorize any person or representative to assume for us any other obligations on the sale of this water conditioner.

Should a defect or malfunction occur, contact your dealer. If you are unable to contact your dealer, return the part, freight prepaid, directly to the factory (address below). Enclose with the part a full description of the problem, with your name, full address, date purchased, model and serial number and selling dealer's name and address. We will repair or replace the part and return it to you at no cost if our repair department determines it to be defective under the terms of this warranty.

The serial number is located on the back of the control valve. Failure to provide the serial number will void the warranty and may result in charges for parts at the current selling price.

This water conditioner is manufactured by:

Cuno Water Treatment
12628 U.S. 33 North, Churubusco, IN 46723

WARRANTY POLICY

Cuno Water Treatment, Churubusco, Indiana warrants this water conditioner as stated herein:

From the date of installation, we will repair or replace any part, within the warranty period described below, which we find defective because of faulty materials or workmanship or corrosion. You pay only freight to our factory and local labor charges.

- ONE YEAR ON ENTIRE UNIT
- FIVE YEARS ON MINERAL TANK EXCLUDING MINERAL
- THREE YEARS ON COMPLETE CONTROL VALVE
- FIVE YEARS ON CONTROL VALVE EXCLUDING INTERNAL AND ELECTRICAL PARTS

FILL IN THE FOLLOWING AND KEEP FOR YOUR RECORDS.

Date Purchased Model No. Serial No.

Name of Original Purchaser

Address of Original Installation

City State

Dealer Purchased From

Dealer Address