WATER HEATER MAINTENANCE PARTS & TOOLS

THERE'S GOLD IN THEM THAR WATER HEATERS



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WATER HEATER MAINTENANCE

A great deal of information exists, including manufacturer's literature that the primary cause of water heater failure is the loss of anode protection, the accumulation of sediment at the bottom of the tank and a water heater not dielectrically connected correctly to the hot and cold lines.

Education on how these three damaging elements are controlled and communicating the benefits of regular water heater maintenance to your client is the key to diversification and higher profits for your business.

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FULL WATER HEATER

I AM NOW . . . * Energy Efficient * Quiet * Environment Friendly * Going to live a long service life! Lime Deposits Removed

Cline Deposits Removed
 Rust Prevention Replaced
 Flushing Device Installed
 All Pipe Connections Checked
 CALL FOR SERVICE:



The Water Connection[™] proudly presents this technicians catalogue of water heater equipment and supplies. It has been designed as a support system to introduce the plumbing, heating and service contractor to the new and rewarding fields of water heater maintenance.

WATER HEATER BACKGROUND INFORMATION

- Over 100 million water heaters are in use.
- 715 Water heaters are replaced every hour!
- 8 Million+ are replaced or installed on new construction yearly.
- The average life of a water heater is 8-13 years without maintenance.
- Documentation shows with maintenance, water heaters will last 20, 30, 40 years or more.
- Main elements that destroy water heaters are: scale, internal rusting and external pipe leakage.

WHY IS WATER HEATER MAINTENANCE MORE IMPORTANT TODAY THAN EVER?

1. Years ago, a water heater would have a service life of 20+ years. There are some contributing factors:

- A) The steel tank was made with a thicker metal.
- B) The glass lining applied to the steel tank to protect it from rusting was applied in 2 coats instead of todays 1 coat.
- C) Water quality was better less hardness and aggressiveness.
- D) They had a lower fire rating creating less fatigue to the metal.
- E) Water softeners, which speed up the corrosion rate were not in wide use.
- F) Some tanks were made of non-corrosive materials, copper and monel, which are not economical to purchase today.

2. The price of water heaters have increased and will increase further. Why?

A) State and local code requirements — — example: earthquake protection, pans, stands, expansion tanks, higher energy ratings.

B) The environmental protection agency will continue to impose stricter energy efficient regulations on water heater design. Dumping, transporting and recycling costs will increase in order to protect our standard of living.

C) Professional organized plumbing and heating firms are setting the standards by recruiting skilled technicians. Offering incentives for a career, not a job. A positive image is set on communication skills to increase their ability to upsell the job. Flat rate pricing. Maintenance agreements and extended warranties are the arsenal that contributes to their success.

D) Show the consumer real value in your product and services and they will buy from you over the fellow who sells product based on price.

WHAT'S THE BENEFIT YOU CAN OFFER YOUR CLIENT WITH A WATER HEATER MAINTENANCE PROGRAM?

- Extended tank life. The water heater they own now may be the last they will ever purchase.
- 12-15% Energy savings gas or lp only.
- Less burnt out lower elements.
- Stops noise.
- Maintenance is 1/3 the cost over replacement.
- Service is environmentally friendly.

WHY SHOULD YOU OFFER A FULL WATER HEATER MAINTENANCE SERVICE IN ADDITION TO REPLACEMENT?

- A) If I'm going to spend the next 20 years building a business for retirement, the only value when I sell my business will be interpreted by the residual income available. Customer names mean nothing unless you've developed a meaningful relationship.
- B) The only way to do that is through constant interfacing offering new services or products.
- C) Extended replacement and service warranties.

Water heater maintenance is an excellent opportunity to stay in contact with your client. Offering a beneficial service builds repoir and allows you the opportunity to acquire other types of work.

HOW TO EXTRACT THE GOLD

PROBLEM:

LOSS OF THE RUST PREVENTOR DEVICE CALLED THE ANODE ROD:

All glass-lined water heaters have rods of solid metal, usually magnesium suspended in the tank. The sole purpose of these rods is to slowly corrode away so that the tank will not. Called sacrificial anodes, the rods sacrifice" themselves to protect the steel tank from rusting.

CURE:

Inspect the anodes regularly and replace when needed. Generally every 3-5 years in hard water areas and where well water is the source, or water is softened, inspect every 1-2 years.

(see page 4)



Superior Corrosion Protection

When you install a water heater, add a second anode to your new tank to add to its life from the outset. (see page 4) (Water heater manufacturers know that loss of anode rod protection is a major cause of water heater failure.) Their warranties reflect this. With one anode as standard equipment, they offer a 6-year warranty. To extend heater life, they add a second rod, charge you a lot more money, and issue a 12-year warranty.

Purchase a 6 year tank, 1 year parts warranted water heater with R/19 insulation jacket for excellent heat retention. Add a second anode rod for superior corrosion protection and a longer curved dip tube and full port ball drain valve for ease of sediment flushing. Install flexible copper pipe connections or solid connections with compression unions for ease of future maintenance.

SACRIFICIAL ANODE RODS

Look at the top of your water heater to locate the anode rod. In most cases the hex head is exposed and in some cases it is hidden under the sheet metal cover. If exposed a 1 1/16" 6 point socket with long breaker bar will be required to remove it. If hidden an easy solution would be to remove the nipple on the hot water side with a pipe wrench and install a nipple outlet anode rod.

Most gas or electric water heaters require a standard rod length of 44".

On some tall electric or solar storage tanks a rod 51" in length would be required. If the ceiling height over a heater is a problem in installing the anode rod, an anode rod which has sausage links can be bent into place or a hole cut above the heater to the attic can accommodate installations. Magnesium rods are supplied as standard.

When a rotten egg is a smell problem, we supply a zinc aluminum rod or power anode to combat this problem. (see page 5)



As long as the magnesium anode remains in the tank, in an active state, there will be no corrosion of the exposed steel.

Periodic inspection of the anode should be made to establish the rate, by visual inspection, of the anode usage or deterioration.

The anode should be replaced when there is 6" or more exposed core wire at either end. *Rheem Manufacturing Company, Waier Heater Division, June. 1988.*

If these rods are not replaced when necessary, you will eventually be faced with buying a new heater. Replacing the anode rod is much cheaper.

Carey Bros ON THE HOUSE, San Francisco Examiner, April 1. 1992.

... preventive maintenance can more than double the 10-to-15 year life of a typical water heater... simply inspect the anode... every two years.

U.S. News and World Report, June 1988, page. 74.

ROD REMOVER-FOR REPLACEMENT OF ANODE RODS

When tanks are manufactured, anode rods are installed with an impactor. With age threads become frozen and are difficult to remove with conventional breaker bars, ratchets and sockets.

The cure is a rod remover, a tool modified for the sole purpose of easy removal and replacement of anode rods by applying a maximum 227 lbs at the top with a conventional 1/2" drive 12" ratchet. A gear ratio increases that to 750 lbs at the head of the anode rod.

ROD REMOVER PLUS 1-1/16" DRIVE 6 POINT SOCKET

- Multiplies your strength 3 1/3 times to easily remove even the most stubborn of anode rods.
- Built-in leverage bar stops tank from turning, even when empty.
- Works in close proximity to connector piping and venting to speed anode replacement time.
- Built with industrial quality components for years of trouble free service.
- Defects in material or workmanship, 1 year limited warranty.

Rod Remover with Socket UT-362



ANODE RODS

- MAGNESIUM RODS
 STANDARD
- ALUMINUM WITH ZINC FOR SERIOUS ODOR PROBLEMS
- FLEXIBLE STYLE FOR LOW CEILING HEIGHT
- POWERED ANODES
 FOR A PERMANENT SOLUTION

MAGNESIUM

Rod Diameter/Pipe Thread Size/Length	
.750 X 3/4" X 32" HEX HEAD ROD	AR-97
.750 X 3/4" X 44" HEX HEAD ROD	AR-100
.750 X 3/4" X 44" HEX HEAD FLEXIBLE ROD	AR-103
.750 X 3/4" X 3" NIPPLE X 48" OUTLET ROD	AR-106
.750 X 3/4" X 3" NIPPLE X 48" OUTLET FLEXIBLE ROD	AR-109
.750 X 3/4" X 6" NIPPLE X 51" OUTLET ROD	AR-110
.750 X 3/4" X 6" NIPPLE X 51" OUTLET FLEXIBLE ROD	AR-111
.1.050 X 1" X 44" HEX HEAD ROD	AR-112
.1.050 X 1" x 44" HEX HEAD FLEXIBLE ROD	AR-115
.750 X 3/4" X 51" HEX HEAD ROD	AR-118
.750 X 3/4" X 51 "HEX HEAD FLEXIBLE ROD	AR-121
.750 X 3/4" X 3" NIPPLE X 55" OUTLET ROD	AR-124
.750 X 3/4" X 3" NIPPLE X 55" OUTLET FLEXIBLE ROD	AR-127
.750 X 1" OUTLET X 44"	AR-130
.750 X 1" OUTLET X 44" FLEX	AR-133

ALUMINUM ZINC

FOR SMELLY WATER CONDITIONS

.800 X 3/4" X 44" HEX HEAD ROD	AR-136
.800 X 3/4" X 44" HEX FLEX ROD	AR-139
.800 X 3/4" X 48" 3" COMBO OUTLET	AR-142
.800 X 3/4" X 48" 3" COMBO OUTLET FLEX	AR-145

Custom Magnesium Rods available upon request Allow 2-3 weeks for delivery



POWERED ANODE

Powered Anode Rod with transformer and 6' lead, Model# AR148 - Services 20-100 gallon tank

Made by Cer Anode

- Eliminates rotten egg smell in water caused by hydrogen sulfide
- Replaces water heater tank's existing hex head and hot outlet anode
- Water softener use does not affect the longevity or protection
- Extends life of water heater tank
- 7 Year Warranty
- Made in the USA



Note: MFGS Bradford White, some state and A/O Smith have the the anode attached to the hot outlet nipple. To adapt the **Model AR-148** power anode, a 3/4" brass tee and 3/4" plastic lined nipple of sufficient length to extend past the thickness of insulation will be required. Most gas heaters will require a 3" long nipple and on electric water heaters MFG after april of 2015 a 6" long nipple is required.

Model AR-148 powered anode when installed to replace the exsisting hex head anode may require a longer nipple and brass coupler to clear the insullation to complete the install.

Model AR-149 and **Model AR-150** powered anode is adaptable to replacing the hex head anode only. Designed with a 3" long nipple. It is universal to most gas and electric water heaters.

Powered Anode Rod with transformer and 6' lead, Model# AR149 - Services 40-60 gallon tank Model# AR150 - Services 10-30 gallon tank Made by Corro-Protec

- Flimintone watten and amall in water several by budy
- Elimintaes rotten egg smell in water caused by hydrogen sulfide.
 Replaces water heater tank's existing hex head anode only.
- Water softener use does not affect the longevity or protection
- Water solutioner use does not anect the longev
 Extends life of water heater tank
- 20 Year Manufacturer's Warrantv
- 20 Year Manufacturer's warra
 Mode in Oenede
- Made in Canada



TREAT TANK

Remove existing anode rod or rods. Drain out 2 quarts of water from water heater. Add 2 pints of 3% hydrogen peroxide (available at drug stores) through anode rod hole. Install an aluminum zinc rod, or Power Anode. **DO NOT plug in power anode until tank** *is pressurized.* Pressurize water heater and let stand 20-30 minutes. Purge all of the hot taps individually until warm water comes out of the tap. Finally flush heater under pressure through drain valve for 5 minutes. To achieve superior results install a curved dip tube and full port ball valve for a turbo flush. Your customers will love the results.

HOW TO EXTRACT THE GOLD

PROBLEM: SCALE DEPOSITS

As water is heated in a tank, minerals precipitate out and collect as sediment on the bottom. As this scale builds up in a gas heater, it slows the heat transfer from flame to water, causes over-heating and increased energy use. The excess heat can damage the glass lining and weaken the steel. It often produces a sleep-disrupting popping or rumbling noise. When sediment collects in electric heaters, it can cause element burn-out. Removing the sediment barrier also allows the sacrificial anode clear access to the tank's bottom, resulting in better protection. (see page 4 and 5)

CURE:

Replace the conventional straight cold water inlet with a tube which is longer and has a curve at the end, (see page 7) and replace the tank's original (usually plastic) drain valve with an easily operated brass ball valve (see page 7). As water enters the tank through the new tube, its swirling motion lifts scale off the bottom and flushes it out the large opening of

the brass ball valve. (Some heater manufacturers void their warranties if scale build-up is the cause of tank failure. Others facilitate flushing by adding various expensive devices to reduce sediment build-up).

Though it is easier to move sediment out the drain valve at the bottom than it is to move it off the bottom and out the top, keep in mind that if adequate water flow is not present no removal system will work properly.

The surest way to remove sediment is with periodic flushing and routine maintenance. Set your customer on a flushing and maintenance schedule to protect their investment.



SCALE REMOVAL



CURVED WATER INLET DIP TUBES

Dia./Nipple/Length
3/4" x 3" X 37" DIP TUBE ASSEMBLY
LOW BOY SR-97
3/4" X 3" X 48" DIP TUBE ASSEMBLY
STANDARD SR-100
3/4" X 6" X 51" DIP TUBE ASSEMBLY
STANDARD SR-103
3/4" X 3" X 60" DIP TUBE ASSEMBLY
TALL BOY ELECTRIC OR SOLAR STORAGE
3/4" x 6" X 60" DIP TUBE ASSEMBLY
TALL BOY ELECTRIC OR SOLAR STORAGE
1" X 4" X 50" DIP TUBE ASSEMBLY
LIGHT DUTY COMMERCIAL

Custom water inlet dip tubes in different lengths are available upon request. Allow 1 week for delivery on special orders.



WATER HEATER FLUSH VALVE includes cap & chain assembly Turbo Flush Water Heater Cleaning System Imprinted On Handle



HOW TO EXTRACT THE GOLD

PROBLEM: EXTERNAL PIPE LEAKAGE

DRIP! DRIP! DRIP! A leaking connector can perforate a hole right through the top of the tank, destroying the water heater. Even a young and well maintained water heater can fail if its pipe connections are poor.

Example: Galvanized or brass to steel tank.

GALVANIZED NIPPLES:



Galvanized nipples are compatible with the tank

connection dielectrically. Yet with an interior that is unprotected, the nipples corrode, clog and rust and eventually leak. Just as the internal tank is protected with glass lining, the nipple connected to the water heater should also be protected with a lining. Most water heater manufacturers are now supplying plastic lined nipples with new water heaters. To limit corrosion opportunity, install dielectric nipples at water heater connections and wall connections to put distance between dissimilar metals and reduce corrosion opportunities. (see page 9)

BRASS NIPPLES:

Although brass unprotected internally will not corrode like galvanized nipples, the introduction of brass to steel is not a dielectrically correct connection.

Just as the anode being magnesium will corrode away to protect the steel tank, the unprotected area of the steel tank below the brass nipple will corrode to protect the brass nipple. To limit the introduction of noble metals to the water heaters, manufacturers apply a plastic coating to the copper probe on the thermostat and the temperature pressure relief valve.

By reducing corrosion opportunities, the anode rods current is better directed to the areas where protection is most needed.

CONNECTION RECOMMENDATIONS:

After maintaining 3300 water heaters SINCE 1987 and with repeat service being a large part of my business, I prefer a flexible connector for ease of future maintenance. (see page 9)

Yet, where solid plumbing is code or a preference, I do not recommend the use of a dielectric union which so many plumbers use.

The dielectric union consisting of a copper side and steel side separated by a rubber gasket. The steel side is internally unprotected from water contact.

With time, that area corrodes and clogs restricting flow; just like a galvanized nipple. For best results, use a 3/4 FIP or MIP brass x 3/4" compression union. (see page 9)

Where galvanized fittings are exposed at the water heater, remove and replace with brass fittings to limit corrosion and clogging.

Where gate valves are leaking or non closing, remove and replace with easy to operate 1/4" turn ball valves for ease of emergency shut down. (see page 7)

To limit other corrosion opportunities, check for grounding of main water line - if not grounded, install a grounding rod with connection to the main water line. To stray current from the water heater, install a cross over from the cold line to the hot and to gas line using grounding clamps and #8 bonding wire on 100 amp service panels & #6 on 200 amp service panels.

WATER HEATER CONNECTION PARTS

PLASTIC LINED DIELECTRIC NIPPLES

Diameter/Length

3/4" X 1 [·]	13	/1	6'	,				WCP-100
3/4" X 3"								WCP-102
3/4" X 4"								WCP-103
3/4" X 6"								WCP-104
1" X 3"								WCP-105
1"X 6"								WCP-106
Larger Diameter Nipples								
available upon request								



UNIONS

7/8" COPPER COMPRES	SION X 3/4"
FIP BRASS	WCP-107
MIP BRASS	WCP-108



STAINLESS ULTRA FLEX LINES

12" X 3/4" FIP X FIP	WCP-109
18" X 3/4" FIP X FIP	WCP-110
24" X 3/4",FIP X FIP	WCP-111
18" X 1" FIP X FIP	WCP-112
24" X 1" FIP X FIP	WCP-113



USEFUL TOOLS

29/32 DRILL BIT CLEANS OUT OVERLAY OF WELD BELOW WATER HEATER, THREADS FOR EASY INTRO OF COMBO OUTLET ANODE ROD UT-350

NIPPLE PLUG 3/4" STOPS NIPPLE CONNECTED TO WATER HEATER FROM COLLAPSING WHEN EXTRACTED WITH THE JAW PRESSURE OF A WRENCH. UT-351

TEE HANDLE RACHET FOR TAPPING THREADS 1/2" DRIVE UT-352

GENERIC DATE STICKER UT-355