

SECTION VI

PREVENTIVE MAINTENANCE / REPLACEMENT PARTS

THE CATALYSTS



Warning: This product can expose you to chemicals including aluminosilicate. Which is known to the state of California to cause Cancer. For more information, go to www.P65Warning.ca.gov

The catalysts in your stove are designed for many years of use. If after several years of use, the efficiency of stove decreases or if a notable amount of smoke is observed, catalysts may need to be replaced. See Catalyst Warranty prior to replacement. The following points are some general guidelines from catalyst manufacturer.

1. Do not “hot fire” stove. For many years retailers and installers have advised customers to build an extra hot fire to burn creosote deposits in fire system. This advice may be acceptable for non-cat stoves, but can be death to a catalyst. Why? Because the catalyst is reducing the particulate, or creosote buildup, therefore need to “hot fire” is eliminated. Proper chimney cleaning procedure should be followed.
2. Direct Flame contact is death to a catalyst. A catalyst burns by-products in the smoke. The gases such as CO, HC, and O² ignite with each other in a chemical reaction in presence of the catalyst (while passing through the honeycomb configuration). Direct flame inhibits this reaction by changing chemical make-up of catalyst breaking down substrate or ceramic. This problem is called **flame impingement**. Today’s modern stoves are designed so that flame impingement is unlikely. However, a strong, fast draft can pull flame into catalyst. Or, a hot fire, with all air controls and/or the ash door open can literally torch the catalyst. The remedy for hot fire related flame is to advise customers not to “hot fire” the stove. The customer will enjoy their catalysts longer and with better performance if these guidelines are followed. Fly ash problems also can be reduced by controlling draft.
3. The **“Glow” Misconception**: A catalyst can glow during certain stages of combustion. The determination that a catalyst is not working simply because it does not glow is inaccurate. During low burn cycle, when catalyst is doing the bulk of its work, it usually does not glow. Also, extremely dry wood (oak, ash, etc.) can burn clean enough not to produce a glow in converter. In most new stoves, you cannot see the catalyst.
4. **Light Off Temperature**: CO conversion in the Applied Ceramics catalyst begins at a very low temperature. Usually, a normal start up to produce a coal bed will produce more than sufficient temperatures to begin catalytic combustion.
5. The catalyst is not consumed or “used up”. The nature of a catalytic reaction is defined as follows, by the American Heritage Dictionary, Second College Edition: catalyst “1. Chem. A substance, usually present in small amounts relative to reactants, that modifies and especially increases rate of a chemical reaction without being consumed in process.” This means your catalyst is always there. This also means that gases that would normally go out flue system and pollute the environment are being burned to create more heat from less wood.
6. Why does a catalyst stop working? Most catalyst that are returned are either destroyed by flame impingement, broken due to accidents or mishandling or have nothing wrong with them but fly ash build-up. A catalyst can be “saturated” with by-products of wood burning such as potassium. This is chemical saturation. The prohibitive chemical will fill in the chemical “holes” that gases normally use for reaction. This process of saturation can be slowed by regular maintenance of catalyst. Saturation can take several years since there are units in use for over five years. Burning garbage, painted woods or large amounts of colored paper can poison your unit. Poisoning, however, is very difficult to do. Burning colored paper causes more of a fly ash problem than a risk of poisoning. **NEVER BURN RUBBER OR PLASTIC.**
7. Burn only dried natural seasoned hard wood. Wood should be dried for at least 12 months prior to burning. The wood should be FREE of any moisture such as RAIN or SNOW. Wet wood creates water vapor which can drop the temperature of catalyst. The results can be plugging, clogging and thermal shock to catalyst. When a catalyst has ceased to be effective, you will notice increased fuel usage and your chimney sweep will notice increased creosote in your system. Before you replace unit, review this section. If you find that your catalyst should be replaced, follow instructions for warranty replacement that were provided when your unit was purchased.
8. Cleaning catalyst with plain water can reduce build-up of catalyst-retarding chemicals. Nothing but a soft brush, low pressure air or plain water should be used to clean a catalyst. The ceramic unit is fragile in comparison to rest of the stove, so it should be handled with care. A soak in warm or hot (not boiling) water for 20 minutes is ideal. Then, allow unit to cool at room temperature and rinse under medium pressure under a faucet. Allow unit to thoroughly dry before reinstalling it or you will damage it. Finally, reinstall unit. A cleaning once every year is sufficient for most users. Clean it when you have your flue system cleaned.

MAINTENANCE

CATALYST REPLACEMENT (Off-Season Replacement Recommended)

1. Spread a drop cloth in front of stove.
2. Open door and clean out any ash.
3. You will have to remove lower stainless steel heat shield. Remove the four cotter pins holding shield in place. Lay shield aside.
4. Using penetrating oil, generously lubricate eight (8) bolt threads holding catalyst housing in place. Allow oil to penetrate.
5. **(A)**. Using a 9/16" wrench or 9/16" socket, loosen eight (8) nuts and remove catalyst housing (drop down) and place in a suitable work area. **(B)**. Nuts holding catalyst are brass. If they strip you will have to order them from dealer. **NOTE: DO NOT REPLACE WITH METAL NUTS.**
6. Using needle nose pliers, grasp front edge of stainless steel "can" which houses catalytic element and pull upward. Reposition pliers to another position and pull upward. Repeat procedure until catalyst can be removed from housing.
7. Using a small putty knife or scraper, remove any gasket that may have adhered to catalyst housing.
8. Now, obtain new catalysts #PO910115C and wrap stainless steel "can" with interam gasket and tape ends together using scotch tape or masking tape. **IMPORTANT: BEFORE STARTING TO REPLACE CATALYST, contact your dealer and order INTERAM gasket and CATALYST HOUSING Gasket.** Gaskets not covered under warranty. It may take your dealer several days to receive the gaskets.
9. Insert new catalysts into catalytic housing and push down until they are seated on the top of stainless steel wire mesh supports.
10. Reinstall catalyst housing into stove and secure in place with brass nuts.
11. Reinstall lower heat shield with cotter pins.
12. The stove is now ready for use.

