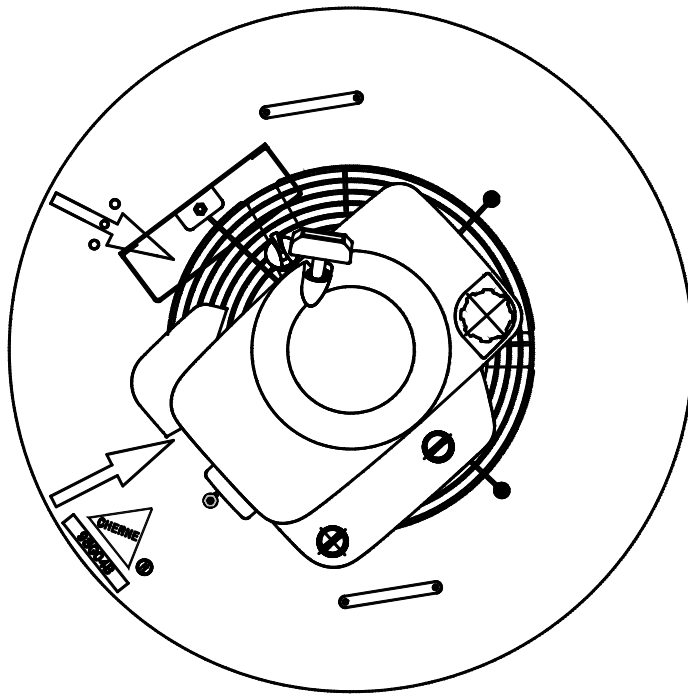


INSTRUCTIONS

SMOKE BLOWER
WITH HONDA ENGINE
PART NUMBER 303-568



CHERNE INDUSTRIES INCORPORATED
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MINNEAPOLIS, MN 55436-1695

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Unpacking

Inspect this product immediately upon receipt. If you find damage, notify the delivering carrier immediately to begin the claims process. Carriers have the right to refuse claims for the damage if the are not notified immediately.

Packing List

Take care when unpacking that all items are accounted for and that nothing is discarded with packaging.

!!WARNING!!

Test manholes for gases before using the Smoke Blower. If toxic or flammable gases are present, ventilate the manhole. Gases can cause injury, asphyxiation and DEATH! If the sewer system has hazardous gases from sewage or solvents, the Smoke Blower may push them into the adjacent manhole during operation. If you plan on entering the manhole after the smoke testing operation, test for gases again.

!! CAUTION !!

ENGINE IS SHIPPED WITHOUT OIL!

**FILL ENGINE WITH OIL TO LEVEL INDICATED ON
DIPSTICK BEFORE ATTEMPTING TO START ENGINE!**

**FAILURE TO FILL ENGINE WITH OIL BEFORE STARTING
ENGINE WILL RESULT IN ENGINE FAILURE AND WILL
VOID WARRANTY!!**

!! CAUTION !!

**TURN FUEL SUPPLY VALVE TO “OFF” POSITION BEFORE
TRANSPORTING UNIT.**

**VIBRATION DURING TRANSPORT MAY CAUSE FUEL TO
DRAIN INTO ENGINE CYLINDER AND CRANKCASE. THIS
MAY DAMAGE THE ENGINE DUE TO IMPROPER
LUBRICATION OR CAUSE DAMAGE TO ENGINE
COMPONENTS DO TO AN OVERFILLED CRANKCASE OR
ENGINE CYLINDER.**

DESCRIPTION

THE HOUSING: A light weight, corrosion-resistant, cast aluminum housing locates the Smoke Blower over the manhole. The housing provides a sturdy platform for the engine and seals the manhole opening. The impeller area is totally enclosed by wire guards, preventing entry of large objects or debris and provides personal protection from the rotating impeller. The two top mounted handles make handling easy. A ½" thick foam pad attached to the underside of the flange minimizes noise and vibration and prevents excess movement of the unit during operation.

THE ENGINE: The 5.5 horsepower gasoline engine is equipped with a convenient vertical pull recoil starter and top mounted oil fill/dipstick.

THE IMPELLER: The 16" diameter impeller is designed for high performance and can produce (at the maximum rated engine speed) a free flow of over 4000 cubic feet per minute. The impeller is a two piece cast aluminum assembly and 10 chemical resistant polypropylene airfoil style blades. The impeller is attached to a cast aluminum hub.

SAFETY

1. Observe all state and federal regulations if entering a manhole. Also follow Cherne's safety procedures for entrance into manholes and confined spaces on page 11 of this manual.
2. Stand clear after starting the unit. The high velocity air created by the Smoke Blower may pick, accelerate and discharge dirt and debris that could injure the operator.
3. Do not operate the unit with the guards loose or removed. The guards protect operators from the rotating impeller. The guards also aid in preventing objects and debris from entering the impeller area.
4. Do not operate the unit over occupied manholes. The high velocity air moving through the manhole may pick up and accelerate dirt and debris, causing injury. The Smoke Blower may also draw toxic or flammable gases to the manhole that were previously undetected.
5. Keep the impeller area free of foreign objects and debris. Severe damage could occur given the high rotating speeds and small clearance between the housing and impeller.
6. Do not operate the Smoke Blower if it vibrates excessively. The impeller assembly is well balanced. The only vibration should be what is typical for a small gasoline engine. Any unusual indicates a potentially serious and dangerous problem.
7. Never operate the Smoke Blower unless it is properly installed in a manhole. Operation under any other condition could cause an unstable platform, excess vibration and entry of debris in to the Smoke Blower unit.
8. Always wear a safety hat, safety glasses and ear protection when working in sewers, manholes and while operating the Smoke Blower.
9. Do not operate the Smoke Blower in the presence of gases or liquids that are flammable or toxic. This unit is capable of moving large volumes of air within the sewer system. The engine can ignite flammable gases and liquids.
10. Frequently check for loose fasteners before, during and after operation.
11. Follow all instructions and warnings provided by the engine manufacturer regarding safety, operation and maintenance.

INSTRUCTIONS FOR USING A CHERNE SMOKE BLOWER

Advance Notice

Press releases to the news media (newspapers, radio and TV) will generate much public good will and support for a program that will improve the local sewerage system, and assure compliance with EPA regulations. Such releases should outline the place, as well as the problems that will be solved by having the smoke testing done.

Local fire and police departments should be advised daily of the areas being tested, on a street to street basis. Personnel handling telephone inquiries should be acquainted with the purposes of the smoke testing program, and be prepared to advise against unnecessary exposure to the smoke.

Proper advance notices are necessary and the responsibility of the agency or contractor performing the tests. Door to door notification within 24 hours before the tests is recommended. This prevents unethical occupants from covering up illegal drains, sump pumps, etc. before the tests. While giving advance notice discrete neighborhood inquiries can identify persons suffering from heart and/or lung diseases, such as emphysema, who should never be exposed to any smoke, including Cherne. Individuals with respiratory problems should be removed from the premises prior to the tests. Others, such as house confined invalids, sleeping shift workers and locked in animals should be identified and evacuated before the test.

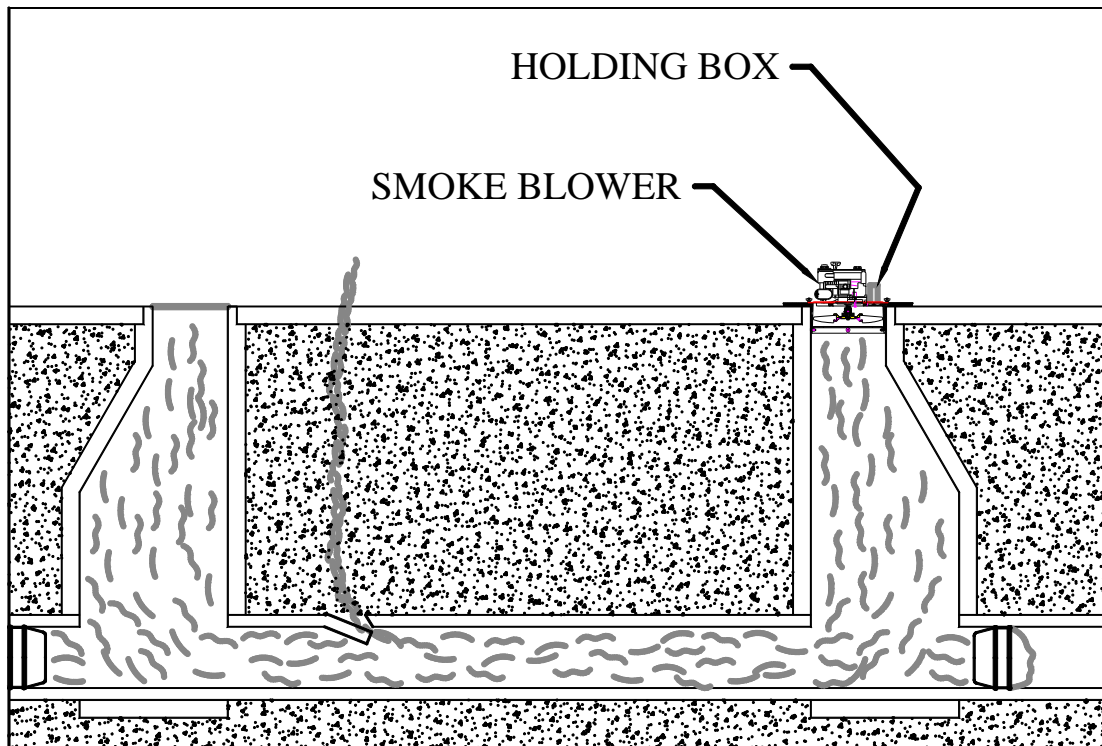
The last page of this manual contains a form that conveys the necessary information to the residents of the affected area. This form, or one similar to it should be distributed to all of the residents of the affected area.

INSTALLATION AND OPERATION

1. Remove the manhole cover from the pipeline to be tested.

WARNING! Flammable gases may exist in the sewer system. Check for such gases using a hazardous gas detector. Follow all manufactures warnings and recommendations before using a smoke generation device. Failure to follow this warning may result in serious bodily injury, asphyxiation or even death!

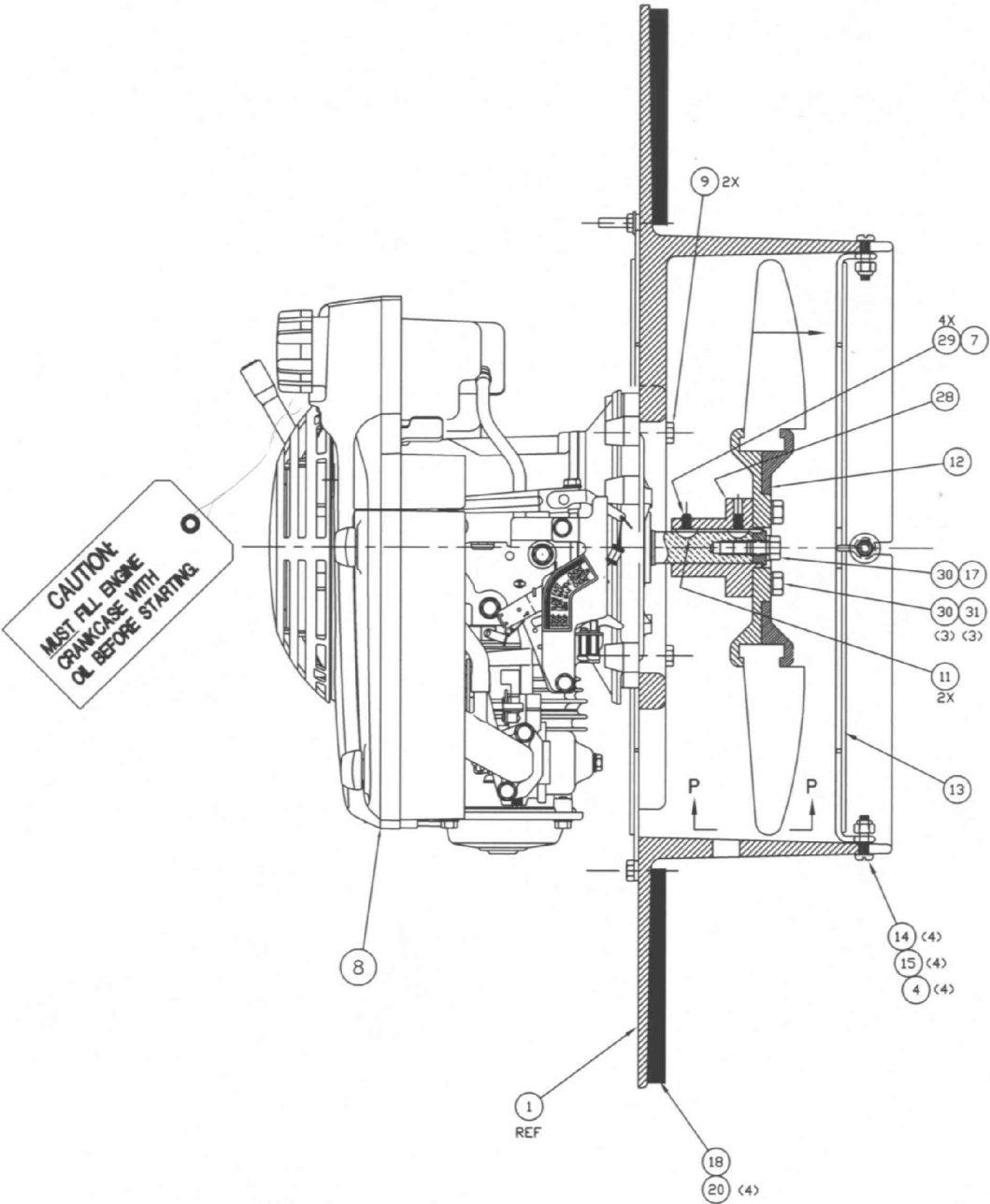
2. Place the unit onto the open manhole.
3. Start the engine, making sure to follow the engine manufactures instructions.
4. Ignite the smoke generation device and place it in the holding box mounted on the unit.
5. Monitor the area for smoke leakage.
6. Stop the engine according to the manufacturers instructions.



SMOKE BLOWER PARTS LIST

(Refer to drawing on page 8)

<u>ITEM</u>	<u>QUANTITY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	012-758	Housing
2	1	120-049	Top Guard
3	3	008-032	Stud, Threaded, ¼ -20 UNC x 1.5"
4	4	000-027	¼ Flat Washer
5	2	120-243	Handles
6	4	120-286	Pan Head Screws 10-32 x ¾"
7	.05	015-814	Thread Locking Compound
8	1	056-048	Engine, Honda
9	4	012-848	Bolt, MHH, 5/16-24 UNF x 2"
11	1	020-298	Key- Woodruff, 16mm x 4mm
12	1	014-722	Impeller
13	1	120-057	Bottom Guard
14	4	037-338	Self Locking Nut, ¼-20 UNC
15	4	120-294	Pan Head Screws, ¼ -20 x 1"
17	1	056-058	Bolt, MHH, 3/8 -24 x 2.25"
18	.003	302-007	Contact Cement
20	4	121-010	Foam Pads
26	3	008-040	Nut, Serrated Flange, ¼ -20 UNC
28	1	056-028	Hub, Welded, Impeller, Honda
29	4	001-252	Screw, Set ¼ -20 UNC x 5/16"
30	4	000-159	Washer, 3/8 Lock
31	3	000-507	Bolt, MHH 3/8 -16 UNC x 1"
32	1	045-158	Smoke Bomb Box
33	1	012-828	Label, Bar Code
34	1 qt	091-510	Oil, #30 Wt. Bottle
35	1	056-038	Spacer, Honda Impeller Hub



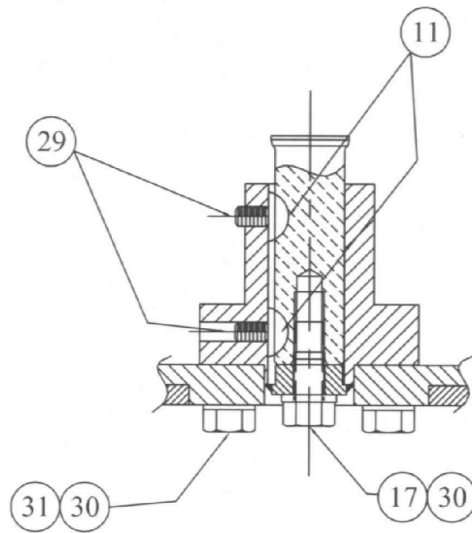
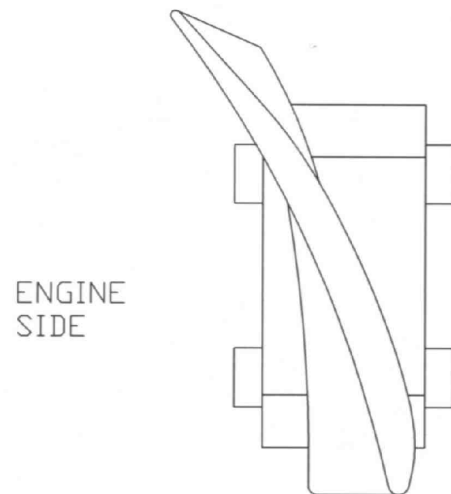
CONVERTING TO A LINE STRINGER

The smoke Blower is a multipurpose unit. It can be converted to draw air for use in a line stringing operations. The conversion is done by simply changing the impeller. A new line stringer impeller can be ordered directly from Cherne by requesting part number 014-714.

Follow the Impeller Removal and Installation instruction below to properly change impellers.

IMPELLER REMOVAL AND INSTALLATION

1. **!!WARNING!!** REMOVE THE WIRE FROM THE SPARK PLUG AND ATTACH IT TO THE RETAINING POST.
 2. Remove the three (3) 3/8" impeller retaining bolts (item 31) using a 9/16" wrench. DO NOT remove the center bolt (item 17).
 3. Remove the impeller from the hub.
 4. Prior to installing the new impeller, make sure that the fan blade orientation matches that of VIEW P-P for line stringing operations.
 5. Install the new impeller on the hub using the 3/8" bolts that were previously removed. Be sure to tighten the bolts before operating.
- NOTE: Steps 6-9 are for Hub installation only.
6. Remove the center bolt and set screws. Remove the old hub from the shaft. Make sure shaft is clean before installing new hub. If the Smoke Blower is equipped with a hub spacer (item 35), make sure to put it into the hub prior to installing the hub.
 7. Slide the Woodruff keys (item 11) into place on the shaft then install the new hub.
 8. Install the lock washer and center bolt (items 30 & 17) on the end of the engine shaft.
 9. Tighten the hub to the shaft with the set screws (item 29).

**FIGURE 1****VIEW P-P**

MOUNT FAN WITH BLADE
ORIENTATION AS SHOWN

MAINTENANCE

ENGINE:

Follow the engine manufacture's instructions with the following exceptions and additions:

1. When changing the oil using the normal method, the lower guard and impeller must be removed.
 - a. Remove the guard from the housing by loosening the four (4) attaching bolts and pulling the guard down.
 - b. Remove the impeller, change the oil, then reinstall the impeller.
 - c. When reinstalling the lower guard, ensure the proper self locking nuts are used and all fasteners are tightened completely.
2. An alternate method for changing the oil:
 - a. drain all fuel from the engine tank and carburetor.
 - b. Remove the oil cap and dipstick.
 - c. Slowly drain the oil through the oil fill tube by tilting the Smoke Blower and engine assembly towards the oil fill opening. Care should be taken to ensure all oil flows from the oil sump to the corner of the engine and through the fill tube.

FASTENERS

Check all fasteners frequently. Ensure the fasteners are properly installed using self locking nuts and thread locking compound. Vibration during normal usage with small gas engines can cause the fasteners to loosen.

The Cherne Smoke Blower uses a combination of self locking nuts and thread locking compound on all fasteners to help minimize these problems.

MANHOLE SAFETY PROCEDURE

RECOMMENDED SAFETY PROCEDURE FOR ENTRANCE INTO MANHOLES OR CONFINED SPACES

WARNING: THESE RECOMMENDATIONS ARE TO BE USED AS A GENERAL GUIDELINE ONLY: ALTHOUGH CHERNE RECOMMENDS THESE FOLLOWING GUIDELINES, IT DOES NOT WARRANT, REPRESENT OR ASSUME ANY RESPONSIBILITY THAT THESE RECOMMENDATIONS WILL FULFILL ALL APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS. CHERNE ASSUMES NO LIABILITY FOR EITHER PERSONAL INJURY OR CONSEQUENTIAL DAMAGES THAT RESULT FROM THE RELIANCE ON THESE RECOMMENDATIONS.

WARNING: IT IS THE PRODUCT USER'S RESPONSIBILITY TO READ AND COMPLY WITH ALL APPLICABLE REGULATIONS. REFER TO THE *CODE OF FEDERAL REGULATIONS*, "CFR" PART 1926 AND ALL OTHER PERTINENT FEDERAL, STATE, AND LOCAL REGULATIONS.

ALWAYS OUTFIT YOURSELF WITH THE NECESSARY SAFETY EQUIPMENT FOR ENTRANCE INTO A MANHOLE OR CONFINED SPACE. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS (REFER TO WARNING STATED IMMEDIATELY ABOVE):

Recommended equipment is as follows:

- | | |
|---|--|
| A. Safety Hat | H. Hazardous Gas Detector and Oxygen Monitor |
| B. Safety Glasses | I. Manhole or Confined Space Ventilation |
| C. Respirator or Self Contained Air Source | J. Protective Clothing |
| D. Safety Harness, Ropes, and Winching System | K. Safety Ladders |
| E. Safety Shoes or Boots | L. Other Recommended/Required Equipment |
| F. Protective Gloves | |
| G. Ear Protection | |

ALWAYS ENSURE THAT ALL EQUIPMENT MEETS OR EXCEEDS THE MINIMUM REQUIREMENTS OF ALL APPLICABLE REGULATORY GUIDELINES. ALL EQUIPMENT SHOULD BE PROPERLY MAINTAINED, STORED, CALIBRATED IF NECESSARY, AND INSPECTED PRIOR TO EACH USE, IN COMPLIANCE WITH APPLICABLE REGULATIONS AND EQUIPMENT MANUFACTURER RECOMMENDATIONS.

ALWAYS PROPERLY VENTILATE MANHOLE OR CONFINED SPACE BEFORE ENTERING AND MAINTAIN VENTILATION WHILE IN MANHOLE OR CONFINED SPACE.

ALWAYS THOROUGHLY CHECK AT ALL LEVELS FOR HAZARDOUS GASES AND PROPER OXYGEN LEVELS (20% MINIMUM). CONTINUOUSLY MONITOR THESE LEVELS WHEN WORKERS ARE IN THE MANHOLE.

NEVER ENTER A MANHOLE OR CONFINED SPACE WITHOUT CO-WORKER ASSISTANCE. CO-WORKERS MUST BE PROPERLY TRAINED IN SAFETY REQUIREMENTS FOR ACCESS TO MANHOLES OR CONFINED SPACES.

IF YOU ENCOUNTER OR OBSERVE ANY CONDITIONS THAT ARE NOT EXPLAINED HERE OR NOT FULLY UNDERSTOOD BY YOU, NOTIFY YOUR SUPERVISOR OR SAFETY DIRECTOR BEFORE PROCEEDING.

!!DANGER!!

ALWAYS CONSULT WITH PROPER STATE, LOCAL, AND FEDERAL AGENCIES TO INSURE THAT ALL REQUIRED REGULATIONS ARE BEING FULFILLED.

FAILURE TO COMPLY WITH PROPER SAFETY REGULATIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH!

LIMITED WARRANTY

Manufacturer warrants all products manufactured by it will be free from defects in material and Workmanship for one (1) year following the date of manufacture. If any of the goods are found to be defective, such goods will, at manufacturer's option be replaced or repaired at manufacturer's cost. The parties hereto expressly agree that buyer's sole and exclusive remedy against the manufacturer shall be for the repair or replacement of defective goods as provided herein. (The sole purpose of the stipulated exclusive remedy shall be to provide the buyer with free repair and replacement of defective goods in the manner provided herein. The exclusive remedy shall not be deemed to have failed of its essential purpose so long as the manufacturer is willing and able to repair or replace defective goods in the prescribed manner.) Goods which may be sold by manufacturer but are not manufactured by it are not warranted by manufacturer, but are sold only with the warranties, if any, of the original manufacturers thereof. (This warranty does not cover labor or other costs or expenses to remove or install any defective, repaired or replaced goods.) Manufacturer's warranty does not apply to any goods which have been subjected to misuse, mishandling, misapplication, neglect (including but not limited to use of unauthorized parts or attachments), or adjustment or repair performed by anyone other than manufacturer or one of manufacturer's authorized agents.

Any claim by buyer with reference to the goods sold hereunder shall be deemed waived by the buyer unless submitted in writing to manufacturer within the earlier of (1) thirty (30) days following the date buyer discovered or by reasonable inspection should have discovered, any claimed breach of the foregoing warranty, or (2) thirteen (13) months following the date of manufacture. Any cause of action for breach of the foregoing warranty shall be brought within one year from the date the alleged breach was discovered or should have been discovered, whichever comes first.

LIMITATION OF LIABILITY. Manufacturer's liability (whether under the theories of breach of contract or warranty, negligence, or strict liability) for its goods shall be limited to repairing or replacing parts found by the manufacturer to be defective, or at manufacturer's option, to refunding the purchase price of such goods or parts thereof.

DISCLAIMER OF CONSEQUENTIAL DAMAGES. In no event shall manufacturer be liable for consequential damages arising out of or in connection with this agreement, including without limitation breach of any obligation imposed on manufacturer hereunder or in connection herewith. Consequential damages for purposes hereof shall include, without limitation (including death) to any person, or loss of or damage to property (including without limitation property handled or processed by the use of goods). Buyer shall indemnify manufacturer against all liability, cost or expense which may be sustained by manufacturer on account of any such loss, damage or injury.

DEFECTIVE PRODUCTS POLICY. To obtain performance under this warranty, any product suspected of having a manufacturing defect in materials or workmanship at manufacturers request must be returned to CHERNE INDUSTRIES INCORPORATED, freight prepaid, for inspection. A returned goods authorization must be obtained before shipping any product back to CHERNE. Call 1-800-843-7584 and ask for customer service.

CUSTOMER TRANSPORTATION REIMBURSEMENT. Whenever CHERNE repairs or replaces a product at CHERNE'S expense CHERNE will reimburse the distributor by credit memo, the same surface freight amount it cost CHERNE to return the warranty items.

The foregoing warranty is in lieu of all other warranties express or implied, including those of merchantability or fitness for any purpose not expressly set forth herein. No affirmation of manufacturer, by words or action, other than as set forth in this language shall constitute a warranty.

Form 012-798, REV. F-ECN 04-7027
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Advance Notice of Sewer Testing Form

Current Date _____

Date of Test _____

Location of test _____

City _____

County _____

State _____

Name of party performing test _____

Contact phone number of party performing test _____

Resident,

This notice is to inform you that the _____ of _____ OR
City, county or state name of city, county or state
 _____ will be testing sewer lines in your area on the above date. The tests will be
contractor's name
 conducted using smoke. The smoke should not enter the premises unless a leak is present.

The presence of smoke in your home should be reported immediately to the personnel
 conducting the testing, or by calling _____
Contact number for city, county, state or contractor

Please avoid any unnecessary exposure to the smoke. While relatively harmless, it may cause irritation to nasal passages. Any irritation will be temporary and should quickly disappear after exposure has ceased. Persons with heart and/or respiratory ailments should leave the home during the test. Be sure any house pets are provided proper ventilation or are removed from the home.

To minimize the chance of smoke entering your home, please pour water into all drains, including floor drains, prior to the date of the test.

Signed _____
Contact at city, county, state or contractor