

# Keyhole Technology

## PROCESS DESIGN

All Tellus procedures and tooling have been designed and developed to employ innovative methods and specialized equipment for the performance of standard maintenance processes through core cut openings (18" diameter) in the road surface or pavement.

## PROCESS INTEGRITY

A high level of process integrity can only be achieved through analysis and understanding the failure modes and hazards that may exist. Tellus Underground Technology works closely with the LDC's and their contractors to develop standard operating procedures and tool sets that are designed to address and resolve those unexpected situations in which events do not progress as expected.

## OPERATING COST SAVINGS

When the costs of "Keyhole" procedures are compared to conventional methods operating costs are significantly reduced. The elimination of street restoration costs along with labor cost savings have resulted in operating cost reductions of as much as 50%.

## B Bell-joint Leak Repair (Cast Iron System)



A proven method for the repair of gas leaks in cast iron bell-joints is known to the gas distribution industry as aerobic leak repair. This procedure is successfully accomplished by injecting an anaerobic sealing material into the jute (hemp) seal material that has been pressed into the joint and sealed in place with lead or cement when the bell joint was originally assembled.

The anaerobic sealant that is used to perform these repairs is a liquid chemical compound that quickly cures into a solid state when introduced into an environment that is void of oxygen and in the presence of carbon steel. The sealant is supplied in various viscosities to provide the gas mechanic an ability to address leaks of various sizes and intensities.

The "keyhole" procedure that is employed to perform these bell joint leak repairs begins with drilling and tapping the bell joint so that the operator can install a long steel tube that will be used to convey the sealant into the bell joint. A manually operated sealant gun is then attached to the sealant tube and the sealant is slowly pumped into the bell joint. After sealing of the bell joint has been completed and leak tested the sealant tube is removed from the bell joint and a brass pipe plug is assembled into the tapped hole in the bell joint.



# Bell-joint leak repair (Cast iron System) Using anaerobic sealant method

## Tooling Description and



The keyhole tooling utilized to repair bell joint leaks in cast iron gas mains using anaerobic sealant includes an pneumatic extension needle scaler to remove the rust scale on the area of the bell joint that is to be drilled, a pneumatic extension drill to machine the access hole in the bell joint and an extension tap for cutting the threads in the access hole. This tooling set also includes a tee handle extension wrench and a special socket for the installation of the brass plug in the bell joint.

It is also a good practice to have more than one stainless steel extension tubes because the threads can become worn or damaged as a result of abrasion from the cast iron threads in the bell joint.

*All Tellus processes are supported by a flow chart and a step by step operating procedure. Just as in any scientific or medical procedure each step must be performed exactly as designed and in the prescribed sequence if we are to have repeatable and successful results. When well-designed tools are utilized in a thoughtfully-designed procedure the operating gas mechanics can always expect professional results.*

## Tool Requirements

### Tool Description

Pneumatic extension scaler  
Pneumatic extension drill  
Drill bit for cast iron  
Extension tap, 1/8" NPT  
Pipe plug socket  
3/8" drive locking extension  
3/8" drive tee handle  
Gas sealant extension nipple

### Tellus P/N

GTN-1006  
ALR-1250  
ALR-1252  
ALR-1253  
ALR-1254  
GTN-1001  
GTN-1021  
ALR-1251

### SERVICES AVAILABLE

Technical Support  
Setup and Training  
Tool Maintenance Support  
Procedure Mapping  
Special Application Design

### TECHNICAL SUPPORT

We work with your operating crews and contractors to insure that they fully understand every detail of the keyhole process. We also work with your technicians and procurement staff to insure that all of your operating standards are fully satisfied.

### SUPERIOR QUALITY

Tellus tools are professional quality tools designed for use by utility professionals. These tools are designed to exceed all of the demands of the underground gas distribution industry.

### STATE OF THE ART TECHNOLOGY

The Tellus organization is constantly and consistently engaged in R&D and product development efforts. We are also in constant contact with gas utility industry equipment and hardware suppliers to insure that the latest developments will be applied to all new procedures and keyhole devices.

For more information on any of our products or services please visit us on the Web at:

[www.tellusunderground.com](http://www.tellusunderground.com)

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