

# TELLUS

UNDERGROUND TECHNOLOGY

Product Update

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# FULL POWERED SYSTEMS MOUNTED ON A 25,950 POUND GVWR (NON-CDL) CHASSIS

- 1,100 SCFM Vacuum system
- Filtration System that never needs Cleaning or Maintenance
- 200 PSI Compressed air system
- High Pressure Water System or a 5 KW generator
- 350 Gallon Spoils Tank (47 Cu. Ft.)
- Tool boxes for hundreds of Keyhole Tools
- Storage for spare cores & cover plates
- Heated Spoils Tank for winter operation
- Storage for grout & mixing equipment
- Storage for 20 traffic cones and work signage
- Truck can carry 4,000 pounds of spoils without being overweight



# FULL POWERED SYSTEMS MOUNTED ON 4-WHEEL DRIVE 19,500 POUND GVWR CHASSIS

Designed For Subsurface Utility Engineering Operations

- 1,100 CFM Vacuum System
- Filtration System that never needs cleaning or maintenance
- 200 PSI Compressed Air System
- 300 Gallon Spoils Tank (40 Cu.Ft.)
- High-Pressure Water System
- Capable of excavating to a depth of 20 feet.
- Equipped with 4-wheel drive for off-road operation
- Storage for locating & surveying equipment



# UNIQUE DESIGNS FOR SPECIALIZED PRODUCTION KEYHOLE OPERATIONS

- Designed to support a three person keyhole crew that is performing bell-joint leak repair process in an urban environment. This truck is equipped with a heated enclosure to keep resins at a controlled temperature and a storage enclosure for dozens of large encapsulation boots. The system also includes a sandblasting system for bell-joint preparation.



# HYDRO-EXCAVATION SYSTEM FOR KEYHOLE TECHNOLOGY PROCESSES

- A system designed to support the hydro-excavation for Keyhole technology. This system includes back-fill bins to carry sand and gravel. It also contains a high-pressure water system and water heating equipment to cut through frozen soil. Hydro-excavated keyhole excavations can be back-filled and the cores can be restored with one truck to complete the keyhole process without leaving the work site.



# CORING MACHINE FOR SUE (SUBSURFACE UTILITY ENGINEERING) LOCATING

**A pneumatically powered core cutting machine that is powered by the truck's compressed air system**



- Core cut up to 12 inch diameter openings in utility locating operations. This machine attaches easily and quickly to the truck's ICC bumper. It extends to any position at the back of the truck and retracts close to the rear of the truck for safe transport.

# AIR LANCES SPECIFICALLY DESIGNED FOR KEYHOLE PROCESSES & OPERATIONS

Non-Conductive and Solid Aluminum 6 foot long tools

- Ergonomic design to prevent operator injuries and fatigue. The control is a “dead man” throttle to prevent injuries caused by dropping the tool while under pressure.
  - Insulated design protects the operator from electrical hazards.
  - All aluminum design is durable and inexpensive.



- Extensions that provide the ability to excavate to depths of 20 feet or more. Angled extensions to excavate under large mains and wire-ways.



# HUNDREDS OF KEYHOLE TOOLS AND DEVICES TO ENABLE REMOTE ACCESS TO GAS LINES THROUGH SMALL EXCAVATIONS

A gas mechanic cannot use the same tools to perform a process in a Keyhole excavation as he uses in a conventional (3' x 5') excavation



- Pneumatic tools must be small enough to allow a line of sight around the tool.
- Hand tools must facilitate positive and secure access to the work using extensions that are approximately 6 feet in length.





# PROCESS DOCUMENTATION

Every operating process is documented with the following items

Item 1

**Process Description** – A brief description of the methods that are utilized to perform the process

Item 2

**Tooling Description & Process Features** – A description of the tooling and support equipment that will be necessary to support the process

Item 3

**Tooling List** – A list of all of the tools necessary to perform the process with part numbers, tool descriptions and photos of each tool

Item 4

**Operating Procedure** – A step by step description of the entire process with photos to help the operator understand each step of the process

Item 5

**Flow Chart** – The sequence of steps that make-up the process and provisions for alternate steps when events don't proceed as planned

# KEYHOLE TECHNOLOGY TRAINING PROGRAMS TO INSURE THE SUCCESSFUL IMPLEMENTATION OF KEYHOLE METHODS

Hands-on training and support can reduce the time and effort to get the program running properly

## ■ Training is not only a review of the process steps to complete a keyhole process

1. Job planning & scheduling (one calls, job packages and distance between jobs must be considered)
2. Team rapport must be developed (The work must take precedence over conflicts and personality clashes)
3. Definition of individual roles (Each team member must understand their defined task to make the team successful)
4. Development of flexibility and adaptability in the process implementation.



# CAMERA LAUNCH STUFFING BOX

Video inspection cameras can be launched into mains and pushed as much as 200 feet in each direction.



- Live video can be used to locate problems in the mains or video can be saved for future reference.