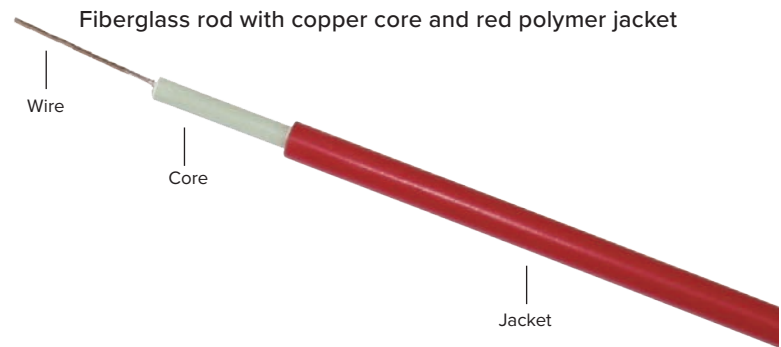


Trace live non-metallic gas mains with minimal excavation. Live Tracer utilizes traceable fiberglass rodder and stuffing box to trace main with no blow by.

Use with custom insertion tapping tee (sold separately) for entry into gas mains.

Works with transmitter and receiver (sold separately) to trace from above ground.



⚠ WARNING

The components of the Live Tracer system are specifically designed to work exclusively with each other. The use of these components individually or in combination with other non-Jameson tools or accessories is not recommended and will not guarantee the safety or effectiveness of the system.



⚠ WARNING

- Wear safety glasses and gloves.
- Keep rod inside reel when not in use. Out-of-control rod can harm personnel or property.
- Keep rod clean. Some contaminants (including water) can conduct electricity.
- Keep secure footing. Protect yourself from falling should pulling eye move suddenly or separate from rod.
- Check for rod damage prior to use. Cracks, gouges, nicks, or white stress marks on jacket or sharp bends will weaken rod. Injury could result if rod breaks while pulling.
- Do not use slip joint pliers, locking pliers or powered pulling equipment on rod.
- Do not force a pull that is stuck. Check for kinks or obstructions.
- Avoid pulling rod over sharp edges.
- Do not bend rod beyond 4" radius.

⚠ WARNING - ADHESIVE

Read manufacturer's instructions before using adhesive. In case of eye contact, flush with water and seek medical attention. If skin contact occurs, apply solvent (such as nail polish remover) to area and gently remove adhesive. Wash solvent off with water. Solvents should not be used in case of contact with eyes or open wounds.

Always wear safety goggles (ANSI Std. Z87.1) and gloves when working with adhesive and/or unprotected fiberglass rod. See adhesive product label for Safety Data Sheet (SDS).

DISCLAIMER

The foregoing instructions are provided by Jameson LLC as guidance in the use of its Live Tracer product. Jameson LLC cannot be responsible for any use of its products that does not comply with these instructions. However, user is cautioned to comply with all instructions, regulations and requirements provided by the property and gas line owner(s), whether a utility company, governmental body or otherwise. User must conform to and comply with all employer requirements. For questions or conflicts between instructions from Jameson and anyone else, consult with your supervisor as to proper course of action.

CONTENTS

Traceable Fiberglass Rodder - 1/4" diameter rod with permanent 5/16" diameter end ferrule. Rod has copper trace wire embedded in fiberglass core and is coated with polypropylene jacket for safety and durability.

Accessory Kit - Canvas Storage Bag, Grounding Cable, 3 Screws, 11 O-Rings, Rod Lubricant, Hex Key Driver, Adhesive, Replacement End Ferrule, Spring Leader

Stuffing Box - Designed with custom o-ring to provide seal when rod is inserted into pressurized lines for use up to 100 psi. Includes 4" pipe nipple with 1" NPT thread.

PART NUMBER	REPLACEMENT REEL	DESCRIPTION
16-14-600M-GL	16-600RRM	Live Tracer for Gas Main: 600' x 1/4" Locating Rodder, Marked
12-516-300M-GL	12-300RRM	Live Tracer for Gas Main: 300' x 5/16" Locating Rodder, Marked
12-516-400M-GL	12-400RRM	Live Tracer for Gas Main: 400' x 5/16" Locating Rodder, Marked
12A-516-500M-GL	12A-500RRM	Live Tracer for Gas Main: 500' x 5/16" Locating Rodder, Marked
12A-516-600M-GL	12A-600RRM	Live Tracer for Gas Main: 600' x 5/16" Locating Rodder, Marked
12A-516-700M-GL	12A-700RRM	Live Tracer for Gas Main: 700' x 5/16" Locating Rodder, Marked
12A-516-800M-GL	12A-800RRM	Live Tracer for Gas Main: 800' x 5/16" Locating Rodder, Marked
12A-516-1200M-GL	12A-1200RRM	Live Tracer for Gas Main: 1200' x 5/16" Locating Rodder, Marked



Accessory Kit



Part Number	Accessory	Electrofusion Tees & Accessories For Gas Main Tracing
16-2-TEE	Electrofusion Tees	2" IPS Electrofusion Insertion Tapping Tee, 1" IPS outlet, 4.7mm terminals
16-2-TEE-BX		2" Tee, Box of 15
16-4-TEE		4" IPS Electrofusion Insertion Tapping Tee, 1" IPS outlet, 4.7mm terminals
16-4-TEE-BX		4" Tee, Box of 10
16-6-TEE		6" IPS Electrofusion Insertion Tapping Tee, 1" IPS outlet, 4.7mm terminals
16-6-TEE-BX		6" Tee, Box of 7
16-1HSCR	Hand Scraper	Prepares pipe surfaces for electrofusion
16-1PSCR	Poly Peeler	Poly Peeler; prepare 1" IPS pipe (DR11); second male for 1" IPS tee outlet (DR7)
16-RSCR	Rotary Peeler	2" IPS Rotary Peeler - Prepares gas main surface for electrofusion
16-2-RSCR-BLADES		Replacement blade set
16-1928-4PEEL		4" IPS Rotary Peeler - Prepares gas main surface for electrofusion
16-1930-6PEEL		6" IPS Rotary Peeler - Prepares gas main surface for electrofusion
16-TC	Test Caps	Apply air to perform leak check after fusion prior to tapping. 1/4" male quick-disconnect fitting.
16-TCG		With gauge to monitor for pressure drop. 1/4" male quick-disconnect fitting.
16-CW	Cap Wrench	Cap Wrench for EF Tees
16-HVTAP	Tap Handles	High Volume Tap Tool with T-Handle for EF Tees
16-HVTTR		High Volume Tap Tool w/Ratchet Drive for EF Tees. Required for 45° elbow on outlet. Ratchet handle not included. 1/2" sq. drive socket
16-EFC-1	1" Coupler	1" IPS to couple transition fitting & elbow to tee outlet. 4.7 mm terminals.
16-EFC-1-CTS		1" CTS to couple 1" CTS transition fitting to tee outlet. 4.7 mm terminals. Use with 16-1-PERED & 16-EFC-1 to fit EF Tee outlet
16-B7105	Transition Fittings	1" IPS x 24" PE transition fitting. 1" NPT bronze male thread, DR11. Connect to tee outlet & mount 1" ball valve & Stuffing Box
16-B7110		1" CTS x 24" PE transition fitting. 1" NPT bronze male thread, .101" wall. Connect to tee outlet & mount 1" ball valve & Stuffing Box
16-1-PERED	1" Reducer	1" IPS to 1" CTS reducer section, PE
16-1520-1CLAMP	Coupler Clamps	For 1" CTS couplers, vise-grip style
16-1525-1CLAMP		For 1" IPS couplers, vise-grip style
16-45ELB	Elbow	1" IPS 45° Elbow, PE. Use to direct transition fitting vertically to grade.



Electrofusion Insertion Tapping Tee (Sold Separately)

Coarse thread on tees. Need Tap Tool with coarse thread.

Required Tools Not Included In This Kit And Not Available From Jameson

Gas leak detector / soap solution
Transmitter and Receiver for locating
Wrenches, channel locks
Various pipe fittings (may be required to adapt 1" NPT to your specific fitting)
Teflon tape / pipe dope
Grease gun with 1/4" button fitting

Specific parts and accessories may vary according to your company procedures.

The information contained herein is technical data and specifications for the Jameson Insertion Tee. Installation of the Jameson Insertion Tee should be done by qualified operating personnel only.

This publication was written to assist in the training of personnel in the appropriate procedures and operating techniques for joining polyethylene pipe with the Jameson Insertion Tee. This manual is designed as a training and installation guide and should be used solely for this purpose. Permanent field installation should be done only by properly trained operators who have been certified in accordance with the requirements of the Department of Transportation.

The recommended joining procedures for the Jameson Insertion Tee detailed in this manual have been qualified in accordance with DOT CFR Title 49 Section 192.283.

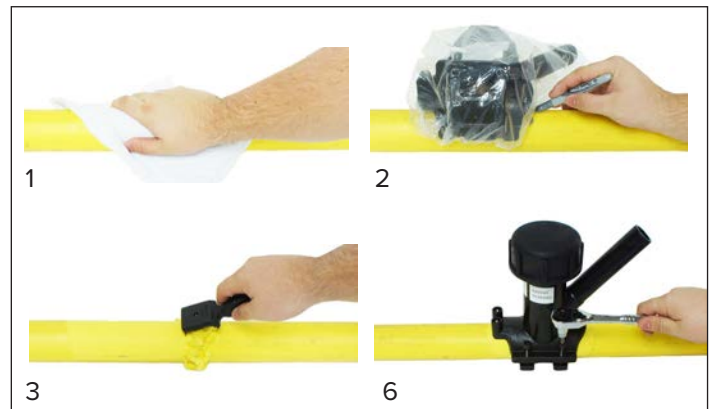
Operators should study this manual and become familiar with all procedures prior to field operations of the Jameson Insertion Tee.

Technical data and procedures contained herein are based upon documented testing performed by the Quality Control Department, but operator should not rely upon it completely due to variations in field conditions. These guidelines are given and accepted at operator's risk. Jameson makes no guarantee of fusion results and assumes no liability in connection with its published guidelines. The integrity of the polyethylene piping system is the final responsibility of the operator.

This Publication Is A Training And Installation Manual Only And Is Not A Recommendation To Infringe On Any Patents.

Installation of Electrofusion Insertion Tee *(Sold Separately)*

1. Clean joining surface of pipe with clean cloth to remove dirt or contaminants.
2. Center Insertion Tee (while still in bag) on fusion area of pipe and mark pipe with permanent marker.
3. Utilizing scraping tool, scrape entire pipe surface required for Insertion Tee Saddle to remove oxidation until virgin material is exposed. We recommend (not required) wiping fusion area of pipe with clean lint free 96% isopropyl alcohol wipe.
4. Do not touch fusion zone of pipe or Insertion Tee prior to fusion.
5. Position Insertion Tee on scraped surface utilizing premarked area for proper alignment.
6. Remove Insertion Tee from bag and attach to main by utilizing plastic undercarriage. It is imperative for a tight fit between Insertion Tee and Polyethylene main. Utilizing hand tool only tighten installation hardware until saddle of Insertion Tee comes into tight contact with main, yielding no movement. Assure proper tightness has been achieved by grabbing the outlet of the insertion tee verifying there is no movement of saddle on the main. (Pipe ovality may create a gap between fusion mat and pipe. If this occurs, remove Insertion Tee from main, re-round pipe prior to installation).



⚠ WARNING

TIGHTEN INSERTION TEE BOLTS WITH HAND TOOLS ONLY. USE OF PNEUMATIC OR AIR TOOLS IS STRICTLY PROHIBITED AND OVERTIGHTENING CAN CAUSE NUT TO SEPARATE FROM FLANGE.

7. A Universal Electrofusion processor should be connected to an adequate power source (Minimum 5 KW generator, 30 Amp Circuit. Do not utilize 20 Amp plug or extension cord).

NOTE: If utilizing generator, warm generator up before plugging in processor (auto throttle should be in off position).

Installation of Tee Instructions Continued Next Page

8. Make sure to check Insertion Tee fusion time and cooling time with reading on processor. If readings match, start fusion. If not, refer to instruction manual furnished by manufacturer of processor.
9. After fusion is complete, Clamping Device should remain in place during the recommended cooling time. Plastic undercarriage may remain on pipe after fusion or may be removed after recommended Total Cooling Time. Do not continue until Total Cooling Time has elapsed.
10. Utilizing center line mark on coupling (while still in bag) mark the stab depth.
11. Scrape fusion area to stab depth.
12. Repeat process marking stab depth on Transition Fitting or Pipe Pup.
13. Fuse coupling on transition or pipe pup.
14. Screw ball valve on to extension. Make sure valve is in "closed" position.
15. Remove Insertion Tee Cap and Install Test Cap to test saddle fusion and EF coupling fusion.

Before pressure testing, be sure cutter is not seated at the top of tee body. This allows air to pass by cutter. If air does not pass by, perform pressure test on extension.

16. Remove Test Cap from Insertion Tee and attach tapping tool with threaded adapter on tapping tool shaft. It may be necessary to back out cutter first to enable attachment of threaded adapter.

Advance cutter with tapping tool until the stop is engaged completing hot tap. Back out cutter with tapping tool and seal against top of tapping tee body. This ensures cutter does not restrict flow of gas in tee outlet or rod insertion.



Live Tracer Operation

Before Each Use

Inspect O-ring for any sign of tearing, cracking or pitting. Replace if damaged BEFORE EVERY USE. Jameson O-rings are custom designed. Only Jameson-provided O-rings will guarantee proper safety and effectiveness.

Inspect rod for damage. If rod surface is broken, replace rod. A scratched rod could cause leaking when scratch passes through Stuffing Box O-ring. Portions of rod can be cut away and new end fitting attached if it is not necessary to replace entire rod.

Follow your company safety procedures at all times. These instructions shall not take the precedence over any safety procedures established by your company.

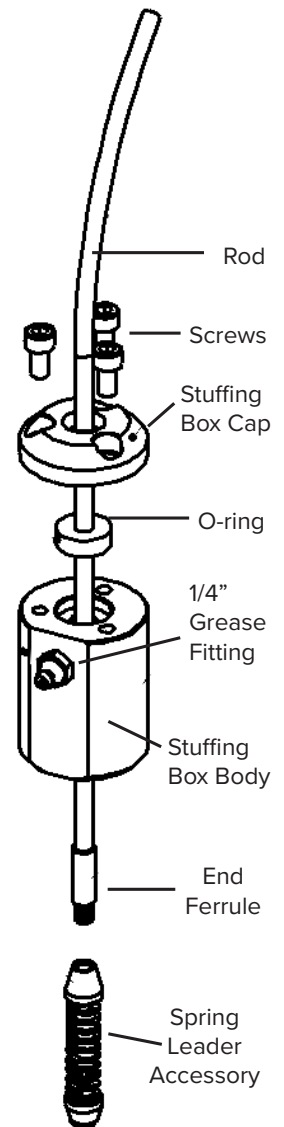
Access PE Gas Pipe Using Insertion Tee

1. Access PE gas pipe to be traced. Install electrofusion Tap Tee to pipe. Follow all installation and safety procedures provided with your equipment and those established by your company.

Note: If static grounding is required by your company procedures, use grounding cable supplied and clip it to bare metal of rodder's wheel axle. Attach opposite end to a ground spike driven into the earth.

Installing Rod Into Stuffing Box

2. Remove cap of Stuffing Box by removing the 3 screws.
3. INSPECT O-RING. If it shows any sign of tearing, cracking or pitting, replace with new O-ring.
4. Pay out rod approximately 15 feet.
5. Remove spring accessory then install rod end through Stuffing Box cap as shown.
6. Lubricate end ferrule, rod and inside O-ring with lubricated wipes provided. Install O-ring over rod.
7. Insert rod end into Stuffing Box body.
8. Attach Spring Leader Accessory to end ferrule of rod.
9. Install Stuffing Box cap with 3 screws provided. Snugly secure all screws to ensure proper O-ring seal.
10. Attach Stuffing Box to angled access port of Tap Tee. Follow your company's procedures for attaching to access port.
11. Open valve and check for gas leaks following your company procedures. If Stuffing Box is leaking, inspect O-rings and rod for damage. Replace as necessary.
12. Mark rod with permanent marking pen 6" from Stuffing Box to monitor retracting of rod.



Insert Rod For Tracing

13. Push rod into Tap Tee while holding a lubricated wipe against rod to continuously lubricate rod. Lack of lubrication can result in excessive push force on rod and could cause breakage. Adjust drag brake on rodder to allow controlled payout rate of rod. Reel should only spin when rod is actively being pushed into pipe. Reel must spin while paying out or risk tangling and damage to rod.
14. **FIBERGLASS ROD IS FRAGILE.** When pushing rod, keep hands within 1 foot of stuffing box to avoid kinking rod. Do not attempt to force rod past obstructions. Do not repeatedly pull rod back and re-insert with a ramming motion. Do not allow rod to buckle at entry of Stuffing Box under excessive force as this can result in rod breakage. If rod hits firm obstruction, stop pushing and trace at that point.
15. When insertion is nearly complete, allow 2-3 coils of rod to remain on spool to prevent slippage and potential rod damage.

Tracing The Rod

16. Attach transmitter cable red clip to end fitting at opposite end of rod attached to reel. Follow manufacturer's instructions for proper set-up of transmitter.
17. It is recommended to install ground spike at a 90 degree angle to anticipated rod path. If you have a 1W transmitter, use highest frequency available. If your transmitter is greater than 1W, use highest frequency below 45kHz. Follow proper locating practices established by your company or your locating equipment manufacturer.

Removing The Rod

18. When tracing is complete, pull rod back through Tap Tee and reinstall onto rod spool. Adjust drag brake to apply light tension on reel. Manually push rod into reel. **DO NOT** manually spin reel to take up rod. Reel should spin only while actively pushing rod into reel. The rod should always lie firmly along inner edges of reel. A second person may be required to manage this task.
19. A grease fitting is available on Stuffing Box for lubrication when removing rod. Use a standard ¼" grease gun and company approved synthetic non-petroleum grease to lubricate rod. If this is not available, periodically reinsert the rod a few inches while using lubricating wipe and then continue removing.
20. When black mark on rod end is visible, stop removing the rod. Do not pull rod end past the O-ring as this will damage the O-ring.
21. Close valve.
22. Remove the Stuffing Box. Disassemble Stuffing Box from rod end.
23. Reinstall Stuffing Box cap for storage.
24. Use squeeze tool to crimp 1" PE access pipe. Cap pipe per company procedures.

Storage

Always remove the Stuffing Box from rod and store in black pouch. Do not leave Stuffing Box on rod and bend rod back into reel for storage as this could damage the rod. To store rod, always push it completely back into reel past the feed rollers. Remove and replace spring tip if necessary. Do not bend rod back into reel while it is fed through feed rollers as this could damage rod.

NOTE: Traceable rodder has a copper wire that can be inserted underground. Jameson cannot guarantee successful tracing for every make and model transmitter under all soil and moisture conditions. If tracing is unsuccessful, try increasing depth of ground spike or wetting area around ground spike.

Attaching New End Ferrule

1. Cut away damaged section(s) of rod with a fine-tooth hacksaw, cable cutter or sharp knife. With pipe cutter and/or sharp knife, strip red protective jacket back from fiberglass core approximately 5/8". Do not cut fiberglass core when stripping jacket. Do not crush fiberglass core.
2. Copper wire is embedded in outer surface of fiberglass core. Use knife to pick loose end of copper wire from fiberglass core. Peel wire away from fiberglass core with needle nose pliers.
3. Use knife to carefully scrape away enamel coating on outer surface of wire. Re-seat wire into fiberglass core, allowing it to remain free from surface of fiberglass core. This will enable contact with inside of new end ferrule.
4. Attempt a test fit of replacement end ferrule over exposed fiberglass core. It should be firm and snug with little or no play to assure wire contacts inside of ferrule. If too loose, cut away rod end and repeat Steps 1-4.
5. Once proper fit is established, install end ferrule without adhesive and check for continuity of the internal copper wire using a digital multimeter. Touch a probe to end ferrule at each end of coiled rod. Any resistance reading (generally between 2-12 ohms) indicates proper continuity.
6. Remove end ferrule. Clean rod end and end ferrule with cleaning solvent or alcohol to remove debris and glass fibers. Allow solvent to completely evaporate. ***Step 6 is extremely important.***
7. Mix and apply adhesive to entire surface of fiberglass core and wire. Insert rod into end ferrule as far as possible, enclosing end of red jacket in counterbore of ferrule. Wipe away excess adhesive.
8. Check rod again for continuity using digital multimeter. The adhesive remains workable for 20 minutes. If no continuity, remove ferrule, clean off adhesive and repeat steps 1-7.

Note: Repaired rod should be allowed to cure 24 hours prior to use.

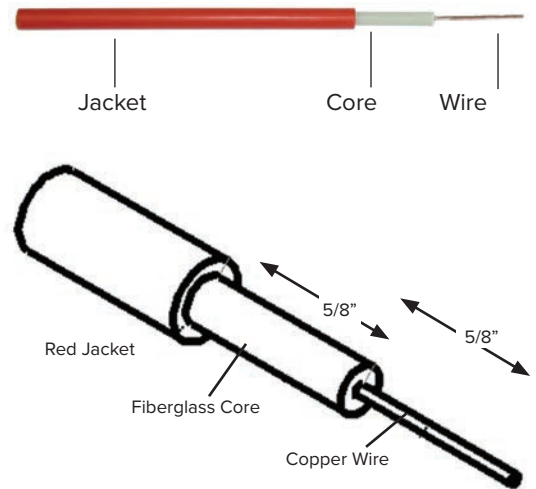


Fig. 1

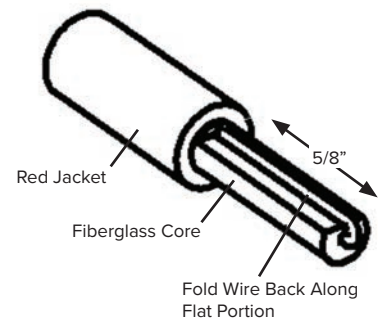


Fig. 2



WARNING - ADHESIVE



Read manufacturer's instructions before using adhesive. In case of eye contact, flush with water and seek medical attention. If skin contact occurs, apply solvent (such as nail polish remover) to area and gently remove adhesive. Wash solvent off with water. Solvents should not be used in case of contact with eyes or open wounds.



Always wear safety goggles (ANSI Std. Z87.1) and gloves when working with adhesive and/or unprotected fiberglass rod. See adhesive product label for Safety Data Sheet (SDS).



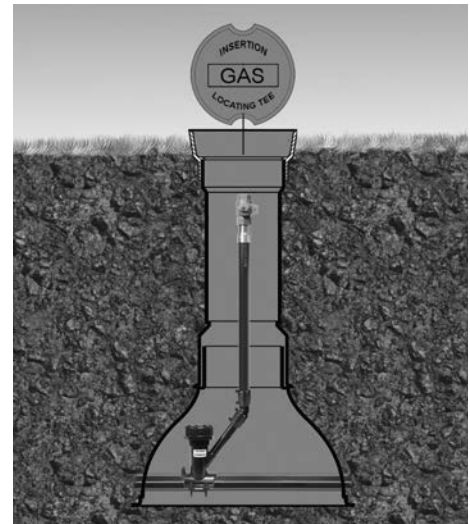
Insertion Tee

	FUSION TIME	COOLING TIME	TOTAL COOLING TIME	Minimum KVA	Minimum Generator Breaker
	Seconds	Minutes	Minutes		
		In clamp position * and prior to movement	Prior to pressure taps and backfilling		
1" CTS Coupling *	45	10	20	1.0	10
1" IPS Coupling*	50	10	20	1.0	10
2" Insertion Tee	90	10	25	1.0	10

* Clamping required on couplings



Alternate configuration for vertical insertion of rod:
Insertion Tee with 45° Elbow
(16-HVTTR required for tapping this configuration)



Example for fabricating permanent installation for re-location of gas main through insertion tee.

Warranty

Jameson products carry a warranty against any defect in material and workmanship for a period of one year from date of shipment unless failure is due to misuse or improper application. Jameson shall in no event be responsible or liable for modifications, alterations, misapplications or repairs made to its products by purchaser or others. This warranty is limited to repair or replacement of the product and does not include reimbursement for shipping or other expenses incurred. Jameson disclaims any other express or implied warranty.

