



PIPE & DUCT INSPECTION PROBE & REEL SET

USER'S MANUAL



P16PIP

Please read this manual carefully and thoroughly before using this product.

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INTRODUCTION

Thank you for purchasing General Tools & Instruments' (General's) P16PIP Pipe & Duct Inspection Probe & Reel Set. Please read this manual carefully and thoroughly before using the product.

The P16PIP is a probe and reel set that—when attached to a video borescope inspection system from General—allows plumbers to visually inspect the interior of water and sewer pipes carrying running water, and HVAC specialists to visually inspect the interior of ducts. In both applications, inspections can be documented with video clips and still photos to provide evidence and the location of blockages or cracks.

The probe and reel set is compatible with the:

- DCS1600, DCS1600ART and DCS1800 Recording Video Borescope Inspection Systems
- H16 Handheld Recording Console (the DCS1600 System without a probe)
- DCS1800-TR Transmitting Probe Handle/Controller, which enables video and images captured by the P16PIP probe to be viewed on the console of a DCS1800ART system)

KEY FEATURES

- Ideal for examining the interior of water pipes, sewer pipes, and HVAC ducts. Especially tailored for 2, 4 and 6 in. I.D. pipes by included probe centering accessories
- 72 ft. (22m) long probe with 1.1 in. (28mm) diameter camera head
- Eight super-bright white LEDs give probe 640 x 480 pixel (VGA) resolution; superior optics yield excellent depth of field of 0.4 in. (10mm) to infinity
- Probe is water-tight to IP68 standard (depth of 33 ft./10m) and flexible enough to make two or more (depending on conditions inside the pipe) 90° bends in a 1.6 in. (40mm) I.D. pipe

- Stainless steel camera head is immune to bathroom toilet cleaner, pipe and drain cleaning chemicals, gasoline, brake/transmission fluid and machine oil
- Steel probe reel is sturdy and dust-tight to IP6X standard, works vertically or horizontally, and has bracket for H16 (DCS1600) console

SAFETY INSTRUCTIONS

CAUTION!

Do not use the P16PIP to inspect ducts known or suspected to contain live electric wiring

WHAT'S IN THE CASE

The P16PIP Pipe & Duct Inspection Probe & Reel Set comes in a hard plastic protective case along with this user's manual and the following accessories:

- One spherical metal ring for centering the probe in 2 in. I.D. pipes
- One brush set for centering the probe in 4 in. I.D. pipes
- One brush set for centering the probe in 6 in. I.D. pipes
- A 5/64-in. Allen wrench for attaching the 2 in. probe centering ring
- A plastic bag containing five spare 5/64-in. Allen screws

PRODUCT OVERVIEW

Fig. 1 shows the key components of the P16PIP. Fig. 2 details the anatomy of the camera-tipped end of the probe. Familiarize yourself with the names and positions of these components before moving on to the Setup and Operating Instructions.

Fig. 1. The key components of the P16PIP

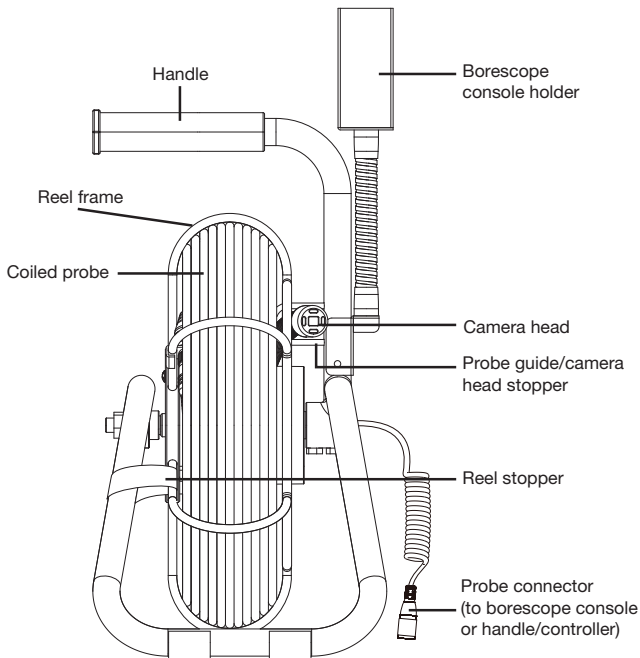
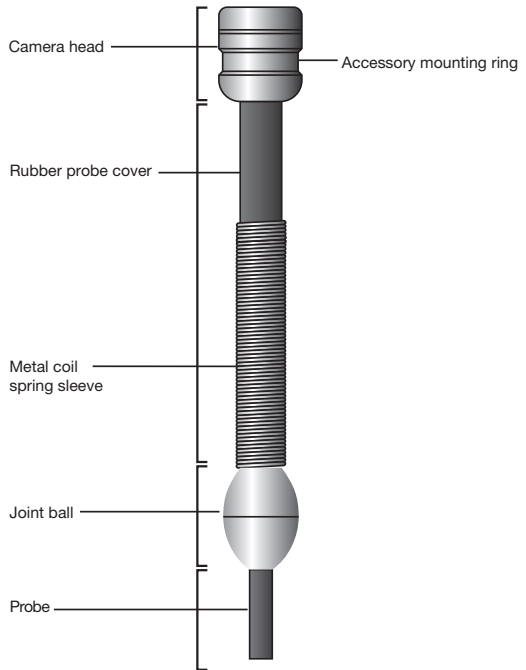


Fig. 2. Structures near the camera-tipped end of the probe



SETUP INSTRUCTIONS

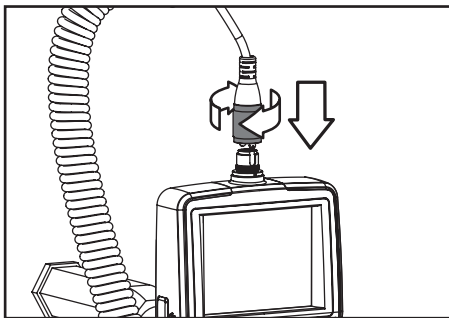
ATTACH BORESCOPE

The P16PIP is compatible with the following systems and components from General:

- The DCS1600, DCS1600ART and DCS1800 Recording Video Borescope Inspection Systems
- The H16 Handheld Recording Console (the DCS1600 System without a probe)

- The DCS1800-TR Transmitting Probe Handle/Controller, which enables video and images captured by the P16PIP probe to be viewed on the console of a DCS1800ART system

To attach the probe & reel set to the DCS1600 or H16 console, or to the DCS1800 handle/controller, first remove the red protective cap from the Probe connector (see bottom of Fig. 1). Then pull back the metal collar of the connector to expose the alignment key with a red dot. Keeping the collar pulled back, align this dot with the red dot on the connector of your borescope console or handle/controller and push the two connectors together. To secure the connection, release the collar and turn it clockwise until tight. The following figure shows the final attachment step for an H16 (DCS1600) Console.



At the top of the P16PIP is a metal bracket designed to securely hold the H16 (DCS1600) console. If you are using the probe with a DCS1800 or DCS1800ART system, General suggests *not* mounting the system's transmitting handle/controller or receiving console. Both components can be placed anywhere convenient—as long as it is dry. Neither component is waterproof or water-resistant.

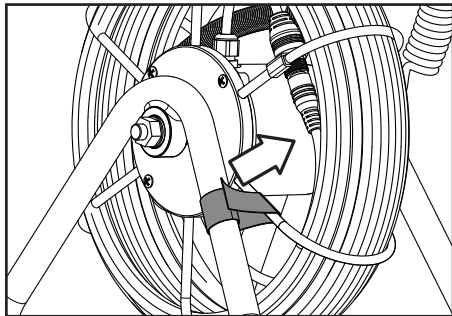
OPERATING INSTRUCTIONS

Before inspecting a pipe, determine its inner diameter. Then determine whether that diameter matches the diameter of any of the three included probe-centering accessories: 2, 4 or 6 inches. If your pipe is one of these three sizes, attaching the correct accessory will keep the camera head in the center of the pipe as you push the probe forward. A centered probe will be easier to push forward and produce higher-quality videos and photos as well.

If the inner diameter of your pipe is *not* 2, 4 or 6 in., you can still use the probe to good effect without the benefit of a probe-centering accessory. You may have to exert a bit more effort to keep the camera head from getting hung up on the pipe's sidewalls as you push the probe forward. That is more likely if you use the probe to inspect large pipes or rectangular ducts. In such situations, friction will often cause the camera head to “tuck under” the probe as you push it forward, producing a rear-facing dynamic view of the pipe's interior. When you begin to reel in the probe, however, the metal coil spring sleeve (see Fig. 1) will free the camera head and point it forward. Videos and photos captured during this “return” trip can be just as valuable as forward-facing evidence.

ATTACHING AN ACCESSORY

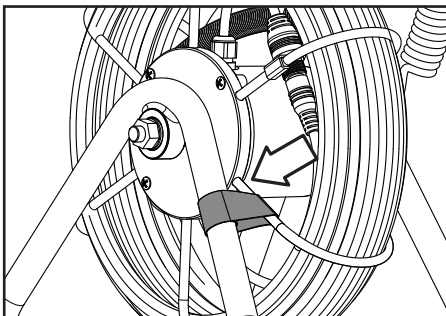
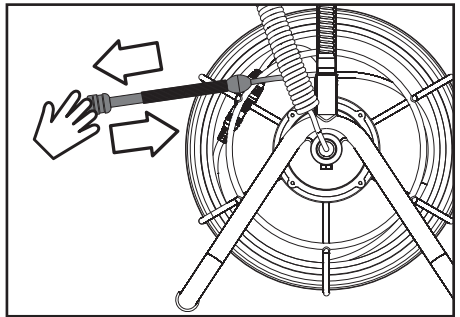
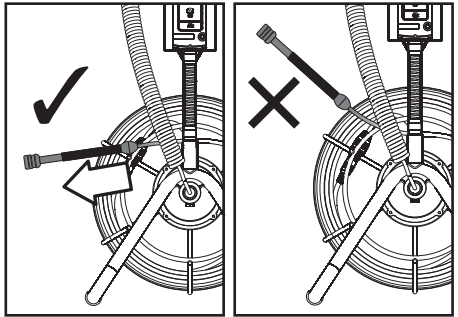
Before attaching any of the three probe-centering accessories to the probe, “play out” a few feet of the probe from the reel. To do so, first “unlock” the reel by separating (opening) the Velcro closure called the Reel stopper (see Fig. 1 and figure at right).



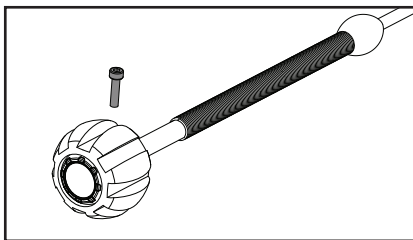
Once the reel is free to move, grab the probe below the camera head and begin pulling it horizontally, rather than vertically, as shown at right.

Extract just enough probe for the Joint ball to pass the Probe guide/camera head stopper (see Fig. 1). Then—if this is the first use of the P16PIP or its first use in months—pull and push the end of the probe back and forth a few times (see figure at right) to reduce any friction binding the reel's stationary and moving parts.

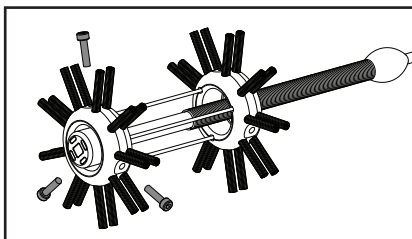
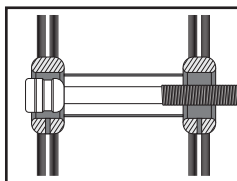
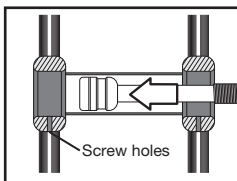
Once you have played out a few feet of probe, lock the reel by fastening the Velcro closure around the reel frame, as shown below.



You can now attach the 2 in. spherical ring, the 4 in. brush set or the 6 in. brush set to the probe tip. **To attach the ring**, slide its slightly larger open end over the camera head (it fits only one way) until the head protrudes about 1/8 in. past the ring's other opening. In this position, the ring's Allen set screw will line up with the Accessory mounting ring of the camera head (see Fig. 2). Secure the ring to the head by using the included Allen wrench to tighten the screw, as shown at right.



To attach either probe-centering brush set, identify the end with three set screws. Passing the camera head through the *other* end first, slide the probe through the brush set until the camera head protrudes 1/8 in. past the end with the set screws (see figures below). In this position, the three set screws will line up with the head's Accessory mounting ring. Secure the brush set to the head by hand-tightening the screws.

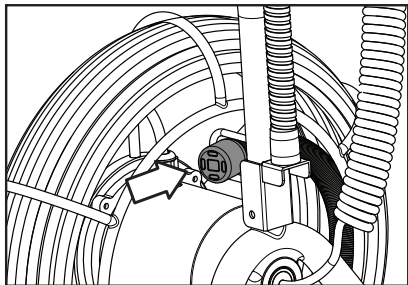
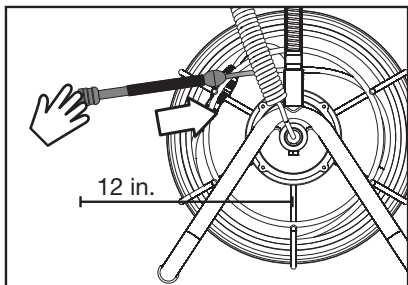
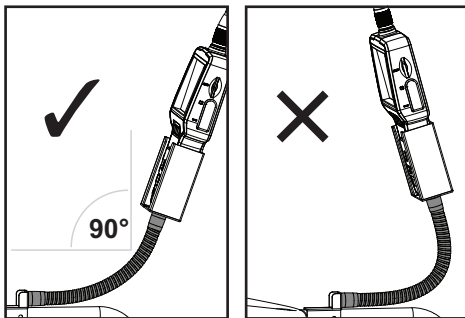


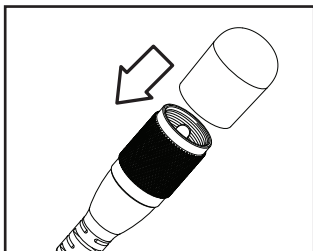
OPERATING & MAINTENANCE TIPS

The reel operates equally well in a horizontal or vertical position.

The bracket for the H16 (DCS1600) borescope console at the top of the P16PIP has a flexible-obedient stem that allows the console's screen to be angled to a comfortable viewing position. **DO NOT BEND** this stem at an angle greater than 90° (see figures at right below).

Before attempting to wind the probe back onto the reel, remember to “unlock” the reel by undoing the Reel stopper (see Fig. 1). The most effective way to rewind the probe is to push it onto the reel through the bars of the Probe guide (see Fig. 1) horizontally from a distance of about 12 inches. Continue pushing until the Joint ball has passed through the Probe guide. Stop when the camera head meets the Camera head stopper (see figure at right below).





Before cleaning the P16PIP, disconnect the H16 (DCS1600) console from the probe, remove the console from the mounting bracket and cover the probe connector with the red protective cap, as shown above.

All parts of the probe and reel can be hosed down or cleaned with a cloth and water or a mild solvent. After cleaning, allow fluid to drain from the unit for at least five minutes. Then dry the unit carefully with a second cloth before returning it and any accessories to the plastic case.

***Note:* All compatible consoles and probe controllers are NOT waterproof. Be sure to disconnect your borescope and move it out of the way before washing the P16PIP.**

SPECIFICATIONS

PROBE & CAMERA

Camera Head Diameter	1.1 in. (28mm)
Probe Diameter	0.23 in. (6mm)
Probe Length	72 ft. (22m)
Probe Material	Fiberglass
Camera Light Source	8 white LEDs
Camera Depth of Field	0.4 in. (10mm) to infinity
Camera Field of View	150.8° (diagonal)
Waterproof Depth (IP68)	50 ft. (10m)
Operating Temperature	14° to 158°F (-10° to 70°C)
Weight	4.9 lb. (2.2kg)

REEL

Frame Diameter	11.8 in. (300mm)
Dust and Water Resistance	To IP65 standard
Operating Temperature	14° to 158°F (-10° to 70°C)
Weight	6.6 lb. (3kg)

WARRANTY INFORMATION

General Tools & Instruments' (General's) P16PIP Pipe & Duct Inspection Probe & Reel Set is warranted to the original purchaser to be free from defects in material and workmanship for a period of one year. Subject to certain restrictions, General will repair or replace this instrument if, after examination, the company determines it to be defective in material or workmanship.

This warranty does not apply to damages that General determines to be from an attempted repair by non-authorized personnel or misuse, alterations, normal wear and tear, or accidental damage. The defective unit must be returned to General Tools & Instruments or to a General-authorized service center, freight prepaid and insured.

Acceptance of the exclusive repair and replacement remedies described herein is a condition of the contract for purchase of this product. In no event shall General be liable for any incidental, special, consequential or punitive damages, or for any cost, attorneys' fees, expenses, or losses alleged to be a consequence of damage due to failure of, or defect in any product including, but not limited to, any claims for loss of profits.

RETURN FOR REPAIR POLICY

Every effort has been made to provide you with a reliable product of superior quality. However, in the event your instrument requires repair, please contact our Customer Service to obtain an RGA (Return Goods Authorization) number before forwarding the unit via prepaid freight to the attention of our Service Center at this address:

General Tools & Instruments
80 White Street
New York, NY 10013
212-431-6100

Remember to include a copy of your proof of purchase, your return address, and your phone number and/or e-mail address.



Specialty Tools & Instruments

GENERAL TOOLS & INSTRUMENTS

80 White Street

New York, NY 10013-3567

PHONE (212) 431-6100

FAX (212) 431-6499

TOLL FREE (800) 697-8665

e-mail: sales@generaltools.com

www.generaltools.com

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Specifications subject to change without notice

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NOTICE - WE ARE NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

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