

# How to Use

## Fiber Optic Pulling Capstans

### Description & Use

Your new GMP Fiber Optic Pulling Capstan is a versatile and highly productive tool for placing fiber optic cable. It is based on GMP's accessory approach to fiber cable placing that lets you use your existing pulling equipment, winches and capstan drives, without special modifications or expensive new pulling equipment.

Virtually anywhere you have used a CR Collapsible Reel or RS Power Reel you can now use this fiber puller. Its durable construction and minimum number of components give it a remarkably long, trouble-free service life. The large working diameter of the capstan translates into good pulling speed and you can pull with rope, tape, or pull the fiber cable itself. This means that the Fiber Optic Pulling Capstan can be used both as an end puller or a mid-assist booster puller.

Any of these units can be easily mounted on a 2-7/16 in. (62 mm) diameter drive shaft with either a bayonet or a cross pin type of connection.



### IMPORTANT PRECAUTIONS

Before you begin placing cable, you should be completely familiar with the control and operation of the vehicle, power take-off, winch or capstan drive controls and all of the other pulling equipment you will be using. The operator should never leave his position at the controls while the pulling line is under load or the winch power take-off is engaged. All members of the crew along the entire length of the intended pull should be in visual communication by hand signals or voice communication at all times.

Make certain that all vehicles and trailers are secured with wheel chocks. Make sure your work area is properly posted with signs, flaggers and other advance warning devices in accordance with company practices. Federal, State and local regulations for the protection of the crew and the public. You'll find everything you need in our Safety Catalog.

If you are pulling from a drum shaft extension on a bed winch, de-clutch so that the drum is in free-spool, wind all of the wire rope onto the drum and secure it using a winch line holder. This will keep the wire rope from spooling off the drum and becoming entangled.

Do not stand inside of angles formed by the pulling line or cable. As much as possible, do not stand where there is the danger of being struck by the pulling line if it should fail or snag. Never place hands on a moving pulling line. To prevent

entanglement in moving parts and possible serious injury, do not wear loose fitting clothing when working around the winch, capstan, sheaves and pulling line.

### General Physical Features

There are several models of capstans available:

**P/N 15470** P/N **15472** and P/N **15479** each consist of an aluminum alloy capstan drum measuring 27-1/2 in. (698 mm) outside flange diameter and a 25 in. (635 mm) diameter X 5 in. (127 mm) wide working surface. The capstan drum is bolted to an inner hub and drive spindle by means of three 1/2 -13 x 1-1/4 in. cap screws with 3/4 in. (19 mm) hex heads.

**P/N 15470** is a capstan mounted directly to the inner hub and drive spindle with no torque limiting capability. With this unit the pulling tension must be limited by means of a break-away swivel or by limiting the hydraulic system pressure to achieve a maximum allowable torque.

**P/N 15472** is a capstan equipped with an integral torque limiter between the driving spindle and the inner hub. The torque limiter limits the pulling tension to a calibrated maximum that has been set at the factory to 600 pounds-force (2669 N).

**P/N 15479** is a capstan equipped with an integral torque limiter between the driving spindle and the inner hub. The torque limiter limits pulling tension to a calibrated maximum that has been set at the factory to 1000 pounds-force (4448 N).

**P/N 70351** consists of an aluminum alloy capstan drum measuring 34-3/4 in. (883 mm) outside diameter and a 32 in. (813 mm) diameter X 7-1/2 in. (191 mm) wide working surface. The unit is equipped with an integral torque limiter between the driving spindle and the inner hub. The torque limiter limits the pulling tension to a calibrated maximum that has been set at the factory to 600 pounds-force (2669 N).

**P/N 70381** is same as 70351, but provides pulling tension of 750 pounds-force (3336 N).



## Setting Up for Pulling

First, mount the capstan to the 2-7/16 in. (62 mm) drive shaft. Because of the combined weight of the drive section and the capstan drum assembled (see summary chart below) it is recommended that two people mount the assembled unit.

Push the drive spindle onto the drive shaft and rotate it counter-clockwise 1/8 turn until the bayonet pin locks.

Now wrap the pulling rope or tape around the working surface of the capstan four turns in an over-wind direction. This dissipates the pulling tension of the pulling line across the capstan's surface area. When the appropriate signal comes to begin the pull slowly start the driving shaft, rotating the capstan clockwise and gradually increasing the shaft speed until the desired line speed is obtained.

Observe the lay of the pulling line on the capstan surface for any binding that might occur as the tape or rope enters and leaves the capstan. If binding begins to occur the line exiting the capstan should be manually peeled off of the capstan. Binding can often be minimized by changing the angle of approach of the pulling line to the capstan. It is usually best to have the pulling line approach the capstan close to the inboard flange. As the capstan rotates, the tape will move outward along the working surface and exit the capstan.

If the pulling line tends to slip on the capstan surface due to excessive lubricant, make additional wraps until slippage stops.

### Torque Limiting Models

The torque limiter is calibrated at the factory. This pre-set value is stamped onto the serial number plate. It is recommended that the unit be subjected to a static line pull periodically to cause the capstan to stall and the torque limiter to slip for about 30 seconds only. This will verify that the torque limiter is functioning and has not become frozen due to lack of use. This is best accomplished with a dynamometer installed in line to verify the torque limiter setting. If the capstan stalls occasionally during pulling due to elevated tension levels this is sufficient to assure the user that it is working properly



### Re-calibration of the Capstan Torque Limiter

The simplest and most certain way to have the unit re-calibrated is to return it to the factory.

Here it can be disassembled by competent mechanics with the proper tools, the parts evaluated for excessive wear and replaced or reconditioned as needed and the re-calibration performed on our certified test stand. Please remove and return the clutch and spindle assembly for calibration. Include your contact information and the size capstan the unit is to be calibrated for. Factory turn around will be within 5 working days or sooner if your needs dictate.



### Summary of Model Features

#### How To Reach Us

Our support lines are open every business day from 8:00 a.m. to 5:00 p.m. eastern time.

To reach technical support call **1-800-345-6009**. Outside U.S. call **1-215-357-5500**

P/N	Working Dia		Pull		Weight	
	In.	mm	Lbs-force	new-tons	lbs	kgs
<b>15472</b>	25	635	600	2669	80	34
<b>15479</b>	25	635	1000	4448	100	45
<b>15470</b>	25	635	n/a*	n/a*	86	39
<b>70351</b>	32	813	600	2669	80	37
<b>70381</b>	32	813	750	3336	80	37
<b>70471</b>	32	813	1000	4448	80	37
<b>70472</b>	32	813	n/a*	n/a*	86	39
<b>71470</b>	42	1067	550	2446	130	59
<b>71471</b>	42	1067	600	2669	130	59
<b>71472</b>	42	1067	1000	4448	130	59
<b>71474</b>	42	1067	n/a*	n/a*	110	50

\*Models less torque limiter: Max rated load 1500 lbs 6672 N

Our FAX is always available at **1-215-357-6216**. Our email address is **info@GMPtools.com**

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