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Form No. 102831

Operating Instructions for:

100884	110141
100885	110142
110125	

## SPRING ADVANCE HYDRAULIC WORK SUPPORT 4,000 Lbs. Load Capacity at 5,000 PSI Max.

### SAFETY PRECAUTIONS



#### WARNING

To help avoid personal injury:

- The buyer of this product must be responsible for safety. This product is only a component of a larger system that is designed, purchased, or manufactured by the buyer. The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections.
- All hardware must be tightened using the proper tools and procedures before applying hydraulic pressure.
- Do not exceed the rated capacity of the work support.

### GENERAL INFORMATION

Hytec's threaded body work supports are available in three versions: spring advance, air advanced, and fluid advanced. All feature fully corrosion resistant construction. This instruction sheet will refer only to the spring advanced version.

The work support operates through the use of a spring loaded plunger extended to contact the workpiece. To support any externally applied loads, the sleeve surrounding the plunger grips the plunger and holds it, regardless of where it is in its stroke.

The spring advanced work support's plunger is extended by a spring. The action of loading the workpiece depresses the plunger against the force of the spring. The spring loaded plunger will remain in contact with the workpiece anywhere within the work support's stroke. Pressurizing the work support hydraulically causes the sleeve that guides the plunger to grip the plunger and hold it in place.

A filtered breather keeps solid contaminants out of the work support. No external breather lines are necessary.

Note: Shaded areas reflect last revision(s) made to this form.

Sheet No. 1 of 3

Rev. 2 Date: 25 Jan. 1999

## TYPICAL APPLICATION

In a typical application, the workpiece would be loaded into the fixture while the work support is extended. Hydraulic pressure would then be applied to some or all of the positioning cylinders and clamps in the system. A separate sequence valve would then open to actuate the work support. The plunger would then lock into place. After locking, the support will resist the applied force from the cutter. See Figure 1.

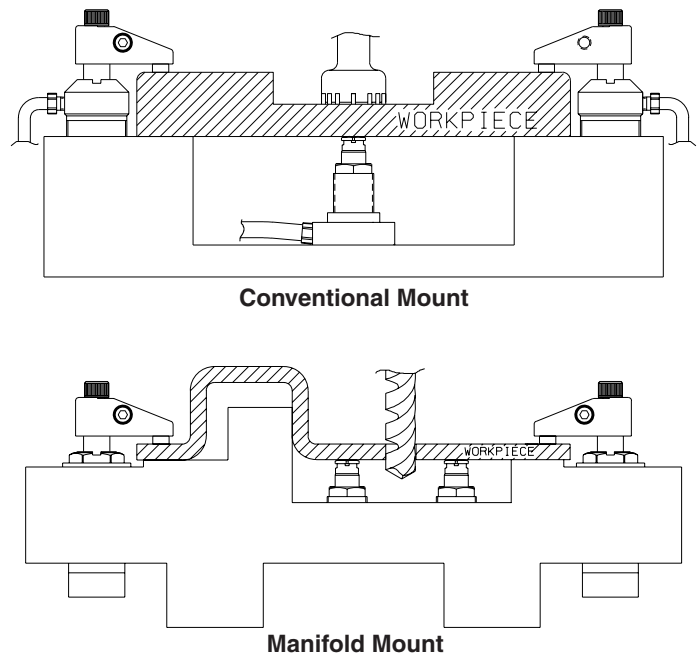


Figure 1

## ELASTIC DEFLECTION

Extremely close manufacturing tolerances hold the plunger perpendicular to the workpiece and eliminate inaccuracies due to plunger movement during lock-up. After lock-up, the plunger is absolutely rigid and limits elastic deflection to 0.000075" per 100 lbs. of load. See Figure 2.

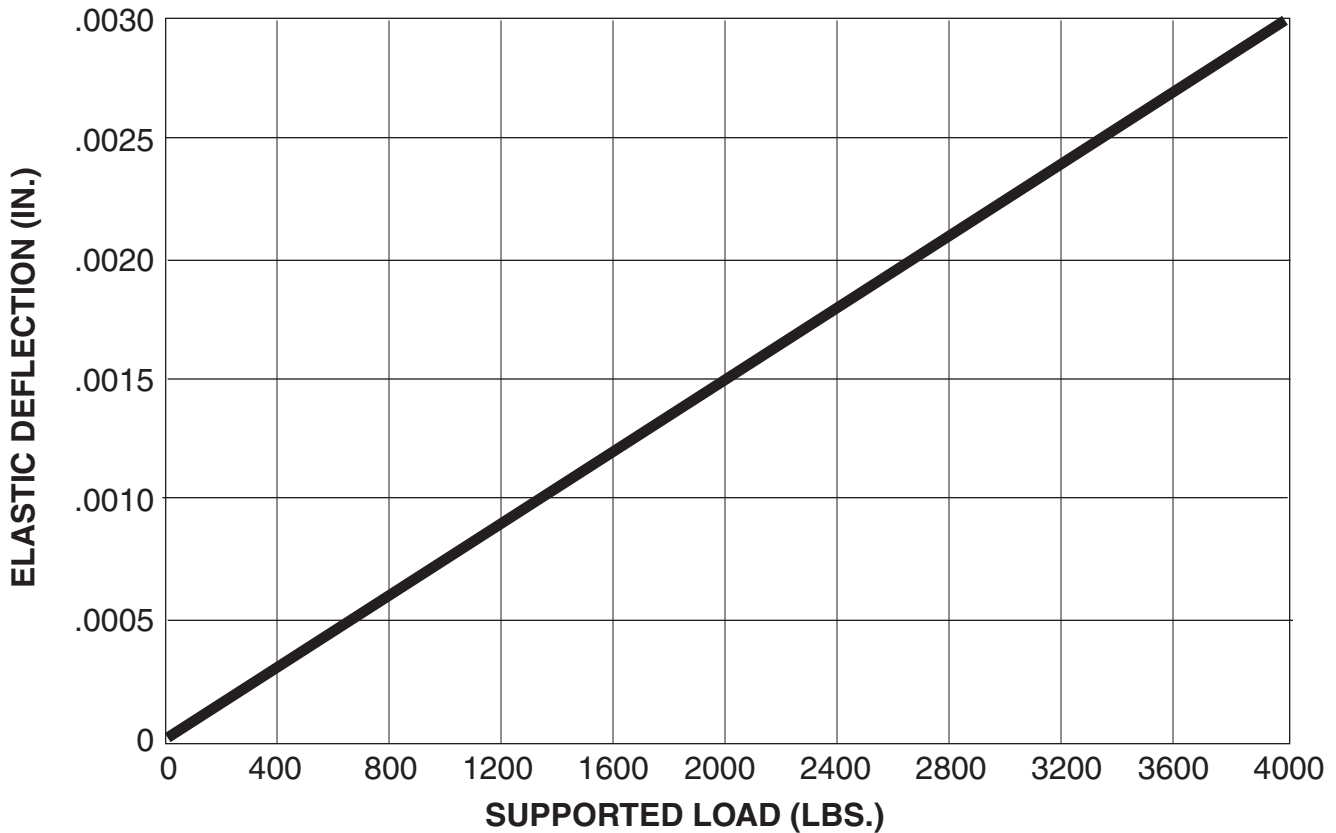


Figure 2

### MOUNTING THE WORK SUPPORT

This spring advanced, 4,000 pound capacity work support is available in three different styles. Each style utilizes the same work support but provides for differing mounting configurations.

#### Conventional Mounting

The 100885 work support, supplied with a mounting base, is designed for conventional mounting with fittings and tubing. Refer to Figure 3A for mounting and bolt pattern information. If the work support is removed from its base and must be reinstated, torque the assembly to 380/400 ft. lbs. for maximum cycle life.

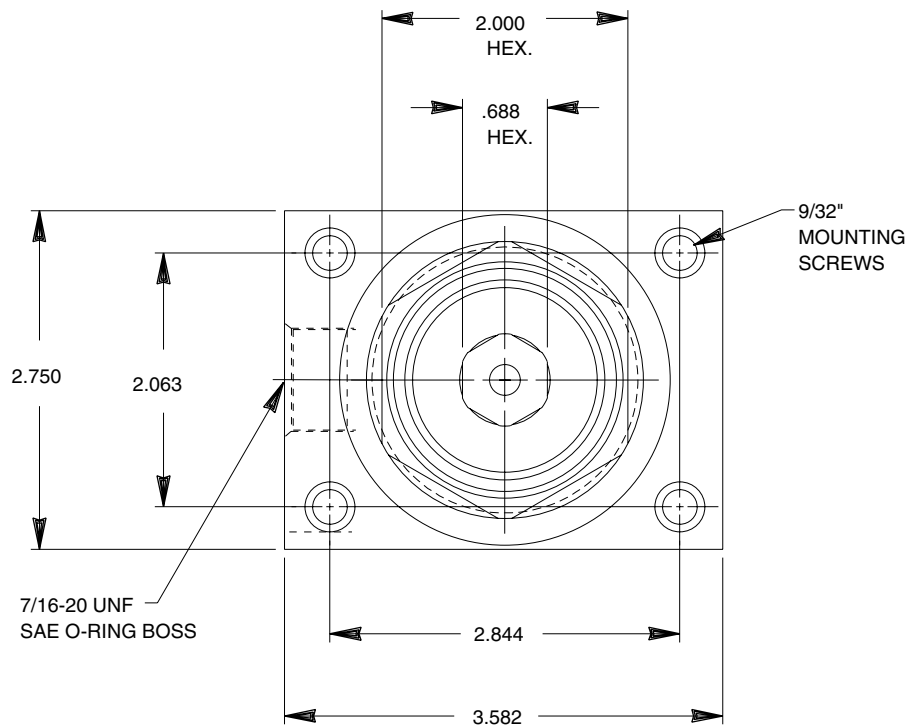


Figure 3

#### Manifold Mounting

The 110125 work support is provided with a mounting base that contains an o-ring face seal for manifold mounting on a flat surface. Refer to Figures 3B and 3C for mounting and bolt pattern information. Refer to Figure 3A for overall dimensions. If the work support is removed from its base and must be reinstated, torque the assembly to 380/400 ft. lbs. for maximum cycle life.

**WARNING:** The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections. All mechanical joints must be designed with proper safety requirements.

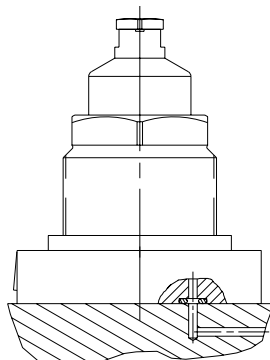
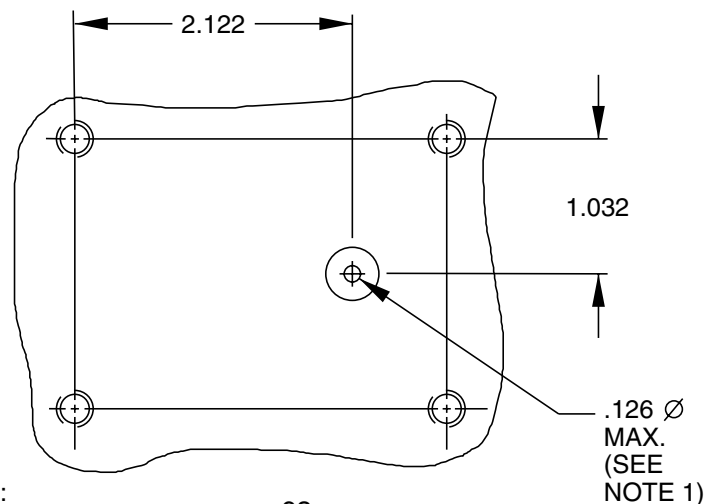


Figure 3B



NOTE:  
1. SURFACE FINISH TO BE 63/1000.  
CONCENTRIC TOOL MARKS ONLY.  
.483 Ø MIN. CENTERED ON .126 Ø  
MAX. HOLE.

Figure 3C

Mounting The Work Support (Continued)

The 100884 work support is provided as a cartridge that can be installed directly into a threaded port in the fixture. Refer to Figure 4. When installing the work support, 380/400 ft. lbs. of torque is required for maximum cycle life.

**WARNING:** The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections. All mechanical joints must be designed with proper safety requirements.

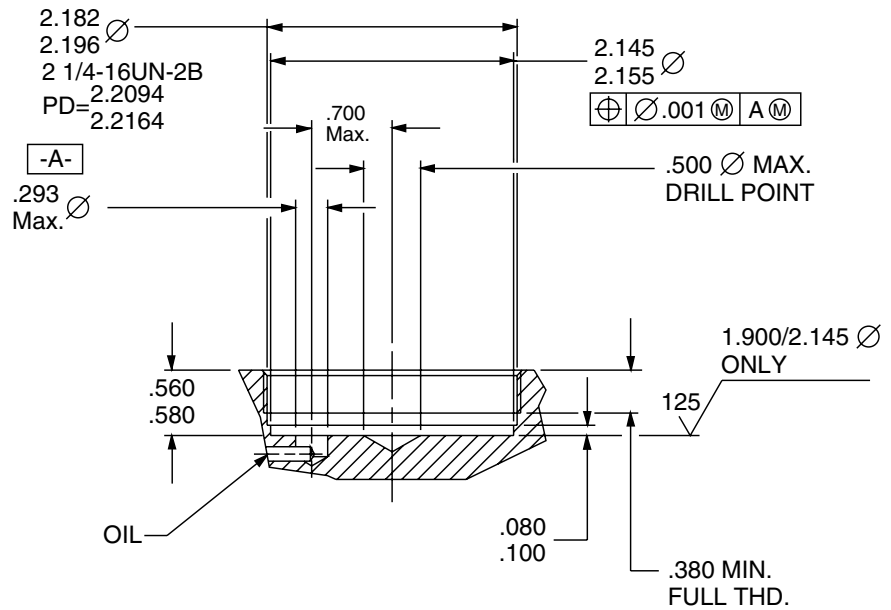


Figure 4

The 110141 work support is provided as a cartridge that can be installed directly into a threaded port in the fixture. Refer to Figure 5. When installing the work support, 380/400 ft. lbs. of torque is required for maximum cycle life.

**WARNING:** The buyer is responsible for the design of structurally adequate hydraulic fluid passages and connections. All mechanical joints must be designed with proper safety requirements.

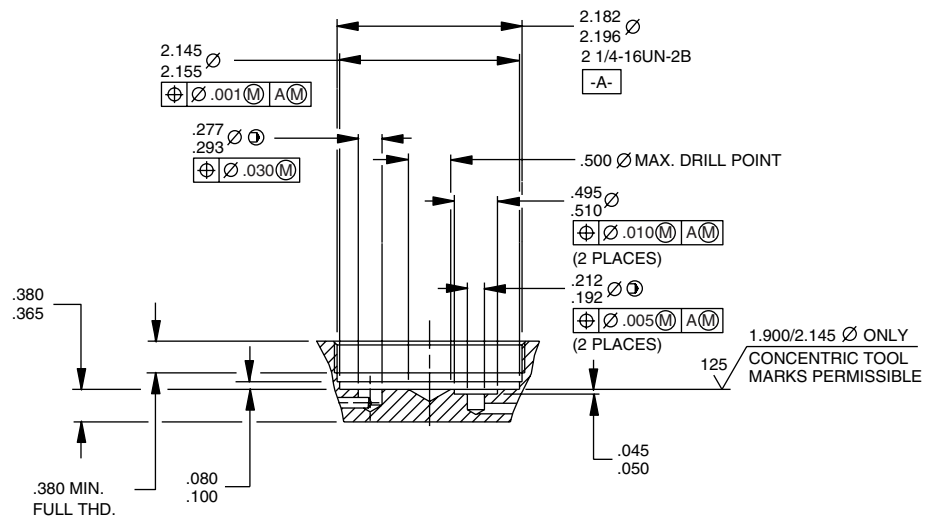


Figure 5

Note: Figure 5 added at last revision(s) made to this form.

### PLUNGER CONTACT FORCE

The plunger contacts the workpiece with only spring pressure. Hydraulic operating pressure does not affect contact force. See Figure 6 at right for contact forces.

SPRING ADVANCE WORK SUPPORTS		
Catalog No.	Approximate Forces Required to Depress Plunger (Lbs.)	
	Fully Extended	Fully Depressed
100884 100885 110125 110141 110142	4	8

Figure 6

### MINIMUM OPERATING PRESSURE

While the sleeve begins to grip the plunger at lower pressures, a 1000 PSI minimum operating pressure is recommended to insure consistent, repeatable operation. See Figure 7 below for performance values.

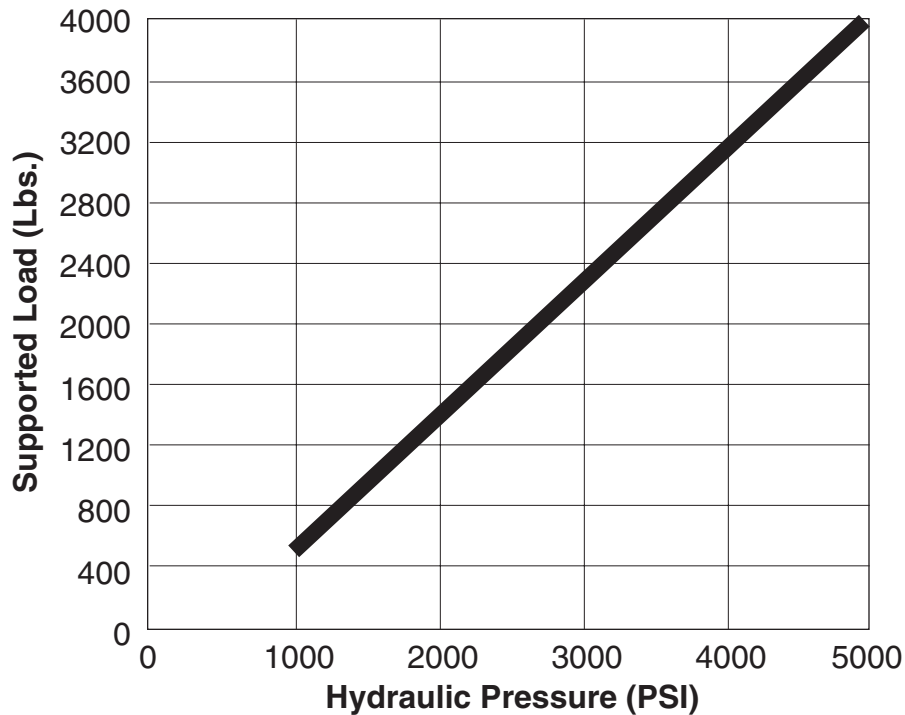


Figure 7