

# Series TY-B — 2.8, 5.6, and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers Standard Response, Standard Coverage

## General Description

The Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and Pendent Sprinklers described in this data sheet are standard response - standard coverage, decorative 5 mm glass bulb type spray sprinklers designed for use in light, ordinary, or extra hazard, commercial occupancies such as banks, hotels, shopping malls, factories, refineries, chemical plants, etc.

The recessed version of the Series TY-B Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses a two-piece Style 10 (1/2 inch NPT) or Style 40 (3/4 inch NPT) Recessed Escutcheon. The Recessed Escutcheon provides 1/2 inch (12,7 mm) of recessed adjustment or up to 3/4 inch (19,1 mm) of total adjustment from the flush pendent position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe drops to the sprinklers must be cut.

Corrosion resistant coatings, where applicable, are utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres. Although corrosion resistant coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is

not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of these coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

An intermediate level version of the Series TY-B Pendent Sprinkler can be obtained by utilizing the Series TY-B Pendent Sprinkler in combination with the Model S2 Shield.

### WARNINGS

*The Series TY-B Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

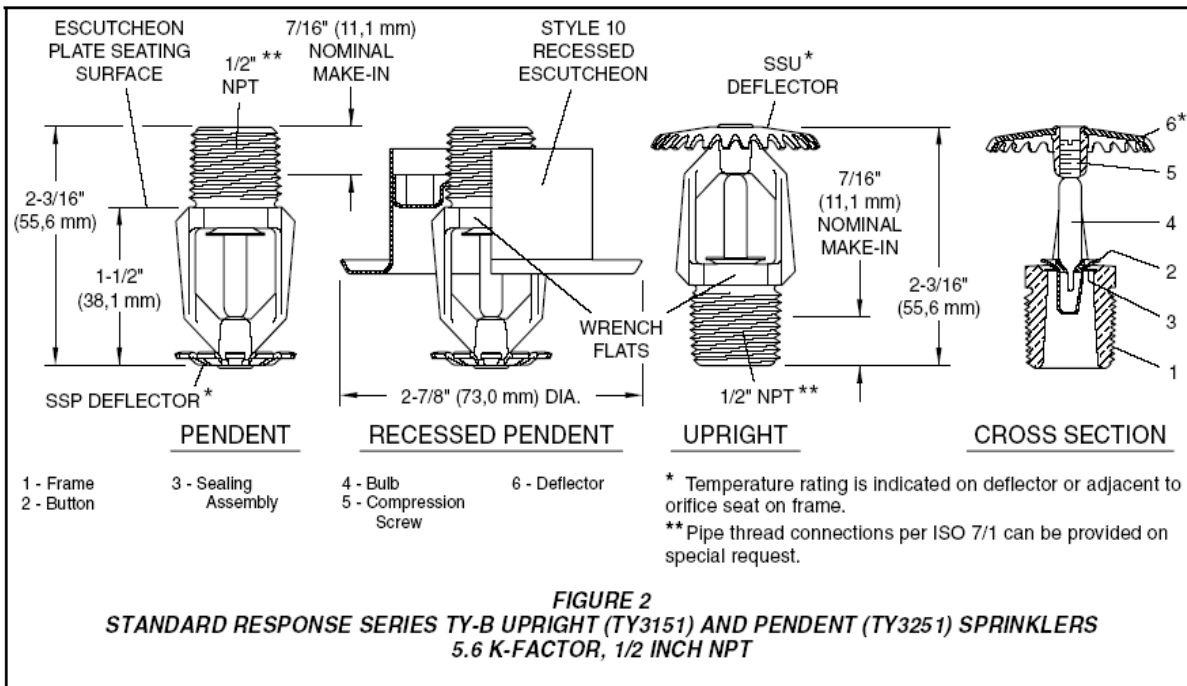
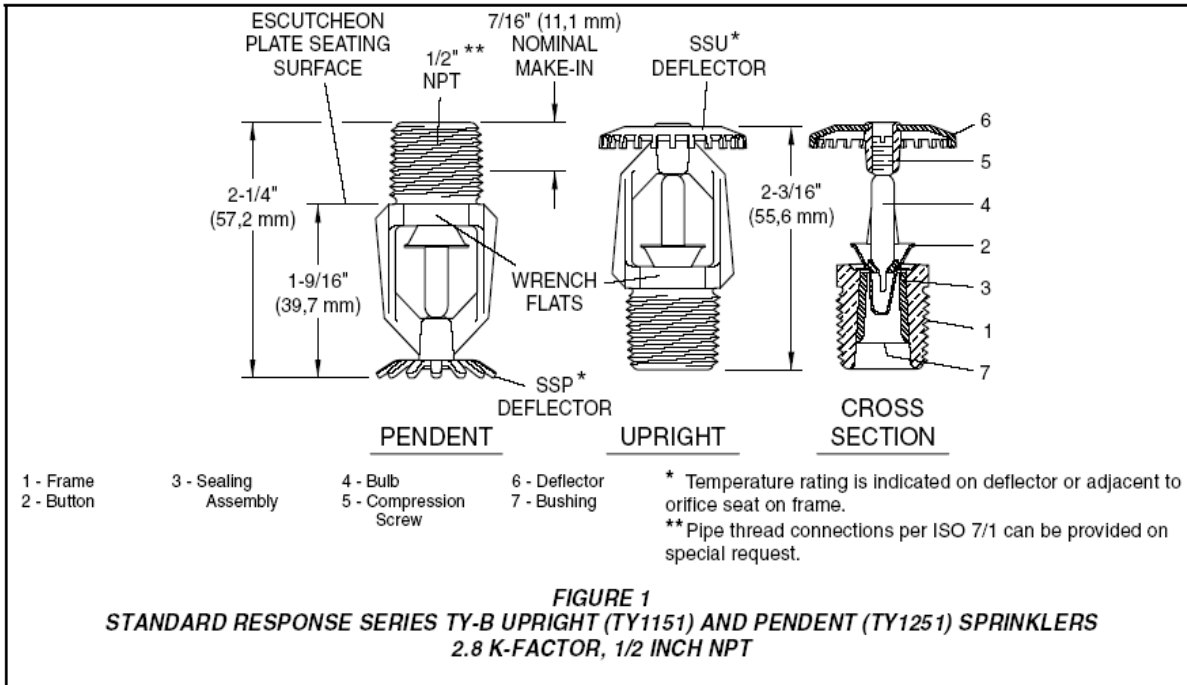
*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.*

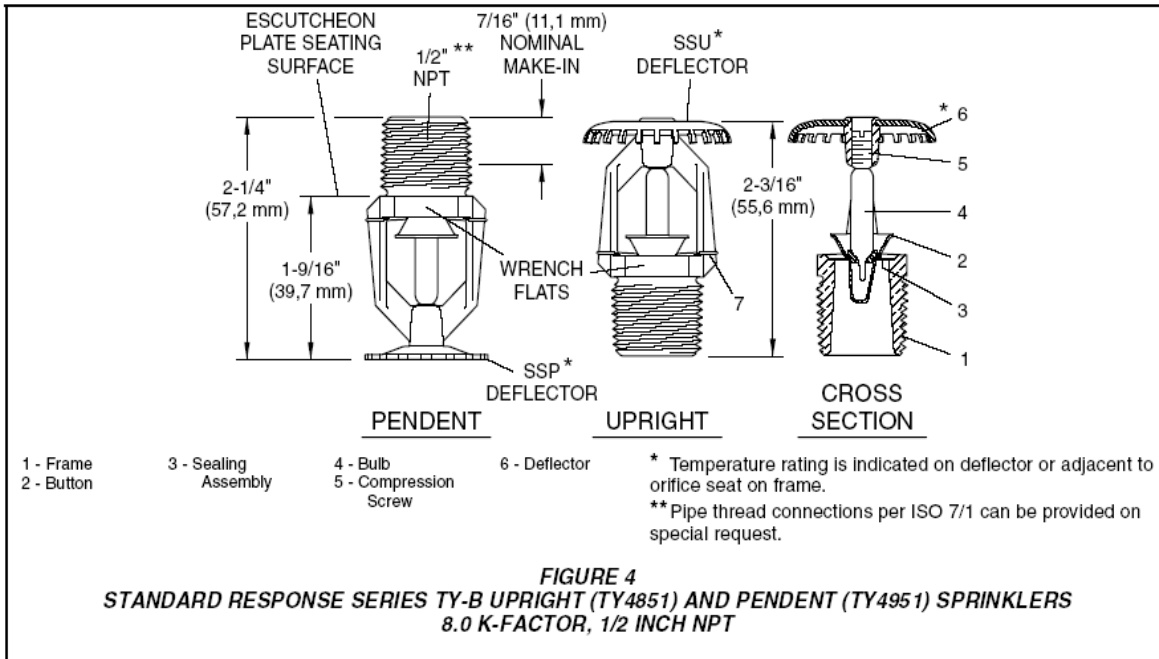
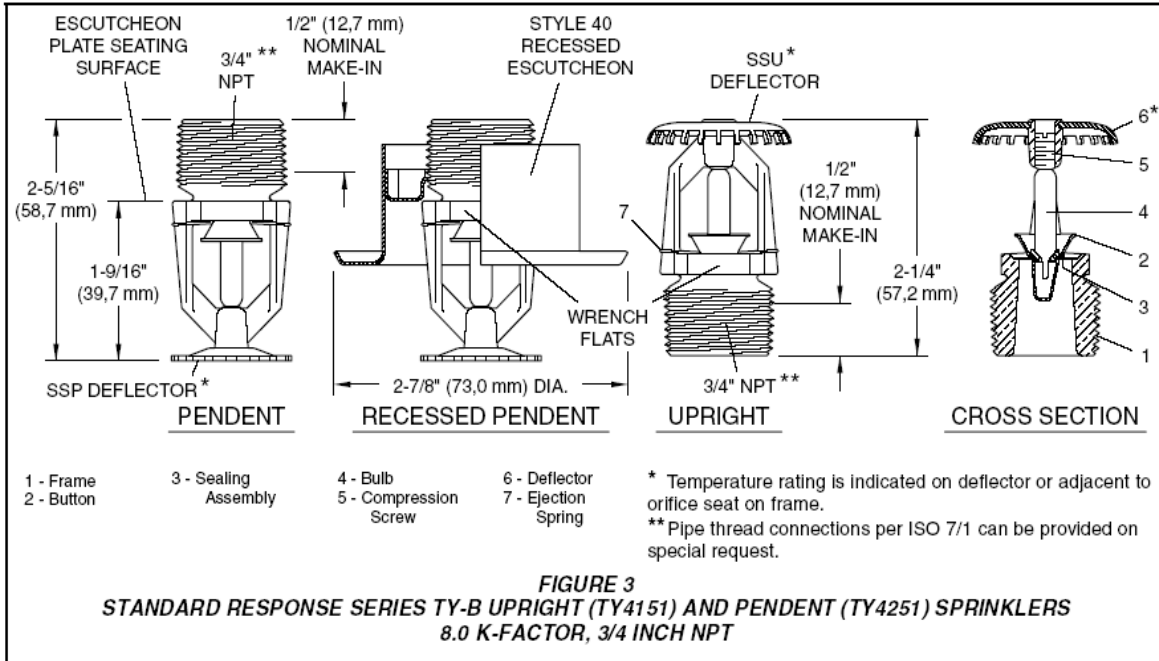


**IMPORTANT**  
Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

## Model/Sprinkler Identification Numbers

TY1151 -	Upright 2.8K, 1/2" NPT
TY1251 -	Pendent 2.8K, 1/2" NPT
TY3151 -	Upright 5.6K, 1/2" NPT
TY3251 -	Pendent 5.6K, 1/2" NPT
TY4151 -	Upright 8.0K, 3/4" NPT
TY4251 -	Pendent 8.0K, 3/4" NPT
TY4851 -	Upright 8.0K, 1/2" NPT
TY4951 -	Pendent 8.0K, 1/2" NPT



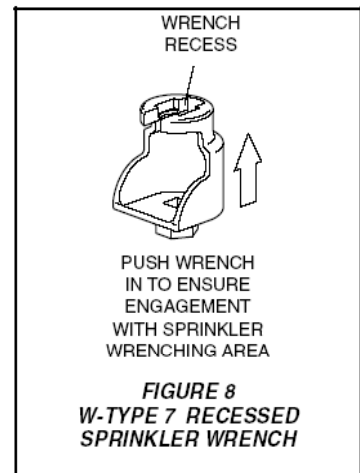
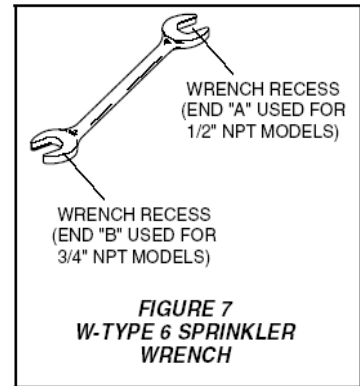
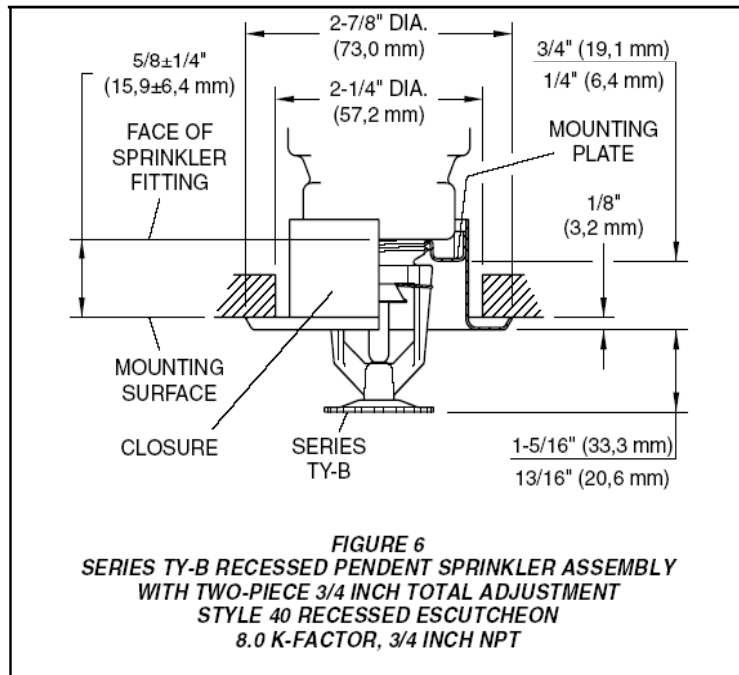
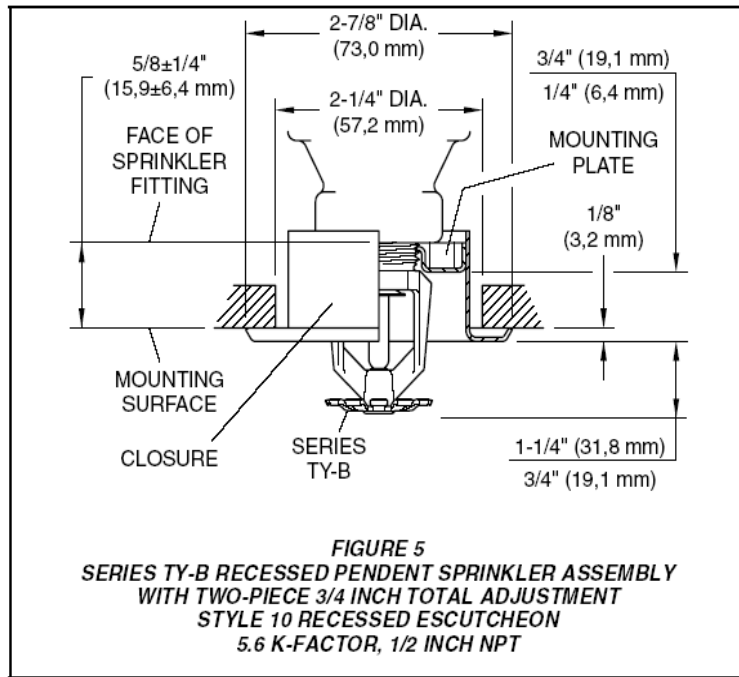


				SPRINKLER FINISH (See Note 8)					
K	TYPE	TEMP.	BULB LIQUID	NATURAL BRASS	CHROME PLATED	WHITE*** POLYESTER	LEAD COATED	WAX COATED	WAX OVER LEAD COATED
2.8 1/2" NPT	PENDENT (TY1251) and UPRIGHT (TY1151)	135°F/57°C	Orange	1, 2, 3			N/A		
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
		286°F/141°C	Blue						
		360°F/182°C	Mauve	1, 2					
5.6 1/2" NPT	PENDENT (TY3251) and UPRIGHT (TY3151)	135°F/57°C	Orange	1, 2, 3, 4, 5, 6, 7			1, 2, 3, 5	1, 2, 3, 5	1, 2, 3, 5
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
		286°F/141°C	Blue						
	360°F/182°C	Mauve	1**, 2**, 3**, 5**						
	RECESSED PENDENT (TY3251)* Figure 4	135°F/57°C	Orange	1, 2, 3, 4, 5		1, 2, 4, 5	N/A		
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
360°F/182°C		Mauve	N/A						
8.0 3/4" NPT	PENDENT (TY4251) and UPRIGHT (TY4151)	135°F/57°C	Orange	1, 2, 3, 4, 5, 6, 7			1, 2, 5	1, 2, 3, 5	1, 2, 5
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
		286°F/141°C	Blue						
	360°F/182°C	Mauve	1**, 2**, 3**, 5**						
	RECESSED PENDENT (TY4251)* Figure 5	135°F/57°C	Orange	1, 2, 3, 4, 5			N/A		
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
360°F/182°C		Mauve	N/A						
8.0 1/2" NPT	PENDENT (TY4951) and UPRIGHT (TY4851)	135°F/57°C	Orange	1, 2, 3, 5			N/A		
		155°F/68°C	Red						
		175°F/79°C	Yellow						
		200°F/93°C	Green						
		286°F/141°C	Blue						
		360°F/182°C	Mauve						

**NOTES:**

1. Listed by Underwriters Laboratories, Inc. (UL).
  2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL).
  3. Approved by Factory Mutual Research Corporation (FM).
  4. Approved by the Loss Prevention Certification Board (LPCB Ref. No. 007k/03).
  5. Approved by the City of New York under MEA 354-01-E.
  6. VdS Approved (For details contact Tyco Fire & Building Products, Enschede, Netherlands, Tel. 31-53-428-4444/Fax 31-53-428-3377).
  7. Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/05).
  8. Where Polyester Coated, Lead Coated, Wax Coated, and Wax over Lead Coated Sprinklers are noted to be UL and C-UL Listed, the sprinklers are UL and C-UL Listed as Corrosion Resistant Sprinklers. Where Lead Coated, Wax Coated, and Wax over Lead Coated Sprinklers are noted to be FM Approved, the sprinklers are FM Approved as Corrosion Resistant Sprinklers.
- \* Installed with Style 10 (1/2" NPT) or Style 40 (3/4" NPT) 3/4" Total Adjustment Recessed Escutcheon, as applicable.  
 \*\* 150°F/66°C Maximum Ceiling Temperature.  
 \*\*\* Frame and deflector only. Listings and approvals apply to color (Special Order).  
 N/A: Not Available

**TABLE A  
LABORATORY LISTINGS AND APPROVALS**



## Technical Data

### Approvals

UL and C-UL Listed.  
FM, LPCB, VdS, and NYC Approved.  
(Refer to Table A for complete approval information including corrosion resistant status.)

### Maximum Working Pressure

175 psi (12,1 bar)

### Discharge Coefficient

K = 2.8 GPM/psi<sup>1/2</sup> (40,3 LPM/bar<sup>1/2</sup>)  
K = 5.6 GPM/psi<sup>1/2</sup> (80,6 LPM/bar<sup>1/2</sup>)  
K = 8.0 GPM/psi<sup>1/2</sup> (115,2 LPM/bar<sup>1/2</sup>)

### Temperature Ratings

Refer to Table A

### Finishes

Sprinkler: Reessed Escutcheon: White Coated, Chrome Plated, or Brass Plated

### Physical Characteristics

Frame . . . . . Bronze  
Button . . . . . Brass/Copper  
Sealing Assembly . . . . .  
. . . . . Beryllium Nickel w/Teflon†  
Bulb . . . . . Glass  
Compression Screw . . . . . Bronze  
Deflector . . . . . Copper  
Bushing (K=2.8) . . . . . Bronze

## Operation

The glass Bulb contains a fluid which expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass Bulb, allowing the sprinkler to activate and water to flow.

## Design Criteria

The Series TY-B Pendent and Upright Sprinklers are intended for fire protection systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (e.g., UL Listing is based on the requirements of NFPA 13, and FM Approval is based on the requirements of FM's Loss Prevention Data Sheets). Only the Style 10 or 40 Recessed Escutcheon, as applicable, is to be used for recessed pendent installations.

## Installation

The Series TY-B Sprinklers must be installed in accordance with the following instructions:

### NOTES

*Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 135°F/57°C to 3/32 inch (2,4 mm) for the 360°F/182°C temperature ratings.*

*A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 21 ft. lbs. (28,5 Nm) of torque may be used to install sprinklers with 1/2 NPT connections. A leak tight 3/4 inch NPT sprinkler joint should be obtained with a torque of 10 to 20 ft.lbs. (13,4 to 26,8 Nm). A maximum of 30 ft.lbs. (40,7 Nm) of torque is to be used to install sprinklers with 3/4 NPT connections. Higher levels of torque may distort the sprinkler inlet and cause leakage or impairment of the sprinkler.*

*Do not attempt to make-up for insufficient adjustment in the escutcheon plate by under- or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.*

The Series TY-B Pendent and Upright Sprinklers must be installed in accordance with the following instructions.

**Step 1.** Pendent sprinklers are to be installed in the pendent position, and upright sprinklers are to be installed in the upright position.

**Step 2.** With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

**Step 3.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 6 Sprinkler Wrench (Ref. Figure 7), except that an 8 or 10 inch adjustable Crescent wrench is to be used for wax coated sprinklers. With reference to Figures 1, 2, 3, and 4 the W-Type 7 Sprinkler Wrench or the adjustable Crescent wrench, as applicable is to be applied to the wrench flats.

When installing wax coated sprinklers with the adjustable Crescent wrench, additional care needs to be exercised to prevent damage to the wax coating on the sprinkler wrench flats or frame arms and, consequently, exposure of bare metal to the corrosive environment. The jaws of the wrench should be opened sufficiently wide to pass over the wrench flats without damag-

ing the wax coating. Before wrench tightening the sprinkler, the jaws of the wrench are to be adjusted to just contact the sprinkler wrench flats. After wrench tightening the sprinkler, loosen the wrench jaws before removing the wrench.

After installation, the sprinkler wrench flats and frame arms must be inspected and the wax coating re-touched (repaired) whenever the coating has been damaged and bare metal is exposed. The wax coating on the wrench flats can be re-touched by gently applying a heated 1/8 inch diameter steel rod to the areas of wax that have been damaged, to smooth it back over areas where bare metal is exposed.

### NOTES

*Only retouching of the wax coating applied to the wrench flats and frame arms is permitted, and the retouching is to be performed only at the time of the initial sprinkler installation.*

*The steel rod should be heated only to the point at which it can begin to melt the wax, and appropriate precautions need to be taken, when handling the heated rod, in order to prevent the installer from being burned.*

*If attempts to retouch the wax coating with complete coverage are unsuccessful, additional wax can be ordered in the form of a wax stick (the end of which is color coded). Only the correct color coded wax is to be used, and retouching of wrench flats and frame arms is only permitted at the time of initial sprinkler installation. With the steel rod heated as previously described, touch the rod to the area requiring additional wax with the rod angled downward, and then touch the wax stick to the rod approximately one-half inch away from the area requiring retouching. The wax will melt and run down onto the sprinkler.*

The Series TY-B Recessed Pendent Sprinklers must be installed in accordance with the following instructions.

**Step A.** After installing the Style 10 or 40 Mounting Plate, as applicable, over the sprinkler threads and with pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

**Step B.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 7 Recessed Sprinkler Wrench (Ref. Figure 8). With reference to Figure 3 or 4, the W-Type 7 Recessed Sprinkler Wrench is to be applied to the sprinkler wrench flats.

**Step C.** After the ceiling has been in-