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Installation of the PR4-0024 Cable/Sheath Replacement Kit

April 2004 *Form FVC 063 - Rev 01*

KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.

The PR4-0024 Cable/Sheath Replacement Kit is intended to permit transfer of a PR4 Passive Safety Shutdown device to a "longer" hose or to a hose that is less than 6" shorter than the existing hose.

TOOLS REQUIRED: Safety Equipment (i.e. gloves, goggles, and clothing), Pliers, Bench Mounted Vise, Hammer, Chisel, 3/16" Allen Wrench, two 18" Pipe Wrenches, Flat Blade Screwdriver, Snap-Ring Pliers (.070 tip - internal), 3/32" Allen Wrench, Wire Cutters, Large Flat Blade Screwdriver, 12" Adjustable Wrench, Small Blade Screwdriver, Nickel Anti-Seize, *Form* FVC 054

Removal of PR4 from Hose

See the PR4 assembly drawing and parts list at the back of this manual for item numbers.

1. Remove the acme fittings and hammer unions from both ends of the hose assembly.

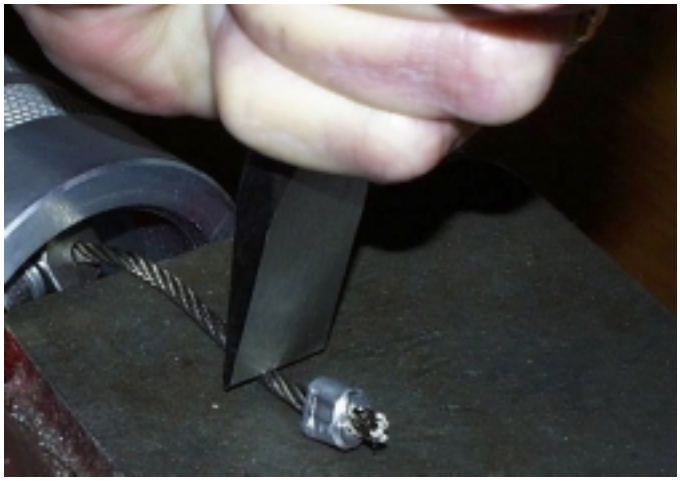
2. Lay the hose in a straight line on the floor. With a pair of pliers, grab the Cable Crimp ㉘ protruding from the end of the Outlet Housing ⑱.

3. Secure the Outlet Housing and pull the cable outward until you feel or hear the Poppet release to it's "tripped-pull" position.

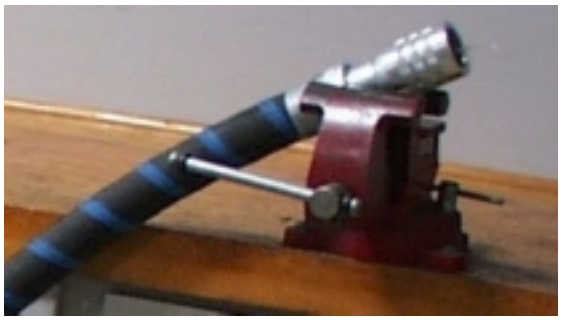
NOTE: This step is <u>essential</u> and will place the PR4 poppet in a position that will allow installation of the Cable/Sheath Replacement Kit. The Inlet Poppet will be closed and the cable clamp ㉓ will <u>not</u> be drawn against the Spider ⑳.

4. Place the hose in a "U" position with the Outlet Housing end on a flat, hard, metal surface such as a bench vise.

5. Using a hammer and chisel, remove the Cable Crimp from the end of the cable.



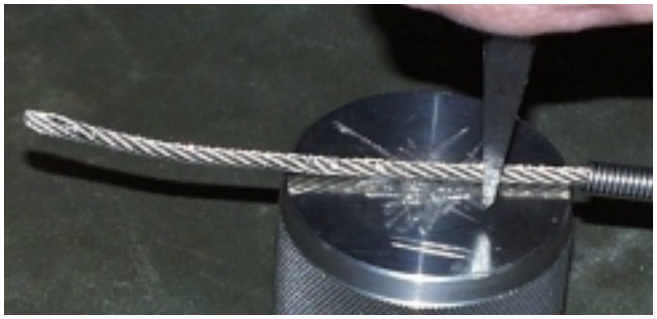
6. Secure the Outlet Housing end in the bench vise. **Do not over-tighten the bench vise such that would cause damage to the hose outlet.**



7. Using the pliers, pull the Cable Clamp ㉓ outward and loosen the socket head cap screws with the 3/16" Allen wrench. As the second screw is loosened, the Cable Clamp will be free to slide off the end of the cable.

8. Place the hose on the floor and, with the two 18" Pipe Wrenches positioned as shown, remove the Outlet Housing ⑱ from the hose.

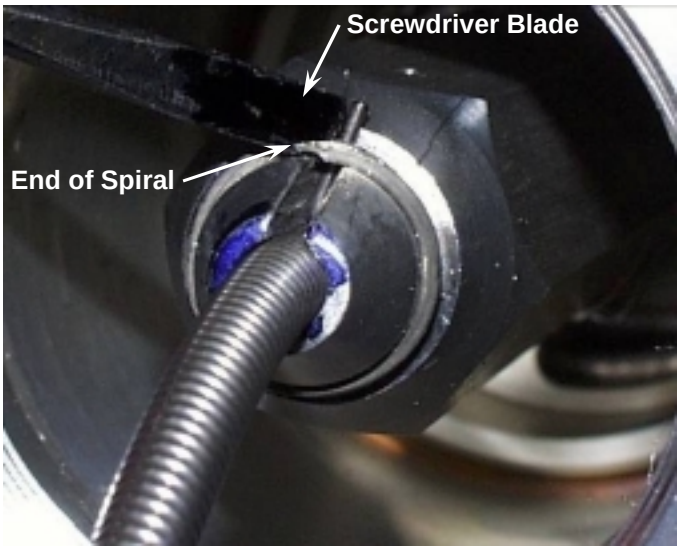
9. To eliminate the flat spots on the cable caused by the cap screws, use the hammer and chisel to cut the cable at a point just in front of the Sheath.



10. With the hose still on the floor, position the two 18" Pipe Wrenches on the Inlet end as shown, and remove the from the hose.

11. Pull the Cable/Sheath Assembly (attached to the Main Housing) completely out of the hose.

12. The Sheath is secured by a flat Spiral Ring. Locate the end of the spiral with the flat blade screwdriver and pry the Spiral Ring from the Sheath Housing groove. Remove the Sheath from the entire length of the Cable.



Disassembly of the PR4

Refer to the PR4 assembly drawing and parts list at the back of this manual for item numbers.

1. Place the Outlet Housing back in the vise, **again being careful to not over-tighten**. Using the snap ring pliers, remove the Retaining Ring ⑲.

2. Remove the Spider ⑳ from the Outlet Housing.

3. Place the Inlet Housing ① in the bench vise, as shown. **Do not over-tighten.** Using the 3/16" Allen wrench, loosen the Socket Head Set Screw ⑤ on the side of the Hose Adapter Housing ⑧ **four complete turns, but do not remove it so it will not get lost.**

4. Using an 18" Pipe Wrench, remove the Hose Adapter Housing ⑧ from the Inlet Housing ① and remove over the entire length of the Cable ⑯.

5. Using a 3/32" Allen wrench, remove the #10-32 Socket Head Set Screw ⑪ **completely** from the Spring Carrier ⑫. See the assembly drawing for Set Screw location. **NOTE: Newer units may not have this Set Screw.**

6. **NOTE: Before cutting the Safety Tie Wire ㉙, take note of how it is installed around one of the three spokes of the Poppet Carrier ②, and is twisted and installed into the drilled cross-hole in the Spring Carrier ⑫. The Safety Tie Wire is twisted, then wrapped around the Spring Carrier such that if the Spring Carrier tried to unscrew from the Poppet Carrier (in a counter-clockwise manner) that the Safety Wire would become taut and would resist this rotation.**
CAUTION: During re-assembly, the new Safety Wire provided must be installed in the same manner.
Remove the Safety Tie Wire with wire cutters.

7. Wedge a large blade type screwdriver between one of the spokes and round protrusion on the Poppet Carrier ②. The screwdriver blade will reach below the protrusion, actually touching the coils of the Poppet Spring ③, while the screwdriver shaft will bear against the side of the spoke. The screwdriver will act as an opposable force for the adjustable wrench, in step 8.

8. Using the 12" adjustable wrench, turn the Spring Carrier ⑫ counter-clockwise while opposing this rotation with the screwdriver.

9. Remove the Spring Carrier ⑫ and the Trigger Spring ⑬ completely, over the entire length of the cable.

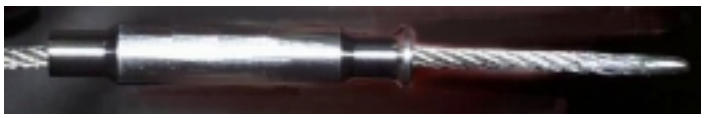
10. Using the large blade screwdriver, press the Poppet Carrier downward and pull the Cable upward, removing the Cable and the Trigger ⑩.

11. Remove the Trigger from the old Cable.
NOTE: If the ball on the end of the Cable is stuck to the tapered bore of the Trigger, use a pair of pliers to hold the Ball end of the Cable and remove the Trigger.

Re-assembly of the PR4

Refer to the PR4 assembly drawing and parts list at the back of this manual for item numbers.

1. Uncoil the 25’ Cable ⑯ received with the Cable Kit and insert the small end into the Trigger ⑩. Slide the Trigger the full length of the Cable until the Ball on the end of the Cable rests against the tapered bore of the Trigger.

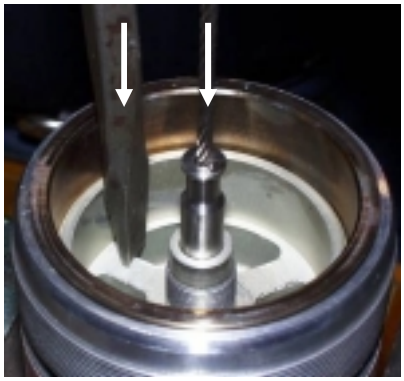


2. Insert a small blade screwdriver into the bore of the Poppet Carrier ② and move the three Trigger Pins ④ outward to make a clear passage through the bore of the Poppet Carrier for the Trigger.

Use a small blade screwdriver to clear the Trigger Pins from the Trigger passage.

3. Install the Trigger ⑩ into the bore of the Poppet Carrier. To complete the installation of the Trigger, it will be necessary to depress the Poppet Carrier ③ using a large blade screwdriver on one of the spokes. While the Poppet Carrier is depressed, insert the Trigger into the bore of the Poppet Carrier and push downward. Remove the screwdriver and allow the Poppet Carrier to move upward to its original position.

Depress the Poppet Carrier, insert the Trigger and push all the way down, then release the Poppet Carrier.

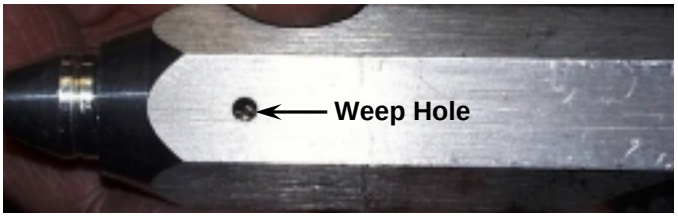


To ensure that the Trigger is installed properly, pull upward on the Cable ⑯. The Cable cannot be removed, indicating the Trigger is installed properly.

4. Apply nickel anti-seize to the 5/8”-24 thread of the Poppet Carrier.

Apply nickel anti-seize

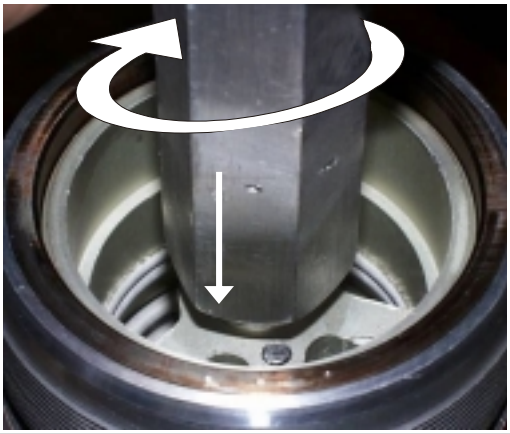
5. Install the Trigger Spring ⑬ onto the end of the Cable followed by the Spring Carrier (threaded end first). The Cable will exit the Spring Carrier at the cone end, through the .140” diameter hole. **NOTE: For ease of installation, look through the weep hole in the Spring Carrier to locate the Cable in the center of the bore.**



Threaded end of Spring Carrier **Trigger Spring**

6. Slide the Trigger Spring and the Spring Carrier over the full length of the Cable. Slip the Trigger Spring into the Poppet Carrier and the Spring Carrier over the Spring.

7. While pressing downward, thread Spring Carrier onto the Poppet Carrier.



8. To tighten the Spring Carrier, it will be necessary to place large blade type screwdriver between one of the spokes and round protrusion on the Poppet Carrier again to provide an opposing force when tightening the Spring Carrier to approximately 20 ft.-lbs.

9. Using a 3/32" Allen wrench, re-install the 10-32 Socket Head Set Screw ⑪ in the Spring Carrier ⑫. (See drawing.) **NOTE:** Newer units may not have this Set Screw.

10. Install the Safety Tie Wire ㉙ as follows:
NOTE: Although there are special wire-twisting pliers available to complete the tie wiring operation, a satisfactory job can be done by hand with standard pliers.

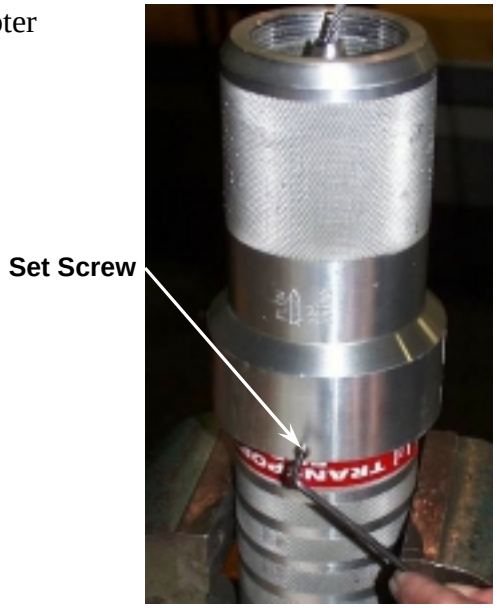
Refer to the photo in step 10.

a) Loop the wire around the spoke of the Poppet Carrier that is directly in front of or just to the right of the .046" diameter cross hole in the Spring Carrier.
b) Pull the wire ends together so that they are the same length.
c) Using standard pliers, twist the wire leaving approximately 2" of untwisted ends remaining.
d) Wrap the twisted wire around the Spring Carrier in a **counter clock-wise** direction until the untwisted ends are at the same height as the .046" diameter cross hole.
e) Feed one of the wire ends through the cross hole and pull the twisted wire tight against the Spring Carrier,
f) Bring the two wire ends together and make one twist by hand.
g) Finish the wire twisting using the standard pliers, as before.
h) Cut the twisted wire, leaving approximately 5/16" of twisted length which **must be bent downward against the Spring Carrier.**

This tie wiring operation MUST be done properly to prevent the Spring Carrier from loosening (turning counter clock-wise) during operation.

11. Install the Hose Adapter Housing ⑧ over the entire length of the Cable and tighten it onto the male thread of the Inlet Housing ①.

12. Retighten the Set Screw ⑤ on the large flange end of the Hose Adapter Housing ⑧.



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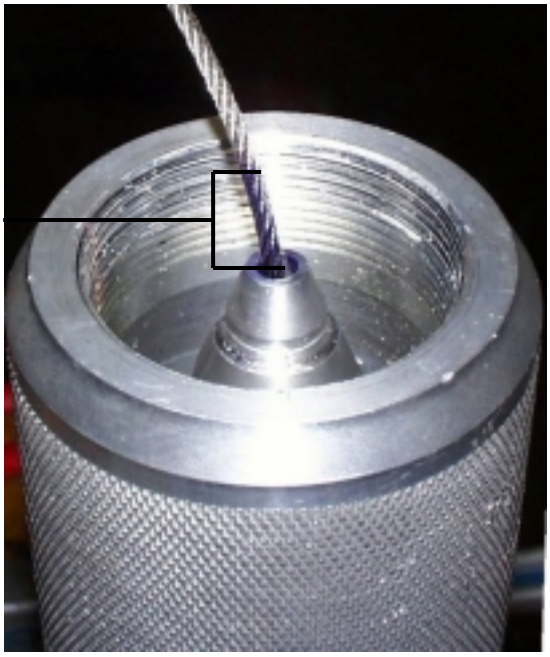
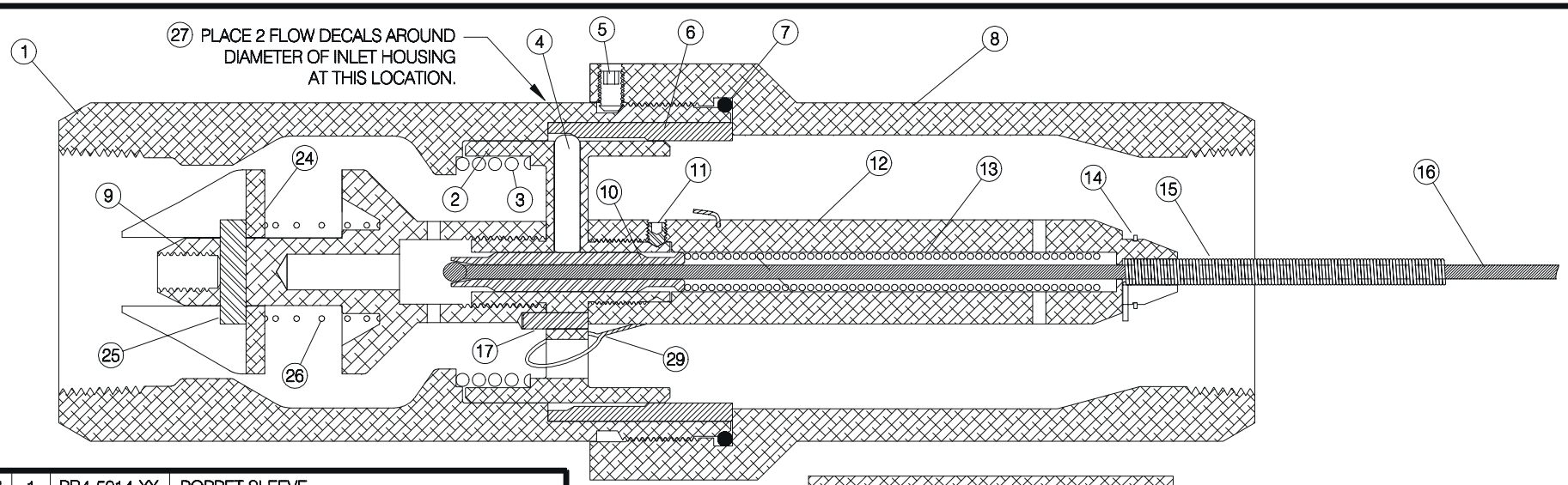
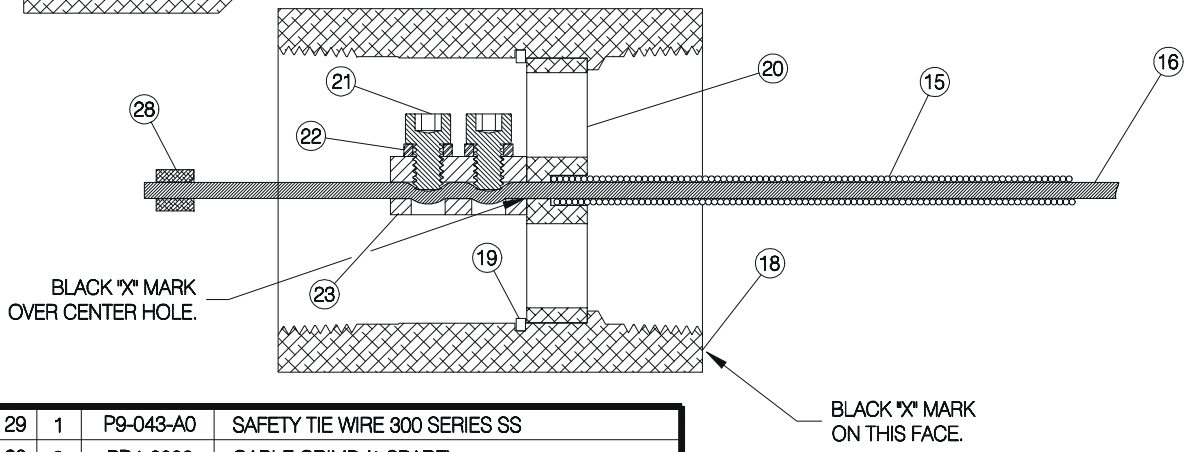
13. The final step is to place the Trigger ⑩ in the proper position before installing the PR4 onto the hose. Take note of the location of the **Blue Mark** on the Cable ⑯. **After the PR4 has been re-assembled the Blue Mark will be right at the very end of the Spring Carrier ⑫.**



This is the "**tripped cut"** position. The proper location for the **Blue Mark** is approximately 2" above the end of the Spring Carrier. This is the **"tripped pull"** position. The Trigger must be in the **"tripped pull"** position prior to installation to the hose. **To accomplish this, please refer to the pictures and descriptions listed in Steps 2 thru 6, in Section B of the I.O.M. Manual number FVC054.**

The Cable and Sheath replacement has been accomplished. To assemble the PR4 to any new hose, please follow the instructions beginning on page 1 of FVC054.





NO.	QTY.	PART NUMBER	DESCRIPTION
24	1	PR4-5014-XX	POPPET SLEEVE
23	1	PR4-5009-XX	CABLE CLAMP
22	2	PR4-5013-XX	WASHER
21	2	P6-296-AO	1/4-NC20 X 3/8 (SS) SOC. HD. CAP SCREW
20	1	PR4-5011-XX	SPIDER
19	1	P6-311-AO	N500-218 (SS) WALDES TRUARC RETAINING RING
18	1	PR4-5003-XX	OUTLET HOUSING
17	1	P4-093-A0	5/32ø X 5/8 LG. (SS) DOWEL PIN
16	1	PR4-5012-XX	CABLE
15	1	P6-308-90	SHEATH
14	2	P4-004-A0	WS-62-502 (SS) SPIROL RING (1 SPARE)
13	1	P1-159-F1	TRIGGER SPRING
12	1	PR4-5006-XX	SPRING CARRIER
11	1	GA-C60-528-AO	#10-32 X 3/16 (SS) SOC. SET SCREW
10	1	PR4-5007-XX	TRIGGER
9	1	PR4-5004-XX	POPPET
8	1	PR4-5001-XX	HOSE ADAPTOR HOUSING
7	1	P5-193-RO	2-235 PARKER N674-70 O-RING
6	1	PR4-5010-XX	TRIGGER SLEEVE
5	1	P6-279-AO	1/4"-20NC X 3/8 (SS) SOC. SET SCREW
4	3	PR4-5008-XX	TRIGGER PIN
3	1	P1-160-90	POPPET SPRING
2	1	PR4-5005-XX	POPPET CARRIER
1	1	PR4-5002-XX	INLET HOUSING
NO.	QTY.	PART NUMBER	DESCRIPTION

NO.	QTY.	PART NUMBER	DESCRIPTION
29	1	P9-043-A0	SAFETY TIE WIRE 300 SERIES SS
28	2	PR4-2002	CABLE CRIMP (1 SPARE)
27	2	PR4-2001	FLOW DECAL (NOT SHOWN)
26	1	P1-163-90	POPPET SLEEVE SPRING △3
25	1	P4-083-C0	.250 ø X 1.00 LONG 300 SERIES ROLL PIN
NO.	QTY.	PART NUMBER	DESCRIPTION