

**-IMPORTANT-
MAINTENANCE INFORMATION**

Serial No. _____

Model No. _____

Assembly No. _____

Stroke _____

Cut Cable _____

To repair this pneU-SA cylinder order:

Repair Kit No. _____

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INSTALLATION TIPS!

1. Adjustable cushions have been pre-set to factory standards. However, your application may require further adjustment after load is attached.

2. When attaching load to pneU-SA carrier #5 be careful not to exceed .312" thread engagement. Further engagement could result in cylinder binding and damage to dust band seal #34.

3. Lubrication of bearing grooves on extrusion is not recommended.

4. If the pneU-SA is attached to an externally guided load be sure that the cylinder is in perfect alignment with the load. If load and cylinder are not parallel binding will occur resulting in severe damage. Suggestion: Order Pivotal Mount Bracket option, p/n 1891-1071. See catalog.

5. pneU-SA cylinder is rated up to 100 psi service.

DISASSEMBLY INSTRUCTIONS

1. Move Carrier #5 to one end. Remove Items #27, 28, 29 & 30.

2. Slide Carrier #5 towards opposite end while lifting the cable Assembly #16 out of the sheave groove. Repeat for 2nd cable assembly.

3. Remove the Tensioner Piston/Sheave Assembly from the tube on Head Assembly #25. Remove spring #15. Also remove items #10 thru #14 and #32.

4. Slide Carrier #5 in the opposite direction which will lift the cable assemblies from the sheave grooves. Remove the other tensioner piston/sheave assembly and spring.

5. Remove Items #1, 2 & 9 from Carrier #5. Slide carrier to one side to expose the carrier connector #33.

6. Loosen set screws #20.

7. Remove the dust band #34 from its groove.

8. Remove SHCS #26 from the end closest to the carrier connector. Move Head Assembly #25 back to allow cable assembly terminal ends and jam nuts #17 to be exposed. Loosen jam nuts and disconnect cable assemblies.

9. Remove SHCS #26 from the other Head Assembly. Slide carrier connector to that end and remove cable assemblies.

10. Disconnect cable assemblies #16 from piston #18 at this end. Push or pull piston to opposite end and remove piston from bore and disconnect cable assemblies.

11. To remove cable assemblies from head #25, remove the cable from the upper holes and pull cable until the longer terminal is seated against seal assembly. Lightly tap the end of the terminal with a drift pin to unseat the seal from its groove. Repeat for other three cable assemblies.

12. Clean all parts. Replace any worn items. Re-lubricate all moving or rotating parts with STP and re-assemble following the assembly instructions. *EXCEPTIONS: Bearings #4 and Sheave Grooves #11 normally are not lubricated. These parts have self-lubricating properties.*

13. Refer to pneU-SA Step-by-Step Assembly Instructions.

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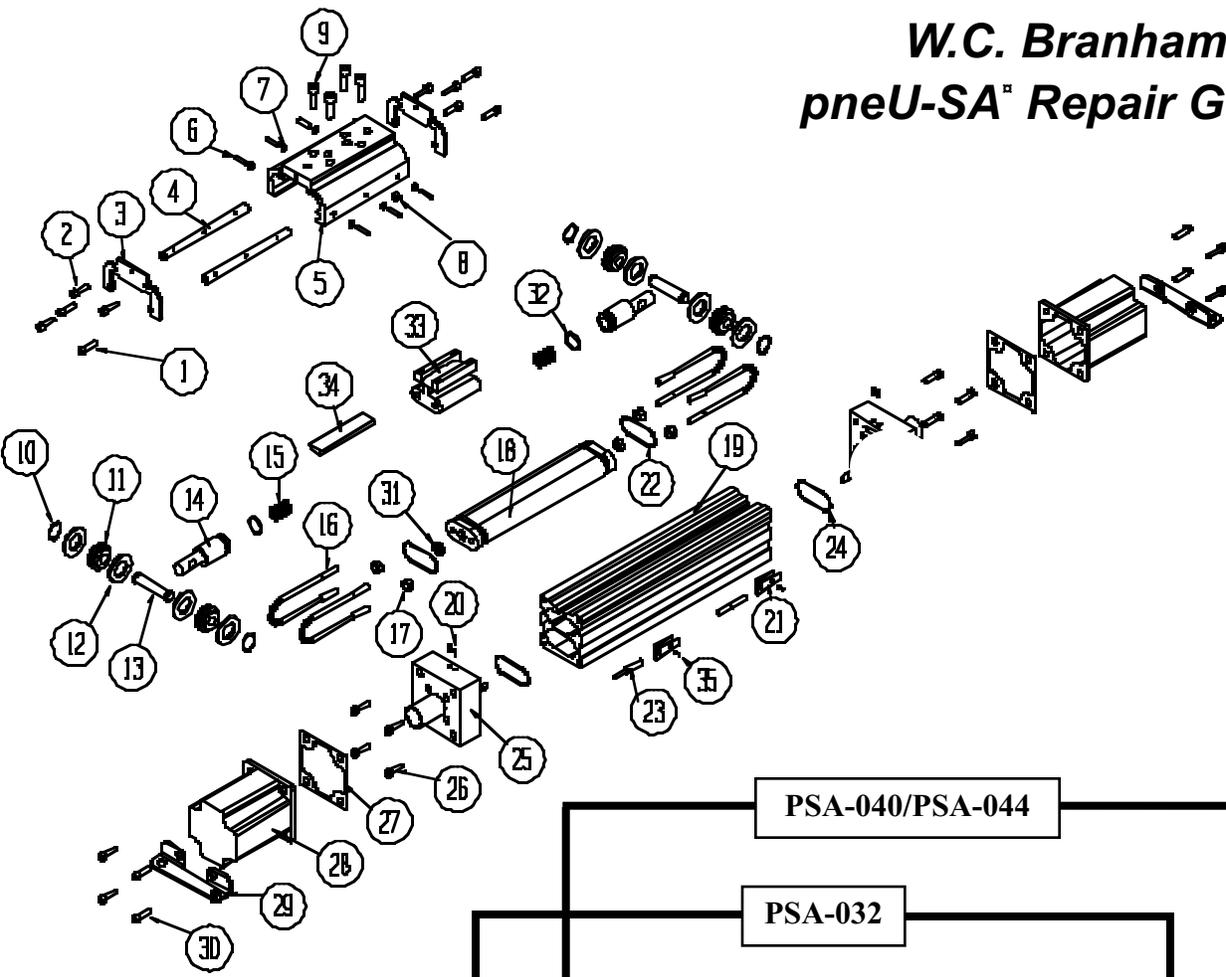
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ASSEMBLY INSTRUCTIONS

1. Assemble cone point set screws #6 into carrier #5. Back set screws out until cone points are flush with bearing groove surface. Hold bearing #4 in carrier bearing grooves. *If bearings are not new, line up dimples on bearings with the cone point set screws.*
2. Slip carrier and bearings onto extrusion #19. Bearings should be flush with ends of carrier. Hand tighten the set screws #6. If bearings are new, tighten the set screws opposite one another in order to put a cone point dimple into bearings. Back off the set screws enough to allow carrier to move on extrusion. Pull carrier to one end. Check gap between carrier and extrusion. Adjust the two set screws at this end to have as close as an equal gap between the carrier and extrusion as possible. Finger tighten set screws only.
3. Repeat procedure above at the opposite end. Finger tighten the center set screws. The carrier should move smoothly on the extrusion with a slight drag. *The drag can be increased by putting more torque on the set screws if desired.*
4. Install hex jam nuts #7 on set screws and tighten. Check to be sure carrier moves smoothly on extrusion.
5. Install cushion seals #31 into piston center face grooves. *The conical shape of the seal should be outboard.* Install piston O-rings #22 on to the piston.
6. Install sheave pin #13 into tensioner piston #14 and center. *This will be a light press or line to line fit.* Lube Items #11, 12 & 13. Install #12 on to sheave pin, then #11 sheave then another #12 and secure with retaining ring #10.
7. Repeat for opposite side.
8. Install O-ring #32 on tensioner piston #14. *Two such sheave/tensioner sub-assemblies are required.*
9. Install cable assembly #16 into head assembly #25. *4 required.* Thread the end of the cable assembly with the longest terminal through the head assembly on the cushion snout side until the seal is centered on the seal groove. Lube seal groove and seal. Manually press the shorter terminal against the seal, thus seating it into the seal groove. When the seal is pressed into its groove fully, the seal will lock into place. Follow the same procedure for the remaining three cable assemblies.
10. Prelube the lower bore of Extrusion #19 with light coating of STP.
11. Install o-rings #24 into face grooves of head assembly #25.
12. Attach the two cable assemblies using the shorter terminals to one end of piston #18.
13. Lubricate piston #18 and apply a light coating of lubricant to the cable assembly nylon jacket. Use STP.
14. Ease the piston into the bore of the extrusion. Using a non metallic rod, move the piston to the opposite end. *Flush and/or protruding slightly.*
15. Connect the cables from the other head assembly to the piston.
16. Loop each cable through the set of holes directly above so the longer terminal screw is now on the cushion snout side of the head assembly.
17. Attach jam nut #17 to each long terminal screw at the head nearest the piston.
18. Attach the long terminals to carrier connector #33.
19. Thread the terminals into the connector until there is only 5/16 inch of terminal outside the jam nut #17.
20. Set the jam nut firmly against the connector face. *Recheck to be sure there is only 5/16 inch of terminal protruding from the face of the jam nut.*
21. Install Dust Band Inserter #3 into extrusion bearing grooves and slip up on the extrusion behind the carrier connector #33.
22. Attach head assembly #25 with 8-32 x 3/4 SHCS #26 to the extrusion.
23. Slide the carrier connector #33 to the opposite end of the extrusion.
24. Repeat steps 16-20 for the cables on the other end.

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ITEM#	PART NO.	DESCRIPTION	QTY	QTY	ITEM#	PART NO.	DESCRIPTION	QTY	QTY	
1	1891-1282	Screw, filister Hd. 10-24x3/8	4	4	21	1890-4028	Bracket Switch	A/R	A/R	
2	4000-1172	Screw, RD. Hd. 10-24x3/8	6	-	22	1891-1051	O-Ring, Piston	2	-	
	1891-1158	PHS 10-32 x 3/8	-	10		1891-1137	O-Ring, Piston	-	2	
3	1891-1019	Insertor, Dust Band	2	-	23	1891-1055	Switch, Reed N.O. 6 Ft. Leads	A/R	A/R	
	1891-1073	Insertor, Dust Band	-	2		1891-1083	Switch, Reed N.C. 6 Ft. Leads	A/R	A/R	
4	1890-4000	Bearing, Carrier	2	-	24	1891-1042	O-Ring, Head/Ext.	2	-	
	1890-4046	Bearing, Carrier	-	2		1891-1165	O-Ring, Head/Ext.	-	2	
5	1890-4001	Carrier	1	-	25	1891-9074	Head Assembly, Left Hand	1	-	
	1890-4035	Carrier	-	1		1891-9066	Head Assembly, Left Hand	-	1	
6	1891-1040	Screw, Set Cone Pt. 8-32x1/2	6	8	25	1891-9009	Head Assembly, Right Hand	1	-	
7	1100-1088	Nut, Jam 8-32	6	8		1891-9035	Head Assembly, Right Hand	-	1	
8	1891-1261	Magnet, Reed Switch	A/R	A/R	26	1100-1041	SHCS 8-32x3/4	8	8	
9	1870-1028	SHCS 8-32x1/2	4	4	27	1891-1004	Gasket, Cap	2	N/A	
10	1100-1023	Ring, Retaining	4	-	28	1890-4067	Cap, Sheave	2	-	
	1891-1263	Ring, Retaining	-	4		1890-4038	Cap, Sheave	-	2	
11	1890-4014	Sheave	4	-	29	1891-1003	Bracket, Foot Mount	2	-	
	1891-9029	Sheave	-	4		1891-1078	Bracket, Foot Mount	-	2	
12	1100-1090	Washer	4	-	30	1891-1164	SHCS 5/16-24x1/2	8	-	
	1100-1010	Washer	-	4		1891-1018	SHCS 5/16-24 x 5/8	-	8	
13	1891-1006	Shaft, Sheave	2	-	31	1891-1012	Seal, Cushion	2	-	
	1891-4-1013	Shaft, Sheave	-	2		1891-1087	Seal, Cushion	-	2	
14	1890-4017	Piston, Tensioner	2	-	32	1150-1007	O-Ring, Tensioner Piston	2	-	
	1890-4008	Piston, Tensioner	-	2		1891-1015	O-Ring, Tensioner Piston	-	2	
15	1891-1041	Spring	2	-	33	1890-4002	Connector, Carrier	1	-	
	1891-1089	Spring	-	2		1890-4034	Connector, Carrier	-	1	
16	1891-9064	Cable Assy. - Specify Stroke	4	-	34	1891-9014	Band, Dust - Specify Stroke	1	-	
	1891-9037	Cable Assy. - Specify Stroke	-	4		1891-9039	Band, Dust - Specify Stroke	-	1	
17	1107-1002	Nut, Jam 1/4-28	4	N/A	35	1870-1063	Screw, Set 4-40x1/8	4	4	
18	1890-4081	Piston	1	-			ITEMS NOT SHOWN:			
	1890-4033	Piston	-	1			1880-1022	O-Ring, Cushion Screw	2	2
19	1891-9004	Extrusion - Specify Stroke	1	-			1892-1002	Screw, Cushion	2	2
	1891-9017	Extrusion - Specify Stroke	-	1			4000-1115	Plug, Pipe 1/8 NPT Hex	4	-
20	1891-1039	Screw, Set 6-32x 1/4	4	-			1150-1115	Plug, Pipe 1/4 NPT Hex	-	4
	1891-1167	Screw, Set 6-32 x 3/8	-	4						

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25. Install the second Dust Band Inserter #3 to this side and attach the second head assembly to the extrusion. *Note: If the cylinder has reed switches, slide reed switch brackets #21 into slot on side of extrusion prior to attaching the 2nd head assembly. Also, if the cylinder has intermediate foot mounting brackets, slide these into the extrusion grooves at this time.*

26. Move carrier #5 over connector #33 and attach with two #9 8-32 x 1/2 SHCS in opposite corners.

27. Lube the tensioner tube bores of head assemblies #25 as well as the bore and O.D. of piston #14.

28. Insert springs #15 into tensioner tubes located on head assemblies #25

29. Assemble sheave/tensioner piston sub-assemblies over #15 springs and into the tubes on head assemblies, #25.

30. Align cables #16 into sheave grooves on head assembly #25 that is opposite piston.

31. Move carrier #5 towards piston end, thus compressing tensioner spring #15 fully allowing tensioner piston #14 to bottom into tensioner tube.

32. Manually compress the other sheave/tensioner tube fully on the opposite end and at the same time guide one cable #16 into sheave grooves while moving carrier toward that end. Cable will roll into sheave groove.

33. Guide the second cable into its groove by the same procedure.

34. Move the carrier to the middle of the extrusion.

35. Remove the two #9 SHCS from the carrier.

36. Move carrier to expose carrier connector #33.

37. Lube the raceway of the connector #33 as well as the grooves and bottom of dust band #34 along its full length.

38. Thread the dust band along the raceway of #33 and underneath carrier #5 to one end. Press the dust band into the extrusion dust band groove. Move the dust band inserter #3 over the seated portion of the dust band. Lift the dust band out of the groove and insert the tip of the dust band back into the groove near the head. Push the dust band firmly into the slot on the head until it bottoms. Press the dust band into the groove moving the inserter #3 out of the way as you progress towards the opposite end. Move the other dust band inserter #3 over the dust band as previously described. Work the dust band into the

head groove.

Note: The dust band may have to be trimmed. Allow for 3/8 of dust band beyond connection of the head and extrusion.

39. Insert two set screws #20 (flush) into each head to secure dust band.

40. Center carrier #5 over carrier connector #33 and attach with four #9 SHCS. Move Dust Band Inserters to carrier faces.

41. Using four filister head screws #1, attach Inserters to carrier bearings #4. Blue Loc-tite[®] 242 can be used. Tighten firmly but do not over tighten. *Threads in bearing ends may extrude if over tightened.*

42. Finish Inserter installation by attaching three #2 pan head screws into each inserter.

43. Cycle test cylinder. Check for leaks, function and cushioning.

44. Install gasket #27 (PSA-032 only) or apply Loc-tite Gasket Eliminator 515 (PSA-040/044 only), Cap #28 and foot mounting bracket #29 with four #30 SHCS to each end. *Align foot brackets on a flat surface when tightening #30 screws.*

If your pneU-SA cylinder is in a production area where down time is critical, we suggest that a spare cylinder be purchased to minimize your down time. Return the original cylinder to the factory for professional repair.



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