AIRTEQ
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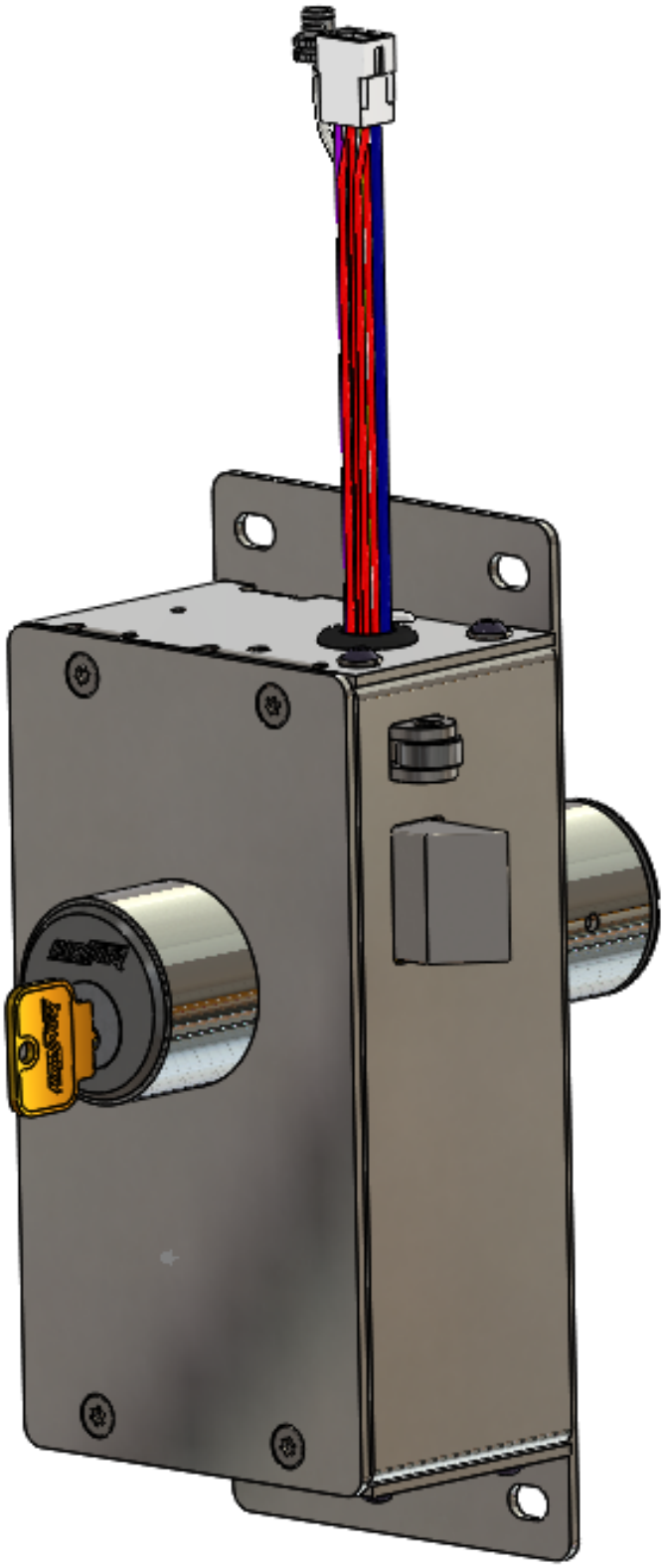
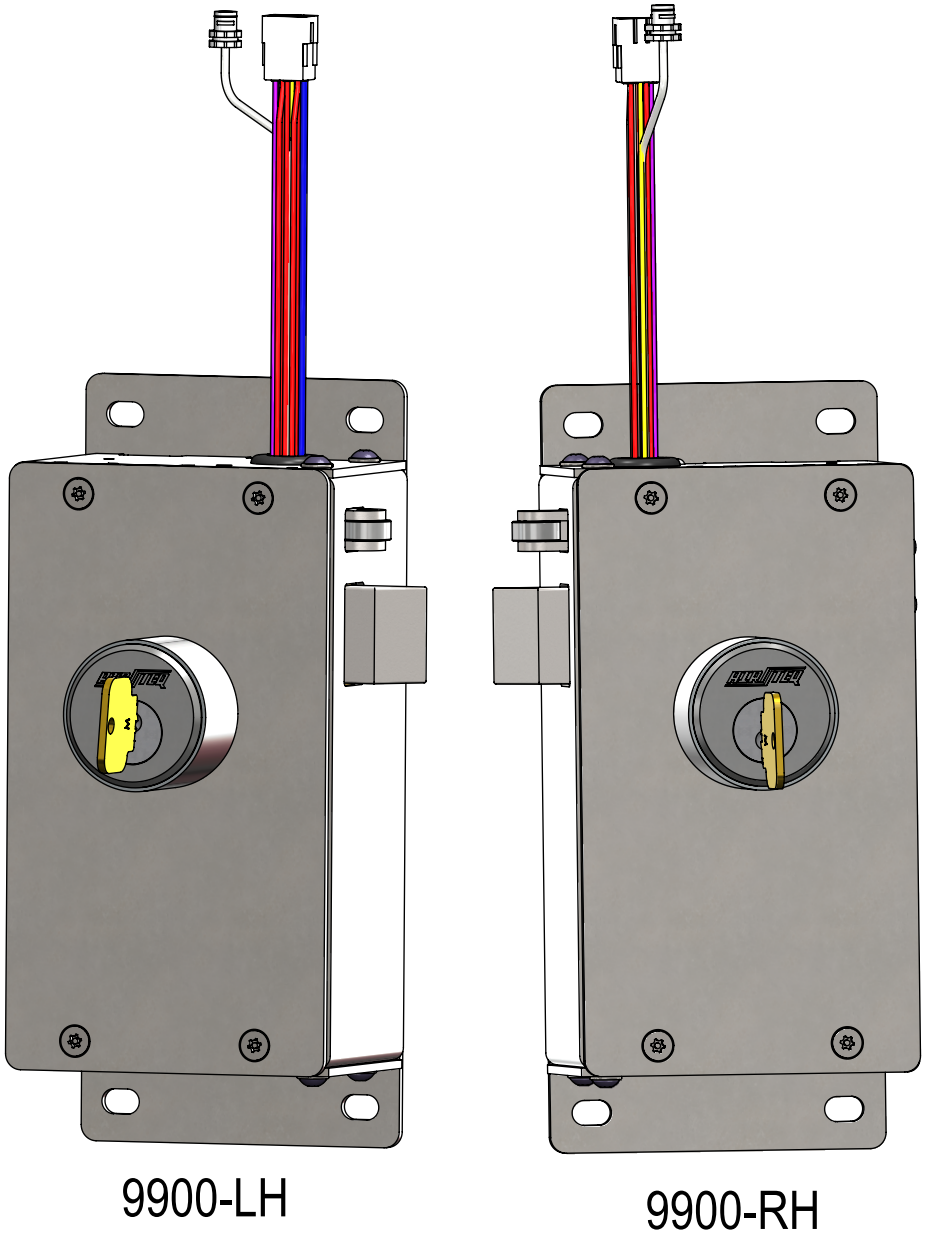
9900 SERIES LOCK

9900 5-31-19





9900-LH

9900-RH

REVISIONS				
ECN #	REV.	DESCRIPTION	DATE	APPROV.
	A	Initial Release	10/18/18	

ITEM NO.	9900-LH QTY	9900-RH QTY	PART NUMBER	DESCRIPTION
1	1	1	10002511	Shoulder Screw Ø3/8"x1 1/4", 5/16-18 Nylock
2	1	-	146-9900-107PL	Pneumatic Lock Actuator Assembly, Left Hand
3	-	1	146-9900-107PR	Pneumatic Lock Actuator Assembly, Right Hand
4	1	1	146-9900-117P	9900 Pneumatic Cylinder to Actuator Attachment Assembly
5	1	1	146-9900-122	Latchbolt Assembly
6	1	-	146-9900-124L	Left Hand Deadlatch Assembly
7	-	1	146-9900-124R	Right Hand Deadlatch Assembly
8	1	-	146-9900-126L	Deadlatch Pivot / Lock Status Switch Mount Assembly, LH
9	-	1	146-9900-126R	Deadlatch Pivot / Lock Status Switch Mount Assembly, RH
10	1	1	146-9900-272	9900 Key Switch Assembly, Keyed Two Sides
11	1	-	146-9900P-100L	9900 Pneumatic Assy. LH
12	-	1	146-9900P-100R	9900 Pneumatic Assy. RH
13	1	-	150-9900-110L	Side Housing Weldment, Left Hand Lock
14	-	1	150-9900-110R	Side Housing Weldment, Right Hand Lock
15	1	1	160-9900P-100	9900 Pneumatic Main Wiring Harness
16	2	2	216-1000-028	Mogul Cylinder, SPANNER Lock NUT
17	1	1	216-9900-100	Main Housing Back
18	1	1	216-9900-102	Back Mounting Plate Keyed Back Side
19	1	1	216-9900-105	Cover Plate
20	1	1	216-9900-255	RLB Arm
21	3	3	310-2520-001	BOLT, HEX HD, 1/4-20 X .62 LG, STL, PLATED
22	6	6	310-2520-045	Screw, BHCS, 1/4-20 X 3/8, Black Oxide
23	1	1	310-3100-000	Shoulder Screw, Ø5/16"x3/8, 1/4-20x7/16
24	8	8	311-2520-082	Screw, FH,Pin TORX, 1/4-20x1/2, Stainless Steel, UC Head
25	8	8	313-0000-003	WSHR, LOCK, SPLIT, 1/4, STL, PLTD
26	1	1	313-0000-120	Fender Washer
27	1	1	313-3100-005	5/16in D Washer McMaster 96025A167 or Eq.
28	1	1	315-9900-001	Spring, .485"OD x 2.25" Length
29	1	1	315-9900-002	Spring, .405"OD x 2.25" Length
30	1	-	315-9900-010	RLB Catch, Left Hand Torsion Spring
31	-	1	315-9900-011	RLB Catch, Right Hand Torsion Spring
32	-	1	315-9900-021	Actuator 360° Right Hand Torsion Spring
33	1	-	315-9900-022	Actuator 360° Left Hand Torsion Spring
34	5	5	340-0000-170	Anchor Mount Cable Tie Holder
35	5	5	340-0000-204	Cable Tie, 4in

	DATE	NAME
DRAWN	10/18/18	RLP
CHECKED		

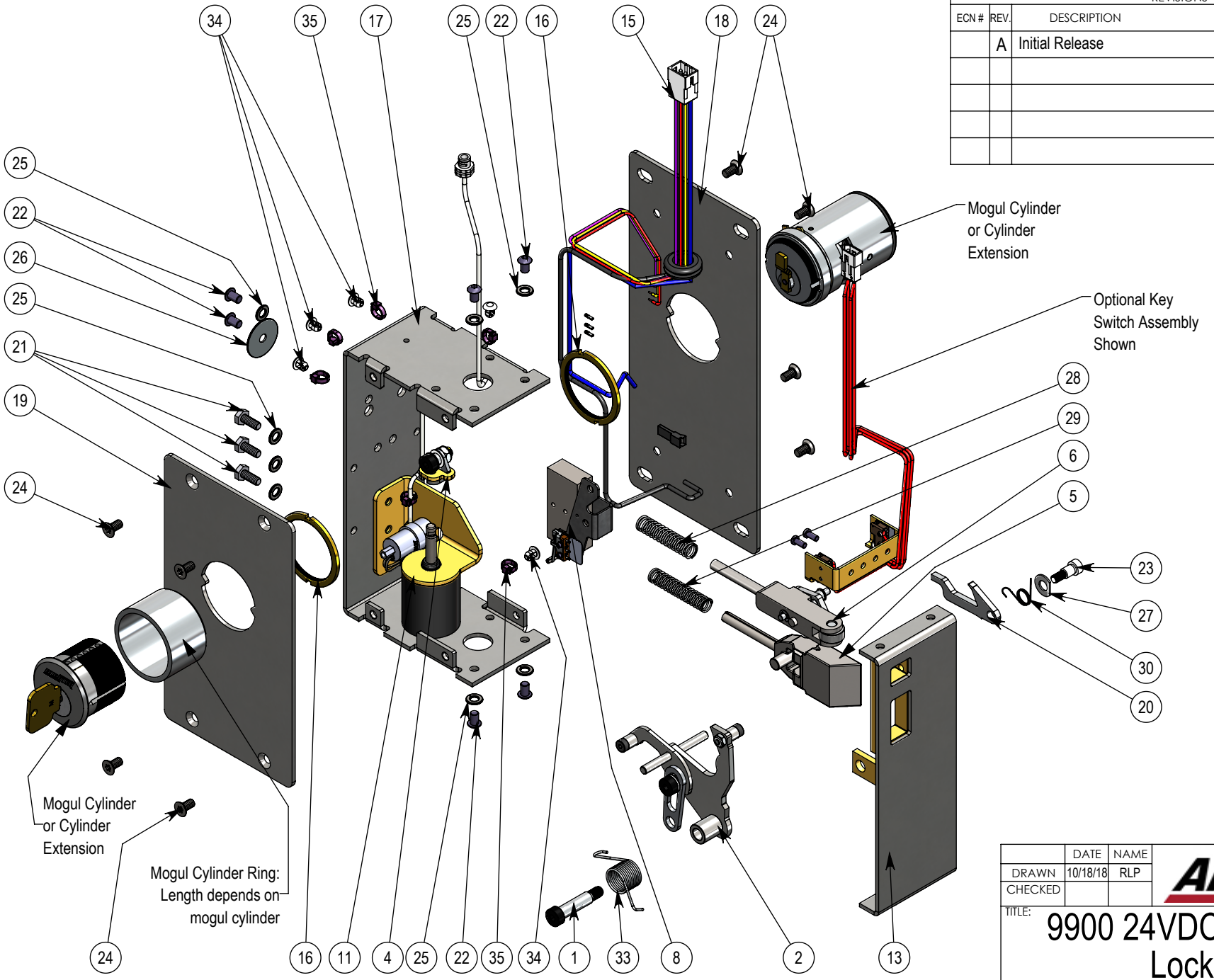
AIRTEQ

TITLE:

9900 24VDC Pneumatic Locks

FINISH:	SIZE	DWG. NO.	REV
	A	9900	A
	SCALE: 1:3		SHEET 1 OF 3

REVISIONS				
ECN #	REV.	DESCRIPTION	DATE	APPROV.
	A	Initial Release	10/18/18	

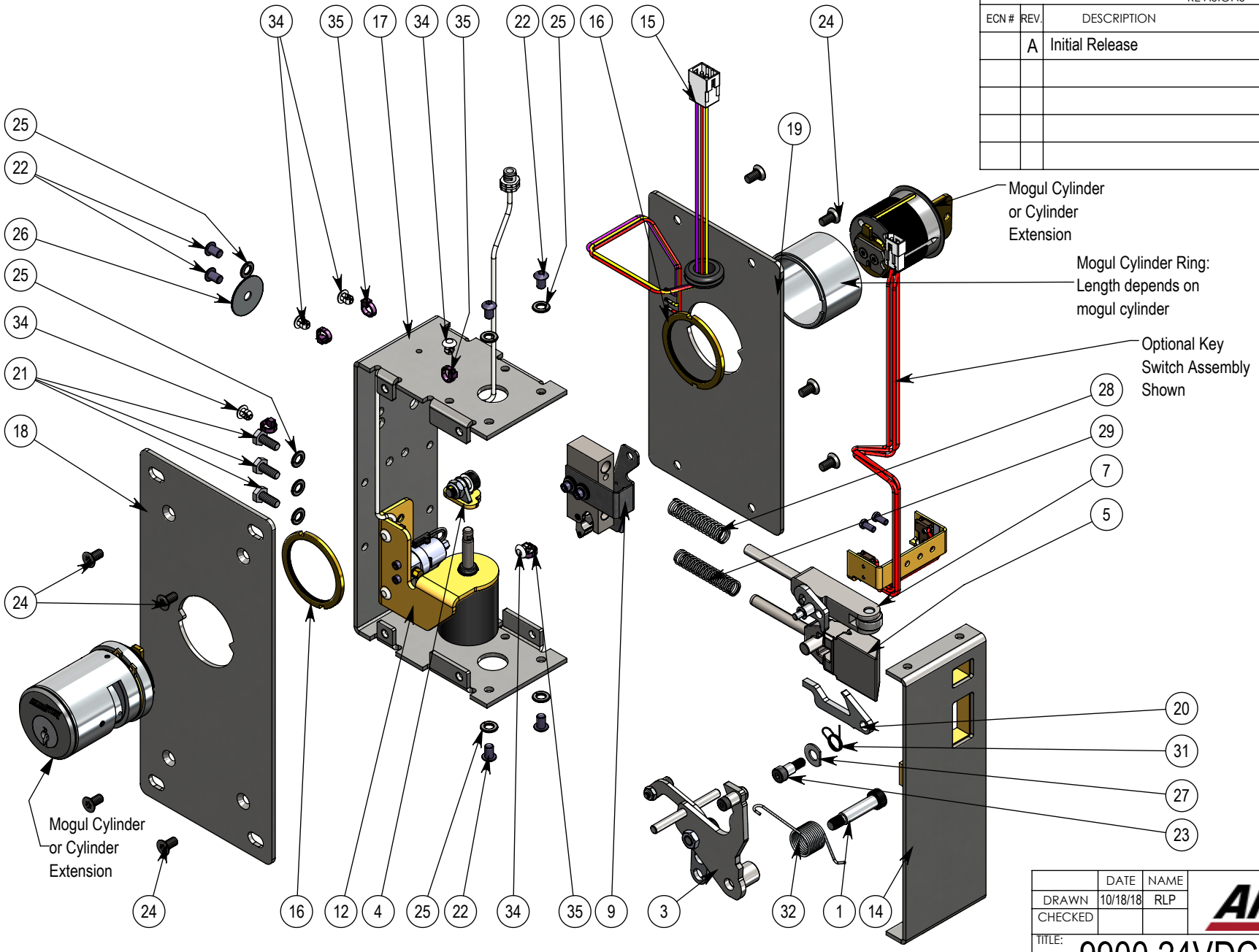


	DATE	NAME
DRAWN	10/18/18	RLP
CHECKED		

AIRTEQ

TITLE: 9900 24VDC Pneumatic Lock, LH

FINISH:	SIZE	DWG. NO.	REV
	A	9900-LH	A
	SCALE: 1:4		SHEET 2 OF 3



REVISIONS				
ECN #	REV.	DESCRIPTION	DATE	APPROV.
	A	Initial Release	10/18/18	

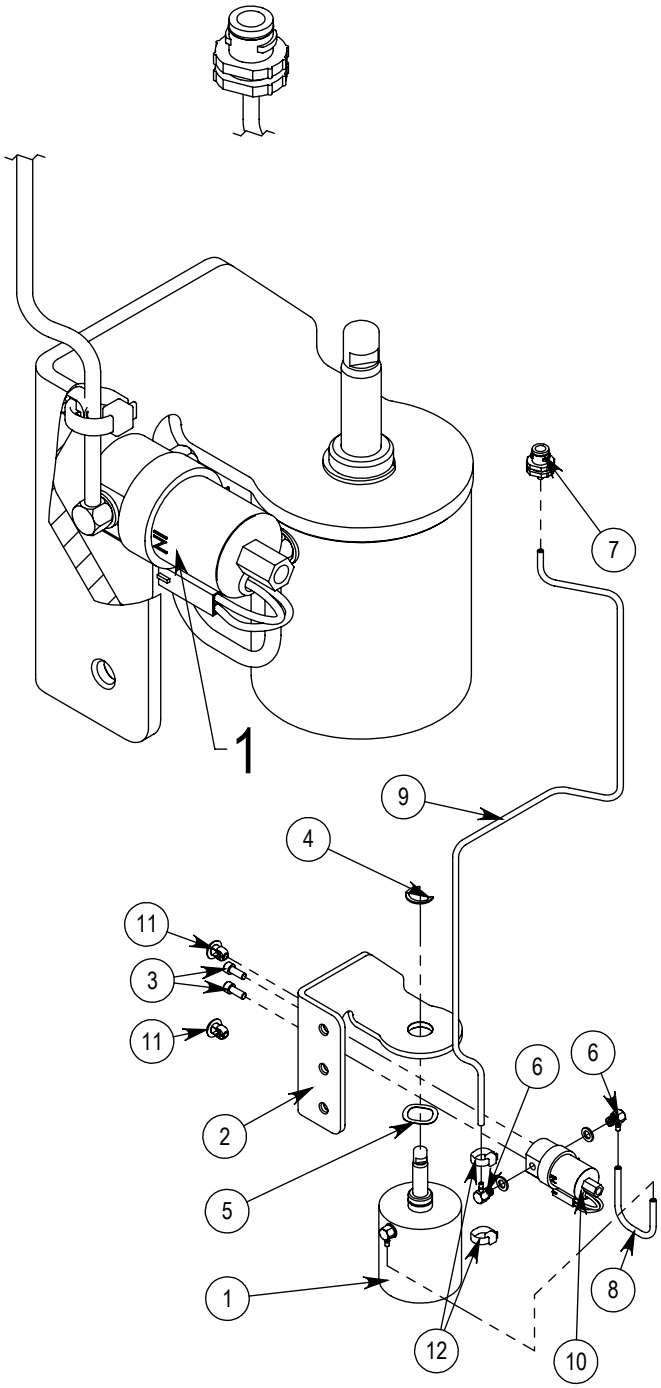
	DATE	NAME
DRAWN	10/18/18	RLP
CHECKED		

AIRTEQ

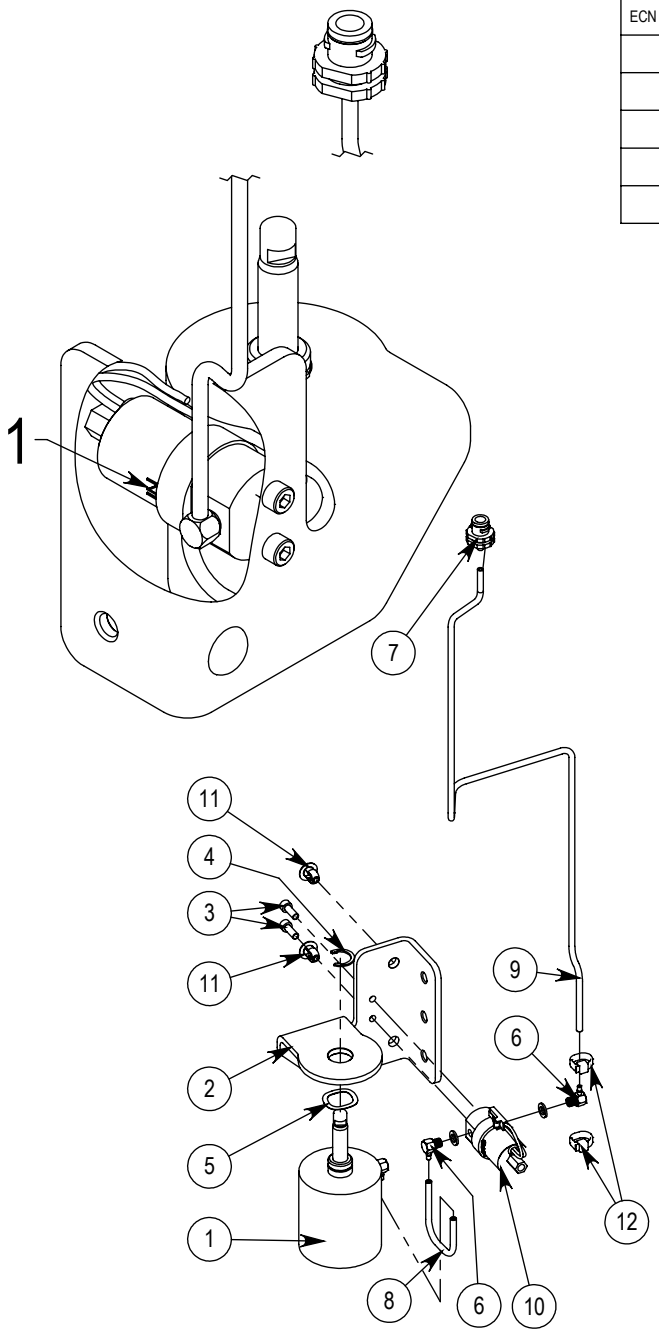
TITLE: 9900 24VDC Pnuematic Lock, RH

FINISH:	SIZE	DWG. NO.	REV
	A	9900-RH	A
	SCALE: 1:4		SHEET 3 OF 3

REVISIONS				
ECN #	REV.	DESCRIPTION	DATE	APPROV.



146-9900P-100L



146-9900P-100R

ITEM NO.	QTY	PART NUMBER	Length	DESCRIPTION
1	1	146-9900P-102		9900 Air Cylinder Assembly
2	1	216-9900-240		Air Cylinder Mounting Plate
3	2	310-0632-008		SCREW, SHCS 6-32 X 3/8 BLACK
4	1	315-0000-020		Retaining Ring
5	1	315-0000-043		Wave Spring
6	2	330-0000-133		Elbow Fitting: 10-32x1/16 Tube Barb
7	1	330-0000-414		Male Quater Turn Connector
8	1	330-1206-000	3"	TUBING
9	1	330-1206-000	20"	Tubing, 1/8ODx 1/16 ID, Polyurethane
10	1	331-0000-053		SOLENOID D SERIES
11	2	340-0000-170		Anchor Mount Cable Tie Holder
12	2	340-0000-204		Cable Tie, 4in

	DATE	NAME
DRAWN	10/12/18	RLP
CHECKED		

AIRTEQ

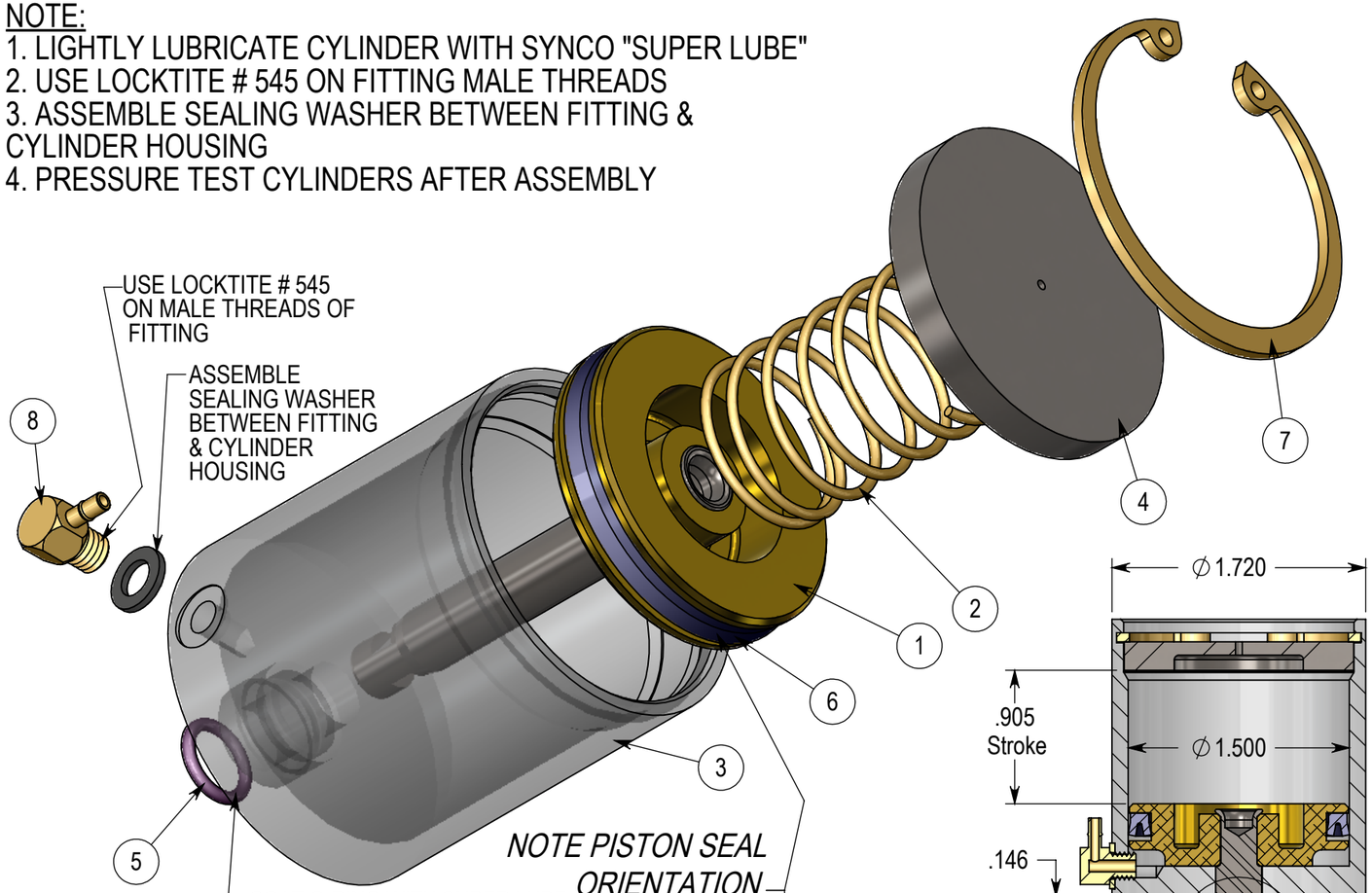
TITLE:

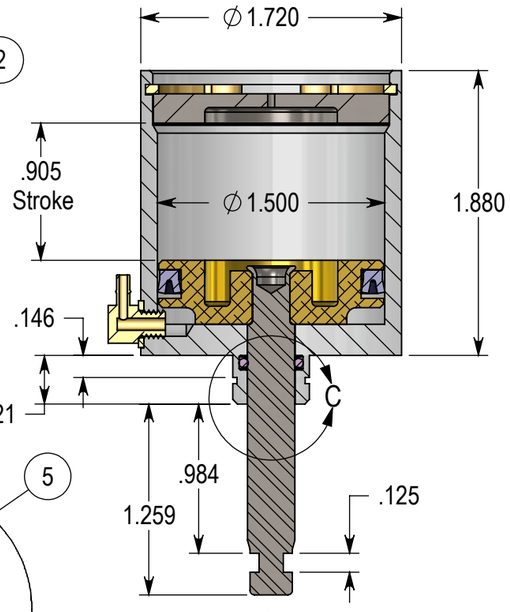
9900 Pneumatic Assy LH & RH

FINISH:	SIZE	DWG. NO.	REV
	A	146-9900P-100	
	SCALE: 1:4		SHEET 1 OF 1

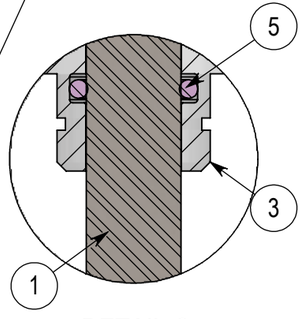
NOTE:
1. LIGHTLY LUBRICATE CYLINDER WITH SYNCO "SUPER LUBE"
2. USE LOCKTITE # 545 ON FITTING MALE THREADS
3. ASSEMBLE SEALING WASHER BETWEEN FITTING & CYLINDER HOUSING
4. PRESSURE TEST CYLINDERS AFTER ASSEMBLY

REVISIONS					
ECN #	ZONE	REV.	DESCRIPTION	DATE	APPROVED
		A	Cylinder with Longer Stroke, uses 216-9900-246 Rev B, 216-9900-247 Rev. A & 146-9900P-103 Rev. A	2/5/19	

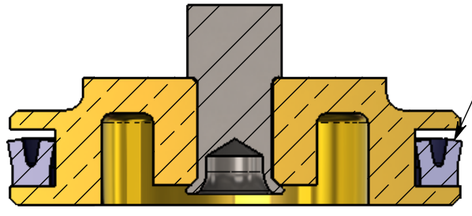




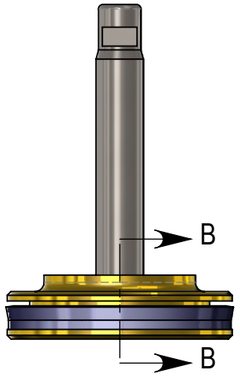
SECTION A-A
SCALE 1 : 1



DETAIL C
SCALE 2 : 1



SECTION B-B
SCALE 2 : 1



PISTON SEAL
ORIENTATION DETAIL

O-RING DETAIL

SECTION L-L

PISTON ROD
ASSEMBLY DETAIL 146-9900P-103

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION
1	1	146-9900P-103	A	ASSY, 9900 Piston & Rod
2	1	216-9700-103		ACTUATOR RETURN SPRING
3	1	216-9900-246	B	9900 Series Air Cylinder Body
4	1	216-9900-247	A	End Cap, 9900 Air Cylinder
5	1	313-0000-081		O-RING, PARKER # 2-011
6	1	313-0000-087		Seal, U-Cup, Parker #4180-8405-01187
7	1	315-0000-038		Retaining Ring, TRUARC # 5000-156
8	1	330-0000-133		Elbow Fitting: 10-32x1/16 Tube Barb

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
ANGULAR: ±1
TWO PLACE DECIMAL ±.015
THREE PLACE DECIMAL ±.005

INTERPRET GEOMETRIC TOLERANCING PER:

	DATE	NAME
DRAWN	1/31/19	RLP
CHECKED		

MATERIAL:

FINISH:

AIRTEQ

TITLE:
9900 Air Cylinder Assembly

SIZE	DWG. NO.	REV
B	146-9900P-102	A

SCALE: 1:1 | WEIGHT: | SHEET 1 OF 1

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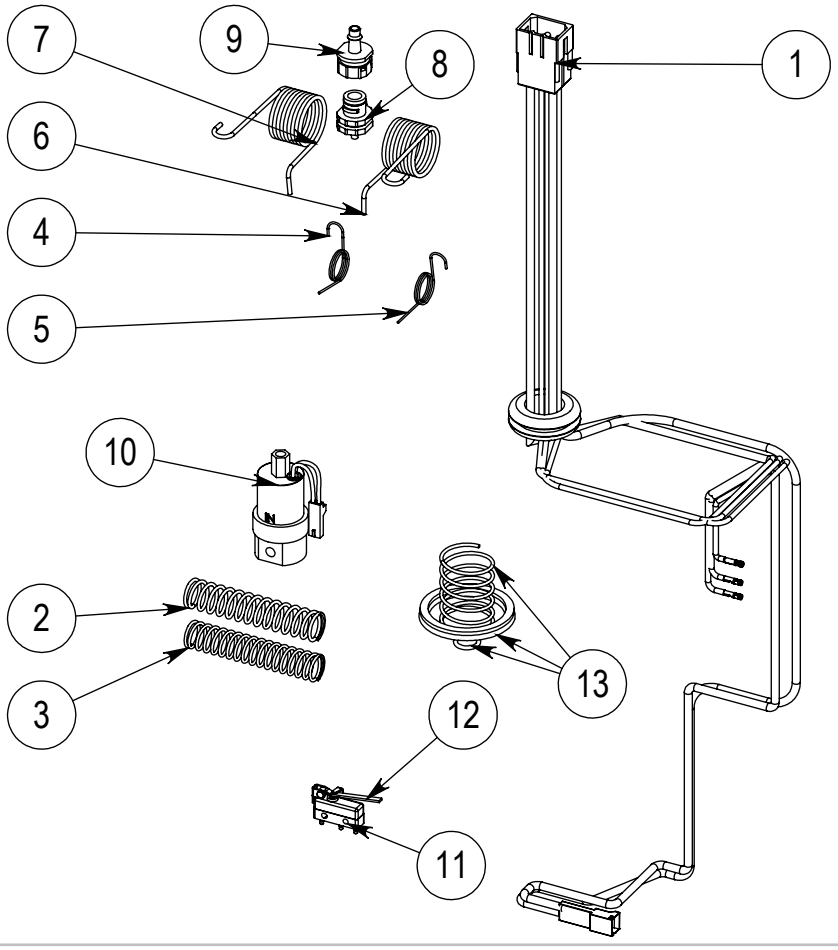
9900 SERIES LOCK

9900 6-2-19

RECOMMENDED SPARE PARTS

ITEM NO.	PART NUMBER	Description Spare Parts	QTY
1	160-9900P-100	9900 Pneumatic Main Wiring Harness	1
2	315-9900-001	Dead Latch Spring	1
3	315-9900-002	Latch Bolt Spring	1
4	315-9900-010	RLB Spring, LH Lock	1
5	315-9900-011	RLB Spring, RH Lock	1
6	315-9900-021	Actuator Spring, RH Lock	1
7	315-9900-022	Actuator Spring, LH Lock	1
8	330-0000-414	Coupling Half (Lock Side)	1
9	330-0000-415	Coupling Half (Lock Side)	1
10	331-0000-053	Solenoid, D Series	1
11	340-0000-082	Lock Status Switch Body	1
12	340-0000-083	Bolt On Switch Actuator for 11SM1 Switches, JS-220	1
13	400-9900-000	Repair Kit, 9900 Air cylinder (Includes spring, o-ring, piston seal and lube)	1

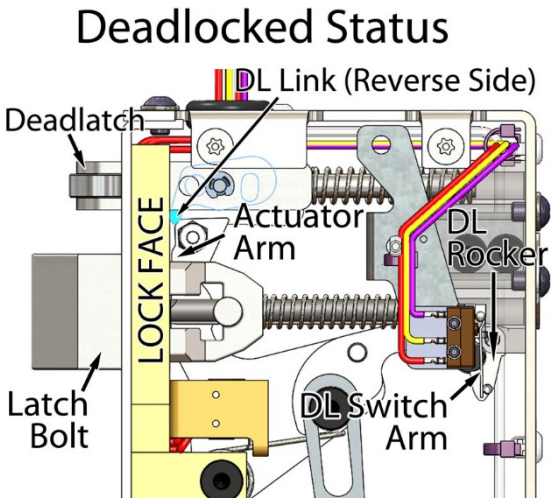


9900P Pneumatic LOCK MAINTENANCE INFORMATION

A. Lubrication and Cleaning

1. Each lock is well lubricated at the time of assembly. However, all lubricants deteriorate eventually and need replacing on a regularly scheduled basis to prevent equipment failure. Airteq Systems recommends cleaning and lubricating each type of lock according to the following instructions approximately every (2) years. (Yearly for locks in high use areas, every 3 to 6 months for exterior locations).
2. General Lubrication:
   i. Remove lock cover plate and back plate.
   ii. Wipe contaminated/dirty surfaces and remove all foreign material
   iii. Lubricate the following areas with Super Lube grease or equivalent (Synthetic lubricant with PTFE aka Teflon):
      - Latch bolt and dead-latch surfaces where they exit the lock body and at the back 'shafts' where they enter the guide base.
      - Actuator Pivot and Arm where Actuator contacts latch bolt pin
      - Dead latch lever where it contacts lock body front and top of actuator
      - RLB arm surface where it contacts the actuator roller
      - Actuator roller sleeves
      - Any other metal on metal sliding surfaces
      - Latch bolt beveled surface and strike may be lubricated with stick lubricant as required. Use PANEF WHITE STICK LUBRICANT WITH SILICONE or equivalent.
3. WARNING
   i. Never use WD40 or similar silicone-based products <u>as a lubricant</u>
   ii. Never use graphite powder

B. Mechanical

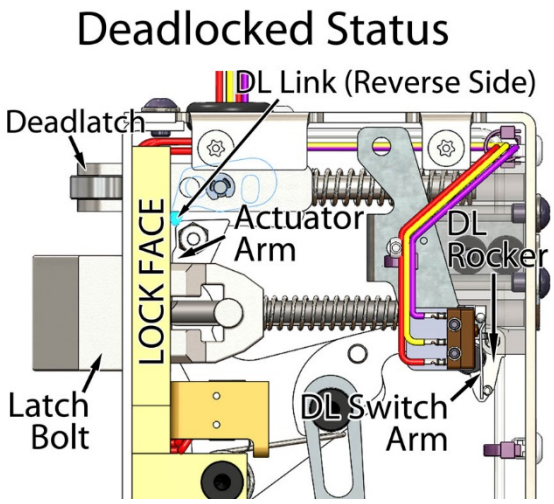


1. Check Deadlock Function
   i. Press Deadlatch into lock face until DL Link clears Actuator Arm
   ii. Verify Actuator Arm rotates and Contacts lock face
   iii. Verify DL Rocker rotates up completely (blocking latch bolt pin)
   iv. Verify Latchbolt is physically prevented from being pushed into the lock by the DL Rocker (i.e. <u>Lock is Deadlocked</u>).
   v. If lock does NOT mechanically Deadlock, troubleshoot and correct before returning lock into service.
2. Check Not Deadlock Function
   i. Release Deadlatch
   ii. Verify DL Link pushes Actuator Arm away from Lock Face
   iii. Verify DL Rocker rotates down (completely clearing Latchbolt pin)
   iv. Verify Latch Bolt can freely be pushed into the lock face (i.e. <u>Lock is NOT Deadlocked</u>)
   v. If lock does NOT come out of mechanical deadlock when the deadlatch is released, troubleshoot and correct before returning lock into service.

3. Air Cylinder Position
    i. Verify when air cylinder activates that latch bolt pulls back completely
        a. Adjust air cylinder position down if latch bolt doesn't pull back far enough
    ii. Verify when air cylinder returns to locked position that the latch bolt is completely out, and the actuator can rotate into the deadlock position
        a. Adjust air cylinder position up if actuator is restrained from rotating into the deadlock position

C. Electrical

1. The electrical actuation system of this lock is designed for a regulated 24VDC(±2V) power supply. Any other voltage and/or 24VDC power supply that does not maintain 24VDC with the range specified is not acceptable.
2. Deadlock status switch function must be checked during regular lock maintenance/ lubrication.
    i. VERIFY CORRECT MECHANICAL DEADLOCKING OPERATION FIRST (Steps B.1 and B.2 above)
    ii. With lock deadlocked, the DL switch arm should activate the switch:
        a. Via multi-meter, there SHOULD be continuity between switch COM & NO terminals
        b. Via multi-meter, there SHOULD NOT be continuity between switch COM & NC terminals



    iii. With lock NOT deadlocked, the DL switch arm should NOT be activating the switch.
        a. Via multi-meter, there SHOULD be continuity between switch COM & NC terminals
        b. Via multi-meter, there SHOULD NOT be continuity between switch COM & NO terminals
    iv. If the switch arm is not correctly positioned to actuate the switch during mechanical deadlock, and to release the switch when NOT mechanically deadlocked, adjust/slightly bend the switch arm.
    v. If the switch does not switch and/or release correctly even with proper switch arm adjustment, replace the switch
    vi. NOTE: THE SWITCH MUST REGISTER NOT DEADLOCKED (Step C.2.iii) IN ANY CASE WHERE THE LOCK IS NOT MECHANICALLY DEADLOCKED. If the lock installation/door position/door gap does not press the deadlatch sufficiently to activate the lock's mechanical deadlocking function, correct the mechanical position of the door/lock until complete mechanical deadlocking is accomplished. DO NOT ADJUST THE DEADLOCK STATUS SWITCH TO INDICATE A DEADLOCK CONDITION WHEN THE LOCK IS NOT MECHANICALLY DEADLOCKED.

TROUBLESHOOTING

If the lock is not working properly, the following chart may be used as a guide to locate and correct the problem.

Because the lock receives its power from the electronic control systems, a thorough check of the control system should be conducted. Using a volt/ohm meter know to be accurate, verify the correct power inputs at the appropriate connector pin(s). If the proper electronic signal is not evident, begin checking "up-stream" from the connector. If the electronic signal input is correct, the problem is within the locking device, use the following chart to locate and correct the problem.

The recommended voltage at the lock is 24VDC(±2V). If the correct voltage is not evident, begin checking "upstream" from the lock. If the voltage is correct, the problem is within the locking device. Use the following chart to locate and correct the problem.

PROBLEM	CHECK
LATCHBOLT WILL NOT RETRACT	Air Supply to Lock Mechanical Interference Poor or No Power to the Lock solenoid Broken or loose wiring Faulty or Contaminated Solenoid Valve Faulty Key Switch
LATCHBOLT WILL NOT EXTEND	Mechanical Interference Broken or loose wiring Power input to unlock solenoid (Power should NOT be present during lock secure cycle) Faulty Key Switch
LOCK RETRACTS / EXTENDS SLOWLY	Air Pressure to lock Mechanical Interference Faulty or contaminated solenoid valve
KEY CYLINDER NOT WORKING PROPERLY	Mechanical Interference Key Cylinder Engagement/Position in Lock
SECURE LOCK STATUS SIGNAL NOT GIVEN	Broken or Loose Wiring Faulty Status Switch Mechanical Deadlock Not Functioning Air cylinder Positioned too Low Switch Arm adjustment
DOOR POSITION SIGNAL NOT GIVEN	Broken or Loose Wiring Door Adjustment Needed Magnetic Door Position Sensor adjustment needed