# Baron Oxygen STC Installation Instructions (Front Baggage Installation) 58-4960001

GAMI/Tornado Alley Turbo
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# **Revision Page**

Slide	Revision	Slide	Revision	Slide	Revision	Slide	Revision
x.i	NC	3.5	NC	3.20	NC	6.6	F
x.ii	D	3.6	Е	3.21	NC	6.7	F
1.1	NC	3.7	F	3.22	F	6.8	F
1.2	NC	3.8	NC	3.23	F	6.9	F
1.3	F	3.9	F	4.1	Е	6.10	NC
1.4	F	3.10	NC	4.2	NC	6.11	F
1.5	F	3.11	F	5.1	Α	7.1	D
2.1	Е	3.12	NC	5.2	Е	7.2	D
2.2	F	3.13	F	5.3	Е	7.3	D
2.3	F	3.14	NC	5.4	F		
2.4	NC	3.15	F	6.1	NC		
3.1	NC	3.16	NC	6.2	NC		
3.2	NC	3.17	F	6.3	NC		
3.3	NC	3.18	F	6.4	NC		
3.4	F	3.19	F	6.5	NC		

#### **Table Of Contents**

Section	Description	Slide #
	Introduction	x.i
FS	Fill Station Installation	1.1
ОВ	Oxygen Bottle Installation	2.1
Ю	Interior Oxygen Installation	3.1
FI	Finalizing Bottle Installation	4.1
CI	Oxygen Bottle Cover Installation	5.1
R	Reference	6.1
W	Weight and Balance	7.1

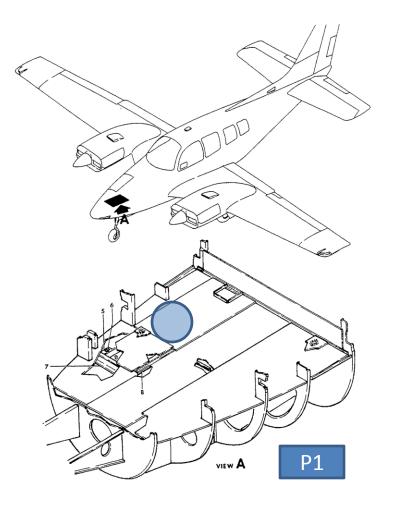
#### Installation Instruction Notes

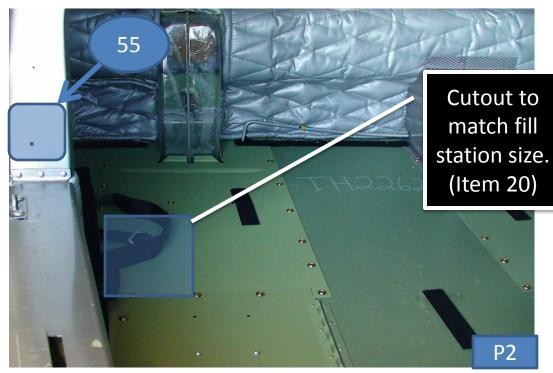
- All "item ##" listed in slides refer to item ## in parts list.
- All fuselage station references are for Baron 58 series aircraft. Use appropriate station references for installation of O2 system in Baron 55 series.
- Refer to Hawker/Beechcraft Baron AMM for any procedures not specifically covered in these instructions.
- Some airplanes may have previously installed equipment that may interfere with the installation of this STC. It is the responsibility of the installer to determine alternate procedures.
- Electrical Requirements: On a 24V system the Remote Control Valve (RCV) requires about 0.43 amp to activate and 0.22 amp to keep the valve on.

Rev D

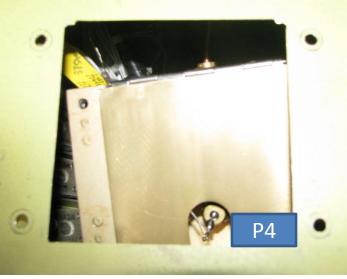
#### Fill Station Installation

- 1. In the forward baggage compartment, remove all insulation and sound proofing from the battery compartment rearward.
- 2. Remove screws for panel rear of battery compartment and take out of aircraft.



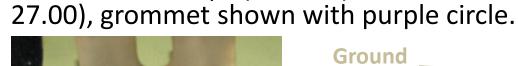




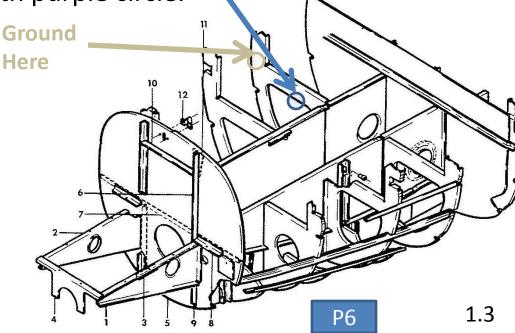


- 3. Cut hole out of panel (3.3" x 3.4") as shown on slide 6.7.
  - Hole is located 1.5" from each edge from front and right side of panel.
- 4. Match drill 4 screw holes from item 20 to floor panel.
- 5. Route high pressure copper tubing (item 14) as shown in red (next page).

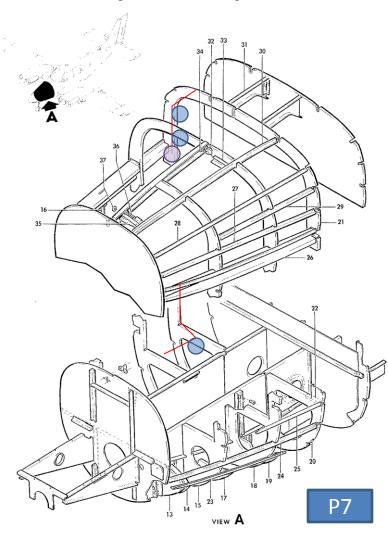
NOTE: Adel clamps (item 19) shown with blue circles (station







- Attach Adel clamp (item 19) to former, at station
   27.00, where copper tubing passes near existing
   #10 hole. Attach Adel clamp with AN3-3A bolt,
   NAS1149F0332P washer, and MS21045-3 locknut.
- 7. Install grommet (item 23) where copper tubing comes through floor panel (just aft of station 27.00). Enlarge hole for grommet to .312/.375 if required for ease of installation.



Rev F

- 8. When installing high pressure copper tubing, you must:
  - 1. Install ferrules (supplied with B-nuts on O2 fittings)
  - 2. Hand tighten nut
  - 3. Add ¼ turn to nut to seat brass and copper. Reference slide 6.5

Rev F

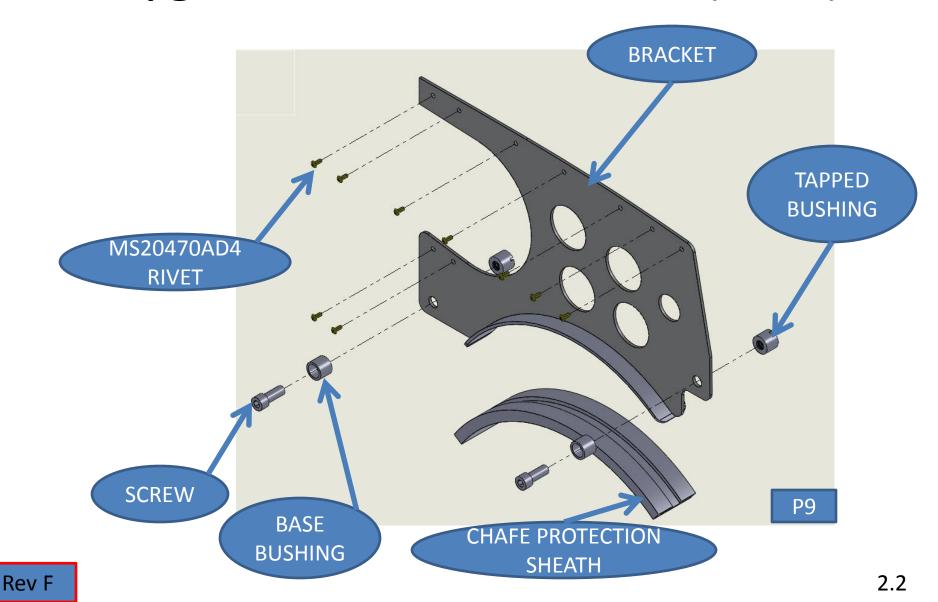
#### Oxygen Bottle Installation

- 1. If not already removed, remove all insulation from battery compartment rearward.
- 2. Relocate alternator regulator using already present nutplates from installations in older B58 models, cut insulation where needed being careful not to scratch the paint underneath the insulation.
- 3. Install item 56 at previous alternator regulator location.
- 4. Remove heater duct, then run wiring for alternator regulator through holes to new location (shown as red dashed line in P8).



See Step #4

#### Oxygen Bottle Installation (cont)



# Oxygen Bottle Installation (cont)

5. Install brackets (item 58 or 59) using provided rivets (MS20470AD4-4). Brackets should be .25" from rear bulkhead and adjacent to top skin of compartment. This will place the oxygen bottle center of gravity at station 32.00. Reference P9 on previous slide. In P11, item 58 is used for the 115 cu. in. bottle, but item 59 may be used when installing the 77 cu. in. bottle.

Note: Ensure all predrilled holes in bracket have proper alignment and edge distance to factory formers.





Rev F



#### Oxygen Bottle Installation (cont)

- 6. Reinstall heater duct removed in step 3.
- 7. Connect high pressure tubing to fill port box. See slide 1.4 for procedure.

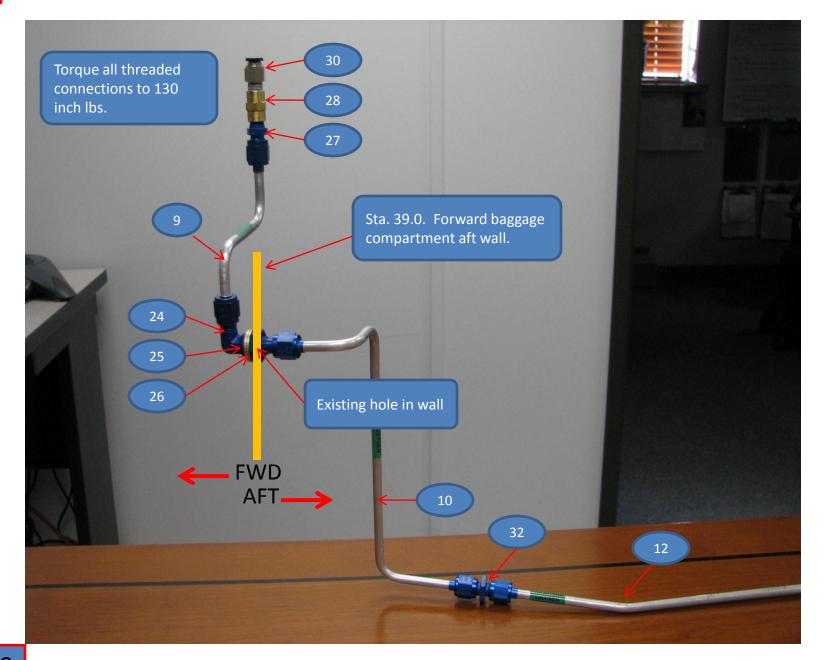
Rev NC

Interior Oxygen Installation

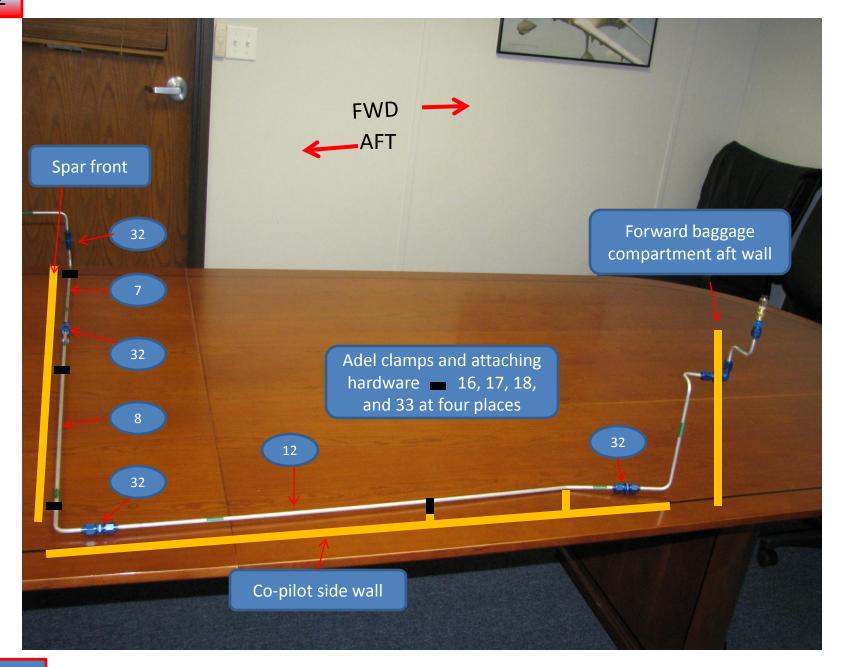
Remove pilot and copilot's interior, headliner, kick panels and seats, in accordance with Hawker/Beechcraft Baron AMM.

The next 4 slides give an overview of the oxygen tubing installation. Subsequent slides then describe in greater detail each tubes installation.

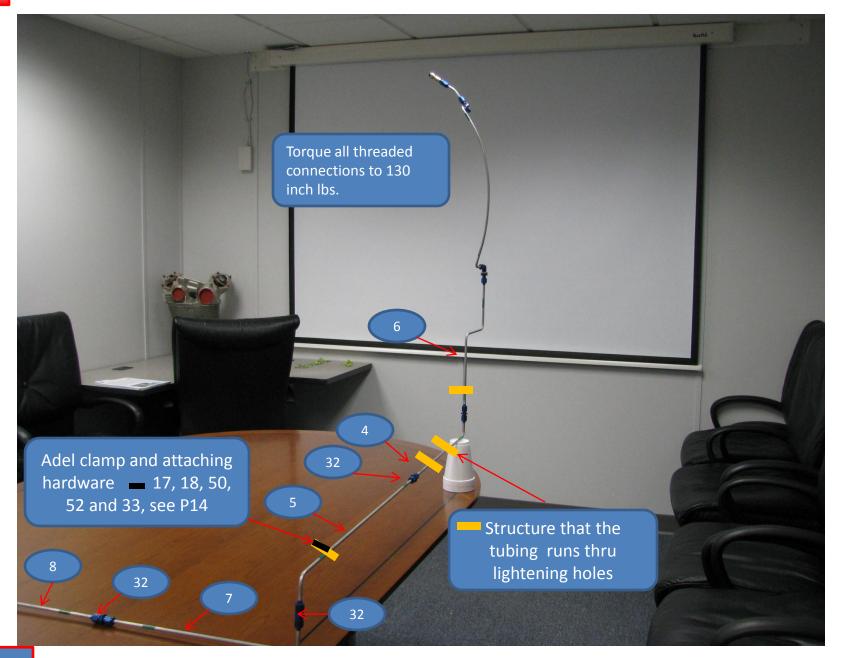




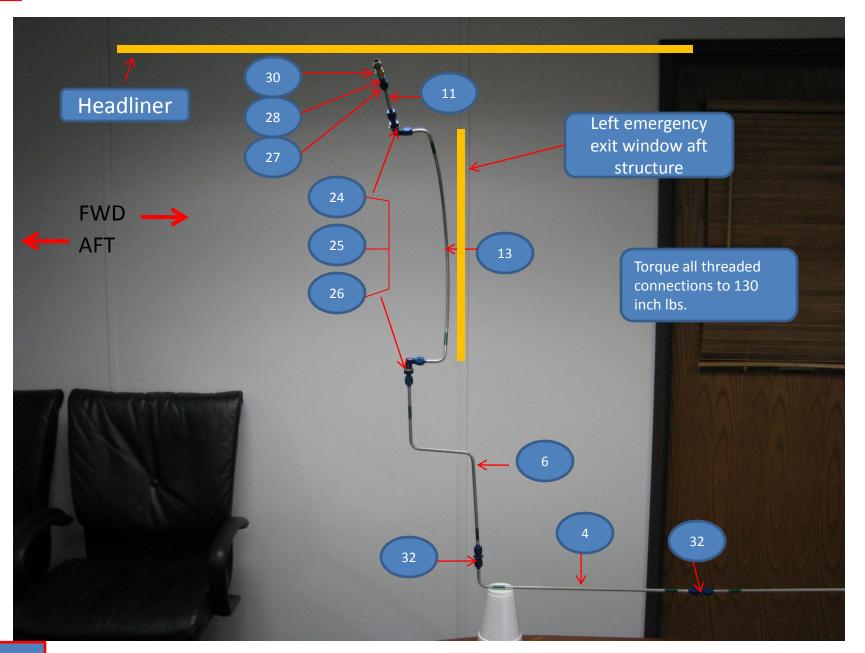
Rev NC 3.2



Rev NC



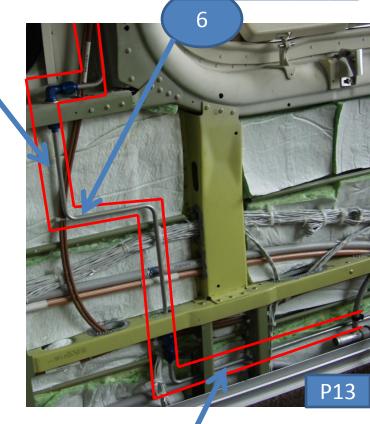
Rev F



Rev NC

Picture: Under Emergency Exit Window (L/H)

- Install formed aluminum tubes starting with item 6.
- 3. Use proper mechanical technique when installing tubes, tightening nuts and fittings to 130 in-lbs.
- 4. Minor hand forming to adjust tubing may be necessary, perform as required. Chafe protection must be used when aluminum tubing is run through formers.

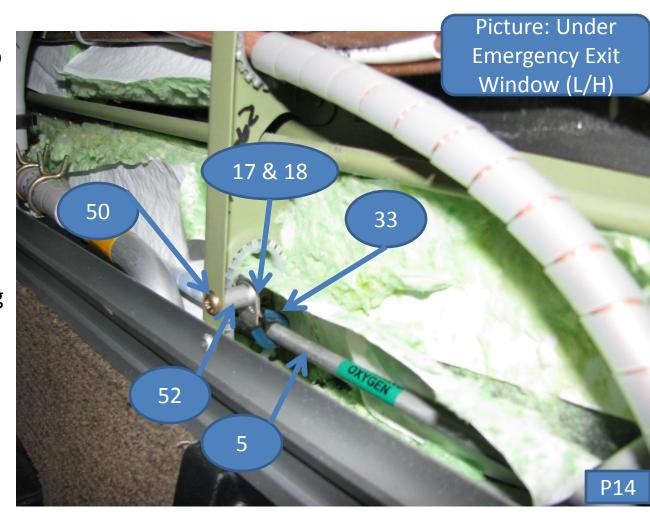


4

Rev E

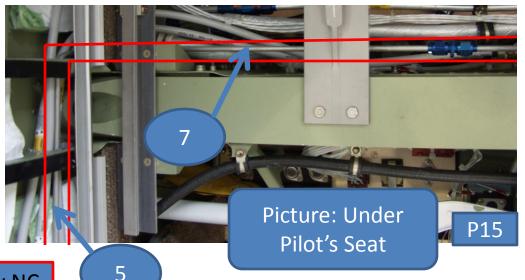
NOTE: Picture P14 is a picture of the Adel clamp and standoff used for item 5.

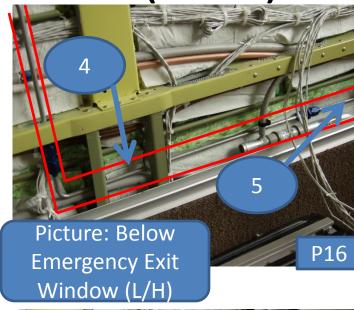
Install Adel clamp on center of frame flange in location that allows best routing of O2 tube without binding or interference with existing systems. Clearance size hole for #10 fastener is .193/.200 inch diameter (#10 drill).



Rev F

5. From step #2, continue installing aluminum tubes toward the front, in order as shown. Red lines parallel to tubing to help show setup. Use existing holes on mounting brackets forward of station 82.96 to install 3 Adel clamps.







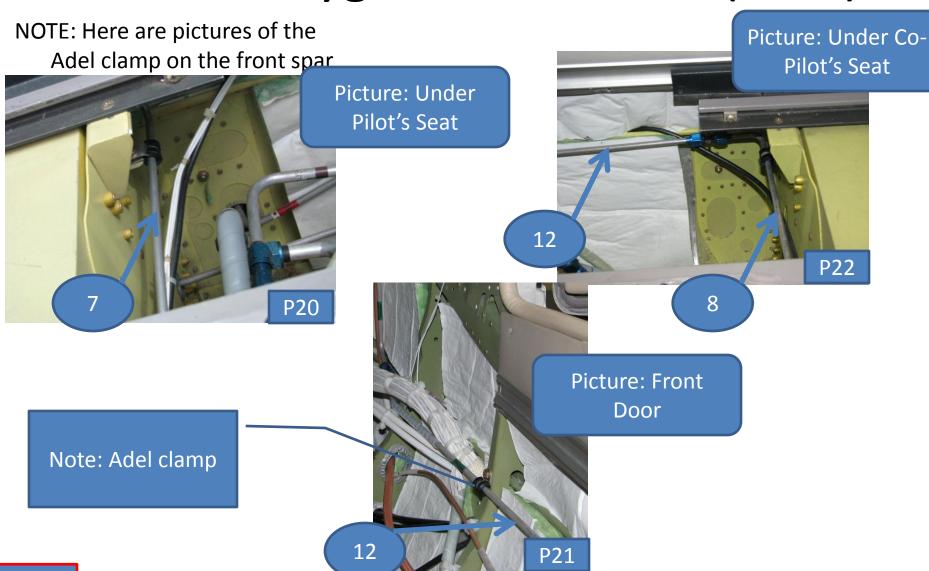
Rev NC

3.8

6. P18 shows the aluminum tube crossing from left to right, in front of station 82.96, add Adel clamps (shown in blue circles below) to existing holes on mounting brackets. Add Adel clamp to station 58.00 as seen in P19, the hole will need to be drilled (.193/.200 diameter). At the forward end of P19, station 39.00, there will be a bulkhead fitting.



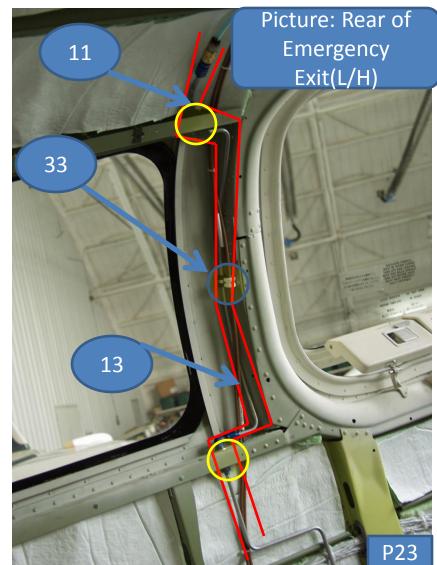




Rev NC

3.10

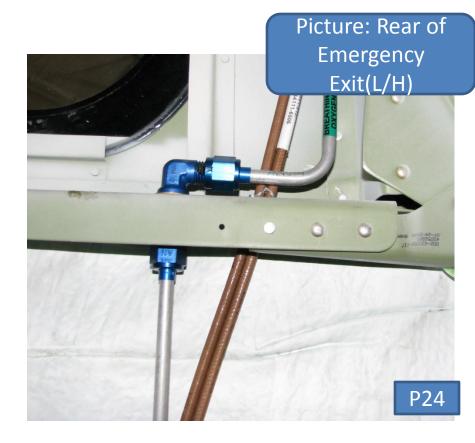
- 7. Add Adel clamp at existing Adel clamp location on former at station 124.75, then route aluminum tube (item 13) through it. The holes for the end of the tube are existing, use these to add fittings.
- 8. There are two bulkhead fittings in P23, shown in yellow circles. Both of these fittings use 90° fitting on one end and a straight fitting on the other, as shown in P23. Reference slide 3.5.



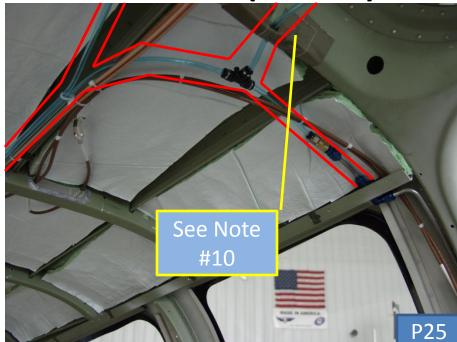
Rev F 3.11



NOTE: Picture P24 shows the bulkhead fittings. Ensure proper build up when installing, leakage may occur if not properly installed.



- 9. After aluminum tubing is installed, flexible tubing installation can be started. The routing is in a closed loop setup, to allow each user to receive equal amounts of oxygen.
- 10. The installation tries to make use of the maximum amount of existing holes in the airframe structure,



but the flexible tubing crosses an airframe brace twice that will need reinforcements (item 54). Reference slide 3.15

Rev F 3.13

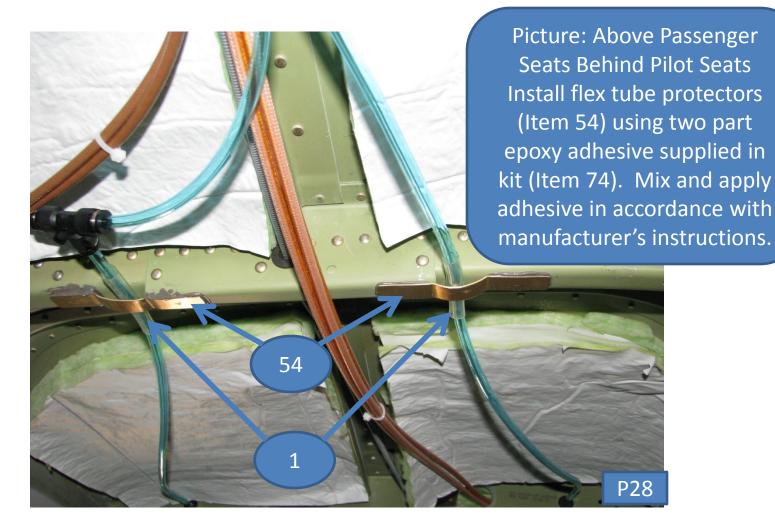
NOTE: Make sure when connecting low pressure tubing to fittings that the tube is completely pushed in, then tugged to make sure the tubing is seated and will not leak.

NOTE: Ensure all flexible tubing is routed and protected from any possible chafe or compression that may cause failure.





Rev NC



3.15

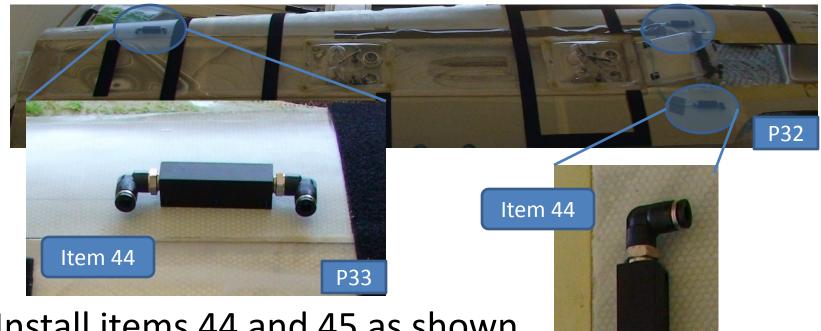
Picture P29 shows the transition from preformed aluminum tubing to the flexible tubing. Reference P29 when connecting flexible tubing to aluminum tubes to ensure proper connection.



11. With the headliner removed, install items 44 and 45 which are the oxygen ports in the cabin. Drill or machine 7/16 inch diameter holes in headliner to accommodate the oxygen ports. In picture P30, the front of the aircraft is toward the right. Reference installation figure 58-4960002 (slide 6.6) for installation of oxygen ports.



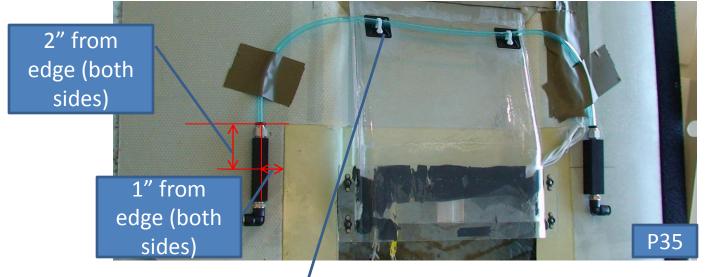
Rev F 3.17



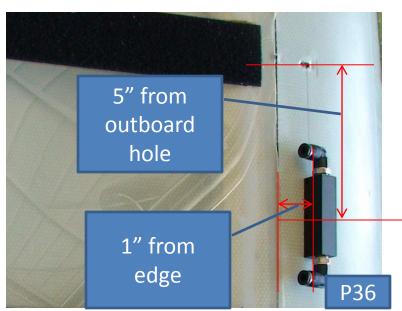
P34

12. Install items 44 and 45 as shown. Items 44 and 45 need a 90° fitting or a straight fitting as seen in the pictures, items 30 and 31. Dimensions are on the next page.

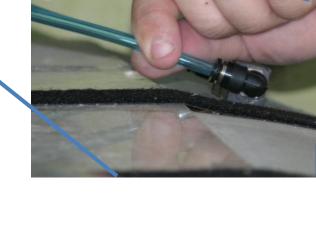
Rev F 3.18



Note: Flexible Tubing Clamps (Item 72) with tie-wraps (Item 73)







NOTE: When reinstalling headliner, ensure proper connection of flexible tubing and oxygen ports, as seen in P37 and P39. This may require the help of more than one installer.

**Rev NC** 

P39







- 1. The gauge installation should be installed in the co-pilot's side of the instrument panel (shown in P41) or in lower central portion of instrument panel (see Slide 6.8). Locate the gauge and switch such that they do not interfere with existing equipment on or behind the panel. The switch may be located to the right or left of the gauge based upon clearance with existing equipment and/or personal preference.
- 2. Install item 48 over oxygen switch, as shown in P41.



3.22

- 3. Route electrical wires from baggage compartment to cabin thru existing opening below the right engine alternator regulator, with existing wiring from voltage regulator.
- 4. Attach ground wire using existing hole on former by first removing paint in the area around the hole, reference slide 1.3.
- 5. Splice power in from aircraft to 28/14V IN (letter A on 58-4960005) aft of wall as shown on 58-4960005.
- 6. Run 5' (item 43) wire from Item 65 to right hand side of instrument panel to attach to oxygen switch with existing wire bundle.
- 7. Instrument lighting positive and ground (letter B and C, respectively, on 58-4960005) should be connected to copilot's subpanel lighting wiring.
- NOTE: Ensure Item 65 is behind circuit panel and run 5' wire to switch next to O2 pressure gage.
- 8. Reference 58-4960005 and 58-4960006 for wiring diagram.(In Reference section)
- 9. Install circuit breaker placards (Item 68) over circuit breakers.

Rev F 3.23

### Oxygen Bottle Installation

- 1. Lift oxygen bottle with attached RCR/RCV valve (item 60 or 61 depending on 115 or 77 cu. in. bottle) to bottom of brackets then clamp straps finger tight and repeat for second set of straps as shown in pictures on next page. NOTE: If installing a 77 cu. in. bottle (item 61), ensure item 63 is installed between bottle and straps before tightening.
- 2. Tighten strap locknut to 60 in-lbs plus the run on value for the nut being installed.

Rev E 4.1

### Oxygen Bottle Installation



3. Final oxygen bottle installation should look like either P42 or P43. P42 shows a 115 cu. in. bottle (item 60) installation, while P43 shows a 77 cu. in. bottle (item 61) installation.

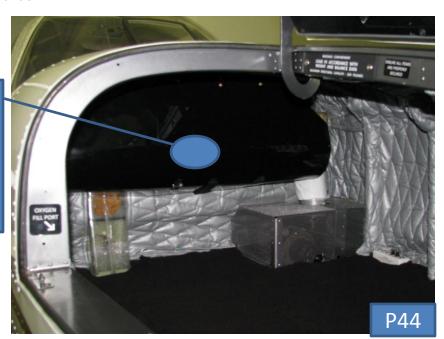
NOTE: Ensure bottle does not touch heater tube insulation, as this may cause chafing.



### Oxygen Bottle Cover Installation

- 1. Install item 2, add cover to bottle using existing floating nutplate bracket.
- Thread strap behind bottle then attach cover to nutplates with screws.
- 3. Install item 62 on exposed bolts from the bottle strap.
- 4. Attach item 66 or 67 (depending on bottle size) to bottle cover as shown in P44.

Item 66 or 67 (depending on bottle size)



### Bottle Charge & Leak Check

#### SYSTEM LEAK CHECK (TROUBLESHOOTING)

- Charge O2 system as detailed on next page.
- Unplug all masks and/or cannulas from oxygen ports.
- Turn Master Switch ON.
- Turn Oxygen Switch ON.
- Check Oxygen Pressure Gage for pressure reading. A pressure of approximately 1,800 psi (at 70 °F) should be indicated on the gage when the oxygen cylinder is full. (Cylinder pressure will vary considerably with radical temperature changes.) The gage near the fill port should indicate nearly the same pressure as the instrument panel mounted gage.
- Check the complete system for leaks by monitoring the pressure for one hour. If there is less than a 100 psi drop in pressure in one hour the system is considered acceptable.
- Shut oxygen OFF until inflight use is required.
- Turn Master Switch OFF.

Rev E 5.2

### Bottle Charge & Leak Check

- When filling the oxygen system, use only 99.99% pure oxygen to be sure that it does not contain moisture which can cause the oxygen valve to freeze.
- Do not service the oxygen system at the same time and in the same area that the fuel system is being serviced.

To service the oxygen system, use the following procedures for initial charging as well as subsequent charging:

- Gain access to the filler port for the oxygen system (see Descriptive Data for filler port location).
- Check oxygen cylinder pressure gage. If the cylinder is completely empty or open, check to make sure it has not been internally contaminated with any combustible materials such as oils, fluids, or gases, before charging. If you are unsure, empty cylinder must be removed, inspected, and cleaned before charging.
- Check the hydrostatic test date of the cylinder. Oxygen bottles installed in accordance with Engine Technologies, Inc. STC SA10960SC are Kevlar® wrapped aluminum specifically designed for aviation use. They must be hydrostatically tested every 5 years and must be retired from service after 15 years. If the periodic retest date is past, do not return the cylinder to service until the test has been accomplished.
- Remove the cap from the filler valve and attach the recharging outlet.
- Slowly open the valve of the cylinder on the oxygen filling manifold system having the lowest pressure and allow the pressure to equalize.
- Close the cylinder valve on the manifold system and slowly open the valve of the cylinder having the next highest pressure. Continue this procedure until the cylinder has been charged to 1850 ± 50 psi at an ambient temperature of 70°F. This pressure may be increased an additional 3.5 psi for each degree of increase in ambient temperature. Similarly, for each degree of drop in ambient temperature, reduce the cylinder pressure 3.5 psi.
- Close all valves on the manifold system.
- Remove the recharging outlet, and replace the filler valve cap.
- Let the cylinder stabilize for a period of at least 1 hour, and then recheck the pressure.
- Make any necessary adjustments in the pressure.
- Reinstall components removed to gain access to the filler valve.

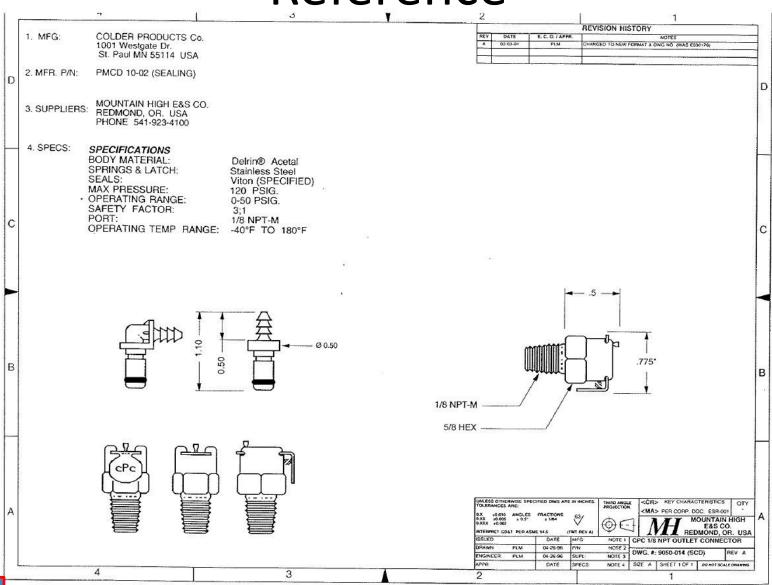
Rev E 5.3

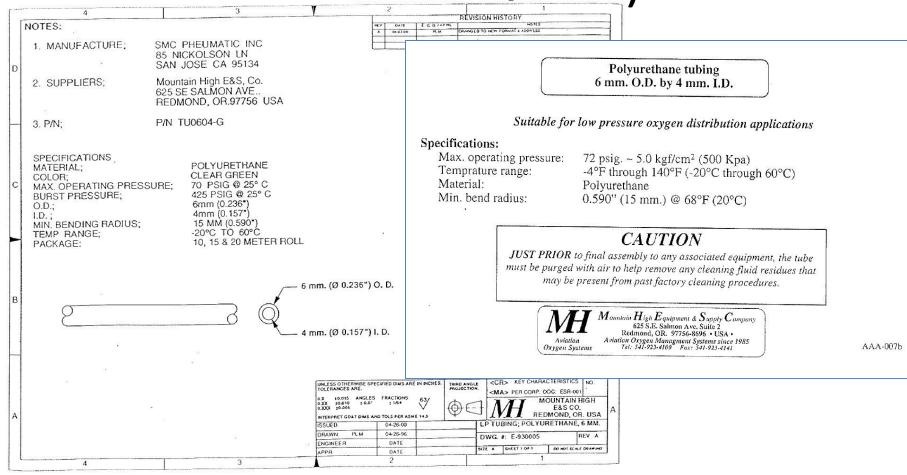
### Final Paperwork

- Insert Airplane Flight Manual Supplement (Item 70) in airplane flight manual.
- Perform Aircraft Weight and Balance change (see slides 7.1 thru 7.3).
- Keep these instructions and Instructions for Continued Airworthiness (Item 71) with aircraft maintenance logs for future reference.

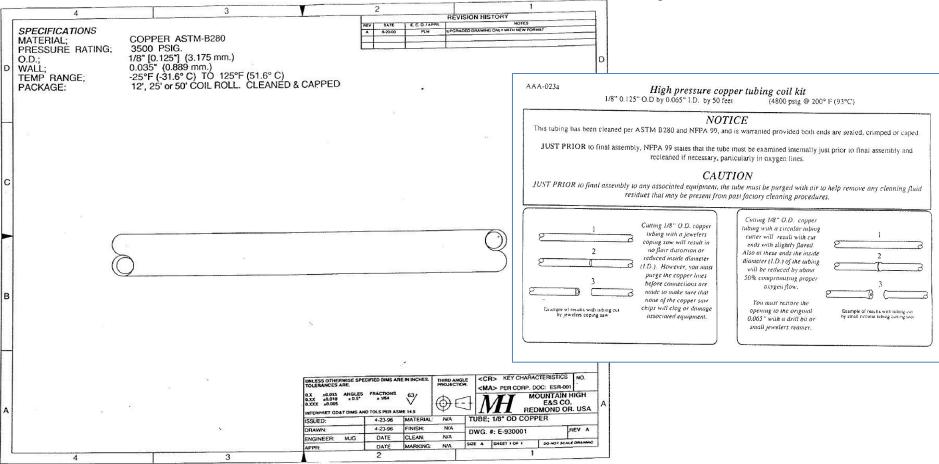
5.4

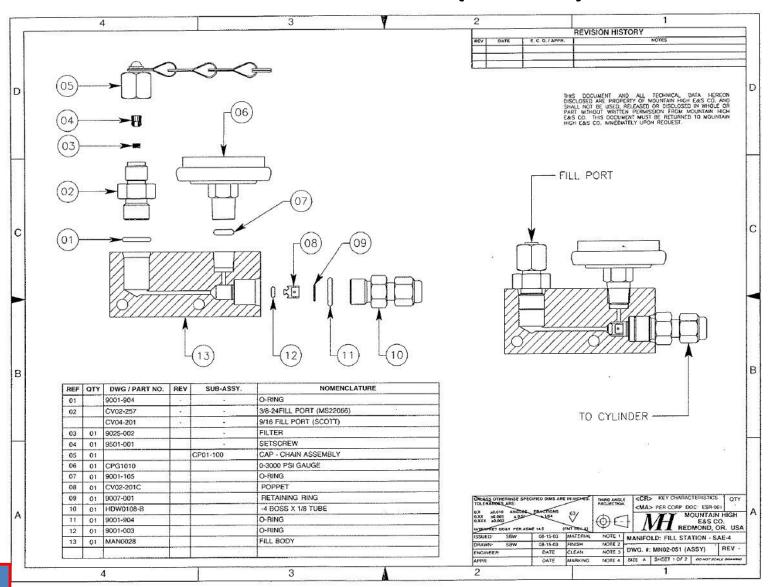
Reference

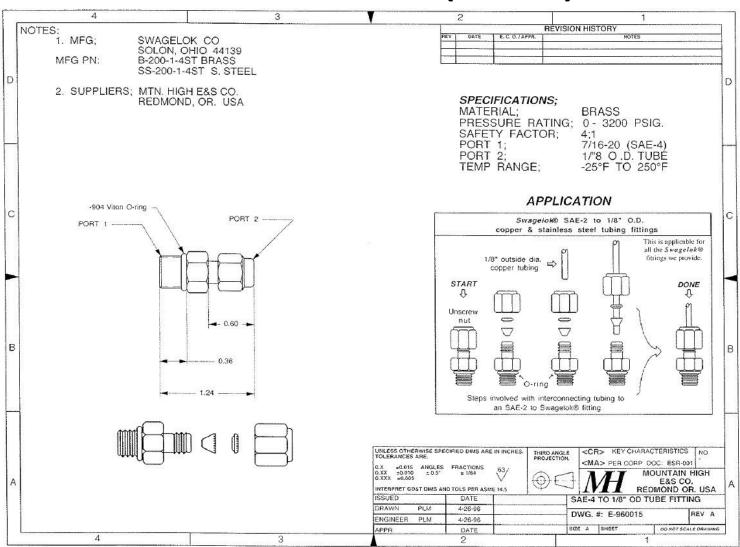


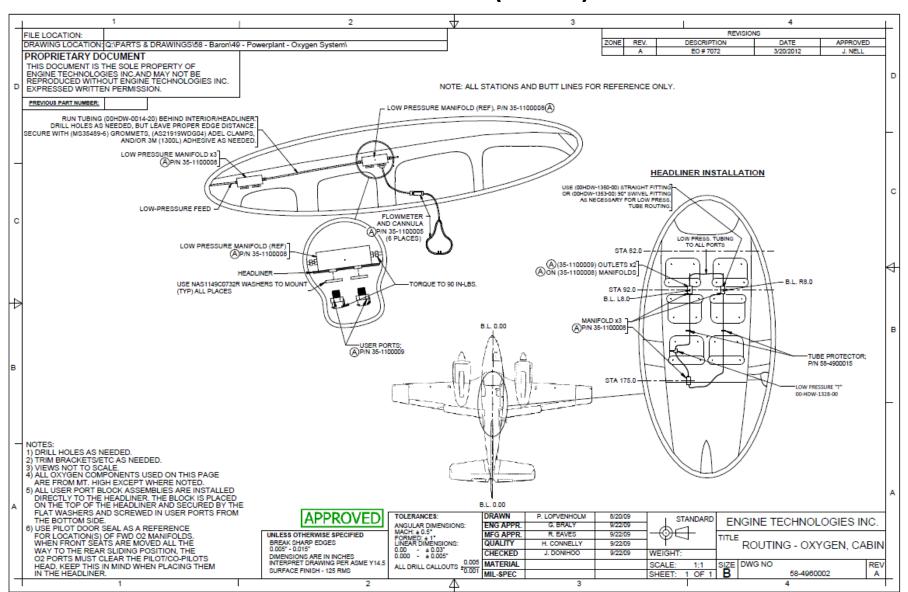


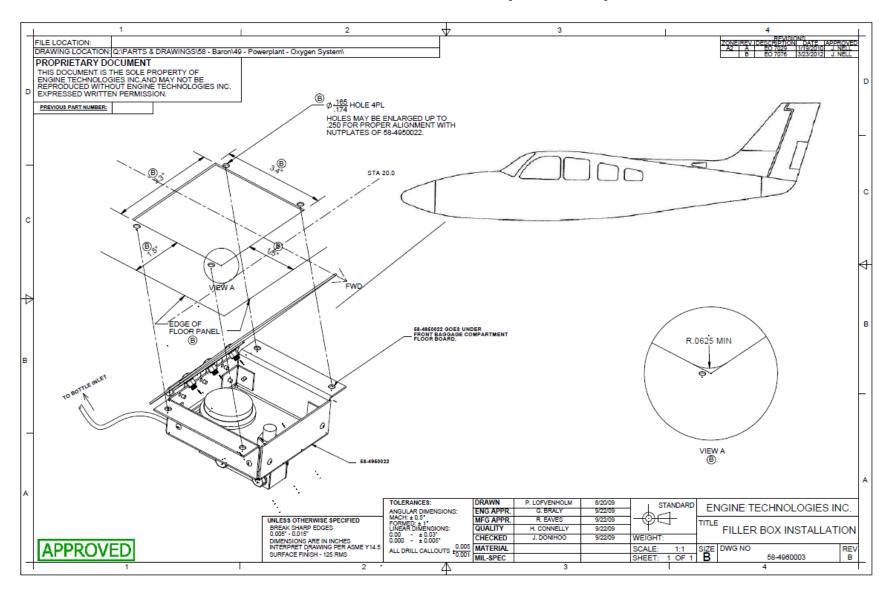
Rev NC

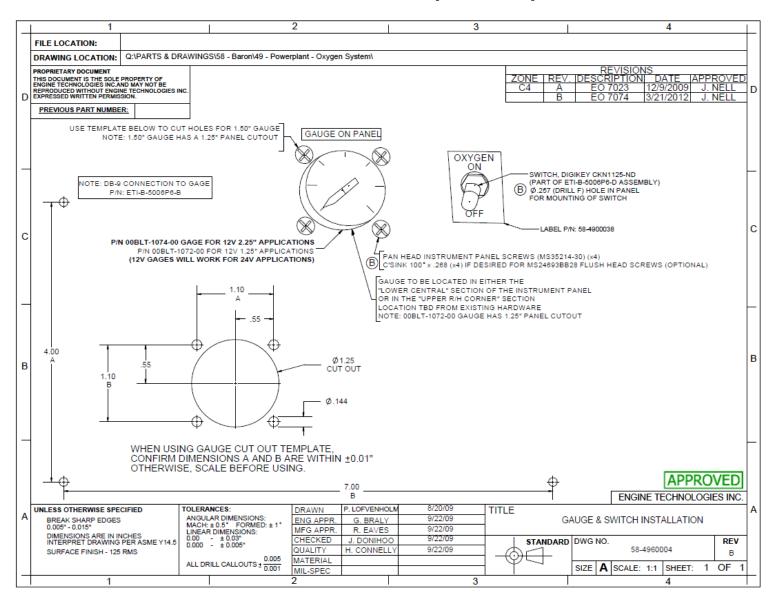


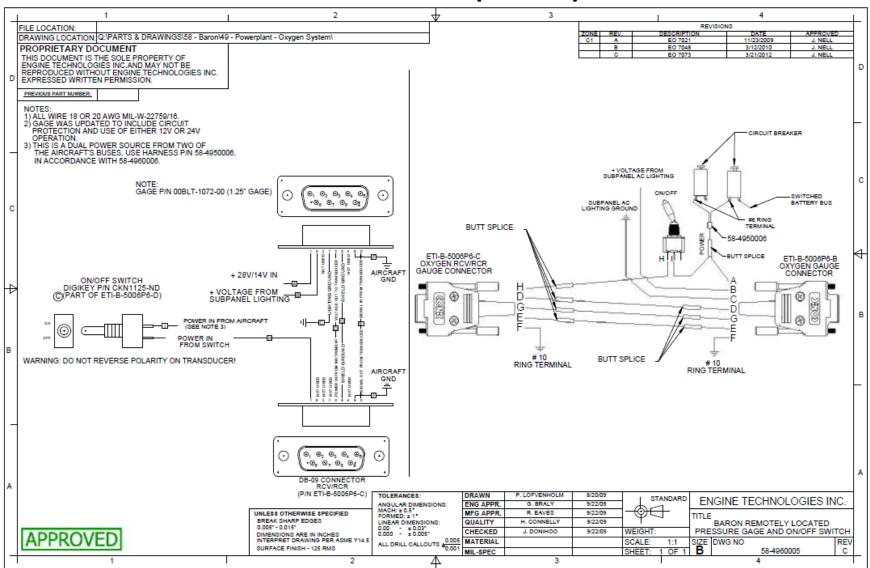


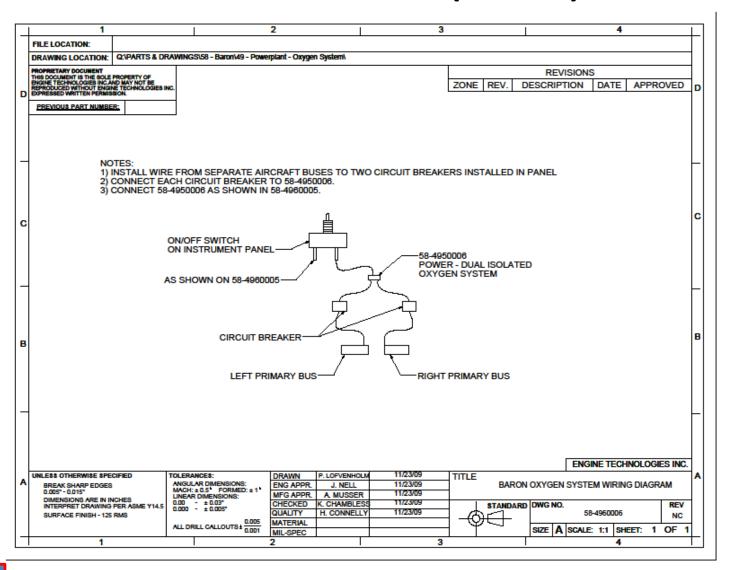












Rev F

### Reference (cont)

55, 58 Baron O2 Parts List

Item #	Part Name	Part Number	Qty			Part Name	Part Number	Qty
1	Tube Protector	58-4900037	2		38	O2 Gage Electrical Connector	ETI-B-5006P6-B	1
2	Bottle Cover Assembly	58-4950018	1		39	O2 Gage Switch	ETI-B-5006P6-D	1
3	RCR Electrical Connector	ETI-B-5006P6-C	1		40	Screw	MS35214-30	4
4	Aluminum Oxygen Tube Assembly	58-4950007	1		41	Butt Splice	AP323975	9
5	Aluminum Oxygen Tube Assembly	58-4950008	1		42	Ring Terminal (#6)	AP36150	4
6	Aluminum Oxygen Tube Assembly	58-4950009	1		43	Electrical Wire, 5 ft	WM22759\16-20-9	1
7	Aluminum Oxygen Tube Assembly	58-4950010	1		44	User Block	35-1100008	3
8	Aluminum Oxygen Tube Assembly	58-4950011	1		45	User Block Port	35-1100009	6
9	Aluminum Oxygen Tube Assembly	58-4950012	1		46	Washer	NAS1149C0732R	6
10	Aluminum Oxygen Tube Assembly	58-4950013	1		47	Bolt	AN3-11A	2
11	Aluminum Oxygen Tube Assembly	58-4950014	1		48	Oxygen Switch Placard	58-4900038	1
12	Aluminum Oxygen Tube Assembly	58-4950015	1		49			
13	Aluminum Oxygen Tube Assembly	58-4950016	1		50	Screw	AN525-10R12	1
14	High Pressure Copper Tubing, 4 ft	19605-0002-00	1		51			
15	Ring Terminal (#10)	AP36154	2		52	1/2" Spacer	58-4900039	1
16	Bolt	AN3-3A	8		53	Flowmeter and Cannula	35-1100005	6
17	Washer	NAS1149F0332P	18		54	Flex Tube Protector	58-4900015	2
18	Nut	MS21045-3	11		55	Filler Port Placard	58-4900005	1
19	Adel Clamp	MS21919WDG2	3		56	Alternator Regulator Patch	58-4900027	1
20	Filler Box w/Gage	58-4950022	1			Secure Baggage Placard	58-4900028	1
21	Screw	AN525-832R6	4		58	Bracket Assembly - 115 Cu Ft Bottle	58-4950020	2**
22					59	Bracket Assembly - 77 Cu Ft Bottle	58-4950021	2*
23	Grommet	MS35489-4	1		60	115 Cu Ft O2 Bottle	35-1100001	1**
24	Bulkhead Fitting	AN833-4D	3		61	77 Cu Ft O2 Bottle	35-1100004	1*
	B-Nut	AN924-4D	3		62	Bolt Cover	58-4900036	2
26	Washer	NAS1149F0763P	6		63	115 to 77 Bottle Adapter	58-4900026	2*
27	AN-to-pipe thread Fitting	AN816-4D (alt. AS5194D0402)	2		64	RCR Valve	35-1100003	1
28	Brass Union	3300x2	2	1		Dual Isolated Power System	58-4950006	1
	Low Pressure Tee	00-HDW-1328-00	2	_		77 Cu Ft Bottle Placard	58-4900034	1*
	Low Pressure Straight Fitting	00-HDW-1350-00	4	_		115 Cu Ft Bottle Placard	58-4900035	1**
	Low Pressure 90° Fitting	00-HDW-1353-00	4	_		Circuit Breaker Placard	58-4900041	2
	AN Aluminum Union	AS5174D0404	6	_		Baron O2 Installation Instructions	58-4960001	1
	Adel Clamp	MS21919WDG4	6	_		Airplane Flight Manual Supplement	35-4960005	1
	Low Pressure O2 Tubing, 15, ft	00-HDW-0014-20	1	_		Instructions for Continued Airworthiness	35-4960006	1
	Grommet	MS35489-6	2	_		Flexible Tubing Clamp	7582K11	4
	Circuit Breaker, 2 Amp	7277-5-2	2			Tiewrap	TY5242M	12
	O2 Electric Gage	00BLT-1072-00	1	_		Extra Thick Quick Setting Epoxy	7538A15	1

Note: Quantities with single asterisk (\*) included in kit for 77 Cu Ft Bottle Quantities with double asterisk (\*\*) are included in kit for 115 Cu Ft Bottle

Total

# Weight and Balance Information

Items Added	Weight (	(lbs)	Arm (in)	Moment		
O2 valve/regula	tor	2.30	32.5	74.75		
2 2 pl O2 ports		2.00	92	184		
1 2 pl O2 port		1.00	175	175		
O2 fill port & ga	ge	1.30	21	27.3		
O2 tubing - 25 ft		1.00	140	140		
O2 hard lines		2.00	80	160		
Pressure gage 8	switch	0.50	58	29		
O2 bottle suppo	ort	2.00	32.5	65		
115 cu ft O2 bot	tle (full) 2	7.65	32.5	898.625		

39.75 44.11761 1753.675

Rev D 7.1

# Weight and Balance Information

Items Added	Weight (lbs)	Arm (in)	Moment		
O2 valve/regulato	or 2.30	32.5	74.75		
2 2 pl O2 ports	2.00	92	184		
1 2 pl O2 port	1.00	175	175		
O2 fill port & gage	1.30	21	27.3		
O2 tubing - 25 ft.	1.00	140	140		
O2 hard lines	2.00	80	160		
Pressure gage & s	witch 0.50	58	29		
O2 bottle support	2.00	32.5	65		
77 cu ft O2 bottle	(full) 19.29	32.5	626.925		
Total	31.39	47 21169	1481.975		

Rev D 7.2

# Weight and Balance Information

Items Added	Weight (lbs)	Arm (in)	Moment			
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O2 valve/regulator	2.30	42.5	97.75			
2 2 pl O2 ports	2.00	102	204			
1 2 pl O2 port	1.00	175	175			
O2 fill port & gage	1.30	11	14.3			
O2 tubing - 25 ft.	1.00	140	140			
O2 hard lines	2.00	80	160			
Pressure gage & switch	0.50	68	34			
O2 bottle support	2.00	42.5	85			
115 cu ft O2 bottle (full	) 27.65	42.5	1175.125			

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