



## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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**35-00-00-001**

### **OXYGEN, GENERAL**

#### **Introduction**

The oxygen system is part of the emergency equipment installation in the flight compartment and the cabin. In an emergency such as a sudden decrease in cabin pressure or smoke, the oxygen system supplies oxygen for the flight crew and passengers.

#### **General Description**

Refer to Figures 1 and 2.

The system supplies oxygen for the crew and the passengers through oxygen tanks, masks, lines and outlets. These are also used to service the system. Portable oxygen and protective breathing equipment is also supplied for the crew to manage in-flight fire, smoke, fumes, and for other passenger emergencies. The oxygen system includes the subsystems that follow:

- Crew Oxygen System (35-10-00)
- Crew Oxygen Delivery (35-11-00)
- Crew Oxygen Indication and Servicing (35-12-00)
- Passenger Portable Oxygen System (35-20-00)
- Passenger Drop Down Oxygen System (35-20-01)
- Crew Portable Oxygen (35-30-00)

- Crew Portable Oxygen (35-31-00)
- Protective Breathing Equipment (35-36-00)

#### **Crew Oxygen System**

The system contains sufficient oxygen to maintain the crew members for a descent from 25,000 to 14,000 ft (7620 to 4267 m) in 4 minutes, followed by an additional 116 minutes at 14,000 ft (4267 m). The calculations are made with the crew members masks set to the NORMAL position.

On aircraft with ModSum 4-429541 or ModSum 4-309249 or SB84-35-02 incorporated, the minimum dispatch pressures for each crew configuration is 1050 psi (7239.50 kPa) for 2 persons and 1450 psi (9997.40 kPa) for 3 persons.

#### **Crew Oxygen Delivery**

Crew oxygen delivery is supplied thru an oxygen cylinder assembly, crew masks, lines, and outlets. The crew delivery system is installed in the flight compartment.

#### **Crew Oxygen Indication and Servicing**

The crew oxygen indication and servicing system is installed in the flight compartment. The indication and servicing system lets the oxygen system be monitored for safety and maintenance purposes. The indication and servicing system lets the pilots accurately find the amount of oxygen in reserve for emergency use. The system also automatically bleeds off pressure if it exceeds 2750 psig.



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### **Passenger Portable Oxygen System**

[Refer to Figures 3 and 4.](#)

The passenger portable oxygen system is installed in the forward and aft fuselage. The passenger oxygen system's function is to supply an adequate supply of oxygen for the passengers' use in the event of aircraft decompression. The aircraft has an adequate supply of oxygen to allow descent from 25,000 to 14,000 ft (7620 to 4267 m) in 4 minutes and hold at 14,000 ft (4267 m) for a duration of 120 minutes, while supplying oxygen to 10 percent of the passengers.

### **Passenger Drop Down Oxygen System**

[Refer to Figure 5.](#)

Additionally, on aircraft with SB84–25–98 incorporated, the passenger drop down oxygen assemblies are installed in the left and right side passenger service unit (PSU) panels, on the ceiling panels above the forward and aft flight attendant–seats and in the forward lavatory. The passenger drop down oxygen system with chemical oxygen generators is capable of providing a supply of oxygen for 22 minutes. This drop down oxygen system is compatible with 78 passenger seat configuration with a 30 inch (76 mm) seat pitch, together with three flight attendants, two lavatory occupants and four children in arms.

[Refer to Figure 6.](#)

On aircraft with ModSum 4–458569 and 4–458665 incorporated, the passenger drop down oxygen assemblies are installed in the left and right passenger service unit (PSU) panels, on the ceiling panels above the forward and aft flight attendant–seats and in the forward and aft lavatories. The passenger drop down oxygen system with

chemical oxygen generators is capable of providing a supply of oxygen for 22 minutes. This drop down oxygen system is compatible with 67 dual class passenger seat configuration (7 business class passenger seats and 60 economy class passenger seats) in which at least one oxygen mask is presented to every passenger seat, each flight attendants, each lavatory occupants and an additional 10% of the number of occupants.

### **Crew Portable Oxygen**

The primary components of the portable oxygen system are three portable oxygen cylinder assemblies. One cylinder assembly is installed in the forward fuselage and two are installed in the aft fuselage. The crew portable oxygen cylinder assemblies are the sole supply of portable oxygen if there is an emergency.

### **Protective Breathing Equipment**

[Refer to Figure 7.](#)

The function of the Protective Breathing Equipment (PBE) is to safeguard the crew member from the smoke, carbon dioxide, dangerous gases and oxygen deficiency. The PBE is a self contained, portable, disposable breathing device. The system can provide oxygen for approximately 15 minutes while managing in–flight fire, smoke or fume emergencies.

The PBE has a 10 year useful service life, based of the life of the service/end of service batteries.



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**Component Location Index**

COMPONENT NAME	ACCESS/ZONE	REFERENCE
Crew Oxygen System	100, 200	35-10-00
Crew Oxygen Delivery	100, 200	35-11-00
Crew Oxygen Indication and Servicing	100, 200	35-12-00
Passenger Portable Oxygen System with Oxygen Cylinders	100, 200	35-20-00
Passenger Drop Down Oxygen System	230, 240	35-20-01
Crew Portable Oxygen	100, 200	35-30-00
Protective Breathing Equipment	100, 200	35-36-00

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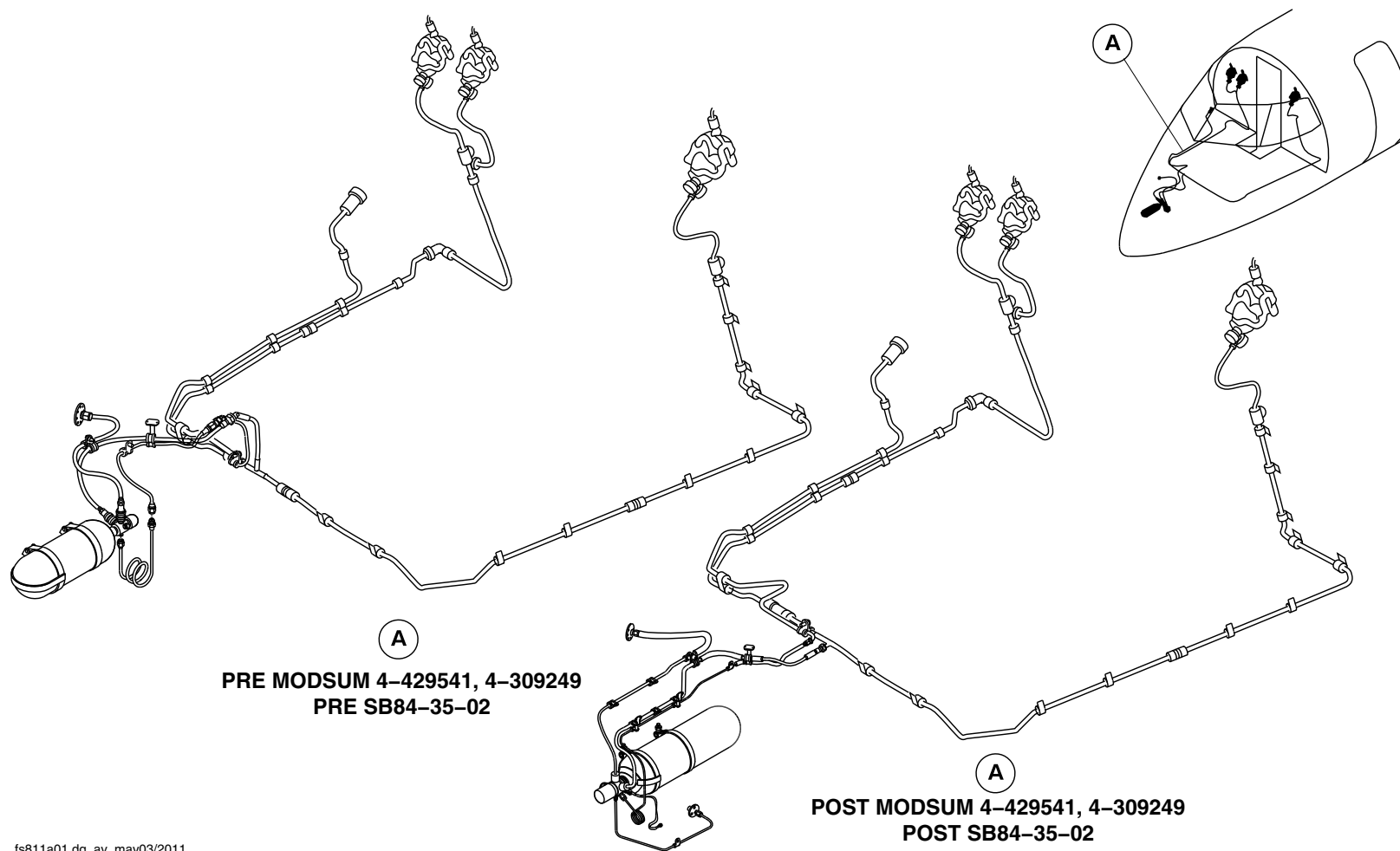
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Crew Oxygen System Locator  
Figure 1

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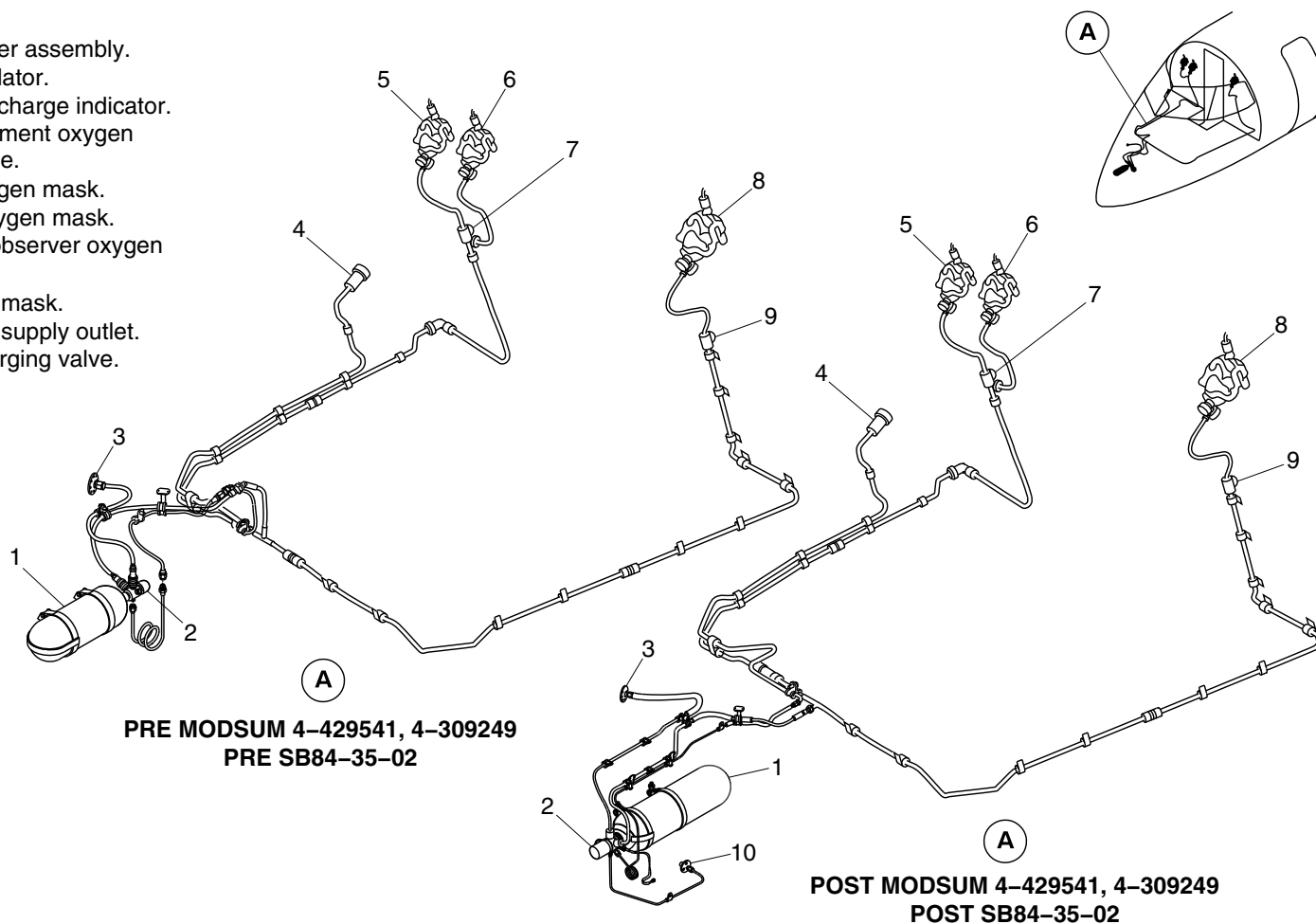


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### LEGEND

1. Oxygen cylinder assembly.
2. Pressure regulator.
3. Overboard discharge indicator.
4. Flight compartment oxygen pressure gauge.
5. Co-pilot's oxygen mask.
6. Observer's oxygen mask.
7. Co-pilot and observer oxygen supply outlet.
8. Pilot's oxygen mask.
9. Pilot's oxygen supply outlet.
10. On-board charging valve.



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Crew Oxygen System Detail  
Figure 2

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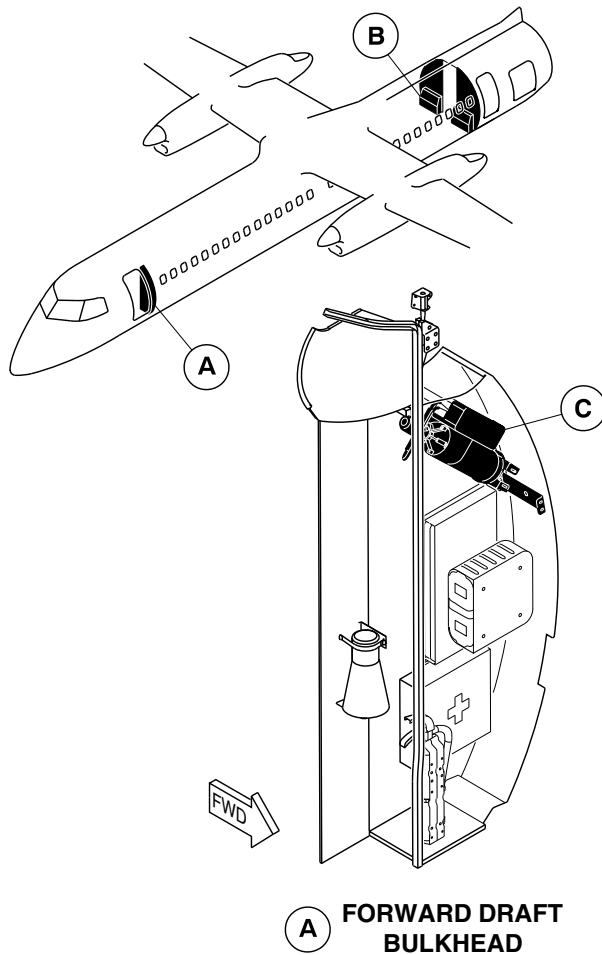
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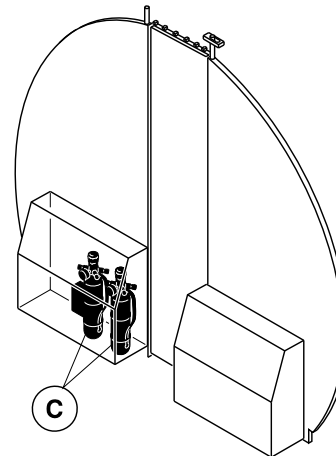


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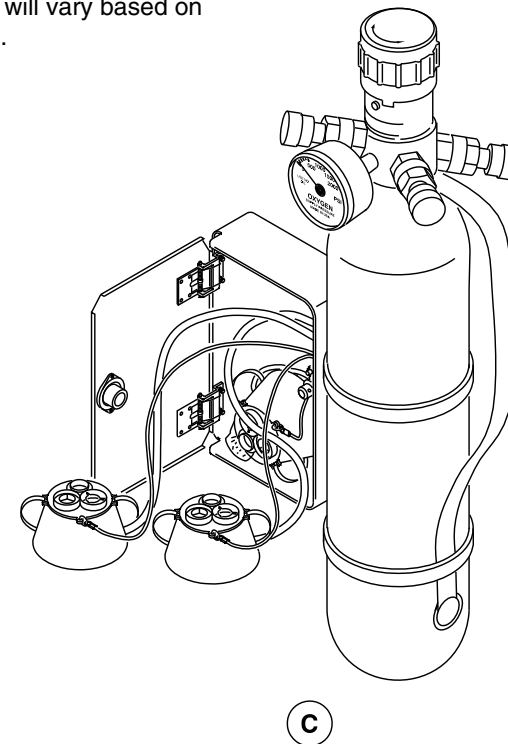
**A FORWARD DRAFT  
BULKHEAD**



**B AFT DRAFT  
BULKHEAD**

### NOTES

1. One passenger oxygen system shown, others similar.
2. The quantity and locations of these oxygen bottles will vary based on aircraft options.



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Passenger Oxygen System Locator  
Figure 3

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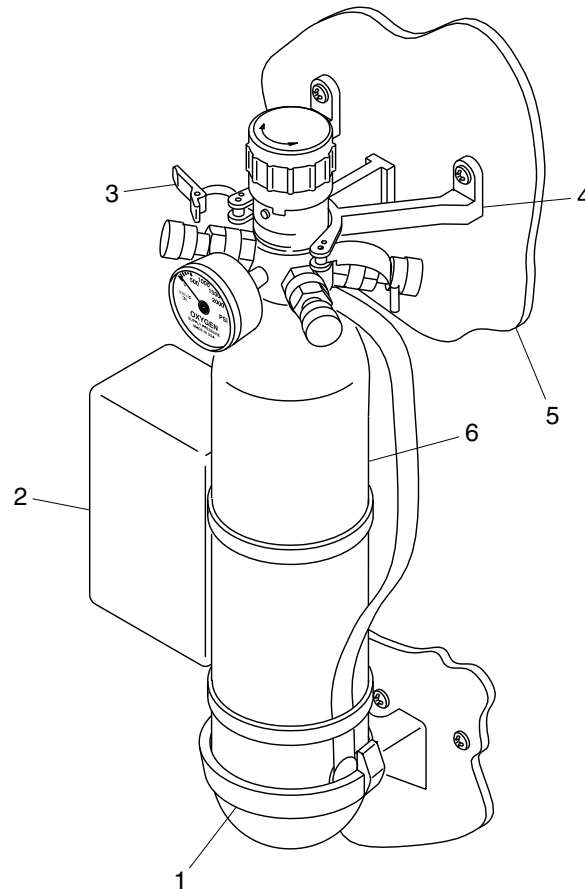
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### LEGEND

1. Lower bracket.
2. Passenger oxygen mask container.
3. Clamp.
4. Upper bracket.
5. Bulkhead.
6. Oxygen cylinder.

### NOTES

1. One passenger oxygen system shown, others similar.
2. The quantity and locations of these oxygen bottles will vary based on aircraft options.

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Passenger Oxygen System Detail  
Figure 4

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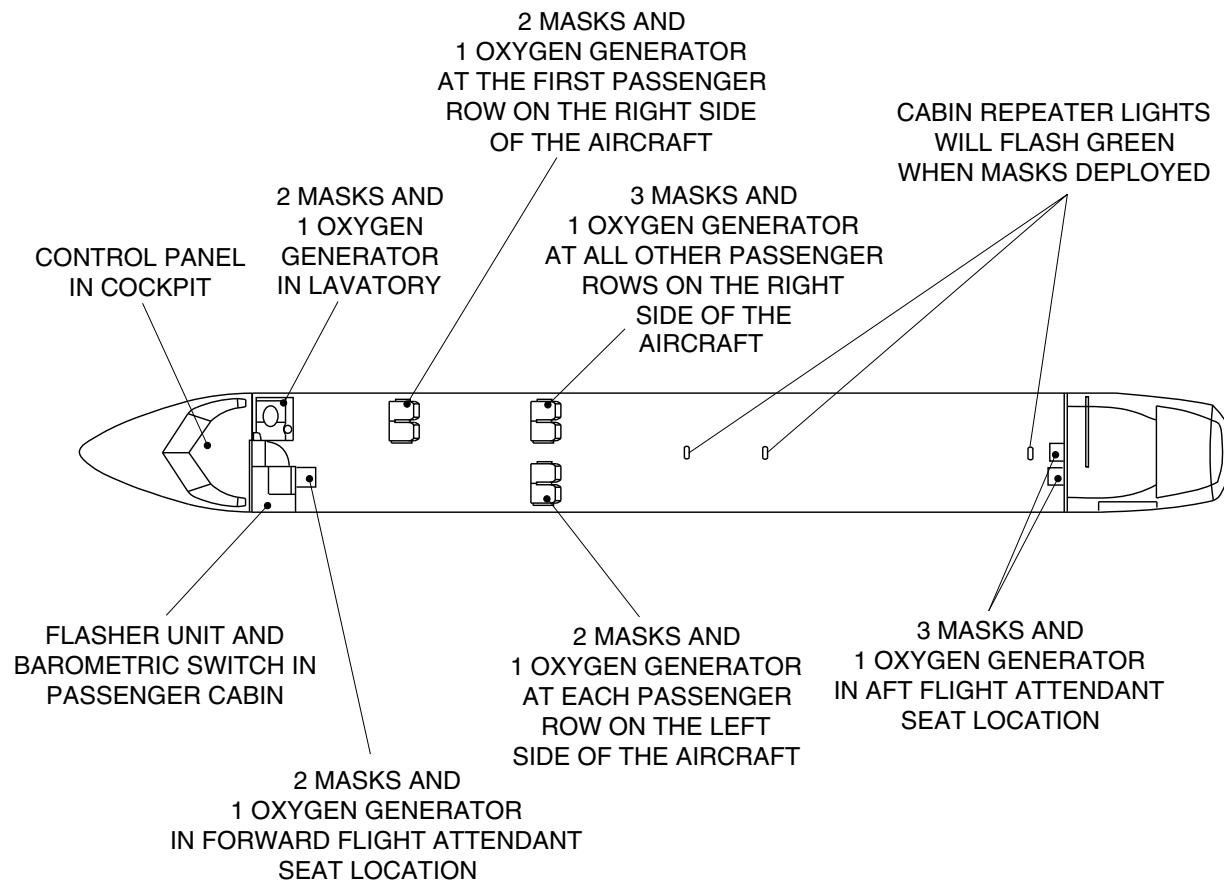
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Drop Down Oxygen System  
Figure 5

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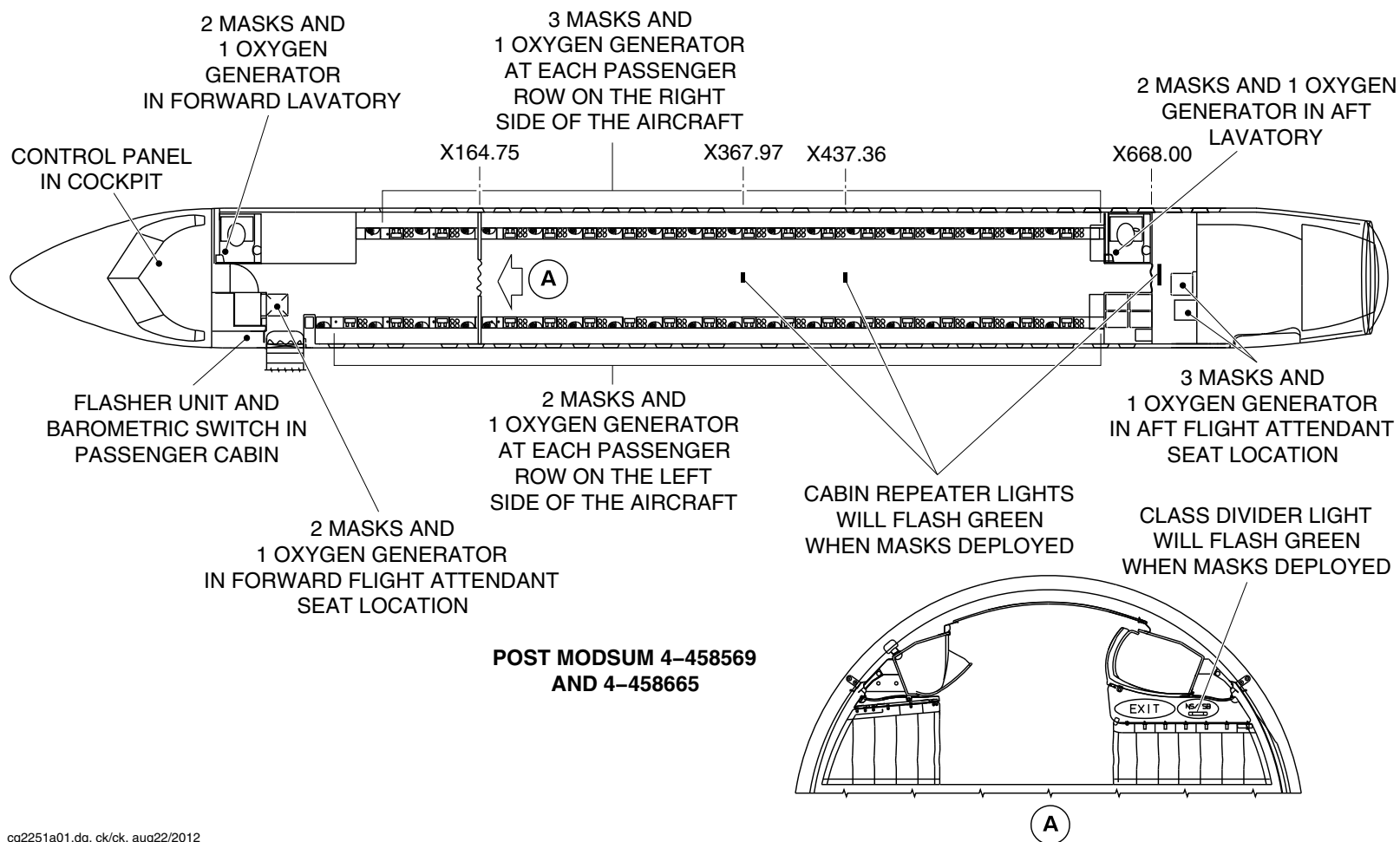
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Drop Down Oxygen System  
Figure 6

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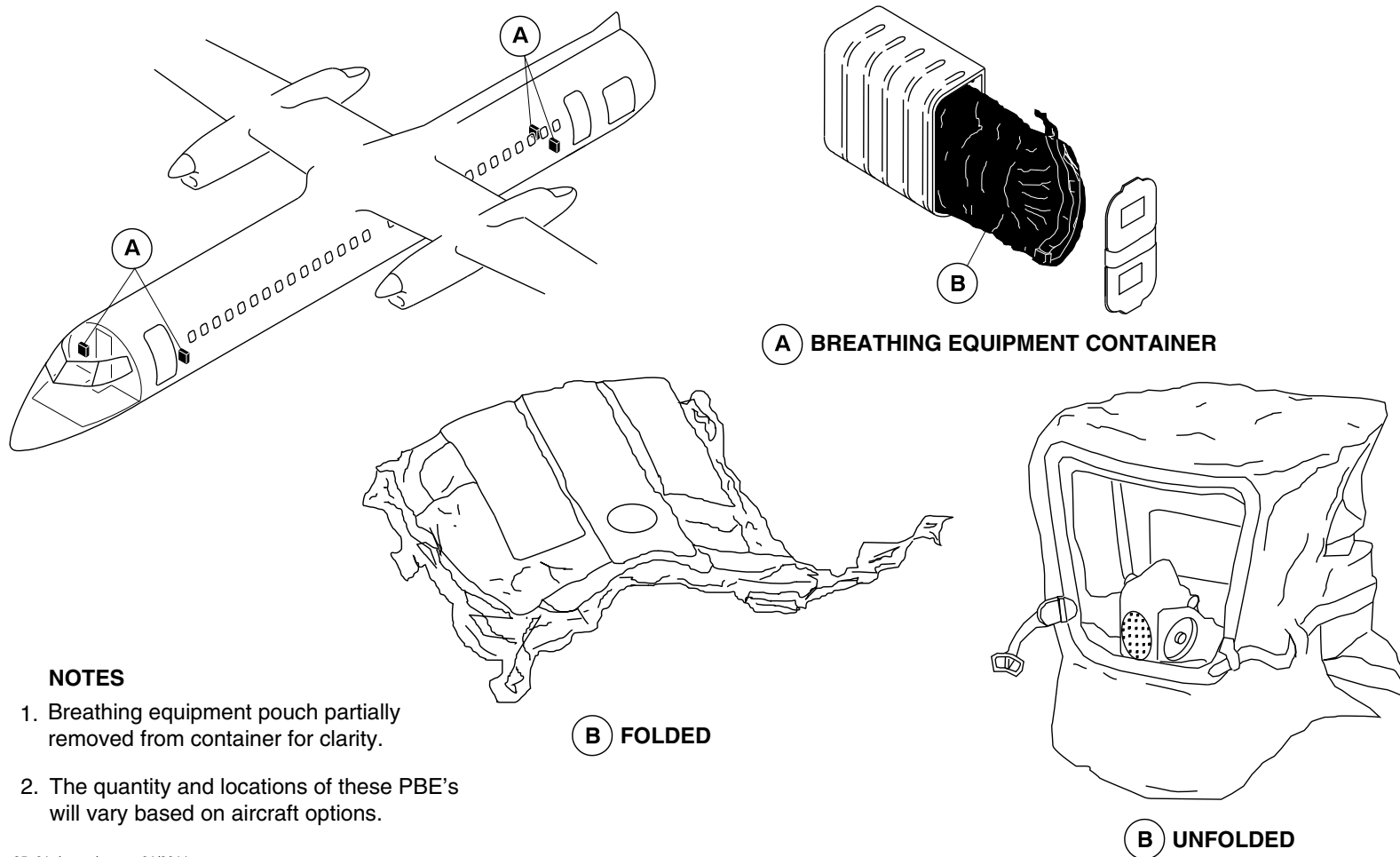
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### NOTES

1. Breathing equipment pouch partially removed from container for clarity.
2. The quantity and locations of these PBE's will vary based on aircraft options.

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Protective Breathing Equipment  
Figure 7

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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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### CREW OXYGEN SYSTEM

#### Introduction

The crew oxygen system supplies oxygen to the crew if there is no pressurization, or there is smoke or noxious gases in the flight compartment.

#### General Description

The crew oxygen system has three oxygen masks for the pilot, co-pilot and observer. There is a 39.8 cu ft (1.127 cu m) oxygen cylinder assembly and distribution tubing, along with approved Protective Breathing Equipment (PBE) for fire fighting purposes. Smoke goggles are supplied for crew protection in the flight compartment.

On aircraft with SB84–35–04 or ModSum 4–429556 or ModSum 4–457149 or ModSum 4–457449 or ModSum 4–458062 or ModSum 4–458280 or ModSum 4–458218 or ModSum 4–460069 incorporated, the crew oxygen system has three full face oxygen masks with smoke goggles for the pilot, copilot and observer.

On aircraft with ModSum 4–459933 or 4–459906 incorporated, the crew oxygen system has three full face oxygen masks for the pilot, copilot and observer.

On aircraft with ModSum 4–429541 or ModSum 4–309249 or SB84–35–02 incorporated, a 50.9 cu ft (1.441 cu m) oxygen cylinder

assembly with onboard charging facility is installed instead of the 39.8 cu ft (1.127 cu m) oxygen cylinder assembly.

The crew oxygen system can supply the three crew members with supplemental oxygen for a 4 minute descent from 25000 to 14000 feet (7620 to 4267 meters) and 116 minutes at 14000 ft (4267 meters). These calculations are done with the oxygen masks selected to the NORM position.

The system has a lighted gauge on the co-pilot's side console and a second gauge on the oxygen cylinder. The operational pressure of the cylinder is 1850 psi (12755 kPa).

The minimum dispatch pressures for each crew configuration is:

- 1383 psi (9536 kPa) for 2 crew
- 1786 psi (12314 kPa) for 3 crew.

On aircraft with ModSum 4–429541 or ModSum 4–309249 or SB84–35–02 incorporated, the minimum dispatch pressures for each crew configuration is:

- 1050 psi (7239.50 kPa) for 2 crew
- 1450 psi (9997.40 kPa) for 3 crew.

The system includes the components that follow:

- Oxygen Cylinder Assembly (35–11–01)
- Crew Mask and Regulator Assemblies (35–11–06)
- Overboard Discharge Indicator (35–12–06)
- Outlet Assemblies (35–11–11)
- Panel Mounted Pressure Gauge (35–12–01)
- Low Pressure Hose Assembly (35–11–00)

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- High Pressure Hose Assembly (35–11–00)
- Capillary Line (35–11–11).

The crew oxygen system includes the subsystems that follow:

- Crew Oxygen Delivery (35–11–00)
- Crew Oxygen Indication and Servicing (35–12–00)
- Protective Breathing Equipment (35–36–00).

### Detailed Description

[Refer to Figures 1 and 2.](#)

The oxygen masks are kept in mask stowage cups attached to the bulkhead immediately above and behind the pilot's and co-pilot's seats. The observer's mask is located on the right hand bulkhead. All three masks are connected to the low pressure distribution lines by individual quick disconnects.

[Refer to Figures 3 and 4.](#)

Each mask has an approved regulator with the modes that follow:

- NORM (normal oxygen diluter demand)
- 100% (100% oxygen demand)
- EMER (emergency pressure oxygen).

[Refer to Figure 5.](#)

Each mask has a microphone with a separate audio connector. The masks are of the quick-donning type and will supply oxygen dilution, and if used with the smoke goggles are approved as Protective Breathing Equipment (PBE). The smoke goggles are kept in pockets in each side console and at the observer's station.

[Refer to Figure 2.](#)

If one mask fails to operate, the observer's mask may be used by either crew member. If either the pilot's or co-pilot's mask fails, the observer is required to use the passenger system. The crew mask outlets are installed with two outlets on the right side of the flight compartment, and one on the left side. The masks will connect with any crew mask outlet in the flight compartment.

[Refer to Figure 6.](#)

The mask supply hose has an in-line pressure indicator to show if there is sufficient oxygen pressure. The indicator shows green with correct pressure and red if the oxygen pressure is low. Each hose also has a quick disconnect fitting to connect with the aircraft supply tubing.

[Refer to Figure 7.](#)

The oxygen cylinder is located in the unpressurized lower right nose compartment, rigidly attached by steel clamps to the outside of the nose landing gear bay side wall. Fabric curtains isolate the cylinder assembly from the hydraulic components in the bay immediately aft, and from the hydraulic tubes below. The oxygen cylinder must be removed from the aircraft for servicing. The oxygen cylinder pressure gauge shows the cylinder pressure.

The flight compartment gauge shows the amount of oxygen available to the masks. If the oxygen cylinder is turned off, the cylinder low pressure is automatically reduced to atmospheric pressure. If the oxygen cylinder is turned off, the gauge continues to show bottle pressure.

[Refer to Figure 8.](#)

The cylinder is attached to the low pressure distribution tubing by a low pressure hose with a quick disconnect connector. The tubing



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passes through the pressure bulkhead by a fitting. It then divides and is routed left and right under the flight compartment floor and then up the aft bulkhead to the mask outlets. The tubing is thin walled stainless steel and all joints are Permaswaged except at the hose and crew mask disconnects which are flareless. The tubing is held in place by cushioned clamps.

Refer to Figure 9.

High pressure tubing is 0.0625 inch diameter (1.59 millimeter) brass capillary and is routed through the co-pilot's side console to the flight compartment pressure gauge. The connection to the cylinder is by a coil tube.

Refer to Figure 10.

A high pressure hose connects the safety vent to an overboard discharge indicator located on the right side of the nose.

### Preflight Testing

To test the crew oxygen mask before flight:

- Remove mask from stowage cup by holding the control knob.
- Push the red harness inflation button on the regulator — the harness should inflate smoothly.
- Release the red harness inflation button — the harness should deflate smoothly.
- Put on the mask and breathe normally, check the EMER, 100% and NORM positions — the mask should not vibrate — the pressure indicator should show green.
- Speak into the mask to check the microphone and volume.

- Take the mask off and put it back in the stowage cup.

To test the crew oxygen mask before flight, without removing it:

- Make sure the audio jack is correctly connected.
- Make sure the oxygen hose is correctly attached to the oxygen outlet.
- Make sure the minimum pressure is supplied by seeing that the pressure indicator shows green.
- Make sure the regulator works by turning the control knob to the EMER position — keeping the control knob in the EMER position can empty the oxygen system.
- The microphone can be checked by listening to the regulator pressurization in the headset.

### Emergency Use

To put the mask on in an emergency:

- Remove headset.
- Hold the mask regulator unit with the control knob in the palm of the hand and quickly remove the mask from the cup.
- Hold the sides of the regulator with the thumb and middle finger and push the red inflation button.
- With the hand down and the face seal up, flip the inflated harness out of the way.
- Smoothly lift the inflated mask above the head, with the back of the harness on the back of the neck.



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- With the harness hooked behind the head, lower the mask from the forehead to the chin, putting the mask cone on the face.
- Release the red harness inflation button.
- Make sure the mask fits, seals and operates correctly.
- If necessary, replace headset.

### **Smoke Protection**

For smoke protection:

- Put on the crew oxygen mask as above.
- Remove smoke goggles from storage and put them on.
- Tighten the smoke goggle straps.
- Turn the control knob to the EMER position to purge the goggles and prevent infiltration of smoke.
- The control knob can be turned to either the EMER or 100% position as necessary.

### **Oxygen Cylinder Assembly**

Refer to Figures 11 and 12.

An aluminum, Kevlar composite cylinder which gives 39.8 cu ft (1.127 cu m) of oxygen when charged to 1850 psi (12755 kPa) at 70 °F (21.1 °C) is installed. The regulator supplies a minimum of 270 L/min flow, and has a pressure gauge, quick disconnect fitting and high pressure charging valve.

On aircraft with ModSum 4–429541 or ModSum 4–309249 or SB84–35–02 incorporated, a 50.9 cu ft (1.441 cu m) oxygen cylinder assembly is installed. This aluminum, Kevlar composite cylinder gives 50.9 cu ft (1.441 cu m) of oxygen when charged to 1850 psi (12755 kPa) at 70 °F (21.1 °C). The regulator supplies a minimum of 270 L/min flow, and has a pressure gauge, quick disconnect fitting and high pressure charging valve.

### **Crew Mask**

There are three masks installed in the aircraft. Each mask has an inflatable harness so that the mask can be put on in five seconds. The mask also has a microphone with an audio connector. The automatic diluter demand regulator installed on each mask is controlled by a rotary knob which has three positions:

- NORM position, the regulator automatically supplies an air/oxygen mixture
- 100% position, the regulator supplies 100% oxygen regardless of altitude
- EMER position, regulator supplies 100% oxygen at a positive pressure in the face piece.

### **Smoke Goggles**

The smoke goggles have a Lexan lens and a silicone face seal and strap.

### **Mask Stowage Cup**

The stowage cups are molded polycarbonate assemblies which help the quick donning requirements.



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### Overboard Discharge Indicator

Refer to Figure 13.

The assembly is connected to the high pressure dump hose. The assembly includes a green disk on the right side of the aircraft nose. If there is an over pressurization of the oxygen cylinder, the green burst disk is blown out. The disc will blow out if the pressure is more than 2575 to 2775 psi (17754 to 19133 kPa) at 70 °F (21.1 °C).

### Onboard Charging Facility

On aircraft with ModSum 4–429541 or ModSum 4–309249 or SB84–35–02 incorporated, onboard charging facility is installed to directly charge the cylinder on the aircraft without removing it. The charging valve is located on the right side nose section between the sta. X–124.00 and X–146.84.

### Outlet Assemblies

There is a single outlet behind the pilot and two outlets behind the co–pilot. The outlet behind the co–pilot also supplies the connection for the observer's mask. The outlets have dust covers and connect with the supply hose of the crew oxygen masks.

### Flight Compartment Pressure Gauge

The flight compartment gauge uses a Bourden tube actuator and is burst rated to 3000 psig (20684 kpas). The gauge has a 5 Vdc bulb for illumination. The gauge connects with an adapter to a capillary line which is routed to the cylinder assembly.

### Low Pressure Hose Assembly

The low pressure hose assembly connects the cylinder assembly to the stainless steel distribution tubes. The hose is PVC tubing with a Nomex (fire retarding) braid.

### High Pressure Hose Assembly

The high pressure hose assembly connects the safety port of the cylinder assembly to the overboard discharge indicator. The hose has an outer braid of stainless steel and is rated to 12000 psi (82737 kPa).

### Capillary Line

The capillary line connects the oxygen cylinder to the flight compartment pressure gauge. The line is made from seamless copper alloy tubing.

### Crew Oxygen Delivery

The crew oxygen delivery system supplies the pilot, co–pilot and observer with breathable oxygen to safely land the aircraft in an emergency situation.

### Crew Oxygen Indication and Servicing

Crew oxygen indication and servicing is by the use of the flight compartment oxygen pressure gauge and the overboard discharge indicator. With these components the crew oxygen system can be monitored and maintained to help insure the safety of the crew.





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### Leak Test of the Crew Oxygen System

Oxygen system lines must be pressure tested with the high pressure nitrogen test rig. This test makes sure that there are no leaks at all of the fittings or connections between the oxygen system lines and/or between the lines and the functional equipment of the oxygen system. If there is a leak in the system, this test will find the leak areas. After the necessary repair, the test must be done again until all leaks are eliminated.

Leak test is done in the sequence that follows:

- Pressure test on low pressure lines with nitrogen at 160 psi (1103 kPa) for 15 minutes.
- Purging of low pressure lines with nitrogen at 25 psi (172 kPa) pressure for 30 seconds.
- Pressure test on high pressure lines with nitrogen at 2800 psi (19305 kPa) for 15 minutes.
- Purging of high pressure lines with nitrogen at 250 psi (1724 kPa) pressure for 30 seconds.
- Purging of low pressure lines with oxygen at 70 psi (482 kPa) pressure for 15 seconds.
- Purging of high pressure lines with oxygen by increasing pressure to 1850 psi (12755 kPa) in 10 seconds.
- Final leak test with oxygen.

Purging of lines are done by applying pressure at one end of the line and keep the other ends open. The pressure test and the leak test are done by applying pressure at one end and putting caps on all other ends. Leaks will be detected by comparing the pressures before and after the testing period. A drop in the final pressure will

indicate a leak. Leaks must be located with applicable leak detector solution.

Bonding test is done before introducing oxygen in the lines. This test makes sure that the conductivity between the oxygen carrying components and the aircraft ground is sufficient to prevent hazardous conditions because of the electrical charges.

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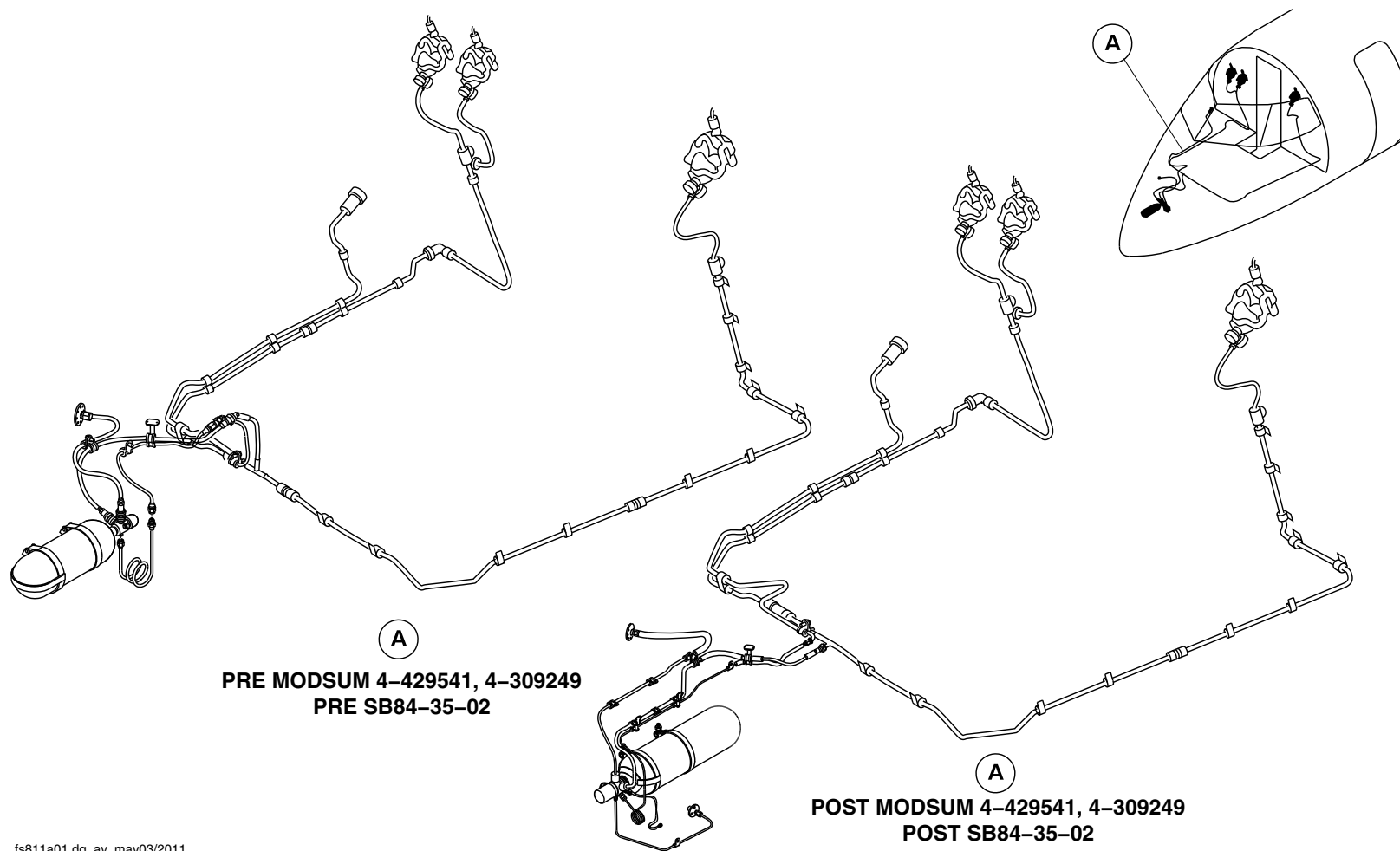
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Crew Oxygen System Locator  
Figure 1

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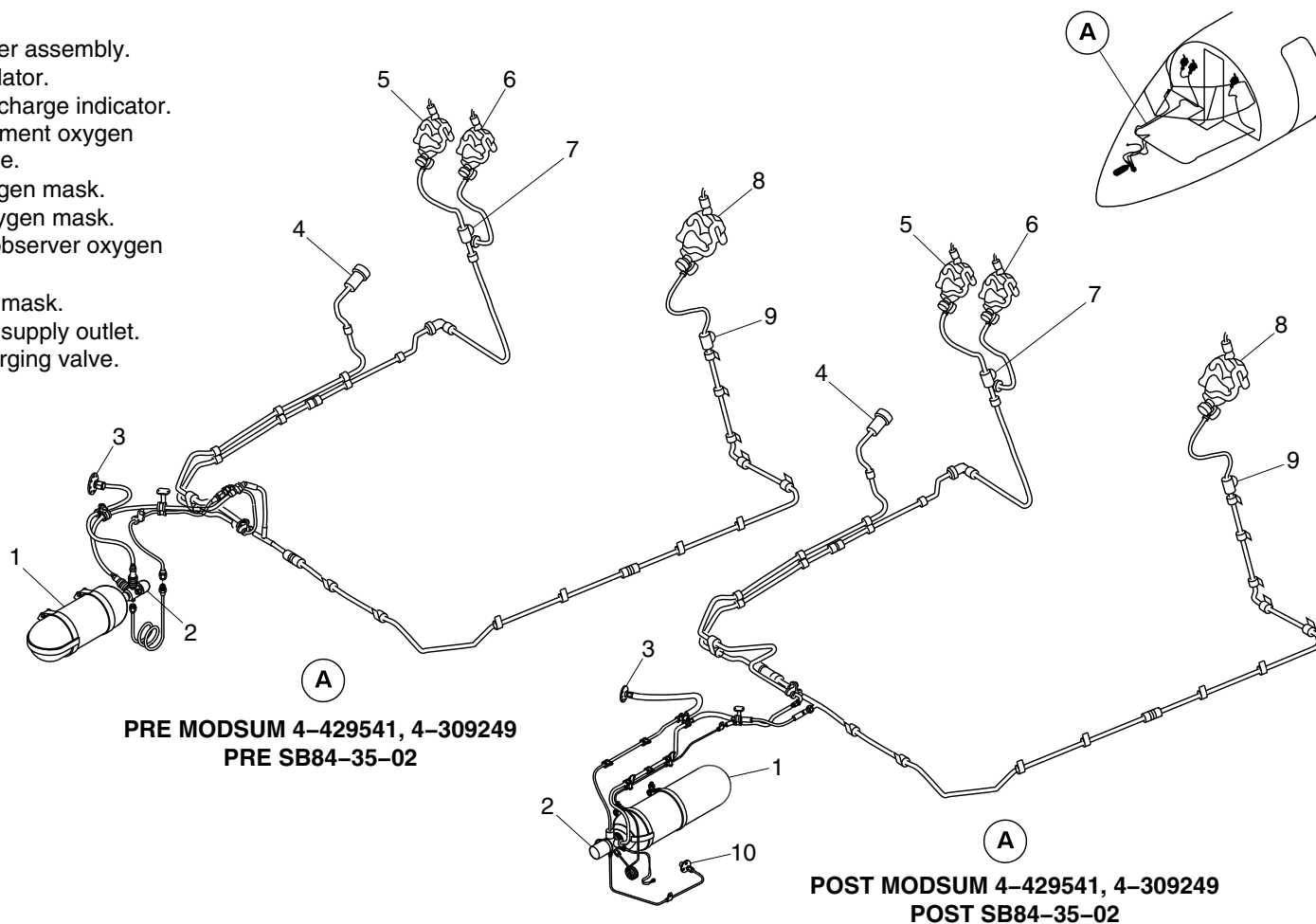


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### LEGEND

1. Oxygen cylinder assembly.
2. Pressure regulator.
3. Overboard discharge indicator.
4. Flight compartment oxygen pressure gauge.
5. Co-pilot's oxygen mask.
6. Observer's oxygen mask.
7. Co-pilot and observer oxygen supply outlet.
8. Pilot's oxygen mask.
9. Pilot's oxygen supply outlet.
10. On-board charging valve.



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Crew Oxygen System Detail  
Figure 2

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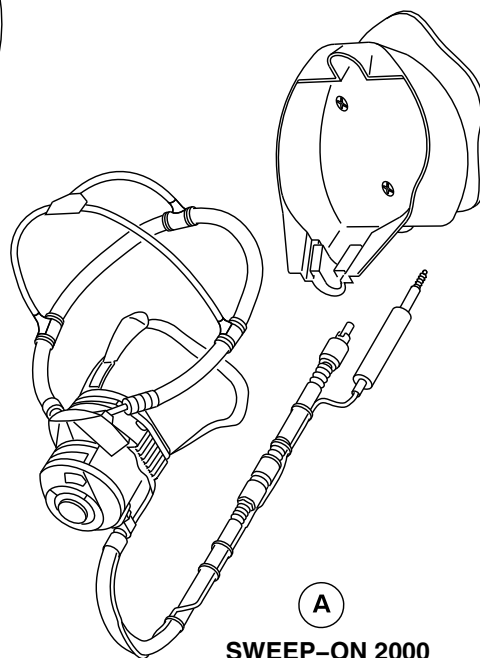
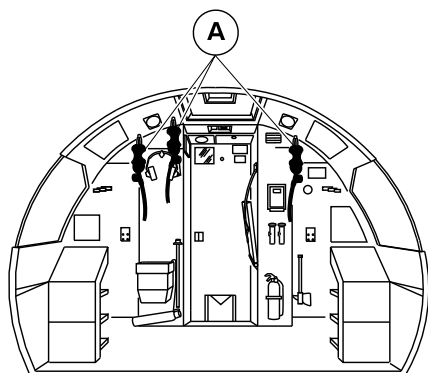
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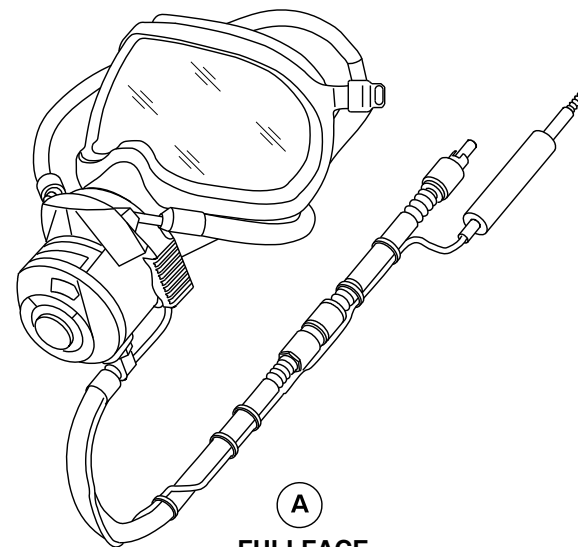


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**SWEEP-ON 2000  
CREW MASK**



**FULLFACE  
CREW MASK**

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Crew Oxygen Mask Locator  
Figure 3

PSM 1-84-2A  
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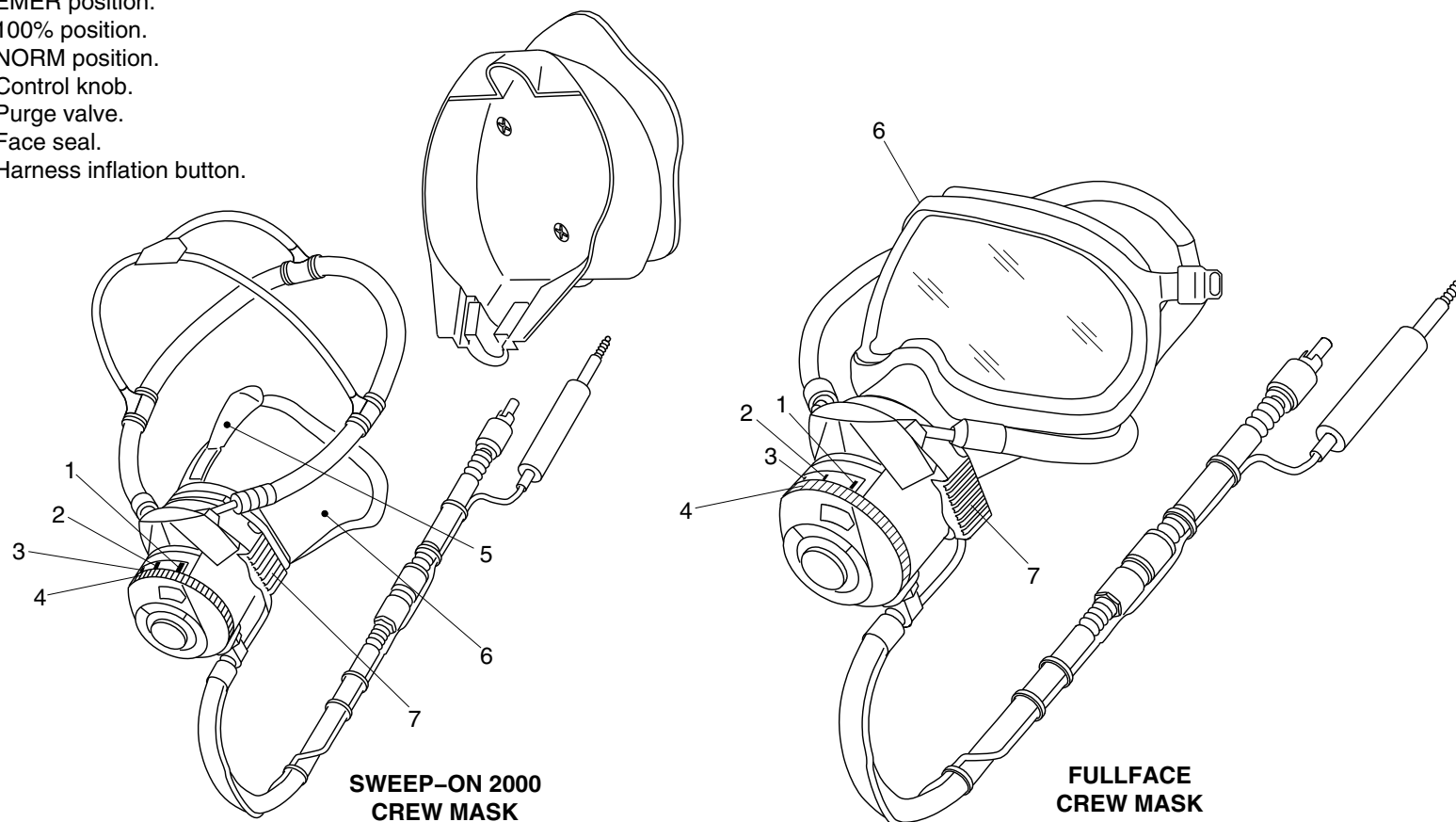


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### LEGEND

1. EMER position.
2. 100% position.
3. NORM position.
4. Control knob.
5. Purge valve.
6. Face seal.
7. Harness inflation button.



fs942a01.dg, ms, oct14/2011

Crew Oxygen Mask Operating Positions  
Figure 4

PSM 1-84-2A  
EFFECTIVITY:  
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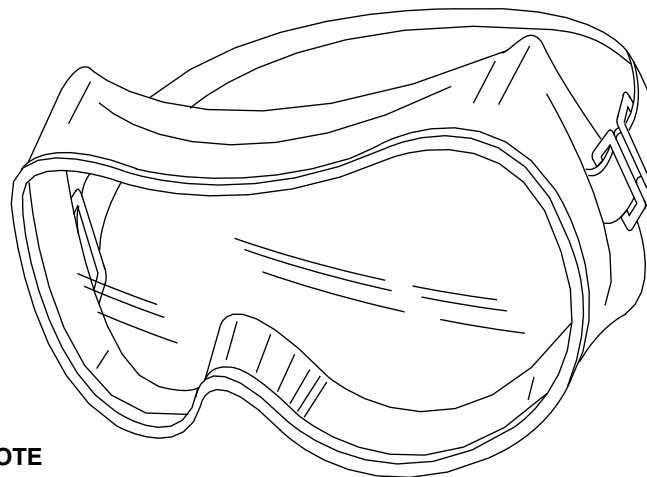
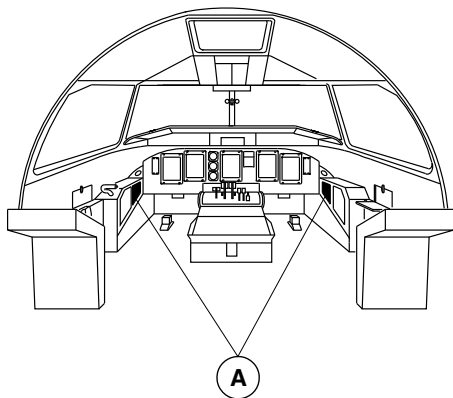
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



### NOTE

One Pair Shown.  
Other Pair Similar.

A

fsb22a01.cgm

SMOKE GOGGLES  
Figure 5

PSM 1-84-2A  
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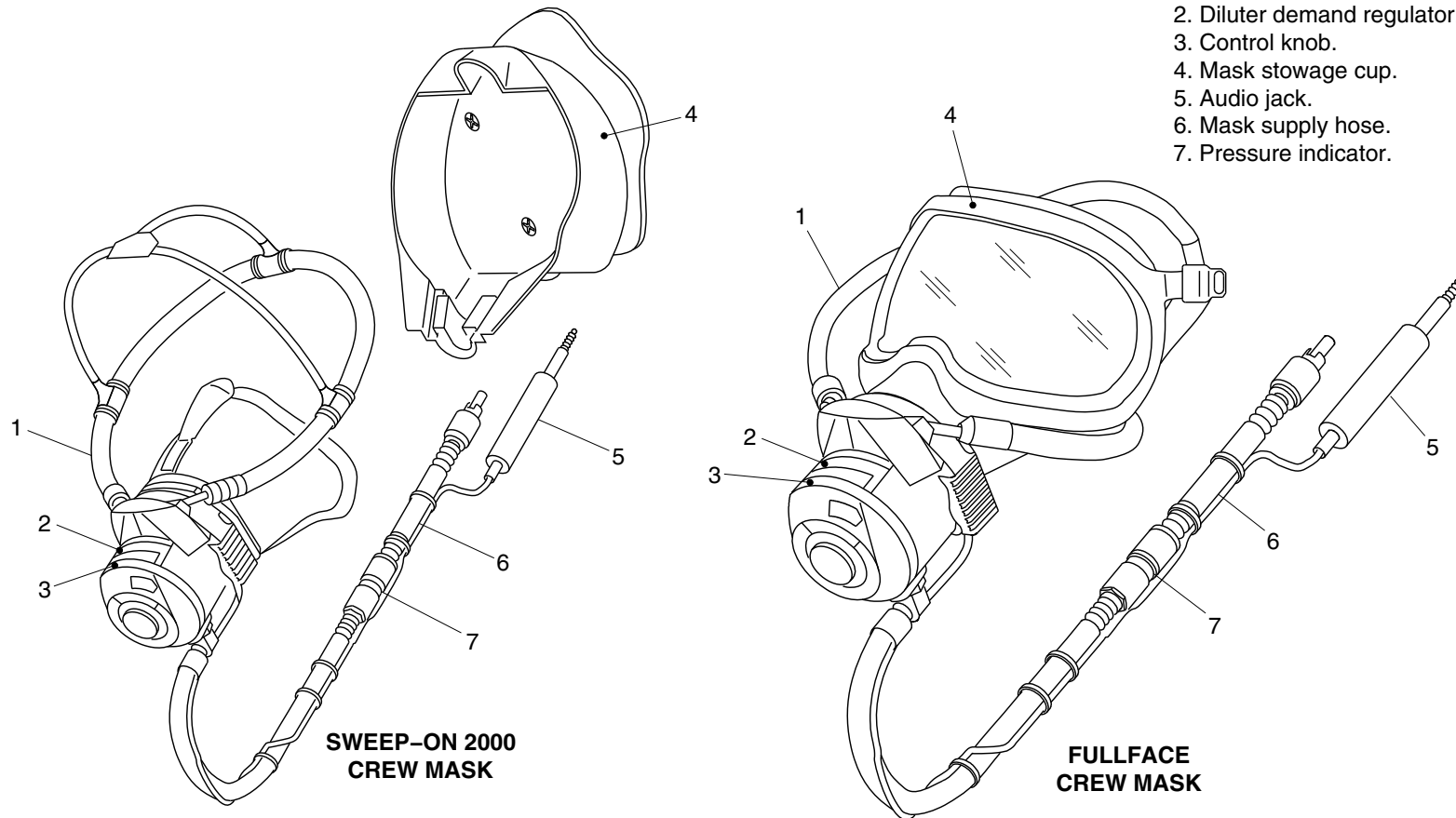


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### LEGEND

1. Inflatable harness.
2. Diluter demand regulator.
3. Control knob.
4. Mask stowage cup.
5. Audio jack.
6. Mask supply hose.
7. Pressure indicator.



fs931a01.dg, ms, oct14/2011

Crew Oxygen Mask Detail  
Figure 6

PSM 1-84-2A  
EFFECTIVITY:  
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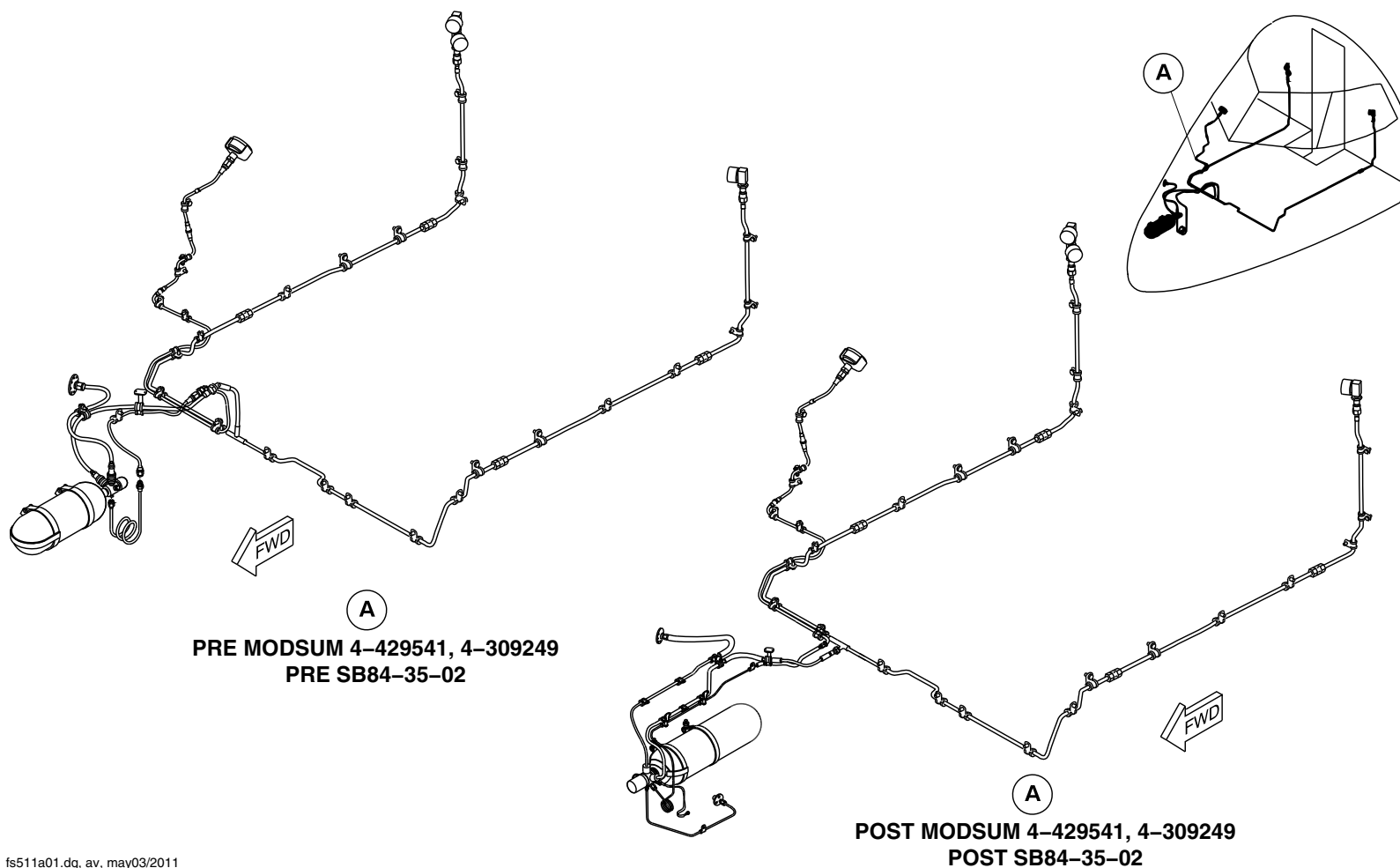
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



fs511a01.dg, av, may03/2011

Crew Oxygen System Lines Locator  
Figure 7

PSM 1-84-2A  
EFFECTIVITY:  
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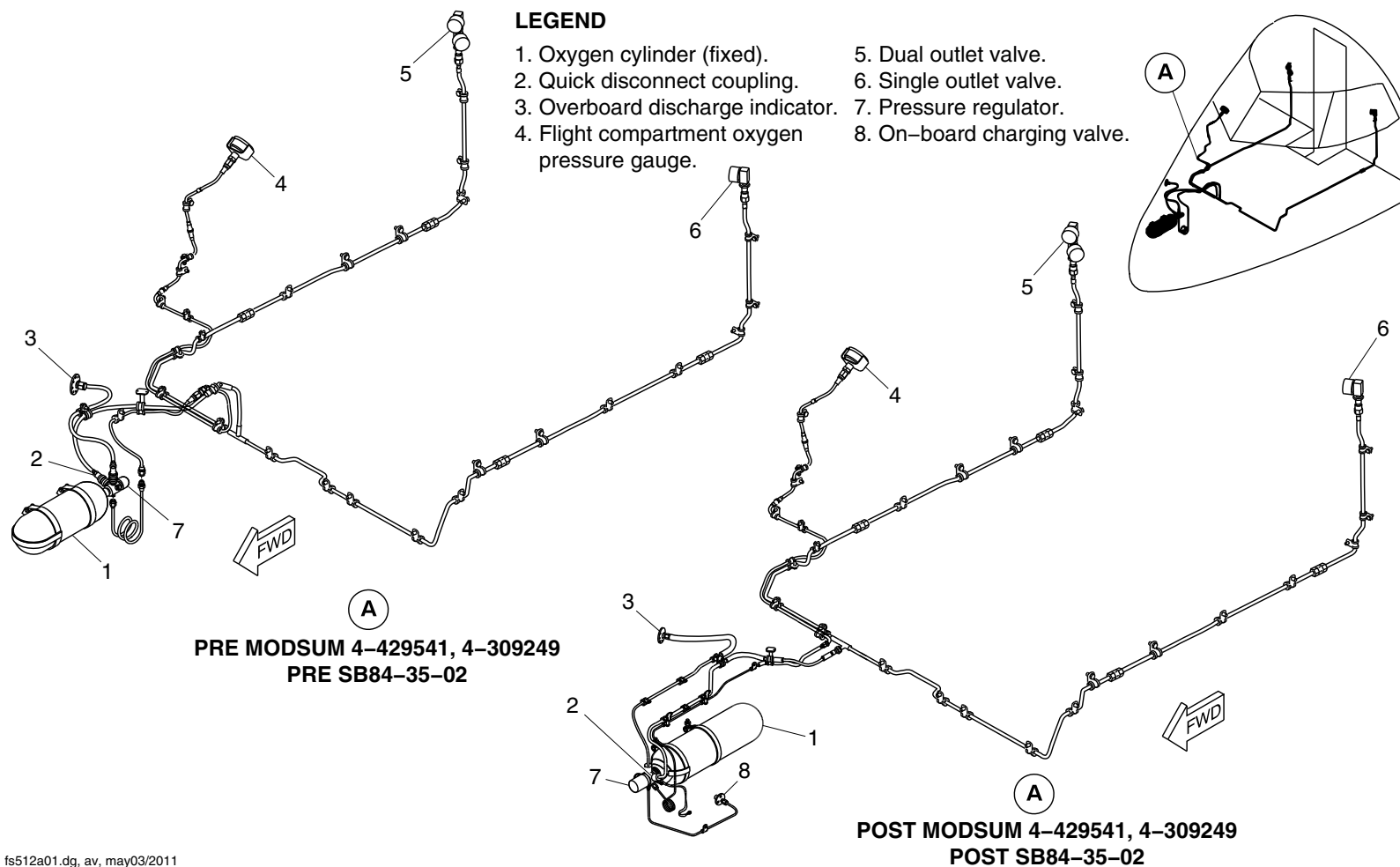
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



fs512a01.dg, av, may03/2011

Crew Oxygen System Lines  
Figure 8

PSM 1-84-2A  
EFFECTIVITY:  
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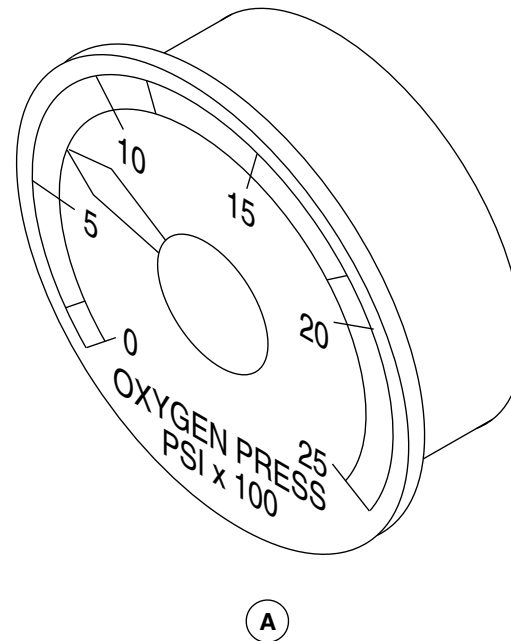
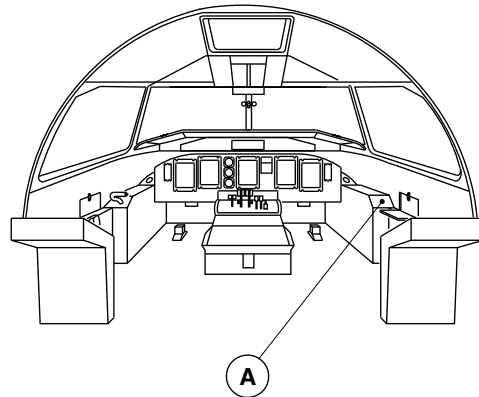
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



fs810a01.cgm

Flight Compartment – Oxygen Pressure Gauge  
Figure 9

PSM 1-84-2A  
EFFECTIVITY:  
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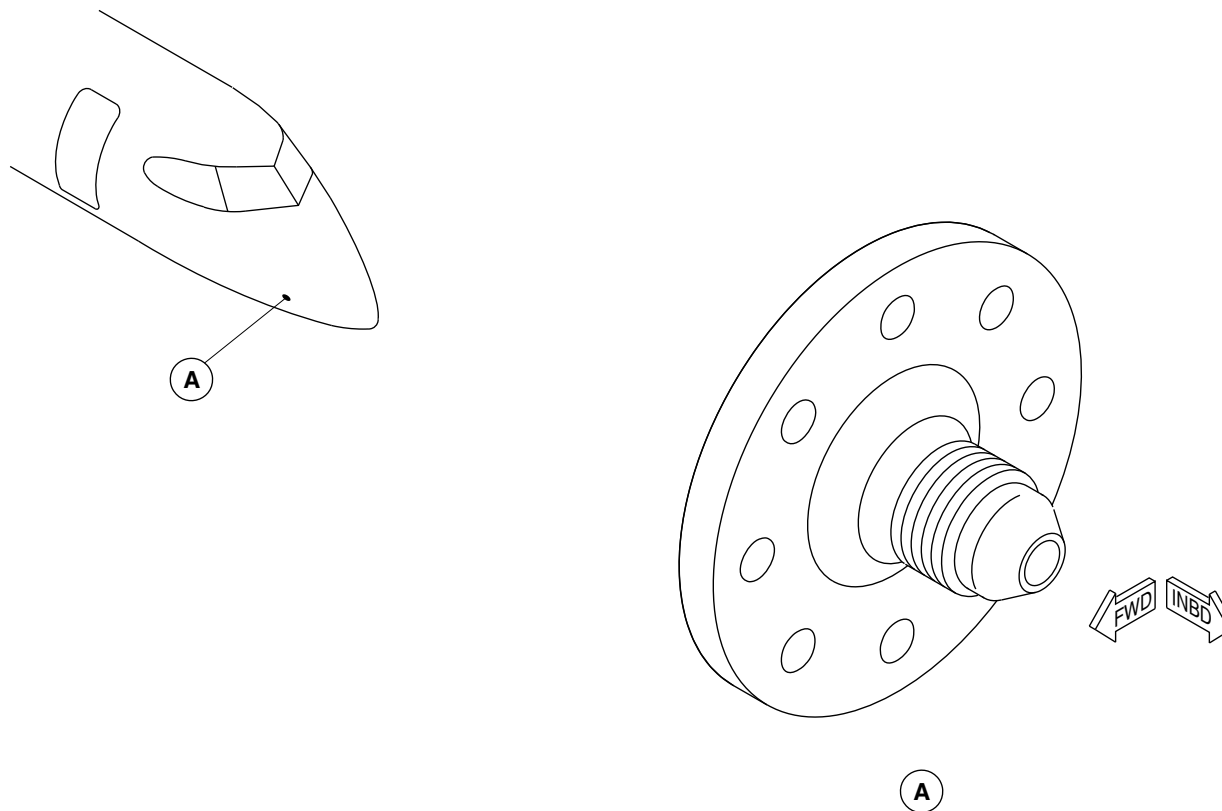
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



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OVERBOARD DISCHARGE INDICATOR LOCATOR  
Figure 10

PSM 1-84-2A  
EFFECTIVITY:  
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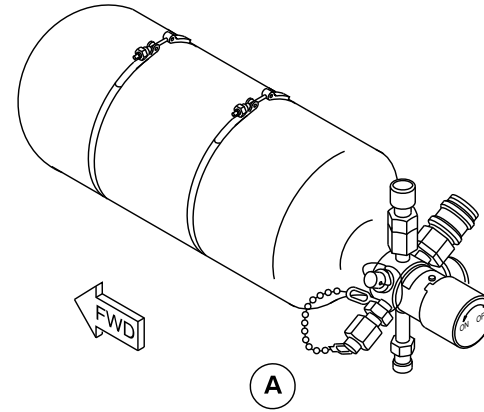
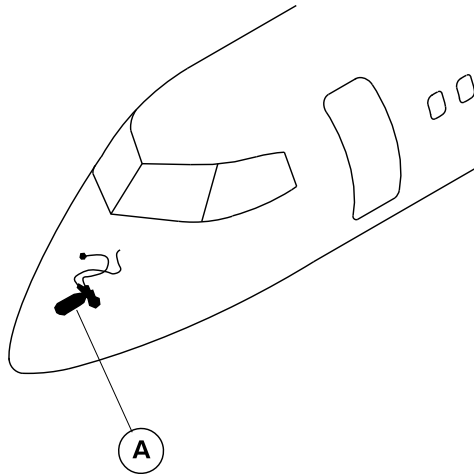
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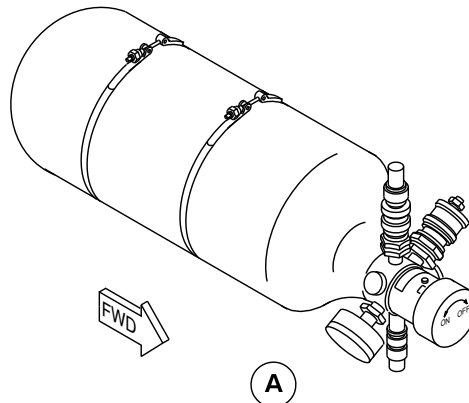


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



PRE MODSUM 4-429541, 4-309249  
PRE SB84-35-02



POST MODSUM 4-429541, 4-309249  
POST SB84-35-02

fs953a01.dg, av, may03/2011

Crew Oxygen Cylinder Locator  
Figure 11

PSM 1-84-2A  
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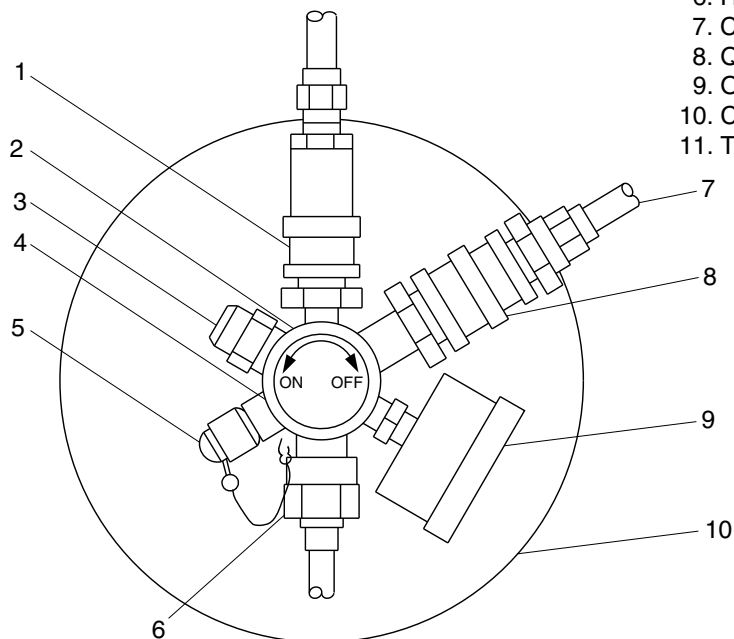


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

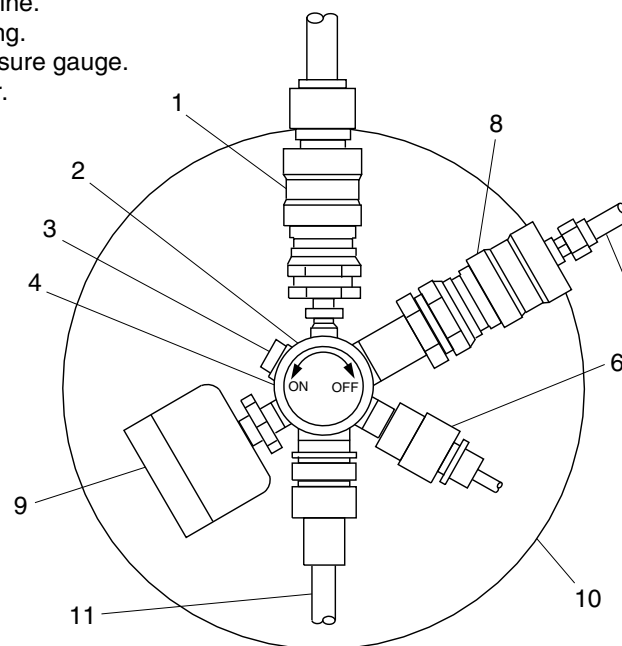
### LEGEND

1. High pressure relief port.
2. Pressure regulator.
3. Low pressure relief valve.
4. ON-OFF Knob.
5. Charging valve.
6. High pressure fitting.
7. Crew oxygen supply line.
8. Quick disconnect fitting.
9. Oxygen cylinder pressure gauge.
10. Crew oxygen cylinder.
11. Tube assy charging.



**PRE MODSUM 4-429541, 4-309249  
PRE SB84-35-02**

fs954a01.dg, av, may03/2011



**POST MODSUM 4-429541, 4-309249  
POST SB84-35-02**

Crew Oxygen Cylinder Detail  
Figure 12

PSM 1-84-2A  
EFFECTIVITY:  
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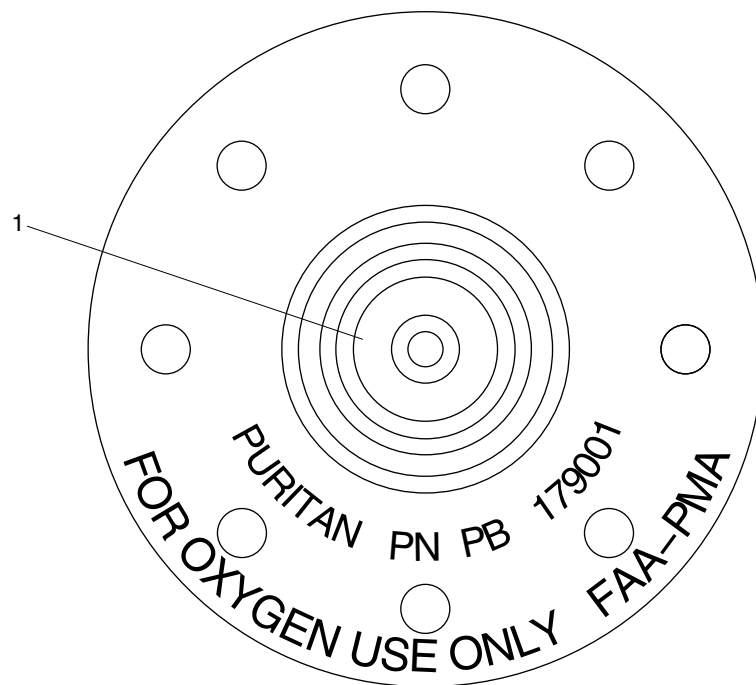
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



### LEGEND

- 1. Green Burst Disc.

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OVERBOARD DISCHARGE INDICATOR DETAIL  
Figure 13

PSM 1-84-2A  
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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**35-11-00-001**

### **CREW OXYGEN DELIVERY**

#### **Introduction**

The crew oxygen delivery system supplies oxygen to the pilot, co-pilot and observer. There is a sufficient quantity of oxygen to include all emergencies.

#### **General Description**

Refer to Figure 1.

The crew oxygen delivery system contains an oxygen cylinder assembly, crew oxygen masks and lines and outlets.

The crew oxygen delivery system includes the components that follow:

- The Oxygen Cylinder Assembly (35-11-01)
- The Crew Oxygen Masks (35-11-06)
- The Lines and Outlets (35-11-11)

#### **Detailed Description**

The crew oxygen delivery system is installed in the flight compartment and nose of the aircraft. It supplies oxygen to the pilot, co-pilot and observer if there is no pressurization or there is smoke or dangerous gases in the flight compartment.

#### **Oxygen Cylinder Assembly**

The oxygen cylinder assembly is installed in the unpressurized lower right nose compartment. The oxygen cylinder assembly supplies oxygen to the pilot, co-pilot and observer. The capacity of the oxygen cylinder is 39.8 cu ft (1.127 cu m) of oxygen at the rated pressure of 1850 psi (12755 kPa). The capacity of the oxygen cylinder at an ambient pressure of 14.7 psi (101.35 kPa) and an ambient temperature of 70 °F (21.1 °C) is also 39.8 cu ft (1.127 cu m). The minimum dispatch pressure for each crew configuration is 1383 psi (9535 kPa) for two persons and 1786 psi (12314 kPa) for three persons.

On aircraft with ModSum 4-429541 or ModSum 4-309249 or SB84-35-02 incorporated, a 50.9 cu ft (1.441 cu m) oxygen cylinder assembly is installed instead of the 39.8 cu ft (1.127 cu m) oxygen cylinder assembly. The capacity of the oxygen cylinder is 50.9 cu ft (1.441 cu m) of oxygen at the rated pressure of 1850 psi (12755 kPa). The capacity of the oxygen cylinder at an ambient pressure of 14.7 psi (101.35 kPa) and an ambient temperature of 70 °F (21.1 °C) is also 50.9 cu ft (1.441 cu m). The minimum dispatch pressure for each crew configuration is 1050 psi (7239.50 kPa) for two persons and 1450 psi (9997.40 kPa) for three persons.

The oxygen cylinder assembly contains the parts that follow:

- High pressure charge valve
- High pressure fitting assembly
- Pressure gauge
- Low pressure port
- Quick disconnect adaptor
- High pressure safety fitting

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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

- Regulator
- Low pressure plug

unit which is used to connect the oxygen masks for the co-pilot and the observer.

### **Crew Oxygen Masks**

The crew oxygen masks are installed in the flight compartment aft of the pilot and co-pilot. The masks are the quick donning type with an automatic diluter demand regulator. The masks have an operating pressure range of 60 to 95 psi (414 to 655 kPa). Each mask is equipped with a microphone and can be worn with the smoke goggles. The smoke goggles are installed in the flight compartment aft of the pilot and co-pilot. The crew oxygen masks also have a control knob. When the control knob is set to the "NORM" position, it regulates an air-oxygen mixture that complies with TSO-C98 regulations.

### **Lines and Outlets**

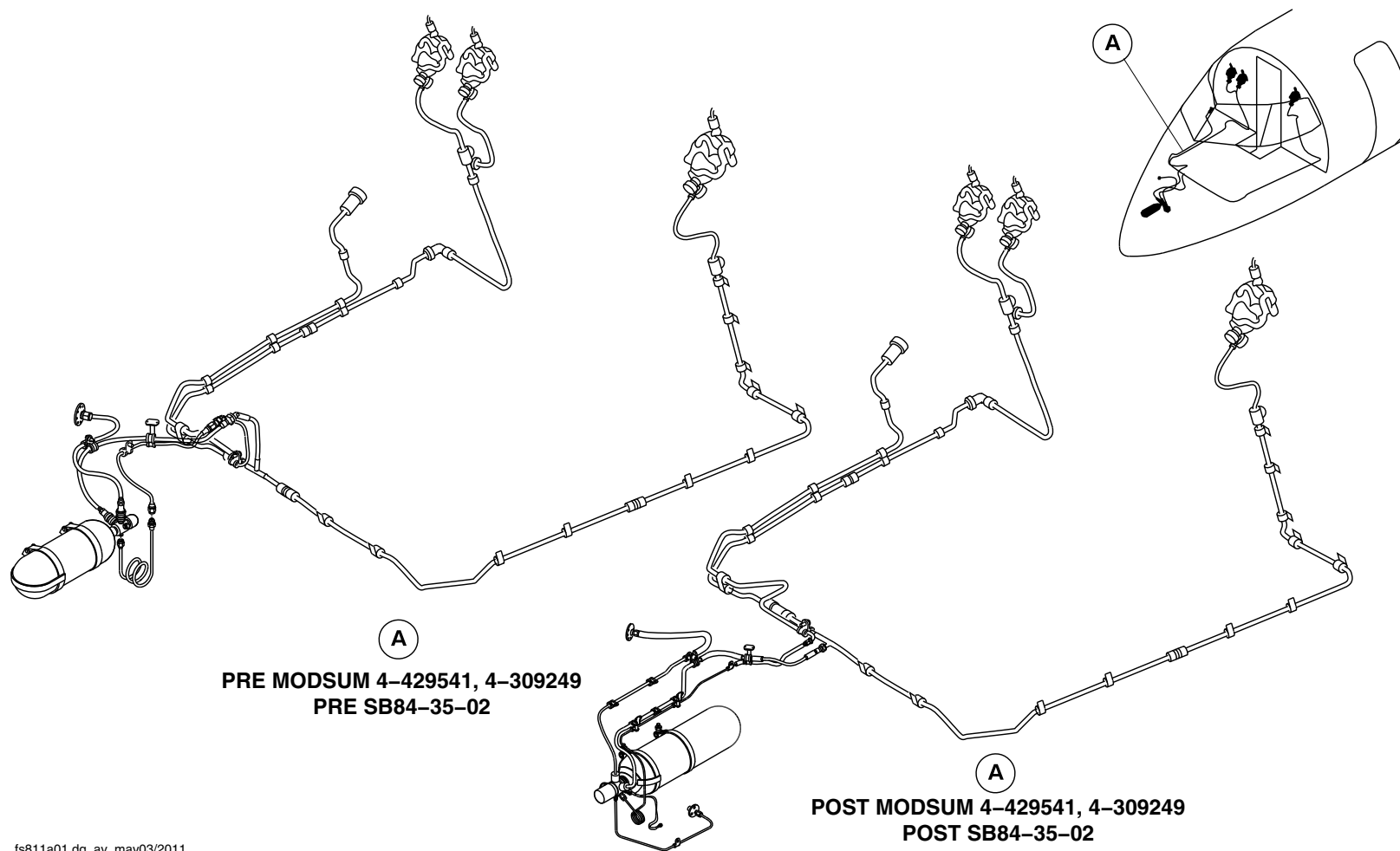
The lines and outlets are installed in the flight compartment. The lines and outlets let the pilot and the co-pilot receive oxygen from the cylinder assembly. The lines and outlets also let the pilot and co-pilot quickly connect the oxygen masks in an emergency. The lines and outlets contain the oxygen outlet valve assembly, the hose assembly, and the capillary line assembly. The hose assembly and the capillary line assembly move oxygen from the oxygen cylinder assembly to the oxygen outlet valve. The oxygen outlet valve lets the pilot and co-pilot attach the crew oxygen masks into the crew oxygen system. The oxygen outlet has an operating pressure of 5 to 100 psi (34.5 to 689.5 kPa). There are two oxygen outlet valves installed in the flight compartment. The first oxygen outlet valve is installed aft of the pilot. This is a single outlet unit. The second oxygen outlet valve is installed aft of the co-pilot. This is a dual outlet





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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



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Crew Oxygen System Delivery Locator  
Figure 1

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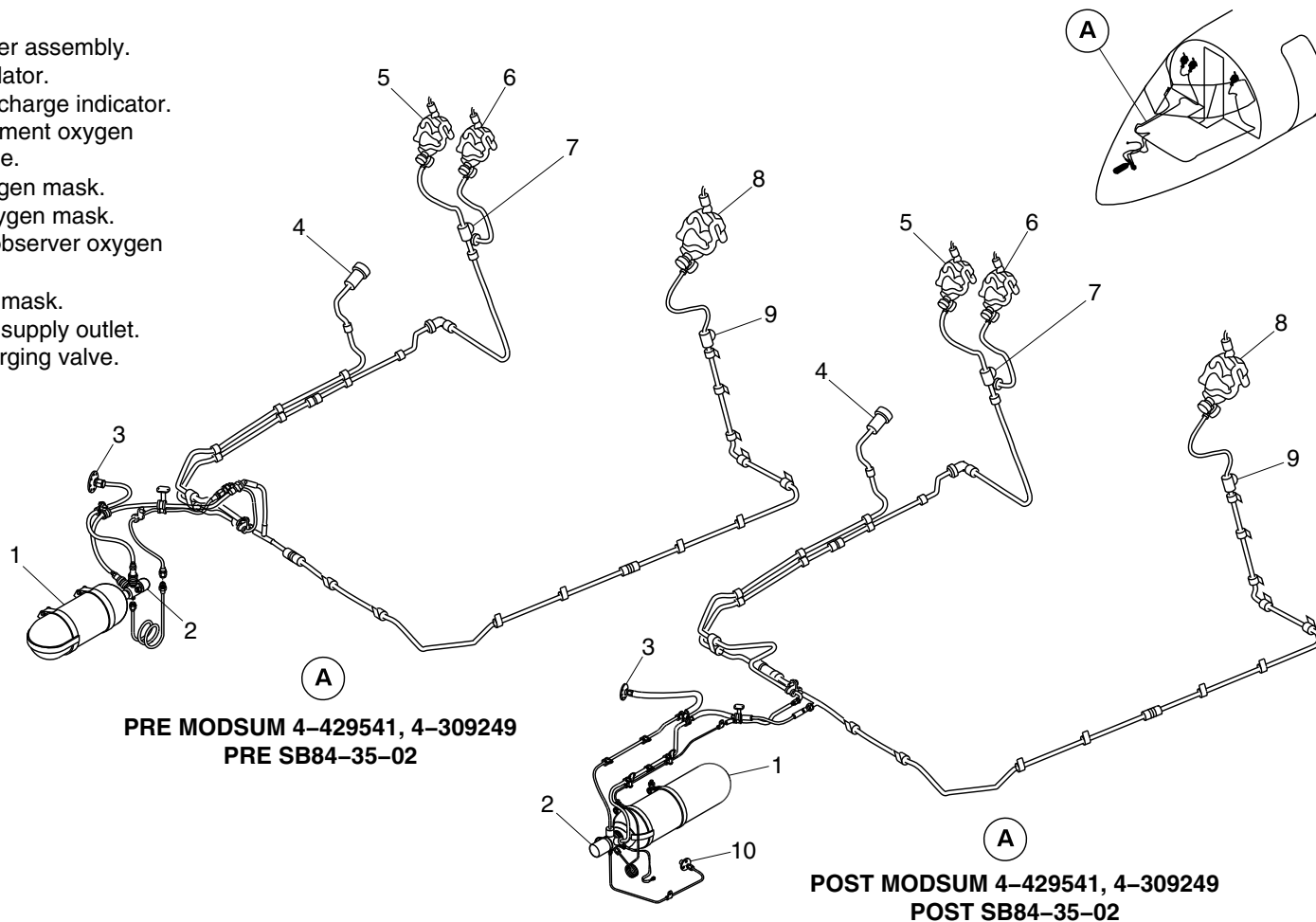


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### LEGEND

1. Oxygen cylinder assembly.
2. Pressure regulator.
3. Overboard discharge indicator.
4. Flight compartment oxygen pressure gauge.
5. Co-pilot's oxygen mask.
6. Observer's oxygen mask.
7. Co-pilot and observer oxygen supply outlet.
8. Pilot's oxygen mask.
9. Pilot's oxygen supply outlet.
10. On-board charging valve.



fs812a01.dg, av, may03/2011

Crew Oxygen System Delivery Detail  
Figure 2

PSM 1-84-2A  
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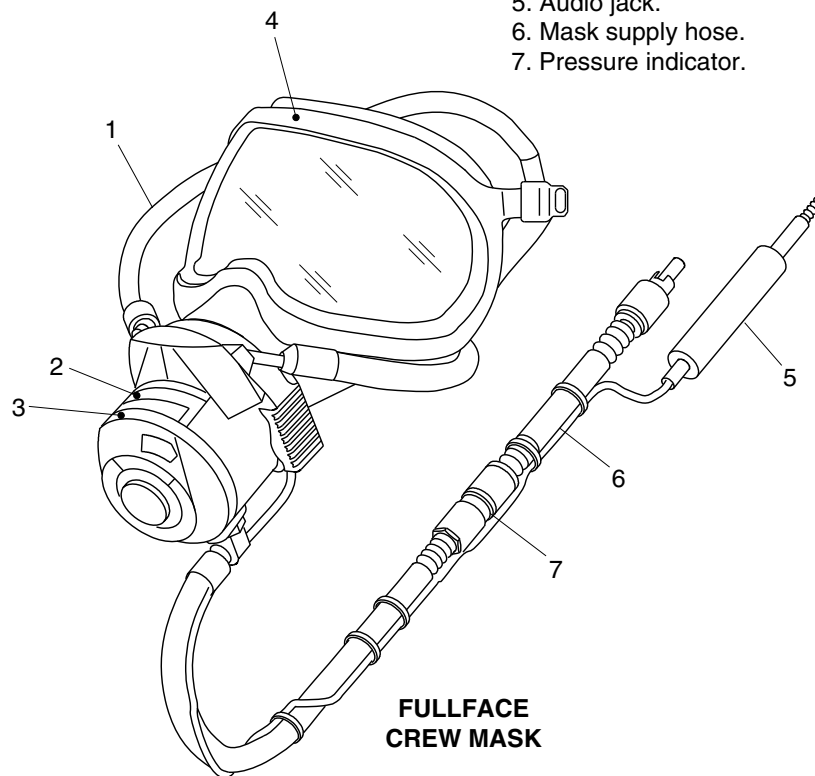
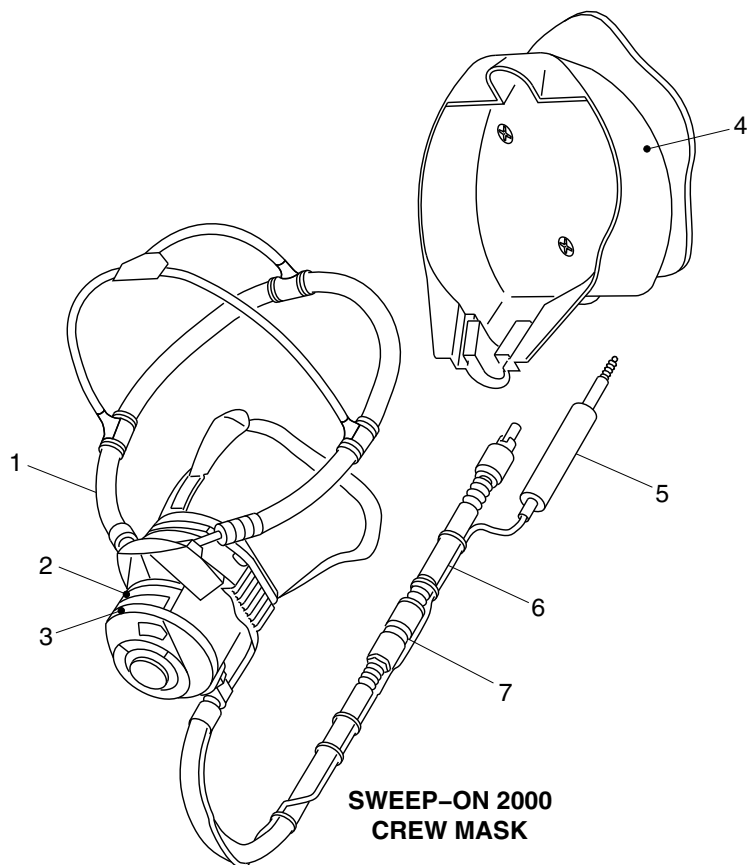


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### LEGEND

1. Inflatable harness.
2. Diluter demand regulator.
3. Control knob.
4. Mask stowage cup.
5. Audio jack.
6. Mask supply hose.
7. Pressure indicator.



fs931a01.dg, ms, oct14/2011

Crew Oxygen Mask Detail  
Figure 3

PSM 1-84-2A  
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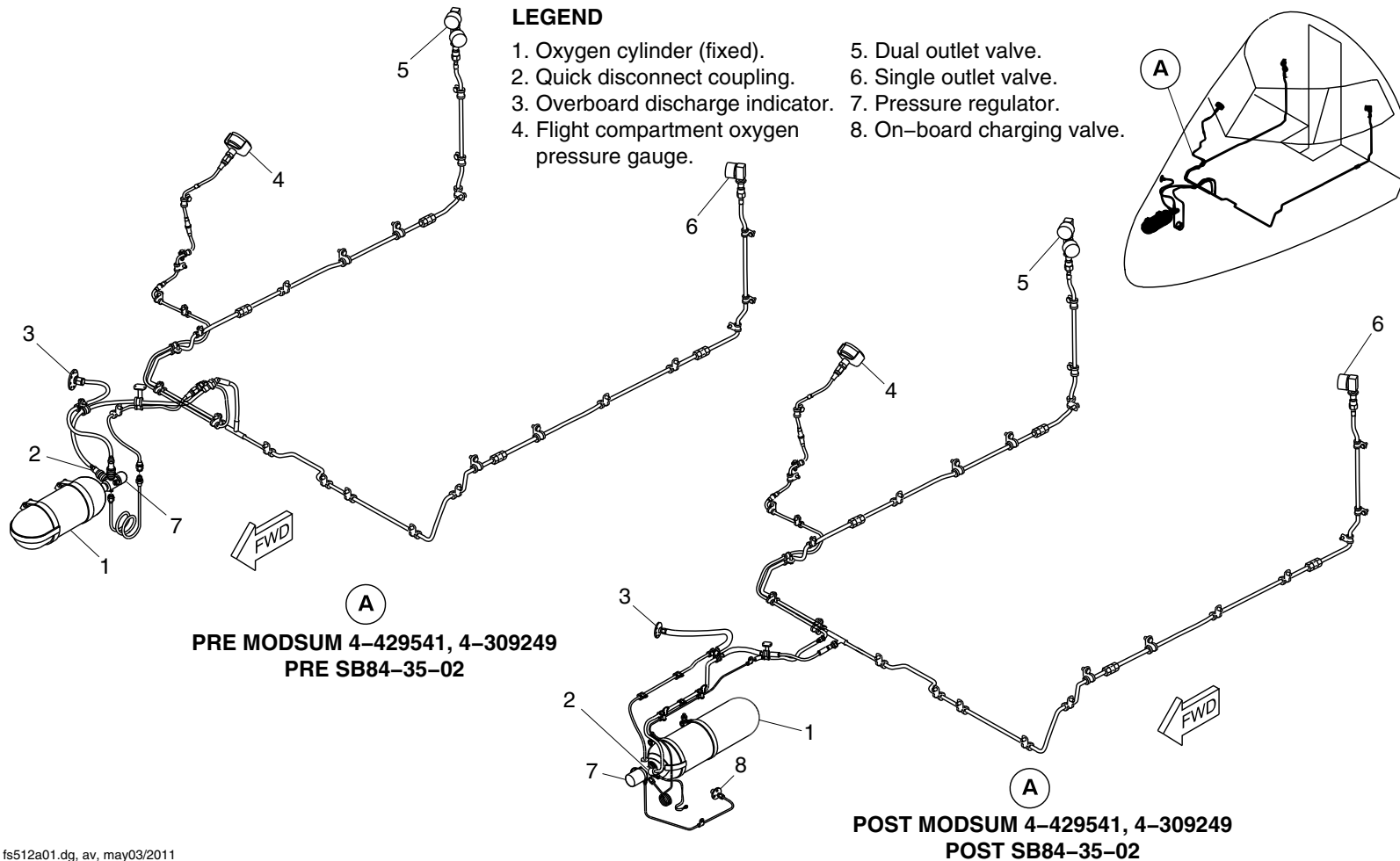
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



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Crew Oxygen Delivery, Crew Oxygen System DETAIL  
Figure 4

PSM 1-84-2A  
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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### CREW OXYGEN INDICATION AND SERVICING

#### Introduction

The Crew Oxygen Indication and Servicing system monitors the crew oxygen system.

#### General Description

Refer to Figure 1 and 2

The crew oxygen indication and servicing system lets the oxygen system be monitored for safety and maintenance.

The crew oxygen indication and servicing system includes the components that follow:

- Flight Compartment Oxygen Pressure Gauge (35-12-01)
- Overboard Discharge Indicator (35-12-06)

#### Detailed Description

Refer to Figure 1.

The crew oxygen indication and servicing system lets the pilot and co-pilot accurately find the quantity of oxygen that is in reserve for emergencies. The crew oxygen indication and servicing also automatically releases pressure if it is more than 2750 psig (18961 kPag).

#### Flight Compartment Oxygen Pressure Gauge

Refer to Figure 2.

The flight compartment oxygen pressure gauge is located in the co-pilot's side console. The flight compartment oxygen pressure gauge supplies pressure readings in the range of 0 to 2000 psig (0 to 13790 kPag). The oxygen pressure gauge has a maximum operating pressure of 3000 psig (20684 kPag). The oxygen pressure gauge has an accuracy of  $\pm 50$  psig (345 kPag) over the range at a temperature of 70 °F (21.1 °C). The gauge has a 5 Vdc light bulb for illumination.

#### Overboard Discharge Indicator

Refer to Figure 3.

The overboard discharge indicator is located on the right side of the nose section. The indicator is connected to the high pressure relief port of the oxygen cylinder with flexible hose and quick-disconnect coupling. The indicator has a green disk that provides a visual indication that the oxygen cylinder did not release pressure through the high pressure relief port. The overboard discharge indicator is responsible for purging the system if the oxygen cylinder assembly pressure exceeds 2575 to 2775 psig (17754 to 19133 kPag) at 70 °F (21.1 °C). In this case the oxygen cylinder will release the excess pressure through the high pressure relief port and cause the green disk in the overboard discharge indicator to blow out.

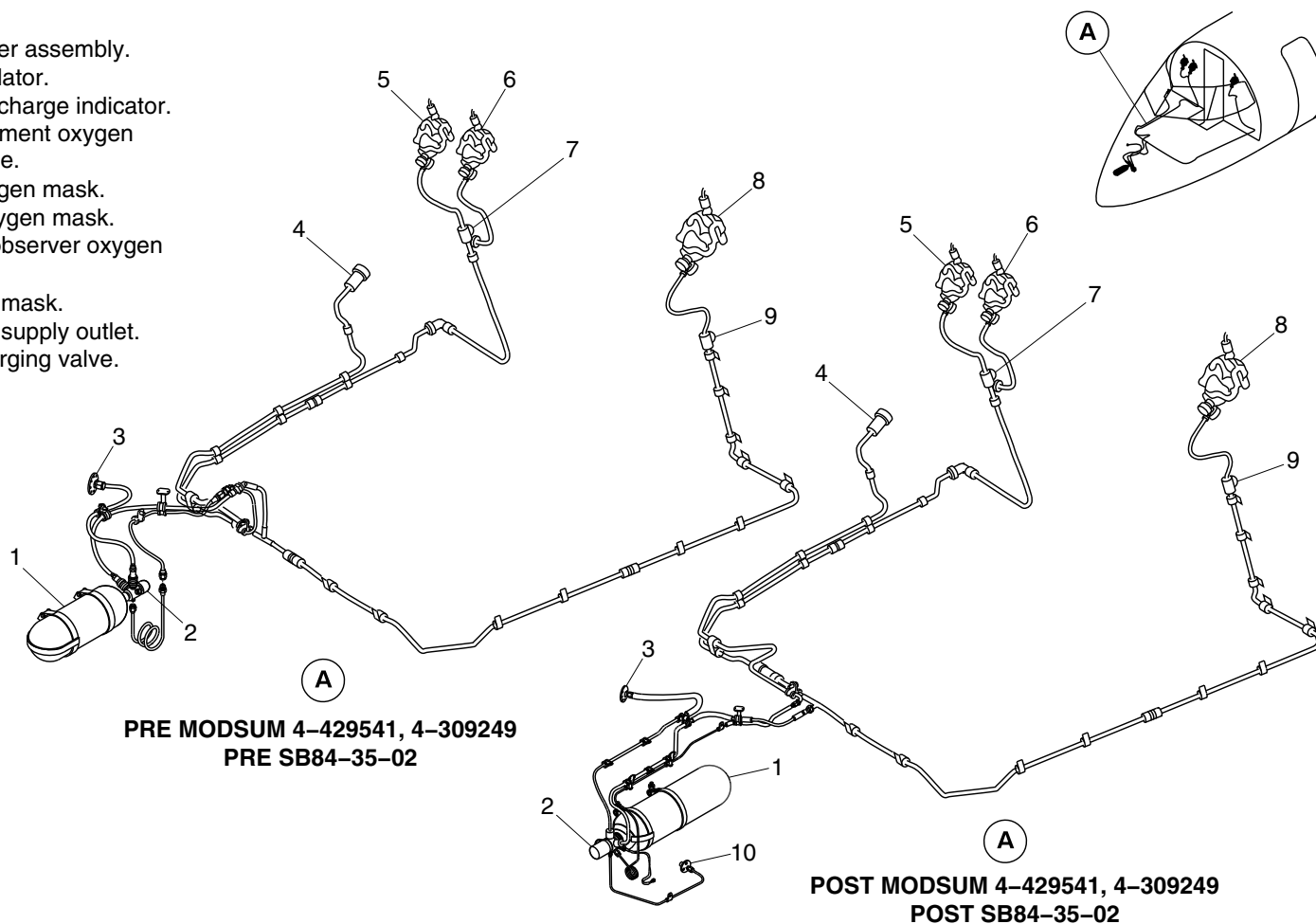


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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### LEGEND

1. Oxygen cylinder assembly.
2. Pressure regulator.
3. Overboard discharge indicator.
4. Flight compartment oxygen pressure gauge.
5. Co-pilot's oxygen mask.
6. Observer's oxygen mask.
7. Co-pilot and observer oxygen supply outlet.
8. Pilot's oxygen mask.
9. Pilot's oxygen supply outlet.
10. On-board charging valve.



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Crew Oxygen Indication and Servicing Detail  
Figure 1

PSM 1-84-2A  
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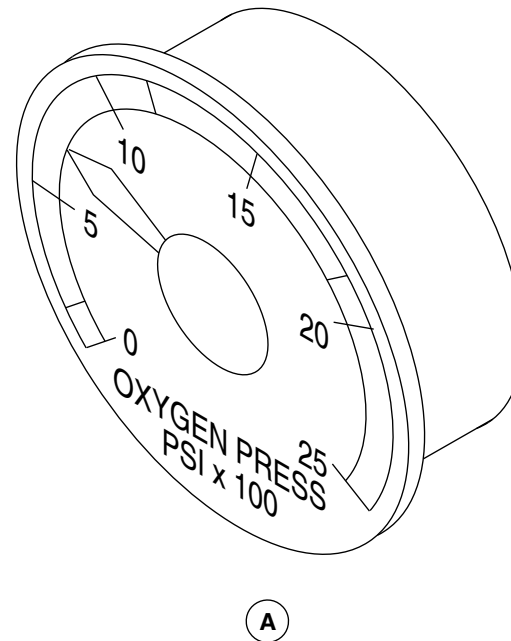
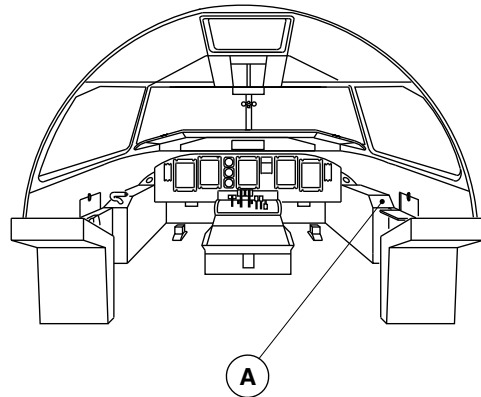
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



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Flight Compartment – Oxygen Pressure Gauge  
Figure 2

PSM 1-84-2A  
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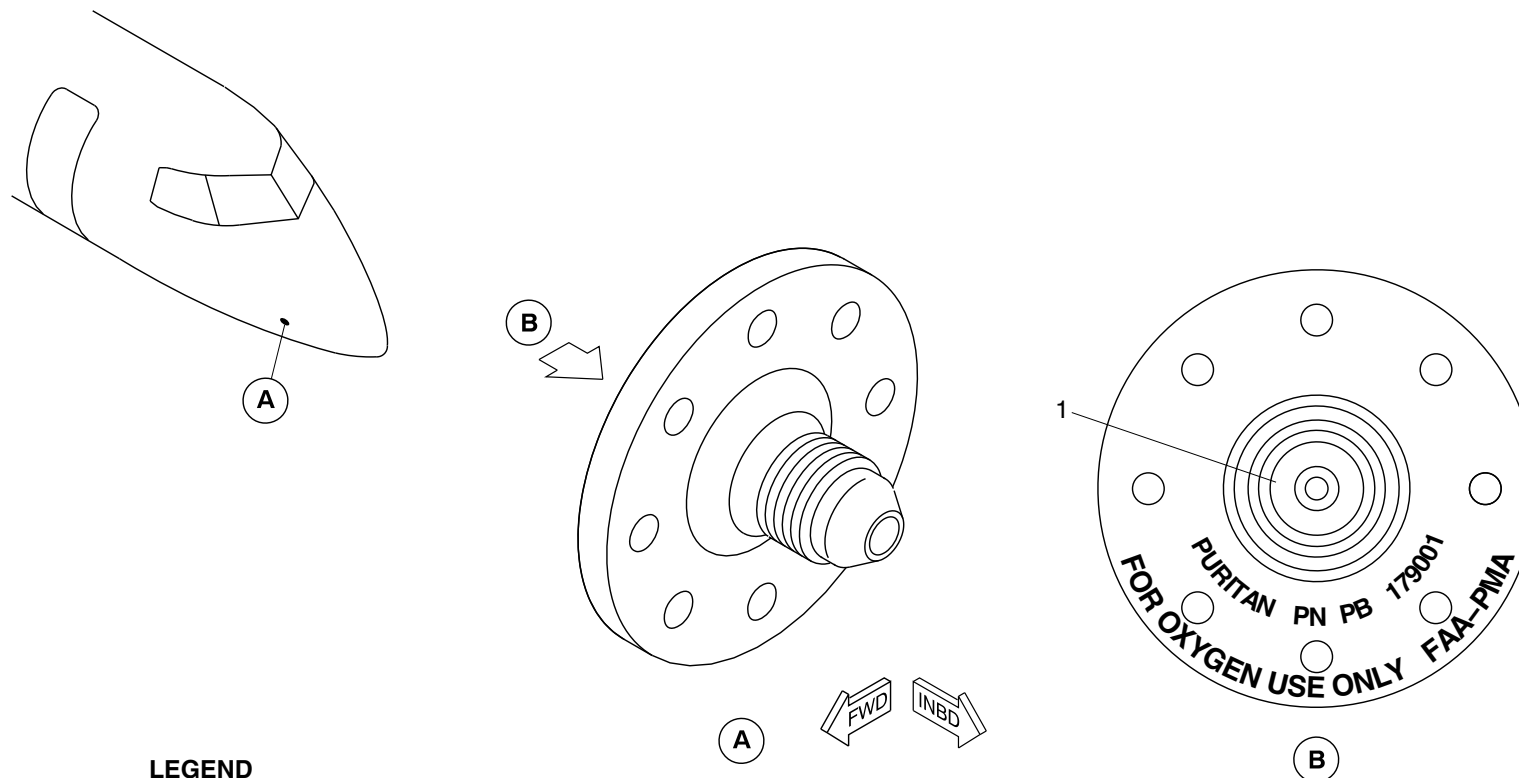
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



### LEGEND

1. Green burst disc.

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Overboard Discharge Indicator  
Figure 3

PSM 1-84-2A  
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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### **PASSENGER PORTABLE OXYGEN SYSTEM**

#### **Introduction**

The passenger portable oxygen system is used by the flight attendants to supply oxygen to the passengers if the aircraft cabin depressurizes.

#### **General Description**

Refer to Figures 1 and 2.

The passenger portable oxygen system supplies oxygen for the passengers' use in the event of an aircraft depressurization. If the cabin altitude is more than 8000 ft (2438 m), the flight attendants can supply oxygen masks to a minimum of 10 percent of the passengers.

The passenger oxygen system uses three high pressure cylinders with three masks on each cylinder.

#### **Detailed Description**

Refer to Figures 3 and 4.

A carry harness is used to attach each cylinder to the passenger or to the aircraft seat. The mask hose line is connected to the bottle outlet. The mask adjusts to the face of the passenger. The green control knob is turned to the FULL ON position to start the oxygen flow. The flow indicator or expansion of the mask breathing bag

shows oxygen is flowing to the mask. The green control knob is turned to the FULL OFF position to stop the oxygen flow.

To fill the cylinder, remove the oxygen cylinder from the aircraft. Attach the filler adapter to the charging valve and charge the cylinder to the rated pressure.

#### **High Pressure Cylinders**

The three cylinder assemblies have an 11 ft<sup>3</sup> (0.311 m<sup>3</sup>) capacity. They are of composite construction rated for a maximum operational pressure of 5500 psig (37921 kPag). Each cylinder has an ON/OFF control knob on the top of the cylinder. The minimum dispatch pressure is 1720 psig (11860 kPag) at 70 °F (21.1 °C).

#### **Pressure Regulators**

The pressure regulator of each cylinder assembly has a fail safe design. The cylinder assembly has a fill port, three mask outlets, pressure gauge and a safety fitting with an integral burst disk. The regulator reduces cylinder pressure to 70 psig (483 kPag) for delivery to the masks. Each regulator has an integral low pressure relief valve, to prevent false indication of mask/bottle pressure when the control knob is turned off.

#### **Bottle Outlets**

The outlets are calibrated to let a maximum of 2.0 L/min flow at 25,000 ft (7620 m) altitude.

#### **Masks**

Each oxygen cylinder supplies three polyvinyl masks connected by silicone tubing.

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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

### **Emergency Frangible Burst Disc**

The disc is on the safety fitting of each cylinder assembly's regulator. The burst disc lets the cylinder vent if the pressure reaches 2495 to 2775 psig (17205 to 19133 kPag) at 60 °F (16.5 °C).

### **Upper and Lower Retaining Brackets**

The brackets prevent damage to the cylinder assemblies when stowed. They also prevent harm to the passengers and crew members from unsecured cylinders falling. The upper bracket has a quick release mechanism, allowing the bottle to be completely removed using this single release mechanism.

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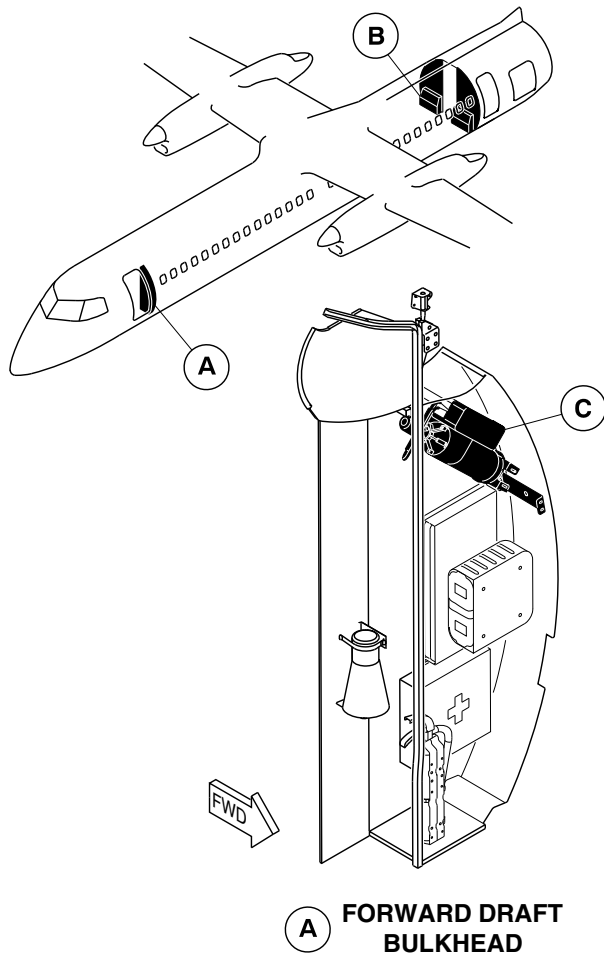
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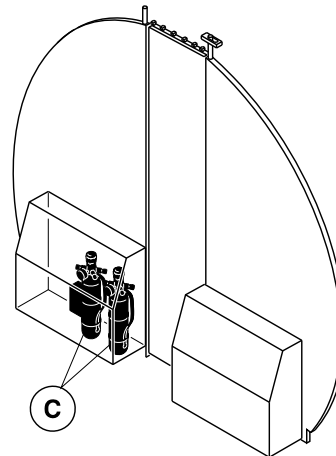


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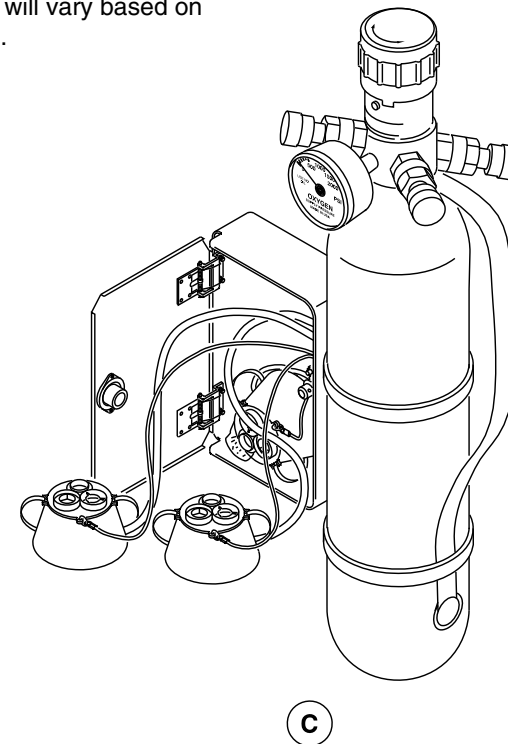
**A FORWARD DRAFT  
BULKHEAD**



**B AFT DRAFT  
BULKHEAD**

### NOTES

1. One passenger oxygen system shown, others similar.
2. The quantity and locations of these oxygen bottles will vary based on aircraft options.



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Passenger Oxygen Cylinders Locator  
Figure 1

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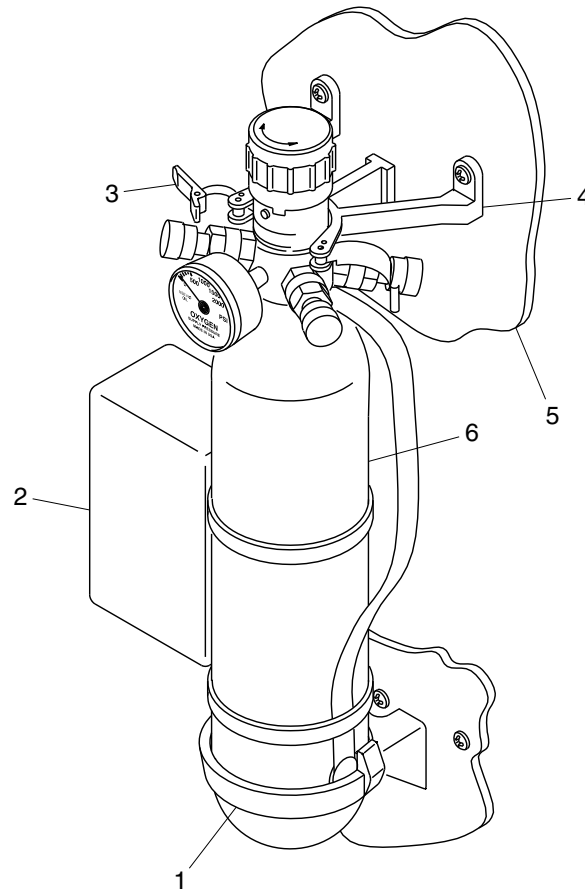
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



### LEGEND

1. Lower bracket.
2. Passenger oxygen mask container.
3. Clamp.
4. Upper bracket.
5. Bulkhead.
6. Oxygen cylinder.

### NOTES

1. One passenger oxygen system shown, others similar.
2. The quantity and locations of these oxygen bottles will vary based on aircraft options.

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Passenger Oxygen Cylinder Detail  
Figure 2

PSM 1-84-2A  
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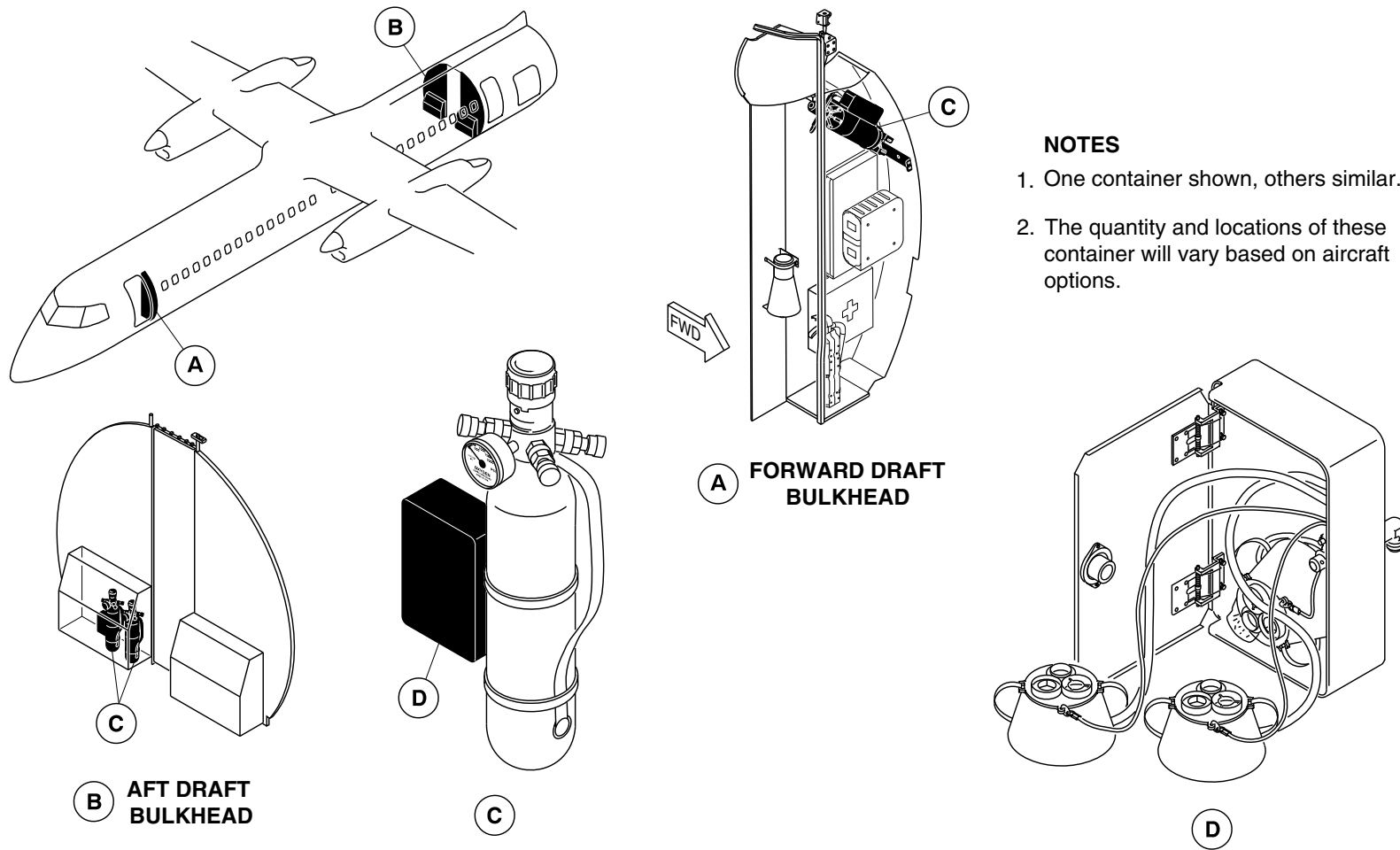
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



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Passenger Oxygen System Locator  
Figure 3

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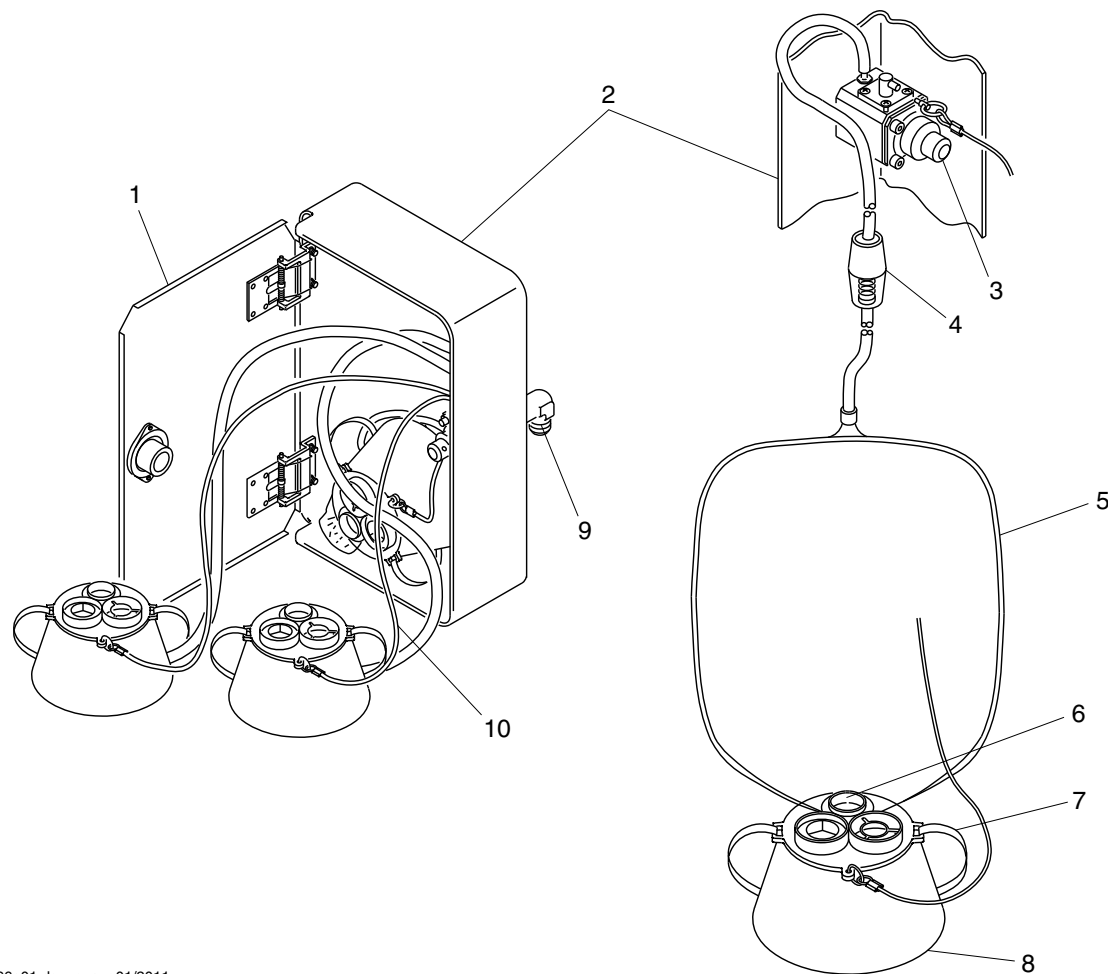
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



### LEGEND

1. Lid.
2. Container.
3. Check valve.
4. Flow indicator.
5. Reservoir bag.
6. Inlet valve.
7. Elastic head strap.
8. Oxygen mask (3).
9. Oxygen inlet.
10. Lanyard.

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Passenger Oxygen Container Detail  
Figure 4

PSM 1-84-2A  
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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### PASSENGER DROP DOWN OXYGEN SYSTEM

#### Introduction

On aircraft with SB84–25–98 or ModSum 4–458569 and 4–458665 incorporated, the passenger drop down oxygen system is used to supply oxygen to the passengers if the aircraft cabin depressurizes.

#### General Description

The passenger drop down oxygen system operates automatically when the cabin altitude is more than 13500±500 ft. The system can also be selected manually anytime from the flight compartment. Each drop down oxygen assembly has an oxygen mask box, an oxygen generator and oxygen masks. When the masks are deployed and the masks are pulled by the passengers, a chemical reaction starts in the oxygen generators, which supplies oxygen to the passengers through the masks.

#### Detailed Description

Refer to Figures 1 , 2 and 3.

The passenger drop down oxygen system has the components that follow:

- Oxygen mask boxes
- Oxygen generators
- Latch mechanisms

- Passenger masks
- Passenger oxygen control panel
- Oxygen deployment repeater lights
- Manual deploy tool

#### OXYGEN MASK BOX

Refer to Figures 1 , 2 and 3.

The oxygen mask boxes are installed above each pair of passenger seats. On aircraft with SB84–25–98 incorporated, there is one oxygen mask box at each flight attendant station, and in the forward lavatory. On aircraft with ModSum 4–458569 incorporated, there is one oxygen mask box at each flight attendant station, and in the forward and aft lavatories. The oxygen mask box contains the oxygen masks. When the electrically controlled mechanical latches in the mask boxes operate, they release the mask box doors and the oxygen masks. There is a provision to operate the latches mechanically through a release hole in the oxygen mask box doors with a manual deploy tool.

#### OXYGEN GENERATOR

Refer to Figures 1 , 2 and 3.

The chemical oxygen generators are self-contained, passenger-activated units. The generators supply emergency oxygen to the passenger masks when the system is deployed and the masks are used.

Each chemical oxygen generator has a steel cylinder, a firing pin, a release pin, and an output port. The steel cylinder holds the chemical contents that are used to make oxygen until the release pin is pulled.

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The release pin is located on the firing pin and is connected to the lanyard. The force necessary to pull the release pin is 4 to 10 lbf (17.8 to 44.5 N). When the firing pin is released, a chemical reaction inside the cylinder, produces and supplies gaseous oxygen. The reaction continues for a maximum of 22 minutes. A yellow indicator on the generator case, below the firing pin, turns black when the contents are fully used.

### **LATCH MECHANISM**

The latch mechanisms are solenoid operated and electrically-controlled. When energized, the mechanisms pull the latches on the oxygen mask boxes to release the doors open and allow the masks to drop and hang down. The latch mechanism can also be released or reset manually for maintenance with the manual deploy tool.

### **PASSENGER MASK**

[Refer to Figures 1 , 2 and 3.](#)

The passenger masks are plastic oxygen masks with reservoir air bags. The masks are connected to the chemical oxygen generators with nylon hoses.

On aircraft with SB84-25-98 incorporated, the oxygen mask boxes on the right side of the passenger compartment (except first row) and on the ceiling panel of the aft flight attendant station have three oxygen masks each. The oxygen mask boxes on the left side of the passenger compartment, on the right side first row of the passenger compartment, on the ceiling panel of the forward flight attendant station and on the upper amenity panel of the forward lavatory have two oxygen masks each.

On aircraft with ModSum 4-458569 incorporated, the oxygen mask boxes on the right side of the passenger compartment and on the ceiling panel of the aft flight attendant station have three oxygen masks each. The oxygen mask boxes on the left side of the passenger compartment, on the ceiling panel of the forward flight attendant station and on the upper amenity panel of the forward and aft lavatories have two oxygen masks each.

On aircraft with SB84-25-98 incorporated, above the passenger seats and in the forward lavatory, each passenger mask has a lanyard, a nylon feed tube, elastic straps, a plastic face cup, a spring-loaded flow indicator, a reservoir bag, and three check valves (intake, exhaust, and ambient-air check valve). On aircraft with ModSum 4-458569 incorporated, above the passenger seats and in the forward and aft lavatories, each passenger mask has a lanyard, a nylon feed tube, elastic straps, a plastic face cup, a spring-loaded flow indicator, a reservoir bag, and three check valves (intake, exhaust, and ambient-air check valve). When the passengers pull the masks to their faces, the lanyard pulls the release pin on the chemical oxygen generator. The passengers put the plastic face cups on their noses and mouths and hold them in place with the elastic straps.

Above the attendant seats, each mask has a yellow PULL lanyard, a nylon feed tube, elastic straps, a plastic face cup, a spring-loaded flow indicator, a reservoir bag, three check valves (intake, exhaust, and ambient-air check valve), and a mask holder. When the masks drop, the flight attendant pull the yellow PULL lanyard to pull the release pin on the chemical oxygen generator. The flight attendants put the plastic face cups on their noses and mouths and hold them in place with the elastic straps.

When the release pin in the chemical oxygen generator is pulled, oxygen flows through the feed tube and into the reservoir bag. The



## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

oxygen pressure in the feed tube pushes the flow indicator and causes it to show green in the flow tube. When the passenger breathes in, the intake valve opens and oxygen flows into the plastic face cup. When the passenger breathes out, the air pushes the exhaust check valve open and the air flows out of the plastic face cup. Air pressure inside the face cup is controlled by the ambient–air check valve. The valve opens to supply additional air to the passenger if the oxygen flow into the mask is not sufficient.

### **PASSENGER OXYGEN CONTROL PANEL**

Refer to Figure 4.

On aircraft with SB84–25–98 or ModSum 4–458665 incorporated, the passenger oxygen control panel is installed on the right side of the overhead panel in the flight compartment. There is an AUTO/OFF toggle switch and a MANUAL pushbutton switch on the passenger oxygen control panel. The MANUAL switch has a guard for safety. A white OXY DPLYD advisory light is in the MANUAL pushbutton switch assembly. The OXY DPLYD advisory light comes on when the oxygen masks are deployed automatically or manually.

In the AUTO selection, the drop–down oxygen masks will automatically deploy when the barometric pressure switch senses 13500±500 ft. At that time, the mask box doors open, all the oxygen masks drop and the OXY DPLYD advisory light comes.

When the MANUAL switch is selected by the flight crew, the drop–down oxygen masks are immediately deployed and the OXY DPLYD advisory light comes on.

### **OXYGEN DEPLOYMENT REPEATER LIGHTS**

On aircraft with SB84–25–98 incorporated, there is an oxygen deployment repeater light installed in each of the three cabin information signs. There are two cabin information signs on the ceiling in the under wing area. There is one cabin information sign on the ceiling panel above the aft flight attendant station.

On aircraft with ModSum 4–458569 or 4–458665 incorporated, there is an oxygen deployment repeater light installed in each of the three cabin information signs. There are two cabin information signs on the ceiling in the under wing area. There is one cabin information sign on the ceiling panel above the aft flight attendant station. Additionally, there is one class divider light on the forward face of the right side of the class divider curtain header rail at Sta. X164.75.

The oxygen deployment repeater lights are green LED lights that flash when the oxygen masks are deployed automatically or manually. They are visible from the forward and aft flight attendant–seats.

### **MANUAL DEPLOY TOOL**

One manual deploy tool is kept in the forward stowage bulkhead in a cloth pouch. The pouch is attached on the inside of the forward stowage bulkhead door. The tool has one straight end and one end with a hook.

The straight end of the tool is used to open a mask box door if the mask box door did not open when the system was deployed. The straight end is put through the latch release pin hole in the mask box door to operate the latch and release the door.

The hook end of the tool is used to pull out the test latches on the drop–down oxygen assemblies before a system test. The hook end



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is put through a hole in each mask box door and used to pull the test latch through the hole. The test latch will then permit the oxygen box doors to only open a small distance when the system is deployed for a test.

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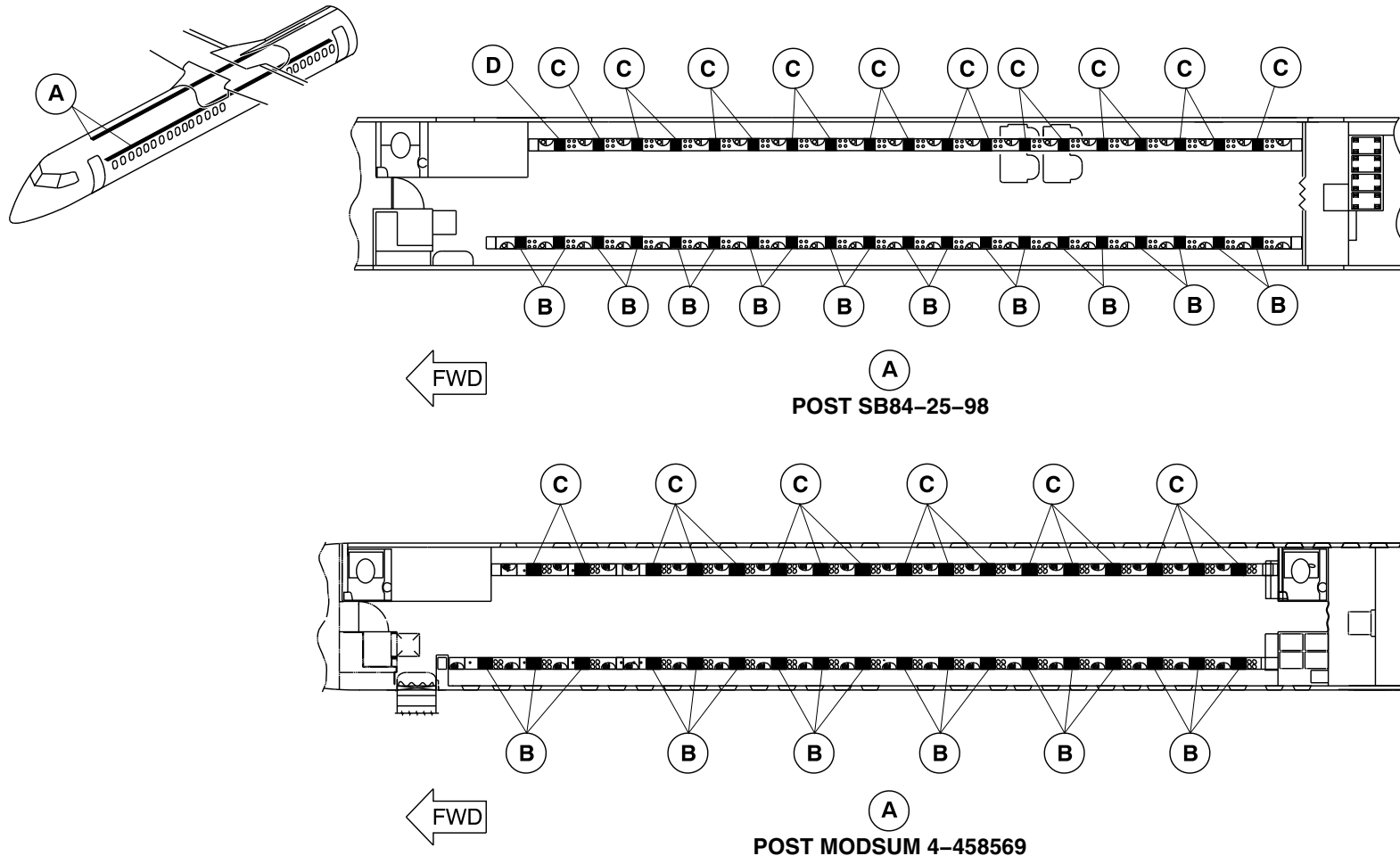
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Drop Down Oxygen Assembly – Passenger Compartment  
Figure 1 (Sheet 1 of 2)

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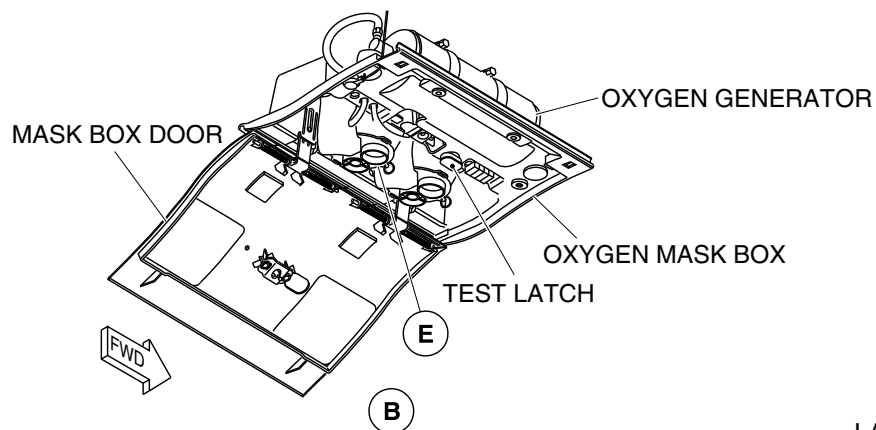
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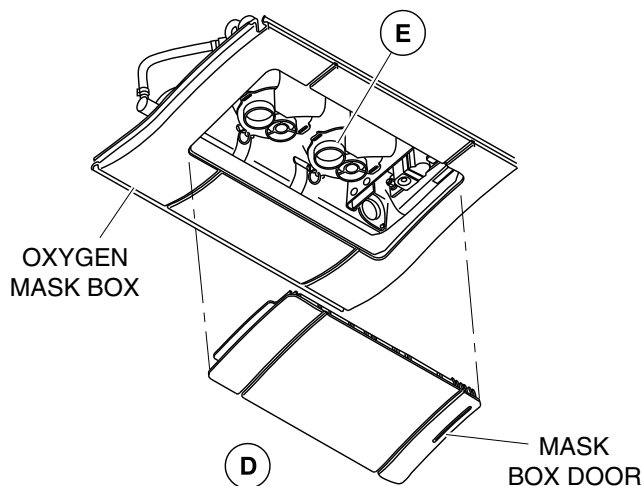


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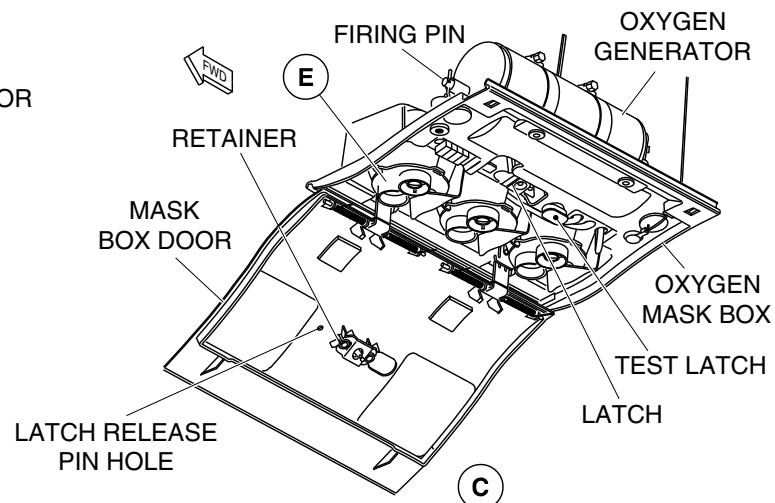


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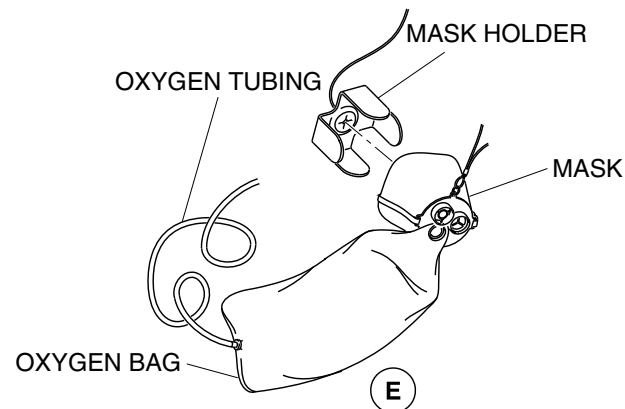


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POST SB84-25-98 OR POST MODSUM 4-458569

Drop Down Oxygen Assembly – Passenger Compartment  
Figure 1 (Sheet 2 of 2)

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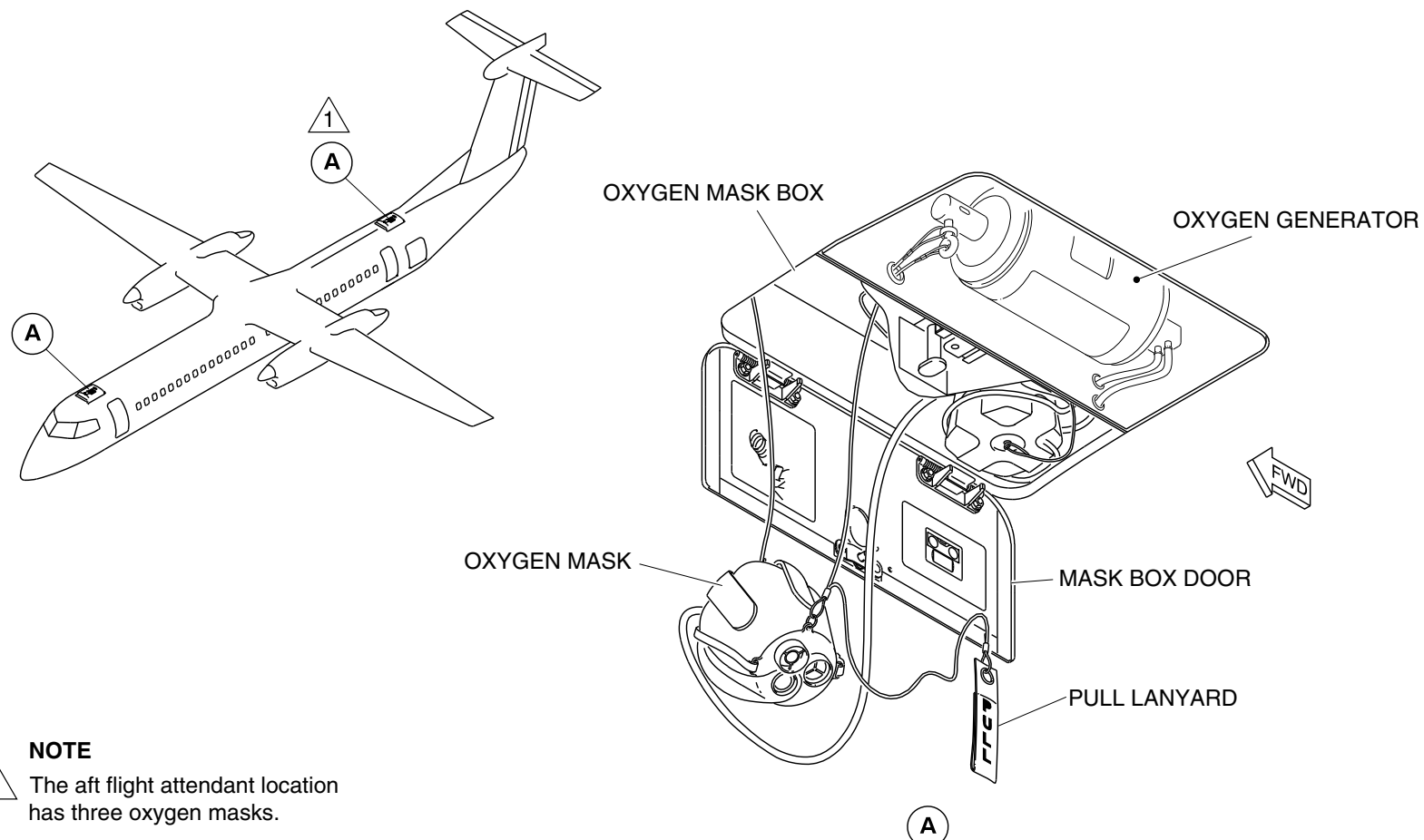
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### NOTE

- 1 The aft flight attendant location has three oxygen masks.

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Drop Down Oxygen Assembly – Ceiling Panel for the Forward and Aft Flight Attendant  
Figure 2

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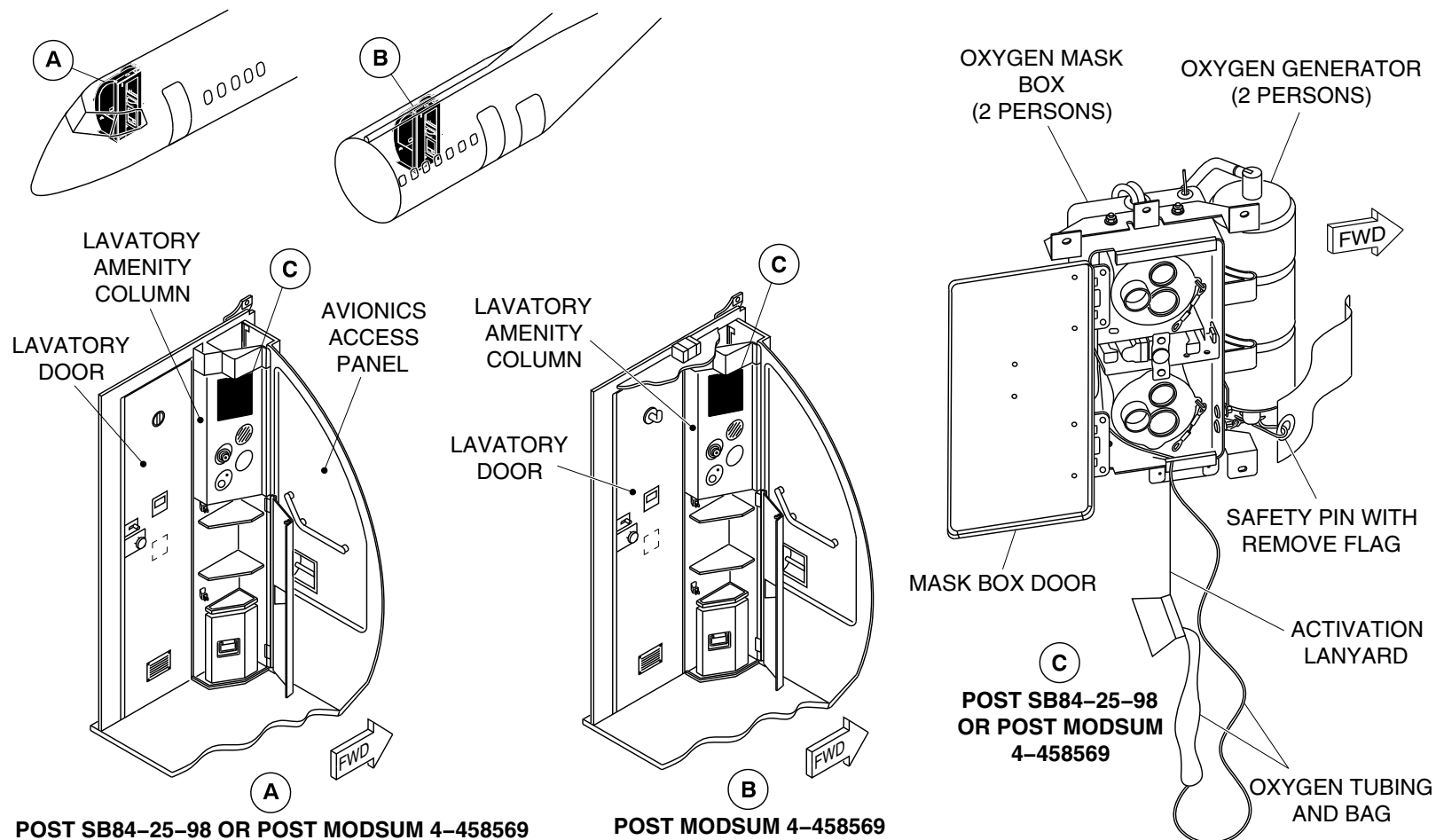
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Drop Down Oxygen Assembly – Forward and Aft Lavatories  
Figure 3

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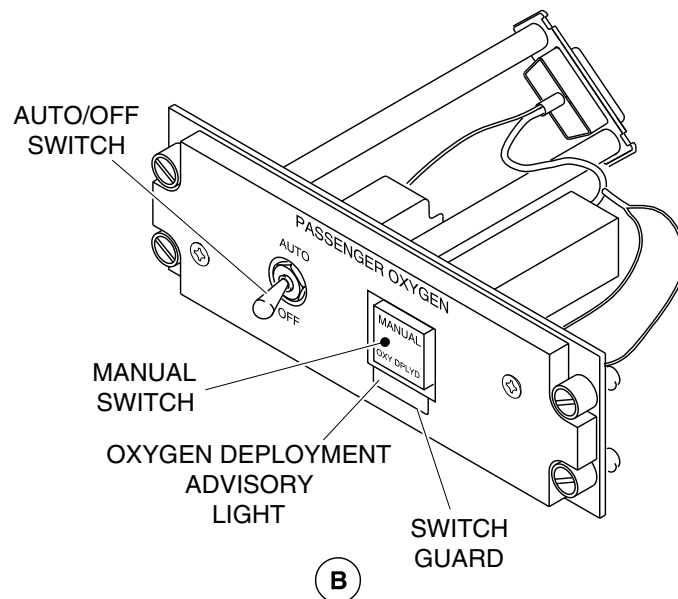
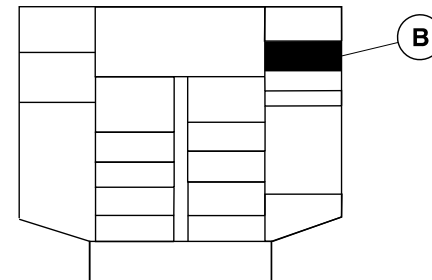
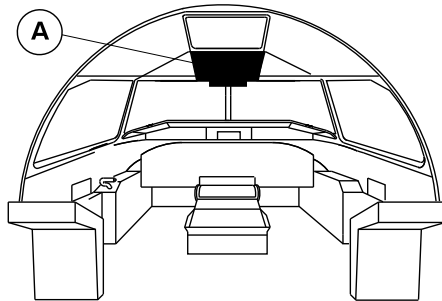
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**OVERHEAD CONSOLE**

### NOTES

**AUTO/OFF switch:** The AUTO position arms the system to deploy the passenger oxygen masks if cabin pressure gets to 13,500 ft +/- 500 ft.

**MANUAL switch:** When pushed, this switch deploys passenger oxygen masks.

**OXY DPLYD light (white)** comes on to indicate that the passenger oxygen masks have deployed (automatically or manually).

Passenger Oxygen Auto/Manual Switch Facing Panel  
Figure 4

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**35–30–00–001**

### **CREW PORTABLE OXYGEN SYSTEM**

#### **Introduction**

In addition to the PBE units (Refer to SDS 35–36–00), the portable oxygen system, dedicated to the flight attendant and passengers, or the flight attendant alone is available as a customer special installation.

#### **General Description**

Refer to Figure 1, 2, and 3.

The flight attendant's portable oxygen system has the items that follow:

- a bottle assembly with pressure gauge
- a constant flow outlet
- a low pressure relief valve
- a high pressure frangible safety plug
- an on–off valve
- a charging valve
- a constant flow mask with a flow indicator and a 50 in. (1270 mm) long connecting hose
- a mask reservoir bag and a carrying strap.

The emergency passenger oxygen system has the items that follow:

- a bottle assembly with pressure gauge
- three constant flow outlets with dust plug
- a low pressure relief valve
- a high pressure frangible safety plug
- an on–off valve
- two charging valve
- two constant flow masks with the flow indicators and a 54 in. (1372 mm) long connecting hose
- two reservoir bags for each mask and a carrying strap for oxygen bottle.

#### **Detailed Description**

The following is a detailed description of the flight attendant oxygen system and the passenger emergency oxygen system.

#### **Flight Attendant Oxygen System**

The flight attendant oxygen system is intended for single person use. It has a mask connected by a hose to the outlet of an oxygen bottle. When required, the oxygen bottle is turned on and the mask is placed over the user's mouth and held in place by an elastic strap. More oxygen flows from the bottle than is needed to allow for leakage.

The flight attendant oxygen bottle is located in a compartment in the G6 galley (Refer to SDS 25–30–00). A placard outside of the galley compartment identifies the contents inside. Another placard located



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inside the compartment identifies the minimum dispatch pressure and the appropriate service manual references for maximum charge pressure and inspection intervals.

### **Passenger Emergency Oxygen System**

Refer to Figure 4.

The passenger emergency oxygen system is intended for two persons use. It has the masks connected by the hoses to the outlets of an oxygen bottle. When required, the oxygen bottle is turned on and the mask is placed over the user's mouth and held in place by an elastic strap. More oxygen flows from the bottle than is needed to allow for leakage.

On aircraft with ModSums 4-458047 or 4-458228 or 4-458082 or 4-457830 or 4-458987 or 4-459268 or 4-459258 or 4-459352 or 4-459383 or 4-459643 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the aft lavatory.

On aircraft with ModSums 4-458112 or 4-458567 or 4-458827 incorporated, the two oxygen bottles are located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

On aircraft with ModSum 4-458134 incorporated, one flight attendant oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and

two more oxygen bottles are located on the emergency equipment stowage compartment of the G4 galley.

On aircraft with ModSum 4-457986 incorporated, one oxygen bottle is located in the overhead stowage bin above the forward draft bulkhead. Three more oxygen bottles are located inside the emergency equipment stowage compartment of the G1 galley.

On aircraft with ModSum 4-457926 or 4-458788 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with ModSum 4-458174 or 4-458906 or 4-459102 or 4-459242 or 4-459248 or 4-459449 or 4-459581 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with SB 84-25-114 or SB 84-25-121 or SB 84-25-132 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with Modsum 4-458135 incorporated, four oxygen bottles are located on and inside the emergency equipment stowage compartment of the G1 galley.

On aircraft with Modsum 4-458201 incorporated, two oxygen bottles are located in the forward draft bulkhead. Two more oxygen bottles are located in the emergency equipment stowage compartment in the forward face of the aft lavatory.

On aircraft with ModSum 4-458730 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two oxygen bottles are

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located inside the emergency equipment stowage compartment of the right aft draft bulkhead. One oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead. One oxygen bottle is located on the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with SB84–35–03 incorporated, two additional oxygen bottles are installed on the aft draft bulkhead. One oxygen bottle is located on the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

On aircraft with MS 4–459071 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

The oxygen bottles are installed with an upper and lower bracket. The upper bracket has an over-centre sprung latch which secures the neck of the bottle. The lower bracket is circular and secures the bottom part of the bottle.

[Refer to Figure 5.](#)

On aircraft with ModSum 4–458653 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 6.](#)

On aircraft with ModSum 4–458930 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles

are located inside the emergency equipment stowage compartment of the right aft draft bulkhead. Two oxygen bottles are located inside the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 7.](#)

On aircraft with ModSum 4–457262 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with Modsum 4–457419 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead.

On aircraft with SB 84–25–154 incorporated, one additional oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 8.](#)

On aircraft with Modsum 4–429827 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and two more oxygen bottles are located on the emergency compartment of the left aft draft bulkhead.

[Refer to Figure 9.](#)

On aircraft with Modsum 4–429827 or 4–429569 or 4–457953 and SB 84–25–156 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the



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right aft draft bulkhead and two more oxygen bottles are located on the emergency compartment of the G4 galley.

[Refer to Figure 10.](#)

On aircraft with Modsum 4–428284 incorporated, one oxygen bottle is located in the forward draft bulkhead. Four more oxygen bottles are located on and inside the emergency equipment stowage compartment on the forward face of the G1 galley.

[Refer to Figure 11.](#)

On aircraft with Modsum 4–459305 and SB 84–25–181 incorporated, one oxygen bottle is located in the forward draft bulkhead. Four more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

[Refer to Figure 12.](#)

On aircraft with Modsum 4–459214 or 4–459513 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two more oxygen bottles are located inside the emergency equipment stowage compartment of the left aft draft bulkhead

[Refer to Figure 13.](#)

On aircraft with Modsum 4–459395 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead. Two oxygen bottles are located inside the emergency equipment stowage compartment of the left aft draft

bulkhead. One oxygen bottle is located in the first forward right overhead bin.

[Refer to Figure 14.](#)

On aircraft with SB 84–25–167 incorporated, one crew portable oxygen cylinder is relocated from the forward stowage draft bulkhead to the right aft draft bulkhead. One additional portable emergency oxygen cylinder is relocated from right aft draft bulkhead to the first forward left overhead bin.

[Refer to Figure 15.](#)

On aircraft with Modsum 4–458354 or 4–458467 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 16.](#)

On aircraft with SB 84–25–174 incorporated, the oxygen bottle is relocated from the forward stowage draft bulkhead to the right aft draft bulkhead. One more oxygen bottle is added in the first forward left overhead bin.

[Refer to Figure 17.](#)

On aircraft with Modsum 4–459521 or 4–459564 incorporated, one oxygen bottle is located in the forward draft bulkhead. Four more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen



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bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 18.](#)

On aircraft with ModSum 4–458008 or 4–459551 incorporated, one oxygen bottle is located on the emergency stowage compartment of the left aft draft bulkhead. Three more oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead.

[Refer to Figure 19.](#)

On aircraft with ModSum 4–459615 incorporated, two oxygen cylinders are located inside the emergency equipment stowage compartment of the right aft draft bulkhead. Three oxygen cylinders are located inside the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 20.](#)

On aircraft with SB84–25–198 incorporated, two oxygen bottles are located on the emergency equipment stowage compartment of the left and right aft draft bulkhead.

[Refer to Figure 21.](#)

On aircraft with ModSum 4–459671 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two more oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

[Refer to Figure 22.](#)

On aircraft with ModSum 4–459739 or 4–459742 or 4–460068 incorporated, one oxygen cylinder is located in the first forward right overhead bin. Two oxygen cylinders are located inside the

emergency equipment stowage compartment of the right aft draft bulkhead. Three more oxygen cylinders are located inside the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 23.](#)

On aircraft with SB84–25–210 incorporated, one oxygen cylinder is located in the first forward right overhead bin.

[Refer to Figure 24.](#)

On aircraft with SB84–25–209 incorporated, one oxygen cylinder is located on the front face of the aft left G4 galley dog house.

[Refer to Figure 25.](#)

On aircraft with Modsum 4–459956 incorporated, one oxygen bottle is located in the forward draft bulkhead. Three oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead. One oxygen bottle is located in the first forward right overhead stowage bin.

[Refer to Figure 26.](#)

On aircraft with Modsum 4–459932 incorporated, two oxygen cylinders are located inside the emergency equipment stowage compartment of the left aft draft bulkhead. Three oxygen cylinders are located inside the emergency equipment stowage compartment of the right aft draft bulkhead.

[Refer to Figure 27.](#)

On aircraft with Modsum 4–460032 incorporated, one oxygen bottle is located in the forward draft bulkhead. Four oxygen bottles are located on and inside the emergency equipment stowage compartment of the right aft draft bulkhead and two oxygen bottles



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are located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 28.](#)

On aircraft with ModSum 4–459903 incorporated, one oxygen bottle is located in the forward draft bulkhead. Two oxygen bottles are located inside the emergency equipment stowage compartment of the right aft draft bulkhead and one oxygen bottle is located on the emergency equipment stowage compartment of the left aft draft bulkhead.

[Refer to Figure 29.](#)

On aircraft with ModSum 4–460117 incorporated, one oxygen cylinder is located in the forward draft bulkhead. Two oxygen cylinders are located inside the emergency equipment stowage compartment on the forward face of the aft lavatory. One oxygen cylinder is located on the emergency equipment stowage compartment of the left aft draft bulkhead. One oxygen bottle is located in the aft overhead stowage bin on the left side.

[Refer to Figure 30.](#)

On aircraft with Modsums 4–460148 or 4–460209 incorporated, one oxygen cylinder is located in the forward draft bulkhead. Two oxygen cylinders are located inside the emergency equipment stowage compartment on the forward face of the aft lavatory. One first aid portable oxygen cylinder is located on the emergency equipment stowage compartment at the forward face of the aft lavatory. One more first aid portable oxygen cylinder is located on the emergency

equipment stowage compartment at the forward face of the G4 galley.

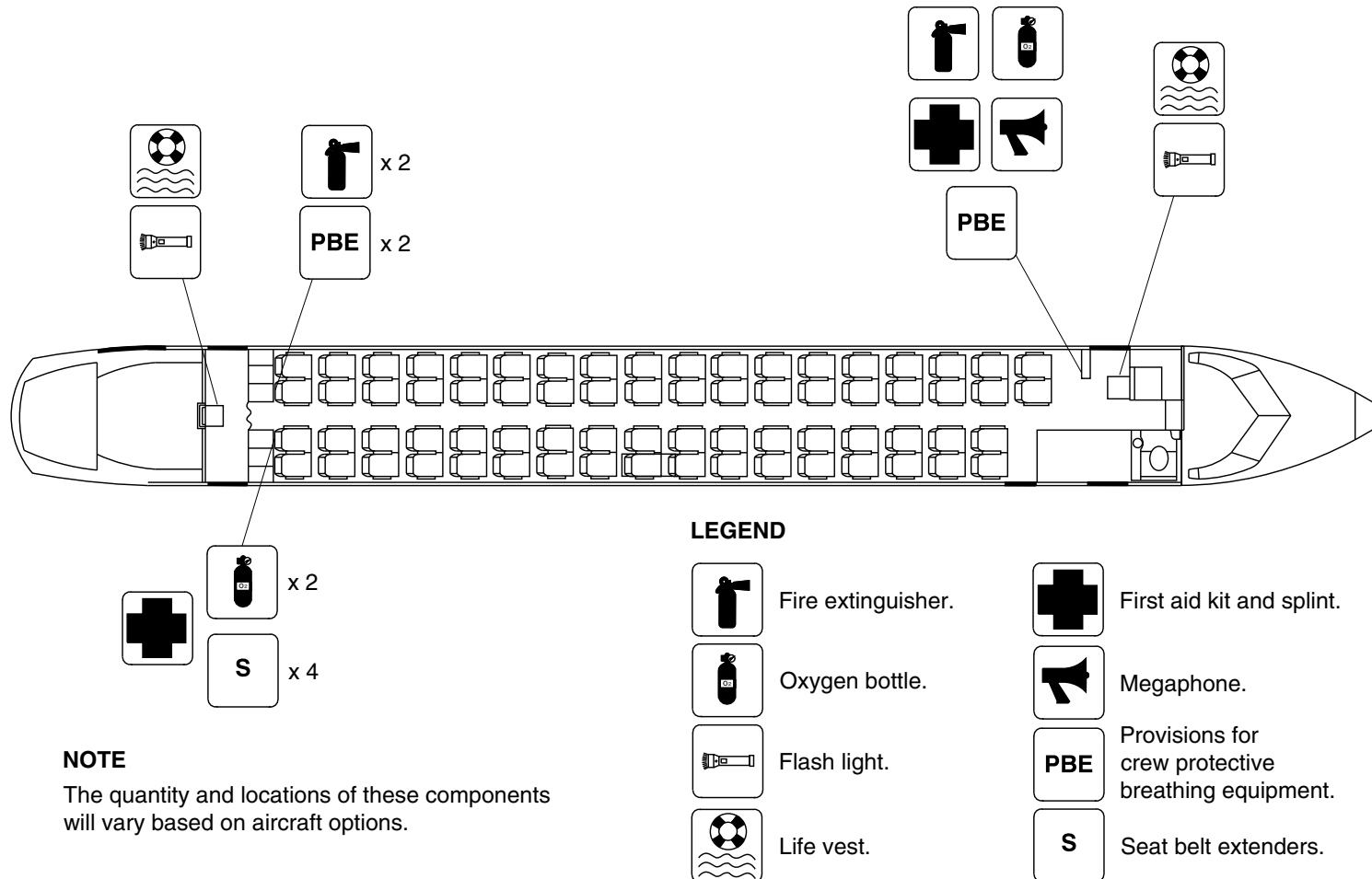
[Refer to Figure 31.](#)

On aircraft with ModSum 4–460087 incorporated, one portable emergency oxygen cylinder and one crew portable oxygen cylinder are located in the forward wardrobe. One portable first aid oxygen cylinder is located on the emergency equipment stowage compartment at the forward face of G4 galley. One portable first aid oxygen cylinder is located on the emergency equipment stowage compartment at the forward face of extender. Two portable oxygen cylinders are located inside the emergency equipment stowage compartment at the forward face of extender.





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## NOTE

The quantity and locations of these components will vary based on aircraft options.

brbc73a01.dg, rt/vn, aug01/2011

Emergency Equipment – General Layout  
Figure 1

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

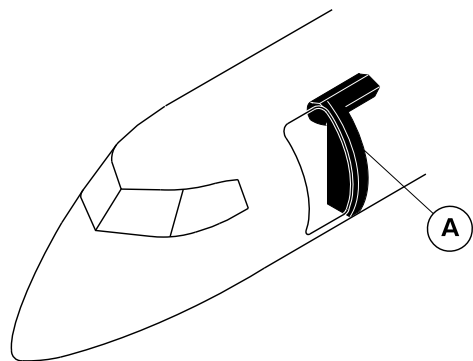
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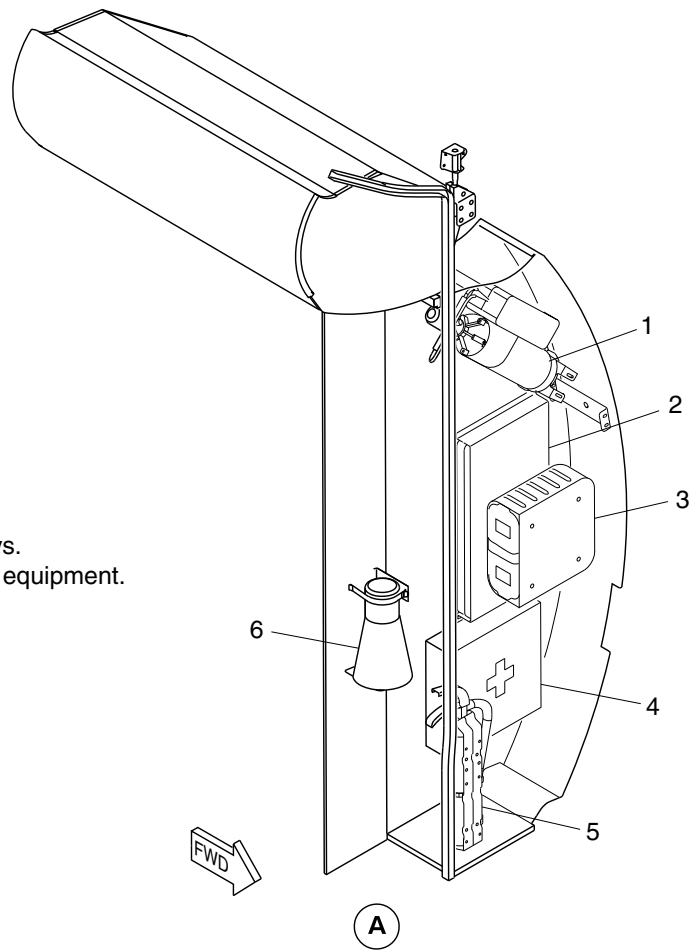


### LEGEND

1. Portable oxygen.
2. Passenger meal trays.
3. Protective breathing equipment.
4. First aid.
5. Fire extinguisher.
6. Megaphone.

### NOTE

The quantity and locations of these components will vary based on aircraft options.



fse00a01.dg, vn, aug01/2011

Emergency Equipment / Forward Draft Bulkhead  
Figure 2

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

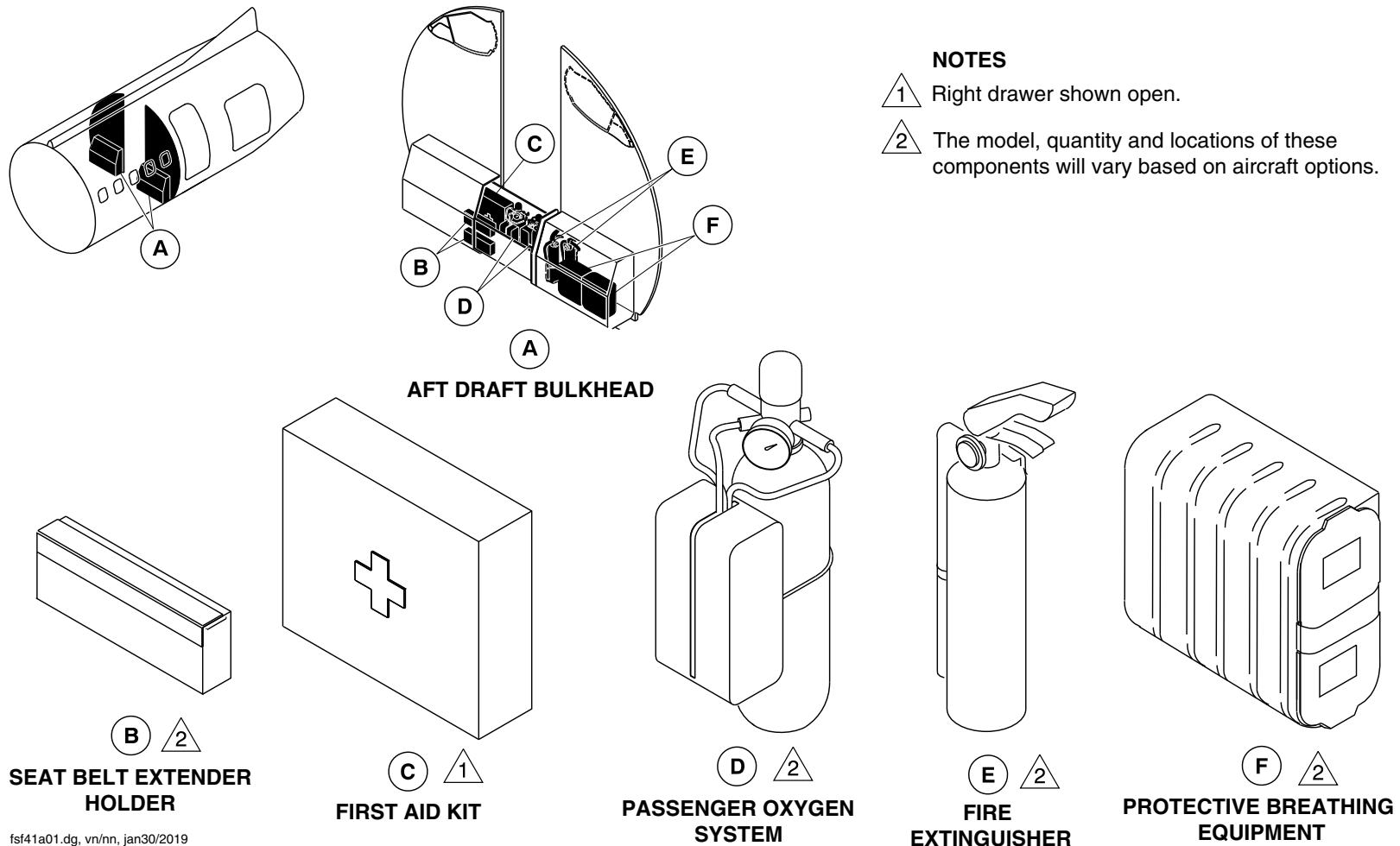
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fsf41a01.dg, vn/nn, jan30/2019

Emergency Equipment / Aft Draft Bulkhead  
Figure 3

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

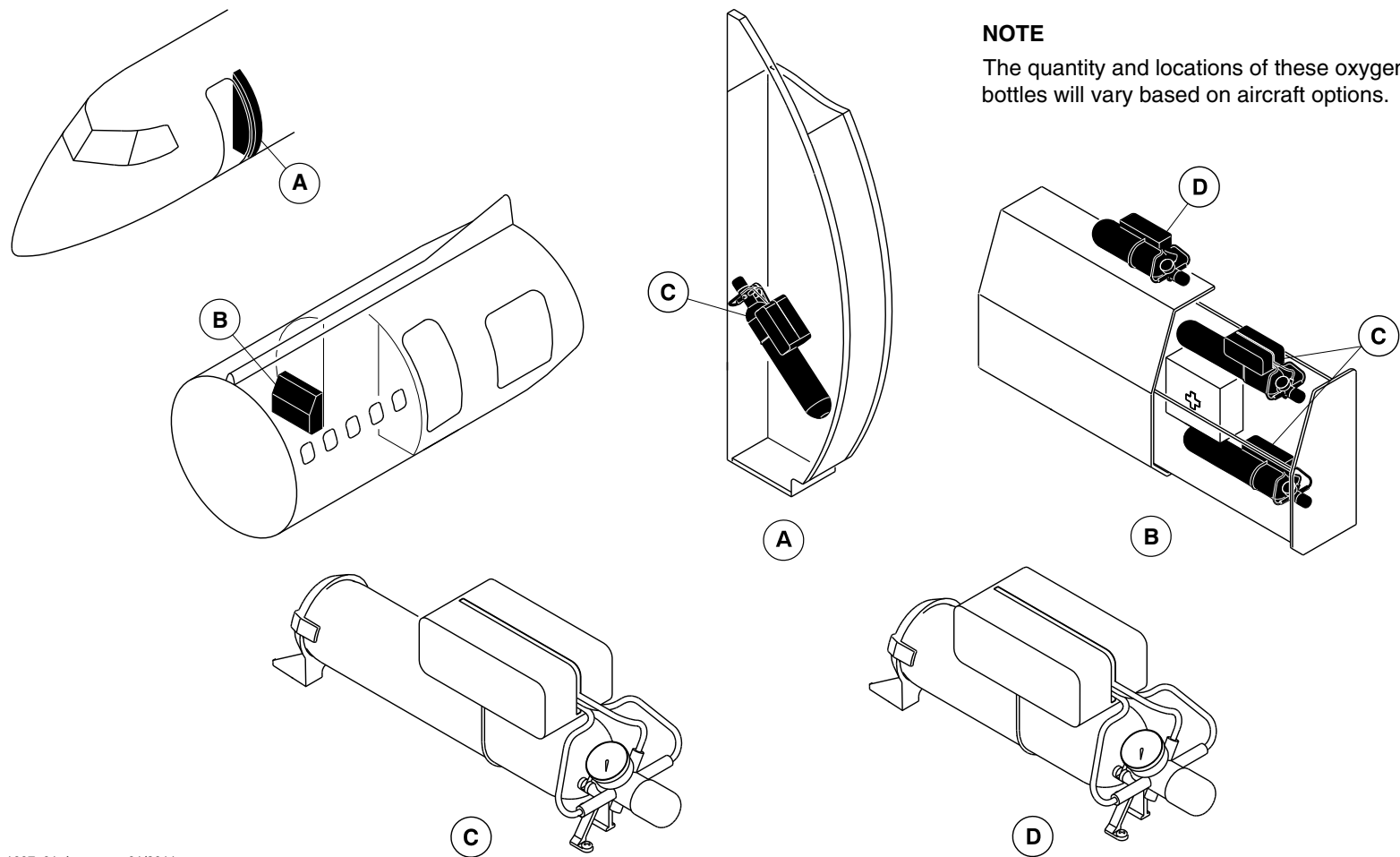
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cg1607a01.dg, vn, aug01/2011

Passenger Emergency Oxygen System  
Figure 4

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

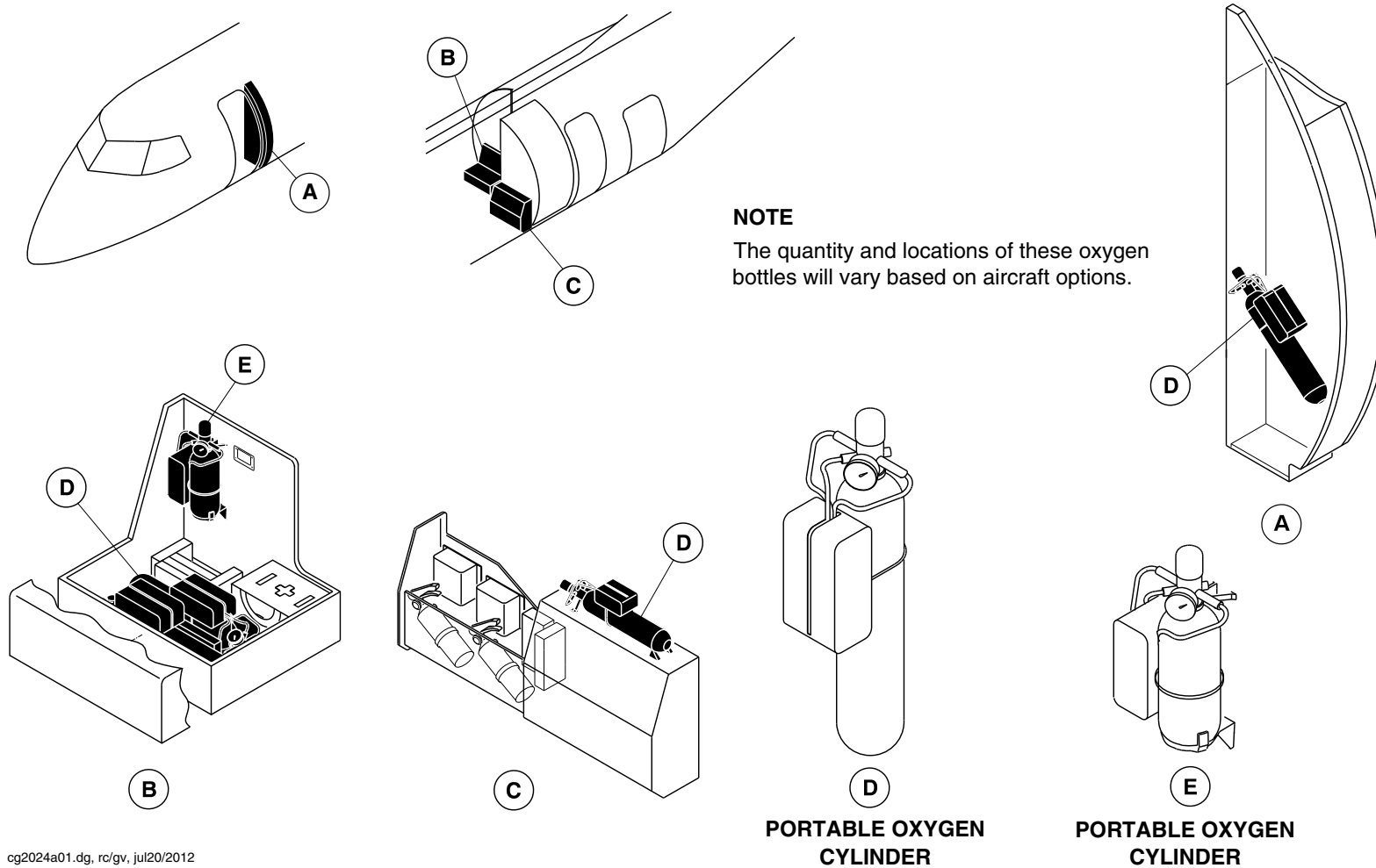
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Passenger Emergency Oxygen System  
Figure 5

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

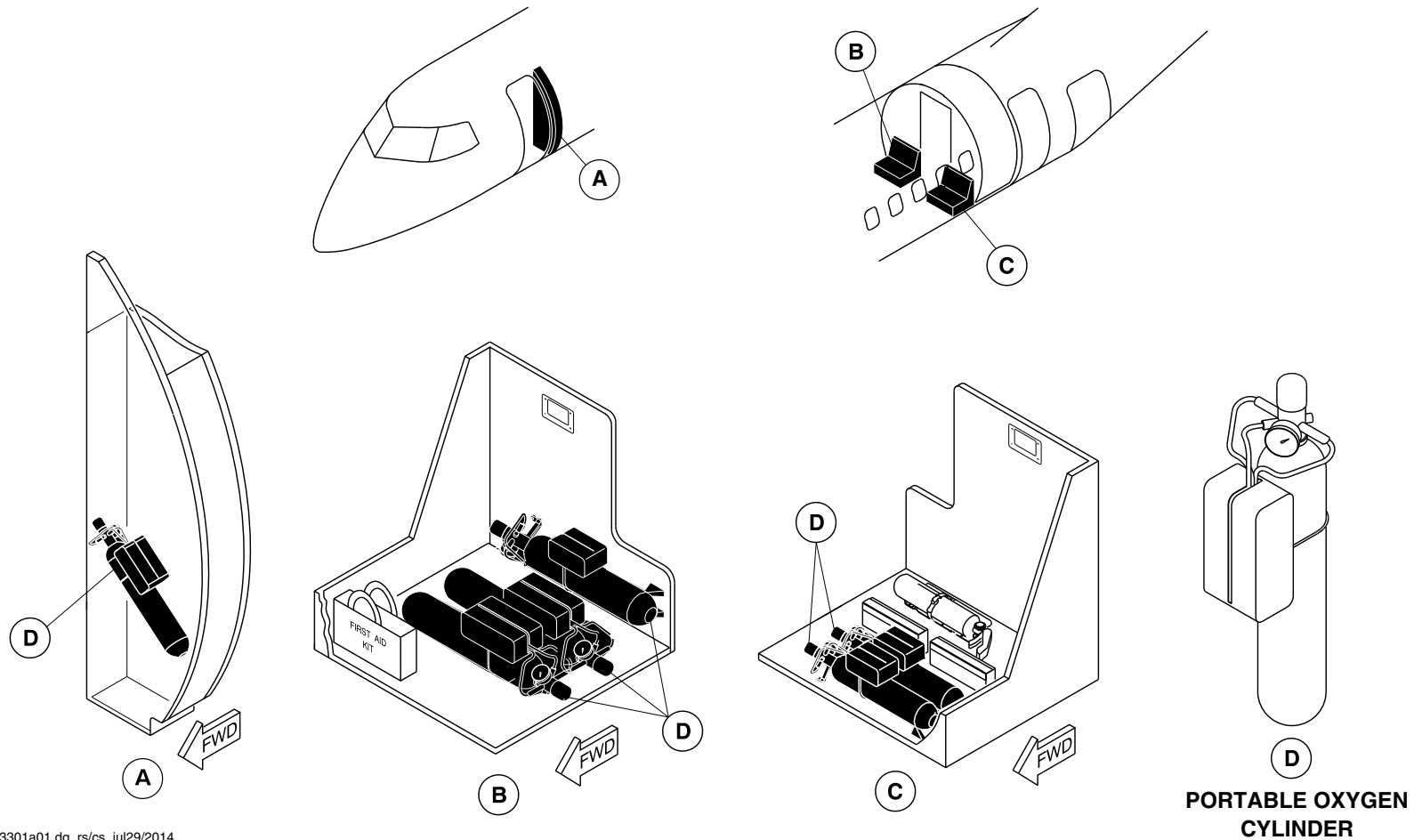
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cg3301a01.dg, rs/cs, jul29/2014

Passenger Emergency Oxygen System  
Figure 6

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

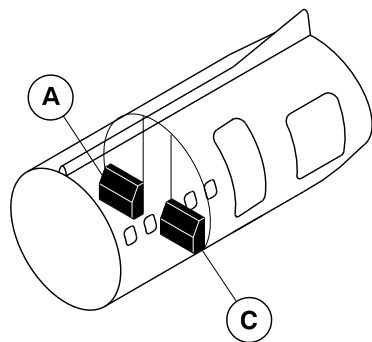
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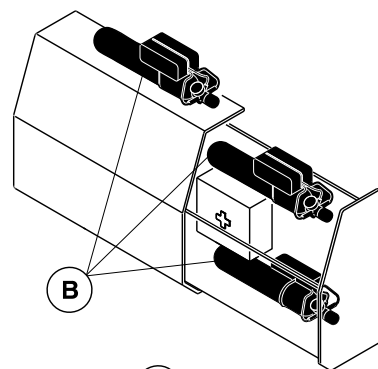
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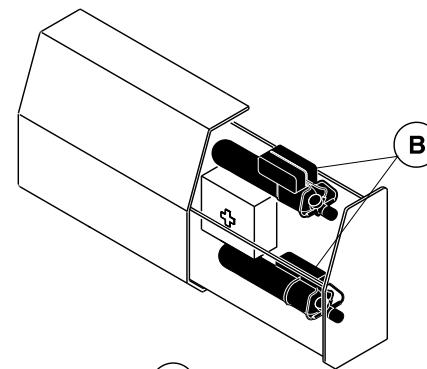
### NOTE

The quantity and locations of these oxygen bottles will vary based on aircraft options.



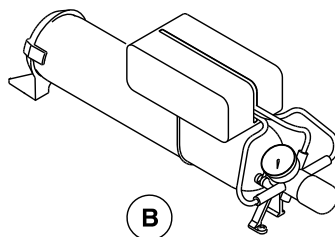
A

POST MODSUM 4-457419

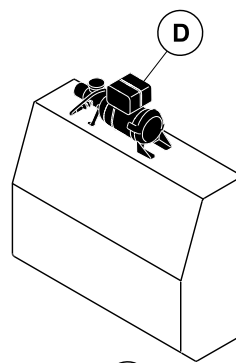


A

POST MODSUM 4-457262

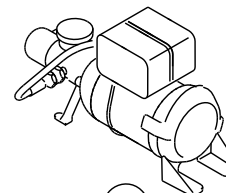


B



C

POST SB84-25-154



D

cg3437a01.dg, rc, jun26/2014

Passenger Emergency Oxygen System  
Figure 7

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

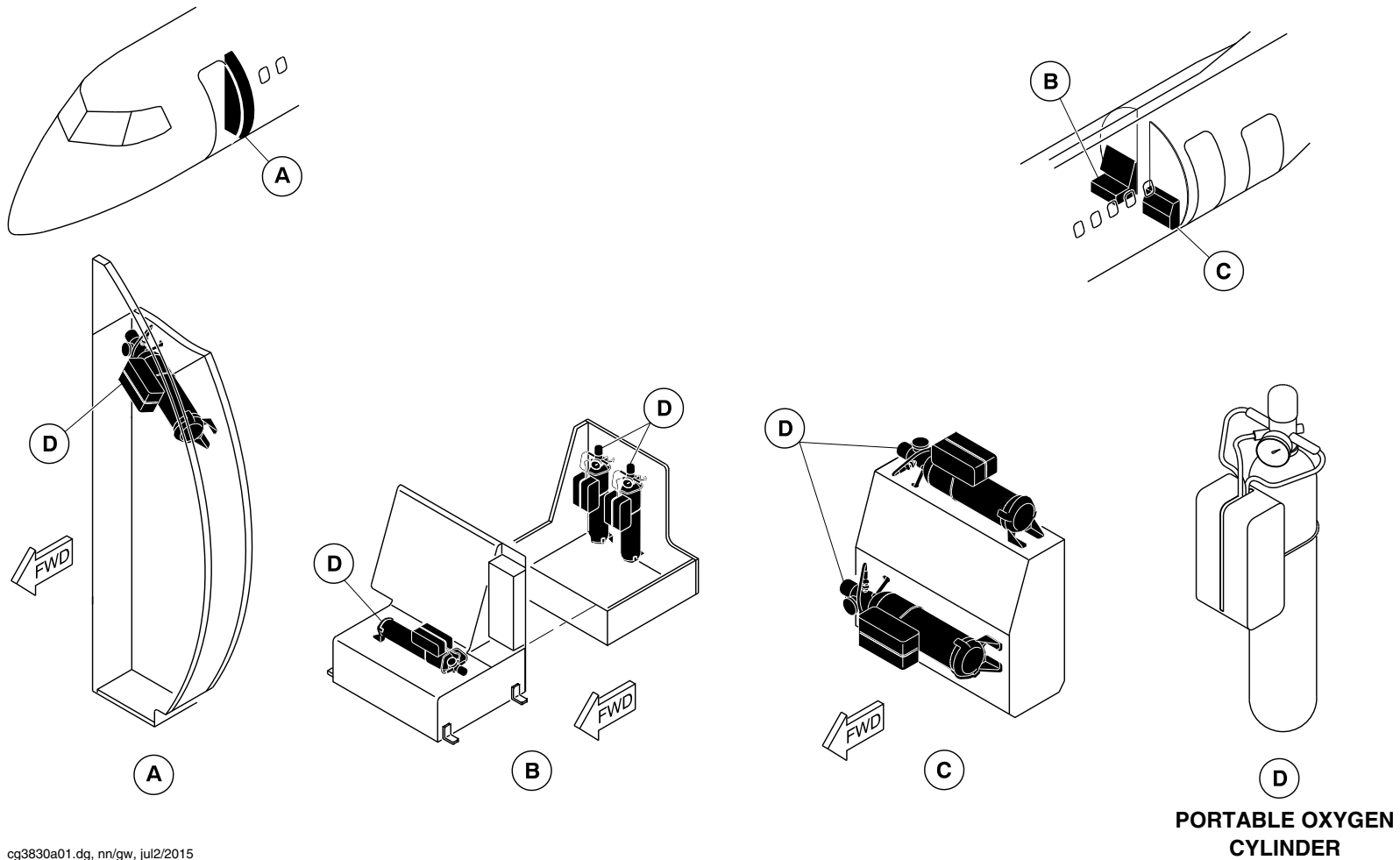
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cg3830a01.dg, nn/gw, jul2/2015

Passenger Emergency Oxygen System  
Figure 8

PSM 1-84-2A  
EFFECTIVITY:  
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The diagram illustrates the assembly of a portable oxygen cylinder in four steps:

- A:** The portable oxygen cylinder is inserted into the device.
- B:** The cylinder is secured with a strap.
- C:** The cylinder is connected to the device.
- D:** The completed assembly is shown.

**PORTABLE OXYGEN CYLINDER**

ca3857a01.dg, np/gw, iul2/2015

### Passenger Emergency Oxygen System

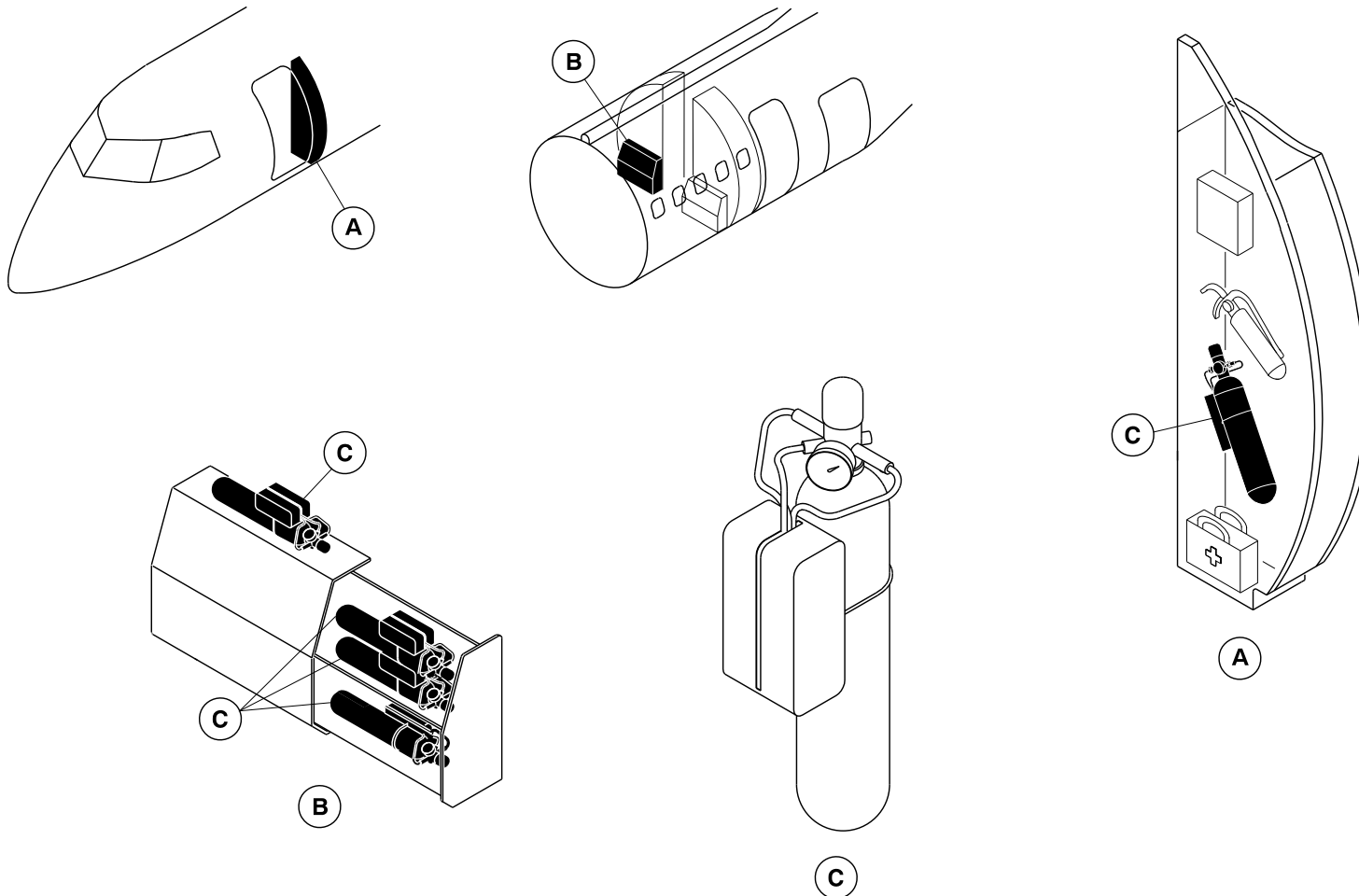
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cg3900a01.dg, rc, may14/2015

Passenger Emergency Oxygen System  
Figure 10

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

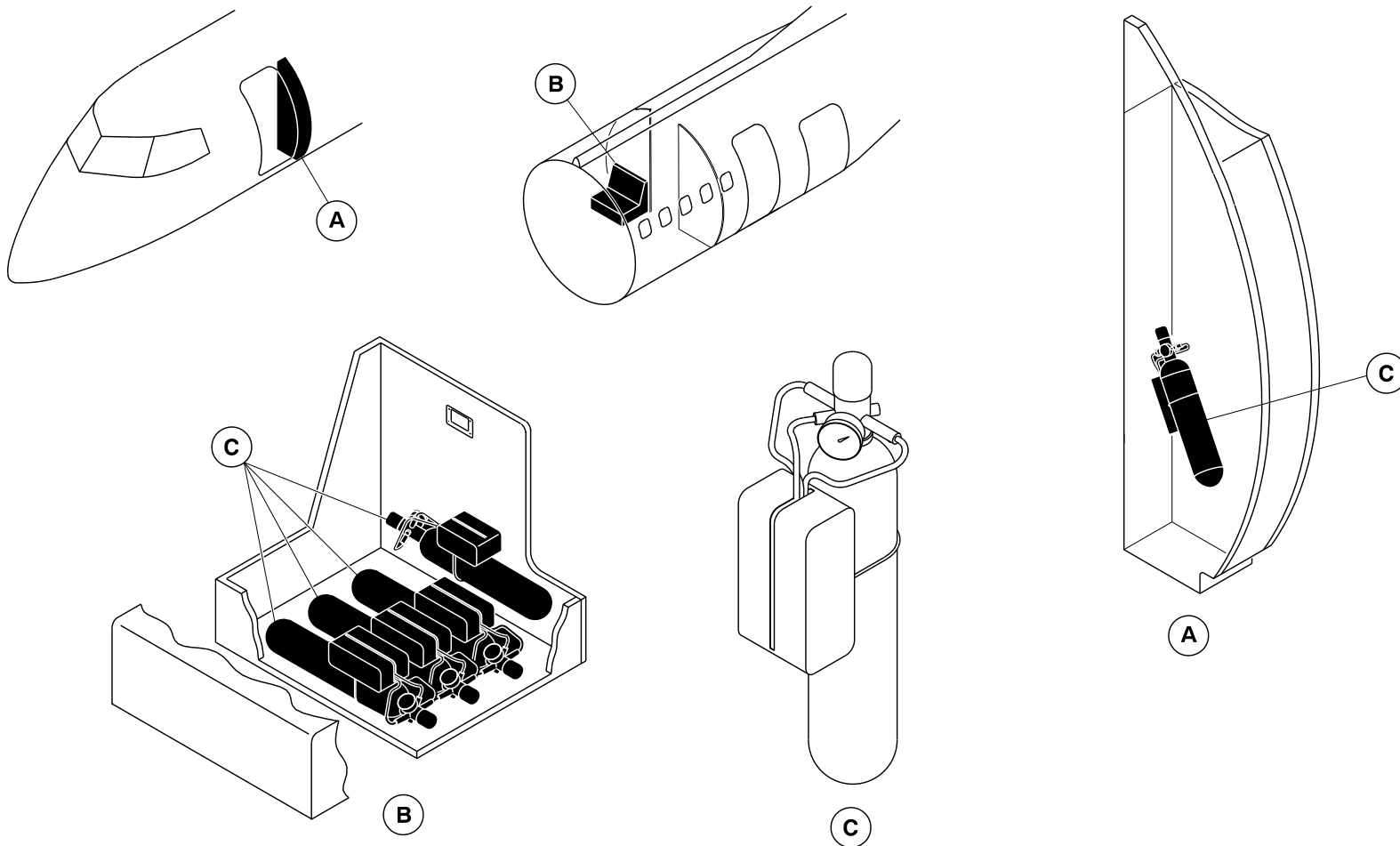
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cg3901a01.dg, rc, may14/2015

Passenger Emergency Oxygen System  
Figure 11

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

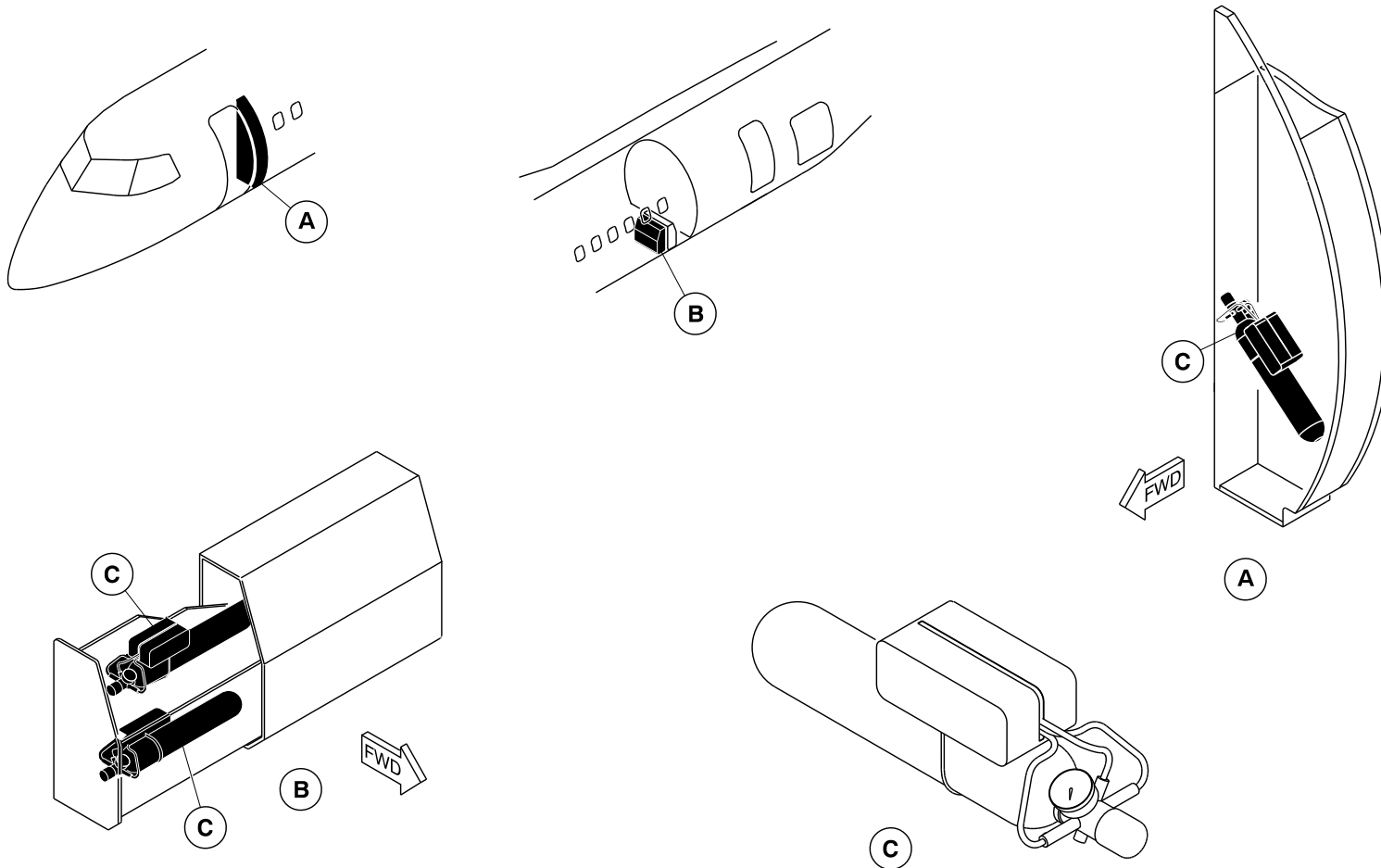
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cg4075a01.dg, ak, aug19/2015

Passenger Emergency Oxygen System  
Figure 12

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

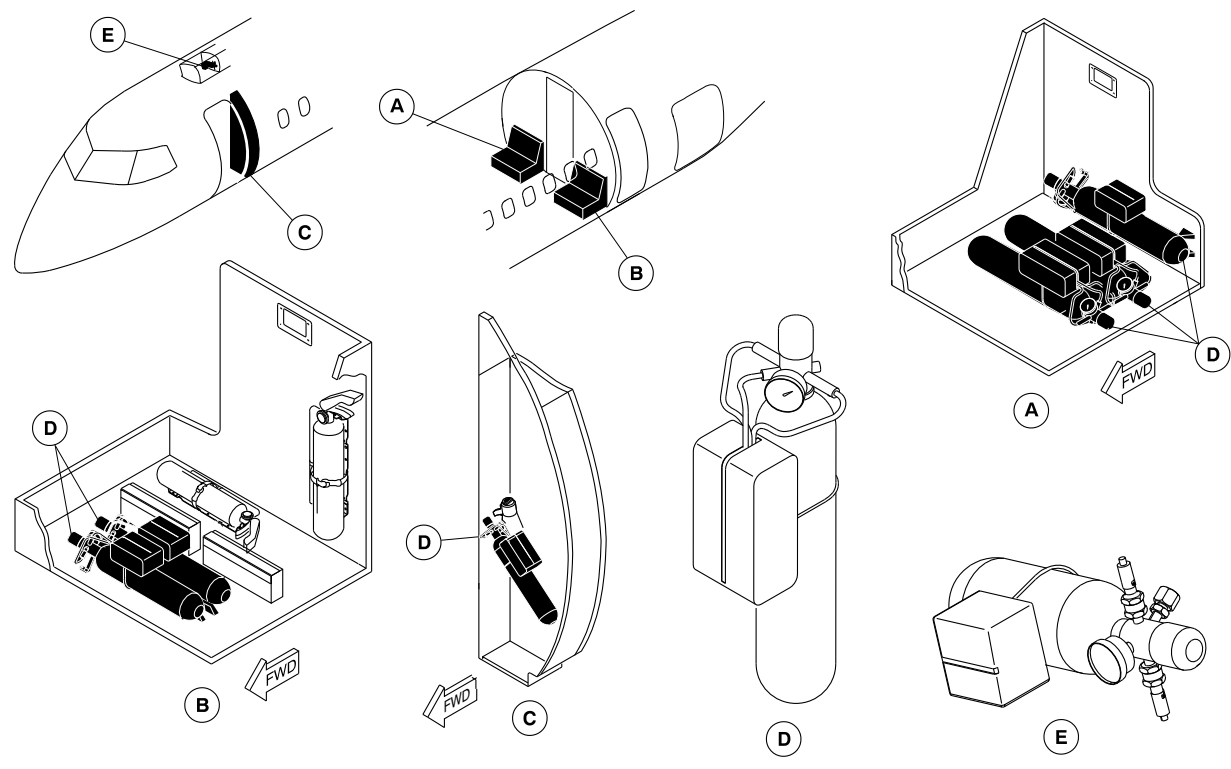
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cg4375a01.dwg pr jan06/2016

Crew Portable Oxygen System  
Figure 13

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

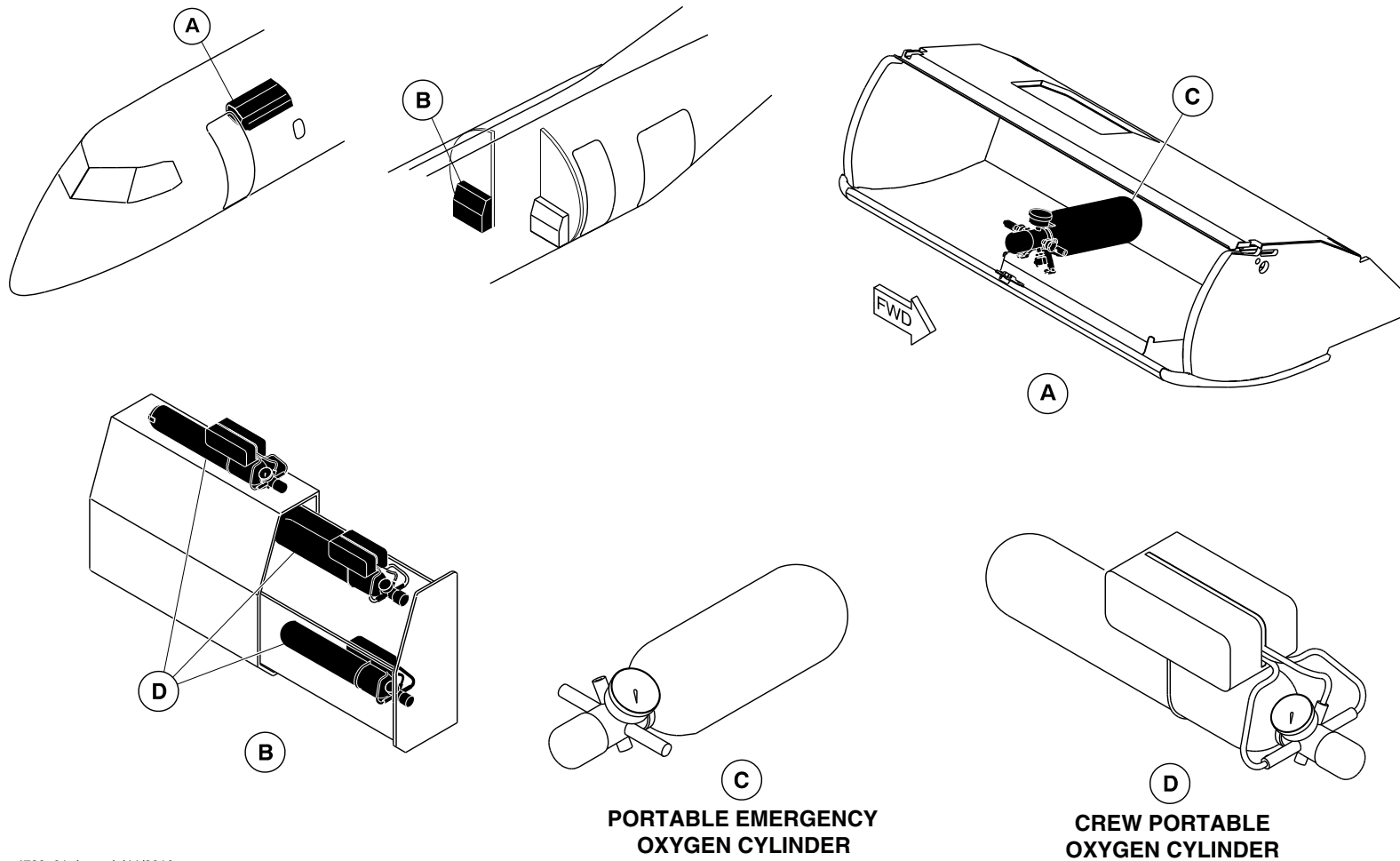
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cg4739a01.dg, rc, jul11/2016

Passenger Emergency Oxygen System  
Figure 14

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

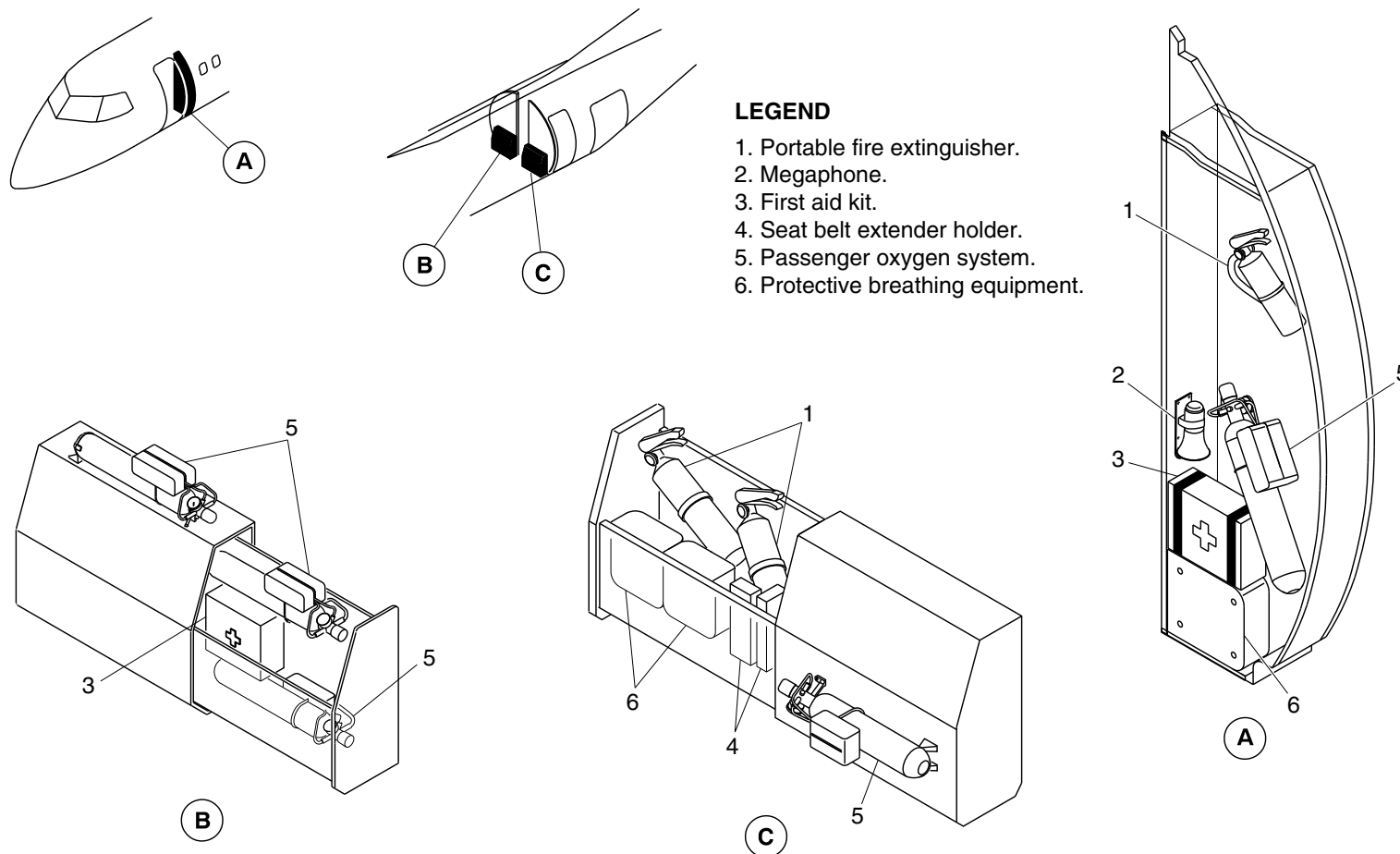
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cg4517a01.dg, cm, aug23/2016

Emergency Equipment Detail/Forward Draft Bulkhead and Aft Draft Bulkhead  
Figure 15

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

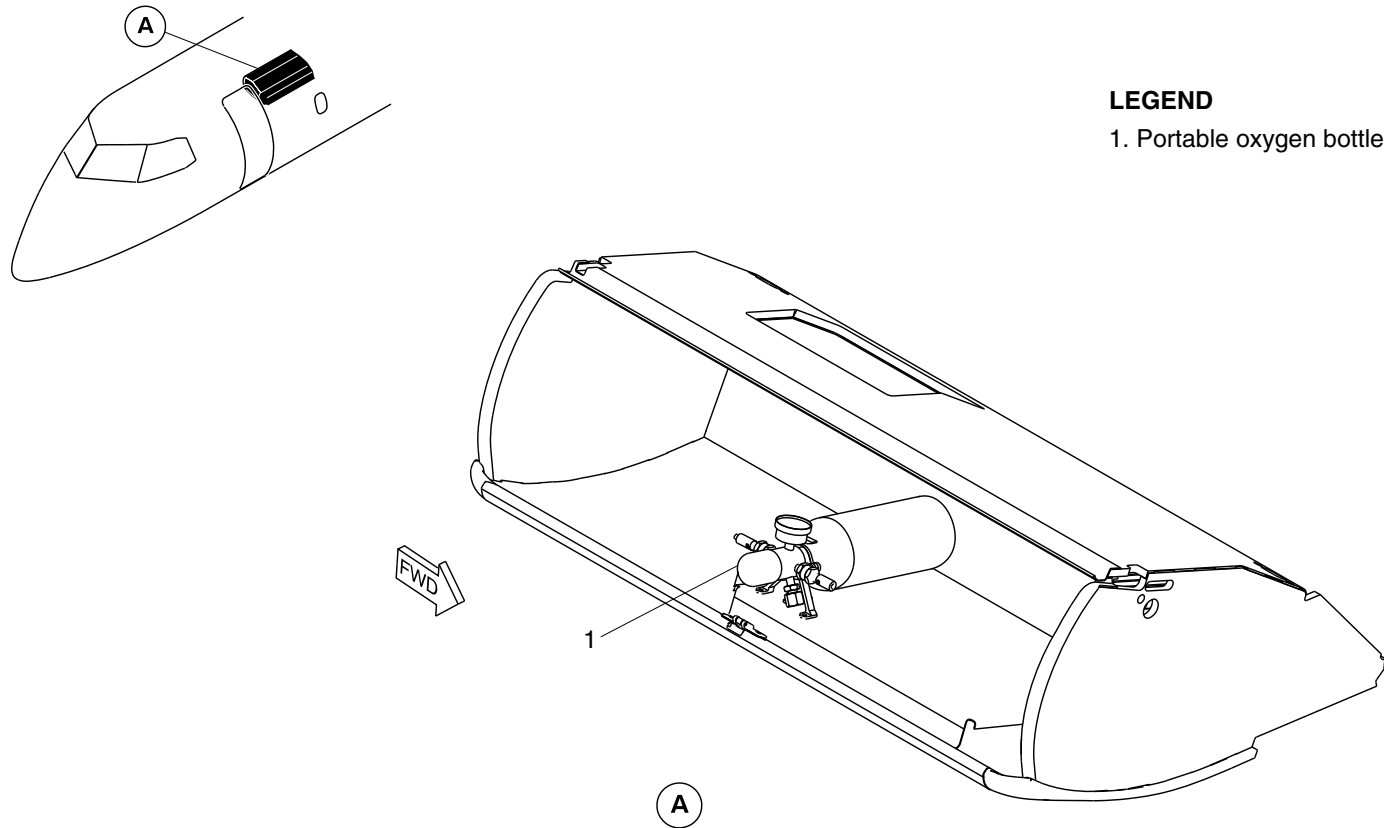
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cg4518a01.dg, cm, aug23/2016

Passenger Emergency Oxygen System  
Figure 16

PSM 1-84-2A  
EFFECTIVITY:  
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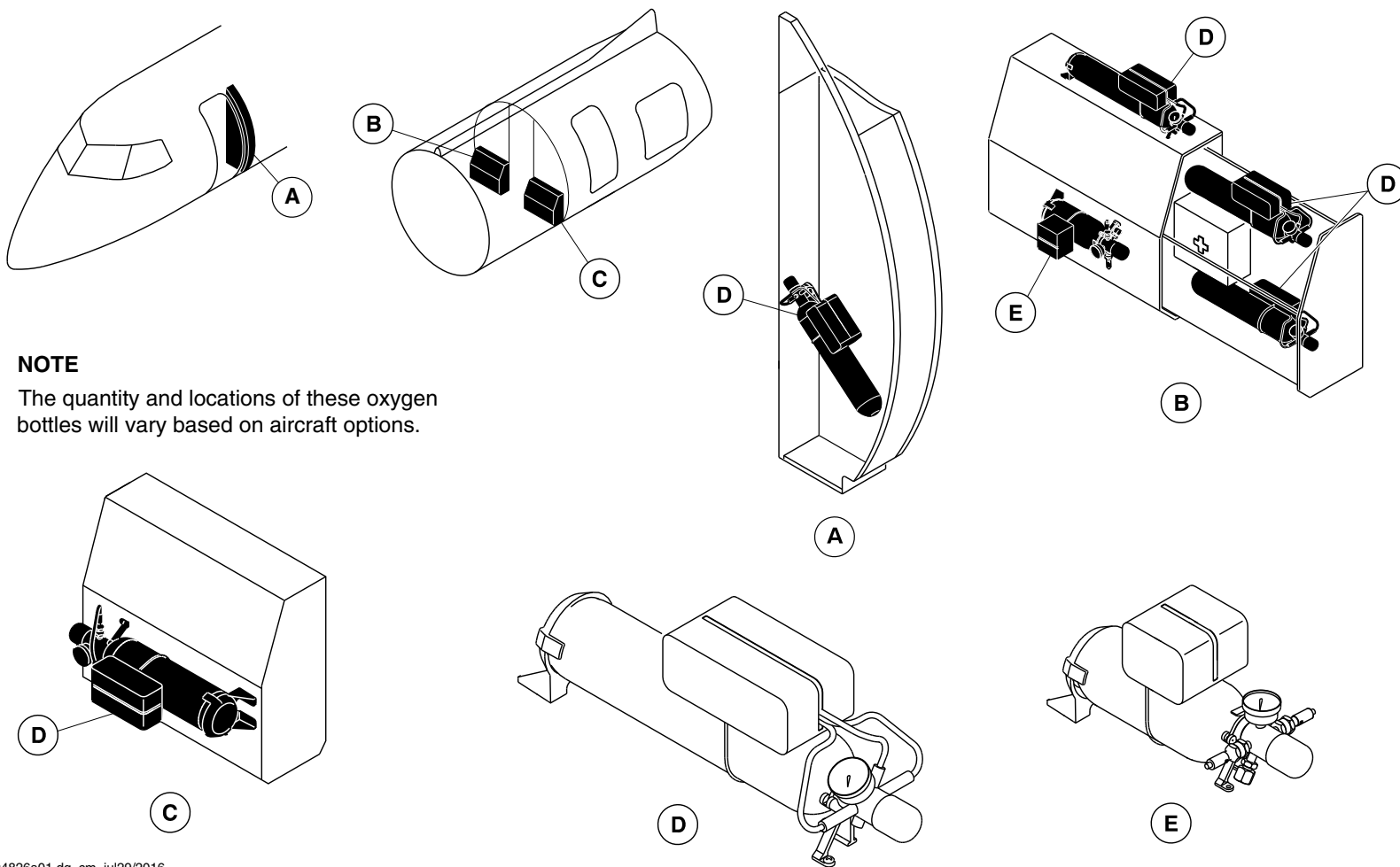
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cg4826a01.dg, cm, jul29/2016

Passenger Emergency Oxygen System  
Figure 17

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

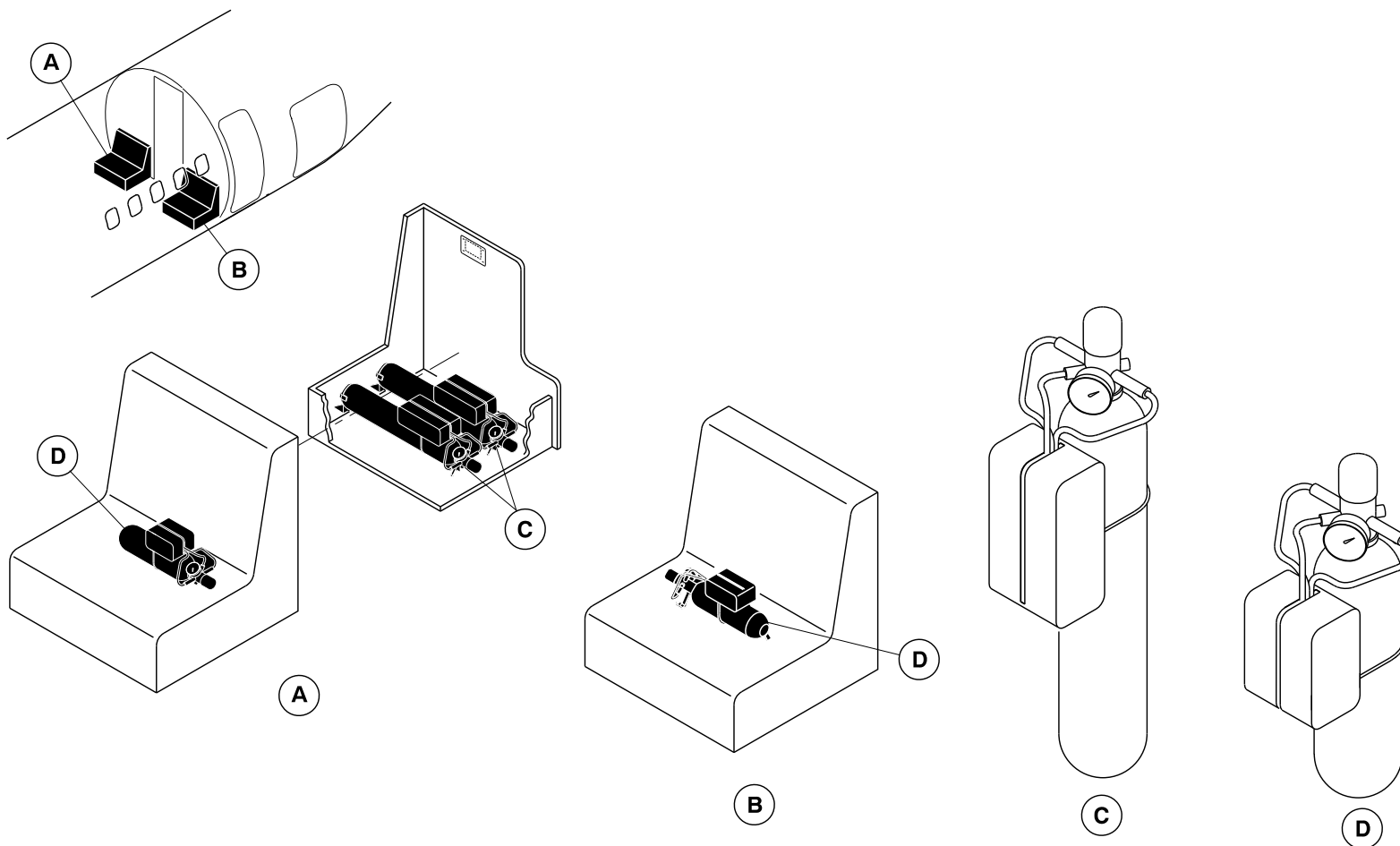
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cg5097a01.dg, rs, may17/2017

Passenger Emergency Oxygen System  
Figure 18

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

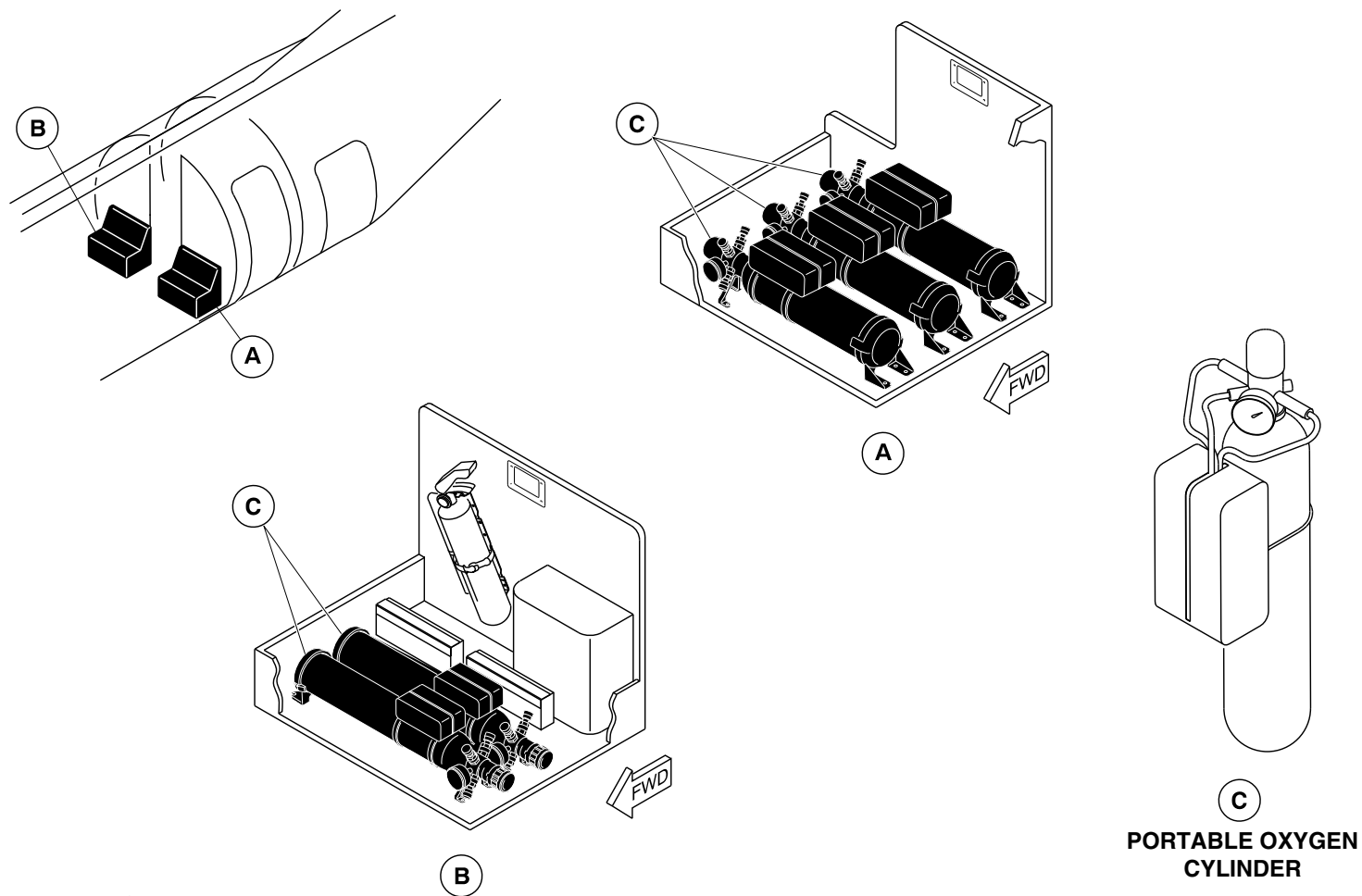
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cg5151a01.dg, rc, jun20/2017

Passenger Emergency Oxygen System  
Figure 19

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

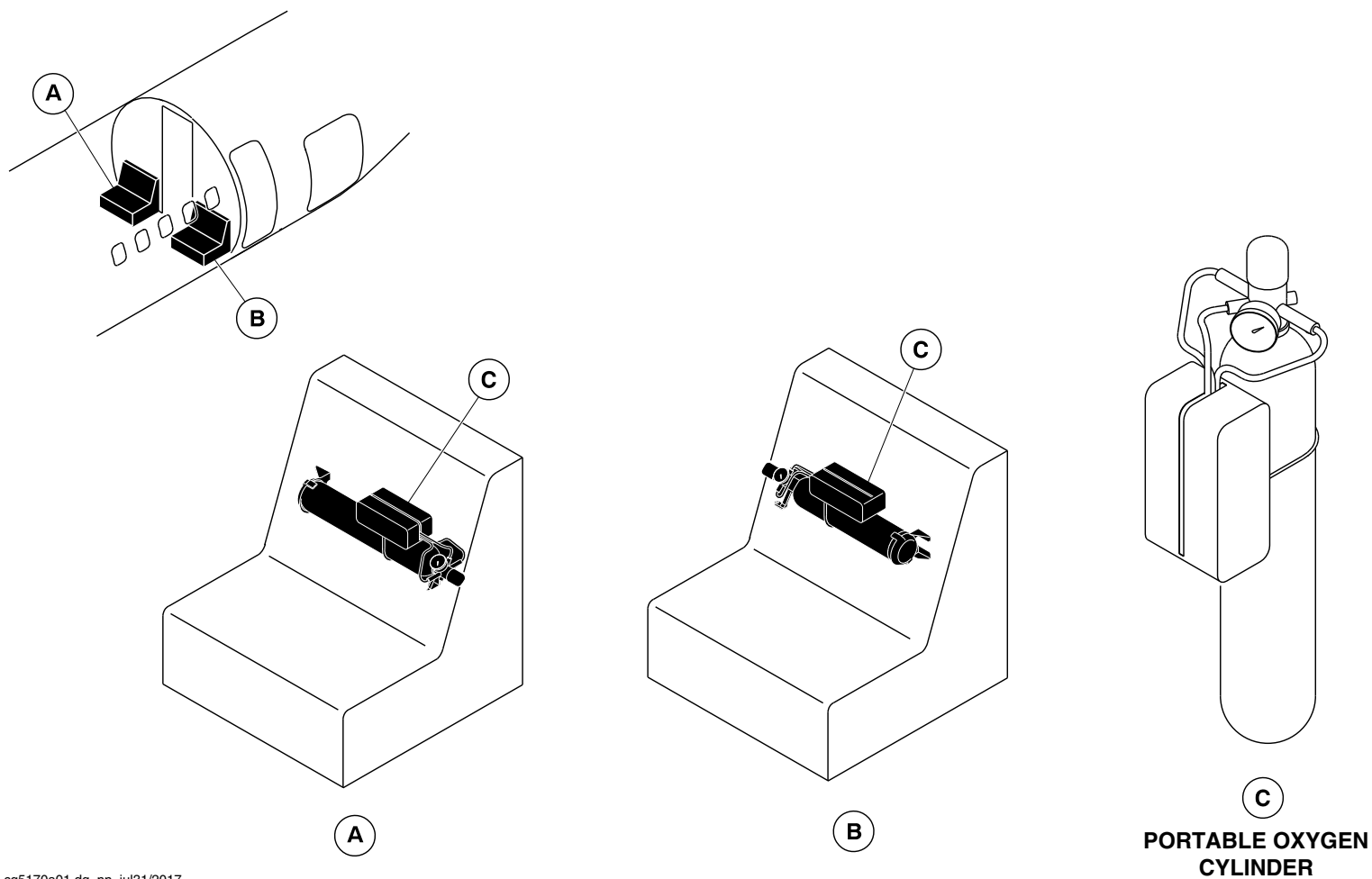
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Passenger Emergency Oxygen System  
Figure 20

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

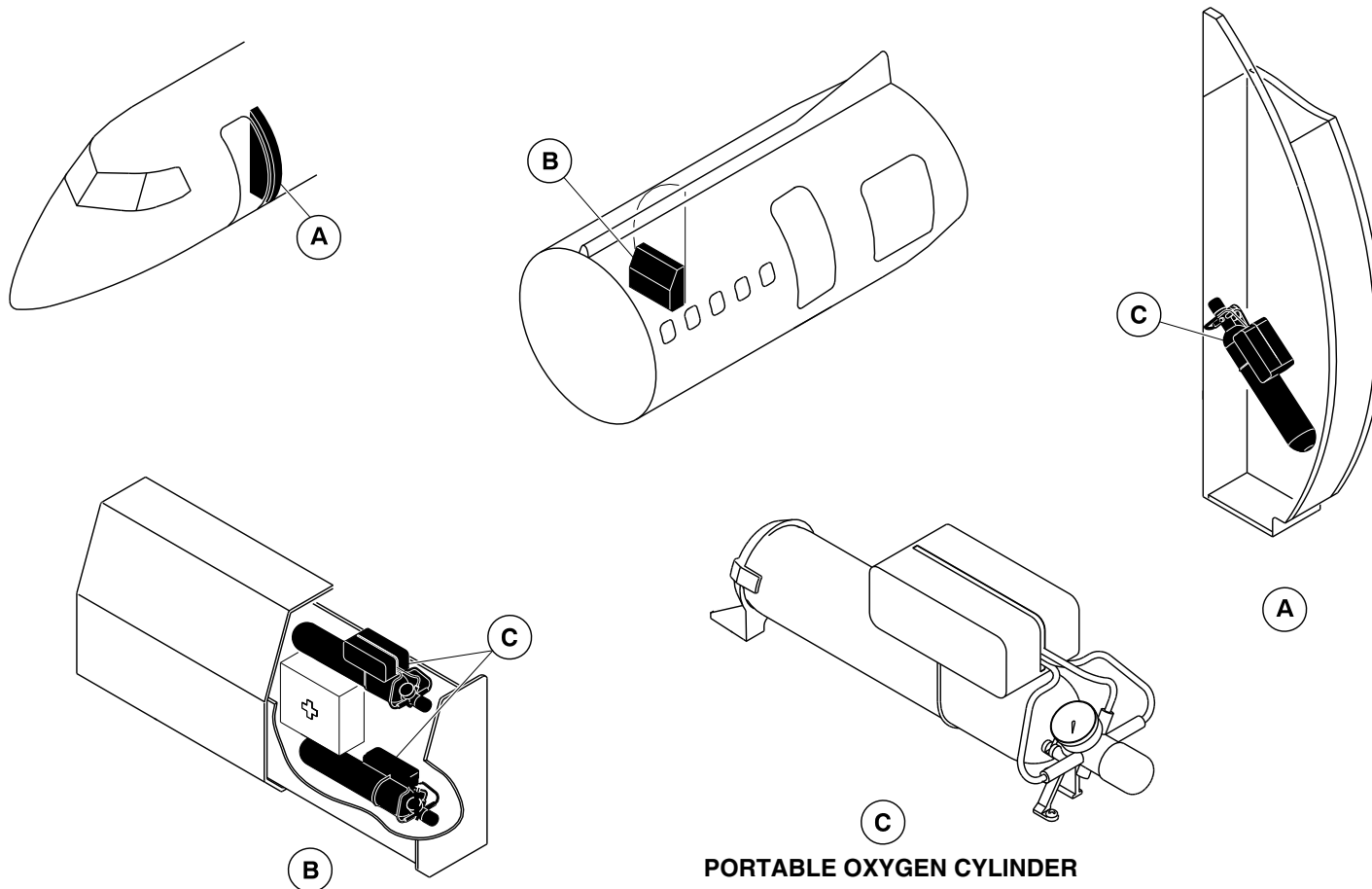
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cg5182a01.dg, kb, sep12/2017

Passenger Emergency Oxygen System  
Figure 21

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

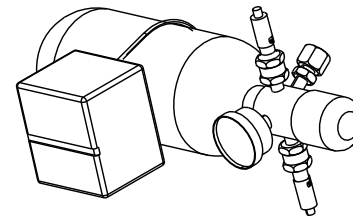
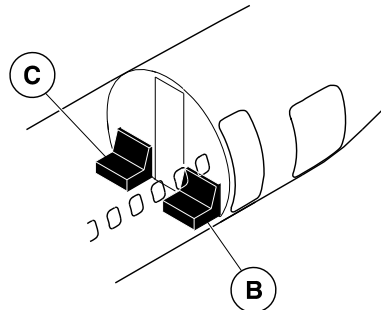
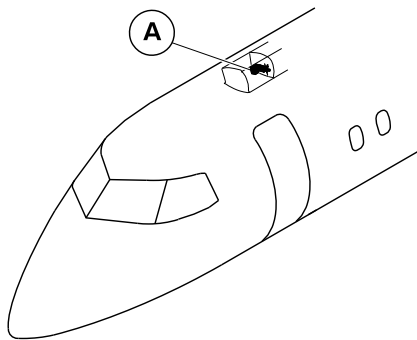
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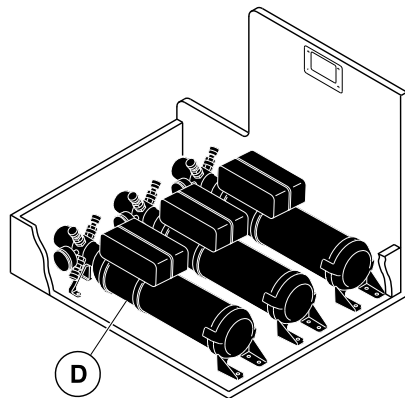


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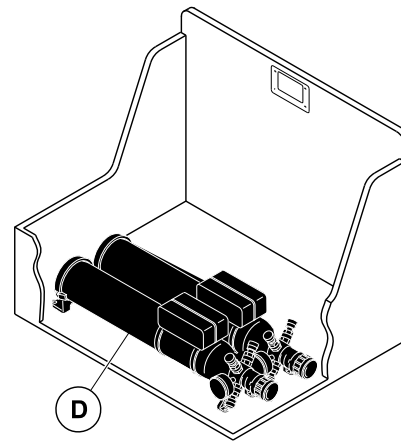
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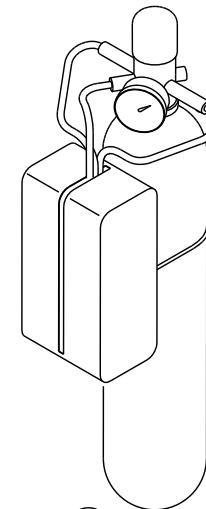
**A**  
**PORTABLE OXYGEN  
CYLINDER**



**B**



**C**



**D**  
**PORTABLE OXYGEN  
CYLINDER**

cg5338a01.dg, nn, may22/2018

Passenger Emergency Oxygen System  
Figure 22

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

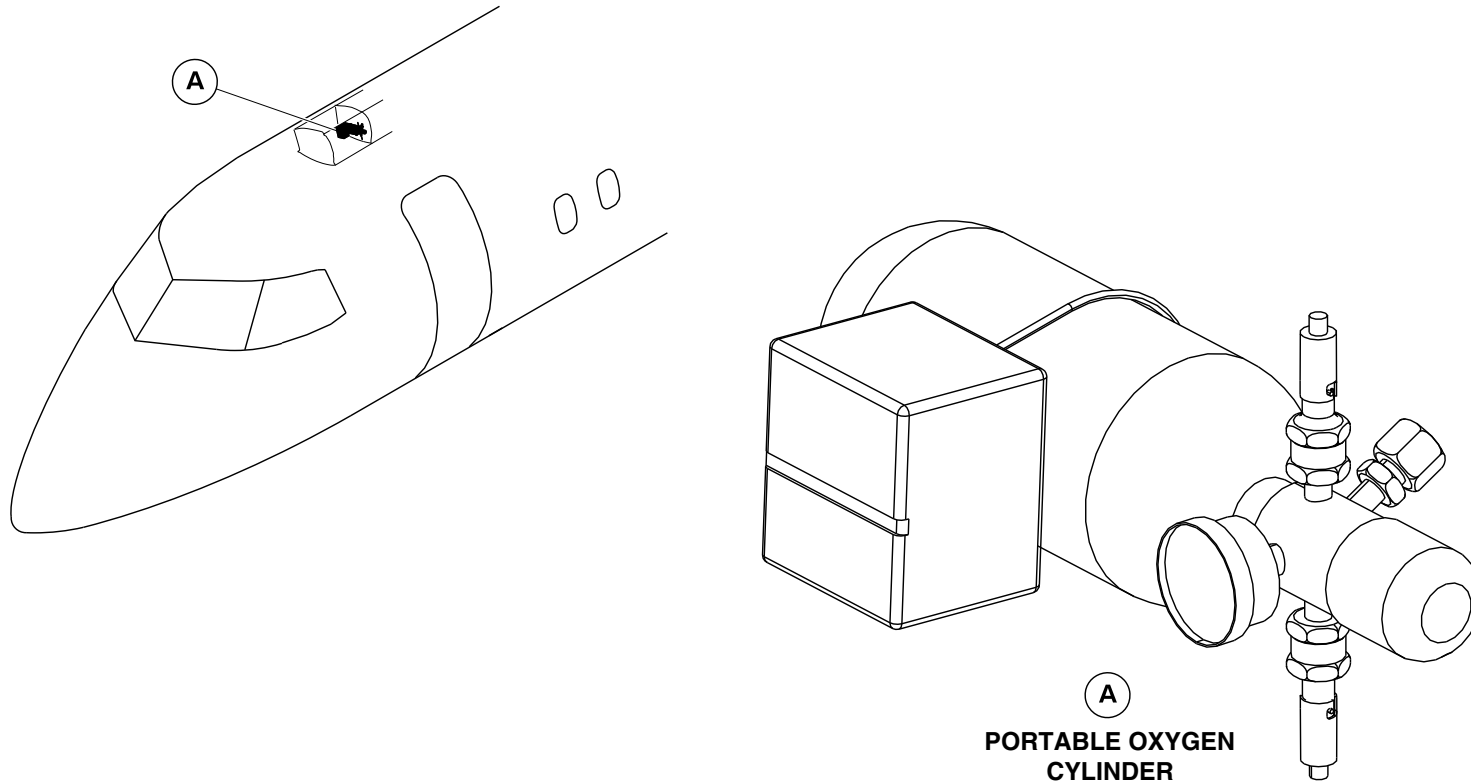
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cg5427a01.dg, ss, sep18/2018

Passenger Emergency Oxygen System  
Figure 23

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

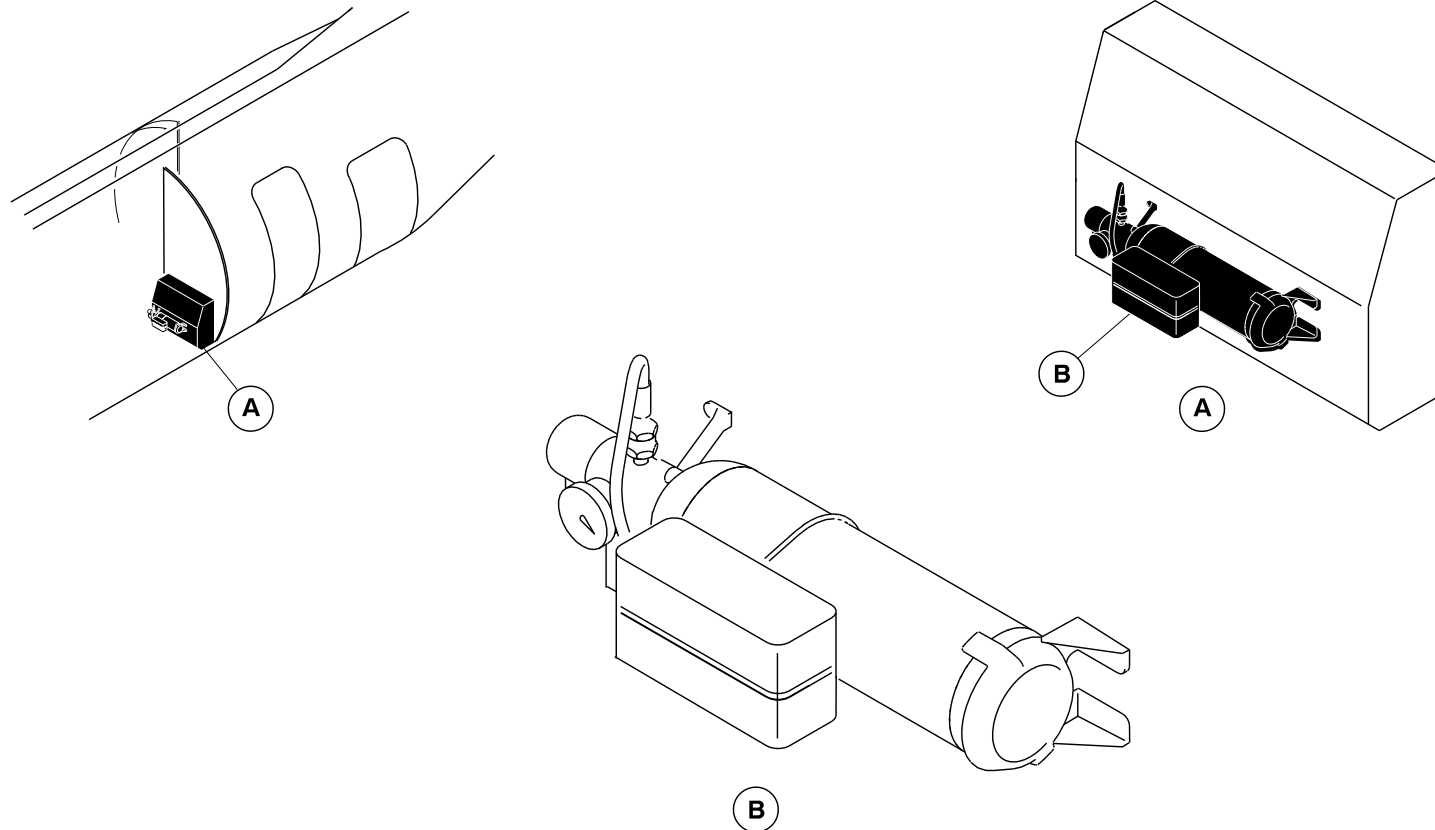
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**PORTABLE FIRST AID  
OXYGEN CYLINDER**

cg5441a01.dg, kb, oct23/2018

Passenger Emergency Oxygen System Passenger Emergency Oxygen System  
Figure 24

PSM 1-84-2A  
EFFECTIVITY:  
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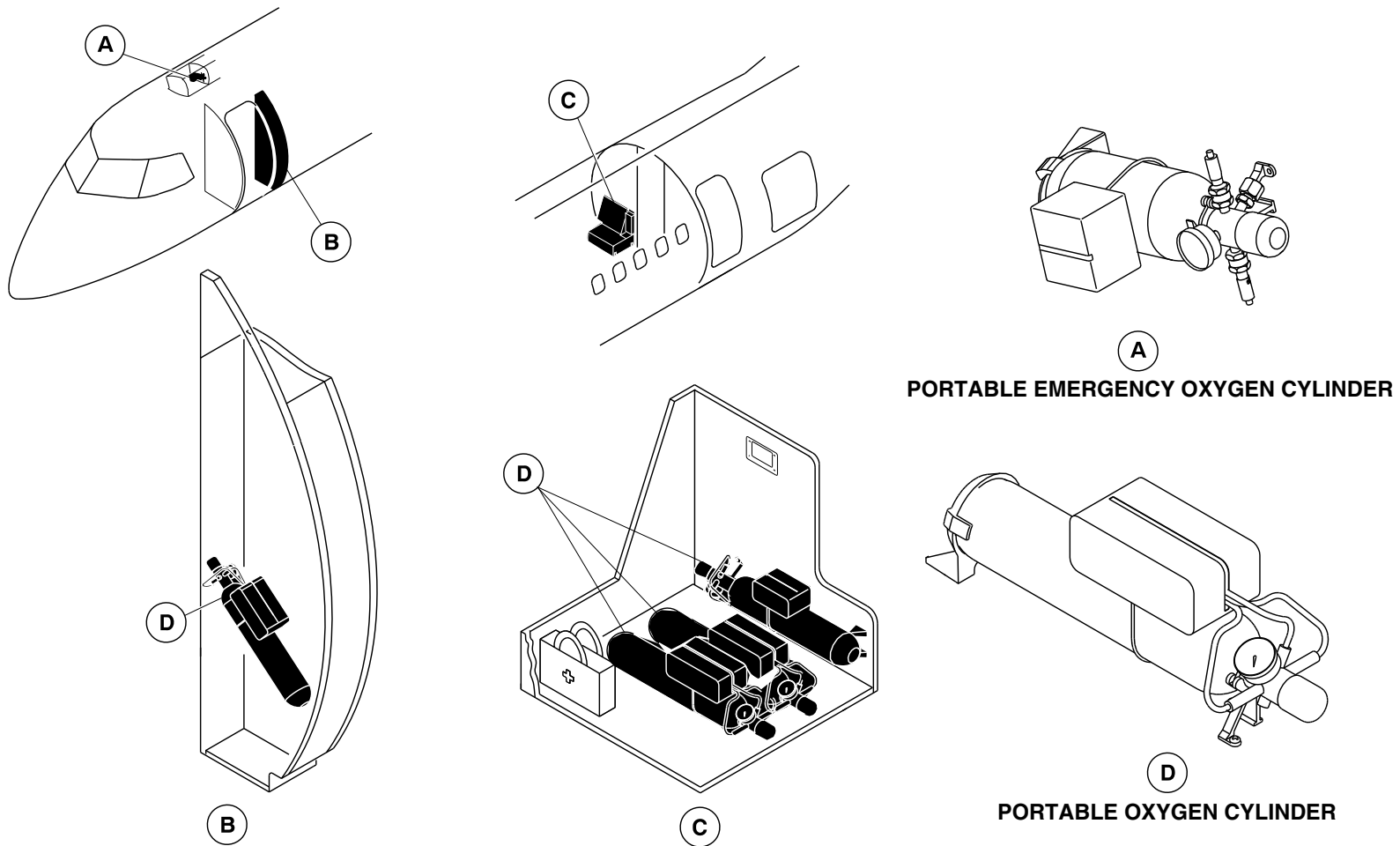
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cg5476a01.dg, kb, nov29/2018

Passenger Emergency Oxygen System  
Figure 25

PSM 1-84-2A  
EFFECTIVITY:  
See first effectivity on page 2 of 35-30-00  
Config 001

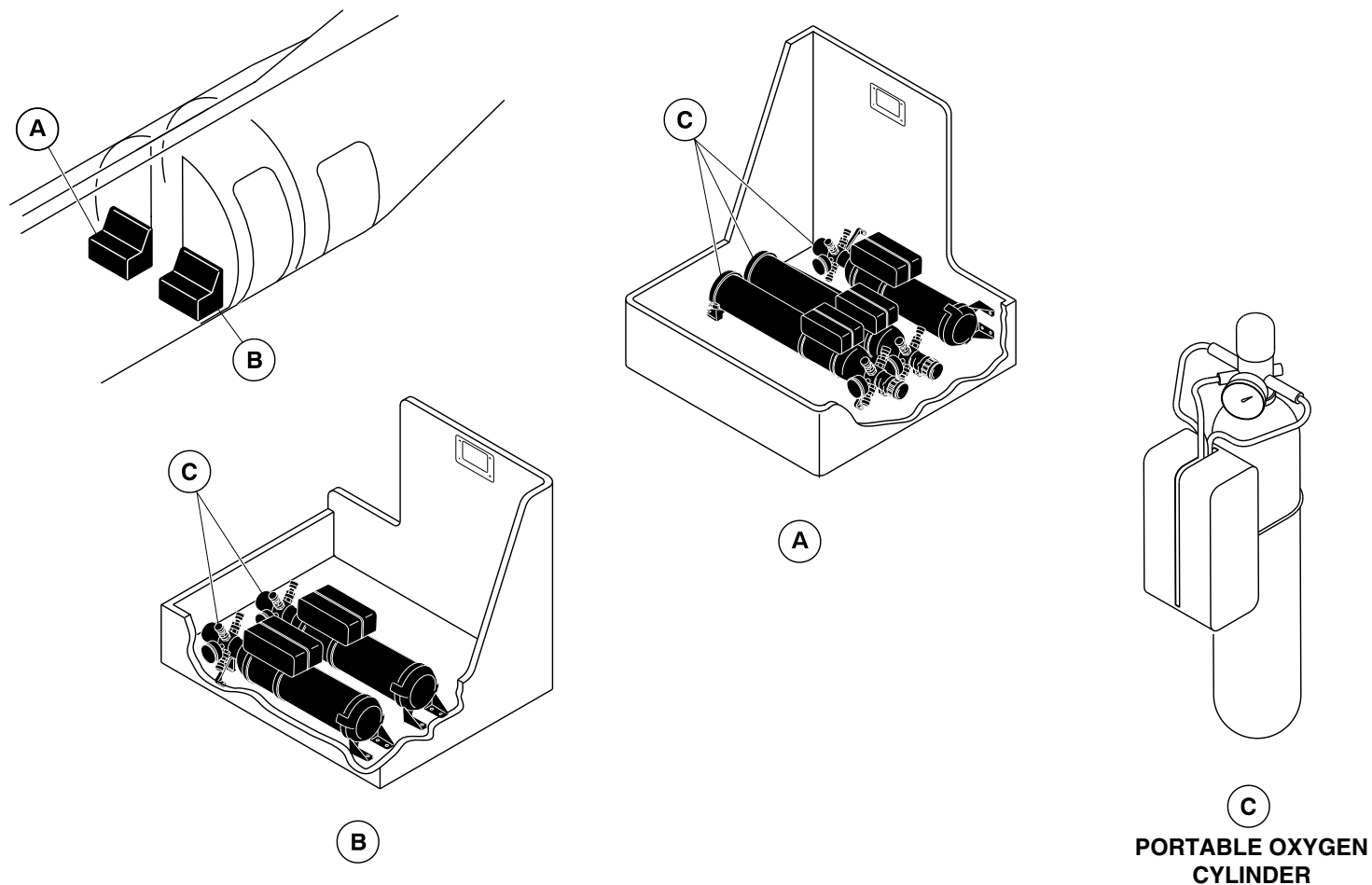
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cg5503a01.dg, nn, dec31/2018

Passenger Emergency Oxygen System  
Figure 26

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

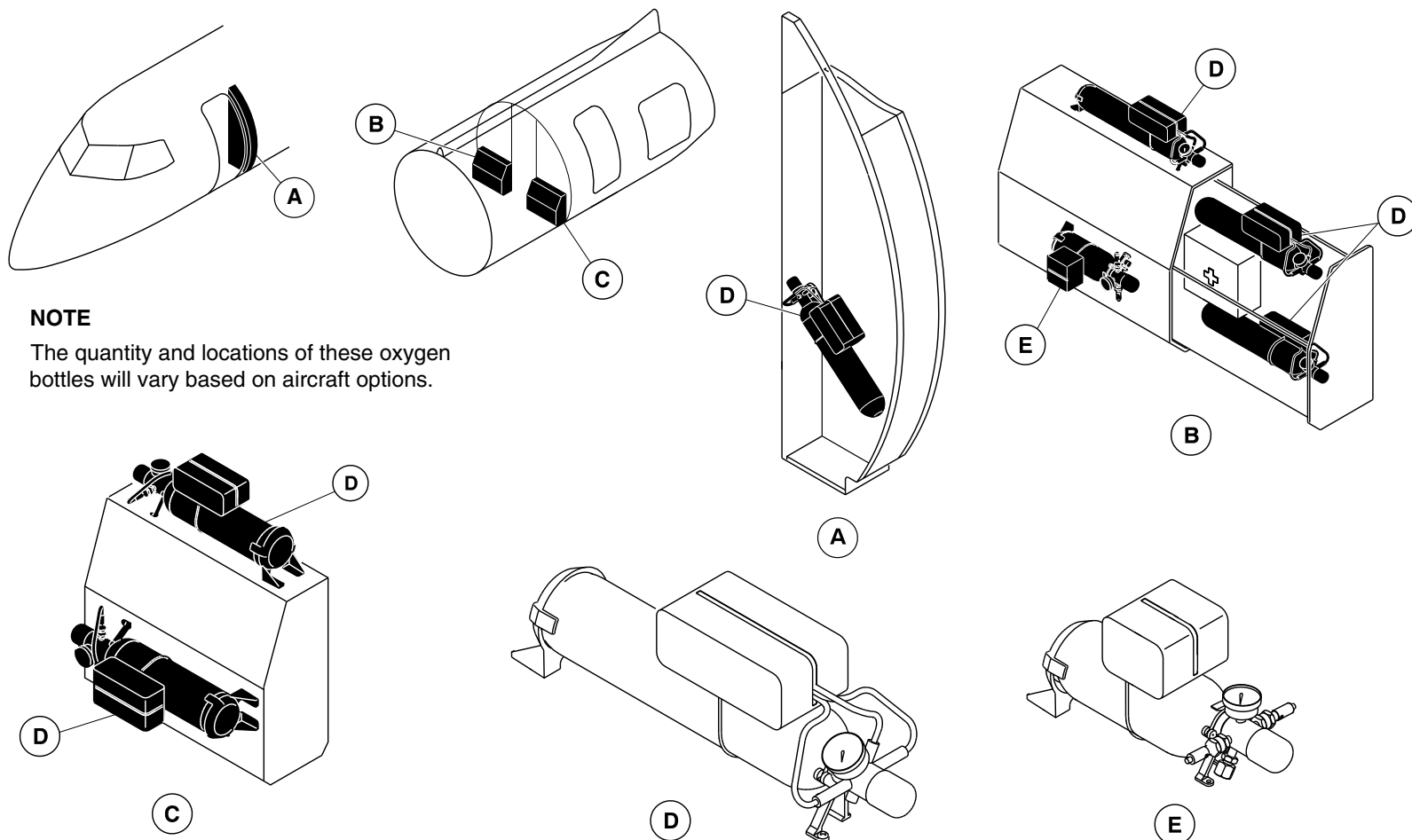
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cg5590a01.dg, sk, mar26/2019

PORTABLE OXYGEN CYLINDER

PORTABLE EMERGENCY OXYGEN CYLINDER

Passenger Emergency Oxygen System  
Figure 27

PSM 1-84-2A  
EFFECTIVITY:  
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Config 001

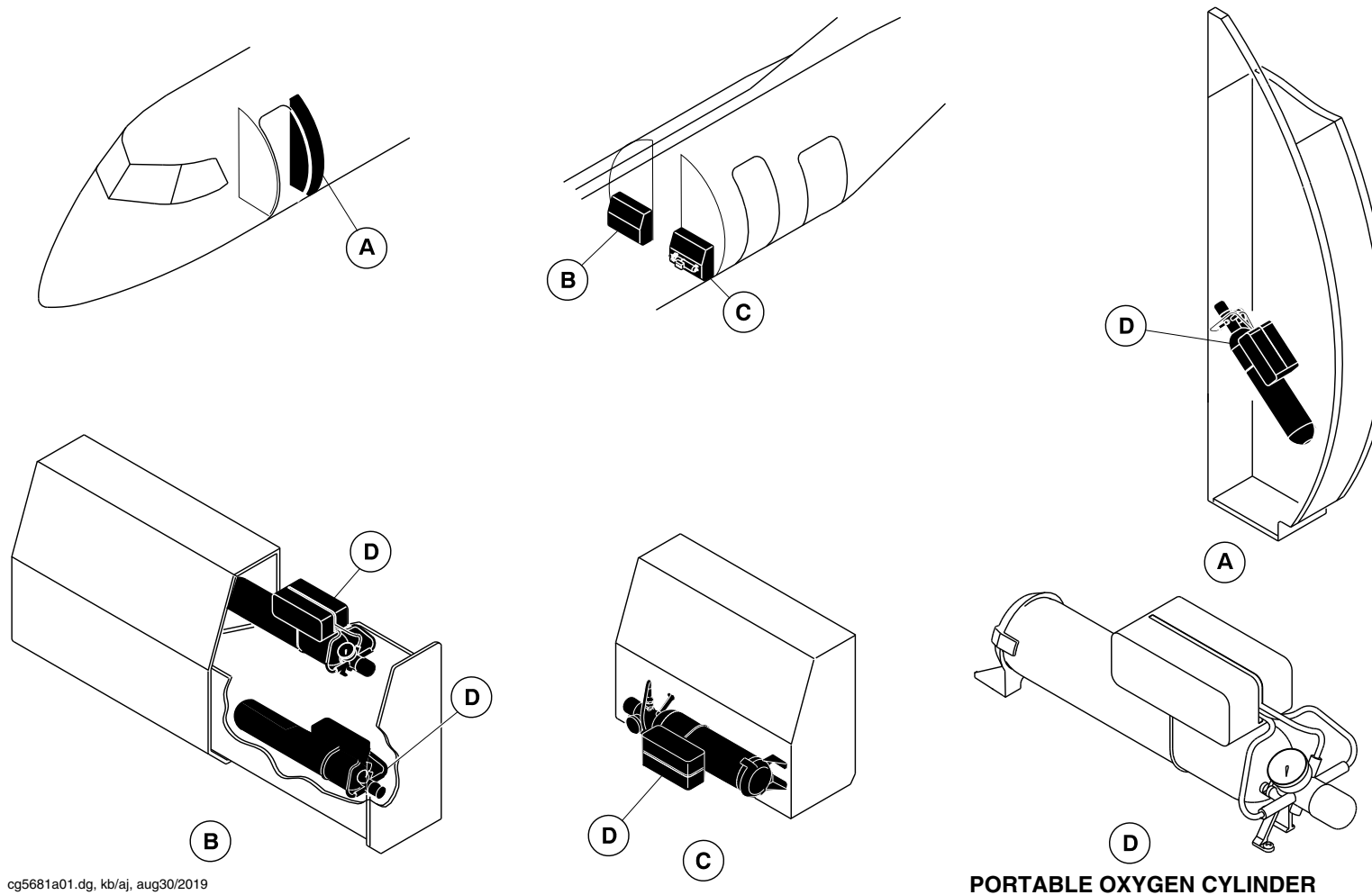
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PORTABLE OXYGEN CYLINDER

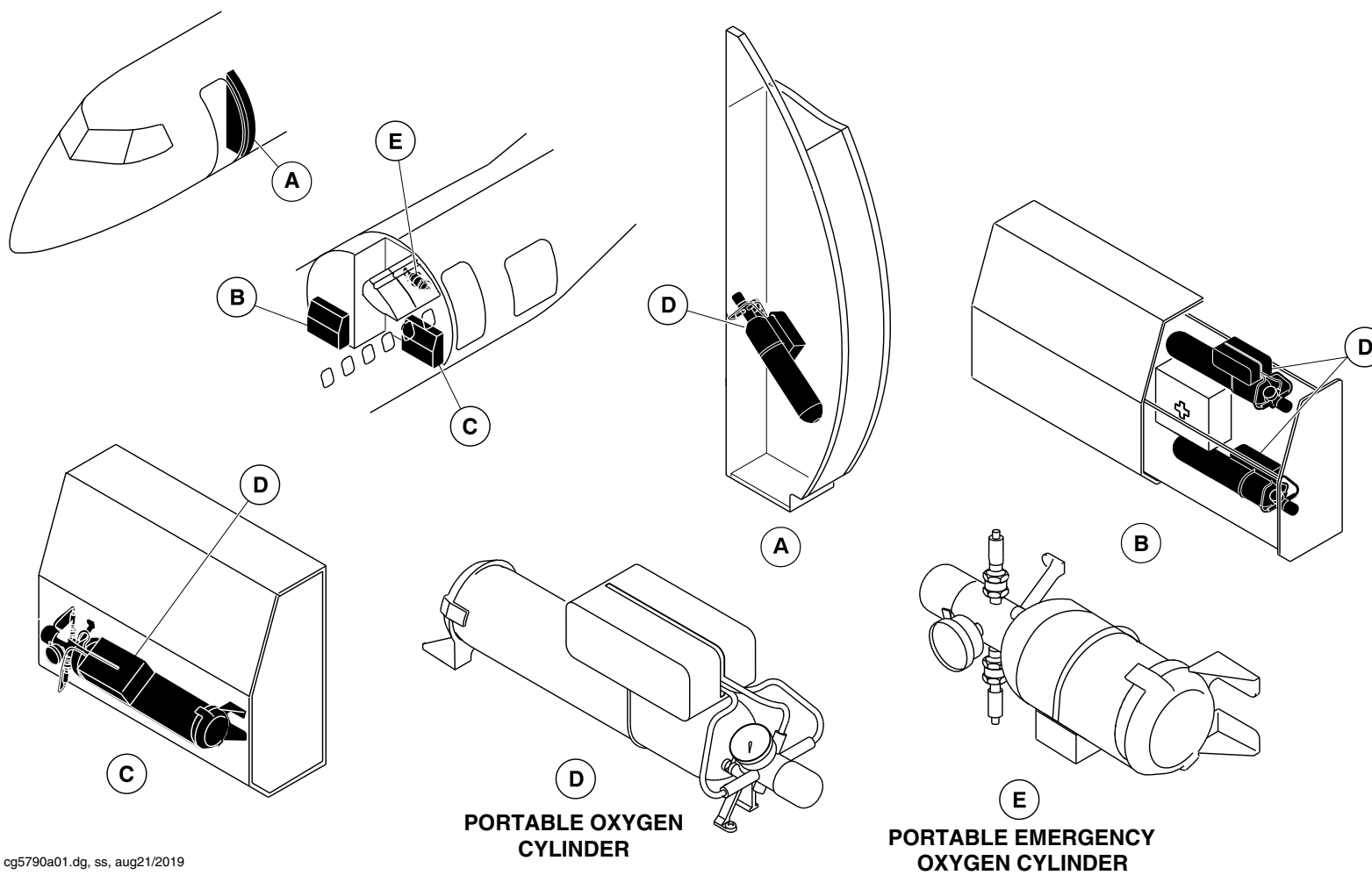
Passenger Emergency Oxygen System  
Figure 28

PSM 1-84-2A  
EFFECTIVITY:  
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### Passenger Emergency Oxygen System

Figure 29

PSM 1-84-2A  
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## PORTABLE OXYGEN CYLINDER

## PORTABLE FIRST AID OXYGEN CYLINDER

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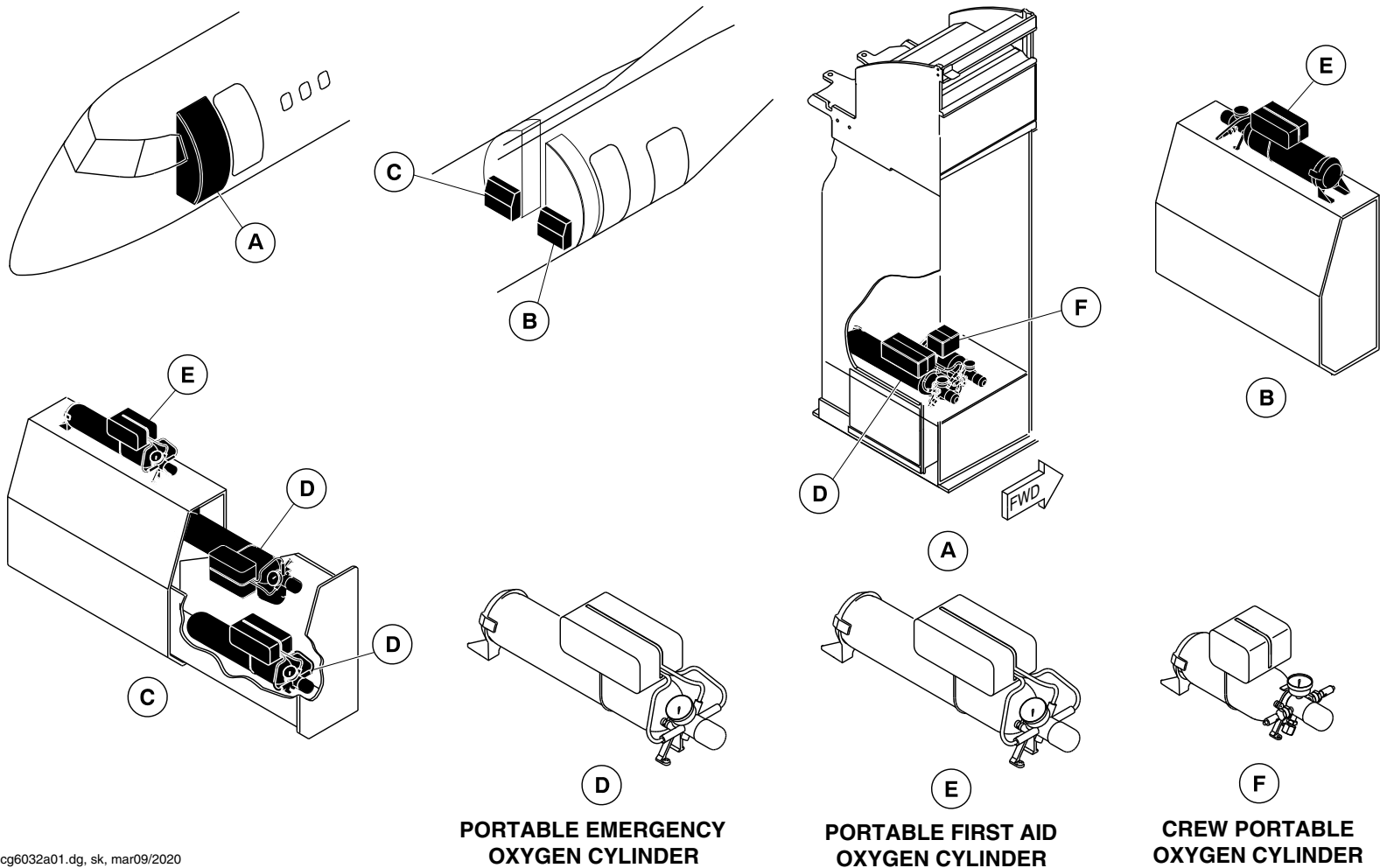
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



cg6032a01.dg, sk, mar09/2020

Passenger Emergency Oxygen System  
Figure 31

PSM 1-84-2A  
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## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

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### PROTECTIVE BREATHING EQUIPMENT

#### Introduction

The Protective Breathing Equipment (PBE) protects the crew member from the effects of smoke, carbon dioxide, harmful gases and oxygen deficiency.

#### General Description

[Refer to Figure 1.](#)

The PBE is a self contained, portable, disposable breathing device. The system will supply oxygen for approximately 15 minutes during fire, smoke or fume emergencies.

The PBE has a 10 year useful service life.

The PBE units are located throughout the aircraft near the fire extinguishers. They supply the crew members with a portable oxygen supply and eye protection while fighting fires in a smoky environment. The locations of the PBE units are clearly labelled and the units are easily accessible to the crew.

#### Detailed Description

[Refer to Figures 2 and 5.](#)

There are four PBE units, one in the flight compartment and three in the passenger compartment. In the flight compartment, the PBE unit

is located in a storage container attached to the bulkhead behind the copilot's seat. It is easily accessible to both pilots.

[Refer to Figures 3 and 4.](#)

In the passenger compartment, the PBE's are located in storage containers near the fire extinguishers: one in the forward draft bulkhead and two in the aft draft bulkhead.

[Refer to Figure 6.](#)

The PBE unit is a self-contained breathing device. It is stored in a container with an easily removed see-through door. The unit is kept in a vacuum sealed pouch for protection from moisture and contamination. The unit is ready for use as long as a pull strip on the sealed pouch is intact and there is no visual indication of loss of vacuum. Pulling the strip breaks the vacuum seal and lets the wearer use the protective breathing equipment.

The PBE unit is a demand system. The exhaled air from the wearer passes through a canister of potassium dioxide. The water vapor and carbon dioxide from the exhaled air is converted to oxygen which can be used by the wearer. The rate of conversion to oxygen is based on the work rate demanded by the wearer. The canister is sized to supply a minimum of 15 minutes of oxygen at pressure altitudes of up to 8000 feet.

The PBE's primary components are:

#### Hood

On aircraft installed with ESSEX's unit PBE MR10036N and MR10037N a hood with a self-fitting neck opening which seals out contaminants, retains the oxygen and keeps the hood inflated during use. The hood's inner surface has an anti-fog coating to improve





## AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

visibility. A lithium hydroxide absorber keeps carbon dioxide at safe levels.

The hood has a clear view front panel which allows for aural communication such as using the cabin interphone or the radio. The wearer puts on the hood and pulls the straps to place the facepiece into position. This action activates an oxygen generator which supplies an initial flow of oxygen to purge the hood.

On aircraft installed with BE Aerospace 119003 SERIES PBE's, the hood encloses the head of the wearer and seals around the neck with a thin elastic membrane and the large internal volume of the hood accommodates glasses and long hair. The enclosed volume of the hood represents approximately eight liters available re breathing volume. Inhalation is accomplished directly from the interior of the hood through the inhalation valve located on the oronasal mask. The complete device is secured to the head to minimize restrictions of mobility. A neck shield extends downward from the back of the hood to protect the collar and upper shoulder of the user from direct flame contact. A speaking diaphragm is installed in the oronasal mask cone to enhance the communication.

A relief valve located at the back of the hood prevents excessive pressure from building up inside the hood, and provides emergency pressure relief if cabin pressure is suddenly reduced. The chlorate candle mounted on the bottom of the potassium superoxide ( $KO_2$ ) canister discharges through the canister and into the hood. When the neck seal is properly positioned, the oxygen generated by the chlorate candle will inflate the hood, provide adequate initial breathing volume, and accomplish some purging of the hood with excess gas generation.

### Oxygen System

On aircraft installed with ESSEX's unit PBE MR10036N and MR10037N the system with a capacity of 36 liters minimum for each cylinder and supplies breathing aviator oxygen to the hood. A rupture protection is provided in case of an ambient overtemperature.

On aircraft installed with BE Aerospace 119003 SERIES PBE's, chemically supplied oxygen with a capacity of approximately 50 liters on demand with a duration of 15 min or longer when used in accordance with specified work rates, depending on the size of the user.

### Service/End of Service Battery

On aircraft installed with ESSEX's unit PBE MR10036N and MR10037N battery powered green and red indicator lights are mounted slightly below eye level on the left inner side of the hood. The lights monitor oxygen activation, functioning of the equipment and signals when PBE service has ended.

### Chlorate Candle

On aircraft installed with BE Aerospace 119003 SERIES PBE's, the chlorate candle is designed to deliver a fixed volume of approximately eight liters of oxygen in less than 20 seconds. The chlorate candle is contained in a small stainless steel cylinder mounted on the base of the potassium superoxide ( $KO_2$ ) canister. Discharge from it is directed into the interior of the potassium superoxide ( $KO_2$ ) canister. When the lanyard attached to the right-hand adjustment strap is pulled, a spring-loaded plunger strikes a small percussion primer to initiate the chlorate candle.

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### System Operation

On aircraft installed with ESSEX's unit PBE MR10036N and MR10037N oxygen is activated by sharply snapping the two oxygen cylinders away from each other. After activating the cylinders, the hood must be donned as quickly as possible, taking no longer than 10 seconds.

One cylinder will release oxygen rapidly and an audible hissing sound indicates that the PBE is operating properly.

The second cylinder discharges oxygen more slowly. A flashing green in the service indicator shows the crew member that the low-flow cylinder is operating properly.

Once donned, the PBE operates at a positive pressure and protects the crew member for up to 15 minutes. The neck seal acts as a relief valve to prevent excessive pressure from building inside the hood.

Before activating the oxygen, remove sharp objects from around the head (such as combs, jewelry etc.), to prevent puncturing the hood and damaging the neck seal.

If more than approximately 10 seconds have elapsed after oxygen has been activated and before donning the hood, discard the PBE and use a new unit.

Do not use the PBE if the Visual Service Indicator (VSI) in the pouch is protruding or if the tamper-evident seals are broken, torn or missing.

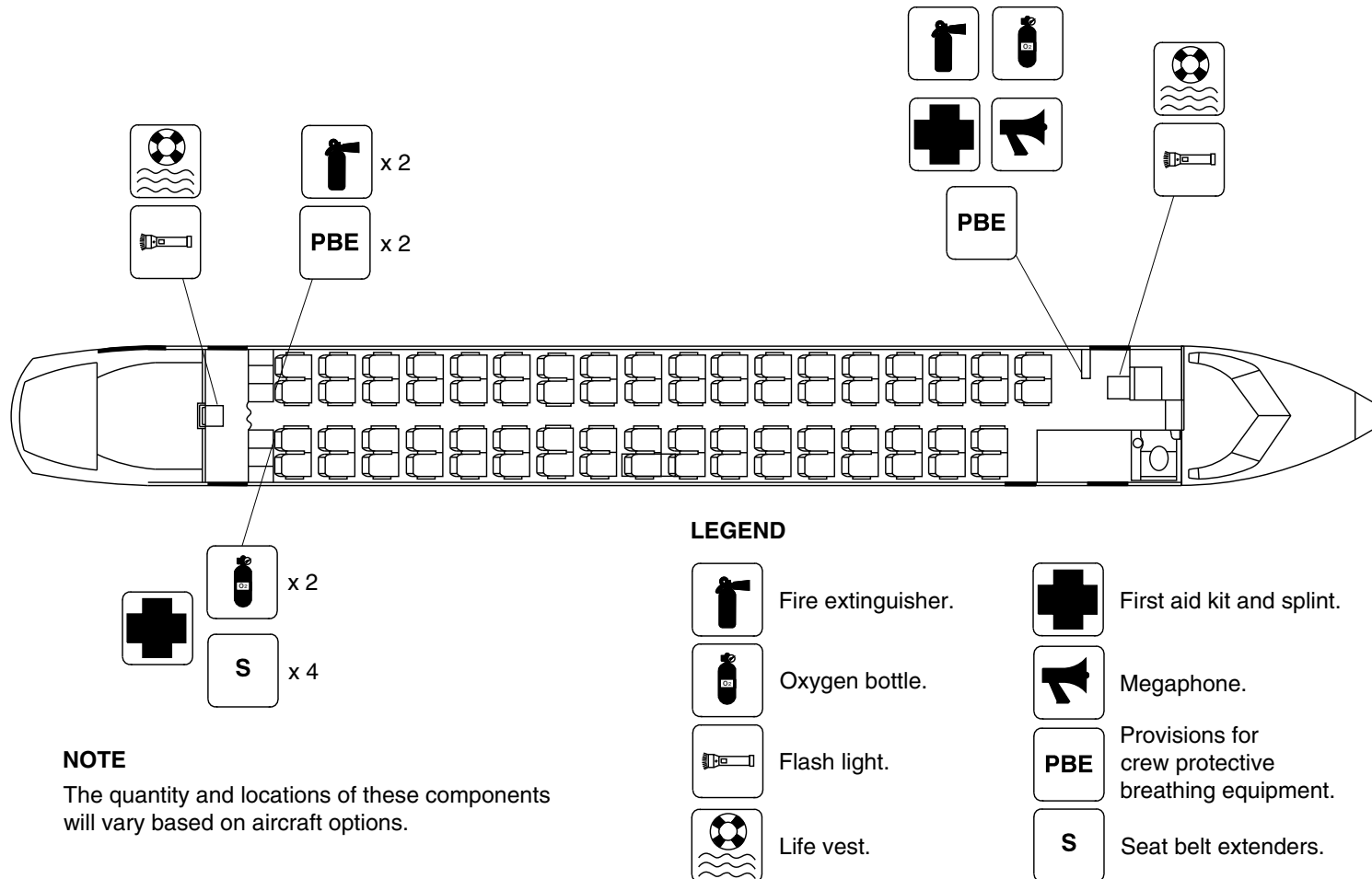
If the red light flashes with the green light or if the hood has collapsed, move immediately to a safe area and remove the equipment.

On aircraft installed with BE Aerospace 119003 SERIES PBE's, during the donning sequence, the chlorate candle is actuated when the adjustment straps are pulled to secure the oronasal mask cone against the face. The lanyard leading to the pull pin on the chlorate candle is attached to the right-hand adjustment strap. When the wearer begins to breathe normally through the oronasal mask cone, the exhaled breathe is routed through the potassium superoxide ( $\text{KO}_2$ ) canister. The potassium superoxide ( $\text{KO}_2$ ) canister removes water vapor and carbon dioxide and adds oxygen before the gas is returned to the interior of the hood for inhalation. This breathing cycle will continue until the potassium superoxide ( $\text{KO}_2$ ) canister is exhausted.

Exhaustion of the canister results in a loss of active oxygen generation capability, coupled with a rapid increase in internal temperature and release of moisture from the potassium superoxide ( $\text{KO}_2$ ) canister. The loss of oxygen generating capability results in a gradual reduction of the interior volume of the hood. As the hood collapses around the wearer's head, full inhalation becomes increasingly difficult, indicating that the hood should be removed. The rapid rise in temperature inside the hood reinforces this indication.



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**NOTE**

The quantity and locations of these components will vary based on aircraft options.

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Emergency Equipment – General Layout  
Figure 1

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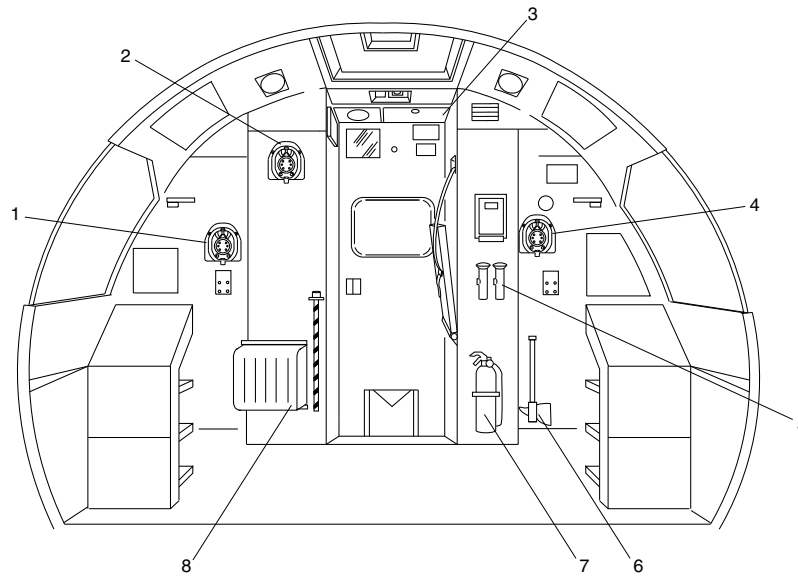
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### LEGEND

1. Co-pilot's Oxygen Mask.
2. Observer's Oxygen Mask.
3. Observer's Life Vest Stowage.
4. Pilot's Oxygen Mask.
5. Flashlights.
6. Fire Axe.
7. Fire Extinguisher.
8. Smoke Mask Stowage.

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Flight Compartment Emergency Equipment on Aft Bulkhead  
Figure 2

PSM 1-84-2A  
EFFECTIVITY:  
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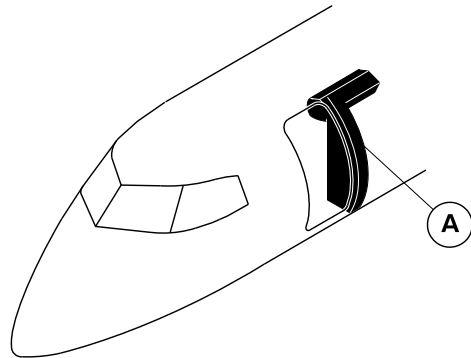
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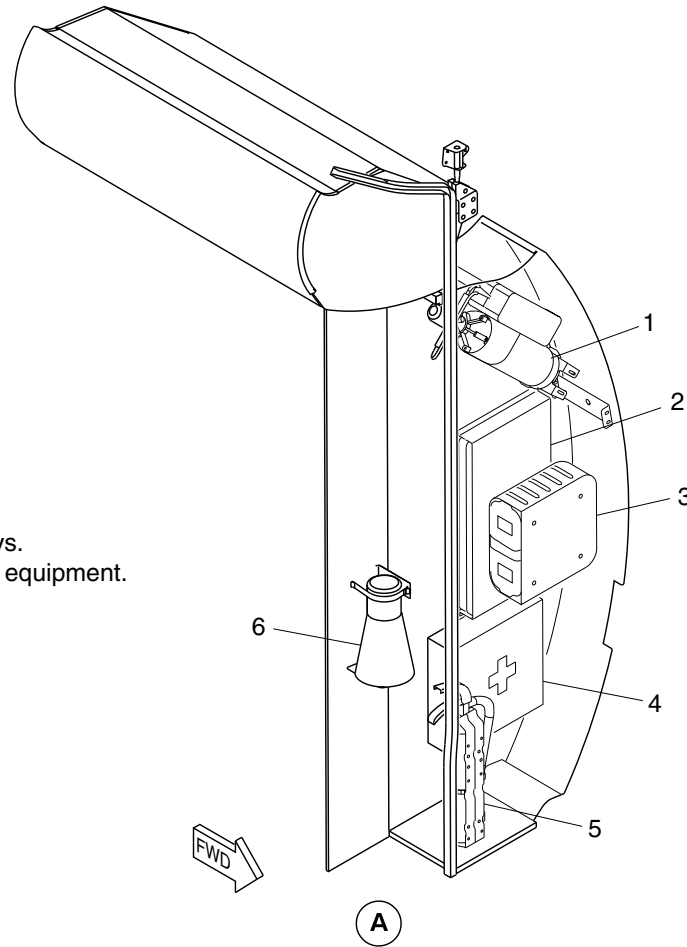


### LEGEND

1. Portable oxygen.
2. Passenger meal trays.
3. Protective breathing equipment.
4. First aid.
5. Fire extinguisher.
6. Megaphone.

### NOTE

The quantity and locations of these components will vary based on aircraft options.



fse00a01.dg, vn, aug01/2011

Emergency Equipment / Forward Draft Bulkhead  
Figure 3

PSM 1-84-2A  
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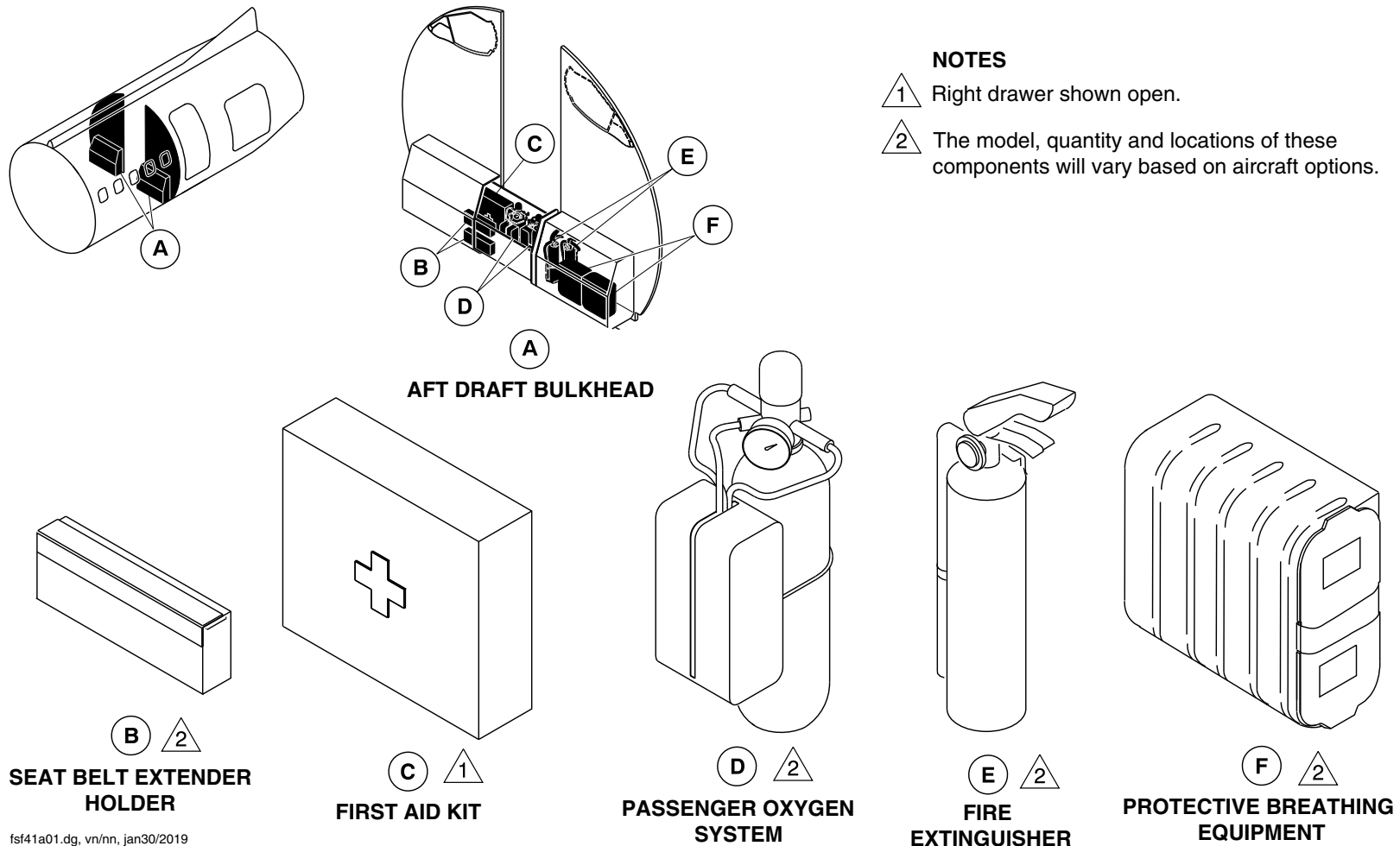
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Emergency Equipment / Aft Draft Bulkhead  
Figure 4

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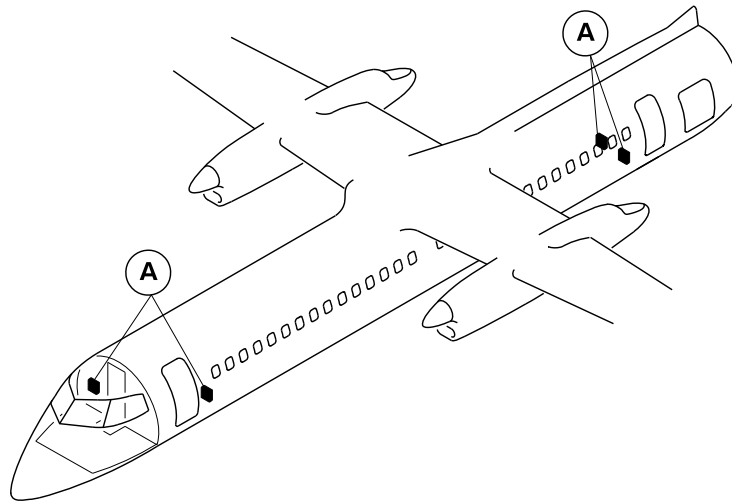
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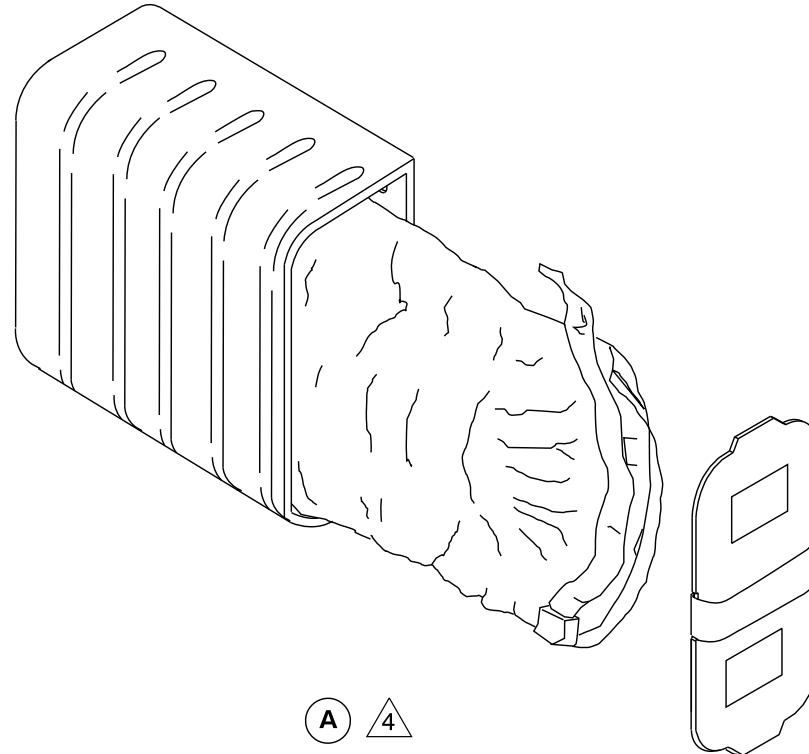
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### NOTES

1. Breathing equipment pouch partially removed from container for clarity.
2. One container shown, others similar.
3. The quantity and locations of these PBE's will vary based on aircraft options.

4 BE Aerospace PBE is shown here.



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Protective Breathing Equipment Locator  
Figure 5 (Sheet 1 of 2)

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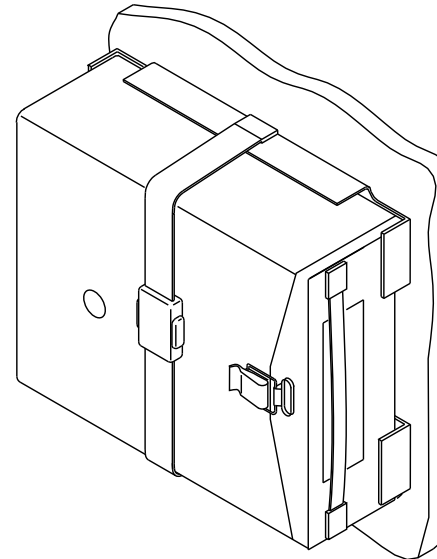
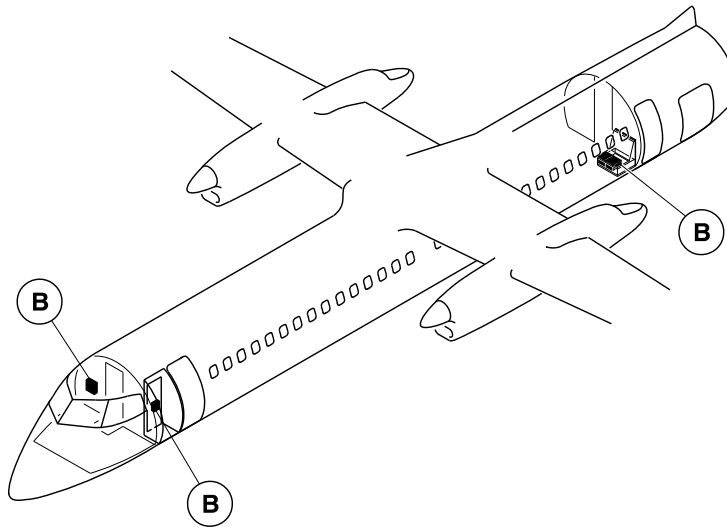
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### NOTES

2. One container shown, others similar.
3. The quantity and locations of these PBE's will vary based on aircraft options.

5 ESSEX Unit PBE is shown here.



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Protective Breathing Equipment Locator  
Figure 5 (Sheet 2 of 2)

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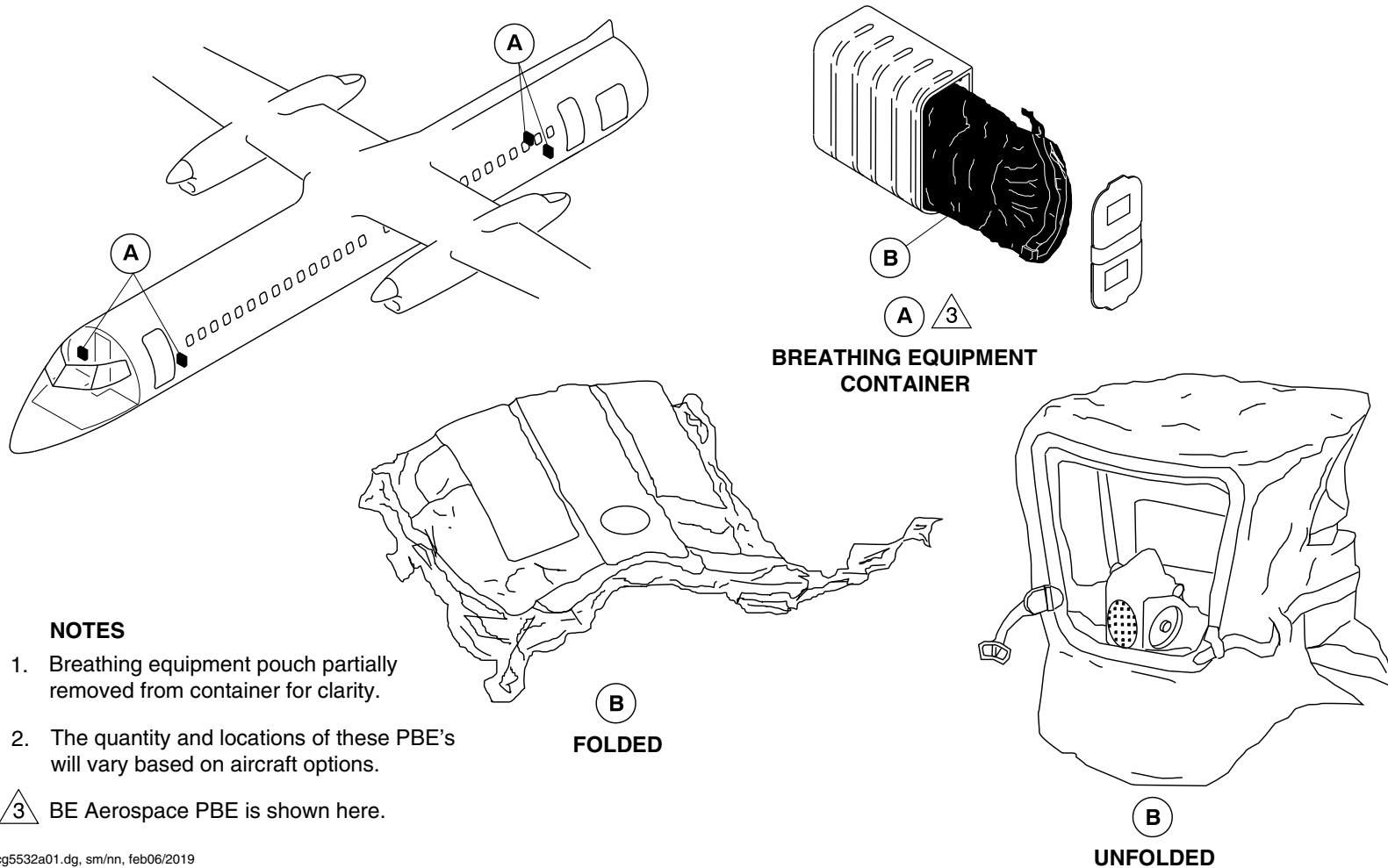
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Protective Breathing Equipment Detail  
Figure 6 (Sheet 1 of 2)

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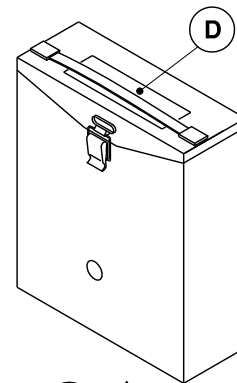
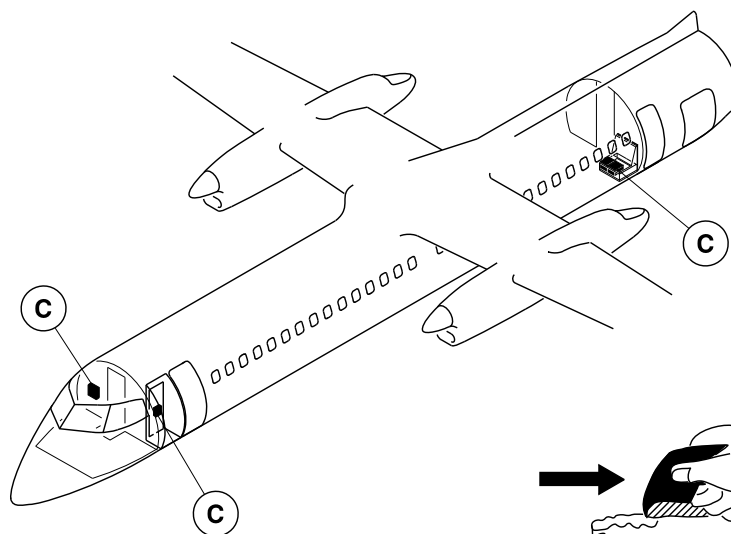
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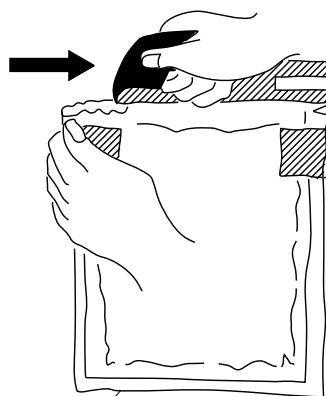
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(C) 4

### PROTECTIVE BREATHING EQUIPMENT



POUCH

(D)

FOLDED



(D)

UNFOLDED

SERVICE/END OF  
SERVICE INDICATOR

### NOTES

2. The quantity and locations of these PBE's will vary based on aircraft options.

4 ESSEX Unit PBE is shown here.

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Protective Breathing Equipment Detail  
Figure 6 (Sheet 2 of 2)

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