CREW OXYGEN - MAINTENANCE PRACTICES

EFFECTIVITY: ACFT MODEL(S) EMB-135

1. General

A. Only approved persons must do the maintenance tasks in the oxygen system. It is very important to fully know the system and the general maintenance procedures.

B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
35-10-00-910-801-A	SAFETY PRECAUTIONS - MAINTENANCE PRACTICES	ACFT MODEL(S) EMB-135
35-10-00-910-802-A ♦	LEAK TEST - MAINTENANCE PRACTICES	ACFT MODEL(S) EMB-135
35-10-00-910-803-A	TUBING AND FITTINGS - MAINTENANCE PRACTICES	ACFT MODEL(S) EMB-135
35-10-00-910-804-A	IDENTIFICATION PACKAGING AND STORAGE - MAINTENANCE PRACTICES	ACFT MODEL(S) EMB-135
35-10-00-910-805-A	LEAK REPAIR - MAINTENANCE PRACTICES	ACFT MODEL(S) EMB-135

TASK 35-10-00-910-801-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

2. SAFETY PRECAUTIONS - MAINTENANCE PRACTICES

A. General

(1) This task gives the general safety precautions for the maintenance practices of the oxygen system.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-40-02-910-801-A/200	STATIC GROUNDING - STANDARD PRACTICES
AMM TASK 35-10-00-100-801-A/700	CREW OXYGEN SYSTEM - CLEANING

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

Not Applicable

I. Safety Precautions of the Oxygen System

SUBTASK 910-031-C

WARNING: OIL, GREASE, FLAMMABLE SOLVENTS, DUST, METAL FILINGS AND OTHER MATERIALS THAT BURN CAN EASILY CAUSE FIRE AND EXPLOSIONS WHEN THEY TOUCH PURE OXYGEN.

(1) Isolate the tools to be used in the oxygen system from the tools to be used in other systems. If you cannot use special tools, clean the tools that you have on hand (AMM TASK 35-10-00-100-801-A/700).

(2) Make sure that all the electrical equipment is disconnected and that the aircraft is correctly grounded (AMM TASK 20-40-02-910-801-A/200).

(3) Keep carbon gas-type fire extinguishers near the work area.

(4) Keep all source of ignition away during the system maintenance (smoking, flame, sparks, etc.).

(5) Keep hands, gloves, clothing, equipment and tools always clean and without remaining grease, oil and other hydrocarbons.

(6) Open all valves slowly not to cause the pressure to increase suddenly with subsequent too high temperature.

TASK 35-10-00-910-802-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

3. LEAK TEST - MAINTENANCE PRACTICES

A. General

(1) This task gives the procedure to do a leak test on the crew oxygen system lines.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-01/100	-
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 35-10-00-910-801-A/200	-
AMM TASK 35-10-00-910-803-A/200	-
AMM TASK 35-10-00-910-805-A/200	-
AMM TASK 35-10-07-000-801-A/400	OXYGEN CYLINDER - REMOVAL
AMM TASK 35-10-07-400-801-A/400	OXYGEN CYLINDER - INSTALLATION
S.B.145-25-0072	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
224	224PZ	Attendant's wardrobe
224	224QZ	Cockpit
124	124AR	Forward fuselage

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 034	Oxygen Charging Adapter	To connect the nitrogen source to Oxygen Charging Valve	
Commercially available	Source of nitrogen with control valve and pressure gauge with scale up to 3000 psi	To pressurize the high-pressure and the low-pressure lines	
Commercially available	Thermometer	To read the ambient temperature	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
FED STD-BB-N-411, Type I, Class I, and Grade B	Nitrogen	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Cockpit or Attendant's wardrobe

I. Preparation

SUBTASK 841-010-B

WARNING: MAKE SURE THAT THE AIRCRAFT IS IN A SAFE CONDITION BEFORE YOU DO THE MAINTENANCE PROCEDURES. THIS IS TO PREVENT INJURY TO PERSONS AND/OR DAMAGE TO THE EQUIPMENT.

(1) Obey the safety precautions (AMM TASK 35-10-00-910-801-A/200) and general instructions (AMM TASK 35-10-00-910-803-A/200) before you do the maintenance.

(2) Remove access panel 224PZ for aircraft PRE-MOD. S.B.145-25-0072 or 224QZ for aircraft POST-MOD. S.B. 145-25-0072 (AMM MPP 06-41-03/100) and get access to the oxygen cylinder.

(3) Close the cylinder-pressure regulator.

J. Leak Test of Crew Oxygen System Lines

SUBTASK 910-036-B

NOTE: Refer to Figure 204 for the correct positioning of the crew oxygen system lines connected to the oxygen cylinder, as applicable.

(1) Leak Test of Charging Line and Pressure Gauge Line (Figure 201):

(a) Disconnect the charging line from the cylinder pressure regulator.

(b) Disconnect the pressure line from the tee and install caps at the disconnected points.

(c) If necessary, remove the pressure line from the cylinder pressure regulator and install caps at the disconnected points. Refer to AMM TASK 35-10-07-000-801-A/400.

(d) Connect the charging line to the tee.

(e) Open access door 124AR (AMM MPP 06-41-01/100).

(f) Connect the source of nitrogen to the charging valve installed on the oxygen service panel.

(g) Pressurize the lines from the charging valve installed on the oxygen charging panel.

NOTE: Use the source of nitrogen with control valve and pressure gauge with scale up to 3000 psi. You can use an Oxygen Charging Adapter (GSE 034) to engage the fitting of the hose to the charging valve.

(h) Pressurize the line with 1800 psi. Let the pressure become stable.

NOTE: Take note of the temperature, it will be used in the correction for 2nd reading.

(i) Close the nitrogen source.

(j) After 24 hours, read it again.

(k) If the temperature at the time when you read the two pressure indications is not the same, correct the pressure by 6 psi for each °C.

Example:

- 1st reading: 1480 psi at 20°C.
- 2nd reading: 1400 psi at 10°C.
- Correction to 2nd indication: 10 x 6 = 60 psi.
- Corrected 2nd indication: 1460 psi.

(l) NOTE:
- The maximum permitted leakage is a pressure drop of 30 psi in 24 hours.
- If there is a pressure drop of more than 30 psi, find and repair the leaks. Refer to AMM TASK 35-10-00-910-805-A/200.

Carefully loosen the hose from the nitrogen source to release the remaining pressure in the high-pressure line.

(m) Remove the nitrogen source.

(n) Close access door 124AR (AMM MPP 06-41-01/100).

(o) Connect the line to the cylinder pressure regulator.

(p) Connect the pressure line to the tee and to the cylinder pressure regulator, as applicable. Refer to AMM TASK 35-10-07-400-801-A/400.

(2) Leak Test of Low-Pressure Line (Crew Distribution Line) (Figure 202):

(a) Disconnect the crew distribution line from the cylinder pressure regulator.

NOTE: A small quantity of oxygen can flow out when you disconnect the crew distribution line.

CAUTION: ALWAYS PRESSURIZE THE LINE AT A SLOW RATE.

(b) Use a nitrogen source to pressurize the crew oxygen line with 90 psi. Let the pressure become stable.

(c) Close the nitrogen source.

(d) Read the pressure and write down the value.

(e) Stop for 10 minutes and read again.

NOTE: If the pressure drop is more than 5 psi, find and remove the leaks. Refer to AMM TASK 35-10-00-910-805-A/200.

(f) Carefully loosen the hose from the nitrogen source to release the remaining pressure in the low-pressure line.

(g) Remove the nitrogen source.

(h) Connect the crew distribution line to the cylinder pressure regulator.

(3) Leak Test of Discharging Line (Figure 203):

(a) Disconnect the discharging line from the discharging indicator.

(b) Put a cap at the end of the discharging line.

(c) Disconnect the discharging line from the cylinder.

NOTE: A small quantity of oxygen can flow out when you disconnect the line.

(d) Connect the source of nitrogen to the discharging line.

NOTE: Use a pressure gauge with scale up to 400 psi.

(e) Pressurize the discharging line with 80 psi and apply "Leak Tec Compound" to all connections of the discharging line.

(f) Keep the pressure during 1 minute and do a check for leakage as given in AMM TASK 35-10-00-910-805-A/200.

(g) Close the nitrogen source, clean all the points where "Leak Tec Compound" was applied, remove the source and put the line back to its original configuration.

SUBTASK 910-037-B

EFFECTIVITY: AIRCRAFT FOR 16 PASSENGERS

NOTE: Refer to Figure 204 for the correct positioning of the crew oxygen system lines connected to the oxygen cylinder, as applicable.

(4) Leak Test of Charging Line and Pressure Gauge Line (Figure 201):

(a) Disconnect the charging line from the cylinder pressure regulator.

(b) Disconnect the pressure line from the tee and install caps at the disconnected points.

(c) If necessary, remove the pressure line from the cylinder pressure regulator and install caps at the disconnected points. Refer to AMM TASK 35-10-07-000-801-A/400.

(d) Connect the charging line to the tee.

(e) Open access door 124AR (AMM MPP 06-41-01/100).

(f) Connect the source of nitrogen to the charging valve installed on the oxygen service panel.

(g) Pressurize the lines from the charging valve installed on the oxygen charging panel.

NOTE: You must use the source of nitrogen with control valve and pressure gauge with scale up to 3000 psi. You can use an Oxygen Charging Adapter (GSE 034) to engage the fitting of the hose to the charging valve.

(h) Pressurize the line with 1800 psi. Let the pressure become stable.

NOTE: Take note of the temperature, it will be used in the correction for 2nd reading.

(i) Close the nitrogen source.

(j) After 24 hours, read it again.

(k) If the temperature at the time when you read the two pressure indications is not the same, correct the pressure by 6 psi for each °C.

Example:

- 1st reading: 1480 psi at 20°C.
- 2nd reading: 1400 psi at 10°C.
- Correction to 2nd indication: 10 x 6 = 60 psi.
- Corrected 2nd indication: 1460 psi.

(l) NOTE:
- The maximum permitted leakage is a pressure drop of 30 psi in 24 hours.
- If there is a pressure drop of more than 30 psi, find and repair the leaks. Refer to AMM TASK 35-10-00-910-805-A/200.

Carefully loosen the hose from the nitrogen source to release the remaining pressure in the high-pressure line.

(m) Remove the nitrogen source.

(n) Close access door 124AR (AMM MPP 06-41-01/100).

(o) Connect the line to the cylinder pressure regulator.

(p) Connect the pressure line to the tee and to the cylinder pressure regulator, as applicable. Refer to AMM TASK 35-10-07-400-801-A/400.

(5) Leak Test of Low-Pressure Line (Crew Distribution Line) (Figure 202):

(a) Disconnect the crew distribution line from the cylinder pressure regulator.

NOTE: A small quantity of oxygen can flow out when you disconnect the crew distribution line.

CAUTION: ALWAYS PRESSURIZE THE LINE AT A SLOW RATE.

(b) Use a nitrogen source to pressurize the crew oxygen line with 90 psi. Let the pressure become stable.

(c) Close the nitrogen source.

(d) Read the pressure and write down the value.

(e) Stop for 10 minutes and read again.

NOTE: If the pressure drop is more than 5 psi, find and remove the leaks. Refer to AMM TASK 35-10-00-910-805-A/200.

(f) Carefully loosen the hose from the nitrogen source to release the remaining pressure in the low-pressure line.

(g) Remove the nitrogen source.

(h) Connect the crew distribution line to the cylinder pressure regulator.

K. Follow-on

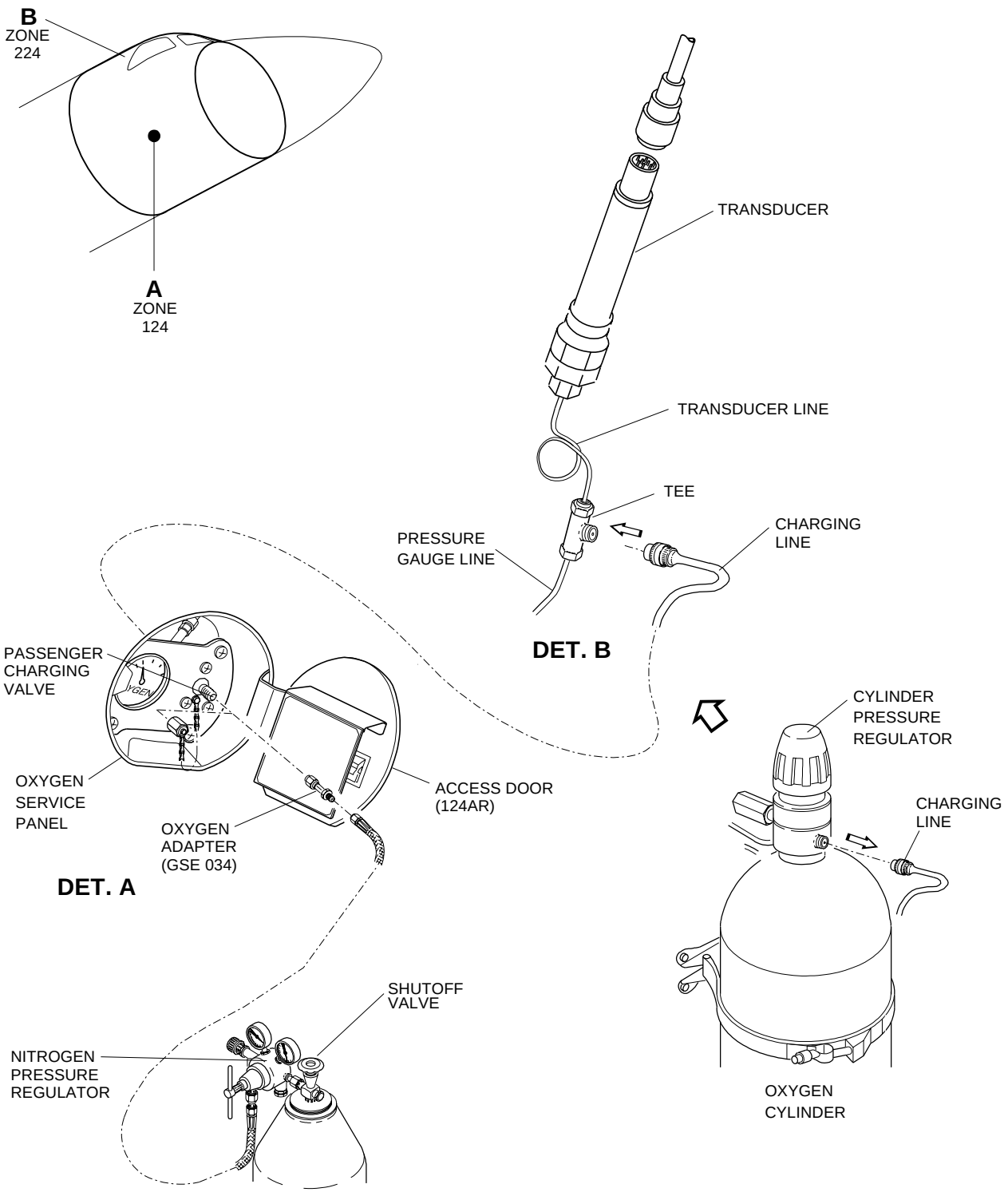
SUBTASK 842-010-B

(1) Open the cylinder pressure regulator.

(2) Install access panel 224PZ for aircraft PRE-MOD. S.B.145-25-0072 or 224QZ for aircraft POST-MOD. S.B. 145-25-0072 (AMM MPP 06-41-03/100).

EFFECTIVITY: ACFT MODEL(S) EMB-135

Oxygen Leak Test for Charging Line and Pressure Line
Figure 201 - Sheet 1



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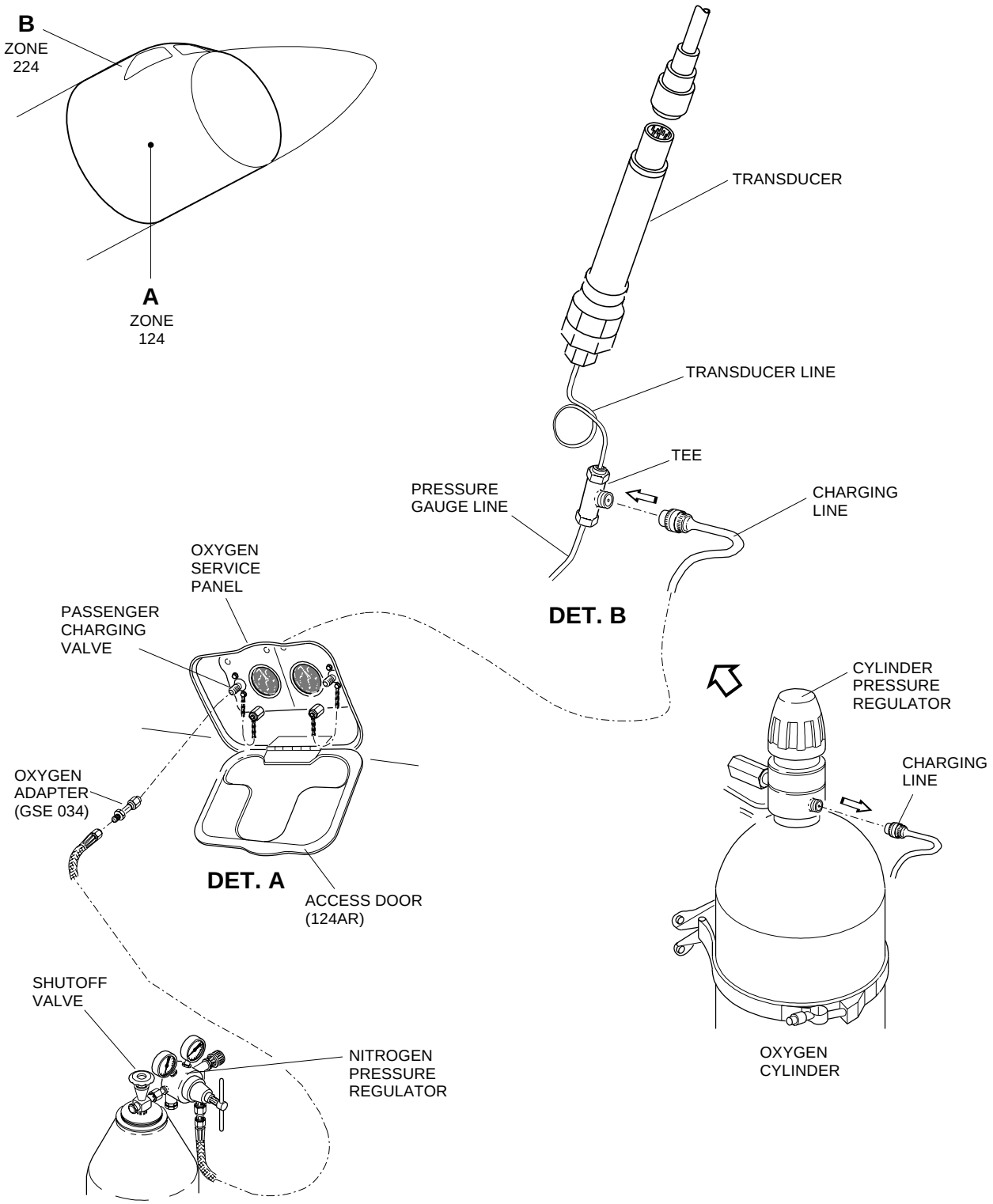
EFFECTIVITY: ACFT MODEL(S) EMB-135

Oxygen Leak Test for Charging Line and Pressure Line
Figure 201 - Sheet 2



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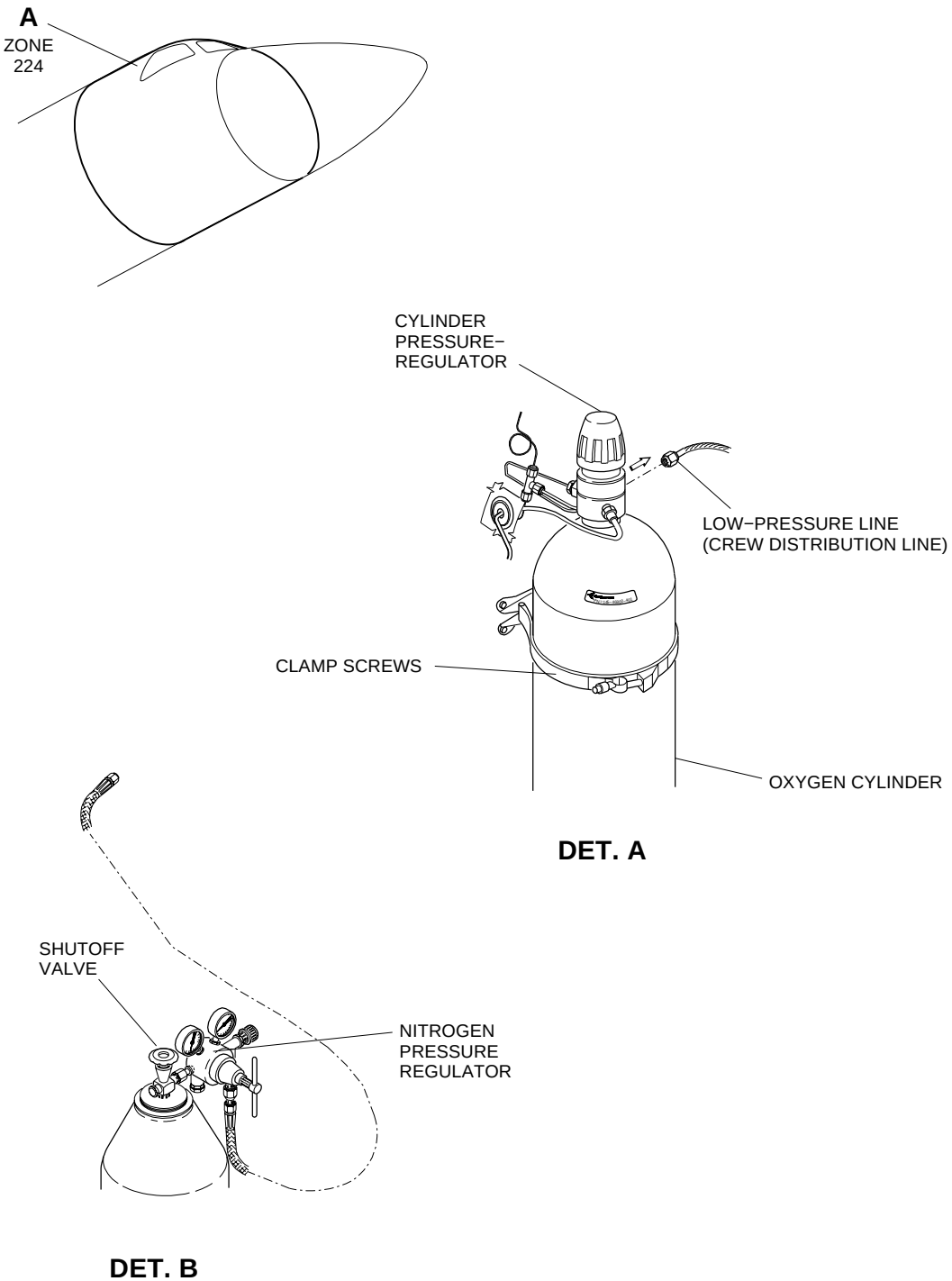
EFFECTIVITY: ACFT MODEL(S) EMB-135

Oxygen Leak Test for Low-Pressure Line (Crew Distribution Line)
Figure 202



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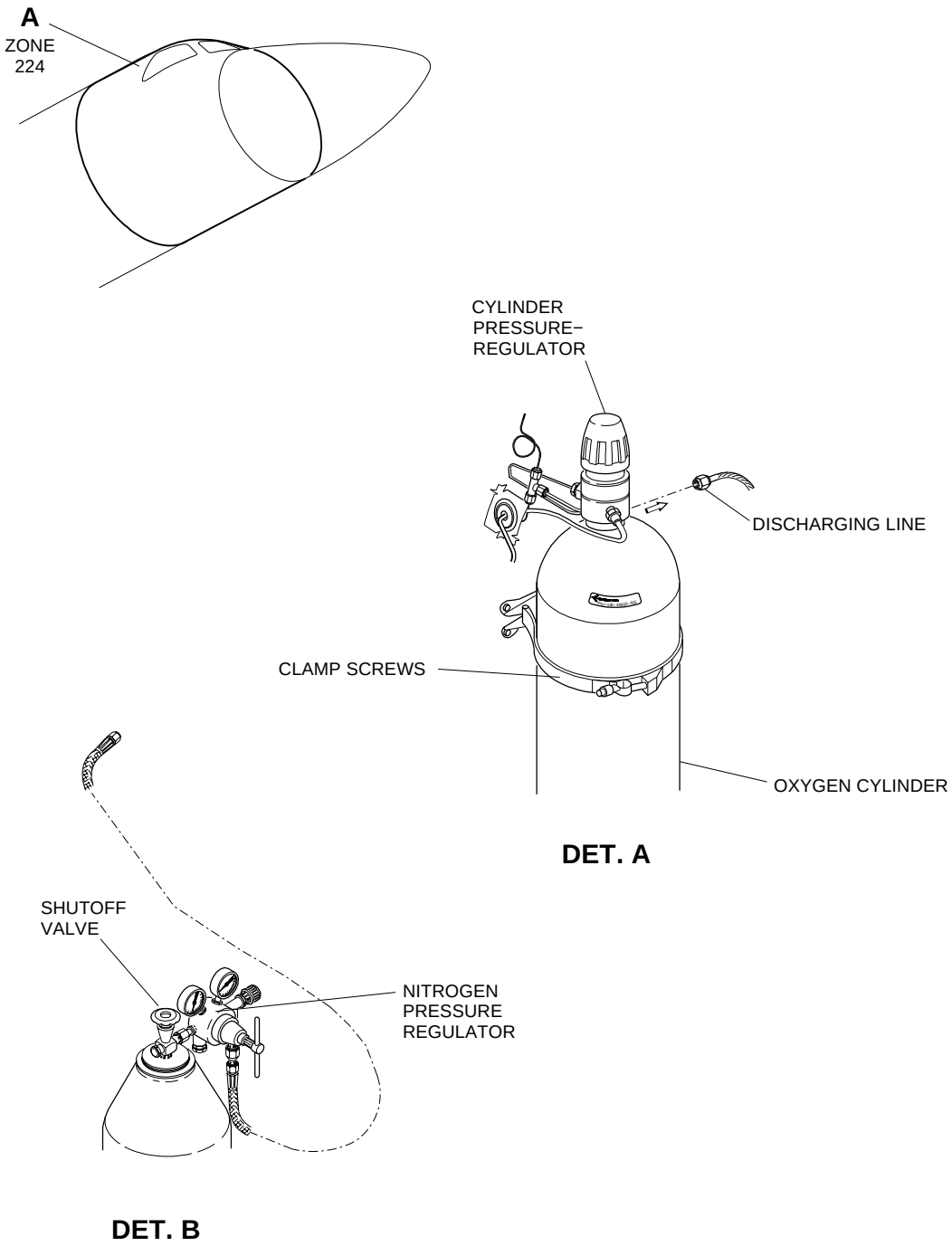
EFFECTIVITY: ACFT MODEL(S) EMB-135
Oxygen Leak Test for Discharging Line
Figure 203



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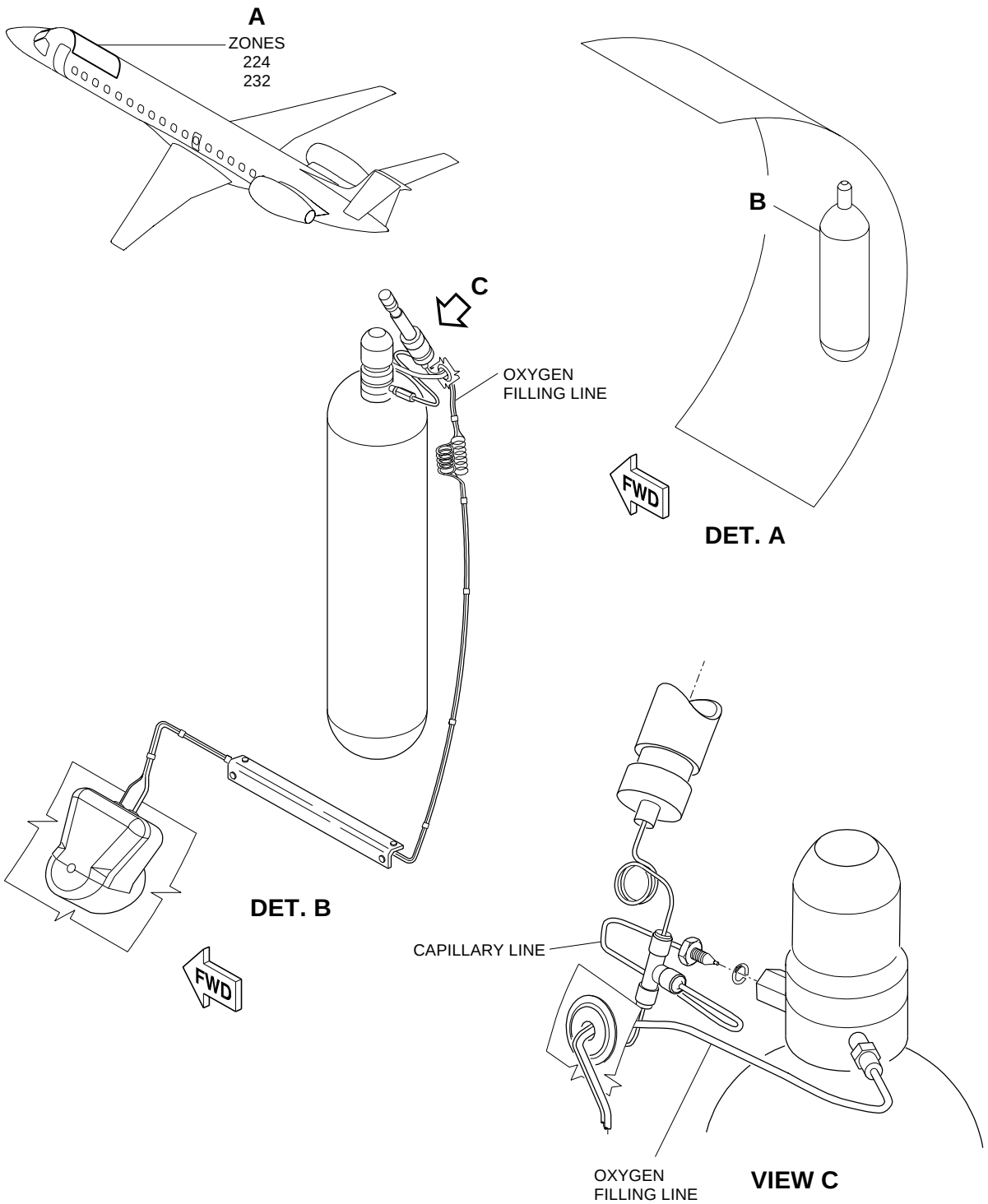
EFFECTIVITY: ACFT MODEL(S) EMB-135
Crew Oxygen System Lines - Positioning
Figure 204 - Sheet 1



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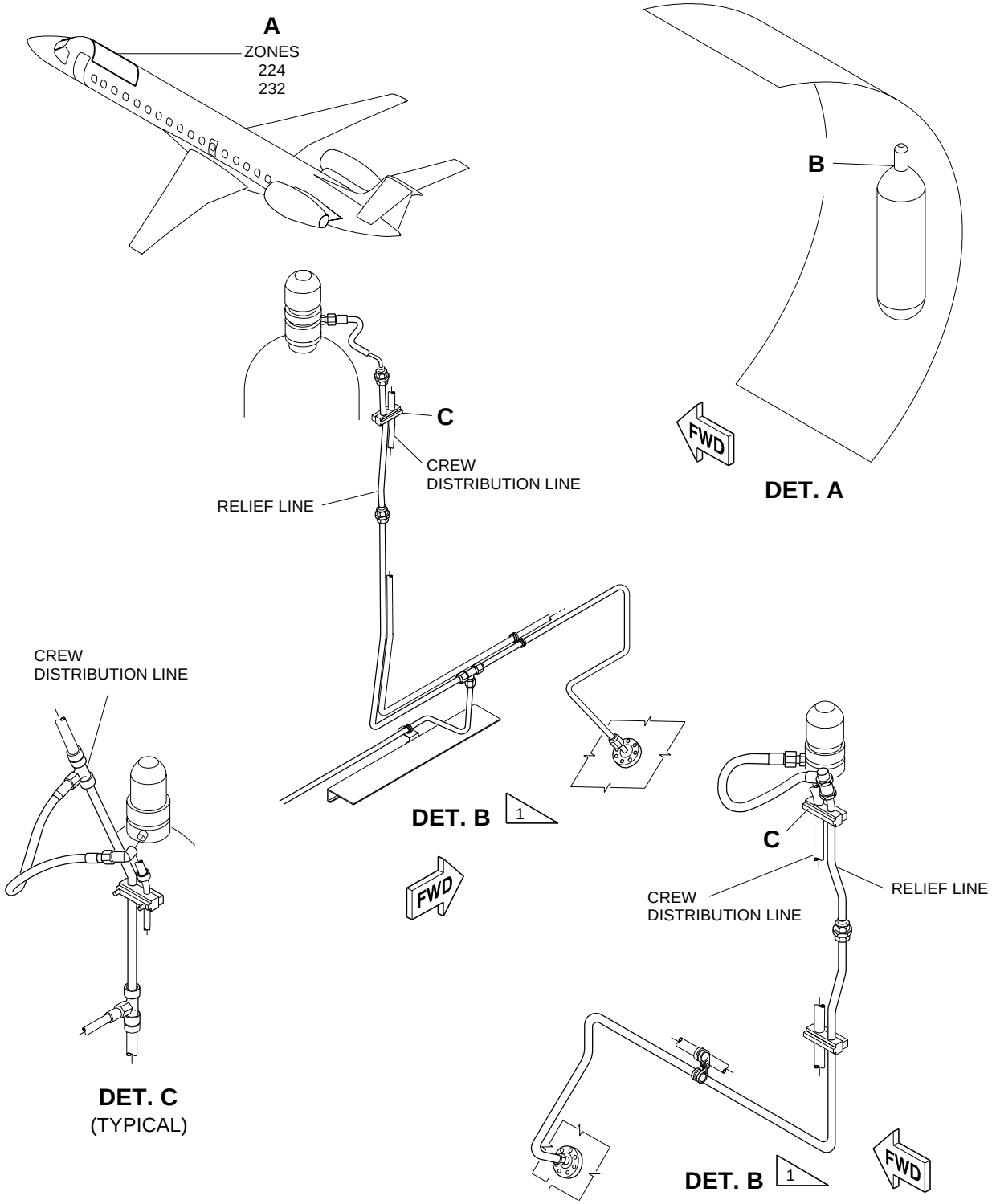
EFFECTIVITY: ACFT MODEL(S) EMB-135
Crew Oxygen System Lines - Positioning
Figure 204 - Sheet 2



1 AS APPLICABLE TO THE AIRCRAFT CONFIGURATION.

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TASK 35-10-00-910-803-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

4. TUBING AND FITTINGS - MAINTENANCE PRACTICES

A. General

(1) This task gives the general procedure to remove and install tubing and fittings of the oxygen system.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 35-10-00-910-801-A/200	-
AMM TASK 35-10-00-910-805-A/200	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

Not Applicable

I. Oxygen Tubing and Fittings

SUBTASK 910-032-C

(1) Obey the safety precautions (AMM TASK 35-10-00-910-801-A/200).

(2) Make sure the cylinder pressure regulator(s) of the oxygen line you work is in OFF position.

WARNING: THERE CAN BE PRESSURE REMAINING IN SOME LINES. BE CAREFUL WHEN YOU LOOSEN THE FITTING CONNECTIONS NOT TO CAUSE TOO HIGH TEMPERATURE WITH SUBSEQUENT FIRE OR EXPLOSION.

(3) Loosen the fitting connections slowly, with a back-up wrench, not to permit the fitting to turn.

CAUTION: DO NOT USE RAGS, ADHESIVE TAPE OR OTHER MATERIAL FOR THE PROTECTION OF OPEN FITTINGS.

(4) Keep the open fittings correctly sealed with special plastic caps from the time they are disconnected to the time of installation.

WARNING:
- **DO NOT REPAIR THE TUBING. ALWAYS USE NEW TUBING WITH THE MANUFACTURER P/N.**
- **INSTALL ONLY COMPONENTS FROM SATISFACTORY CONTAINERS WHICH HAVE BEEN TAGGED FOR THEIR FULLY CLEAN CONDITION.**

(5) Before you install new tubes, make sure that they have correct identification markings.

(6) Before you tighten the nuts, make sure that the tubes are correctly aligned and can be easily attached to each other.

CAUTION: DO NOT LOOSEN OR TIGHTEN FITTINGS OF PRESSURIZED TUBES.

(7) When you install flared metallic tubes, start the nuts by hand, then smoothly tighten them with an open-end wrench (Refer to Table 201 of AMM TASK 35-10-00-910-805-A/200).

(8) After a maintenance task, do a check in the work area to make sure that there are no leaks (AMM TASK 35-10-00-910-805-A/200).

TASK 35-10-00-910-804-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

5. IDENTIFICATION PACKAGING AND STORAGE - MAINTENANCE PRACTICES

A. General

(1) This task gives the procedure for identification of the oxygen cylinders and packaging and storage of oxygen parts.

B. Zones and Accesses

Not Applicable

C. Tools and Equipment

Not Applicable

D. Auxiliary Items

Not Applicable

E. Consumable Materials

Not Applicable

F. Expandable Parts

Not Applicable

G. Persons Recommended

Not Applicable

H. Identification of Oxygen Cylinders

SUBTASK 910-033-C

(1) The manufacture date and last hydrostatic test date are on the cylinders (Month-Year). The manufacture date is in the plate which gives the cylinder characteristics. The hydrostatic test date is on the cylinder neck (Figure 204).

(2) On the portable oxygen cylinder, the manufacture date and hydrostatic test date are in the cylinder upper part, near the neck. The manufacture date is the first date given and the last hydrostatic test date is the latest date (Figure 205). For more information about the service life and times between hydrostatic tests, refer to SMRD.

I. Packaging and Storage of Oxygen Parts

SUBTASK 910-034-C

(1) Packaging and Storage of Tubing and Parts.

(a) The parts must be kept in new clean and sealed plastic containers.

(b) For long and irregularly shaped tubes, which are difficult to be kept in containers, do the procedures below:

1 Put plastic bags on the tube ends, together with nuts and sleeves.

2 Use strings or adhesive tapes to attach the plastic bag opening to the tubes.

3 Wind transparent plastic all around the tubes.

(c) The parts must be kept in closed areas away from dust, metal filings, oils, greases, and general hydrocarbons.

(2) Storage of Oxygen Cylinders.

NOTE: • The data about the cylinder specification such as type, serial number and fabrication date are in a placard on the cylinder.

• This topic is applicable to the crew oxygen cylinder and to the passenger oxygen cylinder.

(a) The oxygen must be kept away from flammable materials, specially oils, greases, and hydrocarbons or other substances which can cause or increase fire.

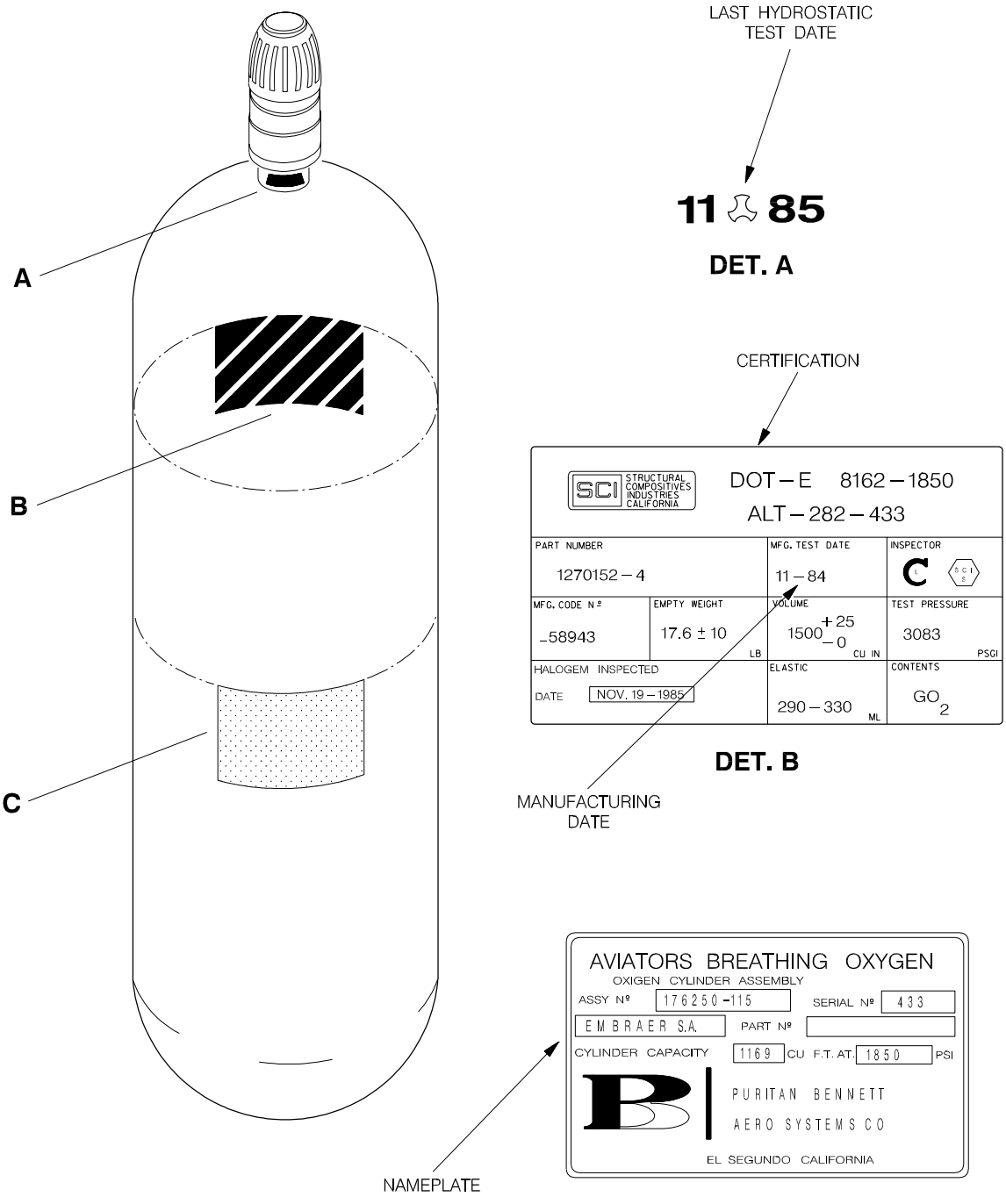
(b) The cylinders must be kept on special strong platforms, always in the vertical position, to prevent accidental damage.

(c) The cylinders must be kept in a closed area with protection against rain, excessive moisture, and direct sunlight. The ambient temperature must not be higher than 50°C (122°F).

(d) The cylinders must not be kept near elevators, doors, and other heavy objects which can beat them or fall on them.

(e) The cylinders must be kept with a pressure of 100 to 300 psi (690 to 2070 kPa). If a cylinder shows a pressure lower than 50 psi (345 kPa), refer to the manufacturer recommendations to do the procedure to remove contamination.

EFFECTIVITY: ACFT MODEL(S) EMB-135
System Oxygen Cylinder Placards (Typical)
Figure 205



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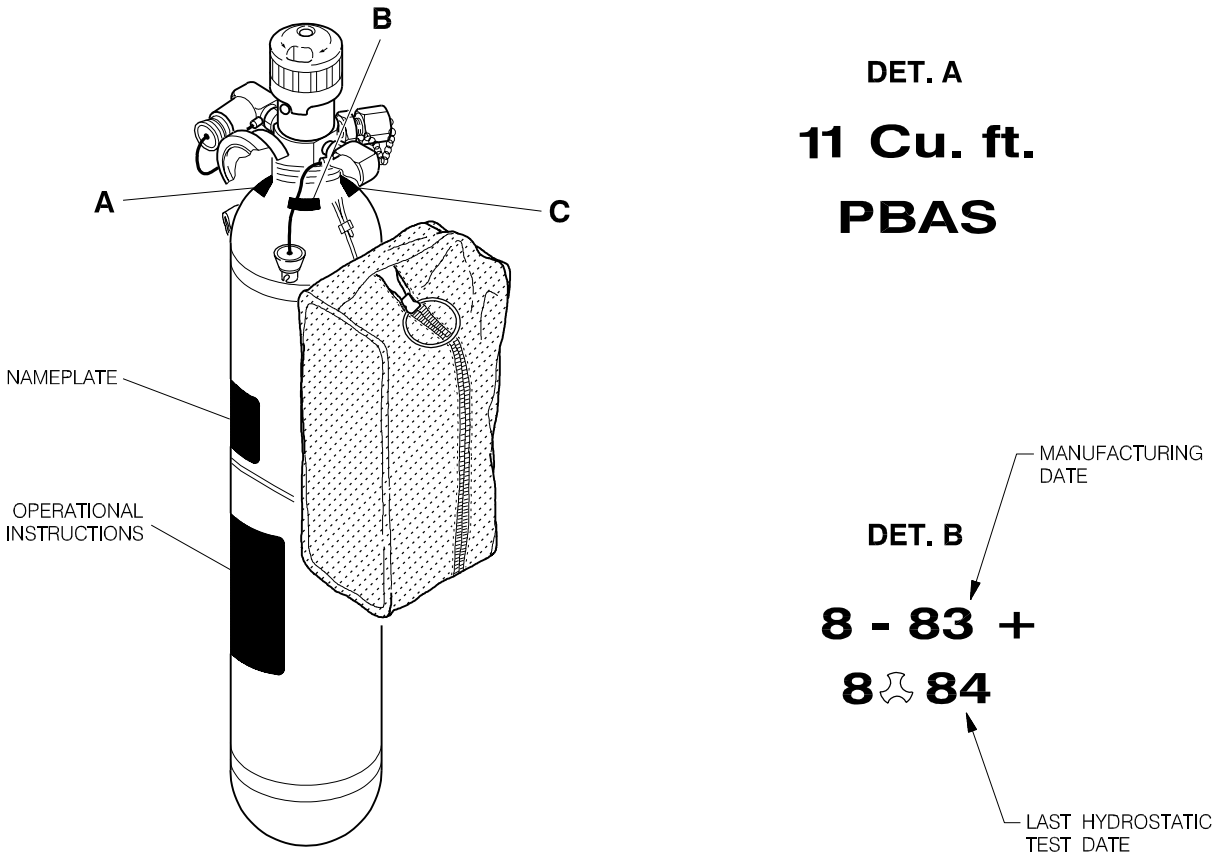
EFFECTIVITY: ACFT MODEL(S) EMB-135
Portable Oxygen Cylinder Placards (Typical)
Figure 206



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TASK 35-10-00-910-805-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

6. LEAK REPAIR - MAINTENANCE PRACTICES

A. General

(1) This task gives the procedure to repair leaks on the oxygen system lines.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 35-10-00-910-801-A/200	-
AMM TASK 35-10-00-910-803-A/200	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Cloth which does not release lints	To clean the area	AR

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MIL-L-25567	Leak Tec No. 160X	AR
A-A-58092	Teflon Tape	AR
MIL-T-5542	Sealing and Antiseizing Compound	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

Not Applicable

I. Leak Detection and Repair

SUBTASK 910-035-C

(1) To detect and repair leaks do the following steps:

(a) Obey the safety precautions (AMM TASK 35-10-00-910-801-A/200) and general instructions (AMM TASK 35-10-00-910-803-A/200).

(b) If applicable, make sure that the minimum oxygen pressure is 1100 psi.

(c) If applicable, make sure that the cylinder pressure regulator is in the OPEN position.

CAUTION: DO NOT PERMIT THE LEAK DETECTION COMPOUND TO GO INTO THE SYSTEM.

(d) Apply Leak Tec Compound No. 160X to find small leaks.

1 Apply the compound to the area in which you think there is a leak (gauge line, distribution line, and fittings), and do a check for bubbles.

2 If there are fittings with leaks, do as follows:

a Tighten the fittings with leak to their maximum torque (Table 201).

b Replace the fittings if the leakage cannot be removed.

3 If no fitting is found with leak, but the leakage continues, do as follows:

a Apply the compound to the outer side of the discharge indicator and do a check for bubbles.

b If there are bubbles, replace the rupture disc installed in the cylinder pressure regulator (Relief line).

4 After the check for leaks, clean the area with a clean cloth which does not release lints.

WARNING: ONLY USE PRODUCTS WITH THE CLEAR INDICATION THAT THEY CAN BE USED WITH OXYGEN. THIS IS SPECIALLY APPLICABLE TO THREAD SEALING COMPOUNDS.

(e) If necessary, apply thread sealing compound MIL-T-5542 or Teflon tape A-A-58092 to make the tapered thread seal better (Figure 203).

1 Refer to the manufacturers recommendation to apply the sealing compound.

a Apply the sealing only to the first three male screw-threads (when you count from the end of the thread).

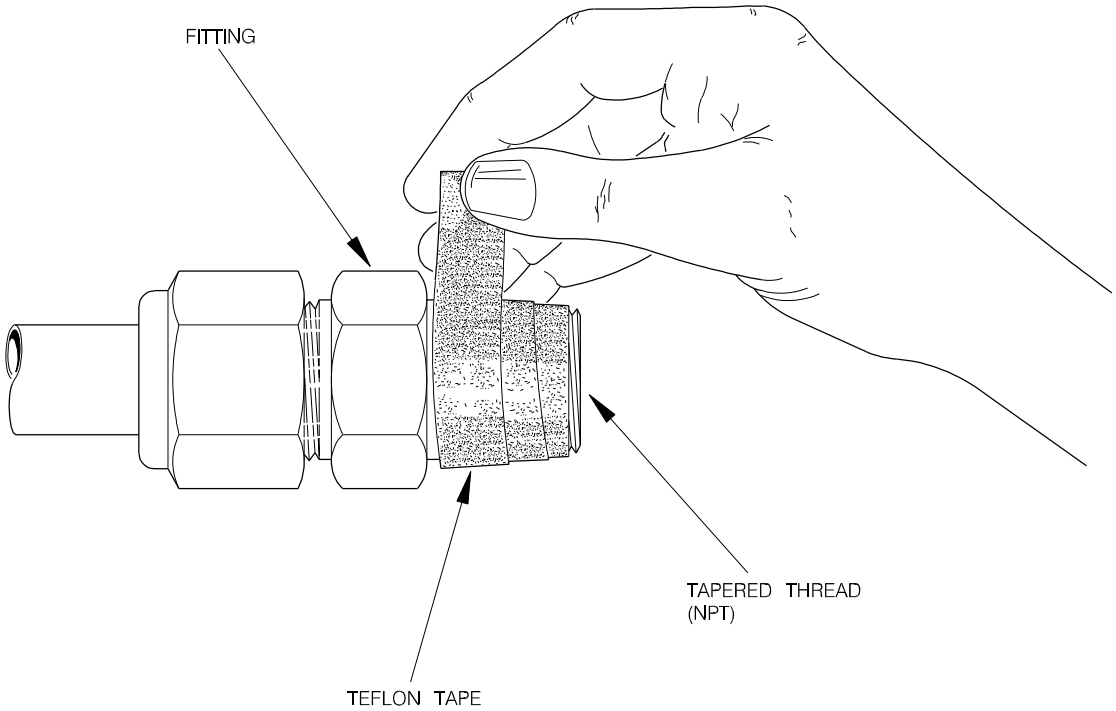
b Do not permit the compound to go into the tube or component.

2 Apply 1-½ to 2 turns of tape. Do not cover three threads at the end of the fitting (Figure 206).

Table 201 - TIGHTENING TORQUE OF OXYGEN LINE FITTINGS

HOSE / TUBE TYPE	FITTINGS TIGHTENING TORQUE - N.m (lb.in)	
	min	max
CAPILLARY TUBES	8.5 (75)	11.3 (100)
HOSE / ALUMINUM TUBES	11.3 (100)	16.9 (150)

EFFECTIVITY: ACFT MODEL(S) EMB-135
Tapered-Thread (NPT) Sealing
Figure 207



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