



## SERVICE BULLETIN

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**Title:** 19XR Pumpout and Leak Check Operation

**Models Affected:** 19XR

**Number:** C9729

**Date:** 10/03/97

**Supersedes:** New

### **Purpose:**

This bulletin is intended to provide the field with information on pumpout and leak test operation for 19XR machines. The amounts of nitrogen are estimates based on the vessel sizes at 70 psig (482 kPa) test pressure and 70° F (21° C). Field results will vary depending on job site conditions.

**File:** Purge-Pumpout

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## Information:

During recent testing with a standard 19EA pumpout machine, it was found that the pumpout compressor can lose oil upon initial start up, primarily due to the refrigerant absorption in the oil. There is no crankcase heater on this compressor. The oil is collected in the discharge oil separator and reaches an equilibrium state relative to oil return during operation. However, the separator is not 100% efficient and a certain amount of oil is lost to the chiller. All pumpout units should be monitored for oil level when in the pumpout mode.

A table depicting the amount of refrigerant left in the vessels at various pressures is included. Also included with the table is the amount of nitrogen and tracer gas needed to leak check a machine. The number of nitrogen bottles refers to the number of 300 ft<sup>3</sup> cylinders. To find the total amount required add the individual vessel amounts listed in the table.

Example: Find the amount of nitrogen required to pressurize a 19XR5251, to leak check at 70 psig (482 kPa) and 70° F (21° C).

Cooler, 52	28.0 lbs. (12.7 kg)	1.3 bottles
Condenser, 51	25.4 lbs. (11.5 kg)	1.2 bottles
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Total	53.4 lbs. (24.2 kg)	2.5 bottles

Pressure, in. Hg vacuum (mm Hg vacuum)				4 (101.6)	10 (254)	29.17 (740.9)
Absolute Pressure, psia (kPa)				12.74 (87.8)	9.79 (67.5)	0.37 (2.55)
Spec. Vol. of R-134a, ft <sup>3</sup> /lb (m <sup>3</sup> /kg)				3.48 (0.22)	4.46 (0.28)	95.30 (5.95)
Vessel Code	Test Conditions: 70 psig (482 kPa) and 70° F (21° C)			Estimated Refrigerant Remaining lbs. (kg)		
	lbs. (kg) of Nitrogen required	# of Nitrogen bottles required	5% Tracer Refrigerant lbs. (kg)			
19XR Cooler						
10-12	11.3 (5.1)	0.5	0.6 (0.3)	7.8 (3.6)	6.1 (2.8)	0.3 (0.1)
15-17	13.8 (6.3)	0.6	0.7 (0.3)	9.5 (4.3)	7.4 (3.4)	0.3 (0.1)
20-22	15.1 (6.9)	0.7	0.8 (0.4)	10.4 (4.7)	8.1 (3.7)	0.4 (0.2)
30-32	18.5 (8.4)	0.8	0.9 (0.4)	12.7 (5.8)	9.9 (4.5)	0.5 (0.2)
35-37	21.1 (9.6)	1.0	1.1 (0.5)	14.5 (6.6)	11.3 (5.1)	0.5 (0.2)
40-42	24.6 (11.2)	1.1	1.2 (0.5)	16.9 (7.7)	13.2 (6.0)	0.6 (0.3)
45-47	28.1 (12.8)	1.3	1.4 (0.6)	19.3 (8.8)	15.1 (6.9)	0.7 (0.3)
50-52	28.0 (12.7)	1.3	1.4 (0.6)	19.2 (8.7)	15.0 (6.8)	0.7 (0.3)
55-57	31.9 (14.5)	1.5	1.6 (0.7)	22.0 (10.0)	17.2 (7.8)	0.8 (0.4)
60-62	31.6 (14.3)	1.4	1.6 (0.7)	21.7 (9.9)	17.0 (7.7)	0.8 (0.4)

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Spec. Vol. of R-134a, ft <sup>3</sup> /lb (m <sup>3</sup> /kg)				3.48 (0.22)	4.46 (0.28)	95.30 (5.95)
Vessel Code	Test Conditions: 70 psig (482 kPa) and 70° F (21° C)			Estimated Refrigerant Remaining lbs. (kg)		
	lbs. (kg) of Nitrogen required	# of Nitrogen bottles required	5% Tracer Refrigerant lbs. (kg)			
19XR Cooler (continued)						
65-67	36.1 (16.4)	1.7	1.8 (0.8)	24.8 (11.3)	19.4 (8.8)	0.9 (0.4)
70-72	51.2 (23.2)	2.3	2.6 (1.2)	35.2 (16.0)	27.5 (12.5)	1.3 (0.6)
75-77	58.5 (26.6)	2.7	2.9 (1.3)	40.2 (18.3)	31.4 (14.3)	1.5 (0.7)
80-82	66.7 (30.3)	3.1	3.3 (1.5)	45.9 (20.9)	35.9 (16.3)	1.7 (0.8)
85-87	76.2 (34.6)	3.5	3.8 (1.7)	52.5 (23.9)	41.0 (18.6)	1.9 (0.9)

Pressure, in. Hg vacuum (mm Hg vacuum)				4 (101.6)	10 (254)	29.17 (740.9)
Absolute Pressure, psia (kPa)				12.74 (87.8)	9.79 (67.5)	0.37 (2.55)
Spec. Vol. of R-134a, ft <sup>3</sup> /lb (m <sup>3</sup> /kg)				3.48 (0.22)	4.46 (0.28)	95.30 (5.95)
Vessel Code	Test Conditions: 70 psig (482 kPa) and 70° F (21° C)			Estimated Refrigerant Remaining lbs. (kg)		
	lbs. (kg) of Nitrogen required	# of Nitrogen bottles required	5% Tracer Refrigerant lbs. (kg)			
19XR Condenser						
10-12	10.3 (4.7)	0.5	0.5 (0.2)	7.1 (3.2)	5.6 (2.5)	0.3 (0.1)
15-17	12.6 (5.7)	0.6	0.6 (0.3)	8.7 (4.0)	6.8 (3.1)	0.3 (0.1)
20-22	13.7 (6.2)	0.6	0.7 (0.3)	9.4 (4.3)	7.4 (3.4)	0.3 (0.1)
30-32	16.7 (7.6)	0.8	0.8 (0.4)	11.5 (5.2)	9.0 (4.1)	0.4 (0.2)
35-37	19.1 (8.7)	0.9	1.0 (0.5)	13.2 (6.0)	10.3 (4.7)	0.5 (0.2)
40-42	21.4 (9.7)	1.0	1.1 (0.5)	14.7 (6.7)	11.5 (5.2)	0.5 (0.2)
45-47	24.5 (11.1)	1.1	1.2 (0.5)	16.8 (7.6)	13.1 (6.0)	0.6 (0.3)
50-52	25.4 (11.5)	1.2	1.3 (0.6)	17.5 (8.0)	13.7 (6.2)	0.6 (0.3)
55-57	29.0 (13.2)	1.3	1.5 (0.7)	20.0 (9.1)	15.6 (7.1)	0.7 (0.3)
60-62	29.7 (13.5)	1.4	1.5 (0.7)	20.5 (9.3)	16.0 (7.3)	0.7 (0.3)

Pressure, in. Hg vacuum (mm Hg vacuum)				4 (101.6)	10 (254)	29.17 (740.9)
Absolute Pressure, psia (kPa)				12.74 (87.8)	9.79 (67.5)	0.37 (2.55)
Spec. Vol. of R-134a, ft <sup>3</sup> /lb (m <sup>3</sup> /kg)				3.48 (0.22)	4.46 (0.28)	95.30 (5.95)
Vessel Code	Test Conditions: 70 psig (482 kPa) and 70° F (21° C)			Estimated Refrigerant Remaining lbs. (kg)		
	lbs. (kg) of Nitrogen required	# of Nitrogen bottles required	5% Tracer Refrigerant lbs. (kg)			
19XR Condenser (continued)						
65-67	34.0 (15.4)	1.6	1.7 (0.8)	23.4 (10.6)	18.3 (8.3)	0.9 (0.4)
70-72	45.0 (20.5)	2.1	2.3 (1.0)	31.0 (14.1)	24.2 (11.0)	1.1 (0.5)
75-77	51.5 (23.4)	2.4	2.6 (1.2)	35.4 (16.1)	27.7 (12.6)	1.3 (0.6)
80-82	56.3 (25.6)	2.6	2.8 (1.3)	38.8 (17.6)	30.3 (13.8)	1.4 (0.6)
85-87	64.4 (29.2)	3.0	3.2 (1.5)	44.3 (20.1)	34.6 (15.7)	1.6 (0.7)

**Notes:**

- Test Pressure 70 psig (482 kPa) and Test Ambient 70° F (21° C).
- "# of Nitrogen bottles required" refers to the number of 300 ft<sup>3</sup> Nitrogen bottles.