



e-advantage

Is that Compressor Really Cooked?

After hose leaks, the compressor accounts for the highest rate of failure of any A/C component. The reasons are many, including inadequate voltage to the clutch coil, loss of refrigerant charge, and contamination.

We also see compressors returned that are fully functional—and therefore not warrantable. Before you pull the compressor from the vehicle, take these four steps to confirm that it really is a goner:

1. Is the compressor rotation smooth?
2. Is the coil receiving more than 11.5 volts?
3. Is the coil resistance between 2.8 and 4.4 ohms?
4. Is the compressor capable of producing 350 psig or more?

If you can't produce 350 psig, take the extra step to find out why. The compressor may still be fully functional, but the system may have a low refrigerant charge because of a leak that needs repair, or a high-side blockage that limits refrigerant flow to the compressor.

Testing and properly diagnosing a compressor takes time. But the process is far more efficient while it's still on the vehicle.

Fluid Special Ends September 1

Stock up on A/C system flush and PAG oil by taking advantage of our discount pricing until September 1. Talk to your Red Dot representative or go online to order.

Flush Special

Any time you open an A/C system is a good time to flush it out, which means this time of year shops can always use more flush compound.

Take advantage of our special on 79R4650 1-gallon bottle of flush compound: \$25 a gallon. It's a great item to sell with receiver-driers, compressors, evaporators, and any type of service equipment or accessories.

PAG Oil

Now's the time to stock up on 8-oz SP15 PAG Compressor Oil at \$ 6.75 each. Order part 79R4580.



Shop Reference

Red Dot Pocket Guides

Get your Red Dot Pocket Guides, our handy laminated reference cards for A/C technicians. There are four in all:

- **Refrigerant Guide** for managing A/C oil and refrigerant charge amounts (RD-5-12561-0P)
- **Wiring Guide** for determining the voltage drop for different lengths and gauges of wire (RD-5-12560-0P)
- **R-134a Pressure/Temperature Chart** (RD-5-13053-0P)
- **R-1234yf Pressure/Temperature Chart** (RD-5-13074-0P)

Refrigerant Guide

Refrigerant Oil Retained in System Components
The amount of oil typically retained in system components is shown here. The amount will vary with component size and design.

Component	Typical Amount of Oil
Compressor	2.0 fl.oz. 60 cc
Condenser	1.0 fl.oz. 30 cc
Receiver Drier	0.5 fl.oz. 15 cc
Evaporator	2.0 fl.oz. 60 cc

Refrigerant Oil Amount Based on Charge Quantity (TXV System)
All systems with less than 2.5 pounds of R134a
Free cylinders or more: $(15)(\text{lbs}) (\text{lb}) \times 2 + 1.35 = \text{Total Oil Charge (oz)}$
Seven cylinders or more: $(15)(\text{lbs}) (\text{lb}) \times 2.4 + 2.4 = \text{Total Oil Charge (oz)}$
on 15-lb & 30-lb cylinders Recommended

Conversion Factors
Round to nearest .01 or .04 (oz) (cc)
Ounces to cubic centimeters: (cc) $\div 1.25 = (\text{oz})$

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Wire Guide

Maximum Wire Length for 0.5 Voltage Drop
Minimum wire size based on ampacity

Amps	16	20	25	30	35	40	50
16	81	45	35	23	18	12	9
20	116	58	39	29	23	16	12
25	145	74	46	37	25	19	12
30	184	93	62	46	37	25	19
35	224	116	74	59	39	29	20
40	267	142	91	61	45	30	23
50	374	207	130	83	57	42	30
60	455	257	164	101	68	48	35
70	527	298	190	121	82	56	40
80	594	337	215	137	95	64	45
100	716	407	260	167	119	81	55
125	867	487	310	200	143	98	66
150	1000	560	350	225	165	112	75
175	1116	620	385	245	180	125	82
200	1216	670	410	260	190	135	88
225	1300	710	430	270	195	140	90
250	1370	740	440	280	200	145	92
300	1510	810	470	300	215	155	98
350	1630	860	490	320	225	160	100
400	1730	900	500	330	230	165	102
450	1810	930	510	340	235	168	103
500	1880	950	510	340	235	168	103
600	2060	1030	530	350	240	170	105
700	2210	1090	540	350	240	170	105
800	2340	1140	550	350	240	170	105
900	2450	1180	550	350	240	170	105
1000	2540	1210	550	350	240	170	105

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R-134a Pressure/Temperature Chart

PSIG	°F	°C
11	-1	-17
14	4	39
16	10	49
19	16	61
21	19	68
23	22	73
25	25	77
28	28	82
31	31	88
33	33	91
35	35	93
37	37	96
38	38	98
40	40	100
42	42	103
44	44	106
46	46	109
48	48	112
50	50	115
55	55	130
60	60	150
65	65	180
70	70	210
75	75	230
80	80	260
85	85	290
90	90	320
95	95	350
100	100	380
105	105	410
110	110	440
115	115	470
120	120	500

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R-1234yf Pressure/Temperature Chart

PSIG	°F	°C
11	-1	-17
14	4	39
16	10	49
19	16	61
21	19	68
23	22	73
25	25	77
28	28	82
31	31	88
33	33	91
35	35	93
37	37	96
38	38	98
40	40	100
42	42	103
44	44	106
46	46	109
48	48	112
50	50	115
55	55	130
60	60	150
65	65	180
70	70	210
75	75	230
80	80	260
85	85	290
90	90	320
95	95	350
100	100	380
105	105	410
110	110	440
115	115	470
120	120	500

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Talk to your Red Dot representative to order, or visit www.RedDotCorp.com/resources/reference-files to view and print your own.

COOL APPLICATIONS

Orchard Vehicles Push A/C to Extremes

When you think of extreme off-road conditions, an almond grove hardly comes to mind. But it should, says Mike Oddo of NVB Equipment in Fresno, Calif.

"In Central California, almond season runs from July through October," Mike

says. "It's 100-plus degrees almost every day." Tree shakers, nut sweepers, shuttle trucks, and other specialized vehicles make the job more

efficient during workdays that last 16 hours or more.

Most equipment have enclosed cabs, but they're small. Vehicles in almond groves, olive groves, and other orchard operations are built low to the ground to reduce the risk of knocking off tree limbs.

The tight interiors make orchard equipment a real challenge, Mike explains. And then you factor in the branches, bumps, ditches, gopher holes, and big impacts over a hot day that can run two shifts or longer.

"The R-2300 ductable heater-A/C unit is a great solution for orchard vehicles," he says. Available in 12v and

24v models, it produces 17,700 Btu of cooling from a compact package. Combined with a R-9720 remote-mount condenser, it's a tough, reliable, high-performance system that's easy to install and maintain.

The R-2300 can be mounted on the



The JackRunner's tight, low-slung cab demands a compact, durable, high-performance HVAC system.

floor, ceiling, or under the dash. Optional air outlets are available so the air can be ducted wherever it's required. As an installer, these are important options to have.

The R-9720 mounts on any horizontal surface or can be hung below a roof or floor panel. It opens up on a piano hinge without requiring tools, making it easy to access the coils. "If you have blow dust out of there two or three times a day," Mike says, "you want that job to be as easy as possible."

Got a cool Red Dot application? Let us know: Give your Red Dot representative a call and tell us more.

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All times are in the Pacific Time Zone

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