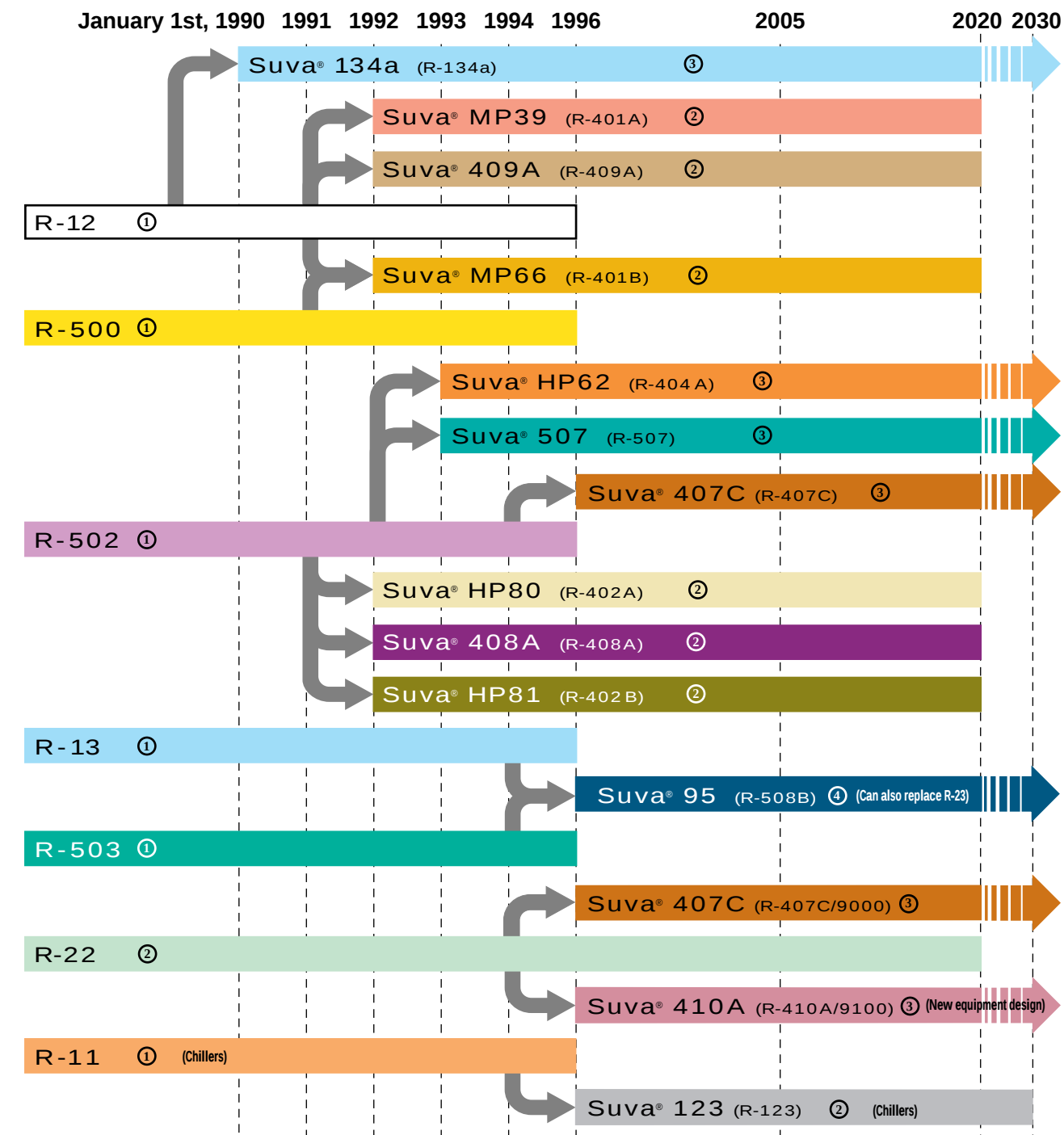


General Replacement Guide: CFC to an HCFC; CFC or HCFC to an HFC



NOTE: WHEN RETROFITTING WITH SUGGESTED REPLACEMENTS, REFER TO SPECIFIC RETROFIT LITERATURE AND THE EQUIPMENT MANUFACTURER FOR DETAILED PROCEDURES.

① CFC refrigerant

② HCFC refrigerant

③ HFC refrigerant

④ PFC refrigerant

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The miracles of science™

DuPont Suva® Refrigerants

Suggested Oil Guide

Stationary Refrigeration Applications

Direct Expansion Applications

Refrigerant	Lubricant*
R-12 ①	MO or AB
• 134a (R-134a) ③	POE
• MP39 (R-401A) ②	MO or AB
• 409A (R-409A) ②	MO or AB
R-500 ①	MO or AB
• MP66 (R-401B) ②	MO or AB
R-13 ①	MO or AB
R-503 ①	MO or AB
R-23 ③	POE
• 95 (R-508B) ④	POE

Refrigerant	Lubricant*
R-502 ①	MO or AB
• HP62 (R-404A) ③	POE
• 507 (R-507) ③	POE
• HP80 (R-402A) ②	AB
• 408A (R-408A) ②	AB
• HP81 (R-402B) ②	MO or AB
R-22 ②	MO or AB
• 407C (R-407C) ③	POE
• 410A (R-410A) ③ NEW EQUIPMENT DESIGN	POE

MO = Mineral Oil

• Suva® Refrigerants

③ HFC Refrigerant

AB = Alkylbenzene

① CFC Refrigerant

④ PFC Refrigerant

POE = Polyol Ester

② HCFC Refrigerant

* HCFC refrigerants are also compatible with POE lubricants. Some fractional horsepower replacement compressors are shipped with POE.

Oil Change Guidelines

- Where possible, use OEM-recommended oil type, charge size, and viscosity.
- When converting many CFC systems to an HCFC service refrigerant (Suva® MP39, 409A, MP66, HP80, 408A, or HP81), AB is the recommended lubricant for optimum oil return. One compressor oil change to AB will typically remove between 50 and 80% of the existing MO which satisfies the recommendations/requirements of most compressor manufacturers.

Note: Many compressors already contain AB lubricant, therefore no oil change is required when converting to an HCFC.

- Field experience has shown that Suva® MP39, 409A, MP66, and HP81 work successfully with the existing MO in many unitary and other close-coupled systems.
- When converting a CFC system to an HFC refrigerant (Suva® 134a, HP62, 507, 407C, or 95), POE is the recommended lubricant. At least 95% of the MO, or AB should be replaced with POE of similar viscosity. This typically requires multiple oil changes.

What to Expect After Retrofit

Suva® HP62, HP80, 408A, 507, and HP81 are compared to R-502.

Suva® MP39, MP66, 409A, and R-134a are compared to R-12

Suva® 407C is compared to R-22

*Suva® 407C is compared to R-502

Suva® 95 is compared to R-503

+ is increase

– is decrease

This information is intended to serve as a guide; the actual performance may vary.

Refrigerant	Discharge Pressure (psi)	Suction Pressure (psi)	Discharge Temperature (F)	Refrigeration Capacity (%)	Expected Superheat (F)
134a	+10	–2	–10	–10	–4
MP39	+20	Same	+25	+10	–3
MP66	+30	+2	+30	+15	–1
409A	+25	Same	+30	+10	–4
HP80	+40	+5	–5	+15	+4
HP81	+30	+5	+15	+15	Same
408A	+5	Same	+20	+5	–3
HP62	+20	Same	–10	Same	+2
507	+30	Same	–15	Same	+4
407C	+15	Same	–15	Same	+1
407C*	–5	–8	+30	–5	–4
95	+2	Same	–40	–2	Same

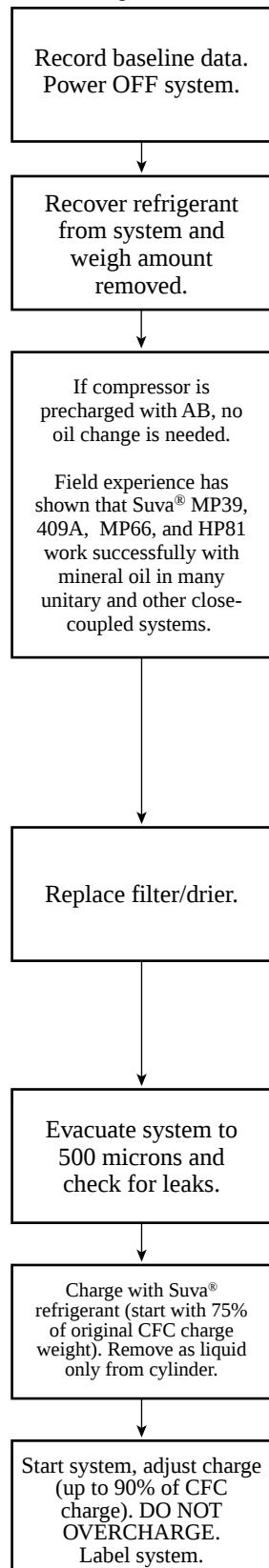
DuPont Suva® Refrigerants

General Retrofitting Guide*

Retrofit to HCFC

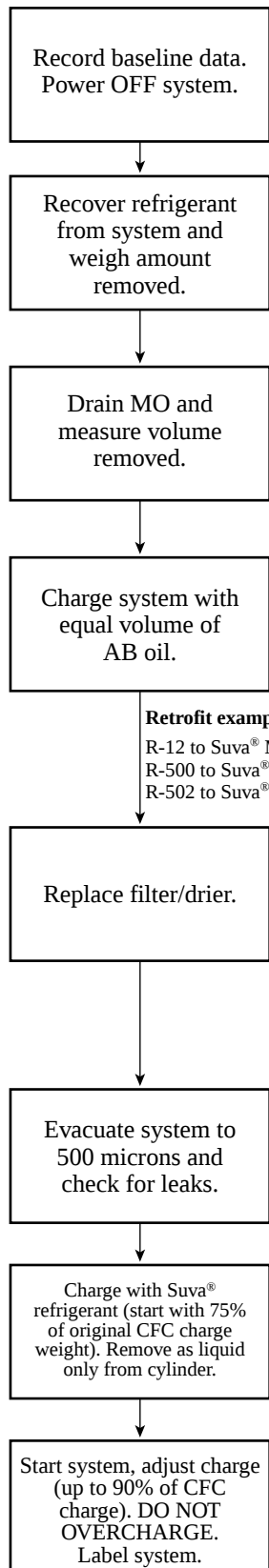
No Oil Change

For systems containing AB or close-coupled systems not requiring an oil change from MO.



Retrofit to HCFC Single Oil Change

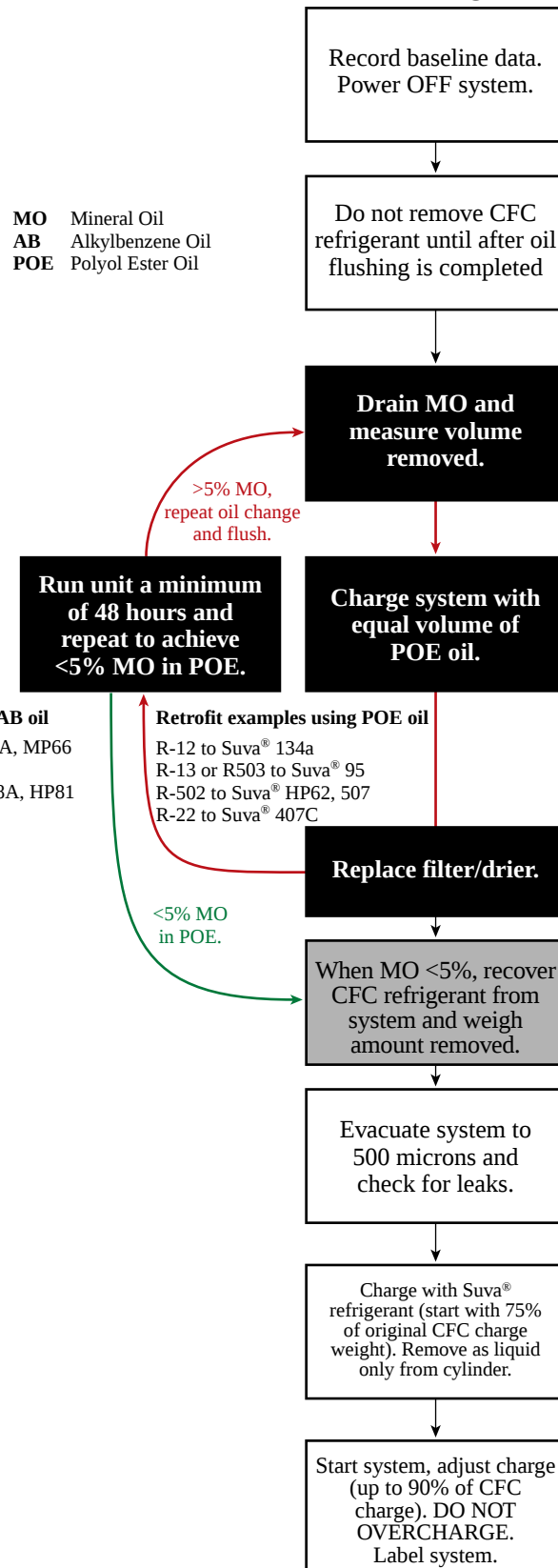
For systems requiring a single oil change from MO.



Retrofit examples using AB oil
 R-12 to Suva® MP39, 409A, MP66
 R-500 to Suva® MP66
 R-502 to Suva® HP80, 408A, HP81

Retrofit to HFC Multiple Oil Changes

MO Mineral Oil
AB Alkylbenzene Oil
POE Polyol Ester Oil



*For detailed information, please see our retrofit guidelines.

Pressure Control Setting Guide

(approximate)

Direct Expansion Applications

This **pressure control setting guide** provides you with **approximate** settings that can be used as starting points to help you **optimize** your system. Recognize that the values expressed can vary with specific conditions, such as actual relative humidity, pressure drop, store layout, equipment location and design. If your current settings for R-12 or R-502 vary from the baseline values given below, the alternative refrigerant settings will vary proportionately.

Applications		Desirable Case or Box Temperature (°F)	R-502		HP80		408A		HP81		HP62		R-12		MP39		409A		MP66		R-134a	
			Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
Ice Cream	Open	-27 to -22	2	17	2	18	1	17	0	15	2	17	—	—	—	—	—	—	14"	1"	—	—
	Closed	-15 to -10	6	23	6	25	5	23	4	21	6	23	—	—	—	—	—	—	12"	3	—	—
Frozen Food	Open	-10 to -5	17	29	18	31	16	28	14	27	17	29	4"	5	4"	4	4"	3	2"	6	4"	4
	Closed	-5 to 0	21	33	22	35	20	32	19	30	21	33	0	7	0	6	0	5	2	8	0	6
Deli Case	Serving	43 to 45	43	68	47	75	43	68	42	68	44	69	11	27	12	26	11	25	14	29	12	26
Fresh Meat	Cooler	34 to 38	33	55	36	60	33	55	32	54	34	56	5	19	6	18	5	17	8	20	6	18
	Cases	38 to 42	35	64	39	70	35	64	34	63	36	65	7	24	8	23	7	22	10	26	8	23
Dairy	Serving	50 to 60	53	68	59	75	53	68	52	68	54	69	16	27	17	26	16	25	19	29	17	26
	Storage	31 to 36	35	57	39	63	35	57	34	56	36	58	7	21	8	20	7	19	10	22	8	20
Produce	Serving	40 to 45	49	79	53	87	49	79	48	78	50	80	14	33	15	32	14	31	18	35	15	32
	Storage	35 to 40	37	68	41	75	37	68	37	68	38	69	8	27	9	26	8	25	11	29	9	26
Meat Prep	Product	28 to 32	52	68	59	75	52	68	52	68	53	69	16	27	17	26	16	25	19	29	17	26
	Room	42 to 47	33	79	36	87	33	79	32	78	34	80	5	33	6	32	5	31	8	35	6	32
Walk-In Coolers	Meat	28 to 32	52	70	57	77	52	70	51	69	53	71	16	27	17	26	16	25	19	29	17	26
	Poultry	20 to 30	51	68	56	75	51	68	50	68	52	69	15	27	16	26	15	25	18	29	16	26
	Fish	32 to 34	53	79	59	78	53	79	52	78	54	80	16	27	17	26	16	25	19	29	17	26
	Dairy	33 to 35	60	82	66	90	60	82	59	82	61	83	23	40	24	39	23	38	27	43	24	39
	Produce	36 to 42	64	84	70	92	64	84	63	84	65	85	26	41	27	40	26	39	30	44	27	40
	Bakery	35 to 40	60	82	66	90	60	82	59	82	61	83	23	40	24	39	23	38	27	43	24	39
Walk-In Freezers	Grocery	-15 to -12	11	23	12	25	10	22	9	21	11	23	9"	2	9"	1	9"	0	7"	3	9"	1
	Meat	-5 to 0	21	33	22	35	20	32	19	30	21	33	0	7	0	6	0	5	2	8	0	6
	Bakery	0 to -5	24	36	27	40	24	36	23	35	25	37	1	9	2	8	1	7	4	10	2	8
Beverage	Milk	35 to 40	53	68	59	75	53	68	52	68	54	69	16	27	17	26	16	25	19	29	17	26
	Beer	36 to 43	55	71	60	78	55	71	54	70	56	72	17	27	18	26	17	25	20	29	18	26
Fur Storage	Shock	10 to 15	33	51	36	56	33	51	32	50	34	52	5	17	6	16	5	15	8	18	6	16
	Storage	30 to 35	63	93	69	101	63	92	62	92	64	94	22	40	23	39	22	38	26	43	23	39
Cut Flowers	Display	32 to 35	10	93	75	101	10	92	68	92	11	94	25	40	26	39	25	38	29	43	26	39
Ice Cuber	Dry Type	-5 to 0	25	48	27	52	24	48	23	46	25	48	2	15	2	14	1	13	4	17	2	14
Soda Fountain		29 to 33	55	70	60	77	55	70	54	69	56	71	17	27	18	26	17	25	20	29	18	26
Salad Bars		40 to 42	49	78	53	86	49	78	48	77	50	79	14	32	15	31	14	30	18	35	15	31
Domestic	Refrigerator	36 to 46	64	84	70	92	64	84	63	84	65	85	26	43	27	42	26	41	30	46	27	42
	Freezer	-10 to 0	17	33	18	35	16	32	14	30	17	33	4"	7	4"	6	4"	5	2"	8	4"	6
			R-502		R-402A		R-408A		R-402B		R-404A*		R-12		R-401A		R-409A		R-401B		R-134a	

Note: Pressure values expressed in psig or inches Hg.

*For R-507 applications, use R-404A settings.

The information contained herein is based on technical data and tests that we believe to be reliable. It is intended for use by persons having technical skill, at their own discretion and risk. Because conditions of use are outside of DuPont control, we can assume no liability for results obtained or damages incurred through the application of the data presented.

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