



Harold Ag & Mobile Products
Your Ag A/C Parts Specialist
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6-18-13



"The Lower Pressure Solution for all Mobile Applications"

FR-12 COMPARED TO OTHER BLENDS

- UL Classified A1/A1 (non-flammable!)
- ASHRAE Listed R-416A
- Lower Temperature Glide and Lower Pressure than R-22 blends
- Material Compatibility
- Factory Tech Support (800-406-2292)

We're sorry, but Free Zone RB-276 refrigerant is no longer available. FR-12 is an excellent, comparable replacement.

PROVEN PERFORMANCE

- FR-12 closely matches R-12 performance and pressures
- Compatible with mineral, Alkyl Benzene (AB), PAG, and Ester Oils (POE)
- Multiple top-offs without fractionation (separation)
- Less strain and longer compressor life
- Accepted for use in mobile and stationary applications
- Accepted for use as an R-134a replacement
- Reliable high-ambient temperature operation

COST EFFECTIVE R-12 ALTERNATIVE

- Less than 1/3 the price of R-12
- Simple adaptation of existing system components
- No system flushing required
- Use standard diagnostic R-12 equipment - Recovery Unit, Hoses, Gauges, Leak Detector

ENVIRONMENTALLY FRIENDLY REFRIGERANT

- Low Ozone Depletion Potential (ODP)
- Low Global Warming Potential (GWP)
- EPA "SNAP" Accepted
- Unique high-side and low-side fittings available
- A1/A1 classification means certified Non-toxic, Non-flammable

HOW SIMILAR IS IT TO FREE ZONE?

A lot! FR-12 performs very close to R-12 or Free Zone in cooling your cab on hot days. It doesn't fractionate. It's not flammable. It won't destroy shaft seals. It doesn't require a system flush to change to FR-12. It's lighter than R-12, so you use 10% to 30% less, further reducing your cost. Lower pressures cut down system leaks. Lengthens compressor, clutch, belt, and drive pulley life.

The only real difference? With FR-12 you need to add 2 oz of esteroil to an R-12 system on the first charge. This is to help maintain lubrication to the compressor. No additional oil is needed when added to an R-134a system. Plus, FR-12 does not overcharge as easily as Free Zone - you have more leeway.

FRIGC FR-12 REFRIGERANT

Who uses FR-12? FR-12 is used by EXXON/Mobile, US Army, US Air Force, Coast Guard, General Mills, Pepsi, L-3 Comm, and Nutrasweet.

COMPARE IT TO R-134a

The table below compares the results of testing FR-12 and R-134a on our tabletop air conditioner system, made up of the following components:

Red Dot R-7830-0 Evaporator - 17,000 BTU's

Red Dot R-9720 Condenser - 27,000 BTU's

Sanden SD510 Compressor - 10 cu. in.

2 HP Electric Motor Driving Compressor at 2200 RPM.

Compressor is new, oil changed to esterol.

The same temperature of air was supplied to the condenser and evaporator.

	Condenser Inlet Fitting Temperature	Condenser Outlet Fitting Temperature	Evaporator Outlet Air Temperature	Low Side Pressure	High Side Pressure
R-134a					
80° air	200	140	51	17	237
100° air	200	140	80	23	300
FR-12					
80° air	160	120	55	14	200
100° air	180	145	64	21	250






The table verifies what everyone has reported: R-134a won't do the job at higher temperatures, while FR-12 is still working well.

We all know that under-hood and in-field temperatures can easily exceed 100°. Two problems are obvious - 80° is not cold enough to keep a cab comfortable, and high head pressures will make the compressor work much harder, reducing its life. A service tech told us about a customer using R-134a in his combine - his compressor burns up when the temperature gets up around 105° because the head pressure is too high.



Please note: 609 Certification is required and must be on file with us before making a purchase for any FRIGC refrigerant.

The following link is provided to obtain your [609 Certification](#).

FR-12 FRIGC REFRIGERANTS (Prices subject to change without notice) 02/23/2012

Part No.	Description	Price
	FR12-9 PLEASE NOTE: 9.6 oz. Cans are no longer available	
	FR12-25 25 lb Cylinder	\$364.25
	3178 FR-12 to R-12 Adapter (Adapts 25 lb cylinder or 1361 can tap to R-12 guage set)	\$13.35
	1361 9.6 oz Can Tap	\$17.00
	3000 FR-12 Manifold Guage Set with 72" Hoses	\$158.00
	1254 Low Side Coupler	\$48.00
	1255 High Side Coupler	\$48.00
	1256 72" Blue Hose	\$24.00
	1266 72" Yellow Hose with Shut-Off	\$24.00
	1267 72" Red Hose	\$24.00
	B12-407 Charge Orifice Fitting (Prevents liquid slugging of compressor)	\$16.00

FR-12 CHARGE PORT ADAPTER FITTINGS		
Part No.	Description	Price
	1350 Master Installation Kit-Includes all 1010 items plus: 10-1248 3/8" High Side w/Cap 5-1547 7/16" GM High Side w/Cap 4-1250 Red High Side Cap 4-1252 Blue Low Side Cap 2-1533 3/8" High Side 90° w/Cap 2-1534 7/16" High Side 90° w/Cap 2-1535 7/16" Low side 90° w/Cap 1-1546 GM Pressure Switch Harness 1-1545 GM adjustable Cycling Clutch Pressure Switch 1-1536 3/8" High Side Str. 30 cm Flex Hose 1-1537 7/16" High/Low Str. 30 cm Flex Hose 1-1538 3/8" High Side 90° 30 cm Flex Hose 1-1540 3/8" High Side 90° 30 cm Flex Hose	\$120.00
	1248 3/8" High Side with Red Cap	\$13.35
	1249 7/16" High Side with Red Cap	\$13.35
	1251 7/16" Low Side with Blue Cap	\$13.35
	1253 R-12 to FR-12 Adapter	\$13.35
	1533 3/8" 90° High Side with Red Cap	\$13.35
	1534 7/16" 90° High Side with Red Cap	\$13.35
	1535 7/16" 90° Low Side with Blue Cap	\$13.35
	1547 7/16" GM High Side Fitting	\$13.35

FR-12 CHARGE PORT ADAPTER FITTINGS Cont.			
	Part No.	Description	Price
	1543	Label	\$0.30
	1600	Farm (Older Auto) Adapter Set (Includes 2 fittings for 1/4" charge ports and 1 label)	\$27.00
	1602	Auto Adapter Set (Includes 1 - 3/16" charge port fitting and 1 - 7/16" charge port fitting and 1-label)	\$27.00

FR-12 (FRIGC-R416A) CHARGING INSTRUCTIONS

"The Lower Pressure Solution for all Mobile Applications"

Note: In most applications clearing the sight glass will cause an overcharged condition. This will result in high pressures and poor cooling performance.

- Recover the R-12, R-134a, Free Zone from the system.
- (Service shops only-EPA requirement) Install FR-12 high and low side service ports adapters (torque to 3 lbs). Note: it may be necessary to remove the R-12 schrader valve core to install a 90° adapter or extension hose fitting.
- Check and repair any leaks, if necessary, and evacuate the system.
- On a R-12 system add 2 oz. of P.O.E. oil. The mineral oil & P.O.E. work together to better lubricate the compressor. On a Free Zone or R-134a system no extra oil is needed. If the system has been flushed use P.O.E. oil.
- Charge the system using either or both methods noted below.
- Place a FR-12 label on the system.

Temperature Charging Method:

- Place a thermometer in the cool air outlet (the evaporator) inside the vehicle.
- Connect the gages as usual (Use orifice fitting between the cylinder and your yellow R-12 hose).
- With the A/C system off, invert the cylinder of FR-12 and install an estimated half charge of refrigerant. Shut off the cylinder.
- Run the A/C system on maximum cool with the fan on high, and allow the temperature to stabilize for a few minutes.
- Check the outlet temperature inside the vehicle. If the temperature doesn't seem cold enough, add refrigerant in 1 to 2 oz. increments (waiting a minute or so between increments), until the outlet air temperature bottoms out and begins to rise slightly. Stop charging. The suction line (low pressure side) should feel cool and may possibly sweat.
- On a 70° to 80° day, (*) the outlet air temperature should read 45° to 55°. The low pressure gage should read 10 to 15 psi. The high pressure gage should read 150 to 200 psi.
- On a 100° day the outlet air temperature could read 50° to 65°. The low pressure gage could read 15 to 35 psi. The high pressure gage could read 200 to 260 psi. A reading above 300 psi on the high pressure gage is an indication of trouble.
- If a very high discharge pressure is experienced, check for a dirty condenser, malfunctioning fan, or system overcharging.

(*) With the outside temperature below 65° to 70° you will need to undercharge the system. If the system is fully charged below 65° to 70°, it will be overcharged when the weather warms up, and the system will not cool as well as it should.

Pressure-Temperature Chart Charging Method:

- Take the temperature of the day (two inches in front of the condenser coil with the A/C system on maximum cool and the fan on high) and add 40°. (Example: if the temperature of the day is 80°; $80°+40°=120°$.) You can also just double the air temperature and that will be the approximate pressure.
- On the pressure-temperature chart, read down the first column (to 120°). Under the FR-12 column, read the pressure (158.7 psi).
This is the target pressure for the high side of the system. (High side pressure will vary depending on condenser capacity.)
- Slowly charge the system with the refrigerant cylinder inverted until the high side pressure is about equal to the target pressure found on the pressure-temperature chart.

Do not attempt to clear the sight glass when charging a system with FR-12. It could be overcharged!

FR-12 does not seem to get overcharged as quickly as Free Zone

NOTE: Most mobile A/C systems require less FR-12 than they would with R-12. Special cases like dual evaporators may be the exception or systems with a large condenser.

Charge with Cylinder Inverted

PRESSURE-TEMPERATURE CHART for FR-12 REFRIGERANT--REPLACES R-12/R-134A/Free Zone

TEMPERATURE	PRESSURE PSIG		
	FR-12	R-12	R-134A
F			
20	13.8	21.7	18.5
26	17.7	26.1	22.9
30	20.5	29.2	26.1
36	25.1	34.3	31.3
42	30.1	39.8	37.0
46	33.7	43.7	41.1
52	39.5	49.9	47.8
56	48.7	54.3	52.4
60	53.4	59.0	57.4
65	59.6	65.1	64.1
70	56.2	71.7	71.1
75	73.2	78.5	78.7
80	80.7	85.8	86.7
85	88.7	93.5	95.3
90	97.1	101.6	104.3
95	101.0	110.2	114.0
100	115.5	119.2	124.2
105	125.4	128.7	135.0
110	136.0	138.6	146.4
115	147.0	149.2	158.4
120	158.7	159.8	171.2
125	170.8	171.6	184.6
130	183.8	183.6	198.7
135	192.3	196.2	213.6
140	211.4	209.2	229.2
145	226.2	222.9	245.6
150	241.6	237.2	262.9
155	257.8	252.1	281.0
160	274.7	267.6	301.5