



Refrigerant Solutions Ltd

RS-24 AUTOMOTIVE AIR CONDITIONING FIELD TRIAL

R12 was replaced by RS-24 in the automotive air conditioning system of a 1990 Chrysler mini van in a field trial carried out by Refrigerant Services Inc, Canada between June and November 1999.

SYSTEM SPECIFICATIONS

Vehicle: 1990 Chrysler minivan

Engine: 3.3 l

Refrigerant charge: 0.82 kg R12

MODIFICATIONS TO SYSTEM:

No modifications were made to the system.

PROCEDURES

1. Recovered existing charge of R12 and evacuated system to 300 microns.
2. Recharged with exact weight of R12 as recommended by vehicle manufacturer.
3. Installed temperature sensors on suction line, discharge line, evaporator air outlet, and conditioned space.
4. Installed suction and discharge gauges.

Note: oil levels were not recorded as compressors were not equipped with oil sight-glasses.

STAGE 1 OF AUTO AIR CONDITIONING TRIAL

Recorded baseline data on system using R12 at idle conditions and again at 2000 rpm.

Baseline data included: suction pressure, discharge pressure, suction temperature, discharge temperature, evaporator leaving air temperature, conditioned space temperature, ambient temperature and engine rpm.

STAGE 2 OF AUTO AIR CONDITIONING TRIAL

Recovered R12 charge and evacuated system to 300 microns.

Charged with RS-24 equal to 90% of original recommended charge.

Recorded baseline data similar to stage 1 trial.

AUTOMOTIVE AIR CONDITIONING FIELD TRIAL RESULTS

VEHICLE: 1990 CHRYSLER MINI-VAN

	RECORDED DATA			
	R12		RS-24	
	1000 RPM	2000 RPM	1000 RPM	2000 RPM
Suction pressure	1.72	1.52	2.21	1.52
Suction temperature	17	14	21	12
Discharge pressure	12.8	14.1	13.8	14.7
Discharge temperature	74	89	72	78
Supply air temperature	4	3	5	3
Space temperature	18	16	18	16
Ambient temperature	27	27	25	25

NOTES:

Pressures are in bars

Temperatures are in Celcius

OBSERVATIONS

STAGE 1 & 2

1. Oil return was satisfactory.
2. Discharge pressures were on average higher than with R12.
2. Discharge temperatures were on average 3% lower at idle and 12% lower at 2000 rpm.
3. Other temperature and pressure readings showed no significant change.
4. There was no loss of capacity in the system.
5. There was not any negative impact on the system operation or components.

CONCLUSION

RS-24 installed as a Drop-in replacement for R12 automotive air conditioning systems provides similar capacity, good oil return and has no negative effects on the equipment or operation.