

Issue # 15

Old AC Compressor Exchange Programme

In recent discussions about energy efficient household appliances such as refrigerators and air conditioners, a recommendation was put forward by a reputed compressor manufacturer to promote a programme of exchanging old compressors with new more energy efficient compressors. The table below was presented comparing compressor efficiency and associated annual monetary savings for a 1.5 Ton A/C unit.

Comparison of Energy Savings vs. Compressor Used in a 1.5 Ton A/C

	Make	Kirloskar	Shriram	Voltas	Tecumseh	Carrier
	Model	CR22K6M	SR1622	6A23	AW1500Q	NE1900BB
1.a	Cooling Capacity (Btu /Hr)	19000	18800	18840	19000	19600
1.b	Current (Amps)	7.8	12.2	11.2	8.5	9.6
1.c	Power (Watts)	1750	2250	2150	1875	1830
2.a	Extra Power consumed in 1 Hr as compared to CR22K6M (Watts)	-	500	400	125	80
2.b	% Difference ($2.a / 1.c \times 100$) (Extra Power / Power x 100)	-	22.22%	18.60%	6.67%	4.37%
2.c	Extra Energy consumed per day @ 10hrs per day and 80% running time. (kWh) ($2.a \times 10 \times 0.8$) / 1000 (Extra Power x 10 hours/day x 80%) / (1000 W/kW)	-	4.00	3.20	1.00	0.64
3.a	Additional Expenditure incurred per day @ Rs. 7.42/Kw (Rs)	-	29.68	23.74	7.42	4.75
3.b	Additional Expenditure incurred per month @ 26 days. (Rs)	-	771.68	617.34	192.92	123.47
3.c	Additional Annual Expenditure Incurred (Rs) (3.b x 12)	-	9260.16	7408.13	2315.04	1481.63
4.a	Cost of Replacement with the same compressor (Rs)	8853	4850.00	4200.00	5500.00	5150.00
4.b	Incremental Cost of a new KCL make CR22K6M compressor (Rs)	-	4003.00	4653.00	3353.00	3703.00
4.c	Payback period (months) (4.b/ 3.b)	-	5	7	17	30

It is a very interesting and in fact welcome development that one manufacturer is openly comparing his product with others. BEE will do this as well under the provisions (standards and labeling) of the Energy Conservation Act in the near future.

Good ideas may turn into bad ideas, once discussed among a larger group. Bad ideas once modified may turn into a good programme, and last but not least, good ideas in a modified form may actually lead to excellent high impact, low cost strategies, moving the market.

We have our own ideas and judgment of this approach as well as the figures presented in this table. However to expand the opinion base we ask our readers to contribute to the following:

- (i) Comment on the proposal to have a national programme to replace old inefficient compressors with new efficient compressors in Air Conditioners. Does it make sense? How can it be implemented?
- (ii) Evaluate the figures and assumptions in the table carefully, and tell us what you would have done differently, or to what extent the data used for the comparison is realistic.