

INDEPENDENT TECHNICAL
ASSESSMENT REPORT

No: 09/1299

DATE: 15/12/99
I.T.A.R. NO.: 09/1299
COUNTRY: Singapore
STATE: N/A

CLIENT NAME:

TIBS MOTORS PTE LTD

PRODUCT/SERVICES:

Bus company servicing Singapore and Malaysia with own workshop carrying out service and maintenance on bus air conditioning systems.

ADDRESS:

ANG MO KIO depot Singapore

PURPOSE:

To compare the performance levels of a bus A/C system with R12 and mineral oil and R12 and ROC oil

METHODOLOGY:

A 30 minute performance test was conducted on a Bus A/C system with mineral oil and repeated in the same system over the same time period with ROC oil.

The following indicators were monitoring:

1. Ambient temperature (at the condenser).
2. Evaporator temperature (air off coil).
3. Front centre of bus compartment temperature
4. Rear centre of bus compartment temperature
5. Engine idle speed (observation).
6. Compressor discharge pressure (observation).

RESULTS:

Within a 30 minute period operating on mineral oil the following was recorded:

Ambient temperature 30.8 deg.C to 33.8 deg.C
(change over the 30 minute period +3.0 deg.C)
Evaporator temperature 28.1 deg.C to 14.8 deg.C
(change per minute -0.443 deg.C)
Forward compartment temperature 30.8 deg.C to 24.9 deg.C
(change per minute - 0.197 deg.C)
Rear compartment temperature 29.9 deg.C to 26.7 deg.C
(change per minute -0.107 deg.C)
Engine idle speed 510 RPM
Discharge pressure 150 PSI

Within the same 30 minute time period operating on ROC oil the following was recorded:

Ambient temperature 34.1 deg.C to 35.0 deg.C
(changeover the 30 minute period +0.9 deg.C)
Evaporator temperature 30.8 deg.C to 15.8 deg.C
(change per minute -0.50 deg.C) +12.87% over mineral oil
Forward compartment temp. 31.3 deg.C to 25.7 deg.C

(change per minute -0.187 deg.C) -5.08% under mineral oil
Rear compartment temp. 31.3 deg.C to 27.6 deg.C
(change per minute -0.123 deg.C) +14.95% over mineral oil
Engine idle speed 500 RPM
Discharge pressure 98 PSI

CONCLUSIONS:

Although operating at a higher ambient temperature the system showed an overall average gain in pull down times when operating with ROC oil. Compressor discharge pressure reduced as did the engine idle speed.

TEST INFORMATION ON PRODUCTS CONTAINED IN THIS REPORT DOES NOT IMPLY AN ENDORSEMENT BY THE INDEPENDENT TEST COMPANY.
FOR FURTHER INFORMATION PLEASE CONTACT:

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