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(71) Applicant: TATA MOTORS LIMITED [IN/IN]; Bombay house, 24 Homi Mody Street, Hutatma Chowk, Mumbai, Maharashtra, 400001 (IN).

(72) Inventors: LATANE, Santosh Dnyaneshwar; C/o. Tata Motors Limited, Bombay house, 24 Homi Mody Street, Hutatma Chowk, Mumbai, Maharashtra 400001 (IN). NAGARHALLI, Prasanna Vyankatesh; C/o. Tata Motors Limited, Bombay house, 24 Homi Mody Street, Hutatma Chowk, Mumbai, Maharashtra, 400001 (IN). JAYBHAY, Sambhaji Keshaw; C/o. Tata Motors Limited, Bombay house, 24 Homi Mody Street, Hutatma Chowk, Mumbai, Maharashtra, 400001 (IN). JOSHI, Rudrasen; C/o. Tata Motors Limited, Bombay house, 24 Homi Mody Street, Hutatma Chowk, Mumbai, Maharashtra, 400001 (IN).

(74) Agents: S.N, Swetha et al; K&S Partners, Intellectual Property Attorneys, #4121/B, 6th Cross, 19A Main, HAL II Stage [Extension], Bangalore, Karnataka 560038 (IN).

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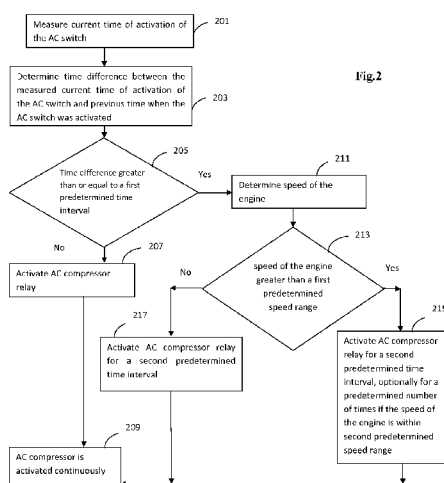
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(54) Title: A METHOD OF OPERATING A VEHICLE AIR CONDITIONING SYSTEM



(57) Abstract: The present disclosure is related to an Air Conditioning (AC) system of a vehicle. In order to avoid seizure/ failure of an AC compressor when the AC compressor is activated after a long duration, the control unit configured in the AC system activates the AC compressor relay for a predetermined time interval when the engine is idling. Therefore, at high engine speeds, the AC compressor can operate safely. If the AC compressor is activated after a long duration and if the vehicle is in operation, the control unit waits till the engine speed falls within a safe band range to activate the AC compressor for a second predetermined time interval. The compressor is activated for a predetermined number of times to provide sufficient lubrication to the internal parts of the AC compressor.

AMENDED CLAIMS

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1. A method of operating an air conditioning (AC) system (100) of a vehicle, said method comprising:
 - measuring current time of activation of an AC switch (103) by a control unit (105) configured in the vehicle when engine rotational speed of the vehicle is greater than a first predetermined speed range;
 - comparing the current time of activation of the AC switch (103) with previous time when the AC switch (103) was activated by the control unit (105) to determine time difference between the measured current time of activation of the AC switch (103) and the previous time when the AC switch (103) was active;
 - determining whether the engine rotational speed of the vehicle is within a second predetermined speed range by the control unit (105) if the time difference is greater than a first predetermined time interval; and
 - activating an AC compressor relay (107) by the control unit (105) for a second predetermined time interval when the engine rotational speed of the vehicle is within the second predetermined speed range.
2. The method as claimed in claim 1, wherein the second predetermined time interval is in the range of 20-30 seconds.
3. The method as claimed in claim 1 further comprises of activating the AC compressor relay by the control unit for a predetermined number of times when the engine rotational speed of the vehicle is within the second predetermined speed range.
4. The method as claimed in claim 3, wherein the second predetermined speed range is 1000-1500 RPM.
5. The method as claimed in claim 3, wherein the predetermined number of times of activating the AC compressor relay (107) is in the range of 2-3.
6. The method as claimed in claim 3, wherein time interval between each activation of the AC compressor relay (107) is in the range of 10-20 seconds.

7. The method as claimed in claim 3, wherein the AC compressor relay (107) is deactivated by the control unit (105) upon determining the engine rotational speed of the vehicle to be greater than the second predetermined speed range, wherein the AC compressor relay is activated by the control unit (105) when RPM of the vehicle is within the second predetermined speed range.
8. The method as claimed in claim 1 further comprises of activating the AC compressor relay (107) by the control unit (105) upon determining the time difference to be less than the first predetermined time interval.
9. The method as claimed in claim 1, wherein the first predetermined time interval is in the range of 15-20 days.
10. The method as claimed in claim 1, wherein the first predetermined speed range is 500-1000 RPM.
11. An air conditioning (AC) system (100) of a vehicle comprising:

An AC compressor relay (107) configured to perform at least one of activating and deactivating AC compressor (109); and

a control unit (105) configured to:

measure current time of activation of an AC switch (103) when engine rotational speed of the vehicle is greater than a first predetermined speed range;

compare the measured current time of activation of the AC switch (103) with previous time when the AC switch (103) was active to determine time difference between the measured current time of activation of the AC switch (103) and the previous time when the AC switch (103) was active;

determine whether engine rotational speed of the vehicle is within a second predetermined speed range if the time difference is greater than a first predetermined time interval; and

activate the AC compressor relay (107) for a second predetermined time interval when the engine rotational speed of the vehicle is within the second predetermined speed range.

12. The system as claimed in claim 11, wherein the first predetermined time interval is in the range of 15-20 days.
13. The system as claimed in claim 11, wherein the second predetermined time interval is in the range of 20-30 seconds.
14. The system as claimed in claim 11, wherein the first predetermined speed range is 500-1000 RPM.
15. The system as claimed in claim 11, wherein the second predetermined speed range is 1000-1500 RPM.