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Title: Case study of fault detection and diagnosis of a household air conditioner with a dynamic refrigeration cycle simulator

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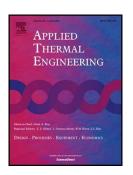
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ACCEPTED MANUSCRIPT

| 1 | Case Study of Fault Detection and Diagnosis of a Household Air |
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| 2 | Conditioner with a Dynamic Refrigeration Cycle Simulator |
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| 12 | |
| 13 | Highlights |
| 14 15 | A dynamic refrigeration cycle simulator was developed for high fidelity and fast execution. |
| 16 | Its fidelity was supported with transient test results of a household air conditioner. |
| 17 | The simulator was applied to develop algorithm for fault detection and diagnosis. |
| 18 19 | • Using the simulator, it was possible to collect steady state fault data and classify them by fault. |
| 20 21 | • Evaporator fouling level detection was not corrupted by various level of condenser fouling. |
| 22 | |

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