

## WASHING MACHINE

### ABSTRACT

5           In a washing machine according to the present disclosure, a controller can execute  
a sensorless open loop acceleration control process that is the first control process of  
energizing windings (4a, 4b, 4c) regardless of the position of permanent magnet (4d) and a  
sensorless phase estimation control process that is the second control process of energizing  
windings (4a, 4b, 4c) in accordance with the position of permanent magnet (4d). Further,  
10   the control device can execute a sensorless phase estimation control process that is a lock  
detection process of detecting motor lock when permanent magnet (4d) is not rotated at a  
predetermined rotation speed after transition from the first control process to the second  
control process. Upon detecting that motor (4) is locked in the lock detection process, the  
controller performs phase fixed control in different phases a plurality of times at the start  
15   of driving by the first control process.

FIG. 3