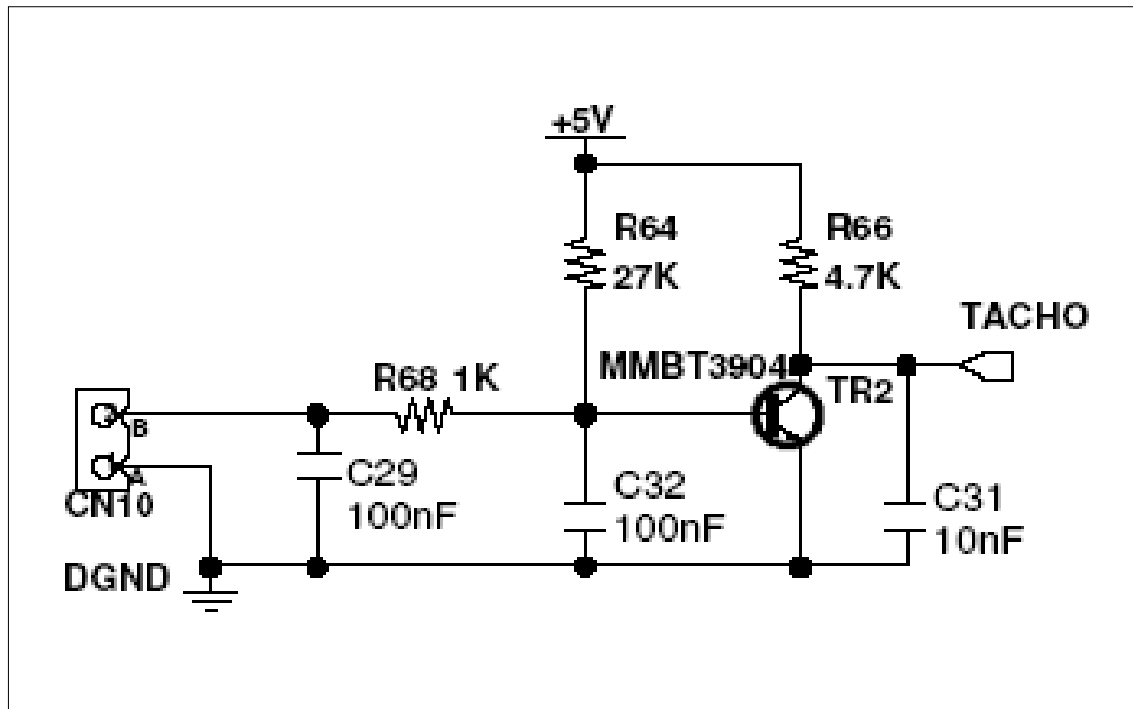


12-6. Motor TACHO Input System



► Function

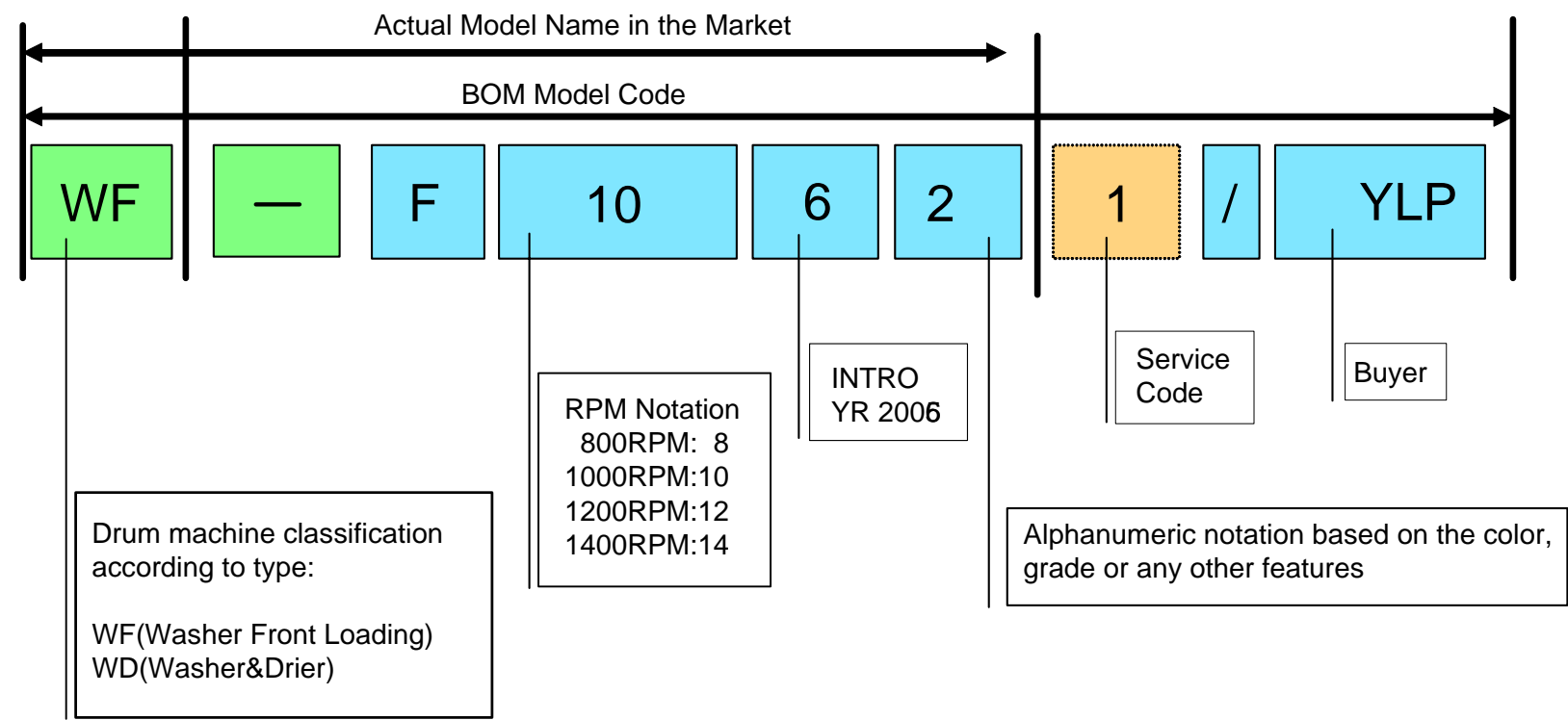
Detects the current RPM of the motor and controls the output.

► Description

- The motor TACHO sensor is connected to CN10 B-pin.
- According to the current RPM of the motor, a square wave is applied to pin 8.
- The square wave that is input to TR2 BASE turns the motor on if high (5V), and turns it off if low (0V). And this operation will be inverted to TACHO NET for a clear wave with no noise.
- The signal is applied to MICOM pin 13. Then MICOM counts the frequency of the input signal and detects the current RPM of the motor.

13. REFERENCE INFORMATION

13-1. MODEL NAME



13-2. TERMINOLOGY

1) ASSY-MAIN PCB (Imbalance Sensor)

- To prevent the laundry from gathering on one side of the tube causing noise and vibration, the washing machine uses an imbalance detection device that evenly disentangles the laundry before the hydrating cycle starts.

2) DOOR-LOCK S/W

- Prevents the door from being opened while a cycle is in progress. For safety purposes, it keeps the door locked even in pause mode or after the washing cycle unless the water level frequency is greater than 24.8Khz (anti-overflow level) or the inside-tube temperature is less than 65°C in the hydrating cycle, and 55°C in the washing cycle.

3) SENSOR-PRESSURE (Anti Over-Flow)

- When the water supplied is more than 2/3 of the tube capacity due to a malfunction of the water supply valve, this device automatically starts water-draining and displays "OVER-FLOW ERROR(E3)" on the LED.

4) THERMISTOR

- Keeps sensing and controlling the temperature inside the tube to keep it below your settings.

5) ASSY-THERMAL FUSE (Anti Over-Heat)

- When the washing heater is overheated due to an error in the thermistor or any other malfunction, the assy-thermal fuse (built in the heater) is automatically activated to disconnect the power for your and the product's safety.

6) ASSY-MAIN PCB (Sensitive Laundry Protection)

- To avoid any damage to sensitive laundry, the tube temperature is detected and "ERROR(E8)" is displayed on the LED for Wool or Lingerie courses when the temperature is over 50°C.

7) THERMOSTAT (Anti Over-Heat)

- When the heater (drier) overheats from an error in the thermistor or any other malfunction, the thermostat (installed on the drying duct) is automatically activated to disconnect the power for your or product's safety

8) CHILD LOCK

- Prevents children from playing with the washing machine.





























9) PRE-WASH

- The machine does a preliminary wash of about 10 minutes prior to the main wash. This is particularly effective for cleaning badly stained laundry.

10) WEIGHT SENSOR

- The tube automatically rotates when no water is supplied to detect the laundry weight so that the proper wash time can be determined. (Standard, Boiling, Economy Boil and Dirt courses and Toweling and Drying cycles)

13-3. FABRIC CARE CHART

	Resistant material		Can be ironed at 100°C max
	Delicate fabric		Do not iron
			Can be dry cleaned using any solvent
			Dry clean with perchloride, lighter fuel, pure alcohol or R113 only
			Dry clean with aviation fuel, pure alcohol or R113 only
			Do not dry clean
	Item may be hand washed		Dry flat
	Dry clean only		Can be hung to dry
	Can be bleached in cold water		Dry on clothes hanger
	Do not bleach		Tumble dry, normal heat
	Can be ironed at 200°C max		Tumble dry, reduced heat
	Can be ironed at 150°C max		Do not tumble dry

13-4. ELECTRICAL WARNINGS

To reduce the risk of fire, electrical shock, and other injuries, keep these safety precautions in mind:

- . Operate the appliance only from the type of power source indicated on the marking label.
If you are not sure of the type of power supplied to your home, consult your appliance dealer or local power company.
- . Use only a grounded or polarized outlet. For your safety, this appliance is equipped with a polarized alternating current line plug having one blade wider than the other.
This plug will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still doesn't fit, contact your electrician to replace your outlet.
- . Protect the power cord. Power supply cords should be routed so that they are unlikely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
- . Do not overload the wall outlet or extension cords. Overloading can result in fire or electric shock.

13-5. Q&A

NO.	Type	Part	Situation	Solution method	Before consulting	cause	Management
1	DRUM WASHER (MODEL NAME :Q1*3*)	appearance part	Being opened & closed bad/Being attached & detached bad	AS rerecommended		In case of a cover not being opened or closed	☞ Door is not opened during washing. For models applied with the boiling or drying the door will not open until the interior temperature decreases to a certain safe level. In other cases you are recommended our engineer's inspection.
2	DRUM WASHER (MODEL NAME :Q1*3*)	appearance part	Label(sticker) being detached	consulting	...for the specification or label of productlead the customer to attach directly or send the engineer to do so. For other advertisement or PR label it may not be attached.		▶ Is it the label for advertisement?Is it the label for standards or attentions? ☞If it is for advertisement it does not matter for the function or the use even though it is not attached since it is not related to the function and use. ☞If it is for st
3	DRUM WASHER (MODEL NAME :Q1*3*)	appearance part	Accessories being not included	AS rerecommended	..Check whether the componets are same as those in the manual. If not contact to SVC.		☞ Sir we really apologize to you for the inconvenience that we made from our product which was bought by you on the basis of your trust in us. We will try our best to clear your inconvenience (by mail).
4	DRUM WASHER (MODEL NAME :Q1*3*)	appearance part	Color coming off/rust	AS rerecommended		It may be occurred when the machine is installed in the humid place which causes the rust or discoloring.	☞ Being rust or being discolored during the use is normal and natural according to the times and its use.(except the case occurred at the innitial purchase). The replacement of case will be charged and in order to prevent the corrosion change the location
5	DRUM WASHER (MODEL NAME :Q1*3*)	display part	Display part being not lit up/ not being cleared	AS rerecommended		It is a symptom occurred when it is installed in the humid place or the water is entered its inside.	☞ Dry the front operation part a little with the drier and you are recommended our engineer's inspection if it does not work even after doing so.
6	DRUM WASHER (MODEL NAME :Q1*3*)	display part	Character being broken on display	AS rerecommended			☞ In this case you are recommended our engineer's inspection.
7	DRUM WASHER (MODEL NAME :Q1*3*)	display part	Display not being cleared	AS rerecommended			☞ In this case you are recommended our engineer's inspection.
8	DRUM WASHER (MODEL NAME :Q1*3*)	display part	Display malfunction	AS rerecommended			☞ In this case you are recommended our engineer's inspection.
9	DRUM WASHER (MODEL NAME :Q1*3*)	door related	Door sensor not being detected	Others			☞ In this case you are recommended our engineer's inspection.
10	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	A noise being occurred intermittently during washing	General consulting		Please check whether a washer is installed and used with removing the safety device positioned at its rear.	☞ You are recommended our engineer's inspection if the safety device is removed and there is no foreign material such a coin or pin inside.
11	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	A noise being occurred intermittently during dehydrating	General consulting	..Make a comment for the customer to prepare the memorandum since he can not be famaliar with the contents completely.	Did you remove the washer safety device?It may be occurred when the laundry is leaned to one direction or the machine is not aligned horizontally or the foreign material is entered.	☞ Please check whether the machine-installed place is not leaned to one direction and then level it and then check whetehr there is no foreign material inside such a the coin or pin. If the noise occurs without any problem in the machine a check is requir
12	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	A noise to touch other parts	General consulting	..Make a comment for the customer to prepare the memorandum since he can not be famaliar with the contents completely.	It may be occurred when the laundry is leaned to one direction or the machine is not aligned horizontally or the foreign material is entered.	☞ Check whether the machine-installed place is not leaned to one direction and then align it horizontally and then check whetehr there is no foreign material inside such as the coin or pin. If the noise occurs without any problem in the machine. Inspectio
13	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	A noise of Motor	AS rerecommended	Noise during water darainage -roaring sound		You are rerecommended our engineer's inspection because there may be a problem on the components.
14	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	A noise being occurred during water supply	General consulting		The foreign material may be inserted inside the water supply hose or the pressure of water may be too high or too weak.	▶ In case that there is a noise during water supply open or close the tap little by little to adjust the water pressure to the proper level.If a noise occurs continuously disconnect the water supply hose connected to the machine and check whether there

15	DRUM WASHER (MODEL NAME :Q1*3*)	a noise	Water leakage being occurred at water supply connection	상답		Lead to reassembe when water supply hose is departed.	Disconnect the water supply hose and reassemble.
16	DRUM WASHER (MODEL NAME :Q1*3*)	water leakage related	Water being overflowed from detergent box(front loading washing machine)	General consulting		It may be used with so much detergent or left alone for a long time without use.	☞ If the detergent input is impossible insert a proper amount of detergent inot the detergent box and if it is clogged take out the box forward and clean it.
17	DRUM WASHER (MODEL NAME :Q1*3*)	water leakage related	Water bein leaked to floor	General consulting		It is a symtom occurred when the hose of bottom not outside is departed or torn off.	▶ Check the machine for the water drainage route under the machine. If the water drains through the other side not the drainage side check by the engineers.
18	DRUM WASHER (MODEL NAME :Q1*3*)	water leakage related	water being leaked at water supply connection part	General consulting		It may be occurred when it is pushed out due to the water pressure or it has bad connection.	▶ Disconnect the coupler and reassemble it. It had better to assemble by yourself because the engineer's visit for service will be additionally charged in case of difficut installation by customer. In case of the damage or missing of coupler you can buy i
19	DRUM WASHER (MODEL NAME :Q1*3*)	water leakage related	Water leakage being occurred during water supply	General consulting		The leakage during water supply can occur possibly due to the bad connection of tap and coupler and water supply hose.	☞ First re-assemble the coupler and then check by the engineer if it continues.
20	DRUM WASHER (MODEL NAME :Q1*3*)	water leakage related	Natural drain(continually)/water not filling tub	General consulting		It can be appeared at the drum washing machine of which the drain hose is located at the bottom.	▶ For the machine having the drain hose at the below of that raise the drain hose up and fix it to the fixer at 2/3 point of the machine. If the hose is used at the floor all water supplied will drain fully.
21	DRUM WASHER (MODEL NAME :Q1*3*)	smell/smoke	Burning smell	General consulting		For the initial use of product It may appear during the operaiton with coupling each other but it carefully watched by the customers who are using more than for 3 years.	▶ Is that a newly bought one?☞ A smell is disappeared after 4~5 days passed in case of newly bought one but it depends upon the frequency of use.Be sure to use it without worry. If is not disappeared contact a engineer
22	DRUM WASHER (MODEL NAME :Q1*3*)	smell/smoke	Burning/smoke	General consulting	Pull out the plug in case of smoke or fire.	It can be shown in case that the interior components of the productsdo not work normally.	☞ In this case you are recommended our engineer's inspection.
23	DRUM WASHER (MODEL NAME :Q1*3*)	power soruce related	Power not supplied	AS rerecommended		It can be shown in case that the power cord is not inserted or electricity is blacked out or the interior components of the productsdo not work properly.	☞ Take out the power cord and put it in again and check whether the power for the other products is on. If it is not even after that you are recommended our engineer's inspection.
24	DRUM WASHER (MODEL NAME :Q1*3*)	power soruce related	Current leakage breaker being dropped	General consulting		It may be occurred when the humidity is full inside the machine.	☞ In this case you are recommended our engineer's inspection.
25	DRUM WASHER (MODEL NAME :Q1*3*)	power soruce related	Autmatic stop during operation	AS rerecommended		It may be occurred when there are too much laundry.	▶Reduce the contents to be washed. If it continues you are recommended our engineer's inspection.
26	DRUM WASHER (MODEL NAME :Q1*3*)	power soruce related	Being power off frequently	AS rerecommended		It may be occurred in case of the bad contact of button.	☞ In this case you are recommended our engineer's inspection.
27	DRUM WASHER (MODEL NAME :Q1*3*)	operation related	Button being not operated	Consulting		It may be occurred when the accumualtion of foreign material or moisture ingress into the button.	☞ In this case you are recommended our engineer's inspection.
28	DRUM WASHER (MODEL NAME :Q1*3*)	operation related	Being not rotating during washing	AS rerecommended		It may be occurred when the water supply not completed or the cover not closed completely or the accessories of products have a abnormallity.	☞ First check whether the tap is open and the cover closed and then request an engineer's inspection.

29	DRUM WASHER (MODEL NAME :Q1*3*)	4E :front loading washing machine error	Water level sensor inferiority	AS rerecommended		This may be happened whenthere is any foreign material inside the water supply and drain valve or the interior components of the prodcuts do not operate normally.☉ Water level sensor or mother rotation. It may be occurred when the drain hose is go over the threshold or water is not drained. It may eb occurred when the The filter of pump-drain moder is fulled with dregs,	☞ Disconnect the water supply hose and check whether there is a foreign material inserted in it. And then request an engineer's inspection.
30	DRUM WASHER (MODEL NAME :Q1*3*)	5E :front loading washing machine error	Water being not drained	AS rerecommended			Check the installation of drain hose and then if there is no trouble request an engineer's inspection. Clean the filter of pump-drain motor. Guided by instruction-manual.
31	DRUM WASHER (MODEL NAME :Q1*3*)	OE :front loading washing machine error	3E OVER-FLOW	General consulting		It may be a case that the supply water level is not detected.	☞ After Draining the water power off and on and operate again. If it dose not workafter so doing request an engineer's inspection.
32	DRUM WASHER (MODEL NAME :Q1*3*)	UE :front loading washing machine error	4E UNBALANCE ERR	General consulting		It may be happened when the floor of the installed palce is not flat or the clothes are entangled.	Level the machine or arrange the entangled clothes. If it does not worked even after so doing request an engineer's inspection.
33	DRUM WASHER (MODEL NAME :Q1*3*)	HE1 : front loading washing machine error	E5 WATER HEATER ERR	General consulting		It may happen when the boiling temperatuer rised rapidly. (It is also because too much detergent are used.)	Use the proper amount of detergent and power off the machine till the temperaure is cooled down. And if it does not work even after so doing request an engineer's inspection.
34	DRUM WASHER (MODEL NAME :Q1*3*)	HE : front loading washing machine error	E6 WATER HEATER ERR	AS rerecommended		It may appear when it dose not reach to the set temperature within a certain time.	☞ In this case you are recommended our engineer's inspection.
35	DRUM WASHER (MODEL NAME :Q1*3*)	1E :front loading washing machine error	E7 Water level sensor ERR	AS rerecommended		It may happen when there is a trouble in air hose or water level sensor.	☞ In this case you are recommended our engineer's inspection.
36	DRUM WASHER (MODEL NAME :Q1*3*)	cE : front loading washing machine error	E8 Abnormal water temperature ERR	AS rerecommended		Check whether the hose for hot and cold water is connected to the water supply hole.	☞ Check whether the cold water is supplied through the cold water supply hole and if it doesn't work after so doing request an engineer's inspection.
37	DRUM WASHER (MODEL NAME :Q1*3*)	8E : front loading washing machine error	E9 Water leakage ERR	AS rerecommended		Check whether there is foreign material inserted in the drain filter.	☞ In this case you are recommended our engineer's inspection.
38	DRUM WASHER (MODEL NAME :Q1*3*)	tE :front loading washing machine error	E9 Water leakage ERR	AS rerecommended		Check whether there is foreign material inserted in the drain filter.	☞ In this case you are recommended our engineer's inspection.
39	DRUM WASHER (MODEL NAME :Q1*3*)	11E : front loading washing machine error	E9 Water leakage ERR	AS rerecommended		Check whether there is foreign material inserted in the drain filter.	☞ In this case you are recommended our engineer's inspection.
40	DRUM WASHER (MODEL NAME :Q1*3*)	door : front loading washing machine error	Ed:Door being not opened	AS rerecommended		It may appear when the the door is opened a certain minutes after the completion of washing or the electricity is interrupted in running. Check of Bad contact of 1st door opening sensor---- *check of the bending of 2nd door switch*Do not open the door	▶There is a cover dettachable at the front bottom. Pull out the cover to find the handle to open at the right side. Pull out the handle to open the door.
41	DRUM WASHER (MODEL NAME :Q1*3*)	front loading washing machine error	E6:Overheating error	AS rerecommended		It may appear when the temperarture rises rapidly.	☞ In this case you are recommended our engineer's inspection.
42	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Cold water being not supplied	General consulting			☞ Check first whether the water supply is cut and also check whether the foreign material is inserted. If the foreign material is inserted turn the connection hose of machine to the left to disconnect and to find the strainer to trap the foreign material.

43	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Water being supplied little	General consulting		It may appear when the tap is not opened properly or there is a foreign material inside.	▶ Is it checked whether the tap is fully open or there is a foreign material inserted?☞ First check whether the tap is fully open. And there is no fault turn the hose of the machine to the left to take out strainer in the hole of water entrance. Clean i
44	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Detergent being remained	General consulting		It may appear when the long-term used detergent is not well soluted or when the water temperature is low during winter.	☞ Sove the detergent wth the hot water and put it inot the washing box. If it is not solved even with the normal detergent request an engineer's inspection.
45	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Water being stopped during the coming in	General consulting		It may appear when the water is cut or the water supply hole is clogged.	▶ Is it checked whether the water is cut or there is a foreign material inserted in the water supply hole? ☞First check whether the water is cut and if there is a blackout push the power button on. Otherwise turn the machine hose to the left to take out t
46	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Clothes being damaged	General consulting			☞ In this case you are recommended our engineer's inspection.
47	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	One direction rotation				☞ In this case you are recommended our engineer's inspection.
48	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Rotation being not worked after it sounds with buzz				☞ In this case you are recommended our engineer's inspection.
49	DRUM WASHER (MODEL NAME :Q1*3*)	water supply related	Water being not supplied in winter			It may appear when the tap and the water supply hose are frozen if it is used at the veranda in the winter.	☞ Make the water supply hole warm and defreeze it with wet towel.
50	DRUM WASHER (MODEL NAME :Q1*3*)	rinsing related	Rinse being not put in tub	General consulting		It may appear when the rinse agent remains to clog .	▶ Did the rinse agent drain immediately or part to put the rinse is clogged after putting the rinse agent? ☞ The rinse agent does not drain only when putting it up to the reamer shaped cap which is in the box of rinse agent. If clogged take out the cap and
51	DRUM WASHER (MODEL NAME :Q1*3*)	rinsing related	Bubble being remained	General consulting		It may appear when there is too much or too little laundry.	☞ If there is too much laundry or vinyl clothes the detergent is not solved. Reduce the laundry or take out the vinyl clothes separately.
52	DRUM WASHER (MODEL NAME :Q1*3*)	water drain related	Water being not drained	General consulting			☞ In this case you are recommended our engineer's inspection.
53	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Dehydrating time being increased again	General consulting	..Make a comment for the customer to prepare the memorandum since he can not be famaliar with the contents completely.	The vibration and noise occur when the horizon is broken or the laundry are leaned to one direction. So It may appear when the safety device is operating to prevent it.	☞ If there is too little laundry less than 1KG or the clothes in the washing tub are severely entangled it appears.
54	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Washer being worked for four hours without stopping	Specific consulting		If the washing machine consumes hours more than necessary check whether the water supply is too small. And note that that the boling and the drying course takes much time.	☞ Check whether the water supply time is too much delayed due to the low pressure of water or boiling or drying is selected. In other cases request an engineer's inspection.
55	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Not dehydrating with the motor being purring after water is drained	General consulting		The power cord for motor may be cut or the gear shaft hardened.	☞ In this case you are recommended our engineer's inspection.
56	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Being stopped with thuds during dehydration	AS rerecommended	..Make a comment for the customer to prepare the memorandum since he can not be famaliar with the contents completely.	It may appear when the horizon is broken or there are too much clothes to wash.	☞ check the level of a washing machine.
57	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Not being squeezed well	General consulting		It may appear when there are clothes like vinyl.	▶ Check whether the vinyl clothes are attached on to the washing tub so as to prevent the immediate the outgoing of the moisture to the outside. Otherwise request an engineer's inspection.

58	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Water being in at purchasing	AS rerecommended			☞ There may be remaining water since the products is delivered thorough the final products test. It is normal and you can use it without fear.
59	DRUM WASHER (MODEL NAME :Q1*3*)	dehydrating related	Dehydration being not worked at all	General consulting		It may appear when the interior components do not work properly.	☞ In this case you are recommended our engineer's inspection.
60	DRUM WASHER (MODEL NAME :Q1*3*)	others	Action for water being freeze in winter	AS rerecommended		It may appear when the machine is used at the outside or the veranda.	☞ pour the warm water on to the tap to take out the water supply hose and put the hose in to the water of approximately 50 degree. And then pour the water in to the washing box to check whether the drain is well done.
61	DRUM WASHER (MODEL NAME :Q1*3*)	others	being clogged/foreign materials	General consultingthe drainage hose clogged or foreign material inside		☞ After loosening the water supply hose and check the inlet of water supply whether there is foreign material inserted such a soil dust.
62	DRUM WASHER (MODEL NAME :Q1*3*)	installation / connection	Consulting for installation of front loading washing machine	General consulting			☞ The drum washing machine is leveled after removing the safety device at the rear of drum. And for a removing the safety device refer to accessories and user's manual.
63	DRUM WASHER (MODEL NAME :Q1*3*)	installation / connection	Level check	Specific consulting			☞ Level it by use of a leveller(with a coin weight) at the front.
64	DRUM WASHER (MODEL NAME :Q1*3*)	installation / connection	Removal/house moving reinstallation	Specific consulting			☞ It is possible to remove and install in the house but when moving to the other house and installing it assemble the safety device at the back while moving and remove it after moving. If the drum is shaken during the moving it causes a serious damage.
65	DRUM WASHER (MODEL NAME :Q1*3*)	washing related	Slow speed of washing rotation	General consulting		It may appear when there is too much laundry.	▶ Check whether the laundry is input over the proper amount. Otherwise request an engineer's inspection.
66	DRUM WASHER (MODEL NAME :Q1*3*)	washing related	Clothes being damaged	General consulting		Check whether there is foreign material inside (coin nail and other sharp material) and so it may appear due to the zipper or button of jeans.	☞ Check whether there is foreign material in the washing tub. In case of dehydrating the weak material clothes it shall be inserted in the net during dehydrating. Any other cleaning agent (decoloration agent) shall not be used except the detergent and rins



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Printed in Korea
Code No. : DC68-02658A