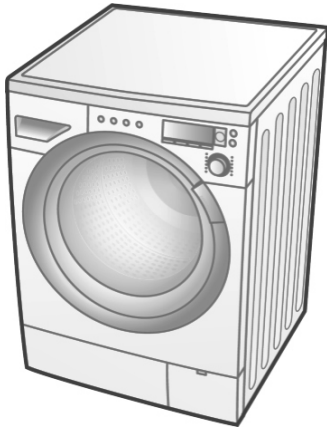# Service Manual

Drum Type Washing Machine

NA-16VX1
NA-16VG1
NA-14VA1

Product Colour :White

Destination :Germany, United Kingdom, France, Spain, Poland, Singapore, Malaysia, Vietnam, United Arab Emirates, Oman, Kuwait, Qatar, HongKong, Thailand, Iran, Australia, New Zealand, Italy ,Czech Holland, Belgium,Sweden,Norway,Denmark,Hungary, Romania,Russia

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safet y. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the orig inal design without permission of manufacturer.

CONTENTS

Panasonic

1 SPECIFICATIONS

| Model No.		NA-16VX1	NA-16VG1	NA-14VA1
Power source		AC220V-240V/50Hz	AC220V-240V/50Hz	AC220V-240V/50Hz
Product weight		85kg	85kg	85kg
Dimensions(W*D*H)(mm)		596*625*845	596*625*845	596*625*845
Laundry capacity		7.0kg	7.0kg	7.0kg
Body Colour		White	White	White
Operation Panel		Dial+LCD	Dial+LED	Dial+LED
Drum(Wash) r/min.		37~53r/min.	37~53r/min.	37~53r/min.
Spin r/min.		Max:1600r/min.	Max:1600r/min.	Max:1400r/min.
Washing Performance	Variable Rotation Control	●	●	●
	Wide Angle Water Supply Shower	●	●	●
Progress Indicator		●	—	—
Selectable	Preset timer	1-24h	1-24h	1-24h
	Spin Speed	9 level	4 level	4 level
	Temperature	8 level	5 level	5 level
Washing Program		12	12	12
Energy Consumption		Below 1.19kWh	Below 1.19kWh	Below 1.19kWh
Noise level of the moter		Super quiet by Inverter-Controlled brushless Motor	Super quiet by Inverter-Controlled brushless Motor	Super quiet by Inverter-Controlled brushless Motor
Easy to take-out laundry		Tilted 10° Drum	Tilted 10° Drum	Tilted 10° Drum
Door Open		One Push Button	One Push Button	One Push Button
Maximum power consumption		2075W-2250W	2075W-2250W	2075W-2250W
Heating power consumption		2000W/230V	2000W/230V	2000W/230V
Pressure of tap water		0.03-1Mpa	0.03-1Mpa	0.03-1Mpa
Course select		Quiet，Quick60，Colours Rapid15，Duvet，Tub Clean，Cotton，Cotton Eco Easy care，Wool/Silk Delicates，Shirts	Quiet，Quick60，Colours Rapid15，Duvet，Tub Clean，Cotton，Cotton Eco Easy care，Wool/Silk Delicates，Shirts	Quiet，Quick60，Colours Rapid15，Duvet，Tub Clean，Cotton，Cotton Eco Easy care，Wool/Silk Delicates，Shirts
Temperature		Cold，30℃，40℃，60℃，90℃	Cold，30℃，40℃，60℃，90℃	Cold，30℃，40℃，60℃，90℃
Buzzer		End of programme buzzer Beeper alarm	End of programme buzzer Beeper alarm	End of programme buzzer Beeper alarm
Error dislay		U appears: 5 items H appears: 18 items	U appears: 5 items H appears: 18 items	U appears: 5 items H appears: 18 items
Accessories		Cover cap，Spanner，Elbow	Cover cap，Spanner，Elbow	Cover cap，Spanner，Elbow

2 PRODUCT INFORMATION

2-1 New Drum washing machine "Tilted Drum"

The drum shall be tilted to save water and increase easy operation.
Compare to the Horizontal dram type, Tilted drum can save water.
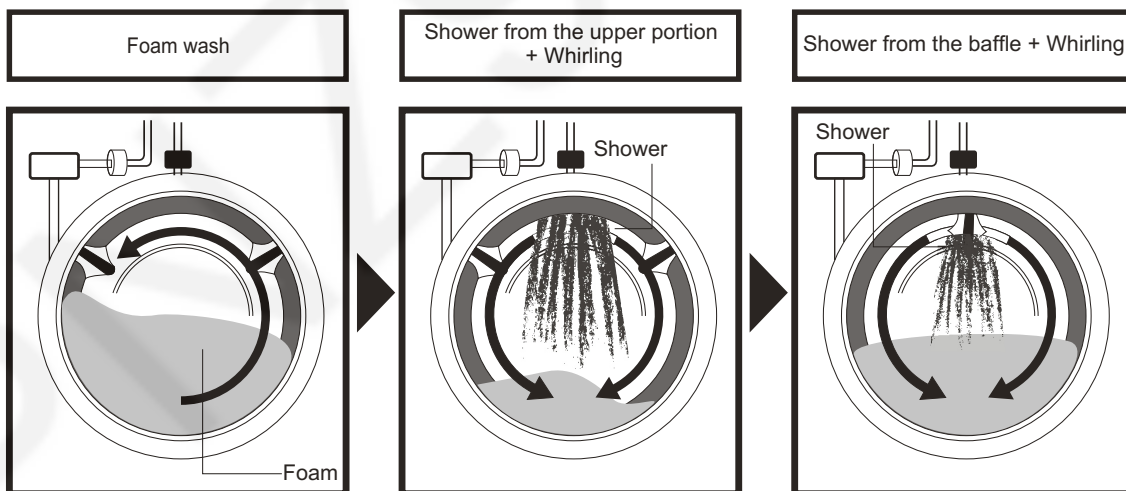When put laundry into the drum and take out laundry easily from the drum after washing. It is called "Universal design".
And also, the door can be opened easily by pressing the door button.

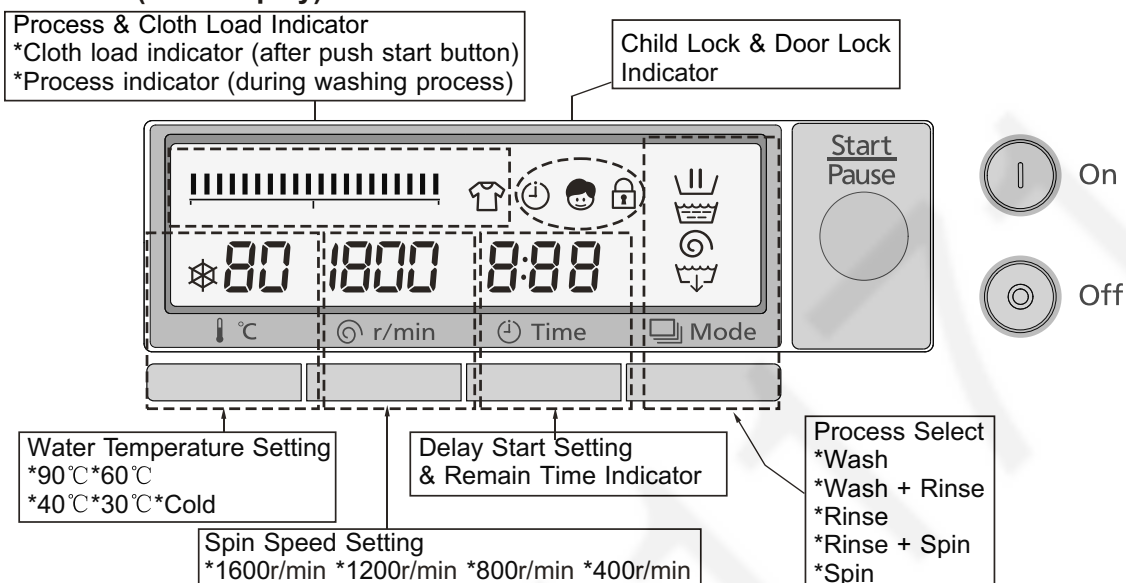【Horizontal drum type】   10°   【Tilted drum】
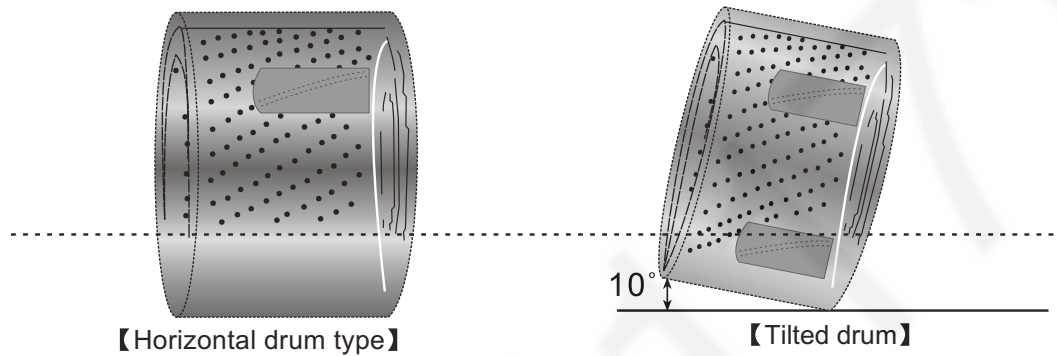
2-2 Produce high washability

Condensed foam shall be produced at bottom portion of the outer tub unit when the drum rotating at the initial stage of the wash cycle. This condensed foam shall be taken soil from the laundry very effecti vely. Splashed water shall be showered from the upper portion of the oute tub, and also dissolved detergent showered from three baffles on the drum.
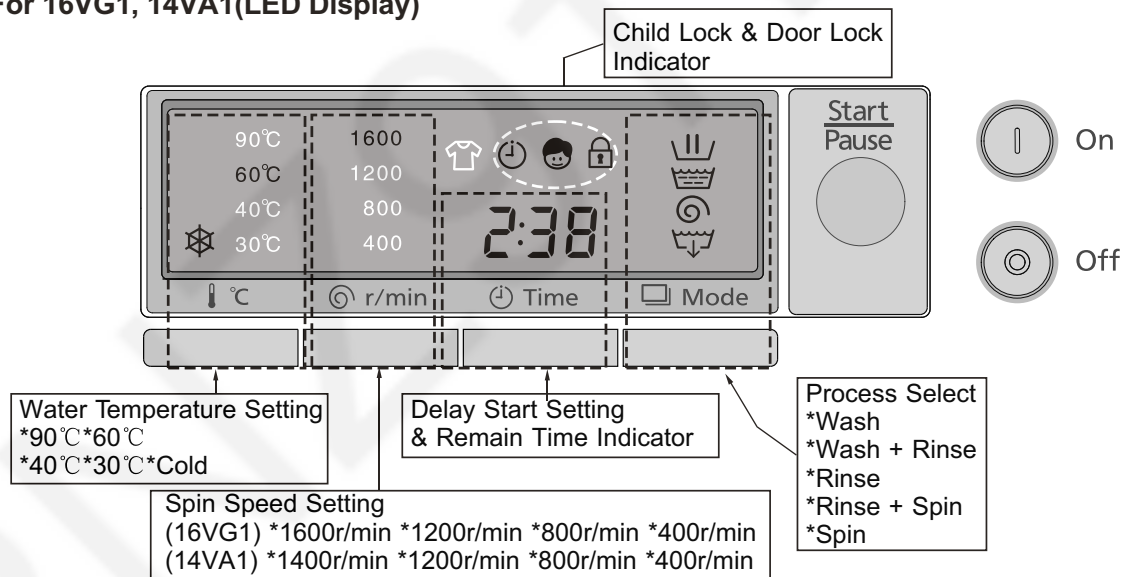
Foam wash	Shower from the upper portion + Whirling	Shower from the baffle + Whirling
Foam	Shower	Shower

2-3 Model

• For 16VX1(LCD Display)

Process & Cloth Load Indicator
*Cloth load indicator (after push start button)
*Process indicator (during washing process)

Child Lock & Door Lock
Indicator

Start
Pause

On

Off

❄80 |800 8:88

℃   🔘 r/min   ⏱ Time   🖵 Mode

Water Temperature Setting
*90℃*60℃
*40℃*30℃*Cold

Delay Start Setting
& Remain Time Indicator

Process Select
*Wash
*Wash + Rinse
*Rinse
*Rinse + Spin
*Spin

Spin Speed Setting
*1600r/min *1200r/min *800r/min *400r/min

• For 16VG1, 14VA1(LED Display)

Child Lock & Door Lock
Indicator

Start
Pause

On

Off

90℃ 1600
60℃ 1200
40℃ 800
❄30℃ 400

2:38

℃   🔘 r/min   ⏱ Time   🖵 Mode

Water Temperature Setting
*90℃*60℃
*40℃*30℃*Cold

Delay Start Setting
& Remain Time Indicator

Process Select
*Wash
*Wash + Rinse
*Rinse
*Rinse + Spin
*Spin

Spin Speed Setting
(16VG1) *1600r/min *1200r/min *800r/min *400r/min
(14VA1) *1400r/min *1200r/min *800r/min *400r/min

2-4 How to turn the "end of programme" buzzer on or off

1 Press the START and power ON buttons at the same time,

Start
Pause

(I) On

2 and keep pressing the START button for at least three seconds.

Start
Pause
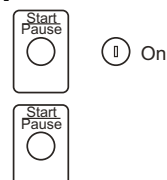
You'll hear the buzzer sound to confirm the buzzer is switched on or off.
●To enable the buzzer to sound, repeat step 1 and 2.

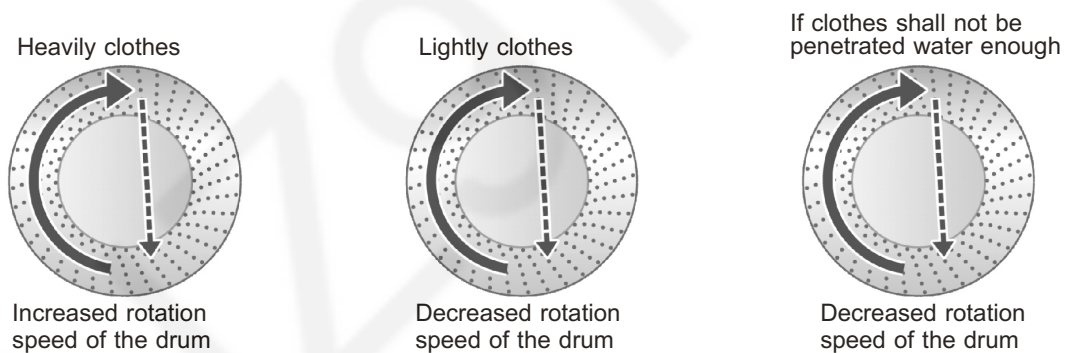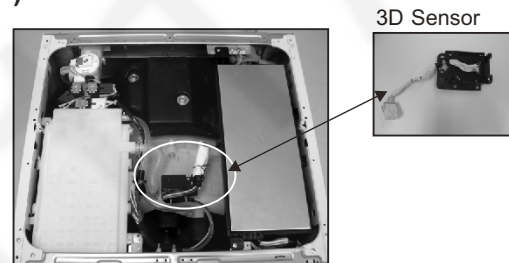## 2-5 Smart Beat Wash by variable rotation control

・**Previous washing method**

The drum rotates at a constant speed. Therefore, due to different fabrics and weights of clothing and insufficient penetration of water, dirt can not be beaten out by washing.

Heavily clothes   Lightly clothes

If clothes shall not be penetrated water enough

45 r/min   45 r/min   45 r/min
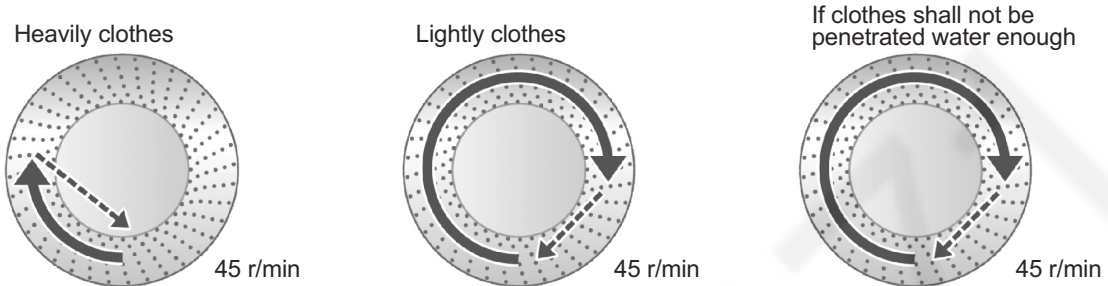
・**New washing method (Variable rotation control)**

The laundry's movement inside the drum shall be detected by 3D sensor, and the drum rotates most suitable speed to realize proper beat washing.

3D Sensor

Heavily clothes   Lightly clothes

If clothes shall not be penetrated water enough

Increased rotation speed of the drum

Decreased rotation speed of the drum

Decreased rotation speed of the drum

2-6 Wide angle water supply shower

New method (Conventional Supply + Wide-Angle Water Supply Shower)

Benefit of Wide-Angle Water Supply Shower

Washing Process

Quick Water Penetration Effect

High Beating Wash and Save The Time

Rinsing Process

Water Supply Shower During Rinsing Process

Fine Rinsing Effect and Save The Time

2-7 Safety

・Leak-proof System

This system is designed to prevent water leaks from the washing machine, and includes the following components:

1) Leak sensor

Located on the base plate of the machine, this sensor detects leaks and stops the machine.If this happens, an error display starting with H (eg H 01) will appear.

2) Hose with water–supply valve (certain types of machine only)

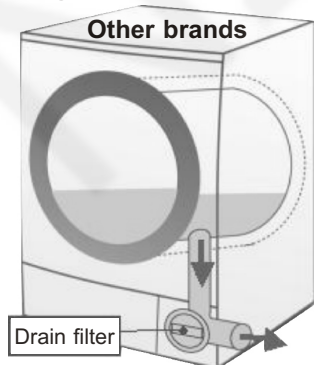If this type of hose becomes damaged and leaks, the valve closes automatically and stops the water supply.

3) Overflow detection

If water collects in the machine above a certain level, this function prevents the machine overflowing by stopping the water supply and activating the drain pump.

③Water Hose Valve

If the water hose is damaged, detect water leakage and stop water supply at the tap side.

Interlocking

Water Leakage Sensor

①Water Supply Valve

Detect water leakage, stop water supply at product side.

②Filter Valve

Detect the opening and closing condition of drain filter, prevent coming out the water.

	Premium NA-16VX1	Deluxe NA-16VG1	Standard NA-14VA1
①Water Supply Valve	Yes	Yes	Yes
②Filter Valve	Yes	Yes	Yes
③Water Hose Valve	Euro Only	No (Germany/France: Yes)	No (Germany: Yes)

2-8 Switching Sensor

Other brands

Drain filter

When "Drain filter" is opened during the operation, water in the drum comes out.

NA-16VX1,16VG1,14VA1

Drain Filter valve

Interlocking

Drain filter with "Switching Sensor"
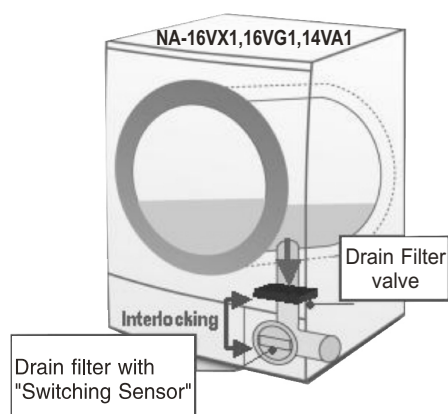
When "Drain filter" is opened ,Filter valve closes automatically by sensing the filter condition in order prevent from coming water.

2-9 How to lock or unlock the door

The door is automatically locked while any programme is running. 🔒 sign is shown while the door is locked.

* The door normally clicks when it locks or unlocks.

Caution

· Switching the machine off at the plug doesn't unlock the door.
· If the door is locked and you switch the machine off–or if there's a power cut–it will stay locked
  until you turn it back on again.
* This is different from the child safety lock.

To unlock the door while a programme is running

During operation

Start Pause ◯ Press

After the drum stops spinning, the door will automatically unlock and will be signaled with a clicking sound. This can take about a minute.
* If you have to unlock the door mid-programme, try to make sure you don't flood the floor with water from the drum.

2-10 How to set and reset the child safety lock

The child safety lock prevents children climbing into the washing machine drum and getting trapped.
It keeps the door closed and locked even when the machine is not in use.
It also locks the control buttons.
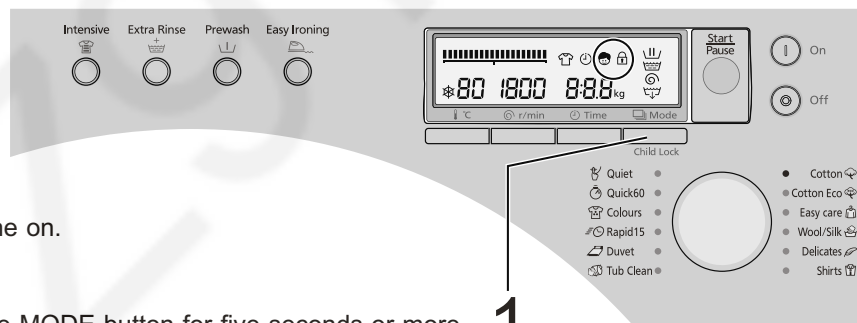
1 Switch the machine on.

2 Press and hold the MODE button for five seconds or more.

(The sign 😊 🔒 lights to confirm the child safety lock is active.)

· Press the button in the same way to unlock. (The sign goes off.)

2-11 Release the door lock for servicing

Incase the locked by breaker cut off or power outage.
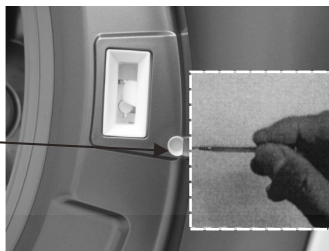
■ Push the small hole between the door and body B by pin, and press the push button to open the door.

3 KNOW THE WASHING MACHINE

3-1 Component Name

Detergent drawer

Water-supply hose

Water-supply valve
(applicable products only)

Door opening button
(Push door opening button and open with the right end of a door)

Mains lead/ Mains plug
Do not fold the mains lead when the washing machine is running.

Door

Drum (washing/ spin-drying tub)

Drain filter cover

Water-drain hose

Adjustable stands

Door seal
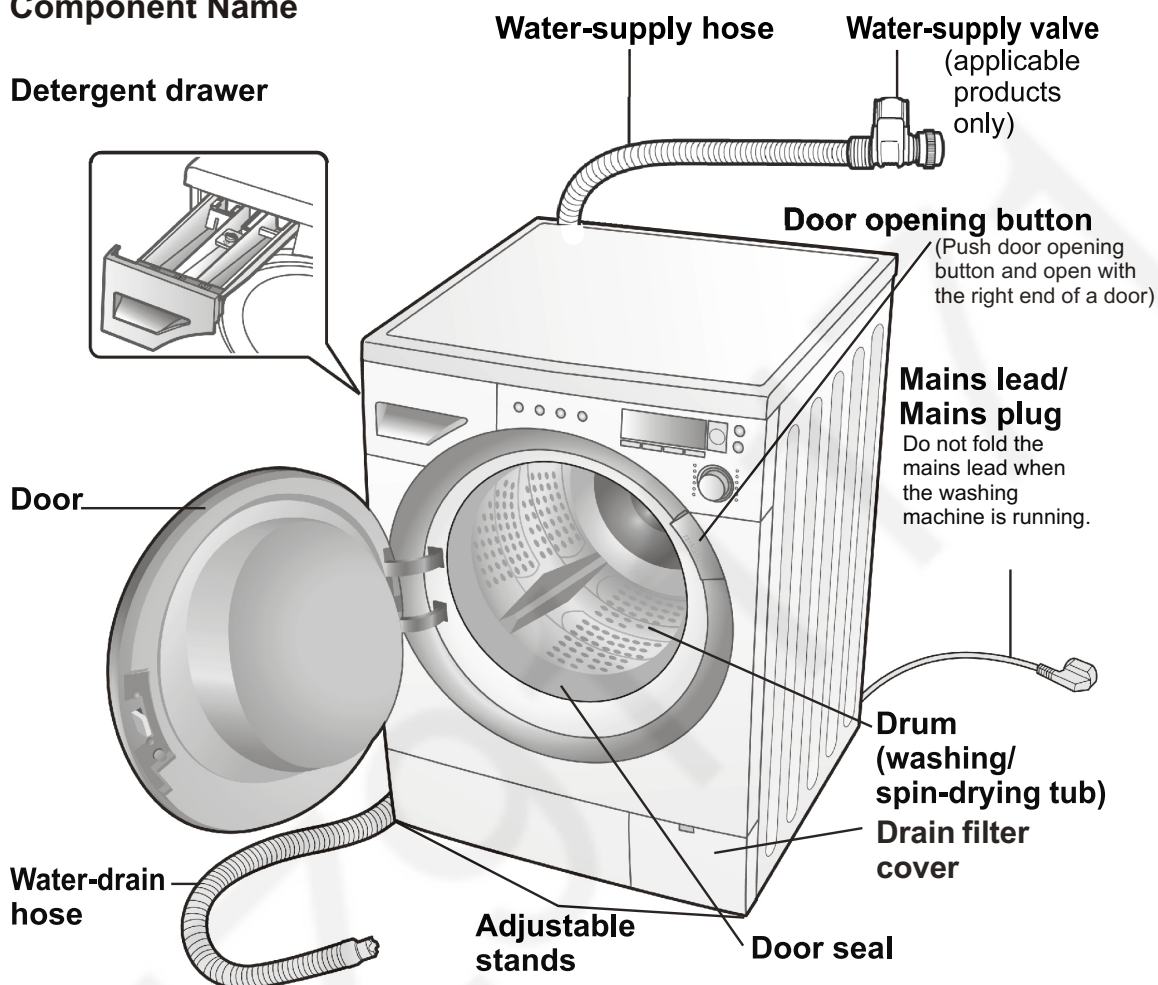
Check before using

1 Secure the Water-supply hose.

2 Open the tap.

〔Caution〕

After finishing, turn the tap off.

3 Connect the power.

4 Make sure the drain hose flows to a drain.
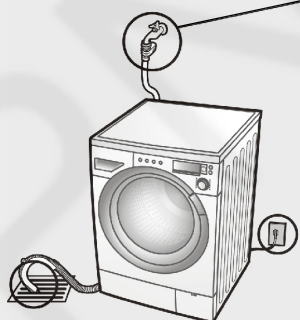
■Accessories

● **Cover cap (x4)**

● **Spanner**
(End A is for adjusting the stand
End B is for the anchor bolts)

● **Elbow**
For fixing the Water-drain hose

4 MOVING AND INSTALLING

4-1 Carrying the washing machine

Two or more people must carry the washing machine.
Start by tilting the machine backwards. One person should stand behind it, holding the rear of the top panel. The other person should grip the bottom stands at the front.
・Don't touch the door opening button while holding.
・Make sure of the needed accessories for installation.
・Entrust the installation of the product to our dealer or service agent.

4-2 Removing the anchor bolts

Four anchor bolts keep the interior of the machine in place while it's being moved. They need to be removed before installation, using the spanner supplied and following the instructions below.

Don't run the machine without removing the bolts, as this can cause excessive vibration.
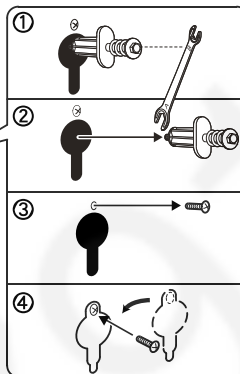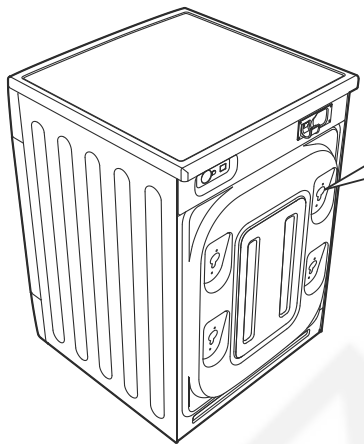
●**To remove the anchor bolts:**
① Use the 'B' end of the spanner to loosen the four bolts.
②Pull the bolts out horizontally.
③Remove the screws which are alongside the bolt holes.
④Push the four cover caps (included with your accessories) onto the respective bolt holes, and secure them with the screws you removed in step③.

You'll need the anchor bolts again if you move the machine, so make sure you keep them safe. And if the machine passes to someone else, make sure you give them the anchor bolts.

4-3 Moving the washing machine from one location to another

Make sure to fix the anchor bolts for transportation to the machine.
Before you move the washing machine
・Shut the tap and run the machine to drain the water. Drain any remaining water from the pump hose.
・Depressurise the water-supply hose and remove it.
・Disconnect the power cable.
・Attach the anchor bolts .

4-4 Attach the anchor bolts

① Unscrew and remove the four cover caps.
② Pull the bolts out, so their tips are level with the tips of the sleeves.
(Ask someone else to hold the upper surface of the drum and pull it forward.)
③ Insert the transportation guards 1, 2, 3 and 4.
④ Tighten each bolt.
⑤ Insert the washer shaft into the thread screw groove located in the rear panel.
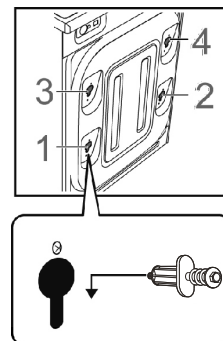
4-5 The right place for washing machine

· Make sure there's enough space for the machine—see the dimensions on the back cover.
· Install the machine on a flat, stable surface, to avoid excessive vibration and noise.

● Don't install the machine in direct sunlight or in a place where temperatures reach freezing.
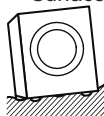
✕ Sloping
Surface

✕ Unstable
Surface
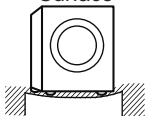
✕ Bumpy
Surface

Other things to avoid:

· That the opeing of base must not be obstructed by a carpet.
· Don't let metallic part of the machine touch other metal surfaces, such as furniture, sinks or other appliances.

4-6 Installing a built-in washing machine

· You need a space at least 60cm wide and extra 3mm space from the top of the washing machine.
· The counter above the washing machine must be firmly fixed to the adjoining cupboards.
· Be sure to connect the mains plug to an independent household dedicated mains socket, and also to the easily disconnectable position.
· Ask a sales dealer or service agent to install a metal cover on the washing machine (sold separately), instead of the standard cover panel.
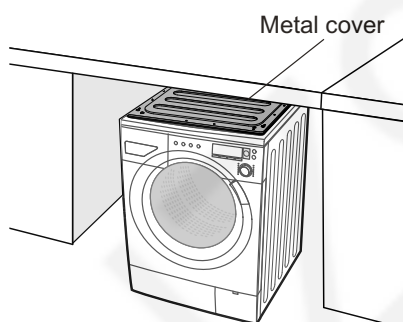
Metal cover

■**Separately sold accessories**

· Metal cover
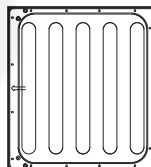
(AXW4595-7FH0)

4-7 Washing machine dimensions in millimetres

240

845

582
596

516
594
625

38
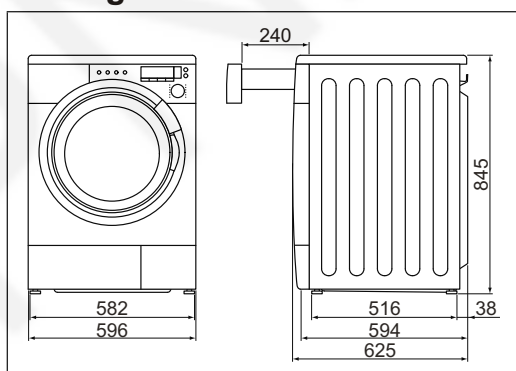
4-8 Hose and Cable Lengths

How to connect for the left side   How to connect for the right side

~ 105 cm   ~ 135 cm

~ 130 cm   ~ 90 cm

0 – max. 100 cm

~ 100 cm   ~ 140 cm
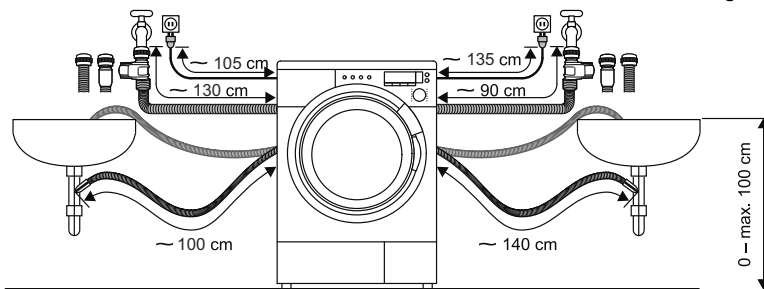
4-9 Levelling the machine

- Using a level facilitates the adjustment.
- When adjusting the machine to make it level, ensure all four stands are supporting it:
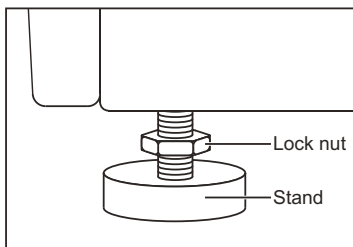
Lock nut

Stand

1 On each stand, loosen the lock nut by turning it clockwise using the A end of the spanner supplied.

2 Adjust all four stands in this way.

3 Use a spirit level to ensure the machine is standing correctly.

4 Tighten each lock nut by turning it anti-clockwise (towards the machine body), again using the A end of the spanner supplied.

A   B
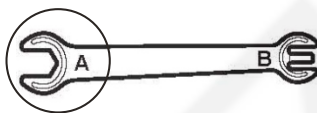
⚠ Ensure all four lock nuts are tightened securely. Check the stands are still bolted to the machine - if they're unbolted, the machine will move around.

· **To adjust the stands, use A side of the included spanner.**

4-10 Water-supply hose

⚠
- Avoid the risk of electric shock. Do not put the security device for the water–supply valve in water, as it contains an electric valve.
- Follow the instructions in this section to avoid water leaks.
- Do not connect the hose to the combination tap.

Points to remember:
· Don't twist, squash, modify or cut the hose.
· Optimum water pressure in the main pipe is 0.03 MPa - 1.0 Mpa.
· If the pressure is set higher than this, you'll need to install a depressurising valve.
· Water-flow from the tap should be more than 5 litres per minute.

■Connecting the water-supply hose

1 Attach the hose to a tap, and tighten the plastic joint by hand.

2 Open the tap slowly and check there are no leaks around the joint.
Caution: the joint is subject to water pressure.

3/4"   3/4"

min. 10 mm   min. 10 mm

Plastic joint
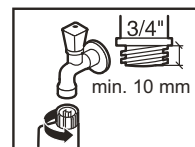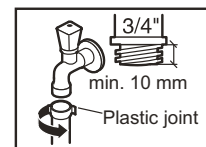
Hose with water-supply valve   Standard hose

4-11 Water drain hose

Points to remember:
Do not twist, pull out or bend the drain hose.
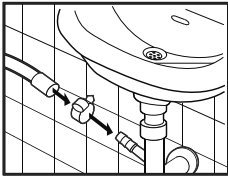The machine should be no more than 100cm from the drain outlet.

Draining to a sink or wash-basin:

⚠ ・ Secure the drain hose in position, so it can't drop out of the basin.
・ Don't block the basin's drain outlet, and make sure the drainage through it is sufficient.
・ Don't let the tip of the drain hose dip into the drained water, as this can cause the water to flow back into the machine.

Elbow
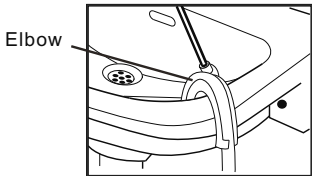
Draining to a wash-basin   Draining to a drain hose

4-12 Installation checklist

① Anchor bolts-have you removed them, and attached the cover caps properly?
②Location-is the machine on a flat, stable surface? Does it run without vibrating?
③Water-supply hose-is it free from leaks, and is the water supply normal?
④Water-drain hose-is it free from leaks, and does it drain normally?
⑤Four adjustable stands-are they bolted securely to the machine?
⑥Four stand cushions-are they standing flat?
⑦Power supply-is the household dedicated mains socket, fully rated at AC 220V to 240V independently?
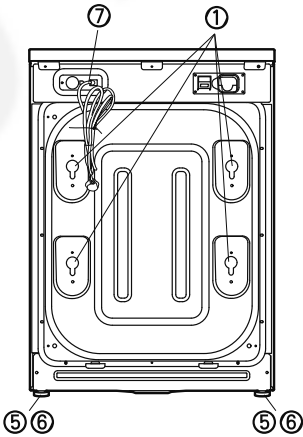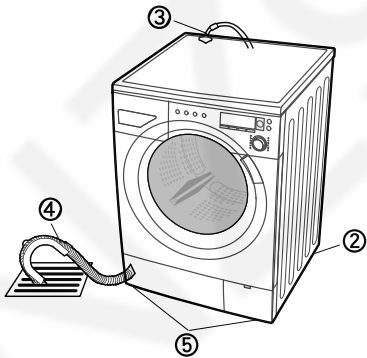
4-13 Checking your machine runs properly

When the machine is running, follow the instructions below to check there are no water leaks, abnormal noise or vibration, and that the waste water drains properly.

Leak check			Vibration and noise check		
① Press Power on	② Press Pause /Start	③ Press Power off	① Press Power on	② Select "Spin only"for process selection.	③Press Pause /Start
◍ On	Start Pause ◯	◎ Off	◍ On		Start Pause ◯

5 HOW TO ADD DETERGENT AND SOFTENER

■ Pull out the detergent drawer and add detergent or softener to the correct compartment.

■ Only use detergents recommended for fully-automated washing machine. Refer to the instructions on the packaging for appropriate amounts to use for different wash programmes.

Liquid detergent

Add detergent to the relevant compartment in the drawer:

① Liquid detergent

② Liquid mild detergent
● Use for Wool wash programmes.
● Don't use for Pre-wash programmes.

③ Tub cleaning detergent, bleach

Powdered detergent

● If you forget to add detergent, you can drain the machine by running a Drain Only function, using the MODE button. Then you can add detergent and start the programme again. (Detergent only reaches the drum when water flushes through the detergent drawer).

● To prevent powdered detergent staying in the drawer:
● Dry the inside of the drawer with a cloth.
● Make sure the powder isn't lumpy when you add it.

How much detergent do I use?
This can depend on:
1. How soiled your laundry is
 Light soil – no visible stains or marks
 Normal – light stains and marks visible
 Heavy soil – large or ground-in stains and marks

2. The amount of laundry

3. Water hardness
 You can find out more about water hardness in your area by calling your local water authority.

● If the rinse cycle isn't removing all the detergent from your wash, use less detergent or try the Extra Rinse function.
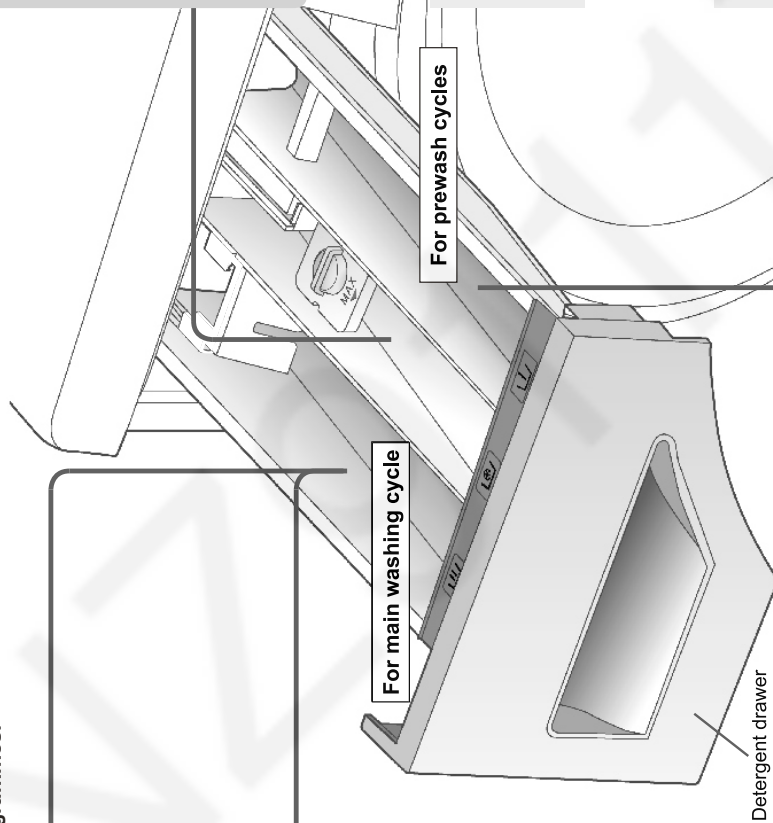
Softener

Add softener before you start the programme – the washing machine automatically adds it to the final rinse cycle.

● Dilute concentrated softeners before you add them. Only add up to 130ml to the compartment to avoid over-flowing.

Undiluted softener
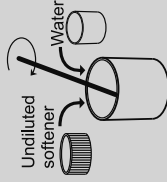
Water

Softener should not exceed the MAX level in the compartment.

* Wash out unused softener with a splash of water or a damp cloth after the programme has finished.
 If it sticks in the compartment put out the drawer and clean it up.

Water softening agent
You can soften water in hard water areas by adding water softener. Always check the packaging for the appropriate amount to use. And always add your water softener after your detergent.

Note
● Foaming varies according to the amount and type of detergent you use, as well as how soiled the laundry is, and the hardness and temperature of the water.
● When opening the door mid-operation, water and foams droplets may fall from the door and the door hole.
 In this case, you may require a towel to be used to catch any of them if necessary.

For prewash cycles

Detergent for prewashing
● Always put prewash detergent in this compartment when you select programmes with pre-wash cycles.

For main washing cycle

Detergent drawer

Do not use washing machine, when remove the detergent drawer.
(It may cause a water leak or it may not work normally)

-13-

6 MAINTENANCE

Cleaning your machine

- **Clean the outside of your washing machine with a soft cloth and mild detergent such as kitchen detergent and soap water.**
- * Don't splash water over the machine.
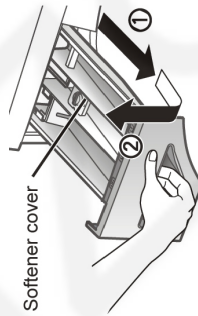- * Do not use cream cleansers, thinners or products containing alcohol or kerosene.

Cleaning the filter net of the water supply valve

(applicable products only)

■**If water isn't draining properly**
(Depressurize the water-supply hose.)

1 **Turn the water supply off at the tap.**

2 **Switch the power on.**

3 **Close the machine door.**

4 **Select Tub Clean programme and press the START button.**

5 **After one minute, switch the power off.**

6 **Loosen the water supply valve and remove it from the tap.**

7 **Use a small brush, e.g. a toothbrush to clean the filter.**

8 **Re-connect the water supply valve to the tap and turn the tap back on, checking for leaks.**
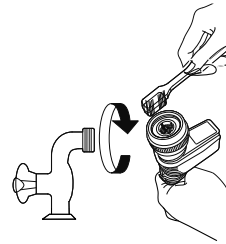
Cleaning your detergent drawer

First, remove the detergent drawer by lifting and pulling at the same time.

- ●Wash out old detergent from the drawer with water. (Use a cloth to clean the machine.)
- * Residue detergent soon builds up if you don't clean the drawer regularly, and can develop mould.

Softener cover

Preventing a frozen water supply hose

* If your machine is delivered in freezing weather conditions, leave it at room temperature for 24 hours after you've set it up before using it. This ensures there's no ice blocking the water supply hose.

If your water supply hose freezes:

1 **Wrap warm towels around the joints in the water supply hose.**

Tap
Joints
water-supply hose

2 **Add two or three litres of warm water to the drum.**

about 50°C

3 **Run a Drain Only programme, using the MODE button.**
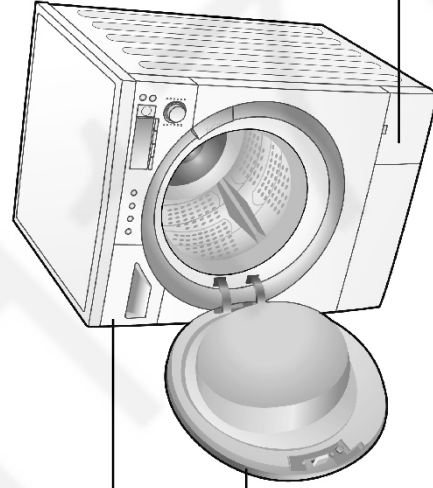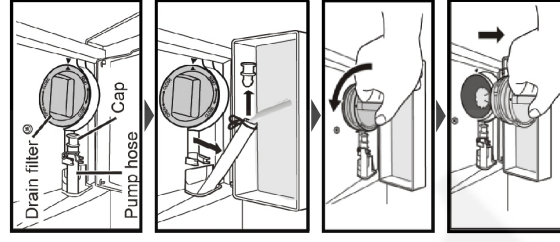
Cleaning the drain filter

⚠ **Take care not to burn yourself while handling your clothes or touching the inside of the drum after a high temperature wash.**

Before cleaning the drain filter, switch off and unplug the machine.

1 **Open and remove the filter cover.**

2 **Take the pump hose out, remove the cap to drain the water, and put them back to the original position after all the water drains away (Max 6 L).**

3 **Carefully loosen the drain filter. More water may drain out - this is normal.**

4 **Turn it anticlockwise, unscrew the filter and remove it.**

5 **Remove any lint and debris before carefully replacing the filter.**

* Make sure you replace the filter tightly. If it's still loose, you'll get an error message and may not be able to use the machine again until you tighten it securely.

Drain filter
Cap
Pump hose

Cleaning your machine door seal and window

- ●Wipe the window and seal after each wash to remove lint and stains. If lint builds up, it can cause leaks.
- ●The door opens at different angles if the drum seal is wet.
- ●Remove any coins, buttons and other objects from the door seal after each wash.

7 USING THE BUTTONS

Optional functions
- You can add functions to each basic programme to suit your laundry needs.
- Some functions don't apply to certain programmes.

Temperature
- Lets you choose the wash temperature from cold to 90°C. For example, you may prefer a hotter wash for whites, cotton, or soiled laundry.
- Some temperatures can't be used for certain wash programmes.

Intensive
Extra Rinse
Prewash
Easy Ironing

Spin speed
- Shows the spin speed (in rpm) for the programme you've selected.
- You can choose your own spin speed for some programmes.
- Some spin speeds can't be used for certain programmes.

Process indicator
- Shows you the current stage of the programme, i.e. wash, rinse or spin.
- When the light is out, the programme has finished.

Example) Display on NA-16VG1

90 1600
60 1200
40 800
30 500

*Example shows display when fully lit.

Caution
- When a programme is running, you can't add optional functions to it or change the wash temperature.
- To change the programme, turn the machine off and on again.
- To change optional functions, such as rinse settings or spin speed, press the PAUSE button after water has been added to the drum.
- You'll hear the buzzer when you press the buttons, to help make sure you've chosen the right settings.

Remaining time indicator
- Tells you roughly how long until the programme ends.
- Detects the weight of the laundry when the programme starts and gives an approximate time for your chosen programme to run.
  (⟳ flashes during detection.)
  For example 1:18=1 hour and 18 minutes
- The time shown is only an estimate. How long the programme actually takes may differ according to the amount and type of laundry, the pressure of the water supply and drainage conditions.

Progress indicator
- Tells you how far through each cycle your washing is.
- on model NA-16VX1 only.

*Example shows display when fully lit.

Start
Pause

On
Off

Child Lock

⚡ Quiet
♻ Quick60
Colours
Rapid15
Duvet
Tub Clean

Cotton
Cotton-Eco
Easy-care
Wool/Silk
Delicates
Shirts

Presets
- You can choose when your programme finishes.

Programme selection dial
- Use this to choose the best programme for your laundry.

Example) Display on NA-14VA1

90 1400
60 1200
500
30

*Example shows display when fully lit.

Start/Pause
- Press this button to start or pause your wash programme.

Power buttons
- When the machine is switched on, if after ten minutes you haven't pressed the START button, the machine automatically switches itself off.
- If the machine is off, and you see this display, you can't turn the machine back on again until the display goes off.

Mode selector
- Use this to select additional functions for each programme, such as rinsing and spin cycles, and for the Drain Only function.

Child safety lock
- Use this to lock the door and prevent children climbing into the drum.
- It also locks the controls to prevent children starting or stopping programmes accidentally.

* Example) Display on NA-16VX1

How to lock or unlock the door

The door is automatically locked while any programme is running. 🔒 **sign is shown while the door is locked.**
*The door normally clicks when it locks or unlocks.

Caution
- **Switching the machine off at the plug doesn't unlock the door.**
- If the door is locked and you switch the machine off – or if there's a power cut – it will stay locked until you turn it back on again.
* This is different from the child safety lock.

To unlock the door while a programme is running

During operation

Start
Pause

Press the START button.

After the drum stops spinning, the door will automatically unlock and will be signalled with a clicking sound. This can take about a minute.
* If you have to unlock the door mid-programme, try to make sure you don't flood the floor with water from the drum.

8 DETAILS OF PROGRAMMES

NA-16VX1/16VG1/14VA1

- Times depend on programme and temperature settings selected.
- Times may be longer if the laundry in the drum needs to be balanced.

Programme	Max load	Temperature (Auto)	Number of rinses	Spin-dry revolutions 16VX1, 16VG1, 14VA1 (Auto)	Approximate time	Temperature (Switch)	Spin-dry 16VX1	Spin-dry 16VG1	Spin-dry 14VA1	Intensive	Extra Rinse	Prewash	Easy Ironing
Cotton	7 kg	40°C	2	1200	1:07 - 1:27	Cold - 90°C	400 - 1600	500 - 1600	500 - 1400	○	○	○	○
Cotton Eco	7 kg	40°C	2	1200	1:10 - 1:30	Cold - 60°C	400 - 1600	500 - 1600	500 - 1400	○	○	○	○
Easy Care	3.5 kg	40°C	2	800	0:56 - 1:00	Cold - 60°C	400 - 1200	500 - 1200	500 - 1200	○	○	○	○
Wool/Silk	2 kg	30°C	3	500	0:40	Cold - 40°C	400 - 500	500	500	○	○	—	—
Delicates	3.5 kg	40°C	2	800	0:55 - 1:00	Cold - 40°C	400 - 800	500 - 800	500 - 800	○	○	○	○
Shirts	2 kg	40°C	2	500	0:50	Cold - 60°C	400 - 800	500 - 800	500 - 800	○	○	○	○
Quiet	7 kg	40°C	2	500	1:18 - 1:38	Cold - 60°C	400 - 500	500	500	○	—	—	—
Quick 60	3.5 kg	40°C	2	1200	0:53 - 0:58	Cold - 60°C	400 - 1600	500 - 1600	500 - 1400	○	○	○	○
Colours	3.5 kg	40°C	2	1200	1:07 - 1:27	Cold - 40°C	400 - 1600	500 - 1600	500 - 1400	○	○	○	○
Rapid 15	2 kg	30°C	1	800	0:15	Cold - 30°C	400 - 800	500 - 800	500 - 800	—	—	—	—
Duvet	3 kg	30°C	2	800	1:00	Cold - 40°C	400 - 800	500 - 800	500 - 800	○	○	—	—
Tub Clean	—	40°C	3	800	3:31	40°C	800	800	800	—	—	—	—

■ Changing programmes while operating
- To change the programme or temperature setting you will need to switch the machine off and then on again.
- If you want to change the rinse or spin options during washing, press the Pause button once the machine is full of water. You cannot change it after the Wash operation has finished.

■ Time required
- The actual times may differ slightly from those shown.
- Time shown includes time needed for filling and draining water, and so depends on water pressure, drain condition and amount of laundry.
- Changing the functions during the programme may change time shown.

■ Speed of spin-dry revolution
- Effective rinsing of clothes may not be possible at lower spin speeds depending on the amount of laundry or type of detergent used. If this is the case, please use the Extra Rinse function.

■ It is not abnormal although clothing sticks to a drum easily depending on the kind of clothing, and programmes.
- Although Cotton ECO course tends to stick to surface, it is not failure.

9 WIRING DIAGRAM
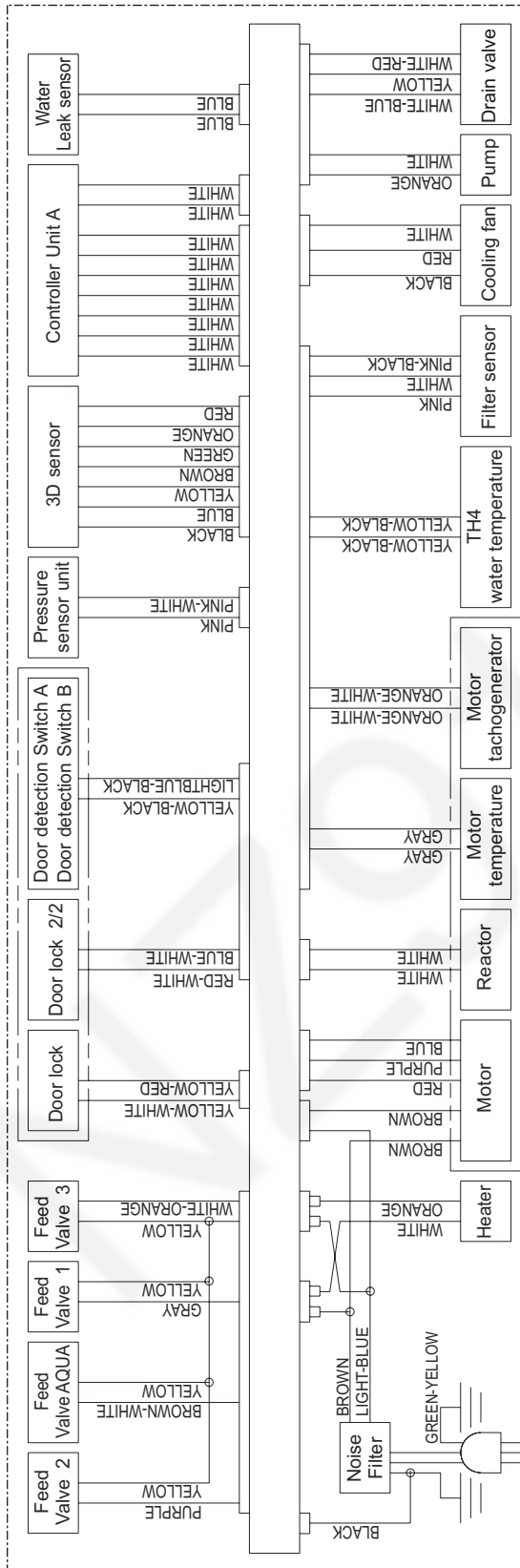
10 CHECK INPUT AND OUTPUT VOLTAGE OF THE PC BOARD

10-1 1. Before replace PC Board, check input and output voltage of the PC Board.

2. Check range of the test meter.

3. When check output voltage of the PC Bord, set a program of the Washing Machine on the working mode.

NA-16VX1/16VG1/14VA1

<Resistance of Thermistor TH4>
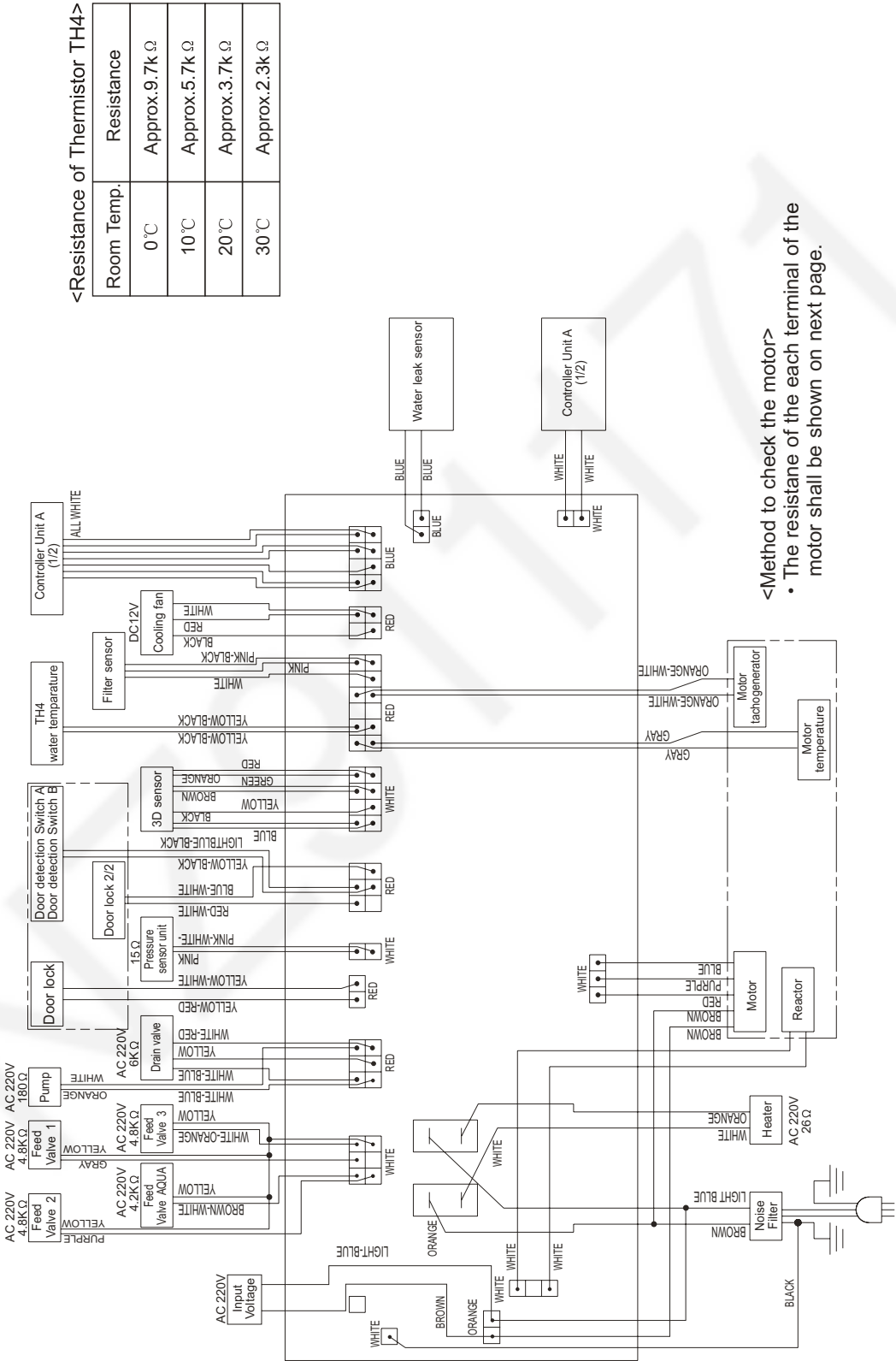
Room Temp.	Resistance
0℃	Approx.9.7k Ω
10℃	Approx.5.7k Ω
20℃	Approx.3.7k Ω
30℃	Approx.2.3k Ω

<Method to check the motor>
· The resistane of the each terminal of the motor shall be shown on next page.

10-2 Motor (Brushless type)

- Rotation speed: Inverter control
- Quiet operation: Below 55 dB
- Structure: Simple & Less-trouble

<Rated resistance>
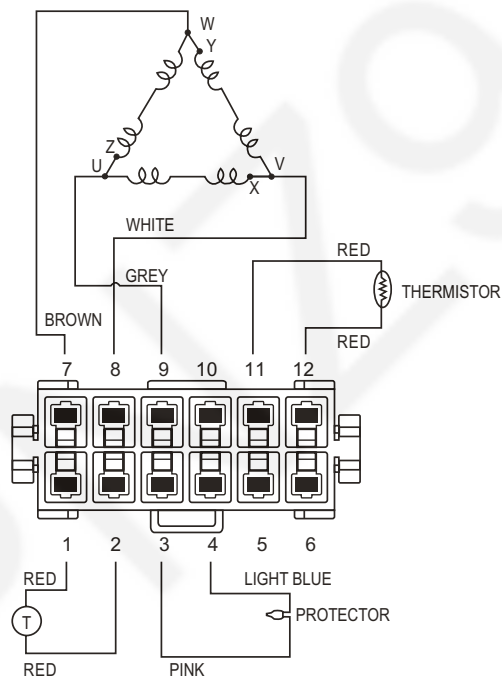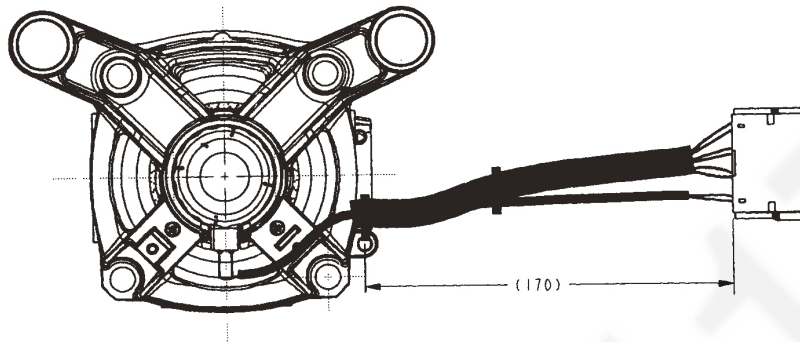
⑦ - ⑧ Coil Approx. 3.2 Ω

⑧ - ⑨ Coil Approx. 3.2 Ω

⑦ - ⑨ Coil Approx. 3.2 Ω

⑪ - ⑫ Thermistor Approx. 11.4K Ω (at 20℃)

① - ② Tachogenerator Approx. 113 Ω

③ - ④ Thermal protector Approx. 0 Ω

11 TROUBLESHOOTING

	Problem	Cause
washing machine	**Buttons don't work**	● While the washing machine is washing, you cannot change the programme, temperature and process settings (but you can change the rinse or spin settings).
	Door doesn't open	● Door lock may be active. ● Child safety lock may be active. ● The water temperature or level could be too high. ● Clothing may be caught in the door. If so, press the door opening button while pushing the door.
	Unusual odour	● Rubber parts may give off a smell when you first start using the washing machine, but this goes away over time. ● You can wash the drum by running the Tub Clean programme.
Wash	**You can't see any water**	● This is normal: the water level is below the window.
	There's no water going into the washing machine	● The water tap might be turned off. ● The water hose or water-supply hose may be frozen. ● Your water supply may be disrupted. ● The water-supply valve filter, at the joint of the water-supply hose, may be clogged.
	There's only a small amount of water	● If you have paused the programme and you restart, the washing machine may drain some water. ● Don't pour water in through the door.
	Water adds up during washing	● This is normal: water is supplied automatically as the level lowers, and with heavy loads the water may fill up repeatedly.
	Water drains away during washing	● This is normal: water often drains and refills to wash off excess foam. (This is called foam detection.)
Rinse/Spin	**There's no water going into the washing machine during rinse operation**	● Before rinsing, the washing machine spins to drain water remaining from the wash. The water will fill up after that.
	Rinsing begins before the spinning finishes	● If your laundry has collected to one side of the drum, rinsing will start automatically to correct the imbalance. ● If there's excess foam after washing, water may drain and refill to wash it off. (This is called foam detection.)
	During the spin-dry, the drum stops and rotates several times	● This is normal. The washing machine has detected an unbalanced load and is trying to correct it.
	A foam and water remain in a door or door seal	● Although a foam and water may remain with the state of clothing and the amount of detergent, it does not have influence on the performance of a rinse.
	Spin starting is repeated.	● This is normal. Although spin starting may be repeated, it is a function made to spin quietly.
Time	**The displayed remaining time changes**	● The remaining time is estimated and corrected continually, and this can change the time displayed. The displayed time is standard times, which may differ from the actual time required. ● The remaining time will increase if an extra rinse and spin is required to correct the imbalance caused by laundry collecting to one side of the drum.

Problem	Cause
Detergent and foam	
There's not much foam	• This can happen if you've put powder detergent directly into the drum – you must put it in the detergent drawer. • The amount of foam can vary, depending on the temperature, level and softness of your water. • You may not be using enough detergent. • You may be using a reduced-foam type of detergent. • Heavily soiled laundry can reduce the amount of foam. • Larger loads of laundry can also reduce the amount of foam.
There's a lot of foam	• The amount of foam can vary, depending on the temperature, level and softness of your water. • You may have used too much detergent. • The type of detergent you use could cause excess foam.
There's no foam	• This can happen if you've put powder detergent directly into the drum – you must put it in the detergent drawer. • If your laundry has collected to one side of the drum, water will be supplied automatically to correct the imbalance – and this will prevent the foam wash. • The amount of foam can vary, depending on the temperature, level and softness of your water.
Fabric softener overflows	• You may have exceeded the MAX level on the detergent drawer. • You may have spilt the liquid by closing the detergent drawer too sharply.
There's a residue of powder detergent at the end of the wash	• This can happen if you've put powder detergent directly into the drum – you must put it in the detergent drawer.
Noise	
There's an unusual noise or vibration	• Check there's nothing metal in the drum. • Make sure the anchor bolts used in transportation have been removed. • Check the machine is on a flat, stable surface.
There's a noise when the water drains away	• This is normal: it's the pump starting and stopping.
There's a fan noise	• This is normal: It's the fan cooling electric parts.
Others	
The electricity supply cuts out while the machine's on	• The machine will stop, and won't start by itself when the power comes back on. You'll need to select a programme and start it again.
A circuit breaker trips the electricity supply	• The machine will stop, and won't start by itself when you reset the breaker. • You'll need to find out what caused the breaker to trip, and put this right. Then reset the breaker, turn your electricity supply back on, and start the machine again.
The water supply is disrupted	• When the water comes back on, it may be impure at first. You'll need to disconnect the water-supply hose and drain any impure water through the tap before using your machine again. Remember to re-connect the water-supply hose first.
The display isn't clear	• This is probably because your machine is in a brightly lit or sunny position.

12 OPERATING TEST-NO WATER

Method to "Operating Test- No Water"
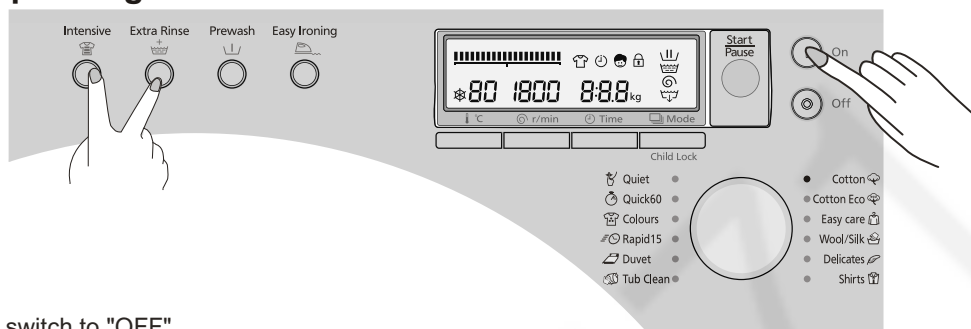
1. Press the power switch to "OFF".
2. Press and hold both the "Intensive" and"Extra Rinse" buttons with one hand.
3. Press the power switch to "ON".
4. Release your fingers from the buttons and power switch you pressed in step (2) and (3) above.
   (Check mode-A shall be carried out with your fingers released.)
5. Press the "Intensive" button within 3 seconds to the desired check contents .(Carry out check B,C,I,G and H)

Number of times the "Intemsive" button is pressed	Process Check	Action Check	Lamp illumination condition	Action condition
0	A	• Cycle end buzzer • Time indication • Auto power off	*888*	• When the end buzzer sounds three times, "888"will simultaneously flash on and off in the remaining time display,and the power will automatically be switched off immediately after operation is finished. If other numbers or characters than "888" appear in the remaining time display, there will be: [1]Abnormal in memory storage(It shall be indicated "2") [2]Abnormal in memory storage(the "COTTON ECO" lights up)
1	B	• Wash operation • Feed valve operation	*6*	• Even if there is no water in the drum,the washing operation shall be continued for six minutes. • It shall be checked condition of the feed valves by pressing "Extra Rinse" button. <table><tr><td></td><td>Mode–0 Stand–by position</td><td>Mode–1 FV1 ON</td><td>Mode–2 FV2 ON</td><td>Mode–3 FV1 FV2 ON</td><td>Mode–4 FV3 ON</td></tr><tr><td>16VX1</td><td>"0" at Temp</td><td>"1" at Temp</td><td>"2" at Temp</td><td>"3" at Temp</td><td>"4" at Temp</td></tr><tr><td>16VG1,14VA1</td><td>Temp.lamp OFF</td><td>30℃ lamps ON</td><td>40℃ lamps ON</td><td>30℃&40℃ lamps ON</td><td>60℃ lamps ON</td></tr></table>
2	C	• Spin operation • Door lock switch operation	*7*	• The spinning operation continue for seven minutes. • It is possible to check the door lock switch,if it is fault, " ☼ time" lamp lights up.
3	I	• Heater operation	*8*	• The door shall be locked, and filled water to the set level, and it starts hot–water washing for 6 minutes. (The drum rotate 45r/min, repeat 20 seconds. ON–3 seconds. OFF), after that water can be drained. • If no water, the heater won't operation.
4	G1	• Indicates Error history of last 10 times	*E1*	• "E1" shall be indicated initially, and press "Extra Rinse" button to show this time, and press it twice to change last time ,and press it 3 times to the time before last, and indicate error code of last to times by pressing it again and return to "E1" as initial mode. • If there were some abnormal alarm in the past,"U" or "H" and some number shall be indicated mutually. • If it had no Error history, "00" mark has displayed. <table><tr><td></td><td>Initial position</td><td>This time</td><td>Last time</td><td>The times fore last</td></tr><tr><td>16VX1</td><td>"0" at Temp.</td><td>"1" at Temp.</td><td>"2" at Temp.</td><td>"3" at Temp.</td></tr><tr><td>16VG1,14VA1</td><td>Temp.lamps OFF</td><td>30℃ lamps ON</td><td>40℃ lamps ON</td><td>30℃ and 40℃ ON</td></tr></table> <table><tr><td></td><td>4 time ago</td><td></td><td>10 times ago</td></tr><tr><td>16VX1</td><td>"4" at Temp.</td><td>-------------------►</td><td>"ʀ" at Temp.</td></tr><tr><td>16VG1,14VA1</td><td>60℃ lamps ON</td><td></td><td>40℃ and 90℃ ON</td></tr></table>

Number of times the "Intensive" button is pressed	Process Check	Action Check	Lamp illumination condition	Action condition
5	G2	· Indicates Error history of last 3 times · Indicate contents of course when occurred error	E2	· "E2" shall be indicated initially, and press "Extra Rinse" button to show this time, and press it twice to change last time ,and press it 3 times to the time before last, and return to "E2" as initial mode. · If there were some abnormal alarm in the past,"U" or "H" and some number shall be indicated mutually. · If it had no Error history, "00" mark has displayed. · After pressing "Extra Rinse"button,while indicating the error code: · Press"Mode(Process)"button ,contents of course when occurred shall be indicated(operated course,water temperature,spin speed,remain time and selected optional functions) Press" ℃(temp)"button:indicates repeated times of the spin action. Press "r/min(spin speed)"button:indicates rotation speed of final spin action. Press "Time(Reserve)"button: Indicates"Time operated to wash" .

	Initial position	This time	Last time	The times fore last
16VX1	"0" at Temp.	"1" at Temp.	"2" at Temp.	"3" at Temp.
16VG1,14VA1	Temp.lamps OFF	30℃ lamps ON	40℃ lamps ON	30℃ and 40℃ ON

Number of times the "Intensive" button is pressed	Process Check	Action Check	Lamp illumination condition	Action condition
6	G3	· Indicate contents of course operates normally last time	E3	· "E3"shall indicated initially. · Press"Mode(Process)"button, contents of course operates last time shall be indicated((operated course,water temperature, spin speed, remain time and selected optional functions) Press" ℃(temp)"button:indicates maximum repeated times of the spin action. Press "r/min(spin speed)"button:indicates highest rotation speed of final spin action. Press "Time(Reserve)"button: Indicates longest time of operated to wash.
7	H	· Indicates operation times	C	· "C" shall be indicated initially,and press "Extra Rinse " button to change indication of the digit of operation times. Press once: Digit "Thousand−Hundred" for washing times. Press twice: Digit "Ten−One" for washing Times.

13 ERROR DISPLAY

If there is an operation error, or if there is an occurrence of the electric component problem on the washing machine, the program of the operation shall be stopped, and warning buzzer shall be rung (All of U and H21), and "U" and a number appears alternately.
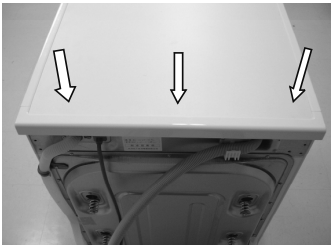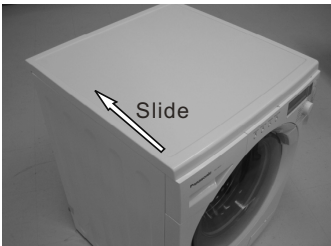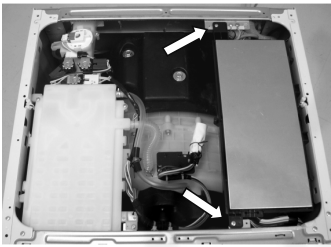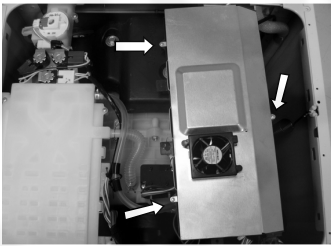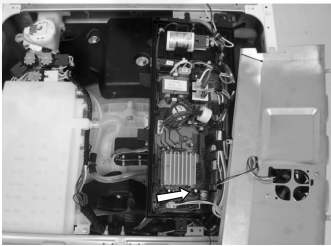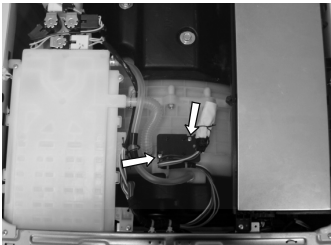
(Incase of U11) $\boxed{U} \rightarrow \boxed{11}$
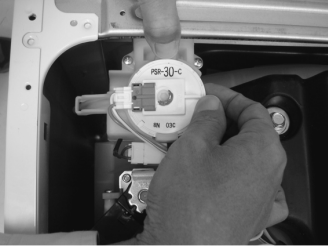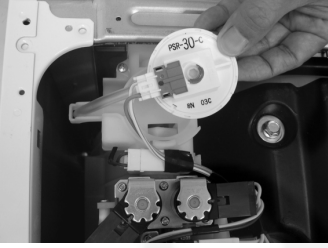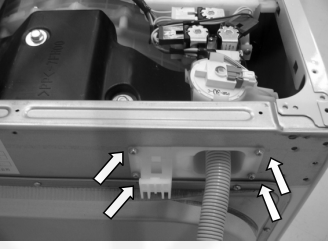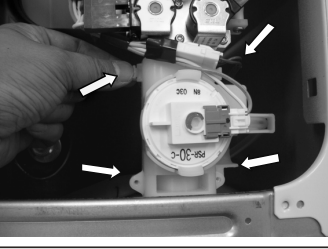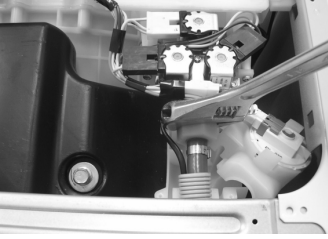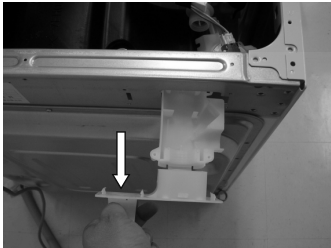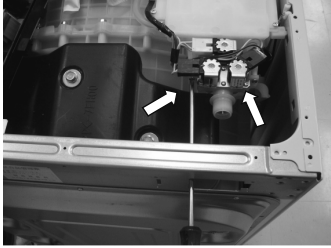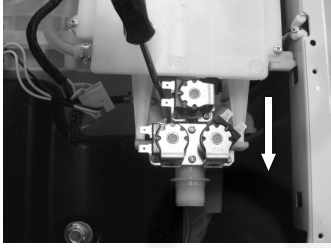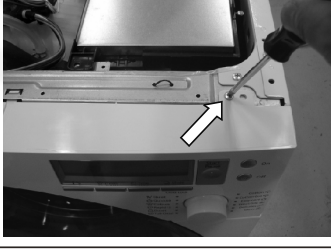
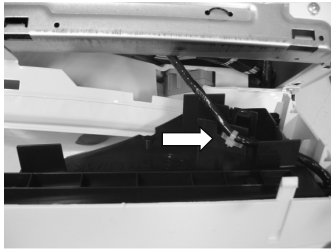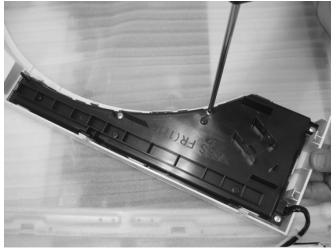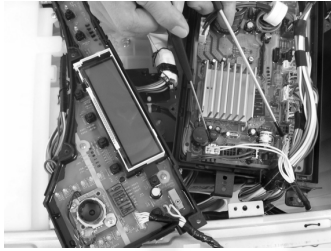| Indication	Contents	Detect contents	Check point	Method to clear
$\boxed{U11}$	Unable to drain	Incase won't detect reset point in 12 min. After starting of drain.	• Is something wrong with the drain hose? • Is lint clogging it? • Check if condition of the water level detector.	After solving problems, open the door and close it, and then restart operation.
$\boxed{U12}$	The door is open	Door is opening at start point of the operation.	• Is the door open?	Close the door to start operation.
$\boxed{U13}$	Unbalanced load	Detect unbalanced load at spin process.	• Chack if clothes are not tangled in the drum. • Check if the washer is not installed on an unstable or sloping floor.	After solving problems, open the door and close it, and then restart operation.
$\boxed{U14}$	Unable to supply water	It's takes over 20 min. to reach specified water level.	• It's takes over 20 min. to reach specified water level. • Check if condition of the water valve. • Is the filter of the feed valve clogged?	After solving problems, open the door and close it, and then restart operation.
$\boxed{U18}$	Drain filter is not set	Detect drain filter is securely tightened	• Check if drain filter is securely tightened during the operation.	Set the drain filter properly
$\boxed{H01}$	Water level detector	Input frequency from the water level detector is out of rated frequency.	• Check if condition of the connectors. • Replace water level detector. • Replace PC Board (Power side).	Turn off the power
$\boxed{H04}$	Short circuit of power relay on the PC.Board	Detect short circuit of the power relay on the PC Board.	• Replace PC Board.	Remove the power plug
$\boxed{H05}$	Data shall not be memorized.	Data won't saved to the micro processor(In case of service check mode-B).	• Replace PC Board (Power side). • Effected service mode (Check mode-B) only.	Turn off the power
$\boxed{H07}$	Malfunction of rotary detector.	Input signal from the rotary detector when operating the motor shall be occurred out of standard.	• Check if condition of the connector and lead wire of the rotary detector. • Replace the motor. • Replace the PC Board (Power side).	Turn off the power
$\boxed{H09}$	Open circuit of the PC Board's communication line	Won't communicate between the main micro processor and the indication micro processor.	• Check if lead wire condition of PC Board between power and operation side, and replace one of PC Boards.	Remove the power plug
$\boxed{H17}$	Open circuit or short circuit of the thermistor TH4	Detect abnormal signal from the thermistor TH4	• Check if condition of the connectors. • Replace the thermistor TH4	Turn off the power

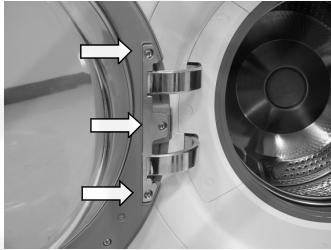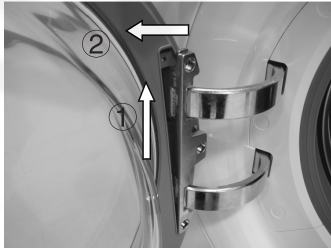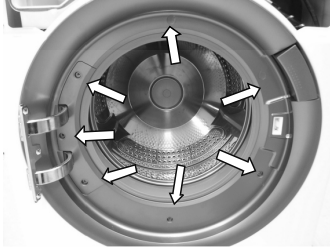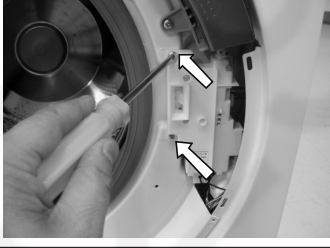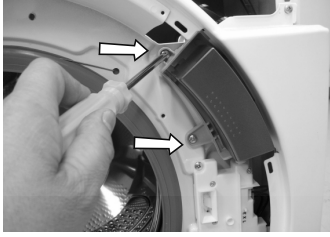| Indication	Contents	Detect contents	Check point	Method to clear
H18	Open circuit or short circuit o the motor thermistor TH5	Detect abmormal signal from the motor thermistor TH5	• Check if condition of the motor's connector. • Replace the motor.	Turn off the power
H21	Water shall be leaked from the feed valve	Water level detector detect increasing of water level.	• Clean the diaphragm inside of the feed valve or replace the feed valve. * Operate the Geared motor and the drain pump to drain water.	Turn off the power
H23	Open circuit or short circuit of the heater relay	Detect abnormal signal of the Heater Relay	• Replace PC.Board(Power side)	Turn off the power
H25	Open or short circuit of the Geared motor	Geared motor won't operate even operating position	• Check if condition of the connector for the Geared motor. • Replace the Geared motor. • Replace the PC.Board (Power side).	Turn off the power
H27	Malfunction of the door lock switch.	Door lock switch won't operate even operating position.	• Check if condition of the connector for the door lock switch. • Replace the door lock switch. • Replace the PC.Board (Power side).	Turn off the power
H29	Decreased rotation speed of the cooling fan	Rotation speed of the cooling fan shall be decreased below 1200r/min	• Check if condition of the connector for the cooling fan. • Replace the cooling fan. • Replace the PC Board(Power side)	Turn off the power
H41	Acceleration data shall not be altered	During spinning acceleration data shall not be obtained or altered	• Replace the 3D sensor. • Replace the PC Board(Power side).	Turn off the power
H43	Water shall be leaked inside of the washing machine	Water leak detector detct water on the botton plate	• Check if water leakage from the hoses and joint portions inside of the washing machine.	Turn off the power
H46	Open or short circuit of the water leak detector	Detect abnormal signal from the water leak detector.	• Replace PC Board(Power side)	Turn off the power
H52	Supplied abnormal high voltage	Measured input voltage (20% higher against rated voltage).	• Check input voltage to the washing machine.	Turn off the power
H53	Supplied abnormal Low voltage	Measured input voltage (20% Lower against rated voltage)	• Check input voltage to the washing machine.	Turn off the power
H55	High current signal shall be flowed during motor rotation	Detect abnormal high current signal during motor rotation	• Replace the PC.Board(Power side)	Turn off the power

14 DISASSEMBLY INSTRUCTIONS AND ADJUSTMENTS
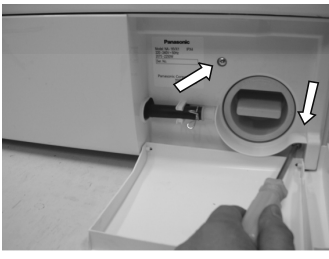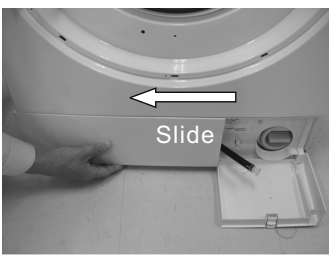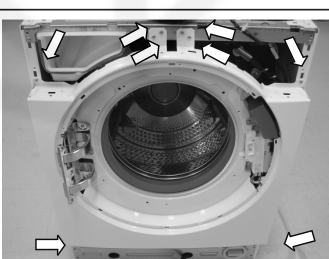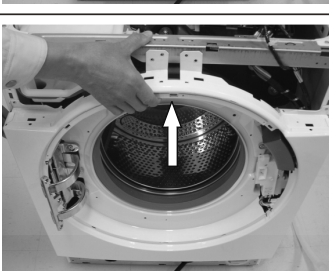
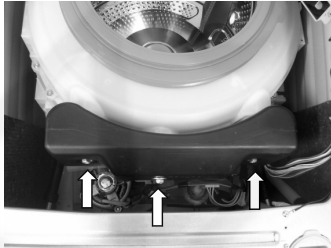| Description	Figure	Procedure
1、**Replacement of the upper board**		1.Remove the three screws mounting the upper board.
		2.Hold and slide the upper board arrow direction as shown in left figure, and pull it up to remove.
2、**Replacement of the PC Board w/components for Power side**		After remove the upper Board, 1.Remove the two screws mounting the PC Board for power side. 2.Remove the two screws mounting the earth wires from the PC Board.
		3.Up side down the PC Board. 4.Remove the three screws mounting the steel cover.
		5.Remove the one connector of the fan motor and remove the steel cover. 6.Remove all the connectors and the three lead wire holders from the PC Board for power side, and remove lead wires. **Note:** 8-pins red colour connector case may remain, please note, this connector is not using.
3、**Replacement of the 3D sensor**		After remove the upper board, 1.Remove the two screws mounting the 3D sensor. 2.Loosen the two lead wire holders, remove tape and the insulation cover.
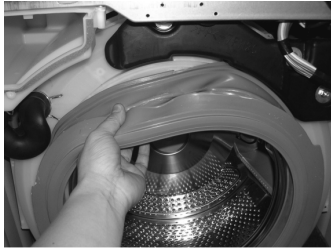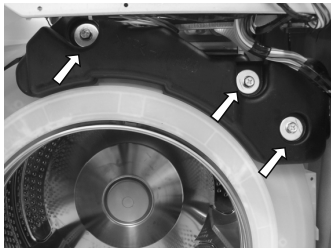
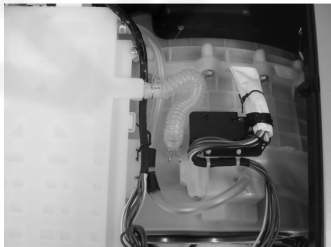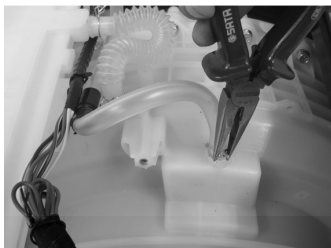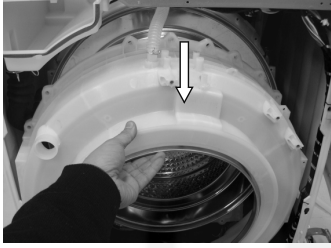| Description	Figure	Procedure
		3.Remove the two lead wire holders and the one connector to remove the 3D sensor.
4、**Replacement of the water level detector**		After remove the upper board, 1.Push the one pawl to outward as shown in figure, and pull the water level detector upward.
		2.Remove the connector and sub hose A from the water level detector. 3.Remove the water level detector.
5、**Replacement of the feed valve**		After remove the upper board, 1.Remove the four screws mounting the detergent case A.
		2.Remove the two screws and the two pawls mounting the pressure hose case.
		3.loosen the nut from the feed valve unit by using the spanner.
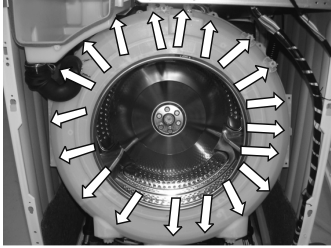
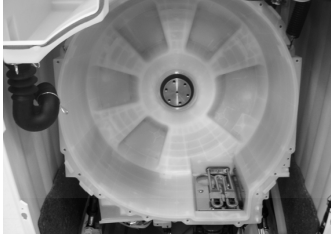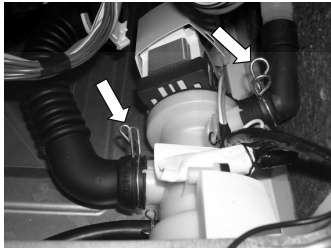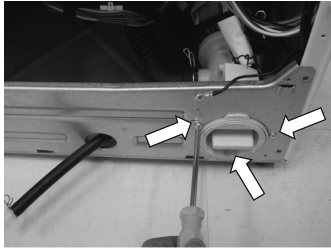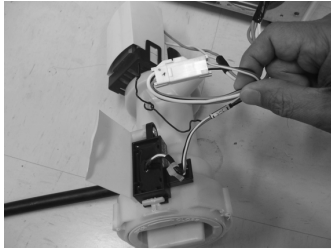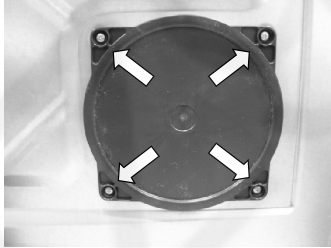| Description	Figure	Procedure
		4.pull all pawls up to remove the detergent case A from the body joint.
		5.Remove the two screws mounting the feed valve unit as shown in left figure.
		6.Remove the three connectors from the feed valve unit, and pull it out to remove by a screwdriver.
6、**Replacement of the PC Board for operation**		After remove the upper board, 1.Remove the detergent case B, and remove the one screw mounting the panel face board.
		2.Remove another screw mounting the panel face board.
		3.Insert the metallic ruler between the panel face board and the body B to remove the two pawls. 4.Pull out the panel face board to remove. **Note:** Please roll the tape at tip of the tool to prevent scratch on the surface of the panel face board.

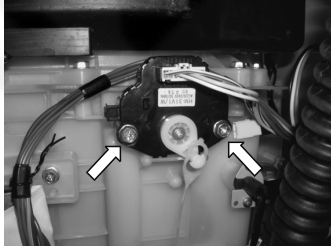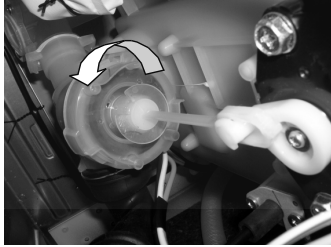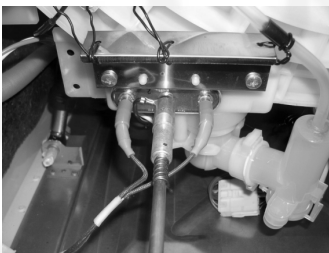| Description	Figure	Procedure
		5.Remove the one lead wire holder from the PC Board.
		6.Turn the PC Board up, remove the five screws and the seven pawls mounting the PC Board, and remove the PC Board cover. **Note:** Please spread a cloth on to the washine machine to prevent scratch on the surface of the panel face board.
		7.Remove the two connectors from the PC Board for power side. (See page-25 replacement of the PC Board for power side) 8.Remove the PC Board for operation. **Note:** Connector of the PC Board for operation shall be inserted to the main PC Board(for power side).
7、Replacement of the door unit		1.After opening the door unit, remove the three screws mounting the door unit.
		2.Hold and pull the door unit upward to remove.
8、Replacement of the body band A		1.After remove the door unit, remove the seven seals covering the screw of the Body band A with mini-screwdriver.
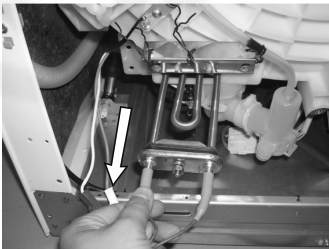
Description	Figure	Procedure
		2.Remove the seven screws mounting the body band A.
		3.Remove the body band B.
		4.Take out the body band A.
9、Replacement of the door lock switch		After remove the door unit, and the body band A, 1.Remove the two screws mounting the door lock switch. 2.Loosen the lead wire holder, remove the tape and the insulation cover.
		3.Remove the two connectors to remove the door lock switch.
10、Replacement of the door button		1.Remove the two screws mounting the door button. 2.Remove the hook from the door lock switch.

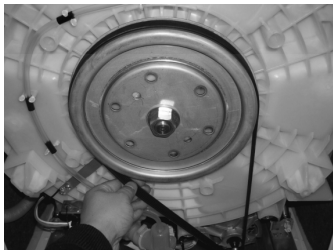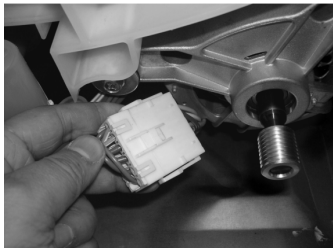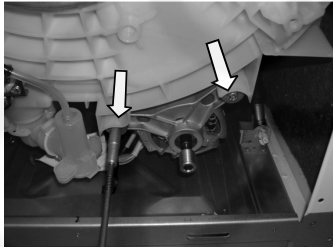| Description	Figure	Procedure
11、Replacement of the panel A		1.Open the filter cover. 2.Remove the two screws mounting the panel A. 3.Remove the hose out from the hose holder.
		4.slide the panel A to left slightly to remove as shown in left figure.
12、Replacement of the body B		After remove the panel A, 1.Remove the body band B by long nose pliers.
		2.Remove the wringer frame packing(Made of rubber) from the body B.
		3.Remove the eight screws mounting the body B.
		4.Unfix the lead wire holder at right portion. 5.Hold the body B and pull it up slightly to remove.

Description	Figure	Procedure
13、Replacement of the wringer frame packing		After remove the body B， 1.Remove the body band B fixing the wringer frame packing by using 2 long nose pliers.
		2.Remove the wringer frame packing. **Note:** Incase to mounting the wringer frame packing A, cutting portion shall be set to the marking portion of the outer tub cover.
14、Replacement of the balance weight upper front		After remove the body B and wringer frame packing， 1.Remove 3 bolts by the spanner (size 10mm). 2.Pull out the Balance weight to remove.
15、Replacement of the balance weight lower front		After remove the body B and wringer frame packing， 1.Remove the 3 bolts by the spanner (size 13mm). **Note:** Use gloves in case to remove the bolts.
16、Replacement of the outer tub cover		After remove the body B, wringer frame packing and both balance weights， 1.Remove 3D sensor.(See page-25 replacement of the 3D sensor)
		2.Remove the shower hose, and the sub hose from the detergent case A.

Description	Figure	Procedure
		3.Remove the hose clamp from the outer tub, and remove the feed hose A.
		4.Remove the nineteen bolts mounting the outer tub cover by a box wrench (size 10mm).
		5.Pull out the outer tub cover to remove.
17、Replacement of the drum unit		After remove the outer tub cover, 1.Remove the cap by using minus-type screwdriver. 2.Remove a screw mounting the drum cover. 3.Remove the drum cover.
		4.Remove the six bolts mounting the drum unit by the box wrench (size 13mm).
		4.Pull out the drum unit to remove.

Description	Figure	Procedure
18、Replacement of the drain pump		1.Remove the two hose clamps and 2 hoses from the drain pump.
		2.Remove the three screws mounting the drain pump.
		3.Remove the two covers and remove the three connectors from the drain pump. 4.Remove the one screw mounting the switching sensor, remove the switching sensor. 5.Remove the drain pump.
19、Replacement of the geared motor		After lay down the washing machine on it left side, 1.Remove the four screws mounting the hole cover, remove the hole cover. **Note:** Please spread a cloth to prevent scratch on the body.
		2.Remove the two bolts mounting the geared motor by the box wrench (size 10mm). 3.Remove the one connector from the geared motor.
20、Replacement of the valve packing unit		After lay down the washing machine on it left side, and remove the hole cover, 1.Turn the valve lid to counter-clock wise. 2.Pull out the valve packing unit from the valve frame. **Note:** Please spread a cloth to prevent scratch on the body.

Description	Figure	Procedure
21、Replacement of the thermistor-4		(TH4 detects water temperature in the drum) After lay down the washing machine on it left side，and remove the hole cover, 1.Remove the two screws mounting the thermistor-4. **Note:** Please spread a cloth to prevent scratch on the body.
		2.Remove one connector from the thermistor-4. 3.Pull out the thermistor-4.
22、Replacement of the heater unit		After remove the rear panel， 1.Remove the cover and the two connectors.
		2.Remove one nut mounting the heater unit by the box wrench (size 10mm) and remove a earthwire.
		3.Release another nut slightly, and push the nut inside by the box wrench, and pull it out to remove.
23、Replacement of the belt		1.Remove all screws mounting the rear panel. 2.Remove the rear panel.

Description	Figure	Procedure
		3.Turn the large pulley and remove the belt outward.
24、 Replacement of the Motor		After remove the rear panel，lay down the washing machine on it left side，and remove the hole cover, 1.Remove the insulation cover .
		2.remove the connector.
		3.Remove the two bolts mounting the motor by the box wrench (size 10mm). 4.Pull out the motor.
25、 Replacement of the Pulley		After remove the rear panel， 1.Insert the two holes of the pulley with special tool (Parts No. JF066), then loosen the nut with spanner as shown in left figure . 2.Remove the belt. 3.Remove the nut and gasket. 4.remove the pulley.