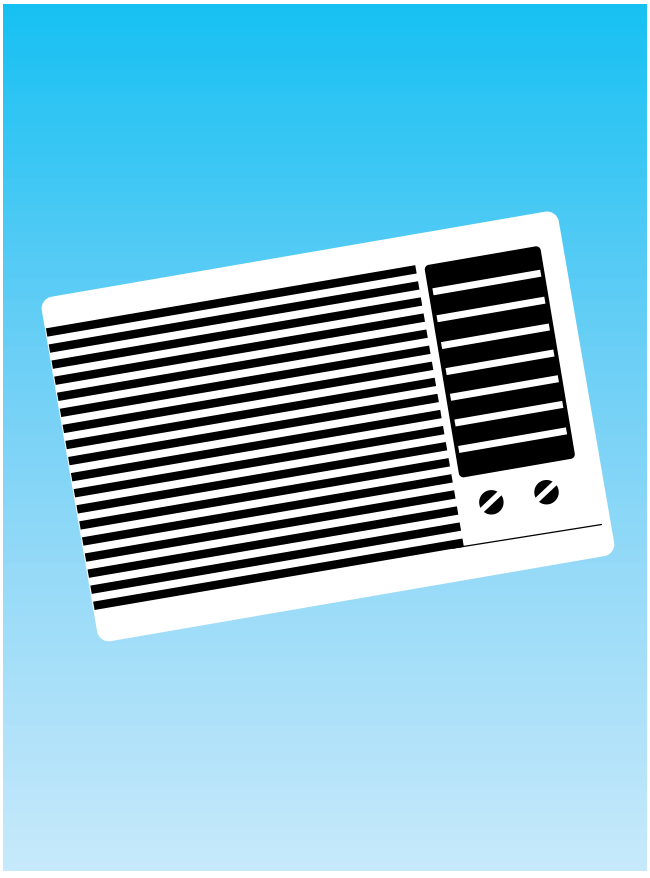
SAMSUNG

# ROOM AIR CONDITIONER

## AW05B05A(AW0500, AW0500A)
## AW05E05A(AW0510, AW1510A)
## AW05F05A

# SERVICE Manual

AIR CONDITIONER



CONTENTS

# 1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance, Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

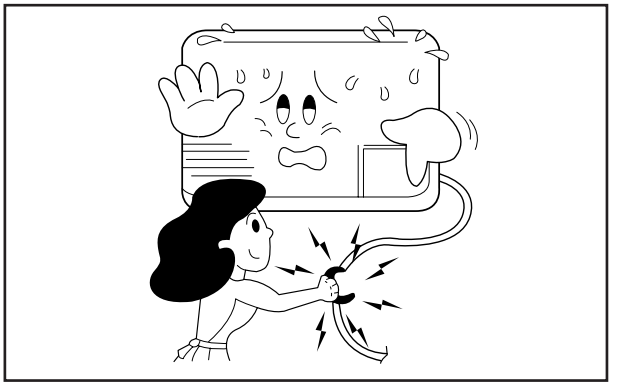


Fig. 1-1 Avoid Dangerous Contact

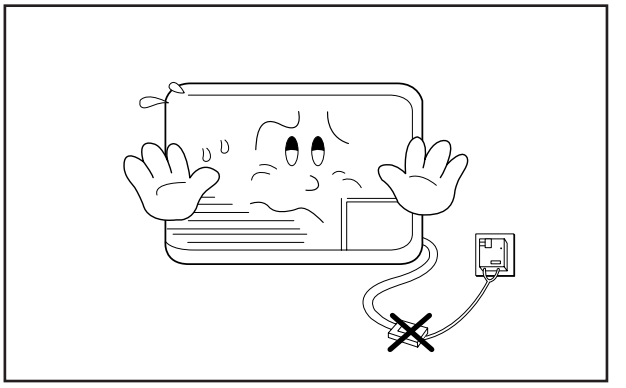


Fig. 1-2 No Tapping and No Extension Cords

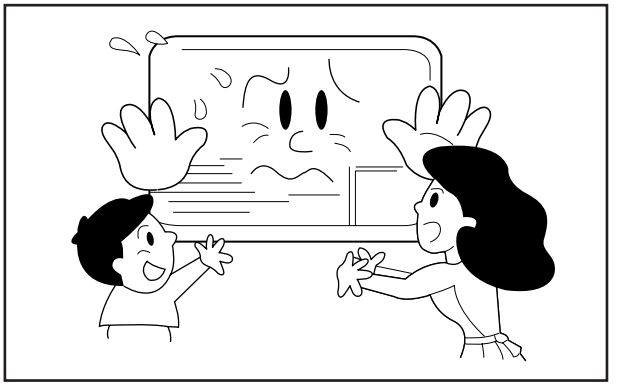


Fig. 1-3 No Kids Nearby!

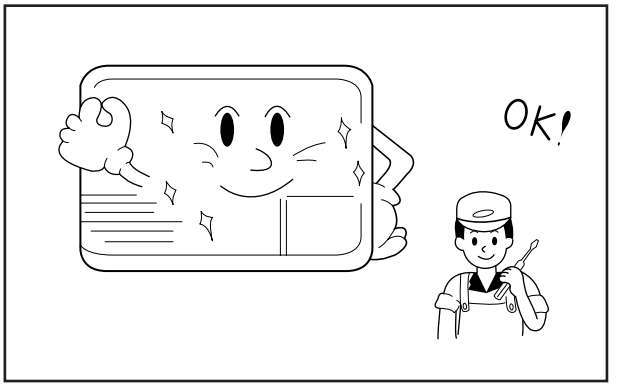



Fig. 1-4 Clean the Unit

# MEMO

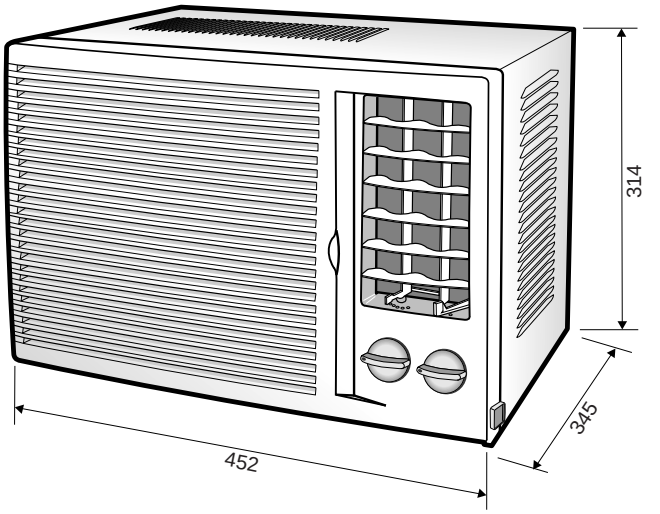
# 2. Product Specifications

## 2-1 Table

| Item | Unit of Measure | AW05B05A (AW0500) | AW05E05A (AW0510) | AW05B05A (AW0500A) | AW05E05A (AW0510A) | AW05F05A | Remarks |
|---|---|---|---|---|---|---|---|
| Type | - | Window | | | | | |
| Dimensions: | Inches | 17 13/16 x 12 3/8 x 13 9/16 | | | | | |
| Width x Height x Depth | mm | 452 x 314 x 345 | | | | | |
| Packing Size: | Inches | 19 11/32 x 14 7/8 x 17 11/32 | | | | | |
| Width x Height x Depth | mm | 491 x 378 x 440 | | | | | |
| Voltage: | Volt | 115 | | | | | |
| Phase | - | Single | | | | | |
| Frequency | Hz | 60 | | | | | |
| Operating Current | A | 5.6 | 4.8 | 5.6 | 4.8 | 4.8 | |
| Power Consumption | W | 625 | 515 | 625 | 515 | 560 | |
| Refrigerant Type | FREON | R-22 | | | | | |
| Refrigerant Charge | OZ(kg) | 9.0(255) | 12.0(340) | 9.0(255) | 12.0(340) | 12.0(340) | |
| Cooling Capacity | BTU/h | 5,000 | 5,100 | 5,000 | 5,100 | - | |
| | Kcal/h | - | - | - | - | 1,250 | |
| E.E.R | (BTU/h,W) | 8.0 | 9.7 | 8.0 | 9.7 | 9.7 | |
| | (Kcal/hw) | - | - | - | - | 2.22 | |
| Humidity Removed | LT/h | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | |
| Air Circulation | C.F.M | 134 | 125 | 134 | 125 | 125 | |
| Net Weight | LBS | 46 | 46 | 46 | 46 | 46 | |
| Condenser | Row | 1 | 2 | 1 | 2 | 2 | |
| Condenser Fan | Type | Propeller Fan | | | | | |
| Evaporator | Row | 1 | 2 | 1 | 2 | 2 | |
| Evaporator Fan | Type | Squirrel Cage | | | | | |
| Fan Motor | Model | AFS015ZREA | | | | | |
| Compressor(Rotary) | Model | 44A052HW1KA | 44A052HS1KA | 2R7S126A6F | 2R7S126A6F | 44A052HS1KA | |
| Overload Protect | - | MRA12040-12008 | | | | | |
| Fan Motor Capacitor | $\mu$F/VAC | 4 & 30/370 | 3.5 & 30/370 | 4 & 35/270 | 3.5 & 35/370 | 3.5 & 30/370 | |
| Compressor Capacitor | $\mu$F/VAC | (DUAL TYPE) | | | | | |
| Plug Type | - | Parallel | | | | | |
| Fan Speed Control | - | Selector S/W | | | | | |
| Thermo Control | - | Thermostat | | | | | |
| Design Pressure High Side/Low Side | PSI | 300/150 | | | | | |

## 2-2 Dimensions

Unit : mm



# 3. Installation and Operating Instructions

## 3-1 Installation

### 3-1-1 Selecting Area for Installation

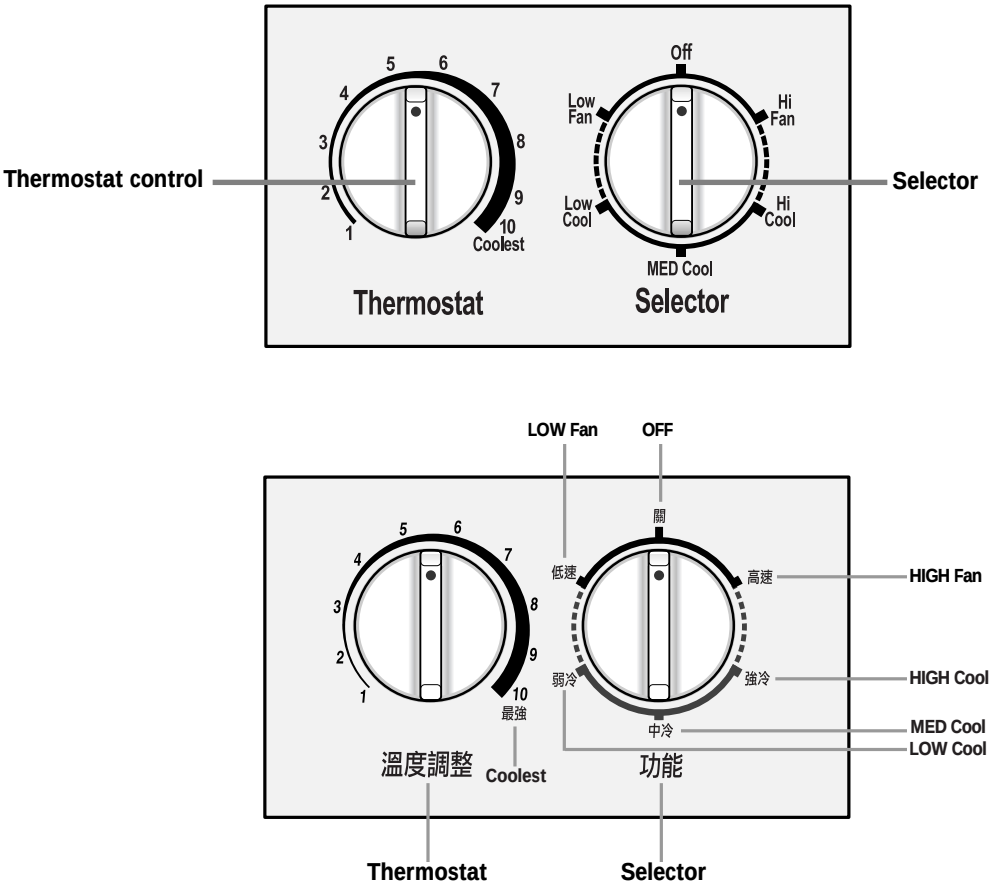
Select an area for installation that is suitable to the customer's needs.

1. Make sure that you install the unit in an area providing good ventilation. The air conditioner must not be blocked by any obstacles affecting the airflow near the air inlet and the air outlet.
2. Make sure that you install the unit in an area that allows good air handling. The installation area must be able to endure vibration from the unit.
3. Make sure that you install the unit away from heat or vapor.
4. Make sure that you install the unit in an area which is cool and has adequate space.
5. Make sure that you install the unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter clearance).
6. Make sure that you install the unit in an area which provides easy drainage for condensed water.
7. Make sure that you install the unit in area not exposed to the rain or direct sunlight. (Install a separate sunblind if exposed to direct sunlight).
8. Make sure that you install the unit in an area allowing good air movement. Do not install it in a space that would cause noise amplification of noise.
9. Fix the unit firmly if mounted in a high place.

Caution:

It is harmful to the air conditioner if it is used in the following environments : greasy areas (including areas near machines), salty areas such as coast areas, areas where sulfuric gas is present (such as hot spring areas), Contact your dealer for advice.

## 3-2 Controls and Components




### 3-2-1 Thermostat

- Control Operation :
  By turning control knob clockwise(toward higher numbers), the temperature will be cooler.
  By turning the control knob counterclockwise(toward lower numbers), the temperature will be warmer.

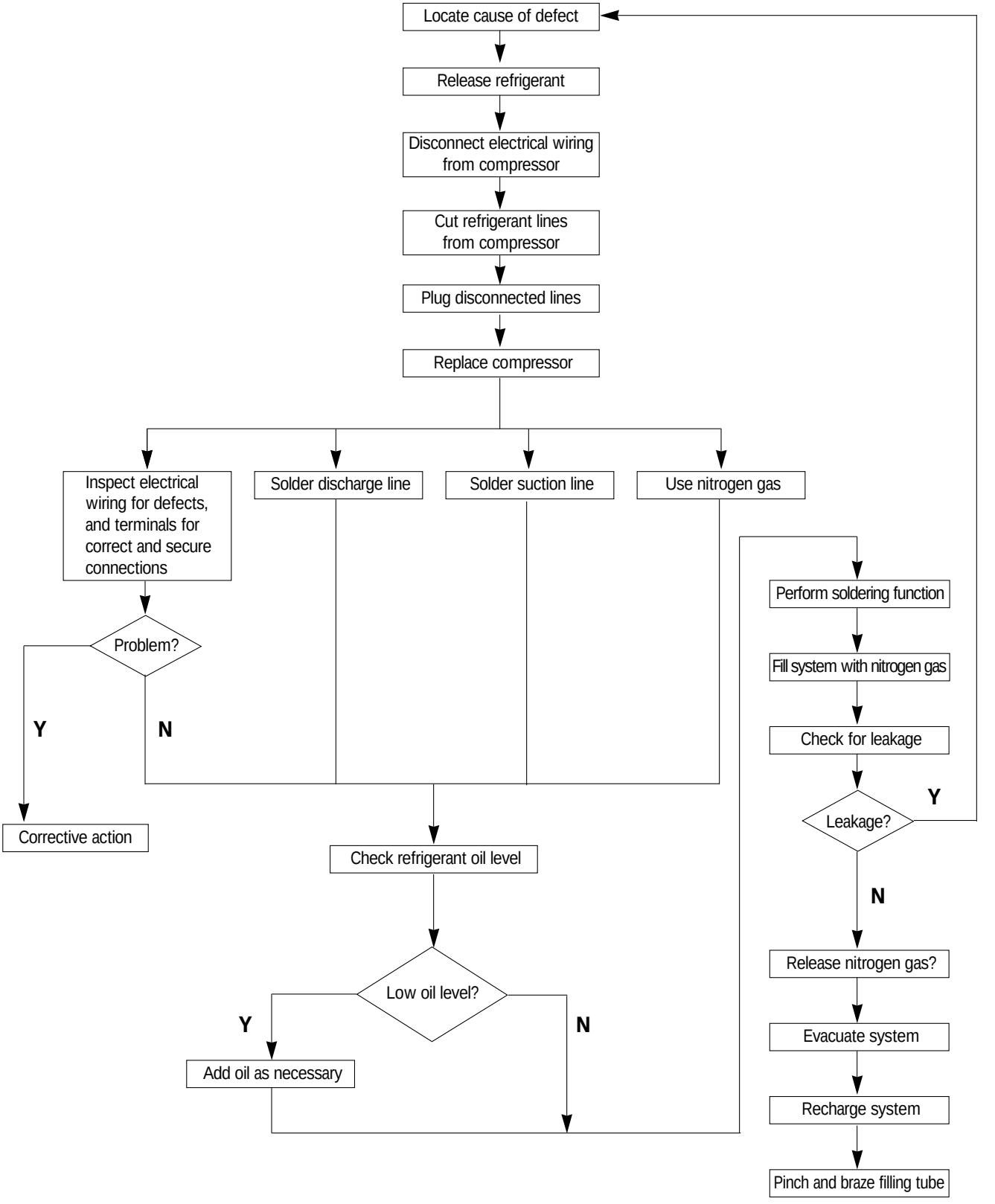
- Level 1 : Cool air will be supplied above 30~35°C
  Cool air will be ceased below 28~32.5°C
- Level 10 : Cool air will be supplied above 11~17°C
  Cool air will be ceased below 7~13°C

### 3-2-2 Selector

- Slowly turn the Fan Selector Switch in the following order :
  to LOW FAN, HIGH FAN, HIGH COOL, MED COOL, LOW COOL.
- OFF : All functions will be off.
- LOW FAN : The circulation of air is low.
- HIGH FAN : The circulation of air is maximum.
- LOW COOL : Circulation, cooling, and humidity removal are low(all simultaneousy operated).
- MED COOL : Circulation, cooling, and humidity removal are mediume(all simultaneously operated).
- HIGH COOL : Circulation, cooling, and humidity removal are maximum(all simultaneously operated).

# 4. Disassembly and Reassembly

## 4-1 Compressor Replacement Flow Chart



## 4-2 Checking the Oil

Put approximately 10cc oil into a transparent container and test it.

### 4-2-1 Oil quality

| Condition of Refrigerant Cycle | Condition of Oil | | Remarks |
|---|---|---|---|
| | Color | Odor | |
| Normal | Light Yellow | No Odor | Return with the system |
| Overheat | Brown Color | - | Oil Change |
| Motor Damage | Dark Brown | Pungent Oil | Oil Change |

### 4-2-2 Changing and adding refrigerant oil

1. Change the compressor - DO NOT recharge the oil as the compressor itself is already charged.
2. Change the condenser .... add 50cc
3. Change the evaporator .... add 50cc
4. When the refrigerant is replaced .... add 30cc oil.
5. After vacuum is completed, the oil is filled through the high pressure side.
6. In the event of a refrigerant leak, generally it is not necessary to add oil (unless the oil has leaked significantly).

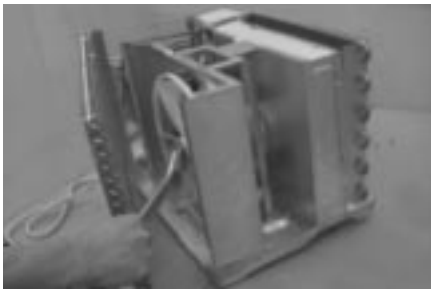
## 4-3 Refrigerant Oil Specifications

| Model | Oil Specification | Oil Change |
|---|---|---|
| AW05B05A(AW0500) | SONTEX 200LT | 260CC |
| AW05E05A(AW0510) | SONTEX 200LT | 260CC |
| AW05B05A(AW0500A) | SUNISO 4GDID | 260CC |
| AW05E05A(AW0510A) | SUNISO 4GDID | 260CC |
| AW05F05A | SONTEX 200LT | 2600CC |
| AW05F05A | SUNTEX 200LT | 260CC |

## 4-4 Disassembly and Reassembly Procedure

Stop operating of the air conditioner and remove the power cord before repairing the unit.

| No. | Part name | Procedures | Remarks |
|---|---|---|---|
| ① | Ass'y - Grille | 1. Remove the knobs and the grille screw located behind the guard air filter. |  |
| | | 2. Remove the grille from the cabinet by pushing in on the grille tabs on both cabinet sides, and then lift the grille off the top latches. |  |
| ② | Ass'y - Frame | 1. Remove the 7 screws on each of the cabinet and lift the cabinet upward. |  |
| ③ | Ass'y - Evaporator | 1. Remove foam-seal on the top of the unit.<br>2. Remove 4 screw on the both side of evaporator.<br>3. Separate the evaporator from the unit. |  |
| ④ | Ass'y - Blower | 1. Loose the nut to disassemble the blower. |  |

| No. | Part name | Procedures | Remarks |
|---|---|---|---|
| ⑤ | Ass'y - Condenser & Fan propeller | 1. Remove the 2 screws on the bottom between the base-pan and the condenser and 2 screws on left side of condenser.<br>2. Separate the cond-casing from the base-pan.<br>3. Loose the nut to disassemble the fan-propeller.<br>4. Separate the fan-propeller from the motor and the cond-casing. |  |
| ⑥ | Ass'y - Control | 1. Remove the 2 screws at the bottom of between the base-pan and the control-box. |  |
| ⑦ | Ass'y - Motor | 1. Remove the 2 screws on the motor and mountor motor.<br>2. Separate the motor from mountor motor. |  |

# 5. Troubleshooting

Before troubleshooting the air conditioner,
it is necessary to determine whether the electrical power or the electrical parts are faulty.
Follow this procedure :

## 5-1 Method of Troubleshooting and Cautions on Troubleshooting

### 5-1-1 Check the Voltage of the power source.

The input voltage shall be 115V/60Hz
The air conditioner may not operate properly if the voltage is out of this range.

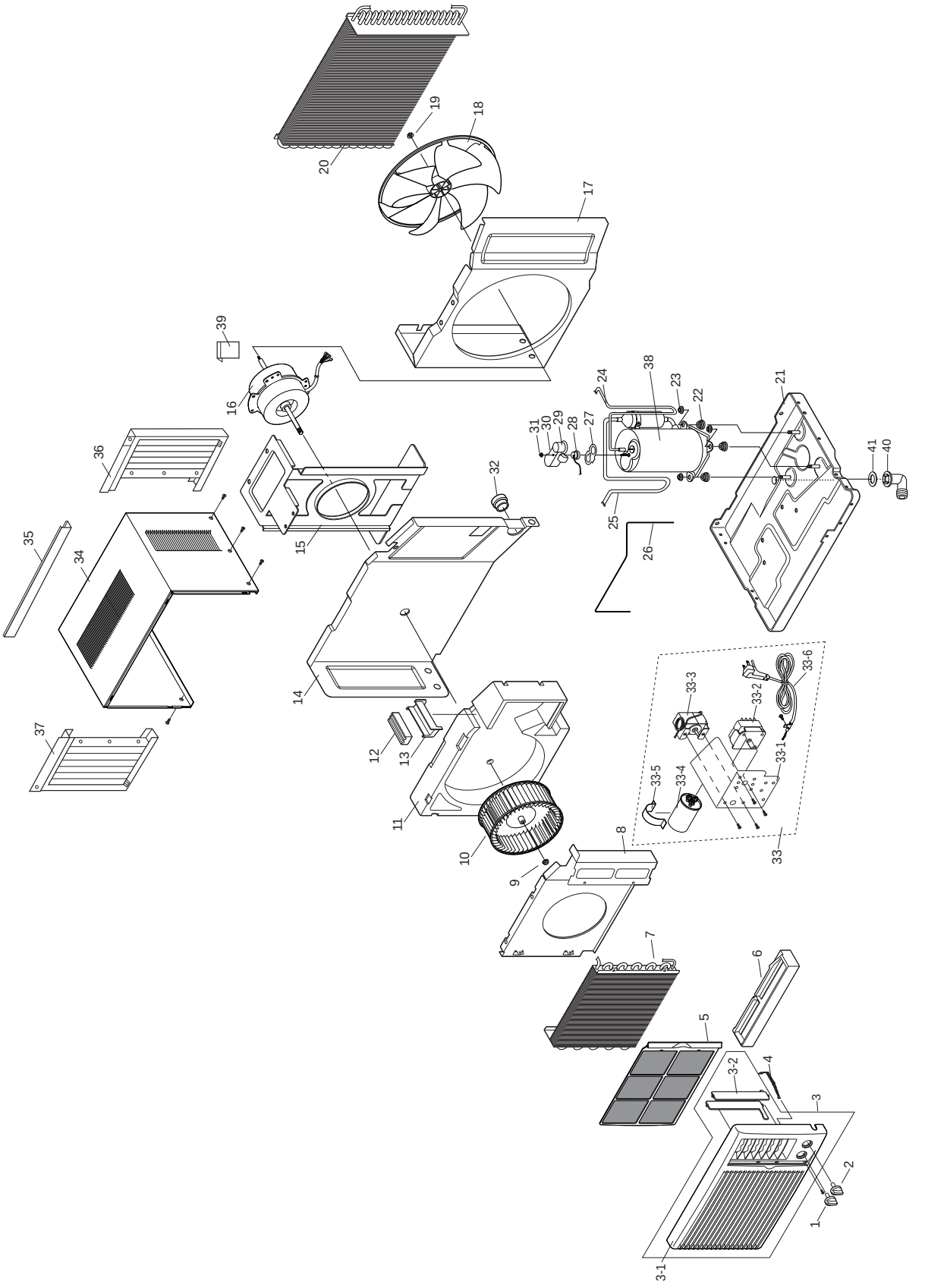
### 5-1-2 Check weak and fragile parts.

### 5-1-3 Check the connection of terminals.

### 5-1-4 When a malfunction occurs:

| Malfunction | | Check point | Possible cause |
|---|---|---|---|
| ① | The compressor does not operate. | 1. check the thermostat position.<br>2. check the connection of the lead wire.<br>3. check the over load protector.<br>4. check the compressor. | 1. Setting temp is lower than room temp.<br>2. Disconnection of the lead wire.<br>3. O.L.P is faulty<br>4. Compressor is faulty |
| ② | The motor does not operate. | 1. check the connection of the lead wire & switch.<br>2. check the motor | 1. disconnection of the lead wire<br>2. switch is faulty.<br>3. motor is faulty |
| ③ | The cooling capacity is low. | 1. check the refrigerant leakage.<br>2. check the evaporator condition ( freezing, blocked with dusts, etc. )<br>❋Difference of temp. exists between the suction side and the discharge side at least 12°C<br>❋Standard condition<br>Indoor : 27°C outdoor : 35°C | 1. Caused by the pipe crack<br>2. shortage of refrigerant<br>3. clean the evaporator & air filter. |
| ④ | Noise | 1. check vibration of the pipe<br>2. check the propeller fan and blower ( not loose or broken ).<br>3. check bearing noise of the motor<br>4. check the compressor noise against that of other compressors. | 1. pipes are contact with the other parts.<br>2. the hex nut is loose<br>3. the parts are broken<br>4. motor is faulty<br>5. compressor is faulty |

# 6. Exploded View and Parts List



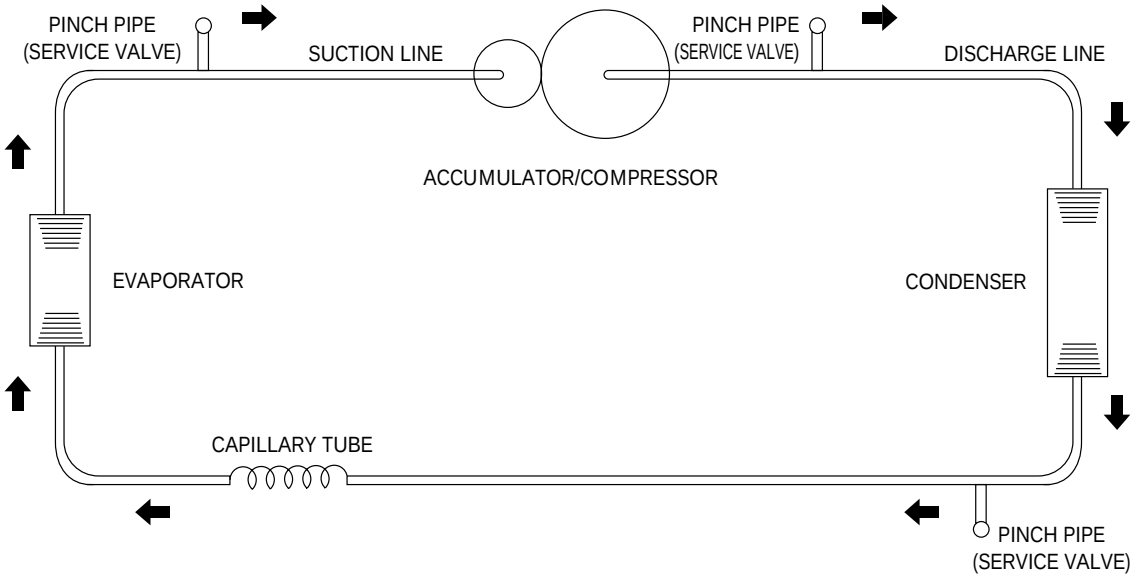
■ Part List

| No. | Code No. | Description | Specification | Q'TY | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AW05B05A (AW0500) | AW05E05A (AW0510) | AW05B05A (AW0500A) | AW05E05A (AW0510A) | AW05F05A | |
| 1 | DB64 - 00124A | KNOB - THERMO | ABS, SC - 94445R, ASSY | 1 | 1 | 1 | 1 | 1 | |
| 2 | DB64 - 00124B | KNOB - SELECTOR | ABS, SC - 94445R, ASSY | 1 | 1 | 1 | 1 | 1 | |
| 3 | DB92 - 00034A | ASSY - GRILLE | ASSY, SC - 94445R | 1 | 1 | 1 | 1 | - | |
| | DB92 - 00032B | ASSY-GRILLE | ASSY, SC - 94445R | - | - | - | - | 1 | |
| 3-1 | DB64 - 00043A | GRILLE - FRONT | HIPS, SC - 94445R | - | - | - | - | 1 | |
| 3-2 | DB66 - 00023A | BLADE - V | PP, SC - 94445R | 1 | 1 | 1 | 1 | 1 | |
| 4 | DB66 - 00024A | LEVER - DAMPER | ABS, SC - 94445R | 1 | 1 | 1 | 1 | 1 | |
| 5 | DB63 - 00026A | GUARD - AIR FILTER | ABS, SC - 94445R | 1 | 1 | 1 | 1 | - | |
| | DB63 - 00026B | GUARD - AIR FILTER | ABS, SF(GREEN) | - | - | - | - | 1 | |
| 6 | DB63 - 00027A | TRAY - DRAIN | EPS | 1 | 1 | 1 | 1 | 1 | |
| 7 | DB96 - 00208A | ASSY - EVAP | D - FIN, OD 9.52 1R | 1 | - | 1 | - | - | |
| | DB75 - 00028A | ASSY - EVAP | T3, OD 2R | - | 1 | - | 1 | 1 | |
| 8 | DB70 - 00014A | PLATE - EVAP CASING | SGCC - M | 1 | 1 | 1 | 1 | 1 | |
| 9 | DB60 - 30004A | NUT - FLANGE | SM20C, NTR | 1 | 1 | 1 | 1 | 1 | |
| 10 | DB67 - 00013A | BLOWER | ABS | 1 | 1 | 1 | 1 | 1 | |
| 11 | DB61 - 00083A | CASE - EVAP | EPS | 1 | 1 | 1 | 1 | 1 | |
| 12 | DB73 - 00031A | RUBBER - PIPE | NR, BLK | 1 | 1 | 1 | 1 | 1 | |
| 13 | DB63 - 00031A | COVER - PIPE | PP | 1 | 1 | 1 | 1 | 1 | |
| 14 | DB67 - 00012A | PARTITION | SGCC - M | 1 | 1 | 1 | 1 | 1 | |
| 15 | DB61 - 00084A | MOUNT - MOTOR | SGCC - M | 1 | 1 | 1 | 1 | 1 | |
| 16 | DB31 - 00035A | MOTOR - FAN | AFS015ZREA | 1 | 1 | 1 | 1 | 1 | |
| 17 | DB61 - 00085A | CASE - COND | SGCC - M | 1 | 1 | 1 | 1 | 1 | |
| 18 | DB67 - 00014A | FAN - PROPELLER | ABS | 1 | 1 | 1 | 1 | 1 | |
| 19 | DB60 - 30020A | NUT - FLANGE | M6, FEFZY, LF | 1 | 1 | 1 | 1 | 1 | ▲ |
| 20 | DB96 - 00210A | ASSY - COND | SLIT, OD 7.0, 1R | 1 | - | 1 | - | - | ▲ |
| | DB96 - 00209A | ASSY - COND | T3, OD 2R x 15S | - | 1 | - | 1 | 1 | |
| 21 | DB90 - 00123B | ASSY - BASE | ASSY | 1 | 1 | 1 | 1 | 1 | |
| 22 | DB73 - 00016A | GROMMET - ISOLATOR | EPDM, BLK | 3 | 3 | - | 3 | 3 | |
| | DB73 - 00046A | GROMMET - ISOLATOR | EPDM, MEI COMP | - | - | 3 | 3 | - | |
| 23 | DB60 - 30028A | NUT - WASHER | HEX, 2C, M8, ZPC | 3 | 3 | 3 | 3 | 3 | |
| 24 | DB62 - 00249A | TUBE - DISCHARGE | C1220T-0, OD 7.93 | 1 | - | - | - | - | ▲ |
| | DB62 - 00200B | TUBE - DISCHARGE | | - | 1 | - | - | 1 | ▲ |
| | DB62 - 00365A | TUBE - DISCHARGE | C1220T-0 | - | - | 1 | 1 | - | ▲ |
| 25 | DB62 - 00202A | TUBE - SUCTION | C1220T-0, OD 9.52 | 1 | 1 | - | - | - | |
| | DB62 - 00366A | TUBE - SUCTION | C1220T-0, OD 9.52 | - | - | 1 | 1 | - | |
| | DB62 - 00296A | TUBE - SUCTION | C1220T-0, OD 9.52 | - | - | - | - | 1 | |
| 26 | DB96 - 00197B | ASSY - TUBE CAPILLAR | ID 1.2x1100 | 1 | - | 1 | - | - | ▲ |
| | DB96 - 00200B | ASSY - TUBE CAPILLAR | ID 1.2x750 | - | 1 | - | 1 | 1 | ▲ |
| 27 | DB63 - 20002A | GASKET | EPDM, T 0.8 | 1 | 1 | - | - | 1 | |
| | DB63 - 00024A | GASKET | EPDM, T 0.8 | - | - | 1 | 1 | - | |
| 28 | DB47 - 20002F | OLP | MRA12040 - 12008 | 1 | 1 | - | - | 1 | |
| | DB35 - 00012A | OLP | MRA99087 - 9201 | - | - | 1 | 1 | - | |
| 29 | DB63 - 10504A | COVER - TERMINAL | NORYL, BLK | 1 | 1 | - | - | - | |
| 30 | DB63 - 00090A | COVER - TERMINAL | EPDM, BLK | 1 | 1 | - | - | - | |
| | DB63 - 00023A | COVER - TERMINAL | NORYL, BLK, MEI COMP | - | - | 1 | 1 | - | |
| | DB63 - 10026A | COVER - TERMINAL | NORYL, BLK | - | - | - | - | 1 | |
| 31 | DB60 - 00001A | NUT - FLANGE | HEX, M5, SM20C | 1 | 1 | 1 | 1 | 1 | |
| 32 | DB63 - 00089A | COVER-PARTITION | ABS | 1 | 1 | 1 | 1 | 1 | |
| 33 | DB93 - 00259A | ASSY - CONTROL BOX | ASSY | 1 | - | - | - | - | ▲ |
| | DB93 - 00259B | ASSY - CONTROL BOX | ASSY | - | 1 | - | - | - | ▲ |
| | DB93 - 00259G | ASSY - CONTROL | AW0500A | - | - | 1 | - | - | ▲ |
| | DB93 - 00259H | ASSY - CONTROL | AW0510A | - | - | - | 1 | - | ▲ |
| | DB93 - 00259C | ASSY - CONTROL BOX | ASSY | - | - | - | - | 1 | ▲ |
| 33-1 | DB70 - 00019A | PLATE - CONTROL | SGCC - M | 1 | 1 | 1 | 1 | 1 | |
| 33-2 | 3406 - 001045 | SWITCH - ROTARY | DYU - 3, 240V, 25A | 1 | 1 | 1 | 1 | 1 | |
| 33-3 | DB47 - 20074B | THERMOSTAT | BU - A213 | 1 | 1 | 1 | 1 | 1 | |
| 33-4 | 2501 - 001205 | C - OIL | 30/4uF, 370V | 1 | - | - | - | - | ▲ |
| | 2501 - 001154 | C - OIL | 30/3.5uF, 370V | - | 1 | - | - | 1 | ▲ |
| | 0501 - 001219 | C - OIL | 35/3.5uF, 370V | - | - | - | 1 | - | ▲ |
| | 2501 - 001221 | C - OIL | 35/4uF, 270V | - | - | 1 | - | - | ▲ |
| 33-5 | DB65 - 00031A | CLIP - CAPACITOR | SGCC-M | 1 | 1 | 1 | 1 | 1 | |
| 33-6 | DB39 - 10032J | POWER-CORD | SPT3, 125V, 10A, GRAY | 1 | 1 | 1 | 1 | 1 | |
| 34 | DB64 - 00046B | CABINET - OK | SCP1 | 1 | 1 | 1 | 1 | 1 | |
| 35 | DB64 - 20005E | SHUTTER - ANGLE-UP | SC-94445T | 1 | 1 | 1 | 1 | - | |
| | DB64 - 20005F | SHUTTER - ANGLE UP | SGCC-A, SC-94445T | - | - | - | - | 1 | |
| 36 | DB92 - 30007D | ASSY - SHUTTER-RH | ASSY, SC-94445R(GR) | 1 | 1 | 1 | 1 | - | |
| | DB92 - 30007F | ASSY - SHUTTER RH | PVC, SC - 94445R | - | - | - | - | 1 | |
| 37 | DB92 - 30005D | ASSY - SHUTTER-LF | ASSY, SC - 94445R(GR) | 1 | 1 | 1 | 1 | - | |
| | DB92 - 30005F | ASSY - SHUTTER LF | PVC, SC - 94445R | - | - | - | - | 1 | |
| 38 | 44A052HW1KA | ASSY COMP | ASSY | 1 | - | - | - | - | |
| | 44A052HS1KA | ASSY COMP | ASSY | - | 1 | - | - | 1 | |
| | DB95 - 00109A | ASSY - COMPRESSOR | 2R7S126A6F | - | - | 1 | 1 | - | |
| 39 | DB97 - 90014K | ASSY SCREW | ASSY | 1 | 1 | 1 | 1 | 1 | |
| 40 | DB67 - 20041A | DRAIN PLUG | PP, ID10 | 1 | 1 | 1 | 1 | - | |
| | DB67 - 20028A | DRAIN - TUBE | PP | - | - | - | - | 1 | |
| 41 | DB73 - 20111A | RUBBER DRAIN | NR, T0.3, BLK | 1 | 1 | 1 | 1 | - | |
| | DB73 - 20135A | RUNNER - DRAIN | NR, T1 | - | - | - | - | 1 | |

# MEMO

# 7. Block Diagram

## 7-1 Refrigerating Cycle Block Diagram



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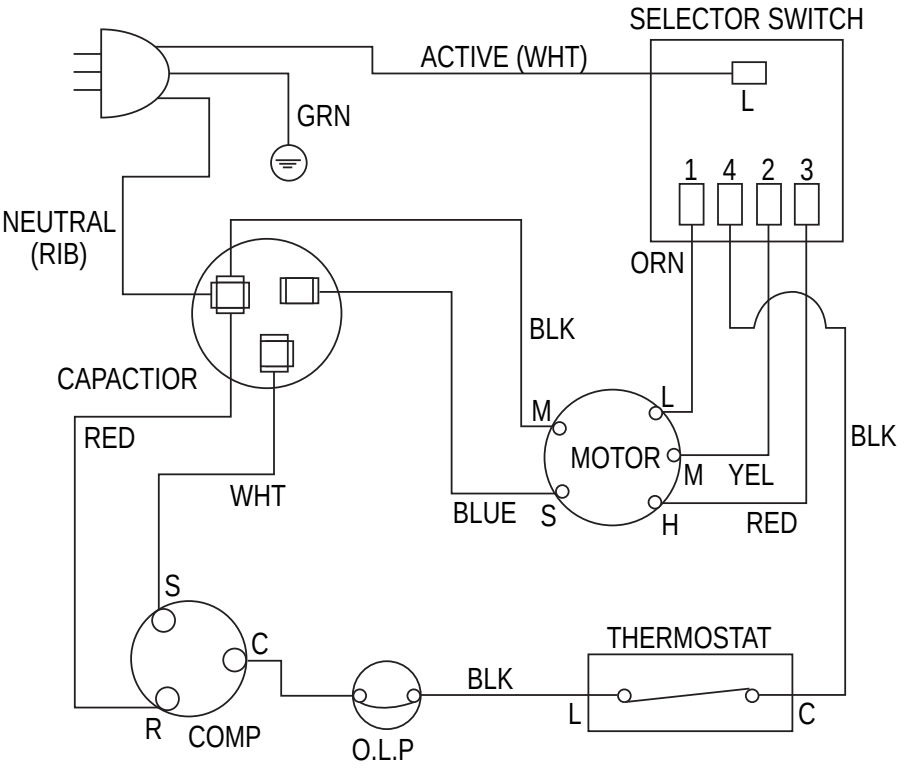
# 8. Wiring Diagram




| | | |
|---|---|---|
| DIAGRAM-ELECTRIC | AW05B05A(AW0500) | CAPACITOR : 4/30µF, 370VAC |
| | AW05E05A(AW0510) | CAPACITOR : 3.5/30µF, 370VAC |
| | AW05B05A(AW0500A) | CAPACITOR : 4/35µF, 270VAC |
| | AW05E05A(AW0510A) | CAPACITOR : 3.5/35µF, 370VAC |
| | AW05F05A | CAPACITOR : 3.5/30µF, 370VAC |

# MEMO

| UPDATE LOG SHEET | | | | |
|---|---|---|---|---|
| **Application date** | **Page** | **Part#** | **Note(Cause & Solution)** | **S/Bulletin#** |
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Use this page to keep any special servicing information.(Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service bulletin


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