

# Service Manual

Model: FR-360



## SAFETY AND PRECAUTIONS

- 1) For starters, be sure to check any chances of the leakage of electricity.
- 2) You could handle a part in the vicinity of electricity after unplugging.
- 3) You should put on rubber gloves to prevent an electric shock on operation test.
- 4) Make sure the rated current, voltage, capacity before using an instrument.
- 5) Keep your wet hands away from the metal goods in the freezer compartment not to be frostbitten.
- 6) Be careful not to let water to permeate the electric part in the machine room.
- 7) With the door open during your repair, you might be hurt by that door.
- 8) You should give a tilt to the refrigerator for your safe after removing the breakable goods inside the refrigerator.
- 9) You'd better use gloves if you fix it up around the evaporator.

## TABLE OF CONTENTS

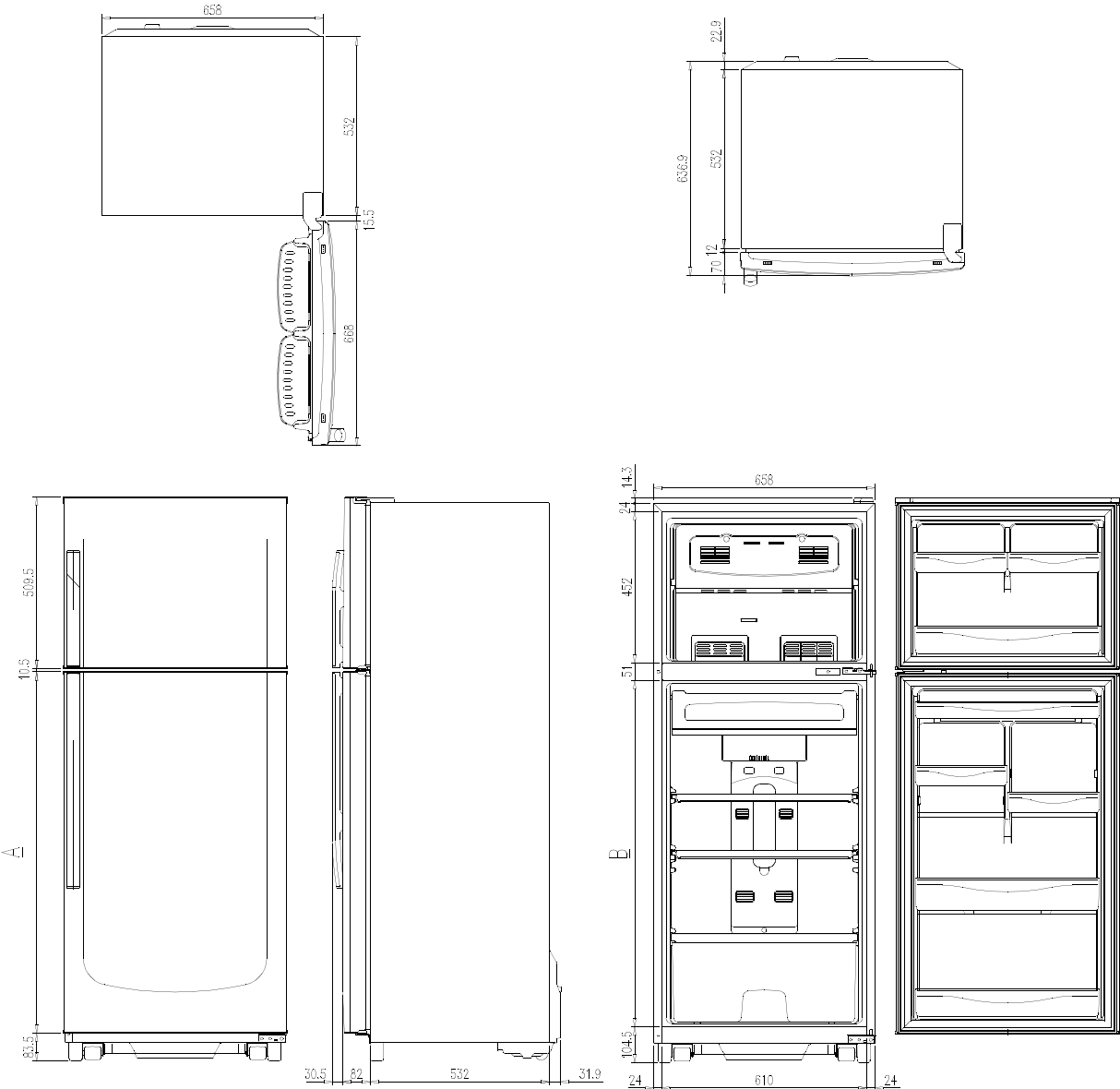
|                                              |           |
|----------------------------------------------|-----------|
| <b>SPECIFICATION .....</b>                   | <b>2</b>  |
| <b>EXTERNAL VIEWS .....</b>                  | <b>3</b>  |
| <b>WIRING DIAGRAM .....</b>                  | <b>4</b>  |
| <b>NAME OF PARTS .....</b>                   | <b>5</b>  |
| <b>AIR FLOW DIAGRAM .....</b>                | <b>6</b>  |
| <b>REFRUGERANT CYCLE DIAGRAM .....</b>       | <b>7</b>  |
| <b>MACHINE ROOM VIEW AND PART LIST .....</b> | <b>8</b>  |
| <b>MAIN COMPONENTS .....</b>                 | <b>9</b>  |
| <b>POWER CORD .....</b>                      | <b>12</b> |
| <b>PART LIST AND EXPLODED VIEW .....</b>     | <b>13</b> |

# SPECIFICATION

| Model Name              |              | FR-360                      |       |  |  |
|-------------------------|--------------|-----------------------------|-------|--|--|
| Cooling system          |              | Fan Cooling Convention Type |       |  |  |
| Refrigeration System    |              | Air Forced Convention       |       |  |  |
| Defrost System          |              | Forced Fin-Evaporator Type  |       |  |  |
| Defrost Operation       |              | Automatic start & stop      |       |  |  |
| Cold Control            |              | Adjustable Dial             |       |  |  |
| Method                  |              | NET                         | GROSS |  |  |
| Capacity (l)            | Freezer      | 78                          | 80    |  |  |
|                         | Refrigerator | 226                         | 245   |  |  |
|                         | Total        | 304                         | 325   |  |  |
| External Dimension (mm) | Width (W)    | 667                         |       |  |  |
|                         | Depth (D)    | 637                         |       |  |  |
|                         | Height (H)   | 1677                        |       |  |  |
| Net Weight (kg)         |              | 61                          |       |  |  |

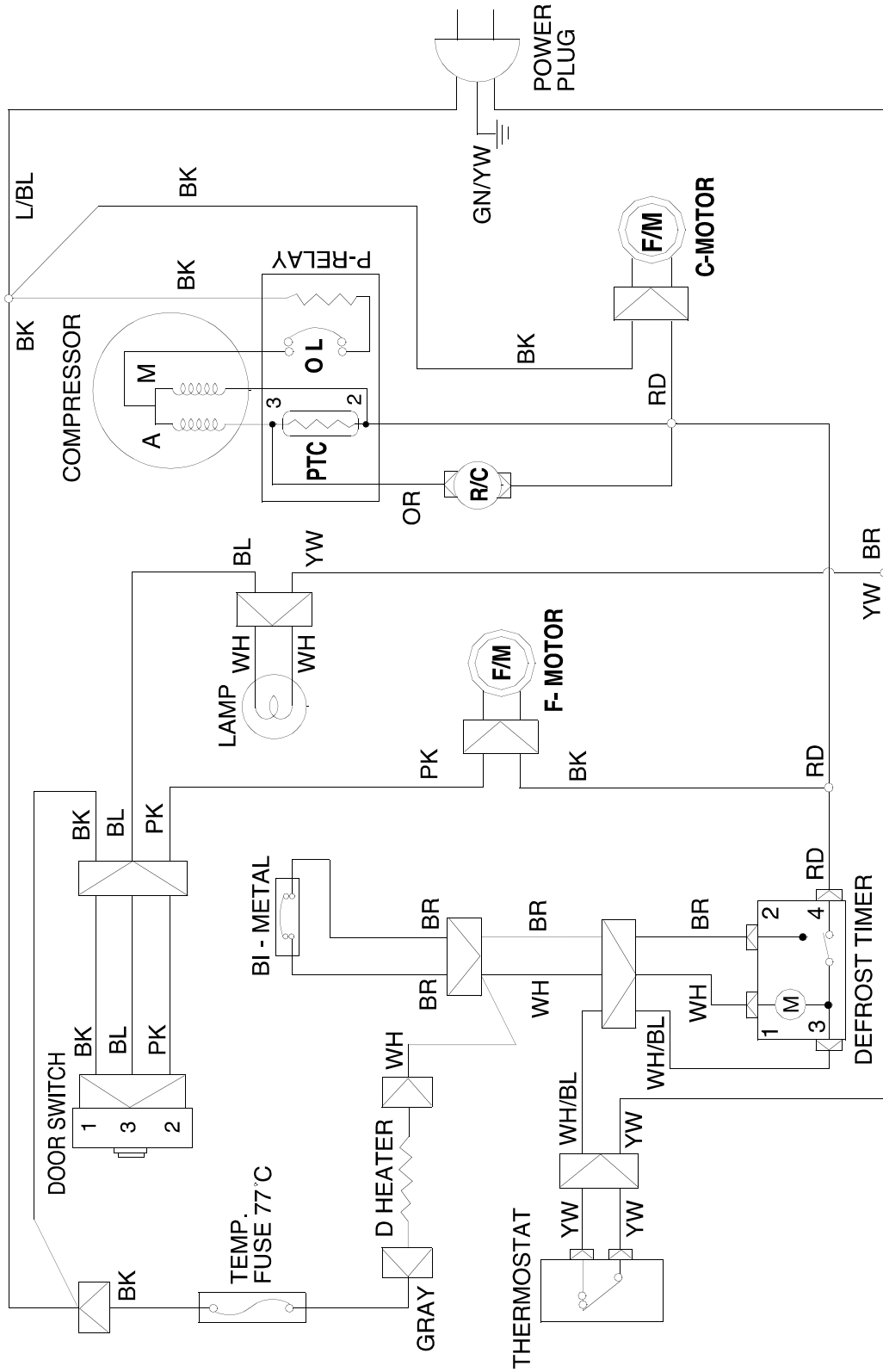
# EXTERNAL VIEWS

## 1. FR-360

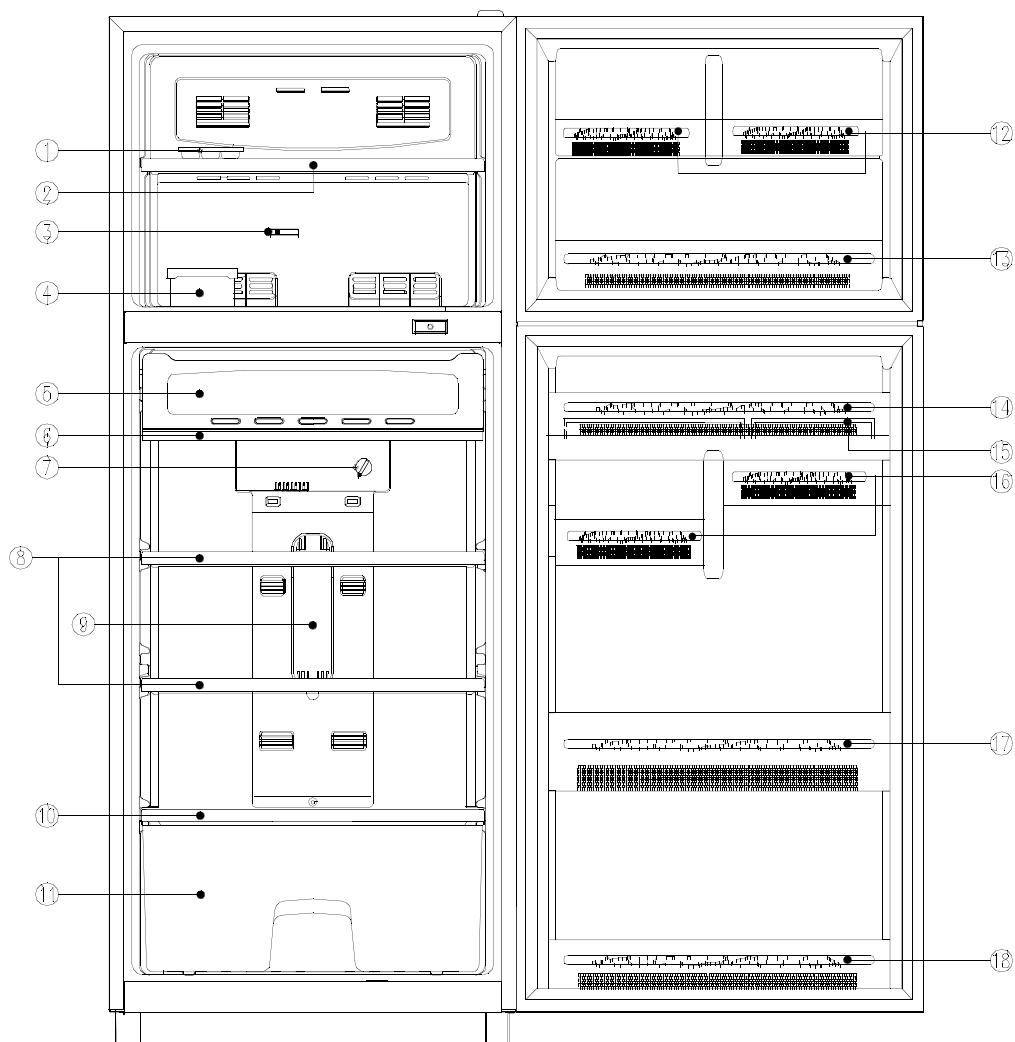


|        | A    | B      |
|--------|------|--------|
| FR-360 | 1074 | 1030.5 |
| FR-390 | 1124 | 1080.5 |

# WIRING DIAGRAM

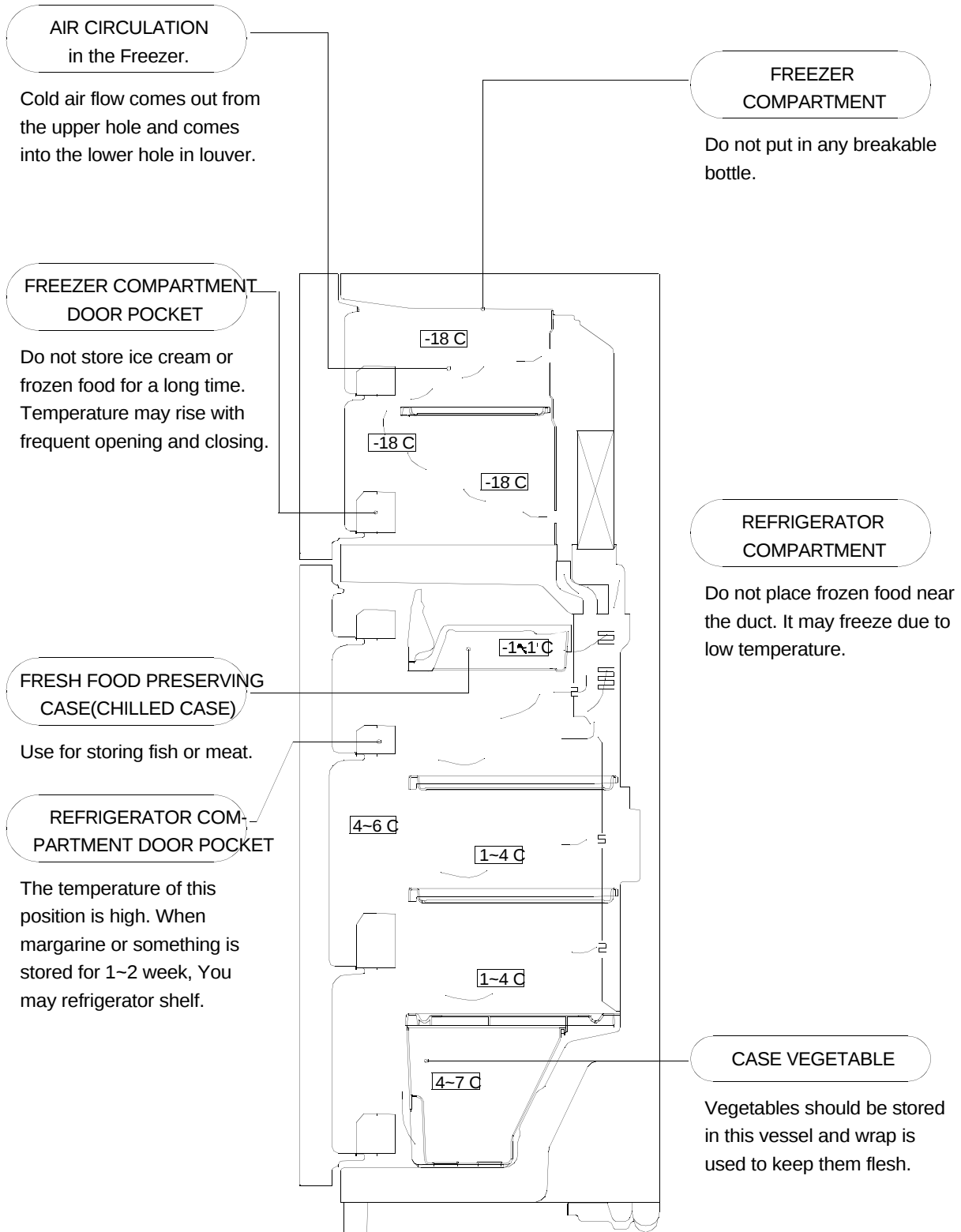


# NAME OF PARTS

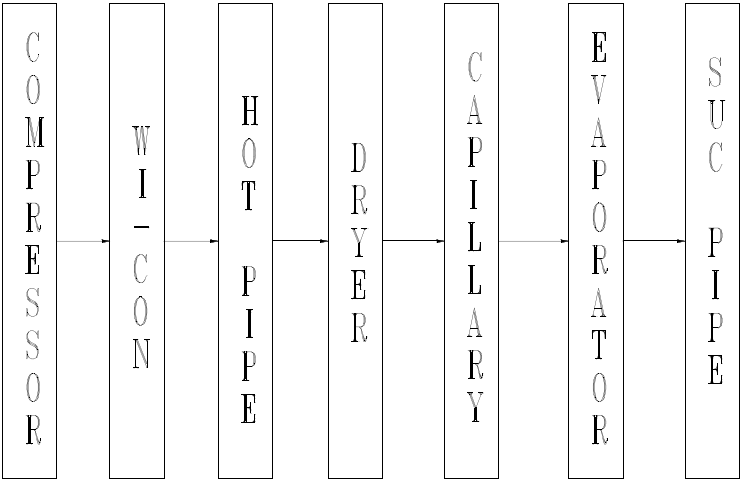
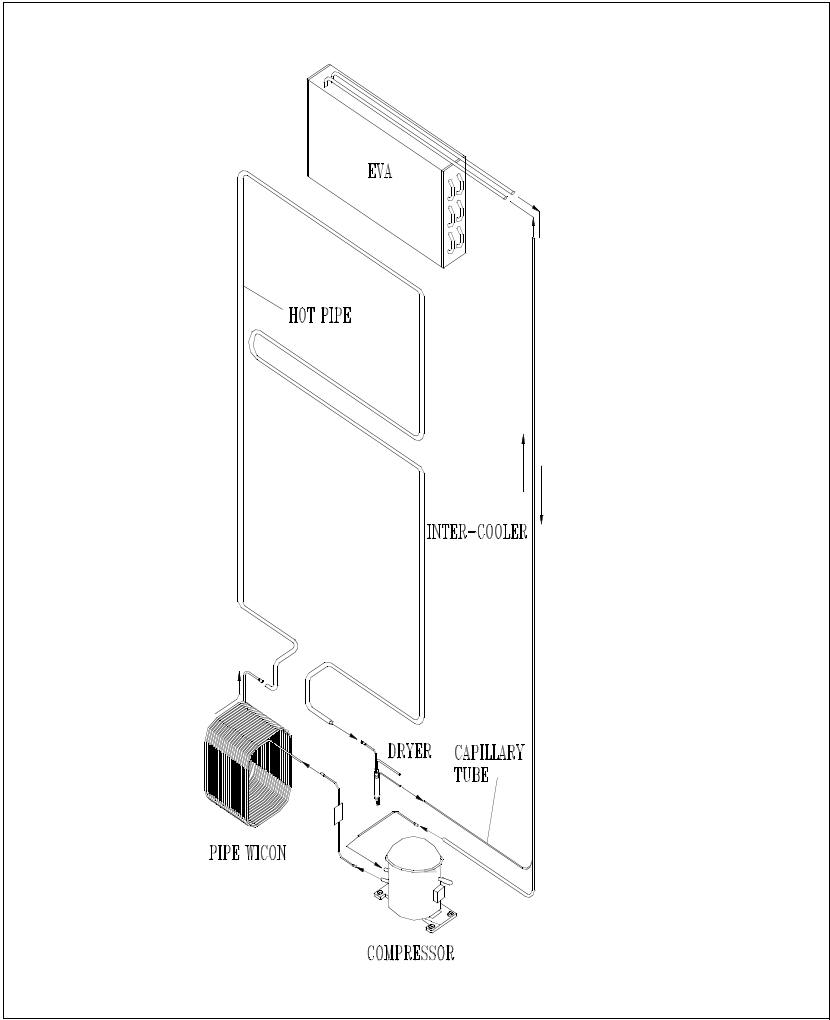


- |                                              |                            |
|----------------------------------------------|----------------------------|
| 1 CASE ICING                                 | 9 LAMP COVER (SHADE R)     |
| 2 F SHELF (REMOVABLE)                        | 10 COVER CASE VAGETB       |
| 3 FREEZER TEMPERATURE<br>CONTROL KNOB        | 11 CASE VEGETABLE          |
| 4 CASE ICE                                   | 12 FREEZER POCKET (TOP)    |
| 5 CHILLED CASE DOOR                          | 13 FREEZER POCKET (BOTTOM) |
| 6 CASE CHILLED                               | 14 EGG POCKET (TOP)        |
| 7 REFRIGERATOR TEMPERATURE<br>CONTROL SWITCH | 15 CASE EGG                |
| 8 R SHELF (REMOVABLE)                        | 16 UTILITY POCKET (BOTTOM) |
|                                              | 17 BOTTLE POCKET (TOP)     |
|                                              | 18 BOTTLE POCKET (BOTTOM)  |

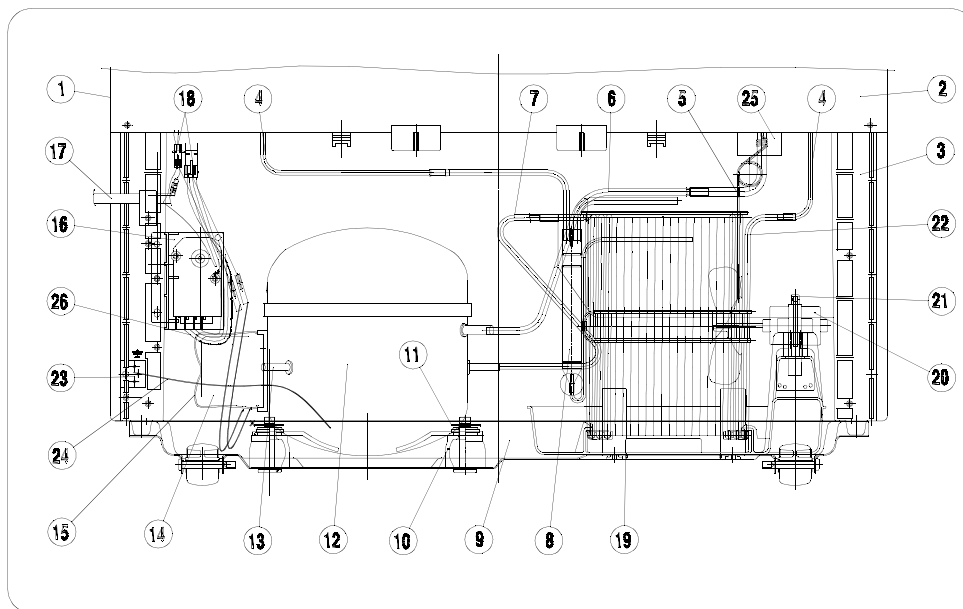
# AIR FLOW DIAGRAM



# REFRIGERANT CYCLE DIAGRAM



# MACHINE ROOM VIEW AND PART LIST



| NO. | PART NAME       | NO. | PART NAME          |
|-----|-----------------|-----|--------------------|
| 1   | CABINET AS      | 14  | SWITCH P-RELAY AS  |
| 2   | COVER CAB       | 15  | BAND RELAY         |
| 3   | BASE CAB AS     | 16  | BOX POWER AS       |
| 4   | PIPE HOT        | 17  | CORD POWER AS      |
| 5   | PIPE SUC AS     | 18  | HARNESS MAIN       |
| 6   | PIPE SUC CONN   | 19  | CASE VAPORI        |
| 7   | PIPE CONN A     | 20  | C-FAN MOTOR        |
| 8   | DRYER AS        | 21  | FIXTURE C MOTOR AS |
| 9   | BASE COMP AS    | 22  | WI-CON AS          |
| 10  | ABSORBER COMP   | 23  | BRACKET EARTH      |
| 11  | WASHER COMP * T | 24  | WIRE EARTH         |
| 12  | COMPRESSOR      | 25  | BANGJIN GUM        |
| 13  | PIPE SERVICE    | 26  | HARNESS TIMER AS   |

# MAIN COMPONENTS

## 1.COMPRESSOR

| REFRIGERANT     | R12        |            |            |            |
|-----------------|------------|------------|------------|------------|
| VOLTAGE ( V/HZ) | 110/60     | 127/60     | 220~240/50 | 220V/60    |
| COMP MODEL      | CL23YE-3   | CL23YE-2   | SL25YE-5   | PL23YE-4   |
| PART CODE       | 3957123A10 | 3957123A20 | 3954125A50 | 3956123A40 |
| STARTING TYPE   | CSIR       | CSIR       | RSIR       | RSCR       |
| REFRIGERANT(g)  | 130        |            |            |            |

| REFRIGERANT     | R134a      |            |             |            |            |
|-----------------|------------|------------|-------------|------------|------------|
| VOLTAGE ( V/HZ) | 110 / 60   | 115 / 60   | 220~240/50  |            | 220V/60    |
| COMP MODEL      | HEL23YG-3  | HEL21YH-1  | HSL25YE-5   | HPL25YG2-5 | HPL23YE-4  |
| PART CODE       | 3953123R30 | 3953121S10 | 39524125G50 | 3956125R50 | 3956123G40 |
| STARTING TYPE   | RSCR       | RSCR       | RSIR        | RSCR       | RSCR       |
| REFRIGERANT(g)  | 115        |            |             |            |            |

## 2. RELAY

| REFRIGERANT     | R12         |             |             |             |
|-----------------|-------------|-------------|-------------|-------------|
| VOLTAGE ( V/HZ) | 110/60      | 127/60      | 220~240/50  | 220V/60     |
| RELAY MODEL     | 427THBYY-52 | 414THBYY-52 | 232THBYY-52 | 197SHBYY-52 |
| PART CODE       | 3018114661  | 3018114641  | 3018114631  | 3018114621  |
| PTC RESISTANCE  | S068        | S068        | S220        | S330        |

| REFRIGERANT     | R134a       |             |             |             |             |
|-----------------|-------------|-------------|-------------|-------------|-------------|
| VOLTAGE ( V/HZ) | 110 / 60    | 115 / 60    | 220~240/50  |             | 220V/60     |
| RELAY MODEL     | 762SHBYY-52 | 762SHBYY-52 | 276THBYY-52 | 213NHBYY-52 | 174SHBYY-52 |
| PART CODE       | 3018114720  | 3018114720  | 3018114101  | 3018116911  | 3018114710  |
| PTC RESISTANCE  | S068        | S068        | S220        | S330        | S330        |

## 3. STARTING CAPACITOR

| REFRIGERANT     | R12          |        |            |         |
|-----------------|--------------|--------|------------|---------|
| VOLTAGE ( V/HZ) | 110/60       | 127/60 | 220~240/50 | 220V/60 |
| PART CODE       | 3016400100   |        | X          | X       |
| SPEC.           | 200VAC 100μF |        | X          | X       |

| REFRIGERANT     | R134a    |          |            |   |         |
|-----------------|----------|----------|------------|---|---------|
| VOLTAGE ( V/HZ) | 110 / 60 | 115 / 60 | 220~240/50 |   | 220V/60 |
| PART CODE       | X        | X        | X          | X | X       |
| SPEC.           | X        | X        | X          | X | X       |

## MAIN COMPONENTS

### 4. RUNNING CAPACITOR

| REFRIGERANT     | R12    |        |            |   |            |
|-----------------|--------|--------|------------|---|------------|
| VOLTAGE ( V/HZ) | 110/60 | 127/60 | 220~240/50 |   | 220V/60    |
| PART CODE       | X      | X      | X          | X | 400EL15110 |
| SPEC.           | X      | X      | X          | X | 350VAC 5μF |

| REFRIGERANT     | R134a        |          |            |            |            |
|-----------------|--------------|----------|------------|------------|------------|
| VOLTAGE ( V/HZ) | 110 / 60     | 115 / 60 | 220~240/50 |            | 220V/60    |
| PART CODE       | 400EL15130   |          | X          | 3016401110 | 400EL15110 |
| SPEC.           | 230VAC 10βμF |          | X          | 350VAC 4μF | 350VAC 5μF |

### 5. F-FAN MOTOR

| REFRIGERANT     | R12,R134a  |            |            |            |            |
|-----------------|------------|------------|------------|------------|------------|
| VOLTAGE ( V/HZ) | 110 / 60   | 115 / 60   | 220/50     | 230~240/50 | 220V/60    |
| SPEC            | 110V/60HZ  |            | 220V/50HZ  | 240V/50HZ  | 220V/60HZ  |
| PART CODE       | 3015904320 | 3015904270 | 3015904210 | 3015904200 | 3015904220 |
| REVOLUTION      | 2700RPM    | 2700RPM    | 2500RPM    | 2500RPM    | 2700RPM    |

### 6. C- FAN MOTOR

| REFRIGERANT     | R12,R134a  |          |            |            |
|-----------------|------------|----------|------------|------------|
| VOLTAGE ( V/HZ) | 110 / 60   | 115 / 60 | 220~240/50 | 220V/60    |
| SPEC.           | 110V/60HZ  |          | 230V/50HZ  | 220V/60HZ  |
| PART CODE       | 3015909900 |          | 3015909800 | 3015910000 |
| REVOLUTION      | 2100RPM    |          | 2100RPM    | 2100RPM    |

### 7. DEFROST HEATER

| REFRIGERANT     | R12,R134a  |          |            |         |
|-----------------|------------|----------|------------|---------|
| VOLTAGE ( V/HZ) | 110 / 60   | 115 / 60 | 220~240/50 | 220V/60 |
| SPEC (W)        | 110V 148W  |          | 220V 148W  |         |
| PART CODE       | 3012804300 |          | 3012804200 |         |

### 8. LAMP ASSEMBLY

| REFRIGERANT     | R12,R134a  |          |            |         |
|-----------------|------------|----------|------------|---------|
| VOLTAGE ( V/HZ) | 110 / 60   | 115 / 60 | 220~240/50 | 220V/60 |
| SPEC (W)        | 120V 15W   |          | 240V 15W   |         |
| PART CODE       | 3016800050 |          | 3016800020 |         |

9. DEFROST TIMER

| REFRIGERANT     | R12,R134a     |          |                  |         |
|-----------------|---------------|----------|------------------|---------|
| VOLTAGE ( V/HZ) | 110 / 60      | 115 / 60 | 220~240/50       | 220V/60 |
| SPEC (W)        | 100~127V/60HZ |          | 220~240V/50,60HZ |         |
| PART CODE       | 3018101200    |          | 3018100310       |         |

10. DRYER

| REFRIGERANT | R12        | R134a      |
|-------------|------------|------------|
| SPEC (g)    | 10g        | 15g        |
| PART CODE   | 3016806300 | 3016806400 |

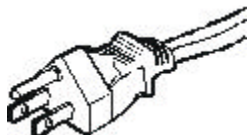
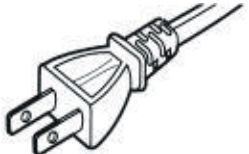
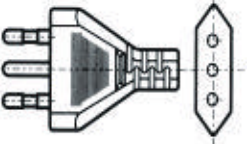
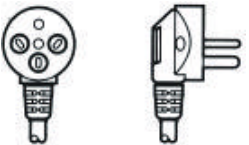
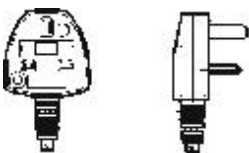
11. FREEZER DOOR

| Assy F Door | R-12       | R-134a     |
|-------------|------------|------------|
| FR-360      | 3010080310 | 3010080300 |

12. REFRIGERATOR DOOR

| Assy R Door | R-12         |            | R-134a       |            |
|-------------|--------------|------------|--------------|------------|
|             | Non Key Type | Key Type   | Non Key Type | Key Type   |
| FR-360      | 3010081010   | 3010084100 | 3010081000   | 3010084110 |
|             |              |            |              |            |

# POWER CORD

| NO | SHAPE OF POWER CORD                                                                 | PART CODE  | DESCRIPTION | REMARK                                      |
|----|-------------------------------------------------------------------------------------|------------|-------------|---------------------------------------------|
| 1  |    | 3011315000 | CP-2PIN     | For european country                        |
| 2  |    | 3010097000 | CP-2PIN     | For other country                           |
| 3  |    | 4006D17101 | KP-30       | For America & El Salvador                   |
| 4  |   | 3010096800 | KP-211      | For Japan & Taiwan                          |
| 5  |  | 3011300801 | BP-3PIN     |                                             |
| 6  |  | 3011303010 | # 267       | For Chile                                   |
| 7  |  | 3011315310 |             | For Israel                                  |
| 8  |  | 3011303050 | BS-1363A    | "For U.K, Middle Asia Singapore & Malaysia" |
| 9  |  | 3011301200 | KP-551/550  | For China & Australia                       |

## PART LIST (FR-360)

| NO    | PART CODE  | PART NAME            | PART DESCRIPTION      | QUANTITY | REMARK |
|-------|------------|----------------------|-----------------------|----------|--------|
| 1     |            | ASSY CAB URT         | FR-360(R-141b) - HCFC | 1        |        |
|       |            | ASSY CAB URT         | FR-360(R-11) - CFC    | 1        |        |
|       |            |                      |                       |          |        |
|       |            |                      |                       |          |        |
| 1-1   | 3017001700 | EVAPORATOR SAS       |                       | 1        |        |
| 1-2   | 3018111801 | SWITCH BI-MATAL AS   | ST-3A AC250V 5A       | 1        |        |
| 1-3   | 3017200602 | FUSE TEMP AS         |                       | 1        |        |
| 1-4   | 4017Z90590 | FIXTURE FUSE TEMP    |                       | 1        |        |
| 1-5   |            | HEATER D AS          |                       | 1        |        |
| 1-5-1 | 4017Z73570 | COVER DEFROST HTR *T | AL T0.4               | 1        |        |
| 1-5-2 |            | HEATER D AS          |                       | 1        |        |
| 1-5-3 | 4017Z73580 | COVER DEFROST HTR *U | AL T0.4               | 1        |        |
| 2     |            | MACHINE ROOM         |                       |          |        |
| 2-1   | 3010317530 | BASE COMP AS         | SBHG T1.0             | 1        |        |
| 2-2   | 3010100201 | ABSORBER COMP        | NR H=40               | 4        |        |
| 2-3   | 3012610000 | BAND RELAY           | SK-5 T0.7             | 1        |        |
| 2-4   |            | SWITCH RELAY AS      |                       | 1        |        |
| 2-5   | 3016002500 | SPECIAL WASHER       | SWRH                  | 4        |        |
| 2-6   |            | COMPRESSOR           |                       | 1        |        |
| 2-7   |            | DRYER AS             |                       | 1        |        |
| 2-8   | 3013201710 | HOSE DRAIN B         | PP                    | 1        |        |
| 2-9   | 7112401211 | SCREW TAPPING        | T1 TRS 4 X 12         | 2        |        |
| 2-10  | 3014436300 | PIPE WICON AS        |                       | 1        |        |
| 2-11  | 3011200500 | CLAMP FAN            | SUS304                | 1        |        |
| 2-12  | 3011802200 | FAN                  | ABS 3.17              | 1        |        |
| 2-13  | 3012006000 | FIXTURE C MOTOR AS   |                       | 1        |        |
| 2-14  |            | MOTOR C              |                       | 1        |        |
| 2-15  | 3011117400 | CASE VAPORI          | PP                    | 1        |        |
| 3     |            | MOTOR F AS           |                       | 1        |        |
| 3-1   | 4017Z32244 | COVER FAN MOTOR(B)   | HIPS                  | 1        |        |
| 3-2   | 4017Z08430 | ABSORBER MOTOR       | EPR-B3                | 2        |        |
| 3-3   |            | MOTOR AS             |                       | 1        |        |
| 3-4   | 4017Z32233 | COVER FAN MOTOR(C)   | HIPS                  | 1        |        |
| 3-5   | 4019H32230 | COVER FAN MOTOR(A)   | HIPS                  | 1        |        |
| 3-6   | 4019H10310 | FAN                  | ABS 3.17              | 1        |        |
| 3-7   | 4019H10600 | RING FIX FAN         | STS 27                | 1        |        |

## PART LIST (FR-360)

| NO    | PART CODE  | PART NAME           | PART DESCRIPTION   | QUANTITY | REMARK |
|-------|------------|---------------------|--------------------|----------|--------|
| 4     | 3018906100 | LOUVER AS           |                    | 1        |        |
| 4-1   | 3013327800 | INSU F LOUVER AS    | F-PS               | 1        |        |
| 4-2   | 3013401000 | KNOB F LOUVER       | PP                 | 1        |        |
| 4-3   | 3018905700 | LOUVER F            | PP                 | 1        |        |
| 5     | 3016908700 | DUCT R MULTI AS     |                    | 1        |        |
| 5-1   | 3016907900 | DUCT R MULT         | PP                 | 1        |        |
| 5-2   | 3018301300 | THERMOSTAT          | PFN175D-01, BU274  | 1        |        |
| 5-3   | 7112400811 | SCREW TAPPING       | T2S PAN 4 X 8      | 2        |        |
| 5-4   | 3017903200 | SOCKET R LAMP AS    |                    | 1        |        |
| 5-5   | 3013327900 | INSU R MULT DUCT AS | F-PS               | 1        |        |
| 5-6   | 4008Z14310 | KNOB C/S            | ABS 3.17           | 1        |        |
| 6     |            | ASS Y F DOOR        | FR-360             | 1        |        |
| 6-1   |            | DOOR F URT AS       | PRE+URT(R-141b)    | 1        |        |
| 6-1-1 | 3015200900 | STOPPER * HI        | POM                | 1        |        |
| 6-1-2 | 7112401611 | SCREW TAPPING       | T1TRS 4 X 16 MFZN  | 2        |        |
| 6-1-3 | 4010Y36211 | BUSHING R HANDLE    | PP                 | 1        |        |
| 6-2   | 3-123-6900 | GASKET F DOOR AS    | PVC+MAGNET         | 1        |        |
| 7     |            | ASSY R DOOR         | FR-360             | 1        |        |
|       |            |                     |                    |          |        |
| 7-1   |            | DOOR R URT AS       | PRE+URT( FR-360 )  | 1        |        |
|       |            |                     |                    |          |        |
| 7-1-1 | 4010Y36211 | BUSHINGR HANDLE     | PP                 | 1        |        |
| 7-1-2 | 4010G38023 | BUSHING R DR        | PA-66              | 1        |        |
| 7-1-3 | 4010G38034 | STOPPER R DR        | SGCC T3.0          | 1        |        |
| 7-1-4 | 7122401611 | SCREW TAPPING       | T2TRS 4 X 16       | 2        |        |
| 7-2   | 3012307011 | GASKET R DOOR AS    | PVC+MAGNET(FR-360) | 1        |        |
|       | 3012307111 | GASKET R DOOR AS    | PVC+MAGNET(FR-390) | 1        |        |
| 8     | 3012101300 | FOOT ADJ AS         | PP                 | 2        |        |
| 9     | 3012906300 | HINGE *M AS         | T3.2               | 1        |        |
| 10    | 3016004000 | SPECIAL BOLT        | M6 X L10           | 2        |        |
| 11    | 3011721300 | DOOR SWITCH AS      |                    | 1        |        |
| 12    | 3012906500 | HINGE * T AS        | P/O T2.3           | 1        |        |
| 13    | 3016000301 | SPECIAL SCREW       | M5 X L14           | 3        |        |
| 14    | 3011430100 | COVER *T HI         | PP                 | 1        |        |
| 15    | 7650602011 | BOLT HEX            | M6 X L20           | 1        |        |
| 16    | 4017Z99112 | CASE ICE            | HC-2               | 1        |        |

**PART LIST (FR-360)**

| NO   | PART CODE  | PART NAME            | PART DESCRIPTION | QUANTITY | REMARK |
|------|------------|----------------------|------------------|----------|--------|
| 17   | 3011100300 | CESE ICING           | PP               | 1        |        |
| 18   | 4010Z55112 | SHELF F              | PS               | 1        |        |
| 19   | 4010E30312 | CASE CHILLED         | PS               | 1        |        |
| 20   | 3011721500 | DOOR C/C             | PS               | 1        |        |
| 21   | 4010C55211 | SHELF R              | PS               | 2        |        |
| 22   | 3011424800 | COVER VEGETB CASE    | PS               | 1        |        |
| 23   | 3011115500 | CASE VEGETB          | PS               | 1        |        |
| 24   |            | LAMP AS              |                  | 1        |        |
| 25   | 3015503600 | WINDOW R             | HC-2             | 1        |        |
| 27   | 3012400800 | GRILLE               | PP               | 1        |        |
| 28   | 7112401211 | SCREW TAPPING        | T1TRS 4 X 12     | 5        |        |
| 29   |            | CORD POWER AS        |                  | 1        |        |
| 30   | 3012906700 | HINGE *U AS          | P/D T3.2         | 1        |        |
| 31   | 7650602011 | BOLT HEX             | M6 X 20          | 2        |        |
| 32   | 3019016300 | POCKET F *T          | PS               | 2        |        |
| 33   | 3019016400 | POCKET F *U          | PS               | 1        |        |
| 34   | 3011165800 | CASE EGG             | PS               | 2        |        |
| 35   | 3019016500 | POCKET EGG           | PS               | 1        |        |
| 36   | 3019016600 | POCKET MULTI         | PS               | 2        |        |
| 37   | 3019016710 | POCKET JUMBO         | PS               | 1        |        |
| 38   | 3019016800 | POCKET SM            | PS               | 1        |        |
| 39   | 3012624310 | ASSY F HANDLE        | ABS              | 1        |        |
| 39-1 | 3012624300 | HANDLE F             | ABS              | 1        |        |
| 39-2 | 3011611300 | DECORATOR F HANDLE A | ABS              | 1        |        |
| 39-3 | 3011611410 | DECORATOR F HANDLE B | ABS              | 1        |        |
| 39-4 | 7002501611 | SCREW MACHINE        | TRS 5 X 15 MFZN  | 2        |        |
| 40   | 3012624410 | ASSY R HANDLE        | ABS              | 1        |        |
| 40-1 | 3012624400 | HANDLE R             | ABS              | 1        |        |
| 40-2 | 3011611500 | DECORATOR R HANDLE   | ABS              | 1        |        |
| 40-3 | 7002501611 | SCREW MACHINE        | TRS 5 X 15 MFZN  | 2        |        |

# EXPLODED VIEW

