SEGA

AIRLINE PILOTS™

STD TYPE

OWNER'S MANUAL

Warranty

Your new Sega Product is covered for a period of 90 days from the date of shipment. This certifies that the Printed Circuit Boards, Power Supplies and Monitor are to be free of defects in workmanship or materials under normal operating conditions. This also certifies that all Interactive Control Assemblies are to be free from defects in workmanship and materials under normal operating conditions. No other product in this machine is hereby covered.

Sellers sole liability in the event a warranted part described above fails shall be, at its option, to replace or repair the defective part during the warranty period. For Warranty claims, contact your Sega Distributor.

Should the Seller determine, by inspection that the product was caused by Accident, Misuse, Neglect, Alteration, Improper Repair, Installation or Testing, the warranty offered will be null and void.

Under no circumstances is the Seller responsible for any loss of profits, loss of use, or other damages.

This shall be the exclusive written Warranty of the original purchaser expressed in lieu of all other warranties expressed or implied. Under no circumstance shall it extend beyond the period of time listed above.

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                          SPECIFICATIONS

Installation space:                37.2 in.(W) x 64.0 in.(D)

Height:                            73.6 in.

Weight:                            Approx. 617.3 lbs.

Power maximum current:             2.3 Amp AC 120V 60 Hz


MONITOR:                           29" COLOR MONITOR
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INTRODUCTION OF THE OWNERS MANUAL

SEGA ENTERPRISES, LTD., has for more than 30 years been supplying various innovative and popular amusement products to the world market. This Owners Manual is intended to provide detailed descriptions together with all the necessary installation, game settings and parts ordering information related to AIRLINE PILOTS STD TYPE, a new SEGA product.

This manual is intended for those who have knowledge of electricity and technical expertise, especially in ICs, CRTs, microprocessors, and circuit boards. Read this manual carefully to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstances touch the interior system. Should the need arise, contact our main office, or the closest branch office listed below.

SEGA ENTERPRISES, INC. (USA)
Customer Service
45133 Industrial Drive
Fremont, CA 94538
Phone 415-701-6580
Fax   415-701-6594
7:30 am - 4:00 pm, Pacific Standard Time
Monday thru Friday

General Precautions

Follow Instructions: All operating and use instructions should be followed.

Attachments: Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Accessories: Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use only mounting accessories recommended by the manufacturer.

Moving the Product: This product should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product to overturn.

Ventilation: Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product and to protect it from overheating; these openings must not be blocked or covered. The openings should never be blocked by placing the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

Power Sources: This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your location, consult your local power company. For products intended to operate from battery power or other sources, refer to the operating instructions.

Grounding or Polarization: This product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

Power Cord Protection: Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Overloading: Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Object and Liquid Entry: Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

Servicing: Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a) If the power cord or plug is damaged;
b) If liquid has been spilled, or objects have fallen into the product;
c) If the product has been exposed to rain or water;
d) If the product does not operate normally when following the operating instructions. Adjust only those controls that are explained in the operating instructions. An improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation;
e) If the product has been dropped or damaged in any way;
f) When the product exhibits a distinct change in performance; this indicates a need for service.

Replacement Parts: When replacement parts are required, be sure the service technician has used replacements parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check: Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Heat: The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Lithium Battery- Dispose of batteries only in accordance with the battery manufacturer's recommendations. Do not dispose in an open flame condition, since the battery may explode.

Cleaning: When cleaning the monitor glass, use water or glass cleaner and a soft cloth. Do not apply chemicals such as benzine, thinner, etc.

Location: This an indoor game machine, DO NOT install it outside. To ensure proper usage, avoid installing indoors in the places mentioned below:

> • Places subject to rain/water leakage, or condensation due to humidity;
>
> • In close proximity to a potential wet area;
>
> • Locations receiving direct sunlight;
>
> • Places close to heating units or hot air;
>
> •In the vicinity of highly inflammable/volatile chemicals or hazardous matter;
>
> • On sloped surfaces;
>
> • In the vicinity of emergency response facilities such as fire exits and fire extinguishers;
>
> • Places subject to any type of violent impact;
>
> • Dusty places.

INSTALLATION PRECAUTIONS

> • Verify the amperage of the branch circuit outlet before plugging in the power plug. Do not over-load the circuit.
>
> • Avoid using an extension cord. If one is required, use an extension cord of type SJT, 16/3 AWG rated min. 120 VAC, 7A.
>
> • Moving this unit requires a minimum clearance (of doors, etc.) of 32" (W) by 77" (H).
>
> • For the operation of this machine, secure a minimum area of 32" (W) by 42"(D).

REGULATORY APPROVALS

This game has been tested and found to comply with the Federal Communications Commission Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This game has been tested and listed by Underwriters Laboratories, Inc., to ANSI/UL22.

LISTED

UL 5K92

AMUSEMENT MACHINE

1 . PRECAUTIONS TO BE HEEDED FOR OPERATION

In order to prevent accidents, be sure to comply with the following points before and during operation.

PRECAUTIONS TO BE HEEDED FOR OPERATION BEFORE STARTING THE OPERATION

WARNING!

● In order to avoid accidents, check the following before starting the operation: Check if all of the adjusters are in contact with the surface. If they are not, the cabinet can move and cause an accident.

Ensure that all of the Adjusters are in contact with the floor.
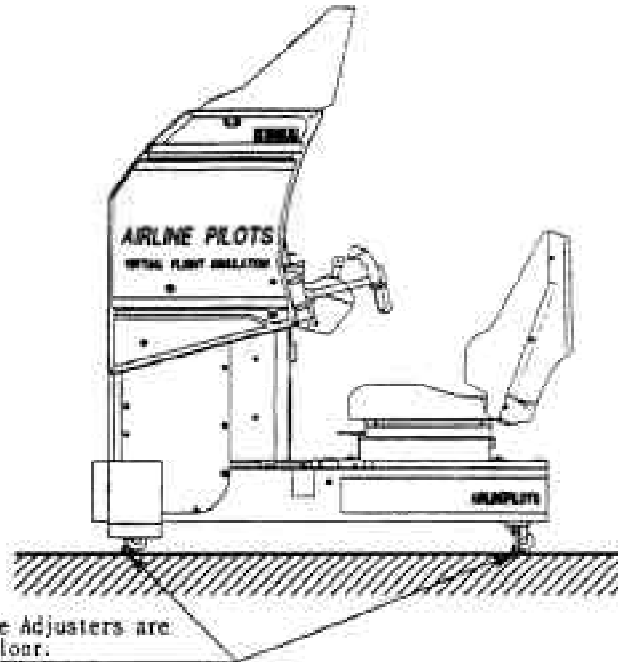
● Do not climb on the product. Climbing on the product can cause falling down accidents. To check the top portion of the product, use a step.

● To avoid electric shock, check to see if door & cover parts are closed.

● To avoid electric shock, short circuit and or parts damage, do not put the following items on or in the periphery of the product:

● Flower vases, flower pots, cups, water tanks, cosmetics, and receptacles/ containers/vessels containing chemicals and water.

CAUTION!

To avoid injury, be sure to provide sufficient space by considering the potentially crowded situation at the installation location. Insufficient installation space can cause the player to come into contact with or hit others and result in injury or trouble.

PRECAUTIONS TO BE HEEDED DURING OPERATION

⚠️ **CAUTION!**

To avoid injury and accidents, those who fall under the following catagories are not allowed to play the game:
* Intoxicated persons
* Those who have high blood pressure or heart problems.
* Those who have experienced muscle convulsion or loss of consciousness when playing video games, etc.
* Persons susceptible to motion sickness.
* Persons whose acts runs counter to the products warning displays.

* Instruct those who wear high-heeled shoes to refrain from playing the game by explaining that playing the game with high-heeled shoes is very dangerous and likely to cause a potentially hazardous situation.

⚠️ **CAUTION!**

● To avoid electric shock and short circuit, do not allow customers to put hands and fingers or extraneous matter in openings of the product or small openings in or around doors.

● To avoid electric shock and short circuit, do not allow the customers to unplug the power plug without a justifiable reason.

● Although this product has the accident preventive covering attached to potentially hazardous places where hand and fingers could be caught, small children are unable to perceive hazards. Use care so that small children do not come close to the product when in play.

● Immediately stop such violent acts as hitting and kicking the product. Such violent acts can cause parts damage and/or falling down, resulting in injury due to fragments and falling down.

2 . NAME OF PARTS

POP PANEL

BILLBOARD

29 INCH MONITOR

LEVER SWITCH

CONTROL PANEL

LEVER UNIT

COIN CHUTE DOOR

CASHBOX DOOR

PEDAL UNIT

OVERVIEW

AC UNIT

REAR VIEW
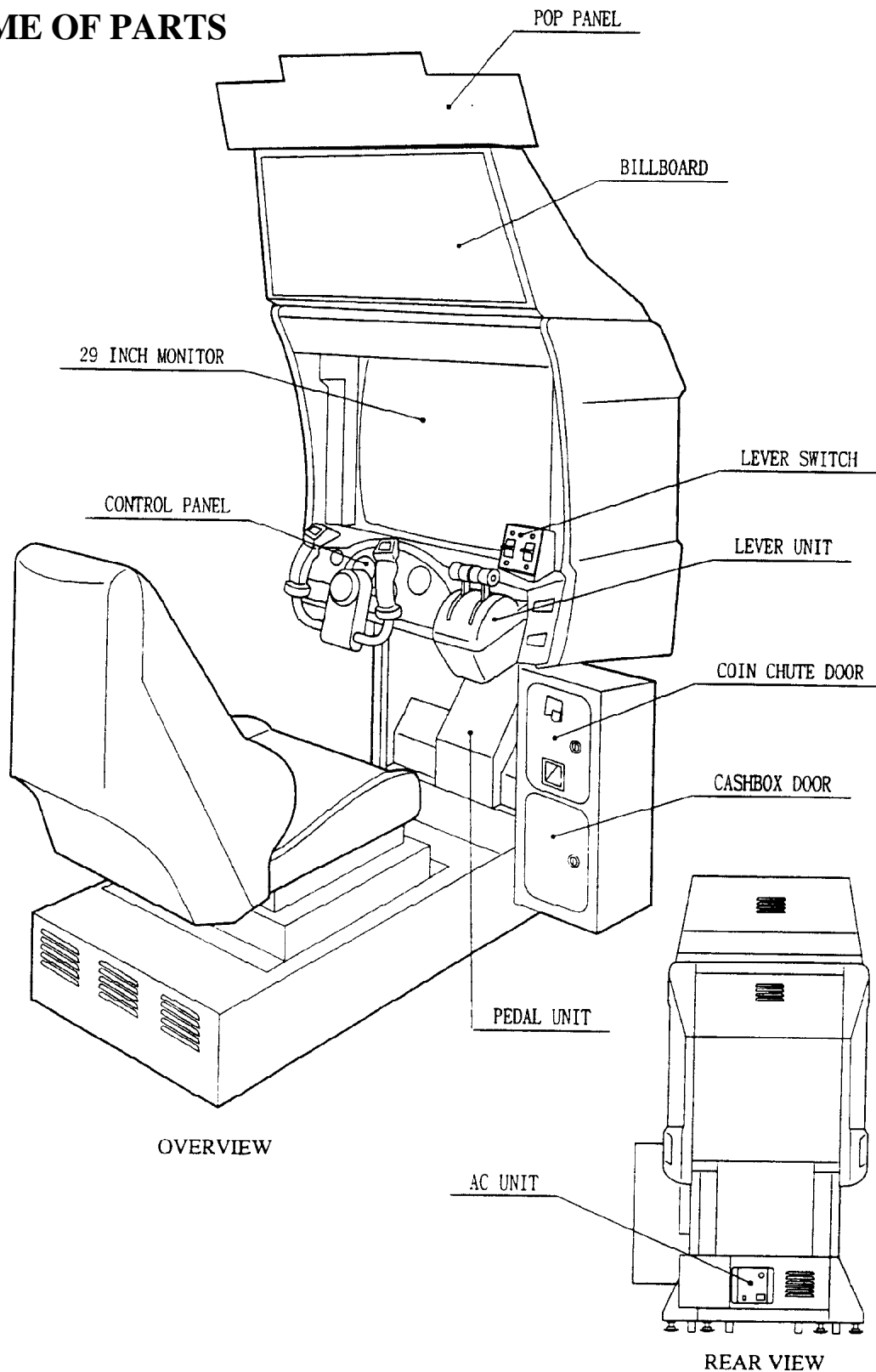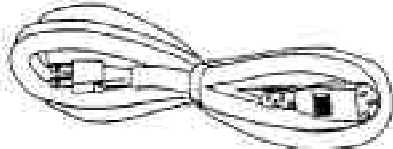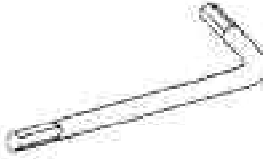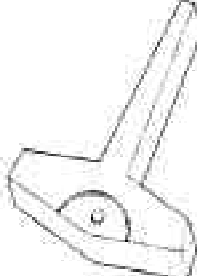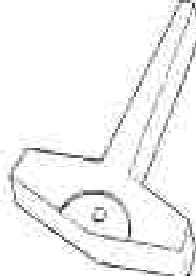
GAME SPECIFICATIONS	WIDTH in.	LENGTH in.	HEIGHT in.	WEIGHT lbs.
	All measurements are and rounded UP			
DURING SHIPPING	42" X	60" X	65"	669 LBS.
WHEN ASSEMBLED	37.25" X	64" X	73.75"	619 LBS.

3. ACCESSORIES

DESCRIPTION	OWNERS MANUAL	KEY MASTER	KEY
Part No. (Qty.)	420-6479-01 (1)	220-5575 (2)	(2)
Note		For opening/closing the doors	For the CASHBOX DOOR

Figures

If Part No. has no description, the Number has not been registered or can not be registered. Such a part may not be obtainable even if the customer desires to purchase it. Therefore, ensure that the part is in safekeeping with you.

AC Cable (Power Cord)
600-6729 (1) for TAIWAN
600-6618 (1) for OTHERS
600-6695 (1) for USA

Used for installation, see ☐3 of Section 6.

TAMPERPROOF WRENCH
M4 540-0006-01 (1)
M8 540-0009-01 (1)

TOOL

SWITCH LEVER (GRAY)
509-5911-G (1)
Spare, see Section 10.

SWITCH LEVER (RED)
509-5911-R (1)
Spare, see Section 10.

CAUTION!

THE SHIPMENT METHOD DESCRIBED BELOW ONLY APPLIES TO 'MODEL 3' BOARDS CONTAINED IN THE FOLLOWING GAMES:

LOST WORLD, VIRTUA FIGHTER 3, SUPER GT, SEGA BASS FISHING, STRIKER 2 HARLEY DAVIDSON, RALLY 2, DAYTONA 2, DIRT DEVILS, HOUSE OF THE DEAD 2, OCEAN HUNTER, STAR WARS TRILOGY, ZOMBIE REVENGE, CRAZY TAXI, **ARILINE PILOTS**

!!NEVER SHIP MODEL 3 / NAOMI GAME BOARDS OUTSIDE OF CAGE!!
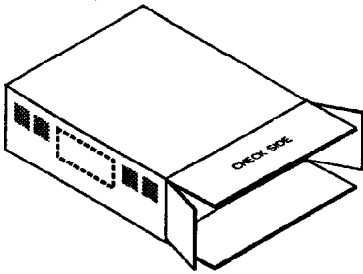
CARTON BOX
601-8928 (1)
Used for transporting the GAME BOARD.
{SUPPLIED WITH YOUR GAME}

DO NOT SHIP GAME BOARD WITHOUT THIS BOX AS IT MAY DAMAGE THE GAME BOARD AND VOID YOUR WARRANTY.

"CHECK SIDE" Display

FILTER BOARD
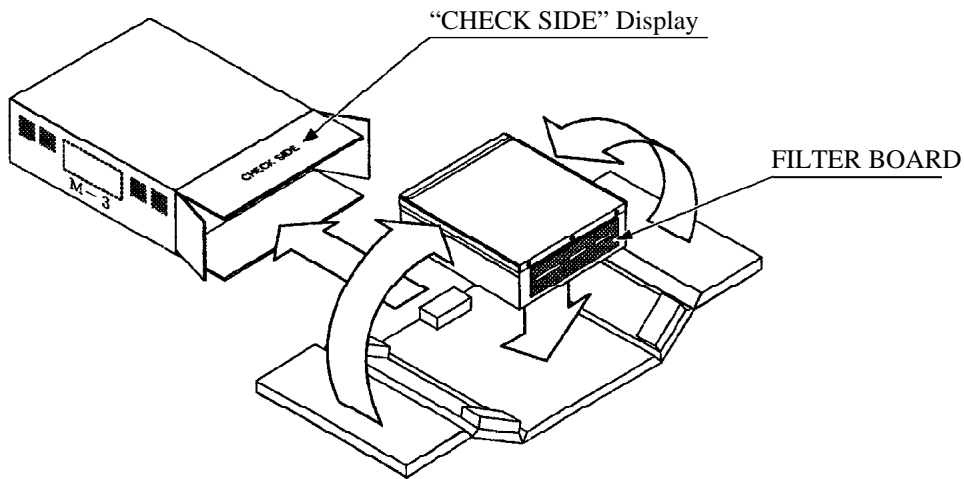
WARNING!

NO OTHER GAMES BOARDS ARE TO BE SHIPPED IN THE CAGE AS THEY MAY BE DAMAGED BEYOND REPAIR. PLEASE SHIP THEM WITHOUT CAGE PROPERLY PROTECTED DURING SHIPPING.

4 . ASSEMBLING AND INSTALLATION

CAUTION!

-Assembling should be performed as per this manual. Since this is a complex machine, erroneous assembling may cause damage to the machine, or malfunctioning to occur.
-When assembling, be sure to perform work by plural persons. Depending on the assembly work, there are some cases in which performing the work by a single person can cause personal injury or parts damage.
-Be careful so as not to damage wirings. Damaged wiring can cause electric shock and short circuit hazards.

When carrying out the assembly work, follow the procedure in the following 5-item sequence:

| 1 | ASSY OF BILLBOARD |

| 2 | SECURING IN PLACE (ADJUSTER ADJUSTMENT) |

| 3 | POWER SUPPLY |

| 4 | ASSEMBLING CHECK |

Note that the tools such as a phillips screwdriver and wrench for M16 hexagon bolt w/24 mm width across flats are required for the assembly work.

| 1 | ASSY OF BILLBOARD |

WARNING!

Due to its large size, it is very difficult for one person alone to install the billboard, Make sure 2 or more persons are available to perform this work. Attempting to perform the installation alone can cause an accident.

① Take out the 2 screws, and remove the Plate Holder & Billboard Plate.

BILLBOARD PLATE

TRUSS SCREW(2).chrome.
M4×8

PLATE HOLDER
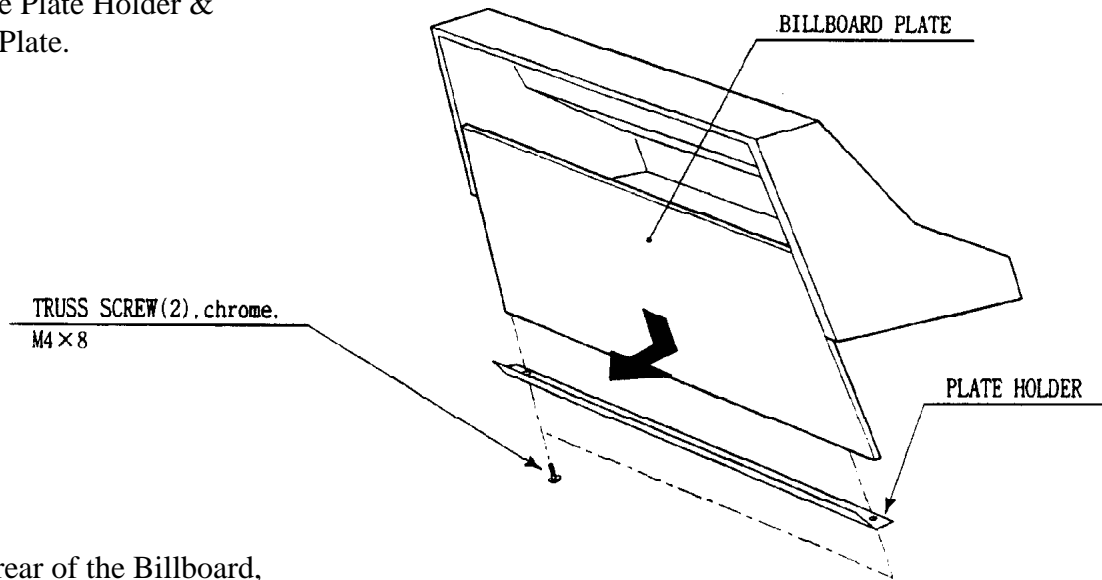
② From the rear of the Billboard, remove the 2 Bolt Lids and the Connector Lid by taking out 2 screws from each

BOLT LID

TRUSS SCREW(6 in total).chrome.
M4×8

CONNECTOR LID

BILLBOARD HOOK
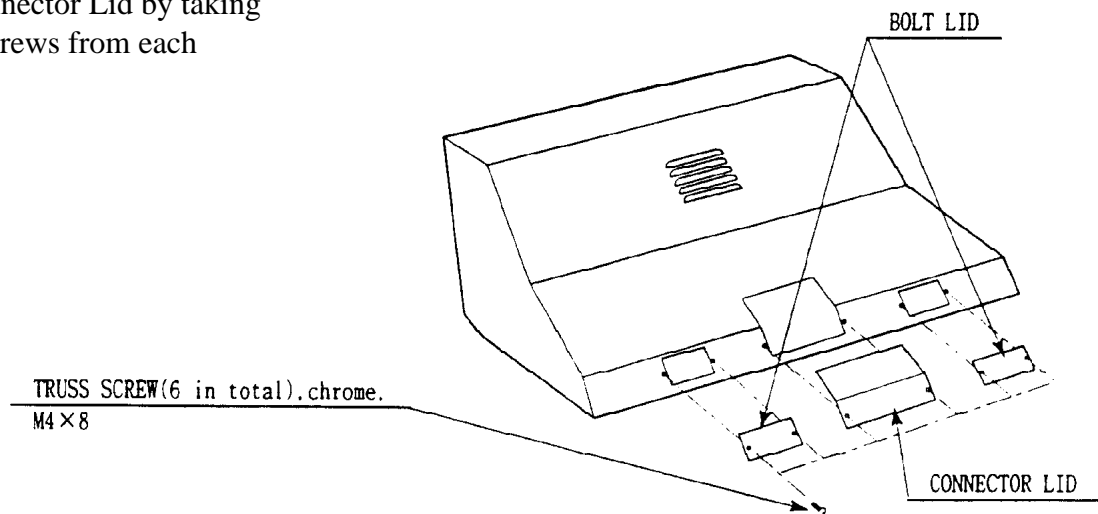
Loosen the 2 Bolts.

③ Loosen the 2 Bolts securing the Billboard Hook.
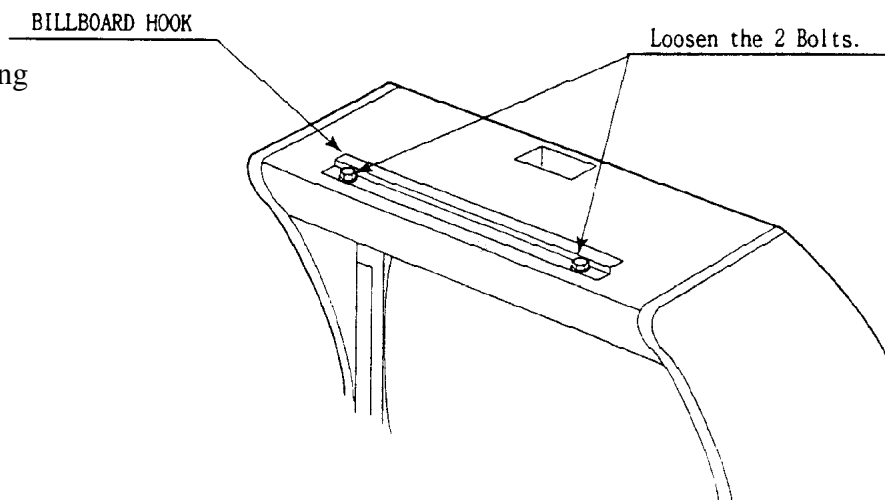
④ Mount the Billboard by hanging on the Billboard Hook, secure the Billboard with 2 Bolts through the square holes of Bolt Lids previously removed, and connect the Connector.

⑤ Install the 2 Bolt Lids and Connector Lid.

Hexagon Bolt(2),black, M8×20, w/spring washer, flat washer used.

Connect the Connector.
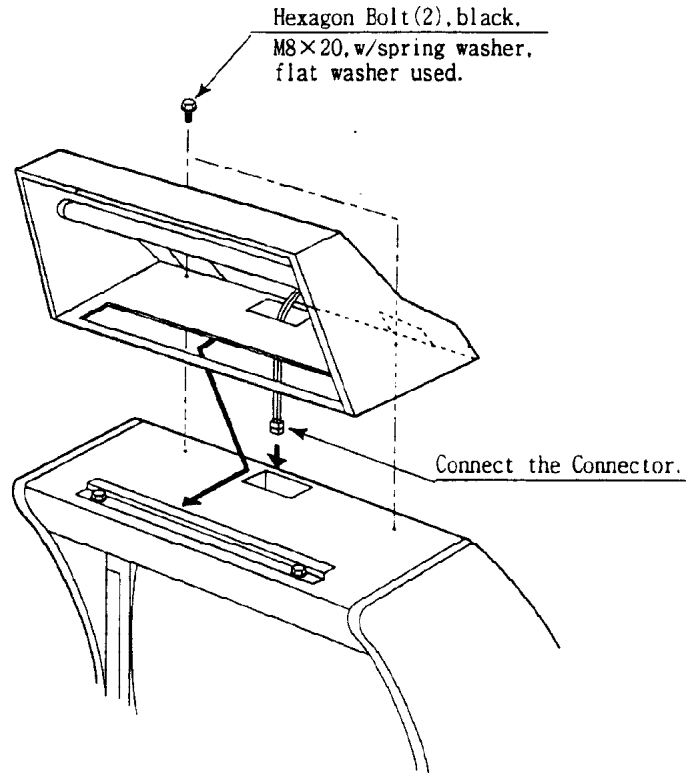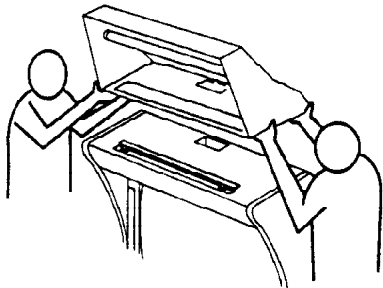
Be sure to perform work by 2 persons.

⑥ Insert the Billboard Holder in place so as to fit the bolt positions, and fasten the bolts to secure the Billboard.

BILLBOARD HOLDER
APC-0012
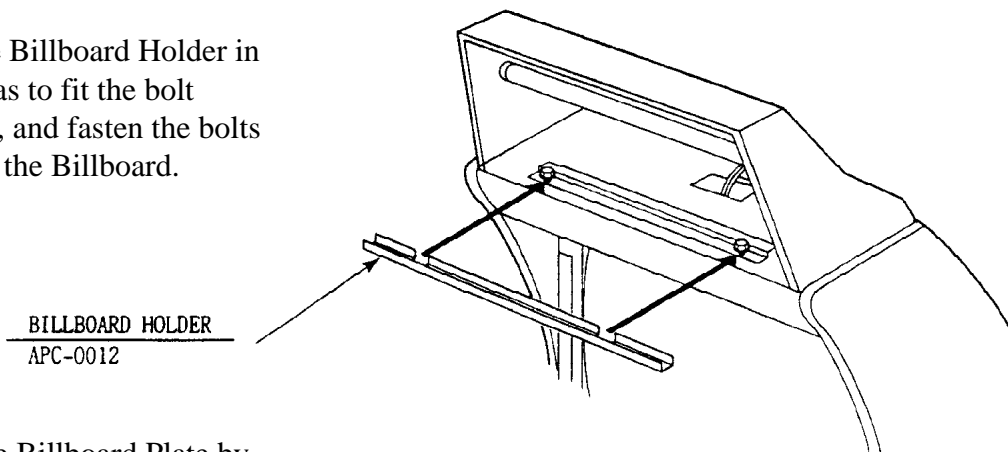
⑦ Install the Billboard Plate by using the procedure opposite ① above

⑧ Apply the oblique line portion of the POP PANEL to the upper rear part of the Billboard. At this time, ensure that the POP does not disappear.
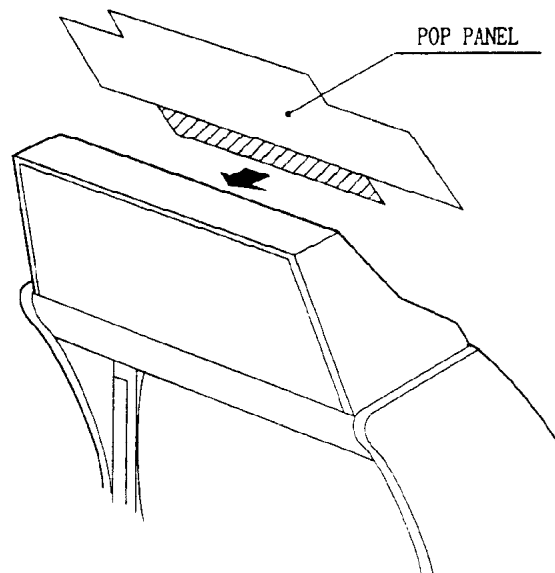
POP PANEL

2 SECURING IN PLACE (ADJUSTER ADJUSTMENT)

This machine has 4 each of casters and adjusters (shown below). When the installation position is determined, cause the adjusters to come into contact with the floor directly, make adjustments in a manner so that the casters will be raised approximately 5mm. from the floor and make sure that the machine position is level.

① Move the machine to the installation position, making sure to provide adequate space for the player to get on and off.

② Cause all of the leg levelers to make contact with the floor. By using a wrench, make adjustments in the height of the leg adjusters to ensure that the machine's position is kept level.

③ After making adjustments, fasten the leg adjuster nut upward and secure the height of the leg adjuster.
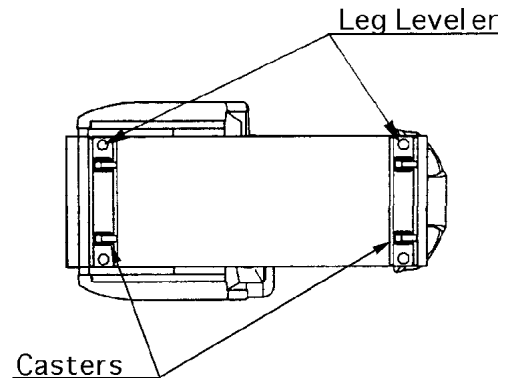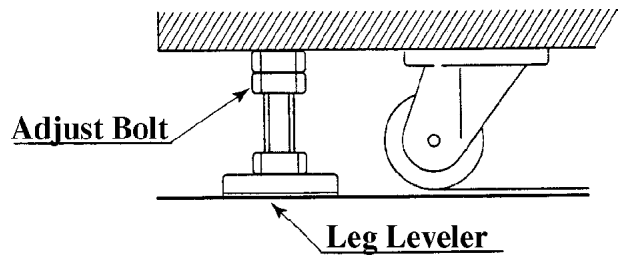
Adjust Bolt

Leg Leveler

Leg Leveler

Casters

3 POWER SUPPLY

Connect the game to the power supply and turn on power to the game. Before connecting power supply be sure that power switch is off

MAIN SW

① Turning the AC unit's main switch on will cause the machine to start the power check and network check automatically.

② In the Power On check, the steering wheel turns left and right, and then returns to the centering position and stops. In this check, the values of the VR inside the control panel are corrected.

③ Until this check is finished, and the steering wheel stops, do not touch the steering wheel or play the game.

If you do, the steering reaction during the game (reaction at the time of course-out or crash) can not be obtained correctly. In the case of an abnormal reaction during the game, turn power on again from the beginning and complete the power on check.

To the Power Supply
Socket outlet
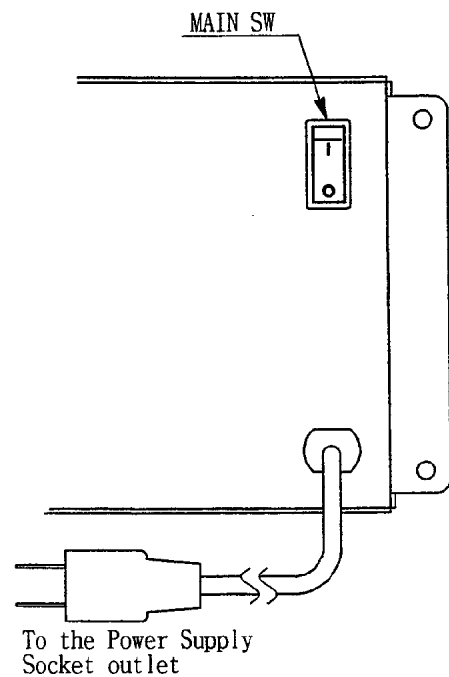
4   ASSEMBLING CHECK

The TEST MENU allows for each part of the cabinet to be checked, the Monitor to be adjusted, and the coin and game related various functions to be performed.

In the TEST MODE, ascertain that the assembly has been made correctly and that the IC BOARD is satisfactory.
In the test mode, perform the following test:

(1) MEMORY TEST

```
                RAM TEST



        IC29  GOOD
        IC35  GOOD
        IC16  GOOD          IC18  GOOD
        IC20  GOOD          IC22  GOOD
        ICO9  GOOD          IC10  GOOD
        IC11  GOOD          IC12  GOOD



        PRESS TEST BUTTON TO EXIT
```

Selecting the RAM TEST and ROM TEST on the test mode menu screen causes the on-board memory to be tested automatically. The game board is satisfactory if the display beside each IC No. shows GOOD.

```
              ROM BOARD TEST
           [AIRLINE PILOTS IN XXXX]


    NO.   TYPE  RESULT  BYTE   WORD
    IC22  32M   ----    XXXX   XXXX
    IC1   64M   GOOD    XXXX   XXXX
    IC2   64M   GOOD    XXXX   XXXX
    IC3   64M   GOOD    XXXX   XXXX
    IC4   64M   GOOD    XXXX   XXXX
    IC5   64M   GOOD    XXXX   XXXX
    IC6   64M   GOOD    XXXX   XXXX
    IC7   64M   GOOD    XXXX   XXXX
    IC8   64M   GOOD    XXXX   XXXX
    IC9   64M   GOOD    XXXX   XXXX
    IC10  64M   GOOD    XXXX   XXXX
    IC11  64M   GOOD    XXXX   XXXX


        PRESS TEST BUTTON TO EXIT
```

(2) C.R.T. TEST

In the TEST mode menu, selecting C.R.T. TEST allows the screen (on which the monitor is tested) to be displayed. Although the monitor adjustments have been made at the time of shipment from the factory, color deviation, etc., may occur due to the effects of geomagnetism, the location of the building's steel frames and other game machines in the periphery. By watching the test mode screen, make judgement as to whether an adjustment is needed. If it is neccessary, adjust the projector by refering to Section 7.

In the C.R.T. test of SYSTEM TEST mode, adjust color and screen size.

In the C.R.T. test of GAME TEST mode, adjust monitor brightness.

SYSTEM TEST mode

C.R.T. TEST 1/2
1   32
RED
GREEN
BLUE
WHITE
PRESS TEST BUTTON TO CONTINUE

C.R.T. TEST 2/2
PRESS TEST BUTTON TO EXIT

GAME TEST mode

C.R.T. TEST
PRESS TEST BUTTON TO EXIT
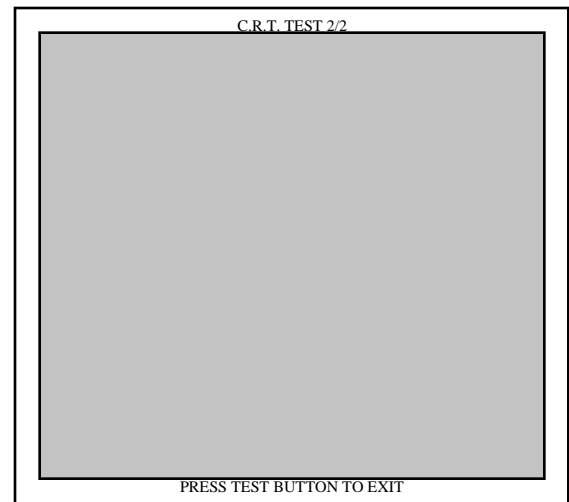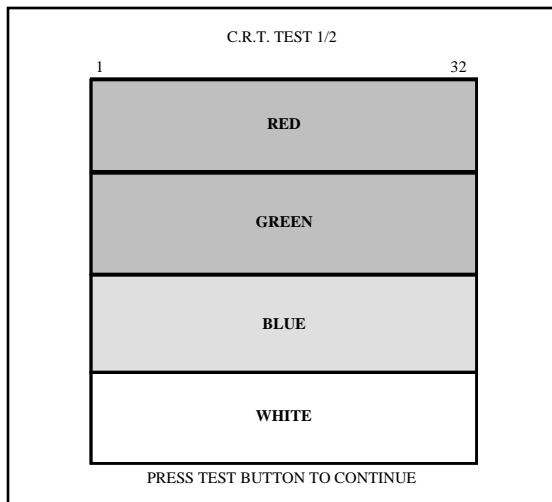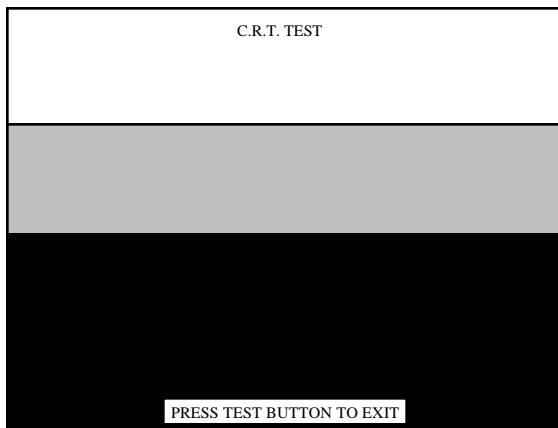
(3) INPUT TEST

```
              INPUT TEST


   LANDING GEAR SWITCH              UP
   FLAP SWITCH                      UP
   VIEW CHANGE BUTTON               OFF
   START BUTTON                     OFF
   SERVICE                          OFF
   TEST                             OFF
   CONTROL WHEEL (AILERON)          ABH
   CONTROL WHEEL (ELEVATOR)         ABH
   RUDDER PEDAL                     ABH
   THRUST LEVER  L                  ABH
   THRUST LEVER  R                  ABH




     PRESS TEST AND SERVICE BUTTON TO EXIT
```

Selecting the INPUT TEST on the game test mode menu screen carses the screen (on which each switch and V.R. are tested) to be displayed. Press each switch. If the display beside each switch indicates "ON," the switch and wiring connections are satisfactory.

(4) OUTPUT TEST

```
              OUTPUT TEST


   START BUTTON LAMP                OFF
   LANDING GEAR UP LAMP             OFF
   LANDING GEAR DOWN LAMP           OFF
   FLAP UP LAMP                     OFF
   FLAP DOWN LAMP                   OFF
   VIEW CHANGE BUTTON LAMP          OFF




  ->EXIT


     SELECT WITH SERVICE BUTTON AND PRESS
                 TEST BUTTON
```

Select OUTPUT TEST from the menu in the game test mode to cause the screen (on which each lamp is tested) to appear. Ensure that each lamp lights up satisfactorily.

(5) SOUND TEST

```
              SOUND   TEST


              No. O






     SELECT WITH SERVICE BUTTON AND PRESS
           TEST BUTTON TO EXIT
```

In the TEST mode, selecting SOUND TEST causes the screen, on which sound related BD and wiring connections are tested, to be displayed. Be sure to check if the sound is satisfactorily emitted from each speaker and that the sound volume is appropriate.

Perform the above inspections also at the time of monthly inspection.

5 . PRECATIONS TO BE HEEDED WHEN MOVING THE MACHINE

WARNING!

- When moving the machine, be sure to pull out the plug from the power supply. Moving the machine with the plug inserted can damage the power cord and cause a fire or electric shock.
- When moving the machine on the floor, retract the Adjusters and ensure that Casters make contact with the floor. During transportation, pay careful attention so that Casters do not tread power cords. Damaging the power cords can cause an electric shock and/or short circuit.
- When lifting the cabinet, be sure to hold the catch portions or bottom part. Lifting the cabinet by holding other portions can damage parts and installation portions, due to the empty weight of the cabinet, and cause personal injury.
- When lifting the machine, do not push the cabinet from the left/right direction. Doing so can cause the cabinet to fall down, resulting in personal injury and or parts damage.

CAUTION!

Use care when handling glass made parts. When the glass is damaged, fragments of glass can cause injury

Do not push the cabinet from the left/right direction.

If the ceiling height is insufficient, first remove the Billboard and then move the machine.

AIRLINE PILOTS
VIRTUAL FLIGHT SIMULATION

Have casters make contact with the floor.
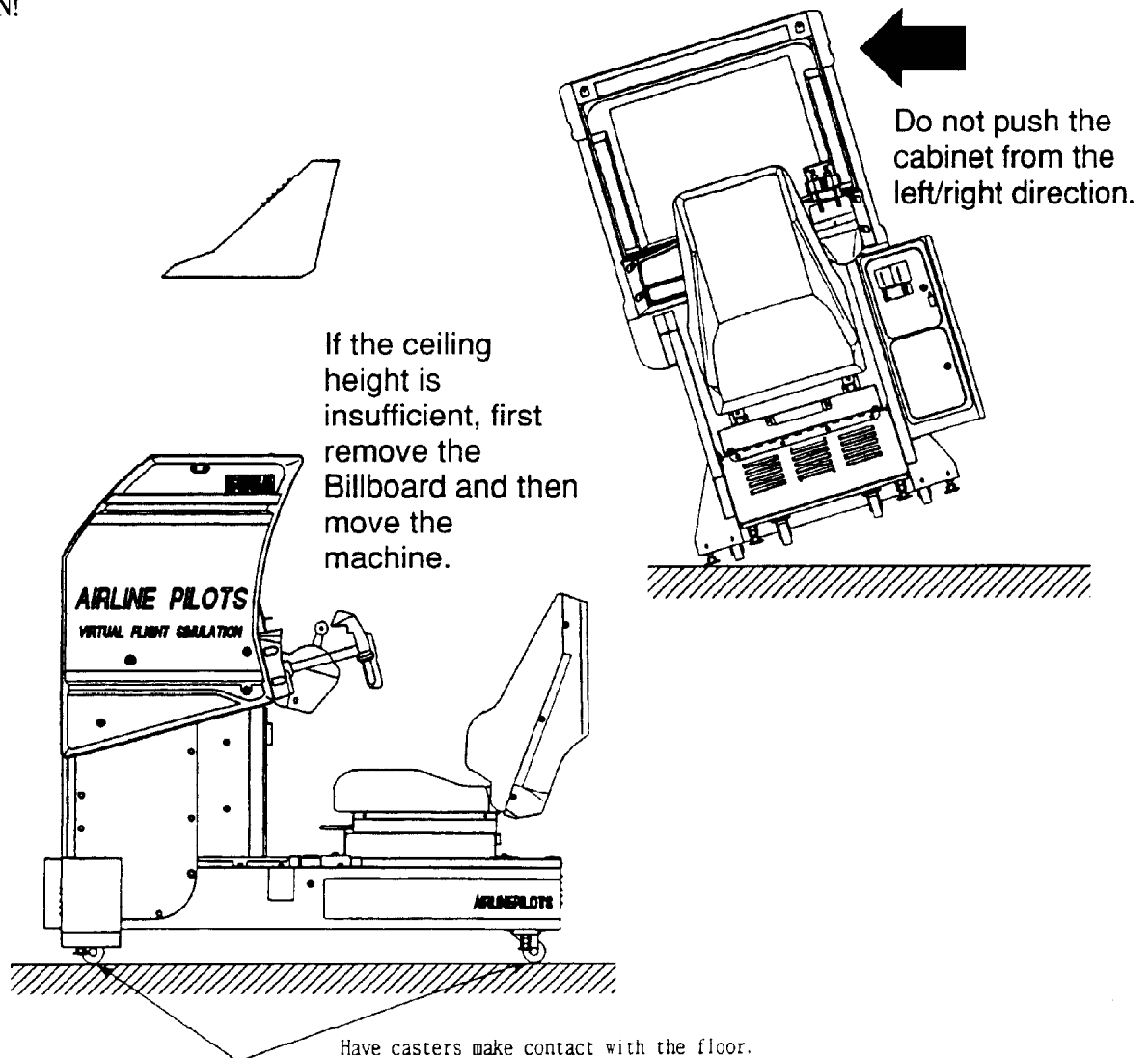
6 . CONTENTS OF GAME

The following explanations apply in the event the product is functioning satisfactorily. Should there be any moves different from the following contents, some sort of faults may have occured. Immediately look into the cause of the fault and eliminate the cause thereof to ensure satisfactory operation.

```
┌──[ SEGA LOGO ]──────[ TITLE ]──────[ GAME MODE ]──┐
↑                                                    ↓
└──────────────── Returns to the beginning ─────────┘
```
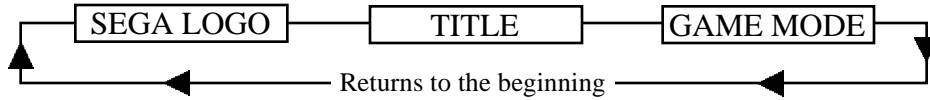
From GAME START up to the end of SELECT.

Insert a credit worth a number of coins. Up to 9 credits can be counted at a time. Coins inserted after counting 9 credits are neither counted as credits nor returned. However, those coins inserted after counting 9 credits are included in the data display or coin meter as number of coins inserted
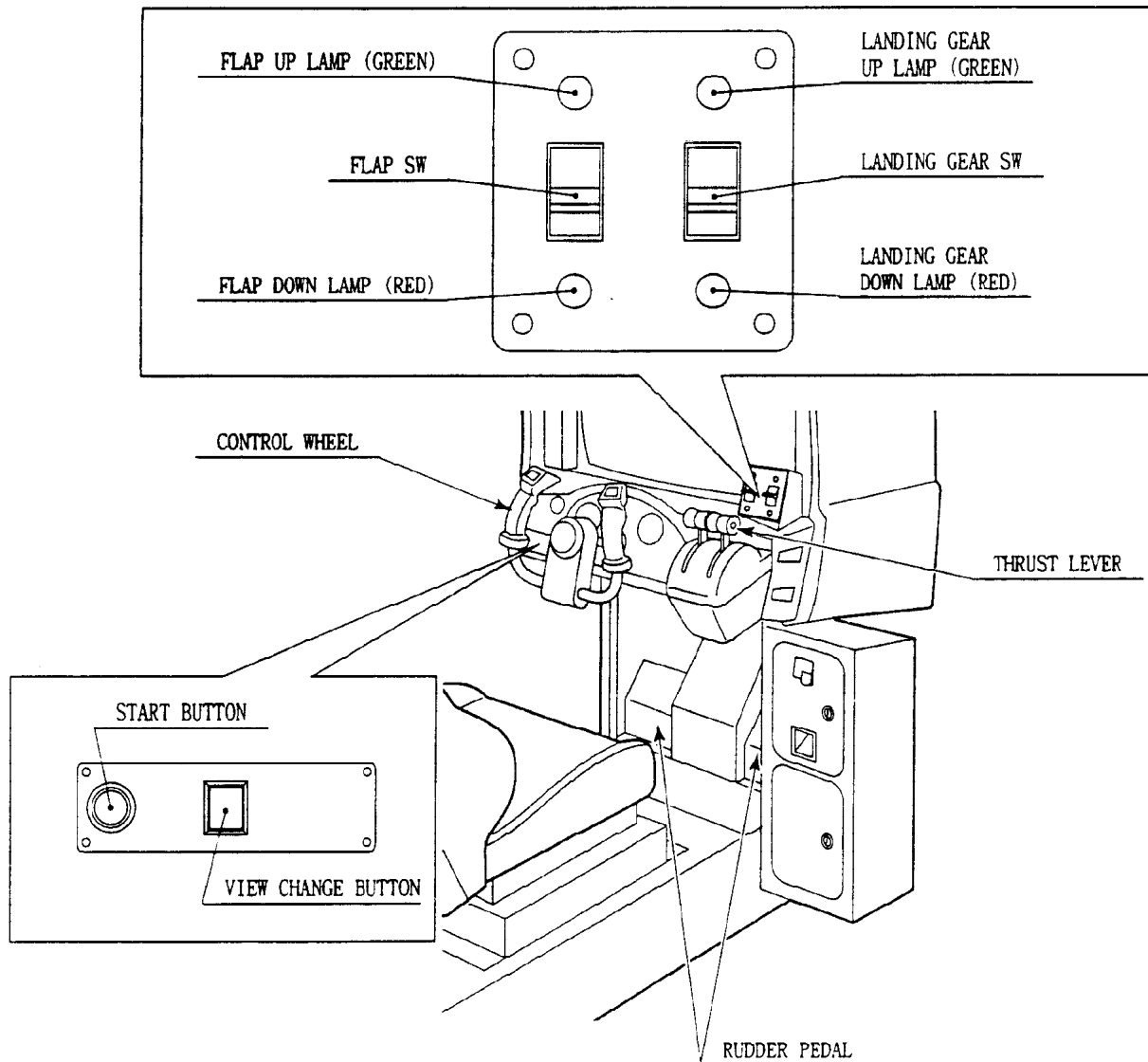
Press the START button to start.

When the GAME MODE select screen appears, select TRAINING mode or FLIGHT mode.

-Incline the CONTROL WHEEL left or right to select and press the START button to confirm the selection (hereafter, this method applies to any selection).

<In the case TRAINING MODE is selected:>

•When the CONTROL SYSTEM select screen appears, select AUTO CONTROL or FULL CONTROL.

•In the AUTO CONTROL, only the CONTROL WHEEL and the RUDDER PEDAL are operated by the player. The FLAP SW, LANDING GEAR SW, and THRUST LEVER are automatically controlled.

•In the AUTO CONTROL, Control Switches need not be set. The TRAINING MODE game starts immediately.
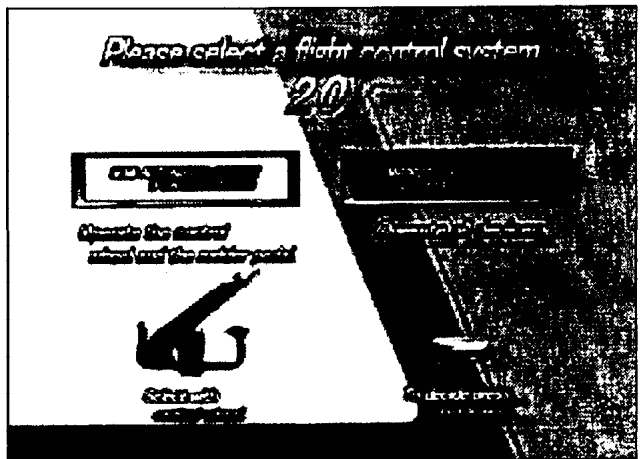
•In the FULL CONTROL, the TRAINING mode game starts after setting Control Switches in accordance with the on-screen instruction.

•In the FULL CONTROL, all Contollers are operated by the player.

<In the case FLIGHT MODE is selected:>

-The FLIGHT COURSE select mode appears on the screen. Select one from among BEGINNER, INTERMEDIATE, and EXPERT.

-The specific flight course of BEGINNER, INTERMEDIATE, and EXPERT corresponds to flight in the daytime, evening, and nighttime respectively.

-When the CONTROL SYSTEM select screen appears, select the CONTROL SYSTEM in the similar manner as in the TRAINING MODE
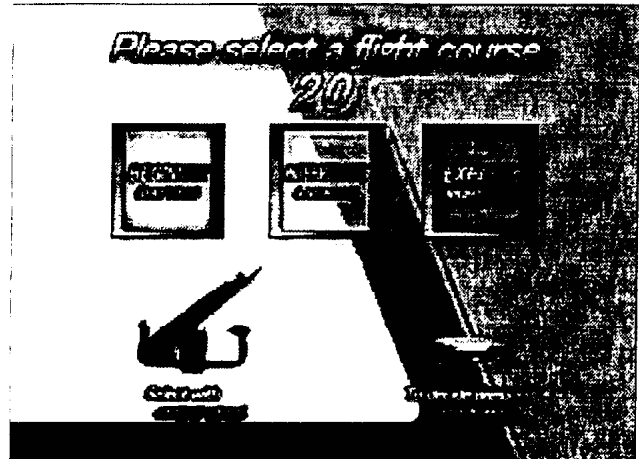
HOW TO PLAY IN THE TRAINING MODE

- •This mode has 5 Training items, i.e., taking-off, turning, landing, evading engine trouble, and bad weather.
- •The qualifying score is predetermined for each training item. If the player is disqualified, CONTINUE? appears on the screen.
- •CONTINUE? appears on the screen also when nearing the end of flight time limit, deviating from the course and crashing.
- •When CONTINUEd, the game starts from the beginning of that particular training.
- •When all of the training items are cleared, the total score will be displayed and the game is finished.

HOW TO PLAY IN FLIGHT MODE

- •Take off from the airport and freely fly over Tokyo within the time limit.
- •Passing near the Time Marker floating in the air increases the time limit.
- •When nearing the time limit, select FLIGHT to continue flight for the remaining time or landing.
- •Select FLIGHT to continue up to the end of the time limit. When time is up, CONTINUE? appears on the screen. If CONTINUEd, flight can be continued again. When the LANDING MODE is selected, the on-screen scene changes to the LANDING course. If the landing is successful, the game is finished. Failing to make a landing results in a

7 . EXPLANATION OF TEST AND DATA DISPLAY

By operating the switch unit, periodically perform the tests and data check. When installing the machine initially or collecting cash, or when the machine does not function correctly, perform checking in accordance with the explanations given in this section. The following shows tests and modes that should be utilized as applicable.

STOP

IMPORTANT!

CAUTIONS TO BE HEEDED WHEN USING THE TEST MODE:

In the case where plural machines are linked for communication play, if even one seat enters the test mode, all of the linked seats will enter the test mode. Therefore, if any one of the linked machines is in play, use care so as not to use the test mode.

The contents of the setting changes made will not be effective unless the test mode is finished in the test mode. When the setting is changed, be sure to "EXIT" in the menu mode. Do not press the TEST BUTTON during network check at the time of turning the power on or exiting from the test mode. If anyone of the linked machines uses the test mode during network check, all other Seats will continue network checking. Cause all of the Seats to reenter the test mode and then have all of the Seats exit from the test mode simultaneously.

TABLE   EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	SECTIONS
INSTALLATION OF MACHINE	When the machine is installed, perform the following: 1. Check to see that each setting is as per the standard settings at the time of shipment. 2. In the INPUT TEST mode, check each SW and VR. 3. In the OUTPUT TEST mode, check each of lamps. 4. In the MEMORY TEST mode, check ICs on the IC Board.	SERVICE MANUAL 7–3A 7–3B 4–4–1
MEMORY	Choose MEMORY TEST in the MENU mode to allow the MEMORY test to be performed. In this test, PROGRAM RAMs, ROMs, and ICs on the IC Board are checked.	SERVICE MANUAL 4–4–1
PERIODIC SERVICING	Periodically perform the following: 1. MEMORY TEST 2. Ascertain each setting. 3. In the INPUT TEST mode, test the CONTROL device 4. In the OUTPUT TEST mode, check each of lamps.	4–4–1 7–3A 7–3B
CONTROL SYSTEM	1. In the INPUT TEST mode, check each SW and VR. 2. Adjust or replace each SW and VR. 3. If the problem can not be solved yet, check the CONTROL's moves.	7–3A 8, 9, 10
MONITOR	In the MONITOR ADJUSTMENT mode, check to see if the MONITOR adjustment is appropriately made.	12–3
IC BOARD	1. MEMORY TEST 2. In the SOUND TEST mode, check the sound related ROMs.	4–4–1 7–3C
DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc	7–3E 7–3G

7 - 1 SWITCH UNIT AND COIN METER

WARNING!

Never touch places other than those specified. Touching places not specified can cause electric shock and short circuit.

IMPORTANT!

● Adjust to the optimum sound volume by considering the environmental requirements of the installation location.
● If the COIN METER and the game board are electrically disconnected, game play is not possible.

Open COIN CHUTE DOOR, and the switch unit shown appears. The function of each switch is as follows:

SWITCH UNIT

SWITCH UNIT
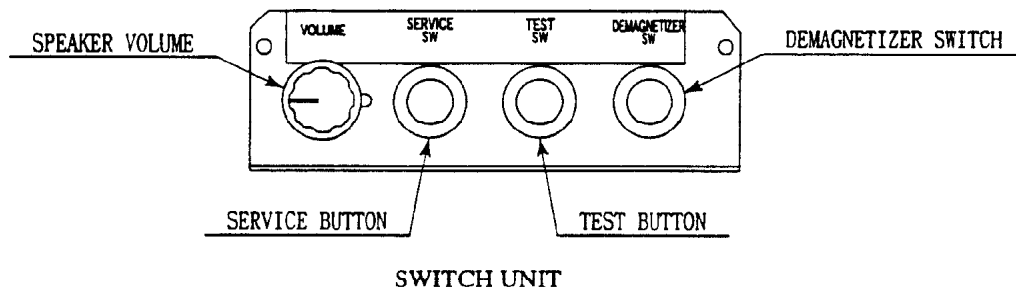
SPEAKER VOLUME (VOLUME)
> Controls the speaker volume for the right/left speakers.

SERVICE BUTTON (SERVICE SW)
> Gives credits without registering on the coin meter.

TEST BUTTON (TEST SW)
> For the handling of the TEST BUTTON, refer to the section on test mode.

DEMAGNETIZER SWITCH (DEMAGNETIZER SW)
> Eliminates the on-screen color unevenness due to magnetization of CRT.
> First use this SW before performing the monitor's color adjustment.

COIN METER

Open the Cashbox Door by using the key to have the Coin Meter appear underneath the Cashbox.
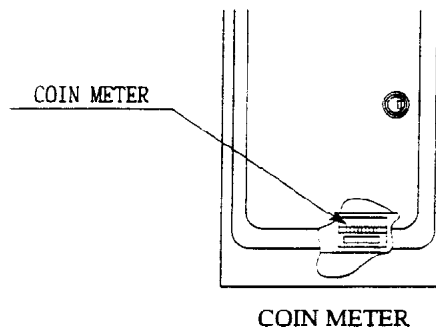
COIN METER

7 - 2 SYSTEM TEST MODE

The SYSTEM TEST mode mainly allows checks of the IC Board for accurate functioning , monitor adjustment, as well as CRT TEST and COIN ASSIGNMENTS, etc. The following assignments, however, should be designated for this product.

CABINET TYPE   : 1 PLAYER (S)
MONITOR TYPE   : HORIZONTAL
COIN CHUTE TYPE : COMMON

TEST ITEM SELECT

```
            SYSTEM  MENU


      RAM  TEST
      JVS  TEST
      SOUND  TEST
      C.R.T.  TEST
      SYSTEM  ASSIGNMENTS
      COIN  ASSIGNMENTS
      BOOKKEEPING
      BACKUP  DATA  CLEAR
      CLOCK  SETTING

      ROM BOARD TEST
      GAME TEST MODE
   [ X X X X X X X X X X X ]


          EXIT
   SELECT  WITH  SERVICE  BUTTON
      AND PRESS  TEST  BUTTON
```
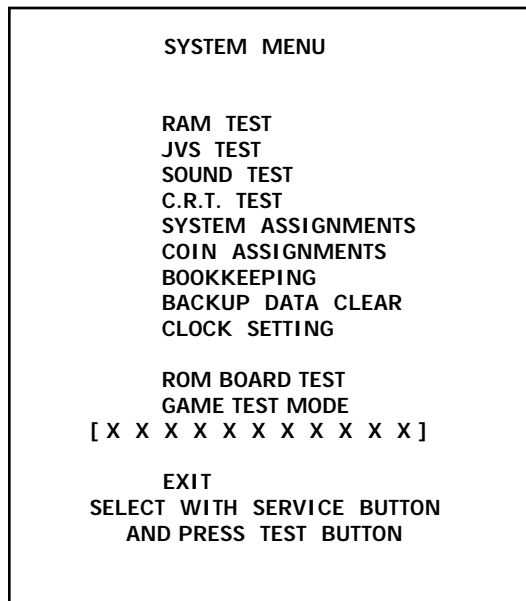
① After turning the power on, press the TEST button to display the test item menu shown above.

② Press the SERVICE button to move the arrow to the desired item and press the TEST button.

③ When finished, bring the arrow to EXIT and press the TEST button to return to the Game mode.

A C.R.T. TEST

1) RGB COLOR ADJUSTMENT SCREEN
In this screen, monitor color can be checked.

C.R.T. TEST 1/2

1   32

RED

GREEN

BLUE

WHITE

PRESS TEST BUTTON TO CONTINUE
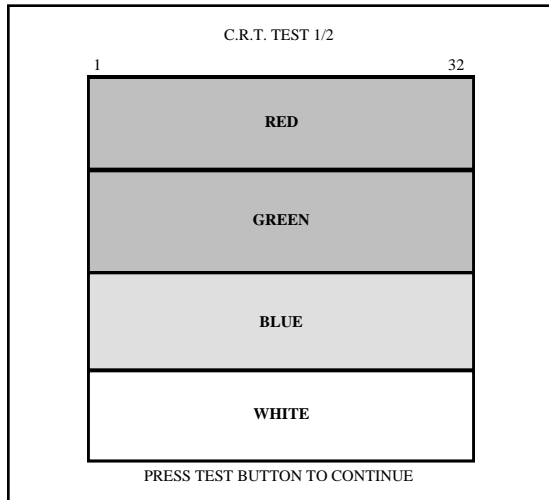
Each of red, green, and blue is the darkest at the leftmost end, and becomes brighter towards the right-hand end in 31 gradiations. Monitor brightness is satisfactory if the white color bar is black at the left end and if it is white at the right end.
Press the TEST button to proceed to the next screen.

2) MONITOR SIZE ADJUSTMENT SCREEN
In this screen, monitor size can be checked.

C.R.T. TEST 2/2

PRESS TEST BUTTON TO EXIT
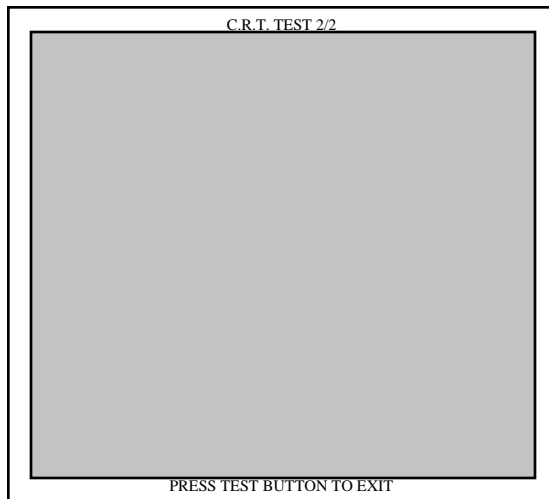
Adjust the crosshatch frame line so that the checkered pattern does not extend beyond the screen.
Press the TEST button to return to the menu mode.

B COIN ASSIGNMENTS

The "COIN ASSIGNMENTS" mode permits you to set the start number of credits, as well as the basic numbers of coins and credits. This mode expresses "how many coins correspond to how many credits."

SETTING CHANGE PROCEDURE

STOP
IMPORTANT!

> Setting changes cannot be stored unless the TEST BUTTON is pressed while the arrow is on EXIT.

① Press the SERVICE BUTTON to move the arrow to the desired item.

② Change the desired item setting by using the TEST BUTTON.

③ To return to the MENU mode, move the arrow to EXIT and press the TEST BUTTON.

```
                    COIN ASSIGNMENTS


       COIN  CHUTE  TYPE            COMMON      (A)
       COIN/CREDIT  SETTING              #1     (B)
      COIN  CHUTE  #1
       1 COIN   1 CREDIT




       COIN  CHUTE  #2
        1 COIN   1 CREDIT


       MANUAL  SETTING                          (C)
       SEQUENCE  SETTING                        (D)
     -> EXIT

         SELECT WITH SERVICE BUTTON
           AND PRESS TEST BUTTON
```
(COMMON SETTING)

(A) COIN CHUTE TYPE (COMMON, INDIVIDUAL)
Set to COMMON.

Up to 2 Coin Chutes (#1 and #2) can be used and also, (B) COIN/CREDIT SETTING ratio can be set seperately for #1 and #2.

(B) COIN/CREDIT SETTING (#1 ~ #27)
Sets the credit increase increment per coin insertion. There are 27 settings from #1 to #27, expressed in ○○ credit(s) as against ○○ coins inserted. #27 refers to FREE PLAY.

(C) MANUAL SETTING

The Credit's incremental increase settings as against a coin insertion are shown in further details than in (B) above (refer to Table 2). Also, note that when this MANUAL SETTING is performed, (B) COIN CREDIT setting becomes ineffective.

<center>MANUAL SETTING</center>

```
┌─────────────────────────────────────────────────┐
│              COIN ASSIGNMENTS                     │
│               MANUAL SETTING                      │
│                                                   │
│    COIN  TO  CREDIT           1           (D)     │
│    BONUS  ADDER           NO BONUS ADDER  (E)     │
│    COIN  CHUTE  #1  MULTIPLIER            (F)     │
│    1 COIN  COUNT  AS  1 COIN                      │
│    COIN    1  2  3  4  5  6  7  8  9              │
│    CREDIT 1  2  3  4  5  6  7  8  9              │
│                                                   │
│    COIN  CHUTE  #2  MULTIPLIER            (F)     │
│    1 COIN  COUNT  AS  1 COIN                      │
│    COIN    1  2  3  4  5  6  7  8  9              │
│    CREDIT 1  2  3  4  5  6  7  8  9              │
│                                                   │
│    SEQUENCE  SETTING                     (G)     │
│                                                   │
│  -> EXIT                                          │
│                                                   │
│         SELECT WITH SERVICE BUTTON                │
│            AND PRESS TEST BUTTON                  │
└─────────────────────────────────────────────────┘
```

(D) COIN TO CREDIT

Determines COIN/CREDIT setting.

(E) BONUS ADDER

This sets how many coins should be inserted to obtain one SERVICE COIN.

(F) COIN CHUTE (#1/#2) MULTIPLIER

This sets how many tokens one coin represents.

Table 1: COIN/CREDIT SETTING (COIN CHUTE COMMON TYPE)

SETTING	FUNCTION OF CHUTE#1	
SETTING #1	1 COIN	1 CREDIT
SETTING #2	1 COIN	2 CREDITS
SETTING #3	1 COIN	3 CREDITS
SETTING #4	1 COIN	4 CREDITS
SETTING #5	1 COIN	5 CREDITS
SETTING #6	1 COIN	2 CREDITS
SETTING #7	1 COIN	5 CREDITS
SETTING #8	1 COIN	3 CREDITS
SETTING #9	1 COIN	4 CREDITS
SETTING #10	1 COIN	5 CREDITS
SETTING #11	1 COIN	6 CREDITS
SETTING #12	2 COINS	1 CREDIT
SETTING #13	1 COIN	1 CREDIT
SETTING #14	1 COIN	2 CREDITS
SETTING #15	1 COIN	1 CREDIT
	2 COINS	3 CREDITS
SETTING #16	1 COIN	3 CREDITS
SETTING #17	3 COINS	1 CREDIT
SETTING #18	4 COINS	1 CREDIT
SETTING #19	1 COIN	1 CREDIT
	2 COINS	2 CREDITS
	3 COINS	3 CREDITS
	4 COINS	5 CREDITS
SETTING #20	1 COIN	5 CREDITS
SETTING #21	5 COINS	1 CREDIT
SETTING #22	1 COIN	2 CREDITS
SETTING #23	2 COINS	1 CREDIT
	4 COINS	2 CREDITS
	5 COINS	3 CREDITS
SETTING #24	1 COIN	3 CREDITS
SETTING #25	1 COIN	1 CREDIT
	2 COINS	2 CREDITS
	3 COINS	3 CREDITS
	4 COINS	4 CREDITS
	5 COINS	6 CREDITS
SETTING #26	1 COIN	1 CREDITS
SETTING #27	FREE PLAY	

Table 2: MANUAL SETTING

COIN TO CREDIT	1 COIN 1 CREDIT
	2 COINS 1 CREDIT
	3 COINS 1 CREDIT
	4 COINS 1 CREDIT
	5 COINS 1 CREDIT
	6 COINS 1 CREDIT
	7 COINS 1 CREDIT
	8 COINS 1 CREDIT
	9 COINS 1 CREDIT

BONUS ADDER	NO BONUS ADDER
	2 COINS GIVE 1 EXTRA COIN
	3 COINS GIVE 1 EXTRA COIN
	4 COINS GIVE 1 EXTRA COIN
	5 COINS GIVE 1 EXTRA COIN
	6 COINS GIVE 1 EXTRA COIN
	7 COINS GIVE 1 EXTRA COIN
	8 COINS GIVE 1 EXTRA COIN
	9 COINS GIVE 1 EXTRA COIN

COIN CHUTE (#1/#2) MULTIPLIER	1 COIN COUNTS AS 1 COIN
	1 COIN COUNTS AS 2 COINS
	1 COIN COUNTS AS 3 COINS
	1 COIN COUNTS AS 4 COINS
	1 COIN COUNTS AS 5 COINS
	1 COIN COUNTS AS 6 COINS
	1 COIN COUNTS AS 7 COINS
	1 COIN COUNTS AS 8 COINS
	1 COIN COUNTS AS 9 COINS

(G) SEQUENCE SETTING

Number of credits required for starting a game, etc. can be set.
Each sequence can be set between 1 ~ 5 credit(s).

```
COIN ASSIGNMENTS
SEQUENCE SETTING


SEQUENCE 1          2 CREDIT(S)
SEQUENCE 2          1 CREDIT(S)
SEQUENCE 3          1 CREDIT(S)
SEQUENCE 4          1 CREDIT(S)
SEQUENCE 5          1 CREDIT(S)
SEQUENCE 6          1 CREDIT(S)
SEQUENCE 7          1 CREDIT(S)
SEQUENCE 8          1 CREDIT(S)
EXIT
[XXXXX XXXXX XXXXX XXXXX]
DESCRIPTION OF SEQUENCE
1 CREDIT TO START
2 CREDIT TO CONTINUE
3 NO USE
4 NO USE
5 NO USE
6 NO USE
7 NO USE
8 NO USE


SELECT WITH SERVICE BUTTON
AND PRESS TEST BUTTON
```

SEQUENCE 1:   Number of credits required for game to start.
SEQUENCE 2:   Number of credits required for CONTINUE.
SEQUENCE 3 ~ 8:   NOT USED.

7 - 3 GAME TEST MODE

MENU MODE

```
┌─────────────────────────────────────┐      ┌─────────────────────────────────────┐
│                                      │      │                                      │
│         SYSTEM  MENU                 │      │      AIRLINE PILOTS  TEST  MENU      │
│                                      │      │                                      │
│                                      │      │                                      │
│         RAM  TEST                    │      │        INPUT  TEST                  │
│         JVS  TEST                    │      │        OUTPUT  TEST                 │
│         SOUND  TEST                  │      │        SOUND  TEST                  │
│         C.R.T.  TEST                 │      │        C.R.T.  TEST                 │
│         SYSTEM  ASSIGNMENTS          │      │        GAME  ASSIGNMENTS            │
│         COIN  ASSIGNMENTS            │      │        VOLUME  SETTING             │
│         BOOKKEEPING                  │      │        BOOKKEEP ING                │
│         BACKUP  DATA  CLEAR          │      │        BACKUP DATA CLEAR          │
│         CLOCK  SETTING               │      │     -> EXIT                         │
│                                      │      │                                      │
│         ROM BOARD TEST               │      │                                      │
│      -> GAME TEST MODE               │      │                                      │
│     [ X X X X X X X X X X ]          │      │                                      │
│                                      │      │                                      │
│         EXIT                         │      │      SELECT  WITH  SERVICE  BUTTON  │
│     SELECT  WITH  SERVICE  BUTTON    │      │        AND  PRESS  TEST  BUTTON     │
│       AND PRESS  TEST  BUTTON        │      │                                      │
│                                      │      │                                      │
└─────────────────────────────────────┘      └─────────────────────────────────────┘
SYSTEM TEST MODE  MENU                          GAME TEST MODE  MENU
```

- Press the TEST button to display the SYSTEM TEST MODE MENU.

- By pressing the SERVICE button, move the arrow (->) to select the GAME TEST MODE.

- Press the TEST button to enter GAME TEST MODE. The screen displays the GAME TEST MODE MENU.

- By pressing the SERVICE button, move the arrow (->) to select the desired item. Press the TEST button to execute the selected item.

- Select EXIT and press the TEST button to exit from the GAME TEST MODE and return to the SYSTEM TEST MODE MENU. Further, select EXIT and press the TEST button to finish SYSTEM TEST MODE and return to the normal mode.

A. INPUT TEST

Select INPUT TEST to have the screen shown below appear and to observe the status of each switch and the value of each V.R. on the Control Panel. In this mode, Periodically check the status of each switch and V.R.

```
                 INPUT TEST

     LANDING GEAR SWITCH          UP
     FLAP SWITCH                  UP
     VIEW CHANGE BUTTON           OFF
     START BUTTON                 OFF
     SERVICE                      OFF
     TEST                         OFF
     CONTROL WHEEL (AILERON)      ABH
     CONTROL WHEEL (ELEVATOR)     ABH
     RUDDER PEDAL                 ABH
     THRUST LEVER  L              ABH
     THRUST LEVER  R              ABH



     PRESS TEST AND SERVICE BUTTON TO EXIT
```

● By pressing each switch, if the display on the right-hand side of the name of each switch changes to ON from OFF, the SW and the wiring connections are satisfactory. UP and DOWN are displayed for LANDING GEAR SWITCH and FLAP SWITCH.

● Operate CONTROL WHEEL, THRUST LEVER, etc. to check Volume value display variation.

● To check CHUTE 1 & CHUTE 2 coin switches, open the COIN CHUTE DOOR and insert a coin(s) in the slot.

● Simultaneously pressing the TEST BUTTON and the SERVICE BUTTON returns to the test menu.

B. OUTPUT TEST

Select OUTPUT TEST to cause the following screen to appear, and allows the status of each lamp to be checked. In this mode, periodically check the lamp status.

```
                 OUTPUT TEST

     START BUTTON LAMP            OFF
     LANDING GEAR UP LAMP         OFF
     LANDING GEAR DOWN LAMP       OFF
     FLAP UP LAMP                 OFF
     FLAP DOWN LAMP               OFF
     VIEW CHANGE BUTTON LAMP      OFF


     -> EXIT

         SELECT WITH SERVICE BUTTON
           AND PRESS TEST BUTTON
```

● Select the item with the SERVICE button and press the TEST button to alternate the display to and from ON and OFF. Outputting corresponds to the ON/OFF alternation.

● When exiting from OUTPUT TEST with ON display, all of ON displays change to OFF.

● Bring the arrow to EXIT and press the TEST BUTTON to return to the menu mode.

C. SOUND TEST

This test mode allows each sound used in the game to be checked.

```
            SOUND TEST


              No. 0




     SELECT WITH SERVICE BUTTON
      PRESS TEST BUTTON TO EXIT
```
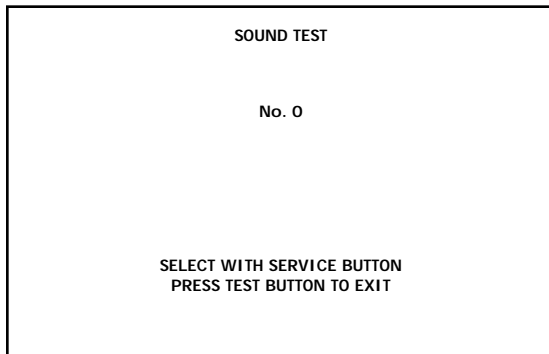
● Press the SERVICE button to increase the number sequentially, emitting the next sound to be tested.

● Press the TEST button to return to the TEST MENU.

D. C.R.T. TEST

Selecting C.R.T. test causes the monitor to display the following and allows the 3 screens (displayed simultaneously) to adjust brightness balance.

```
            C.R.T. TEST




        PRESS TEST BUTTON TO EXIT
```
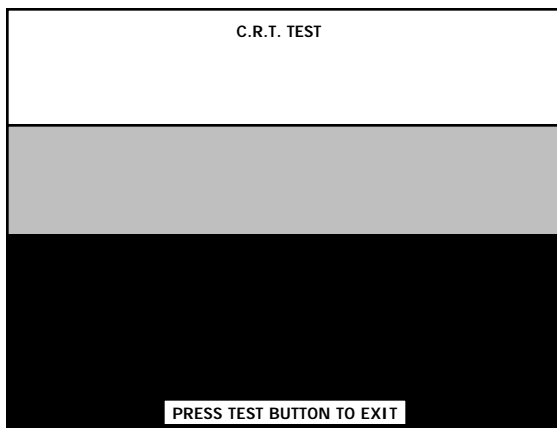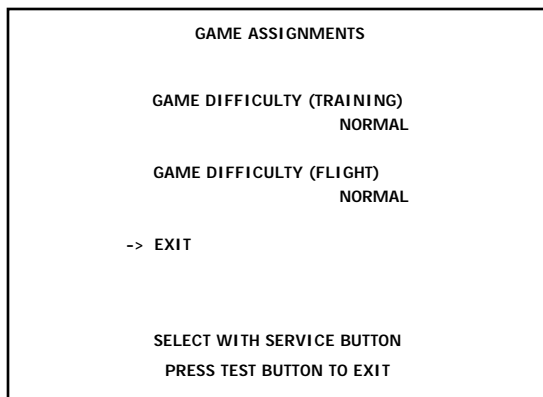
E. GAME ASSIGNMENTS

Selecting the GAME ASSIGNMENTS in the MENU mode causes the present game settings to be displayed and allows game setting changes (game difficulty, etc.) to be made. After setting changes, be sure to exit from the TEST mode; the settings are not renewed until the TEST mode is exited.

```
┌─────────────────────────────────────┐
│     SETTING CHANGE PROCEDURE         │
└─────────────────────────────────────┘
```

① Press the SERVICE BUTTON to move the "->" to the desired item.
② Change to the desired setting by using the TEST BUTTON.
③ To return to the MENU mode, move the arrow to EXIT and press the TEST BUTTON.

```
┌──────────────────────────────────────┐
│                                        │
│            GAME ASSIGNMENTS            │
│                                        │
│                                        │
│         GAME DIFFICULTY (TRAINING)     │
│                        NORMAL          │
│                                        │
│         GAME DIFFICULTY (FLIGHT)       │
│                        NORMAL          │
│                                        │
│         -> EXIT                        │
│                                        │
│                                        │
│                                        │
│         SELECT WITH SERVICE BUTTON     │
│         PRESS TEST BUTTON TO EXIT      │
│                                        │
└──────────────────────────────────────┘
```

● GAME DIFFICULTY (TRAINING)
Sets the game difficulty for the TRAINING Mode.
Game difficulty can be set from among the 5 categories, i.e., VERY EASY, MEDIUM EASY, NORMAL, MEDIUM HARD, and VERY HARD. Specifically, this varies the qualifying points in the TRAINING Mode.

● GAME DIFFICULTY (FLIGHT)
Sets the difficulty for the FLIGHT Mode.
Game difficulty can be set from among the 5 categories, i.e., VERY EASY, MEDIUM EASY, NORMAL, MEDIUM HARD, and VERY HARD. Specifically, this varies the initial time for each course in the FLIGHT Mode.

F. VOLUME SETTING

When VOLUME SETTING is selected, the following appears on the screen and each Control Unit's Volume can be set.

If the operability is unsatisfactory, or when adjusting or replacing the Volume, set the Volume in this mode.

```
┌──────────────────────────────────────┐
│            VOLUME SETTING              │
│                                        │
│                  MIN    MAX     NEU    │
│  CONTROL WHEEL (AILERON)   50H    80H      BFH    │
│                  (2OH)   (DFH)   (BOH)  │
│  CONTROL WHEEL (ELEVATOR)  50H    80H      BFH    │
│                  (2OH)   (DFH)   (BOH)  │
│  RUDDER PEDAL       50H    80H      BFH    │
│                  (2OH)   (DFH)   (BOH)  │
│  THRUST LEVER  L     50H    80H           │
│                  (2OH)   (DFH)          │
│  THRUST LEVER  R     50H    80H           │
│                  (2OH)   (DFH)          │
│                                        │
│         EXIT WITH     SAVE             │
│      --> EXIT WITHOUT  SAVE            │
│                                        │
│         SELECT WITH SERVICE BUTTON     │
│         PRESS TEST BUTTON TO EXIT      │
│                                        │
└──────────────────────────────────────┘
```

```
┌──────────────────────────────────────┐
│     METHOD OF VOLUME SETTING           │
└──────────────────────────────────────┘
```

• To perform Volume setting, move all Volumes from the minimum value to the maximum value and select "EXIT WITH SAVE" and the status of the CONTROL WHEEL and RUDDER PEDAL are returned to the horizontal (neutral) position.
• If "EXIT WITHOUT SAVE" is selected, the setting is cancelled. The values in parentheses have already been saved.

G. BOOKKEEPING

Choosing BOOKKEEPING in the MENU mode displays the data of the present operating status on 2 pages. Press the TEST BUTTON to proceed to PAGE 2/2. Pressing the TEST BUTTON while the second page is displayed returns the screen to the MENU mode.

```
        BOOKKEEPING        PAGE1/2

TOTAL TIME                 0D  0H  0M  0S
PLAY TIME                  0D  0H  0M  0S
AVERAGE PLAY TIME          0D  0H  0M  0S
LONGEST PLAY TIME          0D  0H  0M  0S
SHORTEST PLAY TIME         0D  0H  0M  0S




         PRESS TEST BUTTON TO CONTINUE
```

● TOTAL TIME:
   Refers to TOTAL TIME energized except for the time used for the TEST Mode.

● PLAY TIME:
   Refers to the game play time.

```
       BOOKKEEPING  PAGE 2/2

          TIME HISTOGRAM

     0M00S ~ 0M29S     0
     0M30S ~ 0M59S     0
     1M00S ~ 1M29S     0
     1M30S ~ 1M59S     0
     2M00S ~ 2M29S     0
     2M30S ~ 2M59S     0
     3M00S ~ 3M29S     0
     3M30S ~ 3M59S     0
     4M00S ~ 4M29S     0
     4M30S ~ 4M59S     0
     5M00S ~ 5M29S     0
     5M30S ~ 5M59S     0
     6M00S ~ 6M29S     0
     6M30S ~ 6M59S     0
     7M00S ~ 7M29S     0
     7M30S ~ 7M59S     0
     8M00S ~ 8M29S     0
     8M30S ~ 8M59S     0
     9M00S ~ 9M29S     0
     9M30S ~ 9M59S     0
     OVER   10M00S     0

     PRESS TEST BUTTON TO EXIT
```

● In Page 2/2, Histogram of Number of Play as against Play Time is displayed. For setting the DIFFICULTY, refer to this histogram.

● By-playtime play frequency bookkeeping is displayed in increments of 30 seconds from 0M00S to 9M59S. Playtime in excess of 10 minutes is displayed all in the category of OVER 10M00S.

H. BACKUP DATA CLEAR

This allows the contents of BOOKKEEPING and Player Ranking data to be cleared.

```
       BACKUP DATA CLEAR


       YES   (CLEAR)
    -> NO    (CANCEL)






     SELECT WITH SERVICE BUTTON
     PRESS TEST BUTTON TO EXIT
```

● When clearing, use the SERVICE BUTTON to bring the arrow to "YES (CLEAR)" and press the TEST BUTTON.

● When the data has been cleared, "COMPLETED" will be displayed, and it will automatically return to the BACKUP DATA CLEAR menu. Bring the arrow to "NO" and press the TEST BUTTON to return the screen to MENU mode.

● Note that despite the "clear" execution, the settingsof the GAME ASSIGNMENTS, COIN ASSIGNMENTS, and BOARD SETTINGS do not change. Be very careful, however, because the remaining credits will be deleted

8. CONTROL MECHA

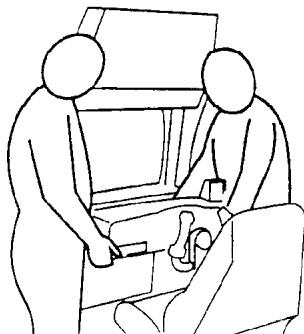In the test mode, if the CONTROL HANDLE's VR variations are not within the allowable range, then a VR installation position adjustment or VR replacement is needed. Also, be sure to apply grease to the VR gear portion once every 3 months.

8 - 1 REMOVING THE CONTROL MECHANISM

① Turn the power switch **off.**

② Remove the 3 Hexagon Socket Bolts from the lower part of the Control Panel.

③ Remove the 4 Tamperproof Screws from both sides of the control panel's front

④ Remove the 3 Tamperproof Screws from the underside of the control panel.

⑤ Carefully draw out the Control Mechanism in a mnner so as not to damage wiring and connectors inside the control panel..

HEXAGON SOCKET BOLT(3).black
M8×20, spring washer used.

CONTROL MECHANISM

CONTROL PANEL

Perform work by 2 or more persons.

TAMPERPROOF SCREW(3).black
M8×20,
flat & spring washers used.

TAMPERPROOF SCREW(4).black
M8×30
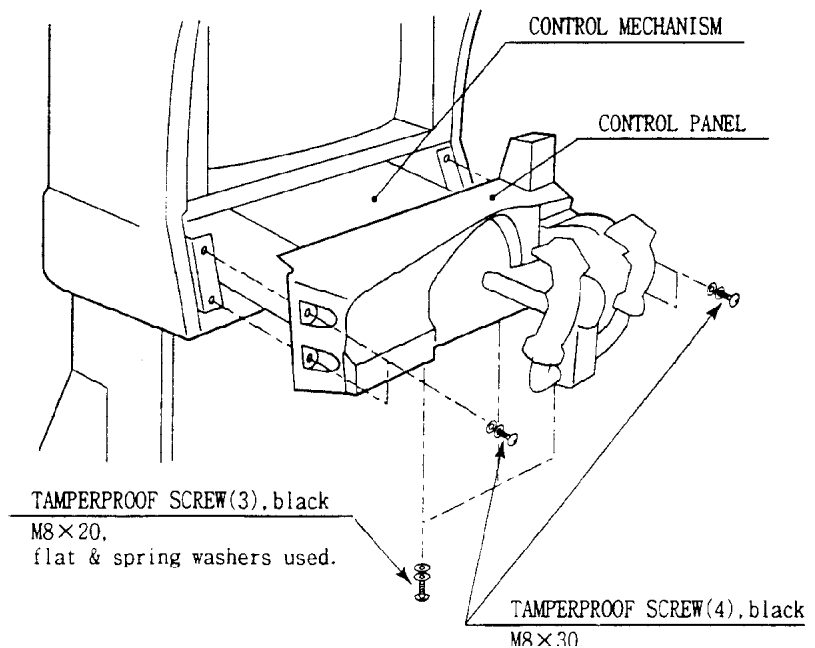
8 - 2 ADJUSTING THE VOLUME

⚠️ **WARNING!**

● Never touch places other than those specified. Touching unspecified places can cause electric shock and/or short circuit.
● After the replacement or adjustment of the VR, be sure to set the variable value of the VR in the test mode's Volume Setting.

① The Volume Brackets can be moved by loosening 2 screws from each Bracket.

CONTROL MECHANISM CONTROL WHEEL side ➡

⬅ CABINET side

② Move the Volume Brackets to disengage the Adjust Gear mesh, and move the Volume Shaft so that the cut portion of the Volume Shaft faces opposite the Center Reference Hole of the Adjust Gear.

VOLUME (STROKE)
220-5484

CENTER REFERENCE **HOLE**

VOLUME (ROLL)
220-5484

VOLUME BRACKET

VOLUME BRACKET

SCREW(2).black
M4×10,w/flat & spring washers.

SCREW(2).black
M4×10,
w/flat & spring washers.

③ Engage Gears and fasten the 2 screws.

④ Carefully move the CONTROL WHEEL left/right & forward/backward, and check to ensure that the Volume range is not exceeded

⑤ Upon completion of adjustment, be sure to perform Volume Setting in the TEST mode.

8-3 REPLACING THE VOLUME

① Disconnect the wiring connector.
② Take out the 2 screws which secure the volume Bracket and remove the Volume Bracket.
③ Take out the 2 screws to remove the Volume Gear and replace the Volume.
④ After replacing the Volume, follow the steps in 8-2 to adjust theVolume.

8 - 4 GREASING

⚠ **WARNING!**

● Be sure to turn the power off first, before performing work, and avoid touching unspecified places. Failure to do so can cause electric shock and/or short circuit.

🛑 **STOP IMPORTANT!**

● Be sure to use the designated grease. Using undesignated grease can cause parts damage
● Do not apply greasing to undesignated places. Doing so can cause malfunctioning or quality deterioration of parts.

Apply greasing to the following portions every 3 months.

For Spray Grease, use NOK GLUBER L60 or GREASE MATE (Part No. 090-0066).

For greasing the backside of the Centering Mechanism, take out the 4 Hexagon Socket Bolts and remove the Centering Base.

CENTERING BASE

GEAR MESH PORTION

HEXAGON SOCKET BOLT(4)
M4×10, flat & spring washers used.

SLIDE RAIL

GEAR MESH PORTION

SLIDING PORTION(4 places)

BACKSIDE OF CENTERING MECHANISM
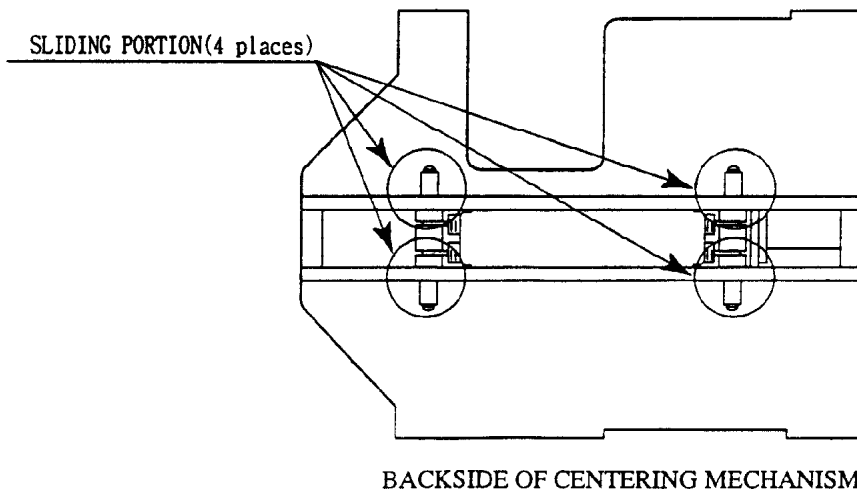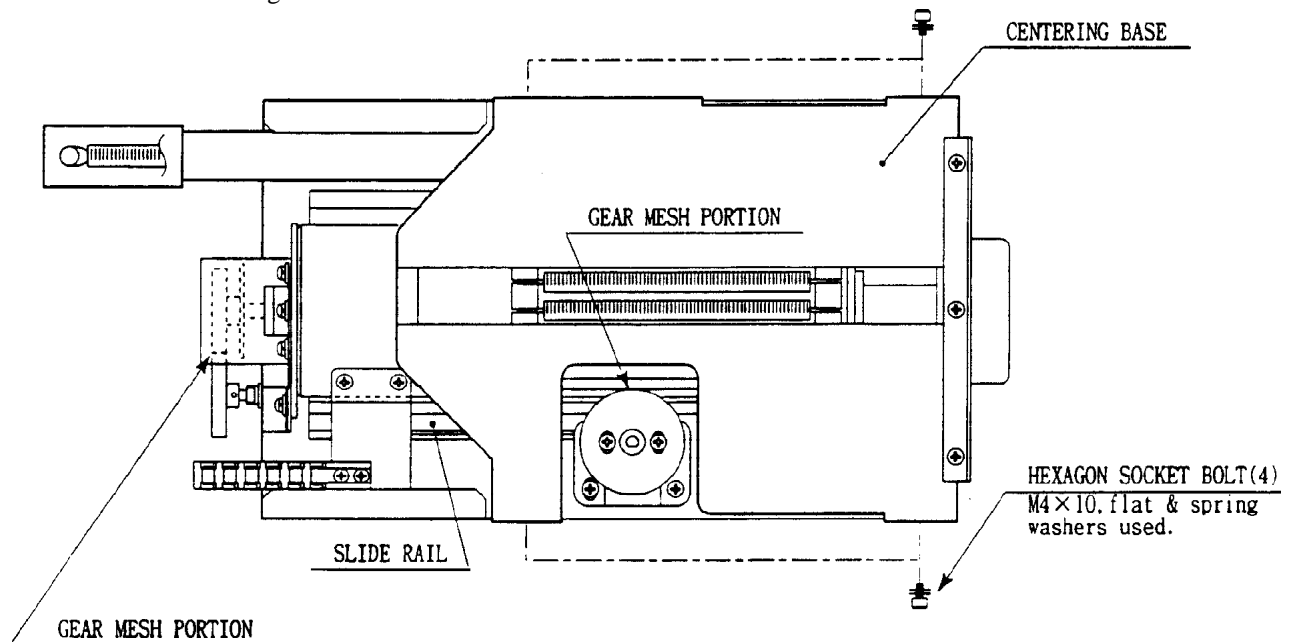
⚠ **WARNING!**

● Before starting to work, ensure that the Power SW is OFF. Failure to observe this can cause electric shock/short circuit.
● Use care so as not to damage wirings. Damaged wiring can cause electric shock and short circuit hazards.

① Take out the 4 screws and remove the Switch Plate. Be careful so as not to damage wiring.

SWITCH PLATE

TAMPERPROOF SCREW(4).black
M4×16
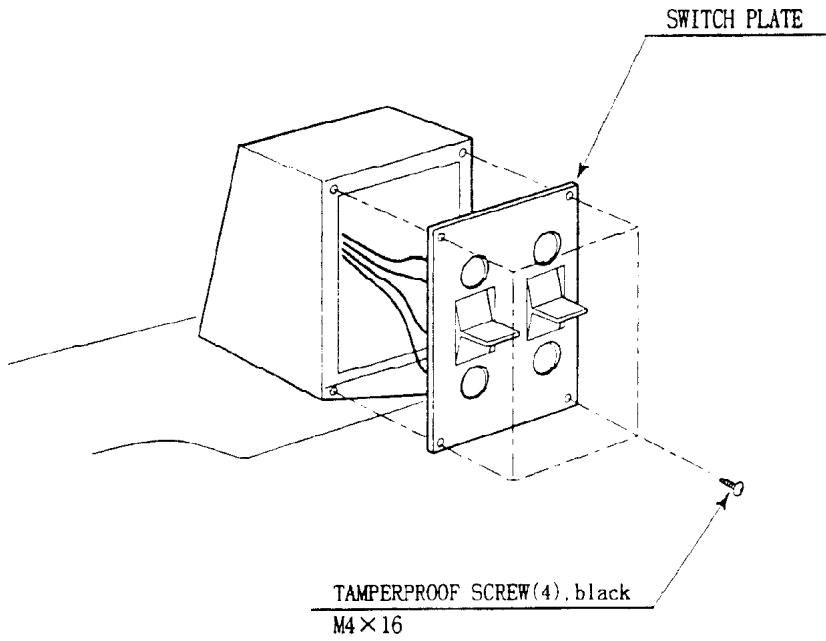
② Remove and replace the Switch Lever.
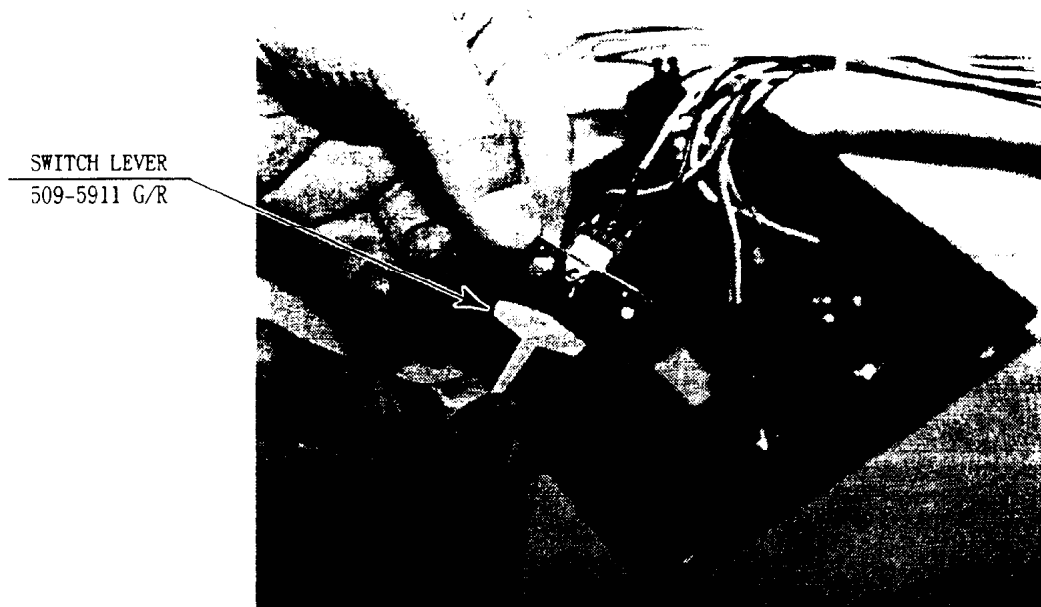
SWITCH LEVER
509-5911 G/R

9. LEVER UNIT

If the value movements of the Lever are Irregular, adjust or replace the Volume in the following procedure.

9 - 1 ADJUSTING THE VOLUME

① Remove the 4 screws to loosen the Lever Cover. Take out the 2 screws and remove the Shift Cover Lower.

TRUSS SCREW (4). chrome
M4×6
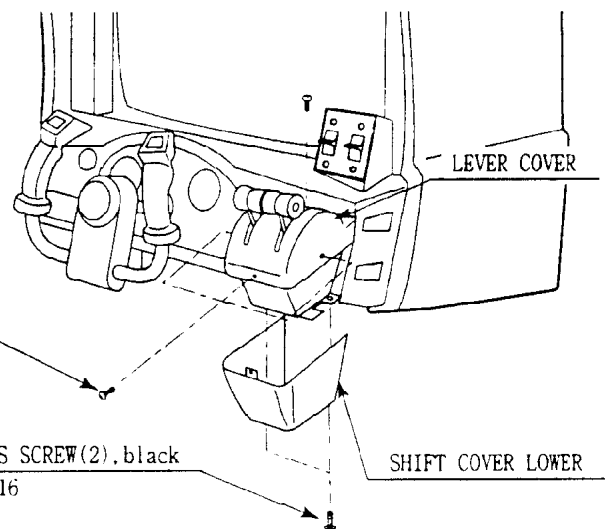
② The Volume Brackets can be moved by loosening the 2 screws securing each.

TRUSS SCREW(2).black
M4×16

LEVER COVER

SHIFT COVER LOWER

③ By moving the Volume Bracket, disengage ADJUST GEAR mesh. Move the Volume Shaft in the manner so that the cut portion of the Volume Shaft faces opposite the center of the ADJUST GEAR.
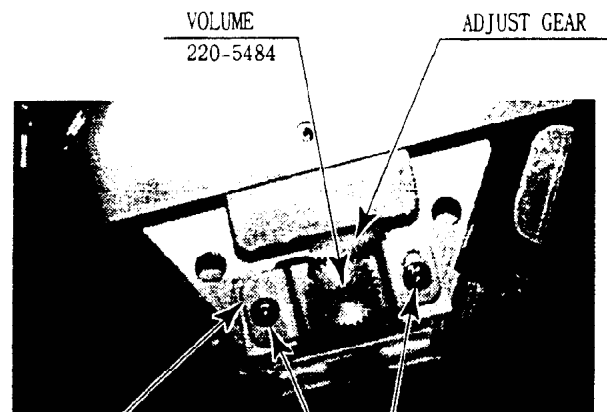
④ Mesh gears and fasten the 2 screws.

⑤ Carefully move the Lever forward & backward, and check to ensure that the Volume range is not exceeded.

⑥ After making adjustments, be sure to perform Volume setting in the TEST mode.

VOLUME
220-5484

ADJUST GEAR

VOLUME BRACKET

SCREW(2)
M4×10

9 - 2 REPLACING THE VOLUME

⚠️ **WARNING!**

> Be sure to turn the power off first, before performing work, and avoid touching unspecified places. Failure to do so can cause electric shock and/or short circuit.

① Remove the Volume Gear from the Volume to replace the Volume.

② After replacing the Volume, make adjustments as per 11-1 ADJUSTING THE VOLUME.

9 - 3 GREASING

⚠️ **WARNING!**

> Be sure to turn the power off first, before performing work, and avoid touching unspecified places. Failure to do so can cause electric shock and/or short circuit.

🛑 **STOP IMPORTANT!**

> ● Be sure to use the designated grease. Using undesignated grease can cause parts damage
> ● Do not apply greasing to undesignated places. Doing so can cause malfunctioning or quality deterioration of parts.

Apply greasing to the following portions once every three (3) months.

For Spray Grease, use NOK GLUBER L60 or GREASE MATE (Part No. 090-0066).
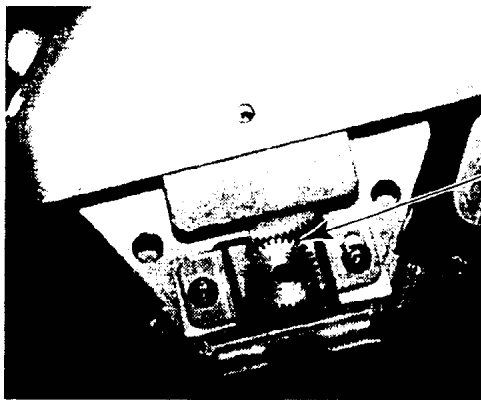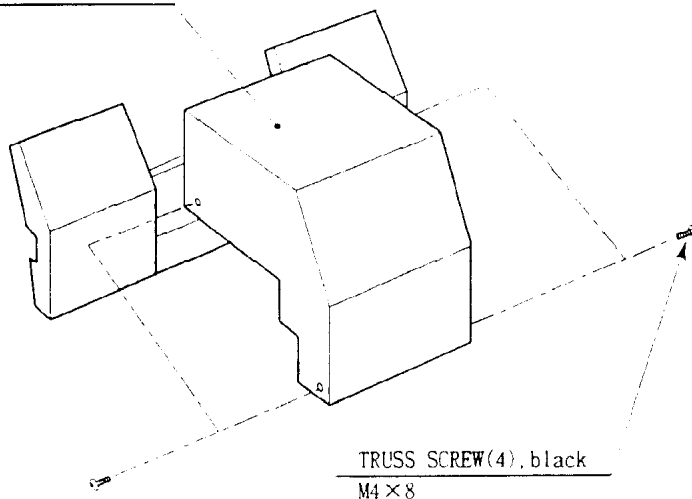

GEAR MESH PORTION

10. PEDAL UNIT

In the TEST mode, if the value movements of the CONTROL WHEEL are irregular, adjust or replace the Volume in accordance with the following procedure:

PEDAL MECHANISM COVER

10 - 1 ADJUSTING THE VOLUME

① Take out the 4 screws and remove the Pedal Mechanism Cover.

TRUSS SCREW(4),black
M4×8

② Loosen the 2 screws securing each Volume Bracket and move the Volume Brackets.

③ Move the Volume Bracket to disengage gear mesh. Move the Volume Shaft in the manner so that the cut portion of the Volume Shaft faces opposite the center of the ADJUST GEAR.

④ Engage the gears and fasten the 2 screws.

⑤ Carefully move the Pedal forward & backward and check to ensure that the Volume range is not exceeded.

⑥ Upon completion of adjustment, be sure to perform Volume setting in the TEST mode.

ADJUST GEAR   VOLUME

VOLUME BRACKET

SCREW(2)
M4×10,w/flat & spring washers
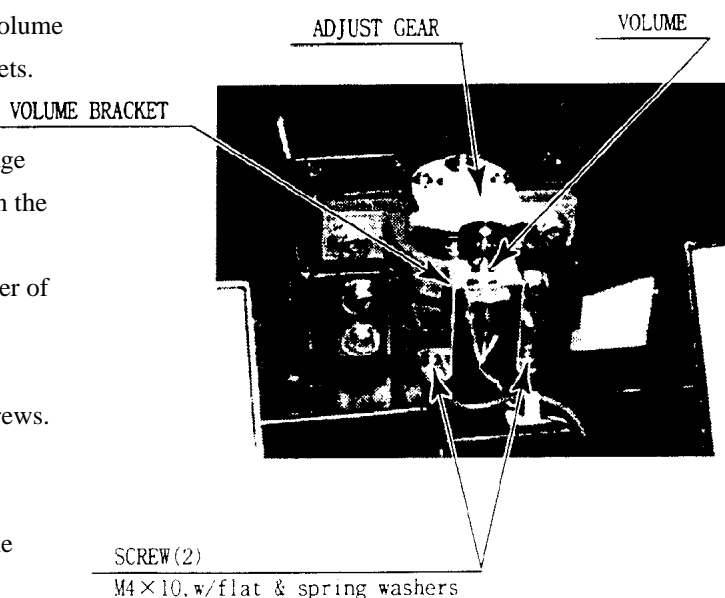
10 - 2 REPLACING THE VOLUME

 WARNING!

> Be sure to turn the power off first, before performing work, and avoid touching unspecified places. Failure to do so can cause electric shock and/or short circuit.

① Remove the Volume Gear from the Volume to replace the Volume.

② After replacing the Volume, make adjustments as per 12-1 ADJUSTING THE VOLUME.

10 - 3 GREASING

 WARNING!

> Be sure to turn the power off first, before performing work, and avoid touching unspecified places. Failure to do so can cause electric shock and/or short circuit.
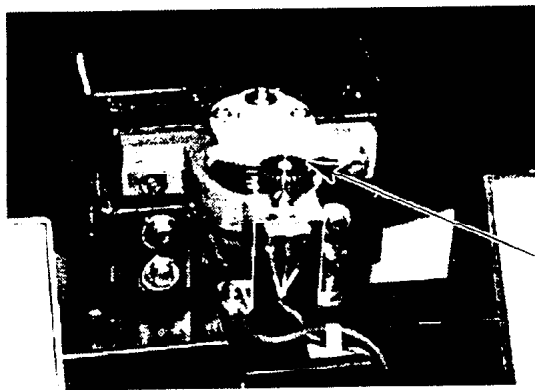
 STOP IMPORTANT!

> ● Be sure to use the designated grease. Using undesignated grease can cause parts damage
> ● Do not apply greasing to undesignated places. Doing so can cause malfunctioning or quality deterioration of parts.

Apply greasing to the following portions once every three (3) months.

For Spray Grease, use NOK GLUBER L60 or GREASE MATE (Part No. 090-0066).

GEAR MESH PORTION

11 . COIN SELECTOR

HANDLING THE COIN JAM

If the coin is not rejected when the REJECT BUTTON is pressed, open the coin chute door and open the selector gate. After removing the jammed coin, put a normal coin in and check to see that the selector correctly functions.

CLEANING THE COIN SELECTOR

The coin selector should be cleaned once every 3 months. When cleaning, follow the procedure below:

① Turn the power for the machine OFF. Open the coin chute door.

② Open the gate and dust off by using a soft brush (made of wool, etc.).

③ Remove and cleen smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.

④ Remove the CRADLE. When removing the retaining ring(E-ring), be very careful so as not to bend the shaft.

⑤ Remove stain from the shaft and pillow portions by wiping off with a soft cloth, etc.

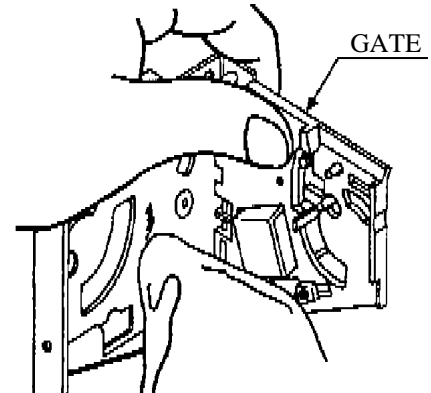⑥ After wiping as per #5 above, further apply a dry cloth, etc. to cause the coin selector to dry completely.
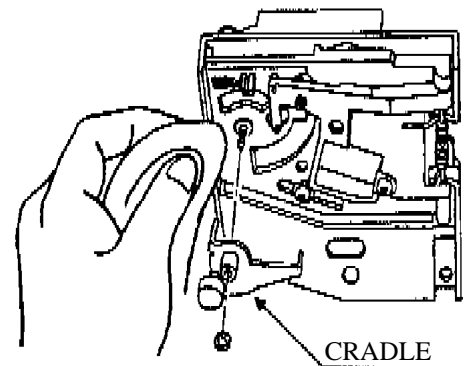
FIG. 11a

CRADLE

FIG.11b

STOP

IMPORTANT!

● Never apply machine oil, etc. to the coin selector
● After cleaning the Coin Selecting, Insert a regular coin in the normal working status and ensure that the Selector correctly functions.

COIN INSERTION TEST

Once a month, when performing the COIN SW TEST, simultaneously check the following:

☐ Does the Coin Meter count satisfactorily?
☐ Does the coin drop into the Cashbox correctly?
☐ Is the coin rejected when inserted while keeping the REJECT BUTTON is pressed down?

GATE

Insert a coin while keeping the Reject Button pressed down and check if it is rejected.
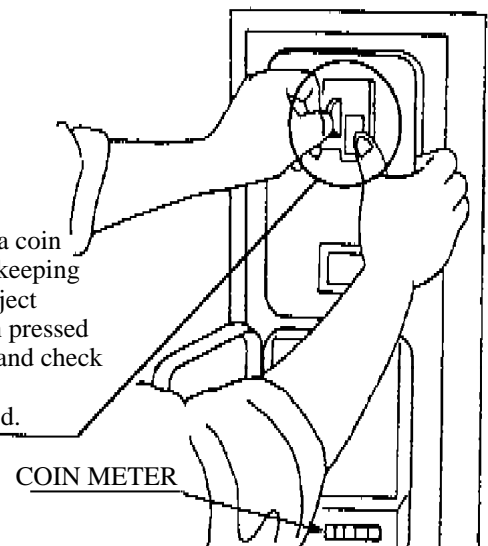
COIN METER

FIG. 11c

OPTIONAL DOLLAR BILL ACCEPTOR

● THE COIN DOOR ASSEMBLY USED ON **AIRLINE PILOTS STD TYPE** COMES EQUIPPED TO ACCEPT A DOLLAR BILL ACCEPTOR. ALL NEEDED WIRING CONNECTIONS ARE CONVIENENTLY LOCATED INSIDE THE GAME FOR THIS APPLICATION.

● THE COIN DOOR CAN ACCCOMMODATE THE FOLLOWING VALIDATORS:

HOLE POSITION#1   Mars 2000 series
(FORWARD-MOST POSITION)

HOLE POSITION#2   Mars 2000 series
                                                                    DBV45 (JCM)

HOLE POSITION #3   CURRENTLY NOT USED

HOLE POSITION #4   DSI01*

*The back flange on the chute can be removed for hold position #4. If the flange is not removed, it may interfere with the back of the cabinent.

The frame and cashbox enclosure on this coindoor has been modified to accomodate a Mars 2000 series upstacker. A 2000 series stacker can be added by simply removing the top two entry door and replacing it with a one entry door with a cut-out for a stacker. This one entry door can be ordered through Coin Controls or one of Coin Controls authorized distributors. The part number is 91-4000-01. The Mars stacker can be obtained through an authorized Mars distibutor.

COIN CONTROLS INTERNATIONAL

1850 HOWARD ST., ELK GROVE IL 60007
(847) 228-1810

OVER/UNDER TWO ENTRY COIN DOOR*
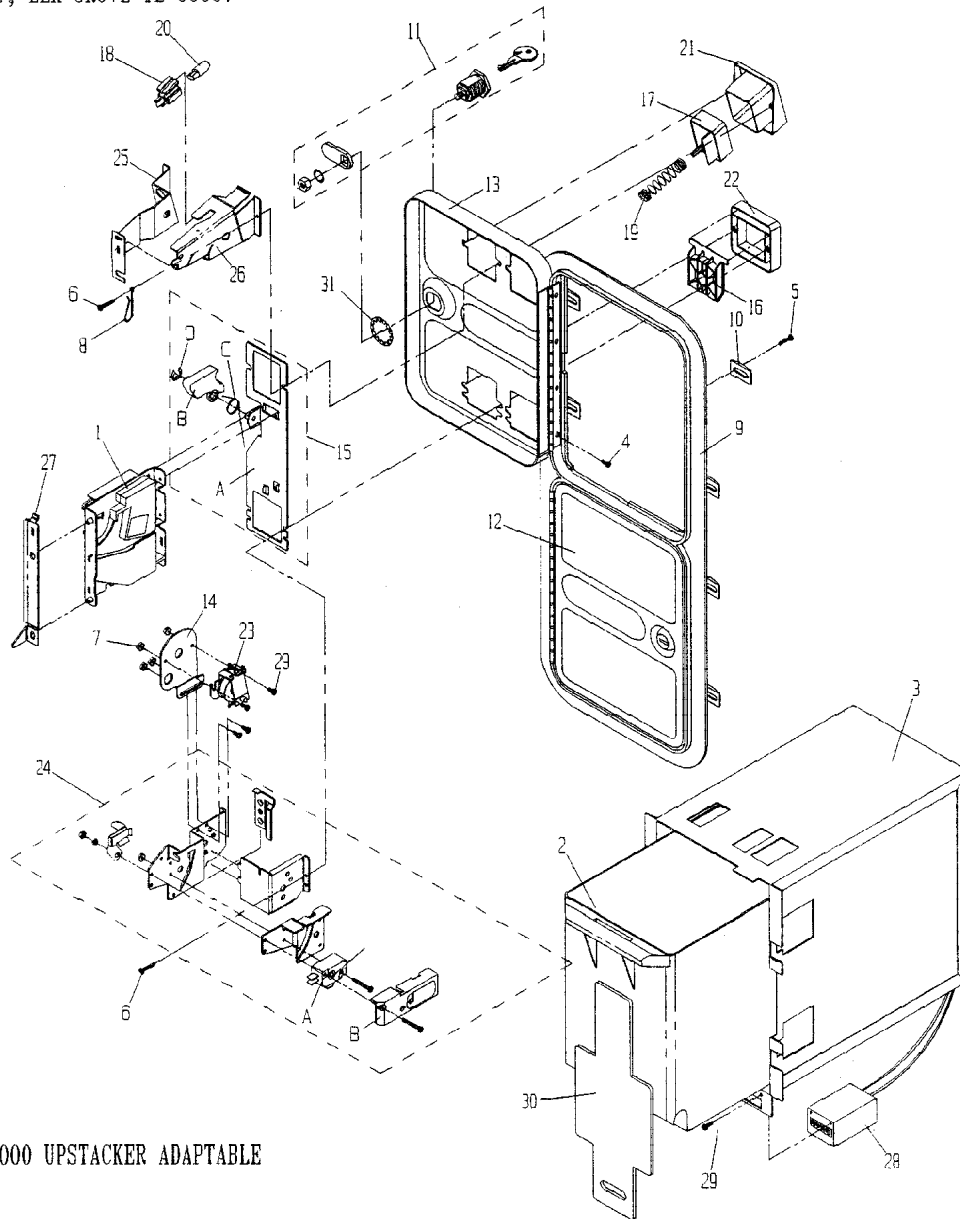
* MARS SERIES 2000 UPSTACKER ADAPTABLE

PART #	DESCRIPTION	COST	PART #	DESCRIPTION	COST	PART #	DESCRIPTION	COST
1) 12-4050-XX	S-10 ACCEPTOR	19.50	16) 91-1109-16	REJECT FLAP NYLON, BLACK	2.70	28) 23-1011-00	12V DC METER	8.50
12-4150-011	S-7 US $.25	12.00	17) 91-1113-01	ENTRY/REJECT BUTTON 25c	4.45	23-1103-00	4.5V DC METER	8.50
2) 20-4177-00	PLASTIC CASHBOX	7.40	18) 91-1117-00	LAMPHOLDER	1.40	29) 90-1032-01	METER & LOCKOUT SCREW	.25
3) 20-4189-00	ENCLOSURE, Z2000	27.50	19) 91-1121-00	E/R BUTTON SPRING	.80	30) 22-1400-00	LOCKING BAR	7.00
4) 90-1002-00	HINGE SCREW	.25	20) 91-1118-00	6V LAMP WEDGE BASE	.95	31) 90-1019-00	3/4" LOCKWASHER	.25
5) 90-1003-00	CLAMP SCREW	.95	21) 91-1311-16	BUTTON BEZEL BLACK	2.70			
6) 90-1017-00	SCREW BEZEL NYLON	.25	22) 91-1312-16	REJECT BEZEL BLACK	2.70			
7) 90-1206-02	#4-40 KEP NUT	.25	23) 91-2125-00	12V LOCKOUT COIL ASSEMBLY	12.85			
8) 90-1300-00	KEYHOOK	.35	24) 91-2216-16	MICROSWITCH ASSEMBLY	15.00			
9) 91-0508-16	FRAME	30.00	24A) 91-1116-16	MICROSWITCH BLACK	5.40			
10) 91-0506-00	CLAMP	.45	91-1116-11	MICROSWITCH WHITE	5.40			
11) 91-0547-00	DOUBLE D CAM LOCK	5.25	91-1116-10	MICROSWITCH RED	5.40			
12) 91-0603-16	BLACK MINI DOOR	8.40	24B) 91-1125-00	MICROSWITCH PLASTIC COVER	.85			
13) 91-0604-16	2 ENTRY UPPER DOOR	10.00	25) 92-1002-01	COIN INLET LAMP SIDE	1.80			
14) 91-1008-039	LOCKOUT BRACKET	4.30	26) 92-1002-021	COIN INLET COVER SIDE	1.80			
15) 91-1008-107	BASEPLATE ASSEMBLY	5.00	27) 92-1002-10	HOLD DOWN BRACKET	1.50			

JAN. 1998

FORM 92-1003-05

12. MONITOR

CAUTION!

When performing such work as installing and removing the monitor, inserting and disconnecting the external connectors to and from monitor, be sure to disconnect the power connector (plug) before starting work. Proceeding the work without following this instruction can cause electric shock of malfunctioning.
Using the monitor by converting it without obtaining a prior permission is not allowed. SEGA shall not be liable for any malfunctioning and accident caused by said conversion.

WARNING!

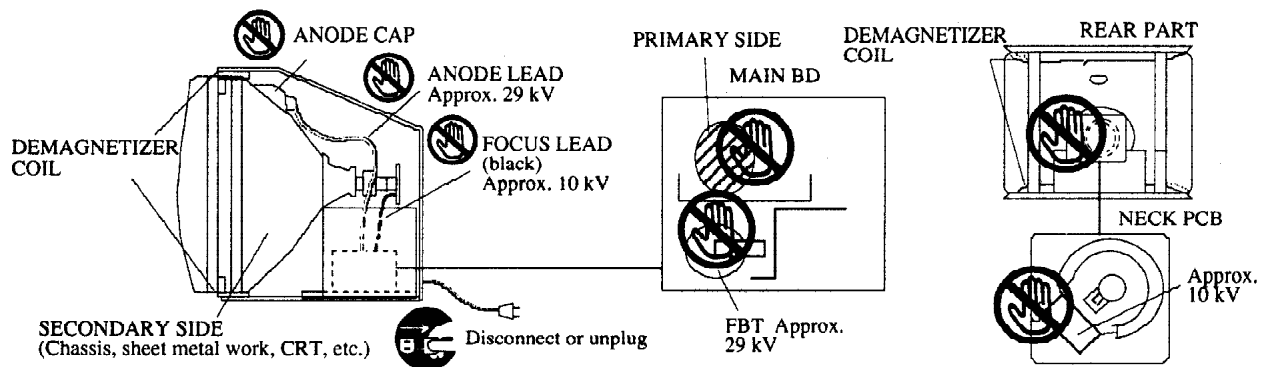**Primary side and secondary side**
The monitor's circuit which is divided into the Primary side and secondary side, is electrically isolated. Do not touch the primary side and the secondary side simultaneously. Failing to observe the instruction can cause electric shock, and this is very dangerous. When making monitor adjustments, use a non-conductive driver and make adjustment without touching any other part other than the Adjustment V.R. and Knob. Also, be sure not to cause a short-circuit to the Primary side and the Secondary side. If short-circuited, it can cause electric shock or malfunctioning, which is very dangerous.

SECONDARY SIDE
(Chassis, CRT)

PRIMARY SIDE
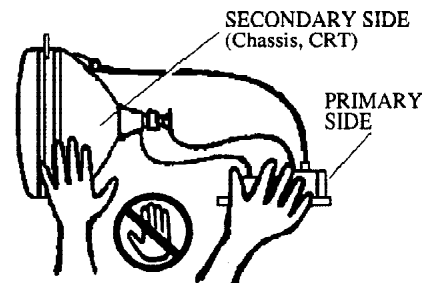
High tension Voltage
Some of the parts inside the monitor are subject to high-tension voltage in excess of 20,000 volts and very dangerous. Therefore, do not touch the monitor interior. Should soldering & paper wastes, etc. be mixed in the monitor, turn the power off so as not to cause malfunctioning or fire hazard.

ANODE CAP

ANODE LEAD
Approx. 29 kV

DEMAGNETIZER COIL

FOCUS LEAD
(black)
Approx. 10 kV

SECONDARY SIDE
(Chassis, sheet metal work, CRT, etc.)

Disconnect or unplug

PRIMARY SIDE

MAIN BD

DEMAGNETIZER COIL

REAR PART

NECK PCB

Approx. 10 kV

FBT Approx. 29 kV

Connecting the CRT and PCB
For combining the CRT and PCB, use the specified part No. to maintain the status of adjustments made at the factory. The anode of the CRT itself will be accumulitavely charged as time elapses, generating high tension voltage which is very dangerous. The monitor should be used with the Chassis, CRT and PCB assembled. When repair, etc. is required at the time of malfunctioning, be sure to send it in an "as assembled" condition. If these are disassembled, what's charged to said high tension voltage can be discharged, causing a very hazardous situation. Therefore, under no circumstances should it be disassembled.

CAUTION!

Static Electricity
Touching the CRT surface sometimes causes you to slightly feel electricity. This is because the CRT surfaces are subject to static and will not adversely affect the human body.
Installation and removal
Ensure that the Magnetizer Coil, FBT (Fly-Back Transformer), Anode Lead and Focus Lead are not positioned close to the sheet metal work's sharp edges, etc. and avoid damaging the insulated portions so as not to cause an electric shock and malfunctioning. (For the name of parts, refer to the above figures.)
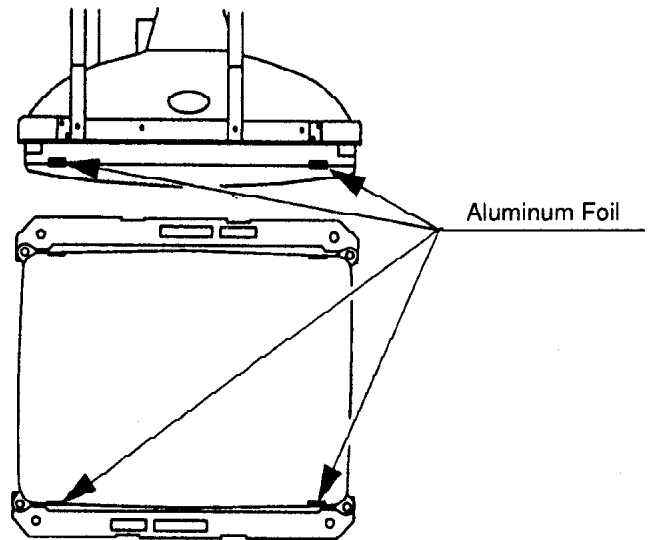
CAUTION!

For the purpose of static prevention, special coating is applied to the CRT face of this product. To protect the coating, pay attention to the following points. Damaging the coating film can cause electric shock to the customers. For the caution to be heeded when clearing, refer to the Section of Periodic inspection Table.
Do not apply or rub with a hard item (a rod with pointed edge, pen, etc.) to or on C.R.T. surfaces.
Avoid applying stickers, seals, etc. on the C.R.T. face.
Do not remove aluminum foils from the C.R.T. corners. Removing the aluminum foils can cause static prevention effects to be lowered.

Aluminum Foil

CAUTION!

Monitor adjustments have been made at the time of shipment. Therefore do not make further adjustment without a justifiable reason. Adjusting the monitor which contains high tension parts is dangerous work. Also, an erroneous adjustment can cause deviated synchronization and image fault, resulting in malfunctioning.
When making adjustment, utilize a resinous Alignment Rod. Servicing with bare hands or using conductive tools can cause electric shock.

12 - 2 CAUTIONS TO BE HEEDED WHEN CLEANING THE CRT SURFACES

CAUTION!

Static preventive coating is applied to the CRT surfaces. Peeling off this coating can cause electric shock. When cleaning, pay attention to the following points:

● Remove smears by using a dry, soft cloth (flannels, etc.). Do not use a coarse gauze, etc.
● For smear removing solvent, alcohol (ethanol) is recommended. When using chemical detergent, e sure to folow instructions below:
  • Dilute chemical detergent with water and dip a soft cloth in and then thoroughly wring it to wipe smears off.
  • Do not use a chemical detergent containing an abrasive, powder or bleaching agent.
  • Do not use alkaline chemical detergents such as "glass cleaner" available on the market or solvents such as thinner, etc.
● Do not rub or scratch the CRT face with hard items such as scrub brushes, etc.

Clean the CRT surfaces once a week. When cleaning, pay attention to the above cautions so that the antistatic coating will not come off.

⚠ WARNING!

● Monitor adjustments are made at the time of shipment. Therefore, do not make further adjustments without a justifiable reason. Adjusting a monitor which contains high tension parts is dangerous work. Also, an erroneous adjustment can cause deviated synchronization and image fault, resulting in malfunction.
● When making adjustments, utilize a resinous Alignment Rod. Servicing with bare hands or using tools made of conductive material can cause electric shock.
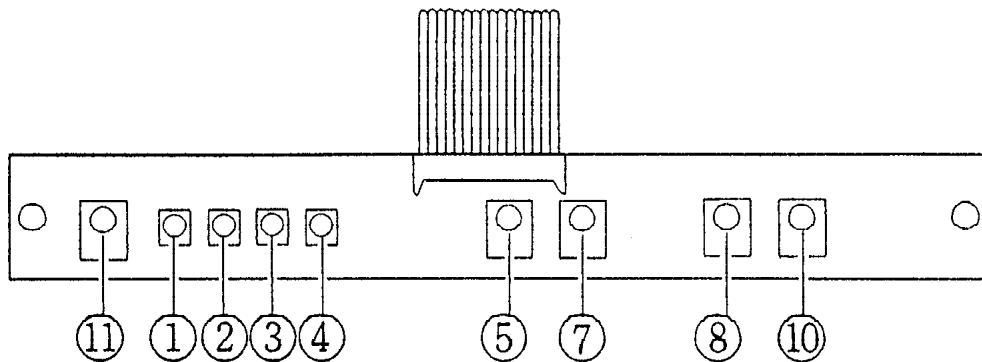
① R-GAIN

② G-GAIN .... Controls colors.

③ B-GAIN

④ BRIGHT .... Controls screen brightness.

⑤ H. SIZE .... Controls horizontal screen size.

⑥ H. HOLD .... Provides horizontal synchronization, i.e., controls right/left hold.

⑦ H. POSI .... Controls horizontal display position on screen.

⑧ V. SIZE .... Controls vertical screen size.

⑨ V. HOLD .... Provides vertical synchronization, i.e., controls up-down hold.

⑩ V. POSI .... Controls vertical display position on screen.

⑪ CONTRAST.... Adjusts image contrast.

13. REPLACING THE FLUORESCENT LAMP

<table>
<tr>
<td>⚠
WARNING!</td>
<td>● When performing the work, be sure to turn power off. Working with power on can cause an electric shock or short circuit accident.
● The Fluorescent Lamp, when it gets hot, can cause burns. Be very careful when replacing the Fluorescent Lamp.</td>
</tr>
<tr>
<td>⚠
CAUTION!</td>
<td>To perform work safely and securely, be sure to use a step which is in a secure and stable condition. Not using a step or using an unstable step can cause violent falling accidents.</td>
</tr>
</table>

13 -1 METHOD OF REPLACEMENT

① Take out the 2 Truss Screws and remove the Plate Holder.

② Lower the Billboard Plate and replace the Fluorescent Lamp.

Billboard Plate

Fluorescent Lamp 20W
Local Purchase

Plate Holder

TRUSS SCREW(2).chrome
M4×8
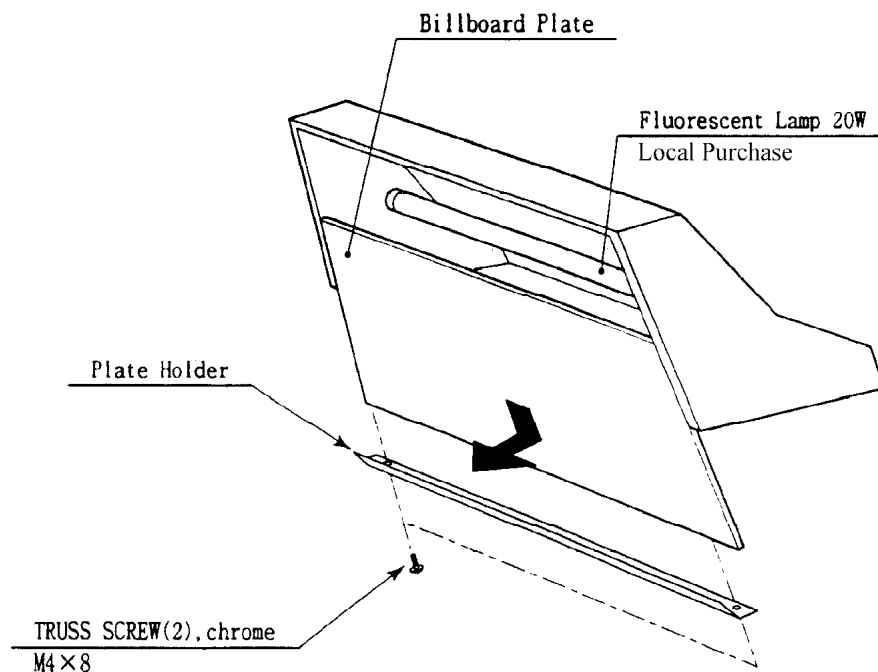
14. PERIODIC INSPECTION TABLE

The items listed below require periodic checks and maintenance in order to retain the performance of this machine and ensure safe operation.

⚠️ **WARNING!**

● Be sure to check once a year to see if Power Cords are damaged, the Plug is securley inserted, dust is accumulated between the Socket Outlet and the Power Plug, etc. Using the product when dust has accumulated can cause a fire or electrical shock.

● Once a year, request an interior cleaning from the place of contact stated herin or from the Distributer from which the product was purchased. Using the product when dust has accumulated in the interior can result in a fire or short circuit accident. Note that cleaning the interior parts can be performed on an individual pay-basis.

ITEMS	DESCRIPTION	PERIOD
CABINET	Check Adjusters' contact with surface.	Daily
CONTROL MECHANISM	Check VOLUME Value.	Monthly
LEVER UNIT	Check SW.	Monthly
	Check VOLUME Value.	Monthly
	GREASING	Trimonthly
PEDAL UNIT	Check VOLUME Value.	Monthly
COIN CHUTE TOWER	Check COIN SWes.	Monthly
	Coin insertion test.	Monthly
	COIN SELECTOR cleaning.	Trimonthly
MONITOR	Cleaning CRT face.	Weekly
	Check Adjustments.	Monthly or when moving
SEAT	Antistatic measures.	Bimonthly
GAME BD	MEMORY TEST.	Monthly
	Setting check.	
INTERIOR	Cleaning.	Annually
POWER PLUG	Inspection and cleaning.	
CABINET SURFACES	Cleaning.	As occasion arises

CLEANING CABINET SURFACES

If the cabinet is badly stained, use a cloth which is dipped in the chemical detergent liquid diluted with water and then squezzed dry. Do not use thinner, benzine, alcohol or chemical dustcloths, as these can damage the Cabinet surfaces.

SEAT (Greasing to Seat Rail Portion)

Move the Seat to the rearmost position and apply spray grease to the portion shown at the right once every 3 months, using NOK KLUBER L60 or GREASE MATE (Part No. 090-0066). After greasing, move the seat forward and backward a few times to allow the grease to be applied uniformly. Be sure to wipe off any grease that contacts the surfaces of the PROTECTIVE RUBBER on the Seat Rail, and any excess grease.
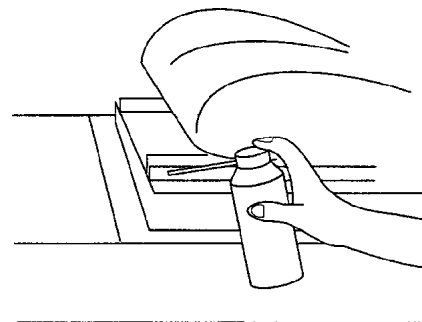
15. TROUBLESHOOTING

Should trouble occur, first check wiring connections.

PROBLEMS	CAUSE	COUNTERMEASURES
When Main SW is ON, there is no activation.	The power is not on. Power supply/voltage is incorrect. AC main fuse causes the power to be cut off due to momentary overload.	Firmly insert the plug into the outlet. Make sure that the power supply/voltage is correct. Check the fuse. Remove the cause of overload and replace the fuse.
Irregular sound emitted from inside Rear Cabinet	Greasing to gear mesh portion is not satisfactory, or extraneous matter mixed in.	Apply greasing or eliminate extraneous matter.
No sound is emitted.	Sound Volume adjustment is not correct. Sound BD and Amp are malfunctioning.	Adjust the SWITCH UNIT's speaker volume. Perform SOUND TEST to find and replace defective parts.
No sound from Cockpit.	In correct Cabinet Type Setting.	Correct Cabinet Type Setting.
The Fluorescent lamp does not light up.	The Fluorescent tube is burnt out.	Replace the Fluorescent tube.
The image coloring on the MONITOR is incorrect.	Affected by C.R.T. magnetization. Incorrect monitor adjustment.	Press the DEMAG. SW on the SWITCH UNIT. Make appropriate adjustments.
Operation of CONTROL WHEEL, RUDDER PEDAL, and THRUST LEVER is not satisfactory.	Deviation of Volume. Volume malfunctioning. ADJUST GEAR mesh is incorrect.	Adjust Volume value in the TEST mode. Replace the Volume. Adjust ADJUST GEAR mesh.

CIRCUIT PROTECTOR

Functions due to the activation of bimetal. To restore the function, wait approximately one minute
or longer until the bimetal cools off, and press the button.

16. GAME BOARD

16 -1   LOCATING THE GAME BOARD

① Turn power off.

② Take out a total of 6 Truss Screws and unlock to remove the Seat.

③ The GAME BOARD is located at the position shown in the photo below.

TRUSS SCREW(2).black
M5×12

For performing work,
use 2 or more workers.

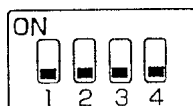TRUSS SCREW(4).black
M5×12
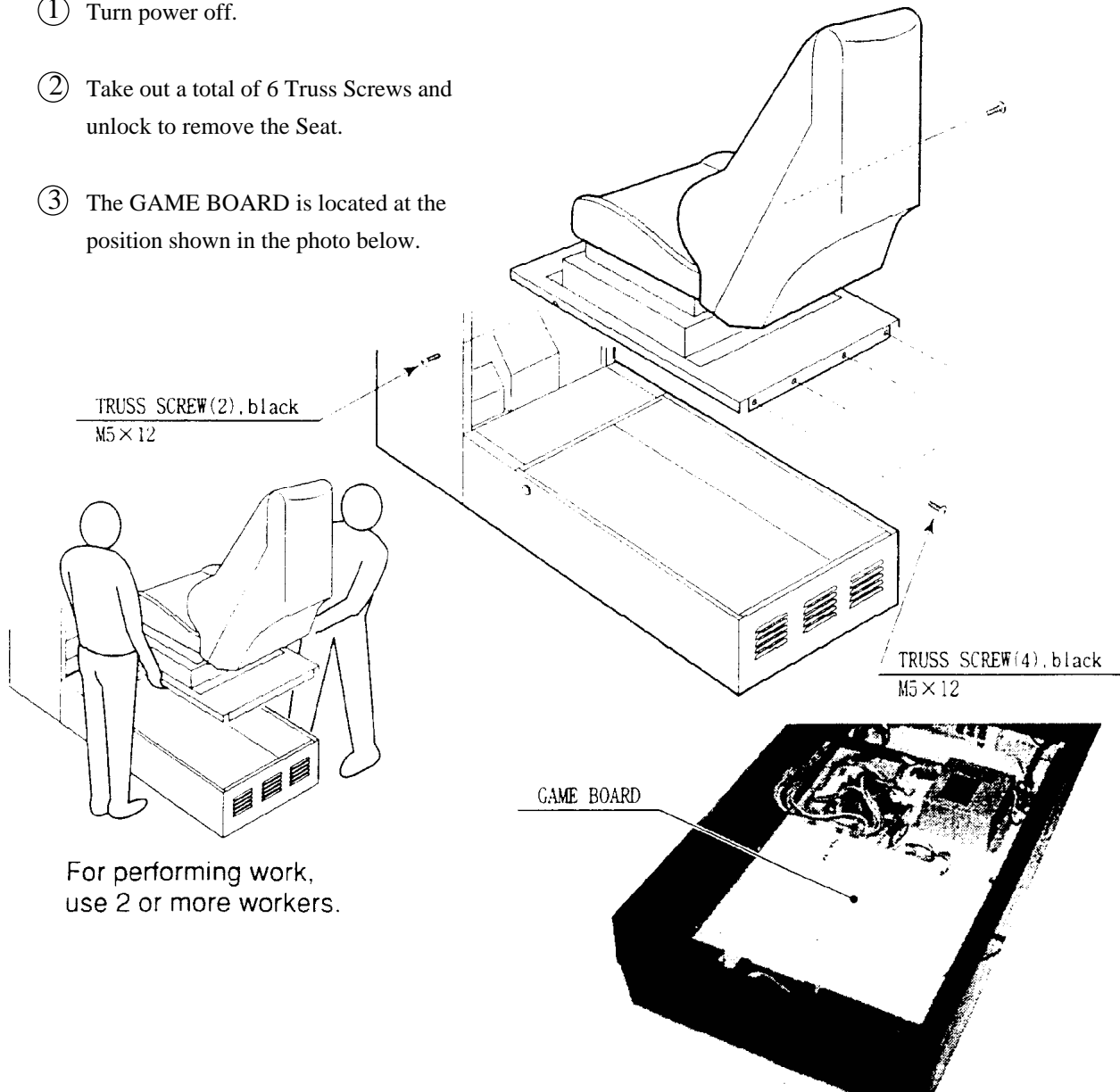
GAME BOARD

Be sure to use the specified settings for the DIP SWes on the Filter Board. Failure to do so may cause irregularities or malfunctioning, such as unsatisfactory images displayed on the screen.

ASSY CASE NAO USA (840-0005D-05)

SCREW (4)
M3×30

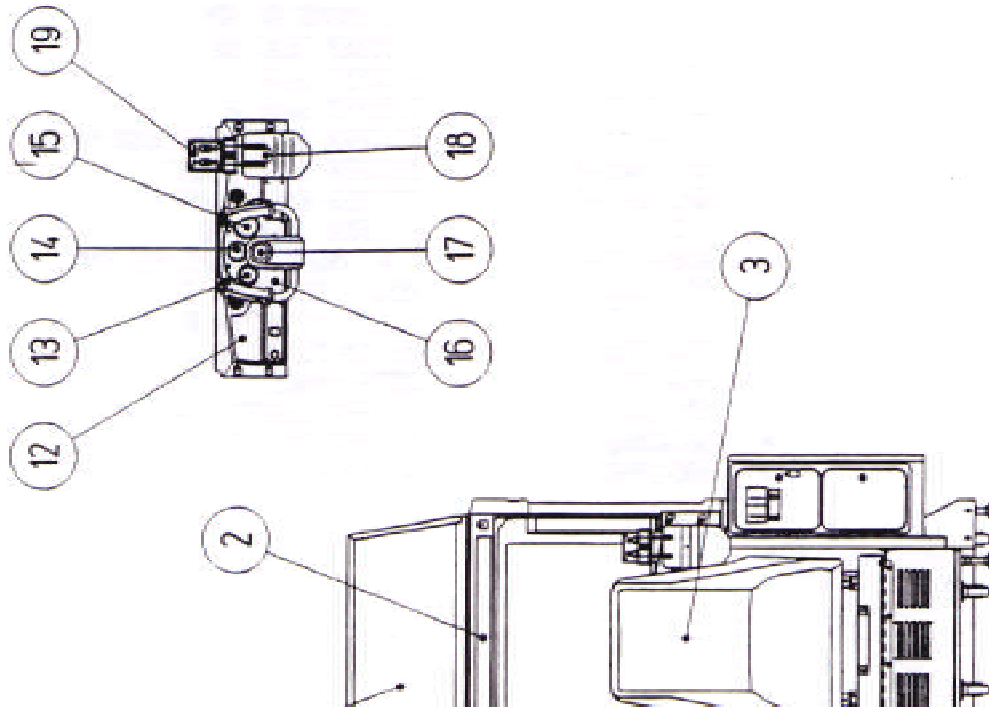ROM CASE NAO
840-0023C

DIP SW

840-0001A-01 ASSY CASE NAOMI MAIN 3D USA
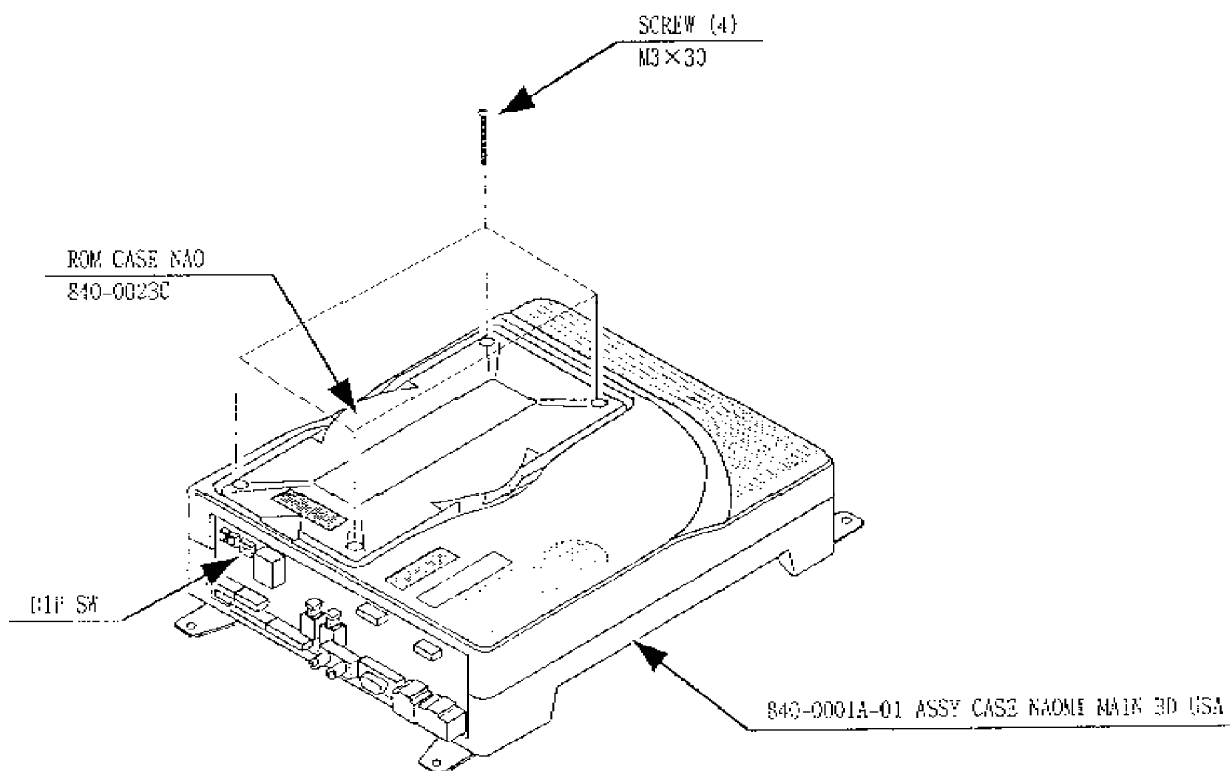
DIP SW SETTING

In this product, be sure to set all of the DIP SWes to OFF.

ON

1 2 3 4

17. DESIGN RELATED PARTS

For the Warning Display stickers, refer to Section 1.

DESIGN RELATED PARTS

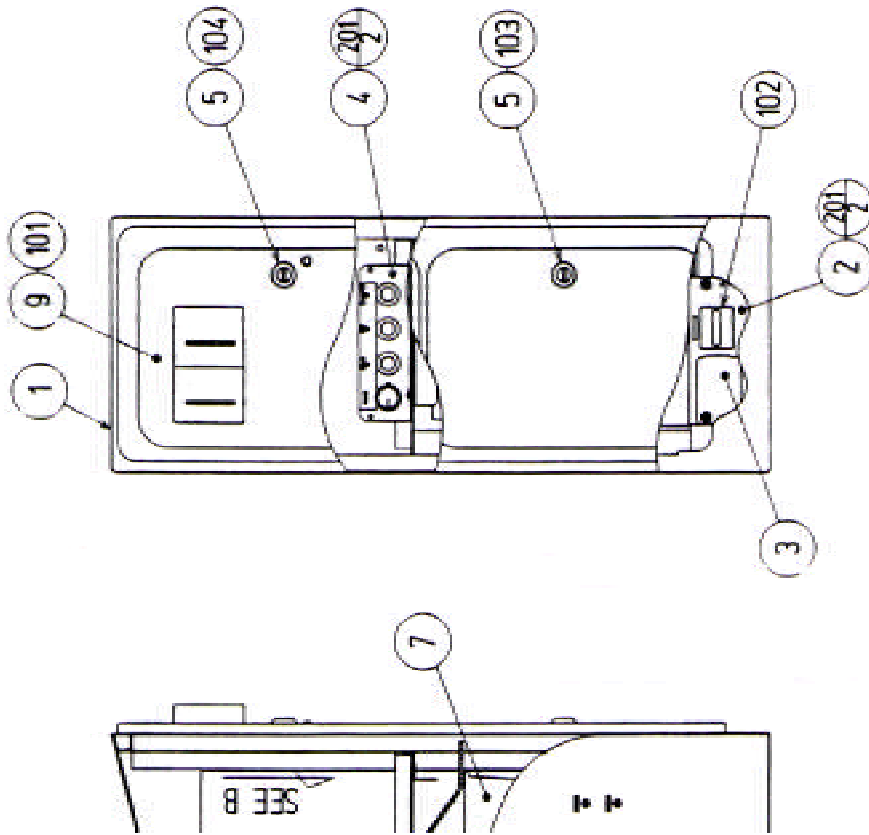| ITEM NO.	PART NO.	DESCRIPTION
1	APC-0202	BILLBOARD PLATE STD
2	422-0748-01	SUB INSTR SH APC STD ENG
3	APC-3110-A	STICKER SEAT BACK
6	APC-1551-A	STICKER SIDE L
7	APC-1571-A	STICKER SIDE R
8	421-9749-02	STICKER SEGA LOGO BLOW WHITE
9	APC-1501-A	STICKER BASE L APC
10	APC-1501-B	STICKER BASE R APC
11	APC-1511-A	STICKER BASE LID
12	422-0751-91-01	PLAY INSTR SH APC STD ENG
13	APC-2502-D	DESIGN PL METER C
14	APC-2502-C	DESIGN PL METER B
15	APC-2502-B	DESIGN PL METER A
16	SPG-1201-E	METER PANEL
17	APC-1078	STICKER CENTER MARK
18	APC-3005	STICKER THRUST
19	APC-1583	SW PLATE STD

18. PARTS LIST

① TOP ASSY APC STD
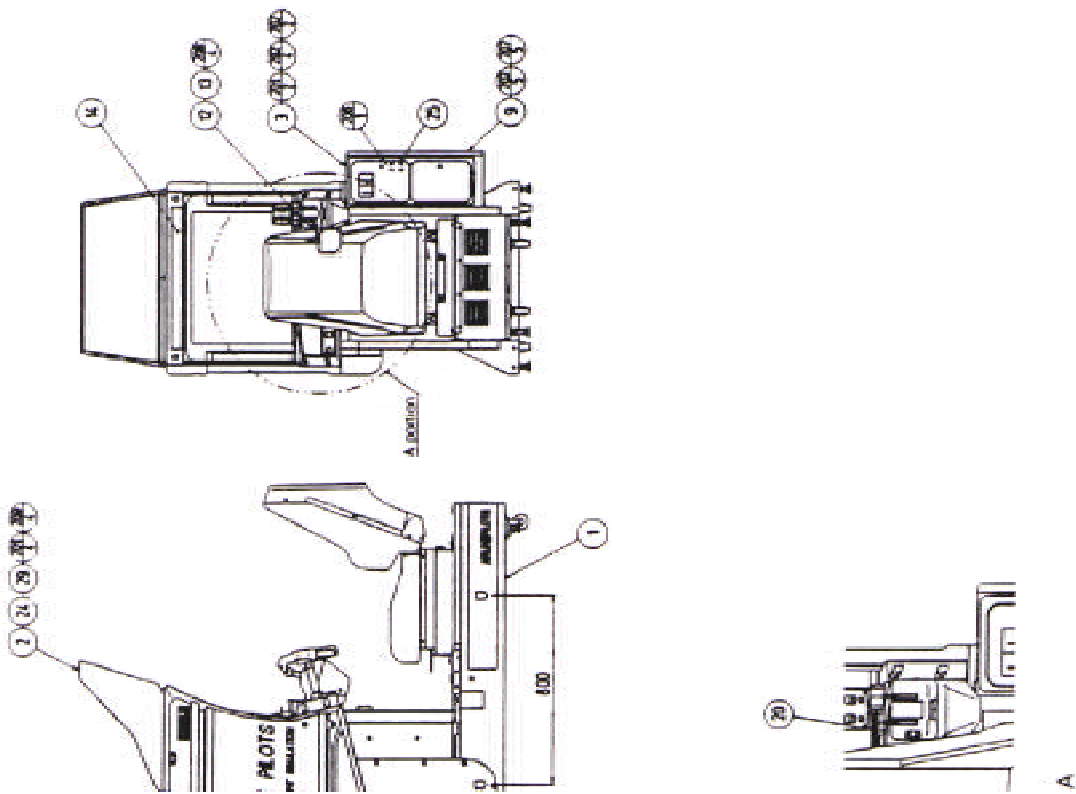
① TOP ASSY APC STD

ITEM NO.	PART NO.	DESCRIPTION
1	APC-10001	ASSY COCKPIT
2	APC-0200	ASSY BILLBOARD STD
3	APC-0300	ASSY COINCHUTE TOWER
4	RAL-0006	BLIND CAP
5	SDW-0005	AC COVER
6	SDW-0006	AC LID
7	SDW-0007	CONNECTOR COVER
8	SDW-0008	WIRE COVER
9	SDW-0009	TOWER COVER
10	INY-0004	BACK LID INY
11	DYN-0008	BACK LID B
12	DYN-0011	DENOMI PLATE W/O ORIGINAL
13	421-7308-~	DENOMI SH 1GAME ~
14	422-0748-01	SUB INSTR SH APC STD ENG
15	SGM-3863	POLTHN COVER 950 X 1800 X 1700
24	APC-0004	BILLBOARD HOOK
29	APC-0012X	BILLBOARD HOLDER STD
201	030-000820-SB	HEX BLT W/S BLK M8 X 20
202	068-852216-OB	FLT WSHR BLK 8.5-22 X 1.6
203	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
204	000-T00512-OB	M SCR TH BLK M5 X 12
205	010-P00408-F	S-TITE SCR PH W/F M4 X 8
206	008-T00412-OB	TMP PRF SCR TH BLK M4 X 12
207	050-F00800	FLG NUT M8 S=12
208	000-T00416-OC	M SCR TH CRM M4 X 16
209	060-F00800-OB	FLT WSHR BLK M8

② ASSY BILLBOARD STD (APC-0200)
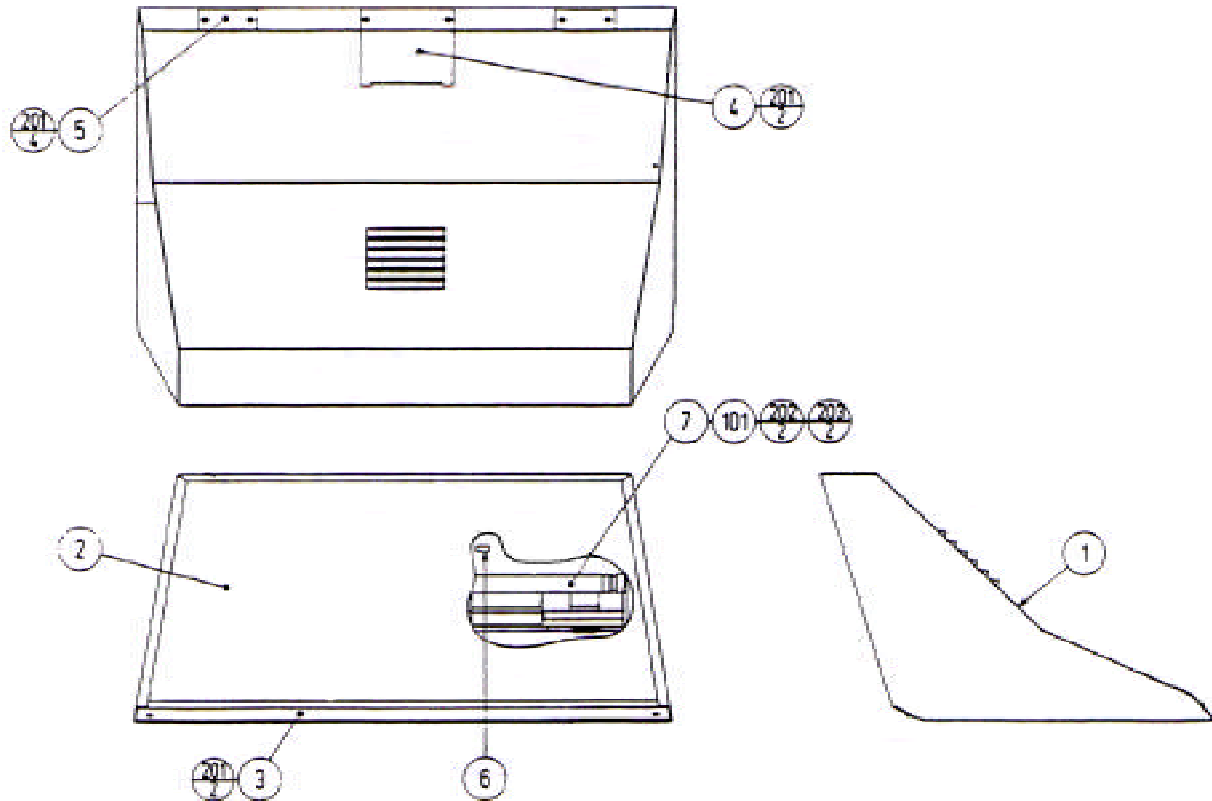
ITEM NO.	PART NO.	DESCRIPTION
1	APC-0201	BILLBOARD BASE
2	APC-0202	BILLBOARD PLATE STD
3	APC-0203	PLATE HOLDER
4	APC-0204	CONNECTOR LID
5	APC-0205	BOLT LID
201	000-T00408-OC	M SCR TH CRM M4 X 8

③ ASSY COINCHUTE TOWER (APC-0300)

③ ASSY COINCHUTE TOWER (APC-0300)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-0301	COINCHUTE TOWER
2	DRT-0301	COIN METER BRKT
4	SDW-0360	SW UNIT
5	DP-1167	TNG LKG
6	105-5172	CHUTE PLATE DOUBLE
7	253-5366	CASH BOX
9	421-7501-02	STICKER 6.3V 0.15A
12	APC-0303	CONN PNL TOWER STD
101	220-5482-91-~	ASSY C.C 2DR ~
	220-5237-92-~	ASSY C.C 2DR ~
102	2205643-01	MAG CNTR DC5V 6P WH MZ-674-D04
103	220-5574	CAM LOCK W/KEYS
104	220-5575	CAM LOCK MASTER W/O KEY
201	000-P00408-W	M SCR PG W/FS M4 X 8

④ SW UNIT (SDW-0360)
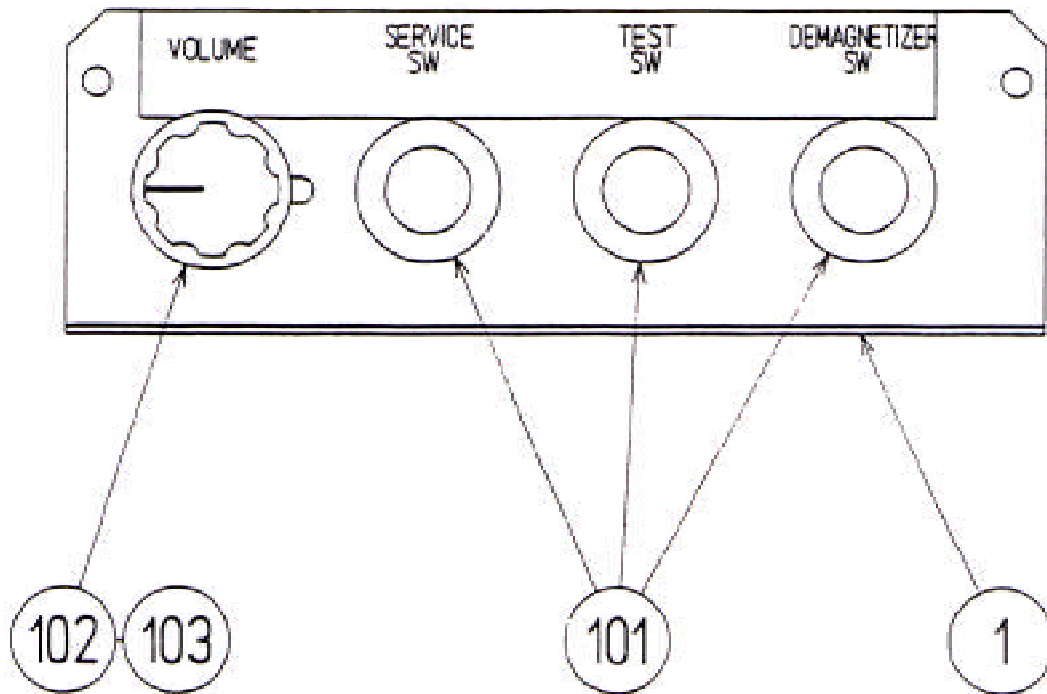
ITEM NO.	PART NO.	DESCRIPTION
1	KR-1060	SW BRACKET
101	509-5028	SW PB 1M
102	220-5179	VOL CONT B-5K OHM
103	601-0042	KNOB 22MM

⑤ ASSY COCKPIT　(APC-10001)

TORQUE
M8 195kgf·cm
M4(M SCR) Under 10kgf·cm

SECTION A-A
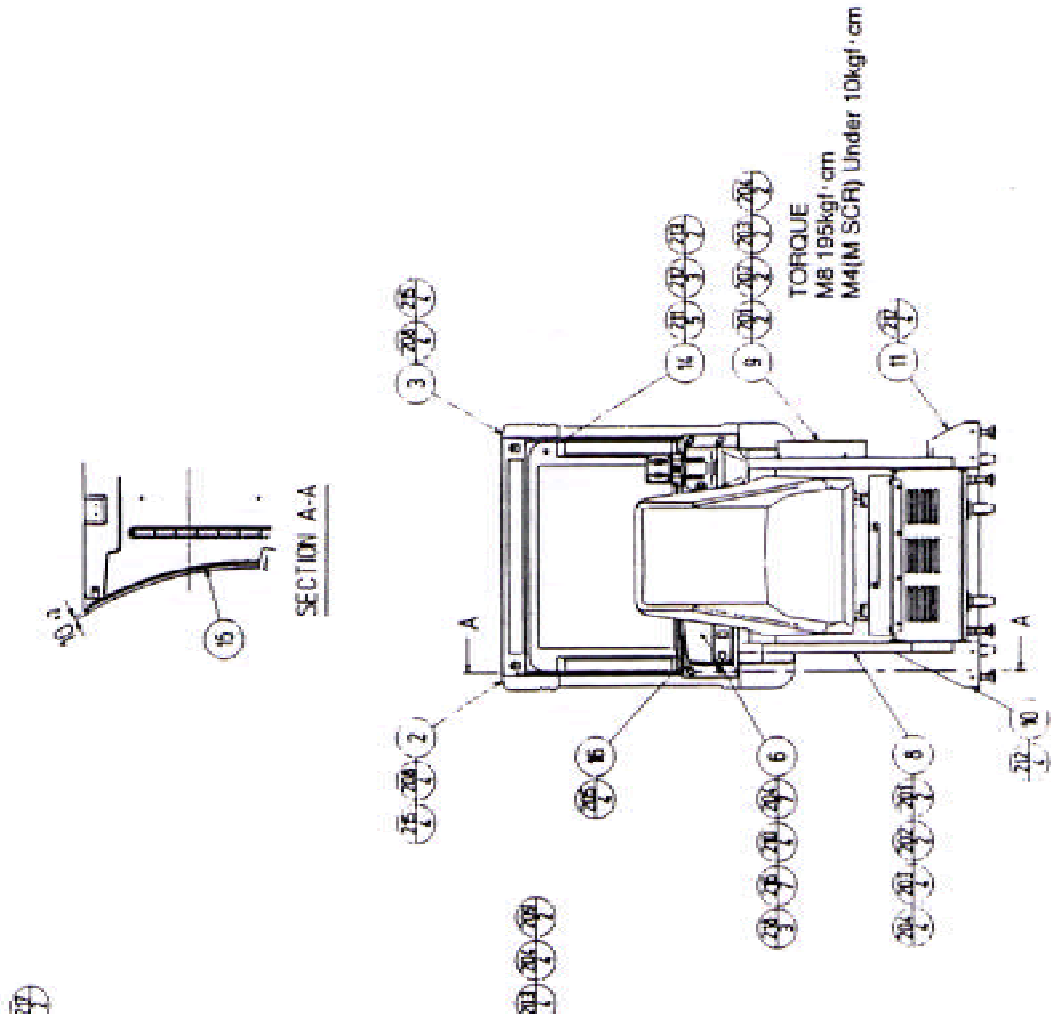
⑤ ASSY COCKPIT (APC-10001)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-1500	ASSY MAIN BASE
2	APC-1550	ASSY MONITOR COVER L
3	APC-1570	ASSY MONITOR COVER R
4	APC-1600	ASSY SEAT STD
5	APC-2200	PEDAL UNIT
6	APC-20001	ASSY CTRL PNL
7	SPG-1008	ROOF LID
8	APC-1088	SIDE PNL L
9	APC-1089	SIDE PNL R
10	SDW-1023	FOOT COVER L
11	SDW-1024	FOOT COVER R
12	APC-1019	MONITOR STAND
13	APC-1080	WIRE COVER BOX
14	TTR-1067X	MONITOR MASK
15	DYN-1025	RUBBER CUSHION
16	SPG-1005	MASK HOLDER
17	INY-1016	MONITOR SUPPORT
19	RAL-2007	RUBBER HOLDER R TWIN
20	RAL-2008	RUBBER HOLDER L TWIN
21	INY-1015	CRT ADJUST PANEL
101	200-5787	ASSY CLR DSPL 29TYPE 31K 100V
105	280-5112	BUSH FOR TV
106	280-5113	COLLAR FOR TV
107	280-5114	SPACER 6.4-25 X 2
108	280-5185-6	SPACER TUBE L=6
201	030-000850-SB	HEX BLT W/S BLK M8 X 50
202	068-852216-OB	FLT WSHR BLK 8.5-22 X 1.6
203	030-000820-SB	HEX BLT W/S BLK M8 X 20
204	060-F00800-OB	FLT WSHR BLK M8
205	000-F00508	M SCR FH M5 X 8
206	050-F00600	FLG NUT M6
207	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
208	030-000840-SB	HEX BLT W/S BLK M8 X 40
210	008-B00830-OB	TMP PRF SCR BH BLK M8 X 30
211	068-552016-OB	FLT WSHR BLK 5.5-20 X 1.6
212	000-T00512-OB	M SCR TH BLK M5 X 12
213	000-T00530-OB	M SCR TH BLK M5 X 30
214	000-P00312-WB	M SCR PH W/FS BLK M3 X 12
215	DYN-1019	FLT WASHER M8
216	060-S00800-OB	SPR WSHR BLK M8
217	000-T00408-OB	M SCR TH BLK M4 X 8
218	008-B00820-OB	TMP PRF SCR BH BLK M8 X 20
219	050-F00800	FLG NUT M8 S=12

⑥ ASSY MAIN BASE (APC-1500)
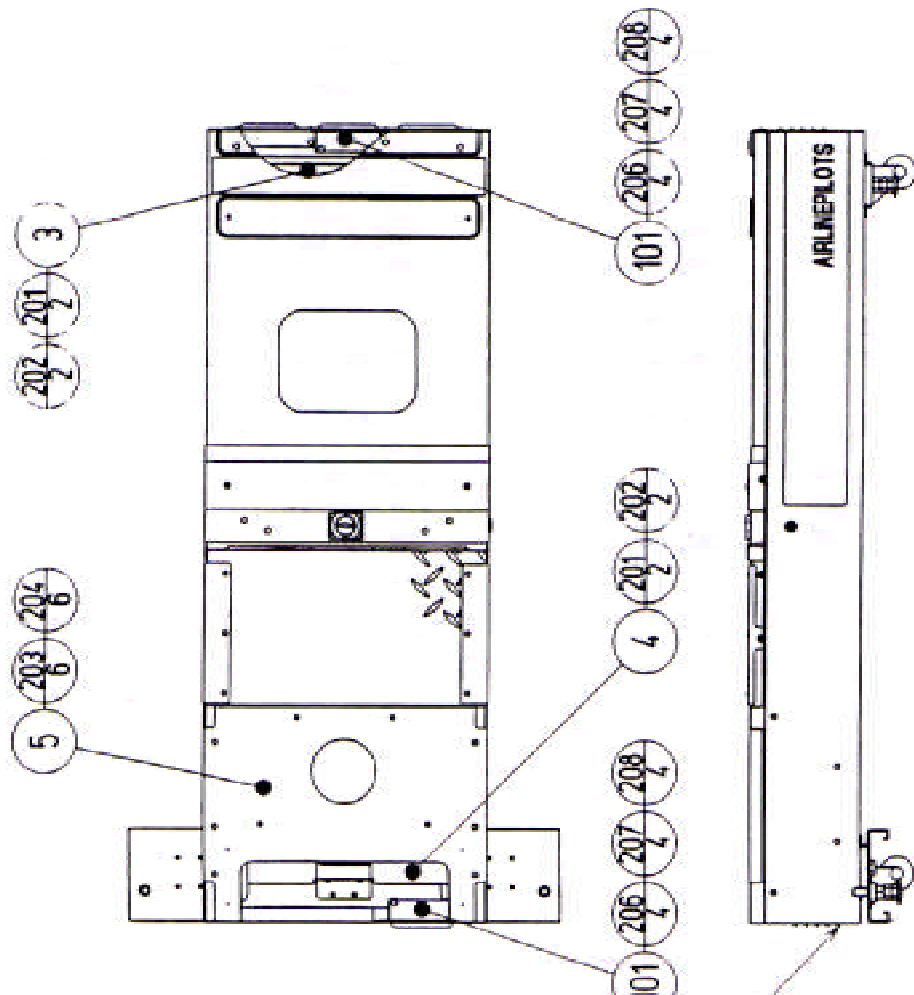
⑥ ASSY MAIN BASE (APC-1500)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-1520	ASSY BASE BOX
2	APC-1530	AC UNIT
3	APC-4500	ASSY MAIN BD STD
4	APC-4600	ASSY PWR SPLY STD
5	APC-1502	FOOT BASE
101	260-0011-02	AXIAL FLOW FAN AC100V 50-60HZ
201	000-P00425-W	M SCR PH W/FS M4 X 25
202	068-441616	FLT WSHR 4.4-16 X 1.6
203	030-000616-SB	HEX BLT W/S BLK M6 X 16
204	060-F00600-OB	FLT WSHR BLK M6
205	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
206	000-P00350	M SCR PH M3 X 50
207	060-F00300	FLT WSHR M3
208	060-S00300	SPR WSHR M3

⑦ ASSY BASE BOX (APC-1520)
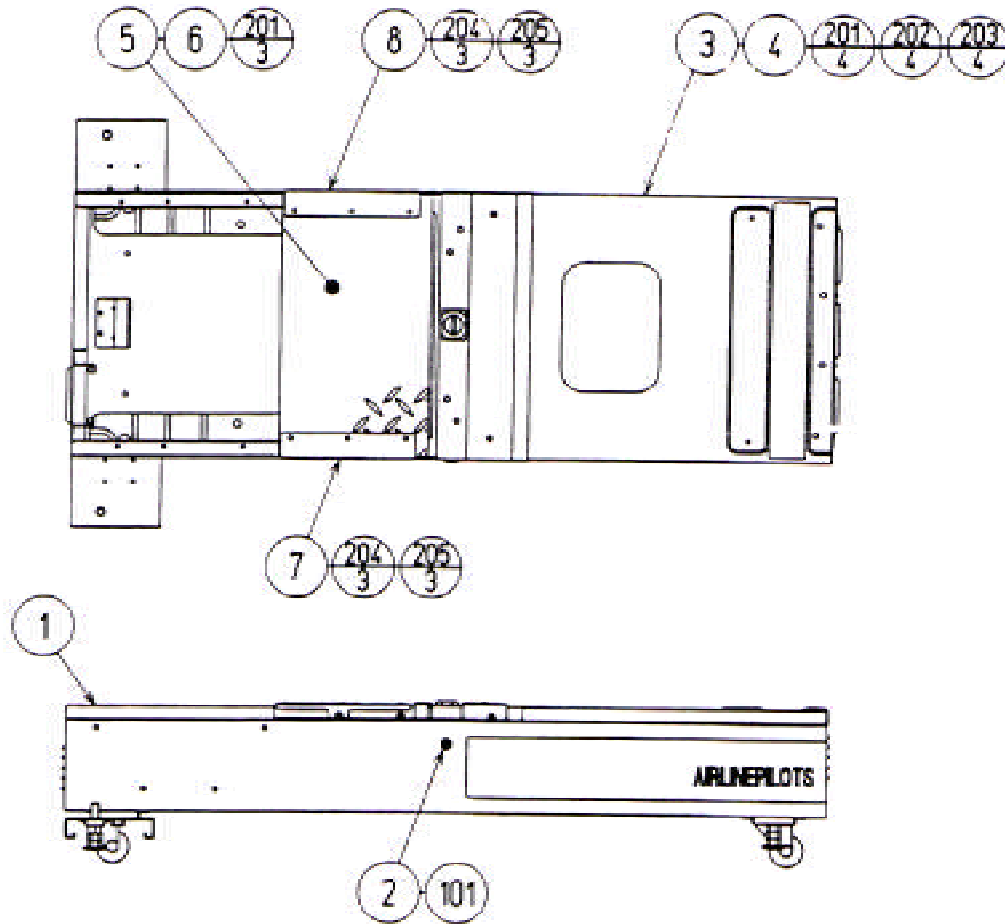
Note: Assemble ③ and ④, then fasten to ①.

ITEM NO.	PART NO.	DESCRIPTION
1	APC-1501	MAIN BASE
2	DYN-2004	LOCK TNG
3	APC-1523	BASE LID BRKT
4	APC-1510	ASSY BASE LID R
5	APC-1522	FLOOR MAT
6	APC-1521	BASE LID F
7	DYN-2007X	LID EDGE L
8	DYN-2009X	LID EDGE R
101	220-5575	CAM LOCK MASTER W/O KEY
201	000-T00512-OB	M SCR TH BLK M5 X 12
202	031-000514-OB	CRG BLT BLK M5 X 14
203	050-F00500	FLG NUT M5
204	031-000414-OC	CRG BLT CRM M4 X 14
205	050-F00400	FLG NUT M4

⑧ MAIN BASE (APC-1501)
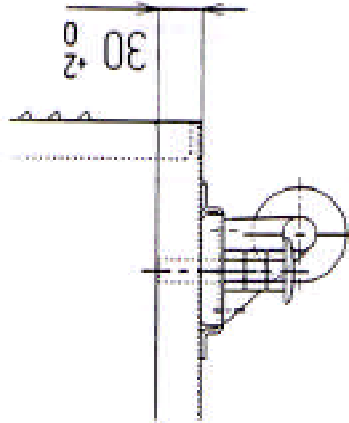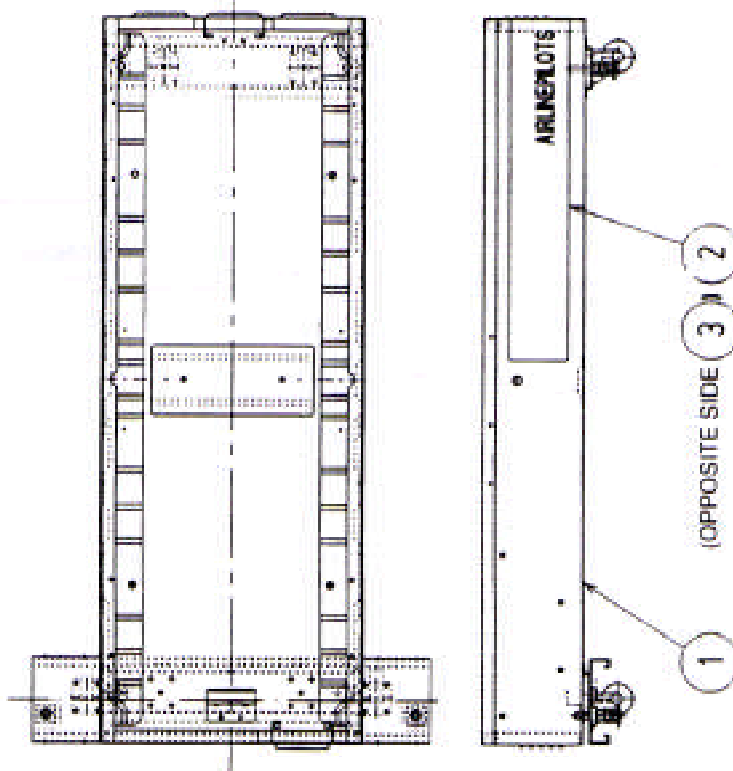
STICKER APPLICATION POSITION

Note: 1 Be careful so that the Sticker, when applied, is neither wavy nor inclined.

30 ⁺²₀

ARUNEPLOTS

(OPPOSITE SIDE ③) ②

①

⑧ MAIN BASE (APC-1501)

ITEM NO.	PART NO.	DESCRIPTION
1	DYN-2002X-A	MAIN BASE BLANK
2	APC-1501-A	STICKER BASE L APC
3	APC-1501-B	STICKER BASE R APC
4	SDW-1103	BASE FOOT
5	601-5699X	LEG ADJUSTER BOLT M16 X 75
6	601-5471	CASTER
201	030-000816-S	HEX BLT W/S M8 X 16
202	050-H01600-OB	HEX NUT BLK M16

⑨ ASSY BASE LID R (APC-1510)
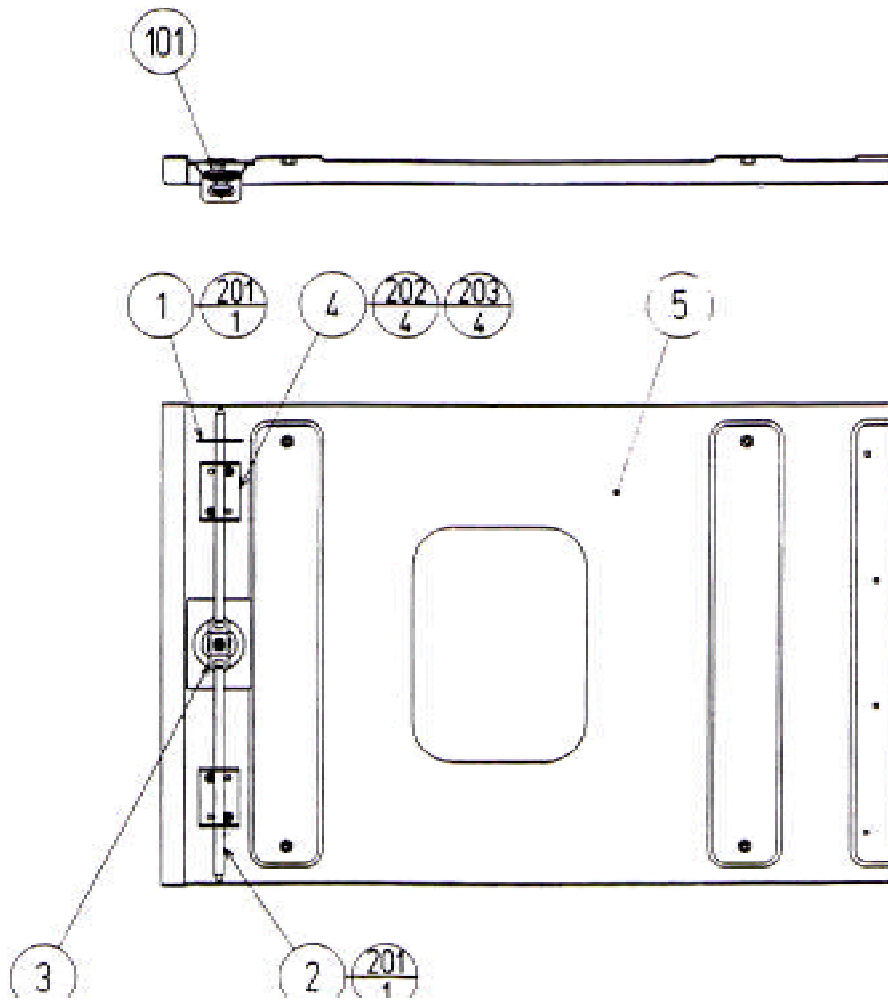
ITEM NO.	PART NO.	DESCRIPTION
1	DYN-2011	LOCK ROD A
2	DYN-2012	LOCK ROD B
3	DYN-2013	LOCK ARM
4	DYN-2014	ROD HOLDER
5	APC-1511	BASE LID R
101	601-7551	LOCK HANDLE
201	045-C02520	COT PIN 2.5 X 20
202	031-000510-OB	CRG BLT BLK M5 X 10
203	050-F00500	FLG NUT M5

⑩ AC UNIT (APC-1530)

ⓘ05

①

⑩1
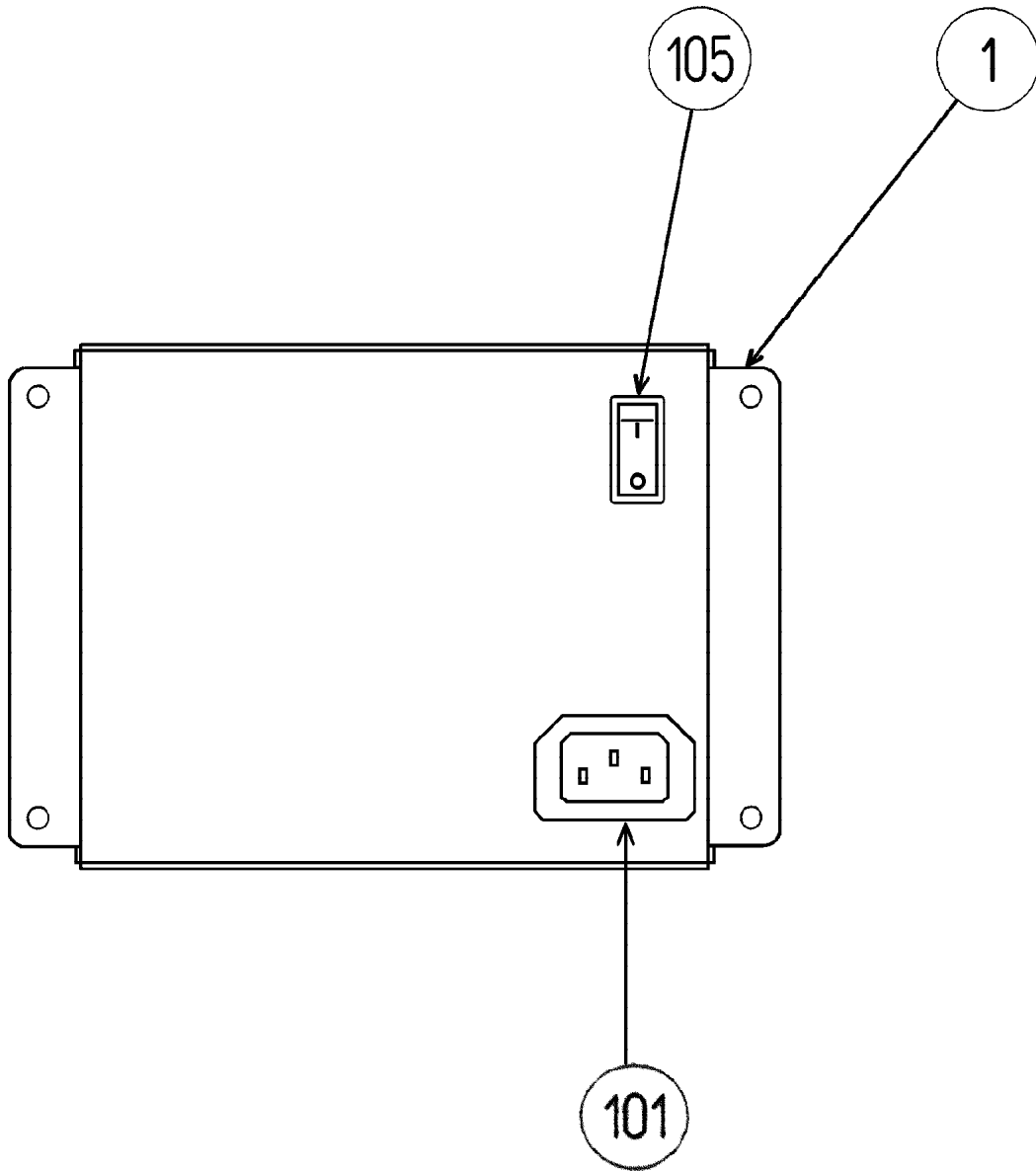
ITEM NO.	PART NO.	DESCRIPTION
1	APC-1531	AC BRKT
101	214-0202	AC INLET PANEL TYPE
105	509-5453-91-V-B	SW ROCKER J8 V-B

(11) ASSY MAIN BD STD (APC-4500)

Note: Make sure that there is no parts, wiring, etc. in the slash mark portions.
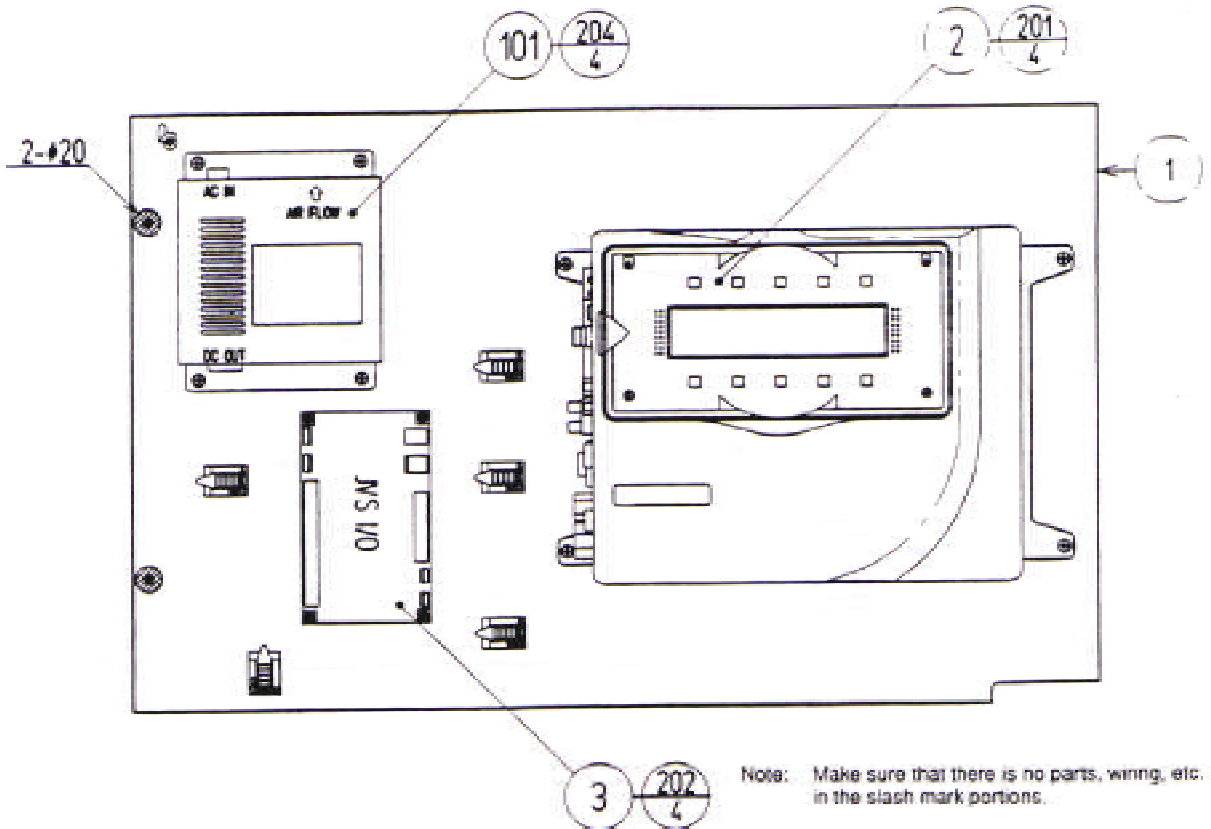
ITEM NO.	PART NO.	DESCRIPTION
1	APC-4501	WOODEN MAIN BASE STD
2	840-0005D-05	ASSY CASE NAO APC W/O JAL
3	837-13551-92	I/O CONTROL BD FOR JVS
101	400-5397	SW REGU FOR JVS
201	000-P00416-W	M SCR PH W/FS M4 X 16
202	011-P00325	TAP SCR PH 3 X 25
204	011-T03512	TAP SCR TH 3.5 X 12

⑫ ASSY PWR SPLY STD (APC-4600)

Note: Make sure that there is no parts, wiring, etc.
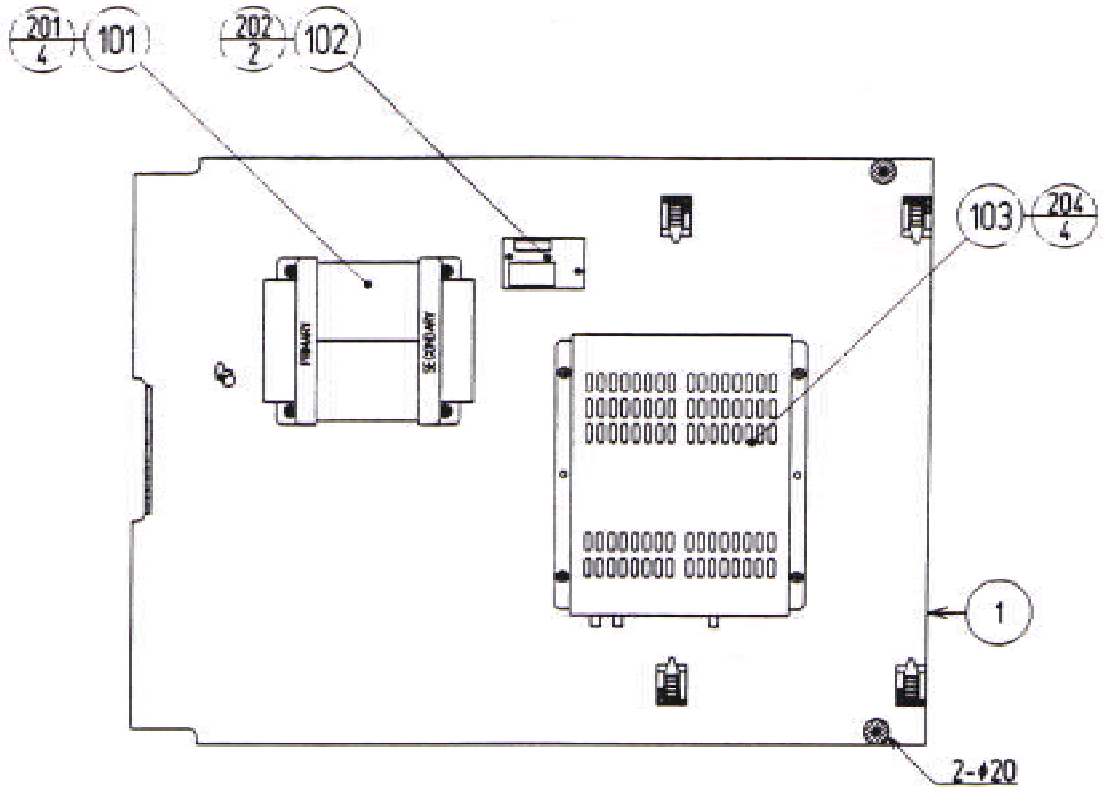
ITEM NO.	PART NO.	DESCRIPTION
1	APC-4601	WOODEN PWR SPLY BASE STD
101	560-5426-H	XFMR 100-120V 100V 5.5A
102	838-11856CE-02	CONNECT BD W/FUSE 6.3A CE
103	601-10369	STEREO PWR AMP 47
201	000-P00416-W	M SCR PH W/FS M4 X 16
202	011-P00325	TAP SCR PH 3 X 25
204	011-T03512	TAP SCR TH 3.5 X 12

⑬ ASSY MONITOR COVER L (APC-1550)
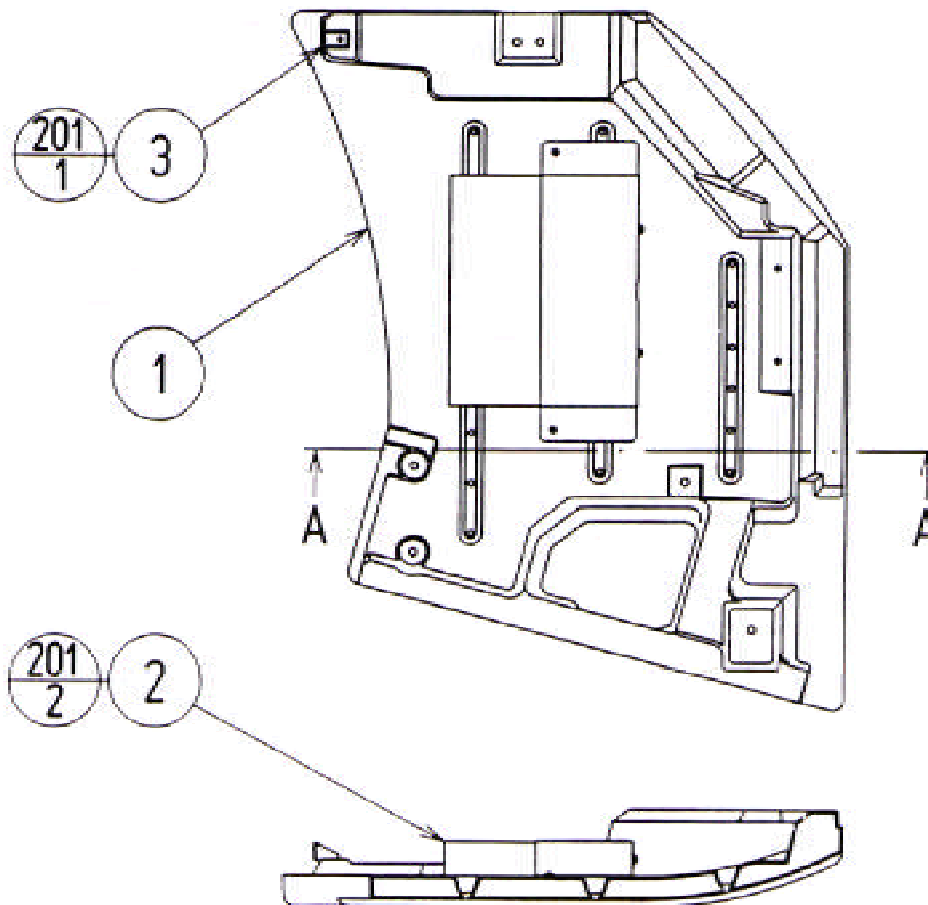
ITEM NO.	PART NO.	DESCRIPTION
1	APC-1550	COVER PANEL L
2	APC-1560	ASSY SPEAKER L
3	DYN-1032	MASK BRKT
201	000-P00408-W	M SCR PH W/FS M4 X 8

⑭ ASSY SPEAKER L (APC-1560)
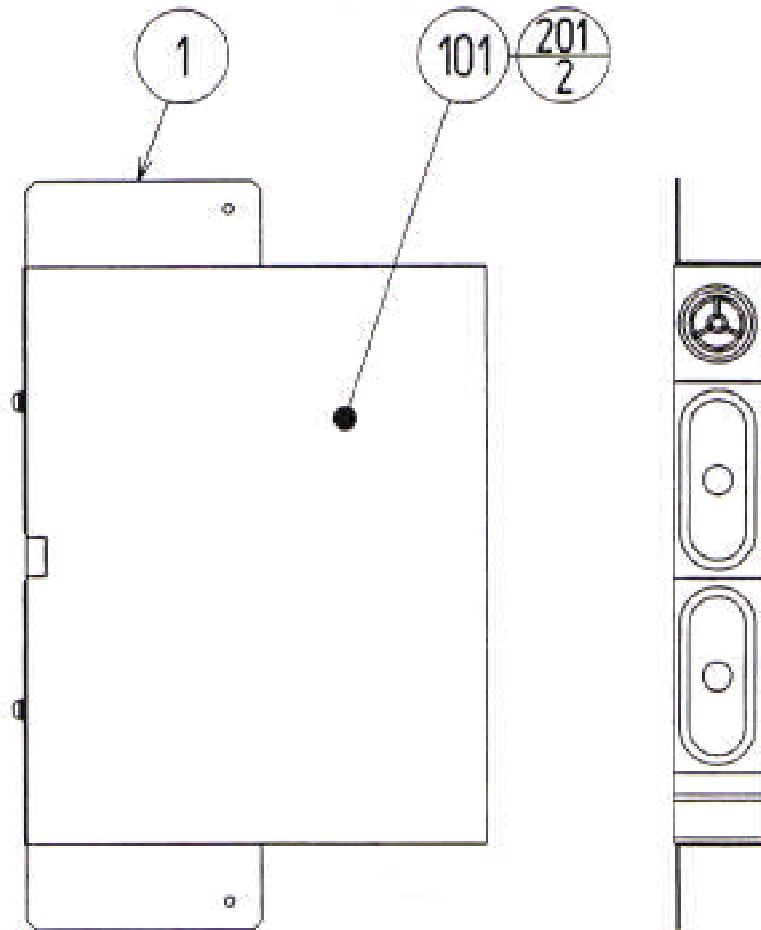
ITEM NO.	PART NO.	DESCRIPTION
1	APC-1561	SPEAKER BRKT
101	130-5156	SPEAKER BOX 8OHM 20W
201	000-P00512-W	M SCR PH W/FS M5 X 12

⑮ ASSY MONITOR COVER R (APC-1570)
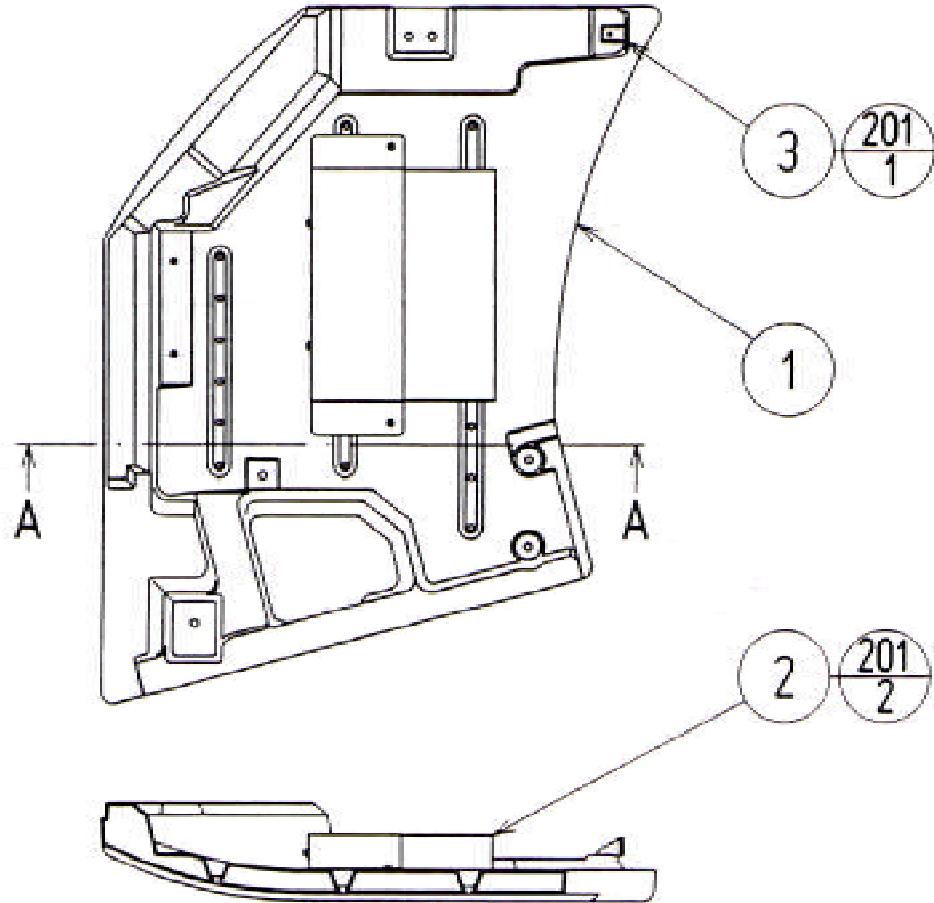
SECTION A-A

ITEM NO.	PART NO.	DESCRIPTION
1	APC-1571	COVER PANEL R
2	APC-1565	ASSY SPEAKER R
3	DYN-1032	MASK BRKT
202	000-P00408-W	M SCR PH W/FS M4 X 8

⑯ ASSY SPEAKER R (APC-1565)
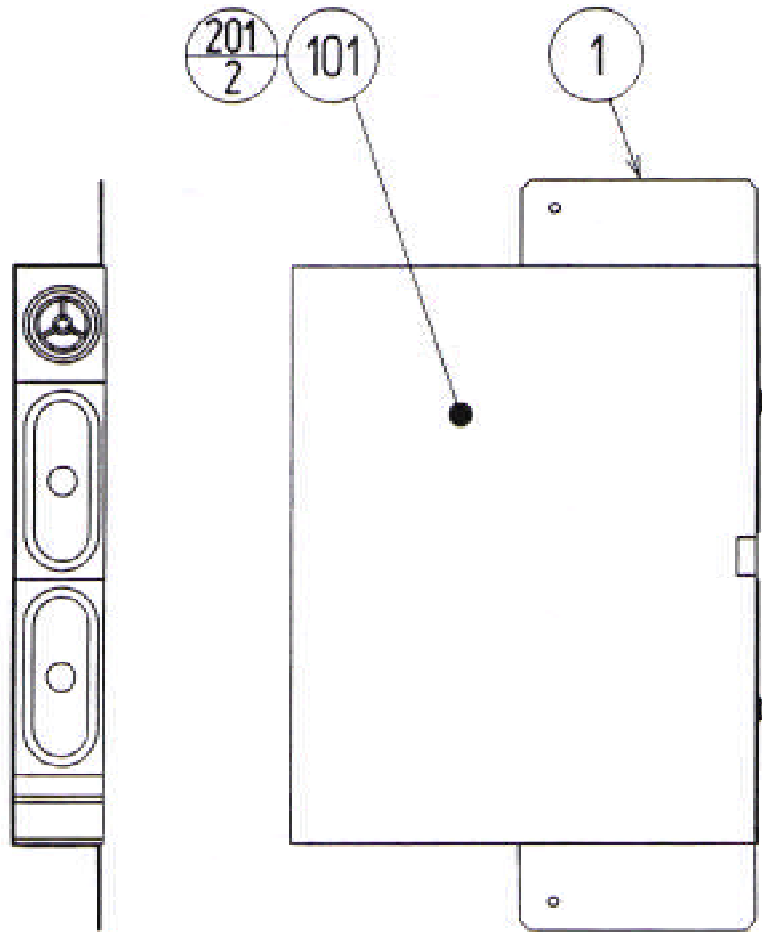
ITEM NO.	PART NO.	DESCRIPTION
1	APC-1561	SPEAKER BRKT
101	130-5156	SPEAKER BOX 8OHM 20W
201	M SCR PH W/FS M5 X 12	M SCR PH W/FS M5 X 12

⑰ ASSY SEAT STD (APC-1600)
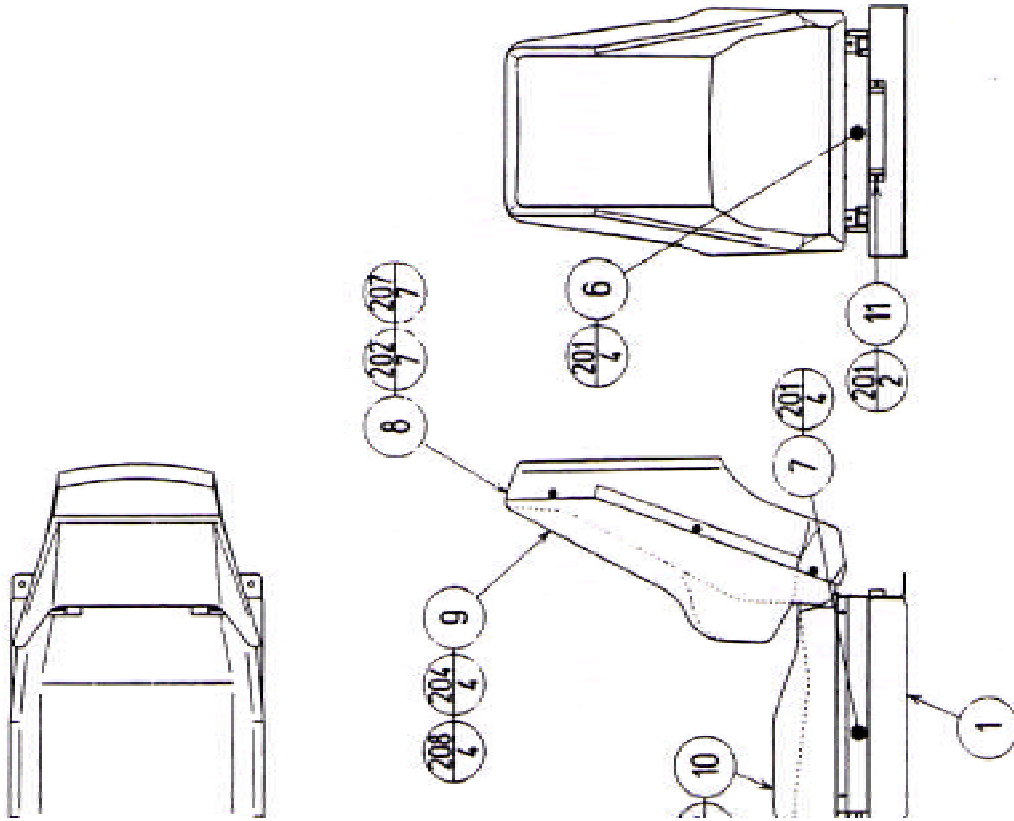
⑰ ASSY SEAT STD (APC-1600)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-3101	SEAT BASE
2	APC-3112	SEAT FRAME STD
3	APC-3103	SEAT MOUNT TRAY
4	STC-1612	PROTECT RUBBER
5	APC-3105	SAFETY GUARD FRONT
6	APC-3113	SAFETY GUARD REAR STD
7	APC-3107	SAFETY GUARD SIDE
8	APC-3110	SEAT REAR COVER STD
9	DYN-2131	UPPER SEAT
10	DYN-2132	LOWER SEAT
11	APC-3114	SEAT BASE REAR
12	GHO-3705	FLT WSHR 8.5-26 X 3.2
101	601-9059	SEAT RAIL L
102	601-9060	SEAT RAIL R
201	000-T00408-OB	M SCR TH BLK M4 X 8
202	000-T00412-OC	M SCR TH CRM M4 X 12
203	030-000816-S	HEX BLT W/S M8 X 16
204	030-000850-S	HEX BLT W/S M8 X 50
205	050-H00800	HEX NUT M8
206	060-S00800	SPR WSHR M8
207	068-441616-OC	FLT WSHR CRM 4.4-16 X 1.6
208	068-852216	FLT WSHR 8.5-22 X 1.6

⑱ PEDAL UNIT (APC-2200)
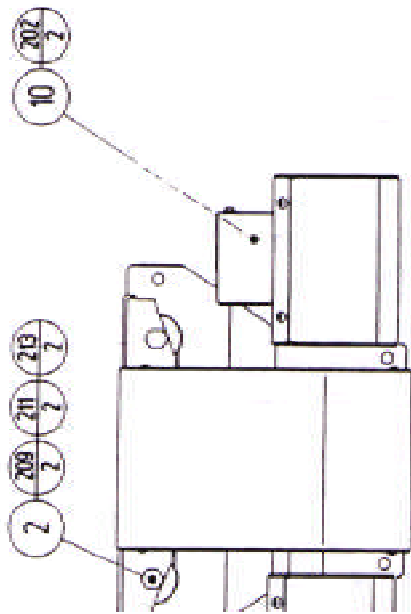
TORQUE
M4 : 18kgf·cm
M6 : 57kgf·cm
M8 : 195kgf·cm
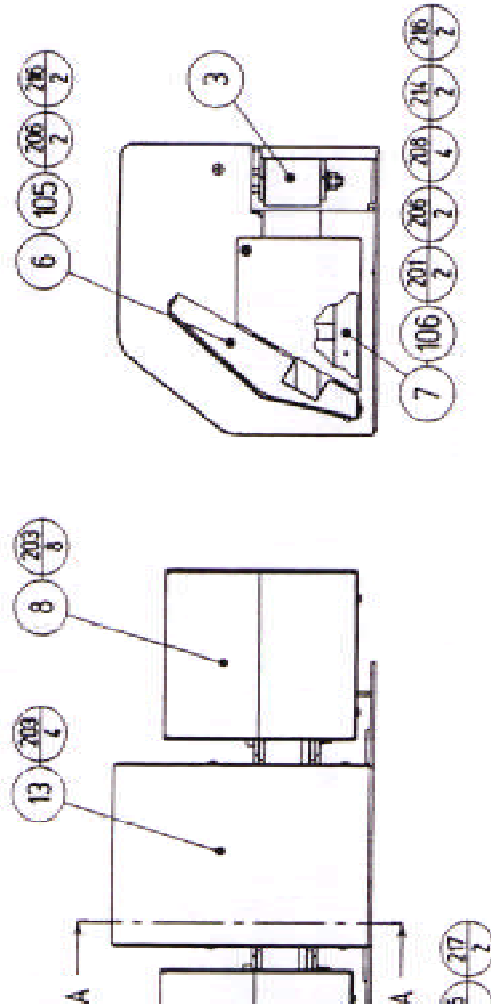
⑱ PEDAL UNIT (APC-2200)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2201	PEDAL BASE
2	APC-2202	STOPPER SHAFT
3	APC-2203	STOPPER RUBBER
4	APC-2204	MAIN PIPE
5	APC-2205	ARM
6	APC-2206	PEDAL UPPER
7	APC-2207	PEDAL LOWER
8	APC-2208	PEDAL COVER
9	APC-2209X	PEDAL REAR L
10	APC-2210X	PEDAL REAR R
11	APC-2211	ROSTA BRKT
12	APC-2212	VOL BRKT
13	APC-2213	PEDAL MECHA COVER
14	AIN-2108	RING
15	SAS-1178	FLT WSHR BLK 8.5-30 X 2
16	TTR-2010	GEAR HOLDER 110
17	601-6450	GEAR 110
18	601-6555	GEAR =30 M=0.75
101	100-5120	BEARING (FYH BLP 204)
102	220-5484	VOL CONT B-5K OHM
103	601-8917	ROSTA 22 (DR-S 27 X 40)
105	100-5168	BEARING 20 (NSK 6904ZZ)
106	100-5070	BEARING 15 (NSK 6002ZZ)
201	000-P00410-W	M SCR PH W/FS M4 X 10
202	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
203	000-T00408-OB	M SCR TH BLK M4 X 8
204	028-A00410-P	SET SCR HEX SKT CUP P M4 X 10
205	030-000620-S	HEX BLT W/S M6 X 20
206	030-000816-S	HEX BLT W/S M8 X 16
207	030-000830-S	HEX BLT W/S M8 X 30
208	050-F00400	FLG NUT M4
209	050-H00800	HEX NUT M8
210	050-H01400	HEX NUT M14
211	060-S00800	SPR WSHR M8
212	060-S01400	SPR WSHR M14
213	060-F00800	FLT WSHR M8
214	068-441616	FLT WSHR 4.4-16 X 1.6
215	068-652016	FLT WSHR 6.5-20 X 1.6
216	068-852216	FLT WSHR 8.5-22 X 1.6
217	050-F00600	FLG NUT M6
218	000-P00406-S	M SCR PH W/S M4 X 6
219	060-F00400	FLT WSHR M4

(19) ASSY CTRL PNL (APC-20001)
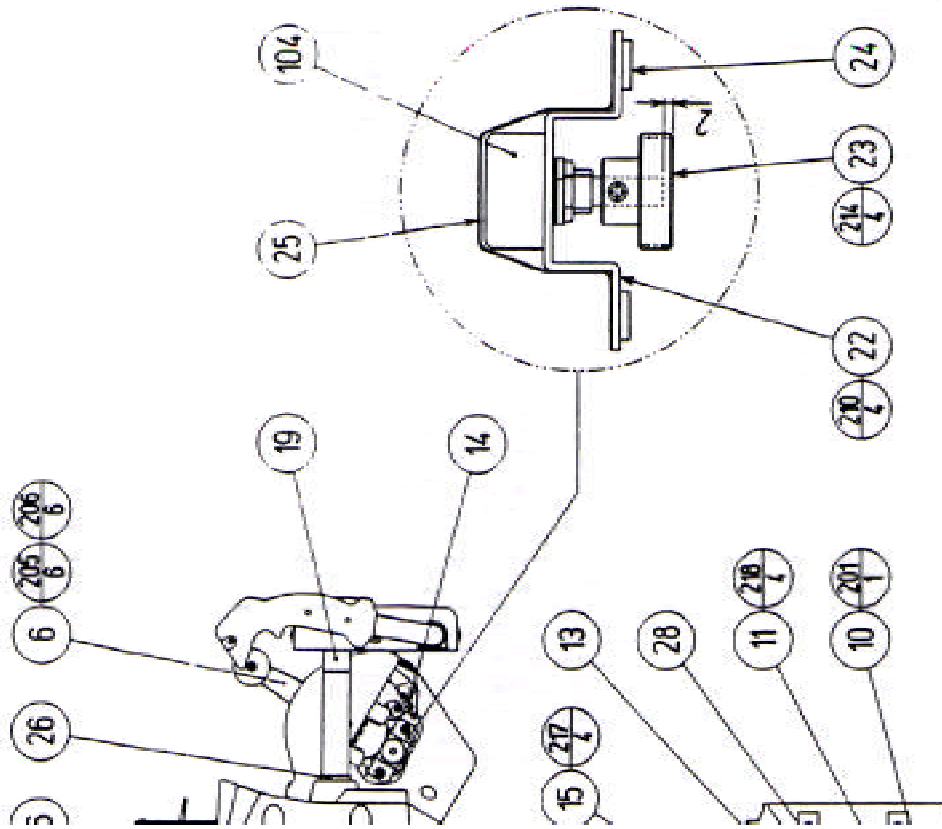
⑲ ASSY CTRL PNL (APC-20001)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2501	CTRL PNL BASE STD
2	APC-2502-01	CTRL PNL COVER STD EXP
3	APC-2000	ASSY CONTROL MECHA
4	APC-2100	ASSY YOKE
5	APC-2150	ASSY VIRTUAL BUTTON
6	APC-3250	ASSY LEVER MECHA
7	APC-1066	YOKE COVER
8	APC-1078	STICKER CENTER MARK
9	APC-2503	SHIFT COVER LOWER
10	APC-2504	COVER ADJUST BRKT
11	APC-3202	LEVER COVER
12	APC-3203	LEVER KNOB
13	APC-3204	KNOB BUSH
14	APC-3206	JOINT BRKT
15	APC-1580	ASSY SW PLATE STD
16	APC-1582	LEVER SW COVER
17	APC-1583	SW PLATE STD
18	APC-2505	MECHA ADJUSTER STD
19	APC-1073	OUTER COLLAR
20	SPG-2039	SPACER RING
21	APC-2506	LEVER SIDE BRKT
22	APC-3205	VR BRKT LEVER
23	601-6555	GEAR Z=30 M=0.75
24	APC-2014	INSULATOR BUSH
25	APC-3208	INSULATOR PAPER LEVER
26	APC-2508	SPACER PIPE STD
27	APC-2507	STICKER BLACK
28	APC-3005	STICKER THRUST
104	220-5484	VOL CONT B-5K OHM
201	000-T00416-OB	M SCR TH BLK M4 X 16
202	060-S00800-OB	SPR WSHR BLK M8
203	020-000820-OZ	HEX SKT H CAP SCR BLK OZ M8 X 20
204	000-T00412-OC	M SCR TH CRM M4 X 12
205	020-000512-HZ	HEX SKT CAP SCR BLK OZ M5 X 12
206	060-S00500	SPR WSHR M5
207	068-441616-OC	FLT WSHR CRM 4.4-16 X 1.6
208	030-000816-SB	HEX BLT W/S BLK M8 X 16
209	008-T00416-OB	TMP PRF SCR TH BLK M4 X 16
210	000-P00408-W	M SCR PH W/FS M4 X 8
211	020-000612-OZ	HEX SKT H CAP SCR BLK OZ M6 X 12
212	060-S00600	SPR WSHR M6
213	060-F00600	FLT WSHR M6
214	028-A00404-P	SET SCR HEX SKT CUP P M4 X 4
215	000-P00412-W	M SCR PH W/FS M4 X 12
216	050-F00400	FLG NUT M4
217	008-T00416-OB	TMP PRF SCR TH BLK M4 X 16
218	000-T00406-OC	M SCR TH CRM M4 X 6

20 ASSY CONTROL MECHA (APC-2000)
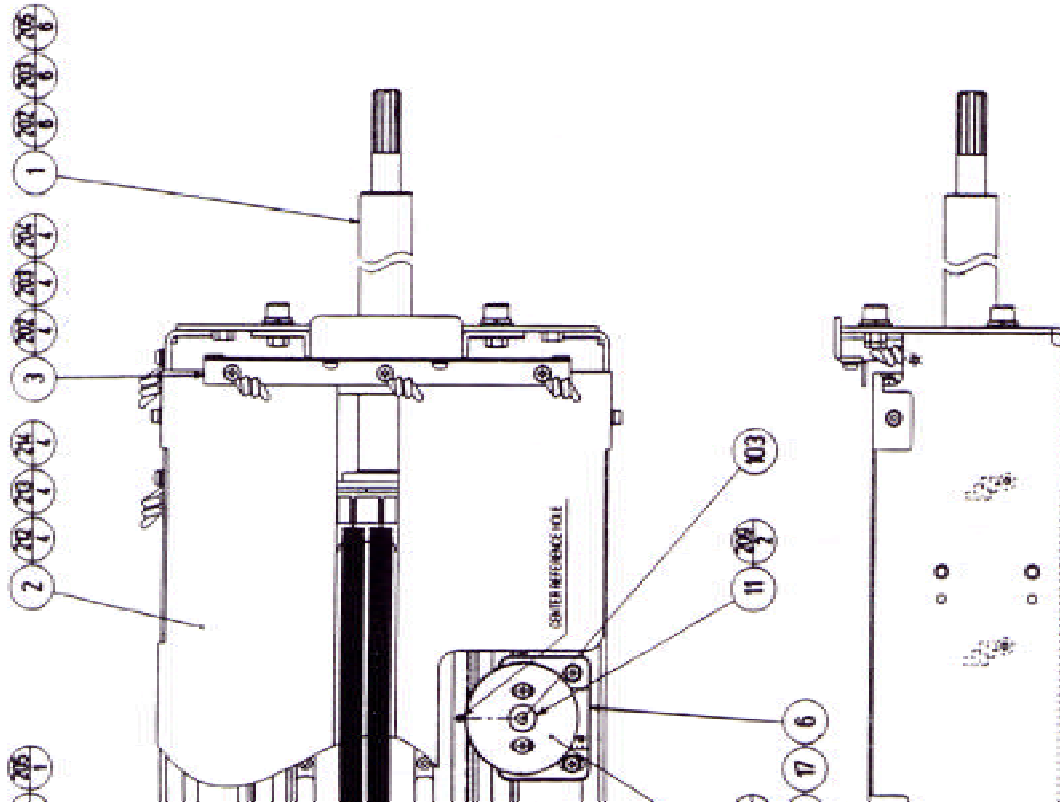
⑳ ASSY CONTROL MECHA (APC-2OOO)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2050	ASSY SLIDE BASE
2	APC-2030	ASSY CENTERING MECHA
3	APC-2090	ASSY SHAFT GUIDE
4	APC-2003	STOPPER RUBBER STROKE
5	APC-2004	STOPPER SHAFT STROKE
6	APC-2012	VR BRKT STROKE INSU
7	APC-2006	CABLE BEAR BRKT
8	APC-2007	STROKE DAMPER SHAFT
9	601-7088-91	GEAR 64
10	601-10572	GEAR 80
11	601-8966	GEAR HOLDER
12	APC-2001	MECHA BASE
13	APC-2008	SPRING HOOK
14	APC-2009	EXT SPRING LONG
15	APC-2013	VR BRKT ROLL INSU
16	APC-2010	INSULATOR PAPER ROLL
17	APC-2011	INSULATOR PAPER STROKE
18	APC-2014	INSULATOR BUSH
102	601-10574	STROKE DAMPER
103	220-5484	VOL CONT B-5K OHM
202	060-S00800-OB	SPR WSHR BLK M8
203	060-F00800-OB	FLT WSHR BLK M8
204	020-000820-OZ	HEX SKT H CAP SCR BLK OZ M8 X 20
205	050-U00800	U NUT M8
206	000-P00408-W	M SCR PH W/FS M4 X 8
207	060-S00600	SPR WSHR M6
208	060-F00600	FLT WSHR M6
209	028-A00308-P	SET SCR HEX SKT CUT P M3 X 8
211	000-P00410-WB	M SCR PH BLK W/FS M4 X 10
212	020-000410-HZ	HEX SKT CAP SCR BLK OZ M4 X 10
213	060-F00400	FLT WSHR M4
214	060-S00400	SPR WSHR M4

㉑ ASSY CENTERING MECHA (APC-2030)
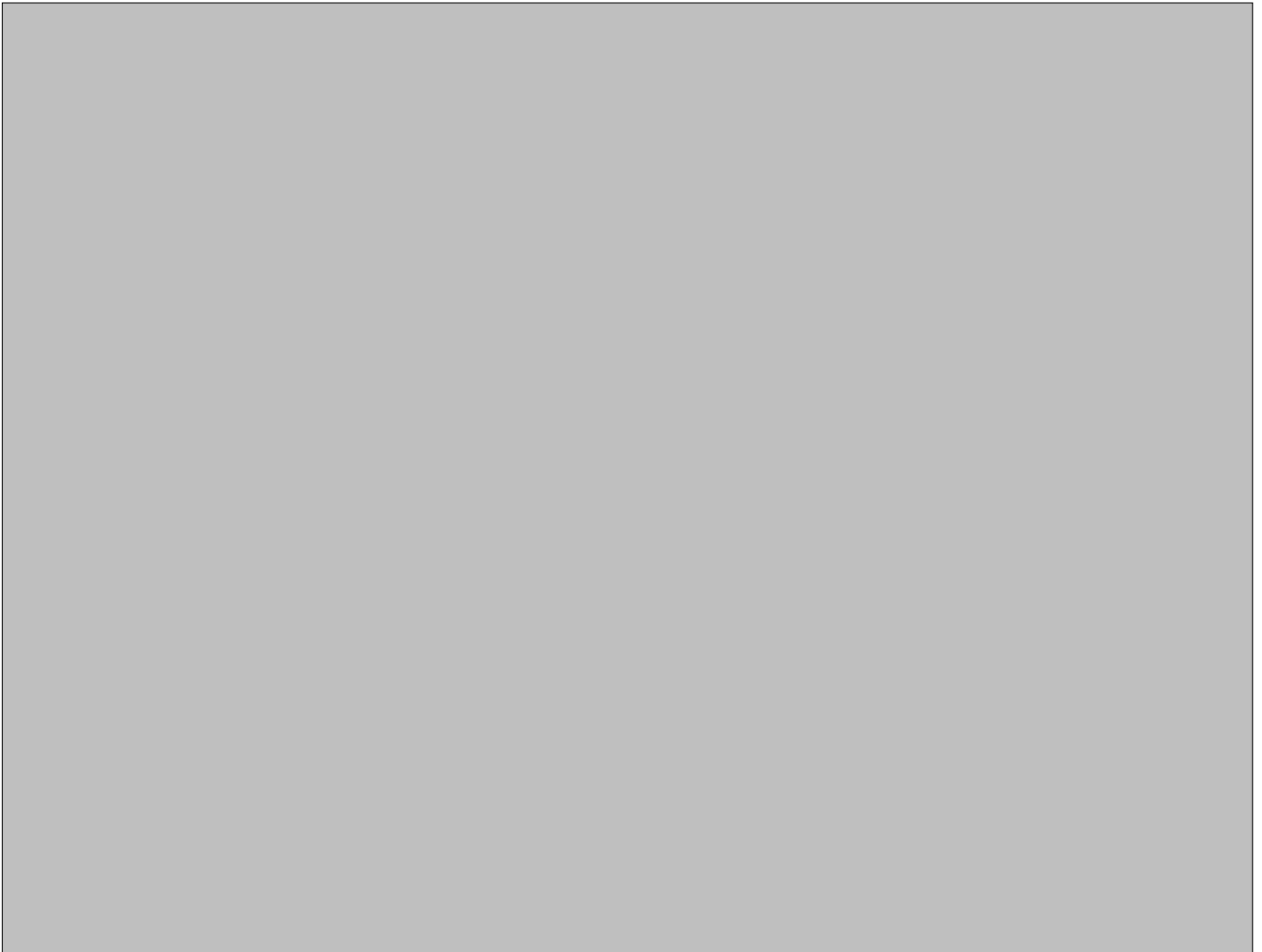
ITEM NO.	PART NO.	DESCRIPTION
1	APC-2031	CENTERING BASE
2	APC-2032	CENTERING GUIDE
3	APC-2033	EXT SPRING
4	APC-2034	SPRING SHAFT
5	APC-2035	SPRING COLLAR INNER
6	APC-2036	SPRING COLLAR OUTER
7	APC-2037	MUTE RUBBER
201	000-P00408-W	M SCR PH W/FS M4 X 8
202	000-P00310-W	M SCR PH W/FS M3 X 10
203	250-5421	FLT WSHR 3.5-12 T=1.0
204	060-F00400	FLT WSHR M4

㉒ ASSY SLIDE BASE (APC-2050)

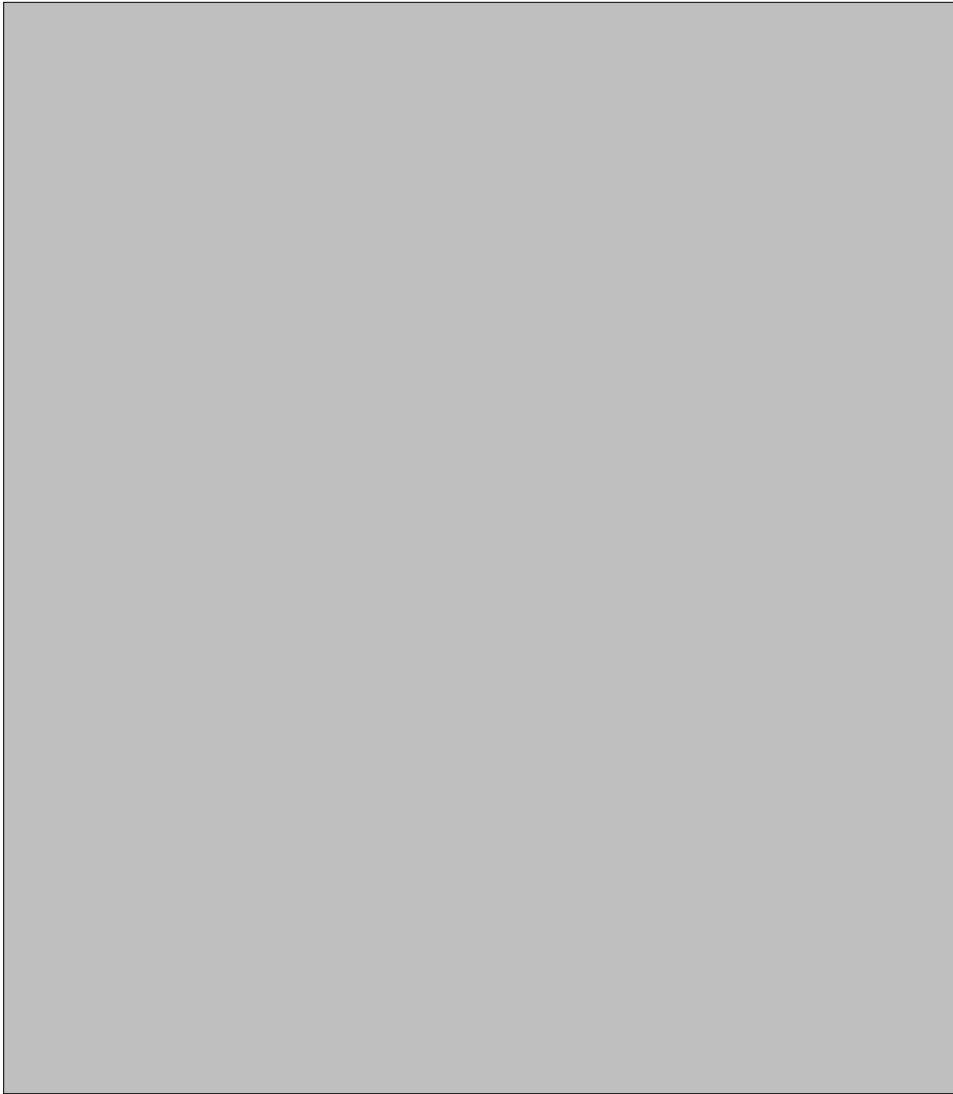| ITEM NO.	PART NO.	DESCRIPTION
1	APC-2051	MAIN SHAFT
2	APC-2052	INNER BASE
3	APC-2053	HOUSING PLATE 30
4	APC-2054	HOUSING PLATE 20
5	APC-2055	STOPPER RUBBER ROLL
6	APC-2056	STOPPER SHAFT ROLL
8	APC-2058	SLIDE BRKT L
9	APC-2059	SLIDE BRKT R
10	601-10575	RACK
11	601-7088-91	GEAR 64
12	APC-2060	GUARD BRKT
13	APC-2061	STOPPER
14	APC-2062	INNER COLLAR
15	APC-2063	GUIDE PLATE
102	100-5340	BEARING 30 (6806ZZ)
103	100-5168	BEARING 20 (NSK 6904ZZ)
104	100-5341	SLIDE RAIL
105	601-10573	ROTARY DAMPER ROLL
106	601-6231-B045	EDGING NEW TYPE
201	000-P00308-W	M SCR PH W/FS M3 X 8
202	020-000512-HZ	HEX SKT CAP SCR BLK OZ M5 X 12
203	060-S00500-OB	SPR WSHR BLK M5
204	050-U00800	U NUT M8
205	060-F00800-OB	FLT WSHR BLK M8
206	000-P00408-W	M SCR PH W/FS M4 X 8
207	000-P00312-W	M SCR PH W/FS M3 X 12
208	060-F00400	FLT WSHR M4
210	028-A00308-P	SET SCR HEX SKT CUP P M3 X 8
211	000-T00408-OC	M SCR TH CRM M4 X 8
212	050-U00400	U NUT M4
213	060-S00400	SPR WSHR M4
214	060-F00500-OB	FLT WSHR BLK M5
215	029-000020	HEX SKT H CAP SCR M4 X 10
216	000-P00408-S	M SCR PH W/S M4 X 8

(23) ASSY SHAFT GUIDE (APC-2090)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2091	GUIDE BUSH BRKT
3	APC-2093	L BRKT
201	000P00408-W	M SCR PH W/FS M4 X 8

24 ASSY YOKE (APC-2100)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2101	YOKE
2	APC-2102	THUMB CAP
3	APC-2103	TRIGGER CAP
4	RCR-2151	HANDLE GRIP RIGHT
5	RCR-2152	HANDLE GRIP LEFT
6	GLC-2036	STOPPER
201	000-P00410-OB	M SCR PH BLK M4 X 10
202	008-P00510-OB	TMP PRF SCR PH BLK M5 X 10
203	000-P00208	M SCR PH M2 X 8
204	060-F00200	FLT WSHR M2

㉕ ASSY VIRTUAL BUTTON　(APC-2150)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2151X	VR BUTTON BRKT
2	171-6478B	PC BD LIGHTING SWX5
101	212-5205-12	CONN JST M 12P RTA
102	509-5560-Y*	PB SW W/L 6V 1L Y
103	509-5561-S**	PB SW W/L 6V 5L S

*　HAPP Part No. 55-0006-25 available
**　HAPP Part No. 55-0006-42 available

㉖ ASSY LEVER MECHA (APC-3250)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-3251	LEVER GUIDE
2	APC-3252	LEVER BRKT INNER
3	APC-3253	LEVER BRKT OUTER
4	APC-3254	LEVER SHAFT
5	APC-3255	SHUTTER PLATE
6	APC-3256	STOPPER RUBBER LEVER
7	APC-3257	STOPPER SHAFT LEVER
8	APC-3258	Z BRKT
9	TTR-2009	GEAR HOLDER 80
10	601-6005	ADJUST GEAR
101	601-10571	ROTARY DAMPER LEVER
201	000-P00330-W	M SCR PH W/FS M3 X 30
202	000-P00408-W	M SCR PH W/FS M4 X 8
203	028-A00408-P	SET SCR HGEX SKT CUP P M4 X 8
204	050-U00800	U NUT M8
205	060-F00800	FLT WSHR M8
206	000-P00408-S	M SCR PH W/S M4 X 8

㉗ ASSY SW PLATE STD　(APC-1580)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-1581	SW BSE STD
101	390-6640-GR	LED BD-0811-12V GREEN
102	390-6640-RE	LED BD-0811-12V RED
103	509-5910	ROCKER SW M-2012YG
104	509-5911-G	SW LEVER AT-4157 GRAY
105	509-5911-R	SW LEVER AT-4157 RED
108	280-5185-7	SPACER TUBE L=7
201	050-F00300	FLG NUT M3

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