

**PRELIMINARY MANUAL**

**DE** DATA EAST USA, INC.  
1850 Little Orchard Street  
San Jose, California 95125  
Telephone (408) 286-7080

# COSMO GANG™

The COMO GANG™ final version Service Manual has not been completed yet. When the final version of the manual is completed we will mail a final version to you. Please, fill out the informations listed below and mail to:

DATA EAST USA, INC.  
1850 Little Orchard St.  
San Jose, Ca. 95125  
Attention: Customer Service

Or call DATA EAST Customer Service at (408) 286-7080. We will answer most of technical questions you may have.

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE \_\_\_\_\_ ZIP: \_\_\_\_\_

PCB SERIAL NUMBER: \_\_\_\_\_

GAME CABINET SERIAL NUMBER: \_\_\_\_\_

2. CAUTION

\* Be sure to read this part.

- (1) When transporting or moving the machine,  
Be sure to separate the cabinet from the Gun Console.  
Do not drop or give a strong shock (especially to the character box).
- (2) This machine is designed for indoor use only. Do not install this machine outdoor.
- (3) Install the machine on a solid level surface spaced an appropriate distance.
- (4) Do not install the machine on an unstable surface or on a floor with vibration.
- (5) Do not install the machine in areas directly exposed to the sunlight or with much moisture or dust.  
Avoid installing it near heating systems to prevent rising temperature inside of the machine.
- (6) Do not place the machine near fire equipment or emergency exits or any other places where it would be an obstacle in case of emergency.
- (7) Make sure to turn the power off when replacing any parts or connecting / disconnecting the connectors.
- (8) Do not attempt to repair the game PCB yourself. Instead, please return the board to your distributor for any repairs. This PCB contains sensitive chips which could be destroyed even by the internal voltage of a multi-meter.
- (9) Be careful that players, especially children, do not interfere with the characters movements or attempt to reach beyond the side fences. Hands and fingers could be caught, causing injury.
- (10) To prevent mischief, this machine is designed to not give a credit if the coin switch is closed longer than the normal coin passage time.

## 5. INSTRUCTIONS ON GAME

### (1) How to play

Cosmo Gangs is a comical shooting game which can be enjoyed by all ages from young children to adults.

When the game starts, 5 characters (Cosmo) move forward trying to steal the energy containers. A player has to shoot a handgun at the inside of the characters (Cosmo) mouth and defend the energy containers from theft. If just one energy container is stolen, the game is over. If a player shoots a handgun at the target while the character (Cosmo) is moving forward or backward dragging the energy container, that character (Cosmo) will be blown away, and the play scores points.

There are two stages in a normal game and three stages in a professional game. When a player manages to protect the energy containers for the period set for each stage, he can go to the next stage.

1 In case of 1-player game, only the left handgun can be used.

2 When one coin is inserted ( in case of 1 coin - 1 play ), the select buttons of normal course and professional course will flash on and off. [Ref. Fig. 5-1]

These buttons serve both as select buttons and start switches so make sure to insert 2 coins before pressing the select buttons in case of 2-players game.

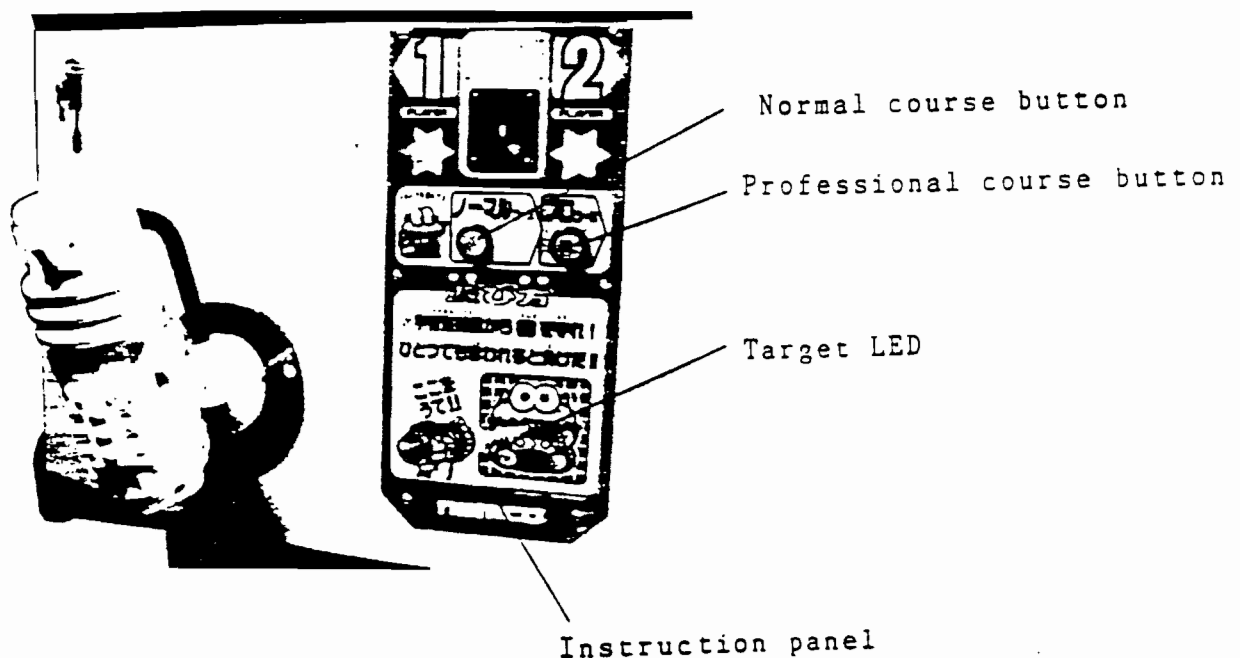
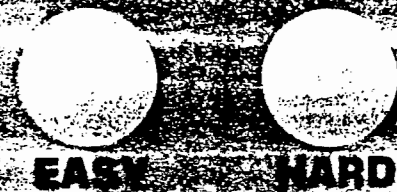


Fig. 5-1

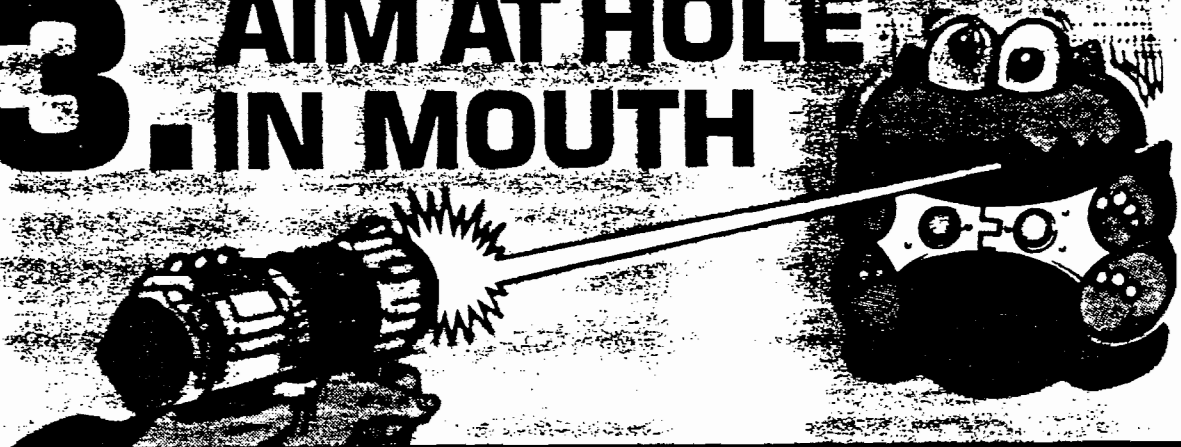
**1. INSERT  
COIN(S)**



**2. SELECT  
GAME**



**3. AIM AT HOLE  
IN MOUTH**



## HOW TO PLAY

- **Object of games:** Defend your ENERGY CUBES by shooting at the approaching COSMO GAM members. DON'T LET THEM TAKE THE ENERGY CUBES BACK TO THEIR SPACE SHIP!!
  - **The game is over if:** 1. You win by successfully defending ENERGY CUBES in each stage, or  
2. You lose when a COSMO takes an ENERGY CUBE back to his space ship.
- The easy game has 2 stage, the hard game has 3.

**SINGLE  
PLAYER**

**SECOND  
PLAYER**

(2) Explanation of the SCORE PANEL

1 Stage

This indicates the stage in progress.

2 Time

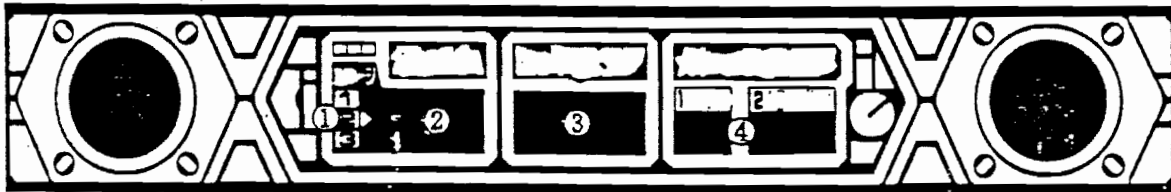
This indicates the time left for the stage in progress.

3 Hit Score

This indicates the number of the characters ( Cosmo ) hit by the players.

4 Top Score

This indicates the highest scores of 1-player game and 2-players game, separately, since the power has been turned on.



Score panel Fig.5-2

[ Time setting for each stage and for each course ]

	1 Stage	2 Stage	3 Stage
Normal course	40 sec.	20 sec.	_____
Professional course	40 sec.	30 sec.	20 sec.

\* There is no difference in time setting between 1-player and 2-players game.

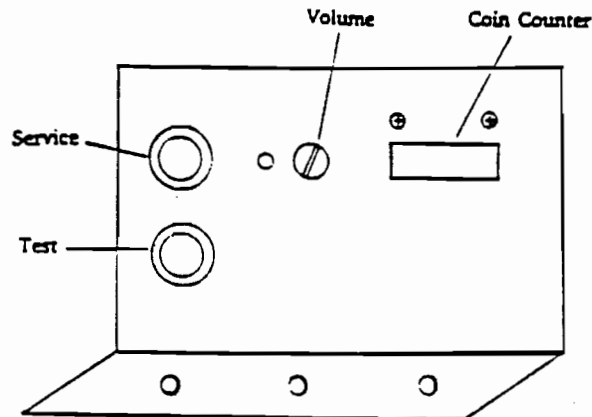
The Service Panel is located inside the coin door assembly. The service Panel includes:

**COIN COUNTER.** Increments once for a coin dropped through either coin slot.

**VOLUME CONTROL.** Adjusts the overall loudness of game sounds. This control is preset for mid range at the factory.

**SERVICE SWITCH.** (The upper switch on the panel) Can be used to start the game without incrementing the coin counter.

**TEST SWITCH.** (The lower switch on the panel) Used for the TEST MODE of the game. See TEST MODE description in this manual.



**(2) CHANGING THE GAME DIFFICULTY**

The difficulties of the game and the game mode are changed by dip switch (4P. DIPSW) on the game PCB.

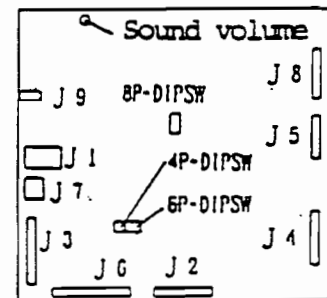
[Ref. Table 6-1, Fig. 6-2]

**CAUTION:** Make sure to turn the power off before changing.

**STATE OF DIP SWITCH (4P. DIPSW)**

ITEM	CONTENT	STATE OF SWITCH			
		1	2	3	4
GAME DIFFICULTIES	EASY	off	off		
	↓	ON	OFF		
		DIFFICULT	off	on	
			on	on	
GAME MODE	COIN MODE			OFF	
	FREE PLAY			on	
TICKET-PRIZE SPECIFICATION	NO				OFF
	YES				on

**GAME PCB**



**TABLE 6-2**

\* Capital letters are the original settings.

**TABLE 6-1**

(3) CHANGING THE GAME PRICING

Game fees and attract play, etc. can be changed by the dip switch (8P. DIPSW) on the game PCB.

[Ref. Table 6-2, Fig. 6-2]

CAUTION: Make sure to turn the power off before changing any switch settings.

STATE OF DIP SWITCH (8P. DIPSW)

ITEM	CONTENT	STATE OF SWITCH (7, 8 unused)							
		1	2	3	4	5	6	7	8
GAME FEES	1COIN1 PLAYER	OFF	OFF						
	1COIN2 PLAYER	on	off						
	2COIN1 PLAYER	off	on						
	3COIN1 PLAYER	on	on						
ATTRACT PLAY	YES			OFF					
	NO			on					
TICKET/ PRIZE POINT SETTING	TICKET 5 PRIZE 20				OFF	OFF			
	TICKET 10 PRIZE 40				on	off			
	TICKET 15 PRIZE 60				off	on			
	TICKET 20 PRIZE 80				on	on			
TICKET-PRIZE	TICKET						OFF		
	PRIZE						on		

\* Capital letter are the original setting.  
 \*\*Foreign mode

(4) USING THE SERVICE SWITCH

Games can be played without incrementing the coin counter by pressing this switch. Please use this switch when repairing or adjusting.

[Ref. Fig. 6-1]



(5) USING THE TEST SWITCH

Pressing the test switch while in the state of waiting for for coin, enters the test mode. Press the normal start-button to go to the next test. Please use this switch when repairing or adjusting.

[Ref. Table 6-3, Fig. 6-1]

TEST MODE

Test	Operation
Moror Solenoid Test	Operation in order of door panel character, container and lock-out solenoid.
Lamp Test	Head lamp, boss spot lamp, cosmo spot lamp, start lamp target LED and winning lamp flash on and off.
Xenon Lamp Sensor Test	When handgun flashes and the character is shot, the number of the character hit will be indicated. [ex] On case of aiming at No. 1 High score indicate 11. When it continues to hit, the figure will change like 12, 13... When two guns hit two characters at the same time, the the lower number of character will be indicated as the order of priority is set from No. 1. This test automatically goes to the next test without pressing the normal start button when 1 minute has passed.
LED Test	7 segment LED of the score PCB indicates from 0 to 9.
Switch Test	Can check all switches like coin switch trigger switch, test switch. When the switch is closed, voice synthesis sound is outoputted.
View Synthesis Test	Voice synthesis sound is outputted in turn. When all sounds are through, it goes to the next test automatically.
Music Test	Music is outputted in turn. When all music is outputted, it goes to the next test automatically.
Drive Test	Characters go back and forth between the home station and the position of the containers by turns starting from No. 1.

\*Characters are numbered 1 to 5 from the left.

TABLE 6-3

(6) ERROR INDICATIONS AND THE POSSIBLE SOLUTIONS

When there is something wrong with this machine error messages are indicated automatically on the displays. While voice synthesis sounds of the handgun go off and on. In this circumstance, the auto-return function works and tries to get rid of the errors up to 3 times. If it clears the error, it comes back to the attract mode.

[Ref. Table 6-4]

ERRORS AND POSSIBLE SOLUTIONS

Error Indication	ERRORS	COUNTERMEASURES
Every window of the score panel shows 1	Door panel won't open. Signals from the limit switch of the upper door drive assy can't be sensed.	Turn the power OFF and ON again and confirm the door panel moves. If it does not move, check fuse F1 inside of the character box. In case that the fuse is OK, the motor or PCB may be bad, consult with your distributor. If there is a something wrong with the door panel, manually push the door panel open, disconnect the motor connectors, and cover both the upper and the lower limit switches to playgames.
Every window of the score panel shows	Door panel won't close. Signals from the limit switch of the lower door drive assy can't be sensed.	Same as above
Top score shows 11	Character No. 1 can't go forward.	Check to see if each character works correctly in the test mode. If it does not, although the connectors are connected correctly there might be motor trouble, PCB failure or broken spring consult with your distributor. In case that a character drive system has troubles, games can be played only with the operating characters. By separating the ones with trouble with a dip switch.  Use the dip switch (6P. DIPSW) (Characters with ON will not be used)
Top score shows 12	Character No. 2 can't go forward	
Top score shows 13	Character No. 3 can't go forward	
Top score shows 14	Character No. 4	
Top score shows 15	Character No. 5 can't go forward	
Top score shows 21	Character No. 1 cant go backward	
Top score shows 22	Character No. 2 can't go backward	
Top score shows 23	Character No. 3 can't go backward	
Top score shows 24	Character No. 4 can't go backward	
Top score shows 25	Character No. 5 can't go backward	

Character	1	2	3	4	5	6
No. 1	ON					
No. 2		ON				
No. 3			ON			
No. 4				ON		
No. 5					ON	

\*All should normally be OFF  
CAUTION: Make sure to turn the power  
off before changing any switches.  
On order to avoid secondary trouble,  
the connectors of the motor, character  
assy and container assy, corresponding  
to the dip switch should be disconnected  
Fix the container and character in these  
proper-places with marking tape.

[Ref. Fig. 6-3, 6-4]

\*Characters are numbered 1 to 5 from  
the one on the left.

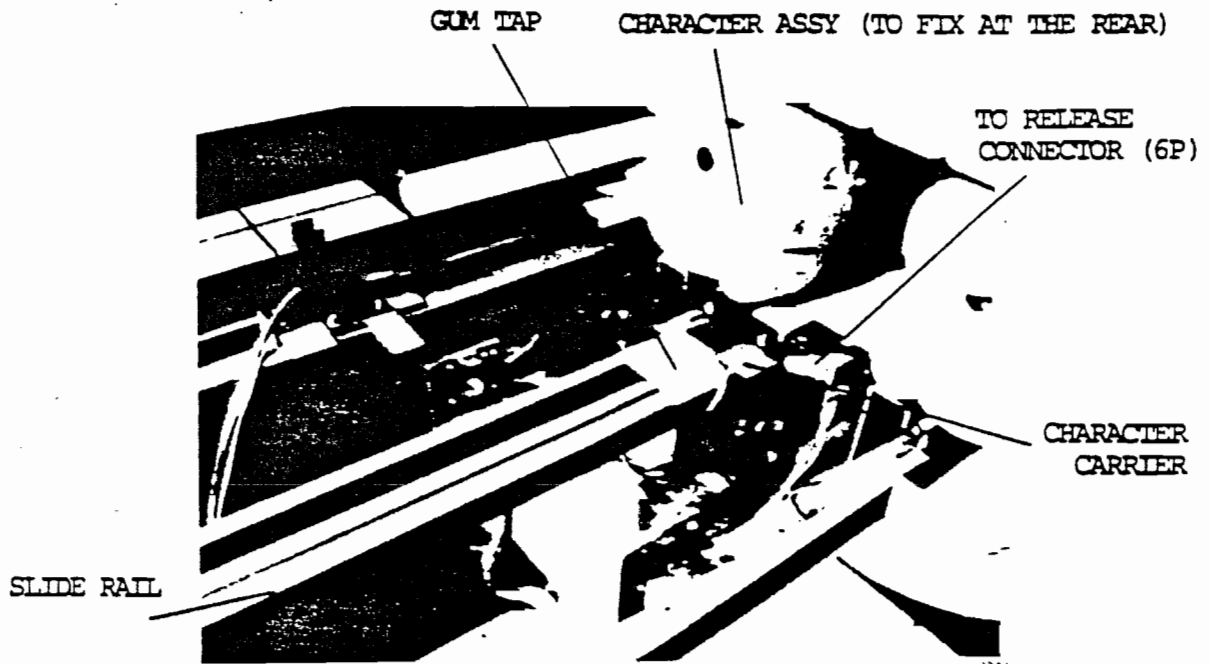


Fig. 6-3

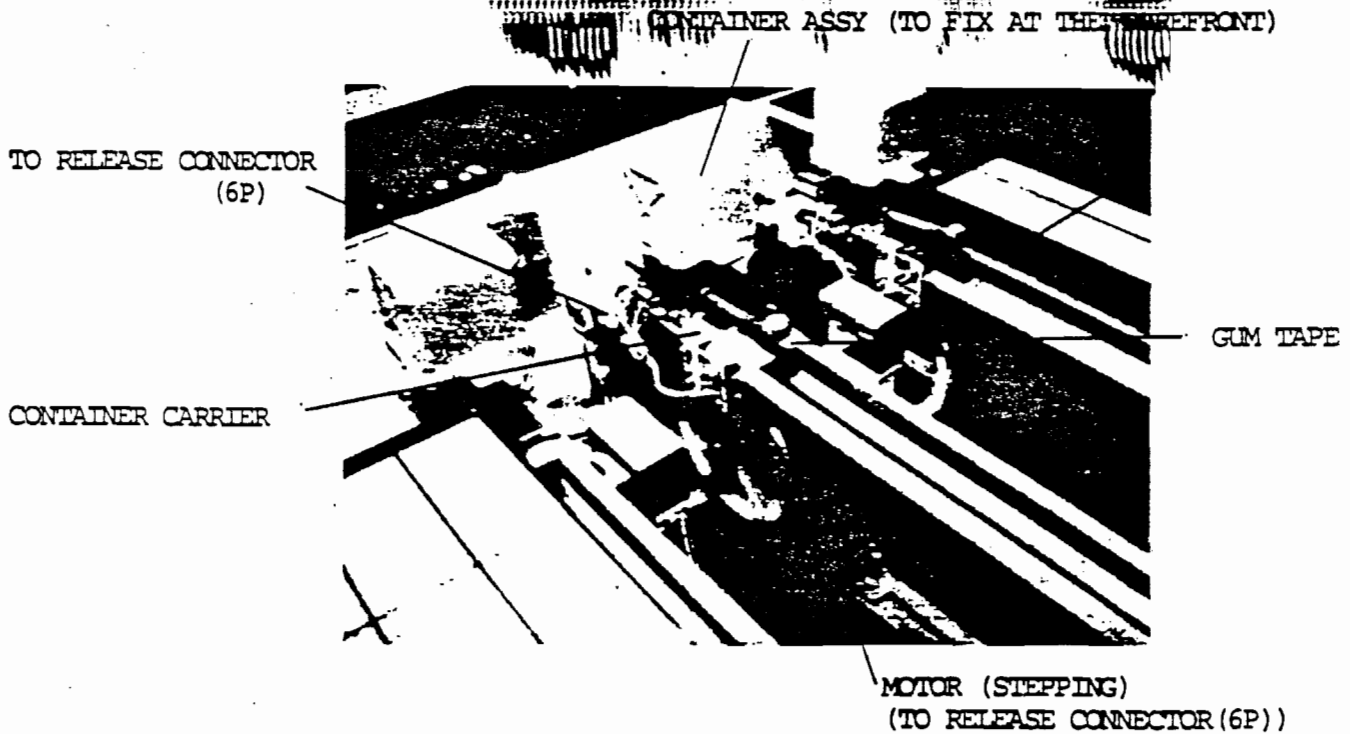


Fig. 6-4

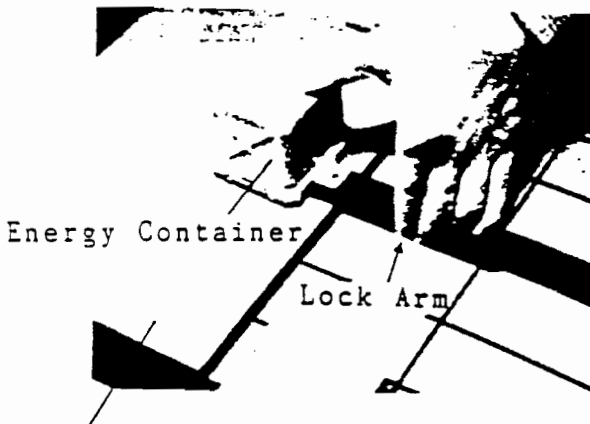
## 7. DAILY MAINTENANCE

\* Be sure to turn the power off before procedures.

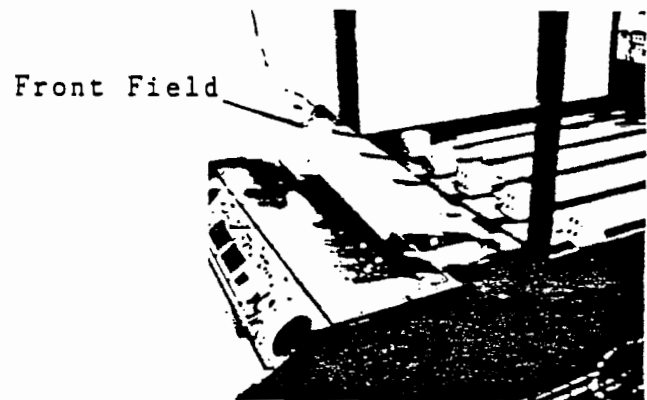
[CAUTION] When replacing the character assy and the drive assy, turn the power off once, and turn the power on again to open the door panel. When it is fully open, turn the power off again to replace the assembly.

### (1) Replacing the Character Assy

- ① Move the container assy's(5) from the front field toward the character box by pressing the hook post of the lock arms. [Ref. Fig. 7-1]
- ② Remove the front field (M6 button bolt, washer : 2sets) [Ref. Fig. 7-2]
- ③ Move the container assy's(5) toward the cockpit again.
- ④ Remove two field (main fields of right/left field) on either side of the character assy to be replaced. [Ref. Fig. 7-3]
- ⑤ Move the character assy to be replaced forward, remove the harness cover (M5 nut : 2 sets) and pull out the connector (6P). [Ref. Fig. 7-4]
- ⑥ Loosen the nuts (M5 nut : 2 sets) which hold the character assy and pull the character assy upward to remove and replace. [Ref. Fig. 7-5]



Front Field fig. 7 - 1



Main Field fig. 7 - 2

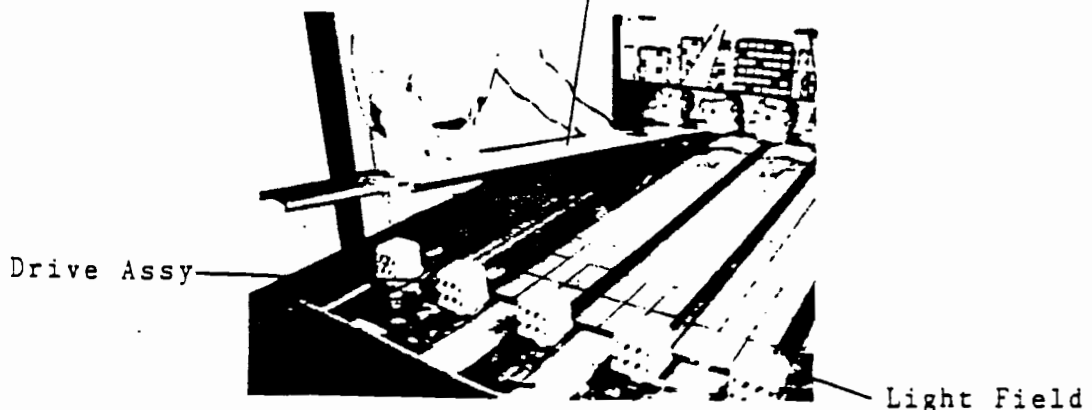


fig. 7 - 3

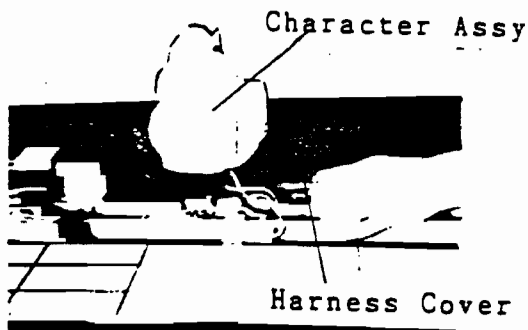


fig. 7 - 4

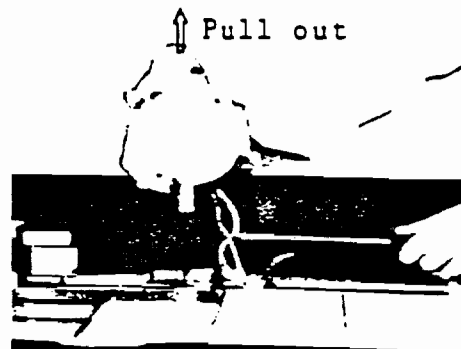


fig.7-5

(2) Replacing the Drive Assy

- ① Follow the steps ①-③ of (1) Replacing the Character Assy (Pl 7-(1))
- ② Remove two fields (main fields or right/left field) on either side of the drive assy to be replaced.
- ③ Disconnect all of the connectors (front side : 6P, 4P, 3P ; stage box side : 4P, 3P) of the drive assy to be replaced.
- ④ Cut the tie-wrap which the mobil harness connecting to the character carrier and the container carrier, and pull out the connector (6P).  
(After replacement use a new tie-wrap to fix.) [Ref. Fig. 7-6]
- ⑤ Remove the front side bolts (M6 hex bolt : 2) which hold the drive assy, and remove the assembly by sliding it from the rail holder to replace. [Ref. Fig. 7-7]  
It makes the replacement easier if the bolts (M6 button bolt, washer : 3 sets) which hold the rear field are loosen.

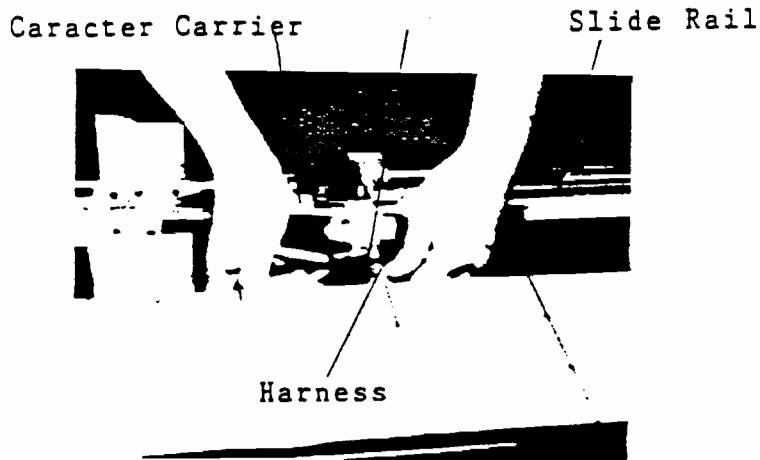


fig. 7-6

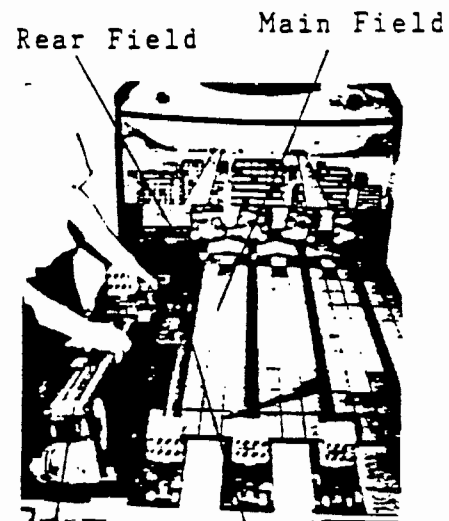


fig. 7-7

(3) Replacing the Mobil Harness

- ① Follow the steps ①-③ of (1) Replacing the Character Assy (Pl 7-(1)).
- ② Remove two fields (main fields or right/left field) on either side of the drive assy with the mobil harness to be replaced.
- ③ Cut the tie wrap holding the mobil harness from the character carrier or the container carrier, and pull out the connector (6P). (After replacement use a new tie-wrap to fix.)
- ④ Remove the saddle (M4 Tapping) holding the mobil harness to the bottom panel of the cabinet and pull out the connector (6P) to replace.

[Ref. Fig. 7-8]

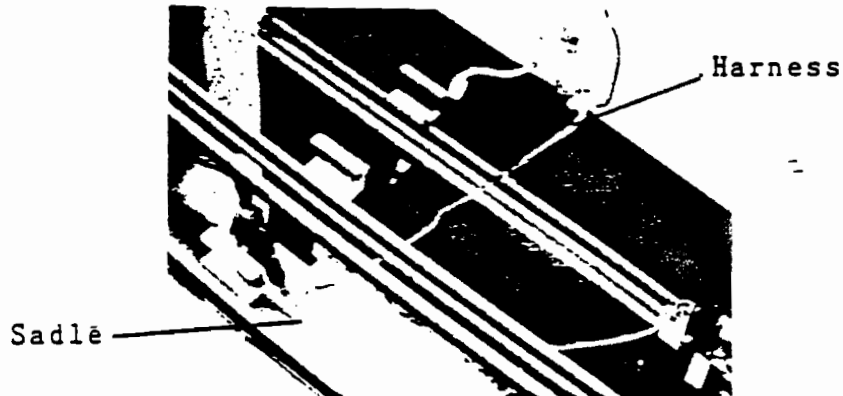


fig. 7-8

(4) Replacing the Gun Assy

- ① Open the gun console board on the gun console and pull out the connector (2P) of the gun assy to be replaced.
- ② Remove the xenon cover (M4 cap screws : 2), and pull out the fiber cap. [Ref. Fig. 7-9]
- ③ Remove the gun shaft (M9 cap bolt : 1) and pull out the gun assy to replace. [Ref. Fig. 7-10, 7-11]

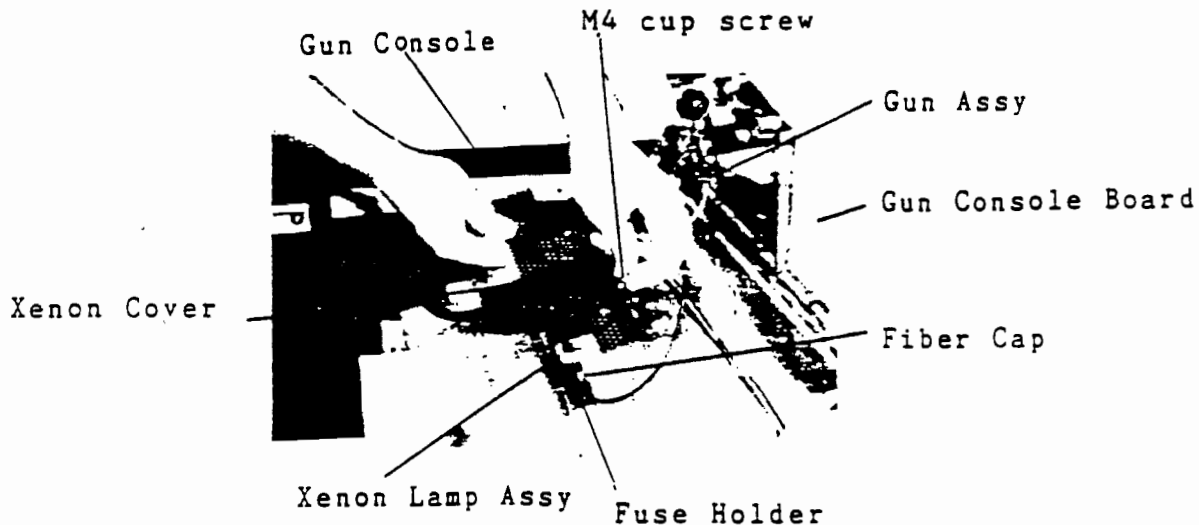


fig.7-9

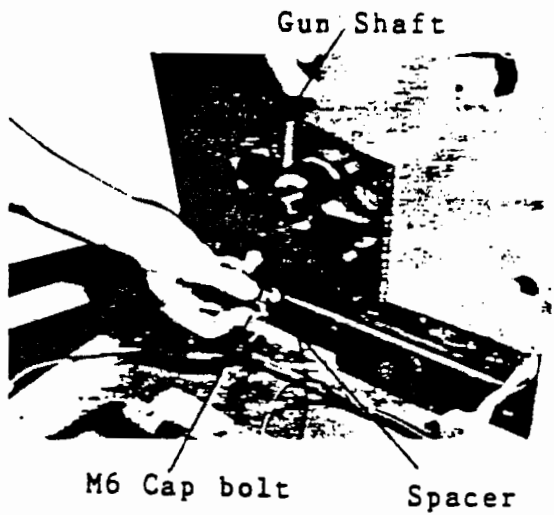


fig. 7-10

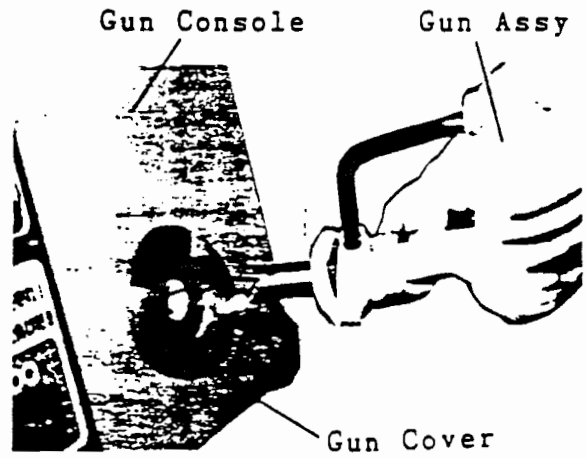


fig. 7-11

(5) Replacing the Game PCB

- ① Open the gun console board and remove the cover (A) (M6 button bolt, washer : 6 sets). Pull out the connector (3P) of the winning lamp at the same time. [Ref. Fig. 7-12]
- ② Pull off all the connectors on the game PCB and take out the game PCB by removing it from the locking supports (3) to replace. [Ref. Fig. 7-13]

Note : When installing, be sure to put the game PCB into the groove at the bottom of the PCB base.

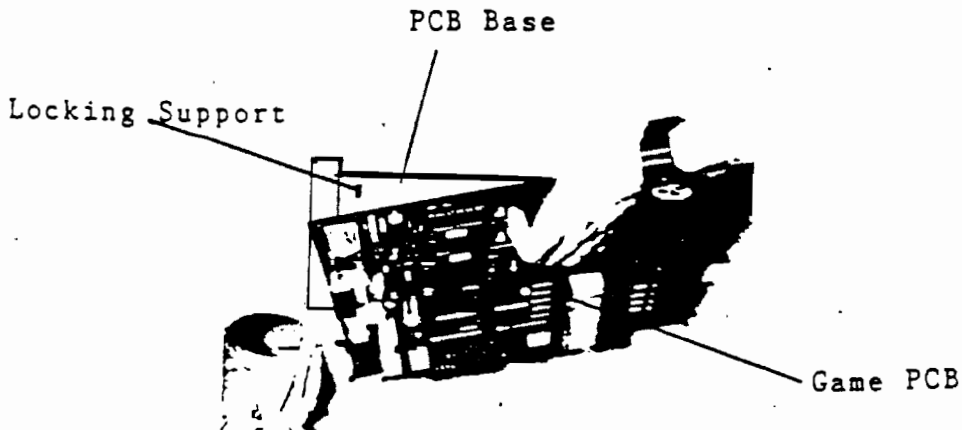
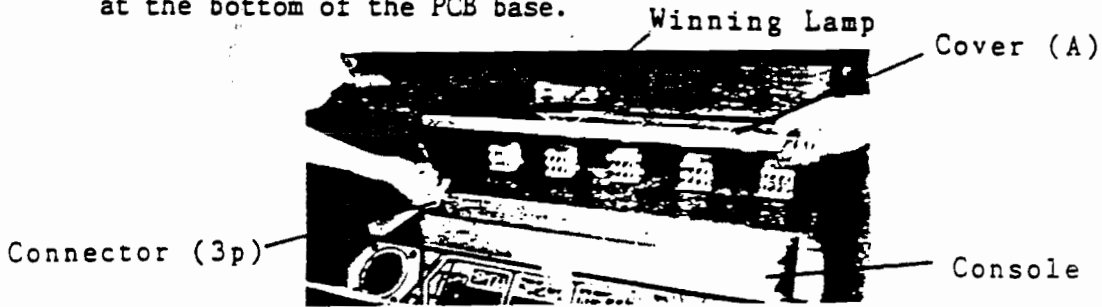


fig.7-13



(6) Replacing the Score PCB

- ① Open the gun console board and remove the cover (A) (M6 button bolt, washer : 6 sets). Pull off the connector (3P) of the winning lamp at the same time. [Ref. Fig. 7-12]
- ② Disconnect the score PCB connector (J10) which is attached to the back of the score bracket (B), and take off the score PCB (M4 cap screw : 6) to replace. [Ref. Fig. 7-14]



fig. 7-14

(7) Replacing the Xenon PCB

- ① Open the gun console board and remove the PCB cover (B) of the xenon PCB to be replaced (M5 cap screw : 1).
- ② Disconnect the connector (4P, 3P) on the xenon PCB, and pull out the xenon PCB to replace. [Ref. Fig. 7-15]

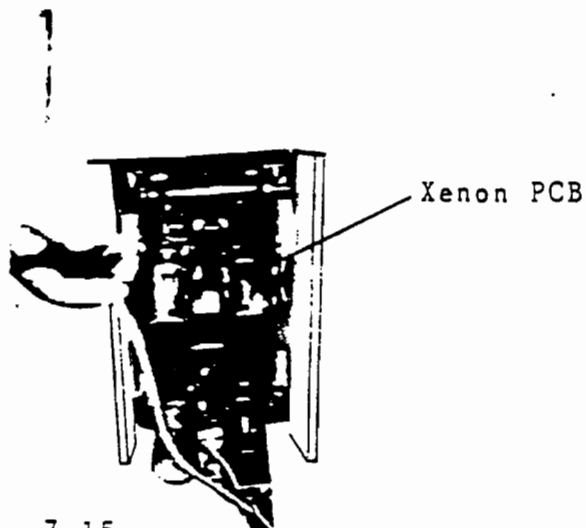


fig. 7-15

(8) Replacing the Xenon Lamp Assy

- ① Open the gun console board and remove the xenon cover of the xenon lamp to be replaced (M4 cap screw : 2). [Ref. Fig. 7-9]
- ② Remove the PCB cover (B) of the xenon PCB to which the xenon lamp assy to be replaced is connected (M5 cap screw : 1) and pull the connector (3P) off. [Ref. Fig. 7-15]
- ③ Remove the xenon lamp assy from the xenon holder to replace. [Ref. Fig. 7-16]

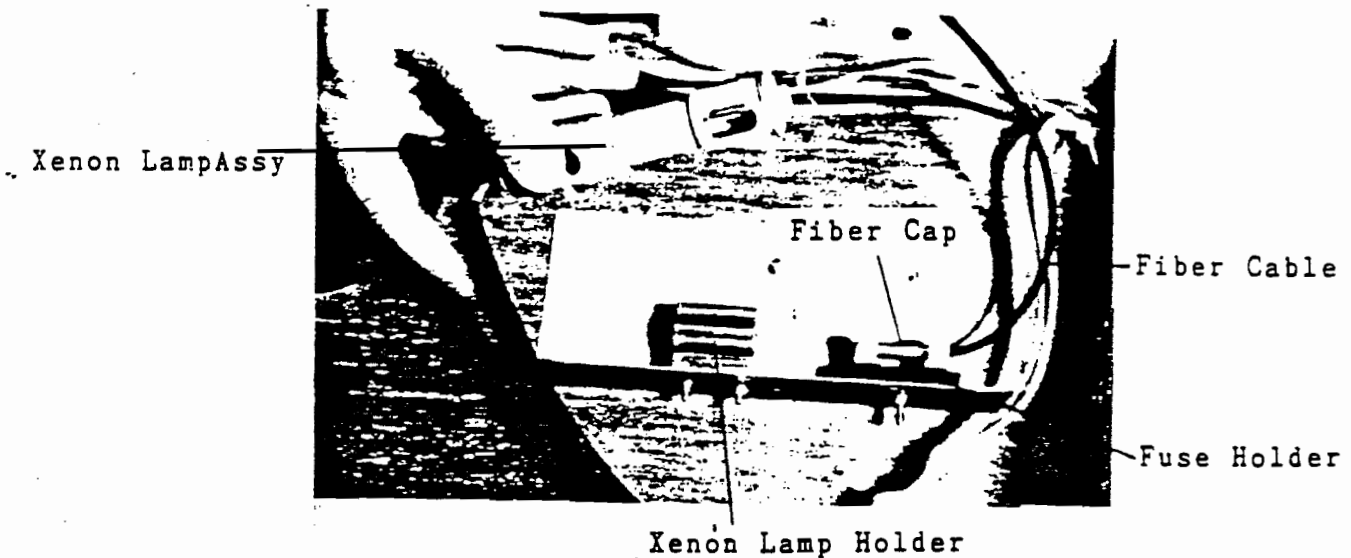


fig. 7-16

(9) Replacing the Boss Character Assy

- ① Remove the UFO (A) (M5 button bolt, washer : 5 sets). Disconnect the connectors of two head lamps at the same time. [Ref. Fig. 7-17]
- ② Disconnect the connector (2P) of the boss character assy, loosen the nuts (M5 nut : 2) which are holding the assy, and pull the boss character assy upward and out to replace. [Ref. Fig. 7-18]

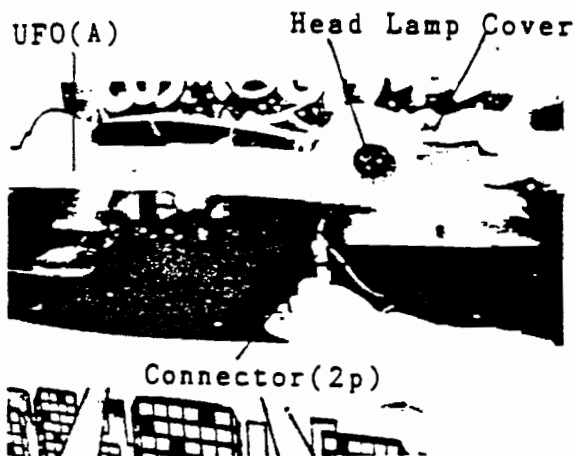


fig. 7-17

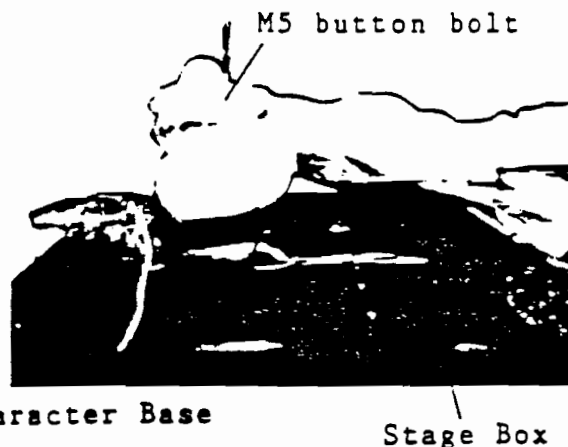


fig. 7-18

# 8. Illustrated Parts List

## (1) Character Assy

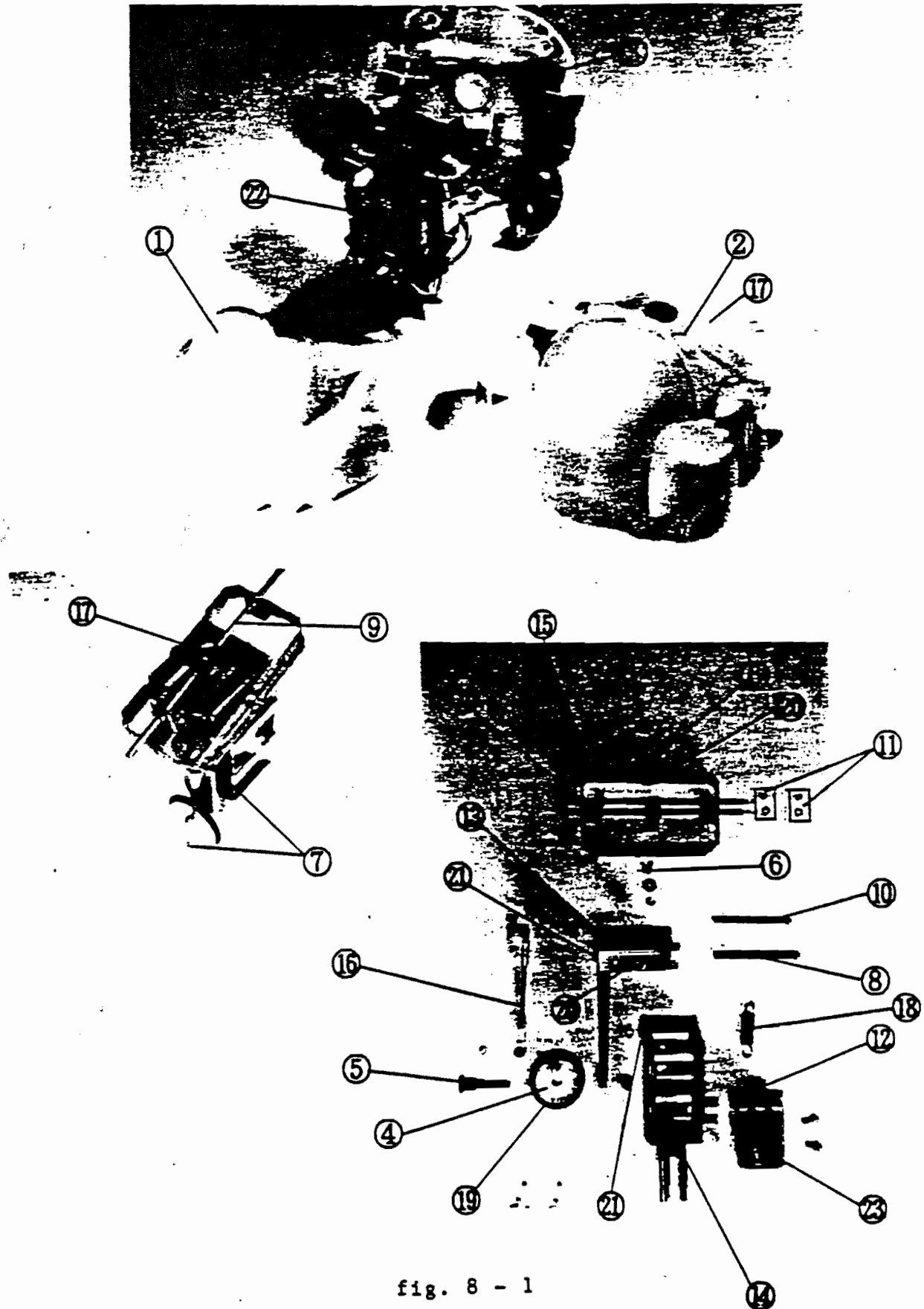


fig. 8 - 1

CHARACTER ASSY LIST

NO.	DESCRIPTION	AMOUNT	PARTS NUMBER
1	CHARACTER(H1)	1	244-001
	CHARACTER(H2)		244-002
	CHARACTER(H3)		244-003
	CHARACTER(H4)		244-004
	CHARACTER(H5)		244-005
2	CHARACTER(F)	1	244-006
3	CHARACTER(R)	1	244-007
4	ROLLER	1	244-008
5	SHAFT(R)	1	244-009
6	SHAFT(B)	2	244-010
7	SHAFT(E)	2	244-011
8	SHAFT(F)	1	244-012
9	SHAFT(H)	1	244-013
10	SHAFT(I)	1	244-014
11	SPACER(C)	2	244-015
12	LINK	1	244-016
13	FRAME(A)	1	244-017
14	FRAME(B)	1	244-018
15	FRAME(C)	1	244-019
16	BALL LINK	1	244-020
17	CUSHION	2	244-021
18	SPRING	1	244-022
19	O RING	1	244-023
20	FRANGE BUSH	6	225-099
21	FRANGE BUSH	4	225-100
22	HIT SENSOR PCB	1	244-024
23	SOLENOID(DC)	1	244-025

\* AMOUNT IS FOR 1 ASSY.

Fig. 8-1

(2) Drive Assy

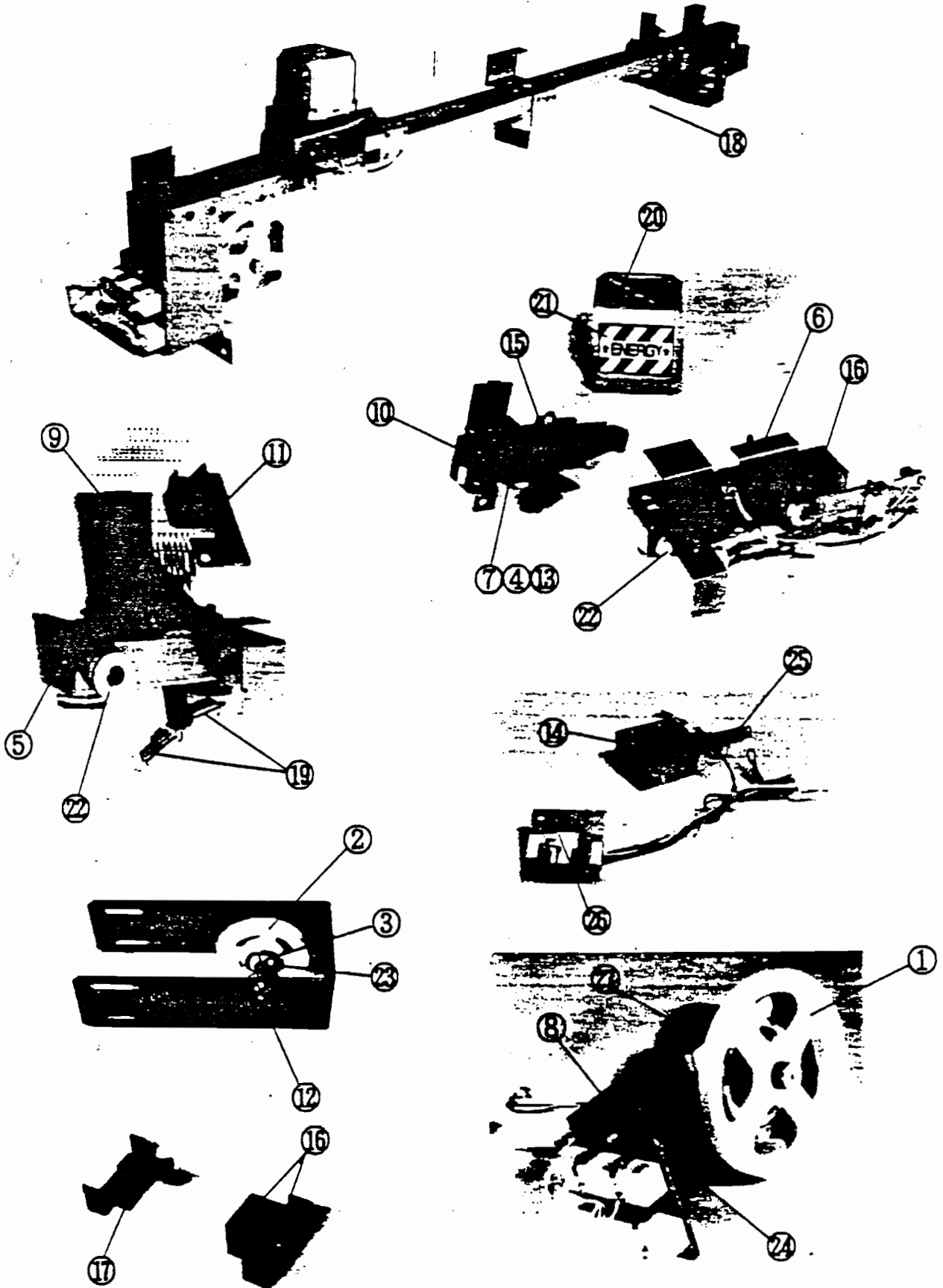


fig. 8 - 2

DRIVE ASSY LIST

NO.	DESCRIPTION	AMOUNT	PARTS NUMBER
1	PULLEY(A)	1	244-101
2	PULLEY(B)	1	244-102
3	SPACER(A)	2	244-103
4	ARM BUSH	2	244-104
5	CHARACTER CARRIER	1	244-105
6	CONTAINER CARRIER	1	244-106
7	LOCK ARM	1	244-107
8	MOTOR BRACKRT	1	244-108
9	CHARACTER SUPPORTER	1	244-109
10	CONTAINER BRACKET	1	244-110
11	HARNESS COVER	1	244-111
12	PULLEY SHAFT	1	244-112
13	ARM SHAFT	1	244-113
14	PULLEY BOSS	1	244-114
15	ARM STOPPER	2	244-115
16	CUSHION FORM(A)	3	244-116
17	CUSHION FORM(B)	1	244-117
18	WIRE ROPE	1	244-118
19	TENTION SPRING	2	244-119
20	ENERGY CONTAINER	1	244-120
21	CONTAINER STICKER	1	244-121
22	BEARING	12	235-057
23	FRANGE BEARING	2	244-122
24	KURATAITO	3	235-029
25	SPRING	1	244-123
26	SENEOR PCB	4	235-017
27	MOTOR(STEPPING)	1	244-124
28	SOLENOID(DC)	1	244-025

\* AMOUNT IS FOR 1 ASSY.

Fig. 8-2

(3) Gun Assy

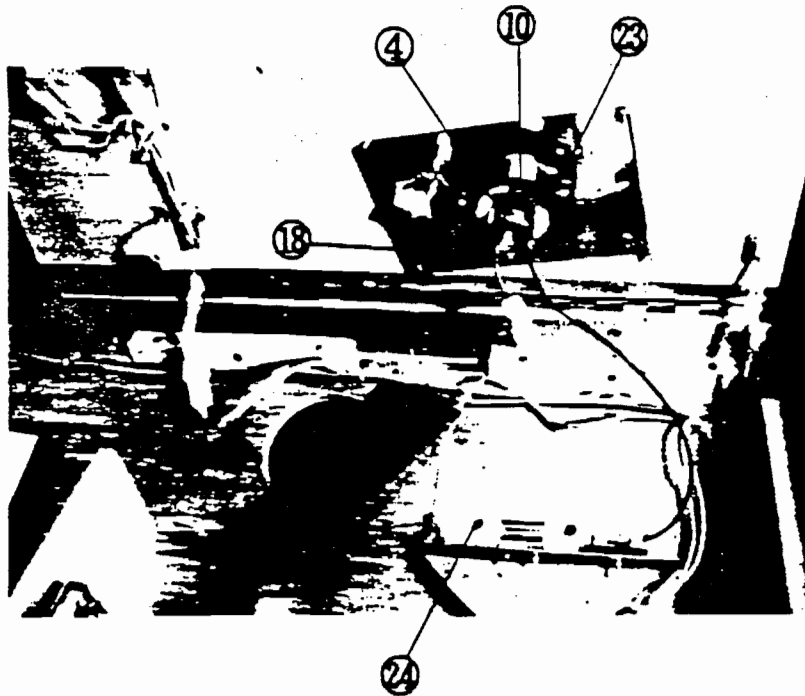
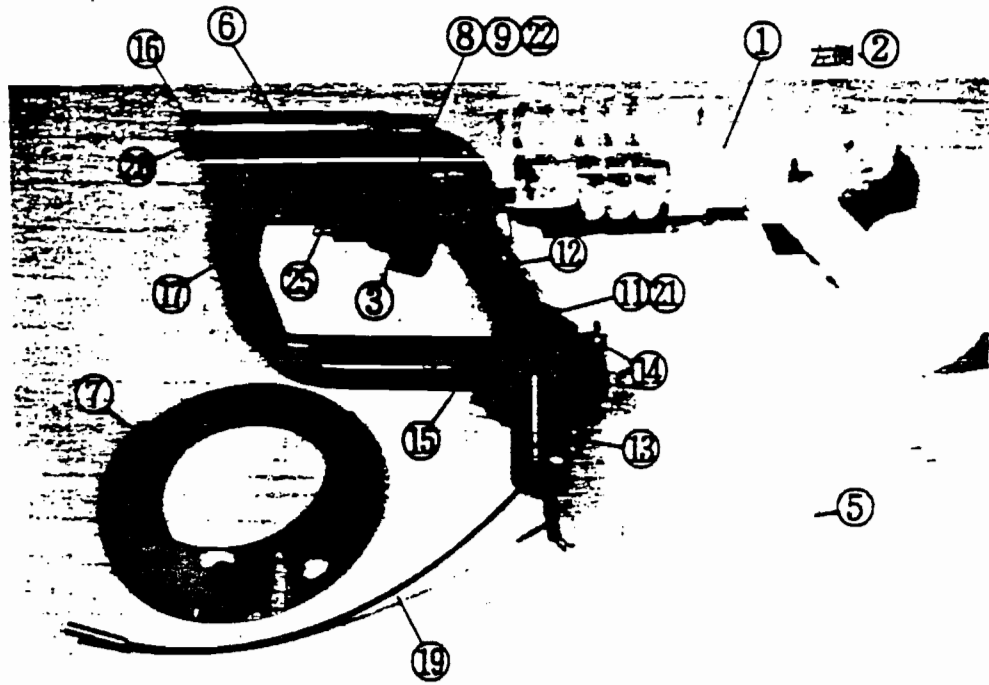


fig. 8 - 3

GUN ASSY LIST

NO.	DESCRIPTION	AMOUNT	PARTS NUMBER
1	GUN(R)	1	244-201
2	GUN(L)	1	244-202
3	TRIGGER	1	244-203
4	BUSH	1	244-204
5	WASHER(A)	1	244-205
6	LENS HOLDER	2	244-206
7	GUN COVER	1	244-207
8	TRIGGER SPRING	1	244-208
9	TRIGGER SHAFT	1	244-209
10	GUN SHAFT(A)	1	244-210
11	GUN SHAFT(B)	1	244-211
12	GUN BASE(A)	1	244-212
13	GUN BASE(B)	1	244-213
14	STOPPER(A)	1	244-214
15	STOPPER(B)	1	244-215
16	STOPPER RING	1	244-216
17	PROTECTIVE PIPE	1	244-217
18	SPACER(B)	1	244-218
19	FIBER CABLE	1	244-219
20	LENS	1	244-220
21	FRANGE BUSH	2	244-221
22	FRANGE BUSH	1	225-100
23	STOPPER(EH)	2	244-222
24	XENON LAMP ASSY	1	215-123
25	SWITCH(MICRO)	1	000-110

\* AMOUNT IS FOR 1 ASSY.

Fig. 8-3



## OTHER REPAIR PARTS

NO.	DESCRIPTION	AMOUNT	PARTS NUMBER
1	SIDE FENCE(R)	1	244-401
2	SIDE FENCE(L)	1	244-402
3	WASHER(Ø30)	14	244-403
4	ADJUSTER BRACKET	2	244-404
5	FIELD STICKER MAIN A	1	244-405
6	FIELD STICKER MAIN B	1	244-406
7	FIELD STICKER MAIN C	1	244-407
8	FIELD STICKER MAIN D	1	244-408
9	FIELD STICKER (RIGHT)	1	244-409
10	FIELD STICKER (LEFT)	1	244-410
11	COSMO STICKER	2	244-411
12	LINE STICKER(A)	2	244-412
13	LINE STICKER(B)	2	244-413
14	CASTER(FIXED)	4	102-004
15	CASTER(FLEXIBLE)	2	102-005
16	LEVEL ADJUSTER(LARGE)	2	102-033
17	TITLE BOARD	1	244-414
18	UFO(A)	1	244-415
19	UFO(B)	1	244-416
20	UFO(C)	1	244-417
21	DOME	1	244-418
22	LAMP WINDOW	1	244-419
23	TITLE STICKER	1	244-420
24	STAGE STICKER	1	244-421
25	CHARACTER(BH)	1	244-422
26	BOSS ANTHENA	1	244-423
27	KURATAITO	1	244-424
28	DOOR PANEL	1	244-301
29	LAMP	10	002-008
30	LAMP	12	002-117
31	HEAD LAMP COVER	2	235-084

Fig. 8-5

GUN CONSOLE PART LIST

NO.	DESCRIPTION	AMOUNT	PARTS NUMBER
1	PUNCHING	4	244-425
2	PRAPARTBURAKET	2	244-426
3	INSTRUCTION PANEL	1	244-427
4	SCORE PANEL	1	244-428
5	LINE STICKER(C)	2	244-429
6	NAMCO STICKER	2	244-430
7	REPAIR STICKER	1	244-431
8	STAY(R)	1	244-432
9	STAY(L)	1	244-433
10	LEVEL ADJUSTER(SMALL)	2	102-034
11	COIN PLATE	1	244-434
12	COIN BOX	1	244-435
13	COIN SELECTOR	1	100-015
14	SWITCH(PUSH)	2	244-436
15	REPAIR LAMP COVER	1	244-437
16	TARGET LED	1	244-438
17	SPEAKER	2	006-076

Fig. 8-6

## 10. TROUBLESHOOTING

(1) If you suspect the unit may be malfunctioning, turn the power off and check the following points.

① Be fully alert to mechanical problems.

This machine has many mechanical devices. When the machine seems to be malfunctioning, check these mechanical devices because those parts might be loose, shaky, sliding, worn out, or damaged.

② Be alert to loose connections.

Malfunctions are often caused by loose connections or soldering failures. Check the connected parts (connectors, solder joints) of the wiring first.

③ Make sure that foreign substances are not in the PCBs.

Foreign substances in PCBs may cause improper operation. Check that the PCBs are clean.

(2) When troubleshooting, check the wiring diagram.

This will make it easier to troubleshoot and avoid mistake. Refer to paragraphs "6-(5) Using the Test Switch" and "6-(6) Error Indications and Solutions" for troubleshooting.

(3) Be fully alert to avoiding an electric shock.

\* If the above suggestions are not applicable, or no improvement is observed, contact your distributor or one of service offices printed in the back cover of this manual.

\* When sending parts to be repaired, make sure to pack them firmly with a complete explanation of the problem. When sending PCBs especially wrap them with sponges or air caps and pack them in cardboard boxes so that they can avoid direct impact from outside during shipment.

DATA EAST U.S.A., INC.

PARTS DEPARTMENT NOTICE

Dear Distributor/Operator:

Attached is a Bill of Materials to help you identify parts needed for replacement on Cosmo Gang. **PLEASE NOTE: THIS IS ONLY A PRELIMINARY MANUAL.** To obtain a copy of the final manual, please fill out all information on the request form at the beginning of the Cosmo Gang technical manual and a final version of the combined parts/technical manual will be sent to you at no charge.

SHOULD YOU REQUIRE HELP IDENTIFYING PARTS FROM THE ENCLOSED BILL OF MATERIALS, PLEASE CALL:

DATA EAST CUSTOMER SERVICE  
(408) - 286-7080 X281/280

Dimensions and Weights:

Crated:

117 X 44 X 82  
1060 Lbs.

Uncrated

110 - 132 X 37 X 68  
825 Lbs.

Current: 5 Amps

Thank you for your cooperation.

Sincerely,

Data East Parts

515-0076-00 CONTROL PANEL ASSY, COSMO  
 Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0254-00		1		Harness, Control Panel
	180-0031-00		1		Illuminated Pshbtn w/ $\mu$ sw, Small, R, Green
	180-0032-00		1		Ill. Pshbtn w/ $\mu$ sw, Small, R, Orange
	366-0032-00		1		Control Panel
	510-0202-00		2	2	Gun Assy
	660-0008-00		1	1	Plex, Clear 15" X 11 7/8"
	234-0003-05		6		Screw, #8-32 - 1 1/4, Button, Hex, MS
	242-5011-00		6		Washer, Flat #8
	239-0002-00		6		Nut, Kep, #8-32
	810-0048-00		1	1	Underlay, Instruction
	535-0165-00		1	1	Control Panel Retainer
	165-0008-00		2		Lamp, #1816, 13V, .33A
	077-5009-00		2	2	Miniature Bayonet Socket
	040-0003-00		6		Tywrap, 4"
	232-0002-00		6		Screw, Pan, #8 X 1/2 SMS
	242-0019-00		2	2	Washer (A), White, Plastic
	535-0172-00		1	2	Gun Base (C), Top
	535-0173-00		1	2	Gun Base (D), Bottom
	231-0015-06		4		Bolt, Hex Head 5/16 - 18 X 1 1/2"
	231-0004-04		4		Bolt, 5/16 - 18 X 1 1/2 FH, Phil
	244-0012-00		8		Washer, Split Lock, 5/16
	238-0015-00		8		Nut, Kep, 5/16 - 18
	234-0011-03		6		Screw, Socket, Hex, #12-24 X 1", MS
	530-0032-00		1	2	Gun Shaft (A)
	254-0018-00		1	2	Spacer (B), ID=.4, OD=.63, t=.41
	234-0012-01		2		1/4 - 20 X 1/2", Socket Hex Head, MS
	244-0002-00		4		Washer, 1/4 Split Lock
	242-0020-00		1	2	Washer, Flat, Fender, ID=1/4, OD=3/4"
	285-0006-00		1	2	Bumper, Rubber, Black
	237-0009-01		2		Screw, Pan Head, Phil, 10-24 X 1", MS
	242-0010-00		2		Washer, Flat, #10
	239-0001-00		2		Nut, Kep, 10-24
	233-0010-02		12		Screw, FH, #10 X 1/2 SMS

Preliminary : 01-04-91

510-0209-00 FRONT BOX ASSY, COSMO  
 Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0239-00		1	1	Harness, J5 - J10 (to display)
	036-0240-00		1	1	Harness, J7- J91 (to fuse pcb)
	036-0241-00		1	1	Harness, J6 - J87 (from cpu to fuse)
	036-0242-00		1	1	Harness, J1 - J89 (from cpu to fuse)
	036-0245-00		1	1	Harness, J2 - J9 (fr. cpu to ctrl pnl)
	036-0246-01		1	1	Harness, Xenon Tube, Player 1, 26"
	036-0246-02		1	1	Harness, Xenon Tube, Player 2, 56"
	036-0244-00		1	1	Harness, J90 (fr.fuse pcb - xenon pcb)
	036-0258-00		1	1	Harness, J88 (from fuse pcb to P.S)
	036-0262-00		1	1	Harness, Ticket Dispenser, Cpu Side
	036-0263-01		1	1	Harness, Ticket Disp., Player 1, 4-S-S
	036-0263-02		1	1	Harness, Ticket Disp., Player 2, DL1275
	036-0270-00			1	Harness, Maintenance
	036-0271-00			1	Harness, Lock out coil
	040-0001-00		3		Clamp, Cable, Stickdown
	040-0007-00		4		Clamp, Cable, Nylon, 3/8"
	040-0006-00		8		Clamp, Cable, Nylon, 3/4"
	040-0003-00		10		Tywrap, 4"
	232-0003-00		10		Screw, PH, #6 X 1/2 SMS
	232-0002-00		12		Screw, PH, #8 X 1/2 SMS
	232-0002-01		18		Screw, PH, #8 X 5/8 SMS
	366-0022-00		1	1	Front Box
	366-0026-00		1	2	Ticket Door
	231-0007-03		8		#10 - 24 X 1 1/4 Carriage Bolt
	242-0010-00		8		Washer, Flat,#10
	239-0001-00		8		Nut, Kep, 10 -24
	535-0121-00		1	2	Trim Plate
	535-0174-00		1	1	Xenon Pcb Grill
	535-0131-00		4		Z Bracket
	232-0007-00		4		Screw, #6-32 X 1/4, PH, MS
	239-0009-00		4		Nut, Kep, #6-32
	254-0008-00		8		Spacer, Aluminum, ID=3/16, OD=3/8
	232-0003-01		8		Screw, Phil, #6 X 3/4, SMS
	510-0168-00		1	1	Ticket Dispenser, DL-1275
	510-0212-00		1	1	Ticket Dispenser, DL-4-S-S
	535-0094-00		2	4	Ticket Cartridge
	510-0203-00		1	1	Coin Door Assembly w/ lockout coil
	535-0178-00		2		Speaker Grill (For Ventilation)
	510-0200-00		1	2	Pcb, Xenon Power
	520-0106-00		1	1	Pcb, Ticket Interface
	510-0198-00		1	1	Cpu Board
	510-0201-00		1	1	Fuse Pcb
	200-0022-00		1		Fuse, 10A, 125V, Slo Blo
	200-0023-00		1	1	Fuse, 20A, Fast Blo
	200-0024-00		10		Fuse, 2.5A, 250V, Fast Blo
	515-0076-00		1	1	Control Panel Ass
	515-0078-00		1	2	Xenon Lamp Assy

## 510-0209-00 FRONT BOX ASSY, COSMO (Continued)

Part Number Description

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
.	515-0057-00		1	1	Service Panel Assy
	535-0169-01		1	1	Bracket, Speaker Panel, Right
	535-0169-02		1	1	Bracket, Speaker Panel, Left
	535-0184-00		2		Bracket, Lock
	515-0079-00		1	1	Display Board Assy
	515-0081-00		1	1	Win Lamp Panel Assy
	406-0431-01		1		Label, Ticket Dispenser DL - 1275
	406-0431-02		1		Label, Ticket Dispenser DL 4-S-S
	406-0432-00		1		Label, Xenon Power Pcb
	055-0018-00			1	Quicksplice, 18-22 AWG
				4	#10-24 X 1", Carriage bolt

Preliminary : 01-11-91

510-0208-00 BACK BOX ASSY, COSMO  
 Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0243-00		1	1	Harness, J3 - J86
	036-0247-00		1	1	Harness, J4 (to motors & resistors)
	036-0250-01		1	1	Harness, Energy Box 1 Extension
	036-0250-02		1	1	Harness, Energy Box 2 Extension
	036-0250-03		1	1	Harness, Energy Box 3 Extension
	036-0250-04		1	1	Harness, Energy Box 4 Extension
	036-0250-05		1	1	Harness, Energy Box 5 Extension
	036-0251-01		1	1	Harness, Character 1 Extension
	036-0251-02		1	1	Harness, Character 2 Extension
	036-0251-03		1	1	Harness, Character 3 Extension
	036-0251-04		1	1	Harness, Character 4 Extension
	036-0251-05		1	1	Harness, Character 5 Extension
	036-0255-00		1	1	Harness, J8, (to lamps)
	036-0259-00		1	1	Harness, Power Supply Extension
	036-0267-00		1	1	Harness, Coin Door Lamp Extension
	040-0003-00		20		Tywrap, 4"
	040-0006-00		5		Clamp, Cable, Nylon
	232-0002-00		10		Screw, PH, Phil, #8 X 1/2 SMS
	366-0023-00		1	1	Back Box
	366-0027-00		1	1	Side Door
	366-0028-00		1	1	Rear Door
	510-0205-00		1	5	Drive Unit Assy
	535-0158-00		1	1	Bracket, Drive Unit
	231-0014-00		13		Bolt, 1/4 - 20 X 1 1/4", Hex H.,MS
	244-0002-00		13		Washer, Split Lock, 1/4
	242-0016-00		13		Washer, Flat, 1/4
	535-0159-00		1	4	Playfield Divider Panel, Middle
	535-0160-01		1	1	Playfield Divider Panel, Right
	535-0160-02		1	1	Playfield Divider Panel, Left
	820-0056-00		1	4	Decal, Playfield Panel, Wide
	820-0057-00		1	2	Decal, Playfield Panel, Narrow
	820-0058-01		2		Decal, Side, Back Box
	820-0058-02		2		Decal, Side, Back Box
	820-0058-03		2		Decal, Side, Back Box
	820-0058-04		2		Decal, Side, Back Box
	535-0155-01		1	1	Grate, Right
	535-0155-02		1	1	Grate, Left
	535-0166-00		1	1	Roll Bar (U Channel)
	535-0156-00		1	1	Energy Divider Panel
	234-0013-02		2	2	Bolt, #10-24 X 3/4", Button Head,MS
	535-0157-00		1	1	Cosmo Divider Panel
	515-0030-03		1	1	ON/OFF Switch Assy



## 510-0208-00 BACK BOX ASSY, COSMO (Continued)

Part Number Description

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	231-0013-10		4		Bolt, Button Head,Hex, 5/16-18 X 2 1/4
	231-0013-05		4		Bolt, Button Head,Hex, 5/16-18 X 2"
	231-0013-04		4		Bolt, Button Head,Hex, 5/16-18 X 1 1/2"
	242-0022-00		4		Washer, flat, 5/16
	242-0021-00		14		Washer, Fender, Black, 5/16 X 1 1/4"
	238-0015-00		4		Nut, Kep, 5/16-18
	239-0010-00		18		Well Nut, #10-32
	242-0010-00		18		Washer, Flat, #10 , Black
	232-0014-02		18		Screw, Button Head, Hex, #10-32 X 1", MS
	660-0012-00			1	Shield, Vertical
	660-0011-00			1	Shield, Angled
	660-0010-00			1	Shield, Top
	535-0189-01			1	Bracket, Shield, Inside
	535-0189-02			1	Bracket, Shield, Outside
	234-0003-03		6		Screw, Button Head,Black #8-32 X 3/4, MS
	242-0023-00		6		Washer, Flat, #8 , Black
	285-0011-00			2	Rubber Bumper, Black, t=1/4",#SJ5018
	231-0016-02			2	Bolt, But.H, 1/4-20 X 1/2"
	231-0007-02			4	Bolt, Carriage, #10-24 X 1", MS

Preliminary : 01-15-91

510-0210-00 TOP BOX ASSY, COSMO  
 Part Number Description

**LIST OF MATERIALS**

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0256-00		1	1	Harness, Lamp Extension, Top Box
	036-0257-00		1	1	Harness, UFO Lamp (8 lamps)
	036-0260-00		1	1	Harness, Cosmo Spot lamp (5 lamps)
	036-0261-00		1	1	Harness, Boss Spot Lamp (3 lamps)
	036-0269-00		1	2	Harness, Wing Lamp
	040-0007-00		4		Clamp, Cable, Nylon, 3/8
	366-0032-00		1	1	Title Board
	366-0024-00		1	1	Top Box
	366-0029-00		1	1	Access Door, Top Box
	366-0030-00		1	1	Light Board, Top Box
	800-0052-00		1	1	Overlay, Marquee
	820-0059-00		1	1	Decal, Above Cage
	231-0013-04		4		Bolt, Button Head, 5/16-18 X 1 1/2
	242-0021-00		4		Washer, Fender, Black, 5/16 X 1 1/4"
	242-0022-00		2		Washer, Flat, 5/16
	238-0015-00		2		Nut, Kep, Hex, 5/16-18
	545-0017-00		1	1	UFO (A)
	545-0018-00		1	1	UFO (B)
	232-0002-02		3		Screw, PH, #8 X 3/4, SMS
	545-0019-00		1	1	UFO (C), Red Dome Insert
	232-0008-02		3		Screw, PH, #8-32 X 1/2, MS
	242-5011-00		9		Washer, Plat, #8
	239-0002-00		3		Nut, Kep, #8-32
	545-0020-00		1	1	Dome
	545-0031-00			1	Film, Plastic, Red
	077-5101-00		1	2	Socket (Wing Lamp)
	545-0023-00		1	2	Lens, Red
	232-0007-02		4		Screw, Lens, PH, #6-32 X 1/2, MS
	239-0009-00		4		Nut, Kep, #6-32
	535-0185-00		1	1	Bracket, Character Boss
	510-0206-00		1	1	Charcter Boss
	239-0001-00		2		Nut, Kep, #10-24
	077-0003-00		8	8	Socket, Short, Standup #89
	165-5000-89		10		Lamp, #89, 13V
	077-0002-00		8	8	Socket, Miniature Bayonet, straight
	165-0008-00		8		Lamp, #1816, 13V, .33A
	232-0003-00		20		Screw, PH., #6 X 1/2 SMS
	810-0049-00		1	1	Back Board w/artwork (cardboard)
	200-0024-00		1		Fuse, 2.5A, 250V, Fast Blo
	205-0003-01		1	1	Fuse Holder, 1 position
	233-0001-03		6		Screw, FH, #8 X 1 1/4", SMS
	234-0013-02		5		Screw, Button Head #10-24 X 3/4
	242-0010-00		5		Washer, Flat, #10
	406-0002-00		1	1	Label, FCC Warning
	406-0003-00		1	1	Label, FBI Warning
	406-0004-00		1	1	Label, Serial Number

510-0211-00 POWER SUPPLY ASSY, COSMO  
 Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0264-00		1	1	Harness, Power (Power Supply)
	036-0265-00		1	1	Harness, Coin Door Lamp
	036-0266-00		1	1	Harness, Fuse
	036-0268-00		1	1	Harness, Power (On/ Off Sw. Side)
	010-0011-00		1	1	Transformer, 24Vac, 12Vac, 9Vac
	040-0003-00			5	Tywrap, 4"
	040-0007-00			3	Clamp, Cable, Nylon, 3/8"
	112-0054-00		1	2	Bridge Rectifier, MDA 2501
	112-0057-00		1	1	Bridge Rectifier, MDA 3502
	116-0021-00		1	1	Heat Sink
	120-0001-43		1	2	Resistor, 2.2K $\Omega$ , 1/4 W
	121-0008-00		1	1	Fixed Power Resistor, 100 $\Omega$ , 50W
	124-0001-00		2		Resistor Mounting Hardware
	125-0016-00		1	2	Capacitor, Elec.Can Style 21000,35Vdc
	125-0019-01		1	1	Cap., Elec. Can Style, 23000 $\mu$ F,40Vdc
	135-0003-00		1	3	Cap. Mounting Hardware MALLORY
	150-0006-00		1	1	Filter, Noise
	232-0003-00		11		Screw, Pan, #6 X 1/2 SMS
	232-0008-07		3		Screw, #8-32 X 1 1/4, PH, MS
	242-5011-00		3		Washer, Flat #8
	239-0002-00		3		Nut, Kep, #8-32
	232-0002-01		4		Screw, PH, #8 X 5/8, SMS
	233-0001-02		4		Screw, Flat, #8 X 1" SMS
	034-0001-00		1	1	Power Cord, 12 ft
	280-0001-00		1	1	Strain Relief
	535-0010-00		1	1	Strain Relief Plate
	200-0021-00		1		Fuse, 3A, Fast Blo (8.5V)
	200-0017-00		1		Fuse, 6A, Fast Blo (line fuse)
	200-0018-00		1		Fuse, 6A, Slo Blo (Coin Lamp)
	200-0012-00		1		Fuse, 8A, Fast Blo (12V)
	200-0020-00		1		Fuse, 15A, Fast Blo (24V)
	205-0003-05		1		Fuse Holder, 5 position
	406-0433-00		1	1	Fuse Label
	406-0434-00		1		Label, Caution, Power Supply
	660-0003-00		1	1	Fish Paper, 4 X 8" (safety cover)
	232-0004-06		4		Screw, PH, #10 X 5/8, SMS
	366-0033-00		1	1	Power Supply Board (Plywood)
	232-0027-01		1		Screw, PH, Phil, #8 X 3/8, self tapping

Preliminary : 01-11-91

510-0205-00 DRIVE UNIT ASSY, COSMO  
 Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
	036-0248-01		1	1	Harness, Sensor, Front
	036-0248-11		1	1	Harness, Sensor, Back
	036-0249-01		1	1	Harness, Sensor, Center
	036-0248-02		1	1	Harness, Sensor, Front
	036-0248-12		1	1	Harness, Sensor, Back
	036-0249-02		1	1	Harness, Sensor, Center
	036-0248-03		1	1	Harness, Sensor, Front
	036-0248-13		1	1	Harness, Sensor, Back
	036-0249-03		1	1	Harness, Sensor, Center
	036-0248-04		1	1	Harness, Sensor, Front
	036-0248-14		1	1	Harness, Sensor, Back
	036-0249-04		1	1	Harness, Sensor, Center
	036-0248-05		1	1	Harness, Sensor, Front
	036-0248-15		1	1	Harness, Sensor, Back
	036-0249-05		1	1	Harness, Sensor, Center
	510-0204-00		1	5	Character Assy w/photo pcb
	535-0175-00		1	5	Character Carrier
	535-0176-00		1	5	Energy Carrier w/ sensor pcb
	545-0016-00		1	5	Energy Box
	080-0005-00		1	5	Motor, 5.5VDC, 1.25A
	535-0177-00		1	5	Motor Bracket
	121-0007-00		2	10	Ceramic Resistor, 16 $\Omega$ , 30W
	305-0002-00		1	5	Pulley, Big
	535-0171-00		1	5	Rail
	520-0097-00		3	15	Sensor Pcb
	305-0002-00		1	5	Pulley(B), w/bearing, Small, SAVA MP-614
	530-0033-00		1	5	Shaft, Small Pulley
	254-0019-00		2	10	Spacer, Bronze, ID=, OD=
	250-0009-00		4	20	E-Ring
	315-0001-00		1	5	Cable, 148", 1/32
	232-0021-03		6	30	Screw, Pan, #4-40 X 1/4", MS
	239-0010-00		3	15	Well Nut, #10-32 WACHTEL # G-1032
	232-0009-06		3	15	Screw, Phil, #10-32 X 1", MS
	232-0008-02		4	20	Screw, Phil, #8-32 X 1/2, MS
	232-0009-02		4	20	Screw, Phil, #10-32 X 1/2, MS
	535-0186-00		1	5	Front Stopper Bracket w/hook
	535-0187-00		1	5	Rear Stopper Bracket
	285-0010-00		3	15	Cushion, t=1/2"
	535-0188-00		1	5	Bracket, Small Pulley

Preliminary : 01-04-91

515-0077-00 SEAT UNIT ASSY, COSMO  
Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
01	231-0001-20		8		Bolt, Hex Head, 1/4-20 X 1 3/4", MS
02	231-0012-13		2		Bolt, Hex, 3/8-16 X 2 3/4"
03	234-0003-02		16		Screw, Button Head, #8-32 X 1/2 MS
04	238-0009-00		2		Nut, Hex, 3/8
05	242-0017-00		8		Washer, Flat, Fender, ID=9/32, OD=1"
06	244-0008-00		2		Washer, Split Lock, 3/8
07	366-0021-00		1	2	Spacer, Particle Board
08	535-0161-00		1	1	Seat Frame
09	535-0164-00		1	2	Seat, Bottom
10	535-0170-00		1	1	Guide, Hat, Seat Frame
11	545-0021-00		1	2	Seat
12	400-0003-00		2		Foot Leveling, #3/8 - 16 X 1 1/2

end

Released : 01-11-91

515-0078-00 XENON LAMP ASSY, COSMO  
Part Number Description

**LIST OF MATERIALS**

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
01	160-0006-00		1	2	Xenon Tube w/harness
02	535-0163-00		1	2	Bracket w/Xenon Clip
03	535-0179-00		1	2	Grill, Xenon Tube

end

Released : 01-04-91

515-0057-00 SERVICE PANEL ASSY, COSMO  
Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
01	036-0211-01		1	1	Harness, Service Panel
02	090-0002-00		1	1	Coin Counter
03	123-0008-11		1	1	Potentiometer, 100 $\Omega$ , 2W
04	180-0024-00		1	1	Pushbtn w/ $\mu$ sw, Black
05	180-0024-02		1	1	Pushbtn w/ $\mu$ sw, Red
06	232-0018-01		2	2	Screw, PH, Phil, #5 X 1/2", SMS
07	406-0096-00		1	1	Label, Volume
08	406-0287-00		1	1	Label, Test
09	535-0135-00		1	1	Bracket, Service Panel

end

Released : 12-17-90

515-0079-00 DISPLAY (SPEAKER) PANEL ASSY, COSMO  
Part Number Description

**LIST OF MATERIALS**

<u>ITEM</u>	<u>PART NUMBER</u>	<u>REV</u>	<u>QTY/ASY</u>	<u>QTY/GM</u>	<u>DESCRIPTION</u>
01	031-0008-00		1	2	Speaker, 4.68 X 4.68, 8 $\Omega$ , 6W
02	036-0253-00		1	1	Harness, Speaker
03	232-0003-00		8		Screw, #6 X 1/2, Ph, SMS
04	232-0003-06		8		Screw, Ph, #6 X 5/8 SMS
05	232-0007-00		6		Screw, #6-32 X 1/4, PH, MS
06	239-0009-00		6		Nut, Kep, #6-32
07	366-0031-00		1	1	Display (Speaker) Panel, Wood
08	510-0199-00		1	1	Pcb, Display
09	535-0131-00		6		Z Bracket
10	535-0178-00		2		Speaker Grill
11	830-0053-00		1	1	Score Panel Plex
12	233-0001-05		8		Screw, FH, #8 X 5/8, SMS

end

Released : 01-15-91



515-0081-00 WIN LAMP PANEL ASSY, COSMO  
Part Number Description

LIST OF MATERIALS

ITEM	PART NUMBER	REV	QTY/ASY	QTY/GM	DESCRIPTION
01	036-0252-00		1	1	Harness, Win Lamp
02	040-0001-00		3		Clamp, Cable, Stickdown
03	077-5100-00		2		Socket, Laydown
04	165-5000-89		2		Lamp, 13V, #89
05	232-0007-02		2		Screw, PH, #6-32 X 1/2", MS
06	232-0007-09		2		Screw, PH, #6-32 X 1 3/4, MS
07	239-0009-00		4		Nut, #6-32
08	406-0430-00		1	1	Label, Win Lamp
09	535-0168-00		1	1	Panel, Win
10	545-0022-00		1	1	Lens, Win Lamp

end

Released : 12-17-90