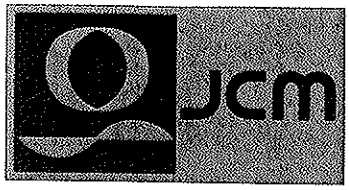


U.S. DOLLAR BILL ACCEPTOR

DBV-20

MODEL DBV-20

3940 E. Craig Road, Suite 101, North Las Vegas, Nevada 89031
Tel. (702) 651-0000 Fax (702) 651-0003

Table of Contents

pages

U. S. Dollar Bill Acceptor

DBV-20

MODEL DBV-20

CHAPTER 2

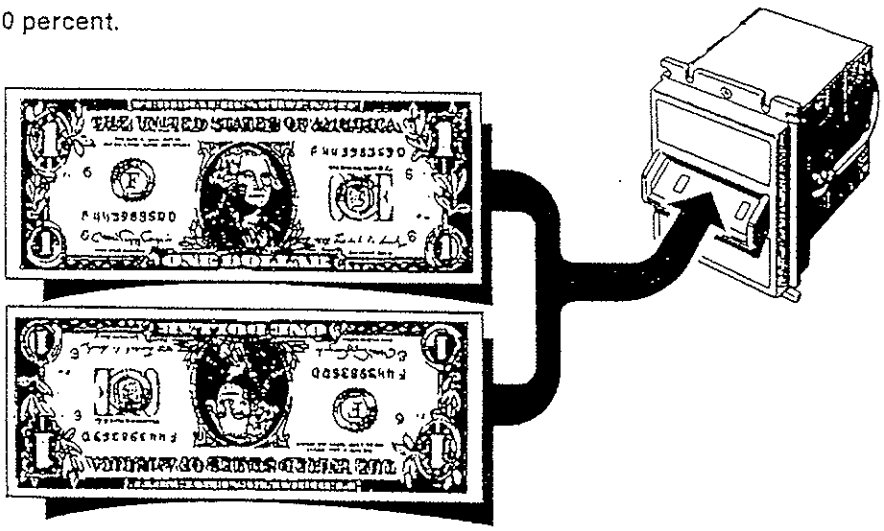
Operation Manual

Contents

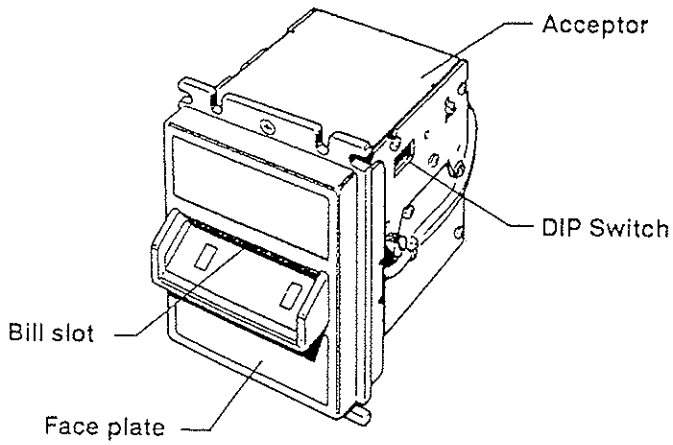
1. Features

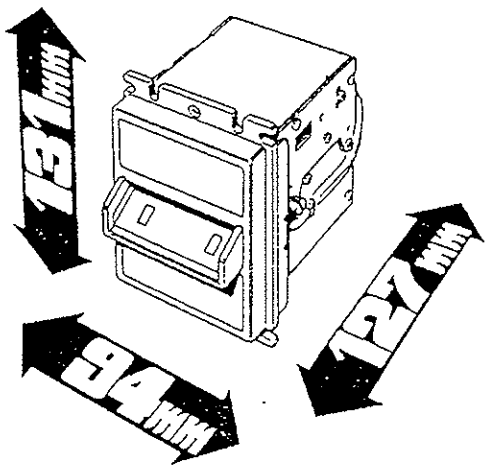
The DBA-02 acceptor has the following features.

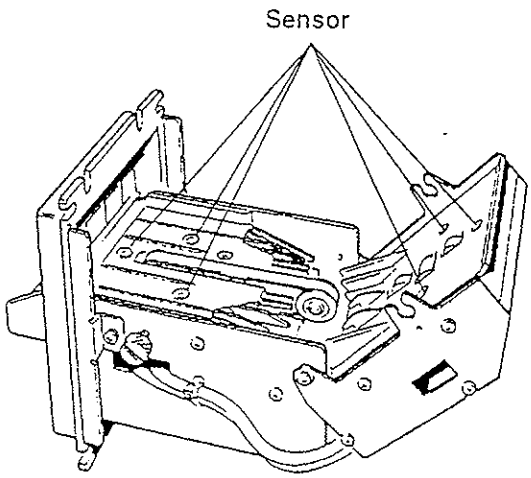
Notes can be read in both face up directions.
They can also be read in only one direction by DIP switch setting. The validation time is less than two seconds, and the acceptance rate is 90 percent.



2. Component Names and Dimensions

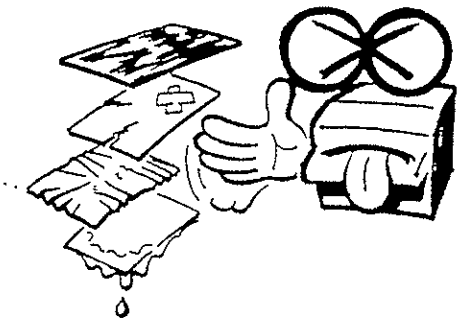




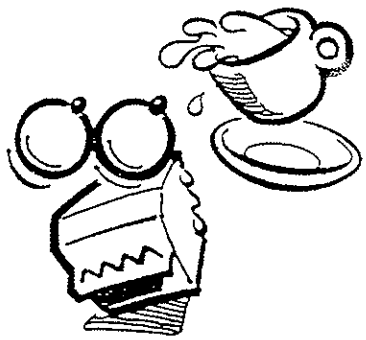


3.Precautions

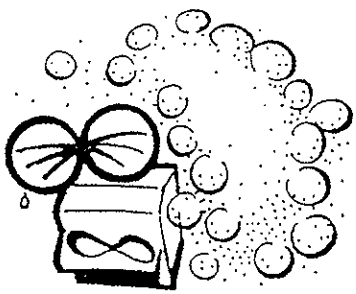
- Torn, wrinkled, or wet bills may jam the acceptor.



- The acceptor uses sophisticated electronic parts.
  Be careful not to get the acceptor wet.

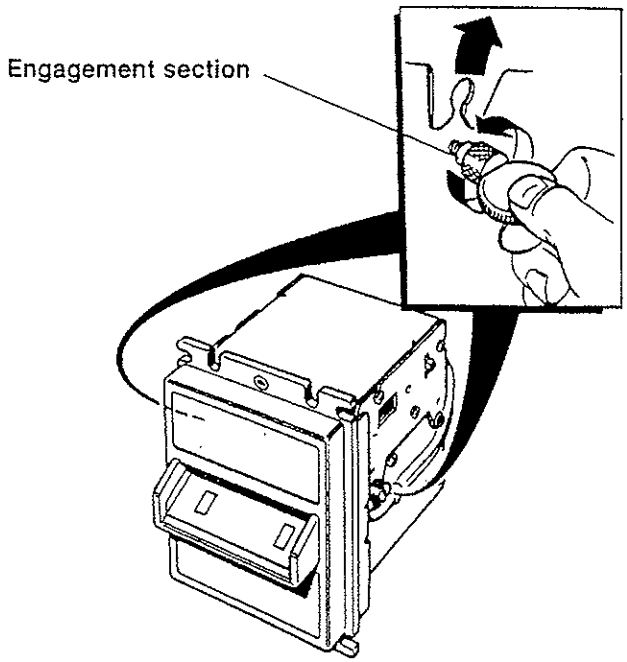


- Keep the acceptor away from dust. Dust may deteriorate the accuracy of bill validation.

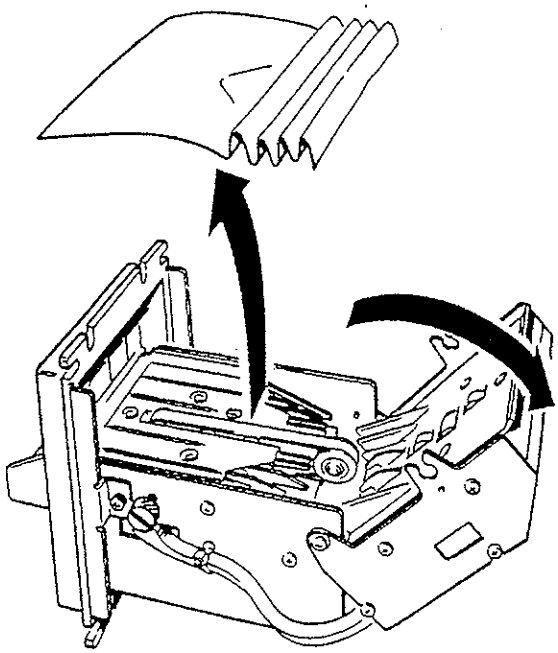


4. When the Acceptor is Jammed

(1) Loosen the thumb screws on each sides of the acceptor until the engagement section of screw is clean.
(Use a coin if the screws have been tightened firmly.)



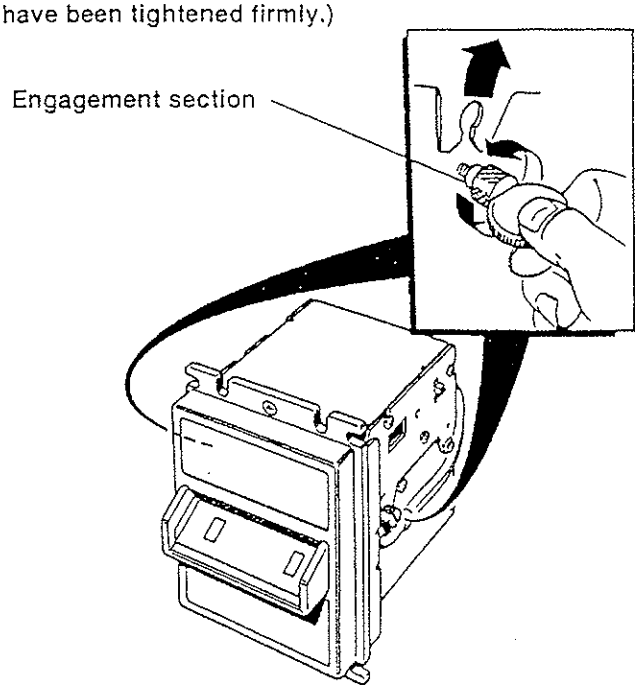
(2) Open the read section at the top and remove the clogged notes.



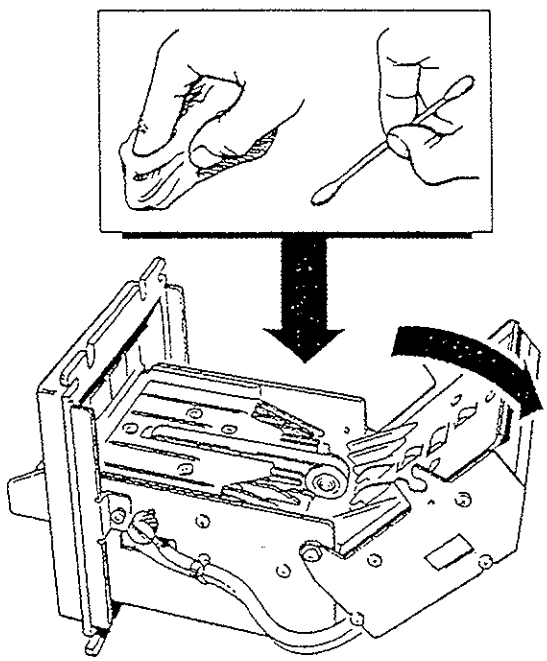
5.Cleaning

If the acceptor bill path is dirty, it may cause jamming or affect the accuracy of bill validation. Clean the inside of the validator regularly.

(1) Loosen thumb screws until the engagement section is clean of the hole.
(Use a coin if the screws have been tightened firmly.)



(2) Use a soft cloth or swab to clean the reader. If necessary, use an ordinary head cleaner.



* Caution
Never use an organic solvent such as thinner and benzene during cleaning. This may cause a change in shape and color, or a failure. Dilute to less than 50 percent when you use iso propol alcohol.

U. S. Dollar Bill Acceptor

DBV-20

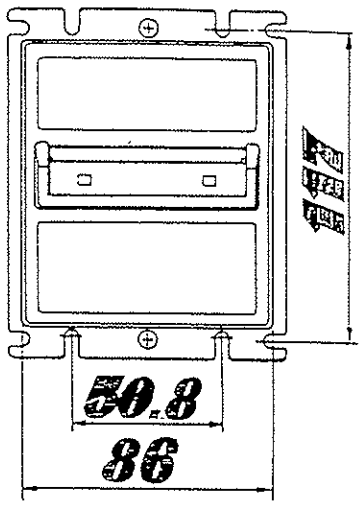
MODEL DBV-20

CHAPTER 1

Table of Contents

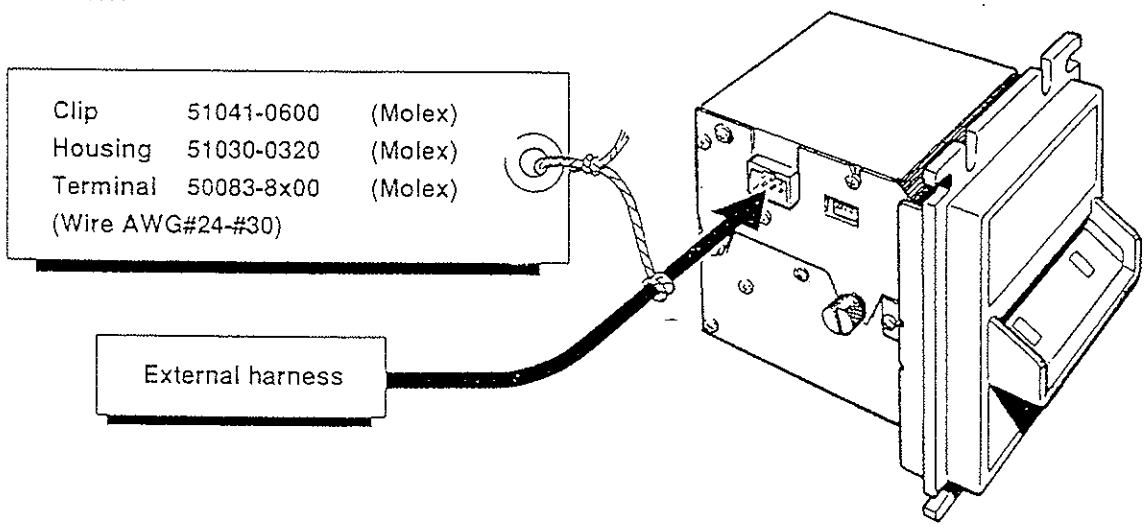
6.Installation

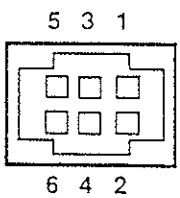
There are eight installation holes on the front panel of the acceptor.
(For the overall dimensions and detailed dimensions, see section 12, "Outer Dimensions".)



7.Out of Connector and Interface

(1) Connector

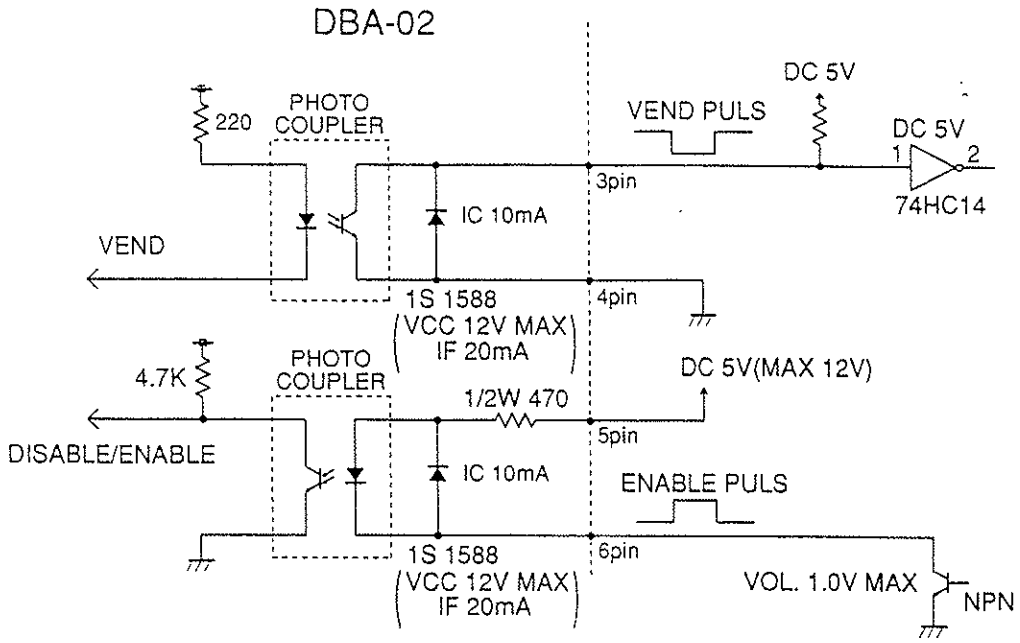




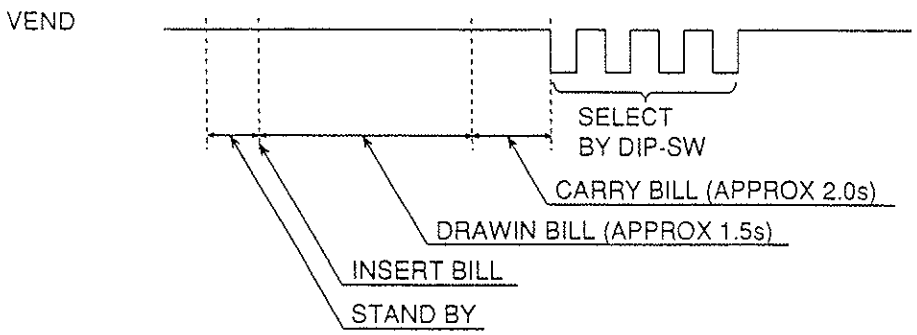
Connector signal

PinNo.	Signal Name	Function
1	power	+12
2	power	GND
3	VEND(+)	Vend Signal
4	VEND(-)	
5	DISABLE/ENABLE(+)	Differrential signal apply 5-12VDC across
6	DISABLE/ENABLE(-)	pins to enable

(2) Interface Circuit



(3) Sequence Chart



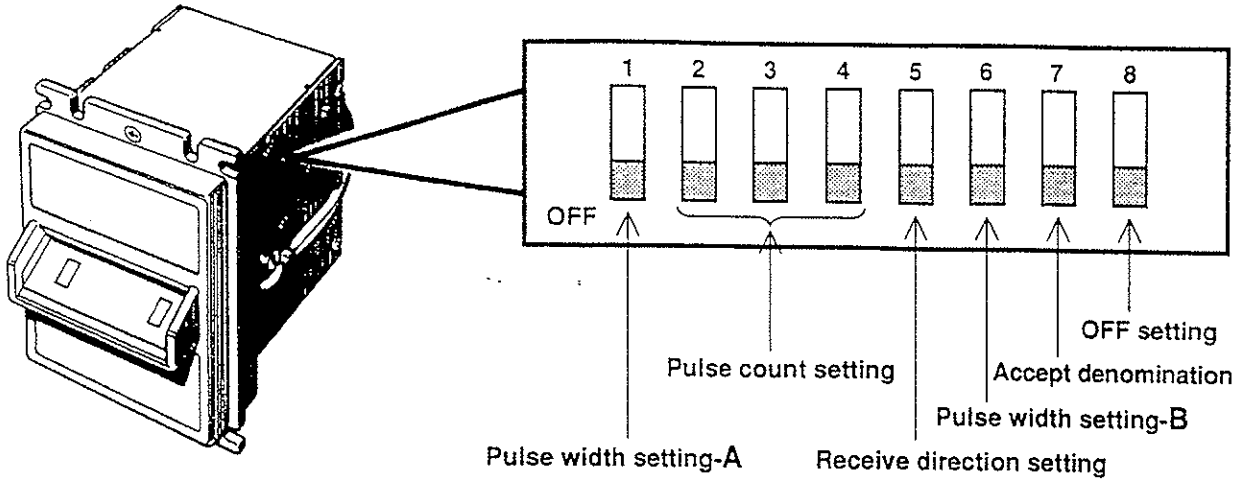
(4) Outline of interface

The acceptor receives no notes when the DISABLE/ENABLE signal line is set to DISABLE. If notes are inserted with the signal line set to ENABLE, the acceptor receives the notes and reads them.

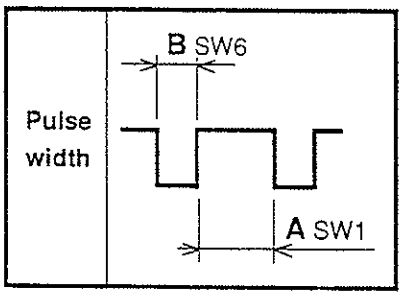
After the notes are stored, a VEND signal is output as a pulse from the VEND signal line.

The pulse width (two types) and pulse count (eight types) of the VEND signal are set using DIP switchs.

8. DIP Switch Setting



(1) Pulse width setting



	ON	OFF
A SW1	50ms	300ms
B SW6	450ms	50ms

(2) Pulse count setting

	SW2	SW3	SW4
1Pulse/$	OFF	OFF	OFF
2Pulse/$	ON	OFF	OFF
3Pulse/$	OFF	ON	OFF
4Pulse/$	ON	ON OFF	OFF
5Pulse/$	OFF	OFF	ON
8Pulse/$	ON	OFF	ON
10Pulse/$	OFF	ON	ON
20Pulse/$	ON	ON	ON

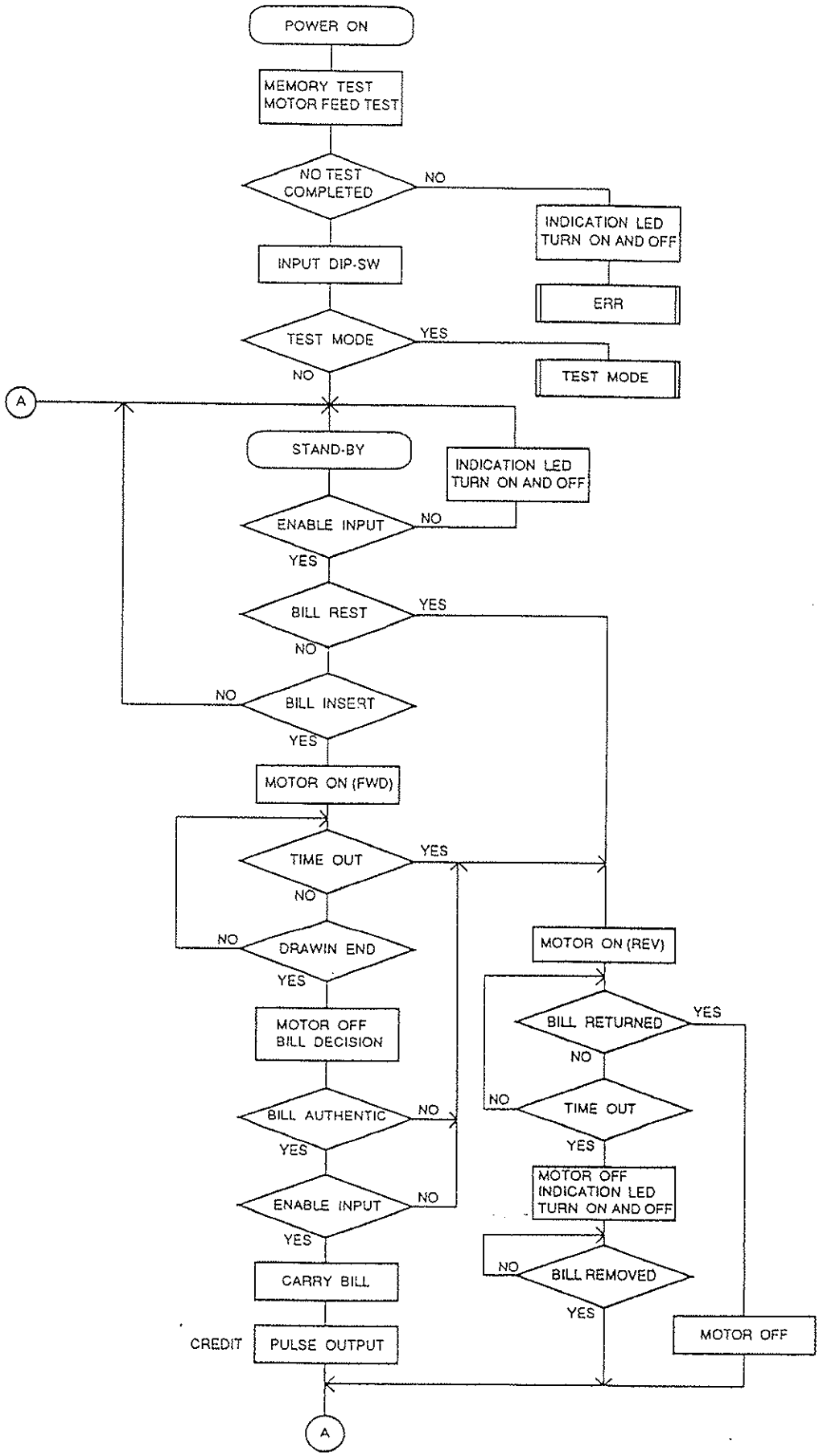
(3) Receive direction setting

SW5	OFF: Received in two directions.
	ON: Received in one direction.

(4) Accept denominaition

SW7	OFF: Accept $1, $2, $5
	ON: Accept $1, only

9 .Operating Flowchart

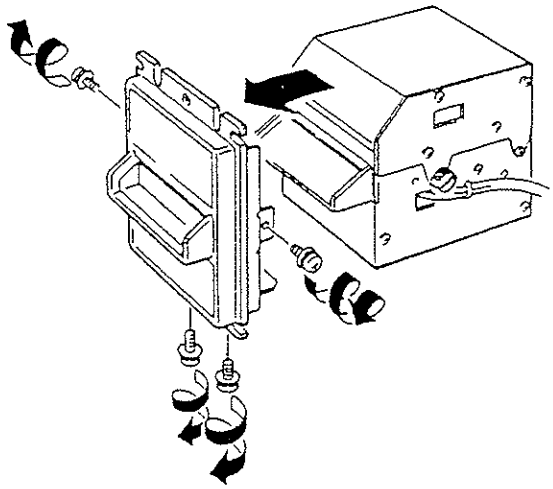


10. Disassembly and Assembly Procedure

Acceptor disassembly

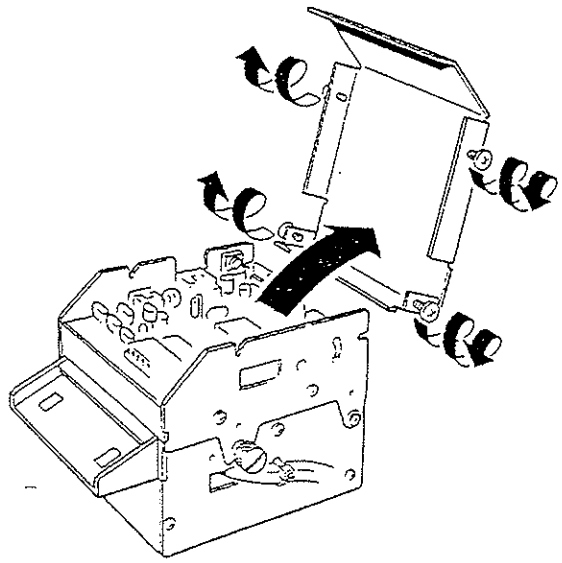
(1) Removing the face plate:

Remove the four screws, then remove the face plate



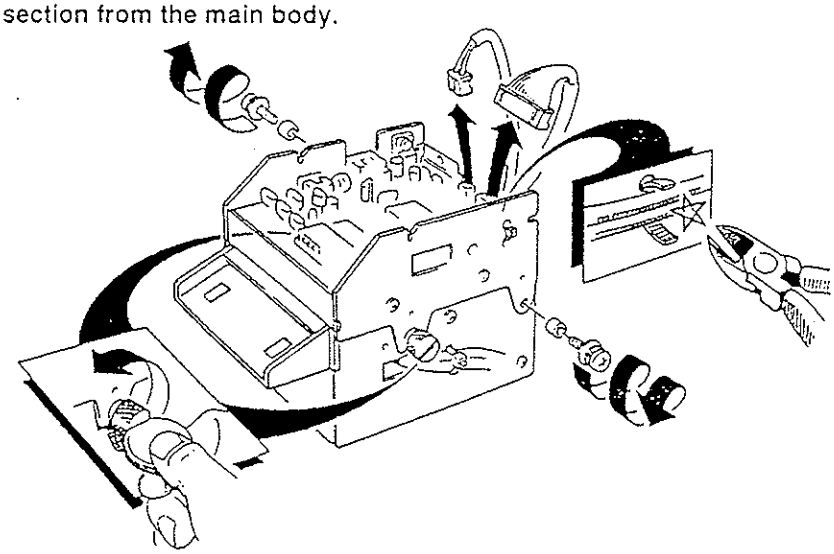
(2) Removing the upper cover:

Loosen the four screws on the upper cover and remove the upper cover with the screws attached.



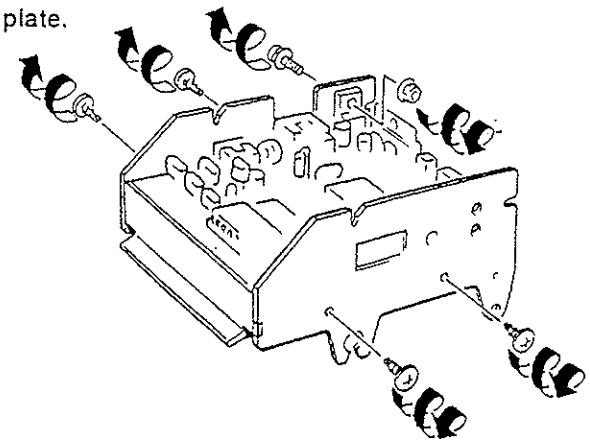
(3) Removing the upper read section:

Disconnect the two harnesses from the main board and loosen the two thumb screws (use a coin if you cannot turn the knob manually). Remove the screw and collar fixing the rotating section. Cut the tie wrap holding the harnesses and separate the upper read section from the main body.



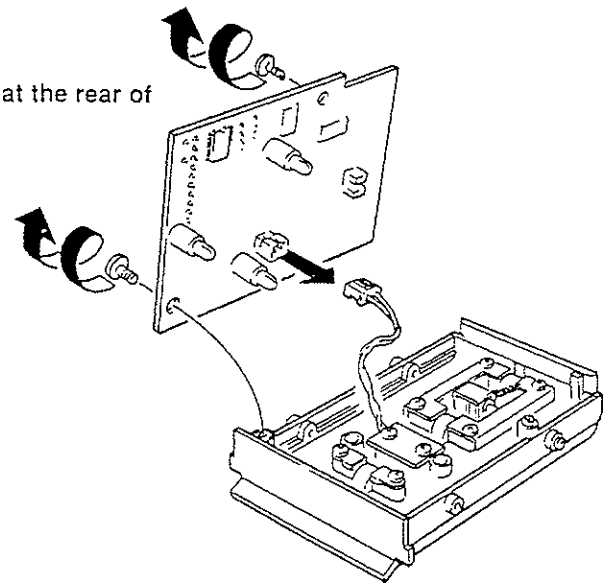
(4) Removing the side plates:

Remove the two screws, then remove the right side plate. Next, remove the screws and nuts securing the parts on the board, then remove the left side plate.



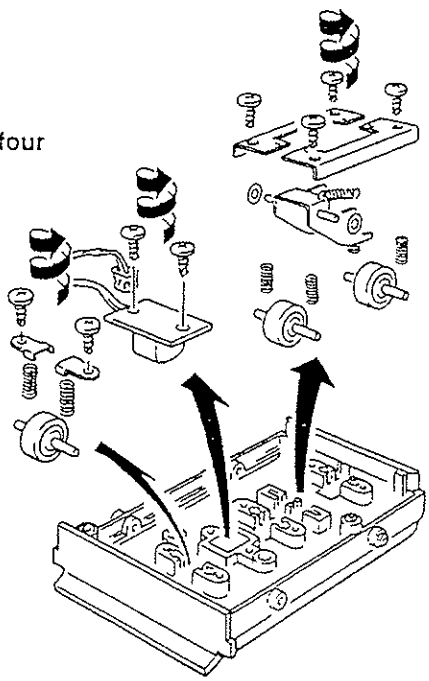
(5) Removing the main board:

Remove the two screws, pull out the connector at the rear of the board, and remove the board.



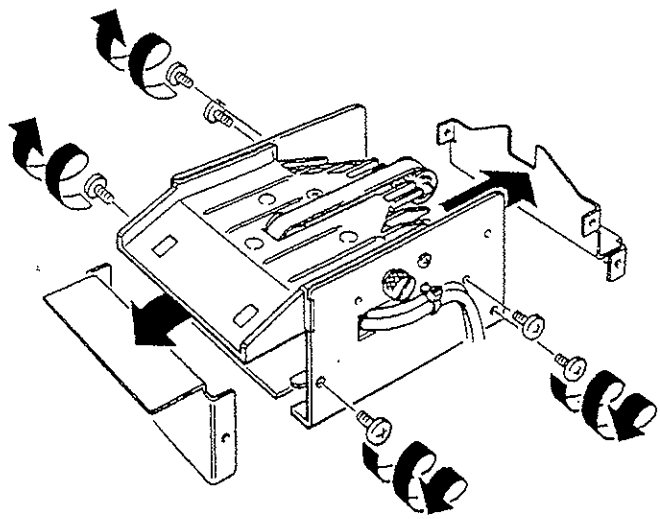
(6) Removing the magnetic head board, tension roller, and variable data lever:

Remove the two screws, then remove the magnetic head board and front tension roller. Remove the springs and four screws, then remove the rear tension roller and variable data lever.



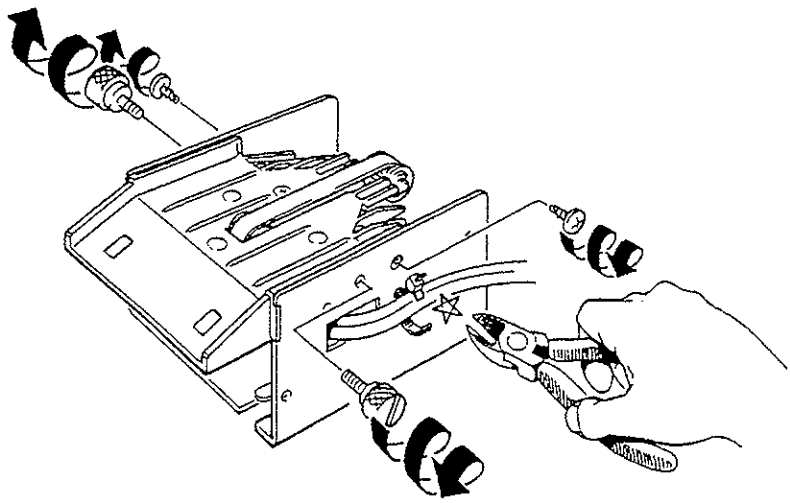
(7) Disassembling the acceptor:

Remove two screws, then remove the front cover. Remove four screws, then remove the rear cover.

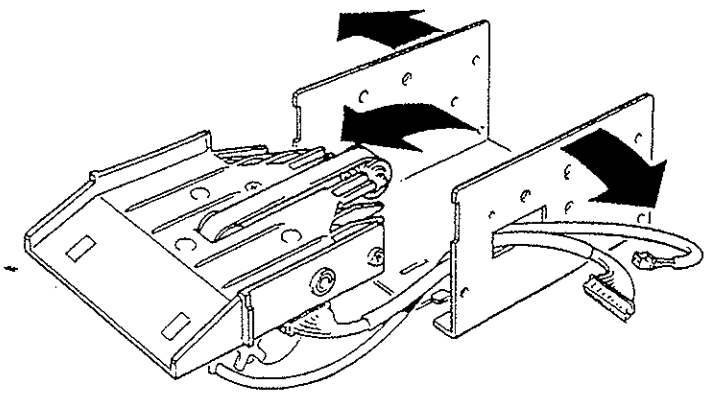


(8) Removing the lower read section:

1. Remove the two thumb screws, two screws and cut off the tie wrap on the right with cutters.

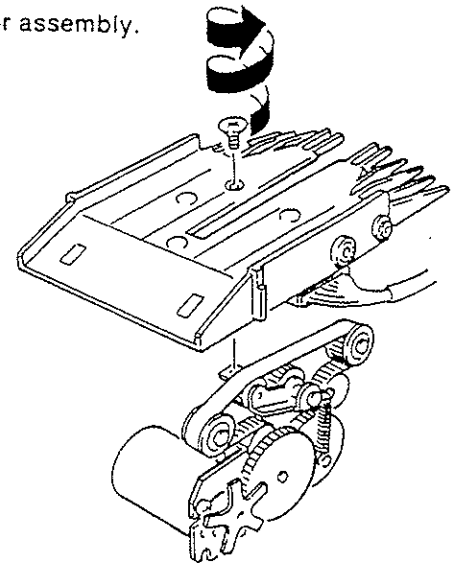


2. Pull out the lower read section while spreading the frame.



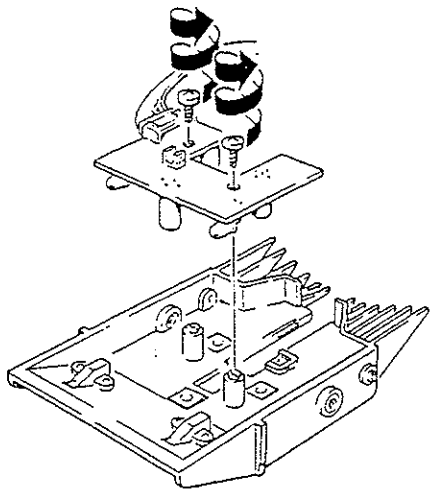
(9) Disassembling the lower read section:

Remove one screw at the top, then remove the motor assembly.



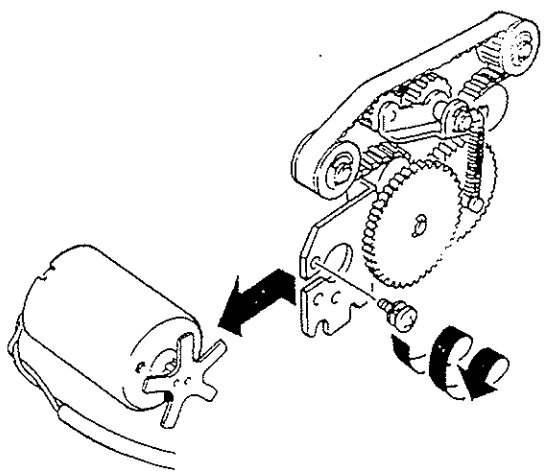
(10) Removing the LED board:

Remove two screws, then remove the LED board.



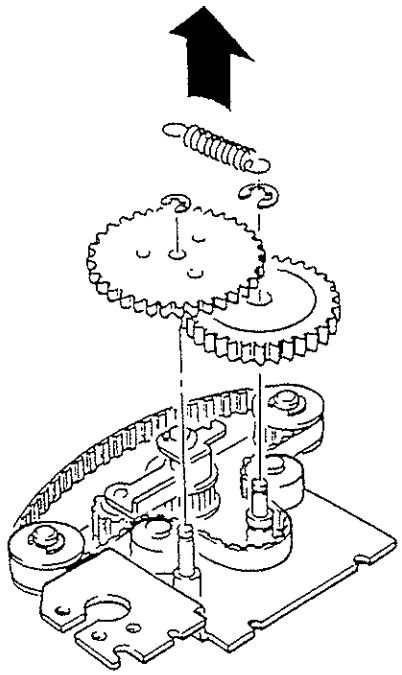
(11) Removing the motor:

Remove one screw and remove the motor through the slit in the frame.



(12) Removing the belt:

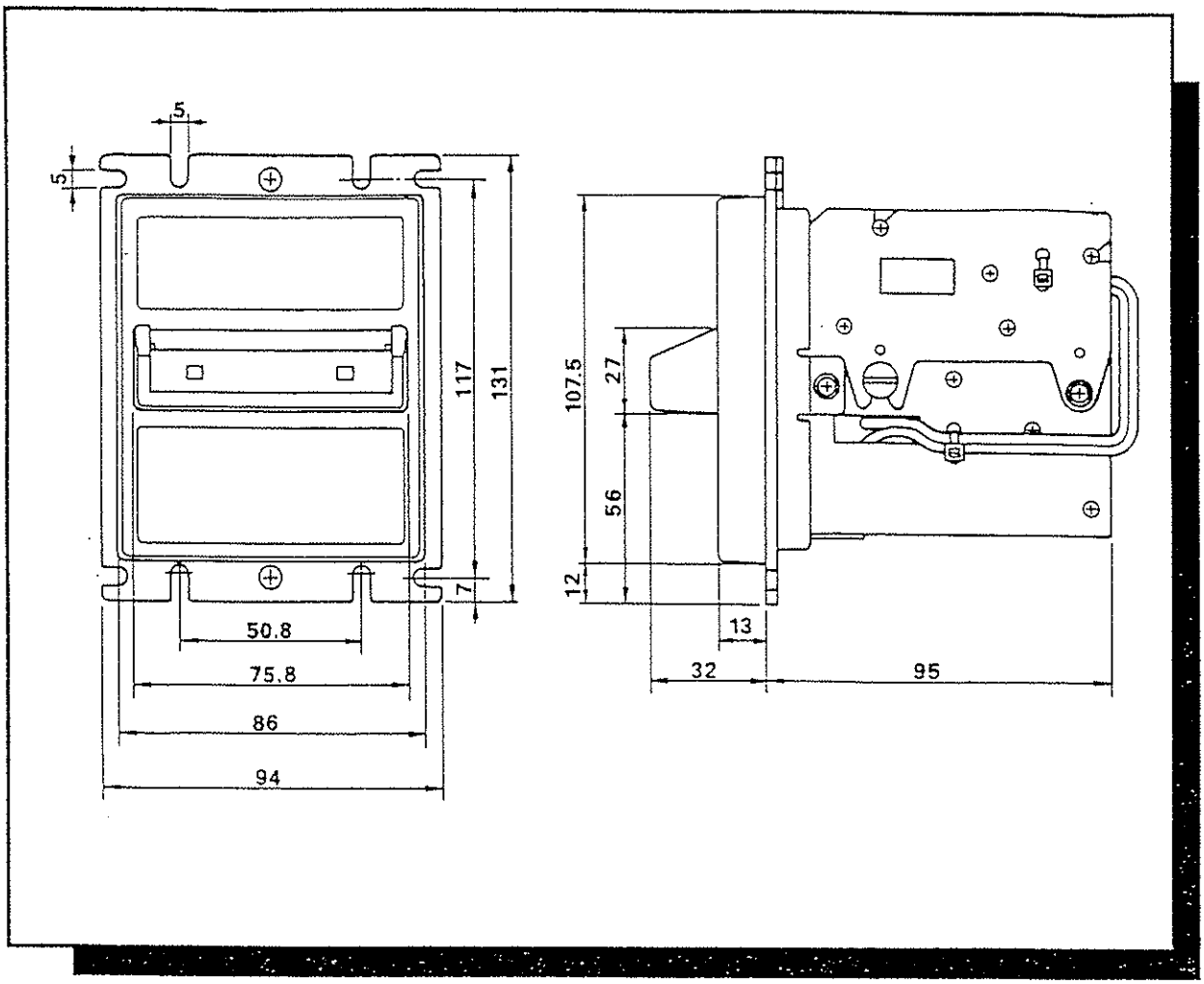
Remove the spring, then remove the two E-rings and two gears. Next, remove the belt.



11.General Specifications

Supported bill types	U.S. $1, $2, $5 Accept both face up directions.
Bill insertion	Notes can be read in two directions (both face up directions) They can also be read in only one direction by DIP switch setting
Acceptance ration	90% or more (including second time insertion) (but not including the following cases.) (1) Incomplete bills such as extremely dirty or wet bill or wrinkled ones (2) Bills folded at corner or side (3) Incorrectly-made bills
Validation time	No more than 2 seconds
External interface	Photocoupler isolation (Pulse interface)
Maintenance	Open upper portion (Back hinge)
Power	DC12v (±5%)
Power consumption	(1)Standby 1.6VA (2)Operating 4.1VA(MAX 9.4VA)
Environment	(1) Operating 0°C~45°C (2)Storage -20°C~60°C (3) Humidity 30%~85%RH (non condensing) (4) Avoid-Exposure to direct sunlight
Dimensions	See attached dimensions diagram
Weight	Approx.0.8 Kg
Installation	In-house. Horizontal

12.Physical Dimensions



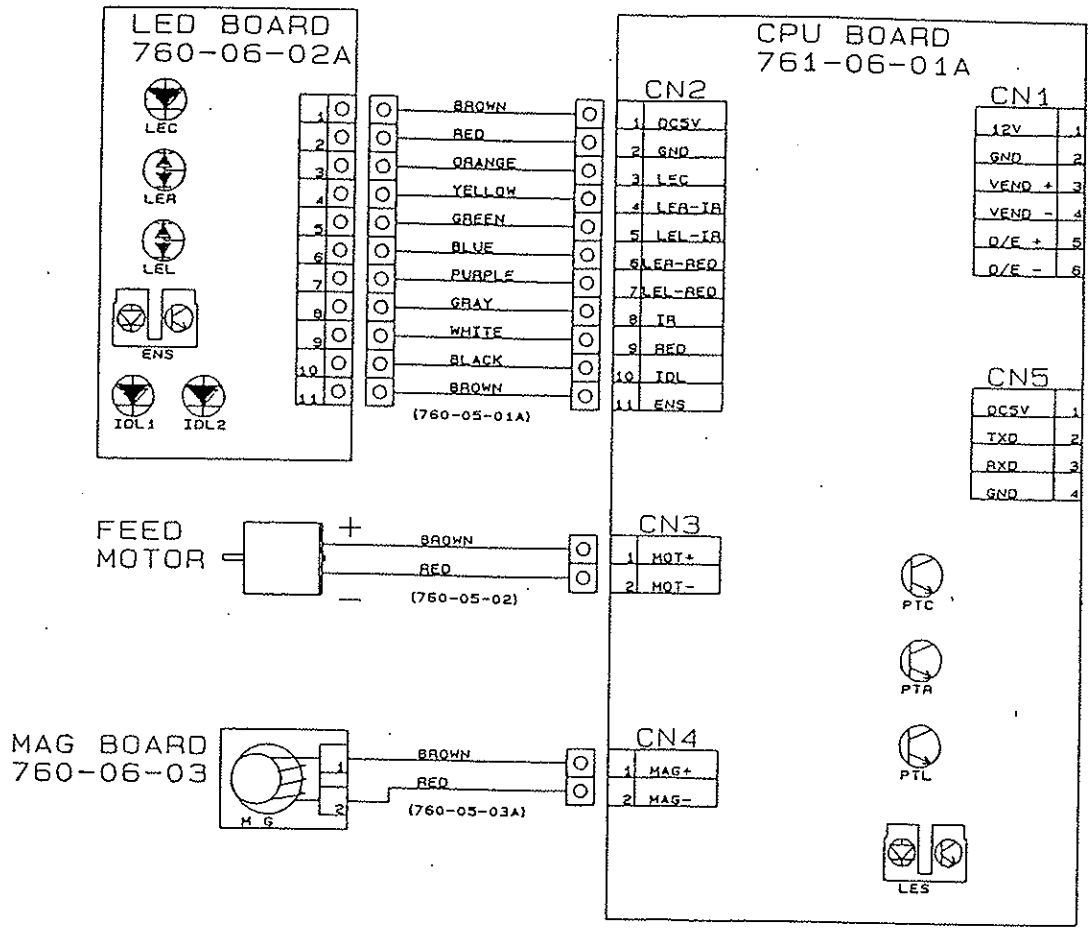
U. S. Dollar Bill Acceptor

DBV-20

MODEL DBV-20

CHAPTER 3

Wiring Diagram



No.	DATE	INFORMATION	CHEC	RELE
6				
5				
4				
3				
2				
1				

RELEASD	CHECKED	DRAWN	DESIGNED

MODEL DBA-02

TITLE WIRING DIAGRAM 1/

DWG No. 761-01-81

JAPAN CASH MACHINE CO., LTD.

U. S. Dollar Bill Acceptor

DBV-20

MODEL DBV-20

CHAPTER 4

Trouble Shooting

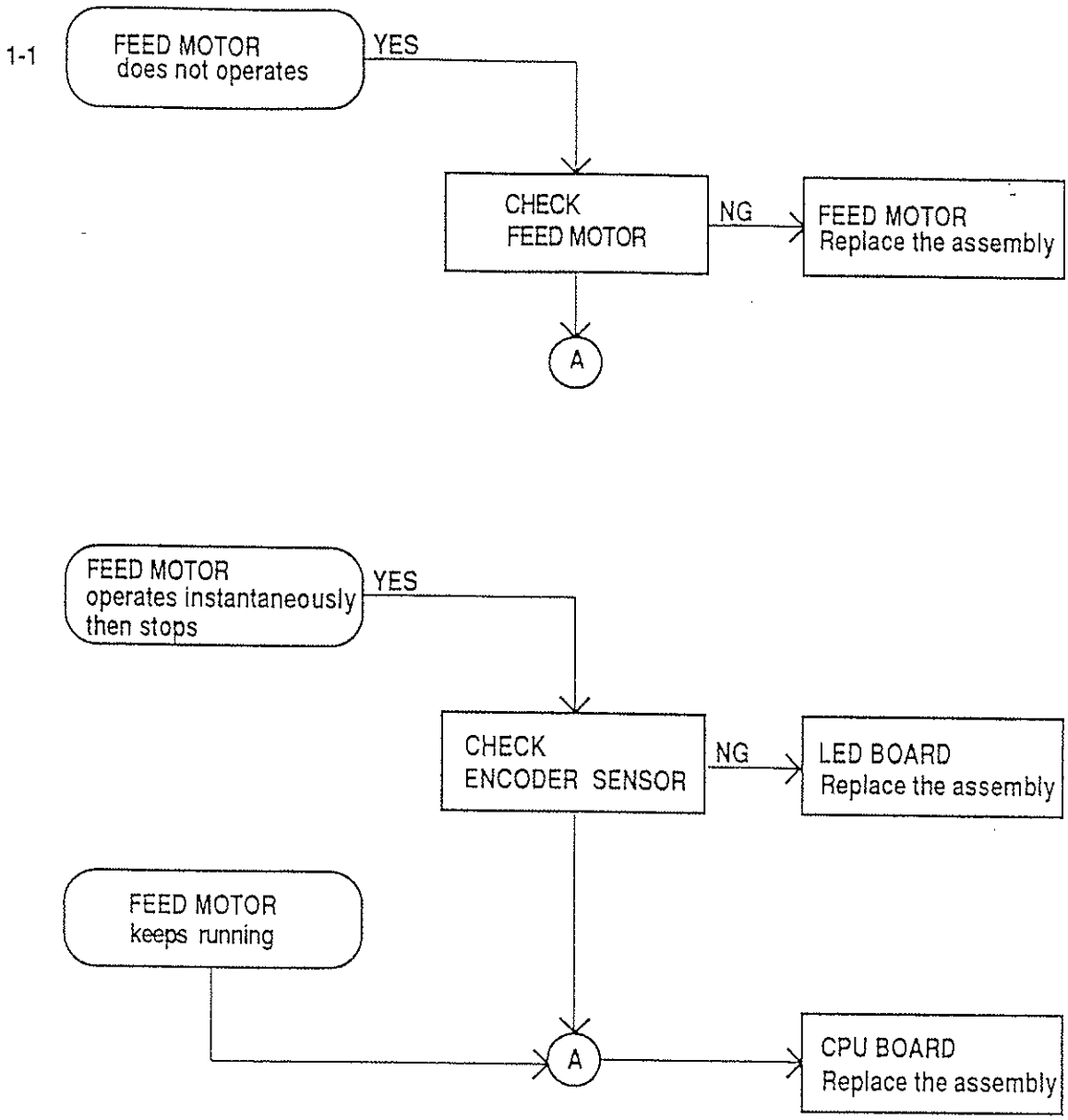
* Preface

Acceptor failure is often due to small details.Check that the connector is properly connected and that no harness is disconnected before replacing parts. For the acceptor that does not receive notes well, iron powder may adhere to the magnetic head. Clean the magnetic head periodically.

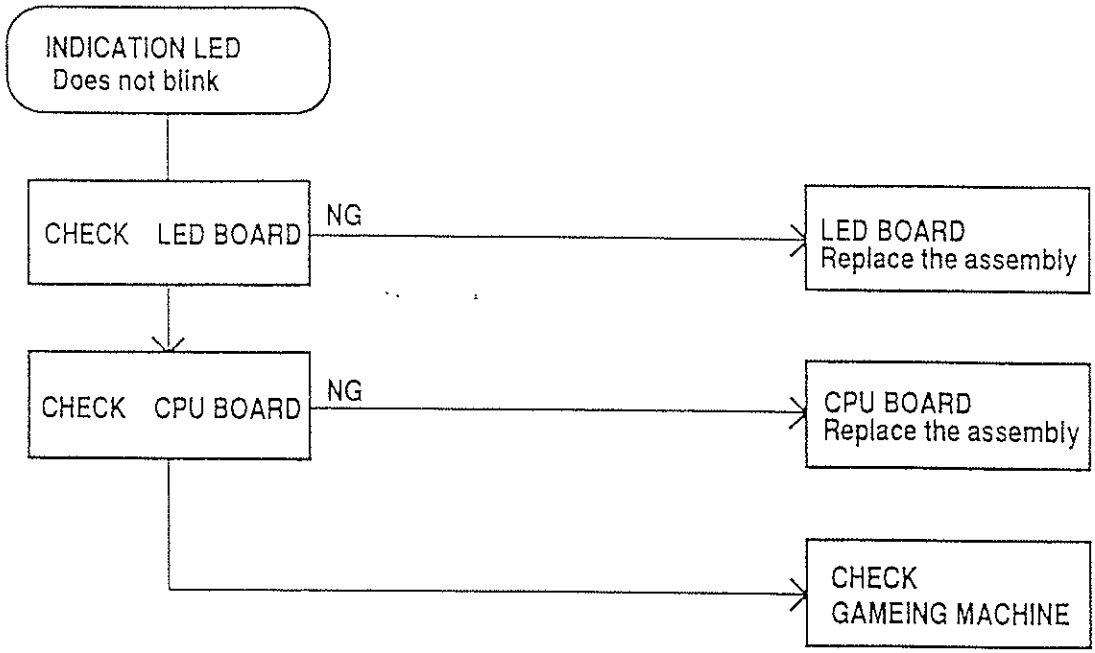
To determine the cause of a failure and detect defective parts, observe the operating state of the acceptor.

When the acceptor is disassembled, repaired or a board is replaced, the corresponding sensor adjustment is necessarly. For the sensor adjustment, see Chapter 5, "Adjustment Manual", Chapter 3, "Wiring Diagram", and Chapter 2, "Disassembly Procedure".

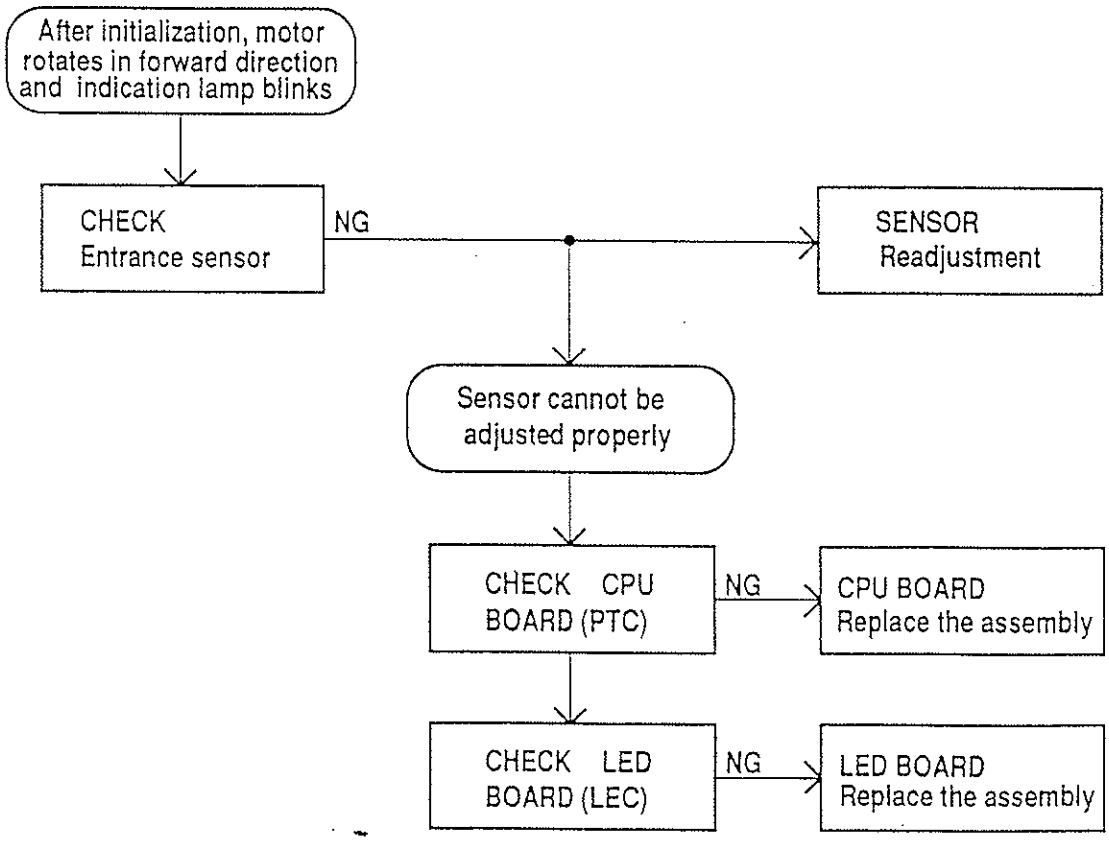
1. Trouble Occurring when Acceptor Power Is Turned On



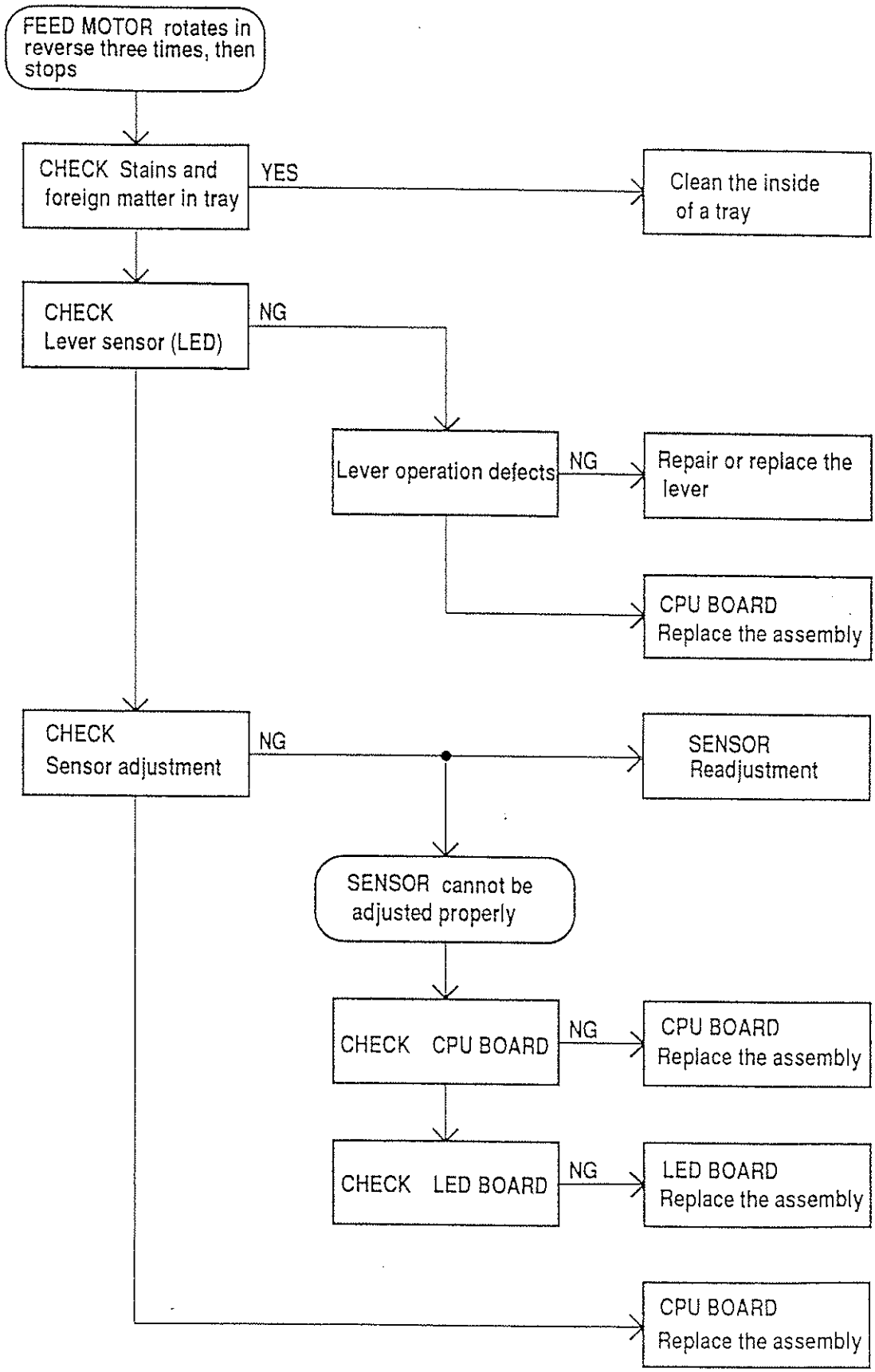
1-2


INDICATION LED
Does not blink
CHECK LED BOARD
NG
LED BOARD
Replace the assembly
CHECK CPU BOARD
NG
CPU BOARD
Replace the assembly
CHECK
GAMEING MACHINE

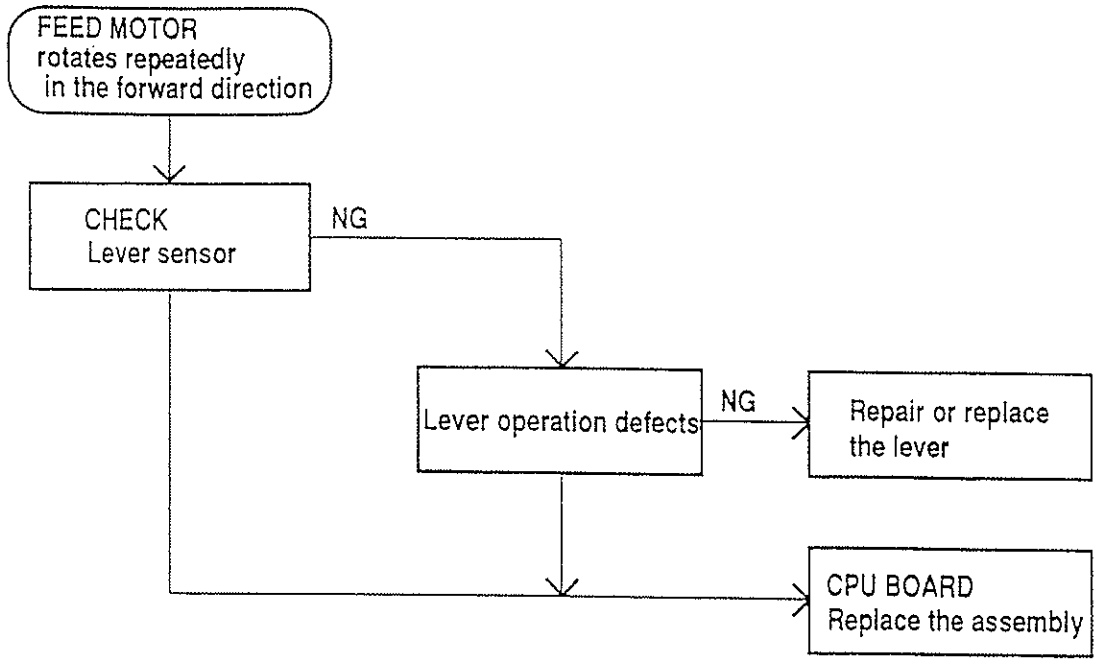
1-3


After initialization, motor
rotates in forward direction
and indication lamp blinks
CHECK
Entrance sensor
NG
SENSOR
Readjustment
Sensor cannot be
adjusted properly
CHECK CPU
BOARD (PTC)
NG
CPU BOARD
Replace the assembly
CHECK LED
BOARD (LEC)
NG
LED BOARD
Replace the assembly

1-4

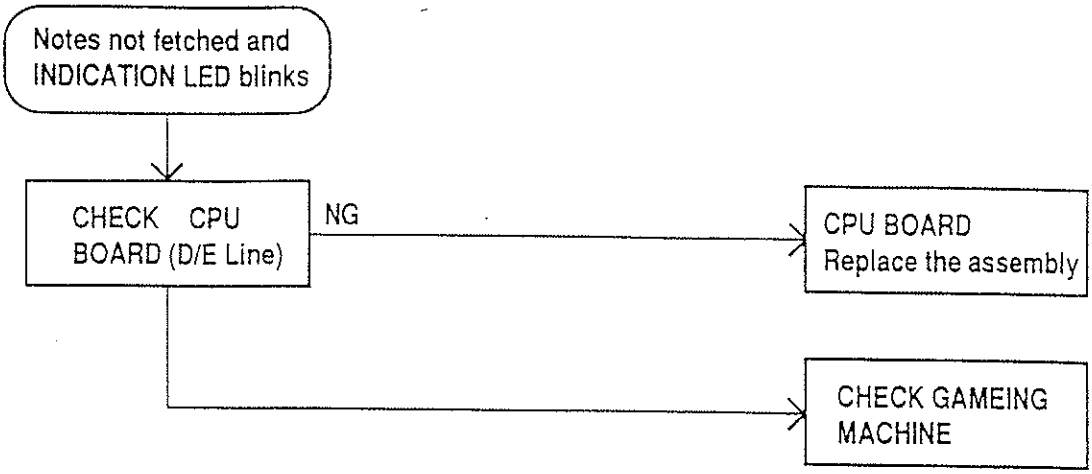

FEED MOTOR rotates in reverse three times, then stops
CHECK Stains and foreign matter in tray
YES
Clean the inside of a tray
CHECK Lever sensor (LED)
NG
Lever operation defects
NG
Repair or replace the lever
CPU BOARD Replace the assembly
CHECK Sensor adjustment
NG
SENSOR Readjustment
SENSOR cannot be adjusted properly
CHECK CPU BOARD
NG
CPU BOARD Replace the assembly
CHECK LED BOARD
NG
LED BOARD Replace the assembly
CPU BOARD Replace the assembly

1-5

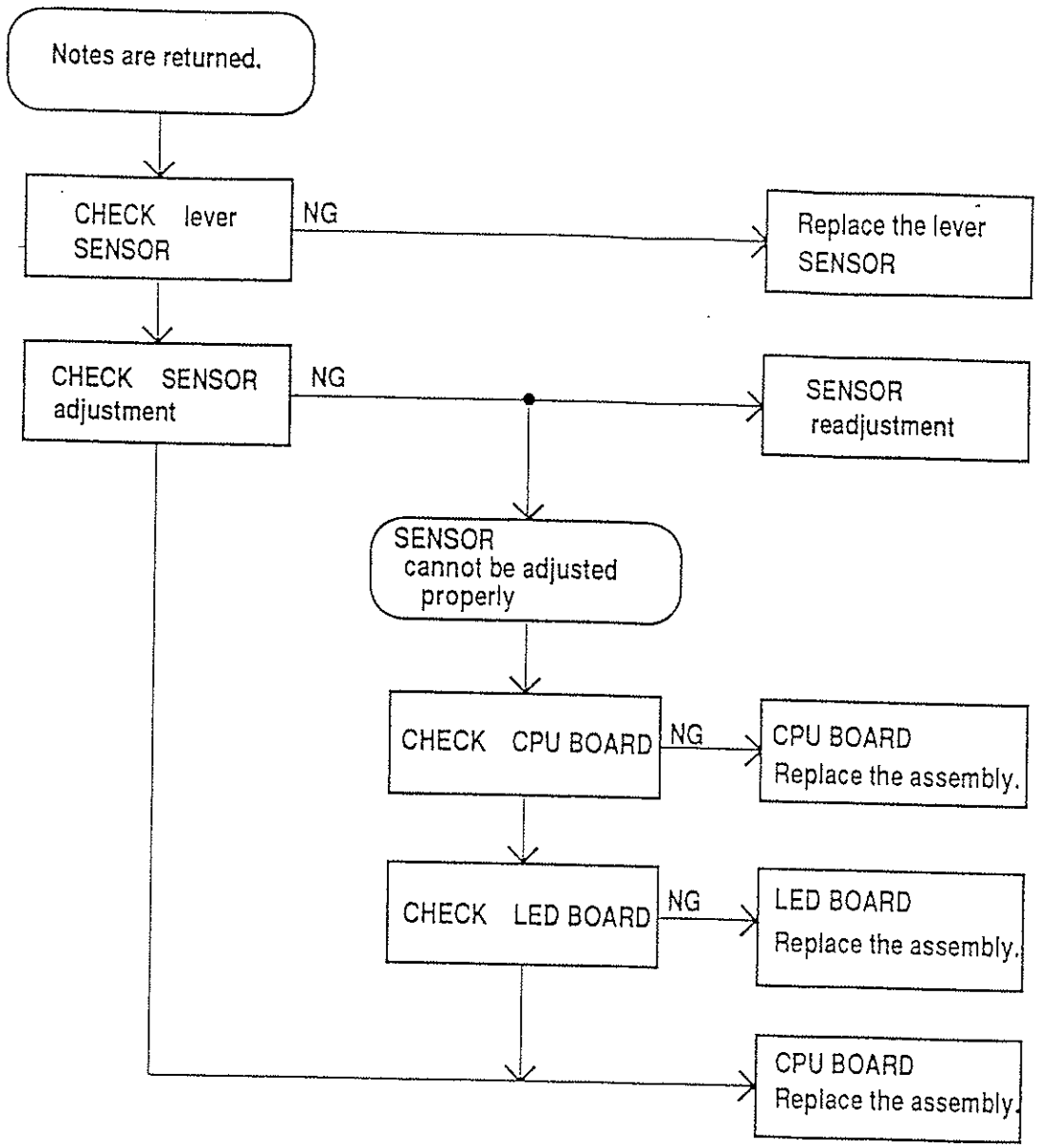

FEED MOTOR
rotates repeatedly
in the forward direction
CHECK
Lever sensor
NG
Lever operation defects
NG
Repair or replace
the lever
CPU BOARD
Replace the assembly

2. Trouble with Note Conveyance

2-1

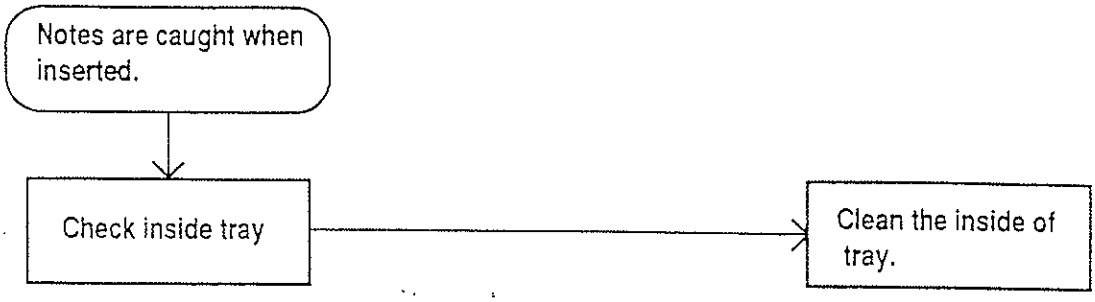


2-2

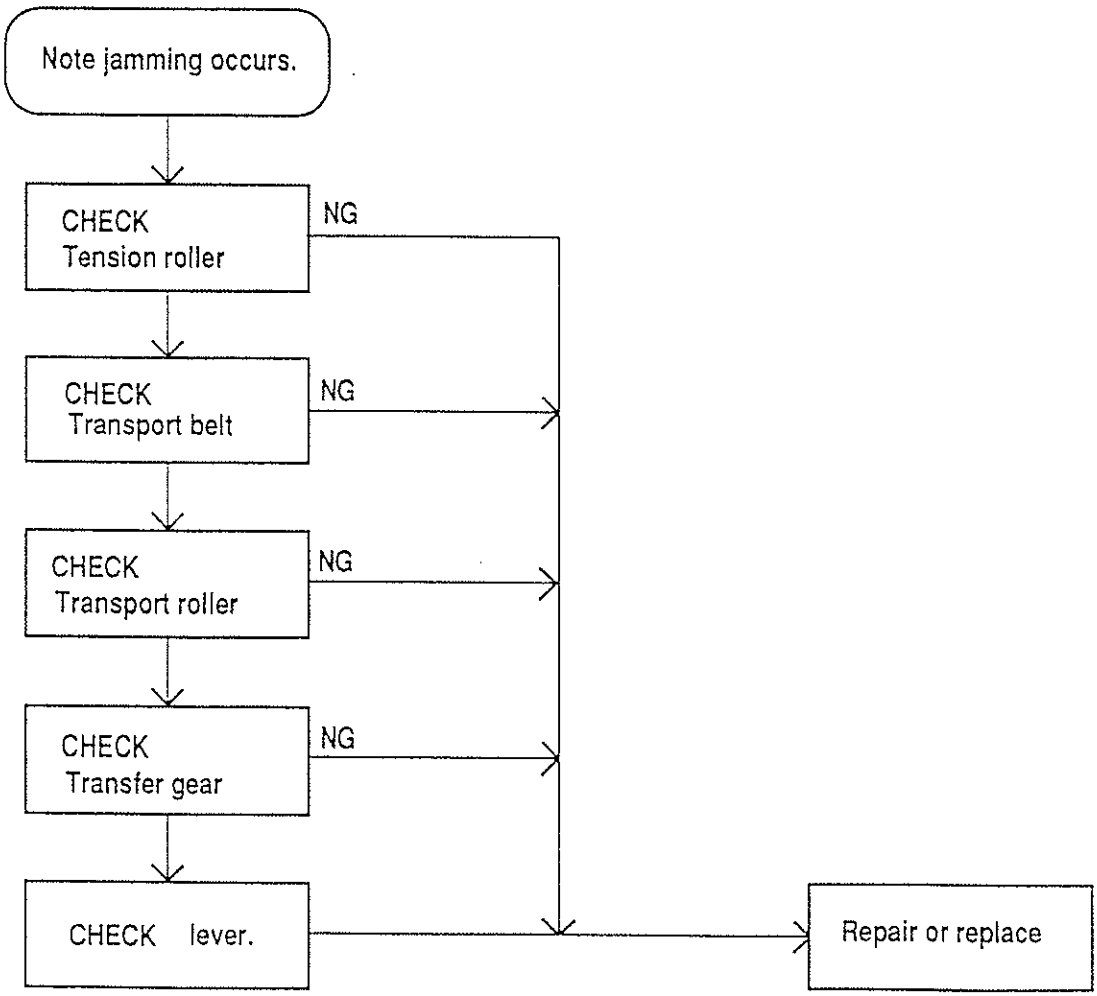

Notes are returned.
CHECK lever SENSOR
NG
Replace the lever SENSOR
CHECK SENSOR adjustment
NG
SENSOR readjustment
SENSOR cannot be adjusted properly
CHECK CPU BOARD
NG
CPU BOARD Replace the assembly.
CHECK LED BOARD
NG
LED BOARD Replace the assembly.
CPU BOARD Replace the assembly.

Trouble on Note Conveyance

3-1



3-2



U. S. Dollar Bill Acceptor

DBV-20

MODEL DBV-20

CHAPTER 5

Adjustment Manual

1. OUTLINE

The sensor of the DBA-02 acceptor is adjusted using a personal computer. Adjust the sensor according to the procedure below when the CPU and LED boards are replaced.

2. ADJUSTMENT TOOLS

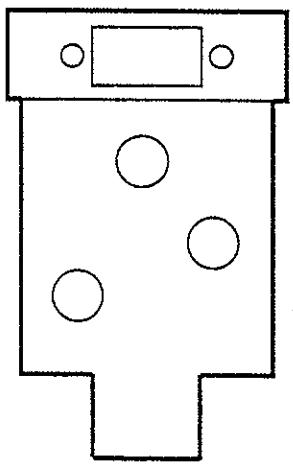
* Personal computer

  Recommended personal computer: IBM-compatible 80386 or 80486

* Interface cable

  Cable with an adaptor that converts the TTL input/output level into an RS-232C level

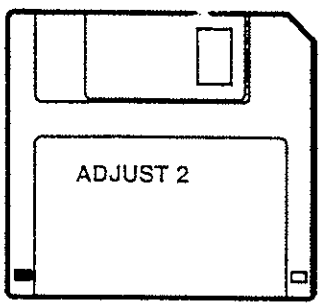
* Reference paper (KS-024)



* Dirty or damaged reference paper causes poor adjustment. Pay careful attention when storing the reference paper.

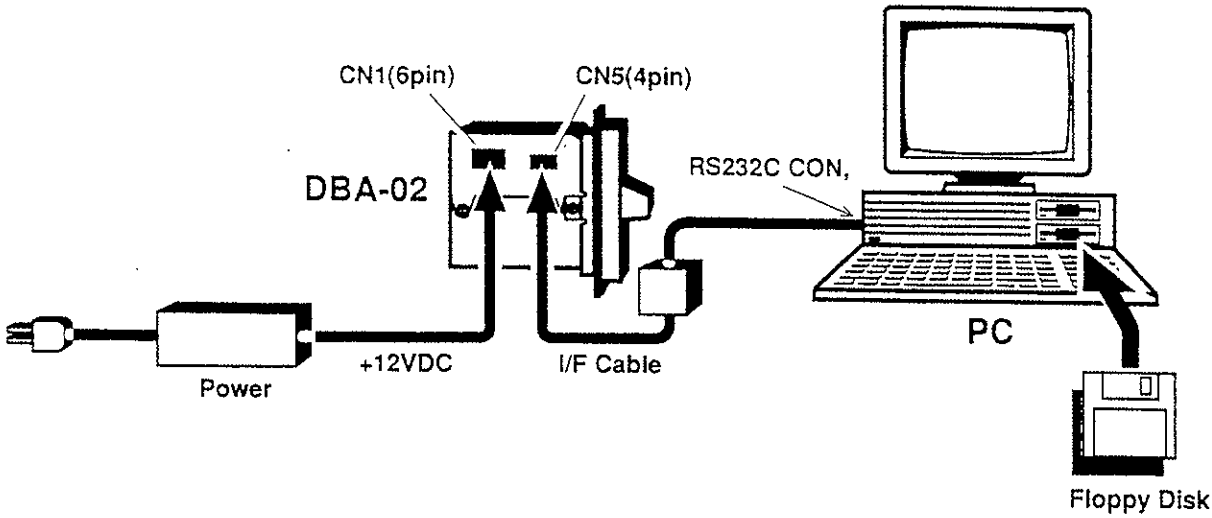
* Program file

  (ADJUST2. EXE) 3.5-inch floppy disk



3. CONNECTION DIAGRAM

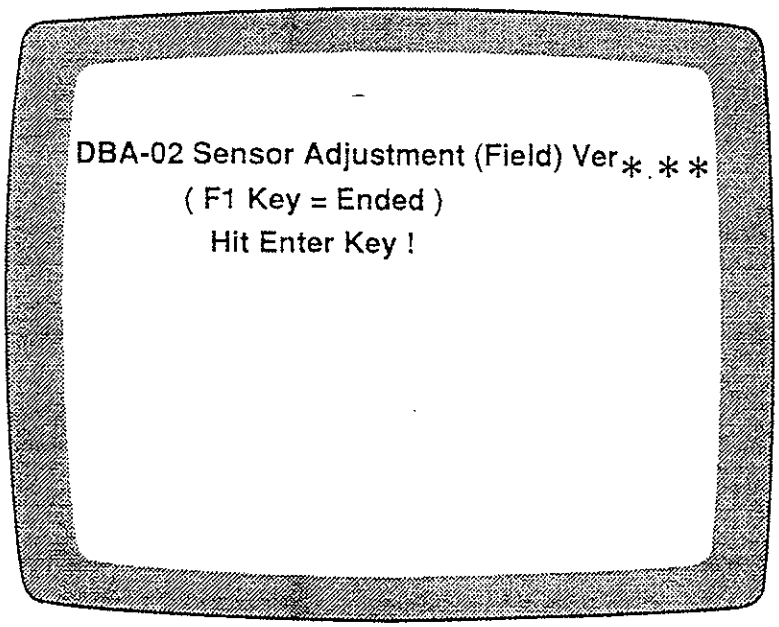
Connect each unit as shown in the connection diagram. Connect 12VDC power supply.



4. ADJUSTMENT

Set all the DIP switches of the DBA-02 acceptor to ON, then insert the power cord. Next, execute the program (ADJUST2. EXE).

* For how to run the adjustment program, see the adjust Operation Manual supplied with the disk.



(Reference screen)

*** Caution**

Do not adjust the sensor in a place with excessive light. This causes poor adjustment.

U. S. Dollar Bill Acceptor

DBV-20

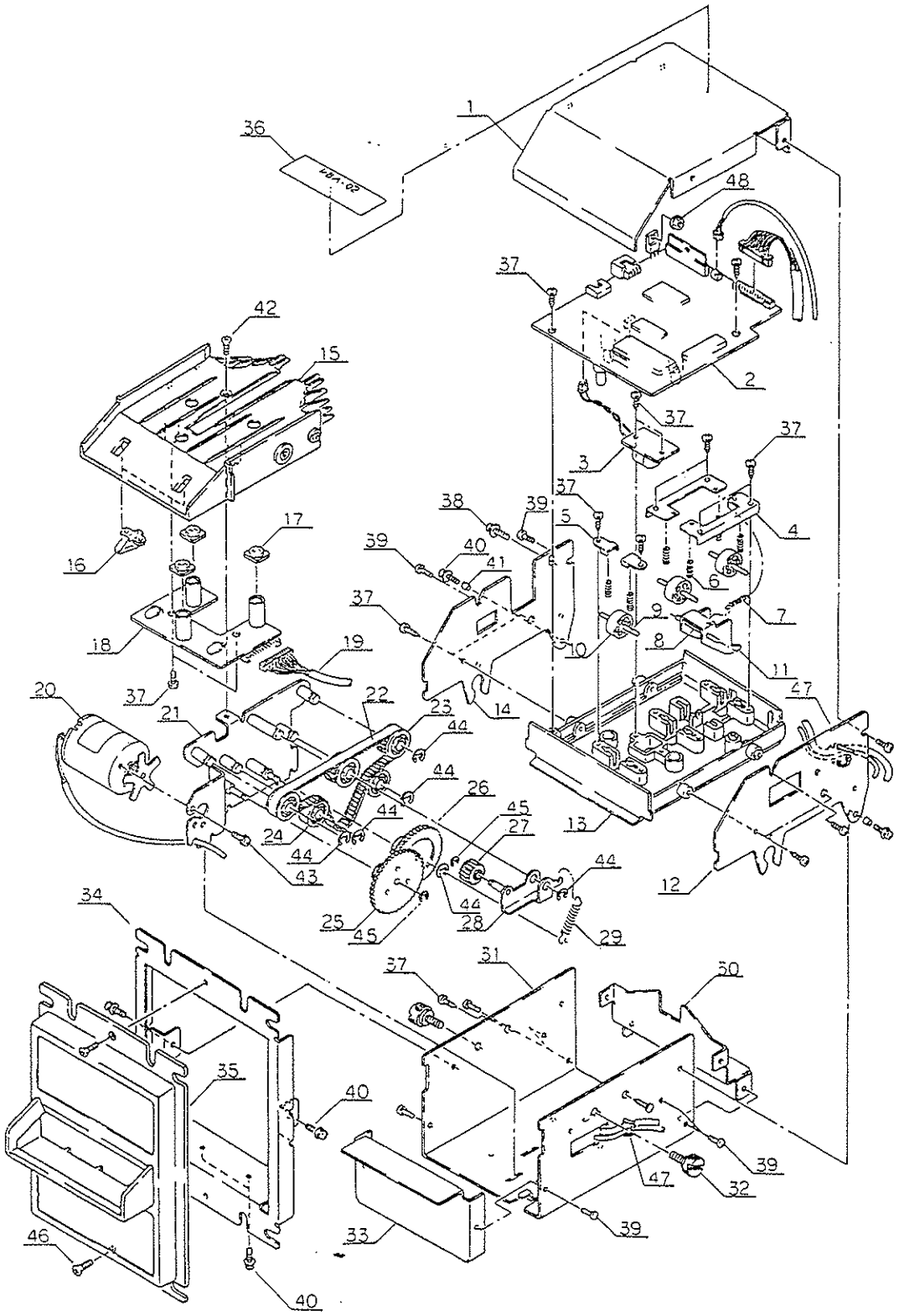
MODEL DBV-20

CHAPTER 6

Parts List

PARTS DIAGRAM

Model		Class	Entire	Draw 1/1
Date	1995.08.07	Amendment		P928-A-01



PARTS LIST

Model		Classification	Draw 1/2
Date	1994.12.06	Amendment	P928-C-01

e	Item No.	Parts No.	Item	Unit Pcs.	Unit Price ($)	UNIT and Remarks
	042368	P1-7AK10	Cover	1		
	046798		CPU base board unit	1		Part No. 928-761-06-01A
	042474		Mag base board unit	1		Part No. 875-760-06-03
	042362	P1-7AK05	Spring bracket-2	2		
	042361	P1-7AK04	Spring bracket-1	2		
	042380	CS-7AK01	Spring-1	6		
	042383	TS-7AK02	Spring-3	1		
	042378	SH2-7AK02	Pin-2	1		
	042376	SH2-7AK01	Pin-1	3		
	042352	RE-7AK08	Roller-2	3		
	042360	P1-7AK03	Lever	1		
	042367	P1-7AK09	Side plate-R	1		
	046901	928RE0102	U-Guide	1		
	042366	P1-7AK08	Side plate-L	1		
	046902	928RE0101	L-Guide	1		
	042354	RE-7AK10	Light guide	2		
	042353	RE-7AK09	Sensor cover	3		
	042475		LED base board unit	1		Part No. 875-760-06-02A
	042578	760-05-01	Harness	1		
	042502		Motor unit	1		
	042394	ASP1-7AK01	Motor bracket Assy	1		
	042385	103MXL4.8V	Timing belt	1		
	042348	RE-7AK05	Pulley-1	3		
	042350	RE-7AK06	Flange	3		
	042347	RE-7AK04	Roller-1	2		
	042344	RE-7AK02	Gear-1	1		
	042345	RE-7AK03	Gear-2	1		
	042351	RE-7AK07	Pulley-2	1		
	042392	ASP1-7AK02	Pulley arm Assy	1		
	042382	TS-7AK01	Spring-2	1		
	046904	928PT0101	Rear cover	1		
	042369	P1-7AK11	Frame	1		
	042379	SC4-7AK01	Screw	2		
	042363	P1-7AK06	Front cover	1		
	042370	P1-7AK12	Panel bracket	1		
	042359	RE-7AK15	Face plate	1		
	048945	928MA0102	Body label (UL)	1		
	042558		M2.6 × 5 Bind tapping screw, black	18		
	042478		M3 × 8 Pan head screws with double washers, large, black	1		
	014547		M2.6 × 6 Bind, black	10		
	042479		M3 × 5 Pan head screws with double washers, large, black	6		
	005828		φ3 × 2 Rolled bush	2		

PARTS LIST

Model		Classification	Draw 2/2
Date	1994.12.06	Amendment	P928-C-01

Item No.	Parts No.	Item	Unit Pcs.	Unit Price ($)	UNIT and Remarks
014548		M2.6 × 5 Counter sunk (FLAT FACE) screws	1		
003600		M3 × 5 Pan head screws	1		
042536		ϕ3 E ring	6		
042537		ϕ2 E ring	2		
003635		M3 × 6 Counter sunk (FLAT FACE) screws	2		
003279	PLT,7M	Convex	2		
014189		M3 Flanged nut	1		