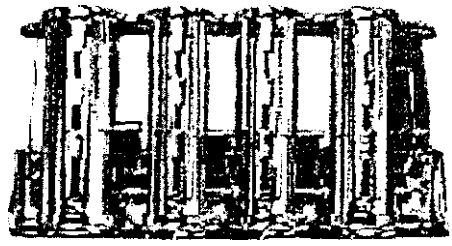


VALICHANGER
OPERATIONSMANUAL
SERIES AC6000/6001/6002

American Changer Corp.
4710 NW 15th Ave. Bldg. 5
Ft. Lauderdale, FL 33309

Parts & Service:(888)741-9840
***Sales*:(800)741-9840**
***Fax*:(954)772-5248**
*Internet Address:***www.americanchanger.com**

Table of Contents

CoinCo branches and Service centers are on the back cover of this manual.

Rev. TRPL"RC" Nov.98

Specifications

Operating voltage	120 VAC +10/-15%
Power consumpt.(controller only, add hoppers and validator) 1 Ow	
Operating temperature	32 130 degrees Fahrenheit
Interface to Hoppers	24vdc & 12vdc 1.5 amps max.
Interface to Validators	120vac .5 amps max.

Warranty

CoinCo BA30B-BA30BB Validator

The CoinCo BA30B BA30BB Dollar Bill Validator is warranted for two years from date of purchase.

COVERED

¥ Defect in workmanship or material.

NOT COVERED

¥ Damage caused by physical abuse.
¥ Misapplication.
¥ Vandalism.
¥ End users attempt, on his own to repair item.
¥ Cleaning maintenance.

It is the End User's responsibility to follow cleaning maintenance procedure outline on page B-2. Any unit coming in for repair requiring only a cleaning will be charged a flat rate of $35.00 plus shipping and handling.

Dispensing System and Logic Board

The dispenser and logic boards are warranted for one year from date of purchase,

COVERED

¥ Defects caused by material or workmanship.

NOT COVERED

¥ Damage caused by physical abuse.
¥ Misapplication.
¥ Vandalism.
¥ End Users attempt, on his own to repair.

A Return material authorization number (RMA#) must be obtained before returning a unit for repair. A copy of invoices must accompany any and all warrantee work.

UNCRATING AND SET-UP

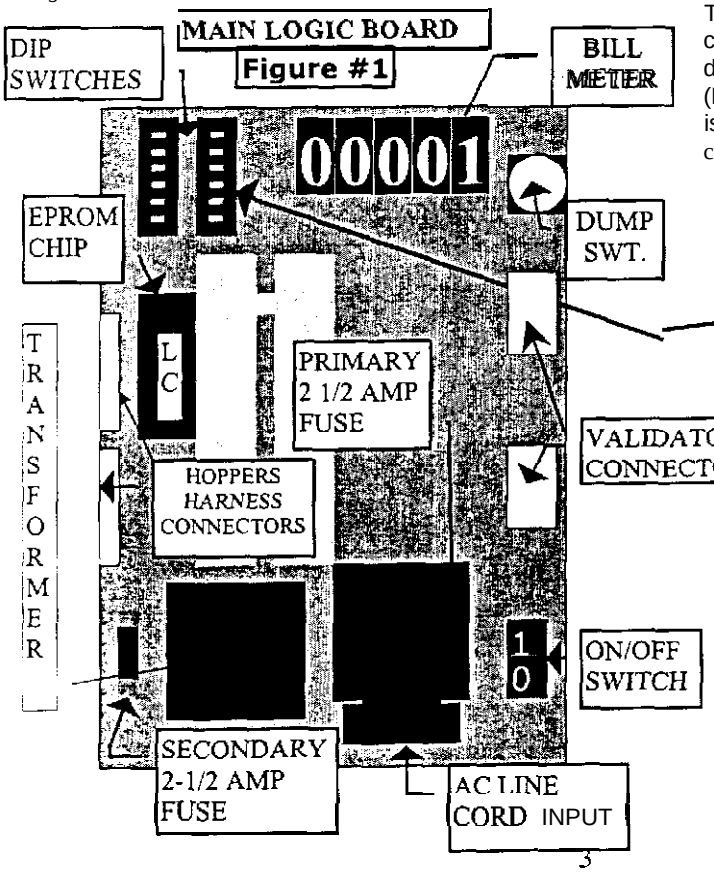
Remove your Series AC6000-6002 changer from the shipping box. Open the door. *(The T-handles are a* screw-in *type and therefor, must be turned at least 10 times counter-*clockwise *until it opens.)* Inspect for any connectors or components that may have been dislodged during shipping. The lock and keys for your changer will be inside the manila envelope along with this manual. To install the lock, *insert* the cylinder into the round hole in the middle of the T-handle and push until *it stops. Now* turn the key and lock until you hear it "snap." Turn the key counter-clockwise ¼ turn and remove the keys.

KOTE: **The only way to get a duplicate set of keys made is to save the red tag that comes between the keys. This ID # starts with ACC _____**

TEST:
Before permanently installing the changer, do a functional test to verify that there is no shipping damage to your new *changer(s).*

Extend the power cord through the hole in the back of the changer or the bottom and plug it into a *grounded* ***120vac outlet***. The dip switches are already set for a 4 coin per dollar pay-out of the hoppers, and the Bill validator is ready to accept **$1-$5-$10-$20** dollar bills.

Fill tbe each hopper with at least 100 coins. On the main logic board rum the switch on the bonom right corner "ON". (SEE FIG. 1 ON PG.3) *The rocker switch has a "I" and "0" printed on it. When the "1" is pressed down the changer is "ON".*



FILLING THE HOPPERS

When each hoppers has less than 80 . 100 coins left the red "Empty" LED will light on the front of the changer. If you have disconnected your LED make sure the orange wire is going to the terminal on the LED that has the red positive mark next to it. Whenever the "Empty" LED is "ON" the validator is disabled and it will no longer accept bills.

1. Turn OFF the power on the main logic board.
2. Pour the coins into the large opening in the funnel on the top. *There must be at least enough coins to cover the two gold plates at the bottom of the hoppers.* (Somewhere between 160 and 17,000 coins minimum to maximum.)
3. Turn "ON" the power switch. The "Empty" LED is now off and the bill validator is ready to accept bills.

USING THE DUMP MODE TO EMPTY THE HOPPERS

1. Open the cabinet door.
2. Turn OFF the POWER switch.
3. Place a suitable container in front of the hoppers to catch the coins.
4. Press and hold the "DUMP" button on the upper right corner of the Main Logic Board. Turn ON the Power switch. The red LED numbers on the main logic board will come on all "88888's" then go all "00000's". Once the red "00000's" light up, release the "DUMP" button. If it is not released within two seconds, the "DUMP" mode is canceled as a security feature.
5. The hoppers will dispense coins until the POWER switch is turned OFF. If the red LED numbers are not counting up rapidly on the Main Logic Board's display the dump mode was not accessed. Please try again.

THE DIP SWITCHES

The AC6000-6002 series changer is capable of dispensing coins in different pay out modes. Setting the coins out per dollar is controlled by which Dipswitches turned "ON." (Refer to figure 1 for their location.) For example. switch #2 is "ON" on both dipswitches; therefor the payout equals 4 coins per dollar. Two coins per hopper for one dollar.

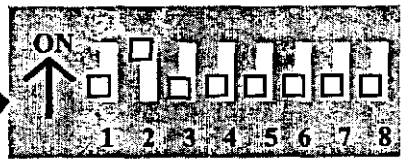


FIGURE 2
IS NOT *THE DIPSWITCH BANK FOR SETTING* ***THE*** *BILL DENOMINATIONS.*
(For those dip switches go ***to*** *page IO.)*

DIPSWITCH OPTION SETTINGS

Mode	I Want My Coin Hoppers to Dispense.....	Left Dip Switch 1	2	3	4	5	6	7	8	Right Dip Switch 1	2	3	4	5	6	7	8
#0	4 Quarters per dollar	O	C	O	O	O	O	O	O	O	C	O	O	O	O	O	O
#1	4 Tokens with a bonus payback in $1 incr. (Bill Meter counts in $1's.)	O	O	C	O	C	O	O	O	(See bonus table.							
#2	$1.00 SBA's, Looney's or Tokens and quarters.	O	O	O	O	O	C	O	O	C	C	O	O	O	O	O	O
#3	5 nickles then the balance in quarters.	O	O	C	O	C	C	O	O	O	O	O	O	O	O	O	O
#4	Tokens valued between $1.25 - $15.75 the balance paid in quarters	O	O	O	O	O	O	C	O	Set by $.25 increments							
#5	Tokens valued in even $1.00 incr. Alternating hopper pay-out.	O	O	O	O	C	O	C	O	Set in $1 increments							
#6	4 Tokens with a bonus payback in $1 incr. (Bill Meter counts in $.25)	O	O	C	O	O	C	C	O	See bonus table.							
#7	Nickles ONLY paid out of both hoppers, with quarter acceptor.	O	O	O	O	C	C	C	O	O	O	O	O	O	O	O	O
#8	4 Tokens with a bonus payback in $1 incr . (Bill Meter counts in $1's.)	C	C	C	O	O	O	O	C	See bonus table.							
#9	4 Quarters per dollar with 5 - 10 & 25 Cent Coin Acceptor.	C	C	C	C	C	C	C	C	See bonus table.							
#10	4 Tokens with a bonus payback in $.25 incr. (Bill Meter counts in $.25)	O	O	C	O	O	C	O	C	(See bonus table.							

BONUS PAY-OUT TABLE

ALL CALCULATIONS ARE BASED ON THE TOTAL COINS YOU SET FOR THE $1.00 BILL

For Mode #8, disregard the $ sign. (I.e. $2 = 2 tokens not $2 in tokens.)

THE FOLLOWING BONUS OPTIONS ARE CONTROLLED BY THE RIGHT DIP SWITCH ONLY!!

"NO" MEANS "NO BONUS" FOR THIS BILL.

RIGHT SWT "ON"	Bonus Total $5	$10	$20
5	NO	NO	$1
6	NO	NO	$2
5-6	NO	NO	$3
7	NO	NO	$4
5-7	NO	NO	$5
6-7	NO	NO	$6
5-6-7	NO	NO	$7
3	NO	$1	$2
3-5	NO	$1	$3
3-6	NO	$1	$4
3-5-6	NO	$1	$5
3-7	NO	$1	$6
3-5-7	NO	$1	$7
3-6-7	NO	$1	$8
3-5-6-7	NO	$1	$9
4	NO	$2	$4
4-5	NO	$2	$5
4-6	NO	$2	$6
4-5-6	NO	$2	$7
4-7	NO	$2	$8
4-5-7	NO	$2	$9
4-6-7	NO	$2	$10
4-5-6-7	NO	$2	$11
3-4	NO	$3	$6
3-4-5	NO	$3	$7
3-4-6	NO	$3	$8
3-4-5-6	NO	$3	$9
3-4-7	NO	$3	$10
3-4-5-7	NO	$3	$11
3-4-6-7	NO	$3	$12
3-4-5-6-7	NO	$3	$13
1	$1	$2	$4

RIGHT SWT "ON"	Bonus Total $5	$10	$20
1-5	$1	$2	$5
1-6	$1	$2	$6
1-5-6	$1	$2	$7
1-7	$1	$2	$8
1-5-7	$1	$2	$9
1-6-7	$1	$2	$10
1-5-6-7	$1	$2	$11
1-3	$1	$3	$6
1-3-5	$1	$3	$7
1-3-6	$1	$3	$8
1-3-5-6	$1	$3	$9
1-3-7	$1	$3	$10
1-3-5-7	$1	$3	$11
1-3-5-6-7	$1	$3	$12
1-4	$1	$4	$8
1-4-5	$1	$4	$9
1-4-6	$1	$4	$10
1-4-5-6	$1	$4	$11
1-4-7	$1	$4	$12
1-4-5-7	$1	$4	$13
1-4-6-7	$1	$4	$14
1-4-5-6-7	$1	$4	$15
1-3-4	$1	$5	$10
1-3-4-5	$1	$5	$11
1-3-4-6	$1	$5	$12
1-3-4-5-6	$1	$5	$13
1-3-4-7	$1	$5	$14
1-3-4-5-7	$1	$5	$15
1-3-4-6-7	$1	$5	$16
1-3-4-5-6-7	$1	$5	$17
2	$2	$4	$8
2-5	$2	$4	$9

RIGHT SWT "ON"	Bonus Total $5	$10	$20
2-6	$2	$4	$10
2-5-6	$2	$4	$11
2-7	$2	$4	$12
2-5-7	$2	$4	$13
2-6-7	$2	$4	$14
2-5-6-7	$2	$4	$15
2-3	$2	$5	$10
2-3-5	$2	$5	$11
2-3-6	$2	$5	$12
2-3-5-6	$2	$5	$13
2-3-7	$2	$5	$14
2-3-5-7	$2	$5	$15
2-3-6-7	$2	$5	$16
2-3-5-6-7	$2	$5	$17
2-4	$2	$6	$12
2-4-5	$2	$6	$13
2-4-6	$2	$6	$14
2-4-5-6	$2	$6	$15
2-4-7	$2	$6	$16
2-4-5-7	$2	$6	$17
2-4-6-7	$2	$6	$18
2-4-5-6-7	$2	$6	$19
2-3-4	$2	$7	$14
2-3-4-5	$2	$7	$15
2-3-4-6	$2	$7	$16
2-3-4-5-6	$2	$7	$17
2-3-4-7	$2	$7	$18
2-3-4-5-7	$2	$7	$19
2-3-4-6-7	$2	$7	$20
2-3-4-5-6-7	$2	$7	$21
1-2	$3	$6	$12
1-2-5	$3	$6	$13

RIGHT SWT "ON"	Bonus Total $5	$10	$20
1-2-6	$3	$6	$14
1-2-5-6	$3	$6	$15
1-2-7	$3	$6	$16
1-2-5-7	$3	$6	$17
1-2-6-7	$3	$6	$18
1-2-5-6-7	$3	$6	$19
1-2-3	$3	$7	$14
1-2-3-5	$3	$7	$15
1-2-3-6	$3	$7	$16
1-2-3-5-6	$3	$7	$17
1-2-3-7	$3	$7	$18
1-2-3-5-7	$3	$7	$19
1-2-3-6-7	$3	$7	$20
1-2-3-5-6-7	$3	$7	$21
1-2-4	$3	$8	$16
1-2-4-5	$3	$8	$17
1-2-4-6	$3	$8	$18
1-2-4-5-6	$3	$8	$19
1-2-4-7	$3	$8	$20
1-2-4-5-7	$3	$8	$21
1-2-4-6-7	$3	$8	$22
1-2-4-5-6-7	$3	$8	$23
1-2-3-4	$3	$9	$18
1-2-3-4-5	$3	$9	$19
1-2-3-4-6	$3	$9	$20
1-2-3-4-5-6	$3	$9	$21
1-2-3-4-7	$3	$9	$22
1-2-3-4-5-7	$3	$9	$23
1-2-3-4-6-7	$3	$9	$24
1-2-3-4-5-6-7	$3	$9	$25

Another way to look at the Bonus pay out mode is as follows:

The bonus is paid out by the amount of tokens given for a **dollar.** For the below explanation we will say you are giving 4 tokens per dollar. Left dips #3-#6-#7 is ON.

For a $5.00 bonus payout:	Right dipswitch #1	#2
20 tokens + no bonus	OFF	OFF
20 tokens + 4 extra tokens	ON	OFF
20 tokens + 8 extra tokens	OFF	ON
20 tokens + I2 extra tokens	ON	ON

For the $10.00 bonus pay first double the pay out for the $5 bill. So if the total tokens given for the $5 bill was 24, the pay out for the SIO bill is 48 tokens. Now let's figure out the bonus for the $10 bill.

For a $10.00 bonus payout:	Right dipswitch #3	#4
$5 pay out + no bonus	OFF	OFF
$5 pay out + 4 extra tokens	ON	OFF
$5 pay out + 8 extra tokens	OFF	ON
$5 pay out + 12 extra tokens	ON	ON

For a 520.00 bonus payout:	Right dipswitcb #5	#6	#7
$10 pay out + no bonus	OFF	OFF	OFF
$10 pay out + 4 extra tokens	ON	OFF	OFF
$10 pay out + 8 extra tokens	OFF	ON	OFF
SIO pay out + I2 extra tokens	ON	ON	OFF
$10 pay out + 16 extra tokens	ON	OFF	ON
S IO pay out + 20 extra tokens	OFF	ON	ON
$10 pay out + 24 extra tokens	ON	ON	ON

The following table shows how to set the dip switches to your desired payout.

"ON"	COINS PER DOLLAR
#I	1
#2	2
#3	4
#4	8

If you want to dispense 5 dimes and 2 quarters per dollar turn "Oh"' switches #2 on the left and #land #3 on the right dip switch. (2 quarters + 5 dimes = $1 .OO)

*The **left** dipswitch controls the **left** hopper'spay **out and** the right dipswitch controls the right **hopper's pay out.***
Refer to the next table to set up your changer for the settings you need.

FUSES

Hieh **voltage** fuse: This is the primary transformer AC fuse for the main logic board and the validator. Any direct short of the Transformer or validator will cause this fuse to blow. Replace this fuse with a 2-½ amp AS fuse only. *REPLACING THIS FUSE WITH ANYTHING OTHER THAN A 2½ AMP 'AS" MAY RESULT IN A **FIRE** OR AN UNSAFE WORKING CONDITION!! (See* fig. 1 for location of this fuse.)

Low **voltage** fuse: This is the secondary transformer fuse for the 5 28 vdc sections of the main logic board and hoppers. It is located to the left of the transformer. (See fig. 1) Replace this fuse with a 2-½ amp AS fuse only. *REPLACING THIS FUSE WITH ANYTHING OTHER **THAN** A 2½ AMP **"AS"** MA Y **RESUL** T IN A **FIRE** OR AN UNSAFE WORKING CONDITION!!*

Coin Control **Hopper MKIV**

Three green LED indicators are fitted on the hoppers and are visible in the section where the coins exit the hoppers. From left to right these are designated as follows:

1. Logic power supply on (12 & 24vdc present).
2. Security optical obstruction indicator -. Should be "on" when unit is OK.
3. Output indicator, indicates coin passing photo-sensor. *This* is the optical sensor the *coin will* obstruct on its way out of the hoppers. For normal operation LED # 3 will be off until coins are dispensed.

Coin/Token Sizes

The hoppers will automatically adjust to dispense coins/tokens in size from 20-30 mm in diameter and 1.25 3.5 mm in thickness.

There is an option available to dispense smaller *coins.*

A nickel is approximately 21mm, a quarter *is* approximately 25mm. A Susan B. Anthony is 28mm

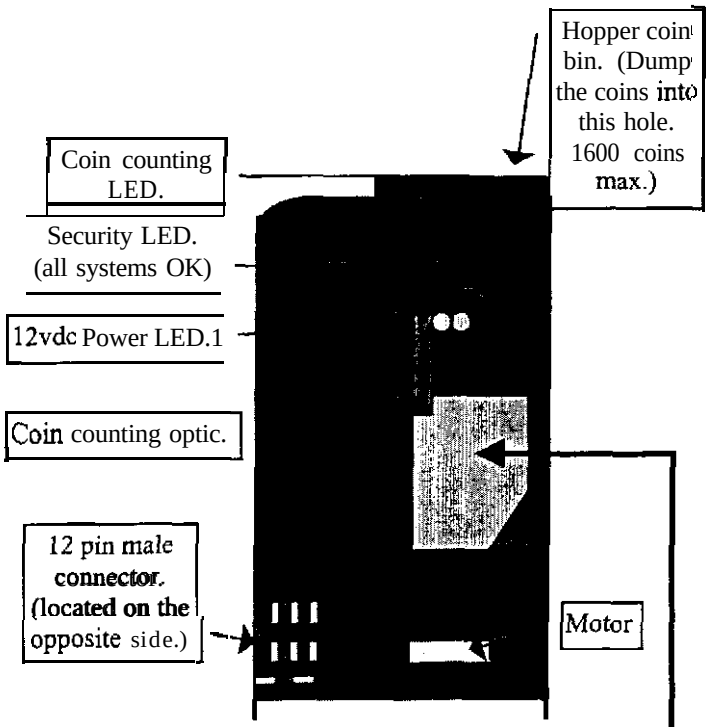
Indicator Lights

***Main** Logic **Board**:*

1. Green LED on: AC power applied to the logic board. All fuses are good.
2. Decimal Point:
   A. Heartbeat 5 and12vdc present. The changer is in standby waiting for a bill pulse.
   B. On Steady Out of service, Hopper error detected.

***Validator logic** board:*

1. Red LED
   A. On Steady Standby Mode, waiting for bill insertion.
   B. Flashing - Error mode, go to page for error code information.
   C. Off - The changer "Empty" LED is lit.



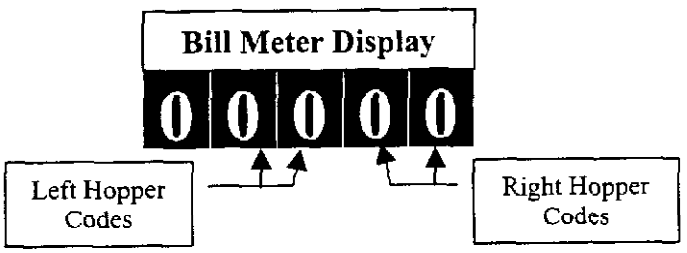
The right & left hopper has a removable coin chute installed. Replacement hoppers are not sent with this coin chute. (P#AC2010-10 & 2010-11)

LOGIC BOARD ERROR CODES

We now have the ability to display error codes in dealing with the problems associated with the changer. There are 2 different locations error codes can be displayed depending on the source of the problem.

If the "Empty" LED on the outside of the changer is lit:

I. Press and hold in the "Dump" button on the main logic board.
2. The display now shows the code for your problem.



Error Codes
01 = Low Coin
02 = Coin exit window is blocked
04 = Under-payment was detected
10 = Over-payment was detected and prevented. (Jackpot condition)

A "03" error code is a low coin and exit blocked in the same hopper.

Functional Description of the Series AC6000-6002 Changer

To follow along with this walk-through of your changer, fill the hoppers with coins and turn the changer on.

1. When power is applied the validator will cycle twice, the out-of-service LED flashes then goes out, the green LED on the main logic board comes on steady, and the decimal point on the main logic board number display will flicker on once per second in the standby mode.
2. During the power-up mode the main logic board relay clicks twice enabling power (120vac) to the validator. When this relay is not enabled it routes 12vdc ground to the out-of-service LED. Without power to the validator the changer cannot accept hills. Since we are not in the error mode, the red LED on the validator logic board is on steady.
3. When a bill is inserted into the validator bill slot, the bill will be pulled inside. The validator then compares what the bill looks like to its memory. After the hill is validated it grounds the 5vdc lines causing a pulse along the yellow and blue validator harness wires to pins 5 and I5 of the main logic board. Each pulse stands for the amount of the denomination validated. (i.e. 1 pulse for $ I, 5 pulses for $5).
4. The 5vdc pulse then travels from pins 5 and 15 to the EPROM chip (ver. TRPL-L) pin #25. The EPROM sends a 12vdc pulse to the meter chip (U5) out pins #21 & 22 (one pulse per denomination validated).The EPROM also multiplies the bill pulse by the DipSwitch settings (The EPROM reads the DipSwitch settings during the power up mode and stores them into memory.)
6. The EPROM then sends the hopper pulses out pin #23 to pins 6 and 7 of the red 12 pin hopper plugs. These pulses travel through the purple and brown wires of the hoppers wire harness to the hoppers pins 8 and 12.
1. The hopper turns itself on with the first hopper pulse. The hoppers counts the hoppers pulses sent from the EPROM chip on IN3 (pin 12) while dispensing the coins at the same time. When the amount of hoppers pulses in equals the coins dispensed through the coin counting optical sensor the hopper turns itself off.
8. The Changer returns to the standby mode with the decimal point flashing once per second until another bill is inserted.

NOTE: THE METER ON THE MAIN LOGIC BOARD CANNOT BE RESET TO ZERO!!!

Functional Descriptions of Out-of-Service Conditions

Out-of-Service conditions occur for the Series AC6000-6002 changer for the following reasons: low coins, hopper fault error, validator fault, or a blown fuse.

1. Blown Fuse: an AC power spike in line voltage or a had transformer on the main logic board can cause A blown fuse on the main logic board. If either fuse blows the indication is the green LED on the main logic hoard will not light.
   A. Replace the fuse. If the green LED now lights then there was a spike.
   B. If it does not and the fuse blows again the power transformer is shorted. To test the transformer use a voltmeter set for ohms and measure across the primary (400hms) and the secondary (1.5ohms).
2. Hopper Fault: A hopper fault can either be a jammed hopper, a blocked *coin counting* optic or a bad hopper logic board.
   A. Indications for a jammed hopper are the changer accepts bills, the meter counts up, but nothing or not enough coins are paid out.
      1. After 2 minutes the EPROM shuts off the validator if the coins are not paid out correctly. The "Empty" LED will flash once per second.
      2. At this point the three options open are to attempt repair on your own, call your distributor, or return the defective hopper to American Changer.
   B. Indications for a blocked coin optic or bad hopper logic board arc the out-of-service LED on the outside of the changer is lit and the red LED on the main logic board is lit and flickers off once per second.
      1. If two of the 3 green LED's on hopper logic hoard are lit then the hopper logic hoard *is* bad.
      2. If there is a coin or foreign object caught in the coin exit window LED's #I and #3 will he lit on the hopper logic board instead of LED's #I and #2.
         a. Take off the side of the hopper with the 5 Philips screws. Pull up on the

exit window logic board and look for the jammed item.

b. Ensure you have the pins aligned before reconnecting logic board.

3. **Validator** Fault: When a validator fault occurs the validator's EPROM shuts down the validator and flashes an error code via the red LED on the validator logic board. When there is no error this LED is on steady. The validator only gives bill pulses to the main logic board so the main board never knows if the validator isn't functioning. Therefore the out-of-service-**LED** will not light. (See page 7 for validator error codes.)

4. **Low** Coins: The low coin condition is probably the most common fault. The EPROM on the main logic board is constantly checking for low coins in the hoppers. This is done with a low current 5vdc signal on pin #3 of the hopper's output connector. The voltage then travels down the hopper's wire harness on the white wire to pin #7 of hopper's plug. The signal is applied to one of the gold low contact plates at the bottom of the hoppers. The 5v travels through the coins through the other contact gold plate to hopper's pin #2. It then goes through the black wire in the hopper's harness to pin #10 on the main logic board. Any interruption of more than 1/2 a second will cause an out-of-service condition.

   A. Clean the bottom gold plates of the hoppers with steel wool or fine sandpaper. Refill the hoppers and try again.

   B. Check continuity, (0 ohms) resistance, from pins 3 (white) and 10 (black) of the red hopper harnesses. Make sure both hoppers are full and the changer is turned off.

      1. If the continuity is 0 ohms, replace the main logic board.

   C. Pull the hoppers out of the changer, then look at the 12 pin black male connector that sticks out of the hoppers. Place the continuity checker's leads on pins 2 & 7.

      1. If the continuity is 0 ohms, replace that hopper's plate or adjust the hopper's plate female socket's pins so that they are not so spread out.

      2. If the continuity is infinity, then replace that hopper.

WIRE **HARNESS** COLOR AND DEFINITIONS

Validator harness:

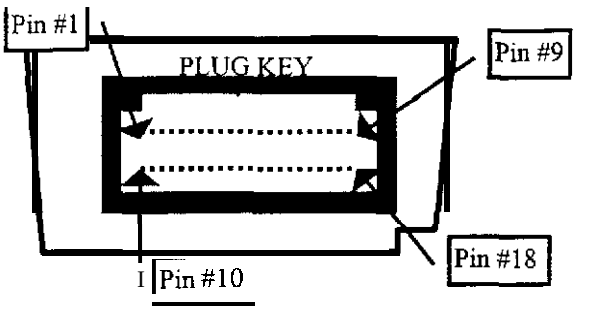
Red Switched Hot IZOVAC.
White - Neutral IZOVAC.
Black - 120VAC Low current validator enable.
Yellow +5vdc credit pulse line.
Blue - -5vdc credit pulse line.
orange - +12vdc Empty LED.
Brown -12vdc Empty LED.

Hopper ***Harness***

Gray Coin counting optic status line.
White. Low coin sense (+5vdc).
Green Coin counting optic pay out feedback line.
Yellow - Raw sensor output line.
Purple - Hopper pay out line from main logic board (+),
Brow Hopper pay out line from main logic board (-).
Red - +12vdc logic board supply voltage.
Black(s) -12v, 24v low coin sense ground.
Orange +24vdc Motor supply voltage.

VALIDATOR INTERFACES

18 PIN INTERFACE CONNECTOR DETAILS



Interfacing the Man 2501 **Series with the ValiChanger**

S-Position Switch
1 off
2 on
3 off
4 on
5 off
6 an
1 off
8 off

No change is required to the 18-pin connector.

Ensure the black & yellow wires go to a wire nut and the green & white go to the other wire nut

CoinCo BA30 Flash Codes

Flash codes l-6 may appear during normal servicing of the BA30. To access flash codes 7-18, open bill box lid and remove power from the BA30 for 10 **seconds. Reapply power to** BA30 with bill box lid open. Flash codes 7-18 will now appear for respective error or condition detected in the BA30. If more than one error or condition exists, the lower number flash code will appear until its respective error or condition is corrected. The left and right sensors referenced below are given viewing the BA30 from the front.

#of Flashes	Description of Flash Codes
1	Bill box full
2	Bill box lid is open or bill box is off
3	Check bill path'
4	All bill accept switches are off
5	Bill jam or sensor error
6	Stacker motor/home sensor
7	Transport motor/encoder sensor

For ***higher error codes or any other service problems call our service*** *department toll free at:*

(888)741-8940

BA30B(B) CLEANING **IF ANY OF THESE PROCEEDURES ARE PERFORMED TO YOUR VALIDATOR AFTER IT IS RETURNED UNDER A WARRANTY REPLACEMENT, YOU WILL BE SUBJECTED TO A $35.00 LABOR FEE.**

BA30B CLEANING AND **MAINTENANCE:**

Note: *Petroleum-based cleaners and freon-based propellants can* ***damage plastic and some*** *electronic components.* ***Scouring*** *pads* ***and*** *stiff* ***brushes may harm the protective*** *conformal* ***coating on*** *the* ***circuit*** *boards and can mar the plastic.* ***These items should never be used when cleaning the BA30 bill*** *acceptor.*

The BA30 should be cleaned every 7,000 bills or every 4 - 6 months (or as needed, depending on the environmental auditions of the **location).** ***Dust can be removed with a*** soft brush or cloth or it can be blown out using compressed air.

Procedure:

1. Disconnect power from the bill acceptor.
2. Remove the bill box and use a soft cloth to wipe the dust from around the intermediate frame and stacker plate.
3. Remove the lower track.
4. Using compressed air or a soft brush, blow or brush the dust off of the optic sensors and out of the recessed sensor openings.
5. Remove dust from around the belts and wheels on the lower housing and the sensors on the upper sensor board. The upper sensors are located directly above the lower housing sensor when the lower housing is installed.
6. The bill path can be cleaned to remove further din and oil using a soft cloth moistened with a mild soap and water solution.
7. Clean the magnetic head using a swab and isopropyl alcohol.
8. Once the lower housing is dry, place if back into the mainframe so that the tab on the bottom locks into place.
9. Blow the dust out of the encoder wheel and its sensors. (It may be necessary to extend the stacker plate to access the encoder wheel. Supplying power to the unit momentarily can do this, so that the stacker plate extends.)
10. Remove dust from the transport belt areas and from any other places of build up.
11. Remount the bill box.
12. Apply power and insert bills to verify that the unit is functioning property.

BA30 CLEANING PROCEDURE FOR SALT WATER POLLUTED UNITS:

Note: ***Petroleum-based cleaners*** *and freon-based propellants* ***con*** *damage* ***plastic and some electronic components. Scouring pads*** *and stiff brushes may* ***harm the protective*** *conformal coating* ***on the*** *circuit* ***boards and*** *can mar* ***the plastic. These*** *items* ***should*** *never be used* ***when*** *cleaning* ***the BA30 bill*** *acceptor.*

Procedure:

1. Remove power from the bill acceptor.
2. Remove the bill acceptor from the vending machine.
3. Open the bill box lid and verify that the stacker plate is in the stand-by/home position. If it is not in the home position, apply power and observe that the stacker plate returns home.

Warning: *If moisture is present, allow the unit to dry* ***thoroughly*** *before applying* ***power*** *to* ***avoid*** *possible* ***shock*** *hazard. If the stacker plate* ***does*** *not return* ***to the home position, remove power and*** *carefully remove* ***the bill box to ovoid damaging*** *the* ***bill box and/or*** *stacker plate.*

4. Remove the lower housing.
5. Remove the bottom cover from the lower housing.
6. Run hot water (1101/4-1401/4F) over the lower housing from the top and bottom. Using a soft brush, gently clean any residual salt. Use a soft absorbent cloth to clean ***any*** residue off the lower housing. If the transformer gets wet, allow the unit to dry for 24 hours before applying power.
7. Remove the front mask. Using hot water and a soft brush, clean the front mask, upper sensor board, main frame anti-pullback levers and position sensor mount.

Caution, ***The motors*** *are* ***not*** *protected from* ***water, therefore*** *the* ***unit*** *must* ***be held in*** *a* ***manner that prevents*** *water from running over the intermediate frame* ***crossbar.***

8. Remove *the* ***position*** *sensor cover* ***on the crossbar and*** *carefully lift the LED from* ***its mount.*** *(Early* ***models only.)***

Caution: Protective coating on the LED leads should nor be *damaged. Clean* ***all*** *salt* ***residue from the mount.*** *sensor* ***hole*** *and* ***detector*** *area.*

The detector con be seen through the sensor hole, and is *located* ***in the chassis. Replace*** *the* ***position sensor cover.*** *(Early models* ***only.)***

9. Verify that the anti-pullback levers move freely and that the spring returns them to their open position.

IO. Allow the unit to dry thoroughly.

11. Clean the magnetic head using a swab and isopropyl alcohol.

I?. Replace the front mask

13. Replace the lower housing cover.

14. Replace the lower housing into the main frame.

15. Remount the bill box.

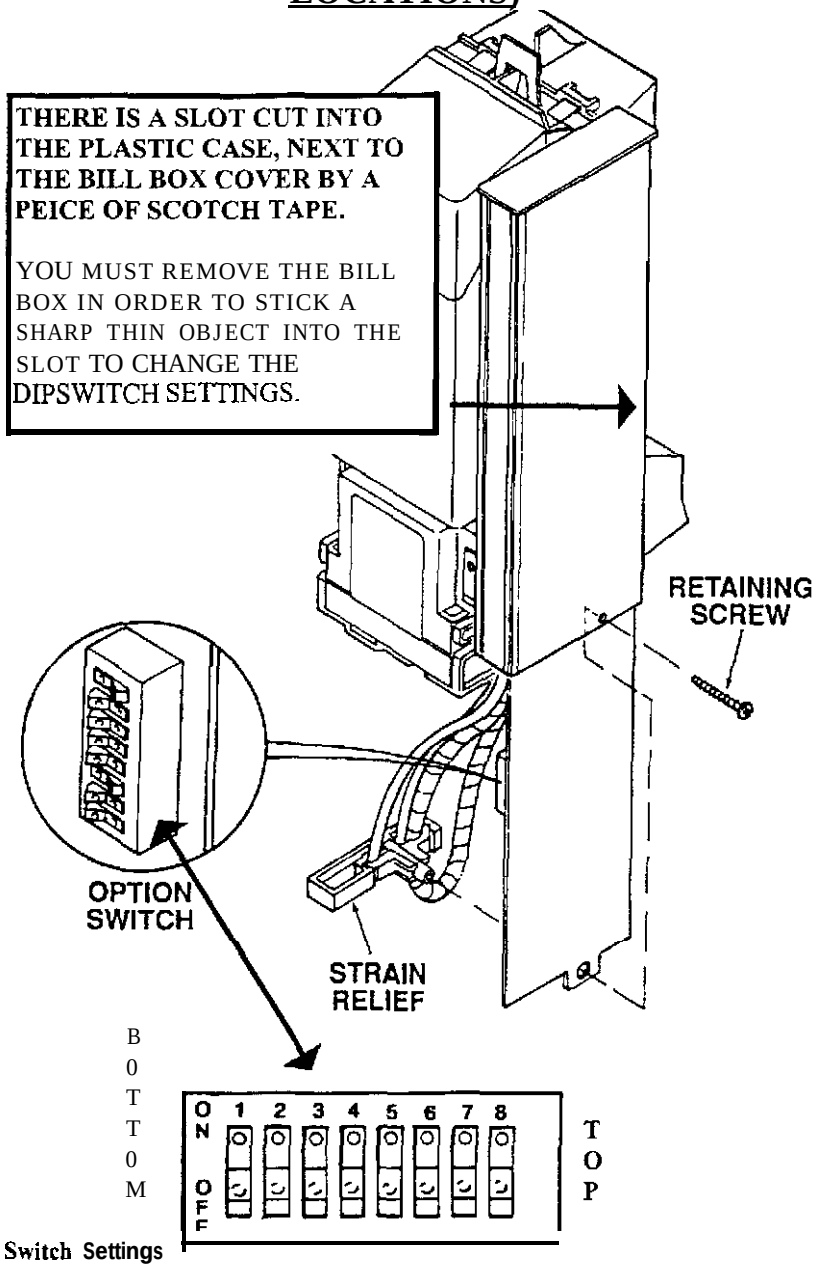
16. Apply power and insert bills to verify that the unit is functioning properly.

6 OR 7 ERROR CODE FLASHES

The *cleaning procedure for* ***this common occurrence is listed below Just*** *follow these steps.*

1. If this code has occurred on a new machine or one that the validator's DIP switches were just changed, Ensure that all the white plugs on the side of the validator board away from the red LED are plugged in securely.
2. Remove the bill box.
3. Turn the changer ON then OFF in an attempt to stop the metal push plate so that it COASTS into the fully outward position.
4. Using an air compressor or a can of compressed air blow out the area behind the push plate until if is completely free of all dust and lint.
5. Turn the changer power back on so that the push plate returns to the inward position. If the same error code persists. repeat steps 1-3 concentrating on the top center area behind the plate.
6. Replace the bill box.

HOW TO SET-UP THE BILL VALIDATOR FOR ACCEPTING SPECIFIC BILL DENOMINATIONS. (I.E. $1.00-$5.00-$10.00-$20.00 DIP SWITCH LOCATIONS)

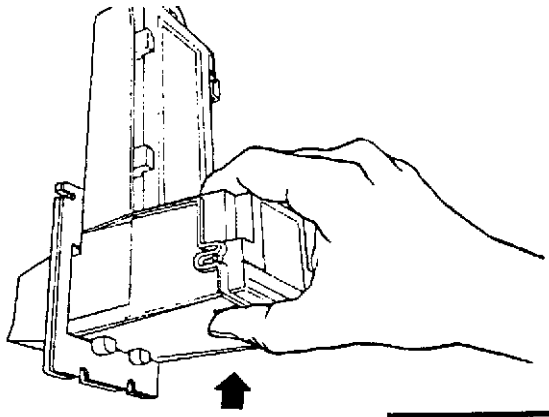


BA30B/BB/BAB Option Switch Settings

SWITCH	ON	OFF
1	High Security	Standard Acceptance
2	Accepts bills in one directions only (face up, green seal first)	Accepts bills in both directions (face up)
3	Standard credit pulse 150ms on 150ms off	Short credit pulse 50 ms on 50 ms off
4	$20 Accept	$20 Reject
5	$10 Accept	$10 Reject
6	$5 Accept	$5 Reject
7	$2 Accept	$2 Reject
8	$1 Accept	$1 Reject

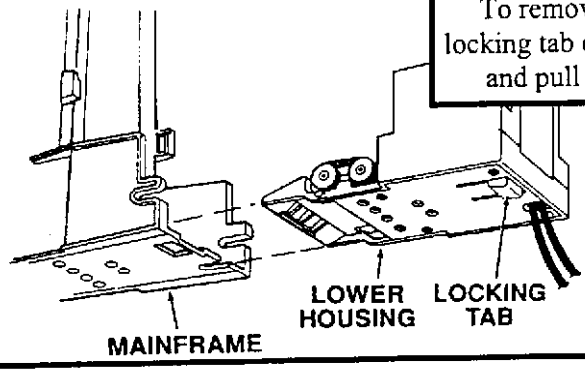
CLEARING A BILL JAM

("5" ERROR CODE FLASHS ON THE BILL VALIDATOR STATUS LED.)

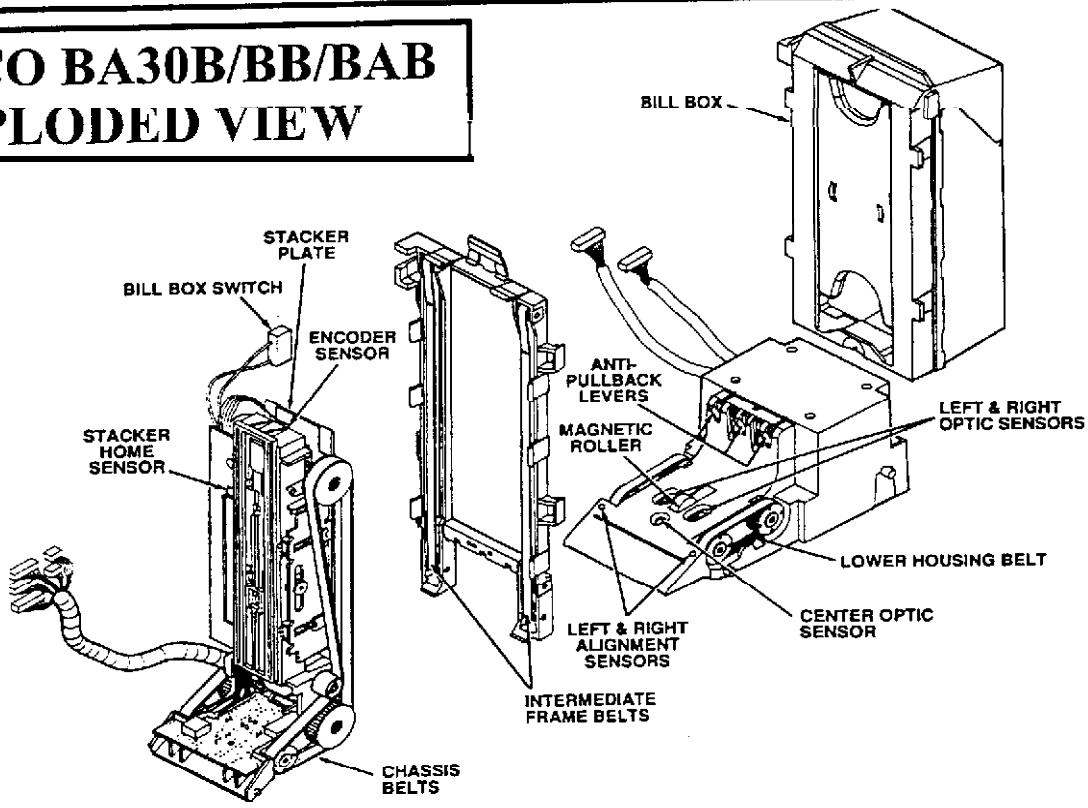


REMOVING THE LOWER HOUSING

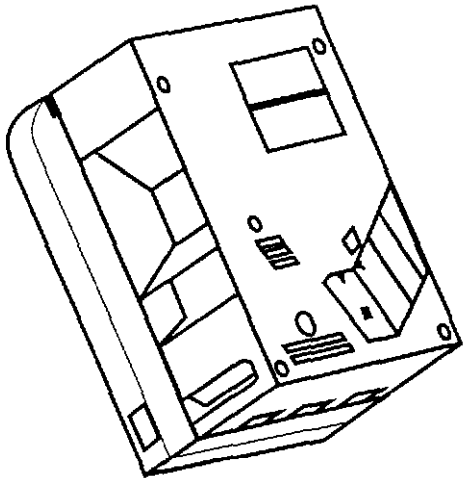
To remove the lower housing, push the locking tab on the bottom of the bill acceptor and pull the lower housing to the rear.



COINCO BA30B/BB/BAB EXPLODED VIEW



MKIV UNIVERSAL HOPPER



SERVICE MANUAL

INDEX

To w-jam the hopper, refer to sections 4 – 5b, pages 14 -16.

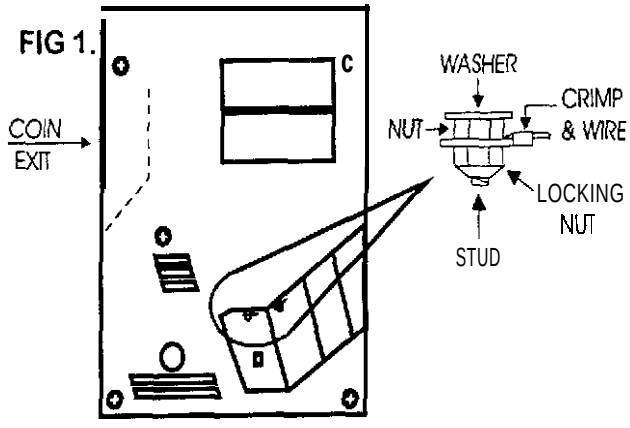
1. COIN BOX REMOVAL

1. Place the hopper in front of you as shown, (looking at the outside of the 'coin box').

Refer to FIG 1.

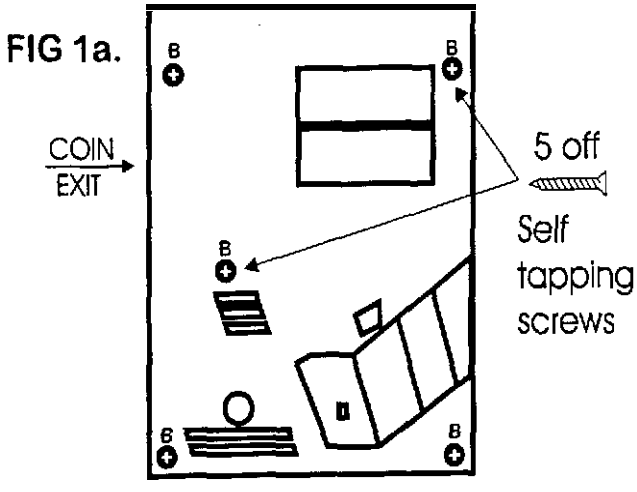
2. Remove the 2 locking nuts, which hold the 'low level sense plate' wires to the studs.

3. Remove the crimp & wire from the studs.



Refer to FIG 1a.

4. Remove the 5 screws indicated (B), which hold the 'coin box' to the 'center plate'.

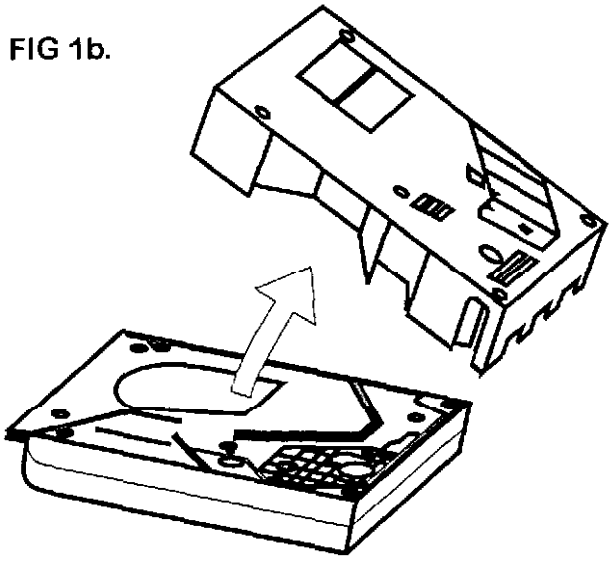


Refer to FIG Ib.

6. ***Gently lift the 'coin*** box' away from the rest of the hopper.

NOTE:- The 'logic board' & 'stirrer' are located in the 'coin box'.

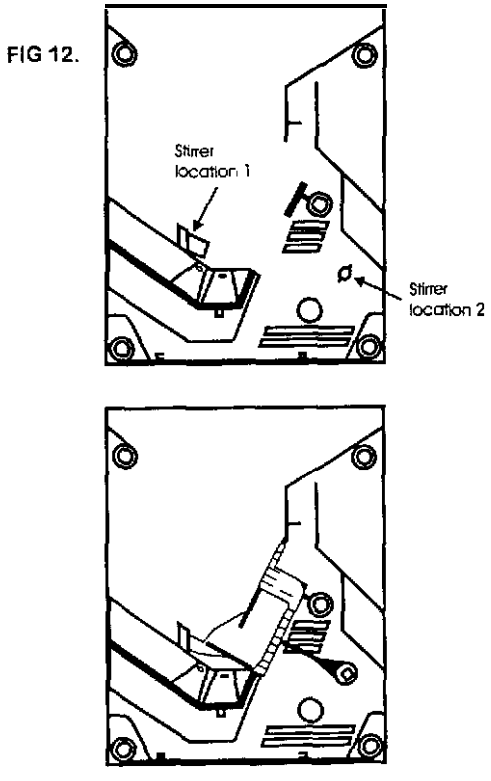
7. As the 'coin box' is being removed, carefully slide the 'logic board' out. The stirrer may stay with the 'coin box' or fall onto the center plate.



ACCESS IS NOW AVAILABLE TO THE 'LOW LEVEL' SENSE PLATES, THE MAIN PCB, THE EXIT WINDOW, THE MOTOR TERMINALS & PART OF THE **WIRING** LOOM.

la. COIN BOX ASSEMBLY

1. Firstly, locate the 'stirrer in the 'coin box as shown in FIG 12.



COIN BOX ASSEMBLY (cont.)

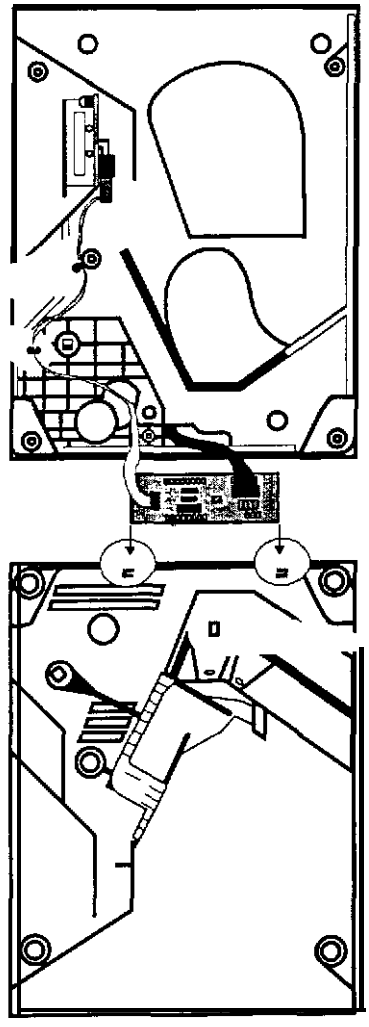
2. Line up the 'centre plate' & 'coin box' as shown below. FIG 12a.

3. Route the ribbon cable as shown below.

4. Fit the 'logic board' into slots shown below.

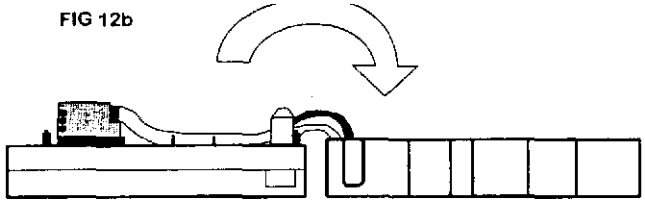
5. Feed the level sense wires through the slot shown below.

FIG 12a



6. Lift the 'centre plate' to meet the 'coin box'. FIG 12b & c.

FIG 12b



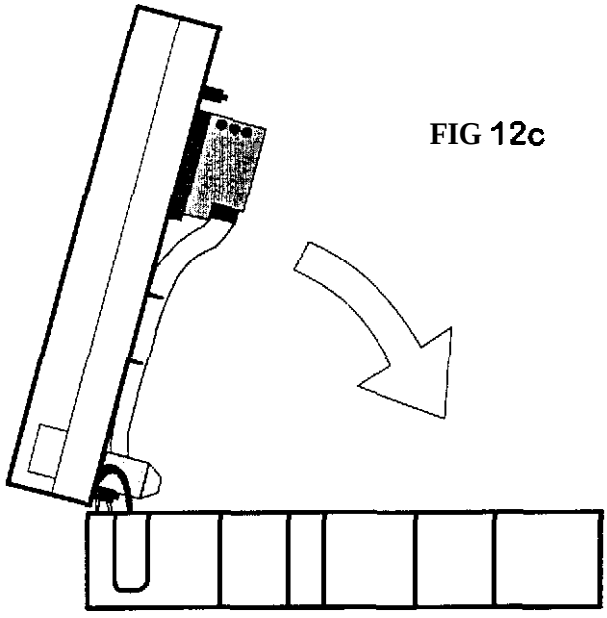


FIG 12c

7. Align the 'center plate' & 'coin box' & push together.

8. Turn the hopper over & refit the screws.

9. Refit the level sense wires

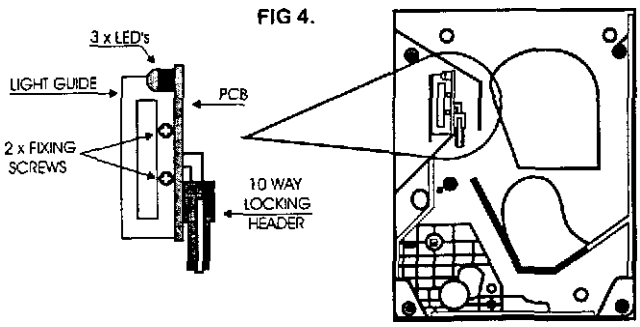
2. EXIT WINDOW REPLACEMENT

1. First, remove the 'coin box', section 1.

This will then enable access to the 'exit window'

2. Unscrew & remove the 2 fixing screws. FIG 4.
3. Remove the 'exit window' from the 'center plate'.
4. Unclip & remove the 10-way ribbon cable header.

FIG 4.



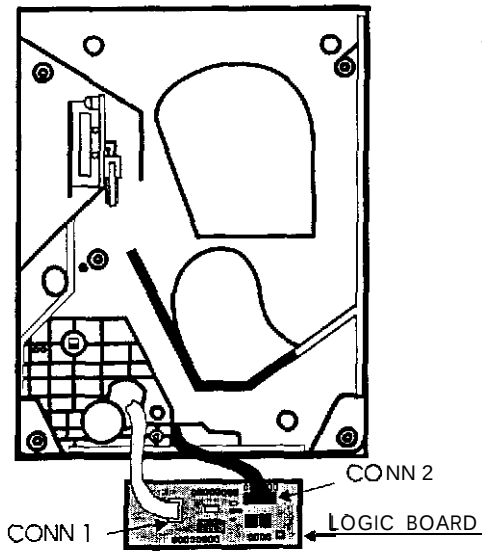
5. To re-assemble, follow the above steps in reverse.

3. LOGIC BOARD REPLACEMENT

1. First, remove the 'coin box', section 1.

This will then enable access to the 'logic board'.

FIG 5.



10-way ribbon IDC socket (CONN 1).

2. Move the two ejector arms at right angles to & away from the connector, if fitted.
3. This should release the socket from the header.
4. Clasping the connector between thumb & forefmger, pull away from pin header.
   14-way crimp socket (CONN 2).
5. Gently, unclip the "friction lock" from the connector housing.
6. Clasping the connector between thumb & forefmger, pull away from pin header.
7. The Logic Board is now released.
8. To reassemble, follow the above steps in reverse.

4. END PLATE REMOVAL

1. Place the hopper in front of you as shown, (looking at the outside of the 'end plate').

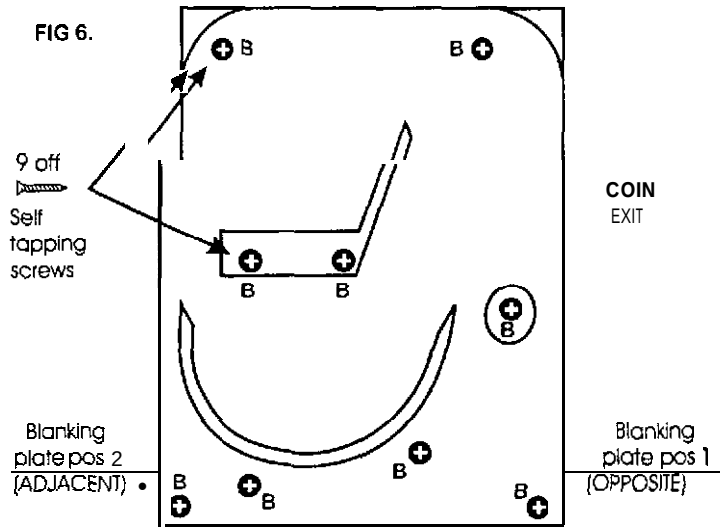
Refer to FIG 6.

2. Remove the 9 screws indicated (B), which hold the 'end plate' to the 'center plate'.

3. Locate the position of the 'connector blanking piece'.

4. Holding the 'connector blanking plate' gently lift the 'end plate' away from the rest of the hopper.

FIG 6.



5. To re-assemble, follow the above steps in reverse.

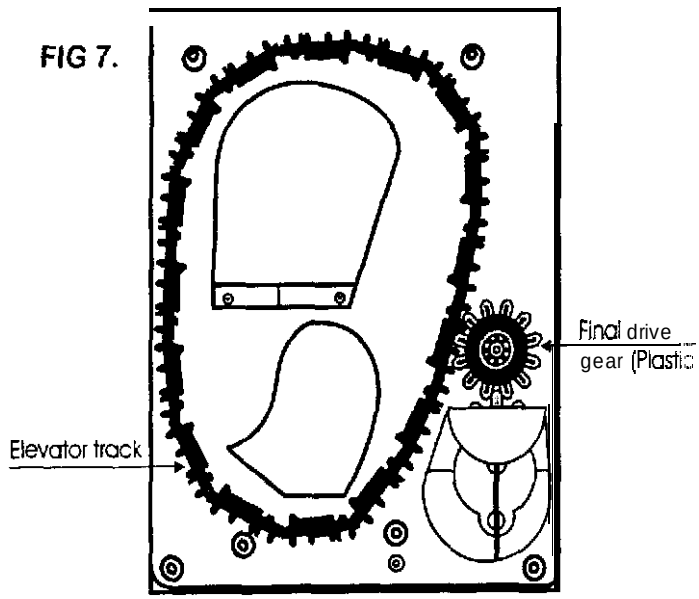
5. TRACK PLATE REMOVAL

1. 1. First, remove the 'end plate', section 6.

See FIG 7.

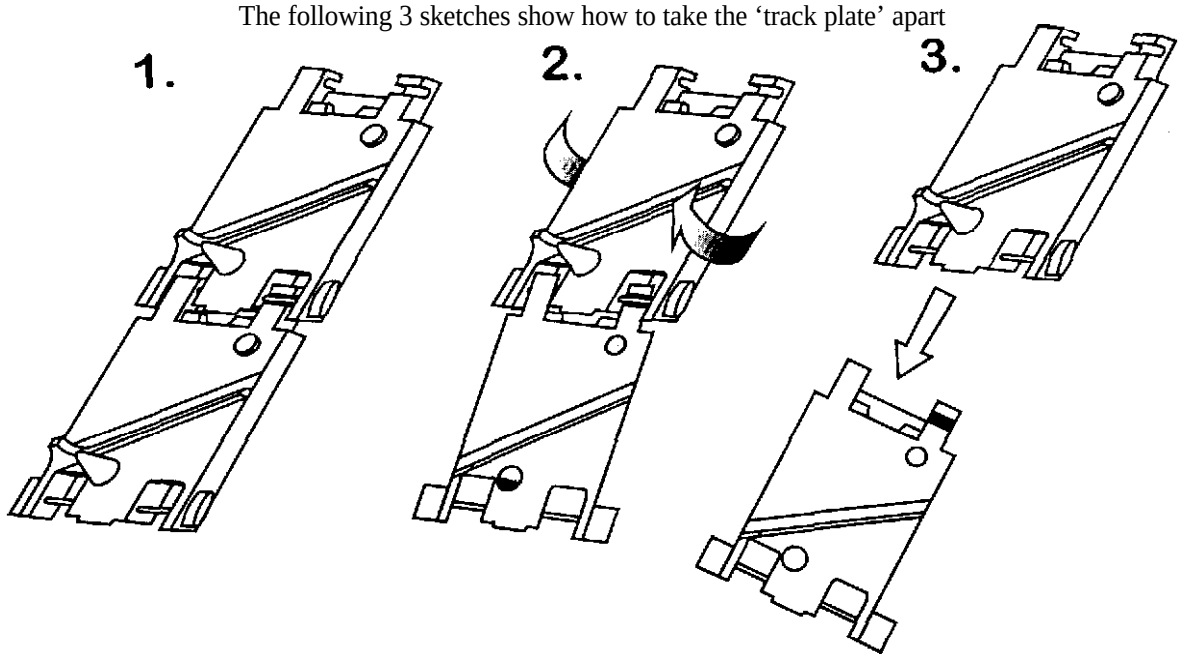
2. The 'elevator track' & 'final drive gear' can now be removed by lifting up & away from the 'center plate'.

FIG 7.

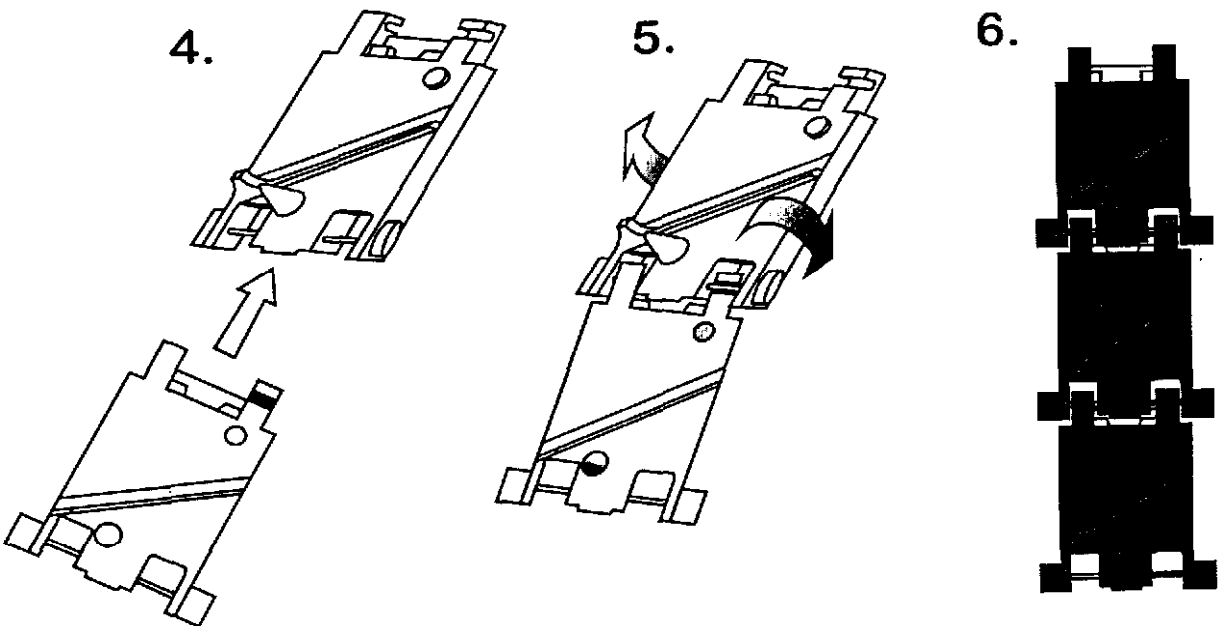


5a. TRACK PLATE ASSEMBLY

The following 3 sketches show how to take the 'track plate' apart



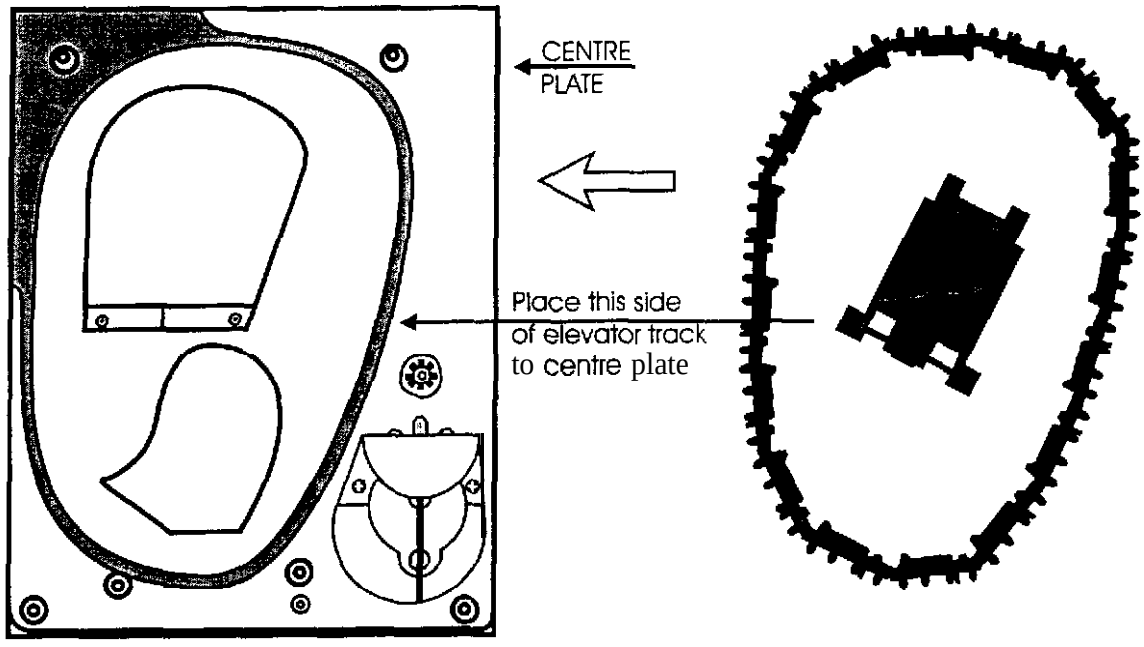
The following 3 sketches show how to assemble the 'track plate'.



5b. TRACK PLATE REPLACEMENT

1. The gray shaded area, in FIG 7b, is the 'track plate' guide path,

FIG 7b.

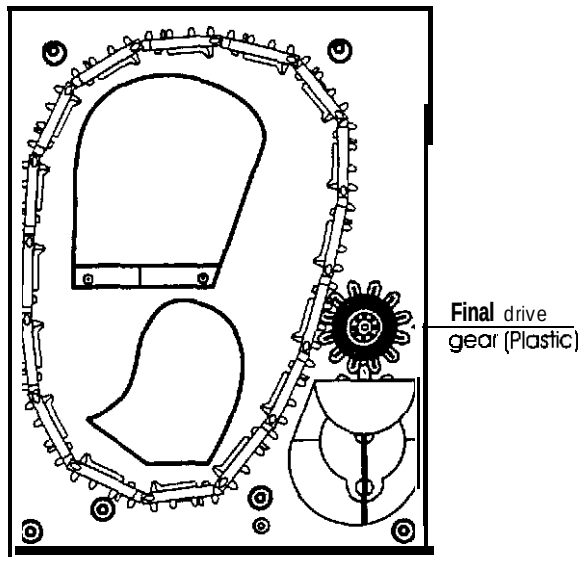


2. **Once the** 'hack plate' is in position, *turn* the track through **720** ^{0} *to ensure* **it is seated in the guide** *path* **correctly**

5c. FINAL DRIVE GEAR REPLACEMENT

1. Once the 'elevator track' is in place, the 'final drive gear' can be fitted by placing the gear over its mounting spindle, while lining the teeth up with the secondary drive gear, adjust the 'elevator track' so that the gear falls into place. *FIG 7c.*
2. The end plate can now be re-fitted. See section 6

FIG 7c.

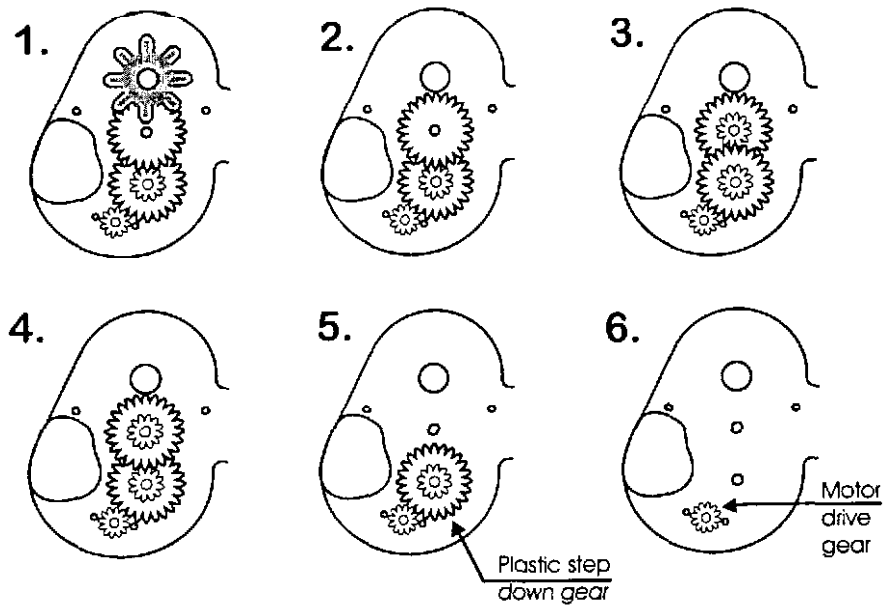


6. GEAR BOX ASSEMBLY

1. Remove the end plate. Section 6.
2. Remove the 'elevator track' & 'final drive gear'. Section 7.
3. Remove the gearbox cover. Section 8.
4. Remove the gears in the order as shown in FIG 9.

   Access to the motor fixing screws is now possible.
5. To re-assemble, follow the above steps in reverse.

FIG 9.



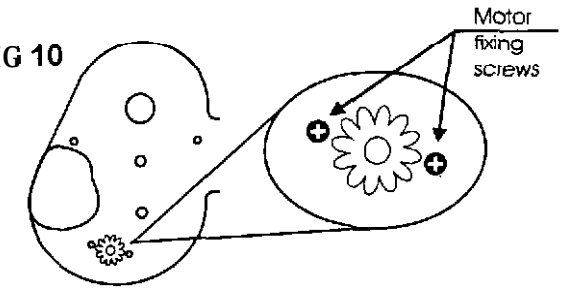
7. MOTOR REPLACEMENT

1. Remove the 'coin box'. Section 1.
2. Unsolder the red & black wires from the motor.

NOTE: The black wire connects to the terminal marked with a RED dot.

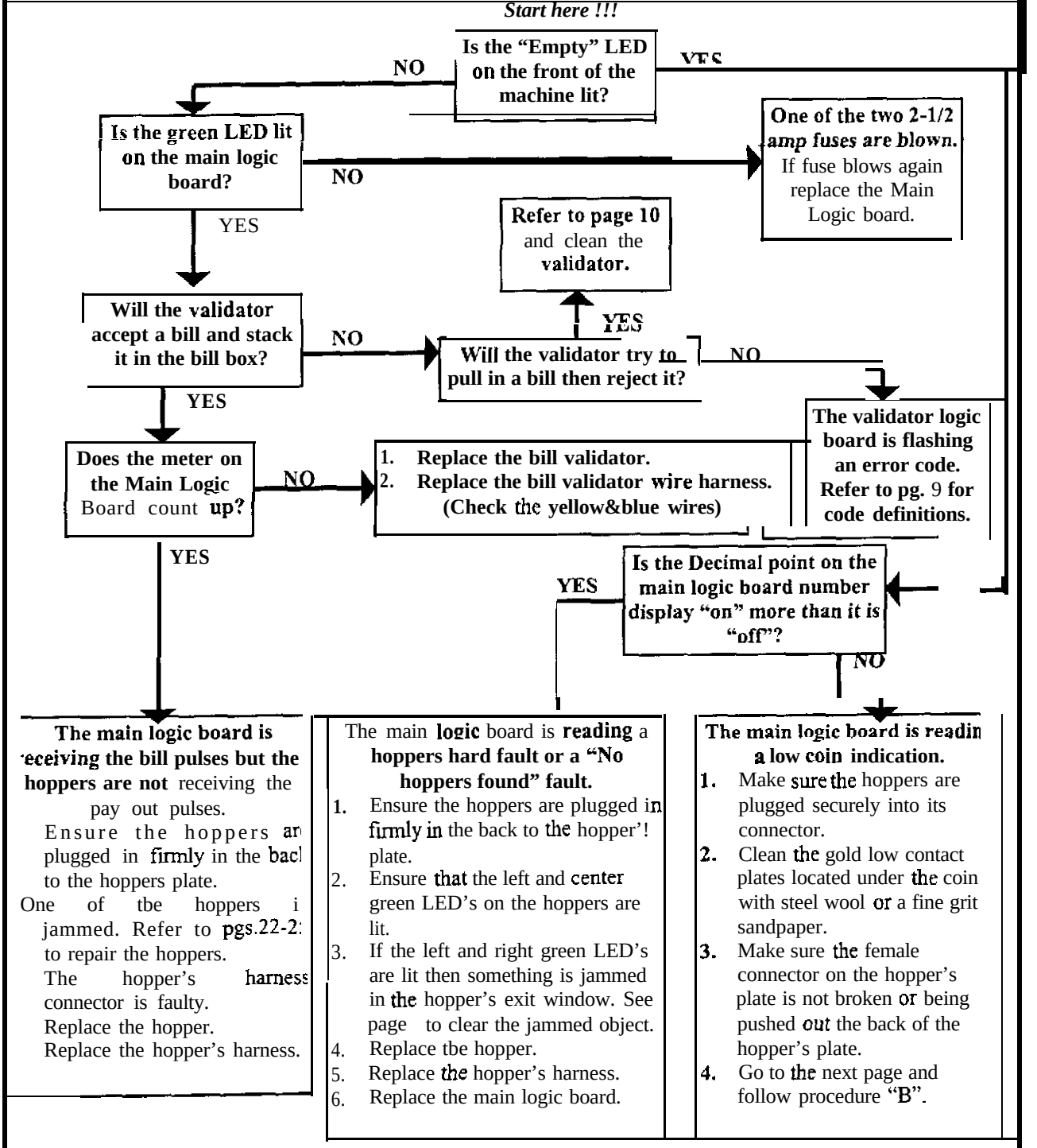
3. Remove the 'end plate'. Section 6.
4. Remove tbe 'track plate' & final drive gear. Section 7.
5. Remove the gearbox cover. Section 8.
6. Disassemble the gearbox. Section 9.
7. Unscrew the 2 motor fixing screws. FIG 10.
8. To re-assemble, follow the above steps in reverse

FIG 10



TECHNICAL FLOW DIAGRAM FOR THE AC6000'S

NOTE: Before starting this procedure ensure the changer is plugged in, the ON/OFF switch is on, the hoppers are full of coins, and all wire harnesses are connected securely and correctly. The wires exiting the red connectors should point away from the board.'!



'or a more detailed trouble shooting information proceed to the next section!

FOR TECHNICAL SERVICE OR TO OBTAIN A RETURN AUTHORIZATION NUMBER CALL (888)741-9840

ANY REPAIR RETURNED WITHOUT A RETURN AUTH. # WILL BE REFUSED!

TROUBLESHOOTING GUIDE

TO USE THE TROUBLESHOOTING GUIDE, MATCH UP THE PROBLEM, THEN FOLLOW THE SOLUTION SUGGESTIONS. After every step re-try operating the changer to see if the problem has been solved.

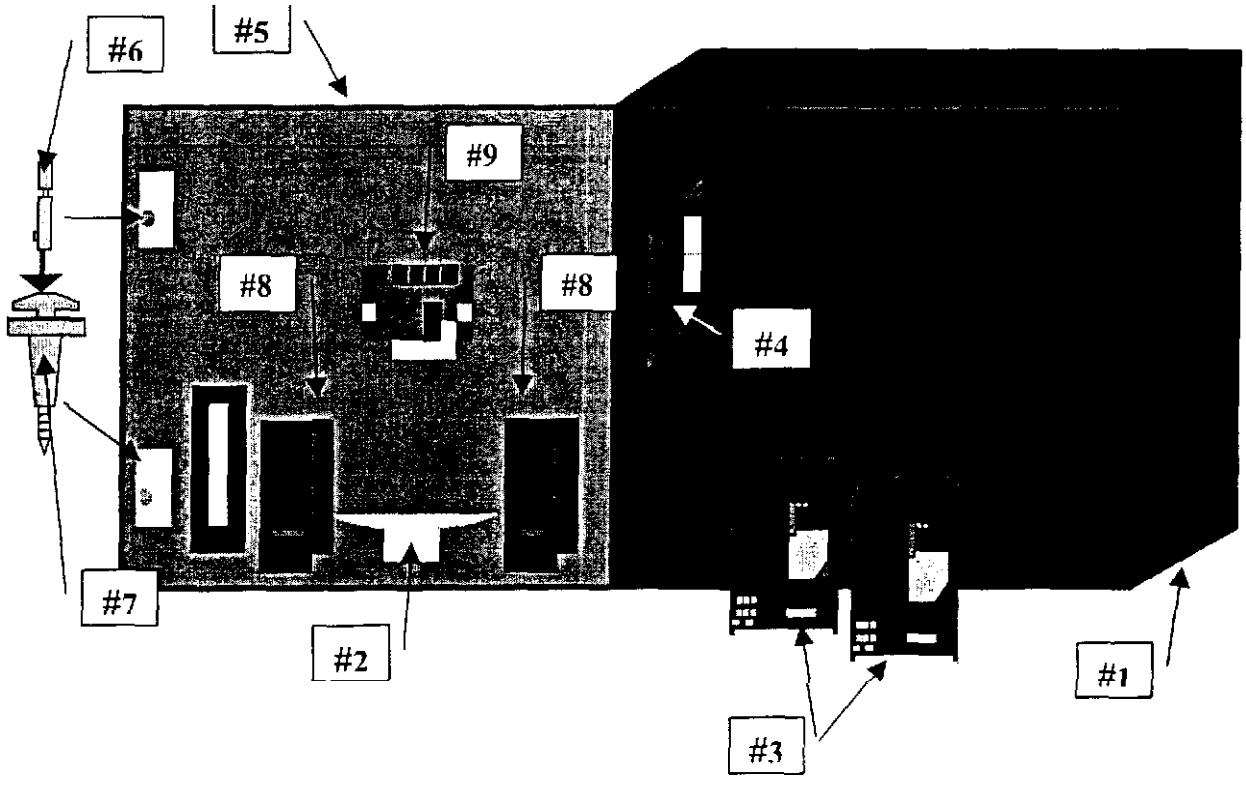
Problem:	*Solution:*
A. The changer is completely dead. (The green LED on the main logic board is not lit.)	1. Ensure the changer is plugged in. 2. Ensure the on/off switch is rocked to the (I) position (down). 3. Unplug the female end of the line cord from the main logic board AC connector and plug it in again tightly. 4. Measure the AC voltage at the outlet or check the breaker/fuse box. You can also plug another item into the AC wall outlet to ensure there is power present at the outlet. 5. Inspect the AC line cord for cuts or abrasions. 6. Check both fuses on the Main Logic Board. 7. Replace the main logic board. 8. Replace the line cord.
B. The "Empty LED is lit. The decimal point on the light-up number display is "off' more than it is **"on".**	1. Ensure the hoppers are not out of coins. (There should be enough coins in the hoppers to cover the gold low level contact plates approximately $30-$40. These plates are located at the bottom of the hoppers where you Pour the coins.) 2. Check the hoppers wire harness that extends from the back of the plate that the hoppers slide in and out on for chipped pieces or other damage. (Pay close attention to pins # 2 & 7.) 3. Clean the gold contact plates with steel wool. 4. Perform the following steps: A Turn the change; off. B Ensure the left hopper plate red connector on the left side of the main logic board (MLB) is plugged into the bottom connector, and the right is plugged into the top connector. C On the MLB slide all the dipswitches left to the "off" position. D On the left DipSwitch slide #3 "ON" enabling a 4 coin per dollar payout. E. On the right Dip switch slide #8 "ON" disabling the top hopper connector and enabling the changer into the "One Hopper Mode" F. Turn the changer on. G If the "Empty" LED on the front of the changer is now off, remove the right hopper and service this hopper. The changer will function in this mode until the hopper is fixed. H If the "Empty" LED is still "on", turn the changer off and switch the hoppers, and turn the changer back on. I. If the "Empty" LED on the front of the changer is now off, remove the right hopper and service this hopper. The changer will function in this mode until the hopper is fixed. *Remember to remove the coin chutefrom the hopper or the coins will fall into the changer instead of into the coin cup!* J. If the "Empty" LED is still "ON", turn off the changer. K. Reverse the hopper's plate connections, (top to bottom, bottom to top), and repeat steps F thru I. *Keep in mind* ***that*** *you* ***are trouble shooting the Hopper Plates instead*** *of* ***the hoppers*** 5. Replace the Main Logic Board. 6. Replace both hoppers. 7. Replace both hopper plates with the harnesses
C. The "Empty LED is lit. The decimal point on the light-up number display is **"on"** more than it is "Off'.	1. Ensure the hoppers arc pushed into the hopper's harness on the back of hopper plate tightly. 2. Ensure that left and center green hoppers LED's are lit only. Not the left and right LED's. If this is the case go to pg. 20 to un-jam the hopper exit window.

TROUBLESHOOTING GUIDE

TO USE THE TROUBLESHOOTING GUIDE, MATCH UP THE PROBLEM, THEN FOLLOW THE SOLUTION SUGGESTIONS. After every step re-try operating the changer to see if the problem has been solved.

PROBLEM:	*SOLUTION:*
D. The green LED on the Main Logic Board is lit but the Light-up display does not.	1. Bad 5 or 12vdc regulator on the main logic board. 2. The hoppers are shorted. 3. Replace main logic board. 4. Replace hoppers.
E. The bill validator accepts and stacks the bills, but the meter does not increase.	1. Check continuity and for pin damage to the blue and yellow wires on the validator harness. 2. Replace the validator wire harness. 3. Replace the validator.
F. The bill validator accepts and stacks the bills, and the meter does increase.	1. Ensure the dip switch settings are still correct. (#3 "ON" only) 2. Check the continuity of the brown and purple wires on the hoppers wire harness. 3. The hopper is jammed. Go to pgs.22-25 to un-jam the hoppers. 4. Replace the hoppers wire harness.
G. The bill validator will not pull in the bill and the "Empty" LED is not lit.	1. Ensure the orange wire going to the "Empty" LED is connected to the + or the terminal with the red mark by it. 2. Check for 12vdc going to the orange and brown wires. If there is, replace the LED. 3. Replace the main logic board. 4. Replace the bill validator. 5. Replace the validator wire harness.
H. The bill validator pulls in the bill slightly then rejects it.	1. Clean the validator. (pg.10) 2. Remove the lower housing (pg. 12) of the bill validator. Ensure the center wheel spins freely. Push straight down on it slightly to loosen. 3. Replace the bill validator.
I. The bill validator red status LED flashes a "5" error code.	1. Clean the validator optic LED's (See pg.10) 2. Ensure that all the wire harness plugs are plugged firmly into their white female sockets. 3. Turn to the back page of this manual and check for a Coin Acceptors branch in your area to repair your bill validator
J. The bill validator red status LED flashes a "6 or 7" error code.	1. Take the bill stacker off the bill validator. Cycle the power on / off using the switch on the main logic board and coast the silver push bar so that it stops in its fully extended position. Blow out the area behind the push bar with high pressure or canned air. Concentrate on the encoder wheel in the area top center behind the push bar. 2. Turn to the back page of this manual and check for a Coin Acceptors branch in your area to repair your bill validator
K. The bill validators red status LED is on steady but it still will not accept the bill.	I. Pull out the lower housing, see page 12, and look for something obstructing the bill path. (i.e. gum, papers. tickets, coins, etc.) 2. Look inside the Plexiglas case on the side of the bill validator. Ensure that all the wire harness plugs are plugged firmly into their white female sockets.

PARTS LIST FOR THE AC60001600116002



PARTS LIST (SHOWN ABOVE)

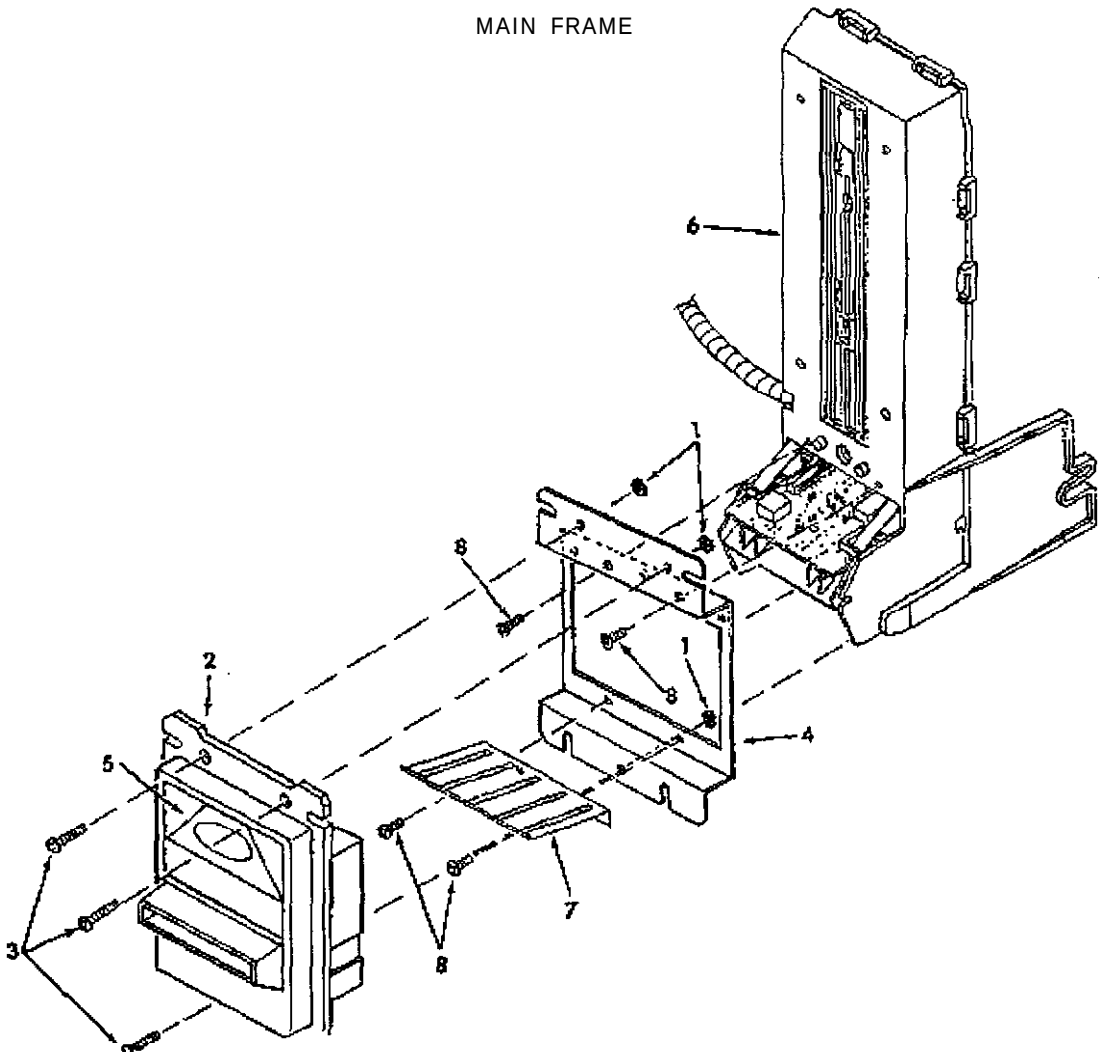
1. **AC6010** - CABINET COMPLETE W/ COIN CUP (#2) & LOCK BRACKET (not shown)
2. **AC1010-07** - COIN CUP
3. AC1040 COIN CONTROLS MKIV COIN HOPPER.
4. AC2060 - MAIN LOGIC BOARD.
5. AC6081 - FULL 'CHANGE" FACE LEXAN FRONT (AC6082 TOKEN).
6. AC1093 - LOCK AND KEY
7. AC5080 - SCREW-IN T-HANDLE.
8. AC9000 - COINCO BILL VALIDATOR.
9. AC6065 -AUDIT BOARD (AC6001 & AC6002'S ONLY!)
10. AC2065.1 -QUARTER ACCEPTOR (AC6002'S ONLY!)

OPTIONAL PARTS LIST (ITEMS NOT SHOWN)

AC6010-03-LOCK BRACKET ASSY. WITH SILVER SQUARE NUT
AC1040.3 -HOPPER PLATE WITH HARNESS
AC1051 - 2 OUTLET SURGE PROTECTOR
AC1052 4 OUTLET SURGE PROTECTOR
AC1091 - TILT ALARM ONLY
AC2010-10 -LEFT HOPPER CHUTE
AC2010-11 -RIGHT HOPPER CHUTE
Ac2065.1 -COIN MECH. ASSY.

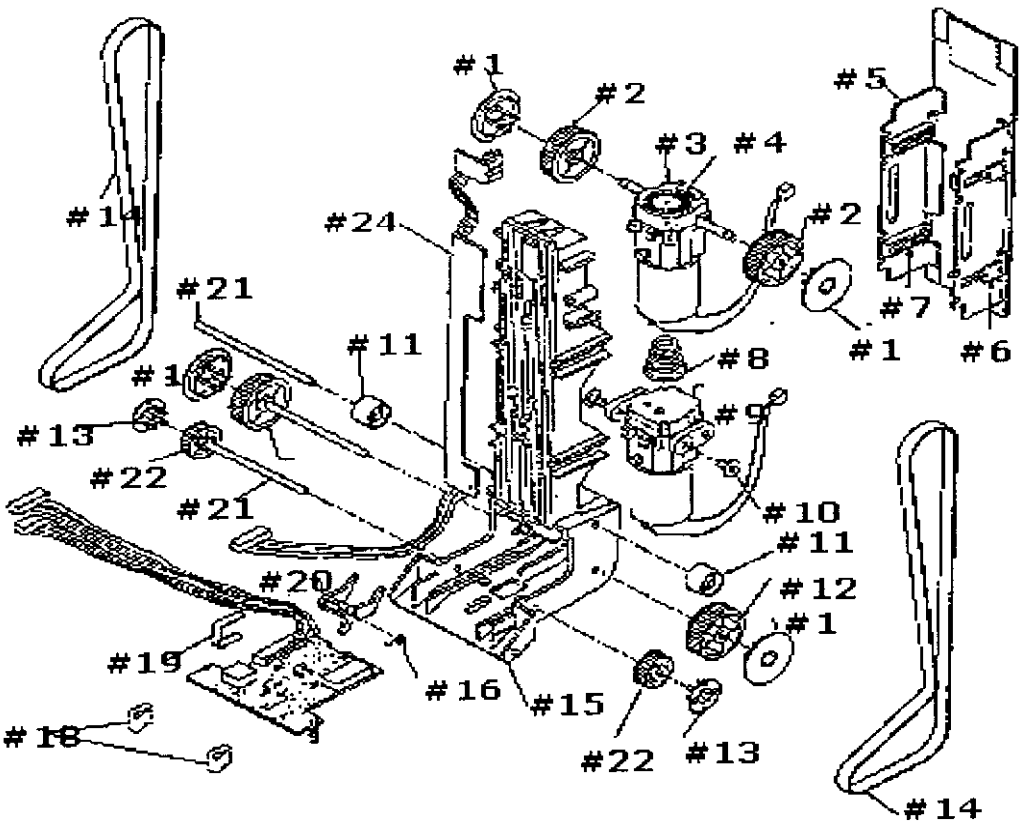
COINCO PARTS LIST

MAIN FRAME



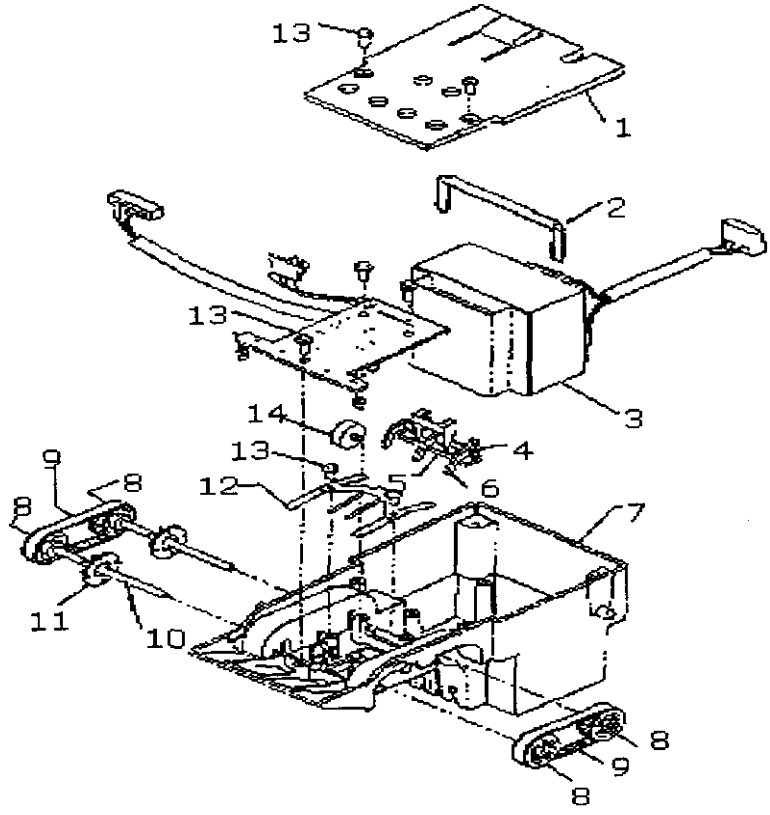
ITEM NO.	PART NO.	DESCRIPTION
1	438-6	Nut & Lock washer 6-32
2	921361	Mask Snack
3	921401	Screw
4	921492	Frame Mount
5	921629	Label, Bill Insert
6	920807-2	Main Frame
7	921351	Grounding Spring
8	3456R6	Screw 5

COINCO **PARTS LIST CON'T.**



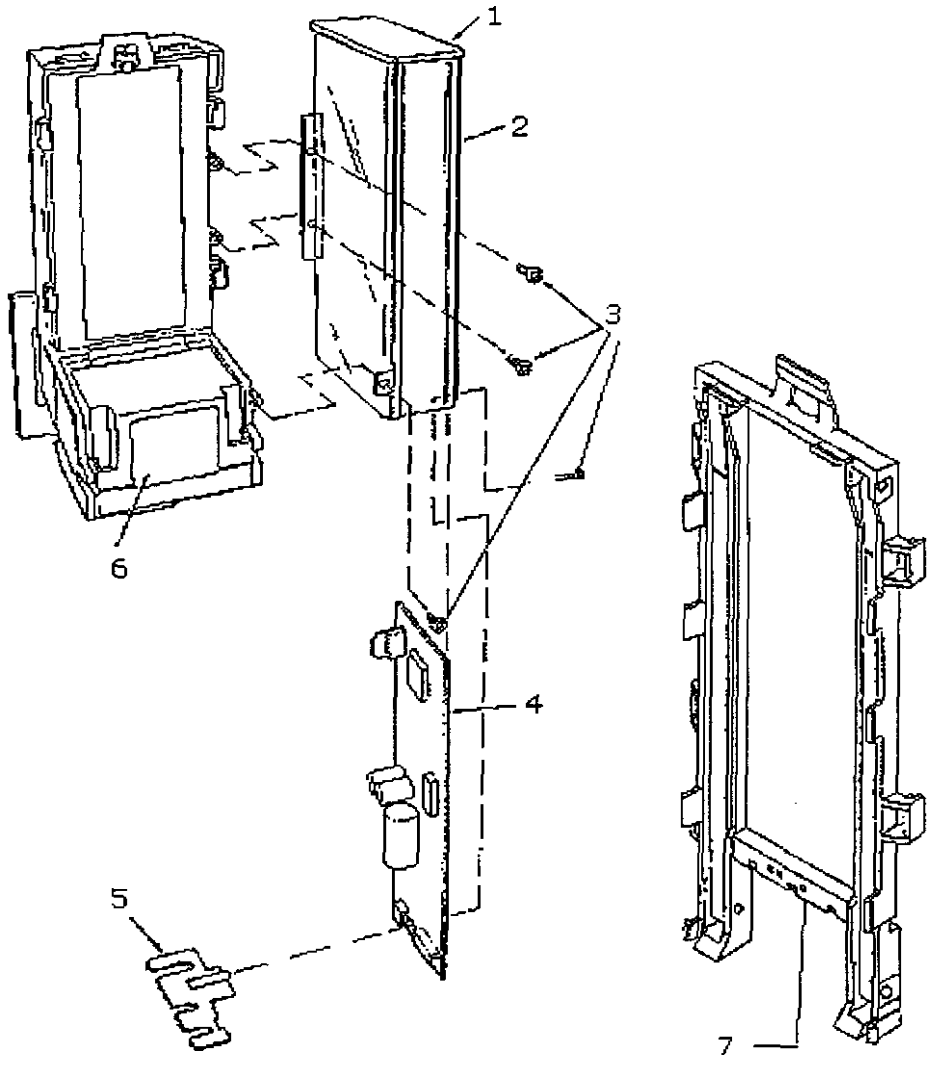
Item No.	Part No.	Description
1	902824-l	Hub, Transport Pulley
2	920823-2	Pulley, Upper Transport
3	407254-l	Gearbox Assy., Transport (includes #4), BA30BB
4	920000-3	Wheel, Encoder
5	407252	Stacker Assembly (includes #6 and #7)
8	921387	Spring, Belt Tension
9	407253-l	Gearbox Assembly, Stacking, BA30BB
10	920834-l	Screw, Push plate Bearing
11	920829-l	Pulley, Idler
12	920823-3	Pulley, Lower Transport
13	920004-l	Hub, Timing Wheel, .670
14	921403	Belt, Chassis, Black
15	92082 1-2	Chassis, Upper Housing
16	920889	Spring, Anti-Pullback
18	920827	Clip. Upper Board
19	921128	Clip, Wire
20	920828	Lever, Anti-Pullback
21	920040	Shaft, Wheel
22	920825-l	Pulley, Inlet
24	407246-1	Stacker Board, BA30BB

COINCO PARTS LIST CON'T.



ITEM NO.	PART NO.	DESCRIPTION
1	921704	Bottom Cover
2	921613	Transformer Holding Hose
3	920949-2	X- former and Shield Assembly, BA30BB
4	920889	Spring, Anti-Pullback
5	920X19-1	Mount, Anti-Pullback
6	920818	Lever, Anti-Pullback
7	920806-2	Frame
8	920003-l	Pulley, Timing, .870
9	920815	Belt
10	920040	Shaft, Wheel
11	920004-l	Hub, Timing Wheel
12	921055	Spring, Mag Roller
13	345-4R4	screw, 4x1/4
14	407335	Shaft, Roller Assembly, Mag

COINCO PARTS LIST CON'T.



Item No.	Part No.	Description
1	921414	Cap Logic Board
2	921179-2	Case, Logic Board
3	3456R6	Screw
4	407383	Logic Board, BA30BB
5	921539	Strain Relief, BA30BB
6	909729-2	Label
7	407247-2	Intermediate frame

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Gene — 4, 6, 8, 19, 20, 23
Dave — 30

Publication No. 909561 Rev. 22 2/99 Printed in the U.S.A.