

**UNIVERSAL**

**LPM HOPPER**

**SERVICE MANUAL**

**Version 1.0**

**Universal Distributing of Nevada, Inc**

# Contents

	<b>Page</b>
<b>1. Scope</b>	<b>3</b>
<b>2. Features of This Hopper</b>	<b>3</b>
<b>3. Hopper Operation</b>	<b>3</b>
<b>4. Appearance and Dimension</b>	<b>4</b>
<b>5. Specifications</b>	<b>4</b>
<b>6. Wiring</b>	<b>5</b>
6-1 Circuit Diagram of Hopper	5
6-2 Hopper PCB	5
Layout of Hopper PCB Connector	5
Connection from Hopper PCB	6
<b>7. Assembling Hopper</b>	<b>7</b>
7-1 Assembling Base Cover Unit	7
7-2 Attaching Motor Unit	8
7-3 Attaching Link Base Unit	9
7-4 Attaching Hopper Disk Unit	10
7-5 Attaching Hopper Stand Unit	11
7-6 Attaching Bucket Unit	12
<b>8. Parts Catalog</b>	<b>14</b>
8-1 When your hopper disk has 6 holes	14
Parts List	15
8-2 When your hopper disk has 8 holes	18
Parts List	19

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

<b>9. Clearing Error</b>	<b>22</b>
9-1 Clearing Error Code 31 (OVERPAID)	23
9-2 Clearing Error Code 32 (HOPPER JAM)	24
9-3 Clearing Error Code 33 (HOPPER EMPTY)	24
<b>10. Changing Denomination</b>	<b>25</b>
10-1 Details of Replacement Unit	26

## 1. Scope

This service manual is intended for qualified service personnel. It covers how to assemble a LPM hopper, how to change the denomination, and how to clear errors.

## 2. Features of This Hopper

This hopper has the following features.

- (1) Energy-saving and high-security
- (2) High resistance against electric noise and the physical impact from outside.
- (3) Modular construction allowing the hopper to handle a various type of coins/tokens.  
By just replacing some of the modules, the current denomination can be easily changed.
- (4) High performance and low-power motors ensuring the stable operation with the lifetime of over 350,000 revolutions.
- (5) The preventive design from a Coin/Token jam as well as a problem caused by the debris from coins/tokens.

## 3. Hopper Operation

This LPM hopper dispenses coins/tokens on a UNIVERSAL game machine in the following way.

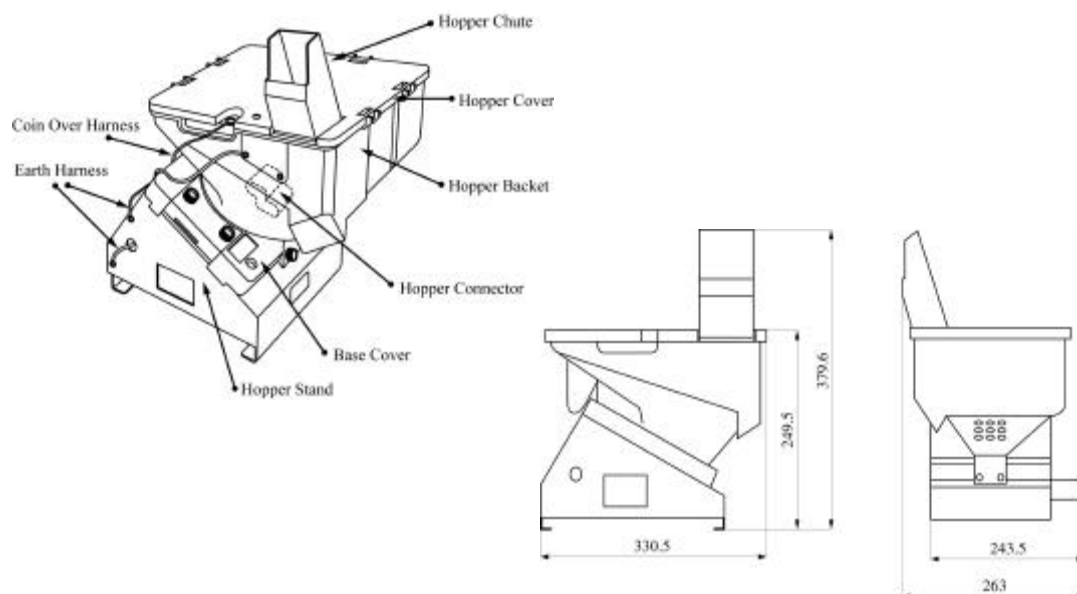
Upon a COLLECT request by a player, the game machine sends a Hopper Motor Drive Request signal to the hopper. In response to the signal, the hopper starts the motor revolution to dispense coins/tokens.

The coins/tokens dispensed from the hopper will be detected by the photo sensor located at the exit of the hopper to send a CASH OUT signal to the game machine. Receiving the CASH OUT signal, the game machine counts the number of the coins/tokens dispensed, and displays the count on the cash-out meter.

As soon as the requested number of coin/tokens have been cashed-out, the machine sends a Hopper Motor Stop signal to the hopper to complete the cash-out.

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

## 4. Appearance and Dimension



## 5. Specifications

**Input power:** 24VDC

**Input current:** 0.2 to 0.5A

**Power consumption:** 10W

**Operating temperature and humidity:** 0 to 50 degrees C, 10 to 80% rh

**Storage temperature and humidity:** 0 to 60 degrees C, 10 to 80% rh

**Average coin dispensing speed:** 8.9 coins/s (when 8-holes disk used)  
6.7 coins/s (when 6-holes disk used)

**Coin/token capacity:** 2000 coin (US 25 cent coins)

**Weight:** 4.5kg

February, 2001

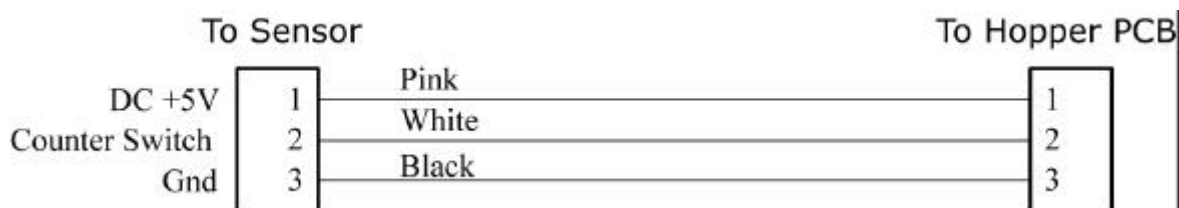
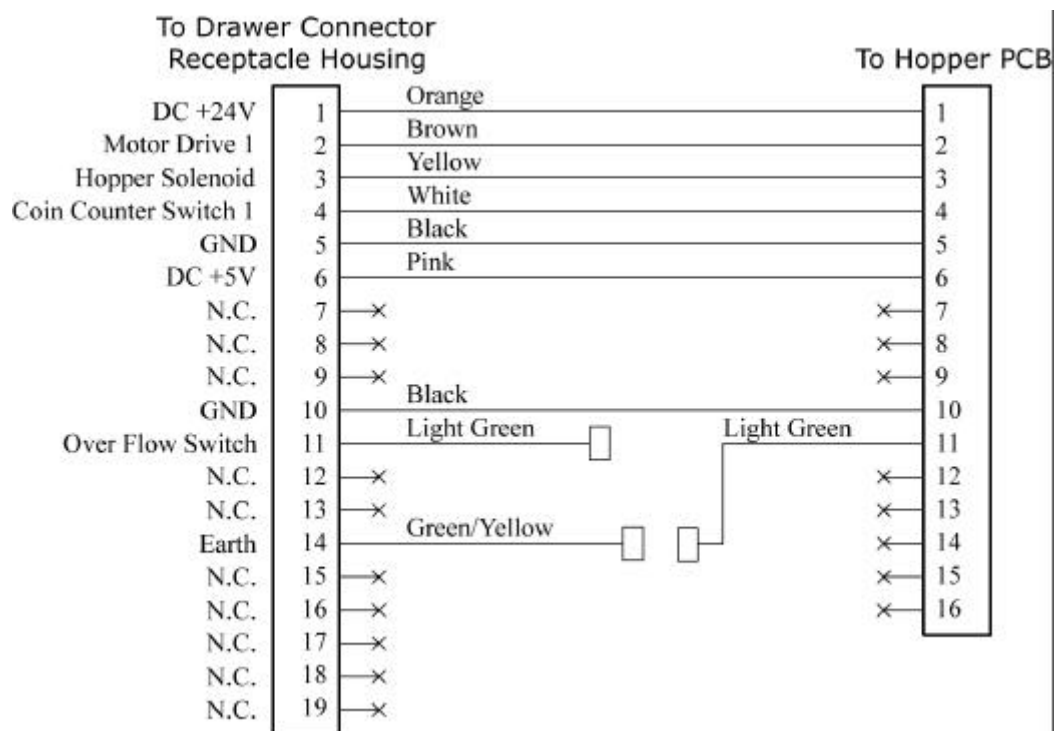
**LPM HOPPER**

Version 1.0

Universal Distributing of Nevada, Inc.

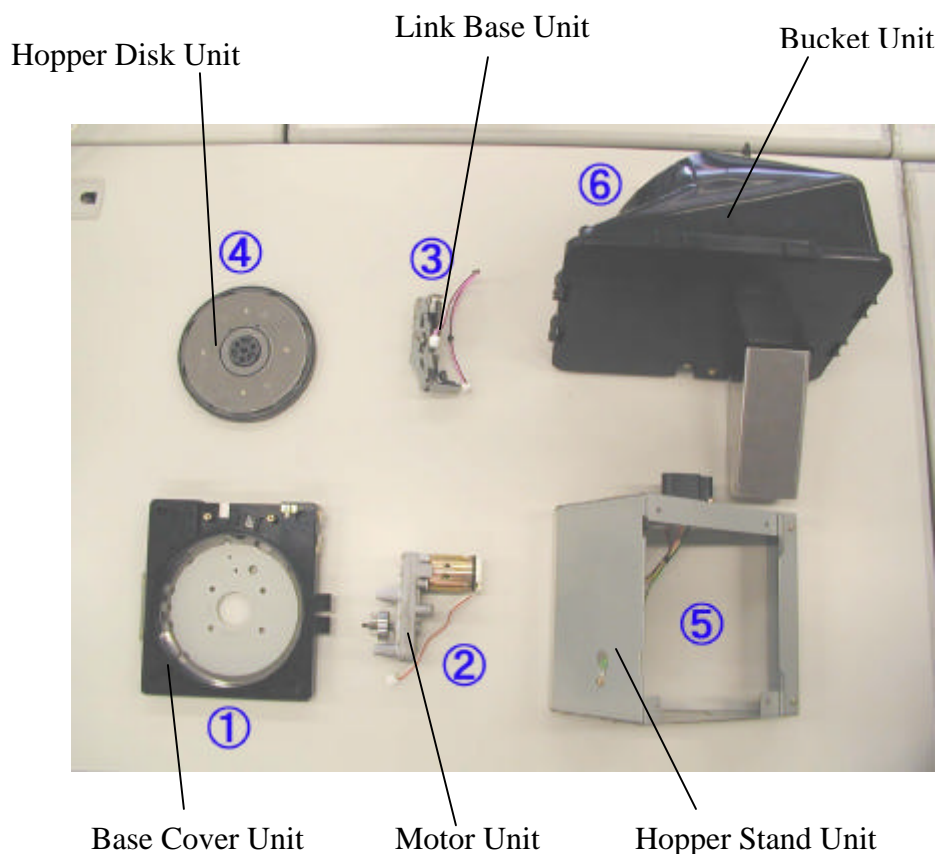


### <Connection from Hopper PCB>



## 7. Assembling Hopper

This hopper is modularized with the following 6 units. Use the following procedure to assemble these units into a hopper.



### 7-1 Assembling Base Cover Unit

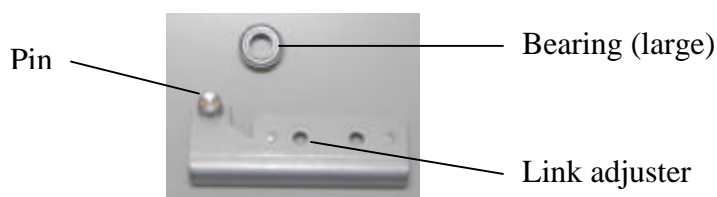
**NOTE:** When your hopper disk unit has 6 holes (not 8 holes), proceed to next step 7-2.

Assemble the base cover unit in the following procedure.

- a. From the package, find a base cover unit, a link adjuster, a bearing (large), and 2 screws (M4 x 4L).

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		





- b. Place the bearing on the pin located at the upper left of the link adjuster.



- c. Turn over the base cover unit to find the link adjuster fixing hole on it.
- d. Insert the bearing-attached pin of the link adjuster into the fixing hole.
- e. Screw down the link adjuster on the base cover unit.

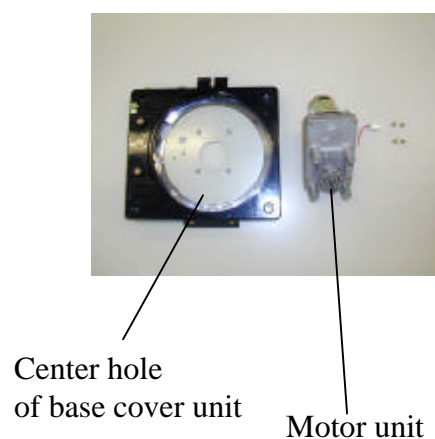


Link adjuster fixing

## 7-2 Attaching Motor Unit

Attach the motor unit to the base cover unit in the following procedure.

- a. Find a motor unit and 4 countersunk head screws (M4 x 8L) from the package.
- b. Insert the motor shaft into the center hole of the base cover unit from the rear side.
- c. Screw down the motor unit on the base cover unit from the front side.



### 7-3 Attaching Link Base Unit

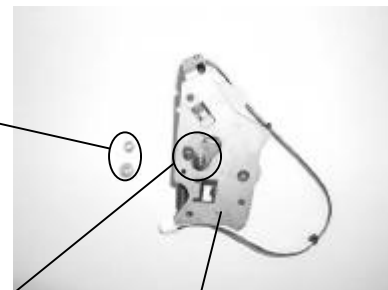
Attach the link base unit to the above base cover unit assembly in the following procedure.

- a. Find a link base unit, 2 bearings (small and medium), and 3 screws (M4 x 4L) from the package.
- b. Place the small-sized bearing on the upper pin and the medium-sized bearing on the lower pin of the link base unit.
- c. Insert the bearing-attached pins into the link base unit fixing hole of the base cover unit assembly.
- d. Screw down the link base unit on the base cover unit assembly.

Bearings  
(small and  
medium)

Pins

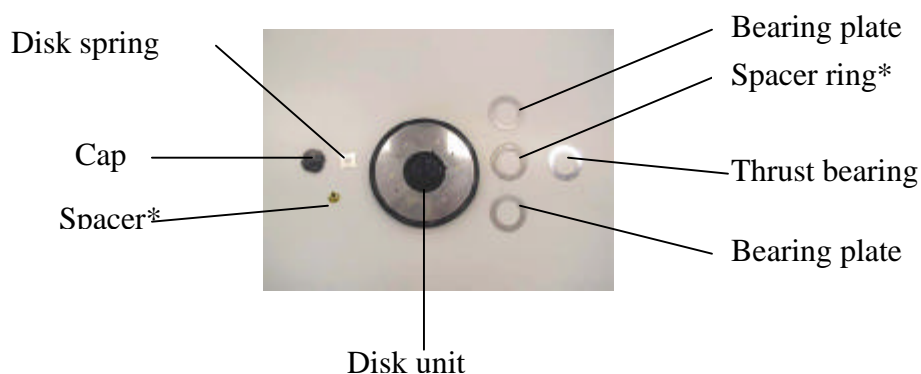
Link base unit



## 7-4 Attaching Hopper Disk Unit

Attach the hopper disk unit to the above assembly in the following procedure.

- a. Find a hopper disk unit, 2 bearing plates, a spacer ring, a thrust bearing, a disk spring, a spacer, a cap, and one hexagon nut with flange from the package.



- b. Turn over the hopper disk unit to put a bearing plate, a thrust bearing, a bearing plate, and then the spacer ring\* in this order into the center hole of the disk plate.

### NOTE\*

The spacer ring has to be changed according to your denomination.  
For the detail, see Section 10.

- c. Fit the above hopper disk unit on the base cover unit assembly as depicted below.



- d. Place the disk spring and the spacer\* in the center hole of the disk unit.

**NOTE\***

The spacer has to be changed according to your denomination. For the detail, see Section 10

- e. Screw down the disk unit on the base cover unit assembly with a hexagon nut with flange.

**NOTE\***

Screw right to tighten this hexagon nut.

- f. Cap the center hole of the disk unit.



## 7-5 Attaching Hopper Stand Unit

Attach the hopper stand unit to the above assembly in the following procedure.

- a. Find a hopper stand and 4 screws (M4 x 22L) from the package.



- b. Place the base cover unit assembly on the hopper stand.



- c. Screw down the base cover unit assembly on the hopper stand.

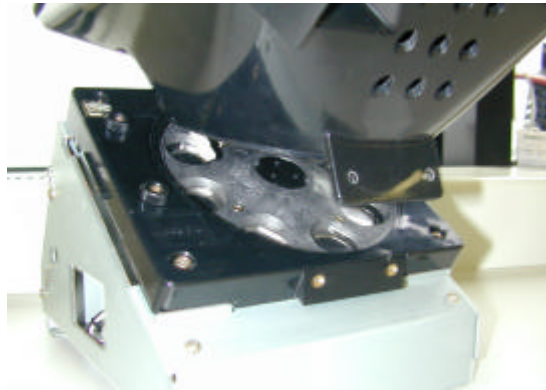
#### **7-6 Attaching Bucket Unit**

Attach the bucket unit to the above assembly in the following procedure.

- a. Find a bucket unit and 2 screws (M4 x 6L) from the package.  
b. Hook the bucket unit on the above hopper stand unit assembly as shown below.



- c. Bring down the bucket unit on the hopper stand unit assembly.
- d. Screw down the bucket unit on the hopper stand unit assembly.



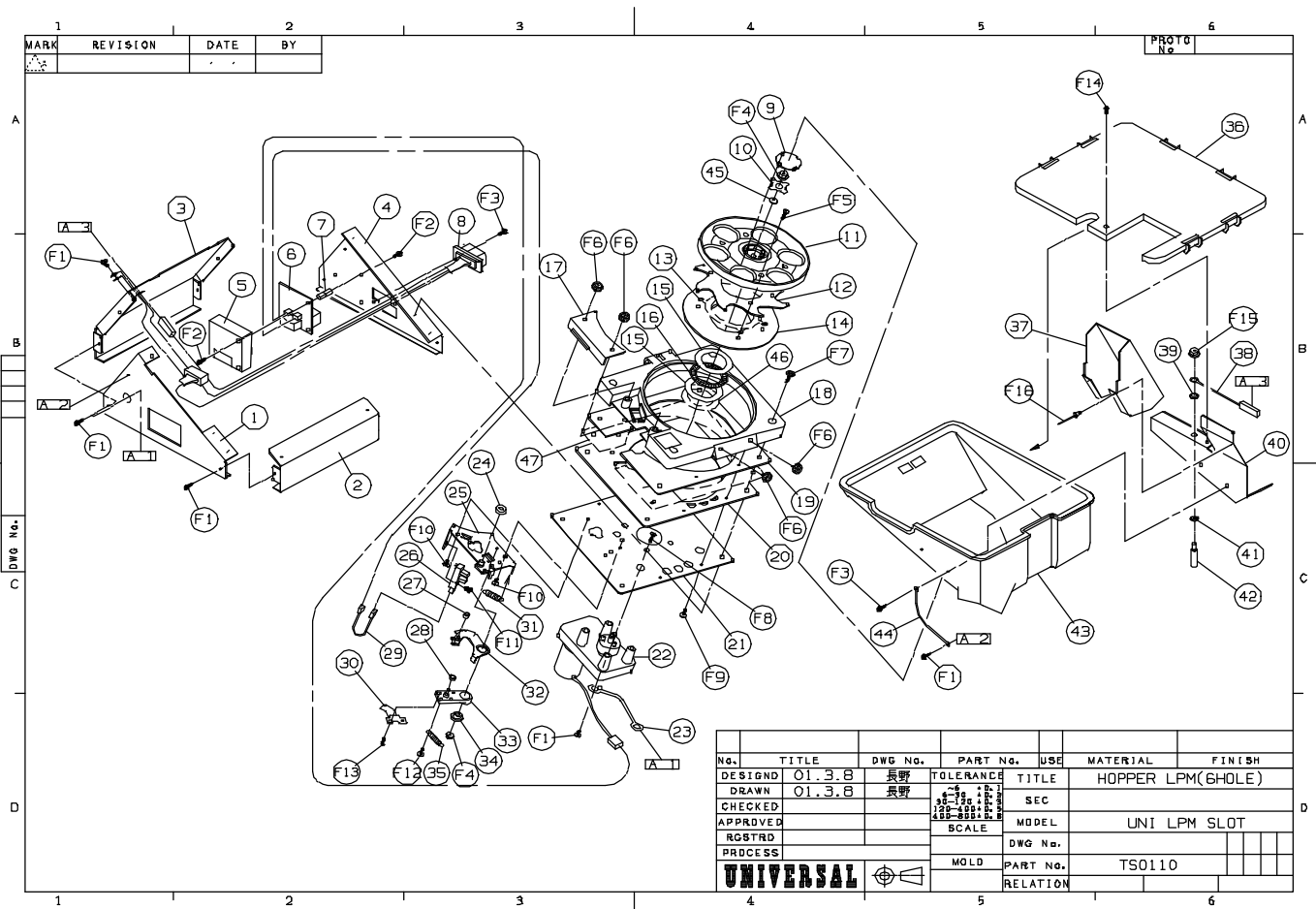
- e. Connect the earthing cable of the bucket unit to the connector located on the hopper stand unit.

**Now you have completed the hopper.**

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

## 8. Parts Catalog

### 8-1 When your hopper disk has 6 holes



February, 2001

LPM HOPPER

Version 1.0

Universal Distributing of Nevada, Inc.

## &lt;Parts List&gt;

No.	PARTS NAME	PARTS No.	Q'ty
1	LPM HOPPER STAND (F)	0A0358800	1
2	LPM HOPPER STAND (R)	0A0359400	1
3	LPM HOPPER STAND (L)	0A0359200	1
4	LPM HOPPER STAND (B)	0A0359000	1
5	PCB INSULATION COVER	2A0350400	1
6	HOPPER PCB	498203700	1
7	HOPPER PCB SPACER	2ZZY07A00A	1
8	IN LPM HOPPER HARNESS	3A0351000	1
9	CAP	205327000	1
10	DISK SPRING	005308400	1
11	DISK B	215305000	1
12	PINCH PLATE	0A0363800B	1
13	PP SIM	0A0363400	1
		0A0363600	1
14	DISK BASE	015305210	1
15	BEARING PLATE	005309400	2
16	THRUST BEARING	005309200	1
17	SENSOR COVER	205326800	1
18	BASE COVER	2053266000	1
19	RUNNER PLATE	015306210	1
20	BASE SUPPORT	0A0367800	1
21	MOTOR BASE	0A0364600	1
22	MOTOR ASS'Y	600826000A	1set
23	LPM HOPPER EARTH HARNESS	3A0351400A	1
24	BEARING	005308600	1
25	LINK BASE ASS'Y	0A0362800	1set
26	PHOTO SENSOR	600290400	1
27	BEARING	005309000	1
28	BEARING	005308800	1
29	LPM H COUNT HARNESS	3A0350600	1
30	PHOTO SEALED PLATE2	005309600	1
31	OUTER LINK SPRING	005307600	1
32	OUTER LINK SUB ASS'Y	0A0363200	1set
33	LINK SUB ASS'Y	0A0363000	1set
34	LINK COLLAR	005307200A	1
35	LINK SPRING	015305800	1
36	LPM HOPPER COVER	2A0350600A	1
37	LPM HOPPER CHUTE	0A0356200	1
38	LPM LEVEL SENSOR HARNESS	3A0351600A	1

February, 2001

**LPM HOPPER**

Version 1.0

Universal Distributing of Nevada, Inc.



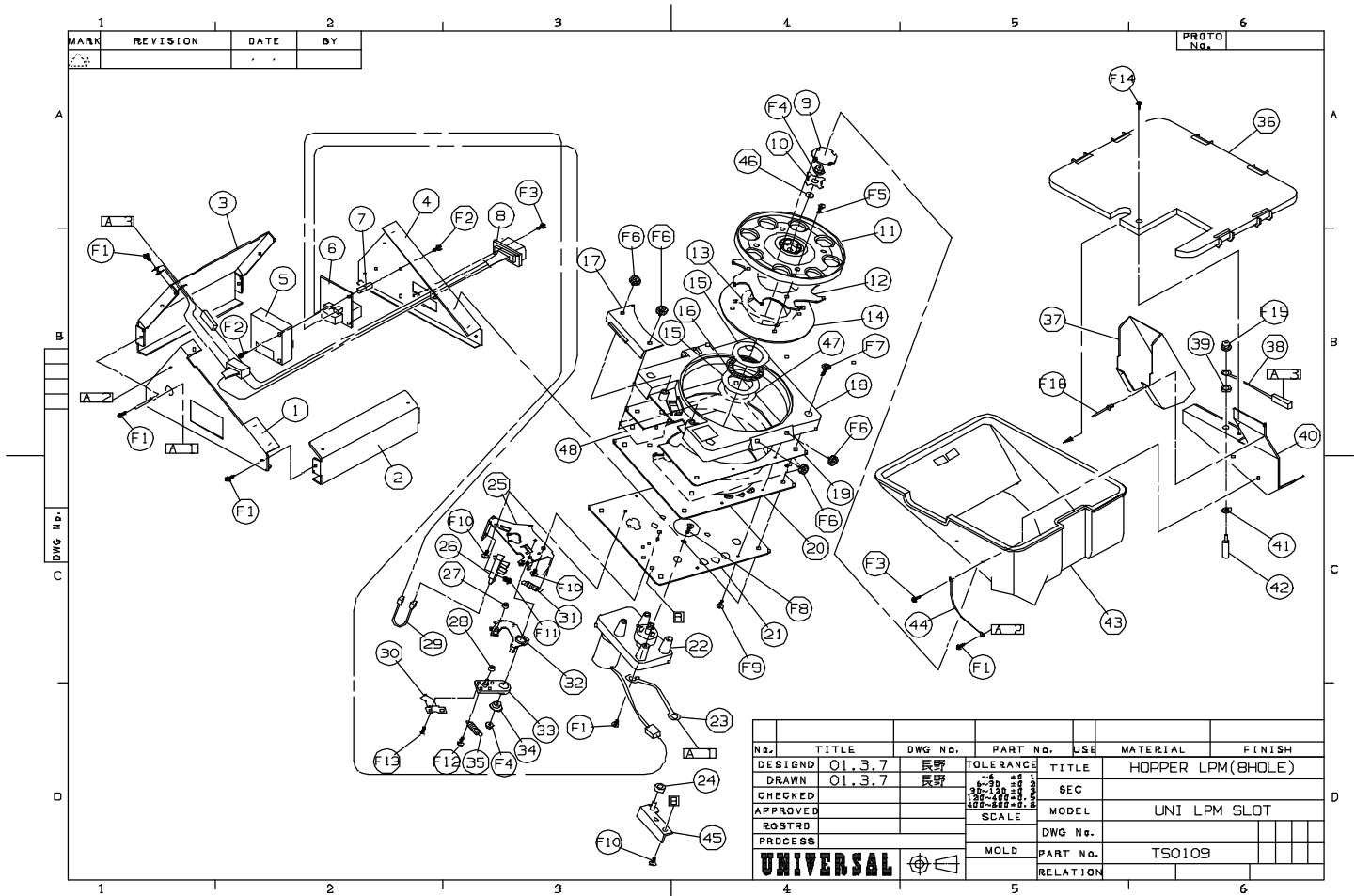
39	NYLON WASHER	Not provided	1
40	LPM HOPPER CHUTE BKT	0A0356400	1
41	INSULATION SLEEVE	Not provided	1
42	COIN LEVEL SENSOR PIN	070315800A	1
43	BUCKET	205325000A	1
44	LPM H BUCKET EARTH HARNESS	3A0351400A	1

No.	FASTENER LIST & SIZE	Q'ty
F1	CR(PH)-M4x8L-2P	10
F2	TPS-M3x8L	5
F3	CR(PH)-M4x12L-3P	3
F4	HIN(F)-M5	2
F5	CR(TFH)-M4x6L	4
F6	PPS-M4x6L	4
F7	UPS-M4x22L-3P	4
F8	CR(CFH)-M4x6L	4
F9	TPS-M4x6L	3
F10	CR(PH)-TW(B)-M4x4L	3
F11	CR(PH)-M4x12L-2P	1
F12	CR(PH)-M3x6L-2P	1
F13	CR(PH)-M4x16L-3P	2
F14	HN(F)-M5	1
F15		1
F16	TAP/D42BS	2

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

<b>CR(PH)-TW(B):</b>	Cross recessed head screw with captive toothed washer (round head) - External tooth
<b>CR(PH)-3P:</b>	Cross recessed head screw with captive washer (round head) - 3P
<b>CR(PH)-2P:</b>	Cross recessed head screw with captive washer (round head) - 2P
<b>CR(TFH):</b>	Cross recessed head screw (counter sunk trim head)
<b>HN( I ):</b>	Hexagon nut (corner rounding)
<b>PN(S):</b>	Push nut (for shaft)
<b>HIN(F):</b>	Hexagon nut with flange
<b>TPS:</b>	TP screw
<b>CRT(PH)-B:</b>	Cross recessed head tapping screw (round head) Shape B
<b>UPS-3P:</b>	Upset head screw - 3P
<b>PPS:</b>	Plastic point screw
<b>SHS:</b>	Shouldic screw
<b>CR(PH):</b>	Cross recessed head screw with captive washer (round head)

## 8-2 When your hopper disk has 8 holes



February, 2001

LPM HOPPER

Version 1.0

Universal Distributing of Nevada, Inc.

## &lt;Parts List&gt;

No.	PARTS NAME	PARTS No.	Q'ty
1	LPM HOPPER STAND (F)	0A0358800	1
2	LPM HOPPER STAND (R)	0A0359400	1
3	LPM HOPPER STAND (L)	0A0359200	1
4	LPM HOPPER STAND (B)	0A0359000	1
5	PCB INSULATION COVER	2A0350400	1
6	HOPPER PCB	498203700	1
7	HOPPER PCB SPACER	2ZZY07A00A	1
8	IN LPM HOPPER HARNESS	3A0351000	1
9	CAP	205327000	1
10	DISK SPRING	005308400	1
11	DISK	205326300	1
12	PINCH PLATE	0A0359600B	1
13	PP SIM	Not provided	1
14	DISK BASE	005305810	1
15	BEARING PLATE	005309400	2
16	THRUST BEARING	005309200	1
17	SENSOR COVER	205326800	1
18	BASE COVER	2053266000	1
19	RUNNER PLATE	0A0359800B	1
20	BASE SUPPORT	0A0367000	1
21	MOTOR BASE	0A0360000	1
22	MOTOR ASS'Y	600826000A	1set
23	LPM HOPPER EARTH HARNESS	3A0351400A	1
24	BEARING	005308600	1
25	LINK BASE ASS'Y	0A0355600	1set
26	PHOTO SENSOR	600290400	1
27	BEARING	005309000	1
28	BEARING	005308800	1
29	LPM H COUNT HARNESS	3A0350600	1
30	PHOTO SEALED PLATE2	005309600	1
31	OUTER LINK SPRING	005307600	1
32	OUTER LINK SUB ASS'Y	005306510	1set
33	LINK SUB ASS'Y	0A0363000	1set
34	LINK COLLAR	005307200A	1
35	LINK SPRING	005307400	1
36	LPM HOPPER COVER	2A0350600A	1
37	LPM HOPPER CHUTE	0A0356200	1
38	LPM LEVEL SENSOR HARNESS	3A0351600A	1
39	NYLON WASHER	Not provided	1

February, 2001

**LPM HOPPER**

Version 1.0

Universal Distributing of Nevada, Inc.

40	LPM HOPPER CHUTE BKT	0A0356400	1
41	INSULATION SLEEVE	Not provided	1
42	COIN LEVEL SENSOR PIN	070315800A	1
43	BUCKET	205325000A	1
44	LPM H BUCKET EARTH HARNESS	3A0351400A	1
45	LINK ADJUSTER SUBASSEMBLY	0A0360200	1

No.	FASTENER LIST & SIZE	Q'ty
F1	CR(PH)-M4x8L-2P	10
F2	TPS-M3x8L	5
F3	CR(PH)-M4x12L-3P	3
F4	HIN(F)-M5	2
F5	CR(TFH)-M4x6L	4
F6	PPS-M4x6L	4
F7	UPS-M4x22L-3P	4
F8	CR(CFH)-M4x6L	4
F9	TPS-M4x6L	3
F10	CR(PH)-TW(B)-M4x4L	3
F11	CR(PH)-M4x12L-2P	1
F12	SHS-M3x3x4	1
F13	CR(PH)-M3x6L-2P	2
F14	CR(PH)-M4x16L-3P	1
F15	HN(F)-M5	1
F16	TAP/D42BS	2

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

<b>CR(PH)-TW(B):</b>	Cross recessed head screw with captive toothed washer (round head) - External tooth
<b>CR(PH)-3P:</b>	Cross recessed head screw with captive washer (round head) - 3P
<b>CR(PH)-2P:</b>	Cross recessed head screw with captive washer (round head) - 2P
<b>CR(TFH):</b>	Cross recessed head screw (counter sunk trim head)
<b>HN( I ):</b>	Hexagon nut (corner rounding)
<b>PN(S):</b>	Push nut (for shaft)
<b>HIN(F):</b>	Hexagon nut with flange
<b>TPS:</b>	TP screw
<b>CRT(PH)-B:</b>	Cross recessed head tapping screw (round head) Shape B
<b>UPS-3P:</b>	Upset head screw - 3P
<b>PPS:</b>	Plastic point screw
<b>SHS:</b>	Shouldic screw
<b>CR(PH):</b>	Cross recessed head screw with captive washer (round head)

## 9. Clearing Errors

The following three types of Error Codes are assigned to this hopper.

### **Error Code 31 (OVERPAID):**

This message occurs when coins are improperly paid out by the hopper.

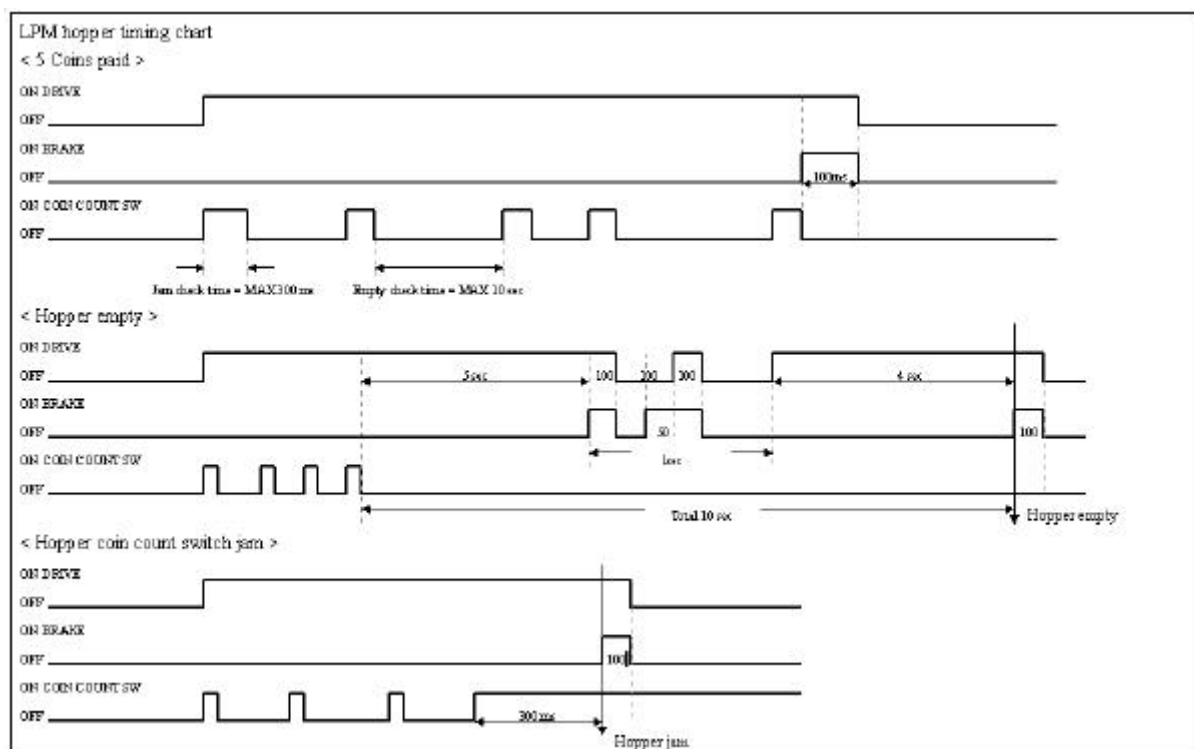
### **Error Code 32 (HOPPER JAM):**

This error occurs when a coin is jamming the coin path of the hopper.

### **Error Code 33 (HOPPER EMPTY):**

This error occurs when the hopper is empty.

### Timing Chart for Your Reference



## 9-1 Clearing Error Code 31 (OVERPAID)

Take the following actions to clear Error Code 31. If the error persists, proceed the next action.

### Action 1

Use the procedure below.

- (1) Verify the hopper is correctly positioned in the cabinet.
- (2) Press the RESET button.

### Action 2

1. Verify the harness connection.
2. Verify the voltage. Refer to Section 6.

### Action 3

Use the procedure below.

- (1) Turn OFF the game machine.
- (2) Remove the main PCB from the game machine.
- (3) Verify the C10, A14, B14, and C14 pins of the connector ECN1 and the B22, A23, and C23 pins of the connector ECN2 are not curved.
- (4) If any pin is curved, replace the main PCB

### Action 4

1. Call the SELF-TEST MODE #4 to perform the self-test.
2. If the hopper motor does not work, replace the hopper drive PCB.

### Action 5

1. If the hopper motor works in Action 4, verify the setting of DIP-1, post #6 and post #7.
2. If the setting is correct, verify the hopper specifications meet the requirement for the current denomination.

### Action 6

Replace the photo sensor located at the exit of the hopper.

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		



## 9-2 Clearing Error Code 32 (HOPPER JAM)

Take the following actions to clear Error Code 32. If the error persists, proceed the next action.

### Action 1

Verify a coin jam or a foreign object in the hopper. If any, remove it.

### Action 2

Verify the hopper specifications meet the requirement for the current denomination.

### Action 3

Replace the base cover unit and/or the disk unit with new one(s).

## 9-3 Clearing Error Code 33 (HOPPER EMPTY)

Take the following actions to clear Error Code 33. If the error persists, proceed the next action.

### Action 1

If empty, fill the hopper.

### Action 2

Verify the connector of the photo sensor (located at the exit of the hopper) is correctly and firmly seated.

### Action 3

Verify the hopper specifications meet the requirement for the current denomination.

### Action 4

Replace the photo sensor located at the exit of the hopper.

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		

## 10. Changing Denomination

To change your denomination, replace the following parts according to your desired coin/token.

### NOTE

The following is an example for South Africa.

No.	Dia	Thickness	Example (South Africa)	Replacement Unit For the details, see the next page
1	20.0	T1.7	25¢ Token	Disk kit_1 Link base kit_1-2 Base cover kit_1 Spacer kit_1-2
2	22.0	T1.85	50¢, 50¢ Token	Disk kit_2 Link base kit_1-2 Base cover kit_2 Spacer kit_1-2
3	24.0	T2.0	1 Rand	Disk kit_3 Link base kit_3 Base cover kit_3 Spacer kit_3-4
4	23.0	T2.6	2 Rand	Disk kit_4 Link base kit_4 Base cover kit_4 Spacer kit_3-4
5	26.0	T2.4	5 Rand	Disk kit_5 Link base kit_5-6 Base cover kit_5-6 Spacer kit_5-6
6	28.5	T2.4	10 Rand	Disk kit_6 Link base kit_5-6 Base cover kit_5-6 Spacer kit_5-6

## &lt;Details of Replacement Units&gt;

Part Name	Part Name	Part #	Drawing #	Q'ty
<b>Disk kit_1</b>	Disk A2	205326300	N110166	1
	Pinch plate (dia:20.0)	0A0359600A	S311239	1
	PP SIM (8holes, t=0.3)	0A0357400	S311227	1
	Disk Base A	005305810	N310473	1
<b>Disk kit_2</b>	Disk A2	205326300	N110166	1
	Pinch plate (dia:22.0 to 22.99)	0A0360400	S311242	1
	PP SIM (8holes, t=0.3)	0A0357400	S311227	1
	Disk Base A	005305810	N310473	1
<b>Disk kit_3</b>	Disk A2	205326300	N110166	1
	Pinch plate (dia:24.0)	0A0356600	S311235	1
	PP SIM (8holes, t=0.6)	0A0362600	S311252	1
	Disk Base A	005305810	N310473	1
<b>Disk kit_4</b>	Disk A2	205326300	N110166	1
	Pinch plate (dia:23.0)	0A0361200	S311246	1
	PP SIM (8holes, t=0.6)	0A0362600	S311252	2
	Disk Base A	005305810	N310473	1
<b>Disk kit_5</b>	Disk B	205305000	N110128	1
	Pinch plate (dia:26.0)	0A0363800A	S311258	1
	PP SIM (6holes, t=0.3)	0A0363400	S311256	1
	PP SIM (6holes, t=0.6)	0A0363600	S311257	1
	Disk Base B	015305210	N310516	1
<b>Disk kit_6</b>	Disk B	215305000	N110128	1
	Pinch plate (dia:28.5)	0A0364200A	S311260	1
	PP SIM (6holes, t=0.3)	0A0357400	S311256	1
	PP SIM (6holes, t=0.6)	0A0363600	S311257	1
	Disk Base B	015305210	N310516	1

Part Name	Part Name	Part #	Drawing #	Q'ty
<b>Link base kit_1-2</b>	Link base modified assembly	0A0355600	S311216	1
	Outer link assembly	005306510	N310478A	1
	Link sub assembly	005306200A	N410798A	1
	Link spring	005307400	N410804	1
	Link collar	005307200A	N410803A	1
	Outer link spring	005307600	N410805	1
	Bearing	005308610	D06-020	1
	Bearing	005308610	D06-016	1
	Bearing	005308610	D06-017	1
	Photo sealed plate 2	005309600	N411331	1
	Outer link stopper	205326400A	N410802A	1
	Disk spring	005308410	N410806	1
	Link adjuster sub assembly	0A0360200	S411624	1
	Link base modified assembly	0A0355600	S311216	1
<b>Link base kit_3</b>	Outer link assembly (t1.9 to 2.19)	0A0358200	S311229	1
	Link sub assembly (t1.9 to 2.19)	0A0358400	S311623	1
	Link spring	005307400	N410804	1
	Link collar	005307200A	N410803A	1
	Outer link spring	005307600	N410805	1
	Bearing	005308610	D06-020	1
	Bearing	005308610	D06-016	1
	Bearing	005308610	D06-017	1
	Photo sealed plate 2	005309600	N411331	1
	Outer link stopper	205326400A	N410802A	1
	Disk spring	005308410	N410806	1
	Link adjuster sub assembly	0A0360200	S411624	1
	Link base modified assembly	0A0355600	S311216	1
	Outer link assembly (t2.5 to 2.79)	0A0362200	S311250	1
<b>Link base kit_4</b>	Link sub assembly (t2.5 to 2.79)	0A0362000	S411628	1
	Link spring	005307400	N410804	1
	Link collar	005307200A	N410803A	1
	Outer link spring	005307600	N410805	1
	Bearing	005308610	D06-020	1
	Bearing	005308610	D06-016	1
	Bearing	005308610	D06-017	1
	Photo sealed plate 2	005309600	N411331	1
	Outer link stopper	205326400A	N410802A	1
	Disk spring	005308410	N410806	1
	Link adjuster sub assembly	0A0361800	S411626	1

February, 2001

**LPM HOPPER**

Version 1.0

**Universal Distributing of Nevada, Inc.**

<b>Link base kit_5-6</b>	Link base assembly (t2.2 to 2.49)	0A0362800	S311253	1
	Outer link assembly (t2.2 to 2.49)	0A0363200	A311255	1
	Link sub assembly (t2.2 to 2.49)	0A0363000	A411633	1
	Link spring B	015305800	N410896	1
	Link collar	005307200A	N410803A	1
	Outer link spring	005307600	N410805	1
	Bearing	005308610	D06-020	1
	Bearing	005308610	D06-016	1
	Bearing	005308610	D06-017	1
	Photo sealed plate 2	005309600	N411331	1
	Outer link stopper	205326400A	N410802A	1
	Disk spring	005308410	N410806	1

Part Name	Part Name	Part #	Drawing #	Q'ty
<b>Base cover kit_1</b>	Base cover 2	205327800	N210276	1
	Sensor cover	205326800	N310487	1
	Base support	0A0357200	S311238	1
	Runner plate (dia:20.0 to 20.99)	0A0359800	S311240	1
	Motor base (dia:20.0 to 20.99)	0A0360000	S311241	1
<b>Base cover kit_2</b>	Base cover 2	205327800	N210276	1
	Sensor cover	205326800	N310487	1
	Base support	0A0357200	S311238	1
	Runner plate (dia:22.0 to 22.99)	0A0360600	S311243	1
	Motor base (dia:22.0 to 22.99)	0A0360800	S311244	1
<b>Base cover kit_3</b>	Base cover 2	205327800	N210276	1
	Sensor cover	205326800	N310487	1
	Base support	0A0357200	S311238	1
	Runner plate (dia:24.0 to 24.99)	0A0356800	S311236	1
	Motor base (dia:24.0 to 24.99)	0A0357000	S311237	1
	RP spacer (t1.9 to 2.19)	0A0357600	S311228	
<b>Base cover kit_4</b>	Base cover 2	205327800	N210276	1
	Sensor cover	205326800	N310487	1
	Base support	0A0357200	S311238	1
	Runner plate (dia:23.0to 23.99)	0A0359800	S311247	1
	Motor base (dia:23.0 to 23.99)	0A0360000	S311248	1
	RP spacer (t1.9 to 2.19)	0A0357600	S311228	1
	RP spacer (t2.2 to 2.49)	0A0362400	S311251	1
<b>Base cover kit_5- 6</b>	Base cover 2	205327800	N210276	1
	Sensor cover	205326800	N310487	1
	Base support	0A0357200	S311238	1
	Runner plate (dia:26.0)	0A0364000	S311259	1
	Motor base (dia: over 25.0)	0A0364600	S311262	1
	RP spacer (t2.2 to 2.49)	0A0362400	S311251	1

Part Name	Part Name	Part #	Drawing #	Q'ty
Spacer kit_1-2	BP spacer (t=0.3)	812908000	S411617	1
	Motor spacer (t=0.3)	812908200	S411618	1
	Motor SIM (B)	828031602	S410954A# 2	1
Spacer kit_3-4	BP spacer (t=0.6)	812908400	S411630	1
	Motor spacer (t=0.6)	812908600	S411631	1
	Motor SIM (B)	828031602	S410954A# 2	2
Spacer kit_5-6	BP spacer (t=0.3)	812908000	S411617	1
	BP spacer (t=0.6)	812908400	S411630	1
	Motor spacer (t=0.3)	812908200	S411618	1
	Motor spacer (t=0.6)	812908600	S411631	1
	Motor SIM (B)	828031602	S410954A# 2	3

February, 2001	<b>LPM HOPPER</b>	Version 1.0
Universal Distributing of Nevada, Inc.		