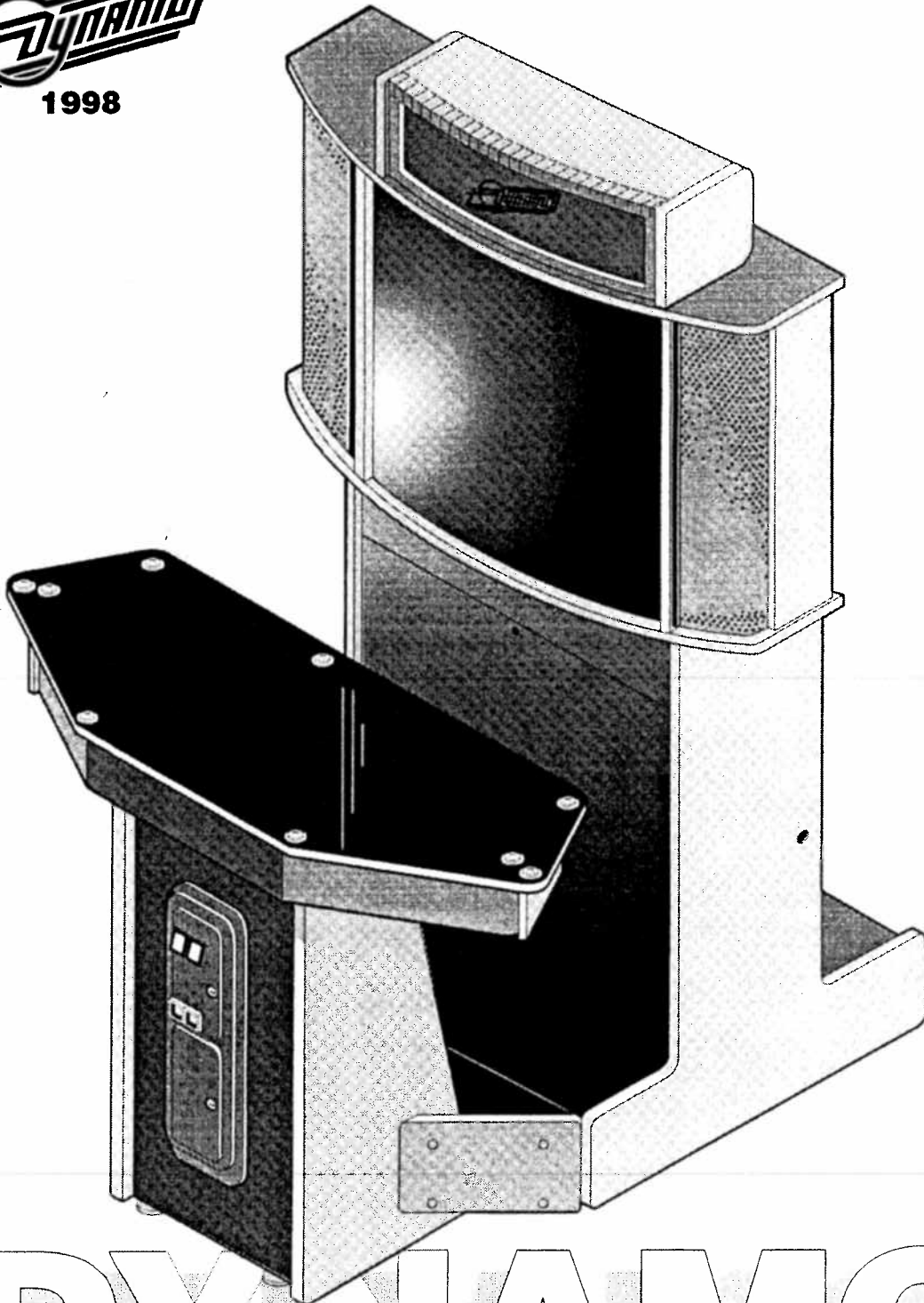




1998



DYNAMO

TABLE OF CONTENTS

Warranty Information	(1)
Assemble Instructions	(3)
Wire Harness Pin Out	(4)
Main Wire Harness Layout	(5)
A/C Wire Harness	(6)
Coin Door / Counter wire Harness	(7)
Service Button Wire Harness	(8)
Speaker Wire Harness	(9)
Monitor Wire Harness	(10)
Monitor Specifications	(11)
Monitor Schematic	(12)
Monitor Trouble shooting	(13)
Power Supply Specifications	(14)
Power Supply Schematic	(15)
Cabinet Parts Diagrams	(16)
Parts Listing	(18)

LIMITED WARRANTY

Dynamo, Ltd., a Texas Limited Partnership, having its principal place of business at 2525 Handley-Ederville Rd., Richland Hills, TX 76118 ("Manufacturer") warrants its Coin Operated Amusement Game products (the "Products") as follows:

1. **Limited Warranty.**

Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of ninety (90) days from the date of purchase. If the Products do not conform to this Limited Warranty during the warranty period (as herein above specified), Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its own expense, furnish, replacement Products or, at Manufacturer's option, replacement parts for the defective Products. Shipping and installation of the replacement Products or replacement parts shall be at Buyer's expense.

2. **Other Limits.**

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising out of improper or abnormal use of handling of the Products; against defects or damages arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to Buyer the warranty it received (if any) from the maker thereof of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization by Manufacturer.

3. **Exclusive Obligation.**

THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for incidental, special, or consequential damages.

4. **Other Statements.**

Manufacturer's employees or representatives' ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTIES, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

5. **Entire Obligation.**

This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

WARNINGS AND NOTICES

WARNING

USE OF NON-DYNAMO PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY GENUINE DYNAMO AUTHORIZED PARTS.

- For safety and reliability, substitute parts and modifications are not recommended.
- Substitute parts or modifications may void FCC type acceptance.
- Use only authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

WARNING

Plug this game into a properly grounded outlet to prevent shock hazards and assure proper game operation. Do not use an adapter plug to defeat the power cord's grounding pin. Do not cut off ground pin.

WARNING

A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have had not any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic conditions (e.g. seizures or loss of awareness), immediately consult your physician before using any video games.

We recommend that parents observe their children while they play video games. If you or your children experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions **DISCONTINUE USE IMMEDIATELY** And consult your physician.

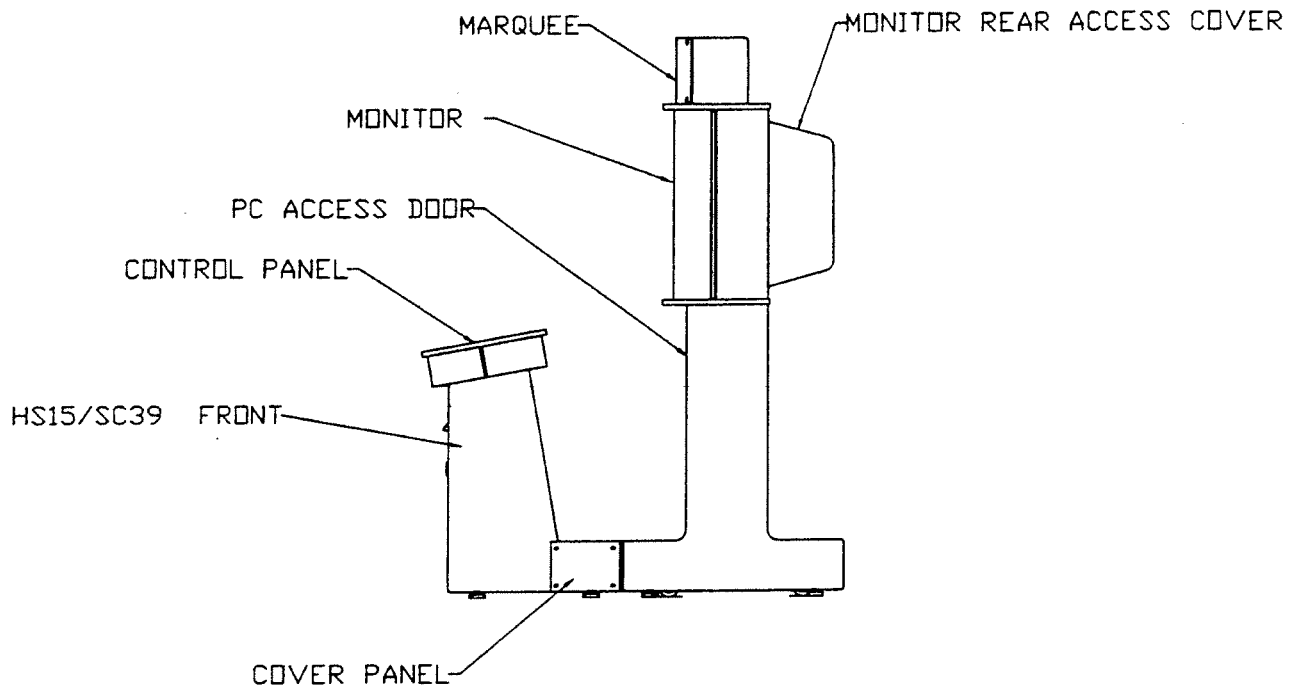
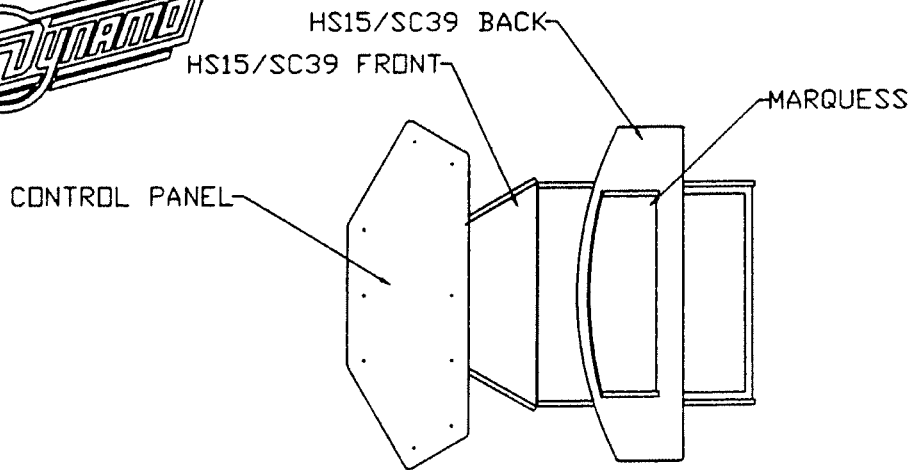
NOTICE

Information in this manual is subject to change without notice. Dynamo Ltd. reserves the right to make improvements in the equipment function, design or components as process in the engineering or manufacturing methods may warrant.

NOTICE

No part of this publication may be reproduced by any mechanical, photographic, or electronic process, or in the form of a phonographic recording, nor be transmitted, or otherwise copied for public or private use without written consent from Dynamo Ltd.

FOR GENUINE DYANMO PARTS AND SERVICE CONTACT YOUR LOCAL AUTHORIZED DYNAMO DISTRIBUTOR.



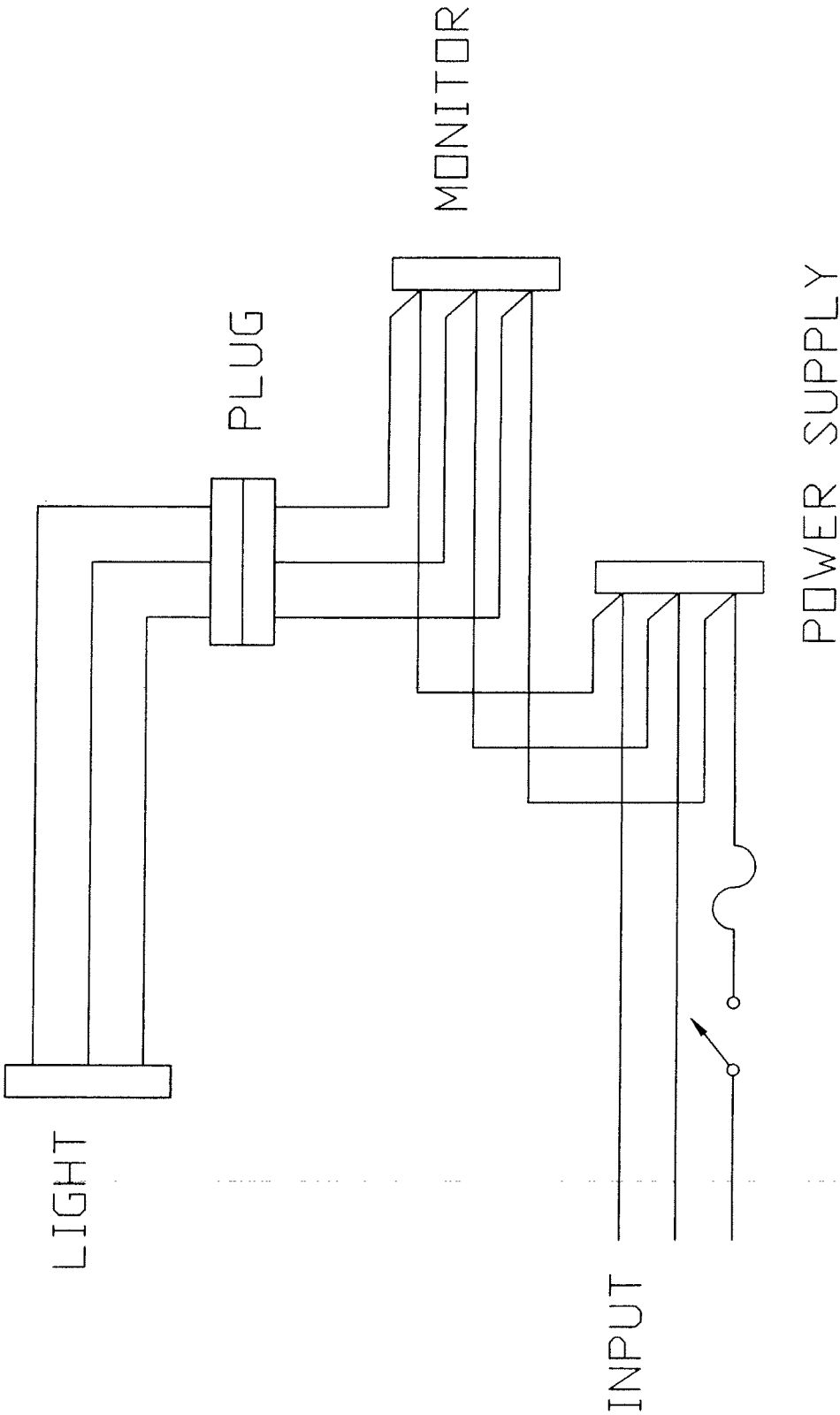
HS15 ASSEMBLY INSTRUCTIONS

1. POSITION HS15 BACK INTO AREA DESIRED AND LEVEL.
2. PLACE MARQUEE ONTO HS15 BACK AS SHOWN, REMOVE THE MARQUEE PLEX, CONNECT MARQUEE WIRE HARNESS, FASTEN MARQUEE USING THE FOLLOWING HARDWARE: (2) 1/4-20 X1-3/4 HEX BOLTS, (2) 1/4 LOCK WASHERS (2) 1/4 LOCK WASHERS. REPLACE MARQUEE PLEX.
3. LEVEL HS15 BACK USING LEG LEVELERS AT BOTTOM OF UNIT
4. POSITION HS15 FRONT TO THE FRONT OF THE HS15 BACK CONNECT WIRE HARNESS, LEVEL FRONT USING THE LEG LEVELERS AT BOTTOM OF UNIT THEN FASTEN THE HS15 FRONT TO HS15 BACK USING THE FOLLOWING HARDWARE: (4) 1/4-20 X 1-3/4 HEX BOLTS, (4) 1/4 LOCK WASHERS, (4) 1/4 FLAT WASHERS.
5. RECHECK LEVEL OF UNIT ADJUST AS NEEDED.
6. POSITION AND FASTEN THE COVER PANEL (2 PLACES) USING THE FOLLOWING HARDWARE: 1/4-20 X 1 TAMPER PROOF SCREWS, (4) 1/4 FLAT BLACK OXIDE WASHERS.

Dynamo

56 Pin Edge Connector Harness

Wire Color	Solder side			Parts Side	Wire Color
Black	Ground	A	1	Ground	Black
Black	Ground	B	2	Ground	Black
Red	+ 5 Volts DC	C	3	+ 5 Volts DC	Red
Red	+ 5 Volts DC	D	4	+ 5 Volts DC	Red
Yellow	- 5 Volts DC	E	5	- 5 Volts DC	Yellow
Orange	+ 12 Volts DC	F	6	+ 12 Volts DC	Orange
	Key	H	7	KEY	
	Coin Counter 2	J	8	Coin Counter 1	Red / Green
	Coin Lock Out 2	K	9	Coin Lock Out 1	
Yellow / Green	Speaker L Neg	L	10	Speaker L Pos	Yellow / Red
White / Green	Speaker R Neg	M	11	Speaker R Pos	White / Red
Green / Black	Video Green	N	12	Video Red	Red / Black
White	Video Sync	P	13	Video Blue	Blue / Black
Orange / Black	Service Switch	R	14	Video Ground	White / Black
	Tilt Switch	S	15	Test Switch	Blue
Green / Blue	Coin Switch 2	T	16	Coin Switch 1	Red / Blue
Red / Yellow	Start Switch 2	U	17	Start Switch 1	Red / White
Green / Yellow	Player 2 Up	V	18	Player 1 Up	Green / White
Blue / Yellow	Player 2 Down	W	19	Player 1 Down	Blue / White
Black / Yellow	Player 2 Left	X	20	Player 1 Left	Black / White
Purple / Yellow	Player 2 Right	Y	21	Player 1 Right	Purple / White
Brown / Yellow	Player 2 Push 1	Z	22	Player 1 Push 1	Brown / White
White / Yellow	Player 2 Push 2	a	23	Player 1 Push 2	Yellow / White
Orange / Yellow	Player 2 Push 3	b	24	Player 1 Push 3	Orange / White
Grey / Yellow	Player 2 Push 4	c	25	Player 1 Push 4	Grey / White
Yellow / Black	N.C	d	26	N.C	Black
Black	Ground	e	27	Ground	Black
Black	Ground	f	28	Ground	Black

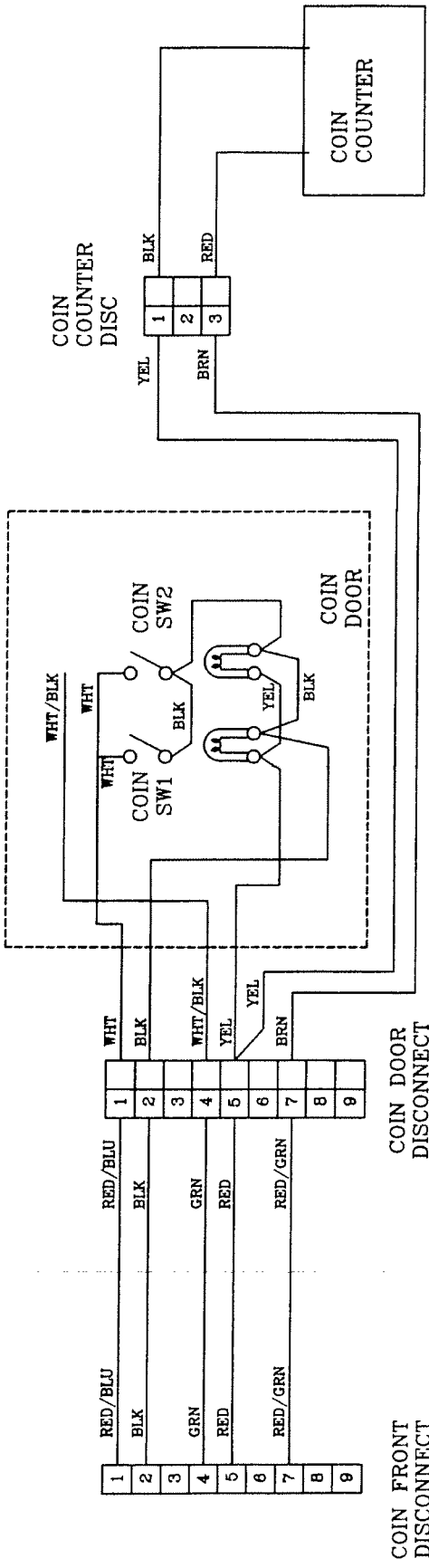



DATE 08/25/98 DRAWN BY: EDG REV: .

TITLE: AC WIREHARNSS HS15

MATERIAL: PART #



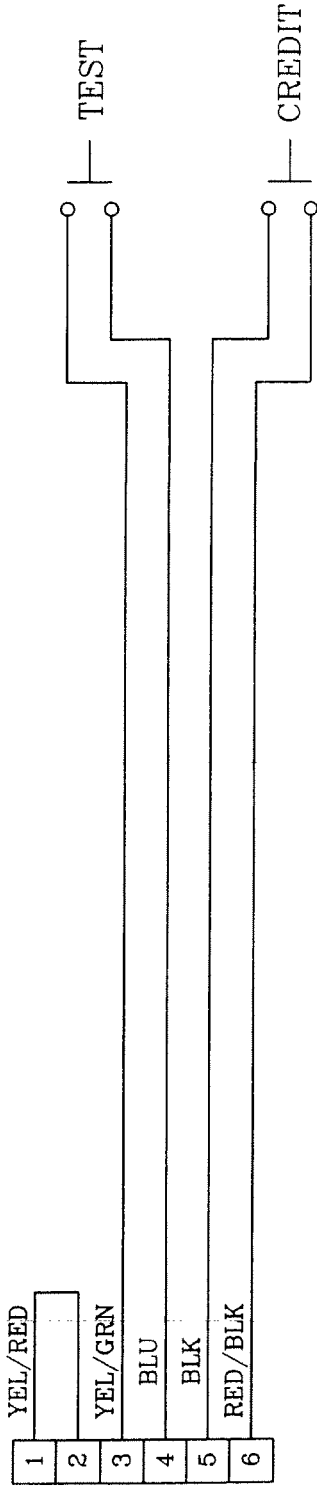
DATE 07/21/98 DRAWN BY: TDG REV:

TITLE: COIN DOOR / COUNTER WIREHARNES

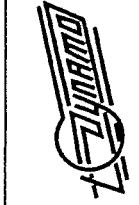
MATERIAL: PART #

Dynamo Ltd Confidential

These Drawings and Specifications, and the data contained therein, are exclusive property of Dynamo Ltd. Issued in strict confidence and shall not without prior written permission of Dynamo Ltd be reproduced, copied or used for any other purpose whatsoever, except the manufacture of articles for Dynamo Ltd

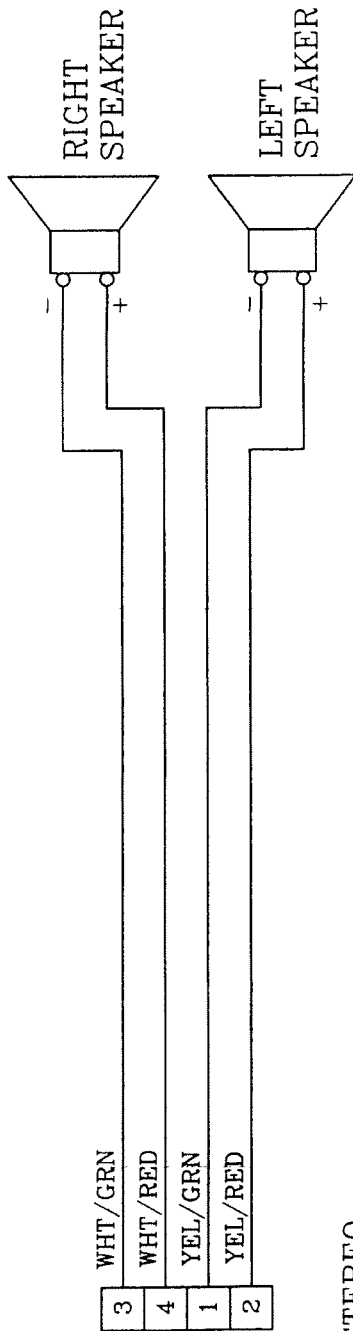


TEST /
SERVICE
HARNES
DISCONNECT



DATE 07/21/88	DRAWN BY: TDG	REV:
TITLE: TEST / SERVICE WIREHARNES		
MATERIAL:		PART #

Dynamo Ltd Confidential
These Drawings and Specifications, and the data contained therein, are exclusive property of Dynamo Ltd. Issued in strict confidence and shall not, without prior written permission of Dynamo Ltd be reproduced, copied or used for any other purpose whatsoever, except the manufacture of articles for Dynamo Ltd



STEREO
AUDIO

DATE 07/21/98 DRAWN BY: TDC REV:
TITLE: SPEAKER WIREHARNES
MATERIAL: PART #



Dynamo Ltd Confidential
These Drawings and Specifications, and the data contained therein, are the exclusive property of Dynamo Ltd. Issued in strict confidence and shall not without prior written permission of Dynamo Ltd be reproduced, copied or used for any other purpose whatsoever, except the manufacture of articles for Dynamo Ltd

1	BLU	4
2	GRN	5
3	RED	6
4	YEL	2
5	WHT	1
6	BLK	3

VIDEO
HARNESS
DISCONNECT

MONITOR
CONNECTOR

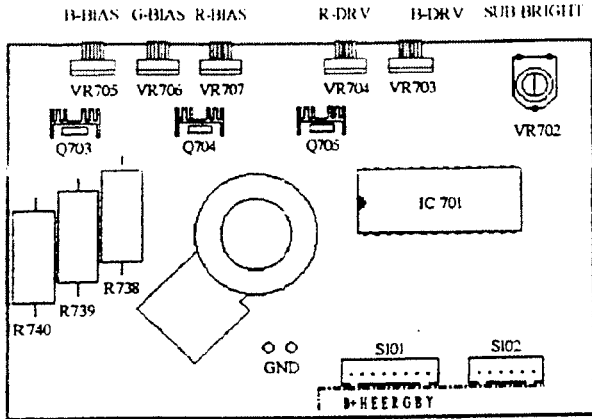
Dynamo Ltd Confidential
These Drawings and Specifications, and the data contained therein, are exclusive property of Dynamo Ltd, issued in strict confidence and shall not without prior written permission of Dynamo Ltd be reproduced, copied or used for any other purpose whatsoever, except the manufacture of articles for Dynamo Ltd



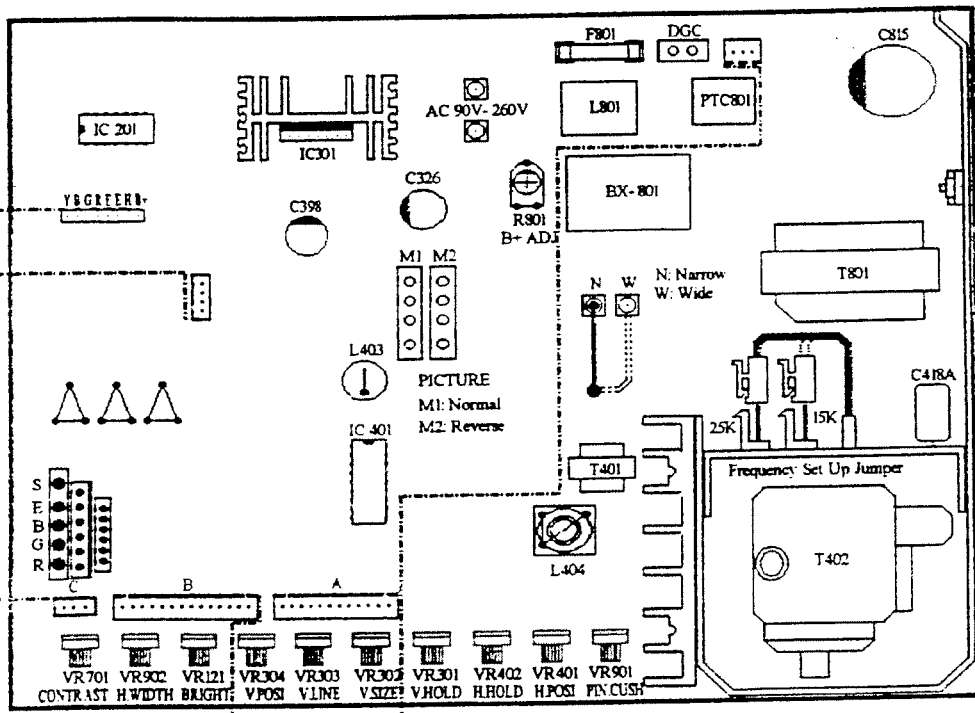
DATE 07/21/98	DRAWN BY: TDG	REV:
TITLE: MONITOR WIREHARNESS		
MATERIAL:		PART #

SHARP IMAGE

ELECTRONICS, INC



27"/34"/39" DUAL SYNC (CGA/EGA) FREE VOLTAGE MONITOR CHASSIS	
SPECIFICATIONS	
CRT Size	27"/34"/39" RCA / Phillips A Grade CRT
Video Input	RGB TTL, 0.7Vpp/5.0Vpp (Adjustable with Contrast Control)
Impedance Input	2K ohm
Sync Input	Separate Sync: Hor. & Vert., TTL Negative Composite Sync: Hor. + Vert., TTL Negative
Horizontal Frequency	15/25KHz
Vertical Frequency	50Hz to 60Hz
Band Width	6Mhz
Power Supply	90 V - 260 V AC (Full Range)
Power Consumption	110W Maximum
Remote Controls	Bright, Contrast, V. Posi., V. Line, V.Size, V.Hold H. Posi, H. Hold and Degaussing Switch
Operating Temperature	0 - 55 degree Celsius
Regulation	Meets: UL., C.S.A., and D.H.H.S.
FREE - VOLT	NO ISOLATION TRANSFORMER NEEDED.
Horizontal Deflection Coil	LH=0.96mh., RH=1.1ohm
Vertical Deflection Coil	LV=24.4mh., RV=9.6ohm
Size	L 10.5" x W 7.09" x H 4.6"
Weight	Approximately 5.5lbs.

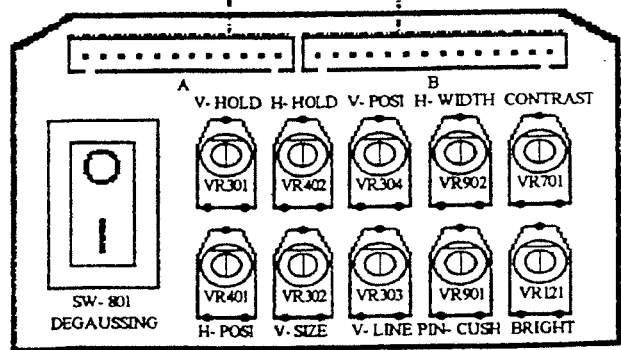


AC INPUT

Pin	Description
1	AC HOT
2	EARTH GROUND
3	AC NEUTRAL

VIDEO OUTPUT

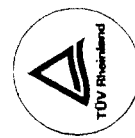
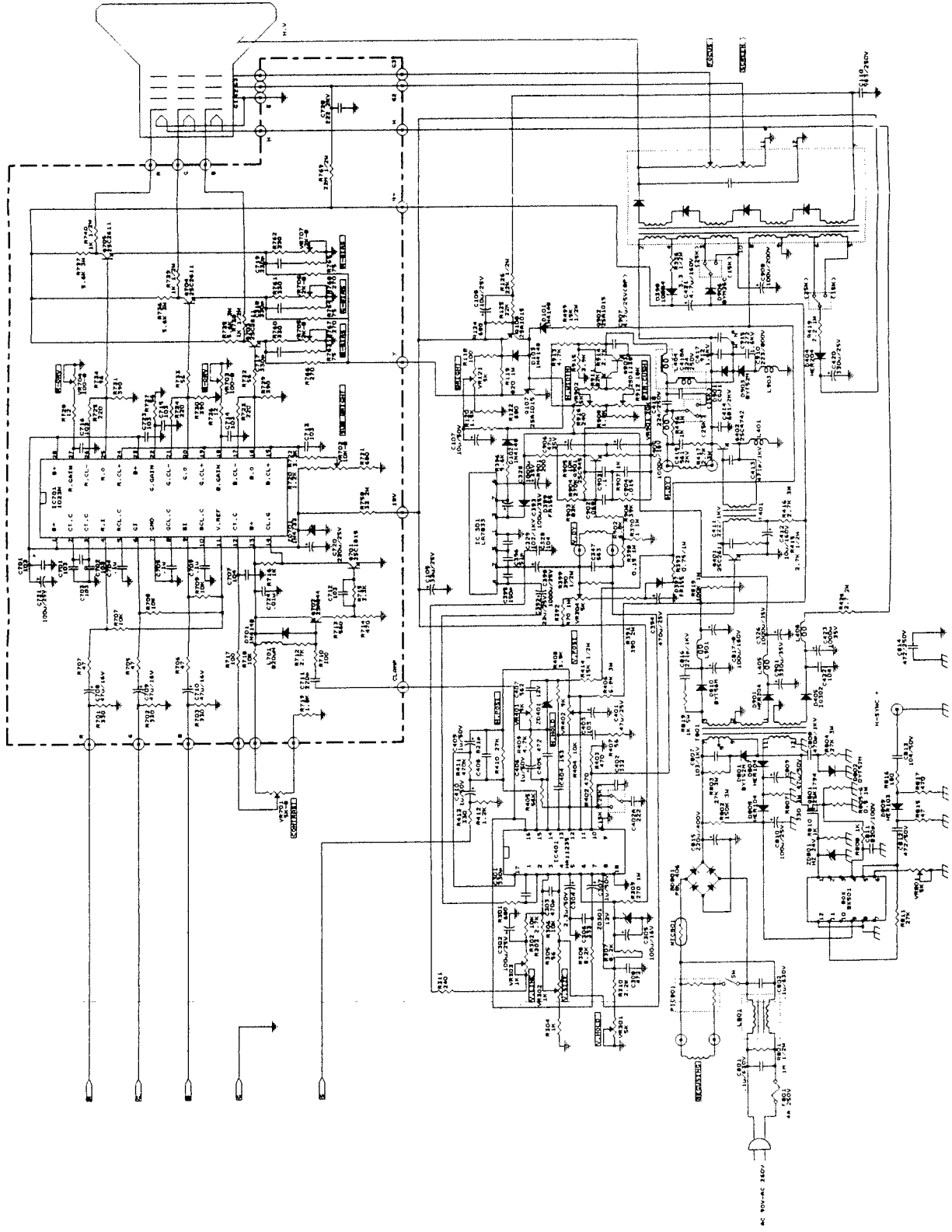
PC Connector Pin	Description	Mating Connector Pin
1	Red	10
2	Green	9
3	Blue	8
4	Gnd	7
5	+Vertical Sync	6
6	+Horizontal Sync	5
7	Key	4
8	Gnd	3
9	-Vertical Sync	2
10	-Horizontal Sync	1



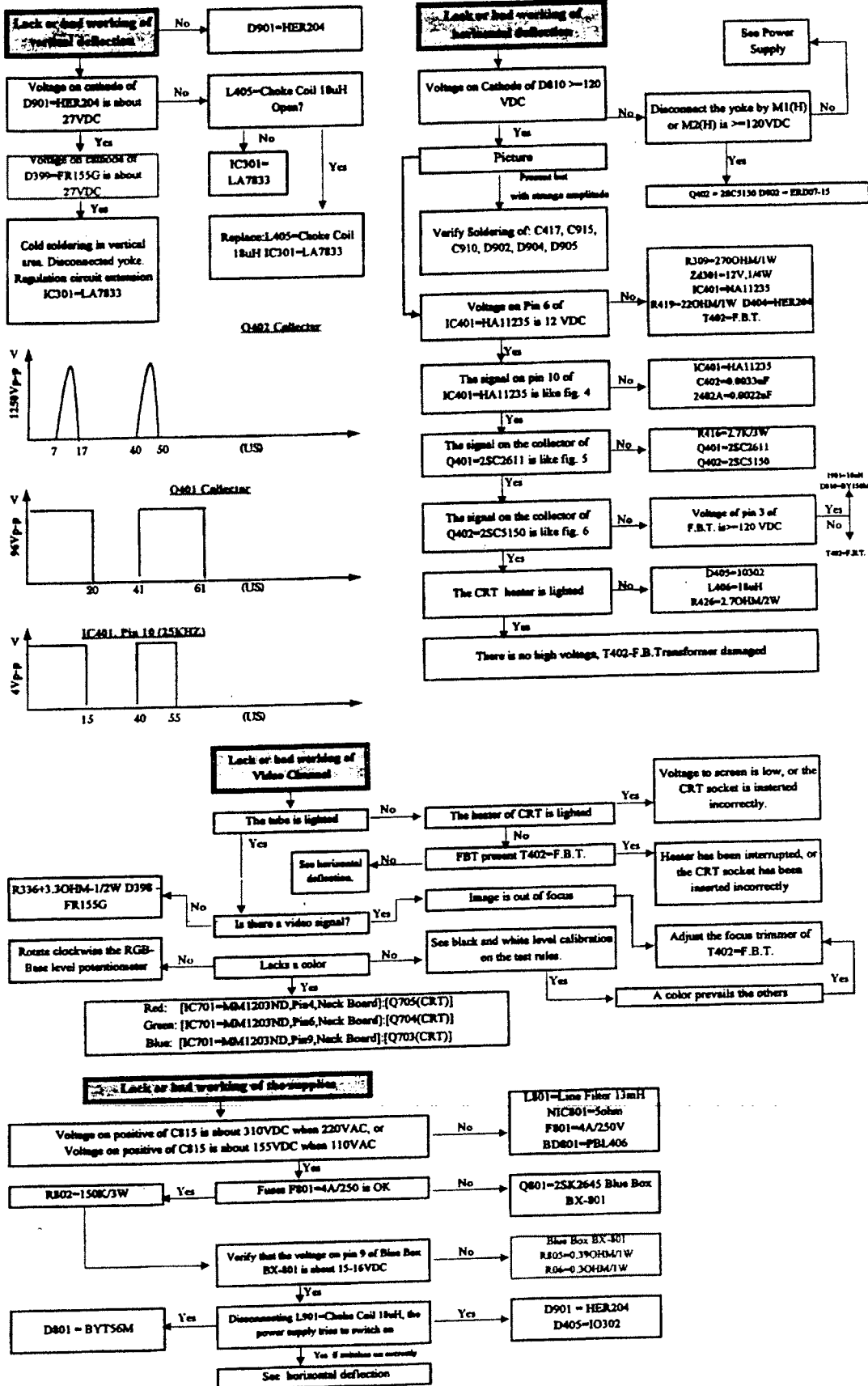
Position Chart

For Reference Only

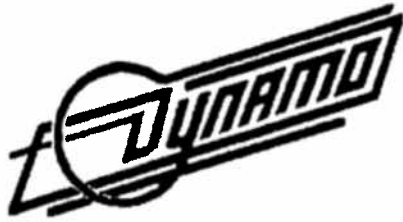
27"/34"/39" DUAL SYNC FREE VOLTAGE MONITOR



DUAL SCAN TROUBLESHOOTING CHART



FOR SERVICE CALL (818) 341-8000

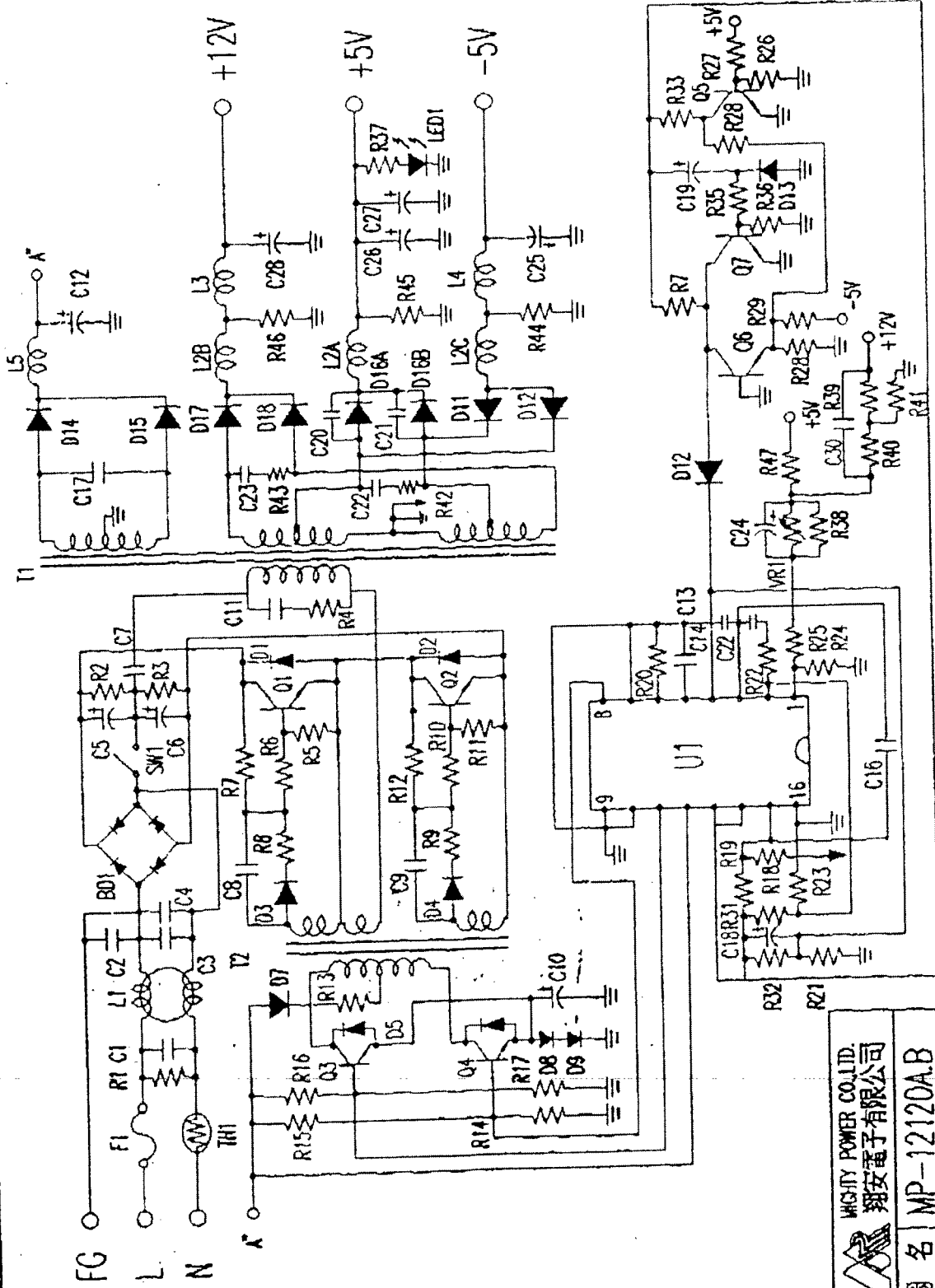



Power Supply Specifications

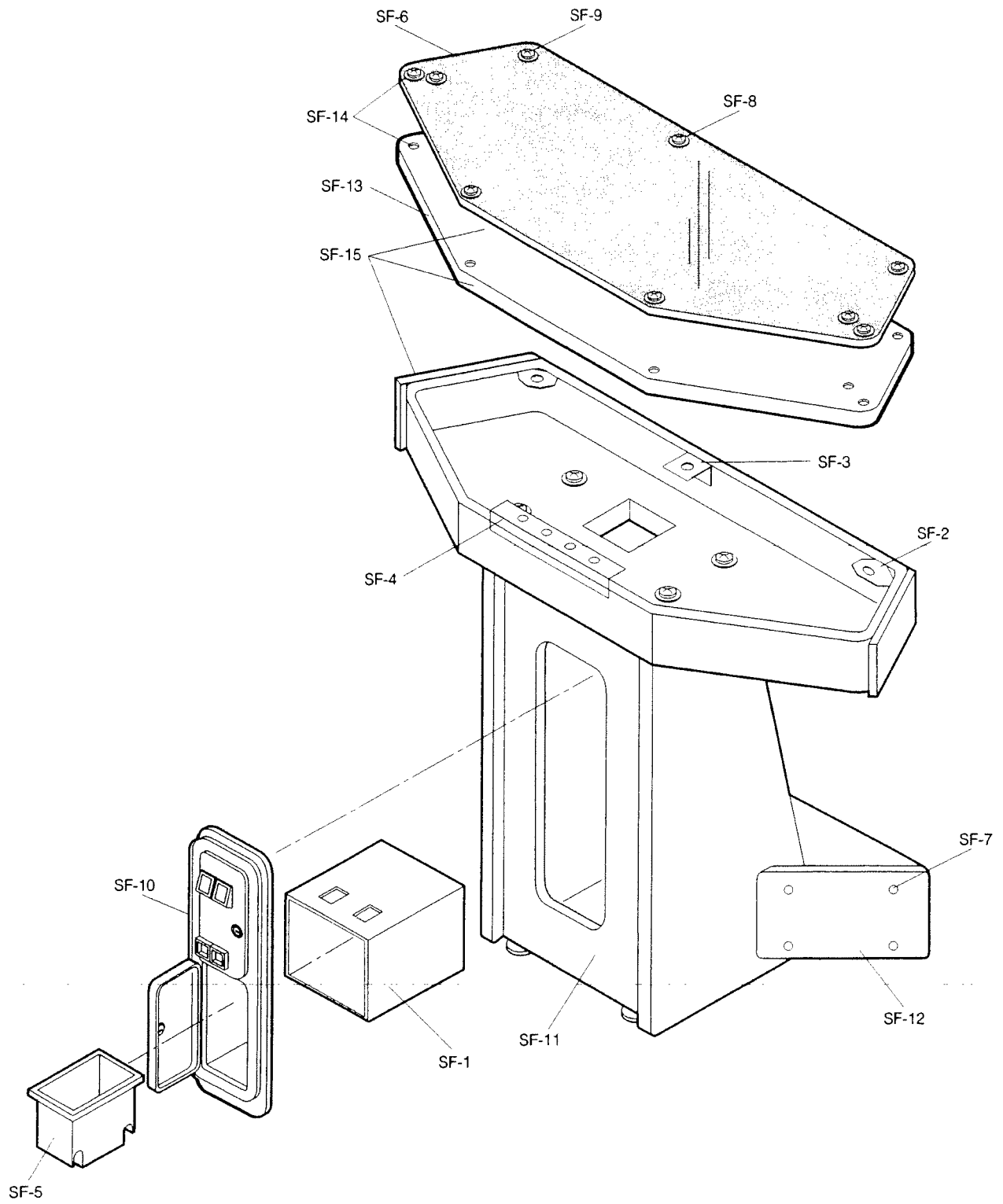
Testing Items	Unit	Specifications		
Model		MP-20130A		
Input Voltage	V	AC 90 ~ 130 AC180 ~ 260		
Input Current	A	(AC 115V Full Load) 2		
Input Frequency	HZ	47 ~ 63		
Inrush Surge Current	A	132V = 40A		
Fuse	A	4		
Power Efficiency	%	(AC 115V Full Load) > 70		
Over Power Protection	%	150 ~ 180		
Ambient Temp	°C	0 ~ 50		
Output Voltage	V	5 (V1)	12 (V2)	-5 (-V1)
Output Current	A	15	4	1
Minimum Load	A	1	0.5	0.1
Output Power	W	75	48	5
Line Regulation	%	±1	±1	±1
Load Regulation	%	±2	±2	±2
Temp Regulation	%	±1	±1	±1
Ripple & Noise	mV	80	120	60
Short Protection		✓	✓	✓
Over Voltage Protection	%			
Adjust V.R.	%	±10		
Cooling Way		Natural		
Hi-Pot Tested	KV	P To S 3KV, P To FG 1.5KV 10mA 1 Min		
Restart Time	SEC	Following any Fault Shutdown 5 Sec		
Hold Time	mSEC	(AC115V Full Load) > 16		
Rise Time	mSEC	(AC115V Full Load) < 40		
Terminal Pitch		9.5		
Case Size LxWxH	mm	195 x 110 x 43		
Weight	KG	0.68		

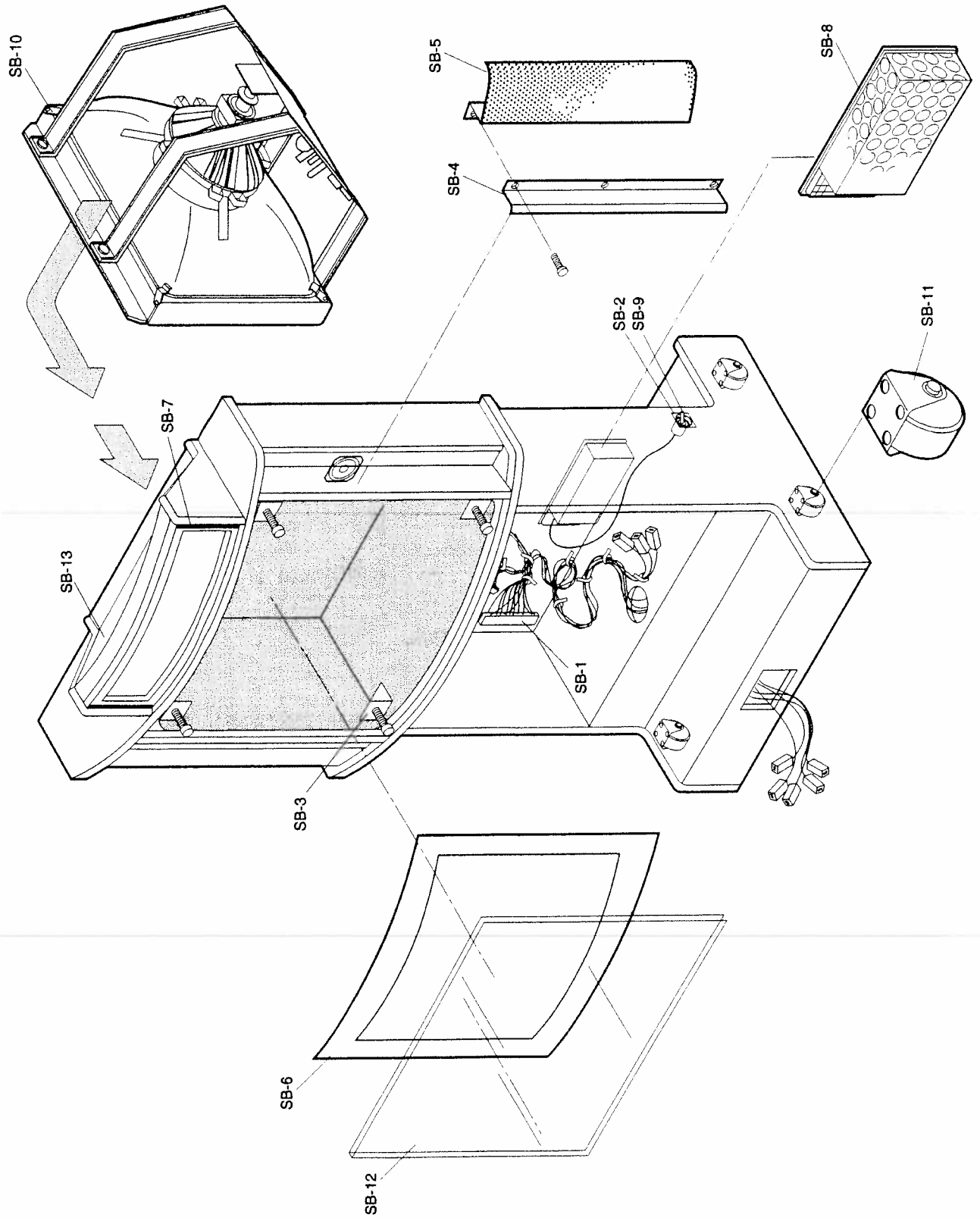
Dynamo, Ltd.
 2525 Handley-Ederville Rd.
 N. Richland Hills, TX USA 76118
 (1) 817-284-0114 Fax (1) 817-284-7606
 Internet: <http://www.dynamo-ltd.com> Email: dynsales@dynamo-ltd.com

POWER SUPPLY SCHEMATIC



	MIGHTY POWER CO., LTD. 翔安电子有限公司
圖名	MP-12120A.B
比例	1:1 單位 mm





Showcase
Front Unit

REF#	PART #	DESCRIPTION	MSR Price
SF-1	800302000	Coin box encloser	\$16.7
SF-2	802500115	Control panel corner tamper proof screw bracket	\$4.2
SF-3	802500120	Control panel center tamper proof screw bracket	\$4.3
SF-4	802500155	Control panel hinge	\$20.0
SF-5	860300400	Cash box	\$5.5
SF-6	862500170	Control panel Copoly (Lexan protective cover)	\$76.4
*	870000110	Wrench, Hex key (5/32 tamper proof)	\$7.1
SF-7	870012308	Mounting cover panel screw (MS 1/4-20 X 1 1/4)	\$0.3
SF-8	870036158	Control panel securing bolts (MS 10-24 X 1 1/4 tamper proof)	\$0.9
SF-9	870036205	Copoly securing screw (MS 10-24 X 3/4 tamper proof)	\$0.9
SF-10	880303100	Coin door unit. (over/under coin controls)	\$154.5
*	890300100	Leg leveler	\$1.1
*	890800210	Control panel strain relief chain	\$1.8
SF-11	962500310	Coin door front wall	\$45.5
SF-12	962500345	Front unit mounting cover panels	\$18.2
SF-13	962500396	Control panel top	\$54.5
SF-14	992500365	Control panel top with Copoly	\$127.3
SF-15	992500370	Control panel with support box complete	\$318.2

Showcase
Back Unit

REF#	PART #	DESCRIPTION
*	730100040	Power Cord
*	730300502	Wire Harness, 36" Control Panel (JAMMA Standard)
SB-1	730300625	Wire Harness, Showcase Complete
SB-2	800300300	On/Off Power Switch Mounting Bracket
SB-3	800800000	Monitor Mounting Bracket
SB-4	802500147	Monitor Plexi Bracket
SB-5	802500161	Speaker Screen
SB-6	850800003	Monitor Card black
SB-7	860300700	Marquee Plexi Bracket
*	880300500	Fuse, 5 AMP
*	880300615	Speaker, 8 OHM, Sheilded 4" - 10 watt
SB-8	880300750	Power Supply, 15 AMP
SB-9	880301400	On/Off Power Switch
SB-10	880303905	Monitor 39" Dual Res (CGA / EGA)
*	890300100	Leg Leveler
SB-11	890800125	Swivel Caster
SB-12	912500102	Monitor Plexi
*	931500100	Marquee Plexi
*	980000530	Access Door Lock # 106
*	992500150	Access Door Assemble
SB-13	992500452	Marquee Assemble