

For Service Manuals Contact  
MAURITRON TECHNICAL SERVICES  
8 Cherry Tree Rd, Chinnor  
Oxon OX9 4QY  
Tel:- 01844-351694 Fax:- 01844-352554  
Email:- enquiries@mauritron.co.uk

## SERVICE MANUAL



# FISHER

# MT-M21

Stereo Turntable  
(ENGLAND)



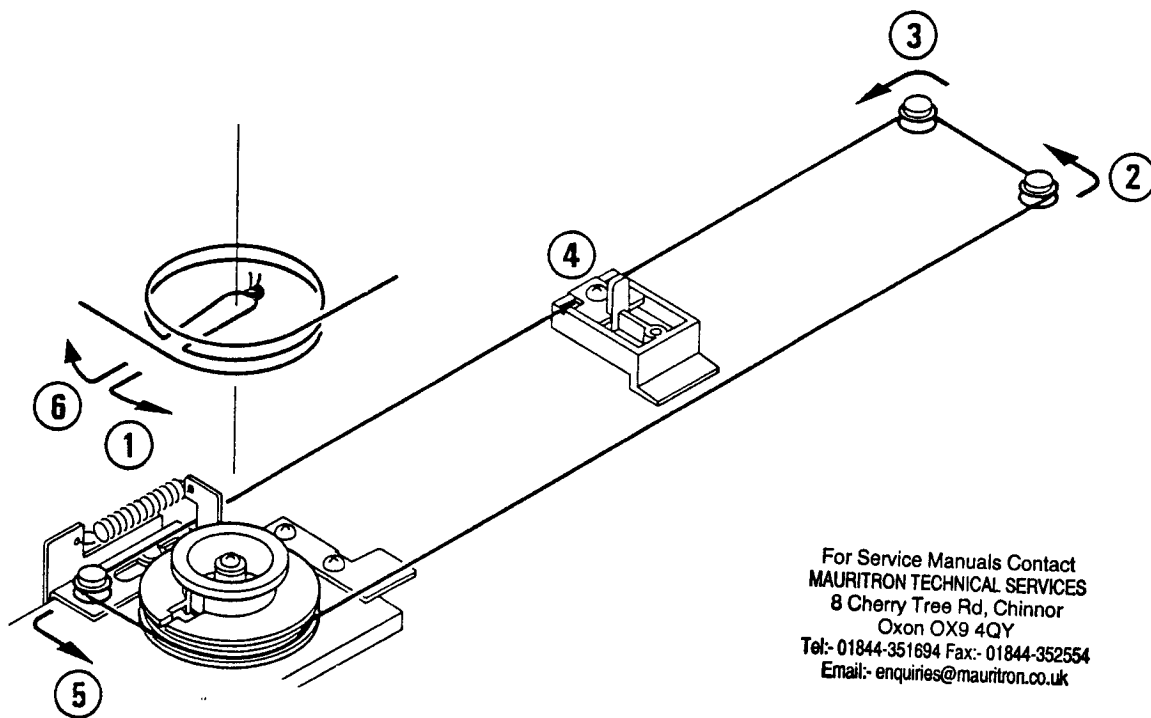
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98\*6091  
MTM21  
SER. MAN. WM11804 FPCOPY  
740140 7 1

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## ARM FEED CORD STRINGING



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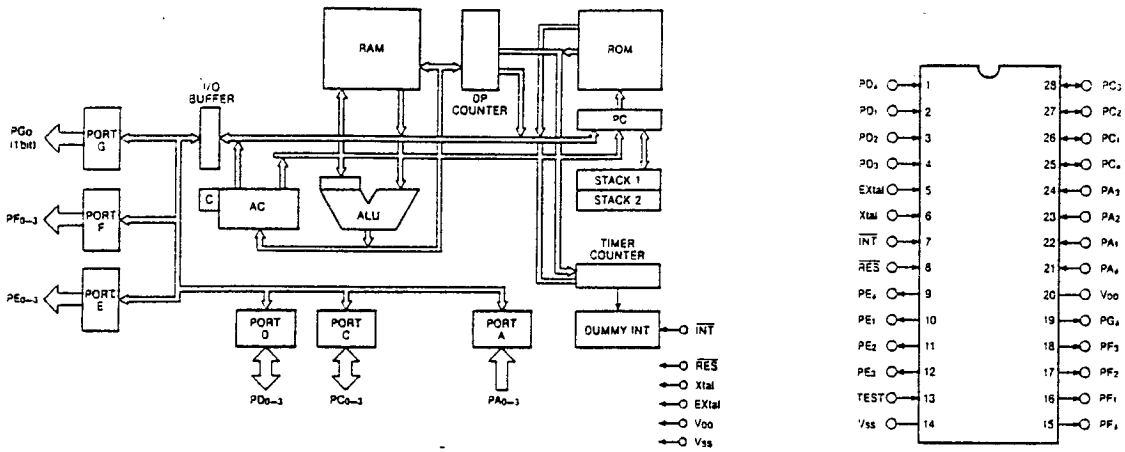
# SPECIFICATIONS

TURNTABLE	MT-M21
Motor	DC Servo
Drive System	Belt
Wow and Flutter (WRMS)	0.08 %
Rumble (DIN B)	-65 dB
Speed Variation	±1.5 %
Tracking Force	0.6 - 2 g
Platter Diameter	300 mm
Platter Weight	0.4 kg
Record Speed Selector	33-1/3 rpm/ 45 rpm
Operation	Full Auto Linear Tracking
<b>GENERAL</b>	
Dimensions (W x H x D)	335 x 92 x 345 mm
Weight (approx.)	3 kg

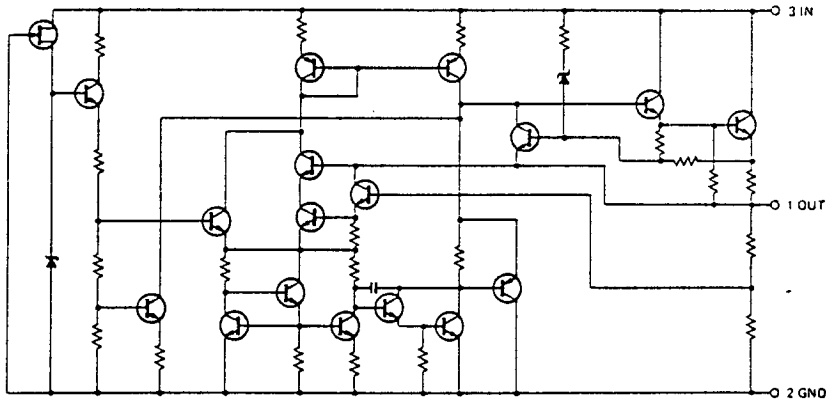
Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

# IC SIGNAL FLOW & EQUIVALENT CIRCUIT

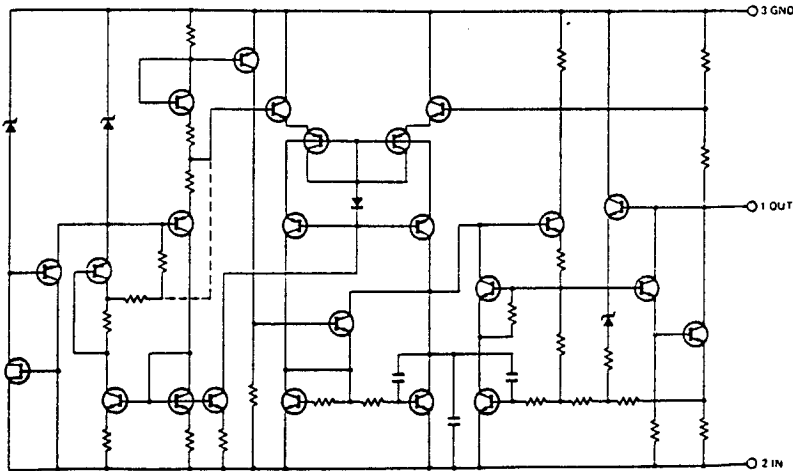
## CONTROL IC LM 6416 E



## VOLTAGE REGULATOR IC NJM 7812

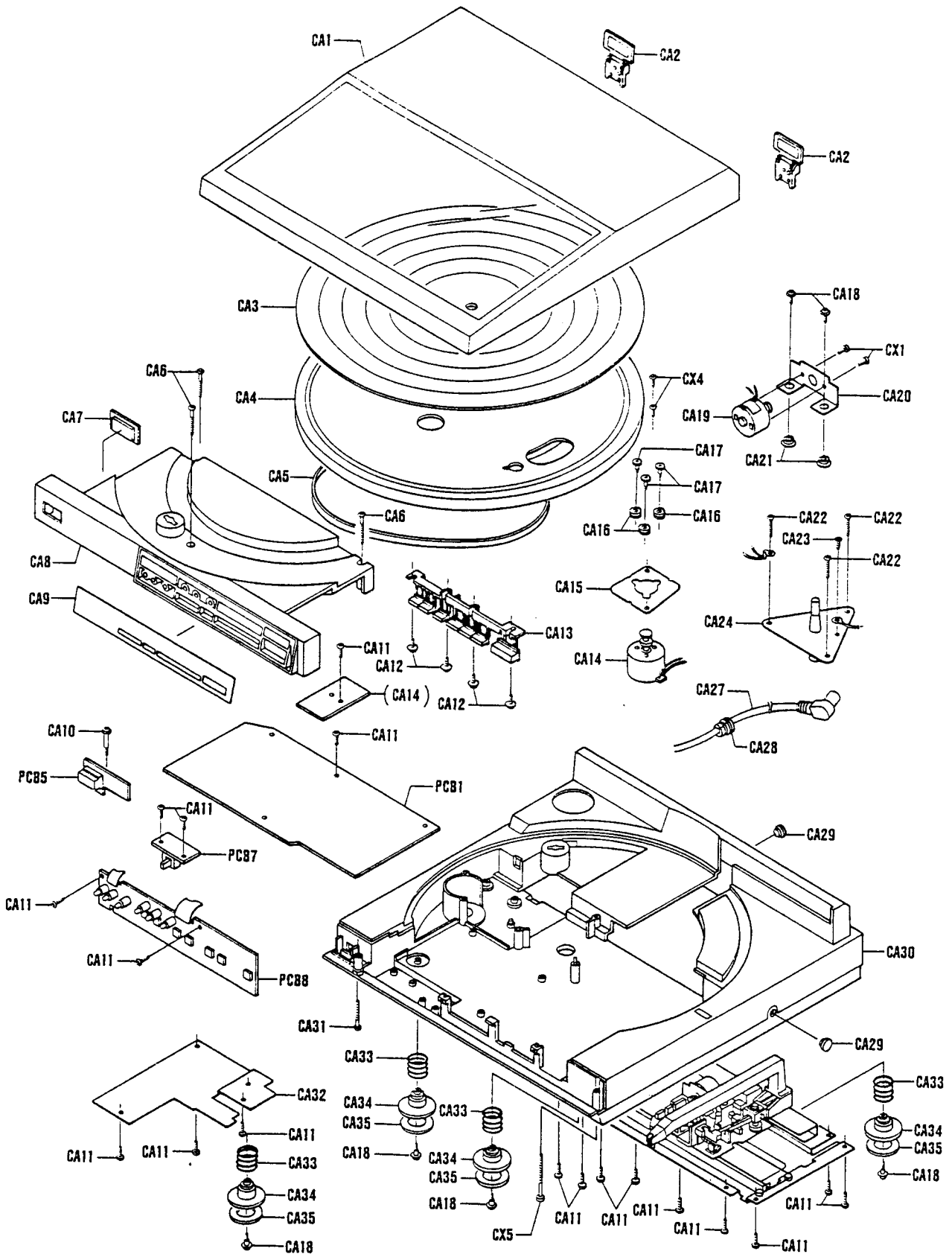


## VOLTAGE REGULATOR IC NJM 7912

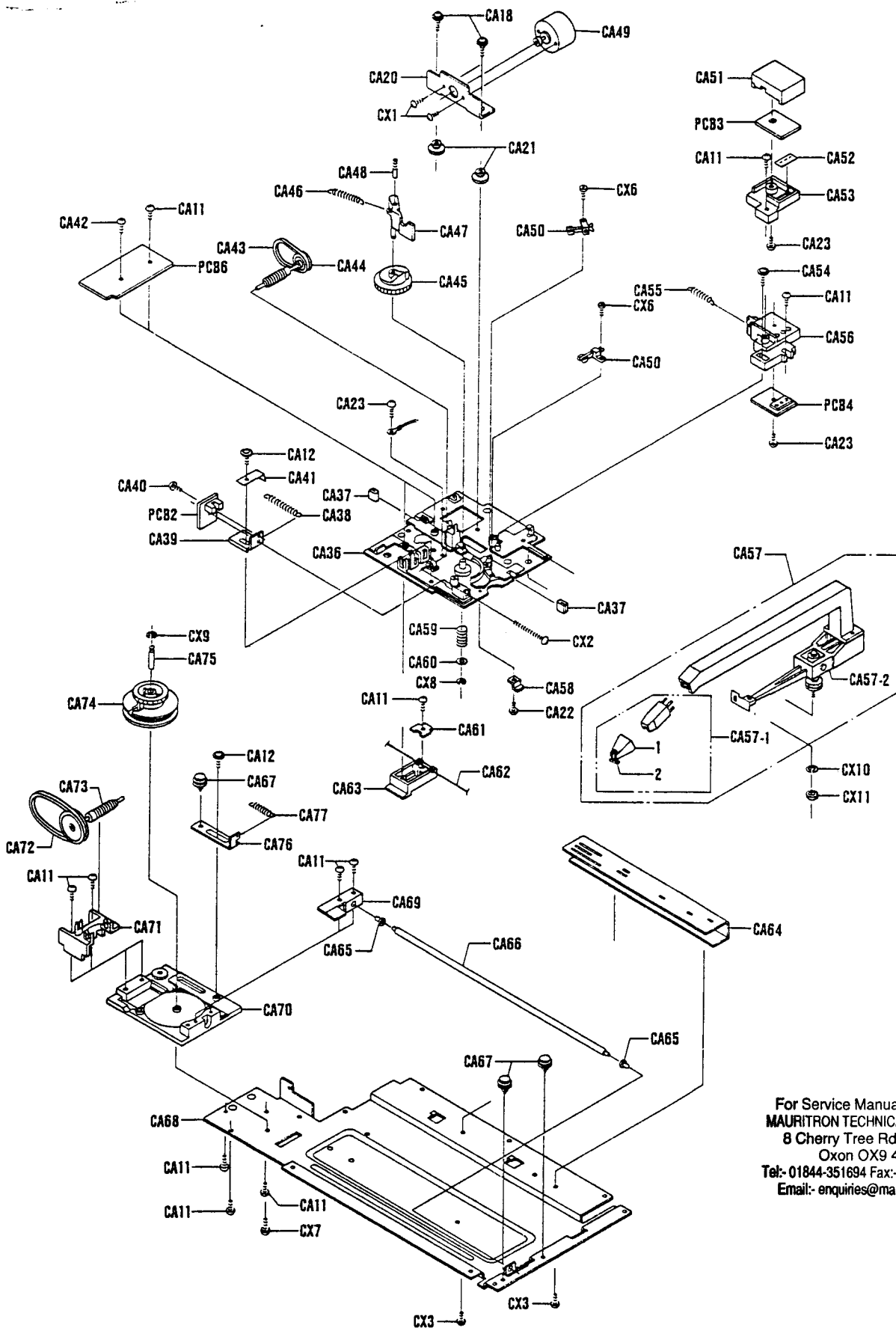


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# CABINET & CHASSIS EXPLODED VIEW



# CABINET & CHASSIS EXPLODED VIEW (Continued)



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# CABINET & CHASSIS PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
<b>PACKAGE</b>							
131	6 2119 02081	Bag Polyethylene-exp	1	CA37	141 2 4459 33800	Cushion	2
131	6 2519 00201	Bag Polyethylene Ind	1	CA38	141 2 8519 31900	Spring, Slide Base	1
131	6 3069 17050	Patching Sheet	1	CA39	141 2 3519 67400	Angle Mount(Photo C)	1
141	2 4219 32700	Screw Transit	1	CA40	131 2 4201 20800	Screw, +M2.6x6	1
141	6 3119 23100	Pad Front	1	CA41	141 2 8539 53800	Spring Plate	1
141	6 3119 23200	Pad Rear	1	CA42	131 2 4201 19504	Screw, Button Hd. Tapping-B	1
141	6 3119 23300	Pad	1	CA43	141 2 5649 22600	Belt	1
141	6 3119 23401	Pad	1	CA44	141 0 5519 10300	Worm Assy	1
141	6 3119 23500	Pad	1	CA45	141 2 5519 52100	Worm Wheel(a)	1
141	6 3319 13200	Spacer	3	CA46	141 2 8519 60000	Spring Plate	1
<b>CABINET</b>							
131	2 1310 30737	Name Plate	1	CA47	141 2 7519 64000	Spindle Lifting	1
131	2 3608 12405	Cramp Wire	1	CA48	134 2 4201 12800	Screw	1
131	6 4559 10900	Manufacturing NO	1	CA49	4 5272 00180	Comutate MTR Magnet (Lifter) [M02]	1
134	6 4739 13403	Stylus Label	1	CA50	4 2319 76680	Leaf Switch (Lift Down) [SW09]	1
4	2359 75220	Connector 12P Assy (Cont. - Terminal PCB) [CN01]	1	CA50	4 2319 76680	Leaf Switch (Lift Up) [SW10]	1
4	2359 76743	Connector 4P Assy (Motor PCB) [CN02]	1	CA51	141 2 3519 66900	Cover(Holder)	1
4	2359 76794	Connector 3P Assy [CN04]	1	CA52	141 2 3519 67500	Plate(Filter)	1
4	2359 77005	Connector 1P Assy	1	CA53	141 2 3519 66800	LED Holder	1
4	2359 77142	Connector 1P Assy (Cont. PCB)	1	CA54	141 2 4219 06300	Screw	1
4	2359 77145	Connector 1P Assy (Terminal PCB)	1	CA55	134 2 5101 32400	Spring	1
131	2 3608 14100	Cramp Wire	3	CA56	141 2 3519 67000	LED Holder Base	1
CA1	141 0 1249 30500	Lid Assy	1	CA57	141 0 6419 00502	Pick-up Assy	1
CA2	131 0 2002 16801	Hinge Assy	2	CA57-1	4 1579 27031	Cartridge(MG-37I)	1
CA3	134 2 6102 15700	Mat Turntable	1	1	4 1579 29451	Stylus(ST-37ID)	1
CA4	141 2 5229 00200	Turntable	1	2	134 2 1402 12700	Retainer Needle	1
CA5	134 2 6302 11500	Belt	1	CA57-2	141 0 6419 00802	Tone Arm Assy	1
CA6	131 2 4201 19507	Screw, Button Hd. Tapping-B	3	CA58	134 2 4108 27801	Plate	1
CA7	141 2 1329 13300	Filter	1	CA59	134 2 5101 26500	Spring	1
CA8	141 2 1219 26803	Panel Front	1	CA60	141 2 4579 05000	Washer, M3.2x10x0.2	1
CA9	141 2 1439 12801	Panel Control	1	CA61	141 2 3519 70300	Angle Mount	1
CA10	134 2 4106 27000	Shaft	1	CA62	131 2 4112 10200	Rope	1
CA11	131 2 4201 19501	Screw, Button Hd. Tapping-B	29	CA63	141 2 7319 58000	Holder Slide	1
CA12	131 2 4201 21100	Screw	6	CA64	141 2 3169 23100	Guide Angle	1
CA13	141 2 1659 24800	Knob	1	CA65	141 2 4459 33200	Cushion	2
CA14	134 0 5011 03500	Motor Assy [M01]	1	CA66	141 2 5289 01300	Rail	1
4	5272 00190	Comutate MTR Magnet (Phono)	1	CA67	131 0 3020 11800	Pully Assy	3
134	2 6401 14400	Pulley Motor	1	CA68	141 2 1259 06200	Plate Bottom	1
141	0 1939 02790	Motor P.C.B. Assy	1	CA69	141 2 3519 69100	Angle Mount	1
CA15	141 2 3169 23300	Metal Mount Motor	1	CA70	141 2 3169 23200	Frame	1
CA16	134 2 5202 11800	Rubber Cushion	3	CA71	141 2 5739 07300	Support Shaft	1
CA17	134 2 4201 13600	Screw	3	CA72	141 2 5649 25100	Belt	1
CA18	134 2 4201 13400	Screw	8	CA73	141 0 5519 10301	Worm Assy	1
CA19	4 5272 00181	Comutate MTR Magnet (Arm) [M03]	1	CA74	141 2 5519 60100	Worm Wheel(C)	1
CA20	141 2 3519 67100	Angle Mount(Motor)	2	CA75	141 2 5529 18900	Shaft	1
CA21	141 2 4459 31800	Cushion	4	CA76	141 2 3519 69000	Angle Mount	1
CA22	131 2 4201 19502	Screw, Button Hd. Tapping-B	4	CA77	141 2 8519 33300	Spring, Lock Caset Case	1
CA23	131 2 4201 19500	Screw, Button Hd. Tapping-B	4	CX1	101 3 1302 00311	Screw, Pan Hd., +M2.0x3	4
CA24	141 0 7519 03900	Shaft Turntable Complet	1	CX2	101 3 1303 03011	Screw, Pan Hd., +M3.0x30	1
CA27	4 2369 74240	Plug Cord Din8p L	1	CX3	103 3 1303 00511	Screw, Pan Hd. Tapping-2, +M3.0x5	2
CA28	131 2 6111 14700	Bushing	1	CX4	102 3 1703 00811	Screw, Bind Hd. Tapping-1, +M3.0x8	2
CA29	131 2 2904 11001	Pad Lid	2	CX5	143 3 1303 02511	Screw, Pan Hd. Tapping-B, +M3.0x25	1
CA30	141 2 1119 99704	Cabinet	1	CX6	143 3 1702 00818	Screw, Bind Hd. Tapping-B, +M2.0x8	2
CA31	141 2 4219 09601	Screw	1	CX7	131 3 1302 31011	Screw, Pan Hd. C SW, +M2.3x10	1
CA32	141 2 1149 35000	Cover	1	CX8	112 3 1302 00011	E Ring, M2.0	1
CA33	141 2 8559 06500	Spring Mounting	4	CX9	112 3 1303 00011	E Ring, M3.0	1
CA34	141 2 4459 31700	Cushion(Leg)	4	CX10	110 3 2104 00011	Spring Washer-2, M4.0	1
CA35	131 2 5203 23603	Felt	4	CX11	106 3 1204 00311	Hex. Nut-2, M4.0	1
CA36	141 0 3129 01900	Unit Plate Assy	1	PCB1	141 0 1939 02744	Control P.C.B. Assy	1
				PCB2	141 0 1939 02710	PCR P.C.B. Assy	1
				PCB3	141 0 1939 02721	PTR P.C.B. Assy	1

## CABINET & CHASSIS PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
PCB4	141 0 1939 02731	LED P.C.B. Assy	1
PCB5	141 0 1939 02750	Power Indicator P.C.B. Assy	1
PCB6	141 0 1939 02760	Terminal P.C.B. Assy	1
PCB7	141 0 1939 02770	Speed Switch P.C.B. Assy	1
PCB8	141 0 1939 02780	Switch P.C.B. Assy	1

### NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

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# TURNTABLE ADJUSTMENTS

## Stylus Pressure Adjustment

1. Place the unit on a horizontal plane and remove the lid.
2. Turn on the Power switch of the unit.
3. Press ◀ button on the control panel to shift the tonearm to the place as indicated in Fig. 1.
4. Turn the stylus pressure adjustment screw as shown in Fig. 2 through the stylus pressure adjustment hole, so that the stylus pressure meter indicates 1.8 ~ 2.2 g.

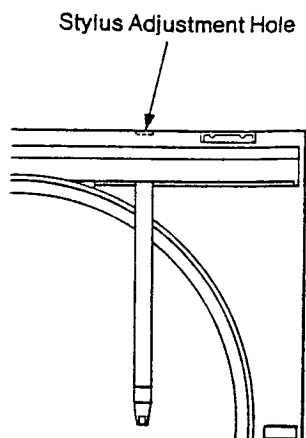


Fig. 1

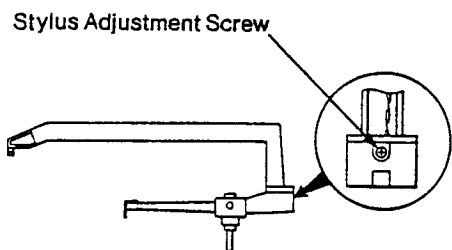


Fig. 2

## Tonearm Position Adjustment

1. Turn on the power switch of the unit.
2. Remove the lid and the turntable.
3. Press ◀ button on the control panel to shift the arm to the place where the tonearm position adjustment cam can be observed. (Fig. 3)
4. Adjust the cam, so that the tonearm becomes perpendicular to the rear wall of the cabinet. (Fig. 3)

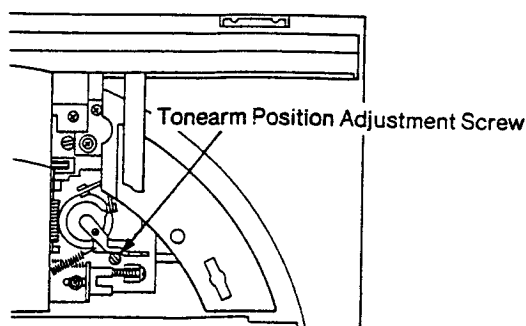


Fig. 3

## Stylus Height Adjustment

1. Turn on the power switch of the unit.
2. Remove the lid and the turntable.
3. Press ◀ button on the control panel to shift the arm to the place where the stylus height adjustment screw can be observed. (Fig. 4)
4. Adjust the stylus height to  $6\text{mm} \pm 0.5\text{mm}$  above the turntable.

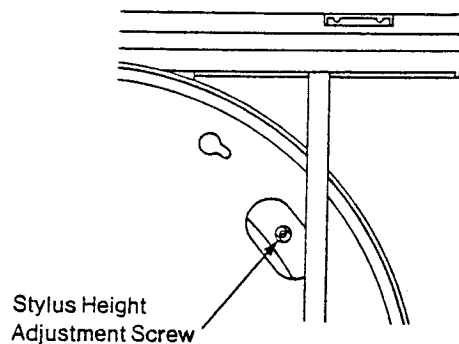


Fig. 4

## Rotation Adjustment

1. Turn on the power switch of the unit.
  2. Use the stroboscope sheet and adjust each volume to obtain proper rotations per minute. (Fig. 5)
- Note: In the first instance, perform the adjustment for 45 r.p.m.

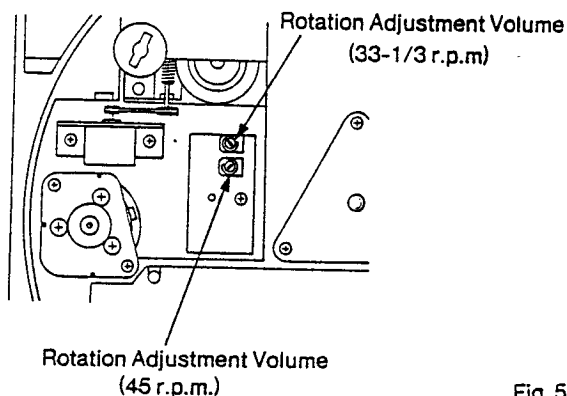


Fig. 5

## Arm Trace Adjustment

1. Turn on the power switch of the unit.
2. Place a record on the turntable and trace the silent groove on the last portion of the record.
3. If the groove is not traced correctly, cut off R29 (3.3kΩ) on the Control P.C.Board and re-check the tracing. (Fig. 6)

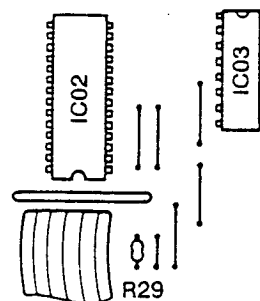


Fig. 6

# TURNTABLE ADJUSTMENTS (Continued)

## Photointerrupter Position Adjustment for Arm Feed

1. Turn on the power switch of the unit.
2. Place a record with less eccentricity on the turntable and play it.
3. After the record has rotated three or four times, raise the arm by pressing the CUEING button.
4. Turn the arm feed adjustment screw with a screwdriver through the hole on the right side of the cabinet, so that the arm rises straight up. (Fig. 7)

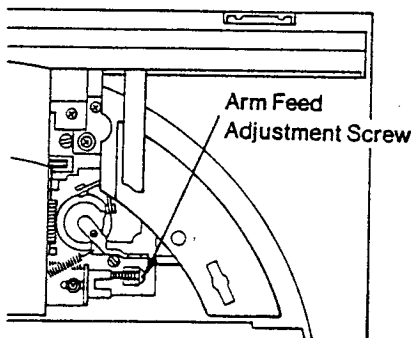


Fig. 7

## End Return Sensitivity Adjustment

1. Turn on the power switch of the unit.
2. Connect the oscilloscope to TP1. (Fig. 9)
3. Play a record and adjust VR01 (100 K-B), so that the peak value of the DC element becomes 3.8 ~ 4.0V. (Fig. 10)
4. Confirm that the END Return is smoothly exercised.

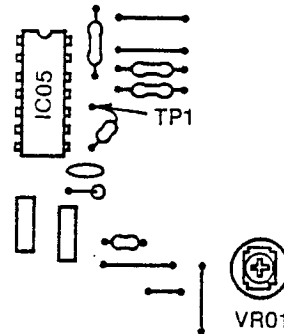


Fig. 9

## Lead-in Position Adjustment

1. Turn on the power switch of the unit.
2. Place a record on the turntable and perform the lead-in operation.
3. Adjust the lead-in position adjustment cam, so that the record is led into the correct position.  
Note: If the cam is turned clockwise, the tonearm moves inward. It moves outward if the cam is turned counter-clockwise. (Fig. 8)

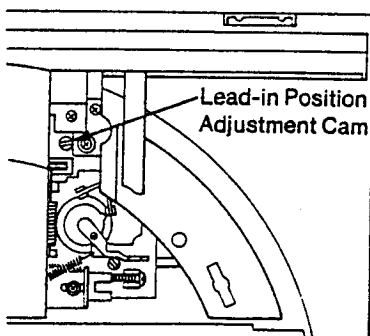


Fig. 8

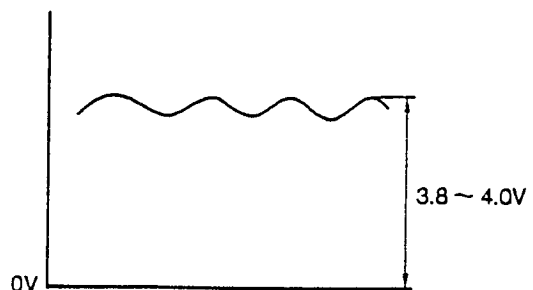
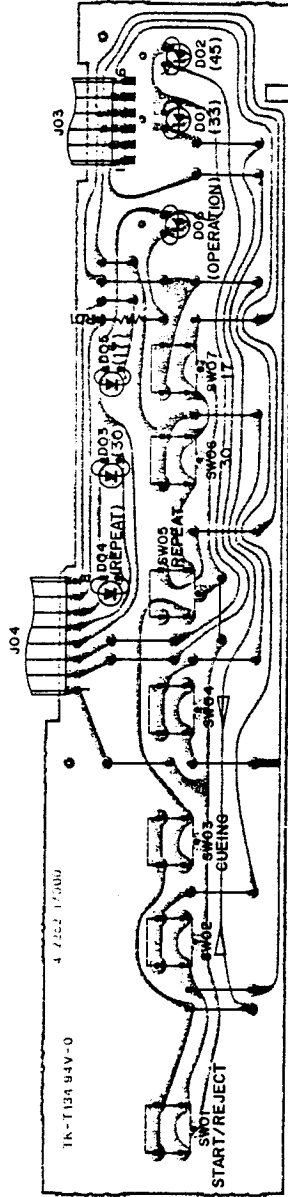


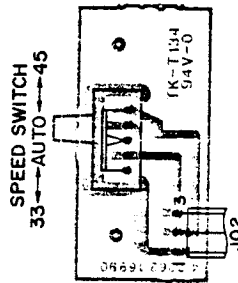
Fig. 10

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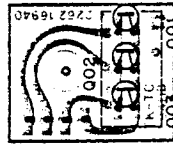
**SWITCH P.C. BOARD**  
(BOTTOM VIEW)



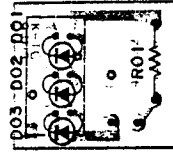
**SPEED SWITCH P.C. BOARD**  
(BOTTOM VIEW)



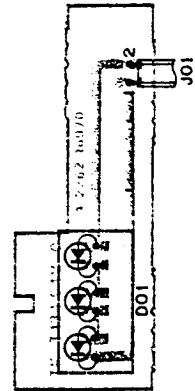
**PTR P.C. BOARD**  
(BOTTOM VIEW)



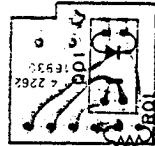
**LED P.C. BOARD**  
(BOTTOM VIEW)



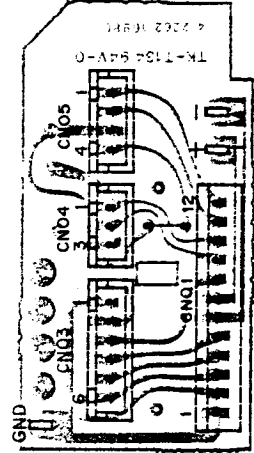
**POWER INDICATOR P.C. BOARD**  
(BOTTOM VIEW)



**PCR P.C. BOARD**  
(BOTTOM VIEW)

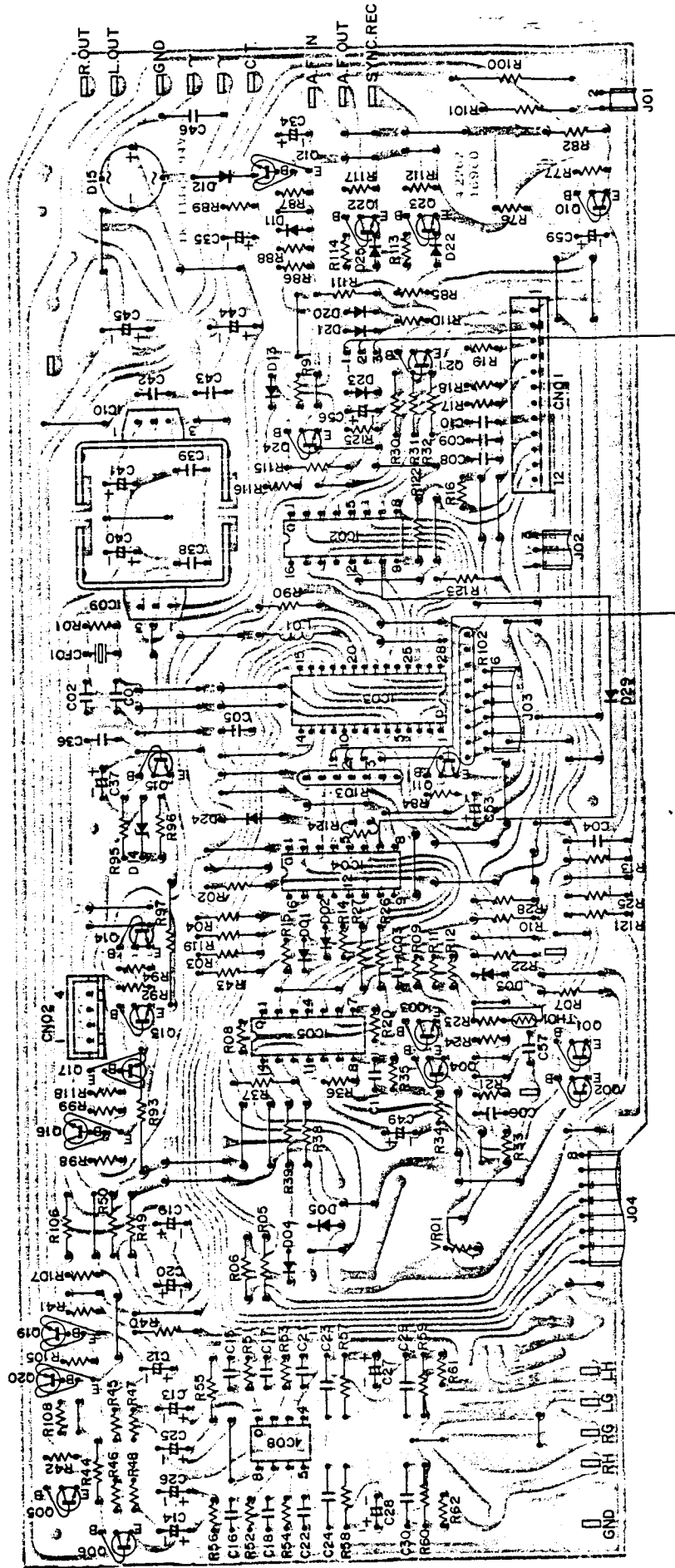


**TERMINAL P.C. BOARD**  
(BOTTOM VIEW)



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# CONTROL P.C. BOARD (BOTTOM VIEW)



**IC PIN NUMBERS DC VOLTAGES**

SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
IC02	MSM4049RS	5.2V	0V	4.6V	5.2V	0V	5.2V	0V	0V	5.2V	5.2V	0V	0V	3.4V	0V	-	-	-	-	-	-	-
IC04	MSM4049RS	5.2V	0V	5.0V	0V	5.0V	0V	5.0V	0V	5.2V	0.4V	0V	0V	0.4V	5.2V	-	-	-	-	-	-	-
IC05	LA6324	-0.5V	0V	0V	0V	12.3V	0V	-0.6V	0V	0V	-12.3V	0V	3.4V	-11.7V	-	-	-	-	-	-	-	-
IC08	LA6480S	0V	0V	0V	0V	-9.0V	0V	0V	9.0V	-	-	-	-	-	-	-	-	-	-	-	-	-
IC09	NJM7812	15.9V	0V	12.3V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IC10	NJM7912	0V	-16.4V	-12.3V	2.5V	2.5V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	0V	3.6V	4.9V	4.6V	3.9V	5.2V	5.1V	-	-
IC03	LM6416E	5.2V	5.2V	5.2V	3.9V	3.9V	2.1V	5.2V	5.2V	5.0V	5.0V	5.0V	5.0V	0V	0V	0V	0V	0V	0V	0V	0V	0V
		21	22	23	24	25	26	27	28													
		-0.6V	5.2V	0V	5.2V	0V	5.2V	5.2V	3.8V	-	-	-	-	-	-	-	-	-	-	-	-	-

**TRANSISTOR DC VOLTAGES**

SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	B	C	E	
001.03	2SD0863	-0.5V	12.3V	0V	015	2SD0863	5.8V	10.8V	5.2V
002.04	2SB764	-0.5V	-12.3V	0V	016	2SC536	0.2V	9.3V	0V
005.06	2SD1012	-0.7V	0V	0V	017	2SC536	2.6V	2.0V	2.0V
010	2SC536	0V	5.2V	0V	019	2SC536	0.7V	0V	0V
011	2SC536	0V	5.2V	0V	020	2SA608	11.6V	12.2V	12.3V
012	2SC536	0.6V	0V	0V	021	2SC536	0.7V	0.1V	0V
013	2SC536	0.7V	0.5V	0V	022.23	2SC536	0V	0V	0V
014	2SD0863	0.5V	12.3V	1.2V	024	2SC536	0.7V	0.1V	0V

## P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
<b>CONTROL P.C.B. ASSY</b>							
PCB1	141 0 1939 02744	Control P.C.B. Assy	1	C05	CM1 0 4500 J00TV Mylar	0.1µF 50V ±5%	1
	4 2372 00060	Receptacle	17	C06	CC3 3 1500 K000C Ceramic	330pF 50V ±10%	1
	103 3 1903 00611	Screw, Brazier Hd. Tapping-2, +M3.0x6	2	C08	CM1 0 3500 K00SV Mylar	0.01µF 50V ±10%	1
	131 2 6201 21500	Plate Heat Sink (for IC09, IC10)	2	C09	CM1 0 3500 K00SV Mylar	0.01µF 50V ±10%	1
	131 2 9800 01040	Jumper	1	C10	CM1 0 3500 K00SV Mylar	0.01µF 50V ±10%	1
	131 2 9800 01041	Jumper	1	C11	CM1 0 3500 K00SV Mylar	0.01µF 50V ±10%	1
	131 2 9800 01058	Jumper	1	C12	CD1 0 6160 0001V Electrolytic	10µF 16V	1
	131 2 9800 01099	Jumper	1	C13	CD1 0 4500 0001V Electrolytic	0.1µF 50V	1
	131 2 9800 01029	Jumper	1	C14	CD1 0 4500 0001V Electrolytic	0.1µF 50V	1
CN01	4 2369 71901	Connector 12P Top	1	C15	CM1 8 3500 K00SV Mylar	0.018µF 50V ±10%	1
CN02	4 2369 73140	Connector 4P	1	C16	CM1 8 3500 K00SV Mylar	0.018µF 50V ±10%	1
L01	4 2532 00540	Choke Coil 47µH	1	C17	CM4 7 2500 K00SV Mylar	0.0047µF 50V ±10%	1
CF01	4 2252 00090	CSB400P	1	C18	CM4 7 2500 K00SV Mylar	0.0047µF 50V ±10%	1
VR01	4 2222 02680	Semi Fixed (B-100kΩ)	1	C19	CD1 0 7160 0001V Electrolytic	100µF 16V	1
IC02	4 2069 72530	IC, MSM 4049 RS	1	C20	CD1 0 7160 0001V Electrolytic	100µF 16V	1
IC03	208 5 3806 41635	IC, LM6416E-352	1	C21	CC1 0 1500 K000C Ceramic	100pF 50V ±10%	1
IC04	4 2069 72530	IC, MSM 4049 RS	1	C22	CC1 0 1500 K000C Ceramic	100pF 50V ±10%	1
IC05	206 5 1296 32410	IC, LA 6324	1	C23	CC1 0 1500 J000R Ceramic	100pF 50V ±5%	1
IC08	206 5 2726 45810	IC, LA 6458 DS	1	C24	CC1 0 1500 J000R Ceramic	100pF 50V ±5%	1
IC09	4 2069 72560	IC, NJM 7812	1	C25	CD4 7 6100 0001V Electrolytic	47µF 10V	1
IC10	4 2069 72570	IC, NJM 7912	1	C26	CD4 7 6100 0001V Electrolytic	47µF 10V	1
Q01	203 5 7340 86350	Transistor, 2SD 863	1	C27	CD4 7 5250 0001V Electrolytic	4.7µF 25V	1
Q02	203 5 7350 76450	Transistor, 2SB 764	1	C28	CD4 7 5250 0001V Electrolytic	4.7µF 25V	1
Q03	203 5 7340 86350	Transistor, 2SD 863	1	C29	CC1 0 1500 J000R Ceramic	100pF 50V ±5%	1
Q04	203 5 7350 76450	Transistor, 2SB 764	1	C30	CC1 0 1500 J000R Ceramic	100pF 50V ±5%	1
Q05	203 5 4921 01260	Transistor, 2SD 1012	1	C34	CD4 7 6250 0001V Electrolytic	47µF 25V	1
Q06	203 5 4921 01260	Transistor, 2SD 1012	1	C35	CD4 7 5500 0001V Electrolytic	4.7µF 50V	1
Q10	203 5 5000 53650	Transistor, 2SC 536	1	C36	CM1 0 4500 J00TV Mylar	0.1µF 50V ±5%	1
Q11	203 5 5000 53650	Transistor, 2SC 536	1	C37	CD4 7 6100 0001V Electrolytic	47µF 10V	1
Q12	203 5 5000 53650	Transistor, 2SC 536	1	C38	CM1 0 4500 J00TV Mylar	0.1µF 50V ±5%	1
Q13	203 5 5000 53670	Transistor, 2SC 536	1	C39	CM1 0 4500 J00TV Mylar	0.1µF 50V ±5%	1
Q14	203 5 7340 86350	Transistor, 2SD 863	1	C40	CD1 0 7160 0001V Electrolytic	100µF 16V	1
Q15	203 5 7340 86350	Transistor, 2SD 863	1	C41	CD1 0 7160 0001V Electrolytic	100µF 16V	1
Q16	203 5 5000 53650	Transistor, 2SC 536	1	C42	CC1 0 3500 ZG00C Ceramic	0.01µF 50V +80,-20%	1
Q17	203 5 5000 53660	Transistor, 2SC 536	1	C43	CC1 0 3500 ZG00C Ceramic	0.01µF 50V +80,-20%	1
Q19	203 5 5000 53650	Transistor, 2SC 536	1	C44	4 2239 71360 Electrolytic	1000µF 25V	1
Q20	203 5 7230 60850	Transistor, 2SA 608	1	C45	4 2239 71360 Electrolytic	1000µF 25V	1
Q21	203 5 5000 53650	Transistor, 2SC 536	1	C46	CC1 0 3501 YEY0C Ceramic	0.01µF 500V +100,-3%	1
Q22	203 5 5000 53650	Transistor, 2SC 536	1	C49	CD4 7 5250 0001V Electrolytic	4.7µF 25V	1
Q23	203 5 5000 53650	Transistor, 2SC 536	1	C53	CD1 0 4500 0001V Electrolytic	0.1µF 50V	1
Q24	203 5 5000 53650	Transistor, 2SC 536	1	C56	CD2 2 5500 0001V Electrolytic	2.2µF 50V	1
D01	202 5 1410 00110	Diode, GMA 01	1	C57	CM1 0 3500 K00SV Mylar	0.01µF 50V ±10%	1
D02	202 5 1410 00110	Diode, GMA 01	1	C59	CD1 0 5500 0001V Electrolytic	1µF 50V	1
D03	202 5 1410 00110	Diode, GMA 01	1	R01	RD1 0 5161 JH000 Carbon	1MΩ 1/6W ±5%	1
D04	202 5 1410 00110	Diode, GMA 01	1	R02	RD1 0 3251 JM000 Carbon	10kΩ 1/4W ±5%	1
D05	202 5 1410 00110	Diode, GMA 01	1	R03	RD3 3 1251 JM000 Carbon	330Ω 1/4W ±5%	1
D11	202 5 1410 00110	Diode, GMA 01	1	R04	RD3 3 1251 JM000 Carbon	330Ω 1/4W ±5%	1
D12	202 5 2470 13540	Diode, DS 135	1	R05	RD3 3 1251 JM000 Carbon	330Ω 1/4W ±5%	1
D13	202 5 1410 00110	Diode, GMA 01	1	R06	RD1 5 1251 JM000 Carbon	150Ω 1/4W ±5%	1
D14	202 5 3210 05613	Zener Diode, GZA5.6Z	1	R07	RD3 3 1251 JM000 Carbon	330Ω 1/4W ±5%	1
D15	DGG - W02- - - - -	Diode, W 02	1	R08	RD2 2 2161 JH000 Carbon	2.2kΩ 1/6W ±5%	1
D20	202 5 1410 00110	Diode, GMA 01	1	R09	RD1 0 2161 JH000 Carbon	1kΩ 1/6W ±5%	1
D21	202 5 1410 00110	Diode, GMA 01	1	R10	RD4 7 1251 JM000 Carbon	470Ω 1/4W ±5%	1
D22	202 5 1410 00110	Diode, GMA 01	1	R11	RD4 7 1161 JH000 Carbon	470Ω 1/6W ±5%	1
D23	202 5 1410 00110	Diode, GMA 01	1	R12	RD4 7 1161 JH000 Carbon	470Ω 1/6W ±5%	1
D24	205 5 2810 44210	Diode, DS 442	1	R13	RD3 9 A251 JM000 Carbon	3.9Ω 1/4W ±5%	1
D25	202 5 1410 00110	Diode, GMA 01	1	R14	RD2 7 2161 JH000 Carbon	2.7kΩ 1/6W ±5%	1
D29	205 5 2810 44210	Diode, DS 442	1	R15	RD8 2 1161 JH000 Carbon	820Ω 1/6W ±5%	1
TH01	204 5 9000 05000	Thermistor, SDT 500	1	R16	RD1 0 3161 JH000 Carbon	10kΩ 1/6W ±5%	1
C01	CP2 2 1101 J003V	Polypropylen 220pF 100V ±5%	1	R17	RD1 0 3161 JH000 Carbon	10kΩ 1/6W ±5%	1
C02	CP2 2 1101 J003V	Polypropylen 220pF 100V ±5%	1	R18	RD1 0 3161 JH000 Carbon	10kΩ 1/6W ±5%	1
C03	CC3 3 1500 K000C	Ceramic 330pF 50V ±10%	1	R19	RD1 0 3161 JH000 Carbon	10kΩ 1/6W ±5%	1
C04	C11 0 3250 NF00R	Boundary 0.01µF 25V ±30%	1	R20	RD2 2 2161 JH000 Carbon	2.2kΩ 1/6W ±5%	1
				R21	RD1 0 2161 JH000 Carbon	1kΩ 1/6W ±5%	1

## P.C. BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty		
R22	RD4 7 1251 JM000	Carbon	470 $\Omega$ 1/4W $\pm$ 5%	1	R106	RD1 0 3251 JM000 Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	
R23	RD4 7 1161 JH000	Carbon	470 $\Omega$ 1/6W $\pm$ 5%	1	R107	RD1 0 3161 JH000 Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	
R24	RD4 7 1161 JH000	Carbon	470 $\Omega$ 1/6W $\pm$ 5%	1	R108	RD1 0 3161 JH000 Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	
R25	RD4 7 A251 JM000	Carbon	4.7 $\Omega$ 1/4W $\pm$ 5%	1	R110	RD1 0 4161 JH000 Carbon	100k $\Omega$ 1/6W $\pm$ 5%	1	
R26	RD3 9 2251 JM000	Carbon	3.9k $\Omega$ 1/4W $\pm$ 5%	1	R111	RD3 3 2251 JM000 Carbon	3.3k $\Omega$ 1/4W $\pm$ 5%	1	
R27	RD1 2 2251 JM000	Carbon	1.2k $\Omega$ 1/4W $\pm$ 5%	1	R112	RD2 2 3161 JH000 Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	
R28	RD1 0 3251 JM000	Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	R113	RD1 0 4161 JH000 Carbon	100k $\Omega$ 1/6W $\pm$ 5%	1	
R30	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	R114	RD1 0 4161 JH000 Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	
R31	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	R115	RD1 0 4251 JM000 Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	
R32	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	R116	RD3 3 2161 JH000 Carbon	3.3k $\Omega$ 1/6W $\pm$ 5%	1	
R33	RD4 7 3161 JH000	Carbon	47k $\Omega$ 1/6W $\pm$ 5%	1	R117	RD2 2 3161 JH000 Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	
R34	RD2 7 3161 JH000	Carbon	27k $\Omega$ 1/6W $\pm$ 5%	1	R118	RD2 2 3161 JH000 Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	
R35	RD1 2 4161 JH000	Carbon	120k $\Omega$ 1/6W $\pm$ 5%	1	R119	RD2 2 3251 JM000 Carbon	22k $\Omega$ 1/4W $\pm$ 5%	1	
R36	RD4 7 3251 JM000	Carbon	47k $\Omega$ 1/4W $\pm$ 5%	1	R121	RD1 0 1251 JM000 Carbon	100 $\Omega$ 1/4W $\pm$ 5%	1	
R37	RD9 1 2251 JM000	Carbon	9.1k $\Omega$ 1/4W $\pm$ 5%	1	R122	RD1 0 3251 JM000 Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	
R38	RD8 2 2251 JM000	Carbon	8.2k $\Omega$ 1/4W $\pm$ 5%	1	R123	RD1 0 3251 JM000 Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	
R39	RD2 2 3251 JM000	Carbon	22k $\Omega$ 1/4W $\pm$ 5%	1	R124	RD1 0 3251 JM000 Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	
R40	RD2 2 3251 JM000	Carbon	22k $\Omega$ 1/4W $\pm$ 5%	1	R125	RD1 0 0251 JN000 Carbon	10 $\Omega$ 1/4W $\pm$ 5%	1	
R41	RD2 2 3161 JH000	Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	<b>PCR P.C.B. ASSY</b>				
R42	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	PCB2	141 0 1939 02710	PCR P.C.B. Assy	1	
R43	RD1 0 3251 JM000	Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	CN05	4 2359 76742	Connector 4P Assy	1	
R44	RD1 0 3251 JM000	Carbon	10k $\Omega$ 1/4W $\pm$ 5%	1	Q01	4 2039 71430	Photo Interrupter	1	
R45	RD1 0 2161 JH000	Carbon	1k $\Omega$ 1/6W $\pm$ 5%	1	R01	RD5 6 1251 JN000	Carbon	560 $\Omega$ 1/4W $\pm$ 5%	1
R46	RD1 0 2161 JH000	Carbon	1k $\Omega$ 1/6W $\pm$ 5%	1	<b>PTR P.C.B. ASSY</b>				
R47	RD1 0 4161 JH000	Carbon	100k $\Omega$ 1/6W $\pm$ 5%	1	PCB3	141 0 1939 02721	PTR P.C.B. Assy	1	
R48	RD1 0 4161 JH000	Carbon	100k $\Omega$ 1/6W $\pm$ 5%	1	141 2 3529 38900	LED Spacer	1		
R49	RD1 0 2251 JM000	Carbon	1k $\Omega$ 1/4W $\pm$ 5%	1	CN03	4 2359 76606	Connector 6P Assy	1	
R50	RD1 0 2251 JM000	Carbon	1k $\Omega$ 1/4W $\pm$ 5%	1	Q01	4 2039 71500	Photo TR SPS-103-01	1	
R51	RD2 2 4161 JH000	Carbon	220k $\Omega$ 1/6W $\pm$ 5%	1	Q02	4 2039 71500	Photo TR SPS-103-01	1	
R52	RD2 2 4161 JH000	Carbon	220k $\Omega$ 1/6W $\pm$ 5%	1	Q03	4 2039 71500	Photo TR SPS-103-01	1	
R53	RD1 5 3161 JH000	Carbon	15k $\Omega$ 1/6W $\pm$ 5%	1	<b>LED P.C.B. ASSY</b>				
R54	RD1 5 3161 JH000	Carbon	15k $\Omega$ 1/6W $\pm$ 5%	1	PCB4	141 0 1939 02731	LED P.C.B. Assy	1	
R55	RD3 3 1251 JM000	Carbon	330 $\Omega$ 1/4W $\pm$ 5%	1	141 2 3529 38900	LED Spacer	1		
R56	RD3 3 1161 JH000	Carbon	330 $\Omega$ 1/6W $\pm$ 5%	1	D01	4 2029 73160	Photo D. SLR-902A-01	1	
R57	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	D02	4 2029 73160	Photo D. SLR-902A-01	1	
R58	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	D03	4 2029 73160	Photo D. SLR-902A-01	1	
R59	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	R01	RD5 6 1251 JM000	Carbon	560 $\Omega$ 1/4W $\pm$ 5%	1
R60	RD1 0 4251 JM000	Carbon	100k $\Omega$ 1/4W $\pm$ 5%	1	<b>POWER INDICATOR P.C.B. ASSY</b>				
R61	RD1 0 2161 JH000	Carbon	1k $\Omega$ 1/6W $\pm$ 5%	1	PCB5	141 0 1939 02750	Power Indicator P.C.B. Assy	1	
R62	RD1 0 2161 JH000	Carbon	1k $\Omega$ 1/6W $\pm$ 5%	1	D01	4 2029 73010	LED SLF-206B	1	
R76	RD4 7 3161 JH000	Carbon	47k $\Omega$ 1/6W $\pm$ 5%	1	<b>TERMINAL P.C.B. ASSY</b>				
R77	RD6 8 2161 JH000	Carbon	6.8k $\Omega$ 1/6W $\pm$ 5%	1	PCB6	141 0 1939 02760	Terminal P.C.B. Assy	1	
R78	RD6 8 2161 JH000	Carbon	6.8k $\Omega$ 1/6W $\pm$ 5%	1	4 2372 00060	Receptacle	1		
R84	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	CN01	4 2369 71901	Connector 12P Top	1	
R85	RD4 7 3161 JH000	Carbon	47k $\Omega$ 1/6W $\pm$ 5%	1	CN03	4 2369 73160	Connector 6P	1	
R86	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	CN04	4 2369 73130	Connector 3P	1	
R87	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	CN05	4 2369 73140	Connector 4P	1	
R88	RD6 8 3161 JH000	Carbon	68k $\Omega$ 1/6W $\pm$ 5%	1	<b>SPEED SWITCH P.C.B. ASSY</b>				
R89	RD6 8 2161 JH000	Carbon	6.8k $\Omega$ 1/6W $\pm$ 5%	1	PCB7	141 0 1939 02770	Speed Switch P.C.B. Assy	1	
R90	RD2 2 3251 JM000	Carbon	22k $\Omega$ 1/4W $\pm$ 5%	1	141 2 3529 43500	Spacer	1		
R91	RD2 2 3161 JH000	Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	SW08	4 2319 76670	Slide Switch 1P3T (Speed)	1	
R92	RD2 2 3161 JH000	Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1	<b>RESISTOR PARTS</b>				
R93	RH4 7 1102 JZ000	Metal	470 $\Omega$ 1W $\pm$ 5%	1	R102	4 2219 70460	Resistor 10k x 8 J	1	
R94	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1	R103	4 2219 70450	Resistor 10k x 6 J	1	
R95	RD2 2 1251 JM000	Carbon	220 $\Omega$ 1/4W $\pm$ 5%	1	R105	RD2 2 3161 JH000	Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1
R96	RD6 8 1251 JM000	Carbon	680 $\Omega$ 1/4W $\pm$ 5%	1					
R97	RH3 9 0102 JZ000	Metal	39 $\Omega$ 1W $\pm$ 5%	1					
R98	RD2 2 3161 JH000	Carbon	22k $\Omega$ 1/6W $\pm$ 5%	1					
R99	RD1 0 3161 JH000	Carbon	10k $\Omega$ 1/6W $\pm$ 5%	1					
R100	RH3 3 1102 JZ000	Metal	330 $\Omega$ 1W $\pm$ 5%	1					
R101	RH4 7 1501 JZ000	Metal	470 $\Omega$ 1/2W $\pm$ 5%	1					

## P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
<b>SWITCH P.C.B. ASSY</b>			
PCB8	141 0 1939 02780	Switch P.C.B. Assy	1
	141 2 3529 40800	Spacer(a)	3
	141 2 3529 40900	Spacer(b)	3
SW01	4 2312 05801	Key Board Switch (Start/Reject)	1
SW02	4 2312 05801	Key Board Switch (> )	1
SW03	4 2312 05801	Key Board Switch (Cueing)	1
SW04	4 2312 05801	Key Board Switch (<  )	1
SW05	4 2312 05801	Key Board Switch (Repeat)	1
SW06	4 2312 05801	Key Board Switch (30)	1
SW07	4 2312 05801	Key Board Switch (17)	1
D01	DYY - SLR- 54VT-	LED, SLR 54 VT 3 (33rpm)	1
D02	DYY - SLR- 54VT-	LED, SLR 54 VT 3 (45rpm)	1
D03	DYY - SLR- 54VT-	LED, SLR 54 VT 3 (30cm)	1
D04	DYY - SLR- 54PT-	LED, SLR 54 PT 3 (Repeat)	1
D05	DYY - SLR- 54VT-	LED, SLR 54 VT 3 (17cm)	1
D06	DYY - SLR- 54PT-	LED, SLR 54 PT 3 (Operation)	1
R01	RD1 5 1251 JM000	Carbon 150Ω 1/4W ±5%	1

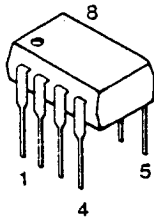
**NOTES:**

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

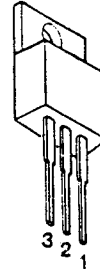
For Service Manuals Contact  
**MAURITRON TECHNICAL SERVICES**  
 8 Cherry Tree Rd, Chinnor  
 Oxon OX9 4QY  
 Tel:- 01844-351694 Fax:- 01844-352554  
 Email:- enquiries@mauritron.co.uk

# SEMICONDUCTOR LEAD IDENTIFICATION

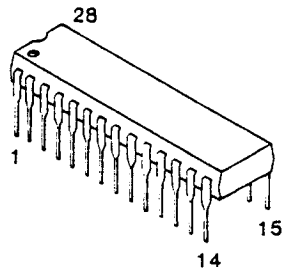
## INTEGRATED CIRCUITS



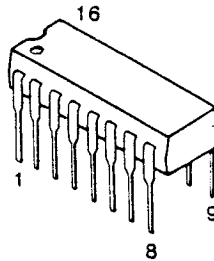
• LA 6458 DS



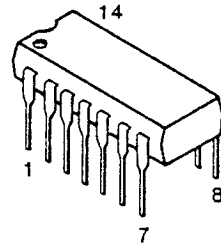
- NJM 7812
- NJM 7912



• LM 6416 E-352



• MSM 4049 RS



• LA 6324

## BI-POLAR TRANSISTORS



- 2SA 608
- 2SC 536

For Service Manuals Contact  
**MAURITRON TECHNICAL SERVICES**  
 8 Cherry Tree Rd, Chinnor  
 Oxon OX9 4QY  
 Tel:- 01844-351694 Fax:- 01844-352554  
 Email:- enquiries@mauritron.co.uk

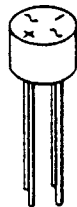


- 2SD 1012



- 2SB 764
- 2SD 863

## DIODES



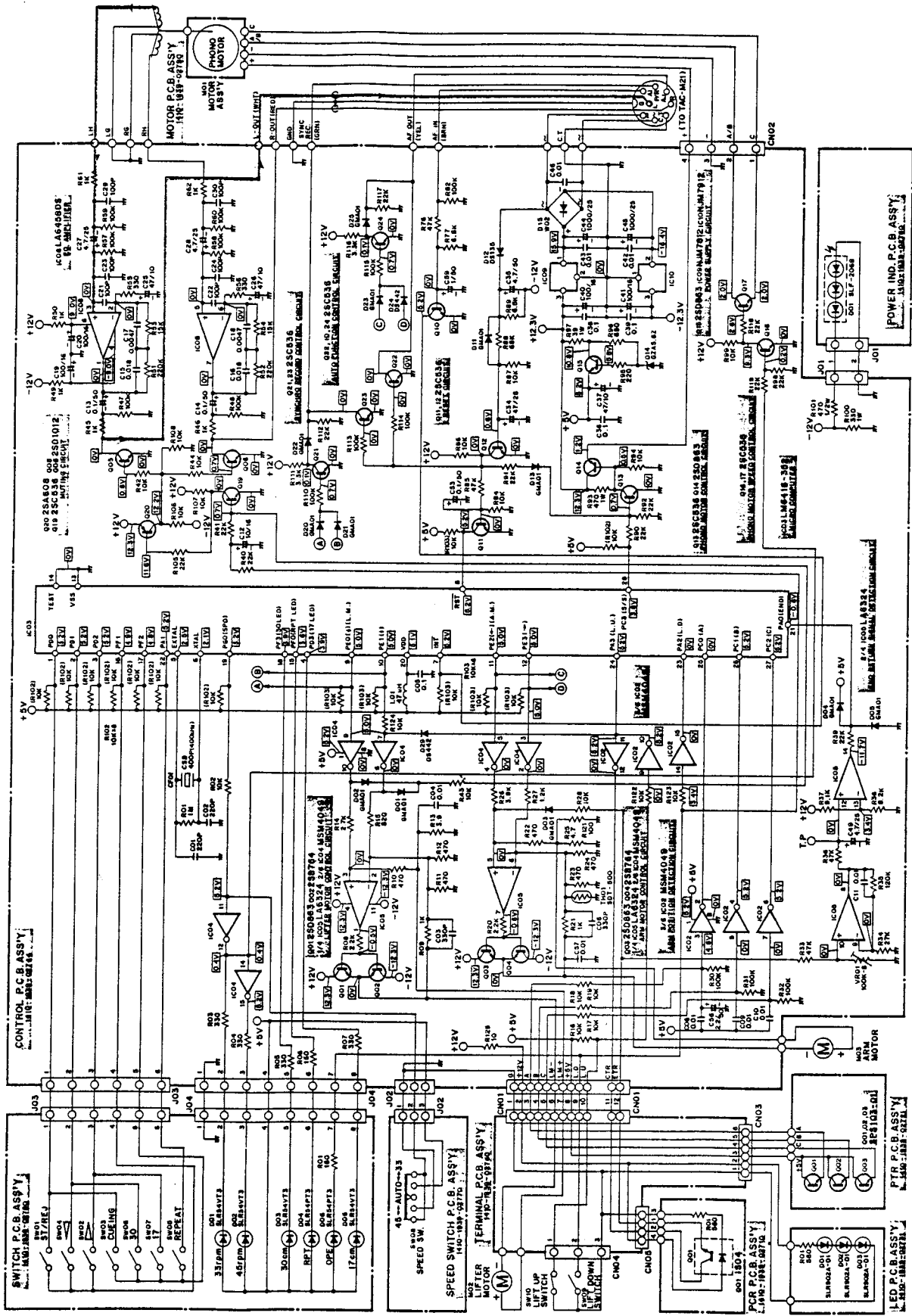
• W 02



- DS 135 D
- DS 442
- GMA 01
- GZA 5.6 Z



# SCHEMATIC DIAGRAM



- NOTES:**
1. All resistor values are indicated in ohms ( $K=10^3$ ,  $M=10^6$ ).
  2. All capacitor values are indicated in  $\mu F$  ( $P=10^{-6}$ ).
  3. All voltages indicated on the schematics are measured under the following conditions:  
Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.
  4. This is a basic schematic diagram.

No.	Name	Position	No.	Name	Position
SW01	START / REJECT Switch ( )	OFF	SW06	DISC SIZE Switch (30)	OFF
SW02	REVERSE Switch ( )	OFF	SW07	DISC SIZE Switch (17)	OFF
SW03	CUING Switch ( )	OFF	SW08	SPEED SELECT Switch	OFF
SW04	FORWARD Switch ( )	OFF	SW09	LIFT DOWN Switch	OFF
SW05	REPEAT Switch ( )	OFF	SW10	LIFT UP Switch	ON

**POINT TO POINT WIRING DIAGRAM**

