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CVERIFY

# STEREO TURNTABLE PF-20/P-07

PF-20/P-07

## SERVICE MANUAL

### IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

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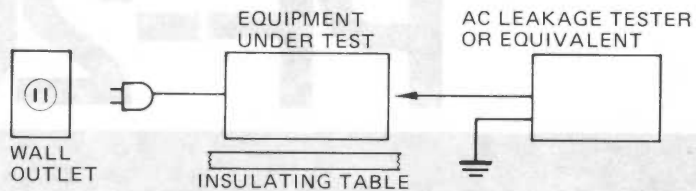
# YAMAHA

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104/00-14  
PF-20/P-07

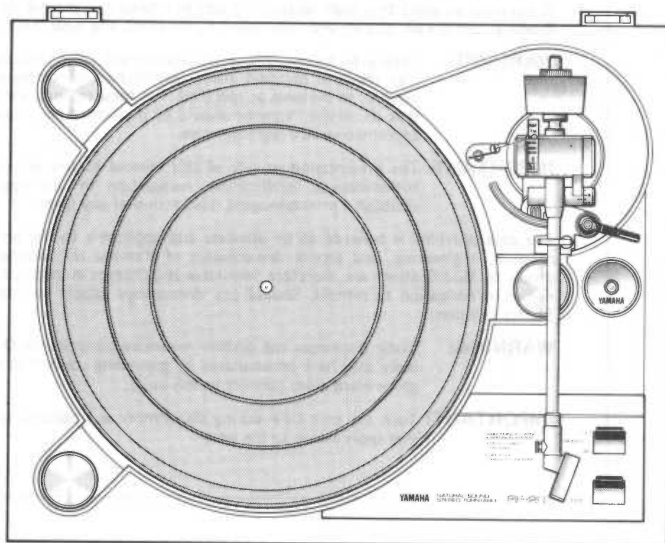
## TO SERVICE PERSONNEL

- Critical Components Information.**  
Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
- Leakage Current Measurement (For 120V Model Only).**  
When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.
  - Meter impedance should be equivalent to 1500 ohm shunted by 0.15 $\mu$ F
  - Leakage current must not exceed 0.5mA.
  - Be sure to test for leakage with the AC plug in both polarities.

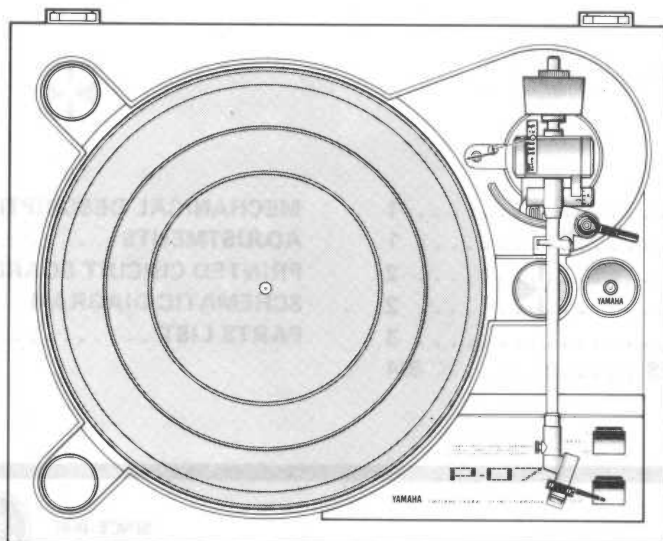


## PANEL CONTROLS

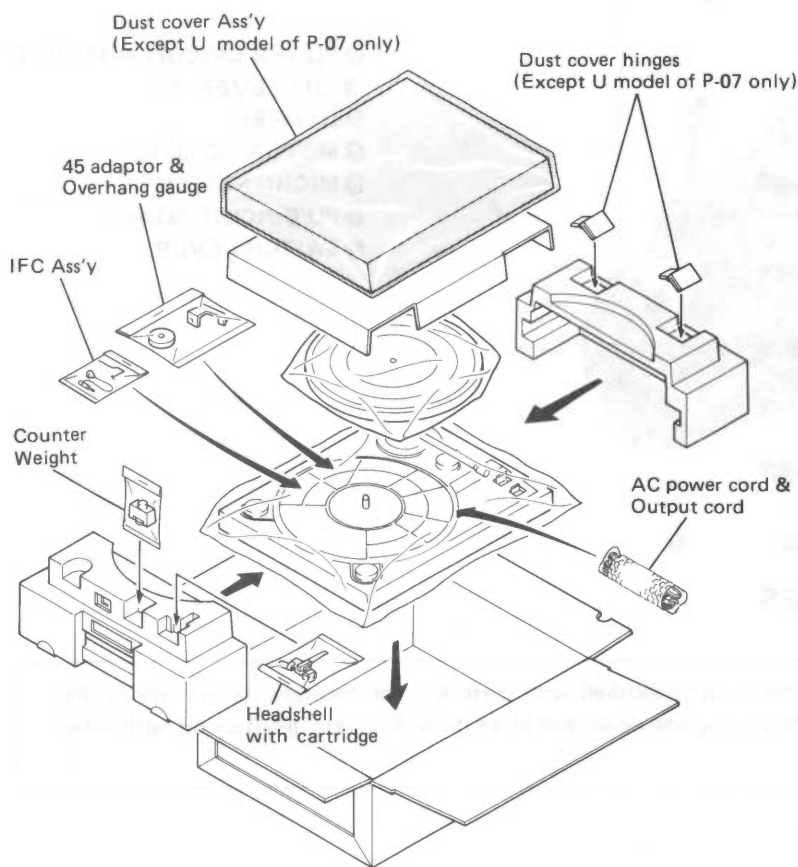
### • PF-20



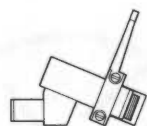
### • P-07



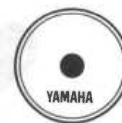
## PACKAGE INSTRUCTION



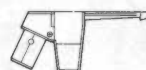
## ACCESSORIES



Headshell with cartridge x 1 (Except U model of PF-20)



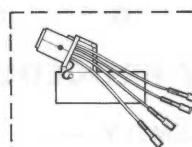
45 adaptor x 1



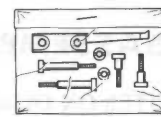
P-mount Headshell x 1 (Add to U model of PF-20 only)



Overhang gauge x 1 (PF-20 only)



Spare headshell x 1



Cartridge mounting parts x 1

Add to U, G and B models of PF-20 only

## SPECIFICATIONS

### TURNTABLE MOTOR SECTION

Drive System	Belt drive
Motor	FG Servo DC motor
Platter	29cm (11-7/16") aluminum, Weight 540g (1.2 lbs) (including rubber mat)
Turntable Moment of Inertia	70 kg-cm <sup>2</sup> (including rubber mat)
Speed	33-1/3 & 45 r.p.m.
Signal-to-Noise Ratio	Better than 72dB (DIN-B.)
Wow and Flutter	Less than 0.04% wrms

### TONEARM SECTION

Arm Type	Dynamic balance knife-edge, straight arm
Effective Length	222 mm (8-3/4")
Overhang	16mm (5/8")
Tracking Force	Dynamic balanced, 0-2.5g, 0.1g steps
Horizontal Tracking Error	-1° to 3°
Anti-Skating	Weight string, 1-2g, 0.2g steps
Offset Angle	23°
Arm Lifter	Oil damped system
Sensitivity	Vertical 20 mg, Horizontal 30 mg
Permissible Cartridge Weight	2.5 - 9 g

Headshell	Resin, shield type Weight 3.2 g (Including Finger hook, Nuts and Screws)
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### CARTRIDGE (Except U model of PF-20)

Type	CG-7700 VM Type
Output	2.5mV (1kHz, 5 cm/sec. peak 45°)
Tracking Force	2.0g ± 0.5g
Weight	5g

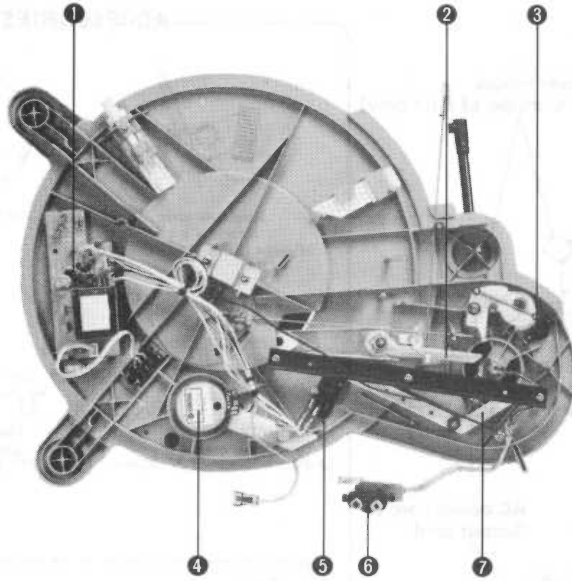
### GENERAL

Power Supplies	120V AC, 60Hz (U.S.A. & Canadian models) 220V AC, 50Hz (European model) 240V AC, 50Hz (British & Australian models) 110 ~ 120V/220 ~ 240V AC, 50/60Hz (General model)
Power Consumption	3W
Dimensions (WxHxD)	435 x 115 x 355 mm (17-1/8" x 4-1/2" x 13-15/16")
Weight	3.5 kg (7 lbs 11 oz)

Specifications subject to change without notice.

U: U.S.A. model      B: British model  
C: Canadian model    A: Australian model  
G: European model    R: General model

**INTERNAL VIEW**



- ① POWER CIRCUIT BOARD (1)
- ② CUT LEVER (B)
- ③ DAMPER
- ④ MOTOR: JC00119
- ⑤ MICRO SWITCH
- ⑥ PU CIRCUIT BOARD
- ⑦ SWITCH LEVER

**DISASSEMBLY PROCEDURES**

● **NOTES ON DISASSEMBLY**

Before disassembling the unit, remove the platter and headshell with cartridge, and securely tie the arm to the arm rest with string, etc. Then gently turn the unit upside down and place it on cloth, etc. piled up on both sides to protect the arm and cabinet from damage.

**1. Removal of Float Panel (A)**

- a. Remove the screw cover by using a knife, etc.  
\*The screw cover is attached with double faced adhesive tape. Be careful not to damage it when removing it.
- b. Remove screw ( ① ) in Fig. 1.
- c. Release 4 hooks in Fig. 1, and then remove the Switch Panel.
- d. Remove 2 plastic rivet ( ② ) in Fig. 1, and remove the Stopper Plate.
- e. Remove plastic rivet ( ③ ) in Fig. 1 and Slide Float Stopper inside.

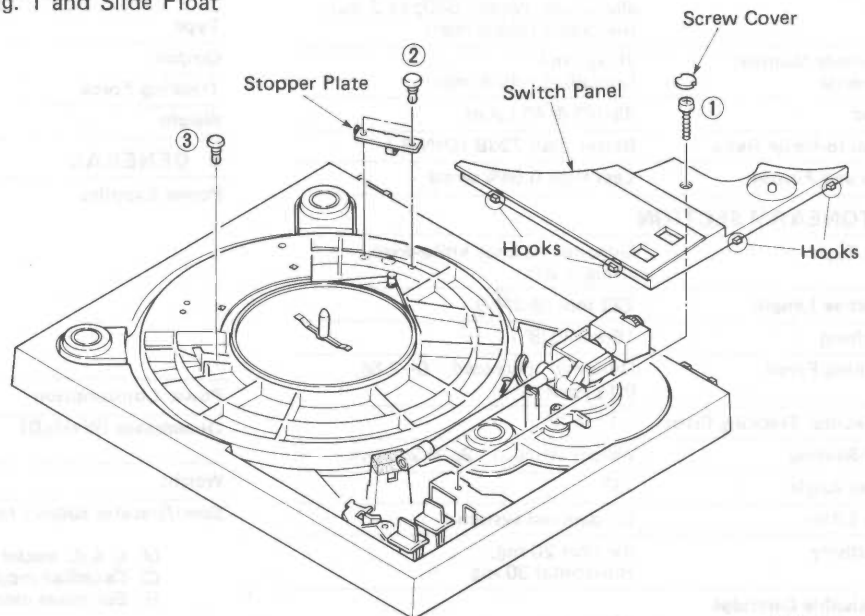


Fig. 1

- f. Remove the Float Panel (A) as shown in Fig. 2, and then detach the necessary connectors.
- g. Remove plastic rivet ( ④ ) in Fig. 2, and then remove PU Circuit Board.

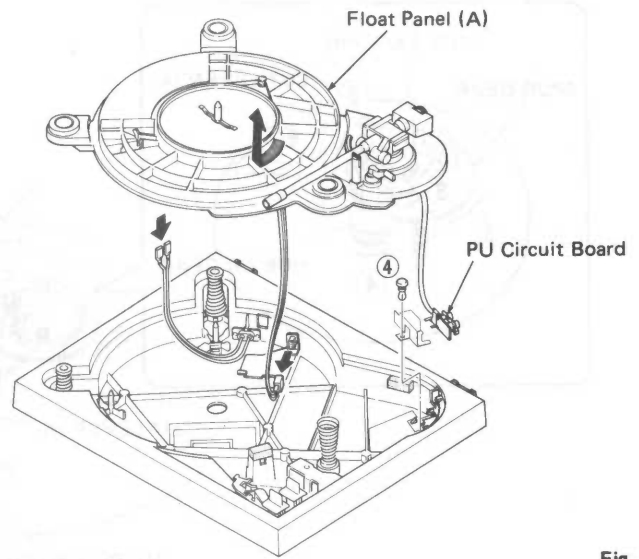


Fig. 2

## 2. Removal of T.T. Ass'y

- a. Remove the Belt.
- b. Remove 2 screws ( ⑤ ) in Fig. 3 and then remove the Shaft Receive.
- c. Remove E ring ( ⑥ ) in Fig. 3 and then remove the T.T. Ass'y.

## 3. Removal of Motor

- a. Loosen 3 screws ( ⑦ ) in Fig. 3.
- b. Rotate the Motor as shown in Fig. 3 and then remove the Motor.

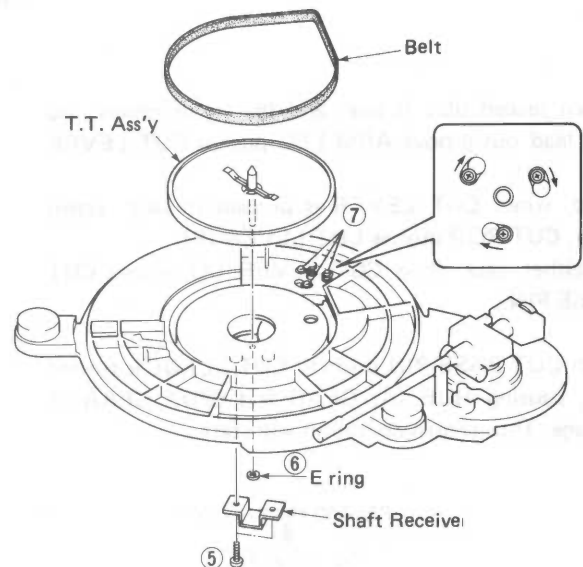


Fig. 3

## 4. Removal of Tonearm Unit

- a. Remove plastic rivet ( ⑧ ) in Fig. 4 and then remove the Shield Hold.
- b. Detach the connector of PU Circuit Board.
- c. Remove screw ( ⑨ ) in Fig. 4, and then remove the Ground Plate.
- d. Remove Screw ( ⑩ ) in Fig. 4 and pull out the Arm Plate in direction of the arrow, then you will be able to remove the Tonearm Unit.

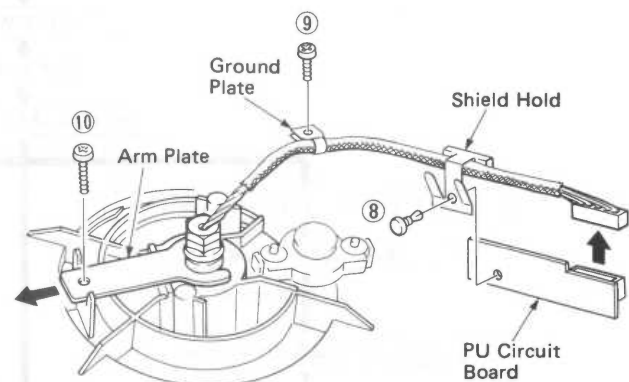
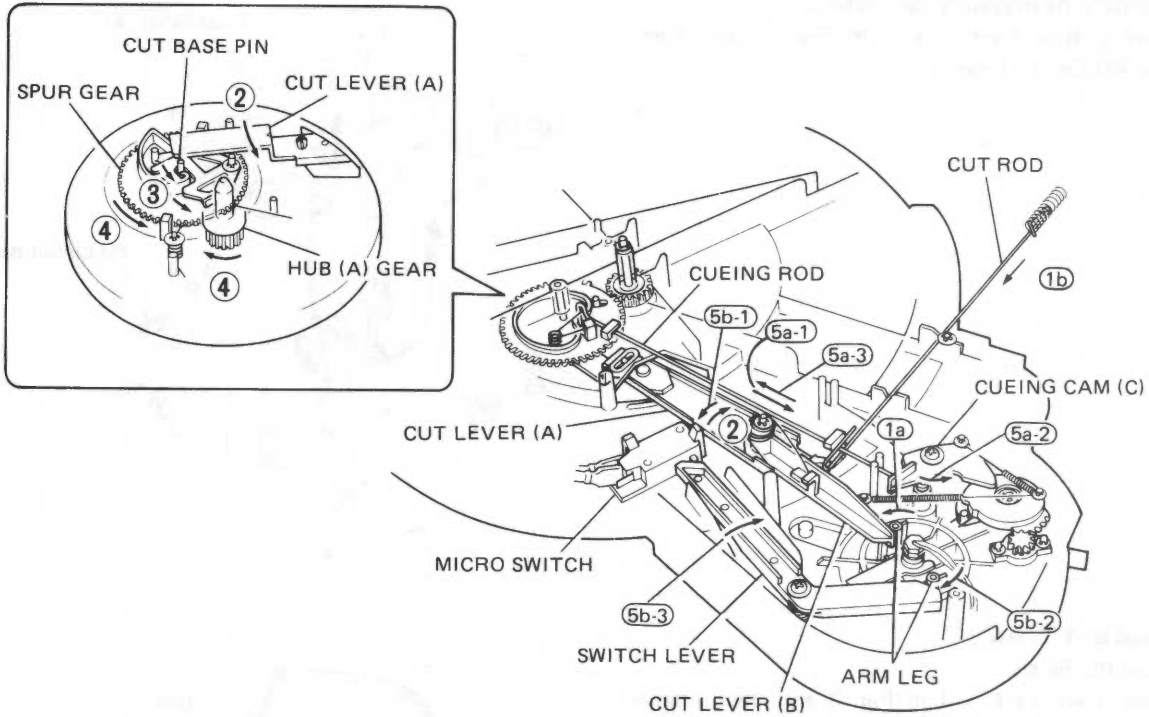


Fig. 4

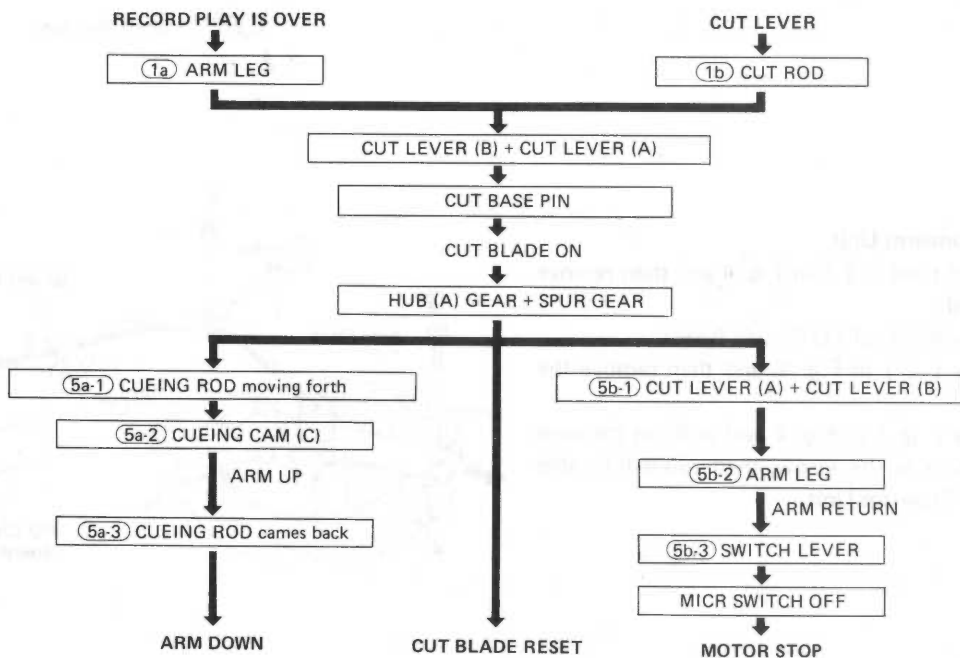
## MECHANICAL DESCRIPTION

### AUTO RETURN OPERATION



- When record play is over and the stylus moves into the lead out groove ARM LEG pushes CUT LEVER (B). Also, when CUT LEVER is pressed to stop record play, CUT ROD pushes CUT LEVER (B). In either case, then CUT LEVER (A) pushes CUT BASE PIN.
- With CUT BASE PIN pushed, CUT BLADE is turned ON, causing HUB (A) GEAR and SPUR GEAR to engage. Thus return operation will start.

- When SPUR GEAR rotates one turn, it causes CUEING ROD to start reciprocating and CUT LEVER (A) to start operating. As CUEING ROD moves forth, CUEING CAM (C) is pushed and ARM is moved up. Due to CUT LEVER (A) movement, CUT LEVER (B) pushes ARM LEG to return the arm to its original position. When the arm returns, ARM LEG pushes SWITCH LEVER. At the same time, as CUEING ROD moves back, CUEING moves down. Then SWITCH LEVER pushes MICRO SWITCH to stop the motor revolution.



## ADJUSTMENTS

### BEFORE ADJUSTMENT

Make sure that the following conditions are met for adjustment:

- a. Ambient temperature between 5 ~ 35°C and humidity is between 45% ~ 85%.

However, these don't always apply as long as normal operation is assured and adjustment can be performed properly.

- b. The unit is located at a place free from vibration.

- c. The place for adjustment is protected against magnetic and noise disturbance from the surroundings.

### INSTRUMENTS FOR ADJUSTMENT

Test record: YTR-01 (YAMAHA) or ES-1008 (NEC)

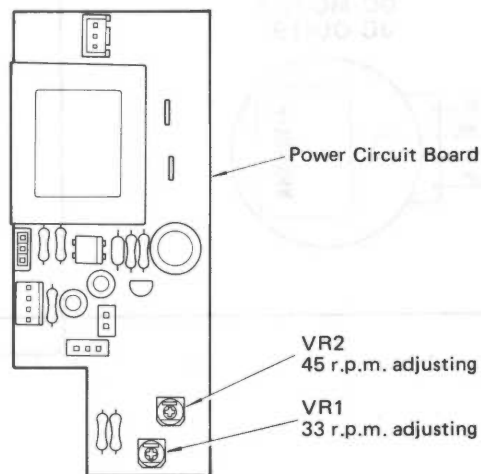
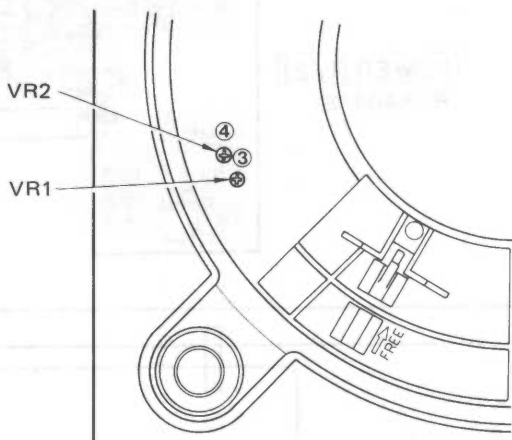
Stroboscope

Small size ⊖ driver

### ADJUSTMENT OF MOTOR R.P.M.

Place a stroboscope disc on turntable platter and run the motor. Adjust VR1 (33 r.p.m.) and VR2 (45 r.p.m.) so that the stroboscope pattern appears to be stationary.

\* Adjustment is possible through the holes provided upper the unit without removing the turntable platter. In this case, be sure to re-check for proper r.p.m. after adjustment.

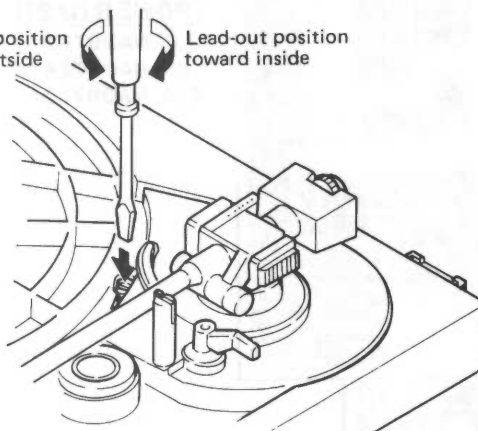


### 1. Auto-return operation check

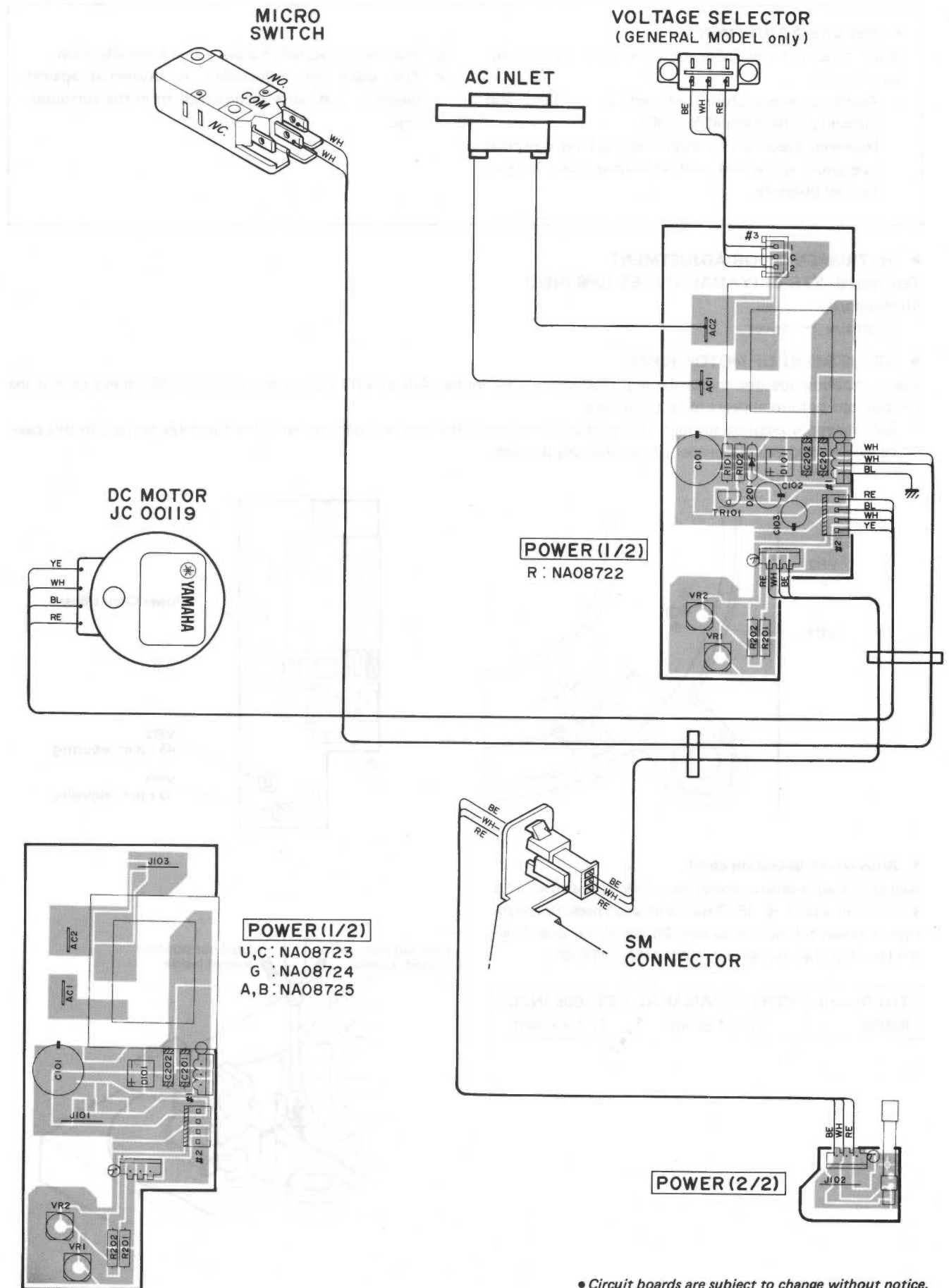
Adjust the auto-return operation of the tonearm at  $17 \pm 4$  count on side 1 ⑥ (P=3mm) and also check to ensure that it doesn't function before 26 count on side 2 ④ (P=1mm) of the test record (YAMAHA: YTR-01).

Test Record	YTR-01 (YAMAHA)	ES-1008 (NEC)
Rating	$17 \pm 4$ count	$17 \pm 4$ count

Lead-out position toward outside  
Lead-out position toward inside



# PRINTED CIRCUIT BOARD (Pattern side)



• Circuit boards are subject to change without notice.



# PARTS LIST

## ELECTRICAL PARTS

### WARNING

Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.

PF-20/P-07

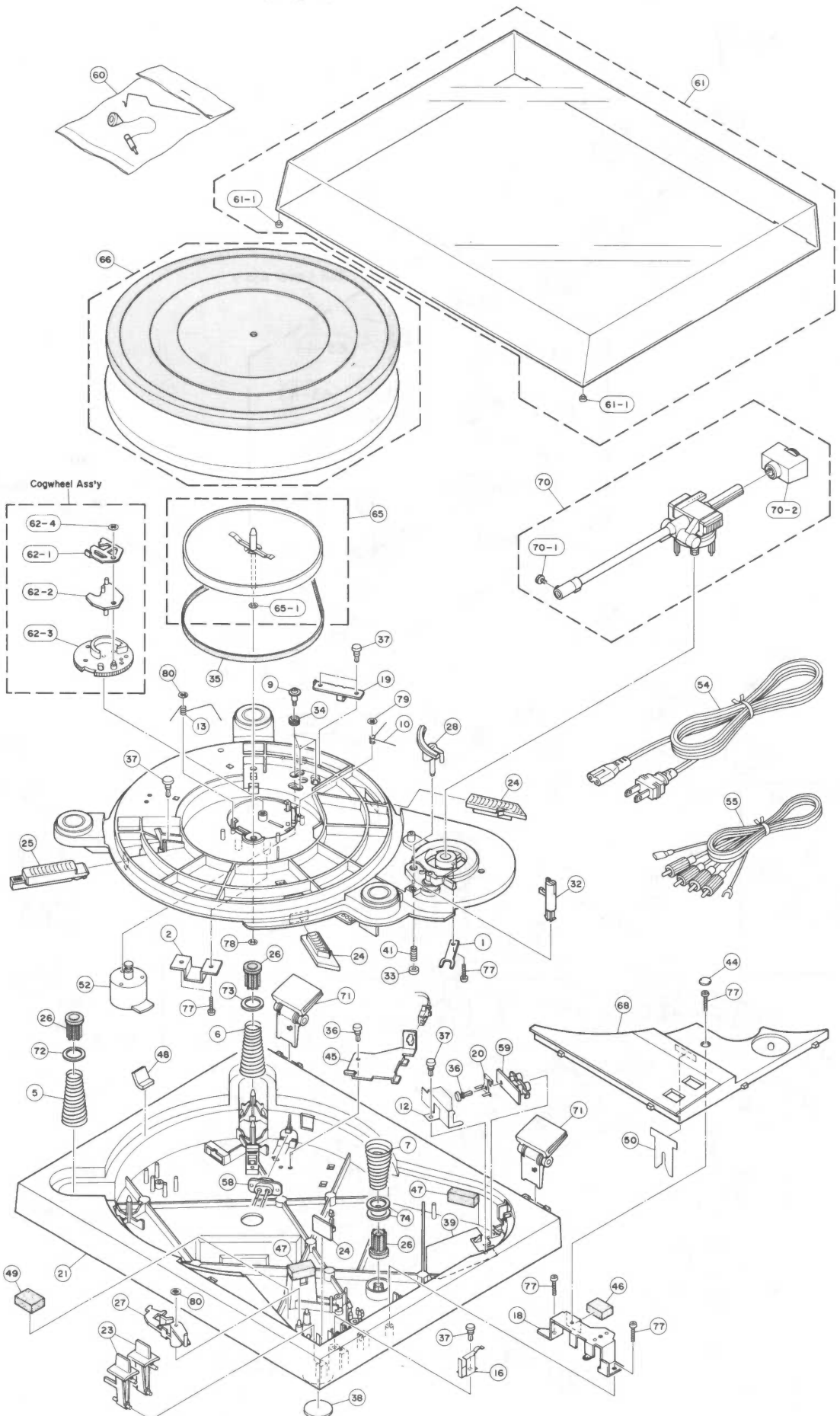
Ref. No.	Part No.	Description	部 品 名	Remarks -	Common Model	Markets	ランク
*	NA 08 72 10	Power Circuit Board	パ ワ ー シ ー ト			J	
*	NA 08 72 20	"	"			R	
*	NA 08 72 30	"	"			U,C	
*	NA 08 72 40	"	"			G	
*	NA 08 72 50	"	"			A,B	
	Fi 22 34 70	Ceramic Cap. 4700pF 50V	セ ラ コ ン	C201			$\Delta$
	Fi 22 41 00	" 0.01 $\mu$ F 25V	"	C202			
	Ui 93 94 70	Electrolytic Cap. 4700 $\mu$ F 16V	ケ ミ コ ン	C101		J,U,C,A, E,G,B	
	UW 94 93 30	" 3300 $\mu$ F 25V	"	"		R	
	UW 83 73 30	" 33 $\mu$ F 16V	"	C103		R	
	UW 83 71 00	" 10 $\mu$ F 16V	"	C102		R	
	iD 13 02 00	Transistor 2SD1302(R,S)	ト ラ ン ジ ス タ	TR101		R	
	iF 00 35 50	Zener Diode HZ12B-2	ツェナーダイオード	D201		R	
	iF 00 14 70	Diode IB4B42	ダイオードブリッジ	D101			
	HJ 35 54 70	Carbon Resistor 470 $\Omega$ 1/4W	カ ー ボ ン 抵 抗	R101,102		R	
	HJ 35 52 20	" 220 $\Omega$ 1/4W	"	R201			
	HJ 35 59 10	" 910 $\Omega$ 1/4W	"	R202			
	GA 67 33 00	Power Transformer	電 源 ト ラ ン ス			J	$\Delta$
	GA 67 34 00	"	"			R	$\Delta$
	GA 67 35 10	"	"			U,C	$\Delta$
	GA 67 36 00	"	"			G	$\Delta$
	GA 67 37 00	"	"			A,B	$\Delta$
	HT 99 01 10	Metalglaze Potentiometer B2k $\Omega$	メタルグレースポリウム	VR1,2			
*	KA 90 70 80	Leaf Switch SL-003	リ ー フ ス イ ッ チ				

\*New Parts (新規部品)

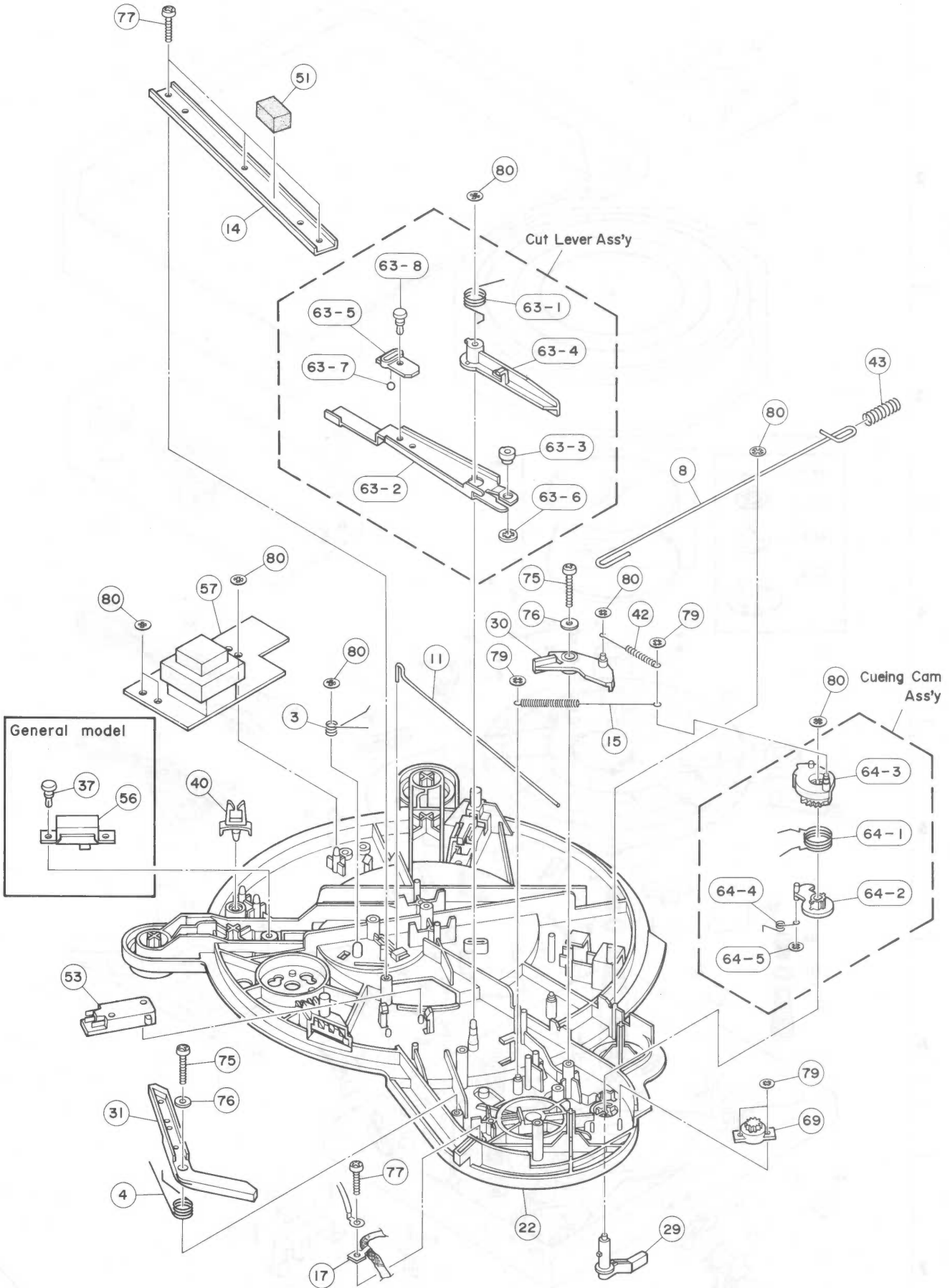
# EXPLODED VIEW (1/2)

PF-20/P-07

1  
2  
3  
4  
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7



# EXPLODED VIEW (2/2)



1  
2  
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4  
5  
6  
7

## MECHANISM PARTS

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	1	AA 62 50 70	Arm Fixing Plate	アーム固定金具			
※	2	AA 62 50 80	Shaft, Receive	シャフト受け			
※	3	AA 62 51 30	Spring, Cueing Rod	キューイングロッドスプリング			
※	4	AA 62 51 40	Spring, Lever Switch	スイッチレバースプリング			
※	5	AA 62 51 70	Spring, Float	フロートスプリング	Black		
※	6	AA 62 51 80	"	"	Brown		
※	7	AA 62 51 90	"	"	Red		
※	8	AA 62 56 80	Cut Rod (S,A)	カットロッド (S,A)			
※	9	AA 60 66 50	Screw	モーター取付ネジ			
※	10	AA 62 73 60	Spring	スプリング			
※	11	AA 62 58 30	Cueing Rod	キューイングロッド			
※	12	AA 62 67 80	Shield Case	シールドケース			
※	13	AA 62 67 90	Spring (T,O)	スプリング (T,O)			
※	14	AA 62 73 80	Support Plate	サポートプレート			
※	15	AA 62 77 30	Spring, Cam (C)	カムCスプリング			
※	16	BB 07 08 40	Click leaf Spring	クリック板バネ (A)			
※	17	BB 07 10 00	Ground Plate	アース金具			
※	18	AA 62 73 70	Click Chassis	クリックシャーシ			
※	19	AA 62 74 40	Stopper Plate	ストップパー金具			
※	20	BB 07 09 90	Shield Hold	シールド押え			
※	21	CB 63 74 90	Cabinet	キャビネット	Black		
※	"	CB 64 02 00	"	"	Silver		
※	22	CB 63 75 00	Float Panel (A)	フロートパネル A	Silver		
※	"	CB 64 26 40	"	"	Black		
※	23	CB 63 86 80	Lever, Control	操作レバー			
※	24	CB 63 87 40	Hold Attachment	輸送固定アタッチメント			
※	25	CB 63 87 50	Float Stopper	フロートヌケ止め			
※	26	CB 63 87 60	Float Rubber (A)	フロートゴム (A)			
※	27	CB 63 87 90	Lever, Cut	カットレバー			
※	28	CB 63 88 40	Elevation	エレベーション			
※	29	CB 63 88 50	Lever, Cueing	キューイングレバー			
※	30	CB 63 88 60	Cueing Cam (C)	キューイングカム (C)			
※	31	CB 63 88 70	Lever, Switch	スイッチレバー			
※	32	PB 06 51 80	Arm Rest Ass'y	レスト Ass'y			
※	33	CB 64 18 90	EV Bush	EV ブッシュ			
※	34	CB 61 11 80	Motor Installation	モーター取付座			
※	35	CB 64 01 80	Belt	ベルト	φ140mm W4		
※	36	CB 06 88 80	Plastic Rivet	プラスチックリベット			
※	37	CB 60 56 20	"	"			
※	38	CC 03 61 50	Felt, Insulator	インシュレーターフェルト			
※	39	CA 07 78 80	Barrier	バリア紙			
※	40	CB 64 45 90	Clip, Wire	ワイヤークリップ			
※	41	AA 62 74 70	Spring, EV	EV スプリング			
※	42	AA 62 74 80	Spring, Cam (A)	カムスプリング (A)			
※	43	AA 62 75 00	Spring, Cut Rod	カットロッドスプリング			
※	44	CB 63 46 60	Cover, Screw	スクリュウカバー	Silver		
※	"	CB 63 46 70	"	"	Black		
※	45	AA 62 77 40	Connector Chassis	コネクタシャーシ			
※	46	CB 64 52 40	Damper	ウレタンダンパー			
※	47	CB 64 52 50	Damper (A)	ウレタンダンパー (A)			
※	48	CB 64 62 20	Damper	輸送ダンパー			
※	49	CB 64 63 70	Spacer	スペーサー			
※	50	CB 64 63 80	Guide	ガイド			

※ New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks -	Common Model	Markets	ランク
※	51	CB 64 63 90	Cushion	ク ッ シ ョ ン			
※	52	JC 00 11 90	Motor,DC	VFO 2RK D C モ ー タ ー			
	53	KA 60 06 00	Micro Switch	K1-S マイ ク ロ ス イ ッ チ			△
※	54	MG 00 21 10	Power Cord	電 源 コ ー ド		J	△
※	※	MG 00 21 20	※	※		R	△
※	※	MG 00 21 30	※	※		U,C	△
※	※	MG 00 21 40	※	※		B	△
※	※	MG 00 21 50	※	※		G	△
※	※	MG 00 21 60	※	※		A	△
※	55	Mi 09 11 10	Pin Plug Cord	ピ ン ピ ン コ ー ド			
※	56	KA 40 17 20	Voltage Selector	電 圧 切 換 ス イ ッ チ		R	△
※	57	NA 08 72 10	Power Circuit Board	パ ワ ー シ ー ト		J	
※	※	NA 08 72 20	※	※		R	
※	※	NA 08 72 30	※	※		U,C	
※	※	NA 08 72 40	※	※		G	
※	※	NA 08 72 50	※	※		A,B	
※	58	PB 06 49 20	Inlet Ass'y	イ ン レ ッ ト Ass'y		U,C	△
※	※	PB 06 48 90	※	※		J,R,A,G,B	△
※	59	PB 06 49 00	PU Circuit Board	P U シ ー ト			
※	60	PB 06 49 30	IFC Ass'y	I F C Ass'y			
	61	NB 62 30 70	Dust Cover Ass'y	上 蓋 Ass'y	Except U model of P-07		
	61-1	CB 61 19 20	Cushion Rubber	ク ッ シ ョ ン ゴ ム			
※	62-1	AA 62 52 50	Cut Blade	カ ッ ト ブ レ ー ド			
※	62-2	CB 63 87 20	Cut Base	カ ッ ト ベ ー ス			
※	62-3	CB 63 89 00	Cogwheel	平 歯 車			
※	62-4	EV 52 33 00	CS-Ring	φ3 C S 止 め 輪			
※	63-1	AA 62 51 50	Spring,Cut Lever	カ ッ ト レ バ ー ス プ リ ン グ			
※	63-2	BA 09 19 50	Lever,Cut (A)	カ ッ ト レ バ ー (A)			
※	63-3	CB 63 87 10	Cam,Cut Lever	カ ッ ト レ バ ー カ ム			
※	63-4	CB 63 88 80	Lever,Cut (B)	カ ッ ト レ バ ー (B)			
※	63-5	CB 64 42 60	Stopper	ス ト ッ パ ー			
※	63-6	EV 52 26 00	CS-Ring	φ6 C S 止 め 輪			
※	63-7	SX 96 07 40	Steel Ball	φ4 ス テ ー ル ボ ー ル			
※	63-8	CB 06 88 80	Plastic Rivet	プ ラ ス チ ッ ク リ ベ ッ ト			
※	64	NB 62 59 30	Cueing Cam Ass'y	キュー イ ン グ カ ム Ass'y			
※	64-1	AA 62 50 90	Spring,Cueing Cam(A)	キュー イ ン グ カ ム (A) ス プ リ ン グ			
※	64-2	CB 63 88 90	Cueing Cam	キュー イ ン グ カ ム			
※	64-3	CB 63 86 90	Cueing Cam (A)	キュー イ ン グ カ ム (A)			
※	64-4	AA 62 68 00	Spring,Click (T,O)	ス プ リ ン グ ク ロ ッ ク (T,O)			
※	64-5	EV 52 02 00	CS-Ring	φ2 C S 止 め 輪			
※	65	NB 62 59 40	T.T Ass'y	T . T Ass'y			
※	65-1	EV 50 13 06	E-Ring	φ3 FNM3-3g E リ ン グ	PACK		
※	66	NB 62 80 10	Platter Ass'y	T . T シ ー ト Ass'y			
※	68	NK 06 08 30	Switch Panel	ス イ ッ チ パ ネ ル	Black PF-20		
※	※	NK 06 08 40	※	※	Silver ※		
※	※	NK 06 09 30	※	※	Black P-07		
※	※	NK 06 09 40	※	※	Silver ※		
※	69	PB 06 49 40	Damper	IC72-E ダ ン パ ー			
※	70	SS 06 04 30	Tone Arm Unit	YA-49 ト ー ン ア ー ム ユ ニ ッ ト			
※	70-1	XX 60 04 30	Knob,Head Lock	ヘ ッ ド ロ ッ ク ツ マ ミ			

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks -	Common Model	Markets	ランク
* 70-2	NX 60 02 20	Weight Ass'y	ウ ェ イ ト Ass'y				
71	PB 06 24 00	Hinge Ass'y	オ ー ト ヒ ン ジ	PF-20/P-07		J,G,B	
"	PB 06 24 90	"	"	PF-20		R,U,A,C	
"	PB 06 24 90	"	"	P-07		R,A,C	
* 72	CB 64 52 00	Spacer	t=0.5 ス ペ ー サ ー				
* 73	CB 64 52 10	"	t=1.0 "				
* 74	CB 64 52 20	"	t=1.5 "				
75	ED 03 01 26	Binding Head Screw	3×12 ZMC2-Y バ イ ン ド 小 ネ ジ	PACK			
76	EV 20 00 36	Plain Washer	φ3 ZMC2-Y 平 座 金	PACK			
77	Ei 03 01 06	Binding Head Tapping Screw	3×10 ZMC2-Y バ イ ン ド タ ッ ピ ン グ ネ ジ	PACK			
78	EV 50 13 06	E-Ring	φ3 FNM3-3g E リ ン グ	PACK			
79	EV 52 02 00	CS-Ring	φ2 ZMC2-Y C S 止 め 輪				
80	EV 52 33 00	"	φ3 ZMC2-B # "				
	CB 06 92 50	Binding Tie	BK-1 イ ン シ ュ ロ ッ ク タイ				
	CB 60 35 90	Tie	ビ ニ タ イ				
		<b>Accessories</b>		付 属 品	PF-20		
✓	CB 61 18 70	Overhang Gauge	オ ー バ ー ハ ン グ ゲ ー ジ				
✓	CB 61 27 80	45 Adaptor	45 回 転 ア ダ プ タ				
✓	PB 06 23 70	Head Shell Ass'y	ヘ ッ ド シ ェ ル Ass'y				
✓	PB 06 43 00	P-mount Head Shell Ass'y	Pマ ン ト シ ェ ル Ass'y			U	
	PX 60 01 40	Cartridge	CG-7700 カ ー ト リ ッ ジ			J,R,C,G,A,B	
	PB 06 28 50	Fixing Screw Ass'y	カ ー ト リ ッ ジ 止 め ネ ジ Ass'y				
		<b>Accessories</b>		付 属 品	P-07		
	CB 61 27 80	45 Adaptor	45 回 転 ア ダ プ タ				
	PB 06 23 70	Head Shell Ass'y	ヘ ッ ド シ ェ ル Ass'y				
	PB 06 28 50	Fixing Screw Ass'y	カ ー ト リ ッ ジ 止 め ネ ジ Ass'y				
	PX 60 01 40	Cartridge	CG-7700 カ ー ト リ ッ ジ				

\* New Parts (新規部品)

# PF-20/P-07

**YAMAHA**

