

STEREO TURNTABLE TT-300/300U

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 specifications 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.

TT-300/300U

■ CONTENTS

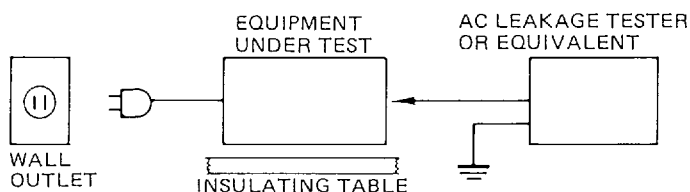
TO SERVICE PERSONNEL	1
PANEL CONTROLS	1
SPECIFICATIONS	1
PACKING INSTRUCTION	2
INTERNAL VIEW	2
DISASSEMBLY PROCEDURES	3 ~ 6

MEASUREMENTS AND ADJUSTMENTS	7
TROUBLESHOOTING	8
PRINTED CIRCUIT BOARD	9
SCHEMATIC DIAGRAM	10
BLOCK DIAGRAM	10
PARTS LIST	11 ~ 15

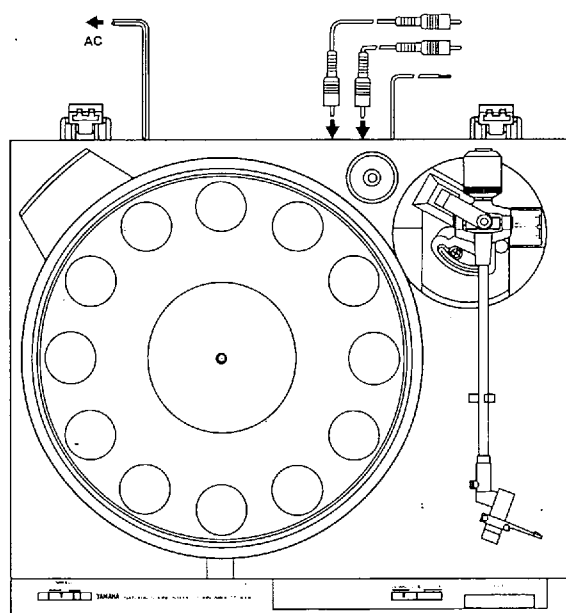
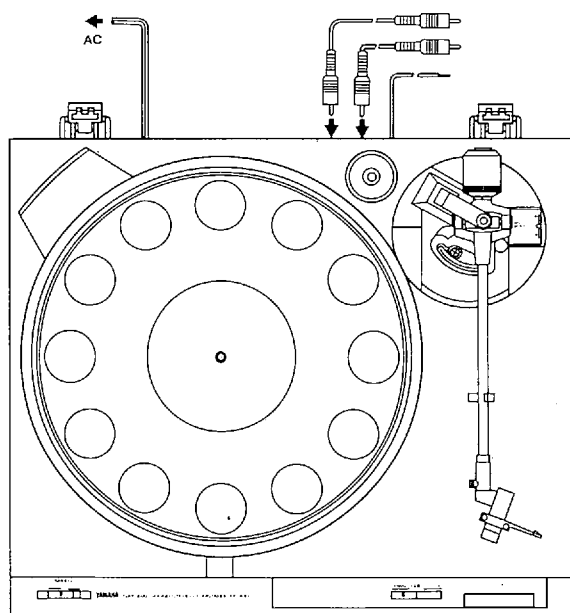


■ TO SERVICE PERSONNEL

1. Critical Components Information.
Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
2. 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 $0.15\mu\text{F}$.
 - Leakage current must not exceed 0.5mA.
 - Be sure to test for leakage with the AC plug in both polarities.



■ PANEL CONTROLS



■ SPECIFICATIONS

■ TURNTABLE MOTOR SECTION

Drive System:	Belt drive
Motor:	DC motor
Platter:	Aluminum die-cast
Speed:	33-1/3 & 45 rpm
Wow and Flutter:	0.045% wrms
Signal-to-Noise Ratio:	70 dB

■ TONEARM SECTION

Arm Type:	Static balance Straight tonearm
Effective length:	230 mm (9-1/16")
Overhang:	16 mm (5/8")
Effective Mass:	9.5 g (without cartridge)
Tracking Force:	0-3 g, 0.1 g step
Offset Angle:	23°
Permissible Cartridge Weight:	4-9 g

■ CARTRIDGE SECTION

(Except U.S.A. and Canadian models)

Type:	CG-7700 MM Type
Replacement stylus:	N-7700
Output:	2.5 mV (\pm dB (1 kHz, 5 cm/s))
Tracking force:	2.0 \pm 0.5 g
Weight:	5.0 \pm 0.5 g

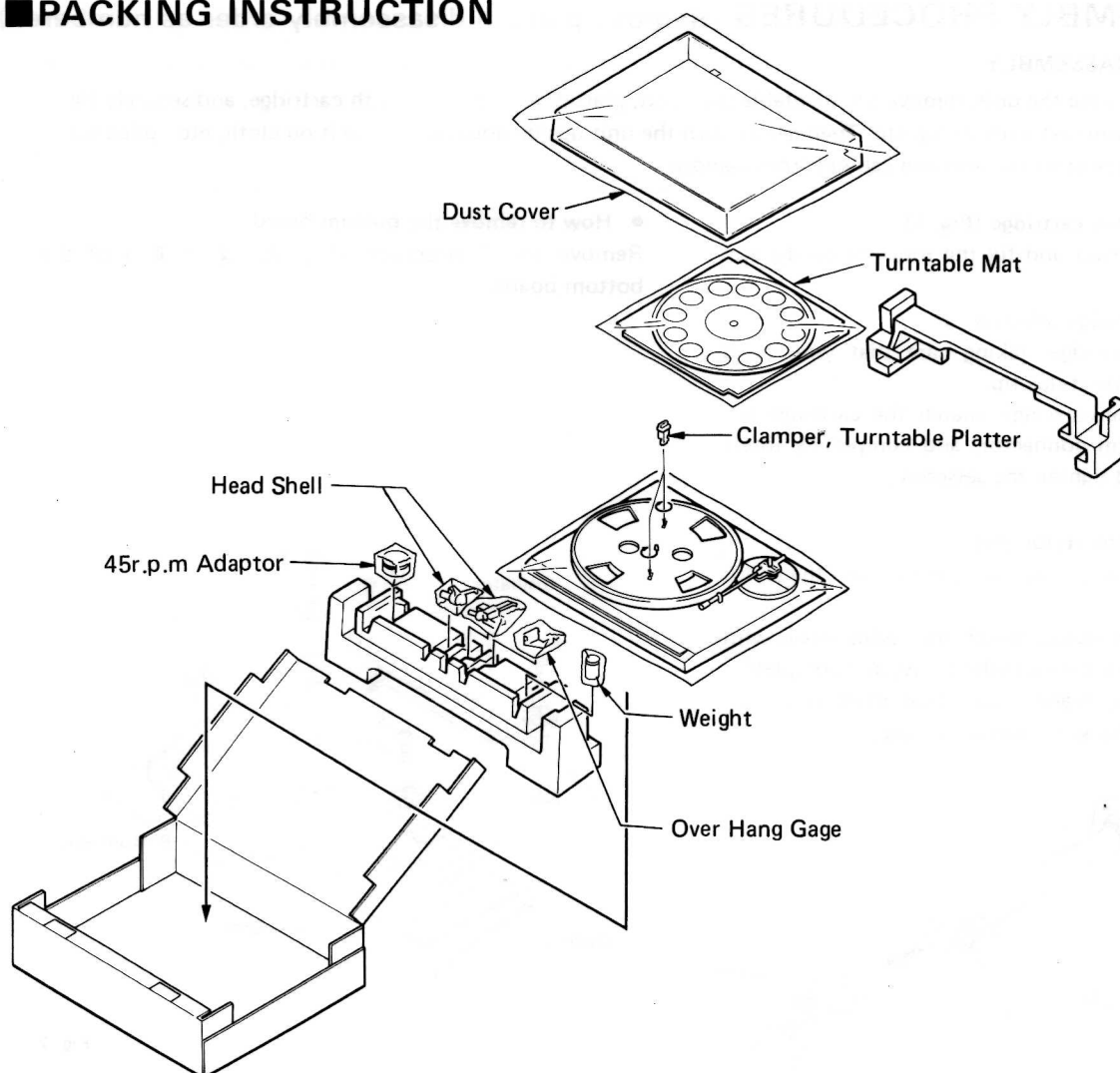
■ GENERAL

Power supplies:	120V, AC 60Hz (U.S.A. & Canada) 220V, AC 50Hz (Europe) 240V, AC 50 Hz (British & Australia) 110-120/220-240V, AC 50/60 Hz (Other Areas)
Power consumption:	2W
Dimensions (W x H x D):	430 x 105 x 375 mm (16-15/16" x 4-1/8" x 14-3/4")
Weight:	3.8 kg (8 lbs. 6 oz.)

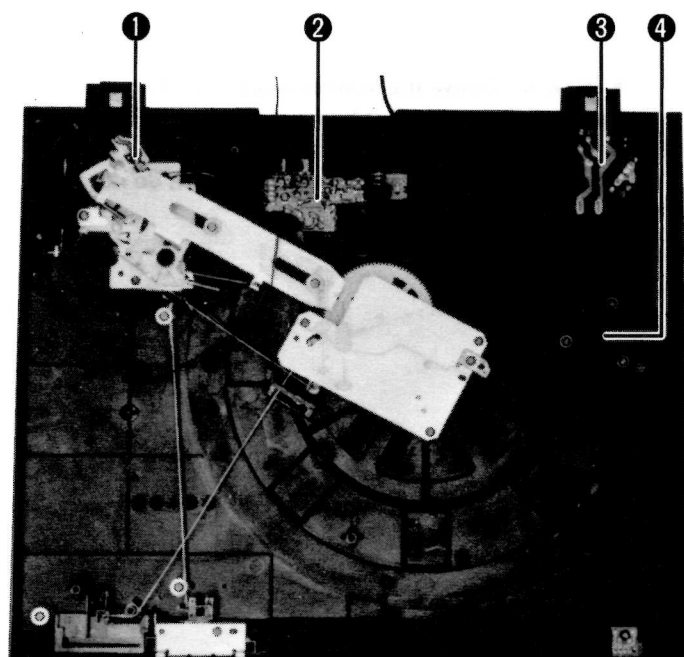
Specifications subject to change without notice.
Weight and dimensions shown are approximate.

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

■ PACKING INSTRUCTION



■ INTERNAL VIEW



- ① SWITCH: XX664730
- ② MAIN CIRCUIT BOARD (1)
- ③ MAIN CIRCUIT BOARD (4)
- ④ MOTOR: XX664050

■ DISASSEMBLY PROCEDURES (Remove parts in disassembly order as numbered)

NOTES ON DISASSEMBLY

Before disassembling the unit, remove the turntable mat, belt, 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.

● How to remove the cartridge (Fig. 1)

1. Open the dust cover and fix the tonearm on the arm rest.
2. Remove the cartridge setscrew ①
3. Pull out the cartridge, taking care that your hand does not touch the stylus tip.
4. When setting the cartridge, match the cartridge pin with the tonearm connector, and completely insert the cartridge and tighten the setscrew.

● How to remove the stylus (Fig. 1)

1. Pull out the stylus, taking care not to touch the stylus tip.
2. When setting the stylus, match the stylus sleeve with the fitting hole in the cartridge body, and completely insert the stylus, making sure that there is no gap between the stylus knob and main body.

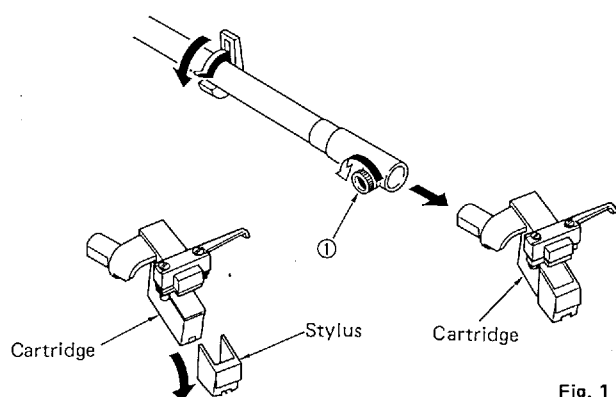


Fig. 1

● How to remove the speed selector knob

Remove the main circuit board (2) setscrew (Fig. 3: ⑨) and pull out the speed selector knob.

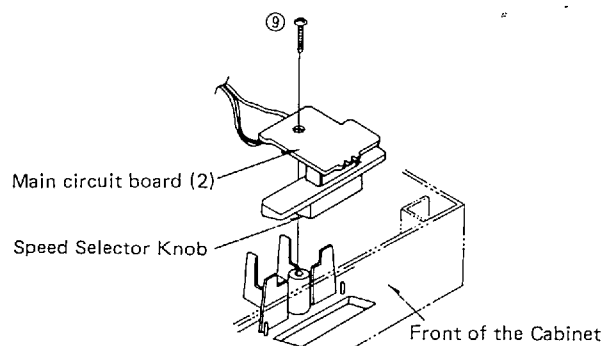


Fig. 3

● How to remove the bottom board

Remove the 7 setscrews (Fig. 2: ② ~ ⑧) of the bottom board.

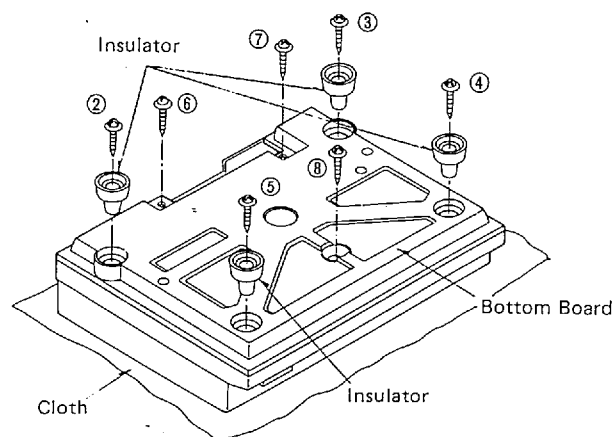


Fig. 2

● How to remove the main circuit board (1)

Remove the main circuit board (1) setscrew (Fig. 4: ⑩)

Note:

When attaching the main circuit board (1), do not forget to attach the spring.

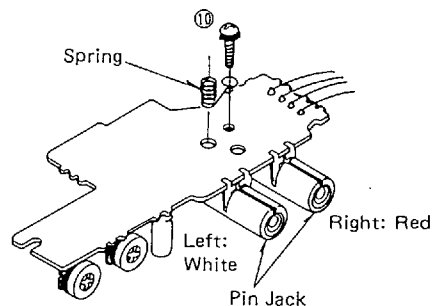


Fig. 4

● How to remove the turntable drive motor

1. Remove the 3 turntable drive motor setscrews (Fig. 5: ⑪ ~ ⑬) and pull out the turntable drive motor with rubber cushion from the cabinet.
2. Open the rubber cap, and unsolder the 2 terminals from the turntable drive motor (Fig. 6).
3. Pull out the turntable drive motor, and remove it from the rubber cushion (Fig. 6).

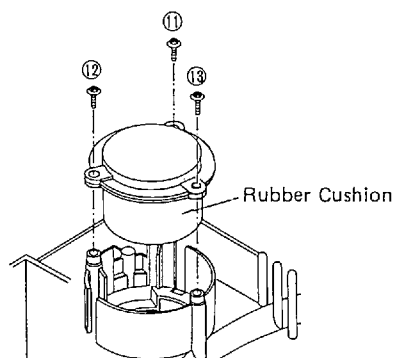


Fig. 5

Notes:

1. When attaching the turntable drive motor to the rubber cushion, match the arrow marks.
2. Connection of the turntable drive motor is . . .
J5 terminal (+) terminal of the motor
J6 terminal (−) terminal of the motor
★ An arrow mark is the (−) terminal.

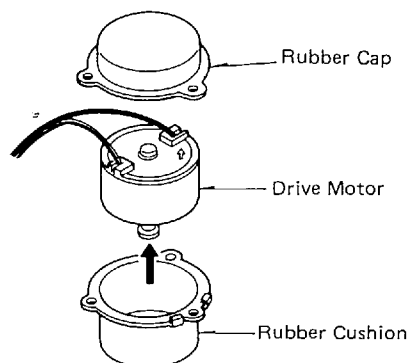


Fig. 6

● How to remove the power-transformer

1. Remove the 2 circuit board setscrews (Fig. 7: ⑭ ⑮).
2. Unsolder 5 terminals from the circuit board:

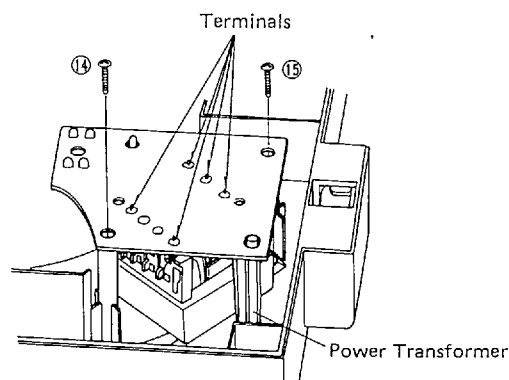


Fig. 7

● How to remove the cueing knob and stop button

1. Remove the cueing knob holder setscrew (Fig. 8: ⑯). The cueing knob can then be removed.

Note:

When removing the cueing knob, please note the ball bearing which is held between the holder and the click spring (leaf spring) and take care not to drop or lose it.

2. To remove the stop button, remove the stop button setscrew (Fig. 8: ⑰).

Note:

When attaching the stop button, do not forget to attach the spring.

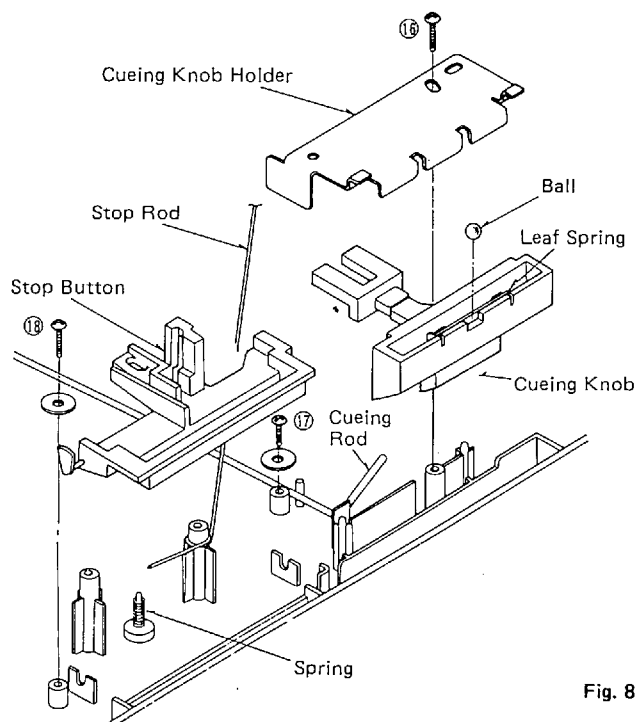


Fig. 8

How to remove the main gear

1. Remove the screw holding the main gear base. (Fig. 9: ①9 ~ ②1).
2. Remove the 2 drive plate setscrews (Fig. 10: ②2 , ②3).
3. Remove the spring which is set between the drive plate and cueing base. Remove the drive plate.
4. Release the actuating rod from the actuating lever. Then remove the main gear base and invert it.
5. Remove the E-ring holding the main gear (Fig. 11). The main gear can then be removed.

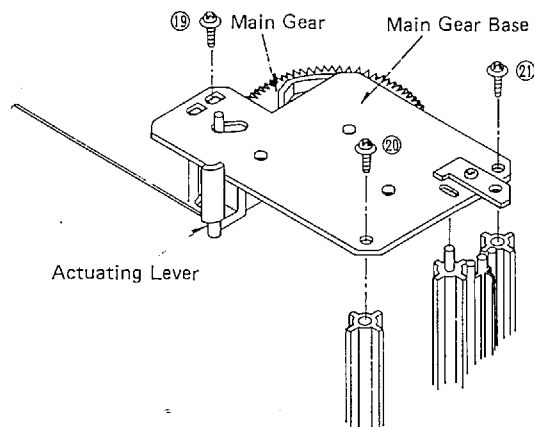


Fig. 9

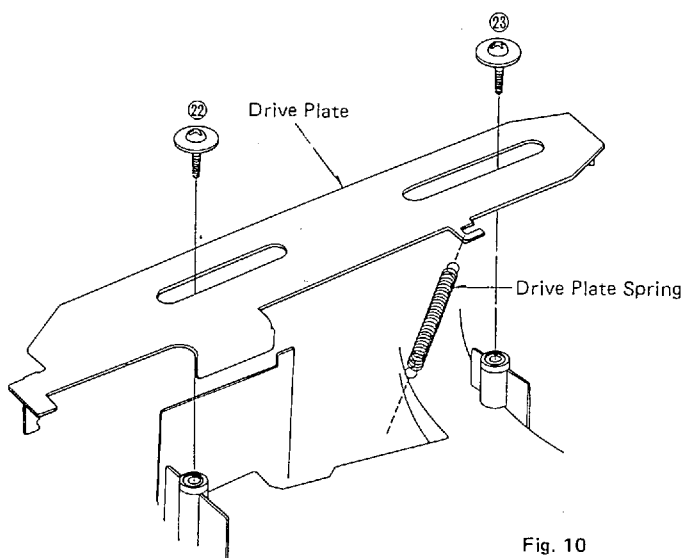


Fig. 10

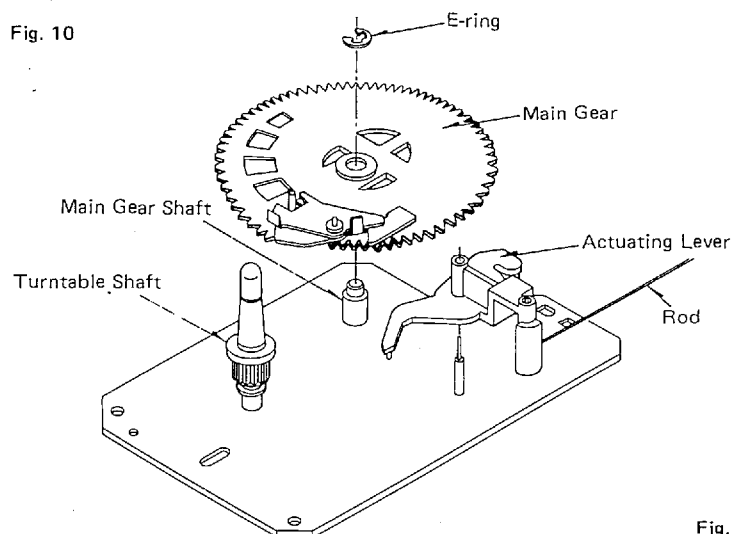


Fig. 11

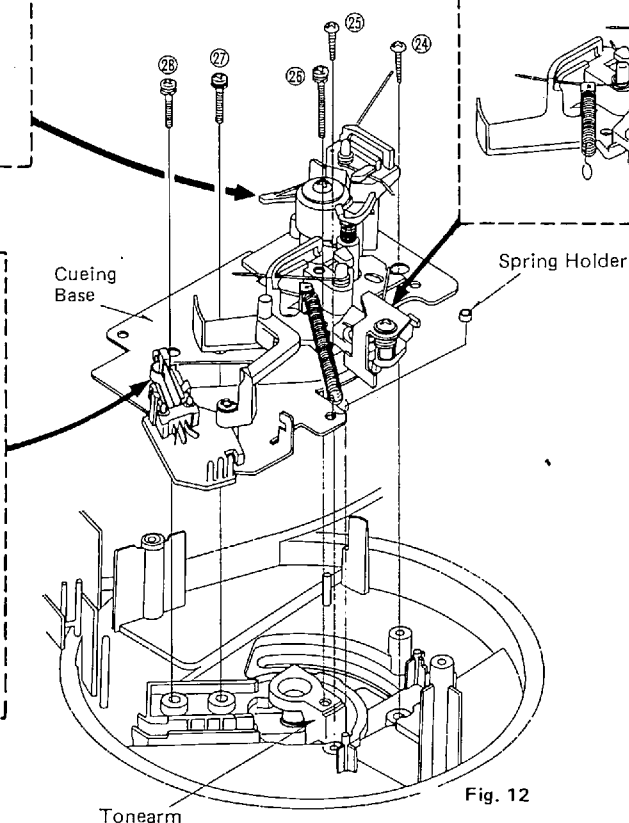
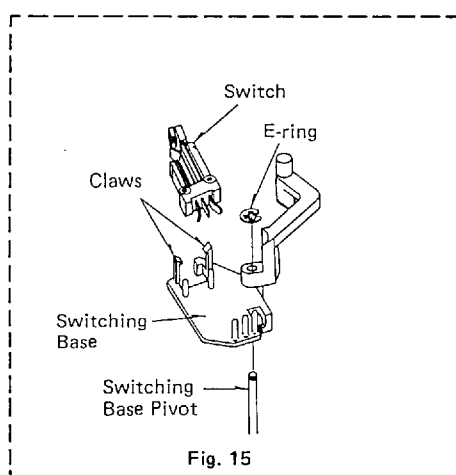
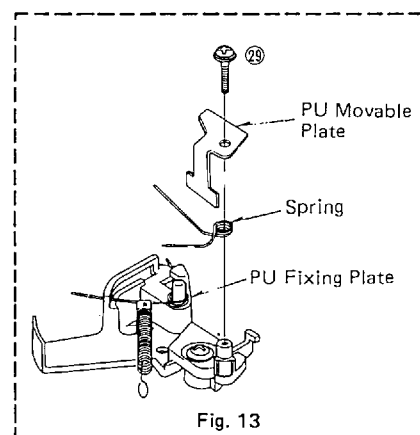
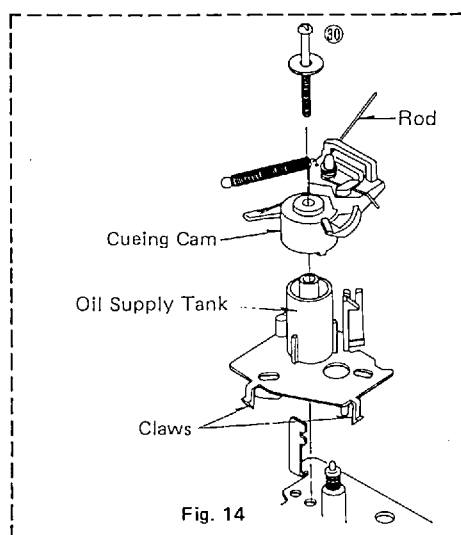
● How to remove the cueing base unit

1. Remove the drive plate. (Refer to "How to remove the main gear.")
2. Remove the actuating rod which passes through the oil supply tank unit.
3. Remove the 5 setscrews holding the cueing base unit (Fig. 12: ②④ ~ ②⑧) and the spring holder.
4. When the screw (Fig. 12: ②⑥) is removed, the PU fixing plate can be removed.
5. Remove the PU movable plate setscrew; then remove the PU movable plate (Fig. 13: ②⑨).
6. Remove the cueing cam setscrew (Fig. 14: ③⑩). The cueing cam can then be removed.
7. To remove the oil supply tank, detach the 2 claws from the cueing base (Fig. 14).
8. To remove the power switch, spread the 2 claws of the switch base (Fig. 15).

● How to remove the tonearm

1. Remove the drive plate. (Refer to "How to remove the main gear.")
2. Remove the 3 setscrews (Fig. 12: ②⑥ ~ ②⑧).
3. Remove the PU lead wires of the main circuit board.
4. When the tonearm is released from the arm rest, it can be removed.

PU lead wiring method	
White	L CH (+) terminal
Blue	L CH (—) terminal
Red	R CH (+) terminal
Green	R CH (—) terminal
Black	Ground terminal



MEASUREMENTS AND ADJUSTMENTS

BEFORE ADJUSTMENT

Make sure that the following conditions are met for adjustment:

- a. Ambient temperature between $5 \sim 35^{\circ}\text{C}$ and humidity is between $45\% \sim 85\%$.

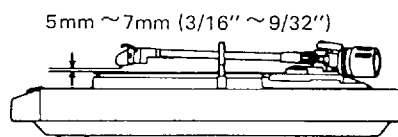
However, these don't always apply as long as normal operation is assured and adjustment can be performed properly.

- 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.

Arm-lift height adjustment

The arm-lift height (distance between the stylus tip and the record surface when the cueing control is at the "▼" position) has been adjusted at the factory to approximately 5 to 7 mm. ($3/16'' \sim 9/32''$) (Fig. 16)



(Fig. 16)

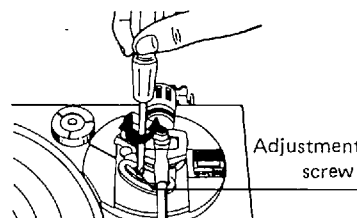
If the clearance is too narrow or too wide, turn the adjustment screw clockwise or counterclockwise. (Fig. 17)

Clockwise rotation

— distance between the record and stylus tip is decreased.

Counterclockwise rotation

— distance between the record and stylus tip is increased.

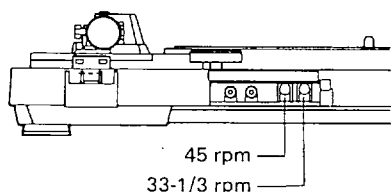


(Fig. 17)

Adjustment of rotational speed

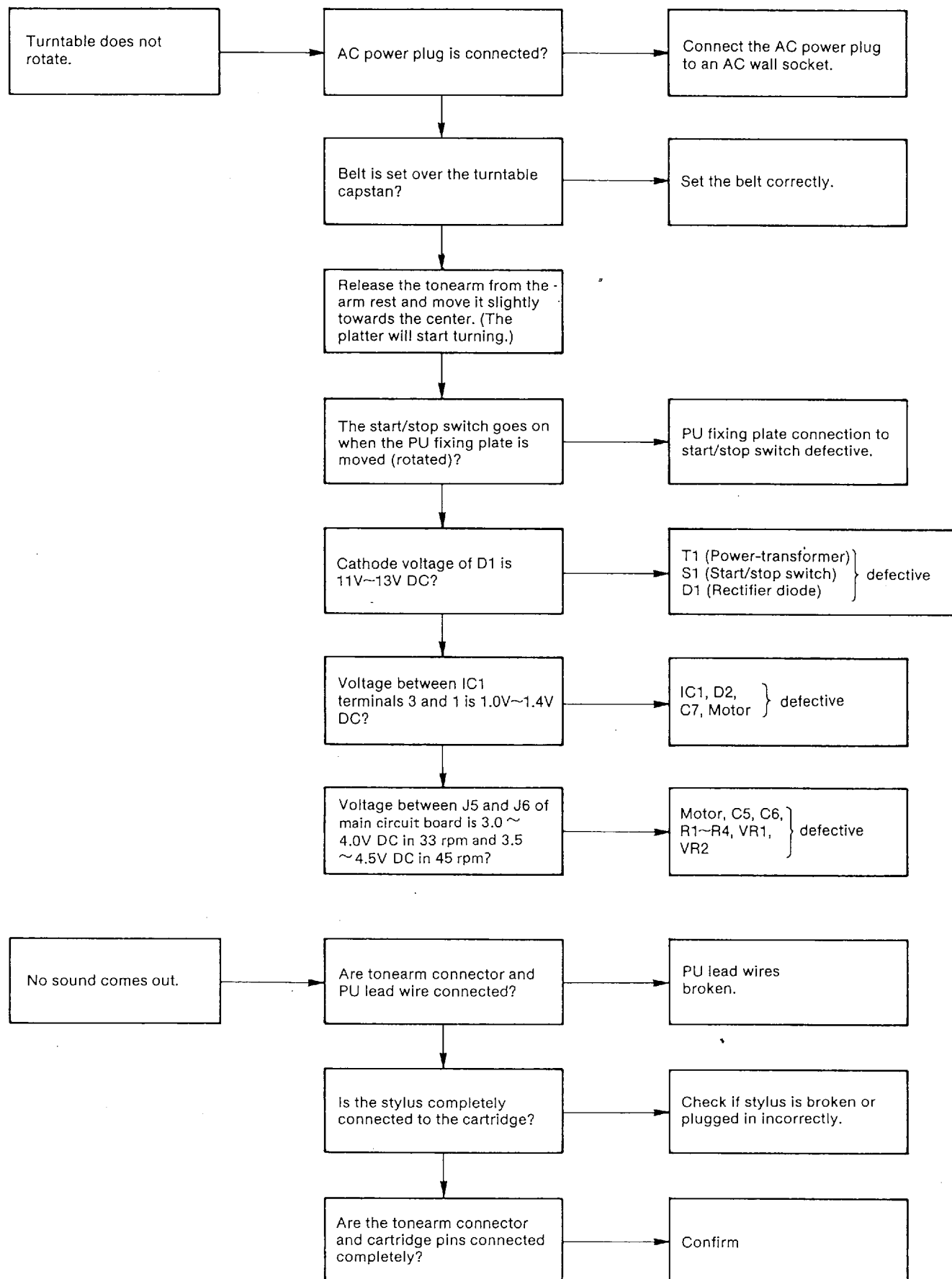
1. Set the speed selector switch to the "33" position.
2. Turn the VR1 with a screwdriver from the back of the set to the rated rotation ($33\frac{1}{3}$ rpm) and check the rotation with a strobe while adjusting the speed. (Fig. 18)
3. Set the speed selector switch to the "45" position.
4. Turn the VR2 with a screwdriver from the back of the set to the rated rotation (45 rpm) and check the rotation with a strobe while adjusting the speed. (Fig. 19)

Note: The speed adjustment should be done in 33-rpm first.



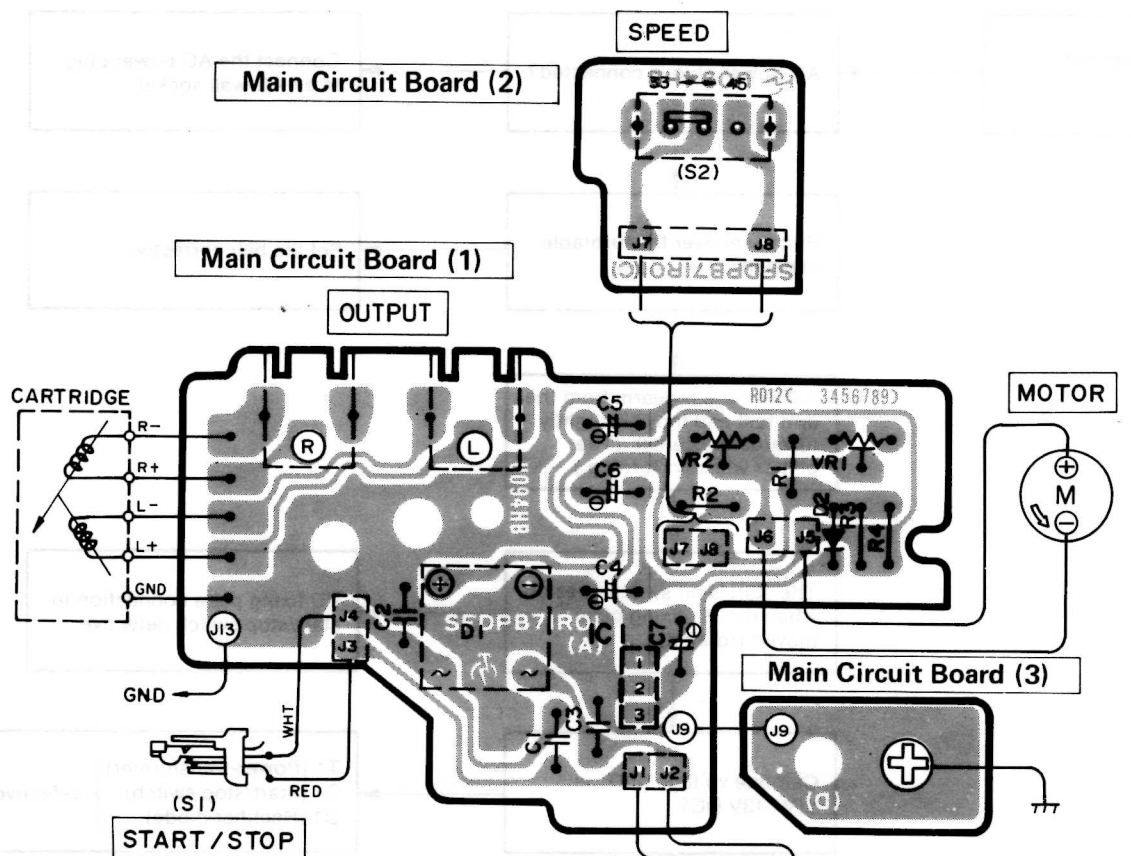
(Fig. 18)

■TROUBLESHOOTING



TT-300/300U

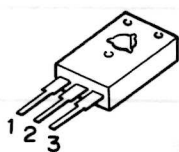
PRINTED CIRCUIT BOARD (Pattern Side) (Note) 文字面 : Component Side



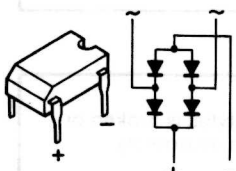
Main Circuit Board (4)
(U.S.A., Canadian, British,
Australian & European models)

• PIN CONNECTION DIAGRAM OF DIODES AND IC.

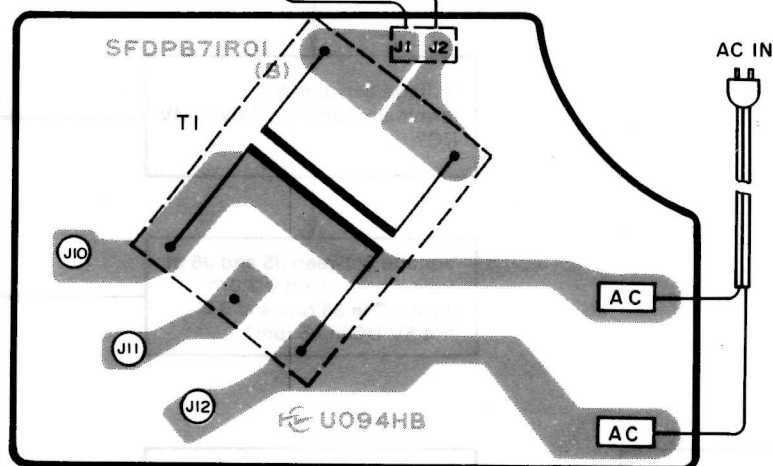
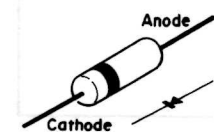
AN6610-M



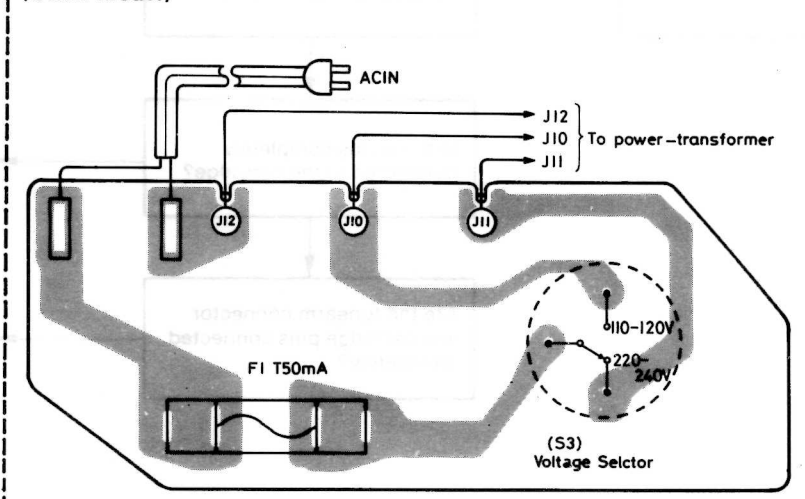
S1WB40



MA162A



(Other model)



A

B

C

D

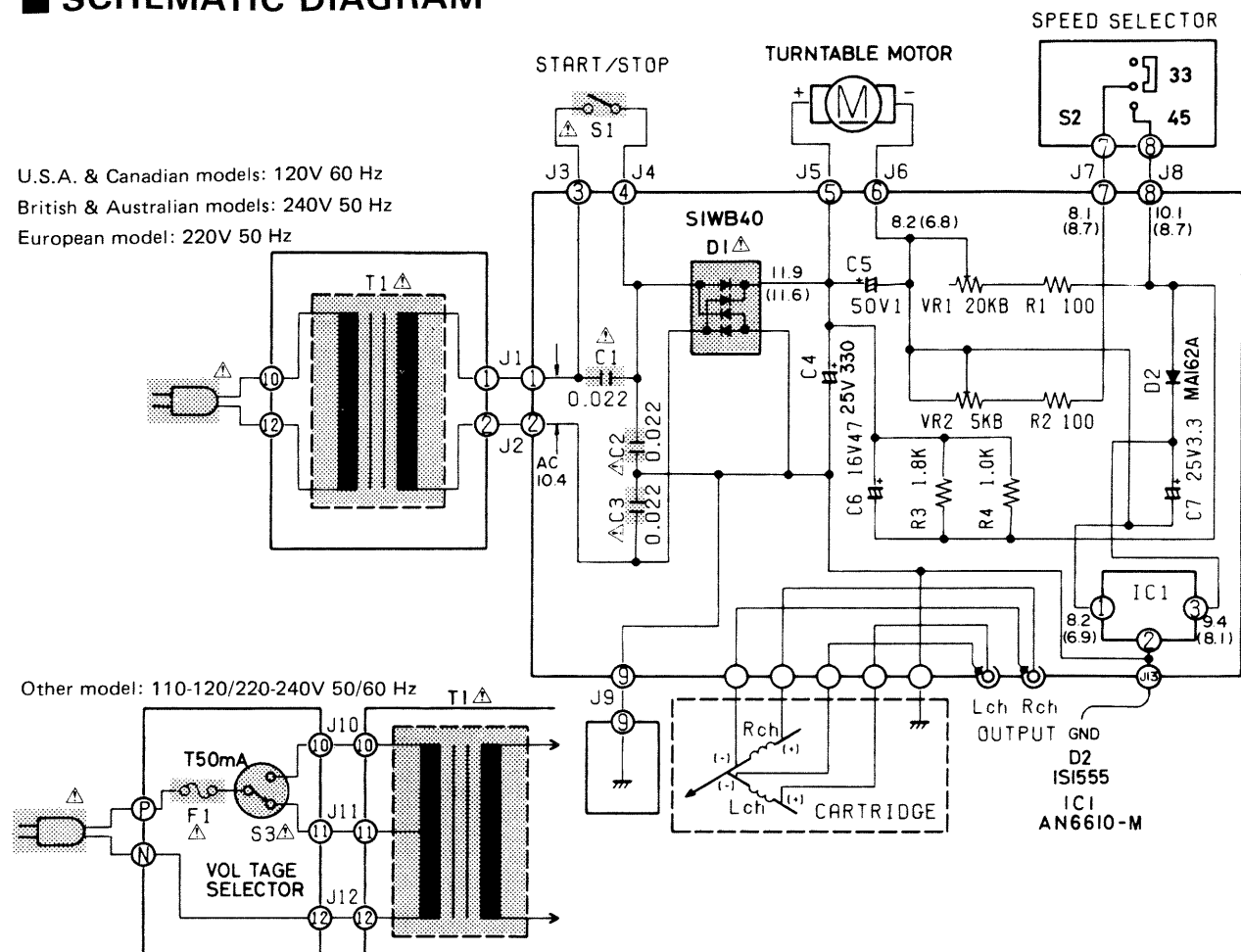
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TT-300/300U

SCHEMATIC DIAGRAM

U.S.A. & Canadian models: 120V 60 Hz
British & Australian models: 240V 50 Hz
European model: 220V 50 Hz

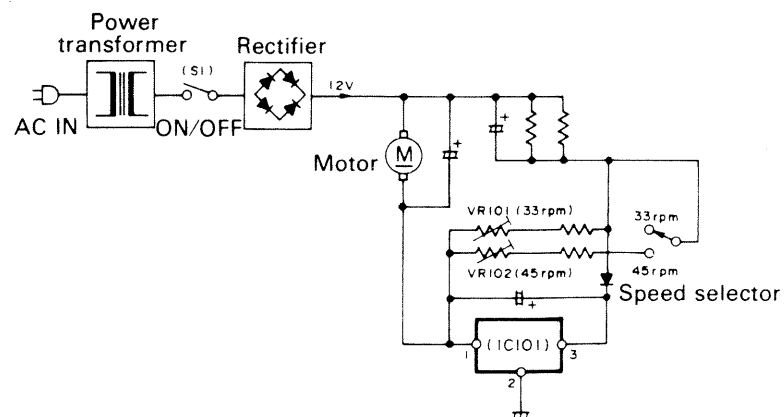
Other model: 110-120/220-240V 50/60 Hz



Notes:

- S1: Start/stop switch in "off" position.
- S2: Speed selector switch in "33 rpm" position.
- S3: Voltage selector switch in the "220-240V" position. (Other model)
- The values are of the reference voltage for the turntable rotation (33 rpm) of this unit, measured by a DC voltmeter (high impedance) on the basis of chassis. So, some error might be included depending on the internal impedance of the measuring instrument and the unit measured.
* (): Voltage in 45 rpm.
- VR1 is the 33 rpm speed adjustment variable resistor.
- VR2 is the 45 rpm speed adjustment variable resistor.
- Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
- Schematic diagram is subject to change without notice.

BLOCK DIAGRAM



PARTS LIST

WARNING

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

ELECTRICAL PARTS

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	XX 69 20 50	Main Circuit Board	メ イ ン シ ー ト			U	
	XX 69 20 70	"	"			G	
	XX 69 20 60	"	"			C	
	XX 69 20 80	"	"			B	
	XX 69 20 90	"	"			A	
*	XX 69 21 00	"	"			R	
	UJ 44 83 30	Electrolytic Cap.	330 μ F 25V	ケ ミ コ ン C4			
	UJ 16 61 00	"	1 μ F 50V	" C5			
	UJ 13 74 70	"	47 μ F 16V	" C6			
	UJ 46 63 30	"	3.3 μ F 50V	" C7			
	FX 60 32 70	Mylar Cap.	0.022 μ F 100V	マ イ ラ ー コ ン C1~C3			
	XX 66 47 50	Pre-set Potentiometer	B20k Ω	半 固 定 抵 抗 VR1, SPEED (33r.p.m.)			
	XX 66 47 60	"	B5k Ω	VR2, // (45r.p.m.)			
	IX 60 65 10	Diode	S1WB40	ダ イ オ ー ド D1			
	IX 60 70 30	"	MA162A	" D2			
	IX 60 65 00	IC	AN6610-M	I C IC1			
	XX 66 47 30	Switch		ス イ ッ チ S1 (Power)			
	XX 66 47 40	"		" S2 (Speed)			
	XX 66 48 70	Voltage Selector		電 圧 切 換 器 S3		R	
	XX 66 39 10	Power Transformer		電 源 ト ラ ン ス		U	
	XX 66 39 20	"		"		G	
	XX 66 39 30	"		"		C	
	XX 66 39 40	"		"		R	
	XX 66 39 50	"		"		A,B	
	XX 66 55 80	Fuse	250V 50mA	ヒ ュ ー ズ F1		R	

* New Parts (新規部品) NR

TT-300/300U

A

B

C

D

E

F

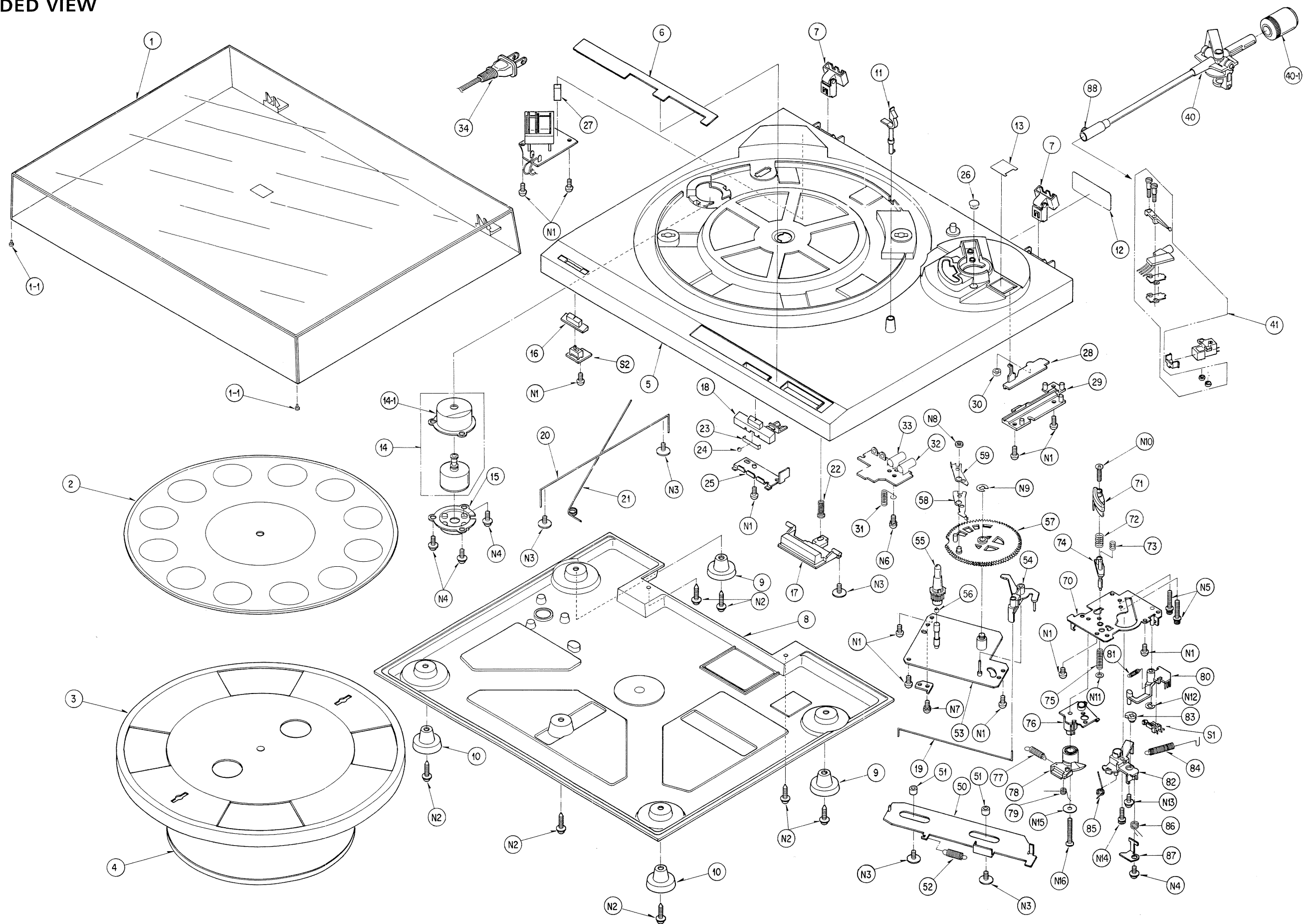
G

H

I

TT-300/300U

EXPLODED VIEW



■ WARNING

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

■ MECHANISM PARTS

Note) ϕ : Diameter

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※ 1	XX 69:17:10	Dust Cover Ass'y	ダストカバー Ass'y		TT-400		
※ 1-1	XX 69:17:20	Dust Cover Cushion	ダストカバークッション		//		
※ 2	XX 69:17:30	Turntable Mat	ターンテーブルマット				
※ 3	XX 66:39:80	Turntable Platter	ターンテーブルプラッター		P-28		
※ 4	XX 69:17:40	Belt $\phi 186 \times 4 \times 9.6$	ベ ル ト		TT-400		
※ 5	XX 69:17:50	Cabinet	キャビネット	Black		U,C	
※ //	XX 69:17:60	//	//	Black		G,B,A,R	
※ //	XX 69:17:70	//	//	Silver		U,C	
※ //	XX 69:17:80	//	//	Silver		G,B,A,R	
※ 6	XX 69:17:90	Ornament	飾 り 板	Black			
※ //	XX 69:18:00	//	//	Silver			
※ 7	XX 69:18:10	Hinge	ヒ ン ジ				
※ 8	XX 69:18:20	Bottom Cover	ボトムカバー				
※ 9	XX 66:40:30	Insulator (Rear)	脚 (前)		P-28		
※ 10	XX 66:40:20	// (Front)	// (後)		//		
※ 11	XX 69:18:30	Tonearm Rest	アームレスト				
※ 12	XX 69:18:40	Name Plate	ネームプレート			U	
※ //	XX 69:18:50	//	//			C	
※ //	XX 69:18:60	//	//			G	
※ //	XX 69:18:70	//	//			A,B	
※ //	XX 69:21:10	//	//			R	
※ 13	XX 69:18:80	Label, Cancellor	キャンセラーラベル	Black			
※ //	XX 69:18:90	// //	//	Silver			
※ 14	XX 66:40:50	Motor Ass'y	モーター Ass'y		P-28		
※ 14-1	XX 66:47:70	Cushion, Motor	モータークッション		//		
※ 15	XX 66:40:40	Cover, Motor	モーターカバー		//		
※ 16	XX 66:40:60	Knob	スピード切換ツマミ	Black Speed Select	//		
※ //	XX 69:19:00	//	//	Silver //			
※ 17	XX 66:41:40	//	ストップツマミ	Black Stop	P-28		
※ //	XX 66:19:10	//	//	Silver //			
※ 18	XX 66:40:80	//	キューイングツマミ	Black Cueing	P-28		
※ //	XX 69:19:20	//	//	Silver //			
※ 19	XX 66:45:10	Rod, Actuating Lever	起 動 ロ ッ ド		P-28		
※ 20	XX 66:40:70	Rod, Cueing	キューイングロッド		//		
※ 21	XX 66:41:30	Rod, Stop	ストップロッド		//		
※ 22	XX 66:41:20	Spring, Stop Button	ストップツマミバネ		//		
※ 23	XX 66:41:00	Spring, Cueing Knob	ク リ ッ ク バ ネ		//		
※ 24	XX 66:40:90	Ball	ボ ー ル		//		
※ 25	XX 66:41:10	Holder, Cueing Knob	ツ マ ミ 押 え		//		
※ 26	XX 66:41:50	Rubber Cap	ゴ ム キ ャ ッ プ	Black	//		
※ //	XX 67:86:10	//	//	Silver			
※ 27	XX 69:19:30	Spacer	ス ペ ー サ ー			U	
※ 28	XX 69:19:40	Slider, Cancellor	キャンセラースライダー				
※ 29	XX 69:19:50	Holder Plate	押 え 板				
※ 30	XX 69:19:60	Tube	シリコンチューブ				
※ 31	XX 66:41:80	Spring	ア ー ス バ ネ		P-28		
※ 32	XX 66:41:70	Output Jack (R)	出力ジャック (R)		//		
※ 33	XX 66:41:60	// (L)	// (L)		//		
※ 34	XX 66:42:00	AC Power Cord	電 源 コ ー ド		//	U,C	Δ
※ //	XX 66:42:10	//	//		//	G	Δ
※ //	XX 66:42:20	//	//		//	B	Δ
※ //	XX 66:42:30	//	//		//	A	

※New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※ 34	XX:66:42:40	AC Power Cord	電 源 コ ー ド		P-28	R	
※ 40	XX:69:19:70	Tone Arm Ass'y	ト ー ン ア ー ム Ass'y				
※ 40-1	XX:69:19:80	Weight, Balance	バ ラ ン ス ウ ェ イ ト				
50	XX:66:44:80	Plate, Drive	ド ラ イ ブ プ レ ー ト		P-28		
51	XX:66:45:80	Pipe, Drive	ド ラ イ ブ パ イ プ				
52	XX:66:44:90	Spring, Drive	ド ラ イ ブ バ ネ		P-28		
※ 53	XX:69:20:00	Base, Mechanism	メ カ ベ ー ス				
※ 54	XX:66:45:00	Lever, Actuating	起 動 レ バ ー		P-28		
※ 55	XX:69:20:10	Turntable Shaft	ター ン テ ー ブ ル シャ フ ト				
56	XX:66:40:90	Ball, Turntable Shaft	ボ ー ル		P-28		
57	XX:66:45:50	Main Gear	メ イ ン ギ ア		//		
58	XX:66:45:70	Rink, Main Gear	起 動 リ ン ク		//		
59	XX:66:45:60	//	フ ィ ク シ ョ ン リ ン ク		//		
70	XX:66:43:30	Base, Cueing	キュー イ ン グ ベ ー ス		//		
71	XX:66:43:00	Arm Lifter	ア ー ム リ フ タ ー		//		
72	XX:66:43:10	Spring, Arm Lifter	バ ー ネ		//		
73	XX:66:51:20	Spring B, Arm Lifter	バ ネ B				
※ 74	XX:69:20:20	Rod, Arm Lifter	ア ー ム リ フ ト ロ ッ ド				
75	XX:66:43:40	Spring, Arm Lifter	バ ー ネ		P-28		
76	XX:66:43:50	Oil Tank	オ イ ル タ ン ク		//		
77	XX:66:43:80	Spring, Cueing	キュー イ ン グ 引 き バ ネ		//		
78	XX:66:43:60	Cam, Cueing	キュー イ ン グ カ ム		//		
79	XX:66:43:70	Spring, Cueing	キュー イ ン グ バ ネ		//		
80	XX:66:44:60	Base, Switch	ス イ ッ チ ベ ー ス		//		
81	XX:66:44:70	Spring, Switch	ス イ ッ チ バ ネ		//		
82	XX:66:44:00	Plate, PU Mounting	P U 固 定 板		//		
83	XX:66:43:90	Cam, Adjust	調 整 カ ム		//		
※ 84	XX:69:20:30	Spring, Cancellor	キャンセラーバネ				
85	XX:66:44:30	Spring, Mounting	固 定 板 用 バ ネ		P-28		
86	XX:66:44:40	Spring	可 動 板 用 バ ネ		//		
87	XX:66:44:50	PU. Plate	P U 可 動 板		//		
※ 88	CX:60:09:20	Knob, Head Lock	ツ マ ミ				
N1	EJ:03:00:86	Pan Head Tapping Screw	3×8 ZMC2-Y ナベタッピングネジ				
N2	EH:33:01:40	Truss Head Tapping Screw	3×14 FCM3-BI トラストタッピングネジ				
N3	EK:03:00:60	BW Head Tapping Screw	3×8 ZMC2-Y BWヘッドタッピングネジ				
N4	Ei:03:00:86	Binding Head Tapping Screw	3×8 ZMC2-Y バインドタッピングネジ				
N5	EA:03:01:66	Pan Head Screw	3×16 ZMC2-Y ナベ小ネジ	PACK			
//	EV:20:00:36	Washer	φ3 ワッシャー	//			
//	EV:30:00:36	Spring Washer	φ3 スプリングワッシャー	//			
N6	EJ:03:01:06	Pan Head Tapping Screw	3×10 ZMC2-Y ナベタッピング	//			
//	EV:42:00:36	Toothed Lock Washer	φ3 歯付座金	//			
N7	EV:42:00:36	//	φ3 //	//			
//	EJ:03:00:86	Pan Head Tapping Screw	3×8 ZMC2-Y ナベタッピング	//			
N8	XX:66:48:30	Special Washer	ワッシャー		P-28		
N9	EV:50:00:46	Stop Ring	φ4 FNM3-3g E リ ン グ	PACK			
N10	EB:03:01:66	Flat Head Screw	3×16 ZMC2-Y サラ小ネジ				
N11	XX:66:48:40	Special Washer	ワッシャー		P-28		
N12	EV:50:13:06	Stop Ring	φ3 FNM3-3g E リ ン グ	PACK			
N13	Ei:03:00:66	Binding Head Tapping Screw	3×6 ZMC2-Y バインドタッピングネジ				
N14	EV:30:00:36	Spring Washer	φ3 スプリングワッシャー	PACK			
//	EJ:03:01:06	Pan Head Tapping Screw	3×10 ZMC2-Y ナベタッピング	//			
//	EV:42:00:36	Toothed Lock Washer	φ3 歯付座金	//			

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TT-300/300U

YAMAHA

TT-300/300U