

12

Service Manual Cassette Decks

628DM

638DM

619DB

639DC

659DA



 **SCOTT** 
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SPECIFICATIONS

TAPE DECKS

MODEL 628DM—638DM

Frequency Response (Record/Playback) (± 3 dB)

Metal Tape (Dolby Off): 25 Hz — 18 kHz

CrO₂ Tape: 25 Hz — 17 kHz

FeCr Tape: 25 Hz — 17 kHz

Normal Tape: 25 Hz — 16 kHz

S/N Ratio (Dolby NR ON)

Metal: 66 dB

CrO₂: 66 dB

FeCr: 66 dB

Norm: 64 dB

Channel Separation

40 dB

Erase

65 dB

Input Sensitivity

Line: 100mV

Mic: 0.5mV

Output Level (± 1 dB)

550mV

Wow and Flutter

0.045% (WRMS)

Tape Speed Deviation

4.76 cm/sec. ($\pm 1\%$)

Tape Speed and Rewind Time (C-60)

Less than 90 seconds

AC Power Requirement

120V, 60 Hz

(Refer to rear panel for specified voltage and frequency before making any connections.)

Power Consumption

10W

Dimensions

430W $\times$ 242H $\times$ 110D mm

Net Weight

4.0 (kgs)

MODEL 619DB

Frequency Response (Record/Playback) (± 3 dB)

Metal Tape (Dolby Off): 25 Hz — 17 kHz

CrO₂ Tape: 25 Hz — 16 kHz

Normal Tape: 25 Hz — 15 kHz

S/N Ratio (Dolby NR ON)

Metal: 65 dB

CrO₂: 66 dB

Norm: 64 dB

Channel Separation

40 dB

Erase

65 dB

Input Sensitivity

Line: 60mV

Output Level (± 3 dB)

550mV

Wow and Flutter

0.045% (WRMS)

Tape Speed Deviation

4.76 cm/sec. ($\pm 1\%$)

Tape Fast Forward and Rewind Time

Less than 100 seconds

AC Power Requirement

120V, 60 Hz

(Refer to rear panel for specified voltage and frequency before making any connections.)

Power Consumption

12W

Dimensions

430W $\times$ 110H $\times$ 263D mm, 17 $\times$ 4-3/8 $\times$ 10-3/8 inches

Net Weight

5.1 (kgs) 11 1/4 lbs.

SPECIFICATIONS (cont.)

MODEL 639DC

Frequency Response (Record/Playback) (± 3 dB)

Metal Tape (Dolby Off): 25 Hz — 17 kHz

CrO₂ Tape: 25 Hz — 16 kHz

Normal Tape: 25 Hz — 15 kHz

S/N Ratio (Dolby NR ON)

Metal (B/C): 65/73 dB

CrO₂ (B/C): 66/74 dB

Norm (B/C): 64/72 dB

Channel Separation

40 dB

Erasure

65 dB

Input Sensitivity

Line: 60mV

Mic: 0.5mV

Output Level (± 3 dB)

520mV

Wow and Flutter

0.04% (WRMS)

Tape Speed Deviation

4.76 cm/sec. ($\pm 1\%$)

Tape Fast Forward and Rewind Time

Less than 100 seconds

AC Power Requirement

120V, 60 Hz

(Refer to rear panel for specified voltage and frequency before making any connections.)

Power Consumption

13W

Dimensions

430W $\times$ 110H $\times$ 263D mm, 17 $\times$ 4-3/8 $\times$ 10-3/8 inches

Net Weight

5.3 (kgs) 11½ lbs.

MODEL 659DA

Frequency Response (Record/Playback) (± 3 dB)

Metal Tape (Dolby Off): 25 Hz — 17 kHz

CrO₂ Tape: 25 Hz — 16 kHz

Normal Tape: 25 Hz — 15 kHz

S/N Ratio (Dolby NR ON)

Metal (B/C): 65/73 dB

CrO₂ (B/C): 66/74 dB

Norm (B/C): 64/72 dB

Channel Separation

40 dB

Erasure

65 dB

Input Sensitivity

Line: 60mV

Mic: 0.5mV

Output Level (± 3 dB)

520mV

Wow and Flutter

0.04% (WRMS)

Tape Speed Deviation

4.76 cm/sec. ($\pm 1\%$)

Tape Fast Forward and Rewind Time

Less than 100 seconds

AC Power Requirement

120V, 60 Hz

(Refer to rear panel for specified voltage and frequency before making any connections.)

Power Consumption

14W

Dimensions

430W $\times$ 110H $\times$ 263D mm, 17 $\times$ 4-3/8 $\times$ 10-3/8 inches

Net Weight

4.9 (kgs) 10.8 lbs.

CIRCUIT DESCRIPTION 628DM—638DM

(REFER TO SCHEMATIC DIAGRAM PAGE 35-36)

NAB Equalizer

The equalizing amplifier consists of two transistors with a network to match NAB equalization curve. When the network (consisting of C108, R112 and R113) connects Q102 collector output to Q101 emitter, the amplifier provides a gain of 40dB at 1kHz, the response of the NAB equalization standard is +18dB at 100Hz, and -6dB at 10Hz in the play mode. In the recording mode, the above network is replaced by R115. This converts the amplifier to a linear and flat response with 36dB gain for the microphone input.

Dolby Noise Reduction Processor

This circuit is used to reduce the level of background noise introduced during recording and playback of the cassette deck. The IC's 101 & 102 are monolithic IC's implementing the Dolby-B noise reduction system with switchable encode and decode processors. Signals enter the encoder in recording mode through two amplifiers and an FM multiplex filter which attenuates the tape bias or FM multiplex signals. The B-type noise reduction system operates by boosting low-level high frequency signals in the encode mode and attenuating the same signals in a complementary manner in the decode mode. During the latter process, noise in the treated frequency range is also attenuated. The signal at the output of internal amplifiers is split into two paths; #1, known as the main path, provides an unaltered signal component directly to the output, while #2, known as the side chain, controls the dynamic characteristics of the processor. For decoding, essentially the same circuitry is used, but in this case the side chain forms part of a negative feedback loop in which the noise reduction signal is subtracted from the main path signal.

Record Amplifier

The record amplifier consists of one transistor (Q101) and record equalizing networks to obtain flat response in overall frequency reproduction. The signal from the Dolby noise reduction processor is amplified by Q101 in the record mode to feed enough driving voltage (approximately 4.8V, at 1kHz) to the recording head. Amplifier gain is set by the ratio of Q101 collector resistor and emitter resistor network varying for each tape equalizing feedback selection.

CIRCUIT DESCRIPTION 619DB, 639DC & 659DA

(REFER TO SCHEMATIC DIAGRAM PAGE 37, 38 & 39)

Power Supply

619: Diodes D301 to D304 and capacitor C301 act as full wave rectifier. The DC output is regulated by IC401 to 24 volt and supplies all circuitry except the motor and LED indicators.

639: The main supply consists of 24 volt regulated by IC301 for the amplifier circuitry and 12 volt for the Dolby circuit regulated by IC302. The motor and LED indicator circuit are supplied with 13 volt DC from a separate transformer winding.

659: IC401 and IC204 supply the amplifier and Dolby circuitry with 24 and 12 volt regulated DC.

Playback Amplifier

The playback amplifier consists of Q101/Q102-L/R for model 619/639 and IC201 for model 659. The input sensitivity is 0.3mV/1Kohm and the overall gain of this stage is 52dB.

Gain and equalization control is achieved by:

Part:	R1	R2	R3	C1	C2
619:	R114L/R	VR102L/R	R118L/R	C107L/R	C110L/R
639:	R114L/R	VR101L/R	R116L/R	C110L/R	C111L/R
659:					
Forw.	R208L/R	VR201L/R	R215L/R	C206L/R	C208L/R
Rev.	R208L/R	VR202L/R	R215L/R	C206L/R	C208L/R

(Please ref. to Fig. 1)

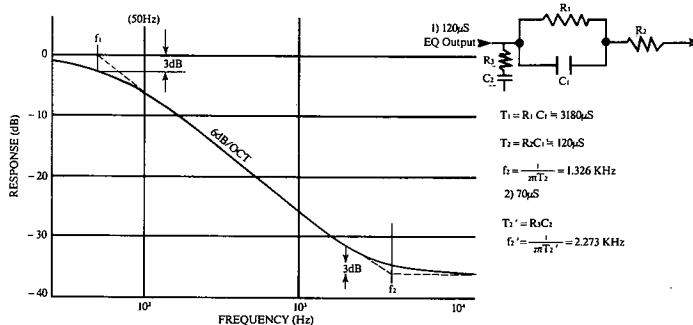


Fig.1

The playback equalization curve is controlled by:

Equalization:	120uS	70uS
619: Q104L/R	0V	3.5V
639: Q103L/R	0V	3.5V
659: Q204L/R	0V	2.0V

Dolby Noise Reduction Processor

619: All Dolby circuitry for both channels is contained in IC101. In Playback mode the audio signal after passing the 19/38KHz low pass filter is fed into the processor IC at Pin 8/10 (L/R). The overall gain is 26dB and a 30mV input

level will generate 580mV at test point TP1L/R. The 19/38KHz LPF is switched ON/OFF with transistor Q106L/R depending on the position of the NF ON/OFF switch. The DC level on IC101 Pin 11 controls the status of the Dolby circuitry. (Dolby unit switched ON/OFF - 5.6/0.6V at Pin 11.) In Recording mode the line input signal after passing the Volume/Balance controls is fed through the buffer amplifier Q105L/R (Gain 3.5dB) and LPF to Pin 8/10 of IC101. (All AC and DC levels are the same as indicated for Playback mode.)

639: The Dolby B/C NR circuitry is contained in IC101L/R. In Playback mode the output of the playback amplifier is fed through Buffer Q105L/R (Gain 7dB) to IC101L/R Pin 4. 30mV input signal will generate a 580mV output signal at Pin 24. The NR Processor and Rec/Play status is controlled by the DC levels at Pin 26/27 as follows:

<u>Dolby NR Status</u>			<u>IC101L/R Pin 27</u>
Dolby	B	ON	10V
Dolby	C	ON	6V
Dolby		OFF	0V

<u>Rec/Play Mode</u>	<u>IC101L/R Pin 26</u>
Recording	4.3V
Playback	0V

In Recording mode the line input signal after passing the Volume/Balance controls is fed through the Buffer amplifier Q201L/R (Gain 6dB). After passing the 19/38KHz LPF which is controlled by Q102L/R (Filter ON/OFF - Base Q102L/R 7V/OV DC) an AC signal of 30mV at the Rec input of IC101L/R will appear with a 580mV level at Pin 14.

659: The Dolby circuit for this model is contained on separate modules incorporating a flat package Dolby B/C processor IC101L/R. In Playback (Forward or Reverse) mode 30mV AC signal is supplied to Pin 1 of the Dolby module. Selection of the audio signal from the Forw/Rev Play-Heads is achieved by IC202L/R containing low distortion CMOS switches. 30mV AC input signal at Pin 1 of the Dolby NR module will generate 580mV output at Pin 7 of this module. In the Recording mode, Mic/Line input signals are buffered by Q102L/R (Gain 6dB) after passing the Volume/Balance controls. Then the signal is fed through the 19/38KHz filter LPF1L/R. The ON/OFF state of LPF1 is determined by Q103 (Base 4-6V/ON, 0V/OFF). 30mV AC input at Pin 3 of the Dolby module in Recording mode will generate 580mV at Pin 8. The status of the Dolby NR module and Rec/Play mode is determined as follows:

<u>Dolby NR Status</u>			<u>Dolby Module Pin 5</u>
Dolby	B	ON	10.3 V
Dolby	C	ON	6.4V
Dolby		OFF	0V

<u>Rec/Play Mode</u>	<u>Dolby Module Pin 6</u>
Recording	5.4V
Playback	0V

Recording Amplifier

619: The recording signal is fed into Q202L/R through C212L/R and R221L/R. VR201L/R and R203L/R act as voltage divider and recording level adjustment. C212L/R + R221L/R provide low frequency compensation and C205L/R + R209L/R act as low pass filter. Gain of Q201L/R is one. Equalization for Normal, Chrom and Metal Tape is accomplished by switching L-R/C filters into the emitter feedback path of Q202 as follows:

<u>Rec/Equ. Control</u>	<u>Q204L/R</u>	<u>Q205L/R</u>	<u>Q206L/R</u>
Normal Tape	ON	OFF	OFF
Chrom Tape	OFF	ON	OFF
Metal Tape	OFF	OFF	ON

(For Gain and Equalization characteristic (TP3)
ref. to Fig.2)

639: The recording signal is fed into Q302L/R through C302L/R and R303L/R. VR301L/R and R159L/R act as voltage divider and recording level adjustment. C304L/R + R306L/R are providing low frequency compensation and C301L/R + R304L/R act as low pass filter. Gain of Q302L/R is one. Equalization for Normal, Chrom and Metal Tape is accomplished by switching L-R/C filters into the emitter feedback path of Q302 as follows:

<u>Rec/Equ. Control</u>	<u>Q304L/R</u>	<u>Q305L/R</u>	<u>Q306L/R</u>
Normal Tape	ON	OFF	OFF
Chrom Tape	OFF	ON	OFF
Metal Tape	OFF	OFF	ON

(For Gain and Equalization characteristic (TP4)
ref. to Fig.2)

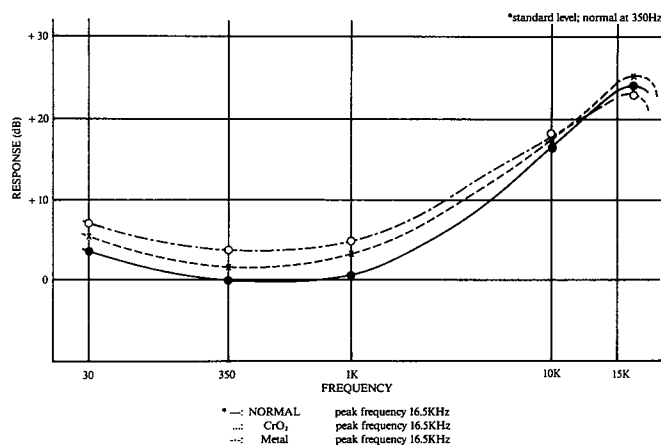


Fig. 2

659: The recording signal is fed into Q301L/R through R301L/R and VR301L/R. VR301L/R provides the recording level adjustment. C301L/R + R302L/R are providing low frequency compensation and C303L/R + R303L/R act as low pass filter. Gain of Q301L/R is one. Equalization for Normal, Chrom and Metal Tape is accomplished by switching L-R/C filters into the emitter feedback path of Q301 as follows:

<u>Rec/Equ. Control</u>	<u>Q304L/R</u>	<u>Q305L/R</u>	<u>Q306L/R</u>
Normal Tape	ON	OFF	OFF
Chrom Tape	OFF	ON	OFF
Metal Tape	OFF	OFF	ON

(For Gain and Equalization characteristic (TP2) ref. to Fig.2)

Bias/Erase Oscillator Circuit

To assure low harmonic distortion and unwanted beats when recording FM/AM broadcasts a push-pull oscillator in Hartley configuration operating at 90KHz is used in all models. Erase and Bias requirements are optimized by using different DC supply voltages for the oscillator circuit in Normal, Chrom and Metal Tape mode. (Average DC supply at Normal is 7V, at Chrom 10.5V, at Metal 17V depending on Deck Model. (For exact value ref. to circuit diagrams.)

Level Meter Circuit

IC401L/R (619/639) and IC501 (659) provide a logarithmic meter drive circuitry for exact Record and Play level meter indication. The reference level of 0dB meter indication requires 110mV AC at Pin 11 of the driver IC.

Muting Circuit

All models incorporate extensive muting circuits to eliminate any unwanted noise during power On/Off and all operating modes. Please ref. to the following listing:

619: Muting time around 2.5sec. after switch S9 "OFF"

<u>Line Mute</u>	<u>Q301</u>	<u>Q302</u>	<u>Q303</u>	<u>Q107L/R</u>	<u>S9 (Mute Sw.)</u>
ON	OFF	ON	38V	ON (.6V)	ON
OFF	ON	OFF	0V	OFF(0V)	OFF

Record and Playback-Start muting (Mute time <>.6sec.)

<u>Rec/Play Mute</u>	<u>Q301</u>	<u>Q302</u>	<u>Q303</u>	<u>Q201</u>	<u>S2</u>	<u>S1L/R</u>
ON	OFF	ON	38V	ON	ON	Play
OFF	ON	OFF	0V	OFF	OFF	Rec

<u>Cue/Rew. Mute</u>	<u>Q103L/R</u>	<u>S10 (Switch)</u>
ON	ON	ON
OFF	OFF	OFF

<u>Manual Mute</u>	<u>Q201L/R</u>	<u>S2 (Switch)</u>	<(Rec Mode Only!)
ON	ON	ON	
OFF	OFF	OFF	

639: Muting time around 2.5sec. after switch S302 "OFF"

<u>Line Mute</u>	<u>Q309</u>	<u>Q310</u>	<u>Q311</u>	<u>Q312L/R</u>	<u>S302 (Mute Sw.)</u>
ON	OFF	ON	38V	ON (.6V)	ON
OFF	ON	OFF	0V	OFF(0V)	OFF

Record and Playback-Start muting (Mute time <>.6sec.)

<u>Rec/Play Mute</u>	<u>Q309</u>	<u>Q310</u>	<u>Q311</u>	<u>Q301</u>	<u>S301</u>	<u>S101L/R</u>
ON	OFF	ON	38V	ON	ON	Play
OFF	ON	OFF	0V	OFF	OFF	Rec

<u>Cue/Rew. Mute</u>	<u>Q104L/R</u>	<u>S303 (Switch)</u>
ON	ON	ON
OFF	OFF	OFF

<u>Manual Mute</u>	<u>Q301L/R</u>	<u>S301 (Switch)</u>	<(Rec Mode Only!)
ON	ON	ON	
OFF	OFF	OFF	

659: Muting time around 2.5sec. after switch S2 "OFF"

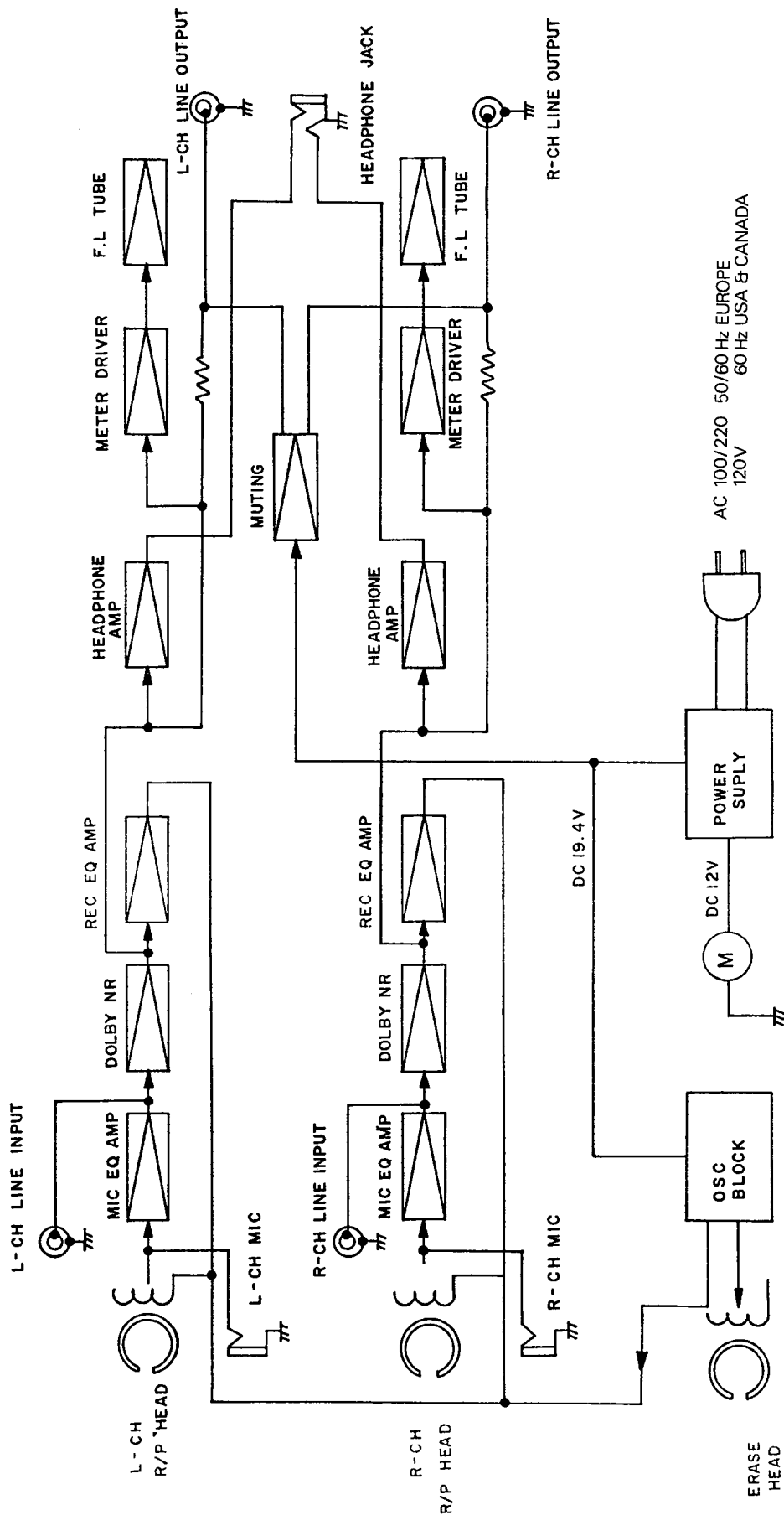
<u>Line Mute</u>	<u>Q405</u>	<u>Q404</u>	<u>Q403</u>	<u>Q402L/R</u>	<u>S2 (Mute Sw.)</u>
ON	OFF	ON	24V	ON (.6V)	ON
OFF	ON	OFF	0V	OFF(0V)	OFF

Record and Playback-Start muting (Mute time <>.6sec.)

<u>Rec/Play</u>	<u>Mute</u>	<u>Q405</u>	<u>Q404</u>	<u>Q403</u>	<u>Q308</u>	<u>Q310</u>	<u>Q406</u>	<u>Q407</u>	<u>S1</u>
ON	OFF	ON	24V	ON	ON	ON	ON	ON	Play
OFF	ON	OFF	0V	OFF	OFF	OFF	OFF	OFF	Rec.

<u>Cue/Rew. Mute</u>	<u>Q205L/R</u>	<u>S5 (Switch)</u>
ON	ON	ON
OFF	OFF	OFF

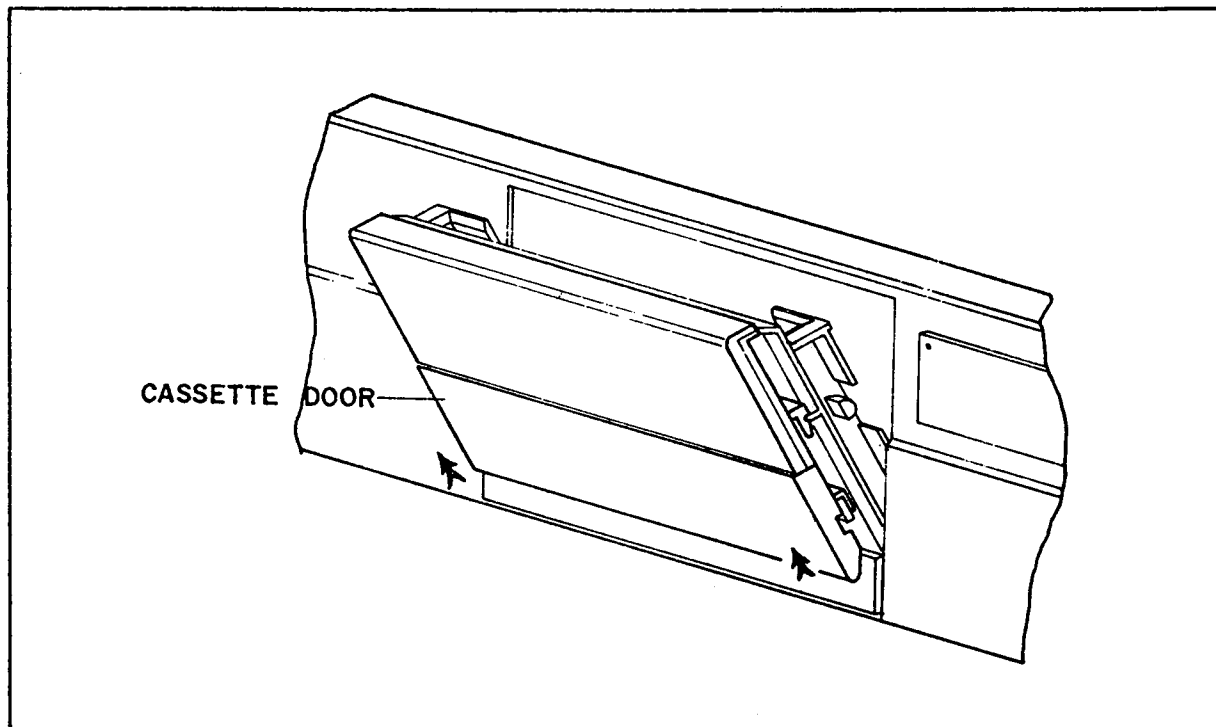
<u>Manual Mute</u>	<u>Q308L/R</u>	<u>Q309</u>	<u>S101</u>	<(Rec Mode Only!)
ON	ON	ON	ON	
OFF	OFF	OFF	OFF	



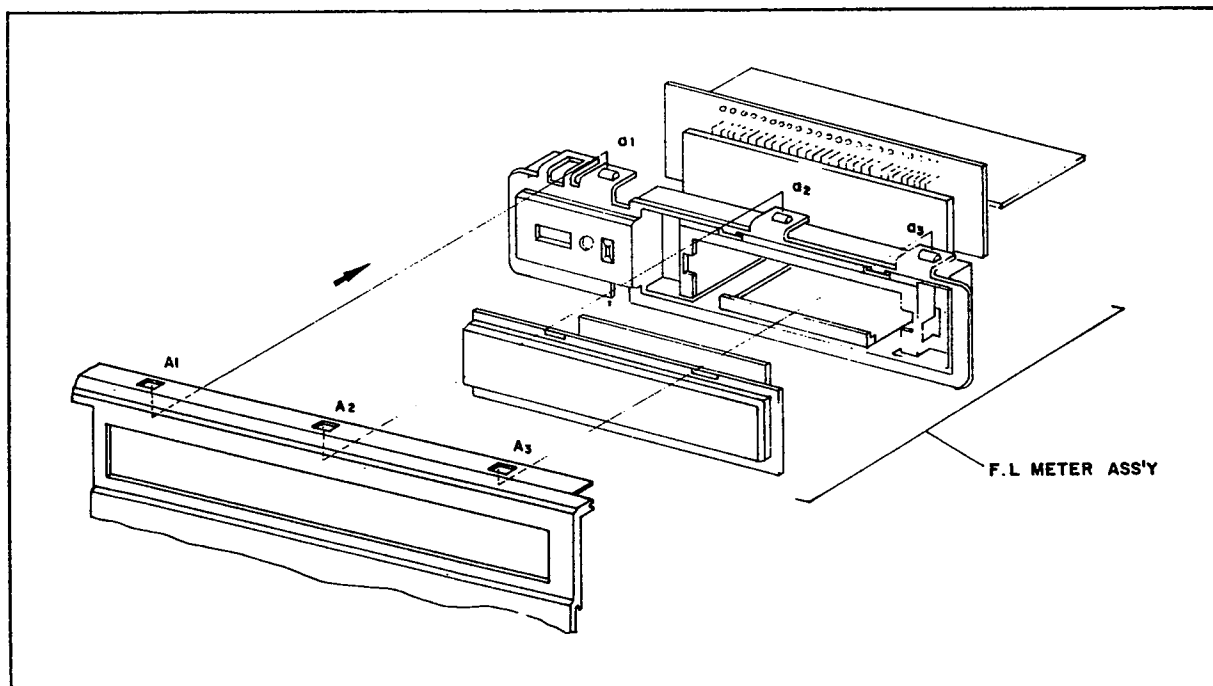
BLOCK DIAGRAM 628DM, 638DM

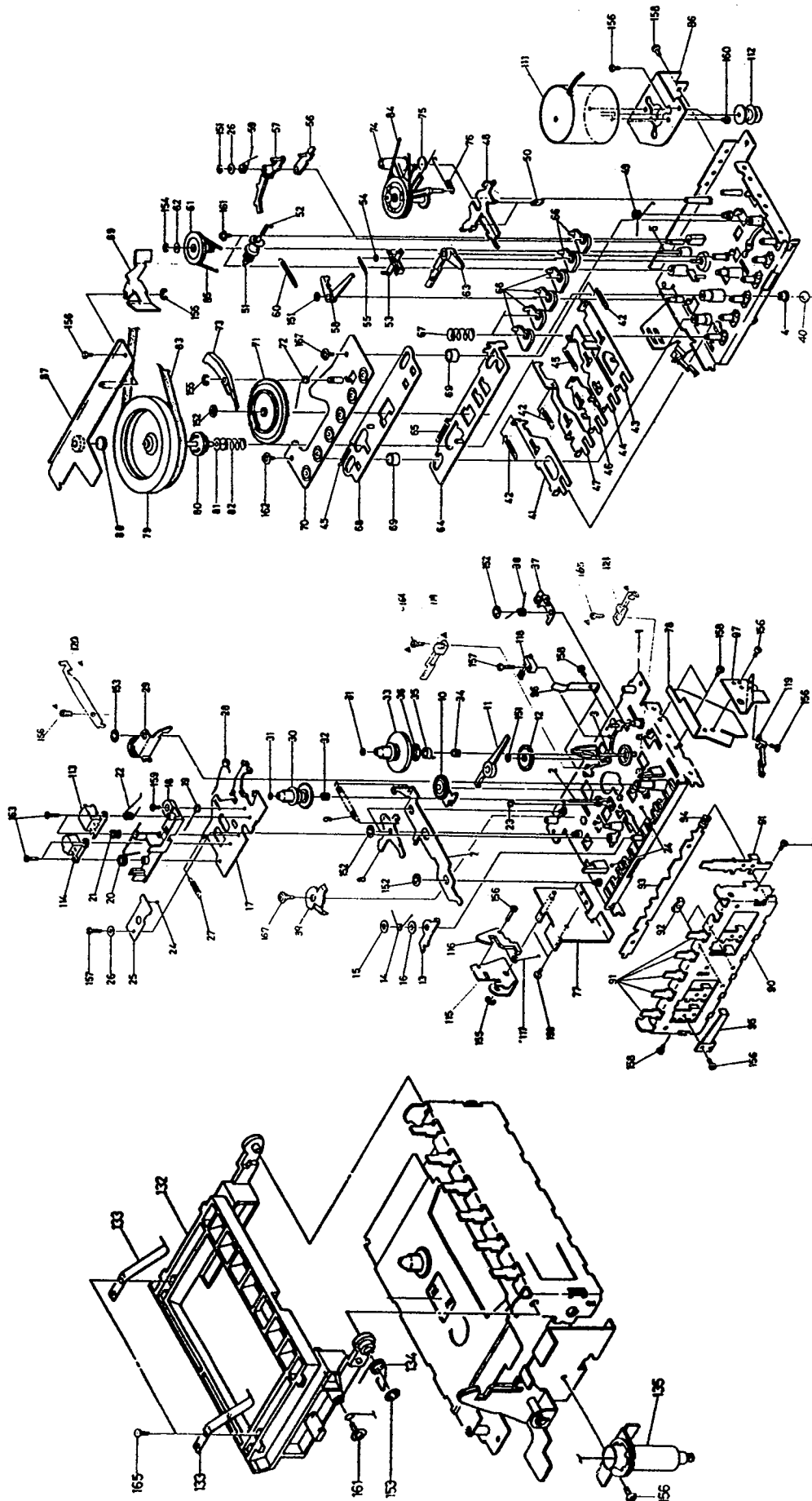


CASSETTE DOOR REMOVAL (typical all models)



FLORESCENT PANEL ASSEMBLY 638DM





EXPLODED VIEW OF DECK MECHANISM ASS'Y.
628DM, 638DM

ELECTRICAL ADJUSTMENT PROCEDURE 628DM—638DM

Equipment Required

Audio signal generator, 20 to 200,000Hz

Audio level meter

Oscilloscope

VTVM, 10mV to 50V

Test tapes, see following:

Usage	Description	Supplier
Level adjust	MTT-150 (400Hz)	TEAC
Azimuth alignment	MTT-114 (10kHz, 10dB)	TEAC
General		
Normal:	C-60UD	Maxell
CrO ₂ :	SAC-60	TDK
FeCr:	Classic-60	Scotch
Metal	AMC-30	TDK

These adjustments are the same for both the left and right channels.

Azimuth Alignment (Use MTT-114 Tape)

- 1) Connect line output to Audio Level Meter and Scope. (Note: It is necessary to have a convenient means to switch test equipment inputs to left or right channel line output leads or to use a dual trace oscilloscope.)
- 2) Open Cassette Door and carefully slide the door upward Off the door frame; insert the MTT-114 test tape, and close.
- 3) Switch Deck to play mode and check for equal output from both channels. Adjust head AZIMUTH ADJUSTING SCREW for max. output, both channels.

Playback Adjustment (Use MTT-150)

- 1) Set up the test equipment to the unit connecting level meter and oscilloscope to the Line-Out jacks on the unit, left channel first.
- 2) Set the Tape selector switch (S3) to Normal, and Dolby NR switch (S1) to OFF position.
- 3) Use test tape MTT-150 in playback. This produces 400Hz tone at the Line-Out jacks.
- 4) Adjust VR101 for 580mV reading on the audio level meter; tolerance within ± 1 dB is acceptable.
- 5) Perform these steps for the right channel, connecting test equipment to the right channel Line-Out jacks, adjusting VR201.
- 6) With 580mV output at Line-Out jacks, check VU meters for +3dB. Adjust R406(L), R456(R) on FL meter PCB as required.
- 7) Model 628DM, with 580mV output at Line-Out jacks, check VU meters for +3dB. Adjust VR105(L), VR205(R) on main PCB as required.

Bias Frequency Adjustment

- 1) Connect the frequency counter across the Rec/Pb head terminals.
- 2) Adjust the oscillator coil to obtain frequency reading of 100-103kHz, setting the unit to recording mode of operation.

Record Performance Alignment

Set up the test equipment with the unit as shown:

- 1) Set the Tape selector (S3) to CrO₂ position, and the front panel Record Level control (VR106) fully clockwise.
- 2) Set the unit in record mode with a blank test tape (TDK SAC-60) in place. Temporarily, depress the Pause switch.
- 3) Keeping the Pause switch depressed, apply 1,000Hz signal to the unit through Line-In jacks. Adjust the level of the signal generator for -25dB (0dB = 580mV).
- 4) Release the Pause button and record a section of tape.
- 5) Rewind and playback the recording. The Audio Level meter should indicate -25dB + 3dB level. If not, adjust VR104/VR204.
- 6) Retune the signal generator for 16,000Hz output, -25dB. Perform same steps, and check for playback output level, it should be within ± 1 dB from 1kHz reference output level. If not, adjust VR106/VR206.
- 7) Recheck this procedure at 1kHz again, the 1kHz output level should be -25dB ± 0.5 dB. If necessary readjust VR104/VR204 again. Repeat 6 and 7 as required.
- 8) Set the tape selector to Normal position, using test tape Maxell UD, and record 1kHz and 12kHz test signal at -25dB level. Rewind and playback the signals just recorded, check output levels. The 1kHz output level should be -25dB ± 1 dB, the level difference between 1kHz and 12kHz should be within ± 2 dB.
- 9) Set the Tape selector to FeCr position, using test tape Classic C-60, and perform same procedure with test frequencies of 1kHz and 14kHz. The playback output level at 1kHz should be -25dB ± 1 dB, and the level difference between 1kHz and 16kHz should be ± 2 dB.
- 10) Set the Tape selector to Metal position, using metal tape AMC-30, and perform same procedure with 1kHz and 15kHz test signals. The playback output level at 1kHz should be -25dB ± 1 dB and level difference between 1kHz and 16kHz should be ± 2 dB.

ELECTRICAL ADJUSTMENT PROCEDURE 619DB—639DC—659DA

Equipment Required

- * Audio signal generator
- * High sensitivity AC voltmeter
- * Attenuator
- * Oscilloscope
- * Distortion meter
- * Wow and flutter meter
- * Frequency counter
- * CCIR/ARM noise weighting filter
- * Test tape TEAC (MTT-111 MTT-114 MTT-150 MTT-217G) or equivalent.

**** NOTE:** Alignment controls for Model 619 are printed
Normal
Alignment controls for Model 639 are printed
Italic
Alignment controls for Model 659 are printed
Boldface

I. Tape Speed/Wow and Flutter (Use MTT-111 Tape)

- 1) Connect wow and flutter meter and frequency counter to the OUTPUT terminals.
- 2) Play back the 3kHz – 3dB signal of test tape MTT-111.
- 3) Confirm wow and flutter and adjust tape speed if necessary to 3kHz with semifix resistor inside deck motor.

II. Head Azimuth (Use MTT-114 Tape)

- 1) Set TAPE selector (EQ) to NORM position.
- 2) Connect AC voltmeter and oscilloscope to the OUTPUT terminals.
- 3) Playback the 3kHz – 10dB signal of test tape MTT-114.
- 4) Observing the voltmeter and oscilloscope adjust the REC/PLAY head adj. screw (Fig. 1) and maximize the signal level on both channels.
- 5) For model 659 repeat this procedure in forward and reverse mode until levels in both modes are equal.
- 6) Lock adj. screw with suitable locking paint.

III. Playback Equalizer (Use MTT-217G Tape)

- 1) Set TAPE selector (EQ) to NORM position.
- 2) Set DOLBY NR switch OFF.
- 3) Connect AC voltmeter and oscilloscope to the OUTPUT terminals.
- 4) Set VR 101R and VR 101L (*VR 102R/L VR 203R/L*) on the main PC board to the center position.
- 5) Playback the 12.5kHz/1kHz/40Hz – 24dB signal of test tape MTT-217G.
- 6) Adjust VR 102R and VR 102L (*VR 101R/L VR 201R/L*) on the EQ amplifier to obtain the same overall level.

- 7) For model 659 switch to reverse mode and adjust VR 202R/L.
- 8) Set TAPE selector (EQ) to Cr0, and METAL position and confirm that OUTPUT level drops approximately 5dB at 12.5kHz compared to the 1kHz level in NORM position.

IV. Playback Level (Use MTT-150 Tape)

- 1) Connect AC voltmeter and oscilloscope to the OUTPUT terminals.
- 2) Set the DOLBY NR switch OFF.
- 3) Playback the 400Hz 0dB signal of test tape MTT-150.
- 4) Adjust VR 101R and VR 101L (*VR 101R/L VR 203R/L*) to 480mV OUTPUT voltage.
- 5) For model 659 switch reverse mode and adjust VR 204R/L to 480mV OUTPUT voltage.

V. FM MPX Filter

- 1) Set DOLBY NR switch OFF.
- 2) Connect AC voltmeter and oscilloscope to the OUTPUT terminals.
- 3) Set deck to RECORD mode and feed a 150mV 19kHz signal into the LINE input terminals.
- 4) Adjust the RECORD volume level to obtain around 480mV output voltage at the OUTPUT terminals.
- 5) Set DOLBY NR switch ON.
- 6) Adjust MPX filter LPF1R and LPF1L (black core only) (*LPF1R/L LPF101R/L*) to obtain minimum 19kHz leakage at the OUTPUT terminals.

VI. Bias Trap and Bias Frequency

- 1) Set deck to RECORD mode and all input level controls to minimum.
- 2) Set the TAPE selector (EQ) to METAL position.
- 3) Connect the frequency counter to test point T.P4R or T.P4L (*T.P2R/L T.P1R/L*).
- 4) Adjust L 203 (*L 303 L 303*) in oscillator block to 90kHz.
- 5) Connect AC voltmeter and oscilloscope to test point T.P3R and T.P3L (*T.P4R/L T.P2R/L*) on the RECORD amplifier.
- 6) Adjust L 202R and L 202L (*L 302R/L L 304R/L*) to the minimum bias waveform. (Min. output)
- 7) Connect AC voltmeter and oscilloscope to the OUTPUT terminals.
- 8) Adjust the MPX filter LPF1R and LPF1L (red core only) (*LPF1R/L LPF101R/L*) for minimum leakage on the OUTPUT terminals.

VII. Recording Bias

- 1) Set deck to RECORD mode NORM (EQ) position and all input level controls to minimum.
- 2) Connect AC voltmeter and oscilloscope to test point T.P4R and T.P4L (*T.P2R/L T.P1R/L*) on the playback amplifier.
- 3) Adjust VR 202R and VR 202L (*VR 302R/L VR 302R/L*) to obtain a 3.4mV level.
- 4) Adjust VR 108 (*VR 502 VR 601*) to obtain 5.0mV in CrO₂ (EQ) position.
- 5) Adjust VR 109 (*VR 501 VR 602*) to obtain 7.0mV in METAL (EQ) position.

**** NOTE:** Increase of the bias level will reduce the overall REC/PLAY frequency treble response. Reduction of the bias level will increase the treble response.

The recording bias levels may vary $\pm 20\%$ depending on REC/PLAY head tolerances.

VIII. Recording Level (Use **maxell UD 60** or Equiv.)

- 1) Set deck to RECORD mode and apply a 150mV 400Hz signal to the LINE input terminals.
- 2) Connect the AC voltmeter and oscilloscope to the OUTPUT terminals.
- 3) Adjust the RECORD volume control to obtain a 0dB 480mV level on the OUTPUT terminals.
- 4) Connect the AC voltmeter to test point T.P3R and T.P3L (*T.P3R/L T.P3R/L*) on the REC amplifier.
- 5) Set the TAPE selector (EQ) to NORM.
- 6) Adjust VR 201R and VR 201L (*VR 301R/L VR 304R/L*) to obtain a -6dB level in reference to the OUTPUT level.
- 7) Connect the AC Voltmeter and oscilloscope to the output terminals.
- 8) Make a recording with 1kHz 0dB level. Playback the recording and readjust VR 201R and VR 201L (*VR 301R/L VR 304R/L*) to obtain a 0dB 480mV OUTPUT level. Repeat recording and playback procedure if necessary.

TROUBLESHOOTING

- 1) 628DM, 638DM, will not record and tape may become jammed when both PLAY and RECORD buttons are depressed simultaneously. See service bulletin for circuit revision. (Page 15)
- 2) 619DB, 639DC, excessive tape transport noise. See service bulletin for adjustment and comments. (Page 16)
- 3) 659DA, cross talk on play back between tracks which have been recorded in the opposite direction. Check for specified DC voltage change on pin 12 of IC 201. Refer to schematic diagram and block diagram of IC. IC 201 may be defective.

SERVICE BULLETIN

MODELS: 628DM 638DM

SUBJECT: Push buttons of some early production units jam in the RECORD/PAUSE Mode, causing unit to be inoperable.

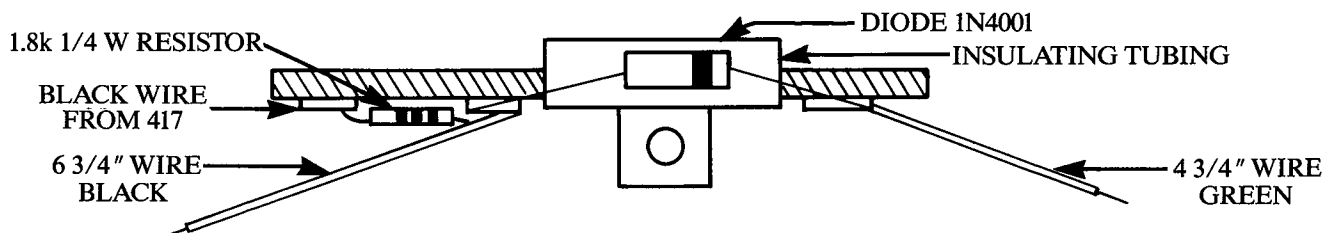
Units where the buttons have jammed must be serviced to add the following modification.

- PROCEDURE: (1) Remove unit top cover attachment screws and lift cover from unit.
- (2) Rotate flywheel in a CCW direction (facing front of unit) to make sure mechanism is not binding.
- (3) With reference to the attached PCB outline, install the circuit described below by mounting terminal strip with the unit PCB attachment screw.
- (4) Attach the green wire from the above assembly to wire wrap post #410.
- (5) Remove black wire wrapped on post no. 417 that is looped in wire harness and leads back to deck mechanism. This wire supplying the LED is connected to the new 1.8K resistor on terminal strip.
- (5a) Note! The black wire described above may have been a short red wire in some units, this may require splicing; however connection procedures do not change. (use suitable splicing techniques)
- (6) Connect black wire from term strip to term 417.
- (7) Connect and solder 47 ohm 1/2 watt resistor across R311 (See attached PCB diag.)

This completes the modification. The unit should now be given both a visual, and functional check:

- (A) Recheck the wiring.
- (B) Connect unit to power line, and with test cassette in place check all possible combinations of push buttons for proper operation.
- (C) Replace cover.

TERMINAL STRIP ASSEMBLY SHOWING COMPONENT MOUNTING



BULLETIN: EXCESSIVE TAPE TRANSPORT NOISE 619DB, 639DC

SEE FIG. 1-1 AND FIG. 1-2

1. BEND THE METAL NOSE (a) TO WIDEN H1 TO H2.
(FROM 4.00mm TO 4.26mm OR 4.27mm)
2. IF ANY LONG TERM WEAR CAN BE DETECTED ON GEARS
 - A. REPLACE "TAKE UP GEAR" (A) WITH NEW ONE AND LOCK WITH NEW PVC WASHER.
 - B. REPLACE "F.F. GEAR" (B) WITH NEW ONE AND LOCK WITH NEW PVC WASHER.
3. CONFIRM THAT GEAR IS FREE OF GREASE CLEAN IF NECESSARY.
4. AFTER REPAIR INDICATED CONFIRM WOW AND FLUTTER AS IT DEPENDS GREATLY ON GEAR TENSION.

NOTE: REPLACEMENT OF GEAR SHOULD BE ONLY PERFORMED IF EXCESSIVE WEAR IS DETECTED OTHERWISE GEAR TENSION ADJUSTMENT IS SUFFICIENT.

PART NO.	DESCRIPTION
U4090	TAKE UP GEAR 8A
A1530	REEL PLATE BASE ASS'Y 8D (= F.F. GEAR)
43001	LMW 1.7 × 3.2 × 0.25 (= PVC WASHER)

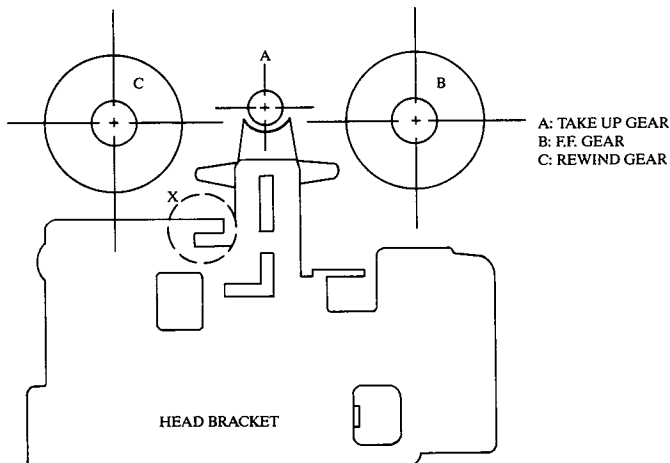


Fig. 1-1

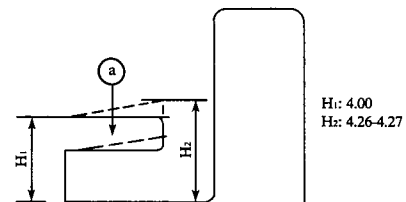


Fig. 1-2 "X" MARK MAGNIFICATION

PARTS LIST

628DM — 638DM

SYMBOL NO.			CODE NO.
IC101, IC201	IC-DOLBY	NE-646B	2119-203-1005
IC401	IC	TA7318P	2119-101-4500
IC402	IC	LC7556	2119-201-3203
Q101, Q102	TRANSISTOR	KSC1222-L	2119-301-2809
Q103, Q201			
Q202, Q203			
Q104, Q204	TRANSISTOR	KSC945-G	2139-302-6501
Q105, 8205	TRANSISTOR	KSD227-Y	2139-401-5201
Q107, Q109	TRANSISTOR	KSC945-Y	2139-302-7409
Q207, Q209			
Q108, Q208	TRANSISTOR	KSA708-Y	2139-103-7103
Q301, Q302	TRANSISTOR	KSD471-Y	2149-401-1206
Q303	TRANSISTOR	KSD288-0	2149-401-2609
Q401	TRANSISTOR	KSC1096-Y	2149-403-1406
D103, D105	DIODE-SW, ISS53	CT, 6PF	2169-301-2901
CR401, CR451			
CR402, CR403			
D104, D106	DIODE-RECT, IN4001	1.0A 50V	2169-201-0504
D501			
D301, D302	DIODE-RECT, IN4002	1.0A 100V	2169-201-0601
D303, D304			
D305, D306			
D307	DIODE-ZENER, BZ197	1W18.8-21.20	2169-403-0309
D401	LED	LD30A RED39i	2309-101-4103
D402	LED	LD37A GRN3Pi	2309-101-4501
D403	LED	LD35A YEL3Pi	2309-101-4200
CR404	LED-SQUARE	LN317GP	2309-119-0108
LPF101, 201	FILTER-LOWPASS	208BLRA-3172N	4529-408-0109
L102, L202	COIL-TEN CAN	28mH E-BASE F60K BLK	2619-554-4301
L103, L203	COIL-TEN CAN	4R7mH J-BAS FMW BLK	2619-603-5060
L301	UNIT-BIAS, OSC	MC-129J 17M/M	2539-803-2200
L302	COIL-CHOKE, RND	470NH-K Q60	2429-010-1304
F1, F2, F3	FUSE-W/LEAD	NM250V 0.5A 31.8-L	4709-102-1406
F5	FUSE	NM250V 0.5A 30	4709-002-1407
F6	FUSE	NM250V 1A 30	4709-002-2004
F7	FUSE	T250V 0.315A 20EUR	4709-241-1105
VR101, VR201	VR-SEMI	SR19R B47K	1249-102-0607
VR104, VR204	VR-SEMI	SR19R B22K	1249-102-0403
VR106, VR206	VR-SEMI	SR19R B220K	1249-102-0908
R406, R456	VR-SEMI	SR19R B1K	1249-102-1204
R122, R222	R-CARBON	RD ¼P 3.3K-F	1018-225-3321
R313	R-METAL, OXIDE	RSIP 10-K	1049-301-0101
VR102	VR-ROUND, SGL	K161 20F M7 W250K 50%	1209-106-0308
VR103	VR-DOUBLE	GE80E 20F M7 A50K	1219-104-0909
S1	SW-SLIDE	CL112B	3513-100-3105
S2	SW-PUSH	SUF-23	3529-203-2503
S3	SW-ROTARY	SRZV064	3509-201-0808
	SW-POWER	SDL-1P 205V 4A SEMKO	3529-501-4300
	SW-SLIDE	250V 3A 4KVDPDT (S × 2-6D)	3519-907-0202

PARTS LIST

628DM — 638DM (cont.)

SYMBOL NO.			CODE NO.
C102, C107	C-ELECTROLYTIC, LN	CE04W 25V 10M-M	1609-902-2805
C103, C203	C-ELECTROLYTIC, LN	CE04W 50V 1M-M	1609-902-2106
C118, C218	C-POLYPROPYLENE	M50V 5600-F	1509-331-2808
C119, C219	C-POLYPROPYLENE	M50V 0.027 M-F	1509-331-2905
C120, C220	C-POLYPROPYLENE	M50V 4700-F	1509-331-2701
C123, C223	C-TANTALUM, SOLID	35V 0.1M-K	1629-201-4207
C124, C224	C-TANTALUM, SOLID	35V 0.33M-K	1629-201-4304
C300	C-POLYESTER	M 200V 0.0022M-K (SN)	1509-126-0202
C152, C252	C-ALUMINIUM, SOLID	25V 0.47M	1609-101-6305
	FL	FIP 12AW 12YS	2309-101-0506
	POWER CORD-AC	1.8M CP BLK (4.8Pi)	3059-800-4100
	TRANS-POWER	E154 × 23M/M 100/220V 60Hz	2869-198-3802
	PLUG-PHONO	CONNECTOR 110 m/m	3324-500-7107
	JACK-MIC	HLJ0347-01-030 (59)	3339-531-0205
	JACK-EARPHONE	HLJ0317-01-020	3339-511-0407
	CONNECTOR	5045-02A 2P-TYPE	3349-511-5203
	CONNECTOR	5045-03A 3P-TYPE	3349-511-5706

**NOTE! THE MODELS 628DM AND 638DM WERE
PRODUCED FOR USE IN DIFFERENT
COUNTRIES, THEREFORE, WHEN ORDER-
ING REPLACEMENT PARTS, THE PART
SUPPLIED MAY NOT BEAR SAME PART NO.**

EXPLODED VIEW PARTS LIST

628DM — 638DM

(SEE PAGE 41)

SYMBOL NO.

CODE NO.

1	SCREW-TAP TH	2S-4 × 12 FZ FZ13	7128-540-1231
2	CABINET	0.8T SPC-1 BLK COATING	6002-501-6309
3	SPACER-CABINET	1.0T HIMERON SHEET	6804-503-1104
4	SPACER-CABINET (R)	RUBBER SPONGE 6.0T BUK	6804-503-1104
5	WINDOW-CASSETTE	ACRYL CLR	7653-503-3107
6	DOOR-CASSETTE	ABS 94HB SLV SPRAY PRINT	7643-503-3107
7	SCREW-RH	+ M3 × 6 FZ FZY	7048-130-0616
8	BRACKET-EJECT	1.2T SPC-1 FZY	6614-597-6109
9	KNOB-VR 28	ABS 94HB CHMPGN PLATING	7724-508-1107
10	KNOB-ROTARY	ABS 94HB CHMPGN PLATING	7724-508-0102
11	NUT-SPECIAL	MBS M7 × 6	7204-500-3302
12	WASHER-SPECIAL	SPC1 0.5T FZY	7304-500-8106
13	SPACER-RUBBER	RUBBER NON MIARATION	6854-502-0101
14	MASK-KNOB 28	ABS 94HB SLV SPRAY	7603-502-3109
15	SCREW-TAP FH	2S-3 × 8 FE FZY	7118-530-0814
16	PANEL-FRONT	EXTRA AL 1.5T	7702-512-4101
17	BELT-COUNTER	CR-WRT P155	5274-500-5402
18	PWB-F/L	157 × 8.9 × 1.6T 94V-O	3013-508-3207
19	BRACKET-COUNTER	1.2T SPC1 FZY	6614-588-8168
20	COUNTER	SCR 300-124 H29.5	4319-007-0109
21	pwb-LEDS	37 × 14 × 1.6T 94V-O	3014-523-9104
22	DIODE-LED	SLP 255B	2309-104-0500
23	LINK-EJECT KNOB	94HB ABS BLK	5264-500-4101
24	LINK-POWER PUSH	ABS 94HB BLK	5263-500-4104
25	SPRING-EJECT	STS #27 P1 0.3	6674-510-6100
26	KNOB-PUSH (P)	94HB ABS CR PLATING	7724-507-8109
27	GUIDE-KNOB (P)	94HB ABS	6464-501-6101
28	PWB-LED	140 × 7.5 × 1.6T 94V-O	3014-524-0102
29	LED	LD 30A RED 391	2309-101-4103
30	SHAFT-SPRING KNOB	STS P27 P12	5104-509-6105
31-1	KNOB-CASSETTE (REC)	ABS 94HB CHMPGN PLANNG	7723-500-6101
31-2	KNOB-CASSETTE (REW)	ABS 94HB CHAMPGN PLANNG	7723-500-6208
31-3	KNOB-CASSETTE (FF.)	ABS 94HB CHMPGN PLANNG	7723-500-6305
31-4	KNOB-CASSETTE (PAUSE)	ABS 94HB CHAMPGN PLANNG	7723-500-6402
32-1	KNOB-CASSETTE (PLAY)	ABS 94MB CHMPGN PLATING	7723-500-7106
32-2	KNOB-CASSETTE (STOP)	ABS 94MB CHMPGN PLATING	7723-500-7203
33	HOUSING-KNOB CASSETTE	ABS 94HB SLV SPPAYPRNT	6033-500-6201
34	KNOB-PUSH(S)	ABS 94HB	7724-508-7107
35	SPRING-PUSHKNOBS	STS#27 P10, 35	6674-504-7106
36	GUIDE-KNOBS	94HB ABS DARK GRY	6464-500-5307
37	FOOT-STOPPER	94HB ABS BLK	6074-500-9106
38	FOOT	94HB PVC SOFT BLK	6074-530-0819
39	SCREW-TAP RH	2S-3 × 8 FEFZY	7148-530-0819
40	CHASSIS-BOTTOM	0.5T SPC1 FZY	6022-510-1013
41	SCREW-TAP RH	2S-3 × 10 FEFZY	7148-530-1018
42	CHASSIS-TONE	1.0T SPC1 FZY	6023-503-0108
43	ANGLE-REC	STS #27]1.0	6404-513-8108
44	SCREW-TAP RH SPEC	2S-3 × 12 FZY	7154-100-6701
45	LEVER-REC	1.2T SPC1 FZY	5254-504-6108
46	PWB-MAIN	247 × 239 × 1.6T 94V-0	3012-502-8207

EXPLODED VIEW PARTS LIST

628DM — 638DM (cont.)

SYMBOL NO.			CODE NO.
47	VR-DOUBLE	GM80E 20F M7 A50K	1219-104-0909
48	VR-ROUND SGL	K161 20F MT W250K50%	1209-106-0308
49	JACK-MIC	HLT0347-01-030(5P)	3339-531-0205
50	SWITCH-PUSH	SUF23	3529-203-2503
51	SWITCH-ROTARY	SR ZYO 64	3509-201-0808
52	JACK EAR PHONE	HLT0317-01-020	3339-511-0407
53	SW-SLIDE	CL112B	3513-100-3105
54	SCREW-TAPRH	2S-3 × 8 FEFZY	7148-530-0819
55	HEAT-SINKS	ALS 1.5T	5684-107-2108
56	CAP-SHIELD	0.3T TE SBC	6154-100-6117
57	CLAMPER-CORD	HEYCO SR-4N-4BLK	6634-100-8103
58	PLUG-PHONO	CONNECTOR 1100MM	3324-500-7107
59	SCREW-TAP RH	2S-3 × 12TE FZY	7148-530-1212
62	DECK-MECHANISM	MF-425	4929-110-0305
63	SCREW-TAP RH	3-3 × 6EF EZY	7148-330-0617
64	WASHER-TOO THED	B-Ø3 (3.2 × 6.5 × 0.4(T))	7328-203-0018
65	LUG	0.3T TE-SBC	3114-102-4208
66	BRACKET-DECK (N)	1.0T SPC-1 FZY	6614-597-2109
67	SCREW-RH	+ M3 × 6 FE FZY	7048-130-0616
68	SWITCH-POWER	SDL-IP 125V 10A LEAD TYPE U/C	3599-502-0706
69	SCREWTH	+ M4 × 10FE FZY	7028-140-1010
70	TRANS-POWER	E154MM 100/110V	2869-197-1100
71	SCREW-TAP, RH SPEC	2S-3 × 12FE FZY	7154-100-6701
72	TERMINAL-BOARD	BSS&B-LITE 94V-OIL	3304-103-8105
73	BRACKET-FUSE	1.0T SPC-1 FZY	6614-597-4109
74	BAND-CORD WIRE	P.P BLACK	6634-101-8106
75	POWER-CORD AC	KP-10SPT-J#18B LK UU/CSA	3053-806-3101
76	SCREW-TAP FH	2S-3 × 8 FE FZY	7118-530-0814
77	SCREW-TAP FH	2S-3 × 8 FE FZY	7118-530-0814
78	BRACKET-PANEL (L)	1.2T SPCI FZY	6614-591-3106
79	BRACKET-PANEL (L)	1.2T SPCI FZY	6614-591-2101
80	BRACKET-CABINET	1.2T SPCI FZY	6614-592-2104
82	BRACKET-CLAMPER	1.2T SPCI FZB	6614-589-7109
83	LABEL-INSTRUCTION	TETORON PAPER 0.041	8114-535-5109
84	LABEL-RATING	TETORON PAPER 0.041	8034-516-2102
85	LABEL-M.C.	TETORON PAPER 0.041	8034-516-3204
86	CHASSIS-MAIN	HIPS 94HB BLK	6021-500-6105
87	WASHER-KNOB	1.0T FIVER RED	7304-501-1104
88	MASK-KNOB	0.5T HIMERON SHEET	7604-502-6101
89	WINDOW-METER	6.0T CLRACRYL BLKPRWT	7653-503-7301
90	FILTER-FL.	1.0T PINK ACRYL	7654-504-6209
91	HOUSING-FL.	ABS94HB SLV SPRAY PRINT	6032-500-5209
92	FL.	FIP 12AW 12YS	2319-101-0506
92	VU-METER DOUBLE	1450R-500VA	4329-501-1106
94	BRACKETTRANS	1.0T SPCI FZY	6614-596-4106
95	BOARD-FUSE	FUSE CLIP & BOARD BKT	3364-502-7103
96	LABEL-CAUTION	TETORON PAPER 0.045T	8114-534-6101
97	LABEL-BRAND	TETORON PAPER 0.045T	8024-505-5108
98	SW-SLIDE	250V 3A 4KVDPDT (S × 2-6D)	3519-907-0202
99	LUG-GROUND CABINET	0.3T TE SBC	3114-501-3109

EXPLODED VIEW PARTS LIST

DECK MECHANISM

628DM—638DM

(SEE PAGE 11)

LOCATION NO.	DESCRIPTION	SPECIFICATION	CODE NO.	REMARK
1	CHASSIS OS	PBB1077	0000-037-0013	
2	REEL SHAFT	PBE13656	0000-037-0022	
3	REEL SHAFT	PBE14456	0000-037-0031	
4	METAL	PBE14456	0000-037-0040	
5	WORM SHAFT	PBE14453	0000-037-0055	
7	REC INTER PLATE	PBD1590	0000-037-0077	
8	STOP SUB PLATE	PBE14824	0000-037-0086	
9	T SPRING	PBE6113	0000-037-0095	
10	IDLER ASS'Y	PBE01412	0000-037-0101	
11	PAUSE ARM	PBE14427	0000-037-0110	
12	IDLER GEAR	PBE14337	0000-037-0129	
13	PROTECTOR	PBD1591	0000-037-0138	
14	SPRING	PBE6054	0000-037-0147	
15	WASHER	PGW942 × 100025	0000-037-0156	
17	HEAD BASE	PBD1594	0000-037-0174	
18	HEAD STAND	PBC1118	0000-037-0192	
19	SPRING	PBE6147	0000-037-0183	
20	SPRING	PBE6149	0000-037-0208	
21	C-SPRING	PBE13666	0000-037-0217	
22	PINCH SPRING	PBE6046	0000-037-0226	
23	GUIDE ROLLER	PBE14457	0000-037-0235	
24	STEEL BALL	PBE14460	0000-037-0244	
25	SPRING PLATE	PBE14437	0000-037-0253	
26	WASHER	PGWF28A070050	0000-037-0262	
27	T-SPRING	PBE6098	0000-037-0271	
28	SPRING	PBE6056	0000-037-0280	
29	PINCH ARM ASS'Y	PBED1415	0000-037-0299	
30	S REEL	PBD1622	0000-037-0305	
31	WASHER	PGWM16 × 040020	0000-037-0314	
32	C-SPRING	PBE6003	0000-037-0323	
33	T-REEL ASS'Y	PBE01129	0000-037-0332	
34	C-SPRING	PBE6184	0000-037-0341	
35	CLUCTH PLATE	PBE13723	0000-037-0350	
36	FRICTION PLATE	PBE14720	0000-037-0369	
37	LOCK PLATE	PBD14412	0000-037-0378	
38	SPRING	PBE6055	0000-037-0387	
39	BRAKE SUB PLATE	PBE14825	0000-037-0396	
40	WASHER	PGWN24 × 040030	0000-037-0402	
41	PAUSE PLATE	PBE14422	0000-037-0411	
42	T SPRING	PBE13662	0000-037-0420	
43	REC PLATE	PBE14424	0000-037-0439	
44	REW PLATE	PBE14426	0000-037-0448	
45	T SPRING	PBE6057	0000-037-0457	
46	PLAY PLATE	PBE14423	0000-037-0466	
47	FF PLATE	PBE14425	0000-037-0475	
48	BRAKE PLATE	PBD1596	0000-037-0484	

EXPLODED VIEW PARTS LIST

DECK MECHANISM

628DM—638DM (cont.)

LOCATION NO.	DESCRIPTION	SPECIFICATION	CODE NO.	REMARK
49	BRAKE SPRING	PBE6047	0000-037-0493	
50	BRAKER CUSHION	PBE14180	0000-037-0509	
51	AS CAM ASS'Y	PBE01410	0000-037-0518	
52	C SPRING	PBE6097	0000-037-0527	
53	SENSOR	PBD1450	0000-037-0536	
54	WASHER	PBE14117	0000-037-0545	
55	T SPRING	PBE14045	0000-037-0554	
56	SENSOR ARMA	PBE14705	0000-037-0563	
57	SENSOR ARM B	PBE14706	0000-037-0572	
58	SENSOR ARM C	PBE14707	0000-037-0581	
59	SPRING	PBE6092	0000-037-0590	
60	T SPRING	PBE6092	0000-037-0606	
61	WORM	PBD1598	0000-037-0615	
62	WASHER	PGWM26 × 060020	0000-037-0624	
63	STOP LEVER	PBE14438	0000-037-0633	
64	LOCK PLATE ASS'Y	PBE01434	0000-037-0642	
65	T SPRING	PBE6093	0000-037-0651	
66	SELECT ARM	PBE14441	0000-037-0660	
67	C SPRING	PBE6048	0000-037-0679	
68	SLIDE PLATE ASS'Y	PBE01414	0000-037-0688	
69	COLLAR	PBE14459	0000-037-0697	
70	HOLDER PLATE ASS'Y	PBE01416	0000-037-0703	
71	ASSIST GEAR	PBD1601	0000-037-0712	
72	SPRING	PBE6053	0000-037-0721	
73	START LEVEL	PBE14439	0000-037-0730	
74	TENSION ASS'Y	PBE01419	0000-037-0749	
75	SPRING	PBE6049	0000-037-0758	
76	T SPRING	PBE6093	0000-037-0767	
77	SIDE PLATE A	PBE14428	0000-037-0776	
78	SIDE PLATE B	PBE14429	0000-037-0785	
79	FLYWHEEL	PBE14416	0000-037-0794	
80	FW GEAR	PBD1600	0000-037-0800	
81	WASHER	PGW926 × 095025	0000-037-0819	
82	C SPRING	PBE13864	0000-037-0828	
83	BELT	PBE5019	0000-037-0837	
84	BELT	PBE5021	0000-037-0846	
85	BELT	PBE5020	0000-037-0855	
86	MOTOR BRACKET	PBD1592	0000-037-0864	
87	HOLDER A ASS'Y	PBE01417	0000-037-0873	
88	CAPSTAN SUPPERT	PBE14431	0000-037-0882	
89	REC LEVER	PBD1593	0000-037-0891	
90	BUTTON HOLDER	PBC1117	0000-037-0907	
91	BUTTON LEVER	PBE14419	0000-037-0916	
92	INTER PLATE	PBE14421	0000-037-0925	
93	CAM PLATE	PBD1587	0000-037-0934	
94	C SPRING	PBE6052	0000-037-0943	

EXPLODED VIEW PARTS LIST DECK MECHANISM 628DM—638DM (cont.)

LOCATION NO.	DESCRIPTION	SPECIFICATION	CODE NO.	REMARK
95	REC SUB PLATE	PBE14420	0000-037-0952	
96	CASSETTE HOLDER	PBE14432	0000-037-0961	
97	SW PLATE	PBE1464	0000-037-0970	
111	MOTOR	EG510ED2B	0000-037-1115	
112	MOTOR PULLY	PBE14442	0000-037-1124	
113	R/P HEAD	443-20	0000-037-1133	
114	ERASE HEAD	86M01	0000-037-1142	
115	EJECT LEVER	PBE14434	0000-037-1151	
116	EJECT PLATE	PBE14709	0000-037-1160	
117	SPRING	PBE6058	0000-037-1179	
118	LEAF SWITCH	MSW1234	0000-037-1188	
119	LEAF SWITCH	MSW0094	0000-037-1197	
120	SWITCH LEVER	PBE14729	0000-037-1203	
121	LEAF SWITCH	MSW0058	0000-037-1212	
132	LOADING CASE	PBB2096	0000-037-1328	
133	KEEP PLATE	BPE14715	0000-037-1337	
134	SPRING	PBE6107	0000-037-1346	
135	CYLINDER ASS'Y	PBE1452	0000-037-1355	
151	CS RING	PGRS20P	0000-037-1513	
152	CS RING	PGRS30P	0000-037-1522	
153	CS RING	PRGS40P	0000-037-1531	
154	E RING	PGRE20A	0000-037-1540	
155	E RING	PGRE30A	0000-037-1559	
156	DT SCREW	PGSD10A2605	0000-037-1568	
157	DT SCREW	PGSD10A2610	0000-037-1577	
158	DT SCREW	PGSD10A3005	0000-037-1586	
159	DT SCREW	PGSD30A2606	0000-037-1595	
160	SEMS SCREW (MOTOR)	PGSP11A2604	0000-037-1601	
161	F TAPPING SCREW	PGST15A2606	0000-037-1610	
162	F TAPPING SCREW	PGST15A3006	0000-037-1629	
163	SCREW (HEAD)	PGSN20A2011	0000-037-1638	
164	TAPPING SCREW	PGST10A2608	0000-037-1647	
165	TAPPING SCREW	PGST20A2005	0000-037-1656	
166	DT SCREW	PGSD20A2005	0000-037-1665	
167	SCREW	PBE14823	0000-037-1674	

**NOTE! THE MODELS 628DM AND 638DM WERE
PRODUCED FOR USE IN DIFFERENT
COUNTRIES, THEREFORE, WHEN ORDER-
ING REPLACEMENT PARTS, THE PART
SUPPLIED MAY NOT BEAR SAME PART NO.**

EXPLODED VIEW PARTS LIST

DECK MECHANISM

619DB—639DC

(SEE PAGE 42)

PART No.	DESCRIPTION	Q'ty	PART No.	DESCRIPTION	Q'ty
A0960	SOFT DAMP ASSY 3B	1	U4480	FLAT BELT 60.5 × 4 × 0.4-65	1
A1360	PINCH ROLLER ASSY 8A	1	U4520	RF DRIVE GEAR 8B	1
A1450	GEAR, AUTO WORM ASSY 8RA	1	U4530	DRIVE GEAR 8B	1
A1530	REEL PLATE BASE ASSY 8D	1	U4680	MIDDLE PULLEY GEAR 8RA	1
E2890	WIRE BK 60 × 3 × 3 #26	1	V8390	CASE MOUNTING COLLAR 3RB	1
F0360	FLYWHEEL 8A	1	V8900	CASE MOUNTING COLLAR 3LC	1
H0860	RP HEAD H23340102	1	V9550	E HEAD COLLAR 8A	1
H0970	E HEAD H43220202	1	V9560	SAFETY COLLAR 8A	1
J1420	CASSETTE CASE 3D	1	V9710	ARM PAUSE COLLAR 8A	1
J1540	TAKE UP ASSY 8A	1		B TYPE ONLY	
K4890	CHASSIS ASSY 8AA	1	V9740	REC FUNCTION COLLAR 8A	1
K4900	SIDE BRACKET ASSY 8LAA	1	V9750	LEVER KEY STUD 8B	1
M0350	MOTOR MMI6A2LK	1	W0110	RP SELECT COLLAR 8A	1
Q4860	CAPSTAN SUPPORT SP 9A	1	W0130	SHAFT 2.0 × 19.0	1
Q5750	HEAD PANEL SP 8A	1	Y4790	PANEL RETAINER 9D	2
Q5760	RP HEAD SP 8A	1	Y4960	REC LEVER 8A	1
Q5770	PINCH ROLLER SP 8A	1	Y4980	RP SWITCH ARM 8A	1
Q5780	BRAKE SP 8A	1	Y4990	RP SHIFT ARM 8A	1
Q5790	RETURN SP 8A	1	Y5030	PACK SP PLATE 8A	1
Q5800	RF TRIGGER SP 8A	1	Y5040	FLYWHEEL BRACKET 8A	1
Q5820	RP TRIGGER SP 8A	1	Y5050	PUSH BUTTON FRAME 8A-EGC	1
Q5830	LEVER REC SP 8A	1	Y5070	RF SWITCH ARM 8A	1
Q5840	REC SENSOR SP 8A	1	Y5080	MISPUSH PREVENTION ARM 8A	1
Q5890	STOP SP 8A	1	Y5110	AUTO LEVER 8A	1
Q5900	CANCEL SP 8A	1	Y5130	CASE MOUNTING BRACKET 8RA	1
Q5910	RF SP 8A	2	Y5140	CASE MOUNTING BRACKET 8LA	1
Q5920	LEVER AUTO SP 8A	1	Y5160	SAFETY LEVER 8A	1
Q5940	SLIDE PLATE SP 8A	1	Y5180	CASE LOCK LEVER 8A	1
Q5950	MISPUSH PREVENTION SP 8A	1	Y5290	RP MISPUSH PREVENTION	1
Y5380	FF LEVER 8B	1		ARM 8A	
Y5390	REW LEVER 8B	1	Y5310	PAUSE SWITCH ARM 8A	1
Y5710	PLAY ARM 8B-EGC	1		B TYPE ONLY	
Y6030	HEAD PANEL 8B-EGC	1	Y5330	LEVER KEY SP PLATE 8B	1
X4110	NLW 2.4 × 6.0 × 0.50	1	Y5340	AMS BRACKET 8B	1
01145	PAN HEAD SCREW 2.6 × 4	3	Y5360	RP SELECT LEVER 8B	1
	C TYPE IS ONLY 2 pcs.		Q5960	REC ROD 8A	1
01153	PAN HEAD SCREW 2.6 × 12	1	Q6050	RP MISPUSH PREVENTION SP 8A	1
04146	FLAT HEAD SCREW 2.6 × 5	1	Q6060	CASE LOCK SP 8A	1
08085	BIND HEAD SCREW 2.0 × 4	1	Q6090	ARM AUTO SP 8A	1
08095	BIND HEAD SCREW 2.0 × 14	2	Q6100	AUTO WORM SP 8A	1
08151	BIND HEAD SCREW 2.6 × 10	1	Q6110	CASSETTE CASE SP 8A	1
17146	PAN HEAD TAP TITE 2.6 × 5	4	Q6340	ARM PLAY SP 8B	1
17166	PAN HEAD TAP TITE 3.0 × 5	2	Q6540	PAUSE CAM SP 8B	1
19095	PAN HEAD SCREW 2.0 × 14SW	1	S0530	LEAF SW LSB-1123-5	1
19145	PAN HEAD SCREW 2.6 × 4SW	5	S0980	LEAF SW LSA-1119E	2
	C TYPE IS ONLY 4 pcs.			C TYPE IS ONLY 1 pce.	
43001	LMW 1.7 × 3.2 × 0.25	2	S1050	LEAF SW LSA-1119D-1	1

EXPLODED VIEW PARTS LIST

DECK MECHANISM

619DB—639DC (cont.)

PART No.	DESCRIPTION	Q'ty
U2540	SQUARE BELT 1.0 × 40.0-60	1
U3270	CASSETTE GUIDE 9A	2
U3410	CAPSTAN SUPPORT 9A	1
U4060	HEAD BASE 8A	1
U4090	TAKE UP GEAR 8A	1
U4100	REC SENSOR 8A	1
U4110	BRAKE ARM 8A	1
U4120	RETURN LEVER 8A	1
U4130	PAUSE TRIGGER LEVER 8A	1
U4150	RF TRIGGER LEVER 8A	1
U4180	RP TRIGGER LEVER 8A	1
U4330	AUTO ARM 8A	1
U4340	CANCEL ARM 8A	1
U4370	CAPSTAN GEAR 8A	1
U4380	KEY LEVER 8A	5
U4390	PAUSE KEY LEVER 8A	1
U4400	PAUSE CAM 8A	1
U4410	SLIDE PLATE 8A	1
U4420	REC FUNCTION LEVER 8A	1
U4440	SQUARE BELT 1.2 × 50.0-65	1
U4450	BRAKE RUBBER 3.0 × 5.0 × 2.0	2
U4460	M PULLEY 2 × 8.2R-U	1

EXPLODED VIEW PART LIST 619DB

(SEE PAGE 43)

No.	PARTS No.	DESCRIPTION	Q'ty	No.	PARTS No.	DESCRIPTION	Q'ty
1.	8602008910	Panel Front	1	45.	6505041320	BKT Deck D.A.	1
2.	8521001110	Body Front	1	46.	6505041420	BKT Deck D.B.	1
3.	6102010010	Chassis Back	1	47.	6505041110	BKT Deck UP	1
4.	6122006210	Cover Top	1	48.	6505041120	BKT Deck UP	1
5.	6122405810	Cover Bottom	1	49.	6505040610	BKT Deck Supp	1
6.	5708002410	Ass'y Deck Mecha	1	50.	6505040310	BKT Record	1
7.	8685000330	Cover Deck	1	51.	6550002820	Spring REC	1
8.	6123610310	Frame Center	1	52.	6045001610	Guide LED	1
9.	6123610210	Frame Main	1	53.	6045001710	"	
10.	6123610220	Frame Main	1	54.	2308220119	LED	1
11.	6503005210	BKT Push	1	55.	2308220112	LED	16
12.	4628030510	S/W Push (5 Gang)	1	56.	2828028002	Transformer	1
13.	3238404910	SLVR 60MM	1	57.	6165104530	Cap Shield	1
14.	6505040410	BKT Slide	1	58.	7505201910	REG H/S	1
15.	3238403020	SLVR 45MM	1	59.	4438100410	Jack RCA (4p)	1
16.	6055001810	Insert Slide	2	60.	8543002610	Button Push	6
17.	8545010010	Knob Slide	2	61.	8535001910	Plate Door	1
18.	048635002610	Plate Slide (Volume)	1	62.	8563000910	Door Cassette	1
18.	048635002620	Plate (Balance)	1	63.	8555005510	Window LED	1
19.	8545009910	Cap Button	1	64.	4835003210	Cover Fuse	1
20.	6053001010	Insert Button	1	65.	4308000220	Cord AC	1
21.	8545009510	Button Deck	4	66.	6518000111	Stopper Cord	1
22.	8545009610	Button Deck	1	67.	6525000210	Band Wire	1
23.	6055002010	Insert Button	1	68.	4002311800	PCB Main	1
24.	6055001910	Insert Button	4	69.	4005310800	PCB Fuse	1
25.	6045001910	Guide Button	1	70.	4002311840	PCB S/W	1
26.	6505042010	BKT Deck Button "E"	1	71.	4002311830	PCB Balance	1
27.	6505041910	" " "D"	1	72.	4002311820	PCB Volume	1
28.	6505041510	" " "C"	2	73.	4005310810	PCB IND LED	1
29.	6505041610	" " "B"	1	74.	8159440083	Screw WPM 4 × 8B	6
30.	6505041710	" " "A"	1	75.	8109230121	Screw #2 BTC 3 × 12Y	4
31.	6335000310	Rubber Foot	4	76.	8109230061	Screw #2 BTC 3 × 6Y	11
32.	6505025910	BKT Joint	6	77.	8129330081	Screw #3 FTC 3 × 8Y	14
33.	8545000810	Button Push (Eject)	1	78.	8109330081	Screw #3 BTC 3 × 8Y	7
34.	6045001810	Guide Eject	1	79.	8019126043	Screw PM 2.6 × 4B	2
35.	6505041210	BKT Eject	1	80.	8109330061	Screw #3 BTC 3 × 6Y	6
36.	8545008710	Button Push (Power)	1	81.	8119130081	Screw #1 PTC 3 × 8Y	14
37.	6305000410	Bar Connection	1	82.	8019120031	Screw PM 2 × 3Y	5
38.	6505040710	BKT Power S/W	1	83.	8119430051	Screw SAM 3 × 5Y	7
39.	4628005710	S/W Power	1	84.	8119230083	Screw #2 PCB 3 × 8B	1
40.	4628030610	S/W Push (1)	1	85.	8119330083	Screw #3 PTC 3 × 8B	6
41.	4618002110	R/P Switch	1	86.	8159230081	Screw #2 WPTC 3 × 8Y	8
42.	8555005410	Lens Counter	1	87.	8209540011	NUT Flange	2
43.	5318000910	Counter	1	88.	8305000510	Washer Vinyl	4
44.	6505040510	BKT Counter	1				

PARTS LIST 619DB

COMPONENT ITEM NUMBER

DESCRIPTION

046102010010	CHASSIS, BACK
046122006201	CABINET, TOP
048521001101	BODY, FRONT
048535001902	PLATE, DOOR
048543002601	BUTTON, PUSH
048545008701	BUTTON, PUSH
048545008801	BUTTON, PUSH
048545009501	BUTTON, DECK
048545009601	BUTTON, DECK
048545009901	CAP. BUTTON
048545010001	KNOB, SLIDE
048563000902	DOOR, CASSETTE
048602008902	PANEL, FRONT
048635002601	PLATE, SHIELD VOLUME
048635002602	PLATE, SHIELD BALANCE
048683000211	COVER, MECHA
049605004222	BOX, CARTON
2008206105	TR FNP KTA1015Y KEC
2008606104	TR NPN KTC1815Y KEC
2008606108	TR NPN KTC2240BL KEC
2008609101	TR NPN MPSA05 MOT
2058106100	DIODE RECTIFIER 1N4002 KEC
2058306101	DIODE IN4148 KEC
2058520100	DIODE ZENER WZ032 JRC
2168010107	IC AN6882 MATSU
2168011102	IC HA12045 HITACHI
2168611100	IC HA17824 HITACHI
2308220111	LED SLB 15UR3RD-ROHM
2308220119	LED SLC22UR-RD ROHM
2308220313	LED SLB15GG-GN ROHM
2528400330	LAMP 12V0.04A 43.15 64069-03
2638601040	COIL OSC REC BIAS 30189
2648601310	COIL INDUCTOR 4.5MH 30193
2658301030	COIL FLTR DOLBY LPF 30181
2658501020	COIL FLTR REC TRAP 30178
2828028002	PWR TRANS TTK 35280
3039102472	RES MO 1K 1W J
3238403020	SLVR 45L 100KSWX1 15137-02
3238404910	SLIDE, VR
3248310220	RES SEMI CS1KB 10 ⁻⁵ 16009
3248310420	RES SEMI CS100KB10/5
3248322220	RES SEMI CS2.2KB10/5 16004
3248322320	RES SEMI CS22KB 10/5
3248347320	RES SEMI CS47KB 10/5
3409210071	CAP E AF RSA 10UF 50V
3409210131	CAP E AF RSA 100UF 16V
3409210971	CAP E AF RSA 1UF 50V
3409222131	CAP E AF RSA 220UF 16V
3409222141	CAP E AF RSA 220UF 25V
3409233031	CAP E AF RSA 33UF 16V
3409233871	CAP E AF RSA 0.33UF 50V
3409247031	CAP E AF RSA 47UF 16V
3409247041	CAP E AF RSA 47UF 25V
3409247131	CAP E AF RSA 470UF 16V
3409247161	CAP E AF RSA 470UF 35V
3409247971	CAP E AF RSA 4.7UF 50V
3509101130	CAP C 100PF 50V J
3509221130	CAP C 220PF 50V J
3509470130	CAP C 47PF 50V J
3509681230	CAP C 680PF 50V K B
3549472407	CAP C 0.0047UF/400VAC KC
3609103120	CAP M 0.01UF 100V J
3609153120	CAP M 0.015UF 100V J
3609183120	CAP M 0.018UF 100V J
3609223120	CAP M 0.022UF 100V J
3609252120	CAP M 0.0025UF 100V J
3609333120	CAP M 0.033UF 100V J
3609472120	CAP M 0.0047UF 100V J

COMPONENT ITEM NUMBER

DESCRIPTION

4438100410	JACK RCA 4P PCB 95138
4618002110	SWITCH, RECORD GSALPS
4628005710	SWITCH PUSH 90331
4628030410	SWITCH, SUF55 GSALPS
4628030610	SWITCH, SUF12 GSALPS
4648500120	SWITCH LEAF 90332-02
4835003210	FUSE, COVER
4855000111	CERAMIC PIPE 71028A
5318000910	COUNTER, MK390-137
5508211231	FUSE NB 31.8 0.25A 250V KS
5508211631	FUSE NB 31.8 0.5A 250V SJUL
5708001630	DECK, MECHANISM
6045001610	GUIDE, LED
6045001710	GUIDE, LED
6045001810	GUIDE, EJECT
6045001910	GUIDE, BUTTON
6053001010	INSERT, BUTTON
6055001810	INSERT, SLIDE
6055001910	INSERT, BUTTON
6055002010	INSERT, BUTTON
6122405810	COVER, BOTTOM
6123610210	FRAME, MAIN(R)
6123610220	FRAME, MAIN(L)
6123610310	FRAME, CENTER
6305000410	BAR CONNECTION 72339-01
6335000310	FOOT 71194

EXPLODED VIEW PART LIST 639DC (SEE PAGE 44)

No.	PARTS No.	DESCRIPTION	Q'ty	No.	PARTS No.	DESCRIPTION	Q'ty
1.	8602008920	Panel Front	1	46.	6505041420	BKT Deck D.B.	1
2.	8521001120	Body Front	1	47.	6505041110	BKT Deck UP	1
3.	6102010010	Chassis Back	1	48.	6505041120	BKT Deck UP	1
4.	6122006210	Cover Top	1	49.	6505040610	BKT Deck Supp	1
5.	6122405810	Cover Bottom	1	50.	6505040310	BKT Record	1
6.	5708002410	Ass'y Deck Mecha	1	51.	6550002820	Spring REC	1
7.	8685000330	Cover Deck	1	52.	6045001610	Guide LED	1
8.	6123610310	Frame Center	1	53.	6045001710	"	
9.	6123610210	Frame Main	1	54.	2308220119	LED	1
10.	6123610220	Frame Main	1	55.	2308220112	LED	16
11.	6503005210	BKT Push	1	56.	2828028002	Transformer	1
12.	4628030510	S/W Push (5 Gang)	1	57.	6165104530	Cap Shield	1
13.	3238404910	SLVR 60MM	1	58.	7505201910	REG H/S	1
14.	6505040410	BKT Slide	1	59.	4438100410	Jack RCA (4p)	1
15.	3238403020	SLVR 45MM	1	60.	8543002610	Button Push	6
16.	6055001810	Insert Slide	2	61.	8535001910	Plate Door	1
17.	8545010010	Knob Slide	2	62.	8563000910	Door Cassette	1
18.	048635002610	Plate Slide (Volume)	1	63.	8555005510	Window LED	1
18.	048635002620	Plate (Balance)	1	64.	4835003210	Cover Fuse	1
19.	8545009910	Cap Button	1	65.	4308000220	Cord AC	1
20.	6053001010	Insert Button	1	66.	6518000111	Stopper Cord	1
21.	8545009510	Button Deck	4	67.	6525000210	Band Wire	1
22.	8545009610	Button Deck	1	68.	46k8002110	R/P Switch	1
23.	6055002010	Insert Button	1	69.	4628030610	Switch Push (1)	1
24.	6055001910	Insert Button	4	70.	4002311800	PCB Main	1
25.	6045001910	Guide Button	1	71.	4005310800	PCB Fuse	1
26.	6505042010	BKT Deck Button "E"	1	72.	4002311840	PCB S/W	1
27.	6505041910	" " "D"	1	73.	4002311830	PCB Balance	1
28.	6505041510	" " "C"	2	74.	4002311820	PCB Volume	1
29.	6505041610	" " "B"	1	75.	4005310810	PCB IND LED	1
30.	6505041710	" " "A"	1	76.	8159440083	Screw WPM 4 x 8B	4
31.	6335000310	Rubber Foot	4	77.	8109230121	Screw #2 BTC 3 x 12Y	4
32.	655025910	BKT Joint	6	78.	8109230061	Screw #2 BTC 3 x 6Y	11
33.	8545000810	Button Push (Eject)	1	79.	8129330081	Screw #3 FTC 3 x 8Y	14
34.	6045001810	Guide Eject	1	80.	8109330081	Screw #3 BTC 3#8Y	7
35.	6505041210	BKT Eject	1	81.	8019126043	Screw PM 2.6 x 4B	2
36.	8545008710	Button Push (Power)	1	82.	8109330061	Screw #3 BTC 3 x 6Y	6
37.	6305000410	Bar Connection	1	83.	8119130081	Screw #1 PTC 3 x 8Y	14
38.	6505040710	BKT Power S/W	1	84.	8019120031	Screw PM 2 x 3Y	5
39.	4628005710	S/W Power	1	85.	8119430051	Screw SAM 3 x 5Y	7
40.	6505041010	BKT Phone Jack	1	86.	8119230083	Screw #2 PCT 3 x 8B	1
41.	4438000810	Jack Phone	3	87.	8119330083	Screw #3 PTC 3 x 8B	6
42.	8555005410	Lens Counter	1	88.	8159230081	Screw #2 WPTC 3 x 8Y	8
43.	5318000910	Counter	1	89.	8209540011	NUT Flange	2
44.	6505040510	BKT Counter	1	90.	8305000510	Washer Vinyl	4
45.	6505041320	BKT Deck D.A.	1				

PARTS LIST 639DC

COMPONENT ITEM NUMBER	DESCRIPTION	COMPONENT ITEM NUMBER	DESCRIPTION
046102010002	CHASSIS, BACK	3609103120	CAP M 0.01UF 100V J
046102010011	CHASSIS, BACK	3609153120	CAP M 0.015UF 100V J
046122006201	CABINET, TOP	3609182120	CAP M 0.0018UF 100V J
048521001102	BODY, FRONT	3609183120	CAP M 0.018UF 100V J
048535001901	PLATE, DOOR	3609223120	CAP M 0.022UF 100V J
048543002601	BUTTON, PUSH	3609332120	CAP M 0.0033UF 100V J
048545008701	BUTTON, PUSH	3609392120	CAP M 0.0039UF 100V J
048545008801	BUTTON, PUSH	3609472120	CAP M 0.0047UF 100V J
048545009501	BUTTON, DECK	3609562120	CAP M 0.0056UF 100V J
048545009601	BUTTON, DECK	3609822120	CAP M 0.0082UF 100V J
048545009901	CAP BUTTON	3609823120	CAP M 0.082UF 100V J
048545010001	KNOB, SLIDE	3619471110	CAP P 470PF 50V J
048563000902	DOOR, CASSETTE	3619682130	CAP P 0.0068UF 150V J
048602008906	PANEL, FRONT	4438000710	JACK PHONE 9P 95160
048635002601	PLATE, SHIELD VOLUME	4438000810	JACK PHONE 3P 95180
048635002602	PLATE, SHIELD BALANCE	4438100410	JACK RCA 4P PCB 95138
048683000211	COVER, MECHA	4618002110	SWITCH, RECORD GSALPS
049605004221	BOX CARTON TFL817 TENSAI	4628005710	SWITCH PUSH 90331
2008206105	TR PNP KTA1015Y KEC	4628030510	SWITCH, SUF55 GSALPS
2008606104	TR NPN KTC1815Y KEC	4628030610	SWITCH, SUF12 GSALPS
2008606108	TR NPN KTC2240BL KEC	4648500120	SWITCH LEAF 90332-02
2008609101	TR NPN MPSA05 MDT	4835003210	FUSE, COVER
2058106100	DIODE RECTIFIER 1N4002	4855000111	CERAMIC PIPE 71028A
2058306101	DIODE IN4148	5318000910	COUNTER, MK390-137
2058520100	DIODE ZENER WZ032 JRC	5508211231	FUSE NB 31.8 0.25A 250V SJUL
2168010107	IC AN6882 MATSU	5508211631	FUSE NB 31.8 0.5A 250V SJUL
2168011101	IC HA12038 HITACHI	5708001620	DECK MECHANISM 10121-02
2168611100	IC HA17824 HITACHI	6045001610	GUIDE, LED
2168611101	IC HA17812 HITACHI	6045001710	GUIDE, LED
2308220111	LED SLB 15UR3RD-ROHM	6045001810	GUIDE, EJECT
2308220119	LED SLC22UR-RD ROHM	6045001910	GUIDE, BUTTON
2308220305	LED SLB 15GG GN-ROHM	6053001010	INSERT, BUTTON
2308220504	LED SLB15YY3 ROHM	6055001810	INSERT, SLIDE
2528400330	LAMP 12V0.04A 43.15 64069-03	6055001910	INSERT, BUTTON
2638601040	COIL OSC REC BIAS 30189	6055002010	INSERT, BUTTON
2648601310	COIL INDUCTOR 4.5MH 30193	6122405810	COVER, BOTTOM
2648601410	COIL INDUCTOR 36MH	6123610210	FRAME, MAIN(R)
2658301030	COIL FLTR DOLBY LPF 30181	6123610220	FRAME, MAIN(L)
2658501020	COIL FLTR REC TRAP 30178	6123610310	FRAME, CENTER
2828028002	PWR TRANS TTK 35280	6165104530	COVER SHIELD 68700-03
3238403020	SLVR 45L 100KSWX1 15137-02	6305000410	BAR CONNECTION 72339-01
3238404910	SLIDE, VR	6335000310	FOOT 71194
3248310220	RES SEMI CS1KB 10 5 16009	6503005210	BKT, PUSH
3248310420	RES SEMI CS100KB10/5	6505025910	BKT JOINT 68758
3248322220	RES SEMI CS2.2KB10/5 16004	6505034310	BKT LEAP SW 68969
3248322320	RES SEMI CS22KB 10/5	6505040310	BKT, RECORD
3248347320	RES SEMI CS47KB 10/5	6505040410	BKT, SLIDE
3409210071	CAP E AF RSA 10UF 50V	6505040610	BKT, DECK SUPPLE
3409210121	CAP E AF RSA 100UF 10V	6505040710	BKT, POWER SW
3409210131	CAP E AF RSA 100UF 16V	6505041010	BKT, PHONE JACK
3409210141	CAP E AF RSA 100UF 25V	6505041110	BKT, DECK UP
3409210971	CAP E AF RSA 1UF 50V	6505041120	BKT, DECK UP
3409215871	CAP E AF RSA 0.15UF 50V	6505041210	BKT, EJECT
3409222041	CAP E AF RSA 22UF 25V	6505041310	BKT, DECK D.A
3409222121	CAP E AF RSA 220UF 10V	6505041410	BKT, DECK D.B
3409233031	CAP E AF RSA 33UF 16V	6505041510	BKT, DECK BUTTON'C'
3409233041	CAP E AF RSA 33UF 25V	6505041610	BKT, DECK BUTTON'B'
3409233871	CAP E AF RSA 0.33UF 50V	6505041710	BKT, DECK BUTTON'A'
3409247031	CAP E AF RSA 47UF 16V	6505041910	BKT, DECK BUTTON'D'
3409247041	CAP E AF RSA 47UF 25V	6505042010	BKT, DECK BUTTON'C'
3409247131	CAP E AF RSA 470UF 16V	6505048110	BKT, COUNTER
3409247161	CAP E AF RSA 470UF 35V	6518000111	STOPPER, CORD SR-3P-4
3409247871	CAP E AF RSA 0.47UF 50V	6525000210	BAND WIRE 69111
3409247941	CAP E AF RSA 4.7UF 25V	6555000610	SPRING, BUTTON 66074
3509101130	CAP C 100PF 50V J	6555002710	SPRING, DECK
3509221130	CAP C 220PF 50V J	6555002810	SPRING, REC
3509330130	CAP C 33PF 50V J	6715001310	SPONGE, RUBBER 72160
3509470130	CAP C 47PF 50V J	7165000610	BELT 71314
3509681230	CAP C 680PF 50V K B	8555003310	INDICATOR TAPE 71162
3549472407	CAP C 0.0047UF/400VAC KC		
3609102120	CAP M 0.001UF 100V J		

EXPLODED VIEW PART LIST 659DA

(SEE PAGE 46)

No.	PARTS No.	DESCRIPTION	Q'ty	No.	PARTS No.	DESCRIPTION	Q'ty
1.	8602008930	Panel Front	1	45.	6505041320	BKT Deck D.A.	1
2.	8521001120	Body Front	1	46.	6505041420	BKT Deck D.B.	1
3.	6102010010	Chassis Back	1	47.	6505041110	BKT Deck UP	1
4.	6122006210	Cover Top	1	48.	6505041120	BKT Deck UP	1
5.	6122405810	Cover Bottom	1	49.	6505040610	BKT Deck Supp	1
6.	5708002410	Ass'y Deck Mecha	1	50.	4628030710	Switch Push (2)	1
7.	8685000330	Cover Deck	1	51.	2308220317	LED	2
8.	6123610310	Frame Center	1	52.	6045001610	Guide LED	1
9.	6123610210	Frame Main	1	53.	6045001710	"	1
10.	6123610220	Frame Main	1	54.	2308220119	LED	1
11.	6503005210	BKT Push	1	55.	2308220112	LED	18
12.	4628030510	S/W Push (5 Gang)	1	56.	2828028002	Transformer	1
13.	3238404910	SLVR 60MM	1	57.	6165104530	Cap Shield	1
14.	6505040410	BKT Slide	1	58.	7505201910	REG H/S	1
15.	3238403020	SLVR 45MM	1	59.	4438100410	Jack RCA (4p)	1
16.	6055001810	Insert Slide	2	60.	8543002610	Button Push	6
17.	8545010010	Knob Slide	2	61.	8535001910	Plate Door	1
18.	048635002610	Plate Slide (Volume)	1	62.	8563000910	Door Cassette	1
18.	048635002620	Plate (Balance)	1	63.	8555005510	Window LED	1
19.	8545009910	Cap Button	1	64.	4835003210	Cover Fuse	1
20.	6053001010	Insert Button	1	65.	4308000220	Cord AC	1
21.	8545009510	Button Deck	4	66.	6518000111	Stopper Cord	1
22.	8545009610	Button Deck	1	67.	6525000210	Band Wire	1
23.	6055002010	Insert Button	1	68.	4002311800	PCB Main	1
24.	6055001910	Insert Button	4	69.	4005310800	PCB Fuse	1
25.	6045001910	Guide Button	1	70.	4002311840	PCB S/W	1
26.	6505042010	BKT Deck Button "E"	1	71.	4002311830	PCB Balance	1
27.	6505041910	" " "D"	1	72.	4002311820	PCB Volume	1
28.	6505041510	" " "C"	2	73.	4005310810	PCB IND LED	1
29.	6505041610	" " "B"	1	74.	8159440083	Screw WPM 4 x 8B	6
30.	6505041710	" " "A"	1	75.	8109230121	Screw #2 BTC 3 x 12Y	4
31.	6335000310	Rubber Foot	4	76.	8109230061	Screw #2 BTC 3 x 6Y	11
32.	6505025910	BKT Joint	6	77.	8129330081	Screw #3 FTC 3 x 8Y	14
33.	8545000810	Button Push (Eject)	1	78.	8109330081	Screw #3 BTC 3 x 8Y	7
34.	6045001810	Guide Eject	1	79.	8019126043	Screw PM 2.6 x 4B	2
35.	6505041210	BKT Eject	1	80.	8109330061	Screw #3 BTC 3 x 6Y	6
36.	8545008710	Button Push (Power)	1	81.	8119130081	Screw #1 PTC 3 x 8Y	14
37.	6305000410	Bar Connection	1	82.	8019120031	Screw PM 2 x 3Y	5
38.	6505040710	BKT Power S/W	1	83.	8119430051	Screw SAM 3 x 5Y	7
39.	4628005710	S/W Power	1	84.	8119230083	Screw #2 PCB 3 x 8B	1
40.	6505041010	BKT Phone Jack	1	85.	8119330083	Screw #3 PTC 3 x 8B	6
41.	4438000810	Jack Phone	3	86.	8159230081	Screw #2 WPTC 3 x 8Y	8
42.	8555005410	Lens Counter	1	87.	8209540011	NUT Flange	2
43.	5318000910	Counter	1	88.	8305000510	Washer Vinyl	4
44.	6505040510	BKT Counter	1				

PARTS LIST 659DA

COMPONENT ITEM NUMBER	DESCRIPTION	COMPONENT ITEM NUMBER	DESCRIPTION
046102010012	CHASSIS, BACK	3409222121	CAP E AF RSA 220UF 10V
046122006201	CABINET, TOP	3409222131	CAP E AF RSA 220UF 16V
048521001103	BODY, FRONT	3409222141	CAP E AF RSA 220UF 25V
048535001903	PLATE, DOOR	3409222871	CAP E AF RSA 0.22UF 50V
048543002601	BUTTON, PUSH	3409233031	CAP E AF RSA 33UF 16V
048545008701	BUTTON, PUSH	3409233871	CAP E AF RSA 0.33UF 50V
048545008801	BUTTON, PUSH	3409247041	CAP E AF RSA 47UF 25V
048545009501	BUTTON, DECK	3409247131	CAP E AF RSA 470UF 16V
048545009601	BUTTON, DECK	3409247141	CAP E AF RSA 470UF 25V
048545009901	CAP BUTTON	3409247871	CAP E AF RSA 0.47UF 50V
048545010001	KNOB, SLIDE	3409247971	CAP E AF RSA 4.7UF 50V
048563000902	DOOR, CASSETTE	3509101130	CAP C 100PF 50V J
048602008906	PANEL, FRONT	3509200130	CAP C 20PF 50V J
048635002601	PLATE, SHIELD VOLUME	3509470130	CAP C 47PF 50V J
048635002602	PLATE, SHIELD BALANCE	3509473530	CAP C 0.047UF 50V Z
048683000212	COVER DECK	3509681230	CAP C 680PF 50V K B
049605004223	BOX, CARTON	3549472407	CAP C 0.0047UF/400VAC KC
2008206105	TR PNP KTA1015Y KEC	3609102120	CAP M 0.001UF 100V J
2008209101	TR PNP MP5A55 MOT	3609103120	CAP M 0.01UF 100V J
2008606104	TR NPN KTC1815Y KEC	3609153120	CAP M 0.015UF 100V J
2008606108	TR NPN KTC2240BL KEC	3609182120	CAP M 0.0018UF 100V J
2008609101	TR NPN MP5A05 MOT	3609183120	CAP M 0.018UF 100V J
2008610102	TR NPN 2SD1302S MATSU	3609252120	CAP M 0.0025UF 100V J
2058106100	DIODE RECTIFIER 1N4002	3609332120	CAP M 0.0033UF 100V J
2058306101	DIODE 1N4148	3609392120	CAP M 0.0039UF 100V J
2058513100	DIODE, ZENER RD3.3EB1 NEC	3609562120	CAP M 0.0056UF 100V J
2138011101	IC HD14011B HITACHI	3609822120	CAP M 0.0082UF 100V J
2138011103	IC HD14066B HITACHI	3609823120	CAP M 0.082UF 100V J
2168000102	IC, TDA3410 SGS	3619471110	CAP P 470PF 50V J
2168010107	IC AN6882 MATSU	3619682130	CAP P 0.0068UF 160V J
2168011105	IC, HA12038MP HITACHI	4438000710	JACK PHONE 9P 95160
2168611100	IC HA17824 HITACHI	4438000810	JACK PHONE 3P 95180
2168611101	IC HA17812 HITACHI	4438100410	JACK RCA 4P PCB 95138
2308220111	LED SLB 15UR3RD-RDHM	4628005710	SWITCH PUSH 90331
2308220119	LED SLC22UR-RD RDHM	4628030510	SWITCH, SUF55 GSALPS
2308220305	LED SLB 15GG GN-RDHM	4628030710	SWITCH, PUSH SUF25G14
2308220317	LED SLT35GG RDHM	4835003210	FUSE, COVER
2308220504	LED SLB15YY3 RDHM	4855000111	CERAMIC PIPE 71028A
2528400330	LAMP 12V0.04A 43.15 64069-03	5318000910	COUNTER, MK390-137
2638601050	COIL, BIAS USC	5508211231	FUSE NB 31.8 0.25A 250V SJUL
2648601220	COIL INDUCTOR 6.3MH 30177	5508211631	FUSE NB 31.8 0.5A 250V SJUL
2648601310	COIL INDUCTOR 4.5MH 30193	5708002410	DECK, MECHANISM
2648601410	COIL INDUCTOR 36MH	6045001610	GUIDE, LED
2658301030	COIL FLTR DOLBY LPF 30181	6045001710	GUIDE, LED
2658501020	COIL FLTR REC TRAP 30178	6045001810	GUIDE, EJECT
2828028002	PWR TRANS TRK 35280	6045001910	GUIDE, BUTTON
3009102273	RES CF 1K 1/4W J N	6053001010	INSERT, BUTTON
3039102472	RES MD 1K 1W J	6055001810	INSERT, SLIDE
3039680472	RES MD 68 1W J	6055001910	INSERT, BUTTON
3039821472	RES MD 820 1W J	6055002010	INSERT, BUTTON
3238403020	SLVR 45L 100KSWX1 15137-02	6122405810	COVER, BOTTOM
3238404910	SLIDE, VR	6123610210	FRAME, MAIN(R)
3248133130	RES SEMI CR19R 330B	6123610220	FRAME, MAIN(L)
3248310420	RES SEMI CS100KB10/5	6123610310	FRAME, CENTER
3248322220	RES SEMI CS2.2KB10/5 16004	6305000410	BAR CONNECTION 72339-01
3248322320	RES SEMI CS22KB 10/5	6335000310	FOOT 71194
3409210071	CAP E AF RSA 10UF 50V	6503005210	BKT, PUSH
3409210121	CAP E AF RSA 100UF 10V	6505008310	BKT PUSH SW 68540
3409210131	CAP E AF RSA 100UF 16V	6505025910	BKT JOINT 68758
3409210141	CAP E AF RSA 100UF 25V	6505040410	BKT, SLIDE
3409210231	CAP E AF RSA 1000UF 16V	6505040610	BKT, DECK SUPPLE
3409210261	CAP E AF RSA 1000UF 35V	6505040710	BKT, POWER SW
3409210971	CAP E AF RSA 1UF 50V	6505041010	BKT, PHONE JACK
3409215871	CAP E AF RSA 0.15UF 50V	6505041110	BKT, DECK UP
3409222041	CAP E AF RSA 22UF 25V	6505041120	BKT, DECK UP

PARTS LIST 659DA (cont.)

COMPONENT ITEM NUMBER	DESCRIPTION	
6505041210	BKT,EJECT	
6505041320	BKT,DECK UP D/A	
6505041420	BKT,DECK UP D/B	
6505041510	BKT,DECK BUTTON'C'	
6505041610	BKT,DECK BUTTON'B'	
6505041710	BKT,DECK BUTTON'A'	
6505041910	BKT,DECK BUTTON'D'	
6505042010	BKT,DECK BUTTON'C'	
6505048110	BKT,COUNTER	
6518000111	STOPPER,CORD SR-3P-4	
6525000210	BAND WIRE	69111
6555000610	SPRING,BUTTON	66074
6555002710	SPRING,DECK	
6705001010	SPACER	71353
6715001310	SPONGE,RUBBER	72160
6735001410	FELT STRIP	71292
7165000610	BELT	71314
7505201930	HEAT,SINK REG TR H/S	
8019120031	SCREW PM2X3Y	
8019126043	SCREW PM2.6X4B	
8019130121	SCREW PM3X12Y	
8069140123	SCREW,WPN4X12B	
8109230061	SCREW #2BTC3X6Y	
8109230081	SCREW #2BTC3X8Y	
8109230121	SCREW #2BTC3X12Y	
8109330061	SCREW #3BTC3X6Y	
8109330081	SCREW #3BTC3X8Y	
8119130081	SCREW #1PT3X8Y	
8119130101	SCREW #1PT3X10Y	
8119230083	SCREW #2PTC3X8B	
8119330083	SCREW #3PTC3X8B	
8119430051	SCREW SAM3X5Y	
8129330081	SCREW #3FTC3X8Y	
8159230061	SCREW #2WPTC3X6Y	
8159230081	SCREW #2WPTC3X8Y	
8159440084	SCREW,WSAM 4X8(NI)	
8209540011	NUT FLANGE M4Y	
8305000211	WASHER TRANSFORMER	70019
8305000510	WASHER VINYL	70046
8319130011	WASHER SPRING #3Y	
8555003310	INDICATOR TAPE	71162
8555005410	WINDOW,COUNTER	
8555006210	WINDOW,LED	
8728000120	CAF COLOR	71087-02
9007010130	INSTRUCTION,MANUAL	

EXPLODED VIEW PARTS LIST DECK MECHANISM 659DA

(SEE PAGE 45)

PART No.	DESCRIPTION	Q'ty	PART No.	DESCRIPTION	Q'ty
A0960	SOFT DAMP ASSY 3B	1	U4410	SLIDE PLATE 8A	1
A1430	REEL PLATE ASSY 8RA	1	U4420	REC FUNCTION LEVER 8A	1
A1450	AUTO WORM GEAR ASSY 8RA	1	U4440	SQUARE BELT 1.2×50.0-65	1
E3290	WIRE OR	1	U4450	BRAKE RUBBER 3.0×5.0×2.0	2
E3020	TOP POST B09B-XH	1	U4460	M PULLY 2×8.2R-U	1
E3280	TOP POST B02B-XH	1	Q6690	AUTO SWITCH LEVER SP 8RA	1
E3300	WIRE OS-1BK	1	Q6700	CASSETTE CASE SP 8RB	1
E3310	WIRE OS-1RE	1	Q6710	CASE LOCK SP 8RB	1
E7030	CONNECTOR ASSY XHP-09-03	1	S0650	LEAF SW LSB-1123	1
E7040	CONNECTOR ASSY XHP-02-03	1	S0980	LEAF SW LSA-1119E	3
F0400	FLYWHEEL 8RB	2	S1060	LEAF SW LSC-1223-16	1
H1000	E HEAD 876-12-05	1	S1070	LEAF SW LSC-1223-21	1
H1130	RP HEAD H23490204	1	U2370	RUBBER CUSHION H	1
J1590	TAKE UP ASSY 8RA	1	U2500	E HEAD BASE 4B	1
J1650	TAKE UP IDLER 8RA	1	U2760	DUMMY HEAD 46A	1
J1680	PINCH ROLLER P	2	U2900	SQUARE BELT 1.2×44.0-60	1
K4970	HEAD PANEL ASSY 8RAA	1	U3190	M PULLEY 2×10.65R-U	1
K4980	PINCH SHIFT LEVER ASSY 8RAA	1	U3270	CASSETTE GUIDE 9A	2
K4990	PINCH SHIFT BRACKET ASSY 8RAA	1	U3540	CASSETTE CASE 3B	1
K5310	FLYWHEEL BRACKET ASSY 8RBA	1	U3960	CAPSTAN SUPPORT 9B	2
K5290	L SIDE BRACKET ASSY 8RBB	1	U4100	REC SENSOR 8A	1
K5300	CHASSIS ASSY 8RAD	1	U4110	BRAKE ARM 8A	1
M0350	MOTOR MMI6A2LK	1	U4120	RETURN LEVER 8A	1
Q5960	REC ROD 8A	1	U4130	PAUSE TRIGGER LEVER 8A	1
Q6050	RP MISPUSH PREVENTION SP 8A	1	U4150	RF TRIGGER LEVER 8A	1
Q6060	CASE LOCK SP 8A	1	U4180	RP TRIGGER LEVER 8A	1
Q6090	ARM AUTO SP 8A	1	U4330	AUTO ARM 8A	1
Q6100	AUTO WORM SP 8A	1	U4340	CANCEL ARM 8A	1
Q6110	CASSETTE CASE SP 8A	1	U4380	KEY LEVER 8A	5
Q6340	ARM PLAY SP 8B	1	U4390	PAUSE KEY LEVER 8A	1
Q6540	PAUSE CAM SP 8B	1	U4400	PAUSE CUM 8A	1
S0530	LEAF SW LSB-1123-5	1	U4410	SLIDE PLATE 8A	1
S0980	LEAF SW LSA-1119E	2	U4420	REC FUNCTION LEVER 8A	1
	C TYPE IS ONLY 1 pce.		U4450	BRAKE RUBBER 3.0×5.0×2.0	2
S1050	LEAF SW LSA-1119D-1	1	U4520	RF DRIVE GEAR 8B	1
U2540	SQUARE BELT 1.0×40.0-60	1	U4530	DRIVE GEAR 8B	1
U3270	CASSETTE GUIDE 9A	2	U4570	BRAKE SHIFT ARM 8RA	1
U3410	CAPSTAN SUPPORT 9A	1	U4580	TAKE UP SHIFT ARM 8RA	1
U4060	HEAD BASE 8A	1	U4620	PINCH TRIGGER LEVER 8RA	1
U4090	TAKE UP GEAR 8A	1	U4680	MIDDLE PULLEY GEAR 8RA	1
U4100	REC SENSOR 8A	1	U4720	SQUARE BELT 1.0×35.0-60	1
U4110	BRAKE ARM 8A	1	U5170	CAPSTAN GEAR 8RA	2
U4120	RETURN LEVER 8A	1	U5180	PINCH SHIFT GEAR 8RB	1
U4130	PAUSE TRIGGER LEVER 8A	1	U4700	FLAT BELT 105.5×4×0.4-60	1
U4150	RF TRIGGER LEVER 8A	1	V4690	BACK TENSION COLLAR	1
U4180	RP TRIGGER LEVER 8A	1	V5920	MIDDLE PULLEY SHAFT 2×13.7	1
U4330	AUTO ARM 8A	1	V8390	CASE MOUNTING COLLAR 3RB	1
U4340	CANCEL ARM 8A	1	V8900	CASE MOUNTING COLLAR 3LC	1
U4370	CAPSTAN GEAR 8A	1	V9710	ARM PAUSE COLLAR 8A	1
U4380	KEY LEVER 8A	5	V9740	REC FUNCTION COLLAR 8A	1
U4390	PAUSE KEY LEVER 8A	1	V9750	KEY LEVER SHAFT 8B	1
U4400	PAUSE CAM 8A	1	V9900	REC LEVER COLLAR 8RA	2
			V9910	SHAFT 2.5×23 (pinch roller)	2
			W0100	ARM PLAY COLLAR 8RA	1

EXPLODED VIEW PARTS LIST DECK MECHANISM 659DA (cont.)

PART No.	DESCRIPTION	Q'ty	PART No.	DESCRIPTION	Q'ty
W0130	SHAFT 2.0×19.0	1	19155	PAN HEAD SCREW 2.6×14SW	1
W0580	M PULLEY 2×4.5V-8.7R	1	19169	PAN HEAD SCREW 3.0×8SW	1
W0600	AUTO SWITCH LEVER	1	19173	PAN HEAD SCREW 3.0×12SW	1
	COLLAR 8RA		23037	PAN HEAD SCREW 2.6×2.5	2
W0610	PINCH TRIGGER COLLAR 8RA	1	23039	PAN HEAD SCREW 2.6×6.5	2
X1920	CORD LUG E	1	23040	BIND HEAD TAP TITE 2.6×12	3
X5350	CORD LUG F	1	25617	NUT NI M1.7	1
Y4790	PANEL RETAINER 9D	2	30126	FW 2.8×7.5×0.5	2
Y5030	BACK DEPRESSING SP PLATE 8A	1	30904	FW 3.1×8.0×1.0	1
Y5130	CASE MOUNTING BRACKET 8RA	1	32003	PSW 2.0×8.0×0.25	1
Y5180	CASE LOCK LEVER 8A	1	32202	PSW 2.1×4.0×0.25	2
Y5290	RP MISPUSH PREVENTION	1	32205	PSW 2.1×4.0×0.5	1
	ARM 8A		32255	PSW 2.6×4.7×0.5	2
Y5310	PAUSE SW ARM 8A	1	36020	E RING E-2.0	4
Y5330	KEY LEVER SP PLATE 8B	1	36025	E RING E-2.5	13
Y5380	FF LEVER 8B	1	36030	E RING E-3.0	2
Y5390	REW LEVER 8B	1	36425	G RING G-2.5	1
Y5420	E HEAD BASE 8RA	1	42030	STEEL BALL M3.0	1
Y5430	DUMMY HEAD BRACKET 8RA	1	43001	LMW 1.7×3.2×0.25 CUT	3
Y5450	REC PREVENTION LEVER 8RA	1	43004	HEAD WASHER 0.10	1
Y5460	L PINCH ROLLER ARM 8RA	1	43006	HEAD WASHER 0.20	1
Y5470	R PINCH ROLLER ARM 8RA	1	P0820	SOLENOID TDS 12V48	1
Y5480	REC LEVER 8RA	1	Q2260	E HEAD SP A	1
Y5500	RP SHIFT ARM 8RA	1	Q3440	E HEAD BASE SP 4A	2
Y5550	SAFETY LEVER 8RA	1	Q5780	BRAKE SP 8A	1
Y5600	PUSH BUTTON FRAME 8B-EGC	1	Q5790	RETURN SP 8A	1
Y5730	PLAY ARM 8RB	1	Q5800	RF TRIGGER SP 8A	1
Y5760	TAPE GUIDE 8RA	1	Q5820	RP TRIGGER SP 8A	1
Y6110	RP SELECT LEVER 8RB	1	Q5840	REC SENSOR SP 8A	1
Y6360	MISPUSH PREVENTION ARM 8B	1	Q5910	RF SP 8A	2
Y6370	RF SWITCH ARM 8RA	1	Q5920	AUTO LEVER SP 8A	1
Y6460	AMS BRACKET 8RA	1	Q5940	SLIDE PLATE SP 8A	1
Y6470	AUTO SWITCH LEVER 8RA	1	Q5950	MISPUSH PREVENTION SP 8A	1
Y6480	AUTO LEVER 8RA	1	Q6050	RP MISPUSH PREVENTION SP 8A	1
Y6500	SW CHANGE BRACKET 8RB	1	Q6100	AUTO WORM SP 8A	1
01145	PAN HEAD SCREW 2.6×4	3	Q6130	HEAD PANEL SP 8RA	1
01153	PAN HEAD SCREW 2.6×12	1	Q6140	REC PREVENTION SP 8RA	1
04085	FLAT HEAD SCREW 2.0×4	1	Q6150	TAKE UP SP 8RA	1
08085	BIND HEAD SCREW 2.0×4	3	Q6160	PINCH ROLLER SP 8RA	2
08095	BIND HEAD SCREW 2.0×14	1	Q6170	REC LEVER SP 8RA	1
08151	BIND HEAD SCREW 2.6×10	1	Q6190	SOLENOID SP 8RA	1
17146	PAN HEAD TAP TITE 2.6×5	2	Q6210	CAPSTAN SUPPORT SP 8RA	2
17147	PAN HEAD TAP TITE 2.6×6	2	Q6230	SAFETY LEVER SP 8RA	1
17165	PAN HEAD TAP TITE 3.0×4	6	Q6270	TAPE GUIDE SP 8RA	1
18086	BIND HEAD 2.0×5 P0. 25	3	Q6330	PLAY ARM SP 8RA	1
19085	PAN HEAD SCREW 2.0×4SW	3	Q6530	REC LOD 8RA	1
19086	PAN HEAD SCREW 2.0×5SW	3	Q6540	PAUSE CUM SP 8B	1
19087	PAN HEAD SCREW 2.0×6SW	1	Q6560	AUTO ARM SP 8RA	1
19145	PAN HEAD SCREW 2.6×4SW	5	Q6650	CANCEL SP 8RA	1
19146	PAN HEAD SCREW 2.6×5SW	4	Q6660	STOP SP 8RA	1
19147	PAN HEAD SCREW 2.6×6SW	1			