

SCOPE

This is hardware specification of the TEAC CD-36E-900 built-in type CD-ROM drive (hereinafter referred to as CD-ROM drive or simply drive). As for the software specification, refer to "CD-36E-900 Software Specification".

OUTLINE

The outline of this CD-ROM drive is given in Table 2.1.

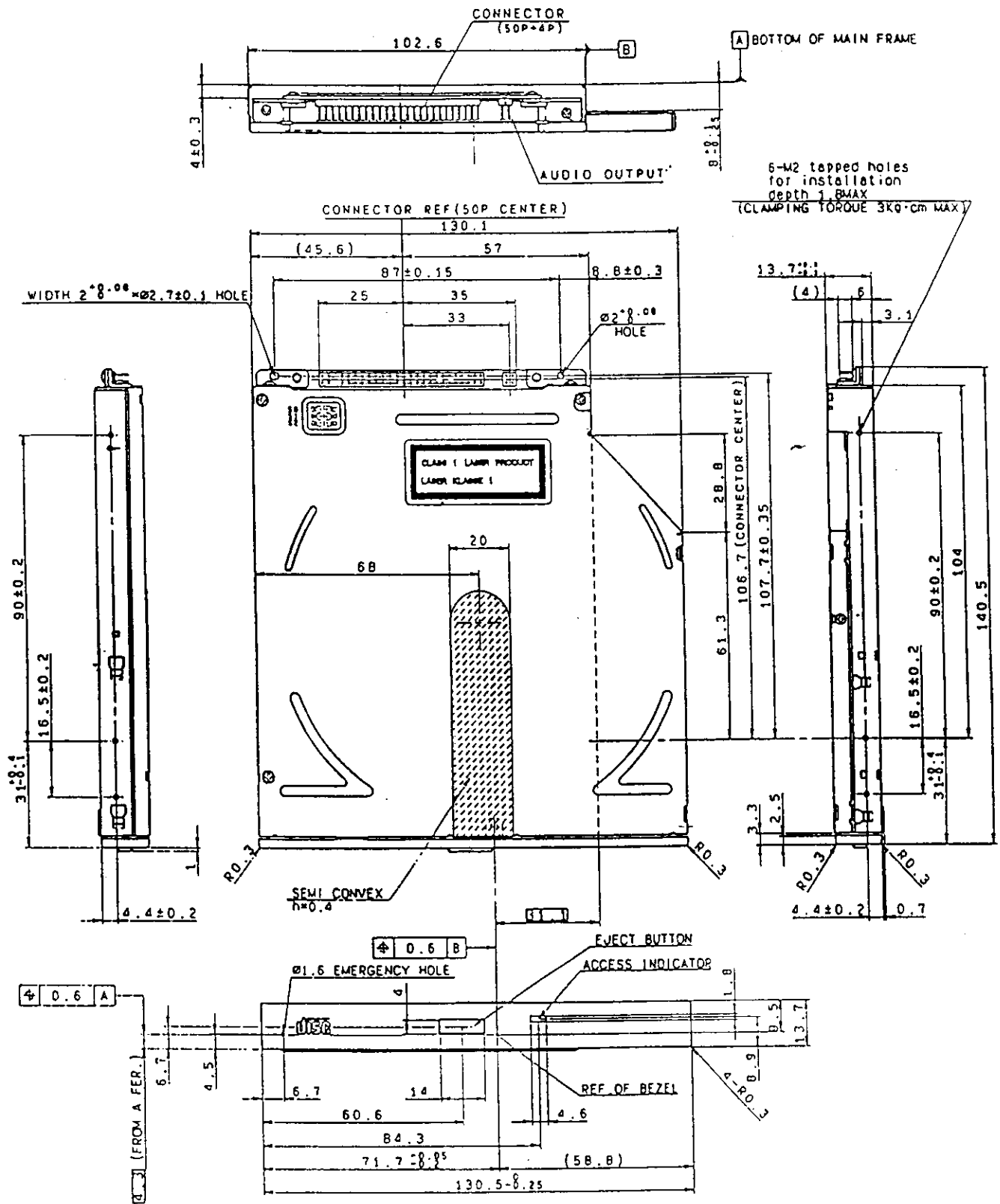
(Table 2.1) Outline of the specification

Model name	CD-36E-900
TEAC P/N	19770159-00
Applicable safety standards	UL, CSA, TÜV
Data transfer rate	13.3MBytes/sec. max.
Average access time	230msec. average
Disk speed	x6 (sextruple)/x1 (normal) (automatically switchable)
Host interface	IDE (ATAPI)
Power source	+5VDC
Starting time	8sec. typical
Applicable discs	CD-DA CD-ROM Mode 1, Mode 2 CD-ROM XA Mode 2 (Form 1, Form 2) Photo CD (single/multi-session) Enhanced CD
Front bezel	Light gray
Eject button	Light gray
Access Indicator	Amber
Factory-preset strap settings: Drive setting Test mode	Fixed to master (CSEL signal not used) OFF

CONSTRUCTION

External Construction

- (1) Dimensions
 - (a) Height : 13.7mm
 - (b) Width : 130.5mm
 - (c) Depth : 140.5mm (excluding the eject button)
- (2) Weight : 250g or less
- (3) Disc clamp system : Ball clamp
- (4) Loading : Manual loading using the tray
- (5) Ejection
 - (a) Manual eject using the eject button
 - (b) Automatically eject using the command



(NOTE) THIS SIDE VIEW IS FOR BEZEL ONLY

External view of the drive

(±0.4)

ENVIRONMENTAL CONDITIONS

The environmental conditions as specified here do not include the environmental conditions of the disk. The environmental conditions of the disk should follow the specifications of the applicable disk.

- (1) Ambient temperature
 - (a) During operation : 5 – 45°C
 - (b) During non-operation : -20 – 60°C
 - (c) During transportation (packaged) : -20 – 60°C
- (2) Temperature gradient
 - (a) During operation : 11°C/hour or less (noncondensing)
 - (b) During non-operation/transportation : 20°C/hour or less (noncondensing)
- (3) Relative humidity
 - (a) During operation : 8 – 80% (noncondensing)
provided that the maximum wet-bulb temperature is 29.4°C or less.
 - (b) During non-operation/transportation : 5 – 90% (noncondensing)
provided that the maximum wet-bulb temperature is 32°C or less.
 - (c) During transportation (packaged) : 5 – 95% (noncondensing)
provided that the maximum wet-bulb temperature is 32°C or less.
- (4) Vibrations
 - (a) During operation:
 - When installed horizontally : 0.2G or less
 - When installed vertically : 0.1G or lessprovided that the sweep frequency is 5 – 300Hz and sweep rate, 1oct/min.
 - (b) Transportation (packaged) : 2G or less provided that the sweep frequency is 5 – 300Hz and sweep rate, 1oct/min.
- (5) Shock
 - (a) During operation (free from malfunction) : 5G or less (half-sine shock pulse; 11msec, intervals; 5sec)
excluding while the CD-DA is playing.
 - (b) During non-operation/transportation : 60G or less (half-sine shock pulse; 11msec)
- (6) Dust : office environment
- (7) Cooling : natural air cooling

RELIABILITY

- (1) Mean time between failures (MTBF) : 60,000POH or more (the frequency of use should be 10% at normal temperature and humidity)
- (2) Mean time to repair (MTTR) : 30minutes
- (3) Loading/ejecting life : 10,000times or more
- (4) Power ON/OFF life : 60,000times or more
- (5) Error rate
 - (a) Read error rate : MODE 1 and MODE 2 (FORM 1): once per 10^{12} bits or less
MODE 2 (FORM 2) and CDDA : once per 10^9 bits or less
 - (b) Seek error rate : once per 10^6 seeks or less
- (6) Self-diagnosis
 - (a) When power is switched ON : Various controllers, ROM, RAM, buffer, ECC circuit, etc.
 - (b) When disc is inserted : Servo circuit, signal processors, etc.

SAFETY STANDARDS

The drive complies with the following safety standards:

- (1) UL standard
- (2) CSA standard
- (3) TÜV standard

FRONT INDICATOR

- (1) Location : Refer to Fig. 3.1-1.
- (2) Size : 4.6mm × 1.8mm
- (3) Color : Amber
Peak wavelength = 585nm
- (4) Lighting conditions
 - (a) Continuous on
 - During seek
 - Transfer of the read data to the host is under way.
 - (b) Flashing at intervals of 1.6 second
 - While audio is being played
 - (c) Flashing at intervals of 0.8 second
 - From POR or tray loading to the end of TOC read (when the disk is present)
 - From POR or tray loading to the end of detecting the disk (when the disk is not present). If an error which is considered to arise from the disk occurs, flashing continues until the disk is ejected. If an error which seems to rest with the drive's hardware, flashing continues until the power is switched OFF.

STRAPS

For the strap positions and configuration, refer to Fig. 9.1.
Carry out the change of strap positions after ejecting tray.

Test Mode (S0)

If power is switched ON with S0 shorted, the CD-ROM drive enters the test mode.
The operation of the CD-ROM drive in the test mode is not guaranteed; therefore, shorting of S0 is inhibited.

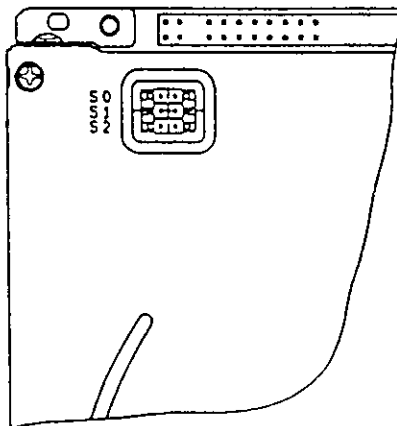
Drive Configuration (S1, S2)

Any of master, slave or single is determined by S1 and S2.
For details, refer to Table 9.2-1.

(Table 9.2-1) Relation between strap settings and drive configuration

Drive setting	S1	S2
By the CSEL signal	O	S
Fixed to master	S	O
Fixed to slave	O	O
Fixed to single	S	S

Remarks: S : Strap shorted
O : Strap open



TOP VIEW

Strap positions

INTERFACE CONNECTOR

(1) Connector on the CD-ROM drive : J1 LEASONIC 2T-75501-0X0-D-3 or equivalent

J4 LEASONIC 2T-75041-0X0-D or equivalent

(2) Applicable connector on the host : J1 BERG 89399-003 or equivalent

J4 BERG 69307-004 (connector) or equivalent

BERG 77138-001 (pin) or equivalent

Using the connector to which polarizing key is mounted to prevent insertion errors.

(3) Pin assignment

: Refer to Table 10.1-1, 10.1-2, Fig. 10.1-1.

(Table 10.1-1) Interface connector pin assignment (J1)

No.	SIGNAL	No.	SIGNAL
A	(RESERVED)	B	(RESERVED)
C	(RESERVED)	D	(RESERVED)
E	(KEY)	F	(KEY)
1	- RESET	2	GND
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND	20	(KEY)
21	DMARQ	22	GND
23	- DIOW	24	GND
25	- DIOR	26	GND
27	IORDY	28	CSEL
29	- DMACK	30	GND
31	INTRQ	32	- IOCS16
33	DA1	34	- PDIAG
35	DA0	36	DA2
37	- CS0	38	- CS1
39	- DASP	40	GND
41	+5V	42	+5V
43	GND	44	(RESERVED)

(Table 10.1-2) Interface connector pin assignment (J4)

No.	SIGNAL
1	L OUT
2	L RTN
3	R RTN
4	R OUT

SCOPE

This is hardware specification of the TEAC CD-38E-900 built-in type CD-ROM drive (hereinafter referred to as CD-ROM drive or simply drive). As for the software specification, refer to "CD-38E-900 Software Specification".

OUTLINE

The outline of this CD-ROM drive is given in Table 2.1.

(Table 2.1) Outline of the specification

Model name	CD-38E-900
TEAC P/N	19770169-00
Applicable safety standards	UL, CSA, TÜV
Data transfer rate	16.7MBytes/sec. max.
Average access time	200msec. average
Disk speed	8X /1X (automatically switchable)
Host interface	IDE (ATAPI)
Power source	+5VDC
Starting time	8sec. typical
Applicable discs	CD-DA CD-ROM Mode 1, Mode 2 CD-ROM XA Mode 2 (Form 1, Form 2) Photo CD (single/multi-session) Enhanced CD
Front bezel	Light gray
Eject button	Light gray
Access indicator	Amber
Factory-preset strap settings: Drive setting Test mode	Fixed to master (CSEL signal not used) OFF

CONSTRUCTION

External Construction

(1) Dimensions

(a) Height : 13.7mm (excluding the tray insertion part)

(b) Width : 130.5mm

(c) Depth : 140.5mm (excluding the eject button)

(2) Weight : 250g or less

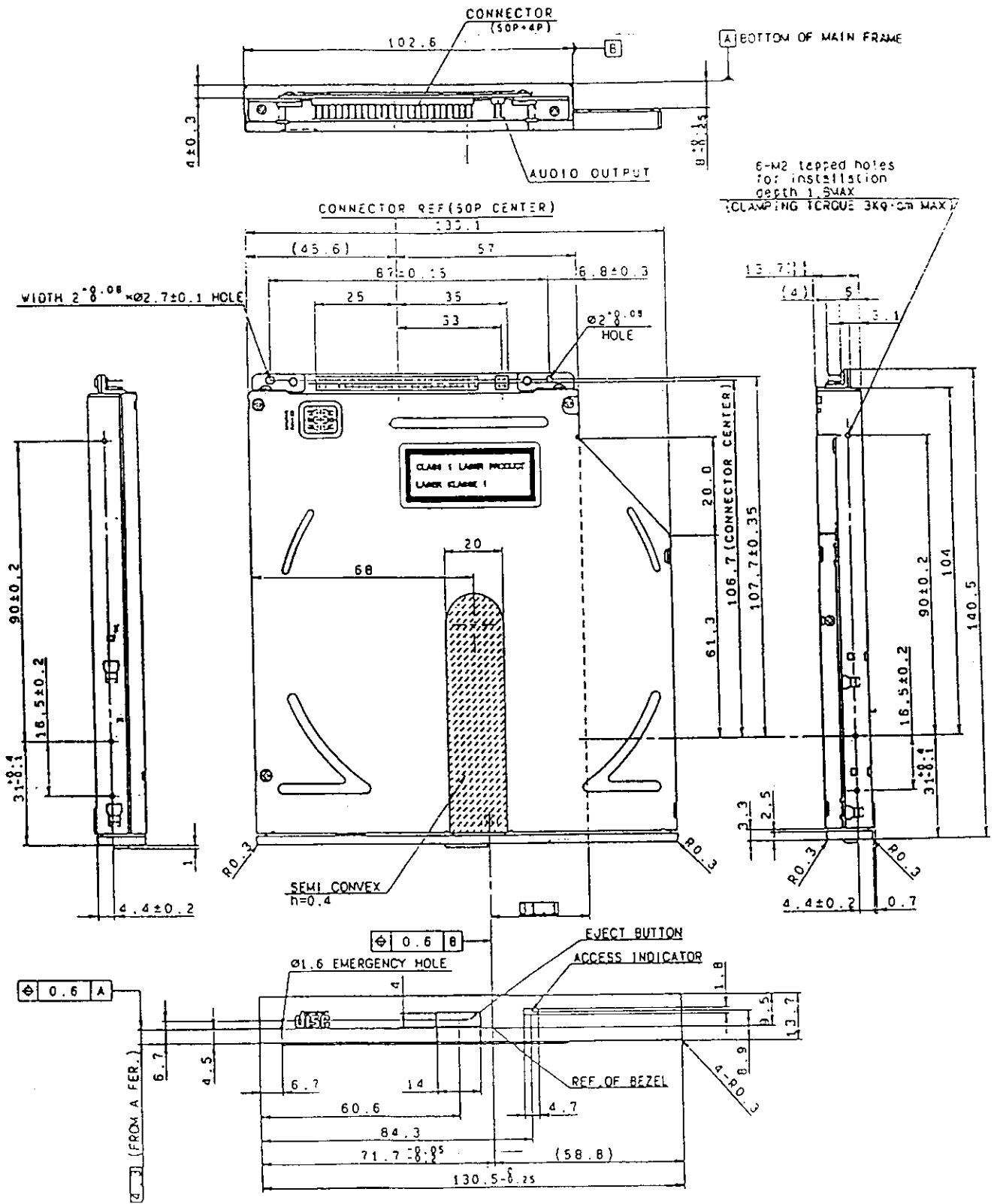
(3) Disc clamp system : Ball clamp

(4) Loading : Manual loading using the tray

(5) Ejection

(a) Manual eject using the eject button

(b) Automatically eject using the command



(NOTE) THIS SIDE VIEW IS FOR BEZEL ONLY

External view of the drive

(±0.4)

ENVIRONMENTAL CONDITIONS

The environmental conditions as specified here do not include the environmental conditions of the disk. The environmental conditions of the disk should follow the specifications of the applicable disk.

(1) Ambient temperature

- (a) During operation : 5 ~ 51.7°C
- (b) During non-operation : -20 ~ 60°C
- (c) During transportation (packaged)
: -20 ~ 60°C

(2) Temperature gradient

- (a) During operation : 11°C/hour or less (noncondensing)
- (b) During non-operation/transportation
: 20°C/hour or less (noncondensing)

(3) Relative humidity

- (a) During operation : 8 ~ 80% (noncondensing)
provided that the maximum wet-bulb temperature is 29.4°C or less.
- (b) During non-operation/transportation
: 5 ~ 90% (noncondensing)
provided that the maximum wet-bulb temperature is 32°C or less.
- (c) During transportation (packaged)
: 5 ~ 95% (noncondensing)
provided that the maximum wet-bulb temperature is 32°C or less.

(4) Vibrations

(a) During operation:

- When installed horizontally : 0.2G or less
- When installed vertically : 0.1G or less
provided that the sweep frequency is 5 ~ 300Hz and sweep rate,
1oct/min.

- (b) Transportation (packaged) : 2G or less provided that the sweep frequency is 5 ~ 300Hz and sweep rate, 1oct/min.

(5) Shock

(a) During operation (free from malfunction)

- : 5G or less (half-sine shock pulse; 11msec, intervals; 5sec)
excluding while the CD-DA is playing.

(b) During non-operation/transportation

- : 60G or less (half-sine shock pulse; 11msec)

- (6) Dust : office environment

- (7) Cooling : natural air cooling

RELIABILITY

- (1) Mean time between failures (MTBF) : 60,000POH or more (the frequency of use should be 10% at normal temperature and humidity)
- (2) Mean time to repair (MTTR) : 30minutes
- (3) Loading/ejecting life : 10,000times or more
- (4) Power ON/OFF life : 60,000times or more
- (5) Error rate
 - (a) Read error rate : MODE 1 and MODE 2 (FORM 1): once per 10^{12} bits or less
MODE 2 (FORM 2) and CDDA : once per 10^9 bits or less
 - (b) Seek error rate : once per 10^6 seeks or less
- (6) Self-diagnosis
 - (a) When power is switched ON : Various controllers, ROM, RAM, buffer, ECC circuit, etc.
 - (b) When disc is inserted : Servo circuit, signal processors, etc.

SAFETY STANDARDS

The drive complies with the following safety standards:

- (1) UL standard
- (2) CSA standard
- (3) TÜV standard

8. FRONT INDICATOR

- (1) Location : Refer to Fig. 3.1-1.
- (2) Size : 4.7mm × 1.8mm
- (3) Color : Amber
Peak wavelength = 585nm
- (4) Lighting conditions
 - (a) Continuous on
 - During seek
 - Transfer of the read data to the host is under way.
 - (b) Flashing at intervals of 1.6 second
 - While audio is being played
 - (c) Flashing at intervals of 0.8 second
 - From POR or tray loading to the end of TOC read (when the disk is present)
 - From POR or tray loading to the end of detecting the disk (when the disk is not present). If an error which is considered to arise from the disk occurs, flashing continues until the disk is ejected. If an error which seems to rest with the drive's hardware, flashing continues until the power is switched OFF.

STRAPS

For the strap positions and configuration, refer to Fig. 9.1.

Carry out the change of strap positions after ejecting tray.

Test Mode (S0)

If power is switched ON with S0 shorted, the CD-ROM drive enters the test mode.

The operation of the CD-ROM drive in the test mode is not guaranteed; therefore, shorting of S0 is inhibited.

Drive configuration (S1, S2)

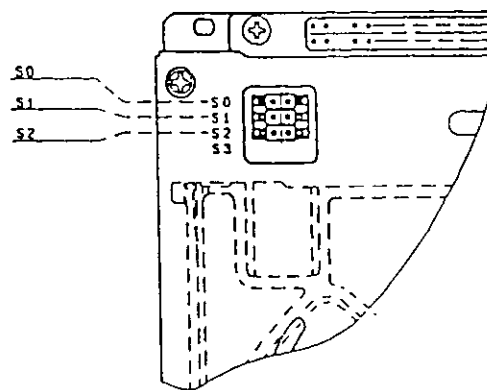
Any of master, slave or single is determined by S1 and S2.

For details, refer to Table 9.2-1.

(Table 9.2-1) Relation between strap settings and drive configuration

Drive setting	S1	S2
By the CSEL signal	O	S
Fixed to master	S	O
Fixed to slave	O	O
Fixed to single	S	S

Remarks: S : Strap shorted
O : Strap open



TOP VIEW

Strap positions

10. INTERFACE CONNECTOR

- (1) Connector on the CD-ROM drive : J1 IRISO IMSA-9272B-2-47Z02-GF or equivalent
 J4 IRISO IMSA-9272B-2-04Z03-GF or equivalent
- (2) Applicable connector on the host : J1 BERG 89399-003 or equivalent
 J4 BERG 69307-004 (connector) or equivalent
 BERG 77138-001 (pin) or equivalent
 Using the connector to which polarizing key is mounted to prevent insertion errors.
- (3) Pin assignment : Refer to Table 10.1-1, 10.1-2, Fig. 10.1-1.

(Table 10.1-1) Interface connector pin assignment (J1)

No.	SIGNAL	No.	SIGNAL
A	(RESERVED)	B	(RESERVED)
C	(RESERVED)	D	(RESERVED)
E	(KEY)	F	(KEY)
1	- RESET	2	GND
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND	20	(KEY)
21	DMARQ	22	GND
23	- DIOW	24	GND
25	- DIOR	26	GND
27	IORDY	28	CSEL
29	- DMACK	30	GND
31	INTRQ	32	- IOCS16
33	DA1	34	- PDIAG
35	DA0	36	DA2
37	- CS0	38	- CS1
39	- DASP	40	GND
41	+5V	42	+5V
43	GND	44	(RESERVED)

(Table 10.1-2) Interface connector pin assignment (J4)

No.	SIGNAL
1	L OUT
2	L RTN
3	R RTN
4	R OUT

SCOPE

This is hardware specifications of the TEAC CD-316E-900 built-in type CD-ROM drive (hereinafter referred to as CD-ROM drive or simply drive). As for the software specifications, refer to "CD-316E-900 Software Specification".

OUTLINE

The outline of this CD-ROM drive is given in Table 2.1.

(Table 2.1) Outline of the specification

Model name	CD-316E-900
TEAC P/N	19770239-00
Applicable safety standards	UL, CSA, TÜV
Data transfer rate	16.7MBytes/sec. max.
Average access time	200msec. average
Disk speed	4,000rpm typical (automatically switchable)
Host interface	IDE (ATAPI)
Power source	+5VDC
Starting time	8sec. typical
Applicable discs	CD-DA CD-ROM Mode 1, Mode 2 CD-ROM XA Mode 2 (Form 1, Form 2) Photo CD (single/multi-session) Enhanced CD
Front bezel	Light gray
Eject button	Light gray
Access indicator	Amber
Factory-preset strap settings: Drive setting Test mode	Fixed to master (CSEL signal not used) OFF

CONSTRUCTION

External Construction

(1) Dimensions

- (a) Height : 13.7mm (excluding the tray insertion part)
- (b) Width : 130.5mm
- (c) Depth : 140.5mm (excluding the eject button)

(2) Weight : 250g or less

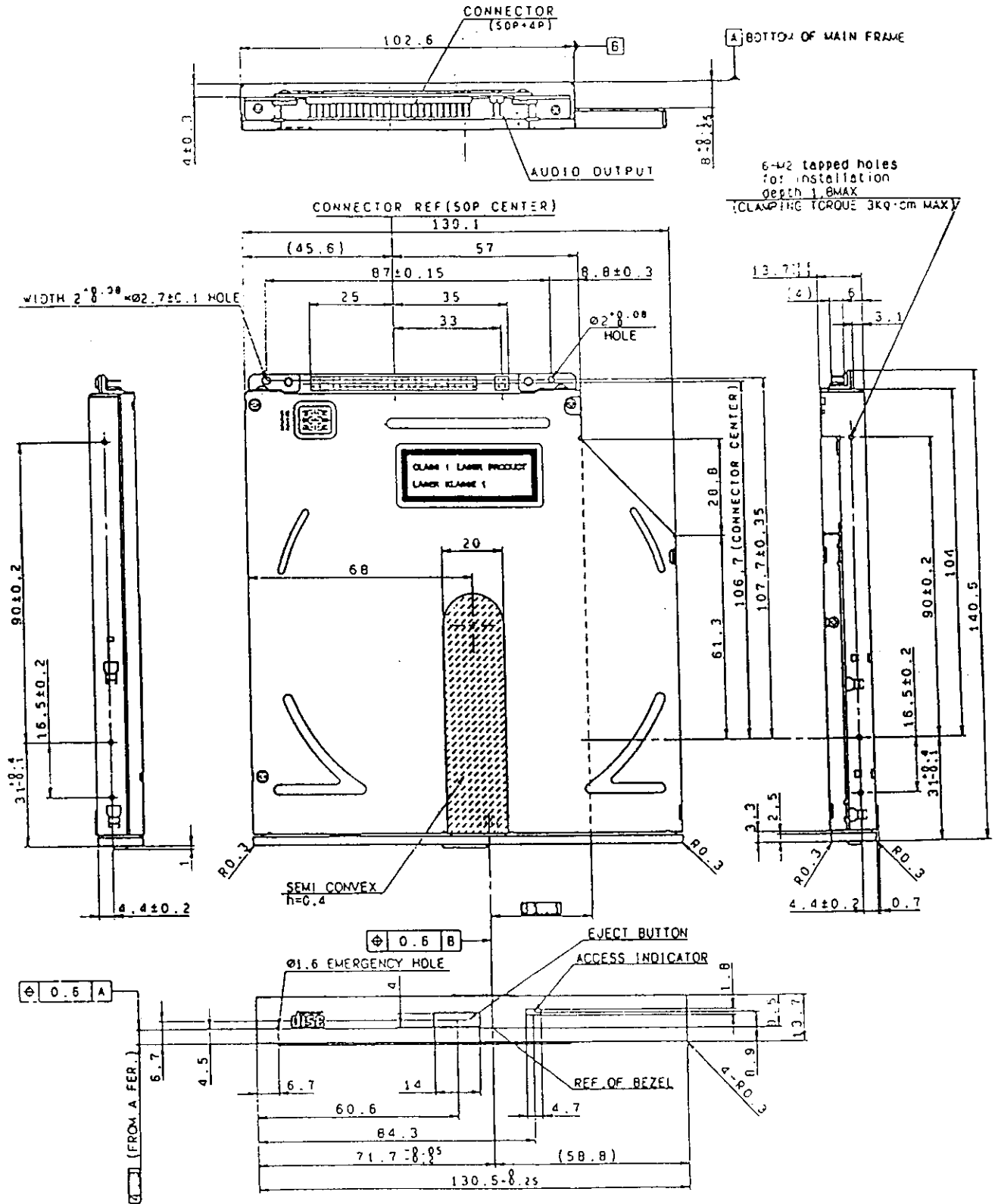
(3) Disc clamp system : Ball clamp

(4) Loading : Manual loading using the tray

(5) Ejection

- (a) Manual eject using the eject button
- (b) Automatically eject using the command

(6) External view : Refer to Fig. 3.1-1.



(NOTE) THIS SIDE VIEW IS FOR BEZEL ONLY

External view of the drive

(±0.4)

ENVIRONMENTAL CONDITIONS

The environmental conditions as specified here do not include the environmental conditions of the disk.
The environmental conditions of the disk should follow the specifications of the applicable disk.

(1) Ambient temperature

- (a) During operation : 5 – 51.7°C
- (b) During non-operation : -20 – 60°C
- (c) During transportation (packaged)
: -20 – 60°C

(2) Temperature gradient

- (a) During operation : 11°C/hour or less (noncondensing)
- (b) During non-operation/transportation
: 20°C/hour or less (noncondensing)

(3) Relative humidity

- (a) During operation : 8 – 80% (noncondensing)
provided that the maximum wet-bulb temperature is 29.4°C or less.
- (b) During non-operation/transportation
: 5 – 90% (noncondensing)
provided that the maximum wet-bulb temperature is 32°C or less.
- (c) During transportation (packaged)
: 5 – 95% (noncondensing)
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(4) Vibrations

(a) During operation:

When installed horizontally : 0.2G or less

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provided that the sweep frequency is 5 – 300Hz and sweep rate,
1oct/min.

- (b) Transportation (packaged) : 2G or less provided that the sweep frequency is 5 – 300Hz and
sweep rate, 1oct/min.

(5) Shock

(a) During operation (free from malfunction)

: 5G or less (half-sine shock pulse; 11msec, intervals; 5sec)
excluding while the CD-DA is playing.

(b) During non-operation/transportation

: 60G or less (half-sine shock pulse; 11msec)

(6) Dust

: office environment

(7) Cooling

: natural air cooling

RELIABILITY

- (1) Mean time between failures (MTBF) : 60,000POH or more (the frequency of use should be 10% at normal temperature and humidity)
- (2) Mean time to repair (MTTR) : 30minutes :
- (3) Loading/ejecting life : 10,000times or more
- (4) Power ON/OFF life : 60,000times or more
- (5) Error rate
 - (a) Read error rate : MODE 1 and MODE 2 (FORM 1): once per 10^{12} bits or less
MODE 2 (FORM 2) and CDDA : once per 10^9 bits or less
 - (b) Seek error rate : once per 10^6 seeks or less
- (6) Self-diagnosis
 - (a) When power is switched ON : Various controllers, ROM, RAM, buffer, ECC circuit, etc.
 - (b) When disc is inserted : Servo circuit, signal processors, etc.

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The drive complies with the following safety standards:

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- (3) TÜV standard

FRONT INDICATOR

- (1) Location : Refer to Fig. 3.1-1.
- (2) Size : 4.7mm × 1.8mm
- (3) Color : Amber
Peak wavelength = 585nm
- (4) Lighting conditions
 - (a) Continuous on
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STRAPS

For the strap positions and configuration, refer to Fig. 9.1.
Carry out the change of strap positions after ejecting tray.

Test Mode (S0)

If power is switched ON with S0 shorted, the CD-ROM drive enters the test mode.
The operation of the CD-ROM drive in the test mode is not guaranteed; therefore, shorting of S0 is inhibited.

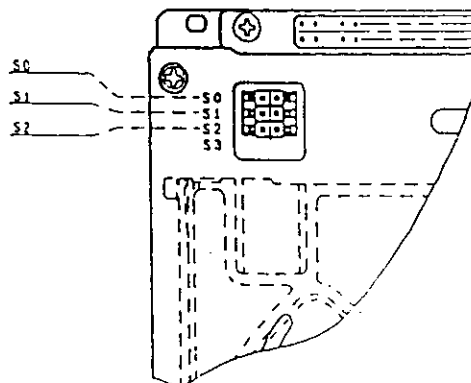
Drive configuration (S1, S2)

Any of master, slave or single is determined by S1 and S2.
For details, refer to Table 9.2-1.

(Table 9.2-1) Relation between strap settings and drive configuration

Drive setting	S1	S2
By the CSEL signal	O	S
Fixed to master	S	O
Fixed to slave	O	O
Fixed to single	S	S

Remarks: S : Strap shorted
O : Strap open



TOP VIEW

Strap positions

10. INTERFACE CONNECTOR

- (1) Connector on the CD-ROM drive : J1 IRISO IMSA-9272B-2-47Z02-GF or equivalent
 J4 IRISO IMSA-9272B-2-04Z03-GF or equivalent
- (2) Applicable connector on the host : J1 BERG 89399-003 or equivalent
 J4 BERG 69307-004 (connector) or equivalent
 BERG 77138-001 (pin) or equivalent
 Using the connector to which polarizing key is mounted to prevent insertion errors.
- (3) Pin assignment : Refer to Table 10.1-1, 10.1-2, Fig. 10.1-1.

(Table 10.1-1) Interface connector pin assignment (J1)

No.	SIGNAL	No.	SIGNAL
A	(RESERVED)	B	(RESERVED)
C	(RESERVED)	D	(RESERVED)
E	(KEY)	F	(KEY)
1	- RESET	2	GND
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND	20	(KEY)
21	DMARQ	22	GND
23	- DIOW	24	GND
25	- DIOR	26	GND
27	IORDY	28	CSEL
29	- DMACK	30	GND
31	INTRQ	32	- IOCS16
33	DA1	34	- PDIAG
35	DA0	36	DA2
37	- CS0	38	- CS1
39	- DASP	40	GND
41	+5V	42	+5V
43	GND	44	(RESERVED)

(Table 10.1-2) Interface connector pin assignment (J4)

No.	SIGNAL
1	L OUT
2	L RTN
3	R RTN
4	R OUT