

MODEL DV-518GSC-xxx

DVD-ROM DRIVE

HARDWARE SPECIFICATION

Rev. A

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1. SCOPE

This is hardware specification of the TEAC DV-518GSC-xxx DVD-ROM DRIVE (hereinafter referred to as drive).

2. OUTLINE

The outline of this DVD-ROM DRIVE is given in [Table 2-1](#).

(Table 2-1) Outline of the specification

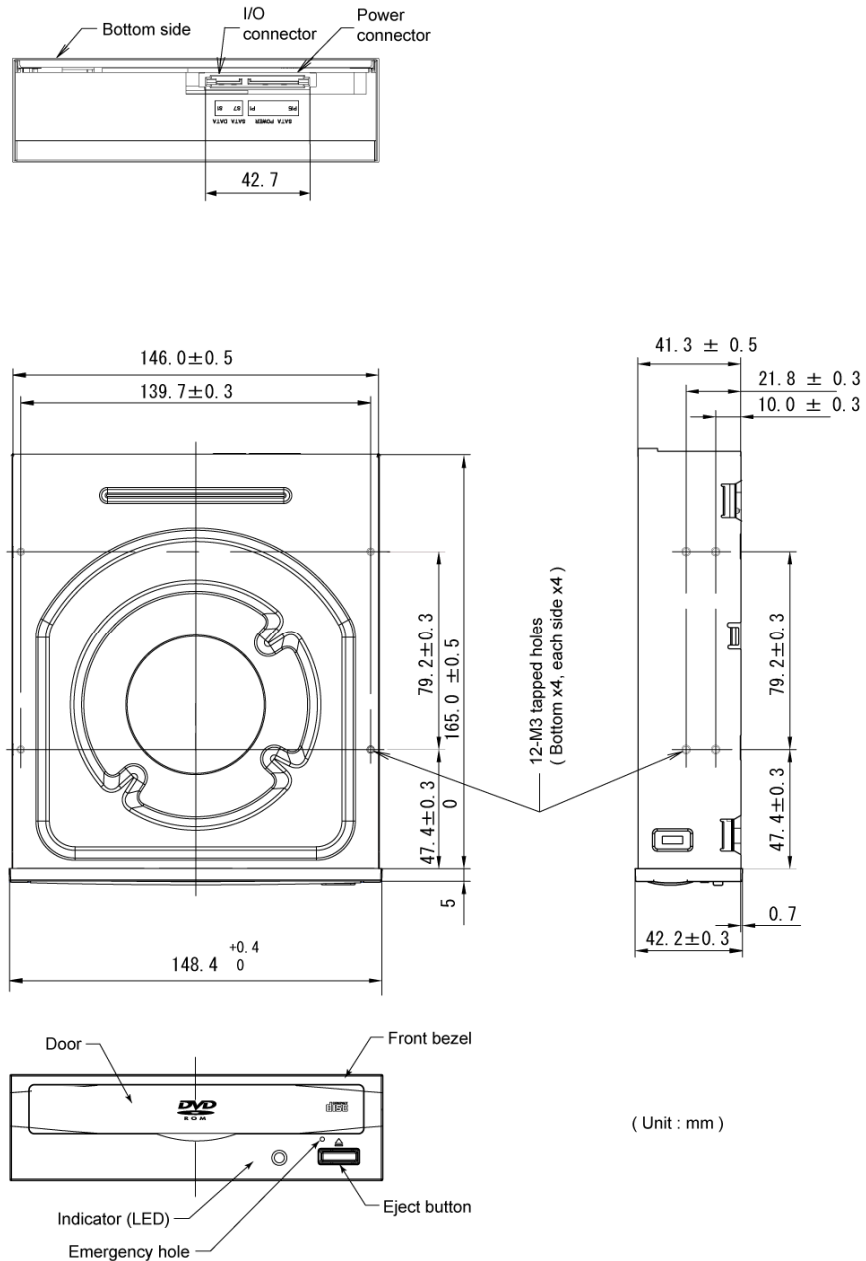
Model name	DV-518GSC-xxx									
TEAC Part Number	1977291x-xx									
Applicable Safety standards	UL	CSA	TÜV	NEMKO	CB	FDA				
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Applicable EMC standards	FCC	CE	RCM	BSMI	KCC					
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Supported Data transfer rate at the maximum	PIO 4	DMA 2	UDMA 2	UDMA 3	UDMA 4	UDMA 5	S-ATA	S-ATA II		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Maximum Access time at random access	Stamped CD-ROM [ms]					Stamped DVD-ROM [ms]				
	140					160				
Disc speed	Stamped CD-ROM [rpm]					Stamped DVD-ROM [rpm]				
	Approx. 9660					Approx. 10450				
Signal interface	Serial ATA									
Power source	+5 [V] DC system					+12 [V] DC system				
	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
Power consumption	26 [W] Max.									
Disc loading method	Disc tray									
Start time	18 [sec] or less									
Applicable disc format	Refer to Table 4.1-1									
Write Methods	Refer to Table 4.4-1									
Buffer under run prevention function	Provided									
Readable disc	CD	DA	ROM	R	RW					
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
	DVD	ROM	+R	+R DL	+RW	-R	-R DL	-RW	RAM	
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Recordable disc	CD	R	RW							
		<input type="checkbox"/>	<input type="checkbox"/>							
	DVD	+R	+R DL	+RW	-R	-R DL	-RW	RAM		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Front bezel and door	Refer to Table 3.2-1									
Eject button										
Tray										
Front indicator color	Green (Refer to Table 8.1.2-1)									
Audio lineout	Audio Line Output [Vrms]					Impedance [kΩ]				
	Not provided					NA				
Default strap setting	NA									
Laser class	Class 1 laser product									
RoHS directive	Complies with									

3. CONSTRUCTION

3.1 External Construction

(Table 3.1-1) External Construction

Dimension [mm]			
L	W	H	Figure
170+/-0.5	148.4+0.4/-0	42.2+/-0.3	Fig.3.1-1
Net Weight [kg]			
Typical 0.570			



(Fig. 3.1-1) External view of the drive

3.2 Front Bezel

- (1) The color of the front bezel, the door, the tray and eject button are shown in [Table 3.2-1](#).

(Table 3.2-1) Color and Logo marks

Version DV-518GSC-xxx	Color				TEAC Logo
	Bezel	Door	Eject button	Tray	
-002	PS2	PS2	PS2	PS2	No
-100	Black	Black	Black	Black	No

- (2) The logo mark indication is shown in [Fig.3.2-1](#).



(Fig. 3.2-1) Front bezel without the logo marks indicated

3.3 Installation

The drive operation specification shall be satisfied with the installation method described below.

(1) Installation direction

The drive operation specification shall be satisfied using the following two drive positions.

- (a) Position where the disc is placed horizontally.

Note: The front indicator shall be in the left side. The tilt shall be 10° or less in all directions.

- (b) Position where a disc is vertical. The tilt shall be 10° or less in all directions.

(2) Mounting method

The mounting holes at the drive side and bottom shall be used for mounting (Refer to [Fig.3.1-1](#)).

- | | |
|---------------------------|---------------------------------|
| (a) Screw hole | : Left side 4-M3 |
| | : Right side 4-M3 |
| | : Bottom side 4-M3 |
| (b) Tightening torque | : 3 to 4 [kg-cm] |
| (c) Screw insertion depth | : 7 [mm] or less (side mount) |
| | : 4 [mm] or less (bottom mount) |

4. DISC SPECIFICATION

4.1 Applicable Disc Formats

The read and write of the following disc formats apply to the drive.

(Table 4.1-1) Applicable disc formats

	Disc format	Read capability	Write capability
CD	CD-DA	Supported	NA
	CD-ROM Mode1	Supported	NA
	CD-ROM XA Mode2 (Form1,Form2)	Supported	NA
	CD-I	Supported	NA
	Mixed mode CD-ROM	Supported	NA
	PHOTO CD	Supported	NA
	CD-Extra	Supported	NA
	Video CD	Supported	NA
	CD-Text	Supported	NA
DVD	DVD-Video	Supported	NA
	DVD-Audio	Supported	NA
	DVD-R	Supported	NA
	DVD-R DL	Supported	NA
	DVD-RW	Supported	NA
	DVD+R	Supported	NA
	DVD+R DL	Supported	NA
	DVD+RW	Supported	NA
	DVD-RAM	Supported	NA

4.2 Rotational Speed

The rotational speed in each mode shall be in accordance with [Table 4.2-1](#) and [Table 4.2-2](#). As for the rotational speed at the write mode, the speed described in [Table 4.2-3](#) and [Table 4.2-4](#) shall be settable.

(Table 4.2-1) Rotational speed (Read mode)

	Media	Normal read speed	Method
CD	CD-ROM	20x - 48x	Full CAV
	CD-DAE	20x - 48x	Full CAV
	Video CD	20x - 48x	Full CAV
	Finalized CD-R Data	20x - 48x	Full CAV
	Finalized CD-RW	16x - 40x	Full CAV
	Un-Finalized CD-R	8x	Full CAV
	Un-Finalized CD-RW	8x	Full CAV
DVD	DVD-ROM	6x - 18x	Full CAV
	DVD-ROM DL	5x - 8x	Full CAV
	DVD-R	6x - 16x	Full CAV
	DVD-R DL	2.5x - 8x	Full CAV
	DVD-RW	5x - 12x	Full CAV
	DVD+R	6x - 16x	Full CAV
	DVD+R DL	2.5x - 8x	Full CAV
	DVD+RW	5x - 12x	Full CAV
DVD-RAM	2x - 5x	Full CAV	

(Table 4.2-2) Rotational speed (Playback mode)

	Media	Normal playback speed	Method
CD	CD-DA	6.5x - 16x	Full CAV
	Video CD	6.5x - 16x	Full CAV
DVD	DVD-ROM	2.5x - 6x	Full CAV
	DVD-ROM DL	2.5x - 6x	Full CAV
	DVD-R	2.5x - 6x	Full CAV
	DVD-RW	2.5x - 6x	Full CAV
	DVD+R	2.5x - 6x	Full CAV
	DVD+RW	2.5x - 6x	Full CAV
	DVD-RAM	2x - 5x	Full CAV

(Table 4.2-3) Rotational speed for CD (Write mode)

Media	Selection speed	Write speed	Method
CD-R	NA	NA	NA
Multi speed CD-RW	NA	NA	NA
High speed CD-RW	NA	NA	NA
Ultra speed CD-RW	NA	NA	NA
Ultra speed plus CD-RW	NA	NA	NA

(Table 4.2-4) Rotational speed for DVD (Write mode)

Media	Selection speed	Write speed	Method
DVD-R	NA	NA	NA
DVD-R DL	NA	NA	NA
DVD-RW	NA	NA	NA
DVD+R	NA	NA	NA
DVD+R DL	NA	NA	NA
DVD+RW	NA	NA	NA
DVD-RAM	NA	NA	NA

4.3 Data Capacity

Data capacity shall be in accordance with [Table 4.3-1](#) for each disc format.

(Table 4.3-1) Data capacity

Disc formats		Applicable capacity
CD	CD-ROM Mode 1	650 [MB]
		700 [MB]
	CD-ROM XA Mode 2 Form 1	650 [MB]
		700 [MB]
	CD-ROM XA Mode 2 Form 2	738 [MB]
		795 [MB]
CD-DA	74 [min]	
	79 [min]	
DVD	DVD-ROM, DVD-Video, DVD+/-R, DVD+/-RW	4.7 [GB]/side
	DVD-ROM, DVD-Video DL	8.5 [GB]/side
	DVD-RAM	4.7 [GB]/side

4.4 Write Methods

(Table 4.4-1) Write methods

	Media	Write methods
CD	CD-R	NA
	CD-RW	NA
DVD	DVD-R	NA
	DVD-R DL	NA
	DVD-RW	NA
	DVD+R	NA
	DVD+R DL	NA
	DVD+RW	NA
	DVD-RAM	NA

5. PERFORMANCE

5.1 Operating Performance

- (1) Access time
The performance specified in [Table 5.1-1](#) applies to the access time of the drive.

(Table 5.1-1) Access time

Mode	Media	Max. [msec]
Random access time	DVD	180
	CD	140
Random seek time	DVD	180
	CD	140
1/3 stroke access time	DVD	160
	CD	140
Full stroke access time	DVD	300
	CD	250

- (2) Rotational speed
The performance specified in [Table 5.1-2](#) applies to the rotational speed of the drive.

(Table 5.1-2) Rotational speed

Item	Rotational speed [rpm]
Stamped CD-ROM	Approx. 9660
Stamped DVD-ROM	Approx. 10450

- (3) Data transfer rate (asynchronous)
The performance specified in [Table 5.1-3](#) applies to the data transfer rate in each mode of the drive.

(Table 5.1-3) Transfer rate

Mode	Max. [MB/s]	Support
S-ATA	150	Supported
S-ATA II	300	Not Supported

- (4) Start/stop time
The performance specified in [Table 5.1-4](#) applies to the start/stop time of the drive.

(Table 5.1-4) Start/stop time

Start/stop time	Media	Max. [sec]	Condition
Start time	DVD-ROM	18	Including Tray in, spin up and read TOC
	12 [cm]	18	
	8 [cm]	18	
	Photo CD	18	
Stop time	DVD-ROM	9	Including Spin down and tray out
	All media	9	

- (5) Data buffer capacity
198 [KB] Max. in all operation modes.

5.2 Mechanism

- (1) Loading mechanism
- (a) TRAY loading method
- Automatic loading with the eject button
 - Automatic loading with the press of the tray
 - Automatic loading with the interface command
- (b) TRAY ejection method
- Automatic ejection with the eject button
 - Automatic ejection with the interface command
- Manual ejection with the emergency hole (used with the emergency power off).
- (2) Disc Loading/ejection Method
- (a) When inserting a disc, place it on the tray from the back side first and the front side is pressed to the tray lightly. Or place the front side of it on the tray first, then pull toward the front to set it.
- (b) When taking out the disc, pull it toward the top direction without applying excessive force.
- (c) An 8cm disc can be used by placing it on the specified center position described in "3.3 Installation" when the drive is in a horizontal position. Then the disc position should not be shifted when ejecting the tray. It cannot be used when the drive is in a vertical position.

6. ENVIRONMENTAL CONDITIONS

The environmental conditions specified in this item apply to the drive excluding the disc.

The environmental conditions for discs shall be in accordance with the applicable specification.

6.1 Ambient Temperature/relative Humidity

The conditions specified in [Table 6.1-1](#) apply to the drive.

(Table 6.1-1) Ambient temperature/ relative humidity conditions

Drive state	Item	Min.	Typ.	Max.	Unit	Condition
During operation	Ambient temperature	5	–	45	°C	Non-condensation, 10 [°C/hour] or less 10 [%RH/hour] or less during operation
	Relative humidity	20	–	80	%RH	
	Wet-bulb temperature	–	–	29	°C	
During non-operation	Ambient temperature	–20	–	60	°C	Non-condensation, 10 [°C/hour] or less 10 [%RH/hour] or less
	Relative humidity	10	–	85	%RH	
	Wet-bulb temperature	–	–	32	°C	
During Transportation (in package)	Ambient temperature	–40	–	65	°C	Non-condensation, 20 [°C/hour] or less 20 [%RH/hour] or less
	Relative humidity	5	–	90	%RH	
	Wet-bulb temperature	–	–	32	°C	

6.2 Vibration

The conditions specified in [Table 6.2-1](#) apply to the drive.

(Table 6.2-1) Vibration condition

Drive condition		Test conditions			Requirement
		Acceleration	Frequency	Directions	
During operation	CD/DVD ROM	4.9 [m/s ²] (0.5G)	10 to 500 [Hz]	X, Y and Z axes	Shall be free from any errors during operation.
	CD-DA				
	CD-R/RW	2.94 [m/s ²] (0.3G)			
	DVD+/-R/RW				
	DVD-RAM				
During non-operation		19.6 [m/s ²] (2G)			Shall be free from damage after test.
During transportation		19.6 [m/s ²] (2G)	10 to 500 [Hz]	X, Y and Z axes	Shall be free from damage after test.

6.3 Shocks

The conditions described in [Table 6.3-1](#) apply to the drive.

(Table 6.3-1) Shock conditions

Drive condition		Test conditions			Requirement
		Acceleration	Pulse wave	Number of pulses	
During operation	CD-ROM	49.0 [m/s ²] (5G)	11 [msec] (half-sine wave)	5 times in the directions of X, Y and Z axes.	Shall be free from any errors during operation.
	CD-DA	19.6 [m/s ²] (2G)			
	CD-R/RW	19.6 [m/s ²] (2G)			
	DVD+/-R/RW				
	DVD-RAM				
During non-operation		490 [m/s ²] (50G)	2 [msec] (half-sine wave)	1 time per each surface	Shall be free from damage after test.
During transportation		Height	60 [cm]		Shall be free from damage after test.
		Direction	1 corner, 3 edges, 6 surfaces		

6.4 Noise

The conditions described in [Table 6.4-1](#) apply to the drive.

(Table 6.4-1) Noise conditions

Specification	Condition		
	Measurement position	Test disc	Operation
55 [dBA] or less	unbalance at 50 [cm] distance	A-BEX SCD-3228, 2.5 [g-mm]	Sequential read by playing

6.5 Transportation Condition

The drive package shall conform to the Appropriate Package Test Level 2 specified in JIS-Z0200 when using the specified packing box.

7. RELIABILITY

7.1 General

(Table 7.1-1) Reliability conditions

Item	Specification	Condition	
MTBF	70000 [POH]	at normal temperature and humidity; duty 25 [%]	
MTTR	Typical 30 [minutes]		
Data read error rate	CD-ROM	Block/10 ¹² [bits]	MODE1 and MODE2 Form1
		Block/10 ⁹ [bits]	MODE2 Form2 and CD-DA
	DVD-ROM	Block/10 ¹⁵ [bits]	
Seek mechanism life	1,000,000 [times]		
Loading/eject life	10,000 [times]		
Designed life	5 [years]		

7.2 Safety Standard

The drive complies with the following safety standards.

(Table 7.2-1) Safety standard

Safety standard	Standard No.	
UL	UL60950	Provided
CSA	CAN/CSA22.2	Provided
	No.60950-1	Provided
TÜV	EN60950	Provided
	EN60825-1	Provided
FDA (DHHS)	21CFR Subchapter J	Provided
Nemko	NA	Not Provided
CB-Scheme	IEC60950-1	Provided
	IEC60825-1	Provided

7.3 EMC

The drive complies with the following standards.

(Table 7.3-1) EMC

EMC standard	Region	Standard No.	
FCC	USA	Part 15 Class B, CISPR22	Provided
		ANSI C63.4 , ICES-003	Provided
BSMI	Taiwan	CNS 13438 Class B	Provided
RCM	Austria	AS/NZS CISPR 22 Class B	Provided
KCC	Korea	KN22, KN24, KN61000	Provided
CE	European	EN55022 Class B	Provided
		EN55024	Provided
		EN61000	Provided
		IEC61000	Provided

8. INDICATOR AND STRAP FUNCTIONS

8.1 Indicator

8.1.1 Location

The indicator is located below the left side of the disc insertion slot on the front bezel.

8.1.2 Indicator function

The following indicator functions apply to each LED of the drive.

(Table 8.1.2-1) Functions of indicator

Operation mode	Indicator
During read/Data transfer	Green LED lights.
During audio play	Green LED blinks.
During seek	Green LED blinks.
At start (Power ON of PC)	Green LED lights.
When the tray is opened	Green LED lights.
When the tray is closed	Green LED lights.

9. FRAME GROUNDING

The drive frame is electrically connected to 0 [V] dc.

10. POWER INTERFACE

10.1 Power Supply Used

The following specification applies to the power interface connector terminals of the drive. The voltage applied to the power terminal shall be defined in [Table 10.1-1](#) and the drive shall operate normally with the voltage.

(Table 10.1-1) Power voltage specification

Item	+5 [V] DC system	+12 [V] DC system
Operating voltage range	+/-5 [%] (4.75 ~ 5.25 [V])	+/-10 [%] (10.8 ~ 13.2 [V])
Allowable ripple	100 [mVp-p] or less	200 [mVp-p] or less

10.2 Current Consumption

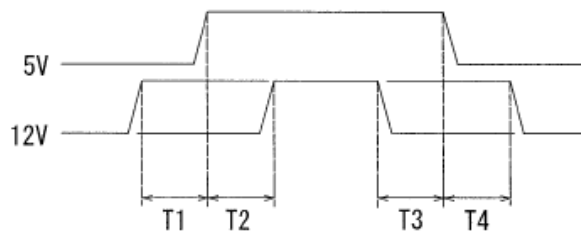
The following current consumption specifications apply to the drive.

(Table 10.2-1) Current consumption

Operation	+5 [V] DC system		+12 [V] DC system		Condition
	Form	Value [A]	Form	Value [A]	
During read	Average	0.60	Average	0.92	Excluding pulses of 10 [ms] or less
During seek	Peak	1.50	Peak	1.30	Excluding pulses of 10 [ms] or less
During spin up	Peak	0.76	Peak	2.30	Excluding pulses of 10 [ms] or less
While idling	Peak	1.60	Peak	0.52	Excluding pulses of 10 [ms] or less
During sleep	Average	0.09	Average	0.03	Excluding pulses of 10 [ms] or less
During loading/ejection	Peak	0.80	Peak	1.50	Excluding pulses of 2 [ms] or less
During write	Average	NA	Average	NA	

10.3 Power Supply Sequence

The drive shall operate normally with the power supply sequence specified in [Fig.10.3-1](#) and [Table 10.3-1](#).



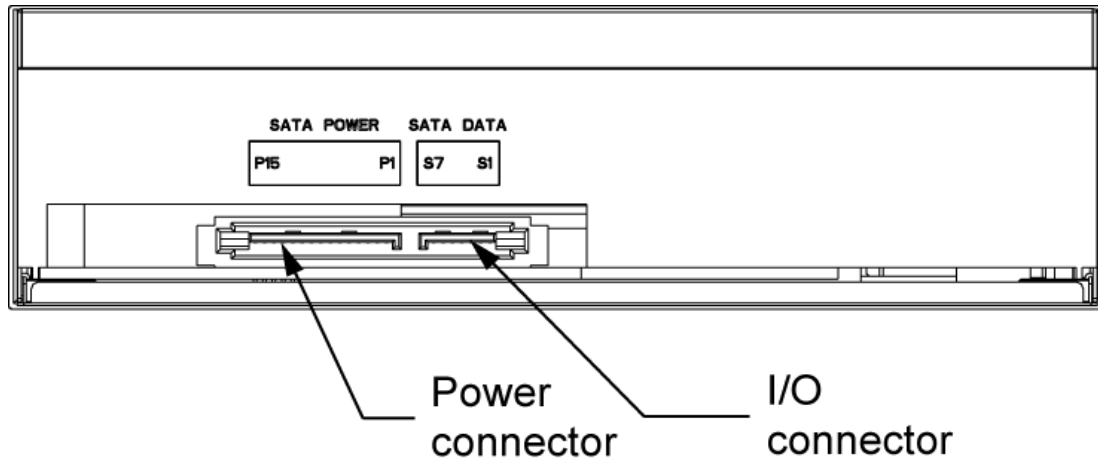
(Fig. 10.3-1) Power supply sequence

(Table 10.3-1) Power supply sequence specifications

Item	Specifications
T1, T2, T3, T4	50 [msec] Max.

10.4 Power Interface Connector

- | | | |
|-----|-------------------------------------|---|
| (a) | Number of [poles] | : 15 [pins] |
| (b) | Protection method for mis-insertion | : by the shape of the connector housing |
| (c) | Connector terminal diagram | : Refer to Fig.10.4-1 |
| (d) | Connector location | : Refer to Fig.10.4-1 |
| (e) | Pin assignment | : Refer to Table 10.4-1 |



(Fig. 10.4-1) External view of the rear

(Table 10.4-1) Power interface connector pin assignment

Name	Type	Description
P1	V ₃₃	3.3 [V] Power
P2	V ₃₃	3.3 [V] Power
P3	V ₃₃	3.3 [V] Power
P4	Gnd	1 st mate
P5	Gnd	2 nd mate
P6	Gnd	2 nd mate
P7	V ₅	5 [V] Power, pre-charge, 2 nd mate
P8	V ₅	5 [V] Power
P9	V ₅	5 [V] Power
P10	Gnd	2 nd mate
P11	Reserved	<ol style="list-style-type: none"> The pin corresponding to P11 in the backplane receptacle connector is also reserved. The corresponding pin to be mated with P11 in the power cable receptacle connector shall always be grounded.
P12	Gnd	1 st mate
P13	V ₁₂	12 [V] power, pre-charge, 2 nd mate
P14	V ₁₂	12 [V] power
P15	V ₁₂	12 [V] power

11. SATA HARDWARE INTERFACE

11.1 Applicable Standard

ANSI : ATA-8 Compliant
 SFFC : SFF-8090i V7 Compliant

11.2 Electrical Characteristics

Refer to Serial ATA Revision 2.6.

11.3 Signal Interface Connector

- (1) Signal interface connector
- (a) Connector pin diagram : Refer to [Fig.10.4-1](#)
 - (b) Connector layout : Refer to [Fig.10.4-1](#)
 - (c) Connector pin-assignment table : Refer to [Table 11.3-1](#)

(Table 11.3-1) Signal interface pin-assignment table

Name	Type	Description
S1	Gnd	2 nd mate
S2	A+	Differential signal pair A from Phy
S3	A-	
S4	Gnd	2 nd mate
S5	B-	Differential signal pair B from Phy
S6	B+	
S7	Gnd	2 nd mate

12. REQUESTS RELATING TO THE FCC RULE PART (15) AND SAFETY LASER PRODUCTS

12.1 FCC Rule Part (15)

When selling this unit directly to an end user, print the following text in the instruction manual or enclose the separate sheet on which the following text is printed with the instruction manual.

Declaration of Conformity	
Model Number	: DV-518GSC-xxx
Trade Name	: TEAC
Responsible party	: TEAC AMERICA, INC.
Address	: 1834 Gage Road, Montebello, California, U.S.A.
Telephone Number	: 1-213-726-0303
<p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</p>	

TO THE USER
<p>This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential areas. This device generates and uses radio frequency energy and if not installed and used in accordance with the instructions, it may cause interference to radio or TV reception. If this unit does cause interference with TV or radio reception you can try to correct the interference by one more of the following measures:</p> <ol style="list-style-type: none"> Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help. <p>CAUTION: Changes or modifications to this equipment not expressly approved TEAC CORPORATION for compliance could void the user's authority to operate this equipment.</p>

13. ROHS COMPLIANCE

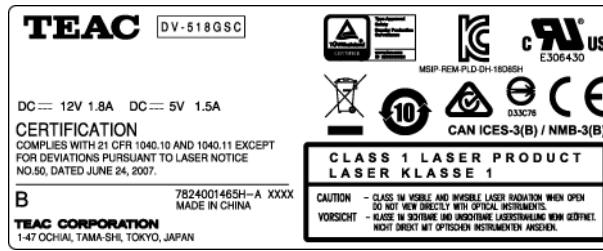
The drive complies with European directive "2011/65/EU".

EU Importer name and address

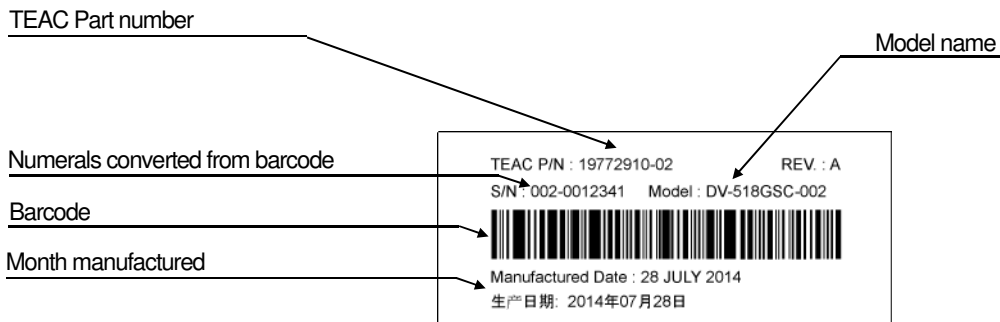
TEAC EUROPE GmbH

Bahnstrasse 12, 65205 Wiesbaden - Erbenheim, Germany

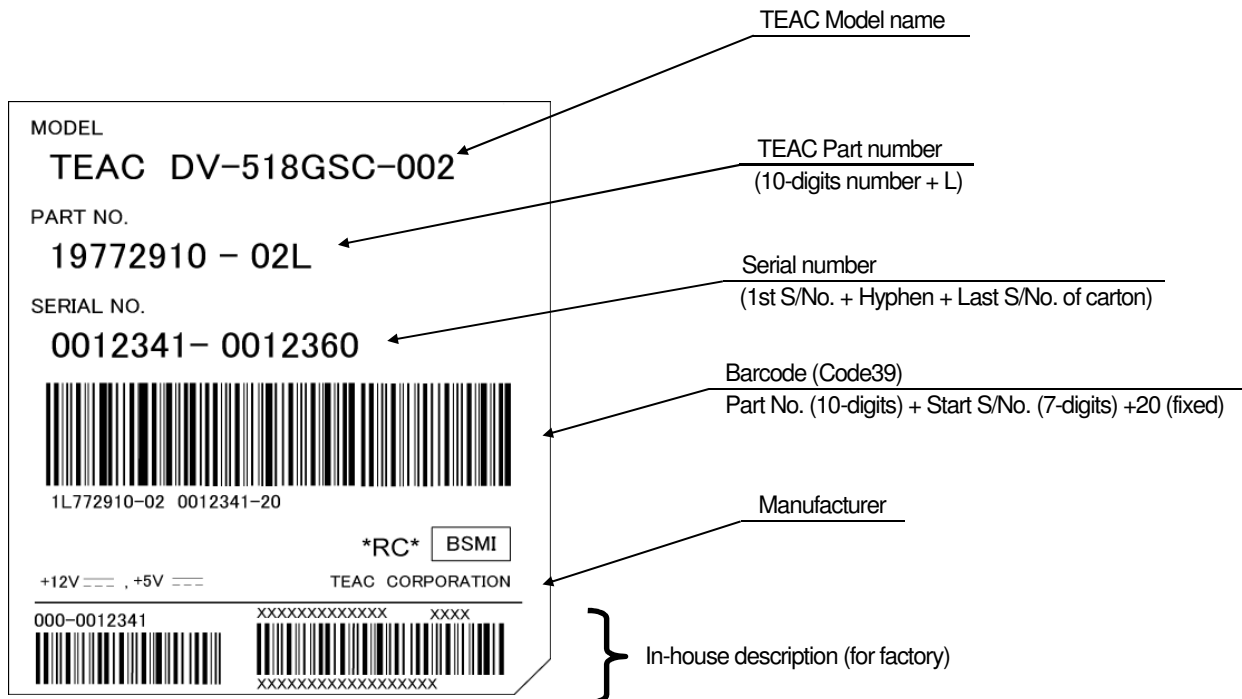
14. LABEL USED



(Fig. 14-1) Nameplate



(Fig. 14-2) Serial label

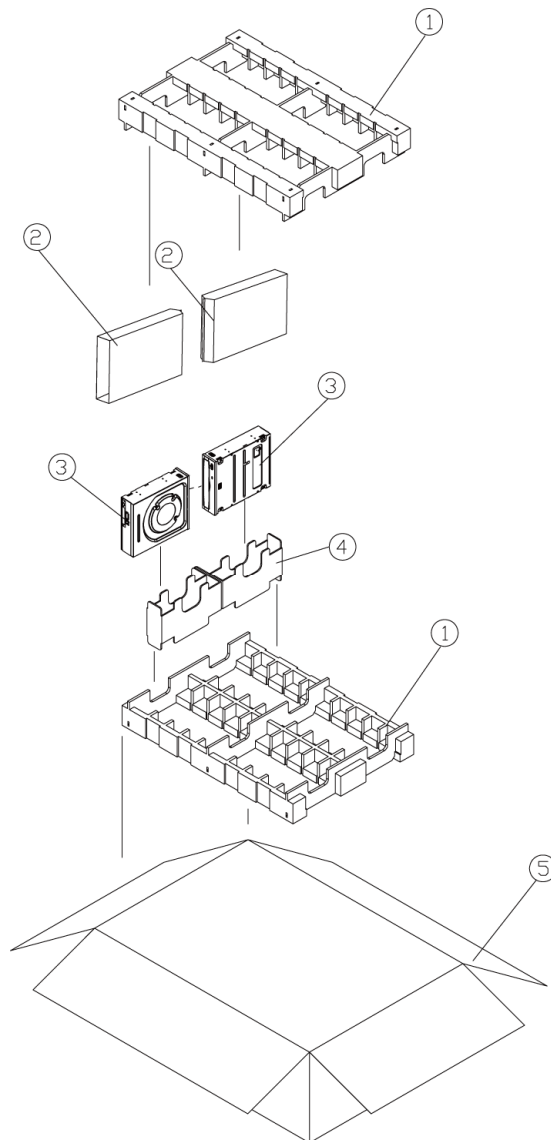


(Fig. 14-3) Carton label for 20 in 1

15. PACKAGING

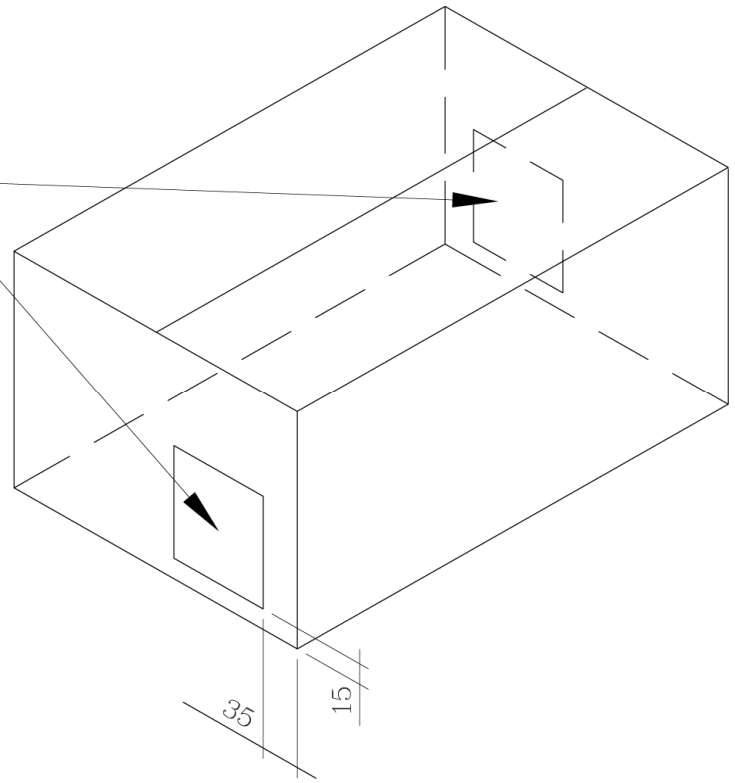
(Table 15-1) Aggregate package for 20 in 1

Item	Specification		
	L [mm]	W [mm]	H [mm]
Outline dimensions of carton	560	400	213
Packed quantity in one package	20 [sets]		
Gross Weight for one package	Typical 13.06 [kgs]		
① Cushion PMP in a Carton	2 [EA]		
② PE Bag, Drive	20 [Pcs]		
③ Products	20 [sets]		
④ Partition	4 [EA]		
⑤ Carton, Bulk	1 [EA]		



(Fig. 15-1) Aggregate package for 20 in 1

Barcode Label
for Master Carton x2



(Fig. 15-2) Label attaching position on the packing box for 20 in 1