Models

**AUTOMATIC TOILET FLUSH VALVE**

Exposed

Concealed

Concealed

TET1DNCR,(-32)
TET1ANCR,(-32)
TEW1DNCR,(-32)

TET2DNS-31,(-32),(-33)
TET2ANS-31,(-32),(-33)

TET3DNS-31,(-32),(-33)
TET3ANSR-31,(-32),(-33)

**AUTOMATIC URINAL FLUSH VALVE**

Exposed

Concealed

Concealed

TEU1DNCR,(-12),(-22)
TEU1ANCR,(-12),(-22)

TEU2DNS-11,(-21)
TEU2ANS-11,(-21)

TEU3DNS-11,(-21)
TEU3ANSR-11,(-21)
1. FEATURES

TOILET FLUSH VALVE
1. Fully Automatic
   The TET/W SERIES detects the user on the toilet through an infrared sensor and automatically flushes the toilet. It does not require any manual operation for flushing.
2. Keeps the Toilet Hygienic.
   The TET/W SERIES operates automatically, flushing the toilet each time it is used, thereby keeping the toilet hygienic.
   When the toilet is not used for a 24 HR. PERIOD, the protection timer commands the system to flush at the fixed intervals, maintaining a trap seal.
4. Manual Function
   For toilet bowl maintenance and emergency use, the flush valve is equipped with a manual flushing button.

URINAL FLUSH VALVE
1. Fully Automatic.
   The TEU SERIES detects the user of the urinal through an infrared sensor and automatically flushes the urinal. It does not require any manual operation for flushing.
2. Keeps the Urinal Hygienic.
   The TEU SERIES operates automatically, flushing the urinal each time it is used, thereby keeping the toilet hygienic.
3. Conserves Water by Fuzzy Logic Control.
   The flush valve has a fuzzy logic control function that enables it to detect through the infrared sensor how often and long the urinal has been used and deliver a needed quantity of flush water each time the urinal is used.
4. System Protection Timer.
   When the urinal is not used for a 24 HR. PERIOD, the protection timer commands the system to flush at the fixed intervals, maintaining a trap seal.
## 2. OPERATION PROCEDURE

### Operation Procedure For The Toilet Flush Valve

<table>
<thead>
<tr>
<th>1 Infrared Sensor</th>
<th>2 Flushing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Infrared Sensor Diagram" /></td>
<td><img src="image2" alt="Flushing Diagram" /></td>
</tr>
<tr>
<td>The infrared sensor detects a user sitting on the toilet seat.</td>
<td>When the user stays in place longer than 6 seconds then moves away, the controller sends a signal to the operating unit to automatically trip the flush valve.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 Flushing Every 24 hours</th>
<th>Manual Flushing Button</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Flushing Every 24 hours Diagram" /></td>
<td><img src="image4" alt="Manual Flushing Button Diagram" /></td>
</tr>
<tr>
<td>If toilet is not used, the system automatically flushes every 24 hours as a maintenance and hygienic precaution.</td>
<td>If the manual flushing button on the flush valve is pushed, the toilet is flushed for toilet bowl maintenance and emergency use.</td>
</tr>
</tbody>
</table>
### Operation Procedure For The Urinal Flush Valve

<table>
<thead>
<tr>
<th>① Infrared Sensor</th>
<th>② Flushing</th>
<th>③ Flushing Every 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart1" alt="Infrared Sensor" /></td>
<td><img src="chart2" alt="Flushing" /></td>
<td><img src="chart3" alt="Flushing Every 24 hours" /></td>
</tr>
</tbody>
</table>

The infrared sensor detects a user standing in front of the urinal within 2 ft (600mm).

When the user stays in place longer than 6 seconds then moves away, the controller sends a signal to the operating unit to automatically trip the flush.

If urinal is not used, the system automatically flushes every 24 hours as a maintenance and hygienic precaution.

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### WATER DISCHARGE BY FUZZY CONTROL

- The fuzzy logic control function automatically adjusts the discharge quantity according to the frequency of usage. (See ① and ②.)
  
  The fuzzy control system judges the frequency of usage by the idling time of the urinal and causes the flush valve to discharge water in an optimal flushing pattern based on the judgment.

  - If the idling time is short, the system assumes frequent use of the urinal, causing the flush valve to discharge less water.
  - If the idling time is long, the system assumes infrequent use, causing the flush valve to deliver a normal quantity of water for thorough flushing.

- The fuzzy logic control function automatically adjusts the discharge quantity according to the volume of urine. (See ③ and ④.)
  
  The fuzzy logic control system presumes the volume of urine from how long the urinal has been used and causes the flush valve to discharge an optimal quantity of flush water according to the presumed volume.

  - If the duration of urination is short, the system assumes the volume of urine is small, causing the flush valve to discharge less flush water.
  - If the duration of urination is long, it assumes the volume of urine is large, causing the flush valve to deliver a normal quantity of flush water.

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<table>
<thead>
<tr>
<th>① When the frequency of usage is high (at the time of a lunch break, an intermission in a movie theatre, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart4" alt="Less" /> Less Less Less Less Normal Normal</td>
</tr>
</tbody>
</table>

- If less water is discharged five times in succession, a normal quantity of water is discharged in the above flushing pattern.

<table>
<thead>
<tr>
<th>② When the frequency of usage is low (in an office in the early morning or at night, a park with few visitors, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart5" alt="Normal" /> Normal Normal Normal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>③ When the duration of urination is short.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart6" alt="Less" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>④ When the duration of urination is long.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart7" alt="Normal" /></td>
</tr>
</tbody>
</table>
3. MAINTENANCE

1. When cleaning the flush valve, observe the following instructions.
   - Wipe the valve with a cloth soaked in properly diluted neutral detergent. Wipe the detergent off the covers, and, finally, wipe them with a dry cloth.
   - Never use cleanser, polishing powder, detergent that includes coarse particles, thinner, benzine, acid or alkaline detergent, or a nylon scrub brush. They will damage the surface of the valve.

2. Battery Replacement (DC TYPE)
   - Four Alkaline Type AA batteries are used.
   - If a red light in the sensor window blinks when a user sits on the toilet seat or stands in front of the Urinal, it is time to replace the batteries. (See page 11)

CAUTION: DO NOT DAMAGE THE INFRARED SENSOR SURFACE.
Use of heavy duty industrial cleaner may damage the plated surface of the valve and therefore void the warranty.
DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
Replace only with the same or equivalent type recommended by TOTO.
Dispose of used batteries according to the manufacturer’s instructions.

4. PRECAUTIONS

The TET/W and TEU SERIES Automatic Toilet/Urinal Flush Valve is an electric appliance. When using it, strictly observe the following instructions.

“AVOID”
DO NOT strike the valve!

“AVOID”
DO NOT spray water directly for cleaning!

Concealed Small cover
Concealed Large cover
Concealed Small cover
Concealed Large cover
# 5. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Exposed</th>
<th>Concealed Large cover</th>
<th>Concealed Small cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>TET1DNCR</td>
<td>TET1DNCR-32</td>
<td>TET2DNS-31</td>
<td>TET3DNS-31</td>
</tr>
<tr>
<td>TET1ANCR</td>
<td>TET1ANCR-32</td>
<td>TET2DNS-32</td>
<td>TET3DNS-32</td>
</tr>
<tr>
<td>TEW1DNCR</td>
<td>TEW1DNCR-32</td>
<td>TET2DNS-33</td>
<td>TET3DNS-33</td>
</tr>
<tr>
<td>TEU1DNCR</td>
<td>TEU1DNCR-12</td>
<td>TEU2DNS-11</td>
<td>TEU3DNS-11</td>
</tr>
<tr>
<td>TEU1ANCR-12</td>
<td>TEU1ANCR-22</td>
<td>TEU2ANS-11</td>
<td>TEU3ANSR-11</td>
</tr>
</tbody>
</table>

### Power supply
- Alkaline Type AA batteries 1.5V x 4pcs.
- 10V DC Supplied by AC Adapter

### Battery life
- 3 yrs. life based on 4000 cycles per month
- 2 yrs. life based on 4000 cycles per month

### Dimen- sions
- Exposed 6-11/64"(H) x 5-15/64"(W) x 3-5/16"(D) for TET1DNCR,-32,TET1ANCR,-32, TEW1DNCR,-32,
  TEU1DNCR,-12,,-22, TEU1ANCR,-12,,-22
- Concealed Large cover 12-5/8"(H) x 14-3/16"(W) (320mm(H) x 360mm(W)) for TET2DNS-31,-32,-33, TET2ANS-31,-32,-33, TEU2DNS-11,-21,TEU2ANS-11,-21
- Concealed Small cover 4-23/32"(H) x 4-23/32"(W) (120mm(H) x 120mm(W)) for TET3DNS-31,-32,-33, TET3ANSR-31,-32,-33, TEU3DNS-11,-21,TEU3ANSR-11,-21

### Detection range
- Within 31-1/2"(800mm)

### Detection time
- 6 seconds or more

### Ambient
- 32-104°F(0-40°C)

### Water temperature
- 34-104°F(1-40°C)

### Connection of the water
- 1"NPT
- 3/4"NPT

### The flush valve inlet
- 1-1/4"NPSM

### The flush valve outlet
- 1-1/2"NPSM

### Supply water pressure
- Minimum required water pressure: 10PSI(70kPa)(Flowing)
- Maximum water pressure: 125PSI(862kPa)

### Shutoff pressure
- 7PSI(48kPa)

### Discharge quantity per flush at 28 PSI (196kPa)
- Toilet/Urinal Type
  - Toilet: Approx. 1.6 gallon (6L)
  - Urinal: Approx. 3.5 gallon (13L)

### Supply water pressure
- Minimum required water pressure: 10PSI(70kPa)(Flowing)
- Maximum water pressure: 125PSI(862kPa)

### Minimum required water pressure
- 10PSI(70kPa)(Flowing)
- 7PSI(48kPa)

### Toilet/Urinal Type
- Flushomter type bowl
- Wash down flush

### Trap seal protection
- Automatic flushing every 24 hours, if not used

**Note** The minimum pressure required to the valve is determined by the type of fixture selected. Consult fixture manufacturer for pressure requirement.
# 6. TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
<th>Ref. Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>No water comes from the flush valve.</td>
<td>Open the main valve or the control stop.</td>
<td>-</td>
</tr>
<tr>
<td>The main valve in water supply line or the control stop is shut off.</td>
<td>Connect the wire.</td>
<td>-</td>
</tr>
<tr>
<td>The electric wire is not connected.</td>
<td>Clean the surface of the sensor.</td>
<td>-</td>
</tr>
<tr>
<td>The surface of the infrared sensor is stained.</td>
<td>Contact distributor for replacement.</td>
<td>-</td>
</tr>
<tr>
<td>The surface of the infrared sensor is destroyed.</td>
<td>Remove the reflective surface from the sensor.</td>
<td>10</td>
</tr>
<tr>
<td>There is a reflective surface in front of the sensor.</td>
<td>Install the batteries correctly.</td>
<td>11</td>
</tr>
<tr>
<td>The batteries are not installed or in the wrong direction.</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
<tr>
<td>The batteries are dead.</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
<tr>
<td>The infrared sensor or the solenoid is out of order.</td>
<td>Contact distributor for replacement.</td>
<td>-</td>
</tr>
<tr>
<td>The small holes in the solenoid diaphragm are clogged.</td>
<td>Clean the small hole in the diaphragm and strainer.</td>
<td>9</td>
</tr>
<tr>
<td>Water does not stop flowing.</td>
<td>Open the main valve or the control stop.</td>
<td>-</td>
</tr>
<tr>
<td>The small hole in the piston is clogged.</td>
<td>Connect the wire.</td>
<td>-</td>
</tr>
<tr>
<td>The sealing area of the piston is dirty.</td>
<td>Clean the small hole in the diaphragm and strainer.</td>
<td>10</td>
</tr>
<tr>
<td>The sealing area of the solenoid diaphragm is dirty.</td>
<td>Adjust the discharge quantity by the screw/handle of the control stop and the screw of the piston valve.</td>
<td>10</td>
</tr>
<tr>
<td>The discharge quantity is too small.</td>
<td>Consult with a plumbing contractor.</td>
<td>-</td>
</tr>
<tr>
<td>The discharge quantity is too much.</td>
<td>Adjust the control stop properly.</td>
<td>10</td>
</tr>
<tr>
<td>The flow rate is too low.</td>
<td>Adjust the control stop properly.</td>
<td>10</td>
</tr>
<tr>
<td>Water supply pressure is too low. (below 10 PSI(70kPa))(Flowing)</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
<tr>
<td>The control stop is not open enough.</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
<tr>
<td>The flow rate is too high.</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
<tr>
<td>A red light in the sensor window blinks.</td>
<td>Replace the batteries.</td>
<td>11</td>
</tr>
</tbody>
</table>

**Note** Do not dismantle parts of the flush valve which is not specified in the troubleshooting.
CLEANING PISTON ASSEMBLY

1. Turn the screw/handle of the control stop clockwise to turn off the water.
2. Take out the piston assembly.
3. Check the small hole in the piston to see if it is clogged with debris, insert a small wire to unblock the hole.
4. Check the strainer to see if it is clogged with articles and gently brush it cleanly.
5. Check the sealing area of the piston and clean it if it is stained.

Exposed Type
TET1DNCR,(-32)
TET1ANCR, (-32)
TEW1DNCR, (-32)
TEU1DNCR,(-12),(-22)
TEU1ANCR,(-12),(-22)

Note See page 9 for disassembly

Concealed Type (Large cover)
TET2DNS-31,(-32),(-33)
TET2ANS-31,(-32),(-33)
TEU2DNS-11,-(-21)
TEU2ANS-11,-(-21)

Note See page 9 for disassembly

Concealed Type (Small cover)
TET3DNS-31,(-32),(-33)
TET3ANSR-31,(-32),(-33)
TEU3DNS-11,-(-21)
TEU3ANSR-11,-(-21)
**CLEANING DIAPHRAGM AND STRAINER**

1. Turn the screw/handle of the control stop clockwise to turn off the water. 
   (See step 1 of page 8)
2. Disconnect the connector of the solenoid.
3. Remove the solenoid and take out the diaphragm. Then check the small holes and sealing

**Note** See this page below for disassembly.

![Diagram of diaphragm and strainer components]

- Diaphragm
- Sealig area
- Small holes
- Diaphragm
- Strainer
- Sensor unit
- Solenoid
- Spring
- O-ring
- Plunger
- Cap
- Supplied Allen wrench
- Sucker

**Note** Do not stretch or alter the shape of the spring in the solenoid valve in any way. It will void the warranty.

**DISASSEMBLY**

If the whole valve needs to be removed from the water supply for servicing, please be aware of the following cautions below:

1) Be careful not to lose or tear the friction washer at the outlet connection to the vacuum breaker tube nut. To maintain a proper seal, replace the washer if necessary.
2) Be careful while re-installing the valve to the water supply to avoid pinching the O-ring at

Solenoid can be checked for proper function by two methods after assuring that the batteries are properly placed and wires are connected.

**Method 1:** With water supply turned off, place your hand in front of the sensor for 6 seconds, remove and listen for a “click” sound. This indicates the solenoid plunger has been activated.

**Method 2:** Remove the 4 screws from solenoid assembly and remove diaphragm portion to expose solenoid, spring and plunger assembly only. Next, simulate activations by covering the sensor for 6 seconds. After removing one’s hands, the plunger will retract. This indicates proper function.
**ADJUSTMENT OF THE DISCHARGE QUANTITY**

1. Adjust the discharge quantity by turning the screw on the piston valve.
2. Turn the screw to the right to decrease the discharge quantity and turn to the left to increase.

**ADJUSTMENT OF THE FLOW RATE**

1. Adjust the flow rate by the turning screw/handle of the control stop.
2. Turn the screw/handle to the right to decrease the flow rate and turn to the left to increase.

**THE DETECTION RANGE**

The detection range of the infrared sensor does not need to be adjusted because it has been previously set at the factory. The detection zone may differ according to color of user’s clothes. When a user wears black clothes, the detection zone may become smaller and the valve may not flush.

**Note**

In same cases, the valve may not detect a user if the toilet seat is left in an upright position. This can be due to the rough-in dimension or gap/width of the open front commercial seat. Please lower the seat or arrange to change the height of the valve (Consult with TOTO or plumbing contractor)
### INSTALLING THE BATTERIES

1. Remove the battery case.
2. Install the supplied batteries as shown in the figure below. And make sure of the proper polarity.
3. Reinstall the battery case.

**DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.**

Replace only with the same or equivalent type recommended by TOTO.

Dispose of used batteries according to the manufacturer’s instructions.

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**Exposed Type**

- TET1DNCR, (-32)
- TEW1DNCR, (-32)
- TEU1DNCR, (-12), (-22)

**Note** See page 9 for disassembly

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**Concealed Type (Large cover)**

- TET2DNS-31, (-32), (-33)
- TEU2DNS-11, (-21)

**Note** See page 9 for disassembly

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**Concealed Type (Small cover)**

- TET3DNS-31, (-32), (-33)
- TEU3DNS-11, (-21)

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*: Install four Alkaline AA Batteries exactly as shown in the figure.

*: Screws are not used to secure the battery case.

*: Install four Alkaline AA Batteries exactly as shown in the figure.
1. TOTO warrants its products to be free from manufacturing defects under normal use and service for a period of three (3) years from the date of purchase. This warranty is extended only to the ORIGINAL PURCHASER.

2. TOTO’s obligations under this warranty are limited to repair or replacement, at TOTO’s option, of products or parts found to be defective, provided that such products were properly installed and used in accordance with OWNER’S MANUAL. TOTO reserves the right to make such inspections as may be necessary in order to determine the cause of the defect. TOTO will not charge for labor or parts in connection with warranty repairs or replacements. TOTO is not responsible for the cost of removal, return and/or reinstallation of products.

3. This warranty does not apply to the following items:
   a) Damage or loss sustained in a natural calamity such as fire, earthquake, flood, thunder, electrical storm, etc.
   b) Damage or loss resulting from any unreasonable use, misuse, abuse, negligence, or improper maintenance of the product.
   c) Damage or loss resulting from removal, improper repair, or modification of the product.
   d) Damage or loss resulting from sediments or foreign matter contained in a water system.
   e) Damage or loss resulting from improper installation or from installation of a unit in a harsh and/or hazardous environment.
   f) Damage or loss resulting from acts of animals such as mice and insects.
   g) Damage or loss resulting from a use of abnormal power supply.
   h) Damage or loss resulting from abrasion of consumable supplies.
   i) Damage or loss resulting from frost.

4. This warranty gives you specific legal rights. You may have other rights which vary from State to State.

5. To obtain warranty repair service under this warranty, you must take the product or deliver it prepaid to a TOTO service facility together with a letter stating the problem, or contact a TOTO distributor or products service contractor, or write directly to TOTO U.S.A., INC., 1155 Southern road, Morrow, Georgia 30260, (770) 282-8686. If, because of the size of the product or nature of the defect, the product cannot be returned to TOTO, receipt by TOTO of written notice of the defect shall constitute delivery. In such case, TOTO may choose to repair the product at the purchaser’s location or pay to transport the product to a service facility.

THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY TOTO. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE TO THE PURCHASER. TOTO SHALL NOT BE RESPONSIBLE FOR LOSS OF USE OF THE PRODUCT OR FOR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR EXPENSES INCURRED BY PURCHASER, OR FOR LABOR OR OTHER COSTS DUE TO INSTALLATION OR REMOVAL, OR COSTS OF REPAIRS BY OTHERS, OR FOR ANY OTHER EXPENSE NOT SPECIFICALLY STATED ABOVE. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTIES, INCLUDING THAT OF MERCHANTABILITY OR FITNESS FOR USE, ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS. OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE...