

TE Series

CENTRIFUGAL PUMP

TE-50V

TE-80V

**OPERATION, SERVICE, AND
REPAIR MANUAL**



TSURUMI MANUFACTURING CO., LTD.

LIMITED WARRANTY

TSURUMI MANUFACTURING CO., LTD. ("TSURUMI") warrants to the original end purchaser during the warranty period, every new TSURUMI pump or product to be free from defects in material and workmanship under normal use and service, when properly installed, used, and maintained (in accordance with Tsurumi's Operation, Service, and Repair Manual) for a period of two years from the date the unit was first installed or twenty six months from the date of shipment by TSURUMI to wholesaler, whichever comes first.

TSURUMI'S sole obligation under this warranty is to repair or replace at TSURUMI'S option, with new or remanufactured parts, any part(s) that fail or that are found to be defective during the warranty period. No allowance will be made for shipping charges, damages, labor, or other charges due to failure, repair or replacement.

This warranty does not apply to any TSURUMI product that has been disassembled without prior approval of TSURUMI nor does it apply to any product that has been subjected to misuse, neglect, alteration, misapplication, accident or act of God.

TSURUMI assumes no responsibility for compliance with any regulations, codes, standards, or ordinances applicable to the installation, location, operation or maintenance of its products.

No other warranty, expressed or implied, is authorized by, or applicable to, the seller. No person, agent or dealer is authorized to enlarge upon this warranty.

TSURUMI expressly disclaims liability for consequential or incidental damages or breach of expressed or implied warranty; and any implied warrant of fitness for a particular purpose and merchantability shall be limited to the duration of the expressed warranty.

Some states do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Tsurumi Manufacturing Co., Ltd.

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INTRODUCTION

1-1 Using Your Tsurumi Operation, Repair and Service Manual

We thank you for purchasing a Tsurumi centrifugal pump. We are sure that the centrifugal pump you have selected will meet your portable pumping needs.

This manual applies to the Tsurumi centrifugal pumps listed below. Specifications for the centrifugal pumps are provided in the **SPECIFICATIONS** section. Key features of the centrifugal pump are shown in the **DESCRIPTION** section.

TE3-50V
TE3-80V

This manual provides instructions for operation, service, and repair of your centrifugal pump. We strongly recommend that those who operate the centrifugal pump become familiar with the centrifugal pump's features and controls, and read the operating instructions before using the centrifugal pump.

The Operation, Repair, and Service Manual provides instructions to service, checkout, and repair the centrifugal pump. This manual also provides replacement parts information.

Repair and service information for the Briggs & Stratton engine is provided in the Owner's Manual for Models 10V3. A copy of the Owner's Manual has been provided in the centrifugal pump's literature package. Parts information for the Briggs & Stratton Engine is available in Briggs & Stratton's Parts Catalogs.

When there are differences between centrifugal pump models, separate instructions are provided. These separate instructions are provided to make sure the correct procedures are used on the affected centrifugal pumps.

All information in the Tsurumi manuals is based upon the latest production configuration of the centrifugal pump at the time of printing.

If you have a problem with your centrifugal pump that cannot be resolved using the Operation, Repair, and Service Manual, or if you have questions about the operation, service, repair, or maintenance of your centrifugal pump, contact your local Tsurumi centrifugal pump dealer.

Keep this manual handy, so you can refer to it at any time. This manual is considered a permanent part of the centrifugal pump and should remain with the centrifugal pump if rented or resold.

1-2 Be Sure to Read for Your Safety

- THE CENTRIFUGAL PUMP IS DESIGNED TO GIVE SAFE AND RELIABLE SERVICE WHEN OPERATED ACCORDING TO THE INSTRUCTIONS IN THE TECHNICAL MANUAL PROVIDED WITH THE CENTRIFUGAL PUMP.
- DO NOT OPERATE THE CENTRIFUGAL PUMP BEFORE YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS AND THE ENGINE MANUFACTURER'S MANUAL. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD HAPPEN.
- REFER TO THE HONDA ENGINE OWNER'S MANUAL FOR MORE SAFETY INFORMATION.
- IN ORDER TO ASSURE SAFE AND EFFICIENT OPERATION OF THE CENTRIFUGAL PUMP, OPERATORS SHOULD READ AND COMPLY WITH THE FOLLOWING SAFETY PRECAUTIONS.

The precautionary measures described in this section are intended to prevent danger or damage to you or to others. The contents of this manual that could possibly be performed improperly are classified into two categories: **⚠WARNING**, and **⚠CAUTION**. The categories indicate the extent of possible damage or the urgency of the precaution. Note however, that what is included under **⚠CAUTION** may at times lead to a more serious problem. In either case, the categories pertain to safety-related items, and as such, must be observed carefully.

- **⚠WARNING** : Indicates that there is a strong possibility of personal injury or loss of life if the instructions are not followed, or if cleaning, lubricating, adhesives, and other materials are not used properly.
- **⚠CAUTION** : Indicates that there is a possibility of equipment damage if the instructions are not followed.
- **NOTE** : Are provided in the procedure section for additional or supplemental information to make the procedure easier and more efficient.
- **Explanation of Symbols:**
 - **!** : The **!** mark indicates a WARNING or CAUTION item.
 - **⊘** : The **⊘** mark indicates a prohibited action due to which users need to be more careful while handling the pump.

Safety Precautions

⚠WARNING	
!	● It is the operator's responsibility to provide the necessary safeguards to protect people and property. Know how to stop the pump quickly in case of emergency. If you leave the pump for any reason, always turn the engine off. Understand the use of all controls and connections. Be sure that anyone who operates the pump receives proper instructions. Do not let the children operate the pump. Keep children and pets away from the area of operation.
!	● Improperly maintaining the pump, or failing to fix the problems before operation, could cause a malfunction in which you could be seriously injured. Always perform a pre-operational inspection and if you find any problems, fix them before operating the pump.
!	● Tsurumi Centrifugal Pumps are designed to pump only clean water that is not intended for human consumption, and other uses can result in injury to the operator or damage to the pump and other property.
!	● Do not use this pumping equipment to pump/move anything that is flammable or explosive liquid such as oil, gasoline, kerosene, ethanol, etc. Do not use in the presence of flammable or explosive vapors. Using this pump with or near flammable liquids can cause an explosion or fire, resulting in property damage, serious personal injury, and/or death.
!	● Do not pump liquids above 40 degree C (104-degree F). Doing so can damage the pump components or seriously injure the operator.

 WARNING	
	● Do not use the centrifugal pump for transferring oil, salt water, sea water, chemicals, corrosives, or organic solvents. Doing so can damage the pump components and may also lead to serious personal injury.
	● Do not pump water containing corrosive chemicals or toxic substances. These fluids can cause serious health and environmental hazards. If you need assistance, contact your local authorities.
	● The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
	● Do not operate the centrifugal pump inside a room, closed garage, cave, tunnel, or other insufficiently ventilated area. Always operate the centrifugal pump in a well-ventilated area. The engine may become overheated, and the poisonous carbon monoxide gas contained in the exhaust gases will endanger human lives.
	● Turn off the engine before transferring the centrifugal pump to another work site. If the centrifugal pump is tilted or moved during operation, fuel may spill and/or the centrifugal pump may tip over, causing a hazardous situation.
	● Do not smoke or use an open flame near the fuel tank and keep away other sources of flames and sparks.
	● Do not place flammable materials near the centrifugal pump. Be careful not to place fuel, matches, gunpowder, oily cloths, straw, or any other combustible objects near the centrifugal pump.
	● Gasoline is extremely flammable, and gasoline vapor can explode. Refuel outdoors, in a well-ventilated area, with the engine stopped and the pump on a level surface. Do not fill the tank above the fuel strainer shoulder. Always store gasoline in an approved container.
	● The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Let the engine cool before transporting the pump or storing it indoors.
	● Do not refuel while the engine is running. Be careful not to spill fuel while refueling. If the fuel is spilled, wipe it off and let it dry before starting the engine.
 CAUTION	
	● Keep the centrifugal pump at least 1 meter (3 feet) away from any structure or building during use. When a centrifugal pump is placed close to a building or nearby equipment, heat and exhaust from the engine will cause the surrounding temperature to rise. This will degrade the engine's cooling efficiency, causing overheating.
	● Do not enclose the centrifugal pump nor cover it with a box. The centrifugal pump has a built-in forced-air cooling system and may overheat if it is enclosed.
	● Operate the centrifugal pump on a level surface. It is not necessary to prepare a special foundation for operating the centrifugal pump. However, the centrifugal pump may vibrate excessively when operating over an irregular surface which might lead to the severe mechanical damages. Similarly, lubrication of engine parts will be poor if the pump is operated over sloped or inclined surface. In such a case, the piston may seize even if the oil level is nearby the upper level. Therefore, choose a level surface to operate the centrifugal pump.

español(es)

■ ASEGÚRESE DE LEER ESTE MANUAL PARA SU SEGURIDAD

- LA BOMBA CENTRÍFUGA ESTÁ DISEÑADA PARA DAR UN SERVICIO SEGURO Y CONFIABLE CUANDO SE OPERA SEGÚN LAS INSTRUCCIONES DEL MANUAL TÉCNICO SUMINISTRADO CON LA BOMBA CENTRÍFUGA .
- NO UTILICE LA BOMBA CENTRÍFUGA SIN HABER LEÍDO Y COMPRENDIDO LAS INSTRUCCIONES Y EL MANUAL DEL FABRICANTE DEL MOTOR. DE LO CONTRARIO, PODRÍAN PRODUCIRSE LESIONES PERSONALES O DAÑOS AL EQUIPO .
- CONSULTE EL MANUAL DEL PROPIETARIO DEL MOTOR HONDA PARA OBTENER MÁS INFORMACIÓN SOBRE LA SEGURIDAD.
- PARA ASEGURAR EL FUNCIONAMIENTO SEGURO Y EFICIENTE DE LA BOMBA CENTRÍFUGA, LOS OPERADORES DEBEN LEER Y CUMPLIR CON LAS SIGUIENTES PRECAUCIONES DE SEGURIDAD.

Las medidas de precaución descritas en esta sección están destinadas a prevenir el peligro o los daños para usted u otras personas. El contenido de este manual que posiblemente se puede llevar a cabo de manera inadecuada se clasifica en dos categorías:  ADVERTENCIA y  PRECAUCIÓN. Las categorías indican el alcance del posible daño o la urgencia de la precaución. Sin embargo, tenga en cuenta que lo que se incluye bajo la categoría  PRECAUCIÓN en ocasiones puede dar lugar a un problema más grave. En cualquier caso, las categorías pertenecen a cuestiones relacionadas con la seguridad y, como tales, se deben cumplir al pie de la letra.

-  ADVERTENCIA : indican que existe una gran posibilidad de lesiones personales o fallecimientos si no se siguen las instrucciones, o si la limpieza, lubricación, adhesivos y otros materiales no se utilizan correctamente.
-  PRECAUCIÓN : indica que existe la posibilidad de que se dañe el equipo si no se siguen las instrucciones.
- NOTA : se proporcionan en la sección de procedimiento con el fin de proporcionar información adicional o suplementaria para hacer que el procedimiento sea más fácil y eficiente.
- Explicación de los símbolos:
 -  : La marca  indica un elemento de ADVERTENCIA o PRECAUCIÓN.
 -  : La marca  indica una acción prohibida debido a la cual los usuarios deben tener más cuidado al manipular la bomba.

Precauciones de seguridad

 ADVERTENCIA	
	● Es responsabilidad del operador proporcionar las salvaguardas necesarias para proteger a las personas y la propiedad. Sepa cómo parar la bomba rápidamente en caso de emergencia. Si deja la bomba por cualquier motivo, apague siempre el motor. Entienda el uso de todos los controles y conexiones. Asegúrese de que cualquier persona que opere la bomba reciba las instrucciones adecuadas. No permita que los niños utilicen la bomba. Mantenga a los niños y las mascotas alejados del área de operación.
	● El mantenimiento incorrecto de la bomba, o no solucionar los problemas antes de la operación, podría causar un fallo de funcionamiento en el cual podría sufrir lesiones graves. Realice siempre una inspección previa a la operación y, si encuentra algún problema, arréglolo antes de operar la bomba.
	● Las bombas centrífugas Tsurumi están diseñadas para bombear solo agua limpia que no está destinada al consumo humano, y otros usos pueden provocar lesiones al operador o daños a la bomba y otras propiedades.
	● No utilice este equipo de bombeo para bombear/mover líquido que sea inflamable o explosivo, como aceite, gasolina, queroseno, etanol, etc. No lo utilice en presencia de vapores inflamables o explosivos. El uso de esta bomba con o cerca de líquidos inflamables puede provocar una explosión o un incendio, lo que puede ocasionar daños a la propiedad, lesiones personales graves y/o la muerte.

 ADVERTENCIA	
	● No bombee líquidos por encima de 40 °C (104 °F). De lo contrario, podría dañar los componentes de la bomba o causar lesiones graves al operador.
	● No utilice la bomba centrífuga para transferir aceite, agua salada, agua de mar, productos químicos, corrosivos o disolventes orgánicos. Si lo hace, puede dañar los componentes de la bomba y también puede provocar lesiones personales graves.
	● No bombee agua que contenga productos químicos corrosivos o sustancias tóxicas. Estos fluidos pueden causar peligros graves para la salud y el medio ambiente. Si necesita ayuda, póngase en contacto con las autoridades locales.
	● El escape del motor de este producto contiene sustancias químicas que el Estado de California reconoce como causantes de cáncer, defectos congénitos u otros daños reproductivos.
	● No utilice la bomba centrífuga dentro de una habitación, garaje cerrado, cueva, túnel u otra zona sin ventilación suficiente. Utilice siempre la bomba centrífuga en una zona bien ventilada. El motor podría sobrecalentarse, y el gas de monóxido de carbono venenoso contenido en los gases de escape pondrá en peligro vidas humanas.
	● Apague el motor antes de trasladar la bomba centrífuga a otro lugar de trabajo. Si la bomba centrífuga se inclina o se mueve durante el funcionamiento, el combustible puede derramarse y/o la bomba centrífuga puede volcar, provocando una situación peligrosa.
	● No fume ni utilice una llama abierta cerca del depósito de combustible y mantenga alejadas otras fuentes de llamas y chispas.
	● No coloque materiales inflamables cerca de la bomba centrífuga. Tenga cuidado de no colocar combustible, cerillas, pólvora, paños aceitosos, paja o cualquier otro objeto combustible cerca de la bomba centrífuga.
	● La gasolina es extremadamente inflamable y el vapor de gasolina puede explotar. Añada combustible en exteriores, en una zona bien ventilada, con el motor parado y la bomba en una superficie nivelada. No llene el depósito por encima del hombro del depurador de combustible. Almacene siempre la gasolina en un recipiente aprobado. Escape caliente.
	● El silenciador se calienta mucho durante el funcionamiento y permanece caliente durante un tiempo después de parar el motor. Tenga cuidado de no tocar el silenciador cuando esté caliente. Deje que el motor se enfríe antes de transportar la bomba o almacenarla en interiores.
	● No reposte mientras el motor está en marcha. Tenga cuidado de no derramar combustible durante el repostaje. Si se derrama combustible, límpielo y déjelo secar antes de arrancar el motor.
 PRECAUCIÓN	
	● Mantenga la bomba centrífuga a al menos 1 metro (3 pies) de distancia de cualquier estructura o edificio durante el uso. Cuando se coloca una bomba centrífuga cerca de un edificio o de un equipo cercano, el calor y el escape del motor aumentarán la temperatura del entorno. Esto degradará la eficiencia de refrigeración del motor, causando un sobrecalentamiento.
	● No coloque la bomba centrífuga ni la cubra con una caja. La bomba centrífuga tiene un sistema de enfriamiento de aire comprimido incorporado y puede sobrecalentarse si está encerrada.
	● Utilice la bomba centrífuga sobre una superficie nivelada. No es necesario preparar una base especial para el funcionamiento de la bomba centrífuga. Sin embargo, la bomba centrífuga podría vibrar excesivamente al funcionar sobre una superficie irregular, lo cual podría causar daños mecánicos graves. De manera similar, la lubricación de las piezas del motor será deficiente si la bomba se utiliza sobre una superficie inclinada. En tal caso, el pistón puede agrietarse incluso si el nivel de aceite está cerca del nivel superior. Por lo tanto, elija una superficie nivelada para operar la bomba centrífuga.

français(fr)

■ VEILLEZ À LIRE ATTENTIVEMENT POUR VOTRE SÉCURITÉ

- LA POMPE CENTRIFUGE EST CONÇUE POUR GARANTIR UN FONCTIONNEMENT SÛR LORSQU'ELLE EST UTILISÉE SUIVANT LES INSTRUCTIONS DU MANUEL TECHNIQUE FOURNI AVEC LA POMPE CENTRIFUGE.
- NE PAS UTILISER LA POMPE CENTRIFUGE AVANT D'AVOIR LU ET COMPRIS LES INSTRUCTIONS ET LE MANUEL DU FABRICANT DU MOTEUR. SINON, DES BLESSURES CORPORELLES OU DES DÉGÂTS MATÉRIELS POURRAIENT SE PRODUIRE.
- REPORTEZ-VOUS AU MANUEL DU MOTEUR HONDA POUR PLUS D'INFORMATIONS SUR LA SÉCURITÉ.
- AFIN DE GARANTIR UN FONCTIONNEMENT SÛR ET EFFICACE DE LA POMPE CENTRIFUGE, LES OPÉRATEURS DOIVENT LIRE ET RESPECTER LES CONSIGNES DE SÉCURITÉ SUIVANTES.

Les mesures de précaution décrites dans cette section visent à éviter tout danger ou dommage pour vous ou autrui. Les opérations décrites dans ce manuel susceptibles d'être exécutées incorrectement sont classées en deux catégories :  **AVERTISSEMENT**, et  **MISE EN GARDE**. Les catégories indiquent l'étendue des dommages possibles ou le niveau d'urgence des précautions à prendre. Notez cependant que ce qui est indiqué dans une  **MISE EN GARDE** peut parfois entraîner un problème plus grave. Dans les deux cas, les catégories se rapportent aux éléments liés à la sécurité, et de ce fait, doivent être observées attentivement.

-  **AVERTISSEMENT** : Ils indiquent qu'il y a une forte probabilité de blessures corporelles ou de mort si les instructions ne sont pas respectées, ou si le nettoyage, le graissage, les adhésifs et d'autres matériaux ne sont pas utilisés correctement.
-  **MISE EN GARDE** : elles indiquent une probabilité de dommages de l'équipement si les instructions ne sont pas suivies.
- **NOTE** : elles sont fournies dans la section de procédure pour des informations supplémentaires ou complémentaires afin de simplifier la procédure et de la rendre plus efficace.
- Explicación de los símbolos:

 : La marque  indique un élément d'AVERTISSEMENT ou de MISE EN GARDE.

 : La marque  indique une action interdite, raison pour laquelle les utilisateurs doivent être encore plus prudents lors de la manipulation de la pompe.

Consignes de sécurité

AVERTISSEMENT

	● Il est de la responsabilité de l'opérateur de fournir les protections nécessaires à la protection des personnes et des biens. Savoir comment arrêter la pompe rapidement en cas d'urgence. Si vous vous éloignez de la pompe pour une raison quelconque, veillez à toujours couper le moteur. Comprenez l'utilisation de toutes les commandes et les connexions. Veillez à ce que toute personne qui utilise la pompe reçoive les instructions appropriées. Ne laissez pas les enfants utiliser la pompe. Éloignez les enfants et les animaux domestiques de la zone de fonctionnement.
	● Un entretien incorrect de la pompe ou le fait de ne pas résoudre les problèmes avant le fonctionnement, peut provoquer un dysfonctionnement au cours duquel vous pourriez être gravement blessé. Effectuez toujours une inspection pré-opérationnelle et si vous trouvez des problèmes, corrigez-les avant d'utiliser la pompe.
	● Les pompes centrifuges Tsurumi sont conçues pour pomper uniquement de l'eau propre qui n'est pas destinée à la consommation humaine et d'autres utilisations peuvent entraîner des blessures à l'opérateur ou des dommages de la pompe et autres matériels.
	● N'utilisez pas cet équipement de pompage pour pomper ou déplacer tout objet inflammable ou explosif comme de l'huile, de l'essence, du kérosène, de l'éthanol, etc. N'utilisez pas l'appareil en présence de vapeurs inflammables ou explosives. L'utilisation de cette pompe avec ou à proximité de liquides inflammables peut provoquer une explosion ou un incendie, entraînant des dommages matériels, des blessures graves et/ou la mort.

français(fr)

⚠️ AVERTISSEMENT

	● Ne pompez pas de liquides à plus de 40 °C (104 degrés F). Vous risqueriez d'endommager les composants de la pompe ou de blesser gravement l'opérateur.
	● N'utilisez pas la pompe centrifuge pour transférer de l'huile, de l'eau salée, de l'eau de mer, des produits chimiques, des corrosifs ou des solvants organiques. Cela pourrait endommager les composants de la pompe et entraîner des blessures graves.
	● Ne pompez pas de l'eau contenant des produits chimiques corrosifs ou des substances toxiques. Ces liquides peuvent entraîner de graves dangers pour la santé et l'environnement. Si vous avez besoin d'assistance, contactez les autorités locales.
	● Les gaz d'échappement de ce produit contiennent des produits chimiques reconnus par l'État de Californie comme cause de cancer, de malformations congénitales ou d'autres problèmes de reproduction.
	● Ne faites pas fonctionner la pompe centrifuge dans une pièce, un garage fermé, une cave, un tunnel ou toute autre zone insuffisamment aérée. Faites toujours fonctionner la pompe centrifuge dans un endroit bien ventilé. Le moteur risque de surchauffer et le monoxyde de carbone toxique contenu dans les gaz d'échappement présente un danger pour la vie humaine.
	● Arrêtez le moteur avant de transférer la pompe centrifuge à un autre lieu de travail. Si la pompe centrifuge est inclinée ou déplacée pendant le fonctionnement, le carburant risque de se déverser et/ou la pompe centrifuge peut se renverser, provoquant une situation dangereuse.
	● Ne fumez pas et n'utilisez pas de flamme nue à proximité du réservoir de carburant et ne vous éloignez pas d'autres sources de flammes ou d'étincelles.
	● Ne placez pas de matériaux inflammables à proximité de la pompe centrifuge. Veillez à ne pas placer de carburant, d'allumettes, de poudre à canon, de chiffons huileux, de paille ou tout autre objet combustible à proximité de la pompe centrifuge.
	● L'essence est extrêmement inflammable et les vapeurs d'essence peuvent provoquer une explosion. Faites le plein à l'extérieur, dans un endroit bien aéré, avec le moteur arrêté et la pompe sur une surface plane. Ne remplissez pas le réservoir au-delà de l'épaulement de la crépine à carburant. Stockez toujours l'essence dans un récipient homologué.
	● Le silencieux devient très chaud pendant le fonctionnement et reste chaud pendant un moment après l'arrêt du moteur. Veillez à ne pas toucher le silencieux lorsqu'il est chaud. Laissez le moteur refroidir avant de transporter la pompe ou de l'entreposer à l'intérieur.
	● Ne faites pas le plein lorsque le moteur est en marche. Veillez à ne pas renverser de carburant pendant le ravitaillement. Si du carburant est renversé, essuyez-le et laissez-le sécher avant de démarrer le moteur.

⚠️ MISE EN GARDE

	● Maintenez la pompe centrifuge à au moins 1 mètre (3 pieds) de toute structure ou bâtiment pendant l'utilisation. Lorsqu'une pompe centrifuge est placée à proximité d'un bâtiment ou d'un équipement proche, la chaleur et l'échappement du moteur provoqueront une augmentation de la température ambiante. Cela dégraderait l'efficacité de refroidissement du moteur, provoquant une surchauffe.
	● N'enfermez pas la pompe centrifuge et ne la recouvrez pas avec un boîtier. La pompe centrifuge est dotée d'un système de refroidissement à air forcé intégré et peut surchauffer si elle est enfermée.
	● Actionnez la pompe centrifuge sur une surface plane. Il n'est pas nécessaire de préparer une embase spéciale pour l'utilisation de la pompe centrifuge. Toutefois, la pompe centrifuge peut vibrer de manière excessive lorsqu'elle fonctionne sur une surface irrégulière, ce qui pourrait entraîner des dommages mécaniques graves. De même, la lubrification des pièces du moteur sera insuffisante si la pompe est utilisée sur une surface inclinée ou en pente. Dans ce cas, le piston peut se bloquer même si le niveau d'huile se trouve à proximité du niveau supérieur. Par conséquent, choisissez une surface de niveau pour faire fonctionner la pompe centrifuge.

1-3 Specifications / Key Features

- **Heavy-duty Briggs & Stratton Engine** — proven reliability — quiet operation — efficient fuel consumption
- **Oil Level Sensor** — prevents engine operation when oil level is low
- **New Design** — larger pump casing for increased durability
- **Mechanical Seal** — silicon carbide seal element for long life
- **Rubber Vibration Isolation Mounts** — isolates pump/engine vibration from the frame for maximum protection and noise reduction.
- **Durable Rolled Steel Frame** — for strength and durability
- **Cast Iron Volute Casing.**

MODELS			TE3-50V	TE3-80V
PUMP	Pump Output	Gal./Min-to-Total Head	See Performance Curve	See Performance Curve
	Suction Size	Inches	2 NPT Male	3 NPT Male
	Discharge Size	Inches	2	3
ENGINE	Engine Models	----	10V3	10V3
	Max. HP (rpm)	hp/rpm	5.0 (3600 rpm)	5.0 (3600 rpm)
	Displacement	CC	169	169
	Fuel Tank Capacity	Gals.	0.82	0.82
	Starting System	---	Recoil	Recoil
SET	Dimensions (L x W x H)	Inches	20.0 x 15.7 x 17.9	20.0 x 15.7 x 17.9
	Shipping Weight	Lbs.	62	64
	Max. Solid Passage Dia.	ϕ (Inches)	ϕ 0.21	ϕ 0.27

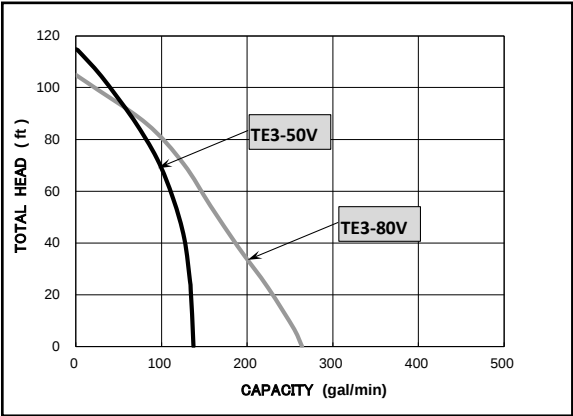
* Please securely attach the strainer to prevent large solids from getting into the pump.

1-4 Performance Curves

Refer to the performance curves for the pumping capacity of TE series centrifugal pumps.

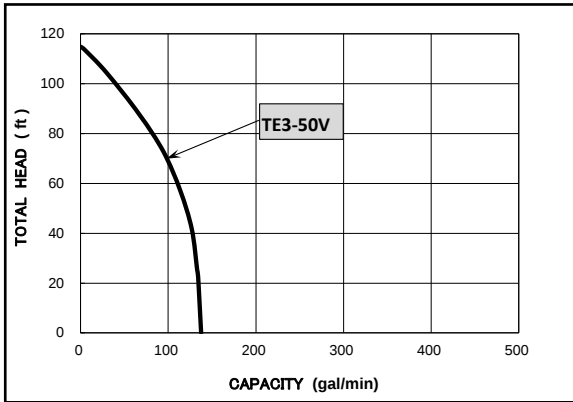
**GROUP
PERFORMANCE**

MODELS
TE3-50V
TE3-80V



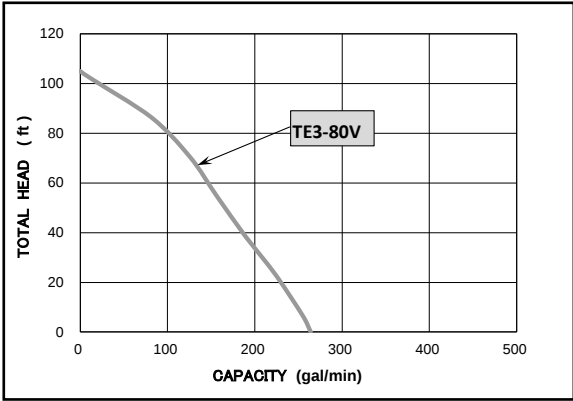
**INDIVIDUAL
PERFORMANCE**

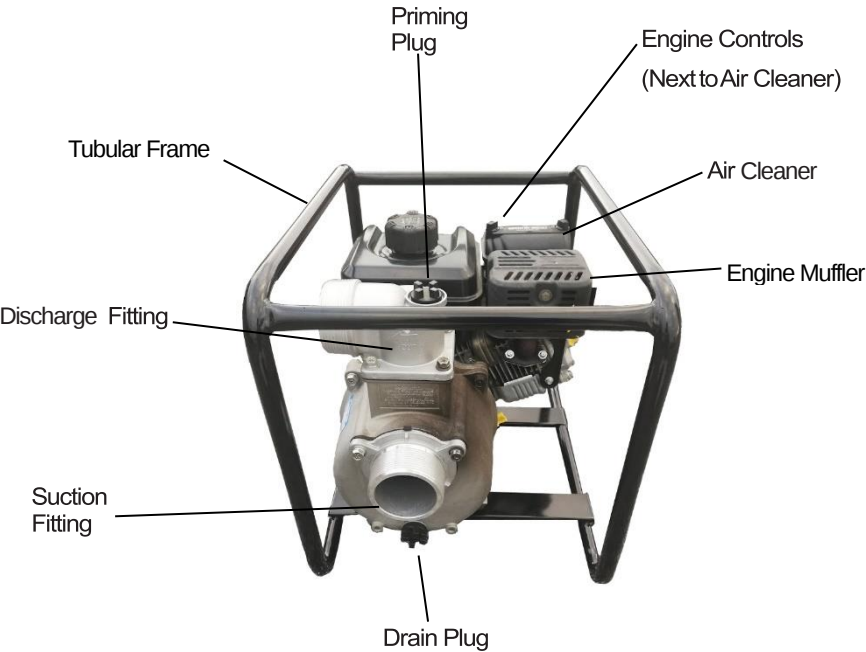
MODELS
TE3-50V



**INDIVIDUAL
PERFORMANCE**

MODELS
TE3-80V





OPERATING INSTRUCTIONS

2-1 Operating Controls

- A. The centrifugal pump is operated using the engine operating controls. The engine controls are located at the engine end of the pump frame.
- B. The controls consist of a throttle lever (for speed control), choke lever (for cold weather starting), fuel shutoff lever (to prevent fuel spills), and a recoil starter (to turnover engine by hand). (Refer to Figure 2-1.)

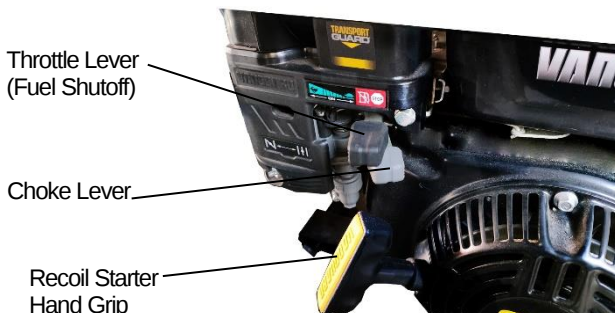


Figure 2-1: Operating Controls

2-2. Check the Engine Oil Level

Operation

Oil Recommendations

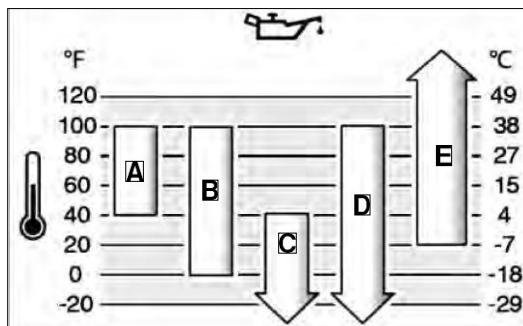
Oil Capacity: See the Specifications section.

NOTICE:

Some engines are shipped from Briggs & Stratton with or without oil. Always make sure that the engine has oil. If you start the engine without oil, it will be damaged beyond repair and will not be included under the warranty.

We recommend the use of Briggs & Stratton® Warranty Certified oils for best performance. Other high-quality detergent oils are permitted if classified for service SF, SG, SH, SJ or higher. Do not use special additives.

Outdoor temperatures determine the correct oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected. Engines on most outdoor power equipment operate well with 5W-30 Synthetic oil. For equipment operated in hot temperatures, Vanguard® 15W-50 Synthetic oil gives the best protection.



A	SAE 30 - Below 40 °F (4 °C) the use of SAE 30 will result in hard starting.
B	10W-30 - Above 80 °F (27 °C) the use of 10W-30 may cause increased oil consumption. Check the oil level frequently.
C	5W-30
D	Synthetic 5W-30
E	Vanguard® Synthetic 15W-50

Check Oil Level

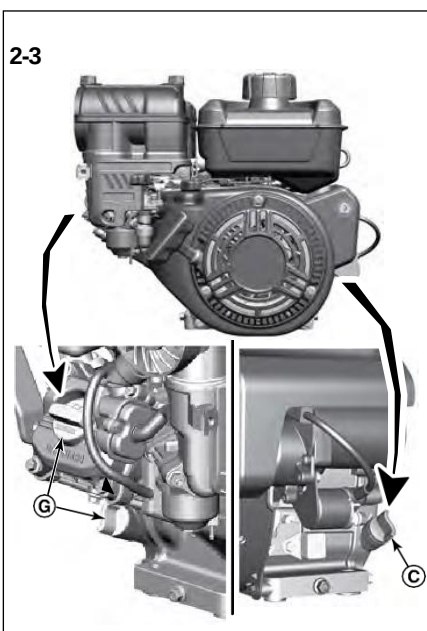
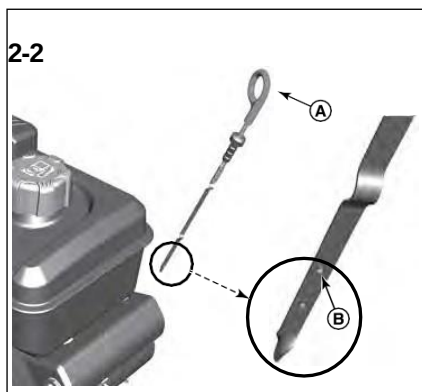


Figure: 2-2, 2-3 Oil Level

Before adding or checking the oil

- Make sure the engine is level.
- Clean the oil fill area of any debris.
- See the **Specifications** section for oil capacity.

NOTICE:

This engine was shipped from Briggs & Stratton without oil. Equipment manufacturers or dealers may have added oil to the engine. Before you start the engine for the first time, make sure to check the oil level and add oil according to the instructions in this manual. If you start the engine without oil, it will be damaged beyond repair and will not be covered under warranty.

1. Remove the dipstick (A, Figure 2-2) and wipe with a clean cloth.
2. Install the dipstick (A, Figure 2-2).
3. Remove the dipstick and check the oil level. Correct oil level is at the top of the full indicator (B, Figure 2-2) on the dipstick.
4. The engine has multiple oil fills (C, G, Figure 2-3). If the oil level is low, slowly add oil into one of the engine oil fills (C, G). **Do not overfill.** After adding oil, wait one minute and then check the oil level.
5. Reinstall the dipstick (A, Figure 2-2).

2-3 Check Engine Fuel

Refer to the Briggs & Stratton engine owner's manual.

WARNING:

- **GASOLINE IS HIGHLY FLAMMABLE AND EXPLOSIVE.**
- **MAKE SURE YOU REVIEW EACH WARNING IN ORDER TO PREVENT FIRE HAZARD.**
- **DO NOT REFILL TANK WHILE ENGINE IS RUNNING OR HOT.**
- **RISK OF BURNS. USE CAUTION WHEN DRAINING HOT ENGINE OIL. HOT OIL MAY BURN.**
- **CLOSE FUEL SHUT OFF VALVE BEFORE REFUELING.**
- **BE CAREFUL NOT TO GET DUST, DIRT, WATER OR OTHER FOREIGN OBJECTS INTO FUEL.**
- **WIPE OFF SPILLED FUEL THOROUGHLY BEFORE STARTING ENGINE.**
- **KEEP FLAMES AND SPARKS AWAY FROM THE PUMP.**
- **KEEP AWAY FROM OPEN FLAMES.**
- **DO NOT USE SMOKING MATERIALS WHEN FILLING THE FUEL TANK.**
- **DO NOT REFUEL WHILE SMOKING OR NEAR OPEN FLAME OR OTHER SUCH POTENTIAL FIRE HAZARDS. OTHERWISE FIRE ACCIDENT MAY OCCUR.**
- **AVOID REPEATED OR PROLONGED CONTACT WITH SKIN OR BREATHING OF VAPOR.**
- **KEEP OUT OF REACH OF CHILDREN.**

2-4 Check Fuel Level

- A. Remove cap from fuel tank. If fuel level is low, refill with unleaded automotive gasoline.
- B. Fuel tank capacities are provided below:

TE3-50V	0.82 gal.
TE3-80V	0.82 gal.

2-5 Pre-Start Checks

WARNING:

- **MAKE SURE YOU REVIEW EACH WARNING IN ORDER TO PREVENT FIRE HAZARD.**
- **KEEP AREA CLEAR OF FLAMMABLES OR OTHER HAZARDOUS MATERIALS.**
 - A. Check the following items before starting the engine.
 - (1) Fuel leakage from fuel hose, sediment cup, etc.
 - (2) Bolts and nuts for looseness. Components for damage or breakage.
 - (3) Check centrifugal pump surroundings.
 - (a) Keep centrifugal pump at least three (3) feet (one [1] meter) away from buildings or other structures.
 - (b) Only operate centrifugal pump in a dry, well-ventilated area.
 - (c) Keep exhaust pipe clear of foreign objects.
 - (d) Keep centrifugal pump away from open flame.
 - (e) Keep centrifugal pump on a stable and level surface.
 - (f) Do not block centrifugal pump air vents with paper or other material.

CAUTION:

OPERATING THE PUMP DRY WILL DAMAGE THE PUMP MECHANICAL SEAL. IF THE PUMP HAS BEEN OPERATED DRY, STOP THE ENGINE IMMEDIATELY, AND ALLOW THE PUMP TO COOL BEFORE PRIMING.

2-6 Starting and Operating the Engine

- A. Refer to the Briggs & Stratton engine owner's manual.
- B. Put the fuel valve in the ON position.
- C. Move the choke lever to the closed position.

NOTE:

- The choke may not be needed if the engine is warm or the air temperature is high.
- D. Turn the throttle lever to the ON position.
- E. Pull the starter grip lightly until resistance is felt, then pull briskly.

NOTE:

- Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.
- F. As the engine warms up, gradually move the choke lever to the OPEN position.

2-7 Using the Centrifugal Pump

- A. Connect suction and discharge hoses. Make sure suction hose is fitted with a strainer.
- B. Remove priming plug from top of pump and fill chamber with water.
- C. Operate the engine at idle speed for 3 to 5 minutes.
- D. After engine warm up, move the throttle lever to the operating speed.

2-8 Stopping the Centrifugal Pump

- A. Move the throttle lever fully to the right.
- B. **Throttle Control / Transport Guard®:** Move the throttle control / Transport Guard® to the STOP position.

2-9 Oil Alert

- A. The oil alert sensor detects the lowering of the oil level in the crankcase and automatically stops the engine when the oil level falls below the predetermined level.
 - (1) When the engine stops automatically, check the oil level. Refill engine oil to the upper level and restart the engine.
 - (2) If the engine does not start by usual starting procedures, check the oil level.

TROUBLESHOOTING

The troubleshooting tables below can be used as a guide to isolate centrifugal pump faults. Refer to these tables when the engine fails to start after several attempts. If, after following these procedures, the pump fails to start, contact the nearest Tsurumi pump dealer.

Table 3-1: Troubleshooting Table

Fault	Probable Cause	Remedy
Pump does not pump.	Insufficient priming water. Mechanical seal chipped or broken. Check valve damaged. Suction hose damaged or strainer clogged. Air leaks caused by O-ring damage.	Add more water through priming plug. Replace mechanical seal. Replace check valve. Replace hose. Clean strainer. Replace O-rings.
Discharge flow or pump pressure too low.	Air leaks caused by O-ring damage. Suction hose or strainer clogged. Excessive impeller clearance. Engine rpm too low. Lift head too high.	Replace O-rings. Replace hose. Clean strainer. Disassemble to obtain casing cover and impeller. Determine clearance and re-shim as required (refer to Replacement of Mechanical Seal). Check rpm and reset throttle as required. Lower lift head.
Pump primes too slowly.	Insufficient priming water. Mechanical seal chipped or broken. Check valve damaged. Suction hose damaged or strainer clogged. Air leaks caused by O-ring damage. Engine rpm too low. Lift head too high.	Add more water through priming plug. Replace mechanical seal. Replace check valve. Replace hose. Clean strainer. Replace O-rings Check rpm and reset throttle as required. Lower lift head.
Noise or vibration.	Faulty mounting.	Pump/engine attaching parts loose. Tighten as required. Damaged vibration isolation mounts. Replace mounts.

MAINTENANCE

4-1 Maintenance Schedule

To maintain the centrifugal pump in peak operating condition, observe and implement the maintenance and adjustment schedule in Table 4-1. Inspect and/or service the centrifugal pump at the intervals shown in Table 4-1.

WARNING:

- **SHUT OFF THE ENGINE BEFORE PERFORMING ANY MAINTENANCE. IF OPERATION OF THE ENGINE IS REQUIRED, MAKE SURE THE AREA IS WELL VENTILATED; THE ENGINE EXHAUST CONTAINS POISONOUS CARBON MONOXIDE GAS.**
- **IT MAY CAUSE BURNS WHILE THE ENGINE IS HOT. EQUIP APPROPRIATE WORKING GEAR AND USE CAUTION WHEN WORKING WITH HOT ENGINES.**
- **MOST USED OILS CONTAIN SMALL AMOUNTS OF SUBSTANCES THAT CAN CAUSE CANCER AND OTHER HEALTH PROBLEMS. DO NOT INHALE, INGEST, OR LEAVE IN CONTACT WITH THE SKIN FOR LONG PERIODS OF TIME.**

CAUTION:

- **REFER TO THE BRIGGS & STRATTON ENGINE OWNER'S MANUAL FOR OTHER MAINTENANCE REQUIREMENTS.**

Table 4-1: Maintenance Schedule

First 5 Hours
• Change oil
Every 8 Hours or Daily
• Check engine oil level • Clean area around muffler and controls • Clean air intake grille
Every 100 Hours or Annually
• Service exhaust system
Every 200 Hours or Annually
• Change engine oil • Clean air filter ¹
Every 600 Hours or Every 3 Years
• Replace air filter
Annually
• Replace spark plug • Service fuel system • Service cooling system ¹ • Check valve clearance ²

1. In dusty conditions or when airborne debris is present, clean more often.
2. Not required unless engine performance problems are noted.

4-2 Changing Engine Oil

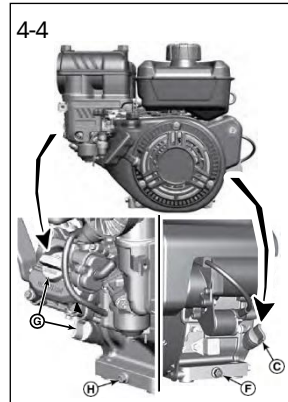
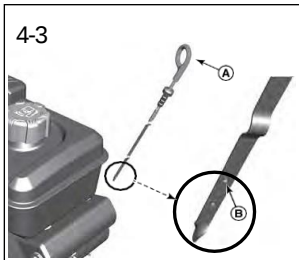
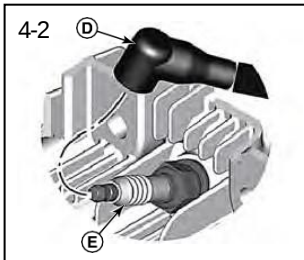
WARNING :

- **RISK OF BURNS. USE CAUTION WHEN DRAINING HOT ENGINE OIL. HOT OIL MAY BURN.**
See Figure: 4-2, 4-3, 4-4

Used oil is a hazardous waste product and must be disposed of properly. Do not discard with household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

Remove Oil:

1. With engine off but still warm, disconnect the spark plug wire (D, Figure 4-2) and keep it away from the spark plug (E).
2. Remove the dipstick (A, Figure 4-3).
3. The engine has two oil drain plugs. Remove one of the oil drain plugs (F, H, Figure 20). Drain the oil into an approved container.
4. After the oil has drained, install and tighten the oil drain plug (F, H, Figure 4-4).



NOTE:

- Engine oil capacity: 0.59 liters (0.62 U.S. Quart)

4-3 Air Cleaner Service

WARNING:

- **NEVER USE GASOLINE OR LOW FLASH POINT SOLVENTS FOR CLEANING THE AIR CLEANER ELEMENT. A FIRE OR EXPLOSION COULD RESULT.**

CAUTION:

- **NEVER RUN THE ENGINE WITHOUT THE AIR CLEANER. RAPID ENGINE WEAR WILL RESULT FROM CONTAMINANTS, SUCH AS DUST AND DIRT, BEING DRAWN THROUGH THE CARBURETOR AND INTO THE ENGINE.**
 - A. A dirty air cleaner will restrict airflow to the carburetor.
 - B. To prevent degraded engine operation, service the air cleaner regularly. Service more frequently when operating the engine in extremely dusty areas.

4-4 Sediment Cup Cleaning

WARNING:

- **GASOLINE IS EXTREMELY FLAMMABLE AND IS EXPLOSIVE UNDER CERTAIN CONDITIONS. DO NOT SMOKE OR ALLOW OPEN FLAMES OR SPARKS IN THE AREA.**
 - A. Turn the Throttle Control / Transport Guard to OFF (refer to Figure 2-1).
 - B. Remove the sediment cup and O-ring. Wash both parts in nonflammable or high flash point solvent.
 - C. Wipe the sediment cup and O-ring dry, then reinstall.

WARNING:

- **AFTER INSTALLING THE SEDIMENT CUP, CHECK FOR LEAKS, AND MAKE SURE THE AREA IS FREE OF RESIDUAL FUEL SPILLS OR SEEPAGE BEFORE STARTING THE ENGINE.**
 - D. Set the Throttle Control / Transport Guard (Figure 2-1) to ON.
 - E. Check for leaks.

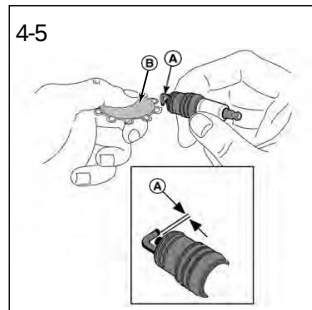
4-5 Cleaning and Adjusting Spark Plug

Recommended spark plugs: RC12YX (CHAMPION597383)

- A. To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.
- B. Remove the spark plug cap.
- C. Clean any dirt from around the spark plug base.
- D. Use the proper size spark plug wrench to remove the spark plug.

WARNING:

- **THE MUFFLER BECOMES VERY HOT DURING OPERATION AND REMAINS HOT FOR A WHILE AFTER STOPPING THE ENGINE.BE CAREFUL NOT TO TOUCH THE MUFFLER WHILE IT IS HOT.**
- E. Check the gap (A, Figure 4-5) with a wire gauge (B). If necessary, reset the gap. Install and tighten the spark plug to the recommended torque. For gap setting or torque, see the Specifications section.
 - F. Visually inspect the spark plug. Discard spark plug if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
 - G. Measure the plug gap with a feeler gauge. Adjust the gap as necessary by bending the side electrode (refer to Figure 4-3).
 - H. The gap should be 0.7 - 0.8 mm (0.028 - 0.031 inch) as shown.



4-6 Disassembly of Centrifugal Pump

WARNING:

- **MAKE SURE ENGINE OIL, GASOLINE, AND PUMP CHAMBER IS DRAINED OUT COMPLETELY BEFORE DISASSEMBLY.**
- **THE SHIPPING WEIGHT OF THE MODEL TE-SERIES PUMPS RANGE FROM 62 TO 64 POUNDS. TO AVOID PERSONAL INJURY, USE AN OVERHEAD LIFTING DEVICE OR GAIN THE ASSISTANCE OF ANOTHER PERSON TO LIFT THE PUMP ON AND OFF THE BENCH.**
- **IT IS RECOMMENDED THAT THE PUMP BE ASSEMBLED AND DISASSEMBLED ON A BENCH OR SIMILAR SURFACE WITH THE ENGINE SHROUD FACING DOWN. IN ADDITION, WOODEN BLOCKS IN A VARIETY OF LENGTHS AND THICKNESSES SHOULD BE AVAILABLE FOR SUPPORT OF THE ENGINE AFTER PUMP REMOVAL.**
- **A WORN IMPELLER MAY HAVE SHARP EDGES; BE CAREFUL TO AVOID INJURY.**

NOTE:

- Exception notes are provided where the procedures differ between pump models.
- Separate parts listings are provided for each model of centrifugal pump.
- The item numbers in procedures correspond with the item numbers used in the **REPLACEMENT PARTS** section of the manual. Refer to exploded view in Figure 4-4 for parts location. Use wooden blocks to steady and support frame (21) and engine (26) during disassembly and assembly

A. Remove Centrifugal Pump Components

- (1) Remove two bolts (18) from bracket (24) and pump casing (1). Remove two spring nuts (23) and two brackets (24).
- (2) Position the frame (21) so the pump is facing up (with the engine shroud down).
- (3) Remove two bolts (18) and lift casing (1) from casing cover (2).
- (4) Remove volute casing (4), packing (9), and O-ring (8). Check packing (9) and O-ring (8) for damage and replace if damaged.

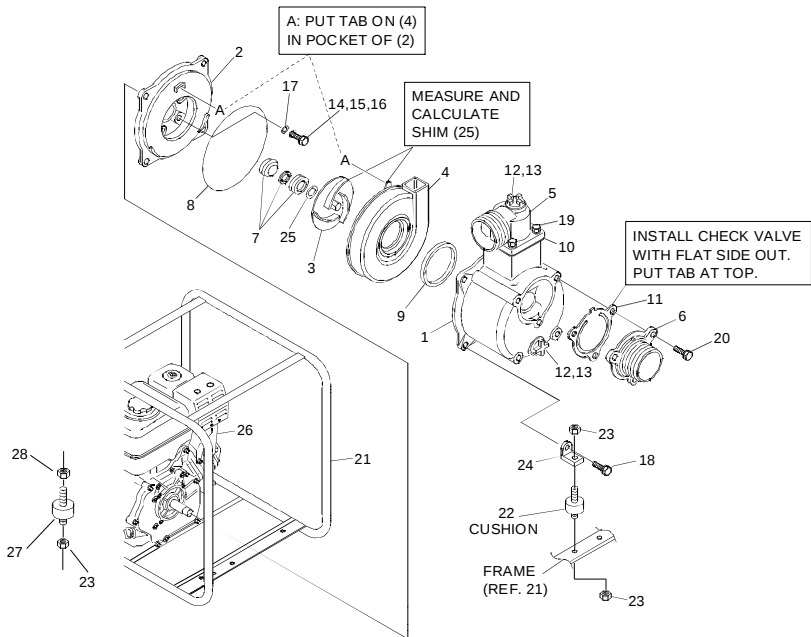


Figure 4-6: Removal of Internal Components

- (5) Using a hard plastic hammer, sharply rap on the end of the hex on impeller (3). If impeller (3) did not come loose, put a wooden block against one of the impeller vanes. Then strike the wooden block (counterclockwise) with a hammer to loosen the impeller.
- (6) Rotate impeller (3) until it can be removed from the threaded end of the engine crankshaft.
- (7) If installed, remove shim (25) from bore in impeller (or remove shim from end of engine crankshaft).
- (8) Remove four bolts (14), spring washers (15), plain washers (16), and seals (17). Remove casing cover (2) from the engine (26). Check the condition of seals (17) and replace if damaged.
- (9) Assemble the centrifugal pump according to the procedures in **Assembly of the Centrifugal Pump** unless one of the following applies:
 - (a) If the pump has been disassembled to replace mechanical seal (7), refer to **4-8. Replacement of Mechanical Seal** for replacement procedures.
 - (b) If the pump has been disassembled to replace cushions (22 or 27), refer to

4-9. Replacement of Cushions for replacement procedures.

- (c) If the pump has been disassembled to remove or replace engine (26), refer to **4-10. Replacement of Engine** for replacement procedures.

4-7 Replacement of Mechanical Seal

A. Description of the Mechanical Seal

- (1) The mechanical seal (7) is a two part seal. The seal consists of a fixed element and a rotating element.
- (2) The fixed element is installed in the center bore of the cover casing. The fixed element is sealed between the seal and the center bore that is provided by a strip of sealant on the outside diameter of the seal.
- (3) The rotating element is installed in the center bore of the impeller. The rotating element consists of a silicon-carbide mating ring and a close-fitting rubber cushion.
- (4) A static seal is provided between the pump casing and the volute casing.

B Removal of Mechanical Seal

- (1) Disassemble the pump only to the extent required to access the seal in casing cover and impeller (3). Refer to Remove Centrifugal Pump Components.
- (2) Remove old mechanical seal (7) from casing cover (2) using a driver similar to the driver in Figure 4-7.

NOTE:

- Sealant is used on the outside diameter of mechanical seal (7). The sealant has a strong bond in the casing cover bore and requires considerable driving force to remove the seal. Use of an arbor press is therefore recommended.

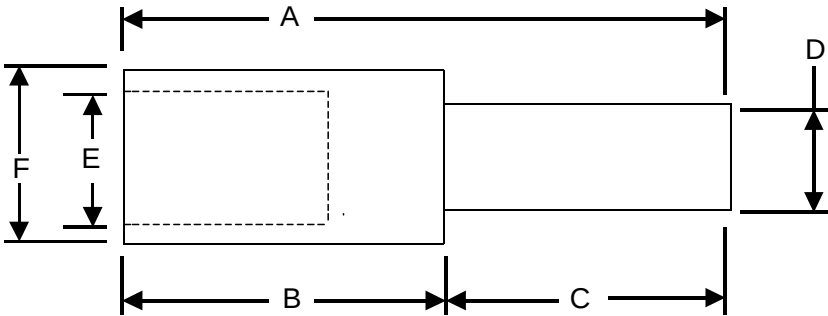


Figure 4-7: Mechanical Seal Installation/Removal Tool

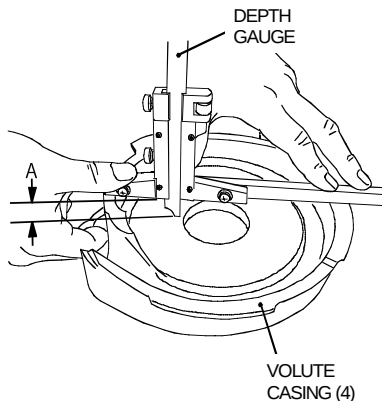
LEGEND

- A = B + C (Tool length)
- B = Overall uninstalled height of mechanical seal.
- C = Length of casing cover center bore from start of bore to face of installed seal. Multiply length times 2.
- D = Outside diameter of tool to have a slip fit with inside diameter of mechanical seal.
- E = Inside diameter of recess to be sized to fit over the mechanical seal. Recess depth to be enough to contact only the cup flange of the mechanical seal.
- F = Outside diameter to be same diameter as the cup flange on mechanical seal.
(The outside diameter of the tool should be sized to have a slip fit with the center bore of the casing cover (2). The inside diameter of the tool should be sized so the tool contacts the metal cup of the seal.)

- (3) Clean bore in casing cover to remove all traces of sealant residue.
- (4) Take the measurements needed for calculating the thickness of shim (25). The shim is sized to provide clearance between the casing cover (2) and impeller (3).
 - (a) Refer to Figures 4-8. Measure and record dimension A.
 - (b) Refer to Figures 4-9. Measure and record dimension B.
 - (c) Subtract dimension B from dimension A. The resultant dimension is the thickness of the shim (25).

$$\begin{array}{rcccl} \text{A} & \text{Minus} & \text{B} & = & \\ \text{(Depth of Volute Casing)} & & \text{(Height of Installed Impeller)} & & \text{(Shim Thickness)} \end{array}$$

- (5) Select the combination of shims (25) (see Figure 4-10) that will provide clearance of 0.020 inch to 0.040 inch (0.508 mm to 1.016 mm). Temporarily set shims (25) aside for installation later.
- (6) Complete assembly of the centrifugal pump according to the procedures in **Assembly of the Centrifugal Pump**.

**Figure 4-8: Measuring Volute Casing**

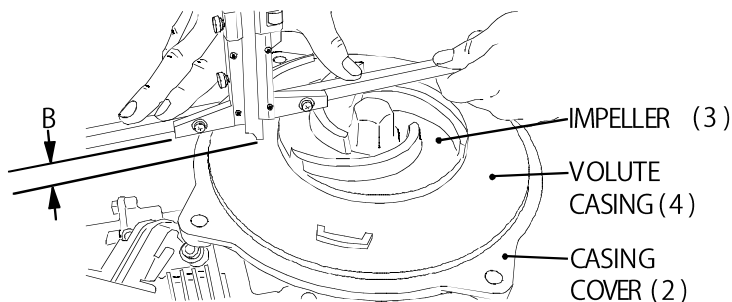


Figure 4-9: Measuring Impeller Depth

Figure 4-10: Shim Dimensions

4-8 Removal and Installation of Engine

- A. If you need to remove or replace engine (26) to access cushions (22 or 27), proceed as follows:
- (1) Refer to exploded view in **REPLACEMENT PARTS** section for parts location. Remove nuts (23 and 28). Lift engine (26) off threads of cushions (22 and 27) in frame (21).
 - (2) Check condition of cushions (22 and 27). Replace any damaged cushions.
 - (3) Position frame (21) so the engine (26) is in normal operating position (with fuel tank up).
 - (4) Remove two nuts (23) from cushions (22) in mounting flange of engine (26).

Model Number	Shim Thickness	OD x ID	Part Number
TE3-50V	0.3 mm (0.012 Inch)	20 x 18 mm	203100050
	0.6 mm (0.024 Inch)	(0.787 x 0.709 inch)	203100051
TE3-80V	0.3 mm (0.012 Inch)	24.2 x 20.0 mm	203100070
	0.6 mm (0.024 Inch)	(0.952 x 0.787 inch)	203100071
	1.0 mm (0.039 Inch)		203100072
* OD = Outside Diameter / ID = Inside Diameter			

- (5) Lift engine from threaded ends of cushions (22).
- (6) Align holes in mounting flange of replacement engine over the threaded ends of The cushions (22).

B. Assemble remaining components according to the instructions in
Centrifugal Pump.

4-9 Replacement of Cushions

NOTE:

- Use wooden blocks to support the centrifugal pump frame during disassembly and assembly.
- Refer to Figure 4-6 for location of parts used on Models TE3-50V and TE3-80V.

Replacement of Pump Cushions (22) on Models TE3-50V and TE3-80V.

- (1) Remove screws (18) from casing (2) and brackets (24).
- (2) Remove nuts (23) and brackets (24) from threaded end of cushions (22).
- (3) Remove nuts (23) from threaded end of cushion (22 and 27) (on the underside of frame crossover support). Remove cushions and check for damage; replace damaged cushions.
- (4) Install threaded end of new cushions (22 and 27) through holes at pump end of frame. Secure with nuts.
- (5) Install short end of new cushions (22 and 27) through holes at engine end of frame. Secure with nuts (23 and 28).

4-10 Assembly of Centrifugal Pump

WARNING:

- **THE SHIPPING WEIGHT OF THE MODEL TE-SERIES PUMPS RANGE FROM 62 TO 64 POUNDS. TO AVOID PERSONAL INJURY, USE AN OVERHEAD LIFTING DEVICE OR GAIN THE ASSISTANCE OF ANOTHER PERSON TO LIFT THE PUMP ON AND OFF THE BENCH.**
- **IT IS RECOMMENDED THAT THE PUMP BE ASSEMBLED AND DISASSEMBLED ON A BENCH OR SIMILAR STRUCTURE WITH THE ENGINE SHROUD FACING DOWN. IN ADDITION, WOODEN BLOCKS IN A VARIETY OF LENGTHS AND THICKNESS SHOULD BE AVAILABLE FOR SUPPORT OF THE ENGINE AFTER PUMP REMOVAL.**

NOTE:

- Separate parts listings are provided for each model of centrifugal pump. Make sure you order parts from the listing for your model of centrifugal pump (the model number is provided on the pump nameplate).
- Use wooden blocks to steady and support the frame (21), the pump, and the engine (26) during disassembly and assembly.
- These procedures assume that the engine is installed.
- Installation instructions for mechanical seal (7) are contained in **4-7. Replacement of Mechanical Seal.**
 - A. Position frame (21) with the engine (26) in normal operating position (with fuel tank up).
 - B. Make sure the fixed element of mechanical seal (7) is installed in casing cover (2).
 - C. Make sure the rotating element of mechanical seal (7) is installed in impeller (3). (The rotating element of the mechanical seal consists of the rubber cushion and mating ring.)
 - D. Position casing cover (2) against the engine with the center bore cutout in casing cover (2) facing downward at the bottom of the frame.
 - E. Install bolts (14), spring washers (15), plain washers (16), and seals (17) in holes in casing cover (2). Replace seals (17) if damaged.
 - F. Install O-ring (8) on casing cover (2).
 - G. If a new mechanical seal has been installed, take measurements and select shims required to provide clearance between the impeller (3) and the casing cover (2). Refer to **Replacement of Mechanical Seal** for shim measurement procedures.
 - H. Install shim (25) in bore of impeller (3).
 - I. Install impeller on end of engine crankshaft (26) and rotate impeller (3) (clockwise) until tight.
 - J. Install packing (9) over raised lip on volute casing (4).

- K. Install volute casing (4). Align tab on volute casing (4) with raised alignment marks at the 0-degree position on casing cover (2). (The volute casing should also be constrained by raised alignment marks at the 135-degree and 225-degree positions on the casing cover.)
- L. Install casing (1) over volute casing (4) and onto casing cover (2). Install four bolts (18).
- M. Install two brackets (24) over threaded end of cushion (22). Install two screws (18) through bracket and into casing (1); do not tighten.
- N. Install nuts (23) on threaded end of cushions (22).
- O. Tighten screws (18) and nuts (23).

4-11 Replacement of Check Valve

- A. Remove three bolts (20), check valve (11), and suction case (6).
- B. Discard damaged check valve (11).
- C. Place the flat side of the replacement check valve (11) against the flat side of the suction case (6). Position the check valve (11) with the valve pivot point in the top (zero degree position).
- D. Align bolt holes in replacement check valve (11) and suction case (6). (Refer to Figure 4-6 for the correct orientation).
- E. Attach suction case (6) to pump casing (1) using bolts (20)

STORAGE

5-1 Procedures for Storing Pump

WARNING:

- To avoid severe burns or fire hazards, let the engine cool before transporting it or storing it indoors.
 - When transporting the pump, turn the fuel shutoff valve to the STOP position and keep the engine level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.
 - If your pump will be stored with gasoline in the fuel tank and carburetor, it is important to reduce the risk of gasoline vapor ignition. Select a well-ventilated storage area away from any appliance that operates with the flame, such as furnace, water heater, or clothes dryer. Also avoid any area with a spark-producing electric motor, or where power tools are operated.
- A. The following procedures should be followed before storing your pump for periods of 6 months or longer.
- (1) Carefully drain fuel from the fuel tank; gasoline left in the fuel tank will eventually deteriorate making engine starting difficult.
 - (2) Remove the carburetor float chamber and also drain the carburetor.
 - (3) Change engine oil.
 - (4) Check for loose bolts and screws; tighten if necessary.
 - (5) Clean pump thoroughly with oiled cloth. Spray with preservative if available. **NEVER USE WATER TO CLEAN PUMP!**
 - (6) Pull starter handle until resistance is felt, leaving handle in that position.
 - (7) Store pump in a well-ventilated, low humidity area.

REPLACEMENT PARTS

6-1 Introduction

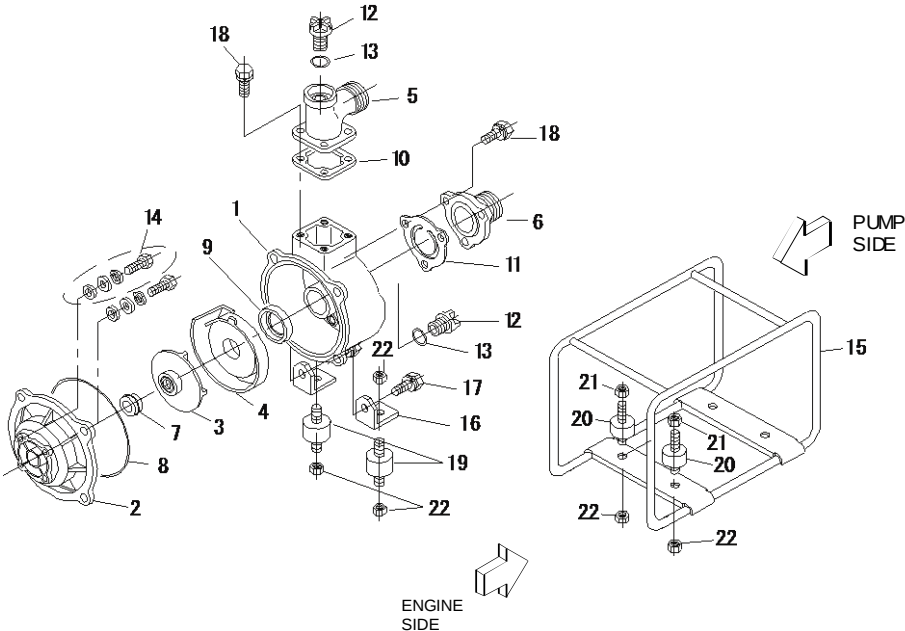
This section provides exploded view illustrations that show the replacement parts for Tsurumi Centrifugal Pumps, Models TE3-50V, TE3-80V. Also provided are parts listings that provide part number, description, and quantity. The item numbers shown on the illustrations correspond with the item numbers in the facing parts listing.

6-2 Ordering Parts

Order replacement parts from:

Tsurumi (America), Inc.
1625 Fullerton Court,
Glendale Heights, IL 60139
Tel: 1-888-878-7864
Fax: 1-630-766-6445
E-mail: info@tsurumiamerica.com
Website: <https://www.tsurumipump.com>

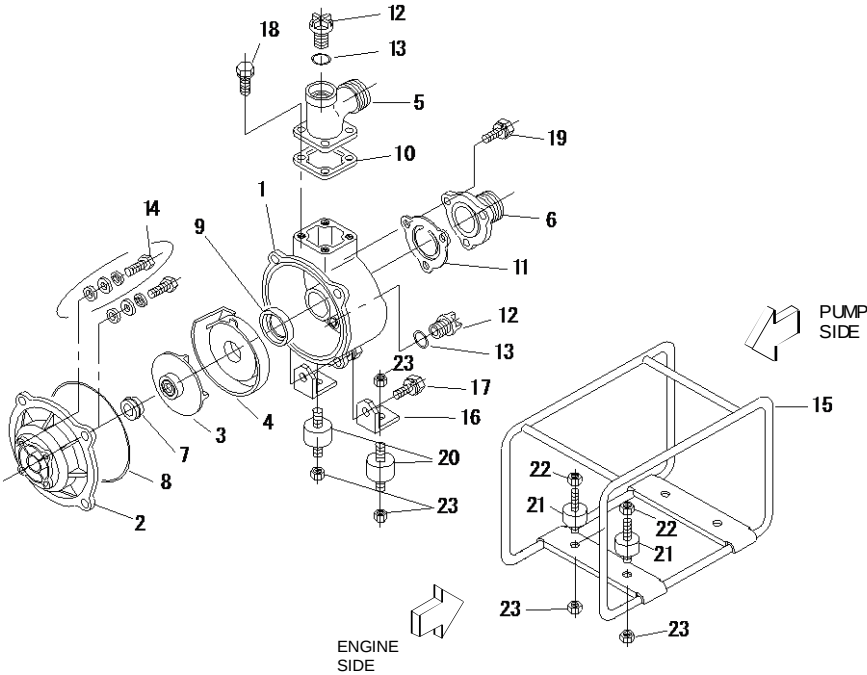
Exploded View - Model TE3-50V Centrifugal Pump



Parts List - Model TE3-50V Centrifugal Pump

Ref. No.	Part Number	Description	Size	Qty
1	200200146	CASING		1
2	200200772	CASING COVER		1
3	200210220	IMPELLER		1
4	200210010	VOLUTE CASING		1
5	200200611	BEND, DISCHARGE	2" NPT	1
6	200200231	FLANGE, SUCTION	2" NPT	1
7	201100051	MECHANICAL SEAL		1
8	200800180	O-RING CASING		1
9	200900240	PACKING, INNER CASING		1
10	200900170	PACKING, BEND		1
11	200900120	CHECK VALVE		1
12	200500040	PLUG		2
13	200800020	O-RING		2
14	203000101	CASING BOLT ASSY	M 8x50	4
15	200100 280	FRAME		1
16	200300180	BRACKET		2
17	203000800	BOLT , HEX	M10 X 30L (SW) (BRACKET TO PUMP)	4
18	203000041	BOLT HEX	M8 x 25L (SW) (DISCHARGE BEND)	7
19	200900370	CUSHION RUBBER	PUMP SIDE	2
20	200900410	CUSHION RUBBER	ENGINE SIDE	2
21	203200050	FLANGE NUT	M8 (F) (ENGINE TO CUSHION)	2
22	203200030	SPRING NUT	M8 (F) (CUSHIONS TO FRAME) (PUMP TO CUSHION)	6

Exploded View - Model TE3-80V Centrifugal Pump



Parts List - Model TE3-80V Centrifugal Pump

Ref. No.	Part Number	Description	Size	Qty
1	200200186	CASING		1
2	200200772	CASING COVER		1
3	200210180	IMPELLER		1
4	200210020	VOLUTE CASING		1
5	200200620	BEND, DISCHARGE	3" NPT	1
6	200200600	FLANGE, SUCTION	3" NPT	1
7	201100051	MECHANICAL SEAL		1
8	200800180	O-RING CASING		1
9	200900180	PACKING, INNER CASING		1
10	200900190	PACKING, BEND		1
11	200900110	CHECK VALVE		1
12	200500040	PLUG		2
13	200800020	O-RING		2
14	203000101	CASING BOLT ASSY	M8×50	4
15	200100280	FRAME		1
16	200300180	BRACKET		2
17	203000800	BOLT HEX	M10 X 30L (SW) (BRACKET TO PUMP)	4
18	203000810	BOLT HEX	M8 x 25L (SW) (DISCHARGE BEND)	4
19	203000820	BOLT HEX	M8 x 30L (SW) (SUCTION FLANGE)	3
20	200900370	CUSHION RUBBER	PUMP SIDE	2
21	200900410	CUSHION RUBBER	ENGINE SIDE	2
22	203200050	FLANGE NUT	M8 (F) (ENGINE TO CUSHION)	2
23	203200030	SPRING NUT	M8 (F) (CUSHIONS TO FRAME) (BRACKET TO CUSHION)	6

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