

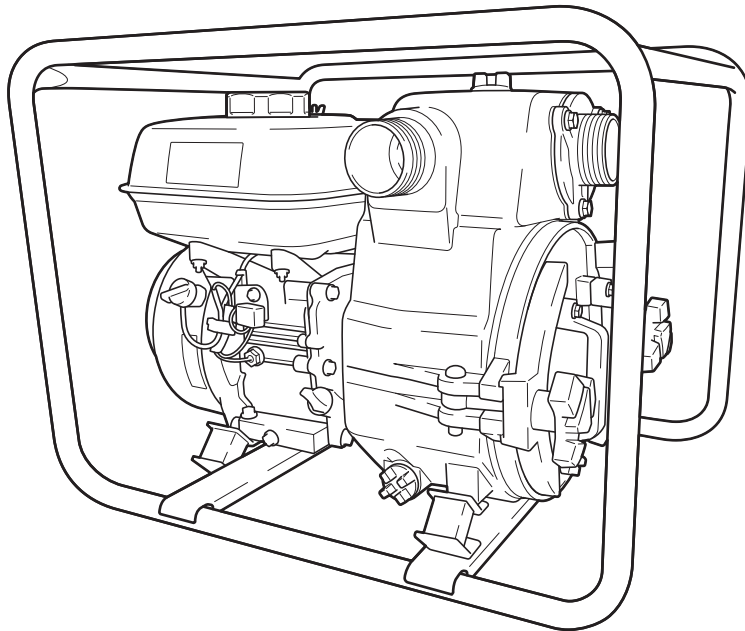


EPT3 Series

TRASH PUMPS

EPT3-50HA
EPT3-80HA
EPT3-100HA

OPERATION, SERVICE, AND REPAIR MANUAL



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TSURUMI MANUFACTURING CO., LTD.

INTRODUCTION

Using Your Tsurumi Operation, Service and Repair Manual

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

Tsurumi Trash Pumps are designed to pump water that is not intended for human consumption. Other uses can result in injury to the operator or damage to the pump and property.

This manual applies to the Tsurumi trash pumps listed below. The specifications and key features of the trash pumps are provided in the **SPECIFICATION** section and **DESCRIPTION** section respectively.

EPT3-50HA
EPT3-80HA
EPT3-100HA

This manual provides instructions for operation, service, and repair of your trash pump. We strongly recommend that those who operates the trash pump should acknowledge the pump features, controls, and their functions before operating the pump.

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

Operation, handling, repair, and service information including important safety information for Honda engine are provided in the Owner's Manual for Models GX160, GX240, and GX340. A copy of the Owner's Manual has been provided in the trash pump's literature package. Parts information for the Honda Engine is available in Honda's Parts Catalogs.

Separate instructions are provided in the procedure, for the pump models having structure and components different from the representative model.




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







If you have any problems with your trash pump that cannot be resolved using the Operation, Service and Repair Manual, or any questions regarding the operation, service, repair, or maintenance of the trash pump, contact your local Tsurumi trash pump dealer.

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







1 BE SURE TO READ FOR YOUR SAFETY
















- THE TRASH PUMP IS DESIGNED TO GIVE SAFE AND RELIABLE SERVICE WHEN OPERATED ACCORDING TO THE INSTRUCTIONS IN THE TECHNICAL MANUAL PROVIDED WITH THE TRASH PUMP.
- DO NOT OPERATE THE TRASH 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 TRASH 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 trash pumps are designed to pump only 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 trash 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 trash pump inside a room, closed garage, cave, tunnel, or other insufficiently ventilated area. Always operate the trash 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 trash pump to another work site. If the trash pump is tilted or moved during operation, fuel may spill and/or the trash 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 trash pump. Be careful not to place fuel, matches, gunpowder, oily cloths, straw, or any other combustible objects near the trash 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 trash pump at least 1 meter (3 feet) away from any structure or building during use. When a trash 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 trash pump nor cover it with a box. The trash pump has a built-in forced-air cooling system and may overheat if it is enclosed.
	● Operate the trash pump on a level surface. It is not necessary to prepare a special foundation for operating the trash pump. However, the trash 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 trash pump.






■ ASEGÚRESE DE LEER ESTE MANUAL PARA SU SEGURIDAD

- LA BOMBA DE BASURA ESTÁ DISEÑADA PARA DAR UN SERVICIO SEGURO Y CONFIABLE CUANDO SE OPERA SEGÚN LAS INSTRUCCIONES DEL MANUAL TÉCNICO SUMINISTRADO CON LA BOMBA DE BASURA.
- NO UTILICE LA BOMBA DE BASURA 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 DE BASURA, 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	
	<ul style="list-style-type: none"> ● 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.
	<ul style="list-style-type: none"> ● 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.
	<ul style="list-style-type: none"> ● Las bombas de basuras 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.
	<ul style="list-style-type: none"> ● 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 de basura 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 de basura dentro de una habitación, garaje cerrado, cueva, túnel u otra zona sin ventilación suficiente. Utilice siempre la bomba de basura 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 de basura a otro lugar de trabajo. Si la bomba de basura se inclina o se mueve durante el funcionamiento, el combustible puede derramarse y/o la bomba de basura 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 de basura. Tenga cuidado de no colocar combustible, cerillas, pólvora, paños aceitosos, paja o cualquier otro objeto combustible cerca de la bomba de basura.
	● 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 de basura a al menos 1 metro (3 pies) de distancia de cualquier estructura o edificio durante el uso. Cuando se coloca una bomba de basura 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 de basura ni la cubra con una caja. La bomba de basura tiene un sistema de enfriamiento de aire comprimido incorporado y puede sobrecalentarse si está encerrada.
	● Utilice la bomba de basura sobre una superficie nivelada. No es necesario preparar una base especial para el funcionamiento de la bomba de basura. Sin embargo, la bomba de basura 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 agarrotarse incluso si el nivel de aceite está cerca del nivel superior. Por lo tanto, elija una superficie nivelada para operar la bomba de basura.






■ VEILLEZ À LIRE ATTENTIVEMENT POUR VOTRE SÉCURITÉ


- LA TRASH POMPE EST CONÇUE POUR GARANTIR UN FONCTIONNEMENT SÛR LORSQU'ELLE EST UTILISÉE SUIVANT LES INSTRUCTIONS DU MANUEL TECHNIQUE FOURNI AVEC LA TRASH POMPE.
- NE PAS UTILISER LA TRASH POMPE 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 TRASH POMPE, 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

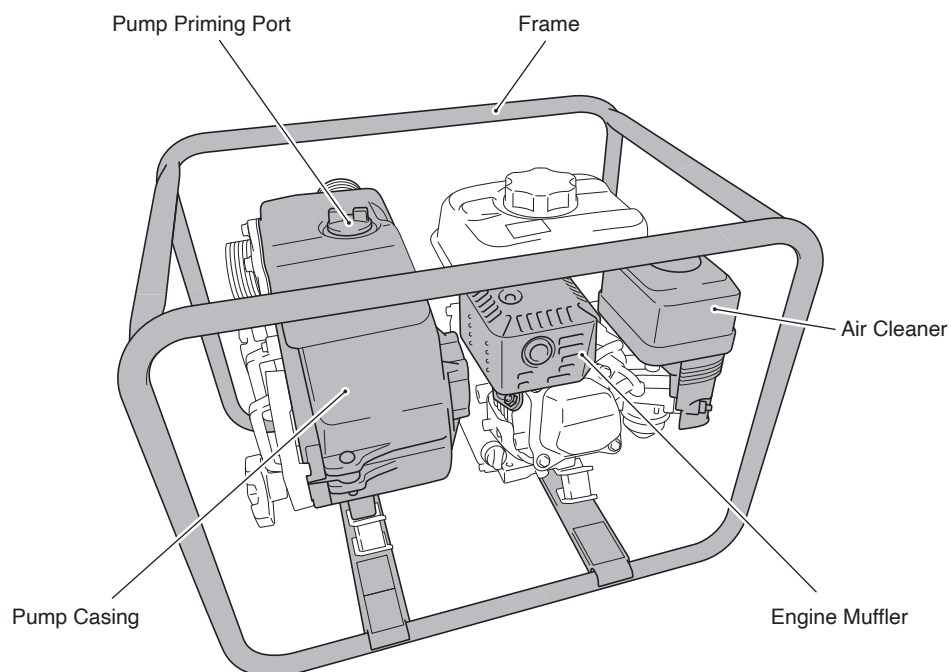
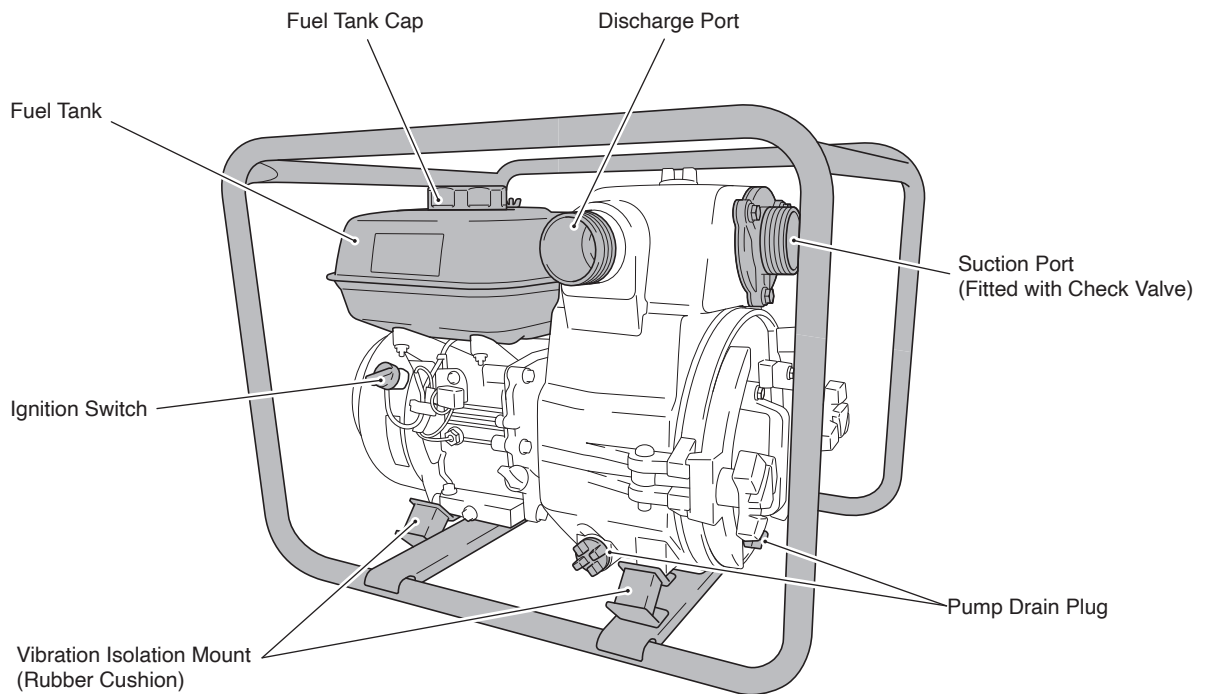
 AVERTISSEMENT	
	<ul style="list-style-type: none"> ● Il est de la responsabilité de l'opérateur de fournir les protections nécessaires à la protection des personnes et des biens. Savoir comment arrêter la pompe rapidement en cas d'urgence. Si vous vous éloignez de la pompe pour une raison quelconque, veillez à toujours couper le moteur. Comprendre 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.
	<ul style="list-style-type: none"> ● 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.
	<ul style="list-style-type: none"> ● Les pompes trashes 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.
	<ul style="list-style-type: none"> ● 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.

 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 trash pompe 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 trash pompe dans une pièce, un garage fermé, une cave, un tunnel ou toute autre zone insuffisamment aérée. Faites toujours fonctionner la trash pompe 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 trash pompe à un autre lieu de travail. Si la trash pompe est inclinée ou déplacée pendant le fonctionnement, le carburant risque de se déverser et/ou la trash pompe 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 trash pompe. 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 trash pompe.
	● 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'épaule 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 trash pompe à au moins 1 mètre (3 pieds) de toute structure ou bâtiment pendant l'utilisation. Lorsqu'une trash pompe 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 trash pompe et ne la recouvrez pas avec un boîtier. La trash pompe est dotée d'un système de refroidissement à air forcé intégré et peut surchauffer si elle est enfermée.
	● Actionnez la trash pompe sur une surface plane. Il n'est pas nécessaire de préparer une embase spéciale pour l'utilisation de la trash pompe. Toutefois, la trash pompe 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 trash pompe.

2 PART NAMES AND SAFETY LABELS

Pump Components and Controls Location

Pump Components & Controls



Safety Label Location

The labels attached to the pump body have important safety information. Make sure you have acknowledged them all before operating the pump. And these labels must always be attached to the pump body. If for some reason, they get peeled off or the readability of the content is poor, contact your Tsurumi Pump dealer/supplier for the replacement.

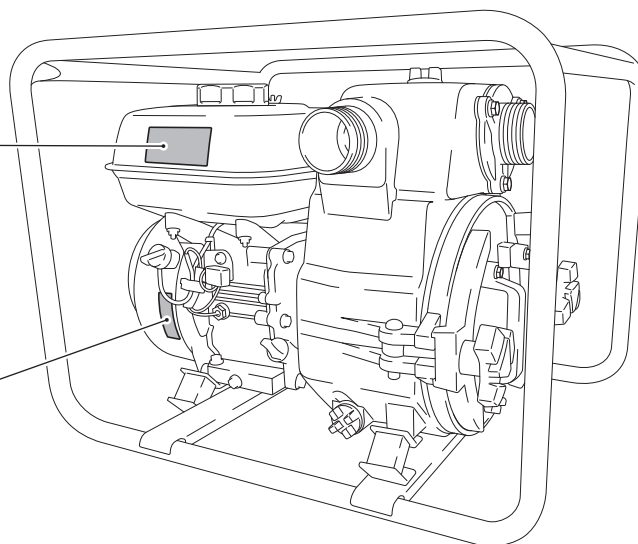
Pump Safety Label Location

⚠ WARNING

Gasoline is highly flammable and explosive.
Turn engine off and let cool before refueling.
The engine emits toxic carbon monoxide.
Do not run in an enclosed area.
Read Owner's Manual before operation.

THIS SPARK IGNITION SYSTEM COMPLIES WITH
CANADIAN ICES-002.
CE SYSTÈME D'ALLUMAGE PAR ETINCELLE EST
CONFORME À LA NORME NMB-002 DU CANADA.





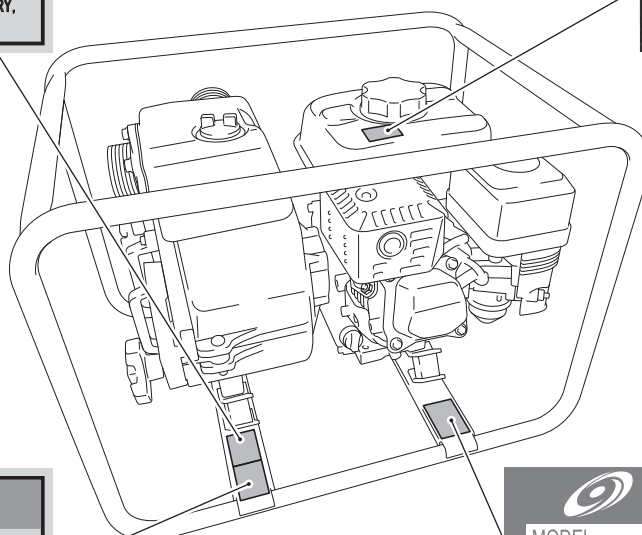
⚠ WARNING

READ OPERATION, SERVICE, AND REPAIR MANUAL
BEFORE OPERATION.

DO NOT PUMP CORROSIVE OR FLAMMABLE LIQUIDS.
DO NOT USE THE PUMP 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.


⚠ CAUTION

**HOT MUFFLER CAN
BURN YOU.**
Stay away if engine
has been running.



⚠ CAUTION

- BEFORE STARTING ALWAYS FILL
PUMP CASING WITH WATER.
DRY OPERATION WILL DAMAGE
THE SEAL.
- TIGHTEN HOSE-COUPLING
PACKING OR RELEASE PIPE
TO SUCTION SIDE.

 TSURUMI PUMP

MODEL	
SUC.&DIS.BORE SIZE	
MAX.CAPACITY	
MAX.HEAD	
OUTPUT	
SERIAL NO.	

TSURUMI MANUFACTURING CO.,LTD.
MADE IN JAPAN No.204003341

3 SPECIFICATIONS AND PERFORMANCE

Specifications / Key Features

- **Heavy-duty Honda Engine**.....proven reliability — quiet operation — higher fuel efficiency
- **Oil Level Sensor**.....prevents engine operation when oil level falls below the safe level
- **Clean-out Cover**..... facilitates the cleaning of pump casing without removing the suction hose
- **New Design**.....larger pump casing design with efficient hydraulic components
- **Mechanical Seal**.....silicon carbide seal element for longer service life
- **Rubber Vibration Isolation Mounts**.....isolates the frame from pump/engine vibrations, reduces the noise as well as damages to the base support/foundation.
- **Durable Rolled Steel Frame**.....for higher strength and durability
- **High Chrome Impeller**.....enhances the endurance of the impeller
- **Cast Iron Volute Casing/Stainless Steel Wear Plate/Galvanized Steel Hose Couplings.**

Specifications of the Pump

MODELS			EPT3-50HA	EPT3-80HA	EPT3-100HA
PUMP	Pump Output	Gal./Min-to-Total Head	See Performance Curve	See Performance Curve	See Performance Curve
	Suction Size	Inches	2 NPT Male	3 NPT Male	4 NPT Male
	Discharge Size	Inches	2 NPT Male	3 NPT Male	4 NPT Male
ENGINE	Engine Model (Honda)	- - - -	GX160	GX240	GX340
	Max. HP (rpm)	hp/rpm	4.8 / 3600 rpm	8.0 / 3600 rpm	10.7 / 3600 rpm
	Displacement	CC (In ³)	163 (9.9)	270 (16.5)	389 (23.7)
	Fuel Tank Capacity	Gals.	0.82	1.40	1.61
	Noise Level (Rated Load)	dB	64	68	72
	Starting System	- - -	Recoil	Recoil	Recoil
SET	Dimensions (L x W x H)	Inches	23 x 18 x 17	27 x 20 x 25	30 x 20 x 26
	Shipping Weight	Lbs.	82	136	160
	Max. Solid Passage Dia.	Φ (inches)	φ0.78	φ1.21	φ1.21

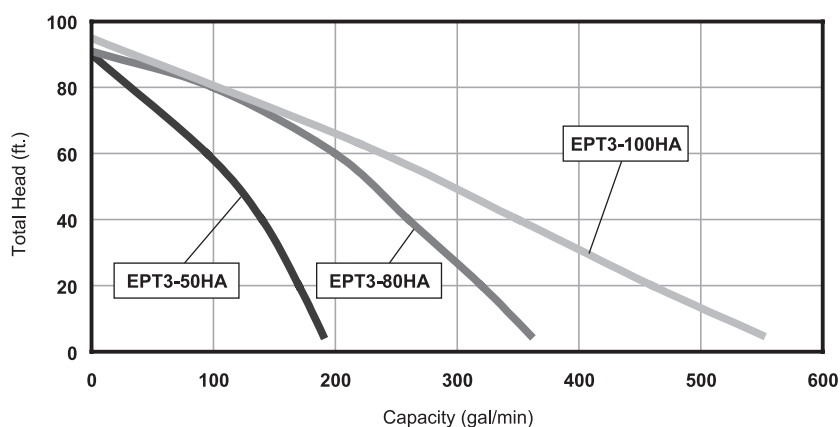
* Please securely attach the strainer to prevent large solids from getting into the pump.

Performance Curve

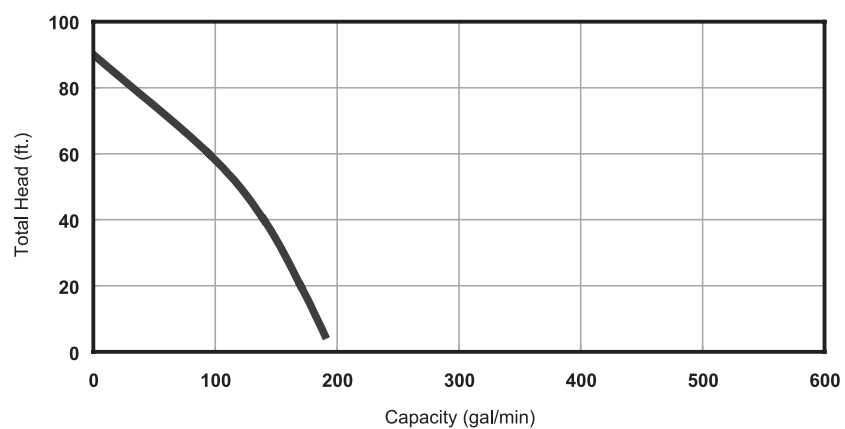
Refer to the following **performance curves** for the pumping capacity of the trash pumps.

GROUP PERFORMANCE

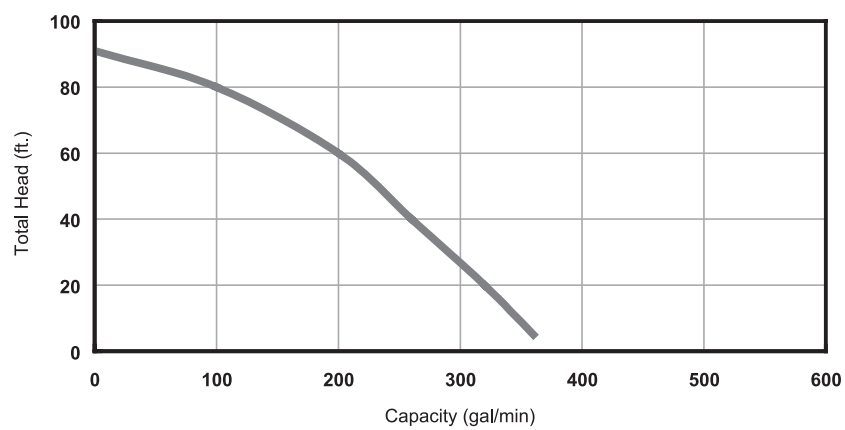
MODELS:
EPT3-50HA
EPT3-80HA
EPT3-100HA



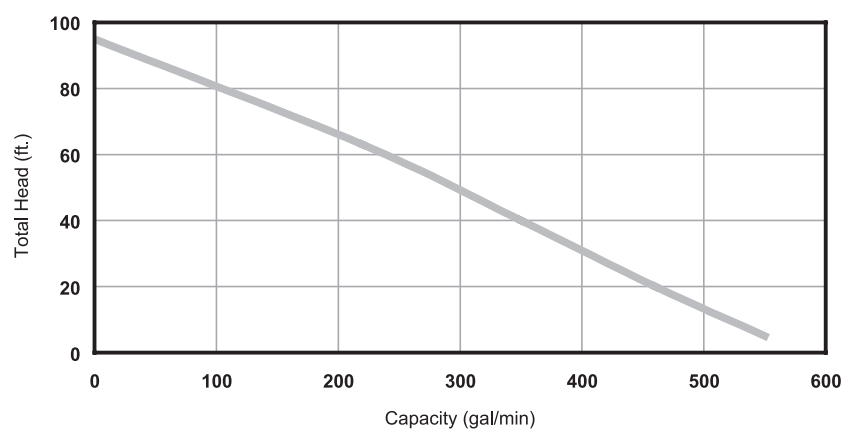
Model: EPT3-50HA



Model: EPT3-80HA



Model: EPT3-100HA



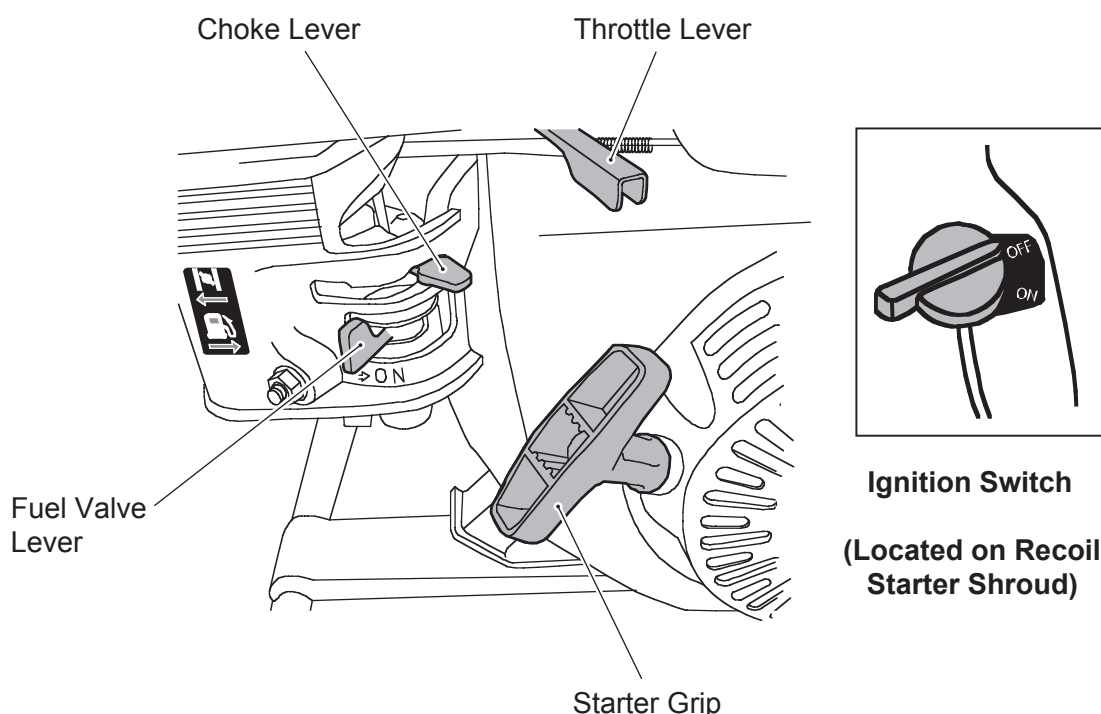
4 OPERATING INSTRUCTIONS

Note: REFER TO THE **HONDA ENGINE OWNER'S MANUAL** FOR OTHER OPERATING INSTRUCTIONS AND SAFETY INFORMATION.

Operating Controls

- A. The performance of the trash pump is controlled by using the engine operating controls provided in the engine unit.
- B. The operating controls consist of a throttle lever (for a speed control), choke lever (for cold weather starting), fuel valve lever (to prevent fuel spill), and a recoil starter (to crank the engine by hand).

Operating Controls



Pre-Start Checks



WARNING

- MAKE SURE THAT YOU HAVE ACKNOWLEDGED EACH WARNING BEFORE OPERATING THE PUMP TO PREVENT POSSIBLE FIRE HAZARDS.
- KEEP THE PUMP OPERATING AREA CLEAR OF FLAMMABLES OR OTHER HAZARDOUS MATERIALS.

Inspect the following sections before starting/operating the pump.

- A. Engine section
 - (a) Check the Leakage of gasoline or engine oil.
 - (b) Clean out excessive dirt or debris, especially around the muffler and recoil starter.
 - (c) Check the air filter element.
 - (d) Check that no Indication of damage or breakage on the components.
 - (e) Check engine oil level (refer to **Check Engine Oil Level** on page 13).
 - (f) Check fuel level (refer to **Check Fuel Level** on page 15) .

B. Pump section

- (a) Make sure that there is no blockage on the air vents of the pump with paper or other similar materials.
- (b) Check the suction hose and the discharge hose are connected properly so that there would be no air leakages on suction side and/or water leakages on the discharge side of the pump during operation.
- (c) Make sure that the strainer is in good condition and is attached securely to the free end of the suction hose. The strainer prevents the pump from getting clogged or damaged by the debris.



CAUTION

Improper connection of the hoses significantly reduces the pump performance. In addition, the discharge hose could come off the pump under high pressure if not connected properly. And which might not only damage the surrounding objects but would also endanger human lives.

C. Check that all shield and covers are in place and all fasteners are tightened securely.

D. Check trash pump surroundings

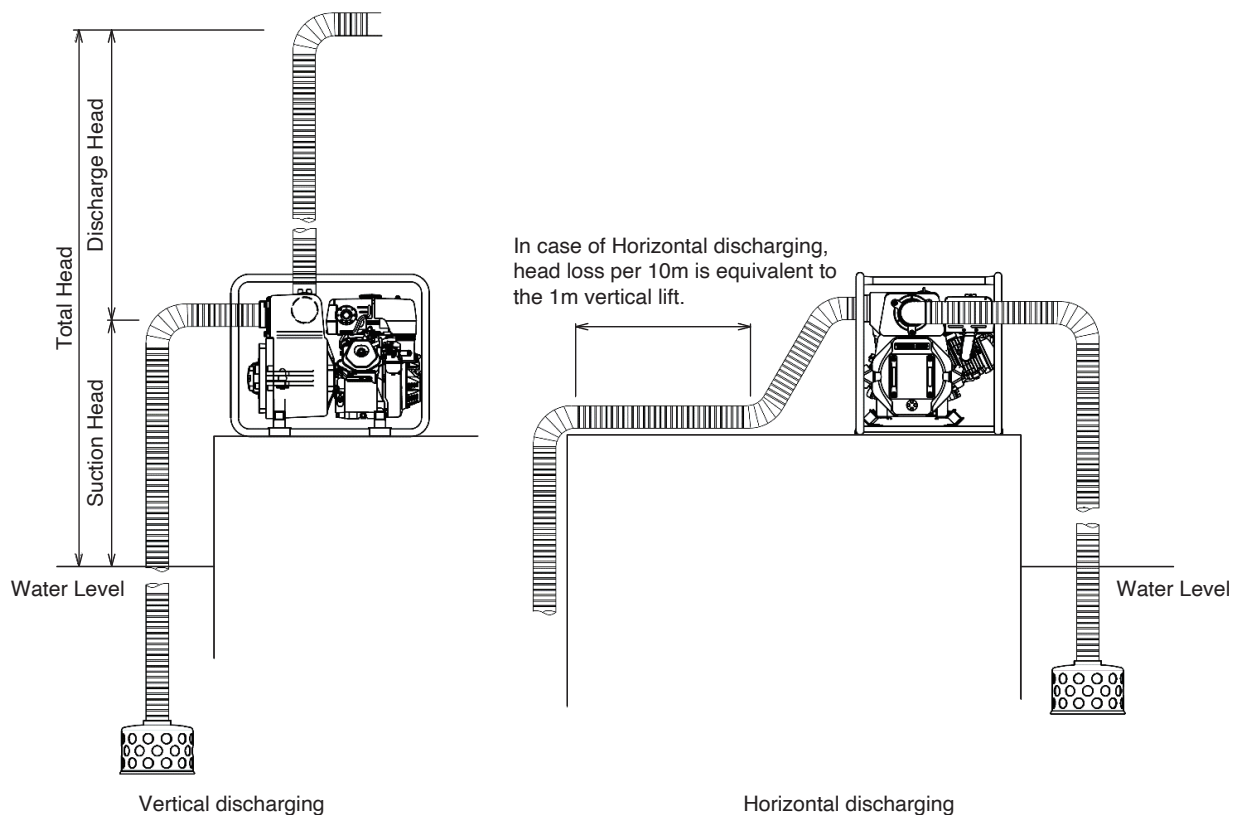
- (a) Keep trash pump at least three (3) feet (one [1] meter) away from buildings or other structures.
- (b) Operate the trash pump only in a dry, well-ventilated area.
- (c) Keep the trash pump away from open flame.
- (d) Keep the trash pump on a level and stable surface.

E. Pump location/placement

- (a) Place the pump close to water level as much as possible for better pump performance. Also, if possible, use a short and large diameter hose instead of a long and small diameter hose to minimize the head losses across the hose.
- (b) The pump should be placed in such a way that the suction head of the pump is always smaller than the discharge head.

Note: *The maximum allowable suction head for all models of the trash pump is twenty-six (26) feet (eight [8] meter) and which may vary depending upon the operating conditions.*

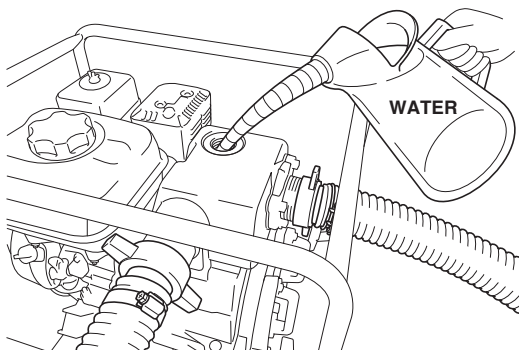
Pump Placement



F. Pump Priming

Before starting the pump, remove the pump priming plug, and fill the pump casing chamber with water. As the pump casing chamber is fully-filled, reinstall the priming plug and tighten it securely.

Pump Priming



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.
- MAKE SURE THE PUMP PRIMING PLUG IS TIGHTENED SECURELY AFTER FILLING THE CASING CHAMBER. A LOOSE-TIGHTENED PRIMING PLUG MIGHT COME OFF UNDER HIGH PRESSURE DUE TO WHICH SURROUNDING OBJECTS MIGHT BE DAMAGED AS EXPOSED TO WATER.

Check Engine Oil Level

CAUTION

- CHECK THE ENGINE OIL LEVEL BEFORE EACH USE, OR EVERY 10 HOURS FOR CONTINUOUS OPERATION.
- ENGINE OIL IS A MAJOR FACTOR AFFECTING THE PERFORMANCE AND SERVICE LIFE OF ENGINE. NON-DETERGENT OILS AND 2-STROKE OILS ARE NOT RECOMMENDED BECAUSE OF THEIR INADEQUATE LUBRICATING CHARACTERISTICS.
- CHECK THE OIL LEVEL WITH THE ENGINE STOPPED AND ON A LEVEL SURFACE.
- RUNNING THE ENGINE WITH A LOW OIL LEVEL CAN CAUSE ENGINE DAMAGE.

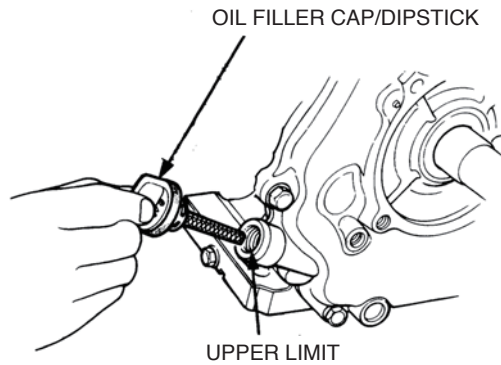
- A. Use 4-stroke motor oil that meets or exceeds the requirements for API service classification SJ or later (or equivalent). Always check the API service label on the oil container to be sure it includes the letters SJ or later (or equivalent). For general use SAE 10W/30 is recommended.
- B. Oil with other than recommended viscosity grades could be used when the surrounding average temperature is within the indicated range.

Oil Viscosity Grade-to-Temperature Recommendations

Single grade	5W						
	10W						
	20W						
	#20						
	#30						
	#40						
Multi-grade	10W-30						
	10W-40						
Ambient temperature	-20	-10	0	10	20	30	40°C
	-4	14	32	50	68	86	104°F

- C. When checking oil, observe the following (refer to **Checking Oil Level shown below**):
- (a) Make sure the engine is on a level surface.
 - (b) Remove the oil filler cap/dipstick and wipe it clean.
 - (c) Insert the filler cap/dipstick into the oil filler neck, but do not screw it in.
 - (d) Remove the filler cap/dipstick and check the oil level.

Checking Oil Level



- (e) If the level is near or below the lower limit mark on the dipstick, fill with the recommended oil to the upper limit mark (bottom edge of the oil fill hole). Be careful not to overfill. (refer to **Engine oil capacity** on page 18)
- (f) Reinstall the oil filler cap/dipstick securely.

Oil Alert System

The oil alert system prevents engine damage due to an insufficient engine oil operation. The equipped oil level sensor detects the oil level and provides a signal to stop the engine automatically if the oil level falls below the safe level.

- A. If the engine stops automatically during operation and will not restart, check the oil level before troubleshooting in other areas. And if the oil level is low, refill up to the upper level and restart the engine.

Check Engine Fuel



WARNING

- GASOLINE IS HIGHLY FLAMMABLE AND EXPLOSIVE. MAKE SURE YOU REVIEW EACH WARNING IN ORDER TO PREVENT FIRE HAZARD.
- DO NOT REFUEL WHILE ENGINE IS RUNNING OR HOT.
- RISK OF BURNS. USE CAUTION WHEN DRAINING HOT ENGINE OIL. HOT OIL MAY BURN.
- BE CAREFUL NOT TO GET DUST, DIRT, WATER OR OTHER FOREIGN OBJECTS INTO FUEL.
- WIPE OFF SPILLED FUEL THOROUGHLY BEFORE STARTING THE ENGINE.
- KEEP FLAMES AND SPARKS AWAY FROM THE PUMP.
- 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 INHALING OF GASOLINE VAPOR.
- KEEP OUT OF REACH OF CHILDREN.

Check Fuel Level

Note: *Starting with a full tank of gasoline will help to reduce operating interruptions for refueling.*

- Remove fuel tank cap. Check the fuel level and refill with recommended fuel if the fuel level is low.
- Fuel tank capacity:

EPT3-50HA.....0.82 gal.

EPT3-80HA.....1.40 gal.

EPT3-100HA.....1.61 gal.

Starting and Operating the Pump

Implement the following instructions to start and operate the engine. And for more information, please refer to the **Honda Engine owner's manual**.

- Move the fuel valve lever to the ON position.
- Move the choke lever to the CLOSED position.

Note: *The shifting of choke lever to the CLOSED position may not be needed if the engine is warm, or the surrounding air temperature is high.*

- Move the throttle lever slightly away from the MIN position, about 1/3 of the way toward the MAX position.
- Set the ignition switch to the ON position.
- 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.*

- As the engine warms up, gradually move the choke lever to the OPEN position if it was moved to CLOSED position during starting the engine.
- Pump output can be regulated simply by adjusting the throttle lever position. Shifting the throttle lever towards the MAX. position increases the pump output and vice versa.

Stopping the Trash Pump

Note: *In an emergency, simply turn the ignition switch to the OFF position to stop the engine. For normal operating conditions follow the following procedure.*

- Move the throttle lever to the MIN position.
- Turn the ignition switch to the OFF position.
- Move the fuel valve lever to the OFF position.

5 TROUBLESHOOTING

The following troubleshooting table can be used as a guide to isolate the faults in the trash pump. Refer to the following table when the engine fails to start even after several attempts. And if the engine still fails to start even after conducting the following procedure, contact the nearest Tsurumi pump dealer.

Troubleshooting Table

Fault	Probable Causes	Remedy
Pump does not pump	Insufficient priming water Chipped or broken mechanical seal Damaged check valve Damaged suction hose Clogged strainer Air leaks caused by damaged O-ring	Add more water through priming plug Replace mechanical seal Replace check valve Replace hose Clean strainer Replace O-rings
Discharge flow or pump pressure is too low	Air leaks caused by damaged O-ring Clogged hose Clogged strainer Excessive impeller clearance Engine RPM is too low Discharge head is too high	Replace O-rings Replace hose Clean strainer Reduce the clearance by adding shim as required (refer to Impeller Gap Adjustment on page 26) Check the RPM and reset the throttle lever as required Lower the discharge head
Pump primes too slowly	Insufficient priming water Chipped or broken mechanical seal Damaged check valve Damaged suction hose Clogged strainer Air leaks caused by damaged O-ring Engine RPM is too low Discharge head is too high	Add more water through priming plug Replace mechanical seal Replace check valve Replace suction hose Clean strainer Replace O-rings Check the RPM and reset the throttle lever as required Lower the discharge head
Noise or vibration	Faulty mounting Damaged vibration isolation mounts	Tighten nuts, bolts, and other fasteners securely Replace the vibration isolation mounts

6 MAINTENANCE

Note: REFER TO THE *HONDA ENGINE OWNER'S MANUAL* FOR OTHER MAINTENANCE REQUIREMENTS AND SAFETY INFORMATION.

Maintenance Schedule

To maintain the trash pump performance during peak operating condition, observe and implement the maintenance and/or service the pump according to the **Maintenance schedule**.



WARNING

- TURN 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.
- HOT ENGINE MAY BURN YOUR BODY PARTS, THEREFORE, 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 A LONG PERIOD OF TIME.

Note: To replace the mechanical seal, please refer to *Replacement of Mechanical seal* section (see page 24).

Note: To replace the check valve, please refer to the *Assembly procedure* (see page 32) and *Disassembly procedure* (see page 20) of the pump.

Note: To replace the vibration isolation mounts, please refer to the *Assembly procedure* (see page 29) and *Disassembly procedure* (see page 23) of the pump.

Maintenance Schedule

Frequency	Maintenance Action
Before each use	Check oil level Check pump components (according to the PRE- START CHECK section)
50 Hours	Clean air cleaner element Check spark plug and clean if necessary
100 Hours	Change engine oil Clean sediment cup Clean fuel tank and filter Adjust spark plug gap Check the impeller condition, impeller clearance Check pump check valve
300 Hours	Replace spark plug and cleaner element Check-adjust idle speed Check-adjust valve clearance
500 Hours (12 Months)	Change mechanical seal
1,000 Hours (24 Months)	Overhaul the engine Clean and adjust carburetor Replace vibration isolation mounts

Changing Engine Oil

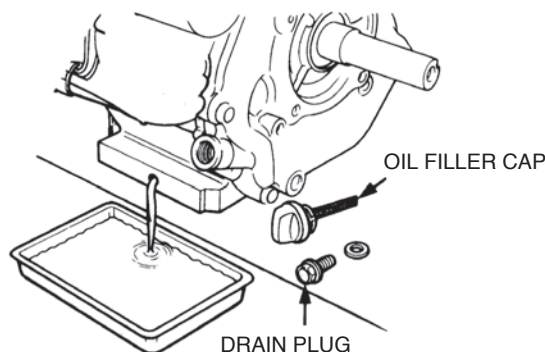


WARNING

RISK OF BURNS. USE CAUTION WHEN DRAINING HOT ENGINE OIL. HOT OIL MAY BURN.

- A. An initial oil change should be performed after the first twenty (20) hours of use. Thereafter, change oil in every 100 hours.
- B. Before changing the oil, check for a suitable way to dispose of the used oil. Do not pour it down sewer drains, onto garden soil or into open streams. Refer to your local zoning and environmental regulations for disposal and handling requirements.
- C. Drain the oil while the engine is still warm for quick and complete draining. Remove the oil filler cap/dipstick and drain plug. Allow oil to drain from the engine (refer to **Draining Engine Oil**).

Draining Engine Oil

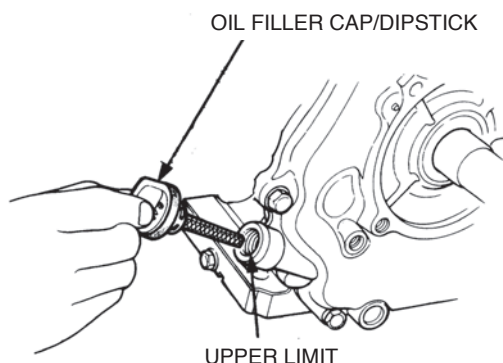


- D. Place the engine on a level surface, refill with the recommended oil up to upper limit (refer to **Oil Viscosity Grade-to-Temperature Recommendations** on page 13).
- E. Reinstall the oil filler cap/dipstick securely.

Note: *Engine oil capacity:*

EPT3-50HA (GX-160).....	0.58L (19 US oz, 0.51 Imp qt)
EPT3-80HA (GX-240).....	1.1L (1.2 US qt, 1.0 Imp qt)
EPT3-100HA (GX-340).....	1.1L (1.2 US qt, 1.0 Imp qt)

Checking Oil Level



Air Cleaner Service



WARNING

NEVER USE GASOLINE OR LOW FLASH POINT SOLVENTS FOR CLEANING THE AIR CLEANER ELEMENT. DOING SO MIGHT CAUSE FIRE OR EXPLOSION.



CAUTION

NEVER RUN THE ENGINE WITHOUT AN AIR CLEANER OR WITH A DAMAGED 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, reducing the performance.
- B. To prevent degraded engine operation, service the air cleaner regularly. Service it more frequently when operating the engine in extremely dusty areas.

Sediment Cup Cleaning



WARNING GASOLINE IS EXTREMELY FLAMMABLE AND IS EXPLOSIVE. THEREFORE, DO NOT SMOKE OR ALLOW OPEN FLAMES NEARBY THE PUMP OPERATING AREA.

- A. Turn the fuel valve lever to OFF position (refer to **Operating Controls** on page 11).
- B. Remove the sediment cup and O-ring. Wash them either with non-flammable or high flash point solvent.
- C. Wipe the sediment cup and O-ring dry, then reinstall.



WARNING AFTER INSTALLING THE SEDIMENT CUP, CHECK FOR LEAKAGES, AND ENSURE THAT THE SPILLED OIL IS WIPED UP PROPERLY BEFORE STARTING THE ENGINE.

- D. Turn the fuel valve lever to ON position (refer to **Operating Controls** on page 11).
- E. Check for the leakages.

Cleaning and Adjusting Spark Plug

Recommended spark plug models: **BPR6ES (NGK)**, **W20EPR-U (DENSO)**

To ensure proper engine operation, the spark plug electrode gap must be maintained and should be free of deposits. For cleaning and adjusting the spark plug electrode gap, implement the following procedure.

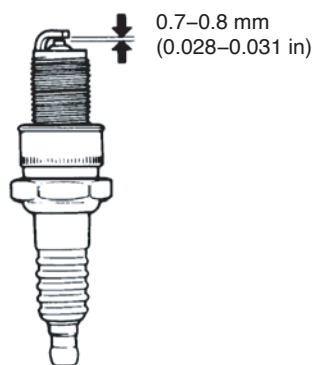


WARNING THE MUFFLER BECOMES VERY HOT DURING OPERATION AND REMAINS HOT FOR A WHILE AFTER STOPPING THE ENGINE. BE CAREFUL NOT TO TOUCH THE MUFFLER WHILE IT IS HOT.

Note: *A loose spark plug can overheat and damage the engine. Similarly, overtightening the spark plug can damage the thread in the cylinder.*

- A. Remove the spark plug cap.
- B. Clean around the spark plug base.
- C. Use the proper size spark plug wrench to remove the spark plug.
- D. Visually inspect the spark plug. Discard the spark plug if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
- E. Measure the spark plug electrode gap with a wire-type filler gauge. Adjust the gap as necessary by bending the side electrode (refer to **Spark Plug Gap**).
- F. The gap between the electrode should be 0.7 - 0.8 mm (0.028 - 0.031 inch).

Spark Plug Gap



Disassembly of the Trash Pump



WARNING

- MAKE SURE ENGINE OIL, GASOLINE, AND PUMP CHAMBER IS DRAINED OUT COMPLETELY BEFORE DISASSEMBLY.
- 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 THICKNESS SHOULD BE AVAILABLE FOR SUPPORT OF THE ENGINE AFTER PUMP REMOVAL.
- THE SHIPPING WEIGHT OF THE PUMPS RANGES FROM 82 TO 160 POUNDS. TO AVOID PERSONAL INJURY, USE AN OVERHEAD LIFTING DEVICE OR GET ASSISTANCE FROM OTHERS DURING HANDLING THE PUMP.
- A WORN IMPELLER MAY HAVE SHARP EDGES; BE CAREFUL TO AVOID INJURY.

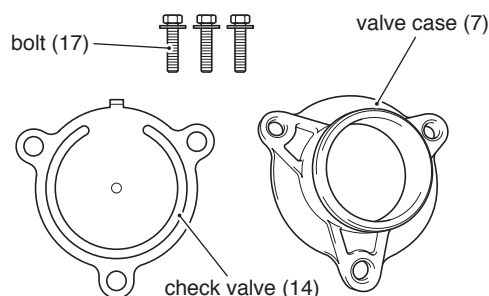
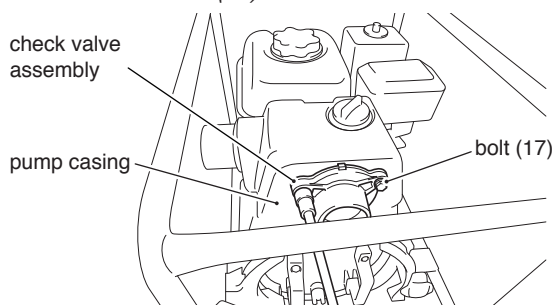
Procedure for Disassembly of the Trash pump

Note: For an exploded view of a respective model, please refer to the **REPLACEMENT PARTS** section (see page 34).

Note: The part number represented in the procedure correspond with the part number provided in the exploded view and the parts list table of **REPLACEMENT PARTS** section. (see page 34).

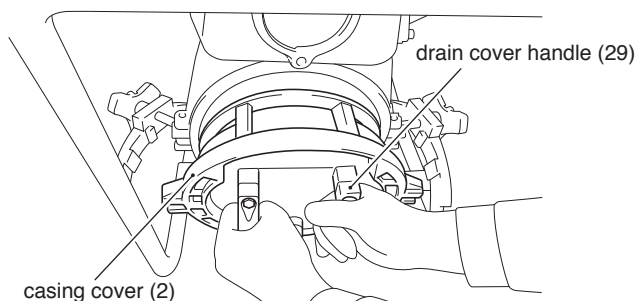
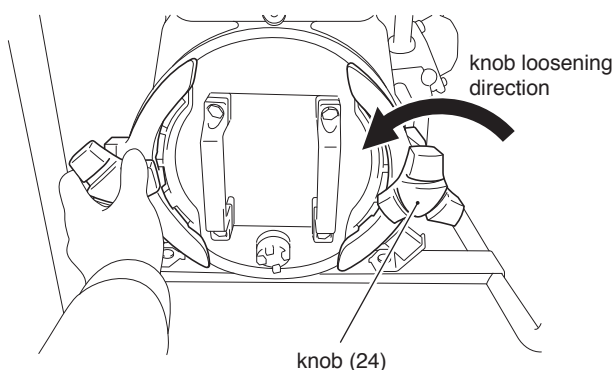
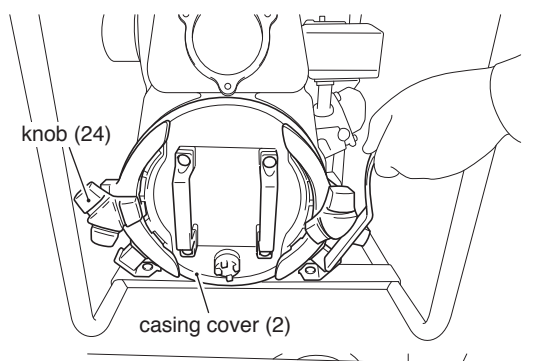
- (a) Place the pump on a plane and stable surface. Unscrew the bolts (17) used to fasten the check valve assembly to the pump casing. As the bolts (17) are unscrewed, remove the valve case (7) along with the check valve (14).

Note: For the model EPT3-100HA, an assembly of a check valve (14) and valve case (7) is attached to the casing (1) with four bolts (17).

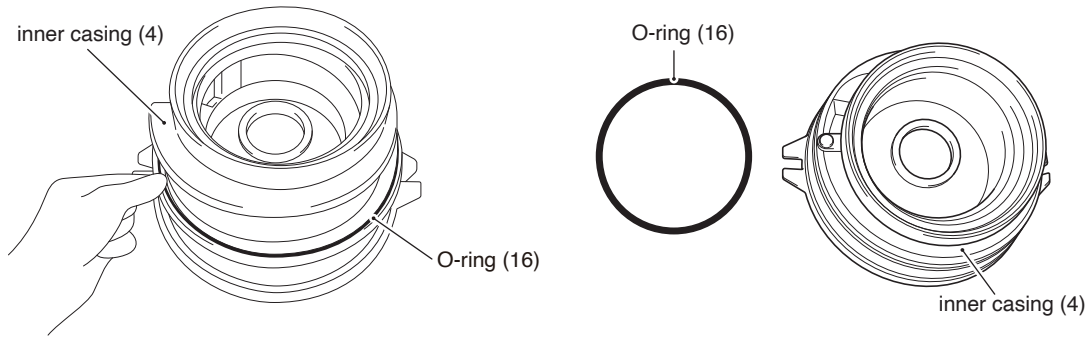


- (b) Unscrew the knobs (24) used to fasten the casing cover (2) to the pump casing (1). It may be necessary to use a tool as shown below to generate enough torque to loosen the knobs (24). As the knobs get loosened, move the cover bolt (22) outwards along with the knob and casing cover holder (23) so that there will be no hindrance while pulling out the casing cover (2). After that, hold the drain cover handles (29) and pull out the casing cover (2) along with the other components attached to it.

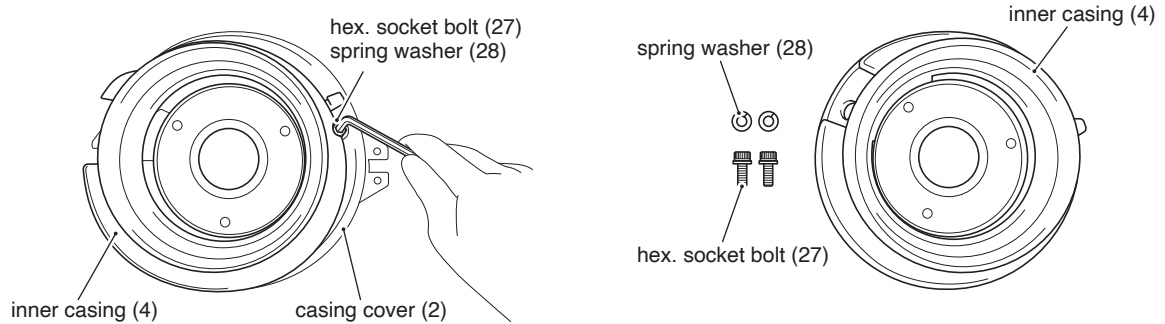
Note: A little resistance might be felt while pulling out the casing cover (2) due to the O-ring drag.



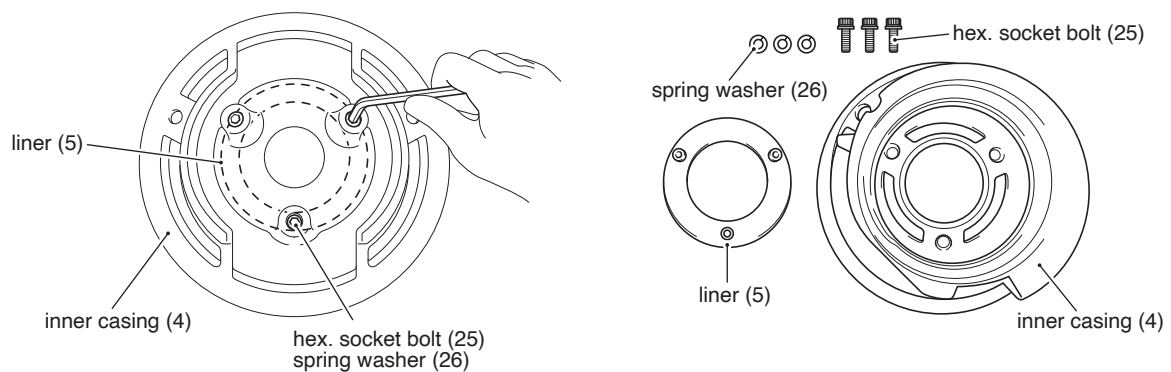
- (c) Remove the O-ring (16) out of the inner casing (4).



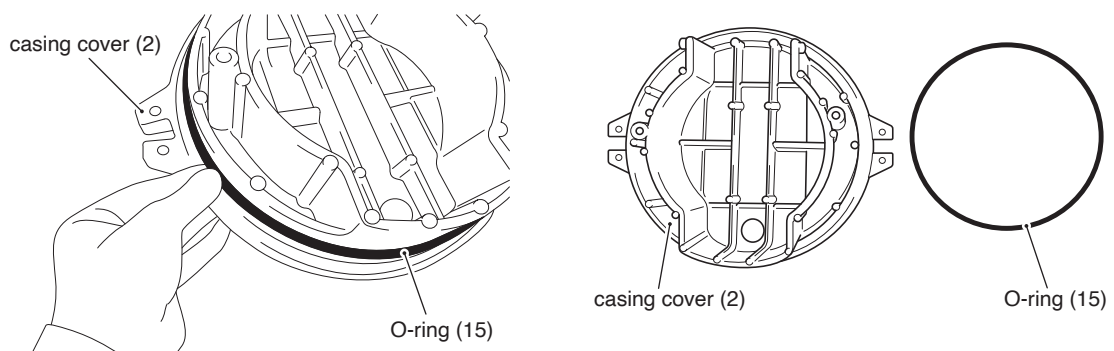
- (d) Unscrew the hex. socket bolts (27) used for fastening inner casing (4) to the casing cover (2), and separate the inner casing (4) from the casing cover (2). Make sure that the two spring washers (28) are also taken out along with the hex. socket bolts (27).



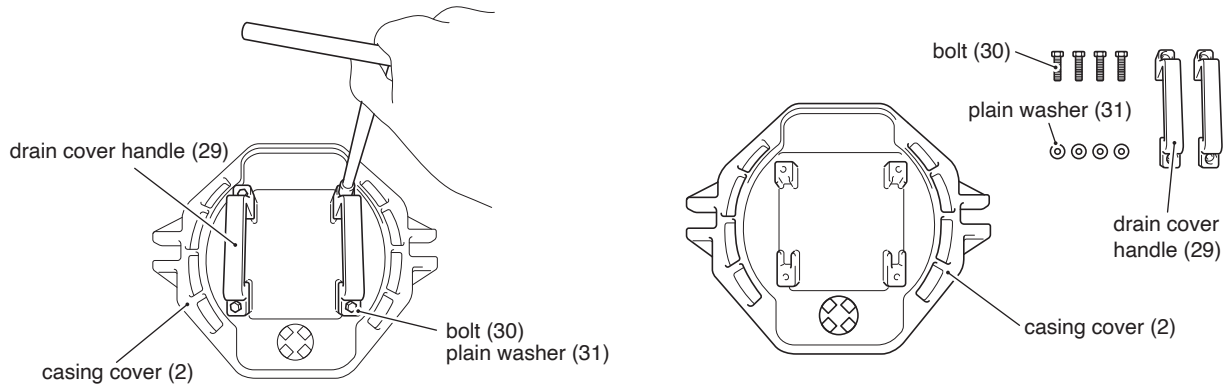
- (e) Unscrew the hex. socket bolts (25) used to fasten the liner (5) to the inner casing (4). As the bolts (25) are unscrewed, remove the liner (5) from the inner casing (4). Make sure that the three spring washers (26) are also taken out along with the hex. socket bolts (25).



- (f) Remove the O-ring (15) installed on the casing cover (2).



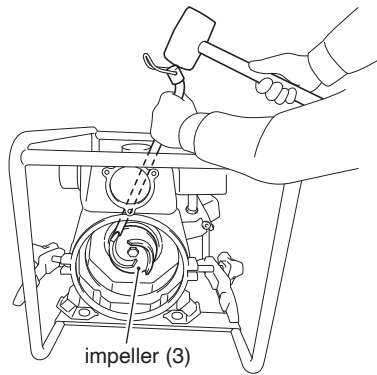
- (g) Unscrew the bolts (30) used to fasten the handles (29) to the casing cover (2). As the bolts (30) are unscrewed, remove the handles (29) from the casing cover (2). Make sure that the plain washers (31) are also taken out.



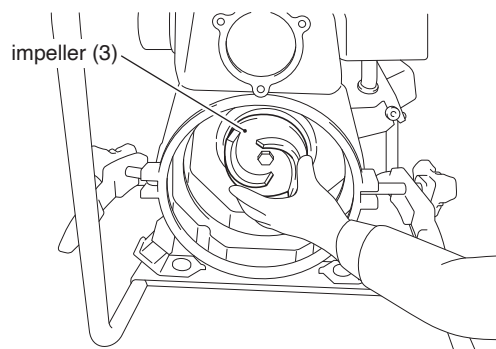
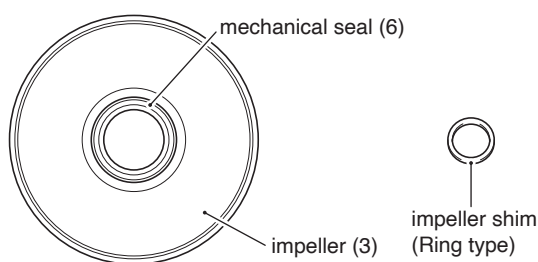
- (h) To remove the impeller (3), use a hard plastic hammer and iron rod and provide impact on the impeller as shown. Be careful not to impact with a huge force, which might damage the impeller (3). As the impeller (3) gets loosened, unscrew by the hand, and remove it along with the mechanical seal (6) rotating part. Also, remove the impeller shim installed on the engine shaft.

Note: If available, use an impact wrench to remove the impeller.

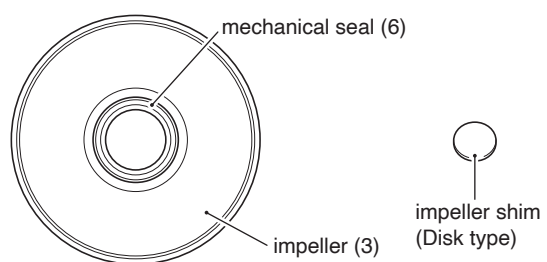
Note: Model EPT3-100HA has a disk type impeller shim.



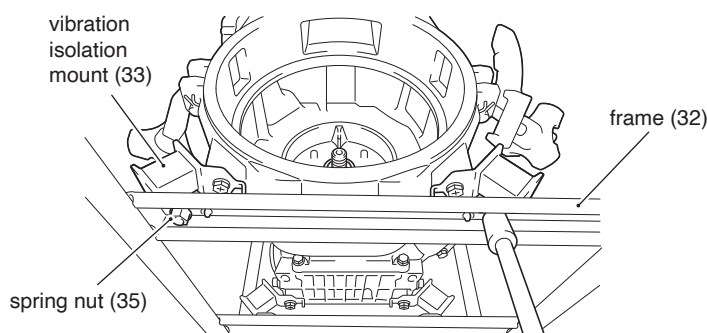
**For models EPT3-50HA, EPT3-80HA
(Ring type shim)**



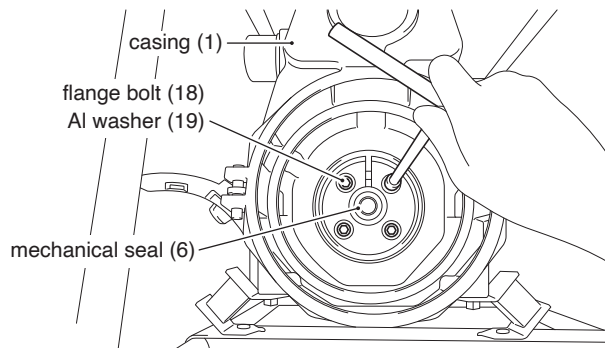
**For model EPT3-100HA
(Disk type shim)**



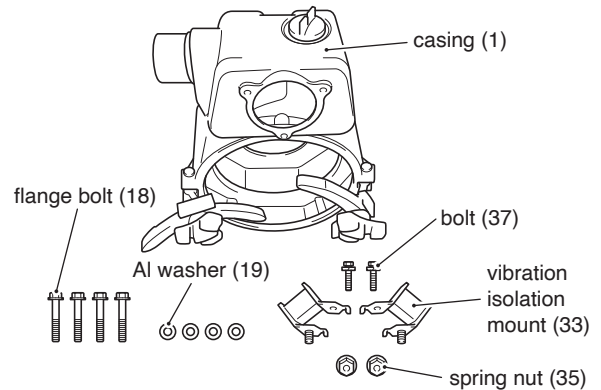
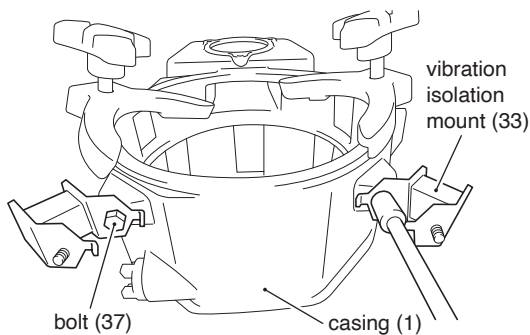
- (i) Unscrew two spring nuts (35) used to fasten the vibration isolation mounts (33) to the frame (32).



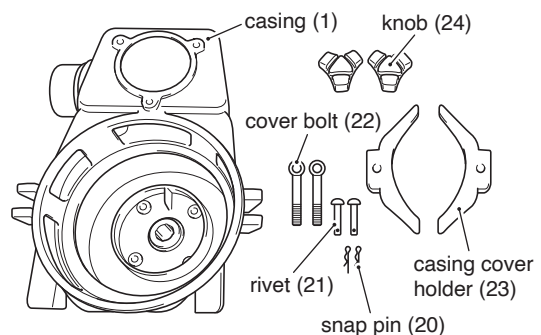
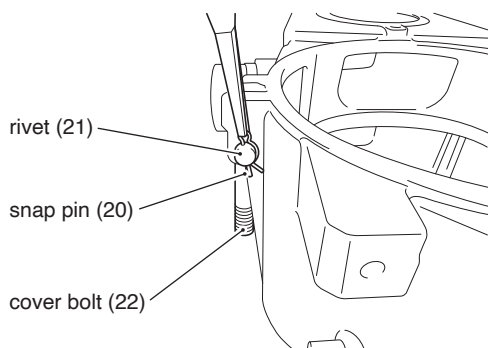
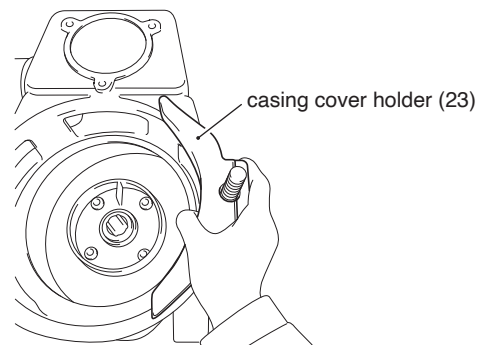
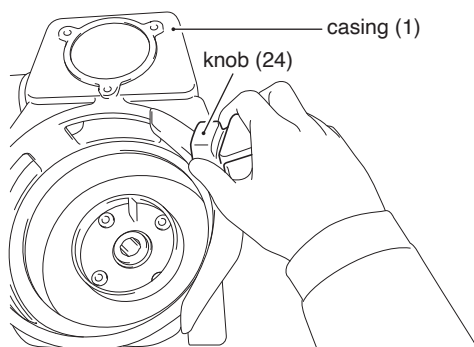
- (j) Unscrew four bolts (18) used to fasten the casing (1) to the engine. Make sure that the aluminum washers (19) are also taken out along with the bolts (18). After that, remove the casing (1) along with the other components attached to it including stationary part of the mechanical seal (6). To remove the mechanical seal (6) stationary part from the casing, please refer to **Replacement of Mechanical Seal** section (see page 24).



- (k) Unscrew the bolts (37) used to fasten the vibration isolation mount (33) to the casing (1). As the bolts (37) are unscrewed, remove the vibration isolation mounts (33) from the casing (1).



- (l) Remove the knob (24) and casing cover holder (23) screwed to the cover bolt (22). After that, take out the snap pin (20) and remove the rivet (21) and cover bolt (22).



Replacement of Mechanical Seal

A. Description of the Mechanical Seal

- The mechanical seal consists of two parts: stationary part and rotating part.
- The stationary part of the mechanical seal is installed into the center bore of the casing. The mechanical seal stationary part cannot be reused once installed.
- The rotating part of the mechanical seal is installed into the center bore of the impeller. The rotating part consists of silicon carbide mating ring and a close-fitting rubber cushion. Water is used as an assembly aid when installing the cushion and mating ring.
- It is recommended to replace the mechanical seal at the time of overhaul.

Note: To install or remove the stationary part of the mechanical seal, use a similar jig shown in **Mechanical seal installation/removal jig**.

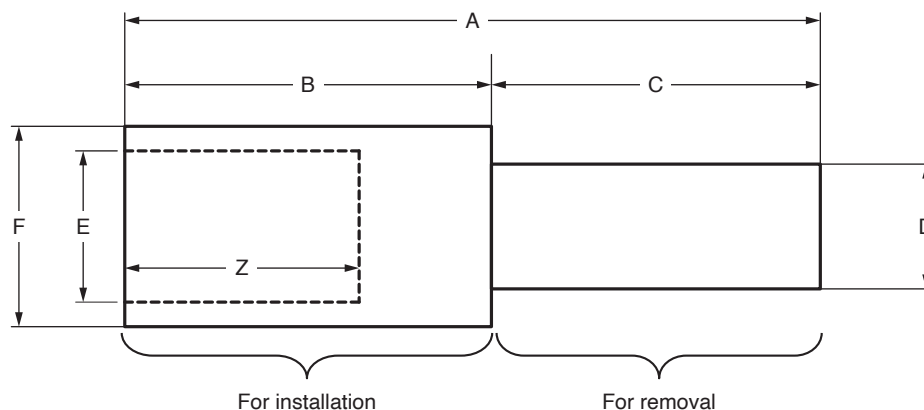
Note: A considerable force of about **800kgf~1000kgf** is required to install or remove the mechanical seal stationary part. Therefore, use of an arbor press is recommended.

Note: Make sure that the mechanical seal is not scratched or cracked during installation. Clean the sealing faces properly after installing the mechanical seal.

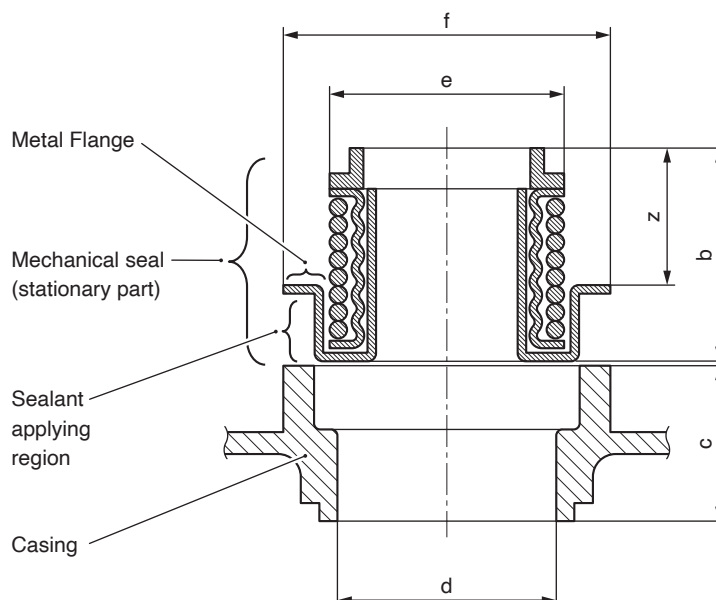
B. Removal of Mechanical Seal

- Disassemble the pump according to the **Disassembly of the Trash pump** (see page 20) to replace the mechanical seal.
- Align “for removal” end of the jig to the mechanical seal stationary part as shown in **Removal of Mechanical seal** on page 25 and then apply force to remove it from the casing.
- Use a flat-head screwdriver (minus screwdriver) to remove the mechanical seal rotating part fitted into the center bore of the impeller.

Mechanical seal installation/removal jig.



Mechanical seal (Stationary part)



A = B + C; Jig total height

B \approx (\geq b); Height equal or greater than the total height of the mechanical seal stationary part.

C \approx (c+5) mm; Height slightly greater than the center hub height of the casing.

D \approx (d-2) mm; Diameter slightly smaller than the center shaft hole (engine side) of the casing.

E \approx (e+2) mm; Diameter slightly greater than the outer diameter of sealing component.

F \approx (f); Diameter equal to the outer diameter of metal flange of the stationary part.

Z \approx (z+5) mm; Bore depth slightly greater than the height of sealing face from upper surface of metal flange.

To replace the mechanical seal stationary part installed in the casing, a jig with the following dimension is required.

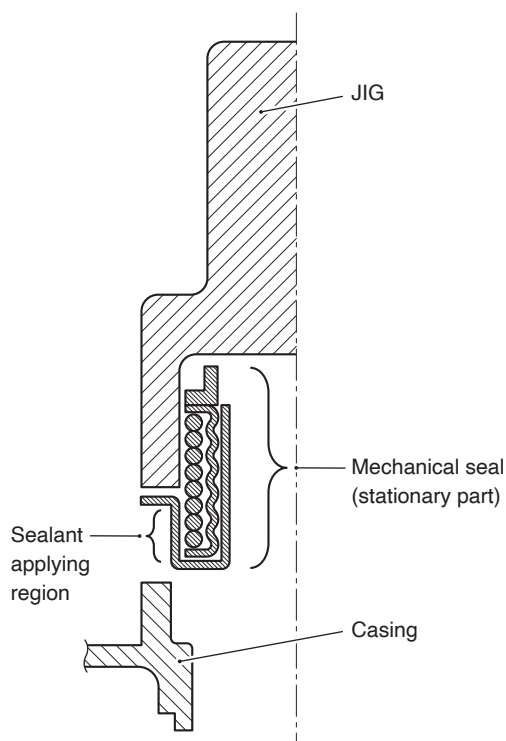
Jig Dimension

Jig Dimensions	Pump models	
	EPT3-50HA, EPT3-80HA,	EPT3-100HA
A	70 mm (2.757 inch)	80.0 mm (3.148 inch)
B	27.5 mm (1.082 inch)	32.0 mm (1.258 inch)
C	42.5 mm (1.671 inch)	48.0 mm (1.891 inch)
D	ϕ 28.0 mm (1.102 inch)	ϕ 36.0 mm (1.417 inch)
E	ϕ 37.5 mm (1.475 inch)	ϕ 52.0 mm (2.045 inch)
F	ϕ 43.5 mm (1.713 inch)	ϕ 57.0 mm (2.244 inch)
Z	12.5 mm (0.491 inch)	17.0 mm (0.667 inch)

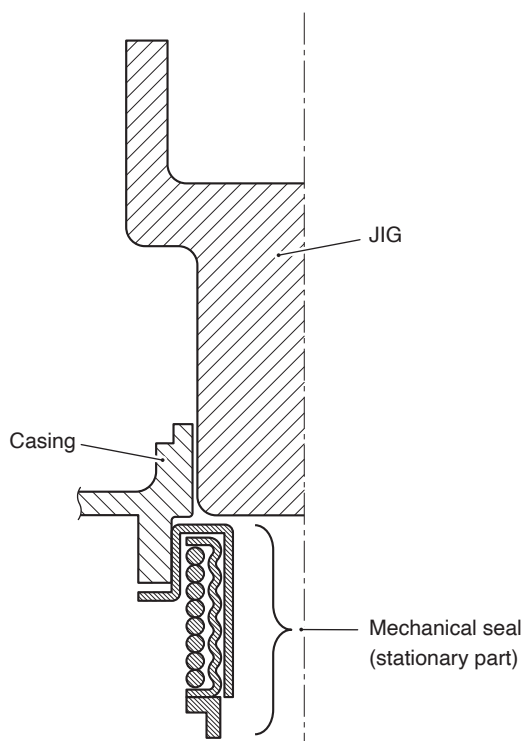
C. Installation of Mechanical Seal

- Clean the center bore of the casing where stationary part of the mechanical seal is to be installed. Make sure no traces of old sealant are left.
- Apply a strip of sealant on the outer circumference of the stationary part of the new mechanical seal and then install it into the center bore of the casing. Refer to **Installation of Mechanical seal** shown below for the jig alignment.
- Install the rotating part of the new mechanical seal into the center bore provided on the impeller. Make sure that center bore of the impeller is cleaned properly before installation.

**Installation of Mechanical seal
(Stationary part)**

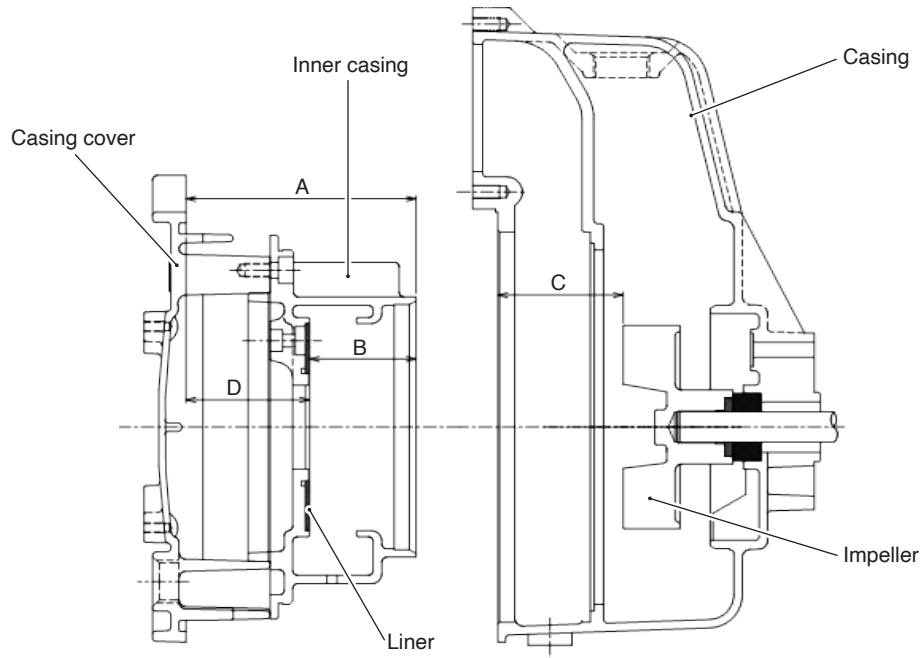


**Removal of Mechanical seal
(Stationary part)**



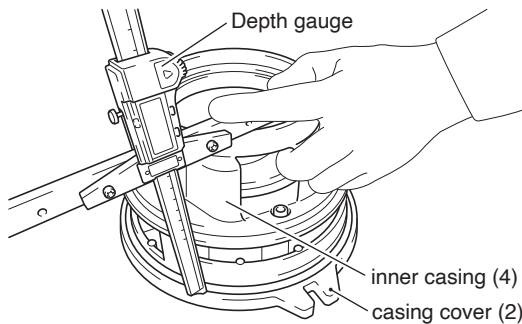
Impeller Gap Adjustment

- A. Perform the following measurements to figure out the number of shim(s) necessary for the required impeller gap.

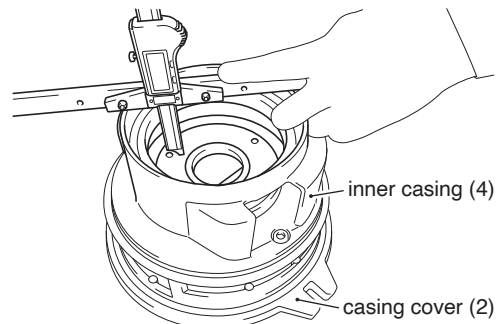


- (a) Measure the height of the inner casing end face from the casing cover contact surface [A].
- (b) Measure the height of the inner casing end face from the liner surface [B].
- (c) Measure the height of the casing contact surface from the impeller top surface [C].

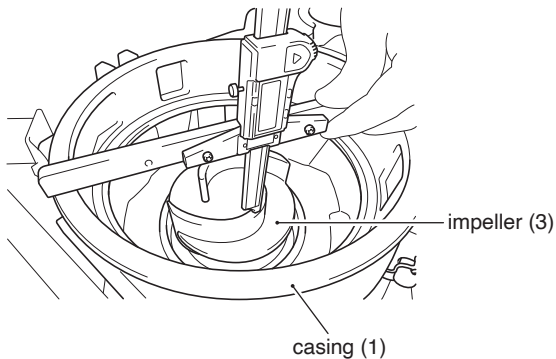
Measurement of dimension [A]



Measurement of dimension [B]



Measurement of dimension [C]



- (d) Subtract the [B] from [A]. The result will be the liner position (height) from the casing cover contact surface.

$$[D] = [A] - [B]$$

- (d) Subtract the [D] from [C]. The final value will be the available impeller gap.

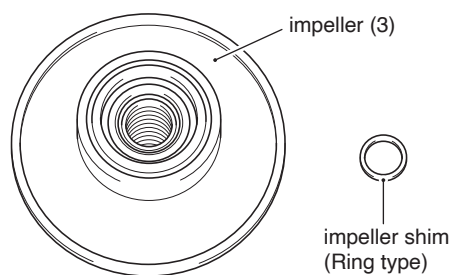
$$\text{Available Impeller Gap} = [C] - [D]$$

- B. As the available impeller gap is determined, select the shim(s) from the **shim dimension table** shown below to make the impeller gap of **0.6mm** to **1.2mm**.

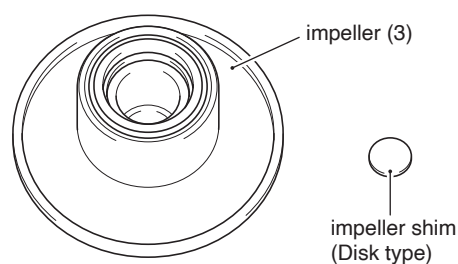
Shim Dimension Table

Model Number	Shim Thickness	OD x ID* ¹	Part Number
EPT3-50H	0.3 mm (0.012 Inch)	20 x 18 mm (0.787 x 0.709 inch)	203100050
	0.6 mm (0.024 Inch)		203100051
	1.0 mm (0.039 Inch)		203100052
EPT3-80HA	0.3 mm (0.012 Inch)	24.2×20.0 mm (0.952×0.787inch)	203100070
	0.6 mm (0.024 Inch)		203100071
	1.0 mm (0.039 Inch)		203100072
EPT3-100HA	0.3 mm (0.012 Inch)	22.2 mm* ² (0.874inch)	203100060
	0.6 mm (0.024 Inch)		203100080
	1.6 mm (0.039 Inch)		203100081
	2.3 mm (0.091 Inch)		203100061
* ¹ OD = Outside Diameter / ID = Inside Diameter.			
* ² EPT3-100HA model has a disk type shim.			

**For models EPT3-50HA, EPT3-80HA
(Ring type shim)**



**For model EPT3-100HA
(Disk type shim)**



Assembly of the Trash Pump



WARNING

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.

■ Procedure for Assembly of the Trash pump

Note: The part number represented in the procedure correspond with the part number provided in the exploded view and the parts list table of **REPLACEMENT PARTS** section. (see page 34).

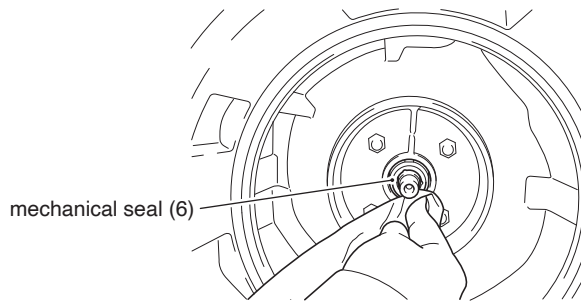
Note: For an exploded view of a respective model, please refer to the **REPLACEMENT PARTS** section (see page 34).

Note: Make sure that the mechanical seal is not scratched or cracked. Clean the sealing faces properly before assembly the pump.

Note: Make sure that the check valve is not scratched or torn.

Note: Use wooden blocks to support or stabilize the pump during assembly.

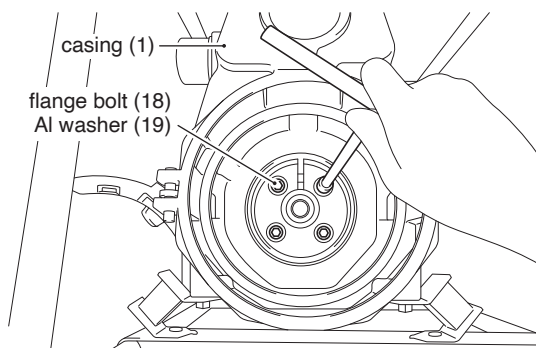
- (a) Install stationary part of the mechanical seal (6) according to the instructions provided in **Replacement of Mechanical Seal** section (see page 24).



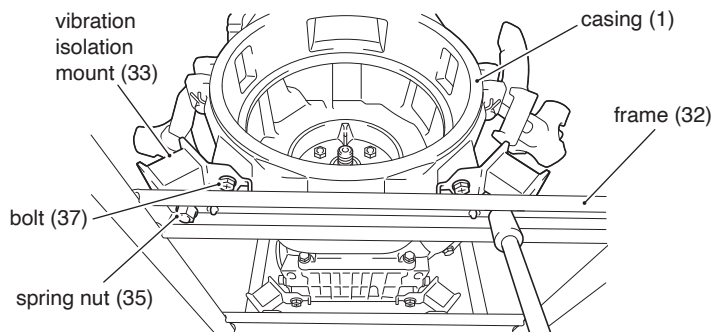
- (b) Fasten the vibration isolation mounts (33) to the casing (1). Install the casing (1) to the engine and fasten securely with four bolts (18). Make sure that each bolt (18) has an aluminum washer.

Note: Tighten the bolts (18) simultaneously in a diagonal pattern to prevent misalignment of the casing (1).

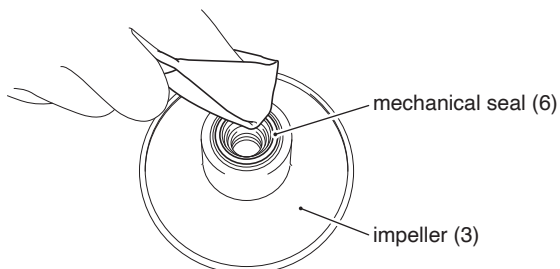
Note: Apply a liquid gasket on both sides of the aluminum washer before assembly. If the applied amount of liquid gasket is insufficient, water leakage might occur through the corresponding bolt's location. (Threebond's liquid gasket is recommended)



(c) Fasten the vibration isolation mounts (33) to the frame(32).



(d) Install the rotary part of the mechanical seal (6) into center bore of the impeller (3).



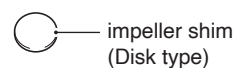
(e) Place the impeller shim(s) on the engine shaft. To figure out the number of shims required, refer to the **Impeller Gap Adjustment** section (see page 26).

Note: *Model EPT3-100HA has a disk type impeller shim.*

**For models EPT3-50HA, EPT3-80HA
(Ring type shim)**

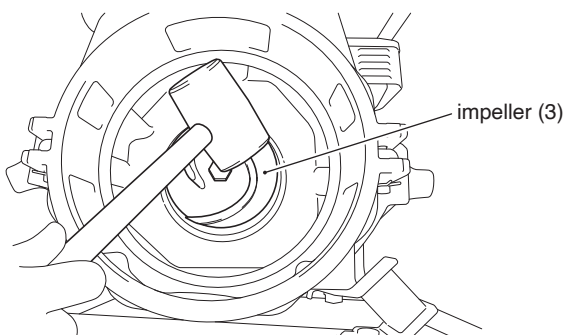


**For model EPT3-100HA
(Disk type shim)**

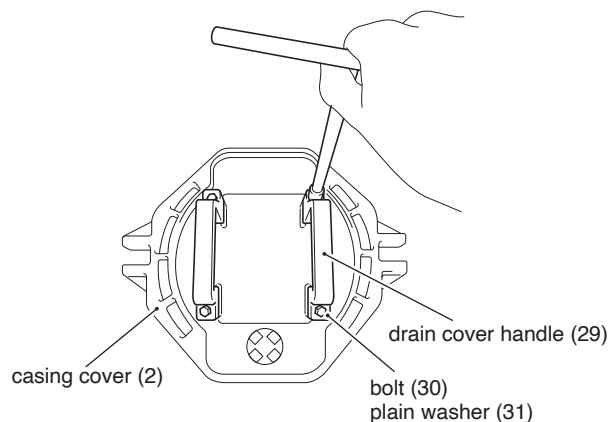


(f) Install the impeller (3) to the shaft by screwing it on. As the impeller (3) becomes difficult to rotate by the hand, take a hard plastic hammer and impact the impeller blade to tighten it securely.

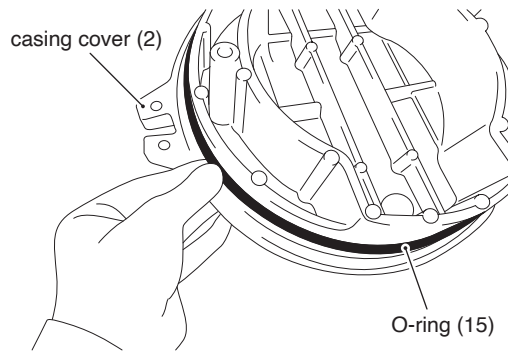
Note: *If available, use an impact wrench to tighten the impeller.*



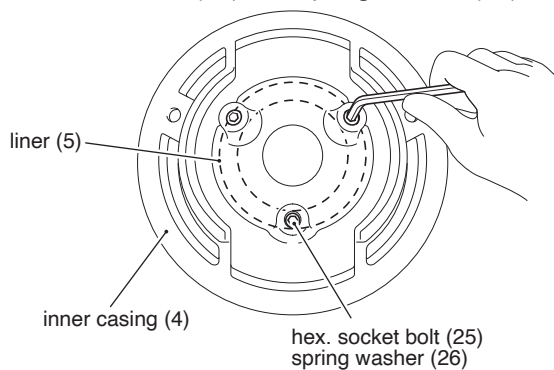
(g) Attach the handles (29) to the casing cover (2) and fasten securely with the bolts (30). Make sure that each bolt (30) has a plain washer (31) before screwing in.



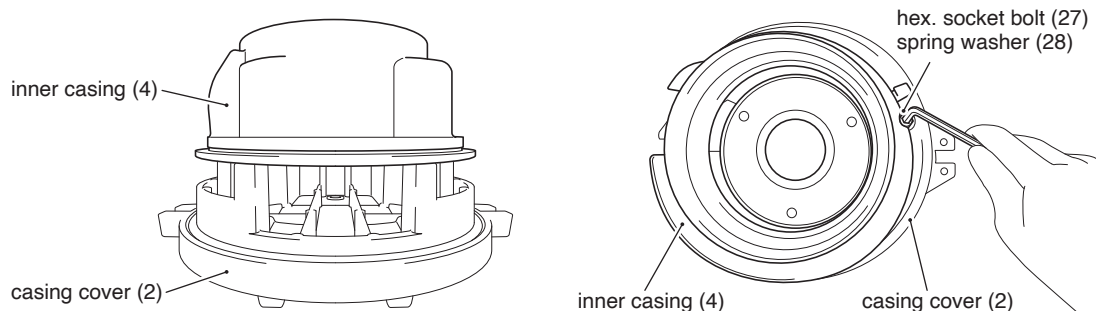
- (h) Install O-ring (15) to the casing cover (2) and ensure that the O-ring (15) is properly seated on casing cover (2). Also make sure there are no scratches or tears on the O-ring (15).



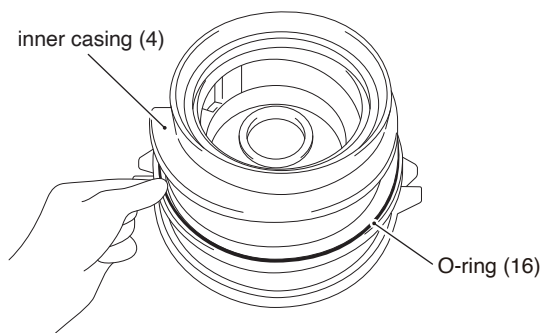
- (i) Attach the liner (5) to the inner casing (4) and tighten securely with hex. socket bolts (25). Make sure that each bolt (25) has spring washer (26) before screwing in.



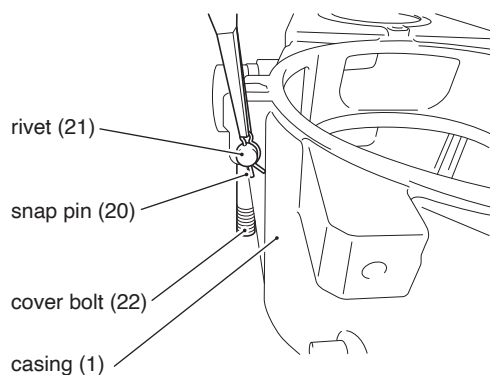
- (j) Align the inner casing (4) to the casing cover (2) and fasten securely with two hex. socket bolts (27). Make sure that each bolt (27) has spring washer (28) before screwing in.



- (k) Install O-ring (16) to the inner casing (4). Ensure that the O-ring (16) is properly seated. Also make sure there are no scratches or tears on the O-ring (16).

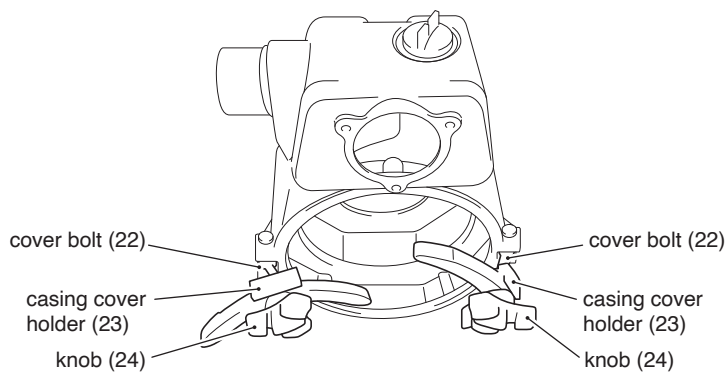
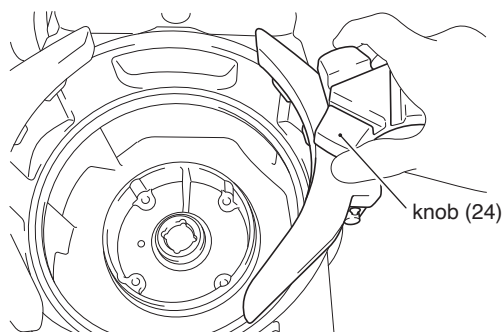
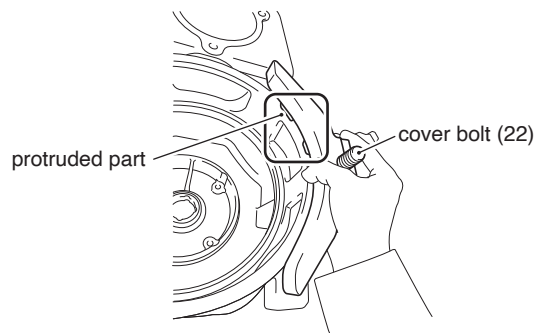
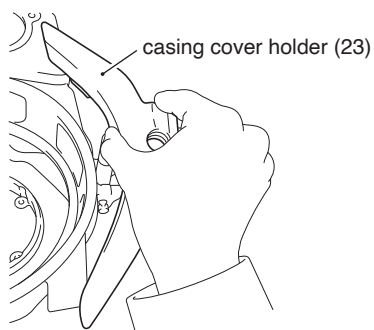


- (l) Assemble the cover bolt (22) to the casing (1) with the rivet (21). And then insert the snap pin (20) to the hole provided on the rivet (21).



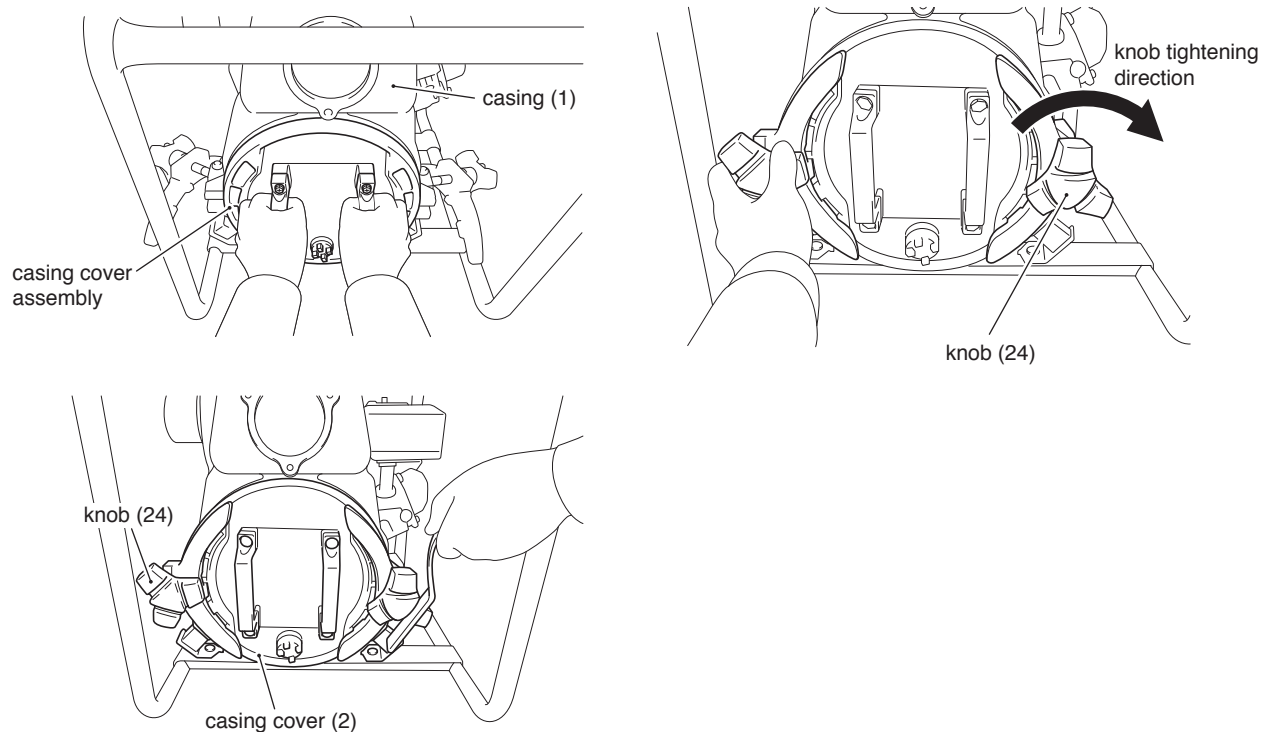
- (m) Assemble the casing cover holder (23) and knob (24) to the cover bolt (22).

Note: Make sure that protruded part on the casing cover holder (23) lies towards the casing side.

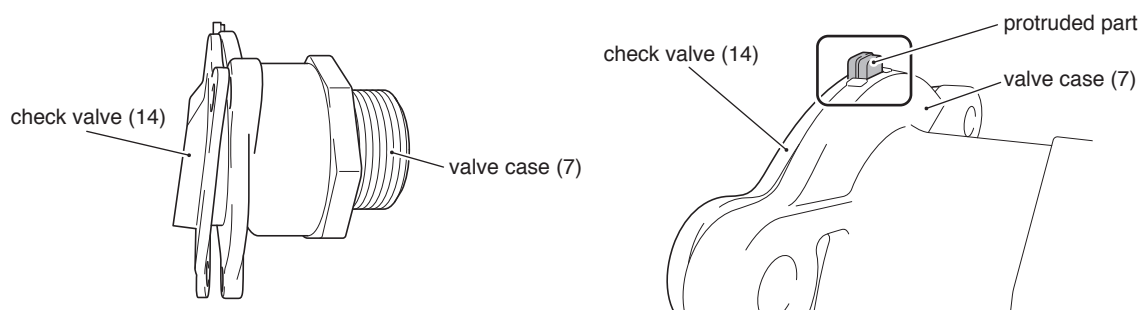


- (n) Attach the casing cover assembly to the casing (1) and tighten it securely by screwing in the knobs (24) using a tool as shown below.

Note: After tightening the knob (24), make sure that there is no leakage from the joint section between the casing (1) and the casing cover (2) by filling the casing chamber with water.

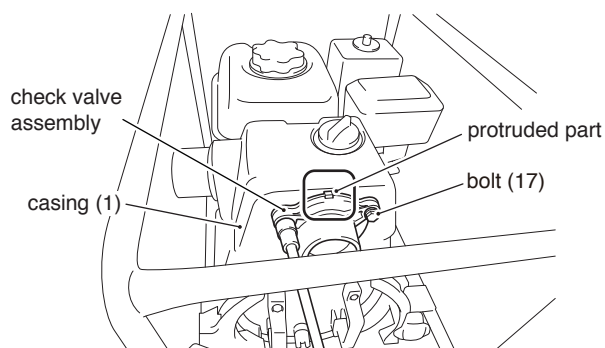


- (o) Align the check valve (14) with the valve case (7) with protruded part on the check valve (14) facing towards valve case (7). Also make sure that the protruded part of check valve (14) is aligned with that on the valve case (7).



- (p) Attach an assembly of check valve (14) and valve case (7) to the casing (1) and tighten with the bolts (17). Make sure that the protruded part on check valve (14) is located on the upper side of the pump.

Note: For the model EPT3-100HA, an assembly of a check valve (14) and valve case (7) is attached to the casing (1) with four bolts (17).



7 STORAGE INSTRUCTIONS

Note: *REFER TO THE HONDA ENGINE OWNER'S MANUAL FOR OTHER STORAGE REQUIREMENTS AND SAFETY INFORMATION.*

Procedure for Storing the Pump

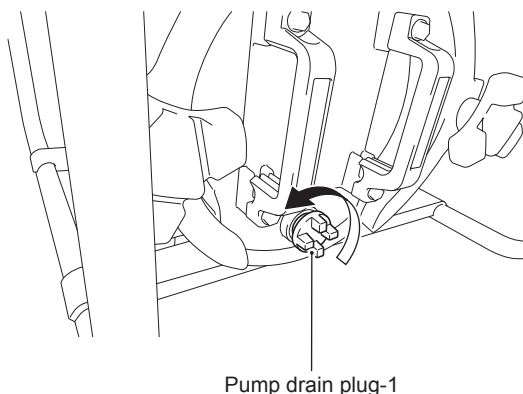


WARNING

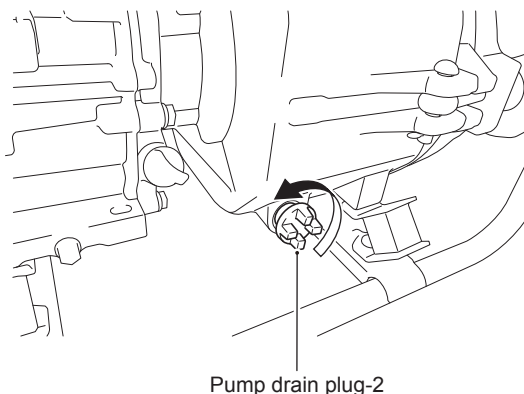
- TO AVOID SEVERE BURNS OR FIRE HAZARDS, LET THE ENGINE COOL BEFORE TRANSPORTING OR STORING INDOORS.
- WHEN TRANSPORTING THE PUMP, KEEP THE ENGINE IN UPRIGHT POSITION TO PREVENT FUEL SPILLAGE. FUEL VAPOR OR SPILLED FUEL MAY IGNITE IN THE PRESENCE OF SPARK.
- IF YOUR PUMP WILL BE STORED WITH GASOLINE IN THE FUEL TANK AND CARBURETOR, IT IS IMPORTANT TO REDUCE THE HAZARD 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 instructions should be followed before storing the pump for 6 months or longer.
- (a) Make sure that the fuel tank is drained completely. Fuel left in the tank will deteriorate, which may cause difficulty in the engine starting.
 - (b) Remove the carburetor float chamber and drain the carburetor.
 - (c) Change the engine oil.
 - (d) Clean the pump thoroughly with oiled cloth. Spray with preservative if available.
NEVER USE WATER TO CLEAN THE PUMP!
 - (e) Drain the pump casing and flush it with clean water. Allow the complete draining of clean water and then reinstall the pump drain plug securely.

Pump Chamber Draining



Pump drain plug-1



Pump drain plug-2

- (f) Check all nuts, bolts, and other fasteners for looseness and tighten them if necessary.
- (g) Pull starter handle until resistance is felt and leave it to that position.
- (h) Store the pump in a well-ventilated, low humidity area to prevent rust and corrosion.

8 REPLACEMENT PARTS

Introduction

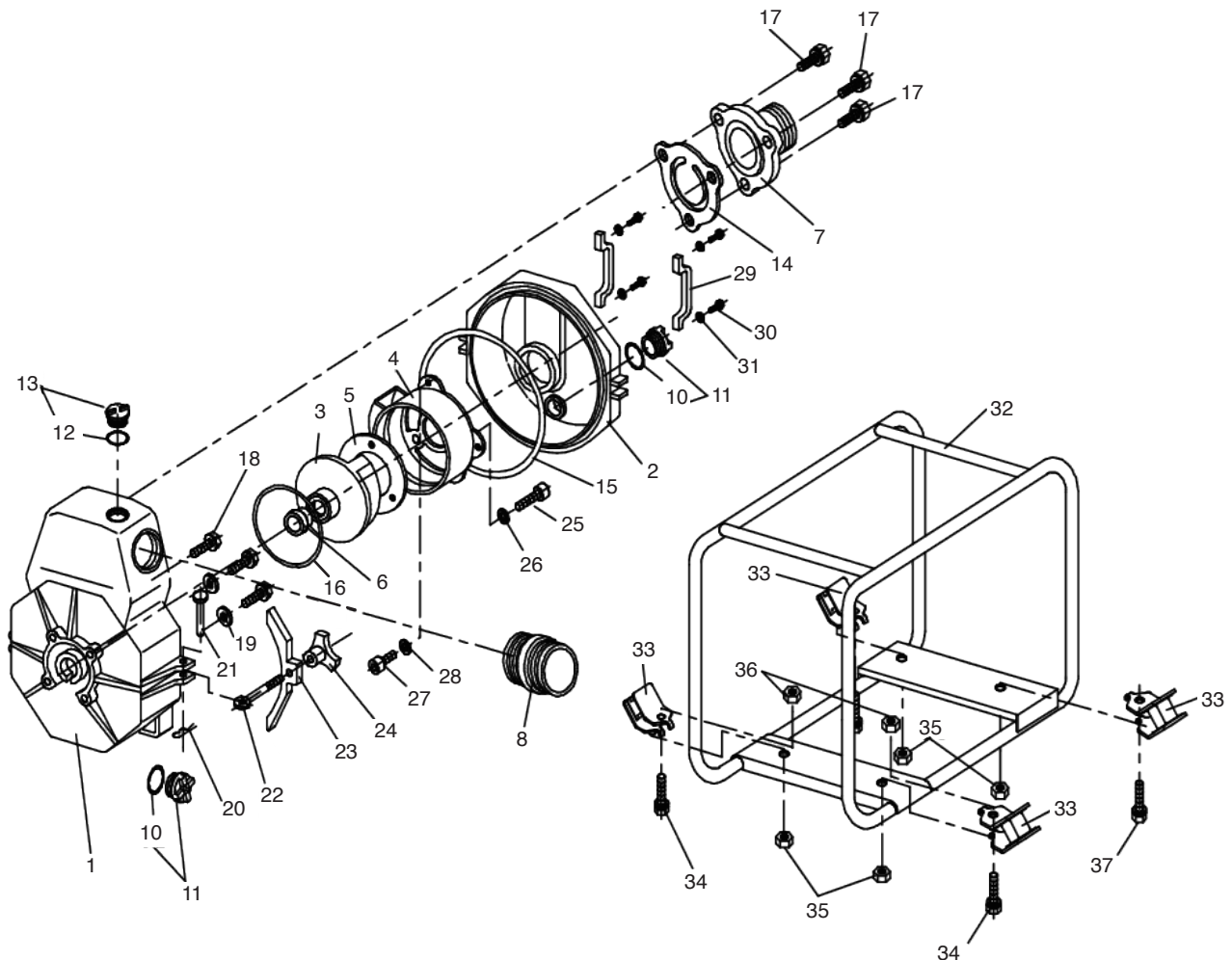
This section provides exploded view illustrations for the trash pumps. Additionally, this section also provides the parts list including parts number, description, size/specifications, and quantity. The part numbers shown in the illustrations correspond with the part numbers in the parts list table.

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>

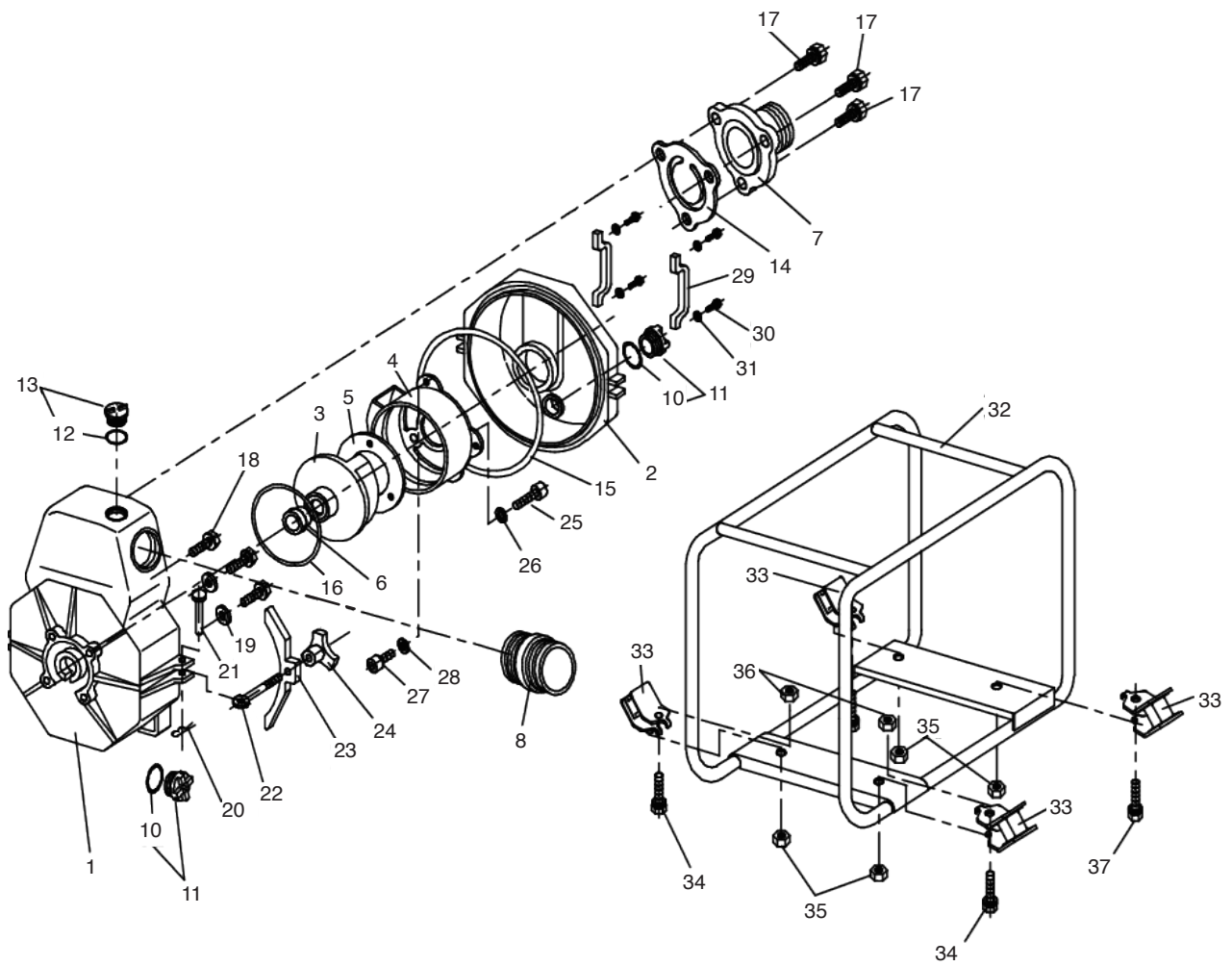
Exploded View - Model EPT3-50HA Trash pump



Parts List - Model EPT3-50HA Trash pump

Ref. No.	Parts No.	Description	Qty
	ENGINE	Honda GX160	
1	200 201 140	Casing	1
2	200 201 240	Casing Cover	1
3	200 210 240	Impeller	1
4	200 210 810	Inner Casing	1
5	200 300 210	Liner	1
6	201 100 051	Mechanical Seal	1
7	200 200 231	Valve Case (2" NPT)	1
8	200 300 411	Fitting Pipe (2B NPT-NPT)	1
10	200 800 020	O-Ring (P-24)	(2)
11	200 500 040	Plug Assy	2
12	200 800 270	O-Ring (P-30)	(1)
13	200 500 110	Priming Plug Assy	1
14	200 900 120	Check Valve	1
15	200 800 250	O-Ring (G-230)	1
16	200 800 180	O-Ring (W1517-45)	1
17	203 000 041	Bolt, Hex (M8x25 P=2)	3
18	203 000 600	Flange Bolt (M8x50)	4
19	203 100 180	AI Washer (8.2-17-3.0)	4
20	203 300 030	Snap Pin (Φ10)	2
21	203 300 011	Rivet (Φ10)	2
22	203 000 491	Cover Bolt (M12)	2
23	200 210 430	Casing Cover Holder	2
24	200 210 450	Knob (M12)	2
25	203 000 350	Bolt, Hex. Socket (M6x16 SUS)	3
26	203 100 110	Spring Washer (M6 SUS)	3
27	203 000 650	Bolt, Hex. Socket (M8x20 SUS)	2
28	203 100 130	Spring Washer (M8 SUS)	2
29	200 500 230	Drain Cover Handle	2
30	203 000 530	Bolt, Hex (M6x25 SUS)	4
31	19W03906000	Plain Washer (M6)	4
32	200 101 161	Frame (Black)	1
33	200 900 520	Vibration Isolation Mount	4
34	203 000 251	Bolt, Hex (M8x35 P=1)	2
35	203 200 030	Spring Nut (M8)	4
36	203 200 030	Spring Nut (M8)	2
37	203 000 031	Bolt, Hex (M8x20 P=2)	2

- For impeller shim part code, please refer to the Shim Dimension Table (see page 27)
- Contact HONDA distributor for replacement of the engine parts.
- Contact the TSURUMI pump dealer instead of HONDA distributors for the replacement of the crankshaft. (Crankshaft of the engine has a special metric thread)
- Plug Assy (11) includes O-ring (10). Similarly, Priming Plug Assy (13) includes O-ring (12). So, users do not have to order O-ring separately if the (Priming) plug Assy is being ordered.

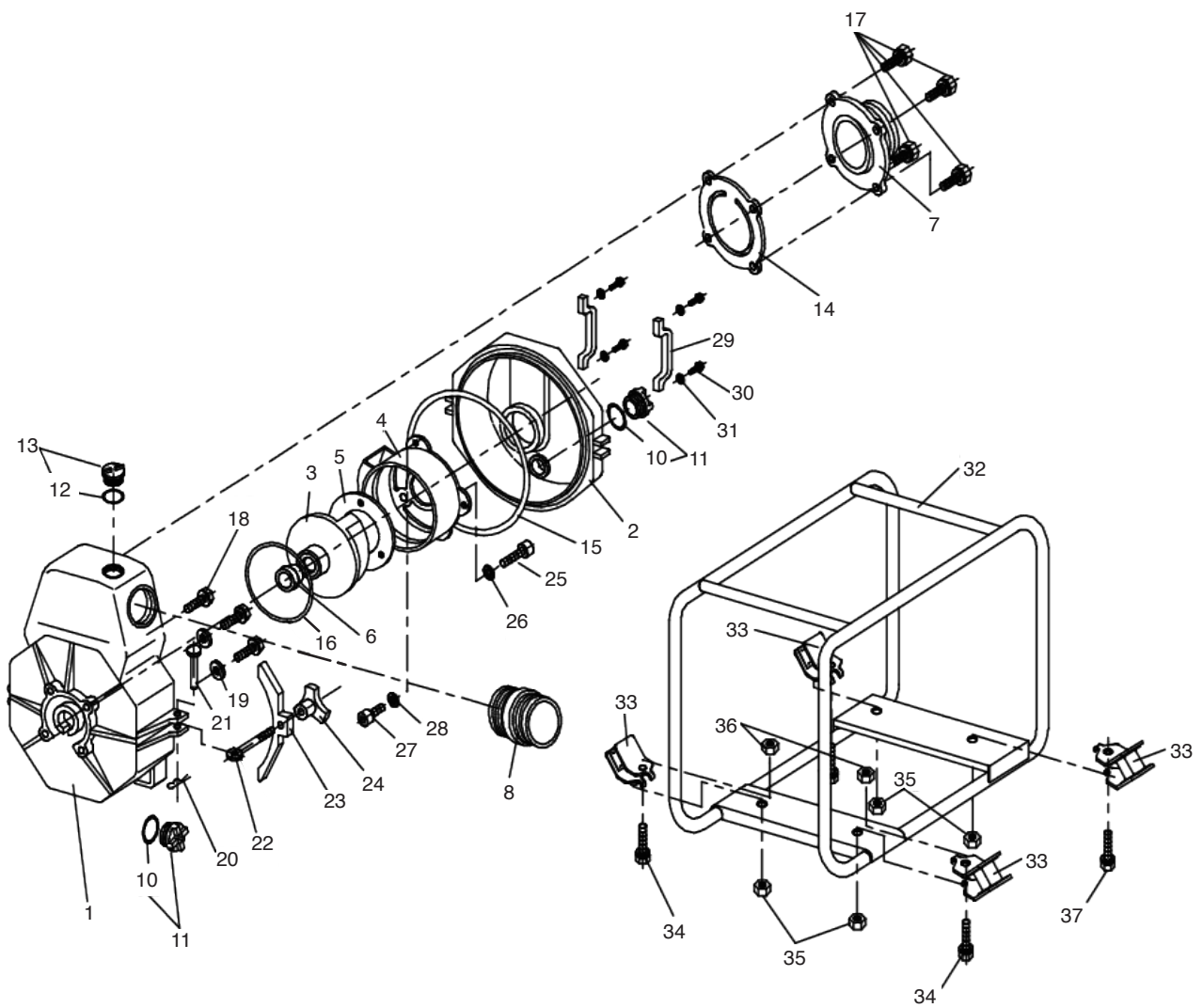


Parts List - Model EPT3-80HA Trash pump

Ref. No.	Parts No.	Description	Qty
	ENGINE	Honda GX240	
1	200 201 150	Casing	1
2	200 201 250	Casing Cover	1
3	200 210 170	Impeller	1
4	200 210 690	Inner Casing	1
5	200 300 220	Liner	1
6	201 100 061	Mechanical Seal	1
7	200 200 600	Valve Case (3" NPT)	1
8	200 300 421	Fitting Pipe (3B NPT-NPT)	1
10	200 800 020	O-Ring (P-24)	(2)
11	200 500 040	Plug Assy	2
12	200 800 270	O-Ring (P-30)	(1)
13	200 500 110	Priming Plug Assy	1
14	200 900 110	Check Valve	1
15	200 800 060	O-Ring (G-240)	1
16	200 800 240	O-Ring (W1517-46)	1
17	203 000 082	Bolt, Hex (M10x30(17) P=2)	3
18	203 000 600	Flange Bolt (M8x50)	4
19	203 100 180	AI Washer (8.2-17-3.0)	4
20	203 300 040	Snap Pin (Φ12)	2
21	203 300 021	Rivet (Φ12)	2
22	203 000 501	Cover Bolt (M16)	2
23	200 210 420	Casing Cover Holder	2
24	200 210 440	Knob (M16)	2
25	203 000 350	Bolt, Hex. Socket (M6x16 SUS)	3
26	203 100 110	Spring Washer (M6 SUS)	3
27	203 000 650	Bolt, Hex. Socket (M8x20 SUS)	2
28	203 100 130	Spring Washer (M8 SUS)	2
29	200 500 230	Drain Cover Handle	2
30	203 000 530	Bolt, Hex (M6x25 SUS)	4
31	19W03906000	Plain Washer (M6)	4
32	200 101 171	Frame (Black)	1
33	200 900 520	Vibration Isolation Mount	4
34	203 000 141	Bolt, Hex (M10x45SW)	2
35	203 200 030	Spring Nut (M8)	4
36	203 200 070	Spring Nut (M10)	2
37	203 000 661	Bolt, Hex (M10x25 P=2)	2

- For impeller shim part code, please refer to the Shim Dimension Table (see page 27)
- Contact HONDA distributor for replacement of the engine parts.
- Contact the TSURUMI pump dealer instead of HONDA distributors for the replacement of the crankshaft. (Crankshaft of the engine has a special metric thread)
- Plug Assy (11) includes O-ring (10). Similarly, Priming Plug Assy (13) includes O-ring (12). So, users do not have to order O-ring separately if the (Priming) plug Assy is being ordered.

Exploded View - Model EPT3-100HA Trash pump



Parts List - Model EPT3-100HA Trash pump

Ref. No.	Parts No.	Description	Qty
	ENGINE	Honda GX340	
1	200 201 160	Casing	1
2	200 201 250	Casing Cover	1
3	200 210 500	Impeller	1
4	200 210 510	Inner Casing	1
5	200 300 230	Liner	1
6	201 100 061	Mechanical Seal	1
7	200 200 571	Valve Case (4" NPT)	1
8	200 300 431	Fitting Pipe (4B NPT-NPT)	1
10	200 800 020	O-Ring (P-24)	(2)
11	200 500 040	Plug Assy	2
12	200 800 270	O-Ring (P-30)	(1)
13	200 500 110	Priming Plug Assy	1
14	200 900 130	Check Valve	1
15	200 800 060	O-Ring (G-240)	1
16	200 800 240	O-Ring (W1517-46)	1
17	203 000 082	Bolt, Hex (M10×30(17) P=2)	4
18	15550574000	Flange Bolt (UNC3/8×45)	4
19	203 100 190	AI Washer (10.2-20-3.0)	4
20	203 300 040	Snap Pin (Φ12)	2
21	203 300 021	Rivet (Φ12)	2
22	203 000 501	Cover Bolt (M16)	2
23	200 210 420	Casing Cover Holder	2
24	200 210 440	Knob (M16)	2
25	203 000 380	Hex. Socket Bolt (M5×14 SUS)	3
26	203 100 100	Spring Washer (M5 SUS)	3
27	203 000 670	Bolt, Hex. Socket (M8×25 SUS)	2
28	203 100 130	Spring Washer (M8 SUS)	2
29	200 500 230	Drain Cover Handle	2
30	203 000 530	Bolt, Hex (M6×25 SUS)	4
31	19W03906000	Plain Washer (M6)	4
32	200 101 181	Frame (Black)	1
33	200 900 520	Vibration Isolation Mount	4
34	203 000 141	Bolt, Hex (M10×45 P=2)	4
35	203 200 030	Spring Nut (M8)	4
36	203 200 070	Spring Nut (M10)	2
37	203 000 661	Bolt, Hex (M10×25 P=2)	2

- For impeller shim part code, please refer to the Shim Dimension Table (see page 27)
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WHEEL KIT PGWK-200

FITS TSURUMI PUMPS & GENERATORS

Installation Instructions

Product Features

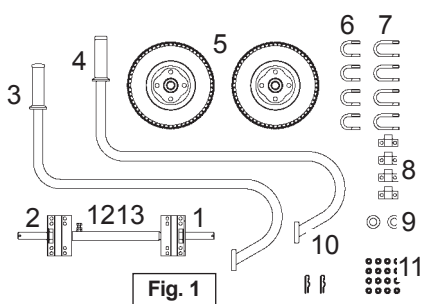
- DESIGNED FOR LIFELONG DURABILITY
- STATE-OF-THE-ART ADJUSTABLE SLIDING AXLE SYSTEM
- FITS MOST GENERATOR SIZES AND PUMPS
- HIGHEST QUALITY METAL TUBING
- ALL BRACKETS ARE PRECISION FIT
- WIDE ANGLE HANDLE BARS FOR EASY PORTABILITY
- EASY COMFORTABLE GRIP
- DOUBLE BALL BEARINGS ON EACH AIRLESS TIRE
- IMPOSSIBLE TO PUNCTURE
- SMOOTH SLEEK DESIGN

Unpacking

Upon receiving the wheel kit, it should be inspected for damage or parts shortages (See Fig. 1). If damage has occurred, file a claim immediately with the carrier that delivered the wheel kit.

If the manual is removed from the packaging, do not lose or misplace.

Wheel Kit Parts Include



Ref#	QTY	Description
1	1	AXLE ASSY, RIGHT
2	1	AXLE ASSY, LEFT
3	1	HANDLE, RIGHT WITH GRIP
4	1	HANDLE, LEFT WITH GRIP
5	2	TIRE
6	4	U-BOLT FOR AXLE ASSY, SHORT
7	4	U-BOLT FOR HANDLE, LONG
8	4	HANDLE BRACKET
9	2	PLAIN WASHER FOR TIRE
10	2	COTTER PIN FOR TIRE
11	16	SPRING NUT
12	1	BOLT (M8-20)
13	1	NUT (M8) #3

Safety Guidelines

This manual contains information that is very important to know and understand.

This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS.

To help recognize this information, observe the following symbols.

⚠ DANGER Danger indicates an imminently hazardous situation which, if not avoided will result in death or serious injury.

⚠ WARNING Warning indicates a potentially hazardous situation which, if not avoided COULD result in death or injury.

⚠ CAUTION Caution indicates a situation which, if not avoided, MAY result in minor or moderate injury.

⚠ NOTICE Notice indicates important information that if not followed, may cause damage to equipment.

1. Read product manual carefully prior to wheel kit assembly to pump or generator frame. Proper assembly and installation to pump or generator provides carefree service.
2. Know the typical limitations and potential hazards associated with operating and transporting gasoline engine driven pump or generator equipment.

⚠ DANGER Never run the pumps or generator in an enclosed area. Pump or generator should only be operated in well ventilated areas. Engines produce exhaust gas containing odorless and poisonous carbon monoxide gas. Provide adequate ventilation and prevent fire hazards, by

⚠ DANGER Operate the pump or generator on a level surface to prevent fuel spills.

⚠ WARNING Before installation, ensure that there are no fluids in the pump, generator or engine prior to the wheel kit installation. Engine oil and gasoline should be properly drained from the engine. Ensure that there is no gas in the fuel tank and/or carburetor bowl. Drain all water from the pump housing. Draining all fluids from the engine and pump or generator will eliminate the hazards from fluid spills. Keep children and pets away from the installation work site.

⚠ CAUTION Ensure that the wheel kit contains the appropriate parts (See Fig. 1) before assembly to pump or generator. Assembly of an incomplete wheel may cause damage to the wheel kit, the pump, and generator. This installation is best performed by two people. A sturdy and stable block should support the underside of the cart during installation. A damaged or incomplete kit may cause injury or property damage.

PERSONAL SAFETY

1. Wear safety glasses at all times when installing wheel kit to pump or generator.
2. Keep work area clean, uncluttered and properly lighted; replace all unused tools and equipment.
3. Keep visitors at a safe distance from the work area.
4. Make workshop childproof with padlocks, master switches, and by removing starter keys.

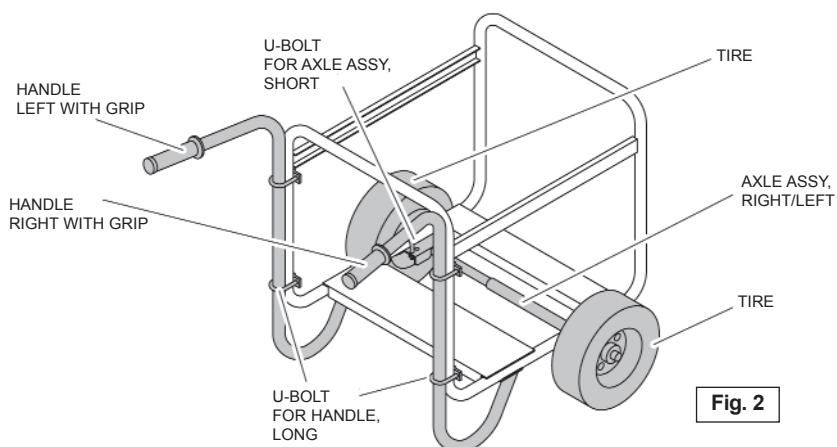


Fig. 2

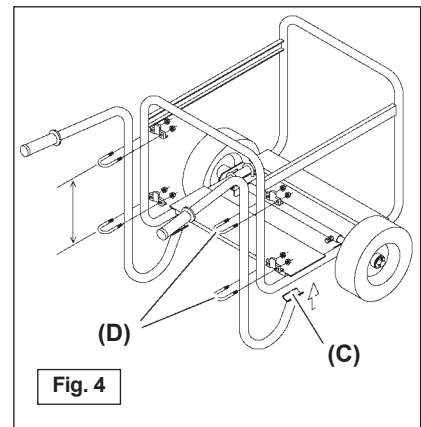
STEP 1 - AXEL AND WHEEL INSTALLATION

1. Elevate pump or generator with a block to allow enough clearance to assemble axle and wheels. Place the block between the ground and the bottom of the pump or generator frame.
2. Place the axle assembly (A) beneath the frame (B) and secure, using two short U-bolts (Ref. No. 8) and four nuts (Ref. No. 11) on each side of the frame along with axle assembly left (Ref. No. 2.). See Fig.3. In total, the axle assembly will require both the right (Ref. No. 1) and left (Ref. No. 2) axle assemblies, four short U-bolts (Ref. No. 8) and eight nuts (Ref. No. 11) to complete the assembly of the axle to the pump or generator frame.
Note: The axle assembly is an adjustable sliding axle system. It allows for minimum widths of 13h and maximum widths of 21h. Engine driven pumps or generators with frame dimensions smaller or larger than those noted above will not fit properly with this wheel mounting kit. Do not use this wheel mounting kit unless pump or generator frame dimensions are within the range state above.
3. There are eight holes in each axle assembly (Ref. No. 1 and 2). Use the four holes furthest apart as possible for your installation to secure each axle assembly (Ref. No. 1 and 2) to the pump or generator frame. The axle assembly (Ref. No. 1 and 2) may be positioned in different locations along the tubular pump or generator frame rails than the position shown below to accommodate assembly to different pump or generator frames.
4. Tighten Nuts (Ref. No. 11) to 75-95 in-lbs.

5. Once axle assembly (Ref. No. 1 and 2) is in place, secure width adjustment by tightening bolt (Ref. No. 12) and nut (Ref. No. 13)
6. Install each tire (Ref. No. 5) to the axle (Ref. No. 1 and 2). The inside of the tire (Ref. No. 5) is the side of the wheel that has the four nuts. Install each tire (Ref. No. 5) so that the side of the wheel that has the nuts is facing the pump or generator frame. See Figure 3.
7. After the tires (Ref. No. 5) are placed on the axle (Ref. No. 1 and 2), place one plain washer (Ref. No. 9) over the axle (Ref. No. 1 and 2) on each side of the axle (Ref. No. 1 and 2). A total of two washers. (Ref. No. 9) are required, one on each side of the axle (Ref. No. 1 and 2). After the washers (Ref. No. 9) are installed over the ends of the axle (Ref. No. 1 and 2), insert the hairpin sprint pins (Ref. No. 10) into the holes on each side of the axle (Ref. No. 1 and 2). One hair pin style cotter pin is required one each side of the axle (Ref. No. 1 and 2) for a total of two pins. (Ref. No. 10). Pins must be installed properly (See Figure 3), as improperly installed pins may cause washer and tires to come off during pump or generator transport.

STEP 2 - INSTALL HANDLES

1. The pump or generator and frame, with the axle and wheels installed, will need to be tilted forward slightly to assemble the handles (Ref. No. 3 and 4). Carefully block and secure the pump or generator and axle assembly so that pump or generator will not fall forward during handle assembly.



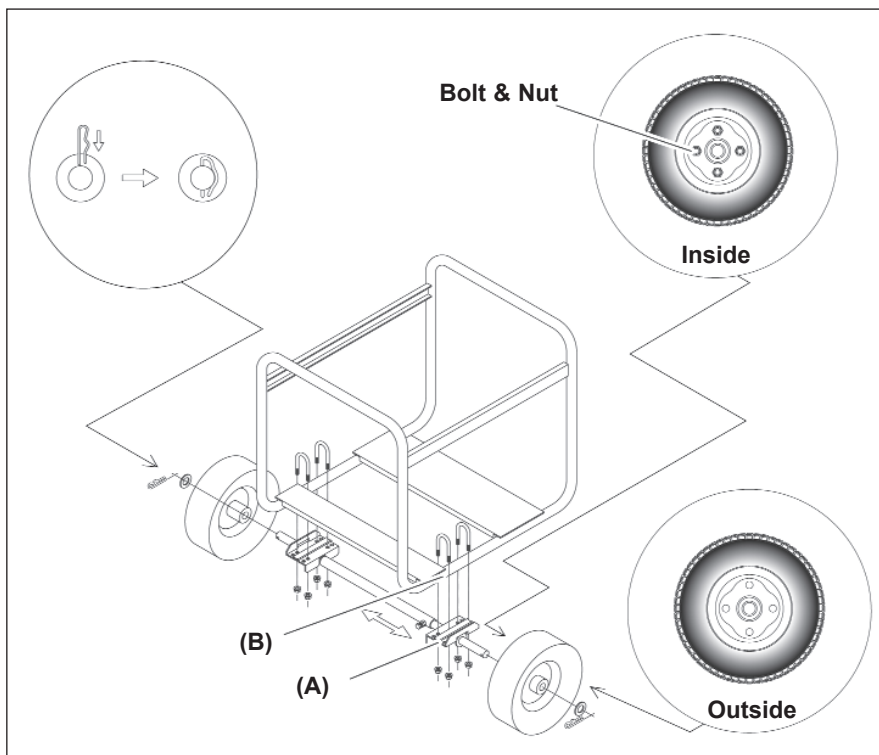
2. The handles (Ref. No. 3 and 4) should be installed on the pump or generator and frame assembly (See Fig. 4).
3. Place each handle (Ref. No. 3 and 4) on the bottom tubular support frame as shown (Item C) in Figure 4.

Note: Handles should tilt slightly outwards, not inwards, when assembled to pump or generator frame. This allows for easy access and maneuver ability of operator during pump or generator transport.

4. Attach each handle (Ref. No. 3 and 4) to the pump or generator frame using two of the longer U-bolts (Ref. No. 7), two handles (Ref. No. 6) and two nuts (Ref. No. 11) See Fig. 4, and reference items (C) and (D).
5. Each handle (Ref. No. 3 and 4) requires two long U-bolts (Ref. No. 7), two handle brackets (Ref. No. 6) and four nuts (Ref. No. 11).
6. Tighten nuts (Ref. No. 11) to 75 - 95 in-lbs.

Maintenance

1. Inspect pump or generator frame and wheel kit prior to every use for loose nuts and bolts. Tighten as needed.
2. Inspect tires for damage and replace as necessary.
3. Keep unit clean.
4. Wheel bearings are sealed ball bearings. No grease or oil is required to lubricate wheeling bearing.



TSURUMI (AMERICA), INC.
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9 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.