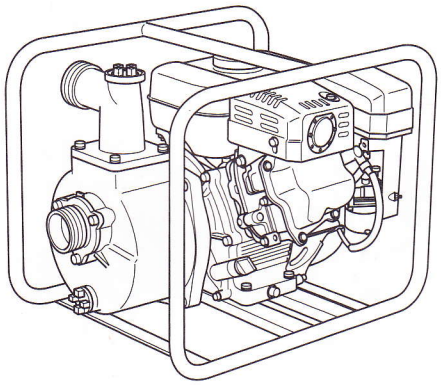
SUBARU

Industrial Power Products

PTX series

201/301/401 201T/301T 201ST/301ST 201H 201D/301D 210/310/220/320 210ST/310ST/220ST/320ST

INSTRUCTIONS FOR USE	Original	EN
MANUEL D'UTILISATION		FR
BEDIENUNGSANLEITUNG		DE
GEBRUIKSAANWIJZING		NL
MANUAL DE INSTRUCCIONES		ES
MANUALE D'USO E MANUTENZIONE		IT
MANUAL DE INSTRUÇÕES		PT
ΟΔΗΓΙΕΣ ΧΡΗΣΕΩΣ ΚΑΙ ΣΥΝΤΗΡΗΣΕΩΣ ΚΙΝΗΤΗΡΩΝ		GR
INSTRUKTIONSBOK		NO
BRUKSANVISNING		SE
KÄYTTÖ-JA HUOLTO-OHJEET		FI
BRUGSANVISNING		DK
РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ		RU
إرشادات الإستعمال		AR

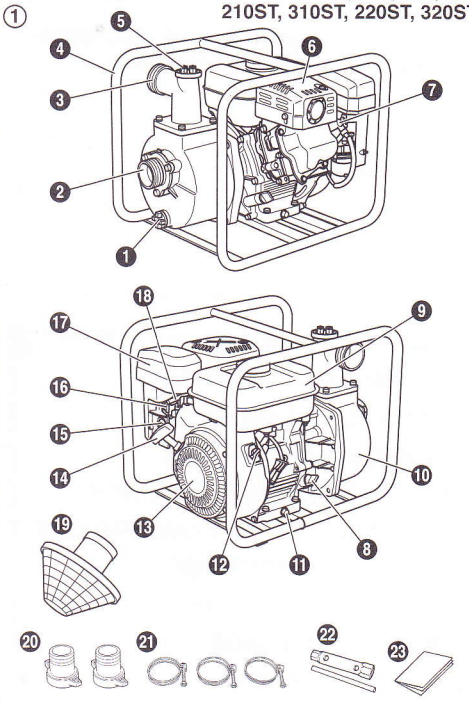


9ZZ9990103

Robin Pump

1

① PTX201,301,401, 201H, 201ST, 301ST, 210, 310, 220, 320, 210ST, 310ST, 220ST, 320ST



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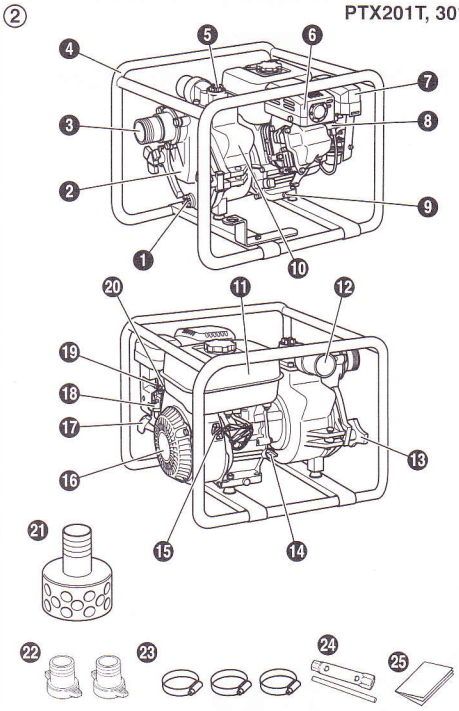

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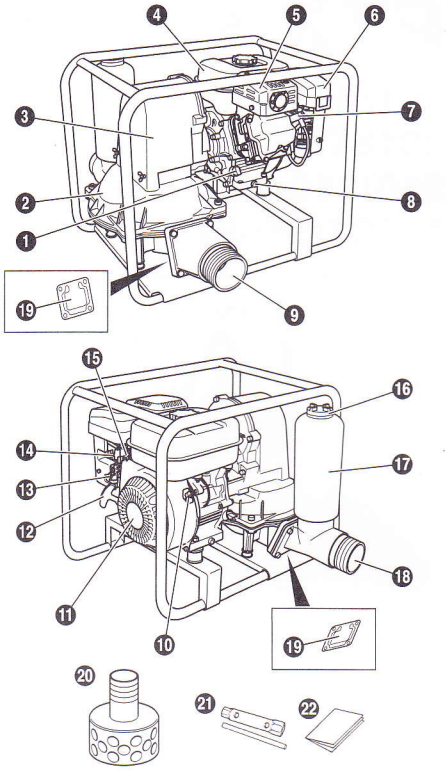

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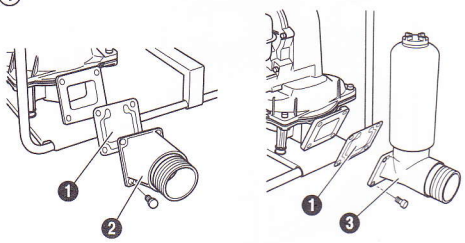

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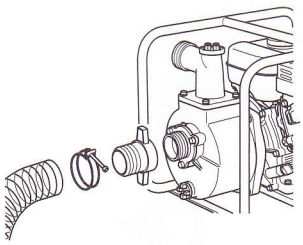

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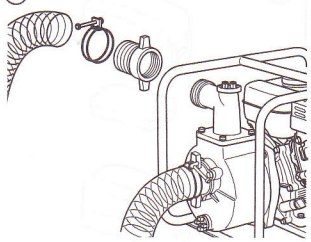

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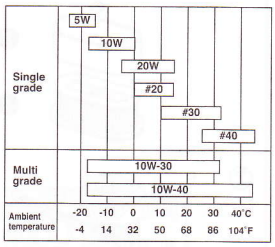

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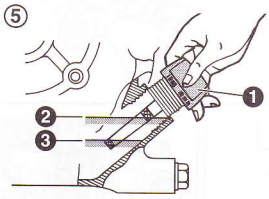

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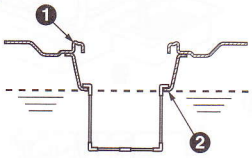

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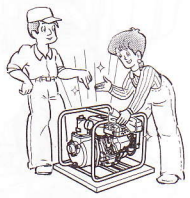

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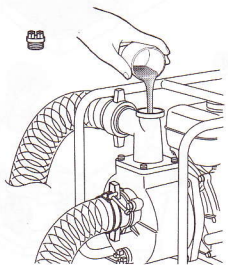

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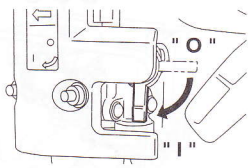

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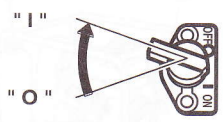

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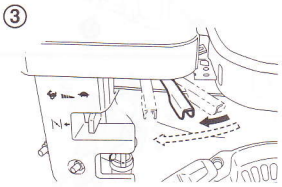

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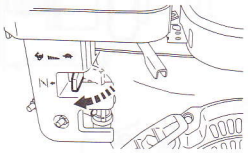

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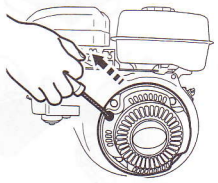

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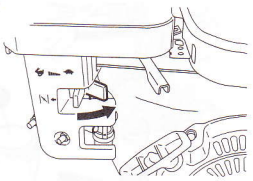

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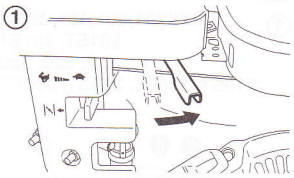

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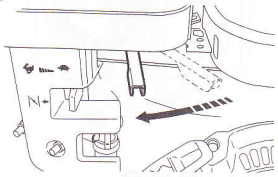

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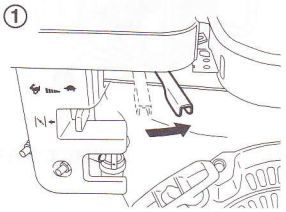

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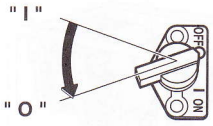

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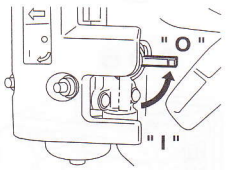

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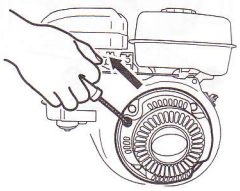

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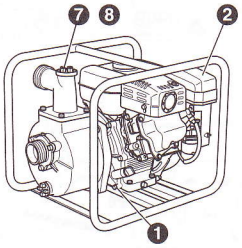
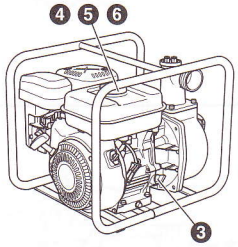
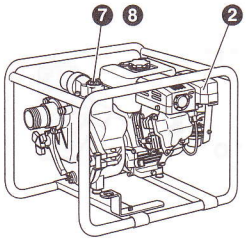
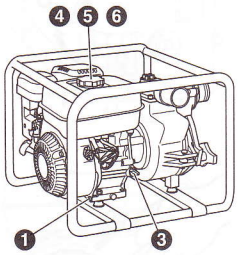
① PTX201,301,401, 201H, 201ST, 301ST, 210, 310, 220, 320, 210ST, 310ST, 220ST, 320ST





② PTX201T, 301T





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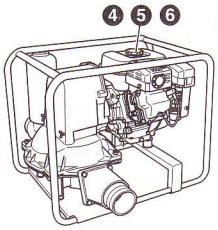

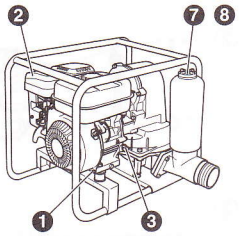

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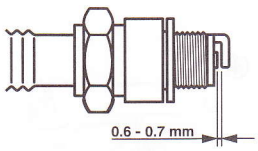

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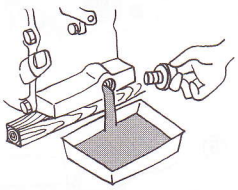

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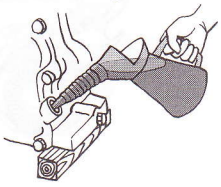

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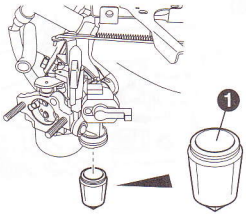

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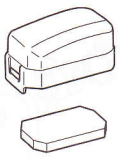

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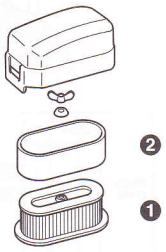

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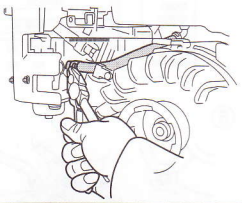

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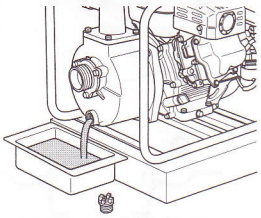

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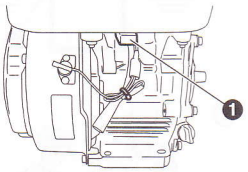

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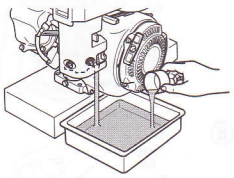

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(EN) CE symbol label
(FR) Étiquette du symbole CE
(DE) ETIKETT für CE-Symbole
(NL) Etiket voor CE-symbolen
(ES) Etiqueta con el símbolo CE
(IT) Etichetta per simbolo CE
(PT) Etiqueta com o símbolo CE
(GR) Ετικέτα με το σύμβολο CE
(NO) CE-symbolmerke
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PTX201H
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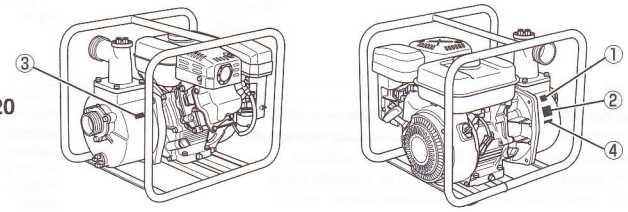

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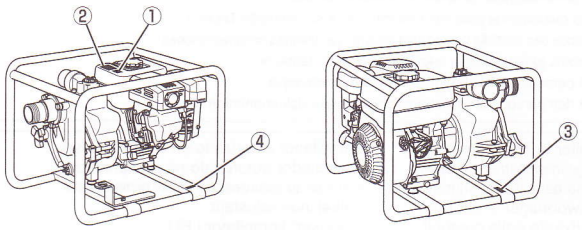

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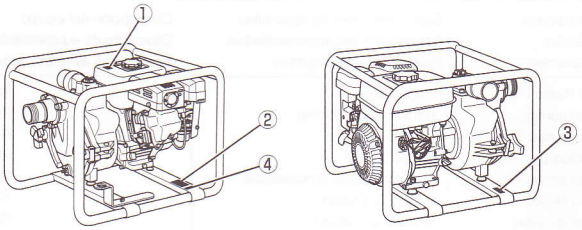

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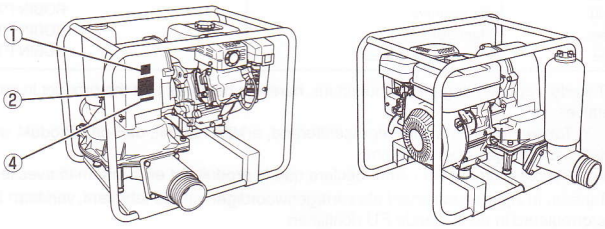

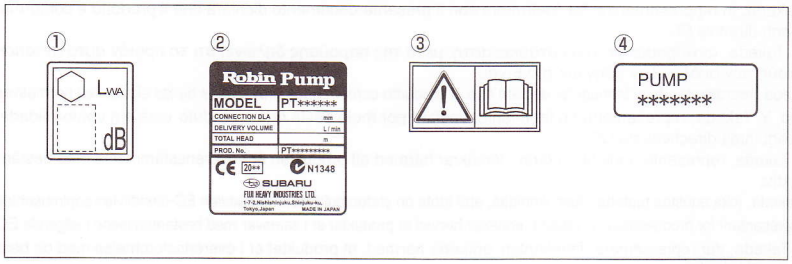

EC- DECLARATION OF CONFORMITY
EG-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ "EC"
EU VERKLARING VAN CONFORMITEIT
DICHIARAZIONE DI CONFORMITÀ EC
ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ Ε.Ε.

DECLARACIÓN DE CONFORMIDAD DE LA CE
CE-DECLARAÇÃO DE CONFORMIDADE
EG-FÖRSÄKRAN OM ÖVERENSTÄMMELSE
EC-YHDENMUKAISUUSSELVITYS
EC-KONFORMITETS DEKLARASJON
EU-DEKLARATION OM KONFORMITET

Manufacturer Hersteller Fabricant Fabrikant Costruttore Κατασκευαστής	Fabricante Fabricante Tillverkare Valmistaja Produsent Fabrikant	FUJI HEAVY INDUSTRIES LTD. 1–7–2, Nishishinjuku, Shinjuku–ku, Tokyo 160-8316 Japan

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Description of the equipment Beschreibung des Geräts Description de l'équipement	Beschrijving van de apparatuur Descrizione dell'apparecchiatura Περιγραφή μηχανήματος	Descripción del equipo Descrição do equipamento Beskrivning av utrustningen	Laitteiston kuvaus Beskrivelse av utstyret Beskrivelse af udstyret

Product	:Water Pump	Trade name	ROBIN PTD306	ROBIN PTX220ST
Produkt	:Wasserpumpe	Handelsbezeichnung	ROBIN PTD406	ROBIN PTX320ST
Produit	:Pompe à eau	Marque déposée	ROBIN PTD206T	ROBIN PTX201T
Product	:Waterpomp	Handelsnaam	ROBIN PTD306T	ROBIN PTX301T
Prodotto	:Pompa acqua	Denominazione commerciale	ROBIN PTD405T	ROBIN PTX201H
Προϊόν	:Αντλία Νερού	Εμπορικό Όνομα	ROBIN PTX201	ROBIN PTX201D
Producto	:Bomba de agua	Nombre comercial	ROBIN PTX301	ROBIN PTX301D
Produto	:Bomba Hidráulica	Nome comercial	ROBIN PTX401	ROBIN PTV101
Produkt	:Vattenpump	Handelsnamn	ROBIN PTX220	ROBIN PTV110
Tuote	:Vesipumppu	Kauppanimi	ROBIN PTX320	ROBIN PTV406T
Produkt	:Vannpumpe	Handelsnavn	ROBIN PTX201ST	
Produkt	:Vandpumpe	Handelsbetegnelse	ROBIN PTX301ST	

The undersigned, Y. Takeda, representing the manufacture, herewith declares that the product in conformity with the provisions the following EC–directives;
Der Unterzeichnende, Y. Takeda, den Hersteller repräsentierend, erklärt hiermit, daß das Produkt mit den Forderungen der folgenden EG-Amtsblattsverfügungen übereinstimmt:
Le soussigné, Y. Takeda, représentant le Fabricant, déclare que le produit est en conformité avec les Directives EC suivantes:
Ondergetekende, Y. Takeda, in zijn hoedanigheid als vertegenwoordiger van de fabrikant, verklaart hierbij dat het product voldoet aan de eisen zoals geformuleerd in de volgende EU richtlijnen
Il sottoscritto Y. Takeda, in rappresentanza del costruttore con il presente documento dichiara che il prodotto è conforme alle norme delle seguenti direttive EC:
Ο υπογράφων, Y. Takeda, αντιπρόσωπος του κατασκευαστή, μετά της παρούσης δηλώνει ότι το προϊόν αυτό ανταποκρίνεται με τους κανονισμούς των ακόλουθων οδηγιών της Είναι:
EL firmante, Y. Takeda, representando al fabricante, declara que el producto conforma las provisiones de las siguientes normativas de la CE:
O abaixo assinado, Y. Takeda, representando o fabricante, declara por meio desta que o produto está em conformidade com as disposições das seguintes directivas da CE:
Undertecknad, Y. Takeda, representerande tillverkaren, försäkrar härmed att produkten är i överensstämmelse med bestämmelserna i följande EG-direktiv:
Allekirjoittanut, Y. Takeda, joka edustaa tuotetta, täten ilmoittaa, että tuote on yhdenmukainen seuraavien EC-direktiivien sopimusehtojen kanssa;
Undertegnete og representant for produsenten, Y. Takeda, erklærer herved at produktet er i samsvar med bestemmelsene i følgende EC-direktiver;
Undertegnede, Y. Takeda, der repræsenterer fabrikanten, erklærer hermed, at produktet er i overensstemmelse med de bestemmelse, der findes i følgende EU-direktiver:

References Zur Bezugnahme Références	Referenties Riferimenti Αναφορές	Referencias Referências Referenser	Viitteet Referanser Referencer
2004/108/EC			
2006/42/EC (98/37/EC)			
2000/14/EC			

Measured Sound Power Level Gemessener Schalldruckpegel Niveau de puissance acoustique mesurée Gemeten geluidsdrukniveau Livello di rumore misurato Μετρηθέν Επίπεδο Ισχύος Ηχητικών Εκπομπών	Nivel de potencia sonora medido Nível de potência sonora medido Uppmätt bullernivå Mitattu äänivoimataso Målt lydeffektnivå Målt lydeffektniveau	PTD306 PTD406 PTD206T PTD306T PTD405T PTX201 PTX301 PTX401 PTX220 PTX320 PTX201ST PTX301ST	108.1 dB 108.8 dB 108.1 dB 108.9 dB 108.6 dB 100.9 dB 103.8 dB 104.8 dB 100.0 dB 102.7 dB 100.9 dB 103.8 dB	PTX220ST PTX320ST PTX201T PTX301T PTX201H PTX201D PTX301D PTV101 PTV110 PTV406T	100.9 dB 103.8 dB 101.6 dB 104.4 dB 103.9 dB 98.2 dB 99.0 dB 99.8 dB 103.1 dB 105.5 dB
Guaranteed Sound Power level: Garantierter Schalldruckpegel: Niveau de puissance acoustique garantie: Opgegeven geluidsdrukniveau: Livello di rumore garantito: Εγγυημένο Επίπεδο Ισχύος Ηχητικών Εκπομπών:	Nivel de potencia sonora garantizado: Nível de potência sonora garantido: Garanterad bullernivå: Taattu äänivoimataso: Garantert lydeffektnivå: Garanteret lydeffektniveau:	PTD306 PTD406 PTD206T PTD306T PTD405T PTX201 PTX301 PTX401 PTX220 PTX320 PTX201ST PTX301ST	110 dB 110 dB 110 dB 110 dB 110 dB 103 dB 105 dB 106 dB 101 dB 103 dB 103 dB 105 dB	PTX220ST PTX320ST PTX201T PTX301T PTX201H PTX201D PTX301D PTV101 PTV110 PTV406T	103 dB 105 dB 103 dB 106 dB 106 dB 100 dB 101 dB 100 dB 105 dB 107 dB
Conformity Assessment Procedure Bewertungsverfahren zur Feststellung der Übereinstimmung Procédé d'évaluation de conformité Toetsprocedure conformiteit Procedura di valutazione di conformità Διαδικασία εκτίμισης ανταπόκρισης	Procedimiento de evaluación de conformidad Procedimento de avaliação da conformidade Procedur för bedömning av överensstämmelse Yhdenmukaisuuden arviointimenetelmä Prosedyre for konformitetsvurdering Procedure anvendt ved bedømmelse af konformitet	Annex V procedure			

Reference to harmonized standards:
Verweis auf harmonisierte Normen:
Référence pour harmoniser les normes:
Referentie aan geharmoniseerde standaarden:
Riferimento alle normative armonizzate:
Αναφορά στα εναρμονισμένα πρότυπα:

Referencia a normas relacionadas:
Referência para harmonizar standards:
Hänvisning till harmoniserade standarder:
Lähdeviittaukset standardien saamiseksi sopusointuun:
Referanse til samstemmende standarder:
Reference til harmoniseringsstandarder:

EN809
EN55012

ISO 3744
CISPR 12

Other national standards or specifications used:
Andere angewandte nationale Normen oder Spezifikationen:
Autres normes nationales ou spécifications utilisées:
Overige gebruikte nationale standaarden of specificaties:
Altre normative nazionali o specifiche impiegate:
Άλλα κρατικά πρότυπα ή προδιαγραφές που χρησιμοποιήθηκαν:
Otras normas nacionales o especificaciones utilizadas:
Outros padrões ou especificações nacionais utilizados:
Övriga använda nationella standarder eller tekniska specifikationer:
Muut käytetyt kansalliset standardit tai tekniset tiedot:
Andre anvendte standarder eller spesifikasjoner:
Andre anvendte nationale standarder eller specifikationer:

Signature :

Y. Takeda

Done at:	Kitamoto, JAPAN	Date:	September. 30. 2009	General Manager, Quality Assurance
Ort:	Kitamoto, JAPAN	Datum:	30. September 2009	Generaldirektor, Qualitätssicherung
Fait à	Kitamoto, JAPAN	Date:	30 septembre 2009	Directeur general, Assurance de la qualité
Plaats:	Kitamoto, JAPAN	Datum:	30 september 2009	Hoofddirecteur, Kwaliteitsbewaking
Firma:	Kitamoto, JAPAN	Preparato a:	30 settembre 2009	Direttore generale, Assicurazione Qualità
Δημιουργήθηκε	Kitamoto, JAPAN	Ημερομηνία:	30 Σεπτέμβριος 2009	Γενικός διευθυντής, Εξασφάλισης Ποιότητας
Hecho en:	Kitamoto, JAPAN	Fecha:	30 septiembre, 2009	Director general, Seguro de calidad
Preparado em:	Kitamoto, JAPAN	Data:	30 de Setembro de 2009	Director geral, Garantia de Qualidade
Ort:	Kitamoto, JAPAN	Datum:	30 september 2009	General Direktör, kvalitetsövervakning
Allekirjoituspaikka:	Kitamoto, JAPAN	Päivämäärä:	30. syyskuu. 2009	Yleinen manageri , Laatuvakuutus
Utført den:	Kitamoto, JAPAN	Dato:	30. september, 2009	General bestyrer, kvalitetssikring
Udført:	Kitamoto, JAPAN	Dato:	30. september 2009	General bestyrer, kvalitetssikring

FOREWORD

Thank you very much for purchasing a **ROBIN PUMP**.

This manual covers operation and maintenance of **ROBIN PUMP**.

All information in this publication is based on the latest product information available at the time of approval for printing. Please read this manual carefully before operating.

Please take a moment to familiarize yourself with the proper operation and maintenance procedures in order to maximize the safe and efficient use of this product.

Keep this owner's manual at hand, so that you can refer to it at any time.

Due to constant efforts to improve our products, certain procedures and specifications are subjected to change without notice.

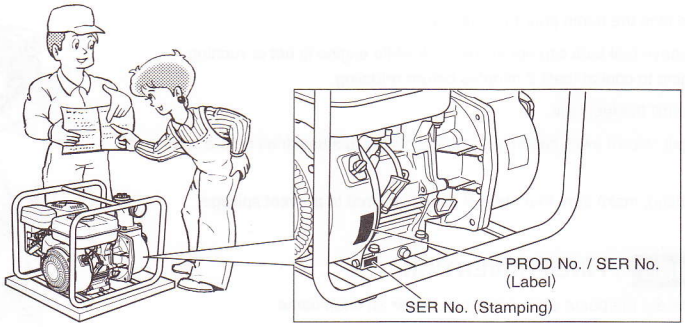
When ordering spare parts, always give us the MODEL, PRODUCTION NUMBER and SERIAL NUMBER of your product.

EN

Please fill in the following blanks after checking the production number on your product.

(Location of label is different depending on the product specification.)

PROD No.	SER No.



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NOTE **Please refer to the illustrations on the back page of the front cover or back cover for Fig. 1 to 8 indicated in the sentence.**

1. SAFETY PRECAUTIONS

Please make sure you review each precaution carefully.
Pay special attention to statement preceded by the following words.

⚠ WARNING **"WARNING" indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.**

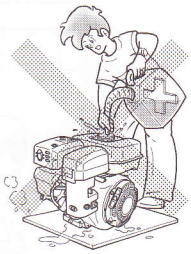
⚠ CAUTION **"CAUTION" indicates a possibility of personal injury or equipment damage if instructions are not followed.**

EN

⚠ WARNING : EXHAUST PRECAUTIONS

- Never inhale exhaust gasses.
  They contain carbon monoxide, a colorless, odorless and extremely dangerous gas which can cause unconsciousness or death.
- Never operate the pump indoors or in a poorly ventilated area, such as tunnel, cave, etc.
- Exercise extreme care when operating the pump near people or animals.
- Keep the exhaust pipe free of foreign objects.

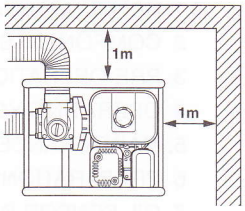
⚠ WARNING : REFUELING PRECAUTIONS



- Gasoline is extremely flammable and its vapors can explode if ignited.
- Do not refuel indoors or in a poorly ventilated area.
- Be sure to stop the pump prior to refueling.
- Do not remove fuel tank cap nor fill fuel tank while engine is hot or running.
  Allow engine to cool at least 2 minutes before refueling.
- Do not overfill the fuel tank.
- If fuel is spilt, wipe it away carefully and wait until the fuel has dried before starting the engine.
- After refueling, make sure that the fuel cap is secured to prevent spillage.

⚠ WARNING : FIRE PREVENTION

- Do not operate the pump while smoking or near an open flame.
- Do not use around dry brush, twigs, cloth rags, or other flammable materials.
- Keep cooling air intake (recoil starter area) and muffler side of the engine at least 1 meter (3 feet) away from buildings, obstructions and other burnable objects.
- Keep the pump away from flammables and other hazardous materials (trash, rags, lubricants, explosives).

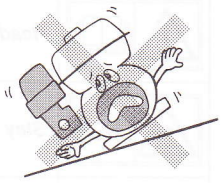


⚠ WARNING : OTHER SAFETY PRECAUTIONS

- Be careful of hot parts.
  The muffler and other engine parts become very hot while the pump is running or just after it has stopped. Operate the pump in a safe area and keep children away from the running pump.
- Do not use diaphram pump for the mixture of water and oil.

■ Do not touch the spark plug and ignition cable when starting and operating the engine.

■ Operate the pump on a stable, level surface.
If the engine is tilted, fuel spillage may result.



NOTE
Operating the pump at a steep incline may cause seizure due to improper lubrication even with a maximum oil level.

■ Do not transport the pump with fuel in tank or with fuel strainer cock open.

■ Keep the unit dry (do not operate it in rainy conditions).

EN

⚠ CAUTION : PRE-OPERATION CHECKS

■ Carefully check fuel hoses and joints for looseness and fuel leakage. Leaked fuel creates a potentially dangerous situation.

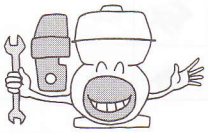
■ Check bolts and nuts for looseness. A loose bolt or nut may cause serious engine trouble.

■ Check the engine oil and refill if necessary.

■ Check the fuel level and refill if necessary. Take care not to overfill the tank.

■ Keep cylinder fins and recoil starter free of dirt, grass and other debris.

■ Wear snug fitting working clothes when operating the engine.
Loose aprons, towels, belt, etc., may be caught in the engine or drive train, causing a dangerous situation.



SYMBOLS

	Read manual.		*Shutt off fuel valve when the engine is not in use.*
	Stay clear of the hot surface.		*Check for leakage from hose and fittings.*
	Exhaust gas is poisonous. Do not operate in an unventilated room or enclosed area.		*Fire, open flame and smoking prohibited.*
	Stop the engine before refueling.		*HOT, avoid touching the hot area.*

EN

	On (Run)		*Engine start (Electric start)*		*Fuel (gasoline)*		*Primer*
	Off (Stop)		*Engine stop*		*Fuel (diesel)*		*Push primer*
	Engine oil		*Cold engine*		*Fuel shut-off*		*Do not push primer*
	Add oil		*Warm engine*		*Fuel system failure / malfunction*	2X	*Two times*
	Battery		*Electrical preheat (Low tem-perature start aid)*		*Choke*		
	Fast		*Run position*		*Plus ; positive polarity*		
	Slow		*Stop position*		*Minus ; negative polarity*		

2. COMPONENTS

(See Fig. 1)

NOTE **Please refer to the illustrations on the back page of the front cover or back cover for Fig. 1 to 8 indicated in the sentence.**

CENTRIFUGAL PUMP (PTX201, 301, 401, 201H, 210, 310, 220, 320)
SEMI TRASH PUMP (PTX201ST, 301ST, 210ST, 310ST, 220ST, 320ST)
(See Fig. 1-①)

❶ Plug (drain)
❷ Suction
❸ Delivery
❹ Frame
❺ Plug (priming)
❻ Muffler
❼ Spark plug
❽ Oil filler (with oil guage)
❾ Fuel tank
❿ Casing cover
⓫ Drain plug (at two places)
⓬ Stop Switch
⓭ Recoil starter
⓮ Recoil Starter handle
⓯ Fuel cock
⓰ Chocke lever
⓱ Air cleaner
⓲ Speed control lever
⓳ Strainer
⓴ Hose coupling
㉑ Hose band
㉒ Tools
㉓ Instruction for use (This publication)

TRASH PUMP (PTX201T, 301T)
(See Fig. 1-②)

❶ Plug (drain)
❷ Casing
❸ Suction
❹ Frame
❺ Plug (priming)
❻ Muffler
❼ Air cleaner
❽ Spark plug
❾ Drain plug (at two places)
❿ Casing cover
⓫ Fuel tank
⓬ Delivery
⓭ Knob
⓮ Oil filler (with oil guage)
⓯ Stop switch
⓰ Recoil Starter
⓱ Recoil Starter handle
⓲ Fuel cock
⓳ Chocke lever
⓴ Speed control lever
㉑ Strainer
㉒ Hose coupling
㉓ Hose band
㉔ Tools
㉕ Instruction for use (This publication)

EN

DIAPHRAGM PUMP (PTX201D, 301D)
(See Fig. 1-③)

❶ Oil filler (with Oil guage)
❷ Pump body
❸ Gear case
❹ Fuel tank
❺ Muffler
❻ Air cleaner
❼ Spark plug
❽ Drain plug (at two places)
❾ Delivery
❿ Stop switch
⓫ Recoil starter
⓬ Recoil starter handle
⓭ Fuel cock
⓮ Choke lever
⓯ Speed control lever
⓰ Plug (filler)
⓱ Suction chamber
⓲ Suction
⓳ Check valves
⓴ Strainer
㉑ Tools
㉒ Instruction for use (This publication)

3. PRE-OPERATION FOR STARTING (See Fig. 2)

1. ATTACH THE FLANGE AND CHECK VALVES (PTX201D, 301D Only See Fig. 2-①)

Attach the suction flange, delivery flange and check valves to the pump when operating the brand new pump for the first time.

❶ Check valves
❷ Delivery
❸ Suction

EN

⚠ CAUTION

Be careful not to overtighten the bolts.
Suction flange tightening torque : 90-120 kg-cm
Delivery flange tightening torque : 90-120 kg-cm

2. CONNECT SUCTION HOSE (See Fig. 2-②)

Use a reinforced-wall or wire braided hose to prevent suction collapse.
Since the pump self-priming time is directly proportional to hose length, a short hose is recommended.

⚠ CAUTION

Always use a strainer with the suction hose. Gravel or debris sucked into the pump will cause serious damage to the impeller and the pump casting.

3. CONNECT DELIVERY HOSE (See Fig. 2-③)

When using a fabric hose, always use a hose band to prevent the hose from disconnecting under high pressure.

4. CHECK ENGINE OIL (See Fig. 2-⑤)

Before checking or refilling engine oil, be sure the engine is located on stable, level surface and stopped.

- Do not screw the oil gauge into the oil filler neck to check oil level. If the oil level is low, refill to the upper level with the following recommended oil.
- Use 4-stroke automotive detergent oil of API service class SE or higher grade (SG, SH or SJ is recommended).
- Select the viscosity based on the air temperature at the time of operation as shown in the table. (See Fig.2-④)

Explanation of Fig.2-⑤

❶ Oil Gauge
❷ Upper Level
❸ Lower Level

Model	Oil capacity
PTX201, PTX301, PTX201H, PTX201ST, PTX301ST, PTX201T, PTX201D, PTX301D, PTX210, PTX310, PTX220, PTX320, PTX210ST, PTX310ST, PTX220ST, PTX320ST	0.6L
PTX401, PTX301T	1.0L

5. CHECK FUEL (See Fig. 2-⑥)

⚠ WARNING

Do not refuel while smoking, near an open flame or other such potential fire hazards. Otherwise fire accident may occur.

- Stop the engine and open the cap.
- Use automotive unleaded gasoline only.

  This engine is certified to operate on automotive unleaded gasoline.

  Fuel Tank Capacity

  Refer to "**9. SPECIFICATIONS**" Page 12 for fuel tank capacity
- Close the fuel cock before filling the fuel tank.
- Do not fill above the top of the fuel filter screen (marked ❷), or the fuel may overflow when it heats up later and expands.
- When filling the fuel tank, always use the fuel filter screen.
- Wipe off any spilled fuel before starting the engine. (See Fig.2-⑦)

6. CHECK PRIMING WATER (See Fig. 2-⑧)

It is recommended that the water chamber of pump casing should be primed with full of water before operating.

⚠ WARNING

Never attempt to operate the pump without priming water or the pump will overheat. Extended dry operation will destroy the mechanical seal.

If the unit has been operated dry, stop the engine immediately and allow the pump to cool before adding priming water.

4. OPERATING YOUR PUMP

1. STARTING (See Fig. 3)

(1) Open the fuel cock. (See Fig.3-①)

(2) Turn the STOP SWITCH to the position " I " (ON). (See Fig.3-②)

(3) Set the speed control lever 1/3 of the way towards the high speed position. (See Fig.3-③)

(4) Close the choke lever. (See Fig.3-④)

- If the engine is cold or the ambient temperature is low, close the choke lever fully.
- If the engine is warm or the ambient temperature is high, open the choke lever half-way, or keep it fully open.

(5) Pull the starter handle slowly until resistance is felt. This is the "compression" point. Return the handle to its original position and pull swiftly. Do not pull out the rope all the way. After starting the engine, allow the starter handle to return to its original position while still holding the handle. (See Fig.3-⑤)

(6) After starting the engine, gradually open choke by turning the choke lever and finally keep it fully opened. Do not fully open the choke lever immediately when the engine is cold or the ambient temperature is low, because the engine may stop. (See Fig.3-⑥)

2. RUNNING (See Fig. 4)

(1) After the engine starts, set the speed control lever at the low speed position (L) and warm it up without load for a few minutes. (See Fig.4-①)

(2) Gradually move the speed control lever toward the high speed position (H) and set it at the required engine speed. (See Fig.4-②)

- Whenever high speed operation is not required, slow the engine down (idle) by moving the speed control lever to save fuel and extend engine life.

3. STOPPING (See Fig. 5)

(1) Set the speed control lever at the low speed position and allow the engine to run at low speed for 1 or 2 minutes before stopping. (See Fig.5-①)

(2) Turn the STOP SWITCH counterclockwise to the position "O" (OFF). (See Fig.5-②)

(3) Close the fuel cock. (See Fig.5-③)

(4) Pull the starter handle slowly and return the handle to its original position when resistance is felt. This operation is necessary to prevent outside moist air from intruding into the combustion chamber. (See Fig.5-④)

EN

※ STOPPING ENGINE WITH THE FUEL COCK

Close the fuel cock and wait for a while until the engine stops. Avoid to let the fuel remain in the carburator over long periods, or the passages of the carburator may become clogged with impurities, and malfunctions may result.

5. MAINTENANCE

(See Fig. 6)

1. DAILY INSPECTION

Before running the engine, check the following service items.

❶ Loose or broken bolts and nuts

❷ Clean air cleaner element

❸ Enough clean engine oil

❹ Leakage of gasoline and engine oil

❺ Enough gasoline

❻ Safe surroundings

❼ Check the priming water

❽ Excessive vibration, noise

2. PERIODIC INSPECTION

Periodic maintenance is vital to the safe and efficient operation of your product.

Check the table below for periodic maintenance intervals. The below chart is based on the normal product operation schedule.

⚠ CAUTION

Replace rubber pipes for fuel passage every two years. If fuel leakage is found, replace the pipe immediately.

Periodic Maintenance Schedule table

Maintenance items	Every 8 hours (Daily)	Every 50 hours (Weekly)	Every 200 hours (Monthly)	Every 300 hours	Every 500 hours	Every 1000 hours
CLEAN PUMP SET AND CHECK BOLTS AND NUTS	● (Daily)					
CHECK AND REFILL ENGINE OIL	● (Refill daily up to upper level.)					
CHANGE ENGINE OIL	(Intial 20 hours)	●				
CLEAN SPARK PLUG		●				
CLEAN AIR CLEANER		●				
LUBRICATE THE PUMP-ROD BEARING (PTX201D,301D only)		●				
REMOVE THE PUMP CASING AND CLEAN (Except PTX201D,301D)			●			
CLEAN FUEL STRAINER			●			
CLEAN AND ADJUST SPARK PLUG AND ELECTRODES			●			
CHECK AND ADJUST VALVE CLEARANCE				●		
RMOVE CARBON FROM CYLINDER HEAD					●	
CLEAN AND ADJUST CARBURETOR					●	
CHECK AND REFILL GEAR BOX GREASE (PTX201D,301D only)					●	
CHECK SUCTION AND DELIVERY CHECK VALVES (PTX201D,301D only)					●	
OVERHAUL ENGINE IF NECESSARY						●

3. INSPECTING THE SPARK PLUG (See Fig.7-①)

(1) Clean off carbon deposits on the spark plug electrode using a plug cleaner or wire brush.

(2) Check electrode gap. The gap should be 0.6 mm to 0.7 mm.

Adjust the gap, if necessary, by carefully bending the side electrode.

Recommended Spark Plug : NGK BR-6HS

4. ENGINE OIL CHANGE (See Fig. 7-②,③)

Initial oil change : After 20 hours of operation
Thereafter : Every 100 hours of operation

(1) When changing oil, stop the engine and loosen the drain plug. Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

⚠ CAUTION

To prevent injury, pay attention to the hot oil. Make sure the fuel cap is tightly secured to avoid spillage.

(2) Re-install the drain plug before refilling oil.

Model	Oil capacity
PTX201, PTX301, PTX201H, PTX201ST, PTX301ST, PTX201T, PTX201D, PTX301D, PTX210, PTX310, PTX220, PTX320, PTX210ST, PTX310ST, PTX220ST, PTX320ST	0.6L
PTX401, PTX301T	1.0L

(3) Refer to page 6 for the recommended oil.

■ Always use the best grade and clean oil. Contaminated oil, poor quality oil and shortage of oil cause damage to engine or shorten the engine life.

5. CLEANING FUEL CUP (See Fig. 7-④)

⚠ WARNING **Flame Prohibited**

(1) Inspect fuel cup for water and dirt. (See Fig.7-④-❶)

(2) To remove water and dirt, close the fuel cock and remove the fuel cup.

(3) After removing dirt and water, wash the fuel cup with kerosene or gasoline. Reinstall securely to prevent leakage.

6. CLEANING AIR CLEANER (See Fig.7-⑤,⑥)

A dirty air cleaner element will cause starting difficulty, power loss, engine malfunctions, and shorten engine life extremely. Always keep the air cleaner element clean.

⚠ WARNING **Flame Prohibited**

(1) Urethane Foam Element Type (See Fig.7-⑤)

■ Remove the element and wash it in kerosene or diesel fuel. Then saturate it in a mixture of 3 parts kerosene or diesel fuel and 1 part engine oil. Squeeze the element to remove the mixture and install it in the air cleaner.

(2) Urethane Foam Dual Element Type (See Fig.7-⑥)

■ Urethane Foam cleaning (See Fig.7-⑥-❷)
Wash and clean the urethane foam with detergent. After cleaning, dry it. Clean the urethane foam element every 50 hours.

■ Second element (See Fig.7-⑥-❶)
Clean by tapping gently to remove dirt and blow off dust. Never use oil. Clean the paper element every 50 hours of operation, and replace element set every 200 hours.

Clean and replace air cleaner elements more often when operating in dusty environments.

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7. FUEL HOSE REPLACEMENT (See Fig.7-⑦)

⚠ WARNING

Take extreme caution when replacing fuel hose ; gasoline is extremely flammable.

Replace the fuel hose every 1,000 hours or every year.
If fuel leaks from fuel hose, replace the fuel hose immediately.

8. CHECKING BOLTS, NUTS AND SCREWS

■ Retighten loose bolts and nuts.

■ Check for fuel and oil leaks.

■ Replace damaged parts with new ones.

9. CLEANING PUMP INSIDE

■ Turn the knob counterclockwise and open the casing cover holder.

■ Pull the casing toward you, and then remove the casing and the inner casing.

■ Clean the inside of pump casing and casing cover with clean water.

6. PREPARATIONS FOR STORAGE

1. WATER (See Fig.[8]-①) (Except PTX201D, 301D)

Drain all water from the drain plug.

⚠ CAUTION

When retightening drain plug, be sure to clean the drain plug and the thread of casing. Otherwise, the thread may be damaged.

2. DISCONNECT THE DELIVERY HOSE

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Tilt the pump and drain all water from delivery hole. Severe damage to pump may result if water freezes in the pumping chamber.

3. DISCHARGE FUEL (See Fig.[8]-③)

⚠ WARNING Flame Prohibited

If you do not use the engine more than 1 month, discharge fuel to prevent gum in the fuel system and carburetor parts.

- Remove the strainer cup, place the strainer over a container and open the strainer cock to discharge fuel from the fuel tank.
- Remove the drain screw of the carburetor float chamber and discharge fuel.

4. ENGINE OIL (See Fig.[8]-④)

- Change the engine oil with fresh oil.
- Remove the spark plug, pour about 5 cc of engine oil into the cylinder, slowly pull the starter handle of the recoil starter 2 or 3 times, and reinstall the spark plug.

5. CLEAN AND STORE

- Slowly pull the recoil starter handle until resistance is felt and leave it in that position.
- Clean the pump thoroughly with an oiled cloth, put the cover on, and store the pump indoors in a well ventilated, low humidity area.

7. OIL SENSOR INSTRUCTIONS

(OPTIONAL)

1. FUNCTION OF OIL SENSOR

The engine will stop automatically when the oil level falls below the safety limit. The engine cannot be started unless the level is raised above the prescribed limit.
(See Fig.[2]-⑤)

2. RESTARTING

(1) Fill the crankcase with oil up to the proper level.

(2) As for restarting and operating the engine, refer to section **"4. OPERATING YOUR PUMP"** on page 7.

- Check the wire connector from the engine. It must be connected securely to the wire from oil sensor.
- When selecting the engine oil, refer to page 6 for the recommended oil.

8. EASY TROUBLESHOOTING

1. PUMP DOES NOT RUN .

- Engine dose not start.
  (See 8.-6 "**6. WHEN ENGINE DOES NOT START**")
- Sticking of impeller (Except PTX201D, 301D)
  (Disassemble and clean.)
- Solid object preventing pump-rod from completing stroke.
  (PTX201D, 301D only) (Disassemble and clean.)

2. PUMPING VOLUME IS SMALL.

- Sucking air at suction side.
  (Check piping at suction side.)
- Drop off engine output
  (Consult your nearest dealer.)
- Breakage of mechanical seal.
  (Except PTX201D, 301D) (Consult your nearest dealer.)
- Debris keeping check valve open.
  (PTX201D, 301D only) (Disassemble and clean.)
- High suction lift (Lower.)
- Suction hose is too long or thin.
  (Use a thick hose in minimum length.)
- Leak of water from water passage. (Stop leaking.)
- Clogging of foreign substance in impeller.
  (Except PTX201D, 301D) (Disassemble and clean.)
- Breakage of rubber diaphragm.
  (Consult your nearest dealer) (PTX201D, 301D only)
- Wear of impeller. (Except PTX201D, 301D)
- Looseness of suction chamber.
  (Retighten) (PTX201D, 301D only)
- Strainer is clogged. (Clean.)
- Engine speed is too low.
  (Consult your nearest dealer.)

3. PUMP DOES NOT SELFPRIME.

- Suction of air at suction side.
  (Except PTX201D, 301D) (Check piping at suction side.)
- Insufficient priming water inside pump casing
  (Except PTX201D, 301D) (Prime fully.)
- Imperfect tightening of drain plug.
  (Except PTX201D, 301D)(Tighten the plugs completely.)
- Engine speed is too low.
  (Except PTX201D, 301D) (Consult your nearest dealer.)
- Sucking air from mechanical seal.
  (Except PTX201D, 301D) (Consult your nearest dealer.)

4. DELIVERY HOSE DOES NOT STAY ON COUPLING.

- Hose may be kinked or discharge end may be blocked or clogged.
  (PTX201D, 301D only) (Straighten or clean.)

5. PUMP SUDDENLY STOPS.

- Solid object preventing pump-rod from completing stroke.
  (PTX201D, 301D only) (Disassemble and clean.)

6. WHEN ENGINE DOES NOT START :

Perform the following checks before you take the pump to your Robin dealer. If you still have trouble after completing the checks, take the pump to your nearest Robin dealer.

(1) Is there a strong spark across the electrode ?

- Is the stop switch at position " I " (ON)?
- Remove and inspect the spark plug.
  If the electrode is fouled, clean or replace it with new one.
- Remove the spark plug and connect it to the plug cap. Pull the starter handle while grounding spark plug against engine body. Try with a new spark plug if the spark is weak or there is no spark.
  The ignition system is faulty if there is no spark with a new spark plug.

⚠ WARNING

- **Wipe out spilled fuel carefully before testing. Place spark plug as far away from spark plug hole as possible.**
- **Do not hold spark plug by hand while pulling recoil starter.**

NOTE
The engine with oil sensor will stop automatically when the oil level falls below the prescribed limit.
Unless the oil level is raised above the prescribed limit, the engine will stop immediately after starting.

(2) Is there enough compression?

Pull the starter handle slowly and check if resistance is felt. If little force is required to pull the starter handle, check if the spark plug is tightened firmly. If the spark plug is loose, tighten it.

(3) Is the spark plug wet with gasoline?

- Is the fuel cock opened?
- Choke (close choke lever) and pull the starter handle five or six times. Remove the plug and check if its electrode is wet. If the electrode is wet, fuel is well supplied to your engine.
- When the electrode is dry, check where the fuel stops. (Check the fuel intake of the carburetor.)
- In case the engine does not start with well supplied fuel, try using fresh fuel.

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9. SPECIFICATIONS

	Model	PTX201	PTX301	PTX401	PTX201ST	PTX301ST
PUMP	Type	Self-priming, Centrifugal pump			Self-priming, Semi Trash pump	
	Suction x Delivery Diameters mm	50 x 50	76 x 76	101 x 101	50 x 50	76 x 76
	Total Head m	32		28	23	
	Maximum Delivery Volume Liter / min	520	1000	1800	700	1000
	Suction Head m	8			7.6	
	Axle Seal Material (Mechanical Seal)	Ceramic - carbon			Silicon - carbide	
ENGINE	Model	EX13	EX17	EX27	EX13	EX17
	Type	Robin Air - Cooled, 4 - cycle, OHC, Gasoline Engine				
	Lubricant	Automotive detergent oil (API / SE or higher grade, SG, SH or SJ is recommended. SEA / 10W-30 etc.				
	Oil Capacity Liter	0.6		1.0	0.6	
	Fuel	Automotive unleaded gasoline				
	Fuel Tank Capacity Liter	2.7	3.6	6.1	2.7	3.6
	Spark plug	NGK BR-6HS				
	Starting system	Recoil starter				
Dimensioms (L x W x H) mm		470x344x414	527x368x417	610x425x565	470x344x414	527x368x417
Net Weight kg		24.9	27.6	44.5	24.9	27.6
Standard accessories		Engine tool kit (1set), Strainer (1pc.), Hose coupling (2set), Hose band (3pcs.)				

	Model	PTX201T	PTX301T	PTX201H	PTX201D	PTX301D
PUMP	Type	Self-priming, Trash pump		Self-priming, Centrifugal High Water pump	Self-priming, Diaphragm pump	
	Suction x Delivery Diameters mm	50 x 50	76 x 76	50 x 50		76 x 76
	Total Head m	27	28	50	15	
	Maximum Delivery Volume Liter / min	750	1300	400	125	250
	Suction Head m	8			7.6	
	Axle Seal Material (Mechanical Seal)	Silicon - carbide		Ceramic - carbon	—	
ENGINE	Model	EX17	EX27	EX17	EX13	EX17
	Type	Robin Air - Cooled, 4 - cycle, OHC, Gasoline Engine				
	Lubricant	Automotive detergent oil (API / SE or higher grade, SG, SH or SJ is recommended. SEA / 10W-30 etc.				
	Oil Capacity Liter	0.6	1.0	0.6		
	Fuel	Automotive unleaded gasoline				
	Fuel Tank Capacity Liter	3.6	6.1	3.6	2.7	3.6
	Spark plug	NGK BR-6HS				
	Starting system	Recoil starter				
Dimensioms (L x W x H) mm		560x436x397	672x484x610	539x368x455	614x370x510	660x420x510
Net Weight kg		34.5	48.5	27.0	38.0	45.0
Standard accessories		Engine tool kit (1set), Strainer (1pc.), Hose coupling (2set), Hose band (3pcs.)				

	Model	PTX210	PTX310	PTX210ST	PTX310ST
PUMP	Type	Self-priming, Centrifugal pump		Self-priming, Semi Trash pump	
	Suction x Delivery Diameters mm	50 x 50	76 x 76	50 x 50	76 x 76
	Total Head m	32		23	
	Maximum Delivery Volume Liter / min	520	1000	700	1000
	Suction Head m	8			
	Axle Seal Material (Mechanical Seal)	Ceramic - carbon		Silicon - carbide	
ENGINE	Model	EX16	EX17	EX16	EX17
	Type	Air - Cooled, 4 - cycle, OHC, Gasoline Engine			
	Lubricant	Automotive detergent oil (API / SE or higher grade, SG, SH or SJ is recommended. SEA / 10W-30 etc.)			
	Oil Capacity Liter	0.6			
	Fuel	Automotive unleaded gasoline			
	Fuel Tank Capacity Liter	3.6			
	Spark plug	TORCH E6RC (NGK BR-6HS)			
	Starting system	Recoil starter			
Dimensioms (L x W x H) mm		527x368x417			
Net Weight kg		24.9	26.1	24.9	26.1
Standard accessories		Engine tool kit (1set), Strainer (1pc.), Hose coupling (2set), Hose band (3pcs.)			

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	Model	PTX220	PTX320	PTX220ST	PTX320ST
PUMP	Type	Self-priming, Centrifugal pump		Self-priming, Semi Trash pump	
	Suction x Delivery Diameters mm	50 x 50	76 x 76	50 x 50	76 x 76
	Total Head m	32		23	
	Maximum Delivery Volume Liter / min	520	1000	700	1000
	Suction Head m	8			
	Axle Seal Material (Mechanical Seal)	Ceramic - carbon		Silicon - carbide	
ENGINE	Model	EX16	EX17	EX16	EX17
	Type	Air - Cooled, 4 - cycle, OHC, Gasoline Engine			
	Lubricant	Automotive detergent oil (API / SE or higher grade, SG, SH or SJ is recommended. SEA / 10W-30 etc.)			
	Oil Capacity Liter	0.6			
	Fuel	Automotive unleaded gasoline			
	Fuel Tank Capacity Liter	3.6			
	Spark plug	TORCH E6RC (NGK BR-6HS)			
	Starting system	Recoil starter			
Dimensioms (L x W x H) mm		527x368x417			
Net Weight kg		24.9	26.1	24.9	26.1
Standard accessories		Engine tool kit (1set), Strainer (1pc.), Hose coupling (2set), Hose band (3pcs.)			