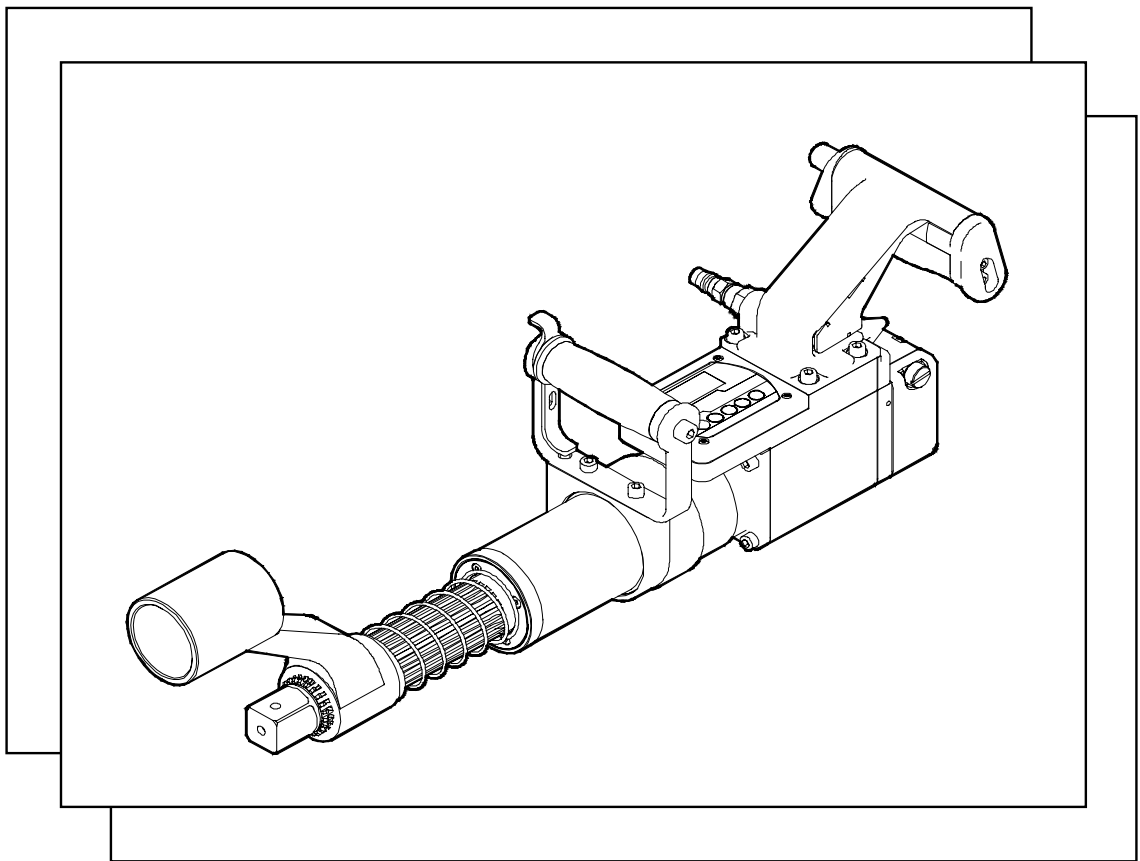


PTS-800E

Operation Manual



Read this Operation Manual thoroughly and the separate "Instruction Manual" before using.



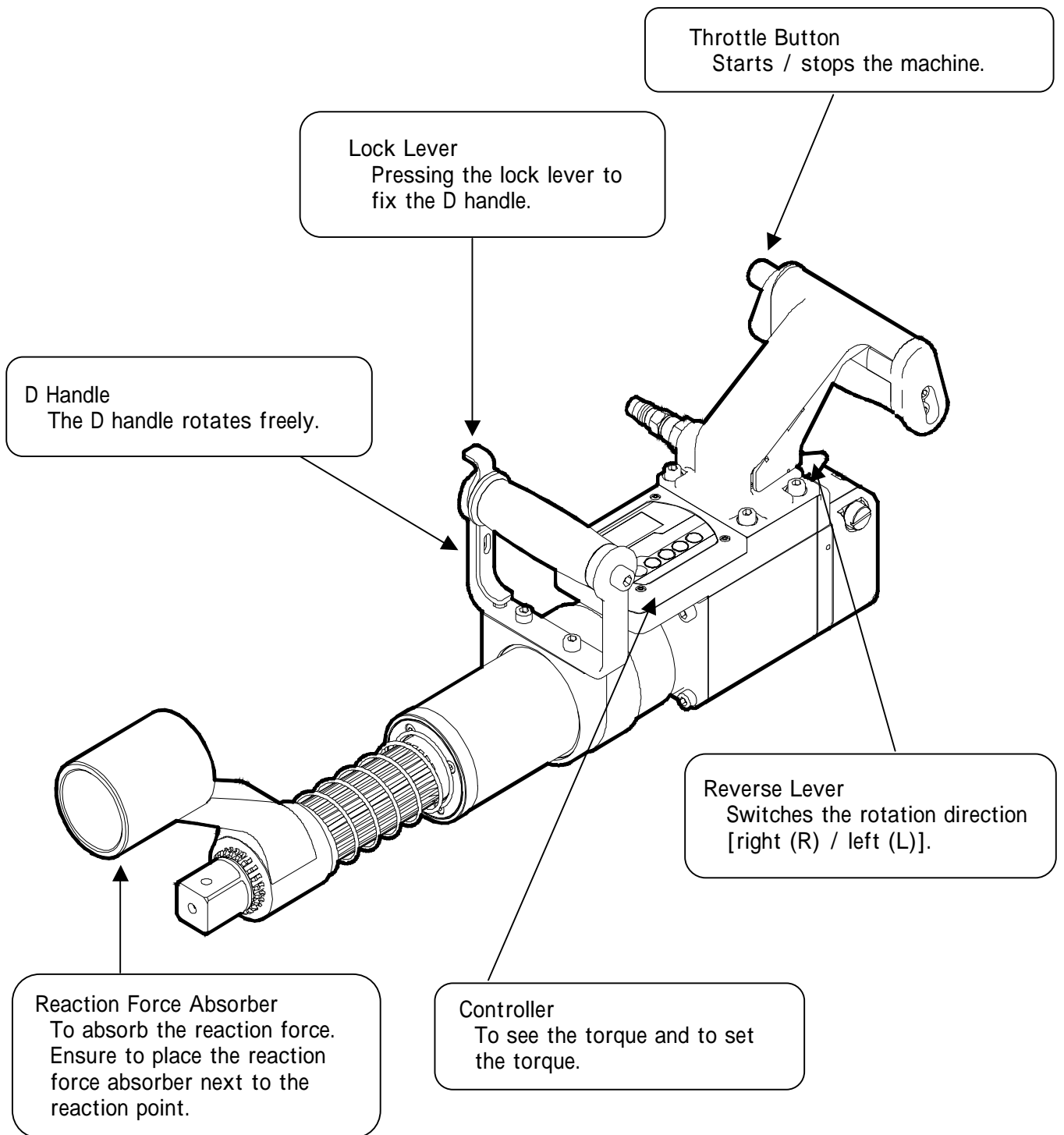
KUKEN CO., LTD.

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The manufacturer is not responsible for faults or malfunctions which arise from bad maintenance or wrong / inadequate use of the Product and unauthorized modification / repair of the Product.
Unauthorized modification includes "self made reaction force absorber".

Main Unit : Part Name and Functions



Warning

This machine is for "fastening" only. It cannot be applied for "loosening".

Controller Unit : Part Name And Functions

JUDGMENT LAMP

OK (GREEN) : Lights when the fastening is completed successfully.

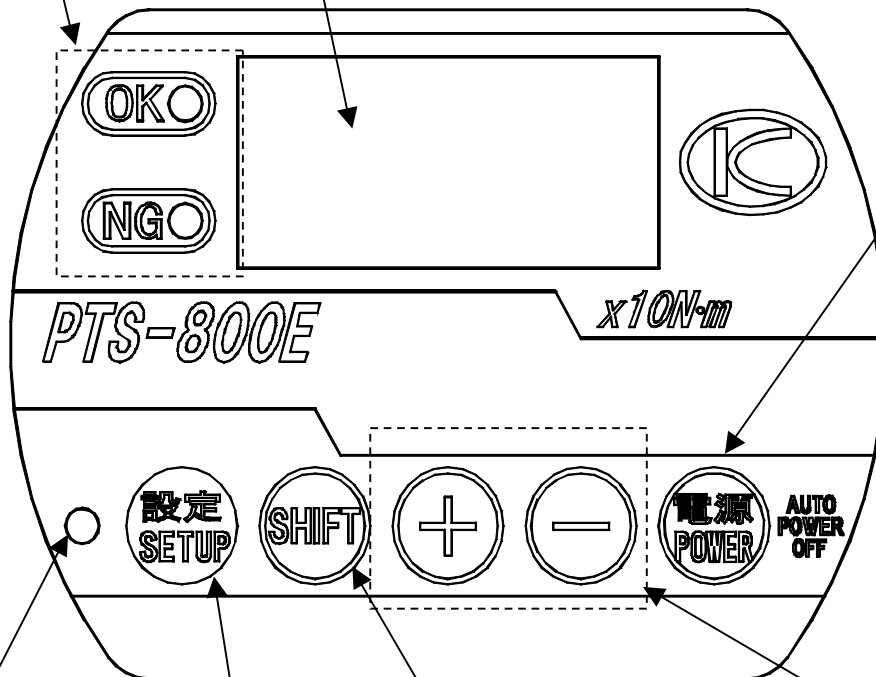
NG (RED) : Lights when the set torque cannot be obtained due to interruption or error.

Display Panel

Displays the torque, etc.
(unit : X 10Nm)

Power Key

Uses to turn on manually
when the power is off.



SETUP Lamp (Red)

Lights in the setting mode.

SETUP Key

Uses to adjust the
torque setting.

SHIFT Key

At the time of torque setting, when the + - key is
pressed while pressing the SHIFT key, adjustment
by 100 Nm is available.

+ and - Keys

Uses to adjust
the torque.

Unique Functions

Additional Functions

Improves Workability

The reactive force absorber and the D-handle rotate to make easier to operate and to avoid improper working position.

7

Auto-Start and Auto-Power Off

By pressing the throttle lever, the CPU activates automatically.

If not operating for a certain period of time, the power will be turned off automatically.

6

Real Time Display

The torque can be shown on the panel in real time and easy to understand the situation.

8

Judgment Lamp

The fastening result can be judged if the operation is successful or not.

If the operation is successfully completed, the judgment lamp turns green.

If the operation is suspended or stopped, the NG lamp turns and alerts its under-torque.

8

Auto Shut Off

The solenoid valve shuts off and stops the machine when the operation is completed successfully and the judgment lamp turns green.

8

Safety Functions

Fail Safe Function

In case batteries are exhausted or very low, the CPU will not be operated and the spindle turns very slowly to reverse direction.

Operators can easily recognize the battery problem.

Error Detection Function, Abnormal Fastening Detection [CH1]

This function detects bolt stretching beforehand and forces to stop the machine.

This function can be turned on/off depending on works.

Injury prevention

Safety-sensitive reaction force absorber is equipped with the machine to prevent workers from pinching their hands.

Other Functions

Power Source

CPU is operated by batteries.

Use 6 of AA dry cell batteries. Alkaline (recommended) and also Ni-MH is available.

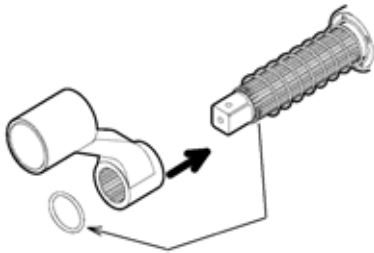
Preparation

Check to make sure that all the components are present and that nothing is damaged in shipping.
If any problems, please contact your dealer.

Coupling Plug 20PM	1
AA Dry Cell Alkaline Battery	6
Reactive Force Absorber	1
O-Ring	1

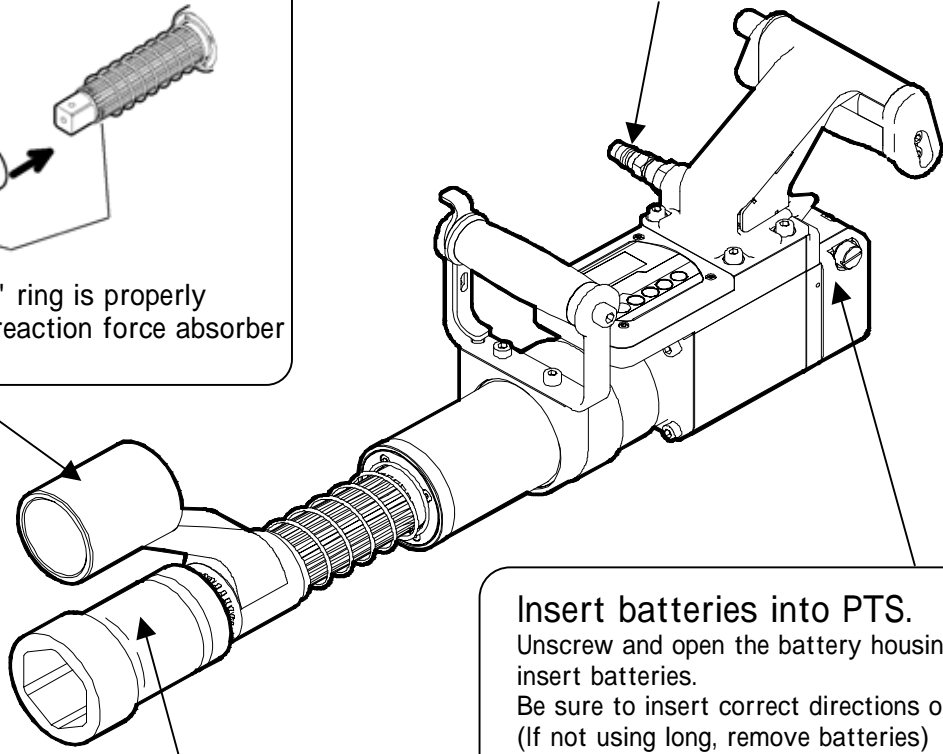
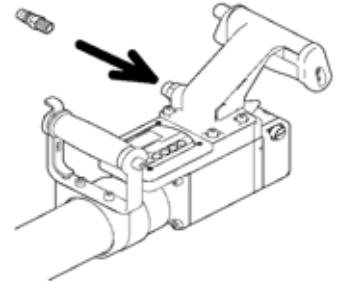
Attach the reaction force absorber.

Make sure that the air supply is disconnected when attaching the reaction force absorber.



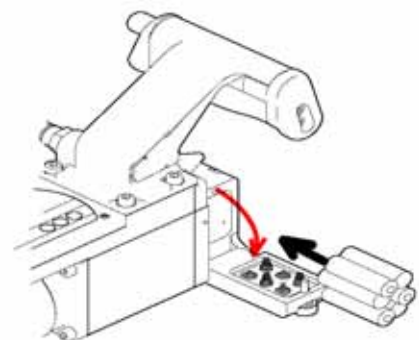
Make sure that the "O" ring is properly attached to avoid the reaction force absorber to be come off.

Attach the coupling plug.



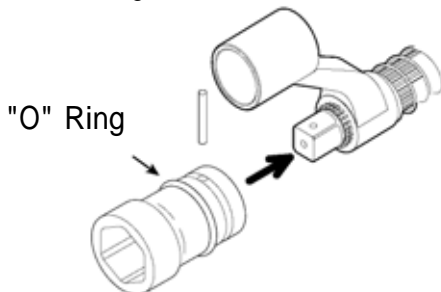
Insert batteries into PTS.

Unscrew and open the battery housing cover and insert batteries.
Be sure to insert correct directions of batteries.
(If not using long, remove batteries)



Attach the socket

Make sure that the air supply is disconnected when attaching the socket.



Make sure that the "O" ring is properly attached to avoid the socket to be come off.

WARNING

Do not insert batteries opposite directions. Inserting batteries opposite directions will damage the CPU.



Warning

Operating PTS-800E without a reaction force absorber may cause injuries.
Please do not operate PTS-800E without a reaction force absorber.

How to Fasten Wheel Nuts (1)

This machine is for "fastening" only. It cannot be applied for "loosening".

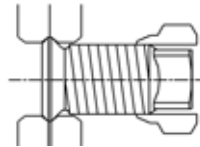
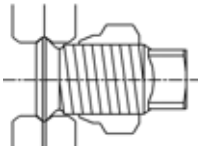
CAUTION!!

In case of the wheel nut made up of the inner nut and the outer nut, please make sure the following.

Make sure to fasten the inner nut securely before fastening the outer nut.

Since this machine absorbs the reactive force by the (inner or outer) nut, fasten all nuts after sufficiently inserted in order to protect the thread.

Nut is sufficiently inserted.



Nut

× Nut is not sufficiently inserted.

How to set the torque

Press the power key.
If already activated, it is unnecessary.



blinking

Press **SETUP** key to activate the setting mode.
The setting lamp lights and set torque will be displayed on the panel.



light up

Adjust the torque with **+** and **-** keys.

+ add by 10 Nm

- subtract by 10 Nm

SHIFT **+** add by 100 Nm

SHIFT **-** subtract by 100 Nm

Pressing **SHIFT** key **+** or **-** key, it is possible to adjust the torque on a 100 Nm basis.



Press **SETUP** key to complete the setting mode.

The display panel will be turned off after 10 seconds but the set torque will be stored.



blinking

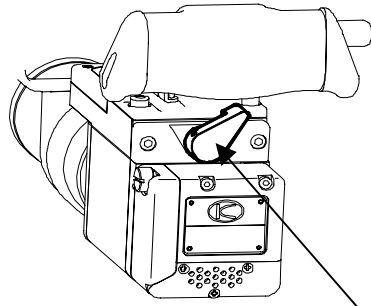
light off

How to Fasten Wheel Nuts (2)

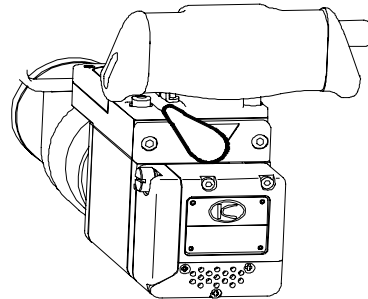
Check the rotative direction (Reverse Lever).

L : Left Rotation

(Fastening the left handed screw)



Reverse



R : Right Rotation

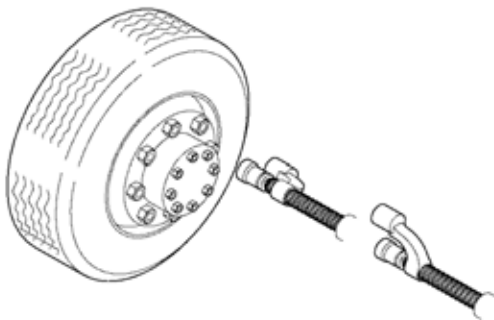
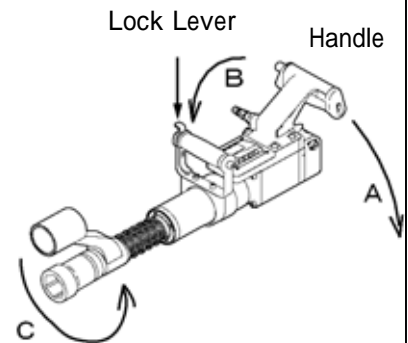
(Fastening the right handed screw)

Cap the reactive force absorber on the nut next to the one to be loosen. The handle and the reactive force absorber move synchronously. Turn them to the workable position with the lock lever.

How to operate the lock lever (example)

Turn the handle to the direction of A while pressing the lock lever. Then release the lock lever and turn the handle to the direction B.

The reactive force absorber rotates to the direction C.

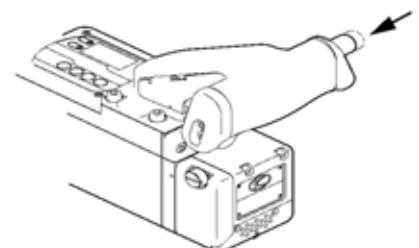
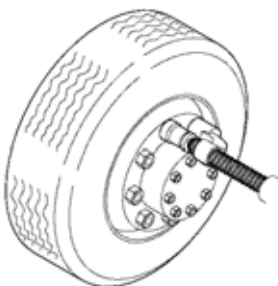


Align the socket to the nut to be loosen.

How to insert the socket with the throttle button (slow start)

Pressing the throttle button gently to rotate the spindle. It is easier to insert the socket when the spindle slowly rotates.

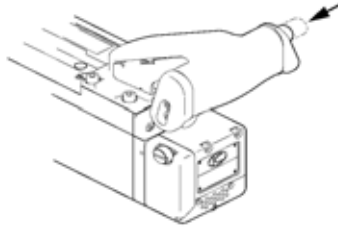
Press gently



How to Fasten Wheel Nuts (3)

Press the throttle button to start fastening.

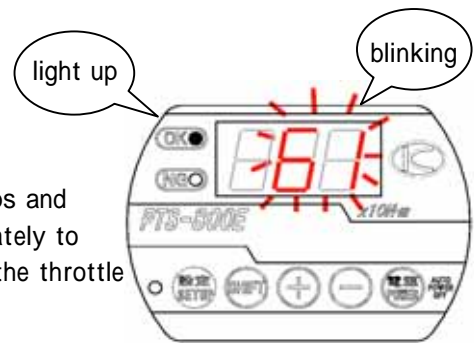
Rotating the nut at the high speed until the nut bottom out. When bottoms out, the rotation speed is switched to low to continue the fastening.



While operating, the torque will be shown in real time.

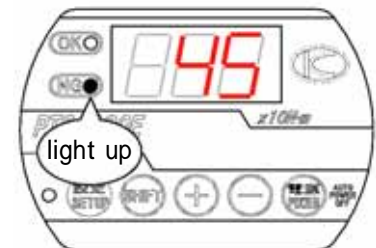
Once reaches the pre-set torque, OK lamp will be lit (green) and stops automatically. *1
The final attained torque blinks on the display panel.

*1 When reaching the set torque, the machine automatically stops and rotates in the reverse direction at an ultra-low speed immediately to prevent the socket bite. Immediately release your hand from the throttle button when the counter-rotating starts.



If the throttle lever is released while operating, NG lamp (red) will be lit to alert the operator.



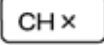
When the throttle button is released or interrupted due to finger slipping, make sure to re-fasten the nut.
Otherwise, check the set torque and the set mode.




Warning

- While operating PTS, do not touch the reaction force absorber or the socket.
- If something wrong with PTS, please release the throttle button and stop the operation.

Troubleshooting (1)




	Symptom/Panel Display	Causes	Measures
Main Unit	Torque displayed on the panel does not reach the pre-set torque. (*1)	Air pressure is decreased when operating.	Eliminate the cause and check the air compressor or others. Check the pre-set torque and re-set the value again.
		The torque can be set incorrectly.	
	Reaches to the pre-set torque and stops automatically before the nut/bolt is bottomed out.	Abnormality on the thread surface (due to seizure of thread or others)	Replace the nut/bolt with new one.
Battery	Even though the throttle lever is pressed, the spindle slowly rotates in the reverse direction against the rotative direction (Reverse Lever).	Batteries are not inserted.	Insert batteries.
		Batteries are not properly placed in the battery housing.	Securely set batteries in place.
		 is displayed. (*2)	Batteries are running low.
Controller	 is displayed and turned off immediately. (XX is indicated with 2 digit number) (*2)	Failure of the controller (CPU).	Please refer the next page.
Other	 is displayed and turned off immediately. (X is indicated with 1 digit number) (*2)	Troubles other than the main unit.	Please refer the next page.

(*1)  may be displayed in this case.
If something wrong with the machine, please release the throttle lever and stop operating the machine.



(*2) Please refer the next page "troubleshooting (2) and (3)" for error codes.

Troubleshooting (2) Description of Error Code

Error Code Description on PTS main unit (troubles on the main unit)

Error Code	Panel Display	Causes	Measures
E01		Malfunction of the torque sensor causes the misalignment of "zero point".	Please contact your dealer.
E02		The sensor detects the abnormal uprising of the torque higher than the pre-set torque.	Please check the surface of screws and grease and fasten again. However [E02] is still shown on the panel, please contact your dealer.
Lo		Low batteries	Please replace with new batteries.

Error Code Description on fastening

Error Code	Panel Display	Causes	Measures
CH1 (CHECK1)	If [CH1] is turned on, 	Please see the next page [Troubleshooting (3)].	
Under Torque	Result below pre-set torque 	Releasing the throttle lever before reaching the pre-set torque. (The figure shows 350Nm when releasing the throttle lever).	Please loosen the nut once and try to fasten again.

Troubleshooting (3)

Depending on the condition of wheels, bolts, nuts and other fastening parts, fastening with PTS may damage bolts. (Hereinafter this condition will be referred to as "abnormal fastening").

This machine has the function to immediately detect this "abnormal fastening" and shut down to prevent bolts and other parts from damages.

When "abnormal fastening" is detected, "CH1"(CHECK1) is displayed on the controller and the machine stops.

When "CH1" (abnormal fastening) is displayed, check the following.

[1] If "CH1"(abnormal fastening) is displayed, please remove the nut.

(Caution) If the wheel nut is made up of the inner nut and the outer nut (JIS Type), please make sure to fasten the inner nut with recommended torque after loosening the outer nut.



Warning

If "CH1" is displayed, do not continue fastening. Loosen the bolt / nut first. Otherwise the bolt may be stretched or the wheel may be deformed.

[2] In case of JIS type (8 nuts)

(1) Whether the wheel center is misaligned to the wheel bolt.

(2) Whether there are any damages on the seating surface of wheels, nuts, and or thread face.

Replace the parts when there are damages or unevenness of seating face.

(3) Whether the wheel bolt is extended (stretched).

If so, replace the bolt with new one.

(4) Whether excessive grease is applied.

If so, wipe off the grease gently.

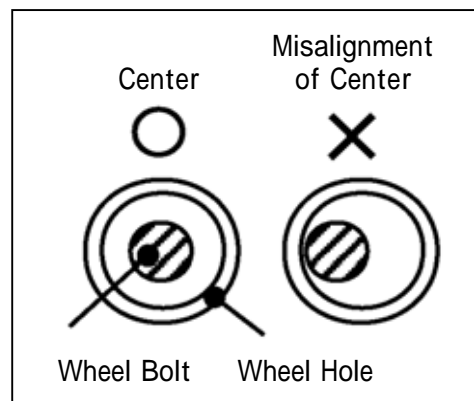
In particular, excessive grease application on the aluminum wheel is a cause of excessive axial force generation*. Pay full attention to the amount or the portion of grease applied.

Refer automobile manufacturer's instruction.

*Axial Force : Force to pull the bolt (Fastening Force).

(5) Whether the torque is appropriate.

Refer automobile manufacturer's instruction.



Unevenness of wheel seating surface (exmaple of iron wheel)



Unevenness of inner nut seating surface (exmaple of iron inner nut)

Troubleshooting (3)

[3] In case of ISO type (10 nuts)

(1) Whether there are any damages on the seating surface of wheels, nuts, and or thread face.

Replace the parts when there are damages or unevenness of seating face.

(2) Whether the wheel bolt is extended (stretched).

If so, replace the bolt with new one.

(3) Whether appropriate amount of grease is applied or excessive grease is applied.

Excessive grease application is a cause of excessive axial force generation. Pay full attention to the amount and the portion applied.

Refer automobile manufacturer's instruction of grease.

For the tapered area, apply grease to the degree that the excessive grease does not leak when the nut and the washer are pressed. If excessive, wipe the grease off gently with a waste cloth.

(4) Whether the torque is appropriate.

Refer automobile manufacturer's instruction.

[4] After examine bolts, nuts and others for abnormality or changing to new parts, please fasten nuts with extra pre-tightening.

(Caution) If the wheel nut is made up of the inner nut and the outer nut, please make sure to fasten the inner nut with recommended torque after loosening the outer nut.

Cautions for operation

In any case, do not touch the reaction force absorber and the socket when operating.

If anything wrong with the machine, immediately release hands from throttle button to stop operation.

Always keep the working air pressure within the range of 0.6 to 0.7 MPa (Pe). Usage under the air pressure of over 0.7 Mpa may cause the defect of the built-in solenoid valve.

Avoid excessive oil application on the air motor. It may cause the defect of the built-in solenoid valve.
(As a guideline, apply "one or two drops of the machine oil ISOVG 10 once a day.")

When applying the cap of the reactive force absorber to the nut, do not align the absorber by hand.
The hand might be pinched between the reactive force absorber and an object by accident when starting the machine.

Do not operate in the condition that the socket of the reactive force absorber and the socket of the main unit are not properly inserted into the respective nuts. The socket or reactive force absorber may come off the nut, resulting in human injuries and damage on the nut and the object.

Do not pour "liquid" or "oil" onto the controller.

Do not make a high impact on the controller.

In case the machine does not stop when the OK lamp is on, it might be at fault. Stop using the machine immediately.

Replace batteries when the power is off.

In case of tightening, fastening may be completed with a little larger torque than the pre-set torque.
(When exceeding the specified upper limit of torque by tightening, once loosen the nut and re-fasten it from the beginning.)

Warning Do not insert batteries opposite directions.
Inserting batteries opposite directions will damage the CPU.

Use AA dry cell batteries X 6. Alkaline (recommended), Ni-MH(rechargeable), Oxyride dry batteries are applicable.
Do not use other batteries than specified. Do not use worn batteries.
Carefully read cautions on batteries and follow the direction.

Following cases may cause human injury, liquid leaking of batteries, excessive heat of batteries, or burst of batteries

Do not peel the exterior package of the battery or scratch the battery.

Using those batteries may cause the heat or burst.

Do not insert batteries opposite direction. (+) (-)

Do not mix batteries with other assortments or different voltage.

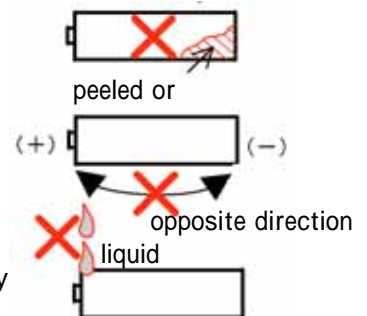
Replace all batteries with new. Do not mix with charged and discharged batteries.

Do not pour liquid on batteries nor do not soak batteries into liquid.

If something wrong with batteries, please do not use.

If not using the machine for a long time, please remove and store batteries properly

In case of leaked liquid from batteries attached to skin or garment, wash off with clean water immediately.



Warning

If properly used under the normal use environment and nothing wrong with bolts, nuts or object which are to be fastened, a torque wrench is not necessary to check the fastening result.

Please check and confirm the torque with a torque wrench or other measurement tools at the beginning of the operation.

Main Unit Specifications (controller included)

Total Length	562 mm (22-1/8 in.)
Weight	11.5 kg (25.3 lbs.) ** without socket
Free Rotation Speed	125 rpm
Air Consumption	0.56 m ³ /min (24.9 c.f.m.)
Drive Size	1" SQ. DR.

Controller Specifications

Use Environment	Ambient temperature : 0 - 50	Humidity : 20 - 95 % (non condensing)
Fastening Method	Torque method	
Parameters to be set	Set torque, fastening mode (right hand screw/left hand screw)	
Resolution	10 Nm	
Set Torque Range	400 - 800 Nm 10Nm/step	
Display		
Numeric representation	0 - 999 3 digit LED with 7 segments	Displayed by x 10Nm
Judgment Lamp	OK (green) : Lights when reaching to the set torque NG (red) : Lights when fastening is interrupted. Warns insufficient torque.	
Mode Lamp	Right-handed screw (green) : Lights in the right-handed screw mode Left-handed screw (yellow) : Lights in the left-handed screw mode	
Controller		
SET Key	After changing the torque value, this key is to complete the setting.	
SHIFT Key	When the + - key is pressed while pressing the SHIFT key at the time of torque setting, the value switches between +100 Nm and -100 Nm.	
+ and - Key	When the + key is pressed, 10 Nm is added to the set torque. When - key is pressed, 1Nm is subtracted from the set torque. By keep on pressing the key, the numeric value can be fast-forwarded.	
Power Key	Uses to manually startup for torque setting, etc.	
Battery	AA dry cell x 6 alkaline (recommended), Oxyride, Ni-MH dry cell are applicable	
Automatic Power Off	Power is automatically turned off about 10 seconds after fastening or loosening operation is finished, or key operations are completed.	

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U.K.	:EC DECLARATION OF CONFORMITY	- Individual machinery and safety components
France	:DÉCLARATION DE COMFORMITÉ CE	- Machine seule et composants de sécurité
Deutschland	:EG KONFORMITÄTSEKTLÄRUNG	- Gesamtmaschine und Sicherheitseinrichtungen
España	:DECLARACIÓN DE CONFORMIDAD CE	- Maquinaria individual y componentes de seguridad
Italia	:DICHIAZIONE DI CONFORMITÀ CE	- Macchina singola e componenti di sicurezza
Portugal	:DECLARAÇÃO DE CONFORMIDADE CE	- Maquinaria individual e dispositivos de segurança
Nederland	:EG KONFORMITEITSVERKLARING	- Individuele machine en veiligheidscomponenten
Danmark	:EF ERKLÆRING OM OVERENSSTEMMELSE	- Enkle maskin og sikkerhedskomponenter
Sverige	:EG-DEKLARATION OM ÖVERENSSTÄMMELSE	- Individuell maskin och säkerhetskomponenter
Norge	:EF EVERENSSTEMMELSESEKTLÆRING	- Individuel maskine og sikkerhedsudstyr
Suomi	:EY:N VAATIMUSTENMUKAISUUSILMOITUS	- Erilliset koneistot ja turvalaitteet
Hellas	:ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΣΕ ΟΔΗΓΙΑ ΤΗΣ ΕΥΡΩΠΑΙΚΗΣ ΚΟΙΝΟΤΗΤΑΣ	- Ανεξάρτητο μηχάνημα και εξαρτήματα ασφαλείας

We **KUKEN CO.,LTD.** -Osaka, Japan declare under our sole responsibility that the product: to which declaration relates, is in conformity with the requirements of the Council Directive of 22 June 1998 on the approximation of the laws of the Member States relating to machinery(2006/42/EC).

Nous **KUKEN CO.,LTD.**-Osaka, Japon déclarons sous notre seule responsabilité exclusive que le produit: auquel se réfère cette déclaration est conforme à la directive du conseil du 22 juin 1998, concernant le rapprochement des législations des états membres, relatives aux machines (2006/42/CE).

Wir **KUKEN CO.,LTD.**-Osaka, Japan erklären hiermit in alleiniger Verantwortung, daß das Produkt auf das sich diese Erklärung bezieht, den Anforderungen der "Richtlinie des Rates vom 22. Juni 1998 zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten für Maschinen (2006/42/EG) entspricht.

Nosotros **KUKEN CO.,LTD.**-Osaka, Japón declaramos bajo nuestra sola responsabilidad que el producto a que se refiere esta declaración, es conforme a los requisitos de la Directiva del Consejo de 22 de junio 1998 sobre la aproximación de las leyes de los Estados Miembros con relación a la maquinaria (2006/42/CE).

Noi **KUKEN CO.,LTD.**-Osaka, Giappone dichiariamo sotto nostra unica responsabilità che il prodotto cui questa dichiarazione si riferisce, è conforme ai requisiti della Direttiva del Consiglio del 22 Giugno 1998, sul ravvicinamento delle legislazioni degli Stati Membri relative alle macchine (2006/42/CE).

Nós **KUKEN CO.,LTD.**-Osaka, Japão declaramos sob nossa exclusiva responsabilidade que o produto a que se refere esta declaração está em conformidade com os requisitos da Directiva do Conselho de 22 de Junho de 1998 na avaliação das leis dos Estados Membros relacionadas com maquinaria (2006/42/CE).

Wij **KUKEN CO.,LTD.**-Osaka, Japan verklaren onder onze exclusieve verantwoordelijkheid dat het product waarop deze verklaring betrekking heeft, in overeenstemming is met de vereisten van de Richtlijn van de Raad van 22 juni 1998 inzake de onderlinge aanpassing van de wetgevingen van de Lid-Staten betreffende machines(2006/42/EG).

Vi **KUKEN CO.,LTD.**-Osaka, Japan erklærer herved under vort fulde ansvar at maskinen, som denne erklæring gælder for, er i overensstemmelse med de krav som findes i Ministerrådets direktiver af 22. Juni, 1998 om tilnærning af medlemsstaternes love vedrørende maskindirektivet (2006/42/EF).

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Me **KUKEN CO.,LTD.**-Osaka, Japan vakuutamme olevamme yksinomaisessa vastuussa siitä, että tämä tuote johon tämä ilmoitus viittaa on yhdenmukainen EY:n komission direktiivin, annettu 22 kesäkuuta 1998 kanssa, joka koskee yhteisön jäsenvaltioiden koneita koskevan lainsäädännön lähentämistä (2006/42/EY).

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Model / Modele / Modell / Modelo/
Modello / Modelo / Model / Model /
Typ / Model / Malli / Μοντέλο

PTS-800E

Name of and position of issuer / Nom et fonction de l'émetteur / Name und Position des Erstellers /
Nombre y cargo del expedidor / Nome e posizione del dichiarante / Nome e cargo do emissor /
Naam en functie van de uitgever / Udsteder, navn og stilling / Usteders navn og stilling / Utfärdarens
namn och befattning / Ilmoituksen antajan nimi ja asema / Ονομα και θέση εκδότη

MASAHARU MATSUOKA / MANAGING DIRECTOR

Signature of issuer / Signature de l'émetteur / Unterschrift des Erstellers / Firma del expedidor /
Firma del dichiarante / Assinatura do emissor / Handtekening van de uitgever / Udsteder, underskrift /
Usteders signatur / Utfärdarens namnteckning / Ilmoituksen antajan allekirjoitus /
Υπογραφή εκδότη

KUKEN CO.,LTD.



MANAGING DIRECTOR

Ver. 110308E