TV06903-1

delvo

INSTRUCTION MANUAL

Electric Screwdriver

Models

Lever Start Type	Push Start Type
DLV7124-LKU	DLV8124-LKU
DLV7134-LKU	DLV8134-LKU
DLV7144-LKU	DLV8144-LKU
	DLV8154-LKU
	DLV8224-LKU
	DLV8234-LKU
	DLV8244-LKU

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NITTO
NITTO KOHKI CO.,LTD.

SAVE THESE INSTRUCTIONS

Thank you very much for your purchase of this Nitto Kohki products.
Before using your tool, please read this manual carefully so that you may use it properly to get the most out of it.
Please keep the manual handy - so you can use it whenever necessary.

The following Safety notations are used throughout the manual to highlight safety precautions for the user and for the tool.

⚠**WARNING:**	Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in death or serious injury.
⚠ **CAUTION:**	Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in injury or material damage.

Please note, however, that failure to observe safety precautions under the "⚠**Caution**" category could result in a serious occurrence depending on the situation: please observe all safety precautions in the manual.

Caution: Important precautions for tool setup, operation and maintenance.

Safety Symbol Identification


Warning: It might be dangerous to operate the tool if the instructions supplied are not followed.


Using this tool improperly could result in serious injury. Read the instruction manual before using.


Always wear hearing protection.


Always wear eye protection.


Always use only indoor.


Do not allow the main body or the power source to get wet as it will cause electric shock and leakage.

1.SAFETY PRECAUTIONS

When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following

⚠ WARNING

1. Keep work area clean.

·Cluttered work areas and benches invite accidents and injuries.

2. Consider work area environment

·Do not expose the tools or components to water and rain. Do not use the tools in damp locations.

·Use a safety device such as Earth-Leakage Circuit Breaker if it inevitable to power-supply in the wet condition.

·Keep work area well lit.

·Do not operate near flammable liquids or in gaseous or explosive atmospheres.

3. Check the power source.

·Operate under the power source the voltage fluctuating rate of which is within ±10% of the rated voltage, and the frequency of which is 50/60Hz of sinusoidal wave.

4. Be cautious about electric shock.

·When using electric tools, do not touch any which is earthed. (Ex. Pipe, heating apparatus, microwave oven, outside frame of refrigerator)

5. Keep children away.

·Also all visitors should be kept away from work area.

·Do not let visitors contact the tool, or connecting cords.

6. Store idle tools

·Keep the electric tool away from children when you do not use, and do not permit unauthorized personnel, who are unfamiliar to the electric tool or the manual, to operate the tool.

7. Do not force tool

·It will do the job better and safer at the rate for which it was intended.

·Do not use this tool for other purposes than fastening screws.

8. Use the right tool

·Do not use a small tool or attachment to do the job of a heavy-duty tool.

·Do not use tool for a purpose not intended.

9. Dress properly

·Do not wear loose clothing or accessories. They can be caught in moving parts.

·Non-skid footwear are recommended.

·Wear protective hair covering to contain long hair.

10. Always wear eye protection

·Everyday eyeglasses only have impact resistant lenses. They do NOT protect eyes. Also use face or dust mask, if operations create dust.

11. Do not abuse cable

·Never carry tool by connecting cable or yank it to disconnect from receptacle.

·Do not place a cable near a place with high heat, oil , and sharp edges.

12. Secure Work

·Use clamps or a vice to hold the work when practical.

·It is safer than using your hand and it frees both hands to operate tool.

13. Do not overreach

·Keep proper footing and balance at all times.

14. Cautious maintenance is necessary for electric tools

·For safe and efficient work, use the proper bit and check it regularly.

·Check the cable regularly. Contact sales agents to repair it when it is defective.

·When an extension cable is used, check regularly and change it when it is damaged.

·Keep handles dry, clean, and free from oil and grease.

15. Switch off and take off the plug for the following

· When not in use, when repairing, when changing accessories and bits, etc.

16. Do not use a tool violently

·Do not swing the tool around and hold the body firmly when using. If not, it may cause injury. Do not drop or abuse the body. If there is breakage, cracks, or transformation, it may cause injury.

17. Always avoid unexpected start

·Do not carry the tool with a finger on the switch when the power supply is on.
Make sure that the switch is off before plugging in.

18. Use appropriate power cable or an extension cable when it is used outside.

19. Start alert

·Watch what you are doing.

· Bear in mind the way of handling/operation and the circumstances of the surrounding area.

·Use common sense.

·Do not use when you are tired or under the influence of drugs, alcohol or medication.

·Do not bring hand or face close to moving parts such as bit etc. when in use. Otherwise, it may cause injury.

20. Check damaged parts

·Before further use of the tool, an accessory or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended functions.

·Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.

·An accessory or other part that is damaged or inoperable should be properly repaired or replaced. When a switch becomes out of order, repairs should be performed only by the sales agent from whom you purchased the tool or an authorized dealer.

·Do not use electric tools which cannot be activated or stopped with a switch.

21. Use recommended accessories

·Consult this manual or the sales agent from whom you purchased the tool or an authorized dealer for recommended accessories. The use of improper accessories may cause risk of injury to persons.

22. Repairs by authorized personnel

· This tool should not be modified as it meets safety requirements.

·Any repairs to the tool or installation of replacement parts should be performed only by the sales agent from whom you purchased the tool or an authorized dealer.

·Failure to utilize the expertise of the sales agent from whom you purchased the tool or authorized dealer or, failure to use genuine replacement parts, may result in an increased risk of injury to the user and may invalidate your warranty.

23. Do not allow the following chemicals to come into contact with the tool housing, as damage will result. For example, trichloroethylene acetone, benzene, thinner, ketone, or other same chemicals.

2. OPERATION CAUTIONS

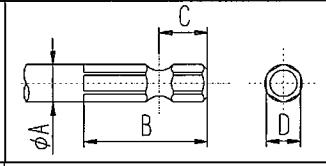
⚠ CAUTION

1. Use at the voltage, which is indicated on the rating plate. If used at a higher voltage than indicated, it may cause damage and accident.
2. When the tool does not work properly, or you hear abnormal sounds during usage, switch off immediately and request the repair work to be done by an authorized service facility. If you keep on using the tool, it may cause injury.
3. Install only bits or accessories in accordance with the operation manual.
4. Grounding is necessary to be assured, especially for the bit earth type.
5. Whenever setting the torque, switch off the tools and components.
6. Whenever changing the bit, ensure the changeover switch is in the "O" (Off) position and the tool is unplugged.
7. If the rest interval is shorter than three seconds, the heat of the motor may increase. However, it differs from the kind of screw or from the fastening torque.
8. Do not adjust the torque setting higher than the number of the torque scale mentioned below.
   The number on the torque scale does not indicate the torque value of the screwdriver. The torque varies according to the type, size, and material of screws and work. Therefore, use the following diagram as references to obtain an appropriate torque.
9. Do not operate the changeover switch when the motor is running.
10. Do not use this screwdriver for tightening wood screws.
11. Whenever a tool is not being used, move the changeover switch to the "O" (Off) position and unplug the screwdriver.
12. Do not overload to the extent that the motor locks or the clutch malfunctions.May cause smoke, fire, failure or injury.
13. If the body is overheating or functioning abnormally, stop using the driver immediately and inspect it to see whether any repairs are necessary. May cause failure or injury.
14. The driver may overheat depending on the type of screw, type of screw-tightened material, or frequency of use. To avoid overheating, stop operating the driver for a time or use several drivers in alternation.
    Overheating may reduce the life of the product or cause failure, burns, or other injuries.
15. The fastening torque may vary depending on how the product is operated or held, the type of screw, and the fastening conditions. Use a torque wrench or similar tool to check that the fastening torque is appropriate.
16. The product's output torques shown here are the values obtained with the following measuring instruments. This value may differ when measuring with different equipment.
    ·Dedicated device : DLT1673 and DLW4360

3. SPECIFICATION

MODEL	Lever Start	DLV7124-LKU	DLV7134-LKU	DLV7144-LKU	
	Push to Start	DLV8124-LKU	DLV8134-LKU	DLV8144-LKU	DLV8154-LKU
Torque [Lb-in (Nm)]		2.2-6.6 (0.25-0.75)	4.4-15 (0.5-1.7)	10.6-26.6 (1.2-3)	17.7-39.8 (2-4.5)
Free Speed [min^{-1}]		1000	1000	700	450
Input Voltage		115 V AC 50/60 Hz			
Power Consumption [W]		35			45
Duty Cycle [sec]		0.5 ON / 3.5 OFF			
Screw Size (for reference)	Inch thread	#3 to #4	#3 to #8	#6 to #11	#9 to #13
	Metric coarse thread	2.6 to 3.0 mm	2.6 to 4.0 mm	3.5 to 5.0 mm	4.5 to 6.0 mm
Temperature Range [°F]	Operating	23 to 122 (-5 to +50 °C)			
	Storage	-4 to 158 (-20 to +70 °C)			
Relative Humidity		Free of Dew(include time of the Storage)			
Operating Environment		less than 6557 ft (2000 m) above sea level			
Pollution Degree		degree 3 according to IEC60664-1			
Over Voltage Category		category II according to IEC60664-1			

Bit Type



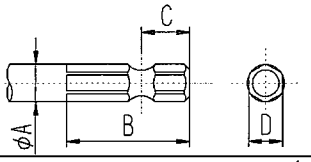
Unit	A	B	C	D
in	0.28	0.91	0.35	1/4
mm	7	23	9	6.35

Mass [lbs]	Lever Start	Approx.1.58 (720 g) [except Power Cord]
	Push to Start	Approx.1.56 (710 g) [except Power Cord]
Noise emission [dB]	*L_{pA}	68 (uncertainty:K=3dB)
	*L_{WA}	79
Standard Accessories		Bit No.1 x7x75: 1Pic. Bit No.2x7x75: 1Pic. Suspension Bail: 1Pic. Spare Carbon Brush: 2Pic. Pistol Grip: 1Pic (*DLV8154 Only)

*L_{pA} : A-weighted surface sound pressure level * L_{WA} : A-weighted sound power level

MODEL	Push to Start	DLV8224-LKU	DLV8234-LKU	DLV8244-LKU
Torque [Lb-in (Nm)]		3.1-6.2 (0.35-0.7)	4.4-15 (0.5-1.7)	10.6-26.6 (1.2-3)
Free Speed [min^{-1}]		2000	2000	1200
Input Voltage		115 V AC 50/60 Hz		
Power Consumption [W]		45		
Duty Cycle [sec]		0.5 ON / 3.5 OFF		
Screw Size (for reference)	Inch thread	#3 to #4	#3 to #8	#6 to #11
	Metric coarse thread	2.6 to 3.0 mm	2.6 to 4.0 mm	3.5 to 5.0 mm
Temperature Range [°F]	Operating	23 to 122 (-5 to +50 °C)		
	Storage	-4 to 158 (-20 to +70 °C)		
Relative Humidity		Free of Dew(include time of the Storage)		
Operating Environment		less than 6557 ft (2000 m) above sea level		
Pollution Degree		degree 3 according to IEC60664-1		
Over Voltage Category		category II according to IEC60664-1		

Bit Type



Unit	A	B	C	D
in	0.28	0.91	0.35	1/4
mm	7	23	9	6.35

Mass [lbs]		Approx.1.56 (710 g) [except Power Cord]
Noise emission [dB] [EN60745-1]	*L_{pA}	68(uncertainty:K=3dB)
	*L_{WA}	79
Standard Accessories		Bit No.1 x7x75: 1Pic. Bit No.2x7x75: 1Pic. Suspension Bail: 1Pic. Spare Carbon Brush: 2Pic.

*L_{pA} : A-weighted surface sound pressure level * L_{WA} : A-weighted sound power level

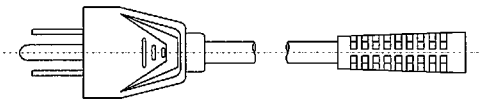
• Grounding

The tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with a three-conductor cord and three-prong grounding-type plug to fit the proper grounding-type receptacle.

⚠WARNING

For safe use of adapters, the outlet box must be grounded. If there is any doubt, have a qualified electrician check connections.

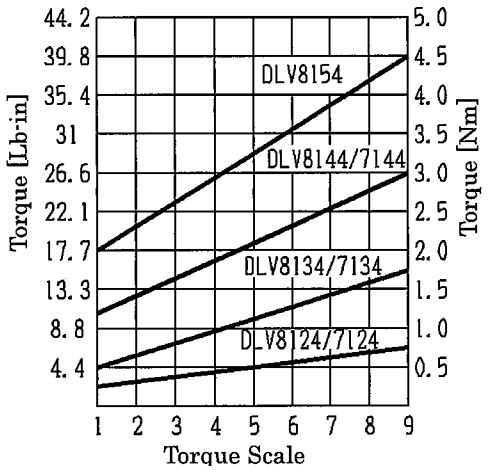
Use only 3-wire extension cords that have 3-prong grounding type plugs and 3 pole receptacles that accept the plug. Replace or repair damaged cords.

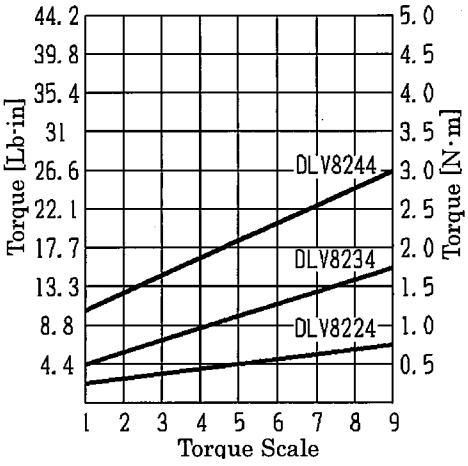


Shape of Plug

• Relationship between Torque and Torque Scale.

*Reference Value





Adjust the bit torque by changing the driving-in length of the torque adjustment ring at the end.

The relationship between torque scale and torque is as shown right, in the torque diagram. The figures of torque scale do not in dictate bit torque values. However, the clamping torque of screw itself is different from type, size, material of the screw and the material of its mating part. Use it as a standard to obtain an appropriate clamping torque.

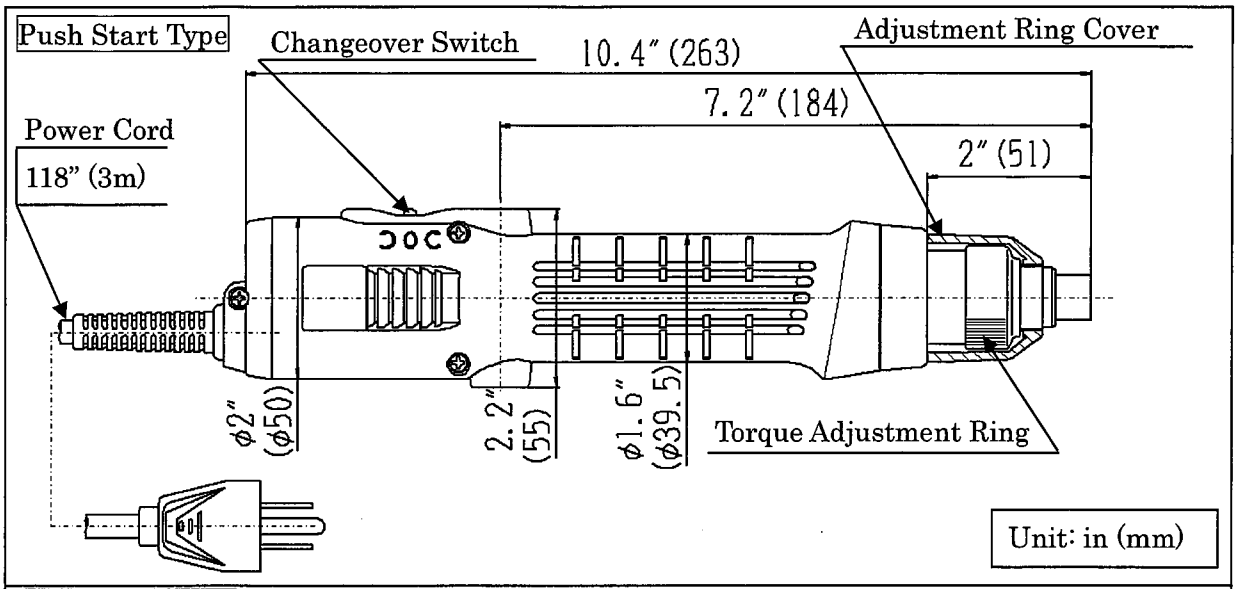
The [Return torque method] in which once-clamped screw is returned with torque wrench or the like is available as one of torque control methods. However, note that the measured values by the return torque method generally appear in 10% - 30% lower than the actually clamping torque.

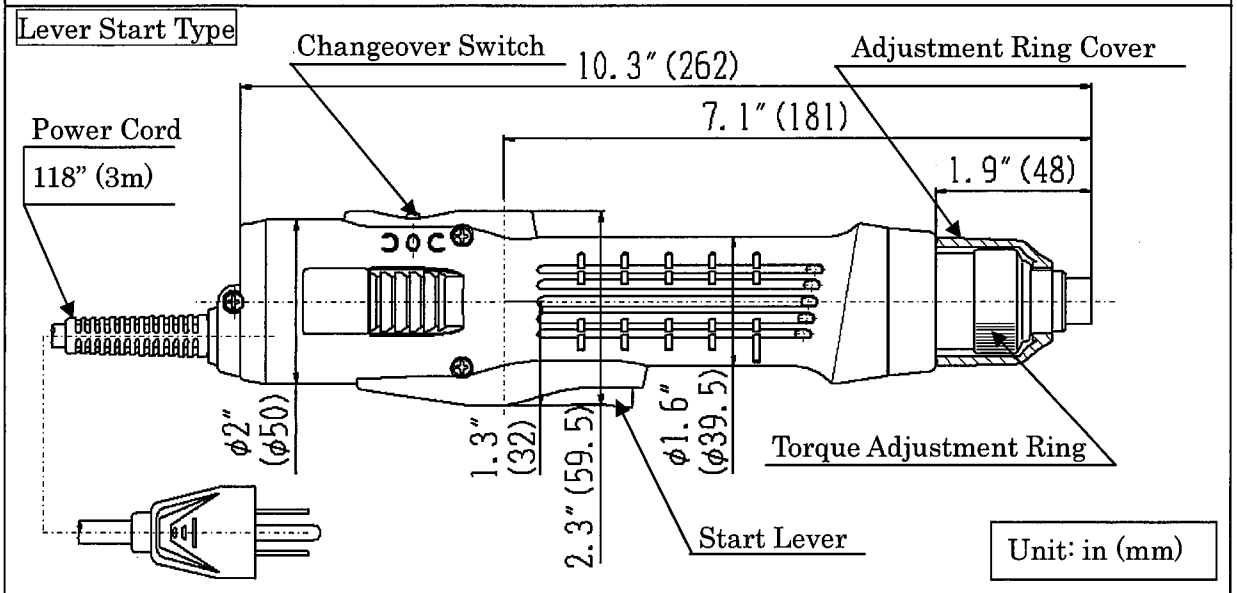
The torque checker measures the torque of screwdriver. The clamping torque of screw itself is different from the clamped conditions. Understand the correlation between clamping torque values and the torque checker values to perform the torque control properly.

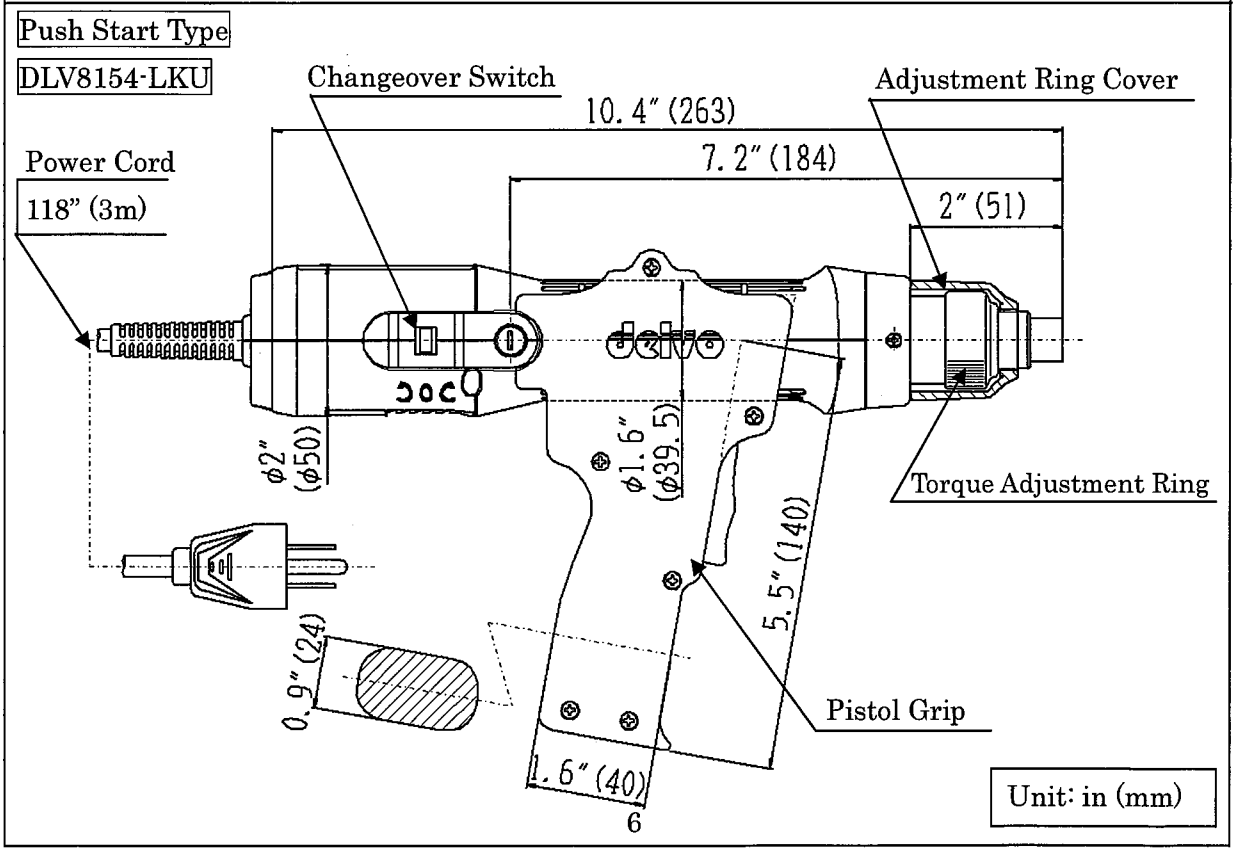
⚠CAUTION

Also in reverse rotation, the clutch is turned off in such manner as in normal rotation, stopping the motor running. Accordingly, when returning the screw tightened at a large torque, set it to a higher torque scale.

・ External Representation



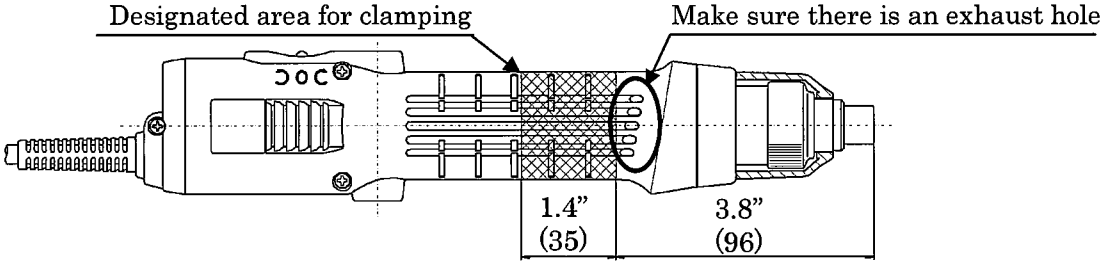




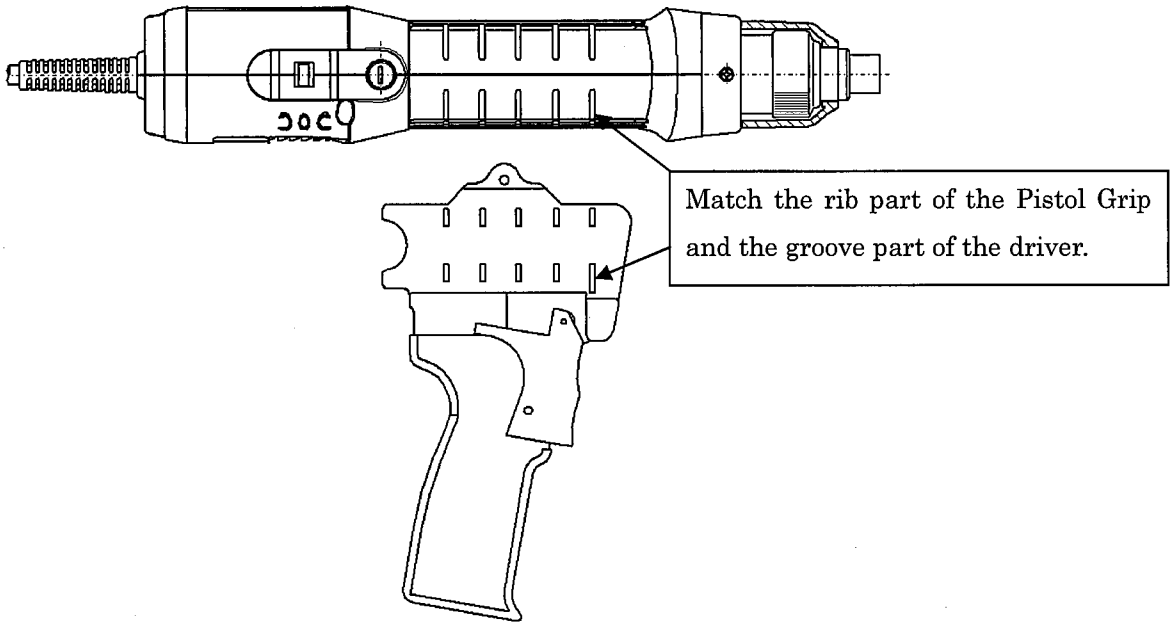
4.How To Operate

⚠ Warning: Always use a Pistol Grip or arm type damper with DLV8154.

- DLV8154 is a high torque type of driver. Using it without a Pistol Grip or arm type damper could result in an unexpected injury because you may not be able to hold the driver in place. Also, the tendon sheath or other part of your wrist or arm could become inflamed because of the load placed on them. Always make sure you fit a Pistol Grip or arm type damper to the driver. Never use the driver without a Pistol Grip or arm type damper.
- If you are using any driver fixing device other than a Pistol Grip, clamp the device at the designated area shown below. If you clamp it in any other place, the frame of the driver may be damaged.



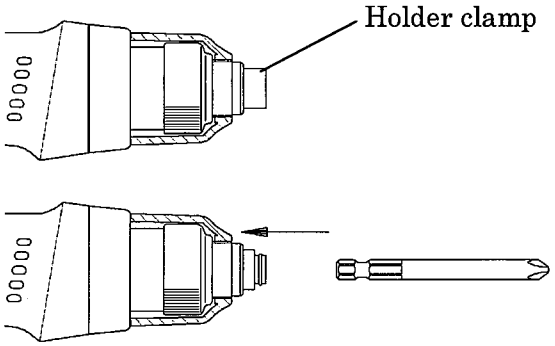
- When tightening screws, fix the Pistol Grip and driver securely using both hands.
- Carry out inspections at regular intervals to check whether there are any cracks, loose screws, positional deviations, or other abnormalities in the Pistol Grip.
- Carry out inspections at regular intervals to check whether there is any looseness between the Pistol Grip and driver resulting from wear or abrasion on the driver's main body.
- The driver comes with the Pistol Grip fitted. However, if you remove the Pistol Grip and then fit it to the driver again, pay attention to the following points.



*Tighten the screws for the Pistol Grip securely by paying attention to the points shown in the figure. If any of the screws are loose, the driver main body will rotate, which is very dangerous.

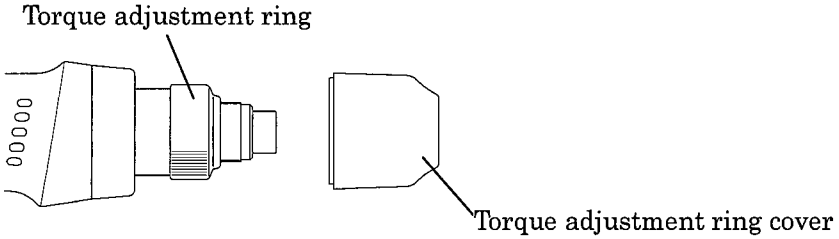
1. Attaching and detaching a bit

Push up the holder clamp in the direction of the arrow unlocks it. You can then attach or detach a bit.



2. Torque Adjustment

To adjust the bit torque, detach torque adjustment ring cover and vary the amount of screwing-in of the torque adjustment ring.



3. Screwing

1) Set the Changeover switch at " ↻ ".

2) For the Push Start Type, the motor will be switched on and started up if you press the blade body with its top placed on the screw head.

For the Lever Start Type, the motor will be switched on and started up if you pull the lever mounted at the center of the body.

3) If the screws are tightened at a set torque, the clutch will be turned off momentarily to stop the motor.

For the Push Start Type, the switch will automatically recover if you release the blade off the screw head.

For the Lever Start Type, the switch will automatically recover if you return the lever.

4. Unscrewing

1) Set the changeover switch at " ↺ ".

2) For the Push Start Type, the motor will be switched on and started up if you press the blade body with its top placed on the screw head.

For the Lever Start Type, the motor will be switched on and started up if you pull the lever mounted at the center of the body.

Set the torque higher if the clutch shuts off and the motor stops running as in normal fastening mode.

⚠ CAUTION

Implement the operation properly. Insufficiently pressed blade or inadequately pulled lever may result in a malfunctioned and defective driver, or related work damage.

5.SERVICE AND MAINTENANCE

1. Have the screwdriver or components repaired by a qualified or trained person only.
2. For the purpose of making proper use, request the following check and maintenance by an authorized service facility.

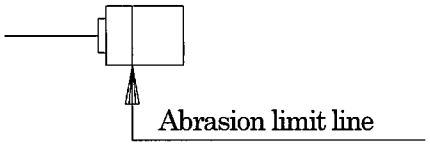
DLV81x4 / DLV82x4 / DLV71x4 series				
Routine inspections and Parts to be replaced	Number of Tightening (million)			
	0.5	1.0	1.5	2.0
Routine inspection				
(1) Operation check	○	○	○	○
(2) Grease-up	○	○	○	○
(3) Brake switch timing check		○		○
Routine inspection and parts to be replaced				
(1) *Brush assembly		○		○
(2) Armature assembly				○
(3) Power cord				○
(3) Spindle gear head assembly				○
(4) Gear case assembly				○
(5) *Cam rollers and Cam guide balls	(*○)	○	(*○)	○
(6) Cam guide				○
(7) Spindle bearing		○		○

* Brush assembly

If the brush reaches the abrasion limit line, change it for the new brush.

When you return the brush again after having checked it, do not insertion opposite side.

Keep former condition.



⚠ WARNING
Switch off and take off the plug when you change the brush.

* Cam rollers and Cam guide balls

Only DLV8154 changes it for every 0.5 million times.

Contents for operation check

Operation check items	Check procedure
(1) Does screwdriver rotate for both directions smoothly?	With tool plugged, turn on the reverse switch to forward or reverse position and turn on the switch. Then check if the tool rotates smoothly.
(2) Does screwdriver stop at one index of the clutch?	Check if the motor stops instantly at the moment a screw was tightened up.
(3) Is the torque decreasing?	Check by torque checker or equivalent.

3. In case of trouble or repair of this product, contact an authorized service facility

4. Electric tools, accessories, and packaging should be disposed of for recycling in an environmentally friendly manner. Do not dispose of electric tools into household waste!
   If your tool can no longer be used, deliver it to a sales representative.

Trouble shootings

Problem	Check item	Countermeasures
(1)No Rotation.	Is the power plug of the power cord connected to the power source outlet?	Connect the power plug of the power cord to the power source outlet securely.
	Is the changeover switch set to "↻ or ↺" ?	Set the changeover switch at "↻ or ↺".
(2)Output torque is low.	Is the output torque correctly set?	Check it by Torque Checker.
(3)The screwdriver is overheating abnormally.	How much time is "OFF" time?	Lengthen "OFF" time more than "ON" time. Check the Rating label of the main body.
	Is the input voltage correct?	Check the input voltage.
	Is not the maximum scale value exceeded?	Set the torque below the maximum scale.

The Repair Parts List is reference attached sheet.

If the abnormality still does not disappear, contact your sales representative from which you purchased the tools.

⚠ WARNING

Please have the product inspected periodically at the store of purchase or a Nitto Kohki-approved service center. Failure to perform periodic inspections may result in short circuiting.

Notes

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