

# TECHNICAL INFORMATION

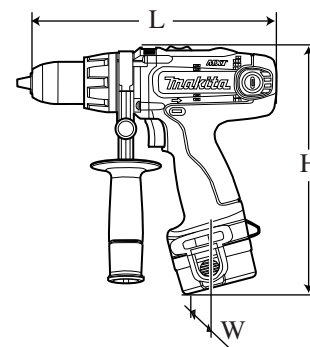


PRODUCT

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**Models No.** ▶ 8414D/ 8434D/ 8444D

**Description** ▶ Cordless Percussion-Driver Drills 12V/ 14.4V/ 18V



## CONCEPT AND MAIN APPLICATIONS

The above products have been developed as successor models of the current 8443D series models and as the highest grade series models among Makita Cordless Percussion-Driver Drills.

Their brief advantages are;

\*Powerful motor provides high operation efficiency.

\*Mechanical 3-speed;

3rd speed: higher than the predecessors for finishing light duty jobs with extremely high efficiency

1st speed: lower than the predecessors for extra-heavy duty applications

\*Easy operation mode change

\*All the great advantages as Model 8443D series models

Dimensions: mm (")			
Model No.	8414D	8434D	8444D
Length (L)	259 (10-1/4)		
Width (W)	94 (3-11/16)	94 (3-11/16)	95 (3-3/4)
Height (H)	243 (9-9/16)	247 (9-3/4)	252 (9-7/8)

These new products are available in the following variations:

### 8414D

Model No.	Battery		Battery cover (quantity)	Charger	Flash light
	type	Quantity			
8414DWAE	1222 (Ni-Cd 2.0Ah)	2	2	DC1414	w/o light
8414DWAE3	1222 (Ni-Cd 2.0Ah)	3	3		ML120
8414DWALE	1222 (Ni-Cd 2.0Ah)	2	2		w/o light
8414DWDE	1234 (Ni-MH 2.6Ah)	2	2		ML120
8414DWDE3	1234 (Ni-MH 2.6Ah)	3	3		w/o light
8414DWDLE	1234 (Ni-MH 2.6Ah)	2	2		ML120
8414DWFE	1235 (Ni-MH 3.0Ah)	2	2		w/o light
8414DWFE3	1235 (Ni-MH 3.0Ah)	3	3		

### 8434D

Model No.	Battery		Battery cover (quantity)	Charger	Flash light
	type	Quantity			
8434DWAE	1422 (Ni-Cd 2.0Ah)	2	2	DC1414	w/o light
8434DWAE3	1422 (Ni-Cd 2.0Ah)	3	3		ML140
8434DWALE	1422 (Ni-Cd 2.0Ah)	2	2		w/o light
8434DWDE	1434 (Ni-MH 2.6Ah)	2	2		ML140
8434DWDE3	1434 (Ni-MH 2.6Ah)	3	3		w/o light
8434DWDLE	1434 (Ni-MH 2.6Ah)	2	2		ML140
8434DWFE	1435 (Ni-MH 3.0Ah)	2	2		w/o light
8434DWFE3	1435 (Ni-MH 3.0Ah)	3	3		

### 8444D

Model No.	Battery		Battery cover (quantity)	Charger	Flash light
	type	Quantity			
8444DWAE	1822 (Ni-Cd 2.0Ah)	2	2	DC1804	w/o light
8444DWAE3	1822 (Ni-Cd 2.0Ah)	3	3		ML180
8444DWALE	1822 (Ni-Cd 2.0Ah)	2	2		w/o light
8444DWDE	1834 (Ni-MH 2.6Ah)	2	2		ML180
8444DWDE3	1834 (Ni-MH 2.6Ah)	3	3		w/o light
8444DWDLE	1834 (Ni-MH 2.6Ah)	2	2		ML180
8444DWFE	1835 (Ni-MH 3.0Ah)	2	2		w/o light
8444DWFE3	1835 (Ni-MH 3.0Ah)	3	3		

## ► Specification

Model No.		8414D	8434D	8444D
Battery	Voltage: V	12V	14.4V	18V
	Capacity: Ah/ Cell	2.0/ Ni-Cd	2.0/ Ni-Cd	2.0/ Ni-Cd
		2.6/ Ni-MH	2.6/ Ni-MH	2.6/ Ni-MH
		3.0/ Ni-MH	3.0/ Ni-MH	3.0/ Ni-MH
Max. out put: W		210	250	310
No load speed: min.-1=rpm	3rd (Heighest)	0 - 1,600	0 - 1,700	
	2nd (High)	0 - 550	0 - 600	
	1st (Low)	0 - 300	0 - 300	
Blows per minute: min.-1=bpm	3rd (Heighest)	0 - 24,000	0 - 25,500	
	2nd (High)	0 - 8,250	0 - 9,000	
	1st (Low)	0 - 4,500	0 - 4,500	
Fastening torque: N.m (ft.lbs)	Hard joint	65 (47.9)	70 (51.6)	80 (59.0)
	Soft joint	31 (22.8)	32 (23.6)	40 (25.7)
Drill chuck	Capacity: mm (")	1.5 -13 (1/16 - 1/2)		
	Type	Keyless, Single sleeve		
Drilling capacity: mm (")	Steel	13 (1/2)	13 (1/2)	13 (1/2)
	Wood	45 (1-3/4)	50 (2)	65 (2-9/16 )
	Concrete	13 (1/2)	14 (9/16)	16 (5/8)
Electric brake		Yes		
Torque adjustment		Yes		
Variable speed control		Yes		
Reverse switch		Yes		
Net weight: kg (lbs) [includes battery]		2.4 (5.3)	2.5 (5.5)	2.7 (6.0)

## ► Standard equipment

(for all variations listed in page 1)

Philips bit 2-45 ..... 2

Grip assembly ..... 1

Depth gauge ..... 1

Battery cover ..... For quantity, see the variation list in page 1.

**Note:** The standard equipment for the tool shown above may differ from country to country.

## ► Optional accessories

### For all models

\*Assorted drill bits for  
wood and steel

\*Assorted driver bits

### For 8414D

Battery 1220

Battery 1222

Battery 1234

Battery 1235

Battery 1235A

Battery 1235F

Charger DC1414

Charger DC1439

Charger DC1804

Automotive Charger DC1422

Automotive Charger DC1822

### For 8434D

Battery 1420

Battery 1422

Battery 1434

Battery 1435

Battery 1435F

Charger DC1414

Charger DC1439

Charger DC1804

Automotive Charger DC1422

Automotive Charger DC1822

### For 8444D

Battery 1822

Battery 1834

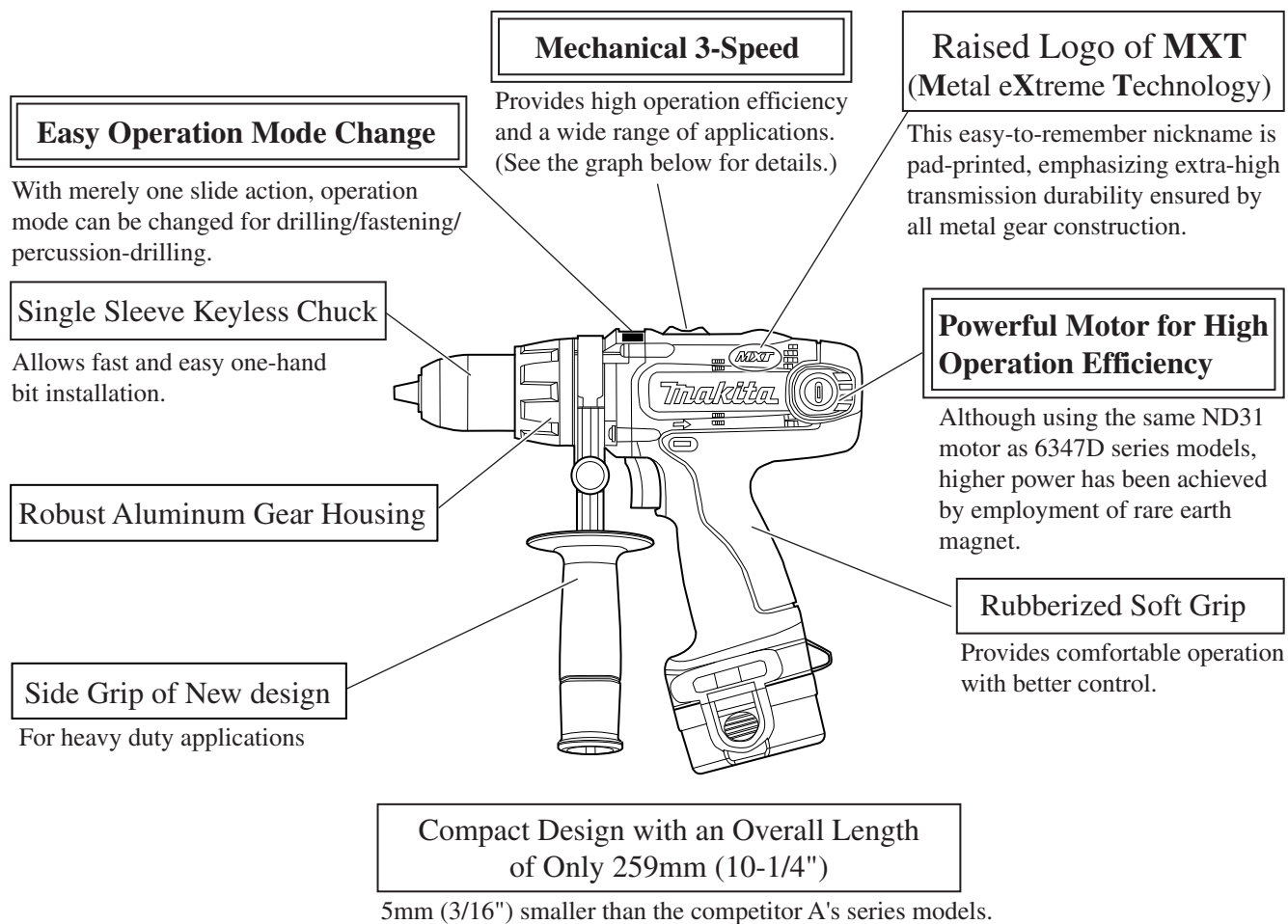
Battery 1835

Battery 1835F

Charger DC1804

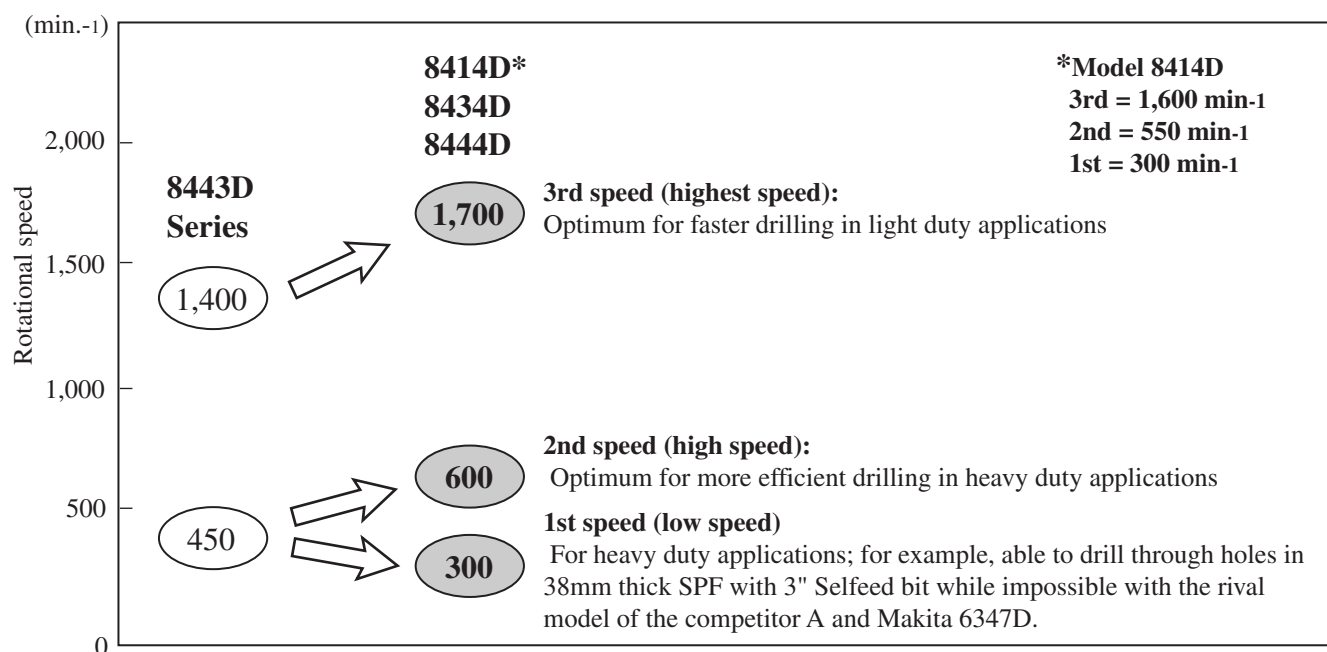
Automotive Charger DC1822

## ► Features and benefits



**Note:** Set plate type batteries are not available.

### ● Mechanical 3 speed for more efficiency and a wider range of applications.



## ► Comparison of products

### [1] Specification Comparison

#### 1) Main Specifications

12V	Model No. Specifications		Makita		A	B	
			8414D	8413D			B1
	Battery	Capacity: Ah	2.6/ 3.0	2.6/ 3.0			2.4
		Cell	Ni-MH	Ni-MH			Ni-Cd
	No load speed: min.-1=rpm	3rd	0- 1,600				
		2nd/ High	0- 550	0- 1,300			0 - 1,700
		1st/ Low	0- 300	0- 400			0 - 500
	No load speed: min.-1=rpm	3rd	0- 24,000				
		2nd/ High	0- 8,250	0- 19,500			0 - 21,000
		1st/ Low	0- 4,500	0- 6,000			0 - 6,000
	Locking torque (USA): in.lbs		400	320			N/A
	Max fastening torque: N.m	Hard joint	65	35			60
		Soft joint	31	18			22
	Keyless chuck	Capacity: mm (")	13 (1/2)	13 (1/2)			13 (1/2)
		Sleeve type	Single	Single			Single
	Drilling capacity: mm (")	Steel	13 (1/2)	13 (1/2)			13 (1/2)
		Wood	45 (1-3/4)	30 (1-3/16)			30 (1-3/16)
		Concrete	13 (1/2)	13 (1/2)			10 (3/8)
	Dimensions: mm (")	Length	259 (10-1/4)	267 (10-1/2)			272 (10-3/4)
		Width	94 (3-11/16)	94 (3-11/16)			--
		Height	243 (9-9/16)	240 (9-1/2)			260 (10-1/4)
	Net weight: kg (lbs) [includes battery]	Catalog	2.4 (5.3)	2.3 (5.1)			2.4 (5.3)
		Measured	2.43 (5.4)	2.31 (5.1)			2.31 (5.1)

14.4V	Model No. Specifications		Makita		A		B	
			8434D	8433D	A1	A2	B2	
	Battery	Capacity: Ah	2.6/ 3.0	2.6/ 3.0	(1.7)		2.4	
		Cell	Ni-MH	Ni-MH	Ni-Cd		Ni-Cd	
	No load speed: min.-1=rpm	3rd	0 - 1,700		0 - 1,800			
		2nd/ High	0 - 600		0 - 1,400			0 - 1,700
		1st/ Low	0 - 300		0 - 450			0 - 500
	No load speed: min.-1=rpm	3rd	0- 25,500		0- 30,600			
		2nd/ High	0- 9,000		0- 23,800			0 - 21,000
		1st/ Low	0- 4,500		0- 7,650			0 - 6,000
	Locking torque (USA): in.lbs		450	358	400		N/A	
	Max fastening torque: N.m	Hard joint	70	40	(63)		65	
		Soft joint	32	21	(28)		24	
	Keyless chuck	Capacity: mm (")	13 (1/2)	13 (1/2)	13 (1/2)		13 (1/2)	
		Sleeve type	Single	Single	Single		Single	
	Drilling capacity: mm (")	Steel	13 (1/2)	13 (1/2)	13 (1/2)		13 (1/2)	
		Wood	50 (2)	36 (1-7/16)	44 (1-3/4)		32 (1-1/4)	
		Concrete	14 (9/16)	14 (9/16)	6 (1/4)		12 (15/32)	
	Dimensions: mm (")	Length	259 (10-1/4)	267 (10-1/2)	264 (10-3/8)	N/A	272 (10-3/4)	
		Width	94 (3-11/16)	94 (3-11/16)	76 (3)		--	
		Height	247 (9-3/4)	244 (9-5/8)	241 (9-1/2)		260 (10-1/4)	
	Net weight: kg (lbs) [includes battery]	Catalog	2.5 (5.5)	2.4 (5.3)	2.4 (5.3)		2.5 (5.5)	
		Measured	2.50 (5.5)	2.43 (5.3)	2.47 (5.4)	N/A	2.7 (6.0)	

## ► Comparison of products

### [1] Specification Comparison (cont.)

#### 1) Main Specifications

Specifications	Model No.		Makita		A		B
			8444D	8443D	A3	A4	B3
Battery	Capacity: Ah	2.6/ 3.0	2.6/ 3.0	(2.4)		2.0	
	Cell	Ni-MH	Ni-MH	Ni-Cd		Ni-Cd	
No load speed: min.-1=rpm	3rd	0 - 1,700		0 - 2,000			
	2nd/ High	0 - 600		0 - 1,450			0 - 1,800
	1st/ Low	0 - 300		0 - 450			0 - 500
No load speed: min.-1=rpm	3rd	0- 25,500		0- 34,000			
	2nd/ High	0- 9,000		0- 24,650			0 - 21,000
	1st/ Low	0- 4,500		0- 7,650			0 - 6,000
Locking torque (USA): in.lbs		560	404	450		N/A	
Max fastening torque: N.m	Hard joint	80	50	(76)		70	
	Soft joint	40	25	(33)		28	
Keyless chuck	Capacity: mm (")	13 (1/2)	13 (1/2)	13 (1/2)		13 (1/2)	
	Sleeve type	Single	Single	Single		Single	
Drilling capacity: mm (")	Steel	13 (1/2)	13 (1/2)	13 (1/2)		13 (1/2)	
	Wood	65 (2)	38 (1-1/2)	50 (2)		35 (1-3/8)	
	Concrete	16 (5/8)	16 (5/8)	6 (1/4)		14 (9/16)	
Dimensions: mm (")	Length	259 (10-1/4)	267 (10-1/2)	264 (10-3/8)	N/A	272 (10-3/4)	
	Width	95 (3-3/4)	95 (3-3/4)	90 (3-1/2)		--	
	Height	252 (9-7/8)	249 (9-13/16)	241 (9-1/2)		260 (10-1/4)	
Net weight: kg (lbs) [includes battery]	Catalog	2.7 (6.0)	2.6 (5.7)	2.7 (5.9)		2.6 (5.7)	
	Measured	2.76 (6.1)	2.68 (5.8)	2.75 (6.1)	N/A	2.95 (6.5)	

#### 2) Other Specifications

12V/ 14.4V/ 18V	12V models	8414D	8413D			B1
	14.4V models	8434D	8433D	A1	A2	B2
	18V models	8444D	8443D	A3	A4	B3
	Metal gear housing	Yes	Yes	Yes		Yes
	Externally accessible brush	Yes	Yes	No		Yes
	Side grip	Yes	Yes	Yes		Yes (option)
	Soft grip	Yes	No	Yes		Yes
	Holders for storing bit	2	2	1		1
	Torque adjustment	16stages+ drill	16stages+ drill	22stages+ drill		15stages+ drill

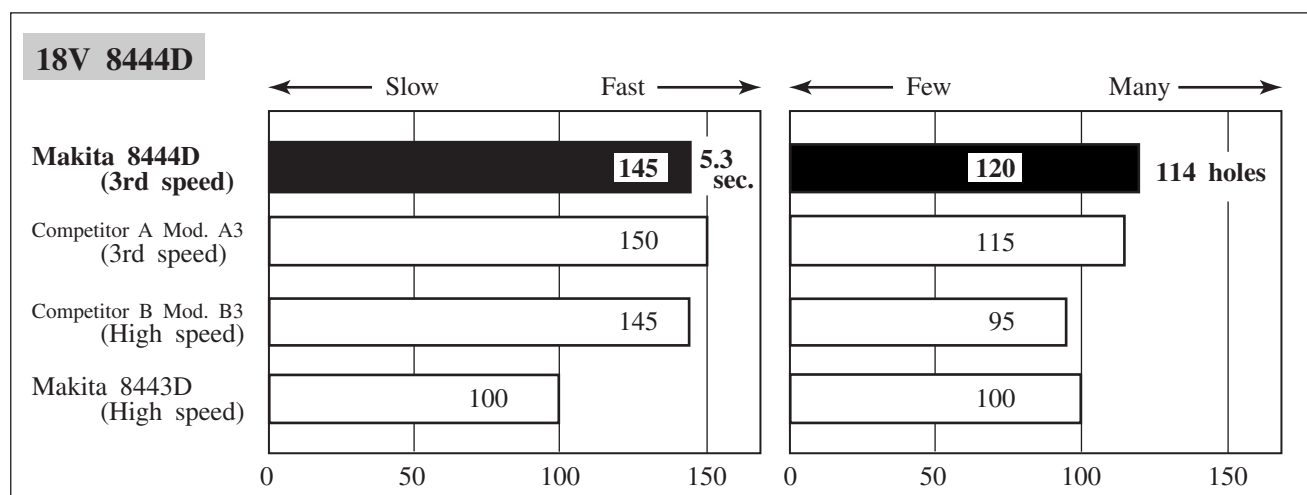
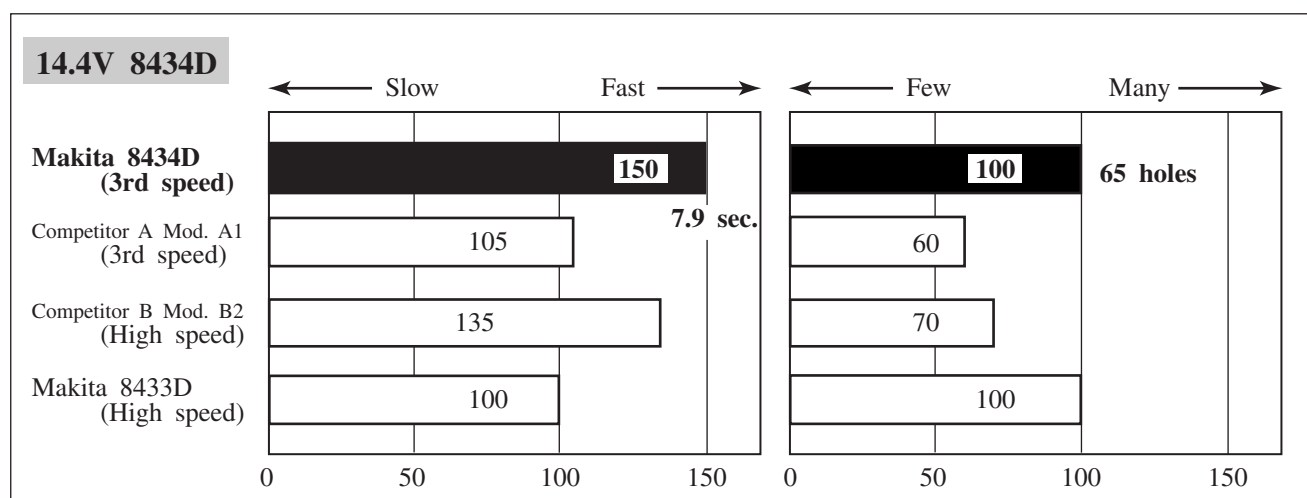
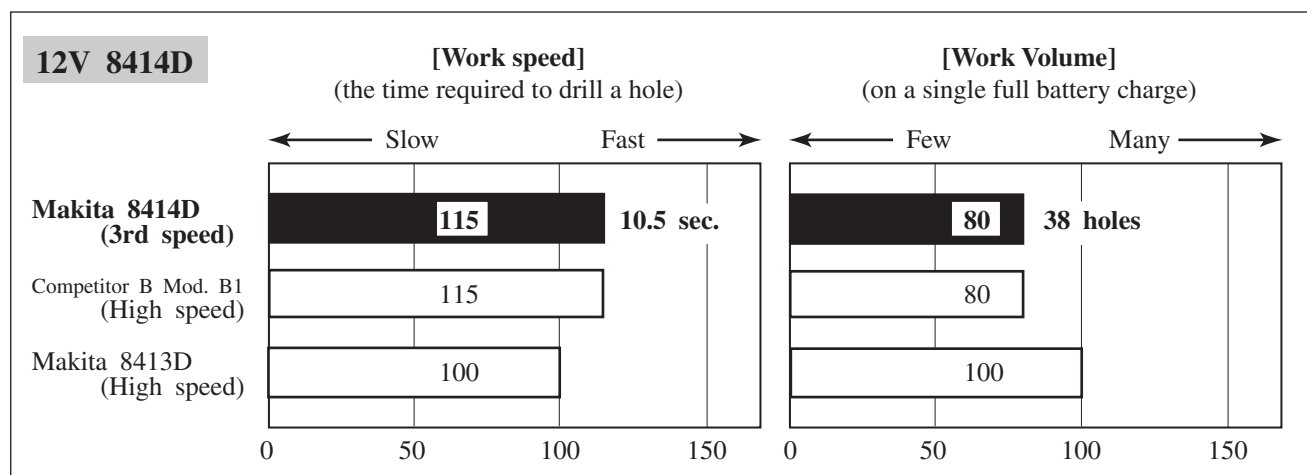
## ► Comparison of product

### [2] Performance Comparison

We carried out masonry drilling test on the new products and the competitions, and compared work speed and volume.

**Test Conditions:** Drilled holes in brick with dia. 8mm (5/16") TCT drill bit.

- Note:**
1. With 2.6Ah Ni-MH battery, Makita models were tested.
  2. The test results depend to a great extent on the hardness of materials, etc.
  3. The numbers in the bar graphs are relative values when the capacity of the predecessor model (8414D/8433D/8443D) is indexed at 100.
  4. The 3rd speed of the new models is designed for faster drilling/fastening with rotational speed higher than that of the predecessor models. Therefore, in some applications, the energy consumption may get higher, resulting in work volume smaller than the predecessor models.



## ► Repair

### [1] DISASSEMBLY/ ASSEMBLY

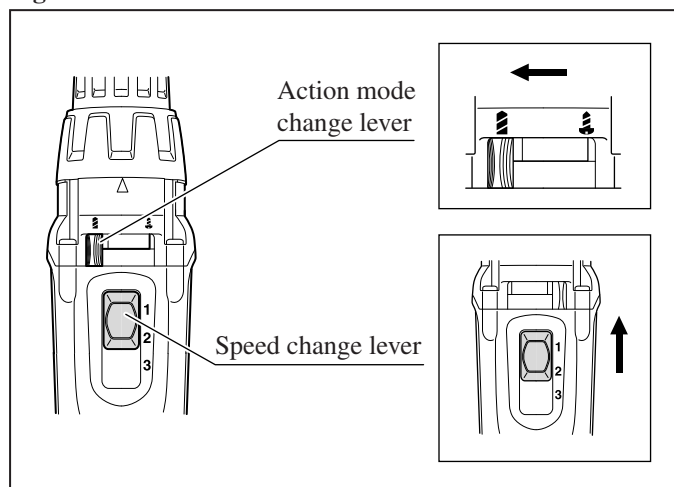
#### [1] -1. Drill Chuck

##### REMOVAL

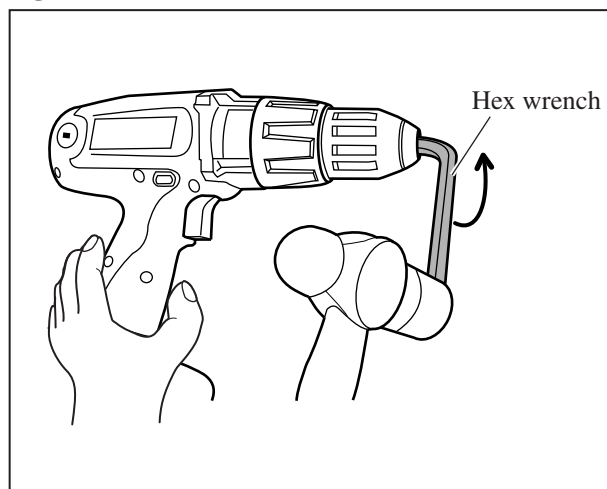
When replacing Gear assembly, remove Drill chuck first as described below.  
(When replacing only Housing, you need not remove Drill chuck.)

- 1) After opening the chuck jaws to the full, remove the chuck screw (M6x22 (-) Flat head screw) by turning it clockwise.  
Use impact driver drill if it is difficult to remove the screw.
- 2) Slide Speed change lever to the position of "1" (1st speed), and slide Action mode change lever to the drill mode as illustrated in **Fig. 1**.  
Secure the short arm of a hex wrench with the chuck jaws. Hold the machine firmly, and then remove Drill chuck by hitting the long arm of the hex wrench using plastic hammer to turn Drill chuck counterclockwise. (**Fig. 2**)

**Fig. 1**



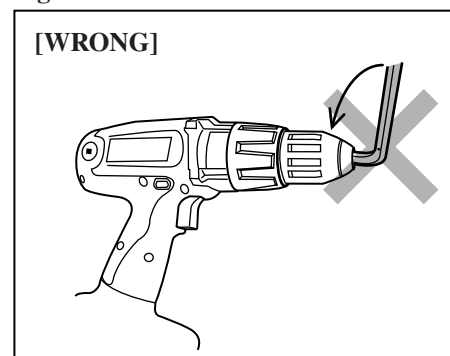
**Fig. 2**



##### Note:

This product has "Spindle Lock system".  
After hex wrench is secured in Drill chuck, it is impossible to turn the wrench in order to adjust the position of its long arm. (**Fig. 3**)  
Therefore, make sure that the hex wrench is positioned as illustrated in **Fig. 2** before securing it in drill chuck.

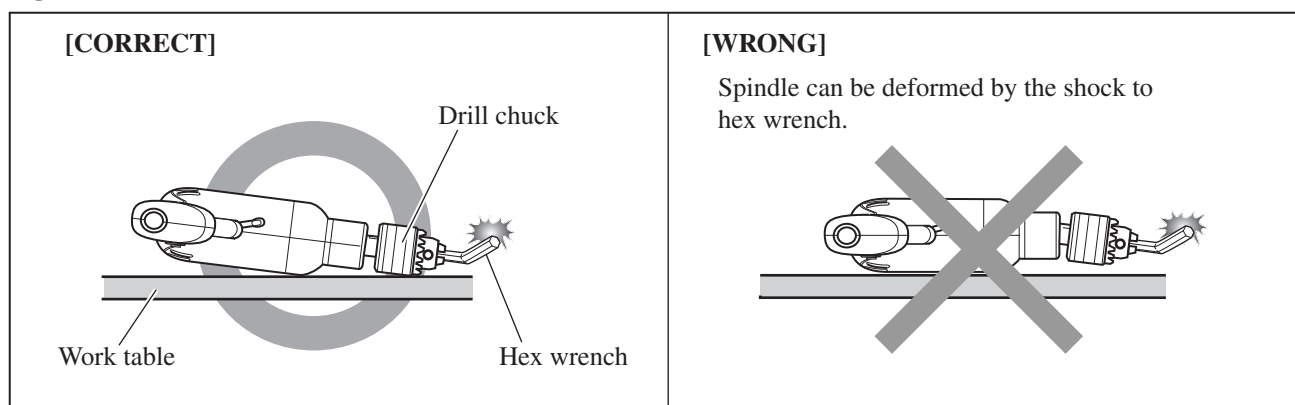
**Fig. 3**



##### Caution:

Place the tool on a work table so that Drill chuck touches the surface of the work table as illustrated to left in **Fig. 4**.  
Failure to follow this instruction can result in deformation of Spindle.

**Fig. 4**





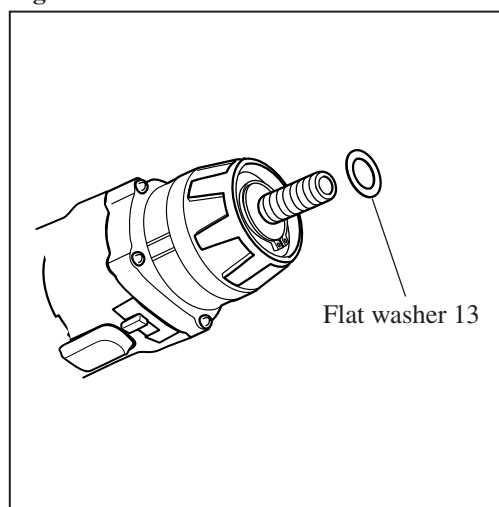
## ► Repair

### [1] -1. Drill Chuck (cont.)

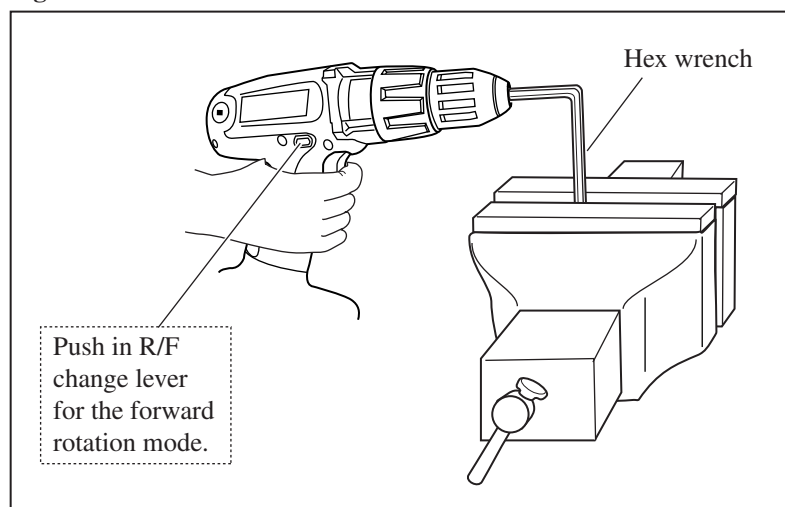
#### INSTALLATION

- 1) Make sure that Flat washer 13 is mounted to Spindle before installing Drill chuck. (**Fig. 5**)
- 2) Slide Speed change lever to the position of "1" (1st speed), and slide Action mode change lever to the drill mode as illustrated in **Fig. 1**. Push in F/R change lever for the forward rotation mode. (**Fig. 6**)  
Secure the short arm of a hex wrench in the chuck jaws, and the long arm in vise. Hold the grip of the machine firmly so that your hand cannot be pulled away by reaction torque. And then tighten Spindle into Drill chuck by pulling the trigger of Switch until Spindle is locked. (**Fig. 6**)  
**Note:** Release the trigger of Switch just after Spindle is locked. Do not keep on pulling the trigger for longer than one second.
- 3) Fasten Drill chuck to Spindle with the chuck screw (M6x22 (-) Flat head screw) by turning it counterclockwise.  
If you reuse a screw removed from Drill chuck, apply an appropriate amount of adhesive (ThreeBond 1321B/ 1342 or Loctite 242) to the screw for secure fastening.

**Fig. 5**



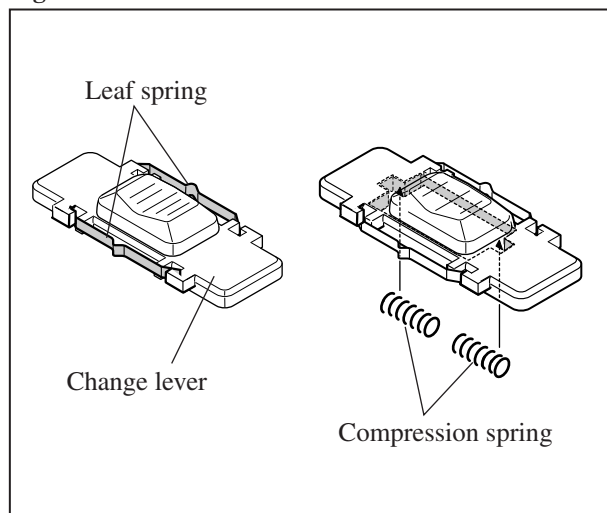
**Fig. 6**



### [1] -2. Installing Speed Change Lever

- 1) Before installing Speed change lever on Gear assembly, make sure that;
  - a. Two Leaf springs are installed to Speed change lever as illustrated to left in **Fig. 7**.
  - b. Two compression springs are installed to speed change lever as illustrated to right in **Fig. 7**.
- 2) Assemble Speed change lever to the projection on Gear assembly. (**Fig. 8**)

**Fig. 7**



**Fig. 8**

