Hitachi Power Tools

LIST No. CV 350V: E728 Dec. 2014

PRODUCT NAME

Hitachi Multi Tool Model CV 350V

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REPAIR GUIDE

Be sure to disconnect the power cord plug from the power supply before conducting repair. Otherwise, the motor may suddenly turn on, posing a very dangerous situation.

1. Precautions on disassembly and reassembly

[Bold] numbers in the description below correspond to the item numbers in the Parts List and exploded assembly diagram of the Model CV 350V.

Disassembly

1. Disconnecting the wiring

- (1) Loosen the three Screws D4 x 20 [1] and remove Tail Cover (A).(B) Set [33].
- (2) Lift up the spring of the Brush Holder [30] and then pull out the Carbon Brush [32].
- (3) Pull out the terminal that connects the Carbon Brush **[32]** and the Stator **[23]** and remove the Carbon Brush **[32]**.
- (4) Cut the internal wire connected to the Connector **[42]** at its connection root and remove the Controller **[35]**.
- (5) Desolder the terminal of the Micro Switch **[34]** and disconnect the internal wire to remove the Micro Switch **[34]**.
- (6) Pull out the wire in the center of the Noise Suppressor **[40]** from the Housing **[27]** and remove the Noise Suppressor **[40]**.
- (7) Loosen the two Screws D4 x 16 [39] and remove the Cord Clip [38] and Cord [44].

2. Removing the head case and armature ass'y set

- (1) Loosen the four Screws D3 x 16 [25] and remove Head Cover (A).(B) Set [24].
- (2) Loosen the four Screws D4 x 20 [1] and remove the Head Case [3] from the Housing [27].
- (3) Pull out the Armature Ass'y Set [10].

3. Removing the lever

- (1) Place the Head Case [3] on an adequate stand with the Lever [7] fitted to the Lever Guide [9]. Using a hand press, push the Needle Roller [2] to remove it. Remove the Lever [7] and the Pushing Piece [6].
- (2) Loosen the Screw M4 x 6 [8] and remove the Lever Guide [9].
- (3) Pull out the Sleeve Cap [4].

4. Disassembling the armature ass'y set

- (1) Insert the hooks of a bearing puller between the Bearing Cover **[17]** and the Bearing Holder **[11]**, and then remove the Bearing Holder **[11]**.
- (2) Remove the Retaining Ring [13].
- (3) Insert the hooks of a bearing puller into both ends of the Ball Bearing-R 607VV **[14]** and remove the Ball Bearing-R 607VV **[14]**.
- (4) Pull out the Balancer [15].
- (5) Insert the hooks of a bearing puller into both ends of the Ball Bearing 6000VV **[16]** and remove the Ball Bearing 6000VV **[16]**.
- (6) After removing the Ball Bearing 6000VV [16], remove the Bearing Cover [17].

5. Removing the stator and slide bar

- (1) Remove the Fan Guide [22]. Lightly tap on the Housing [27] where the Head Case [3] was mounted with a plastic hammer and remove the Stator [23] from the Housing [27].
- (2) Push the tab of the Slide Knob [26] inward and remove the Slide Knob [26] and Slide Bar [29].

Reassembly

Reassembly can be conducted by reversing the disassembly procedure, but note the following:

1. Mounting the lever

(1) To mount the Lever [7] and Pushing Piece [6] to the Head Case [3], place the Head Case [3] on an adequate stand and use a hand press to press the Needle Roller [2]. Do not reverse the orientation of the Pushing Piece [6] when mounting.



2. Reassembling the armature ass'y set

Press-fit the Ball Bearing 6000VV **[16]** into the Bearing Holder **[11]** until the Ball Bearing 6000VV **[16]** touches the fan of the Armature Ass'y Set **[10]**. Do not push in the Ball Bearing 6000VV **[16]** excessively. Do not forget to mount the Bearing Cover **[17]**.

3. Mounting the stator

Mount the Slide Knob [26] and Slide Bar [29] to the Housing [27] first. Then mount the Stator [23] in the Housing [27] being careful of the orientation of the internal wires.



4. Connecting the wiring

- (1) Put the Cord [44] through the Cord Armor [37] and solder it to the Micro Switch [34].
- (2) Put the Earth Terminal [43] of the Noise Suppressor [40] through the hole on the Housing [27] and insert it between the Housing [27] and Stator [23].
- (3) Put the internal wires in the specified grooves being careful not to be pinched.







5. Reassembling the head section

- (1) Mount the Armature Ass'y Set **[10]** to the Head Case **[3]** by hand without using any tool such as a hand press. Otherwise, the fan may be misaligned due to excessive force and abnormal noise or vibration may occur.
- (2) Carefully mount the Armature Ass'y Set **[10]** and Head Case **[3]** reassembled in the above step (1) to the Housing **[27]** by hand without tilting. Then secure it with four Screws D4 x 20 **[1]**.
- (3) Secure Head Cover (A).(B) Set [24] with four Screws D3 x 16 [25].
- (4) Mount the Sleeve Cap [4] to the Head Case [3] in the same manner as the accessory mounting procedure.
 - a) Pull up the Lever [7]. Pull the guide sleeve down and turn it to remove the Tool Shaft [5].
 - b) Align the 🔂 mark on the Sleeve Cap [4] with the ▽ mark on Head Cover (A).(B) Set [24] to mount.
 - c) Pull the guide sleeve by holding the Sleeve Cap [4] and turn it to the opposite side. Check that the \square mark on the Sleeve Cap [4] is aligned with the \bigtriangledown mark on Head Cover (A).(B) Set [24].
 - d) Turn the guide sleeve toward the mark and insert the Tool Shaft [5].
 - e) Turn the guide sleeve toward the finark and pull the lever down being careful not to pinch your fingers.



Lubrication points and type of lubricant

Apply Powerlite WR No. 1 lubricant (Kyodo Yushi Co., Ltd.) to the following parts.

- Swing arm of the Head Case [3] ······ 9 grams
- Ball Bearing-R 607VV [14] and O-ring (S-35) [12] at the fan side of the Armature Ass'y Set [10]
- Outer periphery of the Needle Roller [2]

NOTE: Do not apply lubricant to the Pushing Piece [6].

Screw tightening torque

- Screw D3 x 16 [25] 1.3 ± 0.3 N•m {13 ± 3 kgf•cm}
- Screw D3 x 8 [31]0.74 ± 0.15 N•m {7.5 ± 1.5 kgf•cm}
- Screw D4 x 16 [39] 2.0 ± 0.5 N•m {20 ± 5 kgf•cm}

Checking after reassembly

Check the following after reassembly.

- (1) Turn the switch on and off, and turn the dial to change speed. Check that the switch and dial move smoothly, and that the tool starts, stops, and changes speed normally.
- (2) Check that the accessory can be mounted and removed securely.
- (3) Check that the Tool Shaft **[5]** can be pushed in and pulled out normally when the *∇* mark on Head Cover (A).(B) Set **[24]** is aligned with the a mark on the Sleeve Cap **[4]**, and that the Tool Shaft **[5]** cannot be pulled out when the *∇* mark is aligned with the mark.
- (4) Cut wood at the dial setting "A." Check that the tool runs fast during cutting and slow after cutting.

Insulation test

On completion of disassembly and repair, measure the insulation resistance and dielectric strength.

Insulation resistance: 7 $M\Omega$ or more with a 500 VDC megohm tester

Dielectric strength: 4,000 VAC/minute, with no abnormalities

No-load current value

After three minutes of no-load operation, no-load current values should be as follows:

1.5 \pm 0.3 A at 110 V 50/60 Hz 0.9 \pm 0.2 A at 220 V 50/60 Hz 0.9 \pm 0.2 A at 230 V 50/60 Hz 0.8 \pm 0.2 A at 240 V 50/60 Hz

Connecting diagram







STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable Fixed	10	20	30	40	50	60 min.
		Work Flow					
CV 350V		Carbon Brush Micro Switch Tail Cover (A).(B) Set Cord Cord Armor Controller	Housing Stator Slide Bar Slide Knob Fan Guide				
	General assembly		Armature Ass'y Set Bearing Holder Ball Bearing-R 607VV Balancer Ball Bearing 6000VV				
		Head Case Ass'y Head Cover (A).(B) Set Lever Needle Roller Lever Guide Tool Shaft					

Hitachi Power Tools

LIST NO. E728

ELECTRIC TOOL PARTS LIST

MULTI TOOL Model CV 350V

2014-12-10

(E1)



	PA	PARTS CV 3					
	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS		
ſ	1	301653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	7			
	2	337668	NEEDLE ROLLER	1			
	3	337662	HEAD CASE	1			
	4	337665	SLEEVE CAP	1			
	5	337671	TOOL SHAFT	1			
ľ	6	337667	PUSHING PIECE	1			
	7	337666	LEVER	1			
	8	337670	SEAL LOCK SCREW M4 X 6	1			
	9	337669	LEVER GUIDE	1			
*	10	360984C	ARMATURE ASS'Y SET 110V	1	INCLUD.11-21		
*	10	360984E	ARMATURE ASS'Y SET 220V-230V	1	INCLUD.11-21		
*	10	360984F	ARMATURE ASS'Y SET 240V	1	INCLUD.11-21		
	11	337663	BEARING HOLDER	1			
	12	337664	O-RING (S-35)	1			
	13	994251	RETAINING RING FOR D7 SHAFT	1			
	14	338037	BALL BEARING-R 607VV	1			
	15	337675	BALANCER	1			
	16	6000VV	BALL BEARING 6000VVCMPS2L	1			
	17	337672	BEARING COVER	1			
	18	321722	DUST SEAL	1			
	19	626VVM	BALL BEARING 626VVC2PS2L	1			
	20	337676	SENSOR MAGNET	1			
	21	337677	PUSHING NUT	1			
	22	337683	FAN GUIDE	1			
*	23	340890C	STATOR 110V	1			
*	23	340890E	STATOR 220V-230V	1			
*	23	340890F	STATOR 240V	1			
	24	337661	HEAD COVER (A).(B) SET	1			
	25	313687	TAPPING SCREW (W/FLANGE) D3 X 16 (BLACK)	4			
	26	337680	SLIDE KNOB	1			
	27	337660	HOUSING	1			
	28			1			
	29	337679	SLIDE BAR	1			
	30	333844	BRUSH HOLDER	1			
	31	328210	TAPPING SCREW D3 X 8	4			
	32	999005	CARBON BRUSH (1 PAIR)	2			
	33	337678	TAIL COVER (A).(B) SET	1			
	34	335460	MICRO SWITCH	1			
*	35	337681	CONTROLLER 100V-110V	1			
*	35	337682	CONTROLLER 220V-240V	1			
*	36	334379	FERRITE CORE	1	FOR EUROPE,AUS.NZL.SAF.RUS.TUR.GBR (230V)		
*	37	953327	CORD ARMOR D8.8	1			
*	37	938051	CORD ARMOR D10.1	1			
	38	937631	CORD CLIP	1			
	39	984750	TAPPING SCREW (W/FLANGE) D4 X 16	2			
*	40	334472	NOISE SUPPRESSOR	1	FOR EUROPE.AUS.NZL.SAF.RUS		
				-	TUR.GBR.TPE.UAE (110V)		
	41	338119		1	- ,,,(,,,,,,,,,		
	42	959140	CONNECTOR 50091 (10 PCS.)	3			
*	43	314854	EARTH TERMINAL	1	FOR EUROPE,AUS,NZL.SAF.RUS.		

	PARTS CV 3						
ſ	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS		
					TUR,GBR,TPE,UAE (110V)		
*	44	500247Z	CORD	1	(CORD ARMOR D8.8)		
*	44	500409Z	CORD	1	(CORD ARMOR D8.8) FOR VIE,INA,		
					IND,SAF,TUR,RUS		
*	44	500435Z	CORD	1	(CORD ARMOR D8.8) FOR SIN,MAL,		
					UAE,HKG,GBR (230V)		
*	44	500439Z	CORD	1	(CORD ARMOR D8.8) FOR AUS,NZL		
*	44	500461Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)		
*	44	930051	CORD	1	(CORD ARMOR D10.1) FOR UAE		
*	44	500468Z	CORD	1	(CORD ARMOR D8.8) FOR THA		
*	44	500470Z	CORD	1	(CORD ARMOR D8.8) FOR TPE		

STANDARD ACCESSORIES

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
ſ	501	337684	CASE	1		
	502	337685	TOOL BOX	1		
	503	336471	CASE ASS'Y (STACKABLE)	1	INCLUD.504-506	
	504	336472	LATCH	4		
	505	336473	HANDLE	1		
	506	336474	HINGE	2		
	507	337937	INNER TRAY	1		
*	508	337922	DUST COLLECTION ADAPTER SET	1	FOR NOR,SWE,DEN,FIN	
*	509	335868	MULTI TOOL BLADE (MW85S)	1		
*	509	335880	MULTI TOOL BLADE (MD85SB)	1	FOR AUS,NZL	
	510	335881	MULTI TOOL BLADE (MD28PB)	1		
	511	335903	MULTI TOOL PAD (MU93D)	1		
	512	338252	SANDING PAPERS 94 X 94 AA60 (10 PCS.)	1		
*	512	338253	SANDING PAPERS 94 X 94 AA80 (10 PCS.)	1	EXCEPT FOR AUS,NZL	
*	512	338254	SANDING PAPERS 94 X 94 AA100 (10 PCS.)	1	EXCEPT FOR AUS,NZL	
*	512	338255	SANDING PAPERS 94 X 94 AA120 (10 PCS.)	1		
*	512	338255	SANDING PAPERS 94 X 94 AA120 (10 PCS.)	3	FOR AUS,NZL	
*	512	338257	SANDING PAPERS 94 X 94 AA180 (10 PCS.)	1	EXCEPT FOR AUS,NZL,NOR,SWE,DEN,FIN	
*	512	338258	SANDING PAPERS 94 X 94 AA240 (10 PCS.)	3	FOR AUS,NZL	
*	512	338258	SANDING PAPERS 94 X 94 AA240 (10 PCS.)	1	FOR NOR,SWE,DEN,FIN	
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ſ						

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	NO. DESCRIPTION		REMARKS	
601	337922	DUST COLLECTION ADAPTER SET	1		
602	335868	MULTI TOOL BLADE (MW85S)	1		
603	335873	MULTI TOOL BLADE (MW10P)	1		
604	335872	MULTI TOOL BLADE (MW20P)	1		
605	335871	MULTI TOOL BLADE (MW32P)	1		
606	335870	MULTI TOOL BLADE (MW32PB)	1		
607	335875	MULTI TOOL BLADE (MW32PC)	1		
608	335876	MULTI TOOL BLADE (MW32PBC)	1		
609	335878	MULTI TOOL BLADE (MW65PB)	1		
610	335880	MULTI TOOL BLADE (MD85SB)	1		
611	335879	MULTI TOOL BLADE (MD100SB)	1		
612	335881	MULTI TOOL BLADE (MD28PB)	1		
613	335882	MULTI TOOL BLADE (MD32PBC)	1		
614	335869	MULTI TOOL BLADE (MD65PB)	1		
615	335885	MULTI TOOL BLADE (MM10PB)	1		
616	335884	MULTI TOOL BLADE (MM20PB)	1		
617	335883	MULTI TOOL BLADE (MM32PB)	1		
618	335887	MULTI TOOL BLADE (MI20P)	1		
619	335886	MULTI TOOL BLADE (MI32P)	1		
620	335889	MULTI TOOL BLADE (MU65SBF)	1		
621	335888	MULTI TOOL BLADE (MU85SBF)	1		
622	335896	MULTI TOOL BLADE (MU100SKS)	1		
623	335898	MULTI TOOL BLADE (MU100SK)	1		
624	335893	MULTI TOOL BLADE (MU65CF)	1		
625	335892	MULTI TOOL BLADE (MU85CF)	1		
626	335901	MULTI TOOL BLADE (MU52PKR)	1		
627	335902	MULTI TOOL BLADE (MU52PK)	1		
628	335900	MULTI TOOL BLADE (MU28PK)	1		
629	335897	MULTI TOOL BLADE (MA85SH)	1		
630	335899	MULTI TOOL BLADE (MA85SHT)	1		
631	335877	MULTI TOOL BLADE (MU28PKS)	1		
632	335904	MULTI TOOL BLADE (MA70DHX)	1		
633	335905	MULTI TOOL BLADE (MA78DH)	1		
634	335890	MULTI TOOL BLADE (MA65SH)	1		
635	335891	MULTI TOOL BLADE (MA85SD)	1		
636	335895	MULTI TOOL BLADE (MA20PH)	1		
637	335894	MULTI TOOL BLADE (MA32PH)	1		
638	323968	SANDING PAPERS 96 X 96 AA60 (10 PCS.)	1		
639	323969	SANDING PAPERS 96 X 96 AA100 (10 PCS.)	1		
640	323970	SANDING PAPERS 96 X 96 AA150 (10 PCS.)	1		
641	338251	SANDING PAPERS 94 X 94 AA40 (10 PCS.)	1		
642	338253	SANDING PAPERS 94 X 94 AA80 (10 PCS.)	1	FOR AUS,NZL	
643	338254	SANDING PAPERS 94 X 94 AA100 (10 PCS.)	1	FOR AUS,NZL	
644	338256	SANDING PAPERS 94 X 94 AA150 (10 PCS.)	1		
645	338257	SANDING PAPERS 94 X 94 AA180 (10 PCS.)	1	FOR AUS,NZL,NOR,SWE,DEN,FIN	
646	338258	SANDING PAPERS 94 X 94 AA240 (10 PCS.)	1	EXCEPT FOR AUS,NZL,NOR,SWE,DEN,FIN	