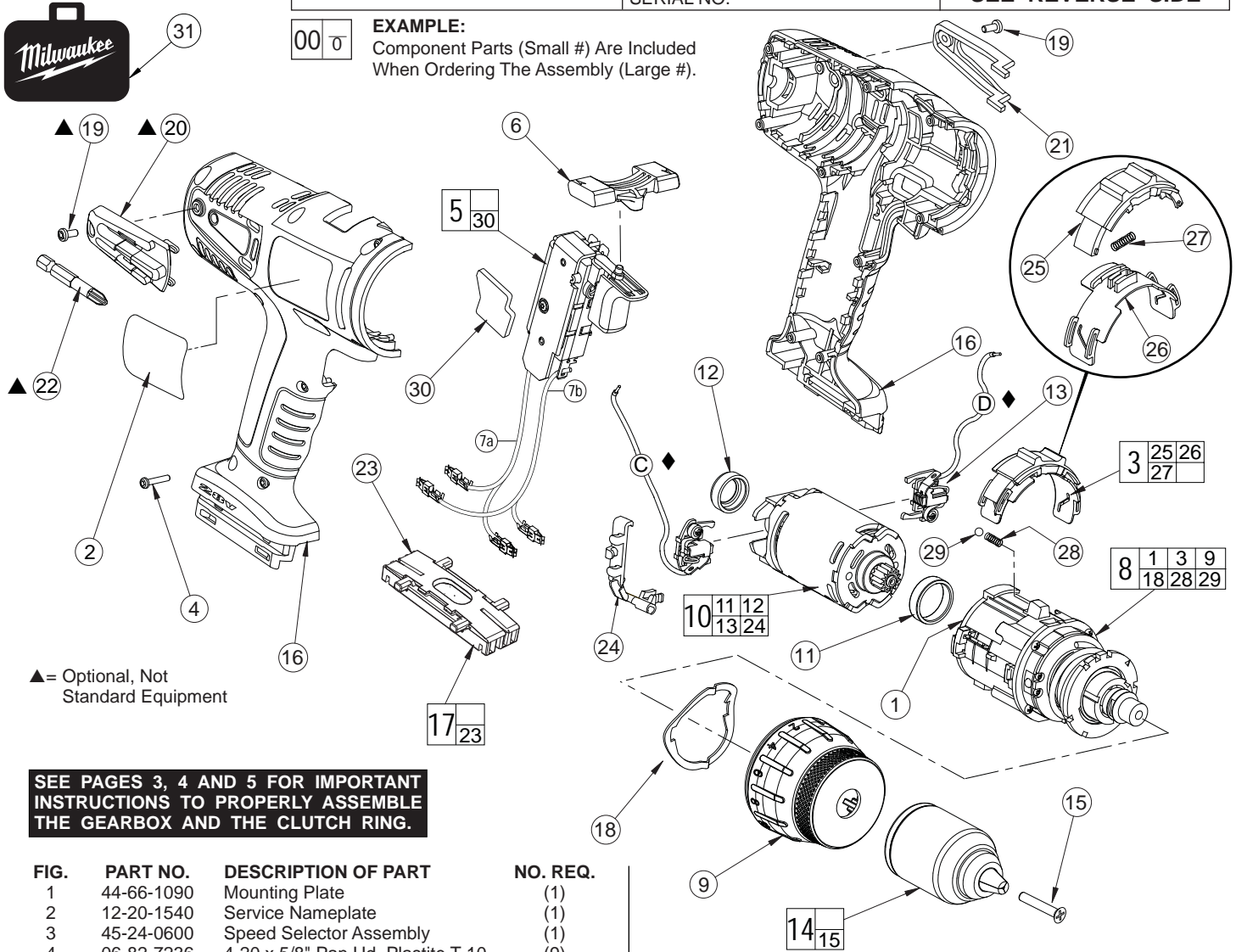




# SERVICE PARTS LIST

SPECIFY CATALOG NO. AND SERIAL NO. WHEN ORDERING PARTS		REVISED BULLETIN	DATE
<b>CORDLESS 28V 1/2" HAMMER-DRILL</b>			Jan. 2011
CATALOG NO. <b>0724-20</b>	STARTING SERIAL NO. <b>A55A</b>	WIRING INSTRUCTION <b>SEE REVERSE SIDE</b>	

**EXAMPLE:**  
 Component Parts (Small #) Are Included  
 When Ordering The Assembly (Large #).



▲ = Optional, Not Standard Equipment

**SEE PAGES 3, 4 AND 5 FOR IMPORTANT INSTRUCTIONS TO PROPERLY ASSEMBLE THE GEARBOX AND THE CLUTCH RING.**

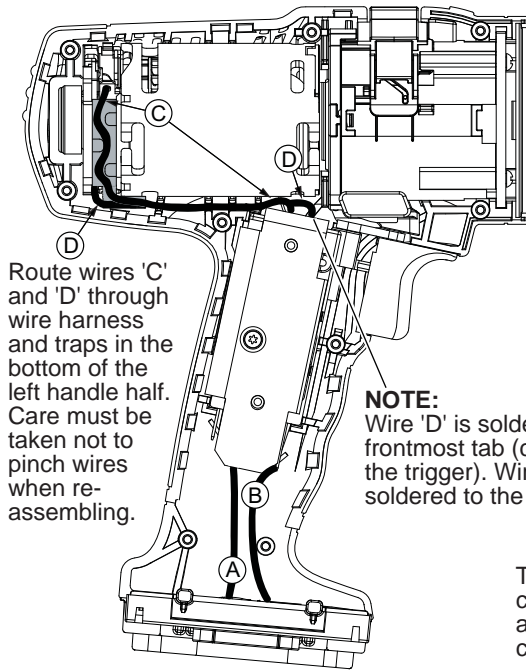
FIG.	PART NO.	DESCRIPTION OF PART	NO. REQ.
1	44-66-1090	Mounting Plate	(1)
2	12-20-1540	Service Nameplate	(1)
3	45-24-0600	Speed Selector Assembly	(1)
4	06-82-7236	4-20 x 5/8" Pan Hd. Plastite T-10	(9)
5	23-66-1779	Switch Assembly	(1)
6	45-24-0640	Reversing Shuttle	(1)
7a	23-94-0279	Lead Wire Assembly - Black	(1)
7b	23-94-0179	Lead Wire Assembly - Red	(1)
8	14-29-0225	Gearbox Assembly	(1)
9	42-76-0775	Clutch Ring Assembly	(1)
10	23-30-0726	Service Motor Kit	(1)
11	45-22-0340	Front Rubber Sleeve	(1)
12	45-22-0710	Rear Motor Spacer	(1)
13	22-18-1160	Brush Assembly	(2)
14	48-66-1575	1/2" Keyless Chuck	(1)
15	05-88-1470	M6 Chuck Screw	(1)
16	31-50-1950	Handle Kit	(1)
17	22-56-0975	Connector Block Assembly	(1)
18	40-50-1130	Detent Spring	(1)
19	06-82-5275	6-32 x 5/16" Pan Hd. Tapt. T-15 Scr.	(2)
20	43-72-0455	Bit Holder Assembly, <i>Optional</i>	(1)
21	43-72-0300	Belt Clip Holder	(1)
22	48-30-1520	#2 Phillips Bit, <i>Optional</i>	(1)
23	-----	Connector Block Cover	(1)
24	43-56-0820	Wire Harness	(1)
25	45-24-0850	Speed Selector Slide	(1)
26	43-56-0800	Speed Selector Guide	(1)
27	40-50-1390	Speed Selector Spring	(1)
28	40-50-0520	Speed Selector Detent Spring	(1)
29	02-02-1300	5mm Ball	(1)
30	23-50-0120	Rubber Spacer	(1)

FIG.	PART NO.	DESCRIPTION OF PART	NO. REQ.
31	48-55-0935	Carrying Case, <i>Optional</i>	(1)
	42-70-5005	Clip-Lok (Not Shown)	(1)
	49-15-0400	Side Handle (Not Shown)	(1)

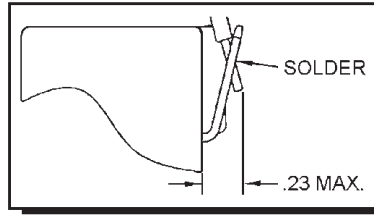
**FIG. 10, 13 NOTES:**  
 When ordering the service brush assemblies (13) only, the wires (C and D) are not supplied (these wires may be yellow or black). The wires must be unsoldered from the old brush holders and resoldered to the new brush holders.

When ordering the service motor assembly (10), the brush assembly comes complete with the wires soldered in place, along with the front rubber sleeve (11), rear motor spacer (12) and the wire harness (24).

## WIRING INSTRUCTIONS (Motor with serviceable brushes)



Brush assembly leads 'C' and 'D' are to be soldered to the top of the switch, as shown. Leadwire assemblies 'A' and 'B' are to be soldered to the tabs on the bottom of the switch.



Route wires 'C' and 'D' through wire harness and traps in the bottom of the left handle half. Care must be taken not to pinch wires when re-assembling.

### NOTE:

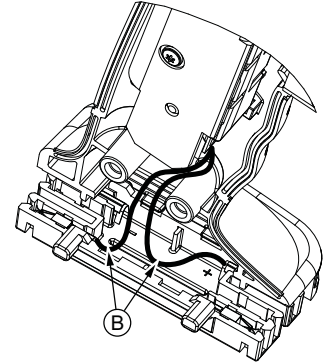
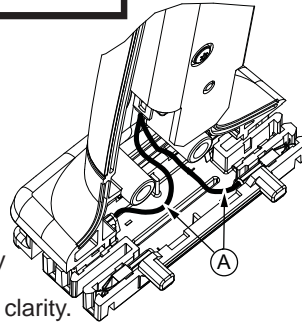
Wire 'D' is soldered to the frontmost tab (closest to the trigger). Wire 'C' is soldered to the rear tab.

### ◆ NOTE:

When ordering the service brush assemblies (13) only, the wires (C and D) are not supplied (these wires may be yellow or black). The wires must be unsoldered from the old brush holders and resoldered to the new brush holders. Care must be taken to position and resolder the wires as in the old assembly.

If wires C or D are damaged, order No. 23-94-5061 (10' length of yellow 16 gauge wire). Cut and strip to the specifications listed below.

These views of the connector block assembly are shown without the connector block cover for clarity.



### WIRING SPECIFICATIONS

Wire No.	Wire Color	Origin or Gauge	Length	Terminals, Connectors and 1 or 2 End Wire Preparation
7A	Black	-----	-----	Leadwire assembly - Black
7B	Red	-----	-----	Leadwire assembly - Red
13C	Yellow or Black	◆	5"	Strip one end .25 and solder to switch / Strip the other end .18 and solder to brush assy.
13D	Yellow or Black		4"	

### ⚠ WARNING

**SWITCH POLARITY SENSITIVE**  
If wired incorrectly with connector block #17, switch #5 **will be** damaged and destroyed!

**INSTRUCTIONS FOR SERVICING THE CLUTCH MECHANISM**

### SETTING THE CLUTCH RETAINING COLLAR

● **NOTE:** Triangle ▲ of rear gearbox assembly housing is aligned with square ■ located on front housing.

Begin assembly by aligning the retaining collar triangle ▲ with front housing square ■ and rear gearbox triangle ▲ at the 12 o'clock ⌚ position.

● Turn retaining collar clockwise until clutch spring is fully collapsed. Retaining collar triangle ▲ should be at approximately the 12 o'clock ⌚ position to the front housing square ■ and the rear gearbox triangle ▲.

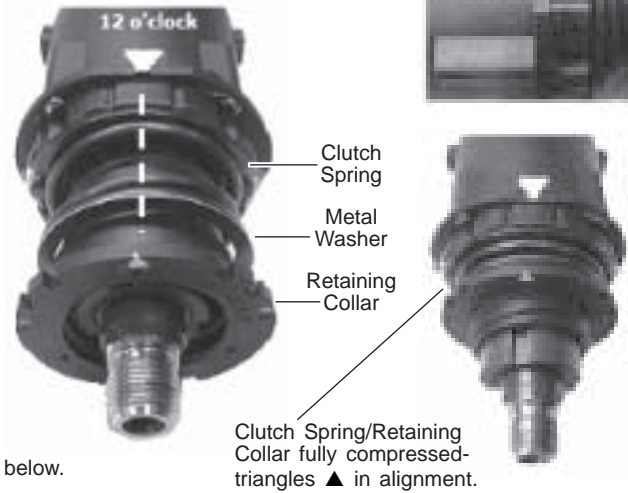
● If the front retaining collar triangle ▲ stops at approximately the 5 o'clock ⌚ position, the retaining collar will have been installed 180° off. This requires unthreading and rethreading of the collar. Initial position of collar for proper threading is with triangles ▲ aligned.

● When fully compressed, make sure the retaining collar triangle ▲ is in line with the front housing square ■ and rear gearbox triangle ▲.

☞ Clutch collar triangles ▲ on a few gearboxes may be slightly to the left of the center 12 o'clock position when tightened, as shown below.

Gearbox square ■ and triangle ▲ are whitened for reference only.

Triangle ▲ of rear gearbox assembly housing is aligned with square ■ located on front housing.



STEP 1

### CHECKING / SETTING THE HAMMER SHIFT COLLAR

The following must be in place:

● Clutch collar triangle ▲ (tight) in-line, slightly to the left of gearbox 12 o'clock ⌚ position. (Set in step 1).

● Washer [A] visible above hammer shift collar, (fig. 2).

● Hammer Shift Collar [B] notch [1] with the .160 wide notch in-line or slightly left of gearbox 12 o'clock position (fig. 1).

☞ If hammer Shift Collar [B] is out of position, it will look like example shown in (fig. 3).

Rotate shift collar left or right by hand until it drops into position shown in (fig. 2). The washer must be visible, and the .160 wide shift collar notch [1] must be in-line or slightly left of top 12 o'clock position, as viewed from the front of the gearbox.

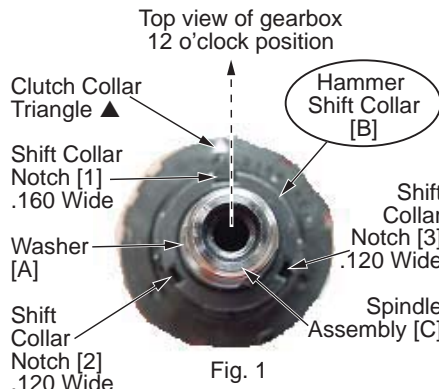


Fig. 1

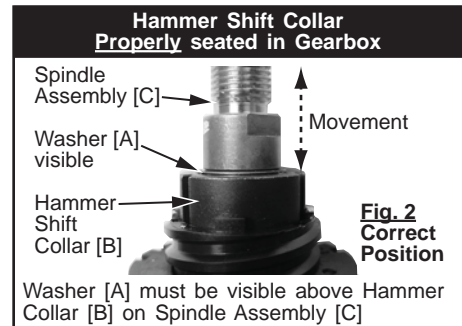


Fig. 2 Correct Position

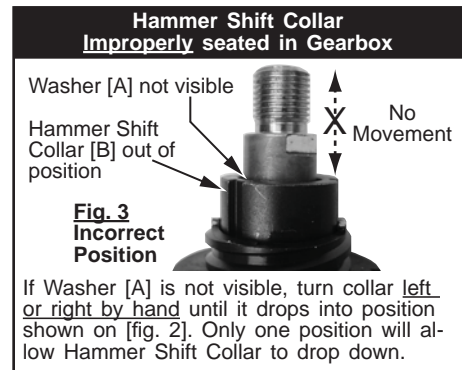


Fig. 3 Incorrect Position

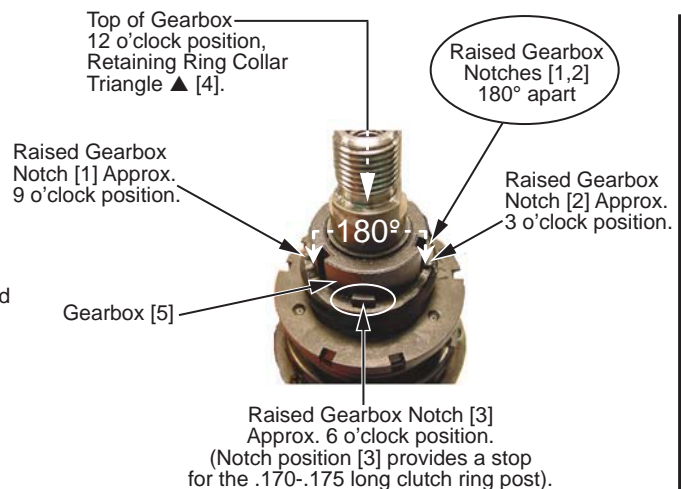
STEP 2

### LOCATING RAISED GEARBOX NOTCHES FOR CLUTCH RING SPRING ASSEMBLY

Locate clutch ring spring notches by first identifying...

- The triangle ▲ on top of retaining collar [4].
- Raised gearbox notch [1] located at approx. 9 o'clock position.
- Raised gearbox notch [2] located at approx. 3 o'clock position. (Notch [1] and [2] located 180° apart on gearbox [5], as viewed from front of gearbox).
- Raised gearbox notch [3]. (Will not contact clutch ring spring).

Proceed to STEP 4.

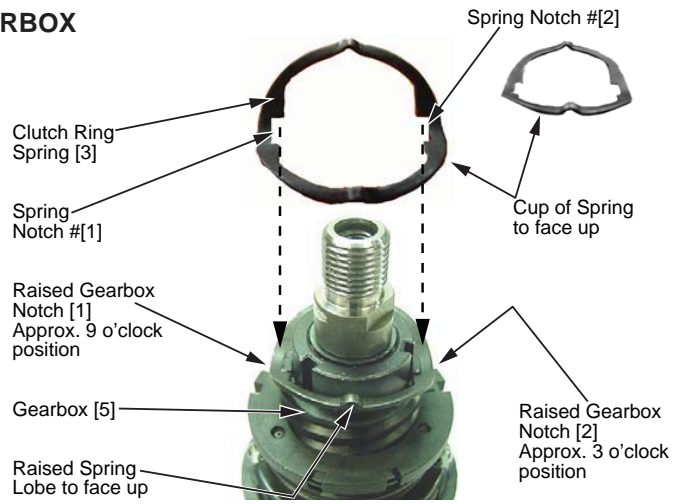


STEP 3

## INSTALLING CLUTCH RING SPRING ONTO GEARBOX

- Position clutch ring spring [3] above gearbox [5].  
(Cup of spring to face up).
- Position clutch ring spring notches [1,2] over raised gearbox notches [1,2]. (Make sure spring is seated flat and fits firmly over both raised gearbox notches).

Proceed to **RECAPPING STEPS 1,2,3,4.**

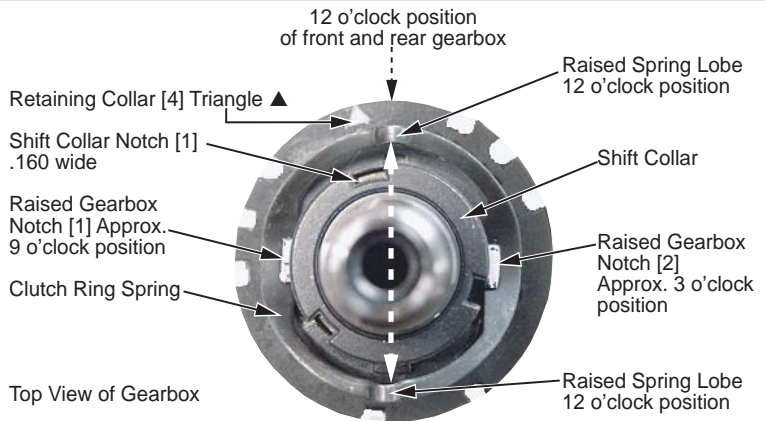


**STEP 4**

## RECAPPING STEPS 1,2,3,4

- Retaining collar [4] should be tightened completely (clockwise) with triangle ▲ in-line or slightly to the left of top 12 o'clock position.
- Shift collar notch [1] with a .160 wide opening must be in-line or slightly to the left of the 12 o'clock position of front gearbox. (Widest of the three openings in the shift collar).
- Raised spring lobes will be in-line with the 12 and 6 o'clock position of front gearbox.

Proceed to **STEP 5.**



## INSTALLING CLUTCH RING ONTO GEARBOX

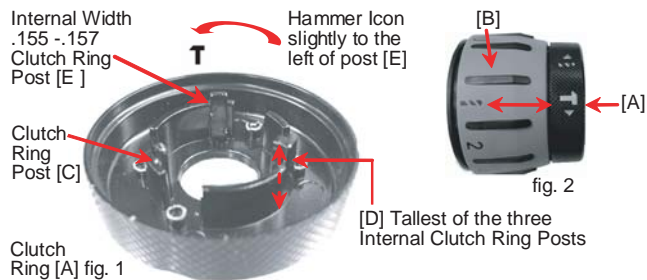
Before installing clutch ring assembly [A,B] onto gearbox...

- Locate and identify post [E] on the inside of clutch ring [A], fig. 1.
- Align hammer icon **T** on clutch collar [A] with drill bit icon **⚡** on collar [B], fig. 2.

This alignment will position internal post [E] slightly to the right of the hammer icon **T** stamped into outside cover [A] when clutch is viewed from the backside, as illustrated in step 6.

Proceed to **STEP 6.**

**NOTE:** Front Clutch Ring section [A] has been removed from section [B] for illustration only. Section [A,B] should remain together and not separated.



Rear view of (outside) Clutch Ring [A] to illustrate internal Clutch Ring Post widths and positions.

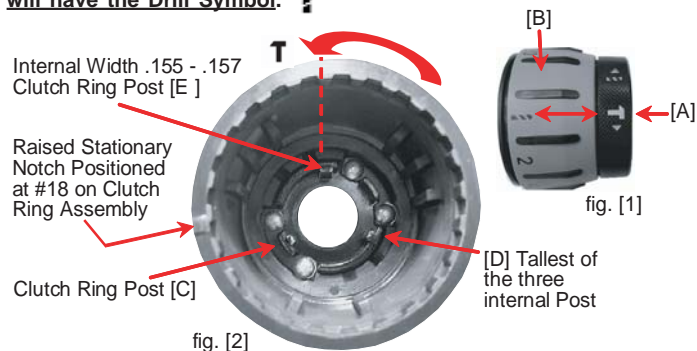
**STEP 5**

## INSTALLING CLUTCH RING ONTO GEARBOX

- Align two piece clutch assembly [A,B], as shown in fig. 1.
- Turn clutch ring assembly to position shown in fig. 2 to view internal clutch ring posts [C,D,E] for correct position prior to assembling clutch ring to gearbox.

Proceed to **STEP 7.**



12 o'clock position of Clutch Ring [B] will have the Drill Symbol. **⚡**



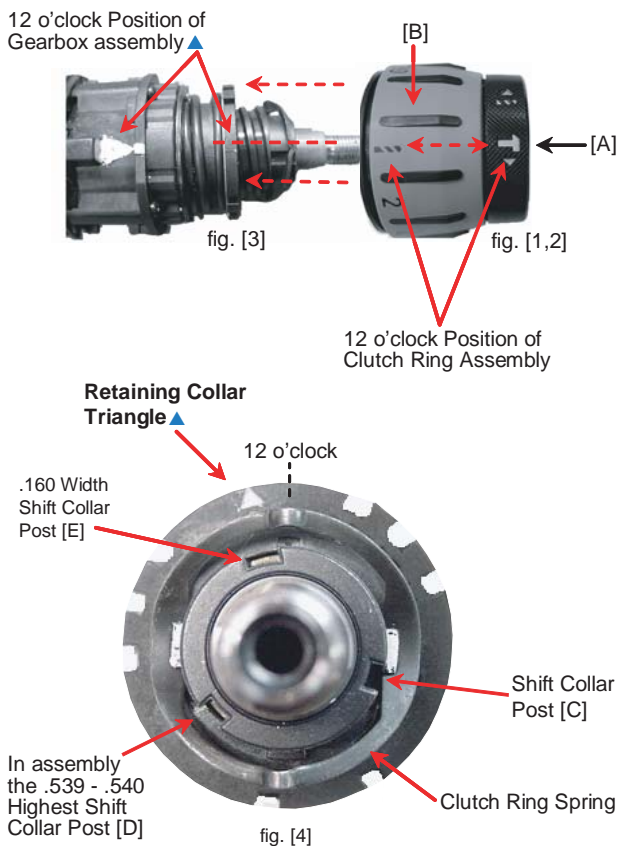
Picture shown with hammer symbol **T** aligned with drill symbol **⚡** ready for assembly.

**STEP 6**

### INSTALLING CLUTCH RING ONTO GEARBOX





- Hold gearbox assembly, fig. 3 in one hand with the 12 o'clock position facing up.
- Install clutch ring assembly [A,B], figs. 1,2 over gearbox assembly, fig. 3 in direction of arrows.
- Make sure drill symbol  and hammer symbol  stay in-line with the top 12 o'clock position of the gearbox when installing clutch ring.
- Failure to hold clutch ring symbols together, as shown in figs. 1,2, when installing clutch ring assembly, will result in a misalignment of the internal clutch ring post, shown / illustrated in step 5.

Proceed to STEP 8.






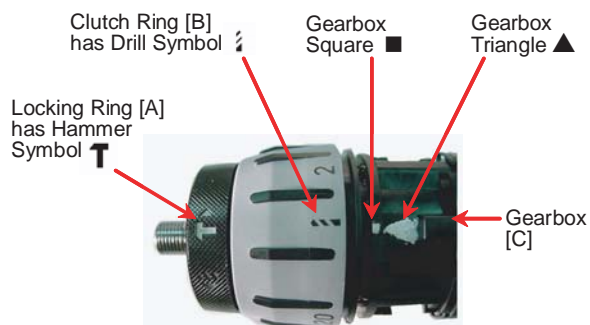
STEP 7

### TOP VIEW OF GEARBOX WITH CLUTCH RING INSTALLED

- Triangle  and square  located on gearbox [C], should be in-line with drill symbol  and hammer symbol  on clutch ring assembly [A,B].

Proceed to STEP 9.

 Gearbox square  and triangle  are highlighted for reference only.



STEP 8

### RIGHT SIDE OF GEARBOX WITH CLUTCH RING INSTALLED (As viewed from the front of the gearbox)

- Clutch ring [A,B], when properly installed, will have the number 18 and raised white stationary notch [D] (as viewed from the front of the gearbox) on the right side of gearbox [C] in-line with gearbox steel ball [E].



STEP 9