

**Parts Manual
PL31-55CS**

12/27/2013

DOTCO®

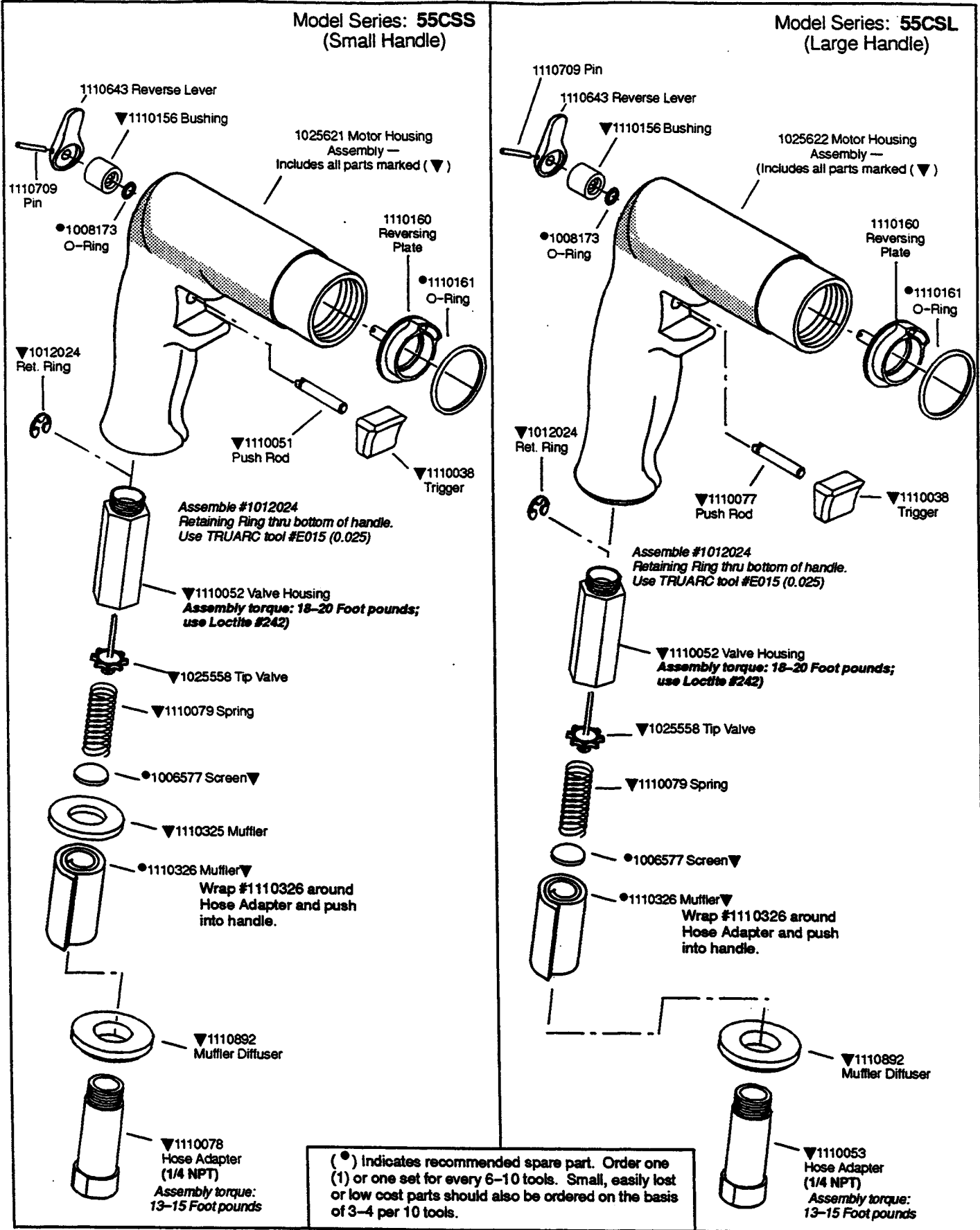
**55CS Series
Reversible Pistol Grip Drills**



	55	C	S	X	XX	-	XX	NL
<u>Series</u>								
55 = Reversible Drill								
<u>Throttle Type</u>								
C = Trigger Actuated								
<u>Motor Size</u>								
S = 0.5 HP								
<u>Handle Style</u>								
L = Large Grip								
S = Small Grip								
<u>Speed Code</u>								
91 = 3,650 RPM	95 = 900 RPM							
92 = 2,250 RPM	96 = 550 RPM							
93 = 1,350 RPM	97 = 350 RPM							
94 = 1,100 RPM								
<u>Termination Code</u>								
38 = 1/4" Jacobs Chuck	51 = 3/8" Jacobs Chuck (41BA)							
40 = No Chuck	52 = 1/4" Keyless Chuck							
42 = 1/4" Jacobs Chuck (7BA)	53 = 1/2" Jacobs Chuck (33BA) & Dead Handle							
47 = 5/16" Jacobs Chuck (20BA)	54 = 1/4" Internal Hex Slip Chuck							
<u>Extra Cost Option</u>								
NL = Oil-Free Blades								

For additional product information visit our website at <http://www.apextoolgroup.com>

55CSL & 55CSS Series Reversible Drills
Large & Small Handle Assemblies



DOTCO®
55CSL & 55CSS Series Reversible Drills

PL31-55CS
 August 31, 1994

Motor Assemblies

(*) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.

(*)

For Speed Code	Rotor Part Number	Number of Teeth (rotor)	Ret. Ring Part No.	Pinion Part Number	Motor Assembly Part Number
1, 5	1012811	—	1007548	1021745	1025624
2, 6	1012769	9T	—	—	1025625
3, 4, 7	1012812	5T	—	—	1025623

"OIL-LESS" ROTOR BLADES

"Oil-Less" rotor blades can be assembled in tools at extra cost, as follows.

Part Num.	Description
1019724	(4 each) blades installed by factory in tools. Order in tool by adding NL to end of model code.
1025413	Package of 100 (not assembled in tools)

RECOMMENDED SPARE PARTS LIST

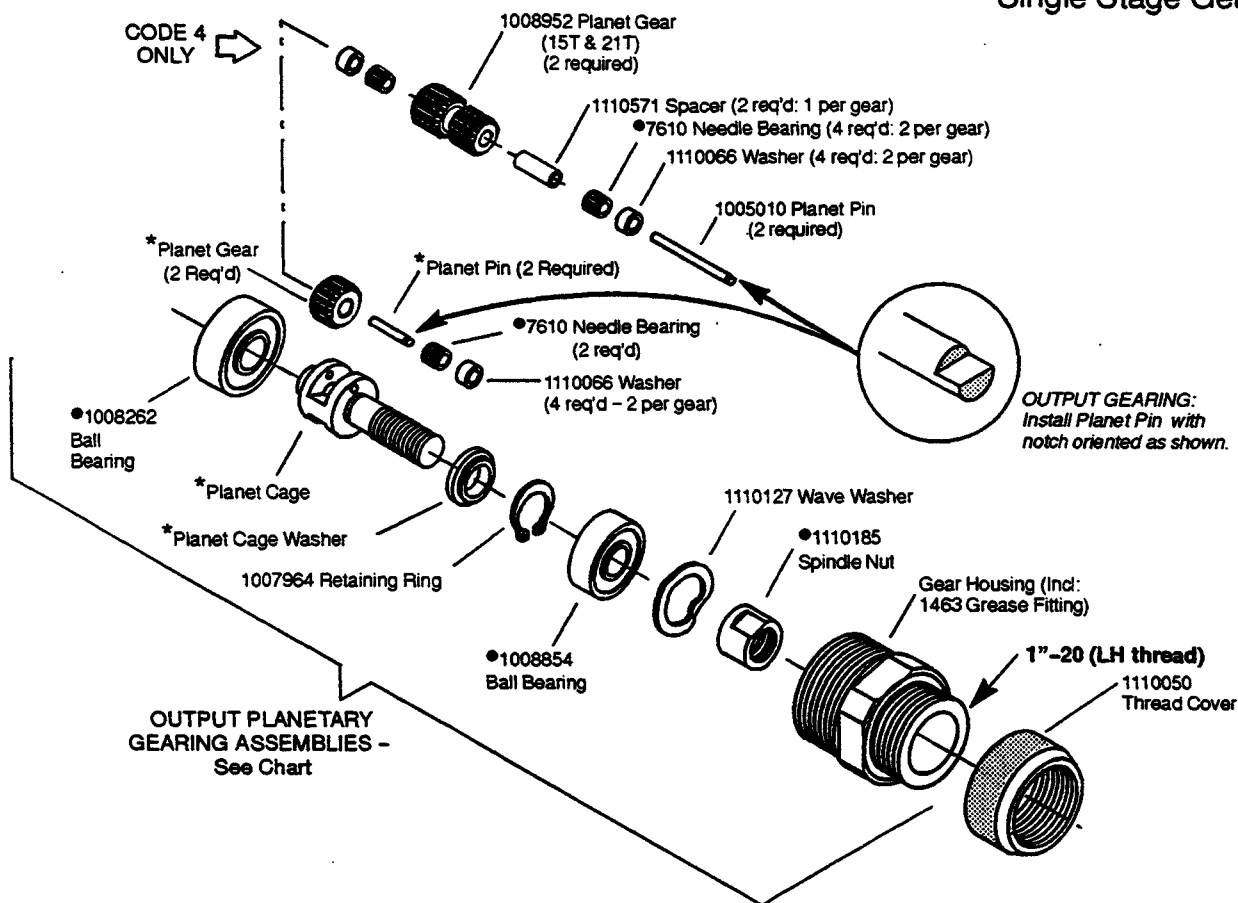
These parts are suggested as a recommended inventory of spare parts. Where parts are small, low cost, or easily lost, then we recommend stocking 3 to 4 for every 10 tools. Other larger, lower wear or more expensive parts should be maintained as one (or one set) for every six to ten tools.

Part Number	Description	Quan Per Tool	Recommended Spare Pts	
			Per Tool	Per 10 Tools
1005062	Ball Bearing (Codes 1-4)	1	1	2
	Ball Bearing (Codes 5-7)	2	2	4
1006577	Screen	1	2-3	3-4
1007537	B. Bearing (Codes 1-4)	1	1	2
	B. Bearing (Codes 5-7)	2	2	4
1008173	O-Ring	1	2-3	3-4
1008854	Ball Bearing	1	1	2
1008914	Rotor Blade	4	4	20
1008916	Front Plate	1	1	2
1008920	Planet Pin (Codes 1-3)	2	2	4
	Planet Pin (Codes 5-7)	4	4	8

Part Number	Description	Quan Per Tool	Recommended Spare Pts	
			Per Tool	Per 10 Tools
1008924	Plan. Roller (Codes 1-3)	24	24	50
	Plan. Roller (Codes 5-7)	48	48	100
1008977	Planet Pin (Code 4)	2	2	4
1009879	Ball Bearing	1	1	2
1012215	Rotor Nut	1	1	2
1110170	O-Ring	1	2-3	3-4
1110171	Rear Plate	1	0	2
1110172	Cylinder	1	1	2
1110185	Spindle Nut	1	1	2
1110326	Muffler	1	1	2

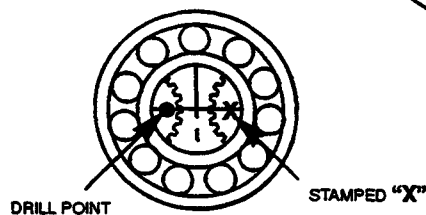
Models 55CSL & 55CSS Series Reversible Drills
Output Planetary Gearing Assemblies, Speed Codes 1, 2, 3 & 4 (Step)

Single Stage Gearing



OUTPUT PLANETARY
GEARING ASSEMBLIES -
See Chart

Models: 55CSL94
55CSS94



Speed Code "4" ONLY: Timing of the Step Reduction Gear Assembly

Assemble the planet gears into the planet cage, making sure the notched planet pins fit over the planet cage washer. Rotate each gear until the aligning hole — on the end of one gear — is diametrically opposite the "X" mark of the other gear. Hold the gears in this position and slip the planet cage into the internal gear. This is important to avoid "wiping out" the gear teeth.

This is the only position where the gear teeth are lined up.

(*)

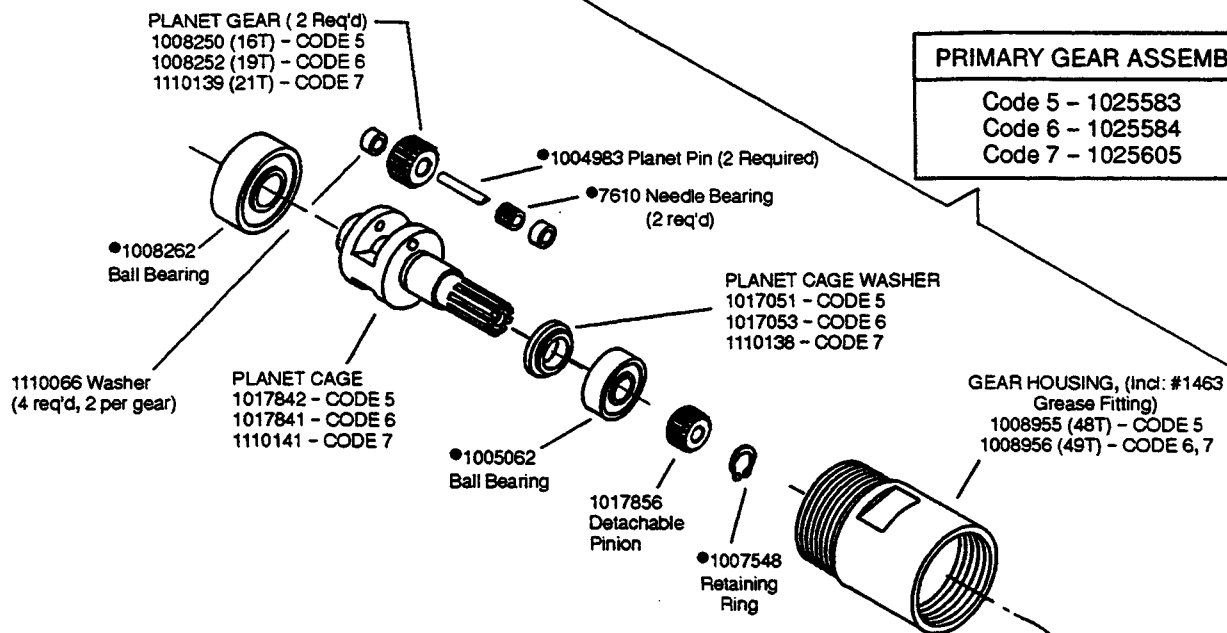
Part Name	MODEL:	55CSL91 55CSS91	55CSL92 55CSS92	55CSL93 55CSS93	55CSL94 55CSS94
	RPM:	3650	2250	1350	1100
	Speed Code:	1	2	3	4
GEAR ASSEMBLY (Complete)		1025933	1025564	1025567	1025568
Pl. Cage Washer		1110069	1110070	1110071	1110071
(diameter):		(0.743")	(0.677")	(0.636")	(0.636")
Gear Housing		1110040	1110042	1110042	1110063
(num. teeth)		(48T)	(49T)	(49T)	(43T)
Planet Cage		1110043	1110044	1110045	1110060
Planet Gears (2 ea.)		1008250	1008252	1110139	1008952
(num. teeth)		(16T)	(19T)	(21T)	(21T/15T)
Planet Pins (2 req'd)		1004983	1004983	1004983	1005010

(*) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.

DOTCO®
Models 55CSL & 55CSS Series Drills
 Planetary Gearing Assemblies, Speed Codes 5, 6 & 7

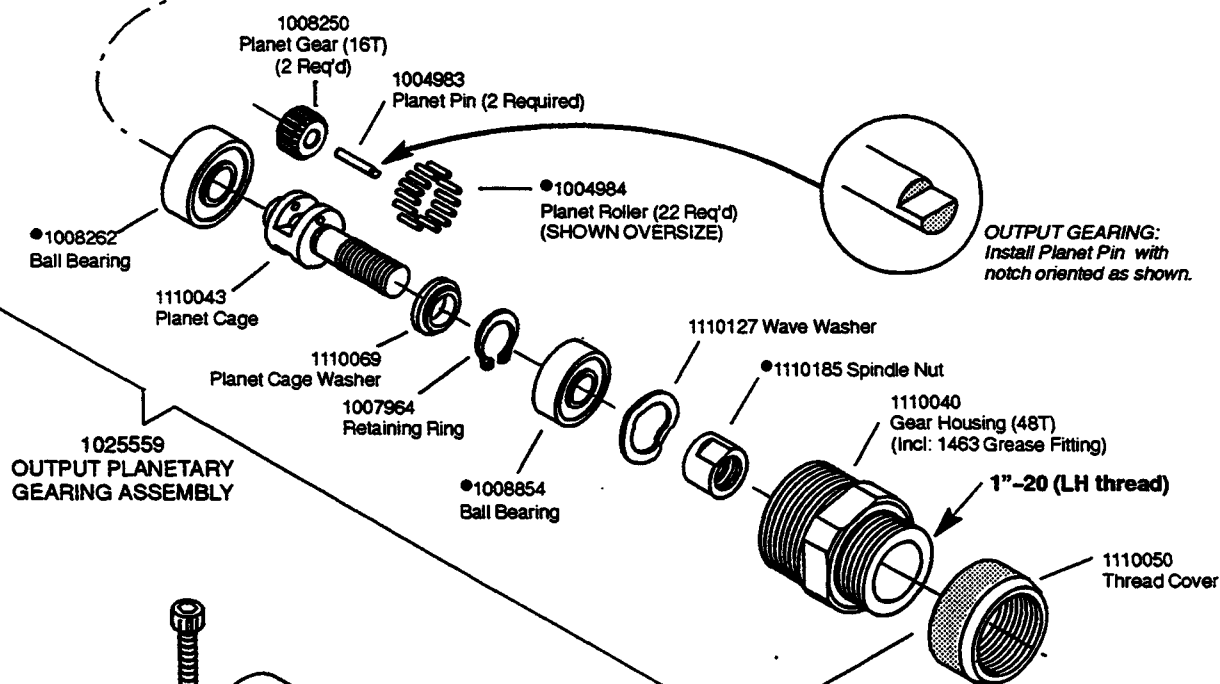
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Double Reduction Gearing



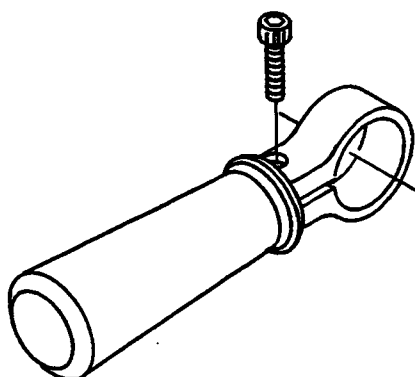
PRIMARY GEAR ASSEMBLIES

Code 5 - 1025583
 Code 6 - 1025584
 Code 7 - 1025605



1025559 OUTPUT PLANETARY GEARING ASSEMBLY

OUTPUT GEARING:
 Install Planet Pin with notch oriented as shown.

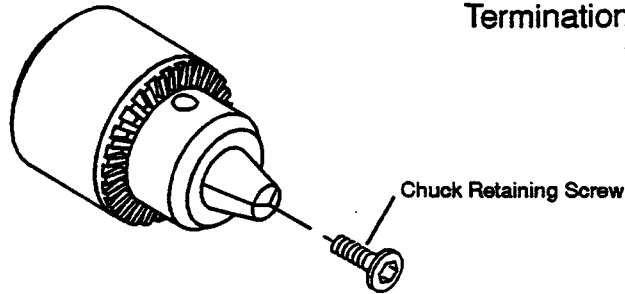


DEAD HANDLE, part #1023972
 Supplied with all TERMINATION 53 (1/2" chuck) models. Available as extra equipment on all others.

Includes:
 1007629 Cap Screw (1/4"-20 x 3/4")
 and 539603 Handle Grip

(*) Indicates recommended spare part.
 Order one (1) or one set for every 6-10 tools.
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Drill Chuck Options
Terminations 38, 42, 47, 51, 52 & 53

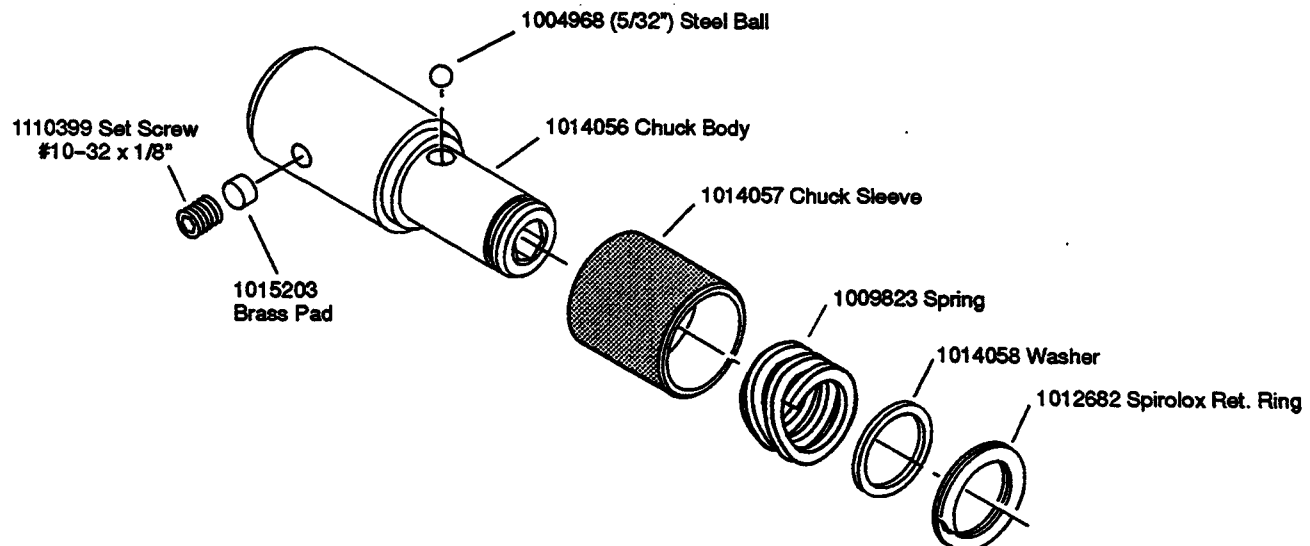


Drill Chuck Options, includes:

Termination Number	Chuck Part Number	Chuck Capacity	Thread Mount	Spindle Wrench	Chuck Retaining Screw (special)	Jacobs Description
-38	#1005078 (w/1005079 Chuck Key)	0 - 1/4"	3/8"-24	#1014471	#7095	#1BA (smooth sleeve)
-42	#1001505 (w/1005023 Chuck Key)	0 - 1/4"	3/8"-24	#1014471	#7095	#7BA (fluted sleeve)
-47	#863420 (w/Jacobs #KG Chuck Key)	0 - 5/16"	3/8"-24	#1014471	#7095	#20BA (fluted sleeve)
-51	#1001252 (w/1006375 Chuck Key)	0 - 3/8"	3/8"-24	#1014471	#1110366	#41BA (smooth sleeve)
-52	#14-1492 Keyless Chuck	0 - 1/4"	3/8"-24	—	—	—
-53	#1009726 (w/1005022 Chuck Key)	5/64" - 1/2"	3/8"-24	#1014471	#1110366	#33BA (fluted sleeve)

#1021679 Quick Change "Slip Chuck" Option
Termination 54

Termination Number	QC Chuck Part Number	Output Spindle	Thread Mount	Spindle Wrench
-54	#1021679	1/4" hex (internal)	3/8"-24	not req'd



LUBRICATION

Air Motor Lubrication

Use "Air Lube 10H-NR," which has a paraffin base. Air Lube is available from Cooper Power Tools in one gallon containers by ordering part number 533485. In-line oilers should be used, adjusted to yield about one drop per minute (not per cycle) initially. Oiler adjustments vary (50 clicks/drop, 20 clicks/drop, etc.). If in doubt, contact your supplier. Each time the tool cycles, a drop or partial drop is released into the tool.

Planetary Gear Lubrication

Use teflon grease, available from Cooper Power Tools in one pound cans, under part number 513156. Establish a routine inspection and re-lubrication program, **don't short cut**. Re-lubricate planetary by filling 1/3 to 1/2 full. Midget grease fittings are provided on the gear housings and internal gears for external lubrication.

During periodic maintenance, re-lubrication or service where the gears are not replaced, use Cooper's teflon grease. Fill 1/3 to 1/2 full but do not overfill. Too much grease will cause overheating.

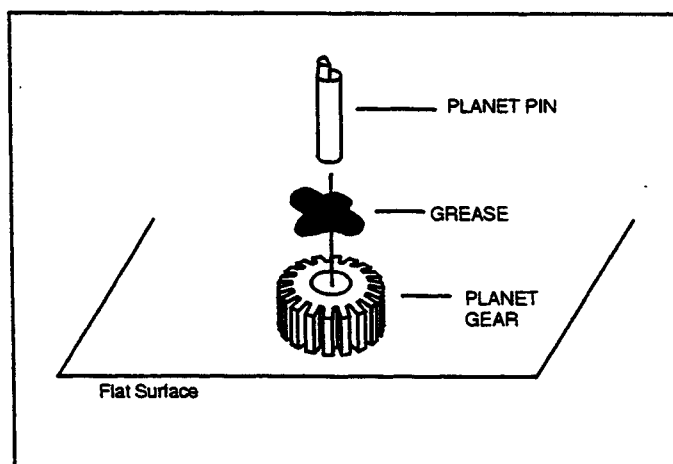
OPERATION

The reversible ERGO drills operate in the right hand direction when the lever at the rear of the housing is turned toward the right, and the left hand direction when the lever is switched toward the left.

GEARING REASSEMBLY

Planetary Gearing

Place a small amount of grease in each planet gear, as illustrated at right, and place on a smooth clean surface. Insert a planet pin — notched end up — in each gear. Then, install the correct number of rollers (11) around each gear. Grease will hold the rollers in position when the planet gears are removed.

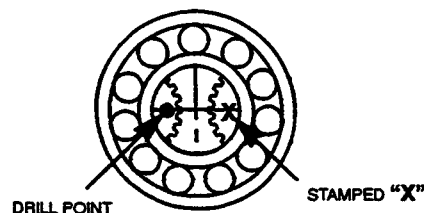


Timing of the Step Reduction Gear Assembly:

Assemble the planet gears into the planet cage, making sure the notched planet pins fit over the planet cage washer. Rotate each gear until the aligning hole — on the end of one gear — is diametrically opposite the "X" mark of the other gear. Hold the gears in this position and slip the planet cage into the internal gear. It's important to avoid "wiping out" the gear teeth.

This is the only position where the gear teeth are lined up.

Models: 55CSL94
55CSS94



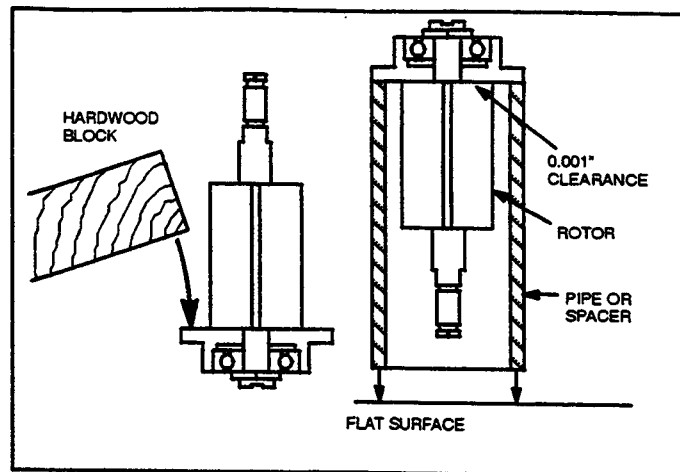
MOTOR REASSEMBLY

1. Install ball bearings into both the front and rear plates.
2. Assemble rotor to rear plate/bearing assembly with the rotor's retaining nut. **Position and set the rotor as close as possible to the rear plate, without dragging or rubbing.**
 - a. A good practice is to stone the blade slots and polish the ends with a medium grit emery cloth.
 - b. Assemble components making sure the bearing is firmly seated in the rear plate.

3. Begin tightening rotor nut without overtightening to avoid damaging the ball bearing. Alternately spin the rotor while tightening until clearance is judged to be proper — **about 0.001" clearance**.

a. One method, shown at right, is to use a piece of pipe which is slightly longer than the rotor, and tap lightly against a work bench several times. This helps seat threaded components.

b. A second method is to hold the rotor/rear plate assembly vertically (plate downward) and lightly strike the edge of the plate with a wood block, alternating sides.



PARTS INSPECTION

1. Wash all parts except ball bearings in solvent. Dry and place on a clean cloth for inspection.
2. Check ball bearings for wear. Bearings should turn smoothly with no appreciable shake or looseness.
3. Check rotor blades for wear by comparing with a new blade.

Replace if worn more than 1/32" in height.

4. Check motor cylinder for grooves, gouges or pitting. Honing is permissible, however, never remove more than about 0.001" or 0.002" of material. Replacement is usually recommended.

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

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2630 Superior Court
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Lexington, South Carolina

Apex Tool Group
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