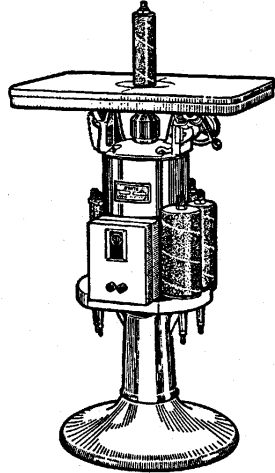


STATE



B-4

Spindle Sander

Operator's Manual

FOR YOUR OWN SAFETY

Before Assembling & Operating This Sander, Read This Operator's Manual Carefully & Completely. Become Familiar With The Operation, Applications & Potential Hazards Peculiar To This Sander.

Check To Make Sure That There Is No Apparent Damage From Shipment Before You Begin To Unpack & Set The Sander Up For Operation. Report Any & All Damages Immediately To The Carrier.

STATE Sanders Limited Warranty

We warrant that within one (1) year from date of shipment, provided sander has been installed and operated in accordance with its respective Operator's Manual, we will replace or repair at our option, free of charge, any part or parts which upon our examination are found to be defective in workmanship or material.

For a period of ninety (90) days from date of shipment, a State Sander which cannot be repaired by the customer, in the field, will be returned to State Manufacturing or FREEMAN Manufacturing & Supply Company in Cleveland, OH, at our cost for the necessary repairs to be performed and returned at no cost to the customer. We cannot however, provide a loner during this time period.

After ninety (90) days from date of shipment, a nominal per hour labor charge, plus expenses, will apply to cover any labor necessary to repair a State Sander either in the field, or at State Manufacturing, or at FREEMAN Manufacturing & Supply Company in Cleveland, OH.

FREEMAN Manufacturing & Supply Company

Exclusive Distributor of State Sanders & Accessories

1246 W. 70th Street, Cleveland, OH , 44102, 800-321-8511, FAX 216-961-9233



STATE B-4 Spindle Sander w/ Tilt Table

Description and Specifications

Your STATE B-4 Spindle Sander, with Tilt Table and POSITIV-LOK Spindles is one of the most popular and dependable Spindle Sanders made for wood and metal sanding applications.

The POSITIV-LOK Spindles are designed and manufactured to provide the safest and quickest means of changing Spindles. By just turning the Drawbar Cap of the Spindle either counterclockwise (for removal) or clockwise (for installation) the Spindles can be changed that easily.

The work height is unrestricted because the Abrasive Sleeves are securely mounted in place below the table.

The Tilt-Table feature also adds to the versatility of this Sander.

Other features include:

♦ **Spindle speed of 1725 rpm** – which provides the necessary performance to meet a wide range of shop applications.

♦ **Large, 20" x 24" Tilt Table**, operated by a worm and gear mechanism, features a tilt range of 15° "up" and 45° "down". The Table can be "locked" into the horizontal position.

♦ **Integral Spindle Tray** for convenient storage of eleven (11) Spindles.

♦ **The Oscillating Spindle Mechanism and related bearings operate in a bath of oil** for smooth, quiet and wear resistance operation.

♦ **All controls are located within easy reach** contributing to safer operation.

Sander Specifications

Table Size 20" x 24"
Table Height (from floor) 40"
Table Tilts 15° up, 45° dwn
Spindle Speed 1725 rpm
Vertical Oscillation @ 90 spm 1-5/8"
Drum Dia. (Max Cap). 4"
Floor Space Required 20" x 24"
Shipping Weight 280 lbs.

Standard Equipment

- ♦ Throat Rings (3)
- ♦ Garnet Abrasive Sleeves (10)
- ♦ Expandable Rubber Drums (5)
1", 1-1/2", 2", 3" & 4" dia. sizes
- ♦ POSITIV-LOK Drawbar Spindles (10)
- ♦ Motors and Controls

Accessories

Cat. No.

Throat Rings (small) 018056
Throat Rings (med) 018057
Throat Rings (large) 018058
POSITIV-LOK Spindles
1/4 x 5 (1 incl) 018432
3/8 x 6 (1 incl) 018431
1/2 x 6 (1 incl) 018430
5/8 x 6 (1 incl) 018429
3/4 x 9 (5 incl) 018428
3/4 x 9" (1 incl) 018426

* For use without Rubber Drum

Spindle Sizes (inches)

- ♦ 1/4" d. x 5"
- ♦ 1/2" d. x 6"
- ♦ 3/4" d. x 9"
- ♦ 1-1/2" d. x 9"
- ♦ 3" d. x 9"
- ♦ 3/8" d. x 6"
- ♦ 5/8" d. x 6"
- ♦ 1" d. x 9"
- ♦ 2" d. x 9"
- ♦ 4" d. x 9"

* Includes Expandable Rubber Drums

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1	Description & Specifications
2	Safety Precautions
3 & 4	Sander Set-Up & Operation
4	Sander Maintenance & Repair
5	B-4 Sander Illustration
6	Tilt Table Assembly
7 & 8	Oscillating Mechanism
9	POSITIV-LOK Spindles (Current Model Sander)
10	POSITIV-LOK Spindles (Old Model Sander)
10	Miscellaneous Parts

Ordering Information

Cat. No	Description	Motor Specs.				Switch
		HP	Volts	Ph	HZ	
018215	B-4 Spindle Sander	1/2	115 / 230	1	60	Magnetic
018220	B-4 Spindle Sander	1/2	230 / 460	3	60	Magnetic



STATE B-4 Spindle Sander w/ Tilt Table



Safety Precautions



- 1. KNOW YOUR SANDER**
Read this Operator's manual carefully and completely before attempting to operate the Sander. Make sure you are aware of and understand this Sander's capabilities, limitations as well as any potential operating hazards.
- 2. AVOID ACCIDENTAL STARTING**
Make sure that the Sander is "OFF" by depressing the "STOP" button on the Control Box. Do this BEFORE plugging the power cord into the electrical power supply.
- 3. GROUND SANDER**
To protect against electrical shock, this Sander should be properly grounded in accordance with local electrical codes. READ SET-UP INSTRUCTIONS.
- 4. CLEAR TILT TABLE OF ALL OBJECTS BEFORE STARTING SANDER.**
- 5. SECURELY MOUNT SANDER INTO POSITION.**
Make sure that once you've decided on the location of your Sander, bolt it securely to the floor.
- 6. WEAR APPROPRIATE CLOTHING**
Wear safety glasses. DO NOT wear loose fitting clothing or jewelry (unbuttoned sleeves or shirts, etc.) which could get caught in moving parts.
- 7. ALWAYS MAINTAIN SAFE OPERATING POSITIONS.**
Stay within convenient reach of START-STOP control AT ALL TIMES while operating Sander. Maintain good footing and balance while operating Sander.
- 8. KEEP WORK AREA CLEAN**
Cluttered work areas, work surfaces and slippery floors from oil or wood dust invite accidents.
- 9. AVOID DANGEROUS WORK ENVIRONMENT.**
Keep work area well illuminated and clear of unnecessary objects. Allow for sufficient space around Sander to operate and perform sanding operations safely.
- 10. SECURELY HOLD WORKPIECE TO BE SANDED.**
Make sure that the piece to be sanded is held flat and secure during all sanding operations.
- 11. KEEP WORK AREA CLEAR OF VISITORS DURING SANDING OPERATIONS.**
Any and all visitors should be kept at a safe distance from the Sander during all preparation and sanding phases.
- 12. MAINTAIN SANDER IN TOP OPERATING CONDITION.**
Use proper Abrasives for the type of material to be sanded and keep the Sander as clean as possible at all times. This practice will contribute to safe and reliable Sander operation.
- 13. USE ONLY RECOMMENDED ACCESSORIES.**
The use of accessories NOT MANUFACTURED FOR THIS SANDER could contribute to unsafe Sander operation and performance.

IMPORTANT

Disconnect Power Cord From Electrical Supply BEFORE Attempting To Perform Any Service On This, Or Any Other Piece Of Machinery



STATE B-4 Spindle Sander w/ Tilt Table

Set-Up Instructions

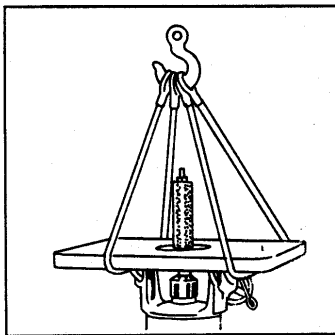
1. While using proper tools and wearing proper safety apparel, carefully unpack your Spindle Sander.

NOTE: Accessory package is located in the base of the crate.

WARNING: Spindle Sander weighs around 280 pounds (126 kilos) so make sure that the equipment used to unload and locate the Sander has the capacity to handle the Sander safely. We recommend that the Sander be lifted and set into position rather than rolling it on its base. Rolling this Sander on its base is awkward and could result in injury to the person(s) handling or damage could be caused to the Sander from dropping it.

2. Locating the Sander in your shop where it will be operated can be done in two ways. One way is to use an industrial lifting device with a sling attached to the Sander as shown below. Another method is to have two persons CAREFULLY move the Sander into position.

WARNING: ONE PERSON SHOULD NOT attempt to lift and move Sander into position because of possibly incurring personal injury due to the Sander's weight.



Sling-lift Method Of Moving Sander

3. Carefully inspect Spindle Sander when uncrating it to make sure that nothing is damaged from shipment. Also, make sure that all Accessories are included.

CAUTION: Check to make sure that there is no evidence of damage to electrical controls, handles, base, table or tilt mechanism.

Check oil level by simply viewing the Sight Glass. Proper oil level should fill at least one-half of the tube. If oil level is low, REFER TO THE "MAINTENANCE SECTION" of this Owner's Manual for instructions about adding oil.

4. If there is any apparent damage to Spindle Sander, we recommend that a report be filed immediately with the delivering carrier.

5. Once Sander is located in its permanent position, level it by shimming it where necessary. Mounting the Sander to the floor is optional because its weight is normally adequate to keep it in position during sanding operations.

6. ELECTRICAL INFORMATION

(Wiring Diagrams can be found on the inside of the Control Panel Lid).

This Spindle Sander is furnished with either single-phase or three-phase motors. Single-phase type Sanders, wired for 115 volt, AC circuits, are supplied with a Power Cord that can be plugged into any standard, grounded outlet. Single-phase, 230 volt, AC, or three-phase type Sanders must have power wired directly to their switches.

CAUTION: Check electrical tag on Sander when you unpack it to make sure that the correct motor has been supplied. If necessary, contact a licensed electrician to make sure that the Sander is wired to satisfy local electrical codes.

Operating Instructions

1. Once all safety precautions have been read understood and followed, plug Sander into grounded power supply.

IMPORTANT: Your Sander is equipped with a full voltage Starter that features an overload protector.

Press "START" Button and then press "STOP" Button to make sure the electrical controls work properly.

Press "START" Button again and make sure that the Spindle is rotating in a counterclockwise direction.

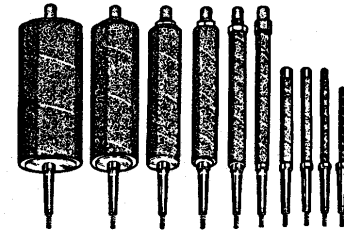
IMPORTANT: If Spindle is not rotating in a counterclockwise direction, "STOP" Sander IMMEDIATELY and unplug it from the power supply. Contact a licensed electrician or call our Service Department TOLL FREE @

1-800-321-8511

2. Unpack all Spindles and Throat Rings from the compartment in the base of the crate.

NOTE: The four (4) smaller Spindles and one of the larger Spindles do not have any nuts on the top. The Sleeves for these Spindles slide directly over the Spindle and set into the flange where they are secured by a Set Screw.

The types of Spindles supplied with the Sander are illustrated below.



3. To Assemble Spindles – match up Washer with Drum size. Place one (1) Washer over and onto Spindle. Place Rubber Drum onto Spindle. Slide Abrasive sleeve over Drum and hold it in place while you tighten Top Nut of Spindle. This tightening will compress the Rubber Drum enough to hold the Abrasive Sleeve in place for sanding operations.

CAUTION: Tighten Top Nut only enough (hand tight) to secure Abrasive Sleeve against Rubber Drum.

IMPORTANT: When Spindles are not being used, it is recommended to loosen the Spindle Nut which will decompress the Rubber Drum enough to maintain its original diameter.

4. Once spindles are assembled, store them on the Spindle Storage Tray where they will be conveniently available for use when you need them.

5. Select one of the three Throat Rings supplied with the Sander to correspond to the size Spindle to be used. Set the Throat Ring into the cavity which can



STATE B-4 Spindle Sander w/ Tilt Table

(Operating Instructions Step 5 cont.)
be found in the top of the Table.

CAUTION: The Spindle Sleeve should pass through the Throat Ring without interference.

6. To Install Spindles – Place Spindle into Dust Shield opening and turn the knurled tip of the Spindle CLOCKWISE to lock Spindle into position.

CAUTION: If Spindle DOES NOT seat properly, check the female portion of the Spindle for any obstruction. If there is no obstruction and there still seems to be an improper seating, call our TOLL FREE number @

1-800-321-8511

7. To Perform Sanding Operation–

- ♦ Maintain a comfortable stance and operating position during all sanding operations.



- ♦ Make sure workpiece to be sanded is always in firm contact with the surface of the Tilt Table.

- ♦ DO NOT "hog-in" workpiece when sanding because the quality of the resulting finish will be less than desirable.

- ♦ Make sure Taper Pin is removed from the Tilt Table Segment BEFORE attempting to adjust the angle of the Tilt Table. If Taper Pin is NOT REMOVED, damage can occur.

- ♦ Make sure to keep work area around Sander clean and free of unnecessary debris which could contribute to an accident.

Repair & Maintenance

WARNING: Before performing any maintenance or making any major adjustments on the Sander, UNPLUG POWER CORD of Sander.

1. The Bearings in this Spindle Sander are permanently sealed and lubricated . . . NO OILING IS NECESSARY.

2. This Spindle Sander DOES NOT NEED GREASING.

3. The Oscillating Mechanism of this Spindle Sander operates in a bath of oil.

IMPORTANT: As long as the oil is maintained at the proper level (half full in the Sight Glass), the Oscillating Mechanism will provide many years of trouble-free performance. If the oil should fall below the proper level, the following action should be taken:

- ♦ Use 20W, non-detergent oil.
- ♦ Pour oil into the oil cup (located just above the Sight Glass) to fill the Sight Glass half way.

4. Check Spindle Sander for worn parts periodically to ensure that Sander is always in top operating condition .

CAUTION: If dust or oil is allowed to collect and build up without regular cleaning and maintenance, unnecessary wear could occur.

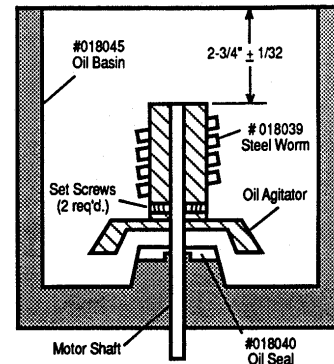
Maintenance Of Abrasive Sleeves

The best way to increase the life and performance of any Abrasive is to keep it clean and free from "pitch" build-up.

The easiest way to assure that your Abrasive Sleeves are maintained in top condition is to use a FREEMAN Abrasive Cleaner Bar regularly (order # 136850).

It's easy to use – just press the Abrasive Cleaner Bar (with both hands) against the Abrasive Sleeve while it is rotating. The pitch will be removed from the Sleeve easily. By using the Abrasive Cleaner Bar, your Abrasive Sleeve will last 3 to 4 times longer and the burning and chatter caused by pitch loaded abrasives will be virtually eliminated.

IMPORTANT – Removal & Installation Of #018018 Table Support & Housing Cap



Whenever #018018 Table Support & Housing Cap is removed and reinstalled, make sure that #018039 Steel Worm is $2\frac{3}{4}" + \frac{1}{32}"$ below top of #018045 Oil Basin. If Steel Worm exceeds $2\frac{3}{4}"$, #018022 Female Spindle could slip out of the #018039 Steel Worm. This could cause a jam on the downstroke and the breakage or bending of #018035 Oscillating Bracket or #018036 Oscillating Crank.

Replacing #018035 Oscillating Bracket See Dwg. Page 7

When replacing #018035 Oscillating Bracket, check the assembly by "hand rotating" to the top of the stroke. If the #018035 Oscillating Bracket does not have clearance of $\frac{1}{16}"$, file or grind it to allow for the proper clearance and travel.

Installation Of #018051 Dust Collector Adaptor

1. Mark rear of #018004 Tilt Table. (The front of the Sander where the START-STOP Switch is located.)

2. Remove #018004 Tilt Table.

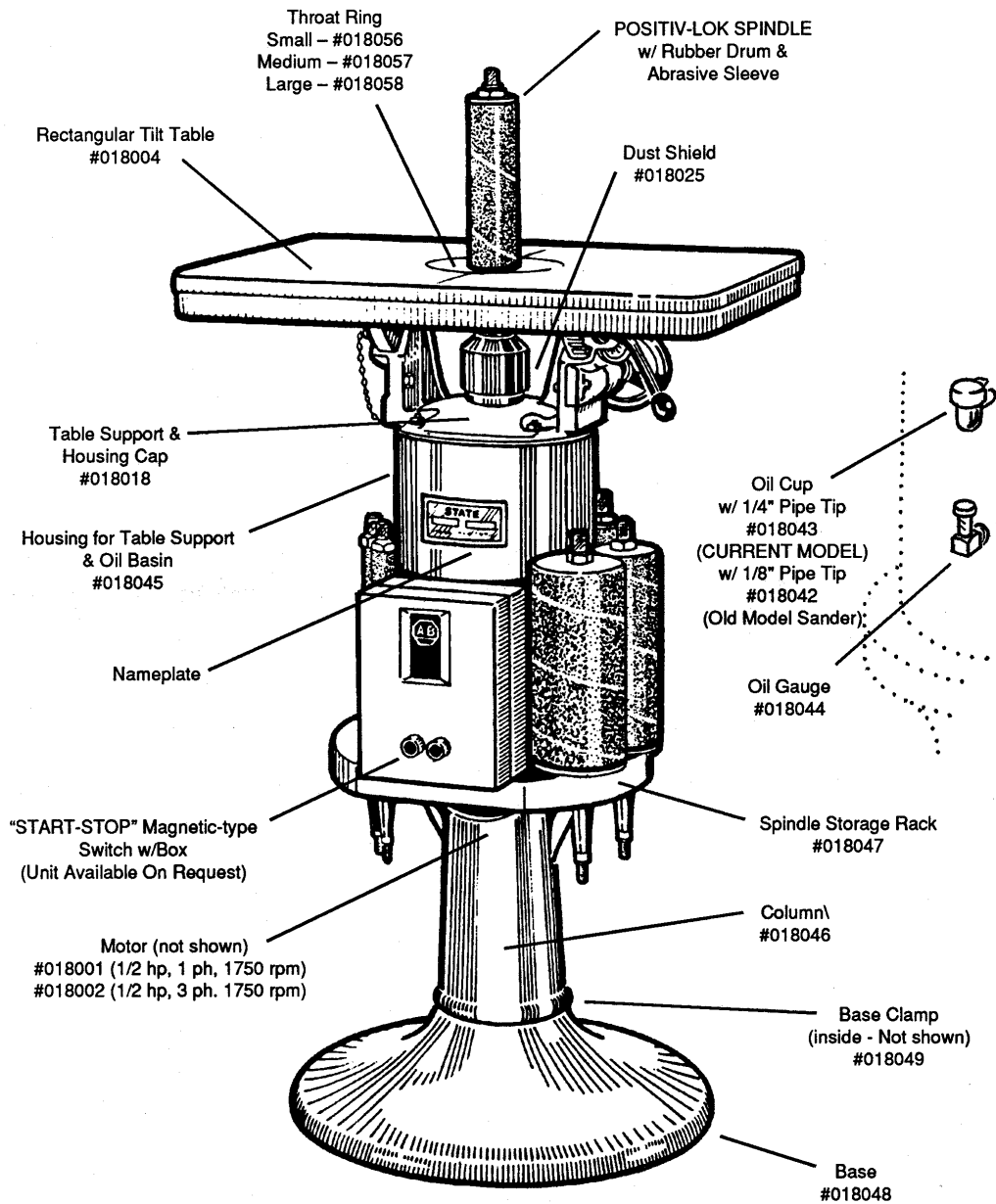
3. Position #018051 Adaptor on Tilt Table toward rear and drilled holes located at intersection of ribs.

4. Drill and tap (#20x10-32) holes.

5. Install Adaptor to Tilt Table and reassemble Table to Sander.



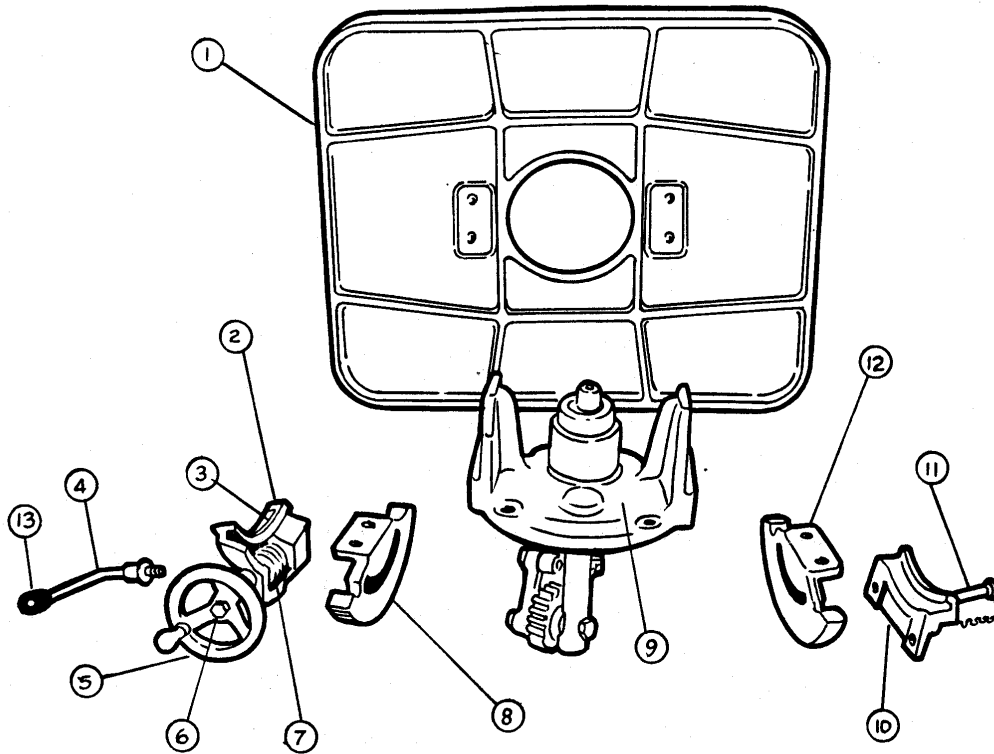
STATE B-4 Spindle Sander w/ Tilt Table





STATE B-4 Spindle Sander w/ Tilt Table

Tilt Table Assembly

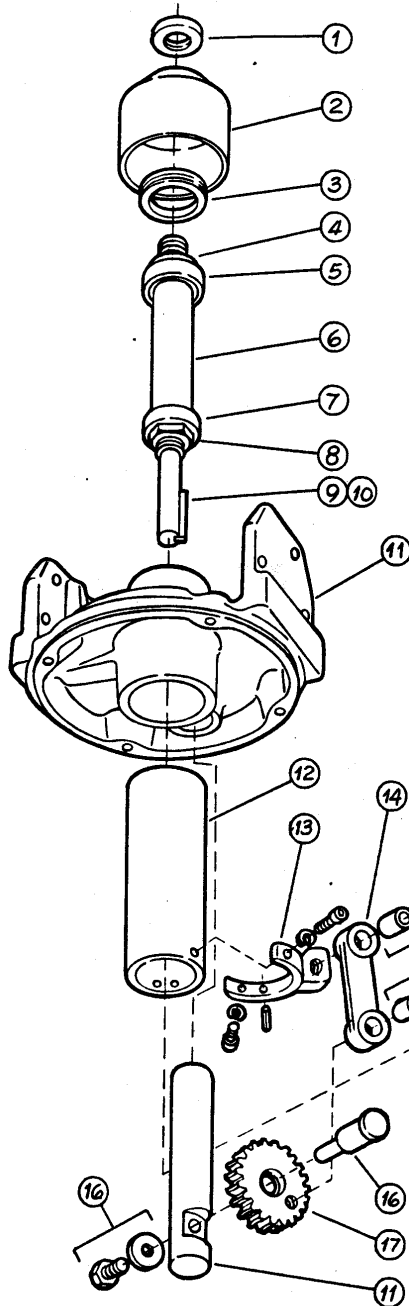


Key #	Cat. No.	Description	Key #	Cat. No.	Description
1	018004	Tilt Table	8	018009	Table Tilt Male Segment (for Worm Gear)
2	018010	Table Tilt Female Segment (for Worm Gear)	9	018018	Table Support & Housing Cap
3	018011	Table Tilt Graduation	10	018008	Table Tilt Female Segment
4	018013	Table Tilt Lock Handle	11	018012	Table Tilt Tapered Pin
5	018016	Table Tilt Handle	12	018007	Table Tilt Male Segment
6	018015	Table Tilt Worm Gear Shaft	13	018017	Knob Lock Handle
7	018014	Table Tilt Steel Worm Gear			

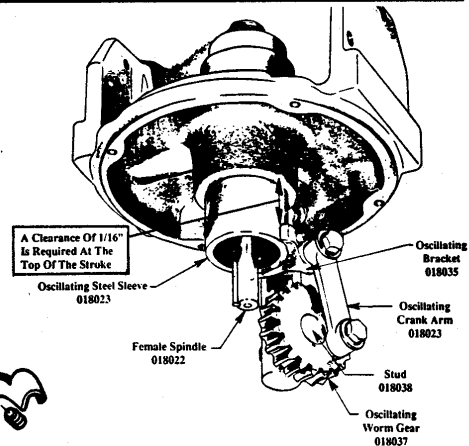


STATE B-4 Spindle Sander w/ Tilt Table

Oscillating Mechanism Parts (Current Models)



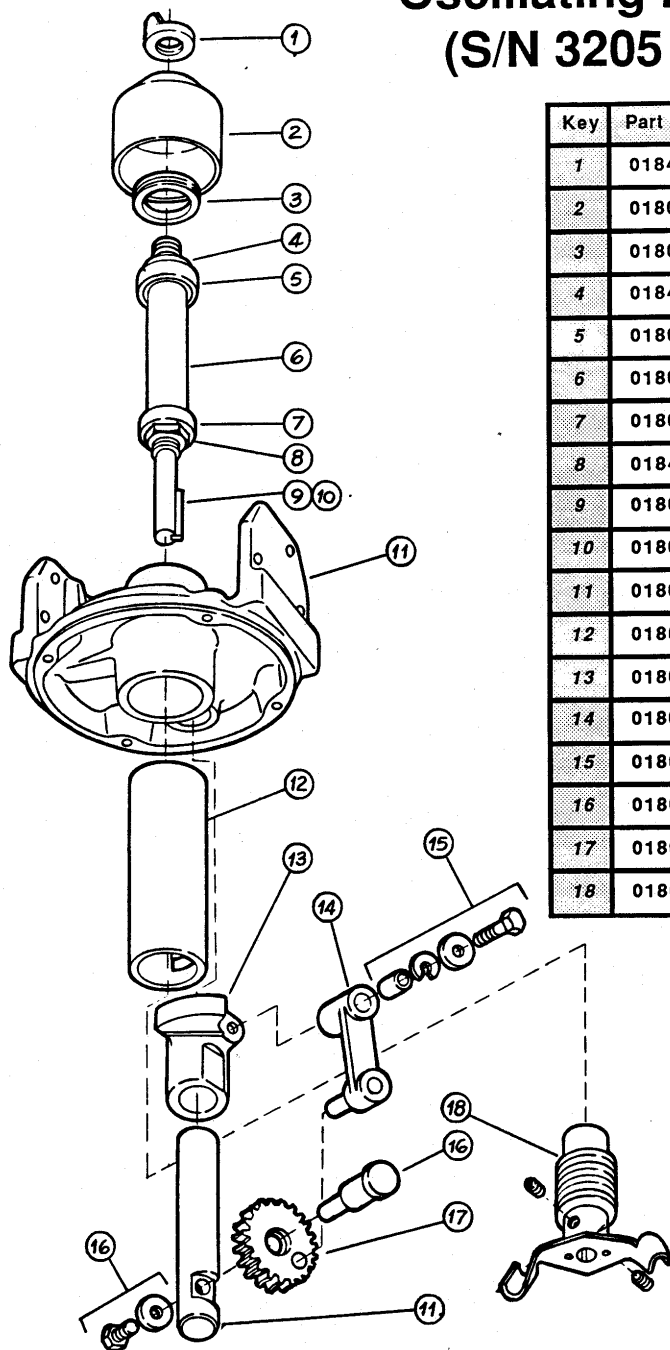
Key	Part No.	Description
1	018458	Dust Shield Retaining Nut
2	018025	Dust Shield
3	018050	Retaining Ring (for Upper Spindle Bearing)
4	018458	Retaining Nut (for Upper Spindle Bearing)
5	018026	Upper Spindle Bearing (larger than 018027)
6	018022	Female Spindle
7	018027	Lower Spindle Bearing
8	018459	Lower Bearing Retaining Nut
9	018076	Keyway
10	018077	Spring Pins for Keyway (2 req'd.)
11	018018	Table Support & Housing Cap
12	018023	*OSC* Steel Sleeve
13	018035	*OSC* Bracket
14	018036	*OSC* Crank Arm w / Bushings
15	018070	Bushing, Bolt, Washers (2 sets req'd.)
16	018038	*OSC* Worm Gear Stud w/ Bolt & Washer
17	018037	*OSC* Worm Gear
18	018039	*OSC* Steel Worm w/ (2) Set Screws





STATE B-4 Spindle Sander w/ Tilt Table

Oscillating Mechanism Parts (S/N 3205 & Below Models)

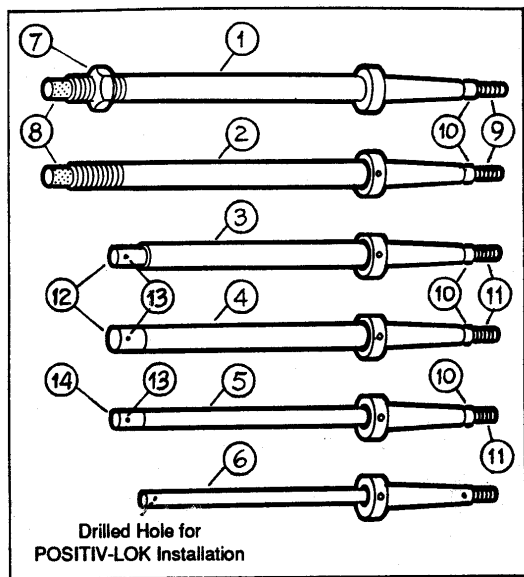


Key	Part No.	Description
1	018457	Dust Shield Retaining Nut
2	018025	Dust Shield
3	018050	Retaining Ring (for Upper Spindle Bearing)
4	018458	Retaining Nut (for Upper Spindle Bearing)
5	018026	Upper Spindle Bearing (larger than 018027)
6	018022	Female Spindle
7	018027	Lower Spindle Bearing
8	018459	Lower Bearing Retaining Nut
9	018076	Keyway
10	018077	Spring Pins for Keyway (2-req'd.)
11	018018	Table Support & Housing Cap
12	018024	*OSC* Steel Sleeve
13	018065	*OSC* Bracket
14	018034	*OSC* Crank Arm
15	018069	Bushing, Bolt, Washers
16	018038	*OSC* Worm Gear Stud w/ Bolt & Washer
17	018066	*OSC* Worm Gear
18	018039	*OSC* Steel Worm w/ (2) Set Screws

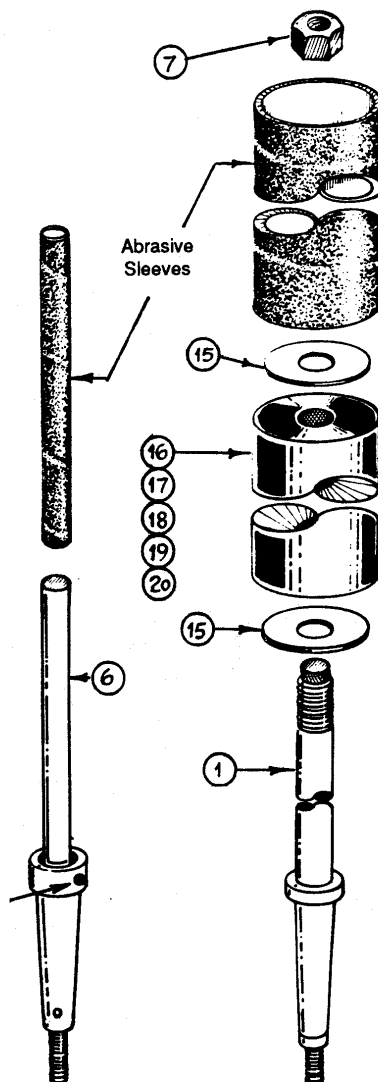


STATE B-4 Spindle Sander w/ Tilt Table

POSITIV-LOK Spindles (Current Model)



*Set Screw for
Securing Abrasive
Sleeves
(each size)*

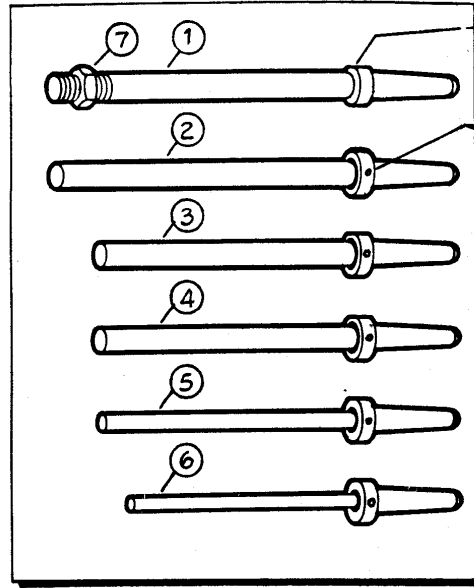


Key #	Cat. No.	Description	Key #	Cat. No.	Description
1	018428	Spindle - 3/4" x 9" (For Drums)	11	018059	Short Rod
2	018426	Spindle - 3/4" x 9"	12	018072	Collar - 1/2" & 5/8"
3	018429	Spindle - 5/8" x 6"	13	018073	Spring Pin
4	018430	Spindle - 1/2" x 6"	14	018071	Collar - 3/8"
5	018431	Spindle - 3/8" x 6"	15	018461	Washer for Rubber Drums
6	018432	Spindle - 1/4" x 5"	16	133220	Expanding Rubber Drum - 1" dia.
7	018064	Drum Compression Nut	17	133230	Expanding Rubber Drum - 1-1/2" dia.
8	018460	Knurled Nut	18	133235	Expanding Rubber Drum - 2" dia.
9	018055	Long Rod	19	133245	Expanding Rubber Drum - 3" dia.
10	018060	Lower Collar	20	133250	Expanding Rubber Drum - 4" dia.



STATE B-4 Spindle Sander w/ Tilt Table

Spindles (Old Model Sander)

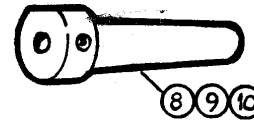


Flat spot to prevent Spindle from turning in Female Spindle

Set Screw for Securing Abrasive Sleeves
(each size - except #1)

IMPORTANT: The Skill Rods that fit the Skill Rod Adaptors listed below, are no longer available.

Skill Rod Adaptors for B-4 Spindle Sanders (Old Model Sander)



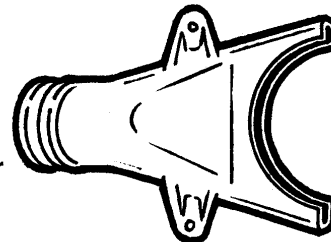
Key #	Cat. No.	Description	Key #	Cat. No.	Description
1	018021	Spindle - 3/4" x 9" (For Drums)	6	018032	Spindle - 1/4" x 5"
2	018028	Spindle - 3/4" x 9"	7	018064	Drum Compression Nut
3	018029	Spindle - 5/8" x 9"	8	018061	1/8" Adaptor Skill Rod
4	018030	Spindle - 1/2" x 6"	9	018062	3/16" Adaptor Skill Rod
5	018031	Spindle - 3/8" x 6"	10	018063	1/4" Adaptor Skill Rod

Miscellaneous Sander Parts

#018075 Reamer for B-4 & T-5 Sanders



#018051 Dust Collector Adaptor



#018033 Spindle Shaft Extractor

