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Edition 2

May 2014

Air Grinder, Sander or Polisher

77A Series

Maintenance Information



Save These Instructions

IR *Ingersoll Rand®*

Product Safety Information

WARNING

- Failure to observe the following warnings, and to avoid these potentially hazardous situations, could result in death or serious injury.
- Read and understand this and all other supplied manuals before installing, operating, repairing, maintaining, changing accessories on, or working near this product.
- Always wear eye protection when operating or performing maintenance on this tool. The grade of protection required should be assessed for each use and may include impact-resistant glasses with side shields, goggles, or a full face shield over those glasses.
- Always turn off the air supply, bleed the air pressure and disconnect the air supply hose when not in use, before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool or any accessory.
- Do not use this tool if the actual free speed exceeds the rated rpm. Check the free speed of this tool before mounting any accessories, after all tool repairs, before each job and after every 8 hours of use. Check speed with a calibrated tachometer, without the abrasive product installed.

Note: When reading the instructions, refer to exploded diagrams in Parts Information Manuals when applicable (see under Related Documentation for form numbers).

Lubrication

Each time the Series 77A Grinder, Sander, and Polisher is disassembled for maintenance, repair or replacement of parts, lubricate the tool:

1. Moisten all O-rings with O-ring lubricant.
2. Coat the inner surface of the Arbor Coupling (42), the spline of the Rotor (26) and the spline of the Bevel Pinion (31) with 3 to 4 cc of **Ingersoll Rand** No. 68 Grease. **Do not substitute any other grease.**

3. After assembling the tool, remove the Oil Chamber Plug (7) and fill the oil chamber with **Ingersoll Rand** No. 50 Oil. Tighten the Plug to 3-3/4 to 7-1/2 ft-lb (5 to 10 Nm) torque. Inject 2.5 cc of the recommended oil into the inlet before installing the Inlet Bushing (4).
4. Inject 5 cc of **Ingersoll Rand** No. 68 Grease into both Grease Fittings (44).

Disassembly

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O-rings for replacement.

Disassembly of the Angle Head

For Model 77A60P107, 77A60P109 or 77A75P107:

1. Grasp the Angle Arbor Housing (43) in leather-covered or copper-covered vise jaws, angle head up.
2. Insert a 5" (127 mm) long 3/16" hex wrench into the elongated slot in the end of the Dead Handle (70) and loosen and remove the screw and the Dead Handle from the Angle Arbor Housing (43).
3. Using the Autobalancer Wrench (Part No. 88V60-169) to hold the Depressed Center Wheel Arbor (60) against rotation, proceed as follows:
 - a. Using a hex wrench, unscrew and remove the Wheel Retaining Screw (65).
 - b. **For Type 27 and 28 Plain Hole Wheels**, use the Depressed Center Wheel Nut Spanner Wrench (Part No. D32-26) to unscrew and remove the Depressed Center Wheel Nut (67). Remove the wheel.
For Type 27 and 28 Mounted Wheels, unscrew the wheel.
 - c. **For Type 27 and 28 Plain Hole Wheels**, unscrew and remove the Depressed Center Wheel Flange (66 or 68).
For Type 27 and 28 Mounted Wheels, remove any Depressed Center Wheel Spacers (63).
4. Slide the Autobalancer Assembly (61) off the Arbor.
5. Unscrew and remove the Wheel Guard Screws (54). Remove the Screw Lock Washers (53) and the Wheel Guard (59).
6. Lift the Depressed Center Wheel Arbor (60) from the Angle Arbor Housing.

WARNING

Do not remove the Mounting Plate Pin (45) unless it is bent or broken. The Mounting Plate Pin is the alignment pin for the Wheel Guard and must be used to assure correct mounting of the Wheel Guard. Use pliers to remove the Mounting Plate Pin if removal is necessary and a new pin is available.

7. Remove the Angle Arbor Housing from the vise.
8. Lay the Angle Arbor Housing on a workbench, guard side down. Lightly tap the angle arbor housing head with a soft hammer to release the Upper Arbor Bearing (47) and Upper Bearing Spring Washer (46).

NOTICE

A thread locking compound was applied to the threads of the Bevel Gear Nut (48) during assembly. It may be necessary to warm the Nut with a propane torch in order to remove it. Use only enough heat to warm the Nut for removal. Do not overheat.

9. Grasp the flats of the Depressed Center Wheel Arbor in leather-covered or copper-covered vise jaws, Arbor Bearing end up. Using a wrench, remove the Bevel Gear Nut.
10. Remove the Bevel Gear Spacer (49) and Bevel Gear (40).
11. Press the Arbor Lower Bearing Assembly (50) from the Arbor. Remove the Lower Arbor Spring Washer (51). Remove the Arbor from the vise.

For Model 77A25F107, 77A45W109 or 77A60W107:

1. Grasp the Angle Arbor Housing (43) in leather-covered or copper-covered vise jaws, angle head up.
2. Use a No. DG120-69 Sander Arbor Wrench to hold the Arbor (55). Remove the Pad Mounting Kit nut (57).
3. **For Model 77A25F107 Polisher**, remove the Wool Bonnet (58). Unscrew and remove the Sanding Pad Assembly (56).
4. **For Model 77A45W109 or 77A60W107 Sander**, remove the Sanding Pad Assembly.
5. Remove the Pad Mounting Kit washers (57).
6. Unscrew and remove the Retaining Plate Screws (54). Remove the Screw Lock Washers (53) and the Sander Arbor Retaining Plate (52).



WARNING

Do not remove the Mounting Plate Pin (45) unless it is bent or broken. The Mounting Plate Pin is the alignment pin for the Sander Arbor Retaining Plate. Use pliers to remove the Mounting Plate Pin if removal is necessary and a new pin is on hand.

- Remove the Angle Arbor Housing from the vise.
- Lay the Angle Arbor Housing (43) on a workbench, guard side down. Lightly tap the Angle Arbor Housing with a soft hammer to release the Upper Arbor Bearing (47) and Upper Bearing Spring Washer (46).

NOTICE

A thread locking compound was applied to the threads of the Bevel Gear Nut (48) during assembly. It may be necessary to warm the Nut with a propane torch in order to remove it. Use only enough heat to warm the Nut for removal. Do not overheat.

- Grasp the flats of the Sander Arbor (55) in leather-covered or copper-covered vise jaws, arbor bearing end up. Using a wrench, remove the Bevel Gear Nut.
- Remove the Bevel Gear Spacer (49) and Bevel Gear (40).
- Press the Arbor Lower Bearing Assembly (50) from the Arbor. Remove the Lower Arbor Spring Washer (51). Remove the Arbor from the vise.

Disassembly of the Throttle Lever and Inlet

- Grasp the flats of the Throttle Handle (1) in leather-covered or copper-covered vise jaws, air inlet up.
- Remove the Inlet Bushing (4), Inlet Bushing Screen (5) and the Throttle Valve Spring (6). The Bushing has an interference thread and is tightly fit.
- Drive out the Throttle Lever Pin (16) to release the Throttle Lever Assembly (17).
- Remove the Throttle Handle from the vise.
- Using a soft hammer, tap the arbor end of the housing to release the Throttle Valve Assembly (2), or using snap ring pliers, pull the Assembly from the Throttle Handle. Remove the two Seals (3).

Disassembly of the Motor and Throttle

- Grasp the Angle Arbor Housing (43) horizontally in leather-covered or copper-covered vise jaws.
- Using No. 77H-281 Coupling Nut Wrench, remove the Coupling Nut (21).
- Grasp the Throttle Handle (1) and pull the Handle from the Arbor Housing.
- Grasp the splined end of the Rotor (26) and pull the motor from the Throttle Handle.
- Remove the Cylinder Dowel (30).
- Grasp the splined end of the Rotor in leather-covered or copper-covered vise jaws.
- Remove the Front End Plate (28) and Front Rotor Bearing (29) from the Rotor.
- If the Front Rotor Bearing needs to be replaced, press it from the Front End Plate.
- Lift off the Cylinder (25).
- Remove the Vanes (27).

NOTICE

A thread locking compound was applied to the threads of the Rotor during assembly to prevent the Controller Assembly (22) from loosening during operation. Before attempting to unscrew the Assembly from the Rotor, apply moderate heat from a propane torch to the middle of the rotor body to soften the compound. Do not overheat the Rotor. Heat it only long enough to allow the Controller Assembly to be unscrewed without using excessive force.



CAUTION

Use only the special Controller Wrench for removing the Controller Assembly. Do not attempt to disassemble the Controller. It is available only as a unit and is guaranteed for the life of the Grinder if it is not abused.

- Using No. 77H-950 Controller Wrench, unscrew and remove the Controller Assembly (22).

NOTICE

The Rear End Plate, Spacer and Bearing are a matched set. Do not mix the components with those of another set. The Rear Rotor Bearing is always damaged during the removal process, and a complete new Rear End Plate Assembly must be installed.

- If the Rear End Plate Assembly (23) consisting of the Rear End Plate, Spacer and Rear Rotor Bearing needs to be replaced, press it from the Controller.
- Remove the Rear End Plate Gasket (24).
- Using No. 77H-154 Retainer Pliers, remove the Throttle Valve Seat Support Retainer (15).
- Grasp the Throttle Handle horizontally in leather-covered or copper-covered vise jaws. Using a brass rod 8" (204 mm) long inserted into the Air inlet end of the handle, lightly tap the brass rod with a soft hammer to release the Throttle Valve Seat Support Assembly (8).
- Remove the Valve Seat Screw (9), Valve Seat Lock Washer (10), Valve Seat Washer (11), Valve Seat (12) and Valve Support Seals (13).
- Check the Oiler Feeder Plug (14). Replace if necessary.

Disassembly of the Bevel Pinion Driver

For Model 77A25F107:

- Lightly tap the Angle Arbor Housing (43) to release the Bevel Pinion Driver (31).
- Remove the Internal Gear (32).
- Remove the Bevel Pinion Driver Bearing (33). This is a light press fit.
- Check the Planet Gears (36) and Planet Gear Bearings (37) for wear. If they need to be replaced, proceed as follows:

NOTICE

Always remove the Planet Gear Shafts (34) in the direction shown on the drawing.

- Using a pin punch and soft hammer, remove the Planet Gear Shaft.
- Remove the Planet Gear Assembly (36).
- Remove the Planet Gear Bearing (37) from inside the Planet Gear.
- Remove the Rotor Pinion (35).

NOTICE

Always replace both Planet Gears even if only one Planet Gear shows wear.

- Remove the second Planet Gear as previously instructed.
- Unscrew and remove the Pinion (40).

NOTICE

If the Pinion is worn or broken, replace both the Pinion and Bevel Gear as they are a matched set and cannot be matched with other Bevel Gears.

- Press the Bevel Pinion Bearing (39) from the Bevel Pinion Driver.
- Remove the Thrust Spacer (38).

For Model 77A45W109, 77A60W107, 77A60P107, 77A60P109 or 77A75P107:

1. Lightly tap the Angle Arbor Housing (43) to remove the Motor Spacer (41), Arbor Coupling (42), Thrust Spacer (38), Bevel Pinion Bearing Assembly (39), and the Bevel Pinion Driver (31).
2. Unscrew and remove the Bevel Pinion (40).

NOTICE

If the Pinion is worn or broken, replace both the Pinion and the Bevel Gear as they are a matched set and cannot be matched with other Bevel Gears.

3. Press the Bevel Pinion Bearing (39) from the Bevel Pinion Driver.
- Assembly**

General Instructions

1. Always press on the **inner** ring of a ball-type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball-type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O-ring lubricant to all O-rings before final assembly.

Assembly of the Motor and Throttle

1. Assemble the Throttle Valve Seat Support Assembly (8). Secure the Valve Seat (12), the Valve Seat Washer (11), and the Valve Seat Lock Washer (10) with the Valve Seat Screw (9). Tighten the Valve Seat Screw between 0.75 to 2.25 ft-lb (1 to 3 Nm) torque. Apply O-ring lubricant to the Valve Support Seals (13) before installing them on the Throttle Valve Seat Support.
2. Insert the Assembly into the large diameter of the handle, Valve Seat Screw end first.
3. Using No. 77H-154 Retainer Pliers, install the Throttle Valve Seat Support Retainer (15).
4. Press the Front Rotor Bearing (29), with Front End Plate (28), onto the rotor shaft.
5. Grasp the splined end of the Rotor (26) in leather-covered or copper-covered vise jaws.
6. Place the Cylinder (25) over the Rotor, aligning the dowel hole in the Cylinder with the dowel hole in the Front End Plate.
7. Apply a film of light oil to each Vane (27) and insert a Vane, straight edge out, into each vane slot in the Rotor. If new Vanes are required, replace the entire set.
8. Check the large inside diameter of the Rear End Plate Assembly (23) for wear. If the large inside diameter of the Rear End Plate is worn to 1.516" (38.506 mm) or larger, install a new Rear End Plate Assembly.

NOTICE

If the Controller Assembly must be replaced, it is furnished with a new Rear End Plate Assembly. Use only the End Plate Assembly furnished with the Controller Assembly. If the Controller is good but the Rear End Plate Assembly needs replacement, only install a new Rear End Plate Assembly. Do not use or interchange old parts with new Rear End Plate Assembly components. The End Plate, Spacer and Bearing are a matched set. Do not mix components with those of another set. The Rear Rotor Bearing is always damaged during removal and a new Rear End Plate Assembly must be installed.

9. Press the Rear End Plate Assembly onto the shaft of the controller body making certain the marked end of the Bearing faces toward the Controller or rear of the Grinder. Also make certain that the bevelled end of the Spacer faces the Cylinder or front of the

Grinder.

10. Clean the threads of the Controller Assembly and apply two or three drops of a thread-locking compound to the threads. Thread the Controller onto the Rotor.

CAUTION

Before tightening the Controller, be certain that the dowel holes in the Cylinder and End Plate are aligned. Use the 77H-950 Controller Wrench to tighten the Controller between 7.5 and 8.0 ft-lb (10.1 and 10.8 Nm) torque. Do not exceed 8 ft-lb (10.8 Nm) torque because it could damage the Controller. Allow the thread locking compound to cure for six hours before putting the Grinder back in service.

WARNING

Always check the free speed of the Grinder after it has been reassembled and before it is put back into service. Never use a Grinder with a free speed that exceeds the maximum speed listed on the Nameplate.

11. Remove the Rotor from the vise.
12. Insert the Cylinder Dowel (30) so it is flush with the face of the Front End Plate and protrudes from the back of the Rear End Plate Assembly.
13. Install a new End Plate Gasket (24) into the Throttle Handle (1).
14. Install the assembled motor into the Throttle Handle, making sure the Cylinder Dowel aligns with the pin hole inside the Throttle Handle.

Assembly of the Bevel Pinion Driver

1. **For Model 77A25F107:**
 - a. Install the Planet Gear Bearings (37) into the Planet Gears (36).
 - b. Install an assembled Planet Gear onto one of the slots in the gear head. Make sure the shaft hole aligns in both the Planet Gear and the gear head.
 - c. Press the Planet Gear Shaft (34) into the hole opposite the tapered shaft hole in the gear head until it is flush with the face of the gear head.
 - d. Install the Rotor Pinion (35), making sure the teeth of the Planet Gear and Rotor Pinion mesh. Install the other assembled Planet Gear into the remaining slot of the gear head. Make sure the teeth of the Planet Gear and the Rotor Pinion mesh and the shaft hole aligns in both the Planet Gear and gear head.
 - e. Press the other Planet Gear Shaft (34) into the hole opposite the tapered shaft hole in the gear head until it is flush with the face of the gear head. Lubricate the Gearing liberally with **Ingersoll Rand** No. 68 Grease.
 - f. Press the Bevel Pinion Driver Bearing (33) onto the gear head end of the Bevel Pinion Driver (31).
 - g. Install the Internal Gear (32) over the gear head end of the Bevel Pinion Driver, making sure the splines of the Internal Gear mesh with the Planet Gear teeth.
 - h. Install the Thrust Spacer (38) over the threaded end of the Bevel Pinion Driver.
 - i. Press the Bevel Pinion Bearing (39) onto the Bevel Pinion Driver.

NOTICE

If the Pinion (40) needs to be replaced, replace both the Pinion and Bevel Gear. They are a matched set and cannot be matched with other Bevel Gears.

- j. Check the Pinion for worn or broken teeth.
- k. Screw the Pinion onto the threaded Bevel Pinion Driver and tighten to 14 to 19 ft-lb (19 to 26 Nm) torque.

For Model 77A45W109, 77A60W107, 77A60P107, 77A60P109 or 77A75P107:

- a. Press the Bevel Pinion Bearing (39) over the threaded end and onto the Bevel Pinion Driver (31).

NOTICE

If the Pinion (40) needs to be replaced, replace both the Pinion and the Bevel Gear. They are a matched set and cannot be matched with other Bevel Gears.

- b. Check the Pinion for worn or broken teeth.
- c. Screw the Pinion onto the Bevel Pinion Driver and tighten to 14 to 19 ft-lb (19 to 26 Nm) torque.
Coat the inner surface of the Arbor Coupling (42), the spline of the Rotor (26) and the spline of the Bevel Pinion Driver with 3 to 4 cc of **Ingersoll Rand No. 68 Grease. Do not substitute any other grease.**
- e. Install the Arbor Coupling onto the spline end of the Bevel Pinion Driver.
- f. Install the Thrust Spacer (38) over the Arbor Coupling (42) until it is against the Bevel Pinion Bearing.
2. Grasp the Angle Arbor Housing (43) horizontally in leather-covered or copper-covered vise jaws.
3. Slide the assembled Bevel Pinion Driver into the Angle Arbor Housing.
4. **For Model 77A45W109, 77A60W107, 77A60P107, 77A60P109 or 77A75P107**, next install the Motor Spacer (41).

NOTICE

Make sure the Throttle Lever Assembly (17) mounting boss on the Throttle Handle (1) aligns with the I-R logo on the exterior of the Angle Arbor Housing.

NOTICE

For Model 77A25F107, make sure the spline on the Rotor (26) properly engages the spline in the Rotor Pinion (35).

5. Slide the assembled Throttle Handle into the Angle Arbor Housing.
6. Clean the Coupling Nut (21) threads and carefully apply a uniform coat of Vibra-Tite® ** VC3 No. 205 to at least the first three threads. Allow the Vibra-Tite to cure for ten to twenty minutes before assembly.

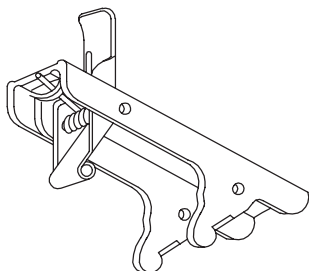


CAUTION

Do not exceed 52.5 ft-lb (71.2 Nm) torque. The motor may be damaged if this torque is exceeded.

7. Using the No. 77H-281 Coupling Nut Wrench, install the Coupling Nut and tighten it between 48 to 52.5 ft-lb (64 to 71 Nm) torque.

Assembly of the Throttle Lever and Inlet



Locking Lever Assembly

(Dwg. TPD662)

1. Assemble the Throttle Lever Assembly (17) as illustrated.
2. Align the holes in the Throttle Lever Assembly (17) with the slots in the Throttle Handle. Using a soft hammer, tap the Throttle Lever Pin (16) into the Throttle Lever Assembly until it slightly protrudes from the opposite end. File off any sharp edges. Operate the

mechanism to assure operation.

3. Grasp the flats of the Throttle Handle Assembly (1) in leather-covered or copper-covered vise jaws, air inlet up.
4. Insert the Throttle Valve Spring (6), small end first, into the Handle.

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NOTICE

The Inlet Bushing (4) has an interference thread. Apply a light film of oil to the threads before assembly.

5. Clean the face of Inlet Bushing (4) and the Inlet Bushing Screen (5) with a suitable cleaning solution and allow to dry. Insert the parts into the end of the Throttle Handle. Tighten the Inlet Bushing to 125-26 ft-lb (170-35 Nm) torque.

Assembly of the Angle Head

For Model 77A60P107, 77A60P109 or 77A75P107:

1. Install the Lower Arbor Spring Washer (51) onto the Depressed Center Wheel Arbor (60).
2. Press the Arbor Lower Bearing (50) onto the Depressed Center Wheel Arbor until it contacts the Lower Arbor Spring Washer.

NOTICE

If the Bevel Gear (40) is worn or broken, replace both the Bevel Gear and the Pinion as they are a matched set and cannot be matched with other Pinions.

3. Grasp the flats of the Depressed Center Wheel Arbor in leather-covered or copper-covered vise jaws, arbor bearing end up. Tighten the Bevel Gear to 8.5 to 11.5 ft-lb (11.5 to 15.5 Nm) torque.
4. Install the Bevel Gear Spacer (49).
5. Clean the threads on the Arbor; apply a film of thread locking compound to the threads. Screw the Bevel Gear Nut (48) onto the Arbor and tighten to 8.5 to 11.5 ft-lb (11.5 to 15.5 Nm) torque. Remove the Arbor from the vise.
6. Grasp the Angle Arbor Housing (43) in leather-covered or copper-covered vise jaws, angle head up. Install the Upper Bearing Spring Washer (46) and Upper Arbor Bearing (47).
7. If replacement of the Mounting Plate Pin (45) is necessary, press a new pin into the Angle Arbor Housing.
8. Install the assembled Depressed Center Wheel Arbor into the Angle Arbor Housing.
9. Place the Depressed Center Wheel Guard (59) in position on the Angle Arbor Housing, making sure the Mounting Plate Pin aligns with the pin hole in the guard.
10. Install the Screw Lock Washers (53) and Guard Screws (54). Tighten to 7.5 to 8 ft-lb (10 to 11 Nm) torque.
11. Slide the Autobalancer Assembly (61), rectangular hub side leading, onto the Arbor.
12. To mount the wheel on the tool, proceed as follows:

For Type 27 and Type 28 Plain Hole Mounted Wheels:

- a. Thread the Depressed Center Wheel Flange (66 or 68) onto the Arbor against the Auto balancer Assembly.
- b. Slide the wheel onto the Arbor against the Depressed Center Wheel Flange.
- c. Thread the Depressed Center Wheel Nut onto the Arbor against the wheel and tighten the Nut using the Depressed Center Wheel Spanner Wrench (Part No. D32-26). Tighten the Nut only enough to drive the wheel and prevent slippage.
- d. Using a hex wrench, install the Wheel Retaining Screw (65) in the end of the Arbor.

For Type 27 Mounted Wheels:

- a. Install two Depressed Center Wheel Spacers (63) on the Arbor against the Auto balancer Assembly.
- b. Thread the wheel onto the Arbor.
- c. Using the hex wrench, install the Wheel Retaining Screw (65) in the end of the Arbor.

For Type 28 Mounted Wheels:

- a. Install one Depressed Center Wheel Spacer (63) on the Arbor against the Auto balancer Assembly.
 - b. Thread the wheel onto the Arbor.
 - c. Using the hex wrench, install the Wheel Retaining Screw (65) in the end of the Arbor.
13. Insert a 5" (127 mm) long 3/16" hex wrench into the elongated slot in the end of the Dead Handle (70) and into the hex recess in the screw head.
 14. Position the Handle against the Angle Arbor Housing (43) and thread the screw into the Housing. The Handle can be attached at either of two positions 180 degrees apart. Select the desired position and tighten the screw to 18 ft-lb. (24.4 Nm) torque.
 15. Inject approximately 5 cc of **Ingersoll Rand** No. 68 Grease into each Grease Fitting (44).

For Model 77A25F107, 77A45W109 or 77A60W107:

1. Install the Lower Arbor Spring Washer (51) onto the Depressed Center Wheel Arbor (60). Press the Arbor Lower Bearing (50) onto the Depressed Center Wheel Arbor until it contacts the Lower Arbor Spring Washer.

NOTICE

If the Bevel Gear (40) is worn or broken, replace both the Bevel Gear and the Pinion as they are a matched set and cannot be matched with other Pinions.

2. Grasp the flats of the Depressed Center Wheel Arbor in leather-covered or copper-covered vise jaws, arbor bearing end up. Tighten the Bevel Gear to 8.5 to 11.5 ft-lb (11.5 to 15.5 Nm) torque.

3. Install the Bevel Gear Spacer (49).
 4. Clean the threads on the Arbor; apply a film of thread locking compound to the threads. Screw the Bevel Gear Nut (48) onto the Arbor and tighten to 8.5 to 11.5 ft-lb (11.5 to 15.5 Nm) torque. Remove the Arbor from the vise.
 5. Grasp the Angle Arbor Housing (43) in leather-covered or copper-covered vise jaws, angle head up. Install the Upper Bearing Spring Washer (46) and Upper Arbor Bearing (47).
 6. Add 15-18 cc of Mobilix EPO Grease on Bevel Gear Teeth and Angle Arbor Housing.
 7. If replacement of the Mounting Plate Pin (45) is necessary, press a new pin into the Angle Arbor Housing.
 8. Install the assembled Depressed Center Wheel Arbor (55) into the Angle Arbor Housing.
 9. Place the Sander Arbor Retaining Plate (52) in position on the Angle Arbor Housing.
 10. Install the Screw Lock Washers (53) and Retaining Plate Screws. Tighten to 7.5 to 8 ft-lb (10 to 11 Nm) torque.
 11. Install the Pad Mounting Kit Spacers (57) and Sanding Pad Assembly (56).
- For Model 77A25F107, install the Wool Bonnet (58).**
12. Using a 3/4" wrench to hold the arbor, install the Pad Mounting Kit Nut (57) and tighten securely.
 13. Insert a 5" (127 mm) long 3/16" hex wrench into the elongated slot in the end of the Dead Handle (70) and into the hex recess in the screw head.
 14. Position the Handle against the Angle Arbor Housing (43) and thread the screw into the Housing. The Handle can be attached at either of two positions 180 degrees apart. Select the desired position and tighten the screw to 18 ft-lb. (24.4 Nm) torque.
 15. Apply approximately 5 cc of **Ingersoll Rand** No. 68 Grease into each Grease Fitting (44).

Troubleshooting Guide

Trouble	Probable Cause	Solution
Low power or low free speed	Insufficient air pressure at the inlet	Check the air pressure at the inlet of the Tool. It must be 90 psig (6.2 bar/620 kPa).
	Plugged Screen	Clean the Inlet Bushing Screen in a clean, suitable, cleaning solution. If it cannot be cleaned, replace it. WARNING Never operate a Grinder without an Inlet Screen. Ingestion of dirt into the Grinder can, in some cases, cause an unsafe condition.
	Worn or broken Vanes	Replace a complete set of new Vanes.
	Worn or broken Cylinder	Replace the Cylinder if it appears cracked or if the bore is wavy or scored.
	Improper lubrication or dirt build-up in the motor	Lubricate the Grinder as instructed in LUBRICATION . If lubrication does not result in satisfactory operation, disassemble the motor, clean and inspect all parts.
Rough operation	Worn or broken Rear Rotor Bearing Assembly or Front Rotor Bearing	Examine each bearing. Replace the Rear End Plate Assembly if worn or damaged or replace the Front Rotor Bearing. NOTICE Rear End Plate Assembly is a matched set. See disassembly and assembly instructions.
	Worn or broken Bevel Gear or Pinion	Check for worn or broken teeth. If a replacement is necessary, install both the Bevel Gear and Pinion. They are a matched set and must not be mismatched.
	Bent Arbor	Mount the Arbor on centers. Check bearing diameter runout with an indicator. Replace the Arbor if runout exceeds 0.002" (0.051 mm) Total Indicator Reading.
Scoring	Improper assembly	Make certain that all motor parts are properly aligned prior to installing the Handle Assembly into the Arbor Housing.
Air leaks	Worn Valve Seat or Valve Seat Washer	Replace worn parts.
	Worn Throttle Valve Seals	Replace both Seals.
	Oil Chamber Plug worn or not tight	Tighten the Plug. If the problem persists, replace the Plug.
High free speed	Worn Rear End Plate Assembly and/or Controller Assembly	Replace the Rear End Plate Assembly if the large inside diameter of the Rear End Plate is worn to 1.156" (38.506 mm) or larger
Grinder will not run	Coupling Nut too tight	Loosen Coupling Nut and retighten to 47.5 to 52.5 ft-lb (64.5 to 71.5 Nm) torque. WARNING Do not exceed 52.5 ft-lb (71.5 Nm) torque.

Related Documentation

For additional information refer to:

Product Safety Information Manual 04584959 and 04580387.

Product Information Manual 80221740, 80221757, 80221765 and 80221773.

Parts Information Manual 16574071.

Manuals can be downloaded from ingersollrandproducts.com

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