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**Service Manual for
Model 93892719-B
Offset Spring Loaded Spindles**

NOTICE

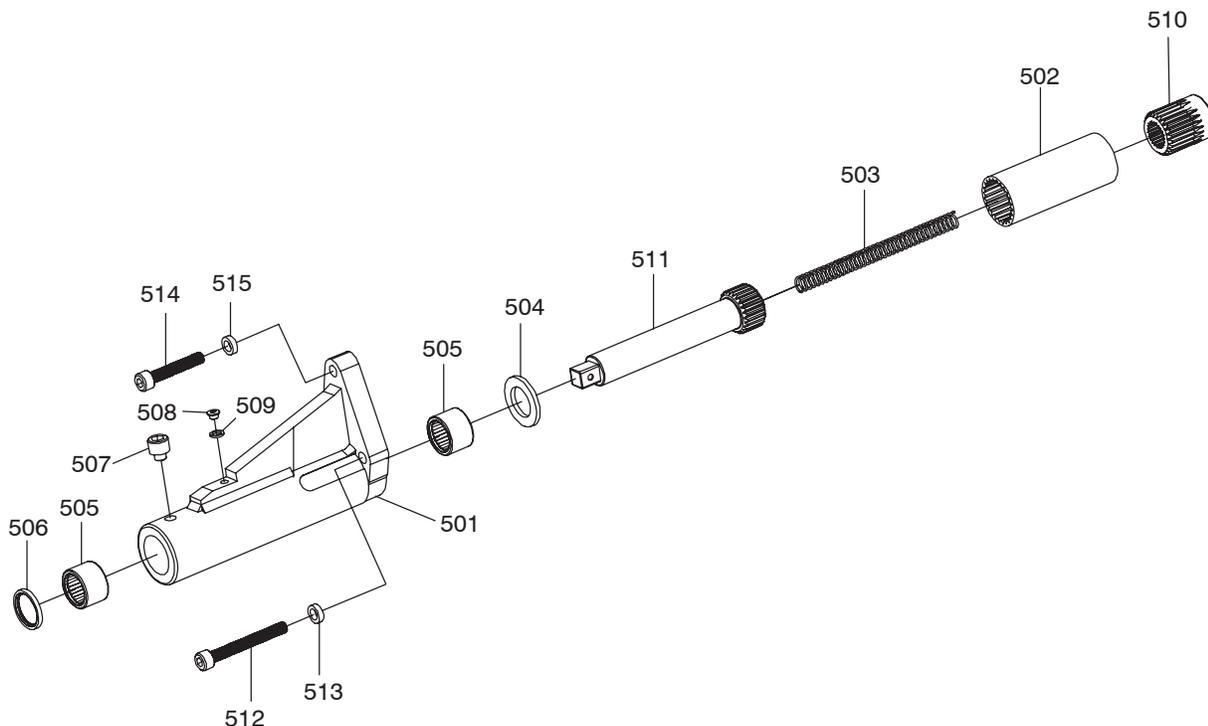
For routine Maintenance, Operation and Instruction information regarding this product, see Publication manual P7609, located at www.irttools.com/techdocuments, or contact the nearest Ingersoll-Rand Office or Distributor.

(Dwg. TP2404)

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 **Assembly Solutions**

OFFSET SPRING LOADED SPINDLES EXPLODED VIEW



(Dwg. TPC685)



When Ordering, use applicable Part Number

Offset Spring Loaded Spindles Parts List

Item	Product Identification Code	Part Number	Item	Product Identification Code	Part Number
	Housing Assembly (does not include the Spindle)	93892719-B		3/4" square drive x 12" long	99377582-D
501	Spindle Housing	93804409-D		5/8" square drive x 6" long	99377418-D
502	Spindle Driver	93804201-B		5/8" square drive x 8" long	99377426-D
503	Spindle Thrust Spring	93804300-A		5/8" square drive x 10" long	99377434-D
504	Spindle Stop Washer	93913226		5/8" square drive x 12" long	99377442-D
505	Spindle Bearing (2)	93804284-		1/2" square drive x 6" long	99377368-D
506	Spindle Seal	93929487		1/2" square drive x 8" long	99377376-D
507	Socket Head Cap Screw	93807923-A		1/2" square drive x 10" long	99377384-D
508	Pipe Plug	R00A-95		1/2" square drive x 12" long	99377392-D
509	Pipe Plug Washer	R3-92A	512	Lower Mounting Plate Screw (M8 x 125 x 65 Socket Head Cap Screw) (2) . .	D3850-665
510	Spindle Assembly Driver	93892727-B	513	Lower Mounting Plate Screw Lock Washer (2)	DEF150-58
511	Spindle (not included with Housing Assembly) 3/4" square drive x 6" long	99377558-D	514	Top Mounting Plate Screw (M8 x 1.25 x 45 Socket Head Cap Screw	D3850-104
	3/4" square drive x 8" long	99377566-D	515	Top Mounting Plate Screw Lock Washer	DEF150-58
	3/4" square drive x 10" long	99377574-D			

INSTALLATION

CAUTION

- **Do not use power units and gear trains that exceed the capability of the output device.**

These Spindles must be attached to a customer's mounting plate that complies with specific bolt pattern and pilot alignment requirements. Contact **Ingersoll-Rand** for specific mounting dimensions.

During installation, tighten the mounting bolts between 18.5 and 25.5 ft-lb. (*25.0 and 34.5 Nm*) torque.

DISASSEMBLY AND ASSEMBLY

NOTICE

Do not attempt to replace the Spindle Bearings (505) unless you have a new set of Bearings available for installation. Needle Bearings are always damaged during the removal process.

1. Disconnect any electronic readout devices that might be attached to the Spindle Housing Assembly.

⚠ CAUTION

In the following step, removing the Spring Loaded Spindle from the Tool creates two conditions for which precautions must be taken to prevent injury to the person disassembling the Tool. The Tool or Spindle Housing will be free to fall when the mounting bolts are removed from the assembly and the Spindle Thrust Spring (503) is free to eject from the Spindle (511) when the Tool and Spindle Housing are separated. Take all precautions necessary to avoid injury.

2. Carefully remove the three Mounting Screws (512 and 514) at the spindle end of the mounting plate. These Screws pass through the Spindle Housing (501) and thread into the housing of the gear box. Do not allow the Tool or Spindle Housing Assembly to fall or the Spindle Thrust Spring (503) will be ejected when removing the bolts and separating the components.
3. Remove the Spindle Thrust Spring from the rear of the Spindle (511).
4. Push on the output end of the Spindle to move the Spindle Driver (502) and Spindle out the rear of the Spindle Housing (501).
5. If the Spindle Stop Washer (504) remained in the Spindle Housing, sharply rap the rear of the Housing on a block of wood to dislodge it. If it remained on the Spindle when the Spindle was removed, slide it off the Spindle.
6. Using a hooked tool, pull the Spindle Seal (506) out of the front end of the Spindle Housing.

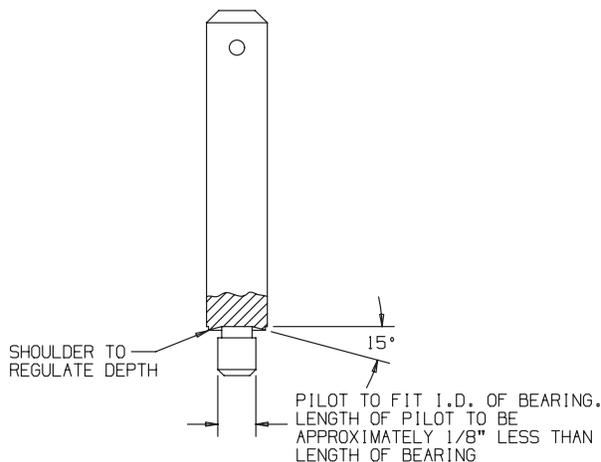
NOTICE

In the next step, do not remove the Spindle Bearings (505) unless you have a new set of Bearings available for installation. Needle Bearings are always damaged during the removal process.

7. Using a bearing puller, pull the two Spindle Bearings (505) out of the Spindle Housing.
8. Stand the Spindle Housing on the table of an arbor press with the mounting flange upward.
9. Using a bearing inserting tool similar to the tool shown

in Drawing TPD786, press one of the new Spindle Bearings into the Spindle Housing until the trailing edge of the Bearing is flush with the internal face of the bearing opening.

NEEDLE BEARING INSERTING TOOL



(Dwg. TPD786)

NOTICE

When installing the remaining Bearing, do not use one Bearing to press another bearing into position. Pressing with a bearing will damage it.

10. Invert the Spindle Housing on the arbor press table.
11. Using a bearing inserting tool with an adjustable depth stop collar, press the remaining Spindle Bearing into the opening until it is 3/16" below the face of the Spindle Housing.
12. Lubricate the Bearings with a light coat of **Ingersoll-Rand** No. 67 Grease.
13. Slide the Spindle Stop Washer onto the output shaft of the Spindle until it stops against the shaft shoulder. Lubricate the shaft and spline with a light coat of **Ingersoll-Rand** No. 67 Grease.
14. Lubricate the spline of the Spindle Driver with a light coat of **Ingersoll-Rand** No. 67 Grease and install the Spindle Driver on the Spindle by engaging the spline of the Driver with the spline of the Spindle.
15. Install the Spindle, Washer and Driver, spindle output end leading, in the large end of the Spindle Housing and through the Bearings.
16. Being careful not to damage the Seal, install the Spindle Seal over the Spindle, closed end trailing, into the central opening against the Bearing that is pressed below the end face of the Housing. Make certain the closed end of the Seal is flush with the end face of the Housing.
17. Install the Spindle Thrust Spring into the central opening in the Spindle.

MAINTENANCE (CONTINUED)

18. Using the rear hub of the Spindle Housing as a pilot, place the assembled Spindle housing against the mounting plate and align the bolt holes in the housing flange with the holes in the mounting plate.
19. Insert the square driver of the Tool through the opening in the mounting plate to engage the internal square of the Spindle Driver and align the bolt holes in the face of the Tool with the holes in the mounting plate.
20. Insert the Mounting Screws (512 and 514) through the Spindle Housing and mounting plate and thread them into the Tool. Tighten the Screws between 18.5 and 25.5 ft-lb. (*25.0 and 34.5 Nm*) torque.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

When the life of the tool has expired, it is recommended that the tool be disassembled, degreased and the parts be separated by material so that they can be recycled.

SERVICE NOTES

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