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INSTRUCTIONS

MOTION PRO HEAVY DUTY PIN SPANNER P/N 08-0673

INSTRUCTIONS

Thank you for purchasing this unique Motion Pro tool. The Heavy Duty Pin Spanner has been designed for removal and installation of shock reservoirs, screw-in seal heads, fork caps, and bearing retainers in conjunction with a 3/8-inch square drive ratchet, breaker bar, and/or torque wrench.

WARNING! REFER TO YOUR FACTORY SERVICE MANUAL FOR INSTRUCTIONS ON THE PROCEDURE FOR WHICH YOU ARE USING THIS TOOL. FAILURE TO FOLLOW SERVICE MANUAL INSTRUCTIONS AND/OR IMPROPER USE OF THIS TOOL COULD RESULT IN GREAT BODILY INJURY OR DEATH. ALWAYS WEAR SAFETY GLASSES WHEN USING THIS TOOL.

Configuring the Heavy Duty Pin Spanner:

The Motion Pro Heavy Duty Pin Spanner has freely pivoting arms that span an adjustment range of 10.5-150 mm, and includes hardened steel pins in 3mm, 4mm, and 5mm diameters. Choose the pin size that best matches the diameter of the holes in the part which you intend to remove or install. Selected pins must fit with minimal play in the holes. Improper pin selection may result in damage to the part and/or tool. With proper pin size selected, thread pins to the underside of the pivoting arms with a 7mm open-end wrench. Torque pins to 6 lbf-ft. (8 N-m) to avoid damage to pins during use. There are threaded holes on top of the spanner arms to store unused pins.

Using the Heavy Duty Pin Spanner to Remove Parts:

Refer to your service manual for related removal information (ie: threadlocker removal, thread direction, compressed gas release) before proceeding. With the correct pin size selected to match the part, insert a 3/8” ratchet or breaker bar into the square drive in the pivot of the tool. Next, spread the arms of the tool to match the spacing between two holes in the part to be removed. If there are more than two holes to choose from, it is recommended to use two that are as close to 180° apart from each other as possible. Engage the two pins into the chosen holes, ensuring that they are fully and squarely seated.

During the removal procedure, apply pressure to the ends of the Heavy Duty Pin Spanner to keep the pins squarely engaged in the workpiece or fastener. Simultaneously apply pressure in the direction of removal using your ratchet or breaker bar. To most efficiently transmit torque to the part, align the ratchet or breaker bar in a straight axis with the Heavy Duty Pin Spanner (Fig 2.). Do not exceed the 70 lbf-ft. (95 N-m) maximum rating of the tool.

Using the Heavy Duty Pin Spanner to Install Parts:

Refer to your service manual for related installation information (ie: threadlocker application, thread direction) before proceeding. Begin by threading the part in place by hand, taking care to avoid cross-threading. Use the same procedure outlined above to engage the part with the Pin Spanner. To transmit torque without adjustment calculations, align torque wrench at a 90° angle to the axis of the Heavy Duty Pin Spanner (Fig 1.). Aligning torque wrench with the axis of Heavy Duty Pin Spanner (Fig. 2) will require torque adjustment calculation. There is a torque calculation guide at end of the instructions. Do not exceed the 70 lbf-ft. (95 N-m) maximum rating of the tool.

FIG 1

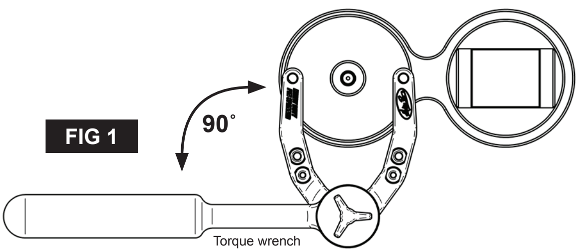
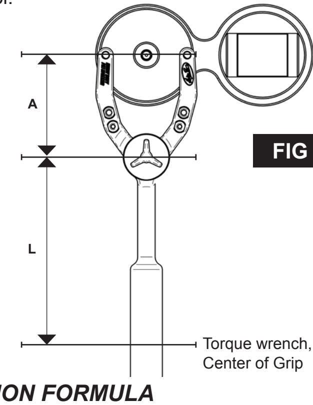


FIG 2



See reverse page for *TORQUE EXTENSION FORMULA*

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TORQUE EXTENSION FORMULA

To recalculate a torque specification when using the Heavy Duty Pin Spanner, use the following formula:

$$\text{Corrected Torque Reading} = \frac{\text{Torque Required} \times \text{Wrench Length}}{\text{Wrench Length} + \text{Pin Spanner Length}}$$

$$R = \frac{T \times L}{L + A}$$

T = Actual torque reading as listed in the service manual.

L = Torque wrench length. This is the length of your torque wrench--center of grip to center of drive (see Fig.). Refer to the instructions that came with your torque wrench to determine how to measure this length.

A = Heavy Duty Pin Spanner Length. This is the length of the pin spanner from center of drive to center of pins (see Fig.). This length varies based on span adjustment of Heavy Duty Pin Spanner.

R = Corrected torque reading. Torque value to set on torque wrench.

NOTE: *Always use the same units (in, ft, mm, cm, etc.) for L and A. Do not use the torque extension formula if the wrench is at an angle to the axis of the Heavy Duty Pin Spanner, because distance "A" will be decreased.*

Example: To tighten a shock reservoir to 40 lbf-ft. with a Heavy Duty Pin Spanner length of 2.75 inches, and a torque wrench with a wrench length of 12 inches, compute the extension formula as follows:

1. List all of the known formula variables:
2. Plug-in each of the formula variables into the extension formula:
3. Thus, you can solve the formula as follows:

T = 40 lbf-ft. (actual torque specification)
L = 12 in. (torque wrench lever length)
A = 2.75 in. (pin spanner extension length)

$$R = \frac{T \times L}{L + A} = \frac{40 \times 12}{12 + 2.75}$$

$$R = \frac{40 \times 12}{12 + 2.75} = \frac{480}{14.75} = 32.5 \text{ lbf-ft.}$$

Solution: Solution: In this example, your torque wrench would be set at 32.5 lbf-ft., but the shock reservoir would be tightened to 40 lbf-ft.

To make conversions from one form to another, use the following torque conversion table:

MULTIPLY	BY	TO OBTAIN
pound force-foot (lbf-ft.)	1.356	Newton-meter
pound force-foot	0.1383	kilogram force-meter
pound force-foot	12.0	pound force-inch
pound force-inch (lbf-in.)	0.01152	kilogram force-meter
pound force-inch	0.1130	Newton-meter
pound force-inch	0.08333	pound force-foot
kilogram force-meter (kgf-m)	7.233	pound force-foot
kilogram force-meter	86.79	pound force-inch
kilogram force-meter	9.806	Newton-meter
Newton-meter (N-m)	0.7375	pound force-foot
Newton-meter	8.851	pound force-inch
Newton-meter	0.1020	kilogram force-meter