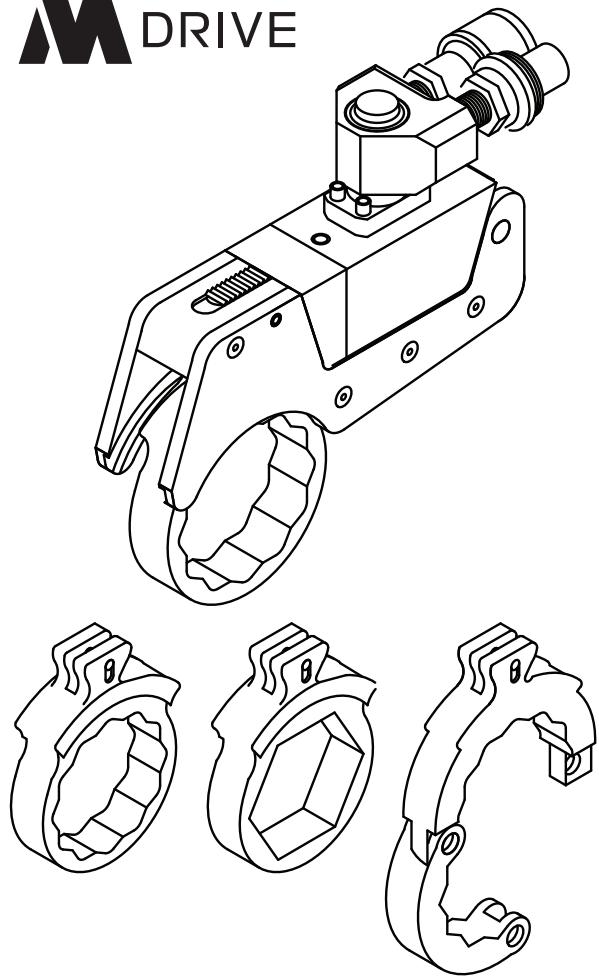




NORWOLF TOOL WORKS

M DRIVE



Please contact Norwolf Tool Works, Inc. for guidance if or when you are in doubt as to the operation of this product with your application.

Read all instructions, cautions, warnings and notes carefully. Follow all safety precautions to avoid personal injury or property damage during use. Norwolf cannot be held responsible for any damage caused by improper use, lack of maintenance, or incorrect application.

This instruction guide is for the X Driver® with the M Drive, which is a cartridge that will house any of the following three links: ratchet cassette, non-ratcheting spanner and split link. The connection of the X Driver® to the cartridge is a simple snap-in latch connection.

INSTRUCTIONS

The X Driver® operates in union with an air or electric hydraulic pump. The maximum working pressure of the X Driver® is 10,000 PSI. Pump and hose must have the same pressure rating.

WARNING: When pressurized, the X Driver® exerts a great reaction force. Follow instructions for proper tool placement. Keep reaction area free of interference.

WARNING: Wear personal protective gear, including eye protection, when operating any hydraulic equipment.

SYSTEM CONNECTION

The X Driver® connects with the pump via a double line 10,000 PSI hydraulic hose. Ensure the connectors (couplers) are fully engaged, with no gap between the male and female fittings. Threaded connections must be securely tightened and leak free.

WARNING: Never handle pressurized hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If this occurs seek immediate medical attention.

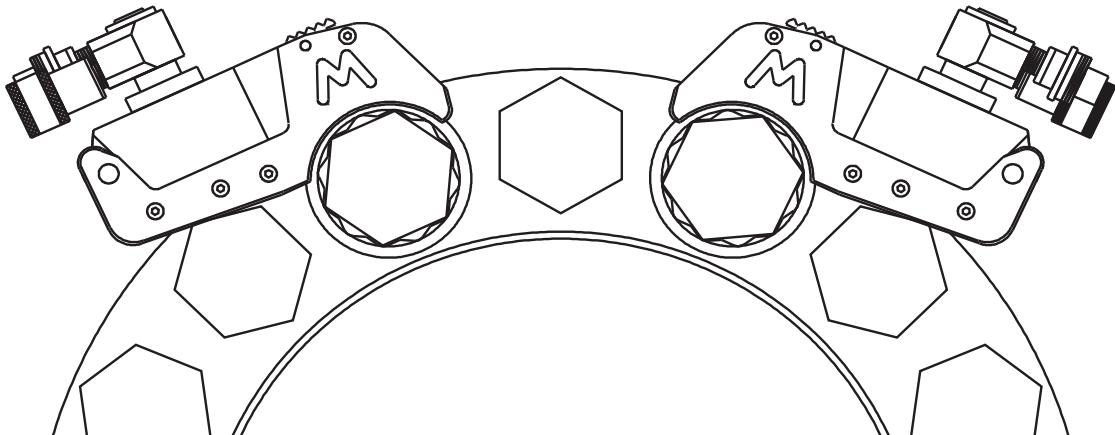
SETTING TORQUE

NOTE: The pump is to be controlled by the **TOOL OPERATOR** only. With the system fully connected, locate desired torque on the conversion chart provided with your tool. Set the pump to the corresponding pressure. (At this point, the tool is not on the application.) Turn on the pump, press down on the remote control button and hold. Take reading on the gauge. To increase pressure, loosen the locking ring on the pressure regulator valve and turn the thumbscrew clockwise; to decrease pressure turn counter-clockwise. Once the desired pressure is stabilized, retighten the locking ring.

NOTE: When decreasing pressure, it is necessary to turn pressure setting below what is desired and gradually increase pressure to the desired level. Prior to tool operation, again, press down on the remote control button and confirm the correct pressure has been set on the pump.

NOTE: For "loosening", set pump at 9500 PSI.

M DRIVE – TOOL PLACEMENT



TO TIGHTEN

TO LOOSEN

TOOL APPLICATION

Positioning the tool determines whether the action will loosen or tighten the nut. Refer to above diagram for correct positioning. Assure the reaction area is firmly abutted against a stationary object (i.e. adjacent nut or flange) as illustrated.

WARNING: Make sure there is no interference between reaction points.

WARNING: Hose and fitting will rupture if reacted upon.

Place tool on nut making sure the hex has fully engaged the nut. Apply momentary pressure to the system to ensure proper tool placement. If the tool tends to "ride up" or "creep", stop and re-adjust the reaction area to a more solid and secure position.

By pushing down on the remote control button, the rear of the tool will be pushed back until reaction area contacts its reaction point. Continue to hold down the button until the ratchet no longer turns which will signify the hydraulic cylinder inside the tool is fully extended. There will be a rapid buildup of pressure until the preset pressure level is achieved.

NOTE: This rapid buildup of pressure after the cylinder is extended DOES NOT indicate that the desired torque is achieved. It only indicates that the cylinder is fully extended and cannot turn the nut any further.

Release the remote control button and the cylinder will retract automatically. While retracting, you will hear 1-3 "clicks" indicating that the tool has reset itself. Each time the cylinder is extended and retracted is called a cycle. Successive cycles are made until the tool "stalls" (the tool will no longer advance and no audible clicks are heard on retraction). At this point, the pre-set Torque/PSI is achieved with an accuracy of +/- 3%.

NOTE: Always attempt one final cycle to insure the "stall" point has been reached.

NOTE: Because the M Drive does not have a reaction pawl it may be necessary to hold the M Drive in place while you are retracting.

PREVENTATIVE MAINTENANCE

Tool failure (although rare) does occur. Such failure is most often in the hydraulic couplers or hose. These items are replaceable immediately and are available universally. Failure of structural members of the tool is quite rare but replacement parts are available from stock. Keeping your tools clean and well greased will ensure years of satisfaction.

*Always use Norwolf quality accessories to insure product operates at highest quality standards.

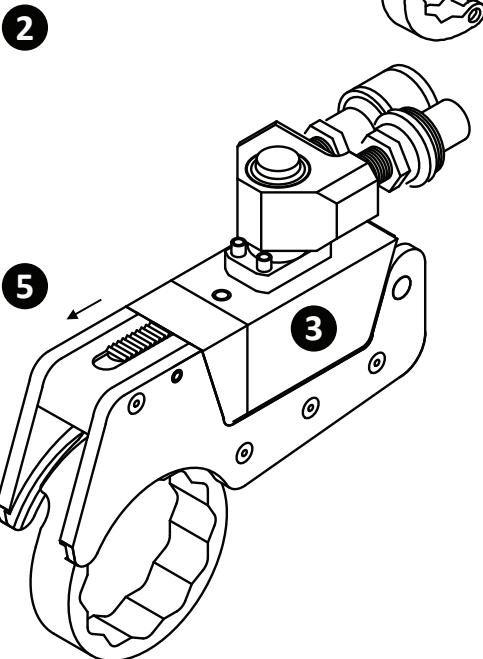
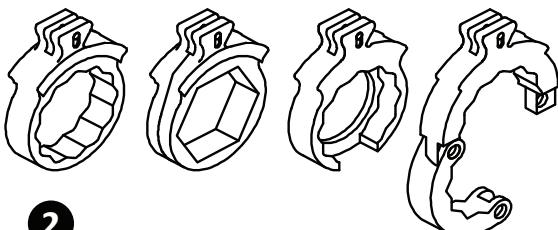
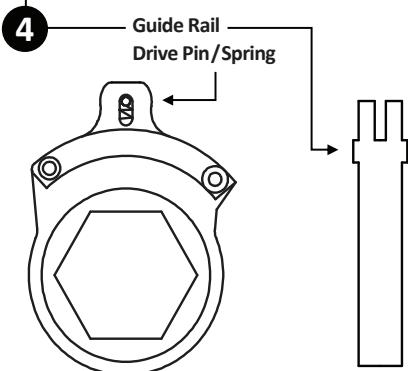
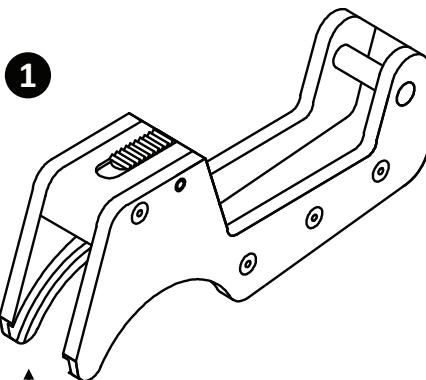


Figure 1

Shows the M-Drive Cartridge, alone.

FIGURE 2

Shows the four links:

- 1) Ratchet Cassette
- 2) Closed Spanner
- 3) Open Spanner
- 4) Split Link

FIGURE 3

The X Driver® connects to the M Drive in one manner only. You must have the X Driver® placed and secured in the M Drive. User should assure the X Driver® "clicked" or "snapped" into place.

NOTE : By sliding the latch on top side of tool, the X Driver® will disconnect from the M Drive.

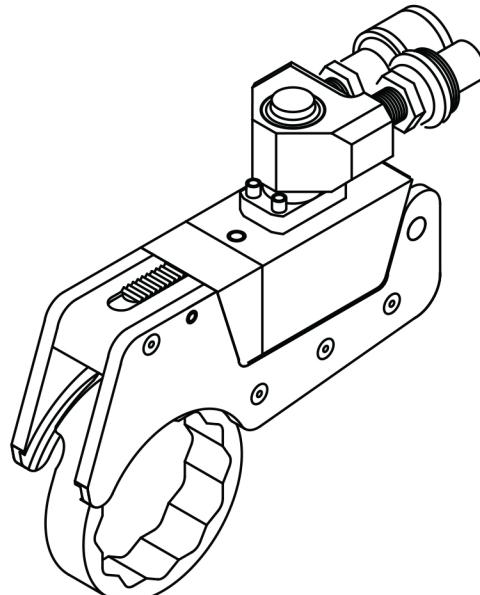
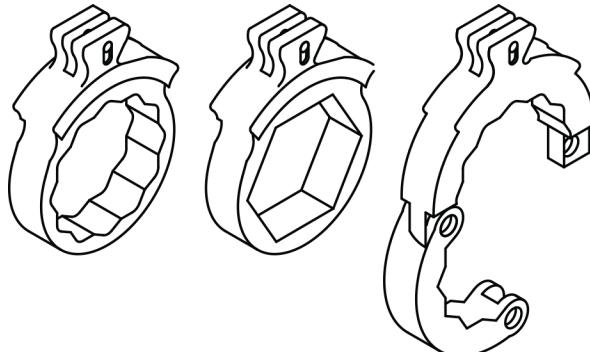
FIGURE 4

Figure 4, Align the arrows on the M Drive link with the arrows on the link to insert. Slide link into M Drive and it will click into place.

NOTE : X Driver® must be in place to lock in link.

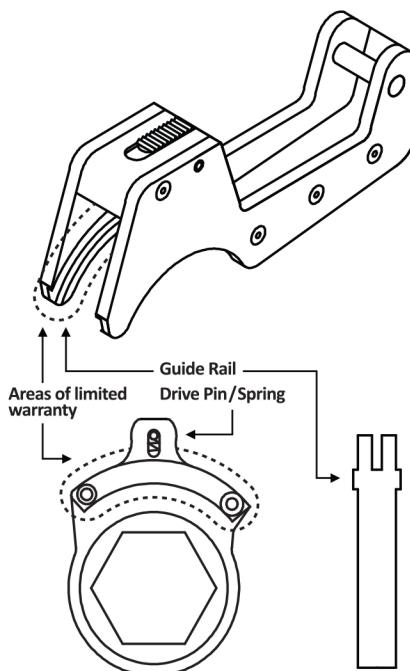
FIGURE 5

To Remove, you will slide the latch on the top side of the M Drive tool for easy X Driver® disconnect. You will then be able to remove the link.



M DRIVE

LIMITED WARRANTY



M DRIVE WARRANTY

The M Drive has a limited 1 year warranty for material & workmanship only. Does not cover worn parts that are pitted, galled or gouged. Cassette guide rails are steel on steel and require frequent maintenance. See graphic to specifically note areas of concern.

MAINTENANCE

1. Clean, inspect and re-lube guide rail rails on both drive and cassette after every use. Lubricant needs to be a moly-based assembly paste (i.e. Molykote or Jet Lube)
2. After every major use, tool should be disassembled, cleaned and re-lubricated with the same moly-based assembly paste.
3. Lightly sand or buff any pitting or gouge marks on guide rails.
4. Assure that drive pin/spring moves freely.



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*Multiple patents pending

