HARDINGE

Bridgeport

INSTALLATION, OPERATION, MAINTENANCE, AND PARTS LIST

SERIES I
MILLING MACHINES

TP5260

Revised: August 29, 2005

Manual No. M-450
Part No. M -0009500-0450

Litho in U.S.A.
June, 2003

CHAPTER 1 - INSTALLATION

UNCRATING

Carefully remove protective crating and skids so that the machine and parts are not marred, scratched or impaired. In the event of damage having occurred during transit, communicate at once with our representative and the transportation company making delivery.

SHORTAGES

Check shipment carefully against the itemized packing list which is included in the parts box. In case of shortages, report them immediately to the representative from whom the machine was purchased, indicating the parts not received which have been checked on the packing list.

CLEANING

Thoroughly clean protective coating from the machine with a suitable cleaning solution.

- WARNING -

DO NOT use gasoline or any other flammable cleaning agent to clean machine.

- NOTE -

Do not move the table, saddle, knee, or any moveable part until all ways have been well cleaned and lubricated.

1. After initial cleaning, move table, saddle and knee in one direction by hand to limit stop.
2. Clean and lubricate the exposed ways.
3. Move each unit to the opposite limit stop, and clean and lubricate the exposed ways.
4. Move each unit to the opposite stop once more and similarly clean and lubricate the exposed ways.
5. Loosen bolts to unlock the ram, and move it forward and backward to the full length in order to clean and lubricate.

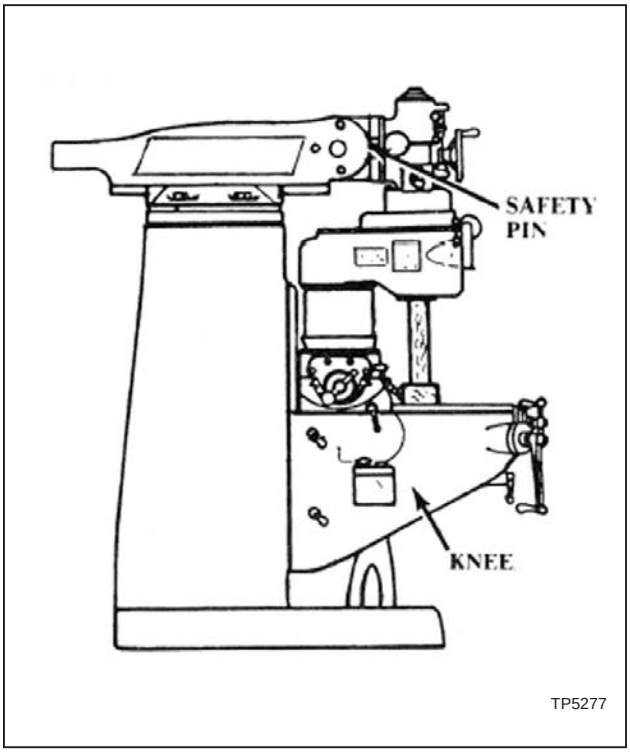

Figure 1.1 - Milling Machine
Left Side View

INSTALLATION

If delivery of your machine is made with the milling head in an upside-down position, follow the instructions below to prepare your machine for operation.

HANDLES

For shipping purposes, the hand cranks are inverted to face the machine. To reverse them, engage the lock mechanism to the saddle and table. Using a (1-inch) wrench, remove the retaining lead screw nut and install the hand cranks properly.

POSITIONING HEAD UPRIGHT

Loosen four locknuts “C”, Figure 1.3, and pull stop pin “A”, Figure 1.2, out to detent and rotate head attachment using the swivel bolt “B”, Figure 1.3, in either direction until it has been moved within approximately 20% of vertical. It is recommended supporting the head by hand to relieve the weight on the swivel bolt, as a safety precaution, push the stop pin back in. Continue to raise the head attachment to vertical position. Align the indicator on the head attachment with the ZERO line on the ram adapter scale. Tighten all nuts first to 25 lb-ft torque in a diagonal sequence, then to 50 ft/lbs.

- NOTE -

Care should be taken to avoid excessive pressure since this will cause distortion in the quill.

1. Lower knee approximately 6” (150mm).
2. Withdraw the safety pin on the left-hand side of ram adapter.
3. Loosen the four unit head mounting bolts.
4. Support unit head manually and use a spanner on swivel bolt to wind into upright position.
5. Press the safety pin back into the ram adapter after passing the 25° mark.
6. Tighten the four unit head mounting bolts first to 25 lb-ft in a diagonal sequence then to 50 lb-ft.

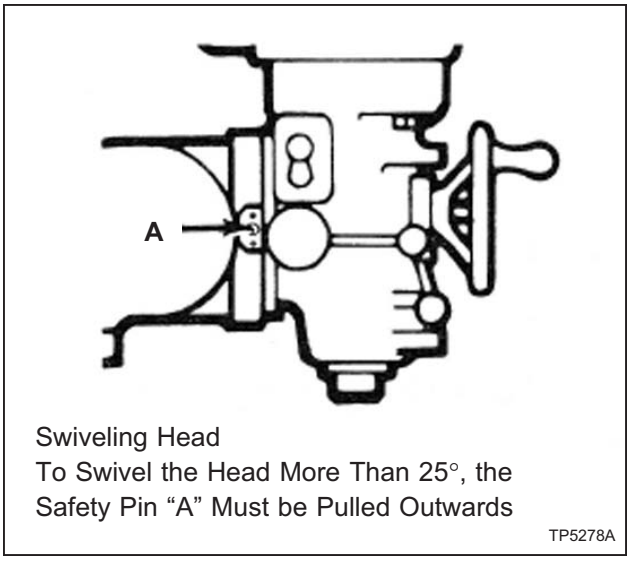

Figure 1.2 - Positioning Head
Left View

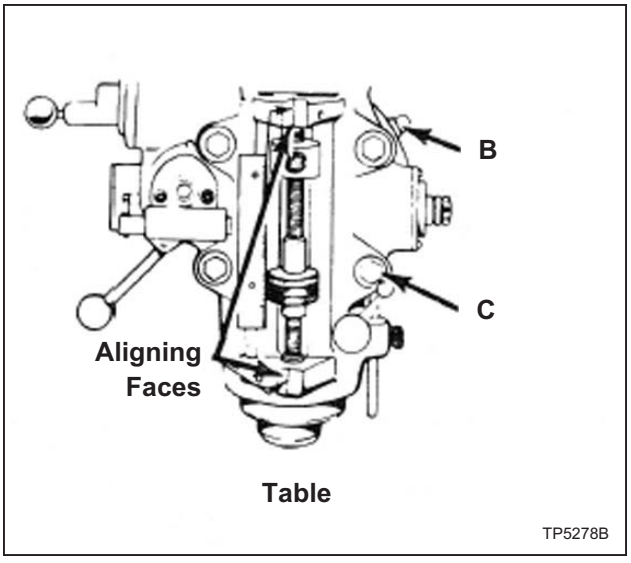

Figure 1.3 - Positioning Head
Front View

HANDLING

Lifting the Machine

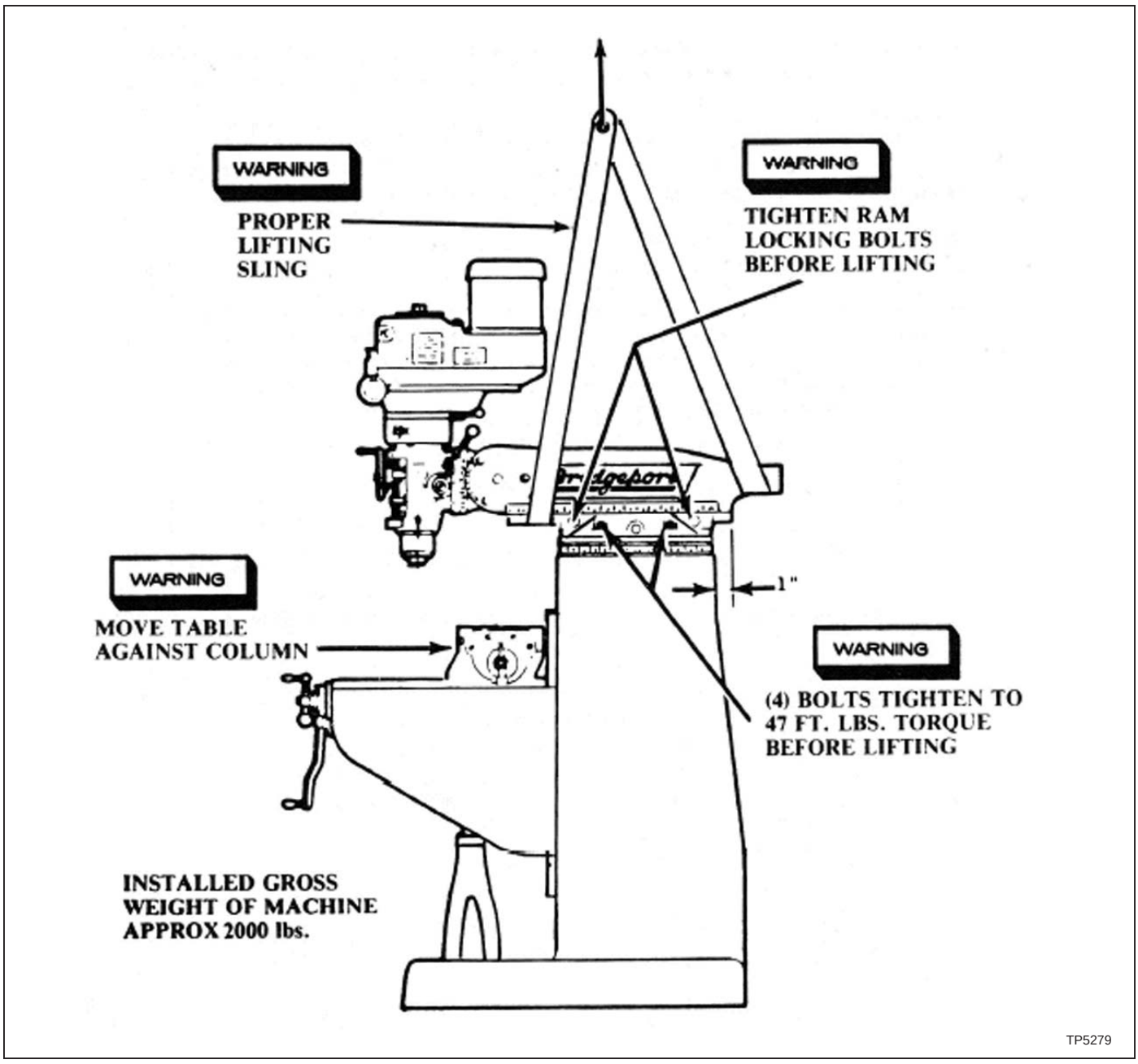

Figure 1.4 - Lifting the Machine

- WARNING -

BE SURE to use proper sling when lifting. improper lifting could cause serious injury.

Note position of ram and table when lifting with sling. Machine should be lifted by placing a sling under the ram as illustrated in Figure 1.4.

FOUNDATION

MACHINE

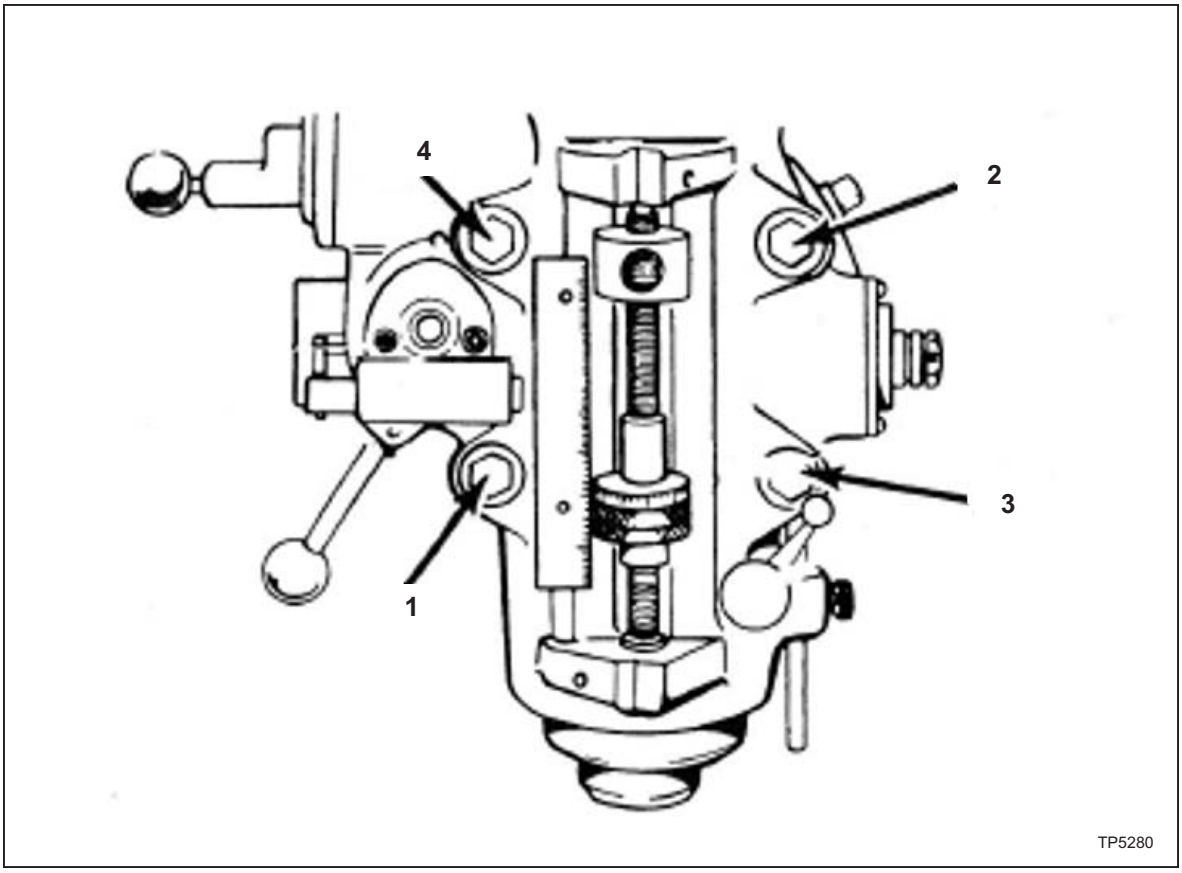

Figure 1.5 - Tightening Sequence

Tightening Sequence

Tighten bolts first to 25 lb-ft torque in a diagonal sequence as noted in Figure 1.5, then to 50 lb-ft. Overtightening could cause bind in the quill movement.

Placing on Solid Foundation

When setting machine on a concrete foundation, it is advisable to use a little grout (thin mortar) to take care of any unevenness in the concrete as well as to provide a solid foundation at all points.

When setting machine on a floor than has any surface irregularities, shims should be used to correct this condition to the greatest extent possible.

- NOTE -

It is recommended that the machine be secured to the floor to prevent movement or tipping due to off-center loading.

Before securing machine to floor by tightening hold-down bolts, make certain that all four corners are making contact with the floor after machine is leveled. If above condition is not met, it is possible to twist the column and but a bind into ways.

Ideally all milling machines should be bolted to a concrete foundation. The machine should be placed on a solid level floor with shims or anti-vibration pads as shown in Figure 1.6 to insure machine base is positioned evenly.

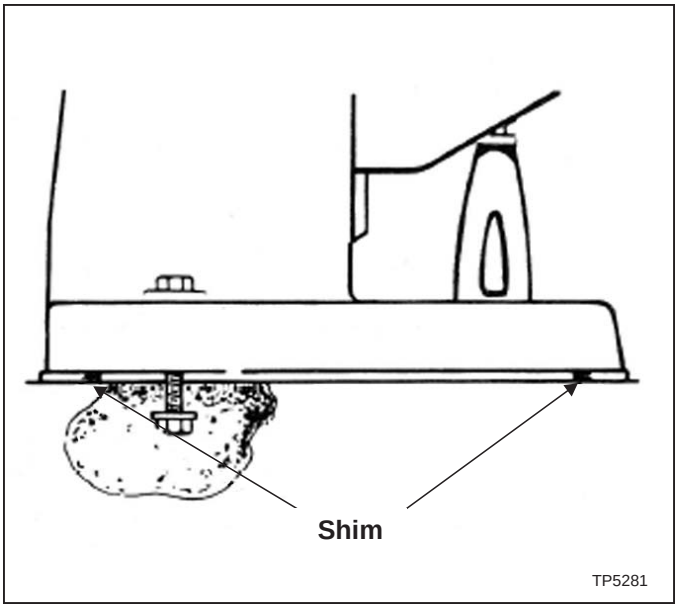

Figure 1.6 - Foundation

Leveling Machine

Set machine by leveling the work table lengthwise and crosswise with a precision instrument as shown in Figure 1.7.

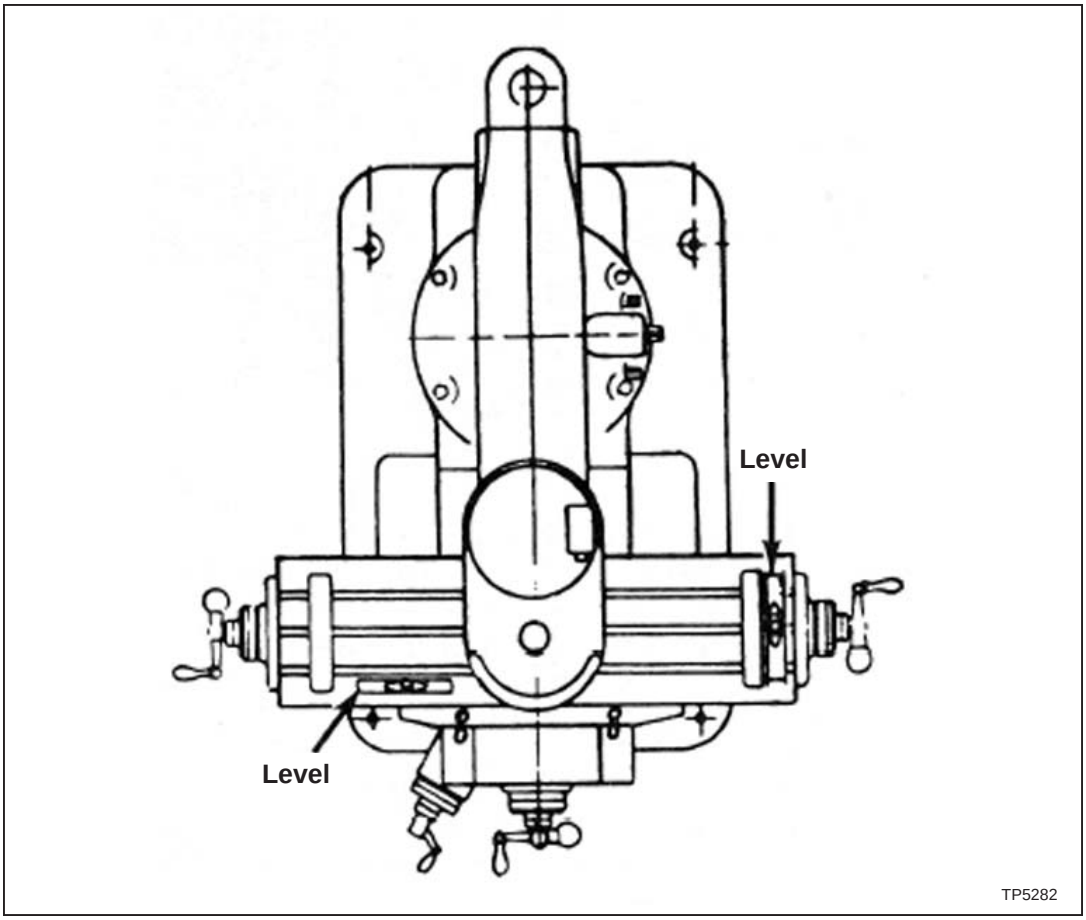

Figure 1.7 - Leveling the Machine

MACHINE POWER SUPPLY

- WARNING -

MACHINE MUST be hooked up by a qualified electrician.

CONNECTING THE POWER SUPPLY

To connect the machine to the plant supply, have a qualified electrician proceed as follows:

1. Check required voltage against power supply to ensure that they are compatible.
2. Connect machine wiring to power supply making sure connection is in compliance with safety regulations.
3. Check for correct spindle rotation. In the HIGH SPEED range, the spindle should rotate clockwise when viewed from the top of the machine.

- NOTE -

Drum switch and hi-neutral-lo lever must be in hi range when checking spindle rotation.

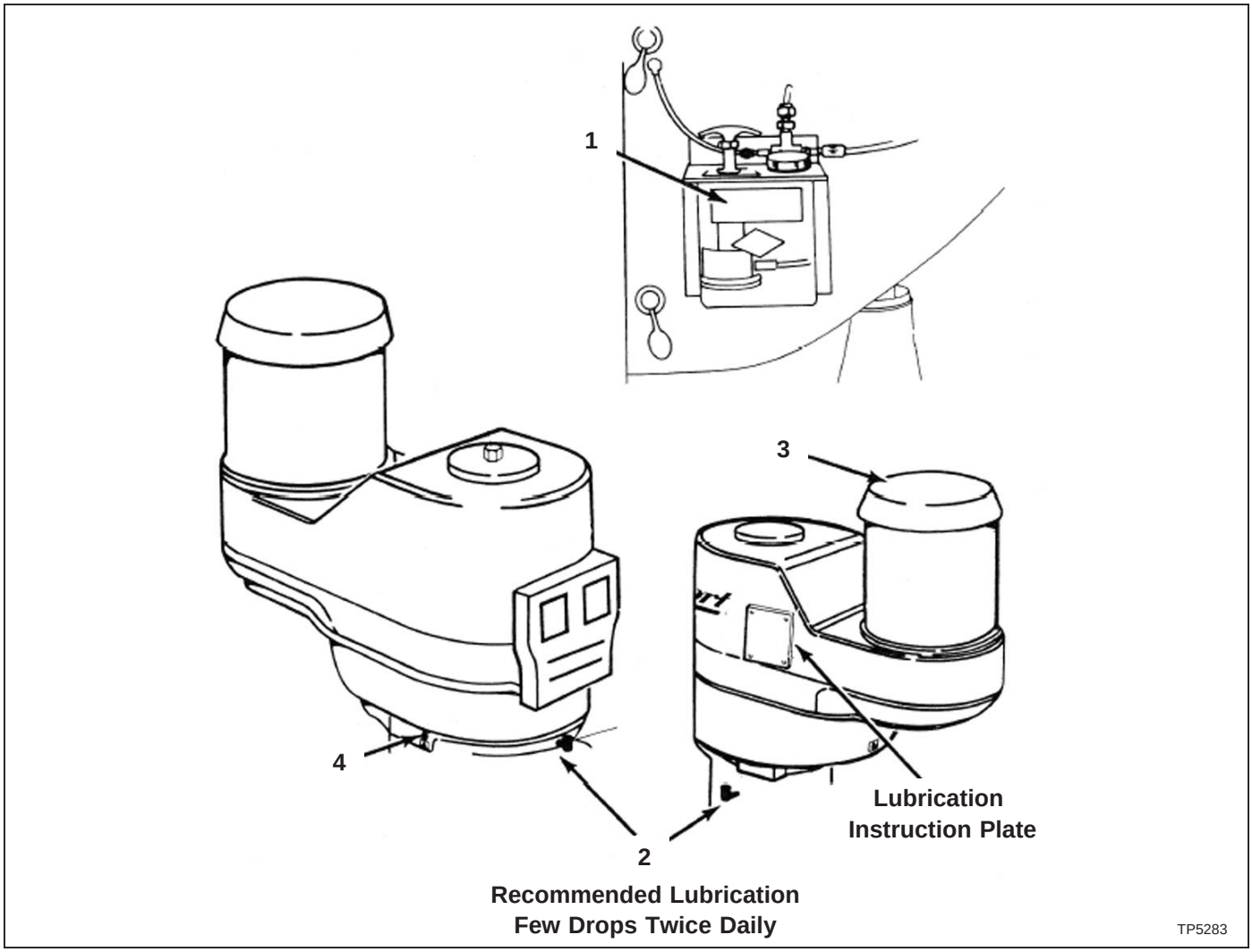

Figure 1.8 - Lubrication Requirements

Indicator	Lubrication Area	Type of Lubrication
1	Way Surfaces and Lead Screws	Sunoco Waylube #1180 or equivalent
2	Milling Heads (Spindle Bearings)	S.A.E. 10 or 10W Light Oil (None on grease-packed heads)
3	Motor	None required. Motor greased for life of bearings
4		Grease with lubricate every six months as described on lubrication plate
Not Shown	Power Feed	Oil to sight level with Mobilube No. 46 S.A.E. 140
Not Shown	Shaping Attachment	Mobil 600W Oil or equivalent

HEAD CONTROLS

Alignment of Head for Fine Work

For precision boring or work of that nature, where it is necessary to have the head perfectly square with the table, use method described below. To set head perfectly square with table, adjust ram adapter through vertical adjusting worm shaft with ram adapter on ram. Loosen four locknuts but leave drag on same for fine adjustment. To square head to table in the longitudinal axis, mount indicator as shown in Figure 1.9. For general milling use, graduations provided on the head are close enough.

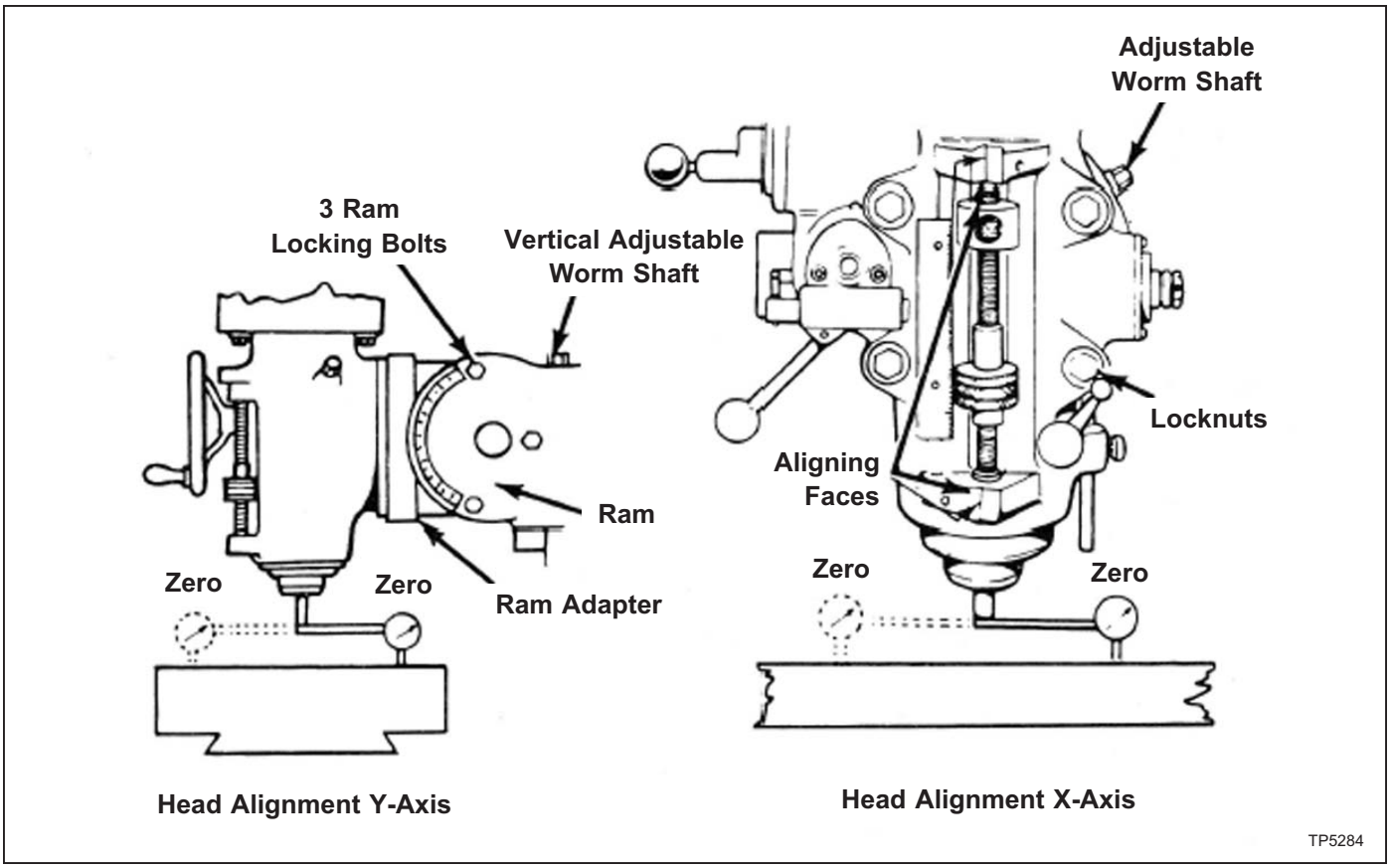

Figure 1.9 - Head Alignment for Y- and X-Axis

Tightening Sequence

Tighten the four head locknuts in a diagonal order as previously described on Page 1-4. Tighten the three ram locking bolts to 50 lb-ft.

Lubrication

Do not operate machine until properly lubricated.

- NOTES -


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