Pre-filling Lubricant Distributor Lines in Series Progressive Oil Systems

PREFILLING THE SYSTEM WITH LUBRICANT

Once the lubrication system installation has been completed, it is necessary to prefill all of the lines (tubing/pipes/hoses) and all of the divider valves before operation of the lubrication system can be started. Proper adherence to the following procedures will help to reduce and alleviate machine start-up problems caused by residual air in the lubrication system lines and components during their installation process. Leaving entrapped air in the lube lines could prevent lubricant from gaining access to the lube points during the critical initial start-up period. Proper prefilling of the lubrication system will insure that lubricant is immediately available to every lube point upon machine start-up, protecting them from any potential damage. In order to simplify prefilling, it is divided into three separate procedures:

- Filling the lines connecting the secondary divider valves to the lube points (Section 1.0).
- Filling the lines connecting the master divider valve to the secondary divider valves (Section 1.1).
- Filling the master divider valve (Section 1.2).

These three procedures should always be performed as a complete group in the sequence listed in order to ensure that every component in the system is completely filled with lubricant prior to machine start-up.

CAUTION

Use only clean oil filtered to the SAE-recommended cleanliness level of ISO 18/14 (ISO Standard 4406) when prefilling a system. The manufacturers of the machine tool and its component bearings should be consulted to ensure that the ISO 18/14 cleanliness level is adequate.

1.0 Filling Secondary-to-Lube Point Lines

Refer to Figure 1 when performing this procedure:

1. Remove the port plugs or performance indicators from all of the indicator ports on the front of the secondary divider valves.
2. Connect a hand pump filled with clean, filtered lubricant to the indicator port closest to the first line to be filled that corresponds to the output port that is feeding the line to be filled.
3. In order to verify when the lubricant is flowing and has reached the end of the lube line, loosen the connector at the lube point of the line that is to be filled.
4. Stroke the hand pump until air-free lubricant is observed flowing from the end of the lube line.
5. Tighten the lube line connector at the lube point, but do not replace the port plugs or performance indicators into the ports on the front of the working section.
6. Repeat Steps 1 through 5 for each of the other lube lines connected to the other outlet ports in the secondary divider valve assembly and for any other secondary divider assemblies in the system.

NOTE

Do not replace any of the performance indicators or port plugs removed in Step 1 until the line-filling procedure described in Section 1.1 (Filling Master-to-Secondary Lube Lines) has also been completed.

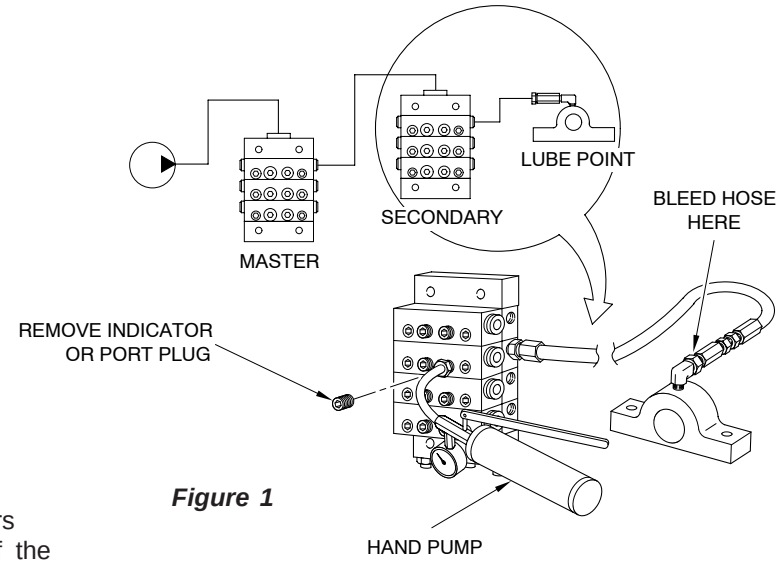

Figure 1

1.1 Filling Master-To-Secondary Lubelines

Refer to Figure 2 when performing this procedure:

1. Remove the port plugs or performance indicators from all of the indicator ports on the front of the master divider valve.
2. Connect a hand pump filled with clean, filtered lubricant to the indicator port closest to the lube output port that is feeding the line to the secondary divider valve.
3. Stroke the hand pump to fill the line between the master divider valve and secondary divider valve.
4. Continue to stroke the pump until the lubricant purges all of the air out of the internal passages of the secondary divider valve and lubricant flows freely from all indicator ports with no evidence of included air.
5. Reinstall the port plugs or performance indicators in their respective positions in the secondary divider valve. Do not replace the port plugs or performance indicators in the master divider valve yet.
6. Repeat Steps 1 through 5 for each of the other lube lines between the master divider valve and all other secondary divider valves.
7. Do not replace any of the performance indicators and port plugs removed in Step 1 from the master divider valve assembly until the air-purging procedure described in Section 1.2 (Filling the Master Divider Valve) has also been completed.

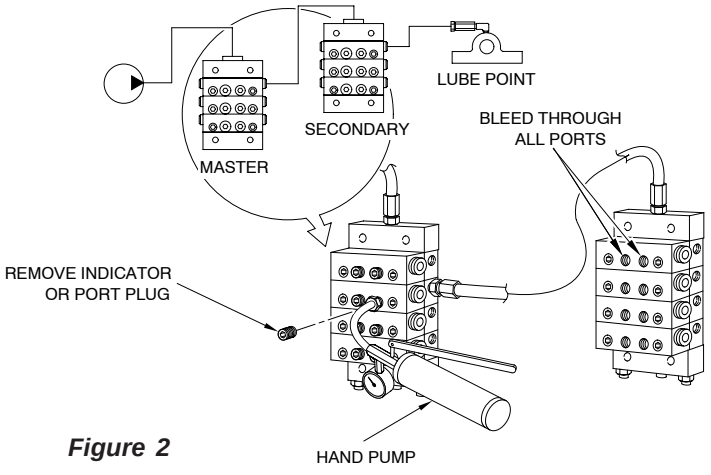

Figure 2

1.2 Filling The Master Divider Valve

Refer to Figure 3 when performing this procedure:

1. Verify that all port plugs or performance indicators have been removed from all indicator ports in the master divider valve.
2. Verify that the system pump is properly connected to the inlet port of the master divider valve.
3. Cycle the system pump sufficiently to fill the main feeder line between the pump and the master divider valve, and lubricant is observed being discharged from all of the indicator ports on the front of the master divider valve with no evidence of included air.
4. Reinstall the master divider valve port plugs or performance indicators into their respective positions.

NOTE: If any maintenance procedures requiring loosening or disconnecting of any connectors or fittings are performed subsequent to completion of the prefilling procedures described above, but prior to machine start-up, the prefilling procedures should be repeated to assure that the lubrication system is completely filled with lubricant and is air-free. Since the most critical operating period for a newly installed machine, in terms of potential for being damaged by unremoved/unfiltered lubricant contaminants and lack of adequate lubrication, is the initial start-up and operation, compliance with the recommended prefilling procedures is crucial for attaining a problem-free start-up of the machine tool and continued reliable long term operating capability.

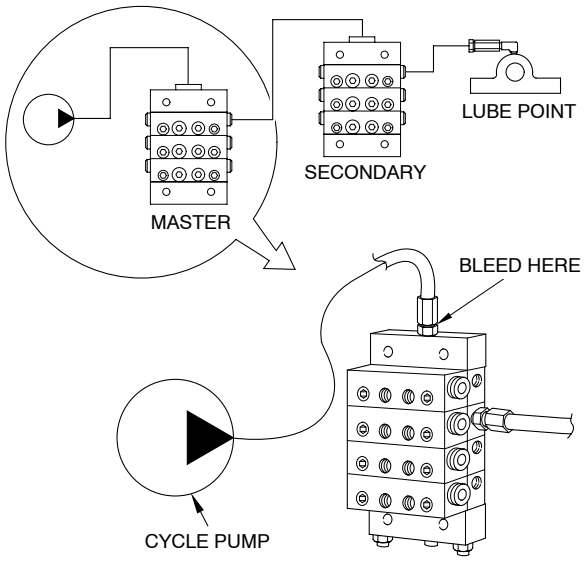

Figure 3

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