MAINTENANCE SCHEDULE FOR THE 400 G-TON CENTRIFUGE

AT

THE UNIVERSITY OF COLORADO

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1 INTRODUCTION

As part of a comprehensive safety program, maintenance and maintenance scheduling must be considered. This document outlines the work which is required to maintain the 400 G-ton centrifuge in a safe working condition. It is the intention of the centrifuge operations staff that this schedule be entered into a scheduling software package. The scheduling software can be installed on the IBM 7532 control computer and will warn the operator about the need for maintenance. This software would also prevent the operation of the centrifuge until all maintenance items were up to date.

The 400 G-ton centrifuge utilizes several ordinary pieces of industrial equipment, i.e. a water chiller, a DC motor, an air compressor. This equipment comes complete with operating and maintenance manuals. These manuals have been gathered in the service manual for the 400 G-ton centrifuge. This maintenance schedule will not repeat all of that information but certainly it will be included in the final maintenance scheduling.

This schedule will become effective upon the approval to the safety committee and all starting dates will be set as required.

2 WEEKLY MAINTENANCE

The items listed as weekly maintenance items shall be checked every 500 G-hours of operation or once a week, which ever occurs first. During an extended down time these items need not be checked, but should be checked after the extended down period, prior to any operation.

1. The brake pads on the drive train caliper brakes will have at least 1/4 inch of padding on all pads. The centrifuge shall not be operated when the thickness is less then 1/4 inch.

2. Brake system air filter drain shall be cleared. This is accomplished by opening the manual valve at the bottom of the filter. The filter is located on the brake instrument panel in the centrifuge drive train area.

3. DC Motor bearing dripper reservoir is full.

4. Replace burned out lights in the drive train area.

5. The maintenance record book should be updated upon completion of the above.
3 MONTHLY MAINTENANCE

The following maintenance items shall be completed every 5000 G-hours of operation or monthly, whichever occurs first.

1. Brake system compressor oil reservoir is full (a dip stick at the south end of the compressor is used to check this item).
2. Gear box oil reservoir is full. This can be checked at the stand pipe on the west end of the gear box.
3. Replace burned out lights in the centrifuge main chamber.
4. The maintenance record book should be updated upon completion of the above.

4 ANNUAL MAINTENANCE

Annual maintenance items shall be completed every 100,000 G-hours of operation or annually, whichever occurs first.

1. Characterization of all drive train bearings using vibration sensing transducers. These vibration signatures will be archived and used to detect changes or trends indicating bearing wear or damage.
2. All drive train couplings should be half full of grease. For further details on grease type etc., see the 400 g-ton service manual.
3. The function of the strap roller supports should be checked on a yearly bases. The cam-rollers should be backed away from the strap, if the roller does not rotate freely then the roller shall be replaced. The centrifuge shall not be operated until any rollers not meeting this requirement have been replaced.
4. As an additional check of the function of the strap rollers, a hump characterization will be completed. The centrifuge shall be configured approximately 200 pounds platform heavy and run to 50 G's. Measurements shall be recorded on all 8 compression studs and the G level, allowing the magnitude and nature of the hump to be characterized.
5. A shunt calibration check shall be completed on each compression bolt. Any required adjustments shall be completed before the centrifuge is operated again.
6. The oil in the centrifuge drive train gear box shall be changed.
7. Centrifuge main base tie bolts shall be checked for proper torque.
8. Counter weight supports should be checked (both the outboard rollers the inboard hangers). All fasteners should be properly torqued.
9. The two pillow block bearings should be lightly greased (a few squirts with a grease gun and the proper grease should do). The correct grease should be in the storage shed and appropriately labeled.

10. The blower intake area for the main drive motor should be cleaned and inspected.

11. The air filter for the brake compressor should be replaced if necessary.

12. The maintenance record book should be updated upon completion of the above.