Impeller Flowmeter

User Guide

Primary Calibration of The Tool

Primary Calibration	Standard	Response Limits
Up	34.8 m/min. (10 ft/min.)	40-60 cps
Down Flow	152.4 m/min. (50 ft/min.)	250-300 cps

Default Calibrations

The following parameters are sensors and responses are set-up to electronic bench testing specifications. Therefore, these "default" calibration numbers may be used to log the tool. The sensors are the following:

NONE

In the calibration file, if the default values of 0 cps equals 0 engineering units are not changed, the tool will then automatically use the default values in the tool module for that tool.

Notes On Logging The 9711/9710 Tool

Usual application for the tool is with a submersible pump installed in the well above the upper-most screened interval. An access pipe is then lowered past the pump for logging the flowmeter through the production zone.

The recommended logging for the tool is to make two consecutive runs of the tool in the downward direction against the upward flow of the well. With the well pumping, the spinner rate will increase through a producing zone. Scaling the log should be such that maximum deflection should equal 100% of the fluid volume. Stationary checks can also be made at specific depths, recommended locations would be at the 100% and 0% flow points, and through the zone of interest.

In some open hole situations with multiple aquifers, there will be a difference between formation head pressures. This will cause flow within the well. The flow meter can be run in both the downwards and upwards directions. Logging in the down direction, the blade rotation will increase through the flow area, while logging in the upwards direction, the blade will slow down through the zone. Combining these two plots will show the zone of flow.

Tool calibration is dependent on pitch and size of the spinner blades, hole size, and viscosity of the fluids measured. Therefore, downhole calibration of the tool is recommended. This is done by logging the tool through an unscreened cased portion of the well at widely different cable speeds with the well producing. Since the tool response is linear, a graph of line speed vs. response can be made. Also, using the Compu-Log system, a two-point calibration can be done so that recorded logs in feet or meters per minute can be achieved. These calibrated logs will then show both the contribution of line speed in feet or meters per minute, and fluid contribution. A run at 9.14 m/min. (30 ft/min.) would then show a continuous 9.14 m/min. (30 ft/min.) response through a zone with NO Flow. Additionally, a zone that shows 27.43 m/min. (90 ft/min.) would be getting 1/3 of its response due to line speed and 2/3 of its

response from the well fluids.

Propeller Shaft and Bearing Replacement Procedure

Refer to drawing 301000 for this procedure.

1. Remove cage and propeller.
2. Remove set screw or screws (1 required, 2 OK).
3. Unscrew item 32 (brass piece) from bottom of tool.
4. Slide item 33 (shaft assembly) out of tool.
5. Remove items 31 (bearing) and if replacing shaft, item 29 (magnet) by loosening set screw item 13.
6. Install new bearing, adding 2 drops of break free or another penetrating oil with Teflon. (not WD-40). If replacing shaft, reinstall item 29.
7. With shaft in place, screw item 32 into tool until it stops with the propeller shaft point resting in the notch at the center of the housing.
8. Back off item 32 until the shaft turns freely but does not have much play (back and forth).
9. Reinstall set screw or screws.
10. Reinstall propeller and cage assembly.
11. Check tool response, in the Log Program, before going to field by turning blade in both directions. If no response is indicated, you will need to adjust magnet on the shaft.

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