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SUPPLEMENT INSTRUCTIONS FOR SYNCROFLO SYSTEMS WITH HOLLOWSHAFT MOTORS

GENERAL

The following procedures should be followed for SYNCROFLO® systems which use vertical multistage diffuser pumps with hollow shaft motors. Primarily, these will be found only on systems where pumps are tank mounted. For all other procedures (including those for standard solid shaft motors), see appropriate system instruction bulletin; No. 29-110 for DuoPhase® systems or No. 29-116 for standard two and three pump systems.

INSTALLING MOTOR SHAFT AND PUMP COUPLING

IMPORTANT:

— Before assembling; the threads of coupling, shafts and machined ends of shafts must be clean — free of all dirt and foreign matter.

— Apply good quality non-hardening thread lubricant on threads to help prevent galling.

(Recommended lubricant: Molybdenum Disulfide, such as "Molykote")

1. Attach threaded pump coupling (item 7) on to pump shaft (item 11) and thread down in a *counterclockwise* direction until shaft end lines up in center of air relief hole of coupling.

CAUTION: Coupling should turn freely. Do not attempt to force it or galling to threads may result!

2. Insert motor shaft (item 8) through top of motor and thread into coupling in a *counterclockwise* direction (while holding coupling) until motor shaft butts against pump shaft.
3. Tighten shaft in coupling securely with strap wrenches (if available) or use standard pipe wrench as follows: place wrench on coupling and spin motor shaft by hand in direction of rotation (shown by arrow) until handle of wrench jams against edge of access opening in discharge head. "Bump" shaft several times by hand or use additional wrench on motor coupling, if necessary, to assure tightness. Do not put wrench on pump shaft.

NOTE: To use motor coupling in tightening process, gib key (item 5) must be installed to lock coupling to motor shaft.

NOTE: Shaft ends must butt firmly and cleanly together in center of coupling to provide vibrationless operation.

SETTING IMPELLERS

NOTE: There should be NO WATER PRESSURE in pump barrel when setting impellers.

1. Insert seal collar spacer between seal drive collar (item 15) and seal gland plate (item 17) to maintain tension setting of mechanical seal.
2. Loosen set screws in seal drive collar one turn or only enough to allow seal to move on pump shaft (item 11).
3. Tap pump shaft down to lowest position using wood block or rubber hammer, if needed.
4. Insert gib key (item 5) in motor shaft (item 8) to lock it to motor coupling cover (item 6) and thread adjusting nut (item 3) on to shaft in a *clockwise* direction until it seats on top of motor coupling, but does not lift shaft.
5. Determine from Data Sheet (Form SC-421) the type of impellers used. Pumps with letter "O" are open type. Models 40L, 40H, 60L and 100L.

A. Enclosed Impellers: Turn adjusting nut one complete turn *clockwise*.

B. Open Impellers: Turn adjusting nut $\frac{1}{8}$ to $\frac{1}{4}$ turn *clockwise*.

6. Be certain motor coupling is bolted securely to rotor (item 14) to prevent upthrust action during pump operation, then install lock screw (item 2) through one of the holes in adjusting nut and screw into place.
7. If lock screw does not fall into any of the holes, in the position arrived at while setting impellers, slowly turn adjusting nut an additional amount in a *clockwise* direction until it lines up with a hole.

NOTE: Pump should turn freely by hand if impeller adjustment is correct. Do not allow pump to run if impeller drag is apparent.

8. Re-tighten set screws in seal drive collar and remove seal collar spacer to re-establish tension setting of mechanical seal.

REMOVING MOTOR SHAFT AND PUMP COUPLING

NOTE: If mechanical seal is to be removed and then re-used, be certain to insert seal collar spacer between seal gland plate and seal drive collar before loosening pump coupling.

1. Remove motor canopy (item 1).
2. Remove lock screw (item 2) from motor shaft adjusting nut (item 3).
3. Disengage pump coupling (item 7) from motor shaft (item 8) using strap wrenches (if available) or with standard pipe wrench as follows: hold pump coupling with wrench while unthreading shaft adjusting nut in a *counterclockwise* direction.

NOTE: Threads on pump coupling, coupling end of motor shaft and pump shaft are *left handed*.

4. Remove motor shaft adjusting nut from shaft and gib key (item 5) from motor coupling cover (item 6).
5. Remove motor shaft by turning *clockwise* until it is free from pump coupling and extract through top of motor.
6. Remove pump coupling from pump shaft (item 11) by turning coupling in a *clockwise* direction.

Item	Description
1	Motor Cover
2	Adjusting Nut Lock Screw
3	Adjusting Nut
4	Motor Coupling Stud
5	Gib Key
6	Motor Coupling
7	Pump Coupling
8	Motor Shaft
9	Motor Mounting Bolt
10	Motor
11	Pump Shaft
12	Seal Gland Bolt
13	Pump Discharge Head
14	Rotor
15*	Drive Collar
16*	Rubber Spacer
17*	Gland Plate

* Indicates parts of mechanical seal assembly.

