ARMSTRONG

Sequence of operation

Constant Speed Booster Set

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Constant Speed Booster Set

1 Set all pumps in auto mode.

2 The first pump not in alarm to be set in auto mode will become the lead pump.

3 All other pumps set in auto and not in alarm will become LAG 1, LAG 2, LAG 3, and LAG 4 in consecutive order. For example if pump 2 is the lead pump, pump 3 will be LAG 1, pump 4 will be LAG 2, pump 5 will be LAG 3, and pump 1 will be LAG 4.

4 Any pump can be selected as lead pump at any time by pressing the **lead** button on the individual pump control screen.

5 The LAG 1 pump will automatically switch to lead pump after an adjustable run time or if cycle time for lead pump is less than 4 min. The lead pump will become a lag pump as soon as the new lead pump is confirmed running.

6 The booster can be set for local or remote start. In local start the lead pump will start as soon as it is set in auto. In remote start the lead pump will start when it is set in auto and the remote start (remote switch) signal is enabled.

7 When the lead pump is running and the pressure drops below an adjustable **stage on** pressure set point for an adjustable period of **stage on** delay time (default is 20 sec), the LAG 1 pump will start.

8 Every time the pressure drops below the **stage on** pressure set point for the **stage on** delay time another Lag pump is started until there are no more pumps available.

9 When the pressure rises above an adjustable **stage off** pressure set point for an adjustable period of **stage off** delay time (default is 20 sec) the highest lag pump will shutdown after it has ran for at least the minimum run time. The leg pump minimum run time is adjustable and default is one min.

10 Every time the pressure rise above the **stage off** pressure set point for the **stage off** delay time another lag pump will be turned off until the lead pump is the only pump left running.

11 The lead pump will stop when the adjustable **no flow pump off** pressure set point is exceeded for an adjustable period of time. The operator display will show the following message: The booster set is in **no flow shutdown**. The lead pump will re-start upon a drop in pressure below **no flow pump on** pressure set point (the stage on pressure set point = No flow pump on pressure setpoint) and the operator display will automatically go to the system overview screen.

12 If there is the low level switch 1 connected to the booster set and enabled, opening the contact of level switch 1 will stop the booster set and display the following message: The booster set is shutdown due to low water level in tank 1. When the contact is closed again the lead pump will start and the operator display will automatically go to the system overview screen. A same logic is applied for the low level switch 2.

13 If there is an aquastat switch connected to the booster set and enabled, opening the contact will stop the booster set and display the following message: The booster set is shutdown due to aquastat temperature switch alarm. When the contact is closed again the lead pump will start and the operator display will automatically go to the system overview screen.

14 A pump failure will generate an alarm and start the next pump automatically.

15 When the discharge pressure is greater than or equals to the high discharge pressure limit the booster will display the alarm and shutdown. This will be reset automatically when the pressure is 5 psi lower than the high discharge pressure setpoint. The high discharge pressure alarm is disabled if the discharge sensor is disabled or the high discharge pressure limit is set to 3200.00 units.

16 When the discharge pressure is less than or equals to the low discharge pressure limit for time longer than 5 min, the booster will display the alarm and shutdown. This alarm requires manual reset in order to restart the booster set. The low discharge pressure alarm is disabled if the discharge sensor is disabled or the low discharge pressure limit is set to 0000.00 units.

17 When the suction pressure is greater than or equals to the high suction pressure limit the booster will display the alarm and shutdown. This will be reset automatically when the pressure is 5 psi lower than the high suction pressure setpoint. The high suction pressure alarm is disabled if the suction sensor is disabled or the high suction pressure limit is set to 3200.00 units.

18 When the suction pressure is less than or equals to the low suction pressure limit the booster will display the alarm and shutdown. This will be reset automatically when the pressure is 2 psi greater than the low suction pressure limit. The low suction pressure alarm is disabled if the suction sensor is disabled or the low suction pressure limit is set to 0000.00 units.

19 When the discharge pressure is greater than or equals to the factory high discharge pressure limit the booster will display the alarm and shutdown. This will be reset automatically when the pressure is 5 psi lower than the factory high discharge pressure limit.

20 A discharge pressure sensor failure will generate an alarm and stop the booster set if the aquastat temperature switch is not used.

21 A bad suction sensor will only generate an alarm if enabled.

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