Appendix A
Pressure vs. Time for 750 gpm

Float position vs. Time for 750 gpm
Appendix B
Trials 1 to better angle ratio

34.0795 inches of travel

341 to 1 ratio

If 60°, from open to close

10.003 inches of travel
7-inch pivot point with 3-inch lever arm

45,000 inches of travel

4:88 to 1 ratio

BF has 45° from open to close

94,248 inches of travel
Appendix D
Appendix E
Float operation at 800 gpm starting flow with 6-inch extension utilizing the stop at 30% of flow

Float Position vs. Time at 800 gpm
Evaluation and Modification of a Float Valve for the Delano Earlimart Irrigation District (DEID)

http://www.itrc.org/reports/deidfloatvalve.htm  ITRC Report No. 01-011

Float operation starting at 800 gpm with 6-inch extension utilizing the stop to 50 gpm

Float Position vs. Time at 800 gpm
Float operation starting at 1100 gpm with 6-inch extension utilizing the stop at 30% of flow

Float Position vs. Time 1100 gpm
Float operation starting at 1300 gpm with 6-inch extension utilizing the stop at 30% of flow

Float Position vs. Time 1300 gpm
Float operation starting at 1300 gpm with 6-inch extension utilizing the stop to 50 gpm

Float Position for 1300 gpm
Appendix F
Float Valve Instructions

Adjusting the Stilling Well

1. Adjust the stilling well position so that the float can move freely up and down.

Adjusting the Float

2. With no water in the standpipe adjust the float lever arm position and the float rod at the same time, so that 2 conditions are met:
   a. The bottom of the float is positioned 6-inches below the bottom of the inlet pipe.
   b. The float lever arm is in the “down” position, which means it is resting on the top of the stilling well.  

   To adjust the float, loosen the allen set screw at the end of the float lever arm and adjust the float to the proper position.

![Figure 1: Detail for adjusting float.](image)

Removal of the Linkage

3. Remove the blue lever arm adjustment plate, and the lever arm, from the float butterfly valve stem.
   a. First unscrew the two bolts that hold the float butterfly valve lever arm to the blue lever arm adjustment plate.
   b. Next loosen the allen set screw located on the blue lever arm adjustment plate.
   c. Slide it off of the float butterfly valve stem.
Adjusting the Main District On/Off Valve

4. Make certain that there is a place for the water to go to when it leaves the stand.
5. Open the discharge valve leaving the stand.
6. Open the main district on/off valve to the standpipe until the desired maximum flow rate is obtained – as determined by looking at the flow meter.
7. Turn the gear operator for the main district on/off valve another 2 turns open.

Adjusting the Butterfly Valve

8. Using a valve handle place it on the stem of the float butterfly valve, rotate the stem (closing the valve) until the flow meter shows that the flow has just started in decline. Keep the valve handle in this position or mark the angle of the stem because this will be the starting point for the valve. Make sure to keep a good grip on the handle so the valve does not slam shut.
Note: Check the water level inside the stand. If the water level is higher than the top of the old stand, then the “desired flow” is higher than that turnout was designed to deliver. The water level inside the stand can’t be any higher than the top of the old stand – which puts a limit on the maximum flow rate that can be obtained.

9. Shut off the main district on/off valve.
10. Allow the water to drain from the standpipe.

Adjusting the Linkage

11. Put the blue lever arm adjustment plate back onto the float butterfly valve stem.
   a. Tighten the allen set screw with the valve stem in the position determined in step (8).
   b. Place the float butterfly lever arm back onto the blue lever arm adjustment plate.
   c. Bolt float valve lever arm back in place when the float is back to the position from step (1).

   Note: In some cases the bolts will be repositioned on the blue lever arm adjustment plate.

Adjusting the Flow Control Stop Bolt

12. Adjust the flow control stop bolt so it is raised five inches.

   Note: Five inches is measured from the top of the bolt to the top of the bolt plate.

Figure 3: Detail of stop adjustment.
13. With the discharge valve open, close the float butterfly valve until it hits the flow control stop bolt.
   Note: It will need to be held or tied in this position.
14. Open the main district on/off valve until the desired flow rate is obtained, and then spin the gear operator wheel an additional 2 turns as in step (7) from Adjusting the Float Butterfly Valve and Linkage.

15. With the float lever arm against the flow control stop bolt check the flow meter.
   Note: The flow through the valve should be a third of the maximum flow. Example, if 1200 gpm is the max, then 400 gpm should still be flowing through the valve.

Fine Tuning the Flow Control Stop

16. Adjust the bolt until one third of the maximum flow is reached.
   Note: Screwing the bolt up increases the flow through the valve, and screwing it down decreases the flow through the valve.
17. The valve is ready for operation.

Purpose of the valve

The purpose of this valve is to regulate pressure to a system. It is not intended to be the main on/off valve for the system.

Daily operation of the turnout

Drip Systems

1. Open the valve at the discharge of the standpipe.
2. Open the main district on/off valve until the desired flow rate is obtained.
3. Open the main district on/off valve an additional 2 turns.
4. Observe if the float linkage appears to be working without any binding.

Non-Drip Systems

If the system is not a drip system, the final flow rate adjustment must be made at the discharge of the standpipe.
1. Open the valve at the discharge of the standpipe.
2. Open the main district on/off valve until the desired flow rate is obtained.
3. Open the main district on/off valve an additional 2 turns.
4. Observe if the float linkage appears to be working without any binding.
5. Close down the discharge valve until the flow meter reads the desired flow rate. (This would be the flow rate before the additional 2 turns where added.)