



The Root Intrusion Solution

## ***FDU 300 Application Procedures***

Utilizing the FDU 300 you can treat 400ft. of 8 – 18” pipe with 20 lbs. of RootX® in approximately 10 - 12 minutes. The procedure requires a jetter truck filled with water, access to the upstream and downstream manholes, a 20 lb. bag of RootX®, a RootX® Tripod and the FDU 300. After determining the bypass orifice size, the Jetter operator will jet the cleaner hose from the downstream manhole to the upstream manhole where the FDU 300 filled with 20 lbs. of RootX® will be attached to the jetter hose. As the jetter hose is retrieved from the upstream to the downstream manhole the jetter operator will run the jetter pump at idle which will activate the root killing foam spray from the FDU 300 nozzle. Once the FDU 300 reaches the downstream manhole the jetter operator should washout any residual RootX product in FDU 300, then drip dry the applicator until ready for another application.

***Please read the detailed application procedures below for the step by step process of utilizing the FDU 300:***

### **FDU 300 Detailed Application Procedures:**

1. The first procedure is to determine the Bypass orifice size for the FDU 300. The FDU 300 only accepts 1.5 gpm so the rest of the water needs to be bypassed. *(If you put too much water into the FDU you can dilute the application, if you do not put enough water into the FDU your foam spray can be limited and the extra dry RootX material could clog the nozzle.)* To determine the bypass orifice you take a bald hose (without nozzle) and time how long it takes to fill a 5 gallon bucket at idle. Once you have your time you consult the orifice kit directions in the orifice kit box (The plastic case provided in the FDU 300 box.) to see which size orifice you should choose from the orifice kit. Place the orifice size you have chosen into the open hole in the back of the FDU 300.
2. Take the FDU 300, Transfer Tube, RootX® Chemical, Tripod and hose retrieval device to the upstream manhole.

3. Jet from the downstream manhole to the upstream manhole. Use a jetting skid or cage with your jetter nozzle with a diameter of at least 4 inches to verify that you have no offsets or protruding taps that will cause the FDU 300 to get caught on the way back.
4. Pull the jetter hose out of the upstream manhole using either a rope or poles with grabbers or hooks. ***To aid you in this you can run the jetter nozzle up past the manhole whatever the depth of the manhole is so that you are pulling up on that excess length and not the full length of the hose to the truck.***
5. Lay the jetter hose on the ground and remove your jetter nozzle and attach the RootX® leader hose.
6. Remove the nozzle from the applicator by using a motion of pressing it down into the applicator and giving it a 1/3 counter clockwise turn and pull it straight out. Then place the applicator into the FDU loading tripod over a manhole.
7. Remove the thumb release cable tie from one of the 20 lb bags of RootX. Securely grasp both ends of the 20 lb bag and pour back and forth until the two separate components are mixed thoroughly. (Approximately 1 min).
8. Cut the tip of the 20 lb bag to allow insertion of the white chemical transfer tube.
9. Using the white transfer tube, insert it into the bag leaving the narrow end of the transfer tube sticking out. Fold over the excess bag around the transfer tube and secure using the snap ring supplied. Make sure that the snap ring is placed all the way to the top of the transfer tube so that none of the RootX chemical can get caught around the lip of the transfer tube when filling the FDU 300 applicator. Verify that the snap ring is tight and that the bag of RootX® chemical cannot come off.
10. While securely holding the 20 lb bag of RootX® chemical with transfer tube attached, lock the transfer tube into the FDU 300 that is already been placed into the loading tripod. To lock the transfer tube in place, press the transfer tube into the FDU 300 opening and use a one-third clockwise turn to lock the transfer tube into place. Verify that the transfer tube is locked by pulling up on it.
11. Proceed to pour the 20 lb bag of RootX chemical into the FDU 300. You may need to shake or tap the FDU 300 to assist getting the entire 20 lb bag of RootX® chemical to go completely into the FDU 300. Once finished tap the side of the transfer tube a couple of times to get any remaining RootX chemical in it to fall into the applicator.
12. Remove the transfer tube from the FDU 3.0 by pressing down and turning the transfer tube one-third of a turn in the counter clockwise direction and then lift off.
13. Remove the empty RootX chemical bag from the transfer tube and discard the empty chemical bag according to local regulations. Keep the transfer tube and snap ring for the next RootX® application.
14. Attach the FDU 300 spray nozzle back on to the applicator by inserting the nozzle into the applicator and pressing down fully and use a one-third clockwise turn to lock it into place. There are arrows imprinted onto both the nozzle and the applicator that should align when both pieces are safely locked. Test to make sure that the nozzle is locked on by pulling on it to verify it is secured and will not come off.
15. Remove the entire FDU 300 from the loading tripod and place onto the ground.

16. Attach the leader hose (previously attached to the jetter truck hose) to the FDU 300 applicator and use wrenches to secure (**Do not hand tighten only**). The FDU 300 applicator must be tightened down to prevent any leaking at the hose connection which could hinder the RootX® chemical application process.
17. Using the supplied rope and hook, run the hook up through the FDU nozzle eyelet so that you can lower the applicator into the manhole and then drop the hook out of the eyelet when the FDU applicator is in position at the bottom of the manhole.
18. Have the jetter truck operator slowly reel back the jetter hose (**no water**) at the downstream manhole while the operator at the upstream manhole lowers the FDU 300 into the upstream manhole with the rope and hook.
19. Once the FDU 300 is lowered into the bottom of the manhole, signal the jetter truck operator to stop reeling in the hose. Lower the hook and rope off of the FDU 300 and remove them from the manhole.
20. Now signal the jetter truck operator to start the water at the truck running the water pressure at idle.
21. Verify that the applicator is spraying properly and signal the jetter truck operator to start the pull back of the jetter hose while continuing to run the water pressure at idle. A 20 lb bag of RootX chemical will take approximately 10 minutes to apply.

Application Rates with 20 lb's of RootX®:

400 foot line = 1.3 feet every 2 seconds

300 foot line = 1.0 foot every 2 seconds

22. Once you have reached the downstream manhole with the applicator, continue to run the applicator for an additional 30-60 seconds to flush out any remaining RootX® chemical.
23. Now turn off the water and allow the water and pressure to drain out of the applicator while still sitting at the bottom of the manhole (approximately 1 minute).
24. At this point you can begin to retrieve the FDU 300 out of the manhole by slowly shaking the hose back and forth to work the applicator out of the sewer line. You can also use any long polls that you may have to gently work the applicator out of the line. Do not use the hydraulic hose reel to forcibly pull the FDU 300 applicator out of the manhole, this can result in damaging the applicator.
25. Once you have the FDU 300 applicator out of the manhole, lay the applicator out straight on the ground with the spray head over the open manhole. Verify that the applicator has no excessive pressure built up inside of it. If there is excessive pressure, locate the pressure relief pull cable on the water inlet side of the applicator. While aiming the pressure relief away from yourself, pull the cable to relieve any excess gas pressure remaining inside the applicator.
26. Now you can safely remove the jetting/spray nozzle. Once again use a push in and turn counterclockwise motion to unlock the nozzle. Be careful as to not drop the spray head back into the manhole.

27. Once the nozzle is removed, turn the water back on at idle and begin to flush the FDU 300 applicator out letting the rinse water run back down into the manhole.
28. Once the FDU 300 applicator is completely rinsed out. Turn of the water, disconnect the jetter hose and leader hose and hang the applicator upside down in the manhole and shake the applicator to drain out any excess water. Turn the applicator around and shake out any remaining water on the inlet side of the applicator.
29. Once the FDU 300 applicator is drained out thoroughly you are ready to continue onto the next RootX® application.