

# Procedure: Filling Forklift Cylinder by Decanting

## Purpose

To ensure safe filling of forklift cylinders by decanting

## References

<https://www.originenergy.com.au/wp-content/uploads/Forklift-Cylinder-Filling-by-Decanting-Guidelines-Origin-LPG.pdf>

## Required Protective Equipment

- Gloves
- Long sleeved shirt and long trousers
- Safety eye wear
- Safety toe boots

## Procedure

1. Switch off forklift ignition, apply handbrake and turn off all electrical equipment (mobile phones, radios etc.). No person is to remain on the forklift or vehicle during the filling operation
2. Put on protective gloves. Turn off service valve and loosen the female ACME from the service valve and carefully disconnect the forklift service hose from the forklift cylinder. A small amount of vapour trapped between the two check valves will escape.
3. Unclip and remove cylinder from forklift using correct manual handling techniques.
4. Check the cylinder to ensure that the test date stamped on the cylinder is within the required 10 year period. If not, do not fill.
5. Inspect cylinder for corrosion and significant dents. If significant dent or corrosion is present, do not fill.
6. Stand the cylinder in a vertical position on the ground or on an earthed stand. **Do not use plastic or timber stands.**
7. Discharge any static electricity by touching both the cylinder to be filled and the supply cylinder with bare hands and then reapply gloves.
8. Unlock the supply cylinder if necessary. Only use the cylinder marked as “Decant Cylinder”.
9. Ensure the dead-man’s valve is closed (i.e. lever not de-pressed). Remove the cap from the outlet valve on the supply cylinder and forklift cylinder. Attach filling assembly hose connection tightly to the liquid supply cylinder using 29mm / 1 1/8” spanner. Remove forklift cylinder dustcap
10. Connect dead-man’s valve end of hose to forklift cylinder being filled using appropriate fitting for service valve and tighten.
11. Slowly open the liquid withdrawal valve on the supply cylinder.
12. Check that there are no leaks on hose on valve connections.

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13. Open the spring loaded dead-man's valve on decanting hose by releasing the safety catch and pressing the handle slowly.
14. Check for leaks. If a leak is observed, immediately cease the decanting operation and close all valves. Vent the hose. Check the o-ring or rubber seals and threads for damage. If no damage is found, reconnect and tighten fittings and repeat from step 9. If the leak persists, stop the transfer, do not fill and contact the Factory Manager or Operations Manager.
15. Slowly open the main valve on the cylinder being filled. Note that opening the cylinder valve quickly may cause the excess flow valve on the inlet of the hose to shut.

16. Open the bleeder screw on the cylinder being filled by 1 turn by hand.

Note: If no vapour is being emitted from the bleeder at this stage, then the bleeder is blocked. Close the bleeder and stop the filling operation by following instructions from step 17 onwards (ignoring step 18), and place the cylinder in a segregated area for repair. Tag the cylinder as 'OUT OF SERVICE'

17. Stay in attendance during the entire process of filling. Do not use any device to hold the dead-man's valve open. Observe the hose and all connections during the filling process for possible leaks. If a leak is observed, immediately cease decant operations and close all valves, disconnect and vent the hose, check fitting and rubber seal or o-rings. Reconnect and restart the filling process.
18. Allow filling to continue until a solid white cloud/ mist discharges from the liquid level/bleeder valve on the cylinder being filled. This indicates that the cylinder maximum fill level has been reached.
19. Immediately release the handle on the dead-mans valve to stop the liquid LPG transfer.
20. Allow fixed liquid level/bleeder valve to continue to vent until the white cloud/mist disappears and then close the liquid level/bleeder valve.
21. Remove gloves and discharge any static electricity by simultaneously touching both the supply cylinder and the filled cylinder with bare skin.
22. Replace gloves and close liquid withdrawal valve on the supply cylinder, and service valve on the forklift cylinder.
23. Loosen decanting hose connection from the forklift cylinder valve and carefully disconnect the hose from the forklift cylinder. A small amount of vapour trapped between the hose connection and the cylinder service valve will escape.
24. Check the forklift cylinder fittings for leaks by liberally applying a leak detection solution, with a brush or spray bottle, to the following: • service valve threads and spindle; • ACME check connector valve; • liquid level/bleeder valve; • safety relief valve (SRV) outlet and thread; • ACME filler valve and thread; and • percentage gauge.

Note: If a leak is detected, carefully remove filled cylinder (keeping it upright) to an open space and isolate any sources of ignition. Keep bystanders and vehicles away. Maintain a safe distance until LPG leak is exhausted.

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25. Replace all dust caps.
26. If no further immediate decanting is to be carried out. Check the main valve is closed on the decant storage vessel and safely depressurise the decant hose assembly, ensuring that there are no other personnel who could be affected by the discharge. Partially depress the lever on the dead-mans valve whilst pointing the outlet of the dead-mans valve in a downwind direction and away from any part of the body.
27. Replace the cap on the outlet valve of the supply cylinder. Lock the cover of the decant vessel.
28. Refit cylinder into brackets on forklift, using correct manual handling techniques, and secure bracket clips. Ensure cylinder is in the correct alignment with the safety relief valve in the uppermost position.
29. Ensure service valve is turned off before reconnecting. Reconnect the forklift service hose by connecting it to the ACME check connector on the cylinder service valve.
30. Open the cylinder service valve and check for leaks.

### Emergency Procedures

#### Leak on valve thread, or outlet of forklift cylinder

1. Keep bystanders and vehicles away.
2. Isolate ignition sources. Do not start any engines.
3. Release the spring loaded handle on the dead-man's valve.
4. Close the supply cylinder and forklift service valves.
5. Close the liquid level/bleeder valve on the forklift cylinder. Loosen the decanting hose connection from the forklift cylinder service valve and carefully disconnect the hose from the forklift cylinder. A small amount of vapour trapped between the two check valves will escape.
6. Check sealing washer and 'O' ring in male ACME check connector on service valve.
7. If a fault is found, keep upwind of the leak. If the leak continues, cease decanting, disconnect the hose, and carefully move the forklift cylinder to a safe area
8. Attach a defect tag to the faulty forklift cylinder valve and advise a responsible person on site that the cylinder is faulty. Do not allow leaking cylinders to be transported for any reason.

#### Leaks on supply cylinder

1. Close supply valve if safe to do so.
2. Keep bystanders and vehicles away.
3. Isolate ignition sources. Do not start engine.
4. Keep upwind of the leak.
5. Contact Origin on 1800 808 526.

#### Overfilled Cylinder

1. Attach a defect tag and advise a supervisor that the cylinder has been over-filled.
2. Keep bystanders and vehicles away.
3. Isolate ignition sources. Do not start any engines
4. Move the over-filled cylinder to a safe area where its contents can be slowly vented using the liquid level/bleeder valve, until it reaches its safe fill level.  
Note: Under no circumstances should an over-filled cylinder be used before its contents are reduced to the safe fill level.

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### Burst decanting hose

1. Release the spring loaded handle on the dead-man's valve
2. Close the supply cylinder valve and forklift service valves, if safe to do so.
3. Keep bystanders and vehicles away.
4. Isolate ignition sources. Do not start any engines.
5. Keep upwind of the leak.
6. Allow the decanting hose to vent and then disconnect it from both the forklift cylinder and supply cylinder.
7. Attach a defect tag to the hose and advise a responsible person on site that the hose is unserviceable.

### LPG fire

**Note: Do not extinguish the flames if the valves cannot be safely closed. If the fire cannot be extinguished readily and safely, evacuate the local area and call the emergency services on 000.**

1. Release the spring loaded handle on the dead-man's valve
2. Shut all valves, if possible and if safe to do so.
3. Raise the alarm and keep bystanders and vehicles away
4. Use water spray from hose to keep tank or cylinders cool. Approach the cylinder/tank from the upwind side.
5. Do not extinguish the fire unless by doing so you can shut valves to shut off fuel supply to the fire.

The basic rule for LPG fires, therefore, is to control the leak before putting out the fire.

The only time you would break this rule would be if putting out the fire first enabled you to control the leak. This would be done by using a dry chemical extinguisher and only if immediate access to isolating valves can be gained to stop the LPG flow.

When sufficient water is not available to keep the cylinder/tank cool, some warning of increased pressure may be noted from an increase in the volume of the fire or from an increase in the noise level of the discharge from the safety relief valve.

**This should be a signal to consider withdrawal of all personnel to a safe area, i.e., at a distance of at least 70 to 200 metres from the site of the fire.**

6. Telephone Origin on 1800 808 526.

# Procedure: Filling Forklift Cylinder by Decanting



Employee \_\_\_\_\_

Date \_\_\_\_\_

## Employee comments

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## Supervisor comments

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## Observed training sessions

Session comments	Date	Supervisor Initial
1. _____		
2. _____		

## Employee

Name \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

## Supervisor

Name \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

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