TRSV Lock-Out Tool (LOT)

The NOV TRSV Lock-Out Tool (LOT) is wireline deployed accessory tool designed to permanently lock-open tubing retrievable downhole safety valves that are no longer fully functional. Once the safety valve is locked open, a separate Communication Tool can be used to establish hydraulic communication and facilitate the insertion of a wireline deployed, hydraulically controlled, secondary safety valve.

The LOT is deployed with standard wireline equipment (spang jar and weight bars) until it lands on the “no-go” shoulder within the safety valve. Mechanical jarring locates dogs within the safety valve internal lock profile and expands another set of dogs above the flow tube. Continued jarring compresses the power spring and drives the flow tube and flapper into the fully opened position. All power spring compression and flow tube movement is captured with internal ratchets during the operation. Once the safety valve is fully open, continued jarring permanently deforms the flow tube below the square face of the hydraulic chamber housing preventing the flow tube from moving back into the closed position. Additional jarring collapses the tool for recovery.

The LOT is a simple, proven, and robust accessory tool for permanent safety valve lock-open operations. It does not require fluid within the well or additional wellbore hydraulic pressure to successfully function. The tool design removes all lock-open specific features within the safety valve, ultimately increasing the long-term reliability by mitigating the potential for accidental or premature lock-open/shifting during intervention operations.

Contact NOV for specific tool application information. Contact your local NOV representative, or reference the appropriate safety valve technical operating manual for more information.

Features
- Simple, robust design
- Straightforward operation
- Minimal components
- Easily field redressed
- Built-in visual tattle-tale verification of proper lock-open set
- Contingency shear-release feature

Benefits
- Standard wireline operations
- Lock-opens are achieved with minimal wireline manipulation
- All tool components collapse within the outside diameter once locked-open
- High lock-open retention forces to ensure the safety valve will not be inadvertently shifted during tubing operations

Applications
- Tubing deployed safety valve lock-open operation

Lock-Out Tool Engineering Data†

Tubing Size in (mm)	**Max OD** in (mm)	**Polished Bore Diameter** in (mm)	**Overall Length** in (cm)	**Weight** lbs (kg)
2.875 (73.03)	2.298 (58.37) 2.395 (59.92)	2.250 (57.15) 2.313 (58.75)	76.59 (194.54)	47.58 (21.58)
3.500 (88.90)	2.796 (71.02) 2.859 (72.62)	2.750 (69.85) 2.813 (71.45)	77.59 (197.08)	87.23 (39.57)

* Note - “CF” Denotes Curved Flapper

† The engineering data provided illustrate the scope of this product offering and are not all inclusive. Additional sizes and functionallity is available upon request.