

BREAK-SAFE® 600 Load Break & Pick-up Tool



USBS-600-1

Available Options:

S - Soft Case

PATENT NO. 6,078,008 *Other Patents Pending*

Operation Manual

C-01050 USBS-600 Manual (2-24-16)

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Applications



The BREAK-SAFE® 600 is a jumper clamp that functions like a portable switch. It is designed to operate on overhead distribution power lines in conjunction with an appropriately rated and approved jumper cable.



There are three operating functions: load break, load pickup and continuous current duty. It is intended for temporary connections and should not be used in a permanent capacity.

The USBS-600-1 is designed to be installed and removed from overhead lines using appropriately rated and approved rubber gloves and personal protective equipment. An approved insulated hot stick is required to perform the load break and load pick-up operations.

	DANGER	
Contact with high voltage will cause death or grievous personal injury to the operator. Only use this device in conjunction with safe operating practices around energized lines and equipment.		

	WARNING	
Always wear appropriately rated rubber gloves and personal protective gear when utilizing this product to prevent electrocution.		

	WARNING	
Carefully read and fully understand this manual prior to operating, maintaining or testing this device. Improper operation, handling or maintenance of this device can result in death, grievous personal injury and or equipment damage.		

	WARNING	
Follow safe work procedures and practices when utilizing this device. Failure to use this device in a safe manner can result in death, grievous personal injury and or equipment damage.		



WARNING



These instructions are not intended to replace or be a substitute for proper safety training procedures. Failure to select the proper tool in regards to minimum system requirements can result in death, grievous personal injury and or equipment damage.

Circuit Restrictions

The BREAK-SAFE® 600 should not be used if the maximum voltage and/or amperage rating of the tool can be exceeded. The BREAK-SAFE® 600 is rated by maximum amperage and voltage (kV). The table below details the specific ratings for this model.

Model	Max System Voltage	Maximum Current Rating	Minimum Conductor Size	Maximum Conductor Size
USBS-600-1	27 kV	600 A	#6 Copper	2" Diameter

Table 1



WARNING



The BREAK-SAFE® 600 is nearly 11 lbs. Adding two temporary jumpers could substantially increase the weight. Extreme caution should be used when installing on small diameter wire.

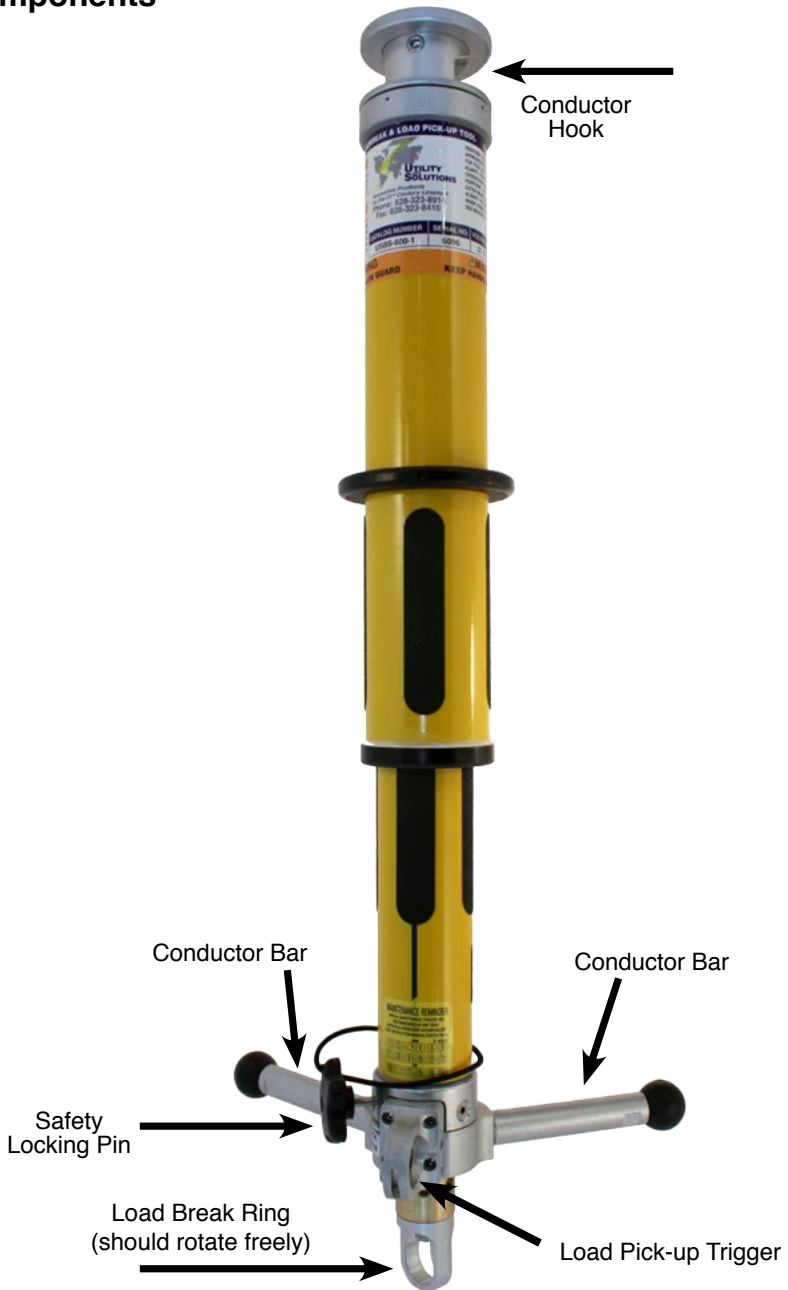
The BREAK-SAFE® 600 has been tested to the full voltage and amperage rating for nominal power factors of 70%-80% for both load break and load make applications. However, the tool is rated by system voltages. For example, a 27 kV tool on a 27 kV system will usually experience voltages of $27 \text{ kV} / \sqrt{3}$ or about 15.6 kV. It is at these actual ($\sqrt{3}$) system voltage levels that the tool is rated for line charging and cable charging applications. The BREAK-SAFE® 600 has been tested at full 27 kV.

The tool is designed to be used on three phase systems, but only on a single phase at a time. Typical three phase applications require three separate tools.

Outlined below are some circuit restrictions known to exist:

- **Do not utilize the BREAK-SAFE® 600 tool in situations where ferroresonance can produce over-voltage situations. An example of this involves switching unloaded transformers that are delta-connected three phase and wye-connected three phase with primary neutral ungrounded.**
- **The tool should never be used in phase-to-phase applications.**
- **Do not utilize the BREAK-SAFE® 600 to switch unloaded transformers.**
- **Do not utilize the BREAK-SAFE® 600 to switch capacitor banks.**

Components





WARNING



Only trained and qualified personnel should operate, inspect and maintain this equipment.



WARNING



The BREAK-SAFE® is not waterproof. Do not use the BREAK-SAFE® in wet conditions. If inclement weather is expected after installation, cover tool with an approved insulating rubber blanket.



WARNING



Carefully inspect the tool prior to each use. Damaged components can result in personal injury and or equipment damage.



WARNING



When working with the BREAK-SAFE® always assume the tool is energized at all times. Never consider the tool body as rated insulation.



WARNING



The BREAK-SAFE® is NOT a fuse. It should be used in a temporary capacity only.



WARNING



Always remove the BREAK-SAFE® from the circuit, or remove the jumper attached to the parking stand, after each load break operation.
The BREAK-SAFE® 600 is not rated insulation nor is it considered a “visible gap”.

Line and Tool Preparation

1. Do not exceed the rated voltage of the tool (TABLE 1).
2. Do not exceed the rated amperage of the tool (TABLE 1).
3. Insulate the pole and conductor as required by the supervising utility safety practices.
4. The USBS-600-1 requires **TWO(2) approved temporary jumpers rated at 300 Amps** each in order to break or pick-up loads in excess of 300 amps.
5. Clean the conductor at each location where the BREAK-SAFE® 600 and jumper cables will be attached.

Operation

Prepare the Tool for use

1. Refer to the laminated **Field Inspection Procedure** card before each use.
2. Remove the Safety Locking Pin (FIGURE 1).
3. Pull the Load Break Ring until the tool locks in the OPEN position.
4. Re-insert the Safety Locking Pin into the LOCK OPEN position (FIGURE 2) to prevent an accidental load pickup operation.

Install the Tool and Jumper Cables

Note: Two(2) 300 Amp rated and approved temporary jumpers are required.

5. Clean and inspect the conductor before securely attaching the BREAK-SAFE® 600 (in the OPEN position and with the Safety Locking Pin installed) to the "SOURCE SIDE" (FIGURE 3) of the circuit using standard utility safety practices and procedures.
6. Clean and inspect the conductor before securely attaching one end of an appropriately rated and approved jumper cable to the "LOAD SIDE" of the circuit (FIGURE 3) using standard utility safety practices and procedures.
7. Securely attach the opposite end of an appropriately rated and approved jumper cable to one of the Conductor Bars on the BREAK-SAFE® 600.
8. Repeat steps #6 & #7 to install a second jumper cable (FIGURE 3).



Figure 1



Figure 2

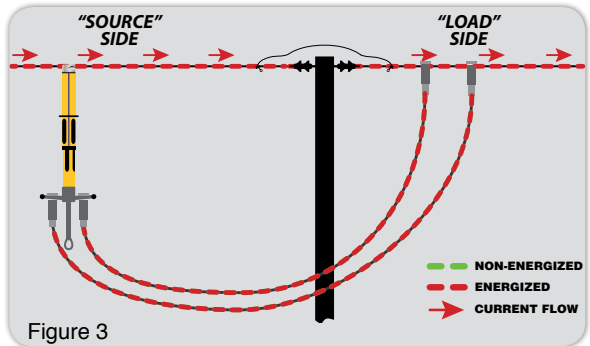


Figure 3

Perform Load Pick-up Operation

9. Visually check connections and confirm placement of the tool and jumper cables before performing the Load Pick-up operation (FIGURE 3).
10. Remove the Safety Locking Pin using standard utility safety practices and procedures (FIGURE 4).
11. Using an approved insulated hot stick, exert a steady downward movement on the Load Pickup Trigger. The Load Break Ring Assembly will retract forcefully inside the tool energizing the circuit. Push up on the Load Break Ring with the hot stick to verify the internal contacts are fully seated.
12. Using standard utility safety practices and procedures, immediately insert the Safety Locking Pin into the LOCK CLOSED position (FIGURE 5) to prevent an accidental load break operation.



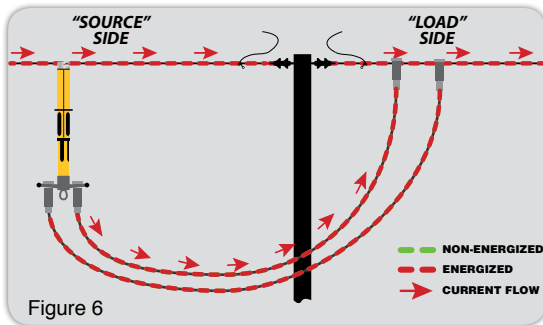
Figure 4



Figure 5

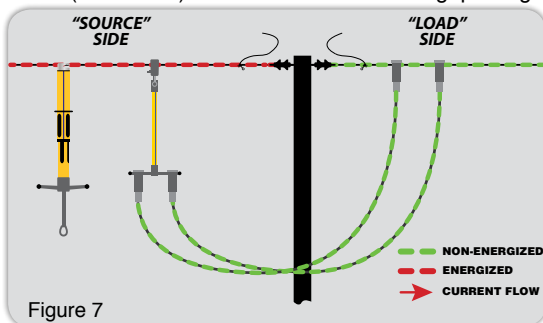
Temporary Circuit Established

A temporary or parallel circuit has now been established. The permanent circuit can be disconnected or cut following standard safety practices and procedures while maintenance or other activities are performed (FIGURE 6). *Note: The BREAK-SAFE® 600 is a temporary device and is not meant for long term use. The BREAK-SAFE® 600 is NOT a fuse.*



Perform Load Break Operation

13. Remove the Safety Locking Pin using standard utility safety practices and procedures (FIGURE 1).
14. Using an approved insulated hot stick, push up on the Load Break Ring to verify the tool has been properly reset.
15. With one steady motion, pull down firmly on the Load Break Ring using an approved insulated hot stick until the tool locks in the OPEN position. Do not stop or hesitate while pulling.
16. Using standard utility safety practices and procedures, Immediately insert the Safety Locking Pin into the LOCK OPEN position (FIGURE 2) to prevent an accidental load pick-up operation.
17. Verify there is NO VOLTAGE and/or NO AMPERAGE present on the BREAK-SAFE® 600 and the jumper cables.
18. If the SOURCE SIDE circuit is to remain energized while work is done, move both jumper cables to the conductor bar of a Utility Solutions **Jumper-T** (USJT-001/2) or equivalent device (FIGURE 7). This will create a visible gap using rated insulation.



19. To re-energize the temporary circuit, repeat the procedure beginning at step #7.
20. If the temporary circuit will not be re-energized, the BREAK-SAFE® 600 and the jumper cables may be safely removed from the permanent circuit.
21. The BREAK-SAFE® 600 should be stored in the LOCK CLOSED position (FIGURE 5).

Operational Life

The BREAK-SAFE® 600 Load Break & Pick-up Tool is designed to operate with minimal maintenance or service. Maintenance should be performed every 2 years. A shorter maintenance schedule is recommended for tools used more frequently.



A Maintenance Reminder decal is located below the product decal and indicates the date of manufacture OR the date of last service.

Service is recommended 2 years after the date shown.

Periodic Maintenance

Utility Solutions suggests maintaining the BREAK-SAFE® 600 every year by performing either a Heat Run Test or a Resistance Test. Both are done using the Utility Solutions **Grounds Tester** (USGT-600) or equivalent device. This test procedure, in addition to the in-field routine maintenance test procedure, will ensure the BREAK-SAFE® 600 meets factory performance criteria and is fully functional.

Refer to our website or contact the factory regarding repair or maintenance information.

Storage

The BREAK-SAFE® 600 should be stored in a clean, dry place. Damp and/or high humidity environments should be avoided.

The BREAK-SAFE® 600 should be stored in the LOCK CLOSED position. Utility Solutions recommends storing the BREAK-SAFE® 600 in a soft case (USBS-600-SOFTCASE).

Warranty

Utility Solutions warrants the BREAK-SAFE® 600 Load Break & Pick-up Tool for any defects in manufacturing for the period of one year. If the tool is returned within that time period, Utility Solutions will repair or replace the tool free of charge.

