



SOUTHERN CROSS

**All-Terrain Vehicle
MD Kit Manual**

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1.0: INTRODUCTION

The Southern Cross All-Terrain Vehicle (ATV) Mobile Leak Detection (MLD) kit makes it possible to survey remote sections of pipe that, in the past, may have been skipped for being too rugged or would have required walking. A Flame Pack 400 or '46 Hawk (not included) are used as a means of detection. The survey devices require no modifications from its standard configuration.

NOTE: Most ATVs are not street legal. Observe all warning signs and safety precautions listed in the ATV owner's manual.

All necessary mounting hardware is provided. With minor alterations, the kit may be adapted to fit various types of off-road vehicles.

The main components of the kit are a front drag bar assembly and a removable case. The case contains hardware for the leak survey device, a sample pump, flowmeter, alarm amplifier, and mounting.

The blower on the drag bar draws a large volume of air into the six drag hoses. In each hose a smaller sample is drawn through ¼" tubing by the sample pump located in the case. After this samples passes through the pump, it is pushed into a sampling chamber where the leak survey device takes its sample.

Due to excessive noise produced by some ATVs, the alarm on the survey equipment may not be heard. An alarm amplifier mounted inside the case will produce a louder sound and turn on a light as leak survey device alarm sounds.



2.0: INSTALLATION

- **Mount Front Drag Bar Assembly:** Drill two 9/32" mounting holes 18" apart (center to center) on the front bumper or bracket of the ATV. The holes should be at a height that, when viewed from the side, the drag bar assembly level with drag hoses should be just above the ground.

NOTE: Drag hoses and ¼" sample lines may be shortened to accommodate the particular mounting requirements. The 1" black hose may be removed and cut to length and reinstalled. To shorten the sample tubing, pull each one from the rear of the drag. The excess may be cut off at the 6 into 1 manifold. The new ends can now be pushed back onto the barbed connectors.

Loosely attach U-brackets to these holes using the ¼" bolts. With the clevis pins, attach the drag bar assembly. Securely tighten mounting bolts. Attach one end of a support strap to the eyebolt in drag bar stand-off. Connect other end around cargo rack tubing such that it angles upward and supports the drag bar. The lengths of these straps can be adjusted if necessary.

Mount height adjustment locking cleat on cargo rack tubing or other location such that it is 6" – 8" higher than the drag bar. It should be positioned so that it can be easily reached by the operator. The operator can then raise or lower the drag bar by pulling or releasing the rope and locking it in any position.

The large bungee cord attaches from a hole in the blower brush guard to a low point at the center of the ATV. This maintains a slight downward pressure on the drag bar.

- **Mount the Case:** Place the case with its hinge side forward on the front cargo rack or similar level surface. Wrap the four small bungee cords around the cargo rack tubing and hook hem in the four hold down loops outside of the case. The case must be secured well enough to prevent it from being thrown from the vehicle.

Before operating, the lid must be opened and supported with the two lid supports inside that are attached to the bottom half of the case.

- **Connect Tubing and Wiring:** Connect the ¼" clear tubing from the drag bar using the quick connect stem to plug in the quick connect body mounted on the outside of the case. Plug in the wiring connector from the drag bar to the receptacle on the case. Screw down Securely.

Power to the unit is supplied by connecting the length of wire from inside the case to the vehicle's electrical system. It is preferred this be attached to a source of power downstream of the ignition switch. In this way the pump and blower will operate only the ignition is turned on. Attach the ground wire to a proper chassis ground.

Many ATVs include an accessory two-wire electrical plug and socket

- **Install the Leak Survey Device:** With portable probe removed, attach sample tubing by plugging quick connect stem into the leak survey device. The quick connect will snap when attached securely.

Hold the leak survey device so that its body is resting on the leak survey device holder. Gently push down until the body is held firmly in place. The unit may be tilted as desired by the operator.

NOTE: The Flame Pack 400 and '46 Hawk used must pass all operational and calibration tests as described in the Flame Pack 400 and '46 Hawk Operation and Maintenance Manual.

3.0: OPERATION

- **Start-Up:** The leak survey device may now be started in the usual manner. As the leak survey device warms up, turn on the sample pump and blower. The flowmeter inside the case should be adjusted to approximately 4 LPM (Liters Per Minute).

Turn on the alarm amplifier.

- **Begin Survey:** Speed should be no more than a fast walking pace. Where gas will vent straight up, such as on transmission lines, the front drag bar should be kept as loose as possible to be directly over the main. Always keep in mind logical venting points.

Normally the two straps in a near-level position support the drag bar. In some situations, such as crossing streams, the bar might need to be raised temporarily. This is accomplished using the height adjustment rope and locking cleat. After passing the obstacle, release the rope and again let the drag bar be held by the support straps. Drag hoses must remain just above the ground for maximum survey efficiency.

- **Shut Down:** Turn off sample pump and the alarm amplifier. Disconnect sample line from the leak survey device. Close the case to protect the leak survey device and to reduce accumulations of dust and dirt inside the case. Before parking the ATV at the end of the survey day, pull the leak survey device from its holder. Wipe away any dust and dirt and store the unit in the carrying case.

4.0: MAINTENANCE

- **Filters:** There is one filter on the ¼" sample tubing in each drag hose. Randomly check at least one each day. Depending upon amount of usage, all six filters should be replaced weekly, or sooner if the ATV has surveyed in extremely dusty conditions. To change a filter, remove the retaining screw and slide off the washer and seal. Replace the dirty filter with a clean one and replace the seal and washer. These filters may be washed in mild soap and water and used again.
- **Batteries:** The alarm amplifier is powered by a battery, located in the small battery compartment inside the amplifier box. It should be replaced when the amplified alarm begins to weaken, and the light becomes dimmer.
 - The Flame Pack 400 Alarm Amplifier is powered by two 9V batteries.
 - The '46 Hawk Alarm Amplifier is powered by one 9V battery.
- **Overall Check:** Perform an overall check for missing, bent, broken, or loose parts. Check all mounting hardware to be sure nothing is vibrating loose.

5.0: SURVEY RECOMMENDATIONS

Observe all ATV manufacturers' safety guidelines. If the particular ATV is designed for operator only, **do NOT carry passengers!** If possible carry a two-way radio and make sure someone is aware of where survey is taking place.

Check that the survey equipment has enough battery power to complete the survey before arriving to survey location.

6.0 ALL TERRAIN VEHICLE MLD KIT FLOW SCHEMATIC

