

ATV Kit Operating Instructions

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1 General Notes

- Please follow these instructions closely. **EVERYTHING** in this document is here for a reason. Reasons include:
 - Protecting equipment from common damage. For example, if the kits are set on end with the lids off, cables get broken.
 - Making sure you have everything you need to run the kit. Small parts get lost easily. Be sure those barrel connectors are where they're supposed to be, and that you actually check the inventory every time you pack up.
 - Enabling less experienced operators to run the kit. If that barrel is in the wrong place, it's confusing.
 - Protecting you from injury.
 - Reducing the amount of physical effort required to operate the kit. If the lids are on right side up, you don't have to pick the kit up again to turn it over.

- Producing the best possible video. Antennas too close to the camera result in RF noise.

- Please report broken or missing items to net control so they can be fixed before the next event.

2 Simplex Setup

- Check the inventory sheet, stored in the tool box, to be sure you have a complete kit. Don't mix and match parts from different kits – some parts don't "mix". Everything loose should be labeled. 430 kits are numbered 41, 42. 900 kits are numbered 91, 92, 93.
- Haul all the gear to your operating site. The portable case and tool box are there to absorb small accidental bumps. The aluminum tubes on the 430 kit yagis are fairly delicate. Please watch doorways, don't slam the kit around, etc.
- **The velcro wraps are permanently tied to the cables. Don't remove them. On large cable bundles, several ties may be hooked end-to-end to make them long enough; don't separate them.**
- Connect the extension cord to your power source.
- Get the antenna tripod head from the toolbox, fit the tripod legs to it, position it. Choose a position well away from where you will place the camera, and where you won't be in front of the antenna during transmit. **The transmitters put out up to 20 watts.**

- Examine the antenna for squashed or twisted loops (900 kits) or bent elements (430 kits). Do what you can to straighten things out. The aluminum tube elements are fragile, so you'll have to be pretty delicate. **If the driven elements are damaged beyond repair, STOP! Don't burn up the transmitters! Call in for help.**
- Mount the antenna on the mast by bolting the U-clamp to the big plastic tube, by dropping an element into the big plastic tube, or by inventive application of duct tape, as appropriate. The loop yagis are permanently bolted to the tube; just drop it in the cap on the tripod head. On the 900 kits, the yagi loops should hang from the side of the boom, not the top or bottom, to get vertical polarization. Most Lansing/Ingham ARPSC operations use vertical polarization.
- Connect the coax to the antenna. 430 coax has one "N" and one "UHF" connector. 900 coax has two "N" connectors.
- Set up the camera tripod and position it.
- With the lid still on, set the portable case on its front end (logo on lid). Unlatch the latches (flip out, twist) on the back cover portable case (cover with no logo) and remove the cover. Set it aside where it won't blow, fall or wander away. Extract the power cord (short white cord from power strip on 900 kits, black cord from power supply on 900 kits). The power strip in 900 kits should already be turned on.
- Connect the coax to the "N" barrel connector marked "To 900 Ant" which sticks out the back of the portable case (900 kits), or to the back of the transceiver about a foot in from the back and right of center, in the portable case. 430 kits have an adapter attached to the transceiver so that they take "UHF" connectors.
- Lay the portable case flat. Don't set it on its back end for operation, as it needs more ventilation than that will allow in warm weather, and you need to avoid crimping the coax.
- Point the antenna at the receive site.
- Sort out the coax, get it tied down so it doesn't drag the equipment around. It will help keep the antennas correctly pointed too. Duct tape is your friend.
- Open the front of the portable case. Set the cover aside where it won't blow, fall or wander away. Fish out the camera input cable with the barrel connector on it. Make sure the transmitter and downconverter power switches are set "on", the transmitter "transmit" switch is set off, and the power supply is turned off.
- Connect the portable case power cord to the extension cord.
- Turn the power supply on.
- Get out the camera, place it on the tripod. Camera should have its tripod adapter attached; there's a flip-latch on the tripod head which you'll have to hold open to attach the adapter. Lock the latch down firmly. **The cameras are very delicate. Please be gentle with them.**
- Get out the camera power "cord". Connect it to the camera. The input connection is behind a rubber flap just below the battery, on the back side of the camera. The cord will only connect one way. Plug the other end of the cord into the power strip (900 kits) or the extension cord (430 kits).
- Get out the camera patch cable. Connect the mini phone plug to the camera. The connection is behind a plastic flap on the front corner of the camera.
- Find the coiled up long camera extension cable in the portable case. Connect the yellow RCA plug on the other end of the camera patch cable to the barrel connector on this cable. **The little red switches above the transceiver or at the right side of the portable case are attached with glue; please be gentle with them.**

- Remove the camera lens cap. It's tied to the camera hand strap, so it won't wander off.
- Set the camera to the record position. The slide switch is on the back corner of the camera, to the right of the battery. You'll have to push in the little green nib in the middle to get it to slide.
- You should now see the camera's picture on the tv in the portable case.

3 Simplex operation

- **The transmitters put out up to 20 watts. Don't stand in front of the antenna.**
- The power lights on the transceiver and down-converter should be on. The television should show a picture. On the 900 kits, the amplifier fan should be running.
- In the event of unexpected precipitation, protect the camera and the gear in the portable case from rain. The tool box should contain trash bags. Be aware of electrical shock risk. It is not the intention Lansing/Ingham ARPSC to ask operators to cope with long term inclement weather except in emergencies, or expose them to dangerous storms at any time.
- Select the correct transmit frequency on the transceiver. When operating the 900 kits, you may be asked to change channels from time to time. 430 kits will be used on only one channel (usually 439.25, perhaps 434.0 if interference problems) for any given event.
- Flip the transceiver switch to transmit to start sending. To quit transmitting, press the "id" button; it's either above the transceiver or at the right side front of the portable case. Then flip the switch to receive. **The little red switches above the transceiver or at the right side of the portable case are attached with glue; please be gentle with them.**
- The kits contain an IDer board which will automatically overlay the WC8LAN call sign onto

the transmitted image every 10 minutes. It does not know when transmissions end, so must be told to id at the end of a transmission. A laminated ID card is also attached to each camera for use if this device fails. If you notice (or are told) that your system isn't properly identifying, hold this card out in front of the camera for a few seconds every 9-10 minutes during transmit.

- Pay attention the net control. You may receive instructions to zoom in or out, pan around, or quit transmitting. If you need a break, check with net control.
- There's no returning rf signal, so you just have to watch the transmit monitor for signal quality, or listen to net control or operators at other sites for hints.

4 Packing Up

- **If you have to pack up in a hurry, be sure to check the inventory sheet anyway, but you can repack neatly back at the command center.**
- Turn the camera off.
- Turn the power supply off.
- Place the lens cap over the camera lens.
- Disconnect the yellow RCA plug on the the camera patch cable from the barrel connector. Leave the barrel on the long cable which stays in the portable case.
- Disconnect the camera patch cable from the camera. Close the plastic flap on the camera. Coil the patch cable, velcro it, place it in the tool box.
- Disconnect the camera power "cord" from the power strip or extension cord. Coil it up, velcro it, place it in the tool box.
- Unmount the camera from the tripod, leaving the tripod adapter on the camera. Carefully place the camera in the tool box.

- Fold up (and velcro, if it's there) the camera tripod.
- Disconnect the portable case power cord from the extension cord.
- Coil up the camera input cable, with the barrel connector still on it, velcro it, tuck it into the front of the portable case. The 900 kits have a cable tie loop near the top right corner of the portable case where you can attach the velcro loop to keep the cable from flapping around. **The little red switches above the transceiver or at the right side of the portable case are attached with glue; please be gentle with them.**
- Make sure the transmitter and downconverter power switches are set "on", the transmitter "transmit" switch is set off, and the power supply is turned off.
- Fetch the front cover of the portable case (with the logo). Place it right way up on the front of the portable case. Latch the latches, and flip them down. **The patch cable going to the front of the transceiver stays plugged in; there's enough room for it under the lid; but please be gentle.**
- Set the portable case on its front lid.
- Disconnect the coax from the barrel connector. Leave the barrel attached to the coax jumper in the portable case.
- Disconnect the portable case power cord from the extension cord. Coil it up and velcro it. Tuck it gently into the back of the portable case. Leave the power strip in the 900 kits turned on. The power strip cord has no velcro.
- Put the back cover on the portable case. Latch the latches and flip them down.
- Disconnect the coax from the antenna. Coil it into a small coil so it will fit in the toolbox, velcro it, and place it in the tool box.
- Dismount the antenna from the mast. On the loop yagis, just lift the plastic tube out of the tripod head and leave the antenna attached to the tube.
- If the tripod tube is not permanently attached to the antenna, take it off the tripod and place it in the toolbox.
- Remove the legs from the tripod. Bundle the legs. Place the tripod head in the tool box.
- Disconnect the extension cord to your power source. Coil it up small enough to fit in the tool box, velcro it, place it in the toolbox.
- Try to position the stuff in the toolbox to protect the camera from being whacked or floating around – e.g. keep the metal tripod cap away from it, use the cables to hold the camera down.
- Check the inventory sheet to make sure you have all the pieces before closing up the tool box.
- Haul it all back to the command center. The portable case and tool box are there to absorb small accidental bumps. You're tired, but please don't slam the kit around.
- Report broken or missing items in the kit to net control so the kit grooming team can deal with them before the next event (which might be tomorrow night, and you might be the operator who has to cope if they're not handled).

5 Fuses

- The banana plug power strip uses a 15 amp slow blow 3AG type glass cylindrical fuse. The fuse is in the holder on the end of the strip.
- The powerpole power strip uses a 25 amp mini blade fuse.
- The power supply uses a 10 amp 250 volt slow blow 2AG type glass cylindrical fuse. To replace, remove the lid. The fuse is in a holder on the edge of the board just behind the meters. Note

that in the new packaged kit configuration, this is a major pain.

- The ATV transceiver uses a 5 amp slow blow 3AG type glass cylindrical fuse. To replace, remove the lid. The fuse is in a small holder in one corner of the box. Note that in the new packaged kit configuration, this is a major pain.
- The amplifier in the 900 kits does not contain any fuse.
- The television does not have a user-accessible fuse.
- The camera does not have a user-accessible fuse.
- The ID overlay generator does not contain any fuse.