



DESIGNERS AND MANUFACTURERS OF ELECTRONIC CONTROLS



KAR-TECH.com

MINI REMOTE™

**MINI REMOTE CONTROL SYSTEM
PRELIMINARY
USER MANUAL**

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MINI REMOTE™**DESCRIPTION:**

KAR-TECH's MINI REMOTE is a state of the art microprocessor based Radio Frequency (RF) remote control system designed to provide the machine operator with the ability to remotely operate equipment. The machine operator is still required to follow OSHA and other applicable standards when operating the equipment.

This system is designed with Frequency Hopping Spread Spectrum (FHSS) Technology to eliminate the RF interference problem in Radio remote products.

The control system consists of two major modules: the remote station (this unit), and a separate remote receiver (Digital

Controller) sold separately.

Each transmitter is preprogrammed with a special radio ID code. The receiver is programmed to respond only to the transmitter with the ID code for which it is set. This feature allows the equipment to work in wireless mode in close vicinity of each other without interfering with each other. In the event that a transmitter becomes damaged and a new one is needed, the receiver can be reprogrammed to respond to the new transmitter.

MINI REMOTE™**INSTALLATION:**

1.Refer to the wiring chart for wiring connections.

3.When installing the unit, the main power should run from the battery, through a 20 amps fast blow fuse, to a power switch or relay; then into the receiver unit. For best results connect the receiver main power connections to the auxiliary terminal of the ignition switch, PTO switch, or ignition relay. Use 18 gauge or heavier wire.

4.All connections must be properly insulated to protect

against shorts.

BEFORE APPLYING POWER:

1.Check power and ground polarity.

2.Check wiring harness for possible shorts before connecting remote control to output devices (i.e., valves, relays) by checking each mating pin terminal.

3.Read the rest of this manual.

MINI REMOTE™**ROUTINE MAINTENANCE:**

1. Clean transmitter and receiver regularly with a damp cloth and mild detergent.
2. Periodically check receiver antenna for tightness.
3. Inspect electrical wiring for wear points or other damage. Repair as required.
4. Inspect all connections for looseness or corrosion. Tighten and/or "seal" as necessary.

MAINTENANCE PRECAUTIONS:

When performing any inspection or maintenance work on the MINI REMOTE system, always exercise care to prevent injury to yourself and others or damage to the equipment. The following are general precautions that should be closely followed in carrying out any maintenance work.

1. Do not have hydraulic power available to the valves when performing electrical tests or downloading programs.
2. Never operate or test any function if any person is in an area where they could be hurt by being hit or squeezed by the

hydraulic equipment.

3. Turn power off before connecting or disconnecting valve coils or other electrical loads.

TROUBLESHOOTING:

This section provides basic operator level troubleshooting for the MINI REMOTE system. If, after following these instructions, the system still does not function, check the hydraulic system then contact your KAR-TECH representative for further instructions or servicing.

MINI REMOTE™

TROUBLE SHOOTING CHART

PROBLEM	SOLUTION
1. No operation of all functions when a function switch is activated.	1. Check to see if the selector switch is in the proper position. 2. Check that unit power is on. 3. Check that receiver power is on. 4. Check vehicle wiring for power into the receiver. 5. Check LED status display for system status. 6. Check for proper grounding of vehicle's electrical circuit. 7. Check vehicle's hydraulic system
2. Certain functions do not work	1. Check the wiring connection from the receiver to the valve coil or the output function that does not work. 2. Check LED status display for system status. 3. Check vehicle's hydraulic system 4. Check vehicle's electrical system
3. Function operates intermittently.	1. Check for loose connections. 2. Check LED status display for system status. 3. Check receiver antenna for any damage and proper connection. 4. Check vehicle's hydraulic system

MINI REMOTE™**SPECIFICATIONS****TRANSMITTER**

Power supply	+12V nominal, 9V to 35V transient
Operating temperature - Radio	-40° C to +85° C
Storage temperature.....	-40° C to +100° C
Frequency	902-928 MHz
Transmit power (ERIP).....	10 mW
Vibration.....	3G to 200Hz
Shock	.50G

There are no user-serviceable parts inside the Transmitter or the Receiver. Return the units to the KAR-TECH for service.

Note: For operation with negative ground vehicles only.

WARNING:

The **KAR-TECH** MINI REMOTE must be operated in compliance with all applicable safety regulations, rules, and practices. Failure to follow required safety practices may result in death or serious injury.

The information, specifications, and illustrations in this manual are those in effect at the time of printing. **KAR-TECH** reserves the right to change specifications or design at any time without notice.

MINI REMOTE™**INSTRUCTION TO THE USER:**

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Increase the separation between the equipment and receiver.
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

The term "IC:" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTANT NOTICE: To comply with the FCC RF Exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied:

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operate in conjunction with any other antenna or transmitter.