

SAFETY MANUAL FOR FRA SURVEY VEHICLES



**EFFECTIVE
1 OCTOBER 1980**


**Prepared for:
DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
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ENSCO SAFETY MANUAL

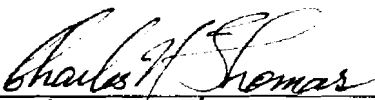
The safety rules set forth in this manual govern all FRA Survey Vehicles operated by ENSCO, Inc. under contract DOT-FR53-80-C-00015. In addition, these safety rules provide guidelines for all ENSCO employees, FRA personnel, and all other personnel working on or visiting the survey vehicles. This Safety Manual is published in accordance with ENSCO, Inc. project directives. These rules are effective 1 October 1980 and supersede all previous safety rules and regulations.

Special instructions may be issued by the proper authorities at any time.



John G. Wichser
Safety Officer

Approved:



Charles N. Thomas
Deputy Program Manager



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FORWARD

ENSCO, Inc. is constantly endeavoring to maintain safe working conditions and to protect its employees from injuries.

The rules which follow have been developed as a result of our experience with the railroad industry and the Government's rail survey and test vehicles and are designed to prevent accidents.

These rules contained herein do not replace any railroad safety procedures, but serve to reinforce railroad industry procedures which are directly applicable to ENSCO employees.

By your sincere cooperation and safety consciousness in obeying these rules, we hope to continue the achievement of an unblemished safety record.

It is your responsibility to be alert, exercising proper judgement and common sense to perform your work safely. If you are ever in doubt concerning your safety, contact your supervisor.

Since your safety is most important, we ask that you carry out the rules set forth herein and set a working example not only for your colleagues, but for the railroad industry. Report any unsafe practices or conditions, which, in your opinion, should be remedied, to your supervisor.

INDEX

General Rules.....	1
Accident and Injuries.....	3
Personal Safety Equipment and Requirements.....	5
Personal Conduct.....	9
Responsibility and Violations.....	12
Use of Blue Flag.....	14
Yard Rules (Non-Active Survey Status).....	17
Operational Safety (Survey Status).....	19
Survey Vehicle Safety and Equipment Regulations.....	22
Car Equipment.....	24
Hand, Flag and Lantern Signals.....	25
Electrical Safety.....	27
Fire Prevention.....	29
Fire Emergency Procedures	31
Use of Tools.....	32
General Housekeeping.....	34
Office and Laboratory Safety.....	35
Appendix A - Phone Directory.....	A-1
Appendix B - Preliminary Accident/Incident Report.....	B-1
Appendix C - Emergency First Aid Procedures.....	C-1

GENERAL RULES

- A. Safety is the first consideration in the performance of your duty.
- B. Knowledge and obedience of the rules contained herein is essential to safety.
- C. ENSCO employees shall act in a professional and courteous manner at all times.
- D. In case of doubt or uncertainty in work procedures, the safest course must be taken.
- E. All ENSCO employees are required to have a copy of these rules while on field duty and must understand and obey them. Questions regarding these rules shall be directed to the ENSCO Safety Officer or his Alternate for an explanation.
- F. All employees and visitors assigned to or visiting the survey cars must receive a safety briefing by the Safety Officer or his Alternate covering the rules that must be observed while on or about the survey vehicles.
- G. The use of or being under the influence of intoxicants, narcotics, or dangerous drugs by employees subject to duty, while on duty, or on Government or railroad property is prohibited. Possession of intoxicants, narcotics, or dangerous drugs or participation in any transaction involving same by employees on duty or on Government or railroad property is prohibited.

The use of any medication, including those prescribed or dispensed by doctors or dentists, that will affect an employees alertness, coordination, reaction, judgement, vision, or ability to perform their work properly will be reported to the Safety Officer or his Alternate. Said persons will be relieved of hazardous assignments.
- H. Any violation of these rules or any unsafe conditions must be reported promptly to the Safety Officer or his Alternate.
- I. Employees who persist in unsafe practices and place themselves or others in jeopardy will be subject to disciplinary action including dismissal. Employees must not rely solely upon the carefulness of others but must protect themselves when their own safety is involved. No job is so urgent that sufficient time cannot be allowed to perform all work safely.

- J. All employees visiting any railroad facility will obey and comply with the safety rules and regulations established by that facility.
- K. The carrying or possession of firearms, or other weapons while on duty or on Government or railroad property is prohibited.
- L. Suggestions to improve safety conditions or procedures should be addressed to the Safety Officer.

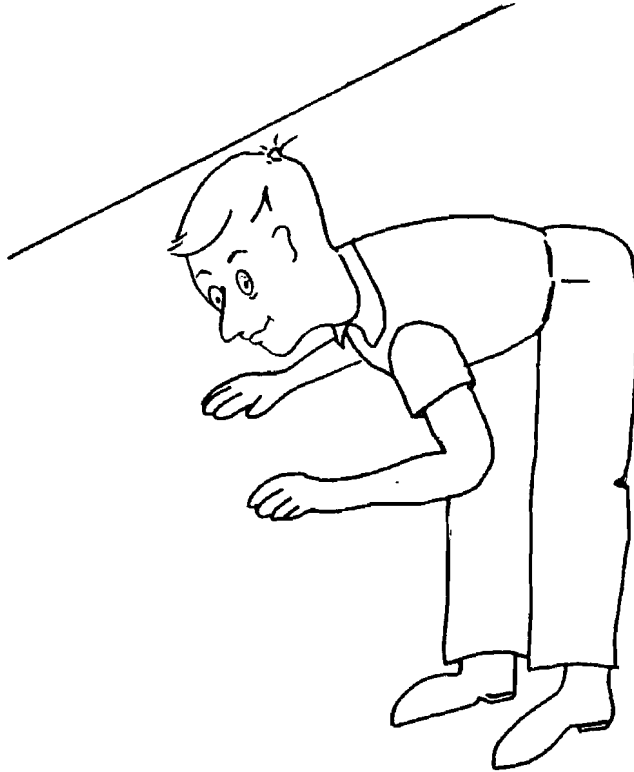
ACCIDENTS AND INJURIES

1. Definitions:
 - 1.1 Accident: an unexpected event that occurs during vehicle or equipment movement resulting in loss or damage to equipment, and/or bodily personal injury.
 - 1.2 Incident: an unexpected event that occurs while vehicles or equipment are standing still (i.e. while cars are in storage, maintenance, etc) resulting in loss or damage to equipment and/or bodily personal injury, or results in a violation of safety rules and/or standard operating procedures.
2. Whenever an accident/incident occurs, the senior ENSCO Operations or Maintenance crew member onboard or at the site will supervise and coordinate all post accident/incident activities as outlined in the ENSCO Project Directives.
3. Defects in electrical or mechanical equipment on the ATIP vehicle or defects in track, signals, or rolling stock or any unusual condition must be reported by the quickest available means to the respective ENSCO or railroad authority.
4. An injury of any kind, however minor, must be promptly and properly treated and reported to the Safety Officer or his Alternate to prevent future complications and to comply with rules set forth by the Workmen's Compensation Board.
5. Do not move an injured person(s) except to remove them from a danger area, or if the extent of the injuries are known and indicate that the injured person can be safely moved without further injury, or to administer required first aid.

6. If an accident/incident results in personal injury or death, all tools, machinery and other equipment involved, as well as the premises where the accident occurred, must be promptly inspected by the Senior, on-site ENSCO employee in charge. A report of the inspection, stating the conditions found and the names of the persons making the inspection, must accompany the final written Accident/Incident Report.
7. Any ENSCO employee who is injured or becomes ill in the field shall be accompanied by another ENSCO employee until he/she is under professional medical care.
8. The Senior on-site ENSCO operations or maintenance crew member shall submit the Preliminary Accident/Incident Report (Appendix B) to ENSCO Program Management as soon as practical following an accident/incident. Arrangements should be made for notification of FRA program management and ENSCO follow-up contact when the Preliminary Report is submitted.
9. For emergency services, employees should refer to the local railroad time table or telephone directory.

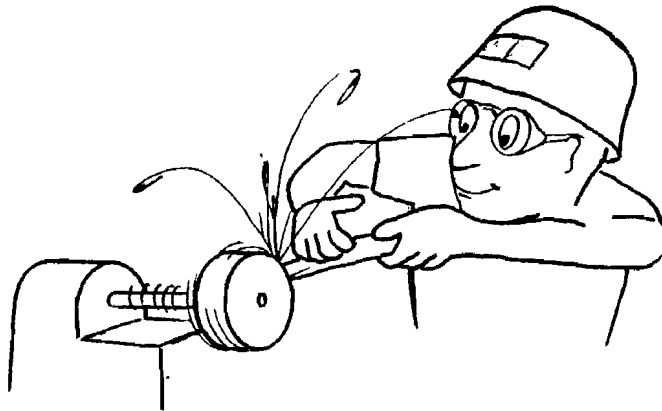
PERSONAL SAFETY EQUIPMENT AND REQUIREMENTS

20. ENSCO employees must wear hardhats while working under the survey vehicles. The use of hardhats is recommended at all times when personnel are working outside the survey vehicles.



21. ENSCO Operations and Maintenance personnel (except Survey Directors, Field Engineers and Management Personnel) while on, about or under the survey vehicles or on railroad property will wear boots that are at least eight inches tall (7½ inches for women), lace over the shoe tongue to the boot top, and have VIBRAM or other similar soles with deep tread for traction. Steel toed boots and shoes are recommended for all ENSCO employees having business on or about the survey vehicles.

22. ENSCO personnel will not be permitted on the survey vehicles wearing the following footwear: open toed shoes or sandals, canvas or cloth shoes, shoes with thin or loose soles, shoes with wedge-type or high-heeled soles, unbuckled overshoes, or any type of shoe that provides negligible resistance to impact or puncture.
23. ENSCO employees shall wear protective eye coverings while working under the survey vehicles in a position where dirt may fall in the eyes, near moving machinery, diesels, drills, grinders, and when using forced or compressed air for any purposes.



24. Contact lenses are not a substitute for goggles or safety glasses. The use of plastic contact lenses is discouraged.

25. The following present a safety hazard and shall not be worn:
- 25.1 Neckwear and jewelry that may become entangled or caught in machinery.
 - 25.2 Hand or wrist jewelry when working near or with electrical or mechanical machinery.
 - 25.3 Torn, loose, or baggy clothing, or loose-hanging shirt sleeves when working around moving parts of machinery.
 - 25.4 Short trousers (cut-offs, walking shorts).
 - 25.5 Clothing saturated with oil, grease or other flammables.



26. ENSCO crew members must be dressed to perform their duties safely. Clothing must provide protection from the sun, weather, abrasion, scratches and insects. The following shall be worn by crew persons while working on, about or

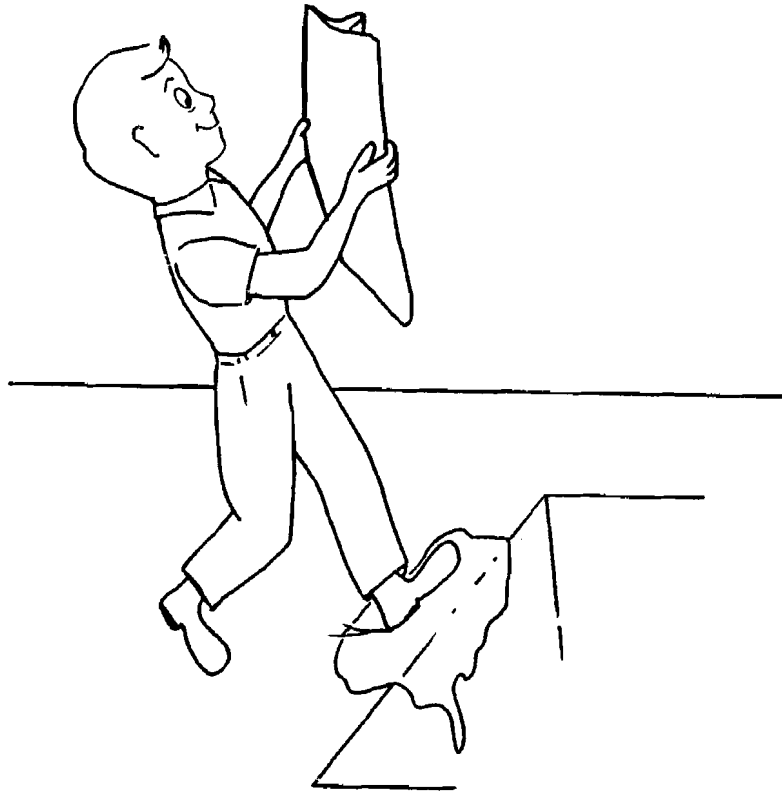
under survey vehicles:

- 26.1 Work uniforms are to be made of materials consisting primarily of cotton or wool (this includes coveralls and jackets).
 - 26.2 Long pants or trousers covering legs to boot tops.
 - 26.3 Long or short sleeve, waist length shirts.
27. Gloves, or mittens, must be worn while handling rough, heavy or corrosive materials.
 28. All ENSCO Operations, Maintenance and Data Processing personnel assigned to duty on the survey vehicles will receive First Aid and CPR training in conjunction with ENSCO's Standard Operating Procedures.
 29. Clothing and headgear shall not impair vision or hearing.

PERSONAL CONDUCT

40. Personnel will conduct themselves in a professional manner.
41. Scuffling, horseplay, practical jokes, wrestling, running and all conduct of a similar nature, while on duty or on railroad or Government property is prohibited.
42. Employees must exercise care to avoid injury to themselves and others by observing the condition of equipment and the tools which they use in performing their duties and, when found defective, will, if practicable, put them in a safe condition, or report the defects to their supervisor.
43. Personnel must remain alert for movement of trains, locomotives, cars or other equipment at any time, on any track, in either direction.
44. Employees are prohibited from doing any work in a manner that might jeopardize their safety.
45. Employees are expected, during their off-duty time, to obtain ample rest in order to be physically and mentally fit for the proper and safe performance of their duties.
46. When on the survey vehicles or locomotives, watch and be prepared for any sudden start, stop, lurch or jerk of the equipment.
47. When getting on or off any survey or railroad vehicle, face that vehicle, use both hands and have secure handholds and firm footing. Carrying tools, materials or any objects which prevent secure handholds or interfere with the safe boarding or alighting from the consist is prohibited.

48. Look in both directions before alighting from the survey vehicles.
49. Avoid rubbing bare skin with hands or gloves while handling corrosive or acidic materials.
50. ENSCO employees are strictly forbidden from working alone on the survey vehicles at any time or for any reason. At least one other person must be in the vicinity of the survey vehicles at all times. (Except survey vehicles stored at Farrington facility).
51. Stepping or jumping across open pits is prohibited.
52. Walking, sitting or stepping on rails, frogs, switches, guardrails, interlocking machinery or connections, is prohibited.
53. Walking through steam which obscures vision should be avoided whenever possible.
54. Keep a safe distance from moving cars or locomotives to avoid injury from falling objects, projections of equipment, dragging material, etc.
55. Avoid standing or walking on tracks except when necessary in the performance of your duty.
56. Be alert for under-foot conditions and avoid objects, obstructions, holes and openings that may cause you to trip, slip or fall.

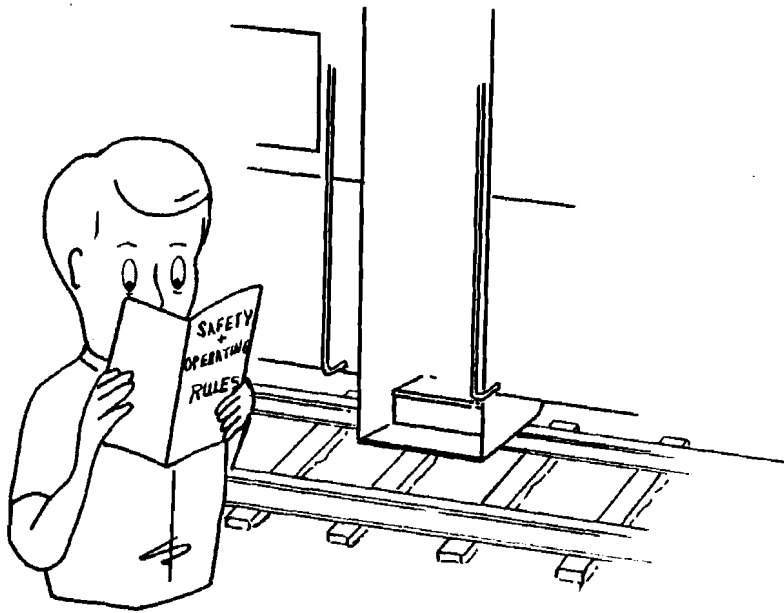


57. Getting on or off turntables, transfer tables or any railroad equipment in motion is prohibited.
58. Leaning against standing cars or locomotives is prohibited.
59. Throwing of articles (littering) from survey vehicles, locomotives, or moving equipment is prohibited.
60. Employees must not enter into altercations with any person, regardless of provocation, but will make note of the facts and report such incidents in writing to their immediate supervisor.
61. Individuals who have long hair shall take precautions to avoid entangling it in moving machinery. Long hair shall be arranged on top or behind the head to avoid interference with vision and to prevent injuries while working on or about the survey vehicles.

RESPONSIBILITY AND VIOLATIONS

80. The Safety Officer will enforce the safety rules and will take corrective action for any violation.
81. While FRA Track Geometry and Rail Flaw Detection Vehicles are operating within the scope of an operations plan, the Survey Director is the Safety Officer Alternate. During all other FRA Track Survey Vehicle activities, the Senior ENSCO Operations or Maintenance person onboard is designated Safety Officer Alternate.
82. The Safety Officer Alternate for Track Survey Vehicle activities will be responsible for all matters relating to ENSCO operations and maintenance safety matters. Appropriate corrective actions will be taken immediately in the event of any safety violation. A written report to the Safety Officer will be made on each such violation. Non-ENSCO personnel involved in safety violations will be reported to the FRA or to the applicable railroad.
83. The assignment of a Safety Officer Alternate for FRA Track Survey Vehicle activities does not in anyway relieve each person of their responsibility to be constantly alert for potentially dangerous conditions and to immediately report such conditions to the Safety Officer or Alternate.
84. All personnel notified by railroad personnel that they are in violation of a railroad safety rule must take immediate corrective action and must report the incident to the Safety Officer or Alternate.
85. Violation of a safety rule by ENSCO personnel may be grounds for disciplinary action. Violation, investigation and disciplinary procedures are set forth in ENSCO's Standard Operating Procedures.

86. Ignorance of any safety rule is not an excuse for violation of the rule.



USE OF BLUE FLAG

99. Blue Flag Definitions:

- 99.1 "BLUE SIGNAL" means a clearly distinguishable FRA/ENSCO blue flag or blue light by day and a blue light by night.
- 99.2 "Active Survey Status" means anytime a locomotive is coupled to the Geometry Car Consist, a railroad pilot, trainman or engineman is in control, and the ENSCO Survey Director has authorized vehicle operation.

100. Blue Signal Protection for ENSCO Employees

When ENSCO employees are on, under, or between FRA automated track geometry vehicles at times other than active survey status:

- 100.1 A blue signal must be displayed at or near each manually operated switch providing entrance to that track.
- 100.2 Each manually operated switch providing access to the track on which the equipment is located must be lined against movement to that track and locked with an FRA/ENSCO lock.
- 100.3 If the FRA automated track geometry vehicles to be protected are coupled to one or more locomotives, a blue signal must be attached to the controlling locomotive at a location where it is readily visible to the engineman or operator of that locomotive.
- 100.4 While survey vehicles are coupled to one or more locomotives, an ENSCO employee, with means of verbal communications with the survey vehicles will be present in the locomotive cab at all times when ENSCO personnel are working under the cars or in any location where train movement could cause injury.
- 100.5 An FRA/ENSCO derail capable of restricting access to that portion of the track on which the FRA automated track geometry vehicles are located will fulfill the requirements of a manually operated switch when positioned no less than 150 feet from the end of such equipment.

Each FRA/ENSCO derail must be locked in a derailing position with an FRA/ENSCO lock and a blue signal must be displayed at each derail.

- 100.6 FRA/ENSCO locks must be applied by ENSCO employees and "blue signals" must be displayed by ENSCO employees prior to going on, under or between the FRA survey vehicles.

A blue signal will not be removed except by the person who posted it. If another person or railroad employee has hung a blue signal (lantern, tag, etc.) from an ENSCO blue flag, the blue flag may not be removed until the other person or railroad employee has first removed their blue signal from the ENSCO flag.

101. Prescribed Protection for FRA Track Geometry Vehicles When Unoccupied

When FRA automated track geometry vehicles are being stored on a track other than a main track and ENSCO employees are NOT on, under, or between such equipment, protection for that equipment will be provided as follows:

101.1 Each manually operated switch providing access to the track on which the equipment is located must be lined against movement to that track and locked with an FRA/ENSCO lock.

101.2 Alternate but equally effective arrangements will be made with the governing authority of the railroad which will prevent any unauthorized movement of our coupling to that equipment.

102. Additional regulations which shall be used in conjunction with Rules 99, 100 and 101.

102.1 Wheel Chocks shall be applied at all times other than "Active Survey Status." At least one wheel per car shall be chocked to restrict movement in either direction.

102.2 A "Blue Signal" (flag, lantern or strobe light) shall be displayed on or above the coupler on each end of each ATIP consist at any time ENSCO personnel are on, about or under the survey vehicles other than "Active Survey Status."

- 102.3 The blue DERAIL flags shall always be displayed with the portable derails.
- 102.4 The portable derails shall always be placed on the rail so that the direction of derail, whenever practicable, is away from mainline track, yard mains or hazardous material cars stored on adjacent tracks.
- 102.5 Applicable railroad yard or terminal personnel shall be notified prior to the use of FRA/ENSCO locks and/or derails.
- 102.6 The "Vehicle Information Layover Cards" shall be distributed to applicable railroad yard or terminal personnel to cover all periods when the cars will not be occupied.
- 102.7 If FRA/ENSCO locks are not permitted on track switches while cars are unoccupied, then the Senior ENSCO representative shall make arrangements with the applicable railroad personnel for protection of the vehicles. In addition, the ENSCO representative shall call in the name, yard name, city, state, and phone number of the railroad representative prohibiting use of FRA/ENSCO locks to the Red Phone "Ansafone" nightly or at each new location. This information will be noted in the respective operations room phone log.
- 102.8 FRA/ENSCO Blue Signals shall always be used in addition to railroad Blue Signals.
- 102.9 Blue Signals will not be displayed when ENSCO personnel are not on, about or under the survey vehicles.

YARD RULES (NON-ACTIVE SURVEY STATUS)

110. Non-prescription sunglasses must not be worn.
111. Umbrellas or other vision impairing objects must not be used or carried.
112. Hands must be kept out of pockets when ascending or descending stairs, ladders (using handrails when practicable), walking in yards, crossing tracks, or when stumbling or slipping hazards may exist.
113. Running when on railroad property or on the survey vehicles is prohibited.
114. When authorized or marked paths or routes to shop, station, yard, etc. are provided, the use of other paths, routes or shortcuts is prohibited.
115. Look in both directions before crossing each track.
116. Crossing of tracks within 25 feet of standing railroad equipment is prohibited.
117. Crossing over, under, between, or through standing railroad equipment is prohibited.
118. When transporting large or heavy items across tracks by hand to or from survey vehicles, never carry items on shoulders because vision is impaired.
119. Highway vehicles used by ENSCO personnel shall be parked in designated areas and shall not be left in a position where property damage or injury may result.

120. Avoid stepping on or walking on surfaces made slippery by grease, oil, water, or similar substances.
121. ENSCO employees are strictly forbidden from working on top of the survey vehicles when in overhead (catenary) electrified territory.
122. ENSCO employees are strictly forbidden from working outside or under survey vehicles (which include repairs and instrumentation verifications) when on a track electrified by third rail.
123. All survey vehicle exterior exit doors will remain unlocked while cars are occupied to provide emergency exits if necessary. (During night time car occupancy, doors may be locked, but the door key will be left in each door lock on the inside of the door).
124. An adequate number of Emergency Exits shall be provided and maintained on each survey vehicle.
125. Emergency safety equipment shall not be removed from the survey vehicles for repair or inspection without providing temporary replacement of same.
126. Do not operate the diesel generators in enclosures unless there is sufficient ventilation to carry off all exhaust gases.

OPERATIONAL SAFETY (SURVEY STATUS)

130. An ENSCO crew member will be in the locomotive cab with means of verbal communication to survey vehicles, whenever ENSCO personnel are outside or under the survey vehicles.
131. The first, and most important duty of the Forward Observer is to ensure the safety of ENSCO personnel on, about or under the survey vehicles.
132. During each train stop, when ENSCO personnel are outside the survey vehicles, the Forward Observer shall remain within reach of the locomotive EMERGENCY brake valve and will ensure that the train-line brake is applied in a full-service reduction by the engineer and that the train does not move.
133. The Forward Observer may leave the locomotive cab when permission to do so has been granted by the Assistant Survey Director or his authorized assistant and all ENSCO personnel are onboard the survey vehicle.
134. The Survey Director shall brief the engineer, the conductor and his assistant as to the operating rules for the survey vehicle in accordance with ENSCO's Standard Operating Procedures.
135. ENSCO personnel will not alight from the survey vehicle unless the conductor and/or his assistant is on the ground and has ensured that railroad traffic is clear for ENSCO personnel.
136. All exterior vehicle side doors and stairwell doors (trap doors) will be kept closed while the survey vehicle is in motion.

137. ENSCO personnel will ensure that all exits and emergency exits are available and ready for use whenever any personnel are onboard survey vehicles.
138. All personnel will keep their heads and arms inside the survey vehicles when the survey vehicles are in motion.
139. Avoid obstructions, close clearances and slippery conditions. Maintain a firm handhold on railings until foot traction is assured.
140. Hands will be free of objects when getting on or off the car. Handrails should be used when getting on or off the car.
141. During a survey, the exterior car doors and traps will be opened and closed only by members of the railroad train crew, except in case of emergency.
142. The Forward Observer's cable shall be strung in a safe manner in conjunction with ENSCO's Standard Operating Procedures.
143. All paths leading to EMERGENCY EXITS shall be kept clear of furniture or other obstacles.
144. At all times during Active Survey Status, the Forward Observer shall have a radio hand-set in the locomotive, and the survey vehicle base-station will be switched ON to provide a means of communication in case the intercar public address system fails.

145. If all verbal means of communication are lost between the survey vehicles and the Forward Observer, the Forward Observer shall have the consist stopped until verbal communications can be reestablished.
146. Personnel are prohibited from riding in exit vestibules on T-1, T-2, T-3 and T-4.
147. All visitors to the survey vehicles shall have received a safety briefing within six months prior to boarding the survey vehicles.
148. During vehicle uncouplings, personnel near the couplers or brake hoses affected should face away from the brake hoses so they will not be injured by flying debris that may be expelled by a release of air pressure.
149. ENSCO employees are strictly forbidden from working outside or under survey vehicles (which include calibration, repairs and instrumentation verifications) when on a track electrified by third rail.

SURVEY VEHICLE SAFETY AND EQUIPMENT REGULATIONS

180. The Safety Officer or his Alternate will be responsible for the installation and upkeep of safety equipment aboard the survey vehicle.
181. Safety Equipment includes as a minimum for each consist:
- 181.1 Hard hats (minimum = 8)
 - 181.2 Safety goggles or glasses (one pair per ENSCO crew member)
 - 181.3 Stretcher
 - 181.4 Fire axe (one per car)
 - 181.5 Fire extinguishers (two per car plus one in each kitchen)
 - 181.6 First Aid Kit (one per car)
 - 181.7 Red Cross First Aid Manual (one per car)
 - 181.8 Cardiopulmonary Resuscitation Manual (one per car)
 - 181.9 Safety Manual (one per car)
 - 181.10 Face safety shield (two per consist)
 - 181.11 Adequate flagging equipment: 12 flares, 2 red flags, 6 torpedos. (Containers for 2 sets of this equipment).
 - 181.12 Four FRA/ENSCO blue lanterns
 - 181.13 Two blue flags
 - 181.14 Two portable FRA/ENSCO derails
 - 181.15 Four switch locks with FRA/ENSCO identification tags
 - 181.16 Smoke Detector (one per car)
182. All safety equipment will be properly stocked and kept in good working order at all times.

183. Survey vehicle emergency brake equipment and valves will NEVER be by-passed or disabled. Survey vehicle movement and/or operation will stop until the emergency brake equipment is in proper working order.

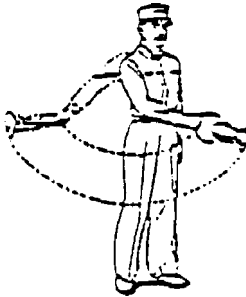
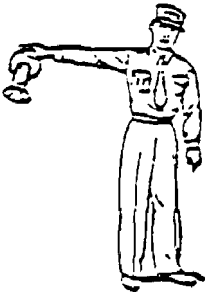
184. Survey vehicle electrical EMERGENCY OFF switches will NEVER be by-passed or disabled. Survey vehicle movement and/or operation will stop until the EMERGENCY OFF switches are in proper working order.

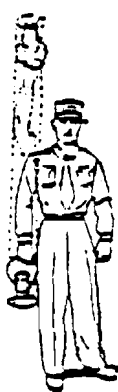

CAR EQUIPMENT

190. All desks, file cabinets, storage cabinets, work benches large appliances, etc., must be securely attached to the floor and/or walls of the vehicle.
191. Except when in use, all cabinet doors must be closed and latched while vehicles are moving.
192. No heavy items are to be stored on top of cabinets, work benches, table tops, appliances, etc., unless they are securely attached.
193. All heavy vehicle spares such as brake shoes, brake valves, brake units, etc., must be stored in the outside storage cabinets.
194. No repairs to heavy solid items such as profilometers and magnetic gage units may be made while the vehicle is moving unless the unit is secured firmly to the bench vice while work is being performed.
195. No work may be performed in the electrical power cabinets while the survey vehicles are in motion. These cabinets must be closed and latched at all times.
196. Vestibule lights and stair lights are to be on after dark while personnel are working onboard the survey vehicle.
197. External equipment of the survey vehicles must be mounted, maintained, operated and inspected in accordance with applicable FRA, ENSCO and/or AAR requirements.

HAND, FLAG AND LANTERN SIGNALS

200. Note: The hand, or a flag, moved the same as the lantern, as illustrated in the following diagrams, gives the same indication. ENSCO personnel will not normally be in a position to have to use these signals, but should know them in case of emergency.

Manner of Using	Indication
(a) Swung at right angle to the track.	<i>Stop.</i> 
(b) Moved slowly with arm extended horizontally.	<i>Reduce speed.</i> 

Manner of Using	Indication
<p>(c) Raised and lowered vertically.</p>	<p><i>Proceed.</i></p> 
<p>(d) Swung in a circle at right angle to the track.</p>	<p><i>Back.</i></p> 

(h) Any object waved violently by any person must be respected as a signal to stop.

ELECTRICAL SAFETY

210. Work in connection with power supply circuits and associated apparatus will only be performed by ENSCO employees or certified electricians.
211. ENSCO employees must ensure that equipment, machines, or tools being used are safe to operate. This will include cables, cords, breakers, limit switches, and warning devices. The Safety Officer or his Alternate must be notified if an unsafe condition exists.
212. Safe practices common to all electrically powered tools include those necessary to prevent shock and burn accidents. Power cords, insulation, and connections shall be frequently inspected and shall be maintained in safe condition to prevent electrical shorts and faults.
213. Electric-power tools shall be U.L. approved and shall be equipped with three conductor cords, one of which shall ground the frame of the tool when connected to a grounding type receptacle or otherwise attached to an adequate ground.
214. Electric-power tools shall not be lifted or unplugged by pulling the power cord.
215. When a three prong plug adaptor is used, the adaptor grounding wire must be grounded before the tool or appliance is operated.
216. All machinery and electrical equipment on the survey vehicles shall be safety tagged prior to work, repair, troubleshooting, etc. The person performing the work shall sign and date a Do Not Energize tag and affix it to the switch, breaker or other device controlling power

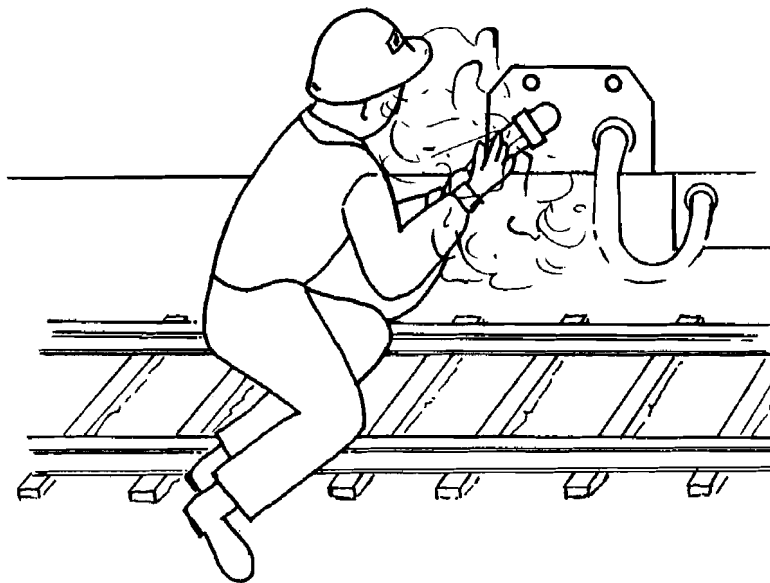
to the equipment to be repaired. Only the person placing the tag may remove the tag when work is complete. No other person may operate "tagged" equipment as long as the tag is displayed. The tag shall be destroyed after use.

217. Employees shall not:

- 217.1 Wear rings and watches while working on any electrical equipment.
- 217.2 Wear loose, ragged clothing or shoes with defective soles while working on or close to energized circuits.
- 217.3 Touch any energized electrical conductor or apparatus with their body, tools, or other conductive material. If it is necessary to remove an object from contact with a hot circuit, use rubber gloves or other known insulating material to protect yourself from electrical shocks.
- 217.4 Operate any electrical tool, appliance, or equipment, or make any adjustments, until proper instructions in the use and care of the equipment have been received.
- 217.5 By-pass fuses or circuit breakers or use a higher rated fuse in an electrical circuit.

FIRE PREVENTION

230. ENSCO employees must familiarize themselves with the location and operation of fire extinguishers and other safety equipment on the survey vehicle.
231. Smoking is prohibited as follows:
- 231.1 In or near flammable material storage areas or where flammable substances are being used.
 - 231.2 While survey vehicles are being fueled or stored on fuel pits.
 - 231.3 Whenever NO SMOKING areas are designated on railroad property.
 - 231.4 Near tank cars containing flammable substances.



232. Flammable liquids shall not be used inside the survey vehicle without adequate ventilation.

233. Diesel generator compartments shall be checked and cleaned every two weeks to prevent build up of flammable debris and fuel oil drippings.
234. Oily rags and similar waste shall be disposed of properly each day.
235. Fuel or oil saturated clothing must be laundered at the first opportunity.
236. Never use an open flame on or near the diesel generator compartments or fuel tanks.
237. Storing and transporting fuel in glass or other type of unapproved containers is prohibited.
238. The use of flammable liquids to clean the diesels, or for any purpose other than the specified use for which it is furnished is prohibited. Solvents or cleaners will be used for their designated purposes.
239. Used engine lubricating oil shall be disposed of properly. Check with the applicable railroad for their oil disposal procedures. Do not dump used oil on the ground or in storm drain pipes.
240. All flammable liquids and gases such as lubricating oil, paints, etc., must be stored in the survey vehicle's outside storage cabinets. Vehicles not so equipped must have suitable flame retardant interior storage facilities for this purpose.
241. The use of gasoline for any purpose on survey vehicles is strictly forbidden.

FIRE EMERGENCY PROCEDURES

250. If a fire occurs:
- 250.1 Stop the train
 - 250.2 Shut off the diesel generators and electrical power.
 - 250.3 Notify the senior ENSCO crew member.
 - 250.4 Evacuate the survey vehicle of all personnel not directly involved in fighting the fire.
 - 250.5 The senior ENSCO crew member shall direct the fire fighting.
 - 250.6 Bring all fire extinguishers to the fire.
 - 250.7 Summon the fire department.
251. Do not use water or other liquids on electrical equipment fires or oil fires. (All survey vehicle fire extinguishers are rated for A, B or C type fires).
252. Following a fire, wiring or other electrical equipment must not be touched until technical personnel ensure that a shock hazard does not exist.
253. For oil fires, especially near the fuel tanks, that cannot be quickly brought under control, the fire department should be summoned and the survey vehicle area evacuated.

USE OF TOOLS

290. Do not use worn out or broken tools.



291. Do not use dirty or greasy tools. After using a tool, clean the tool and return it to its proper storage location.

292. Use the proper size wrenches and other tools for the task.

293. Adjustable wrenches should be used only when the proper size of box, open end, or socket wrench is not available.

294. Allow ample clearance for hands when using wrenches, bars or other hand tools. When using these tools, place feet in a position to avoid a fall should the tool slip.

295. When using torches or soldering irons, observe fire precaution measures.

296. Ladders being used near a door, aisle, pathway or roadway must be adequately protected.
297. Only ENSCO personnel are permitted to operate and repair electrical power tools onboard survey vehicles.
298. Electric or pneumatic tools must be disconnected from the power source before making repairs, adjusting or replacing accessories.

GENERAL HOUSEKEEPING

310. Each individual is responsible for maintaining a neat and orderly work area. Professional workmanship is directly related to safety in eliminating potential hazards such as tripping over loose wire, tools, etc.
311. Work areas will be cleared of dirt, solder, wire scraps and other debris upon completion of a particular job or at the end of each work day, whichever comes first.
312. All wiring and electrical work will be completed in a neat professional manner ensuring that an electrical shock or fire hazard does not exist.
313. Car aisles, vestibules, and steps will be kept clear of debris, instruments and tools except when maintenance or installation work is actually in progress.
314. Disposal cans will be emptied at the end of each working day. Trash will not be left on the ground, but will be disposed of in proper containers.
315. Bathrooms will be completely cleaned at the end of each working day.
316. Refrigerators and other food storage areas shall be cleaned once each week ridding these areas of out-of-date or spoiled food. (These areas will be rid of all spoilable food before periods of extended, unoccupied storage).
317. Ensure water is fit for drinking, prior to filling survey vehicle service-water system tanks.

OFFICE AND LABORATORY SAFETY

350. Do not attempt to lift or move bulky or heavy equipment or materials alone. Get someone to help you.
351. Do not leave filing cabinets or desk drawers open since they present a tripping or injury hazard.
352. Open only one file drawer at a time to prevent the cabinet from toppling over.
353. Climbing on chairs, drawers, boxes, etc., to reach high places is prohibited.
354. Electrical or telephone cords or cables in walking pathways must be encased in floor molding.
355. Business machines must never be adjusted, or cleaned, while energized. If a machine jams, turn off the power before attempting to make repairs.
356. The use of flammable fluids to clean an electrically operated machine is prohibited.
357. All rules applicable to personal conduct and safety, electrical safety, accident/incidents apply to the ENSCO laboratory.
358. All laboratory facilities will be kept organized. Lab benches will be cleaned at the conclusion of each project or the end of each working day, whichever comes first.
359. Lab bench electrical power strips and outlets will be mounted on walls, near the edge of the bench near the wall or on the floor under the bench near the wall. The placement of electrical power sources between a person and the working surface is prohibited.

360. Eye protection is required for all work involving drills, grinders, or wherever flying objects may be expected. Eye protection is recommended for all laboratory work.

APPENDIX A
PHONE DIRECTORY

PHONE DIRECTORY

ENSCO, INC.

Huntington Office	(703) 960-8500
Farrington Office	(703) 751-1732
Red Phone	(703) 960-9283
Springfield Office	(703) 321-9000
TTC (Pueblo, CO)	(303) 545-5660
T-1	(202) 665-2000
T-4	(202) 665-2303
T-6	(202) 665-2501
R. Christian	(703) 960-8723 or 972-2070
R. Inman	(703) 491-4703
R. LaFayette	(703) 938-5729
D. Lambert	(703) 690-2053
S. Szadokierski	(703) 768-3218
C. Thomas	(703) 569-1195
G. Warner	(703) 368-1338
J. Wichser	(703) 476-6755

FRA

Washington, D.C. Office	(202) 472-7801
R.E. Bunker	(703) 455-5456
W.R. Paxton, Office of Safety	(703) 364-7065
F.V. Fannelli, Reports and Analysis Division	(703) 323-6519
FRA Code-A-Phone	(202) 426-0889

APPENDIX B
PRELIMINARY ACCIDENT/INCIDENT REPORT

1. Submitted By: _____		2. Date: _____		3. Time Report Relayed: _____	
4. Name of Railroad: _____		5. Location of Accident: (Town or County) _____		6. Milepost _____	7. Time of Accident _____
8. Mode of Operation: _____ Transfer _____ Yard Move _____ Survey _____ Deadhead _____ Run Light			9. Survey Number _____ or Maintenance Cycle _____		
10. Train Information A. Number of Locomotives _____ B. Train Number _____ Test Car Numbers _____ Other Car Numbers _____					
11. Weather Condition: _____					
12. Accident Cause: A. Railroad Crossing ? B. Crossing Protection ? _____ Yes _____ No _____ Yes _____ No _____ N/A C. Type Motor Vehicle D. Interstate _____ Schoolbus _____ Truck (other) _____ Yes _____ No _____ N/A _____ Bus _____ Hyrailer _____ Car _____ Other _____ Tractor-trailor _____ N/A E. Description (direction of travel, speed, circumstances, etc.). _____ _____ _____					
13. Damage Report: A. Test Cars: _____ _____ _____ B. Other Property: _____					
14. Test car wheels inspected for flat spots or buildup _____ Yes _____ No					
15. Personnel Injury Report A. Number Injured _____ B. Number Killed _____ C. Name of Injured Hospitalized?/Where? Injuries _____ _____					
16. Consist status report (Example: consist cannot be moved or consist has been moved to siding at _____) _____ _____					
17. Anticipated Future Action (Example: Railroad crew will rerail consist, or, the consist has been moved to Milepost 38) _____ _____ _____					
18. Arrange followup telephone contact Phone Number: () _____ Time: _____					
19. Other Information: _____					

APPENDIX C
EMERGENCY FIRST AID PROCEDURES

WOUNDS

1. Control Bleeding
 - a. Direct pressure on wound with a sterile dressing.
 - b. Pressure to the supplying blood vessel.
2. Cleanse minor injuries thoroughly, using plain soap and water (your hands first).
3. Apply dry sterile dressing and bandage snugly into place.
4. If evidence of infection appears, see a physician promptly.

STOPPAGE OF BREATHING

1. Give artificial respiration:
 - a. Mouth to Mouth
 1. Tilt head
 2. Lift jaw
 3. Pinch nose
 4. Breathe (16 times per minute)
 - b. Chest pressure arm lift
 - c. Back pressure arm lift
2. Call:
 - a. Police or Fire Department
 - b. Physician

POISONING

1. Dilute with water or milk to induce vomiting (Note: exceptions-acids, alkalis, and petroleum products).
2. Give universal antidote:
Two parts crumbled burnt toast mixed with one part strong tea and one part milk of magnesia.
3. Call a physician.

HEART ATTACK

Symptoms

1. Chest pains
2. Chronic cough
3. Bluish color of face and finger nails
4. Swelling of ankles
5. Breathing difficulty

First Aid

1. Flat position
2. Raise head and chest if breathing is difficult.
3. Artificial respiration if breathing has stopped
4. Initiate cardiopulmonary resuscitation if you are trained.
5. Get medical aid fast

BURNS

1. Relieve pain and prevent contamination, exclude air by the application of a thick, dry dressing.
2. Give first aid for shock.

SIMPLE FAINTING

1. Keep victim lying down with feet elevated until recovery is complete.
2. Give aromatic spirits of ammonia to be inhaled from a piece of gauze

SHOCK (associated with body injury)

1. Keep victim lying down.
2. Feet slightly elevated.
3. Maintain body heat, by covering (sparingly) both above and beneath victim.

FRACTURES AND DISLOCATIONS

1. Keep the broken bone and adjacent joints quiet by applying splints.
2. Give first aid for shock.
3. If a wound is present, apply a sterile dressing and control bleeding by direct pressure.

SPRAINS (joint and ligament injury)

1. Keep the area quiet.
2. Treat sprains as a fracture.
3. X-ray recommended.
4. Cold applications for sprains during first half-hour. Strains (stretching of muscles or ligaments) - Warm applications.

HEAT EXHAUSTION

Symptoms: In severe cases, perspiration is profuse, weakness extreme, skin is pale and clammy. Temperature normal, possible vomiting, unconsciousness rare.

First Aid: Provide bed rest. Administer salt and baking soda solution 1/2 teaspoon of each per large glass of water every 15 minutes, for at least four dosages. Medical aid for severe cases should be secured.

HEAT STROKE

Symptoms: Headache, dry skin, rapid pulse, possible dizziness and nausea, temperature above normal.

First Aid: Bring patient indoors, promptly call for medical assistance, unclot, provide bed rest, if conscious give salt and baking soda solution as indicated for heat exhaustion, sponge body freely with alcohol or luke warm water to reduce temperature (a pulse rate of 110 per minute or less is associated with a tolerable temperature), cease sponging for ten minutes to observe patient, renew if temperature rises. Give no stimulants.