

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION  
Underground Coal Mine

Fatal Powered Haulage Accident  
November 7, 2011

Mine No. 9  
Hubble Mining Company LLC  
Eolia, Letcher County, Kentucky  
I.D. No. 15-18984

Accident Investigators

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Health Specialist

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Originating Office  
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Irvin T. Hooker, District Manager

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PHOTOGRAPH OF RECONSTRUCTED ACCIDENT SCENE



## OVERVIEW

On November 7, 2011, at approximately 9:40 a.m., a 47-year-old mine foreman received fatal injuries while working near the section belt tailpiece during work being performed to move the belt conveyor. The victim was struck by a 4-wheeled personnel carrier being utilized to transport crib blocks.

## GENERAL INFORMATION

The Mine No. 9 is an underground coal mine located approximately 3 miles west of Eolia, Letcher County, Kentucky. The mine, operated by Hubble Mining Company LLC, is developed in the Lower Parsons coal seam. Mining height averages 50 inches and the mine is accessed through 5 drift openings. Seventeen employees produce approximately 700 tons of coal during a 10 hour shift. Coal is produced during one shift per day and mining is performed 5 days per week. Coal is mined from one working section by a continuous mining machine and transported to the surface via shuttle cars and a conveyor belt system. Materials, supplies, and miners are transported via scoops and rubber-tired mantrips.

The principal officials for the mine at the time of the accident were:

Harold Akers .....	Member
Jim Akers .....	Member
Doug Slemp .....	Superintendent
Jerry E. Britton (victim) .....	Section Foreman

A regular safety and health inspection (E01) was started on October 17, 2011 by the Mine Safety and Health Administration (MSHA) and was ongoing at the time of the accident. The Non Fatal Days Lost (NFDL) rate for this mine in 2010 was 0.00, compared to the 2010 National NFDL rate of 3.58 for mines of this type.

## DESCRIPTION OF ACCIDENT

On Monday, November 7, 2011, Jerry E. Britton (Victim), Section Foreman, arrived at the mine at approximately 4:12 am for his regularly scheduled shift. He entered the mine at approximately 4:24 am to conduct the preshift examination and returned to the surface at 5:12 am.

Two miners entered the mine at approximately 5:20 am to service the continuous mining machine. Members of the production crew entered the mine at 6:02 am. The production crew members arrived on the 003 Section at approximately 6:15 am. Normal production operations continued until a belt conveyor move was necessary. The miners dispersed throughout the section performing the various tasks that are

involved in a belt conveyor move. According to witnesses and evidence gathered, the area around the section feeder was cleaned with a battery-powered scoop, and the belt feeder was trammed up the No. 3 (belt) Entry approximately 140 feet to the location of the new conveyor belt move (See Appendices E and F). The personnel carrier was taken to the belt tailpiece and loaded with approximately 25 crib blocks. The crib blocks would be used to build side spill boards on the section tailpiece after the feeder was set, and if necessary, to block the discharge end of the feeder high enough to dump onto the belt tailpiece without causing spillage. Witnesses that were interviewed stated that for this belt tailpiece move, the number of crib blocks needed to complete the belt conveyor move was more than normal, because the mine roof was higher at the new location than many of the previous belt tailpiece move locations.

Britton instructed Nathan Thacker, Shuttle Car Operator/Continuous Mining Machine Helper, to take the loaded personnel carrier up the No. 3 Entry to where the feeder was being set. As N. Thacker began to drive away, Britton stopped him to get his dinner bucket off the personnel carrier. N. Thacker stated that he waited while Britton got his dinner bucket and that Britton then moved away from the machine and out of sight around the crib blocks, which blocked N. Thacker's forward view. Witnesses stated that Britton moved from the side of the personnel carrier, to the left rib of the No. 3 Entry, beside the mine phone (See Appendix F). Britton kneeled near the mine phone, reportedly to get chewing tobacco from his dinner bucket. Britton normally called outside on the mine phone to Ervin Bartley, Outside Man, to tell him when the belt move had begun. This placed Britton in front of the personnel carrier, which was backing away from him.

N. Thacker backed the personnel carrier into the break between the No. 3 and No. 4 Entries, intending to turn around and drive forward to deliver the crib blocks to the new feeder location. N. Thacker testified that as he backed the personnel carrier toward the break, he became stuck on a small pile of loose coal. As he moved the switch from reverse to forward, N. Thacker stated that the personnel carrier "took off in a sprint," and hit the coal rib. At some point during the incident, N. Thacker felt crib blocks falling onto his legs in the deck of the personnel carrier. He was surprised to hear other personnel screaming at him to back the personnel carrier up, that he had Britton pinned. N. Thacker was unaware that anyone was in front of the personnel carrier. Kenneth Thacker, Section Scoop Operator, stated that he saw the personnel carrier stall in the loose pile of coal, and that "all of a sudden the personnel carrier just jumped forward, pinning Britton."

All witnesses testified that the personnel carrier had Britton pinned to the mine rib. Anthony Bartley, Ventilation Man; Doug Slemple, Superintendent; Bennie Tackett, Repairman; and Alvin "Chet" Hall, Shuttle Car Operator, attempted to push the personnel carrier back to free Britton. Slemple and Tackett were in the crosscut

immediately behind the personnel carrier and were the first to render aid to Britton. Tackett testified that he observed at least two crib blocks lying on or around N. Thacker's legs and feet in the deck of the personnel carrier, while Slemph and the others were trying to push the personnel carrier off Britton. Tackett further stated that at least one of the crib blocks had lodged between the brake pedal and the frame of the personnel carrier, blocking the brake from functioning and in front of the accelerator, depressing the pedal to the tram position.

K. Thacker had just parked the scoop in the break between the No. 2 and No. 3 Entries. Observing the crew attempting to move the personnel carrier, he brought the scoop into contact with the rear wheel well area of the personnel carrier and pushed it backward. N. Thacker and Tackett testified that Tackett was removing crib blocks from the foot control area simultaneously as the scoop made contact with the personnel carrier. They could not determine if the scoop knocked the personnel carrier back from the victim or if it moved under its own power upon removal of the crib blocks. N. Thacker, K. Thacker, Tackett, and Slemph all stated that the personnel carrier was stalled or "loaded up," and would not back away from the coal rib.

Surface personnel were directed to call for an ambulance. Slemph, Mike Cook, and Timothy Prichard, all Mine Emergency Technicians (METs) attempted to resuscitate Britton, but were unsuccessful. Britton was transported to the surface via a rubber-tired, 8-man personnel carrier driven by Johnny Rowe, Continuous Mining Machine Operator, and accompanied by the three METs. CPR was performed during transport to the mine surface and continued until Emergency Medical Service (EMS) personnel arrived. The Neon, KY Fire Department Ambulance Service transported Britton to the Whitesburg Appalachian Regional Hospital, where he was pronounced dead at 10:47 am, by Dr. Dana Barlow.

## **INVESTIGATION OF ACCIDENT**

The MSHA District 7, Harlan Field Office was notified of the accident by phone at approximately 9:50 am on November 7, 2011. Field Office Supervisor, Robert W. Rhea issued a verbal 103(j) Order to the operator and notified Clayton E. Sparks, Assistant District Manager for Enforcement. Sparks dispatched Coal Mine Inspectors Thomas Hensley and George M. Jackson, from the Harlan Field Office to the mine site to secure the scene. Argus Brock, Acting Field Office Supervisor for the Harlan Field Office, was dispatched to the accident scene to await the arrival of the investigation team. The 103(j) Order was modified to a 103(k) Order after MSHA arrived at the mine.

Sparks dispatched Jim Lundy, MSHA Accident Investigator, to the mine site along with Samuel Creasy, Field Office Supervisor. Sparks and John Arrington, Acting District Manager, arrived on site shortly after the investigation began.

The accident investigation was conducted in coordination with the Kentucky Office of Mine Safety and Licensing (KOMSL), with assistance from the mine operator and employees. Representatives of MSHA, KOMSL, and the mine operator traveled underground to the accident site to examine the scene and begin an investigation of the existing physical conditions. Prior to the investigation, the accident scene was altered when mine employees removed the personnel carrier to the surface of the mine before the MSHA accident investigator arrived on-site, in violation of 30 CFR § 50.12 and Section 103(j) of the Mine Act. The mine operator was issued violations for each on a separate inspection event.

Alice Blanton, from MSHA's Educational Field Services, reviewed training records for the miners at Mine No. 9.

Miners who were determined to have been an eyewitness or to have specific knowledge of the accident were interviewed at the mine site by KOMSL and MSHA. Interviews were conducted on November 8, 2011, at the KOMSL office in Pikeville, KY. A list of persons participating in or present during the investigation is included in Appendix B.

On November 9, 2011, Richard O'Hanlon, Electrical Engineer from MSHA's Approval and Certification Center (A&CC) assisted with testing and examining the personnel carrier involved in the accident. The electrical controller and wiring harness were removed from the personnel carrier and delivered by O'Hanlon to A&CC for further examination. The manufacturers of the personnel carrier and the controller provided information for the investigation.

## DISCUSSION

At the surface area of the mine, accident investigators examined the Johnson Industries personnel carrier involved in the fatality. The personnel carrier would move forward and backward very quickly when the direction switch was changed with the accelerator pedal down. No reset was required on the accelerator. This type of movement is a departure from the manufacturer's design. The repairman for the mine stated he had not seen the personnel carrier operate in that manner (mode) before. This mode of movement bypassed the gradual build up of speed that normal tramming provides.

Re-creation of the accident, and evidence gathered from medical reports, led the investigation team to consider facts that were not available at the scene. On the personnel carrier, there were 25 crib blocks, which measured 6 inches, x 6 inches, x 36 inches. N. Thacker and Tackett testified that there were crib blocks wedged between the personnel carrier frame and brake pedal, keeping the brake from being depressed. They further testified that the same blocks were lying against the

accelerator, which resulted in the pedal being depressed and forward tram being initiated. The measured distance from the top of the brake pedal to the frame of the machine is 5 inches. This is less than the width of the crib blocks. Attempts were made to duplicate what the interviewees described as the brake blocked in “up” or “off” position and the accelerator blocked in “down” or “activated” position. This condition could be duplicated with only one of the blocks at the scene. With that block, it was questionable as to whether the block would actually cause high tram. The blocks did not fit into the limited space around the controls as the witnesses testified. Evidence from the personnel carrier suggests that the accelerator switch was depressed when the direction switch was changed. The personnel carrier entered into “quick start,” and lurched forward unexpectedly. The total distance from the front of the personnel carrier to the Victim was a maximum of 8 feet.

The accident investigation team, along with Johnson Industries representatives, arranged a test of a machine configured identical to the personnel carrier involved in the accident. The personnel carrier was programmed to the same parameters and had identical voltages and horsepower ratings as gathered from the Johnson Industries GT391 personnel carrier involved in the fatal accident. Tests were conducted at the Johnson Industries factory under observation of the investigating team and Johnson Industries. The test vehicle covered the eight-foot distance in less than 1.65 seconds, and was moving at 7 to 7.25 mile per hour (mph). Tests were repeated to confirm consistent information was being gathered.

The investigation team determined that as the personnel carrier moved forward, the crib blocks loaded on the front of the personnel carrier struck the Victim in the head, causing severe head trauma. As the forward motion of the machine and the load continued, at least 2 crib blocks were pushed back into the operator compartment of the personnel carrier as the crib blocks pinned the Victim’s head against the mine rib. The assessment by the attending physician in the emergency room, and the coroner involved, indicate that the Victim had crushing injuries to the head. Minor superficial injuries were present on the chest wall. These injuries do not support the witness testimony that the personnel carrier had pinned the Victim against the mine rib, through his torso.

The witnesses testified they did not have a direct line of sight to the Victim, nor did any of them actually witness impact, because the crib blocks were stacked onto the personnel carrier. The Victim was hidden from view by the crib blocks. Their testimony was important, but was based on what they observed after the accident occurred. Exhaustive examinations of the personnel carrier, and the electrical control system, showed that the accelerator was depressed when the directional switch was turned to forward. As the personnel carrier moved forward, there was not enough time for the personnel carrier operator to react, and for the Victim to move out of the way of the personnel carrier.



### General Machine Information and History

The personnel carrier (machine) involved in the accident was a Johnson Industries 4-wheeled, 48 volt, direct current (dc) powered, 2-man personnel carrier. According to Johnson Industries, the machine is designed to transport a maximum of 2 miners, as well as the mandated safety equipment for the miners to operate the personnel carrier safely. It was delivered new to the mine on September 16, 2010.

The personnel carrier does not have a transmission. The controller outputs a variable signal to the 5 hp electric motor, which is connected directly to the rear differential. The torque is delivered to the rear wheels via a ring and pinion gear set to the rear axles of this 2-wheel drive machine.

Depending upon the parameters programmed into the controller by the end user, the top speed is adjustable from 0 to 17 mph and the rate of acceleration is adjustable as well. An additional feature of the controller is the "quick start feature," which causes the controller to exceed its normal acceleration rate upon receiving a sudden high throttle demand from neutral. This feature increases the acceleration rate of the vehicle beyond the set parameters. The personnel carrier traveled an 8-foot distance about 0.5 seconds faster and the speed increased by about 0.4 mph, according to the tests conducted.

Power for the personnel carrier is delivered through the system by the controller, a solenoid, and hard wiring. The personnel carrier was originally provided with a Sevcon controller, which was programmed, hard wired, and tested for a neutral start safety feature as indicated in Johnson Industries "Xcited Performance Check List," completed on 9/14/2010 (Appendix G). This original controller had been replaced twice because of failure. According to company personnel and records, two Johnson Industries employees came to the mine site and replaced a third failed Sevcon controller with a Curtis controller on July 19, 2011.

The Curtis Model 1244 Controller in this personnel carrier is a multipurpose programmable unit that is marketed for a variety of applications. The system provides variable speed, acceleration, and torque. Two types of electrical braking are also controlled, regenerative and plug braking. A variety of other functions that are programmed according to the needs of the end user are provided, using the Curtis controller. These operational modes are all adjustable for response time and variable loads and are programmed by the end user. Johnson Industries provides a Curtis Controller, which they program and hard wire with or without a neutral start safety feature. The controller configuration without this neutral start safety feature is marketed in all states, with the exception of Pennsylvania, where the Pennsylvania Department of Environmental Protection has only approved the controller installed with the neutral start safety feature.

Johnson Industries has used the Curtis controllers in some personnel carriers for at least 15 months, according to the usage list furnished by the company. Johnson Industries programs the controllers they install. The program input into the Curtis Controller and the wiring scheme used on this installation created a hazard to miners.

Appendix H depicts the personnel carrier's control switch orientation. The top switch serves as the on/off switch for the controller. The forward and reverse travel direction switch was located on the bottom. It had three positions, reverse/neutral/forward.

Curtis personnel stated that the controller was not designed, nor have they specifically tested the controller, for use in underground mining equipment around persons working in restricted spaces. Curtis has sold the controllers directly to Johnson Industries for more than a year.

Johnson Industries had knowledge that the Curtis Controller could be configured either with or without the neutral start safety feature. As indicated by the "48-Volt SXSC" Parts List (Appendix I) and wiring diagrams provided by Johnson Industries, they provided vehicles used in Pennsylvania with the neutral start safety feature. Following this accident, Johnson Industries was requested to address the neutral start safety feature to all machines. Johnson Industries has agreed to update all machines with the same design configurations as those approved by the Commonwealth of Pennsylvania.

#### Service and Parking Brake Controls and Performance Test

The personnel carrier braking system is comprised of a foot pedal control connected to a cable, which connects to a single shoe pad, which is positioned directly onto a drum in the power train. The park brake utilizes the same shoe and drum by latching the park latch lever in a notch in the pedal lever. The foot and park brakes are both on the same pedal and operate independently of the electrical brake or any other electrical parts.

The service brake foot pedal and linkage were found to be intact. The brake would stop the vehicle under all normal conditions tested. The park brake would hold the vehicle on a grade as designed.

#### Local Geologic Setting

The area in the mine has a gentle roll immediately outby and is relatively flat at the accident scene. The mining height measured between 49 and 51 inches across the entry, and the entry width averaged 19 feet.

### Location of Accident

The accident occurred on the 003 Section (a six-entry panel) 3,855 feet from the mine portal near the belt tailpiece, and 65 feet in by survey station 17189. The accident occurred in the No. 3 Entry (belt heading) of the Three Left Panel.

### On site Observations and Discussion of Failure

The personnel carrier was moved from the accident scene prior to the accident investigation beginning. The scene was disturbed and some of the tracks could not be determined to be those of the machine involved. A reconstruction of the scene was attempted. Measurements were taken before the reconstruction to obtain the most accurate details possible.

Miners consistently told investigators that it was common practice, during a belt move, to move crib blocks on the personnel carrier from the belt tailpiece location to the new tailpiece location, because the scoop was needed for clean up at the tailpiece.

The personnel carrier was already overloaded with supplies when it was brought to the section tailpiece. Evidence indicates that 24 to 25 crib blocks (6 inches x 6 inches x 36 inches) were loaded onto the personnel carrier in addition to ten buckets of miner bits, three pieces of drill steel, tracking wire and dinner buckets, which were already being transported on the vehicle.

As the overloaded personnel carrier was backed into the crosscut to turn, it came to a stop on loose coal. The personnel carrier operator thought he was stuck; however, witnesses stated, and tracks left in the loose coal indicated, that the vehicle did not spin. The personnel carrier operator reported that as he turned the directional switch from reverse to forward, the personnel carrier went forward "in a sprint." He reported that at some time during the incident, crib blocks fell onto his feet and legs.

All witnesses agreed that the personnel carrier moved forward much faster than they had previously seen it move and no one had any experience with the machine accelerating rapidly when changing direction of travel, nor of being aware the potential existed.

### Training and Experience

Evidence gathered during this investigation indicated that the mine operator did not fulfill the task training requirements for the miners under 30 CFR, Part 48. A non-contributing citation was issued because no Task Training documentation had been provided for several employees at the mine, including the personnel carrier operator involved in the accident. The personnel carrier operator had approximately five years of experience driving similar mantrips.

The mine operator was cited for other training deficiencies discovered during the investigation that were not considered contributory to the accident. The operator had failed to train mine management personnel properly on their required duties in the event of a serious mine accident, such as this fatality. Mine management allowed employees to alter the accident scene, as well as continue to perform work in violation of a 103(j) Order. The operator also failed to immediately contact the MSHA toll free 1-800-746-1553, at once, without delay, and within 15 minutes.

## ROOT CAUSE ANALYSIS

An analysis was conducted to determine the most basic causes of the accident that were correctable through reasonable management controls. During the analysis, root causes were identified that, if eliminated, would have either prevented the accident or mitigated its consequences. Listed below are the root causes identified during the analysis and the corresponding corrective actions implemented to prevent a recurrence of the accident.

Root Cause: The training programs, policies, and work procedures used by the mine operator did not ensure that safe working conditions were provided for the employees at all times. The personnel carrier was being used outside of the design parameters of the machine. Crib blocks and other supplies were being hauled on the machine and it was not designed for that purpose.

Corrective action: The mine operator developed and implemented a plan to prevent a similar occurrence of this accident. The plan states that personnel carriers are not to be used for hauling supplies and extraneous materials at any time. The operator has also revised their approved training plan, showing special emphasis towards providing proper Task Training for personnel carrier safety. All miners have received Task Training on the haulage safety rules and regulations on personnel carriers at the mine.

Root cause: The mine operator performed design modifications to the personnel carrier. When the tram direction was changed during a stalled condition, the machine moved forward rapidly.

Corrective action: The personnel carrier has been removed from service. Following an analysis by MSHA's Technical Support Branch and the manufacturers, changes to the equipment design and to the controller program have been implemented to prevent a recurrence. The original equipment design would have prevented the accident by having a neutral start safety feature on the accelerator. The mine operator also provided personnel carrier operators with Task Training for machine operation, including proper operation characteristics of controls, switches, and accelerators.

## CONCLUSION

The accident occurred because of the failure of mine management to ensure that the rubber-tired personnel carrier was being used within design parameters and for its intended purpose of transporting miners. In addition, the training programs, policies, and work procedures used by the mine operator did not ensure that safe working conditions were provided for the employees at all times. At the time of the accident, the personnel carrier was being used to transport materials necessary to perform a belt conveyer move. When the direction switch was changed from reverse to forward, the overloaded personnel carrier unexpectedly sped forward, leaving no time for the Victim or the driver to react. The Victim was struck and received fatal injuries.



**Irvin T. Hooker**  
**District Manager**  
**Coal Mine Safety and Health, District 7**



**Date**

## ENFORCEMENT ACTIONS

A 103(j) Order, No. 8396072, was issued to Hubble Mining Company LLC, on November 7, 2011 and subsequently modified to a 103(k) action when MSHA inspectors arrived at the mine site.

Condition or Practice: "A fatal accident has occurred at this operation on 11/07/2011 at approximately 09:40. As rescue and recovery work is necessary, this order is being issued under 103(j) of the Federal Mine Safety and Health Act of 1977, to assure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the causes of the accident. It prohibits all activity at his mine until MSHA has determined that it is safe to resume normal mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any other persons on-site. This order was initially issued orally to the mine operator at 09:50 and has now been reduced to writing."

104(d)(1) Order, No. 8365695, was issued to Hubble Mining Company LLC for a violation of 30 CFR, § 75.1725(a):

Condition or Practice: "A fatal accident has occurred at this mine involving the Johnson Industries personnel carrier, serial number GT391. The battery operated solid-state controlled personnel carrier immediately entered into high tram upon activation of the directional switch. A Curtis controller model 1244 had been installed on July 19, 2011. This personnel carrier was originally built using a Sevcon controller that required the accelerator to return to the neutral position (off) prior to the machine going into tram mode. This condition contributed to the fatal injuries received by the foreman in the powered haulage accident on November 7, 2011. This condition is also a violation of 30 CFR, 75.512.

Failure to eliminate this hazard to miners constituted more than ordinary negligence and was an unwarrantable failure to comply with a mandatory safety standard."

Safeguard Notice, No. 8365705, was issued to Hubble Mining Company LLC, citing 30 CFR, § 75.1403:

Condition or Practice: "The personnel carrier GT391 used at this mine to transport men was involved in a fatal accident. The investigation has revealed that the Johnson Industries GT391 personnel carrier was loaded with crib blocks, miner bits, and numerous other supplies and tools that impaired visibility and functional controls to the operator of the personnel carrier.

This Safeguard addresses the hazard of mine personnel being run into or run over.

This is a notice to provide Safeguard requiring that the Johnson Industries GT391 personnel carrier along with all other personnel carriers and mantrips must not be permitted to have supplies or tools on board, except commonly carried hand tools that are easily carried by the miner during the work shift.

This practice and condition has created a hazard to operation of the Johnson Industries GT391 Personnel Carrier that has contributed to the fatality at this mine that occurred on 11/07/2011.”

104(d)(1) Citation No. 8365704 was issued to Johnson Industries, Inc., for a violation of 30 CFR, § 75.1725(a):

Condition or Practice: “The two person, Johnson Industries battery operated personnel carrier serial number GT 391, located at the subject mine was not maintained in safe operating condition. On July 19, 2011, Johnson Industries employees installed and programmed a 1244 Curtis controller which Johnson Industries provided. The recommended procedures for installation and testing of the machine were not followed. The new Curtis 1244 controller and re-configured wiring harness resulted in the machine creating a hazard to the driver of the personnel carrier and other miners in the area. This change did not provide a neutral start feature, which was a safety feature that Johnson Industries had knowledge that they were leaving out. This unsafe operating feature exposed miners to the likelihood of being struck by, or run over by the machine. These hazards contributed to a fatal accident involving this machine which occurred at this mine on 11/07/2011. This condition is also a violation of 30 CFR 75.512.

Failure to prevent this hazard to miners constituted more than ordinary negligence and was an unwarrantable failure to comply with a mandatory safety standard.”

**APPENDIX A**  
**Persons Participating in the Investigation**

**Hubble Mining Company, LLC Officials**

Harold Akers .....Member  
Jim Akers.....Member  
Doug Slep ..... Superintendent  
Mickey Webster ..... Attorney at Law

**Kentucky Office of Mine Safety & Licensing**

Tim Fugate ..... Accident Investigator  
Daniel Bentley..... Inspector  
Wes Gearheart.....Chief Electrical Inspector  
Randy Campbell.....Electrical Inspector

**Mine Safety and Health Administration**

Jim Lundy..... Accident Investigator  
John Arrington..... Acting District Manager  
Samuel Creasy ..... Supervisory CMS&H/ Accident Investigator  
Dennis J. Cotton..... Assistant District Manager  
Clayton E. Sparks ..... Assistant District Manager  
Argus Brock ..... Acting Field Office Supervisor  
Alice Blanton..... Educational Field Services  
Tim Carter ..... Electrical Engineer/ Acting Electrical Supervisor  
Charles Broughton..... Electrical Specialist  
Sean Davenport ..... Electrical Specialist  
Kevin Bruner..... Family Liaison  
Richard O’Hanlon..... Electrical Engineer, Mechanical Safety Division  
MSHA Approval and Certification Center  
Schean Belton..... Office of the Solicitor-Nashville

**Other Personnel**

Curtis Industries.....Risk Management, Design and Engineering Staff  
Curtis Industries.....Shop Personnel  
Johnson Industries.....Owners, Design, Manufacturing and Engineering Staff



## APPENDIX B

### List of Persons Interviewed

Harold Akers .....Member LLC  
Douglas Slemp..... Superintendent, MET  
Ervin Bartley ..... Outside man/Monitor operator  
Alvin "Chet" Hall ..... Shuttle Car Driver  
Randy Blackburn.....Shuttle Car Driver  
Robert Bush.....Belt Man  
Michael Cook.....Supply Man  
Timothy W. Prichard ..... Belt Man, MET  
Gary H. Carroll..... Roof bolting Machine Operator  
Gomer R. Cantrell ..... Roof Bolting Machine Operator  
Anthony Bartley ..... Ventilation Man  
Bennie Tackett ..... Repairman/Electrician  
Richard Shortridge..... Repairman/Electrician/Spare Foreman, MET  
Nathan Thacker.....Continuous miner helper/Shuttle Car Driver  
Kenneth "Peanut" Thacker.....Scoop Operator  
Johnny B. Rowe ..... Continuous Mining Machine operator

# APPENDIX C

## MSHA Form 7000-50b

**Accident Investigation Data - Victim Information**

**U.S. Department of Labor**  
Mine Safety and Health Administration



Event Number: 4 4 4 6 7 8 1

**Victim Information:** 1

1. Name of Injured/III Employee: <i>Jerry E. Britton</i>		2. Sex: <i>M</i>	3. Victim's Age: <i>47</i>	4. Last Four Digits of SSN: <i>8791</i>	5. Degree of Injury: <i>01 Fatal</i>										
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 11/07/2011 b. Time: 9:40</i>				7. Date and Time Started: <i>a. Date: 11/07/2011 b. Time: 6:00</i>											
8. Regular Job Title: <i>049 Section Foreman</i>			9. Work Activity when Injured: <i>016 Knelt down near rib to get tobacco chew.</i>		10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>										
11. Experience a. This Work Activity:	Years <i>11</i>	Weeks <i>0</i>	Days <i>0</i>	b. Regular Job Title:	Years <i>11</i>	Weeks <i>0</i>	Days <i>0</i>	c. This Mine:	Years <i>0</i>	Weeks <i>29</i>	Days <i>1</i>	d. Total Mining:	Years <i>26</i>	Weeks <i>0</i>	Days <i>0</i>
12. What Directly Inflicted Injury or Illness? <i>105 4 wheel 2 passenger personnel carrier</i>				13. Nature of Injury or Illness: <i>170 Machine or materials crushing</i>											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input checked="" type="checkbox"/>															
15. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)															
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
17. Part 50 Document Control Number: (form 7000-1)			18. Union Affiliation of Victim:												

**Victim Information:**

1. Name of Injured/III Employee:		2. Sex:	3. Victim's Age:	4. Last Four Digits of SSN:	5. Degree of Injury:										
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:				7. Date and Time Started:											
8. Regular Job Title:			9. Work Activity when Injured:		10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input type="checkbox"/>										
11. Experience: a. This Work Activity:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
12. What Directly Inflicted Injury or Illness?				13. Nature of Injury or Illness:											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
15. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)															
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
17. Part 50 Document Control Number: (form 7000-1)			18. Union Affiliation of Victim:												

**Victim Information:**

1. Name of Injured/III Employee:		2. Sex:	3. Victim's Age:	4. Last Four Digits of SSN:	5. Degree of Injury:										
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:				7. Date and Time Started:											
8. Regular Job Title:			9. Work Activity when Injured:		10. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input type="checkbox"/>										
11. Experience: a. This Work Activity:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
12. What Directly Inflicted Injury or Illness?				13. Nature of Injury or Illness:											
14. Training Deficiencies: Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
15. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)															
16. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
17. Part 50 Document Control Number: (form 7000-1)			18. Union Affiliation of Victim:												

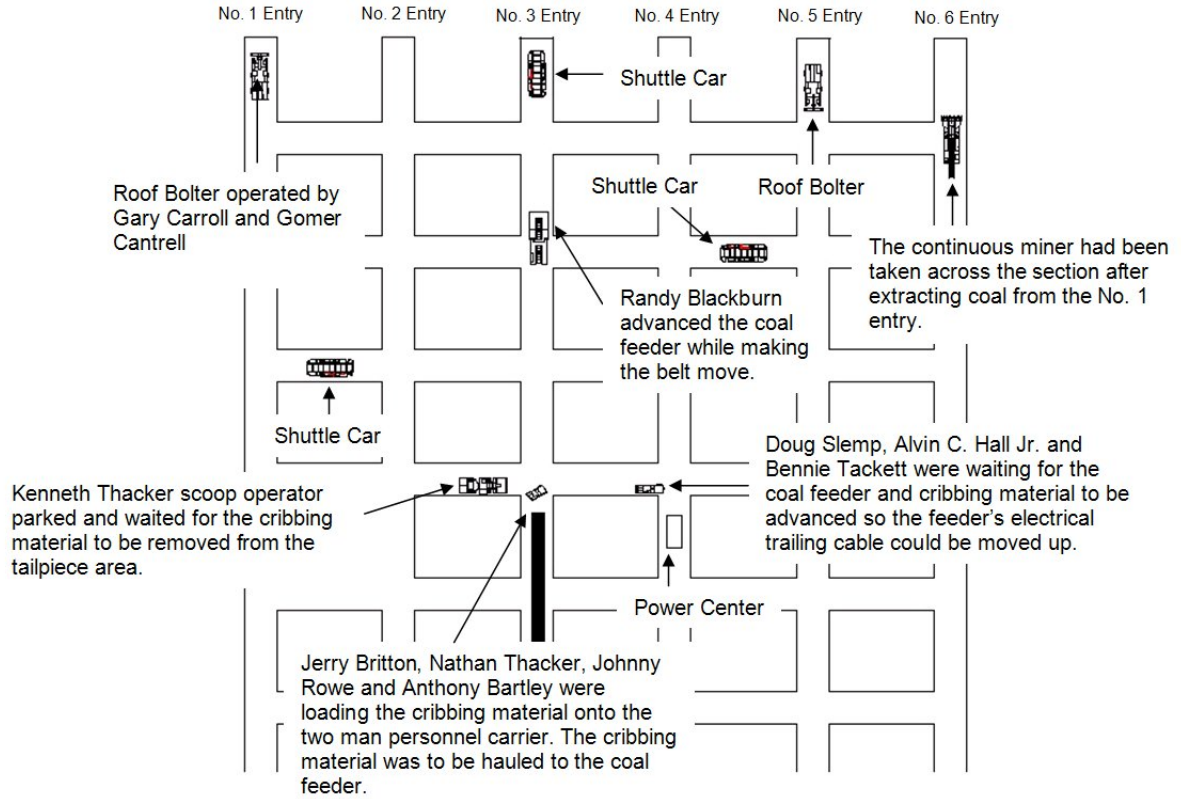
## APPENDIX D

### EQUIPMENT SPECIFICATIONS

Johnson Industries Super Excited Super Car SN: GT 391

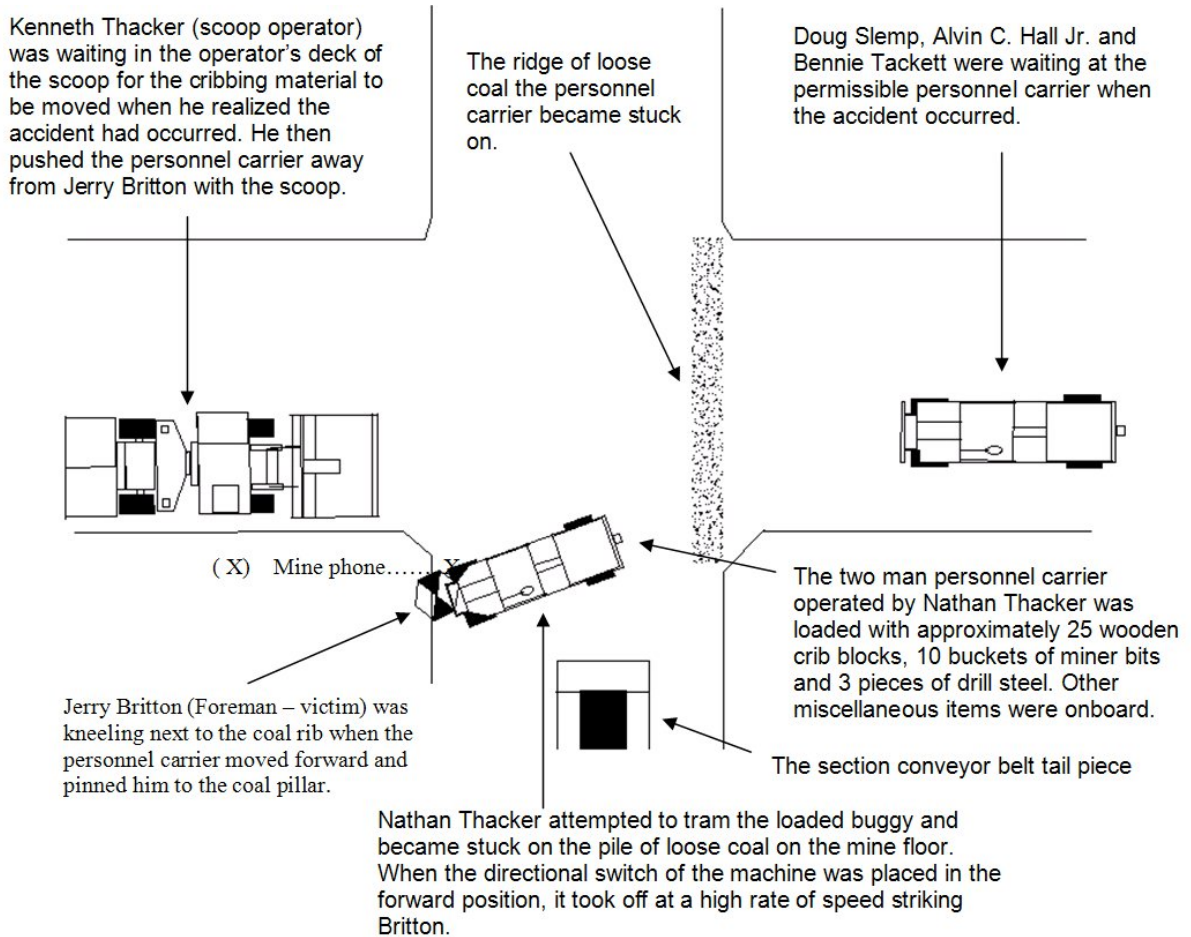
1. Rubber tired, 48 volt DC, battery operated, two man personnel carrier. Non-permissible unit.
2. Ordered with 5 lug wheels. Standard is 4 lug wheels. (Optional equipment)
3. Ordered with 6 leaf standard front and 6 leaf heavy duty rear springs, 1500 # and 1800# load capacity respectively. (Optional equipment)
4. 72 inch deck length, 66 inch is standard. (Optional equipment)
5. 2 inch cargo lip around top of rear lid. (Optional equipment)
6. Rear tow hitch.
7. Sevcon Controller, standard equipment for this unit.
8. GT 30 differential with 12.25:1 ratio. Standard ring and pinion gear set to axles. 2 wheel drive vehicle.
9. 5 HP Sepex motor.
10. Standard dry brake. Cable activated with mechanical pedal lever lock for park brake. Operational brake and park brake work off same pedal and cable assembly. No hydraulics or electrical connection to the single drum drive line brake unit.
11. Delivered to mine 09/16/2010.
12. Controller changed to Curtis model 1244 on July 19, 2011, after the third Sevcon Controller failed.
13. Total delivery weight 1800#. The machine is 12 feet long and 4 feet wide.
14. Carlisle Turf Tires 23x8.50x12.
15. Steering box and steering column are standard. Steering linkage and box function similar to small motor vehicles for highway use.
16. 48 volt DC lights front and rear. Single light front and rear.
17. Equipped with an audible bell for warning. (Optional equipment)

# Appendix E



**SKETCH NO. 1  
BEFORE THE ACCIDENT  
NOT TO SCALE**

## Appendix F



**SKETCH NO. 2  
AFTER THE ACCIDENT  
NOT TO SCALE**

# Appendix G

## Xcited PERFORMANCE CHECK LIST

Stationary Tests: Jack rear wheels off ground. Put strong blocking beneath vehicle.

1. Serial number: GT391
2. Today's date: 9/14/10
4. Check steering system.  
Wheels should turn as steering wheel turns. Passed  Failed but Repaired \_\_\_\_\_
5. Check braking system.  
Brake pad should move as pedal is depressed. Passed  Failed but Repaired \_\_\_\_\_
6. Power Switch Test.  
Turn power switch on.  
Motor should NOT run until BOTH:  
A. F/R switch is in forward or reverse AND  
B. Accelerator pedal is applied. Passed  Failed but Repaired \_\_\_\_\_
7. Forward/Reverse Lever Test  
Put F/R seitch in forward or reverse position.  
Turn power switch on.  
Apply accelerator pedal.  
Motor should NOT run. Passed  Failed but Repaired \_\_\_\_\_  
  
(Release accelerator pedal.)  
Move F/R lever to reverse position.  
(Keep power switch on.)  
Apply accelerator pedal.  
Motor should run with wheels turning in reverse direction. Passed  Failed but Repaired \_\_\_\_\_  
  
(Release accelerator pedal.)  
Move F/R switch to either position.  
(Keep power switch on.)  
Apply accelerator pedal.  
(Motor now runs.)  
Move F/R switch midway between forward and reverse to neutral.  
Motor should stop running. Passed  Failed but Repaired \_\_\_\_\_
8. High-Pedal Reset Test  
Keep power switch OFF.  
Move F/R switch to either direction.  
Apply accelerator pedal and HOLD.  
Turn power switch ON.  
Motor should NOT run. Passed  Failed but Repaired \_\_\_\_\_
9. Controller Plugging Test  
Turn power switch on.  
Move F/R switch to either direction.  
Apply accelerator pedal and HOLD.  
(Motor now runs.)  
Move F/R switch to opposite direction.  
Motor should reverse. Passed \_\_\_\_\_ Failed but Repaired \_\_\_\_\_
10. Accelerator Pedal Test  
Turn power switch on.  
Move F/R switch to either direction.  
Apply accelerator pedal gradually.  
Motor should start and speed up gradually. Passed  Failed but Repaired \_\_\_\_\_

Release accelerator pedal gradually.  
Motor should slow down gradually and come to a complete stop.  
Passed  Failed but Repaired \_\_\_\_\_

11. Accelerator Pedal Deadman Switch Test

Turn power switch on.  
Move F/R lever in either direction.  
Using a voltmeter, read voltage across two small terminals on solenoid.  
It should read zero. Passed  Failed but Repaired \_\_\_\_\_  
Now apply accelerator pedal.  
There should now be approximately 36 volts across the small terminals.  
Passed  Failed but Repaired \_\_\_\_\_  
Now release accelerator pedal.  
Voltage should return to zero. Passed  Failed but Repaired \_\_\_\_\_

This vehicle has passed all checks and tests and is ready for a road test.

Signature: Donna Kelly

Road Tests: Perform road test only on private property with onlookers at a safe distance. (Do these tests only after stationary tests are satisfactorily completed.)

1. Turn power switch on.  
Motor should NOT start. Passed  Failed but Repaired \_\_\_\_\_
2. Move F/R lever to forward position.  
Gradually push accelerator down with right foot.  
Car should gradually speed up.  
While maintaining forward motion apply brake with left foot.  
Motor should begin to "labor" and car slow down.  
Release brake.  
Motor and car should resume initial speed. Passed  Failed but Repaired \_\_\_\_\_
3. Gradually release accelerator.  
Car should gradually slow and come to a complete stop. Passed  Failed but Repaired \_\_\_\_\_
4. Repeat # 2 & 3 in REVERSE. Passed  Failed but Repaired \_\_\_\_\_
5. With car moving in forward on UNEVEN ground,  
Steer left and right to be sure steering is smooth, does not bind, and has no excessive "play". Passed  Failed but Repaired \_\_\_\_\_
6. Repeat # 5 in REVERSE. Passed  Failed but Repaired \_\_\_\_\_
7. Drive car to and stop on at least a 10% grade.  
Apply parking brake with car pointing UPHILL.  
Turn power switch off.  
Car should not roll. Passed  Failed but Repaired \_\_\_\_\_
8. Repeat # 7 DOWNHILL. Passed  Failed but Repaired \_\_\_\_\_

This vehicle has passed all road test and is ready for sale.

Signature: John Butler

## Appendix H Personnel Carrier's Control Switch Orientation





# Appendix I

#398

## 48 VOLT SXSC

SEE REQUISITION WHEN PULLING CAR

### STANDARD PARTS

	4	BA078U	BATTERY LUG COVER SXSC / SxM
1	1	BR021M	BRAKE MOUNT
1	1	BR015M	BRAKE PAD
1	1	BR020U	BRAKE BOLT
1	1	BR030U	BRAKE DRUM
1	1	CA060U	BRAKE CABLE
2	2	CA070U	BRAKE CLIP
1	1	CH010M	CHARGER END SB50
1	1	CH300U	48 VOLT CHARGER
1	1	DT351U	5-BOLT D-12 W/GRSE HOSES SHK MNT
1	1	DT349M	5-BOLT D-12 DIFFERENTIAL
1	1	DT353M	SET WHEEL SPACERS
1	1	DT339U	D-12 WITH AIR-BAGS
4	4	DT450U	U-BOLT
1	1	EL063U	48 VOLT CONTROLLER
1	1	EL190U	FOOT PEDAL
4	4	EL261U	FUSE HOLDER
1	1	EL061U	WIRING HARNESS
1	1	EL440U	TERMNAL BOARD
1	1	EL411U	48 VOLT SOLENOID 200AMP
4	4	EL920U	1/2" SHAFT COLLAR
1	1	FE075U	SXSC FRONT END W /AIRBAGS
1	1	FE065M	4 WH FRONT END COMPLETE
	10	HU135U	1/2" LUGNUT
1	1	ME140U	1 7/8" TRAILER BALL
1	1	MO280U	5 HP BLUE MOTOR
2	2	SP038M	FRONT SHACKLE
2	2	SP039M	REAR SHACKLE
4	4	SP050U	SPRING RETAINER
1	1	SP060U	BRAKE SPRING
1	1	ST024M	4WH STEERING INCLUDES 3/4" BOLT
1	1	ST010U	STEERING BOX
1	1	ST011U	STEERING BOX NUT
1	1	ST017U	STEERING BOX ARM
3	3	EL921U	7/16 COLLARS
			<b>TIRES AND WHEELS</b>
2	2	FRONT	
2	2	REAR	TI 250U
			<b>BATTERIES</b>
8	8	BA009U	6V TROJAN BATTERY 145
	8	BA008U	6V TROJAN BATTERY 125
	8	BA018U	CROWN 145'S
	2	ME924U	FOLD DOWN SEAT

CAR NUMBER: GT391  
 CAR PULLER: \_\_\_\_\_  
 COAL COMPANY: Hubbe #69  
 DATE: \_\_\_\_\_

### WW & PA PARTS

	1	BA090U	BATTERY MONITOR 48 V
	1	BR020U	BRAKE BOLT
	1	BR012M	BRAKE PAD
	1	BR016M	BRACKET ASSEMBLY
	1	CA060U	BRAKE CABLE
	2	CA070U	BRAKE CLIP
	1	CH020U	CHARGER END SBX 350
	1	CH021U	30 AMP AUX KIT
	1	CH111U	CHARGER END SBX 175
	1	CH301M	48V CHARGER PA
	1	EL415M	BATT.MONTOR BOX
	1	EL499U	MOTOR FUSE
1	1	SA800U	WARNING BELL
	1	SP060U	BRAKE SPRING
	1	SW130	48V PANIC SWITCH
	1	CH020M	CHARGER END SBX350 blue
	8	BA076U	CRIMP ON TERMINAL NEGATIVE
	8	BA077U	CRIMP ON TERMINAL POSITIVE
	1	CH015U	CHARGER PLUG 320A. BLACK
	1	CH016U	CHARGER RECEPTACLE 320A BLACK
	1	CH330U	48V CHARGER RECEPTACLE

### SPRINGS

	2	SP017U	3 LEAF
2	2	SP035U	6 LEAF REGULAR
2	2	SP034U	6 LEAF HEAVY DUTY

### LIGHTS

	2	EL295U	12-48V LED LIGHTS
2	2	EL285U	48V LIGHT ASSM.

### SPECIAL BRAKE PARTS

	1	BR008U	BRAKE HAND PUMP
	1	BR200U	BRAKE DISC
	1	BR201U	PARK BRAKE CALIPER
	1	BR202U	BRAKE CALIPER N/S
	1	BR203U	BRAKE HOSE

**48 VOLT  
SXSC**

**SPECIAL ORDER ITEMS**

	1	DT369U	GT 30 DIFFERENTIAL
	1	MO281U	GT30 MOTOR
	1	GT30001U	MOTOR ADAPTER GT30
	1	GT30004U	MOTOR ADAPTER SPACER GT30
	1	GT30031U	MOTOR ADAPTER SPLINED SHAFT GT 30
	1	GT30032U	MOTOR ADAPTER BRG GT30
	2	BR113U	BRAKE CALIPER
	2	BR119U	HAT ELECTRIC CARS W/FRNT BRAKE
	2	BR117U	SERVICE BRAKE PADS
	2	BR116U	BRACKET SERVICE BRAKE
	2	SP305U	AIR SPRING GOODYEAR FRONT
	2	SP310U	AIR SPRING XP REAR
	2	HU041M	HUB 5-BOLT FRONT W/BRAKES
	8	BA014U	6V TROJAN 305 (195)
	1	ST074U	STEERING WHEEL SPOKED
	8	BA015U	EAST PENN 145
	8	BA007U	EAST PENN 125
	2	SP007U	4 1/2" SNUBBER

	1	BR204U	BRAKE HOSE SERVICE BRAKE
	1	BR140U	MASTER CYLINDER
	1	MO520U	THROTTLE SPRING
	1	EL501U	FUSE HOLDER N/S
	1	SW181U	N/S SWITCH BOX BATT.MON.
	1	SW182U	BLACK JUNCTION BOX
	1	ME123U	STEERING SHOCK
	1	ME124U	STEERING SHOCK BRACKET
	1	EL059U	MOLEX PLUG SEAL
	2	BA079M	BIG BATTERY LEAD COVER
	2	BA079U	SMALL BATTERY LEAD COVER
	1	EL470U	400 AMP MOTOR FUSES
	1	EL471U	400 AMP MOTOR FUSE HOLDER
	1	BR170U	MASTER CYLINDER BOOT
	1	BR141U	MASTER CYL. PUSHROD
	1	UM021U	3/8" ROD END
	1	BR134M	BRAKE BRKT. FOR DISC BRAKE
	1		4 FT. RUBBER HOSE
	2		19 IN. RUBBER HOSE
			<b>PA APP. CURTIS CONTROLLER ONLY</b>
	1	EL080U	48V CURTIS SEPEX CONT.
	1	EL079U	CURTIS SEPEX WIRING HARNESS
	1	SW075U	DPDT SWITCH
	2	EL471U	FUSE HOLDER N/S
	1	EL473U	60 AMP FUSE
	1	EL470U	400 AMP FUSE

**GT35W PARTS (PA)**

	2	CA031U	BRAKE CABLE WET BRAKE GT35
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