

Title: Standard Application Procedures for Part 18 Machine/System Approval and Extension of Approval		
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Original Issue Date 1/1/91	Follow-Up Review Date: 5/1/06	Revision Date: 4/17/03
Signature/Initial: Steven J. Luzik		

## **Standard Application Procedure for Part 18 Machine/System Approval and Extension of Approval**

### 1.0 Purpose

The purpose of this Standard Application Procedure (SAP) is to explain the basic investigative process, and specify the minimum documents and requirements necessary to initiate an investigation leading to the issuance of a Machine/System Approval or Extension of Approval.

### 2.0 Scope

This SAP encompasses all applications submitted for approval or extension of approval under 30 CFR, Part 18, except for high-voltage machines or systems.

### 3.0 Procedure

3.1 All applications for a Machine/System Approval or Extension of Approval must include the documentation listed in Sections 3.1.1 through 3.1.5.

3.1.1 An approval or extension of approval application letter. (Refer to Enclosures A and B.)

3.1.1.1 The company application code number, model, voltage rating, and type of machine should be specified in the letter. The company application code number is any six digit or less number assigned by the applicant, which has not previously been used to identify an application.

3.1.1.2 The application letter should include a date when the machine will be completely assembled and ready for inspection. The inspection may be waived if the machine is similar to a machine that was previously inspected. The approval number of the machine previously inspected should be referenced in the application letter.

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The letter should be signed by the person responsible for answering questions regarding the subject application.

- 3.1.2 One completed checklist. (Refer to Enclosure C.) Additional information may be required due to the great variety of mining machines.
  - 3.1.3 One copy of each drawing, bill of materials, specification, etc., which shows the details of the design and construction of the equipment as related to the applicable requirements of 30 CFR, Part 18. Documents previously accepted by MSHA need not be submitted, unless modified.
  - 3.1.4 A complete list of the drawings, bills of material, specifications, certified components, intrinsically safe components, etc. that are submitted, referenced, or used to construct the equipment. (Refer to Enclosure D.)
  - 3.1.5 A Factory Inspection Form in accordance with Title 30 CFR, Part 18 or a certified statement in lieu of the Factory Inspection Form and a Caution Statement (Refer to Enclosures E, F, and G.) The certified statement can be written in the application letter under the machine/system description.
- 3.2 Upon receipt of the application package by the Approval and Certification Center, a letter estimating the maximum anticipated fee to complete the investigation and a tentative starting date will be mailed to the applicant.
- 3.2.1 An authorization response form will also be included which indicates agreement, by the applicant, to pay expenses up to the maximum estimated fee for the investigation or requests cancellation of the application. This form must be returned to the Approval and Certification Center, by the applicant,

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before any further action can be taken on the application. If the form letter is not returned within thirty days from the date of the letter, the application will be canceled.

3.2.2 When unforeseen circumstances encountered during the investigation result in exceeding the estimated fee, the applicant will be contacted and given the option of either canceling the action or accepting a revised fee estimate.

3.3 During the investigation applicants will be notified via telephone of any discrepancies or additional information needed to process the application. All phone calls will be followed with a discrepancy letter. Overseas applicants will be notified by airmail, but will not receive a telephone call. Failure to respond to discrepancies in the time allotted will result in cancellation of the application.

3.4 After all of the technical documents are evaluated, a factory inspection may be required if the machine is a new design. Once this is completed and any changes required as a result of the inspection are finalized, the official approval number will be issued via advanced notification, unless specific circumstances dictate otherwise.

3.5 The final Approval or Extension of Approval letter, drawing list, and approval plate design (if applicable) will be mailed to the applicant when the investigation is completed.

3.6 An invoice for the total cost of the investigation will also be sent to the applicant.

#### 4.0 Review

This document will be reviewed within 3 years from the issue date.

#### 5.0 Notification

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Questions relative to these Application Procedures can be directed to Electrical Safety Division personnel at 304-547-0400. Assistance through technical consultations is available by appointment.

#### 6.0 Responsibility

It is the responsibility of all Electrical Safety Division personnel to ensure that applications are processed in accordance with this SAP. Considerable time and money is saved when applications include all the required information necessary to obtain compliance with Title 30 Code of Federal Regulations (30 CFR) Part 18.

#### 7.0 Distribution

All manufacturers of electrical mining machines.

#### 8.0 Authority

30 CFR, Part 18.

ABC Company, 950 Mining Road, Pittsburgh, PA 15293



March 4, 2003

Chief, Approval and Certification Center  
RR #1, Box 251, Industrial Park Road  
Triadelphia, West Virginia 26059

Gentlemen:

This is a request for a new approval of the Model 100, 950 volt, 3 phase, 60 hertz, alternating current, Roof Bolter, Company Code No. 111989.

We are requesting approval of the subject machine assembled according to Machine Layout Drawing 100.

The subject machine consists of two (2) 125 hp, 950 volt, alternating current, Motors, one (1) starter, three (3) pushbutton stations, and one (1) No. 2/0 trailing cable.

Since this is our first approval of a 950 volt design, a prototype will be completely assembled and available for inspection on April 1, 1998, at the ABC Company, 950 Mining Road, Pittsburgh, Pennsylvania 15293.

Enclosed are all the new or revised drawings and specifications pertinent to this application. If there are any questions, please contact Mr. John Smith at (555) 555-0001.

Sincerely,

John Doe  
Design Engineer

Enclosure

(Enclosure A)

DEF Company, 440 Mining Road, Pittsburgh, PA 15293



March 4, 2003

Chief, Approval and Certification Center  
RR #1, Box 251, Industrial Park Road  
Triadelphia, West Virginia 26059

Gentlemen:

This is a request for an extension of Approval No. 2G-8990A, Investigation No. MR-9191, to include the subject Model 550A, 550 volt, 3 phase, 60 hertz, alternating current, Pump Assembly, Company Code No. 122590.

We are requesting an extension of approval of the subject machine assembled according to Assembly Drawing A-550.

This machine is similar to the Model 440A, 440 volt, 3 phase, 60 hertz, alternating current, Pump Assembly built according to Assembly Drawing A-440, Approval No. 2G-8990A-0, Investigation No. MR-9191, letter dated July 1, 1995, except as follows:

- 1.Voltage increased from 440 to 550 volts.
- 2.Horsepower decreased from 45 to 35 horsepower.
- 3.Decreased size in trailing and pump motor cable.

Enclosed are all the new or revised drawings and specifications pertinent to this application. If there are any questions, please contact Mr. John Doe at (555) 555-9191.

Sincerely,

John Doe  
Design Engineer

Enclosure

(Enclosure B)

APPROVAL/EXTENSION OF APPROVAL CHECKLIST

Complete all of the following by adding a check mark or N/A on the lines provided. The check mark signifies the item has been positively addressed. N/A signifies the item is not applicable to the design of the machine/system.

Administrative

- \_\_\_\_\_ 1. The appropriate Approval or Extension of Approval application letter is enclosed.
- \_\_\_\_\_ 2. A drawing list, checklist, Caution Statement and Factory Inspection Form (FIF) or a certified statement in lieu of an FIF is enclosed.
- \_\_\_\_\_ 3. All correspondence, specifications and lettering on documents are in English or translated into English and legible.
- \_\_\_\_\_ 4. All documents are titled, numbered, dated, and show the latest revision or date. If multiple pages are submitted, this information is on each page.
- \_\_\_\_\_ 5. There are no pencil or ink notations, or correction fluid (white-out) on the documents.
- \_\_\_\_\_ 6. All documents include a note "Do not change without approval of MSHA" on each page or sheet.
- \_\_\_\_\_ 7. All submitted drawings, including sheet numbers, are traceable (referenced) back to the one or more drawings to which the equipment is built.

Technical

- \_\_\_\_\_ 8. The assembly drawing(s) includes the following:
  - \_\_\_\_\_ a. The overall length, width and height of the machine.
  - \_\_\_\_\_ b. Location of all electrical enclosures and intrinsically safe components.
  - \_\_\_\_\_ c. Location of the approval plate and method of attachment.
  - \_\_\_\_\_ d. An insulated strain relief device where the trailing cable enters the machine, where cables exit a battery enclosure on battery-powered equipment and

at both ends of all cables leading to components not on a common frame.

Note: A drawing of the device must be submitted or referenced if on file with MSHA. Cable grip type strain relief devices are not accepted where the cable is placed alternately in tension.

\_\_\_\_\_ 9. The location of all cables entering/exiting electrical enclosures is shown.

10. All intercomponent cables are identified by:

\_\_\_\_\_ a. Conductor size, (e.g., 1/0 A.W.G.).

\_\_\_\_\_ b. Type of cable, (e.g., G-GC).

\_\_\_\_\_ c. Number of conductors, (e.g., 3).

\_\_\_\_\_ d. Electrical rating, (e.g., 2KV).

\_\_\_\_\_ e. Outer diameter, (e.g., 1.65",  $\pm .04$ ").

\_\_\_\_\_ f. Conductor temperature rating in degrees centigrade (e.g., 90EC) and the ampacity.

11. The trailing cable is identified by:

\_\_\_\_\_ a. Conductor size, (e.g., 4/0 A.W.G.)

\_\_\_\_\_ b. Type of cable, (e.g., SHD-GC).

\_\_\_\_\_ c. Number of conductors, (e.g., 3).

\_\_\_\_\_ d. Electrical rating, (e.g., 2KV).

\_\_\_\_\_ e. Outer diameter, (e.g., 2.31",  $\pm 5\%$ ).

\_\_\_\_\_ f. Conductor temperature rating in degrees centigrade, (e.g., 90EC).

\_\_\_\_\_ g. Type of insulation, (e.g., EPR).

\_\_\_\_\_ h. Maximum length, (e.g., 500 feet).

Note: The trailing cable nominal outer diameter and ampacity must be consistent with

Insulated Cable Engineers Association (ICEA)  
Standards.

12. All explosion-proof electrical enclosures are identified by:

- \_\_\_\_\_ a. Manufacturer.
- \_\_\_\_\_ b. Model/Type Number (for motors, specify frame number).
- \_\_\_\_\_ c. Electrical Rating (if applicable). For motors, specify voltage, phase, hertz, a.c., or d.c., horsepower and full load amperes; and for headlights, specify voltage and wattage.
- \_\_\_\_\_ d. Function, (e.g., pump motor, controller).
- \_\_\_\_\_ e. Certification number, including extension number. If the original issuance is used, indicate (-0).

Note: If no certification number was issued, indicate the approval number and extension number under which it was accepted.

\_\_\_\_\_ f. Quantity.

13. All intrinsically safe circuits/components are identified by:

- \_\_\_\_\_ a. Manufacturer.
- \_\_\_\_\_ b. Model/Type Number.
- \_\_\_\_\_ c. Quantity.
- \_\_\_\_\_ d. MSHA Evaluation Number, including extension number. If the original issuance is used, indicate (-0).

14. If maximum tramming speed of the machine is greater than 2.5 mph;

- \_\_\_\_\_ a. An audible warning device is specified and shown on the assembly drawing.
- \_\_\_\_\_ b. At least one headlight is installed and red light-reflecting material (minimum 10 square inches each) is specified for both the front and rear of the machine.

Note: Reflective paint is not acceptable to meet this requirement. Also, it is recommended that all mobile equipment have red-reflective material.

\_\_\_\_\_ c. A cable reel is provided for line powered equipment.

\_\_\_\_\_ 15. If the maximum length of the trailing cable exceeds 500 feet, the maximum starting inrush current is specified and the outby circuit breaker or protective device is specified and set as close as practicable to this value. The trip setting and cable length does not exceed the values in Tables 8 and 9 of 30 CFR, Part 18.

\_\_\_\_\_ 16. If the machine is a boring-type continuous miner, a view is shown depicting at least a 200 square inch cross-sectional area for auxiliary face ventilation.

Note: Two or more spaces is acceptable as long as their total cross-sectional area is a minimum 200 square inches.

\_\_\_\_\_ 17. If the machine is equipped with a powered dust collector, the MSHA 25B Approval Number (for the dust collector) is specified on the application letter or the drawings.

Note: If a "Wet Dust Collecting System" or other system is used, this should be indicated.

\_\_\_\_\_ 18. If the machine is equipped with a belt conveyor, the design includes control switches to automatically stop the driving motor in the event the belt is stopped or abnormally slowed down. The drawing(s) indicate whether a belt or chain conveyor is used.

Note: Short transfer-type conveyors will be exempted from this requirement.

\_\_\_\_\_ 19. If the machine is equipped with a cable reel, at least one slip-ring is used for the ground circuit. The cable reel spooling devices\*, such as the hub, flange, cable guide, sheave, etc. that the trailing cable normally contacts are all insulated with flame-resistant material. The cable guide and sheave material is specified on the documents as MSHA flame-resistant and the manufacturer, material and MSHA number (if issued) are identified.

\*Note: Isolated components, insulated from the machine frame, are acceptable if they are

inaccessible to personnel during normal operation of the machine. These components do not need to be insulated from the cable.

- \_\_\_\_\_ 20. If the machine's nameplate rating is from 661 to 1000 volts, a shielded trailing cable is provided or a cable reel is employed with the cable insulation rated at 2000 volts or more.
- \_\_\_\_\_ 21. If the machine is battery-powered, the nameplate rating is less than or equal to 240 volts nominal.
- \_\_\_\_\_ 22. If the machine is battery-powered, the battery covers are secured (method shown) in the closed position.
- \_\_\_\_\_ 23. If the machine is battery-powered, the battery plugs and receptacles are either explosion-proof, interlocked or padlocked and held in place by a threaded ring or equivalent. A connector within a padlocked enclosure will be acceptable.

Note: In lieu of a padlock, a device that is captive and requires a special tool to disengage to allow separation of the connector, along with a caution tag indicating that the connector must not be disengaged under load, is an acceptable means for meeting this requirement. A drawing of the Caution Tag is specified.

- \_\_\_\_\_ 24. If the machine is battery-powered, the Part 7 Approval Number or Part 18 Certification Number is specified.
- \_\_\_\_\_ 25. If the machine is battery-powered, short-circuit protection is provided for each wire or cable leaving the battery box and the protective device is in an explosion-proof enclosure as close as practical to the battery terminals.

Note: Protective devices installed within a nearby explosion-proof enclosure will be acceptable provided the exposed portion of the cable does not exceed 36 inches.

- \_\_\_\_\_ 26. All plugs and receptacles are explosion-proof or mechanically or electrically interlocked unless used in an intrinsically safe circuit.

Note: Complete Item 23 for battery plugs and receptacles.

- \_\_\_\_\_ 27. If the machine is line powered by direct current, the nameplate rating is less than or equal to 550 volts.
- \_\_\_\_\_ 28. All remote control cables are intrinsically safe or constructed of a heavy jacket with conductors no smaller than No. 14 (AWG), if not enclosed in hose conduit. If enclosed in hose conduit, the cable tensile strength is not less than No. 16 (AWG) 3 conductor.
- \_\_\_\_\_ 29. The trailing cable is minimum No. 4 (AWG) for direct current mobile haulage units, minimum No. 6 (AWG) for alternating current haulage units, and minimum No. 14 (AWG) with sizes 14 to 10 constructed of heavy jackets for face equipment.
- \_\_\_\_\_ 30. The trailing cable ampacity rating is adequate for the total full load current of the machine or a justification for a lesser rating based on the machine's duty cycle is enclosed with the application.
- \_\_\_\_\_ 31. The ampacity rating for each intercomponent cable is adequate for the full load current of its load or a justification for the use of the cable is enclosed with the application.
- \_\_\_\_\_ 32. If the machine is equipped with a methane monitor, the methane monitor power shut-off relay deenergizes all motors, lighting circuits and power take-off receptacles.
- \_\_\_\_\_ a. The shut-off relay is connected into the control circuitry so that it is not possible to defeat the methane monitor by holding down or blocking any reset (start) switch in the start position.
- \_\_\_\_\_ b. The control circuitry is connected so that none of the electrical motors will restart automatically when the methane monitor shut-off relay is deactivated.
- Note: Intrinsically safe circuits and the methane monitor may remain energized.
- \_\_\_\_\_ 33. All energy storage devices (not including batteries) housed in explosion-proof enclosures have a means of being discharged before they are accessible to personnel. The maximum discharge time of the device is specified on the drawing.
- \_\_\_\_\_ 34. The cross-sectional area(s) of the grounding conductor(s) is at least 50 percent of one of the power conductors on

No. 6 (AWG) or larger cables, and at least the same size on cables smaller than No. 6 (AWG).

- \_\_\_\_\_ 35. There are no insulating materials in the enclosures that give off flammable or explosive gases when decomposed electrically. Additionally, all parts coated or impregnated with insulating materials were heat treated to remove any combustible solvents before assembly.

Note: Air drying insulating materials are excepted.

- \_\_\_\_\_ 36. The temperature of the external surfaces of the mechanical or electrical components does not exceed 150EC (302EF) under normal operating conditions.

- \_\_\_\_\_ 37. If the machine is equipped with fiber optic cable(s), they do not contain current-carrying electrical conductors and also meets the following criteria.

\_\_\_\_\_ a. The cable is MSHA accepted flame-resistant unless totally enclosed within an MSHA flame-resistant hose conduit or other MSHA flame-resistant material, or totally contained within an explosion-proof enclosure.

\_\_\_\_\_ b. A strain relief device is provided at both ends of the cable where it enters an explosion-proof enclosure not on a common frame.

\_\_\_\_\_ c. All the conductive members are grounded on cables that contain noncurrent-carrying conductive members, such as metallic strength members and metallic vapor barriers.

\_\_\_\_\_ d. Any cable exiting an explosion-proof enclosure was explosion tested in a gland arrangement similar to that being used and in an MSHA tested enclosure at a pressure of approximately 150 psi or the tests were waived based on a previously accepted similar design.

\_\_\_\_\_ e. The cable manufacturer, type and outside diameter (including tolerance) is specified.

Note: Cables which contain both optical fibers and current-carrying electrical conductors will be classified as electrical cables and must meet the requirements of 30 CFR Part 18.

- \_\_\_\_\_ 38. All circuit-interrupting devices can be reset without opening the compartment in which they are enclosed and no explosion-proof enclosure is required to be opened to operate a switch, rheostat or other device.
- \_\_\_\_\_ 39. All components and quantities (motors, solenoids, lights, ISC components, etc.) listed on the bill of materials, etc., are also shown on the layout and schematic/wiring diagram(s).
- \_\_\_\_\_ 40. The schematic/wiring diagram(s) includes/specifies the following, where applicable.
- \_\_\_\_\_ a. Short-circuit protective devices for all cables exiting explosion-proof enclosures, including their electrical ratings and trip settings, in amperes.
- Note: If one protective device is used to protect several cables, the protective device must protect the smallest cable.
- \_\_\_\_\_ b. Primary and secondary transformer voltages and any voltage change from AC to DC.
- \_\_\_\_\_ c. Labels for all major switches (as to functions), example, emergency stop switch, pump start, light switch, etc.
- \_\_\_\_\_ d. Separate ground connections for trailing cables with ground and ground check conductors, indicating separate termination of these conductors.
- \_\_\_\_\_ e. Separate grounding conductors to indicate all headlight and luminaire assemblies are grounded by a separate conductor.
- \_\_\_\_\_ f. The machine input voltage(s).
- \_\_\_\_\_ g. The voltage of the control circuit.
- Note I: The voltage cannot exceed nominal 120 volts line-to-line alternating current.
- Note II. Not applicable for direct current.
- \_\_\_\_\_ h. A single circuit-interrupting device by means of which all power conductors, including lighting conductors, can be deenergized at the machine.

Note: The device shall simultaneously open all phase conductors on an alternating current machine, and both line conductors on a single phase, alternating current or direct current machine. The interrupting of all conductors shall occur in a single enclosure.

- \_\_\_\_\_ i. Overload protection for all motors, including the trip settings in amperes.

Note I: The overload devices must be in at least two phases of an AC motor circuit, the activation of one device must open all three phases.

Note II: If current transformers are used in conjunction with overload devices, the turns ratio must be specified.

- \_\_\_\_\_ j. A separate two-pole switch to deenergize all power conductors to headlights and luminaires.

Note I. Relay actuated contactors are not acceptable as the sole means of providing this function.

Note II: More than one separate two-pole switch may be used; however, each switch must only control a lighting circuit.

Note III: On three phase lighting circuits, a three-pole switch must be used.

- \_\_\_\_\_ k. Identification of all intrinsically safe circuits by the MSHA evaluation number, including extension number. If the original issuance is used, indicate (-0).

- \_\_\_\_\_ l. The note "Any change(s) in the intrinsically safe circuitry or components may result in an unsafe condition."

Note: For each schematic/wiring diagram(s) that contains intrinsically safe circuits.

- \_\_\_\_\_ m. Cover interlocks on covers providing access to power fuses (other than headlight and control circuit fuses). The interlock interrupts the electrical circuit in the explosion-proof enclosure and

prevents automatic reenergization of the circuit when the explosion-proof integrity of the enclosure is reestablished. The power fuses are located on the load side of the circuit interrupting device.

- \_\_\_\_\_ n. The location of the basic electrical parts such as the circuit breakers, overloads, fuses, switches and contactors in relationship to the enclosures.
- \_\_\_\_\_ o. The Peak Inverse Voltage and Forward Current Rating for grounding diodes.
- \_\_\_\_\_ p. At least one prong (pin) connected to the machine frame ground in addition to those used for power when the machine is equipped with a "Power Take-Off".
- \_\_\_\_\_ q. The trip setting in amperes of the outby circuit breaker or protective device protecting the trailing cable, if not specified on the assembly drawing or bills of material.

Note: On direct current circuits, if fuses are used, indicate the electrical rating and that it is MSHA approved.

41. Where applicable the following information shall be provided (notes/statements are acceptable).

- \_\_\_\_\_ a. All electrical cables are isolated from hydraulic lines.
- \_\_\_\_\_ b. All headlights and luminaires are protected by guarding or location.
- \_\_\_\_\_ c. All moving parts are guarded (rotating belts/chains, fan blades, etc.).
- \_\_\_\_\_ d. The maximum tramming speed (unloaded).

Note: Line-powered equipment cannot exceed 6 M.P.H.

- \_\_\_\_\_ e. Wiring for non-intrinsically safe circuit conductors and intrinsically safe circuit conductors is not intermingled with wiring for other intrinsically safe circuit conductors.

Note: Unless the circuit was evaluated in that mode.

- \_\_\_\_\_ f. All V-belts are static conducting per Rubber Manufacturer's Association Technical Standards.
- \_\_\_\_\_ g. The magnesium content of any external aluminum alloy fans, pulleys, or other rotating devices does not exceed 0.6%.
- \_\_\_\_\_ h. The machine has a load-locking valve system that meets the Load-Locking Valve that meets the following criteria:
  - i. The load-locking valve must be attached directly to the cylinder port that is subject to the hydraulic pressure induced by the weight of the boom or cutting head, or directly to a section of steel tubing welded to the cylinder port and attached to the cylinder. In either case the load locking valve shall be attached directly to the cylinder in a manner that precludes disconnecting the line between the load locking valve and the cylinder without first detaching the load locking valve from the cylinder.
  - ii. The rated working pressure of the load-locking valve must be greater than the maximum system operating pressure.
  - iii. If the load-locking valve has overpressure relief capability, the overpressure relief setting shall be sufficient to allow proper operation of the load-locking valve.
  - iv. If the load-locking valve is pilot operated, the hydraulic system shall be designed to ensure that the residual pilot pressure or line backpressure will not hold the load-locking valve open when the control valve is in the neutral position.
  - v. Adequate hydraulic filtration shall be provided to ensure that the load-locking valve will operate properly throughout its normal service life, when the hydraulic system is subjected to rigorous everyday mining conditions.

Note: This statement must be signed (original signature) by a registered, professional engineer and must be submitted when the

machine/system uses hydraulic cylinders to elevate cutting heads and conveyor booms on continuous miners and loading machines.

\_\_\_\_\_ i. The voltage rating of all conductors and cables within the enclosures is compatible with the impressed voltage.

\_\_\_\_\_ j. All components on a common frame are solidly frame grounded when the intercomponent cable(s) to those components do not have separate grounding conductors.

\_\_\_\_\_ k. The trailing cable is MSHA accepted flame-resistant and all other electrical cables/cords are MSHA accepted flame-resistant or enclosed in MSHA accepted flame-resistant hose conduit.

Note: This includes intrinsically safe cables.

\_\_\_\_\_ l. An MSHA accepted ground wire monitor will monitor the ground connection to the machine and components not on a common frame.

Note: For machines rated in excess of 660 volts.

\_\_\_\_\_ m. All conveyor belting is fire resistant per 30 CFR, Section 18.65.

\_\_\_\_\_ n. No sintered metallic friction materials are used on the equipment unless used in conformance with the exceptions stated in the Approval and Certification Center's policy letter dated May 22, 1979. A&CC's policy is to restrict the use of sintered metallic friction materials to enclosures considered explosion proof or to enclosures that prohibit the outside atmosphere from entering the enclosure. A totally enclosed clutch type brake system is considered acceptable.

\_\_\_\_\_ o. All cables are protected from mechanical damage and clamped in place to prevent undue movement.

\_\_\_\_\_ p. If the machine is wheel mounted, one of the following statements or equivalent is used to describe the parking brakes.

i. The parking brake provided holds the machine stationary up to its maximum gradeability despite any contraction of the brake parts,

exhaustion of any non-mechanical source of energy, or leakage of any kind.

- ii. The design of the driving mechanism will preclude accidental movement of the machine when parked.

Note: Small machines such as fans and rockdusters, which are not self-propelled, may use wheel chocks, lock-down bolts and similar devices provided they are shown on the assembly drawing and permanently affixed to the machine. Each device will be separately evaluated to insure the design is adequate.

- \_\_\_\_\_
- q. All non-certified, accepted explosion-proof enclosures are identified by a permanent marking that consists of the following capital letters, "US MSHA", "US MESA" or "USBM" (not less than 1/4" in height) and enclosed in a circle not less than 1.00" in diameter.

Note: For enclosures that meet all applicable requirements of Part 18, but have not been issued a separate certification number, that is, they have been evaluated and accepted under the total approval investigation. A drawing of the marking must be submitted.

- \_\_\_\_\_
- r. Electrical clearances within enclosures are in accordance with 30 CFR 18.24.

- \_\_\_\_\_
- s. Splices between cable reel pigtails and the trailing cable shall be made in a workmanlike manner, mechanically strong, well insulated and located in by the strain clamp.

INVESTIGATION NO. MR-(leave blank)

DRAWING LIST

GHI Company  
Model RB1, 440/550 Volt, 3 Phase, 60 Hertz, Alternating Current,  
Roof Bolter With Integral Dust Collecting System  
Built According to Assembly Drawing A-500  
Maximum Trammig Speed - 1 mi/h  
Approval No. 2G-(leave blank)-0

<u>TITLE</u>	<u>DRAWING</u>	<u>PART NO.</u>	<u>REVISION</u>
Assembly Drawing	A-500	-	A
Bill of Material	B-500, 3 Shts	-	A
Electric Diagram	C-500	-	A
(Alt.) Electric Diagram	D-500	-	A
Strain Clamp	*E-500	2	3
Caution Statement	F-500	-	D
Factory Inspection Form	G-500	-	E

\* VWX Company Drawing

(Enclosure D)

FACTORY INSPECTION FORM

Date Inspected \_\_\_\_\_  
Inspector \_\_\_\_\_

Designation \_\_\_\_\_ Serial No. \_\_\_\_\_  
Type/Model No. \_\_\_\_\_ MSHA Approval No. \_\_\_\_\_

MOTOR

Manufacturer \_\_\_\_\_ H.P. \_\_\_\_\_  
Serial No. \_\_\_\_\_ Volts \_\_\_\_\_  
Frame \_\_\_\_\_ MSHA No. \_\_\_\_\_  
RPM \_\_\_\_\_  
Full Load Current \_\_\_\_\_  
Winding \_\_\_\_\_

STARTER

Manufacturer \_\_\_\_\_ Type/Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_ MSHA No. \_\_\_\_\_

PORTABLE CABLE

Manufacturer \_\_\_\_\_ Voltage Rating \_\_\_\_\_  
Size \_\_\_\_\_ Length \_\_\_\_\_  
Type \_\_\_\_\_ Outer Diameter \_\_\_\_\_  
No. of Conductors \_\_\_\_\_ MSHA Acceptance No. \_\_\_\_\_

Are all packing glands properly packed so that 1/8-inch minimum clearance remains between packing nut and stuffing box?

Are lockwashers (or equivalent) provided for all explosion-proof enclosure fastenings?

Are all plane joints securely fastened so that a 1/8-inch feeler gage cannot be inserted?

Are all threaded covers secured?

Are all electrical connections secure and properly insulated where necessary?

**Do Not Change Without Approval of MSHA**

SJM Company

Rev A.

Drawing No. 1989

(Enclosure E)

MNO Company, 550 Mining Road, Pittsburgh, PA 15201



March 4, 2003

MNO Company  
550 Mining Road  
Pittsburgh, Pennsylvania 15201

SUBJECT: Model RB1 - Roof Bolter  
Company Application Code No. 141989

I, John Bolter, Design Engineer, certify that the MNO Company will conduct regular inspections of the subject roof-bolter manufactured by MNO Company to insure that this product is made and assembled in strict accordance with the drawings and specifications approved by MSHA.

Sincerely,

John Bolter  
Design Engineer

(Enclosure F)

## CAUTION STATEMENT

To retain "permissibility of this equipment the following conditions shall be satisfied:

1. General Safety. Frequent inspection shall be made. All electrical parts, including the portable cable and wiring, shall be kept in a safe condition. Special efforts shall be made to maintain cable routing paths free from mud rock and other debris that could eventually cause cable damage. Cables should be closely examined on a regular basis and damaged cables or protective hose conduits shall be replaced and the cause of the damage identified and corrected before the equipment is placed back into service. There shall be no openings into the casings of the electrical parts. A permissible distribution box shall be used for connection to the power circuit unless connection is made in fresh intake air. To maintain the overload protection of direct-current machines, the ungrounded conductor of the portable cable shall be connected to the proper terminal. The machine frame shall be effectively grounded. The power wires shall not be used for grounding except in conjunction with diode(s) or equivalent. The operating voltage should match the voltage rating of the motor(s).

2. Servicing. Explosion-proof enclosures shall be restored to the state of original safety with respect to all flame arresting paths, lead entrances, etc. following disassembly for repair or rebuilding, whether by the owner or an independent shop.

3. Fastenings. All bolts, nuts, screws and other means of fastening, and also threaded covers, shall be in place, properly tightened and secured.

4. Renewals and Repairs. Inspections, repairs or renewals of electrical parts shall not be made unless the portable cable is disconnected from the circuit furnishing power, and the cable shall not be connected again until all parts are properly reassembled. Special care shall be taken in making renewals or repairs. Leave no parts off. Use replacement parts exactly like those furnished by the manufacturer. When any lead entrance is disturbed, the original leads or exact duplicates thereof shall be used and stuffing boxes shall be repacked in the approved manner. When machine cables are replaced or otherwise disturbed from their normal position, they shall be routed in the same manner as they were when the machine was shipped from the manufacturer. In addition, any clamps, conduit or guards that were in place to prevent cable damage shall be replaced.

5. Cable Requirements. A flame resistant portable cable bearing a MSHA assigned identification number, adequately protected by an automatic circuit-interrupting device shall be used. Special care shall be taken in handling the cable to guard against mechanical injury and wear. Splices in portable cables shall be made in a workmanlike manner, mechanically strong, and well insulated. One temporary splice may be made in any trailing cable. Such trailing cable may only be used for the next 24-hour period. No temporary splice shall be made in a trailing cable within 25 feet of the machine, except cable reel equipment. Connections and wiring to the outby end of the cable shall be in accordance with recognized standards of safety.

**DO NOT CHANGE WITHOUT APPROVAL OF MSHA**

JKL

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Company

Date: March 4, 2003

Drawing No. 1894

(Enclosure G)